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**Operational Documentation
(User's Manual)
for Medical Device:**

BD Phoenix Automated Microbiology System, variations: BD Phoenix 100, BD
Phoenix M50, with Accessories

Manufacturer:

Becton Dickinson and Company, 7 Loveton Circle, Sparks, Maryland 21152, USA

BD Phoenix™

Automated Microbiology System User's Manual



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C	8/00	All	Update with clinical F/T data
D	10/00	i, ii, 7-6	Add CE marks and error subcode
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F	3/01	All	Add info. for software vers. 2
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Contents

1 – Introduction

1.1	Intended Use	1–1
1.2	Summary and Explanation of the Test	1–1
1.3	Principles of the Procedure	1–2
1.4	Precautions	1–6
1.5	System Overview	1–6
1.5.1	Instrument Overview	1–6
1.5.1.1	Instrument Optical System and Drive Mechanism	1–6
1.5.1.2	Carousel Assembly	1–6
1.5.1.3	Incubation System	1–7
1.5.1.4	Panel Status and Internal Barcode Scanner Assembly	1–7
1.5.1.5	Front-Panel and External Barcode Scanners	1–8
1.5.1.6	Control Electronics Assembly	1–8
1.5.2	Software and Operation Overview	1–8
1.5.3	Panel Overview	1–9
1.5.4	Testing Overview	1–10
1.5.5	Normalizers	1–10
1.6	Manual Structure	1–11
1.7	Use of this Manual	1–12
1.8	Conventions	1–12
1.8.1	Keys	1–12
1.8.2	Symbols Used on the Equipment	1–13
1.8.3	Notes, Cautions, and Warnings	1–14
1.9	Summary of Cautions and Warnings	1–14

2 – Installation

2.1	General	2–1
2.1.1	Installation	2–2
2.2	Instrument Specifications	2–2
2.3	Software Setup	2–4
2.3.1	Instrument Configuration	2–7
2.3.1.1	General Instrument Configuration	2–7
2.3.1.2	More Configuration Options	2–11
2.3.1.3	Password Administration	2–13

Contents

- 2.3.2 Communications Configuration 2-14
 - 2.3.2.1 Organism Configuration 2-19
 - 2.3.2.2 Antimicrobial Configuration 2-22
- 2.3.3 Custom Interpretation Rule Set 2-24
- 2.3.4 BDxpert Rule Configuration 2-32
- 2.3.5 Rapid Reporting Configuration 2-34
- 2.3.6 Panel Lot Definition 2-38
- 2.4 System Startup 2-43
- 2.5 Software Installation 2-43
- 3 – Controls and Indicators
 - 3.1 General 3-1
 - 3.2 Power Switch 3-3
 - 3.3 Keypad and LCD Display 3-3
 - 3.3.1 DOWN /UP ARROW Keys 3-3
 - 3.3.2 TAB Key 3-4
 - 3.3.3 Soft Keys 3-4
 - 3.3.4 UNLOAD PANELS Key 3-5
 - 3.3.5 LOAD PANELS Key 3-5
 - 3.3.6 SILENCE ALARM Key 3-5
 - 3.3.7 System Alert/Door Unlocked Indicator 3-5
 - 3.3.8 Display Area 3-5
 - 3.4 Barcode Scanners 3-6
 - 3.5 Floppy Disk Drive 3-6
 - 3.5.1 Floppy Disk Indicator 3-6
 - 3.5.2 Floppy Disk Eject Button 3-6
 - 3.6 Station Indicators 3-7
 - 3.7 Audible Tones and Alarms 3-8
 - 3.8 Keyboard 3-9
 - 3.9 Printer 3-9

Contents

4 – Operation

4.1	General.....	4-1
4.2	Daily System Maintenance.....	4-2
4.3	Storage and Handling.....	4-2
4.4	Preparing Panels.....	4-2
4.4.1	Quality Control	4-15
4.5	Panel Login.....	4-19
4.5.1	Using the Instrument Interface.....	4-19
4.5.2	Logging in Panels	4-19
4.5.3	Associating and Removing LIS Orders.....	4-21
4.6	Inserting Panels in the Instrument.....	4-24
4.7	Panel Testing	4-26
4.8	Responding to Needs Attention Panels.....	4-26
4.9	Automatic Association of Panels	4-30
4.9.1	Overview	4-30
4.9.2	Panel Types.....	4-31
4.9.3	When Auto Association Is Not Performed.....	4-31
4.9.4	Organism ID Conflict Checking	4-31
4.9.5	Auto Association and Related Actions	4-31
4.9.6	Typical Auto Association Examples	4-32
4.10	Obtaining Results	4-34
4.10.1	Adding/Modifying ID Results	4-38
4.10.2	Modifying AST Results	4-39
4.10.3	BDXpert Triggered Rules Display.....	4-40
4.10.4	Resistance Marker Display	4-40
4.11	Panel Finalization.....	4-41
4.12	Responding to Alarms and Errors	4-45
4.13	Printing Reports.....	4-46
4.14	Unloading and Discarding Panels	4-48
4.15	Installing New Panel Formats	4-49
4.16	Phoenix Update Disk (PUD).....	4-50

Contents

4.17	LIS Operations	4-50
4.17.1	General	4-50
4.17.2	Important Concepts	4-52
4.17.3	Processing Panel Orders	4-52
4.17.4	Routine System Operation.....	4-52
 5 – Reference		
5.1	General	5-1
5.2	Software Tree.....	5-2
5.3	Main Status Screen	5-3
5.4	Panel Login	5-6
5.5	Panel Results	5-10
5.5.1	BDXpert Triggered Rules Display	5-20
5.5.2	Resistance Marker Display	5-23
5.5.3	Special Messages Display	5-24
5.5.4	Lab Report	5-27
5.6	Finalization	5-29
5.7	Configuration/Maintenance	5-31
5.8	Reports	5-32
5.8.1	Completed Lab Report	5-33
5.8.2	Accession Lab Report	5-36
5.8.3	Needs Attention List Report	5-38
5.8.4	Resident Panel Report	5-39
5.8.5	QC Lab Report.....	5-41
5.8.6	Cumulative QC Report.....	5-43
5.8.7	Daily Instrument Report	5-45
5.8.8	Interpretation Rule Set Report.....	5-47
5.8.9	BDXpert Rule Set Database Report.....	5-50
5.8.10	Organism ID Code List Report	5-52
5.8.11	Antimicrobial Code Report	5-53
5.8.12	Lab Report/QC Lab Report.....	5-54
5.8.13	Finalization Summary Report	5-54
5.8.14	Custom Breakpoint Difference Report	5-55

Contents

5.8.15	Current QC Panel Lot Report.....	5-55
5.8.16	Historical QC Panel Lot Report.....	5-55
5.8.17	Panel Lot Report.....	5-55
5.8.18	Panel Lot Database Report.....	5-57
5.9	Panel Inventory	5-58
5.10	System Alerts.....	5-61
5.11	Needs Attention	5-62
6 – Maintenance		
6.1	General.....	6-1
6.2	Routine Maintenance	6-2
6.2.1	Daily Maintenance	6-2
6.2.2	Weekly Maintenance	6-2
6.2.3	Periodic Maintenance	6-4
6.2.3.1	Air Filter Replacement.....	6-4
6.2.3.2	Cleaning the Barcode Scanner Window	6-7
6.2.3.3	Cleaning/Decontamination	6-8
6.2.4	Maintenance Menu	6-9
6.2.4.1	Save User Data to Disk.....	6-9
6.2.4.2	Restore User Data from Disk	6-11
6.2.4.3	Save LIS Codes to Disk	6-13
6.2.4.4	Restore LIS Codes from Disk.....	6-14
6.2.4.5	Save Panel Lot Definitions	6-16
6.2.4.6	Restore Panel Lot Definitions	6-18
6.2.4.7	Save Panel Configuration	6-20
6.2.4.8	Install Panel Configuration.....	6-22
6.2.4.9	Phoenix Update Disk	6-24
6.2.4.10	Modify Panel Usage	6-25
6.2.4.11	Write Light Source to Disk	6-27
6.2.4.12	Read Light Source from Diskette.....	6-29
6.2.4.13	View Syslog.....	6-31
6.2.4.14	Save Syslog to Network	6-34
6.2.4.15	Display UV and RGB Status	6-36
6.2.4.16	Force Front UV Bulb Adjustment.....	6-37
6.2.4.17	Force Rear UV Bulb Adjustment	6-39
6.2.4.18	Force RGB LED Adjustment	6-42
6.2.4.19	Front Panel Reader Setup.....	6-44
6.3	Module Replacement.....	6-45
6.3.1	General.....	6-45
6.3.2	Barcode Scanner Replacement.....	6-46
6.3.3	Thermometer Removal	6-47
6.3.4	Reuniting Separated Liquid in the Thermometer	6-47

Contents

7 – Troubleshooting

7.1	General	7-1
7.1.1	Instrument Service	7-1
7.2	Error/Alert Messages	7-2
7.3	Save System Data to Disk Function	7-27
7.4	Save Syslog to Disk Function	7-28

8 – Performance and Limitations

8.1	Performance Characteristics	8-1
8.1.1	Gram Negative Performance	8-1
8.1.2	Gram Positive Performance	8-4
8.1.3	Streptococci Performance (with the Phoenix SMIC/ID, SMIC Panels)	8-7
8.1.4	Identification of Yeast Species	8-9
8.2	Limitations of the Procedure	8-9

G – Glossary and Abbreviations

A – Limited Warranty

B – Replacement Parts

C – Software Update Log

C –

D – International Contacts

E – Codes

E.1	Organism Codes, Short Names, Long Names	E-1
-----	---	-----

Contents

F – Panel Information

F.1	List of Antimicrobial Agents in Phoenix Panels	F-1
F.2	List of Reagents and Principles Employed in the Phoenix System.....	F-8
F.2.1	Gram Negative	F-8
F.2.2	Gram Positive	F-9
F.2.3	Streptococci Panel	F-11
F.2.4	Yeast Panel	F-13
F.3	Taxa for ID/AST Determination	F-15
F.3.1	Gram Negative (0.5 McFarland).....	F-15
F.3.2	Gram Negative (0.25 McFarland).....	F-19
F.3.3	Gram Positive (0.5 McFarland).....	F-22
F.3.4	Gram Positive (0.25 McFarland).....	F-24
F.3.5	Streptococci.....	F-26
F.3.5	Yeast.....	F-27

H – Bibliography

J – Event Log Messages

Notes –

Notes – Notes

I – Index

2 – Reader Comment Card

Contents

Figures

Figure 1-1 – BD Phoenix 100 Instrument.....	1-7
Figure 1-2 – Panel Inoculation Station	1-9
Figure 1-3 – Panel Transportation Caddy	1-10
Figure 1-4 – Symbols Used on the Phoenix Instrument	1-13
Figure 2-1 – Main Status Screen	2-4
Figure 2-2 – Configuration Menu.....	2-6
Figure 2-3 – Instrument Configuration Display	2-9
Figure 2-4 – More Configuration Options Display	2-12
Figure 2-5 – Password Administration Display	2-14
Figure 2-6 – Communications Configuration Display	2-17
Figure 2-7a – Organism Configuration Display	2-20
Figure 2-7b – Organism Edit Display	2-21
Figure 2-8a – Antimicrobial Configuration Display.....	2-23
Figure 2-8b – Antimicrobial Edit Display	2-23
Figure 2-9a – Custom Interpretation Rule Set – Screen A.....	2-28
Figure 2-9b – Custom Interpretation Rule Set – Screen B	2-28
Figure 2-10 – Custom Breakpoint Difference Report	2-30
Figure 2-11 – BDxpert Rule Set Configuration	2-33
Figure 2-12 – Rapid Reporting Configuration Display	2-36
Figure 2-13 – Panel Lot Definition Display	2-39
Figure 2-14 – Sample Current QC Panel Lot Report.....	2-41
Figure 2-15 – Sample Historical QC Panel Lot Report	2-42
Figure 3-1 – Phoenix Instrument Layout	3-2
Figure 3-2 – On/Off Switch	3-3
Figure 3-3 – Keypad and LCD Display.....	3-4
Figure 3-4 – Floppy Disk Drive Controls and Indicators	3-6
Figure 3-5 – Station Status Indicators	3-7
Figure 4-1 – Panel and Closures	4-6
Figure 4-2 – QC Panel Login Display.....	4-17
Figure 4-3 – Panel Login – LIS Orders Display.....	4-23
Figure 4-4 – Inserting Panels	4-25
Figure 4-5 – Panel Results Display – ID Results	4-36
Figure 4-6 – Panel Results Display – AST Results	4-37
Figure 4-7 – Panel Results Display – ID Results Showing Triplets	4-39
Figure 4-8 – Resistance Marker Review Display	4-41
Figure 4-9 – Finalization Display	4-43
Figure 4-10 – Finalization Summary Report	4-44
Figure 4-11 – Reports Menu	4-47
Figure 5-1 – Main Status Screen (with optional LIS indicator).....	5-6
Figure 5-2 – Panel Login Display	5-7
Figure 5-3 – Panel Results List Display.....	5-13
Figure 5-4a – Panel Results Display – ID	5-15
Figure 5-4b – Panel Results Display – AST	5-17
Figure 5-5 – BDxpert Rules Triggered Display	5-22
Figure 5-6 – Resistance Marker Review Display	5-24
Figure 5-7 – Special Messages Display	5-26

Figures

Figure 5-8 – Sample Lab Report.....	5-28
Figure 5-9 – Finalization Display	5-31
Figure 5-10 – Sample Completed Lab Report	5-35
Figure 5-11 – Sample Accession Lab Report	5-37
Figure 5-12 – Sample Needs Attention List Report	5-39
Figure 5-13 – Sample Resident Panel Report	5-40
Figure 5-14 – Sample QC Lab Report.....	5-42
Figure 5-15 – Sample Cumulative QC Report.....	5-44
Figure 5-16 – Sample Daily Instrument Report	5-46
Figure 5-17 – Sample Interpretation Rule Set Report (sample data only).....	5-48
Figure 5-18 – Sample BDxpert Rule Set Database Report	5-51
Figure 5-19 – Sample Organism ID Code List Report	5-52
Figure 5-20 – Sample Antimicrobial Code Report	5-54
Figure 5-21 – Sample Panel Lot Report.....	5-56
Figure 5-22 – Sample Panel Lot Database Report	5-58
Figure 5-23 – Panel Inventory Display (primary)	5-59
Figure 5-24 – Panel Inventory Display (secondary).....	5-59
Figure 5-25 – System Alerts Display.....	5-61
Figure 5-26 – Needs Attention Display	5-65
Figure 6-1 – Main Status Screen	6-2
Figure 6-2 – Electronics Bay Filter Replacement.....	6-5
Figure 6-3 – Source Bay Filter Replacement	6-6
Figure 6-4 – Incubator Filter Replacement.....	6-7
Figure 6-5 – Barcode Scanner Replacement.....	6-46

Tables

2-1	Physical Dimensions	2-2
2-2	Environmental Requirements	2-3
2-3	Electrical Requirements	2-3
2-4	Optical Specifications	2-3
2-5	Date Formats	2-10
2-6	Rules Updates	2-25
3-1	Station Indicators	3-7
3-2	Audible Tones/Alarms	3-8
4-1	Recommended Media	4-3
4-2	Needs Attention Resolutions	4-29
5-1	MIC/SIR Values and Causes	5-19
5-2	Organism Group Codes	5-49
5-3	Needs Attention: Active Soft Keys	5-66

1 Introduction

1.1 Intended Use

The BD Phoenix™ Automated Microbiology System is intended for the rapid identification (ID) and antimicrobial susceptibility testing (AST) of clinically significant bacteria. The Phoenix system provides rapid results for most aerobic and facultative anaerobic Gram-positive bacteria as well as most aerobic and facultative anaerobic Gram-negative bacteria of human origin. The Phoenix system is also intended for the rapid identification of yeast and yeast-like organisms.

1.2 Summary and Explanation of the Test

Micromethods for the biochemical identification of microorganisms were reported as early as 1918¹. Several publications reported on the use of the reagent-impregnated paper discs and micro-tube methods for differentiating enteric bacteria²⁻⁹. The interest in miniaturized identification systems led to the introduction of several commercial systems in the late 1960s, and they provided advantages in requiring little storage space, extended shelf life, standardized quality control, and ease of use.

Many of the tests used in the Phoenix ID panels are modifications of the classical methods. These include tests for fermentation, oxidation, degradation and hydrolysis of various substrates. In addition to these, the Phoenix System utilizes chromogenic and fluorogenic substrates as well as single carbon source substrates in the identification of organisms.^{10, 11, 26, 27, 28}

The modern broth microdilution test used today has origins in the tube dilution test used in 1942 by Rammelkamp and Maxon to determine *in vitro* antimicrobial susceptibility testing of bacterial isolates from clinical specimens.¹² The broth dilution technique involves exposing bacteria to decreasing concentrations of antimicrobial agents in liquid media by serial two-fold dilution. The lowest concentration of an antimicrobial agent in which no visible growth occurs is defined as the minimal inhibitory concentration (MIC).

The introduction in 1956 of a microtitrator system, using calibrated precision spiral wire loops and droppers for making accurate dilutions rapidly allowed Marymont and Wentz to develop a serial dilution AST test.¹³ The microtitrator system was accurate and allowed the reduction in volumes of antimicrobial agents. The term microdilution appeared in 1970 to describe the MIC tests performed in volumes of 0.1 ml or less of antimicrobial solution.¹⁴

The Phoenix AST is a modified miniaturized version of the micro-broth doubling dilution technique. Susceptibility testing in the Phoenix System is performed through determination of bacterial growth in the presence of various concentrations of the antimicrobial agent tested with the aid of the AST indicator in continuously incubated and read micro-wells in the Phoenix panels.

1.3 Principles of the Procedure

A maximum of 100 identification and antimicrobial susceptibility tests can be performed in the Phoenix instrument at a time using Phoenix combination panels. A sealed and self-inoculating molded polystyrene tray, with 136 micro-wells containing dried reagents, serves as the Phoenix disposable. The combination panel includes an ID side with dried substrates for bacterial or yeast identification and an AST side with varying concentrations of antimicrobial agents, growth and fluorescent controls at appropriate well locations. The Phoenix system utilizes an optimized colorimetric redox indicator for AST, and a variety of colorimetric and fluorometric indicators for ID. The AST broth is cation-adjusted (e.g., Ca⁺⁺ and Mg⁺⁺) to optimize susceptibility testing performance.

The Phoenix Panel is comprised of a 51 well ID side and an 85 well AST side. The ID side contains 45 wells with dried biochemical substrates and 2 fluorescent control wells. The AST side potentially contains up to 84 wells with dried antimicrobial agents and 1 growth control well. Panels are available as ID only, AST only, or ID/AST combination. Unused wells are reserved for future use.

Phoenix panels are inoculated with a standardized inoculum. Organism suspensions must be prepared only with the BBL™ CrystalSpec™ nephelometer, the BD PhoenixSpec™ nephelometer, or the BD Phoenix AP™ instrument. Once inoculated, panels are placed into the instrument and continuously incubated at 35° C. The instrument tests panels every 20 minutes: on the hour, at 20 minutes past the hour, and again at 40 minutes past the hour for up to 16 hours if necessary. Phoenix panels are read only by the Phoenix instrument. Phoenix panels cannot be read manually.

Organism Identification

The ID portion of the Phoenix panel utilizes a series of conventional, chromogenic, and fluorogenic biochemical tests to determine the identification of the organism. Both growth-based and enzymatic substrates are employed to cover the different types of reactivity within the range of taxa. The tests are based on microbial utilization and degradation of specific substrates detected by various indicator systems. Acid production is indicated by a change in phenol red indicator when an isolate is able to utilize a carbohydrate substrate. Chromogenic substrates produce a yellow color upon enzymatic hydrolysis of either P-nitrophenyl or P-nitroanilide compounds. Enzymatic hydrolysis of fluorogenic substrates results in the release of a fluorescent coumarin derivative. Organisms that utilize a specific carbon source reduce the resazurin-based indicator. In addition, there are other tests that detect the ability of an organism to hydrolyze, degrade, reduce, or otherwise utilize a substrate.

A complete list of taxa that comprises the Phoenix Database is provided in Appendix F, Section F.3. Reactions employed by various substrates and a brief explanation of the principles employed in the Phoenix Gram Negative, Gram Positive, *Streptococcus*, and Yeast ID reactions are described in Appendix F, Section F.2.

Antimicrobial Susceptibility Testing

The Phoenix AST method is a broth based microdilution test. The Phoenix system utilizes a redox indicator for the detection of organism growth in the presence of an antimicrobial agent.¹⁵ Continuous measurements of changes to the indicator as well as bacterial turbidity are used in the determination of bacterial growth. Each AST panel configuration contains several antimicrobial agents with a wide range of two-fold doubling dilution concentrations. Organism identification is used in the interpretation of the MIC values of each antimicrobial agent. A complete list of taxa for which the Phoenix panels can provide AST results is shown in Appendix F, Section F.3. The list of antimicrobial agents and concentrations available for susceptibility testing in the Phoenix system is provided in Appendix F, Section F.1.

The components required for testing include 1) Phoenix panels with panel closures, 2) Phoenix ID Broth, 3) Phoenix AST Broth, 4) Phoenix AST Indicator solution, 5) Phoenix AST-S Broth (for use with Phoenix Strep panels only), 6) Phoenix AST-S Indicator Solution (for use with Phoenix Strep panels only), 7) Phoenix Inoculation Station, 8) Phoenix Panel Caddy, 9) the BBL™ CrystalSpec™ nephelometer, the BD PhoenixSpec™ nephelometer, or the BD Phoenix AP™ instrument, 10) 25 µL pipettor and sterile tips, and 11) Miscellaneous lab supplies (listed under Section 4.4 – Materials Required but Not Provided).

The Phoenix disposable is for use with the Phoenix instrument for either organism identification (ID) or antimicrobial susceptibility testing (AST), or for the combination of both. The panel is inclined with the inoculation ports at the top for filling. Separate inocula are added manually to the ID and AST ports. The inocula flow down the panel in serpentine fashion, filling the panel wells as the liquid front progresses toward the pad. The pad absorbs excess inoculum. Closures are manually inserted in the fill ports. An air admittance port is located in the divider area of the panel lid to ensure adequate oxygen tension in the panel for the duration of the test.

Principles of Phoenix AST Tests for the Detection of Resistance Markers

The following sections outline the principles of the Phoenix AST System in the detection of resistance markers in gram-negative or gram-positive organisms, including 1) detection of ESBL production among species of *Enterobacteriaceae*; 2) detection of vancomycin resistance in *Enterococcus* species (VRE); 3) detection of high-level aminoglycoside resistance in *Enterococcus* and *Streptococcus* species (HLAR); 4) detection of methicillin-resistance in staphylococci (MRS); 5) detection of β-lactamase production in *Staphylococcus* species (BL); 6) detection of macrolide resistance in *Streptococcus* species (MLSb); 7) detection of mecA-mediated Resistance with *S. aureus* (mecA); 8) detection of Vancomycin Resistant *Staphylococcus aureus* (VRSA); 9) detection of Phoenix Inducible Macrolide Resistance (iMLSb); 10) detection of Phoenix high level Mupirocin resistance (HLMUPH).

Phoenix Extended Spectrum β-Lactamase (ESBL) Test¹⁶

The Phoenix ESBL test evolved from published data of known ESBL antibiogram patterns in the current literature.^{18,19,20,21} Selected strains of various species with known β-lactamase genotype/phenotypes in the family *Enterobacteriaceae*, including *Escherichia coli*, *Klebsiella* species (spp.), *Citrobacter* spp., *Enterobacter* spp., *Proteus* spp., and *Serratia* spp., were used to develop the Phoenix ESBL test. The Phoenix ESBL test is based on the principle of a differential response between the inhibitory effect of selected second or third generation cephalosporins in the presence or absence of a β-lactamase inhibitor, clavulanic acid. The principles of Phoenix ESBL test is similar to the CLSI ESBL broth microdilution confirmatory test²². The Phoenix ESBL test is applied to *E. coli*, *K. pneumoniae* and *K. oxytoca*. Additionally, at the customers discretion, it can be applied to other enteric species where production of ESBL has been reported in literature. When a test result of ESBL is positive, the categorical interpretation of all penicillins, cephalosporins (except cephamycins), and aztreonam on the same Phoenix panel will be changed to resistant.²³

Phoenix Vancomycin Resistant Enterococci (VRE) Test

The Phoenix VRE test is based on the SIR interpretation of vancomycin. The breakpoint selected in the instrument configuration is used for the categorical interpretation. The Phoenix VRE test was developed and optimized to match the CLSI standard broth microdilution test.^{22,23} Selection of a breakpoint other than CLSI may result in less than optimal performance due to differences in categorical interpretations. Only *Enterococcus faecalis* and *E. faecium* with acquired resistance (vanA or vanB) will be reported as positive.²²

Phoenix High-Level Aminoglycoside Resistance (HLAR) Tests

The Phoenix HLAR tests for *Enterococcus* are based on the growth response in a single well containing either a high-level concentration of gentamicin or streptomycin. These tests were developed and optimized against both the CLSI standard broth microdilution and the CLSI screening agar test.²²

The Phoenix HLAR tests for *Streptococcus* are based on the growth response in a single well containing gentamicin, kanamycin, or streptomycin. These tests were developed and optimized using the CLSI recommended standard broth microdilution.

Phoenix Methicillin-Resistance in Staphylococci (MRS) Test

The Phoenix MRS test is based on the SIR interpretation of oxacillin with *Staphylococcus* species. The breakpoint selected in the instrument configuration is used for the categorical interpretation. This test was developed and optimized against the CLSI standard broth microdilution^{22,23} and the CLSI oxacillin-salt agar screening test (BBL™ Oxacillin Screen Agar)²². Selection of a break-point other than CLSI may result in less than optimal performance due to differences in categorical breakpoints between standards. All *Staphylococcus* species will be evaluated with the Phoenix MRS test. When a test result of MRS is positive, the interpretations of all beta-lactam drugs on the same Phoenix panel will be changed to resistant.²²

Phoenix Gram-Positive β -lactamase (BL) Test¹⁶

The BL test available in the Phoenix AST System is a nitrocefin based β -lactamase test. The nitrocefin based test is a direct detection method located on the ID side of the Phoenix panel. The performance of this test was established against the results of testing with Cefinase™ Discs (BBL™, Cat. No. 31650) as the reference method. Currently, only *Staphylococcus* species will be evaluated with these tests. When the result of BL test is positive, the categorical interpretation of all penicillinase labile penicillins on the same Phoenix panels will be changed to resistant.²²

Phoenix Macrolide Resistance in Streptococci (MLSb) Test

The Phoenix Macrolide Resistance test is based on SIR interpretation of erythromycin and clindamycin. The breakpoint selected in the instrument configuration is used for the categorical interpretation. Erythromycin resistant and clindamycin resistant *Streptococcus* isolates will be reported as macrolide/lincosamide/streptogramin B (MLSb) phenotype.

Phoenix *mecA*-mediated Resistance Marker for *Staphylococcus aureus* (*mecA*)

The Phoenix *mecA* test is used to predict *mecA*-mediated resistance in *Staphylococcus aureus*. The principle is similar to the CLSI-recommended Disk Diffusion test, which uses a cefoxitin (FOX) disk to predict *mecA*-mediated resistance in *S. aureus*. The performance of the test was established against multiplex PCR methods²⁵ as well as the Disk Diffusion test. With the Phoenix *mecA* test, the *mecA*-specific FOX breakpoints used for detection of the resistance marker will be configured in the instrument. When the *mecA* resistance marker is detected, the interpretations for all beta-lactam drugs on the same Phoenix panel are changed to resistant 22, and the Phoenix *mecA* resistance marker is set.

Phoenix Vancomycin Resistant *Staphylococcus aureus* (VRSA) Test

The Phoenix VRSA detection is based on the SIR interpretation of vancomycin when testing *Staphylococcus aureus*. The breakpoint selected in the instrument configuration is used for the categorical interpretation. The Phoenix VRSA test was developed and optimized to match the CLSI standard broth microdilution test, and verified with known VRSA isolates. Selection of a breakpoint other than those found in CLSI M100-S15 may result in less than optimal performance due to differences in categorical interpretations. Only *Staphylococcus aureus* with true resistance (isolates containing resistance marker such as *vanA* gene) will be reported as VRSA. Strains of *S. aureus* with vancomycin intermediate results (GISA/VISA) will be identified and reported by separate BDxpert rules. The Phoenix Gram Positive AST panel detected vancomycin resistance in the VRSA *S. aureus* strains available at the time of comparative testing. The ability to detect resistance in other *S. aureus* strains is unknown due to the limited number of resistant strains available for comparative testing.

Phoenix Inducible Macrolide Resistance (iMLSb) Test in *Staphylococcus* species

The Phoenix Inducible Macrolide Resistance (iMLSb) Test is used to detect inducible macrolide-lincosamide-streptogramin B (MLSb) resistance in *Staphylococcus* species. MLSb resistance, usually encoded by *ermA* or *ermC* genes, may be either constitutive (always expressed) or inducible after exposure to a macrolide antibiotic (e.g. erythromycin, clarithromycin, etc.). The Phoenix Inducible Macrolide Resistance Test is based on the same principle as the CLSI-recommended Disk Approximation Test (D-Test) for the detection of inducible clindamycin resistance. When the Phoenix Inducible Macrolide Resistance Test result is positive, the categorical interpretation of clindamycin on the same Phoenix panel will be reported as resistant and accompanied by a separate BDxpert message. *Staphylococcus* isolates resistant to both erythromycin and clindamycin on initial testing will be reported as constitutive MLSb resistance to distinguish them from isolates that are resistant to macrolides alone by efflux mechanism.

Phoenix high level Mupirocin resistance (HLMUPH)

The Phoenix high level Mupirocin resistance test is based on the growth response in a single well containing 256 mcg/mL of the topical antibiotic Mupirocin that is frequently used for eradication of *Staphylococcus* colonization, particularly for nasal carriage of MRSA. The breakpoint selected in the instrument configuration is used for the categorical interpretation of Susceptible (no growth in 256 mcg/mL well) or Resistant (growth in 256 mcg/mL well). High level Mupirocin resistant *Staphylococcus* isolates will be reported as the (HLMUPH) phenotype resistance marker.

1.4 Precautions

For *in vitro* Diagnostic Use.

All patient specimens and microbial cultures are potentially infectious and should be treated with universal precautions. Please refer to CDC manual *Bio-safety in Microbiological and Biomedical Laboratories*, 4th Edition, 1999, as well as other recommended literature.

Panels once inoculated should be handled carefully until placed in the instrument.

1.5 System Overview

1.5.1 Instrument Overview

1.5.1.1 Instrument Optical System and Drive Mechanism

Within the main instrument incubation bay, the cylindrical carousel and its drive are the only moving parts. The carousel assembly is supported and permitted to rotate by three large V-groove bearing assemblies, which accept the carousel V-ring. The carousel is normally driven at either 1.0 RPM or 2.0 RPM. The drive speed, acceleration and deceleration are controlled by the central processor.

The carousel is divided vertically into four tiers, each of which functions as a relatively independent optical source and detection system for panels placed on that tier. Each tier has its own microcontroller to control data acquisition and transmission. The four microcontrollers communicate with the central processor over a serial communications link.

Visible illumination in the red, green and blue spectral regions for each tier is provided by a Light Emitting Diode (LED) source board. The LED source currents are programmable in order to compensate for signal loss at the panel extremes due to parallax and other factors. A source monitor system averages signal from two onboard photodiodes to monitor visible source output. A fluorescent UV (ultraviolet) lamp containing a selected phosphor provides UV illumination. The active length of the lamp spans all four tiers vertically, producing UV illumination constant to 10% over the useful lamp length. A second UV lamp is maintained as a spare.

1.5.1.2 Carousel Assembly

The Carousel Assembly is a cage-like structure comprised of aluminum rings and vertical ribs bolted together to form a right circular cylinder. The carousel holds 104 panel holders in four tiers. Each tier holds one normalizer panel and 25 sample panels.

During normal operation, the carousel is driven at either 1.0 RPM or 2.0 RPM, depending on the current operation. During panel location, the carousel can rotate at up to 10.0 RPM. The carousel rotates counterclockwise. A single rotation of the carousel is used to perform an inventory scan to identify panels within the instrument following a door closure. A complete test cycle requires seven minutes.

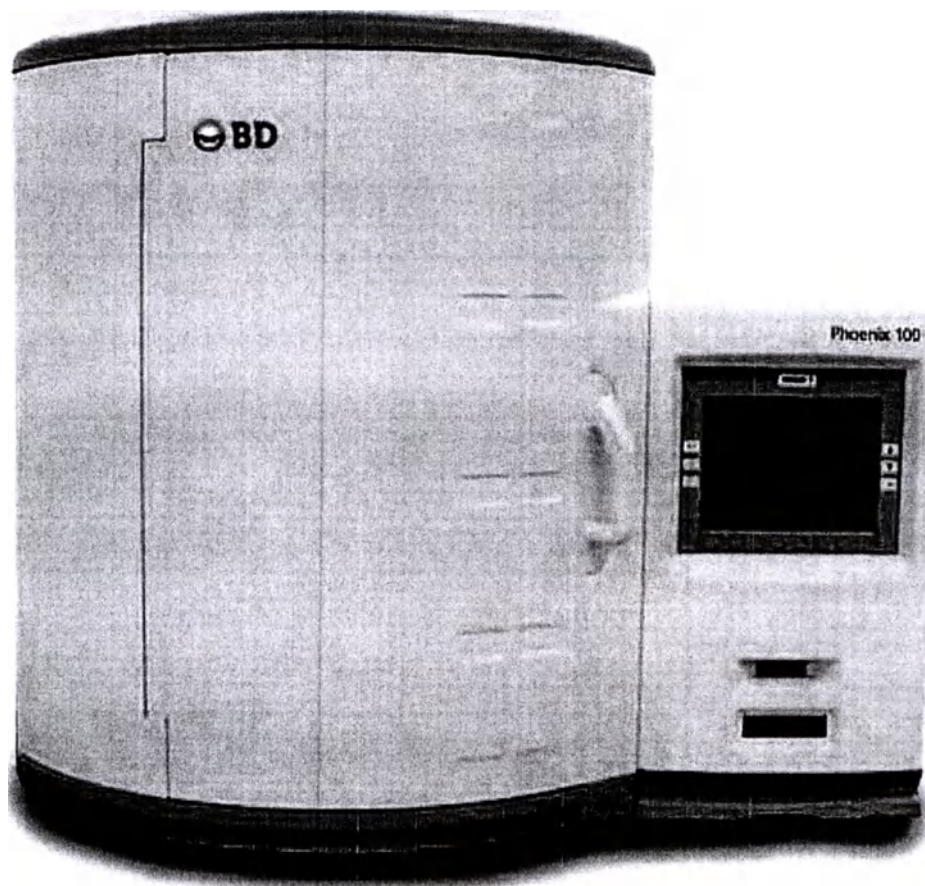


Figure 1-1 – BD Phoenix 100 Instrument

1.5.1.3 Incubation System

The Incubation System maintains the carousel, panel carriers, and panels at a constant nominal temperature of 35° C. The system is a recirculating forced-air convection design, and has a single filter to remove dust. The system consists of a squirrel cage blower powered by a brushless DC motor, a coil-style heater section with automatic over-temperature shut-off, thermoformed inlet and return ductwork, and a user-replaceable polyester fiber air filter.

1.5.1.4 Panel Status and Internal Barcode Scanner Assembly

Panel status indication and panel identification is accomplished on the same tower in the instrument, mounted directly behind the carousel in the door area. Panel Status is indicated by tri-color LEDs mounted on a panel behind the carousel that shine through light pipes in the panel carriers. Five columns of the carousel are exposed when the instrument door is open; there are five LED boards with four indicator LEDs on each.

Four barcode scanners capable of reading panel barcodes are located on the same tower as the indicators. Each scanner reads panel barcodes on its respective tier of the carousel. Panel barcodes are affixed at the top of the panel on the base (bottom) side of the panel, facing inward on the carousel when placed in the instrument.

1.5.1.5 Front-Panel and External Barcode Scanners

External barcode scanners are located on the front panel and the right side of the instrument. These scanners can be used to read barcoded accession numbers you have placed on the panels, as well as the panel's own sequence number barcodes. The accession barcodes can be used to link specimen identification information to specific panels in the instrument.

1.5.1.6 Control Electronics Assembly

The control electronics assembly consists of the boards: I/O (Input/Output) Interface, CPU and memory, Ethernet, and LCD (Liquid Crystal Display) Driver. Other control electronics include user interface components such as the front panel barcode scanner, the floppy disk drive, the LCD display, the custom keypad, the keyboard, and the speaker for audible alarm notification.

The control electronics are primarily responsible for the following functions:

- scheduling and monitoring panel testing
- acquiring panel test data
- illuminating the panel (station) status indicators
- processing data from the external and internal barcode scanners
- interpreting data from organism identification panels to produce an organism identification
- interpreting data from antimicrobial susceptibility panels to produce either MIC results or, via guidelines, SIR results
- sending information to the LCD display
- processing commands from the keypad and keyboard
- controlling door switch status and door interlock
- controlling cabinet incubation
- communications with external devices (such as an EpiCenter™ workstation)
- generating alarm signals
- performing the Built-In-Test (BIT)

1.5.2 Software and Operation Overview

The Liquid Crystal Display (LCD) presents all the information needed to monitor instrument status, to enter and remove panels, set up the instrument, print reports, and perform routine instrument maintenance. The information is presented in the form of screens and icons that graphically represent the information (e.g., a clock indicates the current time). The top region of the Main Status display presents instrument status information that is updated every few seconds. The middle region of the display initially presents station status information. As you access different screens and functions, they appear in place of the top and middle status windows. At the bottom of the displays, a series of icons shows the current software (soft) key definitions. Each of the displays are discussed in detail in **Section 5 – Reference**.

Most of the operations you perform at the instrument are initiated by pressing soft keys. Soft key definitions change as you select their related functions and access different displays and operations.

In addition to the soft keys, six hard keys, themselves marked with screened icons, perform fixed functions regardless of the current display or operation. The LOAD PANELS key is used to prepare the instrument for loading panels for testing; the UNLOAD PANELS key is used to remove panels from the instrument; the SILENCE ALARM key quiets any audible alerts; the UP and DOWN ARROW keys are used to scroll through lists or to increase or decrease values; and the TAB key is used to move the cursor to the next field on a display.

1.5.3 Panel Overview

The Phoenix panel is available in three formats: ID only, AST only, and combination ID/AST testing. The “pour and seal” serpentine design is optimized for safety and leak-resistance. Each well in the disposable contains approximately 50 μ L of inoculum in an environment that prevents significant evaporation during the course of incubation.

A Panel inoculation station holds six tubes of broth (ID, AST) and three panels held at an angle of 24° in order to provide proper gravity-driven inoculum flow through the panel. See Figure 1–2.

A Panel Transportation Caddy is a molded plastic tray used to transport filled and sealed Phoenix panels from the preparation bench to the Phoenix instrument. The caddy capacity is 20 panels. See Figure 1–3.

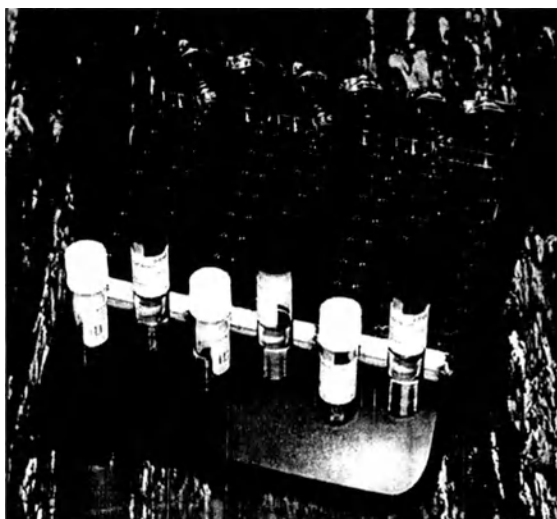


Figure 1–2 – Panel Inoculation Station

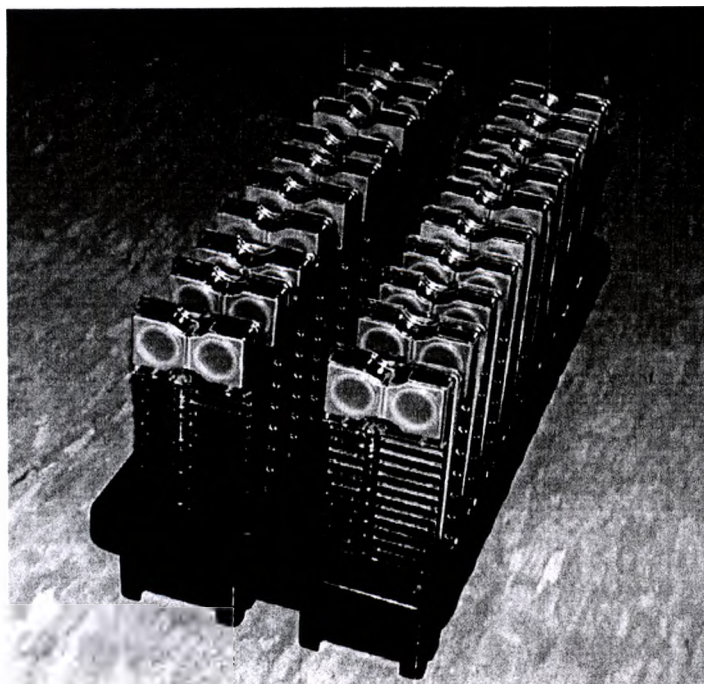


Figure 1-3 – Panel Transportation Caddy

1.5.4 Testing Overview

After a door-opening/-closing event, the instrument reads panel barcode labels and then performs a scan using the red LEDs to determine if panels are present, and to locate or “map” well positions. Panel readings are made on the hour and at 20 and 40 minutes after the hour. The instrument test sequence begins with the system checking that the door is locked. Tiers perform dark readings, then the UV bulb is turned on and allowed to warm up. UV readings are then taken for one revolution. The UV bulb is turned off. Next the red LEDs are turned on, allowed to warm up, and red LED readings are taken. Then the green LEDs go through the same sequence. Finally, the blue LEDs go through this sequence.

1.5.5 Normalizers

Normalizers serve as reference panels for adjustment of the instrument's optical detection system. They are used for adjustment of the LEDs (Red, Green and Blue) and fluorescence lamps.

For Red, Green and Blue correction, data from the normalizer panels are used to correct for variations in optical channel gain and to compensate for well-to-well parallax. Raw signals are source monitor corrected and are then ratioed to the value of the corresponding well of the normalizer panel. This ratio is multiplied by a correction factor, which is the expected transmittance level of the normalizer, to scale the resultant values. The fluorescence (UV) signal from the Normalizer is used to ensure that the UV intensity reaching the panel is within the acceptable range for proper interrogation of the fluorescent ID substrates on the Phoenix panel. If the UV level is either too high or too low at the Normalizer, a UV lamp adjust will be performed at the next time period when there are no ongoing panels. Extreme deviations from the normal UV signal will cause a system alert, resulting in the aborting of panels in the offending tier(s). This is followed by an attempt to perform a UV lamp adjustment.

Normalizers expire two years after installation. A system alert will occur before expiration to allow you to schedule replacement.

The normalizer panels are always located in station number 0 of each tier. When the door is opened, routine carousel access does not present the normalizer panel. The normalizer panel is constrained in its carrier to prevent inadvertent removal.

Automatic Adjustment of Light Sources

Based on the results of the system's Built-In-Test (BIT), as well as time and power cycling factors, the system may detect that readings from the ultraviolet (UV) and visible light sources (testing lamps) are out of tolerance. There are two main levels to this condition:

- 1 The deviation is great enough that panel results are invalidated (panel testing for the tier is aborted); the tier's stations are blocked; an automatic light source adjustment is performed as soon as all panels in the instrument complete testing
- 2 The deviation is within limits that do not affect panel results; however available stations are blocked; as soon as all panels on the tier complete testing or are removed, an automatic light source adjustment is performed

"E" type error codes and subcodes inform you of both of these conditions, for each of the tiers.

Automatic light source adjustment attempts to bring readings within acceptable ranges. It is performed when the following conditions are met: the instrument is warmed up, idle, and there are no ongoing panels. UV adjustment prohibits access to the instrument for entering panels into unaffected tiers, removing panels, performing maintenance checks, etc.

1.6 Manual Structure

This user's manual contains eight sections, a glossary, appendices, an index, and a Reader Comment Card.

Section ❶ – Introduction – provides an overview of the Phoenix system and its uses in the microbiology laboratory. An overview of this manual's structure and conventions is also included, along with a summary of warnings and cautions that appear throughout the manual.

Section ❷ – Installation – gives specifications for installation of the Phoenix instrument and instructions for instrument setup.

Section ❸ – Controls and Indicators – explains the use and meaning of all controls and indicators of the system.

Section ❹ – Operation – explains how to use the Phoenix system for testing panels and obtaining results.

Section ❺ – Reference – provides detailed reference material on all displays, reports, icons, and other elements of the user interface.

Section ❻ – Maintenance – explains all user system maintenance, including parts replacements.

Section ❼ – Troubleshooting – provides a convenient guide identifying error codes and suggesting corrective actions.

Section ❽ – Performance and Limitations – provides tables of performance characteristics and limitations of the procedure.

The Glossary explains several Phoenix system and computer terms used in this manual, as well as abbreviations.

The Appendices contain supplemental information, such as warranty, replacement parts list, a software update log, a listing of BD international contacts, panel information, etc.

The Index provides a listing of major topics and associated page numbers.

1.7 Use of this Manual

This user's manual is designed as an integral part of system operation for technologists, supervisors, and other personnel who operate and maintain the Phoenix instrument on a regular basis. Every attempt has been made to include all information which would be required during normal use and maintenance of the system. Should a question arise which is not answered in this manual, please contact the following parties (USA):

For assistance with mechanical, electrical, or software performance problems, in North America:

☎ Field Service 1-800-544-7434

For procedural, panel, or software operation questions, in North America:

☎ Technical Services 1-800-638-8663

International contacts are listed in Appendix D, or contact your local BD representative.

Comments or recommendations on this user's manual may be expressed on the postage-paid Reader Comment Card at the end of the manual, or send e-mail to TechWriting@bd.com.

Other documentation required for proper system operation includes:

Panel Package Inserts – These documents contain important information on panel use, performance, quality control, and limitations of procedures. A package insert is included with each box of panels, and is available upon request from BD.

1.8 Conventions

1.8.1 Keys

The six hard keys that have fixed functions are the UP ARROW (Increase) key, the DOWN ARROW (Decrease) key, the SILENCE ALARM key, the TAB key, the LOAD PANELS key, and the UNLOAD PANELS key. These keys are marked with symbols representing their functions, and operate identically regardless of the active display or operation. Eight other keys, the software (soft) keys are teal in color, and have functions that vary depending on the active display. Each display shows icons representing the current soft key assignments at the bottom of the screen. To perform the function represented by the icon, press the corresponding soft key, located just below the icon defining it. You can also press the corresponding function key on the keyboard to perform the function (e.g., **F1** corresponds to Soft Key number 1, the leftmost soft key).

The six fixed function keys are always identified in your Phoenix manual by CAPITAL LETTERS (e.g., SILENCE ALARM key). The software keys are always identified by lowercase letters in quotes, and the words *soft key* (e.g., "panel results" soft key). Field names are shown in **bolded text**.

1.8.2 Symbols Used on the Equipment

The following symbols appear on the side of the Phoenix instrument:

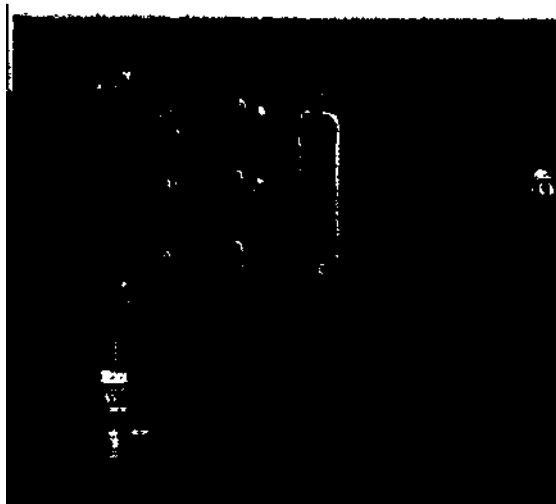


Figure 1-4 – Symbols Used on the Phoenix Instrument

Top figure: Clockwise from top left, symbols for Serial Port, Printer Port, Network Port, Remote Alarm Port, Barcode Scanner Port; Bottom figure: Symbols for (left to right): electrical hazard; "refer to accompanying documentation" (specifically, the user's manual) for instructions; On/Off; Biohazard; Protective Conductor Terminal

1.8.3 Notes, Cautions, and Warnings

Throughout this manual, important information is presented in boxes offset from the regular text, and is labeled as either a NOTE, CAUTION, or WARNING. These messages are formatted as shown below and bear the following significance:

NOTE

Important information about system use worthy of special attention is presented as a NOTE.

CAUTION

Information on an activity which potentially could cause damage to the instrument or system is presented as a CAUTION.

WARNING

INFORMATION ON AN ACTIVITY WHICH POTENTIALLY COULD CAUSE INJURY TO THE USER IS PRESENTED AS A WARNING.

1.9 Summary of Cautions and Warnings

- Protection provided by this equipment may be impaired if the equipment is used in a manner not consistent with the instructions in this manual.
- The intake filter on the top of the Phoenix instrument must remain unobstructed at all times. Restricted air flow may cause excessive temperatures in the instrument, which can affect test results and possibly cause hardware malfunctions.
- Due to the size and weight of the Phoenix instrument, never attempt to lift the instrument without the aid of mechanical lifting devices. Serious injury can result from attempting to lift the instrument.
- All system users should become thoroughly familiar with all controls and indicators before attempting to operate the instrument.
- Observe established precautions against microbiological hazards throughout all procedures. All specimens should be handled according to CDC-NIH recommendations, CLSI guidelines, or local institution guidelines for any potentially infectious human serum, blood, or other body fluids. Prior to discarding, sterilize specimen containers and other contaminated materials by autoclaving.
- In addition to wearing gloves, the use of disposable lab coats or gowns and protective glasses or goggles is recommended when working around the instrument.

- The instrument door is electromechanically latched and is controlled by the instrument software. Never attempt to defeat the door latching mechanism, or to open the door when the "unlocked" icon is not displayed. Serious injury can be caused by the rotating carousel. If the carousel is not completely stopped when the door is opened, immediately contact BD for service. Never attempt to rotate the carousel manually or serious injury may result.
- When the system notifies you of alerts and errors, you should immediately respond to the condition.
- All maintenance and repair other than the procedures described in Section 6.2 – Routine Maintenance and Section 6.3 – Module Replacement, must be performed by qualified service personnel. Non-compliance with this warning may result in personal injury or instrument malfunction.
- If you return the existing filter, insure that you replace the filter in the same orientation that it was removed (i.e., with arrow stamped on the side of the filter pointing in the same direction).
- All portions of the body that could possibly come into contact with the affected instrument surfaces must be completely covered before beginning the decontamination process.
- If any error sub-codes other than those listed here appear, note the sub-code and contact BD for assistance.
- If the recommended corrective actions do not solve the problem, contact BD.

2 Installation

2.1 General

This section provides specifications for installation and setup of the BD Phoenix system. The following major topics are included:

- ◆ Instrument specifications
- ◆ Software setup
- ◆ Software installation

WARNING

PROTECTION PROVIDED BY THIS EQUIPMENT MAY BE IMPAIRED IF THE EQUIPMENT IS USED IN A MANNER NOT CONSISTENT WITH THE INSTRUCTIONS IN THIS MANUAL.

CAUTION

The intake filter on the top of the Phoenix instrument must remain unobstructed at all times. Restricted air flow may cause excessive temperatures in the instrument, which can affect test results and possibly cause hardware malfunctions.

2.1.1 Installation

The BD Phoenix instrument is installed only by BD representatives.

WARNING

DUE TO THE SIZE AND WEIGHT OF THE PHOENIX INSTRUMENT, NEVER ATTEMPT TO LIFT THE INSTRUMENT WITHOUT THE AID OF MECHANICAL LIFTING DEVICES. SERIOUS INJURY CAN RESULT FROM ATTEMPTING TO LIFT THE INSTRUMENT.

The BD Phoenix instrument should be installed in an area that is free from undue vibration, direct sunlight, high humidity, dust, temperature extremes, and corrosive or explosive vapors or gases. The system will operate within specifications in room temperatures between 18° – 30° C (64.4° – 86° F). Relative humidity should be between 20% and 90% (non-condensing). The left, rear, and right sides of the instrument should be placed at least four inches from any wall. Environments which exceed these limits could adversely effect the performance of the system components.

The carousel should maintain its temperature to within plus or minus 1.5° C of the temperature controller's setting (35° C). This accuracy can be assured only if the room temperature meets the requirements given above.

Use of earthquake anchoring is strongly recommended in areas susceptible to earthquake activity.

2.2 Instrument Specifications

Physical Dimensions	
Height	41.7 in (105.9 cm)
Width	44.3 in (112.5 cm)
Depth	29.5 in (74.9 cm)
Clearance – Right, Left, Rear	4 in (10.2 cm)
Clearance – Front	18 in (45.7 cm)
Weight – Empty	333 lb (151.4 kg)
Weight – Full	351 lb (159.6 kg)
Counter must be capable of supporting 500 lb (227.3 kg)	

Table 2-1 – Physical Dimensions

Environmental Requirements	
Non-Operating Storage	
Temperature	-17.8° C —> 65.0° C (0° F —> 149° F)
Humidity	10% – 90% RH, non-condensing
Operating Conditions	
Temperature	18° C – 30° C (64.4° F – 86° F)
Humidity	20% – 90% RH, non-condensing
Locations	Level Surface, No direct sunlight, No direct heat
Use of earthquake anchoring is strongly recommended for the Phoenix instrument in locations susceptible to earthquake activity.	
Installation Category II and Pollution Degree 2 as per IEC 664.	

Table 2-2 – Environmental Requirements

Electrical Requirements	
Input Voltage	100 – 117 VAC or 220 – 240 VAC ±10%
Input Current	8 Amp
Input Line Frequency	47 – 53 Hz or 57 – 63 Hz
Power	1.03 Kwatts
Heat	3,515 Btu/hr.

Table 2-3 – Electrical Requirements

Optical Specifications	
Peak Wavelengths	
428 nm to 623 nm, visible spectrum	
367 nm, UV Excitation	
410 nm -- 640 nm Bandpass, UV Emission	

Table 2-4 – Optical Specifications

2.3 Software Setup

The system ships with all setup parameters preset to factory default values. However, before using the instrument for panel testing, you should review the setup parameters to see if they are suitable for your laboratory. These parameters are grouped in the following categories:

- ◆ Instrument Configuration (Section 2.3.1)
- ◆ Communications Configuration (Section 2.3.2)
- ◆ Custom Interpretation Rule Set (Section 2.3.3)
- ◆ BDxpert Rule Configuration (Section 2.3.4)
- ◆ Rapid Reporting Configuration (Section 2.3.5)
- ◆ Panel Lot Definition (Section 2.3.6)

Instrument setup parameters are explained in the paragraphs below. The Main Status screen, which is active immediately after instrument startup, is shown in Figure 2-1.

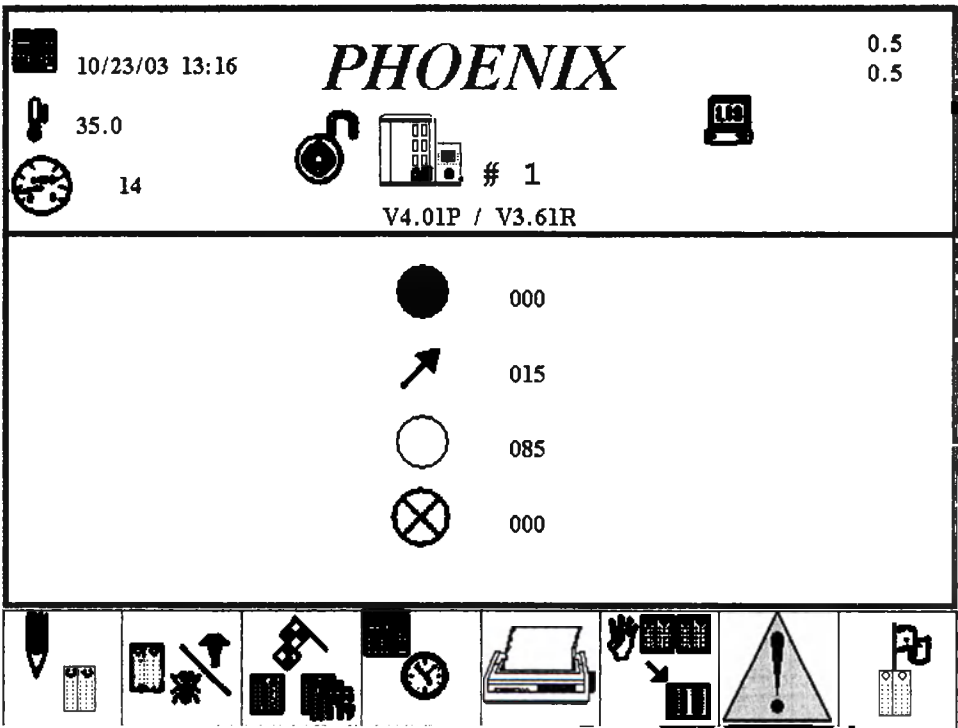


Figure 2-1 – Main Status Screen

To access the Configuration Menu, press the soft key corresponding to the icon shown below (the "configuration" soft key).



When you press the "configuration" soft key, the password window appears. To access configuration functions, enter the appropriate password then press the "perform action" soft key. All users with valid passwords have access to general instrument configuration parameters. Only administrators have access to password administration functions.



The configuration menu selections are presented as a new series of soft keys (Figure 2-2). Press the soft key corresponding to the type of configuration function you want to perform. The soft keys are as follows:



"instrument configuration"



"maintenance"



"communications configuration"



"custom interpretation rule set configuration"



"BDXpert rule configuration"



"rapid reporting configuration"

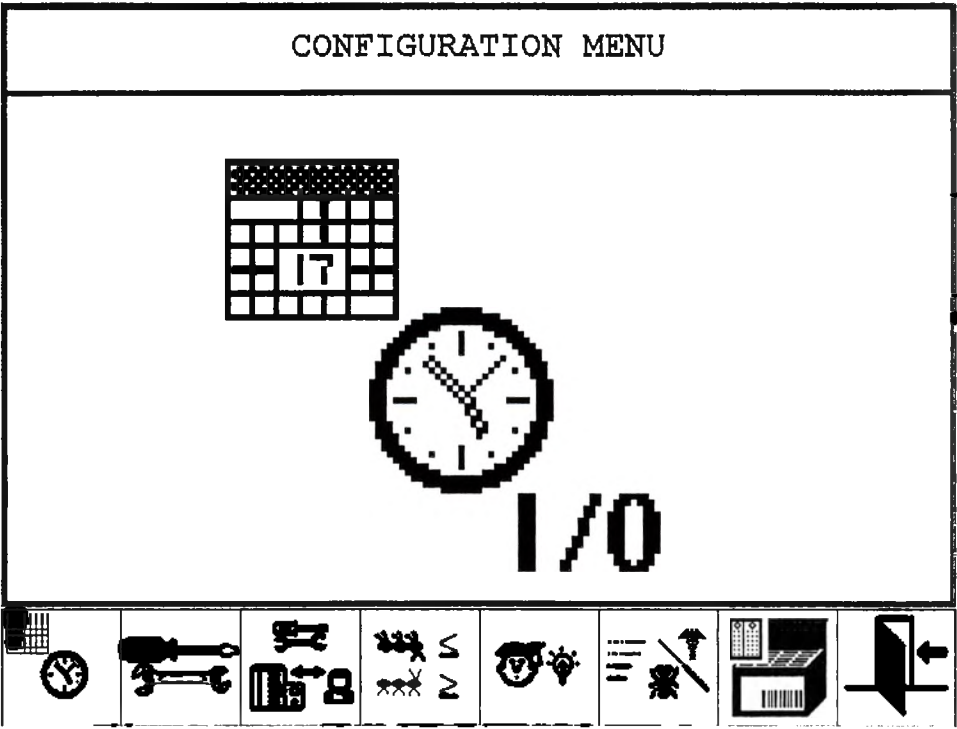


Figure 2-2 – Configuration Menu

Maintenance functions, accessed through the second soft key, are described in other sections of this manual where appropriate.



"panel lot definition"



"exit"

Any changes to configuration parameters are in effect from the time of the change forward.

* Note that the "custom interpretation rule set configuration" and "BDXpert rule configuration" icons do not appear if the Phoenix instrument is connected to and communicating with an EpiCenter system.

2.3.1 Instrument Configuration

To access general instrument configuration functions, press the “instrument configuration” soft key.



The Instrument Configuration display then appears (Figure 2–3).

When the desired configuration parameters have been entered or modified, press the “save” soft key to save the information.



2.3.1.1 General Instrument Configuration

The following parameters can be set in Instrument Configuration:

GENERAL Window

The GENERAL window is located at the top left of the display.

Instrument Number

Select the instrument identification number. The default setting is 1. To increase or decrease the instrument number, use the UP ARROW or DOWN ARROW key. You can choose a number from 1 to 99. If there is only one instrument at your location, you should leave this value set at 1.

Language

Select the language for screen displays and instrument reports. The default setting is English. To scroll through the available selections, use the UP ARROW or DOWN ARROW key. You can choose from the following language selections (shown in the specified language):

English	English	Español	Spanish
Français	French	Português	Portuguese
Deutsch	German	日本語	Japanese
Italiano	Italian		

Rule Set

Select the rule set you want the interpretation engine to use. Only one rule set can be used. You can choose from the following selections:

Custom (defined in Custom Interpretation Rule Set, Section 2.3.3)

EUCAST (European Committee on Antimicrobial Susceptibility Testing)

CLSI (Clinical and Laboratory Standards Institute)

SFM (Société Française de Microbiologie)

Rule Version

This read-only field shows the current version of the rule set selected in the previous field.

(Audible) Alarm Volume

Select the volume of the instrument's audible alarm. The default setting is 5, which is at the middle of the volume range. To increase or decrease the volume, use the UP ARROW or DOWN ARROW key (a sample volume tone sounds each time you adjust the setting). You can choose from 0 (audible alarm off) to 10 (loudest). Only the volume of "Alert" and "Activity" alarms (see **Section 3.7 – Audible Tones and Alarms**) is affected by this setting.

Resistance/Critical Checkbox

This checkbox appears *only* when the Phoenix instrument is connected to a BD EpiCenter system but is *not* communicating with it. Check this box to enable the Phoenix instrument to operate in a standalone mode when communications with EpiCenter is interrupted. When this box is checked, the **BDXpert System Active** checkbox appears.

BDXpert System Active Checkbox

Press the **[Spacebar]** or "select" soft key to check this box. Checking the box activates the entire BDXpert System rules, which comprises CLSI, EUCAST, SFM, or Custom Interpretation Rules.

This field does not appear if the EpiCenter system is attached and communicating. However, if communication with the EpiCenter system is lost, the checkbox reappears. This enables you to reactivate BDXpert rules interpretations in the standalone Phoenix system. When communications with the EpiCenter system is restored, BDXpert rules interpretations are once again performed at the EpiCenter system, and this checkbox is removed from the display.

NOTE

Disabling all BDXpert rules also disables detection of Resistance Markers (e.g., ESBL), except those triggered by 1500-series rules.

INSTRUMENT CONFIGURATION	
GENERAL Instrument # 1 Language English Rule Set CLSI Rule Version Alarm Volume 5 BDXpert System Active ☒ Rapid Completion ☒	DATE/TIME Date Format mm/dd/yy Time Format hh:mm Daylight Saving Time ☐ Time Zone Offset -5 : 00 Current Date 11 / 16 / 07 Current Time 14 : 29
OPTIONS Abbreviated Lab Report ☐ QC Lot Support ☐	Daily Instrument Report Printing Phoenix ☐

Figure 2-3 – Instrument Configuration Display

Rapid Completion Checkbox

Press the **[Spacebar]** or “select” soft key to check this box. Checking the box enables the instrument to provide BDXpert AST results (SIR) before determining actual MIC values. The instrument MIC values are provided as soon as they can be accurately determined. Within a test panel, some MIC values may be available earlier than others. The rapid completion feature can be used to predict resistance for uncompleted antibiotics using the ID alone (intrinsic resistance), or ID with completed MICs of related antibiotics, or resistance marker tests (BL, ESBL). The BDXpert system is used to make these predictions. This can be useful in situations where, for example, the results for drugs that have not yet received MICs would be of no clinical value based on the other results that are already available. Antimicrobials with Rapid Complete BDXpert interpretations are indicated by a “C” in the MIC column on Results screens and Lab reports. Uncheck the checkbox to disable rapid completion.

If Rapid Completion is enabled at the EpiCenter system, then it must also be enabled (checked) at the Phoenix instrument.

OPTIONS Window

The OPTIONS window is located at the bottom left of the display.

Abbreviated Lab Report

Press the **[Spacebar]** or “select” soft key to check this box. Checking the box causes the system to print a shortened version of the Lab Report. The shortened version does not contain results for the biochemical (ID) reactions. Uncheck the box to print the standard full-length Lab Report. The default is unchecked (full length). Note that QC Reports always print standard full-length Lab Reports.

QC Lot Support

Press the **Spacebar** or “select” soft key to check this box. Checking the box enables the QC Lot feature, which can be used to facilitate panel lot QC testing and tracking. When enabled, a new soft key (“panel lot definition”) appears on the Configuration Menu. Refer to Section 2.3.6 **Panel Lot Definition** for more information.

DATE/TIME Window

The DATE/TIME window is located at the top right of the display.

Date Format

To adjust the date format, press the DOWN ARROW key to drop down a listing of all the available date formats. The default format is MM/DD/YY. Use the UP ARROW or DOWN ARROW to highlight the desired selection. You can choose from the following:

Slash separators (/)	MM/DD/YY or MM/DD/YYYY	DD/MM/YY or DD/MM/YYYY	YY/MM/DD or YYYY/MM/DD
Hyphen separators (-)	MM-DD-YY or MM-DD-YYYY	DD-MM-YY or DD-MM-YYYY	YY-MM-DD or YYYY-MM-DD
Period separators (.)	MM.DD.YY or MM.DD.YYYY	DD.MM.YY or DD.MM.YYYY	YY.MM.DD or YYYY.MM.DD

Table 2-5 – Date Formats

Press the **Spacebar** or “select” soft key to select the highlighted entry.

Time Format

To adjust the time format, press the DOWN ARROW key to drop down a listing of all the available time formats. The default format is hh:mm. Use the UP ARROW or DOWN ARROW to highlight the desired selection. You can choose from the following: hh:mm OR hh:mm OR hh:mm.

Press the **Spacebar** or “select” soft key to select the highlighted entry.

Daylight Saving Time Checkbox

Press the **Spacebar** or “select” soft key to check this box. Checking the box adjusts the instrument time for daylight saving time. Uncheck the box to return to standard time. This field does not appear if the EpiCenter system is attached and communicating.

Time Zone Offset

Use the UP ARROW or DOWN ARROW to set your time zone difference from GMT (Greenwich Mean Time). Select negative integers if you are west of the Prime Meridian and east of the International Date Line. Select positive integers if you are east of the Prime Meridian and west of the International Date Line. This field does not appear if the EpiCenter system is attached and communicating.

Current Date

The current date is displayed in the format selected in the Date Format field.

To adjust the month, day, or year, press the “tab” key (or **Tab** key) to highlight the appropriate value according to your date format. Press the UP ARROW or DOWN ARROW key to increase or decrease the displayed value. This field does not appear if the EpiCenter system is attached and communicating.

Current Time

When this display is first accessed, the hours value is highlighted. To adjust the hours, use the UP ARROW or DOWN ARROW key to increase or decrease the displayed value.

To adjust the minutes value, press the “tab” key to highlight the minutes field. Use the UP ARROW or DOWN ARROW key to increase or decrease the displayed value. This field does not appear if the EpiCenter system is attached and communicating.

You cannot change the time while panels are in protocol.

Daily Instrument Report Printing Window

The Daily Instrument Report Printing window is located at the bottom right of the display.

Phoenix Checkbox

Press the **Spacebar** or “select” soft key to check this box. Checking the box causes the Auto Time field to appear, and tells the instrument to print a Daily Instrument Report automatically at the time specified in the **Auto Time** field. Uncheck the box to disable automatic printing. (If you disable automatic printing, you can still print the report at any time from the Reports Menu.)

Auto Time

In the first Auto Time field, press UP ARROW or DOWN ARROW to enter the hour at which you want the Daily Instrument Report to print automatically. Time is calculated in 24-hour international (military) format. Press **Tab** to advance to the next time field and press UP ARROW or DOWN ARROW to enter the minutes.

2.3.1.2 More Configuration Options

A display with additional configuration options is accessible by pressing the “more configuration” soft key from the Instrument Configuration display. See Figure 2–4.



INSTRUMENT CONFIGURATION									
Columbia Agar w/5% SB									
LABORATORY INFORMATION									
Name		Kirk Memorial Hospital							
Address		1313 Kirk Boulevard							
City		Kirkville, USA							
Director		Dr. LJ Kirk							
INOCULUM DENSITY					DEFAULT MEDIA TYPE				
		0.25		0.5					
Gram Negative		☐		☒			Yeast		
Gram Positive		☐		☒			COLSB		
							CHOC		
							COLSB		
							SABDX		
							SABEM		
							SABHI		
							TSASB		
 ☐ ☒ ☐									

Figure 2-4 – More Configuration Options Display

Laboratory Information

Information you enter in the Laboratory Information window prints in the header of system reports.

Name

Enter your laboratory name, up to 40 characters.

Address

Enter your address, up to 40 characters.

City

Enter your city (as well as state and zip code, if desired), up to 40 characters.

Director

Enter the name of the laboratory director, up to 40 characters.

Inoculum Density

The Inoculum Density window enables you to set the default McFarland concentration for inoculum. You may select 0.25 (acceptable density of 0.20 – 0.30) or 0.5 (acceptable density of 0.50– 0.60) for Gram Positive and Gram Negative panels (Strep panels use only 0.5). The default density is 0.5 for Gram Negative and Gram Positive panel types. The density for Yeast ID panels is fixed at 2.0 McFarland (acceptable density of 2.00 –2.40). Inoculum density is applicable only to panels that have an ID side.

To select a different density, tab to the desired density and press the "select" soft key. A check appears in the selected density checkbox.

Default Media Type

Yeast – This field enables you to select a default media type that appears during Panel Login when a Yeast ID panel sequence number is scanned or typed in. Press ▼ to drop down a box listing all media types (abbreviations), sorted alphabetically. (When you highlight the media type, the full name appears at the top right of the display.) Use ▼ or ▲ to highlight the desired media. Press the “select” soft key or  to select that media. You do not have to specify a default media type, but you must select a media type when logging in Yeast ID panels.

2.3.1.3 Password Administration

The Password Administration display enables you to set passwords for the three security levels of access. Only users with Administrator level passwords can access the Password Administration display. See Figure 2-5.

The following security levels for passwords exist:

Administrator – Highest access level: access to all user functions and displays

Supervisor – Intermediate access level: cannot access password administration display; access to all other functions and displays

General – lowest access level: cannot access password administration display; cannot access event log display; access to all other functions and displays

Note that the passwords entered for each level must be unique.

To access Password Administration:



From the Main Status screen, press the “configuration” soft key



The password window appears. To access configuration functions, enter the appropriate password then press the “perform action” soft key.



From the Configuration Menu, press the “instrument configuration” soft key



From the Instrument Configuration display, press the “password administration” soft key

Password Administration soft keys:

“save”



“exit”



PASSWORD ADMINISTRATION	
Administrator Password	CAPTKIRK
New Password	
Supervisor Password	ENTERPRISE
New Password	
General Password	BEAMMEUP
New Password	
 	

Figure 2-5 – Password Administration Display

To assign a new password:

- 1 The Administrator Password shows the current administrator level password (ADMIN by default). To change this password, type the new password in the New Password field, from 5 to 20 alphanumeric characters. The password is **not** case sensitive. Press the “save” soft key to save the changes. The new password immediately appears in the Administrator Password field.
- 2 The Supervisor Password shows the current supervisor level password (LISVIEW by default). To change this password, type the new password in the New Password field, from 5 to 20 alphanumeric characters. The password is **not** case sensitive. Press the “save” soft key to save the changes. The new password immediately appears in the Supervisor Password field.
- 3 The General Password shows the current general level password (ECOLI by default). To change this password, type the new password in the New Password field, from 5 to 20 alphanumeric characters. The password is **not** case sensitive. Press the “save” soft key to save the changes. The new password immediately appears in the General Password field.

2.3.2 Communications Configuration

The Communications Configuration display allows you to enable/disable communications from the Phoenix instrument to a compatible LIS (Laboratory Information System), and to adjust communications parameters for this type of connection. (It also enables BD representatives to enable/disable/adjust communications with the BD EpiCenter advanced data management system.) Only LIS or BD EpiCenter communications can be enabled. If you have a BD EpiCenter system and also need to communicate with a LIS system, BD EpiCenter can be configured to communicate with the LIS.

When the LIS communications state is changed (from disabled to enabled), the Phoenix instrument must be rebooted for the changes to take effect. In addition, changes to any of the LIS communications setup parameters require an instrument reboot to take effect.

LIS operations are discussed in Section 4.17. This section explains configuring LIS communications only. See Figure 2–6.

To access Communications Configuration:



From the Main Status screen, press the “configuration” soft key



The password window appears. To access configuration functions, enter the appropriate password then press the “perform action” soft key.



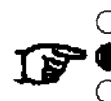
From the Configuration Menu, press the “communications configuration” soft key

Communications Configuration soft keys:

“save”



“select”



“organism configuration”



“antimicrobial configuration”



“exit”



The following parameters can be set in Communications Configuration:

Communications Configuration window

LIS Enabled checkbox

Press the “select” soft key or **[Spacebar]** or **[Enter]** to check the box and enable LIS communications. If LIS communications is enabled and you wish to disable it, press the “select” soft key or **[Spacebar]** or **[Enter]** to uncheck the box.

Options window

Send Interpretation Results checkbox

This checkbox causes the final SIR values for antimicrobials to be included in the Results record uploaded to the LIS. Its default value is checked (enabled). To disable it, press the “select” soft key or **[Spacebar]** or **[Enter]**.

Unsolicited Queries checkbox

This checkbox enables the Phoenix instrument to request panel information from the LIS if the panel is placed into the instrument *lacking* an organism ID for AST panels or Combination panels with only the AST portion of the panel enabled.

This field's default value is unchecked (disabled), which means the Phoenix instrument will NOT request missing information from the LIS. To enable it, press the "select" soft key or **Spacebar** or **Enter**.

Send When Placed in Instrument checkbox

This checkbox causes the Phoenix instrument to send a Results upload to the LIS when the panel is placed into the instrument.

This field's default value is checked (enabled). To disable it, press the "select" soft key or **Spacebar** or **Enter**.

ASTM Byte Mode Comments checkbox

This checkbox only appears when Japanese is selected for the language.

This checkbox causes the ASTM standard to be followed (when enabled/checked) or not followed (when disabled/unchecked). When the ASTM standard is not followed, escape sequence characters that are usually rejected are instead accepted.

This field's default value is checked (enabled). To disable it, press the "select" soft key or **Spacebar** or **Enter**.

Results Upload Options window

Results upload records consist of the following information:

- ◆ Header record (Delimiter fields, sender name, version number, message date/time)
- ◆ Order record (Accession number, Isolate number, Organism, Test ID, Sequence number, Priority, Report type)
- ◆ Comment record (contains Special Messages and/or BDXpert Rules)
- ◆ Results record
 - ◆ Panel sequence number
 - ◆ Instrument number
 - ◆ Instrument type
 - ◆ Instrument location (Station)
 - ◆ Time to identification (if applicable)
 - ◆ Test start time
 - ◆ Test end time
 - ◆ Test status

Pending – Panel has been logged in but has not been detected by instrument inventory.

Ongoing – Panel has been logged in and has been detected by instrument inventory, but no results are available.

Partial complete – One or more results (MIC or ID) have been generated but not all tests on the panel. BDXpert rules may be pending and the panel could have a Needs Attention condition.

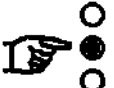
COMMUNICATIONS CONFIGURATION	
COMMUNICATIONS CONFIGURATION LIS Enabled ☒	
OPTIONS ☒ Send Interpretation Results ☒ Send When Placed in Instrument ☐ Unsolicited Queries	
RESULTS UPLOAD OPTIONS ☐ Solicited ☐ Send on Finalization ☒ Send on Completion ☐ Send as Available ☐ Send at Fixed Time	COMMUNICATIONS SETUP Baud 9600 Data Bits 8 Parity None Stop Bits 1 Packed Frames Yes
    	

Figure 2-6 – Communications Configuration Display

Complete – The instrument has completed its readings and all panel test results have been determined, or cannot be interpreted. BDxpert rules may be pending and the panel could have a Needs Attention condition.

Rapid complete – The panel has not yet completed testing but the system has determined results for all drugs

Complete with unignored Needs Attention condition – Panel has completed testing and has active needs attention conditions associated. The panel cannot be finalized until the Needs Attention conditions are resolved or ignored.

Complete with all ignored Needs Attention conditions – Panel has completed testing and has Needs Attention conditions that were ignored by the user. By ignoring the Needs Attention condition, the user can finalize the panel.

Complete QC Pass – Panel was logged in as a QC panel, has completed testing, and has passed the QC criteria.

Complete QC Fail – Panel was logged in as a QC panel, has completed testing, and has failed the QC criteria.

- ◆ Result type
- ◆ Antimicrobial code
- ◆ MIC value
- ◆ S / I / R / No Interp / Error value

- ◆ Resistance marker
- ◆ ID or Final ID
- ◆ Results status (finalized or unfinalized)

Only **ONE** of the Results Upload Options can be checked (enabled).

Solicited checkbox

This checkbox causes the Phoenix instrument to upload Results records **ONLY** when the LIS requests the information. Its default value is unchecked (disabled). To enable it, press the "select" soft key or **[Spacebar]** or **[Enter]**.

QC panels and orphan panels are uploaded only when solicited by the LIS.

Send on Finalization checkbox

This checkbox causes the Phoenix instrument to upload Results records **ONLY** when the panel is finalized. Its default value is unchecked (disabled). To enable it, press the "select" soft key or **[Spacebar]** or **[Enter]**.

Send on Completion checkbox

This checkbox causes the Phoenix instrument to upload Results records **ONLY** when the panel status becomes complete **OR** when a change is made to a complete panel. Its default value is checked (enabled). To disable it, tab to another Results Upload option and enable that option.

Send as Available checkbox

This checkbox causes the Phoenix instrument to upload Results records at the following times: when an ID is determined; when an AST result is determined; when there is a change to a panel record that already has at least partial results. Its default value is unchecked (disabled). To enable it, press the "select" soft key or **[Spacebar]** or **[Enter]**.

Send at Fixed Time checkbox

This checkbox causes the Phoenix instrument to upload Results records for a panel with partial results at a fixed time that you specify. Its default value is unchecked (disabled). To enable it, press the "select" soft key or **[Spacebar]** or **[Enter]**.

When you check the box, two additional fields appear that allow you to specify the time for sending Results records. In the first time field, press ▲ or ▼ to enter the hour at which you want the results to be sent. Time is calculated in 24-hour international (military) format. The hour value defaults to 16 (4 p.m.). Press **[Tab]** to advance to the next time field and press ▲ or ▼ to enter the minutes.

NOTE

Send as Available and Send at Fixed Time results should be considered PRELIMINARY until the panel is complete.

Communications Setup window

Baud

Press the ▲ or ▼ to select the baud rate for serial communications with the LIS system. Available choices are: 2400, 4800, 9600 (default), 14400, 19200, 38400.

Data Bits

Press the ▲ or ▼ to select the number of data bits for serial communications with the LIS system. Available choices are: 7, 8 (default).

Parity

Press the ▲ or ▼ to select the parity for serial communications with the LIS system. Available choices are: None (default), odd, even.

Stop Bits

Press the ▲ or ▼ to select the stop bits for serial communications with the LIS system. Available choices are: 1 (default), 2.

Packed Frames

Press the ▲ or ▼ to select whether packed frames can be used for serial communications with the LIS system. Available choices are: Yes (default), No. Packed frames (Yes) enable the Phoenix system to send multiple records per frame. No indicates that one record per frame is uploaded to the LIS.

2.3.2.1 Organism Configuration

The Organism Configuration display allows you to edit the LIS codes for the organisms in the Phoenix instrument database. LIS codes for organisms must be unique.

The main Organism Configuration display enables you to select the organism (or Test Strain for QC organisms) to be edited. A second display is where you perform the actual edits. Organisms are presented alphabetically by organism short name (refer to Appendix E for a short name/full name list); QC organisms are presented alphanumerically with the ATCC strain number appearing first.

To access Organism Configuration:



From the Main Status screen, press the "configuration" soft key



The password window appears. To access configuration functions, enter the appropriate password then press the "perform action" soft key.

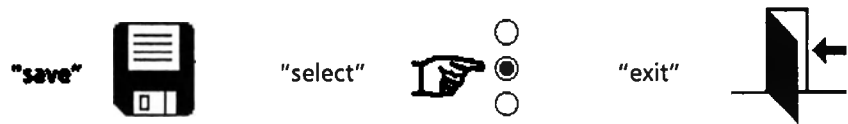


From the Configuration Menu, press the "communications configuration" soft key



From the Communications Configuration display, press the "organism configuration" soft key

Organism Configuration soft keys:



To edit an organism LIS code:

In the Organism Configuration display (Figure 2-7a), press ▲ or ▼ to highlight the name in the list and press the "select" soft key, Spacebar or Enter. You can move from the organism box to the QC organism box by pressing the Tab key.

In the Organism Edit display (Figure 2-7b), type the desired LIS code, up to 20 alphanumeric characters. Press the "okay" soft key to save the changes.

ORGANISM CONFIGURATION		
Organism ID	BD Code	LIS Code
Achr. piechaudii	ALCPiE	ALCPiE
Achr. species	ACHRSPE	ACHRSPE
Achr. xylos. ssp denitrificans	ALCDEN	ALCDEN
Achr. xylos. ssp xylosoxidans	ALCXYL	ALCXYL
QC Organism ID	BD Code	LIS Code
10094 S. spiritovorum	BD10094	BD10094
10741 E. faecalis	ATCC10741	ATCC10741
11046 E. coli	BD11046	BD11046
11052 P. aeruginosa	BD11052	BD11052

Figure 2-7a – Organism Configuration Display

ORGANISM CONFIGURATION		
Organism ID	BD Code	LIS Code
> Achr. piechaudii	ALCPIE	ALCPIE
Achr. species	ACHRSPE	ACHRSPE
Achr. xylos. ssp denitrificans	ALCDEN	ALCDEN
Achr. xylos. ssp xylooxidans	ALCXYL	ALCXYL

LIS Code

ALCPIE

OK 

Figure 2-7b – Organism Edit Display

2.3.2.2 Antimicrobial Configuration

The Antimicrobial Configuration display allows you to edit the LIS codes for the antimicrobials in the Phoenix instrument database. LIS codes for antimicrobials must be unique.

The main Antimicrobial Configuration display enables you to select the antimicrobial to be edited. A second display is where you perform the actual edits. Antimicrobials are presented alphabetically by antimicrobial name.

To access Antimicrobial Configuration:



From the Main Status screen, press the "configuration" soft key



The password window appears. To access configuration functions, enter the appropriate password then press the "perform action" soft key.



From the Configuration Menu, press the "communications configuration" soft key



From the Communications Configuration display, press the "anti-microbial configuration" soft key

Antimicrobial Configuration soft keys:

"save"



"select"



"exit"



To edit an antimicrobial LIS code:

In the Antimicrobial Configuration display (Figure 2-8a), press ▲ or ▼ to highlight the name in the list and press the "select" soft key, **Spacebar** or **Enter**.

In the Antimicrobial Edit display (Figure 2-8b), type the desired LIS code, up to 20 alphanumeric characters. Press the "okay" soft key to save the changes.

ANTIMICROBIAL CONFIGURATION		
Antimicrobial	BD Code	LIS Code
Amikacin	AM	
Amoxicillin	AMX	AMX
Amoxicillin-Clavulanate	AMC	AMC
Amoxicillin-Clavulanate (f)	AXC	AXC
Ampicillin	AM	AM
Ampicillin-Sulbactam	SAM	SAM
Ampicillin-Sulbactam (f)	SXA	SXA
Arbekacin	ARB	ARB
Azithromycin	AZM	AZM
Azlocillin	AZ	AZ
Aztreonam	ATM	ATM

Figure 2-8a – Antimicrobial Configuration Display

ANTIMICROBIAL CONFIGURATION		
Antimicrobial	BD Code	LIS Code
Amikacin	AM	AM
Amoxicillin	AMX	AMX
Amoxicillin-Clavulanate	AMC	AMC
Amoxicillin-Clavulanate (f)	AXC	AXC
Ampicillin	AM	AM
Ampicillin-Sulbactam	SAM	SAM
Ampicillin-Sulbactam (f)	SXA	SXA
Arbekacin	ARB	ARB
Azithromycin	AZM	AZM
Azlocillin	AZ	AZ
Aztreonam	ATM	ATM

LIS Code

OK

Figure 2-8b – Antimicrobial Edit Display

2.3.3 Custom Interpretation Rule Set

Custom Interpretation Rule Set Configuration enables you to tailor interpretation rules to the specific needs or requirements of your laboratory. The current rule set (whether default or already customized) is used as the basis for custom rules. You can print the current custom rule set (if it is selected in Instrument Configuration) by selecting "Interpretation Rule Set Report" from the Reports menu (see Section 5.8.8). Note that this configuration function is not available if the Phoenix instrument is connected to and communicating with a BD EpiCenter system.

Periodically, a software update or Phoenix Update Disk operation may install new breakpoints. When custom breakpoints are changed, an icon appears on the Custom Interpretation Rule Set display that enables you to print a Custom Breakpoint Difference Report. This report provides the following information:

Header: Report Title, Laboratory Information (if configured), and Date and Time Printed

Body of Report: Rule Set, Previous Version, Current Version, and columns for Antimicrobial (sort order), Organism Group, Organism Name, Rule Set, Previous and Current Standard and Custom: S(usceptible) value, R(esistant) value, and DTG. Breakpoints are listed in rows of the report.

See Figure 2–10.

Rules (Standards) Updates

The chart below depicts the logic of updates to Rules Sets. The top of the chart shows the effect of rules changes when you have customized a rule set. The bottom of the chart shows the rest of the cases for rules updates.

In the chart, the letters A, B, and C represent the entirety of a rule set (standard). For example, CLSI Rule Version M100_S16 might be indicated by value "A." An update, delivered via the Phoenix Update Disk (PUD), might install CLSI Rule Version M100_S17, which might be indicated by the value "B." Your customization of "A" might be represented by "C." Therefore, if you follow the chart below, the effect of the update is that value "C" (your customized rules based on Version M100_S16) would be retained.

	Old Standard	New Standard	Old Custom	Result after PUD New Custom
If you have custom rules	A	A	B	B
	A	B	C	C
	-	-	A	A
	-	A	A	A
	-	A	B	A
	A	-	B	B
No custom rules	A	A	A	A
	A	B	A	B
	-	A	-	A
	A	A	-	A
	A	B	-	B
	A	-	A	-

Table 2-6 – Rules Updates

To print a Custom Breakpoint Difference Report:



From the Custom Interpretation Rule Set configuration screen, press the “print” soft key

To access Custom Interpretation Rule Set configuration:



From the Main Status screen, press the “configuration” soft key



The password window appears. To access configuration functions, enter the appropriate password then press the “perform action” soft key.



From the Configuration Menu, press the “custom interpretation rule set configuration” soft key

The Custom Interpretation Rule Set display then appears (Figure 2–9a).

When the desired configuration parameters have been entered or modified, press the “save” soft key to save the information.

To use the custom rule set for interpretation, go to the Instrument Configuration display (Section 2.3.1), and advance to the **Rule Set** field. Highlight CUSTOM in the drop down box by pressing the DOWN ARROW, then press  or the “select” soft key to select it.

Custom Interpretation Rule Set soft keys:

“save”		“select”	
“mark for deletion”		“delete marked items”	
“print report”		“exit”	

Custom Interpretation Rule Set fields:

Based On

Select the standard rule set upon which the custom rules are to be based. The standard rule sets are: CLSI, EUCAST, and SFM. Press DOWN ARROW to drop-down a box in which you can highlight and highlight the desired rule set. Press Spacebar or the “select” soft key to select the highlighted set.

NOTE

If you select a rule set other than the current rule set, the currently defined *custom interpretation* rules are deleted.

Rules Window

The window in the middle of the screen shows the current rules in the rule set. This list is read-only and can be navigated with UP ARROW and DOWN ARROW. The following values are shown from left to right (items are explained below under **To modify a rule**):

- Marked for Deletion Indicator (“x” indicates you have marked the rule for deletion)
- Antimicrobial
- DTG (Drug Test Group – see Step 4 below)
- Org (anism) Group
- Organism

S (usceptible Value): $\leq$

R (esistant Value): $\geq$

To add a rule:

- 1 Press the "tab" key to highlight the Rules Window.
- 2 Press the End key (keyboard) to move to the very bottom of the window. A blank line is highlighted.
- 3 Press the "select" soft key. The screen shown in Figure 2–9b appears.
- 4 Select the **Antimicrobial**, DTG, Org. Group, Organism, Susceptible, and Resistant values by pressing the DOWN ARROW to drop down a box listing all available values for the field. Use the UP ARROW or DOWN ARROW to highlight the desired value in the list, then press the "select" soft key or  key.

When all the desired values are selected, press the "ok" soft key to accept the new rule and return to the Rules Window.

- 5 Press the "save" soft key to save the new rule.

To modify a rule:

- 1 Use the UP ARROW or DOWN ARROW to highlight the desired rule in the Rules Window. The antimicrobial name appears in the display title area, on the left.
- 2 Press the "select" soft key. The screen shown in Figure 2–9b appears.
- 3 To change the **Antimicrobial**, press the DOWN ARROW to drop down a box listing all available antimicrobials. Use the UP ARROW or DOWN ARROW to highlight the desired drug in the list, then press the "select" soft key or  key.

CUSTOM INTERPRETATION RULE SET

Based On

CLSI

Antimicrobial	DTG	Org Group	Organism	S	R
AM	A	ENTC_IC	{all}	8.000	16.000
AM	A	ENTERIC_IC	{all}	8.000	32.000
AM	A	HAEINF_IC	{all}	1.000	4.000
AM	A	HAEOTH_IC	{all}	1.000	4.000
AM	A	LISMON_IC	{all}	2.000	-
AM	A	LISTOTH_IC	{all}	2.000	-

Figure 2-9a – Custom Interpretation Rule Set – Screen A

CUSTOM INTERPRETATION RULE SET

Ampicillin

Based On

CLSI

Antimicrobial	DTG	Org Group	Organism	S	R
>AM	A	ENTC_IC	{all}	8.000	16.000
AM	A	ENTERIC_IC	{all}	8.000	32.000
AM	A	HAEINF_IC	{all}	1.000	4.000
AM	A	HAEOTH_IC	{all}	1.000	4.000
AM	A	LISMON_IC	{all}	2.000	-
AM	A	LISTOTH_IC	{all}	2.000	-

Antimicrobial

Ampicillin

Org Group

ENTC_IC

Organism

{all}

Susceptible

8.000

 <= Resistant

16.000

 >=

OK

Figure 2-9b – Custom Interpretation Rule Set – Screen B

- 4 To change the DTG, press the DOWN ARROW to drop down a box listing all available DTGs. Use the UP ARROW or DOWN ARROW to highlight the desired DTG in the list, then press the "select" soft key or  key.

DTGs are derived from the AST Standards and are used to categorize antibiotics into distinct groups. For each drug, the groups are specific to the organism group and the recommended utilization for that drug.

DTGs have no significance in Phoenix alone. They are used in conjunction with the BDxpert rules and are necessary for interface with the BD EpiCenter system.

Generally, these are divided into seven groups shown below. Only the A, B, C and U codes may be reported on the Lab report(s). B and C groups are only reported when they are promoted to A by the BDxpert system.

- A** Always tested and always reported.
- B** Usually tested, but not always reported.
- C** Sometimes tested and not always reported.
- U** Urinary tract specific drug. Tested and reported for source urinary tract.
- O** Other drugs that may be tested. Will not be reported unless changed by user.
- I** Investigational drugs. Drugs not approved for clinical use are never reported.
- N** Not grouped by standard. Will not be reported unless changed by user.

These drug testing codes are used for two purposes in the Phoenix system. First, you can alter the drug testing codes to more closely match the antibiotic formulary and drug utilization guidelines within your institution. The initial codes will be determined by the AST interpretive standard that you have selected. Allowable changes are shown below.

Starting Code Allowable (Recommended) Changes

A	B, C, U, O
B	A, C, U, O
C	A, B, U, O
U	A, B, C, O
O	A, B, C, U
I	None
N	A, B, C, U

The second application of the drug testing codes is for the promotion or suppression of drug results for the chartable report. This application is driven by the rules in the BDxpert system. If the rules alter the drug testing codes, these will be reflected on the Lab Report generated by the Phoenix system. The promotion and suppression actions are shown below. At the EpiCenter level, the drug testing codes will be used to determine which drug results actually appear on the chartable report.

Starting Code	Promotion	Suppression
A	Not applicable	C
B	A	C
C	A	Not applicable
U	Not applicable	C
O	Not allowed	Not allowed
I	Not allowed	Not allowed

Custom Breakpoint Difference Report									
03/05/05 09:11									
Rule Set		CLSI							
Previous Version		M100_S12							
Current Version		M100_S13							
Antimicrobial	Organism Group	Organism Name	Rule Set	Previous			Current		
				S	R	DTG	S	R	DTG
AM	ENTERIC_IC	(all)	CLSI	8.000	32.000	A	2.000	4.000	B
			Custom	4.000	32.000	A	4.000	32.000	A
AM	STRPNE_IC	(all)	CLSI	.	.	.	2.000	-	A
			Custom	2.000	-	A	2.000	-	A
AN	ACIN_IC	(all)	CLSI	16.000	64.000	B	2.000	4.000	A
			Custom	16.000	64.000	B	2.000	4.000	A
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
End of Report									

Figure 2-10 – Custom Breakpoint Difference Report

- To change the **Org(anism) Group**, press the DOWN ARROW to drop down a box listing all available groups. "(All)" indicates that all the organism groups are considered in the rule. Use the UP ARROW or DOWN ARROW to highlight the desired group (or "All organisms") in the list, then press the "select" soft key or **Enter** key. (A list of organism groups is provided in Section 5.8.8.)
- To change or select a specific **Organism**, press the DOWN ARROW to drop down a box listing all available organisms. "(All)" indicates that all the organisms in the specified group are considered in the rule. Use the UP ARROW or DOWN ARROW to highlight the desired organism in the list, then press the "select" soft key or **Enter** key. (Note that if an organism group is selected, the organism list displays only organisms within the selected group.)
- To change the **S** (susceptible Value) (i.e., the concentration at or below which the MIC value for the organism or group will return an interpretation of Susceptible), press the DOWN ARROW to drop down a box listing all available concentrations. Use the UP ARROW or DOWN ARROW to highlight the desired value in the list, then press the "select" soft key or **Enter** key.
- To change the **R** (resistant Value) (i.e., the concentration at or above which the MIC value for the organism or group will return an interpretation of Resistant), press the DOWN ARROW to drop down a box listing all available concentrations. Use the UP ARROW or DOWN ARROW to highlight the desired value in the list, then press the "select" soft key or **Enter** key.
- When the desired values for the current rule have been modified, press the "confirm" soft key to return to the Rules Window to select another rule to modify.

OK



- 10 When the desired rules have been modified, press the "save" soft key to save your modifications to the rule set.



To delete a rule:

- 1 Use the UP ARROW or DOWN ARROW to highlight the desired rule in the Rules Window. The antimicrobial name appears in the display title area, on the left.
- 2 Press the "mark for deletion" soft key. This places an "X" to the right of the antimicrobial abbreviation.

X _____

X _____



- 3 Mark any additional rules you want to delete as described in Step 2.
- 4 To delete all the marked rules, press the "delete marked items" soft key.



- 5 Save the deletions by pressing the "save" soft key.



2.3.4 BDXpert Rule Configuration

BDXpert Rule Configuration allows you to enable or disable individual BDXpert rules, or set them to trigger automatically or manually, according to the specific needs or requirements of your laboratory. You can print the existing BDXpert rule set by selecting "BDXpert Rule Set Database Report" from the Reports menu (see Section 5.8.9). Note that this configuration function is not available if the Phoenix instrument is connected to and communicating with an EpiCenter system.

To access BDXpert Rule configuration:



From the Main Status screen, press the "configuration" soft key



The password window appears. To access configuration functions, enter the appropriate password then press the "perform action" soft key.

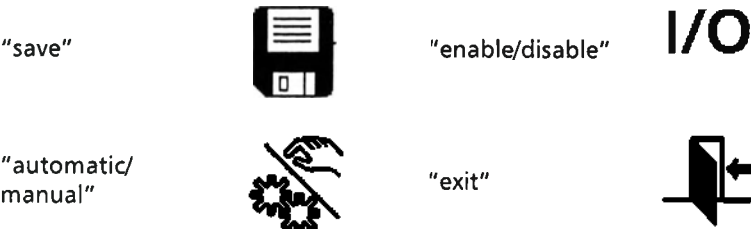


From the Configuration Menu, press the "BDXpert rule set configuration" soft key

The BDXpert Rule Set Configuration display then appears (Figure 2–10).

When the desired configuration parameters have been entered or modified, press the "save" soft key to save the information.

BDXpert Rule Set soft keys:



BDXpert RULE CONFIGURATION		
Rule Set BD STD		
Only results for ampicillin, a fluoroquinolone, and trimethoprim-sulfamethoxazole should be reported for fecal isolates of <i>Salmonella</i> spp. or <i>Shigella</i> spp. No other drugs should be reported.		
Rule #	En/Disabled	Auto/Man
101	Enabled	Automatic
103	Enabled	Automatic
104	Enabled	Automatic
105	Enabled	Manual
106	Enabled	Automatic
110	Enabled	Automatic
111	Enabled	Manual



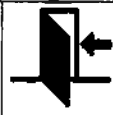



Figure 2-11 – BDXpert Rule Set Configuration

Note that the "auto/manual" soft key does not appear if the rule is disabled. Based On field appears only if Rule Set is "Custom."

BDXpert Rule Set fields:

Rule Set

The rule set currently being displayed is shown in this field. Values are CLSI, SFM, EUCAST, or Custom. Only rules in the selected set appear in the Rule Selection Window.

Based On

If the rule set is Custom, the rule set on which custom values are based is shown in this field.

Rule Window

The rule window, located at the top of the display, shows the text of the rule selected in the rule selection window at the bottom of the display. GREEN text indicates a rule is enabled and automatic. RED text indicates a rule is disabled (auto/manual status is not applicable). BLUE text indicates a rule is enabled and manual.

Rule Selection Window

The rule selection window, located at the bottom of the display, presents a summary of the status of each of the BDxpert rules and enables you to select rules to modify.

To select a rule for modification, use the UP ARROW or DOWN ARROW to highlight the desired rule in the list.

To enable or disable the rule, press the "enable/disable" soft key to toggle the status. When disabled, a rule is not available for use in the system.

To set the rule to automatic or manual trigger, press the "auto/manual" soft key to toggle the status. When set to "auto," a rule will be triggered automatically by the system. When set to "manual," the rule must be accepted by the user before it is applied to results.

While 1500-series rules can be selected for viewing, they are fixed as enabled and automatic. These settings cannot be changed.

2.3.5 Rapid Reporting Configuration

Rapid Reporting Configuration allows you to specify the criteria for notification of critical panels and resistance markers. For Critical Panels, you can be notified by an automatic Lab Report printing, by an audible alarm, and/or by an upload to the LIS when certain types of results are obtained in non-QC panels. The types of results, which you select, are ID only, partial results, and complete results. For Resistance Markers, you designate the type of notification you want to receive when resistance markers (that are enabled) are triggered. For both, you may choose to disable both printing and audible alarms. In this case, the only notification is that the panel is shown in red text on the Panel Inventory display.

Rapid reporting alarms exist in two states: unacknowledged and acknowledged. Unacknowledged alarm panels continue to display in red on the Panel Inventory display. Acknowledgment is achieved when an automatic Lab Report for the panel prints or when the panel is viewed in Panel Results. Audible alarms continue to sound for unacknowledged alarms until the SILENCE ALARM key is pressed.

To access Rapid Reporting configuration:



From the Main Status screen, press the "configuration" soft key



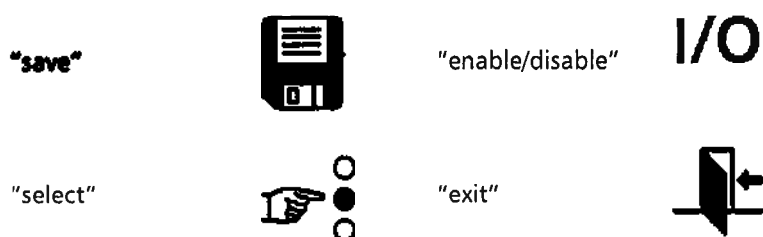
The password window appears. To access configuration functions, enter the appropriate password then press the "perform action" soft key.



From the Configuration Menu, press the "rapid reporting configuration" soft key

The Rapid Reporting Configuration display then appears (Figure 2–12).

When the desired configuration parameters have been entered or modified, press the "save" soft key to save the information.

Rapid Reporting soft keys:**Rapid Reporting fields:****Critical Panel Notification Window**

The Critical Panel Notification window lets you set parameters for notification on critical panels. Critical panels are any panels for which you want special notification when results become available. Notification can be audible and/or by immediate printing of a Lab Report (or neither). You can mark panels as critical when you log them in via Panel Login, or subsequently on the Panel Results display.

Auto Print

Press the "select" soft key to check (enable) this field. When enabled, the system prints a Lab Report whenever the selected results parameters occur (ID Only, Partial, or Complete – see below). This field is disabled by default (auto print off). Both Auto Print AND Audible Alarm may be enabled simultaneously.

Upload to LIS

This checkbox appears only if LIS Communications is enabled.

Press the "select" soft key to check (enable) this field. The default value is unchecked (disabled). When enabled, the system uploads results records whenever the selected results parameters occur (ID Only, Partial, or Complete – see below).

This field overrides the results upload values set in Communications Configuration (Section 2.3.2).

Audible Alarm

Press the "select" soft key to check (enable) this field. When enabled, the system sounds an audible alarm whenever the selected results parameters occur (ID Only, Partial, or Complete – see below). This field is enabled by default (audible alarm on). Both Auto Print AND Audible Alarm may be enabled simultaneously.

Tone Select

This field enables you to select the tones sounded by the critical panel audible alarm. It appears only if Audible Alarm is checked (enabled). This field is set to Tone 1 by default. Press the ▲ or ▼ key to change from Tone 1 to Tone 2 to Tone 3. The system sounds a sample tone each time the field is selected or its contents are changed.

RAPID REPORTING CONFIGURATION

CRITICAL PANEL NOTIFICATION

☐ Auto Print

☐ Upload to LIS

☒ Audible Alarm

☐ Tone Select

☐ ID Only

☒ Partial Results

☐ Complete

RESISTANCE MARKER NOTIFICATION

☐ Auto Print

☐ Upload to LIS

☐ All Panels

☒ Critical Panels Only

Resistance Marker	En/Disable
BLACT Beta-lactamase	Enabled
ESBL Extended Spectrum Beta-lactamase	Enabled
HLGR High Level Gentamicin Resistant	Enabled
HLKR High Level Kanamycin Resistant	Enabled
HLMUP High Level Mupiricin Resistant Staphylococcus	Enabled
HLPRSP High Level Penicillin Resistant S. pneumoniae	Enabled
HLSR High Level Streptomycin Resistant	Enabled

Figure 2-12 – Rapid Reporting Configuration Display

NOTE

You must check (enable) one of the following three fields in order to receive any critical panel notifications.

ID Only

Press the “select” soft key to check (enable) this field. When enabled, critical panel notification is performed only when an organism ID is detected on a panel. This field is set to disabled by default (alarm/report on partial results). If this field is enabled, **Partial Results** and **Complete** cannot be enabled.

Partial Results

Press the “select” soft key to check (enable) this field. When enabled, critical panel notification is performed when partial panel results are obtained. This field is set to enabled by default (alarm/report on partial results). If this field is enabled, **ID Only** and **Complete** cannot be enabled.

Complete

Press the “select” soft key to check (enable) this field. When enabled, critical panel notification is performed only when complete panel results are obtained. This field is set to disabled by default (alarm/report on partial results). If this field is enabled, **ID Only** and **Partial Results** cannot be enabled.

Resistance Marker Notification Window

This window does not appear if the EpiCenter system is connected.

Auto Print

Press the "select" soft key to check (enable) this field. When enabled, the system prints a Lab Report whenever a resistance marker is triggered. This field is set to disabled by default.

Upload to LIS

This checkbox appears only if LIS Communications is enabled.

Press the "select" soft key to check (enable) this field. The default value is unchecked (disabled). When enabled, the system uploads results records whenever the selected results parameters occur (ID Only, Partial, or Complete – see below).

This field overrides the results upload values set in Communications Configuration (Section 2.3.2).

Audible Alarm

Press the "select" soft key to check (enable) this field. When enabled, the system sounds an audible alarm whenever a resistance marker is triggered. This field is enabled by default (audible alarm on).

Tone Select

This field enables you to select the tones sounded by the resistance marker audible alarm. This field appears only if Audible Alarm is checked (enabled). This field is set to Tone 1 by default. Press the ▲ or ▼ key to change from Tone 1 to Tone 2 to Tone 3. The system sounds a sample tone each time the field is selected its contents are changed.

NOTE

You must check (enable) one of the following two fields in order to receive any resistance marker notifications.

All Panels

Press the "select" soft key to check (enable) this field. When enabled, resistance marker alarms are generated for all panels in which markers occur. This field is disabled by default. If this field is enabled, **Critical Panels Only** cannot be enabled.

Critical Panels Only

Press the "select" soft key to check (enable) this field. When enabled, resistance marker alarms are generated only for critical panels in which markers occur. This field is enabled by default. If this field is enabled, **All Panels** cannot be enabled.

Resistance Marker

The Resistance Marker window, located at the bottom of the display, allows you to enable and disable notification of individual resistance markers. The window shows the abbreviation and text of the Marker, as well as whether it is currently enabled or disabled. By default, all resistance markers are enabled. Resistance marker alarm notification occurs **only** for enabled markers.

To disable notification of a resistance marker, highlight the desired marker and press the "enable/disable" soft key. The En/Disable field changes from Enabled to Disabled.

2.3.6 Panel Lot Definition

The Panel Lot Definition Display enables you to define panel lots to facilitate QC testing and tracking. Panel lot definition saves the lot number, beginning and ending panel sequence numbers, definition date, and first and last used dates for a lot. Current and historical QC results can be viewed and printed. Note that this configuration function is not available if the Phoenix instrument is connected to and communicating with an EpiCenter system.

The display allows you to:

- Define new panel lots
- Recall existing panel lots
- Review current and historical QC results for panel lots
- Extend expiration dates for panel lots
- Print Panel Lot (current, historical) reports

Users with General and Supervisor level passwords may define new panel lots and recall existing panel lots. Users with Administrator passwords may do these things and may extend the expiration date of existing panel lots.

When a panel lot definition is saved, any Test Strain recommendations that exist are displayed in the Current QC Results window. You can toggle between Current and Historical QC Results windows with the "toggle display" soft key. Current results show a summary of the most recent test for each strain for all instruments, up to 20 entries. Historical results show all tests for a strain for the current instrument only, up to 200 entries. In order to display results from other instruments, Panel Lots must be saved at those instruments and restored to the current instrument (see Sections 6.2.4.5/6, Save/Restore Panel Lots).

Field contents of these windows are explained below.

To access Panel Lot Definition:



From the Main Status screen, press the "configuration" soft key



The password window appears. To access configuration functions, enter the appropriate password then press the "perform action" soft key.



From the Configuration Menu, press the "panel lot definition" soft key

The Panel Lot Definition display then appears (Figure 2–13).

When the desired configuration parameters have been entered or modified, press the "save" soft key to save the information.

Panel Lot Definition soft keys:

"save"



"clear"



"select"



"panel results"



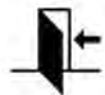
"print"



"toggle display"



"exit"



PANEL LOT DEFINITION					
PQC01					
Panel Lot #	7500001		Definition Date	07/12/04	
Expiration Date	04/01/06		First Used Date	10/22/03	
Start Sequence #	425200001443		Last Used Date	07/12/04	
End Sequence #	425200001468		Where Defined	1	
Current QC Results					
Test Strain	Test Date	Sequence #	Type	QC Status	
25923 S. aureus	07/12/04	425200001444	ID/AST	REVIEW	
29212 E. faecalis	07/12/04	425200001445	ID/AST	FAIL	
29213 S. aureus	07/12/04	425200001446	ID/AST	ERROR	
51299 E. faecalis	07/12/04	425200001447	ID/AST	PASS	

Figure 2-13 – Panel Lot Definition Display

Panel Lot fields:**Panel Lot #**

This field shows the lot number for the panel. **To enter a new panel lot number, you must scan the lot number barcode (next to the L symbol) on the box.** The panel lot number is encoded in the barcode. The lot number cannot be typed in this field when defining new panel lots.

To recall a panel lot definition, press the DOWN ARROW to drop down the list of all panels, or type the first few numbers of the panel lot number to jump to that portion of the list, or scan the panel lot barcode.

Expiration Date

This field shows the lot's expiration date. This information is encoded in the panel lot barcode and is filled in automatically when the panel lot barcode is scanned. The expiration date cannot be typed in when defining new panel lots. This date can only be changed by scanning a new panel lot barcode provided by the BD Quality department (only if you are logged in as an Administrator).

Start Sequence #

This field shows the starting barcode sequence number for the panel lot. To enter a new Start Sequence number, scan the lowest sequence number in the lot (next to the  symbol on the box). This field can only be completed by scanning the panel sequence barcode; the sequence number cannot be typed in this field.

End Sequence #

This field shows the ending barcode sequence number for the panel lot. To enter a new End Sequence number, scan the highest sequence number in the lot (next to the  symbol on the box). This field can only be completed by scanning the panel sequence barcode; the sequence number cannot be typed in this field.

Definition Date

This field shows the date on which the panel lot was defined. It is completed automatically when the panel lot definition is saved. This is a read-only field that cannot be changed by the user.

First Used Date

This field shows the first date on which a panel from this lot was used. It is completed automatically when the panel is placed in the instrument. This is a read-only field that cannot be changed by the user.

Last Used Date

This field shows the last date on which a panel from this lot was used. It is completed automatically when the panel is placed in the instrument. This is a read-only field that cannot be changed by the user.

Where Defined

This field appears only if the panel lot was defined at a different number instrument than the current one. It shows the instrument number where the panel lot was defined. Panel lot definitions can be saved at one instrument and restored to another instrument through the **Save/Restore Panel Lot Definitions** functions in the **Maintenance Menu** (Section 6.2.4.5/6).

Current QC Results Window

This window appears only after a panel lot is saved. When a panel lot definition is saved, any QC Test Strain recommendations that exist are displayed in the Current QC Results window. Only the most recent QC test is shown for each test strain, up to a maximum of 20 tests. Results for other instruments can be shown in this window by saving those results at that instrument and restoring them at the current one (see **Save/Restore Panel Lot Definitions**, Section 6.2.4.5/6).

The following read-only fields are shown in the Current Results window: Test Strain (sort order by name); Test Date; Sequence Number; (Test) Type (ID, AST, or ID/AST); QC Status (None for uncompleted test; Pass, Fail, Review, or Error for completed tests).

You can review results when the panel is in the instrument database as follows: press the TAB key to move to the Current Results window. Use UP/DOWN ARROW to highlight the desired strain, and press the "panel results" soft key when the desired strain is highlighted.

To print the Current QC Panel Lot Report, press the "print" soft key (with the Current QC Results Window showing). In addition to the fields listed above, the report includes standard report header information (Report Title, Laboratory Information (if configured), Date and Time Printed, and Instrument number where the report was printed); Panel Lot number; Panel Type; Expiration Date; Instrument number for each strain tested (blank if instrument is the same); and Tech ID. A sample Current QC Panel Lot Report is shown in Figure 2-14.

You can toggle between Current and Historical QC Results windows with the "toggle display" soft key.

Current QC Panel Lot Report

07/15/04 09:11

Instrument #1

Panel Lot #

7500001

Panel Type

PQC01

Expiration Date

04/01/06

Test Strain	Test Date	Sequence #	Type	QC Status	Instrument #	Tech ID
25923 S. aureus	07/12/04	425200001444	ID/AST	REVIEW	.	ljk
29212 E. faecalis	07/12/04	425200001445	ID/AST	FAIL	.	bee
29213 S. aureus	07/12/04	425200001446	ID/AST	ERROR	.	me
51299 E. faecalis	07/12/04	425200001447	ID/AST	PASS	.	up
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.

End of Report

Figure 2-14 – Sample Current QC Panel Lot Report

Historical QC Results Window

This window appears only after a panel lot is saved. Historical results show all tests for a strain for the current instrument only, up to 200 entries. To select a Test Strain, press the TAB key to advance to the Test Strain field, the press DOWN ARROW to drop down the list of strains. Use UP/DOWN ARROW to highlight the desired strain, then press the "select" soft key. When the desired panel is highlighted, you can jump to the QC Panel Results display, or print a Historical QC Panel Lot Report.

The following read-only fields are shown in the Historical Results window: Test Strain (drop down selection box); Test Date (sort order); Sequence #; (Test) Type (ID, AST, or ID/AST); QC Status (None, Pass, Fail, Review, Error); Tech ID.

To print the Historical QC Panel Lot Report, press the "print" soft key (with the Historical QC Results Window showing). In addition to the fields listed above, the report includes standard report header information (Report Title, Laboratory Information (if configured), Date and Time Printed, and Instrument number where the report was printed); Panel Lot number; Panel Type; and Expiration Date. A sample Historical QC Panel Lot Report is shown in Figure 2-15.

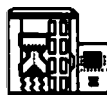
You can toggle between Current and Historical QC Results windows with the "toggle display" soft key.

Historical QC Panel Lot Report				
07/15/04 09:11				
Instrument #1				
Panel Lot #	7500001			
Panel Type	PMIC/ID			
Expiration Date	04/01/06			
<u>Test Strain</u> – 25923 S. aureus				
<u>Test Date</u>	<u>Sequence #</u>	<u>Type</u>	<u>QC Status</u>	<u>Tech ID</u>
07/12/04	425350000012	ID/AST	REVIEW	ljk
<u>Test Strain</u> – 29212 E. faecalis				
<u>Test Date</u>	<u>Sequence #</u>	<u>Type</u>	<u>QC Status</u>	<u>Tech ID</u>
07/12/04	425350000014	ID/AST	FAIL	bee
<u>Test Strain</u> – 29213 S. aureus				
<u>Test Date</u>	<u>Sequence #</u>	<u>Type</u>	<u>QC Status</u>	<u>Tech ID</u>
07/12/04	425350000016	ID/AST	ERROR	mc
<u>Test Strain</u> – 51299 E. faecalis				
<u>Test Date</u>	<u>Sequence #</u>	<u>Type</u>	<u>QC Status</u>	<u>Tech ID</u>
07/12/04	425350000018	ID/AST	PASS	up
End of Report				

Figure 2-15 – Sample Historical QC Panel Lot Report

2.4 System Startup

Whenever power is applied to the system, it is initialized, performs self-diagnostics, and reports any problems to the user through alerts. If any files are missing or corrupted which would prevent proper operation of the system, the startup process is aborted. If not, the computer loads the operating system and user interface, and begins the warmup period (indicated by the "Instrument is warming up" icon shown below). Afterwards, the system awaits the initiation of panel testing.



The temperature standard panel should be left in the instrument at least 45 minutes before reading it when the instrument is first powered up.

2.5 Software Installation

Software updates are to be performed by BD representatives.

NOTE

Custom Breakpoints

When the software is updated, or when the Phoenix Update Disk operation is performed, if any of the standard interpretation rule sets have changed, new rule sets are installed into the system database. Since custom rule sets are based on standard rule sets, a custom interpretation rule set can be overwritten with new standard rules. If you use custom breakpoints, be sure to print out the Custom Breakpoint Difference Report (Section 2.3.3) after each system update or Phoenix Update Disk operation.

Controls and Indicators

3.1 General

This section describes the meaning and use of the controls and indicators of the Phoenix instrument. The overall layout of the instrument is shown in Figure 3-1. Individual components are illustrated in figures accompanying the related text.

WARNING

**ALL SYSTEM USERS SHOULD BECOME THOROUGHLY FAMILIAR
WITH ALL CONTROLS AND INDICATORS BEFORE ATTEMPTING
TO OPERATE THE INSTRUMENT.**

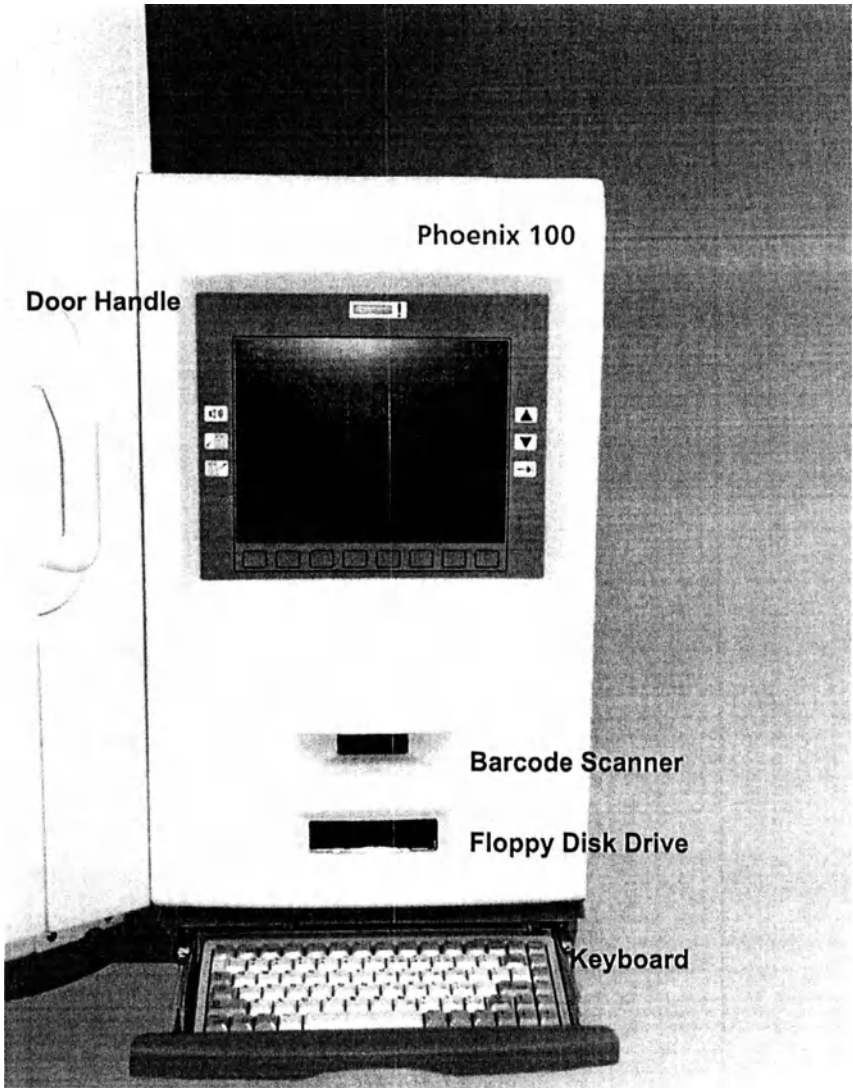


Figure 3-1 – Phoenix Instrument Layout

3.2 Power Switch

The system power (On/Off) rocker switch is on the right side of the instrument at the bottom (see Figure 3–2). When in the “O” (Off) position, power is removed from the instrument. When in the “I” (On) position, the switch illuminates green and power is applied to the instrument. Power must be turned On for the incubation and testing modules to work. For normal operation, the power should remain On at all times (except during some maintenance procedures).



Figure 3–2 – On/Off Switch

3.3 Keypad and LCD Display

The keypad and LCD display are located on the front of the instrument, at the top right. The keypad is used to issue commands to the instrument. The LCD display presents setup and status information, as well as the keypad definitions that allow you to perform routine operations. See Figure 3–3.

The controls and indicators of the keypad and LCD display are presented in clockwise order from the top right of the module.

3.3.1 DOWN /UP ARROW Keys

The DOWN and UP ARROW keys are located on the right side of the Keypad/LCD Display. The DOWN ARROW key, represented by a down arrowhead, is used to decrease a displayed value, or to scroll downward in a list. The UP ARROW key, represented by an up arrowhead, is used to increase a displayed value, or to scroll upward in a list.

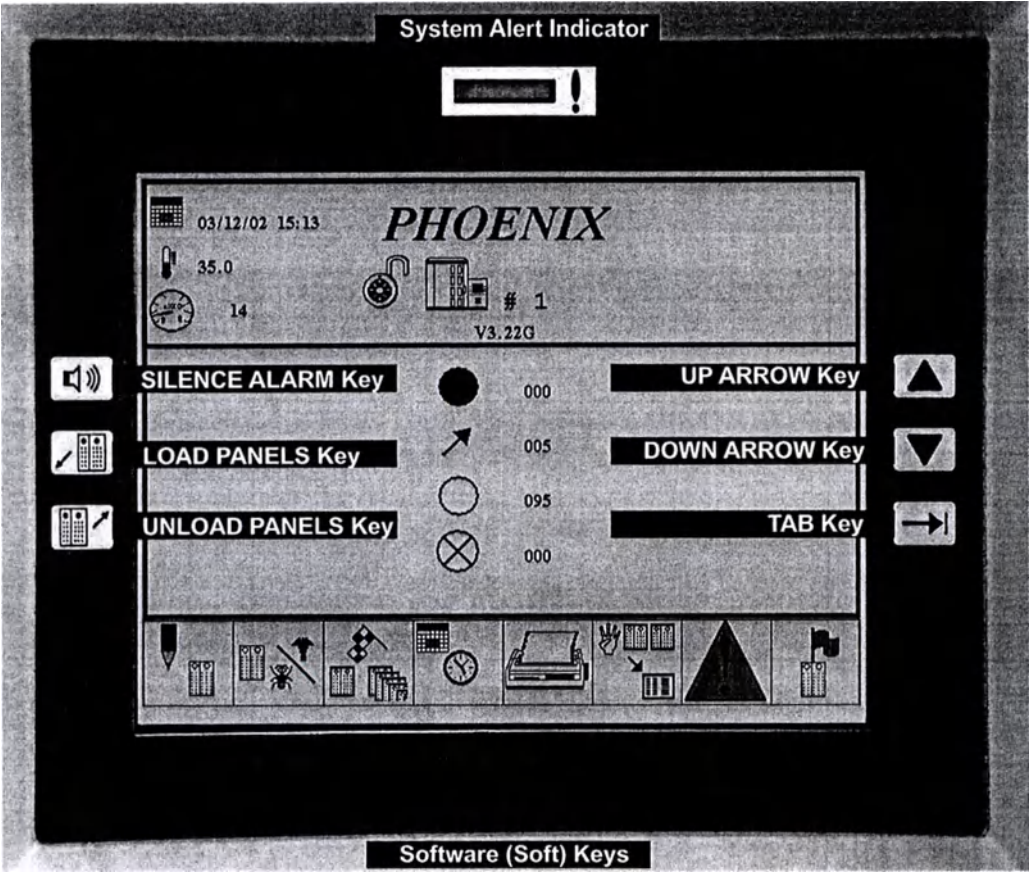


Figure 3-3 – Keypad and LCD Display

3.3.2 TAB Key

The TAB Key is located below the DOWN and UP ARROW keys. It functions like the **Tab** key on the keyboard. When pressed, it advances the cursor to the next field on the display.

3.3.3 Soft Keys

The eight software (soft) keys are located near the bottom of the Keypad/LCD Display, at the center. These keys are teal colored. None of the keys has a fixed function – the functions of the keys vary depending on the current active display. Each display shows icons representing the current soft key assignments at the bottom of the screen. To perform the function represented by the icon, press the corresponding soft key. The soft keys available on each display are explained in Section 5 – Reference.

3.3.4 UNLOAD PANELS Key

The UNLOAD PANELS Key is used to unload any panels from the instrument that are ready to be removed. When pressed, the instrument rotates the carousel to make the first set of Removable panels (indicated by green LED) accessible when the door is opened. It then unlocks the door so that the panels can be removed. If there are additional panels to be removed, close the door and allow the instrument to reposition the carousel to provide access to additional panels.

3.3.5 LOAD PANELS Key

The LOAD PANELS Key is used to load panels into the instrument for testing. When pressed, the instrument rotates the carousel to make the first set of available stations accessible when the door is opened. It then unlocks the door so that the panels can be inserted. If there are additional panels to be inserted, close the door and allow the instrument to reposition the carousel to provide access to additional stations. Panels can be placed in any station that is unoccupied and has no indicator LEDs lit.

3.3.6 SILENCE ALARM Key

The SILENCE ALARM key is located on the left of the Keypad/LCD Display module. When pressed, it turns off the audible alarm for the current "alert" alarm. It does not silence "door open" type audible alarms, and it does not "clear" the error condition. (See **Section 3.7 – Audible Tones and Alarms**, for an explanation of alarm types and tones.)

3.3.7 System Alert/Door Unlocked Indicator

The Alarm Indicator is located at the top of the Keypad/LCD Display, above the display area. This light illuminates or flashes yellow to notify you of certain instrument conditions.

- When the indicator is FLASHING, an alert condition exists. The indicator continues flashing until the error condition is corrected.
- When the indicator is ON, no alert exists and you **can** open the instrument door.
- When the indicator is OFF, no alert condition exists but you **cannot** open the instrument door.

When an alarm occurs, an icon (resembling the one on the Alarm Indicator) appears in the soft key assignments area of the Main Status Screen. Press the soft key corresponding to the System Alert icon. The first error code is shown on the display. Correct any error conditions as soon as possible by following the directions in **Section 7 – Troubleshooting**. You can scroll through the error log with the UP and DOWN ARROW keys.

If there is an audible alarm sounding, you can silence it by pressing the SILENCE ALARM key.

3.3.8 Display Area

The Display area is located at the center of the Keypad/LCD Display. It is used to present information to you, and to show the Soft Key definitions that allow you to perform routine operations. When the instrument starts up, the Main Status Screen is displayed. Other displays appear as you perform various operations.

The LCD Display is programmed to automatically dim after 10 minutes of inactivity. To return the brightness to normal, press any keyboard or soft key.

More information on displays is presented in **Section 5 – Reference**.

3.4 Barcode Scanners

The built-in barcode scanner is located below the Keypad/LCD Display module. The scanner remains on at all times ready to read a barcode. See Figure 3-1.

To scan a barcode, place the panel in the recessed area below the scanner. If necessary, slowly tilt the panel until the acknowledgment beep sounds (indicating that the barcode was scanned successfully).

A hand-operated scanner is also provided with the system to facilitate certain scanning scenarios, such as scanning numerous panels. To scan a barcode with the handheld scanner, press the trigger button on the bottom side of the scanner. A single beep indicates a successful scan. You must press the button for each panel or other barcode you want to scan.

3.5 Floppy Disk Drive

The floppy disk drive is located on the front of the instrument, below the built-in barcode scanner. Its primary purposes are to enable you to save data to floppy disk, and to perform software updates when they are released. See Figure 3-4.

3.5.1 Floppy Disk Indicator

The Floppy Disk Drive Indicator light is on the left side of the drive below the insertion slot. When off it indicates that no activity is occurring in the drive. When on or flashing, it indicates that the disk drive is accessing a floppy disk. **Do not attempt to eject a floppy disk while this indicator is lit.**

3.5.2 Floppy Disk Eject Button

The floppy disk drive eject button is located to the lower right of the insertion slot. When a floppy disk is inserted fully into the slot, this button extends itself. To remove a disk, fully depress the eject button. **Do not attempt to eject a floppy disk while the floppy disk indicator is lit.**

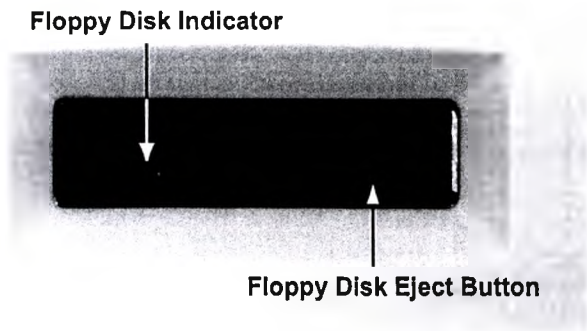


Figure 3-4 – Floppy Disk Drive Controls and Indicators

3.6 Station Indicators

Each accessible station has a set of LED indicators that inform you of the station or panel's status. The status indicators are located at the upper left of the station. See Figure 3-5. The color (red, green, or amber) and state (on or off) indicate the conditions shown in the table below for a given station.

Color	State	Meaning
Amber	ON	Panel found using "locate panel" soft key
Red	ON	Blocked Station (also Temperature Standard Panel)
Green	ON	Removable Panel
All colors	OFF	Ongoing Panel (if panel is in station) OR Available Station (if station is empty)

Table 3-1 – Station Indicators



Figure 3-5 – Station Status Indicators

3.7 Audible Tones and Alarms

Numerous different sounds are generated by the Phoenix instrument as you perform operations. Each of the sounds is unique. These tones are designed to keep you informed about various operational states of the instrument.

Type	Example	Sound
Informational		
Acknowledge	Scanning a barcode	Single short high beep
Sample audible alert	In Configuration mode, the audible alert volume was adjusted	Three tones progressing from high to low ("Figaro")
Carousel halted	The carousel has stopped, the door can be opened	Three tones progressing from low to high
Door closed	The door has been completely closed and latched	Two short high beeps
Activity completed	An operation has been completed	Three short high beeps
Swap floppy	Current floppy disk is full, insert another with free space	Long medium beep
Alarm		
Activity error (volume configurable)	Incorrect barcode scanned	Short high beep then short low beep – sequence repeated four times
System alert (volume configurable)	Optical failure	Single medium beep –one second on, three seconds off, repeating
Error tone	The attempted action cannot be performed	Short high beep then short low beep
Door open alarm	Door has remained open longer than 5 minutes	Continuous shrill trill
Cannot get into instrument	A higher priority activity prevents user access to the instrument	Single low beep
Critical Panel/ Resistance Marker notification	Critical Panel: partial results, panel completes, or ID is determined; Resistance Marker: marker has been triggered	Tone 1 (Medium frequency): Long beep, short beep, long beep, short beep; Tones 2 (low frequency) and 3 (very high frequency): Long beep, short beep, long beep, long beep
Carousel jammed	Carousel motion is impeded	High pitched trill

Table 3-2 – Audible Tones/Alarms

3.8 Keyboard

The keyboard enables you to enter panel demographic information (e.g., accession numbers), as well as performing all the soft key and keypad functions. In addition to the standard alphanumeric key functions, the following key functions exist:

 – Moves cursor to next field; equivalent to TAB (screened) key

  – Moves cursor to previous field

 – Moves up one “page” in a drop-down list field

 – Moves down one “page” in a drop-down list field

 – Toggles the check on/off in a checkbox; inserts a space character in a text field

 – Selects an item in a drop-down box

 – Moves up in a drop-down list field; displays previous selection in a some fields with predefined values (e.g., instrument number); equivalent to UP ARROW screened key

 – Moves down in a drop-down list field; displays next selection in a some fields with predefined values (e.g., instrument number); equivalent to DOWN ARROW screened key

 –  – Corresponds to the eight teal soft keys from left to right

 – Corresponds to LOAD PANELS key

 – Corresponds to UNLOAD PANELS key

 – Corresponds to SILENCE ALARM key

3.9 Printer

For an explanation of controls and indicators on the printer, refer to the manufacturer’s operating instructions furnished separately.

4 Operation

4.1 General

This section describes the routine operation of the Phoenix 100 instrument. The following major topics are discussed:

- ◆ System Maintenance
- ◆ Storage and Handling
- ◆ Preparing Panels
- ◆ Logging in Panels
- ◆ Inserting Panels in the Instrument
- ◆ Panel Testing
- ◆ Responding to Needs Attention Panels
- ◆ Automatic Association of Panels
- ◆ Obtaining Results
- ◆ Panel Finalization
- ◆ Responding to Alarms and Errors
- ◆ Printing Reports
- ◆ Unloading and Discarding Panels
- ◆ Installing New Panel Formats
- ◆ Phoenix Update Disk (PUD)
- ◆ LIS Operations

4.2 Daily System Maintenance

Each day the following maintenance procedures should be performed. The best time to perform maintenance is first thing in the morning, but it may be done any time you find convenient. The following items should be checked:

- 1 Check the printer's paper supply. If the paper supply is low or exhausted, replace the paper as explained in the manufacturer's operating instructions.
- 2 Record the temperature readout shown on the LCD display and that of the temperature standard panel. Note that the temperature panel can be brought into view by selecting one of the instrument LED check functions on the Maintenance menu (see Section 6.2.2). This temperature should be $35^{\circ}\text{C} \pm 1.5^{\circ}\text{C}$.

4.3 Storage and Handling

Phoenix Panels: Panels are individually pouched and packaged in a box of 25. Panels must be stored unopened at room temperature ($15^{\circ} - 25^{\circ}\text{C}$). Do not refrigerate or freeze. Visually inspect the packaging for holes or cracks in the foil package. Do not use if the packaging appears to be damaged. Do not use the panel if there is no desiccant or if the desiccant pouch is torn. If stored as recommended, the panels will retain expected reactivity until the date of expiration.

Phoenix ID Broth: Tubes are packaged as 100 tube packs. Visually inspect the tubes for cracks, leaks, etc. Do not use if there appears to be a leak, tube or cap damage or visual evidence of contamination (i.e., haziness, turbidity). Store Phoenix ID Broth tubes at $2^{\circ} - 25^{\circ}\text{C}$. Expiration dating is shown on the tube label.

Phoenix AST Broth and Phoenix AST-S Broth: Tubes are packaged as 100 tube packs. Visually inspect the tubes for cracks, leaks, etc. Do not use if there appears to be a leak, tube or cap damage or visual evidence of contamination (i.e., haziness, turbidity). Store Phoenix AST Broth tubes at $2^{\circ} - 25^{\circ}\text{C}$. Expiration dating is shown on the tube label.

Phoenix AST Indicator Solution and Phoenix AST-S Indicator Solution: The indicator solution is individually pouched and packaged as a package of 10 dropper bottles. Visually inspect the bottle for cracks, leaks, etc. Do not use if there appears to be a leak, bottle or cap damage, or any change from a dark blue color. **Store the Phoenix AST Indicator Solution at $2^{\circ} - 8^{\circ}\text{C}$.** Each bottle contains enough solution to test up to 100 panels. Expiration dating is shown on the box, pouch, and bottle label and is for unopened bottles. An opened bottle will be stable for up to 14 days if stored at $2^{\circ} - 8^{\circ}\text{C}$. **Be sure the bottle is held vertically when dispensing the AST Indicator Solution**

4.4 Preparing Panels

The Phoenix system is not for use directly with clinical specimens. Only pure culture isolates of aerobic and/or facultatively anaerobic gram-negative, gram-positive, and yeast organisms are acceptable for testing. The test isolate **must** be a pure culture. It is recommended that cultures be 18 to 24 hours old for gram-negative and gram-positive organisms and 18 to 48 hours old for yeast organisms. For AST testing in the Phoenix system, isolates recovered from non-selective media are recommended. It is recommended that media containing antibiotics not be used for organisms to be tested in the Phoenix system except those specifically claimed in the table below. Selective media may inhibit some strains of bacteria and yeast, therefore caution must be used when selecting isolated colonies from these media. Use isolates from a blood agar plate such as Trypticase Soy Agar with 5% Sheep Blood. The Media selected during login of Yeast ID panels refers to the media on which the organism was grown.

Other recommended media are included in the table below:

Recommended Media	Approved Use			
	ID ¹	AST	Strep	Yeast ID
BBL™ CHROMagar™ Orientation	Yes	Yes ¹	X	X
Bromthymol Blue (BTB) Lactose Agar	Yes ⁴	Yes	X	X
Chocolate Agar	Yes	Yes	Yes ²	Yes
Columbia Agar with 5% Horse Blood	Yes	Yes	Yes ³	X
Columbia Agar with 5% Sheep Blood	Yes	Yes	Yes	Yes
Columbia CNA Agar with 5% Sheep Blood (Gram Positives)	Yes	X	Yes	X
Cystine-Lactose-Electrolyte-Deficient (CLED) Agar	Yes ⁵	Yes	X	X
Dey/Engley (D/E) Neutralizing Agar (Gram Negatives)	Yes	X	X	X
Eosin Methylene Blue (Gram Negatives)	Yes	Yes	X	X
Hektoen Enteric Agar (Gram Negatives)	Yes	X	X	X
MacConkey Agar (Gram Negatives)	Yes	Yes	X	X
Phenylethyl Alcohol Agar (Gram Positives)	Yes	X	Yes	X
Sabouraud Brain Heart Infusion Agar - SAB HI (Yeast)	X	X	X	Yes
Sabouraud Dextrose Agar (Yeast)	X	X	X	Yes
Sabouraud Dextrose Agar-Emmons (Yeast)	X	X	X	Yes
Trypticase Soy Agar with 5% Sheep Blood	Yes	Yes	Yes	Yes
Trypticase Soy Agar with Lecithin and Tween 80	Yes	X	X	X
Trypticase Soy Agar without Blood	Yes	X	X	X
Xylose Lysine Desoxycholate Agar (Gram Negatives)	Yes	X	X	X

¹ The use of CHROMagar Orientation may produce false susceptibility results when testing erythromycin with Gram positive organisms. Antimicrobial susceptibility test results should be confirmed using Trypticase Soy Agar with 5% Sheep Blood.

² This media type should *not* be used for Streptococcal identification with SMIC/ID panels. Chocolate Agar may be used for Streptococcal susceptibility testing only.

³ The use of Columbia Agar with 5% Horse Blood may produce significantly higher MIC for SXT with *Streptococcus* species, which may result in false resistance. Antimicrobial susceptibility test results should be confirmed using Trypticase Soy Agar with 5% Sheep Blood.

⁴ The use of Bromthymol Blue Lactose Agar with Gram Positive organisms should be restricted to Staphylococci for both the 0.5 and 0.25 GP systems.

⁵ The use of Cystine-Lactose-Electrolyte-Deficient Agar with Gram Positive organisms should be restricted to Staphylococci for the 0.25 GP system.

Table 4-1 – Recommended Media

Do not use media containing antibiotics for organisms to be tested in the Phoenix system except those specifically claimed in the table above. It is recommended that the applicator swabs are sterile cotton swabs. Polyester swabs are not recommended. The quality of applicator swabs may vary from vendor to vendor and on occasion, loose fibers may dislodge from the swab affecting McFarland readings.

The usefulness of the Phoenix system or any other diagnostic procedure performed on clinical specimens is directly influenced by the quality of the specimens themselves. It is strongly recommended that laboratories employ methods discussed in the *Manual of Clinical Microbiology*¹⁷ for specimen collection, transport, and placement on primary isolation media.

Due to variations in inoculum concentrations prepared with McFarland standards, use of the BBL™ CrystalSpec™ nephelometer, the BD PhoenixSpec™ nephelometer, or the BD Phoenix AP™ instrument is required for adjusting the test inoculum prior to use in the Phoenix system.

Instructions for an optional purity check are provided at the end of this subsection.

WARNINGS

OBSERVE ESTABLISHED PRECAUTIONS AGAINST MICROBIOLOGICAL HAZARDS THROUGHOUT ALL PROCEDURES. ALL SPECIMENS SHOULD BE HANDLED ACCORDING TO CDC-NIH RECOMMENDATIONS, CLSI GUIDELINES, OR LOCAL INSTITUTION GUIDELINES FOR ANY POTENTIALLY INFECTIOUS HUMAN SERUM, BLOOD, OR OTHER BODY FLUIDS. PRIOR TO DISCARDING, STERILIZE SPECIMEN CONTAINERS AND OTHER CONTAMINATED MATERIALS BY AUTOCLAVING.

IN ADDITION TO WEARING GLOVES, THE USE OF DISPOSABLE LAB COATS OR GOWNS AND PROTECTIVE GLASSES OR GOGGLES IS RECOMMENDED WHEN WORKING AROUND THE INSTRUMENT.

Materials Required:

- Phoenix Panels
- Phoenix ID Broth or Phoenix Inoculum Broth
- Phoenix AST and/or Phoenix AST-S Broth
- Phoenix AST Indicator Solution and/or Phoenix AST-S Indicator Solution
- Phoenix Panel closures
- Phoenix Inoculation Station
- Phoenix Transport Caddy
- BBL™ CrystalSpec™ nephelometer, the BD PhoenixSpec nephelometer, or the BD Phoenix AP™ instrument
- 25 µL pipettor and tips

Materials Required but Not Provided:

- Gram Stain Reagents
- Sterile Cotton Swabs, Inoculation Loops or Needles
- Nonselective Culture Plated Media (see ¶11, Section 4.4)
- Incubators
- Biohazard Disposable Container
- Markers, etc.
- Vortex mixer

NOTES

Care should be exercised in handling Phoenix panels. You should handle panels by the **sides only** to avoid marking, smudging, or obscuring the bottom or top of the panel in any way.

Accession bar code labels affixed to a Phoenix panel:

- **Must not be of fluorescent material.**
- Should not cover any Phoenix panel reaction wells.
- Should not cover the Phoenix sequence number (panel) barcode.

The procedure that follows describes all the steps in preparing a combination panel for both identification and susceptibility testing. If you are using a combination panel for only ID or only AST testing, note that certain steps are not applicable in the procedure.

General Panel Preparation

If you are using the BD Phoenix AP™ instrument, refer to the *BD Phoenix AP Instrument User's Manual* for panel preparation.

Phoenix Strep panels, Phoenix Yeast ID panels, Phoenix Plus panels, Phoenix Inoculum Broth, and Phoenix MIC panels have separate instructions that appear after Step 19 of these instructions.

- 1 Confirm the Gram stain reaction of the isolate before proceeding with the inoculum preparation for use in the Phoenix instrument. Once the Gram stain reaction is confirmed, select the appropriate Phoenix panel for inoculation.
- 2 Examine the pouch, and do not use the panel if the pouch is punctured or opened. Remove the panel from the pouch. Discard the desiccant. Do not use the panel if there is no desiccant or if the desiccant pouch is torn.

NOTE

Panels must be inoculated within 2 hours of being removed from the pouch.

- 3 Place the panel on the Inoculation Station with the inoculation ports on top and the pad on the bottom.
- 4 Label a Phoenix ID broth tube with the patient's specimen number. Using aseptic technique, pick colonies of the same morphology with the tip of a sterile cotton swab (do not use a polyester swab) or a wooden applicator stick from one of the recommended media.
- 5 Suspend the colonies in the Phoenix ID broth (4.5 mL).
- 6 Cap the tube and vortex for five seconds.

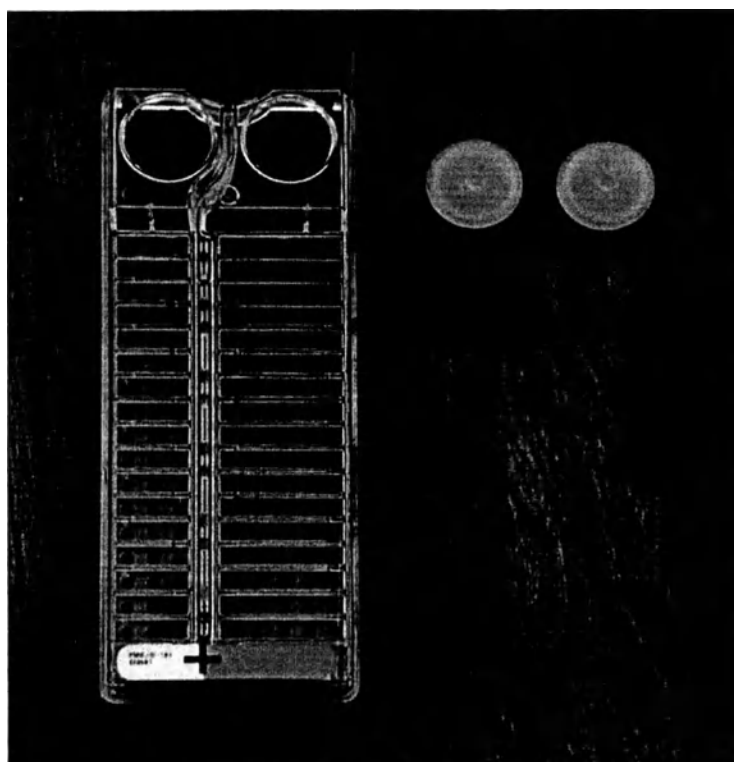


Figure 4-1 – Panel and Closures

- 7 Allow approximately ten seconds for air bubbles to surface. You can tap the tube gently to aid in eliminating bubbles.
- 8 Insert the tube into the CrystalSpec or BD PhoenixSpec nephelometer. Make sure the tube is inserted as far as it will go. (Refer to the BBL CrystalSpec or BD PhoenixSpec nephelometer product insert for correct usage instructions.)
- 9 If the inoculum density is set to 0.5 McFarland for the panel type being run, then a range of 0.50 – 0.60 is acceptable. If the inoculum density is set to 0.25 McFarland for the panel type being run, then a range of 0.20 – 0.30 is acceptable. **If the density of organisms is low**, you can add colonies from the isolate. Re-vortex the sample and reread to confirm that the correct McFarland has been achieved. **If the density of organisms exceeds 0.6 McFarland**, follow the steps below to dilute the broth. It is very important to accurately indicate the level of the liquid in the tube since this volume is needed to adequately fill the wells in the panel.

- a Using a marker, mark the broth level in the over-inoculated Phoenix ID Broth tube.
- b Using a sterile pipette, aseptically add fresh Phoenix ID Broth to the inoculum. Only Phoenix ID Broth may be used to dilute the inoculum.
- c Vortex the tube and allow to sit for 10 seconds.
- d Place the tube in the nephelometer and remeasure the turbidity of the suspension.
 - If the reading is greater than 0.6, repeat Steps b-d.
 - If the reading is 0.5 - 0.6, go to Step e.
- e Using a sterile pipette, aseptically remove excess broth to the original level indicated by the mark on the tube created in Step a.
Remove excess broth to avoid overfilling the panel. Also, do not remove too much broth, as there may be insufficient broth to adequately fill the panel.
- f Broth may now be used to inoculate the Phoenix AST Broth and/or the Phoenix Panel.

NOTES

- Yeast ID panels must be inoculated using a 2.00 - 2.40 McFarland inoculum density.
- Confirm current instrument settings for inoculum density before inoculating panels.
- See instructions below, **ID Inoculum Density Flexibility**, for information on using alternate densities.
- Only the BD PhoenixSpec Nephelometer and BD Phoenix AP instrument can be used to make inoculum densities of 0.25 McFarland
- Standardized bacterial suspension in ID Broth or Inoculum Broth must be used within 60 minutes of preparation.

- 10 If you are performing identification only, proceed to Step 15 and continue the procedure. If you are inoculating a Phoenix Plus Panel, refer to the section below, **Phoenix Plus Panels**.
- 11 Label a Phoenix AST broth tube (8.0 mL) with the patient's specimen number. Add one free-falling drop of AST Indicator solution to the AST broth tube. Invert to mix. DO NOT VORTEX.

NOTES

- Allow AST Indicator Solution to warm to room temperature before dispensing into AST broth.
- The unused portion of the indicator should be returned to 2° – 8° C as soon as possible. **Do not store at room temperature for more than 2 hours. Opened bottles should be discarded after 14 days from initial opening.**
- If volume other than one drop is added inadvertently, discard the tube and use a fresh tube of AST broth.
- After the addition of the Indicator to AST broth, the mixed solution can be stored in the dark, at room temperature, for as long as 8 hours.
 - Tubes must be used within 2 hours after the addition of AST Indicator Solution if exposed to light.

- 12 If an inoculum density of 0.50 – 0.60 was used, transfer 25 μ L of the bacterial suspension from the ID tube into the AST broth tube. If an inoculum density of 0.20 – 0.30 was used, transfer 50 μ L (use 2 shots if utilizing a 25 μ L pipettor) of the bacterial suspension from the ID tube into the AST broth tube.

NOTE

Panels must be inoculated within 30 minutes of the time that the AST broth inoculum is prepared.

- 13 Cap the AST tube and invert several times to mix.
- 14 Wait a few seconds for air bubbles to surface. You can tap the tube gently to aid in eliminating bubbles.
- 15 Pour the ID tube inoculum into the fill port on ID side of the panel (51-well side). Allow the fluid to traverse down the tracks before moving the panel. If you are using an AST (only) panel, DO NOT inoculate the ID side of the panel. Retain the ID tube for an optional purity check (see below).
- 16 Pour the AST broth inoculum into the fill port on AST side of the panel (85-well side). Allow the fluid to traverse down the tracks before moving the panel.
- 17 Before placing panel closures check for residual droplets of inoculum on the edge of the fill ports. If a droplet is present remove the droplet with absorbant material. The used absorbant material must be decontaminated before discarding.
- 18 Snap on the panel closures. **Make sure that the closures are fully seated. Use 2 closures regardless of panel type.**
- 19 Visually inspect panels to be sure each of the wells is full. Look at both sides of the panel. Make certain that the wells are not overfilled. If any of the wells are unfilled or overfilled, inoculate a new panel.

NOTES

- Panels must be loaded into the instrument within 30 minutes of inoculation (see Section 4.6).
- Panels must be kept in the inoculation station after inoculation until the excess fluid has been completely absorbed by the pad.
 - Panels should stay vertical in the caddy until loaded.
- Inoculated panels should be handled with care. Avoid knocking or jarring the panel.

NOTE

OPTIONAL PURITY CHECK

It is highly recommended that the purity of both ID and AST inocula be checked by preparing a purity plate.

To perform a purity check, using a sterile loop, recover a small drop from the inoculum fluid tube either before or after inoculating the panel and inoculate an agar plate (any appropriate medium) for purity check. Discard inoculum fluid tube and cap in a biohazard disposal container. Incubate the plate for 24-48 h at 35° C under appropriate conditions.

Phoenix Strep Panels

Phoenix Strep panels are for the identification and antimicrobial susceptibility testing of most *Streptococcus* species. Although *Streptococcus* species may be identified in the Gram positive panels, antimicrobial susceptibility cannot be reported when using these panels. The Phoenix Strep panels, which must be used with Phoenix AST-S Broth and Phoenix AST-S Indicator Solution, provide the conditions required for rapid AST testing of most *Streptococcus* species.

- 1 Follow Steps 1 – 9 (General Panel Preparation) to prepare the suspension of bacteria.
- 2 Add one drop of the Phoenix AST-S Indicator to each AST-S broth tube. Invert to mix. DO NOT VORTEX.

NOTES

- AST-S Broth and AST-S Indicator Solution are for use with the Phoenix Strep panels (SMIC/ID, SMIC) only. These reagents are not interchangeable with the AST Broth and AST Indicator Solution used with Phoenix Gram positive and Gram negative panels.
- Allow AST-S Indicator Solution to warm to room temperature before dispensing into AST-S broth.
- The unused portion of the indicator should be returned to 2° – 8° C as soon as possible. Do not store at room temperature for more than 2 hours. Opened bottles should be discarded after 14 days from initial opening.
- If volume other than one drop is added inadvertently, discard the tube and use a fresh tube of AST-S broth.
- After the addition of the Indicator to AST-S broth, the mixed solution can be stored in the dark, at room temperature, for as long as 8 hours.
 - Tubes must be used within 2 hours after the addition of AST-S Indicator Solution if exposed to light.

- 3 Using a pipettor, transfer 25 µL of the standardized bacterial suspension from the ID tube into the AST-S broth tube.

NOTE

Panels must be inoculated within 30 minutes of the time that the AST-S broth inoculum is prepared.

- 4 Cap the AST-S tube and invert several times to mix.
- 5 Wait a few seconds for air bubbles to surface. You can tap the tube gently to aid in eliminating bubbles.
- 6 Pour the ID tube inoculum into the fill port on ID side of the panel (51-well side). Allow the fluid to traverse down the tracks before moving the panel. If you are using a Phoenix Strep MIC only panel, DO NOT inoculate the ID side of the panel. Retain the ID tube for an optional purity check (see below).
- 7 Pour the AST-S broth inoculum into the fill port on AST side of the panel (85-well side). Allow the fluid to traverse down the tracks before moving the panel.
- 8 Before placing panel closures, check for residual droplets of inoculum on the edge of the fill ports. If a droplet is present, remove the droplet with absorbant material. The used absorbant material must be discarded with biohazard waste.
- 9 Snap on the panel closures. **Make sure that the closures are fully seated.**
- 10 Visually inspect panels to be sure each of the wells is full. Look at both sides of the panel. Make certain that the wells are not overfilled. If any of the wells are unfilled or overfilled, inoculate a new panel.

NOTES

- Panels must be loaded into the instrument within 30 minutes of inoculation (see Section 4.6).
- Panels must be kept in the inoculation station after inoculation until the excess fluid has been completely absorbed by the pad.
 - Panels should stay vertical in the caddy until loaded.
- Inoculated panels should be handled with care. Avoid knocking or jarring the panel.

NOTE

OPTIONAL PURITY CHECK

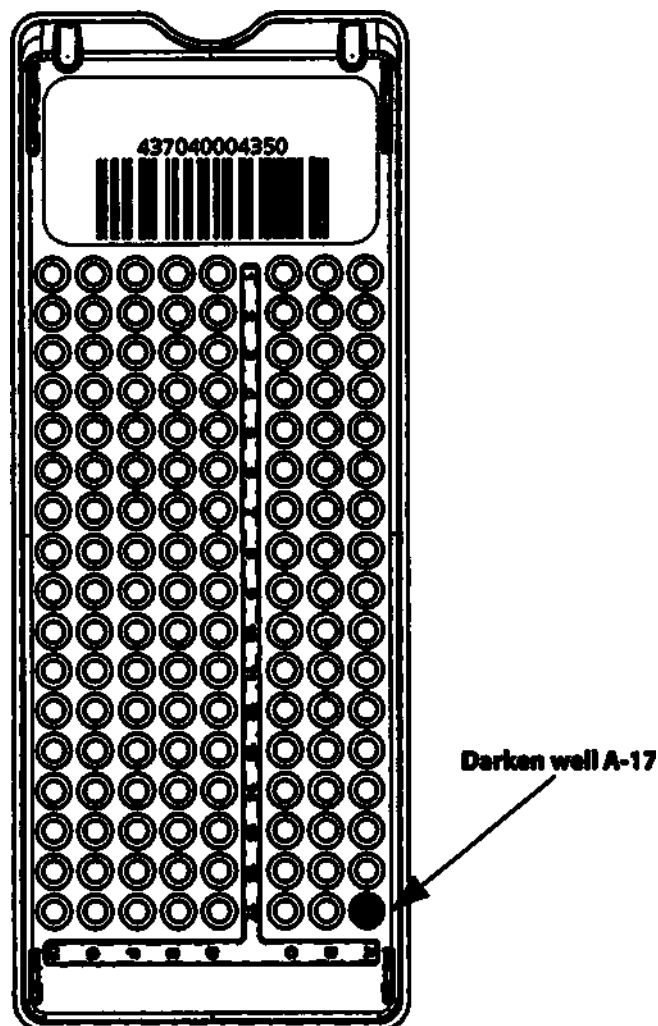
It is highly recommended that the purity of both ID and AST-S inocula be checked by preparing a purity plate.

To perform a purity check, using a sterile loop, recover a small drop from the inoculum fluid tube either before or after inoculating the panel and inoculate an agar plate (any appropriate medium) for purity check. Discard inoculum fluid tube and cap in a biohazard disposal container. Incubate the plate for 24-48 h at 35° C under appropriate conditions.

ID Inoculum Density Flexibility

You may run the ID portion of a panel in the opposite mode from what is configured by darkening well A-17 on the back of a panel before placing the panel in the instrument. This allows you to run a panel at an inoculum density of 0.20 – 0.30 even if you are configured for a density of 0.5 for that particular panel type. Likewise, you can run a panel at an inoculum density of 0.50 – 0.60 if you are configured for a density of 0.25.

There is no way to alter the density setting during Panel Login. To use a panel in the opposite density mode, using a black Sharpie™ (permanent marker) blacken the **entire A-17** well as shown in the figure below.



Inoculum densities sent from the Phoenix AP instrument (via the EpiCenter system) cannot be changed by darkening well A-17. Inoculum densities sent from the Phoenix AP instrument are invalid if they are received after the completion of the first test cycle, or if the ID portion of the panel is disabled, or if the panel type does not support the inoculum density. If the instrument receives an invalid inoculum density for an ID panel that differs from the panel's determined inoculum density, the ID side of the panel fails, a Needs Attention code is triggered (Can Not Determine Organism ID), and a Special Message is triggered.

The following table outlines how to run the opposite mode from the density for which the instrument is configured.

Current Instrument Inoculum Density Configuration	Inoculum Concentration Desired for Test Panel	Amount of ID Inoculum to Add to AST Broth**	Well A-17
0.50	0.25	50 µL	Blackened
0.25	0.50	25 µL	Blackened
** If also running AST			

Phoenix Yeast ID Panels

Phoenix Yeast ID panels are for the identification of most clinically relevant yeast and yeast-like species.

- 1 Follow Steps 1 – 8 (**General Panel Preparation**) to prepare the suspension of yeast.
- 2 The inoculum density is set to 2.0 McFarland for Yeast ID panels, with a range of 2.00 - 2.40 as acceptable. If the density of organism is low or the density of organisms exceeds 2.40 McFarland, follow the steps discussed in Step 9 (General Panel Preparation) to obtain the correct McFarland density.
- 3 Pour the ID tube inoculum into the fill port on the ID side of the panel (51-well side). Allow the fluid to traverse down the tracks before moving the panel.
- 4 Before placing panel closures, check for residual droplets of inoculum on the edge of the fill ports. If a droplet is present remove the droplet with absorbant material. The used absorbant material must be discarded with biohazard waste.
- 5 Snap on the panel closures. **Make sure that the closures are fully seated. Use 2 closures regardless of panel type.**
- 6 Visually inspect panels to be sure each of the wells is full. If any of the wells are unfilled or overfilled, inoculate a new panel.

NOTES

- Yeast ID panels must be inoculated using a 2.00 - 2.40 McFarland inoculum density.
- Standardized bacterial suspension in ID Broth or Inoculum Broth must be used within 60 minutes of preparation.

NOTES

- Panels must be loaded into the instrument within 30 minutes of inoculation (see Section 4.6).
- Panels must be kept in the inoculation station after inoculation until the excess fluid has been completely absorbed by the pad.
 - Panels should stay vertical in the caddy until loaded.
- Inoculated panels should be handled with care. Avoid knocking or jarring the panel.

NOTE

OPTIONAL PURITY CHECK

It is highly recommended that the purity of ID inoculum be checked by preparing a purity plate.

To perform a purity check, using a sterile loop, recover a small drop from the inoculum fluid tube either before or after inoculating the panel and inoculate an agar plate (any appropriate medium) for purity check. Discard inoculum fluid tube and cap in a biohazard disposal container. Incubate the plate for 24-48 h at 35° C under appropriate conditions.

Phoenix Plus Panels

Phoenix Plus panels are designed to perform susceptibility testing on an expanded number of antimicrobial agents. To accomplish these susceptibilities, antimicrobial agents are present on both sides of the Phoenix panel. These panels do not have the ability to perform bacterial identification. Because of the design, the inoculation technique is unique and is outlined below. Two tubes of AST broth will be required.

- 1 Follow Steps 1 – 9 (**General Panel Preparation**) to prepare the suspension of bacteria.
- 2 Add one drop of the Phoenix AST Indicator to each AST broth tube.
- 3 Transfer 25 μ L (50 μ L if low inoculum option is used) of the suspension to two Phoenix AST broth tubes. Cap and gently invert.
- 4 Using sterile technique, remove 3.5 mL of broth from one of the inoculated Phoenix AST broth tubes and discard in an appropriate container.
- 5 Pour the remaining 4.5 mL into the left side of the Phoenix Plus panel. Pour the other Phoenix AST broth tube into the right side of the Phoenix Plus panel.
- 6 Cap the panel and follow the normal panel login procedure.

Phoenix Inoculum Broth

Phoenix Inoculum Broth can be used to make the initial McFarland suspension of microorganisms when utilizing Phoenix MIC only panels (PMIC, NMIC, SMIC). The Phoenix Inoculum Broth is filled with 2.2 mL of Phoenix ID Broth and will reach the correct inoculum density by using fewer bacterial colonies.

- 1 Follow Steps 1 – 9 (**General Panel Preparation**) to prepare the suspension of bacteria using the Phoenix Inoculum Broth rather than the Phoenix ID Broth.
- 2 For NMIC and PMIC panels, add one drop of the Phoenix AST Indicator to the Phoenix AST broth tube.

For SMIC panels, add one drop of the Phoenix AST-S Indicator to the Phoenix AST-S broth tube.
- 3 Transfer 25 μ L (50 μ L if low inoculum option is used) of the Phoenix Inoculum Broth suspension to the Phoenix AST or AST-S tube(s).

- 4 Follow Steps 16 – 19 (General Panel Preparation). Follow the normal panel login procedure.

Phoenix MIC (NMIC, PMIC, SMIC) Panels

Inoculum can be prepared using either Phoenix ID Broth or Phoenix Inoculum Broth (Step 4, General Panel Preparation).

- 1 Follow Steps 1 – 9 (General Panel Preparation) to prepare the suspension of bacteria.
- 2 For NMIC and PMIC panels, add one drop of the Phoenix AST Indicator to the Phoenix AST broth tube.

For SMIC panels, add one drop of the Phoenix AST-S Indicator to the Phoenix AST-S broth tube.
- 3 Transfer 25 μ L (50 μ L if low inoculum option is used with NMIC or PMIC panels) of the Phoenix ID Broth to the Phoenix AST or AST-S tube. Cap and gently invert. Retain the ID tube or Inoculum tube for an optional purity check (see above).
- 4 Follow Steps 16 – 19 (General Panel Preparation). Follow the normal panel login procedure.

4.4.1 Quality Control

Refer to the panel package insert for information on ID/AST Quality Control. Note that QC panels cannot be marked as critical. Refer to Figure 4–2.

Quality Control testing is recommended for each lot of panels. The QC Lot Support feature can facilitate QC panel tracking and testing. If the QC Lot Support feature is enabled, then the panel lot number must be defined prior to logging in QC panels.

- 1 Inoculate a panel with one of the organisms listed in the package insert. All microbial cultures, including QC organisms, are potentially infectious and should be treated with universal precautions. QC organisms are prepared for panel inoculation as specified in Section 4.4 Preparing Panels, immediately preceding this section.

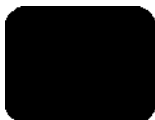
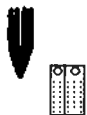
NOTE

For most reliable results, it is recommended that the QC organisms be subcultured at least twice on two consecutive days onto TSA with 5% Sheep Blood agar before use in the Phoenix system. Use only well-isolated colonies.

For Yeast ID QC, the use of Sabouraud Dextrose Agar as the subculture media is also acceptable.

- 2 Log the panel in as a QC panel as follows:

- a Press the "panel login" soft key.



- b Press the "QC panel" soft key.



- c In the **Sequence #** field, type in or scan the panel's sequence number.
- d If desired, in the **Accession #** field, type in or scan an accession number. Press  to advance to the next field.
- e If a combination panel is being used, both the ID and AST checkboxes are automatically checked (enabled).

14

PANEL LOGIN
GNIDAST

Sequence #

Accession #

Isolate #

Test Strain

☐ ID

☐ AST

Tech ID

Panel Lot #

ID Broth Lot #

AST Broth Lot #

Indicator Lot #

Exp. Date

Exp. Date

Exp. Date

Exp. Date

Figure 4-2 – QC Panel Login Display

For Yeast ID panels, the Media field appears to the right of the Isolate # field.

- f The **Isolate #** field defaults to isolate number 1. Type in the isolate number, or press UP ARROW or DOWN ARROW to increase or decrease the number. Valid isolate numbers are 1 to 20. Press **Tab** to advance to the next field.
- g For Yeast ID panels, you must specify a media type in the **Media** field. If you do not specify a media type, a workflow error is generated when you try to save the panel. If you do not login a Yeast ID panel before placing it in the instrument for testing, the panel aborts after the first reading because no media has been specified.

You can configure a default media type (see Section 2.3.1.2 – More Configuration Options), which appears when a Yeast ID panel sequence number is scanned during login.

To select a different media, press DOWN ARROW to drop down a box listing all media types (abbreviations), sorted alphabetically. (When you highlight the media type, the full name appears at the top right of the display.) Use UP ARROW or DOWN ARROW to highlight the desired media. Press the "select" soft key or **Enter** to select that media.

- h In the **Test Strain** field, press DOWN ARROW to drop down the QC organism selection box. (Only the predefined, required test strains appear [if available], otherwise all of the test strains appear. If a Sequence number has not been entered, "No Data Available" is displayed.) Use UP ARROW or DOWN ARROW to highlight the desired QC organism. Press **Tab** to select the organism. Press **Tab** to advance to the next field.
- i In the **Tech ID** field, enter the identification for the technologist performing the QC

test. Up to 3 alphanumeric characters are accepted. Press  to advance to the next field.

The following two fields do not appear when EpiCenter communications is enabled.

- j In the **Panel Lot #** field, type in or scan the panel's lot number. Lot numbers must be 7 numeric digits. Press  to advance to the next field. (If the QC Lot Support feature is enabled, this field is completed automatically when the Sequence # barcode is scanned.)
- k In the first **Panel Lot # Exp(iration) Date** field, press UP ARROW or DOWN ARROW to enter the expiration day, month, or year (depending on your configuration). Press  to advance to the next date field and press UP ARROW or DOWN ARROW to enter the expiration day, month, or year. Press  to advance to the next date field, and press UP ARROW or DOWN ARROW to enter the final portion of the date. (If the QC Lot Support feature is enabled, this field is completed automatically when the Sequence # barcode is scanned.)
- l If desired, in the **ID Broth Lot #** field, type in or scan the broth lot number. Lot numbers must be 7 numeric digits. Press  to advance to the next field.
- m If desired, in the first **ID Broth Lot # Exp(iration) Date** field, press UP ARROW or DOWN ARROW to enter the expiration day, month, or year (depending on your configuration). Press  to advance to the next date field and press UP ARROW or DOWN ARROW to enter the expiration day, month, or year. Press  to advance to the next date field, and press UP ARROW or DOWN ARROW to enter the final portion of the date.
- n If desired, in the **AST Broth Lot #** field, type in or scan the broth lot number. Lot numbers must be 7 numeric digits. Press  to advance to the next field.
- o If desired, in the first **AST Broth Lot # Exp(iration) Date** field, press UP ARROW or DOWN ARROW to enter the expiration day, month, or year (depending on your configuration). Press  to advance to the next date field and press UP ARROW or DOWN ARROW to enter the expiration day, month, or year. Press  to advance to the next date field, and press UP ARROW or DOWN ARROW to enter the final portion of the date.
- p If desired, in the **Indicator Lot #** field, type in or scan the broth lot number. Lot numbers must be 7 numeric digits. Press  to advance to the next field.
- q If desired, in the first **Indicator Lot # Exp(iration) Date** field, press UP ARROW or DOWN ARROW to enter the expiration day, month, or year (depending on your configuration). Press  to advance to the next date field and press UP ARROW or DOWN ARROW to enter the expiration day, month, or year. Press  to advance to the next date field, and press UP ARROW or DOWN ARROW to enter the final portion of the date.
- r Press the "save" soft key to save the information.



- 3 Place the panel in the instrument (refer to Section 4.6).

- 4 When panel testing is complete, review the results for accuracy in the panel results display (see Section 4.10).

4.5 Panel Login

4.5.1 Using the Instrument Interface

The Liquid Crystal Display (LCD) presents all the information needed to monitor instrument status, to enter and remove panels, set up the instrument, print reports, and perform routine instrument maintenance. The information is presented in the form of screens and icons that graphically represent the information (e.g., a thermometer indicates the current temperature). The top region of the main status display presents instrument status information that is updated every few seconds. The middle region of the display initially presents station status information. As you access different screens and functions, they appear in place of the top and middle status windows. At the bottom of the displays, a series of icons shows the current software (soft) key definitions. Display regions are discussed in greater detail in **Section 5 – Reference**.

Most of the operations you perform at the instrument are initiated by pressing soft keys. Soft key definitions change as you select their related functions and access different displays and operations.

The keyboard can be used instead of the soft keys. The soft keys, from left to right, correspond to the keyboard function keys **F1** – **F8**. The UP ARROW, DOWN ARROW, and TAB keys correspond to the same keys on the keyboard.

In addition to the soft keys, six hard keys, themselves marked with screened icons, perform fixed functions regardless of the current display or operation. The LOAD PANELS key is used to prepare the instrument for loading panels for testing; UNLOAD PANELS key is used to remove panels from the instrument; SILENCE ALARM key quiets any audible alerts; the UP and DOWN ARROW keys are used to scroll through lists or to increase or decrease values; and the TAB key is used to move the cursor to the next field on a display. Pressing the SILENCE ALARM + UP ARROW keys together prints the current display.

4.5.2 Logging in Panels

Depending on the type of panel selected, different fields appear on the Panel Login display. (For information on logging in QC panels, refer to Section 4.4.1.)

The inoculum density of the panel is set in Configuration. There is no way during Panel Login to change the density setting. The only way to use a different inoculum density is by blackening well A-17 as described in **Section 4.4 Preparing Panels, ID Inoculum Density Flexibility**.

For Yeast ID panels (only), in order to insure optimal system performance, you must provide the correct media type via a drop-down box or by using the default media setting. The media type selection only applies to Yeast ID panels and is not displayed for other panel types.

Log the panel into the instrument as follows:

- 1 Press the "panel login" soft key.



- 2 In the **Sequence #** field, type in or scan the panel's sequence number.
- 3 In the **Accession #** field, type in or scan an accession number. Press **Tab** to advance to the next field (not required if barcode is scanned).
- 4 The **Isolate #** field defaults to isolate number 1. Type in the isolate number, or press UP ARROW or DOWN ARROW to increase or decrease the number. Valid isolate numbers are 1 to 20. Press **Tab** to advance to the next field. (You must enter an isolate number if you have entered an accession number.)
- 5 For Yeast ID panels, you must specify a media type in the **Media** field. If you do not specify a media type, a workflow error is generated when you try to save the panel. If you do not login a Yeast ID panel before placing it in the instrument for testing, the panel aborts after the first reading because no media has been specified.

You can configure a default media type (see Section 2.3.1.2 – More Configuration Options), which appears when a Yeast ID panel sequence number is scanned during login.

To select a different media, press ▼ to drop down a box listing all media types (abbreviations), sorted alphabetically. (When you highlight the media type, the full name appears at the top right of the display.) Use ▼ or ▲ to highlight the desired media. Press the "select" soft key or **Enter** to select that media.

- 6 If you want to receive special notification (audible alarm and/or automatic printing of a Lab Report) when panel results are obtained (ID only, partial, or complete), press the "select" soft key to check the **Critical** checkbox. More information about critical panels is provided in Section 2.3.5.
- 7 If you are only using either the ID or AST portion of a combination panel, press the "tab" key to advance the cursor to the ID or AST checkbox. Press the "select" soft key to UN-check the part of the panel you are not using.
- 8 If you UN-check the ID checkbox, or if you are using an AST-only or Phoenix Plus panel, the **Organism ID** field appears. If the system is not performing the organism identification, you must provide the organism ID for SIR interpretation. (If an AST panel is being tested and you do not enter an organism ID, the panel will go to "Needs Attention" when the instrument completes reading. You will have to provide an organism ID in order for the BDXpert system to interpret MIC results.)

Press DOWN ARROW to select the desired organism from the drop-down box. Organisms are listed in alphabetical order. You can enter the first few characters of the organism name to jump to that portion of the list quickly. Use UP ARROW or DOWN ARROW to highlight the desired organism. Press the "select" soft key or **Enter** to select the organism. You can also scan the desired organism from the barcode list of organisms found in the Quick Reference Guide.

- 9 Press the "save" soft key to save the information.



- 10 Place the panel in the instrument (refer to Section 4.6).

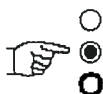
The following soft key functions can be performed from Panel Login:



"save" – saves the information displayed



"clear" – clears the record currently displayed from the screen



"select" – checks/unchecks a checkbox field or selects highlighted item in drop-down list box



"QC panel" – brings up fields needed to login a QC panel



"repeat data" – enters the last accession number and media type for panels, or media type and lot information for QC panels as follows: if QC Lot Support is disabled (Panel Lot plus Expiration, ID Broth Lot plus Expiration, AST Broth Lot plus Expiration, Indicator Lot plus Expiration), if QC Lot Support is enabled (ID Broth Lot plus Expiration, AST Broth Lot plus Expiration, Indicator Lot plus Expiration)



"LIS Orders" – brings up a window showing any order records that have been received from the LIS system (see Section 4.5.3 for more information)

4.5.3 Associating and Removing LIS Orders

The Phoenix instrument can save up to 200 Order records sent from an attached LIS system. These Order records can be accessed through a Panel Login – LIS Orders display. The LIS Orders display is accessible from the main Panel Login display via a soft key.

To access the LIS Orders display:

- 1 From the Main Status screen, press the “panel login” soft key.



- 2 Type in or scan the panel sequence number. (When a sequence number is entered, the system displays only LIS orders containing that panel type.)
- 3 Uncheck the ID or AST checkbox to disable that portion of a Combination panel, if desired.
- 4 From the Panel Login screen, press the “LIS Orders” soft key.



- 5 The LIS Orders display appears (Figure 4–3).
- 6 In the LIS Orders field, press ▼ to drop down a box listing LIS order records for that panel type, sorted alphabetically by accession number. The box lists the following information: accession number, isolate number, and organism or test strain (if available). Note that critical panels are shown in red text in the dropdown box.
- 7 Use ▼ or ▲ to highlight the Order record you want to associate to the panel. Press the “select” soft key or **Enter** to select that Order.
- 8 Press the “save” soft key to save the association. The LIS order is then removed from the LIS Order list.

Removing LIS Orders

To remove one or more LIS Order records from the LIS Order list, you can access the Remove LIS Orders window. This window lists all the LIS Orders by panel type. Order records are first marked, then deleted via soft key functions.

To remove LIS order records:



From the LIS Orders window, press the “more LIS functions” soft key

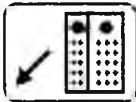
4.6 Inserting Panels in the Instrument

Panels are inserted with the reaction (and panel sequence barcode label) side facing the interior of the instrument. Refer to Figure 4–4.

WARNING

THE INSTRUMENT DOOR IS ELECTROMECHANICALLY LATCHED AND IS CONTROLLED BY THE INSTRUMENT SOFTWARE. NEVER ATTEMPT TO DEFEAT THE DOOR LATCHING MECHANISM, OR TO OPEN THE DOOR WHEN THE "UNLOCKED" ICON IS NOT DISPLAYED. SERIOUS INJURY CAN BE CAUSED BY THE ROTATING CAROUSEL. IF THE CAROUSEL IS NOT COMPLETELY STOPPED WHEN THE DOOR IS OPENED, IMMEDIATELY CONTACT BD FOR SERVICE. NEVER ATTEMPT TO ROTATE THE CAROUSEL MANUALLY OR SERIOUS INJURY MAY RESULT.

- 1 Press the LOAD PANELS key.



- 2 When the audible signal sounds (and "door unlocked" icon appears), open the instrument door.



- 3 Select a panel holder where there is no panel in place and no LEDs are illuminated. Place the bottom part of the panel in the panel holder.
- 4 Press downward.
- 5 Pivot the top of the panel back into the panel holder.

NOTE

Do not snap the panel back into the holder. This may result in splashing of the inoculum, which may cause inaccurate results.

- 6 Allow the panel to move upward into place.
- 7 Close the instrument door. If more panels need to be inserted than there are available holders in the current section, wait for a moment for the carousel to rotate to provide additional available holders, and repeat Steps 2 through 7.
- 8 The system performs an inventory scan to locate any newly inserted panels and reads the barcodes of these panels.

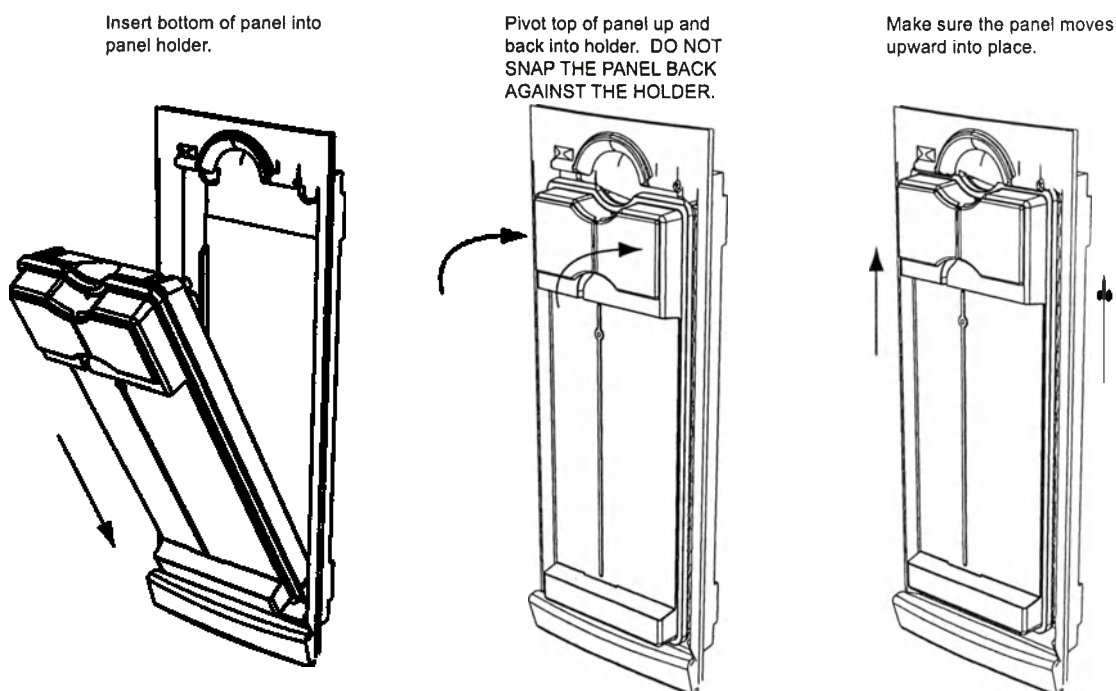


Figure 4-4 – Inserting Panels

4.7 Panel Testing

Panels placed in the instrument are continuously incubated at 35° C. The instrument tests panels every 20 minutes: on the hour, at 20 minutes past the hour, and again at 40 minutes past the hour.

Before each test cycle the current time is read. If the test cycle completes successfully the time is saved. A successful test cycle occurs when there are no carousel errors and the user does not pre-empt the test by initiating a Load Panels, Unload Panels, or Locate Panel operation. When the user initiates these operations, the current time is compared to the last test cycle's start time. If more than 30 minutes have NOT elapsed, the requested operation (Load Panels, Unload Panels, etc.) is performed. If more than 30 minutes HAVE elapsed since the last test cycle's start time, a test cycle must successfully complete before the user is permitted to perform a Load Panels, Unload Panels, or Locate Panel operation. The system alert/door unlocked LED is also off (if a system alert is not active) and the "cannot get into instrument" tone sounds when more than 30 minutes has elapsed since the last test cycle when a panel operation is requested.

After each test:

- The summary counters on the Main Status Screen are adjusted to indicate current statuses
- Panels/records that require user action have a Needs Attention flag set
- System alerts are reported in the System Alerts list
- Auto Association occurs (see Section 4.9).

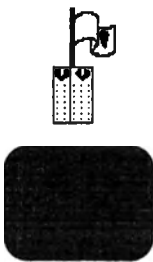
The LCD screen displays an icon to inform you when a panel test is taking place.



The number next to the icon indicates the number of minutes remaining in the test cycle.

4.8 Responding to Needs Attention Panels

As system operation progresses, some panels may enter a state where they are flagged as needing attention. Usually, you can perform some action to correct the situation. In some cases, you are informed that the condition warrants carefully reviewing the panel's results. A listing of "Needs Attention" panels can be accessed by pressing the "needs attention" soft key on the Main Status Screen.

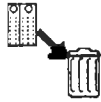


The Needs Attention conditions (refer to Section 5.11) are, in order of priority:

- | | |
|--|---|
| • Test Aborted | Active soft keys: "ignore" "locate panel"
"delete panel" |
| • Can Not Identify Barcode | Active soft keys: "ignore" "locate panel" |
| • Can Not Read Panel Wells | Active soft keys: "locate panel" "delete panel" |
| • Panel Lot Expired | Active soft keys: "ignore" "clear NA" |
| • Invalid AST Results | Active soft keys: "ignore" |
| • Panel Missing | Active soft keys: "ignore" "delete panel" |
| • No Growth on Panel | Active soft keys: "ignore" "locate panel"
"delete panel" |
| • Panel Lot Undefined | Active soft keys: none to address condition |
| • Review QC results | Active soft keys: "panel results" "ignore"
"locate panel" "delete panel" |
| • Missing Accession Number | Active soft keys: "panel results"
"locate panel" |
| • Missing Organism ID | Active soft keys: "panel results" |
| • Can Not Determine Organism ID | Active soft keys: "panel results" "ignore" |
| • Invalid Organism ID | Active soft keys: "panel results" "ignore" |
| • Organism ID Conflict | Active soft keys: "panel results" |
| • BDXpert Rule Flagged (if enabled and manual) | Active soft keys: "panel results" |
| • Pending Too Long | Active soft keys: "ignore" |

The Needs Attention display lists the first 30 panels with a Needs Attention flag, sorted by reason code (in the same order as the list above) and then by accession number within each reason code. Panels without an accession number are listed first within each Needs Attention reason code. Note that even after panels have been removed from the Needs Attention list, you can still view the highest priority reason code in the Panel Results display.

Depending on the Needs Attention reason, the following soft keys (and associated keyboard key) can be used in some cases to resolve the condition.

	"panel results"		"ignore"
	"delete panel"		"locate panel"
	"print"		"toggle display"
	"clear NA"		

These soft keys are designed to enable you to correct (whenever possible) the condition causing the panel to need attention. Where it is not possible, other resolutions are provided via soft keys.

"Panel Results" takes you to the Panel Results display, where you may be able to correct the Needs Attention code by adding information to the panel record.

"Ignore" does not correct the Needs Attention reason code, but it informs the system that you are aware of the problem.

"Delete panel" takes you to Panel Results display where you can delete the panel.

"Locate panel" causes the carousel to rotate to the panels location and lights the station where the panel resides.

"Print" enables you to print a Needs Attention List report. The report is filtered if that view is selected, or unfiltered if that view is selected.

"Toggle display" switches the display between filtered on highest priority reason (the default view) and unfiltered display (showing all needs attention reasons listed separately). When the list is filtered, only the highest priority needs attention condition is shown in the list. Panels are shown in blue if additional needs attention conditions exist for that panel.

"Clear NA" clears the Needs Attention condition

To resolve panels that need attention:

- 1 Access the Needs Attention display.
- 2 Refer to Section 5.11 and the chart below for detailed information on the particular needs attention reason.
- 3 Press the appropriate soft key to access Panel Results (to add or modify information), delete the panel, ignore or clear the reason, or to find the panel in the instrument.

Condition	Meaning	Possible Cause(s)	Resolution(s)
Test aborted	A condition occurred which caused the panel to be invalid	- Ongoing panel not tested for more than 1 hour - Instrument turned off for more than 1 hour - Instrument door open more than 1 hour - Panel moved to a different tier/instrument - Incubator temperature too high or too low - System software did not execute testing algorithms for more than 1 hour - Media type not specified for Yeast ID panel	- Delete the panel - Repeat testing.
Cannot identify barcode	Internal barcode scanner could not read a panel barcode in a station where the instrument could determine that a panel was present	- Barcode label obscured or missing - Unknown panel type was placed into the instrument	Locate the panel in the instrument and examine the barcode - If the barcode is obscured, the panel must be discarded and another inoculated - If the barcode appears to be intact, replace the panel and close the door. After the next inventory, check the Panel Needs Attention screen. If the panel does not appear, the internal scanner can now read the panel
Cannot read panel wells	Internal barcode scanner has read a sequence number in a station but the instrument does not detect that a panel is present in that station	Panel not seated properly	Locate panel, remove it and replace it, as above
Panel lot expired	A panel was logged in (or has a test start date) with a panel lot number that has already expired	Panel being logged in or placed in the instrument is from an expired lot	Discard panel, reinoculate isolate using unexpired panel lot
Invalid AST results	At least one MIC cannot be interpreted. (Excludes QC panels.)	Refer to Table 5-1	Repeat testing of the antibiotic that cannot be interpreted
Panel missing	Internal barcode scanner read a sequence number on an Ongoing panel, but the panel is missing	- Panel removed before the test was completed - Internal scanner failure and the sequence number can no longer be read	If the panel is replaced on the same tier within 1 hour after removal, testing will resume. If the panel is not replaced, testing will abort
No growth on panel	No growth in growth control well. (Excludes ID only and QC panels.)	Instrument did not detect growth in the growth control well of the panel	- Subculture the organism (to insure that it is viable) and inoculate a new panel. Panel has been aborted - From the Needs Attention screen delete or ignore the panel
Panel Lot Undefined	A panel has been entered whose lot number is undefined (non QC panel)	Panel is from an undefined lot	Define panel lot or ignore
Review QC results	Status of a completed QC panel is "Review"	QC panel which yielded an incorrect ID or incorrect AST result for at least one antibiotic, or has no growth in growth control well	Repeat QC organisms. Check: culture purity, inoculum density
Missing accession number	Panel is missing accession or isolate information. (Orphan panel.)	Failure to enter accession or isolate information	Press the "panel results" key. Add the accession number using the barcode reader or by typing it in
Missing organism ID	Panel has no organism ID. (ID required to determine SIR results. Excludes QC panels.)	- For AST only panel, no ID has been entered - The panel has an unresolved tie or triplet instrument ID and has no related panel with an ID	Key in the organism ID (cursor will be at the ID field and the field will be highlighted). OR open the drop down box by pushing the DOWN ARROW key and keying in the first letters of the organism name. The list scrolls to those letters in the organism list. Press the "select" soft key to select the highlighted organism. Any BDxpert rules triggered by the given ID will automatically be presented at this point. Select or ignore the rules. When completed, push the "exit" key to see complete test results.

Table 4-2 – Needs Attention Resolutions

Cannot determine organism ID	Panel has an Instrument ID of "No identification" or has a related panel with "No identification" as a final ID	Panel has been in test for 12 hours and the instrument cannot determine the identification	Repeat testing. Check the following: • Culture purity • Inoculum density • Correct panel used? • Organism may not be in the Phoenix database
Invalid organism ID	Organism ID is not in Phoenix database	Panel received download information of an organism ID that is not in the Phoenix database	Use alternate method
Organism ID conflict	Panel completes testing and has at least one related un-finalized panel that contains a different Final ID. Excludes QC panels.	Completed panel has at least one related panel that contains a different ID.	Select "Panel Results" soft key and choose an organism. Selecting the organism may trigger BDXpert rules. If the rules are configured as manual, the "BDXpert" soft key appears.
BDXpert Rule triggered	Panel triggered at least one BDXpert rule and the rule is manually enabled in Configuration.	A BDXpert rule needs to be invoked in order to determine AST results. A panel is flagged if BDXpert rules are configured as enabled/manual. (Rules that are configured as enabled/automatic will automatically "trigger" and the panel will not be displayed in Needs Attention.	Each Expert rule is displayed individually, in sequence. To accept the rule, press the "OK" soft key; to reject the rule press the "reject" soft key. Use the "Refresh" soft key to delete BDXpert system "decisions" and start over. When all rules have been displayed and dispositioned, complete AST results show. After all rules have been invoked, press "Special Messages" soft key (if present) to view Special messages about characteristics of the organism.
Pending too long	Panel has not been scanned (during an inventory count) within 30 minutes of logging in Panel Login.	Panel was logged into the instrument but was not placed in the instrument within 2 reading cycles (approximately 30 minutes).	Repeat testing. Delete the panel.

Table 4-2 – Needs Attention Resolutions

4.9 Automatic Association of Panels

4.9.1 Overview

Automatic Association, or Auto Association, is a process that the system initiates after certain trigger events occur (described later). Its purpose is to associate ID results from one panel (an ID or Combination panel) to the AST panels that are related to it and that lack an ID. Panels are related by virtue of having the same accession and isolate number. (Thus panels with the same accession number and different isolate numbers are NOT related, and Auto Association does not occur between such panels.)

Auto Association often involves the initial stage of Organism ID Conflict Checking. The circumstances where Conflict Checking occurs are described below. Conflict Checking is the process where the system verifies that the panel which has triggered the process does not have a related panel with a Final ID that is different from its own. If there is a conflict, Auto Association does not occur between related panels.

Auto Association can help eliminate unnecessary work for you, eliminating the need to manually enter an organism ID for related panels. In addition, the Conflict Checking function helps ensure that the same organism ID is made for all the panels related to a patient specimen.

Note that Auto Association does not set the critical panel attribute for related panels.

4.9.2 Panel Types

The panel types whose ID information is associated to related panels are: ID panels, Combination panels (with both ID and AST sides enabled), and Combination panels with only the ID side enabled. Auto Association uses the Final ID.

The related panels whose IDs are set by Auto Association are: AST panels, and Combination panels with only the AST side enabled.

4.9.3 When Auto Association Is Not Performed

Auto Association is NOT performed in the following circumstances:

- ◆ When an organism ID conflict exists within an accession/isolate
- ◆ To a related AST panel that has been finalized or deleted, or that already has a Final ID
- ◆ Between related ID-type panels
- ◆ Between related AST-type panels
- ◆ Between QC and regular panels
- ◆ Between related QC panels
- ◆ If the Instrument ID field contains a Tie/Triplet, this information is not associated to any related AST panels, however the Final ID information IS auto associated

4.9.4 Organism ID Conflict Checking

Organism ID Conflict checking is performed using the Final ID for panels within the same accession/isolate (i.e., related panels) that are not finalized (and are not QC panels). If both panels have a Final ID (both are not blank) and they do not match exactly, an Organism ID Conflict is considered to exist. When an Organism ID Conflict exists, no Auto Association is performed. All the panels involved in the conflict have a Needs Attention flag set indicating that there is an organism conflict. Once you resolve the conflict (and provided that all other conditions for Auto Association are met), then Auto Association does occur.

Note that Organism ID Conflict checking is not performed on QC panels.

4.9.5 Auto Association and Related Actions

The trigger events that invoke Auto Association include: an ID or Combination panel status transitioning to Removable or accession/isolate information being modified. If there are no unresolved tie/triplet conditions and no Organism ID Conflicts exist:

- 1 The instrument searches for the first *unfinalized* related ID or Combination panel with a Final ID. If a panel with these criteria is found, the instrument performs Auto Association.

If a panel with the above criteria is not found, the instrument then searches for the first *finalized* related ID or Combination panel. If a finalized panel is found, the instrument performs Auto Association.

If there are related ID panels with no Final ID when an AST panel invokes Auto Association (and no Organism ID Conflict condition exists), the instrument sets a Missing Organism ID Needs Attention reason for the AST panel if its status is Removable.
- 2 Auto Association is performed for any related AST panels that do not have information in their Final ID fields if the AST panel's status is either ongoing or Removable (Auto Association is not performed on AST panels with a status of Pending).

Auto Association is the action of modifying an AST panel's Final ID field (when this field is blank) to contain the same information as a related ID panel's information.

The instrument ID information is only associated provided it is a single Organism ID and not a Tie/Triplet condition.

A Combination panel with both sides enabled uses its ID result to perform interpretations on the AST side of the panel.

- 3 When Auto Association is performed successfully, any existing Missing Organism ID Needs Attention reasons are automatically cleared from the AST panels.

4.9.6 Typical Auto Association Examples

Instrument ID Is Associated

ID and AST panels are logged with the same Accession/Isolate number. (The AST panel is not logged in with an Organism ID.) They are both placed into the instrument at the same time. The ID panel finishes testing. The panels look like the following:

Panel	Instrument ID	Final ID
ID	Org A	Org A
AST		

When the ID panel has completed testing, it looks for related panels. It sees the AST panel with no Final ID. The ID panel checks for Organism ID Conflicts. There is no Organism ID Conflict condition, so the ID panel associates its Instrument ID to the AST panel record's Instrument ID field (regardless of the AST panel's status). The panels look like the following:

Panel	Instrument ID	Final ID
ID	Org A	Org A
AST	Org A	Org A

Instrument ID and Final ID Are Associated

The ID panel is logged in with an Accession/Isolate number. It is placed into the instrument to test. It completes testing and looks like the following:

Panel	Instrument ID	Final ID
ID	Org A	Org A

The user changes the Final ID for this panel. It now looks like the following:

Panel	Instrument ID	Final ID
ID	Org A	Org B

The user then logs in an AST panel with the same Accession/Isolate number as the ID panel. (The AST panel is not logged in with an Organism ID.) The AST panel completes testing and looks for related panels. It sees the ID panel and checks to make sure that there is no Organism ID Conflict within the Isolate. There is no Organism ID Conflict, so the AST panel associates the ID panel's ID to itself. The panels now look like the following:

Panel	Instrument ID	Final ID
ID	Org A	Org B
AST	Org A	Org B

Final ID Is Associated

An ID panel is logged in with an Accession/Isolate number. The panel is placed in the instrument to test. The ID panel finishes testing first with a Tie/Triplet condition. When this situation occurs, the panel looks like the following:

Panel	Instrument ID	Final ID
ID	Org A	
	Org B	
	Org C	

When the Tie/Triplet is resolved (by the user selecting one of the organisms listed or another organism), the ID panel will look like the following:

Panel	Instrument ID	Final ID
ID	Org A	
	Org B	
	Org C	Org A

The user then logs in an AST panel with the same Accession/Isolate number as the ID panel. (The AST panel is not logged in with an Organism ID.) The AST panel completes testing and looks for related panels. It sees the ID panel and checks to make sure that there is no Organism ID Conflict within the Isolate. There is no Organism ID Conflict, so the AST panel associates the ID panel's Final ID to itself. The panels now look like the following:

Panel	Instrument ID	Final ID
ID	Org A	
	Org B	
	Org C	Org A
AST		Org A

4.10 Obtaining Results

The primary means of viewing results of panel testing is the Panel Results display. Panel Results enables you to perform the following functions:

- display a panel whose data is stored in the Phoenix database
- modify the information for a panel that is resident in the database
- mark a panel as critical
- print a Lab report on any panel that can be recalled or displayed on the screen
- locate a panel resident in the same instrument where the panel data is recalled
- delete panel information from the Phoenix database
- answer or display any triggered BDXpert Rules
- display any special messages
- finalize a panel

You can access the Panel Results display in several different ways:

- scanning a known panel sequence number or accession number with the external scanner while the Main screen is displayed
- selecting the "panel results" soft key (or its keyboard equivalent) from the Main Status Screen



- scanning or entering a known panel sequence number while the Panel Login screen is displayed
- selecting the "delete panel" soft key (or its keyboard equivalent) or the "panel results" soft key (or its keyboard equivalent) for a panel in the Needs Attention screen when the Delete option is active
- selecting the "panel results" soft key (or its keyboard equivalent) from the Batch Finalization screen
- selecting the "panel results" soft key (or its keyboard equivalent) from the Panel Inventory or Panel Lot Definition displays

Typical Panel Results displays are shown in Figures 4–5 and 4–6.

When a panel is recalled in the Panel Results screen, the following fields are displayed (note that all fields may not be displayed depending on the type of panel and whether the instrument is connected to an EpiCenter system):

- Accession Number
- Sequence Number
- Isolate Number
- Media
- Status
- Final ID (Test Strain for QC Panel)
- Panel Lot # (if QC Lot Support feature is enabled)
- (Panel Lot) Expiration Date (if QC Panel, and QC Lot Support feature is enabled)
- Test Start
- Test End
- Location
- Finalized Status (QC Status for QC Panel)
- Critical Status
- Needs attention flag
- Resistance marker flag
- Instrument Organism ID which may consist of:
 - Instrument Organism ID
 - Confidence Value
 - Up to 5 Supplemental Tests
- Biochemical Results (Figure 4–5) which consist of:
 - Biochemical Abbreviation
 - Actual Result (+, –, ?, or X)
 - Expected Result (+, –, V, or blank)
- AST Results (Figure 4–6) which consist of:
 - Antimicrob(ial)
 - Minimum Inhibitory Concentration (MIC)
 - Instrument SIR (I)
 - BDxpert SIR (E)
 - Final SIR Result (F)

And for QC panels:

- Tech ID
- Panel Lot # and Exp. Date
- ID Broth Lot # and Exp. Date
- AST Broth Lot # and Exp. Date
- Indicator Lot # and Exp. Date

0.5 **PANEL RESULTS**
GNIDAST 951

Accession #	1313	Test Start	10/21/03 14:27
Sequence #	429510001405	Test End	10/21/03 14:27
Isolate #	1	Location	1/A01
Status	COMPLETE	Modify Related Panels	☒
Final ID	Prot. mirabilis	Finalized	☒
		Critical	☒

Instrument	Organism ID	Confidence
	Prot. mirabilis	97%

Biochemical	Actual	Expected
A_ARARR	+	+
A_GLPRB	-	+
A_GLYB	+	+
A_GUGAH	-	+
A_LARGH	+	+

Icons: Save, Clear, Select, Media, Resistance Marker, Print, Exit

Figure 4-5 – Panel Results Display – ID Results

For Yeast ID panels, the Media field appears to the right of the Isolate # field.

The following icons signify the conditions noted:



A Needs Attention reason exists



A Resistance Marker has triggered

The following soft key functions can be performed from Panel Results:



"save" – saves the information displayed



"clear" – clears the record currently displayed from the screen



"select" – checks/unchecks a checkbox field or selects highlighted item in drop-down list box



0.5

PANEL RESULTS
NQC01

Accession #
Sequence #
Isolate #
Status
Final ID

Test Start
Test End
Location

Finalized ☐
Critical ☐

Antimicr MIC			Antimicr MIC			Antimicr MIC		
	I	E F		I	E F		I	E F
GM 4	S	S	ATM 4	S	R	CIP <=0.5	S	S
NN 8	I	I	AM >16	R	R	NOR <=0.5	S	S
IPM <=0.5	S	S	PIP >64	R	R	TE >16	R	R
CF >32	R	R	AMC 8/4	S	R			
FOX 2	S	S	TZP <=2/4	S	S			
CTX <=4	S	R	SXT <=0.5/9.5	S	S			
FEP <=2	S	R	FM <=32	S	S			









Figure 4-6 – Panel Results Display – AST Results



"find" – recalls the data for the accession # entered (or the panel results list display if there is more than one panel for the accession)



"toggle display" – switches between ID results, AST results, and Resistance Marker displays (if applicable) for combination panels



"toggle soft keys" – switches between the currently displayed set of soft keys and additional ones



"print Lab Report" – prints a copy of the Lab Report for the current panel



"locate panel" – causes the instrument to locate and indicate the current panel and unlock the door



"delete panel" – removes the current panel from the database



"go to BDExpert Rules" – accesses the BDExpert Rules Triggered display



"more antimicrobials" – displays additional antimicrobials if there are more than can be displayed on one screen



"special messages" – accesses special messages display



"exit" – exits the current display

4.10.1 Adding/Modifying ID Results

The system enables you to enter an organism ID manually, or to override the organism identified by the instrument. In addition, in some cases, the system will not be able to make a single identification determination based on panel results. In these cases, two or three organisms may appear in the Instrument ID field. When more than one organism appears as the Instrument ID, the system does NOT automatically enter an identification in the Final ID field. The user must select the desired organism. The actual organism may be determined either through supplemental tests, which are recommended in the Instrument ID window and/or the Special Messages display (accessible via the "special messages" soft key, shown above), or through other tests you perform.

To add/modify the Final ID:

- 1 From the Panel Results display, press the "tab" soft key to advance to the **Final ID** field.
- 2 Press the DOWN ARROW key to drop down the listing of organisms.
- 3 Type the first few letters of the organism name to jump to that alphabetical part of the organism listing.
- 4 Use the UP ARROW or DOWN ARROW to highlight the desired organism.
- 5 Press the  or **Spacebar** key, or the "select" soft key to select the highlighted organism.

0.25 **PANEL RESULTS**
PMIC/ID-100

Accession # Missing Organism ID
 Sequence # Test Start
 Isolate # Test End
 Status Location
 Final ID Finalized ☐
 Critical ☐

Instrument	Organism ID	Confidence	NVR	PXR	HGP	ANR
1	Staph. epidermidis	65%	0	100	bb	95
2	Staph. hominis	21%	0	0	-	5
3	Staph. saprophyticus	10%	100	0	-	95

Biochemical	Actual	Expected		
		1	2	3
A_ARARR	-	+	+	+
A_GLPRB	-	+	+	+
A_LALT	-	+	+	+

Figure 4-7 – Panel Results Display – ID Results Showing Triplets

4.10.2 Modifying AST Results

There may be times when you wish to modify the Final SIR results for a panel. Note that you cannot modify any Final SIR results if there are manual BDxpert rules pending. You must first accept or reject any pending rules, which allows the system to perform its final results processing. After the final processing is complete, you will be able to modify SIR results manually if desired.

To modify the Final SIR results:

- 1 From the Panel Results display, press the "tab" soft key to advance to the Final SIR field for the desired antimicrobial.
- 2 Press the DOWN ARROW to toggle the field entry among the following results:

S(usceptible)

I(ntermediate)

R(esistant)

X = Invalid, cannot interpret (see Table 5-1)

N(ot Susceptible)*

Blank (indicates ID is required)

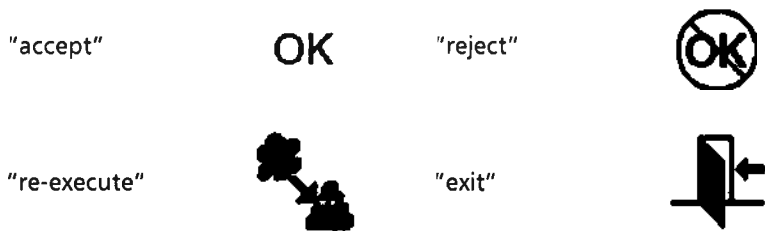
* N indicates that the antimicrobial/organism does not have an upper breakpoint. When there is no upper breakpoint there are no criteria for calling an organism intermediate or resistant. This often occurs when there are no known resistant strains of an organism. In this case, if the MIC is below the lower breakpoint the SIR results can be reported as susceptible but if the MIC is above the lower breakpoint the only result that can be reported is N or not susceptible.

4.10.3 BDXpert Triggered Rules Display

By default, the BDXpert Rules are enabled and set to trigger automatically when test results are processed. However, you have the option in the BDXpert Rule Configuration to disable some rules (which means they would not be applied to results) or to set BDXpert rules to trigger manually. Any rules set to trigger manually must be accepted or rejected by the user before any additional rule processing or Final SIR determination occurs.

To access BDXpert Triggered Rules:

- 1 From the Panel Results display, press the "go to BDXpert rules" soft key to access the BDXpert Triggered Rules display.
- 2 The first pending rule is highlighted in the Rules (bottom left) window.
- 3 You can view the effect of the rule on Final SIR values in the AST Results (bottom right) window.
- 4 Press: the "accept" soft key to accept the pending rule; "cancel" to reject the rule; "re-execute" to cause all interpretation rules to be reapplied to the raw data; or "exit" to return to the Panel Results display.



4.10.4 Resistance Marker Display

If Resistance Markers have triggered on a particular panel, the "toggle display" soft key cycles from the AST results display to the Resistance Marker review display (Figure 4-8) to the ID results display.

The Resistance Marker review display shows the same information in the top window as the other two displays (ID and AST results). In the bottom window, the following information is shown:

- The BDXpert rule number that triggered the Resistance Marker
- The Resistance Marker code (abbreviation)
- The Resistance Marker Name
- The BDXpert rule Description

0.5

PANEL RESULTS

CT01P

Accession #	1313	Test Start	10/21/03 14:27
Sequence #	424940000111	Test End	10/21/03 14:27
Isolate #	1	Location	1/A03
Status	COMPLETE		
Final ID	Enteroc. faecalis		Finalized ☐ Critical ☐

Rule #	RM	Name
1507	VRE	Vancomycin Resistant Enterococcus
0224	HLGR	High Level Gentamicin Resistant
0227	HLSR	High Level Streptomycin Resistant

Rule Description

For isolates with an interpretation of resistant for high levels of streptomycin (HLSR), synergy with cell wall active agents (e.g., ampicillin, penicillin, vancomycin) is not achievable.










Figure 4-8 – Resistance Marker Review Display

4.11 Panel Finalization

The panel finalization function enables you to finalize panel test results singly or in a batch mode. You can finalize panel results for all panels that are ready for finalization or for individual panels. You can review individual panel results prior to finalization.

All fields on the Finalization display are read-only. To *modify* information for a panel, press the "panel results" soft key.

When the instrument is connected to the EpiCenter Data Management System, the Finalization display is not available.

To finalize/batch finalize panels:

- 1 From the Main Status screen, press the "finalization" soft key. The Finalization display (Figure 4–9) appears.



if there are no panels to be finalized, only the "exit" soft key is available.

If there ARE panels to finalize, the following soft keys appear:



"print summary report"



"finalize single"



"finalize all"

- 2 To finalize ALL eligible panels, press the "finalize all" soft key.
- 3 To finalize panels one at a time, press the "finalize single" soft key.

The first panel eligible for finalization is shown in the main body of the display. Press one of the following keys:

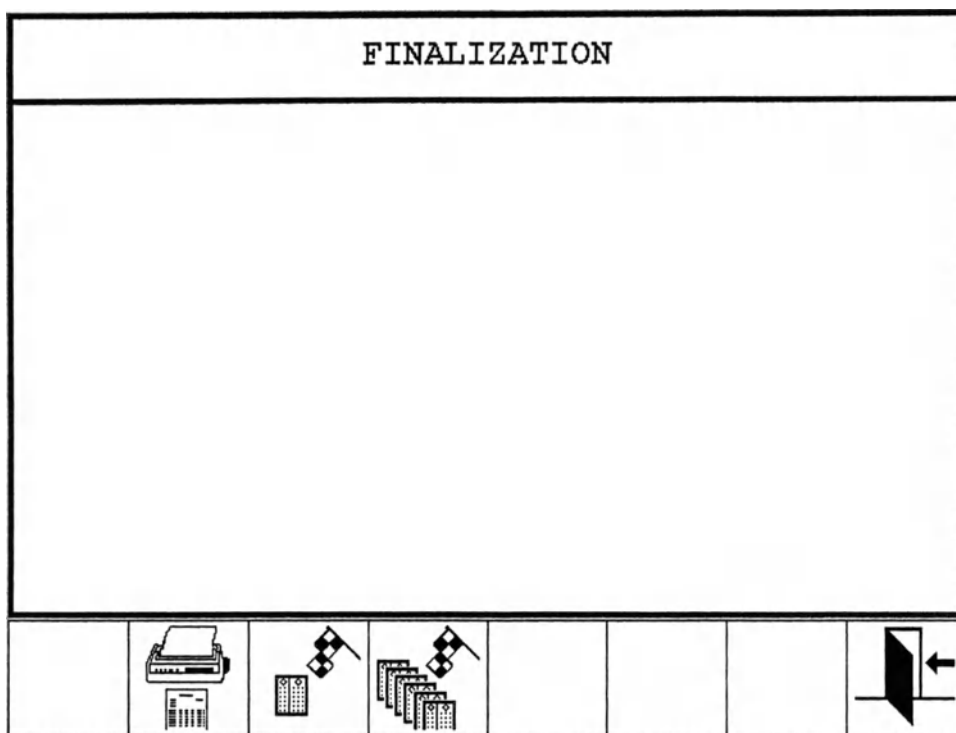


Figure 4-9 – Finalization Display

OK	"accept"	To finalize the current record and display the next record
	"cancel"	To skip the current record and display the next record
	"toggle display"	To show AST results (if ID results are displayed) or vice versa
	"panel results"	To go to the Panel Results display

- To print a summary report of all panels eligible for finalization, press the "finalization summary report" soft key. A sample is shown in Figure 4-10. This report shows the Accession # (primary sort), Isolate # (secondary sort), Test End date and time, Sequence #, Instr #/Station, and Finalized status (* if finalized, blank if not).

Finalization Summary Report					
08/15/01 09:11					
Accession #	Isolate #	Test End	Sequence #	Instr # / Station	Finalized
1313	1	08/15/01 13:13	420011234567	1/A02	*
1344	1	08/15/01 13:13	420027654321	1/B03	*
1489	1	08/15/01 13:13	420031234123	1/C04	*
1566	1	08/15/01 13:13	420047654765	1/D05	
End of Report					

Figure 4-10 – Finalization Summary Report

- 5 If you access the Panel Results display to add or modify information before finalizing a panel, be sure to save the modifications. Press the “exit” soft key (from Panel Results) to return to the Finalize Single display.
- 6 Once an individual (or batch of) panel(s) has been finalized, the “print Lab Report” soft key appears on the Finalization display. This key enables you to print Lab Reports for all panels that have been finalized during this session (up to 200 maximum).



- 7 Continue to review panel records and finalize until no additional panel records are displayed.

4.12 Responding to Alarms and Errors

As you perform activities at the Phoenix instrument, and as testing progresses, system alerts and errors may occur. Different types of alerts and errors are flagged by one or more of the following: "E" and "W" error codes, audible tones, the System Alert icon appearing on the LCD display, or the instrument's System Alert indicator flashing. Generally, the more serious the condition, the more ways the system notifies you of the problem.

CAUTION

When the system notifies you of alerts and errors, you should immediately respond to the condition.

System alerts, which comprise all "E" type error codes, are reported in the system alert list. These errors cause: the system alert icon to appear on the Main Status screen; the System Alert indicator to flash; and the audible alarm to sound. They can be reviewed by pressing the "system alert" soft key (see below) and scrolling through the listing with the UP/DOWN ARROW keys. The errors must be reviewed to clear the system alert condition.



Activity errors comprise all "W" type error codes. These errors (such as attempting to enter an invalid Sequence # in the Panel Login screen) cause the activity error icon to appear on the currently displayed screen. They do not put the system into an alert condition. These errors can frequently be cleared by simply performing the activity correctly (such as entering a valid Sequence #).



All the "E" and "W" error codes are discussed in detail in **Section 7.2 – Error/Alert Messages**. The audible tones are discussed in **Section 3.7 – Audible Tones and Alarms**. The audible alarm can be silenced by pressing the SILENCE ALARM key, if the alarm is a "system alert" type of alarm.

4.13 Printing Reports

If you have a compatible printer connected to the instrument, the following reports can be selected for printing (see Figure 4-11):

- ◆ Completed Lab Report – contains information for all panels whose status became “Complete” during the time period (up to the past 48 hours) you select.
- ◆ Accession Lab Report – provides information for a specified accession number.
- ◆ Needs Attention List Report – lists all panels in the instrument’s database that have a Needs Attention flag set that have not been ignored.
- ◆ Resident Panel Report – lists the panels contained in stations 1 – 25 for each tier.
- ◆ QC Lab Report – lists all Test Strain Organisms that have completed testing and all biochemical and/or antimicrobial MIC results (for a specified Panel Lot #) that exist in the Phoenix databases when the report is requested.*
- ◆ Cumulative QC Report – provides information on quality control testing of all panel types. *
- ◆ Daily Instrument Report – lists the status of the instrument at the time the report is generated, along with a maintenance checklist.
- ◆ Interpretation Rule Set Report – lists the antimicrobial breakpoints of the Interpretation Rule Set defined as the default Rule Set in the Instrument Configuration screen.
- ◆ BDxpert Rule Set Database Report – lists each BDxpert rule number and the text describing the rule, whether each rule is enabled/disabled and whether each rule is set to trigger automatically or manually in the system.
- ◆ Organism ID Code List Report – displays all Organism Names, abbreviations for all Organism Names that exist in the Phoenix database.
- ◆ Antimicrobial Code Report – displays all antimicrobials, abbreviations for all antimicrobials, and the LIS codes that exist in the Phoenix database from all panel configurations
- ◆ Lab Report – contains all information for a panel sequence number that exists in the Phoenix database, including all information in the Panel Results screen, any special messages, BDxpert Rules that triggered, or Needs Attention Reasons if they exist. This report can only be printed from the Panel Results display or Finalization display.
- ◆ Finalization Summary Report – contains all the panels eligible for finalization at the time the report was requested, as well as finalization status. This report can only be printed from the Finalization display.
- ◆ Panel Inventory Lab Report – prints a Lab Report for all panels in the instrument. This report can only be printed from the Panel Inventory display.
- ◆ Custom Breakpoint Difference Report – prints a listing of differences between old breakpoints and new ones after a Phoenix Update Disk or Install/Upgrade operation. This report can only be printed from the Custom Interpretation Rule Set (Configuration) display.
- ◆ Current QC Panel Lot Report – contains information on the most recent QC test for each of the required strains for a panel lot, up to a maximum of 20 strains. This report can only be printed from the Panel Lot Definition display.
- ◆ Historical QC Panel Lot Report – contains information on all tests for a strain for the current instrument, up to 200 tests. This report can only be printed from the Panel Lot Definition display.
- ◆ Panel Lot Report – lists all the panel records for any panel lot number in the current instrument.
- ◆ Panel Lot Database Report – lists all the defined panel lots in the current instrument, and provides statistical and reference information on those lots.

*Report does not appear when EpiCenter communications is enabled.

More information on these reports and samples are provided in **Section 5 – Reference**.

PHOENIX REPORTS	
Completed Lab Report Accession Lab Report Needs Attention List Report Resident Panel Report QC Lab Report Cumulative QC Report Daily Instrument Report Interpretation Rule Set Report BDxpert Rule Set Database Report Organism ID Code List Report Antimicrobial Code Report	Start Date/Time 11 / 13 / 07 16 : 00 Prior Period 24 Hours QC ☐





Figure 4-11 – Reports Menu

To print a report:

- 1 From the Main Status Screen, press the "print reports" soft key.



- 2 The report menu appears.
- 3 Use the UP ARROW or DOWN ARROW to highlight the report you want to print.
- 4 Complete any additional fields (such as an accession number for the Accession Lab Report) and press the "print reports" soft key to print the report. (See Section 5 for additional field requirements.)

Several reports can also be printed from the displays that relate to them (e.g., Needs Attention List Report).

4.14 Unloading and Discarding Panels

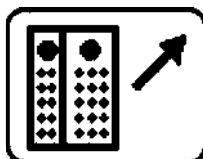
When panel testing is completed, panels may be removed from the instrument and discarded.

WARNING

THE INSTRUMENT DOOR IS ELECTROMECHANICALLY LATCHED AND IS CONTROLLED BY THE INSTRUMENT SOFTWARE. NEVER ATTEMPT TO DEFEAT THE DOOR LATCHING MECHANISM, OR TO OPEN THE DOOR WHEN THE "UNLOCKED" ICON IS NOT DISPLAYED. SERIOUS INJURY CAN BE CAUSED BY THE ROTATING CAROUSEL. IF THE CAROUSEL IS NOT COMPLETELY STOPPED WHEN THE DOOR IS OPENED, IMMEDIATELY CONTACT BD FOR SERVICE. NEVER ATTEMPT TO ROTATE THE CAROUSEL MANUALLY OR SERIOUS INJURY MAY RESULT.

To remove panels:

- 1 Press the UNLOAD PANELS key.



- 2 When the "door unlocked" icon appears, open the instrument door.



- 3 All panels that are ready to be removed are indicated by a SOLID GREEN LED indicator.
- 4 Remove the panels by pushing the panel down, pivoting the top of the panel outward, and pulling the panel out of the panel holder.
- 5 If there are completed panels that are not in the accessible stations, close the door and allow the instrument to reposition the carousel to provide access to those panels. When the "door unlocked" icon appears (the carousel halted tone also sounds), open the door and continue removing completed panels.
- 6 Discard the panels in a biohazard container.

4.15 Installing New Panel Formats

From time to time, new panel formats will be designed that you may wish to use with your system. The Phoenix instrument is able to update its panel database via a series of barcodes, included with the new panels, that you scan. This allows you to update the database quickly and easily to use the new panels.

The printed barcodes provide the following information: the new panel's name; the system software version needed to use the new panel; the antimicrobials on the new panel; the concentrations of these drugs; and verification information to check that all the required data is entered, in the correct order, and is valid.

Only AST panels and the AST portion of Combination panels can be updated in this manner.

If you attempt to use a new panel format without first updating the instrument's panel database, an activity ("workflow") alert (W100 Invalid Panel Sequence Number) occurs, which prohibits you from logging in the new panel. Simply perform the panel update procedure described below to update the panel database, then you can login your new panels. The update process typically takes only a few minutes to perform.

To perform a panel update:

- 1 Display the Main Status screen.
- 2 Remove the BD Phoenix Panel Format page from the panel carton. Scan the first barcode on the page. The File Transfer display appears automatically.
- 3 You don't have to keep pressing the barcode trigger. Once the File Transfer operation begins, the beam remains on unless a scanning error occurs. Sweep the scanner down the first column (about 3 - 4 barcodes per second can be processed easily by the system).
- 4 When the first column of barcodes is complete, begin scanning the second column of barcodes. You **DO** have to scan the barcodes in order: first all the barcodes in the left column from top to bottom, then those in the second column, etc.
- 5 A graphical progress indicator on the display shows where you are in the update process. The current barcode number and name are also shown, for informational purposes.
- 6 **If any scanning errors occur**, a message appears on the display telling you which barcode number was not scanned. Simply press the scanner trigger and begin scanning from the numbered barcode onward. If any other type of error occurs, contact your BD representative for assistance.
- 7 To cancel the panel update operation, stop scanning the barcodes and press the "exit" soft key. The update is aborted and no changes are saved to the Phoenix instrument database.
- 8 When all the barcodes are scanned, the system processes the information and updates its panel database. Messages inform you of the progress of these operations. When the processing is complete, the message, "Merge complete" appears on the screen. Press the "exit" soft key to exit the File Transfer display.
- 9 When it's convenient, create a "panel data" disk with the new panel information you just added. See below, **Saving Your Panel Updates**.

Saving Your Panel Updates

After you have updated your panel database, we strongly recommend that you create a “panel data” disk which includes this new panel information. First, if there is a software update subsequently, the new panel database installed as part of *that* update may **not** contain the panel(s) you just added manually. A “panel data” disk enables you to easily “re-update” your panel database. Second, if you have multiple instruments, or a BD EpiCenter system, you can use the “panel data” disk to update *their* databases.

To create a “panel data” disk:

See Section 6.2.4.7 – Save Panel Configuration.

To install this “panel data” on a Phoenix instrument:

See Section 6.2.4.8 – Install Panel Configuration.

To install “panel data” files on a BD EpiCenter system:

Refer to the BD EpiCenter system help or user's manual.

4.16 Phoenix Update Disk (PUD)

Phoenix Update Disks may be provided from time to time to update Phoenix instrument databases and support files. These updates do not affect or change the basic instrument application software. For this reason, the Main Status Screen shows both the software version and the PUD version near the top of the display.

Instructions for updating the instrument using the PUD operation are provided in Section 6.2.4.9 – Phoenix Update Disk.

4.17 LIS Operations

4.17.1 General

The LIS communications feature enables the BD Phoenix instrument to exchange information with a compatible Laboratory Information System (LIS). LIS communications can be configured to exchange Order records and Results records at a variety of times.

Order records can be downloaded from the LIS system to the Phoenix instrument. These Order records can include the information listed in the second bullet below. If all this information is sent from the LIS system, then the panel is automatically logged in just as if the login were done at the instrument. If the panel sequence number is omitted, the Order record can be associated to a specific panel manually in Panel Login. Order records can be configured to be uploaded to the LIS system also.

Results records are uploaded from the Phoenix instrument to the LIS system. These records consist of:

- ◆ Header record (Delimiter fields, sender name, version number, message date/time)
- ◆ Order record (Accession number, Isolate number, Organism, Test ID, Sequence number, Priority, Report type)

Note that if an Organism code is included in the order record, for either a new or existing panel, the ID side of the panel is disabled.

- ◆ Comment record (contains Special Messages and/or BDxpert Rules)
- ◆ Results record
 - ◆ Panel sequence number
 - ◆ Instrument number
 - ◆ Instrument type
 - ◆ Instrument location (Station)
 - ◆ Time to result for identification or MIC produced
 - ◆ Test start time
 - ◆ Test end time
 - ◆ Test status (ongoing, complete, partial complete, complete with needs attention reason, complete with all ignored needs attention reasons, complete QC Pass, complete QC Review, pending, or rapid complete)
 - ◆ Result type
 - ◆ Antimicrobial code
 - ◆ MIC value
 - ◆ S / I / R / No Interp / Error value
 - ◆ Resistance marker
 - ◆ ID or Final ID
 - ◆ Results status (finalized or unfinalized)

The LIS Communications function is based on the American Society of Testing and Materials (ASTM) LIS Communications Standards (1381 and 1394), and is compatible with a number of popular LIS systems. For specific information on which LIS systems are compatible, contact your local BD representative. The *LIS Vendor Interface Specification* (available upon request) provides complete details on the BD Phoenix implementation of LIS Communications.

NOTE

If the Phoenix instrument is connected to a LIS, it cannot be connected to the EpiCenter™ system. However, if the Phoenix instrument is connected to EpiCenter, then a LIS connection can be established via EpiCenter.

4.17.2 Important Concepts

There are several concepts with which you should be familiar in order to understand the information presented here, and to insure that the LIS communications feature is set up properly for your laboratory. These concepts are discussed below.

LIS communication is able to send Results records from the instrument to the LIS (*upload*), Order records when panels are placed into the instrument, and queries to (and from) the LIS for Order records. Results upload can be configured to include or exclude Interpretation (SIR) results. The instrument can be set up to upload Results records only when the LIS requests them (*solicited upload*); or at one of the following *unsolicited upload* times: when panels are finalized; when panels complete testing or when complete panel records change; when ID or AST results are determined; or at a fixed time. QC panels and orphan panels are uploaded only when solicited by the LIS. If the instrument is configured for unsolicited upload, it still responds to requests from the LIS for results (solicitations or queries). If the instrument is configured for unsolicited uploads, the LIS must always be ready to receive data from the instrument.

By downloading barcode (panel) sequence numbers, the instrument can automatically login panels when records are received. If panel sequence numbers are omitted from the Order record, the panel can still be associated to the Order record in the Panel Login display.

If the panel sequence numbers are not included in downloaded records, the records that are downloaded are stored (up to 200 Order records) for manual association to panels. This process is described in **Section 4.5.3 – Associating and Removing LIS Orders**.

Organism Configuration and Antimicrobial Configuration enable you to enter the specific codes required by your LIS system for the organisms and antimicrobials uploaded in Results records. Refer to Sections 2.3.2.1 and 2.3.2.2 for additional information.

LIS configuration settings are independent of critical panel configuration settings. (E.g., if LIS configuration is set to send results only when the panel is complete, the results are **not** uploaded if the panel is critical and rapid reporting configuration is set for notification on ID results or partial results.)

4.17.3 Processing Panel Orders

Refer to **Section 4.5.3 – Associating and Removing LIS Orders**, for step-by-step instructions.

4.17.4 Routine System Operation

Operation of the Phoenix instrument with a LIS interface differs very little from routine operation of the system. The major difference is the ability to enter panel/accession data via the LIS into the system.

With LIS communications, patient information can be logged in at the LIS and transferred to the Phoenix instrument. (Consult your LIS manufacturer's operation manual for complete instructions on data entry and downloading records.)

LIS systems operate either in realtime mode, where the system automatically downloads each Order as it is logged in, or in batch mode where you log in and download multiple Orders in a group. After patient records are logged in, you should download them to the Phoenix instrument.

Any data sent to the Phoenix instrument that does not directly correlate to one of the fields defined as the "Order record" is ignored by the system. Any information sent from the LIS for a Finalized panel is rejected.

After the Order records have been downloaded, and the panels have been attached to those records (if necessary), routine system operation does not differ in any way. You should continue to load the instrument, print reports, monitor the system for complete panels, perform maintenance, etc. However, it is recommended that you be especially alert to and respond to any system or activity alerts that occur.

5 Reference

5.1 General

This section presents reference material on the Phoenix instrument user interface. All the screens, icons, reports, and functions in the user interface are described in the order in which they are accessed through the Main Status screen. The following information is presented:

- ◆ Main Status screen
- ◆ Panel Login
- ◆ Panel Results
- ◆ Finalization
- ◆ Configuration/Maintenance
- ◆ Reports
- ◆ Panel Inventory
- ◆ System Alerts
- ◆ Needs Attention

5.2 Software Tree

The following is a hierarchical list of all displays/functions in the system. The sections where these activities are discussed in detail are noted in parentheses.

- Main Status screen (Section 5.3)
 - Panel Login (Section 5.4)
 - Panel Results (Section 5.5)
 - BDXpert Rules Triggered (Section 5.5.1)
 - Resistance Markers (Section 5.5.2)
 - Special Messages (Section 5.5.3)
 - Lab Report (Section 5.5.4)
 - Finalization (Section 5.6)
 - Finalization Summary Report (Section 5.6)
 - Configuration/Maintenance (Section 5.7)
 - Instrument Configuration (Section 2.3.1)
 - General Instrument Configuration (Section 2.3.1.1)
 - Laboratory Information (Section 2.3.1.2)
 - Password Administration (Section 2.3.1.3)
 - Maintenance (Section 4.2, 2.5, 7.3, 6.2.2, 6.2.4)
 - Communications Configuration (Section 2.3.2)
 - Organism Configuration (Section 2.3.2.1)
 - Antimicrobial Configuration (Section 2.3.2.2)
 - Custom Interpretation Rule Set (Breakpoint) Configuration (Section 2.3.3)
 - BDXpert Rule Configuration (Section 2.3.4)
 - Rapid Reporting Configuration (Section 2.3.5)
 - Panel Lot Definition (Section 2.3.6)
 - Reports (Section 5.8)
 - Completed Lab Report (Section 5.8.1)
 - Accession Lab Report (Section 5.8.2)
 - Needs Attention List Report (Section 5.8.3)
 - Resident Panel Report (Section 5.8.4)
 - QC Lab Report (Section 5.8.5)
 - Cumulative QC Report (Section 5.8.6)
 - Daily Instrument Report (Section 5.8.7)
 - Interpretation Rule Set Report (Section 5.8.8)
 - BDXpert Rule Set Database Report (Section 5.8.9)
 - Organism ID Code List Report (Section 5.8.10)
 - Antimicrobial Code Report (Section 5.8.11)
 - Lab Report/QC Lab Report (Section 5.8.12)
 - Finalization Summary Report (Section 5.8.13)
 - Custom Breakpoint Difference Report (Section 5.8.14)
 - Panel Lot Report (Section 5.8.17)
 - Panel Lot Database Report (Section 5.8.18)
 - Panel Inventory (Section 5.9)
 - System Alerts (Section 5.10)
 - Needs Attention (Section 5.11)

5.3 Main Status Screen

The Main Status screen (Figure 5–1) is the default screen that is displayed when no activity has been initiated. This screen presents up to eight icons representing soft key definitions that allow you to perform activities. These icons are as follows:

- ◆ The “panel login” icon, where you can login new panels.
- ◆ The “panel results” icon, which allows you to view and modify the ID or AST results of panels or delete them.
- ◆ The “finalization” icon, where you can finalize panels that have completed testing. (Not available when instrument is connected to the EpiCenter Data Management System.)
- ◆ The “configuration” icon, where you can set up instrument, laboratory-specific rules, and communications parameters, as well as perform instrument maintenance checks.
- ◆ The “print reports” icon. This icon appears only if your printer is attached, turned on, and online.
- ◆ The “panel inventory” icon, which allows you to review a list of all panels in the instrument and sort the list by various criteria (such as by panel sequence number, accession number, result, etc.)
- ◆ The “system alert” icon, which allows you to review any system alerts that may have occurred or that may still exist. (Icon appears only if system alert is present.)
- ◆ The “needs attention” icon, which allows you to respond to panels that have been flagged as needing attention. Usually, you can perform some action to correct the situation. (Icon appears only if there are panels that need attention.)

The Main Status screen has three areas: the top region presents system status information; the middle region presents station status information; and the bottom region displays the current soft key definitions.

The system status information presented at the top of the screen includes the following:

Current date and time



Carousel temperature



Instrument state

idle



#

testing



##

inventory scan



#

processing test data



#

= number of minutes until next test

= number of minutes left in current test for testing state

adjusting UV light source



adjusting RGB light source



* = number of minutes adjustment has been in progress

When the “processing test data” icon is displayed, do not change any configuration settings.

Door unlocked (blank if locked)



Instrument number



Software version / Phoenix Update Disk (PUD) version (VX.XXY) / VA.AAB

Inoculum density (red for Gram negative [top], blue for Gram positive [bottom])

Network okay



Network down



LIS enabled



Station statuses presented in the middle area of the display include the following:

Ongoing



#

Removable



#

Available



#

Blocked



#

The numbers (#) to the right of the icons represent the number of stations/panels that exist for a status.

The soft key assignment area (very bottom of the screen) shows the current soft key definitions. These definitions change as you access different functions and screens. The Main Status screen icons include:

"panel login"		"panel results"	
"finalization"		"configuration"	
"print reports"		"panel inventory"	
"system alert"		"needs attention"	

Note that the "finalization" icon does not appear when the Phoenix instrument is attached and communicating with an EpiCenter system.

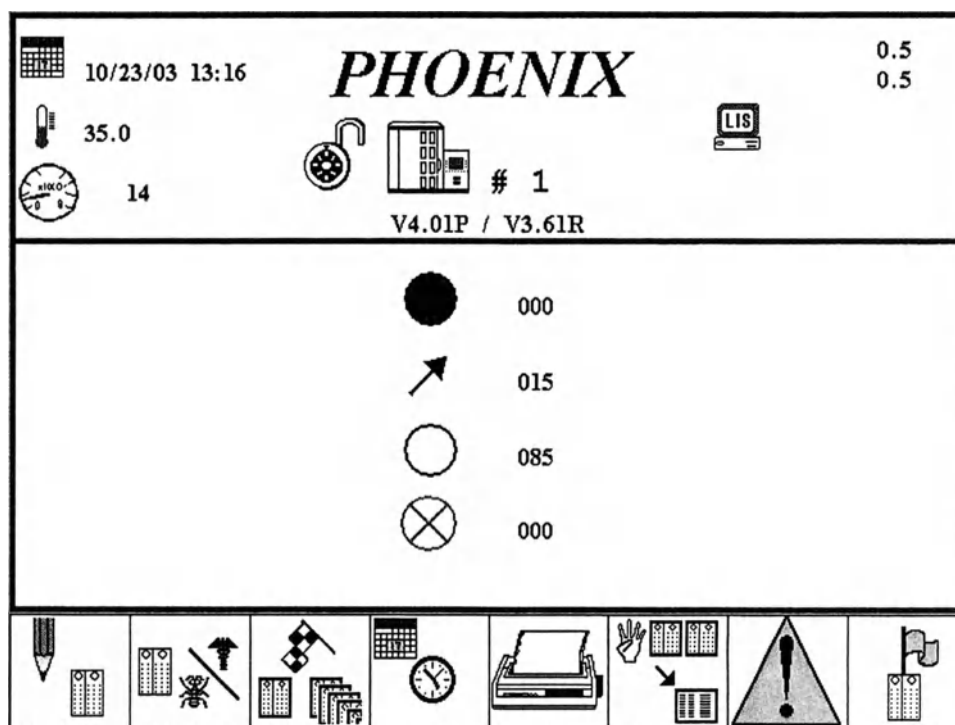


Figure 5-1 – Main Status Screen (with optional LIS indicator)

5.4 Panel Login

The Panel Login display enables you to log in demographic information about panels to be tested. Depending on the type of panel being used, not all fields listed below may appear on the display. More than one of the same panel type may be logged in for an accession number, but the system notifies you of the duplication with an activity error message.

The inoculum density of the panel is set in Configuration. There is no way during Panel Login to change the density setting. The only way to use a different inoculum density is by blackening well A-17 as described in **Section 4.4 Preparing Panels, ID Inoculum Density Flexibility**.

See Figure 5–2.

To access Panel Login:



Press the "panel login" soft key from the Main Status screen

or

Scan a new Accession with the handheld barcode scanner or scan a new panel barcode with either scanner from the Main Status screen

Panel Login soft keys:

"save"



"clear"



"select"



"QC panel"



"repeat data"



"LIS Orders"



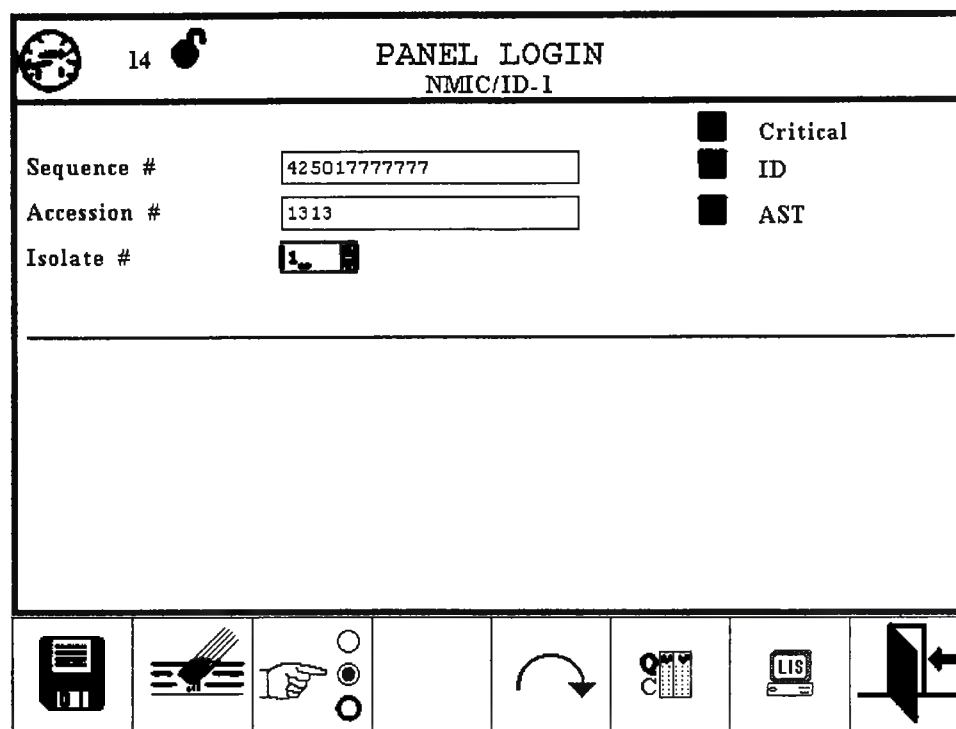
"exit"



Panel Login fields:

Sequence

Type in or scan the panel's sequence number. (If you scanned the Sequence # to access Panel Login, this field is completed automatically.) The sequence number contains digits that identify the panel type. Valid sequence numbers are 12 digits long and must conform to BD panel sequence number specifications. You must enter a panel sequence number to save a record. If an existing sequence number is entered, the system takes you to the Panel Results display.



The screenshot shows a 'PANEL LOGIN' screen for 'NMIC/ID-1'. At the top left is a circular icon with a gear and the number '14'. The title 'PANEL LOGIN' is centered, with 'NMIC/ID-1' below it. On the right side, there are three checkboxes labeled 'Critical', 'ID', and 'AST'. The main area contains three input fields: 'Sequence #' with the value '42501777777', 'Accession #' with the value '1313', and 'Isolate #' with a dropdown menu showing '1'. Below these fields is a large empty rectangular area. At the bottom, there is a row of eight icons: a floppy disk, a hand pointing at a screen, a hand pointing at a button, a curved arrow, a bar chart, a 'LIS' label, and a door with an arrow pointing out.

Figure 5-2 – Panel Login Display

For Yeast ID panels, the Media field appears to the right of the Isolate # field.

Accession

Type in or scan an accession number, up to 20 alphanumeric characters. (If you scanned the accession barcode to access Panel Login, the Accession # is completed automatically.) Spaces at the beginning or end of the number are ignored, but spaces within the number are valid. The following characters CANNOT be used in accession numbers: * ? [] ! # | .

Isolate

Defaults to isolate number 1. Type in the isolate number, or press UP ARROW or DOWN ARROW to increase or decrease the number. Valid isolate numbers are 1 to 20. If you have entered an accession number, you must also enter an isolate number. If you change the isolate # from "1" to another value, you must enter an accession number.

Media

This field appears only if a Yeast ID panel sequence number is scanned or typed in.

Defaults to media type specified in Configuration (optional). To select a different media for the isolate, press ▼ to drop down a box listing all media types (abbreviations), sorted alphabetically. (When you highlight the media type, the full name appears at the top right of the display.) Use ▼ or ▲ to highlight the desired media. Press the "select" soft key or Enter to select that media. You can select or change a media type until the first panel test. The panel test is aborted if a media type is not specified before the first test cycle.

You must select a media type to save the panel information.

Critical Checkbox

Defaults to unchecked. Press the "select" soft key to check the box and mark the panel as critical. The system can be configured (Rapid Reporting configuration, Section 2.3.5) to notify you of critical panel results (ID results obtained, partial panel results, or complete panel results) by sounding an audible alarm and/or printing a Lab Report automatically (or neither).

ID Checkbox

Defaults to checked if a combination panel sequence number is scanned. If you are using only the AST portion of a combination panel, press the "select" soft key to UN-check the box. This checkbox appears only when a combination panel is used. This field is automatically checked (enabled) when you log in a QC panel.

AST Checkbox

Defaults to checked if a combination panel sequence number is scanned. If you are using only the ID portion of a combination panel, press the "select" soft key to UN-check the box. This checkbox appears only when a combination panel is used. This field is automatically checked (enabled) when you log in a QC panel.

Organism ID/Test Strain

Press DOWN ARROW to drop down the organism selection box. Organisms are listed in alphabetical order. You can enter the first few characters of the organism name to jump to that portion of the list quickly. Use UP ARROW or DOWN ARROW to highlight the desired organism. Press  to select the organism.

This field appears only for AST-only panels or when using the AST side of a Combination panel.

For QC panels, this field is named Test Strain, and lists only the strains of organisms predefined in the database, sorted by strain number (alphanumerically). A test strain must be entered to save a QC panel.

Tech ID

This field appears for QC panels. Enter the identification for the technologist performing the QC test. Up to 3 alphanumeric characters are accepted. A tech ID must be entered to save a QC panel.

Panel Lot

This field appears for QC panels. Type in or scan the panel's lot number. Lot numbers must be 7 digits. A lot number must be entered to save a QC panel. (When the QC Lot Support feature is enabled, this field is completed automatically when the Sequence # barcode is scanned.)

(Panel Lot #) Exp. Date

This field appears for QC panels. In the first Panel Lot # Exp(iration) Date field, press UP ARROW or DOWN ARROW to enter the expiration day, month, or year (depending on your configuration). Press  to advance to the next date field and press UP ARROW or DOWN ARROW to enter the expiration day, month, or year. Press  to advance to the next date field, and press UP ARROW or DOWN ARROW to enter the final portion of the date. An expiration date must be entered to save a QC panel. (When the QC Lot Support feature is enabled, this field is completed automatically when the Sequence # barcode is scanned.)

ID Broth Lot

This field appears for QC panels. Type in or scan the broth lot number. Lot numbers can be up to 7 characters.

(ID Broth Lot #) Exp. Date

This field appears for QC panels. In the first ID Broth Lot # Exp(iration) Date field, press UP ARROW or DOWN ARROW to enter the expiration day, month, or year (depending on your configuration). Press **[Tab]** to advance to the next date field and press UP ARROW or DOWN ARROW to enter the expiration day, month, or year. Press **[Tab]** to advance to the next date field, and press UP ARROW or DOWN ARROW to enter the final portion of the date.

AST Broth Lot

This field appears for QC panels. Type in or scan the broth lot number. Lot numbers can be up to 7 characters.

(AST Broth Lot #) Exp. Date

This field appears for QC panels. In the first AST Broth Lot # Exp(iration) Date field, press UP ARROW or DOWN ARROW to enter the expiration day, month, or year (depending on your configuration). Press **[Tab]** to advance to the next date field and press UP ARROW or DOWN ARROW to enter the expiration day, month, or year. Press **[Tab]** to advance to the next date field, and press UP ARROW or DOWN ARROW to enter the final portion of the date.

Indicator Lot

This field appears for QC panels. Type in or scan the indicator lot number. Lot numbers can be up to 7 characters.

(Indicator Lot #) Exp. Date

This field appears for QC panels. In the first Indicator Lot # Exp(iration) Date field, press UP ARROW or DOWN ARROW to enter the expiration day, month, or year (depending on your configuration). Press **[Tab]** to advance to the next date field and press UP ARROW or DOWN ARROW to enter the expiration day, month, or year. Press **[Tab]** to advance to the next date field, and press UP ARROW or DOWN ARROW to enter the final portion of the date.

LIS Orders

This field appears when the "LIS Orders" soft key is pressed. Entering a Sequence number and pressing the DOWN ARROW opens a drop-down box listing up to 200 Order records received from the LIS. The list contains only those LIS order records for the same panel type as the Sequence number entered. The list is sorted alphabetically by accession number. It lists the following information: accession number, isolate number, and organism or test strain (if available). Any critical Order records are shown in red text in the box. Use the UP ARROW or DOWN ARROW to highlight the desired Order record and press the "select" soft key to associate that Order to the Sequence # entered.

5.5 Panel Results

The Panel Results display enables you to review and modify panel test results. The Panel Results display can be used for the following functions:

- ◆ display a panel whose data is stored in the Phoenix database
- ◆ modify the information for a panel in the Phoenix database

- ◆ mark a panel as critical
- ◆ print a Lab report on any panel that can be recalled or displayed on the screen
- ◆ locate a panel resident in the instrument
- ◆ delete panel information from the Phoenix database
- ◆ answer or display any triggered BDXpert Rules
- ◆ display any special messages
- ◆ finalize a panel

Panel Results (clinical panels) are retained for 31 days (possibly longer depending on number of QC panels tested). QC panel results are retained for at least 6 months.

Additional information about the panel is displayed in the display title area. The type of panel is shown below the title. Also, the inoculum density used for the identification (if applicable) is shown near the top left after the first test cycle completes.

If there is a Needs Attention flag for the panel, it appears above the **Test Start** field. If multiple Needs Attention reasons exist, only the highest priority reason is shown. If a Resistance Marker has triggered for the panel, an icon is shown just to the left of the **Location** field.

If a panel is recalled by accession number only, and there is more than one panel attached to the accession, the Panel Results List display appears. From this display, you can select the specific panel to review/modify. See Figure 5-3 for the Panel Results List display. See Figure 5-4a for a sample ID Panel Results display, and Figure 5-4b for a sample AST Panel Results display.

Note that depending on the type of panel being used, as well as other circumstances, not all fields listed below may appear on the display.

AST or Combination panel types (with at least the AST side enabled) each contain a set of antimicrobials. The instrument reports a result for each antimicrobial on the panel. Each antimicrobial reports an individual MIC value. Once an antimicrobial has a MIC value, the instrument calculates an Instrument susceptibility (SIR) value for each MIC value that has been determined. (The instrument requires the panel to have an Organism ID defined to interpret MIC values into Instrument SIR values. Also note that SIR values are not calculated by the instrument if it is attached to an EpiCenter Data Management System.)

If Rapid Completion is enabled, the instrument is able to provide BDXpert AST results (SIR) before determining actual MIC values. The instrument MIC values are provided as soon as they can be accurately determined. Within a test panel, some MIC values may be available earlier than others. The rapid completion feature can be used to predict resistance for uncompleted antibiotics using the ID alone (intrinsic resistance), or ID with completed MICs of related antibiotics, or resistance marker tests (BL, ESBL). The BDXpert system is used to make these predictions. This can be useful in situations where, for example, the results for drugs that have not yet received MICs would be of no clinical value based on the other results that are already available. Antimicrobials with Rapid Complete BDXpert interpretations are indicated by a "C" in the MIC column on Results screens and Lab reports.

When both a MIC value and Instrument SIR value have been determined for an antimicrobial, the instrument executes the BDXpert Rules (providing the BDXpert System is enabled). The instrument reports a value in the BDXpert SIR field if an enabled BDXpert Rule triggered and the reported BDXpert SIR value is different from the value in the Instrument SIR field.

To access Panel Results:



Press the "panel results" soft key from the Main Status screen

or

Scan an existing Accession with the handheld barcode scanner from the Main Status screen; or scan an existing panel barcode with either scanner from the Panel Login or Main Status screen

Panel Results can also be accessed in certain conditions from the Needs Attention and Batch Finalization displays.

Panel Results soft keys:

"save"



"clear"



"select"



"find"



"toggle display"



"toggle soft keys"



"print Lab Report"



"locate panel"



"delete panel"



"go to BDXpert Rules*"



"more antimicrobials"



"special messages"



"QC panel"



"exit"



* Note that this icon does not appear if the EpiCenter system is attached and communicating.

Panel Results fields:

NOTE

Modifying the Accession # or Isolate # may invoke Auto Association, which can change results.

Accession #

Type in or scan the accession number to recall. If only an accession number is entered, and there is more than one panel attached to the accession, the Panel Results List display appears (Figure 5-3).

This field can be modified for unfinalized panels. Enter up to 20 alphanumeric characters for the accession, excluding * ? [] ! # | . Modifying an accession number does not affect the accession number of any related panels.

Sequence #

Type in or scan the panel's sequence number to recall. This field cannot be edited.

PANEL RESULTS

Accession #

ACC333

Sequence #

Iso#	Panel Type	Final ID	Status	Test Start	Sequence #
1	GNIDAST	ENTBCLO	COMPLETE	02/15/00	420015555555
2	GNID		COMPLETE	02/15/00	420022222222
2	GNAST		COMPLETE	02/15/00	420031112774
3	GNIDAST	ESCCOL	COMPLETE	02/15/00	420016666666

Figure 5-3 – Panel Results List Display

A maximum of 30 panels can be displayed in the list. To select a panel, use the UP ARROW or DOWN ARROW to highlight the panel and press the "select" soft key.

Isolate

Press UP ARROW or DOWN ARROW to increase or decrease the number. Valid isolate numbers are 1 to 20. This field can be modified for unfinalized panels, however an existing isolate number cannot be changed to a blank number.

Media

This field is editable only before the first test cycle completes.

Shows the media type selected during Panel Login for Yeast ID panels only. The following values can appear in this field: blank for Unspecified Media Type; INVLD (Invalid Media Type); SABDX (Sabouraud Dextrose Agar); TSASB (Trypticase Soy Agar w/ 5% SB); COLSB (Columbia Agar w/5% SB); CHOC (Chocolate II Agar); SABEM (Sabouraud Dextrose Emmons); SABHI (Sab Brain Heart Inf Ag Deep)

Status

Read-only field shows the panel's testing status: Pending, Ongoing, Complete, or Rapid Complete (if enabled). Rapid Complete panels have not finished testing and show BDxpert results. If a Rapid Complete panel is removed from the instrument, it then becomes Complete. If it is left in the instrument, Rapid Complete MICs are replaced by actual MIC results as they are determined.

Final ID

Final ID can be completed automatically by the system from a single instrument-based ID or by the user selecting among tie instrument-based IDs. For ID panels (or ID-only portions of Combination panels) you cannot manually select an organism ID if there is no instrument-based ID listed.

Note that if the **Modify Related Panels** checkbox is checked, the ID in the database of all related panels (panels with the same accession and isolate number) is set with the same organism ID through the Auto Association function (see Section 4.9).

Press DOWN ARROW to drop down the organism selection box. Organisms are listed in alphabetical order. You can enter the first few characters of the organism name to jump to that portion of the list quickly. Use UP ARROW or DOWN ARROW to highlight the desired organism. Press  to select the organism.

When this field is modified by the user, the instrument changes the background color of the field to cyan. In addition, if the **Modify Related Panels** checkbox was checked at the time the **Final ID** was modified, all modified panels' **Final ID** fields are also displayed with a cyan background. When the field is modified, the system re-evaluates each antimicrobial's instrument SIR value, as well as re-evaluating BDxpert information.

The field cannot be modified if the panel is finalized.

For QC panels, this field is named **Test Strain**, and lists only the ATCC strains of organisms predefined in the database, sorted by strain number.

Panel Lot

Read-only field shows the panel lot number. This field shows only when the QC Lot Support feature is enabled.

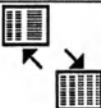
  0.5		PANEL RESULTS GNIDAST 951																					
Accession #	1313	Test Start	10/21/03 14:27																				
Sequence #	429510001405	Test End	10/21/03 14:27																				
Isolate #	1 	Location	1/A01																				
Status	COMPLETE	Modify Related Panels	☒																				
Final ID	Prot. mirabilis 		Finalized ☒ Critical ☒																				
Instrument Organism ID		Confidence																					
Prot. mirabilis		97%																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Biochemical</th> <th style="width: 20%;">Actual</th> <th style="width: 20%;">Expected</th> <th style="width: 30%;"></th> </tr> </thead> <tbody> <tr> <td>A_ARARR</td> <td style="text-align: center;">+</td> <td style="text-align: center;">+</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">  </td> </tr> <tr> <td>A_GLPRB</td> <td style="text-align: center;">-</td> <td style="text-align: center;">+</td> </tr> <tr> <td>A_GLYB</td> <td style="text-align: center;">+</td> <td style="text-align: center;">+</td> </tr> <tr> <td>A_GUGAH</td> <td style="text-align: center;">-</td> <td style="text-align: center;">+</td> </tr> <tr> <td>A_LARGH</td> <td style="text-align: center;">+</td> <td style="text-align: center;">+</td> </tr> </tbody> </table>				Biochemical	Actual	Expected		A_ARARR	+	+		A_GLPRB	-	+	A_GLYB	+	+	A_GUGAH	-	+	A_LARGH	+	+
Biochemical	Actual	Expected																					
A_ARARR	+	+																					
A_GLPRB	-	+																					
A_GLYB	+	+																					
A_GUGAH	-	+																					
A_LARGH	+	+																					
       																							

Figure 5-4a – Panel Results Display – ID

For Yeast ID panels, the Media field appears to the right of the Isolate # field.

Exp. Date

Read-only field shows the date and time that the panel lot expires. This field shows only for QC panels and only when the QC Lot Support feature is enabled.

Modify Related Panels Checkbox

This field appears when the Final ID field is modified. Defaults to checked when the Final ID is modified. If you do NOT want to modify the ID for unfinalized related panels when you modify the currently displayed panel, press the "select" soft key to UN-check the box. This checkbox has no affect on related QC panels. This checkbox does not appear if the EpiCenter system is attached and communicating.

Test Start

Read-only field shows the date and time that panel testing was started.

Test End

Read-only field shows the date and time that panel testing was completed.

Location

Read-only field shows the location of the panel, in the form I/Tst, where I is the Instrument number, T is the Tier, and st is the station number.

QC Status

This field shows the status of a QC panel. The field is blank until the panel status becomes Complete. Statuses are initially PASS or REVIEW. Review indicates that the panel has not passed. You should check any panels with Review status and determine why the panel did not pass.

The status is REVIEW if any of the following conditions occur:

- ◆ QC strain was identified incorrectly
- ◆ The test on a QC panel is aborted
- ◆ At least one of the antimicrobial results fail

From a status of REVIEW, you may set the final status to REPEAT if you determine that the panel failed due to error in preparation or handling of the panel. If it is not determined that a panel preparation/handling error was made, the final status should be set to FAIL. Selecting REPEAT or FAIL clears the "Review QC Results" Needs Attention condition.

Finalized

Press the "select" soft key or Spacebar to check the box and finalize the panel. The **Finalized** field is displayed as a read-only field when the Phoenix system is connected and communicating with the EpiCenter Data Management Center. In this case, all Finalization is done at the EpiCenter system. **Finalized** is not displayed for QC panels.

If you finalize a panel with Rapid Complete status, processing of MIC results stops, and the panel status becomes Complete. Any drugs that did not complete testing maintain their current MIC value (e.g., C in MIC column remains C, X remains X, etc.).

Critical

Press the "select" soft key or Spacebar to check the box and mark the panel as critical. The system can be configured (Rapid Reporting configuration, Section 2.3.5) to notify you of critical panel results (ID results obtained, partial panel results, or complete panel results) by sounding an audible alarm and/or printing a Lab Report automatically (or neither).

You can also unmark previously marked critical panels by unchecking the checkbox.

This field does not appear for QC panels.

Accession #		Test Start	
Sequence #		Test End	
Isolate #		Location	
Status		Finalized	
Final ID		Critical	
425190000030		10/10/00 10:00	
6		10/10/00 10:00	
COMPLETE		10/10/00 10:00	
Esch. coli			

Antimicr MIC	I	E	F	Antimicr MIC	I	E	F	Antimicr MIC	I	E	F
GM 4	S	S	S	ATM 4	S	R	R	CIP <=0.5	S	S	S
NN 8	I	I	I	AM >16	R	R	R	NOR <=0.5	S	S	S
IPM <=0.5	S	S	S	PIP >64	R	R	R	TE >16	R	R	R
CF >32	R	R	R	AMC 8/4	S	R	R				
FOX 2	S	S	S	TEP <=2/4	S	S	S				
CTX <=4	S	R	R	SXT <=0.5/9.5	S	S	S				
FEP <=2	S	R	R	FM <=32	S	S	S				

--	--	--	--	--	--	--	--	--

Figure 5-4b – Panel Results Display – AST

Antimicr(obial)

Read-only field showing the abbreviation for the antimicrobial.

MIC.

The Minimum Inhibitory Concentration value determined by the instrument. The following values may also appear in this field:

- | | |
|---|---|
| > | growth occurred for all concentrations of the antimicrobial |
| ≤ | no growth occurred in any of the concentrations of the antimicrobial |
| ? | MIC determination is pending (SIR values remain blank) |
| X | MIC value cannot be produced; or Final ID is not claimed in the Taxa listing (Appendix F.3) for AST testing; or the panel's drug dilution series does not cover the Phoenix reportable MIC range, or for additional causes, see Table 5-1. Check Special Messages display (Section 5.5.3) for an explanation. |
| C | Rapid Complete (MIC is pending, BDxpert SIR is based on ID and completed drug and/or resistance marker results). These values are replaced by actual MIC values as they are determined. |

For QC Panels, the following values may appear in this field:

Actual MIC value (number, ?, or X for error)

Expected MIC range (if defined)

QC Result

- P the actual MIC value is within the expected MIC range
- F the actual MIC value is not within the expected MIC range
- R Repeat: the actual MIC value is "X"
- blank no range is defined for the antimicrobial/organism combination

I(nstrument SIR)

This field is the instrument interpretation for the MIC based on the breakpoints currently running in the system (selected in Instrument Configuration).

The SIR value is blank for antimicrobials that require an ID to perform the SIR interpretation. In this case, the **BDXpert SIR** field (if present) and the **Final SIR** field are also blank.

The following represent the interpretation values:

- S Susceptible
- I Intermediate
- R Resistant
- N Not Susceptible*
- X Cannot produce interpretation

Blank No SIR (missing or invalid Final ID; MIC = ?, C, or X; unclaimed organism for Final ID)

* N indicates that the antimicrobial/organism does not have an upper breakpoint. When there is no upper breakpoint there are no criteria for calling an organism intermediate or resistant. This often occurs when there is an absence or rare occurrence of resistant strains of an organism. In this case, if the MIC is below the lower breakpoint the SIR results can be reported as susceptible but if the MIC is above the lower breakpoint the only result that can be reported is N or not susceptible.

I(nstrument SIR) does not appear if the EpiCenter system is attached and communicating. If communications with the EpiCenter system is lost, the field automatically appears.

(BD)E(Xpert SIR)

Possible field values are: Blank, S, I, R, N, and X. These values have the same meanings as I(nstrument SIR) above.

The BDXpert SIR field is not shown when the BDXpert System is disabled. It is also not shown for QC, ID, or ID/AST panels with AST disabled. This field contains the results calculated by the BDXpert System based on the execution of all enabled BDXpert Rules. Values appear in this field only if a BDXpert rule triggered and caused the BDXpert SIR value to differ from the instrument interpretation.

F(inal SIR)

Field values are the same as I(nstrument SIR) above. The Final SIR can be one of the following (from highest to lowest priority): a user-entered SIR value; the BDxpert SIR value; the instrument SIR value; or blank.

Final SIR values are produced when a MIC value or error is determined, AND there are no pending manual BDxpert rules (if the BDxpert System is enabled).

When the EpiCenter System is not connected and the BDxpert System is disabled, the Final SIR field is not displayed for an antimicrobial until the MIC value is something other than "?."

The chart below provides explanations of different combinations of blank and "X" results. Detailed explanations for actual results are provided as Special Messages (see Section 5.5.3).

Antimicrobial	MIC	Instrument SIR	Expert SIR		Example for Possible Causes
Any Drug	?	[Blank]	[Blank]	[Blank]	Results pending.
Any Drug	Phoenix MIC Result	S, I, R	[Blank]	S, I, R	Instrument SIR = Final SIR (No BDxpert rule SIR).
Any Drug	Phoenix MIC Result	S or I	R	R	Final SIR = BDxpert SIR if rule accepted.
Any Drug	Phoenix MIC Result	[Blank]	[Blank]	[Blank]	No breakpoints for this drug/organism combination within the chosen standard (CLSI, SFM, EUCAST, Custom).
Any Drug	Phoenix MIC Result	X	[Blank]	X	MIC value is outside the breakpoints for the selected standard. Example: Panel drug range = 1–16 µg/mL, susceptible breakpoint = 0.5 µg/mL
Any Drug	Phoenix MIC Result	X	[Blank]	X	SIR is suppressed by a BDxpert rule. User must provide Final SIR based on manual interpretation or additional testing.
Any Drug	X	[Blank]	[Blank]	[Blank]	The MIC for this drug and organism combination is not reported by the Phoenix system. An alternative method should be used.
All Drugs	X	[Blank]	[Blank]	[Blank]	This species is not included in the Phoenix AST taxonomy; perform an alternative method. An excessive amount of indicator was detected in the panel. The AST portion of the panel has been terminated and the isolate should be retested.
Any Drug	X	[Blank]	[Blank] or R	[Blank] or R	The MIC for this antibiotic is not reported (see Special Message). Interpretation based on BDxpert Rule.
Any Drug	C	[Blank]	R	R	Rapid Completion SIR (BDxpert SIR based on ID and/or another completed drug and/or resistance marker result).

Table 5-1 – MIC/SIR Values and Causes

Instrument Organism ID

Read-only field showing the organism identified by the instrument based on biochemical results in an ID or ID/AST panel. Organism IDs listed for a Tie (two possible organisms meet the results) are listed in the Instrument Organism ID field as "organism 1 / organism 2."

Confidence

The Confidence value computed by the system is based on the actual biochemical results versus the expected results. The Confidence value is a percentage from 0 to 99.

Supplemental Tests

Supplemental Tests are displayed in the Instrument Organism ID field and/or in the Special Messages display if there is more than one Organism listed there. Once you have performed these tests, the results of the tests will help to distinguish which organism ID to associate to the AST results. At this point, you may then select a single organism ID from the Final ID field.

Biochemical

Read-only field showing the abbreviation for the biochemical used to determine the ID.

Actual

Read-only field showing the observed biochemical result at the time when the organism ID was determined: + for positive or – for negative. A ? indicates that the biochemical result is pending or that the test was aborted prior to ID results being determined. X indicates an Error.

Expected

Read-only field showing the expected biochemical result according to the Instrument Organism ID: + or – for the organism. A V indicates that the result can be variable. This field is blank when the actual results are "?" (for non-QC panels), or until an Organism ID has been determined, or when more than one organism is listed in the Instrument Organism ID field.

5.5.1 BDXpert Triggered Rules Display

The BDXpert Triggered Rules display enables you to view the BDXpert system rules that have been triggered for a panel (the panel currently selected in Panel Results). You can view a listing of rules that have been triggered, the text of those rules, see the effect that the rules have on Final SIR values, and accept or reject pending (manual) rules. You can also re-execute all rules. See Figure 5–5.

After all rules have been reviewed and Accepted/Rejected, any changes must be saved in the Panel Results display via the "save" soft key.

The BDXpert Triggered Rules icon does not appear, and the display is not available if the EpiCenter system is attached and communicating with the Phoenix instrument. However, if communications with the EpiCenter system is lost, and the BDXpert system is reactivated in Instrument Configuration (Section 2.3.1), the icon reappears and the display can be accessed. When communications with the EpiCenter system is restored, BDXpert rules interpretations are once again performed at the EpiCenter system, and the "go to BDXpert Rules" icon no longer appears on the Panel Results display.

To access BDXpert Triggered Rules:



Press the “go to BDXpert Rules” soft key from the Panel Results screen

The display appears automatically if a change is made to the Final ID field (in Panel Results) that causes a manual BDXpert Rule to be triggered

BDXpert Triggered Rules soft keys:



BDXpert Triggered Rules fields:

Accession #

Read-only field that shows the current panel’s accession number.

Sequence #

Read-only field that shows the current panel’s barcode sequence number.

Isolate #

Read-only field that shows the current panel’s isolate number.

Final ID

Read-only field shows the panel’s final organism identification.

Rule Description Window

Read-only field that shows the text of the current rule. (The current rule is highlighted in the lower left window (Rules Window) of the display.) The color of the text of the rule indicates the following statuses:

GREEN	Automatic Rule
BLUE	Pending Manual Rule; execution of additional rules is suspended until you either Accept or Reject this rule
GREEN	Manual Rule that has been Accepted
RED	Manual Rule that has been Rejected

Rules Window

Rule

Read-only field that shows the numeric designation of the highlighted rule.
A maximum of 25 rules can be displayed in this window.

Status

Shows the status of the highlighted rule. The initial status of Automatic (a rule that executes automatically without user intervention) or Manual (a rule that must be manually Accepted or Rejected by the user) is set in the BDXpert Rule Configuration display (Section 2.3.3). Statuses shown in this window are:

Automatic – rule is enabled and set to Automatic

Pending – rule is enabled and set to Manual; Manual rules must be Accepted or Rejected; only the first Manual rule shows as Pending

Accepted – rule is enabled and set to Manual and has been Accepted by the user

Rejected – rule is enabled and set to Manual and has been Rejected by the user

Pending rules can be accepted or rejected via the "accept" or "cancel" key. Once a rule is accepted or rejected, the status can only be changed by re-executing the rules.

BDXpert TRIGGERED RULES			
Accession #	P010001	Isolate #	
Sequence #	411200000061	Final ID	B. pertussis
Rule Description Klebsiella oxytoca is usually susceptible to aminoglycosides. Verification of organism purity, identification and/or susceptibility is suggested.			
Rule #	Status	Antimier MIC	I F
1503	Automatic	GM >16	R
1522	Automatic	NM 16	R
		IPN 4	S
		CF >32	R
		FOX >16	R
		CTX >32	R
		FEP 16	I R

OK

Figure 5-5 – BDXpert Rules Triggered Display

Display reflects rules that had been triggered up to the time when the display was accessed. Display is not updated dynamically with new triggered rules.

AST Results Window

Antimicr(obial)

Read-only field that shows the abbreviation for the antimicrobial.

MIC

Read-only field that shows the MIC for that panel.

I(nstrument SIR)

Read-only field that shows the Instrument interpretation for that drug/MIC.

F(inal SIR)

Read-only field that shows the Final interpretation after any rules have been applied to the results.

5.5.2 Resistance Marker Display

The Resistance Marker display enables you to view any resistance markers that have triggered for a given panel. It is accessed through a soft key on the Panel Results display. See Figure 5 –6.

The Resistance Marker review display shows the same information in the top window as ID and AST Panel Results displays. In the bottom window, the following information is shown:

- The BDxpert rule number that triggered the Resistance Marker
- The Resistance Marker code (abbreviation)
- The Resistance Marker Name
- The BDxpert rule Description (green if the rule is automatic or accepted manual; blue if the rule is pending manual)

The resistance markers are shown in the order in which they trigger.

To access the Resistance Marker display:



Press the “toggle display” soft key from the Panel Results screen

The soft keys on the Resistance Marker display are the same as the Panel Results display.

0.5

PANEL RESULTS
CT01P

Accession #

Sequence #

Isolate #

Status

Final ID

Test Start

Test End

Location

Finalized ☐

Critical ☒

Rule #	RM	Name
1507	VRE	Vancomycin Resistant Enterococcus
0224	HLGR	High Level Gentamicin Resistant
0227	HLSR	High Level Streptomycin Resistant

Rule Description

For isolates with an interpretation of resistant for high levels of streptomycin (HLSR), synergy with cell wall active agents (e.g., ampicillin, penicillin, vancomycin) is not achievable.

Figure 5-6 – Resistance Marker Review Display

5.5.3 Special Messages Display

The Special Messages display enables you to access information about certain panel ID and AST results, as well as some panel readings. These special messages are triggered and are available for viewing regardless of whether the BDxpert System is enabled or disabled. If a recalled panel has an associated Special Message, the "special messages" soft key is displayed on the Panel Results display. See Figure 5-7.

Special Messages on a recalled panel are shown according to hierarchy on the Special Messages display, up to a maximum of 1000 characters. (Only complete special messages are shown.) If a message exceeds the 1000 character limit, it does not appear on the display. To view all messages in their entirety, print a Lab Report.

The Special Messages screen reflects messages that exist *at the time* the display is accessed: it is not updated dynamically with messages that are triggered after the display has been accessed. To view newly triggered messages, you must return to the Panel Results display, recall the panel again, and re-enter the Special Messages display again.

To access the Special Messages display:

- 1 From the Panel Results display, press the "more soft keys" soft key to view additional soft key definitions.



- 2 When the new soft keys appear, press the "special messages" soft key.



- 3 To return to Panel Results, press the "exit" soft key.



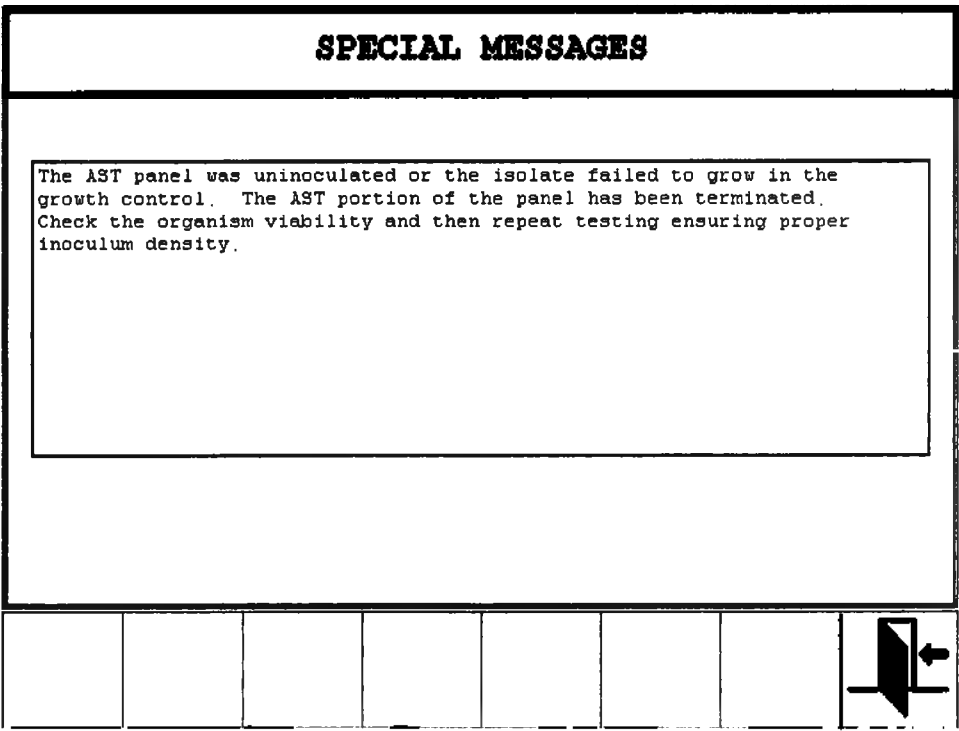


Figure 5-7 – Special Messages Display

5.5.4 Lab Report

The Lab Report contains all information for a panel sequence number that exists in the Phoenix database, including all information in the Panel Results screen, any special messages, BDxpert Rules that triggered, or Needs Attention Reasons if they exist. The Lab Report is not accessible from the Reports menu. It can only be printed from the Panel Results or Finalization displays.

The QC Lab Report is also accessible from the Panel Results display. It provides similar information to the Lab Report, but prints when a QC panel is being displayed and a report is requested.

The report provides the following information:

Header: Report Title, Preliminary indication (if Status is Ongoing, Pending, or Partial Complete; and/or if there are unignored Needs Attention conditions or a Needs Attention condition of Cannot Identify Barcode; and/or if the panel is not eligible for finalization), Laboratory Information (if configured), and Date and Time Printed, Software version (X.XXY) / Phoenix Update Disk (PUD) version (A.AAB)

Body of Report: Top Region: Accession #, Isolate #, Sequence #, Panel Type, Status (Ongoing, Complete), CRITICAL panel indication, Test Start with time, Test End with time, Instr #/Station (location), Finalized status, Panel Lot # (if QC Lot Support is enabled), and Inoculum Density. The Lab Report is sorted by Accession # then by Isolate # within accessions.

Below this information the organism Final ID is listed. An asterisk next to the Final ID indicates that the ID was changed by the user. Below this, the Media Type (for Yeast ID panels only) appears.

Next any instrument ID results are listed, along with the Confidence Value for the result. In the lower region of the report, for ID tests, the Biochemical, Instr(ument) Result, and Expected Result are provided. For AST tests, the Antimicrobial, Instr(ument) MIC, Instr(ument) SIR, BDxpert SIR, Final SIR, and Rule # are printed. If any panels have Resistance Markers, BDxpert Rules, Needs Attention flags, or Special Messages, these are printed at the bottom of the report.

ID and AST sections of combination panels print on separate pages of the report.

For QC panels, in addition to the information listed above, the following information is included: Panel Lot # and Expiration Date, Tech ID, ID Broth Lot # and Expiration Date, AST Broth Lot # and Expiration Date, Indicator Lot # and Expiration Date, and Test Strain. The QC Status of PASS, REVIEW, ERROR, or FAIL is indicated.

The system can be configured (General Instrument Configuration, Section 2.3.1.1) to print an "abbreviated" lab report. The abbreviated report does not contain the individual biochemical results for ID or ID/AST panels.

See Figure 5–8.

To print a Lab Report:



From the Panel Results display, press the "print" soft key.

Lab Report

03/30/03 09:11

VX.XXY / VA.AAB

Accession #

1313

Isolate #

1

Sequence #

420011234567

Panel Type

GPIDAST

Status

COMPLETE

Test Start

03/28/03 18:16

Test End

03/29/03 22:07

Instru # / Station

1/A01

Finalized

No

Final ID

Staphylococcus haemolyticus

Inoculum Density

0.5

Instrument ID(s)

Staph. haemolyticus

Confidence Value

99%

Biochemical

Instr

Expected

Result

Result

Biochemical

Instr

Expected

Result

Result

Biochemical

Instr

Expected

Result

Result

A_ARARR

•

•

A_GLPRB

•

•

A_LALT

-

•

A_LARGH

•

•

A_LHIST

•

•

A_LISO

•

•

A_LLEUH

•

•

A_LPHET

•

•

A_LPROB

•

•

•

•

•

•

•

[second page, header identical]

Antimicrobial

Instr

MIC

Instr

SIR

BDXpert

SIR

Final

SIR

Rule #

Ampicillin

>32

R

R

Azithromycin

>8

R

R

Ceftazidime

>64

R

R

Clindamycin

0.25

S

S

•

•

•

•

RESISTANCE MARKERS

abcd - ABRV Text of triggered resistance markers appears here.

BDXpert TRIGGERED RULES

1234 - AUTO Text of BDXpert triggered rule appears here.

End of Report

Figure 5–8 – Sample Lab Report

L-003342(R)

5-27

ООО ЦИРМИ INFO@CIRMI.RU WWW.GOSZDRAVNADZOR.RU

5.6 Finalization

The Finalization display enables you to review and finalize panel test results in a batch mode or individually. You can finalize panel results for one or all panels meeting the specified conditions, skip to a new panel, or modify and finalize panel results for a single panel. All fields on the Finalization display are read-only. To modify information for a panel, press the "panel results" soft key. When the instrument is connected to the EpiCenter Data Management System, the Finalization display is not available.

When you select Finalization, the instrument finds the records that are eligible for finalization. To be eligible, a panel must have a status of Removable, not be a QC panel, and have no unignored Needs Attention flags. Eligible panels are sorted first by accession number and then by isolate number.

When the "batch finalize" soft key is pressed, the hourglass icon indicates that the finalization operation is in progress. A maximum of 200 panels may be finalized in a given finalization session.

Two types of reports, standard Lab Report(s) and a finalization Summary Report, may be printed. The Lab Report can only be printed after one or more panels have been finalized. The Summary report may be printed any time.

See Figure 5-9.

To access Finalization:



Press the "finalization" soft key from the Main Status screen

Finalization soft keys:

"okay"

OK

"cancel"



"finalize all"



"finalize single"



"print Lab Report"



"print summary report"



"toggle display"



"panel results"



"more antimicrobials"



"exit"



Finalization fields:**Accession #**

Read-only field showing the panel's accession number.

Sequence #

Read-only field showing the panel's sequence number.

Isolate #

Read-only field showing the panel's isolate number.

Media

Read-only field showing the media type selected during Panel Login for Yeast ID panels.

Status

Read-only field showing the panel's status.

Final ID

Read-only field showing the panel's final organism ID.

Test Start

Read-only field showing the panel's start of testing date and time.

Test End

Read-only field showing the panel's end of testing date and time.

Location

Read-only field showing the panel's location.

Finalized

Read-only field showing the panel's finalized status.

Instrument Organism ID

Read-only field showing the instrument identification of the organism.

Confidence

Read-only field showing the confidence value for the Instrument Organism ID.

Biochemical

Read-only field showing the biochemical abbreviation.

Actual

Read-only field showing the actual biochemical result.

Expected

Read-only field showing the expected biochemical result.

Antimicrob(ial)

Read-only field showing the drug name.

MIC

Read-only field showing the Minimum Inhibitory Concentration value.

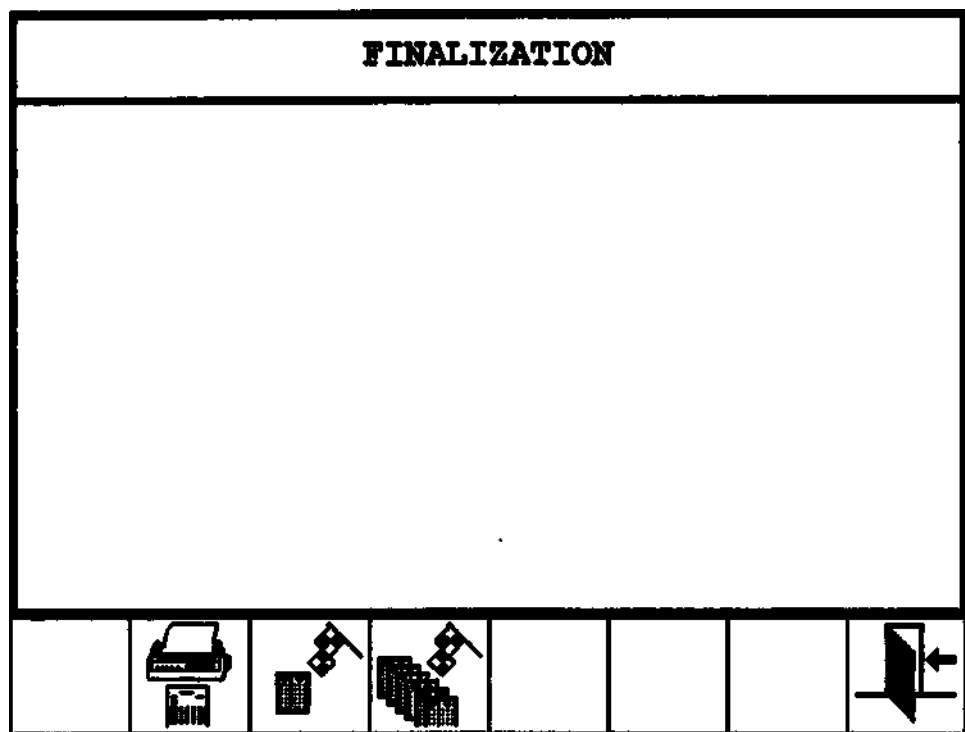


Figure 5–9 – Finalization Display

Interpretation

Read-only field showing the Susceptibility interpretation.

BDXpert SIR

Read-only field showing the final results calculated by the BDXpert System based on the execution of all enabled BDXpert Rules as if they had been executed automatically.

Final SIR

Read-only field showing the Final Susceptibility interpretation. To modify a Final SIR value, press the “panel results” soft key to go to the Panel Results display.

5.7 Configuration/Maintenance

Refer to Section 2.3 for complete information on system Configuration. Refer to Section 4.2 and Section 6 for information on system maintenance.

5.8 Reports

Numerous instrument reports are available for printing. The reports are as follows:

- ◆ Completed Lab Report – contains information for all panels whose status became “Complete” during the time period (up to the past 48 hours) you select.
- ◆ Accession Lab Report – provides information for a specified accession number.
- ◆ Needs Attention List Report – lists all panels in the instrument’s database that have a Needs Attention flag set that have not been ignored.
- ◆ Resident Panel Report – lists the panels contained in stations 1 – 25 for each tier.
- ◆ QC Lab Report – lists all Test Strain Organisms that have completed testing and all biochemical and/or antimicrobial MIC results (for a specified Panel Lot #) that exist in the Phoenix databases when the report is requested.
- ◆ Cumulative QC Report – provides information on quality control testing of all panel types.
- ◆ Daily Instrument Report – lists the status of the instrument at the time the report is generated, along with a maintenance checklist.
- ◆ Interpretation Rule Set Report – lists the antimicrobial breakpoints of the Interpretation Rule Set defined as the default Rule Set in the Instrument Configuration screen.
- ◆ BDXpert Rule Set Database Report – lists each BDXpert rule number and the text describing the rule, whether each rule is enabled/disabled and whether each rule shall trigger automatically/manually in the system.
- ◆ Organism ID Code List Report – displays all Organism Names, BD and LIS codes for all Organism Names that exist in the Phoenix database.
- ◆ Antimicrobial Code Report – displays all antimicrobials, BD and LIS codes for all antimicrobials, that exist in the Phoenix database from all panel configurations.
- ◆ Lab Report – contains all information for a panel sequence number that exists in the Phoenix database, including all information in the Panel Results screen, any special messages, BDXpert Rules that triggered, or Needs Attention Reasons if they exist. This report can only be printed from the Panel Results display or Finalization display.
- ◆ Finalization Summary Report – contains all the panels eligible for finalization at the time the report was requested, as well as finalization status. This report can only be printed from the Finalization display.
- ◆ Panel Inventory Lab Report – prints a Lab Report for all panels in the instrument. This report can only be printed from the Panel Inventory display.
- ◆ Custom Breakpoint Difference Report – prints a listing of differences between old breakpoints and new ones after a Phoenix Update Disk or Install/Upgrade operation. This report can only be printed from the Custom Interpretation Rule Set (Configuration) display.
- ◆ Current QC Panel Lot Report – contains information on the most recent QC test for each of the required strains for a panel lot, up to a maximum of 20 strains. This report can only be printed from the Panel Lot Definition display.
- ◆ Historical QC Panel Lot Report – contains information on all tests for a strain for the current instrument, up to 200 tests. This report can only be printed from the Panel Lot Definition display.
- ◆ Panel Lot Report – lists all the panel records for any panel lot number in the current instrument.
- ◆ Panel Lot Database Report – lists all the defined panel lots in the current instrument, and provides statistical and reference information on those lots.

Each of the reports is discussed in greater detail in the sections that follow.

5.8.1 Completed Lab Report

The Completed Lab Report contains information for *all panels* whose status became "Complete" during the time period (up to the past 48 hours) you select. The report provides the following information:

Header: Report Title, Preliminary indication (if Status is Ongoing, Pending, or Partial Complete; and/or if there are unignored Needs Attention conditions or a Needs Attention condition of Cannot Identify Barcode; and/or if the panel is not eligible for finalization), Laboratory Information (if configured), and Date and Time Printed, Software version (X.XXY) / Phoenix Update Disk (PUD) version (A.AAB).

Body of Report: Top Region: Accession #, Isolate #, Sequence #, Panel Type, Status (Ongoing, Complete), CRITICAL panel indication, Test Start with time, Test End with time, Instr #/Station (location), Finalized status, Panel Lot # (if QC Lot Support is enabled), and Inoculum Density. The Completed Lab Report is sorted by Accession # then by Isolate # within accessions.

For QC panels, in addition to the information listed above, the following information is included: Panel Lot # and Expiration Date, Tech ID, ID Broth Lot # and Expiration Date, AST Broth Lot # and Expiration Date, Indicator Lot # and Expiration Date, and Test Strain. The QC Status of PASS, REVIEW, ERROR, or FAIL is indicated.

Below this information the organism Final ID is listed. An asterisk next to the Final ID indicates that the ID was changed by the user. Below this, the Media Type (for Yeast ID panels only) appears.

Next any Instrument ID results are listed, along with the Confidence Value for the result. In the lower region of the report, for ID tests, the Biochemical, Instr(ument) Result, and Expected Result are provided. For AST tests, the Antimicrobial, Instr(ument) MIC, Instr(ument) SIR, BDxpert SIR, Final SIR, and Rule # are printed. If any panels have Resistance Markers, BDxpert Rules, Needs Attention flags, or Special Messages, these are printed at the bottom of the report. Any SIR values and Rule # are not reported for QC panels.

ID and AST sections of combination panels print on separate pages of the report.

See Figure 5–10.

To print a Completed Lab Report:



From the Main Status screen, press the "print" soft key to access the Reports menu.



Use the UP ARROW or DOWN ARROW to highlight Completed Lab Report.

Start Date/Time

This field defaults to the current date and time. This is the *end time* of the Completed Lab Report print period. The beginning time is the hour offset specified in Prior Period (below). Press the ▲ or ▼ key to increase or decrease the displayed value (Month, Day, Year, Hour, or Minute) to the desired end date/time.

Prior Period

This field represents the number of hours back to print the report. That is, if you select "2" for this field, the system prints Lab Reports for all panels that have completed testing from the time specified in **Start Date/Time back 2 hours**. This field defaults to 24 hours. Press the ▲ or ▼ key to increase or decrease the displayed value until the desired number of hours is shown. You can select from 1 to 48 hours ago.

QC Checkbox

Press "select" to print a Completed QC Lab Report (disabled by default).



Press the "print" soft key again to print the report.

Completed Lab Report

03/30/03 09:11
VX.XXY / VA.AAB

Accession #1313

Isolate #1

Sequence #420011234567

Panel TypeGPIDAST

StatusCOMPLETE

Test Start03/28/03 18:16

Test End03/29/03 22:07

Instru # / Station1/A01

FinalizedNo

Final IDStaphylococcus haemolyticus

Inoculum Density0.5

Instrument ID(s)Staph. haemolyticus

Confidence Value99%

Supplemental Test(s)

Biochemical

Instr

Expected

Result

Result

A_ARARR

-

-

A_GLPRB

-

-

Biochemical

Instr

Expected

Result

Result

A_LARGH

-

-

A_LHIST

-

-

Biochemical

Instr

Expected

Result

Result

A_LLEUH

-

-

A_LPHET

-

-

A_LALT

-

-

A_LISO

-

-

A_LPROB

-

-

.

.

.

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Antimicrobial

Instr

MIC

Ampicillin

>32

Instr

SIR

Azithromycin

R

BDXpert

SIR

Ceftazidime

R

Final

SIR

Clindamycin

R

Rule #

.

RESISTANCE MARKERS

abcd - ABRV Text of triggered resistance markers appears here.

BDXpert TRIGGERED RULES

1234 - AUTO Text of BDXpert triggered rule appears here.

End of Report

Figure 5-10 – Sample Completed Lab Report

5-34

L-003342(R)

ООО ЦРПИ INFO@CIRMI.RU WWW.GOSZDRAVNADZOR.RU

5.8.2 Accession Lab Report

The Accession Lab Report is basically a collection of lab reports for a specified accession number. It provides information for a specified accession number. Such information includes, as applicable: organism ID results, including specific biochemical reactions; AST results including SIR interpretation and MIC; QC pass/fail results; and any BDxpert Rules that were triggered. The report provides the following information:

Header: Report Title, Preliminary indication (if Status is Ongoing, Pending, or Partial Complete; and/or if there are unignored Needs Attention conditions or a Needs Attention condition of Cannot Identify Barcode; and/or if the panel is not eligible for finalization), Laboratory Information (if configured), Date and Time Printed, Software version (X.XXY) / Phoenix Update Disk (PUD) version (A.AAB).

Body of Report: Top Region: Accession #, Isolate #, Sequence #, Panel Type, Status (Ongoing, Complete), CRITICAL panel indication, Test Start with time, Test End with time, Instr #/Station (location), Finalized status, Panel Lot # (if QC Lot Support is enabled), and Inoculum Density. The Completed Lab Report is sorted by Accession # then by Isolate # within accessions.

Below this information the organism Final ID is listed. An asterisk next to the Final ID indicates that the ID was changed by the user. Below this, the Media Type (for Yeast ID panels only) appears.

Next any Instrument ID results are listed, along with the Confidence Value for the result. In the lower region of the report, for ID tests, the Biochemical, Instr(ument) Result, and Expected Result are provided. For AST tests, the Antimicrobial, Instr(ument) MIC, Instr(ument) SIR, BDxpert SIR, Final SIR, and Rule # are printed. If any panels have Resistance Markers, BDxpert Rules, Needs Attention flags, or Special Messages, these are printed at the bottom of the report. Any SIR values and Rule # are not reported for QC panels.

ID and AST sections of combination panels print on separate pages of the report.

For QC panels, in addition to the information listed above, the following information is included: Panel Lot # and Expiration Date, Tech ID, ID Broth Lot # and Expiration Date, AST Broth Lot # and Expiration Date, Indicator Lot # and Expiration Date, and Test Strain. The QC Status of PASS, REVIEW, ERROR, or FAIL is indicated.

See Figure 5-11.

To print an Accession Lab Report:



From the Main Status screen, press the "print" soft key to access the Reports menu.



Use the UP ARROW or DOWN ARROW to highlight Accession Lab Report.

Accession #

Type in or scan the desired Accession number. If you enter an incorrect number, you can press the "clear" soft key to clear the field and reenter the correct number.



Press the "print" soft key again to print the report.

Accession Lab Report

03/30/03 09:11
VX.XXY / VA.AAB

Accession #
Isolate #
Sequence #
Panel Type
Status

1313
1
420011234567
GPIDAST
COMPLETE

Test Start
Test End
Instru # / Station
Finalized

03/28/03 18:16
03/29/03 22:07
1/A01
No

Final ID

Staphylococcus haemolyticus

Inoculum Density

0.5

Instrument ID(s)
Staph. haemolyticus

Confidence Value
99%

Biochemical	Instr Result	Expected Result	Biochemical	Instr Result	Expected Result	Biochemical	Instr Result	Expected Result
A_ARARR	•	•	A_GLPRB	•	•	A_LALT	•	•
A_LARGH	•	•	A_LHIST	•	•	A_LISO	•	•
A_LLEUH	•	•	A_LPHET	•	•	A_LPROB	•	•
.			.			.		
.			.			.		

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Antimicrobial	Instr MIC	Instr SIR	BDXpert SIR	Final SIR	Rule #
Ampicillin	>32	R		R	
Azithromycin	>8	R		R	
Ceftazidime	>64	R		R	
Clindamycin	0.25	S		S	
.		.			
.		.			

RESISTANCE MARKERS

abcd - ABRV Text of triggered resistance markers appears here.

BDXpert TRIGGERED RULES

1234 - AUTO Text of BDXpert triggered rule appears here.

End of Report

Figure 5-11 – Sample Accession Lab Report

5-36

L-003342(R)

000 ЦІРМІ INFO@CIRMI.RU WWW.GOSZDRAVNADZOR.RU

5.8.3 Needs Attention List Report

The Needs Attention List Report lists all the panels in the instrument's database that have a Needs Attention flag set that have not been ignored. This report can also be printed from the Needs Attention display. The report provides the following information:

Header: Report Title, Filtered report notification (if selected), Laboratory Information (if configured), and Date and Time Printed.

Body of Report: Needs Attention Reason, Sequence #, Accession #, Isolate #, Instr #/Station (location), and Status (Ongoing, Complete). If the report is filtered (default selection), an asterisk appears to the left of the Reason for panels with multiple Needs Attention conditions. The report is sorted by the priority of the Needs Attention Reasons (see Section 5.11), and by Accession within each Reason type.

See Figure 5-12.

To print a Needs Attention List Report:



From the Main Status screen, press the "print" soft key to access the Reports menu.



Use the UP ARROW or DOWN ARROW to highlight Needs Attention List Report.



If you want to print an unfiltered report, press **Tab** to advance to the Filtered checkbox. Press **Spacebar** or the "select" soft key to clear the check in the box.



Press the "print" soft key again to print the report.

Needs Attention List Report					
Filtered on highest priority reason				10/27/03 09:11	
Reason	Sequence #	Accession #	Isolate #	Instr # / Station	Status
No Growth On Panel	420011234567	1313	1	1/A02	COMPLETE
Review QC Results	420027654321	1344	1	1/B03	COMPLETE
Can Not Determine Organism ID	420031234123	1489	1	1/C04	ONGOING
Can Not Identify Barcode	420047654765	1566	1	1/D05	COMPLETE
End of Report					

Figure 5–12 – Sample Needs Attention List Report

5.8.4 Resident Panel Report

The Resident Panel Report lists the panels contained in stations 1 – 25 for each tier detected during the last inventory scan. The report provides the following information:

Header: Report Title, Laboratory Information (if configured), Date and Time Printed, and Instrument #.

Body of Report: Accession #, Isolate #, Sequence #, QC (if panel is QC), Test Start with time, Inoculum Density, Panel Type, Status (Ongoing, Complete), and the highest priority Needs Attention Reason if one exists. The report is sorted by Accession # and then by Isolate # within each Accession.

See Figure 5–13.

To print a Resident Panel Report:



From the Main Status screen, press the “print” soft key to access the Reports menu.



Use the UP ARROW or DOWN ARROW to highlight Resident Panel Report.



Press the “print” soft key again to print the report.

Resident Panel Report								
07/30/99 09:11								
Instrument #1								
Accession #	Isolate #	Sequence #	QC	Test Start	Inoculum Density	Panel Type	Status	Needs Attention
1654	1	420011234567		07/28/99 14:52	0.5	GNIDAST	COMPLETE	Missing Accession Number
1876	1	420011234568		07/28/99 15:33	0.5	GNIDAST	COMPLETE	.
11899	1	420011234569		07/28/99 15:36	0.5	GNIDAST	COMPLETE	.
1945	1	420011234560		07/28/99 15:45	0.5	GNIDAST	COMPLETE	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
End of Report								

Figure 5-13 – Sample Resident Panel Report

5.8.5 QC Lab Report

The QC Lab Report lists all QC panels from the Test Start date field entry to the current date. It lists all Test Strain Organisms that have completed testing and all biochemical and/or antimicrobial MIC results (for a specified panel lot number) that exist in the Phoenix database. The report provides the following information:

Header: Report Title, Laboratory Information (if configured), and Date and Time Printed, Software version (X.XXY) / Phoenix Update Disk (PUD) version (A.AAB).

Body of Report: Panel Lot # and Expiration Date, Test Start and time, Test End and time, Panel Type, Instr #/Station (location), Status (Ongoing, Complete), Tech ID, ID Broth Lot # and Expiration Date, AST Broth Lot # and Expiration Date, Indicator Lot # and Expiration Date, Sequence #, Accession #, Isolate #, Test Strain, Inoculum Density, Media Type (Yeast ID panels only), Instrument ID(s), and QC Status of PASS/FAIL/REPEAT/REVIEW. At the bottom of the report, any Needs Attention reasons or Special Messages are printed. Each Biochemical, along with Instr(ument) Result, and Expected Result are provided, as well as Antimicrobials, Instr(ument) MICs, Expected MICs, and Pass/Fail status.

This report is only available when BD EpiCenter is disabled.

See Figure 5–14.

To print a QC Lab Report:



From the Main Status screen, press the “print” soft key to access the Reports menu.



Use the UP ARROW or DOWN ARROW to highlight QC Lab Report.

Panel Lot #

Scan or type in the Panel Lot #; if QC Lot Support is enabled, press TAB to advance to the Panel Lot # field, then press DOWN ARROW to drop down the list of all defined lot numbers, and highlight the desired lot number then press the “select” soft key to select the lot.

Test Start

In the first Test Start date field, press UP ARROW or DOWN ARROW to enter the desired day, month, or year (depending on your configuration). Press  to advance to the next date field and press UP ARROW or DOWN ARROW to enter the desired day, month, or year. Press  to advance to the next date field, and press UP ARROW or DOWN ARROW to enter the final portion of the date. If you enter an incorrect number, you can press the “clear” soft key to clear all the fields and reenter the correct number.

If you do not enter a Test Start date, the instrument prints all data from the database for the Panel Lot # entered.



Press the “print” soft key again to print the report.

QC Lab Report

10/30/03 09:11
VX.XXY / VA.AAB

Panel Lot #	777777	Expiration Date	10/07/05
Test Start	10/28/03 10:02	Test End	10/29/03 22:07
Panel Type	GPIDAST	Instru # / Station	1/A01
Status	COMPLETE	Tech ID	ljk
ID Broth Lot #	6666666	Expiration Date	07/07/05
AST Broth Lot #	5555555	Expiration Date	08/08/05
Indicator Lot #	4444444	Expiration Date	09/09/05
Sequence #	42001222222		
Accession #	9911		
Isolate #	1		

Test Strain 29213 Staphylococcus aureus **Inoculum Density** 0.5

Instrument ID(s)
Staph. aureus

QC Status PASS

<u>Biochemical</u>	<u>Instr</u>	<u>Expected</u>	<u>Biochemical</u>	<u>Instr</u>	<u>Expected</u>	<u>Biochemical</u>	<u>Instr</u>	<u>Expected</u>
	<u>Result</u>	<u>Result</u>		<u>Result</u>	<u>Result</u>		<u>Result</u>	<u>Result</u>
A_ARARR	-	•	A_GLPRB	•	•	A_LALT	•	•
A_LARGH	•	v	A_LHIST	•	•	A_LISO	•	•
A_LLEUH	•	•	A_LPHET	•	-	A_LPROB	-	•

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<u>Antimicrobial</u>	<u>Instr</u>	<u>Expected</u>	<u>Pass/Fail</u>
	<u>MIC</u>	<u>MIC</u>	
Amikacin	2	1.00-4.00	Pass
Chloramphenicol	4	2.00-8.00	Pass
Ciprofloxacin	0.25	0.13-0.50	Pass
Cephalexin	4	2.00-8.00	Pass

Needs Attention Reasons

Text of Needs Attention Reasons goes here

SPECIAL MESSAGES

The beta-lactamase test (nitrocefin based) passed QC.

End of Report

Figure 5-14 – Sample QC Lab Report

5.8.6 Cumulative QC Report

The Cumulative QC Report provides information on completed quality control testing of all panel types. The report provides the following information:

Header: Report Title, Laboratory Information (if configured), Date and Time Printed, and Instrument #.

Body of Report: Selection Criteria: Panel Lot #, Panel Type, and Test Strains selected.

Below this, the panel Sequence # (sort order), QC Status (PASS, FAIL, REVIEW, ERROR), Test Strain, Test Start and time, Panel Lot #, ID Broth Lot #, AST Broth Lot #, Indicator Lot #, and Tech ID are listed for each panel.

This report is only available when BD EpiCenter is disabled.

See Figure 5–15.

To print a Cumulative QC Report:



From the Main Status screen, press the “print” soft key to access the Reports menu.



Use the UP ARROW or DOWN ARROW to highlight Cumulative QC Report.

If QC Lot Support is disabled:

Panel Lot #	Type in or scan the desired panel lot number. If you enter an incorrect number, you can press the “clear” soft key to clear all the fields and reenter the correct number.
All Checkbox	Initially, this box is checked, indicating that all completed QC data will be printed. Press the “move to next field” soft key to advance the cursor to this checkbox and press the “select” soft key to UN-check the box to specify panel types or test strains on which to report. The All checkbox supercedes any entry in the Panel Lot # field.
Panel Type	Press UP ARROW or DOWN ARROW to highlight the desired panel type, or select “(all)” for all types. Only completed panel types appear in the list.
Test Strain	Press UP ARROW or DOWN ARROW to highlight the desired test strain, or select “(all)” for all strains.

If QC Lot Support is enabled:

Panel Lot #	To select results to print by lot number, use this field. Select “(all)” to print all panel lot numbers. To specify a specific lot #, press DOWN ARROW to drop down the list of defined lot numbers, highlight the desired lot number then press the “select” soft key to select the lot. The panel type field is completed automatically.
Panel Type	To select results to print by panel type, use this field. Press DOWN ARROW to select a specific panel type to print, or select “(all)” for all types.

Test Strain

To select results to print by test strain, use this field. Press DOWN ARROW to highlight the desired test strain, or select "(all)" for all strains. The "(all)" selection prints all strains when a panel lot number is specified (even strains not required for a panel type).



Press the "print" soft key again to print the report.

Cumulative QC Report								
10/30/03 09:11								
Instrument #1								
Panel Lot #	(all)							
Panel Type	(all)							
Test Strain	(all)							
Sequence #	QC Status	Test Strain	Test Start	Panel Lot #	ID Broth Lot #	AST Broth Lot #	Indicator Lot #	Tech ID
420011234567	PASS	ATCC51299	10/28/03 14:52	1111111	5555555	9999999	7878787	ljk
420011234568	PASS	ATCC25923	10/28/03 15:33	2222222	6666666	1212121	9090909	bec
420011234569	PASS	ATCC29213	10/28/03 15:36	3333333	7777777	3434343	1234567	me
420011234560	PASS	ATCC29062	10/28/03 15:45	4444444	8888888	5656565	2345678	up
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
End of Report								

Figure 5-15 – Sample Cumulative QC Report

5.8.7 Daily Instrument Report

The Daily Instrument Report lists the status of the instrument at the time the report is generated, and provides areas to record maintenance activities. The Daily Instrument Report can be set to print automatically at a time you specify. Refer to Section 2.3.1.

The report provides the following information:

Header: Report Title, Laboratory Information (if configured), Date and Time Printed, and Software version (X.XXY) / Phoenix Update Disk (PUD) version (A.AAB).

Body of Report: Instrument #, Serial #, Instrument Temperature Pass/Fail status, Carousel Rotational Test Pass/Fail status, Power Supply Check Pass/Fail status, Normalizer Panels Sequence #, Pass/Fail status, and Expiration Status (date if expiration is more than 60 days; "expires on date" if expiration is between 60 and 0 days; and "EXPIRED" if the panel is expired) for each tier, and blanks to record the reading, Pass/Fail status, and Tech ID for each of the following maintenance checks: Daily: Instrument Temperature (Main Status screen), Standard Panel Temperature, Printer Paper Supply; Weekly: Internal Green LEDs, Internal Red LEDs, Internal Amber LEDs, System Alert Indicator, and Instrument Audible Alarm. An area is provided for comments at the bottom.

The instrument temperature is considered to have passed when there are no outstanding E01 temperature alerts.

See Figure 5–16.

To print a Daily Instrument Report:



From the Main Status screen, press the "print" soft key to access the Reports menu.



Use the UP ARROW or DOWN ARROW to highlight Daily Instrument Report.



Press the "print" soft key again to print the report.

Daily Instrument Report

11/30/07 09:11
VX.XXY / VA.AAB

Instrument #1
Serial #12345

Instrument TemperaturePass
Carousel Rotational TestPass
Power Supply CheckPass

Normalizer Panels

Tier	Sequence #	Status	Expiration Status
A	429990000001	Pass	10/21/08
B	429990000002	Pass	10/21/08
C	429990000003	Pass	10/21/08
D	429990000004	Pass	10/21/08

Daily	Pass	Fail	Tech ID
Record Instrument Temperature From Main Screen Range: (33.5 - 36.5)			
Record Standard Panel Temperature Range: (33.5 - 36.5)			
Check Printer Paper Supply			
Weekly			
Instrument Internal Green LEDs			
Instrument Internal Red LEDs			
Instrument Internal Amber LEDs			
Instrument System Alert Indicator			
Instrument Audible Alarm			
Comments			

End of Report

Figure 5-16 – Sample Daily Instrument Report

5.8.8 Interpretation Rule Set Report

The Interpretation Rule Set Report lists the antimicrobial breakpoints of the currently selected Interpretation Rule Set (defined as the default Rule Set in the Instrument Configuration screen). The report provides the following information:

Header: Report Title, Laboratory Information (if configured), and Date and Time Printed.

Body of Report: Rule Set, Rule Version, and columns for Antimicrobial (sort order), Test Group, Organism Group, Organism Name, S(usceptible) value, and R(esistance) value. Each antimicrobial breakpoint is listed in a separate row of the report.

The Interpretation Rule Set is a large report. Spooling and printing the report can consume system resources such that other reports cannot be printed until the current one completes.

To print reports of ALL the rule sets in the instrument, first select a rule set in Instrument Configuration (Section 2.3.1), then access the Reports menu and select Interpretation Rule Set Report. The currently selected rule set prints. When printing is complete, return to Instrument Configuration, and select the next rule set. Then access the Reports menu again and print the current Interpretation Rule Set. Continue selecting rule sets and printing until all rule set selections are printed. Remember to return to Instrument Configuration and select the desired rule set to use for interpretations when all printing is complete.

NOTE

Modification of the Interpretation Rule Set should not be performed while there are ongoing panels. This could lead to inaccurate interpretations.

See Figure 5–17.

To print an Interpretation Rule Set Report:



From the Main Status screen, press the “print” soft key to access the Reports menu.



Use the UP ARROW or DOWN ARROW to highlight Interpretation Rule Set Report.



Press the “print” soft key again.

OK

A message informs you about the report size. Press the “okay” soft key to print the report, or press the “cancel” soft key to cancel printing.

Interpretation Rule Set Report					
03/30/05 09:11					
Rule Set	CLSI				
Rule Version	M100-S13				
Antimicrobial	Test Group	Organism Group	Organism Name	S	R
Ampicillin	A	ENTC_IC	(all)	<=8.00	>=16.00
Ampicillin	A	ENTERIC_IC	(all)	<=8.00	>=32.00
Ampicillin	A	HAEINF_IC	(all)	<=1.00	>=4.00
Ampicillin	A	HAEIOTHF_IC	(all)	<=1.00	>=4.00
Ampicillin	A	LISMON_IC	(all)	<=2.00	-
Ampicillin	O	STAAUE_IC	(all)	<=0.25	>=0.50
Ampicillin	O	STAOTH_IC	(all)	<=0.25	>=0.50
Ampicillin	A	STRBET_IC	(all)	<=0.25	-
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
End of Report					

Figure 5-17 – Sample Interpretation Rule Set Report (sample data only)

Organism (Interpretation) Group Codes:
CLSI, SFM, or EUCAST

Interpretation Code	Interpretation Name
ACIN_IC	<i>Acinetobacter</i> spp.
AERM_IC	<i>Aeromonas</i> spp.
AERMHC_IC	<i>Aeromonas hydrophila</i> complex
BACI_IC	<i>Bacillus</i> spp.
BURCEP_IC	<i>Burkholderia cepacia</i>
CARHOM_IC	<i>Cardiobacterium hominis</i>
CORY_IC	<i>Corynebacterium</i> spp.
EIKCOR_IC	<i>Eikenella corrodens</i>
ENTC_IC	<i>Enterococcus</i> spp.
ENTERIC_IC	Enterobacteriaceae
ERYRHU_IC	<i>Erysipelothrix rhusiopathiae</i>
GNCBOTH_IC	Gram-negative coccobacilli, including <i>Moraxella</i> spp. other than MORBCAT_IC
GNROTH_IC	Gram-negative rod, other than ACIN_IC, BURCEP_IC, ENTERIC, NFGNROTH_IC, PSEAER_IC, STEMAL_IC, PAST_IC
GPCOTH_IC	Gram-positive, other than , <i>Staphylococcus</i> spp., <i>Streptococcus</i> spp., ENTC_IC, LEUC_IC, PEDI_IC
GPROTH_IC	Gram-positive rod, other than BACI_IC, CORY_IC, ERYRHU_IC
KIN_IC	<i>Kingella</i> spp.
LEUC_IC	<i>Leuconostoc</i> spp.
LISMON_IC	<i>Listeria monocytogenes</i>
LISTOTH_IC	<i>Listeria</i> spp., other than LISMON_IC
MORBCAT_IC	<i>Moraxella (Branhamella) catarrhalis</i>
NFGNROTH_IC	Nonfermentative GNR, other than ACIN_IC, BURCEP_IC, PSEAER_IC, STEMAL_IC, ACTBACT_IC, CARHOM_IC, EIKCOR_IC
NO_INTERP_IC	No Interpretation
PAST_IC	<i>Pasteurella</i> spp.
PEDI_IC	<i>Pediococcus</i> spp.
PLESI_IC	<i>Plesiomonas shigelloides</i>
PSEAER_IC	<i>Pseudomonas aeruginosa</i>
STAAUE_IC	<i>Staphylococcus aureus</i>
STAOTH_IC	<i>Staphylococcus</i> spp., other than STAAUE_IC
STEMAL_IC	<i>Stenotrophomonas maltophilia</i>
STRBET_IC	<i>Streptococcus</i> beta-hemolytic
STROTH_IC	<i>Streptococcus</i> spp., other than STRBET_IC, STRPNE_IC, STRVIR_IC
STRPNE_IC	<i>Streptococcus pneumoniae</i>
STRVIR_IC	<i>Streptococcus viridans</i> group
VIBCHO_IC	<i>Vibrio cholerae</i>
VIBROTH_IC	<i>Vibrio</i> spp., other than VIBCHO_IC

Table 5-2 – Organism Group Codes

5.8.9 BDXPert Rule Set Database Report

The BDXPert Rule Set Database Report lists each BDXPert rule number and the text describing the rule, whether each rule is enabled/disabled and whether each rule shall trigger automatically/manually in the system. The report provides the following information:

Header: Report Title, Laboratory Information (if configured), Date and Time Printed, Rule Set (CLSI, SFM, EUCAST, or Custom), and Based On (CLSI, SFM, or EUCAST if Rule Set is Custom).

Body of Report: Rule #, text of the rule, Enabled/Disabled status, and Automatic/Manual status.

The BDXPert Rule Set Database is a large report. Spooling and printing the report can consume system resources such that other reports cannot be printed until the current one completes.

See Figure 5–18.

To print a BDXPert Rule Set Database Report:

- 

From the Main Status screen, press the “print” soft key to access the Reports menu.
- 

Use the UP ARROW or DOWN ARROW to highlight BDXPert Rule Set Database Report.
- 

Press the “print” soft key again.
- OK

A message informs you about the report size. Press the “okay” soft key to print the report, or press the “cancel” soft key to cancel printing.

BDXpert Rule Set Database Report			
Rule Set Based On		CLSI	
Rule #		03/17/05 09:11	
101	Only results for ampicillin, a fluoroquinolone, and trimethoprim-sulfamethoxazole should be reported for fecal isolates of Salmonella spp. or Shigella spp. No other drugs should be reported.	Enabled	Automatic
103	Results for chloramphenicol and a third generation cephalosporin should be reported for Salmonella spp. from extraintestinal sites.	Enabled	Automatic
104	Salmonella spp. and Shigella spp. should not be reported as susceptible or intermediate to first and second generation cephalosporins even if they appear to be susceptible in vitro because they are not effective clinically.	Enabled	Automatic
105	Ampicillin is the class representative for amoxicillin.	Enabled	Automatic
106	.		
.			
.			
.			
End of Report			

Figure 5–18 – Sample BDXpert Rule Set Database Report

5.8.10 Organism ID Code List Report

The Organism ID Code List Report prints all Organism Names and Abbreviations for all Organism Names that exist in the Phoenix database. The report provides the following information:

Header: Report Title, Laboratory Information (if configured), and Date and Time Printed.

Body of Report: Organism name (sort order), BD Code (abbreviation), and LIS Code (if enabled).

The Organism ID Code List is a large report. Spooling and printing the report can consume system resources such that other reports cannot be printed until the current one completes.

See Figure 5–19.

To print an Organism ID Code List Report:



From the Main Status screen, press the “print” soft key to access the Reports menu.



Use the UP ARROW or DOWN ARROW to highlight Organism ID Code List Report.



Press the “print” soft key again.

OK

A message informs you about the report size. Press the “okay” soft key to print the report, or press the “cancel” soft key to cancel printing.

Organism ID Code List Report		
07/30/99 09:11		
<u>Organism</u>	<u>BD Code</u>	<u>LIS Code</u>
Achr. species	ACHRSPE	
Acinet. baumannii	ACINBAU	
Acinet. baumannii/calco. cplx	ACINBCX	
Acinet. calcoaceticus	ACINCAL	
.	.	
.	.	
.	.	
End of Report		

Figure 5–19 – Sample Organism ID Code List Report

5.8.11 Antimicrobial Code Report

The Antimicrobial Code Report prints all antimicrobials and abbreviations for all antimicrobials that exist in the Phoenix database from all panel configurations. The report provides the following information:

Header: Report Title, Laboratory Information (if configured), and Date and Time Printed.

Body of Report: Antimicrobial name (sort order), BD Code (abbreviation), and LIS Code (if enabled).

The Antimicrobial Code is a large report. Spooling and printing the report can consume system resources such that other reports cannot be printed until the current one completes.

See Figure 5–20.

To print an Antimicrobial Code Report:



From the Main Status screen, press the “print” soft key to access the Reports menu.



Use the UP ARROW or DOWN ARROW to highlight Antimicrobial Code Report.



Press the “print” soft key again.

OK

A message informs you about the report size. Press the “okay” soft key to print the report, or press the “cancel” soft key to cancel printing.

Antimicrobial Code Report		
03/30/05 09:11		
Antimicrobial	BD Code	LIS Code
Amikacin	AN	AN
Amoxicillin	AMX	AMX
Amoxicillin/Clavulanate	AMC	AMC
.	.	.
.	.	.
.	.	.
End of Report		

Figure 5–20 – Sample Antimicrobial Code Report

5.8.12 Lab Report/QC Lab Report

The Lab Report (Section 5.5.4) contains all information for a panel sequence number that exists in the Phoenix database, including all information in the Panel Results screen, any special messages, BDxpert Rules that triggered, or Needs Attention Reasons if they exist. The Lab Report is not accessible from the Reports menu. It can only be printed from the Panel Results or Finalization displays. A Panel Inventory Lab Report prints the same information for all panels listed in the Panel Inventory display (i.e., resident in the instrument and with final or partial results). Refer to Section 5.5.4 for additional information.

The QC Lab Report (Section 5.8.5) is also accessible from the Panel Results display. It provides similar information to the Lab Report, but for QC panels.

5.8.13 Finalization Summary Report

The Finalization Summary Report contains a listing of all the panels eligible for finalization at the time the report was requested, as well as finalization status. The Finalization Summary Report is not accessible from the reports menu. It can only be printed from the Finalization display. Refer to Section 5.6 for additional information.

5.8.14 Custom Breakpoint Difference Report

The Custom Breakpoint Difference Report contains a listing of differences between old breakpoints and new ones after a Phoenix Update Disk or install/upgrade operation. The Custom Breakpoint Difference Report is not accessible from the Reports menu. It can only be printed from the Custom Interpretation Rule Set (Configuration) display. Refer to Section 2.3.3 for additional information.

5.8.15 Current QC Panel Lot Report

The Current QC Panel Lot Report contains information on the most recent QC test for each of the required strains for a panel lot, up to a maximum of 20 strains. The report includes information for any instruments whose data has been restored to the current instrument. The Current QC Panel Lot Report cannot be printed from the Reports menu. It can only be printed from the Panel Lot Definition display. Refer to **Section 2.3.6 – Panel Lot Definition**.

5.8.16 Historical QC Panel Lot Report

The Historical QC Panel Lot Report contains information on all tests for a strain for the current instrument (only), up to 200 tests. The Historical QC Panel Lot Report cannot be printed from the Reports menu. It can only be printed from the Panel Lot Definition display. Refer to **Section 2.3.6 – Panel Lot Definition**.

5.8.17 Panel Lot Report

The Panel Lot Report lists all the panel records for any panel lot number in the current instrument. The report first lists clinical panels, then QC panels. Within each of those groups, the report is sorted by Accession # then Isolate #.

The report provides the following information:

Header: Report Title, Laboratory Information (if configured), Date and Time Printed, Instrument where printed.

Body of Report: Panel Lot # and Panel Type; Accession #, Isolate #, Sequence #, QC (if panel is QC), Test Date, and Status (Pending, Ongoing, Complete) for each panel tested that belongs to the lot.

This report is only available when BD EpiCenter is disabled and QC Lot Support is enabled.

See Figure 5–21.

To print a Panel Lot Report:



From the Main Status screen, press the "print" soft key to access the Reports menu.



Use the UP ARROW or DOWN ARROW to highlight Panel Lot Report.



Press the TAB key to move to the Panel Lot field.



Press DOWN ARROW to drop down the list of Panel lots; then highlight the desired lot and press the "select" soft key to select the highlighted lot.



Press the "print" soft key again.

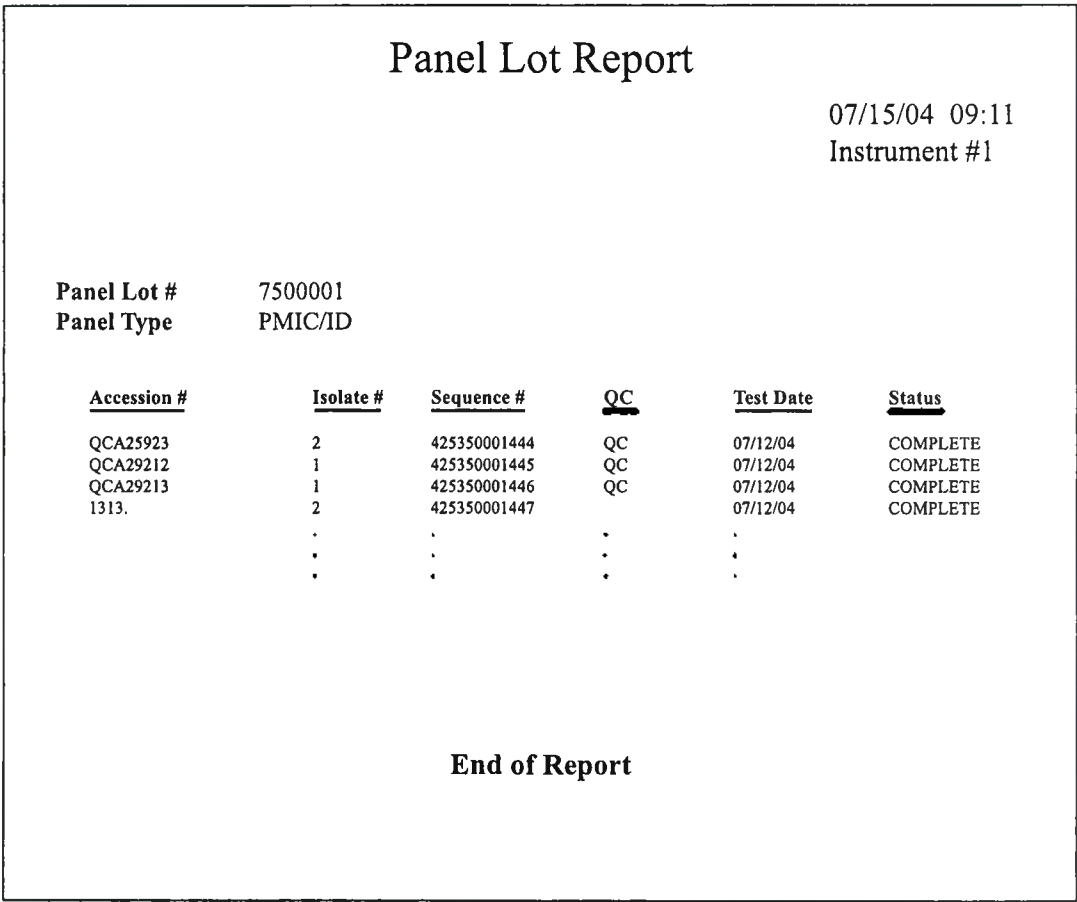


Figure 5-21 – Sample Panel Lot Report

5.8.18 Panel Lot Database Report

The Panel Lot Database Report lists all the defined panel lots in the current instrument, and provides statistical and reference information on those lots.

The report provides the following information:

Header: Report Title, Laboratory Information (if configured), Date and Time Printed, Instrument where printed.

Body of Report: Panel Lot # (sort order, descending); Panel Type; Expiration Date; Extension Date (if Expiration date was extended); Start and End Sequence #s (Range); Definition Date; First and Last Date Used; and number of Panels Used.

This report is only available when BD EpiCenter is disabled and QC Lot Support is enabled.

See Figure 5–22.

To print a Panel Lot Database Report:



From the Main Status screen, press the “print” soft key to access the Reports menu.



Use the UP ARROW or DOWN ARROW to highlight Panel Lot Database Report.



Press the “print” soft key again.

Panel Lot Database Report										
07/15/04 09:11										
Instrument #1										
Panel Lot #	Panel Type	Expiration Date	Extension Date	Sequence Number Range		Definition Date	First Used Date	Last Used Date		Panels Used
				Start	End					
9856543	NMIC/ID-1	08/14/05	.	425010000001	425010000099	06/12/04	06/22/04	07/14/04	.	5
7600001	SMIC/ID-2	04/01/06	.	428510004200	428510004210	06/12/04	06/22/04	07/14/04	.	2
7500001	PMIC/ID-17	04/01/05	.	425350000101	425350000200	06/12/04	06/23/04	07/14/04	.	5
7400001	NMIC	10/06/08	.	422509999990	422509999999	06/12/04	06/23/04	07/14/04	.	3
.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.
End of Report										

Figure 5–22 – Sample Panel Lot Database Report

5.9 Panel Inventory

The Panel Inventory display enables you to view a listing of all panels in the instrument (except temperature reference panels). This listing can be sorted in ascending (0 – 9, A – Z) or descending (9 – 0, Z – A) order by the following fields: panel sequence number, accession/isolate number, results, or needs attention reason. The initial default sort order is by accession/isolate number in ascending order. Subsequently, the list defaults to the last sort criteria and display configuration (primary/secondary) you used. If there are no panels in the instrument, the display shows the message, “No Data Available.”

The top of the Panel Inventory display shows the number of panels in the list (if there is more than one panel), the sort field, and whether the sort field is ascending or descending. See Figure 5–23.

The following fields are shown on the Panel Inventory display (if the information is known):

- ①② Sequence # of the panel
- ①② Accession # (panels without accession numbers are listed first)
- ①② Iso(late number)
- ① (Inoculum) Density (blank for AST panels; “?” for ID panels until first test completes)
- ① Status (ongoing; complete; rapid if Rapid Completion is enabled and has been triggered for a panel)
- ①② Results (**final** if panel is complete and there are no active Needs Attention conditions [all MIC results are determined for an AST panel, or all MIC values *and* the organism ID are determined for a Combination panel, or the organism ID is determined for an ID panel]; **partial** if a panel is ongoing or complete but has an active (unignored) Needs Attention condition [at least one MIC value is determined for an AST or Combination panel, or the organism ID is determined for a Combination panel]; **none** if no MIC values or organism ID is determined for any type of panel; a + preceding the result indicates that a Resistance Marker has triggered for that panel)
- ① N(eeds) A(ttention)/C(ritical Panel) (“*” if a Needs Attention reason that has not been ignored exists; **blank** when no Needs Attention reasons exist or they have all been ignored; ♦ if a critical panel event is triggered)
- ② Final (Organism) ID

Fields listed above with a “one” (①) appear on the primary Panel Inventory display. Fields listed above with a “two” (②) appear on the secondary display (Figure 5–24), which is accessed from the primary display via a soft key.

After the list is displayed, you can use the ▲ or ▼ key to highlight a panel and access the Panel Results display to view or edit panel information, to perform an instrument “locate panel” operation, or to print a Lab Report for panels with final or partial results. These functions are performed by the soft keys described below. Panels shown in red are critical panels that have not been acknowledged.

PANEL INVENTORY						
15 Panels Sorted By Accession # Ascending						
Sequence #	Accession #	Iso	Density	Status	Results	NA/C
425810003591	3952		0.5	Complete	+Final	
425810003588	A49619	4	0.5	Complete	+Final	
425190008038	EN11002	6	0.5	Complete	+Final	
425190008902	EN11021	6	0.5	Complete	+Partial	*
425200001443	QCA29213	4	0.5	Complete	+Final	
425200001452	QCA43300	6	0.5	Complete	+Partial	*
425200001468	QCA51299	6	0.5	Complete	+Final	
428510004208	41583	1	0.5	Complete	Final	
425190008891	EN10909	4	0.5	Complete	Partial	*
425190000025	EN10909	4	0.5	Complete	Partial	*
425190008898	EN11764	7	0.5	Complete	Partial	*
425190008900	EN11807	7	0.5	Complete	Partial	*
425190008021	QCA25922	6	0.5	Complete	Final	
425190008910	SEC2009	4	0.5	Complete	Partial	*
425190008899	SEFR197	6	0.5	Complete	Final	

Figure 5-23 – Panel Inventory Display (primary)

PANEL INVENTORY				
15 Panels Sorted By Accession # Ascending				
Sequence #	Accession #	Iso	Final ID	Results
425810003591	3952	4	Streptoc. pneumoniae	+Final
425810003588	A49619	4	Streptoc. pneumoniae	+Final
425190008038	EN11002	6	Esch. coli	+Final
425190008902	EN11021	6	Kleb. pneumo. ssp pneu.	+Partial
425200001443	QCA29213	4	Staph. aureus	+Final
425200001452	QCA43300	6	Staph. aureus	+Partial
425200001468	QCA51299	6	Enteroc. faecalis	+Final
428510004208	41583	1	Streptoc. mitis	Final
425190008891	EN10909	4	Kleb. oxytoca	Partial
425190000025	EN10909	4	Kleb. oxytoca	Partial
425190008898	EN11764	7	Salm. species	Partial
425190008900	EN11807	7	Cit. farmeri	Partial
425190008021	QCA25922	6	Esch. coli	Final
425190008910	SEC2009	4	Pseud. aeruginosa	Partial
425190008899	SEFR197	6	Ser. marcescens	Final

Figure 5-24 – Panel Inventory Display (secondary)

To access Panel Inventory:

Press the "panel inventory" soft key from the Main Status screen

Panel Inventory soft keys:

"re-execute"



"results"



"locate panel"



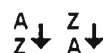
"print Lab Report"



"toggle display"



"sort ascending/
descending"



"toggle keys"



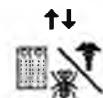
"sort by sequence #"



"sort by accession #"



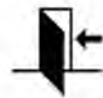
"sort by results"



"sort by needs attention"



"exit"



5.10 System Alerts

The System Alerts display enables you to review any existing system alerts that may have occurred or that may still exist in the instrument.

When you access the System Alerts display, the first alert in the list is shown in the middle of the screen. This alert is represented by an "E" code (such as E12). Below the "Enn" (where nn is a two-digit number) code one or more subcodes appear which are 8 digits. The subcode represents the specific condition of the alert. For example, E07 is a power supply alert, and subcode 00000002 specifies a problem in the 5 Volt power supply.

To view additional alerts that exist, press the UP ARROW or DOWN ARROW. All the "E" type errors are listed in **Section 7 - Troubleshooting**. Not all error sub-codes can be addressed by the user.

System Alert Icons:

Power was removed at indicated time



Power was restored at indicated time



More information on system alerts is provided in Section 4.12. A complete listing of system (E) and activity (W) alerts is provided in **Section 7 – Troubleshooting**.

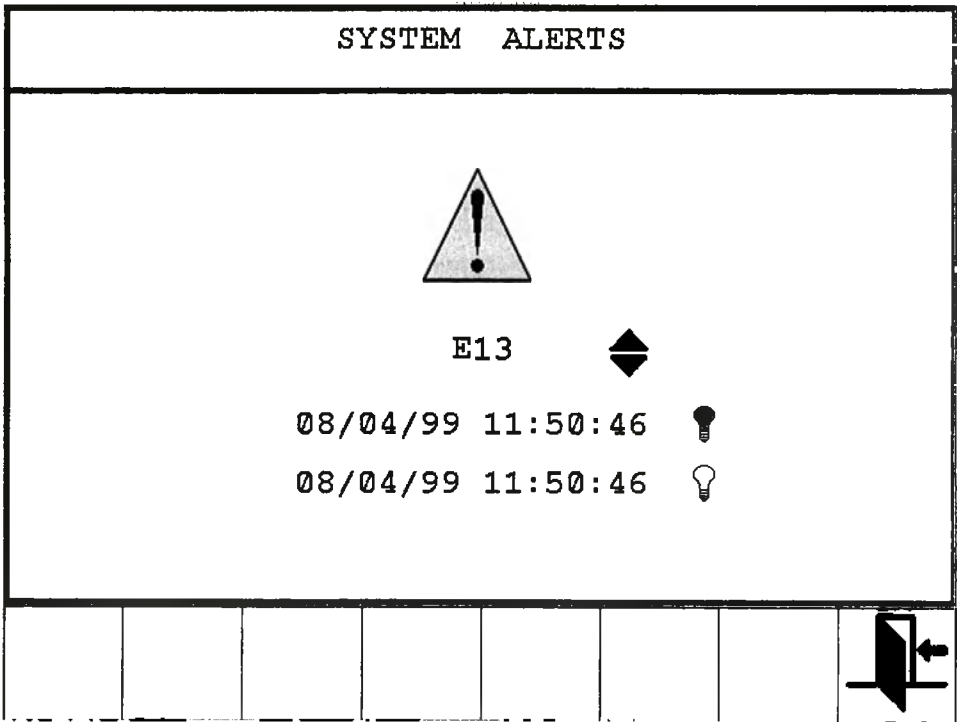


Figure 5-25 – System Alerts Display

5.11 Needs Attention

The Needs Attention display enables you to view a list of panels in the instrument's database that have encountered a condition that requires operator attention. These conditions generally represent problems with the panels themselves, or with the information related to the panels. In many cases, the conditions can be corrected by operator action. See Figure 5-26.

When you view the Needs Attention panel list, the system provides the opportunity to resolve or ignore the condition that caused the panel to be placed in the list. If the panel was placed in the list due to missing or unresolved information (e.g., a Tie), the instrument provides the ability to add or edit the information to resolve the condition. If the panel was placed in the list due to a software, panel, or hardware error, the instrument provides the ability to delete the panel to resolve the error condition. Deleting a panel that is still testing causes that panel's protocol to be aborted. Only panels whose Needs Attention reason has not been ignored are shown in the display.

The Needs Attention display can be filtered to show one line per panel (filtered) or one line for each needs attention reason (unfiltered). A "toggle display" soft key enables you to switch the display between filtered (the default view) and unfiltered. When the display is filtered, only the highest priority reason is listed. Panels are shown in blue if additional needs attention conditions exist for that panel. When the display is unfiltered, each needs attention condition is listed separately. If you print a report, it prints either filtered or unfiltered, depending on the current view.

When you toggle from the unfiltered display to the filtered display, the highest priority Needs Attention reason code for the selected panel is highlighted. When you toggle back to the unfiltered display, the same reason code is highlighted if it still appears in the list (see below).

The Needs Attention display lists the first 30 panels with a Needs Attention flag, sorted by reason code (in the same order as the list below) and then by accession number. Panels without an accession number are listed first within each Needs Attention reason code. If more than 30 panels need attention, only the 30 panels with the highest priority are shown until some of the panels are resolved.

When you clear or ignore a Needs Attention reason code, the next highest priority reason code for that panel is highlighted. If there are no more reason codes for that panel, then the item at the top of the list is highlighted.

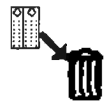
When you highlight a Needs Attention reason code and switch to the Panel Results display, when you return to the Needs Attention display, the same reason code is highlighted. If that reason is resolved, then the next highest priority reason code for that panel is highlighted. If there are no more reason codes for that panel, then the item at the top of the list is highlighted.

To access Needs Attention:



Press the "needs attention" soft key from the Main Status screen

Needs Attention soft keys:

"results"		"ignore"	
"delete panel"		"locate panel"	
"print"		"exit"	
"toggle display"		"clear NA"	

A panel may possess multiple Needs Attention reasons. If this is the case, the reasons are given in a prioritized list. The Needs Attention reasons are (in order of priority):

- **Test Aborted** – one of several incubator System Alerts occurred; or an ongoing panel that was in the instrument has not tested for more than one hour; or the instrument was turned off for more than one hour; or the instrument door has been opened for more than one hour; or system software did not execute testing algorithms for more than one hour; or a panel was moved to a different tier/instrument; or a media type was not specified for a Yeast ID panel
- **Can Not Identify Barcode** – internal barcode scanner could not read a panel sequence number in the same station where the instrument could determine a panel present condition (possible scratched or missing label); or invalid panel sequence number was scanned; or an unknown panel type was scanned
- **Can Not Read Panel Wells** – internal barcode scanner has read a sequence number in a station but the instrument cannot determine that a panel is present in that same station
- **Panel Lot Expired** – panel was logged in (or has a test start date) with a panel lot number that has already expired
- **Invalid AST Results** – at least one MIC field contains a value of "X"; excludes QC panels
- **Panel Missing** – internal barcode scanner reads a sequence number on a panel with an ongoing status during an inventory scan, but either the panel was removed before it completed its test protocol and hasn't obtained a result, or an internal scanner failure occurred and the sequence number can no longer be read
- **No Growth on Panel** – instrument did not detect growth in Growth Control well of panel; excludes QC panels and ID panels
- **Panel Lot Undefined** – Panel being logged in or placed in the instrument is from an undefined lot
- **Review QC Results** – the status of a completed QC panel is "REVIEW." Panel results should be reviewed to determine if an error occurred during panel preparation/handling (select status of REPEAT) or if QC test actually failed (select status of FAIL)
- **Missing Accession Number** – panel does not have any accession/isolate information; excludes QC panels

- **Missing Organism ID** – panel has no organism ID, or has unresolved tie IDs, and has no related panel with an organism ID (which includes related panels that have unresolved tie IDs or organism conflicts); excludes QC panels
- **Can Not Determine Organism ID** – panel has an Instrument Organism ID (or user-selected ID) of “No Identification” or it has no ID and its related panel has “No Identification” for its final ID, or ID panel concludes testing protocol without obtaining ID result; excludes QC panels
- **Invalid Organism ID** – panel has no defined organism ID and its related panels have a defined Organism ID of “Invalid Organism Received” (conferred to the panel via Auto Association); or panel receives download of an organism ID not in the Phoenix database; or panel is logged in or modified to “Invalid Organism Received” in the Organism ID field
- **Organism ID Conflict** – panel completes testing and has at least one related un-finalized panel that contains a different Final ID; excludes QC panels. Note that this code can be erroneously set as a result of conflicting system activities, such as when a panel completes testing and begins auto associating ID results as the system is modifying all the related panels with a user selected ID. If this occurs prior to the completion of the manually triggered modifications, the system can set this Needs Attention reason because IDs were in conflict due to two independent processes occurring. You can determine this by reviewing all panel ID results.
- **BDXpert Rule Flagged** – panel triggered one of the BDXpert rules defined, and the BDXpert rule is manually enabled in the Configuration menu, and the BDXpert rule triggered is pending; excludes QC panels, ID panels, and Combination panels with only the ID side enabled
- **Pending Too Long** – panel has not been scanned internally by an instrument (during an inventory scan) within 30 minutes of being entered in Panel Login

NEEDS ATTENTION				
Filtered on highest priority reason				
Reason	Sequence#	Accession#	Isolate	Station
Missing Organism ID	429530001405	1313	1	01/A05
Organism ID Conflict	429511111405	1313	1	01/A02

Figure 5-26 – Needs Attention Display

The following chart shows which soft keys are active for each reason code.

	"panel results"	"ignore"	"locate panel"	"delete panel"	"clear NA"
Test Aborted		*	*	*	
Can Not Identify Barcode		*	*		
Can Not Read Panel Wells			*	*	
Panel Lot Expired		*			*
Invalid AST Results		*			
Panel Missing		*		*	
No Growth on Panel		*	*	*	
Review QC Results	*	*	*	*	
Panel Lot Undefined					
Missing Accession Number	*		*		
Missing Organism ID	*				
Can Not Determine Organism ID	*	*			
Invalid Organism ID	*	*			
Organism ID Conflict	*				
BDXpert Rule Flagged	*				
Pending Too Long		*			

Table 5-3 – Needs Attention: Active Soft Keys

Needs Attention fields:

Note that some fields may be blank because panels are often placed in the Needs Attention list due to missing information.

Reason

Read-only field showing the Needs Attention reason (full list above)

Sequence #

Read-only field showing the panel barcode sequence number.

Accession #

Read-only field showing the accession number.

Isolate

Read-only field showing the isolate number.

Station

Read-only field showing the last known location of the panel, in the form II/Tst (where II is the instrument number, T is the Tier, and st is the station number).

Maintenance

6.1 General

The Phoenix system requires little maintenance from the user to provide reliable performance. Daily activities include checking the instrument temperature and printer paper supply. Weekly you should check the operation of the station status indicators (LEDs), the audible alarm, and the system alert indicator. Routine preventive maintenance consists of a monthly check of the recirculating air filters. All other procedures are on an "as needed" basis. Any maintenance or repair not described in this section should be performed by BD personnel only.

WARNING

ALL MAINTENANCE AND REPAIR OTHER THAN THE PROCEDURES DESCRIBED IN SECTION 6.2 – ROUTINE MAINTENANCE AND SECTION 6.3 – MODULE REPLACEMENT, MUST BE PERFORMED BY QUALIFIED SERVICE PERSONNEL. NON-COMPLIANCE WITH THIS WARNING MAY RESULT IN PERSONAL INJURY OR INSTRUMENT MALFUNCTION.

6.2 Routine Maintenance

6.2.1 Daily Maintenance

Each day the following maintenance procedures should be performed. The best time to perform maintenance is first thing in the morning, but it may be done any time you find convenient. The following items should be checked:

- 1 Check the printer's paper supply. If the paper supply is low or exhausted, replace the paper as explained in the manufacturer's operating instructions.
- 2 Record the temperature readout on the LCD display and on the temperature standard panel. Note that the temperature panel can be brought into view by selecting one of the instrument LED check functions on the Maintenance menu (see Section 6.2.2). This temperature should be $35^{\circ}\text{C} \pm 1.5^{\circ}\text{C}$.

6.2.2 Weekly Maintenance

Each week you should verify the operation of the instrument indicator lamps and audible alarm. (These items appear on the Daily Instrument Report and may be performed daily if desired.)

- 1 To perform lamp verification, access the Main Status screen (Figure 6-1):

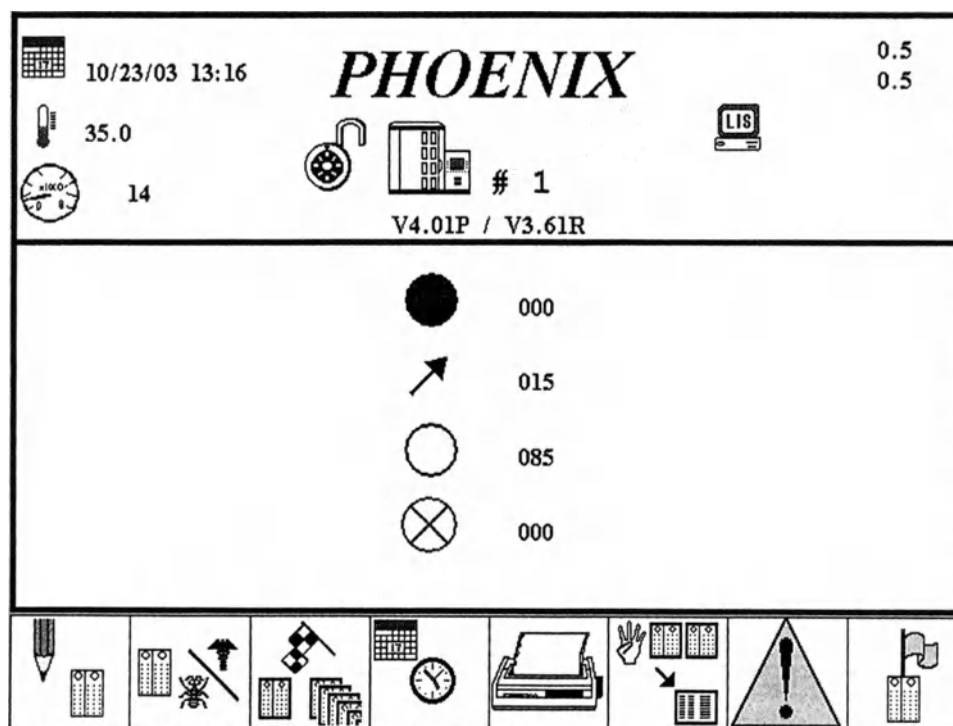
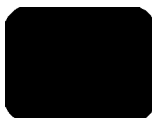


Figure 6-1 – Main Status Screen

- 2 Press the "configuration" soft key:



- 3 The password window appears. Enter the appropriate password and press the "perform action" soft key.



- 4 From the main Configuration display, press the "maintenance" soft key.



- 5 Perform tests on the internal and external LEDs and audible alarm (see list below). To select an item, use the UP ARROW or DOWN ARROW key to highlight the item. Then press the "perform action" soft key (below). For the internal LED tests, after a moment, the "door unlocked" icon appears, and the corresponding tone sounds. Open the door (only required for the first item being checked ... the door may remain open after that until maintenance is complete) and verify the item being checked.



Each of the following items that appear in the maintenance menu should be checked:

Test internal green LEDs (causes green LEDs at the 20 accessible stations to illuminate)

Test internal red LEDs (causes red LEDs at the 20 accessible stations to illuminate)

Test internal amber LEDs (causes amber LEDs at the 20 accessible stations to illuminate)

Test System Alert Indicator – (causes system alert indicator to blink for five repetitions at one second on followed by one second off)

Test Alarm – (causes sample audible alarm tone to sound at the default alarm volume of 5)

If any item that is being verified (LEDs, audible alarm) fails to operate, contact your BD representative to schedule repair.

6.2.3 Periodic Maintenance

6.2.3.1 Air Filter Replacement

There are three air filters on the Phoenix instrument. The Electronics Bay Filter is located on the right side of the instrument above the I/O ports. The Source Bay Filter is located on the left side of the instrument just below the center. The Incubator Air filter is located on the right side of the center bay of the instrument, near the top.

Check and if necessary change these air filters every six months. If the instrument's environment is especially dusty, check the filters more frequently. These filters must remain clean and unobstructed; restricted air flow may cause the instrument interior to reach excessive temperatures, which can affect results and possibly cause hardware malfunctions or failures. It is particularly important to keep the incubator air filter clean.

Required Material

New air filters (see Appendix B for catalog numbers)

Medium phillips screwdriver (No. 2)

To Replace the Electronics Bay Air Filter (Figure 6–2)

- 1 The Electronics Bay Filter is located on the right side of the instrument above the I/O ports. The air filter is located behind a cover held in place by two phillips screws.
- 2 To remove the filter, use a No. 2 phillips screwdriver to loosen the two screws holding the filter cover in place. The screws are captive and require only one-quarter turn. They cannot be removed completely.
- 3 Flip the filter out and examine it for excessive dust and debris. Either replace the filter with a new one or return the existing filter back in the instrument.
- 4 Place the filter cover back in place. Tighten the two captive screws.

(Right side of instrument)

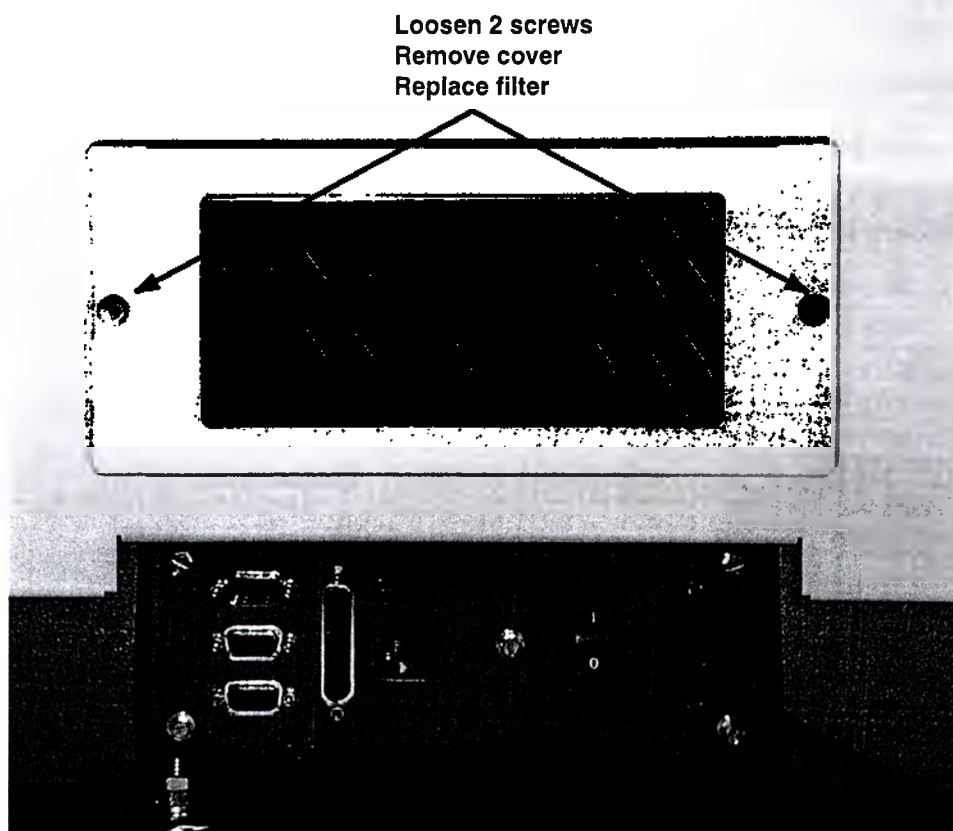


Figure 6-2 – Electronics Bay Filter Replacement

To Replace the Source Bay Air Filter (Figure 6-3)

- 1 The Source Bay Filter is located on the left side of the instrument just below the center. The air filter is located behind a cover held in place by two phillips screws.
- 2 To remove the filter, use a No. 2 phillips screwdriver to loosen the two screws holding the filter cover in place. The screws are captive and require only one-quarter turn. They cannot be removed completely.
- 3 Flip the filter out and examine it for excessive dust and debris. Either replace the filter with a new one or return the existing filter back in the instrument.
- 4 Place the filter cover back in place. Tighten the two captive screws.

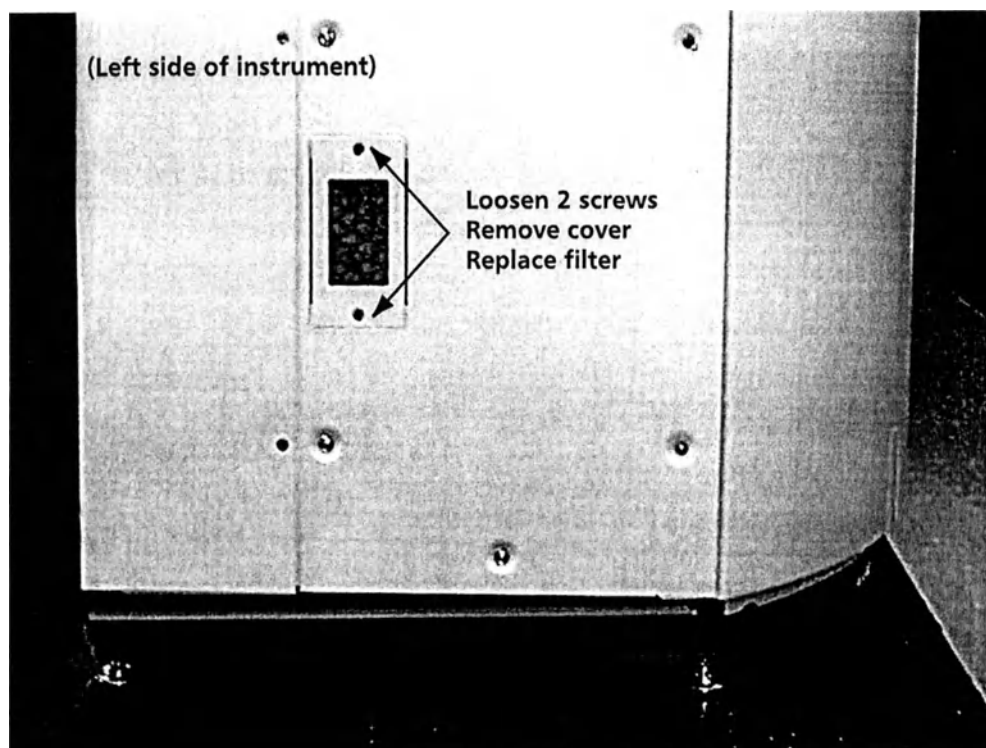


Figure 6-3 – Source Bay Filter Replacement

To Replace the Incubator Air Filter (Figure 6-4)

- 1 The Incubator Air filter is located on the right side of the center bay of the instrument, near the top. The air filter is located behind a cover held in place by two phillips screws.
- 2 To remove the filter, use a No. 2 phillips screwdriver to loosen the two screws holding the filter cover in place. The screws are captive and require only one-quarter turn. They cannot be removed completely.
- 3 Flip the filter out and examine it for excessive dust and debris. Either replace the filter with a new one or return the existing filter back in the instrument.

CAUTION

If you return the existing filter, insure that you replace the filter in the same orientation that it was removed (i.e., with arrow stamped on the side of the filter pointing in the same direction).

- 4 Place the filter cover back in place. Tighten the two captive screws.

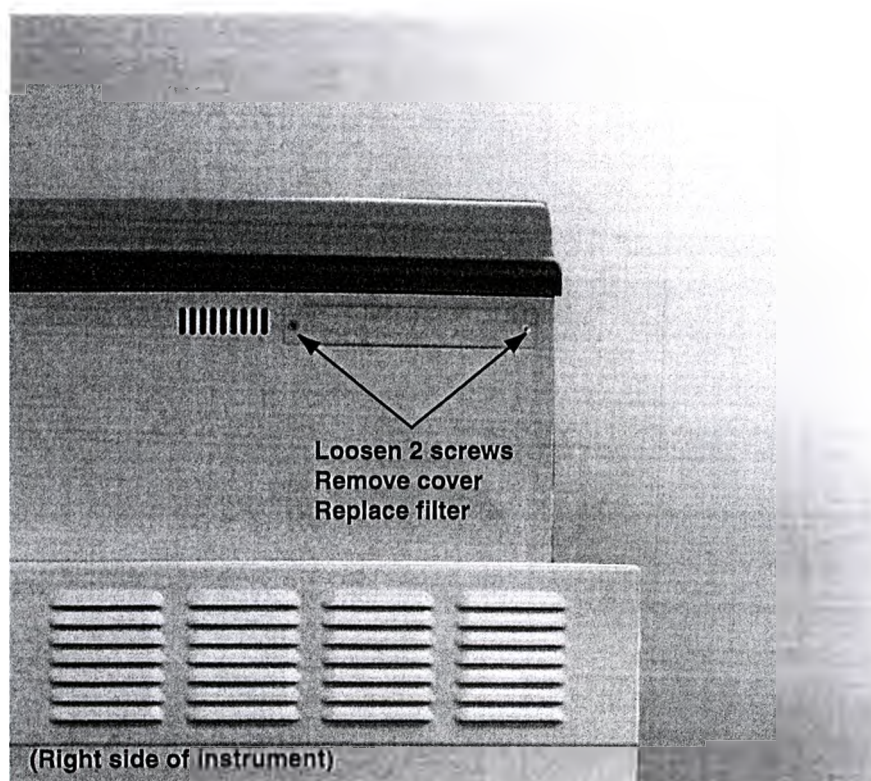


Figure 6-4 – Incubator Filter Replacement

6.2.3.2 Cleaning the Barcode Scanner Window

There are no user-serviceable parts in the barcode scanners. After a period of use, you may find that a barcode scanner does not seem to scan barcode labels as easily as before. If this happens, you can try to solve the problem by cleaning the scanner's window. To clean the window, use a lint-free, nonabrasive cloth dampened with distilled water. Dry the window with a dry lint-free nonabrasive cloth.

6.2.3.3 Cleaning/Decontamination

A situation requiring biological decontamination of one or more panel locations can occur if a panel should leak while in the instrument. The priority in this situation is to first limit the extent of the contamination and then to decontaminate the panel location(s) and other accessible instrument areas receiving the spill. If the spill extends into regions of the carousel not accessible for topical decontamination, contact BD Technical Service (USA) for further instructions (800-638-8663).

To Decontaminate Carousel Panel Locations

The solution recommended to clean the affected surfaces should be at least a 10 percent household bleach solution. All surfaces must be thoroughly washed with the freshly prepared bleach solution, so that the surfaces are "glistening wet." If you are not sure of the extent of the contamination, thoroughly wash the exposed portions of the carousel and cabinet with the freshly prepared bleach solution.

WARNING

ALL PORTIONS OF THE BODY THAT COULD POSSIBLY COME INTO CONTACT WITH THE AFFECTED INSTRUMENT SURFACES MUST BE COMPLETELY COVERED BEFORE BEGINNING THE DECONTAMINATION PROCESS.

- 1 Wear gloves and a gown, completely covering any body surfaces that could possibly come into contact with the affected instrument surfaces.
- 2 Turn off power to the instrument. Unplug the instrument power cord before proceeding.
- 3 Completely absorb the contaminated spill (gauze pads are most effective).
- 4 Apply the bleach solution to the affected surfaces, so that the surfaces are "glistening wet." Let stand for approximately 15 minutes.
- 5 Absorb the applied solution with gauze pads or paper towels.
- 6 Dampen a clean cloth with water. Wipe down the decontaminated surfaces.
- 7 Thoroughly dry all wet surfaces.
- 8 Discard all cleanup materials as biohazardous waste.

6.2.4 Maintenance Menu

The Maintenance menu, accessible from the Configuration menu, provides several functions for performing instrument maintenance. A number of these functions, noted below, are for BD use only. Others are for user weekly and "as needed" maintenance. The following functions appear under the Maintenance menu:

- Test Internal Green LEDs (Section 6.2.2)
- Test Internal Red LEDs (Section 6.2.2)
- Test Internal Amber LEDs (Section 6.2.2)
- Test System Alert Indicator (Section 6.2.2)
- Test Alarm (Section 6.2.2)
- Install/Upgrade (Section 2.5)
- Save System Data to Disk (Section 7.3)
- Save Syslog to Disk (Section 7.4)
- Access Normalizer Panel (for BD use only)
- Save User Data to Disk (Section 6.2.4.1)
- Restore User Data from Disk (Section 6.2.4.2)
- Save LIS Codes to Disk (Section 6.2.4.3)
- Restore LIS Codes from Disk (Section 6.2.4.4)
- Save Panel Lot Definitions (Section 6.2.4.5)
- Restore Panel Lot Definitions (Section 6.2.4.6)
- Save Panel Configuration (Section 6.2.4.7)
- Install Panel Configuration (Section 6.2.4.8)
- Phoenix Update Disk (Section 6.2.4.9)
- Modify Panel Usage (Section 6.2.4.10)
- Write Lightsrc to Diskette (Section 6.2.4.11)
- Read Lightsrc from Diskette (Section 6.2.4.12)
- View Syslog (Section 6.2.4.13)
- Save Syslog to Network (Section 6.2.4.14)
- Display UV and RGB Status (Section 6.2.4.15)
- Force Front UV Bulb Adjustment (Section 6.2.4.16)
- Force Rear UV Bulb Adjustment (Section 6.2.4.17)
- Force RGB LED Adjustment (Section 6.2.4.18)
- Front Panel Reader Setup (Section 6.2.4.19)

6.2.4.1 Save User Data to Disk

Save User Data to Disk enables you to backup the configuration parameters you have set to floppy disk. This data includes: Custom Interpretation Rule Set Configuration, and BDXpert Rules Configuration. The information saved is for the current instrument only. However, information saved at one instrument can be restored at another instrument. This enables you to have consistent configurations among all the instruments. To save data to disk, follow the steps below:

- 1 Press the "configuration" soft key.



- 2 The password window appears. Enter the appropriate password and press the "perform action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.



- 4 Press the UP ARROW or DOWN ARROW to highlight the selection, "SAVE USER DATA TO DISK.*"
- 5 Insert a blank, formatted, write-enabled floppy disk in the disk drive.
- 6 Press the "perform action" soft key.



- 7 The system asks you to confirm that you wish to save the data to diskette. Press the "confirm" soft key to proceed with the save or "cancel" to cancel the operation.

OK



or



- 8 An hourglass icon appears while the information is being written to the disk.



- 9 When the activity is complete, the "activity completed" tone sounds and the hourglass icon disappears. Make sure the disk indicator is off, then remove the floppy disk by pressing the disk eject button.

- 10 Write protect the disk.

6.2.4.2 Restore User Data from Disk

Restore User Data from Disk enables you to restore the configuration parameters you have copied to floppy disk back to the instrument. This data includes: Custom Interpretation Rule Set Configuration, and BDxpert Rules Configuration. To restore, the instrument door must be closed. To restore data from disk, follow the steps below:

NOTE

This operation should not be performed while there are ongoing panels.

- 1 Press the "configuration" soft key.



- 2 The password window appears. Enter the appropriate password and press the "perform action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.



- 4 Press the UP ARROW or DOWN ARROW to highlight the selection, "RESTORE USER DATA FROM DISK."
- 5 Insert the saved user data floppy disk in the disk drive.
- 6 Press the "perform action" soft key.



- 7 The system asks you to confirm that you wish to restore the data from diskette, and advises you that the instrument will reboot when the restore is complete. Press the "confirm" soft key to proceed with the restore or "cancel" to cancel the operation.

OK



or



- 8 The system verifies the dates of the backed up files on the floppy disk. If any files are older than the ones currently on the instrument, you will be asked to confirm that you want to replace the more current files on the instrument with the older ones on the floppy disk. You can choose to replace none, one, several, or all of the newer files.
- 9 An hourglass icon appears while the information is being copied from the disk, as well as the message, "Restoring Data."



- 10 When the activity is complete, the "activity completed" tone sounds and the hourglass icon disappears. The instrument then automatically reboots.

- 11 Make sure the disk indicator is off, then remove the floppy disk by pressing the disk eject button. **Note that the new files may take at least 15 minutes to load into instrument memory.**

6.2.4.3 Save LIS Codes to Disk

Save LIS Codes to Disk enables you to save all the Organism and Antimicrobial LIS codes you have defined to floppy disk. This produces a text file that you can edit on a PC, which might be quicker for some users who have many edits to perform. Then, the edited codes can be restored (Section 6.2.4.4) back to the Phoenix instrument. The function also enables you to copy codes from one instrument to another. Save LIS Codes to Disk appears on the Maintenance menu only if LIS Communications is enabled.

Entries in the text field consist of:

Identifier (ORG, QC_ORG, DRUG) | BD Code | Short Name/Drug | LIS Code

Codes cannot be added or deleted, and **only** the LIS Code portion can be modified. If another field is changed, the instrument will not restore the codes.

To save codes to disk, follow the steps below:

- 1 Press the "configuration" soft key.



- 2 The password window appears. Enter the appropriate password and press the "perform action" soft key.



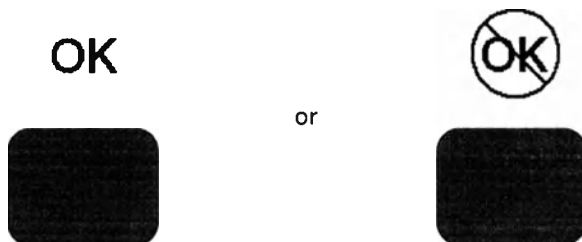
- 3 From the main Configuration display, press the "maintenance" soft key.



- 4 Press the UP ARROW or DOWN ARROW to highlight the selection, "SAVE LIS CODES TO DISK."
- 5 Insert a blank, formatted, write-enabled floppy disk in the disk drive.
- 6 Press the "perform action" soft key.



- 7 The system asks you to confirm that you wish to save the data to diskette. Press the "confirm" soft key to proceed with the save or "cancel" to cancel the operation.



- 8 An hourglass icon appears while the information is being written to the disk.



- 9 When the activity is complete, the "activity completed" tone sounds and the hourglass icon disappears. Make sure the disk indicator is off, then remove the floppy disk by pressing the disk eject button.

6.2.4.4 Restore LIS Codes from Disk

Restore LIS Codes from Disk enables you to restore the Organism and/or Antimicrobial codes you previously copied to floppy disk back to the instrument. The restore operation completely overwrites the existing Organism/Antimicrobial LIS Code database. Codes will not be restored if any field other than LIS Code was modified, or if LIS Code was entered in an incorrect format. If this happens, an error log is written on the floppy disk, and you can review this file to see what caused the error. Restore LIS Codes from Disk appears on the Maintenance menu only if LIS Communications is enabled.

To restore codes from disk, follow the steps below:

- 1 Press the "configuration" soft key.



- 2 The password window appears. Enter the appropriate password and press the "perform action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.



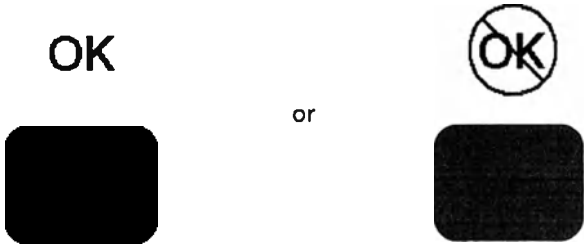
- 4 Press the UP ARROW or DOWN ARROW to highlight the selection, "RESTORE LIS CODES FROM DISK."

- 5 Insert the saved LIS codes floppy disk in the disk drive.

- 6 Press the "perform action" soft key.



- 7 The system asks you to confirm that you wish to restore the data from diskette. Press the "confirm" soft key to proceed with the restore or "cancel" to cancel the operation.



- 8 An hourglass icon appears while the information is being copied from the disk, as well as the message "Restoring Data."



- 9 When the activity is complete, the message, "Complete" flashes on the screen, the "activity completed" tone sounds, and the hourglass icon disappears.
- 10 Make sure the disk indicator is off, then remove the floppy disk by pressing the disk eject button.

6.2.4.5 Save Panel Lot Definitions

Save Panel Lot Definitions enables you to save the panel lots present in the instrument to a floppy disk. This enables you to transfer these lot definitions (and QC panel results) to other instruments so that the records can be viewed/used there. **Save Panel Lot Definitions** saves the defined panel lots and related data (Sequence #s, Expirations Dates, etc.), and QC results for any strains tested in those lots. Save Panel Lot Definitions appears on the Maintenance menu only if QC Lot Support is enabled.

To save panel lot definitions to disk, follow the steps below:

- 1 Press the "configuration" soft key.



- 2 The password window appears. Enter the appropriate password and press the "perform action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.



- 4 Press the UP ARROW or DOWN ARROW to highlight the selection, "SAVE PANEL LOT DEFINITIONS."
- 5 Insert a blank, formatted, write-enabled floppy disk in the disk drive.
- 6 Press the "perform action" soft key.



- 7 The system asks you to confirm that you wish to save the data to diskette. Press the "confirm" soft key to proceed with the save or "cancel" to cancel the operation.

OK



or



- 8 An hourglass icon appears while the information is being written to the disk.



- 9 When the activity is complete, the "activity completed" tone sounds and the hourglass icon disappears. Make sure the disk indicator is off, then remove the floppy disk by pressing the disk eject button.

6.2.4.6 Restore Panel Lot Definitions

Restore Panel Lot Definitions enables you to restore Panel Lot Definitions saved at one instrument to another. This makes Panel Lot definitions *and* QC panel results transferrable in labs that use multiple instruments, so that you only have to define a lot once using the box (carton) label. Restore Panel Lot Definitions appears on the Maintenance menu only if QC Lot Support is enabled.

To restore panel lot definitions from disk, follow the steps below:

- 1 Press the "configuration" soft key.



- 2 The password window appears. Enter the appropriate password and press the "perform action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.

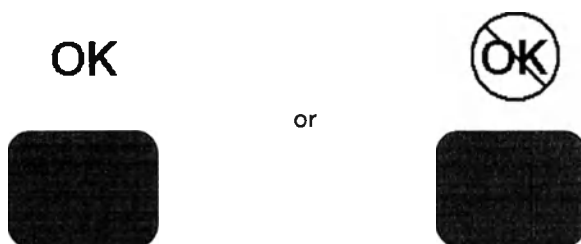


- 4 Press the UP ARROW or DOWN ARROW to highlight the selection, "RESTORE PANEL LOT DEFINITIONS."
- 5 Insert the saved definitions floppy disk in the disk drive.

- 6 Press the "perform action" soft key.



- 7 The system asks you to confirm that you wish to restore the data from diskette. Press the "confirm" soft key to proceed with the restore or "cancel" to cancel the operation.



- 8 An hourglass icon appears while the information is being copied from the disk, as well as the message "Restoring Data."



- 9 If you receive a message about a conflict between the restore disk and the instrument's panel lot information, contact BD for assistance.

Otherwise, when the activity is complete, the message, "Complete" flashes on the screen, the "activity completed" tone sounds, and the hourglass icon disappears.

- 10 Make sure the disk indicator is off, then remove the floppy disk by pressing the disk eject button.

6.2.4.7 Save Panel Configuration

Save Panel Configuration enables you to backup the instrument's panel configurations to floppy disk. The information saved is for the current instrument only. However, information saved at one instrument can be installed at another instrument. This enables you to have consistent panel configurations among all the instruments. To save panel configurations to disk, follow the steps below:

- 1 Press the "configuration" soft key.



- 2 The password window appears. Enter the appropriate password and press the "perform action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.

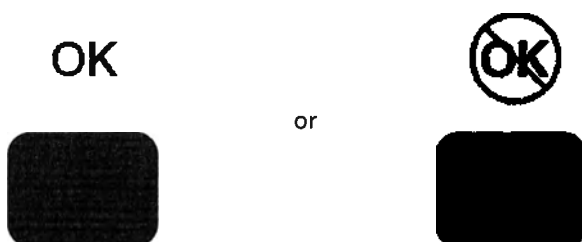


- 4 Press the UP ARROW or DOWN ARROW to highlight the selection, "SAVE PANEL CONFIGURATION."
- 5 Insert a blank, formatted, write-enabled floppy disk in the disk drive.

- 6 Press the "perform action" soft key.



- 7 The system asks you to confirm that you wish to save the data to diskette. Press the "confirm" soft key to proceed with the save or "cancel" to cancel the operation.



- 8 An hourglass icon appears while the information is being written to the disk.



- 9 When the activity is complete, the "activity completed" tone sounds and the hourglass icon disappears. Make sure the disk drive indicator is off, then remove the floppy disk by pressing the disk eject button.
- 10 Write protect the disk.

6.2.4.8 Install Panel Configuration

Install Panel Configuration enables you to update the instrument's panel configurations. To perform this operation, the instrument door must be closed.

To install panel configurations, follow the steps below:

NOTE

This operation should not be performed while there are ongoing panels.

- 1 Press the "configuration" soft key.



- 2 The password window appears. Enter the appropriate password and press the "perform action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.

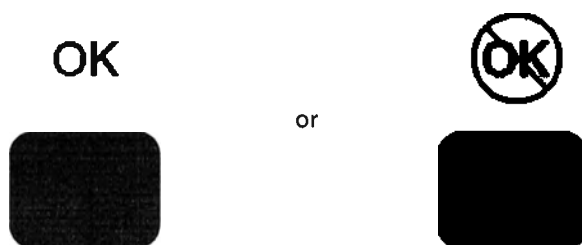


- 4 Press the UP ARROW or DOWN ARROW to highlight the selection, "INSTALL PANEL CONFIGURATION."
- 5 Insert the (first, if there is more than one) panel configuration floppy disk in the disk drive.

- 6 Press the "perform action" soft key.



- 7 The system asks you to confirm that you wish to install the data from diskette, and advises you that the instrument will reboot when the installation is complete. Press the "confirm" soft key to proceed with the installation or "cancel" to cancel the operation.



- 8 An hourglass icon appears while the information is being copied from the disk.



- 9 When the activity is complete, the "activity completed" tone sounds and the hourglass icon disappears. The instrument then automatically reboots.
- 10 Make sure the disk indicator is off, then remove the floppy disk by pressing the disk eject button.

6.2.4.9 Phoenix Update Disk

Phoenix Update Disk (PUD) enables you to update numerous data files in the instrument, such as antimicrobial breakpoints and rules, QC data, drugs, organisms, etc. To install the Phoenix Update Disk, follow the steps below:

- 1 Press the "configuration" soft key.



- 2 The password window appears. Enter the appropriate password and press the "perform action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.



- 4 Press the UP ARROW or DOWN ARROW to highlight the selection, "PHOENIX UPDATE DISK."
- 5 Insert the (first, if there is more than one) update disk in the disk drive.
- 6 Press the "perform action" soft key.

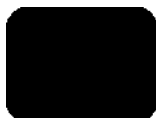


- 7 The system asks you to confirm that you wish to install the data from diskette, and advises you that the instrument will reboot when the installation is complete. Press the "confirm" soft key to proceed with the installation or "cancel" to cancel the operation.

OK



or



- 8 The system verifies the version and configuration of the files on the floppy disk. If any files are older than the ones currently on the instrument, the instrument issues an alert (E34) and does not perform the update.
- 9 An hourglass icon appears while the information is being copied from the disk.



- 10 If additional disks are required, the system displays the following message: "Please insert disk # n of Phoenix update set, then press OK to continue."

Remove the disk and insert Phoenix update floppy disk # n in the disk drive.

- 11 When the activity is complete, the "activity completed" tone sounds and the hourglass icon disappears. The instrument then automatically reboots.
- 12 Make sure the disk indicator is off, then remove the floppy disk by pressing the disk eject button.

6.2.4.10 Modify Panel Usage

The Modify Panel Usage operation enables you to disable either the ID or the AST side of a combination panel that is not Removable (provided both sides are currently enabled). To modify panel usage:

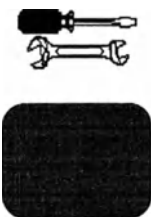
- 1 Press the "configuration" soft key.



- 2 The password window appears. Enter the appropriate password and press the “perform action” soft key.



- 3 From the main Configuration display, press the “maintenance” soft key.



- 4 Press the UP ARROW or DOWN ARROW to highlight the selection, “MODIFY PANEL USAGE.”
- 5 The following display appears:

MODIFY PANEL USAGE

Sequence #

Accession #

Isolate #

☐

ID

☒

AST

☒

- 6 Enter or scan the panel barcode sequence number of the panel whose usage you wish to modify. The system automatically completes the **Accession #** and **Isolate #** fields, which are read-only.
- 7 Use the "tab" key to advance to either the **ID** or **AST** Checkbox (depending on which side of the panel you want to disable). Press the "select" soft key or Spacebar to "un-check" the checkbox.
- 8 Press the "save" soft key to save the panel modification.

Note the following conditions for panel usage modification:

- ◆ No information for related panels is modified when panel usage is changed.
- ◆ If there is no user-entered Final ID and the ID side is disabled, the Instrument ID, Biochemical Results, Confidence Values, SIR Values, and ID Special Messages are removed from the record.
- ◆ If there IS a user-entered Final ID and the ID side is disabled, this ID is retained, as are SIR Values. However, Instrument ID, Biochemical Results, Confidence Values, and ID Special Messages are removed from the record.

6.2.4.11 Write Light Source to Disk

The Write Light Source to Disk operation enables you to create a floppy disk containing the current values needed by the instrument to establish setpoints for source LEDs. **The operation should only be performed when advised by your local BD representative.**

- 1 From the Main Status Screen, press the "configuration" soft key. The main configuration screen appears.



- 2 The password window appears. Enter the appropriate password and press the "perform action" soft key.



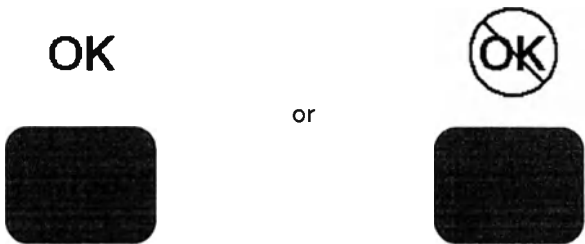
- 3 From the main Configuration display, press the "maintenance" soft key.



- 4 Insert a blank, formatted, write-enabled floppy disk in the disk drive. Be sure the disk is labeled "Light Source Disk" and includes the instrument serial number.
- 5 Use the UP ARROW or DOWN ARROW to highlight the selection, "WRITE LIGHTSRC TO DISKETTE." The instrument verifies that a proper disk is in the drive.
- 6 Press the "perform action" soft key.



- 7 The system asks you to confirm that you wish to save the data to diskette. Press the "confirm" soft key to proceed with the save or "cancel" to cancel the operation.



- 8 An hourglass icon appears while the Light Source information is being written to the disk.



- 9 When the activity is complete, the "activity completed" tone sounds and the hourglass icon disappears. Make sure the disk drive indicator is off, then remove the floppy disk by pressing the disk eject button.
- 10 Write protect the disk.

6.2.4.12 Read Light Source from Diskette

Read Light Source from Disk enables you to install new light source files that have been saved on floppy disk (either the one provided with the system at installation or one that BD directed you to create). The operation can be performed only when the instrument is idle, there are no ongoing panels, and the instrument has completed an inventory scan. The same normalizer panels must be present in the instrument as when the light source disk was made.

- 1 Press the "configuration" soft key.



- 2 The password window appears. Enter the appropriate password and press the "perform action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.

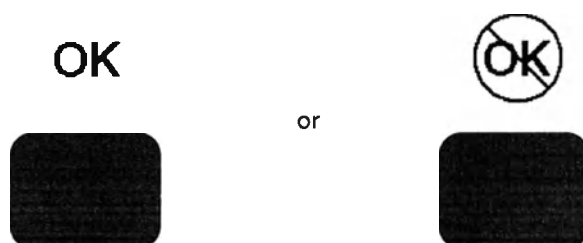


- 4 Press the UP ARROW or DOWN ARROW to highlight the selection, "READ LIGHTSRC FROM DISKETTE."
- 5 Insert the light source floppy disk in the disk drive.

- 6 Press the "perform action" soft key.



- 7 The system asks you to confirm that you wish to write the data from diskette to NVRAM. Press the "confirm" soft key to proceed with the installation or "cancel" to cancel the operation.



- 8 The system verifies the dates of the files on the floppy disk. If any files are older than the ones currently on the instrument, you will be asked to confirm that you want to replace the more current files on the instrument with the older ones on the floppy disk. You can choose to replace none, one, several, or all of the newer files.
- 9 An hourglass icon appears while the information is being copied from the disk.



- 10 When the activity is complete, the "activity completed" tone sounds and the hourglass icon disappears.
- 11 Make sure the disk indicator is off, then remove the floppy disk by pressing the disk eject button.

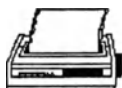
6.2.4.13 View Syslog

View Syslog enables you to view a list of messages that the LIS communications function has generated. Note that the display will contain no messages if the BD EpiCenter system is connected. The messages represent status messages that have occurred during communications, such as query messages, log entries, interface messages, etc. This list can be filtered by date, printed (a potentially large report that prints in landscape orientation), and can be searched to find particular words or phrases (with repeat find of the term).

Refer to Appendix J – Event Log Messages for a complete listing of messages and corrective actions.

View Syslog soft keys:

"print"



"find"



"repeat data"



"select filter"



"exit"



To view the system log:

- 1 Press the "configuration" soft key.



- 2 The password window appears. Enter the appropriate password and press the "perform action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.



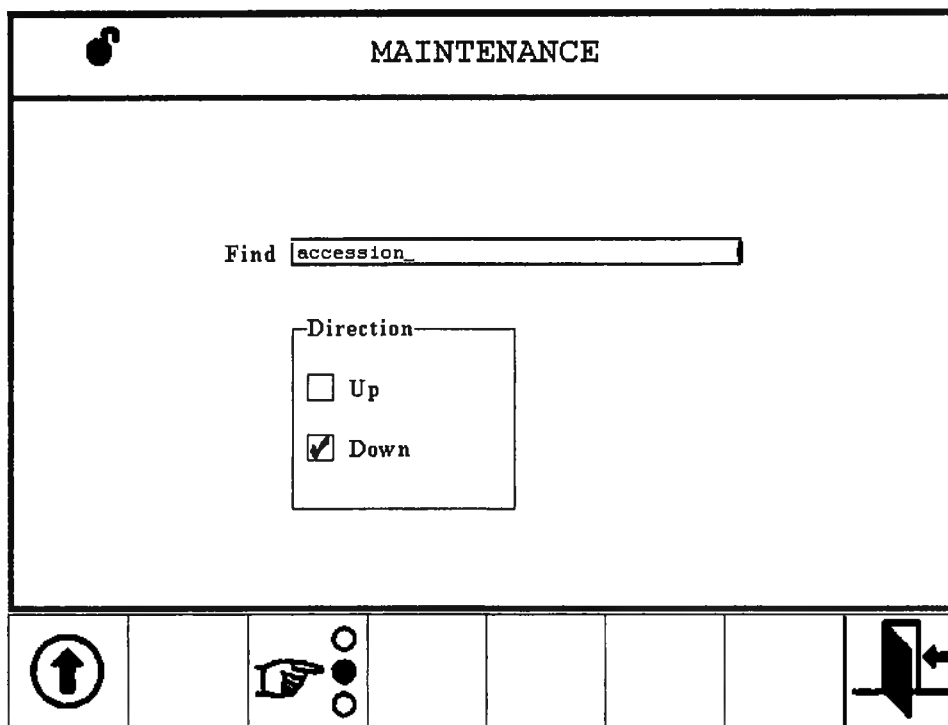
- 4 Press the UP ARROW or DOWN ARROW to highlight the selection, "VIEW SYSLOG" and press the "perform action" soft key. The system log then appears.
- 5 All available LIS messages appear in the window, with the oldest messages at the top. If more messages exist than can fit in the window, use the DOWN ARROW to view messages below those displayed. If the message is wider than the window size, press  on the keyboard to see the rest of the message. Press  to return the display to the original position.

To search the system log:

- 1 Press the "find" soft key.



- 2 The Find display appears.
- 3 In the Find field, you can enter up to 37 characters (not case sensitive) for which you want the system to search.
- 4 The Direction checkboxes enable you to specify whether the search should proceed upward or downward (the default). Press the "select" soft key to check or uncheck the desired direction. Only one direction can be selected.
- 5 Press the "perform action" soft key to begin the search. The display returns to the system log, with the first message containing the term at the top of the window and highlighted. If the term is not found, no messages are highlighted.
- 6 To find the next occurrence of the term, press the "repeat data" key. If the term appears again, it is highlighted in the system log. If the term does not appear again, the same message remains highlighted and the "repeat data" key disappears.



To filter the system log:

- 1 Press the “select filter” soft key.



- 2 You may enter a Start Date/Time, an End Date/Time, both, or neither.

If you enter only a start date, the filter returns all messages from that date forward to the current time.

If you enter only an end date, the filter returns all messages from that date back to the oldest message in the log.

If you enter both dates, the filter returns all messages between the two dates.

If you enter neither date, all messages in the log are displayed (same as when the log is first accessed).

- 3 The Filter Selection display appears.

MAINTENANCE							
Dates ☒ Start Date 07 / 30 / 01 09 : 20 ☐ End Date							
↑		☞	○ ● ○				☛

- 4 To enter a Start Date/Time or End Date/Time, highlight the desired checkbox and press the "select" soft key. Date and time fields appear when the box is checked. Move the cursor to the day, month, year, hour, or minute field, and press the UP ARROW or DOWN ARROW to increase or decrease the displayed value.
- 5 When the desired dates and times are entered, press the "perform action" soft key to execute the filter.

6.2.4.14 Save Syslog to Network

Save Syslog to Network should only be used when advised by your local BD representative.

The **Save Syslog to Network** option appears only when the instrument is connected to a BD EpiCenter system. This option enables you to save the event log to an EpiCenter system.

Under certain circumstances, a BD representative may advise you to save (write) the syslog to the EpiCenter system. These circumstances include some error conditions and system malfunctions. The Save Syslog function copies the system event log, which contains logged system messages about various system, instrument, and communications events. The instrument door must be closed, and the instrument must be idle to save the syslog.

- 1 Press the "configuration" soft key.



- 2 The password window appears. To access configuration functions, enter the appropriate password then press the "perform action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.



- 4 Press the UP ARROW or DOWN ARROW to highlight the selection, "SAVE SYSLOG TO NETWORK."
- 5 Insure that the data collection application is launched on the EpiCenter computer.
- 6 Press the "perform action" soft key.



- 7 An hourglass icon appears while the information is being sent.



- 8 When the activity is complete, the "activity completed" tone sounds and the hourglass icon disappears, and the event log file is saved to the directory in which the data collection application resides on the EpiCenter computer.

6.2.4.15 Display UV and RGB Status

The Display UV and RGB Status operation enables you to view information about the UV and RGB source bulbs. **The operation should only be performed when advised by your local BD representative.**

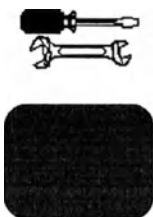
- 1 From the Main Status Screen, press the "configuration" soft key. The main configuration screen appears.



- 2 The password window appears. Enter the appropriate password and press the "perform action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.



- 4 Use the UP ARROW or DOWN ARROW to highlight the selection, "DISPLAY UV AND RGB STATUS."

- 5 Press the "perform action" soft key.



- 6 The instrument displays the following information on the left side of the screen:

For Front and Rear UV Bulbs:

In Service (YES/NO)
 Telsum (value)
 Cycles (value)
 Time (Min) (value)
 Available (YES/NO)
 Intensity (%)
 Adjustment (-----/PEND)

For RGB Source LEDs:

Adjustment (-----/PEND)

- 7 Press the "exit" soft key to return to the Maintenance menu.

6.2.4.16 Force Front UV Bulb Adjustment

The Force Front UV Bulb Adjustment orders the instrument to adjust the front UV bulb. **The operation should only be performed when advised by your local BD representative.** If the front UV bulb is currently in use, a message appears informing you that the adjustment will not occur until there are no ongoing panels in the instrument. If the rear UV bulb is currently in use, the front UV bulb will become the "in service" bulb and the adjustment will not occur until there are no ongoing panels in the instrument.

- 1 From the Main Status Screen, press the "configuration" soft key. The main configuration screen appears.

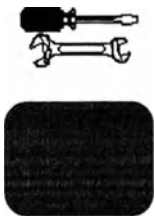


- 2 The password window appears. Enter the appropriate password and press the "perform

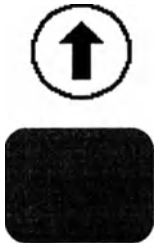
action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.



- 4 Use the UP ARROW or DOWN ARROW to highlight the selection, "FORCE FRONT UV BULB ADJUSTMENT."
- 5 Press the "perform action" soft key.



- 6 If the front UV bulb is currently in service, a message appears informing you that the adjustment remains pending until there are no ongoing panels in the instrument.

If the rear UV bulb is currently in service, a message appears informing you that the front UV bulb will become the "in service" bulb. The adjustment remains pending until there are no ongoing panels in the instrument.

To continue the UV adjustment process, press the "confirm" soft key. To cancel the process, press the "cancel" soft key.

OK



or



- 7 The system waits until there are no ongoing panels and then performs the UV bulb adjustment.
- 8 An hourglass icon appears while the adjustment is being performed.



- 9 When the activity is complete, the "activity completed" tone sounds and the hourglass icon disappears.
- 10 Press the "exit" soft key to return to the Maintenance menu.

6.2.4.17 Force Rear UV Bulb Adjustment

The Force Rear UV Bulb Adjustment orders the instrument to adjust the rear UV bulb. **The operation should only be performed when advised by your local BD representative.** If the rear UV bulb is currently in use, a message appears informing you that the adjustment will not occur until there are no ongoing panels in the instrument. If the front UV bulb is currently in use, the rear UV bulb will become the "in service" bulb and the adjustment will not occur until there are no ongoing panels in the instrument.

- 1 From the Main Status Screen, press the "configuration" soft key. The main configuration screen appears.



- 2 The password window appears. Enter the appropriate password and press the "perform

action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.



- 4 Use the UP ARROW or DOWN ARROW to highlight the selection, "FORCE REAR UV BULB ADJUSTMENT."
- 5 Press the "perform action" soft key.



- 6 If the rear UV bulb is currently in service, a message appears informing you that the adjustment remains pending until there are no ongoing panels in the instrument.

If the front UV bulb is currently in service, a message appears informing you that the rear UV bulb will become the "in service" bulb. The adjustment remains pending until there are no ongoing panels in the instrument.

To continue the UV adjustment process, press the "confirm" soft key. To cancel the process, press the "cancel" soft key.

OK



or



- 7 The system waits until there are no ongoing panels and then performs the UV bulb adjustment.
- 8 An hourglass icon appears while the adjustment is being performed.

- 9 When the activity is complete, the "activity completed" tone sounds and the hourglass icon disappears.
- 10 Press the "exit" soft key to return to the Maintenance menu.

6.2.4.18Force RGB LED Adjustment

The Force RGB LED Adjustment orders the instrument to adjust the Red, Green, and Blue source LEDs. **The operation should only be performed when advised by your local BD representative.** When you select the operation, a message appears informing you that the adjustment will not occur until there are no ongoing panels in the instrument.

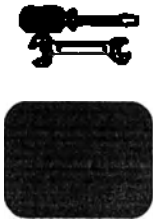
- 1 From the Main Status Screen, press the "configuration" soft key. The main configuration screen appears.



- 2 The password window appears. Enter the appropriate password and press the "perform action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.



- 4 Use the UP ARROW or DOWN ARROW to highlight the selection, "FORCE RGB LED ADJUSTMENT."

- 5 Press the "perform action" soft key.



- 6 A message appears informing you that the adjustment remains pending until there are no ongoing panels in the instrument. To continue the adjustment process, press the "confirm" soft key. To cancel the process, press the "cancel" soft key.

OK



or



- 7 The system waits until there are no ongoing panels and then performs the RGB LED adjustment.
- 8 An hourglass icon appears while the adjustment is being performed.



- 9 When the activity is complete, the "activity completed" tone sounds and the hourglass icon disappears.
- 10 Press the "exit" soft key to return to the Maintenance menu.

6.2.4.19 Front Panel Reader Setup

The Front Panel Reader Setup enables you to view and/or change how the instrument's built-in barcode scanner is treated when the instrument reboots. **The operation should only be performed when advised by your local BD representative.** The 2 choices offered are to 1) reset the scanner to factory default settings, or 2) retain the current settings when the instrument reboots.

- 1 From the Main Status Screen, press the "configuration" soft key. The main configuration screen appears.



- 2 The password window appears. Enter the appropriate password and press the "perform action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.



- 4 Use the UP ARROW or DOWN ARROW to highlight the selection, "FRONT PANEL READER SETUP."

- 5 Press the “perform action” soft key.



- 6 The current Startup Status is shown at the left of the display.
- 7 Press the “perform action” soft key to change the displayed setting. Set the Startup Status value to “Initialize” to reset the scanner to factory default settings when the Phoenix instrument reboots. Set the Startup Status value to “Retain” to allow the scanner to retain its current settings when the instrument reboots.
- 8 Press the “exit” soft key to return to the Configuration menu.

6.3 Module Replacement

6.3.1 General

The Phoenix instrument has been designed and tested for troublefree performance. In the event of malfunction, you should contact BD for service under the terms of your existing service contract or warranty. Only the external barcode scanner is user-replaceable.

Replacement modules may be swapped for failed modules which are then returned to BD. Credit is then applied towards the replacement module. Only replacement parts supplied by BD should be used in the procedures described in this section.

6.3.2 Barcode Scanner Replacement

The barcode scanner is connected to the instrument at the I/O panel on the right side of the instrument. Refer to Figure 6-5.

Required Materials

1/8 in. flat screwdriver

To Replace the Barcode Scanner

- 1 On the I/O panel on the right side of the instrument, locate the cable connection for the barcode scanner. This cable is held in place by two small screws. Unscrew the screws and unplug the cable.
- 2 Note that the cable connector is roughly D-shaped, with the top of the connector being wider than the bottom part. Plug in the new scanner cable, being sure to align the cable connector to the plug in the correct orientation. Tighten the screws.
- 3 To verify proper operation of the new scanner, go to the Panel Login screen, advance the cursor to the **Sequence #** field, and scan a panel number barcode. Verify that the correct number is entered in the field. Press the "exit" soft key to exit the display without saving your entry.

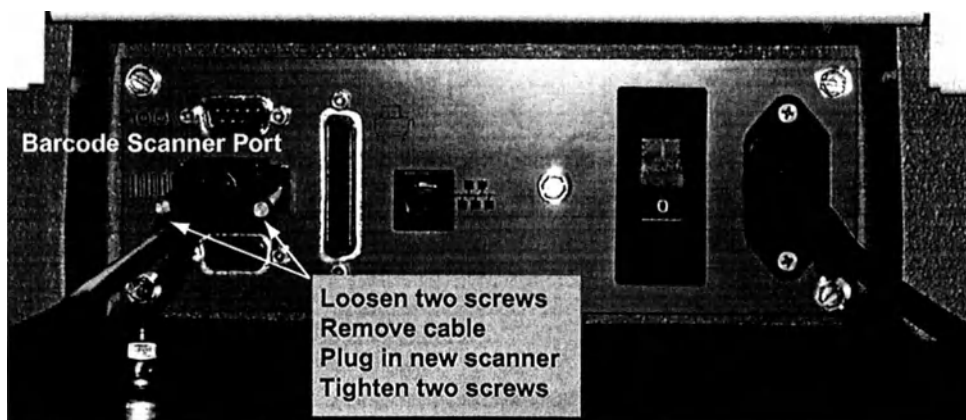


Figure 6-5 – Barcode Scanner Replacement

6.3.3 Thermometer Removal

If you find that the fluid in the thermometer of the temperature standard panel has separated, follow the procedure below to remove the thermometer and replace it.

To Remove/Replace the Thermometer

- 1 Remove the temperature standard panel from the Phoenix instrument.
- 2 Using the small access hole at the bottom of the panel, gently push the thermometer upward through the large slotted opening at the top of the temperature panel.
- 3 Using your fingers pull the thermometer completely out of the panel through the slotted opening at the top of the temperature panel.
- 4 Reunite the separated fluid column per the instructions below.
- 5 Install the thermometer in the reverse order described above.

6.3.4 Reuniting Separated Liquid in the Thermometer

If you find that the fluid in the thermometer of the temperature standard panel has separated, follow the procedure below to reunite the liquid.

To Reunite Separated Liquid

- 1 Should there be a separation in the capillary or in the expansion chamber at the top of the thermometer, heat the bulb of the thermometer in a hot liquid which exceeds the range of the thermometer until the separation and main liquid column enter the expansion chamber and unite with each other.
- 2 Quickly remove the thermometer from the liquid, so that the liquid does not completely fill the expansion chamber which could possibly harm the thermometer.
- 3 Check the thermometer against a certified, traceable thermometer or an ice bath to assure the thermometer is reading correctly.

Troubleshooting

7.1 General

7.1.1 Instrument Service

If your BD Phoenix 100 instrument malfunctions or operates unusually in any way, you may initially attempt to solve the problem by following the recommendations in this section. All other servicing attempts will terminate the responsibility of the manufacturer under the terms of the warranty.

If you cannot repair a system malfunction, contact your local BD representative (contact numbers are listed in Appendix D).

This section discusses error messages, which appear when the system has encountered a known problem. These messages are listed in numerical order, along with possible causes of the message and corrective actions.

7.2 Error/Alert Messages

CAUTION

When the system notifies you of alerts and errors, you should immediately respond to the condition.

When the system encounters an alert or error condition, the error code (EXX or WXXX, where XX or XXX is a number) is either displayed on the screen or written into the system alert list. The error code is an abbreviation for the conditions described in the listing below.

Different types of alerts and errors behave in different ways. There are three basic types of alert condition:

- ① Self-Clearing – these alerts are removed from the System Alert Screen after they have been displayed and the screen has been exited. No other intervention is required.
- ② Persistent – these alerts remain in the System Alert Screen (even after displaying the alert code) until the instrument determines that the error causing the alert has been corrected. Correction can be accomplished with or without user intervention, depending on the alert.
- ③ Auto Clear – these alerts are removed from the System Alert Screen as soon as the condition causing the error has been cleared. There is no requirement to display the alert code on the System Alerts List Screen. If the alert is still present when reviewing the Alert list, it will be displayed.

"W" error codes are displayed on the screen when they occur. (They also cause the Activity Error tone to sound [sequence of short high beep and short low beep repeated four times].) These are activity (or "workflow") types of errors. In most cases, this means that some action you have performed was not what the system expected, but you can usually perform the correct action, as recommended below, without exiting the current operation. These activity errors are flagged by the Activity Error icon:



"W" error codes are grouped as follows:

W1XX	Problem with the Sequence Number
W2XX	Problem with the Accession, Isolate Number, or Media type
W3XX	Problem with a QC panel only
W4XX	Action to get into the instrument is not allowed
W5XX	Configuration/Maintenance screen activity not allowed (as long as it is not an instrument action)
W6XX	Screen activity is not allowed
W7XX	LIS errors
W8XX	QC Lot Support errors

System alerts, which comprise all "E" type error codes, are reported in the system alert list. These errors cause the Alert tone (medium beep on for one second, off for 3 seconds, repeating) to sound (if it is enabled). Also the System Alert icon appears on the Main Status screen and the System Alert indicator flashes. The errors must be reviewed to clear the system alert condition. The system alert list can be viewed from the Main Status screen by pressing the "system alert" soft key:



The error codes are listed in numerical order. Error sub-codes are 8-digit numeric codes that appear below the EXX readout in the system alert list. The sub-codes indicate specific conditions detected. Many sub-codes are listed in the "Possible Causes" and "Corrective Actions" sections below.

CAUTION

If any error sub-codes other than those listed here appear, note the sub-code and contact BD for assistance.

If the recommended corrective actions do not solve the problem, contact BD.

E01 Incubator temperature alert

Temperature readings are taken every 5 seconds for 10 minutes and these readings are averaged.

ALERT TYPE – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

00000001– Average temperature too high (> 36.5° C)

00000002 – Average temperature too low (< 33° C)

00000010 – Average temperature too high for more than one hour (> 36.5° C)

00000020 – Average temperature too low for more than one hour (< 33° C)

00000040 – Absolute high temperature (> 38.5° C)

Note that if the instrument temperature reaches 39° C ± 0.5° C, the instrument disables the heater.

For all sub-codes, causes include: room temperature is not within recommended range, or other environmental specification is not being met (such as instrument sitting in direct sunlight or too close to HVAC air register). Air filters are dirty, restricting fresh air intake.

CORRECTIVE ACTION(S)

- ☐ Make sure environmental specifications are met (see Section 2 – Installation and Setup).
- ☐ Replace air filters.

E02 Lightbay temperature alert

The instrument has detected either that the temperature is too high or too low on any of the tiers, or communications with the lightbay sensor is terminated. The instrument continues testing on schedule.

ALERT TYPE – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

- Temperature too High (Light Source: > 50° C; Tier Micro: > 60° C)
Tier A (Applicable subcodes: 00000001, 00000008)
Tier B (Applicable subcodes: 00000040, 00000200)
Tier C (Applicable subcodes: 00001000, 00008000)
Tier D (Applicable subcodes: 00040000, 00200000)
- Temperature too Low (< 18° C):
Tier A (Applicable subcodes: 00000002, 00000010)
Tier B (Applicable subcodes: 00000080, 00000400)
Tier C (Applicable subcodes: 00002000, 00010000)
Tier D (Applicable subcodes: 00080000, 00400000)
- Causes include: room temperature is not within recommended range, or other environmental specification is not being met (such as instrument sitting in direct sunlight or too close to HVAC air register). Air filter is dirty, restricting fresh air intake.

CORRECTIVE ACTION(S)

- ☐ Make sure environmental specifications are met (see Section 2 – Installation and Setup).
- ☐ Replace air filters.

I 13 Ambient temperature alert

Communication with the ambient sensor is terminated. The instrument continues testing on schedule.

ALERT TYPE – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

- Failure of ambient temperature sensor

CORRECTIVE ACTION(S)

- ☐ Contact your local BD representative.

E05 Carousel alert

The instrument reports this alert if one of the following occurs: the reported RPM is below spec, certain flag readings are incorrect, or the carousel is jammed or stalled. It is detected during any carousel rotation. Any inventory scan or panel test in progress is aborted and the instrument ignores any data received from the test or scan.

ALERT TYPE – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

- 00000001 – RPM is below spec
- 00000040 – Carousel is stalled
- 00000080 – Carousel is jammed

Listed codes: something is impeding the motion of the carousel.

CORRECTIVE ACTION(S)

- ☐ Open the door, look for and remove any obstructions such as a panel that is ajar or a panel closure that is not seated. **Do not manually rotate the carousel.** Close the door. If message recurs, contact your local BD representative.

E06 Tier alert

This is the general alert condition for problems related to specific tiers. Such problems include: flag readings are incorrect, optical errors, timeout conditions, and normalizer problems. The alert is reported in the following format (typical sub-codes are shown):

E06	00000001
	00000000
	00000100
	00000280

The first line of the error represents Tier A, the second line represents Tier B, the third line represents Tier C, and the fourth line represents Tier D. A code of 00000000 indicates that there is no error condition for that tier.

Tier alerts are detected during a test cycle or inventory scan. The instrument ignores any data received from the test or scan for the tier that has sustained the error. Data received from good tiers is retained. All stations in the bad tier are automatically blocked.

ALERT TYPE – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

- 00000020 – Rotor timeout
- 00002000 – Tier out of service – the instrument cannot communicate with the tier

CORRECTIVE ACTION(S)

- ☐ 00000020 – Check for/remove object impeding motion of carousel
- ☐ 00002000 – Reboot instrument (turn power off, wait 10 seconds, turn power back on)

E07 Power supply alert

One of the power supplies was out of specification. The instrument ignores any data received from the test.

ALERT TYPE – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

- Temporary electrical anomaly.

CORRECTIVE ACTION(S)

- ☐ Contact your local BD representative.

E08 Tier power supply alert

One of the tier power supplies was out of specification. The instrument ignores any data received from the test for panels in that tier. The alert is reported in the following format (typical sub-codes are shown):

```
E17  00000001
      00000002
      00000004
      0000000A
```

The first line of the error represents Tier A, the second line represents Tier B, the third line represents Tier C, and the fourth line represents Tier D. A code of 00000000 indicates that there is no error condition for that tier.

Tier alerts are detected during a test cycle. The instrument ignores any data received from the test for the tier that has sustained the error. Data received from good tiers is retained. All stations in the bad tier are automatically blocked.

ALERT TYPE – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

- Temporary electrical anomaly.

CORRECTIVE ACTION(S)

- ☐ Contact your local BD representative.

E09 Test aborted

Panel testing has not occurred for more than one hour.

ALERT TYPE – Self-Clearing – cleared when the alert code has been displayed on the System Alerts screen

POSSIBLE CAUSE(S)

- 20000000 – Causes include: instrument was off or door was open for more than an hour, system clock was set ahead one hour or more, test cycle has not occurred in more than an hour, etc.

CORRECTIVE ACTION(S)

- ☐ All ongoing panels are set to Needs Attention, and their status is set to Removable. Some results may be incomplete, and all affected panel results should be reviewed.

E10 System database corruption

ALERT TYPE – Self-Clearing – cleared when the alert code has been displayed on the System Alerts screen

POSSIBLE CAUSE(S)

- 00000002, 00000008, 00000020, 00000040, 00000100, 00000200, 00000400 – Database checksum test failed or data in one of the databases (see below) was corrupted and replaced by a default database.

CORRECTIVE ACTION(S)

- ☐ Write data to disk (see Section 7.3) and call BD.
- ☐ 00000002 – Check your settings in the Configuration screens and reset them to your preferences (see Section 2.3.1).
- ☐ 00000008 – Check your settings in BDxpert Rule Configuration and reset them to your preferences (see Section 2.3.4).
- ☐ 00000020 – Check your breakpoint settings in Custom Interpretation Rule Set Configuration and reset them to your preferences (see Section 2.3.3).
- ☐ 00000040 – Check your settings in Organism and Antimicrobial Configuration and reset them to your preferences (see Sections 2.3.2.1 and 2.3.2.2).
- ☐ 00000100 – Perform a Read Light Source from Diskette operation as described in Section 6.2.4.12.
- ☐ 00000200 – Perform a Read Light Source from Diskette operation as described in Section 6.2.4.12.
- ☐ 00000400 – Informational message indicating that LIS orders have been deleted from the database. This can occur when there is a checksum error in the LIS orders area of the database, or the internal data structures have been changed during a software update. You should resend any orders that were deleted as a result of this alert.

E11 Printer error

ALERT TYPE – Self-Clearing – cleared when the alert code has been displayed on the System Alerts screen

POSSIBLE CAUSE(S)

20000000

- Printer paper is jammed or exhausted.
- Printer cable is disconnected during printing.
- Printer power is turned off during printing.
- Printer was taken offline during printing.

CORRECTIVE ACTION(S)

- ☐ Check paper and clear jam or add paper if necessary.
- ☐ Check printer cables (power and communications), reattach if necessary.
- ☐ Turn printer power on.
- ☐ Place printer online.
- ☐ Report will resume printing automatically when error condition is corrected.

E12 Source monitor error

This is the alert condition for problems related to testing LEDs in the tiers. The alert is reported in the following format (typical sub-codes are shown):

E12	00000100
	00000000
	00000000
	00000000

The first line of the error represents stations with errors in Tier A, the second line represents stations with errors in Tier B, the third line represents stations with errors in Tier C, and the fourth line represents stations with errors in Tier D. A code of 00000000 indicates that there is no error condition for that tier.

Source monitor errors are detected during a test cycle. The instrument ignores any data received from the test for the panel/station that has sustained the error. Data received from good panels is retained, unless the station sustaining the error was the normalizer station. All error stations are automatically blocked. If the normalizer has this error, the whole tier is blocked.

ALERT TYPE – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

- Optical problem with source LEDs.

CORRECTIVE ACTION(S)

- ☐ Contact your local BD representative.

E13 Power failure

ALERT TYPE – Self-Clearing – cleared when the alert code has been displayed on the System Alerts screen

POSSIBLE CAUSE(S)

- 20000000 – Power was removed from instrument.

CORRECTIVE ACTION(S)

- ☐ Message is informational. If multiple power failures have occurred, only the latest one is reported in the alert list. Note the power failure and restore times in your instrument log. Note that power fail events are not recognized until the instrument user interface has successfully loaded.

E14 CCD underrun

Scanning of a panel stopped prematurely. The alert is reported in the following format:

```
E14      00000000
          00000100
          00000000
          00000000
```

The first line of the error represents stations with errors in Tier A, the second line represents stations with errors in Tier B, the third line represents stations with errors in Tier C, and the fourth line represents stations with errors in Tier D. A code of 00000000 indicates that there is no error condition for that tier.

CCD underrun errors are detected during a test cycle. The instrument ignores any data received from the test for the panel/station that has sustained the error. Data received from good panels is retained, unless the station sustaining the error was the normalizer station. All error stations are automatically blocked. If the normalizer has this error, the whole tier is blocked.

ALERT TYPE – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

- Problem in the tier.

CORRECTIVE ACTION(S)

- ☐ Contact your local BD representative.

E15 UV bulb switched

ALERT TYPE – Self-Clearing – cleared when the alert code has been displayed on the System Alerts screen

POSSIBLE CAUSE(S)

Either:

- 00000001 The rear ultraviolet bulb
- 00000002 The front ultraviolet bulb

was switched.

CORRECTIVE ACTION(S)

- ☐ Message is informational. The switch happened as a result of an automatic light source adjustment.

E16 485 master communication error

There was a communications error relating to testing. The alert is reported in the following format:

E16	00000001
	00000000
	00000000
	00000000

The first line of the error represents Tier A, the second line represents Tier B, the third line represents Tier C, and the fourth line represents Tier D. A code of 00000000 indicates that there is no error condition for that tier.

The instrument ignores any data received from a test or scan for the tier that has sustained the error. Data received from good tiers is retained. All stations in the bad tier are automatically blocked.

ALERT TYPE – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

- Communications problems in instrument.

CORRECTIVE ACTION(S)

- ☐ Contact your local BD representative.

E18 Normalizer alert – row averages

There is a problem with normalizer panel data. The alert is reported in the following format:

E18	00000001
	00000000
	00000000
	00000000

The first line of the error represents Tier A, the second line represents Tier B, the third line represents Tier C, and the fourth line represents Tier D. A code of 00000000 indicates that there is no error condition for that tier.

Normalizer errors are detected during a test cycle. Test data received may be discarded or retained, depending on the error subcode (below). All available stations in the bad tier are automatically blocked; ongoing stations become blocked as testing completes or panels are removed.

ALERT TYPE – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

- 00000001, 00000002, 00000004, 00000008 – Light source adjustment will be performed when there are no ongoing panels
- 00000010, 00000020, 00000040, 00000080 – All tests are aborted in the affected tier; light source adjustment will be performed when all panels complete or are removed

CORRECTIVE ACTION(S)

- ☐ Automatic light source adjustment will be performed when there are no ongoing panels in the instrument. Do not enter any new panels or move any ongoing panels into any tier reporting this error (i.e., with a subcode other than 00000000). The instrument may be able to correct this error via the light source adjustment process.

E19 Passed read position

One of the tiers passed the position where data scanning must occur. The alert is reported in the following format:

```
E19      00000000
          00000000
          00000100
          00000000
```

The first line of the error represents stations with errors in Tier A, the second line represents stations with errors in Tier B, the third line represents stations with errors in Tier C, and the fourth line represents stations with errors in Tier D. A code of 00000000 indicates that there is no error condition for that tier.

The instrument ignores any data received from the test for the panel/station that has sustained the error. Data received from good panels is retained, unless the station sustaining the error was the normalizer station. All error stations are automatically blocked. If the normalizer has this error, the whole tier is blocked.

ALERT TYPE – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

- Optical or mechanical problem with instrument.

CORRECTIVE ACTION(S)

- ☐ Contact your local BD representative.

E20 Barcode scanner not communicating

ALERT TYPE – Self-Clearing – cleared when the alert code has been displayed on the System Alerts screen

POSSIBLE CAUSE(S)

- Instrument cannot communicate properly with a barcode scanner.

00000001 – Tier A scanner

00000002 – Tier B scanner

00000004 – Tier C scanner

00000008 – Tier D scanner

00000010 – External scanner

CORRECTIVE ACTION(S)

- ☐ No testing occurs on the tier experiencing this error, and all the tier stations are automatically blocked. Instrument must be rebooted before the alert can be cleared.

E21 Level 2 rotor step warning

The instrument has sensed that rotor rotation was not ideal but still acceptable. The alert is reported in the following format:

```
E21      00000000
          00000100
          00000000
          00000000
```

The first line of the error represents stations with errors in Tier A, the second line represents stations with errors in Tier B, the third line represents stations with errors in Tier C, and the fourth line represents stations with errors in Tier D. A code of 00000000 indicates that there is no error condition for that tier.

ALERT TYPE – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

- Likely impediment to or problem with rotor rotation mechanism. Check for a panel protruding from its carrier, an improperly seated closure, or user-applied label peeling off.

CORRECTIVE ACTION(S)

- ☐ If no obvious visible cause for the error exists, contact your local BD representative.

E22 Level 3 rotor step error

The instrument has sensed that rotor rotation was out of specification. The alert is reported in the following format:

```
E22      00000100
          00000000
          00000000
          00000000
```

The first line of the error represents stations with errors in Tier A, the second line represents stations with errors in Tier B, the third line represents stations with errors in Tier C, and the fourth line represents stations with errors in Tier D. A code of 00000000 indicates that there is no error condition for that tier.

The instrument ignores any data received from the test for the panel/station that has sustained the error. Data received from good panels is retained, unless the station sustaining the error was the normalizer station. All error stations are automatically blocked. If the normalizer has this error, the whole tier is blocked.

ALERT TYPE – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

- Likely impediment to or problem with rotor rotation mechanism. Check for a panel or panel closure protruding from the carrier or from the panel itself, or for a detached label.

CORRECTIVE ACTION(S)

- ☐ If no obvious visible cause for the error exists, contact your local BD representative.

E23 Normalizer alert – highest/lowest well reading

There is a problem with normalizer panel data. The alert is reported in the following format:

```
E23      00000001
          00000000
          00000000
          00000000
```

The first line of the error represents Tier A, the second line represents Tier B, the third line represents Tier C, and the fourth line represents Tier D. A code of 00000000 indicates that there is no error condition for that tier.

Normalizer errors are detected during a test cycle. The instrument ignores any data received from the test for the tier that has sustained the error. Data received from good tiers is retained. All stations in the bad tier are automatically blocked.

ALERT TYPE – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

- Problem with normalizer panel data.

CORRECTIVE ACTION(S)

- ☐ Contact your local BD representative.

E25 UV bulb error

ALERT TYPE – Self-Clearing – cleared when the alert code has been displayed on the System Alerts screen

POSSIBLE CAUSE(S)

Either:

- 00000001 The rear ultraviolet bulb
- 00000002 The front ultraviolet bulb

has burned out and the system cannot switch operation to alternate bulb. The system tried to switch bulbs as a result of an automatic light source adjustment.

CORRECTIVE ACTION(S)

- ☐ Contact your local BD representative for replacement of the UV bulb(s).

E30 Normalizer Expiration Alert

The instrument issues a weekly alert beginning when Normalizer panel expiration is 60 days away, which progresses to a daily alert when expiration is 30 days away. The alert is reported in the following format:

E30	00000001
	00000001
	00000001
	00000001

The first line of the error represents Normalizers in Tier A, the second line represents Normalizers in Tier B, the third line represents Normalizers in Tier C, and the fourth line represents Normalizers in Tier D. A code of 00000000 indicates that there is no error condition for that tier.

ALERT TYPE – Self-Clearing – cleared when the alert code has been displayed on the System Alerts screen

POSSIBLE CAUSE(S)

- | |
|---|
| 00000001 |
| • Normalizer panel expiration date is between 60 and 30 days away. |
| 00000002 |
| • Normalizer panel expiration date is less than 30 days away (but has not expired). |

CORRECTIVE ACTION(S)

- | |
|---|
| 00000001, 00000002 |
| ☐ Schedule Normalizer panel replacement for the affected tiers before they expire (expiration date is shown on Daily Instrument report). |

E31 Normalizer Expired

Normalizer panel expiration date has passed. Stations in all affected tiers are blocked. Ongoing panel testing is aborted. The alert is reported in the following format:

E31	00000001
	00000001
	00000001
	00000001

The first line of the error represents Normalizers in Tier A, the second line represents Normalizers in Tier B, the third line represents Normalizers in Tier C, and the fourth line represents Normalizers in Tier D. A code of 00000000 indicates that there is no error condition for that tier.

ALERT TYPE – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

- | |
|--|
| 00000001 |
| • Normalizer panel expiration date has passed. |

CORRECTIVE ACTION(S)

- | |
|---|
| 00000001 |
| ☐ Schedule Normalizer panel replacement immediately. |

Update error

ALERT TYPE – Self-Clearing – cleared when the alert code has been displayed on the System Alerts screen

POSSIBLE CAUSE(S)

00000001

- During a “Restore User Data” operation, an error occurred.

00000002

- During an “Install Panel Configuration” operation, an error occurred.

00000004

- During a “Phoenix Update Disk” installation, the number of breakpoints or breakpoint differences exceeded 1200.

00000008

- During a “Phoenix Update Disk” installation, an error occurred.

00000010

- During a “Restore Panel Lot Definition” operation, an error occurred.

CORRECTIVE ACTION(S)

00000001, 00000002, 00000008, 00000010

- ☐ Return to the operation specified above and repeat the process.

00000004

- ☐ Check the breakpoints in the Custom Interpretation Rule Set display. If the number of breakpoints exceeded 1200, breakpoints beyond 1200 were removed. These breakpoints would have appeared at the bottom of the list.

E40 IP Address Network error

The instrument was unable to obtain necessary network information.

ALERT TYPE – 00000001 – Self-Clearing – cleared when the alert code has been displayed on the System Alerts screen 00000010 – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

- 00000001 – Attempt to connect too many instruments.
- 00000010 – BD EpiCenter system is not running, or hardware problem between systems, such as disconnected cable between instrument and EpiCenter workstation, bad NIC (Network Interface Card) in workstation or instrument, etc.

CORRECTIVE ACTION(S)

- ☐ 00000001 – Do not attempt to connect more than 28 of the same instrument.
- ☐ 00000010 – Start EpiCenter system. Look for obvious source of problem such as disconnected cable. If no obvious source exists, contact your local BD representative.

E44 LIS communications error

The instrument was unable to communicate with the attached LIS system.

ALERT TYPE – Persistent – Cleared when a.) the instrument considers the sub-code reported cleared, and, b.) the alert code has been displayed on the System Alerts screen.

POSSIBLE CAUSE(S)

- 00000001 – LIS system is not running, or hardware problem between systems, such as disconnected cable between instrument and LIS, etc.
- 00000004 – LIS queue is full.

CORRECTIVE ACTION(S)

- ☐ 00000001 – Start LIS system. Look for obvious source of problem such as disconnected cable. If no obvious source exists, contact your local BD representative.
- ☐ 00000004 – Wait until LIS processes some of the pending transmissions from the Phoenix system before attempting to transfer additional ones.

E50 Internal software error

ALERT TYPE – Self-Clearing – cleared when the alert code has been displayed on the System Alerts screen

POSSIBLE CAUSE(S)

- System encountered a software error.

CORRECTIVE ACTION(S)

- ☐ Write data to disk (see Section 7.3) and call your local BD representative.

E99 Memory Error

ALERT TYPE – Self-Clearing – cleared when the alert code has been displayed on the System Alerts screen

POSSIBLE CAUSE(S)

- The instrument software encountered a lack of memory.

CORRECTIVE ACTION(S)

- ☐ Contact your local BD representative.

W100 Invalid Panel Sequence Number

POSSIBLE CAUSE(S)

- The panel sequence number typed or scanned does not meet the required number format.

CORRECTIVE ACTION(S)

- ☐ Panel sequence number barcode is located at the top of the reaction side of the panel. Scan or type in the correct panel sequence number. Check panel carton for panel update barcodes; if they are present, refer to Section 4.15 – Installing New Panel Formats, for information on how to proceed.

W101 Missing Panel Sequence Number

POSSIBLE CAUSE(S)

- An operation (find, delete, print, etc.) was attempted and the value in the panel **Sequence #** field was blank.

CORRECTIVE ACTION(S)

- ☐ Type in or scan the correct panel sequence number before attempting the operation again.

W102 Unknown Panel Sequence Number

POSSIBLE CAUSE(S)

- An attempt was made to save or select a panel sequence number that is not in the Phoenix database.

CORRECTIVE ACTION(S)

- ☐ Verify that the correct panel sequence number was entered. If error recurs, the panel may need to be logged in if it is a new panel. Older, completed, finalized panels eventually age out of the database.

W200 Invalid Accession Number

POSSIBLE CAUSE(S)

- An attempt was made to save, find, or print information for an invalid accession number.

CORRECTIVE ACTION(S)

- ☐ Enter a valid accession number, up to 20 characters excluding : * ? [] ! # |

W201 Missing Accession Number

POSSIBLE CAUSE(S)

- An operation (find, save, print, etc.) was attempted and the value in the **Accession #** field was invalid or blank. This can include: a record with a valid panel **Sequence #** and an **Isolate #** greater than 1 with no **Accession #**; an orphan panel with just an **Isolate #**; trying to change a saved record to a blank **Accession #**; etc.

CORRECTIVE ACTION(S)

- ☐ Type in or scan the correct accession number before attempting the operation again.

W202 Unknown Accession Number

POSSIBLE CAUSE(S)

- An attempt was made to find data or print a report for an accession number that is not located in the Phoenix database.

CORRECTIVE ACTION(S)

- ☐ Verify that the correct accession number was entered. If error recurs, the record may need to be logged in if it is new. Older, completed, finalized records eventually age out of the database.

W203 Missing Isolate Number

POSSIBLE CAUSE(S)

- An attempt was made to save a record when an accession number is present without an isolate number.

CORRECTIVE ACTION(S)

- ☐ To save a record, if you enter an accession number, you must also enter an isolate number.

W204 Missing Media Type

POSSIBLE CAUSE(S)

- An attempt was made to save a Yeast ID panel during Panel Login and no Media is specified.

CORRECTIVE ACTION(S)

- ☐ To save a record, if you enter a Yeast ID panel sequence number, you must select a media type.

W300 Missing Test Strain for a QC Panel

POSSIBLE CAUSE(S)

- An attempt was made to save a QC panel without an organism ID (**Test Strain**).

CORRECTIVE ACTION(S)

- ☐ You must select an organism (**Test Strain**) to save a QC panel. Advance to the **Test Strain** field with the "tab" soft key and press DOWN ARROW to drop down a box listing the available test strains. Use UP ARROW or DOWN ARROW to highlight the desired organism. Press the "select" soft key to select the highlighted organism.

W301 Missing Tech ID for a QC Panel

POSSIBLE CAUSE(S)

- An attempt was made to save a QC panel without a Tech ID.

CORRECTIVE ACTION(S)

- ☐ You must enter a Tech ID to save a QC panel. Advance to the **Tech ID** field with the "tab" soft key and enter a Tech ID, up to 3 alphanumeric characters excluding: * ? [] ! # |

W302 Invalid Tech ID

POSSIBLE CAUSE(S)

- An attempt was made to save a QC panel with an invalid Tech ID.

CORRECTIVE ACTION(S)

- ☐ Enter up to 3 alphanumeric characters excluding: * ? [] ! # | for the Tech ID.

W303 Invalid Lot Number**POSSIBLE CAUSE(S)**

- An attempt was made to save a record or print a report for an invalid panel lot number, ID broth lot number, AST broth lot number, or indicator lot number.

CORRECTIVE ACTION(S)

- ☐ Enter the correct lot number. Lot numbers can be up to 7 characters. The lot number is shown on the item carton.

W304 Missing Lot Number**POSSIBLE CAUSE(S)**

- An attempt was made to save or print a report for a QC panel without a panel lot number, or an expiration date has been entered for one of the optional lot number fields (ID Broth, AST Broth, Indicator) with no corresponding lot number.

CORRECTIVE ACTION(S)

- ☐ You must enter a panel lot number to save a QC panel. Advance to the **Panel Lot #** field with the "tab" soft key and enter a lot number, up to 7 digits. The lot number is shown on the panel carton.
- ☐ If you enter an expiration date for one of the optional lot number fields, you must also enter the corresponding lot number.

W305 ID or AST Must be Enabled**POSSIBLE CAUSE(S)**

- An attempt was made to save a panel or QC panel, and both the ID and AST checkboxes are unchecked.

CORRECTIVE ACTION(S)

- ☐ The ID/AST checkboxes are set to checked or unchecked based on the type of panel, according to the panel sequence number. Unchecking either checkbox disables that type of testing. At least one checkbox must be checked for the panel record to be saved and for testing to occur.

W401 Can Not Perform Panel Locate**POSSIBLE CAUSE(S)**

- The panel you are trying to locate is not in the instrument, or you cannot access the instrument using the Normalizer Panel Replacement function (e.g., because there are ongoing panels).

CORRECTIVE ACTION(S)

- ☐ Verify that the correct panel sequence number is entered or that the instrument can be accessed (for Normalizer Panel Replacement activity, ongoing panels render the instrument inaccessible for this activity).

W500 Upgrade Error

POSSIBLE CAUSE(S)

- The floppy disk in the disk drive does not contain a readable, same, or newer version of instrument software. Causes include: older version of instrument software on floppy disk; floppy disk was removed before the update completed; floppy disk contains a corrupted or missing file, etc.

CORRECTIVE ACTION(S)

- ☐ Verify that the correct version (current or later) is printed on the floppy disk label. Attempt the update operation again. If error recurs, contact your local BD representative.

W501 Duplicate Instrument Number

POSSIBLE CAUSE(S)

- An attempt was made to modify the instrument number to be the same as another instrument. (Occurs only when the EpiCenter system is attached.)

CORRECTIVE ACTION(S)

- ☐ Instrument numbers must be unique. Enter a unique instrument number.

W502 Diskette Error

POSSIBLE CAUSE(S)

- The floppy disk drive cannot read a disk. Causes include: no floppy disk in the drive; unformatted disk in the drive; floppy disk has been improperly inserted in the disk drive; floppy disk is or becomes full; floppy disk is write-protected; floppy disk was removed before the operation completed; defective floppy disk drive.

CORRECTIVE ACTION(S)

- ☐ Insert floppy disk with the shutter first and the label facing upward. For save operations, the floppy disk must be formatted, not write-protected, contain sufficient free space for the information being saved, and be left in the drive until the operation completes.

W503 Duplicate Rule

POSSIBLE CAUSE(S)

- In defining custom rules, the data contained in the **Antimicrobial**, **Org(anism) Group**, and **Organism** fields is the same for the rule being saved as a different rule already defined in the Rule Set.

CORRECTIVE ACTION(S)

- ☐ One of the parameters (Antimicrobial, Organism Group, or Organism) must be unique for the record to be saved.

W504 Can Not Change Parameter / Ongoing Panels**POSSIBLE CAUSE(S)**

- An attempt was made to save changes to the **Current Date** or **Current Time** field in Instrument Configuration and Ongoing panels exist in the instrument.

CORRECTIVE ACTION(S)

- ☐ Wait until all panels in the instrument are complete before attempting to perform the operation.

W505 Ineligible For Usage Modification**POSSIBLE CAUSE(S)**

- An attempt was made in Maintenance to Modify Panel Usage and the panel is ineligible for modification. Only combination panels with both ID and AST enabled, that are NOT complete, are eligible for modification.

CORRECTIVE ACTION(S)

- ☐ If incorrect panel Sequence number was entered, enter correct number. Otherwise, panel usage cannot be modified.

W506 Instrument Not Idle**POSSIBLE CAUSE(S)**

- An attempt was made to read light source files or save the syslog from/to floppy disk or to the network and the instrument was not in an idle state (i.e., it was testing, was in the first 30 seconds of an inventory, warming up, etc.), or the carousel was jammed.

CORRECTIVE ACTION(S)

- ☐ Wait until instrument is idle (or correct carousel jam) before performing this activity.

W507 Invalid Password**POSSIBLE CAUSE(S)**

- An invalid (or no) password was entered to access a Configuration display.

CORRECTIVE ACTION(S)

- ☐ Enter the correct password (ECOLI) and press the "perform action" soft key.

W510 Invalid Time Zone**POSSIBLE CAUSE(S)**

- In Instrument Configuration, an attempt was made to save a Time Zone Offset greater than +12 hours or less than -12 hours.

CORRECTIVE ACTION(S)

- ☐ Valid Time Zone Offsets are between -12:00 and +12:00 hours.

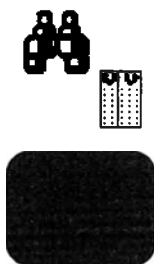
W600 Panel Can Not Be Deleted

POSSIBLE CAUSE(S)

- An attempt was made to delete a panel that is still physically in the instrument or a non-pending QC panel that is not physically in the instrument (if QC Lot Support is enabled).

CORRECTIVE ACTION(S)

- ☐ Remove the panel from the instrument before attempting to delete it. You can use the “find panel” soft key (below) to make the carousel present the panel when the door is opened.



- ☐ If you know you have already removed the panel, then close the instrument door and allow the instrument to complete an inventory scan before attempting to delete the panel.

W601 Cannot Finalize

POSSIBLE CAUSE(S)

- An attempt was made to finalize a panel either whose status is not Removable or that has an “unignored” Needs Attention flag set.

CORRECTIVE ACTION(S)

- ☐ If panel is Ongoing, wait until it becomes Removable before attempting to finalize it. If panel has a Needs Attention flag set, resolve the reason before attempting to finalize the panel.

W602 Invalid Date

POSSIBLE CAUSE(S)

- An attempt was made to save a record containing, or to print a report specifying, an invalid date. Or, a panel lot barcode containing an invalid expiration date was scanned.

CORRECTIVE ACTION(S)

- ☐ Refer to **Section 5 – Reference** for information on proper date entry.

W603 Database Underwrite

POSSIBLE CAUSE(S)

- An attempt was made to save displayed information, but the database was modified by another activity, such as an inventory scan, download from the EpiCenter or LIS system, etc.

CORRECTIVE ACTION(S)

- ☐ Recall the information, make the desired changes again, and save the information.

W604 Panel Still Testing**POSSIBLE CAUSE(S)**

- An attempt was made to save a Final ID to an ID or Combination panel that has not reported an Instrument organism ID.
- An attempt was made to perform a Read Light Source from Disk maintenance operation.

CORRECTIVE ACTION(S)

- ☐ A Final ID cannot be selected and saved until the instrument ID results are obtained. Wait until the instrument calculates an ID before attempting to select a Final ID.
- ☐ Wait until all panels in the instrument are complete before attempting to perform the operation.

W605 Invalid Date Range**POSSIBLE CAUSE(S)**

- In Reports, a date greater than the current system date was specified, or a date range exceeding 30 days was entered.

CORRECTIVE ACTION(S)

- ☐ Specify only dates UP TO the current system date.
- ☐ Do not exceed 30 days in date range entries.

W606 Cannot Modify Data for a Finalized Panel**POSSIBLE CAUSE(S)**

- Information for a panel that has been finalized has been recalled and modified. Changes to finalized panels cannot be saved.

CORRECTIVE ACTION(S)

- ☐ If information for a finalized panel must be modified, recall the panel and "un-finalize" it by unchecking the Finalize checkbox. Make the required changes and save the information.

W607 Missing Date**POSSIBLE CAUSE(S)**

- An attempt was made to save a panel without a panel lot number expiration date or without expiration dates for other lot number fields IF panel lot numbers have been entered.

CORRECTIVE ACTION(S)

- ☐ A valid panel lot number expiration date must be entered for panels. If other lot number fields are completed, their corresponding expiration dates must be entered.

W608 Improper Barcode Scan

POSSIBLE CAUSE(S)

- The barcode number scanned is too long for the current active field, or is not the correct type of barcode for the field (e.g., scanning a lot number in a non-lot number field).

CORRECTIVE ACTION(S)

- ☐ Verify which field is currently active and check what type of barcode you are trying to scan. Refer to **Section 5 – Reference** for information on field lengths.

W609 Database Full

POSSIBLE CAUSE(S)

- An attempt was made to log in a new panel and 100 panels exist in the instrument database with a pending record status, with no panels eligible for deletion.

CORRECTIVE ACTION(S)

- ☐ Pending panels should be placed in the instrument and allowed to complete an inventory scan before you attempt to log in any new panels.

W700 Invalid LIS Code

POSSIBLE CAUSE(S)

- An invalid LIS code was entered in the Organism Configuration or Antimicrobial Configuration display.

CORRECTIVE ACTION(S)

- ☐ LIS Codes can be up to 20 alphanumeric characters.

W701 Duplicate LIS Code

POSSIBLE CAUSE(S)

- A duplicate LIS code was entered in the Organism Configuration or Antimicrobial Configuration display.

CORRECTIVE ACTION(S)

- ☐ LIS Codes must be unique in the system.

W702 Invalid LIS Association

POSSIBLE CAUSE(S)

- During Panel Login, when associating downloaded LIS Order records, an attempt was made to associate an Order record containing an organism ID to an ID or Combination panel, or to associate an Order record containing an organism ID to a QC panel, or to associate an Order record containing a Test Strain to a non-QC panel.

CORRECTIVE ACTION(S)

- ☐ You cannot associate an organism ID to a Phoenix ID or Combination panel, nor to a QC panel; and you cannot associate a Test Strain to a non-QC panel.

W800 Panel Lot Undefined

POSSIBLE CAUSE(S)

- An attempt was made to log in a QC panel but the panel sequence number is not within the range of a defined/saved Panel Lot.

CORRECTIVE ACTION(S)

- ☐ When QC Lot Support is enabled in Configuration, all QC panels must belong to a defined/saved panel lot. Clinical panels may be from an undefined panel lot and still be logged in, though such panels generate a Panel Lot Undefined Needs Attention condition.

W801 Panel Lot Range Incomplete

POSSIBLE CAUSE(S)

- During Panel Lot Definition, an attempt was made to save a panel lot but one or both panel sequence number fields were blank.

CORRECTIVE ACTION(S)

- ☐ Both a starting sequence number (lowest) and ending sequence number (highest) must be scanned for any panel lot to be saved. The sequence numbers can be scanned in any order, but both **must** be scanned. You cannot type in a sequence number on the Panel Lot Definition display.

W802 Panel Lot Range Invalid

POSSIBLE CAUSE(S)

- During Panel Lot Definition, an attempt was made to save a panel lot but the two panels scanned were different panel types.

CORRECTIVE ACTION(S)

- ☐ Both panels must be the same type for any panel lot to be saved.

W803 Panel Lot Range Conflict

POSSIBLE CAUSE(S)

- During Panel Lot Definition, an attempt was made to save a panel lot but one or both panel sequence numbers conflicted with an existing panel lot definition.

CORRECTIVE ACTION(S)

- ☐ A panel sequence number can only belong to one defined/saved panel lot. Contact your local BD representative.

7.3 Save System Data to Disk Function

Under certain circumstances, BD may advise you to save (write) system data to a floppy disk. These circumstances include some error conditions and system malfunctions. The Save System Data function is NOT a backup and cannot be restored by the user. To save data to disk, follow the steps below:

- 1 Press the "configuration" soft key.



- 2 The password window appears. To access configuration functions, enter the appropriate password then press the "perform action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.



- 4 Press the UP ARROW or DOWN ARROW to highlight the selection, "SAVE SYSTEM DATA TO DISK."
- 5 Insert a blank, formatted, write-enabled floppy disk in the disk drive.

- 6 Press the "perform action" soft key.



- 7 An hourglass icon appears while the information is being written to the disk.



- 8 If additional disks are required, the system displays the following icon:



Remove the disk and insert another blank, formatted, write-enabled floppy disk in the disk drive.

- 9 When the activity is complete, the "activity completed" tone sounds and the hourglass icon disappears. Make sure the disk indicator is off, then remove the floppy disk by pressing the disk eject button. If there are multiple disks, be sure to number them sequentially and include the date and your facility name on the label.

7.4 Save Syslog to Disk Function

Under certain circumstances, BD may advise you to save (write) the syslog to a floppy disk. These circumstances include some error conditions and system malfunctions. The Save Syslog function copies the system event log, which contains logged system messages about various system, instrument, and communications events. The instrument door must be closed, and the instrument must be idle to save the syslog.

- 1 Press the "configuration" soft key.



- 2 The password window appears. To access configuration functions, enter the appropriate password then press the "perform action" soft key.



- 3 From the main Configuration display, press the "maintenance" soft key.

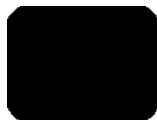


- 4 Press the UP ARROW or DOWN ARROW to highlight the selection, "SAVE SYSLOG TO DISK."
5 Insert a blank, formatted, write-enabled floppy disk in the disk drive.
6 Press the "perform action" soft key.



- 7 The system asks if you are sure you want to save the syslog. Press the "confirm" soft key to proceed or "cancel" to cancel the operation.

OK



or



- 8 An hourglass icon appears while the information is being written to the disk, as well as the message "Saving Data."



- 9 When the activity is complete, the "activity completed" tone sounds and the hourglass icon disappears. Make sure the disk indicator is off, then remove the floppy disk by pressing the disk eject button.

Performance and Limitations

8.1 Performance Characteristics

Definitions:

Essential Agreement (EA): Essential agreement occurs when the MIC of the Phoenix system and the CLSI Reference Broth Microdilution are identical or within ± 1 dilution of each other.

Category Agreement (CA): Category agreement occurs when the Phoenix system results are within ± 1 dilution from the CLSI Reference Broth Microdilution with respect to the CLSI categorical interpretative criteria.

8.1.1 Gram Negative Performance

Gram Negative Identification

In two internal studies, the performance of the Phoenix Gram Negative Identification was evaluated. The 0.5 inoculum density configuration and the 0.25 inoculum density configuration were tested with 721 strains (0.5) and 784 strains (0.25) respectively. Enteric and non-enteric isolate results were evaluated against commercial and non-commercial methods.

The Phoenix Gram Negative Identification performance is outlined below:

	Inoculum Density (McFarland)	Agreement	No Agreement	No ID
Genus Level	0.5	97.3%	2.1%	0.6%
	0.25	98.5%	1.0%	0.5%
Species Level	0.5	95.6%	3.6%	0.8%
	0.25	98.1%	1.4%	0.5%

Gram Negative Susceptibility

ANTIMICROBIAL	CODE	EA N	EA %	CA N	CA %
Amikacin	AN	974	94.3	974	99.2
Amoxicillin	AMX	725	95.9	839	96.9
Amoxicillin-Clavulanate	AMC	636	97.8	749	97.1
Amoxicillin-Clavulanate (f)	AXC	364	96.4	411	97.6
Ampicillin	AM	639	97.5	753	98.0
Ampicillin-Sulbactam	SAM	848	96.8	962	96.9
Ampicillin-Sulbactam (f)	SXA	1682	92.3	1682	94.5
Arbekacin	ARB	2083	94.1	2083	99.2
Aztreonam	ATM	848	96.7	967	97.3
Cefazolin	CZ	634	97.0	752	97.1
Cefdinir	CDR	633	92.7	747	94.5
Cefditoren	CDN	1270	97.2	1270	98.4
Cefepime	FEP	1384	98.0	1384	96.7
Cefetamet	CAT	629	96.0	746	97.7
Cefixime	CFM	1454	96.7	1454	98.1
Cefmetazole	CMZ	608	94.7	718	96.4
Cefoperazone	CFP	854	95.1	972	97.7
Cefoperazone-Sulbactam	SCP	1921	93.1	1921	96.0
Cefotaxime	CTX	849	96.9	970	97.2
Cefotetan	CTT	627	96.2	748	96.4
Cefotiam	CFT	1428	94.9	1428	97.6
Cefoxitin	FOX	628	96.7	748	97.6
Cefpirome	CPO	846	96.2	964	97.0
Cefpodoxime	CPD	616	94.5	737	97.0
Cefsulodin	CFS	55	98.2	56	98.2
Ceftazidime	CAZ	848	95.9	969	97.5
Ceftibuten	CTB	590	90.5	708	95.9
Ceftizoxime	ZOX	854	97.3	971	97.2
Ceftriaxone	CRO	2416	96.1	2416	91.6
Cefuroxime	CXM	623	97.0	744	98.5

ANTIMICROBIAL	CODE	EA N	EA %	CA N	CA %
Cephalexin	CN	319	97.8	366	96.5
Cephalothin	CF	613	98.0	731	98.5
Chloramphenicol	C	978	97.7	978	98.7
Ciprofloxacin	CIP	977	99.4	977	99.7
Colistin	CL	467	97.9	467	98.7
Ertapenem*	ETP	1381	98.8	1381	99.6
Fosfomycin	FF	446	93.0	446	96.9
Garenoxacin	GRN	1977	98.1	1977	99.4
Gatifloxacin	GAT	752	99.5	752	99.6
Gemifloxacin	GEM	2096	98.6	2096	99.0
Gentamicin	GM	973	95.8	973	99.8
Imipenem	IPM	975	95.3	975	98.9
Isepamicin	ISP	468	93.8	468	99.4
Kanamycin	K	735	95.8	735	99.9
Levofloxacin	LVX	972	99.6	972	100.0
Lomefloxacin	LOM	976	99.1	976	99.6
Mecillinam	MEC	345	95.7	345	94.8
Meropenem	MEM	969	98.7	969	99.4
Minocycline	MI	2094	93.8	2094	98.3
Moxalactam	MOX	2063	96.9	2063	98.3
Moxifloxacin	MXF	746	98.5	747	99.7
Nalidixic Acid	NA	750	94.0	750	99.1
Netilmicin	NET	974	96.7	974	99.3
Nitrofurantoin	FM	744	98.4	744	98.8
Norfloxacin	NOR	976	98.9	976	99.6
Ofloxacin	OFX	971	99.3	971	99.7
Pefloxacin	PEF	469	98.5	469	99.4
Piperacillin	PIP	860	94.7	973	97.1
Piperacillin-Tazobactam	TZP	856	92.9	970	96.2
Temocillin	TEM	1410	96.1	1410	98.9

ANTIMICROBIAL	CODE	EA N	EA %	CA N	CA %
Erythromycin	E	474	95.4	474	95.8
Fosfomycin	FF	472	97.0	472	98.3
Fusidic Acid	FA	477	96.7	477	99.0
Garenoxacin	GRN	1212	97.1	1212	99.0
Gatifloxacin	GAT	481	98.8	481	100.0
Gemifloxacin	GEM	1400	96.2	1400	97.4
Gentamicin	GM	487	98.4	487	99.2
Gentamicin-Syn	GMS			198	97.5
Gentamicin-Syn (SFM)	GMF			87	100.0
Imipenem	IPM	185	100.0	448	97.5
Inducible Macrolide Resistance (iMLSB) Test				295	97.6
Kanamycin	K	463	92.2	464	97.4
Kanamycin Synergy	KS	501	100.0	501	96.6
Levofloxacin	LVX	698	96.9	698	98.6
Lincomycin	L	696	98.3	696	98.7
Linezolid	LZD	474	99.4	474	100
Lomefloxacin	LOM	486	97.7	486	99.2
Meropenem	MEM	185	98.4	447	97.5
Minocycline	MI	1448	98.5	1448	99.2
Moxalactam	MOX	935	95.9	935	96.0
Moxifloxacin	MXF	486	99.0	486	99.6
Mupirocin	MUP	938	96.6	938	99.7
Mupirocin High Level	MUH	968	100.0	968	99.9
Netilmicin	NET	488	93.9	488	96.3
Nitrofurantoin	FM	707	98.3	707	98.3
Norfloxacin	NOR	674	96.0	674	97.8
Ofloxacin	OFX	487	99.2	488	99.8
Oxacillin	OX	449	95.8	449	97.8
Pefloxacin	PEF	706	97.9	706	98.0
Penicillin	P	401	96.0	662	98.0

ANTIMICROBIAL	CODE	EA N	EA %	CA N	CA %
Piperacillin	PIP	382	81.7	639	98.0
Piperacillin-Tazobactam	TZP	386	100.0	649	98.3
Pristinamycin	PR	695	93.2	695	95.5
Quinupristin-Dalfopristin	SYN	704	97.2	704	97.6
Rifampin	RA	700	84.0	700	88.3
Streptomycin-Syn	STS			198	99.0
Streptomycin-Syn (SFM)	STF			87	98.8
Teicoplanin	TEC	671	97.6	671	99.4
Telithromycin	TEL	898	97.3	898	98.9
Tetracycline	TE	707	96.3	707	98.6
Ticarcillin	TIC	395	95.4	659	98.2
Ticarcillin-Clavulanate	TIM	396	97.5	656	97.9
Tobramycin	NN	473	97.0	473	97.3
Trimethoprim	TMP	479	95.4	479	97.9
Trimeth-Sulfa (DIN)	STG	645	91.0	646	92.7
Trimethoprim-Sulfamethoxazole	SXT	654	89.5	654	93.0
Vancomycin	VA	702	99.3	702	99.9

* Ability to Detect Resistance Unknown

8.1.3 Streptococci Performance (with the Phoenix SMIC/ID, SMIC Panels)

Streptococci Identification (SMIC/ID only)

In an internal study, the performance of the Phoenix Streptococci Identification was evaluated. Results from 655 isolates were evaluated against commercial and non-commercial methods.

The Phoenix Streptococci Identification performance is outlined below:

	Agreement	No Agreement	No ID
Species Level	96.3%	2.4%	1.2%

Streptococci Susceptibility

The performance of the Phoenix Streptococci AST System was evaluated at four clinical trial sites using clinical isolates. Comparisons were made to AST results generated from reference broth microdilution panels prepared according to CLSI standard guidelines. Discrepant results were arbitrated by duplicate repeat testing in both systems.

ANTIMICROBIAL	CODE	EA N	EA %	CA N	CA %
Amoxicillin	AMX	1576	99.2	1576	99.7
Amoxicillin-clavulanate	AMC	1564	97.9	1564	99.3
Ampicillin	AM	1569	98.0	1569	99.4
Cefepime	FEP	1571	97.6	1571	99.7
Cefotaxime	CTX	1578	98.5	1578	99.6
Ceftriaxone	CRO	1579	98.5	1579	99.8
Cefuroxime	CXM	1581	97.7	1581	98.8
Chloramphenicol	C	1587	97.4	1587	99.6
Clindamycin	CC	1591	94.0	1591	97.4
Daptomycin	DAP	1566	93.1	1566	99.9
Ertapenem	ETP	1585	97.9	1585	99.6
Erythromycin	E	1577	93.2	1577	98.2
Garenoxacin*	GRN	1515	95.5	1515	99.7
Gatifloxacin	GAT	1587	95.1	1587	99.5
Gemifloxacin*	GEM	1592	98.9	1592	99.7
Gentamicin-Syn	GMS	1032	99.6	1032	99.6
Imipenem	IPM	1581	98.0	1581	99.6
Kanamycin-Syn	KS	1032	99.6	1032	99.6
Levofloxacin	LVX	1595	97.4	1595	99.8
Linezolid	LZD	1586	97.1	1586	99.4
Meropenem	MEM	1579	97.4	1579	99.7
Moxifloxacin*	MXF	1590	95.8	1590	99.6
Ofloxacin	OFX	1594	98.2	1594	98.7
Penicillin	P	1585	93.9	1585	98.5
Pristinamycin*	PR	1583	94.8	1583	99.8

ANTIMICROBIAL	CODE	EA N	EA %	CA N	CA %
Quinupristin-dalfopristin*	SYN	1581	97.3	1581	99.7
Streptomycin-Syn	STS	1031	99.9	1031	99.9
Teicoplanin*	TEC	1593	99.8	1593	99.9
Telithromycin*	TEL	1574	95.9	1574	98.5
Tetracycline	TE	1589	93.3	1589	97.6
Trimethoprim-Sulfamethoxazole	SXT	1008	93.8	1008	98.3
Vancomycin*	VA	1588	98.2	1588	99.9

* Ability to Detect Resistance Unknown

8.1.4 Identification of Yeast Species

The performance of the Phoenix Yeast identification was evaluated across multiple sites using pure colonies isolated from Sabouraud Dextrose Agar (SAB) and Trypticase Soy Agar with 5% Sheep Blood (TSA). Results from 519 (SAB) and 510 (TSA) clinical and challenge isolates were evaluated against conventional and molecular methods.

The Phoenix Yeast identification performance is outlined below:

	Source Media	Agreement	No Agreement	No ID
Genus/Species Level	SAB	95.2%	3.8%	1.0%
	TSA	96.5%	2.7%	0.8%

Additionally, testing was performed at multiple sites to demonstrate reproducibility. The identification results obtained using the Phoenix system were compared with expected results. This performance testing demonstrated inter-site reproducibility of $\geq 95\%$.

8.2 Limitations of the Procedure

See the package insert shipped with the panel for specific organism/antimicrobial limitations.

General

A Gram stain test is required for the selection of the appropriate Phoenix panel types. Accurate identification and/or AST results may not be made without this test.

Use only well-isolated bacterial or yeast colonies from one of the recommended primary isolation media. Use of mixed colonies could result in inaccurate identification and/or AST interpretations.

If the instrument inoculum density (for the panel type being used) is configured to 0.5, an inoculum density of 0.50 – 0.60 McFarland must be met. Only the BBL CrystalSpec or BD PhoenixSpec nephelometer can be used to measure the inoculum density.

If the instrument inoculum density (for the panel type being used) is configured to 0.25, an inoculum density of 0.20 – 0.30 McFarland must be met. Only the BD PhoenixSpec nephelometer can be used to measure the inoculum density for this range.

For identification of yeast, a suspension equivalent of 2.00 - 2.40 McFarland standard must be met and prepared only with the BD PhoenixSpec nephelometer. Use of alternate methods for suspension preparation may cause erroneous identification results.

Phoenix panels can be read only by the Phoenix instrument. Visual interpretation of the Phoenix panels is not possible. Any attempt to manually interpret results from the panel may lead to misidentification and/or inaccurate AST interpretations.

Panels must be placed into the Phoenix instrument within 30 minutes of inoculation.

For the most reliable results, it is recommended that the QC organisms be subcultured at least twice on two consecutive days onto TSA with 5% Sheep Blood before use in the Phoenix system.

Identification

The unique panel environment combined with the shortened incubation time may result in Phoenix panel reactions varying from those obtained using conventional biochemical media.

Antimicrobial Susceptibility Testing

AST Indicator solution may be added to the AST broth tubes and stored in the dark for up to 8 hours prior to use. Use only one free-falling drop of the AST Indicator solution from the dropper bottle. If more than one drop is added inadvertently, discard the tube and use a fresh tube of AST broth.

After the addition of Phoenix AST Indicator Solution to the AST broth tubes, mix by inversion. DO NOT VORTEX. Vortexing may cause air bubbles to form in the AST broth, which can result in inappropriate filling of the Phoenix panel during inoculation.

Because of the low probability of occurrence some organisms included in the ID taxa are not included in the AST database. These organisms will display the message "Organism not included in the AST database, perform alternate method."

For some organism/antimicrobial combinations, the absence of resistant strains precludes defining any result categories other than "susceptible." For strains yielding results suggestive of a "nonsusceptible" category, organism identification and antimicrobial susceptibility test results should be confirmed. Subsequently, the isolates should be saved and submitted to a reference laboratory that will confirm the result using the CLSI reference microbroth dilution method.

The use of CHROMagar Orientation may produce false susceptibility results when testing erythromycin with Gram positive organisms. Antimicrobial susceptibility results should be confirmed using Trypticase Soy Agar with 5% Sheep Blood.

This media type [Chocolate Agar] should *not* be used for Streptococcal identification with SMIC/ID panels. Chocolate Agar may be used for Streptococcal susceptibility testing only.

The use of Columbia Agar with 5% Horse Blood may produce significantly higher MIC for SXT with *Streptococcus* species, which may result in false resistance. Antimicrobial susceptibility test results should be confirmed using Trypticase Soy Agar with 5% Sheep Blood.

NOTES

MIC results for isolates without a genus and species identified in the Phoenix results Final ID field may not be valid.

When changing the Phoenix Final ID from an organism not claimed in the AST Taxa list (see Section F.3) to an organism that is claimed in the AST Taxa, the MIC and Interpretation results will be based on the Final ID that is claimed in the AST Taxa.

Glossary and Abbreviations

absolute threshold

A positivity assessment made by determining if the normalized panel well reading is above (positive) or below (negative) a given fixed threshold.

AST

Antimicrobial Susceptibility Test(ing)

ATCC

American Type Culture Collection

barcode

Machine-readable marking as part of the panel label which uniquely identifies that panel. Contains the product coding and sequence number in Code-128 numeric format.

BP

Blood plate

breakpoint

An interpretation of panel MIC data that which produces Susceptible, Intermediate, or Resistant result classifications. Breakpoints in the MIC data are established by the Clinical and Laboratory Standards Institute (CLSI) and other groups.

caddy

Accessory device used to transport inoculated panels to the instrument for loading.

carousel

The rotating drum which holds the 100 Phoenix panels and positions them for test readings, barcode readings, and loading or unloading.

CLSI

Clinical and Laboratory Standards Institute

CNA

Colistin Nalidixic Acid agar

Col (HRBC)

Columbia agar with Horse Blood

Col (SRBC)

Columbia agar with Sheep Blood

controller

An electronic module that includes a CPU, memory, and interface hardware to control the operation of the instrument.

database

The database is the repository of all information that the instrument collects for the panels that are tested by the instrument. The database is set up to maintain panel results information for the panels tested for 31 days (possibly longer depending on the number of QC panels tested). QC panel results are retained for at least 6 months. The database also maintains the user configurable information for the instrument.

demographic data

Accession information for a panel record

detector

The optical system that measures colorimetric and fluorometric intensities from the reagent reactions in the Phoenix panel wells.

DIN

German Institute for Standardization

DTG

Drug Test Group

EMB

Eosin Methylene Blue agar

end-point results

Results based on well readings obtained after 16 hours of incubation. Microbiological events have reached terminal, or "end-point" values.

error station

Station that has sustained an optical or electro-mechanical error and has been blocked.

EUCAST

European Committee on Antimicrobial Susceptibility Testing

HE

Hektoen Enteric media agar

ID

Microbial Identification

ID/AST combination (combo) panel

The disposable device that contains all reagents needed for both ID and AST.

inoculation station

The inoculation station holds three Phoenix panels at the appropriate angle for optimal fill. The station also holds six broth tubes total, two per organism tested. One tube is for dilution of colony growth for Identification, the other for AST.

instrument test cycle

A complete test of all sample panels located in the carousel, resulting in color and/or fluorescence data values being recorded for each pertinent well of each panel.

MIC

Minimum Inhibitory Concentration; the lowest concentration of an antimicrobial which prohibits continued growth of the tested organism.

normalizer

A reference panel for use in the Phoenix instrument. The Normalizer panel contains a matrix of visible light absorber and fluorescent material in panel-well format, which is used to correct individual well signals for losses occurring in the optical system

orphan

A panel with a valid sequence number, but no associated accession number and isolate number.

panel carrier

The plastic carousel insert, which clips each Phoenix sample panel into place. The carousel contains 104 inserts, 26 in each of four tiers.

panel dataset

Each panel's set of color and fluorescence measurements, the panel's position identifier, test time stamps, and error flags are recorded for each test cycle throughout the test protocol. The test parameters determining each well's results are keyed by the individual barcode label signifying the panel type, and hence the type of test.

PEA

Phenylethyl Alcohol agar

position

The station. The physical location of the Phoenix panel within the instrument. This identifier includes instrument number, carousel tier letter, and numeric position on that tier.

panel presence detection threshold

Each inventory scan or test cycle, the instrument "looks" for both the barcode label of a panel in each carousel position and panel well data, color or fluorescence. If either is detected the instrument declares a panel logically present in that location. A panel without a valid barcode to provide panel type information will not be processed, but will be flagged as a "Needs Attention" candidate.

Phoenix AST indicator

An oxidation-reduction indicator used to signify microbial metabolism in the Phoenix panels. The indicator changes from blue to pink as initial reduction occurs. Further reduction causes the indicator to change from pink to colorless.

"rapid" results

AST Result obtained within 16 hours of panel inoculation.

related panel

Panels with the same accession number and isolate number are related.

Resistance Marker

Condition that is triggered when specific results indicate antimicrobial resistance. The action of some BDxpert rules is to trigger Resistance Markers; other rules may be called as a result of a specific Resistance Marker being triggered.

RGB

Red, Green and Blue. A shorthand representation of the visible light sources / wavelength regions used to interrogate the Phoenix panel.

sample

A specimen contained in a Phoenix panel. In practice, this would be a processed and resuspended dilution of microbiological growth from primary isolation culture in either ID diluent or AST broth which is then poured into the test panel.

SFM

Société Française de Microbiologie

SIR

Susceptible, Intermediate, or Resistant; refers to breakpoint AST categories. See also **Breakpoint**.

standard panel

A special panel containing custom concentrations of various dyes and fluorogenic compounds or materials used to test instrument optical system performance, used internally for engineering, manufacturing and test purposes.

station

The instrument carousel is divided vertically into four tiers (A, B, C, D), each of which holds 26 panels. With one location occupied by a Normalizer panel, 25 locations per tier can accommodate test panels. This means that test panels can populate 100 total locations. Each location is assigned a tier letter and a number to determine the location on the tier. Indicator LEDs located on each panel holder indicate station status (see **Section 3 – Controls and Indicators**).

test sequence number

A count of the number of readings taken by the instrument for a given sample well in a particular test panel, initialized to zero at the time of panel entry.

TSA

Trypticase Soy Agar

XLD

Xylose Lysine Deoxycholate agar

Supplemental ID Test Abbreviations

Abbreviation	Meaning
10C	Growth at 10 degrees Celsius
42C	Growth at 42 degrees Celsius
45C	Growth at 45 degrees Celsius
50C	Growth at 50 degrees Celsius
ACE	MBM + Acetate
ALC	a-Lactose
ANR	Anaerobic growth
ARA	Arabinose
ARG	Arginine
BE	Bile esculin
BSO	Bile solubility
CAMP	CAMP with <i>Staphylococcus aureus</i>
CAT	Catalase
CEL	Cellobiose
CIT	Citrate
COA	Coagulase
DNA	Dnase
ESC	Esculin
FRU	Fructose
GAS	Gas from Glucose
GEL	Gelatin
GLC	Beta glucuronidase
GLU	Glucose
H2S	Hydrogen Sulfide
HGN	Hemolysis - Gram Negative
HGP	Hemolysis - Gram Positive
HIP	Hippurate
IND	Indole
KCN	Growth in KCN
LAC	Lactose
LYS	Lysine
MAC	Growth on MacConkey

Abbreviation	Meaning
MAL	Maltose
MEL	Melibiose
MNS	Mannose
MNT	Mannitol
MOR	Morphology
MOT	Motility
MR	Methyl Red
NIT	Nitrate
NVR	Novobiocin Resistance
OPS	Optochin susceptibility
ORN	Ornithine
OX	Oxidase
PXR	Polymyxin Resistance
PXS	Polymyxin Susceptibility
PYR	Pyrrolidonyl arylamidase
RAF	Raffinose
SBT	Sorbitol
SLT	Growth in 6.5% NaCl
SOR	Sorbose
SUC	Sucrose
TRE	Trehalose
URE	Urea
VAN	Vancomycin
VP	Voges Proskauer
XYL	Xylose
YEL	Yellow/orange pigment



Limited Warranty

This warranty gives you specific legal rights. Additionally, you may have other rights that vary from region to region.

The BD Phoenix™ 100 Automated Microbiology System is warranted to the original purchaser to be free from defects in materials and workmanship for a period of one year following installation. BD's sole responsibility under this warranty shall be to repair or replace any instrument or its components (except for expendable supplies such as printer cartridges, paper, or filters) which under normal operating conditions, prove to be defective within one year of delivery.

BD will furnish new or remanufactured components upon its option. All replacements shall meet new part specifications and shall be warranted as above for the remainder of the one year period. Replaced components become the property of BD.

It is understood that the equipment covered by this Agreement has been installed in accordance with the recommendations and instructions in the *BD Phoenix System User's Manual*.

Any damage to a BD Phoenix system resulting from the insertion or removal of cables that connect this instrument to systems other than those approved or supplied by BD or the failure of the owner to maintain reasonable care and precautions in the operation and maintenance of the system will void this warranty and terminate the obligations of the manufacturer as stated herein.

This warranty is in lieu of all other warranties, whether express or implied, including but not limited to, warranties of merchantability, or fitness for a particular use. In no event will BD be liable for indirect, incidental, special or consequential damages regardless of whether BD has been advised of such.



Replacement Parts

The following items may be ordered by contacting your local BD representative at the numbers in Appendix D.

	Item	Catalog Number
	Barcode Scanner (external)	440503
	Cable, Ethernet	445884
	Cable, Printer	445401
	Cartridge, Laser Printer	445886
	Filter, Air, Electronics Bay, Incubator	447103
	Filter, Air, Source Bay	447101
	Floppy Disks, High Density, Formatted (10)	445847
	Manual, BDPhoenix System User's (ea.)	448021
	Printer, Laser	445882
	Temperature Standard Panel	448984
	Uninterruptible Power Supply (UPS), Europe (1.3 kVA)	445879
	Uninterruptible Power Supply (UPS), Japan (1.3 kVA)	445878
	Uninterruptible Power Supply (UPS), North America (1.3 kVA)	445880

Software Update Log

Whenever you receive a software update, please take a moment to log it below. This can assist you and BD personnel in identifying software revision levels, potential software problems, etc.

Date Received	Software Version	Date Installed	Installed By	Notes



International Contacts

BD

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E.1 Organism Codes, Short Names, Long Names

Organism Long Name	Organism Short Name	Organism Code
<i>Achromobacter denitrificans</i>	Achr. denitrificans	ALCDEN
<i>Achromobacter piechaudii</i>	Achr. piechaudii	ALCPIE
<i>Achromobacter species</i>	Achr. species	ACHRSPE
<i>Achromobacter xylosoxidans ssp xylosoxidans</i>	Achr. xylos. ssp xylosoxidans	ALCXYL
<i>Acinetobacter baumannii</i>	Acinet. baumannii	ACINBAU
<i>Acinetobacter baumannii/calcoaceticus complex</i>	Acinet. baumannii/calco. cplx	ACINBCX
<i>Acinetobacter calcoaceticus</i>	Acinet. calcoaceticus	ACINCAL
<i>Acinetobacter haemolyticus</i>	Acinet. haemolyticus	ACINHAE
<i>Acinetobacter johnsonii</i>	Acinet. johnsonii	ACINJOH
<i>Acinetobacter junii</i>	Acinet. junii	ACINJUN
<i>Acinetobacter lwoffii</i>	Acinet. lwoffii	ACINLWO
<i>Acinetobacter radioresistens</i>	Acinet. radioresistens	ACINRAD
<i>Acinetobacter species</i>	Acinet. species	ACINSPE

Organism Long Name	Organism Short Name	Organism Code
<i>Actinobacillus lignieresii</i>	Actinob. lignieresii	ACTBLIG
<i>Actinobacillus suis</i>	Actinob. suis	ACTBSUI
<i>Actinobacillus ureae</i>	Actinob. ureae	ACTBURE
<i>Aerococcus species</i>	Aeroc. species	AERCSPE
<i>Aerococcus urinae</i>	Aeroc. urinae	AERCURI
<i>Aerococcus viridans</i>	Aeroc. viridans	AERCVIR
<i>Aeromonas allosaccharophila</i>	Aerom. allosaccharophila	AERMALL
<i>Aeromonas caviae</i>	Aerom. caviae	AERMCAV
<i>Aeromonas eucrenophila</i>	Aerom. eucrenophila	AERMEUC
<i>Aeromonas hydrophila</i>	Aerom. hydrophila	AERMHYD
<i>Aeromonas jandaei</i>	Aerom. jandaei	AERMJAN
<i>Aeromonas media</i>	Aerom. media	AERMMED
<i>Aeromonas salmonicida</i>	Aerom. salmonicida	AERMSAL
<i>Aeromonas salmonicida ssp achromogenes</i>	Aerom. salmonic. ssp ach.	AERMSALA
<i>Aeromonas salmonicida ssp masoucida</i>	Aerom. salmonic. ssp mas.	AERMSALM
<i>Aeromonas salmonicida ssp pectinolytica</i>	Aerom. salmonic. ssp pec.	AERMSALPE
<i>Aeromonas salmonicida ssp salmonicida</i>	Aerom. salmonic. ssp sal.	AERMSALSA
<i>Aeromonas salmonicida ssp smithia</i>	Aerom. salmonic. ssp smit.	AERMSALSM
<i>Aeromonas schubertii</i>	Aerom. schubertii	AERMSCH
<i>Aeromonas sobria</i>	Aerom. sobria	AERMVERS
<i>Aeromonas trota</i>	Aerom. trota	AERMTRO
<i>Aeromonas veronii</i>	Aerom. veronii	AERMVERV
<i>Alcaligenes faecalis</i>	Alc. faecalis	ALCFAE
<i>Alloiococcus otitidis</i>	All. otitidis	ALLOTI
<i>Arcanobacterium haemolyticum</i>	Arcan. haemolyticum	ARCAHAE
<i>Arcanobacterium pyogenes</i>	Arcan. pyogenes	ACTMPYO
<i>Aureobasidium pullulans</i>	Aureobs. pullulans	AURPUL
<i>Bacillus cereus</i>	Baci. cereus	BACICER
<i>Bacillus circulans</i>	Baci. circulans	BACICIR

Organism Long Name	Organism Short Name	Organism Code
<i>Bacillus coagulans</i>	Baci. coagulans	BACICOA
<i>Bacillus licheniformis</i>	Baci. licheniformis	BACILIC
<i>Bacillus megaterium</i>	Baci. megaterium	BACIMEG
<i>Bacillus pumilus</i>	Baci. pumilus	BACIPUM
<i>Bacillus subtilis</i>	Baci. subtilis	BACISUB
<i>Bacillus thuringiensis</i>	Baci. thuringiensis	BACITHU
<i>Bergeyella zoohelcum</i>	Ber. zoohelcum	BERZOO
<i>Blastoschizomyces capitatus</i>	Blasto. capitatus	BLACAP
<i>Bordetella bronchiseptica</i>	Bord. bronchiseptica	BORBROS
<i>Brevibacillus brevis</i>	Brevs. brevis	BACIBRE
<i>Brevibacterium species</i>	Brevm. species	BREISPE
<i>Brevundimonas diminuta</i>	Brevu. diminuta	BREUDIM
<i>Brevundimonas vesicularis</i>	Brevu. vesicularis	BREUVES
<i>Burkholderia caryophylli</i>	Burk. caryophylli	BURCAR
<i>Burkholderia cepacia</i>	Burk. cepacia	BURCEP
<i>Burkholderia gladioli</i>	Burk. gladioli	BURGLA
<i>Burkholderia glathei</i>	Burk. glathei	BURGLT
<i>Burkholderia graminis</i>	Burk. graminis	BURGRA
<i>Burkholderia multivorans</i>	Burk. multivorans	BURMUL
<i>Burkholderia phenazinium</i>	Burk. phenazinium	BURPHE
<i>Burkholderia pyrrocinia</i>	Burk. pyrrocinia	BURPYR
<i>Candida albicans</i>	Can. albicans	CANALB
<i>Candida apicola</i>	Can. apicola	CANAPI
<i>Candida boidinii</i>	Can. boidinii	CANBOI
<i>Candida bracarensis</i>	Can. bracarensis	CANBRA
<i>Candida catenulata</i>	Can. catenulata	CANCAT
<i>Candida ciferrii</i>	Can. ciferrii	CANCIF
<i>Candida colliculosa</i>	Can. colliculosa	CANCOL
<i>Candida dubliniensis</i>	Can. dubliniensis	CANDUB

Organism Long Name	Organism Short Name	Organism Code
<i>Candida famata</i>	Can. famata	CANFAM
<i>Candida firmetaria</i>	Can. firmetaria	CANLAM
<i>Candida freyschussii</i>	Can. freyschussii	CANFRE
<i>Candida glabrata</i>	Can. glabrata	TORGLA
<i>Candida guilliermondii</i>	Can. guilliermondii	CANGUI
<i>Candida guilliermondii</i> var <i>membranaefaciens</i>	Can. guillier. var <i>membranaef.</i>	CANGUIM
<i>Candida haemulonii</i>	Can. haemulonii	CANHAE
<i>Candida inconspicua</i>	Can. inconspicua	CANINC
<i>Candida intermedia</i>	Can. intermedia	CANINT
<i>Candida kefyr</i>	Can. kefyr	CANKEF
<i>Candida krusei</i>	Can. krusei	CANKRU
<i>Candida lipolytica</i>	Can. lipolytica	CANLIP
<i>Candida lusitaniae</i>	Can. lusitaniae	CANLUS
<i>Candida magnoliae</i>	Can. magnoliae	CANMAG
<i>Candida melibiosica</i>	Can. melibiosica	CANMEL
<i>Candida membranaefaciens</i>	Can. membranaefaciens	CANMEM
<i>Candida metapsilosis</i>	Can. metapsilosis	CANMET
<i>Candida norvegensis</i>	Can. norvegensis	CANNOR
<i>Candida orthopsilosis</i>	Can. orthopsilosis	CANORT
<i>Candida parapsilosis</i>	Can. parapsilosis	CANPARP
<i>Candida parapsilosis</i> complex	Can. parapsilosis complex	CANPARPX
<i>Candida pararugosa</i>	Can. pararugosa	CANPARR
<i>Candida pelliculosa</i>	Can. pelliculosa	CANPEL
<i>Candida pulcherrima</i>	Can. pulcherrima	CANPUL
<i>Candida rugosa</i>	Can. rugosa	CANRUG
<i>Candida sake</i>	Can. sake	CANSAK
<i>Candida sphaerica</i>	Can. sphaerica	CANSPH
<i>Candida tropicalis</i>	Can. tropicalis	CANTRO
<i>Candida utilis</i>	Can. utilis	CANUTI

Organism Long Name	Organism Short Name	Organism Code
<i>Candida viswanathii</i>	Can. viswanathii	CANVIS
<i>Candida zeylanoides</i>	Can. zeylanoides	CANZEY
<i>Cardiobacterium hominis</i>	Card. hominis	CARHOM
CDC group EF-4a	EF-4a	CDCEF4a
CDC group EF-4b	EF-4b	CDCEF4b
CDC group EO-2	EO-2	CDCEO2
CDC group Vb-3	CDCVb-3	CDCVb3
<i>Cedecea davisae</i>	Ced. davisae	CEDDAV
<i>Cedecea lapagei</i>	Ced. lapagei	CEDLAP
<i>Cedecea neteri</i>	Ced. neteri	CEDNET
<i>Cedecea species 3</i>	Ced. species 3	CEDSPE3
<i>Cedecea species 5</i>	Ced. species 5	CEDSPE5
<i>Cellulomonas turbata</i>	Cell. turbata	OERTUR
<i>Chromobacterium violaceum</i>	Chrom. violaceum	CHROVIO
<i>Chryseobacterium gleum</i>	Chryseob. gleum	CHRBGLE
<i>Chryseobacterium indologenes</i>	Chryseob. indologenes	CHRBIND
<i>Chryseobacterium scophthalmum</i>	Chryseob. scophthalmum	CHRBSCO
<i>Citrobacter amalonaticus</i>	Cit. amalonaticus	CITAMA
<i>Citrobacter braakii</i>	Cit. braakii	CITBRA
<i>Citrobacter farmeri</i>	Cit. farmeri	CITFAR
<i>Citrobacter freundii</i>	Cit. freundii	CITFRE
<i>Citrobacter gillenii</i>	Cit. gillenii	CITSPE10
<i>Citrobacter koseri</i>	Cit. koseri	CITKOS
<i>Citrobacter murlinae</i>	Cit. murlinae	CITSPE11
<i>Citrobacter rodentium</i>	Cit. rodentium	CITSPE9
<i>Citrobacter sedlakii</i>	Cit. sedlakii	CITSED
<i>Citrobacter werkmanii</i>	Cit. werkmanii	CITWER
<i>Citrobacter youngae</i>	Cit. youngae	CITYOU
<i>Comamonas terrigena</i>	Coma. terrigena	COMTER

Organism Long Name	Organism Short Name	Organism Code
<i>Comamonas testosteroni</i>	Coma. testosteroni	COMTES
<i>Corynebacterium amycolatum</i>	Cory. amycolatum	CORAMY
<i>Corynebacterium bovis</i>	Cory. bovis	CORBOV
<i>Corynebacterium diphtheriae</i>	Cory. diphtheriae	CORDIP
<i>Corynebacterium jeikeium</i>	Cory. jeikeium	CORJEI
<i>Corynebacterium kutscheri</i>	Cory. kutscheri	CORKUT
<i>Corynebacterium matruchotii</i>	Cory. matruchotii	CORMAT
<i>Corynebacterium minutissimum</i>	Cory. minutissimum	CORMIN
<i>Corynebacterium propinquum</i>	Cory. propinquum	CORPRO
<i>Corynebacterium pseudodiphtheriticum</i>	Cory. pseudodiphth.	CORPSD
<i>Corynebacterium pseudotuberculosis</i>	Cory. pseudotuberc.	CORPST
<i>Corynebacterium renale</i>	Cory. renale	CORREN
<i>Corynebacterium striatum</i>	Cory. striatum	CORSTR
<i>Corynebacterium ulcerans</i>	Cory. ulcerans	CORULC
<i>Corynebacterium urealyticum</i>	Cory. urealyticum	CORURE
<i>Corynebacterium xerosis</i>	Cory. xerosis	CORXER
<i>Cryptococcus albidus</i>	Cryp. albidus	CRYALB
<i>Cryptococcus gattii</i>	Cryp. gattii	CRYNEOG
<i>Cryptococcus humicolus</i>	Cryp. humicolus	CRYHUM
<i>Cryptococcus laurentii</i>	Cryp. laurentii	CRYLAU
<i>Cryptococcus luteolus</i>	Cryp. luteolus	CRYLUT
<i>Cryptococcus neoformans</i>	Cryp. neoformans	CRYNEO
<i>Cryptococcus terreus</i>	Cryp. terreus	CRYTER
<i>Cryptococcus uniguttulatus</i>	Cryp. uniguttulatus	CRYUNI
<i>Cupriavidus gilardii</i>	Cup. gilardii	RALGIL
<i>Cupriavidus pauculus</i>	Cup. pauculus	CDCIVC2
<i>Delftia acidovorans</i>	Delf. acidovorans	COMACI
<i>Dermabacter hominis</i>	Dermab. hominis	DERBHOM
<i>Dermacoccus nishinomiyaensis</i>	Derm. nishinomiyaen.	MICNIS

Organism Long Name	Organism Short Name	Organism Code
<i>Edwardsiella hoshinae</i>	Ed. hoshinae	EDWHOS
<i>Edwardsiella ictaluri</i>	Ed. ictaluri	EDWICT
<i>Edwardsiella tarda</i>	Ed. tarda	EDWTAR
<i>Eikenella corrodens</i>	Eik. corrodens	EIKCOR
<i>Elizabethkingia meningoseptica</i>	Eliz. meningosept.	CHRBMEN
<i>Empedobacter brevis</i>	Emp. brevis	EMPBRE
<i>Enterobacter aerogenes</i>	Enterob. aerogenes	ENTBAER
<i>Enterobacter amnigenus</i>	Enterob. amnigenus	ENTBAMN
<i>Enterobacter amnigenus</i> biogroup 1	Enterob. amnigen. biogr. 1	ENTBAMN1
<i>Enterobacter amnigenus</i> biogroup 2	Enterob. amnigen. biogr. 2	ENTBAMN2
<i>Enterobacter asburiae</i>	Enterob. asburiae	ENTBASB
<i>Enterobacter cancerogenus</i>	Enterob. cancerogenus	ENTBCAN
<i>Enterobacter cloacae</i>	Enterob. cloacae	ENTBCLO
<i>Enterobacter cloacae</i> ssp <i>dissolvens</i>	Enterob. cloacae ssp dissolven	ENTBDIS
<i>Enterobacter cowanii</i>	Enterob. cowanii	ENTBCOW
<i>Enterobacter gergoviae</i>	Enterob. gergoviae	ENTBGER
<i>Enterobacter hormaechei</i>	Enterob. hormaechei	ENTBHOR
<i>Enterobacter kobei</i>	Enterob. kobei	ENTBKOB
<i>Enterobacter nimipressuralis</i>	Enterob. nimipressuralis	ENTBNIM
<i>Enterobacter sakazakii</i>	Enterob. sakazakii	ENTBSAK
<i>Enterococcus asini</i>	Enteroc. asini	ENTCASI
<i>Enterococcus avium</i>	Enteroc. avium	ENTCAVI
<i>Enterococcus casseliflavus</i>	Enteroc. casseliflavus	ENTCCAS
<i>Enterococcus cecorum</i>	Enteroc. cecorum	ENTCCEC
<i>Enterococcus columbae</i>	Enteroc. columbae	ENTCCOL
<i>Enterococcus dispar</i>	Enteroc. dispar	ENTCDIS
<i>Enterococcus durans</i>	Enteroc. durans	ENTCDUR
<i>Enterococcus faecalis</i>	Enteroc. faecalis	ENTCFAA
<i>Enterococcus faecium</i>	Enteroc. faecium	ENTCFAI

Organism Long Name	Organism Short Name	Organism Code
<i>Enterococcus flavescens</i>	Enteroc. flavescens	ENTCFLA
<i>Enterococcus gallinarum</i>	Enteroc. gallinarum	ENTCGAL
<i>Enterococcus gilvus</i>	Enteroc. gilvus	ENTCGIL
<i>Enterococcus haemoperoxidus</i>	Enteroc. haemoperoxidus	ENTCHAE
<i>Enterococcus hirae</i>	Enteroc. hirae	ENTCHIR
<i>Enterococcus malodoratus</i>	Enteroc. malodoratus	ENTCMAL
<i>Enterococcus moraviensis</i>	Enteroc. moraviensis	ENTCMOR
<i>Enterococcus mundtii</i>	Enteroc. mundtii	ENTCMUN
<i>Enterococcus pallens</i>	Enteroc. pallens	ENTCPAL
<i>Enterococcus pseudoavium</i>	Enteroc. pseudoavium	ENTCPSE
<i>Enterococcus raffinosus</i>	Enteroc. raffinosus	ENTCRAF
<i>Enterococcus ratti</i>	Enteroc. ratti	ENTCRAT
<i>Enterococcus saccharolyticus</i>	Enteroc. saccharolyticus	ENTCSAC
<i>Enterococcus sulfureus</i>	Enteroc. sulfureus	ENTCSUL
<i>Erysipelothrix rhusiopathiae</i>	Ery. rhusiopathiae	ERYRHU
<i>Escherichia blattae</i>	Esch. blattae	ESCBLA
<i>Escherichia coli</i>	Esch. coli	ESCCOL
<i>Escherichia fergusonii</i>	Esch. fergusonii	ESCFER
<i>Escherichia hermannii</i>	Esch. hermannii	ESCHER
<i>Escherichia vulneris</i>	Esch. vulneris	ESCVUL
<i>Ewingella americana</i>	Ew. americana	EWIAME
<i>Exophiala castellani</i>	Exo. castellanii	EXOCAS
<i>Exophiala heteromorpha</i>	Exo. heteromorpha	EXOJEAH
<i>Exophiala jeanselmei</i>	Exo. jeanselmei	EXOJEA
<i>Exophiala lecanii-cornii</i>	Exo. lecanii-cornii	EXOJEAL
<i>Exophiala moniliae</i>	Exo. moniliae	EXOMON
<i>Exophiala species</i>	Exo. species	EXOSPE
<i>Exophiala spinifera</i>	Exo. spinifera	EXOSPI
<i>Gardnerella vaginalis</i>	Gard. vaginalis	GARVAG

Organism Long Name	Organism Short Name	Organism Code
<i>Gemella haemolysans</i>	Gem. haemolysans	GEMHAE
<i>Gemella morbillorum</i>	Gem. morbillorum	GEMMOR
<i>Gemella species</i>	Gem. species	GEMSPE
<i>Geotrichum species</i>	Geo. species	GEOSPE
<i>Globicatella sanguinis</i>	Glob. sanguinis	GLOSAN
<i>Grimontia hollisae</i>	Grim. hollisae	VIBHOL
<i>Hafnia alvei</i>	Haf. alvei	HAFALV
<i>Helcococcus kunzii</i>	Helco. kunzii	HELCKUN
<i>Hortaea werneckii</i>	Hor. werneckii	HORWER
<i>Kingella denitrificans</i>	King. denitrificans	KINDEN
<i>Kingella kingae</i>	King. kingae	KINKIN
<i>Klebsiella granulomatis</i>	Kleb. granulomatis	CALYGRA
<i>Klebsiella oxytoca</i>	Kleb. oxytoca	KLEOXY
<i>Klebsiella pneumoniae ssp ozaenae</i>	Kleb. pneumo. ssp ozae.	KLEPNEO
<i>Klebsiella pneumoniae ssp pneumoniae</i>	Kleb. pneumo. ssp pneu.	KLEPNEP
<i>Klebsiella pneumoniae ssp rhinoscleromatis</i>	Kleb. pneumo. ssp rhino.	KLEPNER
<i>Kloeckera species</i>	Kloeck. species	KLOSPE
<i>Kluyvera ascorbata</i>	Kluyvera ascorbata	KLUASC
<i>Kluyvera cryocrescens</i>	Kluyvera cryocres.	KLUCRY
<i>Kluyvera georgiana</i>	Kluyvera georgiana	KLUGEO
<i>Kluyvera intermedia</i>	Kluyvera intermedia	ENTBINT
<i>Kocuria kristinae</i>	Koc. kristinae	MICKRI
<i>Kocuria rosea</i>	Koc. rosea	MICROS
<i>Kocuria varians</i>	Koc. varians	MICVAR
<i>Kytococcus sedentarius</i>	Kyto. sedentarius	MICSED
<i>Lactococcus garvieae</i>	Lactoc. garvieae	LACCGAR
<i>Lactococcus lactis ssp cremoris</i>	Lactoc. lactis ssp crem.	LACCLACC
<i>Lactococcus lactis ssp hordniae</i>	Lactoc. lactis ssp hord.	LACCLACH
<i>Lactococcus lactis ssp lactis</i>	Lactoc. lactis ssp lactis	LACCLACL

Organism Long Name	Organism Short Name	Organism Code
<i>Lactococcus plantarum</i>	Lactoc. plantarum	LACCPLA
<i>Lactococcus raffinolactis</i>	Lactoc. raffinolactis	LACCRAF
<i>Lactococcus species</i>	Lactoc. species	LACCSPE
<i>Leclercia adecarboxylata</i>	Lec. adecarboxylata	LECADE
<i>Leifsonia aquatica</i>	Leif. aquatica	CORAQU
<i>Leminorella grimontii</i>	Lem. grimontii	LEMGR
<i>Leminorella richardii</i>	Lem. richardii	LEMRI
<i>Leuconostoc citreum</i>	Leu. citreum	LEUCIT
<i>Leuconostoc lactis</i>	Leu. lactis	LEULAC
<i>Leuconostoc mesenteroides ssp cremoris</i>	Leu. mesenter. ssp crem.	LEUMESC
<i>Leuconostoc mesenteroides ssp mesenteroides</i>	Leu. mesenter. ssp mes.	LEUMESM
<i>Leuconostoc pseudomesenteroides</i>	Leu. pseudomesenter.	LEUPSE
<i>Leuconostoc species</i>	Leu. species	LEUSPE
<i>Listeria grayi</i>	Lis. grayi	LISGRA
<i>Listeria innocua</i>	Lis. innocua	LISINN
<i>Listeria ivanovii</i>	Lis. ivanovii	LISIVA
<i>Listeria monocytogenes</i>	Lis. monocytogenes	LISMON
<i>Listeria species</i>	Lis. species	LISSPE
<i>Listeria welshimeri</i>	Lis. welshimeri	LISWEL
<i>Lysinibacillus sphaericus</i>	Lysini. sphaericus	BACISPH
<i>Macrococcus caseolyticus</i>	Macro. caseolyticus	STACAS
<i>Malassezia furfur complex</i>	Mal. furfur complex	MALFURX
<i>Malassezia pachydermatis</i>	Mal. pachydermatis	MALPAC
<i>Malassezia sympodialis</i>	Mal. sympodialis	MALSYM
<i>Mannheimia haemolytica</i>	Mann. haemolytica	PASHAE
<i>Methylobacterium extorquens</i>	Methylob. extorquens	METEXT
<i>Micrococcus luteus</i>	Microc. luteus	MICLUT
<i>Micrococcus lylae</i>	Microc. lylae	MICLYL
<i>Moellerella wisconsensis</i>	Moel. wisconsensis	MOEWIS

Organism Long Name	Organism Short Name	Organism Code
<i>Moraxella (Branhamella) catarrhalis</i>	Morax. (Bran.) cat.	MORABRACAT
<i>Moraxella species</i>	Morax. species	MORASPE
<i>Morganella morganii</i>	Morg. morganii	MORGMOR
<i>Myroides odoratus/odoratimimus</i>	Myr. odoratus/odoratimimus	MYRODAODI
<i>Ochrobactrum anthropi</i>	Och. anthropi	OCHANT
<i>Oerskovia xanthineolytica</i>	Oers. xanthineolytica	OERXAN
<i>Oligella ureolytica</i>	Olig. ureolytica	OLIURO
<i>Oligella urethralis</i>	Olig. urethralis	OLIURT
<i>Paenibacillus alvei</i>	Paen. alvei	PAEALV
<i>Paenibacillus macerans</i>	Paen. macerans	PAEMAC
<i>Pantoea agglomerans</i>	Pan. agglomerans	PANAGG
<i>Pantoea ananatis</i>	Pan. ananatis	ERWANA
<i>Pantoea dispersa</i>	Pan. dispersa	PANDIS
<i>Pantoea stewartii ssp indologenes</i>	Pan. ste. ssp indologenes	PANSTEI
<i>Pantoea stewartii ssp stewartii</i>	Pan. ste. ssp stewartii	PANSTES
<i>Pasteurella aerogenes</i>	Past. aerogenes	PASAER
<i>Pasteurella multocida</i>	Past. multocida	PASMUL
<i>Pasteurella pneumotropica</i>	Past. pneumotropica	PASPNE
<i>Pediococcus acidilactici</i>	Ped. acidilactici	PEDACI
<i>Pediococcus damnosus</i>	Ped. damnosus	PEDDAM
<i>Pediococcus dextrinicus</i>	Ped. dextrinicus	PEDDEX
<i>Pediococcus parvulus</i>	Ped. parvulus	PEDPAR
<i>Pediococcus pentosaceus</i>	Ped. pentosaceus	PEDPEN
<i>Pediococcus species</i>	Ped. species	PEDSPE
<i>Photobacterium damsela</i>	Photob. damsela	PHOBDAM
<i>Pichia angusta</i>	Pic. angusta	PICANG
<i>Pichia burtonii</i>	Pic. burtonii	PICBUR
<i>Pichia farinosa</i>	Pic. farinosa	PICFAR
<i>Plesiomonas shigelloides</i>	Ples. shigelloides	PLESHI

Organism Long Name	Organism Short Name	Organism Code
<i>Pragia fontium</i>	Prag. fontium	PRAFON
<i>Proteus hauseri</i>	Prot. hauseri	PROTHAU
<i>Proteus mirabilis</i>	Prot. mirabilis	PROTMIR
<i>Proteus myxofaciens</i>	Prot. myxofaciens	PROTMYX
<i>Proteus penneri</i>	Prot. penneri	PROTPEN
<i>Proteus vulgaris</i>	Prot. vulgaris	PROTVUL
<i>Prototheca species</i>	Protot. species	PROHSPE
<i>Prototheca wickerhamii</i>	Protot. wick.	PROHWIC
<i>Prototheca zopfii</i>	Protot. zopfii	PROHZOP
<i>Providencia alcalifaciens</i>	Prov. alcalifaciens	PROVALC
<i>Providencia heimbachae</i>	Prov. heimbachae	PROVHEI
<i>Providencia rettgeri</i>	Prov. rettgeri	PROVRET
<i>Providencia rustigianii</i>	Prov. rustigianii	PROVRUS
<i>Providencia stuartii</i>	Prov. stuartii	PROVSTU
<i>Pseudomonas aeruginosa</i>	Pseud. aeruginosa	PSEAER
<i>Pseudomonas alcaligenes</i>	Pseud. alcaligenes	PSEALC
<i>Pseudomonas fluorescens</i>	Pseud. fluorescens	PSEFLU
<i>Pseudomonas luteola</i>	Pseud. luteola	CHRM LUT
<i>Pseudomonas mendocina</i>	Pseud. mendocina	PSEMEN
<i>Pseudomonas monteilii</i>	Pseud. monteilii	PSEMON
<i>Pseudomonas oryzihabitans</i>	Pseud. oryzihabitans	FLAIORY
<i>Pseudomonas pertucinogena</i>	Pseud. pertucinogena	PSEPER
<i>Pseudomonas pseudoalcaligenes</i>	Pseud. pseudoalcaligenes	PSEPSE
<i>Pseudomonas putida</i>	Pseud. putida	PSEPUT
<i>Pseudomonas species</i>	Pseud. species	PSESPE
<i>Pseudomonas stutzeri</i>	Pseud. stutzeri	PSESTU
<i>Pseudomonas veronii</i>	Pseud. veronii	PSEVER
<i>Rahnella aquatilis</i>	Rah. aquatilis	RAHAQU
<i>Ralstonia pickettii</i>	Ral. pickettii	BURPIC

Organism Long Name	Organism Short Name	Organism Code
<i>Ralstonia solanacearum</i>	Ral. solanacearum	BURSOL
<i>Ralstonia species</i>	Ral. species	RALSPE
<i>Raoultella ornithinolytica</i>	Rao. ornithinolytica	KLEORN
<i>Raoultella planticola</i>	Rao. planticola	KLEPLA
<i>Raoultella terrigena</i>	Rao. terrigena	KLETER
<i>Rhizobium radiobacter</i>	Rhizob. radiobacter	AGRRAD
<i>Rhodococcus equi</i>	Rhodoc. equi	RHOCEQU
<i>Rhodotorula glutinis</i>	Rhodot. glutinis	RHOTGLU
<i>Rhodotorula minuta</i>	Rhodot. minuta	RHOTMIN
<i>Rhodotorula mucilaginosa</i> var <i>mucilaginosa</i>	Rhodot. mucilag. var mucilag.	RHOTMUCM
<i>Rothia dentocariosa</i>	Roth. dentocariosa	ROTDEN
<i>Rothia mucilaginosa</i>	Roth. mucilaginosa	STOMUC
<i>Saccharomyces cerevisiae</i>	Sac. cerevisiae	SACCER
<i>Salmonella aberdeen</i>	Salm. aberdeen	SALABE
<i>Salmonella abortus-equi</i>	Salm. abortus-equi	SALABOE
<i>Salmonella adelaide</i>	Salm. adelaide	SALADL
<i>Salmonella aderike</i>	Salm. aderike	SALADR
<i>Salmonella agona</i>	Salm. agona	SALAGO
<i>Salmonella alachua</i>	Salm. alachua	SALALA
<i>Salmonella anatum</i>	Salm. anatum	SALANA
<i>Salmonella arizonae</i>	Salm. arizonae	SALARI
<i>Salmonella avana</i>	Salm. avana	SALAVA
<i>Salmonella bahrenfeld</i>	Salm. bahrenfeld	SALBAH
<i>Salmonella blockley</i>	Salm. blockley	SALBLO
<i>Salmonella bongori</i>	Salm. bongori	SALBON
<i>Salmonella braenderup</i>	Salm. braenderup	SALBRA
<i>Salmonella bredeney</i>	Salm. bredeney	SALBRE
<i>Salmonella bunn</i>	Salm. bunn	SALBUN
<i>Salmonella californica</i>	Salm. californica	SALCAL

Organism Long Name	Organism Short Name	Organism Code
<i>Salmonella carrau</i>	Salm. carrau	SALCAR
<i>Salmonella cerro</i>	Salm. cerro	SALCER
<i>Salmonella champaign</i>	Salm. champaign	SALCHA
<i>Salmonella chittagong</i>	Salm. chittagong	SALCHI
<i>Salmonella choleraesuis</i>	Salm. choleraesuis	SALCHO
<i>Salmonella choleraesuis ssp arizonae</i>	Salm. choleraesuis ssp ariz.	SALCHOA
<i>Salmonella choleraesuis ssp choleraesuis</i>	Salm. choleraesuis ssp chol.	SALCHOC
<i>Salmonella choleraesuis ssp diarizonae</i>	Salm. choleraesuis ssp diariz.	SALCHOD
<i>Salmonella choleraesuis ssp houtenae</i>	Salm. choleraesuis ssp hout.	SALCHOH
<i>Salmonella choleraesuis ssp indica</i>	Salm. choleraesuis ssp indica	SALCHOI
<i>Salmonella choleraesuis ssp salamae</i>	Salm. choleraesuis ssp salamae	SALCHOS
<i>Salmonella cubana</i>	Salm. cubana	SALCUB
<i>Salmonella dakar</i>	Salm. dakar	SALDAK
<i>Salmonella daressalaam</i>	Salm. daressalaam	SALDAR
<i>Salmonella derby</i>	Salm. derby	SALDER
<i>Salmonella dessau</i>	Salm. dessau	SALDES
<i>Salmonella DT</i>	Salm. DT	SALDT
<i>Salmonella dublin</i>	Salm. dublin	SALDUB
<i>Salmonella duesseldorf</i>	Salm. duesseldorf	SALDUE
<i>Salmonella enteritidis</i>	Salm. enteritidis	SALENT
<i>Salmonella fresno</i>	Salm. fresno	SALFRE
<i>Salmonella gallinarum</i>	Salm. gallinarum	SALGAL
<i>Salmonella gaminara</i>	Salm. gaminara	SALGAM
<i>Salmonella give</i>	Salm. give	SALGIV
<i>Salmonella haardt</i>	Salm. haardt	SALHAA
<i>Salmonella hadar</i>	Salm. hadar	SALHAD
<i>Salmonella hamburg</i>	Salm. hamburg	SALHAM
<i>Salmonella hartford</i>	Salm. hartford	SALHAR
<i>Salmonella heidelberg</i>	Salm. heidelberg	SALHEI

Organism Long Name	Organism Short Name	Organism Code
<i>Salmonella illinois</i>	Salm. illinois	SALILL
<i>Salmonella infantis</i>	Salm. infantis	SALINF
<i>Salmonella invernness</i>	Salm. invernness	SALINV
<i>Salmonella java</i>	Salm. java	SALJAA
<i>Salmonella javiana</i>	Salm. javiana	SALJAI
<i>Salmonella kentucky</i>	Salm. kentucky	SALKEN
<i>Salmonella kirkee</i>	Salm. kirkee	SALKIR
<i>Salmonella kunduchi</i>	Salm. kunduchi	SALKUN
<i>Salmonella kvittingfoss</i>	Salm. kvittingfoss	SALKVI
<i>Salmonella lansing</i>	Salm. lansing	SALLAN
<i>Salmonella litchfield</i>	Salm. litchfield	SALLIT
<i>Salmonella liverpool</i>	Salm. liverpool	SALLIV
<i>Salmonella london</i>	Salm. london	SALLON
<i>Salmonella luciana</i>	Salm. luciana	SALLUC
<i>Salmonella manhattan</i>	Salm. manhattan	SALMAN
<i>Salmonella mbandaka</i>	Salm. mbandaka	SALMBA
<i>Salmonella meleagridis</i>	Salm. meleagridis	SALMEL
<i>Salmonella memphis</i>	Salm. memphis	SALMEM
<i>Salmonella michigan</i>	Salm. michigan	SALMIC
<i>Salmonella minneapolis</i>	Salm. minneapolis	SALMIA
<i>Salmonella minnesota</i>	Salm. minnesota	SALMIS
<i>Salmonella montevideo</i>	Salm. montevideo	SALMON
<i>Salmonella muenchen</i>	Salm. muenchen	SALMUE
<i>Salmonella muenster</i>	Salm. muenster	SALMUS
<i>Salmonella newington</i>	Salm. newington	SALNEI
<i>Salmonella newport</i>	Salm. newport	SALNEP
<i>Salmonella nottingham</i>	Salm. nottingham	SALNOT
<i>Salmonella ohio</i>	Salm. ohio	SALOH1
<i>Salmonella onderstepoort</i>	Salm. onderstepoort	SALOND

Organism Long Name	Organism Short Name	Organism Code
<i>Salmonella oranienburg</i>	Salm. oranienburg	SALORA
<i>Salmonella panama</i>	Salm. panama	SALPAN
<i>Salmonella paratyphi A</i>	Salm. paratyphi A	SALPARA
<i>Salmonella paratyphi B</i>	Salm. paratyphi B	SALPARB
<i>Salmonella poona</i>	Salm. poona	SALPOO
<i>Salmonella pullorum</i>	Salm. pullorum	SALPUL
<i>Salmonella quinhon</i>	Salm. quinhon	SALQUI
<i>Salmonella rubislaw</i>	Salm. rubislaw	SALRUB
<i>Salmonella saintpaul</i>	Salm. saintpaul	SALSAI
<i>Salmonella schwarzengrund</i>	Salm. schwarzengrund	SALSCH
<i>Salmonella senftenberg</i>	Salm. senftenberg	SALSEN
<i>Salmonella species</i>	Salm. species	SALSPE
<i>Salmonella tallahassee</i>	Salm. tallahassee	SALTAL
<i>Salmonella thompson</i>	Salm. thompson	SALTHO
<i>Salmonella typhi</i>	Salm. typhi	SALTYP
<i>Salmonella typhimurium</i>	Salm. typhimurium	SALTYPM
<i>Salmonella virginia</i>	Salm. virginia	SALVIR
<i>Salmonella westerstede</i>	Salm. westerstede	SALWES
<i>Salmonella worthington</i>	Salm. worthington	SALWOR
<i>Serratia entomophila</i>	Ser. entomophila	SERENT
<i>Serratia ficaria</i>	Ser. ficaria	SERFIC
<i>Serratia fonticola</i>	Ser. fonticola	SERFON
<i>Serratia grimesii</i>	Ser. grimesii	SERGRI
<i>Serratia liquefaciens</i>	Ser. liquefaciens	SERLIQ
<i>Serratia marcescens</i>	Ser. marcescens	SERMAR
<i>Serratia odorifera</i>	Ser. odorifera	SERODO
<i>Serratia odorifera 1</i>	Ser. odorifera 1	SERODO1
<i>Serratia odorifera 2</i>	Ser. odorifera 2	SERODO2
<i>Serratia plymuthica</i>	Ser. plymuthica	SERPLY

Organism Long Name	Organism Short Name	Organism Code
<i>Serratia proteamaculans ssp proteamaculans</i>	Ser. proteamac. ssp proteam.	SERPROP
<i>Serratia proteamaculans ssp quinovora</i>	Ser. proteamac. ssp quino.	SERPROQ
<i>Serratia rubidaea</i>	Ser. rubidaea	SERRUB
<i>Shewanella algae</i>	Shew. algae	SHEALG
<i>Shewanella putrefaciens</i>	Shew. putrefaciens	SHEPUT
<i>Shigella boydii</i>	Shig. boydii	SHIBOY
<i>Shigella dysenteriae</i>	Shig. dysenteriae	SHIDYS
<i>Shigella flexneri</i>	Shig. flexneri	SHIFLE
<i>Shigella sonnei</i>	Shig. sonnei	SHISON
<i>Shigella species</i>	Shig. species	SHISPE
<i>Sphingobacterium multivorum</i>	Sphingob. multivorum	SPHBMUL
<i>Sphingobacterium spiritivorum</i>	Sphingob. spiritivorum	SPHBSPI
<i>Sphingobacterium thalpophilum</i>	Sphingob. thalpophilum	SPHBTHA
<i>Sphingomonas paucimobilis</i>	Sphingom. paucimobilis	SPHMPAU
<i>Sporobolomyces salmonicolor</i>	Sporobol. salmonicolor	SPOBSAL
<i>Staphylococcus arlettae</i>	Staph. arlettae	STAARL
<i>Staphylococcus aureus</i>	Staph. aureus	STAAUE
<i>Staphylococcus auricularis</i>	Staph. auricularis	STAAUI
<i>Staphylococcus capitis</i>	Staph. capitis	STACAI
<i>Staphylococcus capitis ssp capitis</i>	Staph. capitis ssp capitis	STACAIC
<i>Staphylococcus capitis ssp ureolyticus</i>	Staph. capitis ssp ureolyt.	STACAIU
<i>Staphylococcus caprae</i>	Staph. caprae	STACAP
<i>Staphylococcus carnosus</i>	Staph. carnosus	STACAR
<i>Staphylococcus chromogenes</i>	Staph. chromogenes	STACHR
<i>Staphylococcus cohnii</i>	Staph. cohnii	STACOH
<i>Staphylococcus cohnii ssp cohnii</i>	Staph. cohnii ssp cohnii	STACOHC
<i>Staphylococcus cohnii ssp urealyticum</i>	Staph. cohnii ssp urealyt.	STACOHU
<i>Staphylococcus condimentii</i>	Staph. condimentii	STACON
<i>Staphylococcus delphini</i>	Staph. delphini	STADEL

Organism Long Name	Organism Short Name	Organism Code
<i>Staphylococcus epidermidis</i>	Staph. epidermidis	STAEPI
<i>Staphylococcus equorum</i>	Staph. equorum	STAEQU
<i>Staphylococcus felis</i>	Staph. felis	STAFEL
<i>Staphylococcus fleurettii</i>	Staph. fleurettii	STAFLE
<i>Staphylococcus gallinarum</i>	Staph. gallinarum	STAGAL
<i>Staphylococcus haemolyticus</i>	Staph. haemolyticus	STAHAE
<i>Staphylococcus hominis</i>	Staph. hominis	STAHOM
<i>Staphylococcus hyicus</i>	Staph. hyicus	STAHYI
<i>Staphylococcus intermedius</i>	Staph. intermedius	STAINI
<i>Staphylococcus kloosii</i>	Staph. kloosii	STAKLO
<i>Staphylococcus lentus</i>	Staph. lentus	STALEN
<i>Staphylococcus lugdunensis</i>	Staph. lugdunensis	STALUG
<i>Staphylococcus lutrae</i>	Staph. lutrae	STALUT
<i>Staphylococcus muscae</i>	Staph. muscae	STAMUS
<i>Staphylococcus pasteurii</i>	Staph. pasteurii	STAPAS
<i>Staphylococcus piscifermentans</i>	Staph. piscifermentans	STAPIS
<i>Staphylococcus pulvereri</i>	Staph. pulvereri	STAPUL
<i>Staphylococcus saccharolyticus</i>	Staph. saccharolyticus	STASAC
<i>Staphylococcus saprophyticus</i>	Staph. saprophyticus	STASAP
<i>Staphylococcus schleiferi</i>	Staph. schleiferi	STASCH
<i>Staphylococcus schleiferi ssp coagulans</i>	Staph. schleiferi ssp coagul.	STASCHC
<i>Staphylococcus schleiferi ssp schleiferi</i>	Staph. schleiferi ssp schleif.	STASCHS
<i>Staphylococcus sciuri</i>	Staph. sciuri	STASCI
<i>Staphylococcus simulans</i>	Staph. simulans	STASIM
<i>Staphylococcus succinus ssp casei</i>	Staph. suc. ssp casei	STASUCCA
<i>Staphylococcus succinus ssp succinus</i>	Staph. suc. ssp succinus	STASUCSU
<i>Staphylococcus vitulinus</i>	Staph. vitulinus	STAVIT
<i>Staphylococcus warneri</i>	Staph. warneri	STAWAR
<i>Staphylococcus xylosus</i>	Staph. xylosus	STAXYL

Organism Long Name	Organism Short Name	Organism Code
<i>Stenotrophomonas africana</i>	Sten. africana	STEAFR
<i>Stenotrophomonas maltophilia</i>	Sten. maltophilia	STEMAL
<i>Streptococcus acidominimus</i>	Strep. acidominimus	STRACI
<i>Streptococcus agalactiae</i> (Strep. group B)	Strep. agalactiae (Str. gr. B)	STRAGA
<i>Streptococcus alactolyticus</i>	Strep. alactolyticus	STRALA
<i>Streptococcus anginosus</i>	Strep. anginosus	STRANG
<i>Streptococcus anginosus</i> (previously <i>milleri</i>) group	Strep. anginosus (<i>milleri</i>) gr.	STRANGGR
<i>Streptococcus bovis</i> (Strep. group D)	Strep. bovis (Str. gr. D)	STRBOV
<i>Streptococcus bovis</i> I (Strep. group D)	Strep. bovis I (Str. gr. D)	STRBOVI
<i>Streptococcus bovis</i> II (Strep. group D)	Strep. bovis II (Str. gr. D)	STRBOVII
<i>Streptococcus canis</i>	Strep. canis	STRCAN
<i>Streptococcus constellatus</i>	Strep. constellatus	STRCON
<i>Streptococcus criceti</i>	Strep. criceti	STRCRC
<i>Streptococcus cristatus</i>	Strep. cristatus	STRCRS
<i>Streptococcus downei</i>	Strep. downei	STRDOW
<i>Streptococcus dysgalactiae</i>	Strep. dysgalactiae	STRDYS
<i>Streptococcus dysgalactiae</i> ssp <i>dysgalactiae</i>	Strep. dysgal. ssp dysgal.	STRDYSDY
<i>Streptococcus dysgalactiae</i> ssp <i>equisimilis</i>	Strep. dysgal. ssp equis.	STRDYSEM
<i>Streptococcus dysgalactiae/canis</i>	Strep. dysgal./canis	STRDYSCAN
<i>Streptococcus equi</i>	Strep. equi	STREQU
<i>Streptococcus equi</i> ssp <i>equi</i>	Strep. equi ssp equi	STREQUE
<i>Streptococcus equi</i> ssp <i>zooepidemicus</i>	Strep. equi ssp zooepid.	STREQUZ
<i>Streptococcus equinus</i>	Strep. equinus	STREQN
<i>Streptococcus ferus</i>	Strep. ferus	STRFER
<i>Streptococcus gallolyticus</i> ssp <i>macedonicus</i>	Strep. gallolyti. ssp macedon.	STRMAC
<i>Streptococcus gordonii</i>	Strep. gordonii	STRGOR
<i>Streptococcus</i> group A (<i>Strep. pyogenes</i>)	Strep. group A (Str. pyogenes)	STRGRA
<i>Streptococcus</i> group B (<i>Strep. agalactiae</i>)	Strep. group B (Str. agalact.)	STRGRB

Organism Long Name	Organism Short Name	Organism Code
<i>Streptococcus</i> group C (large colony)	Strep. group C (lg col)	STRGRC
<i>Streptococcus</i> group C/G (large colony)	Strep. group C/G (lg col)	STRGRCG
<i>Streptococcus</i> group CFG (small colony)	Strep. group CFG (sm col)	STRGRCFG
<i>Streptococcus</i> group D (non-enterococcus)	Strep. group D (non-enteroc.)	STRGRDNE
<i>Streptococcus</i> group E	Strep. group E	STRGRE
<i>Streptococcus</i> group F	Strep. group F	STRGRF
<i>Streptococcus</i> group G (large colony)	Strep. group G (lg col)	STRGRG
<i>Streptococcus</i> group L	Strep. group L	STRGRL
<i>Streptococcus hyointestinalis</i>	Strep. hyointestinalis	STRHYO
<i>Streptococcus infantarius ssp coli</i>	Strep. infa ssp coli	STRINACO
<i>Streptococcus infantarius ssp infantarius</i>	Strep. infa ssp infantarius	STRINAIN
<i>Streptococcus infantis</i>	Strep. infantis	STRINF
<i>Streptococcus iniae</i>	Strep. iniae	STRINI
<i>Streptococcus intermedius</i>	Strep. intermedius	STRINR
<i>Streptococcus milleri</i> group	Strep. milleri gr.	STRMILGR
<i>Streptococcus mitis</i>	Strep. mitis	STRMIT
<i>Streptococcus mitis</i> group	Strep. mitis gr.	STRMITGR
<i>Streptococcus mutans</i>	Strep. mutans	STRMUT
<i>Streptococcus mutans</i> group	Strep. mutans gr.	STRMUTGR
<i>Streptococcus oralis</i>	Strep. oralis	STRORA
<i>Streptococcus parasanguinis</i>	Strep. parasanguinis	STRPAR
<i>Streptococcus peroris</i>	Strep. peroris	STRPER
<i>Streptococcus pneumoniae</i>	Strep. pneumoniae	STRPNE
<i>Streptococcus porcinus</i>	Strep. porcinus	STRPOR
<i>Streptococcus pyogenes</i> (Strep. group A)	Strep. pyogenes (Str. gr. A)	STRPYO
<i>Streptococcus ratti</i>	Strep. ratti	STRRAT
<i>Streptococcus salivarius</i>	Strep. salivarius	STRSAL
<i>Streptococcus salivarius</i> group	Strep. salivarius gr.	STRSALGR
<i>Streptococcus sanguinis</i>	Strep. sanguinis	STRSAN

Organism Long Name	Organism Short Name	Organism Code
<i>Streptococcus sanguinis</i> group	Strep. sanguinis gr.	STRSANGR
<i>Streptococcus sobrinus</i>	Strep. sobrinus	STRSOB
<i>Streptococcus suis</i>	Strep. suis	STRSUI
<i>Streptococcus thermophilus</i>	Strep. thermophilus	STRTHE
<i>Streptococcus uberis</i>	Strep. uberis	STRUBE
<i>Streptococcus vestibularis</i>	Strep. vestibularis	STRVES
<i>Streptococcus viridans</i> group	Strep. viridans group	STRVIRGR
<i>Suttonella indologenes</i>	Sutto. indologenes	SUTIND
<i>Tatumella pyseos</i>	Tat. pyseos	TATPTY
<i>Trichosporon asahii</i>	Tric. asahii	TRIASA
<i>Trichosporon asteroides</i>	Tric. asteroides	TRIAST
<i>Trichosporon cutaneum</i>	Tric. cutaneum	TRICUT
<i>Trichosporon inkin</i>	Tric. inkin	TRIINK
<i>Trichosporon loubieri</i>	Tric. loubieri	TRILOU
<i>Trichosporon mucoides</i>	Tric. mucoides	TRIMUC
<i>Trichosporon ovoides</i>	Tric. ovoides	TRIOVO
<i>Trichosporon pullulans</i>	Tric. pullulans	TRIPUL
<i>Vibrio alginolyticus</i>	Vib. alginolyticus	VIBALG
<i>Vibrio cholerae</i>	Vib. cholerae	VIBCHO
<i>Vibrio fluvialis</i>	Vib. fluvialis	VIBFLU
<i>Vibrio metschnikovii</i>	Vib. metschnikovii	VIBMET
<i>Vibrio mimicus</i>	Vib. mimicus	VIBMIM
<i>Vibrio parahaemolyticus</i>	Vib. parahaemolyticus	VIBPAR
<i>Vibrio vulnificus</i>	Vib. vulnificus	VIBVUL
<i>Wangiella dermatitidis</i>	Wan. dermatitidis	WANDER
<i>Weeksella virosa</i>	Week. virosa	WEEVIR
<i>Yersinia aldovae</i>	Yer. aldovae	YERALD
<i>Yersinia bercovieri</i>	Yer. bercovieri	YERBER
<i>Yersinia enterocolitica</i>	Yer. enterocolitica	YERENT

Organism Long Name	Organism Short Name	Organism Code
<i>Yersinia frederiksenii</i>	Yer. frederiksenii	YERFRE
<i>Yersinia intermedia</i>	Yer. intermedia	YERINT
<i>Yersinia kristensenii</i>	Yer. kristensenii	YERKRI
<i>Yersinia mollaretii</i>	Yer. mollaretii	YERMOL
<i>Yersinia pseudotuberculosis</i>	Yer. pseudotuberculosis	YERPSE
<i>Yersinia rohdei</i>	Yer. rohdei	YERROH
<i>Yersinia ruckeri</i>	Yer. ruckeri	YERRUC
<i>Yokenella regensburgei</i>	Yok. regensburgei	YOKREG
<i>Zygosaccharomyces bailli</i>	Zyg. bailli	ZYGBAI



Panel Information

F.1 List of Antimicrobial Agents in Phoenix Panels

Antimicrobial			Available Concentrations		
			Gram Negative	Gram Positive	Strep
Class	Drug Name ↓	Drug Code	Range	Range	Range
Aminoglycoside	Amikacin	AN	0.5-64	0.5-64	N/A
Beta-lactam	Amoxicillin	AMX	0.5-32	0.25-32	0.125-32
Beta-lactam	Amoxicillin-Clavulanate (f)	AXC	0.5/2-32/2	0.25/2-32/2	N/A
Beta-lactam	Amoxicillin-Clavulanate	AMC	0.5/0.25-32/16	0.25/0.12-32/16	0.125/0.06-32/16
Beta-lactam	Ampicillin	AM	0.5-32	0.06-32	0.06-32
Beta-lactam	Ampicillin-Sulbactam (f)	SXA	0.5/8-32/8	0.5/8-32/8	N/A
Beta-lactam	Ampicillin-Sulbactam	SAM	1/0.5-32/16	0.5/0.25-32/16	N/A
Aminoglycoside	Arbekacin	ARB	0.25-16	0.25-16	N/A
Macrolides Lincos-amides Streptogramins	Azithromycin	AZM	N/A	0.06-8	N/A

Antimicrobial			Available Concentrations		
Class	Drug Name ↓	Drug Code	Gram Negative	Gram Positive	Strep
			Range	Range	Range
Beta-lactam	Aztreonam	ATM	0.5-64	N/A	N/A
Beta-lactam	Cefaclor	CEC	N/A	0.5-32	N/A
Beta-lactam	Cefazolin	CZ	0.5-32	0.5-32	N/A
Beta-lactam	Cefdinir	CDR	0.12-4	0.12-4	N/A
Beta-lactam	Cefditoren	CDN	0.125-8	0.125-8	N/A
Beta-lactam	Cefepime	FEP	0.5-64	1-64	0.06-4
Beta-lactam	Cefetamet-pivoxil	CAT	0.25-16	N/A	N/A
Beta-lactam	Cefixime	CFM	0.125-8	N/A	N/A
Beta-lactam	Cefmetazole	CMZ	2-64	1-64	N/A
Beta-lactam	Cefoperazone	CFP	0.5-64	1-64	N/A
Beta-lactam	Cefoperazone-Sulbactam	SCP	0.5/8-64/8	N/A	N/A
Beta-lactam	Cefotaxime	CTX	0.5-64	1-64	0.06-4
Beta-lactam	Cefotetan	CTT	2-64	1-64	N/A
Beta-lactam	Cefotiam	CFT	0.5-64	0.5-64	N/A
Beta-lactam	Cefoxitin	FOX	0.5-64	1-64	N/A
Beta-lactam	Cefozopran	CFZ	N/A	1-64	N/A
Beta-lactam	Cefpirome	CPO	0.5-64	0.5-64	N/A
Beta-lactam	Cefpodoxime	CPD	0.12-8	0.5-8	N/A
Beta-lactam	Cefsulodin	CFS	1-64	N/A	N/A
Beta-lactam	Ceftazidime	CAZ	0.5-64	1-64	N/A
Beta-lactam	Ceftibuten	CTB	0.5-32	N/A	N/A
Beta-lactam	Ceftizoxime	ZOX	0.5-64	1-64	N/A
Beta-lactam	Ceftriaxone	CRO	0.5-64	1-64	0.06-4
Beta-lactam	Cefuroxime	CXM	1-64	1-64	0.12-4
Beta-lactam	Cephalexin	CN	1-64	0.5-64	N/A
Beta-lactam	Cephalothin	CF	1-64	0.5-64	N/A
Phenicol	Chloramphenicol	C	1-32	1-32	1-32

Antimicrobial			Available Concentrations		
Class	Drug Name ↓	Drug Code	Gram Negative	Gram Positive	Strep
			Range	Range	Range
Quinolone	Ciprofloxacin	CIP	0.12-4	0.12-4	N/A
Macrolides Lincos-amides Streptogramins	Clarithromycin	CLR	N/A	0.06-8	N/A
Macrolide Lincosamide	Clindamycin	CC	N/A	0.12-8	0.03-4
Cyclic peptide	Colistin	CL	0.5-4	N/A	N/A
Cyclic lipopeptide	Daptomycin	DAP	N/A	0.125-32	0.03-16
Tetracycline	Doxycycline	D	N/A	0.25-16	N/A
Beta-lactam	Ertapenem	ETP	0.25-32	0.25-32	0.06-4
Macrolide Lincosamide	Erythromycin	E	N/A	0.125-8	0.015-4
Fosfomycin	Fosfomycin	FF	8-256	8-256	N/A
Fusidane	Fusidic Acid	FA	N/A	0.5-32	N/A
Quinolone	Garenoxacin	GRN	0.125-16	0.25-8	0.03-4
Quinolone	Gatifloxacin	GAT	0.25-8	0.25-8	0.06-8
Quinolone	Gemifloxacin	GEM	0.125-8	0.125-2	0.06-8
Aminoglycoside	Gentamicin	GM	0.5-16	0.5-16	N/A
Aminoglycoside	Gentamicin-Syn	GMS	N/A	500	250-1000
Aminoglycoside	Gentamicin-Syn (SFM)	GMF	N/A	250	N/A
Beta-lactam	Imipenem	IPM	0.25-16	0.5-16	0.015-4
Aminoglycoside	Isepamycin	ISP	0.5-32	N/A	N/A
Aminoglycoside	Kanamycin	K	0.5-64	0.5-64	N/A
Aminoglycoside	Kanamycin-Syn	KS	N/A	250	250-1000
Quinolone	Levofloxacin	LVX	0.25-8	0.25-8	0.25-16
Macrolides Lincos-amides Streptogramin	Lincomycin	L	N/A	0.5-16	N/A
Oxazolidinone	Linezolid	LZD	N/A	0.25-32	0.25-16
Quinolone	Lomefloxacin	LOM	0.25-8	0.25-8	N/A
Beta-lactam	Mecillinam	MEC	0.5-32	N/A	N/A
Beta-lactam	Meropenem	MEM	0.25-16	0.5-16	0.03-2

Antimicrobial			Available Concentrations		
			Gram Negative	Gram Positive	Strep
Class	Drug Name ↓	Drug Code	Range	Range	Range
Tetracycline	Minocycline	MI	0.5-16	0.5-32	N/A
Beta-lactam	Moxalactam	MOX	1-64	1-64	N/A
Quinolone	Moxifloxacin	MXF	0.12-8	0.12-8	0.06-8
Pseudomonic acid	Mupirocin	MUP	N/A	0.0625-8	N/A
Pseudomonic acid	Mupirocin High level	MUH	N/A	256	N/A
Quinolone	Nalidixic Acid	NA	1-32	N/A	N/A
Aminoglycoside	Netilmicin	NET	0.5-32	0.5-32	N/A
Nitrofurantoin	Nitrofurantoin	FM	8-512	16-512	N/A
Quinolone	Norfloxacin	NOR	0.25-16	0.25-16	N/A
Quinolone	Ofloxacin	OFX	0.25-8	0.25-8	0.5-16
Beta-lactam	Oxacillin	OX	N/A	0.06-4	N/A
Quinolone	Pefloxacin	PEF	0.25-8	0.25-8	N/A
Beta-lactam	Penicillin G	P	N/A	0.06-32	0.03-8
Beta-lactam	Piperacillin	PIP	0.5-128	1-128	N/A
Beta-lactam	Piperacillin-Tazobactam	TZP	0.5/4-128/4	1/4-128/4	N/A
Macrolides Lincosamides Streptogramin	Pristinamycin	PR	N/A	0.25-4	0.06-4
Macrolides Lincosamides Streptogramin	Quinupristin-Dalfopristin	SYN	N/A	0.5-4	0.12-8
Rifamycin	Rifampin	RA	N/A	0.25-32	N/A
Aminoglycoside	Streptomycin-Syn	STS	N/A	1000	250-1000
Aminoglycoside	Streptomycin-Syn (SFM)	STF	N/A	250	N/A
Glycopeptide	Teicoplanin	TEC	N/A	0.5-32	1-32
Ketolide	Telithromycin	TEL	N/A	0.03125-8	0.06-4
Beta-lactam	Temocillin	TEM	2 – 32	N/A	N/A
Tetracyclinee	Tetracycline	TE	0.5-16	0.5-16	0.06-16

Antimicrobial			Available Concentrations		
			Gram Negative	Gram Positive	Strep
Class	Drug Name ↓	Drug Code	Range	Range	Range
Beta-lactam	Ticarcillin	TIC	1-128	1-128	N/A
Beta-lactam	Ticarcillin-Clavulanate	TIM	1/2-128/2	1/2-128/2	N/A
Glycylcycline	Tigecycline	TGC	0.25-16	N/A	N/A
Aminoglycoside	Tobramycin	NN	0.12-16	1 -16	N/A
Folate Antagonist	Trimeth-Sulfa (DIN)	STG	0.4/7.6-12.8/243.2	0.4/7.6-12.8/243.2	N/A
Folate Antagonist	Trimethoprim	TMP	0.5-16	0.5-16	N/A
Folate Antagonist	Trimethoprim-Sulfamethoxazole	SXT	0.5/9.5-16/304	0.5/9.5-16/304	0.06/1.19-16/304
Glycopeptide	Vancomycin	VA	N/A	0.5-32	0.06-32

BOLD = Different Range for Gram Negative and Gram Positive

In general, the Phoenix System provides a MIC for all organisms at any of the concentrations defined on a specific panel. For certain drug and organism combinations as indicated in the following tables, a specific minimum/maximum MIC is reported even if there is a lower/higher concentration on the panel.

Antimicrobial	Organism	Min MIC (µg/mL)	Max MIC (µg/mL)
Gram Negative			
Amikacin	<i>Morganella morganii</i>	2	
Amoxicillin-Clavulanic Acid (fixed clav. acid conc.)	<i>Proteus mirabilis</i>	1/2	
Amoxicillin-Clavulanic Acid (variable clav. acid conc.)	<i>Proteus mirabilis</i>	2/1	
Arbekacin	<i>Enterobacter aerogenes</i>	1	
	<i>Morganella morganii</i>	1	
	<i>Providencia</i> genus	1	
Cefdinir	<i>Proteus mirabilis</i>	0.25	
Cefixime	<i>Proteus mirabilis</i>	0.5	
	<i>Providencia</i> genus	0.5	
Cefotiam	<i>Citrobacter freundii</i>	2	
	<i>Proteus mirabilis</i>	4	
	<i>Providencia</i> genus	4	
Ceftriaxone	<i>Morganella morganii</i>	2	
Fosfomycin w/G6P	<i>Pseudomonas aeruginosa</i>	16	64
Fosfomycin w/G6P	<i>Serratia</i> genus	32	256
Garenoxacin	<i>Stenotrophomonas maltophilia</i>	1	
Imipenem	<i>Acinetobacter baumannii</i>	1	
	<i>Enterobacter aerogenes</i>	1	
	<i>Enterobacter cloacae</i>	1	
	<i>Morganella morganii</i>	2	
	<i>Proteus mirabilis</i>	2	
	<i>Proteus mirabilis</i>	4	
Kanamycin	<i>Proteus mirabilis</i>	4	
Meropenem	<i>Proteus mirabilis</i>	0.5	
Ticarclillin	<i>Proteus mirabilis</i>	4	

Antimicrobial	Organism	Min MIC (µg/mL)	Max MIC (µg/mL)
Gram Positive			
Amikacin	<i>Staphylococcus epidermidis</i>	8	
	<i>Staphylococcus</i> other*	8	
Amoxicillin	<i>Staphylococcus aureus</i>	2	
	<i>Staphylococcus epidermidis</i>	2	
Ampicillin	<i>Staphylococcus aureus</i>		1
	<i>Enterococcus</i> other**	1	
Ampicillin-Sulbactam (f) (SXA)	<i>Staphylococcus epidermidis</i>	1	
Ampicillin-Sulbactam (SAM)	<i>Enterococcus</i> other**	2	
Cefotetan	<i>Staphylococcus epidermidis</i>	8	
Ceftriaxone	<i>Staphylococcus aureus</i>	2	
Cephalexin	<i>Staphylococcus epidermidis</i>	1	
Daptomycin	<i>Enterococcus casseliflavus/</i> <i>gallinarum</i>	2	
	<i>Enterococcus</i> other**	1	8
Netilmicin	<i>Staphylococcus epidermidis</i>	2	
Norfloxacin	<i>Enterococcus</i> other**	2	
Penicillin	<i>Staphylococcus aureus</i>		1
	<i>Staphylococcus epidermidis</i>		1
	<i>Enterococcus</i> other**	2	
Piperacillin	<i>Staphylococcus epidermidis</i>	2	
Teicoplanin	<i>Staphylococcus epidermidis</i>	2	
Ticarcillin	<i>Staphylococcus epidermidis</i>	4	
	<i>Staphylococcus</i> other*	4	
Ticarcillin/Clavulanate	<i>Staphylococcus aureus</i>	4/2	
Trovafloxacin	<i>Enterococcus faecium</i>	1	
Streptococci			
Daptomycin	Viridans group	0.25	

* Coagulase negative *Staphylococcus* other than *S. epidermidis*

** *Enterococcus* sp. other than *E. faecalis* and *E. faecium*

F.2 List of Reagents and Principles Employed in the Phoenix System

F.2.1 Gram Negative

SUBSTRATE NAME	CODE	PRINCIPLE
L-PHENYLALANINE-AMC	A_LPHET	Enzymatic hydrolysis of the amide or glycosidic bond results in the release of a fluorescent coumarin or 4-methylumbelliferone derivative.
4MU-N-ACETYL-BD-GLUCOSAMINIDE	M_NAG	
L-GLUTAMIC ACID-AMC	A_LGTA	
L-TRYPTOPHAN-AMC	A_LTRY	
L-PYROGLUTAMIC ACID-AMC	A_LPYR	
L-PROLINE-AMC	A_LPROB	
L-ARGININE-AMC	A_LARGH	
ARGININE-ARGININE-AMC	A_ARARR	
GLYCINE-AMC	A_GLYB	
L-LEUCINE-AMC	A_LLEUH	
LYSINE-ALANINE-AMC	A_LYALD	
GLUTARYL-GLYCINE-ARGININE-AMC	A_GUGAH	
GLYCINE-PROLINE-AMC	A_GLPRB	
COLISTIN	C_CLST	Resistance to the antimicrobial agent results in a reduction of the resazurin based indicator.
POLYMYXIN B	C_PXB	
D-MANNITOL	C_DMNT	Utilization of a carbon source results in a reduction of the resazurin based indicator.
CITRATE	C_CIT	
ACETATE	C_ACT	
ADONITOL	C_ADO	
MALONATE	C_MLO	
ALPHA-KETOGLUTARIC ACID	C_KGA	
TIGLIC ACID	C_TIG	
FLUORESCENT POSITIVE CONTROL	FLR_CTL	Control to standardize fluorescent substrate results.
FLUORESCENT POSITIVE CONTROL	FLR_CTL	
L-PROLINE-NA	N_LPROT	Enzymatic hydrolysis of the colorless amide substrate releases yellow p-nitroaniline.
GAMMA-L-GLUTAMYL-NA	N_LGGH	
BIS (PNP) PHOSPHATE	P_BPHO	Enzymatic hydrolysis of the colorless aryl substituted glycoside releases yellow p-nitrophenol.
PNP-BD-GLUCOSIDE	P_BDGLU	

BETA-ALLOSE	R BALL	Utilization of carbohydrate results in lower pH and change in indicator (phenol red).
N-ACETYL-GALACTOSAMINE	R_NGA	
N-ACETYL-GLUCOSAMINE	R_NGU	
SORBITOL	R_DSBT	
SUCROSE	R_DSUC	
GALACTURONIC ACID	R_GRA	
MALTULOSE	R_MTU	
L-RHAMNOSE	R_LRHA	
BETA-GENTIOBIOSE	R_BGEN	
DEXTROSE	R_DEX	
D-GALACTOSE	R_DGAL	
D-FRUCTOSE	R_DFRU	
D-GLUCONIC ACID	R_DGUA	
D-MELIBIOSE	R_DMLB	
L-ARABINOSE	R_LARA	
METHYL-B-GLUCOSIDE	R_MBGU	
ORNITHINE	S_ORN	Utilization of ornithine results in pH rise and change in fluorescent indicator.
UREA	S_URE	Hydrolysis of urea and the resulting ammonia change results in pH rise and change in fluorescent indicator.
ESCULIN	T_ESC	Hydrolysis of esculin results in a black precipitate in the presence of ferric ion.

F.2.2 Gram Positive

SUBSTRATE NAME	CODE	PRINCIPLE
4MU-BD-CELLOBIOSIDE	M_BDCEL	Enzymatic hydrolysis of the amide or glycosidic bond results in the release of a fluorescent coumarin or 4-methylumbelliferone derivative.
L-ALANINE-AMC	A_LALT	
4MU-BD-GLUCOSIDE	M_BDGLU	
L-PROLINE-AMC	A_LPROB	
L-PYROGLUTAMIC ACID-AMC	A_LPYR	
L-PHENYLALANINE-AMC	A_LPHET	
L-TRYPTOPHAN-AMC	A_LTRY	
4MU-PHOSPHATE	M_PHOS	
METHIONINE-AMC	A_META	
4MU-AD-GLUCOSIDE	P_ADGLU	
ARGININE-ARGININE-AMC	A_ARARR	
GLYCINE-PROLINE-AMC	A_GLPRB	
4MU-BD-GLUCURONIDE	M_BDGLC	
L-LEUCINE-AMC	A_LLEUH	
4MU-N-ACETYL-BD-GLUCOSAMINIDE	M_NAG	
L-ARGININE-AMC	A_LARGH	
4MU-PHOSPHATE (with Trehalose)	M_PHOT	
L-HISTIDINE-AMC	A_LHIST	
L-ISOLEUCINE-AMC	A_LISO	
4MU-BD-GALACTOSIDE	M_BDGAL	

COLISTIN	C_CLST	}	Resistance to the antimicrobial agent results in a reduction of the resazurin based indicator.
POLYMYXIN B	C_PXB		
D-GLUCONIC ACID	C_DGUA	}	Utilization of a carbon source results in a reduction of the resazurin based indicator.
3-METHYL GLUTARIC ACID	C_3MGA		
D-FRUCTOSE	C_DFRU		
IMINODIACETIC ACID	C_IMN		
ALPHA-KETOGLUTARIC ACID	C_KGA		
D-MANNITOL	C_DMNT		
3-METHYLADIPIC ACID	C_MAA		
THYMIDINE	C_THY		
FLUORESCENT POSITIVE CONTROL	FLR_CTL	}	Control to standardize fluorescent substrate results.
FLUORESCENT POSITIVE CONTROL	FLR_CTL		
ALANINE-ALANINE-PNA	N_ALALH	}	Enzymatic hydrolysis of the colorless amide substrate releases yellow p-nitroaniline.
L-PROLINE-PNA	N_LPROT		
VALINE-ALANINE-PNA	N_VAALA		
PNP-AD-GLUCOSIDE	P_PAGLU	}	Enzymatic hydrolysis of the colorless aryl substituted glycoside releases yellow p-nitrophenol.
PNP-PHOSPHATE	P_PHOL		
BETA-GENTIOBIOSE	R_BGEN	}	Utilization of carbohydrate results in lower pH and change in indicator (phenol red).
D-SUCROSE	R_DSUC		
MALTOTRIOSE	R_MTT		
N-ACETYL-GLUCOSAMINE	R_NGU		
D-TREHALOSE	R_DTRE		
D-TAGATOSE	R_DTAG		
MALTOSE	R_MAL		
DEXTROSE	R_DEX		
METHYL-α-D-GLUCOSIDE	R_MGP		
UREA	S_URE	}	Hydrolysis of urea and the resulting ammonia change results in pH rise and change in fluorescent indicator.
ESCULIN	T_ESC	}	Hydrolysis of esculin results in a black precipitate in the presence of ferric ion.
NITROCEFIN	L_NCF	}	Enzymatic hydrolysis of the b-Lactam ring results in a color change

F.2.3 Streptococci Panel

SUBSTRATE NAME	CODE	PRINCIPLE
AMYGDALIN	R_AMY	Utilization of carbohydrate results in lower pH and change in indicator (Phenol red).
D-GALACTOSE	R_DGAL	
D-MANNITOL	R_DMTL	
D-RAFFINOSE	R_DRAF	
D-SORBITOL	R_DSBT	
D-TREHALOSE	R_DTRE	
DEXTRIN	R_DNX	
N-ACETYL-GLUCOSAMINE	R_NGU	
PHENYL GLUCOSIDE	R_PHG	
SALICIN	R_SAL	
ONP-BD-GLUCOSIDE	O_BOGLU	Enzymatic hydrolysis of the colorless aryl substituted glycoside releases yellow p-nitrophenol.
PNP-AD-GALACTOSIDE	P_ADGAL	
PNP-BD-CELLOBIOSIDE	P_CELB	
PNP-BD-GALACTOSIDE	P_GALB	
PNP-AD-GLUCOSIDE	P_PAGLU	
PNP-PHOSPHATE	P_PHOL	
ALANINE-ALANINE-PNA	N_ALALH	Enzymatic hydrolysis of the colorless amide substrate releases yellow p-nitroanilide.
VALINE-ALANINE-PNA	N_VAALA	
L-LYSINE-PNA	N_LLYSB	
FLUORESCENT POSITIVE CONTROL	FLR_CTL	Control to standardize fluorescent substrate results.
FLUORESCENT POSITIVE CONTROL	FLR_CTL	
THYMIDINE	THY	Utilization of a carbon source resulting in a reduction of the indicator (Resazurin based).
PULLULAN	PUL	
D-TREHALOSE	TRL	
D-LACTOSE	DLAC	

LYSINE-AMC	A_LYSA	Enzymatic hydrolysis of the amide or glycosidic bond results in the release of a fluorescent coumarin or 4-methylumbelliferone derivative.
SERINE-TYROSINE-AMC	A_SETY	
L-CITRULLINE-AMC	A_LCTU	
L-PYROGLUTAMIC ACID-AMC	A_LPYR	
ISOLEUCINE-AMC	A_LISO	
L-TRYPTOPHAN-AMC	A_LTRY	
L-VALINE-AMC	A_LVAL	
ARGININE-ARGININE-AMC	A_ARARR	
LYSINE-ALANINE-AMC	A_LYALD	
ASPARAGINE-AMC	A_APGT	
L-ARGININE-AMC	A_LARGH	
L-HISTIDINE-AMC	A_LHIST	
ALANINE-AFC	Z_ALFT	
4MU-BD-CELLOBIOSIDE	M_BDCEL	
4MU-BD-GLUCOSIDE	M_BDGLU	
4MU-PHOSPHATE	M_PHOS	
4MU-AD-GLUCOSIDE	M_ADGLU	
4MU-BD-GLUCURONIDE	M_BDGLC	
4MU-N-ACETYL-BD-GLUCOSAMINE	M_NAG	
4MU-PHOSPHATE (with trehalose)	M_PHOT	
4MU-BD-GALACTOSIDE	M_BDGAL	
ESCULIN	T_ESC	Hydrolysis of esculin results in a black precipitate in the presence of ferric ion.

F.2.4 Yeast Panel

SUBSTRATE NAME	CODE	PRINCIPLE
PNP-BD-GLUCOSIDE	P_BDGLU	Enzymatic hydrolysis of the colorless aryl substituted glycoside releases yellow p-nitrophenol.
PNP-AD-GLUCOSIDE	P_PAGLU	
ONP-BD-GLUCOSIDE	O_BOGLU	
L-SORBOSE	C_LSBO	Utilization of a carbon source results in a reduction of the resazurin based indicator.
DEXTROSE	C_DEX	
D-MANNITOL	C_DMNT	
D-SUCROSE	C_DSUC	
METHYL-AD-GLUCOPYRANOSIDE	C_MGP	
N-ACETYL-BD-GLUCOSAMINIDE	C_NAG	
DEXTROSE	R_DEX	Utilization of carbohydrate results in lower pH and change in indicator (phenol red).
D-FRUCTOSE	R_DFRU	
D-GALACTOSE	R_DGAL	
SUCROSE	R_DSUC	
D-TREHALOSE	R_DTRE	
MALTOTRIOSE	R_MTT	
ESCULIN	T_ESC	Hydrolysis of esculin results in a black precipitate in the presence of ferric ion.
FLUORESCENT NEGATIVE CONTROL	Z_FTST	Control to check for fluorescent interference.
FLUORESCENT POSITIVE CONTROL	FLR_CTL	Control to standardize fluorescent substrate results.
FLUORESCENT POSITIVE CONTROL	FLR_CTL	
GAMMA-L-GLUTAMYL-NA	N_LGGH	Enzymatic hydrolysis of the colorless amide substrate releases yellow p-nitroaniline.
L-PROLINE-PNA	N_LPROT	

ASPARAGINE-AMC	A_APGT	Enzymatic hydrolysis of the amide or glycosidic bond results in the release of a fluorescent coumarin or 4-methylumbelliferone derivative.
L-ARGININE-AMC	A_LARGH	
L-GLUTAMINE-AMC	A_LGLNB	
L-TYROSINE-AMC	A_LTYO	
L-HISTIDINE-AMC	A_LHIST	
ORNITHINE-AMC	A_ORN	
THREONINE-AMC	A_THR	
HYDROXY PROLINE-AMC	A_LHYP	
4MU-N-ACETYL-BD-GLUCOSAMINE	M_NAG	
4MU-AD-GLUCOSIDE	M_ADGLU	
4MU-PHOSPHATE	M_PHOS	
LYSINE-ALANINE-AMC	A_LYALD	
GLYCINE-ARGININE-AMC	A_GLARH	
ALANINE-AFC	Z_ALFT	
GLYCINE-AMC	A_GLYB	
L-CITRULLINE-AMC	A_LCTU	
L-GLUTAMIC ACID-AMC	A_LGTA	
L-VALINE-AMC	A_LVAL	
L-ALANINE-AMC	A_LALT	
L-PROLINE-AMC	A_LPROB	
L-TRYPTOPHAN-AMC	A_LTRY	
H-B-ALANINE-AMC	A_HBALT	
4MU-BD-CELLOBIOSIDE	M_BDCEL	
4MU-BD-GLUCOSIDE	M_BDGLU	
GLYCINE-PROLINE-AMC	A_GLPRB	
LYSINE-PROLINE-AMC	A_LYPRA	
BENZYL-L-CYSTEINE-AMC	A_BZLCY	
AMINO ACID	S_GTN	Utilization of the amino acid results in a change in fluorescence.
UREA	S_URE	Hydrolysis of urea and the resulting ammonia change results in pH rise and change in fluorescent indicator.

F.3 Taxa for ID/AST Determination

F.3.1 Gram Negative (0.5 McFarland)

GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST ²	GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST ²
<i>Achromobacter denitrificans</i>	AST	<i>Aeromonas schubertii</i>	ID/AST
<i>Achromobacter piechaudii</i>	AST	<i>Aeromonas sobria</i>	ID/AST
<i>Achromobacter</i> species	ID/AST	<i>Aeromonas trota</i>	AST
<i>Achromobacter xylosoxidans</i> ssp <i>xylosoxidans</i>	AST	<i>Aeromonas veronii</i>	ID/AST
<i>Acinetobacter baumannii</i> ²	ID/AST	<i>Alcaligenes faecalis</i>	ID/AST
<i>Acinetobacter baumannii</i> / <i>calcoaceticus</i> complex ²	ID/AST	<i>Bergeyella zoohelcum</i>	ID
<i>Acinetobacter calcoaceticus</i>	AST	<i>Bordetella bronchiseptica</i>	ID
<i>Acinetobacter haemolyticus</i>	ID/AST	<i>Brevundimonas diminuta</i>	ID/AST
<i>Acinetobacter johnsonii</i>	AST	<i>Brevundimonas vesicularis</i>	ID/AST
<i>Acinetobacter junii</i>	AST	<i>Burkholderia caryophylli</i>	AST
<i>Acinetobacter lwoffii</i>	ID/AST	<i>Burkholderia cepacia</i>	ID/AST
<i>Acinetobacter radioresistens</i>	AST	<i>Burkholderia gladioli</i>	ID/AST
<i>Acinetobacter</i> species	ID/AST	<i>Burkholderia glathei</i>	AST
<i>Actinobacillus lignieresii</i>	ID	<i>Burkholderia graminis</i>	AST
<i>Actinobacillus suis</i>	ID	<i>Burkholderia multivorans</i>	AST
<i>Actinobacillus ureae</i>	ID	<i>Burkholderia phenazinium</i>	AST
<i>Aeromonas allosaccharophila</i>	AST	<i>Burkholderia pyrrocinia</i>	AST
<i>Aeromonas caviae</i>	ID/AST	<i>Cardiobacterium hominis</i>	ID
<i>Aeromonas eucrenophila</i>	AST	CDC group EF-4a	ID
<i>Aeromonas hydrophila</i>	ID/AST	CDC group EF-4b	ID
<i>Aeromonas jandaei</i>	AST	CDC group EO-2	ID
<i>Aeromonas media</i>	AST	CDC group Vb-3	ID
<i>Aeromonas salmonicida</i>	AST	<i>Cedecea davisae</i>	ID/AST
<i>Aeromonas salmonicida</i> ssp <i>achromogenes</i>	AST	<i>Cedecea lapagei</i>	ID/AST
<i>Aeromonas salmonicida</i> ssp <i>masoucida</i>	ID/AST	<i>Cedecea neteri</i>	ID/AST
<i>Aeromonas salmonicida</i> ssp <i>pectinolytica</i>	AST	<i>Cedecea</i> species 3	AST
<i>Aeromonas salmonicida</i> ssp <i>salmonicida</i>	ID/AST	<i>Cedecea</i> species 5	AST
<i>Aeromonas salmonicida</i> ssp <i>smithia</i>	ID/AST	<i>Chromobacterium violaceum</i>	ID
		<i>Chryseobacterium gleum</i>	ID/AST

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 2.3.1).
¹ Not all species encountered during clinical performance evaluations
² Organism encountered in clinical trials and ≥ 20 strains available for antimicrobial/organism performance analysis

GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST [*]	GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST [*]
<i>Chryseobacterium indologenes</i>	ID/AST	<i>Enterobacter nimipressuralis</i>	AST
<i>Chryseobacterium scopthalmum</i>	AST	<i>Enterobacter sakazakii</i>	ID/AST
<i>Citrobacter amalonaticus</i>	ID/AST	<i>Escherichia blattae</i>	AST
<i>Citrobacter braakii</i>	ID/AST	<i>Escherichia coli</i> ²	ID/AST
<i>Citrobacter farmeri</i>	ID/AST	<i>Escherichia fergusonii</i>	ID/AST
<i>Citrobacter freundii</i>	ID/AST	<i>Escherichia hermannii</i>	ID/AST
<i>Citrobacter gillenii</i>	AST	<i>Escherichia vulneris</i>	ID/AST
<i>Citrobacter koseri</i>	ID/AST	<i>Ewingella americana</i>	ID
<i>Citrobacter murlinae</i>	AST	<i>Grimontia hollisae</i>	ID
<i>Citrobacter rodentium</i>	AST	<i>Hafnia alvei</i>	ID/AST
<i>Citrobacter sedlakii</i>	ID/AST	<i>Kingella denitrificans</i>	ID
<i>Citrobacter werkmanii</i>	ID/AST	<i>Kingella kingae</i>	ID
<i>Citrobacter youngae</i>	ID/AST	<i>Klebsiella granulomatis</i>	AST
<i>Comamonas terrigena</i>	ID	<i>Klebsiella oxytoca</i> ²	ID/AST
<i>Comamonas testosteroni</i>	ID	<i>Klebsiella pneumoniae</i> ssp <i>ozaenae</i>	ID/AST
<i>Cupriavidus gilardii</i>	AST	<i>Klebsiella pneumoniae</i> ssp <i>pneumoniae</i> ²	ID/AST
<i>Cupriavidus pauculus</i>	ID/AST	<i>Klebsiella pneumoniae</i> ssp <i>rhinoscleromatis</i>	ID/AST
<i>Delftia acidovorans</i>	ID/AST	<i>Kluyvera ascorbata</i>	ID/AST
<i>Edwardsiella hoshinae</i>	ID/AST	<i>Kluyvera cryocrescens</i>	ID/AST
<i>Edwardsiella ictaluri</i>	ID/AST	<i>Kluyvera georgiana</i>	AST
<i>Edwardsiella tarda</i>	ID/AST	<i>Kluyvera intermedia</i>	ID/AST
<i>Eikenella corrodens</i>	ID	<i>Leclercia adecarboxylata</i>	ID/AST
<i>Elizabethkingia meningoseptica</i>	ID/AST	<i>Leminorella grimontii</i>	ID
<i>Empedobacter brevis</i>	ID	<i>Leminorella richardii</i>	ID
<i>Enterobacter aerogenes</i> ²	ID/AST	<i>Mannheimia haemolytica</i>	ID
<i>Enterobacter amnigenus</i>	AST	<i>Methylobacterium extorquens</i>	ID
<i>Enterobacter amnigenus</i> biogroup 1	ID/AST	<i>Moellerella wisconsensis</i>	ID/AST
<i>Enterobacter amnigenus</i> biogroup 2	ID/AST	<i>Moraxella (Branhamella)</i> <i>catarrhalis</i>	ID
<i>Enterobacter asburiae</i>	ID/AST	<i>Moraxella species</i>	ID
<i>Enterobacter cancerogenus</i>	ID/AST	<i>Morganella morganii</i> ²	ID/AST
<i>Enterobacter cloacae</i> ²	ID/AST	<i>Myroides odoratus/odoratimimus</i>	ID/AST
<i>Enterobacter cloacae</i> ssp <i>dissolvens</i>	AST	<i>Ochrobactrum anthropi</i>	ID/AST
<i>Enterobacter cowanii</i>	AST	<i>Oligella ureolytica</i>	ID
<i>Enterobacter gergoviae</i>	ID/AST	<i>Oligella urethralis</i>	ID
<i>Enterobacter hormaechei</i>	ID/AST	<i>Pantoea agglomerans</i>	ID/AST
<i>Enterobacter kobei</i>	AST	<i>Pantoea ananatis</i>	AST

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 2.3.1).

¹ Not all species encountered during clinical performance evaluations

² Organism encountered in clinical trials and ≥ 20 strains available for antimicrobial/organism performance analysis

GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*	GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*
<i>Pantoea dispersa</i>	AST	<i>Ralstonia species</i>	AST
<i>Pantoea stewartii</i> ssp <i>indologenes</i>	AST	<i>Raoultella ornithinolytica</i>	ID/AST
<i>Pantoea stewartii</i> ssp <i>stewartii</i>	AST	<i>Raoultella planticola</i>	AST
<i>Pasteurella aerogenes</i>	ID	<i>Raoultella terrigena</i>	AST
<i>Pasteurella multocida</i>	ID	<i>Rhizobium radiobacter</i>	ID
<i>Pasteurella pneumotropica</i>	ID	<i>Salmonella aberdeen</i>	AST
<i>Photobacterium damsela</i>	ID	<i>Salmonella abortus-equi</i>	AST
<i>Plesiomonas shigelloides</i>	ID	<i>Salmonella adelaide</i>	AST
<i>Pragia fontium</i>	ID	<i>Salmonella aderike</i>	AST
<i>Proteus hauseri</i>	AST	<i>Salmonella agona</i>	AST
<i>Proteus mirabilis</i> ²	ID/AST	<i>Salmonella alachua</i>	AST
<i>Proteus myxofaciens</i>	AST	<i>Salmonella anatum</i>	AST
<i>Proteus penneri</i>	ID/AST	<i>Salmonella arizonae</i>	AST
<i>Proteus vulgaris</i>	ID/AST	<i>Salmonella avana</i>	AST
<i>Providencia alcalifaciens</i>	ID/AST	<i>Salmonella bahrenfeld</i>	AST
<i>Providencia heimbachae</i>	AST	<i>Salmonella blockley</i>	AST
<i>Providencia rettgeri</i>	ID/AST	<i>Salmonella bongori</i>	AST
<i>Providencia rustigianii</i>	ID/AST	<i>Salmonella braenderup</i>	AST
<i>Providencia stuartii</i>	ID/AST	<i>Salmonella bredeney</i>	AST
<i>Pseudomonas aeruginosa</i> ²	ID/AST	<i>Salmonella bunn</i>	AST
<i>Pseudomonas alcaligenes</i>	AST	<i>Salmonella californica</i>	AST
<i>Pseudomonas fluorescens</i>	ID/AST	<i>Salmonella carrau</i>	AST
<i>Pseudomonas luteola</i>	ID/AST	<i>Salmonella cerro</i>	AST
<i>Pseudomonas mendocina</i>	ID/AST	<i>Salmonella champaign</i>	AST
<i>Pseudomonas monteilii</i>	AST	<i>Salmonella chittagong</i>	AST
<i>Pseudomonas oryziatrans</i>	ID/AST	<i>Salmonella choleraesuis</i>	AST
<i>Pseudomonas pertucinogena</i>	AST	<i>Salmonella choleraesuis</i> ssp <i>arizonae</i>	ID/AST
<i>Pseudomonas pseudoalcaligenes</i>	ID/AST	<i>Salmonella choleraesuis</i> ssp <i>choleraesuis</i>	ID/AST
<i>Pseudomonas putida</i>	ID/AST	<i>Salmonella choleraesuis</i> ssp <i>diarizonae</i>	AST
<i>Pseudomonas species</i>	ID/AST	<i>Salmonella choleraesuis</i> ssp <i>houtenae</i>	AST
<i>Pseudomonas stutzeri</i>	ID/AST	<i>Salmonella choleraesuis</i> ssp <i>indica</i>	AST
<i>Pseudomonas veronii</i>	AST	<i>Salmonella choleraesuis</i> ssp <i>salamae</i>	AST
<i>Rahnella aquatilis</i>	ID	<i>Salmonella cubana</i>	AST
<i>Ralstonia pickettii</i>	ID/AST	<i>Salmonella dakar</i>	AST
<i>Ralstonia solanacearum</i>	AST	<i>Salmonella daressalaam</i>	AST

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 2.3.1).

¹ Not all species encountered during clinical performance evaluations

² Organism encountered in clinical trials and ≥ 20 strains available for antimicrobial/organism performance analysis

GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST [*]	GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST [*]
<i>Salmonella derby</i>	AST	<i>Salmonella montevideo</i>	AST
<i>Salmonella dessau</i>	AST	<i>Salmonella muenchen</i>	AST
<i>Salmonella DT</i>	AST	<i>Salmonella muenster</i>	AST
<i>Salmonella dublin</i>	AST	<i>Salmonella newington</i>	AST
<i>Salmonella duesseldorf</i>	AST	<i>Salmonella newport</i>	AST
<i>Salmonella enteritidis</i>	AST	<i>Salmonella nottingham</i>	AST
<i>Salmonella fresno</i>	AST	<i>Salmonella ohio</i>	AST
<i>Salmonella gallinarum</i>	ID/AST	<i>Salmonella onderstepoort</i>	AST
<i>Salmonella gaminara</i>	AST	<i>Salmonella oranienburg</i>	AST
<i>Salmonella give</i>	AST	<i>Salmonella panama</i>	AST
<i>Salmonella haardt</i>	AST	<i>Salmonella paratyphi A</i>	ID/AST
<i>Salmonella hadar</i>	AST	<i>Salmonella paratyphi B</i>	AST
<i>Salmonella hamburg</i>	AST	<i>Salmonella poona</i>	AST
<i>Salmonella hartford</i>	AST	<i>Salmonella pullorum</i>	ID/AST
<i>Salmonella heidelberg</i>	AST	<i>Salmonella quinhon</i>	AST
<i>Salmonella illinois</i>	AST	<i>Salmonella rubislaw</i>	AST
<i>Salmonella infantis</i>	AST	<i>Salmonella saintpaul</i>	AST
<i>Salmonella inverness</i>	AST	<i>Salmonella schwarzengrund</i>	AST
<i>Salmonella java</i>	AST	<i>Salmonella senftenberg</i>	AST
<i>Salmonella javiana</i>	AST	<i>Salmonella species</i>	ID/AST
<i>Salmonella kentucky</i>	AST	<i>Salmonella tallahassee</i>	AST
<i>Salmonella kirkee</i>	AST	<i>Salmonella thompson</i>	AST
<i>Salmonella kunduchi</i>	AST	<i>Salmonella typhi</i>	ID/AST
<i>Salmonella kvittingfoss</i>	AST	<i>Salmonella typhimurium</i>	AST
<i>Salmonella lansing</i>	AST	<i>Salmonella virginia</i>	AST
<i>Salmonella litchfield</i>	AST	<i>Salmonella westerstede</i>	AST
<i>Salmonella liverpool</i>	AST	<i>Salmonella worthington</i>	AST
<i>Salmonella london</i>	AST	<i>Serratia entomophila</i>	AST
<i>Salmonella luciana</i>	AST	<i>Serratia ficaria</i>	ID/AST
<i>Salmonella manhattan</i>	AST	<i>Serratia fonticola</i>	ID/AST
<i>Salmonella mbandaka</i>	AST	<i>Serratia grimesii</i>	AST
<i>Salmonella meleagridis</i>	AST	<i>Serratia liquefaciens</i>	ID/AST
<i>Salmonella memphis</i>	AST	<i>Serratia marcescens</i> ²	ID/AST
<i>Salmonella michigan</i>	AST	<i>Serratia odorifera</i>	AST
<i>Salmonella minneapolis</i>	AST	<i>Serratia odorifera 1</i>	ID/AST

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 2.3.1).

¹ Not all species encountered during clinical performance evaluations

² Organism encountered in clinical trials and ≥ 20 strains available for antimicrobial/organism performance analysis

GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*	GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*
<i>Serratia odorifera</i> 2	ID/AST	<i>Vibrio alginolyticus</i>	ID
<i>Serratia plymuthica</i>	ID/AST	<i>Vibrio cholerae</i>	ID
<i>Serratia proteamaculans</i> ssp <i>proteamaculans</i>	AST	<i>Vibrio fluvialis</i>	ID
<i>Serratia proteamaculans</i> ssp <i>quinovora</i>	AST	<i>Vibrio metschnikovii</i>	ID
<i>Serratia rubidaea</i>	ID/AST	<i>Vibrio mimicus</i>	ID
<i>Shewanella algae</i>	AST	<i>Vibrio parahaemolyticus</i>	ID
<i>Shewanella putrefaciens</i>	ID/AST	<i>Vibrio vulnificus</i>	ID
<i>Shigella boydii</i>	ID/AST	<i>Weeksella virosa</i>	ID
<i>Shigella dysenteriae</i>	ID/AST	<i>Yersinia aldovae</i>	AST
<i>Shigella flexneri</i>	ID/AST	<i>Yersinia bercovieri</i>	AST
<i>Shigella sonnei</i>	ID/AST	<i>Yersinia enterocolitica</i>	ID/AST
<i>Shigella</i> species	ID/AST	<i>Yersinia frederiksenii</i>	ID/AST
<i>Sphingobacterium multivorum</i>	ID/AST	<i>Yersinia intermedia</i>	ID/AST
<i>Sphingobacterium spiritivorum</i>	ID/AST	<i>Yersinia kristensenii</i>	ID/AST
<i>Sphingobacterium thalpophilum</i>	ID/AST	<i>Yersinia mollaretii</i>	AST
<i>Sphingomonas paucimobilis</i>	ID/AST	<i>Yersinia pseudotuberculosis</i>	ID/AST
<i>Stenotrophomonas africana</i>	AST	<i>Yersinia rohdei</i>	AST
<i>Stenotrophomonas maltophilia</i> ²	ID/AST	<i>Yersinia ruckeri</i>	ID/AST
<i>Suttonella indologenes</i>	ID	<i>Yokenella regensburgei</i>	ID
<i>Tatumella ptyseos</i>	ID		

F.3.2 Gram Negative (0.25 McFarland)

GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*	GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*
<i>Achromobacter</i> species	ID/AST	<i>Aeromonas caviae</i>	ID/AST
<i>Acinetobacter baumannii</i>		<i>Aeromonas hydrophila</i>	ID/AST
<i>calcoaceticus</i> complex	ID/AST	<i>Aeromonas salmonicida</i> ssp <i>masoucida</i>	ID/AST
<i>Acinetobacter haemolyticus</i>	ID/AST	<i>Aeromonas salmonicida</i> ssp <i>salmonicida</i>	ID/AST
<i>Acinetobacter lwoffii</i>	ID/AST	<i>Aeromonas salmonicida</i> ssp <i>smithia</i>	ID/AST
<i>Actinobacillus lignieresii</i>	ID	<i>Aeromonas schubertii</i>	ID/AST
<i>Actinobacillus suis</i>	ID	<i>Aeromonas sobria</i>	ID/AST
<i>Actinobacillus ureae</i>	ID	<i>Aeromonas veronii</i>	ID/AST

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 2.3.1).

¹ Not all species encountered during clinical performance evaluations

² Organism encountered in clinical trials and ≥ 20 strains available for antimicrobial/organism performance analysis

GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*	GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*
<i>Alcaligenes faecalis</i>	ID/AST	<i>Eikenella corrodens</i>	ID
<i>Bergeyella zoohelcum</i>	ID	<i>Elizabethkingia meningoseptica</i>	ID/AST
<i>Bordetella bronchiseptica</i>	ID	<i>Empedobacter brevis</i>	ID
<i>Brevundimonas diminuta</i>	ID/AST	<i>Enterobacter aerogenes</i>	ID/AST
<i>Brevundimonas vesicularis</i>	ID/AST	<i>Enterobacter amnigenus</i> biogroup 1	ID/AST
<i>Burkholderia cepacia</i>	ID/AST	<i>Enterobacter amnigenus</i> biogroup 2	ID/AST
<i>Burkholderia gladioli</i>	ID/AST	<i>Enterobacter asburiae</i>	ID/AST
<i>Cardiobacterium hominis</i>	ID	<i>Enterobacter cancerogenus</i>	ID/AST
CDC group EF-4a	ID	<i>Enterobacter cloacae</i>	ID/AST
CDC group EF-4b	ID	<i>Enterobacter gergoviae</i>	ID/AST
CDC group EO-2	ID	<i>Enterobacter hormaechei</i>	ID/AST
CDC group Vb-3	ID	<i>Enterobacter sakazakii</i>	ID/AST
<i>Cedecea davisae</i>	ID/AST	<i>Escherichia coli</i>	ID/AST
<i>Cedecea lapagei</i>	ID/AST	<i>Escherichia fergusonii</i>	ID/AST
<i>Cedecea neteri</i>	ID/AST	<i>Escherichia hermannii</i>	ID/AST
<i>Chromobacterium violaceum</i>	ID	<i>Escherichia vulneris</i>	ID/AST
<i>Chryseobacterium gleum</i>	ID/AST	<i>Ewingella americana</i>	ID
<i>Chryseobacterium indologenes</i>	ID/AST	<i>Grimontia hollisae</i>	ID
<i>Citrobacter amalonaticus</i>	ID/AST	<i>Hafnia alvei</i>	ID/AST
<i>Citrobacter braakii</i>	ID/AST	<i>Klebsiella oxytoca</i>	ID/AST
<i>Citrobacter farmeri</i>	ID/AST	<i>Klebsiella pneumoniae</i> ssp ozaenae	ID/AST
<i>Citrobacter freundii</i>	ID/AST	<i>Klebsiella pneumoniae</i> ssp pneumoniae	ID/AST
<i>Citrobacter koseri</i>	ID/AST	<i>Klebsiella pneumoniae</i> ssp rhinoscleromatis	ID/AST
<i>Citrobacter sedlakii</i>	ID/AST	<i>Kluyvera ascorbata</i>	ID/AST
<i>Citrobacter werkmanii</i>	ID/AST	<i>Kluyvera cryocrescens</i>	ID/AST
<i>Citrobacter youngae</i>	ID/AST	<i>Kluyvera intermedia</i>	ID/AST
<i>Comamonas terrigena</i>	ID	<i>Leclercia adecarboxylata</i>	ID/AST
<i>Comamonas testosteroni</i>	ID	<i>Leminorella grimontii</i>	ID
<i>Cupriavidus pauculus</i>	ID/AST	<i>Leminorella richardii</i>	ID
<i>Delftia acidovorans</i>	ID/AST	<i>Mannheimia haemolytica</i>	ID
<i>Edwardsiella hoshinae</i>	ID/AST	<i>Moellerella wisconsensis</i>	ID/AST
<i>Edwardsiella ictaluri</i>	ID/AST	<i>Morganella morganii</i>	ID/AST
<i>Edwardsiella tarda</i>	ID/AST	<i>Myroides odoratus/odoratimimus</i>	ID/AST

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 2.3.1).
¹ Not all species encountered during clinical performance evaluations

GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*	GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*
<i>Ochrobactrum anthropi</i>	ID/AST	<i>Serratia ficaria</i>	ID/AST
<i>Oligella ureolytica</i>	ID	<i>Serratia fonticola</i>	ID/AST
<i>Oligella urethralis</i>	ID	<i>Serratia liquefaciens</i>	ID/AST
<i>Pantoea agglomerans</i>	ID/AST	<i>Serratia marcescens</i>	ID/AST
<i>Pasteurella aerogenes</i>	ID	<i>Serratia odorifera</i> 1	ID/AST
<i>Pasteurella multocida</i>	ID	<i>Serratia odorifera</i> 2	ID/AST
<i>Pasteurella pneumotropica</i>	ID	<i>Serratia plymuthica</i>	ID/AST
<i>Photobacterium damsela</i>	ID	<i>Serratia rubidaea</i>	ID/AST
<i>Plesiomonas shigelloides</i>	ID	<i>Shewanella putrefaciens</i>	ID/AST
<i>Pragia fontium</i>	ID	<i>Shigella boydii</i>	ID/AST
<i>Proteus mirabilis</i>	ID/AST	<i>Shigella dysenteriae</i>	ID/AST
<i>Proteus penneri</i>	ID/AST	<i>Shigella flexneri</i>	ID/AST
<i>Proteus vulgaris</i>	ID/AST	<i>Shigella sonnei</i>	ID/AST
<i>Providencia alcalifaciens</i>	ID/AST	<i>Sphingobacterium multivorum</i>	ID/AST
<i>Providencia rettgeri</i>	ID/AST	<i>Sphingobacterium spiritivorum</i>	ID/AST
<i>Providencia rustigianii</i>	ID/AST	<i>Sphingobacterium thalpophilum</i>	ID/AST
<i>Providencia stuartii</i>	ID/AST	<i>Sphingomonas paucimobilis</i>	ID/AST
<i>Pseudomonas aeruginosa</i>	ID/AST	<i>Stenotrophomonas maltophilia</i>	ID/AST
<i>Pseudomonas fluorescens</i>	ID/AST	<i>Suttonella indologenes</i>	ID
<i>Pseudomonas luteola</i>	ID/AST	<i>Tatumella ptyseos</i>	ID
<i>Pseudomonas mendocina</i>	ID/AST	<i>Vibrio alginolyticus</i>	ID
<i>Pseudomonas oryzae</i>	ID/AST	<i>Vibrio cholerae</i>	ID
<i>Pseudomonas putida</i>	ID/AST	<i>Vibrio fluvialis</i>	ID
<i>Pseudomonas stutzeri</i>	ID/AST	<i>Vibrio metschnikovii</i>	ID
<i>Rahnella aquatilis</i>	ID	<i>Vibrio mimicus</i>	ID
<i>Ralstonia pickettii</i>	ID/AST	<i>Vibrio parahaemolyticus</i>	ID
<i>Raoultella ornithinolytica</i>	ID/AST	<i>Vibrio vulnificus</i>	ID
<i>Rhizobium radiobacter</i>	ID	<i>Weeksella virosa</i>	ID
<i>Salmonella choleraesuis</i> ssp <i>arizonae</i>	ID/AST	<i>Yersinia enterocolitica</i>	ID/AST
<i>Salmonella choleraesuis</i> ssp <i>choleraesuis</i>	ID/AST	<i>Yersinia frederiksenii</i>	ID/AST
<i>Salmonella gallinarum</i>	ID/AST	<i>Yersinia intermedia</i>	ID/AST
<i>Salmonella paratyphi</i> A	ID/AST	<i>Yersinia kristensenii</i>	ID/AST
<i>Salmonella pullorum</i>	ID/AST	<i>Yersinia pseudotuberculosis</i>	ID/AST
<i>Salmonella species</i>	ID/AST	<i>Yersinia ruckeri</i>	ID/AST
<i>Salmonella typhi</i>	ID/AST	<i>Yokenella regensburgei</i>	ID

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 2.3.1).

¹ Not all species encountered during clinical performance evaluations

F.3.3 Gram Positive (0.5 McFarland)

GRAM POSITIVE TAXA ¹	ID, AST, ID/AST [*]	GRAM POSITIVE TAXA ¹	ID, AST, ID/AST [*]
<i>Aerococcus urinae</i>	ID	<i>Enterococcus casseliflavus</i>	ID/AST
<i>Aerococcus viridans</i>	ID	<i>Enterococcus cecorum</i>	AST
<i>Alloiococcus otitidis</i>	ID	<i>Enterococcus columbae</i>	AST
<i>Arcanobacterium haemolyticum</i>	ID	<i>Enterococcus dispar</i>	AST
<i>Arcanobacterium pyogenes</i>	ID	<i>Enterococcus durans</i>	ID/AST
<i>Bacillus cereus</i>	ID	<i>Enterococcus faecalis</i>	ID/AST
<i>Bacillus circulans</i>	ID	<i>Enterococcus faecium</i>	ID/AST
<i>Bacillus coagulans</i>	ID	<i>Enterococcus flavescens</i>	AST
<i>Bacillus licheniformis</i>	ID	<i>Enterococcus gallinarum</i>	ID/AST
<i>Bacillus megaterium</i>	ID	<i>Enterococcus gilvus</i>	AST
<i>Bacillus pumilus</i>	ID	<i>Enterococcus haemoperoxidus</i>	AST
<i>Bacillus subtilis</i>	ID	<i>Enterococcus hirae</i>	ID/AST
<i>Bacillus thuringiensis</i>	ID	<i>Enterococcus malodoratus</i>	AST
<i>Brevibacillus brevis</i>	ID	<i>Enterococcus moraviensis</i>	AST
<i>Brevibacterium species</i>	ID	<i>Enterococcus mundtii</i>	AST
<i>Cellulomonas turbata</i>	ID	<i>Enterococcus pallens</i>	AST
<i>Corynebacterium amycolatum</i>	ID	<i>Enterococcus pseudoavium</i>	AST
<i>Corynebacterium bovis</i>	ID	<i>Enterococcus raffinosus</i>	ID/AST
<i>Corynebacterium diphtheriae</i>	ID	<i>Enterococcus ratti</i>	AST
<i>Corynebacterium jeikeium</i>	ID	<i>Enterococcus saccharolyticus</i>	AST
<i>Corynebacterium kutscheri</i>	ID	<i>Enterococcus sulfureus</i>	AST
<i>Corynebacterium matruchotii</i>	ID	<i>Erysipelothrix rhusiopathiae</i>	ID
<i>Corynebacterium minutissimum</i>	ID	<i>Gardnerella vaginalis</i>	ID
<i>Corynebacterium propinquum</i>	ID	<i>Gemella haemolysans</i>	ID
<i>Corynebacterium pseudodiphtheriticum</i>	ID	<i>Gemella morbillorum</i>	ID
<i>Corynebacterium pseudotuberculosis</i>	ID	<i>Globicatella sanguinis</i>	ID
<i>Corynebacterium renale</i>	ID	<i>Helcococcus kunzii</i>	ID
<i>Corynebacterium striatum</i>	ID	<i>Kocuria kristinae</i>	ID
<i>Corynebacterium ulcerans</i>	ID	<i>Kocuria rosea</i>	ID
<i>Corynebacterium urealyticum</i>	ID	<i>Kocuria varians</i>	ID
<i>Corynebacterium xerosis</i>	ID	<i>Kytococcus sedentarius</i>	ID
<i>Dermabacter hominis</i>	ID	<i>Lactococcus garvieae</i>	ID
<i>Dermacoccus nishinomiyaensis</i>	ID	<i>Lactococcus lactis ssp cremoris</i>	ID
<i>Enterococcus asini</i>	AST	<i>Lactococcus lactis ssp hordniae</i>	ID
<i>Enterococcus avium</i>	ID/AST	<i>Lactococcus lactis ssp lactis</i>	ID

^{*} Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 2.3.1).
¹ Not all species encountered during clinical performance evaluations

GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*	GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*
<i>Lactococcus plantarum</i>	ID	<i>Staphylococcus carnosus</i>	ID/AST
<i>Lactococcus raffinolactis</i>	ID	<i>Staphylococcus chromogenes</i>	ID/AST
<i>Leifsonia aquatica</i>	ID	<i>Staphylococcus cohnii</i>	ID/AST
<i>Leuconostoc citreum</i>	ID	<i>Staphylococcus cohnii ssp cohnii</i>	ID/AST
<i>Leuconostoc lactis</i>	ID	<i>Staphylococcus cohnii ssp urealyticum</i>	ID/AST
<i>Leuconostoc mesenteroides ssp cremoris</i>	ID	<i>Staphylococcus condimentii</i>	AST
<i>Leuconostoc mesenteroides ssp mesenteroides</i>	ID	<i>Staphylococcus delphini</i>	AST
<i>Leuconostoc pseudomesenteroides</i>	ID	<i>Staphylococcus epidermidis</i>	ID/AST
<i>Listeria grayi</i>	ID	<i>Staphylococcus equorum</i>	ID/AST
<i>Listeria innocua</i>	ID	<i>Staphylococcus felis</i>	ID/AST
<i>Listeria ivanovii</i>	ID	<i>Staphylococcus fleurettii</i>	AST
<i>Listeria monocytogenes</i>	ID	<i>Staphylococcus gallinarum</i>	ID/AST
<i>Listeria welshimeri</i>	ID	<i>Staphylococcus haemolyticus</i>	ID/AST
<i>Lysinibacillus sphaericus</i>	ID	<i>Staphylococcus hominis</i>	ID/AST
<i>Macrococcus caseolyticus</i>	ID	<i>Staphylococcus hyicus</i>	ID/AST
<i>Micrococcus luteus</i>	ID	<i>Staphylococcus intermedius</i>	ID/AST
<i>Micrococcus lylae</i>	ID	<i>Staphylococcus kloosii</i>	ID/AST
<i>Oerskovia xanthineolytica</i>	ID	<i>Staphylococcus lentus</i>	ID/AST
<i>Paenibacillus alvei</i>	ID	<i>Staphylococcus lugdunensis</i>	ID/AST
<i>Paenibacillus macerans</i>	ID	<i>Staphylococcus lutrae</i>	AST
<i>Pediococcus acidilactici</i>	ID	<i>Staphylococcus muscae</i>	AST
<i>Pediococcus damnosus</i>	ID	<i>Staphylococcus pasteurii</i>	ID/AST
<i>Pediococcus dextrinicus</i>	ID	<i>Staphylococcus piscifermentans</i>	AST
<i>Pediococcus parvulus</i>	ID	<i>Staphylococcus pulvereri</i>	AST
<i>Pediococcus pentosaceus</i>	ID	<i>Staphylococcus saccharolyticus</i>	AST
<i>Rhodococcus equi</i>	ID	<i>Staphylococcus saprophyticus</i>	ID/AST
<i>Rothia dentocariosa</i>	ID	<i>Staphylococcus schleiferi</i>	ID/AST
<i>Rothia mucilaginosa</i>	ID	<i>Staphylococcus schleiferi ssp coagulans</i>	ID/AST
<i>Staphylococcus arlettae</i>	AST	<i>Staphylococcus schleiferi ssp schleiferi</i>	ID/AST
<i>Staphylococcus aureus</i>	ID/AST	<i>Staphylococcus sciuri</i>	ID/AST
<i>Staphylococcus auricularis</i>	ID/AST	<i>Staphylococcus simulans</i>	ID/AST
<i>Staphylococcus capitis</i>	ID/AST	<i>Staphylococcus succinus ssp casei</i>	AST
<i>Staphylococcus capitis ssp capitis</i>	ID/AST	<i>Staphylococcus succinus ssp succinus</i>	AST
<i>Staphylococcus capitis ssp ureolyticus</i>	ID/AST	<i>Staphylococcus vitulinus</i>	ID/AST
<i>Staphylococcus caprae</i>	ID/AST		

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 2.3.1).

¹ Not all species encountered during clinical performance evaluations

GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*	GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*
<i>Staphylococcus warneri</i>	ID/AST	<i>Streptococcus equinus</i>	ID
<i>Staphylococcus xylosus</i>	ID/AST	<i>Streptococcus gordonii</i>	ID
<i>Streptococcus acidominimus</i>	ID	<i>Streptococcus</i> group C/G (large colony)	ID
<i>Streptococcus agalactiae</i> (Strep. group B)	ID	<i>Streptococcus intermedius</i>	ID
<i>Streptococcus anginosus</i>	ID	<i>Streptococcus mitis</i>	ID
<i>Streptococcus bovis</i> (Strep. group D)	ID	<i>Streptococcus mutans</i>	ID
<i>Streptococcus bovis</i> I (Strep. group D)	ID	<i>Streptococcus oralis</i>	ID
<i>Streptococcus bovis</i> II (Strep. group D)	ID	<i>Streptococcus parasanguinis</i>	ID
<i>Streptococcus canis</i>	ID	<i>Streptococcus pneumoniae</i>	ID
<i>Streptococcus constellatus</i>	ID	<i>Streptococcus porcinus</i>	ID
<i>Streptococcus cristatus</i>	ID	<i>Streptococcus pyogenes</i> (Strep. group A)	ID
<i>Streptococcus dysgalactiae</i> ssp <i>dysgalactiae</i>	ID	<i>Streptococcus salivarius</i>	ID
<i>Streptococcus dysgalactiae</i> ssp <i>equisimilis</i>	ID	<i>Streptococcus sanguinis</i>	ID
<i>Streptococcus equi</i>	ID	<i>Streptococcus sobrinus</i>	ID
<i>Streptococcus equi</i> ssp <i>equi</i>	ID	<i>Streptococcus uberis</i>	ID
<i>Streptococcus equi</i> ssp <i>zooepidemicus</i>	ID	<i>Streptococcus vestibularis</i>	ID

F.3.4 Gram Positive (0.25 McFarland)

GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*	GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*
<i>Aerococcus urinae</i>	ID	<i>Enterococcus raffinosus</i>	ID/AST
<i>Aerococcus viridans</i>	ID	<i>Gemella haemolysans</i>	ID
<i>Alloiococcus otitidis</i>	ID	<i>Gemella morbillorum</i>	ID
<i>Dermaecoccus nishinomiyaensis</i>	ID	<i>Globicatella sanguinis</i>	ID
<i>Enterococcus avium</i>	ID/AST	<i>Helcococcus kunzii</i>	ID
<i>Enterococcus casseliflavus</i>	ID/AST	<i>Kocuria kristinae</i>	ID
<i>Enterococcus durans</i>	ID/AST	<i>Kocuria rosea</i>	ID
<i>Enterococcus faecalis</i>	ID/AST	<i>Kocuria varians</i>	ID
<i>Enterococcus faecium</i>	ID/AST	<i>Kytococcus sedentarius</i>	ID
<i>Enterococcus gallinarum</i>	ID/AST	<i>Lactococcus lactis</i> ssp <i>cremoris</i>	ID
<i>Enterococcus hirae</i>	ID/AST	<i>Lactococcus lactis</i> ssp <i>hordniae</i>	ID

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 2.3.1).
¹ Not all species encountered during clinical performance evaluations

GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*	GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*
<i>Lactococcus plantarum</i>	ID	<i>Staphylococcus lugdunensis</i>	ID/AST
<i>Leuconostoc citreum</i>	ID	<i>Staphylococcus pasteurii</i>	ID/AST
<i>Leuconostoc lactis</i>	ID	<i>Staphylococcus saprophyticus</i>	ID/AST
<i>Leuconostoc mesenteroides</i> ssp <i>mesenteroides</i>	ID	<i>Staphylococcus schleiferi</i> ssp <i>coagulans</i>	ID/AST
<i>Listeria innocua</i>	ID	<i>Staphylococcus schleiferi</i> ssp <i>schleiferi</i>	ID/AST
<i>Listeria monocytogenes</i>	ID	<i>Staphylococcus sciuri</i>	ID/AST
<i>Macrococcus caseolyticus</i>	ID	<i>Staphylococcus simulans</i>	ID/AST
<i>Micrococcus luteus</i>	ID	<i>Staphylococcus vitulinus</i>	ID/AST
<i>Micrococcus lylae</i>	ID	<i>Staphylococcus warneri</i>	ID/AST
<i>Pediococcus acidilactici</i>	ID	<i>Staphylococcus xylosus</i>	ID/AST
<i>Pediococcus damnosus</i>	ID	<i>Streptococcus agalactiae</i> (Strep. group B)	ID
<i>Pediococcus dextrinicus</i>	ID	<i>Streptococcus anginosus</i>	ID
<i>Pediococcus parvulus</i>	ID	<i>Streptococcus bovis</i> (Strep. group D)	ID
<i>Pediococcus pentosaceus</i>	ID	<i>Streptococcus bovis</i> I (Strep. group D)	ID
<i>Rothia mucilaginosa</i>	ID	<i>Streptococcus bovis</i> II (Strep. group D)	ID
<i>Staphylococcus aureus</i>	ID/AST	<i>Streptococcus constellatus</i>	ID
<i>Staphylococcus auricularis</i>	ID/AST	<i>Streptococcus cristatus</i>	ID
<i>Staphylococcus capitis</i>	ID/AST	<i>Streptococcus equi</i>	ID
<i>Staphylococcus caprae</i>	ID/AST	<i>Streptococcus gordonii</i>	ID
<i>Staphylococcus carnosus</i>	ID/AST	<i>Streptococcus</i> group C/G (large colony)	ID
<i>Staphylococcus chromogenes</i>	ID/AST	<i>Streptococcus intermedius</i>	ID
<i>Staphylococcus cohnii</i> ssp <i>cohnii</i>	ID/AST	<i>Streptococcus mitis</i>	ID
<i>Staphylococcus cohnii</i> ssp <i>urealyticum</i>	ID/AST	<i>Streptococcus mutans</i>	ID
<i>Staphylococcus epidermidis</i>	ID/AST	<i>Streptococcus oralis</i>	ID
<i>Staphylococcus equorum</i>	ID/AST	<i>Streptococcus parasanguinis</i>	ID
<i>Staphylococcus felis</i>	ID/AST	<i>Streptococcus pneumoniae</i>	ID
<i>Staphylococcus gallinarum</i>	ID/AST	<i>Streptococcus porcinus</i>	ID
<i>Staphylococcus haemolyticus</i>	ID/AST	<i>Streptococcus pyogenes</i> (Strep. group A)	ID
<i>Staphylococcus hominis</i>	ID/AST	<i>Streptococcus salivarius</i>	ID
<i>Staphylococcus hyicus</i>	ID/AST	<i>Streptococcus sanguinis</i>	ID
<i>Staphylococcus intermedius</i>	ID/AST	<i>Streptococcus sobrinus</i>	ID
<i>Staphylococcus kloosii</i>	ID/AST	<i>Streptococcus uberis</i>	ID
<i>Staphylococcus lentus</i>	ID/AST	<i>Streptococcus vestibularis</i>	ID

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 2.3.1).
¹ Not all species encountered during clinical performance evaluations

F.3.5 Streptococci

STREPTOCOCCI TAXA ¹	ID, AST, ID/AST*	STREPTOCOCCI TAXA ¹	ID, AST, ID/AST*
<i>Streptococcus acidominimus</i>	ID/AST	<i>Streptococcus</i> group C/G (large colony)	ID/AST
<i>Streptococcus agalactiae</i> (Strep. group B)	ID/AST	<i>Streptococcus</i> group CFG (small colony)	AST
<i>Streptococcus alactolyticus</i>	AST	<i>Streptococcus</i> group D (non-enterococcus)	AST
<i>Streptococcus anginosus</i>	ID/AST	<i>Streptococcus</i> group E	AST
<i>Streptococcus anginosus</i> (previously <i>milleri</i>) group	ID/AST	<i>Streptococcus</i> group F	AST
<i>Streptococcus bovis</i> (Strep. group D)	AST	<i>Streptococcus</i> group G (large colony)	AST
<i>Streptococcus bovis</i> I (Strep. group D)	ID/AST	<i>Streptococcus</i> group L	AST
<i>Streptococcus bovis</i> II (Strep. group D)	ID/AST	<i>Streptococcus hyointestinalis</i>	AST
<i>Streptococcus canis</i>	ID/AST	<i>Streptococcus infantarius ssp coli</i>	AST
<i>Streptococcus constellatus</i>	ID/AST	<i>Streptococcus infantarius ssp infantarius</i>	AST
<i>Streptococcus criceti</i>	AST	<i>Streptococcus infantis</i>	AST
<i>Streptococcus cristatus</i>	ID/AST	<i>Streptococcus iniae</i>	AST
<i>Streptococcus downei</i>	AST	<i>Streptococcus intermedius</i>	ID/AST
<i>Streptococcus dysgalactiae</i>	AST		
<i>Streptococcus dysgalactiae ssp dysgalactiae</i>	ID/AST	<i>Streptococcus milleri</i> group	AST
<i>Streptococcus dysgalactiae ssp equisimilis</i>	ID/AST	<i>Streptococcus mitis</i>	ID/AST
<i>Streptococcus dysgalactiae/canis</i>	ID/AST	<i>Streptococcus mitis</i> group	ID/AST
<i>Streptococcus equi</i>	ID/AST	<i>Streptococcus mutans</i>	ID/AST
<i>Streptococcus equi ssp equi</i>	ID/AST	<i>Streptococcus mutans</i> group	AST
<i>Streptococcus equi ssp zooepidemicus</i>	ID/AST	<i>Streptococcus oralis</i>	ID/AST
<i>Streptococcus equinus</i>	ID/AST	<i>Streptococcus parasanguinis</i>	ID/AST
<i>Streptococcus ferus</i>	AST	<i>Streptococcus peroris</i>	AST
<i>Streptococcus gallolyticus ssp macedonicus</i>	AST	<i>Streptococcus pneumoniae</i>	ID/AST
<i>Streptococcus gordonii</i>	ID/AST	<i>Streptococcus porcinus</i>	ID/AST
<i>Streptococcus</i> group A (Strep. <i>pyogenes</i>)	AST	<i>Streptococcus pyogenes</i> (Strep. group A)	ID/AST
<i>Streptococcus</i> group B (Strep. <i>agalactiae</i>)	AST	<i>Streptococcus rattii</i>	AST
<i>Streptococcus</i> group C (large colony)	AST	<i>Streptococcus salivarius</i>	ID/AST

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 2.3.1).

¹ Not all species encountered during clinical performance evaluations

STREPTOCOCCI TAXA ¹	ID, AST, ID/AST [*]	STREPTOCOCCI TAXA ¹	ID, AST, ID/AST [*]
<i>Streptococcus salivarius</i> group	AST	<i>Streptococcus thermophilus</i>	AST
<i>Streptococcus sanguinis</i>	ID/AST	<i>Streptococcus uberis</i>	ID/AST
<i>Streptococcus sanguinis</i> group	AST	<i>Streptococcus vestibularis</i>	ID/AST
<i>Streptococcus sobrinus</i>	ID/AST	<i>Streptococcus viridans</i> group	AST
<i>Streptococcus suis</i>	AST		

^{*} Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 2.3.1).

¹ Not all species encountered during clinical performance evaluations

F.3.5 Yeast

YEAST TAXA	ID, AST, ID/AST	YEAST TAXA	ID, AST, ID/AST
<i>Blastoschizomyces capitatus</i>	ID	<i>Candida rugosa</i>	ID
<i>Candida albicans</i>	ID	<i>Candida sake</i>	ID
<i>Candida apicola</i>	ID	<i>Candida sphaerica</i>	ID ¹
<i>Candida boidinii</i>	ID ²	<i>Candida tropicalis</i>	ID
<i>Candida bracarensis</i>	ID ¹	<i>Candida utilis</i>	ID
<i>Candida catenulata</i>	ID	<i>Candida viswanathii</i>	ID
<i>Candida ciferrii</i>	ID	<i>Candida zeylanoides</i>	ID
<i>Candida dubliniensis</i>	ID	<i>Cryptococcus albidus</i>	ID
<i>Candida firmetaria</i>	ID	<i>Cryptococcus humicolus</i>	ID
<i>Candida freyschussii</i>	ID	<i>Cryptococcus laurentii</i>	ID ²
<i>Candida glabrata</i>	ID	<i>Cryptococcus luteolus</i>	ID
<i>Candida guilliermondii</i>	ID	<i>Cryptococcus neoformans</i>	ID
<i>Candida guilliermondii</i> var <i>membranaefaciens</i>	ID	<i>Cryptococcus terreus</i>	ID ¹
<i>Candida haemulonii</i>	ID	<i>Cryptococcus uniguttulatus</i>	ID
<i>Candida inconspicua</i>	ID	<i>Exophiala</i> species	ID
<i>Candida kefyr</i>	ID	<i>Geotrichum</i> species	ID
<i>Candida krusei</i>	ID	<i>Hortaea werneckii</i>	ID
<i>Candida lipolytica</i>	ID	<i>Kloeckera</i> species	ID ¹
<i>Candida lusitanae</i>	ID	<i>Malassezia furfur</i> complex	ID ¹
<i>Candida magnoliae</i>	ID	<i>Malassezia pachydermatis</i>	ID ¹
<i>Candida melibiosica</i>	ID	<i>Malassezia sympodialis</i>	ID ¹
<i>Candida membranaefaciens</i>	ID	<i>Pichia burtonii</i>	ID
<i>Candida norvegensis</i>	ID	<i>Pichia farinosa</i>	ID
<i>Candida parapsilosis</i> complex	ID	<i>Prototheca wickerhamii</i>	ID
<i>Candida pararugosa</i>	ID	<i>Prototheca zopfii</i>	ID
<i>Candida pelliculosa</i>	ID	<i>Rhodotorula glutinis</i>	ID
<i>Candida pulcherrima</i>	ID	<i>Rhodotorula minuta</i>	ID

¹ With SABDX, SABEM, SABHI media only

² With CHOC, COLSB, TSASB media only

YEAST TAXA	ID, AST, ID/AST	YEAST TAXA	ID, AST, ID/AST
<i>Rhodotorula mucilaginosa</i> var <i>mucilaginosa</i>	ID	<i>Trichosporon loubieri</i>	ID ¹
<i>Saccharomyces cerevisiae</i>	ID	<i>Trichosporon mucoides</i>	ID
<i>Sporobolomyces salmonicolor</i>	ID	<i>Trichosporon ovoides</i>	ID ²
<i>Trichosporon asahii</i>	ID	<i>Wangiella dermatitidis</i>	ID
<i>Trichosporon inkin</i>	ID ¹	<i>Zygosaccharomyces bailli</i>	ID ¹

¹ With SABDX, SABEM, SABHI media only

¹ With CHOC, COLSB, TSASB media only



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Event Log Messages

J.1 LIS Related Messages

The View Syslog function, accessible through the Maintenance Menu (see Section 6.2.4.13), enables you to see messages that the instrument writes to the Event Log. The messages are in the following format:

date time message type: message text

where *date* represents the day, month, and year in the format you have chosen

time represents the time in the format you have chosen

message type is one of the following:

- LIS Interface Message
- LIS Unsolicited Message
- LIS Order Cancelled
- LIS Query Assembly
- LIS Receiving Query
- LIS Configuration Change

message text is the actual text message that appears

Below is a list of the messages, along with a description of the message and any actions you may perform to correct the problem. These messages are grouped by the *message type* listed above.

LIS Interface Messages

LIS Interface Messages are library messages generated by the LIS manager. They are listed below in alphabetical order.

Bad Frame Received From LIS

DESCRIPTION – This error is generated when the LIS downloads a frame that has not been properly formatted. The error type is listed as LIS_NON_FATAL.

CORRECTIVE ACTION(S) – The solution to this problem is to review the information that is being sent to the instrument via a communications line monitor. Compare the information captured with the specifications found in the BD – LIS Vendor Interface Document. Any discrepancies observed should be corrected and then the transmission should be attempted again.

Detailed Download Message Attached To Notification

DESCRIPTION – These notifications are generated whenever a complete message is sent or received across the port. The error types are LIS_NOTIFY. The detailed description is not displayed.

CORRECTIVE ACTION(S) – Message is informational – no action required.

Detailed Upload Message Attached To Notification

DESCRIPTION – These notifications are generated whenever a complete message is sent or received across the port. This provides the Host Application with the complete ASTM message string that was exchanged. The error types are LIS_NOTIFY and the detailed descriptions contain the ASTM message string.

CORRECTIVE ACTION(S) – Message is informational – no action required.

Disallowed Characters Contained In Field

DESCRIPTION – This error is generated when an upload field contains characters that are not allowed in an upload message. These characters differ based on logical protocol and will be stripped from the upload field. This error type is LIS_NON_FATAL. The detailed description is not displayed.

CORRECTIVE ACTION(S) – If this error is reported the problem should be reported to your local BD representative for further investigation.

Download Field Was Concatenated

DESCRIPTION – This notification is generated when a download field is larger than the maximum size set by the Host Application. The field will be concatenated to the maximum size. This error type is listed as LIS_LOG. The detailed description is not displayed.

CORRECTIVE ACTION(S) – In this case the content that is being assembled needs to be reviewed. Review the BD – Vendor Interface Specification for limitations on field lengths in the message. Then the LIS code should be updated so that the information sent to the instrument remains within the defined limits.

LIS Interface Messages (cont.)

Download Message Has A Bad Or Missing Header Record

DESCRIPTION – This error is generated when a download message does not have a properly formatted header record. The LIS IM cannot continue processing the message and it will be deleted. This error type is listed as LIS_NON_FATAL, and the detailed description holds the ASTM message received from the LIS.

CORRECTIVE ACTION(S) – Check the header line for errors. Correct the header error and resend the message.

Download Physical Communication With LIS Has Begun

DESCRIPTION – This notification is generated when the download thread in the physical layer is actively downloading a message.

CORRECTIVE ACTION(S) – Message is informational – no action required.

Download Physical Communication With LIS Has Completed

DESCRIPTION – This notification is generated when the download thread in the logical layer has completed processing a download message.

CORRECTIVE ACTION(S) – Message is informational – no action required.

Download Record Is Out Of Sequence Or Has Bad Sequence Number

DESCRIPTION – This error is generated when a download record contains records with a bad sequence number, or violates the record hierarchy for the logical level protocol. This will cause the message to be deleted from the download queue. This error type is listed as LIS_NON_FATAL.

CORRECTIVE ACTION(S) – Appropriate updates should be made to the application generating the logical message so the structure conforms to the ASTM specifications for the interface. Most questions concerning the message content can be addressed by referencing the BD – Vendor Interface Specifications and the ASTM specifications for the interface.

Early Termination Of Transfer Session By LIS

DESCRIPTION – This error is generated when there is an error in LIS communication. The control character to end a transfer session was received before the appropriate number of characters for the frame were received.

CORRECTIVE ACTION(S) – Review the frames being exchanged between the instrument and the LIS to assure that the proper number of characters are contained within the packets that are being exchanged. If the correct number of characters is not in the packet, update the code so that the correct number of characters is included in each frame.

LIS Interface Messages (cont.)

Expected Frame Not Sent

DESCRIPTION – This error is generated when there is an error in LIS communication. The LIS initiated a transfer session but did not send any data before a time-out occurred. This error type is listed as LIS_NON_FATAL.

CORRECTIVE ACTION(S) – Connect a communications line monitor and restart the transmission. Observe the transmission to determine if the complete transmission occurs or if the transmission is interrupted early. If the transmission appears to be complete or the LIS appears to be attempting to send the transmission contact your local BD representative for assistance. If the transmission appears to be incomplete from the LIS side of the transmission then the LIS code should be investigated for problems that could terminate the transmission early.

Internal Assert Condition Found In LIS Library

DESCRIPTION – This message indicates that the Instrument has encountered an error that should not occur. This error will result in the instrument rebooting.

CORRECTIVE ACTION(S) – Contact your local BD representative. At the time the problem occurs the application writes data to the log file that indicates the nature of the Assert. The BD representative should instruct you on the appropriate procedure to collect the data for the condition.

LIS Debug Error

DESCRIPTION – This error is generated when there has been a problem internally to the instrument physical layer. This error may be triggered for an index out of bounds, or unsupported memory area IDs, etc. This error type is listed as LIS_FATAL.

CORRECTIVE ACTION(S) – This error is a Fatal Error. If this error appears in the log file, contact your local BD representative. The sequence of events that produced this message should be documented so that BD representatives can reproduce the error and then provide an appropriate course of action to address the problem.

LIS Interface Messages (cont.)

LIS Did Not Acknowledge Sent Frame

DESCRIPTION – This error is generated when the instrument has sent a frame to the LIS but has not received an acknowledgment before a time-out occurred. This error type is listed as LIS_NON_FATAL.

CORRECTIVE ACTION(S) – This message should not occur during normal operation of the instrument interface. If this error is being encountered during development of the interface then the LIS development group should connect a data communication monitor to the serial interface cable and review the information that is being exchanged between the two devices. It is likely that the LIS is not generating the appropriate response to the message that the instrument has sent.

LIS Is Not Responding To Output Request

DESCRIPTION – This error is generated when the instrument is trying to establish a transfer session but the LIS is not responding. When this error is sent, the instrument is assuming the LIS connection is broken or the LIS is down. This error type is listed as LIS_NON_FATAL.

CORRECTIVE ACTION(S) – Check to assure that the LIS interface is active and ready to receive messages from the instrument. If the LIS is operating correctly, connect a communications line monitor and review the information that has been captured. If the instrument is attempting to establish communications with the LIS, it would be appropriate to review the code that has been written to interface with the instrument and assure that the code is appropriate to receive the information sent by the instrument.

LIS Never Completed Current Frame

DESCRIPTION – This error is generated when there is an error in LIS communication. The control characters expected to end a transmitted frame were never received.

CORRECTIVE ACTION(S) – Review the frames being exchanged between the instrument and the LIS via line monitor. Be sure to review all frames included in the transmission. If any frames do not contain the appropriate termination characters make appropriate changes to the interface code to correct the problem.

Logical Processing Of LIS Data Has Begun

DESCRIPTION/CORRECTIVE ACTION(S) – Message is informational – no action required.

Logical Processing Of LIS Data Has Completed

DESCRIPTION/CORRECTIVE ACTION(S) – Message is informational – no action required.

Message Packet Passed To Host Application

DESCRIPTION – This notification is generated when the LIS IM has successfully passed a message on to the Host Application. This notification exists mostly as a debug message. This error type is listed as LIS_LOG.

CORRECTIVE ACTION(S) – No action required by user. Information is included to help LIS manufacturers debug and implement their interface.

LIS Interface Messages (cont.)

Message Received By LIS

DESCRIPTION – This notification is generated after the LIS has received and acknowledged a message from the instrument.

CORRECTIVE ACTION(S) – Message is informational – no action required.

Message Received From LIS

DESCRIPTION – This notification is generated when a download message has been properly received by the Physical Interface from the LIS. This error type is listed as LIS_LOG.

CORRECTIVE ACTION(S) – This message is an informational message and requires no action to be taken. The transmission was successful. This message will be generated even if the message contained content errors.

Must Re-send Output Frame To LIS

DESCRIPTION – This notification is generated when a frame sent by the LIS IM was not properly received by the LIS. The message frame will be resent, according to low level protocol specifications. This error type is listed as LIS_LOG.

CORRECTIVE ACTION(S) – If this message appears infrequently and the messages that are being exchanged are completed correctly, it is likely that no action is required. If the message above is encountered frequently, there is likely a problem in the interface. The LIS manufacturer and BD representative should be contacted to diagnose the interface to assure that it is operating properly. When the link is operating optimally this message should not appear in the log.

No Queue Memory For Download Messages

DESCRIPTION – The Phoenix Instrument is designed to operate in a limited amount of memory (as defined in the configuration structure). When these memory resources are full with download or upload messages, this notification will be generated. The notification may be common if the LIS tries to download too much information at once. The Phoenix Instrument will NAK data for which it cannot allocate memory, and the LIS will have to resend the data.

CORRECTIVE ACTION(S) – Resend the messages that were rejected by the instrument.

No Queue Memory For Upload Messages

DESCRIPTION – The Phoenix Instrument is designed to operate in a limited amount of memory (as defined in the configuration structure). When these memory resources are full with download or upload messages, this notification will be generated. This message should not be encountered when using the instrument LIS interface.

CORRECTIVE ACTION(S) – If this message is encountered, the problem should be reported to the BD representative. It will be helpful if the process that generated the problem is documented.

LIS Interface Messages (cont.)

No Response Received From Previous LIS Request Message

DESCRIPTION – This notification is generated when the LIS IM has uploaded a query but no response is received. This notification indicates that the original query was cancelled. This notification should occur some time after the query, as determined by the value in the configuration structure. The error type is listed as LIS_LOG. The detailed description is not displayed in the current version.

CORRECTIVE ACTION(S) – Validate that the LIS system is correctly connected to the instrument and that the LIS interface has been activated.

Operating System Error

DESCRIPTION – This error is generated when the operating system class encounters an error in one of its routines. This could be caused by a number of OS errors, including not properly initializing a port or not properly creating an event handle, and others. These errors should not occur under normal conditions and the LIS IM cannot recover from them. The error type is listed as LIS_FATAL.

CORRECTIVE ACTION(S) – If this error is reported the problem should be reported to your local BD representative for further investigation.

Output Message Was Sent To LIS

DESCRIPTION – This notification is generated when an upload message has been successfully transmitted to the LIS. This error type is listed as LIS_NOTIFY. Notification sent when the instrument begins sending a message to the LIS. Receiving this notification does not signify the message was accepted by the LIS.

CORRECTIVE ACTION(S) – Message is informational – no action required.

Queue Memory For Download Messages Free

DESCRIPTION – This notification is used in pairs with the No Queue Memory For Download Messages above. When memory has previously been determined to be full, and now has been released, this notification will be generated.

CORRECTIVE ACTION(S) – This is an indication to a user of a batch-oriented interface that the instrument is capable of receiving the next group of messages.

Queue Memory For Upload Messages Free

DESCRIPTION – This notification is used in pairs with the No Queue Memory For Upload Messages above. When memory has previously been determined to be full, and now has been released, this notification will be generated.

CORRECTIVE ACTION(S) – This message should not appear in the log during operation of the interface. If this message appears in the log, contact your local BD representative.

LIS Interface Messages (cont.)

Response Message Received

DESCRIPTION – This notification is generated when the LIS has downloaded a response to a BD generated query. This is also an indication that the LIS IM can upload another query to the LIS. The error type is LIS_NOTIFY. The detailed description is not displayed in the current version.

CORRECTIVE ACTION(S) – Message is informational – no action required.

Unsupported Field In Configuration File

DESCRIPTION – This error is generated during startup when a field in the configuration structure does not match one of the supported configurations of the LIS IM. This error type is listed as LIS_FATAL.

CORRECTIVE ACTION(S) – If this error is reported the problem should be reported to your local BD representative for further investigation.

Upload Physical Communication With LIS Has Begun

DESCRIPTION – This notification is generated when the upload thread in the physical layer is actively uploading a message.

CORRECTIVE ACTION(S) – Message is informational – no action required.

Upload Physical Communication With LIS Has Completed

DESCRIPTION – This notification is generated when the upload thread in the physical layer has completed sending a message to the LIS.

CORRECTIVE ACTION(S) – Message is informational – no action required.

LIS Unsolicited Message

The following sections contain the possible messages associated with Event Log entries in response to unsolicited download requests. They are listed below in alphabetical order.

LIS Response Error

DESCRIPTION – This message is set after the LIS sends an incorrectly formatted query message to the instrument. We will respond by sending a response error message to the LIS.

CORRECTIVE ACTION(S) – If the interface is operating correctly, this message should not be present in the log. If this message is found in the log during validation or development of the interface, the code responsible for generating the queries should be reviewed and adjusted so that the query is assembled without the invalid field. The invalid field will be the last "LIS Query Assembly" message listed before this message in the log file.

LIS Sent Query Before Previous Query Completed

DESCRIPTION – This message is set if the LIS initiates a query and while the instrument is busy with this query, the LIS cancels the first query and immediately starts another.

CORRECTIVE ACTION(S) – If the interface is operating correctly this message should not be present in the log. If this message is found in the log during validation or development of the interface, the code responsible for generating the queries should be reviewed and adjusted so that it will not send another query while it is waiting for an outstanding query to be canceled.

LIS Order Cancelled Messages

(Message consists of a field name shown below at * and invalid field contents.)

DESCRIPTION – The validation for the noted field failed.

- * Invalid Sequence Number Field
- Missing Accession Number Field
- Invalid Accession Number Field [cannot be 12 digits and begin with 42 or 50 – 59; see Section 5 – Reference for other requirements]
- Missing Isolate Field
- Invalid Isolate Field
- Invalid Panel Usage
- Invalid Test ID Field
- Invalid Test Strain for this QC Panel Type
- Mismatch Sequence Number & Test ID
- Missing Test ID Field
- Invalid Organism ID Field
- Invalid Priority Field
- Problem Storing Record to Database

When an error is detected, the message for that error is logged and the remainder of the message checking is terminated. There could be other errors in the order that were not reported. The error checking priority depends upon whether the order contains a sequence number or not.

CORRECTIVE ACTION(S) – In an operational interface it is possible to encounter these errors if the LIS implementation allows entry of data into the fields that violate the Instrument field rules. In this case the user of the LIS should limit the characters entered into the fields sent to the instrument to those characters noted in the System User's Manual as valid for the field. Once the information has been updated to conform with the instrument's rules the order should be sent to the instrument again.

If the interface is under development the developer of the interface should limit the data being sent to the instrument to those characters that are appropriate for the fields.



LIS Query Assembly Messages

All of the following messages are written to the log file regardless of whether they are invalid or valid. They are placed in the log so that they can be used in conjunction with the messages that follow them. If an error is found in one of the fields, the contents of the field in error will be logged.

(Message consists of a field name shown below at **.)

DESCRIPTION – The message is logged when the instrument uploads a query to the LIS.

** Accession Number
 Sequence Number
 Test ID
 Test Status
 Result Qualifier
 Time Qualifier
 Start Date/Time
 End Date/Time

CORRECTIVE ACTION(S) – If the query is valid, the message is informational – no action required. If the query is invalid, then review the field in error, correct, and resend the query.

(Message consists of a field name and value shown below at ***)

DESCRIPTION – This message is logged when the instrument uploads a query to the LIS.

*** Sequence Number and the value

CORRECTIVE ACTION(S) – Message is informational – no action required.

LIS Configuration Change Messages

(Message consists of a configuration value shown below at ** with old and new values.)

DESCRIPTION – The message is logged when the LIS configuration is changed.

- ** LIS Enabled Value Changed
- Send Interpretation Results Option Changed
- Unsolicited Queries Option Changed
- Send When Placed In Instrument Option Changed
- Results Upload Options Changed
- Baud Value Changed
- Data Bits Value Changed
- Parity Value Changed
- Stop Bits Value Changed
- Packed Frames Value Changed

CORRECTIVE ACTION(S) – Message is informational – no action required.

Notes

Notes section with horizontal lines for writing.

Notes

[illegible]

Index

A

access levels 2-13, 2-14
alarms 4-45
antimicrobial
 used in Phoenix panels F-1, F-2, F-3, F-4, F-5,
 F-6
AST Broth (also AST-S Broth)
 storage and handling 4-2
 use of 4-7, 4-8, 4-14, 4-15
AST Indicator Solution (also AST-S Indicator
Solution)
 storage and handling 4-2
 use of 4-8, 4-9, 4-10, 4-14, 4-15
AST results 4-35, 4-39, 5-17, 5-18, 5-19
 Resistance Markers 2-37, 3-8, 4-40
audible alarms
 meaning 3-8
 setting the volume 2-8
 verification 6-4

B

barcode scanners 3-6
 cleaning 6-7
 replacement 6-46
BD Diagnostics
 international contacts D-1

BD Phoenix system
 alarms and errors 4-45
 cautions 1-14, 1-15
 daily maintenance 6-2
 decontamination 6-8
 explanation of the test 1-2
 installation 2-2
 instrument layout 3-2
 instrument overview 1-6, 1-7, 1-8
 intended use 1-1
 panel overview 1-9
 panel testing 4-26
 precautions 1-6
 principles of the procedure 1-2, 1-3, 1-4, 1-5
 quality control 4-15, 4-16, 4-17, 4-18, 4-19
 replacement parts B-1
 service 7-1
 software installation 2-43
 software overview 1-8
 software setup 2-4, 2-5, 2-6, 2-7, 2-8, 2-9,
 2-10, 2-11, 2-12, 2-13, 2-14
 software update log C-1
 specifications 2-2, 2-3
 startup process 2-43
 system alerts 5-61
 testing overview 1-10
 warnings 1-14, 1-15
 weekly maintenance 6-4
BDXpert system
 viewing triggered rules 4-40

C

cautions 1-15
critical panels 2-35, 2-36, 3-8, 4-20, 4-22, 4-34

D

date
 setting 2-11
 setting format 2-10
decontamination 6-8
door
 unlocked indicator 3-5

E

E01 7-3
E02 7-4
E03 7-4
E05 7-5
E06 7-5
E07 7-6
E08 7-6
E09 7-6
E10 7-7
E11 7-7, 7-8
E12 7-8
E13 7-8
E14 7-9
E15 7-9
E16 7-10
E18 7-10
E19 7-11
E20 7-11
E21 7-12
E22 7-12
E23 7-13
E25 7-13
E30 7-14
E31 7-14
E34 7-15
E40 7-15
E44 7-16
E50 7-16
errors 4-45

F

floppy disk
 eject button 3-6
 indicator 3-6

H

how to
 adjust for daylight savings time 2-10
 configure custom rules 2-26, 2-29, 2-30, 2-31, 7-7
 copy configuration from one instrument to another 6-13
 disable ID or AST test on a panel 4-20, 6-27
 enable/disable BDXpert rules 2-34
 enable/disable LIS communications 2-15
 enter hospital/laboratory name/address 2-12
 inoculate panels 4-8, 4-10
 insert panels in the instrument 4-24
 log in panels 4-19
 log in panels downloaded from a LIS system 4-22
 obtain service 7-1
 prepare panels 4-4, 4-6, 4-8, 4-9, 4-10, 4-11, 4-13
 print reports 4-47
 resolve panels needing attention 4-28
 scan a barcode 3-6
 select rule set 2-8
 set audible alarm volume 2-8
 set date format 2-10
 set inoculum density 2-12, 2-13
 set instrument number 2-7
 set language 2-7
 set LIS codes for antimicrobials 2-22
 set LIS codes for organisms 2-20
 set LIS communications parameters 2-14
 set the date 2-11
 set the time 2-11
 set time format 2-11
 setup the software 2-4, 2-5, 2-6, 2-7, 2-10, 2-11
 test a QC panel 4-15, 4-18
 update panel database 6-23, 6-25
 use the instrument interface 4-19
 view panel inventory 5-58
 view panel results 4-35, 4-37, 4-38

I

icons 2-32, 2-35, 2-39
 BDXpert Triggered Rules screen 4-40, 5-21
 configuration 2-5, 2-6, 2-24, 2-43
 Finalization screen 5-29
 Main Status screen 5-4
 Needs Attention screen 5-60, 5-63
 Panel Inventory screen 5-60
 Panel Login screen 5-6

- Panel Results screen 5-12
- System Alerts screen 5-61
- ID Broth
 - storage and handling 4-2
 - use of 4-6
- ID results 4-32, 4-33, 5-20
 - adding 4-38
 - modifying 4-38
- inoculum density 2-12, 2-13, 4-6, 4-8, 4-11
- instrument
 - automatic light source adjustment 1-11
 - barcode scanners 1-7
 - carousel 1-6
 - control electronics 1-8
 - drive mechanism 1-6
 - incubation 1-7
 - normalizers 1-10
 - optical system 1-6
 - panel status indicators 1-7
 - symbols appearing on 1-13
- interpretation rules
 - activating/deactivating BDXpert system 2-8
 - configuring custom rules 2-26, 2-29, 2-31, 7-7
 - enabling/disabling BDXpert rules 2-34
 - how to select rule set 2-8
 - viewing rule set version 2-8
 - viewing triggered BDXpert rules 4-38

K

- keyboard
 - key functions 3-9
 - location 3-2
- keys
 - DOWN/UP ARROW 3-3
 - LOAD PANELS 3-5
 - SILENCE ALARM 3-5
 - soft(ware) 3-4
 - TAB 3-4
 - UNLOAD PANELS 3-5

L

- LCD display
 - automatic dimming 3-5
- LIS communications
 - operation 4-50, 4-52
 - setup 2-15
 - viewing Syslog 6-31, 6-32, 6-33, 6-34

M

- maintenance
 - air filter replacement 6-4, 6-5, 6-6
 - daily 4-2
 - decontamination 6-8
 - Install Panel Configuration 6-22
 - Modify Panel Usage 6-25
 - Phoenix Update Disk 6-24
 - Read Light Source from Diskette 6-29
 - Restore LIS Codes from Disk 6-14
 - Restore Panel Lot Definitions 6-18
 - Restore User Data from Disk 6-11
 - Save LIS Codes to Disk 6-13
 - Save Panel Configuration 6-20
 - Save Panel Lot Definitions 6-16
 - Save User Data to Disk 6-9
 - software maintenance menu 6-9
 - View Syslog 6-31
 - weekly 6-4
 - who performs 6-1
 - Write Light Source to Disk 6-27
- manual
 - conventions 1-12
 - notes, cautions, and warnings 1-14
 - structure 1-11
 - summary of cautions and warnings 1-15
 - use of 1-12

O

- On/Off switch 3-3

P

- panels
 - antimicrobials F-1, F-2, F-3, F-5, F-6
 - automatic association of ID results 4-33
 - batch finalization 4-42, 4-44
 - critical 2-35, 2-36, 3-8, 4-20, 4-22, 4-34
 - disabling ID or AST test on panel 6-27
 - disposal 4-48
 - finalizing 5-16
 - handling recommendations 4-5, 4-9, 4-11, 4-13
 - how to log in 4-19
 - how to place in instrument 4-24
 - how to test 4-26
 - ID results 4-32, 4-33
 - inoculating 4-8, 4-10
 - inoculation station (photo) 1-9
 - inspection after inoculation 4-8, 4-10, 4-13

- isolates 4-2
- labels (applying) 4-6
- materials required for preparation 4-4, 4-5
- media to avoid 4-4
- microbiological hazards 4-4
- modifying panel usage 6-25
- Needs Attention 4-28
- overview 1-9
- Phoenix Update Disk 6-24
- preparing 4-4, 4-7, 4-8, 4-9, 4-10, 4-11, 4-13
- reagents F-8
- storage and handling 4-2
- taxa for ID/AST determination F-15
- timing requirements 4-5, 4-8, 4-9, 4-10, 4-11, 4-13
- transportation caddy (photo) 1-10
- unloading 4-48
- updating panel database 4-49, 6-25
- viewing results 4-35, 4-37, 4-38
- password administration 2-13, 2-14
- power switch 3-3

Q

- quality control 4-18

R

- rapid reporting of results 2-34, 2-35, 2-36, 2-37
- reagents
 - used in Phoenix panels F-8
- replacement parts B-1
- reports 4-47
 - abbreviated Lab Report 2-9
 - Accession Lab 5-36
 - Antimicrobial Code 5-53
 - BDXpert Rule Set Database 5-51
 - Completed Lab 5-33
 - Cumulative QC 5-43
 - Custom Breakpoint Difference 2-25
 - Daily Instrument 5-45
 - enabling/disabling auto printing 2-11
 - entering hospital/laboratory name/address 2-12
 - Finalization Summary 4-43, 4-44
 - Interpretation Rule Set 5-47
 - Lab Report 5-27
 - Needs Attention List 5-38
 - Organism ID Code List 5-52
 - Panel Lot 5-55
 - Panel Lot Database 5-57
 - QC Lot Number 5-41

- Resident Panel 5-39
- Resistance Markers 2-37, 3-8, 4-35
 - setting auto report time 2-11
- Resistance Markers 2-37, 3-8, 4-36, 4-40

S

- soft keys
 - location 3-4
- software
 - how to use 4-19
 - installation 2-43
 - menu tree 5-2
 - overview 1-8
 - setup 2-4, 2-5, 2-6, 2-7, 2-10, 2-11
 - update log C-1
- stations
 - status indicators 3-7
 - verifying LEDs 6-4
- system alerts
 - "E" codes 7-2
 - "W" codes 7-2
 - indicator 3-5
 - reviewing 7-2
 - sub-codes 7-3
 - types 7-2
 - verification 6-4

T

- time
 - setting 2-11
 - setting daylight savings time 2-10
 - setting format 2-11
 - time zone offset 2-10

W

- W100 7-16
- W101 7-17
- W102 7-17
- W200 7-17
- W201 7-17
- W202 7-17
- W203 7-18
- W300 7-18
- W301 7-18
- W302 7-18
- W303 7-19
- W304 7-19
- W305 7-19
- W401 7-19
- W500 7-20

W501 7-20
W502 7-20
W503 7-20
W504 7-21
W505 7-21
W506 7-21
W507 7-21
W510 7-21
W600 7-22
W601 7-22
W602 7-22
W603 7-22
W604 7-23
W605 7-23
W606 7-23
W607 7-23
W608 7-24
W609 7-24
W700 7-24
W701 7-24
W702 7-24
W800 7-25
W801 7-25
W802 7-25
W803 7-25
warnings 1-15
warranty A-1

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BD Phoenix System User's Manual (L-003342)

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Table of Contents	☐	☐	☐	☐	☐
Introduction	☐	☐	☐	☐	☐
Installation	☐	☐	☐	☐	☐
Controls and Indicators	☐	☐	☐	☐	☐
Operation	☐	☐	☐	☐	☐
Reference	☐	☐	☐	☐	☐
Maintenance	☐	☐	☐	☐	☐
Troubleshooting	☐	☐	☐	☐	☐
Performance and Limitations	☐	☐	☐	☐	☐
Index	☐	☐	☐	☐	☐
Appendices	☐	☐	☐	☐	☐
General					
Organization/order of information	☐	☐	☐	☐	☐
Ease of finding information	☐	☐	☐	☐	☐
Clarity of information	☐	☐	☐	☐	☐
Completeness of information	☐	☐	☐	☐	☐
Accuracy of information	☐	☐	☐	☐	☐
Diagrams – Quantity	☐	☐	☐	☐	☐
Diagrams – Quality	☐	☐	☐	☐	☐
Diagrams – Usefulness	☐	☐	☐	☐	☐
Overall appearance	☐	☐	☐	☐	☐
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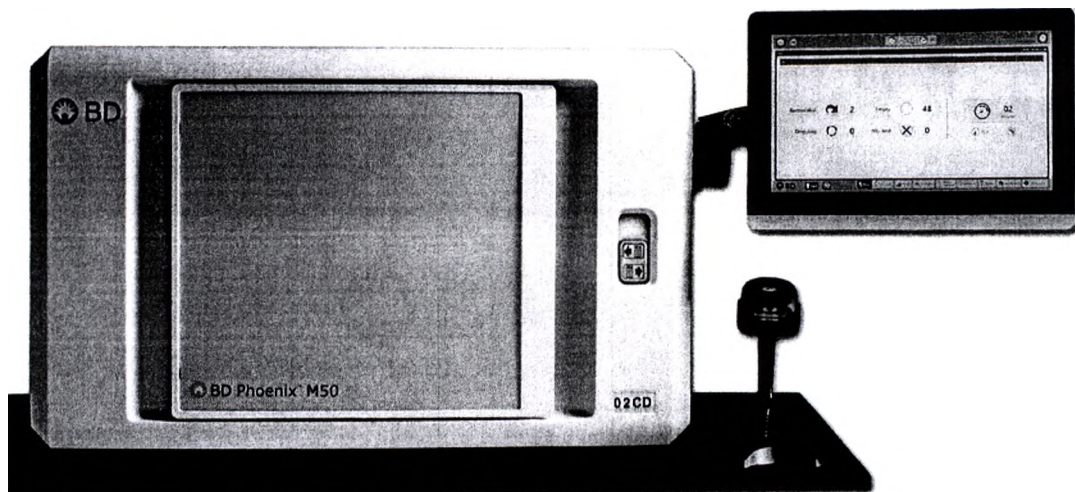
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Table of Contents

1 – Introduction

1.1 Intended Use	1-1
1.2 Summary and Explanation of the Test	1-1
1.3 Principles of the Procedure	1-1
1.4 Precautions	1-5
1.5 System Overview	1-5
1.5.1 Instrument Overview	1-5
1.5.1.1 Instrument Optical System and Drive Mechanism	1-5
1.5.1.2 Carousel Assembly	1-6
1.5.1.3 Incubation System	1-6
1.5.1.4 Panel Status and Internal Barcode Scanner Assembly	1-6
1.5.1.5 External Barcode Scanner	1-6
1.5.2 Software and Operation Overview	1-6
1.5.3 Panel Overview	1-8
1.5.4 Testing Overview	1-9
1.5.5 Normalizers	1-10
1.6 Limited Warranty	1-11
1.7 Conventions	1-11
1.7.1 Notes, Cautions, and Warnings	1-11
1.7.2 Summary of Cautions and Warnings	1-12
1.8 Bibliography	1-12

2 – Controls, Icons, Indicators, and Installation

2.1 General	2-15
2.2 System Startup	2-15
2.2.1 Instrument Installation	2-15
2.3 Instrument Specifications	2-17
2.3.1 Specification Chart	2-17
2.3.2 Controls and Indicators	2-18
2.3.2.1 Power Switch and Inputs / Outputs	2-18
2.3.2.2 Connector Plate	2-19
2.3.2.3 All-in-one (AIO) PC controls	2-20
2.3.2.4 Power Controls	2-20
2.3.2.5 Other Indicators	2-21
2.3.2.6 Instrument Alert Indicator	2-21

Table of Contents

2.3.2.7 System Alerts	2-22
2.3.2.8 Audible Tones and Alarms	2-22
2.3.2.9 Instrument Door/Panel Button Status	2-23
2.3.2.10 Station Indicators	2-24
2.3.3 Printer	2-25
2.3.4 Barcode Scanners	2-25
2.3.5 Touchscreen Keyboard	2-25
2.3.5.1 Enabling/Disabling Touchscreen Fields	2-25
2.4 User Access and Management Summary	2-25
2.5 Software Icons	2-27
2.6 Software Setup	2-29
2.7 Isolation Mode	2-29
2.8 LIS Operations	2-31
2.8.1 General	2-31
2.8.2 Results Upload Records	2-32
2.8.3 Results Record	2-32
2.8.4 Important Concepts	2-33
2.8.5 Routine System Operation	2-33

3 – User Interface Operations

3.1 Using the Instrument Interface	3-35
3.2 Status Tab	3-35
3.3 Panel Login Tab	3-35
3.3.1 Logging in Panels	3-37
3.3.2 Inserting Panels in the Instrument	3-38
3.3.3 Unloading and Discarding Panels	3-40
3.4 Results Tab	3-41
3.4.1 Adding/Modifying ID Results	3-47
3.4.2 Modifying AST Results	3-47
3.4.3 Modify Panel Usage Sub-Tab	3-48
3.4.4 AST Results Sub-Tab	3-49
3.4.5 BDxpert Rules Sub-Tab	3-52
3.4.6 Lot Information Sub-Tab	3-53
3.4.7 Instrument Organism ID Sub-Tab	3-54
3.4.8 Special Messages Sub-Tab	3-54
3.4.9 Needs Attention Sub-Tab	3-55

Table of Contents

3.4.10 Lab Report	3-55
3.5 Finalization Tab	3-56
3.6 Needs Attention Tab	3-58
3.7 Inventory Tab	3-61
3.8 Reports Tab	3-62
3.8.1 How to Print Reports	3-63
3.8.2 Completed Lab Report	3-63
3.8.3 Accession Lab Report	3-64
3.8.4 Needs Attention List Report	3-64
3.8.5 Resident Panel Report	3-65
3.8.6 QC Lab Report	3-66
3.8.7 Cumulative QC Report	3-66
3.8.8 Daily Instrument Report	3-66
3.8.9 Interpretation Rule Set Report	3-67
3.8.10 BDxpert Rule Set Database Report	3-68
3.8.11 Organism ID Code List Report	3-68
3.8.12 Antimicrobial Code Report	3-68
3.8.13 Lab Report/QC Lab Report	3-68
3.8.14 Finalization Summary Report	3-68
3.8.15 Custom Breakpoint Difference Report	3-69
3.8.16 Current QC Panel Lot Report	3-69
3.8.17 Historical QC Panel Lot Report	3-69
3.8.18 Panel Lot Report	3-69
3.8.19 Panel Lot Database Report	3-69
3.9 Maintenance Tab	3-69
3.9.1 Maintenance Hardware Functions	3-70
3.9.2 Maintenance Software Functions	3-70
3.9.3 Maintenance LIS Functions	3-75
3.9.4 Maintenance Panel Functions	3-75
3.9.5 Maintenance Field Service Functions	3-76
3.9.6 Maintenance Internal BD Use Functions	3-76
3.9.7 Maintenance Event Log Tab	3-76
3.10 Configuration Tab	3-77
3.10.1 Users Sub-Tab	3-77
3.10.2 System Configuration Sub-Tab	3-77

Table of Contents

3.10.3 Communications Sub-Tab.....	3-81
3.10.4 Organism Configuration Sub-Tab	3-83
3.10.5 Antimicrobial Configuration Sub-Tab	3-83
3.10.6 Custom Interpretation Rule Set Sub-Tab	3-84
3.10.7 BDxpert Rules Sub-Tab.....	3-88
3.10.8 Rapid Reporting Sub-Tab	3-89
3.10.9 Panel Lot Definition Sub-Tab	3-91
3.10.10 Instrument Sub-Tab	3-93

4 – Routine Panel Operation

4.1 General	4-95
4.2 Storage and Handling	4-95
4.3 Preparing Panels.....	4-95
4.3.1 Quality Control	4-108
4.4 Automatic Association of Panels.....	4-110
4.4.1 Overview	4-110
4.4.2 Panel Types	4-110
4.4.3 When Auto Association Is Not Performed.....	4-110
4.4.4 Organism ID Conflict Checking	4-110
4.4.5 Auto Association and Related Actions	4-111
4.4.6 Typical Auto Association Examples	4-111
4.4.7 BDxpert Triggered Rules Screen.....	4-113
4.4.8 Resistance Markers	4-114

5 – Maintenance

5.1 General	5-115
5.2 Routine Maintenance	5-115
5.2.1 Cleaning and Checking the Air Filter.....	5-117
5.2.2 Removing the Air Filter.....	5-117
5.2.3 Cleaning the Air Filter.....	5-118
5.2.4 Daily Instrument Report	5-118
5.2.5 Cleaning / Decontamination	5-120
5.3 Module Replacement	5-121
5.3.1 General	5-121
5.3.2 Thermometer Removal	5-122
5.3.3 Reuniting Separated Liquid in the Thermometer	5-122

Table of Contents

6 – System Alert Messages

6.1 Error / Alert Messages	6–123
6.2 System Alerts (E error codes)	6–124
6.3 Workflow Alerts (W error codes)	6–137
6.4 Event Log Messages.....	6–150
6.4.1 LIS Related Messages	6–150

7 – Performance, Limitations, Organism Codes, and Panel Information

7.1 Performance Characteristics	7–161
7.1.1 Gram Negative Performance	7–161
7.1.2 Gram Positive Performance	7–164
7.1.3 Streptococci Performance (with BD Phoenix SMIC/ID, SMIC Panels)	7–166
7.1.4 Identification of Yeast Species	7–168
7.2 Limitations of the Procedure	7–168
7.3 Organism Codes, Short Names, Long Names.....	7–169
7.4 List of Antimicrobial Agents in BD Phoenix Panels	7–193
7.4.1 Gram Negative	7–193
7.5 List of Reagents and Principles Employed in the BD Phoenix System.....	7–200
7.5.1 Gram Negative	7–200
7.5.2 Gram Positive.....	7–202
7.5.3 Streptococci Panel	7–203
7.5.4 Yeast Panel.....	7–204
7.6 Taxa for ID/AST Determination.....	7–206
7.6.1 Gram Negative (0.5 McFarland).....	7–206
7.6.2 Gram Negative (0.25 McFarland).....	7–210
7.6.3 Gram Positive (0.5 McFarland)	7–212
7.6.4 Gram Positive (0.25 McFarland)	7–215
7.6.5 Streptococci	7–217
7.6.6 Yeast	7–218

8 – Glossaries

8.1 Glossary	8–221
8.2 Supplemental ID Test Abbreviations.....	8–223
8.3 Symbol Glossary	8–224

Table of Contents

9 – Replacement Parts

10 – Software Update Log

11 – International Contacts

1 – Introduction

1.1 Intended Use

The BD Phoenix™ Automated Microbiology System is intended for the rapid identification (ID) and antimicrobial susceptibility testing (AST) of clinically significant bacteria. The BD Phoenix system provides rapid results for most aerobic and facultative anaerobic gram-positive bacteria as well as most aerobic and facultative anaerobic gram-negative bacteria of human origin. The BD Phoenix System is also intended for the rapid identification of yeast and yeast-like organisms.

1.2 Summary and Explanation of the Test

Micromethods for the biochemical identification of microorganisms were reported as early as 1918.¹ Several publications reported on the use of the reagent-impregnated paper discs and micro-tube methods for differentiating enteric bacteria.¹⁻⁹ The interest in miniaturized identification systems led to the introduction of several commercial systems in the late 1960s, and they provided advantages in requiring little storage space, extended shelf life, standardized quality control, and ease of use. Many of the tests used in the BD Phoenix ID panels are modifications of the classical methods. These include tests for fermentation, oxidation, degradation and hydrolysis of various substrates. In addition to these, the BD Phoenix System utilizes chromogenic and fluorogenic substrates as well as single carbon source substrates in the identification of organisms.^{10, 11, 26-28}

The modern broth microdilution test used today has origins in the tube dilution test used in 1942 by Rammelkamp and Maxon to determine *in vitro* antimicrobial susceptibility testing of bacterial isolates from clinical specimens.¹² The broth dilution technique involves exposing bacteria to decreasing concentrations of antimicrobial agents in liquid media by serial two-fold dilution. The lowest concentration of an antimicrobial agent in which no visible growth occurs is defined as the minimal inhibitory concentration (MIC).

The introduction in 1956 of a microtitrator system, using calibrated precision spiral wire loops and droppers for making accurate dilutions, rapidly allowed Marymont and Wentz to develop a serial dilution AST test.¹³ The microtitrator system was accurate and allowed the reduction in volumes of antimicrobial agents. The term microdilution appeared in 1970 to describe the MIC tests performed in volumes of 0.1 mL or less of antimicrobial solution.¹⁴

The BD Phoenix AST is a modified miniaturized version of the micro-broth doubling dilution technique. Susceptibility testing in the BD Phoenix System is performed through determination of bacterial growth in the presence of various concentrations of the antimicrobial agent tested with the aid of the AST indicator in continuously incubated and read micro-wells in the BD Phoenix panels.

1.3 Principles of the Procedure

A maximum of 50 identification and antimicrobial susceptibility tests can be performed in the BD Phoenix M50 instrument at a time using BD Phoenix combination panels. A sealed and self-inoculating molded polystyrene tray with 136 micro-wells containing dried reagents, serves as the BD Phoenix disposable. The combination panel includes an ID side with dried substrates for bacterial or yeast identification and an AST side with varying concentrations of antimicrobial agents, growth and fluorescent controls at appropriate well locations. The BD Phoenix system utilizes an optimized colorimetric redox indicator for AST, and a variety of colorimetric and fluorometric indicators for ID. The AST broth is cation-adjusted (e.g., Ca⁺⁺ and Mg⁺⁺) to optimize susceptibility testing performance.

The BD Phoenix Panel is comprised of a 51 well ID side and an 85 well AST side. The ID side contains 45 wells with dried biochemical substrates and 2 fluorescent control wells. The AST side potentially contains up to 84 wells with dried antimicrobial agents and 1 growth control well. Panels are available as Emerge, ID only, AST only, or ID/AST combination. Unused wells are reserved for future use. BD Phoenix panels are inoculated with a standardized inoculum. Organism suspensions must be prepared only with the BD BBL™ CrystalSpec™ Nephelometer, the BD PhoenixSpec™ Nephelometer, or the BD Phoenix AP instrument. Once inoculated, panels are placed into the instrument and continuously incubated at 35 °C. The instrument tests panels every 20 minutes: on the hour, at 20 minutes past the hour, and again at 40 minutes past the hour for up to 16 hours if necessary. BD Phoenix panels are read only by the BD Phoenix M50 instrument. BD Phoenix panels cannot be read manually.

Organism Identification

The ID portion of the BD Phoenix panel utilizes a series of conventional, chromogenic, and fluorogenic biochemical tests to determine the identification of the organism. Both growth-based and enzymatic substrates are employed to cover the different types of reactivity within the range of taxa. The tests are based on microbial utilization and degradation of specific substrates detected by various indicator systems. Acid production is indicated by a change in phenol red indicator when an isolate is able to utilize a carbohydrate substrate. Chromogenic substrates produce a yellow color upon enzymatic hydrolysis of either *p*-Nitrophenyl or *p*-Nitroanilide compounds. Enzymatic hydrolysis of fluorogenic substrates results in the release of a fluorescent coumarin derivative. Organisms that utilize a specific carbon source reduce the resazurin-based indicator. In addition, there are other tests that detect the ability of an organism to hydrolyze, degrade, reduce, or otherwise utilize a substrate.

A complete list of taxa that comprises the BD Phoenix Database is provided in Section 7.6 Taxa for ID/AST Determination. Reactions employed by various substrates and a brief explanation of the principles employed in the BD Phoenix Gram Negative, Gram Positive, *Streptococcus*, and Yeast ID reactions are described in Section 7 – Performance, Limitations, Organism Codes, and Panel Information.

Antimicrobial Susceptibility Testing

The BD Phoenix AST method is a broth based microdilution test. The BD Phoenix system utilizes a redox indicator for the detection of organism growth in the presence of an antimicrobial agent.¹⁵ Continuous measurements of changes to the indicator as well as bacterial turbidity are used in the determination of bacterial growth. Each AST panel configuration contains several antimicrobial agents with a wide range of two-fold doubling dilution concentrations. Organism identification is used in the interpretation of the MIC values of each antimicrobial agent. A complete list of taxa for which the BD Phoenix panels can provide AST results is shown in Section 7 – Performance, Limitations, Organism Codes, and Panel Information. The list of antimicrobial agents and concentrations available for susceptibility testing in the BD Phoenix system is provided in Section 7.4 List of Antimicrobial Agents in BD Phoenix Panels.

The components required for testing include:

- 1 BD Phoenix **panels with panel closures**
- 2 BD Phoenix **ID Broth**
- 3 BD Phoenix **AST Broth**
- 4 BD Phoenix **AST Indicator Solution**
- 5 BD Phoenix AST-S Broth (for use with BD Phoenix Strep panels only)
- 6 BD Phoenix AST-S Indicator Solution (for use with BD Phoenix Strep panels only)
- 7 BD Phoenix **Inoculation Station**
- 8 BD Phoenix **Panel Caddy**

-
- 9 BD BBL CrystalSpec Nephelometer, the BD PhoenixSpec Nephelometer, or the BD Phoenix AP instrument
 - 10 25 µL pipettor and sterile tips
 - 11 Miscellaneous lab supplies (listed under Materials Required but Not Provided: in Section 4.3 Preparing Panels).

The BD Phoenix panel is for use with the BD Phoenix M50 instrument for either organism identification (ID) or antimicrobial susceptibility testing (AST), or for the combination of both. The panel is inclined with the inoculation ports at the top for filling. Separate inocula are added manually to the ID and AST ports. The inocula flow down the panel in serpentine fashion, filling the panel wells as the liquid front progresses toward the pad. The pad absorbs excess inoculum. Closures are manually inserted in the fill ports. An air admittance port is located in the divider area of the panel lid to ensure adequate oxygen tension in the panel for the duration of the test.

Principles of BD Phoenix AST Tests for the Detection of Resistance Markers

The following sections outline the principles of the BD Phoenix AST System in the detection of resistance markers in gram-negative or gram-positive organisms, including 1) detection of ESBL production among species of *Enterobacteriaceae*; 2) detection of vancomycin resistance in *Enterococcus* species (VRE); 3) detection of high-level aminoglycoside resistance in *Enterococcus* and *Streptococcus* species (HLAR); 4) detection of methicillin-resistance in staphylococci (MRS); 5) detection of β -lactamase production in *Staphylococcus* species (BL); 6) detection of macrolide resistance in *Streptococcus* species (MLSb); 7) detection of *mecA*-mediated Resistance with *S. aureus* (*mecA*); 8) detection of Vancomycin Resistant *Staphylococcus aureus* (VRSA); 9) detection of BD Phoenix Inducible Macrolide Resistance (IMLS) in *Staphylococcus* spp. For further information, consult the BDxpert manual.

BD Phoenix Extended Spectrum β -Lactamase (ESBL) Test¹⁶

The BD Phoenix ESBL test evolved from published data of known ESBL antibiogram patterns in the current literature.¹⁸⁻²¹ Selected strains of various species with known β -lactamase genotype/phenotypes in the family *Enterobacteriaceae*, including *Escherichia coli*, *Klebsiella* species (spp.), *Citrobacter* spp., *Enterobacter* spp., *Proteus* spp., and *Serratia* spp., were used to develop the BD Phoenix ESBL test. The BD Phoenix ESBL test is based on the principle of a differential response between the inhibitory effect of selected second or third generation cephalosporins in the presence or absence of a β -lactamase inhibitor, clavulanic acid. The principles of BD Phoenix ESBL test is similar to the CLSI ESBL broth microdilution confirmatory test.²² The BD Phoenix ESBL test is applied to *E. coli*, *K. pneumoniae* and *K. oxytoca*. Additionally, at the customers discretion, it can be applied to other enteric species where production of ESBL has been reported in literature. When a test result of ESBL is positive, the categorical interpretation of all penicillins, cephalosporins (except cephamycins), and aztreonam on the same BD Phoenix panel will be changed to R with BDxpert rule 1529. Customers can enable specific rules to be reported as tested.²²

BD Phoenix Vancomycin Resistant Enterococci (VRE) Test

The BD Phoenix VRE test is based on the SIR interpretation of vancomycin. The breakpoint selected in the instrument configuration is used for the categorical interpretation. The BD Phoenix VRE test was developed and optimized to match the CLSI standard broth microdilution test.^{22, 23} Selection of a breakpoint other than CLSI may result in less than optimal performance due to differences in categorical interpretations. Only *Enterococcus faecalis* and *E. faecium* with acquired resistance (*vanA* or *vanB*) will be reported as positive.²²

BD Phoenix High-Level Aminoglycoside Resistance (HLAR) Tests

The BD Phoenix HLAR tests for *Enterococcus* are based on the growth response in a single well containing either a high-level concentration of gentamicin or streptomycin. These tests were developed and optimized against both the CLSI standard broth microdilution and the CLSI screening agar test.²²

The BD Phoenix HLAR tests for *Streptococcus* are based on the growth response in a single well containing gentamicin, kanamycin, or streptomycin. These tests were developed and optimized using the CLSI recommended standard broth microdilution.

BD Phoenix Methicillin-Resistance in Staphylococci (MRS) Test

The BD Phoenix MRS test is based on the SIR interpretation of oxacillin with *Staphylococcus* species. When an MRS test result is positive, several BDxpert rules are designed to handle the reporting and the interpretations of all beta-lactam drugs. BD Phoenix cefoxitin MIC result is used to predict *mecA*-mediated resistance in *Staphylococcus aureus*. A special BDxpert rule is designed to report MRS using cefoxitin results for *Staphylococcus aureus*. The surrogate drug, cefoxitin, has been validated as a better indicator for the presence of *mecA* in staphylococci. The breakpoint selected in the instrument configuration is used for the categorical interpretation.

BD Phoenix Gram-Positive β -lactamase (BL) Test¹⁶

The BL test available in the BD Phoenix AST System is a nitrocefin based β -lactamase test. The nitrocefin based test is a direct detection method located on the ID side of the BD Phoenix panel. The performance of this test was established against the results of testing with BD BBL Cefinase™ Discs (Cat. No. 231650) as the reference method. Currently, only *Staphylococcus* species will be evaluated with these tests. When the result of BL test is positive, the categorical interpretation of all penicillinase labile penicillins on the same Phoenix panels will be changed to resistant.²²

BD Phoenix Macrolide Resistance in Streptococci (MLSb) Test

The BD Phoenix Macrolide Resistance test is based on SIR interpretation of erythromycin and clindamycin. The breakpoint selected in the instrument configuration is used for the categorical interpretation. Erythromycin resistant and clindamycin resistant *Streptococcus* isolates will be reported as macrolide/lincosamide/streptogramin B (MLSb) phenotype.

BD Phoenix *mecA*-mediated Resistance Marker for *Staphylococcus aureus* (*mecA*)

The BD Phoenix *mecA* test is used to predict *mecA*-mediated resistance in *Staphylococcus aureus*. The principle is similar to the CLSI-recommended Disk Diffusion test, which uses a cefoxitin (FOX) disk to predict *mecA*-mediated resistance in *S. aureus*. The performance of the test was established against multiplex PCR methods²⁵ as well as the Disk Diffusion test. With the BD Phoenix *mecA* test, the *mecA*-specific FOX MICs used for detection of the resistance marker will be configured in the instrument. When the *mecA* resistance marker is detected, the interpretations for all beta-lactam drugs on the same BD Phoenix panel are changed to resistant,²² and the BD Phoenix *mecA* resistance marker is set.

BD Phoenix Vancomycin Resistant *Staphylococcus aureus* (VRSA) Test

The BD Phoenix VRSA detection is based on the SIR interpretation of vancomycin when testing *Staphylococcus aureus*. The breakpoint selected in the instrument configuration is used for the categorical interpretation. The BD Phoenix VRSA test was developed and optimized to match the CLSI standard broth microdilution test, and verified with known VRSA isolates. Selection of a breakpoint other than those found in CLSI M100-S25 may result in less than optimal performance due to differences in categorical interpretations. Only *Staphylococcus aureus* with true resistance (isolates

containing resistance marker such as *vanA* gene) will be reported as VRSA. Strains of *S. aureus* with vancomycin intermediate results (GISA/VISA) will be identified and reported by separate BDxpert rules. The BD Phoenix Gram Positive AST panel detected vancomycin resistance in the VRSA *S. aureus* strains available at the time of comparative testing. The ability to detect resistance in other *S. aureus* strains is unknown due to the limited number of resistant strains available for comparative testing.

BD Phoenix Inducible Macrolide Resistance (IMLS) Test in *Staphylococcus* species

The BD Phoenix Inducible Macrolide Resistance (IMLS) Test is used to detect inducible macrolide lincosamide-streptogramin B (MLSb) resistance in *Staphylococcus* species. MLSb resistance, usually encoded by *ermA* or *ermC* genes, may be either constitutive (always expressed) or inducible after exposure to a macrolide antibiotic (e.g. erythromycin, clarithromycin, etc.). The BD Phoenix Inducible Macrolide Resistance Test is based on the same principle as the CLSI recommended Disk Approximation Test (D-Test) for the detection of inducible clindamycin resistance. When the BD Phoenix Inducible Macrolide Resistance Test result is positive, the categorical interpretation of clindamycin on the same BD Phoenix panel will be reported as resistant and accompanied by a separate BDxpert message. *Staphylococcus* isolates resistant to both erythromycin and clindamycin on initial testing will be reported as constitutive MLSb resistance to distinguish them from isolates that are resistant to macrolides alone by efflux mechanism.

1.4 Precautions

For *in vitro* Diagnostic Use.

All patient specimens and microbial cultures are potentially infectious and should be treated with universal precautions. Please refer to CDC manual *Biosafety in Microbiological and Biomedical Laboratories*, 5th Edition, 2009, as well as other recommended literature.

Panels once inoculated should be handled carefully until placed in the instrument.

1.5 System Overview

1.5.1 Instrument Overview

1.5.1.1 Instrument Optical System and Drive Mechanism

Within the main instrument incubation bay, the cylindrical carousel and its drive are the only moving parts. The carousel is normally driven at either 1.0 RPM or 2.0 RPM. The drive speed, acceleration and deceleration are controlled by the central processor. The carousel is divided vertically into two tiers, each of which functions as a relatively independent optical source and detection system for panels placed on that tier. Each tier has its own microcontroller to control data acquisition and transmission. The two microcontrollers communicate with the central processor over a serial communications link.

Visible illumination in the red, green and blue spectral regions for each tier is provided by a Light Emitting Diode (LED) source board. The LED source currents are programmable in order to compensate for signal loss at the panel extremes due to parallax and other factors. A source monitor system averages signal from two onboard photodiodes to monitor visible source output. Fluorescent UV (ultraviolet) LEDs provide UV illumination.

1.5.1.2 Carousel Assembly

The Carousel Assembly is a cage-like structure comprised of aluminum rings and vertical ribs bolted together to form a right circular cylinder. The carousel holds 52 panel holders in two tiers. Each tier holds one normalizer panel and 25 sample panels.

During normal operation, the carousel is driven at either 1.0 RPM or 2.0 RPM, depending on the current operation. During panel location, the carousel can rotate at up to 10.0 RPM. The carousel rotates counterclockwise. A single rotation of the carousel is used to perform an inventory scan to identify panels within the instrument following a door closure. A complete test cycle requires 7 minutes.

1.5.1.3 Incubation System

The Incubation System maintains the carousel, panel carriers, and panels at a constant nominal temperature of 35 °C. The system is a recirculating forced-air convection design. There is a single filter to remove dust from the electronics bay. The system consists of a squirrel cage blower powered by a brushless DC motor, a coil-style heater section with automatic over-temperature shut-off, thermoformed inlet and return ductwork, and a user-replaceable polyester fiber air filter.

1.5.1.4 Panel Status and Internal Barcode Scanner Assembly

Panel status indication and panel identification is accomplished on the same tower in the instrument, mounted directly behind the carousel in the door area. Panel Status is indicated by red, green, and amber LEDs mounted on a panel behind the carousel that shine through the light pipes and panels. Two columns of the carousel are exposed when the instrument door is open.

Two barcode scanners capable of reading panel barcodes are located on the same tower as the indicators. Each scanner reads panel barcodes on its respective tier of the carousel. Panel barcodes are affixed at the top of the panel on the base (bottom) side of the panel, facing inward on the carousel when placed in the instrument.

1.5.1.5 External Barcode Scanner

The external barcode scanner can be used to read barcoded accession numbers that have been placed on the panels, as well as the panel's own sequence number barcodes. The accession barcodes can be used to link specimen identification information to specific panels in the instrument.

1.5.2 Software and Operation Overview

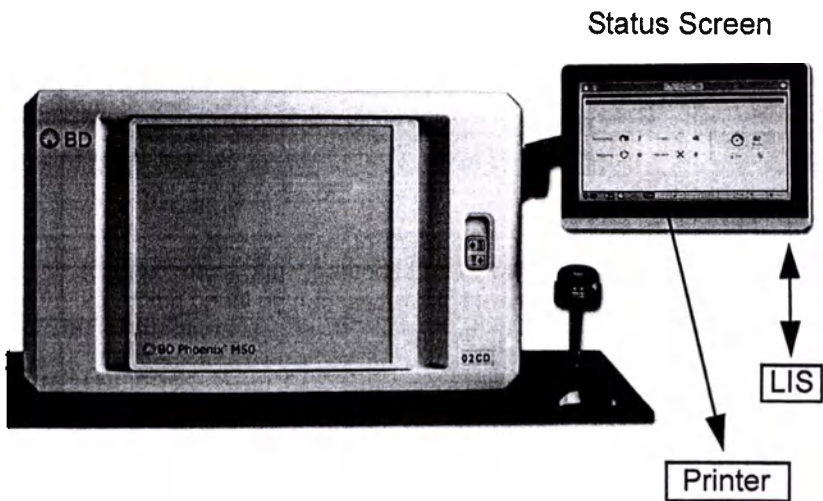


Figure 1-1 – BD Phoenix M50 Instrument

The All-In-One (AIO) PC presents all the information needed to monitor instrument status, to enter and remove panels, set up the instrument, print reports, and perform routine instrument maintenance. The AIO PC controls up to two BD Phoenix M50 instruments (see Figure 1-3 – BD Phoenix M50 User Interface for Two Instruments). The AIO PC provides connectivity to the hand-held barcode scanner and printer. The Interface to a BD Data Management system or LIS is optionally supported by the AIO PC.

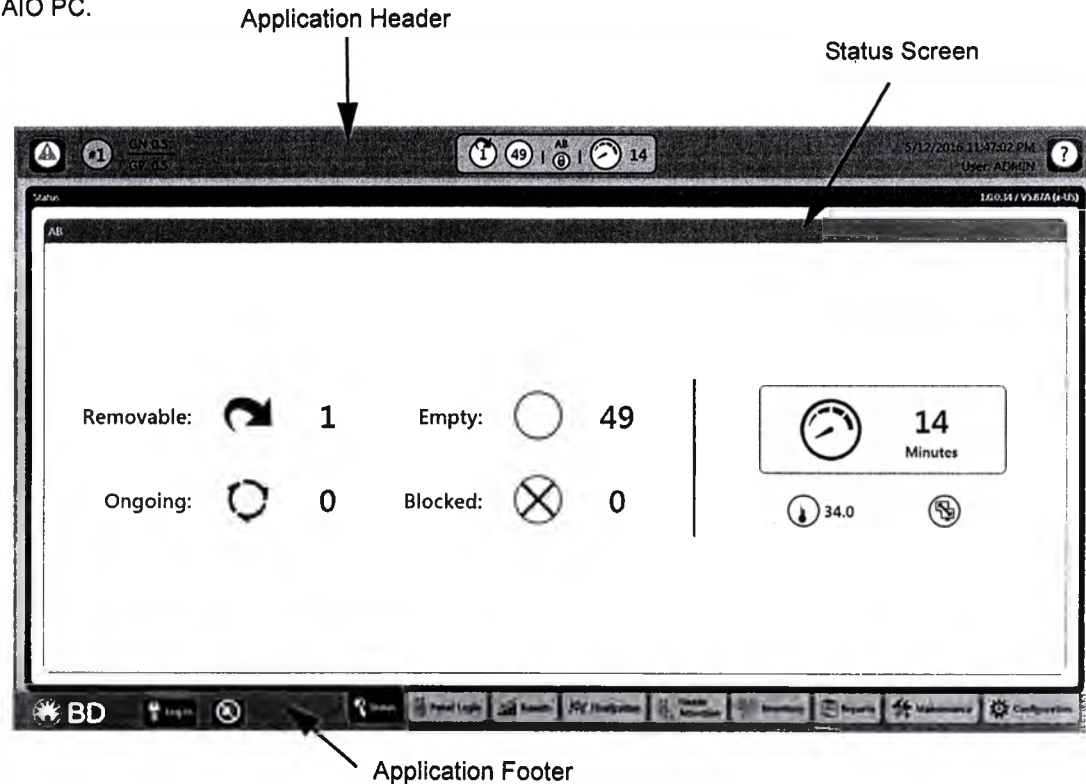


Figure 1-2 – BD Phoenix M50 User Interface for One Instrument

The User Interface on the AIO PC is divided into 3 regions (see Figure 1-2 – BD Phoenix M50 User Interface for One Instrument). The application header and footer appear on all screens of the BD Phoenix M50 instrument user interface. The middle region corresponds to the selected tab in the footer; in the figure above the status tab has been selected. The Application Header contains status information for the BD Phoenix M50 instrument. Either one or two instrument summary groups are displayed in the center of the header (See Figure 1-3 – BD Phoenix M50 User Interface for Two Instruments). The application footer contains the tabs to navigate between different screens.

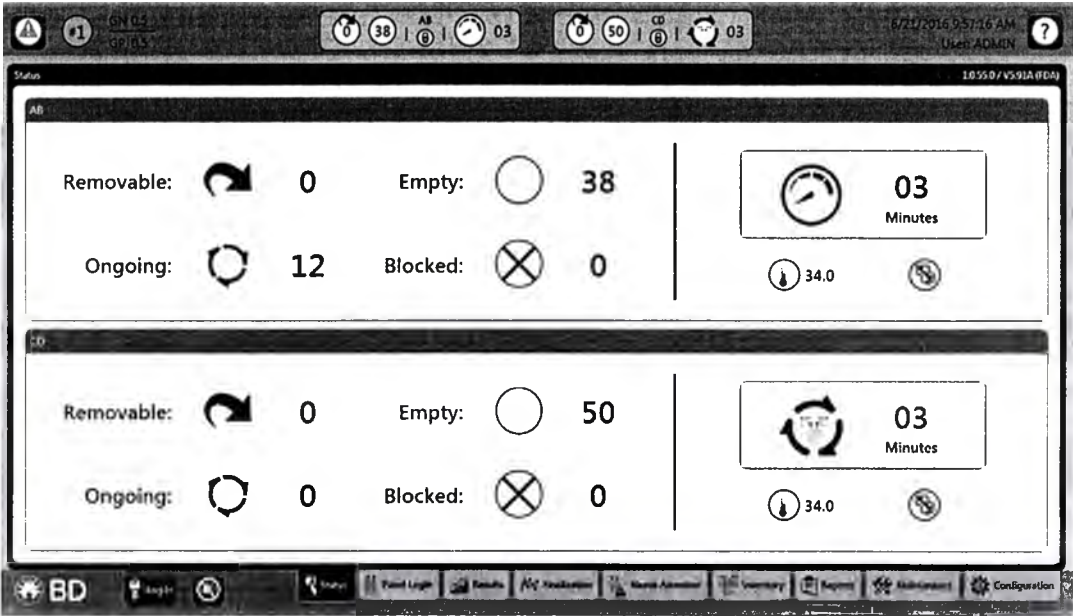


Figure 1-3 – BD Phoenix M50 User Interface for Two Instruments

1.5.3 Panel Overview

The BD Phoenix panel is available in three formats: ID only, AST only, and combination ID/AST testing. The pour and seal serpentine design is optimized for safety and leak-resistance. Each well in the disposable contains approximately 50 μ L of inoculum in an environment that prevents significant evaporation during the course of incubation.

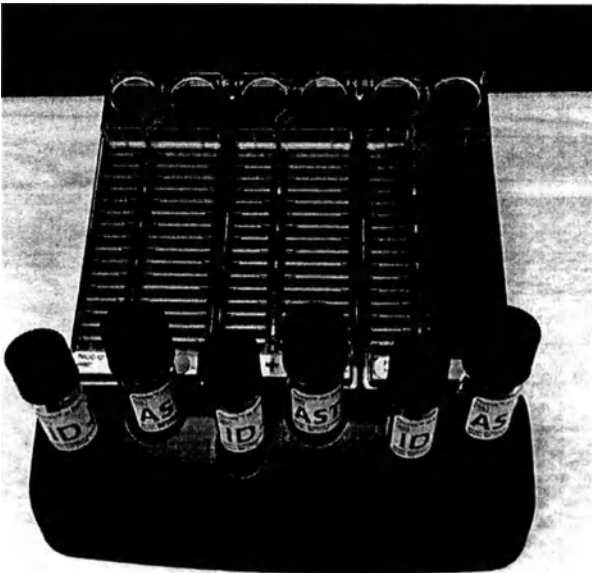


Figure 1-4 – Panel Inoculation Station

A Panel inoculation station holds six tubes of broth (ID, AST) and three panels held at an angle of 24° in order to provide proper gravity-driven inoculum flow through the panel. See Figure 1-4 – Panel Inoculation Station.

A Panel Transportation Caddy is a molded plastic tray used to transport filled and sealed Phoenix panels from the preparation bench to the BD Phoenix M50 instrument. The caddy capacity is 20 panels. See Figure 1-5 – Panel Transportation Caddy.



Figure 1-5 – Panel Transportation Caddy

1.5.4 Testing Overview

After a door-opening/-closing event, the instrument reads panel barcode labels and then performs a scan using the red LEDs to determine if panels are present, and to locate or map well positions. Panel readings are made on the hour and at 20 and 40 minutes after the hour. The instrument test sequence begins with the system checking that the door is locked and the current time is read. Tiers perform dark readings, then the UV LEDs are turned on and allowed to warm up. UV readings are then taken for one revolution. The UV LEDs are turned off. Next the red LEDs are turned on, allowed to warm up, and red LED readings are taken. Then the green LEDs go through the same sequence. Finally, the blue LEDs go through this sequence.

If the test cycle completes successfully, the time is saved. A successful test cycle occurs when there are no carousel errors and the user does not preempt the test by initiating a Load Panels, Unload Panels, or Locate Panel operation. When the user initiates these operations, the current time is compared to the last test cycle's start time. If more than 30 minutes have not elapsed, the requested operation (for example: Load Panels, Unload Panels) is performed. If more than 30 minutes have elapsed since the last test cycle's start time, a test cycle must successfully complete before the user is permitted to perform a Load Panels, Unload Panels, or Locate Panel operation. The Panel In/Out indicator is off (see Figure 2-7 – Panel In/Out Indicator) and the **cannot get into instrument** tone sounds when a panel operation is requested.

After each test:

- The summary counters on the Status screen are adjusted to indicate current statuses
- Panels/records that require user action have a Needs Attention set
- System alerts are reported in the System Alerts list
- Auto Association occurs

The screen displays the icon below when a panel test is taking place. The number next to the icon indicates the number of minutes remaining in the test cycle.



1.5.5 Normalizers

Normalizers serve as reference panels for adjustment of the instrument's optical detection system and they are used for adjustment of the LEDs (red, green, blue and UV). For red, green, blue, and UV correction, data from the normalizer panels is used to correct for variations in optical channel gain and to compensate for well-to-well parallax. Raw signals are source monitor corrected and are then ratioed to the value of the corresponding well of the normalizer panel. This ratio is multiplied by a correction factor, which is the expected transmittance level of the normalizer, to scale the resultant values. The fluorescence (UV) signal from the normalizer is used to ensure that the UV intensity reaching the panel is within the acceptable range for proper interrogation of the fluorescent ID substrates on the BD Phoenix panel.

Normalizers expire two years after installation. A system alert will occur before expiration to allow for scheduling replacement.

The normalizer panels are always located in station number 0 of each tier. When the door is opened, routine carousel access does not present the normalizer panel. The normalizer panel is constrained in its carrier to prevent inadvertent removal.

Automatic Adjustment of Light Sources

Automatic light source adjustment attempts to bring normalizer readings within acceptable ranges. It is performed when the following conditions are met: the instrument is warmed up, idle, and there are no ongoing panels. UV adjustment prohibits access to the instrument for activities such as entering panels into unaffected tiers, removing panels, and performing maintenance checks.

Based on the results of the system's Built-In-Test (BIT), as well as time and power cycling factors, the system detects that readings from the ultraviolet (UV) and visible light sources (testing LEDs) are out of tolerance. There are two main levels to this condition:

- 1 The deviation is great enough that panel results are invalidated (panel testing for the tier is aborted); the tier's stations are blocked; an automatic light source adjustment is performed as soon as all panels in the instrument complete testing.
- 2 The deviation is within limits that do not affect panel results; however available stations are blocked; as soon as all panels on the tier complete testing or are removed, an automatic light source adjustment is performed.

If any of the above conditions occur, E type error codes, and sub-codes will provide information for each of the tiers.

1.6 Limited Warranty

This warranty details specific legal rights. Additionally, there may be other rights that vary from region to region.

The BD Phoenix M50 Automated Microbiology System is warranted to the original purchaser to be free from defects in materials and workmanship for a period of one year following installation. BD's sole responsibility under this warranty shall be to repair or replace any instrument or its components (except for expendable supplies such as printer cartridges, paper, or filters) which under normal operating conditions, prove to be defective within one year of delivery.

BD will furnish new or re-manufactured components upon its option. All replacements shall meet new part specifications and shall be warranted as above for the remainder of the one year period. Replaced components become the property of BD.

It is understood that the equipment covered by this Agreement has been installed in accordance with the recommendations and instructions in the BD Phoenix M50 System User's Manual.

Any damage to a BD Phoenix M50 instrument resulting from the insertion or removal of cables that connect this instrument to systems other than those approved or supplied by BD, or the failure of the owner to maintain reasonable care and precautions in the operation and maintenance of the system, will void this warranty and terminate the obligations of the manufacturer as stated herein.

This warranty is in lieu of all other warranties, whether express or implied, including but not limited to, warranties of merchantability, or fitness for a particular use. In no event will BD be liable for indirect, incidental, special or consequential damages regardless of whether BD has been advised of such.

1.7 Conventions

1.7.1 Notes, Cautions, and Warnings

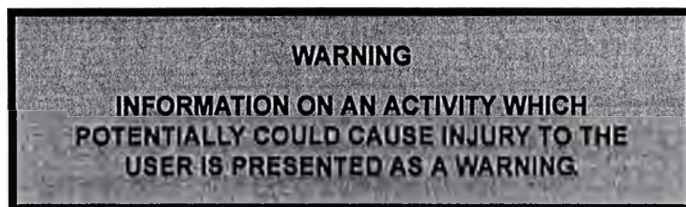
Throughout this manual, important information is presented in boxes offset from the regular text, and is labeled as either a NOTE, CAUTION, or WARNING. These messages are formatted as shown below and bear the following significance:

NOTE

Important information about system use worthy of special attention is presented as a NOTE.

CAUTION

Information on an activity which potentially could cause damage to the instrument or system is presented as a CAUTION.



1.7.2 Summary of Cautions and Warnings

- Protection provided by this equipment may be impaired if the equipment is used in a manner not consistent with the instructions in this manual.
- Due to the size and weight of the BD Phoenix M50 instrument, two people are required to lift the instrument in the absence of mechanical lifting devices.
- All system users should become thoroughly familiar with all controls and indicators before attempting to operate the instrument.
- Observe established precautions against microbiological hazards throughout all procedures. All specimens should be handled according to CDC-NIH recommendations, CLSI guidelines, or local institution guidelines for any potentially infectious human serum, blood, or other body fluids. Prior to discarding, sterilize specimen containers and other contaminated materials by autoclaving.
- In addition to wearing gloves, the use of disposable lab coats or gowns and protective glasses or goggles is recommended when working around the instrument.
- The instrument door is electromagnetically latched and is controlled by the instrument software. Never attempt to defeat the door latching mechanism, or to open the door when the unlocked icon is not displayed. Serious injury can be caused by the rotating carousel manually. If the carousel is not completely stopped when the door is opened, immediately contact BD for service. Never attempt to rotate the carousel manually or serious injury may result.
- When the system displays alerts and errors, immediately respond to the condition.
- All maintenance and repair other than the procedures described in Section 5.2 Routine Maintenance must be performed by qualified service personnel. Non-compliance with this warning may result in personal injury or instrument malfunction.
- All portions of the body that could possibly come into contact with the affected instrument surfaces must be completely covered before beginning the decontamination process.
- If any error sub-codes other than those listed here appear, note the sub-code and contact BD for assistance.
- If the recommended corrective actions do not solve the problem, contact BD.

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2 – Controls, Icons, Indicators, and Installation

2.1 General

This section describes instrument specification, installation, software icons, controls and indicators, and user configuration of the BD Phoenix M50 instrument.

WARNING

PROTECTION PROVIDED BY THIS EQUIPMENT MAY BE IMPAIRED IF THE EQUIPMENT IS USED IN A MANNER NOT CONSISTENT WITH THE INSTRUCTIONS IN THIS MANUAL.

CAUTION

The intake filter at the lower front right corner of the BD Phoenix M50 instrument must remain unobstructed at all times. Restricted air flow may cause excessive temperatures in the instrument, which can affect test results and possibly cause hardware malfunctions.

2.2 System Startup

Whenever power is applied to the system, it is initialized, performs self-diagnostics, and reports any problems to the user through alerts. If any files are missing or corrupted which would prevent proper operation of the system, the startup process is aborted. If not, the computer loads the operating system and user interface, and begins the warmup period (indicated by the Instrument is warming up icon). Afterwards, the system awaits the initiation of panel testing.

The temperature standard panel should be left in the instrument at least 45 minutes before reading it when the instrument is first powered up.

2.2.1 Instrument Installation

The BD Phoenix M50 Instrument is to be installed only by BD representatives.

CAUTION

Due to the size and weight of the BD Phoenix M50 instrument, at least two people are required to lift the instrument in the absence of a mechanical lifting device.

Language

The language setting is performed at installation by a BD representative. Supported languages include:

- English
- Spanish
- French
- Portuguese
- German
- Japanese
- Italian

The BD Phoenix M50 instrument should be installed in an area that is free from undue vibration, direct sunlight, high humidity, dust, temperature extremes, and corrosive or explosive vapors or gases. The system will operate within specifications in room temperatures between 18–30 °C (64.4–86 °F). Relative humidity should be between 20% and 80% (non-condensing). The left, rear, and right sides of the instrument should be placed at least three inches from any wall. Environments which exceed these limits could adversely effect the performance of the system components.

The carousel should maintain its temperature to within plus or minus 1.5 °C of the temperature controller's setting (35 °C). This accuracy can be assured only if the room temperature meets the requirements given above.

Use of earthquake anchoring is strongly recommended in areas susceptible to earthquake activity.

A stacking kit is required when stacking two instruments on top of one another.

Installation Category II and Pollution Degree 2 as per IEC 664.

2.3 Instrument Specifications

2.3.1 Specification Chart

Physical Dimensions	
Height	21 in (535 mm)
Width	32 in (815 mm)
Depth	30 in (765 mm)
Clearance–Right	21.5 in (546 mm)
Clearance–Left, Rear	3 in (76mm)
Clearance–Front	18 in (457 mm)
Weight–Empty	118 lb (53.5 kg)
Weight–Full	127 lb (57.6 kg)

Environmental Requirements	
Non-Operating Storage	
Temperature	-17.8–65 °C (0–149 °F)
Humidity	20–80% RH, non-condensing
Operating Conditions	
Temperature	18–30 °C (64.4–86 °F)
Humidity	20–80% RH, non-condensing
Locations	Level surface, No direct sunlight, No direct heat
Altitude	2000 meters
Noise	at 1 m ≤ 55 dBA using ANSI Type 2 sound meter

Electrical Requirements	
Input Voltage	100–240 VAC
Input Current	6 Amp
Input Line Frequency	50/60 Hz

Instrument Heat Output at Input Voltage = 120 VAC	
Ambient Temperature	BTU/hr
18 °C	648
24 °C	464
30 °C	287

Optical Specifications	
Peak Wavelengths	
428 nm to 623 nm, visible spectrum	
375 nm, UV Excitation	
410 nm -- 640 nm Bandpass, UV Emission	

2.3.2 Controls and Indicators

2.3.2.1 Power Switch and Inputs / Outputs

Disconnecting power from the instrument:

- 1 Place power switch in the **OFF** position by pressing switch on the O side.
- 2 Unplug power cord from the instrument.

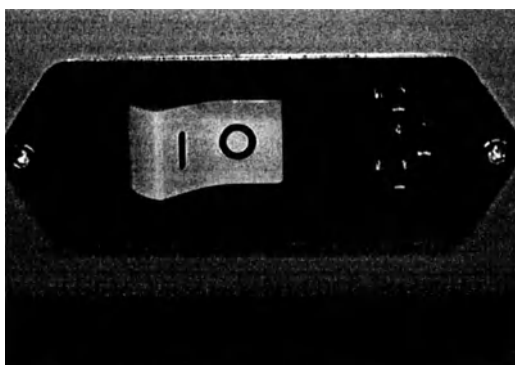


Figure 2-1 – Power off and disconnected

2.3.2.2 Connector Plate

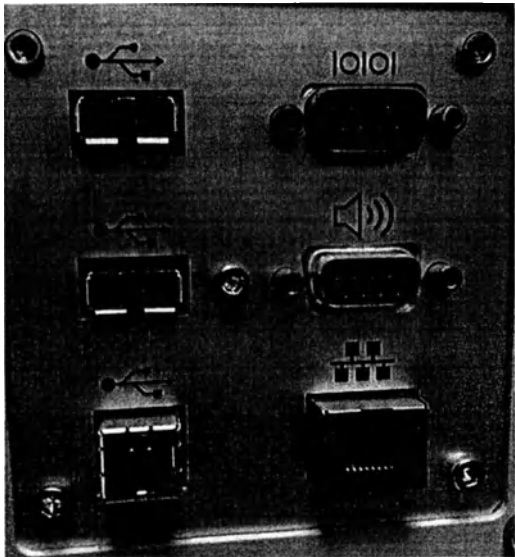


Figure 2-2 – BD Phoenix M50 Connector Plate

USB Connector	Serial (LIS) Connector
USB Connector	Remote Alarm Connector
USB Host Connector (to All-In-One Computer)	Network Connector

2.3.2.3 All-in-one (AIO) PC controls

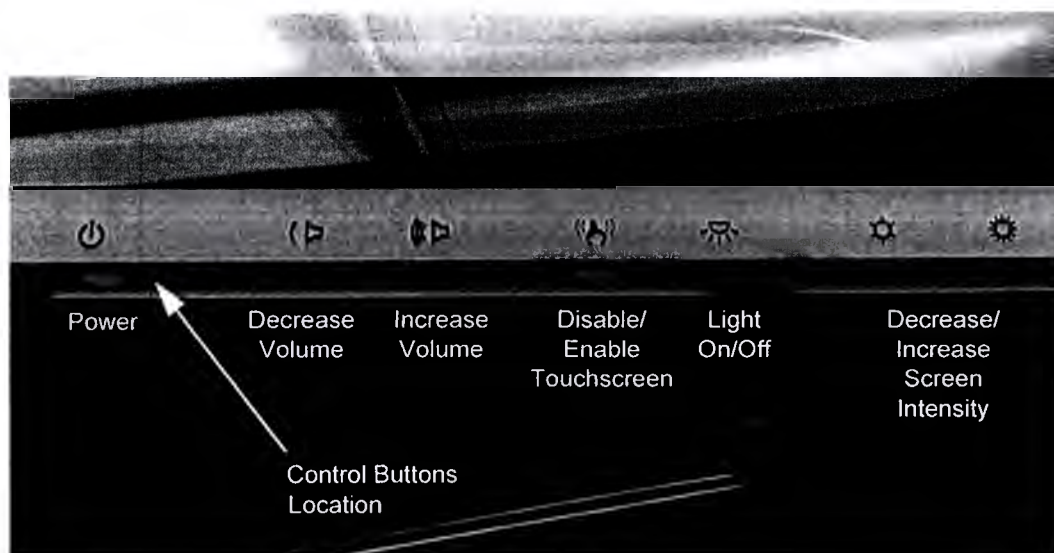


Figure 2-3 – All-in-one Controls

The AIO icons are located on the lower front portion of the PC. The control buttons can be found directly under each icon on the bottom portion of the standing PC.

2.3.2.4 Power Controls

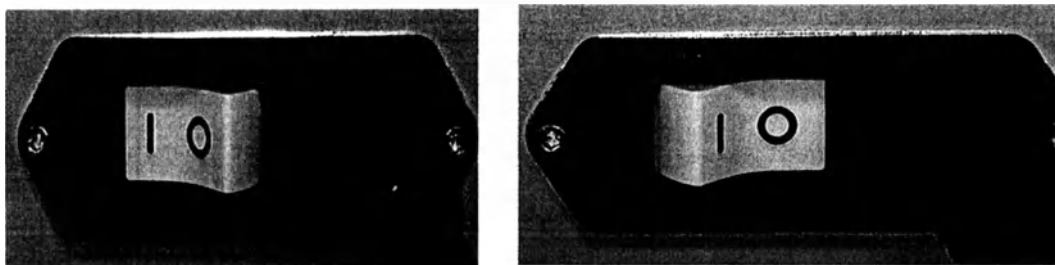


Figure 2-4 – Power On and Power Off

2.3.2.5 Other Indicators



Figure 2-5 – Symbols on Body of BD Phoenix M50 Instrument

From left to right:

- Biohazard
- Electrical Recycling required
- On/Off

2.3.2.6 Instrument Alert Indicator

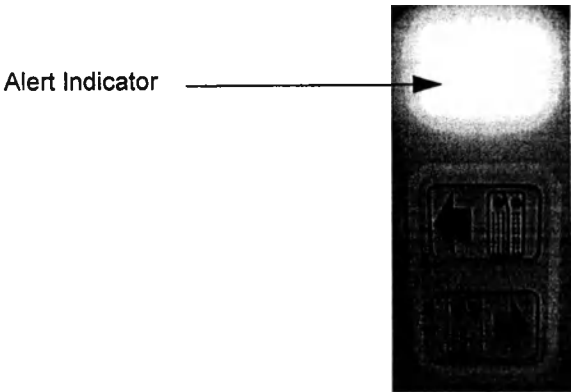


Figure 2-6 – Instrument Alert indicator

The instrument alert indicator represents the current alert status. See the information below for status details:

Instrument Alert Indicator		
LED Appearance	State	Meaning
Off	No Alerts / Instrument Communicating	The instrument does not have any outstanding alerts at this time and is connected to the AIO PC.
Blinking	Instrument not connected	The instrument is not connected or it is not communicating with the AIO PC.
Solid On	Instrument Alert	The instrument has outstanding alerts. Details are available via the alert screen. The instrument is connected to the AIO PC.

2.3.2.7 System Alerts

As activities are performed on the BD Phoenix M50 instrument, and as testing progresses, system alerts and errors may occur. Different types of alerts and errors are flagged by one or more of the following: **E** and **W** error codes (see Sections 6.2 System Alerts (E error codes) and 6.3 Workflow Alerts (W error codes), audible tones (see Section 2.3.2.8 Audible Tones and Alarms), the system Alert icon appearing on the LCD screen, or the instrument's System Alert indicator flashing. A System Alert icon (see Section 2.5 Software Icons) in the upper left corner of the screen indicates the presence of a system alert. Touch the icon to display the System Alerts screen. The System Alerts screen enables the review any existing system alerts that may have occurred or that may still exist in the instrument.

Touching the >> icon expands the alert message providing more detailed information. All the **E** type errors are listed in Section 6.1 Error / Alert Messages. Not all error sub-codes can be addressed by the user.

CAUTION

Immediately respond when the system displays alert and error notifications.

2.3.2.8 Audible Tones and Alarms

As discussed above, audible tones and alarms sound to inform the user of various operational states of the instrument. Refer to the chart below for a detailed description of such tones and alarms.

Type	Example	Sound
Informational		
Acknowledge	Scanning a barcode	Single short high beep
Sample audible alert	In Configuration mode, the audible alert volume was adjusted	Three tones progressing from high to low ("Figaro")
Carousel halted	The carousel has stopped, the door can be opened	Three tones progressing from low to high
Door closed	The door has been completely closed and latched	Two short high beeps
Activity completed	An operation has been completed	Three short high beeps

Type	Example	Sound
Alarm		
Activity error (volume configurable)	Incorrect barcode scanned	Short high beep then short low beep – sequence repeated four times
System alert (volume configurable)	Optical failure	Single medium beep – one second on, three seconds off, repeating
Error tone	The attempted action cannot be performed	Short high beep then short low beep
Door open alarm	Door has remained open longer than 5 minutes	Continuous shrill trill
Cannot get into instrument	A higher priority activity prevents user access to the instrument	Single low beep
Critical Panel/ Resistance Marker notification	Critical Panel: partial results, panel completes, or ID is determined; Resistance Marker: marker has been triggered	Tone 1 (Medium frequency): Long beep, short beep, long beep, short beep; Tones 2 (low frequency) and 3 (very high frequency): Long beep, short beep, long beep, long beep
Carousel jammed	Carousel motion is impeded	High pitched trill

2.3.2.9 Instrument Door/Panel Button Status

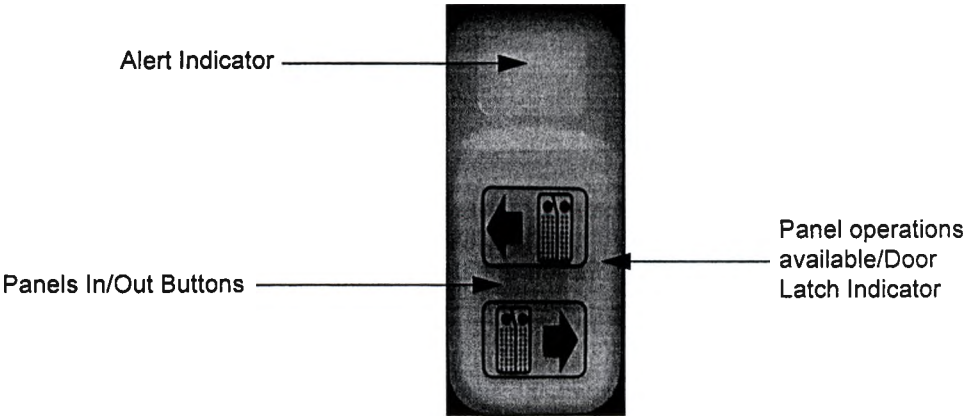


Figure 2-7 – Panel In/Out Indicator

The instrument has an indicator that provides the current panel button and door status to the user. The chart below explains the status details (refer to Section 3.3.2 Inserting Panels in the Instrument).

Panel In/Out Indicator		
LED Appearance	State	Meaning
Off	Panels In/Panels Out not available	If the instrument is powered: Panels In/ Panels Out are not available at this time. The door is locked and may not be opened by the user. The indicator is off when the instrument is performing an operation that may not be interrupted by a Panels In or Panels Out operation.
Blinking	The door on the instrument is unlocked	The door is unlocked and the user may open the door to access the panels.
Solid On	Panels In/Panels Out active	The Door is locked and may not be opened by the user. The user may press either the Panels In or Panels Out button.

2.3.2.10 Station Indicators

Each accessible station has a set of LED indicators providing the station or panel's status. The station indicators are located in the center of the station (see Figure 2-8 – Station Indicators). The appearance of green, amber, or red indicate the conditions shown in the table below for a given station.

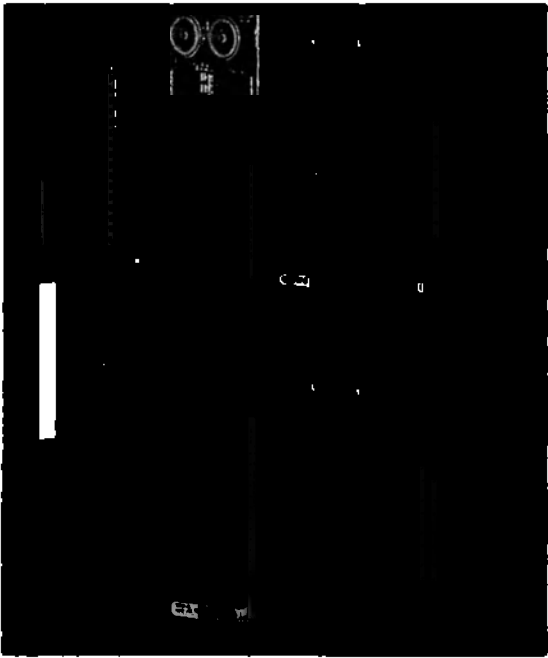


Figure 2-8 – Station Indicators

Station Status Indicators	
LED Appearance	Meaning
Off	Ongoing Panel (if panel is in station) or Available Station (if station is empty)
Green	Removable Panel
Amber	Panel found using locate panel function
Red	Blocked Station (also Temperature Standard Panel)

2.3.3 Printer

For an explanation of controls and indicators on the printer, refer to the manufacturer's operating instructions which is furnished separately. Note that a local printer should be connected to one of the instrument's USB ports. One printer can serve two BD Phoenix M50 instruments connected via one AIO PC.

2.3.4 Barcode Scanners

A hand-operated scanner is provided with the system to facilitate scanning panel barcodes. To scan a barcode press the trigger on the bottom side of the scanner. A single beep indicates a successful scan. Press the trigger to scan each additional barcode.

2.3.5 Touchscreen Keyboard

A touchscreen keyboard is available on the AIO PC for typing data directly into screen fields. To access the touchscreen keyboard touch the field where data is to be entered. Then touch the keyboard icon that appears to expose a full size touchscreen keyboard. Data can be entered directly on the touchscreen or a regular keyboard can be used. When all data is entered via the touchscreen, touch the return key to close the touchscreen keyboard.

2.3.5.1 Enabling/Disabling Touchscreen Fields

The touchscreen user interface requires certain fields to be selected in order for them to be enabled or disabled. To enable or disable a field, simply touch a box and/or circle to make your selection. When the field is represented by a box, touching this box will insert a check indicating that the feature has been enabled. Touching this field again will remove the check; therefore indicating that the feature is disabled.

2.4 User Access and Management Summary

User Access

User login is accessed by touching **Log In** on the Status screen of the BD Phoenix M50 instrument application. When a user is logged in, the text changes to Log Out. The current user name is displayed in the upper right corner of application header region.

Logging In

Select **Log In** to access the user log in screen. The user name is the full user name. The tech ID will not be accepted as the user name for logging in. If improper credentials are submitted, the system will

initiate an alert and prompt for retry. After 5 unsuccessful login attempts, the user account will be locked. If the user landed at this screen inadvertently or wishes to exit without logging in, select **Cancel** from the main screen.

NOTE

If the user has logged in, but the screen is idle for 15 minutes, the user will be logged out and any unsaved data will be lost.

Logging out

To access the log out screen, select **Log Out** from the Status screen and a confirmation will appear verifying that the user wishes to log out. To remain logged in, select **Cancel** to navigate back to the main application screen.

User Role Summaries

- **Administrator** — Lab administrator for lab location. All system functionality is accessible including system configuration. Administrators can create and delete other lab administrators and general lab users.
- **General User** — All system functionality is accessible except system configuration, which is read only. Users can reset their own password.

User Management

Access the user management features by navigating to the Configuration tab. The Users tab is first in the Configuration screen tab list.

General Lab Users

The only management feature available to General Lab users is the ability to change their passwords. All users will be required to change their passwords at certain intervals. To change passwords enter the new password and enter it again in the **confirm** field. Then select **Update Password**.

Lab Administrator Users

Users that are at the Lab Administrator level will be able to access the full set of user management features.

A list of both active and inactive users of the system is displayed for Lab Administrators. User Details show the User ID Role, and Tech ID for the selected user.

Administrators can select a user from the list and perform one of the following actions:

- Reset a user's password.
- Deactivate/disable a user account. Deactivated User accounts still appear in the list.
- Add new users to the system.

2.5 Software Icons

* Icon does not appear when connected to BD EpiCenter™.

** Icon does not appear when in standalone mode

GENERAL				
Collapsed	Expanded	Enabled	Print	Help

STATUS SCREEN			
Log in/Log Out	Silence Alarm	Status	Panel Login
Results	*Finalization	Inventory	Reports

ALERTS/NOTIFICATIONS			STATUS STATION	
*Cannot Finalize	System Alert	Special Message	Blocked Station	Empty Station

PANELS				NEEDS ATTENTION			
Ongoing Panel	Removable Panels, Complete	Final ID Edited, AST Result Edited	*Resistance Marker	Rapid Complete	Active Alert	No Active Needs Attention	Active Needs Attention

INSTRUMENT STATUS					
 Door Locked	 Door Unlocked	 Idle	 Processing Data	 Warming Up	 Temperature
 Testing	 Instrument Number	 Light Source Adjustment (RBV, IUV)	 Inventory Scan	 Isolation Recovery (Uploading Data)	 **EpiCenter Configured and Connected
 **EpiCenter Configured but not Connected	 *LIS Configured and Connected	 *LIS Configured but Disconnected	 Instrument Connection Status – Connected (All-in-One PC to Instrument)	 Instrument Connection Status – Disconnected (All-in-One PC to Instrument)	

2.6 Software Setup

The system ships with all setup parameters preset to factory default values. However, before using the instrument for panel testing, review the setup parameters to see if they are suitable for the laboratory. These parameters are grouped in the following categories:

- User Management (Section 2.4 User Access and Management Summary)
- Instrument Configuration (Section 3.10.10 Instrument Sub-Tab)
- Communications Configuration (Section 3.10.3 Communications Sub-Tab)
- Custom Interpretation Rule Set (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab)
- BDxpert Rule Configuration (Section 3.10.7 BDxpert Rules Sub-Tab)
- Rapid Reporting Configuration (Section 3.10.8 Rapid Reporting Sub-Tab)
- Panel Lot Definition (Section 3.10.9 Panel Lot Definition Sub-Tab)

Instrument setup parameters are explained below. The Status screen, which is active immediately after instrument startup, is shown in Figure 1-2 – BD Phoenix M50 User Interface for One Instrument. The Status screen is the default when no activity has been initiated. This screen's tabs are covered in detail in Section 3 – User Interface Operations.

Software updates are user installable. Insert the BD provided USB key in the USB connector on the AIO PC. On the Maintenance tab select Task Category: Software, Task: Upgrade Execute. The software update will be recorded on the Daily Instrument Report for reference. See Section 3.9.1 Maintenance Hardware Functions for step by step instructions.

NOTE

Custom Breakpoints

If any of the standard interpretation rule sets have changed when the software is updated or when a new BD Phoenix Update Data (PUD) is installed, then new rule sets are installed into the system database. Since custom rule sets are based on standard rule sets, a custom interpretation rule set will be merged with new standard rules. If custom breakpoints are used, be sure to print out the Custom Breakpoint Difference Report (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab) after each system update or PUD install.

2.7 Isolation Mode

Isolation Mode is the condition that exists when communication between the BD Phoenix M50 instrument and the AIO PC is lost. Isolation Mode is designed to allow the ID/AST system to avoid test cycle gaps when the AIO PC is temporarily disconnected from the instrument. During Isolation Mode, the instrument continues to collect panel test cycle data and incubate the panels. However, Isolation Mode is not intended to enable routine workflows such as Panel Login or Removing Completed Panels. Since panel result analysis occurs at the AIO PC, no panel results are available for completed panels while the system is in Isolation Mode.

Please note the following conditions about Isolation Mode related to system operation:

- The yellow instrument alert indicator will blink when the instrument is in Isolation Mode.
- The AIO PC displays errors when communication is lost with the instrument. On the status screen, Instrument status is not available. (see Figure 2-9 – Isolation Mode below).

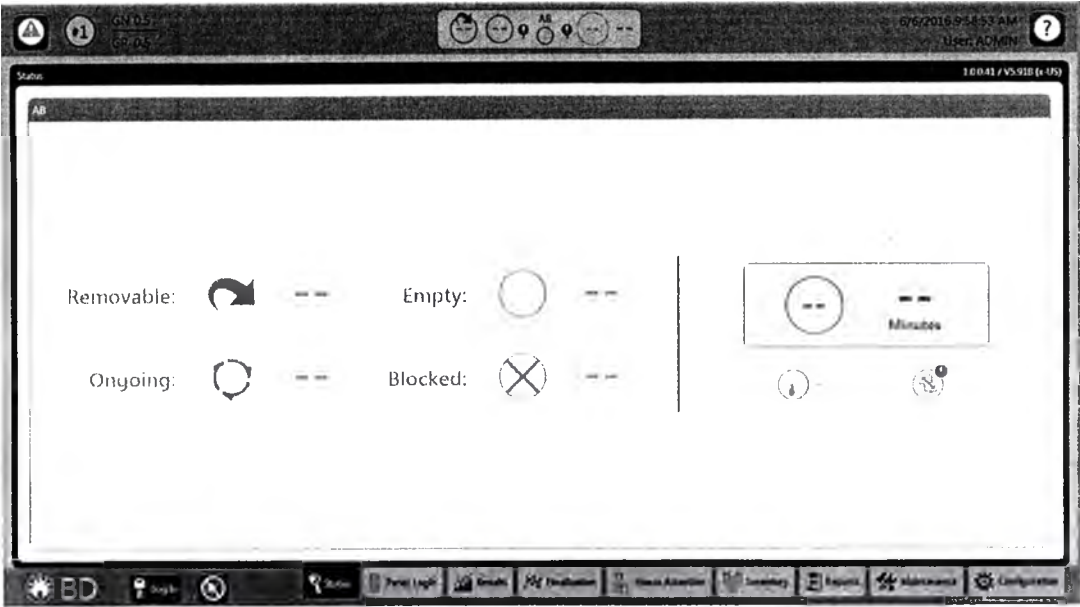


Figure 2-9 – Isolation Mode

- For a stack of BD Phoenix M50 instruments connected to the same AIO PC, each instrument can be in Isolation Mode independent of the other instrument (see Figure 2-10 – Isolation Mode for One Instrument).

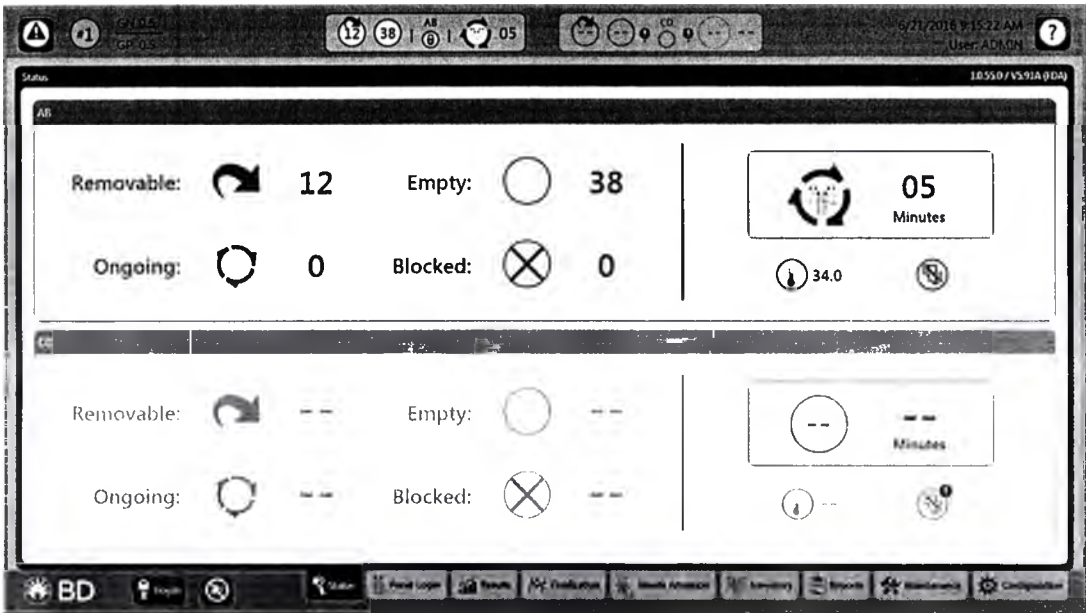


Figure 2-10 – Isolation Mode for One Instrument

- The AIO PC handles the transition of each instrument into and out of Isolation Mode independently.
- In Isolation Mode, when you open the instrument door, no station status indicators are lit. Routine workflow is not supported in Isolation Mode.
- The instrument and AIO PC both return to normal operations when communication between the two is reestablished. During the transition, test cycle data collected by the instrument while in Isolation Mode is transferred to the AIO PC and processed. Panel results are evaluated at this time for all panels that are still in the instrument when recovering from Isolation Mode.

Instrument Alert Indicator during Isolation Mode		
LED Appearance	State	Meaning
Blinking	Instrument not connected	The instrument is not connected or it is not communicating with the AIO PC

Isolation Mode Operation

- Routine workflow is not supported in Isolation Mode

Isolation Mode Troubleshooting

Isolation Mode can be caused by the following conditions:

- AIO PC malfunction
- AIO PC power or communication (USB) cable disconnected
- BD Phoenix M50 instrument application on the AIO PC has stopped working

To return to normal operating mode, check USB and power cables and reconnect if needed. Rebooting the AIO PC and/or instrument may also be necessary. If these actions do not correct the problem, contact your local BD representative.

2.8 LIS Operations

2.8.1 General

The LIS communications feature enables the BD Phoenix M50 instrument to exchange information with a compatible Laboratory Information System (LIS). LIS communications can be configured to exchange Order records and Results records at a variety of times.

Order records can be downloaded from the LIS system to the BD Phoenix M50 instrument. These Order records can include the information listed in the second bullet below. If all this information is sent from the LIS system, then the panel is automatically logged in just as if the login were done at the instrument. If the panel sequence number is omitted, the Order record can be associated to a specific panel manually in Panel Login. Order records can be configured to be uploaded to the LIS system also.

2.8.2 Results Upload Records

Results records are uploaded from the BD Phoenix M50 instrument to the LIS system. These records consist of:

- Header record (Delimiter fields, sender name, version number, message date/time)
- Order record (Accession number, Isolate number, Organism, Test ID, Sequence number, Priority, Report type)

Note that if an Organism code is included in the order record, for either a new or existing panel, the ID side of the panel is disabled.

- Comment record (contains Special Messages and/or BDxpert Rules)

2.8.3 Results Record

- Panel sequence number
- Instrument number
- Instrument type
- Instrument location (Station)
- Time to result for identification or MIC produced
- Test start time
- Test end time
- Test status (ongoing, complete, partial complete, complete with needs attention reason, complete with all ignored needs attention reasons, complete QC Pass, complete QC Review, pending, or rapid complete)
- Result type
- Antimicrobial code
- MIC value
- S / I / R / No Interp / Error value
- Resistance marker
- ID or Final ID
- Results status (finalized or unfinalized)

The LIS Communications function is based on the American Society of Testing and Materials (ASTM) LIS Communications Standards (1381 and 1394), and is compatible with a number of popular LIS systems. For specific information on which LIS systems are compatible, contact your local BD representative. The LIS Vendor Interface Specification (available upon request) provides complete details on the BD Phoenix implementation of LIS Communications.

NOTE

If the BD Phoenix M50 instrument is connected to a LIS, it cannot be connected to the BD EpiCenter system. However, if the BD Phoenix M50 instrument is connected to BD EpiCenter, then a LIS connection can be established via BD EpiCenter.

2.8.4 Important Concepts

There are several concepts with which the user should be familiar in order to understand the information presented here, and to ensure that the LIS communications feature is set up properly for your laboratory. These concepts are discussed below.

LIS communication is able to send Results records from the instrument to the LIS (**upload**), order records when panels are placed into the instrument, and queries to (and from) the LIS for Order records. Results upload can be configured to include or exclude Interpretation (SIR) results. The instrument can be set up to upload Results records only when the LIS requests them (**solicited upload**); or at one of the following unsolicited upload times: when panels are finalized; when panels complete testing or when complete panel records change; when ID or AST results are determined; or at a fixed time. QC panels and orphan panels are uploaded only when solicited by the LIS. If the instrument is configured for unsolicited upload, it still responds to requests from the LIS for results (solicitations or queries). If the instrument is configured for unsolicited uploads, the LIS must always be ready to receive data from the instrument.

By downloading barcode (panel) sequence numbers, the instrument can automatically log in panels when records are received. If panel sequence numbers are omitted from the Order record, the panel can still be associated to the Order record in the Panel Login screen.

If the panel sequence numbers are not included in downloaded records, the records that are downloaded are stored (up to 200 Order records) for manual association to panels. This process is described in Section 3.3.2 Inserting Panels in the Instrument.

Organism Configuration and Antimicrobial Configuration enable the user to enter the specific codes required by your LIS system for the organisms and antimicrobials uploaded in Results records. Refer to **Options** in Section 3.10.2 System Configuration Sub-Tab for additional information.

LIS configuration settings are independent of critical panel configuration settings. (e.g., if LIS configuration is set to send results only when the panel is complete, the results are not uploaded if the panel is critical and rapid reporting configuration is set for notification on ID results or partial results.)

2.8.5 Routine System Operation

Operation of the BD Phoenix M50 instrument with an LIS interface differs very little from routine operation of the system. The major difference is the ability to enter panel/accession data via the LIS into the system. With LIS communications, patient information can be logged in at the LIS and transferred to the BD Phoenix M50 instrument. Consult your LIS manufacturer's operation manual for complete instructions on data entry and downloading records.

LIS systems operate either in real-time mode, where the system automatically downloads each Order as it is logged in, or in batch mode where multiple Orders in a group are logged in and downloaded by the user. After patient records are logged in, download them to the BD Phoenix M50 instrument.

Any data sent to the instrument that does not directly correlate to one of the fields defined as the Order record is ignored by the system. Any information sent from the LIS for a Finalized panel is rejected.

After the Order records have been downloaded, and the panels have been attached to those records (if necessary), routine system operation does not differ in any way. For example, the user can continue to perform tasks such as: loading the instrument, printing reports, monitoring the system for complete panels, and performing maintenance; however, it is recommended that the user be especially alert and quickly respond to any system or activity alerts that occur.

3 – User Interface Operations

3.1 Using the Instrument Interface

The touchscreen presents all of the information needed to monitor instrument status, log in panels, set up the instrument, print reports, and perform routine instrument maintenance. For more information on how to use the touchscreen refer to Section 2.3.5 Touchscreen Keyboard. Operations are presented in the form of tabs which, when selected, produce functional, interactive screens, as well as icons that graphically represent the information (e.g., a thermometer indicates the current temperature). The screen's application header presents instrument status information that is updated every few seconds. The middle region of the screen initially presents station status information. Display regions are discussed in greater detail in Section 2 – Controls, Icons, Indicators, and Installation.

The information below details the tab functions (left to right) which appear on the Status screen's application footer.

3.2 Status Tab

The Status tab will show one or two instrument status' that report the following information:

- Removable: number of panels ready for removal
- Ongoing: number of panels in testing progress
- Empty: number of empty panels
- Blocked: available stations that cannot be used due to an error in the system.
- Time: time remaining for test cycle
- Temperature
- Connection status

3.3 Panel Login Tab

Panel Login enables the log in of panel demographic information to be tested. Depending on the type of panel being used, not all fields listed below may appear on the screen. For information on logging in QC panels, refer to Section 4.3.1 Quality Control. More than one of the same panel type may be logged in for an accession number, but the system displays a notification for duplication with an activity error message.

Panel Login Fields:

Accession Number

Type in or scan an accession number, up to 20 alphanumeric characters. If the accession barcode was scanned to access Panel Login, the Accession # is completed automatically. Spaces at the beginning or end of the number are ignored, but spaces within the number are valid. The following characters CANNOT be used in accession numbers: * ? [] ! # |.

Sequence Number

Type in or scan the panel's sequence number. (If the Sequence Number was scanned to access Panel Login, this field is completed automatically.) The sequence number contains digits that identify the panel type. Valid sequence numbers are 12 digits long and must conform to BD panel sequence number specifications. Enter a panel sequence number to save a record. If an existing sequence number is entered, the system displays the Panel Results screen.

Isolate Number

Defaults to isolate number 1. Valid isolate numbers are 1 to 20. If an accession number has been entered, an isolate number must also be entered. If the isolate number is changed from 1 to another value, an accession number must be entered.

Critical Check Box

Defaults to disabled. The system can be configured (Section 3.10.8 Rapid Reporting Sub-Tab) to provide a notification of critical panel results (ID results obtained, partial panel results, or complete panel results) by sounding an audible alarm and/or printing a Lab Report automatically (or neither).

ID Check Box

Defaults to enabled if a combination panel sequence number is scanned. This field appears only when a combination panel is used. This field is automatically checked (enabled) when a QC panel is logged in.

AST Check Box

Defaults to checked if a combination panel sequence number is scanned. This check box appears only when a combination panel is used. This field is automatically enabled when a QC panel is logged in.

Organism ID/Test Strain

Use the drop down list to select the organism ID. Organisms are listed in alphabetical order. Enter the first few characters of the organism name to jump to that portion of the list quickly.

This field appears only for AST-only panels or when using the AST side of a Combination panel.

For QC panels, this field is named Test Strain, and lists only the strains of organisms predefined in the database, sorted by strain number (alphanumerically). A test strain must be entered to save a QC panel.

Tech ID

This field appears for QC panels. Enter the identification for the technologist performing the QC test. Up to 3 alphanumeric characters are accepted. A tech ID must be entered to save a QC panel.

Panel Lot Number

This field appears for QC panels. Type in or scan the panel's lot number. Lot numbers must be 7 digits. A lot number must be entered to save a QC panel. (When the QC Lot Support feature is enabled, this field is completed automatically when the Sequence number barcode is scanned.)

Expiration Date (Panel Lot)

This field appears for QC panels. An expiration date must be entered to save a QC panel. (When the QC Lot Support feature is enabled, this field is completed automatically when the Sequence number barcode is scanned.)

ID Broth Lot Number

This field appears for QC panels. Type in or scan the broth lot number. Lot numbers can be up to 7 characters.

Expiration Date (ID Broth)

This field appears for QC panels. An expiration date must be entered to save a QC panel.

AST Broth Lot Number

This field appears for QC panels. Type in or scan the broth lot number. Lot numbers can be up to 7 characters.

Expiration Date (AST Broth)

This field appears for QC panels. An expiration date must be entered to save a QC panel.

Indicator Lot Number

This field appears for QC panels. Type in or scan the indicator lot number. Lot numbers can be up to 7 characters.

Expiration Date (Indicator Lot)

This field appears for QC panels. An expiration date must be entered to save a QC panel.

3.3.1 Logging in Panels

The inoculum density of the panel is set in Configuration. The density setting cannot be changed during Panel Login. The only way to use a different inoculum density is by blackening well A-17 as described in Section 4.3 Preparing Panels.

In order to insure optimal system performance for Yeast ID panels only, the correct media type must be provided via a drop-down box or by using the default media setting. The media type selection only applies to Yeast ID panels and is not displayed for other panel types. Log the panel into the instrument as follows:

- 1 Select the **Panel Login** tab.
- 2 Select **Clinical**.
- 3 If the receipt of a special notification is desired (audible alarm and/or automatic printing of a Lab Report) when panel results are obtained (ID only, partial, or complete), select **Critical**. More information about critical panels is provided in Section 3.10.8 Rapid Reporting Sub-Tab under **Critical**.
- 4 In the **Accession Number** field, type in or scan an accession number.
- 5 In the **Sequence Number** field, type in or scan the panel's sequence number.
- 6 The **Isolate Number** field defaults to isolate number 1. Type in the isolate number, or touch the +/- to increase/decrease the number. Valid isolate numbers are 1 to 20. Enter an isolate number if an accession number has been entered.
- 7 For Yeast ID panels, a media type must be specified in the **Media** field. If a media type has not been specified, a workflow error is generated when the panel is attempted to be saved. If a

Yeast ID panel is not logged in before placing it in the instrument for testing, the panel aborts after the first reading because no media has been specified. A default media type can be configured (see **OPTIONS** in Section 2 – Controls, Icons, Indicators, and Installation) which appears when a Yeast ID panel sequence number is scanned during login. To select a different media, use the drop down box listing all media types (abbreviations), sorted alphabetically. (When the media type is selected, the full name appears at the top right of the screen.) Select the media type.

- 8 If either the ID or AST portion of a combination panel is only being used, disable the part of the panel you are not using.
- 9 If you disable ID on a combination panel, or if an AST-only or BD Phoenix Emerge panel is not being used, the Organism ID field appears. If the system is not performing the organism identification, an organism ID for SIR interpretation must be provided. (If an AST panel is being tested and an organism ID is not entered, the panel will go to **Needs Attention** when the instrument completes reading. An organism ID will have to be provided in order for the BDxpert system to interpret MIC results.) Highlight the desired organism from the drop-down box. Organisms are listed in alphabetical order. Enter the first few characters of the organism name to move up to that portion of the list quickly. Select the desired organism. The desired organism can also be scanned from the barcode list of organisms found in the Quick Reference Guide.
- 10 Select **Save** to save the information.
- 11 Place the panel in the instrument (refer to Section 3.3.2 Inserting Panels in the Instrument). The following functions can be performed from Panel Login:

Save – saves the information displayed

Repeat Data – enters the last accession number and media types for panels, or media type and lot information for QC panels as follows: if QC Lot Support is disabled (Panel Lot plus Expiration, ID Broth Lot plus Expiration, AST Broth Lot plus Expiration, Indicator Lot plus Expiration), if QC Lot Support is enabled (ID Broth Lot plus Expiration, AST Broth Lot plus Expiration, Indicator Lot plus Expiration)

Cancel – clears the displayed record from the screen

3.3.2 Inserting Panels in the Instrument

Panels are inserted with the reaction (and panel sequence barcode label) sides facing the interior of the instrument.

- 1 Select Panel In (see Figure 3-1 – Inserting Panels)
- 2 When the blue light is blinking, open the instrument door. An audible tone will sound and the unlock icon will be visible.

WARNING

THE INSTRUMENT DOOR IS ELECTROMECHANICALLY LATCHED AND IS CONTROLLED BY THE INSTRUMENT SOFTWARE. NEVER ATTEMPT TO DEFEAT THE DOOR LATCHING MECHANISM, OR TO OPEN THE DOOR WHEN THE UNLOCKED ICON IS NOT DISPLAYED. SERIOUS INJURY CAN BE CAUSED BY THE ROTATING CAROUSEL. IF THE CAROUSEL IS NOT COMPLETELY STOPPED WHEN THE DOOR IS OPENED, IMMEDIATELY CONTACT BD FOR SERVICE. NEVER ATTEMPT TO ROTATE THE CAROUSEL MANUALLY OR SERIOUS INJURY MAY RESULT.

- 3 Select a panel holder where there is no panel in place and no LEDs are illuminated. Place the bottom part of the panel in the panel holder.
- 4 Press downward.
- 5 Pivot the top of the panel back into the panel holder.
- 6 Allow the panel to move upward into place.
- 7 Close the instrument door. If more panels need to be inserted than there are available holders in the current section, wait for a moment for the carousel to rotate to provide additional available holders and repeat **Steps 2 through 7**.
- 8 The system performs an inventory scan to locate any newly inserted panels and reads the bar-codes of these panels.

NOTE

Do not snap the panel back into the holder. This may result in splashing of the inoculum which may cause inaccurate results.

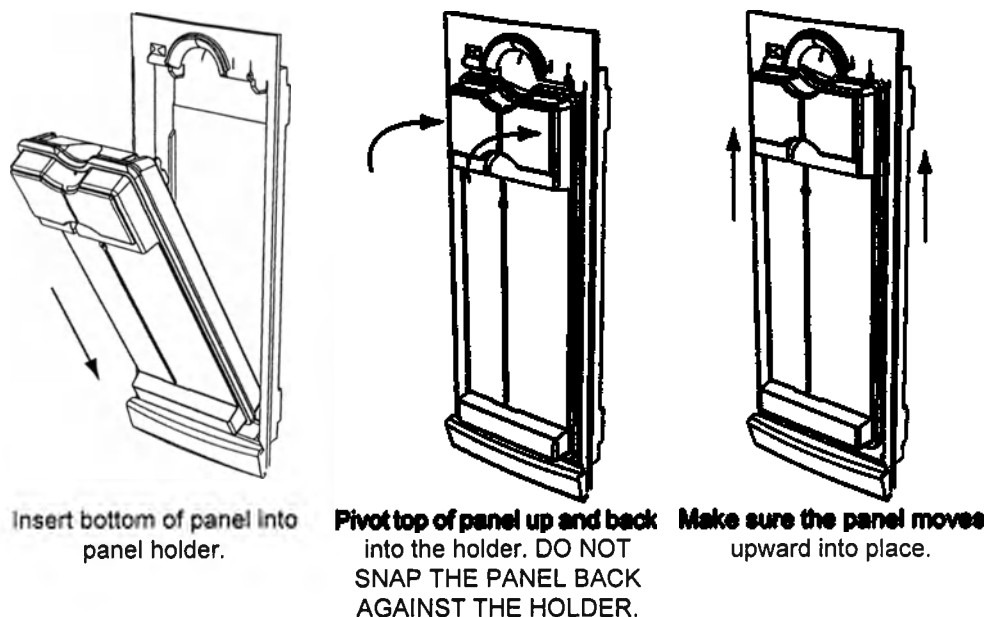


Figure 3-1 – Inserting Panels

3.3.3 Unloading and Discarding Panels

When panel testing is completed, panels should be removed from the instrument and discarded.

WARNING

THE INSTRUMENT DOOR IS ELECTROMAGNETICALLY LATCHED AND IS CONTROLLED BY THE INSTRUMENT SOFTWARE. NEVER ATTEMPT TO DEFEAT THE DOOR LATCHING MECHANISM, OR TO OPEN THE DOOR WHEN THE "UNLOCKED" ICON IS NOT DISPLAYED. SERIOUS INJURY CAN BE CAUSED BY THE ROTATING CAROUSEL. IF THE CAROUSEL IS NOT COMPLETELY STOPPED WHEN THE DOOR IS OPENED, IMMEDIATELY CONTACT BD FOR SERVICE. NEVER ATTEMPT TO ROTATE THE CAROUSEL MANUALLY OR SERIOUS INJURY MAY RESULT.

To remove panels:

- 1 Select **PANELS OUT**.
- 2 When the blue Panel In/Out indicator blinks, open the instrument door.
- 3 All panels that are ready to be removed are indicated by a solid green LED indicator.
- 4 Remove the panels by pushing the panel down, pivoting the top of the panel outward, and pulling the panel out of the panel holder.

-
- 5 If there are completed panels that are not in the accessible stations, close the door and allow the instrument to reposition the carousel to provide access to those panels. Open the door and continue removing completed panels.
 - 6 Discard the panels in a biohazard container.

3.4 Results Tab

Results enables the review and modification of panel test results. Results can be used for the following functions:

- ◆ display a panel whose data is stored in the BD Phoenix database
- ◆ modify the information for a panel in the BD Phoenix database
- ◆ mark a panel as critical
- ◆ print a Lab Report on any panel that can be recalled or displayed on the screen
- ◆ locate a panel resident in the instrument
- ◆ delete panel information from the BD Phoenix database
- ◆ answer or display any triggered BDXpert Rules
- ◆ display any special messages
- ◆ finalize a panel

Results can be accessed in several ways:

- scanning a known panel sequence number or accession number with the external scanner while the Status screen is displayed
- selecting **Results** from the Status screen (see Figure 3-2 – Results Screen)
- scanning or entering a known panel sequence number while the Panel Login screen is displayed
- selecting **Delete** or **AST Results** for a panel in the Needs Attention tab when the Delete option is active
- selecting **AST Results** from the Batch Finalization screen
- selecting **Results** from Inventory (Section 3.7 Inventory Tab) or Panel Lot Definition (Section 3.10.9 Panel Lot Definition Sub-Tab).

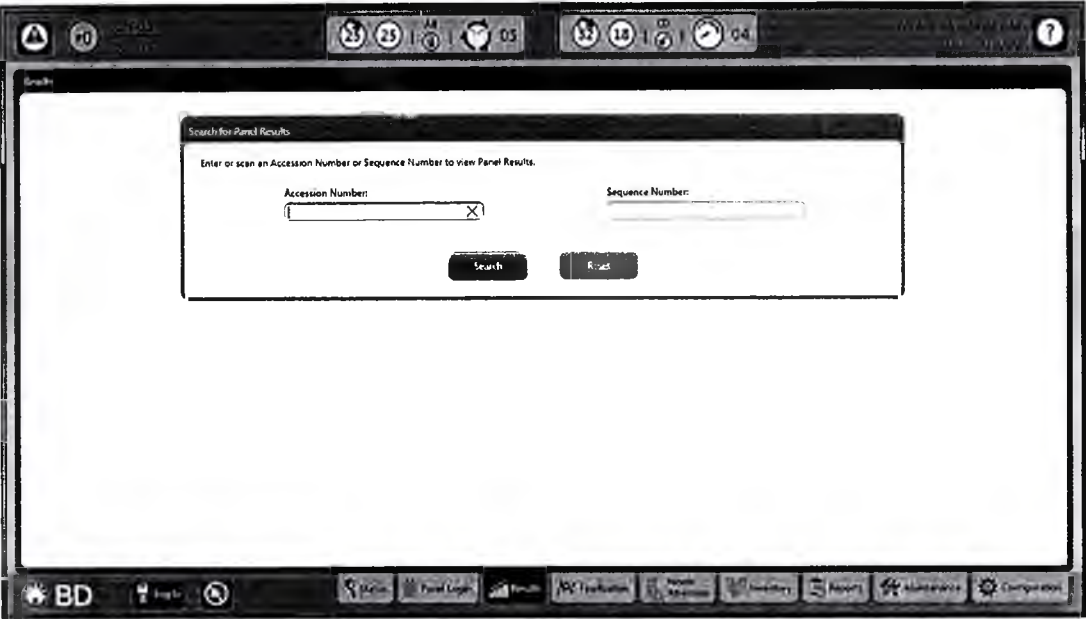


Figure 3-2 – Results Screen

Typical Panel Results are shown in the figure below. (Figure 3-3 – Panel Results Screen)

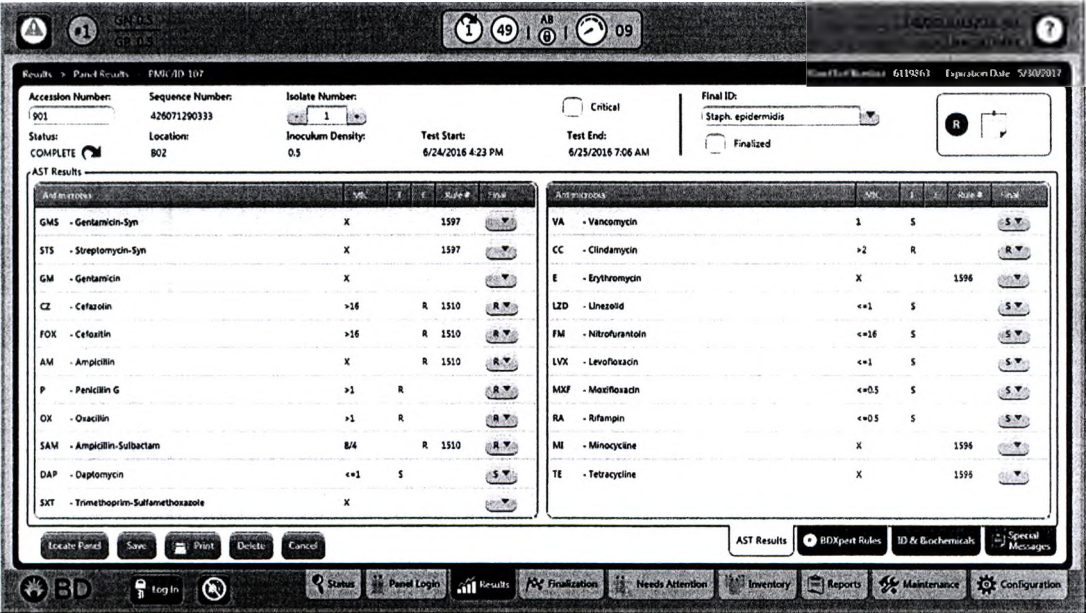


Figure 3-3 – Panel Results Screen

Actions available from all screens are:

- **Locate Panel** – causes the instrument to locate and indicate the current panel and unlock the door
- **Save** – saves any changes
- **Print** – prints a copy of the Lab Report for the current panel
- **Delete** – deletes the panel results
- **Cancel** – returns user to initial Search for Panel Results screen

Panel Results (clinical panels) are retained for 31 days (possibly longer depending on number of QC panels tested). QC panel results are retained for at least six months.

The type of panel is shown in the title area of the screen. The inoculum density used for the identification (if applicable) is shown in the results header area after the first test cycle completes.

BDXpert Rules

When BDXpert Rule is selected, the following are displayed (note that all fields may not be displayed depending on the type of panel and whether or not the instrument is connected to a BD EpiCenter system):

- Rule Number
- Status
- Resistance Marker
- Name
- Rule Description

ID and Biochemicals

When ID and Biochemicals is selected, the following appears:

- Instrument Organism ID which may consist of Instrument Organism ID, Confidence Value, and Up to 5 Supplemental Tests if the panel was set up using low inoculum
- Biochemical Results which consist of: Biochemical Abbreviation, Actual Result (+, -, ?, or X) or Expected Result (+, -, V, or blank) shown in Figure 3-4 – ID and Biochemical Results
- Special Messages (icon represented in Figure 3-4 – ID and Biochemical Results)
- Needs Attention (icon represented in Figure 3-4 – ID and Biochemical Results)

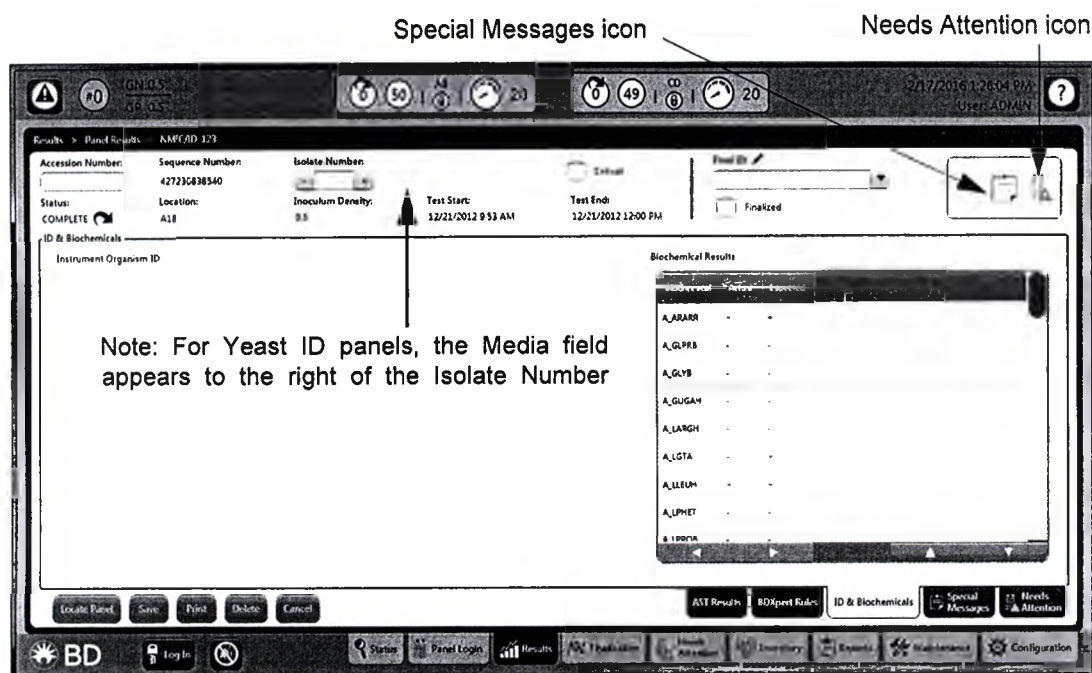


Figure 3-4 – ID and Biochemical Results

If a Needs Attention (see Section 3.6 Needs Attention Tab) exists for the panel, it appears in the results header area. If a special message (see Section 3.4.8 Special Messages Sub-Tab) exists for the panel, an icon is shown in the results header area. If a Resistance Marker has triggered for the panel, the Resistance Marker icon (see Section 2.5 Software Icons) is shown in the results header area.

If a panel is recalled by accession number only, and there is more than one panel attached to the accession, the Results List screen appears. From this screen, select the specific panel to review/modify.

Note that depending on the type of panel being used, as well as other circumstances, not all fields listed below may appear on the screen.

AST or Combination panel types (with at least the AST side enabled) each contain a set of antimicrobials. The instrument reports a result for each antimicrobial on the panel. Each antimicrobial reports an individual MIC value. Once an antimicrobial has a MIC value, the instrument calculates an Instrument susceptibility (SIR) value for each MIC value that has been determined. (The instrument requires the panel to have an Organism ID defined to interpret MIC values into Instrument SIR values. Also note that SIR values are not calculated by the instrument if it is attached to an EpiCenter Data Management System.)

If Rapid Completion is enabled, the instrument is able to provide BDXpert AST results (SIR) before determining actual MIC values. The instrument MIC values are provided as soon as they can be accurately determined. Within a test panel, some MIC values may be available earlier than others. The rapid completion feature can be used to predict resistance for uncompleted antibiotics using the ID alone (intrinsic resistance), or ID with completed MICs of related antibiotics, or resistance marker tests (BL, ESBL). The BDXpert system is used to make these predictions. This can be useful in situations where, for example, the results for drugs that have not yet received MICs would be of no clinical value based on the other results that are already available. Antimicrobials with Rapid Complete BDXpert interpretations are indicated by a C in the MIC column on Results screens and Lab reports.

When both a MIC value and Instrument SIR value have been determined for an antimicrobial, the instrument executes the BDXpert Rules (providing the BDXpert System is enabled). The instrument

reports a value in the BDxpert SIR field if an enabled BDxpert Rule triggered and the reported BDxpert SIR value is different from the value in the Instrument SIR field.

Different results appear depending on which tab is selected. The header information remains the same no matter which tab is selected:

Panel Results Fields:

NOTE

Modifying the Accession Number or Isolate Number may invoke Auto Association which can change results.

Accession Number

Type in or scan the accession number to recall. If only an accession number is entered, and there is more than one panel attached to the accession, the Results List screen appears.

This field can be modified for unfinalized panels. Enter up to 20 alphanumeric characters for the accession, excluding * ? [] ! # |. Modifying an accession number does not affect the accession number of any related panels.

Sequence Number

This field cannot be edited.

Isolate Number

Valid isolate numbers are 1 to 20. This field can be modified for unfinalized panels, however an existing isolate number cannot be changed to a blank number.

Media

This field is editable only before the first test cycle completes.

Shows the media type selected during Panel Login for Yeast ID panels only. The following values can appear in this field: blank for Unspecified Media Type; INVLD (Invalid Media Type); SABDX (Sabouraud Dextrose Agar); TSASB (BD Trypticase™ Soy Agar w/5% SB); COLSB (Columbia Agar w/5% SB); CHOC (Chocolate II Agar); SABEM (Sabouraud Dextrose Emmons); SABHI (Sab Brain Heart Inf Ag Deep)

Status

Read-only field shows the panel's testing status: Pending, Ongoing, Complete, or Rapid Complete (if enabled). Rapid Complete panels have not finished testing and show BDxpert results. If a Rapid Complete panel is removed from the instrument, it then becomes Complete. If it is left in the instrument, Rapid Complete MICs are replaced by actual MIC results as they are determined.

Final ID

Final ID can be completed automatically by the system from a single instrument-based ID or by the user selecting among the instrument-based IDs. For ID panels (or ID-only portions of Combination panels) organism ID cannot be manually selected if there is no instrument-based ID listed.

Note that if the **Modify Related Panels** check box is checked, the ID in the database of all related

panels (panels with the same accession and isolate number) is set with the same organism ID through the Auto Association function (see Section 4.4 Automatic Association of Panels).

Organisms are listed in alphabetical order. Enter the first few characters of the organism name to find that portion of the list quickly.

When the field is modified, the system re-evaluates each antimicrobial's instrument SIR value, as well as re-evaluating BDxpert information.

The field cannot be modified if the panel is finalized.

For QC panels, this field is named **Test Strain**, and lists only the ATCC strains of organisms predefined in the database, sorted by strain number.

Panel Lot Number

Read-only field shows the panel lot number. This field shows only when the QC Lot Support feature is enabled.

Expiration Date

Read-only field shows the date and time that the panel lot expires. This field shows only for QC panels and only when the QC Lot Support feature is enabled.

Modify Final ID of Related Panels Check Box

This field appears when the Final ID field is modified. Defaults to checked when the Final ID is modified. If the ID for unfinalized related panels is NOT to be modified when the currently displayed panel is modified, disable this field as it has no affect on related QC panels. This field does not appear if the EpiCenter system is attached and communicating.

Test Start

Read-only field shows the date and time that panel testing was started.

Test End

Read-only field shows the date and time that panel testing was completed.

Location

Read-only field shows the location of the panel, in the form Tst, where T is the Tier, and st is the station number.

QC Status

This field shows the status of a QC panel. The field is blank until the panel status becomes Complete. Statuses are initially PASS or REVIEW. Review indicates that the panel has not passed. Check any panels with Review status and determine why the panel did not pass.

The status is REVIEW if any of the following conditions occur:

- ◆ QC strain was identified incorrectly
- ◆ The test on a QC panel is aborted
- ◆ At least one of the antimicrobial results fail

From a status of REVIEW, the final status may be set to REPEAT if it is determined that the panel failed due to error in preparation or handling of the panel. If it is not determined that a panel preparation/handling error was made, the final status should be set to FAIL. Selecting REPEAT or FAIL clears the Review QC Results Needs Attention condition.

Finalized

Check the box to finalize the panel. The **Finalized** field is displayed as a read-only field when the BD Phoenix system is connected and communicating with the BD EpiCenter Data Management Center. In this case, all Finalization is done at the BD EpiCenter system. **Finalized** is not displayed for QC panels.

If a panel with Rapid Complete status is finalized, MIC results processing stops, and the panel status becomes Complete. Any drugs that did not complete testing maintain their current MIC value (e.g., C in MIC column remains C, X remains X, etc.).

Critical

Enable this field to mark the panel as critical. An audible alarm and/or an automatically printed Lab Report (or neither) notification can be configured (Rapid Reporting configuration (Section 3.10.8 Rapid Reporting Sub-Tab) for critical panel results (ID results have been obtained, partial panel results, or complete panel results).

Previously marked critical panels can be disabled.

This field does not appear for QC panels.

3.4.1 Adding/Modifying ID Results

The system allows an organism ID to be entered manually, or the organism identified by the instrument can be overridden. In addition, in some cases, the system will not be able to make a single identification determination based on panel results. In these cases, two or three organisms may appear in the Instrument ID field. When more than one organism appears as the Instrument ID, the system does NOT automatically enter an identification in the Final ID field. The user must select the desired organism. The actual organism may be determined either through supplemental tests, which are recommended in the Instrument ID window and/or the Special Messages screen (accessible via **Special Messages**), or through other tests performed. To add/modify the Final ID:

- 1 Select Final ID field in the Results header.
- 2 Highlight the desired organism.
- 3 Press the Save button to save.

The following icon appears:



3.4.2 Modifying AST Results

There may be times when the Final SIR results for a panel need modification. Note that Final SIR results cannot be modified if there are manual BDXpert rules pending. The pending rules must first be accepted or rejected, which allows the system to perform its final results processing. After the final processing is complete, the SIR results can be modified manually if desired.

To modify the Final SIR results:

- 1 Select **AST Results** from Results
- 2 Select the **FINAL SIR** field for the desired antimicrobial. The following selections are available:
 - S(usceptible)
 - I(ntermediate)
 - R(esistant)
 - X = Invalid, cannot interpret
(see Table 3-1 – MIC/SIR Values and Causes in Section 2 – Controls, Icons, Indicators, and Installation)
 - N(not Susceptible)*
 - Blank (indicates ID is required)

* N indicates that the antimicrobial/organism does not have an upper breakpoint. When there is no upper breakpoint there are no criteria for calling an organism intermediate or resistant. This often occurs when there are no known resistant strains of an organism. In this case, if the MIC is below the lower breakpoint the SIR results can be reported as susceptible but if the MIC is above the lower breakpoint the only result that can be reported is N or not susceptible.

3.4.3 Modify Panel Usage Sub-Tab

Results will display Modify Panel Usage when the currently recalled panel:

- is an ID/AST Combination panel type and both sides of the panel are enabled
- status is not complete
- has no instrument organisms determined for the panel
- does not have any AST Complete set on its AST side

The user can disable the ID or the AST side of the panel when no other changes have been made to the panel on the Results screen. When the user disables the ID or AST side of the panel, no other tab will be accessible. If the user attempts to leave the tab, a message will be displayed instructing the user to save or cancel the panel usage change.

To modify panel usage:

- 1 Select **Results**.
- 2 Enter or scan the panel barcode sequence number of the panel whose usage you wish to modify. The system automatically completes the Accession # and Isolate # fields, which are read-only.
- 3 Select **Modify Panel Usage**.
- 4 The following screen appears:



Figure 3-5 – Modify Panel Usage Screen

- 5 Select **ID** or **AST** for the side of the panel to be disabled. If both are selected then workflow alert code W305 will be displayed. The screen data will be maintained and the save attempt will be stopped.
- 6 Select **Save** to save the panel modification.

Note the following conditions for panel usage modification:

- No information for related panels is modified when panel usage is changed.
- If there is no user-entered Final ID and the ID side is disabled, the Instrument ID, Biochemical Results, Confidence Values, SIR Values, and ID Special Messages are removed from the record.
- If there IS a user-entered Final ID and the ID side is disabled, this ID is retained, as are SIR Values. However, Instrument ID, Biochemical Results, Confidence Values, and ID Special Messages are removed from the record.

3.4.4 AST Results Sub-Tab

Antimicrobial

Read-only field showing the abbreviation and name for the antimicrobial.

MIC

The Minimum Inhibitory Concentration value determined by the instrument. The following values may also appear in this field:

- > growth occurred for all concentrations of the antimicrobial
- ≤ no growth occurred in all of the concentrations of the antimicrobial
- ? MIC determination is pending (SIR values remain blank)

- X MIC value cannot be produced; or Final ID is not claimed in the Taxa listing (see Section 7.6 Taxa for ID/AST Determination) for AST testing; or the panel's drug dilution series does not cover the BD Phoenix reportable MIC range, or for additional causes, see Table 3-1 – MIC/SIR Values and Causes). Check the Special Messages displayed on the screen (Section 3.4.8 Special Messages Sub-Tab) for an explanation.
- C Rapid Complete (MIC is pending, BDxpert SIR is based on ID and completed drug and/or resistance marker results). These values are replaced by actual MIC values as they are determined.

For QC Panels, the following values may appear in this field:

Actual MIC value (number, ?, or X for error)

Expected MIC range (if defined)

Status

- P the actual MIC value is within the expected MIC range
- F the actual MIC value is not within the expected MIC range
- R repeat: the actual MIC value is X
- blank no range is defined for the antimicrobial/organism combination

I(nstrument SIR)

This field is the instrument interpretation for the MIC based on the breakpoints currently running in the system (selected in Section 3.10.10 Instrument Sub-Tab).

The SIR value is blank for antimicrobials that require an ID to perform the SIR interpretation. In this case, the **BDxpert SIR** field (if present) and the **Final SIR** field are also blank.

The following represent the interpretation values:

- S Susceptible
- I Intermediate
- R Resistant
- N Not susceptible*
- X Cannot produce interpretation

Blank No SIR (missing or invalid Final ID; MIC = ?, C, or X; unclaimed organism for Final ID)

* N indicates that the antimicrobial/organism does not have an upper breakpoint. When there is no upper breakpoint there are no criteria for calling an organism intermediate or resistant. This often occurs when there is an absence or rare occurrence of resistant strains of an organism. In this case, if the MIC is below the lower breakpoint the SIR results can be reported as susceptible but if the MIC is above the lower breakpoint the only result that can be reported is N or not susceptible.

I(nstrument SIR) does not appear if the BD EpiCenter system is attached and communicating. If communications with the BD EpiCenter system is lost, the field automatically appears.

(BD)E(Xpert SIR)

Possible field values are: Blank, S, I, R, N, and X. These values have the same meanings as I(nstrument SIR) above.

The BD(Xpert SIR) field is not shown when the BD(Xpert System) is disabled. It is also not shown for QC, ID, or ID/AST panels with AST disabled. This field contains the results calculated by the BD(Xpert System) based on the execution of all enabled BD(Xpert Rules). Values appear in this field only if a BD(Xpert rule) triggered and caused the BD(Xpert SIR) value to differ from the instrument interpretation.

Rule

Read-only field that shows the numeric designation of the highlighted rule.

F(inal SIR)

Field values are the same as I(nstrument SIR) above. The Final SIR can be one of the following (from highest to lowest priority): a user-entered SIR value; the BD(Xpert SIR) value; the instrument SIR value; or blank.

Final SIR values are produced when a MIC value or error is determined, AND there are no pending manual BD(Xpert rules (if the BD(Xpert System) is enabled).

When the BD EpiCenter System is not connected and the BD(Xpert System) is disabled, the Final SIR field is not displayed for an antimicrobial until the MIC value is something other than ?.

The following table provides explanations of different combinations of blank and X results. Detailed explanations for actual results are provided as Special Messages (Section 3.4.8 Special Messages Sub-Tab).

Antimicrobial	MIC	Instrument SIR	BD(Xpert SIR)	Final SIR	Possible Cause Examples
Any Drug	?	[Blank]	[Blank]	[Blank]	Results pending.
Any Drug	BD Phoenix MIC Result	S, I, R	[Blank]	S, I, R	Instrument SIR = Final SIR (No BD(Xpert rule SIR).
Any Drug	BD Phoenix MIC Result	S or I	R	R	Final SIR = BD(Xpert SIR) if rule accepted.
Any Drug	BD Phoenix MIC Result	[Blank]	[Blank]	[Blank]	No breakpoints for this drug/organism combination within the chosen standard (CLSI, SFM, EUCAST, Custom).
Any Drug	BD Phoenix MIC Result	X	[Blank]	X	MIC value is outside the breakpoints for the selected standard. Example: Panel drug range = 1–16 µg/mL, susceptible breakpoint = 0.5 µg/mL
Any Drug	BD Phoenix MIC Result	X	[Blank]	X	SIR is suppressed by a BD(Xpert rule). User must provide Final SIR based on manual interpretation or additional testing.

Antimicrobial	MIC	Instrument SIR	BDXpert SIR	Final SIR	Possible Cause Examples
Any Drug	X	[Blank]	[Blank]	[Blank]	The MIC for this drug and organism combination is not reported by the BD Phoenix system. An alternative method should be used.
All Drugs	X	[Blank]	[Blank]	[Blank]	This species is not included in the BD Phoenix AST taxonomy; perform an alternative method. An excessive amount of indicator was detected in the panel. The AST portion of the panel has been terminated and the isolate should be retested.
Any Drug	X	[Blank]	[Blank] or R	[Blank] or R	The MIC for this antibiotic is not reported (see Special Message). Interpretation based on BDXpert Rule.
Any Drug	C	[Blank]	R	R	Rapid Completion SIR (BDXpert SIR based on ID and/or another completed drug and/or resistance marker result).

Table 3-1 – MIC/SIR Values and Causes

3.4.5 BDXpert Rules Sub-Tab

The BDXpert Triggered Rules screen provides a view of the BDXpert system rules that have been triggered for a panel (the panel currently selected in the Results tab). Other views available are: a listing of rules that have been triggered, the text of those rules, the effect that the rules have on Final SIR values, and the ability to accept or reject pending (manual) rules. Additionally, all rules can be re-run.

After all rules have been reviewed and Accepted/Rejected, any changes must be saved.

The BDXpert Rules tab does not appear, and the screen is not available if the BD EpiCenter system is attached and communicating with the BD Phoenix M50 instrument. However, if communications with the BD EpiCenter system is lost, and the BDXpert system is reactivated in Instrument Configuration (Section 3.10.10 Instrument Sub-Tab), the tab reappears and the screen can be accessed. When communications with the BD EpiCenter system is restored, BDXpert rules interpretations are once again performed at the BD EpiCenter system.

Rules Field

Rule #

Read-only field that shows the numeric designation of the highlighted rule.

Status

Shows the status of the rule. The initial status of Automatic (a rule that executes automatically without user intervention) or Manual (a rule that must be manually accepted or rejected) is set in the BDXpert Rule Configuration screen (Section 3.10.7 BDXpert Rules Sub-Tab). Statuses are:

Automatic – rule is enabled and set to Automatic

Pending – rule is enabled and set to Manual; Manual rules must be Accepted or Rejected; only the first Manual rule shows as Pending

Accepted – rule is enabled and set to Manual and has been Accepted by the user

Rejected – rule is enabled and set to Manual and has been Rejected by the user

Pending rules can be accepted or rejected via **Accept** or **Cancel**. Once a rule is accepted or rejected, the status can only be changed by re-running the rules.

3.4.6 Lot Information Sub-Tab

This sub-tab provides a listing of disposables used in the set up of panels. To access this sub-tab, follow the steps below:

- 1 Enable QC Lot Support (see Section 3.10.2 System Configuration Sub-Tab) in System Configuration.
- 2 Go to Panel Lot Definition (see Section 3.10.9 Panel Lot Definition Sub-Tab) and scan in the barcodes.
- 3 Go to Results and enter an Accession Number.
- 4 Select Search.
- 5 Lot Information Sub-tab appears (see Figure 3-6 – Lot Information Sub-Tab Screen).

The screenshot shows a software interface for lot information. At the top, there's a header bar with icons and a title bar. Below the header, the main area is divided into several sections. The top section contains fields for 'Accession Number', 'Sequence Number', 'Isolate Number', 'QC Status', 'Test Entry', 'Status', 'Location', 'Inoculum Density', 'Test Start', 'Test End', and 'Tech ID'. The 'Status' field is set to 'PENDING'. Below this, there's a section for 'Lot Information' with fields for 'Panel Lot Number', 'Expiration Date', 'AST Broth Lot Number', 'ID Broth Lot Number', 'Indicator Lot Number', and 'Expiration Date'. At the bottom, there's a toolbar with buttons for 'Search', 'Print', 'Export', and a bottom navigation bar with icons for 'Home', 'Panel Setup', 'Results', 'QC', 'Report', 'Inventory', 'Reports', 'Maintenance', and 'Configuration'.

Figure 3-6 – Lot Information Sub-Tab Screen

3.4.7 Instrument Organism ID Sub-Tab

Read-only field showing the organism identified by the instrument based on biochemical results in an ID or ID/AST panel. Organism IDs listed for a Tie (two possible organisms meet the results) are listed in the Instrument Organism ID field as **organism 1/organism 2**. In some cases the system will not be able to make a single identification determination based on panel results. In these cases, two or three organisms may appear in this field. The user must select the desired organism to enter into the Final ID field.

Confidence

The Confidence value computed by the system is based on the actual biochemical results versus the expected results. The Confidence value is a percentage from 0 to 99.

Supplemental Tests

Supplemental Tests are displayed in the Instrument Organism ID field and/or on the Special Messages screen if there is more than one Organism listed there. Once these tests have been performed, the results of the tests will help to distinguish which organism ID to associate to the AST results. At this point, a single organism ID can be selected from the Final ID field.

Biochemical

Read-only field showing the abbreviation for the biochemical used to determine the ID.

Actual

Read-only field showing the observed biochemical result at the time when the organism ID was determined: + for positive or – for negative. A ? indicates that the biochemical result is pending or that the test was aborted prior to ID results being determined. The letter X indicates an error.

Expected

Read-only field showing the expected biochemical result according to the Instrument Organism ID: + or – for the organism. The letter V indicates that the result can be variable. This field is blank when the actual results are ? (for non-QC panels), or until an Organism ID has been determined, or when more than one organism is listed in the Instrument Organism ID field.

Resistance Marker Field

Resistance markers are shown in the order in which they trigger. The following information is shown when a Resistance Marker is detected and is displayed on the BDxpert Rules tab:

- The BDxpert rule number that triggered the Resistance Marker
- The Resistance Marker code (abbreviation)
- The Resistance Marker Name
- The BDxpert rule Description

3.4.8 Special Messages Sub-Tab

Special Messages allows information to be accessed about certain panel ID and AST results, as well as some panel readings. These special messages are triggered and are available for viewing regardless of whether the BDxpert System is enabled or disabled. If a recalled panel has an associated **Special Message**, an icon is displayed in the header area of the results screen.

Special Messages on a recalled panel are shown according to hierarchy on the Special Messages window.

The Special Messages screen reflects messages that exist at the time the screen is accessed: it is not updated dynamically with messages that are triggered after the screen has been accessed. To view newly triggered messages, recall the panel again, and re-enter **Special Messages** again.

3.4.9 Needs Attention Sub-Tab

Needs Attention provides a list of all needs attention reasons, listed in priority order as shown in Table 3-2 – Needs Attention Resolutions. When any of these conditions occur, the panel will have a Needs Attention reason code set and the Panel with a Needs Attention reason will be displayed on the Needs Attention screen. To ignore a Needs Attention reason, select the corresponding field next to the condition. For additional information on Needs Attention see Section 3.6 Needs Attention Tab.

3.4.10 Lab Report

The Lab Report can be printed from the Results or Finalization screens and is not available from the Reports tab. It contains all information for a panel sequence number that exists in the BD Phoenix database, including all information in the Results screen, any special messages, BDXpert Rules that triggered, or Needs Attention reasons if they exist.

The QC Lab Report is accessible from the Reports menu and Results screen. It provides similar information to the Lab Report, but prints when a QC panel is being displayed and a report is requested.

The report provides the following information:

Header: Report Title, Preliminary indication (if Status is Ongoing, Pending, or Partial Complete; and/or if there are unignored Needs Attention conditions or a Needs Attention condition of Cannot Identify Barcode; and/or if the panel is not eligible for finalization), Laboratory Information (if configured), and Date and Time Printed, Software version/PUD version.

Body of Report: Top Region: Accession Number, Isolate Number, Sequence Number, Panel Type, Status (Ongoing, Complete), CRITICAL panel indication, Test Start with time, Test End with time, Instr #/Station (location), Finalized status, Panel Lot # (if QC Lot Support is enabled), and Inoculum Density. The Lab Report is sorted by Accession # then by Isolate # within accessions.

Below this information the organism Final ID is listed. An asterisk next to the Final ID indicates that the ID was changed by the user. Below this, the Media Type (for Yeast ID panels only) appears.

Next any instrument ID results are listed, along with the Confidence Value for the result. In the lower region of the report, for ID tests, the Biochemical, Instr(ument) Result, and Expected Result are provided. For AST tests, the Antimicrobial, Instr(ument) MIC, Instr(ument) SIR, BDXpert SIR, Final SIR, and Rule # are printed. If any panels have Resistance Markers, BDXpert Rules, Needs Attention flags, or Special Messages, these are printed at the bottom of the report.

ID and AST sections of combination panels print on separate pages of the report.

For QC panels, in addition to the information listed above, the following information is included: Panel Lot # and Expiration Date, Tech ID, ID Broth Lot # and Expiration Date, AST Broth Lot # and Expiration Date, Indicator Lot # and Expiration Date, and Test Strain. The QC Status of PASS, REVIEW, ERROR, or FAIL is indicated.

The system can be configured (Section 3.10.10 Instrument Sub-Tab) to print an abbreviated lab report. The abbreviated report does not contain the individual biochemical results for ID or ID/AST panels.

3.5 Finalization Tab

Finalization enables the review and finalization of panel test results in a batch mode or individually. Panel results can be finalized for one or all panels meeting the specified conditions, skip to a new panel, or modify and finalize panel results for a single panel. All fields on the Finalization screen are read-only. To modify information for a panel, select **Results**. When the instrument is connected to the BD EpiCenter Data Management System, the Finalization screen is not available.

When **Finalization** is selected, the instrument finds the records that are eligible for finalization. To be eligible, a panel must have a status of Removable, not be a QC panel, and have no unignored Needs Attention reasons. Eligible panels are sorted first by accession number and then by isolate number.

When **Batch Finalize** is selected, the hourglass icon indicates that the finalization operation is in progress. A maximum of 200 panels may be finalized in a given finalization session.

To finalize/batch finalize panels:

- 1 If there are no panels to be finalized, no data appears on the Finalization screen. If there ARE panels to finalize, the following options appear:
- 2 To finalize ALL eligible panels, select **Finalize**.
- 3 To finalize panels one at a time, check the box next to the panel, then select **Finalize**.
- 4 To print a summary report of all panels eligible for finalization, select **Finalized**. This report shows the Accession Number (primary sort), Isolate Number (secondary sort), Test End date and time, Sequence Number, Instrument Number/Station, and Finalized status (* if finalized, blank if not). Select the panel row to go to the **Results** tab.
- 5 If **Results** is accessed to add or modify information before finalizing a panel, be sure to save the modifications, and return to the **Finalization** screen.
- 6 Once an individual (or batch of) panel(s) has been finalized, the **Finalized** button appears on the Finalization screen. This action enables the printing of Lab Reports for all panels that have been finalized during this session (up to 200 maximum).
- 7 Continue to review panel records and finalize until no additional panel records are displayed.

Two types of reports, standard Lab Report(s) and the Finalization Summary Report, may be printed. The Lab Report can only be printed after one or more panels have been finalized. The Summary report may be printed any time.

Finalization fields:

Sequence Number

Read-only field showing the panel's sequence number.

Accession Number

Read-only field showing the panel's accession number.

Isolate Number

Read-only field showing the panel's isolate number.

Media

Read-only field showing the media type selected during Panel Login for Yeast ID panels.

Status

Read-only field showing the panel's status.

Final ID

Read-only field showing the panel's final organism ID.

Test Start

Read-only field showing the panel's start of testing date and time.

Test End

Read-only field showing the panel's end of testing date and time.

Location

Read-only field showing the panel's location.

Finalized

Read-only field showing the panel's finalized status.

Instrument Organism ID

Read-only field showing the instrument identification of the organism.

Confidence

Read-only field showing the confidence value for the Instrument Organism ID.

Biochemical

Read-only field showing the biochemical abbreviation.

Actual

Read-only field showing the actual biochemical result.

Expected

Read-only field showing the expected biochemical result.

Antimicrob(ial)

Read-only field showing the drug name.

MIC

Read-only field showing the Minimum Inhibitory Concentration value.

Interpretation

Read-only field showing the Susceptibility interpretation.

BDXpert SIR

Read-only field showing the final results calculated by the BDXpert System based on the execution of all enabled BDXpert Rules as if they had been executed automatically.

Final SIR

Read-only field showing the Final Susceptibility interpretation. To modify a Final SIR value, select **Results**.

3.6 Needs Attention Tab

Needs Attention displays a list of panels in the instrument's database that have encountered a condition that requires operator attention. These conditions generally represent problems with the panels themselves, or with the information related to the panels. In many cases, the conditions can be corrected by operator action.

When viewing the Needs Attention panel list, the system provides the opportunity to resolve or ignore the condition that caused the panel to be placed in the list. If the panel was placed in the list due to missing or unresolved information (e.g., a tie), the instrument provides the ability to add or edit the information to resolve the condition. If the panel was placed in the list due to a software, panel, or hardware error, the instrument provides the ability to delete the panel to resolve the error condition. Deleting a panel that is still testing causes that panel's protocol to be aborted. Only panels whose Needs Attention reason has not been ignored are shown in the screen.

The Needs Attention screen lists the highest priority reason (see Table 3-2 – Needs Attention Resolutions below). Selecting a panel opens the results screen in the Needs Attention tab, listing additional reasons if they exist. Two reports are available for printing: all Needs Attention reasons, and highest priority Needs Attention reasons.

Condition	Active Operations
Test Aborted	• ignore • locate panel • delete panel
Can Not Identify Barcode	• ignore • locate panel
Can Not Read Panel Wells	• locate panel • delete panel
Panel Lot Expired	• ignore • clear NA
Invalid AST Results	• ignore
Panel Missing	• ignore • delete panel
No Growth on Panel	• ignore • locate panel • delete panel
Panel Lot Undefined	none to address condition
Review QC results	• ignore • locate panel • delete panel • panel results
Missing Accession Number	• locate panel • panel results
Missing Organism ID	• panel results

Condition	Active Operations
Can Not Determine Organism ID	• ignore • panel results
Invalid Organism ID	• ignore • panel results
Organism ID Conflict	• panel results
BDXpert Rule Flagged (if enabled and manual)	• panel results
Pending Too Long	• ignore

Table 3-2 – Needs Attention Resolutions

The Needs Attention screen lists the first 100 panels with a Needs Attention, sorted by reason code (in the same order as the list above) and then by accession number within each reason code. Panels without an accession number are listed first within each Needs Attention reason code. Note that even after panels have been removed from the Needs Attention list, the highest priority reason code in the Panel Results screen can still be viewed.

Needs Attention resolution options

Ignore Check Box – check to Ignore the Needs Attention condition. Ignore does not correct the Needs Attention reason code, but it informs the system that the problem has been acknowledged by the user.

Reason – lists the reason for the Needs Attention.

Locate panel – causes the carousel to rotate to the panel's location and lights the station where the panel resides.

Save – saves any selections that are made.

Print – enables the printing of a Needs Attention List report.

Delete – delete all panel results.

Cancel – removes any selections that have been made.

These options are designed to enable the correction of (whenever possible) the condition causing the panel to need attention. Where it is not possible, other resolutions are provided. **AST Results** displays the Panel Results screen, where the Needs Attention condition may be able to be corrected by adding information to the panel record.

To resolve panels that need attention:

- 1 Access the Needs Attention screen.
- 2 Refer to the chart below for detailed information on the particular Needs Attention reason.
- 3 Press the AST Results tab to access Results (to add or modify information), the Delete button to delete the panel, check Ignore or Locate Panel to find the panel in the instrument.

Condition	Meaning	Possible Cause(s)	Resolution(s)
Test aborted	A condition occurred which caused the panel to be invalid	• Ongoing panel not tested for more than 1 hour • Instrument turned off for more than 1 hour • Instrument door open more than 1 hour • Panel moved to a different tier/instrument • Incubator temperature too high or too low • System software did not execute testing algorithms for more than 1 hour • Media type not specified for Yeast ID panel	• Delete the panel • Repeat testing
Cannot identify barcode	Internal barcode scanner could not read a panel barcode in a station where the instrument could determine that a panel was present	• Barcode label obscured or missing • Unknown panel type was placed into the instrument	Locate the panel in the instrument and examine the barcode • If the barcode is obscured, the panel must be discarded and another inoculated • If the barcode appears to be intact, replace the panel and close the door. After the next inventory, check the Panel Needs Attention screen. If the panel does not appear, the internal scanner can now read the panel
Cannot read panel wells	Internal barcode scanner has read a sequence number in a station but the instrument does not detect that a panel is present in that station	Panel not seated properly	Locate panel, remove it and replace it, as above
Panel lot expired	A panel was logged in (or has a test start date) with a panel lot number that has already expired	Panel being logged in or placed in the instrument is from an expired lot	Discard panel, reinoculate isolate using unexpired panel lot
Invalid AST results	At least one MIC cannot be interpreted. (Excludes QC panels.)	Refer to Table 3-1 – MIC/SIR Values and Causes	Repeat testing of the antibiotic that cannot be interpreted
Panel missing	Internal barcode scanner read a sequence number on an Ongoing panel, but the panel is missing	• Panel removed before the test was completed • Internal scanner failure and the sequence number can no longer be read	If the panel is replaced on the same tier within 1 hour after removal, testing will resume. If the panel is not replaced, testing will abort
No growth on panel	No growth in growth control well. (Excludes ID only and QC panels.)	Instrument did not detect growth in the growth control well of the panel	• Subculture the organism (to insure that it is viable) and inoculate a new panel. Panel has been aborted • From the Needs Attention screen delete or ignore the panel
Panel lot undefined	A panel has been entered whose lot number is undefined (non QC panel)	Panel is from an undefined lot	Define panel lot or ignore
Review QC results	Status of a completed QC panel is "Review"	QC panel which yielded an incorrect ID or incorrect AST result for at least one antibiotic, or has no growth in growth control well	Repeat QC organisms. Check: culture purity, inoculum density
Missing accession number	Panel is missing accession or isolate information. (Orphan panel.)	Failure to enter accession or isolate information	Press the "panel results" key. Add the accession number using the barcode reader or by typing it in
Missing organism ID	Panel has no organism ID. (ID required to determine SIR results. Excludes QC panels.)	• For AST only panel, no ID has been entered • The panel has an unresolved tie or triplet instrument ID and has no related panel with an ID	Select the organism ID. Any BDxpert rules triggered by the given ID will automatically be presented at this point. Select or ignore the rules and save. When completed, exit to see complete test results.

Condition	Meaning	Possible Cause(s)	Resolution(s)
Cannot determine organism ID	Panel has an Instrument ID of "No Identification" or has a related panel with "No Identification" as a final ID	Panel has been in test for 12 hours and the instrument cannot determine the identification	Repeat testing. Check the following: • Culture purity • Inoculum density • Correct panel used? • Organism may not be in the BD Phoenix database
Invalid organism ID	Organism ID is not in BD Phoenix database	Panel received download information of an organism ID that is not in the BD Phoenix database	Use alternate method
Organism ID conflict	Panel completes testing and has at least one related unfinalized panel that contains a different Final ID. Excludes QC panels.	Completed panel has at least one related panel that contains a different ID	Select Results and choose an organism. Selecting the organism may trigger BDExpert rules. If the rules are configured as manual, BDExpert appears
BDExpert Rule flagged	Panel triggered at least one BDExpert rule and the rule is manually enabled in Configuration.	A BDExpert rule needs to be invoked in order to determine AST results. A panel is flagged if BDExpert rules are configured as enabled/manual. (Rules that are configured as enabled/automatic will automatically "trigger" and the panel will not be displayed in Needs Attention.	Each Expert rule is displayed individually in sequence. To accept the rule, select Accept. To reject the rule, select Reject. Use ReRun to delete BDExpert system decisions and start over. When all rules have been displayed and dispositioned, complete AST results show. After all rules have been invoked, select Special Messages (if present) to view Special messages about characteristics of the organism.
Pending too long	Panel has not been scanned (during an inventory count) within 30 minutes of logging in Panel Login.	Panel was logged into the instrument but was not placed in the instrument within 2 reading cycles (approximately 30 minutes).	Repeat testing. Delete the panel

3.7 Inventory Tab

Inventory provides a listing of all panels in the instrument (except temperature reference panels). This listing can be sorted in ascending or descending order by the following fields: sequence number, accession number, results, or needs attention reason. The initial default sort order is by accession/isolate number in ascending order. Subsequently, the list defaults to the last sort criteria and screen configuration (primary/secondary) used. If there are no panels in the instrument **No Data Available** appears on the screen.

The top of the Panel Inventory screen shows the number of panels in the list (if there is more than one panel), the sort field, and whether the sort field is ascending or descending.

The following fields are shown on the Panel Inventory screen (if the information is known):

- A ! (exclamation mark) at the beginning of the row indicates that a critical panel or a panel with a resistance marker has not been acknowledged.
- Critical - checked if panel has been marked as Critical at login.
- Sequence Number (of the panel).
- Accession Number (panels without accession numbers are listed first.)
- Isolate Number.
- Inoculum Density (blank for AST panels; ? for ID panels until first test completes).
- Status (ongoing; complete; rapid if Rapid Completion is enabled and has been triggered for a panel).
- Final (Organism) ID.
- Results (**final** if panel is complete and there are no active Needs Attention conditions) [all MIC results are determined for an AST panel, or all MIC values *and* the organism ID are determined for a Combination panel, or the organism ID is determined for an ID panel]; **partial** if a panel is ongoing or complete but has an active (unignored) Needs Attention condition [at least one MIC value is determined for an AST or Combination panel, or the organism ID is determined for a Combination panel]; **none**, if no MIC values or organism ID is determined for any type of panel.

- Needs Attention - the active Needs Attention icon appears if an unignored Needs Attention reason exists; **blank** when no Needs Attention reasons exist or they have all been ignored).
- Instrument - in which instrument the panel is located.

After the list appears, highlight a panel and access the Results screen to view or edit panel information, perform an instrument locate panel operation, or to print a Lab Report for panels with final or partial results.

3.8 Reports Tab

Numerous instrument reports are available for printing:

- Accession Lab Report – provides information for a specified accession number.
- Antimicrobial Code Report – displays all antimicrobials, BD and LIS codes for all antimicrobials, that exist in the BD Phoenix database from all panel configurations.
- BDxpert Rule Set Database Report – lists each BDxpert rule number and the text describing the rule, whether each rule is enabled/disabled and whether each rule shall trigger automatically/manually in the system.
- Completed Lab Report – contains information for all panels whose status became complete during the selected time period (up to the past 48 hours).
- Cumulative QC Report – provides information on quality control testing of all panel types. This report does not appear when BD EpiCenter communication is enabled.
- Daily Instrument Report – lists the status of the instrument at the time the report is generated, along with a maintenance checklist.
- Interpretation Rule Set Report – lists the antimicrobial breakpoints of the Interpretation Rule Set defined as the default Rule Set in the Instrument Configuration screen.
- Needs Attention List Report – lists all panels in the instrument's database that have an unignored Needs Attention flag set.
- Organism ID Code List Report – displays all Organism Names, BD and LIS codes for all Organism Names that exist in the BD Phoenix database.
- Panel Lot Report – lists all the panel records for any panel lot number in the current instrument.
- Panel Lot Database Report – lists all the defined panel lots in the current instrument, and provides statistical and reference information on those lots.
- QC Lab Report – lists all Test Strain Organisms that have completed testing and all biochemical and/or antimicrobial MIC results (for a specified Panel Lot #) that exist in the BD Phoenix databases when the report is requested.
- Resident Panel Report – lists the panels contained in stations 1–25 for each tier.
- Lab Report – contains all information for a panel sequence number that exists in the BD Phoenix database, including all information in the Panel Results screen, any special messages, BDxpert Rules that triggered, or Needs Attention Reasons if they exist. This report can only be printed from the Results or Finalization tabs.
- Finalization Summary Report – contains all the panels eligible for finalization at the time the report was requested, as well as finalization status. This report can only be printed from the Finalization tab.
- Panel Inventory Lab Report – prints a Lab Report for all panels in the instrument. This report can only be printed from the Inventory tab.

- Custom Breakpoint Difference Report – prints a listing of differences between old breakpoints and new ones after a Phoenix Update Data or Install/Upgrade operation. This report can only be printed from the Custom Interpretation Rule Set (Configuration) tab.
- Current QC Panel Lot Report – contains information on the most recent QC test for each of the required strains for a panel lot, up to a maximum of 20 strains. This report can only be printed from the Panel Lot Definition tab.
- Historical QC Panel Lot Report – contains information on all tests for a strain for the current instrument, up to 200 tests. This report can only be printed from the Panel Lot Definition tab.

3.8.1 How to Print Reports

To print a report:

- 1 Select the **Reports** tab.
- 2 Highlight the desired report.
- 3 Complete any additional fields (such as an Accession Number for the Accession Lab Report) and select **Print Reports**. (See Section 3.8 Reports Tab for additional requirements.)

Several reports can also be printed from the screens that relate to them (e.g., Needs Attention List Report).

Each of the reports is discussed in greater detail in the sections that follow.

3.8.2 Completed Lab Report

This report contains information for **all panels** whose status became **Complete** during the time selected period (up to the past 48 hours). The report provides the following information:

Header: Report Title, Preliminary indication (if Status is Ongoing, Pending, or Partial Complete; and/or if there are unignored Needs Attention conditions or a Needs Attention condition of Cannot Identify Barcode; and/or if the panel is not eligible for finalization), Laboratory Information (if configured), and Date and Time Printed, Software version / PUD version.

Body of Report: Top Region: Accession #, Isolate #, Sequence #, Panel Type, Status (Ongoing, Complete), CRITICAL panel indication, Test Start with time, Test End with time, Instr #/Station (location), Finalized status, Panel Lot # (if QC Lot Support is enabled), and Inoculum Density. The Completed Lab Report is sorted by Accession # then by Isolate # within accessions.

For QC panels, in addition to the information listed above, the following information is included: Panel Lot # and Expiration Date, Tech ID, ID Broth Lot # and Expiration Date, AST Broth Lot # and Expiration Date, Indicator Lot # and Expiration Date, and Test Strain. The QC Status of PASS, REVIEW, ERROR, or FAIL is indicated.

Below this information the organism Final ID is listed. An asterisk next to the Final ID indicates that the ID was changed by the user. Below this, the Media Type (for Yeast ID panels only) appears.

Next any Instrument ID results are listed, along with the Confidence Value for the result. In the lower region of the report, for ID tests, the Biochemical, Instr(ument) Result, and Expected Result are provided. For AST tests, the Antimicrobial, Instr(ument) MIC, Instr(ument) SIR, BDXpert SIR, Final SIR, and Rule # are printed. If any panels have Resistance Markers, BDXpert Rules, Needs Attention flags, or Special Messages, these are printed at the bottom of the report. Any SIR values and Rule # are not reported for QC panels.

ID and AST sections of combination panels print on separate pages of the report.

3.8.3 Accession Lab Report

This report is basically a collection of lab reports for a specified accession number. It provides information for a specified accession number. Such information includes, as applicable: organism ID results, including specific biochemical reactions; AST results including SIR interpretation and MIC; QC pass/fail results; and any BDXpert Rules that were triggered. The report provides the following information:

Header: Report Title, Preliminary indication (if Status is Ongoing, Pending, or Partial Complete; and/or if there are unignored Needs Attention conditions or a Needs Attention condition of Cannot Identify Barcode; and/or if the panel is not eligible for finalization), Laboratory Information (if configured), Date and Time Printed, Software version / PUD version.

Body of Report: Top Region: Accession #, Isolate #, Sequence #, Panel Type, Status (Ongoing, Complete), CRITICAL panel indication, Test Start with time, Test End with time, Instr #/Station (location), Finalized status, Panel Lot # (if QC Lot Support is enabled), and Inoculum Density. The Completed Lab Report is sorted by Accession # then by Isolate # within accessions.

Below this information the organism Final ID is listed. An asterisk next to the Final ID indicates that the ID was changed by the user. Below this, the Media Type (for Yeast ID panels only) appears.

Next any Instrument ID results are listed, along with the Confidence Value for the result. In the lower region of the report, for ID tests, the Biochemical, Instr(ument) Result, and Expected Result are provided. For AST tests, the Antimicrobial, Instr(ument) MIC, Instr(ument) SIR, BDXpert SIR, Final SIR, and Rule # are printed. If any panels have Resistance Markers, BDXpert Rules, Needs Attention flags, or Special Messages, these are printed at the bottom of the report. Any SIR values and Rule # are not reported for QC panels.

ID and AST sections of combination panels print on separate pages of the report.

For QC panels, in addition to the information listed above, the following information is included: Panel Lot # and Expiration Date, Tech ID, ID Broth Lot # and Expiration Date, AST Broth Lot # and Expiration Date, Indicator Lot # and Expiration Date, and Test Strain. The QC Status of PASS, REVIEW, ERROR, or FAIL is indicated.

3.8.4 Needs Attention List Report

This report lists all the panels in the instrument's database that have an unignored Needs Attention. This report can also be printed from the Needs Attention screen. The report provides the following information:

Header: Report Title, Filtered report notification (if selected), Laboratory Information (if configured), and Date and Time Printed.

Body of Report: Needs Attention Reason, Sequence #, Accession #, Isolate #, Instr #/Station (location), and Status (Ongoing, Complete). If the report is filtered (default selection), an asterisk appears to the left of the Reason for panels with multiple Needs Attention conditions. The report is sorted by the priority of the Needs Attention Reasons (Figure 3-7 – Needs Attention List Report), and by Accession within each Reason type.

Display Panel to Review	Sample ID (Accession)	Accession Number	Isolate Number	Isolate Set
Test Aborted	427290613434		623	
Test Aborted	427290613433		624	
Test Aborted	427290613432		625	
Test Aborted	427290613430		626	

Figure 3-7 – Needs Attention List Report

3.8.5 Resident Panel Report

This report lists the panels contained in stations 1–25 for each tier detected during the last inventory scan. The report provides the following information:

Header: Report Title, Laboratory Information (if configured), Date and Time Printed, and Instrument #.

Body of Report: Accession #, Isolate #, Sequence #, QC (if panel is QC), Test Start with time, Inoculum Density, Panel Type, Status (Ongoing, Complete), and the highest priority Needs Attention Reason if one exists. The report is sorted by Accession # and then by Isolate # within each Accession.

3.8.6 QC Lab Report

This report lists all QC panels from the Test Start date field entry to the current date. It lists all Test Strain Organisms that have completed testing and all biochemical and/or antimicrobial MIC results (for a specified panel lot number) that exist in the BD Phoenix database. The report provides the following information:

Header: Report Title, Laboratory Information (if configured), and Date and Time Printed, Software version / PUD version.

Body of Report: Panel Lot # and Expiration Date, Test Start and time, Test End and time, Panel Type, Instr #/Station (location), Status (Ongoing, Complete), Tech ID, ID Broth Lot # and Expiration Date, AST Broth Lot # and Expiration Date, Indicator Lot # and Expiration Date, Sequence #, Accession #, Isolate #, Test Strain, Inoculum Density, Media Type (Yeast ID panels only), Instrument ID(s), and QC Status of PASS/FAIL/REPEAT/REVIEW. At the bottom of the report, any Needs Attention reasons or Special Messages are printed. Each Biochemical, along with Instr(ument) Result, and Expected Result are provided, as well as Antimicrobials, Instr(ument) MICs, Expected MICs, and Pass/Fail status.

This report is only available when BD EpiCenter is disabled.

3.8.7 Cumulative QC Report

This report provides information on completed quality control testing of all panel types. The report provides the following information:

Header: Report Title, Laboratory Information (if configured), Date and Time Printed, and Instrument #.

Body of Report: Selection Criteria: Panel Lot #, Panel Type, and Test Strains selected.

Below this, the panel Sequence # (sort order), QC Status (PASS, FAIL, REVIEW, ERROR), Test Strain, Test Start and Time, Panel Lot #, ID Broth Lot #, AST Broth Lot #, Indicator Lot #, and Tech ID are listed for each panel.

This report is only available when BD EpiCenter is disabled.

3.8.8 Daily Instrument Report

This report lists the status of the instrument at the time the report is generated, and provides areas to record maintenance activities. The Daily Instrument Report can be set to print automatically at a specified time.

The report provides the following information:

Header: Report Title, Laboratory Information (if configured), Date and Time Printed, and Software version/PUD version.

Body of Report: Instrument #, Serial #, Instrument Temperature Pass/Fail status, Carousel Rotational Test Pass/Fail status, Power Supply Check Pass/Fail status, Normalizer Panels Sequence #, Pass/Fail status, and Expiration Status (date if expiration is more than 60 days; "expires on date" if expiration is between 60 and 0 days; and "EXPIRED" if the panel is expired) for each tier, and blanks to record the reading, Pass/Fail status, and Tech ID for each of the following maintenance checks: Daily: Instrument Temperature (Status screen), Standard Panel Temperature, Printer Paper Supply: Weekly: Internal Green LEDs, Internal Red LEDs, Internal Amber LEDs, Alert Indicator, and Instrument Audible Alarm. An area is provided for comments at the bottom.

The instrument temperature is considered to have passed when there are no outstanding E01 temperature alerts.

3.8.9 Interpretation Rule Set Report

This report lists the antimicrobial breakpoints of the currently selected Interpretation Rule Set (defined as the default Rule Set in the Instrument Configuration screen). The report provides the following information:

Header: Report Title, Laboratory Information (if configured), and Date and Time Printed.

Body of Report: Rule Set, Rule Version, and columns for Antimicrobial (sort order), Test Group, Organism Group, Organism Name, S(usceptible) value, and R(esistance) value. Each antimicrobial breakpoint is listed in a separate row of the report.

The Interpretation Rule Set is a large report. Spooling and printing the report can consume system resources such that other reports cannot be printed until the current one completes.

To print reports of ALL the rule sets in the instrument, first select a rule set in System Configuration (Section 3.10.2 System Configuration Sub-Tab), then access **Reports** and select Interpretation Rule Set Report. The currently selected rule set prints. When printing is complete, return to **System Configuration**, and select the next rule set. Then access **Reports** again and print the current Interpretation Rule Set. Continue selecting rule sets and printing until all rule set selections are printed. Remember to return to System Configuration and select the desired rule set to use for interpretations when all printing is complete.

NOTE

Modification of the Interpretation Rule Set should not be performed while there are ongoing panels. This could lead to inaccurate interpretations.

Interpretation Codes:

CLSI or EUCAST

Interpretation Code	Interpretation Name
ACIN_IC	<i>Acinetobacter</i> spp.
AERM_IC	<i>Aeromonas</i> spp.
BURCEP_IC	<i>Burkholderia cepacia</i> complex
ENTC_IC	<i>Enterococcus</i> spp.
ENTERIC_IC	<i>Enterobacteriaceae</i>
NFGNROTH_IC	Nonfermentative GNR, other than ACIN_IC, BURCEP_IC, PSEAER_IC, STEMAL_IC, ACTBACT_IC, CARHOM_IC, EIKCOR_IC
PSEAER_IC	<i>Pseudomonas aeruginosa</i>
STAAUE_IC	<i>Staphylococcus aureus</i>
STAOOTH_IC	<i>Staphylococcus</i> spp., other than STAAUE_IC
STEMAL_IC	<i>Stenotrophomonas maltophilia</i>
STRBET_IC	<i>Streptococcus</i> beta-hemolytic
STROTH_IC	<i>Streptococcus</i> spp., other than STRBET_IC, STRPNE_IC, STRVIR_IC
STRPNE_IC	<i>Streptococcus pneumoniae</i>
STRVIR_IC	<i>Streptococcus viridans</i> group

3.8.10 BDxpert Rule Set Database Report

This report lists each BDxpert rule number and the text describing the rule, whether each rule is enabled/disabled and whether each rule shall trigger automatically/manually in the system. The report provides the following information:

Header: Report Title, Laboratory Information (if configured), Date and Time Printed, Rule Set (CLSI, SFM, EUCAST, or Custom), and Based On (CLSI, SFM, or EUCAST if Rule Set is Custom).

Body of Report: Rule #, text of the rule, Enabled/Disabled status, and Automatic/Manual status.

The BDxpert Rule Set Database is a large report. Spooling and printing the report can consume system resources such that other reports cannot be printed until the current one completes.

3.8.11 Organism ID Code List Report

This report prints all Organism Names and Abbreviations for all Organism Names that exist in the BD Phoenix database. The report provides the following information:

Header: Report Title, Laboratory Information (if configured), and Date and Time Printed.

Body of Report: Organism name (sort order), BD Code (abbreviation), and LIS Code (if enabled).

The Organism ID Code List is a large report. Spooling and printing the report can consume system resources such that other reports cannot be printed until the current one completes.

3.8.12 Antimicrobial Code Report

This report prints all antimicrobials and abbreviations for all antimicrobials that exist in the BD Phoenix database from all panel configurations. The report provides the following information:

Header: Report Title, Laboratory Information (if configured), and Date and Time Printed.

Body of Report: Antimicrobial name (sort order), BD Code (abbreviation), and LIS Code (if enabled).

The Antimicrobial Code is a large report. Spooling and printing the report can consume system resources such that other reports cannot be printed until the current one completes.

3.8.13 Lab Report/QC Lab Report

This report (Section 3.4.9 Needs Attention Sub-Tab) contains all information for a panel sequence number that exists in the BD Phoenix database, including all information in the Panel Results screen, any special messages, BDxpert Rules that triggered, or Needs Attention Reasons if they exist. The Lab Report is not accessible from Reports. It can only be printed from Results or Finalization. A Panel Inventory Lab Report prints the same information for all panels listed in the Panel Inventory screen (i.e., resident in the instrument and with final or partial results). Refer to Section 3.4.9 Needs Attention Sub-Tab for additional information.

The QC Lab Report (Section 3.8.6 QC Lab Report) is also accessible from Results. It provides similar information to the Lab Report, but for QC panels.

3.8.14 Finalization Summary Report

This report contains a listing of all the panels eligible for finalization at the time the report was requested, as well as finalization status. The Finalization Summary Report is not accessible from Reports; it can only be printed from Finalization. Refer to Section 3.8.14 Finalization Summary Report for additional information.

3.8.15 Custom Breakpoint Difference Report

This report contains a listing of differences between old breakpoints and new ones after a BD Phoenix Update Data or install/upgrade operation. The Custom Breakpoint Difference Report is not accessible from Reports. It can only be printed from the Custom Interpretation Rule Set (Configuration) tab by selecting the Difference Report button located at the bottom of the screen. Breakpoints that have been customized will not be overwritten with updates from the PUD. The Custom Breakpoint Difference Report will provide the appropriate data to determine if customized breakpoints need to be manually updated to reflect the currently installed PUD. Refer to Table 3-3 – Rules Updates for details on how breakpoints are updated.

3.8.16 Current QC Panel Lot Report

This report contains information on the most recent QC test for each of the required strains for a panel lot, up to a maximum of 20 strains. The report includes information for any instruments whose data has been restored to the current instrument. The Current QC Panel Lot Report cannot be printed from Reports. It can only be printed from Panel Lot Definition. Refer to Section 3.10.9 Panel Lot Definition Sub-Tab.

3.8.17 Historical QC Panel Lot Report

This report contains information on all tests for a strain for the current instrument (only), up to 200 tests. The Historical QC Panel Lot Report cannot be printed from Reports. It can only be printed from Panel Lot Definition. Refer to Section 3.10.9 Panel Lot Definition Sub-Tab.

3.8.18 Panel Lot Report

This report lists all the panel records for any panel lot number in the current instrument. The report first lists clinical panels, then QC panels. Within each of those groups, the report is sorted by Accession # then Isolate #.

The report provides the following information:

Header: Report Title, Laboratory Information (if configured), Date and Time Printed, Instrument where printed.

Body of Report: Panel Lot # and Panel Type; Accession #, Isolate #, Sequence #, QC (if panel is QC), Test Date, and Status (Pending, Ongoing, Complete) for each panel tested that belongs to the lot.

This report is only available when BD EpiCenter is disabled and QC Lot Support is enabled.

3.8.19 Panel Lot Database Report

This report lists all the defined panel lots in the current instrument, and provides statistical and reference information on those lots.

The report provides the following information:

Header: Report Title, Laboratory Information (if configured), Date and Time Printed, Instrument where printed.

Body of Report: Panel Lot # (sort order, descending); Panel Type; Expiration Date; Extension Date (if Expiration date was extended); Start and End Sequence #s (Range); Definition Date; First and Last Date Used; and number of Panels Used.

This report is only available when BD EpiCenter is disabled and QC Lot Support is enabled.

3.9 Maintenance Tab

Maintenance (see Figure 3-8 – Maintenance Screen) provides several tasks for performing instrument maintenance. There are user tasks for weekly and as needed maintenance. There are other tasks for BD use only.

Under Task Category, select the category of maintenance to be performed:

- Hardware
- Software
- LIS
- Panel
- Field Service
- Internal BD Use

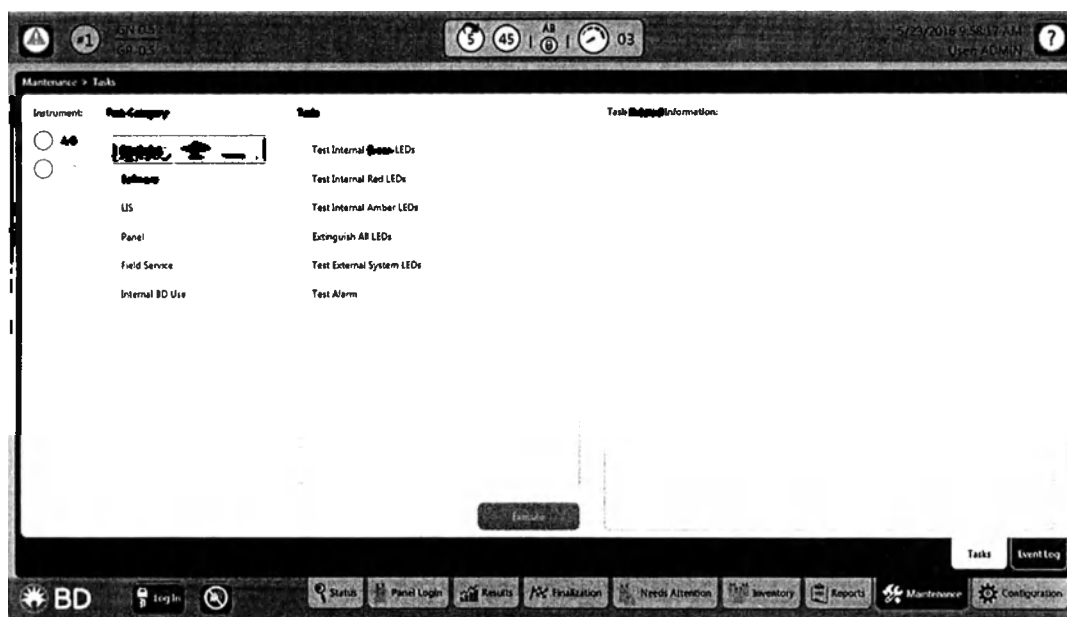


Figure 3-8 – Maintenance Screen

3.9.1 Maintenance Hardware Functions

For detailed information, refer to Section 5.2 Routine Maintenance.

- Test system indicators
- Test Alarm

3.9.2 Maintenance Software Functions

Each of the software functions are described in detail below. Unless otherwise specified, perform the following steps to save data after accessing each software function via the Maintenance tab.

- 1 Insert the USB key, BD part number 443866, into the AIO PC.
- 2 Select the Maintenance screen tab.
- 3 On the Maintenance screen select Software under the Task Category.
- 4 From the Task list select the function to be performed.
- 5 Select Execute; the **Are You Sure?** message is displayed.
- 6 Select OK.

Save System Data Task

Under certain circumstances, BD may advise that system data be saved to a USB key. These circumstances include some error conditions and system malfunctions. The Save System Data function is NOT a backup and cannot be restored by the user.

Save Event Log Task

Save Event Log to Network should only be used when advised by your local BD representative. The Save Event Log to Network option appears only when the instrument is connected to a BD EpiCenter system. This option enables the event log to be saved to an BD EpiCenter system.

Under certain circumstances, a BD representative may advise that the Event Log be saved to the BD EpiCenter system or to a USB key. These circumstances include some error conditions and system malfunctions. The Save Event Log function copies the system event log, which contains logged system messages about various system, instrument, and communications events. The instrument door must be closed, and the instrument must be idle to save the Event Log.

Upgrade Task

Upgrade enables instrument and AIO PC updates to be performed. To perform this operation, the instrument door must be closed. The software update will be recorded on the Daily Instrument Report for reference. To upgrade, follow the step by step instructions in Section 3.9.1 Maintenance Hardware Functions. After OK is Selected, the following window appears:

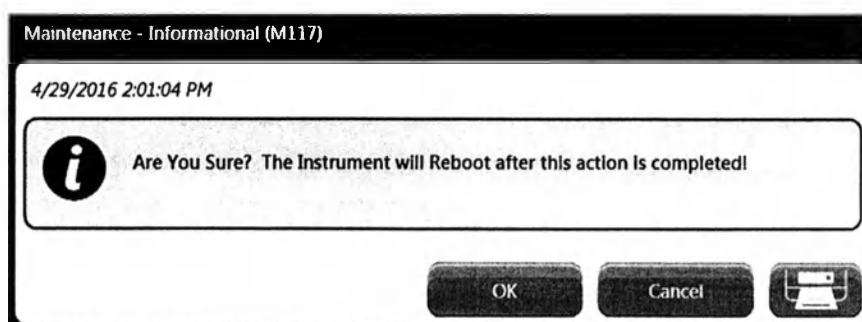


Figure 3-9 – Instrument Reboot Message

After the upgrade, files on the USB key are validated. The system will copy the upgrade files and reboot.

After the AIO PC finishes rebooting, the following message will be displayed:

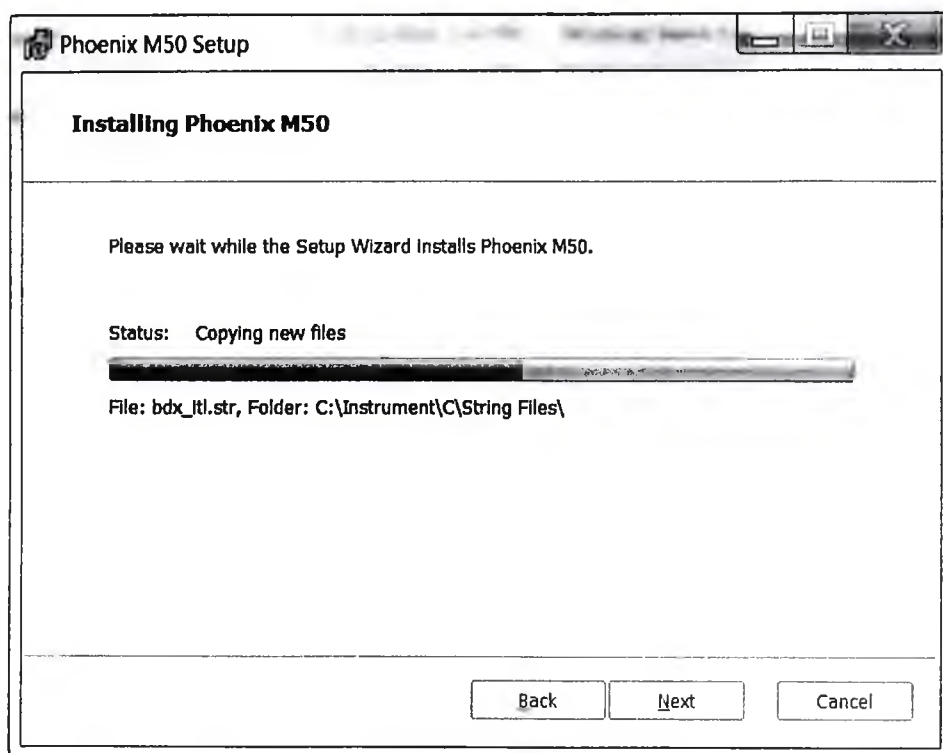


Figure 3-10 – Installation Message

The message above will show the status of each step of the upgrade process. The user will not be able to cancel this process once it has started.

When the upgrade completes successfully, the following message is displayed:

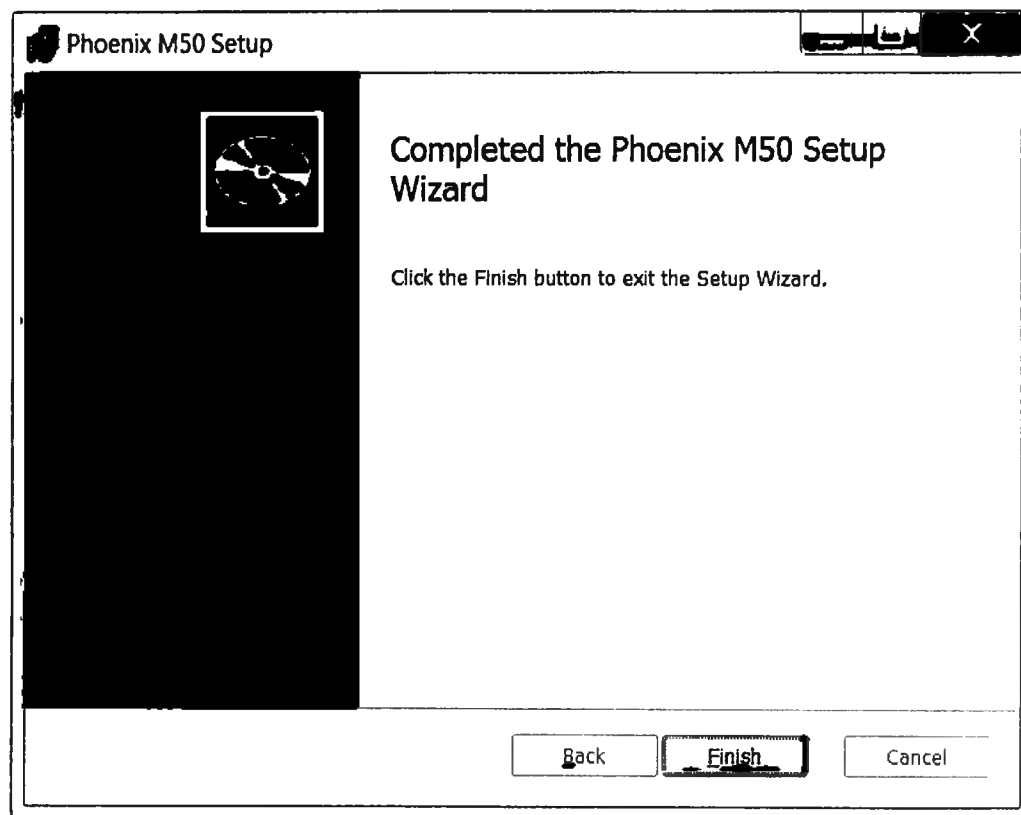


Figure 3-11 – Setup Wizard Message

When **Finish** is selected, the system will reboot and the newly installed version of the application on the AIO PC will synchronize with the instrument. If the upgrade includes new software for internal components of the instrument, these updates will take place immediately and the use of the application will be temporarily blocked. Once the instrument software has been successfully updated, the application will be available for use.

If custom breakpoints are in place, print the Custom Breakpoint Difference Report (See 3.10.6 Custom Interpretation Rule Set Sub-Tab)

NOTE

When the software is updated, or when the PUD install is performed, if any of the standard interpretation rule sets have changed, new rule sets are installed into the system database. Since custom rule sets are based on standard rule sets, a custom interpretation rule set will be merged with new standard rules. If custom breakpoints are used, be sure to print out the Custom Breakpoint Difference Report (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab) after each system update or PUD install.

Save User Data Task

Save User Data allows the back up of Configuration parameters to a USB key. This includes Custom Interpretation Rule Set Configuration and BDxpert Rules Configuration. The information that is saved is for the current instrument only. However, information saved at one instrument can be restored on another instrument. It is recommended that Configuration parameters be stored on a USB key in the event of a system failure.

Restore User Data Task

Restore User Data enables the restoration of the saved configuration parameters. This data includes: Custom Interpretation Rule Set Configuration, and BDxpert Rules Configuration. To restore, the instrument door must be closed.

BD Phoenix Update Data (PUD)

A BD Phoenix Update Data may be provided from time to time to update BD Phoenix M50 instrument databases and support files. These updates do not affect or change the basic instrument application software. For this reason, the Status screen shows both the software version and the PUD version near the top of the screen.

BD Phoenix Update Data (PUD) enables the update of numerous data files in the instrument, such as antimicrobial breakpoints and rules, QC data, drugs, organisms, etc.

NOTE

After a PUD upgrade, a Custom Breakpoint Difference Report should be printed and reviewed to determine if manual updates are required for custom breakpoints. Refer to 3.8.15 Custom Breakpoint Difference Report for additional information on this report. Refer to 3.10.6 Custom Interpretation Rule Set Sub-Tab for additional information on how custom interpretation rules are updated with a PUD upgrade.

Backup SQL Database Task

This feature provides data to BD Service for instrument troubleshooting purposes.

3.9.3 Maintenance LIS Functions

Each of these functions are described in detail below. Unless otherwise specified, perform the following steps to save data after accessing each software function via the Maintenance tab.

- 1 Insert the USB key, BD catalog number 443866 into the AIO PC.
- 2 Select the Maintenance screen tab.
- 3 On the Maintenance screen select LIS under the Task Category.
- 4 From the Task list select the function to be performed.
- 5 Select Execute; the **Are You Sure?** message is displayed.
- 6 Select OK.

Save LIS Codes Task

Save LIS Codes enables all the Organism and Antimicrobial LIS codes you have defined to be saved. This produces a text file that can be edited on a PC, which might be quicker for some users who have many edits to perform. Then, the edited codes can be restored back to the BD Phoenix M50 instrument. The function also enables codes to be copied from one instrument to another. Save LIS Codes appears on the Maintenance tab only if LIS Communications is enabled.

Entries in the text field consist of:

Identifier (ORG, QC_ORG, DRUG) | BD Code | Short Name/Drug | LIS Code

Codes cannot be added or deleted, and only the LIS Code portion can be modified. If another field is changed, the instrument will not restore the codes.

Restore LIS Codes Task

Restore LIS Codes enables the restoration of the Organism and/or Antimicrobial codes that were previously saved. The restore operation completely overwrites the existing Organism/Antimicrobial LIS Code database. Codes will not be restored if any field other than LIS Code was modified, or if LIS Code was entered in an incorrect format. If this happens, an error log is written, and the file can be reviewed to see what caused the error. Restore LIS Codes appears on the Maintenance menu only if LIS Communications is enabled.

3.9.4 Maintenance Panel Functions

Each of these functions are described in detail below. Unless otherwise specified, perform the following steps to save data after accessing each software function via the Maintenance tab.

- 1 Insert the USB key, BD catalog number 443866 into the AIO PC.
- 2 Select the Maintenance screen tab.
- 3 On the Maintenance screen select Panel under the Task Category.
- 4 From the Task list select the function to be performed.
- 5 Select Execute; the **Are You Sure?** message is displayed.
- 6 Select OK.

Save Panel Lot Definitions Task

This enables the transfer of lot definitions (and QC panel results) to other instruments so that the records can be viewed/used there. Save Panel Lot Definitions saves the defined panel and related data (Sequence #s, Expiration Dates, etc.), and QC results for any strains tested in those. Save Panel Lot Definitions only applies when QC Lot Support is enabled.

Restore Panel Lot Definitions Task

This makes Panel Lot definitions and QC panel results transferable in labs that use multiple instruments, so that a lot only has to be defined once using the box (carton) label. Restore Panel Lot Definitions only applies when QC Lot Support is enabled.

Save Panel Configuration Task

Save Panel Configuration enables the backup of the instrument's panel configuration. The information saved is for the current instrument only. However, information saved at one instrument can be installed at another instrument. This enables the presence of consistent panel configurations among all the instruments.

Install Panel Configuration Task

Install Panel Configuration enables the update of the instrument's panel configurations. To perform this operation, the instrument door must be closed.

NOTE

This operation should not be performed while there are ongoing panels.

3.9.5 Maintenance Field Service Functions

For Field Service use only.

3.9.6 Maintenance Internal BD Use Functions

For internal BD use only.

3.9.7 Maintenance Event Log Tab

The Event Log provides a list of messages generated by LIS communications. Note that the screen (see Figure 3-12 – Event Log Screen) will not contain messages if the BD EpiCenter system is connected. The messages represent status messages that have occurred during LIS communications such as: query messages, log entries, and interface messages.

The Event Log list of LIS messages may be filtered based on date range. There is also a Find function to search for specific message content.

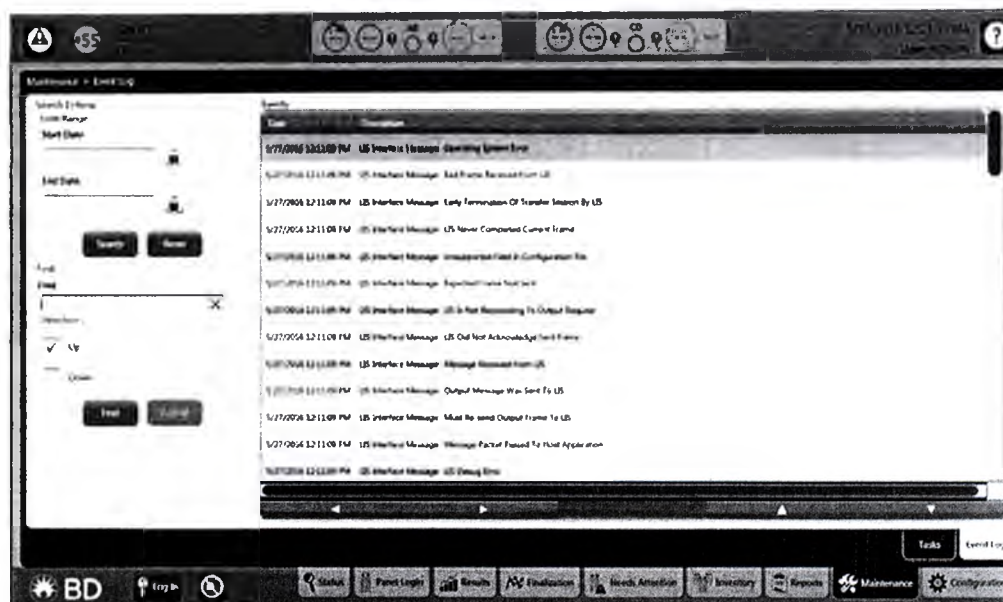


Figure 3-12 – Event Log Screen

3.10 Configuration Tab

To access the configuration functions, select the **Configuration** tab. The configuration screen then appears with sub-tabs for each specific configuration: Users, System, Communications, Custom Interpretation Rule Set, BDXpert Rules, Rapid Reporting, and Instrument. When the desired configuration parameters have been entered or modified, select **Save** to make the changes permanent.

* Note that the Custom Interpretation Rule Set and BDXpert Rules Configuration tabs do not appear if the BD Phoenix M50 instrument is connected to and communicating with an BD EpiCenter system.

3.10.1 Users Sub-Tab

Refer to Section 2.4 User Access and Management Summary.

3.10.2 System Configuration Sub-Tab

The following parameters can be set in System Configuration (see Figure 3-13 – Systems Configuration Screen):

GENERAL System Settings

System Number

Select the system identification number. The default setting is 0. Choose a number from 1 to 99. If there is only one instrument, leave this value set at 1.

Rule Set

Select the rule set that the interpretation engine is to use. Only one rule set can be used. Choose from the following selections:

CLSI (Clinical and Laboratory Standards Institute)

EUCAST (European Committee on Antimicrobial Susceptibility Testing)

SFM (Société Française de Microbiologie)

Custom (defined in Section 3.10.6 Custom Interpretation Rule Set Sub-Tab)

Rule Version

This read-only field shows the current version of the rule set selected in the previous field.

Alarm (audible) Volume

Select the volume of the instrument's audible alarm. The default setting is 5. Select from 0 (audible alarm off) to 10 (loudest). Only the volume of Alert and Activity alarms (see Section 2.3.2.8 Audible Tones and Alarms) is affected by this setting.

Resistance Marker Notification

This field appears only when the BD Phoenix M50 instrument is connected to a BD EpiCenter system but is not communicating with it. Enable the instrument to operate in a standalone mode when communications with BD EpiCenter is interrupted. When this field is enabled, the BDxpert System Active field appears.

BDxpert System Active

This field activates the entire BDxpert System rules which includes CLSI, EUCAST, SFM, or Custom Interpretation Rules.

This field does not appear if the BD EpiCenter system is attached and communicating. However, if communication with the BD EpiCenter system is lost, the field reappears. This enables the activation of BDxpert rules interpretations in the standalone BD Phoenix M50 instrument. When communications with the BD EpiCenter system is restored, BDxpert rules interpretations are once again performed at the BD EpiCenter system, and this field is removed from the screen.

NOTE

Disabling all BDxpert rules also disables detection of Resistance Markers (e.g., ESBL), except those triggered by 1500-series rules.

Rapid Completion

This field enables the instrument to provide BDxpert AST results (SIR) before determining actual MIC values. The instrument MIC values are provided as soon as they can be accurately determined. Within a test panel, some MIC values may be available earlier than others. The rapid completion feature can be used to predict resistance for uncompleted antibiotics using the ID alone (intrinsic resistance), or ID with completed MICs of related antibiotics, or resistance marker tests (BL, ESBL). The BDxpert system is used to make these predictions. This can be useful in situations where, for example, the results for drugs that have not yet received MICs would be of no clinical value based on the other results that are already available. Antimicrobials with Rapid Complete BDxpert interpretations are indicated by a **C** in the MIC column on Results screens and Lab reports.

If Rapid Completion is selected at the BD Phoenix M50 instrument and the instrument is connected to BD EpiCenter, then it must also be enabled (checked) at the BD EpiCenter.

OPTIONS

Abbreviated Lab Report

Enabling this field causes the system to print a shortened version of the Lab Report. The shortened version does not contain results for the biochemical (ID) reactions. Disable this field to print the standard full-length Lab Report. The default is disabled (full length). Note that QC Reports always print standard full-length Lab Reports.

QC Lot Support

This field enables the QC Lot feature, which can be used to facilitate panel lot QC testing and tracking (see Section 3.4.6 Lot Information Sub-Tab).

Daily Instrument Report Printing

System Check Box

Enabling this field causes the Daily Print Hour and Daily Print Minute fields to appear, and tells the instrument to print a Daily Instrument Report automatically at the time specified in these fields. If automatic printing is disabled, the report can still be printed at any time from Reports.)

Laboratory Information

Information entered in the Laboratory Information window prints in the header of system reports.

Name

Enter the laboratory name, up to 40 characters.

Address

Enter the address, up to 40 characters.

City

Enter the city (as well as state and zip code, if desired), up to 40 characters.

Director

Enter the name of the laboratory director, up to 40 characters.

Inoculum Density

Inoculum Density enables the default McFarland concentration for inoculum to be set. Select 0.25 (acceptable density of 0.20–0.30) or 0.5 (acceptable density of 0.50–0.60) for Gram Positive and Gram Negative panels (Strep panels use only 0.5). The default density is 0.5 for Gram Negative and Gram Positive panel types. The density for Yeast ID panels is fixed at 2.0 McFarland (acceptable density of 2.00–2.40). Inoculum density is applicable only to panels that have an ID side.

Default Media Type

Yeast – This field enables the selection of a default media type that appears during Panel Login when a Yeast ID panel sequence number is scanned or typed in. From the drop down box, highlight the desired media and select save to store the configuration setting. A default media type does not have to be specified, but a media type must be selected when logging in Yeast ID panels.

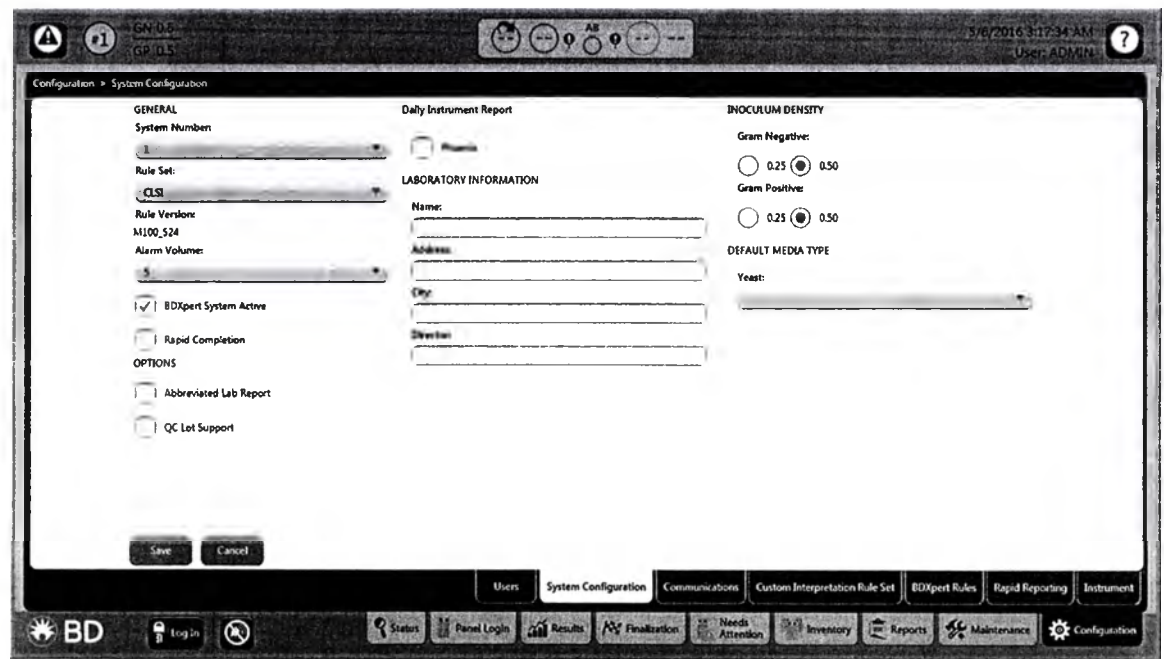


Figure 3-13 – Systems Configuration Screen

3.10.3 Communications Sub-Tab

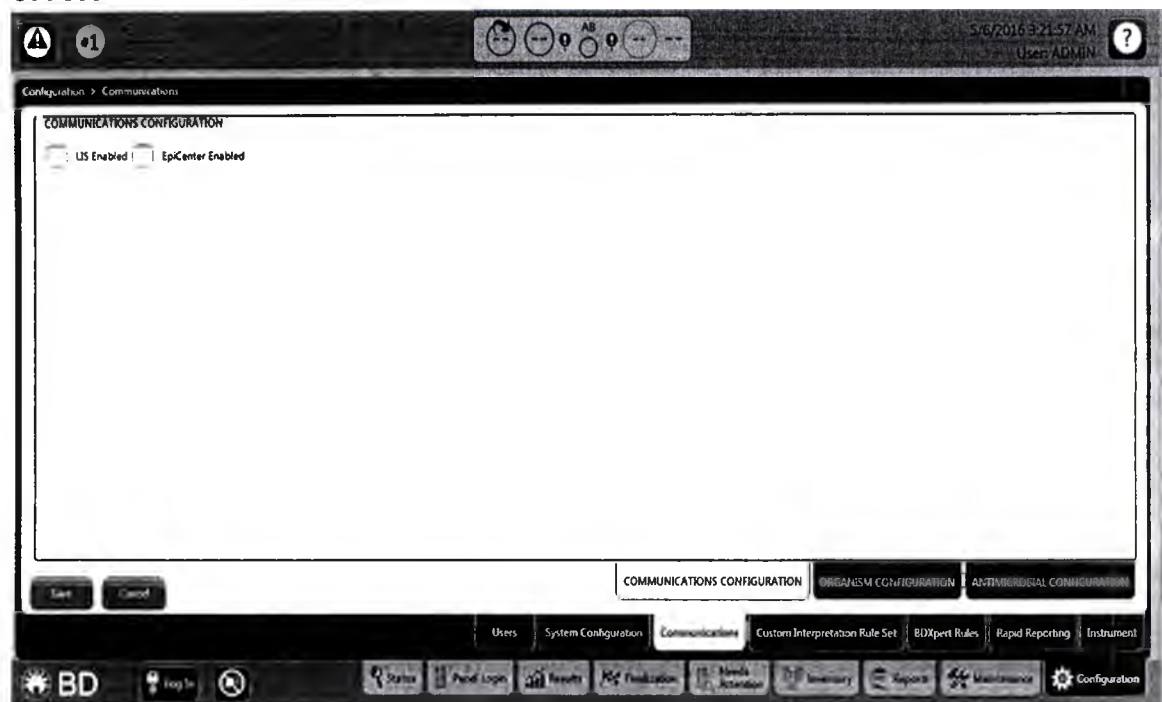


Figure 3-14 – Communications Configuration Screen

The Communications Configuration screen (Figure 3-14 – Communications Configuration Screen) enables/disables and configures communications for the BD Phoenix M50 instrument with a compatible LIS (Laboratory Information System). It also enables BD representatives to enable/disable/adjust communications with the BD EpiCenter advanced data management system. Only LIS or BD EpiCenter communications can be enabled. If there is a BD EpiCenter system connected and communications with a LIS system is required, BD EpiCenter can be configured to communicate with the LIS.

LIS operations are discussed in Section 2.8 LIS Operations. The AIO PC displays the LIS connection status icon the upper left side of status screen.

LIS Enabled

Touch the **LIS Enabled** field to establish a connection. When LIS Enabled is checked, the following fields appear: Network Configuration, Options, and Results Upload Options.

Network Configuration

Baud

Available choices are: 2400, 4800, 9600 (default), 14400, 19200, 38400.

Data Bits

Available choices are: 7, 8 (default).

Parity

Available choices are: None (default), odd, even.

Stop Bits

Available choices are: 1 (default), 2.

Packed Frames

Select whether packed frames can be used for serial communications with the LIS system. Enable this field to allow the BD Phoenix M50 instrument to send multiple records per frame. A disabled field indicates that one record per frame is uploaded to the LIS.

Options

Send Interpretation Results

Enabling this option causes the final SIR values for antimicrobials to be included in the Results record uploaded to the LIS. Its default value is enabled.

Unsolicited Queries

Enabling this option causes the BD Phoenix M50 instrument to request panel information from the LIS if the panel is placed into the instrument lacking an organism ID for AST panels or Combination panels with only the AST portion of the panel enabled.

This field's default value is disabled, which means the BD Phoenix M50 instrument will NOT request missing information from the LIS.

Send When Placed in Instrument

Enabling this option causes the BD Phoenix M50 instrument to send a Results upload to the LIS when the panel is placed into the instrument. This field's default value is enabled.

ASTM Byte Mode Comments

This field only appears when Japanese is selected for the language and causes the ASTM standard to be followed (when enabled) or not followed (when disabled). When the ASTM standard is not followed, escape sequence characters that are usually rejected are instead accepted.

This field's default value is enabled.

Results Upload Options

Only one option from the list below can be selected.

Solicited

Enabling this option causes the BD Phoenix M50 instrument to upload Results records only when the LIS requests the information. Its default value is disabled.

QC panels and orphan panels are uploaded only when solicited by the LIS.

Send on Finalization

Enabling this option causes the BD Phoenix M50 instrument to upload Results records only when the panel is finalized. Its default value is disabled.

Send on Completion

Enabling this option causes the BD Phoenix M50 instrument to upload Results records only when the panel status becomes complete or when a change is made to a complete panel. Its default value is enabled.

Send as Available

Enabling this option causes the BD Phoenix M50 instrument to upload Results records at the following times: when an ID is determined; when an AST result is determined; when there is a change to a panel record that already has at least partial results. Its default value is disabled.

Send at Fixed Time

Enabling this option causes the BD Phoenix M50 instrument to upload Results records for a panel with partial results at a fixed, specified time. The default value is disabled.

NOTE

Send as Available and Send at Fixed Time results should be considered PRELIMINARY until the panel is complete.

Results records are uploaded from the BD Phoenix M50 instrument to the LIS system. These records are covered in detail in Section 2.8.2 Results Upload Records.

3.10.4 Organism Configuration Sub-Tab

The Organism Configuration screen allows the LIS codes for the organisms in the BD Phoenix M50 instrument database to be edited. LIS codes for organisms must be unique.

The Organism Configuration screen enables the selection of the organism (or Test Strain for QC organisms) to be edited.

To edit an organism LIS code:

In the Organism Configuration screen, select the name in the list and type in the new LIS Code in the Modify Organism ID LIS Code area at the bottom of the screen. Select Save LIS Code to save the changes. When all modifications to the LIS codes have been completed, save and exit the Communications Configuration screen.

3.10.5 Antimicrobial Configuration Sub-Tab

The Antimicrobial Configuration screen allows the LIS codes for the antimicrobials in the BD Phoenix M50 instrument database to be edited. LIS codes for antimicrobials must be unique.

This screen also enables the selection of the antimicrobial to be edited. Antimicrobials are presented alphabetically by antimicrobial name.

To edit an antimicrobial LIS code:

In the Antimicrobial Configuration screen, select the antimicrobial and type in the new LIS code in the Modify LIS Code window at the bottom of the list. Select Save LIS Code to save the modifications. When all modifications to the LIS codes are complete, save and exit the Communications Configuration screen.

3.10.6 Custom Interpretation Rule Set Sub-Tab

Custom Interpretation Rule Set Configuration enables interpretation rules to be tailored to the specific needs or requirements of your laboratory. The current rule set (whether default or already customized) is used as the basis for custom rules. The current interpretation rule set from Reports can be printed (see 3.8 Reports Tab). Note that this configuration function is not available if the BD Phoenix M50 instrument is connected to and communicating with a BD EpiCenter system.

Periodically, a software update or BD Phoenix Update Data (PUD) operation may install new breakpoints. When a software or PUD update has been performed, print a Custom Breakpoint Difference Report by selecting the Difference Report button at the bottom of the screen. Breakpoints that have been customized will not be overwritten with updates from the PUD. The Custom Breakpoint Difference Report will provide the appropriate data to determine if customized breakpoints need to be manually updated to reflect the currently installed PUD. Refer to Table 3-1 – MIC/SIR Values and Causes for details on how breakpoints are updated. Refer to Section 3.8.15 Custom Breakpoint Difference Report for additional details on this report.

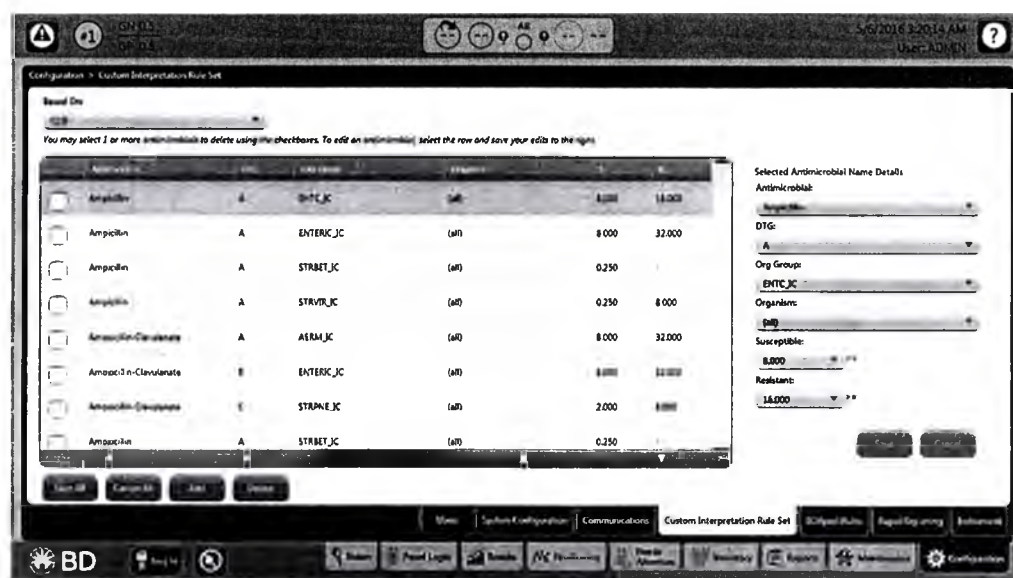


Figure 3-15 – Custom Interpretation Rule Set Screen

Rules (Standards) Updates

The chart below depicts the logic of updates to Rules Sets. The top of the chart shows the effect of rules changes when a customized rule set is present. The bottom of the chart shows the rest of the cases for rules updates.

In the chart, the letters A, B, and C represent the entirety of a rule set (standard). For example, CLSI Rule Version M100_S25 might be indicated by value A. An update, delivered via PUD, might install CLSI Rule Version M100_S26, which might be indicated by the value B. The customization of A might be represented by C. Therefore, by following the chart below, the effect of the update is that value C (the customized rules based on Version M100_S25) would be retained.

	Old Standard	New Standard	Old Custom	Result after PUD (New Custom)
Custom rules are present	A	A	B	B
	A	B	C	C
	–	–	A	A
	–	A	A	A
	–	A	B	A
	A	–	B	B
No custom rules	A	A	A	A
	A	B	A	B
	–	A	–	A
	A	A	–	A
	A	B	–	B
	A	–	A	–

Table 3-3 – Rules Updates

NOTE

An interpretation rule is considered custom if any of the following are modified: Susceptible Breakpoint, Resistant Breakpoint, DTG.

To use the custom rule set for interpretation, go to the **System Configuration** tab and select **custom** from the Rule Set drop down menu.

Custom Interpretation Rule Set – Based On:

The Based On drop down list selects the standard rule upon which the custom rules are to be based. The standard rule sets are: CLSI, EUCAST, and SFM.

NOTE

If a rule set other than the current rule set is selected, the currently defined custom interpretation rules are deleted.

Custom Rule Set Table

The main window on this screen shows the current rules in the rule set. The following values are shown from left to right (items are explained below under To modify a rule):

Check box next to a rule (indicates the rule is marked for deletion)

Antimicrobial

DTG (Drug Test Group - see information below)

Org (anism) Group

Organism

S (usceptible Value)

R (esistant Value)

To add a rule:

- 1 Select **Add**. A new rule is added to the end of the list and selected for modification.
- 2 Modify the rule attributes in the Selected Antimicrobial Name Details window and then save.
- 3 Once all new rules have been added select **Save All** to save the new rules and exit the custom interpretation rule set configuration screen.

To modify a rule:

- 1 Select the row containing the rule to be modified. The row will be highlighted and the rule attributes will be populated in Selected Antimicrobial Name Details. Note - Do not check the field next to the rule. This is used to delete rules.
- 2 Modify the rules attributes and Save when all modifications are complete.

DTGs are derived from the AST Standards and are used to categorize antibiotics into distinct groups. For each drug, the groups are specific to the organism group and the recommended utilization for that drug.

DTGs have no significance in the BD Phoenix system alone. They are used in conjunction with the BDxpert rules and are necessary for interface with the BD EpiCenter system.

Generally, these are divided into seven groups shown below. Only the A, B, C and U codes may be reported on the Lab report(s). B and C groups are only reported when they are promoted to A by the BDxpert system.

- A Always tested and always reported.
- B Usually tested, but not always reported.

- C Sometimes tested and not always reported.
- U Urinary tract specific drug. Tested and reported for source urinary tract.
- O Other drugs that may be tested. Will not be reported unless changed by user.
- I Investigational drugs. Drugs not approved for clinical use are never reported.
- N Not grouped by standard. Will not be reported unless changed by user.

These drug testing codes are used for two purposes in the BD Phoenix M50 instrument. First, drug testing codes can be altered to more closely match the antibiotic formulary and drug utilization guidelines within an institution. The initial codes will be determined by the AST interpretive standard that have been selected. Allowable changes are shown below.

Starting Code	Allowable (Recommended) Changes
A	B, C, U, O
B	A, C, U, O
C	A, B, U, O
U	A, B, C, O
O	A, B, C, U
I	None
N	A, B, C, U

The second application of the drug testing codes is for the promotion or suppression of drug results for the chartable report. This application is driven by the rules in the BDxpert system. If the rules alter the drug testing codes, these will be reflected on the Lab Report generated by the BD Phoenix M50 instrument. The promotion and suppression actions are shown below. At the BD EpiCenter level, the drug testing codes will be used to determine which drug results actually appear on the chartable report.

Starting Code	Promotion	Suppression
A	Not applicable	C
B	A	C
C	A	Not applicable
U	Not applicable	C
O	Not allowed	Not allowed
I	Not allowed	Not allowed

When the desired rules have been modified, select **Save All** to save modifications to the rule set and exit Custom Interpretation Rule Set Configuration.

To delete a rule:

- 1 Check the field next to the rule to be deleted.
- 2 Select **Delete**.
- 3 Select **OK** in the Are you sure message box.
- 4 **Save All** to save the modifications and exit the Custom interpretation rule set screen.

3.10.7 BDxpert Rules Sub-Tab

BDxpert Rule Configuration allows individual BDxpert rules to be enabled or disabled, or triggered automatically or manually according to the specific needs or requirements of each laboratory. The existing BDxpert rule set can be printed by selecting BDxpert Rule Set Database Report from Section 3.8 Reports Tab. Note that this configuration function is not available if the BD Phoenix M50 Instrument is connected to, and communicating with an BD EpiCenter system. See Figure 3-16 – BDxpert Rule Configuration Screen.

BDxpert Rule Set fields:

Rule Set

The rule set currently being displayed is shown in this field. Values are CLSI, SFM, EUCAST, or Custom. Only rules in the selected set appear in the Rule Set field.

Based On

If the rule set is Custom, the rule set on which custom values are based is shown in this field.

Rule Description

The Rule Description field shows the text of the rule selected.



Figure 3-16 – BDxpert Rule Configuration Screen

Rule Set

This screen presents a summary of the status of each of the BDXPert rules and enables rules to be selected for modification.

To enable or disable a rule, Select **Enable/Disable** to toggle the status. When disabled, a rule is not available for use in the system.

To set the rule to automatic or manual trigger, select **Automatic/Manual** to toggle the status. When set to Automatic, a rule will be triggered automatically by the system. When set to manual, the rule must be accepted by the user before it is applied to results.

While 1500-series rules can be selected for viewing, they are fixed as enabled and automatic. These settings cannot be changed. When all parameters have been modified, select **Save**.

3.10.8 Rapid Reporting Sub-Tab

Rapid Reporting Configuration specifies the criteria for notification of critical panels and resistance markers. Notifications for critical panels can originate from an automatic Lab Report printing, an audible alarm, and/or by an upload to the LIS when certain types of results are obtained in non-QC panels. The types of results, which are selected, are ID only, partial results, and complete results. For Resistance Markers, designate the type of notification desired when resistance markers (that are enabled) are triggered. For both, disabling both printing and audible alarms can be chosen. In this case, the only notification is that the panel is shown in red text on the Panel Inventory screen.

Rapid reporting alarms exist in two states: unacknowledged and acknowledged. Unacknowledged alarm panels continue to display a red ! (exclamation mark) on the Inventory screen. Acknowledgment is achieved when an automatic Lab Report for the panel prints or when the panel is viewed in Results. Audible alarms continue to sound for unacknowledged alarms until the **SILENCE ALARM** button is pressed.

Critical Panel Notification

The Critical Panel Notification field allows parameters to be set for notification on critical panels. Critical panels are any panels where special notification occurs when results become available. Notification can be audible and/or by immediate printing of a Lab Report (or neither). Panels can be marked as critical when they are logged in via Panel Login, or subsequently on the Results screen.

Auto Print

When enabled, the system prints a Lab Report whenever the selected results parameters occur (ID Only, Partial, or Complete – see below). This field is disabled by default (auto print off). Both Auto Print and Audible Alarm may be enabled simultaneously.

Upload to LIS

This only appears if LIS Communications is enabled. The default value is disabled. When enabled, the system uploads results records whenever the selected results parameters occur (ID Only, Partial, or Complete – see below). This field overrides the results upload values set in Communications Configuration.

Audible Alarm

When enabled, the system sounds an audible alarm whenever the selected results parameters occur (ID Only, Partial, or Complete – see below). This field is enabled by default (audible alarm on). Both Auto Print AND Audible Alarm may be enabled simultaneously.

Tone Select

This field allows the selection of the tones sounded by the critical panel audible alarm. It appears only if Audible Alarm is checked (enabled). This field is set to Tone 1 by default. The system sounds a sample tone each time the field is selected or its contents are changed.

NOTE

Enable one of the following three fields in order to receive any critical panel notifications.

ID Only

When enabled, critical panel notification is performed only when an organism ID is detected on a panel. This field is set to disabled by default (alarm/report on partial results). If this field is enabled, Partial Results and Complete cannot be enabled.

Partial Results

When enabled, critical panel notification is performed when partial panel results are obtained. This field is set to enabled by default (alarm/report on partial results). If this field is enabled, ID Only and Complete cannot be enabled.

Complete

When enabled, critical panel notification is performed only when complete panel results are obtained. This field is set to disabled by default (alarm/report on partial results). If this field is enabled, ID Only and Partial Results cannot be enabled.

Resistance Marker Notification

This field does not appear if the BD EpiCenter system is connected.

Auto Print

When enabled, the system prints a Lab Report whenever a resistance marker is triggered. This field is set to disabled by default.

Upload to LIS

This appears only if LIS Communications is enabled. The default value is disabled. When enabled, the system uploads results records whenever the selected results parameters occur (ID Only, Partial, or Complete – see above).

This field overrides the results upload values set in Communications Configuration (Section 3.10.3 Communications Sub-Tab).

NOTE

Enable one of the following two fields in order to receive any resistance marker notifications.

All Panels

When enabled, resistance marker alarms are generated for all panels in which markers occur. This field is disabled by default. If this field is enabled, Critical Panels Only cannot be enabled.

Critical Panels Only

When enabled, resistance marker alarms are generated only for critical panels in which markers occur. This field is enabled by default. If this field is enabled, All panels cannot be enabled.

Resistance Marker

This field enables or disables the notification of individual resistance markers. The field shows the abbreviation and text of the Marker, as well as whether it is currently enabled or disabled. By default, all resistance markers are enabled. Resistance marker alarm notification occurs only for enabled markers.

3.10.9 Panel Lot Definition Sub-Tab

Panel Lot Definition enables the definition of panel lots to facilitate QC testing and tracking. Panel lot definition saves the lot number, beginning and ending panel sequence numbers, definition date, and first and last used dates for a lot. Current and historical QC results can be viewed and printed. Note that this configuration function is not available if the BD Phoenix M50 instrument is connected to and communicating with an BD EpiCenter system.

This tab's activities are:

- Define new panel lots
- Recall existing panel lots
- Review current and historical QC results for panel lots
- Print Panel Lot (current, historical) reports

When a panel lot definition is saved, any Test Strain recommendations that exist are displayed in the Current QC Results window. There is a toggle feature between Current and Historical QC Results windows. Current results show a summary of the most recent test for each strain for all instruments, up to 20 entries. Historical results show all tests for a strain for the current instrument only, up to 200 entries. In order to display results from other instruments, Panel Lots must be saved at those instruments and restored to the current instrument (see Restore Panel Lot Definitions Task in Section 3.9.4 Maintenance Panel Functions).

Field contents of these windows are explained below.

Panel Lot Number

This field shows the lot number for the panel. To enter a new panel lot number, scan the lot number barcode (next to the L symbol) on the box. The panel lot number is encoded in the barcode. The lot number cannot be typed in this field when defining new panel lots.

To recall a panel lot definition, select a panel lot from the drop down list, or type the first few numbers of the panel lot number to jump to that portion of the list, or scan the panel lot barcode.

Expiration Date

This field shows the lot's expiration date. This information is encoded in the panel lot barcode and is filled in automatically when the panel lot barcode is scanned. The expiration date cannot be typed in when defining new panel lots. This date can only be changed by scanning a new panel lot barcode provided by the BD Quality department (only if an administrator is logged in).

Start Sequence Number

This field shows the starting barcode sequence number for the panel lot. To enter a new Start Sequence number, scan the lowest sequence number in the lot (next to the symbol on the box). This field can only be completed by scanning the panel sequence barcode; the sequence number cannot be typed in this field.

End Sequence Number

This field shows the ending barcode sequence number for the panel lot. To enter a new End Sequence number, scan the highest sequence number in the lot (next to the symbol on the box). This field can only be completed by scanning the panel sequence barcode; the sequence number cannot be typed in this field.

Definition Date

This field shows the date on which the panel lot was defined. It is completed automatically when the panel lot definition is saved. This is a read-only field that cannot be changed by the user.

First Used Date

This field shows the first date on which a panel from this lot was used. It is completed automatically when the panel is placed in the instrument. This is a read-only field that cannot be changed by the user.

Last Used Date

This field shows the last date on which a panel from this lot was used. It is completed automatically when the panel is placed in the instrument. This is a read-only field that cannot be changed by the user.

Where Defined

This field appears only if the panel lot was defined at a different number instrument than the current one. It shows the instrument number where the panel lot was defined. Panel lot definitions can be saved at one instrument and restored to another instrument through the Save/Restore Panel Lot Definitions functions found on the Maintenance Tab (see Section 3.9 Maintenance Tab).

Current QC Results

This window appears only after a panel lot is saved. When a panel lot definition is saved, any QC Test Strain recommendations that exist are displayed in the Current QC Results window. Only the most recent QC test is shown for each test strain, up to a maximum of 20 tests. Results for other instruments can be shown in this window by saving those results at that instrument and restoring them at the current one (see Save Panel Configuration Task and Restore Panel Lot Definitions Task in Section 3.9 Maintenance Tab).

The following read-only fields are shown in the Current Results window: Test Strain (sort order by name); Test Date; Sequence Number; (Test) Type (ID, AST, or ID/AST); QC Status (None for uncompleted test; Pass, Fail, Review, or Error for completed tests).

A Current QC Panel Lot Report is available by exiting the Panel Lot Definition tab and selecting the Reports tab. In addition to the fields listed above, the report includes standard report header information (Report Title, Laboratory Information (if configured), Date and Time Printed, and Instrument number where the report was printed); Panel Lot number; Panel Type; Expiration Date; Instrument number for each strain tested (blank if instrument is the same); and Tech ID.

Historical QC Results

This appears only after a panel lot is saved. Historical results show all tests for a strain for the current instrument only, up to 200 entries. When the desired panel is highlighted, move to the QC Panel Results screen, or print a Historical QC Panel Lot Report.

The following read-only fields are shown in the Historical Results window: Test Strain (drop down selection box); Test Date (sort order); Sequence #; (Test) Type (ID, AST, or ID/AST); QC Status (None, Pass, Fail, Review, Error); Tech ID.

A Historical QC Panel Lot Report is available by exiting the Panel Lot Definition tab and selecting the Reports tab. In addition to the fields listed above, the report includes standard report header information (Report Title, Laboratory Information (if configured), Date and Time Printed, and Instrument number where the report was printed); Panel Lot number; Panel Type; and Expiration Date.

3.10.10 Instrument Sub-Tab

BD field service only.

4 – Routine Panel Operation

4.1 General

This section describes routine panel operations: preparation, quality control and automatic association.

4.2 Storage and Handling

BD Phoenix Panels

Panels are individually pouched and packaged in a box of 25. Panels must be stored unopened at room temperature (15–25 °C). Do not refrigerate or freeze. Visually inspect the packaging for holes or cracks in the foil package. Do not use if the packaging appears to be damaged. Do not use the panel if there is no desiccant or if the desiccant pouch is torn. If stored as recommended, the panels will retain expected reactivity until the date of expiration.

BD Phoenix ID Broth

Tubes are packaged as 100 tube packs. Visually inspect the tubes for cracks, leaks, etc. Do not use if there appears to be a leak, tube or cap damage or visual evidence of contamination (i.e., haziness, turbidity). Store BD Phoenix ID Broth tubes at 2–25 °C. Expiration dating is shown on the tube label.

BD Phoenix AST Broth and BD Phoenix AST-S Broth

Tubes are packaged as 100 tube packs. Visually inspect the tubes for cracks, leaks, etc. Do not use if there appears to be a leak, tube or cap damage or visual evidence of contamination (i.e., haziness, turbidity). Store BD Phoenix AST Broth tubes at 2–25 °C. Expiration dating is shown on the tube label.

BD Phoenix AST Indicator Solution and BD Phoenix AST-S Indicator Solution

The indicator solution is individually pouched and packaged as a package of 10 dropper bottles. Visually inspect the bottle for cracks and/or leaks. Do not use if there appears to be a leak, bottle or cap damage, or any change from a dark blue color. Store the BD Phoenix AST Indicator Solution at 2–8 °C. Each bottle contains enough solution to test up to 100 panels. Expiration dating is shown on the box, pouch, and bottle label and is for unopened bottles. An opened bottle will be stable for up to 14 days if stored at 2–8 °C. Be sure the bottle is held vertically when dispensing the AST Indicator Solution.

4.3 Preparing Panels

The BD Phoenix system is not for use directly with clinical specimens. Only pure culture isolates of aerobic and/or facultatively anaerobic gram-negative, gram-positive, and yeast organisms are acceptable for testing. The test isolate must be a pure culture. It is recommended that cultures be 18 to 24 hours old for gram-negative and gram-positive organisms and 18 to 48 hours old for yeast organisms. For AST testing in the BD Phoenix system, isolates recovered from non-selective media are recommended. It is recommended that media containing antibiotics not be used for organisms to be tested in the BD Phoenix system except those specifically claimed in the table below. Selective

media may inhibit some strains of bacteria and yeast, therefore caution must be used when selecting isolated colonies from these media. Use isolates from a blood agar plate such as BD Trypticase Soy Agar with 5% Sheep Blood. The Media selected during login of Yeast ID panels refers to the media on which the organism was grown.

Other recommended media are included in the table below:

Recommended Media	Approved Use			
	ID	AST	Strep	Yeast ID
BD BBL™ CHROMagar™ Orientation	Yes	Yes ¹	X	X
Bromthymol Blue (BTB) Lactose Agar	Yes ⁴	Yes	X	X
Chocolate Agar	Yes	Yes	Yes ²	Yes
Columbia Agar with 5% Horse Blood	Yes	Yes	Yes ³	X
Columbia Agar with 5% Sheep Blood	Yes	Yes	Yes	Yes
Columbia CNA Agar with 5% Sheep Blood (Gram Positives)	Yes	X	Yes	X
Cystine-Lactose-Electrolyte-Deficient (CLED) Agar	Yes ⁵	Yes	X	X
Dey/Engley (D/E) Neutralizing Agar (Gram Negatives)	Yes	X	X	X
Eosin Methylene Blue (Gram Negatives)	Yes	Yes	X	X
Hektoen Enteric Agar (Gram Negatives)	Yes	X	X	X
MacConkey Agar (Gram Negatives)	Yes	Yes	X	X
Phenylethyl Alcohol Agar (Gram Positives)	Yes	X	Yes	X
Sabouraud Brain Heart Infusion Agar - SAB HI (Yeast)	X	X	X	Yes
Sabouraud Dextrose Agar (Yeast)	X	X	X	Yes
Sabouraud Dextrose Agar-Emmons (Yeast)	X	X	X	Yes
BD Trypticase Soy Agar with 5% Sheep Blood	Yes	Yes	Yes	Yes
BD Trypticase Soy Agar with Lecithin and Tween 80	Yes	X	X	X
BD Trypticase Soy Agar without Blood	Yes	X	X	X
Xylose Lysine Desoxycholate Agar (Gram Negatives)	Yes	X	X	X

¹ The use of CHROMagar Orientation may produce false susceptibility results when testing erythromycin with Gram positive organisms. Antimicrobial susceptibility test results should be confirmed using BD Trypticase Soy Agar with 5% Sheep Blood.

² This media type should not be used for Streptococcal identification with SMIC/ID panels. Chocolate Agar may be used for Streptococcal susceptibility testing only.

³ The use of Columbia Agar with 5% Horse Blood may produce significantly higher MIC for SXT with *Streptococcus* species, which may result in false resistance. Antimicrobial susceptibility test results should be confirmed using BD Trypticase Soy Agar with 5% Sheep Blood.

⁴ The use of Bromthymol Blue Lactose Agar with Gram Positive organisms should be restricted to *Staphylococci* for both the 0.5 and 0.25 GP systems.

⁵ The use of Cystine-Lactose-Electrolyte-Deficient Agar with Gram Positive organisms should be restricted to *Staphylococci* for the 0.25 GP system.

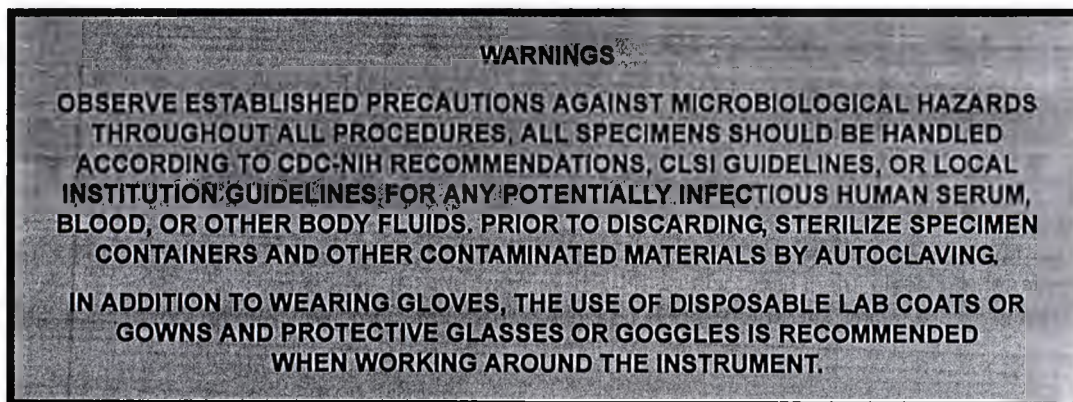
Table 4-1 – Recommended Media

It is recommended that the applicator swabs are sterile cotton swabs. Polyester swabs are not recommended. The quality of applicator swabs may vary from vendor and on occasion, loose fibers may dislodge from the swab affecting McFarland readings.

The usefulness of the BD Phoenix system or any other diagnostic procedure performed on clinical specimens is directly influenced by the quality of the specimens themselves. It is strongly recommended that laboratories employ methods discussed in the Manual of Clinical Microbiology¹⁷ for specimen collection, transport, and placement on primary isolation media.

Due to variations in inoculum concentrations prepared with McFarland standards, use of the BD BBL CrystalSpec Nephelometer, the BD PhoenixSpec Nephelometer, or the BD Phoenix AP instrument is required for adjusting the test inoculum prior to use in the BD Phoenix system.

Instructions for an optional purity check are provided at the end of this subsection.



Materials Required:

- BD Phoenix Panels
- BD Phoenix ID Broth or BD Phoenix Inoculum Broth
- BD Phoenix AST and/or BD Phoenix AST-S Broth
- BD Phoenix AST Indicator Solution and/or BD PhoenixAST-S Indicator Solution
- BD Phoenix Panel closures
- BD Phoenix Inoculation Station
- BD Phoenix Transport Caddy
- BD BBL CrystalSpec Nephelometer, the BD PhoenixSpec Nephelometer, or the BD Phoenix AP instrument
- 25 µL pipettor and tips

Materials Required but Not Provided:

- Gram Stain Reagents
- Sterile Cotton Swabs, Inoculation Loops or Needles
- Nonselective Culture Plated Media (see Section 4.3 Preparing Panels)
- Incubators
- Biohazard Disposable Container
- Markers, etc.
- Vortex mixer

NOTES

Exercise care in handling BD Phoenix panels. Handle panels by the sides only to avoid marking, smudging, or obscuring the bottom or top of the panel in any way.

Accession bar code labels affixed to a BD Phoenix panel:

Must not be of fluorescent material.

Should not cover any BD Phoenix panel reaction wells.

Should not cover the BD Phoenix sequence number (panel) barcode.

The procedure that follows describes all the steps in preparing a combination panel for both identification and susceptibility testing. If a combination panel is being used for only ID or only AST testing, note that certain steps are not applicable in the procedure.

General Panel Preparation

If the BD Phoenix AP instrument is being used, refer to the BD Phoenix AP Instrument User's Manual for panel preparation.

BD Phoenix Strep panels, BD Phoenix Yeast ID panels, BD Phoenix Emerge panels, BD Phoenix Inoculum Broth, and BD Phoenix MIC panels have separate instructions that appear after Step 19 of these instructions.

- 1 Confirm the Gram stain reaction of the isolate before proceeding with the inoculum preparation for use in the BD Phoenix M50 instrument. Once the Gram stain reaction is confirmed, select the appropriate BD Phoenix panel for inoculation.
- 2 Examine the pouch, and do not use the panel if the pouch is punctured or opened. Remove the panel from the pouch. Discard the desiccant. Do not use the panel if there is no desiccant or if the desiccant pouch is torn.

NOTE

Panels must be inoculated within 2 hours of being removed from the pouch.

- 3 Place the panel on the Inoculation Station; inoculation ports on top, and the pad on the bottom.

-
- 4 Label a BD Phoenix ID broth tube with the patient's specimen number. Using aseptic technique, pick colonies of the same morphology with the tip of a sterile cotton swab (do not use a polyester swab) or a wooden applicator stick from one of the recommended media.
 - 5 Suspend the colonies in the BD Phoenix ID broth (4.5 mL).
 - 6 Cap the tube and vortex for five seconds.
 - 7 Allow approximately ten seconds for air bubbles to surface. Tap the tube gently to aid in eliminating bubbles.
 - 8 Insert the tube into the BD BBL CrystalSpec or BD PhoenixSpec Nephelometer. Make sure the tube is inserted as far as it will go. (Refer to the BD BBL CrystalSpec or BD PhoenixSpec Nephelometer product insert for correct usage instructions.)
 - 9 If the inoculum density is set to 0.5 McFarland for the panel type being run, then a range of 0.50–0.60 is acceptable. If the inoculum density is set to 0.25 McFarland for the panel type being run, then a range of 0.20–0.30 is acceptable. If the density of organisms is low, colonies can be added from the isolate. Re-vortex the sample and reread to confirm that the correct McFarland has been achieved. If the density of organisms exceeds 0.6 McFarland, follow the steps below to dilute the broth. It is very important to accurately indicate the level of the liquid in the tube since this volume is needed to adequately fill the wells in the panel.
 - a Using a marker, mark the broth level in the over-inoculated BD Phoenix ID Broth tube.
 - b Using a sterile pipette, aseptically add fresh BD Phoenix ID Broth to the inoculum. Only BD Phoenix ID Broth may be used to dilute the inoculum.
 - c Vortex the tube and allow to sit for 10 seconds.
 - d Place the tube in the nephelometer and remeasure the turbidity of the suspension.
 - If the reading is greater than 0.6, repeat **Steps b-d**.
 - If the reading is 0.5 - 0.6, go to **Step e**.
 - e Using a sterile pipette, aseptically remove excess broth to the original level indicated by the mark on the tube created in Step a.

Remove excess broth to avoid overfilling the panel. Also, do not remove too much broth, as there may be insufficient broth to adequately fill the panel.
 - f Broth may now be used to inoculate the BD Phoenix AST Broth and/or the BD Phoenix Panel.

NOTES

- Yeast ID panels must be inoculated using a 2.00–2.40 McFarland inoculum density.
- Confirm current instrument settings for inoculum density before inoculating panels.
- See instructions below, ID Inoculum Density Flexibility, for information on using alternate densities.
- Only the BD PhoenixSpec Nephelometer and BD Phoenix AP instrument can be used to make inoculum densities of 0.25 McFarland
- Standardized bacterial suspension in ID Broth or Inoculum Broth must be used within 60 minutes of preparation.

- 10 If identification only is being performed, proceed to Step 15 and continue the procedure. If a BD Phoenix Emerge Panel is being inoculated, refer to the section below, BD Phoenix Emerge Panels.
- 11 Label a BD Phoenix AST broth tube (8.0 mL) with the patient's specimen number. Add one free falling drop of AST Indicator solution to the AST broth tube. Invert to mix. DO NOT VORTEX.

NOTES

- Allow AST Indicator Solution to warm to room temperature before dispensing into AST broth.
- The unused portion of the indicator should be returned to 2–8 °C as soon as possible. Do not store at room temperature for more than 2 hours. Opened bottles should be discarded after 14 days from initial opening.
- If volume other than one drop is added inadvertently, discard the tube and use a fresh tube of AST broth.
- After the addition of the Indicator to AST broth, the mixed solution can be stored in the dark, at room temperature, for as long as 8 hours.
- Tubes must be used within 2 hours after the addition of AST Indicator Solution if exposed to light.

- 12 If an inoculum density of 0.50–0.60 was used, transfer 25 µL of the bacterial suspension from the ID tube into the AST broth tube. If an inoculum density of 0.20–0.30 was used, transfer 50 µL (use 2 shots if utilizing a 25 µL pipettor) of the bacterial suspension from the ID tube into the AST broth tube.

NOTE

Panels must be inoculated within 30 minutes of the time that the AST broth inoculum is prepared.

- 13 Cap the AST tube and invert several times to mix.
- 14 Wait a few seconds for air bubbles to surface. Tap the tube gently to aid in eliminating bubbles.
- 15 Pour the ID tube inoculum into the fill port on ID side of the panel (51-well side). Allow the fluid to traverse down the tracks before moving the panel. If an AST (only) panel is being used, DO NOT inoculate the ID side of the panel. Retain the ID tube for an optional purity check (see below).
- 16 Pour the AST broth inoculum into the fill port on AST side of the panel (85-well side). Allow the fluid to traverse down the tracks before moving the panel.

-
- 17 Before placing panel closures check for residual droplets of inoculum on the edge of the fill ports. If a droplet is present remove the droplet with absorbent material. The used absorbent material must be decontaminated before discarding.
 - 18 Snap on the panel closures. Make sure that the closures are fully seated. Use 2 closures regardless of panel type.
 - 19 Visually inspect panels to be sure each of the wells is full. Look at both sides of the panel. Make certain that the wells are not overfilled. If any of the wells are unfilled or overfilled, inoculate a new panel.

NOTES

See note above

- Panels must be loaded into the instrument within 30 minutes of inoculation.
- Panels must be kept in the inoculation station after inoculation until the excess fluid has been completely absorbed by the pad.
- Panels should stay vertical in the caddy until loaded.
- Inoculated panels should be handled with care. Avoid knocking or jarring the panel.

NOTE

OPTIONAL PURITY CHECK

It is highly recommended that the purity of both ID and AST inocula be checked by preparing a purity plate.

To perform a purity check, using a sterile loop, recover a small drop from the inoculum fluid tube either before or after inoculating the panel and inoculate an agar plate (any appropriate medium) for purity check. Discard inoculum fluid tube and cap in a biohazard disposal container. Incubate the plate for 24–48 h at 35 °C under appropriate conditions.

BD Phoenix Strep Panels

BD Phoenix Strep panels are for the identification and antimicrobial susceptibility testing of most *Streptococcus* species. Although *Streptococcus* species may be identified in the gram positive panels, antimicrobial susceptibility cannot be reported when using these panels. The BD Phoenix Strep panels, which must be used with BD Phoenix AST-S Broth and BD Phoenix AST-S Indicator Solution, provide the conditions required for rapid AST testing of most *Streptococcus* species.

- 1 Follow **Steps 1–9** (General Panel Preparation) to prepare the suspension of bacteria.
- 2 Add one drop of the BD Phoenix AST-S Indicator to each AST-S broth tube. Invert to mix. **DO NOT VORTEX.**

NOTES (See note above)

- **AST-S Broth and AST-S Indicator Solution are for use with the BD Phoenix Strep panels (SMIC/ID, SMIC) only. These reagents are not interchangeable with the AST Broth and AST Indicator Solution used with BD Phoenix Gram Positive and Gram Negative panels.**
- **Allow AST-S Indicator Solution to warm to room temperature before dispensing into AST-S broth.**
- **The unused portion of the indicator should be returned to 2–8 °C as soon as possible. Do not store at room temperature for more than two hours. Opened bottles should be discarded after 14 days from initial opening.**
- **If volume other than one drop is added inadvertently, discard the tube and use a fresh tube of AST-S broth.**
- **After the addition of the Indicator to AST-S broth, the mixed solution can be stored in the dark, at room temperature, for as long as 8 hours.**
- **Tubes must be used within two hours after the addition of AST-S Indicator Solution if exposed to light.**

- 3 Using a pipettor, transfer 25 µL of the standardized bacterial suspension from the ID tube into the AST-S broth tube.

NOTE

Panels must be inoculated within 30 minutes of the time that the AST-S broth inoculum is prepared.

- 4 Cap the AST-S tube and invert several times to mix.
- 5 Wait a few seconds for air bubbles to surface. Tap the tube gently to aid in eliminating bubbles.

-
- 6 Pour the ID tube inoculum into the fill port on ID side of the panel (51-well side). Allow the fluid to traverse down the tracks before moving the panel. If a BD Phoenix Strep MIC only panel is being used, DO NOT inoculate the ID side of the panel. Retain the ID tube for an optional purity check (see below).
 - 7 Pour the AST-S broth inoculum into the fill port on AST side of the panel (85-well side). Allow the fluid to traverse down the tracks before moving the panel.
 - 8 Before placing panel closures, check for residual droplets of inoculum on the edge of the fill ports. If a droplet is present, remove the droplet with absorbant material. The used absorbant material must be discarded with biohazard waste.
 - 9 Snap on the panel closures. Make sure that the closures are fully seated.
 - 10 Visually inspect panels to be sure each of the wells is full. Look at both sides of the panel. Make certain that the wells are not overfilled. If any of the wells are unfilled or overfilled, inoculate a new panel.

NOTES

- Panels must be loaded into the instrument within 30 minutes of inoculation
- Panels must be kept in the inoculation station after inoculation until the excess fluid has been completely absorbed by the pad.
- Panels should stay vertical in the caddy until loaded.
- Inoculated panels should be handled with care. Avoid knocking or jarring the panel.

NOTE

OPTIONAL PURITY CHECK

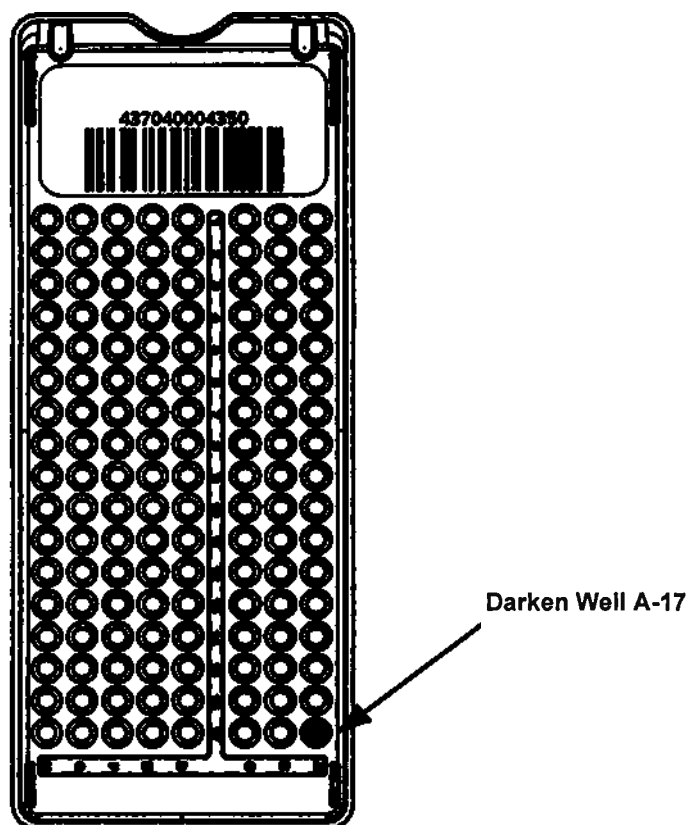
It is highly recommended that the purity of both ID and AST-S inocula be checked by preparing a purity plate.

To perform a purity check, using a sterile loop, recover a small drop from the inoculum fluid tube either before or after inoculating the panel and inoculate an agar plate (any appropriate medium) for purity check. Discard inoculum fluid tube and cap in a biohazard disposal container. Incubate the plate for 24–48 h at 35 °C under appropriate conditions.

ID Inoculum Density Flexibility

An ID portion of a panel may be run in the opposite mode from what is configured by darkening well A-17 on the back of a panel before placing the panel in the instrument. This allows a panel to be run at an inoculum density of 0.20–0.30 even if a density of 0.5 is configured for that particular panel type. Likewise, a panel can be run at an inoculum density of 0.50–0.60 if a density of 0.25 is configured.

There is no way to alter the density setting during Panel Login. To use a panel in the opposite density mode, using a black permanent marker blacken the entire A-17 well as shown in the figure below.



Inoculum densities sent from the BD Phoenix AP instrument (via the BD EpiCenter system) cannot be changed by darkening well A-17. Inoculum densities sent from the BD Phoenix AP instrument are invalid if they are received after the completion of the first test cycle, or if the ID portion of the panel is disabled, or if the panel type does not support the inoculum density. If the instrument receives an invalid inoculum density for an ID panel that differs from the panel's determined inoculum density, the ID side of the panel fails, a Needs Attention code is triggered (Can Not Determine Organism ID), and a Special Message is triggered.

The following table outlines how to run the opposite mode from the density for which the instrument is configured.

Current Instrument Inoculum Density Configuration	Required Concentration (McFarland for Test Panel)	Amount of ID Inoculum to Add to AST Broth**	W-1A-17
0.50	0.25	50 µL	Blackened
0.25	0.50	25 µL	Blackened
** If also running AST			

BD Phoenix Yeast ID Panels

BD Phoenix Yeast ID panels are for the identification of most clinically relevant yeast and yeast-like species.

- 1 Follow **Steps 1–8** (General Panel Preparation) to prepare the suspension of yeast.
- 2 The inoculum density is set to 2.0 McFarland for Yeast ID panels, with a range of 2.00–2.40 as acceptable. If the density of organism is low or the density of organisms exceeds 2.40 McFarland, follow the steps discussed in Step 9 (General Panel Preparation) to obtain the correct McFarland density.
- 3 Pour the ID tube inoculum into the fill port on the ID side of the panel (51-well side). Allow the fluid to traverse down the tracks before moving the panel.
- 4 Before placing panel closures, check for residual droplets of inoculum on the edge of the fill ports. If a droplet is present remove the droplet with absorbant material. The used absorbant material must be discarded with biohazard waste.
- 5 Snap on the panel closures. Make sure that the closures are fully seated. Use 2 closures regardless of panel type.
- 6 Visually inspect panels to be sure each of the wells is full. If any of the wells are unfilled or overfilled, inoculate a new panel.

NOTES

See note above

- **Yeast ID panels must be inoculated using a 2.00–2.40 McFarland inoculum density.**
- **Standardized bacterial suspension in ID Broth or Inoculum Broth must be used within 60 minutes of preparation.**

NOTES

See note above

- Panels must be loaded into the instrument within 30 minutes of inoculation.
- Panels must be kept in the inoculation station after inoculation until the excess fluid has been completely absorbed by the pad.
- Panels should stay vertical in the caddy until loaded.
- Inoculated panels should be handled with care. Avoid knocking or jarring the panel.

NOTE

OPTIONAL PURITY CHECK

It is highly recommended that the purity of ID inoculum be checked by preparing a purity plate.

To perform a purity check, using a sterile loop, recover a small drop from the inoculum fluid tube either before or after inoculating the panel and inoculate an agar plate (any appropriate medium) for purity check. Discard inoculum fluid tube and cap in a biohazard disposal container. Incubate the plate for 24–48 h at 35 °C under appropriate conditions.

BD Phoenix Emerge Panels

BD Phoenix Emerge panels are designed to perform susceptibility testing on an expanded number of antimicrobial agents. To accomplish these susceptibilities, antimicrobial agents are present on both sides of the BD Phoenix panel. These panels do not have the ability to perform bacterial identification. Because of the design, the inoculation technique is unique and is outlined below. Two tubes of AST broth will be required.

- 1 Follow **Steps 1–9** (General Panel Preparation) to prepare the suspension of bacteria.
- 2 Add one drop of the BD Phoenix AST Indicator to each AST broth tube.
- 3 Transfer 25 μ L (50 μ L if low inoculum option is used) of the suspension to two BD Phoenix AST broth tubes. Cap and gently invert.
- 4 Using sterile technique, remove 3.5 mL of broth from one of the inoculated BD Phoenix AST broth tubes and discard in an appropriate container.
- 5 Pour the remaining 4.5 mL into the left side of the BD Phoenix Emerge panel. Pour the other BD Phoenix AST broth tube into the right side of the BD Phoenix Emerge panel.
- 6 Cap the panel and follow the normal panel login procedure.

BD Phoenix Inoculum Broth

BD Phoenix Inoculum Broth can be used to make the initial McFarland suspension of microorganisms when utilizing BD Phoenix MIC only panels (PMIC, NMIC, SMIC). The BD Phoenix Inoculum Broth is filled with 2.2 mL of BD Phoenix ID Broth and will reach the correct inoculum density by using fewer bacterial colonies.

- 1 Follow **Steps 1–9** (General Panel Preparation) to prepare the suspension of bacteria using the BD Phoenix Inoculum Broth rather than the BD Phoenix ID Broth.
- 2 For NMIC and PMIC panels, add one drop of the BD Phoenix AST Indicator to the BD Phoenix AST broth tube.
- 3 For SMIC panels, add one drop of the BD Phoenix AST-S Indicator to the BD Phoenix AST-S broth tube.
- 4 Transfer 25 μ L (50 μ L if low inoculum option is used) of the BD Phoenix Inoculum Broth suspension to the BD Phoenix AST or AST-S tube(s).
- 5 Follow **Steps 16–19** (General Panel Preparation). Follow the normal panel login procedure.

BD Phoenix MIC (NMIC, PMIC, SMIC) Panels

Inoculum can be prepared using either BD Phoenix ID Broth or BD Phoenix Inoculum (step 4, General Panel Preparation)

- 1 Follow **Steps 1–9** (General Panel Preparation) to prepare the suspension of bacteria.
- 2 For NMIC and PMIC panels, add one drop of the BD Phoenix AST Indicator to the BD Phoenix AST broth tube.

For SMIC panels, add one drop of the BD Phoenix AST-S Indicator to the BD Phoenix AST-S broth tube.
- 3 Transfer 25 μ L (50 μ L if low inoculum option is used with NMIC or PMIC panels) of the BD Phoenix ID Broth to the BD Phoenix AST or AST-S tube. Cap and gently invert. Retain the ID tube or Inoculum tube for an optional purity check (see above).
- 4 Follow **Steps 16–19** (General Panel Preparation). Follow the normal panel login procedure.

4.3.1 Quality Control

Refer to the panel package insert for information on ID/AST Quality Control. Note that QC panels cannot be marked as critical.

Quality Control testing is recommended for each lot of panels. The QC Lot Support feature can facilitate QC panel tracking and testing. If the QC Lot Support feature is enabled, then the panel lot number must be defined prior to logging in QC panels.

- 1 Inoculate a panel with one of the organisms listed in the package insert. All microbial cultures, including QC organisms, are potentially infectious and should be treated with universal precautions. QC organisms are prepared for panel inoculation as specified in Section 4.3 Preparing Panels, immediately preceding this section.
- 2 Log the panel in as a QC panel as follows:

NOTE

For most reliable results, it is recommended that the QC organisms be subcultured at least twice on two consecutive days onto TSA with 5% Sheep Blood agar before use in the BD Phoenix M50 instrument. Use only well-isolated colonies.

For Yeast ID QC, the use of Sabouraud Dextrose Agar as the subculture media is also acceptable.

- a Select **Panel Login**.
- b Select **QC**.
- c If desired, enter Tech ID.
- d If desired, in the Accession Number field, type in or scan an accession number.
- e In the Sequence Number field, type in or scan the panel's sequence number. If an invalid Sequence Number is entered, message W100 appears. Invalid Panel Sequence Number (see The field above does not display when BD EpiCenter communications is enabled.).
- f The Isolate Number field defaults to isolate number 1. Type in the isolate number, or select the + or the – to increase or decrease the number. Valid isolate numbers are 1 to 20.
- g For Yeast ID panels, the Media field appears to the right of the isolate number field. If a media type is not specified, a workflow error is generated when the panel is attempted to be saved. If a Yeast ID panel is not logged in before placing it in the instrument for testing, the panel aborts after the first reading because no media has been specified. A default media type can be configured (see 3.10.2 System Configuration Sub-Tab in Section 3.10 Configuration Tab), which appears when a Yeast ID panel sequence number is scanned during login. To select a different media, select the down arrow to display a drop down box listing all media types (abbreviations), sorted alphabetically. (When the media type is selected, the full name appears at the top right of the screen.) Highlight the desired media. Select **Save**.
- h In the Test Strain field, select the QC organism selection box from the drop down menu. Only the predefined, required test strains appear [if available], otherwise all of the test strains appear. If a Sequence number has not been entered, No Data Available is displayed. Highlight the desired QC organism. Select the organism.

- i In the Panel Lot Number field, type in or scan the panel's lot number. Lot numbers must be seven numeric digits. Press tab to advance to the next field. (If the QC Lot Support feature is enabled, this field is completed automatically when the Sequence Number barcode is scanned.)
- j In the Expiration Date field, select the calendar icon to enter the expiration month, day, or year. (If the QC Lot Support feature is enabled, this field is completed automatically when the Sequence Number barcode is scanned.)
- k If desired, in the ID Broth Lot Number field, type in or scan the broth lot number. Lot numbers must be seven numeric digits.
- l If desired, in the Expiration Date field, press the calendar icon to select the expiration month, day, or year
- m If desired, in the AST Broth Lot Number field, type in or scan the broth lot number. Lot numbers must be seven numeric digits.
- n If desired, in the Expiration Date field, press the calendar to select the expiration month, month, or year.
- o If desired, in the Indicator Lot Number field, type in or scan the broth lot number. Lot numbers must be seven numeric digits.
- p If desired, in the first Expiration Date field, press the calendar to select the expiration month, day, or year.
- q Select **Save** to save the information.

Place the panel in the instrument (refer to Section 3.3.2 Inserting Panels in the Instrument).

Figure 4-1 – QC Panel Login Screen

The field above does not display when BD EpiCenter communications is enabled.

4.4 Automatic Association of Panels

4.4.1 Overview

The purpose of Automatic Association is to associate ID results from one panel (an ID or Combination panel) to the AST panels that are related to it and that lack an ID. Panels are related by virtue of having the same accession and isolate number. (Thus panels with the same accession number and different isolate numbers are NOT related, and Auto Association does not occur between such panels.)

Auto Association often involves the initial stage of Organism ID Conflict Checking. The circumstances where Conflict Checking occurs are described below. Conflict Checking is the process where the system verifies that the panel which has triggered the process does not have a related panel with a Final ID that is different from its own. If there is a conflict, Auto Association does not occur between related panels.

Auto Association can help eliminate unnecessary work such as the need to manually enter an organism ID for related panels. In addition, the Conflict Checking function helps ensure that the same organism ID is made for all the panels related to a patient specimen.

Note that Auto Association does not set the critical panel attribute for related panels.

4.4.2 Panel Types

The panel types whose ID information is associated to related panels are: ID panels, Combination panels (with both ID and AST sides enabled), and Combination panels with only the ID side enabled. Auto Association uses the Final ID.

The related panels whose IDs are set by Auto Association are: AST panels, and Combination panels with only the AST side enabled.

4.4.3 When Auto Association Is Not Performed

Auto Association is NOT performed in the following circumstances:

- When an organism ID conflict exists within an accession/isolate
- To a related AST panel that has been finalized or deleted, or that already has a Final ID
- Between related ID-type panels
- Between related AST-type panels
- Between QC and regular panels
- Between related QC panels
- If the Instrument ID field contains a tie/triplet, this information is not associated to any related AST panels, however the Final ID information IS auto associated

4.4.4 Organism ID Conflict Checking

Organism ID Conflict checking is performed using the Final ID for panels within the same accession/isolate (i.e., related panels) that are not finalized (and are not QC panels). If both panels have a Final ID (both are not blank) and they do not match exactly, an Organism ID Conflict is considered to exist. When an Organism ID Conflict exists, no Auto Association is performed. All the panels involved in the conflict have a Needs Attention flag set indicating that there is an organism conflict. Once the conflict is resolved (and provided that all other conditions for Auto Association are met), then Auto Association does occur.

Note that Organism ID Conflict checking is not performed on QC panels.

4.4.5 Auto Association and Related Actions

The trigger events that invoke Auto Association include: an ID or Combination panel status transitioning to Removable or accession/isolate information being modified. If there are no unresolved tie/ triplet conditions and no Organism ID Conflicts exist:

- 1 The instrument searches for the first unfinalized related ID or Combination panel with a Final ID. If a panel with these criteria is found, the instrument performs Auto Association.
- 2 If a panel with the above criteria is not found, the instrument then searches for the first finalized related ID or Combination panel. If a finalized panel is found, the instrument performs Auto Association.
- 3 If there are related ID panels with no Final ID when an AST panel invokes Auto Association (and no Organism ID Conflict condition exists), the instrument sets a Missing Organism ID Needs Attention reason for the AST panel if its status is Removable.
- 4 Auto Association is performed for any related AST panels that do not have information in their Final ID fields if the AST panel's status is either ongoing or Removable (Auto Association is not performed on AST panels with a status of Pending).
- 5 Auto Association is the action of modifying an AST panel's Final ID field (when this field is blank) to contain the same information as a related ID panel's information.
- 6 The instrument ID information is only associated provided it is a single Organism ID and not a Tie/Triplet condition.
- 7 A Combination panel with both sides enabled uses its ID result to perform interpretations on the AST side of the panel.
- 8 When Auto Association is performed successfully, any existing Missing Organism ID Needs Attention reasons are automatically cleared from the AST panels.

4.4.6 Typical Auto Association Examples

Instrument ID Is Associated

ID and AST panels are logged with the same Accession/Isolate number. (The AST panel is not logged in with an Organism ID.) They are both placed into the instrument at the same time. The ID panel finishes testing. The panels look like the following:

Panel	Instrument ID	Final ID
ID	Org A	Org A
AST		

When the ID panel has completed testing, it looks for related panels. It sees the AST panel with no Final ID. The ID panel checks for Organism ID Conflicts. There is no Organism ID Conflict condition, so the ID panel associates its Instrument ID to the AST panel record's Instrument ID field (regardless of the AST panel's status).

The panels look like the following:

Panel	Instrument ID	Final ID
ID	Org A	Org A
AST	Org A	Org A

Instrument ID and Final ID Are Associated

The ID panel is logged in with an Accession/Isolate number. It is placed into the instrument to test. It completes testing and looks like the following:

Panel	Instrument ID	Final ID
ID	Org A	Org A

The user changes the Final ID for this panel. It now looks like the following:

Panel	Instrument ID	Final ID
ID	Org A	Org B

The user then logs in an AST panel with the same Accession/Isolate number as the ID panel. (The AST panel is not logged in with an Organism ID.) The AST panel completes testing and looks for related panels. It sees the ID panel and checks to make sure that there is no Organism ID Conflict within the Isolate. There is no Organism ID Conflict, so the AST panel associates the ID panel's ID to itself. The panels now look like the following:

Panel	Instrument ID	Final ID
ID	Org A	Org B
AST	Org A	Org B

Final ID Is Associated

An ID panel is logged in with an Accession/Isolate number. The panel is placed in the instrument to test. The ID panel finishes testing first with a tie /triplet condition. When this situation occurs, the panel looks like the following:

Panel	Instrument ID	Final ID
ID	Org A	
	Org B	
	Org C	

When the tie/triplet is resolved (by the user selecting one of the organisms listed or another organism), the ID panel will look like the following:

Panel	Instrument ID	Final ID
ID	Org A	
	Org B	
	Org C	Org A

The user then logs in an AST panel with the same Accession/Isolate number as the ID panel. (The AST panel is not logged in with an Organism ID.) The AST panel completes testing and looks for related panels. It sees the ID panel and checks to make sure that there is no Organism ID Conflict within the Isolate. There is no Organism ID Conflict, so the AST panel associates the ID panel's Final ID to itself. The panels now look like the following:

Panel	Instrument ID	Final ID
ID	Org A	
	Org B	
	Org C	Org A
AST		Org A

4.4.7 BDxpert Triggered Rules Screen

By default, the BDxpert Rules are enabled and set to trigger automatically when test results are processed. However, there is an option in the BDxpert Rule Configuration to disable some rules (which means they would not be applied to results) or to set BDxpert rules to trigger manually. Any rules set to trigger manually must be accepted or rejected by the user before any additional rule processing or Final SIR determination occurs.

To access BDxpert Triggered Rules:

- 1 Select **BDxpert Rules** from the Results screen.
- 2 The first pending rule is highlighted.
- 3 The effect of the rule can be viewed on Final SIR values in the AST Results screen.
- 4 Select **Accept** to accept the pending rule, **Reject** to reject the rule, and **Re-Run** to cause all interpretation rules to be reapplied to the raw data.

4.4.8 Resistance Markers

If Resistance Markers have triggered on a particular panel, they are listed with the BDXpert rules.

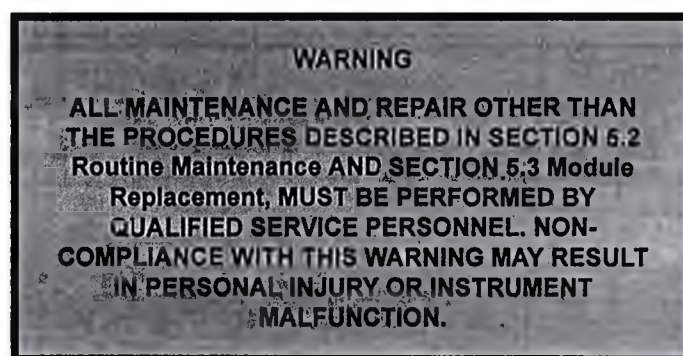
The following information is shown:

- The BDXpert rule number that triggered the Resistance Marker
- The Resistance Marker code (abbreviation)
- The Resistance Marker Name
- The BDXpert rule Description: Accept, Reject, Re-execute or Exit

5 – Maintenance

5.1 General

The BD Phoenix M50 instrument requires little maintenance from the user to provide reliable performance. Daily activities include checking the instrument temperature and printer paper supply. On a weekly basis check the operation of the station status indicators (LEDs), the audible alarm, and the alert indicator. Routine preventive maintenance consists of a monthly check of the ambient air filter. All other procedures are on an as needed basis. Any maintenance or repair not described in this section should be performed by BD personnel only.



No yearly preventative maintenance is required to be performed by BD authorized service personnel.

5.2 Routine Maintenance

Time Frame	Procedure
Daily Record results on Daily Instrument Report	• Check paper supply. • Record temperature on the Status screen. The temperature should be $35\text{ }^{\circ}\text{C} \pm 1.5\text{ }^{\circ}\text{C}$. • Record temperature standard panel. The temperature standard panel can be brought into view by selecting one of the instrument LED check functions on the Maintenance tab. • The temperature should be $35\text{ }^{\circ}\text{C} \pm 1.5\text{ }^{\circ}\text{C}$. • Perform Daily Verification on BD PhoenixSpec. • See Nephelometer Calibration in the BD PhoenixSpec package Insert. The results are recorded on the Daily Instrument Report.

Time Frame	Procedure
Weekly	• Test Internal Green LEDs • Test Internal Red LEDs • Test Internal Amber LEDs • Extinguish all LEDs • Test External System LED • Test Alarm Perform the tasks listed under the Maintenance Hardware category. See below for description of task.
Every 3 Months	Perform calibration of BD PhoenixSpec. • See Nephelometer Calibration in BD PhoenixSpec package Insert. Clean panel stations if they become contaminated by a leaking panel. The priority in this situation is to first limit the extent of the contamination and then to decontaminate the panel location(s) and other accessible instrument areas receiving the spill. • The contamination procedure applies only to accessible areas. If the spill extends into regions of the carousel that are not accessible, contact your local BD Service representative.
As Needed	• The solution recommended to clean the affected surfaces should be at least a 10 percent household bleach solution. All surfaces must be thoroughly washed with the freshly prepared bleach solution, so that the surfaces are glistening wet. If the extent of the contamination is uncertain, thoroughly wash the exposed portions of the carousel and cabinet with the freshly prepared bleach solution. See Section 5.2.5 Cleaning / Decontamination for a detailed cleaning procedure.

Time Frame	Procedure
	Replace the Barcode Scanner 1 Locate the cable connecting the barcode scanner to the instrument. 2 Unplug the cable. 3 Plug in the new scanner cable. 4 Verify the proper operation of the new scanner by scanning a panel sequence number at the Login screen. 5 View that the sequence number is correct. • Select Cancel to exit the screen without saving the panel.

5.2.1 Cleaning and Checking the Air Filter

The filter should be checked monthly and cleaned/replaced if needed (see below, Cleaning the Air Filter).

If the instrument's environment is especially dusty, the air intake filter should be checked more frequently and cleaned or replaced if needed. The filter must remain clean and unobstructed; restricted airflow from a dirty filter may cause the instrument interior to reach excessive temperatures, which can affect results and possibly cause hardware malfunctions or failures. The filter can be cleaned and reused.

The instrument's filter is located inside the panel accesses area on the lower right. The filter can be removed without tools.

5.2.2 Removing the Air Filter

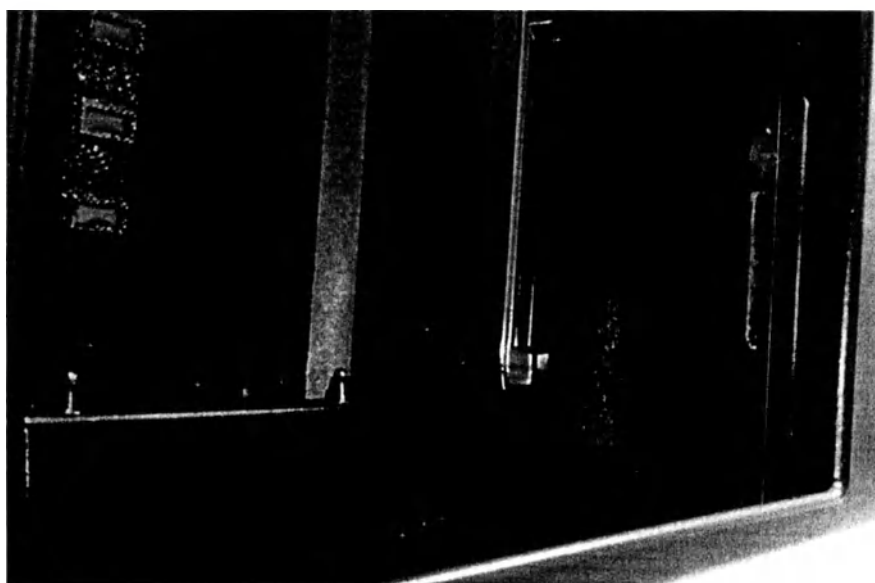


Figure 5-1 – Air Filter Location

- 1 Press Panels in or Panels out button to access panel entry area.
- 2 The filter is located on the lower right side of the opening.
- 3 To remove the filter, grasp black tab and slide towards the left side of the panel access area.
- 4 Remove the old filter and clean and dry it before replacing in the instrument, or place a new filter in the housing while the old one is cleaned and dried.
- 5 To insert a clean filter, grasp the black tab on the side of the filter and slide to the right until filter flange is flush with right side of instrument access area.
- 6 Close the instrument door.

5.2.3 Cleaning the Air Filter

- 1 Wash the dirty filter in a bactericidal disinfectant.
- 2 Place the filter on a paper towel and dry it thoroughly (if it is going to be reused immediately).
- 3 To save time, replace the dirty filter with a spare clean filter. Wash, dry, and set aside the removed dirty filter for the next filter replacement.

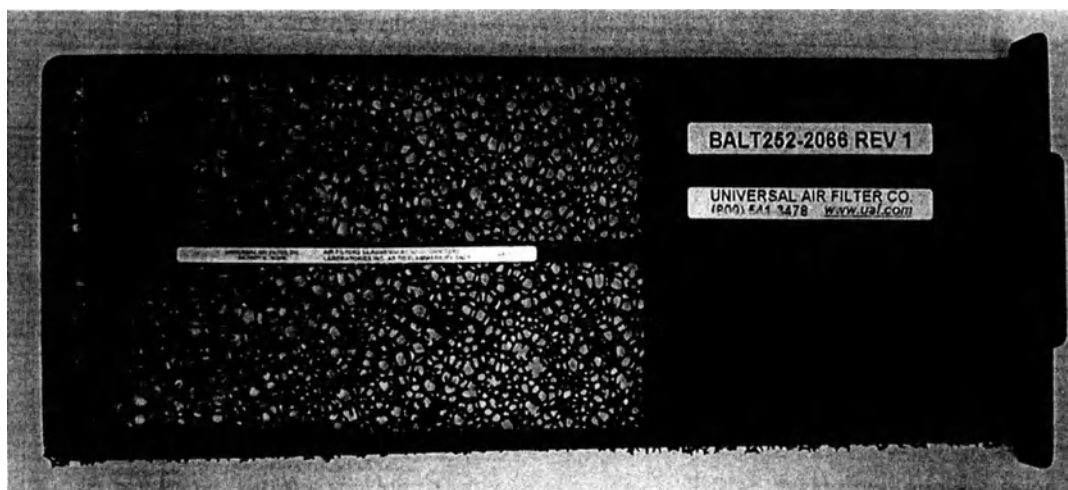


Figure 5-2 – Air Filter

5.2.4 Daily Instrument Report

The Daily Instrument Report can automatically print at a user defined time or it can be printed upon request. (see Figure 5-3 – Daily Instrument Report).

For instructions on configuring the report to automatically print at a certain time, see the Instrument Configuration section of this manual.

The Daily Instrument Report has three sections:

Section	Description
Top	Lists information that was configured when the system was set-up: • Facility name and address • Date and Time the report was printed • Instrument Number • Serial Number
Middle	Lists information about the internal operation of the Phoenix as well as the Normalizer Panels. • This section should be reviewed on a daily basis to make sure that these operations have passed testing.
Bottom	Lists the maintenance items that need to be checked and recorded on a Daily and Weekly basis.

Daily Instrument Report

The Diagnostic Switch Is ON

7/8/2018 3:20 PM
1.0.65.0 / V5.91A (x-US)

System Number56

AB Serial NumberPFVV0015

Instrument TemperaturePass

Carousel Rotational TestPass

Power Supply Check?

Normalizer Panels

Tier	Sequence Number	Status	Expiration Status
A	429932154527	Pass	7/9/2018
B	429932154528	Pass	7/9/2018

Daily	Pass	Fail	Tech ID
Record Instrument Temperature From Main Screen Range: (33.5 - 38.5)			
Record Standard Panel Temperature Range: (33.5 - 38.6)			
Check Printer Paper Supply			
Weekly			
Instrument Internal Green LEDs			
Instrument Internal Red LEDs			
Instrument Internal Amber LEDs			
Instrument System Alert Indicator			
PC Audible Alarm			
Comments			

This report may contain PHI and/or PII, handle appropriately.

Page 1 of 1

Figure 5-3 – Daily Instrument Report

5.2.5 Cleaning / Decontamination

A situation requiring biological decontamination of one or more panel locations can occur if a panel should leak while in the instrument. The priority in this situation is to first limit the extent of the contamination and then to decontaminate the panel location(s) and other accessible instrument areas receiving the spill. If the spill extends into regions of the carousel not accessible for topical decontamination, contact your local BD representative for further instructions.

To Decontaminate Carousel Panel Locations

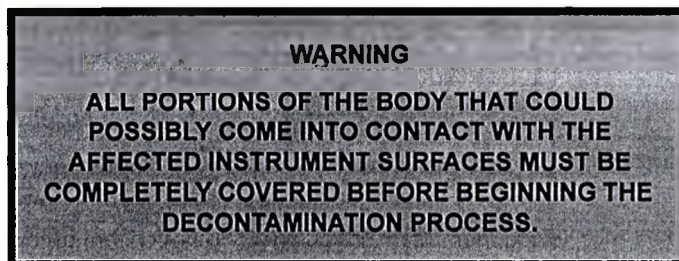
The solution recommended to clean the affected surfaces should be at least a 10 percent household bleach solution. All surfaces must be thoroughly washed with the freshly prepared bleach solution, so that the surfaces are glistening wet. If the extent of the contamination is uncertain, thoroughly wash the exposed portions of the carousel and cabinet with the freshly prepared bleach solution.

Required Materials:

- 10% bleach solution
- Personal protection equipment, including gloves, gown, eye protection (e.g., face shield, goggles, etc.)
- Gauze pads or paper towels
- Tap water

Cleaning Procedures:

- 1 Wear gloves and a gown, completely covering any body surfaces that could possibly come into contact with the affected instrument surfaces.
- 2 Turn off power to the instrument. Unplug the instrument power cord before proceeding.
- 3 Completely absorb the contaminated spill (gauze pads are most effective).
- 4 Apply the bleach solution to the affected surfaces, so that the surfaces are glistening wet. Let stand for approximately 15 minutes.
- 5 Absorb the applied solution with gauze pads or paper towels.
- 6 Dampen a clean cloth with water. Wipe down the decontaminated surfaces.
- 7 Thoroughly dry all wet surfaces.
- 8 Discard all cleanup materials as biohazardous waste.



5.3 Module Replacement

5.3.1 General

The BD Phoenix M50 instrument has been designed and tested for trouble-free performance. In the event of malfunction, contact BD for service under existing contract terms or warranty. Only the external barcode scanner is user-replaceable.

Replacement modules may be exchanged. Only replacement parts supplied by BD should be used in the procedures described in this section.

5.3.2 Thermometer Removal

If the fluid in the thermometer of the temperature standard panel has separated, follow the procedure below to remove the thermometer and replace it.

To Remove/Replace the Thermometer

- 1 Remove the temperature standard panel from the BD Phoenix M50 instrument.
- 2 Using the small access hole at the bottom of the panel, gently push the thermometer upward through the large slotted opening at the top of the temperature panel.
- 3 Manually pull the thermometer completely out of the temperature standard panel through the slotted opening at the top of the temperature panel.
- 4 Reunite the separated fluid column per the instructions below.
- 5 Install the thermometer in the reverse order described above.

5.3.3 Reuniting Separated Liquid in the Thermometer

If the fluid in the thermometer of the temperature standard panel has separated, follow the procedure below to reunite the liquid.

To Reunite Separated Liquid

- 1 Should there be a separation in the capillary or in the expansion chamber at the top of the thermometer, heat the bulb of the thermometer in a hot liquid which exceeds the range of the thermometer until the separation and main liquid column enter the expansion chamber and unite with each other.
- 2 Quickly remove the thermometer from the liquid, so that the liquid does not completely fill the expansion chamber which could possibly harm the thermometer.
- 3 Check the thermometer against a certified, traceable thermometer or an ice bath to assure the thermometer is reading correctly.

6 – System Alert Messages

6.1 Error / Alert Messages

CAUTION

When the system displays alerts and errors, immediately respond to the condition.

When the system encounters an alert or error condition, the error code (EXX or WXXX, where XX or XXX is a number) is either displayed on the screen or written into the system alert list. The error code is an abbreviation for the conditions described in the listing below.

Different types of alerts and errors behave in different ways. There are three basic types of alert conditions:

- Self-Clearing – these alerts are removed from the System Alert Screen after they have been displayed and the screen has been exited. No other intervention is required.
- Persistent – these alerts remain in the System Alert Screen (even after displaying the alert code) until the instrument determines that the error causing the alert has been corrected. Correction can be accomplished with or without user intervention, depending on the alert.
- Auto Clear – these alerts are removed from the System Alert Screen as soon as the condition causing the error has been cleared. There is no requirement to display the alert code on the System Alerts List Screen. If the alert is still present when reviewing the Alert list, it will be displayed.

Each error code called out in this chapter will contain one of these three types of alerts and errors.

W error codes are displayed on the screen when they occur. (They also cause the Workflow Error tone to sound [sequence of short high beep and short low beep repeated four times].) These are activity (or workflow) types of errors. In most cases, this means that some action that was performed was not what the system expected, but the correct action can usually be performed, as recommended below, without exiting the current operation. These activity errors are flagged by a Workflow Error (see Figure 6-1 – Workflow Error).

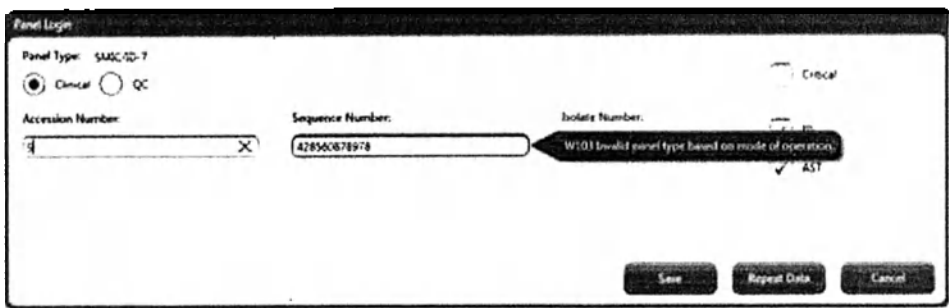


Figure 6-1 – Workflow Error

W error codes are grouped as follows and full descriptions can be found in Section 6.3 Workflow Alerts (W error codes):

- W1XX Problem with the Sequence Number
- W2XX Problem with the Accession, Isolate Number, or Media type
- W3XX Problem with a QC panel only
- W4XX Action to get into the instrument is not allowed
- W5XX Configuration/Maintenance screen activity not allowed (as long as it is not an instrument action)
- W6XX Screen activity is not allowed
- W7XX LIS errors
- W8XX QC Lot Support errors

6.2 System Alerts (E error codes)

System alerts (each shown in separate tables below), comprise of all E type error codes and are reported in the system alert list. These errors cause the Alert tone (medium beep on for one second, off for 3 seconds, repeating) to sound (if it is enabled). Also the System Alert icon appears on the Status screen and the Alert indicator is illuminated. The errors must be reviewed to clear the system alert condition. The system alert list can be viewed from the Status screen by touching the alert icon on the upper left corner of the display.

The E error codes are listed in numerical order. Error sub-codes are 8-digit numeric codes that appear below the EXX readout in the system alert list. The sub-codes indicate specific conditions detected and many are listed in the associated alert tables below

CAUTION

If any error sub-codes other than those listed here appear, note the sub-code and contact BD for assistance. If the recommended corrective actions do not solve the problem, contact BD.

E01 Incubator Temperature			
Sub-code	Alert Type	Possible Causes	Corrective Actions
00000001	Persistent	Average temperature too high (> 36.5 °C)	For all sub-codes, causes include: room temperature is not within recommended range, or other environmental specification is not being met (such as instrument sitting in direct sunlight or too close to HVAC air register). Make sure environmental specifications are met (see Environmental Requirements in Section 2.3 Instrument Specifications) Clean and/or repair air filters to permit fresh air intake.
00000002		Average temperature too low (< 33.5 °C)	
00000004		Communication with the incubator temperature sensor is lost	
00000010		Average temperature too high for more than one hour (> 36.5 °C)	
00000020		Average temperature too low for more than one hour (< 33.5 °C)	
00000040		Absolute high temperature (> 38.5 °C)	
00000080		Control and QC temperatures disagree	
00000100		QC temperature is out of range	

Temperature readings are taken every 5 seconds for 10 minutes and these readings are averaged. Note that if the instrument temperature reaches 38.5 °C, the instrument disables the heater.

E05 Carousel Alert			
Sub-code	Alert Type	Possible Causes	Corrective Actions
00000001	Persistent	Carousel RPM is below specification.	The instrument reports these alerts if something is impeding the motion of the carousel. This can be attributed to one of the following: the reported RPM is below spec, certain flag readings are incorrect, or the carousel is jammed or stalled. It is detected during any carousel rotation. Any inventory scan or panel test in progress is aborted and the instrument ignores any data received from the test or scan. Open the door, look for and remove any obstructions such as a panel that is ajar or a panel closure that is not seated. Do not manually rotate the carousel. Close the door. If message reoccurs, contact your local BD representative.
00000080		Carousel is jammed (no panel flags detected, drum not moving)	

Tier Alert			
Sub-code	Alert Type	Possible Causes	Corrective Actions
00000001	Persistent	This is the general alert condition for problems related to specific tiers including: incorrect flag readings, optical errors, timeout conditions, and normalizer problems.	Tier alerts are detected during a test cycle or inventory scan. The instrument ignores any data received from the test or scan for the tier that has sustained the error. Data received from good tiers is retained. All locations in the bad tier are automatically blocked. Some conditions reported for the E05 alert are also detected by the tier micro and reported with the E06 alert. They include missing/extra panel flags, home flag, etc. Follow screen instructions to correct the alert.
00000002			
00000004			
00000008			
00000010			
00000040			
00000080			
00000100			
00000200			
00000400			
00004000			
00020000			
00040000			
00080000			
00100000			
00200000			
00400000			

* The first line of the error represents Tier A, the second line represents Tier B, the third line represents Tier C, and the fourth line represents Tier D. A code of 00000000 indicates that there is no error condition for that tier.

E09 Test Aborted Sub-code			
Sub-code	Alert Type	Possible Causes	Corrective Actions
20000000	Self-clearing	Panel testing has not occurred for more than one hour because the instrument was off, the door was open for more than an hour, the system clock was set ahead one hour or more or the test cycle had not occurred in more than an hour.	All ongoing panels are set to Needs Attention, and their status is set to Removable. Some results may be incomplete, and all affected panel results should be reviewed.

E10 System Database Corruption			
Sub-code	Alert Type	Possible Causes	Corrective Actions
00000002	Self-clearing	System Parameters Database Corrupted	Check your settings in the Configuration screens (see Section 3.10.2 System Configuration Sub-Tab) and reset them to your preferences. Save data to a USB key and contact your local BD representative.
00000008		BDXpert Rules Database Corrupted	Check your settings for BDXpert Rule Configuration (see Section 3.4.5 BDXpert Rules Sub-Tab) and reset them to your preferences. Save data to a USB key and contact your local BD representative.
00000020		Custom Breakpoint Database Corrupted	Check your breakpoint settings for Custom Interpretation Rule Set Configuration (see Section 3.10.6 Custom Interpretation Rule Set Sub-Tab) and reset them to your preferences. Save data to a USB key and contact your local BD representative.
00000040		User Codes Database Corrupted	Check your settings in the Organism and Antimicrobial Configuration screens see Sections 3.10.4 Organism Configuration Sub-Tab and 3.10.5 Antimicrobial Configuration Sub-Tab) and reset them to your preferences. Save data to a USB key and contact your local BD representative.
00000001 00000010 00000080 00001000 00002000 00004000 00008000 00010000 00020000 00040000 00080000 00100000 00200000 00400000		Database corruption: Panel, Panel Lot, Alert / Eventlog. Corruption of instrument configuration record, instrument history, system parameters, light source, etc.	Save data to a USB key and contact your local BD representative.

E11 Printer Error

Sub-code	Alert Type	Possible Causes	Corrective Actions
20000000	Self-clearing	Paper jam or power condition	Check printer paper (jammed our out), cable connection, power on, and/or online indicator.

E13 Power Failure

Sub-code	Alert Type	Possible Causes	Corrective Actions
0x20000000	Self-clearing	Power removed from instrument	Message is informational. If multiple power failures have occurred, only the latest one is reported in the alert list. Note the power failure and restore times in your instrument log. Note that power fail events are not recognized until the instrument user interface has successfully loaded.

E14 CCD Underrun*

Sub-code	Alert Type	Possible Causes	Corrective Actions
00000000	Persistent	Scanning of a panel stopped prematurely during a test cycle	The instrument ignores any data received from the test for the panel/station that has sustained the error. Data received from good panels is retained, unless the station sustaining the error was the normalizer station. All error stations are automatically blocked. If the normalizer has this error, the whole tier is blocked. To clear, re-boot the instrument.

*The first line of the error represents stations with errors in Tier A, the second line represents stations with errors in Tier B, the third line represents stations with errors in Tier C, and the fourth line represents stations with errors in Tier D. A code of 00000000 indicates that there is no error condition for that tier

E18 Normalizer Row Averages*			
Sub-code	Alert Type	Possible Causes	Corrective Actions
00000001 00000002 00000004 00000008 00000010 00000020 00000040 00000080	Self-clearing	The tier had a problem with normalizer panel data averages	A source adjustment can only be performed when all panels in an instrument are no longer ongoing. Normalizer errors are detected during a test cycle. Test data received may be discarded or retained depending on the error sub-code. All available stations in the bad tier are automatically blocked; ongoing stations become blocked as testing completes or panels are removed. Do not enter any new panels or move an ongoing panels into any tier reporting this error. The instrument may be able to correct this error via the light source adjustment process.

* The first line of the error represents Tier A, the second line represents Tier B, the third line represents Tier C, and the fourth line represents Tier D. A code of 00000000 indicates that there is no error condition for that tier.

E20 Barcode Scanner Not Communicating			
Sub-code	Alert Type	Possible Causes	Corrective Actions
00000001 00000002 00000004 00000008 00000010	Self-clearing	Tier barcode scanner (or handheld scanner) is not communicating and all the tier stations are automatically blocked	Reboot the instrument.

E21 Level 2 Rotor Step Warning*

Sub-code	Alert Type	Possible Causes	Corrective Actions
00000000	Persistent	The instrument has sensed that rotor rotation was not ideal but still acceptable	Check for a panel protruding from its carrier, an improperly seated closure, or user applied label peeling off. If no obvious visible cause for the error exists, contact your local BD representative.

* The first line of the error represents stations with errors in Tier A, the second line represents stations with errors in Tier B, the third line represents stations with errors in Tier C, and the fourth line represents stations with errors in Tier D. A code of 00000000 indicates that there is no error condition for that tier.

E22 Level 3 Rotor Step Error*

Sub-code	Alert Type	Possible Causes	Corrective Actions
00000000	Persistent	The instrument has sensed that rotor rotation was out of specification	The instrument ignores any data received from the test for the panel/station that has sustained the error. Data received from good panels is retained, unless the station sustaining the error was the normalizer station. All error stations are automatically blocked. If the normalizer has this error, the whole tier is blocked. Check for a panel protruding from its carrier, an improperly seated closure, or user applied label peeling off. If no obvious visible cause for the error exists, contact your local BD representative.

* The first line of the error represents stations with errors in Tier A, the second line represents stations with errors in Tier B, the third line represents stations with errors in Tier C, and the fourth line represents stations with errors in Tier D. A code of 00000000 indicates that there is no error condition for that tier.

E30 Normalizer Expiration Alert*			
Sub-code	Alert Type	Possible Causes	Corrective Actions
00000001	Self-clearing	The tier's normalizer panel expiration date is between 60 and 30 days away	The instrument issues a weekly alert beginning when Normalizer panel expiration is 60 days away, which progresses to a daily alert when expiration is 30 days away. Schedule Normalizer panel replacement for the affected tiers before they expire (expiration date is shown on Daily Instrument report).
00000002		The tier's normalizer panel expiration date is less than 30 days away but has not expired	Contact your local BD representative.

*The first line of the error represents Normalizers in Tier A, the second line represents Normalizers in Tier B, the third line represents Normalizers in Tier C, and the fourth line represents Normalizers in Tier D. A code of 00000000 indicates that there is no error condition for that tier.

E31 Normalizer Expired*			
Sub-code	Alert Type	Possible Causes	Corrective Actions
00000001	Persistent	Normalizer panel expiration date has passed. Stations in all affected tiers are blocked	Schedule normalizer replacement immediately to resume testing.

* The first line of the error represents Normalizers in Tier A, the second line represents Normalizers in Tier B, the third line represents Normalizers in Tier C, and the fourth line represents Normalizers in Tier D. A code of 00000000 indicates that there is no error condition for that tier.

E44 LIS Fatal Operating System Error

Sub-code	Alert Type	Possible Causes	Corrective Actions
00000001	Persistent	The instrument is not able to send data to the LIS due to a fatal software exception that occurs within the LIS library at the instrument	Start LIS system. Look for obvious source of problem such as disconnected cable. If no obvious source exists, contact your local BD representative.
00000008		A fatal operating error was detected by the LIS_IM	Contact your local BD representative.

E50 Internal Software Error

Sub-code	Alert Type	Possible Causes	Corrective Actions
00000001	Self-clearing	System encountered a software general protection error.	Save data to USB key (see Section 3.9.1 Maintenance Hardware Functions) and contact your local BD representative.
00000002		Internal software error	

E51 Duplicate Panel Barcode Detected			
Sub-code	Alert Type	Possible Causes	Corrective Actions
00000000	Self-clearing	Duplicate barcodes have been detected.	Carefully examine the reported stations for duplicate barcodes. All panels with duplicate barcodes have been aborted. If duplicates are found, then remove the panels from your system and contact your local BD representative immediately. If no duplicates are found, then the alert may be a result of moving an existing panel between instruments. Avoid moving panels across instruments as they will be aborted. If the alert reoccurs, contact your local BD representative.

E52 Instrument Communications Application Layer (ICAL) Alert			
Sub-code	Alert Type	Possible Causes	Corrective Actions
00000001	Self-clearing	Instrument is not registered	Configure the instrument in the system.
00000002		Instrument history purged because instrument was in isolation mode too long.	Reconnect the instrument and Tablet PC or contact your local BD representative.
00000004		Extra Device Alert: three or more instruments are plugged into the application.	Remove the instrument(s) that are not configured in the system.

E98 PC Alert			
Sub-code	Alert Type	Possible Causes	Corrective Actions
00000001	Persistent	The IDS layer timed out	If the condition reoccurs, contact your local BD representative.
00000002		The IDS system received an invalid parameter	Contact your local BD representative.
00000004		The IDS system rejected a message	
00000008		An invalid alert sub-code was detected	

6.3 Workflow Alerts (W error codes)

Field level alerts are displayed when data, entered into a specific field, is invalid. These errors (such as attempting to enter an invalid Sequence Number in the Panel Login screen) cause workflow error messages to appear on the displayed screen. They do not put the system into an alert condition. These errors can frequently be cleared by simply performing the activity correctly (such as entering a valid Sequence Number). When the error is corrected, the field level alert is removed from the display. All other workflow alerts are displayed in a dialog with two or more buttons.

W100 Invalid Panel Sequence Number		
Message Type	Alert Cause	Alert Corrective Action
Field Level	The panel sequence number typed or scanned does not meet the required number format.	Panel sequence number barcode is located at the top of the reaction side of the panel. Scan or type in the correct panel sequence number. Check panel carton for panel update barcodes if they are present.

W101 Missing Panel Sequence Number		
Message Type	Alert Cause	Alert Corrective Action
Field Level	Panel sequence number field empty when save is pressed.	Type in or scan the correct panel sequence number before attempting the operation again.

W102 Unknown Panel Sequence Number		
Message Type	Alert Cause	Alert Corrective Action
Field Level	An attempt was made to save or select a panel sequence number that is not in the BD Phoenix database.	Verify that the correct panel sequence number was entered. If error reoccurs, the panel may need to be logged in if it is a new panel. Older, completed, finalized panels eventually age out of the database.

W103 Invalid Panel Type for Region		
Message Type	Alert Cause	Alert Corrective Action
Field Level	An attempt was made to log in a panel barcode that is not valid for the region.	Verify that the correct panel barcode was entered.

W200 Invalid Accession Number		
Message Type	Alert Cause	Alert Corrective Action
Field Level	An attempt was made save, find, or print information for an invalid accession number.	Enter a valid accession number, up to 20 characters excluding : * ? [] ! #

W201 Missing Accession Number		
Message Type	Alert Cause	Alert Corrective Action
Field Level	An operation (find, save, print) was attempted and the value in the Accession Number field was invalid or blank. This can include: a record with a valid panel Sequence Number and an Isolate Number greater than 1 with no Accession Number; an orphan panel with just an Isolate Number, or trying to change a saved record to a blank Accession Number.	Type in or scan the correct accession number before attempting the operation again.

W202 Unknown Accession Number		
Message Type	Alert Cause	Alert Corrective Action
Field Level	At attempt was made to find data or print a report for an accession number that is not located in the BD Phoenix database.	Verify that the correct accession number was entered. If error recurs, the record may need to be logged in if it is new. Older, completed, finalized records eventually age out of the database.

W203 Missing Isolate Number		
Message Type	Alert Cause	Alert Corrective Action
Field Level	An attempt was made to save a record when an accession number is present without an isolate number.	To save a record, if you enter an accession number, you must also enter an isolate number

W204 Missing Media Type		
Message Type	Alert Cause	Alert Corrective Action
Field Level	An attempt was made to save a Yeast ID panel during Panel Login and no Media is specified.	To save a record, if you enter a Yeast ID panel sequence number, you must select a media type.

W205 Panel Not Found		
Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	An attempt was made to find a Sequence and Accession combination that is not in the BD Phoenix database.	The Sequence and Accession combination does not exist in the database.

W300 Missing Test Strain for a QC Panel		
Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	An attempt was made to save a QC panel without an organism ID (Test Strain).	You must select an organism (Test Strain) to save a QC panel. Advance to the Test Strain field to drop down a box listing the available test strains. Highlight the desired organism. Select the highlighted organism.

W301 Missing Tech ID for a QC Panel		
Message Type	Alert Cause	Alert Corrective Action
Field Level	An attempt was made to save a QC panel without a Tech ID.	You must enter a Tech ID to save a QC panel. Advance to the Tech ID field and enter a Tech ID, up to 3 alphanumeric characters excluding: * ? [] ! # .

W302 Invalid Tech ID for a QC Panel		
Message Type	Alert Cause	Alert Corrective Action
Field Level	An attempt was made to save a QC panel with an invalid Tech ID.	Enter up to 3 alphanumeric characters excluding: * ? [] ! # for the Tech ID.

W303 Invalid Lot Number		
Message Type	Alert Cause	Alert Corrective Action
Field Level	An attempt was made to save a record or print a report for an invalid panel lot number, ID broth lot number, AST broth lot number, or indicator lot number.	Enter the correct lot number. Lot numbers can be up to 7 characters. The lot number is shown on the item carton.

W304 Missing Lot Number		
Message Type	Alert Cause	Alert Corrective Action
Field Level	An attempt was made to save or print a report for a QC panel without a panel lot number, or an expiration date has been entered for one of the optional lot number fields (ID Broth, AST Broth, Indicator) with no corresponding lot number.	You must enter a panel lot number to save a QC panel. Advance to the Panel Lot # field and enter a lot number, up to 7 digits. The lot number is shown on the panel carton.

W305 ID or AST Must be Enabled		
Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	An attempt was made to save a panel or QC panel, and both the ID and AST fields are unabled.	The ID/AST fields are enabled or disabled based on the type of panel, according to the panel sequence number. At least one field must be enabled for the panel record to be saved and for testing to occur.

W400 Door Already Open		
Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	A request was made to perform a task that requires the door to be opened when the door is already open.	Select OK.

W401 Can Not Perform Panel Locate

Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	The panel you are trying to locate is not in the instrument, or you cannot access the instrument using the Normalizer Panel Replacement function (e.g., because there are ongoing panels).	Verify that the correct panel sequence number is entered or that the instrument can be accessed (for Normalizer Panel Replacement activity, ongoing panels render the instrument inaccessible for this activity).

W500 Upgrade Error

Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	The USB key does not contain a readable, same, or newer version of instrument software. Causes include: older version of instrument software; USB key was removed before the update completed, or the USB key contains a corrupted or missing file.	Attempt the update operation again. If error reoccurs, contact your local BD representative.

W502 Removable Media Error

Message Type	Alert Cause	Alert Corrective Action
Retry Cancel Print Screen	The USB key is not in the drive, full, write protected or it was removed before completion of the task.	Attempt the update operation again. If error reoccurs, contact your local BD representative.

W503 Duplicate Rule		
Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	The data contained in the Antimicrobial, Org(anism) Group, and Organism fields is the same for the rule being saved as a different rule already defined in the Rule Set.	One of the parameters (Antimicrobial, Organism Group, or Organism) must be unique for the record to be saved.

W506 Instrument Not Idle		
Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	An attempt to execute an upgrade failed because the instrument was not idle.	Wait until instrument is idle (or correct carousel jam) before performing this activity.

W507 Invalid Password		
Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	An invalid (or no) password was entered to access a Configuration screen.	Enter the correct password and perform the action again.

W511 Battery Mode

Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	An attempt to install or restore data while the tablet is unplugged and working in battery mode.	Retry the install or restore data when battery mode is not in progress.

W600 Panel Can Not Be Deleted

Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	An attempt was made to delete a panel that is still physically in the instrument or a non-pending QC panel that is not physically in the instrument (if QC Lot Support is enabled).	Remove the panel from the instrument. You can use the find panel tab to make the carousel present the panel when the door is opened. If you know you have already removed the panel, then close the instrument door and allow the instrument to complete an inventory scan before attempting to delete the panel.

W601 Can Not Finalize

Message Type	Alert Cause	Alert Corrective Action
Field Level	An attempt was made to finalize a panel either whose status is not Removable or that has an unignored Needs Attention flag set.	If panel is Ongoing, wait until it becomes Removable before attempting to finalize it. If panel has a Needs Attention flag set, resolve the reason before attempting to finalize the panel.

W602 Invalid Date		
Message Type	Alert Cause	Alert Corrective Action
Field Level	An attempt was made to save a record containing, or to print a report specifying, an invalid date. Or, a panel lot barcode containing an invalid expiration date was scanned.	Enter a valid date.

W604 Panel Still Testing		
Message Type	Alert Cause	Alert Corrective Action
Field Level	An attempt was made to save a Final ID to an ID or Combination panel that has not reported an Instrument organism ID.	A Final ID cannot be selected and saved until the instrument ID results are obtained. Wait until the instrument calculates an ID before attempting to select a Final ID.

W606 Cannot Modify Date for a Finalized Panel		
Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	An attempt was made to save a panel without a panel lot number expiration date or without expiration dates for other lot number fields IF panel lot numbers have been entered.	If information for a finalized panel must be modified, recall the panel and un-finalize it by disabling the Finalize field. Make the required changes and save the information.

W607 Missing Date

Message Type	Alert Cause	Alert Corrective Action
Field Level	An attempt was made to save a panel without a panel lot number expiration date or without expiration dates for other lot number fields IF panel lot numbers have been entered.	A valid panel lot number expiration date must be entered for panels. If other lot number fields are completed, their corresponding expiration dates must be entered.

W608 Improper Barcode Scan

Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	The barcode number scanned is too long for the current active field, or is not the correct type of barcode for the field (e.g., scanning a lot number in a non-lot number field).	Verify which field is currently active and check what type of barcode you are trying to scan.

W609 Database Full

Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	An attempt was made to log in a new panel and 50 panels exist in the instrument database with a pending record status, with no panels eligible for deletion.	Pending panels should be placed in the instrument and allowed to complete an inventory scan before you attempt to log in any new panels.

W700 Invalid LIS Code		
Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	An invalid LIS code was entered in the Organism Configuration or Antimicrobial Configuration screen.	LIS Codes can be up to 20 alphanumeric characters.

W701 Duplicate LIS Code		
Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	A duplicate LIS code was entered in the Organism Configuration or Antimicrobial Configuration screen.	LIS Codes must be unique in the system.

W800 Panel Lot Undefined		
Message Type	Alert Cause	Alert Corrective Action
Field Level	An attempt was made to log in a QC panel but the panel sequence number is not within the range of a defined/saved Panel Lot.	When QC Lot Support is enabled in Configuration, all QC panels must belong to a defined/ saved panel lot. Clinical panels may be from an undefined panel lot and still be logged in, though such panels generate a Panel Lot Undefined Needs Attention condition.

W801 Panel Lot Range Incomplete

Message Type	Alert Cause	Alert Corrective Action
Field Level	During Panel Lot Definition, an attempt was made to save a panel lot but one or both panel sequence number fields were blank.	Both a starting sequence number (lowest) and ending sequence number (highest) must be scanned for any panel lot to be saved. The sequence numbers can be scanned in any order, but both must be scanned. You cannot type in a sequence number on the Panel Lot Definition screen.

W802 Panel Lot Range Invalid

Message Type	Alert Cause	Alert Corrective Action
Field Level	During Panel Lot Definition, an attempt was made to save a panel lot but the two panels scanned were different panel types.	Both panels must be the same type for any panel lot to be saved.

W803 Panel Lot Range Conflict

Message Type	Alert Cause	Alert Corrective Action
Field Level	During Panel Lot Definition, an attempt was made to save a panel lot but one or both panel sequence numbers conflicted with an existing panel lot definition.	A panel sequence number can only belong to one defined/saved panel lot. Contact your local BD representative.

W903 Panel Lot Expired		
Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	A panel lot number barcode is scanned containing an expired expiration date.	Enter an unexpired panel log number barcode.

When Commission Duplicate Serial Number		
Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	There is an instrument with the same serial number already commissioned.	Enter a unique serial number.

When Commission Duplicate Instrument Identifier		
Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	There is an instrument with the same designation already commissioned.	Check for instrument designation duplication.

W904 Commission Invalid Serial Number		
Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	The serial number must be a minimum of six characters.	The serial number must be six characters.

W905 Decommission of Connected Instrument		
Message Type	Alert Cause	Alert Corrective Action
OK Print Screen	An attempt is being made to decommission an instrument.	Disconnect the instrument prior to decommissioning.

6.4 Event Log Messages

6.4.1 LIS Related Messages

The Event Log tab, located on the bottom right of the Maintenance screen enables the user to see messages that the instrument writes to the Event Log. The messages are in the following format:

date time message type: message text

where *date* represents the day, month, and year in the format you have chosen

time represents the time in the format you have chosen

message type is one of the following:

- LIS Interface Message
- LIS Unsolicited Message
- LIS Order Cancelled
- LIS Query Assembly
- LIS Receiving Query
- LIS Configuration Change

message text is the actual text message that appears

Below is a list of the messages, along with a description of the message and any actions that may be performed to correct the problem. These messages are grouped by the message type listed above.

LIS Interface Messages

LIS Interface Messages are library messages generated by the LIS manager. They are listed below in alphabetical order.

Bad Frame Received From LIS

DESCRIPTION – This error is generated when the LIS downloads a frame that has not been properly formatted. The error type is listed as LIS_NON_FATAL.

CORRECTIVE ACTION(S) – The solution to this problem is to review the information that is being sent to the instrument via a communications line monitor. Compare the information captured with the specifications found in the BD – LIS Vendor Interface Document. Any discrepancies observed should be corrected and then the transmission should be attempted again.

Detailed Download Message Attached to Notification

DESCRIPTION – These notifications are generated whenever a complete message is sent or received across the port. The error types are LIS_NOTIFY. The detailed description is not displayed.

CORRECTIVE ACTION(S) – Message is informational – no action required.

Detailed Upload Message Attached to Notification

DESCRIPTION – These notifications are generated whenever a complete message is sent or received across the port. This provides the Host Application with the complete ASTM message string that was exchanged. The error types are LIS_NOTIFY and the detailed descriptions contain the ASTM message string.

CORRECTIVE ACTION(S) – Message is informational – no action required.

Disallowed Characters Contained in Field

DESCRIPTION – This error is generated when an upload field contains characters that are not allowed in an upload message. These characters differ based on logical protocol and will be stripped from the upload field. This error type is LIS_NON_FATAL. The detailed description is not displayed.

CORRECTIVE ACTION(S) – If this error is reported the problem should be reported to your local BD representative for further investigation.

Download Field Was Concatenated

DESCRIPTION – This notification is generated when a download field is larger than the maximum size set by the Host Application. The field will be concatenated to the maximum size. This error type is listed as LIS_LOG. The detailed description is not displayed.

CORRECTIVE ACTION(S) – In this case the content that is being assembled needs to be reviewed. Review the BD – Vendor Interface Specification for limitations on field lengths in the message. Then the LIS code should be updated so that the information sent to the instrument remains within the defined limits.

Download Message Has a Bad or Missing Header Record

DESCRIPTION – This error is generated when a download message does not have a properly formatted header record. The LIS IM cannot continue processing the message and it will be deleted. This error type is listed as LIS_NON_FATAL, and the detailed description holds the ASTM message received from the LIS.

CORRECTIVE ACTION(S) – Check the header line for errors. Correct the header error and resend the message.

Download Physical Communication with LIS Has Begun

DESCRIPTION – This notification is generated when the download thread in the physical layer is actively downloading a message.

CORRECTIVE ACTION(S) – Message is informational – no action required.

Download Physical Communication with LIS Has Completed

DESCRIPTION – This notification is generated when the download thread in the logical layer has completed processing a download message.

CORRECTIVE ACTION(S) – Message is informational – no action required.

Download Record is Out Of Sequence Or Has Bad Sequence Number

DESCRIPTION – This error is generated when a download record contains records with a bad sequence number, or violates the record hierarchy for the logical level protocol. This will cause the message to be deleted from the download queue. This error type is listed as LIS_NON_FATAL.

CORRECTIVE ACTION(S) – Appropriate updates should be made to the application generating the logical message so the structure conforms to the ASTM specifications for the interface. Most questions concerning the message content can be addressed by referencing the BD – Vendor Interface Specifications and the ASTM specifications for the interface.

Early Termination of Transfer Session By LIS

DESCRIPTION – This error is generated when there is an error in LIS communication. The control character to end a transfer session was received before the appropriate number of characters for the frame were received.

CORRECTIVE ACTION(S) – Review the frames being exchanged between the instrument and the LIS to assure that the proper number of characters are contained within the packets that are being exchanged. If the correct number of characters is not in the packet, update the code so that the correct number of characters is included in each frame.

Expected Frame Not Sent

DESCRIPTION – This error is generated when there is an error in LIS communication. The LIS initiated a transfer session but did not send any data before a time-out occurred. This error type is listed as LIS_NON_FATAL.

CORRECTIVE ACTION(S) – Connect a communications line monitor and restart the transmission. Observe the transmission to determine if the complete transmission occurs or if the transmission is interrupted early. If the transmission appears to be complete or the LIS appears to be attempting to send the transmission contact your local BD representative for assistance. If the transmission appears to be incomplete from the LIS side of the transmission then the LIS code should be investigated for problems that could terminate the transmission early.

Internal Assert Condition Found in LIS Library

DESCRIPTION – This message indicates that the Instrument has encountered an error that should not occur. This error will result in the instrument rebooting.

CORRECTIVE ACTION(S) – Contact your local BD representative. At the time the problem occurs the application writes data to the log file that indicates the nature of the Assert. The BD representative should instruct you on the appropriate procedure to collect the data for the condition.

LIS Debug Error

DESCRIPTION – This error is generated when there has been a problem internally to the instrument physical layer. This error may be triggered for an index out of bounds, or unsupported memory area IDs, etc. This error type is listed as LIS_FATAL.

CORRECTIVE ACTION(S) – This error is a Fatal Error. If this error appears in the log file, contact your local BD representative. The sequence of events that produced this message should be documented so that BD representatives can reproduce the error and then provide an appropriate course of action to address the problem.

LIS Did Not Acknowledge Sent Frame

DESCRIPTION – This error is generated when the instrument has sent a frame to the LIS but has not received an acknowledgment before a time-out occurred. This error type is listed as LIS_NON_FATAL.

CORRECTIVE ACTION(S) – This message should not occur during normal operation of the instrument interface. If this error is being encountered during development of the interface then the LIS development group should connect a data communication monitor to the serial interface cable and review the information that is being exchanged between the two devices. It is likely that the LIS is not generating the appropriate response to the message that the instrument has sent.

LIS Is Not Responding To Output Request

DESCRIPTION – This error is generated when the instrument is trying to establish a transfer session but the LIS is not responding. When this error is sent, the instrument is assuming the LIS connection is broken or the LIS is down. This error type is listed as LIS_NON_FATAL.

CORRECTIVE ACTION(S) – Check to assure that the LIS interface is active and ready to receive messages from the instrument. If the LIS is operating correctly, connect a communications line monitor and review the information that has been captured. If the instrument is attempting to establish communications with the LIS, it would be appropriate to review the code that has been written to interface with the instrument and assure that the code is appropriate to receive the information sent by the instrument.

LIS Never Completed Current Frame

DESCRIPTION – This error is generated when there is an error in LIS communication. The control characters expected to end a transmitted frame were never received.

CORRECTIVE ACTION(S) – Review the frames being exchanged between the instrument and the LIS via line monitor. Be sure to review all frames included in the transmission. If any frames do not contain the appropriate termination characters make appropriate changes to the interface code to correct the problem.

Logical Processing of LIS Data Has Begun

DESCRIPTION/CORRECTIVE ACTION(S) – Message is informational – no action required.

Logical Processing of LIS Data Has Completed

DESCRIPTION/CORRECTIVE ACTION(S) – Message is informational – no action required.

Message Packet Passed to Host Application

DESCRIPTION – This notification is generated when the LIS IM has successfully passed a message on to the Host Application. This notification exists mostly as a debug message. This error type is listed as LIS_LOG.

CORRECTIVE ACTION(S) – No action required by user. Information is included to help LIS manufacturers debug and implement their interface.

Message Received By LIS

DESCRIPTION – This notification is generated after the LIS has received and acknowledged a message from the instrument.

CORRECTIVE ACTION(S) – Message is informational – no action required.

Message Received From LIS

DESCRIPTION – This notification is generated when a download message has been properly received by the Physical Interface from the LIS. This error type is listed as LIS_LOG.

CORRECTIVE ACTION(S) – This message is an informational message and requires no action to be taken. The transmission was successful. This message will be generated even if the message contained content errors.

Must Re-send Output Frame to LIS

DESCRIPTION – This notification is generated when a frame sent by the LIS IM was not properly received by the LIS. The message frame will be resent, according to low level protocol specifications. This error type is listed as LIS_LOG.

CORRECTIVE ACTION(S) – If this message appears infrequently and the messages that are being exchanged are completed correctly, it is likely that no action is required. If the message above is encountered frequently, there is likely a problem in the interface. The LIS manufacturer and BD representative should be contacted to diagnose the interface to assure that it is operating properly. When the link is operating optimally this message should not appear in the log.

No Queue Memory for Download Messages

DESCRIPTION – The BD Phoenix M50 Instrument is designed to operate in a limited amount of memory (as defined in the configuration structure). When these memory resources are full with download or upload messages, this notification will be generated. The notification may be common if the LIS tries to download too much information at once. The BD Phoenix M50 Instrument will NAK data for which it cannot allocate memory, and the LIS will have to resend the data.

CORRECTIVE ACTION(S) – Resend the messages that were rejected by the instrument.

No Queue Memory for Upload Messages

DESCRIPTION – The BD Phoenix M50 Instrument is designed to operate in a limited amount of memory (as defined in the configuration structure). When these memory resources are full with download or upload messages, this notification will be generated. This message should not be encountered when using the instrument LIS interface.

CORRECTIVE ACTION(S) – If this message is encountered, the problem should be reported to the BD representative. It will be helpful if the process that generated the problem is documented.

No Response Received From Previous LIS Request Message

DESCRIPTION – This notification is generated when the LIS IM has uploaded a query but no response is received. This notification indicates that the original query was cancelled. This notification should occur some time after the query, as determined by the value in the configuration structure. The error type is listed as LIS_LOG. The detailed description is not displayed in the current version.

CORRECTIVE ACTION(S) – Validate that the LIS system is correctly connected to the instrument and that the LIS interface has been activated.

Operating System Error

DESCRIPTION – This error is generated when the operating system class encounters an error in one of its routines. This could be caused by a number of OS errors, including not properly initializing a port or not properly creating an event handle, and others. These errors should not occur under normal conditions and the LIS IM cannot recover from them. The error type is listed as LIS_FATAL.

CORRECTIVE ACTION(S) – If this error is reported the problem should be reported to your local BD representative for further investigation.

Output Message Was Sent To LIS

DESCRIPTION – This notification is generated when an upload message has been successfully transmitted to the LIS. This error type is listed as LIS_NOTIFY. Notification sent when the instrument begins sending a message to the LIS. Receiving this notification does not signify the message was accepted by the LIS.

CORRECTIVE ACTION(S) – Message is informational – no action required.

Queue Memory for Download Messages Free

DESCRIPTION – This notification is used in pairs with the No Queue Memory For Download Messages above. When memory has previously been determined to be full, and now has been released, this notification will be generated.

CORRECTIVE ACTION(S) – This is an indication to a user of a batch-oriented interface that the instrument is capable of receiving the next group of messages.

Queue Memory for Upload Messages Free

DESCRIPTION – This notification is used in pairs with the No Queue Memory For Upload Messages above. When memory has previously been determined to be full, and now has been released, this notification will be generated.

CORRECTIVE ACTION(S) – This message should not appear in the log during operation of the interface. If this message appears in the log, contact your local BD representative.

Response Message Received

DESCRIPTION – This notification is generated when the LIS has downloaded a response to a BD generated query. This is also an indication that the LIS IM can upload another query to the LIS. The error type is LIS_NOTIFY. The detailed description is not displayed in the current version.

CORRECTIVE ACTION(S) – Message is informational – no action required.

Unsupported Field in Configuration File

DESCRIPTION – This error is generated during startup when a field in the configuration structure does not match one of the supported configurations of the LIS IM. This error type is listed as LIS_FATAL.

CORRECTIVE ACTION(S) – If this error is reported the problem should be reported to your local BD representative for further investigation.

Upload Physical Communication With LIS Has Begun

DESCRIPTION – This notification is generated when the upload thread in the physical layer is actively uploading a message.

CORRECTIVE ACTION(S) – Message is informational – no action required.

Upload Physical Communication With LIS Has Completed

DESCRIPTION – This notification is generated when the upload thread in the physical layer has completed sending a message to the LIS.

CORRECTIVE ACTION(S) – Message is informational – no action required.

LIS Unsolicited Message

The following sections contain the possible messages associated with Event Log entries in response to unsolicited download requests. They are listed below in alphabetical order.

LIS Response Error

DESCRIPTION – This message is set after the LIS sends an incorrectly formatted query message to the instrument. We will respond by sending a response error message to the LIS.

CORRECTIVE ACTION(S) – If the interface is operating correctly, this message should not be present in the log. If this message is found in the log during validation or development of the interface, the code responsible for generating the queries should be reviewed and adjusted so that the query is assembled without the invalid field. The invalid field will be the last "LIS Query Assembly" message listed before this message in the log file.

LIS Sent Query Before Previous Query Completed

DESCRIPTION – This message is set if the LIS initiates a query and while the instrument is busy with this query, the LIS cancels the first query and immediately starts another.

CORRECTIVE ACTION(S) – If the interface is operating correctly this message should not be present in the log. If this message is found in the log during validation or development of the interface, the code responsible for generating the queries should be reviewed and adjusted so that it will not send another query while it is waiting for an outstanding query to be canceled.

LIS Order Canceled Messages

DESCRIPTION –

•

The validation for the noted field failed.

Invalid Sequence Number Field

Missing Accession Number Field

Invalid Accession Number Field [cannot be 12 digits and begin with 42 or 50–59; see Section 3.3 Panel Login Tab for other requirements.

Missing Isolate Field

Invalid Isolate Field

Invalid Panel Usage

Invalid Test ID Field

Invalid Test Strain for this QC Panel Type

Mismatch Sequence Number and Test ID

Missing Test ID Field

Invalid Organism ID Field

Invalid Priority Field

Problem Storing Record to Database

When an error is detected, the message for that error is logged and the remainder of the message checking is terminated. There could be other errors in the order that were not reported. The error checking priority depends upon whether the order contains a sequence number or not.

CORRECTIVE ACTION(S) – In an operational interface it is possible to encounter these errors if the LIS implementation allows entry of data into the fields that violate the instrument field rules. In this case the user of the LIS should limit the characters entered into the fields sent to the instrument to those characters noted in the System User's Manual as valid for the field. Once the information has been updated to conform with the instrument's rules the order should be sent to the instrument again.

If the interface is under development the developer of the interface should limit the data being sent to the instrument to those characters that are appropriate for the fields.

LIS Query Assembly Messages

All of the following messages are written to the log file regardless of whether they are invalid or valid. They are placed in the log so that they can be used in conjunction with the messages that follow them. If an error is found in one of the fields, the contents of the field in error will be logged.

(Message consists of a field name shown below at **.)

DESCRIPTION –	The message is logged when the instrument uploads a query to the LIS.
**	Accession Number
	Sequence Number
	Test ID
	Test Status
	Result Qualifier
	Time Qualifier
	Start Date/Time
	End Date/Time

CORRECTIVE ACTION(S) – If the query is valid, the message is informational – no action required. If the query is invalid, then review the field in error, correct, and resend the query.

(Message consists of a field name and value shown below at ***)

DESCRIPTION – This message is logged when the instrument uploads a query to the LIS.
*** Sequence Number and the value

CORRECTIVE ACTION(S) – Message is informational – no action required.

LIS Configuration Change Messages

(Message consists of a configuration value shown below at ** with old and new values.)

DESCRIPTION –	The message is logged when the LIS configuration is changed.
**	LIS Enabled Value Changed
	Send Interpretation Results Option Changed
	Unsolicited Queries Option Changed
	Send When Placed In Instrument Option Changed
	Results Upload Options Changed
	Baud Value Changed
	Data Bits Value Changed
	Parity Value Changed
	Stop Bits Value Changed
	Packed Frames Value Changed

CORRECTIVE ACTION(S) – Message is informational – no action required.

7 – Performance, Limitations, Organism Codes, and Panel Information

7.1 Performance Characteristics

Definitions:

Essential Agreement (EA): Essential agreement occurs when the MIC of the BD Phoenix system and the CLSI Reference Broth Microdilution are identical or within ± 1 dilution of each other.

Category Agreement (CA): Category agreement occurs when the BD Phoenix system results are within ± 1 dilution from the CLSI Reference Broth Microdilution with respect to the CLSI categorical interpretative criteria.

7.1.1 Gram Negative Performance

Gram Negative Identification

In two internal studies, the performance of the BD Phoenix Gram Negative Identification was evaluated. The 0.5 inoculum density configuration and the 0.25 inoculum density configuration were tested with 721 strains (0.5) and 784 strains (0.25) respectively. Enteric and non-enteric isolate results were evaluated against commercial and noncommercial methods.

The BD Phoenix Gram Negative Identification performance is outlined below:

	Inoculum Density (McFarland)	Agreement	No Agreement	No ID
Genus Level	0.5	97.3%	2.1%	0.6%
	0.25	98.5%	1.0%	0.5%
Species Level	0.5	95.6%	3.6%	0.8%
	0.25	98.1%	1.4%	0.5%

Gram Negative Susceptibility

ANTIMICROBIAL	CODE	EA N	EA %	CA N	CA %
Amikacin	AN	974	94.3	974	99.2
Amoxicillin	AMX	725	95.9	839	96.9
Amoxicillin-Clavulanate	AMC	636	97.8	749	97.1
Amoxicillin-Clavulanate (f)	AXC	364	96.4	411	97.6
Ampicillin	AM	639	97.5	753	98.0
Ampicillin-Sulbactam	SAM	848	96.8	962	96.9
Ampicillin-Sulbactam (f)	SXA	1682	92.3	1682	94.5
Arbekacin	ARB	2083	94.1	2083	99.2
Aztreonam	ATM	1488	97.8	1431	98.5
Cefazolin	CZ	634	97.0	752	97.1
Cefdinir	CDR	633	92.7	747	94.5
Cefditoren	CDN	1270	97.2	1270	98.4
Cefepime	FEP	1463	97.8	1463	98.6
Cefetamet	CAT	629	96.0	746	97.7
Cefixime	CFM	1454	96.7	1454	98.1
Cefmetazole	CMZ	608	94.7	718	96.4
Cefoperazone	CFP	854	95.1	972	97.7
Cefoperazone-Sulbactam	SCP	1921	93.1	1921	96.0
Cefotaxime	CTX	849	96.9	970	97.2
Cefotetan	CTT	627	96.2	748	96.4
Cefotiam	CFT	1428	94.9	1428	97.6
Cefoxitin	FOX	628	96.7	748	97.6
Cefpirome	CPO	846	96.2	964	97.0
Cefpodoxime	CPD	616	94.5	737	97.0
Cefsulodin	CFS	55	98.2	56	98.2
Ceftazidime	CAZ	848	95.9	969	97.5
Ceftibuten	CTB	590	90.5	708	95.9
Ceftizoxime	ZOX	854	97.3	971	97.2
Ceftriaxone	CRO	2416	96.1	2416	91.6
Cefuroxime	CXM	623	97.0	744	98.5
Cephalexin	CN	319	97.8	366	96.5

ANTIMICROBIAL	CODE	EA N	EA %	CA N	CA %
Cephalexin	CF	613	98.0	731	98.5
Chloramphenicol	C	978	97.7	978	98.7
Ciprofloxacin	CIP	977	99.4	977	99.7
Colistin	CL	467	97.9	467	98.7
Ertapenem*	ETP	1632	97.7	1265	99.4
Fosfomycin	FF	446	93.0	446	96.9
Garenoxacin	GRN	1977	98.1	1977	99.4
Gatifloxacin	GAT	752	99.5	752	99.6
Gemifloxacin	GEM	2096	98.6	2096	99.0
Gentamicin	GM	973	95.8	973	99.8
Imipenem	IPM	1545	94.8	1483	99.0
Isepamicin	ISP	468	93.8	468	99.4
Kanamycin	K	735	95.8	735	99.9
Levofloxacin	LVX	972	99.6	972	100.0
Lomefloxacin	LOM	976	99.1	976	99.6
Mecillinam	MEC	345	95.7	345	94.8
Meropenem	MEM	1450	97.0	1394	98.3
Minocycline	MI	2094	93.8	2094	98.3
Moxalactam	MOX	2063	96.9	2063	98.3
Moxifloxacin	MXF	746	98.5	747	99.7
Nalidixic Acid	NA	750	94.0	750	99.1
Netilmicin	NET	974	96.7	974	99.3
Nitrofurantoin	FM	744	98.4	744	98.8
Norfloxacin	NOR	976	98.9	976	99.6
Ofloxacin	OFX	971	99.3	971	99.7
Pefloxacin	PEF	469	98.5	469	99.4
Piperacillin	PIP	860	94.7	973	97.1
Piperacillin-Tazobactam	TZP	856	92.9	970	96.2
Temocillin	TEM	1410	96.1	1410	98.9
Tetracycline	TE	975	95.6	975	98.5
Ticarcillin	TIC	859	94.8	973	97.8
Ticarcillin-Clavulanate	TIM	534	92.7	589	94.6
Tigecycline	TGC	1428	97.1	1110	96.7
Tobramycin	NN	977	94.2	977	99.4
Trimethoprim	TMP	752	96.0	752	99.6
Trimeth-Sulfa (DIN)	STG	463	97.8	463	97.8
Trimethoprim-Sulfamethoxazole	SXT	976	95.5	976	97.3

* Ability to Detect Resistance Unknown

7.1.2 Gram Positive Performance

Gram Positive Identification

In two internal studies, the performance of the BD Phoenix Gram Positive Identification was evaluated. The 0.5 inoculum density configuration and the 0.25 inoculum density configuration were tested with 696 strains (0.5) and 755 strains (0.25) respectively. Results were evaluated against commercial and non-commercial methods.

The BD Phoenix Gram Positive Identification performance is outlined below:

	Inoculum Density (McFarland)	Agreement	No Agreement	No ID
Genus Level	0.5	98.1%	0.3%	0.6%
	0.25	99.6%	0.0%	0.4%
Species Level	0.5	95.4%	3.9%	0.7%
	0.25	98.0%	1.6%	0.4%

Gram Positive Susceptibility

ANTIMICROBIAL	CODE	EA N	EA %	CA N	CA %
Amikacin	AN	487	95.7	487	95.7
Amoxicillin	AMX	395	90.6	659	97.1
Amoxicillin-Clavulanate	AMC	180	97.8	446	97.5
Amoxicillin-Clavulanate (f)	AXC	397	96.7	664	97.6
Ampicillin	AM	402	94.0	667	98.7
Ampicillin-Sulbactam	SAM	179	96.7	445	97.1
Ampicillin-Sulbactam (f)	SXA	1449	94.6	1449	95.2
Arbekacin	ARB	973	96.2	973	99.9
Azithromycin	AZM	702	95.7	702	97.7
Cefaclor	CEC	182	91.8	449	95.6
Cefazolin	CZ	180	97.2	441	97.5
Cefdinir	CDR	182	94.5	434	96.8
Cefditoren	CDN	944	96.2	944	97.8
Cefepime	FEP	181	97.2	446	97.5
Cefmetazole	CMZ	174	96.6	430	97.2
Cefoperazone	CFP	184	95.7	447	97.8
Cefotaxime	CTX	185	96.2	446	97.8
Cefotetan	CTT	183	94.5	439	96.6
Cefotiam	CFT	965	91.5	965	94.0
Cefoxitin	FOX	184	96.2	445	97.5
Cefozopran	CFZ	1130	89.8	1130	89.6
Cefpirome	CPO	183	100.0	446	97.5
Cefpodoxime	CPD	185	91.4	451	95.6

ANTIMICROBIAL	CODE	EA N	EA %	CA N	CA %
Ceftaroline*	CPT	1313	94.5	866	99.7
Ceftazidime	CAZ	183	95.1	448	97.1
Ceftizoxime	ZOX	184	93.5	447	96.2
Ceftriaxone	CRO	184	95.1	447	97.3
Cefuroxime	CXM	184	94.6	447	98.2
Cephalexin	CN	185	90.3	452	97.4
Cephalothin	CF	182	97.8	441	97.3
Chloramphenicol	C	705	92.8	705	95.3
Ciprofloxacin	CIP	686	96.4	686	97.4
Clarithromycin	CLR	485	96.3	485	98.1
Clindamycin	CC	703	98.2	703	98.3
Daptomycin*	DAP	1361	97.6	1361	99.8
Doxycycline	D	1211	96.5	1211	99.8
Ertapenem	ETP	670	91.6	670	95.4
Erythromycin	E	474	95.4	474	95.8
Fosfomycin	FF	472	97.0	472	98.3
Fusidic Acid	FA	477	96.7	477	99.0
Garenoxacin	GRN	1212	97.1	1212	99.0
Gatifloxacin	GAT	481	98.8	481	100.0
Gemifloxacin	GEM	1400	96.2	1400	97.4
Gentamicin	GM	487	98.4	487	99.2
Gentamicin-Syn	GMS	NA	NA	198	97.5
Gentamicin-Syn (SFM)	GMF	NA	NA	87	100.0
Imipenem	IPM	185	100.0	448	97.5
Inducible Macrolide Resistance (iMLSB) Test	ECC	NA	NA	295	97.6
Kanamycin	K	463	92.2	464	97.4
Kanamycin Synergy	KS	501	100.0	501	96.6
Levofloxacin	LVX	698	96.9	698	98.6
Lincomycin	L	696	98.3	696	98.7
Linezolid	LZD	474	99.4	474	100.0
Lomefloxacin	LOM	486	97.7	486	99.2
Meropenem	MEM	185	98.4	447	97.5
Minocycline	MI	1448	98.5	1448	99.2
Moxalactam	MOX	935	95.9	935	96.0
Moxifloxacin	MXF	486	99.0	486	99.6
Mupirocin	MUP	938	96.6	938	99.7
Mupirocin High Level	MUH	968	100.0	968	99.9

ANTIMICROBIAL	CODE	EA N	EA %	CA N	CA %
Netilmicin	NET	488	93.9	488	96.3
Nitrofurantoin	FM	707	98.3	707	98.3
Norfloxacin	NOR	674	96.0	674	97.8
Ofloxacin	OFX	487	99.2	488	99.8
Oxacillin	OX	449	95.8	449	97.8
Pefloxacin	PEF	706	97.9	706	98.0
Penicillin	P	401	96.0	662	98.0
Piperacillin	PIP	382	81.7	639	98.0
Piperacillin-Tazobactam	TZP	386	100.0	649	98.3
Pristinamycin	PR	695	93.2	695	95.5
Quinupristin-Dalfopristin	SYN	704	97.2	704	97.6
Rifampin	RA	700	84.0	700	88.3
Streptomycin-Syn	STS	NA	NA	198	99.0
Streptomycin-Syn (SFM)	STF	NA	NA	87	98.8
Teicoplanin	TEC	671	97.6	671	99.4
Telithromycin	TEL	898	97.3	898	98.9
Tetracycline	TE	707	96.3	707	98.6
Ticarcillin	TIC	395	95.4	659	98.2
Ticarcillin-Clavulanate	TIM	396	97.5	656	97.9
Tigecycline*	TGC	1356	96.8	1044	100
Tobramycin	NN	473	97.0	473	97.3
Trimethoprim	TMP	479	95.4	479	97.9
Trimeth-Sulfa (DIN)	STG	645	91.0	646	92.7
Trimethoprim-Sulfamethoxazole	SXT	654	89.5	654	93.0
Vancomycin	VA	702	99.3	702	99.9

* Ability to Detect Resistance Unknown

7.1.3 Streptococci Performance (with BD Phoenix SMIC/ID, SMIC Panels)

Streptococci Identification (SMIC/ID only)

In an internal study, the performance of the BD Phoenix Streptococci Identification was evaluated. Results from 655 isolates were evaluated against commercial and noncommercial methods.

The BD Phoenix Streptococci Identification performance is outlined below:

	Agreement	No Agreement	No ID
Species Level	96.3%	2.4%	1.2%

Streptococci Susceptibility

The performance of the BD Phoenix Streptococci AST System was evaluated at four clinical trial sites using clinical isolates. Comparisons were made to AST results generated from reference broth microdilution panels prepared according to CLSI standard guidelines. Discrepant results were arbitrated by duplicate repeat testing in both systems.

ANTIMICROBIAL	CODE	EA N	EA %	CA N	CA %
Amoxicillin	AMX	1576	99.2	1576	99.7
Amoxicillin-Clavulanate	AMC	1564	97.9	1564	99.3
Ampicillin	AM	1569	98.0	1569	99.4
Cefepime	FEP	1571	97.6	1571	99.7
Cefotaxime	CTX	1578	98.5	1578	99.6
Ceftriaxone	CRO	1579	98.5	1579	99.8
Cefuroxime	CXM	1581	97.7	1581	98.8
Chloramphenicol	C	1587	97.4	1587	99.6
Clindamycin	CC	1591	94.0	1591	97.4
Daptomycin	DAP	1566	93.1	1566	99.9
Ertapenem*	ETP	1585	97.9	1585	99.6
Erythromycin	E	1577	93.2	1577	98.2
Garenoxacin*	GRN	1515	95.5	1515	99.7
Gatifloxacin	GAT	1587	95.1	1587	99.5
Gemifloxacin*	GEM	1592	98.9	1592	99.7
Gentamicin-Syn	GMS	1032	99.6	1032	99.6
Imipenem	IPM	1581	98.0	1581	99.6
Kanamycin-Syn	KS	1032	99.6	1032	99.6
Levofloxacin	LVX	1595	97.4	1595	99.8
Linezolid	LZD	1586	97.1	1586	99.4
Meropenem	MEM	1579	97.4	1579	99.7
Moxifloxacin*	MXF	1590	95.8	1590	99.6
Ofloxacin	OFX	1594	98.2	1594	98.7
Penicillin	P	1585	93.9	1585	98.5
Pristinamycin*	PR	1583	94.8	1583	99.8
Quinupristin-dalfopristin*	SYN	1581	97.3	1581	99.7
Streptomycin-Syn	STS	1031	99.9	1031	99.9
Teicoplanin*	TEC	1593	99.8	1593	99.9
Telithromycin*	TEL	1574	95.9	1574	98.5
Tetracycline	TE	1589	93.3	1589	97.6
Trimethoprim-Sulfamethoxazole	SXT	1008	93.8	1008	98.3
Vancomycin*	VA	1588	98.2	1588	99.9

* Ability to Detect Resistance Unknown

7.1.4 Identification of Yeast Species

The performance of the BD Phoenix Yeast identification was evaluated across multiple sites using pure colonies isolated from Sabouraud Dextrose Agar (SAB) and BD Trypticase Soy Agar with 5% Sheep Blood (TSA). Results from 519 (SAB) and 510 (TSA) clinical and challenge isolates were evaluated against conventional and molecular methods.

The BD Phoenix Yeast identification performance is outlined below:

	Source Media	Agreement	No Agreement	No ID
Genus/Species Level	SAB	95.2%	3.8%	1.0%
	TSA	96.5%	2.7%	0.8%

Additionally, testing was performed at multiple sites to demonstrate reproducibility. The identification results obtained using the BD Phoenix system were compared with expected results. This performance testing demonstrated inter-site reproducibility of $\geq 95\%$.

7.2 Limitations of the Procedure

See the package insert shipped with the panel for specific organism/antimicrobial limitations.

General

A Gram stain test is required for the selection of the appropriate BD Phoenix panel types. Accurate identification and/or AST results may not be made without this test.

Use only well-isolated bacterial or yeast colonies from one of the recommended primary isolation media. Use of mixed colonies could result in inaccurate identification and/or AST interpretations.

If the instrument inoculum density (for the panel type being used) is configured to 0.5, an inoculum density of 0.50–0.60 McFarland must be met. Only the BD BBL CrystalSpec or BD PhoenixSpec Nephelometer can be used to measure the inoculum density.

If the instrument inoculum density (for the panel type being used) is configured to 0.25, an inoculum density of 0.20–0.30 McFarland must be met. Only the BD PhoenixSpec Nephelometer can be used to measure the inoculum density for this range.

For identification of yeast, a suspension equivalent of 2.00–2.40 McFarland standard must be met and prepared only with the BD PhoenixSpec Nephelometer. Use of alternate methods for suspension preparation may cause erroneous identification results.

BD Phoenix panels can be read only by the BD Phoenix M50 instrument. Visual interpretation of the BD Phoenix panels is not possible. Any attempt to manually interpret results from the panel may lead to misidentification and/or inaccurate AST interpretations.

Panels must be placed into the BD Phoenix M50 instrument within 30 minutes of inoculation.

For the most reliable results, it is recommended that the QC organisms be subcultured at least twice on two consecutive days onto TSA with 5% Sheep Blood before use in the BD Phoenix system.

Identification

The unique panel environment combined with the shortened incubation time may result in BD Phoenix panel reactions varying from those obtained using conventional biochemical media.

Antimicrobial Susceptibility Testing

AST Indicator solution may be added to the AST broth tubes and stored in the dark for up to 8 hours prior to use. Use only one free-falling drop of the AST Indicator solution from the dropper bottle. If more than one drop is added inadvertently, discard the tube and use a fresh tube of AST broth.

After the addition of BD Phoenix AST Indicator Solution to the AST broth tubes, mix by inversion. DO NOT VORTEX. Vortexing may cause air bubbles to form in the AST broth, which can result in inappropriate filling of the BD Phoenix panel during inoculation.

Because of the low probability of occurrence some organisms included in the ID taxa are not included in the AST database. These organisms will display the message Organism not included in the AST database, perform alternate method.

For some organism/antimicrobial combinations, the absence of resistant strains precludes defining any result categories other than susceptible. For strains yielding results suggestive of a nonsusceptible category, organism identification and antimicrobial susceptibility test results should be confirmed. Subsequently, the isolates should be saved and submitted to a reference laboratory that will confirm the result using the CLSI reference microbroth dilution method.

The use of CHROMagar Orientation may produce false susceptibility results when testing erythromycin with gram-positive organisms. Antimicrobial susceptibility results should be confirmed using BD Trypticase Soy Agar with 5% Sheep Blood.

This media type [Chocolate Agar] should not be used for Streptococcal identification with SMIC/ID panels. Chocolate Agar may be used for Streptococcal susceptibility testing only.

The use of Columbia Agar with 5% Horse Blood may produce significantly higher MIC for SXT with *Streptococcus* species, which may result in false resistance. Antimicrobial susceptibility test results should be confirmed using BD Trypticase Soy Agar with 5% Sheep Blood.

NOTES

MIC results for isolates without a genus and species identified in the BD Phoenix results Final ID field may not be valid.

When changing the BD Phoenix Final ID from an organism not claimed in the AST Taxa list to an organism that is claimed in the AST Taxa, the MIC and Interpretation results will be based on the Final ID that is claimed in the AST Taxa.

7.3 Organism Codes, Short Names, Long Names

Long Name	Short Name	Code
<i>Achromobacter denitrificans</i>	Achr. denitrificans	ALCDEN
<i>Achromobacter piechaudii</i>	Achr. piechaudii	ALCPIE
<i>Achromobacter species</i>	Achr. species	ACHRSPE
<i>Achromobacter xylosoxidans</i>	Achr. xylosoxidans	ALCXYL

Long Name	Short Name	Code
<i>Acinetobacter baumannii</i>	Acinet. baumannii	ACINBAU
<i>Acinetobacter baumannii/calcoaceticus</i> complex	Acinet. baumannii/calco. cplx	ACINBCX
<i>Acinetobacter baumannii/haemolyticus</i>	Acinet. baumannii/haemolyticus	ACINBAUHAE
<i>Acinetobacter calcoaceticus</i>	Acinet. calcoaceticus	ACINCAL
<i>Acinetobacter haemolyticus</i>	Acinet. haemolyticus	ACINHAE
<i>Acinetobacter johnsonii</i>	Acinet. johnsonii	ACINJOH
<i>Acinetobacter junii</i>	Acinet. junii	ACINJUN
<i>Acinetobacter lwoffii</i>	Acinet. lwoffii	ACINLWO
<i>Acinetobacter lwoffii/haemolyticus</i>	Acinet. lwoffii/haemol.	ACINLWOHAE
<i>Acinetobacter radioresistens</i>	Acinet. radioresistens	ACINRAD
<i>Acinetobacter species</i>	Acinet. species	ACINSPE
<i>Actinobacillus lignieresii</i>	Actinob. lignieresii	ACTBLIG
<i>Actinobacillus suis</i>	Actinob. suis	ACTBSUI
<i>Actinobacillus ureae</i>	Actinob. ureae	ACTBURE
<i>Aerococcus species</i>	Aeroc. species	AERCSPE
<i>Aerococcus urinae</i>	Aeroc. urinae	AERCURI
<i>Aerococcus viridans</i>	Aeroc. viridans	AERCVIR
<i>Aeromonas allosaccharophila</i>	Aerom. allosaccharophila	AERMALL
<i>Aeromonas caviae</i>	Aerom. caviae	AERMCAV
<i>Aeromonas eucrenophila</i>	Aerom. eucrenophila	AERMEUC
<i>Aeromonas hydrophila</i>	Aerom. hydrophila	AERMHYD
<i>Aeromonas hydrophila</i> group	Aerom. hydrophila gr.	AERMHYDGR
<i>Aeromonas jandaei</i>	Aerom. jandaei	AERMJAN
<i>Aeromonas media</i>	Aerom. media	AERMMED
<i>Aeromonas salmonicida</i>	Aerom. salmonicida	AERMSAL

Long Name	Short Name	Code
<i>Aeromonas salmonicida</i> ssp <i>achromogenes</i>	Aerom. salmonic. ssp ach.	AERMSALA
<i>Aeromonas salmonicida</i> ssp <i>masoucida</i>	Aerom. salmonic. ssp mas.	AERMSALM
<i>Aeromonas salmonicida</i> ssp <i>pectinolytica</i>	Aerom. salmonic. ssp pec.	AERMSALPE
<i>Aeromonas salmonicida</i> ssp <i>salmonicida</i>	Aerom. salmonic. ssp sal.	AERMSALSA
<i>Aeromonas salmonicida</i> ssp <i>smithia</i>	Aerom. salmonic. ssp smit.	AERMSALSM
<i>Aeromonas schubertii</i>	Aerom. schubertii	AERMSCH
<i>Aeromonas</i> species	Aerom. species	AERMSPE
<i>Aeromonas trota</i>	Aerom. trota	AERMTRO
<i>Aeromonas veronii</i> bv <i>sobria</i>	Aerom. veronii bv sobria	AERMVERS
<i>Aeromonas veronii</i> bv <i>veronii</i>	Aerom. veronii bv veronii	AERMVERV
<i>Alcaligenes faecalis</i>	Alc. faecalis	ALCFAE
<i>Alcaligenes faecalis</i> ssp <i>faecalis</i>	Alc. faecalis ssp faecalis	ALCFAEF
<i>Alcaligenes</i> species	Alc. species	ALCSPE
<i>Alloiococcus otitis</i>	All. otitis	ALLOTI
<i>Arcanobacterium haemolyticum</i>	Arcan. haemolyticum	ARCAHAE
<i>Bacillus cereus</i>	Baci. cereus	BACICER
<i>Bacillus circulans</i>	Baci. circulans	BACICIR
<i>Bacillus coagulans</i>	Baci. coagulans	BACICOA
<i>Bacillus licheniformis</i>	Baci. licheniformis	BACILIC
<i>Bacillus megaterium</i>	Baci. megaterium	BACIMEG
<i>Bacillus pumilus</i>	Baci. pumilus	BACIPUM
<i>Bacillus subtilis</i>	Baci. subtilis	BACISUB
<i>Bacillus thuringiensis</i>	Baci. thuringiensis	BACITHU
<i>Bergeyella zoohelcum</i>	Ber. zoohelcum	BERZOO
<i>Bordetella bronchiseptica</i>	Bord. bronchiseptica	BORBROS
<i>Brevibacillus brevis</i>	Brevs. brevis	BACIBRE

Long Name	Short Name	Code
<i>Brevibacterium</i> species	Brevm. species	BREISPE
<i>Brevundimonas diminuta</i>	Brevu. diminuta	BREUDIM
<i>Brevundimonas</i> species	Brevu. species	BREUSPE
<i>Brevundimonas vesicularis</i>	Brevu. vesicularis	BREUVES
<i>Burkholderia caryophylli</i>	Burk. caryophylli	BURCAR
<i>Burkholderia cepacia</i> complex	Burk. cepacia complex	BURCEP
<i>Burkholderia cepacia</i> / <i>Ralstonia pickettii</i>	Burk. cepacia/Ral. pickettii	BURCEPRALPIC
<i>Burkholderia gladioli</i>	Burk. gladioli	BURGLA
<i>Burkholderia glathei</i>	Burk. glathei	BURGLT
<i>Burkholderia graminis</i>	Burk. graminis	BURGRA
<i>Burkholderia multivorans</i>	Burk. multivorans	BURMUL
<i>Burkholderia phenazinium</i>	Burk. phenazinium	BURPHE
<i>Burkholderia pyrrocinia</i>	Burk. pyrrocinia	BURPYR
<i>Burkholderia</i> species	Burk. species	BURSPE
<i>Burkholderia</i> species/ <i>Ralstonia</i> species	Burk. species/Ral. species	BURSPERALSPE
<i>Candida albicans</i>	Can. albicans	CANALB
<i>Candida apicola</i>	Can. apicola	CANAPI
<i>Candida boidinii</i>	Can. boidinii	CANBOI
<i>Candida bracarensis</i>	Can. bracarensis	CANBRA
<i>Candida catenulata</i>	Can. catenulata	CANCAT
<i>Candida ciferrii</i>	Can. ciferrii	CANCIF
<i>Candida dubliniensis</i>	Can. dubliniensis	CANDUB
<i>Candida firmetaria</i>	Can. firmetaria	CANLAM
<i>Candida freyschussii</i>	Can. freyschussii	CANFRE
<i>Candida glabrata</i>	Can. glabrata	TORGLA
<i>Candida guilliermondii</i>	Can. guilliermondii	CANGUI

Long Name	Short Name	Code
<i>Candida guilliermondii</i> var <i>membranaefaciens</i>	Can. guillier. var membranaef.	CANGUIM
<i>Candida haemulonii</i>	Can. haemulonii	CANHAE
<i>Candida inconspicua</i>	Can. inconspicua	CANINC
<i>Candida kefyr</i>	Can. kefyr	CANKEF
<i>Candida krusei</i>	Can. krusei	CANKRU
<i>Candida lipolytica</i>	Can. lipolytica	CANLIP
<i>Candida lusitanae</i>	Can. lusitanae	CANLUS
<i>Candida magnoliae</i>	Can. magnoliae	CANMAG
<i>Candida melibiosica</i>	Can. melibiosica	CANMEL
<i>Candida membranifaciens</i>	Can. membranifaciens	CANMEM
<i>Candida norvegensis</i>	Can. norvegensis	CANNOR
<i>Candida parapsilosis</i> complex	Can. parapsilosis complex	CANPARPX
<i>Candida pararugosa</i>	Can. pararugosa	CANPARR
<i>Candida pelliculosa</i>	Can. pelliculosa	CANPEL
<i>Candida pulcherrima</i>	Can. pulcherrima	CANPUL
<i>Candida rugosa</i>	Can. rugosa	CANRUG
<i>Candida sake</i>	Can. sake	CANSAK
<i>Candida sphaerica</i>	Can. sphaerica	CANSPH
<i>Candida tropicalis</i>	Can. tropicalis	CANTRO
<i>Candida utilis</i>	Can. utilis	CANUTI
<i>Candida viswanathii</i>	Can. viswanathii	CANVIS
<i>Candida zeylanoides</i>	Can. zeylanoides	CANZEY
<i>Cardiobacterium hominis</i>	Card. hominis	CARHOM
CDC group Vb-3	CDC Vb-3	CDCVb3
<i>Cedecea davisae</i>	Ced. davisae	CEDDAV
<i>Cedecea lapagei</i>	Ced. lapagei	CEDLAP

Long Name	Short Name	Code
<i>Cedecea neteri</i>	Ced. neteri	CEDNET
<i>Cedecea species</i>	Ced. species	CEDSPE
<i>Cedecea species 3</i>	Ced. species 3	CEDSPE3
<i>Cedecea species 5</i>	Ced. species 5	CEDSPE5
<i>Cellulomonas turbata</i>	Cell. turbata	OERTUR
<i>Cellulosimicrobium cellulans</i>	Cellulo. cellulans	OERXAN
<i>Chromobacterium violaceum</i>	Chrom. violaceum	CHROVIO
<i>Chryseobacterium gleum</i>	Chryseob. gleum	CHRBGLE
<i>Chryseobacterium indologenes</i>	Chryseob. indologenes	CHRBIND
<i>Chryseobacterium scophthalmum</i>	Chryseob. scophthalmum	CHRBSCO
<i>Chryseobacterium species</i>	Chryseob. species	CHRBSP
<i>Citrobacter amalonaticus</i>	Cit. amalonaticus	CITAMA
<i>Citrobacter braakii</i>	Cit. braakii	CITBRA
<i>Citrobacter farmeri</i>	Cit. farmeri	CITFAR
<i>Citrobacter freundii</i>	Cit. freundii	CITFRE
<i>Citrobacter gillenii</i>	Cit. gillenii	CITSPE10
<i>Citrobacter koseri</i>	Cit. koseri	CITKOS
<i>Citrobacter murlinae</i>	Cit. murlinae	CITSPE11
<i>Citrobacter rodentium</i>	Cit. rodentium	CITSPE9
<i>Citrobacter sedlakii</i>	Cit. sedlakii	CITSED
<i>Citrobacter species</i>	Cit. species	CITSPE
<i>Citrobacter werkmanii</i>	Cit. werkmanii	CITWER
<i>Citrobacter youngae</i>	Cit. youngae	CITYOU
<i>Comamonas terrigena</i>	Coma. terrigena	COMTER
<i>Comamonas testosteroni</i>	Coma. testosteroni	COMTES
<i>Corynebacterium amycolatum</i>	Cory. amycolatum	CORAMY

Long Name	Short Name	Code
<i>Corynebacterium amycolatum/minuteissimum</i>	Cory. amycolatum/ minuteissimum	CORAMYMIN
<i>Corynebacterium amycolatum/striatum</i>	Cory. amycolatum/striatum	CORAMYSTR
<i>Corynebacterium bovis</i>	Cory. bovis	CORBOV
<i>Corynebacterium diphtheriae</i>	Cory. diphtheriae	CORDIP
<i>Corynebacterium jeikeium</i>	Cory. jeikeium	CORJEI
<i>Corynebacterium kutscheri</i>	Cory. kutscheri	CORKUT
<i>Corynebacterium matruchotii</i>	Cory. matruchotii	CORMAT
<i>Corynebacterium minuteissimum</i>	Cory. minuteissimum	CORMIN
<i>Corynebacterium propinquum</i>	Cory. propinquum	CORPRO
<i>Corynebacterium pseudodiphtheriticum</i>	Cory. pseudodiphth.	CORPSD
<i>Corynebacterium pseudotuberculosis</i>	Cory. pseudotuberc.	CORPST
<i>Corynebacterium renale</i>	Cory. renale	CORREN
<i>Corynebacterium striatum</i>	Cory. striatum	CORSTR
<i>Corynebacterium ulcerans</i>	Cory. ulcerans	CORULC
<i>Corynebacterium urealyticum</i>	Cory. urealyticum	CORURE
<i>Corynebacterium xerosis</i>	Cory. xerosis	CORXER
<i>Cosenzaea myxofaciens</i>	Cosen. myxofaciens	PROTMYX
<i>Cronobacter sakazakii</i> complex	Cronob. sakazakii complex	ENTBSAK
<i>Cryptococcus albidus</i>	Cryp. albidus	CRYALB
<i>Cryptococcus humicola</i>	Cryp. humicola	CRYHUM
<i>Cryptococcus laurentii</i>	Cryp. laurentii	CRYLAU
<i>Cryptococcus luteolus</i>	Cryp. luteolus	CRYLUT
<i>Cryptococcus neoformans</i>	Cryp. neoformans	CRYNEO
<i>Cryptococcus terreus</i>	Cryp. terreus	CRYTER
<i>Cryptococcus uniguttulatus</i>	Cryp. uniguttulatus	CRYUNI
<i>Cupriavidus gilardii</i>	Cup. gilardii	RALGIL

Long Name	Short Name	Code
<i>Cupriavidus pauculus</i>	Cup. pauculus	CDCIVC2
<i>Delftia acidovorans</i>	Delf. acidovorans	COMACI
<i>Dermabacter hominis</i>	Dermab. hominis	DERBHOM
<i>Dermacoccus nishinomiyaensis</i>	Derm. nishinomiyaen.	MICNIS
<i>Edwardsiella hoshinae</i>	Ed. hoshinae	EDWHOS
<i>Edwardsiella ictaluri</i>	Ed. ictaluri	EDWICT
<i>Edwardsiella species</i>	Ed. species	EDWSPE
<i>Edwardsiella tarda</i>	Ed. tarda	EDWTAR
<i>Edwardsiella tarda</i> biogroup 1	Ed. tarda biogr. 1	EDWTAR1
<i>Eikenella corrodens</i>	Eik. corrodens	EIKCOR
<i>Elizabethkingia meningoseptica</i>	Eliz. meningosept.	CHRBMEN
<i>Empedobacter brevis</i>	Emp. brevis	EMPBRE
<i>Enterobacter aerogenes</i>	Enterob. aerogenes	ENTBAER
<i>Enterobacter asburiae</i>	Enterob. asburiae	ENTBASB
<i>Enterobacter cancerogenus</i>	Enterob. cancerogenus	ENTBCAN
<i>Enterobacter cloacae</i>	Enterob. cloacae	ENTBCLO
<i>Enterobacter cloacae</i> ssp <i>dissolvens</i>	Enterob. cloacae ssp dissolven	ENTBDIS
<i>Enterobacter hormaechei</i>	Enterob. hormaechei	ENTBHOR
<i>Enterobacter kobei</i>	Enterob. kobei	ENTBKOB
<i>Enterobacter nimipressuralis</i>	Enterob. nimipressuralis	ENTBNIM
<i>Enterobacter species</i>	Enterob. species	ENTBSPE
<i>Enterococcus asini</i>	Enteroc. asini	ENTCASI
<i>Enterococcus avium</i>	Enteroc. avium	ENTCAVI
<i>Enterococcus casseliflavus</i>	Enteroc. casseliflavus	ENTCCAS
<i>Enterococcus casseliflavus/gallinarum</i>	Enteroc. cassel./gallin.	ENTCCASGAL
<i>Enterococcus cecorum</i>	Enteroc. cecorum	ENTCCEC

Long Name	Short Name	Code
<i>Enterococcus columbae</i>	Enteroc. columbae	ENTCCOL
<i>Enterococcus dispar</i>	Enteroc. dispar	ENTCDIS
<i>Enterococcus durans</i>	Enteroc. durans	ENTCDUR
<i>Enterococcus durans/faecium</i>	Enteroc. durans/faecium	ENTCDURFAI
<i>Enterococcus faecalis</i>	Enteroc. faecalis	ENTCFAA
<i>Enterococcus faecalis/faecium</i>	Enteroc. faecalis/faecium	ENTCFAAFAI
<i>Enterococcus faecium</i>	Enteroc. faecium	ENTCFAI
<i>Enterococcus flavescens</i>	Enteroc. flavescens	ENTCFLA
<i>Enterococcus gallinarum</i>	Enteroc. gallinarum	ENTCGAL
<i>Enterococcus gilvus</i>	Enteroc. gilvus	ENTCGIL
<i>Enterococcus haemoperoxidus</i>	Enteroc. haemoperoxidus	ENTCHAE
<i>Enterococcus hirae</i>	Enteroc. hirae	ENTCHIR
<i>Enterococcus hirae/faecium</i>	Enteroc. hirae/faecium	ENTCHIRFAI
<i>Enterococcus malodoratus</i>	Enteroc. malodoratus	ENTCMAL
<i>Enterococcus moraviensis</i>	Enteroc. moraviensis	ENTCMOR
<i>Enterococcus mundtii</i>	Enteroc. mundtii	ENTCMUN
<i>Enterococcus pallens</i>	Enteroc. pallens	ENTCPAL
<i>Enterococcus pseudoavium</i>	Enteroc. pseudoavium	ENTCPSE
<i>Enterococcus raffinosus</i>	Enteroc. raffinosus	ENTCRAF
<i>Enterococcus raffinosus/avium</i>	Enteroc. raffinosus/avium	ENTCRAFAVI
<i>Enterococcus ratti</i>	Enteroc. ratti	ENTCRAT
<i>Enterococcus saccharolyticus</i>	Enteroc. saccharolyticus	ENTCSAC
<i>Enterococcus species</i>	Enteroc. species	ENTCSPE
<i>Enterococcus sulfureus</i>	Enteroc. sulfureus	ENTCSUL
<i>Erysipelothrix rhusiopathiae</i>	Ery. rhusiopathiae	ERYRHU
<i>Escherichia coli</i>	Esch. coli	ESCCOL

Long Name	Short Name	Code
<i>Escherichia coli</i> serotype O111	Esch. coli O111	ESCCOL0111
<i>Escherichia coli</i> serotype O157	Esch. coli O157	ESCCOL0157
<i>Escherichia fergusonii</i>	Esch. fergusonii	ESCFER
<i>Escherichia hermannii</i>	Esch. hermannii	ESCHER
<i>Escherichia species</i>	Esch. species	ESCSPE
<i>Escherichia vulneris</i>	Esch. vulneris	ESCVUL
<i>Ewingella americana</i>	Ew. americana	EWIAME
<i>Exophiala dermatitidis</i>	Exo. dermatitidis	WANDER
<i>Exophiala species</i>	Exo. species	EXOSPE
<i>Gardnerella vaginalis</i>	Gard. vaginalis	GARVAG
<i>Gemella haemolysans</i>	Gem. haemolysans	GEMHAE
<i>Gemella morbillorum</i>	Gem. morbillorum	GEMMOR
<i>Gemella species</i>	Gem. species	GEMSPE
<i>Geotrichum species</i>	Geo. species	GEOSPE
<i>Globicatella sanguinis</i>	Glob. sanguinis	GLOSAN
Gram-negative rod unidentified enteric	GNR unident. enteric	GNRUNIE
Gram-negative rod unidentified nonfermenter	GNR unident. NF	GNRUNINF
<i>Grimontia hollisae</i>	Grim. hollisae	VIBHOL
<i>Hafnia alvei</i>	Haf. alvei	HAFALV
<i>Hafnia alvei</i> group 1	Haf. alvei gr. 1	HAFALV1
<i>Helcococcus kunzii</i>	Helco. kunzii	HELCKUN
<i>Hortaea werneckii</i>	Hor. werneckii	HORWER
<i>Hyphopichia burtonii</i>	Hyphop. burtonii	PICBUR
<i>Kingella denitrificans</i>	King. denitrificans	KINDEN
<i>Kingella kingae</i>	King. kingae	KINKIN
<i>Klebsiella granulomatis</i>	Kleb. granulomatis	CALYGRA

Long Name	Short Name	Code
<i>Klebsiella oxytoca</i>	Kleb. oxytoca	KLEOXY
<i>Klebsiella ozaenae</i>	Kleb. ozaenae	KLEPNEO
<i>Klebsiella pneumoniae</i>	Kleb. pneumoniae	KLEPNEP
<i>Klebsiella rhinoscleromatis</i>	Kleb. rhinoscleromatis	KLEPNER
<i>Klebsiella species</i>	Kleb. species	KLESPE
<i>Kloeckera species</i>	Kloeck. species	KLOSPE
<i>Kluyvera ascorbata</i>	Kluyvera ascorbata	KLUASC
<i>Kluyvera cryocrescens</i>	Kluyvera cryocres.	KLUCRY
<i>Kluyvera georgiana</i>	Kluyvera georgiana	KLUGEO
<i>Kluyvera intermedia</i>	Kluyvera intermedia	ENTBINT
<i>Kluyvera species</i>	Kluyvera species	KLUSPE
<i>Kocuria kristinae</i>	Koc. kristinae	MICKRI
<i>Kocuria rosea</i>	Koc. rosea	MICROS
<i>Kocuria varians</i>	Koc. varians	MICVAR
<i>Kosakonia cowanii</i>	Kosak. cowanii	ENTBCOW
<i>Kytococcus sedentarius</i>	Kyto. sedentarius	MICSED
<i>Lactococcus garvieae</i>	Lactoc. garvieae	LACCGAR
<i>Lactococcus lactis ssp cremoris</i>	Lactoc. lactis ssp crem.	LACCLACC
<i>Lactococcus lactis ssp hordniae</i>	Lactoc. lactis ssp hord.	LACCLACH
<i>Lactococcus lactis ssp lactis</i>	Lactoc. lactis ssp lactis	LACCLACL
<i>Lactococcus plantarum</i>	Lactoc. plantarum	LACCPLA
<i>Lactococcus raffinolactis</i>	Lactoc. raffinolactis	LACCRAF
<i>Lactococcus species</i>	Lactoc. species	LACCSPE
<i>Leclercia adecarboxylata</i>	Lec. adecarboxylata	LECADE
<i>Leifsonia aquatica</i>	Leif. aquatica	CORAQU
<i>Lelliottia amnigena</i>	Lell. amnigena	ENTBAMN

Long Name	Short Name	Code
<i>Lelliottia amnigena</i> biogroup 1	Lell. amnigena biogr. 1	ENTBAMN1
<i>Lelliottia amnigena</i> biogroup 2	Lell. amnigena biogr. 2	ENTBAMN2
<i>Leminorella grimontii</i>	Lem. grimontii	LEMGR1
<i>Leminorella richardii</i>	Lem. richardii	LEMRIC
<i>Leuconostoc citreum</i>	Leu. citreum	LEUCIT
<i>Leuconostoc lactis</i>	Leu. lactis	LEULAC
<i>Leuconostoc mesenteroides</i> ssp <i>cremoris</i>	Leu. mesenter. ssp crem.	LEUMESC
<i>Leuconostoc mesenteroides</i> ssp <i>mesenteroides</i>	Leu. mesenter. ssp mes.	LEUMESM
<i>Leuconostoc pseudomesenteroides</i>	Leu. pseudomesenter.	LEUPSE
<i>Leuconostoc</i> species	Leu. species	LEUSPE
<i>Listeria grayi</i>	Lis. grayi	LISGRA
<i>Listeria innocua</i>	Lis. innocua	LISINN
<i>Listeria ivanovii</i>	Lis. ivanovii	LISIVA
<i>Listeria monocytogenes</i>	Lis. monocytogenes	LISMON
<i>Listeria monocytogenes/innocua</i>	Lis. monocytogenes/innocua	LISMONINN
<i>Listeria</i> species	Lis. species	LISSPE
<i>Listeria welshimeri</i>	Lis. welshimeri	LISWEL
<i>Lysinibacillus sphaericus</i>	Lysini. sphaericus	BACISPH
<i>Macrococcus caseolyticus</i>	Macro. caseolyticus	STACAS
<i>Magnusiomyces capitatus</i>	Magnus. capitatus	BLACAP
<i>Malassezia furfur</i> complex	Mal. furfur complex	MALFURX
<i>Malassezia pachydermatis</i>	Mal. pachydermatis	MALPAC
<i>Malassezia sympodialis</i>	Mal. sympodialis	MALSYM
<i>Mannheimia haemolytica</i>	Mann. haemolytica	PASHAE
<i>Methylobacterium extorquens</i>	Methylob. extorquens	METEXT
<i>Micrococcus luteus</i>	Microc. luteus	MICLUT

Long Name	Short Name	Code
<i>Micrococcus lylae</i>	Microc. lylae	MICLYL
<i>Millerozyma farinosa</i>	Mill. farinosa	PICFAR
<i>Moellerella wisconsensis</i>	Moel. wisconsensis	MOEWIS
<i>Moraxella (Branhamella) catarrhalis</i>	Morax. (Bran.) cat.	MORABRACAT
<i>Moraxella species</i>	Morax. species	MORASPE
<i>Morganella morganii</i>	Morg. morganii	MORGMOR
<i>Morganella morganii ssp morganii</i>	Morg. morg. ssp morg.	MORGMORM
<i>Morganella morganii ssp morganii biogroup 1</i>	Morg. morg. ssp morg. biog. 1	MORGMORM1
<i>Morganella morganii ssp sibonii</i>	Morg. morg. ssp sibonii	MORGMORS
<i>Morganella species</i>	Morg. species	MORGspe
<i>Myroides odoratimimus</i>	Myr. odoratimimus	MYRODI
<i>Myroides odoratus</i>	Myr. odoratus	MYRODA
<i>Myroides odoratus/odoratimimus</i>	Myr. odoratus/odoratimimus	MYRODAODI
<i>Myroides species</i>	Myr. species	MYRSPE
<i>Neisseria animaloris</i>	Nei. animaloris	CDCEF4a
<i>Neisseria zoodegmatidis</i>	Nei. zoodegmatidis	CDCEF4b
<i>Ochrobactrum anthropi</i>	Och. anthropi	OCHANT
<i>Oligella ureolytica</i>	Olig. ureolytica	OLIURO
<i>Oligella urethralis</i>	Olig. urethralis	OLIURT
<i>Paenibacillus alvei</i>	Paen. alvei	PAEALV
<i>Paenibacillus macerans</i>	Paen. macerans	PAEMAC
<i>Pantoea agglomerans</i>	Pan. agglomerans	PANAGG
<i>Pantoea ananatis</i>	Pan. ananatis	ERWANA
<i>Pantoea dispersa</i>	Pan. dispersa	PANDIS
<i>Pantoea species</i>	Pan. species	PANSPE
<i>Pantoea stewartii</i>	Pan. stewartii	PANSTE

Long Name	Short Name	Code
<i>Pantoea stewartii</i> ssp <i>indologenes</i>	Pan. ste. ssp indologenes	PANSTEI
<i>Pantoea stewartii</i> ssp <i>stewartii</i>	Pan. ste. ssp stewartii	PANSTES
<i>Paracoccus yeei</i>	Parac. yeei	CDCEO2
<i>Pasteurella aerogenes</i>	Past. aerogenes	PASAER
<i>Pasteurella multocida</i>	Past. multocida	PASMUL
<i>Pasteurella pneumotropica</i>	Past. pneumotropica	PASPNE
<i>Pediococcus acidilactici</i>	Ped. acidilactici	PEDACI
<i>Pediococcus damnosus</i>	Ped. damnosus	PEDDAM
<i>Pediococcus dextrinicus</i>	Ped. dextrinicus	PEDDEX
<i>Pediococcus parvulus</i>	Ped. parvulus	PEDPAR
<i>Pediococcus pentosaceus</i>	Ped. pentosaceus	PEDPEN
<i>Pediococcus species</i>	Ped. species	PEDSPE
<i>Photobacterium damsela</i>	Photob. damsela	PHOBDAM
<i>Plesiomonas shigelloides</i>	Ples. shigelloides	PLESHI
<i>Pluralibacter gergoviae</i>	Plural. gergoviae	ENTBGER
<i>Pragia fontium</i>	Prag. fontium	PRAFON
<i>Proteus hauseri</i>	Prot. hauseri	PROTHAU
<i>Proteus mirabilis</i>	Prot. mirabilis	PROTMIR
<i>Proteus penneri</i>	Prot. penneri	PROTPEN
<i>Proteus species</i>	Prot. species	PROTSPE
<i>Proteus vulgaris</i>	Prot. vulgaris	PROTVUL
<i>Proteus vulgaris/penneri</i>	Prot. vulgaris/penneri	PROTVULPEN
<i>Prototheca wickerhamii</i>	Protot. wick.	PROHWIC
<i>Prototheca zopfii</i>	Protot. zopfii	PROHZOP
<i>Providencia alcalifaciens</i>	Prov. alcalifaciens	PROVALC
<i>Providencia heimbachae</i>	Prov. heimbachae	PROVHEI

Long Name	Short Name	Code
<i>Providencia rettgeri</i>	Prov. rettgeri	PROVRET
<i>Providencia rustigianii</i>	Prov. rustigianii	PROVRUS
<i>Providencia species</i>	Prov. species	PROVSPE
<i>Providencia stuartii</i>	Prov. stuartii	PROVSTU
<i>Pseudomonas aeruginosa</i>	Pseud. aeruginosa	PSEAER
<i>Pseudomonas alcaligenes</i>	Pseud. alcaligenes	PSEALC
<i>Pseudomonas fluorescens</i>	Pseud. fluorescens	PSEFLU
<i>Pseudomonas fluorescens/putida</i>	Pseud. fluorescens/putida	PSEFLUPUT
<i>Pseudomonas luteola</i>	Pseud. luteola	CHRMLUT
<i>Pseudomonas mendocina</i>	Pseud. mendocina	PSEMEN
<i>Pseudomonas monteilii</i>	Pseud. monteilii	PSEMON
<i>Pseudomonas oryzihabitans</i>	Pseud. oryzihabitans	FLAIORY
<i>Pseudomonas pertucinogena</i>	Pseud. pertucinogena	PSEPER
<i>Pseudomonas pseudoalcaligenes</i>	Pseud. pseudoalcaligenes	PSEPSE
<i>Pseudomonas pseudoalcaligenes ssp pseudoalcaligenes</i>	Pseud. pseudoal. ssp pseud.	PSEPSEP
<i>Pseudomonas putida</i>	Pseud. putida	PSEPUT
<i>Pseudomonas species</i>	Pseud. species	PSESPE
<i>Pseudomonas stutzeri</i>	Pseud. stutzeri	PSESTU
<i>Pseudomonas veronii</i>	Pseud. veronii	PSEVER
<i>Rahnella aquatilis</i>	Rah. aquatilis	RAHAQU
<i>Ralstonia pickettii</i>	Ral. pickettii	BURPIC
<i>Ralstonia solanacearum</i>	Ral. solanacearum	BURSOL
<i>Ralstonia species</i>	Ral. species	RALSPE
<i>Raoultella ornithinolytica</i>	Rao. ornithinolytica	KLEORN
<i>Raoultella planticola</i>	Rao. planticola	KLEPLA
<i>Raoultella species</i>	Rao. species	RAOSPE

Long Name	Short Name	Code
<i>Raoultella terrigena</i>	Rao. terrigena	KLETER
<i>Rhizobium radiobacter</i>	Rhizob. radiobacter	AGRRAD
<i>Rhodococcus equi</i>	Rhodoc. equi	RHOCEQU
<i>Rhodotorula glutinis</i>	Rhodot. glutinis	RHOTGLU
<i>Rhodotorula minuta</i>	Rhodot. minuta	RHOTMIN
<i>Rhodotorula mucilaginosa</i> var <i>mucilaginosa</i>	Rhodot. mucilag. var mucilag.	RHOTMUCM
<i>Rothia dentocariosa</i>	Roth. dentocariosa	ROTDEN
<i>Rothia mucilaginosa</i>	Roth. mucilaginosa	STOMUC
<i>Saccharomyces cerevisiae</i>	Sac. cerevisiae	SACCER
<i>Salmonella enterica</i> ssp <i>arizonae</i>	Salm. enterica ssp arizonae	SALCHOA
<i>Salmonella enterica</i> ssp <i>diarizonae</i>	Salm. enterica ssp diarizonae	SALCHOD
<i>Salmonella enterica</i> ssp <i>enterica</i> serovar <i>Choleraesuis</i>	Salm. enterica sv Choleraesuis	SALCHOC
<i>Salmonella enterica</i> ssp <i>enterica</i> sv <i>Gallinarum</i> bv <i>Gallinarum</i>	Salm. Gallinarum	SALGAL
<i>Salmonella enterica</i> ssp <i>enterica</i> sv <i>Gallinarum</i> bv <i>Pullorum</i>	Salm. Pullorum	SALPUL
<i>Salmonella enterica</i> ssp <i>enterica</i> sv <i>Paratyphi</i> A	Salm. Paratyphi A	SALPARA
<i>Salmonella enterica</i> ssp <i>enterica</i> sv <i>Typhi</i>	Salm. Typhi	SALTYP
<i>Salmonella enterica</i> ssp <i>houtenae</i>	Salm. enterica ssp houtenae	SALCHOH
<i>Salmonella enterica</i> ssp <i>indica</i>	Salm. enterica ssp indica	SALCHOI
<i>Salmonella enterica</i> ssp <i>salamae</i>	Salm. enterica ssp salamae	SALCHOS
<i>Salmonella</i> species	Salm. species	SALSPE
<i>Serratia entomophila</i>	Ser. entomophila	SERENT
<i>Serratia ficaria</i>	Ser. ficaria	SERFIC
<i>Serratia fonticola</i>	Ser. fonticola	SERFON
<i>Serratia grimesii</i>	Ser. grimesii	SERGRI
<i>Serratia liquefaciens</i>	Ser. liquefaciens	SERLIQ

Long Name	Short Name	Code
<i>Serratia marcescens</i>	Ser. marcescens	SERMAR
<i>Serratia odorifera</i>	Ser. odorifera	SERODO
<i>Serratia odorifera</i> biogroup 1	Ser. odorifera 1	SERODO1
<i>Serratia odorifera</i> biogroup 2	Ser. odorifera 2	SERODO2
<i>Serratia plymuthica</i>	Ser. plymuthica	SERPLY
<i>Serratia proteamaculans</i> ssp <i>proteamaculans</i>	Ser. proteamac. ssp proteam.	SERPROP
<i>Serratia proteamaculans</i> ssp <i>quinovora</i>	Ser. proteamac. ssp quino.	SERPROQ
<i>Serratia rubidaea</i>	Ser. rubidaea	SERRUB
<i>Serratia</i> species	Ser. species	SERSPE
<i>Shewanella algae</i>	Shew. algae	SHEALG
<i>Shewanella putrefaciens</i>	Shew. putrefaciens	SHEPUT
<i>Shewanella</i> species	Shew. species	SHESPE
<i>Shigella boydii</i>	Shig. boydii	SHIBOY
<i>Shigella dysenteriae</i>	Shig. dysenteriae	SHIDYS
<i>Shigella flexneri</i>	Shig. flexneri	SHIFLE
<i>Shigella sonnei</i>	Shig. sonnei	SHISON
<i>Shigella</i> species	Shig. species	SHISPE
<i>Shimwellia blattae</i>	Shim. blattae	ESCBLA
<i>Sphingobacterium multivorum</i>	Sphingob. multivorum	SPHBMUL
<i>Sphingobacterium multivorum/thalpophilum</i>	Sphb. multivorum/thalpophilum	SPHBMULTHA
<i>Sphingobacterium</i> species	Sphingob. species	SPHBSPE
<i>Sphingobacterium spiritivorum</i>	Sphingob. spiritivorum	SPHBSPi
<i>Sphingobacterium thalpophilum</i>	Sphingob. thalpophilum	SPHBTHA
<i>Sphingomonas paucimobilis</i>	Sphingom. paucimobilis	SPHMPAU
<i>Sporobolomyces salmonicolor</i>	Sporobol. salmonicolor	SPOBSAL
<i>Staphylococcus arlettae</i>	Staph. arlettae	STAARL

Long Name	Short Name	Code
<i>Staphylococcus aureus</i>	Staph. aureus	STAAUE
<i>Staphylococcus aureus ssp anaerobius</i>	Staph. aureus ssp anaerob.	STAAUEAN
<i>Staphylococcus aureus ssp aureus</i>	Staph. aureus ssp aureus	STAAUEAU
<i>Staphylococcus auricularis</i>	Staph. auricularis	STAAUI
<i>Staphylococcus capitis</i>	Staph. capitis	STACAI
<i>Staphylococcus capitis ssp capitis</i>	Staph. capitis ssp capitis	STACAIC
<i>Staphylococcus capitis ssp urealyticus</i>	Staph. capitis ssp urealyt.	STACAIU
<i>Staphylococcus caprae</i>	Staph. caprae	STACAP
<i>Staphylococcus carnosus</i>	Staph. carnosus	STACAR
<i>Staphylococcus carnosus ssp carnosus</i>	Staph. carn. ssp carn.	STACARC
<i>Staphylococcus carnosus ssp utilis</i>	Staph. carn. ssp utilis	STACARU
<i>Staphylococcus chromogenes</i>	Staph. chromogenes	STACHR
<i>Staphylococcus chromogenes/hyicus</i>	Staph. chromogenes/hyicus	STACHRHYI
<i>Staphylococcus coagulase-negative</i>	Staph. coag. neg.	STACNEG
<i>Staphylococcus coagulase-positive</i>	Staph. coag. pos.	STACPOS
<i>Staphylococcus cohnii</i>	Staph. cohnii	STACOH
<i>Staphylococcus cohnii ssp cohnii</i>	Staph. cohnii ssp cohnii	STACOHC
<i>Staphylococcus cohnii ssp urealyticum</i>	Staph. cohnii ssp urealyt.	STACOHU
<i>Staphylococcus condimentii</i>	Staph. condimentii	STACON
<i>Staphylococcus delphini</i>	Staph. delphini	STADEL
<i>Staphylococcus epidermidis</i>	Staph. epidermidis	STAEPI
<i>Staphylococcus equorum</i>	Staph. equorum	STAEQU
<i>Staphylococcus felis</i>	Staph. felis	STAFEL
<i>Staphylococcus fleurettii</i>	Staph. fleurettii	STAFLE
<i>Staphylococcus gallinarum</i>	Staph. gallinarum	STAGAL
<i>Staphylococcus haemolyticus</i>	Staph. haemolyticus	STAHAE

Long Name	Short Name	Code
<i>Staphylococcus haemolyticus/lugdunensis</i>	Staph. haemol./lugdun.	STAHAE LUG
<i>Staphylococcus hominis</i>	Staph. hominis	STAHOM
<i>Staphylococcus hominis ssp hominis</i>	Staph. hom. ssp hom.	STAHOMH
<i>Staphylococcus hominis ssp novobiosepticus</i>	Staph. hom. ssp novo.	STAHOMN
<i>Staphylococcus hyicus</i>	Staph. hyicus	STAHYI
<i>Staphylococcus intermedius</i>	Staph. intermedius	STAI NT
<i>Staphylococcus kloosii</i>	Staph. kloosii	STAKLO
<i>Staphylococcus lentus</i>	Staph. lentus	STALEN
<i>Staphylococcus lugdunensis</i>	Staph. lugdunensis	STALUG
<i>Staphylococcus lutrae</i>	Staph. lutrae	STALUT
<i>Staphylococcus muscae</i>	Staph. muscae	STAMUS
<i>Staphylococcus pasteurii</i>	Staph. pasteurii	STAPAS
<i>Staphylococcus pettenkoferi</i>	Staph. pettenkoferi	STAPET
<i>Staphylococcus piscifermentans</i>	Staph. piscifermentans	STAPIS
<i>Staphylococcus pulvereri</i>	Staph. pulvereri	STAPUL
<i>Staphylococcus saccharolyticus</i>	Staph. saccharolyticus	STASAC
<i>Staphylococcus saprophyticus</i>	Staph. saprophyticus	STASAP
<i>Staphylococcus saprophyticus ssp bovis</i>	Staph. sap. ssp bovis	STASAPB
<i>Staphylococcus saprophyticus ssp saprophyticus</i>	Staph. sap. ssp saprophyticus	STASAPS
<i>Staphylococcus schleiferi</i>	Staph. schleiferi	STASCH
<i>Staphylococcus schleiferi ssp coagulans</i>	Staph. schleiferi ssp coagul.	STASCHC
<i>Staphylococcus schleiferi ssp schleiferi</i>	Staph. schleiferi ssp schleif.	STASCHS
<i>Staphylococcus sciuri</i>	Staph. sciuri	STASCI
<i>Staphylococcus sciuri ssp carnaticus</i>	Staph. sciuri ssp carnaticus	STASCIC
<i>Staphylococcus sciuri ssp rodentium</i>	Staph. sciuri ssp rodentium	STASCIR
<i>Staphylococcus sciuri ssp sciuri</i>	Staph. sciuri ssp sciuri	STASCIS

Long Name	Short Name	Code
<i>Staphylococcus simulans</i>	Staph. simulans	STASIM
<i>Staphylococcus species</i>	Staph. species	STASPE
<i>Staphylococcus succinus</i>	Staph. succinus	STASUC
<i>Staphylococcus succinus ssp casei</i>	Staph. suc. ssp casei	STASUCCA
<i>Staphylococcus succinus ssp succinus</i>	Staph. suc. ssp succinus	STASUCSU
<i>Staphylococcus vitulinus</i>	Staph. vitulinus	STAVIT
<i>Staphylococcus warneri</i>	Staph. warneri	STAWAR
<i>Staphylococcus warneri/pasteuri</i>	Staph. warneri/pasteuri	STAWARPAS
<i>Staphylococcus xylosus</i>	Staph. xylosus	STAXYL
<i>Stenotrophomonas africana</i>	Sten. africana	STEAFR
<i>Stenotrophomonas maltophilia</i>	Sten. maltophilia	STEMAL
<i>Streptococcus acidominimus</i>	Strep. acidominimus	STRACI
<i>Streptococcus agalactiae</i> (Strep. group B)	Strep. agalactiae (Str. gr. B)	STRAGA
<i>Streptococcus alactolyticus</i>	Strep. alactolyticus	STRALA
<i>Streptococcus alpha-hemolytic</i>	Strep. alpha-hemolytic	STRAHE
<i>Streptococcus anginosus</i>	Strep. anginosus	STRANG
<i>Streptococcus anginosus</i> (previously milleri) group	Strep. anginosus (milleri) gr.	STRANGGR
<i>Streptococcus beta-hemolytic</i> ACG (large colony)	Strep. beta-hemo ACG (lg col)	STRBHE
<i>Streptococcus bovis</i> (Strep. group D)	Strep. bovis (Str. gr. D)	STRBOV
<i>Streptococcus bovis</i> I (Strep. group D)	Strep. bovis I (Str. gr. D)	STRBOVI
<i>Streptococcus bovis</i> II (Strep. group D)	Strep. bovis II (Str. gr. D)	STRBOVII
<i>Streptococcus canis</i>	Strep. canis	STRCAN
<i>Streptococcus constellatus</i>	Strep. constellatus	STRCON
<i>Streptococcus constellatus ssp constellatus</i>	Strep. con ssp constellatus	STRCONCO
<i>Streptococcus constellatus ssp pharyngis</i>	Strep. con ssp pharyngis	STRCONPH
<i>Streptococcus criceti</i>	Strep. criceti	STRCRC

Long Name	Short Name	Code
<i>Streptococcus cristatus</i>	Strep. cristatus	STRCRS
<i>Streptococcus downei</i>	Strep. downei	STRDOW
<i>Streptococcus dysgalactiae</i>	Strep. dysgalactiae	STRDYS
<i>Streptococcus dysgalactiae</i> ssp <i>dysgalactiae</i>	Strep. dysgal. ssp dysgal.	STRDYSDY
<i>Streptococcus dysgalactiae</i> ssp <i>equisimilis</i>	Strep. dysgal. ssp equis.	STRDYSEM
<i>Streptococcus dysgalactiae/canis</i>	Strep. dysgal./canis	STRDYSCAN
<i>Streptococcus equi</i>	Strep. equi	STREQU
<i>Streptococcus equi</i> ssp <i>equi</i>	Strep. equi ssp equi	STREQUE
<i>Streptococcus equi</i> ssp <i>zooepidemicus</i>	Strep. equi ssp zooepid.	STREQUZ
<i>Streptococcus equinus</i>	Strep. equinus	STREQN
<i>Streptococcus ferus</i>	Strep. ferus	STRFER
<i>Streptococcus gallolyticus</i> ssp <i>macedonicus</i>	Strep. gallolyti. ssp macedon.	STRMAC
<i>Streptococcus gordonii</i>	Strep. gordonii	STRGOR
<i>Streptococcus</i> group A (small colony)	Strep. group A (sm col)	STRGRAS
<i>Streptococcus</i> group A (<i>Strep. pyogenes</i>)	Strep. group A (Str. pyogenes)	STRGRA
<i>Streptococcus</i> group B (<i>Strep. agalactiae</i>)	Strep. group B (Str. agalact.)	STRGRB
<i>Streptococcus</i> group C (large colony)	Strep. group C (lg col)	STRGRC
<i>Streptococcus</i> group C (small colony)	Strep. group C (sm col)	STRGRCS
<i>Streptococcus</i> group C/G (large colony)	Strep. group C/G (lg col)	STRGRCG
<i>Streptococcus</i> group C/G (small colony)	Strep. group C/G (sm col)	STRGRCGS
<i>Streptococcus</i> group CFG (small colony)	Strep. group CFG (sm col)	STRGRCFG
<i>Streptococcus</i> group D (non-enterococcus)	Strep. group D (non-enteroc.)	STRGRDNE
<i>Streptococcus</i> group E	Strep. group E	STRGRE
<i>Streptococcus</i> group F	Strep. group F	STRGRF
<i>Streptococcus</i> group G (large colony)	Strep. group G (lg col)	STRGRG
<i>Streptococcus</i> group G (small colony)	Strep. group G (sm col)	STRGRGS

Long Name	Short Name	Code
<i>Streptococcus</i> group L	Strep. group L	STRGRL
<i>Streptococcus hyointestinalis</i>	Strep. hyointestinalis	STRHYO
<i>Streptococcus infantarius</i>	Strep. infantarius	STRINA
<i>Streptococcus infantarius ssp coli</i>	Strep. infa ssp coli	STRINACO
<i>Streptococcus infantarius ssp infantarius</i>	Strep. infa ssp infantarius	STRINAIN
<i>Streptococcus infantis</i>	Strep. infantis	STRINF
<i>Streptococcus iniae</i>	Strep. iniae	STRINI
<i>Streptococcus intermedius</i>	Strep. intermedius	STRINR
<i>Streptococcus milleri</i> group	Strep. milleri gr.	STRMILGR
<i>Streptococcus mitis</i>	Strep. mitis	STRMIT
<i>Streptococcus mitis</i> group	Strep. mitis gr.	STRMITGR
<i>Streptococcus mitis/oralis</i>	Strep. mitis/oralis	STRMITORA
<i>Streptococcus mitis/pneumoniae</i>	Strep. mitis/pneum.	STRMITPNE
<i>Streptococcus mutans</i>	Strep. mutans	STRMUT
<i>Streptococcus mutans</i> group	Strep. mutans gr.	STRMUTGR
<i>Streptococcus oralis</i>	Strep. oralis	STRORA
<i>Streptococcus parasanguinis</i>	Strep. parasanguinis	STRPAR
<i>Streptococcus peroris</i>	Strep. peroris	STRPER
<i>Streptococcus pneumoniae</i>	Strep. pneumoniae	STRPNE
<i>Streptococcus porcinus</i>	Strep. porcinus	STRPOR
<i>Streptococcus pyogenes</i> (Strep. group A)	Strep. pyogenes (Str. gr. A)	STRPYO
<i>Streptococcus ratti</i>	Strep. ratti	STRRAT
<i>Streptococcus salivarius</i>	Strep. salivarius	STRSAL
<i>Streptococcus salivarius</i> group	Strep. salivarius gr.	STRSALGR
<i>Streptococcus salivarius ssp thermophilus</i>	Strep. salivar. ssp thermoph.	STRTHE
<i>Streptococcus sanguinis</i>	Strep. sanguinis	STRSAN

Long Name	Short Name	Code
<i>Streptococcus sanguinis</i> group	Strep. sanguinis gr.	STRSANGR
<i>Streptococcus sobrinus</i>	Strep. sobrinus	STRSOB
<i>Streptococcus species</i>	Strep. species	STRSPE
<i>Streptococcus suis</i>	Strep. suis	STRSUI
<i>Streptococcus uberis</i>	Strep. uberis	STRUBE
<i>Streptococcus vestibularis</i>	Strep. vestibularis	STRVES
<i>Streptococcus viridans</i> beta-hemolytic (small colony)	Strep. vir. beta-hemo (sm col)	STRBHES
<i>Streptococcus viridans</i> group	Strep. viridans gr.	STRVIRGR
<i>Suttonella indologenes</i>	Sutto. indologenes	SUTIND
<i>Tatumella ptyseos</i>	Tat. ptyseos	TATPTY
<i>Trichosporon asahii</i>	Tric. asahii	TRIASA
<i>Trichosporon inkin</i>	Tric. inkin	TRIINK
<i>Trichosporon loubieri</i>	Tric. loubieri	TRILOU
<i>Trichosporon mucoides</i>	Tric. mucoides	TRIMUC
<i>Trichosporon ovoides</i>	Tric. ovoides	TRIOVO
<i>Trueperella pyogenes</i>	True. pyogenes	ACTMPYO
<i>Vibrio alginolyticus</i>	Vib. alginolyticus	VIBALG
<i>Vibrio cholerae</i>	Vib. cholerae	VIBCHO
<i>Vibrio fluvialis</i>	Vib. fluvialis	VIBFLU
<i>Vibrio metschnikovii</i>	Vib. metschnikovii	VIBMET
<i>Vibrio mimicus</i>	Vib. mimicus	VIBMIM
<i>Vibrio parahaemolyticus</i>	Vib. parahaemolyticus	VIBPAR
<i>Vibrio vulnificus</i>	Vib. vulnificus	VIBVUL
<i>Weeksella virosa</i>	Week. virosa	WEEVIR
<i>Yersinia aldovae</i>	Yer. aldovae	YERALD
<i>Yersinia bercovieri</i>	Yer. bercovieri	YERBER

Long Name	Short Name	Code
<i>Yersinia enterocolitica</i>	Yer. enterocolitica	YERENT
<i>Yersinia enterocolitica</i> group	Yer. enterocolitica gr.	YERENTGR
<i>Yersinia frederiksenii</i>	Yer. frederiksenii	YERFRE
<i>Yersinia intermedia</i>	Yer. intermedia	YERINT
<i>Yersinia kristensenii</i>	Yer. kristensenii	YERKRI
<i>Yersinia mollaretii</i>	Yer. mollaretii	YERMOL
<i>Yersinia pseudotuberculosis</i>	Yer. pseudotuberculosis	YERPSE
<i>Yersinia rohdei</i>	Yer. rohdei	YERROH
<i>Yersinia ruckeri</i>	Yer. ruckeri	YERRUC
<i>Yersinia species</i>	Yer. species	YERSPE
<i>Yokenella regensburgei</i>	Yok. regensburgei	YOKREG
<i>Zygosaccharomyces bailii</i>	Zyg. bailii	ZYGBAI

Panel Information

7.4 List of Antimicrobial Agents in BD Phoenix Panels

7.4.1 Gram Negative

Antimicrobial			Available Concentrations		
			Gram Negative	Gram Positive	Strep
Aminoglycoside	Amikacin	AN	0.5-64	0.5-64	N/A
Beta-lactam	Amoxicillin	AMX	0.5-32	0.25-32	0.125-32
Beta-lactam	Amoxicillin-Clavulanate (f)	AXC	0.5/2-32/2	0.25/2-32/2	N/A
Beta-lactam	Amoxicillin-Clavulanate	AMC	0.5/0.25-32/16	0.25/0.125-32/16	0.125/0.06-32/16
Beta-lactam	Ampicillin	AM	0.5-32	0.0625-32	0.0625-32
Beta-lactam	Ampicillin-Sulbactam (f)	SXA	0.5/8-32/8	0.5/8-32/8	N/A
Beta-lactam	Ampicillin-Sulbactam	SAM	1/0.5-32/16	0.5/0.25-32/16	N/A
Aminoglycoside	Arbekacin	ARB	0.25-16	0.25-16	N/A
Macrolides Lincosmides Streptogramins	Azithromycin	AZM	N/A	0.06-8	N/A
Beta-lactam	Aztreonam	ATM	0.5-64	N/A	N/A
Beta-lactam	Cefaclor	CEC	N/A	0.5-32	N/A
Beta-lactam	Cefazolin	CZ	0.5-32	0.5-32	N/A
Beta-lactam	Cefdinir	CDR	0.125-4	0.125-4	N/A
Beta-lactam	Cefditoren	CDN	0.125-8	0.125-8	N/A
Beta-lactam	Cefepime	FEP	0.125-64	1-64	0.0625-4
Beta-lactam	Cefetamet-pivoxil	CAT	0.25-16	N/A	N/A
Beta-lactam	Cefixime	CFM	0.125-8	N/A	N/A

Antimicrobial			Available Concentrations		
			Gram Negative	Gram Positive	Strep
Beta-lactam	Cefmetazole	CMZ	2-64	1-64	N/A
Beta-lactam	Cefoperazone	CFP	0.5-64	1-64	N/A
Beta-lactam	Cefoperazone-Sulbactam	SCP	0.5/8-64/8	N/A	N/A
Beta-lactam	Cefotaxime	CTX	0.5-64	1-64	0.0625-4
Beta-lactam	Cefotetan	CTT	2-64	1-64	N/A
Beta-lactam	Cefotiam	CFT	0.5-64	0.5-64	N/A
Beta-lactam	Cefoxitin	FOX	0.5-64	1-64	N/A
Beta-lactam	Cefozopran	CFZ	N/A	1-64	N/A
Beta-lactam	Cefpirome	CPO	0.5-64	0.5-64	N/A
Beta-lactam	Cefpodoxime	CPD	0.125-8	0.5-8	N/A
Beta-lactam	Cefsulodin	CFS	1-64	N/A	N/A
Beta-lactam	Ceftaroline	CPT	N/A	0.0625-4	N/A
Beta-lactam	Ceftazidime	CAZ	0.5-64	1-64	N/A
Beta-lactam	Ceftibuten	CTB	0.5-32	N/A	N/A
Beta-lactam	Ceftizoxime	ZOX	0.5-64	1-64	N/A
Beta-lactam	Ceftriaxone	CRO	0.5-64	1-64	0.0625-4
Beta-lactam	Cefuroxime	CXM	1-64	1-64	0.125-4
Beta-lactam	Cephalexin	CN	1-64	0.5-64	N/A
Beta-lactam	Cephalothin	CF	1-64	0.5-64	N/A
Phenicol	Chloramphenicol	C	1-32	1-32	1-32
Quinolone	Ciprofloxacin	CIP	0.125-4	0.125-4	N/A
Macrolides Lincosamides Streptogramins	Clarithromycin	CLR	N/A	0.06-8	N/A
Macrolide Lincosamide	Clindamycin	CC	N/A	0.12-8	0.03-4
Cyclic peptide	Colistin	CL	0.5-4	N/A	N/A
Cyclic lipopeptide	Daptomycin	DAP	N/A	0.125-32	0.03-16
Tetracycline	Doxycycline	D	N/A	0.25-16	N/A

Antimicrobial			Available Concentrations		
			Gram Negative	Gram Positive	Strep
Beta-lactam	Ertapenem	ETP	0.0625-4	0.25-32	0.0625-4
Macrolide Lincosamide	Erythromycin	E	N/A	0.125-8	0.015-4
Fosfomycin	Fosfomycin	FF	16-256	8-256	N/A
Fusidane	Fusidic Acid	FA	N/A	0.5-32	N/A
Quinolone	Garenoxacin	GRN	0.125-16	0.25-8	0.03125-4
Quinolone	Gatifloxacin	GAT	0.25-8	0.25-8	0.0625-8
Quinolone	Gemifloxacin	GEM	0.125-8	0.125-2	0.0625-8
Aminoglycoside	Gentamicin	GM	0.5-16	0.5-16	N/A
Aminoglycoside	Gentamicin-Syn	GMS	N/A	500	250-1000
Aminoglycoside	Gentamicin-Syn (SFM)	GMF	N/A	250	N/A
Beta-lactam	Imipenem	IPM	0.0625-16	0.5-16	0.015-4
Aminoglycoside	Isepamycin	ISP	0.5-32	N/A	N/A
Aminoglycoside	Kanamycin	K	0.5-64	0.5-64	N/A
Aminoglycoside	Kanamycin-Syn	KS	N/A	250	250-1000
Quinolone	Levofloxacin	LVX	0.25-8	0.25-8	0.25-16
Macrolides Lincosamides Streptogramin	Lincomycin	L	N/A	0.5-16	N/A
Oxazolidinone	Linezolid	LZD	N/A	0.25-32	0.25-16
Quinolone	Lomefloxacin	LOM	0.25-8	0.25-8	N/A
Beta-lactam	Mecillinam	MEC	0.5-32	N/A	N/A
Beta-lactam	Meropenem	MEM	0.125-32	0.5-16	0.03125-2
Tetracycline	Minocycline	MI	0.5-16	1-32	N/A
Beta-lactam	Moxalactam	MOX	1-64	1-64	N/A
Quinolone	Moxifloxacin	MXF	0.125-8	0.25-8	0.0625-8
Pseudomonic acid	Mupirocin	MUP	N/A	0.0625-8	N/A
Pseudomonic acid	Mupirocin High level	MUH	N/A	256	N/A

Antimicrobial			Available Concentrations		
			Gram Negative	Gram Positive	Strep
Quinolone	Nalidixic Acid	NA	1-32	N/A	N/A
Aminoglycoside	Netilmicin	NET	0.5-32	0.5-32	N/A
Nitrofuran	Nitrofurantoin	FM	8-512	16-512	N/A
Quinolone	Norfloxacin	NOR	0.25-16	0.25-16	N/A
Quinolone	Ofloxacin	OFX	0.25-8	0.25-8	0.5-16
Beta-lactam	Oxacillin	OX	N/A	0.06-4	N/A
Quinolone	Pefloxacin	PEF	0.25-8	0.25-8	N/A
Beta-lactam	Penicillin G	P	N/A	0.0625-32	0.03125-8
Beta-lactam	Piperacillin	PIP	0.5-128	1-128	N/A
Beta-lactam	Piperacillin-Tazobactam	TZP	0.5/4-128/4	1/4-128/4	N/A
Macrolides Lincosamides Streptogramin	Pristinamycin	PR	N/A	0.25-4	0.0625-4
Macrolides Lincosamides Streptogramin	Quinupristin-Dalfopristin	SYN	N/A	0.5-4	0.125-8
Rifamycin	Rifampin	RA	N/A	0.25-32	N/A
Aminoglycoside	Streptomycin-Syn	STS	N/A	1000	250-1000
Aminoglycoside	Streptomycin-Syn (SFM)	STF	N/A	250	N/A
Glycopeptide	Teicoplanin	TEC	N/A	0.5-32	1-32
Ketolide	Telithromycin	TEL	N/A	0.03125-8	0.0625-4
Beta-lactam	Temocillin	TEM	2 – 32	N/A	N/A
Tetracyclinee	Tetracycline	TE	0.5-16	0.5-16	0.0625-16
Beta-lactam	Ticarcillin	TIC	1-128	1-128	N/A
Beta-lactam	Ticarcillin-Clavulanate	TIM	1/2-128/2	1/2-128/2	N/A
Glycylcycline	Tigecycline	TGC	0.25-16	0.03125-4	N/A
Aminoglycoside	Tobramycin	NN	0.12-16	1 -16	N/A

Antimicrobial			Available Concentrations		
			Gram Negative	Gram Positive	Strep

Folate Antagonist	Trimeth-Sulfa (DIN)	STG	0.4/7.6-12.8/243.2	0.4/7.6-12.8/243.2	N/A
Folate Antagonist	Trimethoprim	TMP	0.5-16	0.5-16	N/A
Folate Antagonist	Trimethoprim-Sulfamethoxazole	SXT	0.5/9.5-16/304	0.5/9.5-16/304	0.06/1.19-16/304
Glycopeptide	Vancomycin	VA	N/A	0.5-32	0.0625-32

BOLD = Different range for Gram Negative and Gram Positive

NOTE

MIC dilutions appearing in this manual are actual serial 2-fold dilution concentrations. MIC values appearing on reports may be rounded.

In general, the BD Phoenix M50 instrument provides a MIC for all organisms at any of the concentrations defined on a specific panel. For certain drug and organism combinations in the following tables, a specific minimum/maximum MIC is reported even if there is a lower/higher concentration on the panel.

Antimicrobial	Organism	Min MIC (µg/mL)	Max MIC (µg/mL)
Gram Negative			
Amikacin	<i>Morganella morganii</i>	2	
Amoxicillin-Clavulanic Acid (fixed clav. acid conc.)	<i>Proteus mirabilis</i>	1/2	
Amoxicillin-Clavulanic Acid (variable clav. acid conc.)	<i>Proteus mirabilis</i>	2/1	
Arbekacin	<i>Enterobacter aerogenes</i>	1	
	<i>Morganella morganii</i>	1	
	<i>Providencia</i> genus	1	
Cefdinir	<i>Proteus mirabilis</i>	0.25	

Antimicrobial	Organism	Min MIC (µg/mL)	Max MIC (µg/mL)
Cefixime	<i>Proteus mirabilis</i>	0.5	
	<i>Providencia</i> genus	0.5	
Cefotiam	<i>Citrobacter freundii</i>	2	
	<i>Proteus mirabilis</i>	4	
	<i>Providencia</i> genus	4	
Fosfomycin w/G6P	<i>Pseudomonas aeruginosa</i>	16	64
Fosfomycin w/G6P	<i>Serratia</i> genus	32	256
Garenoxacin	<i>Stenotrophomonas maltophilia</i>	1	
Kanamycin	<i>Proteus mirabilis</i>	4	
Meropenem	<i>Proteus mirabilis</i>	0.5	
Ticarcillin	<i>Proteus mirabilis</i>	4	

Antimicrobial	Organism	Min MIC (µg/mL)	Max MIC (µg/mL)
Gram Positive			
Amikacin	<i>Staphylococcus epidermidis</i>	8	
	<i>Staphylococcus</i> other*	8	
Amoxicillin	<i>Staphylococcus aureus</i>	2	
	<i>Staphylococcus epidermidis</i>	2	
Ampicillin	<i>Staphylococcus aureus</i>		1
	<i>Enterococcus</i> other**	1	
Ampicillin-Sulbactam (f) (SXA)	<i>Staphylococcus epidermidis</i>	1	
Ampicillin-Sulbactam (SAM)	<i>Enterococcus</i> other**	2	
Cefotetan	<i>Staphylococcus epidermidis</i>	8	
Ceftriaxone	<i>Staphylococcus aureus</i>	2	
Cephalexin	<i>Staphylococcus epidermidis</i>	1	
Daptomycin	<i>Enterococcus casseliflavus</i>		
	<i>gallinarum</i>	2	
Lincomycin	<i>Enterococcus</i> other**	1	8
Netilmicin	<i>Staphylococcus epidermidis</i>	2	
Minocycline**	<i>Enterococcus</i> other**	1	32
	<i>Staphylococcus</i> other**	1	32
Norfloxacin	<i>Enterococcus</i> other**	2	
Penicillin	<i>Staphylococcus aureus</i>		1
	<i>Staphylococcus epidermidis</i>		1
	<i>Enterococcus</i> other**	2	
Piperacillin	<i>Staphylococcus epidermidis</i>	2	
Teicoplanin	<i>Staphylococcus epidermidis</i>	2	
Ticarcillin	<i>Staphylococcus epidermidis</i>	4	
	<i>Staphylococcus</i> other*	4	
Ticarcillin/Clavulanate	<i>Staphylococcus aureus</i>	4/2	
Trovaflaxacin	<i>Enterococcus faecium</i>	1	
Streptococci			
Daptomycin	Viridans group	0.25	

* Coagulase negative *Staphylococcus* other than *S. epidermidis*

** *Enterococcus* sp. other than *E. faecalis* and *E. faecium*

7.5 List of Reagents and Principles Employed in the BD Phoenix System

7.5.1 Gram Negative

SUBSTRATE NAME	CODE	PRINCIPLE
L-PHENYLALANINE-AMC	A_LPHET	Enzymatic hydrolysis of the amide or glycosidic bond results in the release of a fluorescent coumarin or 4-methylumbelliferone derivative.
4MU-N-ACETYL-BD-GLUCOS-AMINIDE	M_NAG	
L-GLUTAMIC ACID-AMC	A_LGTA	
L-TRYPTOPHAN-AMC	A_LTRY	
L-PYROGLUTAMIC ACID-AMC	A_LPYR	
L-PROLINE-AMC	A_LPROB	
L-ARGININE-AMC	A_LARGH	
ARGININE-ARGININE-AMC	A_ARARR	
GLYCINE-AMC	A_GLYB	
L-LEUCINE-AMC	A_LLEUH	
LYSINE-ALANINE-AMC	A_LYALD	
GLUTARYL-GLYCINE-ARGININE-AMC	A_GUGAH	
GLYCINE-PROLINE-AMC	A_GLPRB	
COLISTIN	C_CLST	Resistance to the antimicrobial agent results in a reduction of the resazurin based indicator.
POLYMYXIN B	C_PXB	
D-MANNITOL	C_DMNT	Utilization of a carbon source results in a reduction of the resazurin based indicator.
CITRATE	C_CIT	
ACETATE	C_ACT	
ADONITOL	C_ADO	
MALONATE	C_MLO	
ALPHA-KETOGLUTARIC ACID	C_KGA	
TIGLIC ACID	C_TIG	
FLUORESCENT POSITIVE CONTROL	FLR_CTL	Control to standardize fluorescent substrate results.
FLUORESCENT POSITIVE CONTROL	FLR_CTL	
L-PROLINE-NA	N_LPROT	Enzymatic hydrolysis of the colorless amide substrate releases yellow <i>p</i> -nitroaniline.
GAMMA-L-GLUTAMYL-NA	N_LGGH	
BIS (PNP) PHOSPHATE	P_BPHO	Enzymatic hydrolysis of the colorless aryl substituted glycoside releases yellow <i>p</i> -nitrophenol.
PNP-BD-GLUCOSIDE	P_BDGLU	

BETA-ALLOSE	R BALL	Utilization of carbohydrate results in lower pH and change in indicator (phenol red).
N-ACETYL-GALACTOSAMINE	R_NGA	
N-ACETYL-GLUCOSAMINE	R_NGU	
SORBITOL	R_DSBT	
SUCROSE	R_DSUC	
GALACTURONIC ACID	R_GRA	
MALTULOSE	R_MTU	
L-RHAMNOSE	R_LRHA	
BETA-GENTIOBIOSE	R_BGEN	
DEXTROSE	R_DEX	
D-GALACTOSE	R_DGAL	
D-FRUCTOSE	R_DFRU	
D-GLUCONIC ACID	R_DGUA	
D-MELIBIOSE	R_DMLB	
L-ARABINOSE	R_LARA	
METHYL-B-GLUCOSIDE	R_MBGU	
ORNITHINE	S_ORN	Utilization of ornithine results in pH rise and change in fluorescent indicator.
UREA	S_URE	Hydrolysis of urea and the resulting ammonia change results in pH rise and change in fluorescent indicator.
ESCULIN	T_ESC	Hydrolysis of esculin results in a black precipitate in the presence of ferric ion.
ESCULIN	T_ESC	Hydrolysis of esculin results in a black precipitate in the presence of ferric ion.

7.5.2 Gram Positive

SUBSTRATE NAME	CODE	PRINCIPLE
4MU-BD-CELLOBIOSIDE	M_BDCEL	Enzymatic hydrolysis of the amide or glycosidic bond results in the release of a fluorescent coumarin or 4-methylumbelliferone derivative.
L-ALANINE-AMC	A_LALT	
4MU-BD-GLUCOSIDE	M_BDGLU	
L-PROLINE-AMC	A_LPROB	
L-PYROGLUTAMIC ACID-AMC	A_LPYR	
L-PHENYLALANINE-AMC	A_LPHET	
L-TRYPTOPHAN-AMC	A_LTRY	
4MU-PHOSPHATE	M_PHOS	
METHIONINE-AMC	A_META	
4MU-AD-GLUCOSIDE	P_ADGLU	
ARGININE-ARGININE-AMC	A_ARARR	
GLYCINE-PROLINE-AMC	A_GLPRB	
4MU-BD-GLUCURONIDE	M_BDGLC	
L-LEUCINE-AMC	A_LLEUH	
4MU-N-ACETYL-BD-GLUCOS-AMINIDE	M_NAG	
L-ARGININE-AMC	A_LARGH	
4MU-PHOSPHATE (with Trehalose)	M_PHOT	
L-HISTIDINE-AMC	A_LHIST	
L-ISOLEUCINE-AMC	A_LISO	
4MU-BD-GALACTOSIDE	M_BDGAL	
COLISTIN	C_CLST	Resistance to the antimicrobial agent results in a reduction of the resazurin based indicator.
POLYMYXIN B	C_PXB	
D-GLUCONIC ACID	C_DGUA	Utilization of a carbon source results in a reduction of the resazurin based indicator.
3-METHYL GLUTARIC ACID	C_3MGA	
D-FRUCTOSE	C_DFRU	
IMINODIACETIC ACID	C_IMN	
ALPHA-KETOGLUTARIC ACID	C_KGA	
D-MANNITOL	C_DMNT	
3-METHYLADIPIC ACID	C_MAA	
THYMIDINE	C_THY	
FLUORESCENT POSITIVE CONTROL	FLR_CTL	Control to standardize fluorescent substrate results.
FLUORESCENT POSITIVE CONTROL	FLR_CTL	
ALANINE-ALANINE-PNA	N_ALALH	Enzymatic hydrolysis of the colorless amide substrate releases yellow <i>p</i> -nitroaniline.
L-PROLINE-PNA	N_LPROT	
VALINE-ALANINE-PNA	N_VAALA	
PNP-AD-GLUCOSIDE	P_PAGLU	Enzymatic hydrolysis of the colorless aryl substituted glycoside releases yellow <i>p</i> -nitrophenol.
PNP-PHOSPHATE	P_PHOL	

BETA-GENTIOBIOSE	R_BGEN	Utilization of carbohydrate results in lower pH and change in indicator (phenol red).
D-SUCROSE	R_DSUC	
MALTOTRIOSE	R_MTT	
N-ACETYL-GLUCOSAMINE	R_NGU	
D-TREHALOSE	R_DTRE	
D-TAGATOSE	R_DTAG	
MALTOSE	R_MAL	
DEXTROSE	R_DEX	
METHYL- α -D-GLUCOSIDE	R_MGP	
UREA	S_URE	Hydrolysis of urea and the resulting ammonia change results in pH rise and change in fluorescent indicator.
ESCULIN	T_ESC	Hydrolysis of esculin results in a black precipitate in the presence of ferric ion.
NITROCEFEN	L_NCF	Enzymatic hydrolysis of the β -Lactam ring results in a color change.

7.5.3 Streptococci Panel

SUBSTRATE NAME	CODE	PRINCIPLE
AMYGDALIN	R_AMY	Utilization of carbohydrate results in lower pH and change in indicator (Phenol red).
D-GALACTOSE	R_DGAL	
D-MANNITOL	R_DMTL	
D-RAFFINOSE	R_DRAF	
D-SORBITOL	R_DSBT	
D-TREHALOSE	R_DTRE	
DEXTRIN	R_DNX	
N-ACETYL-GLUCOSAMINE	R_NGU	
PHENYL GLUCOSIDE	R_PHG	
SALICIN	R_SAL	Enzymatic hydrolysis of the colorless aryl substituted glycoside releases yellow <i>p</i> -nitrophenol.
ONP-BD-GLUCOSIDE	O_BOGLU	
PNP-AD-GALACTOSIDE	P_ADGAL	
PNP-BD-CELLOBIOSIDE	P_CELB	
PNP-BD-GALACTOSIDE	P_GALB	
PNP-AD-GLUCOSIDE	P_PAGLU	
PNP-PHOSPHATE	P_PHOL	Enzymatic hydrolysis of the colorless amide substrate releases yellow <i>p</i> -nitroanilide.
ALANINE-ALANINE-PNA	N_ALALH	
VALINE-ALANINE-PNA	N_VAALA	
L-LYSINE-PNA	N_LLYSB	Control to standardize fluorescent substrate results.
FLUORESCENT POSITIVE CONTROL	FLR_CTL	
FLUORESCENT POSITIVE CONTROL	FLR_CTL	Utilization of a carbon source resulting in a reduction of the indicator (Resazurin based).
THYMIDINE	THY	
PULLULAN	PUL	
D-TREHALOSE	TRL	
D-LACTOSE	DLAC	

SUBSTRATE NAME	CODE	PRINCIPLE
LYSINE-AMC	A_LYSA	Enzymatic hydrolysis of the amide or glycosidic bond results in the release of a fluorescent coumarin or 4-methylumbelliferone derivative.
SERINE-TYROSINE-AMC	A_SETY	
L-CITRULLINE-AMC	A_LCTU	
L-PYROGLUTAMIC ACID-AMC	A_LPYR	
ISOLEUCINE-AMC	A_LISO	
L-TRYPTOPHAN-AMC	A_LTRY	
L-VALINE-AMC	A_LVAL	
ARGININE-ARGININE-AMC	A_ARARR	
LYSINE-ALANINE-AMC	A_LYALD	
ASPARAGINE-AMC	A_APGT	
L-ARGININE-AMC	A_LARGH	
L-HISTIDINE-AMC	A_LHIST	
ALANINE-AFC	Z_ALFT	
4MU-BD-CELLOBIOSIDE	M_BDCEL	
4MU-BD-GLUCOSIDE	M_BDGLU	
4MU-PHOSPHATE	M_PHOS	
4MU-AD-GLUCOSIDE	M_ADGLU	
4MU-BD-GLUCURONIDE	M_BDGLC	
4MU-N-ACETYL-BD-GLUCOSAMINE	M_NAG	
4MU-PHOSPHATE (with trehalose)	M_PHOT	
4MU-BD-GALACTOSIDE	M_BDGAL	
ESCULIN	T_ESC	Hydrolysis of esculin results in a black precipitate in the presence of ferric ion.

7.5.4 Yeast Panel

SUBSTRATE NAME	CODE	PRINCIPLE
PNP-BD-GLUCOSIDE	P_BDGLU	Enzymatic hydrolysis of the colorless aryl substituted glycoside releases yellow <i>p</i> -nitrophenol.
PNP-AD-GLUCOSIDE	P_PAGLU	
ONP-BD-GLUCOSIDE	O_BOGLU	
L-SORBOSE	C_LSBO	Utilization of a carbon source results in a reduction of the resazurin based indicator.
DEXTROSE	C_DEX	
D-MANNITOL	C_DMNT	
D-SUCROSE	C_DSUC	
METHYL-AD-GLUCOPYRANOSIDE	C_MGP	
N-ACETYL-BD-GLUCOSAMINIDE	C_NAG	
DEXTROSE	R_DEX	Utilization of carbohydrate results in lower pH and change in indicator (phenol red).
D-FRUCTOSE	R_DFRU	
D-GALACTOSE	R_DGAL	
SUCROSE	R_DSUC	
D-TREHALOSE	R_DTRE	
MALTOTRIOSE	R_MTT	
ESCULIN	T_ESC	Hydrolysis of esculin results in a black precipitate in the presence of ferric ion.
FLUORESCENT NEGATIVE CONTROL	Z_FTST	Control to check for fluorescent interference.

FLUORESCENT POSITIVE CONTROL	FLR_CTL	Control to standardize fluorescent substrate results.
FLUORESCENT POSITIVE CONTROL	FLR_CTL	
GAMMA-L-GLUTAMYL-NA	N_LGGH	Enzymatic hydrolysis of the colorless amide substrate releases yellow <i>p</i> -nitroaniline.
L-PROLINE-PNA	N_LPROT	
ASPARAGINE-AMC	A_APGT	
L-ARGININE-AMC	A_LARGH	
L-GLUTAMINE-AMC	A_LGLNB	
L-TYROSINE-AMC	A_LTYO	
L-HISTIDINE-AMC	A_LHIST	
ORNITHINE-AMC	A_ORN	
THREONINE-AMC	A_THR	
HYDROXY PROLINE-AMC	A_LHYP	
4MU-N-ACETYL-BD-GLUCOSAMINE	M_NAG	
4MU-AD-GLUCOSIDE	M_ADGLU	
4MU-PHOSPHATE	M_PHOS	
LYSINE-ALANINE-AMC	A_LYALD	
GLYCINE-ARGININE-AMC	A_GLARH	Enzymatic hydrolysis of the amide or glycosidic bond results in the release of a fluorescent coumarin or 4-methylumbelliferone derivative.
ALANINE-AFC	Z_ALFT	
GLYCINE-AMC	A_GLYB	
L-CITRULLINE-AMC	A_LCTU	
L-GLUTAMIC ACID-AMC	A_LGTA	
L-VALINE-AMC	A_LVAL	
L-ALANINE-AMC	A_LALT	
L-PROLINE-AMC	A_LPROB	
L-TRYPTOPHAN-AMC	A_LTRY	
H-B-ALANINE-AMC	A_HBALT	
4MU-BD-CELLOBIOSIDE	M_BDCEL	
4MU-BD-GLUCOSIDE	M_BDGLU	
GLYCINE-PROLINE-AMC	A_GLPRB	
LYSINE-PROLINE-AMC	A_LYPRA	
BENZYL-L-CYSTEINE-AMC	A_BZLCY	
AMINO ACID	S_GTN	Utilization of the amino acid results in a change in fluorescence.
UREA	S_URE	Hydrolysis of urea and the resulting ammonia change results in pH rise and change in fluorescent indicator.

7.6 Taxa for ID/AST Determination

7.6.1 Gram Negative (0.5 McFarland)

GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*	GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*
<i>Achromobacter denitrificans</i>	AST	<i>Aeromonas trota</i>	AST
<i>Achromobacter piechaudii</i>	AST	<i>Aeromonas veronii</i> bv <i>sobria</i>	ID/AST
<i>Achromobacter</i> species	ID/AST	<i>Aeromonas veronii</i> bv <i>veronii</i>	ID/AST
<i>Achromobacter xylosoxidans</i>	AST	<i>Alcaligenes faecalis</i>	ID/AST
<i>Acinetobacter baumannii</i> ²	ID/AST	<i>Alcaligenes faecalis</i> ssp <i>faecalis</i>	AST
<i>Acinetobacter baumannii</i> / <i>calcoaceticus</i> complex ²	ID/AST	<i>Alcaligenes</i> species	AST
<i>Acinetobacter baumannii</i> / <i>haemolyticus</i>	AST	<i>Bergeyella zoohelcum</i>	ID
<i>Acinetobacter calcoaceticus</i>	AST	<i>Bordetella bronchiseptica</i>	ID
<i>Acinetobacter haemolyticus</i>	ID/AST	<i>Brevundimonas diminuta</i>	ID/AST
<i>Acinetobacter johnsonii</i>	AST	<i>Brevundimonas</i> species	AST
<i>Acinetobacter junii</i>	AST	<i>Brevundimonas vesicularis</i>	ID/AST
<i>Acinetobacter lwoffii</i>	ID/AST	<i>Burkholderia caryophylli</i>	AST
<i>Acinetobacter lwoffii</i> / <i>haemolyticus</i>	ID/AST	<i>Burkholderia cepacia</i> complex	ID/AST
<i>Acinetobacter radioresistens</i>	AST	<i>Burkholderia cepacia</i> / <i>Ralstonia pickettii</i>	ID/AST
<i>Acinetobacter</i> species	ID/AST	<i>Burkholderia gladioli</i>	ID/AST
<i>Actinobacillus lignieresii</i>	ID	<i>Burkholderia glathei</i>	AST
<i>Actinobacillus suis</i>	ID	<i>Burkholderia graminis</i>	AST
<i>Actinobacillus ureae</i>	ID	<i>Burkholderia multivorans</i>	AST
<i>Aeromonas allosaccharophila</i>	AST	<i>Burkholderia phenazinium</i>	AST
<i>Aeromonas caviae</i>	ID/AST	<i>Burkholderia pyrrocinia</i>	AST
<i>Aeromonas eucrenophila</i>	AST	<i>Burkholderia</i> species	AST
<i>Aeromonas hydrophila</i>	ID/AST	<i>Burkholderia</i> species/ <i>Ralstonia</i> species	ID/AST
<i>Aeromonas hydrophila</i> group	AST	<i>Cardiobacterium hominis</i>	ID
<i>Aeromonas jandaei</i>	AST	CDC group Vb-3	ID
<i>Aeromonas media</i>	AST	<i>Cedecea davisae</i>	ID/AST
<i>Aeromonas salmonicida</i>	AST	<i>Cedecea lapagei</i>	ID/AST
<i>Aeromonas salmonicida</i> ssp <i>achromogenes</i>	AST	<i>Cedecea neteri</i>	ID/AST
<i>Aeromonas salmonicida</i> ssp <i>masoucida</i>	ID/AST	<i>Cedecea</i> species	AST
<i>Aeromonas salmonicida</i> ssp <i>pectinolytica</i>	AST	<i>Cedecea</i> species 3	AST
<i>Aeromonas salmonicida</i> ssp <i>salmonicida</i>	ID/AST	<i>Cedecea</i> species 5	AST
<i>Aeromonas salmonicida</i> ssp <i>smithia</i>	ID/AST	<i>Chromobacterium violaceum</i>	ID
<i>Aeromonas schubertii</i>	ID/AST	<i>Chryseobacterium gleum</i>	ID/AST
<i>Aeromonas</i> species	AST	<i>Chryseobacterium indologenes</i>	ID/AST

* Taxa for AST Interpretation may vary depending on the user-selected Interpretation Rule Set (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab).

¹ Not all species encountered during clinical performance evaluations.

² Organism encountered in clinical trials and ≥ 20 strains available for antimicrobial/organism performance analysis.

GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*	GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*
<i>Chryseobacterium scopthalmum</i>	AST	<i>Escherichia fergusonii</i>	ID/AST
<i>Chryseobacterium species</i>	AST	<i>Escherichia hermannii</i>	ID/AST
<i>Citrobacter amalonaticus</i>	ID/AST	<i>Escherichia species</i>	AST
<i>Citrobacter braakii</i>	ID/AST	<i>Escherichia vulneris</i>	ID/AST
<i>Citrobacter farmeri</i>	ID/AST	<i>Ewingella americana</i>	ID
<i>Citrobacter freundii</i>	ID/AST	Gram-negative rod unidentified enteric	AST
<i>Citrobacter gillenii</i>	AST	Gram-negative rod unidentified nonfermenter	AST
<i>Citrobacter koseri</i>	ID/AST	<i>Grimontia hollisae</i>	ID
<i>Citrobacter murlinae</i>	AST	<i>Hafnia alvei</i>	ID/AST
<i>Citrobacter rodentium</i>	AST	<i>Hafnia alvei</i> group 1	AST
<i>Citrobacter sedlakii</i>	ID/AST	<i>Kingella denitrificans</i>	ID
<i>Citrobacter species</i>	AST	<i>Kingella kingae</i>	ID
<i>Citrobacter werkmanii</i>	ID/AST	<i>Klebsiella granulomatis</i>	AST
<i>Citrobacter youngae</i>	ID/AST	<i>Klebsiella oxytoca</i> ²	ID/AST
<i>Comamonas terrigena</i>	ID	<i>Klebsiella ozaenae</i>	ID/AST
<i>Comamonas testosteroni</i>	ID	<i>Klebsiella pneumoniae</i> ²	ID/AST
<i>Cosenzaea myxofaciens</i>	AST	<i>Klebsiella rhinoscleromatis</i>	ID/AST
<i>Cronobacter sakazakii</i> complex	ID/AST	<i>Klebsiella species</i>	AST
<i>Cupriavidus gilardii</i>	AST	<i>Kluyvera ascorbata</i>	ID/AST
<i>Cupriavidus pauculus</i>	ID/AST	<i>Kluyvera cryocrescens</i>	ID/AST
<i>Delftia acidovorans</i>	ID/AST	<i>Kluyvera georgiana</i>	AST
<i>Edwardsiella hoshinae</i>	ID/AST	<i>Kluyvera intermedia</i>	ID/AST
<i>Edwardsiella ictaluri</i>	ID/AST	<i>Kluyvera species</i>	AST
<i>Edwardsiella species</i>	AST	<i>Kosakonia cowanii</i>	AST
<i>Edwardsiella tarda</i>	ID/AST	<i>Leclercia adecarboxylata</i>	ID/AST
<i>Edwardsiella tarda</i> biogroup 1	AST	<i>Lelliottia amnigena</i>	AST
<i>Eikenella corrodens</i>	ID	<i>Lelliottia amnigena</i> biogroup 1	ID/AST
<i>Elizabethkingia meningoseptica</i>	ID/AST	<i>Lelliottia amnigena</i> biogroup 2	ID/AST
<i>Empedobacter brevis</i>	ID	<i>Leminorella grimontii</i>	ID
<i>Enterobacter aerogenes</i> ²	ID/AST	<i>Leminorella richardii</i>	ID
<i>Enterobacter asburiae</i>	ID/AST	<i>Mannheimia haemolytica</i>	ID
<i>Enterobacter cancerogenus</i>	ID/AST	<i>Methylobacterium extorquens</i>	ID
<i>Enterobacter cloacae</i> ²	ID/AST	<i>Moellerella wisconsensis</i>	ID/AST
<i>Enterobacter cloacae</i> ssp <i>dissolvens</i>	AST	<i>Moraxella (Branhamella) catarrhalis</i>	ID
<i>Enterobacter hormaechei</i>	ID/AST	<i>Moraxella species</i>	ID
<i>Enterobacter kobei</i>	AST	<i>Morganella morganii</i> ²	ID/AST
<i>Enterobacter nimipressuralis</i>	AST	<i>Morganella morganii</i> ssp <i>morganii</i>	AST
<i>Enterobacter species</i>	AST	<i>Morganella morganii</i> ssp <i>morganii</i> biogroup 1	AST
<i>Escherichia coli</i> ²	ID/AST	<i>Morganella morganii</i> ssp <i>sibonii</i>	AST
<i>Escherichia coli</i> serotype O111	AST	<i>Morganella species</i>	AST
<i>Escherichia coli</i> serotype O157	AST	<i>Myroides odoratimimus</i>	AST

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab).

¹ Not all species encountered during clinical performance evaluations.

² Organism encountered in clinical trials and ≥ 20 strains available for antimicrobial/organism performance analysis.

GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST [*]	GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST [*]
<i>Myroides odoratus</i>	AST	<i>Pseudomonas luteola</i>	ID/AST
<i>Myroides odoratus/odoratimimus</i>	ID/AST	<i>Pseudomonas mendocina</i>	ID/AST
<i>Myroides species</i>	AST	<i>Pseudomonas monteilii</i>	AST
<i>Neisseria animaloris</i>	ID	<i>Pseudomonas oryzaehabitans</i>	ID/AST
<i>Neisseria zoodegmatidis</i>	ID	<i>Pseudomonas pertucinogena</i>	AST
<i>Ochrobactrum anthropi</i>	ID/AST	<i>Pseudomonas pseudoalcaligenes</i>	ID/AST
<i>Oligella ureolytica</i>	ID	<i>Pseudomonas pseudoalcaligenes</i> <i>ssp. pseudoalcaligenes</i>	AST
<i>Oligella urethralis</i>	ID	<i>Pseudomonas putida</i>	ID/AST
<i>Pantoea agglomerans</i>	ID/AST	<i>Pseudomonas species</i>	ID/AST
<i>Pantoea ananatis</i>	AST	<i>Pseudomonas stutzeri</i>	ID/AST
<i>Pantoea dispersa</i>	AST	<i>Pseudomonas veronii</i>	AST
<i>Pantoea species</i>	AST	<i>Rahnella aquatilis</i>	ID
<i>Pantoea stewartii</i>	AST	<i>Ralstonia pickettii</i>	ID/AST
<i>Pantoea stewartii ssp indologenes</i>	AST	<i>Ralstonia solanacearum</i>	AST
<i>Pantoea stewartii ssp stewartii</i>	AST	<i>Ralstonia species</i>	AST
<i>Paracoccus yeei</i>	ID	<i>Raoultella ornithinolytica</i>	ID/AST
<i>Pasteurella aerogenes</i>	ID	<i>Raoultella planticola</i>	AST
<i>Pasteurella multocida</i>	ID	<i>Raoultella species</i>	AST
<i>Pasteurella pneumotropica</i>	ID	<i>Raoultella terrigena</i>	AST
<i>Photobacterium damsela</i>	ID	<i>Rhizobium radiobacter</i>	ID
<i>Plesiomonas shigelloides</i>	ID	<i>Salmonella enterica ssp arizonae</i>	ID/AST
<i>Pluralibacter gergoviae</i>	ID/AST	<i>Salmonella enterica ssp diarizonae</i>	AST
<i>Pragia fontium</i>	ID	<i>Salmonella enterica ssp enterica</i> <i>serovar Choleraesuis</i>	ID/AST
<i>Proteus hauseri</i>	AST	<i>Salmonella enterica ssp enterica</i> <i>sv Gallinarum bv Gallinarum</i>	ID/AST
<i>Proteus mirabilis</i> ²	ID/AST	<i>Salmonella enterica ssp enterica</i> <i>sv Gallinarum bv Pullorum</i>	ID/AST
<i>Proteus penneri</i>	ID/AST	<i>Salmonella enterica ssp enterica</i> <i>sv Paratyphi A</i>	ID/AST
<i>Proteus species</i>	AST	<i>Salmonella enterica ssp enterica</i> <i>sv Typhi</i>	ID/AST
<i>Proteus vulgaris</i>	ID/AST	<i>Salmonella enterica ssp houtenae</i>	AST
<i>Proteus vulgaris/penneri</i>	ID/AST	<i>Salmonella enterica ssp indica</i>	AST
<i>Providencia alcalifaciens</i>	ID/AST	<i>Salmonella enterica ssp salamae</i>	AST
<i>Providencia heimbachae</i>	AST	<i>Salmonella species</i>	ID/AST
<i>Providencia rettgeri</i>	ID/AST	<i>Serratia entomophila</i>	AST
<i>Providencia rustigianii</i>	ID/AST	<i>Serratia ficaria</i>	ID/AST
<i>Providencia species</i>	AST	<i>Serratia fonticola</i>	ID/AST
<i>Providencia stuartii</i>	ID/AST	<i>Serratia grimesii</i>	AST
<i>Pseudomonas aeruginosa</i> ²	ID/AST	<i>Serratia liquefaciens</i>	ID/AST
<i>Pseudomonas alcaligenes</i>	AST	<i>Serratia marcescens</i> ²	ID/AST
<i>Pseudomonas fluorescens</i>	ID/AST	<i>Serratia odorifera</i>	AST
<i>Pseudomonas fluorescens/putida</i>	AST	<i>Serratia odorifera biogroup 1</i>	ID/AST

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab).

¹ Not all species encountered during clinical performance evaluations.

² Organism encountered in clinical trials and ≥ 20 strains available for antimicrobial/organism performance analysis.

GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*	GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*
<i>Serratia odorifera</i> biogroup 2	ID/AST	<i>Vibrio fluvialis</i>	ID
<i>Serratia plymuthica</i>	ID/AST	<i>Vibrio metschnikovii</i>	ID
<i>Serratia proteamaculans</i> ssp <i>proteamaculans</i>	AST	<i>Vibrio mimicus</i>	ID
<i>Serratia proteamaculans</i> ssp <i>quinovora</i>	AST	<i>Vibrio parahaemolyticus</i>	ID
<i>Serratia rubidaea</i>	ID/AST	<i>Vibrio vulnificus</i>	ID
<i>Serratia</i> species	AST	<i>Weeksella virosa</i>	ID
<i>Shewanella algae</i>	AST	<i>Yersinia aldovae</i>	AST
<i>Shewanella putrefaciens</i>	ID/AST	<i>Yersinia bercovieri</i>	AST
<i>Shewanella</i> species	AST	<i>Yersinia enterocolitica</i>	ID/AST
<i>Shigella boydii</i>	ID/AST	<i>Yersinia enterocolitica</i> group	AST
<i>Shigella dysenteriae</i>	ID/AST	<i>Yersinia frederiksenii</i>	ID/AST
<i>Shigella flexneri</i>	ID/AST	<i>Yersinia intermedia</i>	ID/AST
<i>Shigella sonnei</i>	ID/AST	<i>Yersinia kristensenii</i>	ID/AST
<i>Shigella</i> species	ID/AST	<i>Yersinia mollaretii</i>	AST
<i>Shimwellia blattae</i>	AST	<i>Yersinia pseudotuberculosis</i>	ID/AST
<i>Sphingobacterium multivorum</i>	ID/AST	<i>Yersinia rohdei</i>	AST
<i>Sphingobacterium multivorum</i> / <i>thalpophilum</i>	ID/AST	<i>Yersinia ruckeri</i>	ID/AST
<i>Sphingobacterium</i> species	AST	<i>Yersinia</i> species	AST
<i>Sphingobacterium spiritivorum</i>	ID/AST	<i>Yokenella regensburgei</i>	ID
<i>Sphingobacterium thalpophilum</i>	ID/AST		
<i>Sphingomonas paucimobilis</i>	ID/AST		
<i>Stenotrophomonas africana</i>	AST		
<i>Stenotrophomonas maltophilia</i> ²	ID/AST		
<i>Suttonella indologenes</i>	ID		
<i>Tatumella ptyseos</i>	ID		
<i>Vibrio alginolyticus</i>	ID		
<i>Vibrio cholerae</i>	ID		

* Taxa for AST Interpretation may vary depending on the user-selected Interpretation Rule Set (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab).

¹ Not all species encountered during clinical performance evaluations.

² Organism encountered in clinical trials and ≥ 20 strains available for antimicrobial/organism performance analysis.

7.6.2 Gram Negative (0.25 McFarland)

GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST [*]	GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST [*]
<i>Achromobacter</i> species	ID/AST	<i>Citrobacter youngae</i>	ID/AST
<i>Acinetobacter baumannii</i> / <i>calcoaceticus</i> complex	ID/AST	<i>Comamonas terrigena</i>	ID
<i>Acinetobacter haemolyticus</i>	ID/AST	<i>Comamonas testosteroni</i>	ID
<i>Acinetobacter Iwoffii</i>	ID/AST	<i>Cronobacter sakazakii</i> complex	ID/AST
<i>Actinobacillus lignieresii</i>	ID	<i>Cupriavidus pauculus</i>	ID/AST
<i>Actinobacillus suis</i>	ID	<i>Delftia acidovorans</i>	ID/AST
<i>Actinobacillus ureae</i>	ID	<i>Edwardsiella hoshinae</i>	ID/AST
<i>Aeromonas caviae</i>	ID/AST	<i>Edwardsiella ictaluri</i>	ID/AST
<i>Aeromonas hydrophila</i>	ID/AST	<i>Edwardsiella tarda</i>	ID/AST
<i>Aeromonas salmonicida</i> ssp <i>masoucida</i>	ID/AST	<i>Eikenella corrodens</i>	ID
<i>Aeromonas salmonicida</i> ssp <i>salmonicida</i>	ID/AST	<i>Elizabethkingia meningoseptica</i>	ID/AST
<i>Aeromonas salmonicida</i> ssp <i>smithia</i>	ID/AST	<i>Empedobacter brevis</i>	ID
<i>Aeromonas schubertii</i>	ID/AST	<i>Enterobacter aerogenes</i>	ID/AST
<i>Aeromonas veronii</i> bv <i>sobria</i>	ID/AST	<i>Enterobacter asburiae</i>	ID/AST
<i>Aeromonas veronii</i> bv <i>veronii</i>	ID/AST	<i>Enterobacter cancerogenus</i>	ID/AST
<i>Alcaligenes faecalis</i>	ID/AST	<i>Enterobacter cloacae</i>	ID/AST
<i>Bergeyella zoohelcum</i>	ID	<i>Enterobacter hormaechei</i>	ID/AST
<i>Bordetella bronchiseptica</i>	ID	<i>Escherichia coli</i>	ID/AST
<i>Brevundimonas diminuta</i>	ID/AST	<i>Escherichia fergusonii</i>	ID/AST
<i>Brevundimonas vesicularis</i>	ID/AST	<i>Escherichia hermannii</i>	ID/AST
<i>Burkholderia cepacia</i> complex	ID/AST	<i>Escherichia vulneris</i>	ID/AST
<i>Burkholderia gladioli</i>	ID/AST	<i>Ewingella americana</i>	ID
<i>Cardiobacterium hominis</i>	ID	<i>Grimontia hollisae</i>	ID
CDC group Vb-3	ID	<i>Hafnia alvei</i>	ID/AST
<i>Cedecea davisae</i>	ID/AST	<i>Klebsiella oxytoca</i>	ID/AST
<i>Cedecea lapagei</i>	ID/AST	<i>Klebsiella ozaenae</i>	ID/AST
<i>Cedecea neteri</i>	ID/AST	<i>Klebsiella pneumoniae</i>	ID/AST
<i>Chromobacterium violaceum</i>	ID	<i>Klebsiella rhinoscleromatis</i>	ID/AST
<i>Chryseobacterium gleum</i>	ID/AST	<i>Kluyvera ascorbata</i>	ID/AST
<i>Chryseobacterium indologenes</i>	ID/AST	<i>Kluyvera cryocrescens</i>	ID/AST
<i>Citrobacter amalonaticus</i>	ID/AST	<i>Kluyvera intermedia</i>	ID/AST
<i>Citrobacter braakii</i>	ID/AST	<i>Leclercia adecarboxylata</i>	ID/AST
<i>Citrobacter farmeri</i>	ID/AST	<i>Lelliottia amnigena</i> biogroup 1	ID/AST
<i>Citrobacter freundii</i>	ID/AST	<i>Lelliottia amnigena</i> biogroup 2	ID/AST
<i>Citrobacter koseri</i>	ID/AST	<i>Leminorella grimontii</i>	ID
<i>Citrobacter sedlakii</i>	ID/AST	<i>Leminorella richardii</i>	ID
<i>Citrobacter werkmanii</i>	ID/AST	<i>Mannheimia haemolytica</i>	ID

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab).

¹ Not all species encountered during clinical performance evaluations

² Organism encountered in clinical trials and ≥ 20 strains available for antimicrobial/organism performance analysis

GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*	GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST*
<i>Moellerella wisconsensis</i>	ID/AST	<i>Ralstonia pickettii</i>	ID
<i>Morganella morganii</i>	ID/AST	<i>Raoultella ornithinolytica</i>	ID/AST
<i>Myroides odoratus/odoratimimus</i>	ID/AST	<i>Rhizobium radiobacter</i>	ID
<i>Neisseria animaloris</i>	ID	<i>Salmonella enterica</i> ssp <i>arizonae</i>	ID/AST
<i>Neisseria zoodegmatidis</i>	ID	<i>Salmonella enterica</i> ssp <i>enterica</i> serovar <i>Choleraesuis</i>	ID/AST
<i>Ochrobactrum anthropi</i>	ID/AST	<i>Salmonella enterica</i> ssp <i>enterica</i> sv <i>Gallinarum</i> bv <i>Gallinarum</i>	ID/AST
<i>Oligella ureolytica</i>	ID	<i>Salmonella enterica</i> ssp <i>enterica</i> sv <i>Gallinarum</i> bv <i>Pullorum</i>	ID/AST
<i>Oligella urethralis</i>	ID	<i>Salmonella enterica</i> ssp <i>enterica</i> sv <i>Paratyphi</i> A	ID/AST
<i>Pantoea agglomerans</i>	ID/AST	<i>Salmonella enterica</i> ssp <i>enterica</i> sv <i>Typhi</i>	ID/AST
<i>Paracoccus yeei</i>	ID	<i>Salmonella</i> species	ID/AST
<i>Pasteurella aerogenes</i>	ID	<i>Serratia ficaria</i>	ID/AST
<i>Pasteurella multocida</i>	ID	<i>Serratia fonticola</i>	ID/AST
<i>Pasteurella pneumotropica</i>	ID	<i>Serratia liquefaciens</i>	ID/AST
<i>Photobacterium damsela</i>	ID	<i>Serratia marcescens</i>	ID/AST
<i>Plesiomonas shigelloides</i>	ID	<i>Serratia odorifera</i> biogroup 1	ID/AST
<i>Pluralibacter gergoviae</i>	ID/AST	<i>Serratia odorifera</i> biogroup 2	ID/AST
<i>Pragia fontium</i>	ID	<i>Serratia plymuthica</i>	ID/AST
<i>Proteus mirabilis</i>	ID/AST	<i>Serratia rubidaea</i>	ID/AST
<i>Proteus penneri</i>	ID/AST	<i>Shewanella putrefaciens</i>	ID/AST
<i>Proteus vulgaris</i>	ID/AST	<i>Shigella boydii</i>	ID/AST
<i>Proteus vulgaris/penneri</i>	ID/AST	<i>Shigella dysenteriae</i>	ID/AST
<i>Providencia alcalifaciens</i>	ID/AST	<i>Shigella flexneri</i>	ID/AST
<i>Providencia rettgeri</i>	ID/AST	<i>Shigella sonnei</i>	ID/AST
<i>Providencia rustigianii</i>	ID/AST	<i>Sphingobacterium multivorum</i>	ID/AST
<i>Providencia stuartii</i>	ID/AST	<i>Sphingobacterium spiritivorum</i>	ID/AST
<i>Pseudomonas aeruginosa</i>	ID/AST	<i>Sphingobacterium thalpophilum</i>	ID/AST
<i>Pseudomonas fluorescens</i>	ID/AST	<i>Sphingomonas paucimobilis</i>	ID/AST
<i>Pseudomonas luteola</i>	ID/AST	<i>Stenotrophomonas maltophilia</i>	ID/AST
<i>Pseudomonas mendocina</i>	ID/AST	<i>Suttonella indologenes</i>	ID
<i>Pseudomonas oryzihabitans</i>	ID/AST	<i>Tatumella ptyseos</i>	ID
<i>Pseudomonas putida</i>	ID/AST	<i>Vibrio alginolyticus</i>	ID
<i>Pseudomonas stutzeri</i>	ID/AST	<i>Vibrio cholerae</i>	ID
<i>Rahnella aquatilis</i>	ID	<i>Vibrio fluvialis</i>	ID
<i>Vibrio metschnikovii</i>	ID	<i>Yersinia intermedia</i>	ID/AST

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab).

¹ Not all species encountered during clinical performance evaluations.

² Organism encountered in clinical trials and ≥ 20 strains available for antimicrobial/organism performance analysis.

GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST [*]	GRAM NEGATIVE TAXA ¹	ID, AST, ID/AST [*]
<i>Vibrio mimicus</i>	ID	<i>Yersinia kristensenii</i>	ID/AST
<i>Vibrio parahaemolyticus</i>	ID	<i>Yersinia pseudotuberculosis</i>	ID/AST
<i>Vibrio vulnificus</i>	ID	<i>Yersinia ruckeri</i>	ID/AST
<i>Weeksella virosa</i>	ID	<i>Yokenella regensburgei</i>	ID
<i>Yersinia enterocolitica</i>	ID/AST		
<i>Yersinia frederiksenii</i>	ID/AST		

^{*} Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab).

¹ Not all species encountered during clinical performance evaluations.

² Organism encountered in clinical trials and ≥ 20 strains available for antimicrobial/organism performance analysis.

7.6.3 Gram Positive (0.5 McFarland)

GRAM POSITIVE TAXA ¹	ID, AST, ID/AST [*]	GRAM POSITIVE TAXA ¹	ID, AST, ID/AST [*]
<i>Aerococcus urinae</i>	ID	<i>Corynebacterium matruchotii</i>	ID
<i>Aerococcus viridans</i>	ID	<i>Corynebacterium minutissimum</i>	ID
<i>Alloiooccus otitis</i>	ID	<i>Corynebacterium propinquum</i>	ID
<i>Arcanobacterium haemolyticum</i>	ID	<i>Corynebacterium pseudodiphtheriticum</i>	ID
<i>Bacillus cereus</i>	ID	<i>Corynebacterium pseudotuberculosis</i>	ID
<i>Bacillus circulans</i>	ID	<i>Corynebacterium renale</i>	ID
<i>Bacillus coagulans</i>	ID	<i>Corynebacterium striatum</i>	ID
<i>Bacillus licheniformis</i>	ID	<i>Corynebacterium ulcerans</i>	ID
<i>Bacillus megaterium</i>	ID	<i>Corynebacterium urealyticum</i>	ID
<i>Bacillus pumilus</i>	ID	<i>Corynebacterium xerosis</i>	ID
<i>Bacillus subtilis</i>	ID	<i>Dermabacter hominis</i>	ID
<i>Bacillus thuringiensis</i>	ID	<i>Demacoccus nishinomiyaensis</i>	ID
<i>Brevibacillus brevis</i>	ID	<i>Enterococcus asini</i>	AST
<i>Brevibacterium species</i>	ID	<i>Enterococcus avium</i>	ID/AST
<i>Cellulomonas turbata</i>	ID	<i>Enterococcus casseliflavus</i>	ID/AST
<i>Cellulosimicrobium cellulans</i>	ID	<i>Enterococcus casseliflavus/gallinarum</i>	ID/AST
<i>Corynebacterium amycolatum</i>	ID	<i>Enterococcus cecorum</i>	AST
<i>Corynebacterium amycolatum/minutissimum</i>	ID	<i>Enterococcus columbae</i>	AST
<i>Corynebacterium amycolatum/striatum</i>	ID	<i>Enterococcus dispar</i>	AST
<i>Corynebacterium bovis</i>	ID	<i>Enterococcus durans</i>	ID/AST
<i>Corynebacterium diphtheriae</i>	ID	<i>Enterococcus durans/faecium</i>	AST
<i>Corynebacterium jeikeium</i>	ID	<i>Enterococcus faecalis</i>	ID/AST
<i>Corynebacterium kutscheri</i>	ID	<i>Enterococcus faecalis/faecium</i>	AST

^{*} Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab).

¹ Not all species encountered during clinical performance evaluations.

GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*	GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*
<i>Enterococcus faecium</i>	ID/AST	<i>Leuconostoc citreum</i>	ID
<i>Enterococcus flavescens</i>	AST	<i>Leuconostoc lactis</i>	ID
<i>Enterococcus gallinarum</i>	ID/AST	<i>Leuconostoc mesenteroides</i> ssp <i>cremoris</i>	ID
<i>Enterococcus gilvus</i>	AST	<i>Leuconostoc mesenteroides</i> ssp <i>mesenteroides</i>	ID
<i>Enterococcus haemoperoxidus</i>	AST	<i>Leuconostoc pseudomesenteroides</i>	ID
<i>Enterococcus hirae</i>	ID/AST	<i>Listeria grayi</i>	ID
<i>Enterococcus hirae/faecium</i>	AST	<i>Listeria innocua</i>	ID
<i>Enterococcus malodoratus</i>	AST	<i>Listeria ivanovii</i>	ID
<i>Enterococcus moraviensis</i>	AST	<i>Listeria monocytogenes</i>	ID
<i>Enterococcus mundtii</i>	AST	<i>Listeria monocytogenes/innocua</i>	ID
<i>Enterococcus pallens</i>	AST	<i>Listeria welshimeri</i>	ID
<i>Enterococcus pseudoavium</i>	AST	<i>Lysinibacillus sphaericus</i>	ID
<i>Enterococcus raffinosus</i>	ID/AST	<i>Macrococcus caseolyticus</i>	ID
<i>Enterococcus raffinosus/avium</i>	AST	<i>Micrococcus luteus</i>	ID
<i>Enterococcus ratti</i>	AST	<i>Micrococcus lylae</i>	ID
<i>Enterococcus saccharolyticus</i>	AST	<i>Paenibacillus alvei</i>	ID
<i>Enterococcus species</i>	AST	<i>Paenibacillus macerans</i>	ID
<i>Enterococcus sulfureus</i>	AST	<i>Pediococcus acidilactici</i>	ID
<i>Erysipelothrix rhusiopathiae</i>	ID	<i>Pediococcus damnosus</i>	ID
<i>Gardnerella vaginalis</i>	ID	<i>Pediococcus dextrinicus</i>	ID
<i>Gemella haemolysans</i>	ID	<i>Pediococcus parvulus</i>	ID
<i>Gemella morbillorum</i>	ID	<i>Pediococcus pentosaceus</i>	ID
<i>Globicatella sanguinis</i>	ID	<i>Rhodococcus equi</i>	ID
<i>Helcococcus kunzii</i>	ID	<i>Rothia dentocariosa</i>	ID
<i>Kocuria kristinae</i>	ID	<i>Rothia mucilaginosa</i>	ID
<i>Kocuria rosea</i>	ID	<i>Staphylococcus arlettae</i>	AST
<i>Kocuria varians</i>	ID	<i>Staphylococcus aureus</i>	ID/AST
<i>Kytococcus sedentarius</i>	ID	<i>Staphylococcus aureus</i> ssp <i>anaerobius</i>	AST
<i>Lactococcus garvieae</i>	ID	<i>Staphylococcus aureus</i> ssp <i>aureus</i>	AST
<i>Lactococcus lactis</i> ssp <i>cremoris</i>	ID	<i>Staphylococcus aricularis</i>	ID/AST
<i>Lactococcus lactis</i> ssp <i>hordniae</i>	ID	<i>Staphylococcus capitis</i>	ID/AST
<i>Lactococcus lactis</i> ssp <i>lactis</i>	ID	<i>Staphylococcus capitis</i> ssp <i>capitis</i>	ID/AST
<i>Lactococcus plantarum</i>	ID	<i>Staphylococcus capitis</i> ssp <i>ureolyticus</i>	ID/AST
<i>Lactococcus raffinolactis</i>	ID	<i>Staphylococcus caprae</i>	ID/AST
<i>Leifsonia aquatica</i>	ID	<i>Staphylococcus carnosus</i>	ID/AST
<i>Staphylococcus carnosus</i> ssp <i>carnosus</i>	AST	<i>Staphylococcus pasteurii</i>	ID/AST

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab).

¹ Not all species encountered during clinical performance evaluations.

GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*	GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*
<i>Staphylococcus carnosus</i> ssp <i>utilis</i>	AST	<i>Staphylococcus pettenkoferi</i>	ID/AST
<i>Staphylococcus chromogenes</i>	ID/AST	<i>Staphylococcus piscifermentans</i>	AST
<i>Staphylococcus chromogenes/hyicus</i>	ID/AST	<i>Staphylococcus pulvereri</i>	AST
<i>Staphylococcus coagulase-negative</i>	AST	<i>Staphylococcus saccharolyticus</i>	AST
<i>Staphylococcus coagulase-positive</i>	AST	<i>Staphylococcus saprophyticus</i>	ID/AST
<i>Staphylococcus cohnii</i>	ID/AST	<i>Staphylococcus saprophyticus</i> ssp <i>bovis</i>	AST
<i>Staphylococcus cohnii</i> ssp <i>cohnii</i>	ID/AST	<i>Staphylococcus saprophyticus</i> ssp <i>saprophyticus</i>	AST
<i>Staphylococcus cohnii</i> ssp <i>urealyticum</i>	ID/AST	<i>Staphylococcus schleiferi</i>	ID/AST
<i>Staphylococcus condimentii</i>	AST	<i>Staphylococcus schleiferi</i> ssp <i>coagulans</i>	ID/AST
<i>Staphylococcus delphini</i>	AST	<i>Staphylococcus schleiferi</i> ssp <i>schleiferi</i>	ID/AST
<i>Staphylococcus epidermidis</i>	ID/AST	<i>Staphylococcus sciuri</i>	ID/AST
<i>Staphylococcus equorum</i>	ID/AST	<i>Staphylococcus sciuri</i> ssp <i>caraticus</i>	AST
<i>Staphylococcus felis</i>	ID/AST	<i>Staphylococcus sciuri</i> ssp <i>rodentium</i>	AST
<i>Staphylococcus fleurettii</i>	AST	<i>Staphylococcus sciuri</i> ssp <i>sciuri</i>	AST
<i>Staphylococcus gallinarum</i>	ID/AST	<i>Staphylococcus simulans</i>	ID/AST
<i>Staphylococcus haemolyticus</i>	ID/AST	<i>Staphylococcus species</i>	AST
<i>Staphylococcus haemolyticus/lugdunensis</i>	ID	<i>Staphylococcus succinus</i>	AST
<i>Staphylococcus hominis</i>	ID/AST	<i>Staphylococcus succinus</i> ssp <i>casei</i>	AST
<i>Staphylococcus hominis</i> ssp <i>hominis</i>	AST	<i>Staphylococcus succinus</i> ssp <i>succinus</i>	AST
<i>Staphylococcus hominis</i> ssp <i>novobiosepticus</i>	AST	<i>Staphylococcus vitulinus</i>	ID/AST
<i>Staphylococcus hyicus</i>	ID/AST	<i>Staphylococcus warneri</i>	ID/AST
<i>Staphylococcus intermedius</i>	ID/AST	<i>Staphylococcus warneri/pasteuri</i>	AST
<i>Staphylococcus kloosii</i>	ID/AST	<i>Staphylococcus xylosus</i>	ID/AST
<i>Staphylococcus lentus</i>	ID/AST	<i>Streptococcus acidominimus</i>	ID
<i>Staphylococcus lugdunensis</i>	ID/AST	<i>Streptococcus agalactiae</i> (Strep. group B)	ID
<i>Staphylococcus lutrae</i>	AST	<i>Streptococcus anginosus</i>	ID
<i>Staphylococcus muscae</i>	AST	<i>Streptococcus bovis</i> (Strep. group D)	ID
<i>Streptococcus bovis</i> I (Strep. group D)	ID	<i>Streptococcus mitis</i>	ID

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab).

¹ Not all species encountered during clinical performance evaluations.

GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*	GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*
<i>Streptococcus bovis</i> II (Strep. group D)	ID	<i>Streptococcus mitis/pneumoniae</i>	ID
<i>Streptococcus canis</i>	ID	<i>Streptococcus mutans</i>	ID
<i>Streptococcus constellatus</i>	ID	<i>Streptococcus oralis</i>	ID
<i>Streptococcus cristatus</i>	ID	<i>Streptococcus parasanguinis</i>	ID
<i>Streptococcus dysgalactiae</i> ssp <i>dysgalactiae</i>	ID	<i>Streptococcus pneumoniae</i>	ID
<i>Streptococcus dysgalactiae</i> ssp <i>equisimilis</i>	ID	<i>Streptococcus porcinus</i>	ID
<i>Streptococcus equi</i>	ID	<i>Streptococcus pyogenes</i> (Strep. group A)	ID
<i>Streptococcus equi</i> ssp <i>equi</i>	ID	<i>Streptococcus salivarius</i>	ID
<i>Streptococcus equi</i> ssp <i>zooepidemicus</i>	ID	<i>Streptococcus sanguinis</i>	ID
<i>Streptococcus equinus</i>	ID	<i>Streptococcus sobrinus</i>	ID
<i>Streptococcus gordonii</i>	ID	<i>Streptococcus uberis</i>	ID
<i>Streptococcus</i> group C/G (large colony)	ID	<i>Streptococcus vestibularis</i>	ID
<i>Streptococcus intermedius</i>	ID	<i>Trueperella pyogenes</i>	ID

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab).

¹ Not all species encountered during clinical performance evaluations.

7.6.4 Gram Positive (0.25 McFarland)

GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*	GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*
<i>Aerococcus urinae</i>	ID	<i>Gemella morbillorum</i>	ID
<i>Aerococcus viridans</i>	ID	<i>Globicatella sanguinis</i>	ID
<i>Alloiococcus otitis</i>	ID	<i>Helcococcus kunzii</i>	ID
<i>Dermacoccus nishinomiyaensis</i>	ID	<i>Kocuria kristinae</i>	ID
<i>Enterococcus avium</i>	ID/AST	<i>Kocuria rosea</i>	ID
<i>Enterococcus casseliflavus</i>	ID/AST	<i>Kocuria varians</i>	ID
<i>Enterococcus durans</i>	ID/AST	<i>Kytococcus sedentarius</i>	ID
<i>Enterococcus faecalis</i>	ID/AST	<i>Lactococcus lactis</i> ssp <i>cremoris</i>	ID
<i>Enterococcus faecium</i>	ID/AST	<i>Lactococcus lactis</i> ssp <i>hordniae</i>	ID
<i>Enterococcus gallinarum</i>	ID/AST	<i>Lactococcus plantarum</i>	ID
<i>Enterococcus hirae</i>	ID/AST	<i>Leuconostoc citreum</i>	ID
<i>Enterococcus raffinosus</i>	ID/AST	<i>Leuconostoc lactis</i>	ID
<i>Gemella haemolysans</i>	ID		
<i>Leuconostoc mesenteroides</i> ssp <i>mesenteroides</i>	ID	<i>Staphylococcus saprophyticus</i>	ID/AST

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab).

¹ Not all species encountered during clinical performance evaluations

GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*	GRAM POSITIVE TAXA ¹	ID, AST, ID/AST*
<i>Listeria innocua</i>	ID	<i>Staphylococcus schleiferi</i> ssp <i>coagulans</i>	ID/AST
<i>Listeria monocytogenes</i>	ID	<i>Staphylococcus schleiferi</i> ssp <i>schleiferi</i>	ID/AST
<i>Micrococcus caseolyticus</i>	ID	<i>Staphylococcus sciuri</i>	ID/AST
<i>Micrococcus luteus</i>	ID	<i>Staphylococcus simulans</i>	ID/AST
<i>Micrococcus lylae</i>	ID	<i>Staphylococcus vitulinus</i>	ID/AST
<i>Pediococcus acidilactici</i>	ID	<i>Staphylococcus warneri</i>	ID/AST
<i>Pediococcus damnosus</i>	ID	<i>Staphylococcus xylosus</i>	ID/AST
<i>Pediococcus dextrinicus</i>	ID	<i>Streptococcus agalactiae</i> (Strep. group B)	ID
<i>Pediococcus parvulus</i>	ID	<i>Streptococcus anginosus</i>	ID
<i>Pediococcus pentosaceus</i>	ID	<i>Streptococcus bovis</i> (Strep. group D)	ID
<i>Rothia mucilaginosa</i>	ID	<i>Streptococcus bovis</i> I (Strep. group D)	ID
<i>Staphylococcus aureus</i>	ID/AST	<i>Streptococcus bovis</i> II (Strep. group D)	ID
<i>Staphylococcus auricularis</i>	ID/AST	<i>Streptococcus constellatus</i>	ID
<i>Staphylococcus capitis</i>	ID/AST	<i>Streptococcus cristatus</i>	ID
<i>Staphylococcus caprae</i>	ID/AST	<i>Streptococcus equi</i>	ID
<i>Staphylococcus carnosus</i>	ID/AST	<i>Streptococcus gordonii</i>	ID
<i>Staphylococcus chromogenes</i>	ID/AST	<i>Streptococcus</i> group C/G (large colony)	ID
<i>Staphylococcus cohnii</i> ssp <i>cohnii</i>	ID/AST	<i>Streptococcus intermedius</i>	ID
<i>Staphylococcus cohnii</i> ssp <i>urealyticum</i>	ID/AST	<i>Streptococcus mitis</i>	ID
<i>Staphylococcus epidermidis</i>	ID/AST	<i>Streptococcus mutans</i>	ID
<i>Staphylococcus equorum</i>	ID/AST	<i>Streptococcus oralis</i>	ID
<i>Staphylococcus felis</i>	ID/AST	<i>Streptococcus parasanguinis</i>	ID
<i>Staphylococcus gallinarum</i>	ID/AST	<i>Streptococcus porcinus</i>	ID
<i>Staphylococcus haemolyticus</i>	ID/AST	<i>Streptococcus pyogenes</i> (Strep. group A)	ID
<i>Staphylococcus hominis</i>	ID/AST	<i>Streptococcus salivarius</i>	ID
<i>Staphylococcus hyicus</i>	ID/AST	<i>Streptococcus sanguinis</i>	ID
<i>Staphylococcus intermedius</i>	ID/AST	<i>Streptococcus sobrinus</i>	ID
<i>Staphylococcus kloosii</i>	ID/AST	<i>Streptococcus uberis</i>	ID
<i>Staphylococcus lugdunensis</i>	ID/AST	<i>Streptococcus vestibularis</i>	ID
<i>Staphylococcus pasteurii</i>	ID/AST		

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab).

¹ Not all species encountered during clinical performance evaluations

7.6.5 Streptococci

STREPTOCOCCI TAXA ¹	ID, AST, ID/AST [*]	STREPTOCOCCI TAXA ¹	ID, AST, ID/AST [*]
<i>Streptococcus acidominimus</i>	ID/AST	<i>Streptococcus ferus</i>	AST
<i>Streptococcus agalactiae</i> (Strep. group B)	ID/AST	<i>Streptococcus gallolyticus</i> ssp <i>macedonicus</i>	AST
<i>Streptococcus alactolyticus</i>	AST	<i>Streptococcus gordonii</i>	ID/AST
<i>Streptococcus alpha-hemolytic</i>	AST	<i>Streptococcus</i> group A (small colony)	AST
<i>Streptococcus anginosus</i>	ID/AST	<i>Streptococcus</i> group A (<i>Strep. pyogenes</i>)	AST
<i>Streptococcus anginosus</i> (previously <i>milleri</i>) group	ID/AST	<i>Streptococcus</i> group B (<i>Strep. agalactiae</i>)	AST
<i>Streptococcus beta-hemolytic</i> ACG (large colony)	AST	<i>Streptococcus</i> group C (large colony)	AST
<i>Streptococcus bovis</i> (Strep. group D)	AST	<i>Streptococcus</i> group C (small colony)	AST
<i>Streptococcus bovis</i> I (Strep. group D)	ID/AST	<i>Streptococcus</i> group C/G (large colony)	ID/AST
<i>Streptococcus bovis</i> II (Strep. group D)	ID/AST	<i>Streptococcus</i> group C/G (small colony)	AST
<i>Streptococcus canis</i>	ID/AST	<i>Streptococcus</i> group CFG (small colony)	AST
<i>Streptococcus constellatus</i>	ID/AST	<i>Streptococcus</i> group D (non-enterococcus)	AST
<i>Streptococcus constellatus</i> ssp <i>constellatus</i>	AST	<i>Streptococcus</i> group E	AST
<i>Streptococcus constellatus</i> ssp <i>pharyngis</i>	AST	<i>Streptococcus</i> group F	AST
<i>Streptococcus criceti</i>	AST	<i>Streptococcus</i> group G (large colony)	AST
<i>Streptococcus cristatus</i>	ID/AST	<i>Streptococcus</i> group G (small colony)	AST
<i>Streptococcus downei</i>	AST	<i>Streptococcus</i> group L	AST
<i>Streptococcus dysgalactiae</i>	AST	<i>Streptococcus hyointestinalis</i>	AST
<i>Streptococcus dysgalactiae</i> ssp <i>dysgalactiae</i>	ID/AST	<i>Streptococcus infantarius</i>	AST
<i>Streptococcus dysgalactiae</i> ssp <i>equisimilis</i>	ID/AST	<i>Streptococcus infantarius</i> ssp <i>coli</i>	AST
<i>Streptococcus dysgalactiae/canis</i>	ID/AST	<i>Streptococcus infantarius</i> ssp <i>infantarius</i>	AST
<i>Streptococcus equi</i>	ID/AST	<i>Streptococcus infantis</i>	AST
<i>Streptococcus equi</i> ssp <i>equi</i>	ID/AST	<i>Streptococcus iniae</i>	AST
<i>Streptococcus equi</i> ssp <i>zooepidemicus</i>	ID/AST	<i>Streptococcus intermedius</i>	ID/AST
<i>Streptococcus equinus</i>	ID/AST	<i>Streptococcus milleri</i> group	AST

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab).

¹ Not all species encountered during clinical performance evaluations

STREPTOCOCCI TAXA ¹	ID, AST, ID/AST*	STREPTOCOCCI TAXA ¹	ID, AST, ID/AST*
<i>Streptococcus mitis</i>	ID/AST	<i>Streptococcus salivarius</i>	ID/AST
<i>Streptococcus mitis</i> group	ID/AST	<i>Streptococcus salivarius</i> group	AST
<i>Streptococcus mitis/oralis</i>	AST	<i>Streptococcus salivarius</i> ssp <i>thermophilus</i>	AST
<i>Streptococcus mitis/pneumoniae</i>	ID/AST	<i>Streptococcus sanguinis</i>	ID/AST
<i>Streptococcus mutans</i>	ID/AST	<i>Streptococcus sanguinis</i> group	AST
<i>Streptococcus mutans</i> group	AST	<i>Streptococcus sobrinus</i>	ID/AST
<i>Streptococcus oralis</i>	ID/AST	<i>Streptococcus species</i>	AST
<i>Streptococcus parasanguinis</i>	ID/AST	<i>Streptococcus suis</i>	AST
<i>Streptococcus peroris</i>	AST	<i>Streptococcus uberis</i>	ID/AST
<i>Streptococcus pneumoniae</i>	ID/AST	<i>Streptococcus vestibularis</i>	ID/AST
<i>Streptococcus porcinus</i>	AST	<i>Streptococcus viridans</i> beta-hemolytic (small colony)	AST
<i>Streptococcus pyogenes</i> (Strep. group A)	ID/AST	<i>Streptococcus viridans</i> group	AST
<i>Streptococcus rattii</i>	AST		

* Taxa for AST interpretation may vary depending on the user-selected Interpretation Rule Set (Section 3.10.6 Custom Interpretation Rule Set Sub-Tab).

¹ Not all species encountered during clinical performance evaluations

7.6.6 Yeast

YEAST TAXA2	SABDX SABEM SABHI	CHOC COLSB TSASB
<i>Candida albicans</i>	√	√
<i>Candida apicola</i>	√	√
<i>Candida boidinii</i>		√
<i>Candida bracarensis</i>	√	
<i>Candida catenulata</i>	√	√
<i>Candida ciferrii</i>	√	√
<i>Candida dubliniensis</i>	√	√
<i>Candida firmetaria</i>	√	√
<i>Candida freyschussii</i>	√	√
<i>Candida glabrata</i>	√	√
<i>Candida guilliermondii</i>	√	√
<i>Candida guilliermondii</i> var <i>membranaefaciens</i>	√	√
<i>Candida haemulonii</i>	√	√
<i>Candida inconspicua</i>	√	√
<i>Candida kefyr</i>	√	√
<i>Candida krusei</i>	√	√
<i>Candida lipolytica</i>	√	√
<i>Candida lusitanae</i>	√	√

YEAST TAXA2	SABDX SABEM SABHI	CHOC COLSB TSASB
<i>Candida magnoliae</i>	√	√
<i>Candida melibiosica</i>	√	√
<i>Candida membranaefaciens</i>	√	√
<i>Candida norvegensis</i>	√	√
<i>Candida parapsilosis complex</i>	√	√
<i>Candida pararugosa</i>	√	√
<i>Candida pelliculosa</i>	√	√
<i>Candida pulcherrima</i>	√	√
<i>Candida rugosa</i>	√	√
<i>Candida sake</i>	√	√
<i>Candida sphaerica</i>	√	
<i>Candida tropicalis</i>	√	√
<i>Candida utilis</i>	√	√
<i>Candida viswanathii</i>	√	√
<i>Candida zeylanoides</i>	√	√
<i>Cryptococcus albidus</i>	√	√
<i>Cryptococcus humicola</i>	√	√
<i>Cryptococcus laurentii</i>		√
<i>Cryptococcus luteolus</i>	√	√
<i>Cryptococcus neoformans</i>	√	√
<i>Cryptococcus terreus</i>	√	
<i>Cryptococcus uniguttulatus</i>	√	√
<i>Exophiala dermatitidis</i>	√	√
<i>Exophiala species</i>	√	√
<i>Geotrichum species</i>	√	√
<i>Hortaea werneckii</i>	√	√
<i>Hyphopichia burtonii</i>	√	√
<i>Kloeckera species</i>	√	
<i>Magnusiomyces capitatus</i>	√	√
<i>Malassezia furfur complex</i>	√	
<i>Malassezia pachydermatis</i>	√	
<i>Malassezia sympodialis</i>	√	
<i>Millerozyma farinosa</i>	√	√
<i>Prototheca wickerhamii</i>	√	√
<i>Prototheca zopfii</i>	√	√
<i>Rhodotorula glutinis</i>	√	√
<i>Rhodotorula minuta</i>	√	√

YEAST TAXA2	SABDX SABEM SABHI	CHOC COLSB TSASB
<i>Rhodotorula mucilaginosa</i> var <i>mucilaginosa</i>	√	√
<i>Saccharomyces cerevisiae</i>	√	√
<i>Sporobolomyces salmonicolor</i>	√	√
<i>Trichosporon asahii</i>	√	√
<i>Trichosporon inkin</i>	√	
<i>Trichosporon loubieri</i>	√	
<i>Trichosporon mucoides</i>	√	√
<i>Trichosporon ovoides</i>		√
<i>Zygosaccharomyces bailii</i>	√	

¹ With an ID result of *Cryptococcus neoformans* and a substrate profile that may be indicative of *C. gattii*, the following message will print: The instrument produced an ID result of *Cryptococcus neoformans* with a profile that may be indicative of *C. gattii*. Recommend testing to rule out *C. gattii*.

² Not all species encountered during clinical performance evaluations.

8 – Glossaries

8.1 Glossary

AST	Antimicrobial Susceptibility Test(ing)
ATCC	American Type Culture Collection
BP	Blood plate
breakpoint	An interpretation of panel MIC data that which produces Susceptible, Intermediate, or Resistant result classifications. Breakpoints in the MIC data are established by the Clinical and Laboratory Standards Institute (CLSI) and other groups.
caddy	Accessory device used to transport inoculated panels to the instrument for loading.
carousel	The rotating drum which holds the 50 BD Phoenix panels and positions them for test readings, barcode readings, and loading or unloading.
CLSI	Clinical and Laboratory Standards Institute
CNA	Colistin Nalidixic Acid agar
demographic data	Accession information for a panel record
DTG	Drug Test Group
EMB	Eosin Methylene Blue agar
error station	Station that has sustained an optical or electro-mechanical error and has been blocked.
EUCAST	European Committee on Antimicrobial Susceptibility Testing
HE	Hektoen Enteric media agar
ID	Microbial Identification
ID/AST combination (combo) panel	The disposable device that contains all reagents needed for both ID and AST.
inoculation station	The inoculation station holds three BD Phoenix panels at the appropriate angle for optimal fill. The station also holds six broth tubes total, two per organism tested. One tube is for dilution of colony growth for Identification, the other for AST.

instrument test cycle	A complete test of all sample panels located in the carousel, resulting in color and/or fluorescence data values being recorded for each pertinent well of each panel.
MIC	Minimum Inhibitory Concentration; the lowest concentration of an antimicrobial which prohibits continued growth of the tested organism.
Needs Attention	Panels in the instrument's database that have encountered a condition that requires operator attention.
normalizer	A reference panel for use in the BD Phoenix M50 instrument. The Normalizer panel contains a matrix of visible light absorber and fluorescent material in panel-well format, which is used to correct individual well signals for losses occurring in the optical system.
orphan	A panel with a valid sequence number, but no associated accession number and isolate number.
panel carrier	The plastic carousel insert, which clips each BD Phoenix sample panel into place. The carousel contains 52 inserts, 26 in each of two tiers.
panel dataset	Each panel's set of color and fluorescence measurements, the panel's position identifier, test time stamps, and error flags are recorded for each test cycle throughout the test protocol. The test parameters determining each well's results are keyed by the individual barcode label signifying the panel type, and hence the type of test.
PEA	Phenylethyl Alcohol agar
position	The station. The physical location of the BD Phoenix panel within the instrument. This identifier includes instrument number, carousel tier letter, and numeric position on that tier.
panel presence detection threshold	Each inventory scan or test cycle, the instrument looks for both the barcode label of a panel in each carousel position and panel well data, color or fluorescence. If either is detected the instrument declares a panel logically present in that location. A panel without a valid barcode to provide panel type information will not be processed, but will be flagged as a Needs Attention candidate.
BD Phoenix AST indicator	An oxidation-reduction indicator used to signify microbial metabolism in the BD Phoenix panels. The indicator changes from blue to pink as initial reduction occurs. Further reduction causes the indicator to change from pink to colorless.
"rapid" results	AST Result obtained within 16 hours of panel inoculation.
related panel	Panels with the same accession number and isolate number are related.
Resistance Marker	Condition that is triggered when specific results indicate antimicrobial resistance. The action of some BDXpert rules is to trigger Resistance Markers; other rules may be called as a result of a specific Resistance Marker being triggered.
RGB	Red, Green and Blue. A shorthand representation of the visible light sources / wavelength regions used to interrogate the BD Phoenix panel.

sample	A specimen contained in a BD Phoenix panel. In practice, this would be a processed and resuspended dilution of microbiological growth from primary isolation culture in either ID diluent or AST broth which is then poured into the test panel.
SFM	Société Française de Microbiologie
SIR	Susceptible, Intermediate, or Resistant; refers to breakpoint AST categories. See also Breakpoint.
station	The instrument carousel is divided vertically into two tiers (A & B or C & D), each of which holds 26 panels. With one location occupied by a Normalizer panel, 25 locations per tier can accommodate test panels. This means that test panels can populate 50 total locations. Each location is assigned a tier letter and a number to determine the location on the tier. Indicator LEDs located behind each panel indicate station status (see Section 3 – Controls and Indicators).
test sequence number	A count of the number of readings taken by the instrument for a given sample well in a particular test panel, initialized to zero at the time of panel entry.
TSA	BD Trypticase Soy Agar
XLD	Xylose Lysine Deoxycholate agar

8.2 Supplemental ID Test Abbreviations

Test	Description	Test	Description
10C	Growth at 10 degrees Celsius	CAT	Catalase
42C	Growth at 42 degrees Celsius	CEL	Cellobiose
45C	Growth at 45 degrees Celsius	CIT	Citrate
50C	Growth at 50 degrees Celsius	COA	Coagulase
ACE	MBM + Acetate	DNA	Dnase
ALC	a-Lactose	ESC	Esculin
ANR	Anaerobic growth	FRU	Fructose
ARA	Arabinose	GAS	Gas from Glucose
ARG	Arginine	GEL	Gelatin
BE	Bile esculin	GLC	Beta glucuronidase
BSO	Bile solubility	GLU	Glucose
CAM	CAMP with <i>Staphylococcus aureus</i>	H ² S	Hydrogen Sulfide

Test	Description	Test	Description
HGN	Hemolysis - Gram Negative	OPS	Optochin susceptibility
HGP	Hemolysis - Gram Positive	ORN	Ornithine
HIP	Hippurate	OX	Oxidase
IND	Indole	PXR	Polymyxin Resistance
KCN	Growth in KCN	PXS	Polymyxin Susceptibility
LAC	Lactose	PYR	Pyrrolidonyl arylamidase
LYS	Lysine	RAF	Raffinose
MAC	Growth in MacConkey	SBT	Sorbitol
MAL	Maltose	SLT	Growth in 6.5% NaCl
MEL	Melibiose	SOR	Sorbose
MNS	Mannose	SUC	Sucrose
MNT	Mannitol	TRE	Trehalose
MOR	Morphology	URE	Urea
MOT	Motility	VAN	Vancomycin
MR	Methyl Red	VP	Voges Proskauer
NIT	Nitrate	XYL	Xylose
NVR	Novobiocin Resistance	YEL	Yellow/orange pigment

8.3 Symbol Glossary

Symbol	Meaning
	Manufacturer
	Catalog Number
	Authorized Representative in the European Community
	In Vitro Diagnostic Medical Device

9 – Replacement Parts

The following items may be ordered by contacting your local BD representative (See 11 – International Contacts).

Catalog Number	Item
443809	Barcode Scanner (external)
443866	System Software
441107	BD Phoenix™ Update Data (PUD) Software
443390	Barcode Scanner Stand
443842	Air Filter
443575	BD Phoenix™ M50 System User's Manual
443894	Quick Reference Guide
443431	Laser Printer
448984	Temperature Standard Panel

10 – Software Update Log

Whenever you receive a software update, please take a moment to log it below. This can assist you and BD personnel in identifying software revision levels, potential software problems, etc.

Date Received	Software Version	Date Installed	Installed By	Notes

11 – International Contacts

BD 7 Loveton Circle Sparks, MD 21152 USA Voice: (410) 316.4000 • Fax: (410) 527.0244 Technical Service and Support: 1.800.638.8663 Customer Service: 1.800.675.0908 www.bd.com	2100 Derry Road West Suite 100 Mississauga, ON Canada L5N 0B3 Voice: 905.288.6042 Fax: 905.288.6006
Monte Pelvoux 111 • 9th Floor Col. Lomas de Chapultepec 11000 Mexico D.F. Voice: 52 5 237 1200 • Fax: 52 5 237 1287	11 Rue Aristide Bergès BP4 38800 Le Pont de Claix France Voice: 33 476 68 36 36 • Fax: 33 476 68 34 95
Akasaka DS Building 5-26 Akasaka 8-chome Minato-ku, Tokyo 107-0052 Japan Voice: (81) 3 54138181 • Fax (81) 3 54138144	30 Tuas Avenue 2 Singapore 639461 Voice: (65) 8610633 • Fax: (65) 8601590
Rua Alexandre Dumas 1976 04717-004 Sao Paulo, S.P. Brazil Voice: (55) 11 5459833 • Fax: (55) 11 2478644	Australian Sponsor: Becton Dickinson Pty Ltd. 4 Research Park Drive Macquarie University Research Park North Ryde, NSW 2113 Australia

ATTACHMENT № 1

to OPERATIONAL DOCUMENTATION for Medical Device:

BD Phoenix Automated Microbiology System, variations: BD Phoenix 100,
BD Phoenix M50, with Accessories

Manufacturer:

Becton Dickinson and Company, 7 Loveton Circle, Sparks, Maryland 21152, USA

1. Product description

BD Phoenix Automated Microbiology System, variations: BD Phoenix 100, BD Phoenix M50, with Accessories

Variations:

I. BD Phoenix 100 Automated Microbiology System with Accessories.

Composition:

1. Base block
2. External barcode scanner
3. BD Phoenix 100 Quick Reference Guide (BD Phoenix - Quick Reference Guide, 448022)
4. BD Phoenix 100 software (PX SYSTEM SOFTWARE, 448035)

Accessories:

1. BD Phoenix starter kit (BD Phoenix - Starter Kit, 448040).
 - Inoculation Stations– 5 items;
 - Panel Caddies– 2 items;
 - Pipette tips - 960 items;
 - Thermometer – 1 item;
 - Spare air filters - 4 items;
 - External bar code scanner – 1 item;
 - Cable – 3 items;
 - Quick Reference Guide.
2. Table for BD Phoenix automated microbiology system (PX/PX AP TABLE, 441624).
3. BD Phoenix Inoculation Station (BD Phoenix - Inoculation Station, 448030).
4. BD Phoenix Panel Caddy (BD Phoenix - Panel Caddy, 448020)
5. BD Phoenix pipette stand (BD Phoenix - Pipette Stand, 448028).
6. BD Phoenix panel closures (BD Phoenix - Panel Closure, 448031) – not more than 200 items.
7. Thermometer (THERMOMETER PANEL, 448984).
8. Label panel carrier (LABEL PANEL CARRIER, 447111) - 1 sheet.
9. BD Phoenix pipette tips (BD Phoenix - Pipette Tips, 448037) – not more than 8 packages 204 tips each.

II. BD Phoenix M50 Automated Microbiology System with Accessories

Composition:

1. Base block
2. USB interconnect cable
3. Power cords for US, EU, China, UK – 4 pcs
4. Labels for instrument identification – 2 sets

Accessories:

1. PHOENIX M50 STARTER KIT, 443625:
 - All-in One PC: PC, UPS, cable, CD, bolts (4 items).
 - Instrument Power Cords (US/EU/China/UK) - 4 items
 - Monitor Mounting Arm Assembly & Instructions – 1 item
 - Socket Head Cap Screws – 2 pcs
 - Barcode Scanner
 - USB cables – 2 items
 - Barcode scanner stand
 - 25µL fixed volume pipette
 - 50µL fixed volume pipette
 - Pipette stand – 2 items

- 200µL pipette tips with filter – *1 pack of 8 boxes with 204 tips each*
- Phoenix Panel Transport Caddy – 2 items
- Phoenix Inoculation Station – 5 items
- Air Filter
- Blank USB Key

2. SOFTWARE PHX50, 443866

3. QUICK REFERENCE GUIDE PHX50 PKG, 443894

4. SCANNER BARCODE HANDHELD PACKAGED, 443809

5. MOUNTING ARM ERGOTRON PHX50, 443867

6. UPS SYNERGY SIII 2KVA ON-LINE, 257687

7. BATTERY PACK PAC SYN SIII 2KVA, 257688

8. Printer Brother HL54440D, 257613

9. KIT STACKING PHX50, 443910:

- bracket – 2 items,
- washer – 12 items,
- screw – 12 items,
- leveling foot – 2 items,
- drawing,
- anchor – 2 items,
- nuts hex – 2 items

10. SEISMIC KIT PHX50, 443918:

- bracket – 5 items,
- screw – 12 items,
- washer plain M5.3 X 10 X 1.0, SS – 12 items,
- bolt hex – 8 items,
- nut hex – 4 items,
- washer plain 656X 11.31 X.095 – 8 items,
- washer lock HSR. 625 – 8 items.

11. ADAPTER PLATE FX40 TO PHX50 SPARE, 443873:

- bracket – 6 items,
- screw – 12 items,
- washer – 8 items.

2. Information about the manufacturer of the medical product

MANUFACTURER

Becton Dickinson and Company, 7 Loveton Circle, Sparks, Maryland 21152, USA

MANUFACTURING SITES

Becton Dickinson and Company, 7 Loveton Circle, Sparks, Maryland 21152, USA.

3. Classification of the medical product

- Class of potential risk of medical product application: in compliance with the nomenclature specification: 2a
- GMDN code: 56747

4. Type of contact with the human body:

No contact with the body.

5. Purpose of the medical product

BD Phoenix Automated Microbiology System, variations: BD Phoenix 100, BD Phoenix M50, with

Accessories is an automated microbiology system, destined for quick identification (ID) and checking of antimicrobial susceptibility testing — AST of clinically significant bacteria. BD Phoenix automated microbiology system ensures quick results for the majority aerobic and some anaerobic gram-positive bacteria, as well as for the majority of aerobic and some anaerobic gram-negative bacteria, parasitizing on the human organism.

Indications for administration:

The product is not purposed for direct application on the patient.

The microbiology system is used only for *IN VITRO* microbiological diagnostics.

Contraindications:

No.

6. Sphere of application

Laboratory *IN VITRO* diagnostics and microbiology.

7. Description and technical specification of the product

System circuit diagram: See below (Fig. 1- 3)

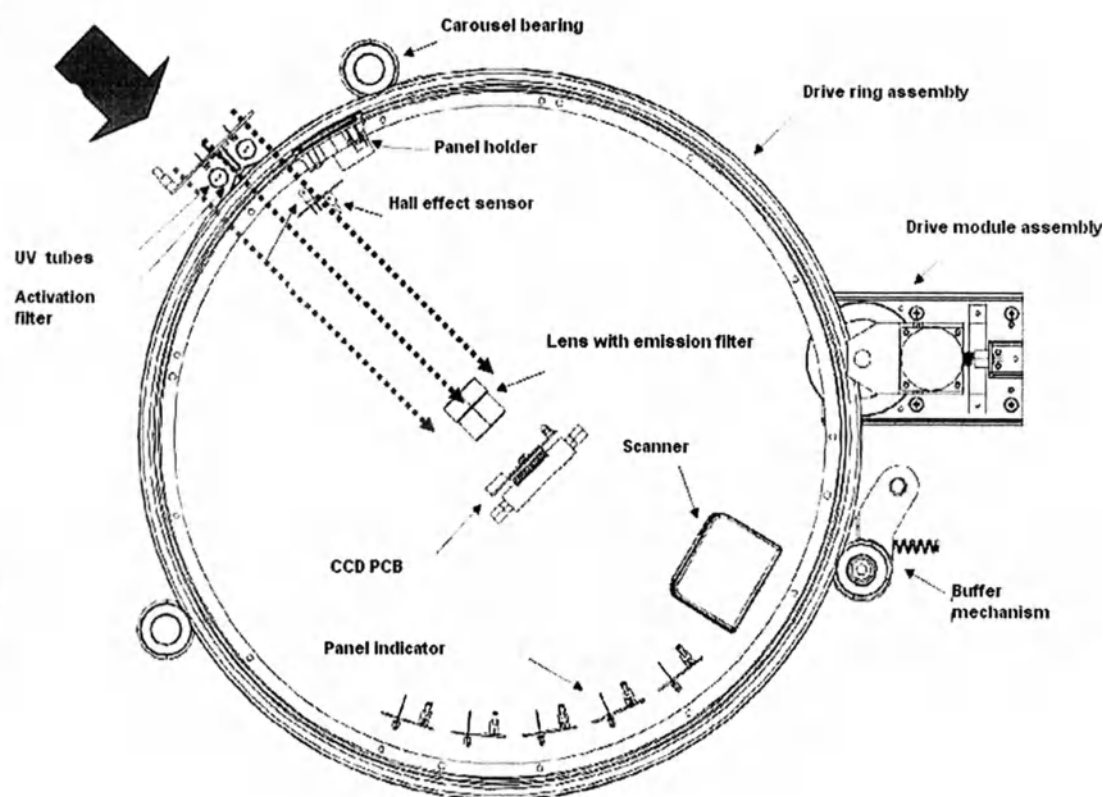


Fig. 1 – Diagram of BD Phoenix 100 automated microbiology system incubation compartment

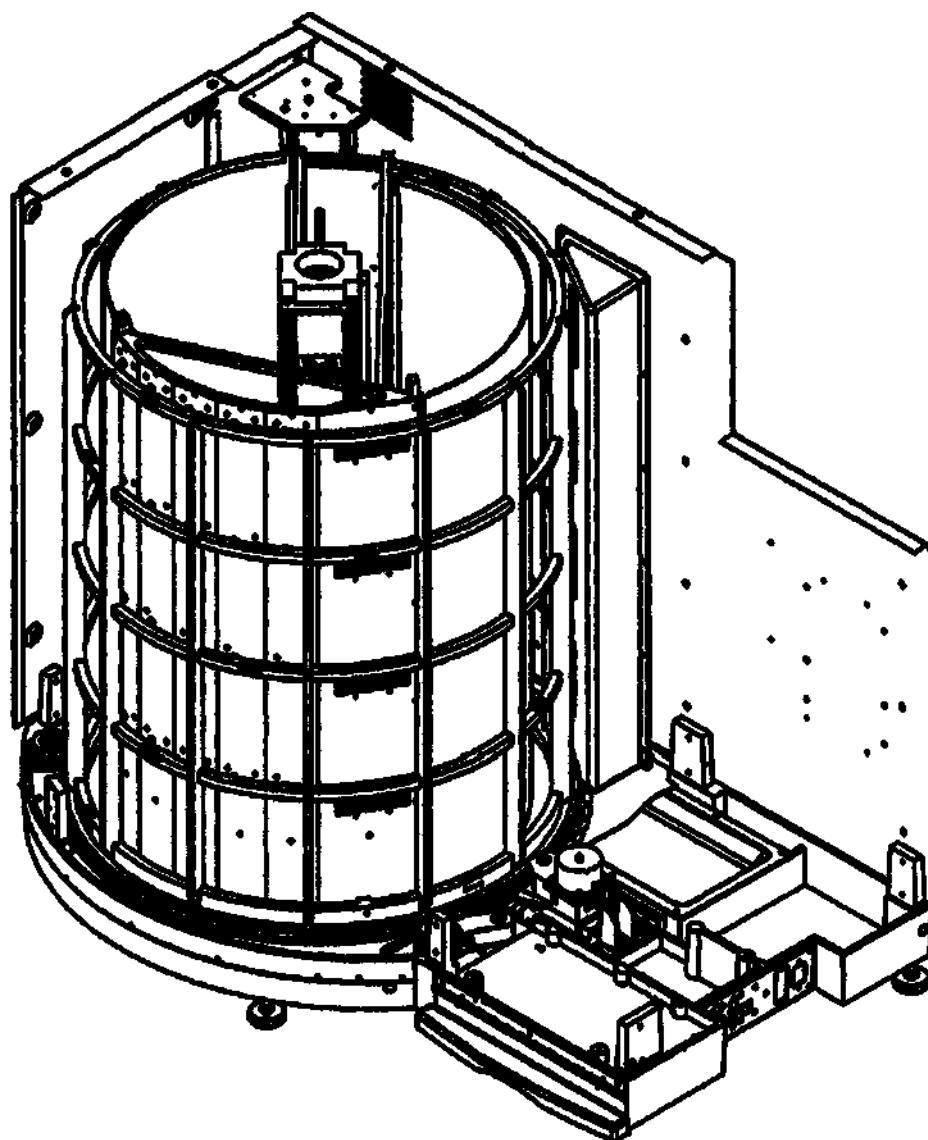


Fig. 2 – scheme of BD Phoenix 100 analyzer's incubator compartment

The main modules of BD Phoenix 100 Automated Microbiology System (hereinafter, Phoenix, Phoenix analyzer), which can be arbitrary derived, are:

1. Optical system and drive mechanism of the unit

Cylindrical turning gear and its motor are the only moving parts inside of the main incubator compartment. The turning gear unit is supported and rotated by three V-shaped bearing groups, which are coupled with V-shaped lips on the ring of turning gear. Usually turning gear rotates at a speed of 1.0 or 2.0 rpm. Speed, acceleration and deceleration of the motor are regulated by the CPU.

The turning gear is divided into four levels vertically, each of which operates as a relatively independent optical source and detection system for panels, placed at the level.

Each level has its own micro-controller to manage collection and transmission of data. Four microcontrollers communicates with the CPU via serial interface connection.

Visible radiation in red, green and blue spectral regions for each level is provided by the board of LED sources. Currents of the LED sources are programmed to compensate for the signal loss at the edges of panel due to displacement, and other factors. The source monitoring system averages the signal from two photodiodes of the board for tracking intensity of a source of visible light.

Fluorescent ultraviolet (UV) lamp that containing selected phosphor provides UV radiation. The active part of the lamp extends vertically through all four levels, providing continuous UV radiation accurate to 10% through the entire working length of the lamp. The second UV lamp is spare one.

2. Turning gear module

The turning gear is a frame structure made of aluminum rings and vertical ribs connected by screws forming a straight circular cylinder. The turning gear accommodates 104 panel holders on four levels. Each level has one normalizer panel and 25 sample panels.

Normally the turning gear rotates at a speed of 1.0 or 2.0 rpm depending on the operation. During the search for panel turning gear can rotate at speeds up to 10.0 rpm. The turning gear rotates counterclockwise. One rotation of the turning gear is used to perform pre-scanning to identify panels in the unit after closing the door. Complete test cycle takes seven minutes.

3 Incubation system

Incubation system maintains constant nominal temperature of the turning gear, panel holders, and the panels themselves at 35 °C. The system has a structure with forced air circulating convection and is equipped with a filter for dust removal. The system consists of a fan driven by a brushless DC motor, a ring-shaped heater with automatic shut-off in case of overheat, thermoformed system of input and output pipes, and a user-replaceable air filter made of polyester fibers.

4 Panel status and internal bar code scanner module

Panel status indication and its identification are performed on the same column of the unit directly below the turning gear, near the door. Panel status is displayed by tri-color LEDs mounted on the panel behind the turning gear, which glow through the fibers in the panel holders. With the door open one can see five columns of turning gear and five boards with four LEDs in each.

Four scanners reading bar codes of panels are arranged in the same column as the indicators. Each scanner reads the bar codes of the panels on the respective level of turning gear. Bar codes of panels are at the top of the base (bottom part) of the panel, when placing a panel in the unit they are facing inside.

5. Front panel and external bar code scanners

BD Phoenix 100 Automated Microbiology System is equipped by an embedded bar code scanner (bar code), which are located on the front side of the unit. (see fig 4).

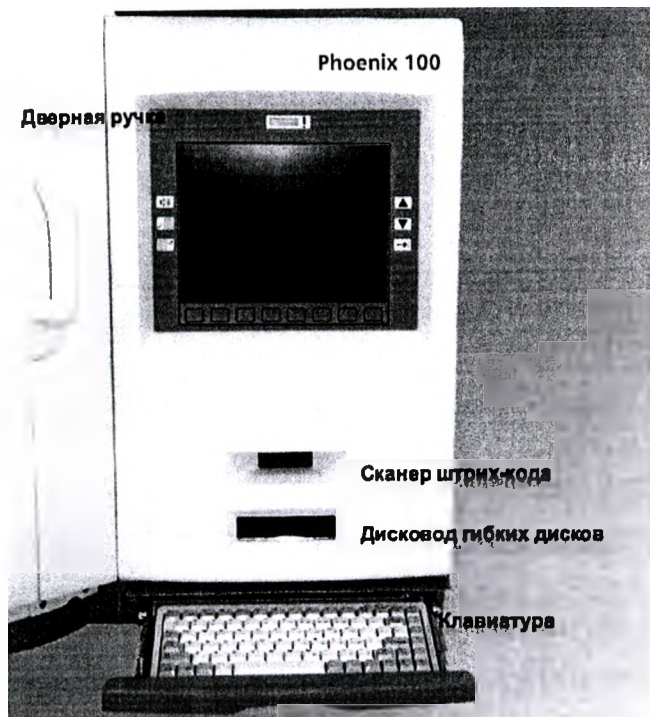


Fig.4

For more convenient work BD Phoenix 100 Automated Microbiology System is also equipped by external bar code scanner plugging in through special port, which is located on the right side of the unit. Fig 5-6

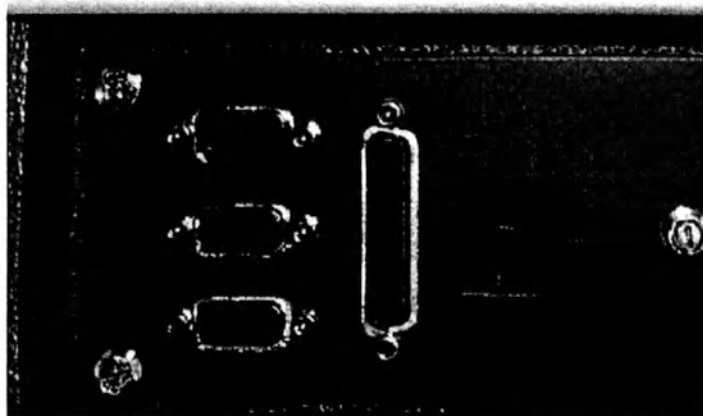


Fig.5 – the right side of Phoenix 100

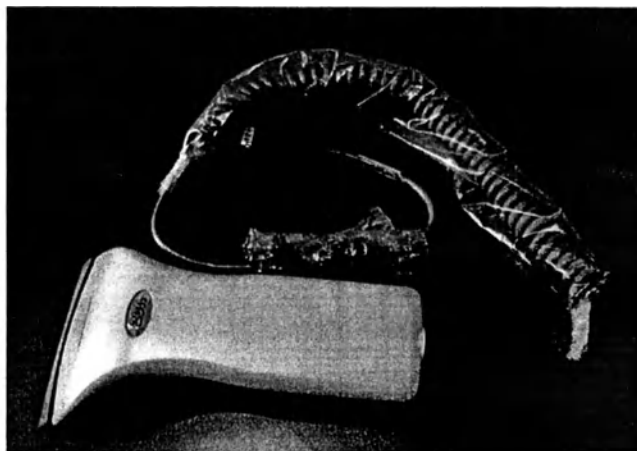


Fig.6 - External bar code scanner

These scanners can be used for reading inventory numbers of panels on the bar codes attached to them, and bar codes of own serial numbers of panels. Inventory numbers can be used to bind the sample identification information to specific panels in the unit.

6. Electronic control module

The electronic control module consists of the following two boards: IO interface, CPU (CPU) and memory, Ethernet, and liquid crystal display (LCD) driver. Other electronic components include user interface devices such as front panel bar code scanner, floppy disk drive, LCD display, special keypad, keyboard and loudspeaker for audio alarms.

Electronic control devices are primarily responsible for the following functions:

- planning and monitoring of panel testing;
- panel test data acquisition;
- turning on the indicators of panel (station) status;
- processing the data received from internal and external bar code scanners;
- interpretation of identification panels' data for identification of organisms;

- identification of antimicrobial drug susceptibility panels' data for receiving MIC and SIR results (in accordance with applicable rules);
- transmission of information to the LCD display;
- processing of keypad and keyboard commands;
- monitoring the state of door switch and lock;
- cabinet incubation control;
- interaction with external devices (such as EpiCenter workstation);
- alarm generation;
- performing built-in test (BIT).

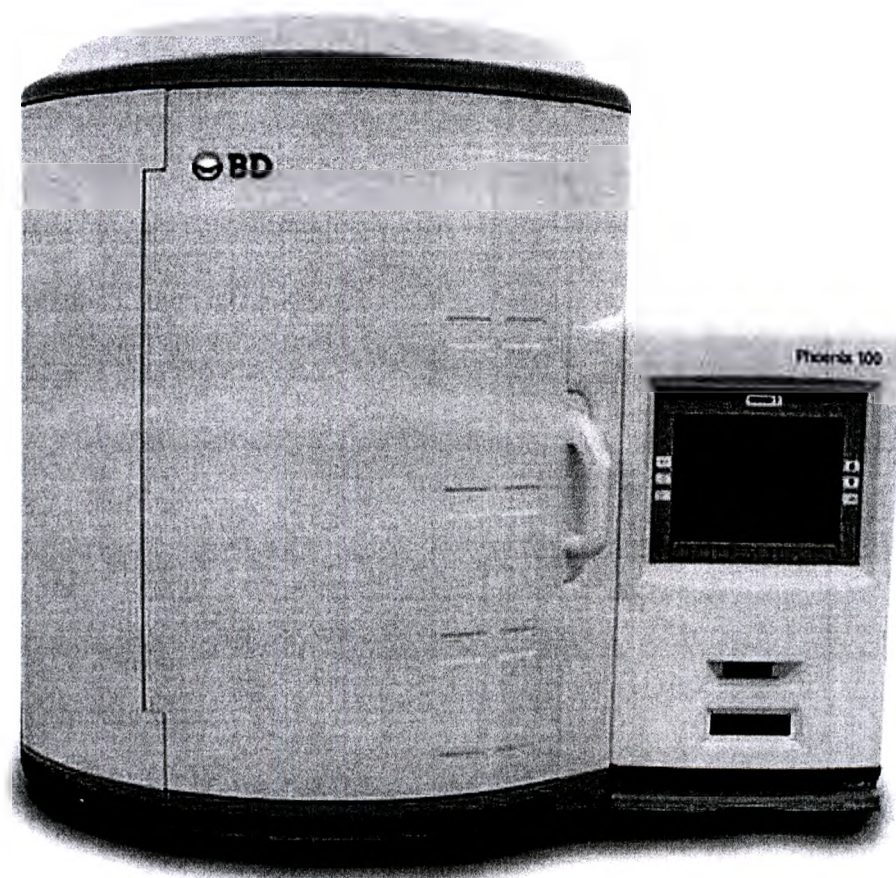


Fig. 7 General view of BD Phoenix 100 analyzer

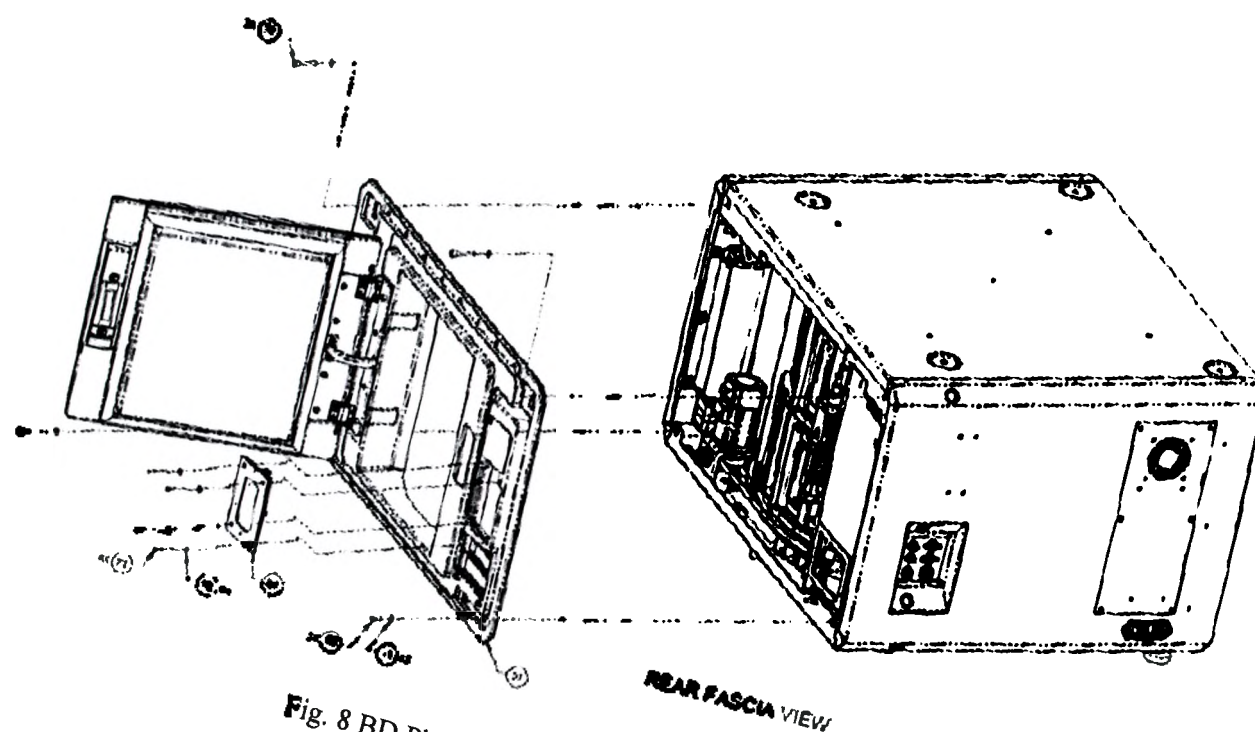


Fig. 8 BD Phoenix M50 Instrument Rear Fascia View

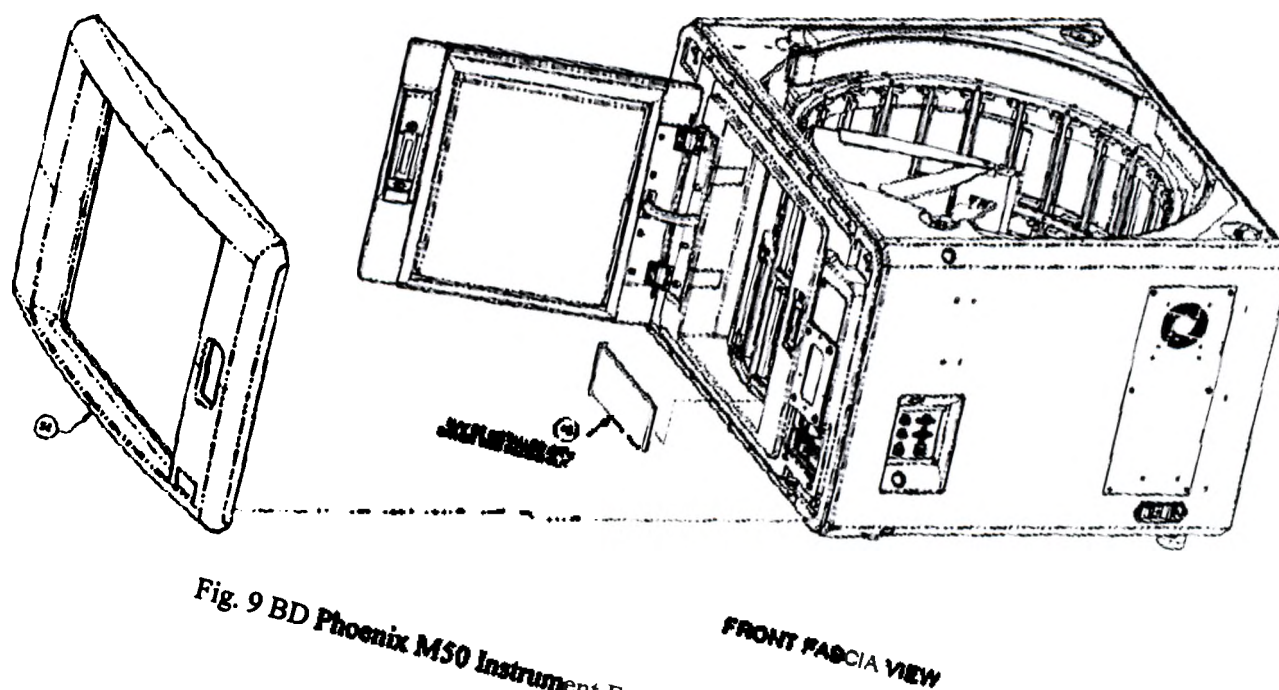


Fig. 9 BD Phoenix M50 Instrument Front Fascia View

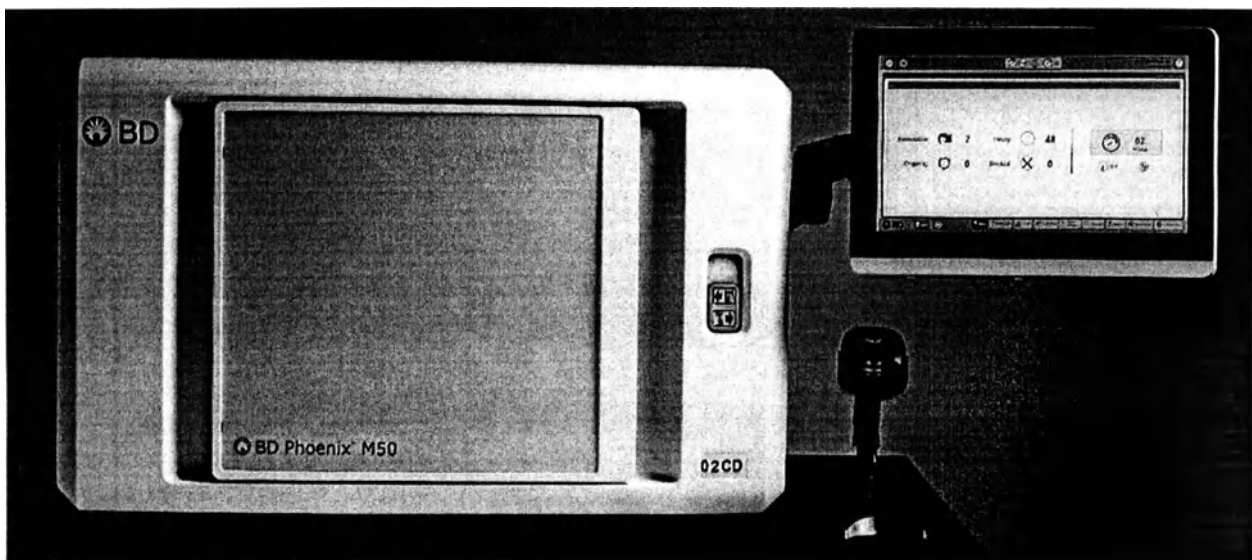


Fig. 10 BD Phoenix M50 Instrument

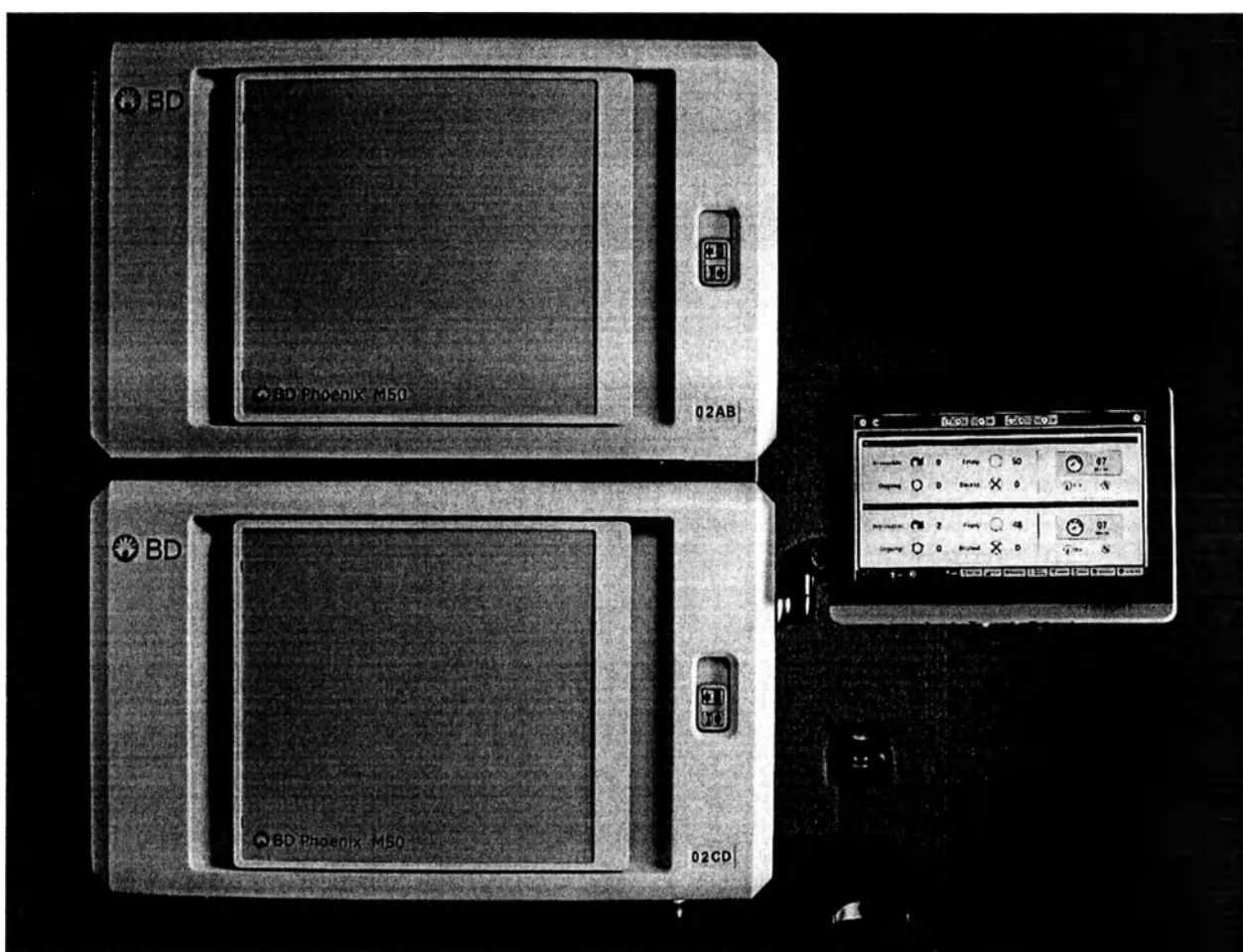


Fig. 11 BD Phoenix M50 Instrument, shown in a stacked configuration

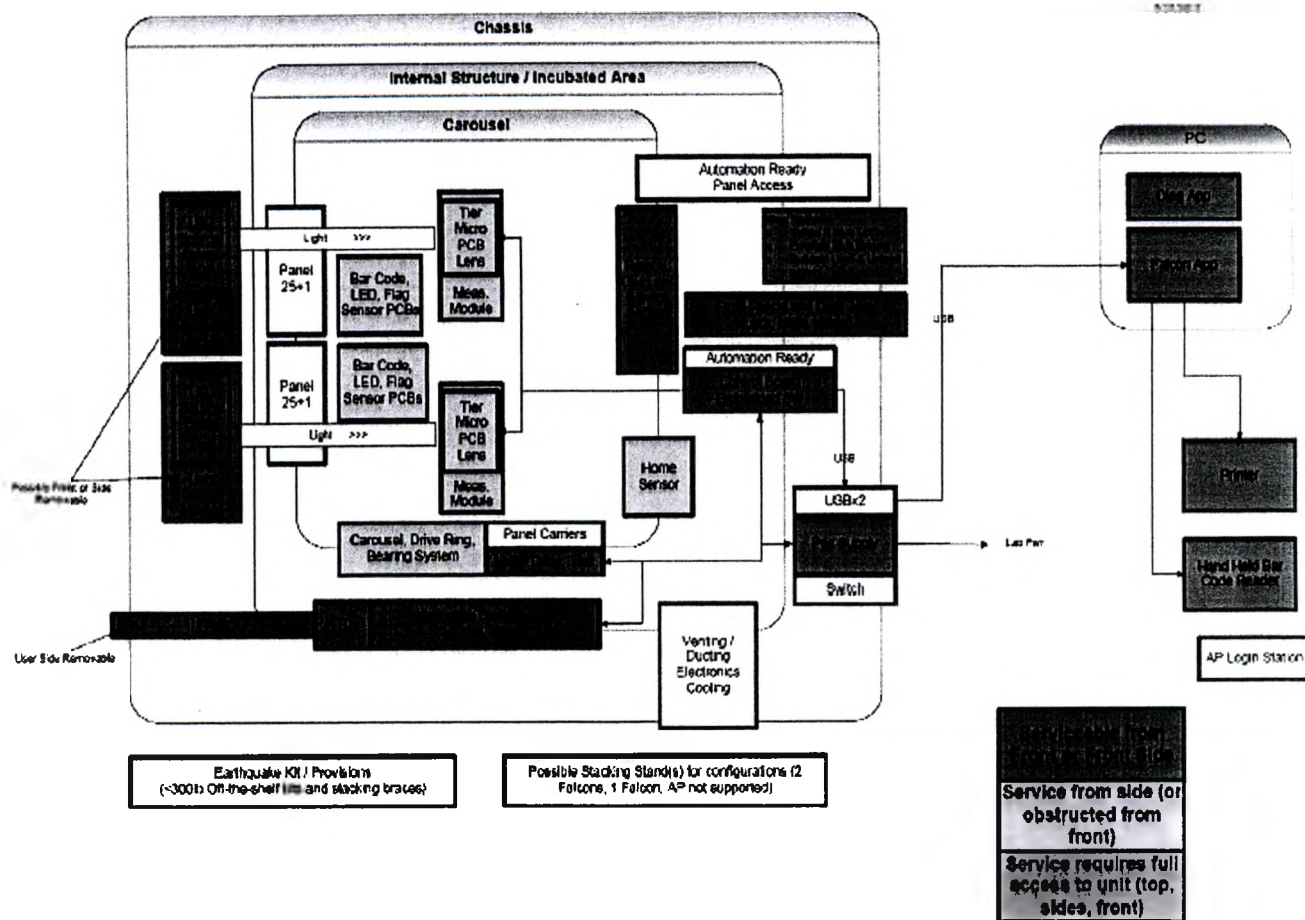


Fig. 12 BD Phoenix M50 Physical Block Diagram

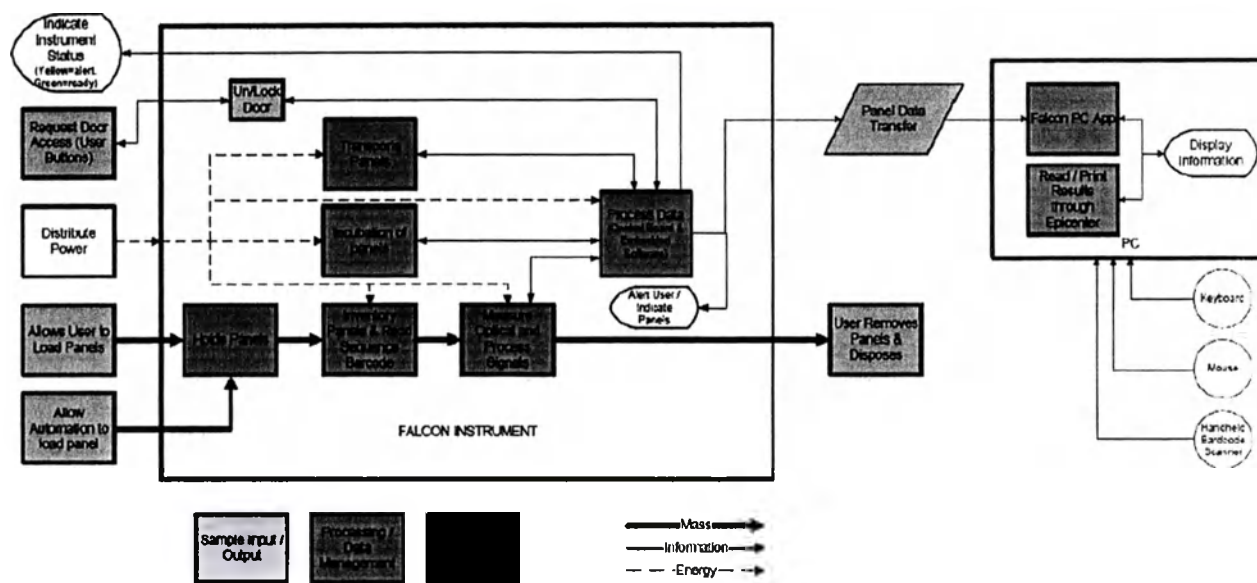


Fig. 13 BD Phoenix M50 Functional Block Diagram

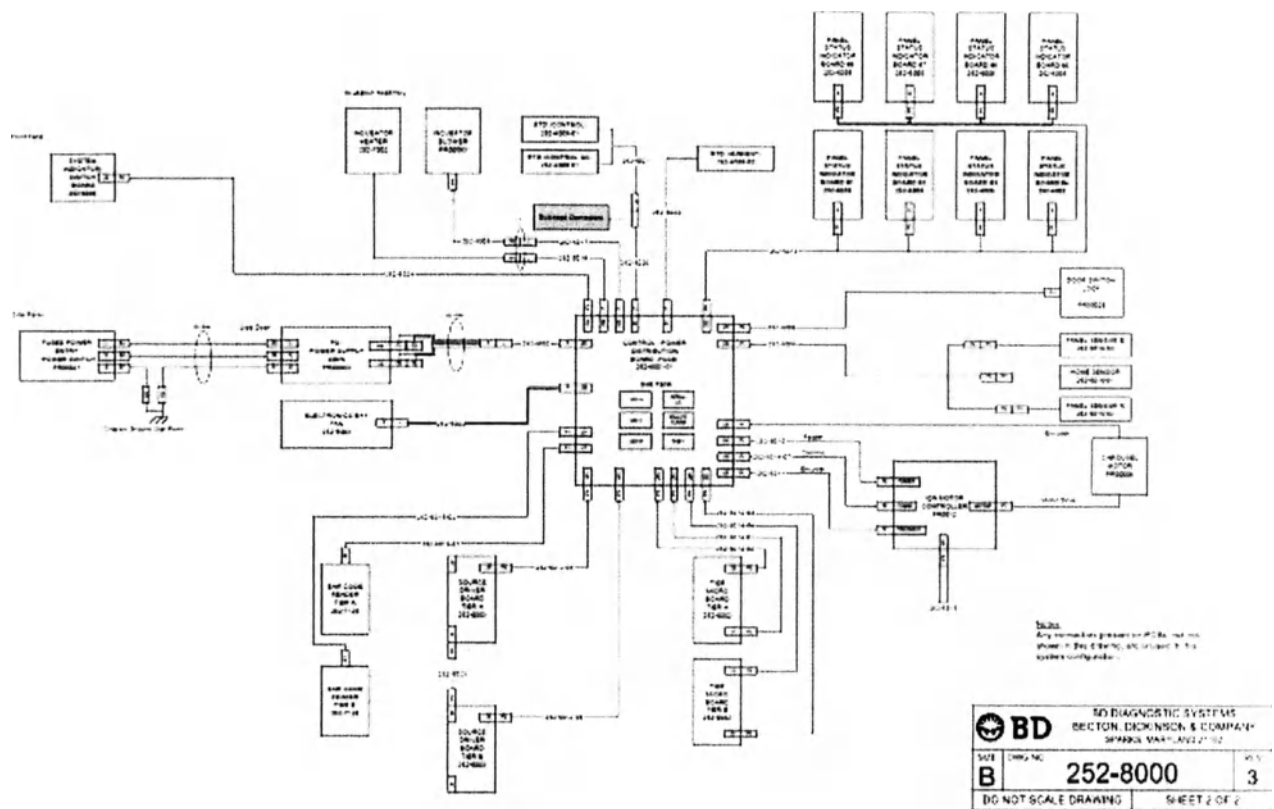


Fig. 14 BD Phoenix M50 Electrical Block Diagram

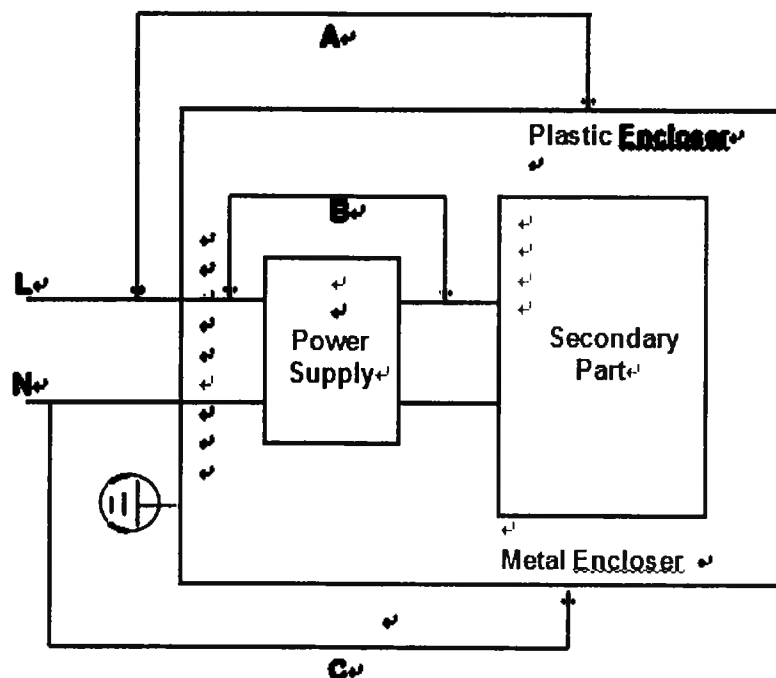


Fig. 15 BD Phoenix M50 Electronic Insulation Diagram

Table 1: Table of Electronic Insulation

Location	Insulation type	Working Voltage	Test Voltage	Creepage distance (mm)	Clearance (mm)
A	Double Insulation	240V~	2224V, 50Hz AC	6.0	3.0
B	Basic Insulation	240V~	1390V, 50Hz AC	3.0	1.5
C	Basic Insulation	240V~	1390V, 50Hz AC	3.0	1.5

The Phoenix M50 can be connected to the BD EpiCenter™ Plus Microbiology Data Management System. Connection of the Phoenix M50 instrument to Epicenter software has equivalent functionality to the connection between the Phoenix 100 instrument and Epicenter.

The EpiCenter system is a clinical data management system designed for use with certain BD instrument systems, including the Phoenix M50. The EpiCenter system provides advanced capabilities in data management, including extended demographic data, comprehensive reporting features including a powerful database query tool, bi-directional Laboratory Information System (LIS) communications and long-term data storage. Additionally, the EpiCenter system provides an Expert System that can manipulate and/or act upon AST results.

Table 2: Summary of Similarities and Differences

Feature/Functionality	Phoenix 100	Phoenix M50
Intended Use	The BD Phoenix™ Automated Microbiology System is intended for the rapid identification (ID) and antimicrobial susceptibility testing (AST) of clinically significant bacteria. The BD Phoenix system provides rapid results for most aerobic and facultative anaerobic gram-positive bacteria as well as most aerobic and facultative anaerobic gram-negative bacteria of human origin. The BD Phoenix system is also intended for the rapid identification of yeast and yeast-like organisms.	
Dimensions	105.9 cm H x 112.5 cm W x 74.9 cm D	535 mm H x 815 mm W x 765 mm D
Capacity	Up to 100 panels	Up to 50 panels
Ambient Operating Temperature	18 – 30°C	
Sample	Isolated colonies from pure culture.	Same
Inoculum preparation	Same inoculum preparation for both systems.	
Reagent system (Broths, panels, indicators)	Same reagent system for both systems	
Measurement system optics (Susceptibility results)	Same optical hardware for both systems	
Panel Transport Carousel Configuration	Four tiers	Two tiers
Panel Incubation Temperature	35°C ±1.5°C	
Algorithms	Same algorithms are present in both systems	
Performance	Equivalent performance in both systems	
Barcode Panel Tracking	Internal barcode scanner tracks the position of each panel in the instrument.	
Panel Entry	The door is opened and sample panels are entered. Light indicators illuminate to designate blocked stations. The user can put a panel in any non-blocked, empty station, which are not illuminated.	

8. Principle of work of the medical device

BD Phoenix 100 Automated Microbiology System can simultaneously perform up to 100 tests of identification and antimicrobial susceptibility test using Phoenix* combined panels. A maximum of 50 identification and antimicrobial susceptibility tests can be performed in the BD Phoenix M50 instrument at a time using BD Phoenix combination panels.

** Russian Federation FS registration certificate on the panel of BD Phoenix 100 analyzer: FSZ 2009/03983 of 16.03.2009*

Types of research: (ID) identification down to the genus and species of the organism. (AST) antimicrobial susceptibility test, method for producing best matching list of antibiotics to effectively treat the patient

The principles of analysis: Identification (ID) - colorimetric and fluorometric; Antibiotic susceptibility test (AST) - turbidity and color change indicator test.

Panel measuring and data processing take place every 20 minutes

4 sources of measurement are used

- Red spectrum
- Green spectrum
- Blue spectrum
- Ultraviolet spectrum

The only moving part in the unit is carrousel (which minimizes the possibility of failure). The carrousel has four independent rows of slots for panels with clinical specimens, with individual radiation sources

The unit utilizes two UV lamps: one of which is standby and switches on in case of the main lamp radiation quality deterioration.

Sealed molded polystyrene tray with automatic plating containing 136 micro-wells with dry reagents is consumable item for Phoenix system. Combined panel includes ID side with dry substrates for bacterial identification and AST side with different concentrations of antimicrobials, as well as standards of growth and fluorescence in corresponding wells. The Phoenix system uses an optimized colorimetric redox indicator for AST, as well as a number of colorimetric and fluorometric indicators for ID. AST broth is cationic (e.g., uses Ca ++ and Mg ++ ions) for optimization of susceptibility test performance.

Phoenix panel includes 51-well ID side and 85-well AST side. ID side contains 45 wells with dried biochemical substrates and 2 control fluorescent wells. AST side may hold up to 84 wells with dry antimicrobials and one growth control well. Panels only for ID, only for AST and combined ID/AST, are available. Unused wells are reserved for future use.

Phoenix panels are plated with standard inoculum. Suspensions of microorganisms should only be prepared using nephelometer BBL CrystalSpec, BD PhoenixSpec or BD Phoenix AP**. After plating the panels are placed in the unit and are constantly maintained at a temperature of 35 °C. The unit tests panels every 20 minutes: at the top of an hour, 20 minutes after the top of an hour and 40 minutes after the top of an hour - up to 16 hours if necessary. Information of Phoenix panels can only be read by a Phoenix device. Manual reading of Phoenix panel information is not allowed.

*** Russian Federation FS registration certificate on the BD PhoenixSpec nephelometer: FSZ: 2008/01073 of 18.02.2008*

Bacterial identification

Part of the Phoenix ID panel uses a range of traditional, chromogenic and fluorogenic biochemical tests to identify the organisms. To cover various types of activity in different taxa substrates based both on

growth and on the enzymes are used. The tests are based on the absorption and digestion of certain substrates by microorganisms, which are detected by different systems of indicators.

Acid formation is accompanied by the color change of phenol red indicator when the culture is capable of using hydrocarbon substrate. Chromogenic substrates are stained in yellow in the process of enzymatic hydrolysis of p-nitrophenyl or p-nitroanilide compounds. Enzymatic hydrolysis of fluorogenic substrates leads to the release of a fluorescent coumarin derivative. Organisms that use certain carbon sources recover an indicator based on resazurin. In addition, there are other tests to determine the ability of the organism to hydrolysis, degradation, recovery or other impact on substrate.

Antimicrobial susceptibility test

Phoenix AST method is a test with broth micro-dilution. The Phoenix system uses a redox indicator to determine the growth of organisms in the presence of an antimicrobial agent.

Continuous measurements of changes in the indicators, as well as the turbidity of bacteria are used to determine the growth of bacteria. Each AST panel configuration contains multiple antimicrobial agents with a broad range of dilution concentrations and one can be twice as high as the other. Identification of organisms is used in the interpretation of the values of MIC for each antimicrobial.

Required components for testing include: 1) Phoenix panels with lids 2) Phoenix ID broth; 3) Phoenix AST broth; 4) Phoenix AST indicator solution; 5) Phoenix AST-S broth (for use with panels Phoenix Strep only); 6) Phoenix AST-S indicator solution (for use with panels Phoenix Strep only); 7) Phoenix station; 8) Phoenix cassette for panels; 9) nephelometer BBL CrystalSpec, BD PhoenixSpec or BD Phoenix AP; 10) pipetting device with a capacity of 25 µl and sterile tips; 11) various laboratory gear.

Phoenix consumables are designed for use with the Phoenix device for identification of organisms (ID), antimicrobial susceptibility testing (AST) or both tests. The panel is positioned with the plating ports facing upward. Individual seed materials are added manually to the ID and AST ports. Seed materials penetrate deeply the panel through the winding canals, filling the panel wells as more liquid comes to the pad. Pad absorbs excessive seed material.

For manual filling the ports are equipped with caps. Air intake port is located near the panel cover separator to ensure adequate oxygen pressure in the panel during the test.

Principles of Phoenix AST tests for determining resistance markers

The following sections describe the principles of operation of Phoenix AST system for identifying resistance markers in Gram-negative and Gram-positive microorganisms, including the following: 1) The identification of ESBL forming in *Enterobacteriaceae*; 2) identification of *Vancomycin Resistant Enterococci* (VRE); 3) identification of high-level *aminoglycoside resistance in species of Enterococcus and Streptococcus* (HLAR); 4) identification of *methicillin resistance in staphylococci* (MRS); 5) Identification of *β-lactamase formation in the species of staphylococcus* (BL); 6) identification of *macrolides resistance in the species of Streptococcus* (MLSb and MEFF); 7) identification of high and low-level *penicillin resistance in S.pneumoniae* (HLPRSP) (LLPRSP).

Phoenix Extended Spectrum β-Lactamase (ESBL) test

Phoenix ESBL test is based on data from known ESBL antibiogram models. In order to develop Phoenix ESBL test there were selected strains of different microorganisms with known genotypes and phenotypes of β-lactamase from the *Enterobacteriaceae* families, including species *Escherichia coli*, *Klebsiella*, *Citrobacter*, *Enterobacter*, *Proteus*, and *Serratia*. Phoenix ESBL test is based on the principle of different reactions to the inhibitory effect of selected second or third generation cephalosporin in the presence or absence of a β-lactamase inhibitor, clavulanic acid.

Phoenix ESBL test principles are similar to the principles of a confirmatory test with CLSI ESBL.22 broth micro-dilution. Phoenix ESBL test is applied to the bacteria *E. coli*, *K. pneumonia*, and *K. oxytoca*. In addition, at the customer request, the test may be applied to other types of Enterobacteria if the formation of ESBL in it was documented in literature. In case of positive ESBL test result categorical interpretation of all penicillins, cephalosporins (except cephamycins) and aztreonam on the same Phoenix panel will be changed to stable.

Phoenix Vancomycin Resistant Enterococci (VRE)

Phoenix VRE test is based on the SIR interpretation of vancomycin. The breakpoint selected in the device configuration, is used for categorical interpretation. Phoenix VRE test was developed and optimized to be in accordance with the standard CLSI broth micro-dilution test.

Selecting a breakpoint different from CLSI can lead to suboptimal performance due to differences in the categorical interpretations. Only *Enterococcus faecalis* and *E. faecium* with acquired resistance (vanA or vanB) are considered positive results.

Phoenix High-Level Aminoglycoside Resistance (HLAR) test

Phoenix HLAR tests for *Enterococcus* species are based on the growth reaction in a single well with a high concentration of gentamicin or streptomycin. These tests were designed and optimized with respect to the CLSI broth micro-dilution tests and screening CLSI tests with agar.

Phoenix HLAR tests for *Streptococcus* species are based on the growth reaction in a single well containing gentamicin, kanamycin and streptomycin. These tests were designed and optimized using the recommended standard CLSI broth micro-dilution.

Phoenix Methicillin-Resistance in Staphylococci (MRS)

Phoenix MRS test is based on the interpretation of SIR oxacillin with Staphylococcus species. The breakpoint selected in the device configuration, is used for categorical interpretation. The test was designed and optimized with respect to the broth micro-dilution test under standard CLSI22, 23 and CLSI screening test with agar and oxacillin salt (BBL Oxacillin Screen Agar). Selection of breakpoint different from CLSI, can lead to suboptimal performance due to differences in categorical breakpoints in different standards. Using Phoenix MRS test allows testing all Staphylococcus specie. In case of positive MRS test results interpretations of all beta-lactam drugs in single Phoenix panel will be changed to stable.

Phoenix (β-lactamase (BL)) test

BL test, available in the Phoenix AST system, is a test of β- lactamase based on nitrocefin. The test based on nitrocefin, is a method of direct determination using ID side of Phoenix panel. The efficacy of this test was determined compared with the results of testing with Cefinase discs (BBL), used as a reference method. At present, these tests can only detect *Staphylococcus* species. In case of positive BL test results categorical interpretation of all labile penicillins on purified enzymes on the same Phoenix panels will be changed to stable.

Phoenix Macrolide Resistance in Streptococci (MLSb and MEFF) test

Phoenix Macrolide Resistance test is based on the interpretation of SIR erythromycin, clindamycin, and quinupristin/dalfopristin. The breakpoint selected in the device configuration, is used for categorical interpretation. Isolates of *Streptococcus* resistant to erythromycin and clindamycin and sensitive to quinupristin/dalfopristin, are phenotypically MLSb (macrolide/lincosamide/streptogramin B). For strains that are resistant to erythromycin and sensitive to clindamycin and quinupristin/dalfopristin the phenotype removing macrolides (Macrolide efflux - MEFF) or a MLSb inducing phenotype will be described. The formulation of clindamycin is tailored with respect to the goal of expanding definition of resistant phenotypes. This test was developed and optimized using the recommended standard CLSI broth micro-dilution.

Interpretation rules are defined according to Livermore and others. Phoenix Macrolide resistance test showed excellent correlation with genotypes *erm* and *mef* identified using molecular methods based on PCR.

Phoenix *mecA*-bound resistance marker for *Staphylococcus aureus* (*mecA*) species

Phoenix *mecA* test is used to predict *mecA*-bound resistance in *Staphylococcus aureus* species. The principle is similar to the principle of the disc diffusion test recommended by CLSI, which uses a cefoxitin disc (FOX) to predict *mecA*-bound resistance in *S. aureus* species. The efficiency of the test was determined by comparison with several PCR25 methods, as well as disc diffusion test. Using Phoenix *mecA* test the FOX breakpoints for *mecA*, used for defining resistance marker are set in the device. In case of detection of *mecA* resistance marker interpretations of all beta-lactam drugs in the single Phoenix panel is changed to stable and the Phoenix *mecA* resistance marker is set.

Phoenix Vancomycin Resistant *Staphylococcus aureus* (VRSA) test

Determination of Phoenix VRSA is based on SIR interpretation of vancomycin when testing *Staphylococcus aureus*. The breakpoint selected in the device configuration, is used for categorical interpretation. Phoenix VRSA test was developed and optimized to comply with the standard CLSI micro-dilution test and verified with well-known VRSA isolates. Selecting a breakpoint in different from

the one detected in CLSI M100-S15, may lower efficiency due to differences in the categorical interpretations. Only *Staphylococcus aureus* with true resistance (isolates containing the resistance mechanism, e.g. *vanA* gene) will be defined as VRSA. Strains of *S. aureus* with intermediate results in vancomycin (GISA/VISA) will be identified and described under different BDxpert rules. Gram-positive panel Phoenix AST determined resistance in VRSA *S. aureus* strains available at the time of comparative testing. The possibility of determining resistance of other *S. aureus* strains is unknown due to limited number of resistant strains that are available for comparative testing.

Phoenix High Level Penicillin Resistant *Streptococcus pneumonia* (HLPRSP) test

Phoenix Low Level Penicillin Resistant *Streptococcus pneumoniae* (LLPRSP) test

Phoenix HLPRSP test is based on the results of the minimum inhibitory concentration (MIC) of penicillin for *S. pneumoniae*. Penicillin MIC ≥ 4 indicates a high level of *S. pneumoniae* resistance to penicillin. Penicillin MIC in the range of from 0.125 to 2 indicates low level *S. pneumoniae* resistance to penicillin (LLPRSP).

9. System Performance

Definitions:

Essential Agreement (EA): essential agreement occurs when the results of MIC test of the Phoenix system and the test with micro-dilution of broth CLSI coincide or differ by no more than ± 1 dilution.

Categorical Agreement (CA): categorical agreement is observed when results of the MIC test of the Phoenix system and the test with micro-dilution of broth CLSI.

Efficiency of performance with Gram-negative bacteria

Identification of Gram-negative bacteria

The efficiency of identification of Gram-negative bacteria of the Phoenix system was measured using two internal studies. The values density of inoculum of 0.5 and 0.25 were tested with 721 strains (for the value 0.5) and 784 strains (for the value 0.25). Cultures of abdominal and non-abdominal type were evaluated by commercial and non-commercial methods.

The results of identification of Gram negative bacteria of the Phoenix system are given below:

	Density of inoculum (McFarland)	Coincidence	Lack of coincidence	Lack of identification
Level of genus	0.5	97.3%	2.1%	0.6%
	0.25	98.5%	1.0%	0.5%
Level of species	0.5	95.6%	3.6%	0.8%
	0.25	98.1%	1.4%	0.5%

Sensitivity of Gram-negative bacteria

Antimicrobial agent	Code	EA N	EA %	CA N	CA %
Amikacin	AN	974	94.3	974	99.2
Amoxicillin	AMX	725	95.9	839	96.9
Amoxicillin-Clavulanate	AMC	636	97.8	749	97.1
Amoxicillin-Clavulanate (f)	AXC	364	96.4	411	97.6
Ampicillin	AM	639	97.5	753	98.0
Ampicillin-Sulbactam	SAM	848	96.8	962	96.9
Ampicillin-Sulbactam (f)	SXA	1682	92.3	1682	94.5
Arbekacin	ARB	2083	94.1	2083	99.2
Aztreonam	ATM	1488	97.8	1431	98.5
Cefazolin	CZ	634	97.0	752	97.1
Cefdinir	CDR	633	92.7	747	94.5
Cefditoren	CDN	1270	97.2	1270	98.4

Antimicrobial agent	Code	EA N	EA %	CA N	CA %
Cefepime	FEP	1463	97.8	1463	98.6
Cefetamet	CAT	629	96.0	746	97.7
Cefixime	CFM	1454	96.7	1454	98.1
Cefmetazole	CMZ	608	94.7	718	96.4
Cefoperazone	CFP	854	95.1	972	97.7
Cefoperazone-Sulbactam	SCP	1921	93.1	1921	96.0
Cefotaxime	CTX	849	96.9	970	97.2
Cefotetan	CTT	627	96.2	748	96.4
Cefotiam	CFT	1428	94.9	1428	97.6
Cefoxitin	FOX	628	96.7	748	97.6
Cefpirome	CPO	846	96.2	964	97.0
Cefpodoxime	CPD	616	94.5	737	97.0
Cefsulodin	CFS	55	98.2	56	98.2
Ceftazidime	CAZ	848	95.9	969	97.5
Ceftibuten	CTB	590	90.5	708	95.9
Ceftizoxime	ZOX	854	97.3	971	97.2
Ceftriaxone	CRO	2416	96.1	2416	91.6
Cefuroxime	CXM	623	97.0	744	98.5
Cephalexin	CN	319	97.8	366	96.5
Cephalothin	CF	613	98.0	731	98.5
Chloramphenicol	C	978	97.7	978	98.7
Ciprofloxacin	CIP	977	99.4	977	99.7
Colistin	CL	467	97.9	467	98.7
Ertapenem*	ETP	1632	97.7	1265	99.4
Fosfomycin	FF	446	93.0	446	96.9
Garenoxacin	GRN	1977	98.1	1977	99.4
Gatifloxacin	GAT	752	99.5	752	99.6
Gemifloxacin	GEM	2096	98.6	2096	99.0
Gentamicin	GM	973	95.8	973	99.8
Imipenem	IPM	1545	94.8	1483	99.0
Isepamicin	ISP	468	93.8	468	99.4
Kanamycin	K	735	95.8	735	99.9
Levofloxacin	LVX	972	99.6	972	100.0
Lomefloxacin	LOM	976	99.1	976	99.6
Mecillinam	MEC	345	95.7	345	94.8
Meropenem	MEM	1450	97.0	1394	98.3
Minocycline	MI	2094	93.8	2094	98.3
Moxalactam	MOX	2063	96.9	2063	98.3
Moxifloxacin	MXF	746	98.5	747	99.7
Nalidixic Acid	NA	750	94.0	750	99.1
Netilmicin	NET	974	96.7	974	99.3
Nitrofurantoin	FM	744	98.4	744	98.8
Norfloxacin	NOR	976	98.9	976	99.6
Ofloxacin	OFX	971	99.3	971	99.7
Pefloxacin	PEF	469	98.5	469	99.4
Piperacillin	PIP	860	94.7	973	97.1
Piperacillin-Tazobactam	TZP	856	92.9	970	96.2
Temocillin	TEM	1410	96.1	1410	98.9
Tetracycline	TE	975	95.6	975	98.5
Ticarcillin	TIC	859	94.8	973	97.8
Ticarcillin-Clavulanate	TIM	534	92.7	589	94.6
Tigecycline	TGC	1428	97.1	1110	96.7
Tobramycin	NN	977	94.2	977	99.4
Trimethoprim	TMP	752	96.0	752	99.6
Trimeth-Sulfa (DIN)	STG	463	97.8	463	97.8
Trimethoprim-Sulfamethoxazole	SXT	976	95.5	976	97.3

*Ability to Detect Resistance Unknown

Efficiency of performance with Gram-positive bacteria

Identification of Gram-positive bacteria

The efficiency of identification of Gram-positive bacteria of the Phoenix system was measured using two internal studies. The values density of inoculum of 0.5 and 0.25 were tested with 696 strains (for the value 0.5) and 755 strains (for the value 0.25). The results were compared with the results of commercial and non-commercial methods.

Results of identification of Gram-positive bacteria of the Phoenix system are given below:

	Density of inoculum (McFarland)	Coincidence	Lack of coincidence	Lack of identification
Level of genus	0.5	99.1%	0.3%	0.6%
	0.25	99.6%	0.0%	0.4%
Level of species	0.5	95.4%	3.9%	0.7%
	0.25	98.0%	1.6%	0.4%

Sensitivity of Gram-positive bacteria

Antimicrobial agent	Code	EA N	EA %	CA N	CA %
Amikacin	AN	487	95.7	487	95.7
Amoxicillin	AMX	395	90.6	659	97.1
Amoxicillin-Clavulanate	AMC	180	97.8	446	97.5
Amoxicillin-Clavulanate (f)	AXC	397	96.7	664	97.6
Ampicillin	AM	402	94.0	667	98.7
Ampicillin-Sulbactam	SAM	179	96.7	445	97.1
Ampicillin-Sulbactam (f)	SXA	1449	94.6	1449	95.2
Arbekacin	ARB	973	96.2	973	99.9
Azithromycin	AZM	702	95.7	702	97.7
Cefaclor	CEC	182	91.8	449	95.6
Cefazolin	CZ	180	97.2	441	97.5
Cefdinir	CDR	182	94.5	434	96.8
Cefditoren	CDN	944	96.2	944	97.8
Cefepime	FEP	181	97.2	446	97.5
Cefmetazole	CMZ	174	96.6	430	97.2
Cefoperazone	CFP	184	95.7	447	97.8
Cefotaxime	CTX	185	96.2	446	97.8
Cefotetan	CTT	183	94.5	439	96.6
Cefotiam	CFT	965	91.5	965	94.0
Cefoxitin	FOX	184	96.2	445	97.5
Cefozopran	CFZ	1130	89.8	1130	89.6
Cefpirome	CPO	183	100.0	446	97.5
Cefpodoxime	CPD	185	91.4	451	95.6
Ceftaroline*	CPT	1313	94.5	866	99.7
Ceftazidime	CAZ	183	95.1	448	97.1
Ceftizoxime	ZOX	184	93.5	447	96.2
Ceftriaxone	CRO	184	95.1	447	97.3
Cefuroxime	CXM	184	94.6	447	98.2

Antimicrobial agent	Code	EA N	EA %	CA N %	CA %
Cephalexin	CN	185	90.3	452	97.4
Cephalothin	CF	182	97.8	441	97.3
Chloramphenicol	C	705	92.8	705	95.3
Ciprofloxacin	CIP	686	96.4	686	97.4
Clarithromycin	CLR	485	96.3	485	98.1
Clindamycin	CC	703	98.2	703	98.3
Daptomycin*	DAP	1361	97.6	1361	99.8
Doxycycline	D	1211	96.5	1211	99.8
Ertapenem	ETP	670	91.6	670	95.4
Erythromycin	E	474	95.4	474	95.8
Fosfomycin	FF	472	97.0	472	98.3
Fusidic Acid	FA	477	96.7	477	99.0
Garenoxacin	GRN	1212	97.1	1212	99.0
Gatifloxacin	GAT	481	98.8	481	100.0
Gemifloxacin	GEM	1400	96.2	1400	97.4
Gentamicin	GM	487	98.4	487	99.2
Gentamicin-Syn	GMS	NA	NA	198	97.5
Gentamicin-Syn (SFM)	GMF	NA	NA	87	100.0
Imipenem	IPM	185	100.0	448	97.5
Inducible Macrolide Resistance (iMLSB) Test	ECC	NA	NA	295	97.6
Kanamycin	K	463	92.2	464	97.4
Kanamycin Synergy	KS	501	100.0	501	96.6
Levofloxacin	LVX	698	96.9	698	98.6
Lincomycin	L	696	98.3	696	98.7
Linezolid	LZD	474	99.4	474	100.0
Lomefloxacin	LOM	486	97.7	486	99.2
Meropenem	MEM	185	98.4	447	97.5
Minocycline	MI	1448	98.5	1448	99.2
Moxalactam	MOX	935	95.9	935	96.0
Moxifloxacin	MXF	486	99.0	486	99.6
Mupirocin	MUP	938	96.6	938	99.7
Mupirocin High Level	MUH	968	100.0	968	99.9
Netilmicin	NET	488	93.9	488	96.3
Nitrofurantoin	FM	707	98.3	707	98.3
Norfloxacin	NOR	674	96.0	674	97.8
Ofloxacin	OFX	487	99.2	488	99.8
Oxacillin	OX	449	95.8	449	97.8
Pefloxacin	PEF	706	97.9	706	98.0
Penicillin	P	401	96.0	662	98.0
Piperacillin	PIP	382	81.7	639	98.0
Piperacillin-Tazobactam	TZP	386	100.0	649	98.3
Pristinamycin	PR	695	93.2	695	95.5
Quinupristin-Dalfopristin	SYN	704	97.2	704	97.6
Rifampin	RA	700	84.0	700	88.3
Streptomycin-Syn	STS	NA	NA	198	99.0
Streptomycin-Syn (SFM)	STF	NA	NA	87	98.8
Teicoplanin	TEC	671	97.6	671	99.4
Telithromycin	TEL	898	97.3	898	98.9
Tetracycline	TE	707	96.3	707	98.6
Ticarcillin	TIC	395	95.4	659	98.2
Ticarcillin-Clavulanate	TIM	396	97.5	656	97.9
Tigecycline*	TGC	1356	96.8	1044	100
Tobramycin	NN	473	97.0	473	97.3
Trimethoprim	TMP	479	95.4	479	97.9
Trimeth-Sulfa (DIN)	STG	645	91.0	646	92.7
Trimethoprim-Sulfamethoxazole	SXT	654	89.5	654	93.0
Vancomycin	VA	702	99.3	702	99.9

*Ability to Detect Resistance Unknown

Efficiency of performance with streptococci (with panels SMIC/ID and SMIC)

Identification of streptococci (only SMIC/ID)

The efficiency of identification of streptococci of the Phoenix system was measured using the internal study. The results for the 655 cultures were compared to the results of commercial and non-commercial methods.

The results of identification of streptococci of the Phoenix system are given below:

	Coincidence	Lack of coincidence	Lack of identification
Level of species	96.3%	2.4%	1.2%

The sensitivity of streptococci

The efficiency of the Phoenix system for streptococci AST was evaluated in four clinical laboratories using clinical cultures. The results of AST obtained from the panels of tests with micro-dilution of broth were compared, prepared in accordance with requirements of CLSI standard. Discrepant results were **arbitrated by duplicate repeat testing in both systems.**

Antimicrobial agent	Code	EA N	EA %	CA N	CA %
Amoxicillin	AMX	1576	99.2	1576	99.7
Amoxicillin-Clavulanate	AMC	1564	97.9	1564	99.3
Ampicillin	AM	1569	98.0	1569	99.4
Cefepime	FEP	1571	97.6	1571	99.7
Cefotaxime	CTX	1578	98.5	1578	99.6
Ceftriaxone	CRO	1579	98.5	1579	99.8
Cefuroxime	CXM	1581	97.7	1581	98.8
Chloramphenicol	C	1587	97.4	1587	99.6
Clindamycin	CC	1591	94.0	1591	97.4
Daptomycin	DAP	1566	93.1	1566	99.9
Ertapenem*	ETP	1585	97.9	1585	99.6
Erythromycin	E	1577	93.2	1577	98.2
Garenoxacin*	GRN	1515	95.5	1515	99.7
Gatifloxacin	GAT	1587	95.1	1587	99.5
Gemifloxacin*	GEM	1592	98.9	1592	99.7
Gentamicin-Syn	GMS	1032	99.6	1032	99.6
Imipenem	IPM	1581	98.0	1581	99.6
Kanamycin-Syn	KS	1032	99.6	1032	99.6
Levofloxacin	LVX	1595	97.4	1595	99.8
Linezolid	LZD	1586	97.1	1586	99.4
Meropenem	MEM	1579	97.4	1579	99.7
Moxifloxacin*	MXF	1590	95.8	1590	99.6
Ofloxacin	OFX	1594	98.2	1594	98.7
Penicillin	P	1585	93.9	1585	98.5
Pristinamycin*	PR	1583	94.8	1583	99.8
Quinupristin-dalfopristin*	SYN	1581	97.3	1581	99.7
Streptomycin-Syn	STS	1031	99.9	1031	99.9
Teicoplanin*	TEC	1593	99.8	1593	99.9
Telithromycin*	TEL	1574	95.9	1574	98.5
Tetracycline	TE	1589	93.3	1589	97.6
Trimethoprim-Sulfamethoxazole	SXT	1008	93.8	1008	98.3
Vancomycin*	VA	1588	98.2	1588	99.9

*Ability to Detect Resistance Unknown

11. Restrictions of the method

To precise special cases of restrictions for antimicrobials or microorganisms, see package insert, supplied together with the panel.

General characteristics. Gram stain test is necessary for selection of the respective types of Phoenix panels. Precise identification and/or AST cannot be performed without these tests.

Use only thoroughly selected bacterial colony from one of the recommended initial mediums. Use of mixed colonies could result in inaccurate identification and/or interpretation of AST.

If the density of the device inoculum (for the used type of panel) is 0.5, value of inoculum density 0.50-0.60 McFarland should be used. To measure inoculum density, it is possible to use BBL CrystalSpec or BD PhoenixSpec Nephelometer.

If inoculum density (for the used type of panel) is 0.25, value of inoculum density 0.20 – 0.30 McFarland should be used. To measure inoculum density of this range, only BD PhoenixSpec Nephelometer can be used.

Information from Phoenix panels is read only using Phoenix device. Visual interpretation of Phoenix panels is not allowed. Any attempts to manually interpret panel results may result in incorrect identification and/or inaccuracy in AST interpretation.

The panels should be placed into Phoenix instrument within 30 minutes after inoculation.

To obtain the most reliable results, it is recommended to reseed quality control microorganisms at least two times in two consecutive days into TSA with 5% Sheep Blood before being used in the Phoenix system.

Identification

Unique panel environment, joined with reduced incubation time, may entail Phoenix panel reaction, different from those obtained using conventional biochemical medium.

Testing for susceptibility to antimicrobials. Indicator solution AST may be added to test tube with AST broth and stored in dark place for up to 8 hours before use. Use only one drop of indicator solution AST from the bottle with a pipette. If more than one drop will be added by mistake, throw the test tube away and use a new test tube with AST broth. After adding AST indicator solution into the test tube with AST broth, mix them turning the tube upside down. DO NOT AGITATE. Agitation may result in appearance of bubbles in AST broth, which may entail incorrect inoculation of Phoenix panel during inoculation. Some microorganisms, included into Taxa identification, are not included into AST database due to low probability of their appearance. In case of revelation of such microorganisms, «Organism not included in the AST database, perform alternate method» message will appear.

For some combinations of microorganisms/antimicrobials, absence of stable strains hinders determination of any categories of results, besides «susceptible». For strains, causing results in «nonsusceptible» category, identification of microorganisms and the results of test of susceptibility to antimicrobials should be confirmed. After that, the cultures should be preserved and submitted for analysis to the authorized laboratory for confirmation of the result with the use of CLSL broth microdilution.

Use of CHROMagar Orientation may cause incorrect values of susceptibility when testing erythromycin with gram-positive microorganisms. The results of tests of antimicrobials susceptibility should be confirmed using Trypticase Soy Agar with 5% Sheep Blood.

This type of medium (“chocolate agar”) should not be used for identification of streptococcus with panels SMIC/ID. “Chocolate” agar may be used only for testing of streptococcus susceptibility.

Use of Columbia agar with 5% horse blood may result in significantly higher MIC value for SXT with kinds of Streptococcus, which may result in incorrect susceptibility value. The results of tests of susceptibility to antimicrobials should be confirmed using soya agar Trypticase with 5% Sheep Blood.

NOTE

The results of MIC for cultures without identification of species and kind in «Final ID» field (Final identification) can not be valid.

In case of modification of «Final ID» (Final identification) values of the cultures from that not revealed in list of AST Taxa to the declared MIC result and interpretation will be based on the final identification, which was declared in the list of AST Taxa.

12. System specification

BD Phoenix 100 Automated Microbiology System with Accessories:

Physical characteristics

Height 105.9 cm

Width 112.5 cm

Depth 74.9 cm

Distance to the wall (from the right, from the left and from behind) 10.2 cm

Distance to the wall (from front) 45.7 cm

Weight (without inoculation) 151.4 kg

Weight (full) 159.6 kg

The stand should bear the weight of 227.3 kg

Principles of the analysis:

ID identification: colorimetric and fluorometric

Determination of antibiotic sensitivity (AST): measurement of cloudiness and of color change indicator.

Requirements to electric mains

Input voltage: 110 – 117 V AC or 220 – 240 V DC $\pm 10\%$

Input current: 8A

Line input frequency: 47 - 53 Hz or 57 - 63 Hz

Capacity: 1.03 kW

Heat energy: 3 515 BTU/h

Environmental requirements

Storage conditions

Temperature: 17.8 – $> 65.0\text{ }^{\circ}\text{C}$

Humidity: Relative humidity: 10 – 90% without condensation

Exploitation conditions

Temperature: 17.8 – $> 30\text{ }^{\circ}\text{C}$

Humidity: Relative humidity: 20 – 90% without condensation

Location: Even surface, no direct sunlight and heat sources.

In the areas with elevated seismological activity, it is strictly recommended to use the appropriate fastening.

Installation category: II pollution rate: 2 in accordance with IEC 664.

Optical characteristics: wavelength peak values

From 428 to 623 nm, visible spectrum

367 nm, UV-excitation

Pass band: 410 – 641 nm, UV light

Presence of display:

LCD

BD Phoenix M50 Automated Microbiology System with Accessories:

Physical characteristics

Height 53.5 cm

Width 81.5 cm

Depth 76.5 cm

Clearance-Right 54.6 cm

Clearance-Left, Rear 7.6 cm

Clearance-Front 45.7 cm

Weight-Empty 53.5 kg

Weight-Full 57.6 kg

Principles of the analysis:

ID identification: colorimetric and fluorometric

Determination of antibiotic sensitivity (AST): measurement of cloudiness and of color change indicator.

Environmental requirements

Non-Operating Storage

Temperature: -17.8 – > 65.0 °C

Humidity: Relative humidity: 20 – 80% non-condensing

Operating conditions

Temperature: 18 – > 30 °C

Humidity: Relative humidity: 20 – 80% non-condensing

Locations: Level surface, no direct sunlight and no direct heat.

Altitude 2000 meters

Noise at 1 m ≤ 55 dBA using ANSI Type 2 sound meter

Electrical requirements

Input Voltage 100-240 VAC

Input Current 6 Amp

Input Line Frequency 50/60 Hz

Instrument Heat Output at Input Voltage =120 VAC

Ambient Temperature	BTU/hr
18 °C	648
24 °C	464
30 °C	287

Optical specifications: peak wavelengths

428 nm to 623 nm, visible spectrum

375 nm, UV Excitation

410 nm – 640 nm Bandpass, UV Emission

Presence of display:

LCD

13. Other functional specification of medical device

Range of optical density

- The ID inoculum starting point is 0.50 McFarland, or approximately 1.5×10^8 cfu/ml (E. coli)
- The low inoculum ID is 0.25 McFarland, or approximately 0.75×10^8 cfu/ml (E. coli)
- The AST inoculum is approximately 5×10^5 cfu/ml

Maximum permissible error

The visible spectrum optical transmission of the normalizer is 25%; the panel yields blue fluorescence in a band centered about 440 nm when illuminated with 367 nm UV light. The fluorescence signal is equivalent to that produced by 7.5 – 10.0 micromolar AMC at pH=8.0. The Normalizer serves as a reference panel for adjustment of the instrument's optical detection system. It is used for adjustment of the LED's (Red, Green and Blue) and fluorescence lamps.

The Normalizer Panel is always located in Position Zero (0) of each tier. Routine access to the carousel does not present the Normalizer Panel to the user when the carousel door is opened. The Normalizer Panel is constrained in its carrier to prevent inadvertent removal by the user. Access to the Normalizer Panel is controlled via LCD keypad selection of instrument diagnostics.

Wavelength of radiation dispersion of blue, green, red panels

The wavelength characteristics of the source LED's is presented in **Table 1-1.**

LED	Peak wavelength	Bandwidth at half- maximum
-----	-----------------	----------------------------

	(nm)	intensity (nm)
Red	623	15
Green	525	45
Blue	428	65

Source LED Characteristics Table 1-1

Time of full analyze

After a door-opening event, the instrument reads panel barcode labels and then performs a scan using the red LED's to determine if panels are present, and to locate or "map" well positions. Panel readings are made on the hour and at 20 and 40 minutes after the hour.

The instrument test sequence is listed below:

1. Lock the door
2. Wait for home flag to synchronize CPU processing with the tiers.
3. Set test cycle start time to the current time
4. Set the drum speed to 1 RPM.
5. Send start-scan command to the tiers
6. Delay 10 seconds while the tiers perform dark readings
7. Turn the UV bulb on
8. Wait 2 revolutions for UV Warm-up.
9. Take UV reading – One drum revolution
10. Turn UV bulb off
11. Set drum speed to 2 RPM
12. Turn on red LED's
13. Wait 1 revolution for Red Warm-up.
14. Take Red reading – One revolution
15. Turn off Red LED's
16. Turn on Green LED's
17. Wait 1 revolution for Green Warm-up.
18. Take Green readings – One revolution
19. Turn off Green LED's
20. Set drum speed to 1 RPM.
21. Turn on Blue LED's
22. Wait 1 revolution for Blue Warm-up.
23. Take Blue readings – One revolution
24. Turn off Blue LED's
25. Save this test cycle's start time as the start time of the last cycle
26. Unlock door
27. Post-test cycle processing

Productivity of analyzer

A maximum of 100 identification and antimicrobial susceptibility tests can be performed in the Phoenix instrument at a time using Phoenix combination panels.

The instrument tests panels every 20 minutes: on the hour, at 20 minutes past the hour, and again at 40 minutes past the hour for up to 16 hours if necessary. Each panel will take up to 16 hours to complete, however, the panel could be completed before the 16 hours. It depends on the organism and the time the ID and/or sensitivity takes to complete.

14. Description of parameters of BD Phoenix Software

Parameter	Description	Conformance BD Phoenix 100 Software to required parameter
1.1 . Function stability	Ability to ensure continuation of the programme after the deviations caused by hardware failures, errors in the input data and service errors	Conforms
1.2 . Working capacity	The program's ability to function within the specified modes and levels of information processed in accordance with policies in the absence of hardware failures	Conforms
2.1 . Structural properties	Organization of all interrelated parts of the program into a cohesive one using logical structures "sequence", "option", "repetition"	Conforms
2.2 .Simple design	Construction of the modular structure of the program the most rational way from the point of view of perception and understanding	Conforms
2.3 . Visibility	The existence and representation in most easily understanding way of source modules PS, full description of them in the relevant program documents	Conforms
2.4 . Repeatability	The use of standard designs or features within PS	Conforms
3.1 . Learnability	Presentation of the program papers and programs in the form of facilitating the understanding of the logic of operation of the program as a whole and its parts	Conforms
3.2 . Availability of operational program documents	Clarity, transparency and completeness of the descriptions of the user interaction with the program in operational program documents	Conforms
3.3 . Ease of use and service	Conformance the data processing and forms of result presentation to the nature of the tasks	Conforms
4.1 . Level of automation	The level of automation of data processing functions, taking into account the effectiveness of the	Conforms

	functional structure of the program in terms of the interaction with the user and the use of computing resources	
4.2 . Time efficiency	The program's ability to perform the specified actions in an interval of time that meets the specified requirements	Conforms
4.3 . Resource intensity	The minimum required computing resources and the number of service personnel for operation PS	Conforms
5.1 . Flexibility	The ability to use PS in a variety of applications	N/A
5.2 . Mobility	The ability to use PS without significant additional work on computers	N/A
5.3 . Modifiability	Simplicity of making the necessary adjustments and modifications to the program during operation	Conforms
6.1 . Realization fullness	Realization fullness of specified functions of the PS and the adequacy of their descriptions in the program documentation	Conforms
6.2 . Compatibility	Clear consistent description and use of identical objects, functions, terms, definitions, identities etc in different parts of the program documents and text programs	Conforms
6.3 . Logical correctness	Functional and program conformance the data processing to system requirements by tasks	Conforms
6.4 . Certainty	Completeness of checking the possible methods of program work during testing	Conforms

Table 3: Comparison of Software Features

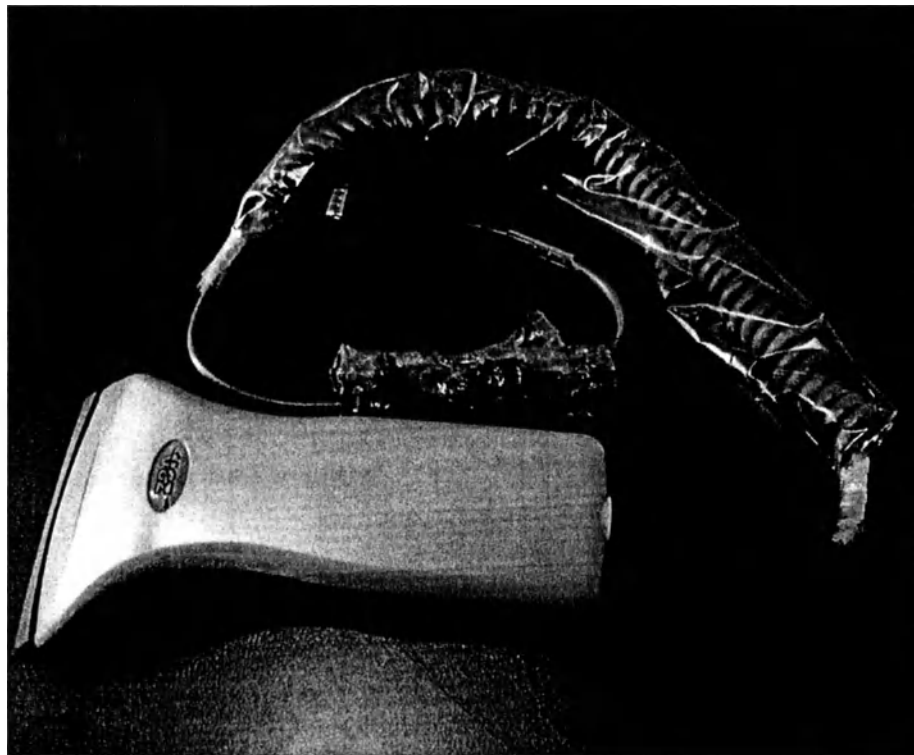
Software Feature/Function	Phoenix 100	Phoenix 50
Operating System used on measurement system computer	<i>Phoenix 100 measurement subsystem computers use a real time operating system (VRTX RTOS) for high level control, the low level computers do not use an operating system.</i>	<i>The Phoenix M50 measurement subsystem computers use a real time operating system (smxBlaze RTOS)</i>
	Functional operation of the measurement system within the Phoenix M50 was accomplished through use of code from the Phoenix 100. Changes to the code were only made when the physical hardware environment required change. Leverage of the Phoenix 100 code assured that the operation of the Phoenix M50 measurement system was functionally equivalent.	
Operating system used on Instrument application computer	<i>Real time operating system (VRTX RTOS)</i>	<i>Microsoft Windows Embedded 7</i>
	Functional equivalence of the algorithmic processing performed with the M50 environment was accomplished by leveraging code from the Phoenix 100. Calculations of results is accomplished through Phoenix 100 code. The visualization of the information to the user on the Phoenix M50 is physically different, however, feature wise the information presented provides all the functionality found within the Phoenix 100.	
Expert System	BDXpert (Available on stand-alone Phoenix instrument, or on EpiCenter if using Phoenix/EpiCenter Configuration)	
User Interface	<i>User interface software on board instrument.</i>	<i>Primary user interface moved to accompanying PC. Instrument will allow users to load and unload panels and provide panel status updates.</i>

BD Phoenix automated microbiology system includes the following components:

- I. BD Phoenix 100 Automated Microbiology System with Accessories:
Composition:
 1. Base block

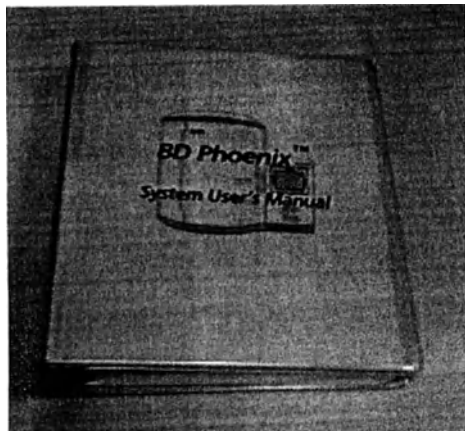


2. External barcode scanner



External bar code scanner supplying for more convenient work BD Phoenix 100 Automated Microbiology System is plunged in through special port, which is located on the right side of the unit. (see detail description above).

3. BD Phoenix 100 Quick Reference Guide (BD Phoenix - Quick Reference Guide, 448022)



4. BD Phoenix 100 software (PX SYSTEM SOFTWARE, 448035)



Special software for work with BD Phoenix 100 automated microbiology system.
On carrier of FDD 1.44 mb 3.5 type.

II. Accessories

1. BD Phoenix starter kit (BD Phoenix - Starter Kit, 448040).
The starter kit is purposed for automated microbiology system startup.

- Inoculation Stations– 5 items;
Plastic holders for comfortable work with panels.

- Panel Caddies– 2 items;
Caddies for transportation of panels.

- Pipette tips - 960 items;
Single-use polymeric pipette tips are used for samples preparation.

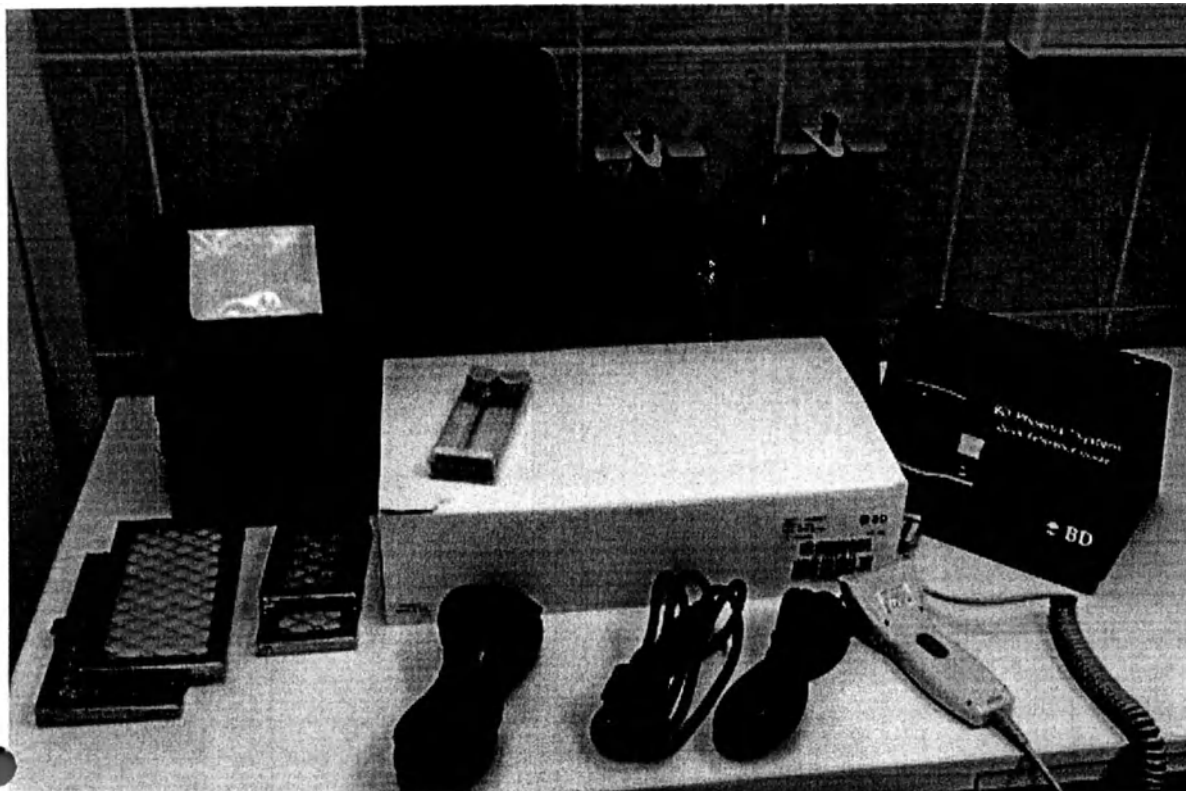
- Thermometer – 1 item;
Alcohol thermometer for placement in the analyzed incubation compartment. See detail description further. Is used for checking temp sensor readings.

- Spare air filters - 4 items;
HEPA - filters for cleaning of air, supplied to the incubation compartment.

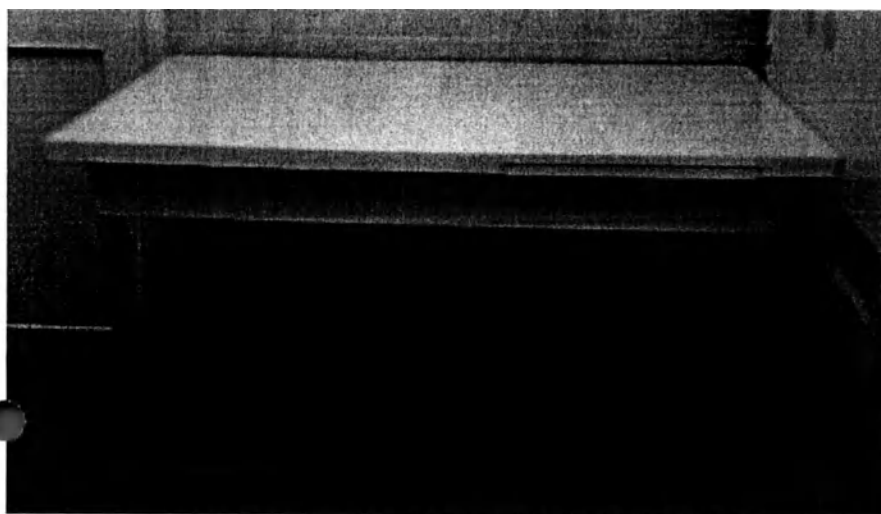
- External bar code scanner – 1 item;
Additional scanner for panels plugging in through special port, which is located on the right side of the unit (see detail description above).

- Cable – 3 items;
Network power cable for the automated microbiology system.

- Quick Reference Guide.



2. Table for BD Phoenix automated microbiology system (PX/PX AP TABLE, 441624).
The automated microbiology system table is purposed for equipment installation.



3. BD Phoenix Inoculation Station (BD Phoenix - Inoculation Station, 448030).



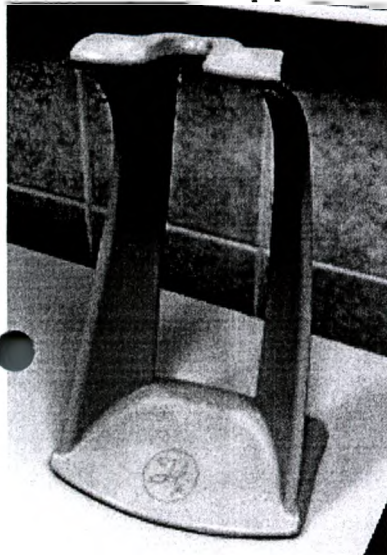
Description: see above.

4. BD Phoenix Panel Caddy (BD Phoenix - Panel Caddy, 448020)



Description: see above.

5. BD Phoenix pipette stand (BD Phoenix - Pipette Stand, 448028).



Plastic stand for comfortable placement of pipettes on the working table.

6. BD Phoenix panel closures (BD Phoenix - Panel Closure, 448031) – not more than 200 items.

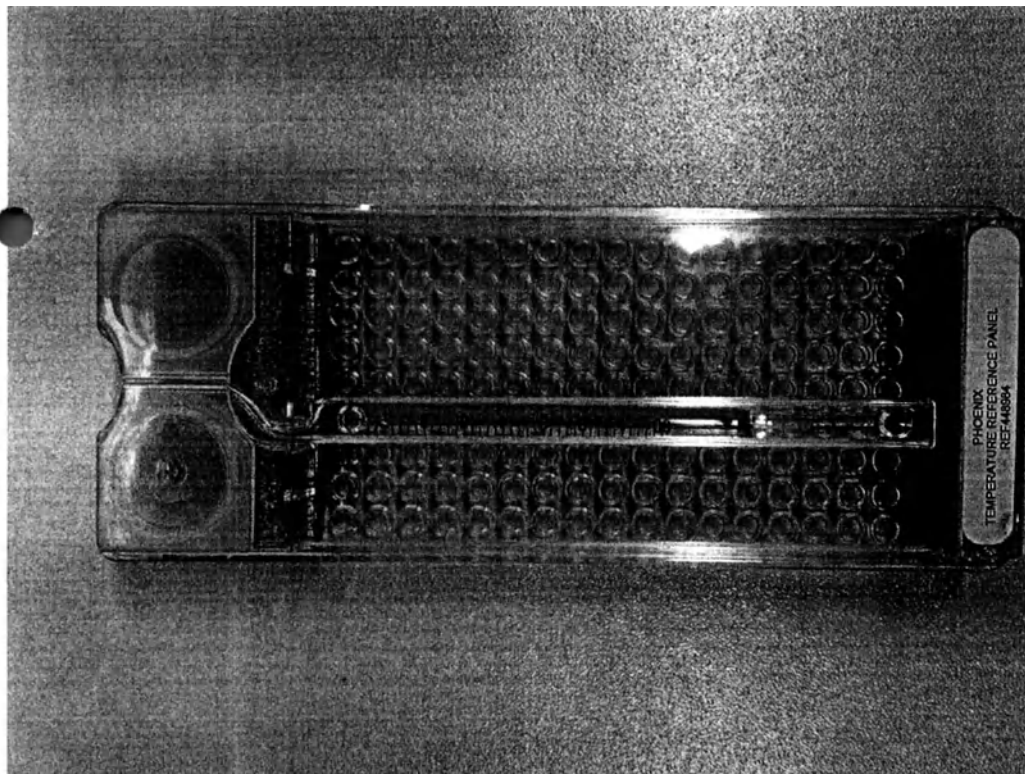


Package: 200 pcs.

Polymeric closures for panel closure.

Are used for panel sealing after preparation of clinical sample for analysis.

7. Thermometer (THERMOMETER PANEL, 448984).



Type thermometer: Alcohol thermometer

Range of measurement: from 30 to 37 °C.

This measurement range is stipulated by normal working temperature interval: 35°C ±1.5.

Graduating mark 0.2 °C

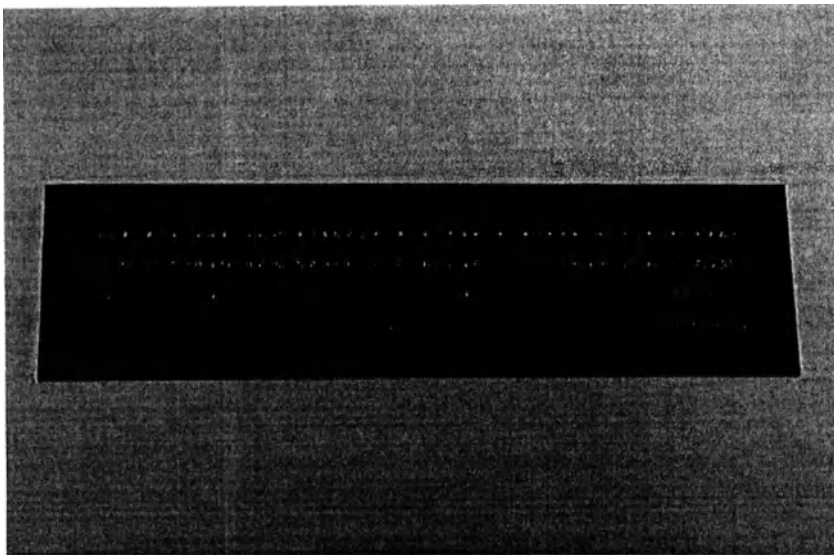
measurement inaccuracy: ±0.2 °C

Dimension (length*width*height, mm): 16*80*15

Weight: 35 g

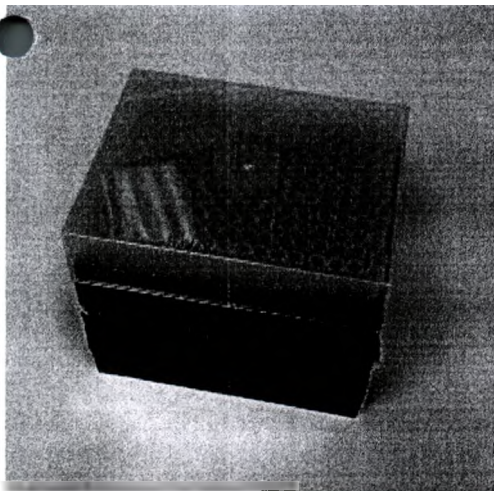
Intended for use: for checking temp sensor readings. For temperature control in the incubation compartment of the analyzer.

8. Label panel carrier (LABEL PANEL CARRIER, 447111) - 1 sheet.



Adhesive stickers for carousel cells marking.

9. BD Phoenix pipette tips (BD Phoenix - Pipette Tips, 448037) – not more than 8 packages 204 tips each.



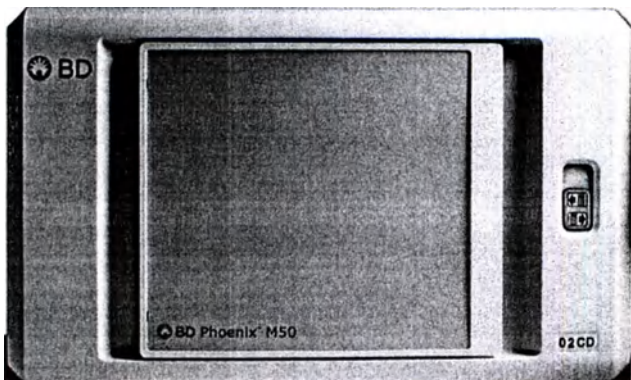
8 packages 204 tips each.

Description: see above.

II. BD Phoenix M50 Automated Microbiology System with Accessories:

Composition:

1. Base block



2. USB interconnect cable



3. Power cords for US, EU, China, UK – 4 items



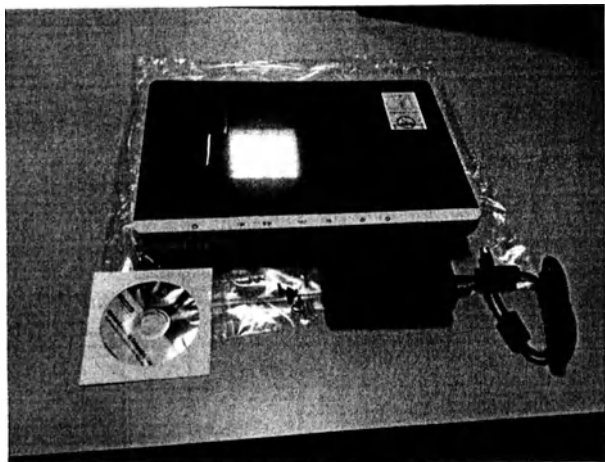
4. Labels for instrument identification – 2 sets

To identify and number the instruments



Accessories:

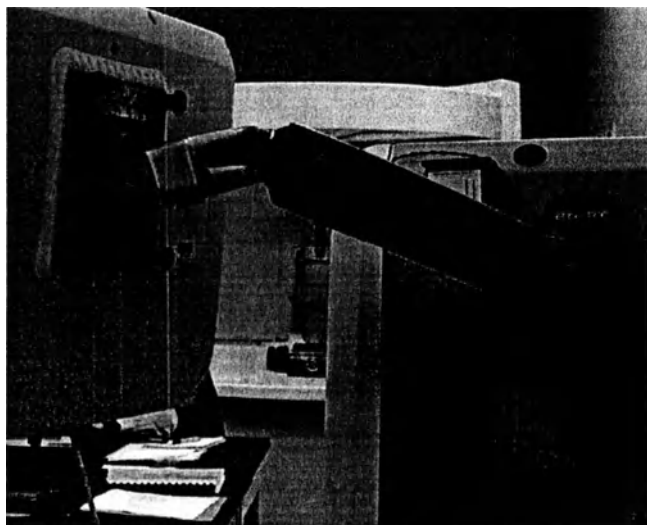
1. PHOENIX M50 STARTER KIT, 443625:
 - All-in One PC: PC, UPS, cable, CD, bolts (4 items).



- Instrument Power Cords (US/EU/China/UK) - 4 items



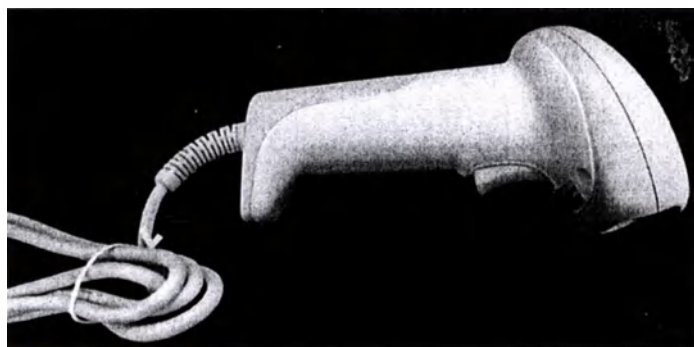
- Monitor Mounting Arm Assembly & Instructions - 1 item
To connect the Instrument with All-in-one PC



- Socket Head Cap Screws - 2 items. To attach Mounting Arm to the instrument



- Barcode Scanner



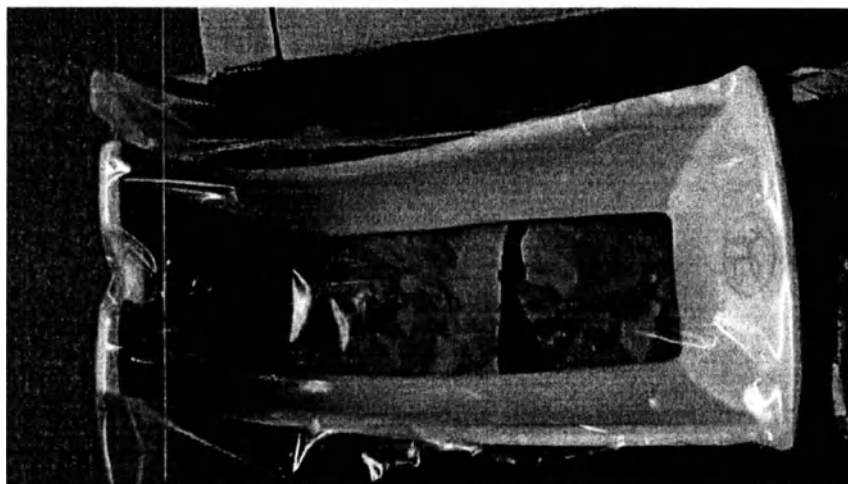
- USB cables – 2 *items*.
To connect peripherals



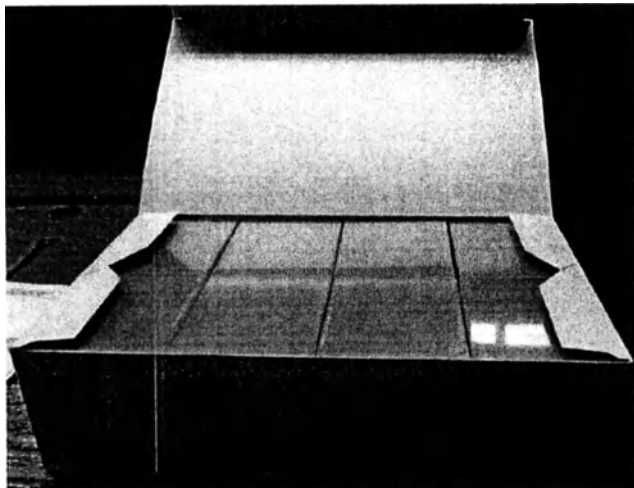
- Barcode scanner stand
To place the barcode scanner.



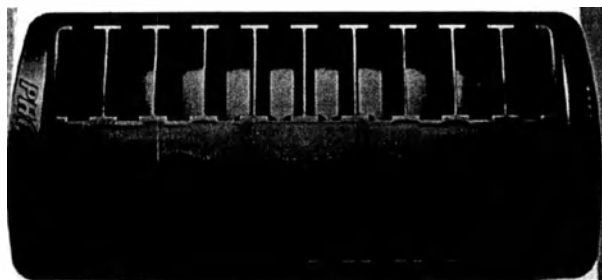
- 25 μ L fixed volume pipette, 50 μ L fixed volume pipette & pipette stand (2 items)
To execute inoculation



- 200 μ L pipette tips with filter - *1 pack of 8 boxes with 204 tips each*



- Phoenix Panel Transport Caddy – 2 items
To transport panels to the instrument



- Phoenix Inoculation Station – 5 items



- Air Filter



- Blank USB Key



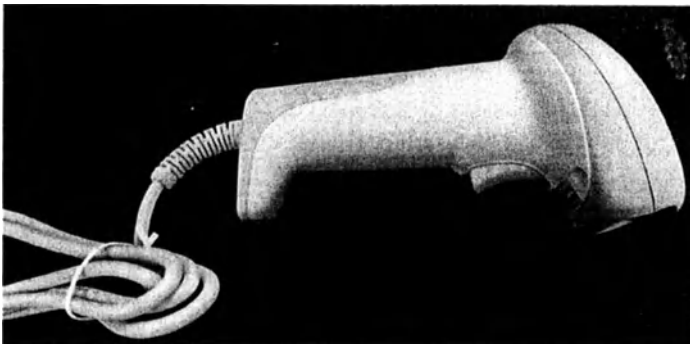
2. SOFTWARE PHX50, 443866
USB memory stick with system application software and user's guides



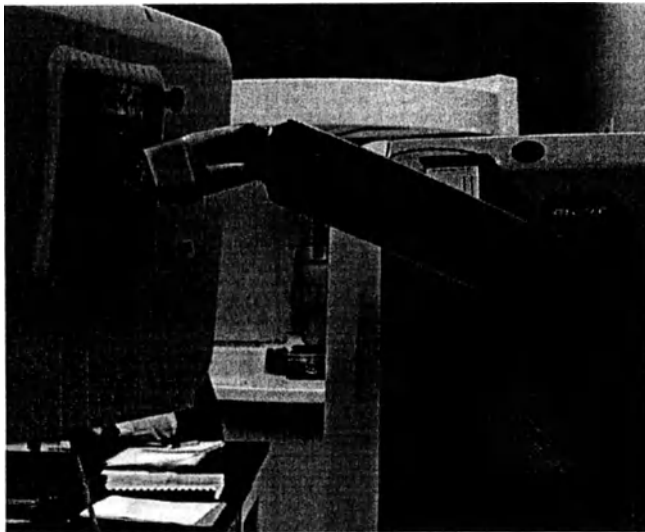
3. QUICK REFERENCE GUIDE PHX50 PKG, 443894
Hard copy user's guide book



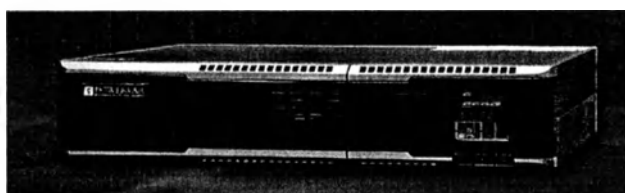
4. SCANNER BARCODE HANDHELD PACKAGED, 443809



5. MOUTING ARM ERGOTRON PHX50, 443867



6. UPS SYNERGY SIII 2KVA ON-LINE, 257687
Protects key electronic equipment from power disruptions



7. BATTERY PACK PAC SYN SIII 2KVA, 257688
Used together with UPS SYNERGY SIII 2KVA



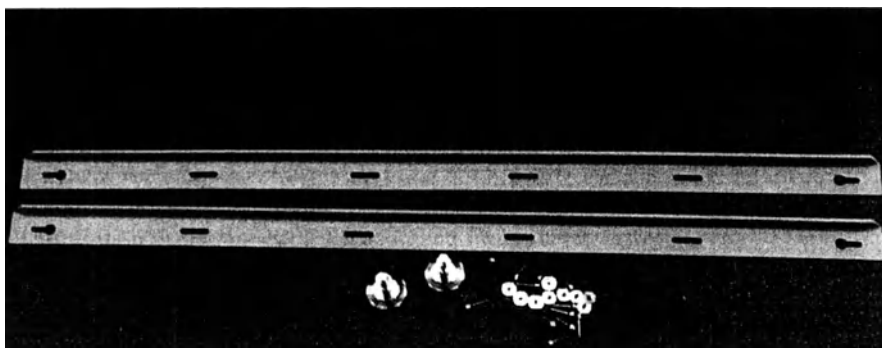
8. Printer Brother HL54440D, 257613
To print sample analysis results obtained by the instrument



9. KIT STACKING PHX50, 443910:

- Bracket – 2 pcs
- Washer – 12 pcs
- Screw – 12 pcs
- Leveling foot – 2 pcs
- Drawing
- Anchor – 2 pcs
- Nut hex – 2 pcs

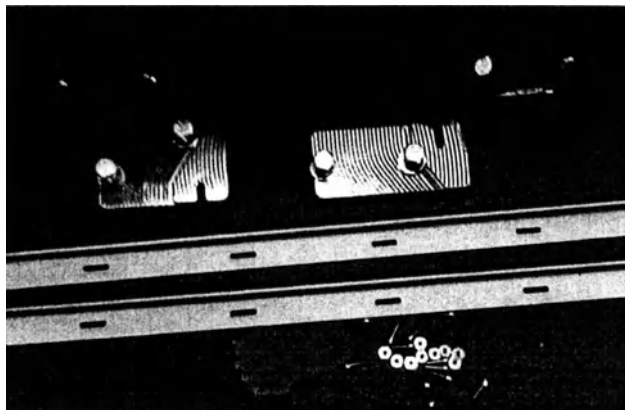
to secure two Phoenix M50 instruments together in a stacked configuration



10. SEISMIC KIT PHX50, 443918:

- Bracket – 5 pcs
- Screw – 12 pcs
- Washer plain M5.3 X 10 X 1.0, SS – 12 pcs
- Bolt hex – 8 pcs
- Nut hex – 4 pcs
- Washer plain 656X 11.31 X.095 – 8 pcs
- Washer lock HSR. 625 – 8 pcs

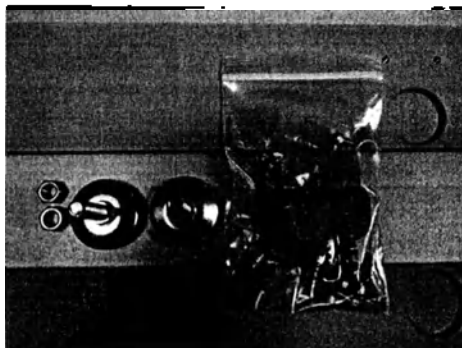
to secure the Phoenix M50 instrument to a laboratory bench so it will not fall during an earth quake



11. ADAPTER PLATE FX40 TO PHX50 SPARE, 443873:

- Bracket – 6 pcs
- Screw – 12 pcs
- Washer – 8 pcs

to secure a BACTEC FX40 blood culture instrument to the top of a Phoenix M50



15. Peculiarities of exploitation

Each day it is necessary to perform routine maintenance procedures for BD Phoenix 100. The most suitable time for routine maintenance is morning, but these procedures may be performed in any convenient time. It is necessary to check the following elements:

1. Presence of paper in the printer. If it is few paper or it is lacking, substitute paper, following manufacturer's exploitation instructions.
2. Temperature readings on LCD display and temperature standard panel.

Please keep in mind that temperature panel readings may be seen by selection of one of the functions of device indicator control in technical maintenance menu. The temperature should lie within the range of 35 ± 1.5 °C.

The BD Phoenix M50 instrument requires little maintenance from the user to provide reliable performance. Daily activities include checking the instrument temperature and printer paper supply. On a weekly basis check the operation of the station status indicators (LEDs), the audible alarm, and the alert indicator. Routine preventive maintenance consists of a monthly check of the ambient air filter. All other procedures are on an as needed basis. Any maintenance or repair not described in this section should be performed by BD personnel only.

16. Safety measures

- a. It is necessary to ensure free access to the intake filter, located in the upper part of Phoenix device. Limitation of air flow may cause raise of the device temperature, which may affect the results of testing and cause equipment damage.
- b. Do not try to raise the device without using mechanical loading unit, as the device has big mass and dimensions. The attempt to raise the device without the appropriate facilities may cause serious traumas.
- c. Before start working with the device, all system users should attentively get acquainted with all control elements and indicators.
- d. Keep the prescribed safety measures, aimed against microbiological threats, when performing these procedures. All samples should be processed in accordance with CDC-NIH recommendations, SIN instructions or with the instructions of the institution on work with potentially infected human serum, blood or other human liquids. Before recycling, sterilize containers for samples and other infected materials using autoclaving.
- e. Besides gloves, it is recommended to use disposable laboratory overalls and protective or safety glasses when working with the device.
- f. The door of the device is blocked with software controlled electromechanic lock. Do not try to switch off door locking mechanism or to open the door, if "unlocked" sign is not seen. Rotating slewing mechanism may cause personal injury. If the slewing mechanism is not stopped when opening the door, immediately contact BD company for maintenance. Do not try to manually rotate the slewing mechanism; it may cause personal injury.
- g. When the system notifies you about the mistake or warning, it is necessary to immediately take the respective steps.
- h. Technical maintenance procedures or repair should be performed by qualified specialists. Failure to observe the present warning may entail accident or device irregularity.
- i. When installing the old filter, be sure that the filter is in the same position, as during its extraction (for example, the arrow on the filter points in the same direction).
- j. Before disinfection start, be sure that all parts of the body, which may come in contact with the engaged device surfaces, are completely covered.

k. In case of appearance of any subcode, not resulting in the list below, please put it down and contact BD company.

17. Special instructions

For diagnostic *in vitro* use.
All patients' samples and microbial cultures arte potentially infected and require observance of universal safety measures. Consult CDC Bio-safety in Microbiological and Biomedical Laboratories (Biological safety in microbiological and biomedical laboratories), 4th edition, 1999, as well as other recommended literature.
After seeding, one should be attentive with panels until they are put into the device.

18. Maintenance and current repair

Reliable operation of Phoenix system does not require large amounts of technical maintenance. Daily control of device temperature and presence of paper for printer is necessary. Each week it is necessary to check operation of station state indicators (LED), acoustic alarm and system warning indicator. Standard preventive technical maintenance includes monthly check of circulation system air filter. All other procedures should be performed as and when necessary.

For detailed information about maintenance rules see clause 6 ("Technical maintenance") of the Manual for BD Phoenix 100 and clause 5 (Maintenance) of the Manual for BD Phoenix M50. Technical maintenance or repair not described in the present sections of the Manual should be performed only by BD personnel.

19. Packing

Transport packing:
Box made of corrugated cardboard with inserts - transport protection devices (distance bars made of foam blocks).

20. Marking and symbols in technical documentation

Symbols	
	Manufacturer
	European representative
	Code number
	Series number
	CE mark
	Dangerous! Observe such warnings as obligatory condition for traumatism prevention. Read Reference Guide
	Electric contacts with dangerous voltage level!
	Temperature mode
	For <i>In Vitro</i> diagnostics
	Read the instruction

	On / Off
	Biological hazard
	Connection for earth wire

21. Transportation

The microbiology system should be transported and carried only in the original packing, taking into account rules of transportation in force for the given mode of transport.

22. Storage

Storage conditions

Temperature: 17.8 – >65.0 °C

Humidity: Relative humidity: 20-80% without condensing.

23. Operating life

By evaluation of the service history of the BD Phoenix 100 instrument, the useful life of the BD Phoenix M50 is 7 years. Through maintenance, repair and replacement, the BD Phoenix M50 could be used much longer than 7 years.

24. Safety requirements when working with the products

The system should be used only by specially prepared personnel in observance of safety rules for work with potentially infected material (CDC Bio-safety in Microbiological and Biomedical Laboratories Guide (Biological safety in microbiological and biomedical laboratories, 4th edition, 1999, or similar recommended literature, not conflicting with state and local normative acts).

Do not use the device in case of failures, appropriate warning technical messages, defects of power-carrying parts insulation, as well as network cable, and case ruptures.

25. Requirements to environment protection in course of products exploitation

The product during shelf life does not have any environmental impact.

26. Rules of recycling

The owner / operator of BD Phoenix automated microbiology system is liable for recycling of all wastes (sample materials), accumulated in course of measurements, in compliance with legislative and local norms, as well as with protocols of the medical institution.

Recycling is performed in accordance with the active legislative provisions after expiration of BD Phoenix automated microbiology system shelf life as electronic equipment wastes.

It is recommended to recycle the system in compliance with Public health regulations (SanPiN) 2.1.7.2790-10 "Sanitary and epidemiological requirements to medical wastes treatment".

27. Limited manufacturer's warranty

This warranty represents special legal rights. Besides that, you may have other rights, differing from region to region.

The primary purchaser of BD Phoenix 100 automated microbiologic system is guaranteed absence of defects in materials and manufacture within one year after installation. Exclusive responsibility of BD company under the above warranty also foresees repair and substitution of devices and their components (save such consumables as cartridges for printers, paper or filters), which in normal operation conditions have become defective within one year after supply.

BD company will supply you new or repaired components at its own discretion. All components, supplied for substitution, will correspond to new constructive parameters and will have guarantee until expiration of one-year term. Substituted components become the property of BD company. It is necessary that the equipment subject to the present agreement should be installed in compliance with the recommendations and instructions of the Reference Guide of BD Phoenix system.

Faults of BD Phoenix system, caused by connection or disconnection of cables, coupling the device with systems, not agreed or not supplied by BD company, or by failure to observe due care when working with the device and system maintenance, entail termination of the warranty and discharge the manufacturer from the obligations under the present document.

The present warranty substitutes all other expressed or implied warranties, including marketability warranty or suitability for certain use. BD company under no circumstances is liable for indirect, incidental, actual or consequential losses, irrespective of presence or absence of notification by BD company about such losses.

The BD Phoenix M50 Automated Microbiology System is warranted to the original purchaser to be free from defects in materials and workmanship for a period of one year following installation. BD's sole responsibility under this warranty shall be to repair or replace any instrument or its components (except for expendable supplies such as printer cartridges, paper, or filters) which under normal operating conditions, prove to be defective within one year of delivery.

BD will furnish new or re-manufactured components upon its option. All replacements shall meet new part specifications and shall be warranted as above for the remainder of the one year period. Replaced components become the property of BD.

It is understood that the equipment covered by this Agreement has been installed in accordance with the recommendations and instructions in the BD Phoenix M50 System User's Manual.

Any damage to a BD Phoenix M50 instrument resulting from the insertion or removal of cables that connect this instrument to systems other than those approved or supplied by BD, or the failure of the owner to maintain reasonable care and precautions in the operation and maintenance of the system, will void this warranty and terminate the obligations of the manufacturer as stated herein.

This warranty is in lieu of all other warranties, whether express or implied, including but not limited to, warranties of merchantability, or fitness for a particular use. In no event will BD be liable for indirect, incidental, special or consequential damages regardless of whether BD has been advised of such.

28. Information about development and manufacture of the medical product

BD Phoenix Automated Microbiology System, variations: BD Phoenix 100, BD Phoenix M50, with Accessories, manufacturer:

Becton Dickinson and Company, 7 Loveton Circle, Sparks, Maryland 21152, USA, should correspond to the internal technical regulation of Becton Dickinson and Company, USA (being confidential commercial information as containing technological know-how) on development and manufacture of BD Phoenix Automated Microbiology System.

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29. Denomination and legal address of the authorized representative

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11/28/2016

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October 19, 2019

«УТВЕРЖДАЮ»

Becton Dickinson and Company,
7 Loveton Circle, Sparks, Maryland 21152, USA

Дата: 28 ноября 2016 г.

Подпись: (подписано)

Должность: Менеджер международного отдела
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(подписано)
28.11.2016 г.

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Округ Балтимор
Срок моих полномочий истекает:
19 октября 2019 г.

**Эксплуатационная документация
(Руководство пользователя)
медицинского изделия:**

Анализатор микробиологический BD Phoenix, варианты исполнения: BD
Phoenix 100, BD Phoenix M50, с принадлежностями

Производитель:

Becton Dickinson and Company, 7 Loveton Circle, Sparks, Maryland 21152,
USA

BD Phoenix

Руководство пользователя системы



2011/05
Dokument Nummer: L-003342(R)
REF 448021
Русский



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История изменений

Редакция	Дата	Стр.	Основание
A	5/00	Все	Новая версия продукта
B	6/00	Предисловие (i, ii, vii); прил. E (все); прил. Ж (Ж-7–Ж-13)	Изменение таксонов
C	8/00	Все	Изменение клинических данных F/T
D	10/00	i, ii, 7-6	Добавление знаков CE и подкода ошибки
E	2/01	i, ii, 8-7, 8-8, Ж-3, Ж-4	Добавление новых препаратов в раздел 8, прил. Ж
F	3/01	Все	Добавление информации для программного обеспечения версии 2
G	10/01	Предисловие (все); разд. 2 (все); разд. 3 (все); разд. 4 (все); разд. 5 (все); разд. 6 (все); разд. 8 (все); словарь терминов (все); указатель (все); карточка комментариев читателя	Добавление информации для программного обеспечения версии 3
H	1/02	i, ii, 8-5–8-8, Ж-5–Ж-6	Исправление информации о AM/IS. aureus (прил. Ж); добавление GMF и STF
I	3/02	i, ii; разд. 2 (5, 16, 29, 31); 3-4; разд. 4 (7, 8, 32); разд. 5 (4, 5, 14); 6-2; 7-7; прил. E (2, 6, 9); прил. Ж (9–12)	Изменения для программного обеспечения версии 3.22
J	2003/06	Все	Изменения для программного обеспечения версии 3.32
K	2003/11	Предисловие; разд. 1, 2, 4, 5, 6, 7, 8; прил. Ж, И; указатель	Изменения для программного обеспечения версии 4.01
L	2004/10	Все	Изменения для программного обеспечения версии 4.05
M	2005/03	Предисловие; разд. 1 (10–12); разд. 2; разд. 3 (8); разд. 4; разд. 5; разд. 6 (9, 16–21); разд. 7 (5); разд. 8; словарь терминов; прил. E, прил. Ж (12–22); прил. И (1, 10, 12); указатель	Изменения для программного обеспечения версии 5.02
N	2006/08	Все	Небольшие исправления; добавление информации о новых заявках
O	2008/01	Все	Изменения для программного обеспечения версии 5.55
P	2008/09	Все	Изменения для программного обеспечения версии 5.66/4.61
Q	2010/09	Все	Изменения для PUD 4.91; исправление опечаток и адреса AR
R	2011/05	Все	Изменения для программного обеспечения версии 6.01/5.11

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Содержание

1 – Введение

1.1	Назначение	1-1
1.2	Общее описание и пояснение теста	1-1
1.3	Принципы методики	1-2
1.4	Меры предосторожности	1-5
1.5	Обзор системы	1-5
1.5.1	Обзор прибора	1-5
1.5.1.1	Оптическая система и приводной механизм прибора	1-5
1.5.1.2	Узел поворотного механизма	1-5
1.5.1.3	Инкубационная система	1-6
1.5.1.4	Узел состояния панели и внутреннего сканера штрих-кода	1-6
1.5.1.5	Передняя панель и внешние сканеры штрих-кодов	1-7
1.5.1.6	Электронный узел управления	1-7
1.5.2	Обзор программного обеспечения и работы	1-7
1.5.3	Обзор панели	1-8
1.5.4	Обзор тестирования	1-9
1.5.5	Нормализаторы	1-9
1.6	Структура руководства	1-10
1.7	Использование настоящего руководства	1-11
1.8	Условные обозначения	1-11
1.8.1	Клавиши	1-11
1.8.2	Маркировка оборудования	1-12
1.8.3	Примечания, предостережения и предупреждения	1-12
1.9	Общие предостережения и предупреждения	1-13

2 – Установка

2.1	Общая информация	2-1
2.1.1	Установка	2-2
2.2	Технические характеристики прибора	2-2
2.3	Настройка программного обеспечения	2-4
2.3.1	Instrument Configuration (Конфигурация прибора)	2-7
2.3.1.1	Общая конфигурация прибора	2-7
2.3.1.2	Дополнительные параметры конфигурации	2-11
2.3.1.3	Password Administration (Управление паролями)	2-13
2.3.2	Communications Configuration (Конфигурация связи)	2-15
2.3.2.1	Organism Configuration (Конфигурация микроорганизмов)	2-19
2.3.2.2	Antimicrobial Configuration (Конфигурация противомикробных препаратов)	2-22
2.3.3	Custom Interpretation Rule Set (Пользовательский набор правил интерпретации)	2-24
2.3.4	BDXpert Rule Configuration (Конфигурация правил BDXpert)	2-32
2.3.5	Rapid Reporting Configuration (Конфигурация быстрого отчета)	2-34
2.3.6	Panel Lot Definition (Определение лота панели)	2-38
2.4	Запуск системы	2-43
2.5	Установка программного обеспечения	2-43

Содержание

3 – Элементы управления и индикаторы

3.1	Общая информация	3-1
3.2	Выключатель питания	3-3
3.3	Клавишная панель и ЖК-дисплей	3-3
3.3.1	Клавиши СТРЕЛКА ВНИЗ/ВВЕРХ	3-3
3.3.2	Клавиша ТАБУЛЯЦИЯ	3-4
3.3.3	Программные клавиши	3-4
3.3.4	Клавиша ВЫГРУЗКА ПАНЕЛЕЙ	3-5
3.3.5	Клавиша ЗАГРУЗКА ПАНЕЛЕЙ	3-5
3.3.6	Клавиша ОТКЛЮЧЕНИЕ ЗВУКА СИГНАЛА ТРЕВОГИ	3-5
3.3.7	Индикатор системного предупреждения/открытой двери	3-5
3.3.8	Область отображения	3-5
3.4	Сканеры штрих-кодов	3-6
3.5	Дисковод гибких дисков	3-6
3.5.1	Индикатор дисковода гибких дисков	3-6
3.5.2	Кнопка извлечения дискеты	3-6
3.6	Индикаторы станции	3-7
3.7	Звуковые сигналы и сигналы тревоги	3-8
3.8	Клавиатура	3-9
3.9	Принтер	3-9

4 – Эксплуатация

4.1	Общая информация	4-1
4.2	Ежедневное техническое обслуживание системы	4-2
4.3	Хранение и обработка	4-2
4.4	Подготовка панелей	4-2
4.4.1	Контроль качества	4-14
4.5	Panel Login (Регистрация панели)	4-17
4.5.1	Использование интерфейса прибора	4-17
4.5.2	Вход в панели	4-18
4.5.3	Объединение и удаление заказов ЛИС	4-20
4.6	Установка панелей в прибор	4-22
4.7	Тестирование панели	4-24
4.8	Действия с панелями, требующими внимания	4-24
4.9	Автоматическое объединение панелей	4-29
4.9.1	Обзор	4-29
4.9.2	Типы панелей	4-30
4.9.3	Случаи невыполнения автоматического объединения	4-30
4.9.4	Проверка соответствия идентификации микроорганизмов	4-30
4.9.5	Автоматическое объединение и связанные с ним действия	4-30
4.9.6	Типичные примеры автоматического объединения	4-31

Содержание

4.10	Получение результатов	4-32
4.10.1	Добавление/изменение результатов идентификации	4-37
4.10.2	Изменение результатов AST	4-38
4.10.3	Экран «BDXpert Triggered Rules» (Применяемые правила BDXpert)	4-38
4.10.4	Экран «Resistance Marker» (Маркер устойчивости)	4-39
4.11	Окончательная обработка панели	4-40
4.12	Реагирование на сигналы тревоги и ошибки	4-43
4.13	Печать отчетов	4-44
4.14	Выгрузка и утилизация панелей	4-46
4.15	Установка новых форматов панелей	4-47
4.16	Диск обновления Phoenix (Phoenix Update Disk — PUD)	4-48
4.17	Операции ЛИС	4-48
4.17.1	Общая информация	4-48
4.17.2	Важные понятия	4-49
4.17.3	Обработка заказов панелей	4-50
4.17.4	Стандартное функционирование системы	4-50

5 – Справочная информация

5.1	Общая информация	5-1
5.2	Дерево программных элементов	5-2
5.3	Экран «Main Status» (Основное состояние)	5-3
5.4	«Panel Login» (Регистрация панели)	5-6
5.5	«Panel Results» (Результаты панели)	5-10
5.5.1	Экран «BDXpert Triggered Rules» (Применяемые правила BDXpert)	5-19
5.5.2	Экран «Resistance Marker» (Маркер устойчивости)	5-22
5.5.3	Экран «Special Messages» (Специальные сообщения)	5-23
5.5.4	«Lab Report» (Лабораторный отчет)	5-25
5.6	«Finalization» (Окончательная обработка)	5-27
5.7	Экран «Configuration/Maintenance» (Конфигурация/техническое обслуживание)	5-29
5.8	Отчеты	5-30
5.8.1	«Completed Lab Report» (Завершенный лабораторный отчет)	5-31
5.8.2	«Accession Lab Report» (Лабораторный отчет для образца)	5-34
5.8.3	«Needs Attention List Report» (Отчет со списком панелей, требующих внимания)	5-36
5.8.4	«Resident Panel Report» (Отчет установленных панелей)	5-38
5.8.5	«QC Lab Report» (Лабораторный отчет контроля качества)	5-39
5.8.6	«Cumulative QC Report» (Сводный отчет контроля качества)	5-41
5.8.7	«Daily Instrument Report» (Ежедневный отчет прибора)	5-43
5.8.8	«Interpretation Rule Set Report» (Отчет набора правил интерпретации)	5-45
5.8.9	«BDXpert Rule Set Database Report» (Отчет базы данных набора правил BDXpert)	5-48
5.8.10	«Organism ID Code List Report» (Отчет списка кодов идентификации микроорганизмов)	5-50
5.8.11	«Antimicrobial Code Report» (Отчет кодов противомикробных препаратов)	5-51
5.8.12	«Lab Report» (Лабораторный отчет)/«QC Lab Report» (Лабораторный отчет контроля качества)	5-52
5.8.13	«Finalization Summary Report» (Сводный отчет по окончательной обработке)	5-52
5.8.14	«Custom Breakpoint Difference Report» (Отчет о различиях пользовательских точек прерывания)	5-52
5.8.15	«Current QC Panel Lot Report» (Текущий отчет лота панели контроля качества)	5-52

Содержание

5.8.16	«Historical QC Panel Lot Report» (Отчет истории лота панели контроля качества)	5-52
5.8.17	«Panel Lot Report» (Отчет лота панели)	5-53
5.8.18	«Panel Lot Database Report» (Отчет базы данных лотов панелей)	5-55
5.9	«Panel Inventory» (Инвентаризация панелей)	5-56
5.10	«System Alerts» (Системные предупреждения)	5-59
5.11	«Needs Attention» (Требуется внимания)	5-60

6 – Техническое обслуживание

6.1	Общая информация	6-1
6.2	Регулярное техническое обслуживание	6-2
6.2.1	Ежедневное техническое обслуживание	6-2
6.2.2	Еженедельное техническое обслуживание	6-2
6.2.3	Периодическое техническое обслуживание	6-4
6.2.3.1	Замена воздушного фильтра	6-4
6.2.3.2	Очистка окна сканера штрих-кода	6-7
6.2.3.3	Очистка/дезинфекция	6-8
6.2.4	Меню технического обслуживания	6-9
6.2.4.1	«Save User Data to Disk» (Сохранение данных пользователя на диске)	6-10
6.2.4.2	«Restore User Data from Disk» (Восстановление данных пользователя с диска)	6-11
6.2.4.3	«Save LIS Codes to Disk» (Сохранение кодов ЛИС на диске)	6-13
6.2.4.4	«Restore LIS Codes from Disk» (Восстановление кодов ЛИС с диска)	6-15
6.2.4.5	«Save Panel Lot Definitions» (Сохранение определений лотов панелей)	6-17
6.2.4.6	«Restore Panel Lot Definitions» (Восстановление определений лотов панелей)	6-19
6.2.4.7	«Save Panel Configuration» (Сохранение конфигурации панелей)	6-21
6.2.4.8	«Install Panel Configuration» (Установка конфигурации панелей)	6-23
6.2.4.9	«Phoenix Update Disk» (Диск обновления Phoenix)	6-25
6.2.4.10	«Modify Panel Usage» (Изменение использования панели)	6-26
6.2.4.11	«Write Light Source to Disk» (Запись файла источника света на дискету)	6-28
6.2.4.12	«Read Light Source from Diskette» (Чтение файла источника света с дискеты)	6-30
6.2.4.13	«View Syslog» (Просмотр системного журнала)	6-32
6.2.4.14	«Save Syslog to Network» (Сохранение системного журнала в сети)	6-36
6.2.4.15	«Display UV and RGB Status» (Отображение состояния УФ и RGB)	6-37
6.2.4.16	«Force Front UV Bulb Adjustment» (Принудительная настройка передней лампы УФ)	6-39
6.2.4.17	«Force Rear UV Bulb Adjustment» (Принудительная настройка задней лампы УФ)	6-41
6.2.4.18	«Force RGB LED Adjustment» (Принудительная настройка светодиодов RGB)	6-43
6.2.4.19	«Front Panel Reader Setup» (Настройка считывающего устройства передней панели)	6-45
6.3	Замена модулей	6-47
6.3.1	Общая информация	6-47
6.3.2	Замена сканера штрих-кода	6-47
6.3.3	Замена термометра	6-48
6.3.4	Соединение разделенной жидкости в термометре	6-48

Содержание

7 – Устранение неполадок

7.1	Общая информация	7-1
7.1.1	Обслуживание прибора	7-1
7.2	Сообщения об ошибке или предупреждающие сообщения	7-2
7.3	Функция «Save System Data to Disk» (Сохранение системных данных на диске)	7-25
7.4	Функция «Save Syslog to Disk» (Сохранение системного журнала на диске)	7-27

8 – Характеристики и ограничения

8.1	Характеристики работы системы	8-1
8.1.1	Эффективность работы с грамотрицательными бактериями	8-1
8.1.2	Эффективность работы с грамположительными бактериями	8-4
8.1.3	Эффективность работы со стрептококками (с панелями Phoenix SMIC/ID и SMIC)	8-7
8.1.4	Идентификация вида дрожжей	8-8
8.2	Ограничения методики	8-9

9 – Словарь терминов и сокращения

10 – Ограниченная гарантия

11 – Запасные части

12 – Журнал обновлений программного обеспечения

13 – Международные контакты

14 – Коды

14.1	Коды микроорганизмов, сокращенные названия, полные названия	7-1
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15 – Информация о панелях

15.1	Список противомикробных препаратов на панелях Phoenix	7-1
15.2	Список реагентов и принципов, используемых в системе Phoenix	7-8
15.2.1	Грамотрицательные реагенты	7-8
15.2.2	Грамотрицательные реагенты	7-9
15.2.3	Панель стрептококков	7-11
15.2.4	Панель дрожжей	7-13
15.3	Таксоны для определения ID/AST 7-15	
15.3.1	Грамотрицательные реагенты (0,5 McFarland) 7-15	
15.3.2	Грамотрицательные реагенты (0,25 McFarland) 7-19	
15.3.3	Грамположительные таксоны (0,5 McFarland) 7-22	
15.3.4	Грамположительные таксоны (0,25 McFarland) 7-24	
15.3.5	Стрептококки 7-26	
15.3.6	Дрожжи 7-27	

Содержание

16 – Список литературы

17 – Сообщения журнала событий

17.1 Сообщения, связанные с ЛИС 17-1

Примечания

Указатель

Карточка комментариев читателя

Рисунки

Рис. 1–1. Прибор BD Phoenix 100.....	1–6
Рис. 1–2. Станция заправки панелей.....	1–8
Рис. 1–3. Транспортная кассета для панелей.....	1–9
Рис. 1–4. Символы, используемые на приборе Phoenix.....	1–12
Рис. 2–1. Экран Основное состояние.....	2–4
Рис. 2–2. «Configuration Menu» (Меню конфигурации).....	2–6
Рис. 2–3. Экран «Instrument Configuration» (Конфигурация прибора).....	2–9
Рис. 2–4. Экран «More Configuration Options» (Дополнительные параметры конфигурации).....	2–12
Рис. 2–5. Экран «Password Administration» (Управление паролями).....	2–14
Рис. 2–6. Экран «Communications Configuration» (Конфигурация связи).....	2–17
Рис. 2–7а. Экран «Organism Configuration» (Конфигурация микроорганизмов).....	2–20
Рис. 2–7б. Экран «Organism Edit» (Изменение микроорганизма).....	2–21
Рис. 2–8а. Экран «Antimicrobial Configuration» (Конфигурация противомикробных препаратов).....	2–23
Рис. 2–8б. Экран «Antimicrobial Edit» (Изменение противомикробных препаратов).....	2–23
Рис. 2–9а. «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации), экран А.....	2–27
Рис. 2–9б. «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации), экран В.....	2–28
Рис. 2–10. Отчет о различиях пользовательских точек прерывания «Custom Breakpoint Difference Report».....	2–29
Рис. 2–11. «BDXpert Rule Configuration» (Конфигурация набора правил BDXpert).....	2–33
Рис. 2–12. Экран конфигурации быстрого отчета «Rapid Reporting Configuration».....	2–36
Рис. 2–13. Экран определения лота панели «Panel Lot Definition».....	2–39
Рис. 2–14. Образец отчета по текущему лоту панели контроля качества «Current QC Panel Lot Report».....	2–41
Рис. 2–15. Образец отчета по предыдущим лотам панели контроля качества «Historical QC Panel Lot Report».....	2–42
Рис. 3–1. Общий вид прибора Phoenix.....	3–2
Рис. 3–2. Выключатель питания.....	3–3
Рис. 3–3. Клавишная панель и ЖК-дисплей.....	3–4
Рис. 3–4. Элементы управления дисководом гибких дисков и индикаторы.....	3–6
Рис. 3–5. Индикаторы состояния станции.....	3–7
Рис. 4–1. Панель и крышки.....	4–6
Рис. 4–2. Экран «QC Panel Login» (Регистрация панели контроля качества).....	4–15
Рис. 4–3. Экран «Panel Login — LIS Orders» (Регистрация панели — Заказы ЛИС).....	4–21
Рис. 4–4. Установка панелей.....	4–23
Рис. 4–5. Экран «Panel Results» (Результаты панели) — результаты идентификации.....	4–34
Рис. 4–6. Экран «Panel Results» (Результаты панели) — результаты AST.....	4–35
Рис. 4–7. Экран «Panel Results» (Результаты панели) — результаты идентификации с триплетами.....	4–37
Рис. 4–8. Экран «Resistance Marker Review» (Просмотр маркеров устойчивости).....	4–39
Рис. 4–9. Экран «Finalization» (Окончательная обработка).....	4–41
Рис. 4–10. «Finalization Summary Report» (Сводный отчет по окончательной обработке).....	4–42
Рис. 4–11. Меню «Reports» (Отчеты).....	4–45
Рис. 5–1. Экран Основное состояние (с дополнительным индикатором ЛИС).....	5–5
Рис. 5–2. Экран «Panel Login» (Регистрация панели).....	5–7
Рис. 5–3. Экран «Panel Results List» (Список результатов панели).....	5–12
Рис. 5–4а. Экран «Panel Results» (Результаты панели) — идентификация.....	5–14
Рис. 5–4б. Экран «Panel Results» (Результаты панели) — чувствительность к противомикробным препаратам.....	5–15
Рис. 5–5. Экран «BDXpert Triggered Rules» (Применяемые правила BDXpert).....	5–20
Рис. 5–6. Экран «Resistance Marker Review» (Просмотр маркеров устойчивости).....	5–22
Рис. 5–7. Экран «Special Messages» (Специальные сообщения).....	5–24
Рис. 5–8. Пример лабораторного отчета «Lab Report».....	5–26
Рис. 5–9. Экран «Finalization» (Окончательная обработка).....	5–29
Рис. 5–10. Пример завершеного лабораторного отчета «Completed Lab Report».....	5–33
Рис. 5–11. Пример лабораторного отчета для образца «Accession Lab Report».....	5–35

Рисунки

Рис. 5–12. Пример отчета со списком панелей, требующих внимания «Needs Attention List Report»	5–37
Рис. 5–13. Пример отчета установленных панелей «Resident Panel Report»	5–38
Рис. 5–14. Пример лабораторного отчета контроля качества «QC Lab Report»	5–40
Рис. 5–15. Пример сводного отчета контроля качества «Cumulative QC Report»	5–42
Рис. 5–16. Пример ежедневного отчета прибора «Daily Instrument Report»	5–44
Рис. 5–17. Пример отчета набора правил интерпретации (пример данных) «Interpretation Rule Set Report» ..	5–46
Рис. 5–18. Пример отчета базы данных набора правил BDxpert «BDxpert Rule Set Database Report»	5–49
Рис. 5–19. Пример отчета списка кодов идентификации микроорганизмов «Organism ID Code List Report» ..	5–50
Рис. 5–20. Пример отчета кодов противомикробных препаратов «Antimicrobial Code Report»	5–51
Рис. 5–21. Пример отчета лота панели «Panel Lot Report»	5–54
Рис. 5–22. Пример отчета базы данных лота панелей «Panel Lot Database Report»	5–55
Рис. 5–23. Экран «Panel Inventory» (Инвентаризация панелей) (основной)	5–57
Рис. 5–24. Экран «Panel Inventory» (Инвентаризация панелей) (дополнительный)	5–57
Рис. 5–25. Экран «System Alerts» (Системные предупреждения)	5–59
Рис. 5–26. Экран «Needs Attention» (Требуется внимания)	5–62
Рис. 6–1. Экран Основное состояние	6–2
Рис. 6–2. Замена фильтра отсека электронного оборудования.	6–5
Рис. 6–3. Замена фильтра отсека подачи.	6–6
Рис. 6–4. Замена фильтра термостата	6–7
Рис. 6–5. Замена сканера штрих-кода	6–47

Таблицы

2-1	Физические характеристики	2-2
2-2	Требования окружающей среды	2-3
2-3	Требования к электросети	2-3
2-4	Оптические характеристики	2-3
2-5	Форматы даты	2-10
2-6	Обновления правил	2-25
3-1	Индикаторы станции	3-7
3-2	Звуковые сигналы/сигналы тревоги	3-8
4-1	Звуковые сигналы/сигна	4-3
4-2	Разрешение состояния, требующего внимания	4-25
5-1	Значения MIC/SIR и причины	5-17
5-2	Коды групп микроорганизмов	5-47
5-3	Экран «Needs Attention» (Требуется внимания): активные программные клавиши	5-63

1 – Введение

1.1 Назначение

Автоматизированная микробиологическая система BD Phoenix предназначена для быстрой идентификации (ID) и проверки чувствительности к противомикробным препаратам (antimicrobial susceptibility testing — AST) клинически значимых бактерий. Система Phoenix обеспечивает быстрые результаты для большинства аэробных и некоторых анаэробных грамположительных бактерий, а также для большинства аэробных и некоторых анаэробных грамотрицательных бактерий, паразитирующих на человеке. Система Phoenix также предназначена для быстрой идентификации дрожжей и дрожжеподобных микроорганизмов.

1.2 Общее описание и пояснение теста

Первые микрометоды биохимической идентификации микроорганизмов были предложены в 1918 г.¹ В нескольких публикациях упоминались методы с использованием пропитанных реагентами бумажных дисков и микропробирок для различения кишечных бактерий.^{2,3} Интерес к миниатюрным системам идентификации привел к разработке нескольких коммерческих систем в конце 1960-х годов. Преимущества этих систем заключались в их компактности, длительном сроке хранения, стандартизированном контроле качества и простоте использования.

Многие из тестов, используемых в панелях Phoenix ID, являются модификациями классических методов. Это относится к тестам на ферментацию, окисление, расщепление и гидролиз различных субстратов. Кроме того, для идентификации организмов система Phoenix использует хромогенные и флуорогенные субстраты, а также субстраты с единым углеродным источником.^{4,5}

Используемый в настоящее время тест с микроразбавлением бульона основан на тесте с разбавлением в пробирке, использованном в 1942 г. Раммелькампом (Rammelkamp) и Максоном (Maxon) для тестирования *in vitro* чувствительности бактерий, выделенных из клинических образцов, к противомикробным препаратам.¹² Технология разбавления бульона включает воздействие на бактерии противомикробных препаратов, растворенных в жидкости, с последовательным уменьшением концентрации в два раза путем разбавления. Самая низкая концентрация противомикробного препарата, при которой не наблюдается видимого роста, определяется как минимальная ингибирующая концентрация (minimal inhibitory concentration — MIC).

Изобретение в 1956 г. системы микротитратора, использующей точно откалиброванные точные проволоочные петли и пипетки для выполнения точного разбавления позволило Мэримонту (Marumont) и Вентцу (Wentz) разработать тест AST с последовательным разбавлением.¹³ Система микротитратора была точной и позволяла снизить объемы противомикробных препаратов. Термин «микроразбавление» появился в 1970 г. для описания тестов MIC, выполняемых при объемах противомикробного препарата не более 0,1 мл.¹⁴

В приборе Phoenix AST используется модифицированная миниатюрная версия технологии микроразбавления бульона с удвоением объема. Тест чувствительности в системе Phoenix выполняется путем определения роста бактерий в присутствии различных концентраций противомикробного препарата с помощью индикатора AST с постоянной инкубацией и считыванием микрочаек на панелях Phoenix.

1.3 Принципы методики

Прибор Phoenix позволяет одновременно выполнять до 100 тестов идентификации и определения чувствительности к противомикробным препаратам с использованием комбинированных панелей Phoenix. Герметичный прессованный лоток из полистирола с автоматическим посевом, содержащий 136 микрочаек с сухими реагентами, является расходным материалом для системы Phoenix. Комбинированная панель включает сторону ID с сухими субстратами для идентификации бактерий или дрожжей и сторону AST с различными концентрациями противомикробных препаратов, а также стандарты роста и флуоресценции в соответствующих ячейках. В системе Phoenix используется оптимизированный колориметрический индикатор окисления-восстановления для AST, а также ряд колориметрических и флуорометрических индикаторов для ID. Бульон AST является катионным (например, используются ионы Ca^{++} и Mg^{++}) для оптимизации производительности теста чувствительности.

Панель Phoenix включает 51-ячеечную сторону ID и 85-ячеечную сторону AST. Сторона ID содержит 45 ячеек с сухими биохимическими субстратами и 2 контрольные флуоресцентные ячейки. Сторона AST может содержать до 84 ячеек с сухими противомикробными препаратами и одной ячейкой контроля роста. Доступны панели только для теста ID, только для теста AST и комбинация ID/AST. Неиспользованные ячейки зарезервированы для использования в будущем.

Панели Phoenix засеяны стандартной посевной культурой. Суспензии микроорганизмов должны быть приготовлены только с помощью нефелометра BBL CrystalSpec, BD PhoenixSpec или прибора прибор BD Phoenix AP. После посева панели помещаются в прибор и находятся при постоянно поддерживаемой температуре 35 °C. Прибор тестирует панели каждые 20 минут: в начале часа, через 20 минут после начала часа и через 40 минут после начала часа — до 16 часов, если это необходимо. Информация панелей Phoenix считывается только прибором Phoenix. Вручную считать информацию панелей Phoenix нельзя.

Идентификация микроорганизмов

Часть ID панели Phoenix использует ряд традиционных, хромогенных и флуорогенных биохимических тестов для идентификации организмов. Для охвата различных типов активности в различных таксонах используются субстраты, основанные как на росте, так и на ферментах. Тесты основаны на поглощении и расщеплении микроорганизмами определенных субстратов, обнаруживаемом различными системами индикаторов. Выделение кислоты сопровождается изменением цвета индикатора фенолового красного, когда культура способна использовать углеводородный субстрат. Хромогенные субстраты окрашиваются в желтый цвет при ферментативном гидролизе п-нитрофенильных или п-нитроанилидных соединений. Ферментативный гидролиз флуорогенных субстратов приводит к высвобождению флуоресцентного производного кумарина. Организмы, использующие определенные углеродные источники, восстанавливают индикатор на основе резазурина. Кроме того, существуют другие тесты для определения способности организма к гидролизу, расщеплению, восстановлению или другому воздействию на субстрат.

Полный список таксонов, охватывающий всю базу данных Phoenix, представлен в раздел 15.3. Реакции, используемые различными субстратами, и краткое объяснение принципов, используемых в грамотрицательных, грамположительных и *стрептококковых* реакциях ID и реакциях Yeast ID (Идентификация дрожжей) системы Phoenix, приведены в раздел 15.2.

Тестирование чувствительности к противомикробным препаратам

Метод Phoenix AST — это тест с микроразбавлением бульона. Система Phoenix использует индикатор окисления-восстановления для определения роста организмов в присутствии противомикробного реагента.¹⁵ Постоянные измерения изменений индикаторов, а также мутности бактерий используются для определения роста бактерий. Каждая конфигурация панели AST содержит несколько противомикробных препаратов с широким диапазоном концентраций разбавления, отличающихся в два раза. Идентификация организмов используется в интерпретации значений MIC для каждого противомикробного препарата. Полный список таксонов, для которых панели Phoenix способны предоставить результаты AST, приведен в раздел 15.3. Список противомикробных препаратов и концентраций, доступных для тестирования чувствительности в системе Phoenix, представлен в раздел 15.1.

Необходимые компоненты для тестирования включают: 1) панели Phoenix с крышками; 2) бульон Phoenix ID; 3) бульон Phoenix AST; 4) раствор индикатора Phoenix AST; 5) бульон Phoenix AST-S (только для использования с панелями Phoenix Strep); 6) раствор индикатора Phoenix AST-S (только для использования с панелями Phoenix Strep); 7) станция Phoenix; 8) кассета для панелей Phoenix; 9) нефелометр BBL CrystalSpec, BD PhoenixSpec или прибор прибор BD Phoenix AP; 10) устройство для пипетирования вместимостью 25 мкл со стерильными наконечниками; 11) различные лабораторные принадлежности (см. раздел 4.4 «Необходимые, но не предоставленные материалы»).

Расходные материалы Phoenix предназначены для использования с прибором Phoenix для идентификации организмов (ID), тестирования чувствительности к противомикробным препаратам (AST) или выполнения обоих тестов. Панель располагается портами для заправки вверх. Отдельные посевные материалы добавляются вручную в порты ID и AST. Посевные материалы проходят вглубь панели по извилистым каналам, заполняя ячейки панели по мере поступления жидкости к прокладке. Прокладка поглощает излишний посевной материал. Крышки устанавливаются на порты для заполнения вручную. Порт впуска воздуха расположен в области разделителя крышки панели для обеспечения адекватного давления кислорода в панели на время теста.

Принципы тестов Phoenix AST для определения маркеров устойчивости

В следующих разделах описаны принципы работы системы Phoenix AST по определению маркеров устойчивости в грамотрицательных и грамположительных микроорганизмах, включая следующие: 1) определение образования ESBL у вида *Enterobacteriaceae*; 2) определение устойчивости к ванкомицину у вида *Enterococcus* (VRE); 3) определение высокоуровневой аминогликозидной устойчивости видов *Enterococcus* и *Streptococcus* (HLAR); 4) определение устойчивости к метициллину у стафилококков (MRS); 5) определение образования β-лактамазы у вида *Staphylococcus* (BL); 6) определение устойчивости к макролидам у видов *Streptococcus* (MLSb); 7) определение mecA-связанной устойчивости для вида *S. aureus* (mecA); 8) определение устойчивости к ванкомицину вида *Staphylococcus aureus* (VRSA); 9) тест Phoenix для определения устойчивости к индуцибельным макролидам (iMLSb); 10) тест Phoenix для определения устойчивости к высокоактивному мупироцину (HLMUPH).

Тест Phoenix β-лактамазы расширенного спектра (Extended Spectrum β-Lactamase — ESBL)»

Тест Phoenix ESBL основан на данных известных моделей антибиограмм ESBL, опубликованных в современной литературе.^{14,16,20,21} Для разработки теста Phoenix ESBL были выбраны штаммы различных микроорганизмов с известными генотипами и фенотипами β-лактамазы из семейств *Enterobacteriaceae*, включая виды *Escherichia coli*, *Klebsiella*, *Citrobacter*, *Enterobacter*, *Proteus* и *Serratia*. Тест Phoenix ESBL основан на принципе разной реакции на ингибирующее действие выбранного цефалоспоринового второго или третьего поколения в присутствии или отсутствии ингибитора β-лактамазы, клавулановой кислоты. Принципы теста Phoenix ESBL аналогичны принципам подтверждающего теста с микроразбавлением бульона CLSI ESBL.²² Тест Phoenix ESBL применяется к бактериям *E. coli*, *K. pneumoniae* и *K. oxytoca*. Кроме того, по желанию заказчика тест может быть применен к другим видам энтеробактерий, если образование ESBL у них было упомянуто в литературе. При положительном результате теста ESBL категориальная интерпретация всех пенициллинов, цефалоспоринов (за исключением цефамицинов) и азтреонама на одной и той же панели Phoenix будет изменена на устойчивую.²²

Тест Phoenix устойчивости энтерококков к ванкомицину (Vancomycin Resistant Enterococci — VRE)

Тест Phoenix VRE основан на интерпретации SIR ванкомицина. Точка прерывания, выбранная в конфигурации прибора, используется для категориальной интерпретации. Тест Phoenix VRE был разработан и оптимизирован для соответствия стандартному тесту с микроразбавлением бульона CLSI.^{22,23} Выбор точки прерывания, отличной от CLSI, может привести к неоптимальной производительности из-за различий в категориальных интерпретациях. Положительным результатом считаются только *Enterococcus faecalis* и *E. faecium* с приобретенной устойчивостью (vanA или vanB).²²

Тесты Phoenix высокого уровня сопротивляемости аминогликозидам (High-Level Aminoglycoside Resistance — HLAR)

Тесты Phoenix HLAR для вида *Enterococcus* основаны на реакции роста в отдельной ячейке с высокой концентрацией гентамицина или стрептомицина. Эти тесты были разработаны и оптимизированы относительно тестов с микроразбавлением бульона по стандарту CLSI и скрининговому тесту CLSI с агаром.²²

Тесты Phoenix HLAR для вида *Streptococcus* основаны на реакции роста в отдельной ячейке, содержащей гентамицин, канамицин или стрептомицин. Эти тесты были разработаны и оптимизированы с использованием рекомендованного стандартного микроразбавления бульона CLSI.

Тест Phoenix устойчивости стафилококков к метициллину (Methicillin-Resistance in Staphylococci — MRS)

Тест Phoenix MRS основан на интерпретации SIR оксациллина с видом *Staphylococcus*. Точка прерывания, выбранная в конфигурации прибора, используется для категориальной интерпретации. Тест был разработан и оптимизирован относительно теста с микроразбавлением бульона по стандарту CLSI^{22,23} и скринингового теста CLSI с агаром и солью оксациллина (BBL Oxacillin Screen Agar).²³ Выбор точки прерывания, отличной от CLSI, может привести к неоптимальной производительности из-за различий в категориальных точках прерывания у разных стандартов. С помощью теста Phoenix MRS можно проверять все виды *Staphylococcus*. При положительном результате теста MRS интерпретации всех бета-лактамов препаратов на одной панели Phoenix будут изменены на устойчивые.²²

Тест Phoenix грамположительной β-лактамазы (β-lactamase — BL)¹⁶

Тест BL, доступный в системе Phoenix AST — это тест β-лактамазы, основанный на нитроцефине. Тест, основанный на нитроцефине, является методом прямого определения с использованием стороны ID панели Phoenix. Эффективность этого теста была установлена по сравнению с результатами тестирования с дисками Cefinase (BBL, № по кат. 31650), использованного в качестве эталонного метода. В настоящее время эти тесты позволяют определять только вид *Staphylococcus*. При положительном результате теста BL категориальная интерпретация всех лабильных пенициллинов на очищенных ферментах на тех же панелях Phoenix будет изменена на устойчивую.²²

Тест Phoenix устойчивости стрептококков к макролидам (Macrolide Resistance in Streptococci — MLSb)

Тест Phoenix устойчивости к макролидам основан на интерпретации SIR эритромицина и клиндамицина. Точка прерывания, выбранная в конфигурации прибора, используется для категориальной интерпретации. Изоляты *Streptococcus*, устойчивые к эритромицину и клиндамицину, относятся к фенотипу MLSb (macrolide/lincosamide/streptogramin B — макролид/линкозамид/стрептограмин B).

Маркер Phoenix mecA-связанной устойчивости для вида *Staphylococcus aureus* (mecA)

Тест Phoenix mecA применяется для прогнозирования mecA-связанной устойчивости у вида *Staphylococcus aureus*. Принцип аналогичен принципу теста с диффузией диска, рекомендованного CLSI, который использует диск цефокситина (FOX) для прогнозирования mecA-связанной устойчивости у вида *S. aureus*. Эффективность теста была установлена по сравнению с несколькими методами ПЦР²⁵, а также с тестом диффузии диска. С помощью теста Phoenix mecA в приборе настраиваются точки прерывания FOX для mecA, используемые для определения маркера устойчивости. При обнаружении маркера устойчивости mecA интерпретации всех бета-лактамов препаратов на той же панели Phoenix изменяются на устойчивые²², и устанавливается маркер устойчивости Phoenix mecA.

Тест Phoenix устойчивости вида *Staphylococcus aureus* к ванкомицину (Vancomycin Resistant *Staphylococcus aureus* — VRSA)

Определение Phoenix VRSA основано на интерпретации SIR ванкомицина при тестировании *Staphylococcus aureus*. Точка прерывания, выбранная в конфигурации прибора, используется для категориальной интерпретации. Тест Phoenix VRSA был разработан и оптимизирован для соответствия стандартному тесту с микроразбавлением CLSI и проверен с известными изолятами VRSA. Выбор точки прерывания, отличной от обнаруженной в CLSI M100-S15, может привести к ухудшению эффективности из-за различий в категориальных интерпретациях. Только *Staphylococcus aureus* с истинной устойчивостью (изоляты, содержащие механизм устойчивости, например ген vanA) будет определен как VRSA. Штаммы *S. aureus* с промежуточными результатами по ванкомицину (GISA/VISA) будут идентифицированы и описаны по отдельным правилам BDxpert. Грамположительная панель Phoenix AST определила устойчивость в штаммах VRSA *S. aureus*, доступных в ходе выполнения сравнительного тестирования. Возможность определения устойчивости в других штаммах *S. aureus* неизвестна из-за ограниченности количества устойчивых штаммов, доступных для сравнительного тестирования.

Тест Phoenix устойчивости к индуцибельным макролидам у видов *Staphylococcus* (iMLSb)

Тест Phoenix устойчивости к индуцибельным макролидам (iMLSb) используется для определения устойчивости к индуцибельным MLSb (macrolide-lincosamide-streptogramin B — макролид/линкозамид/стрептограмин B) у видов *Staphylococcus*. Устойчивость к MLSb обычно обозначается как ermA или ermC и может быть либо конститутивной (всегда экспрессированной), либо индуцибельной после контакта с макролидным антибиотиком (т. е. эритромицином, кларитромицином и т. д.). Тест Phoenix устойчивости к индуцибельным макролидам основан на той же методике, что и рекомендованный CLSI тест аппроксимации диска (D-Test) для определения устойчивости к индуцибельному клиндамицину. При положительном

результате теста Phoenix устойчивости к индуцибельным макролидам категориальная интерпретация клиндамицина на одной и той же панели Phoenix будет отмечена как устойчивая и будет сопровождаться отдельным сообщением BDxpert. Устойчивость культур *Staphylococcus* к эритромицину и клиндамицину при начальном тестировании будет отмечена как конститутивная устойчивость MLSb, чтобы отличить их от культур, устойчивых к одним эфлюксированным макролидам.

Тест Phoenix устойчивости к высокоактивному мупироцину (HLMUPH)

Тест Phoenix устойчивости к высокоактивному мупироцину основан на реакции роста в отдельной ячейке с содержанием 256 мкг/мл локального антибиотика мупорицина, который используется для эрадикации колоний *Staphylococcus*, в частности, для назального носительства MRSA. Точка прерывания, выбранная в конфигурации прибора, используется для категориальной интерпретации чувствительности (нет роста в ячейке 256 мкг/мл) или устойчивости (рост в ячейке 256 мкг/мл). Только устойчивые к высокоактивному мупироцину культуры *Staphylococcus* будут отмечены как маркер устойчивого фенотипа (HLMUPH).

1.4 Меры предосторожности

Для диагностического использования *in vitro*.

Все пробы пациентов и микробные культуры потенциально инфекционны и требуют соблюдения универсальных мер предосторожности. Обратитесь к руководству CDC *Bio-safety in Microbiological and Biomedical Laboratories* (Биологическая безопасность в микробиологических и биомедицинских лабораториях), 4 издание, 1999 г., а также к другой рекомендованной литературе.

После посева с панелями следует обращаться осторожно, пока они не будут помещены в прибор.

1.5 Обзор системы

1.5.1 Обзор прибора

1.5.1.1 Оптическая система и приводной механизм прибора

Внутри главного инкубационного отсека прибора цилиндрический поворотный механизм и его двигатель являются единственными движущимися частями. Узел поворотного механизма поддерживается и вращается тремя узлами подшипников с V-образными пазами, в которые входят V-образные выступы на кольце поворотного механизма. Поворотный механизм обычно вращается со скоростью 1,0 или 2,0 об./мин. Скорость, ускорение и замедление двигателя регулируются центральным процессором.

Поворотный механизм разделен вертикально на четыре уровня, каждый из которых работает как относительно независимый оптический источник и система детектирования для панелей, помещенных на этот уровень. Каждый уровень оснащен собственным микроконтроллером для управления сбором и передачей данных. Четыре микроконтроллера взаимодействуют с центральным процессором по каналу связи с последовательным интерфейсом.

Видимое излучение в красной, зеленой и синей спектральных областях для каждого уровня обеспечивается платой светодиодных источников. Токи светодиодных источников программируются с целью компенсации потери сигнала на краях панели из-за смещения и других факторов. Система мониторинга источников усредняет сигнал от двух фотодиодов платы для отслеживания интенсивности источника видимого излучения. Флуоресцентная ультрафиолетовая (УФ) лампа, содержащая выбранный люминофор, обеспечивает УФ-излучение. Активная часть лампы проходит вертикально через все четыре уровня, обеспечивая постоянное УФ-излучение с точностью до 10 % по всей полезной длине лампы. Вторая УФ-лампа — запасная.

1.5.1.2 Узел поворотного механизма

Узел поворотного механизма представляет собой каркасную структуру из алюминиевых колец и вертикальных ребер, соединенных винтами в прямой круговой цилиндр. Поворотный механизм вмещает 104 держателя панелей на четырех уровнях. На каждом уровне помещается одна панель нормализатора и 25 панелей с пробами.

В обычном режиме работы поворотный механизм вращается со скоростью 1,0 или 2,0 об./мин. в зависимости от выполняемой операции. Во время поиска панели поворотный механизм может вращаться со скоростью до 10,0 об./мин. Поворотный механизм вращается против часовой стрелки. Одно вращение поворотного механизма используется для выполнения предварительного сканирования с целью идентификации панелей в приборе после закрытия двери. Полный цикл теста выполняется в течение семи минут.

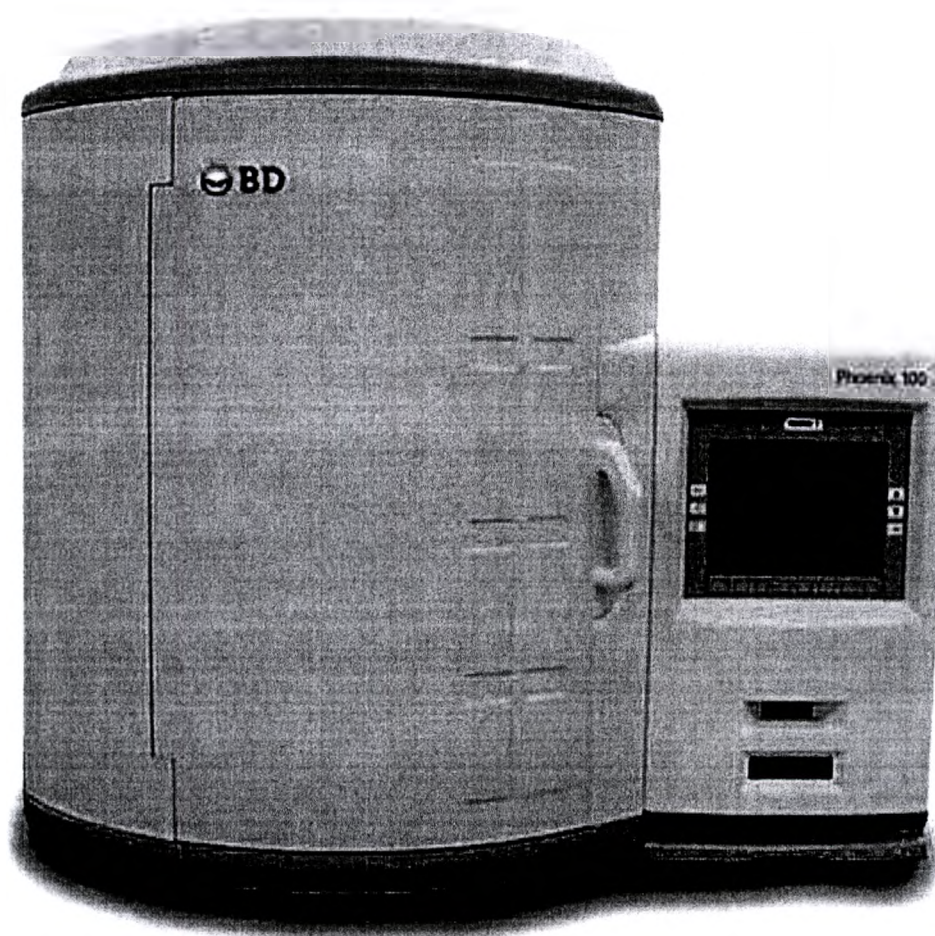


Рис. 1–1. Прибор BD Phoenix 100.

1.5.1.3 Инкубационная система

Инкубационная система поддерживает постоянную номинальную температуру поворотного механизма, держателей панелей и самих панелей 35 °С. Система имеет конструкцию с принудительной циркуляционной воздушной конвекцией и оснащена фильтром для удаления пыли. Система состоит из вентилятора с приводом от бесщеточного двигателя постоянного тока, кольцеобразного нагревателя с автоматическим отключением при превышении температуры, термоформованной системы входных и возвратных трубок и заменяемого пользователем воздушного фильтра из полиэфирных волокон.

1.5.1.4 Узел состояния панели и внутреннего сканера штрих-кода

Индикация состояния панели и ее идентификация выполняются на одной и той же колонне прибора, расположенной непосредственно под поворотным механизмом в области двери. Состояние панели отображается установленными на панели за поворотным механизмом трехцветными светодиодами, которые светят через световоды в держателях панелей. При открытой двери видны пять колонок поворотного механизма и пять плат с четырьмя светодиодами на каждой.

Четыре сканера, считывающие штрих-коды панелей, расположены в той же колонне, что и индикаторы. Каждый сканер считывает штрих-коды панелей на соответствующем уровне поворотного механизма. Штрих-коды панелей находятся вверху основания (нижней части) панели, при помещении панели в прибор они расположены лицевой стороной внутрь.

1.5.1.5 Передняя панель и внешние сканеры штрих-кодов

Внешние сканеры штрих-кодов расположены на передней панели и на правой стороне прибора. Эти сканеры могут использоваться для считывания инвентарных номеров панелей на прикрепленных к панелям штрих-кодах, а также штрих-кодов собственных порядковых номеров панелей. Инвентарные номера могут использоваться для связывания информации об идентификации образца с определенными панелями в приборе.

1.5.1.6 Электронный узел управления

Электронный узел управления состоит из следующих плат: интерфейс ввода-вывода, центральный процессор (ЦП) и память, Ethernet и драйвер жидкокристаллического дисплея (ЖК-дисплея). К другим электронным компонентам относятся устройства пользовательского интерфейса, такие как сканер штрих-кодов передней панели, дисковод для гибких дисков, ЖК-дисплей, специальная клавишная панель, клавиатура и громкоговоритель для звуковых сигналов тревоги.

Электронные управляющие устройства отвечают в первую очередь за следующие функции:

- планирование и мониторинг тестирования панелей;
- сбор данных теста панели;
- включение индикаторов состояния панели (станции);
- обработка данных, полученных от внешнего и внутреннего сканеров штрих-кода;
- интерпретация данных панелей идентификации для выполнения идентификации организмов;
- идентификация данных панелей чувствительности к противомикробным препаратам для получения результатов MIC или SIR (по соответствующим правилам);
- передача информации на ЖК-дисплей;
- обработка команд клавишной панели и клавиатуры;
- контроль состояния переключателя и блокировки двери;
- управление инкубацией шкафа;
- взаимодействие с внешними устройствами (например с рабочей станцией EpiCenter);
- генерация сигналов тревоги;
- выполнение встроенного теста (Built-In-Test — BIT).

1.5.2 Обзор программного обеспечения и работы

На жидкокристаллическом дисплее (ЖК-дисплее) отображается вся информация, необходимая для мониторинга состояния прибора, установки и извлечения панелей, настройки прибора, печати отчетов и выполнения регулярного технического обслуживания. Информация представлена в форме экранов и значков, отображающих информацию графически (например, для индикации текущего времени используются часы). В верхней части экрана «Main Status» (Основное состояние) отображается информация о состоянии прибора, которая обновляется каждые несколько секунд. В середине дисплея изначально отображается информация о состоянии станции. По мере доступа к различным экранам и функциям они отображаются вместо верхнего и среднего окон состояния. В нижней части экранов отображается ряд значков, определяющих текущие функции программных клавиш. Для получения подробной информации о каждом экране см. **раздел 5 «Справочная информация»**.

Большинство операций с прибором выполняется с помощью программных клавиш. Функции программных клавиш изменяются при их использовании, а также при доступе к различным экранам и операциям.

Кроме программных клавиш имеется шесть клавиш с собственными значками, которые выполняют фиксированные функции независимо от текущего экрана или операции. Клавиша LOAD PANELS (Загрузка панелей) используется для подготовки прибора к загрузке панелей для тестирования, клавиша UNLOAD PANELS (Выгрузка панелей) — для извлечения панелей из прибора, клавиша SILENCE ALARM (Отключение звука сигнала тревоги) отключает все звуковые сигналы предупреждения, клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ используются для прокрутки списков, а также для увеличения или уменьшения значений, а клавиша TAB — для перемещения курсора в следующее поле на экране.

1.5.3 Обзор панели

Доступны три формата панели Phoenix: только для тестирования ID, только для тестирования AST и комбинация ID/AST. Змеевидная конструкция каналов для заливки и герметизации оптимизирована для обеспечения безопасности и устойчивости к утечкам. Каждая ячейка одноразовой панели содержит около 50 мкл посевного материала в среде, не допускающей значительного испарения во время инкубации.

Станция для заправки панелей включает шесть пробирок с бульоном (ID, AST) и три панели, наклоненные под углом 24° для обеспечения оптимальной заправки с движением потока по панели под действием силы тяжести. См. рис. 1–2.

Транспортировочная кассета для панелей — это прессованный пластмассовый лоток, используемый для транспортировки заправленных и закупоренных панелей Phoenix со стола для заправки в прибор Phoenix. Емкость кассеты — 20 панелей. См. рис. 1–3.

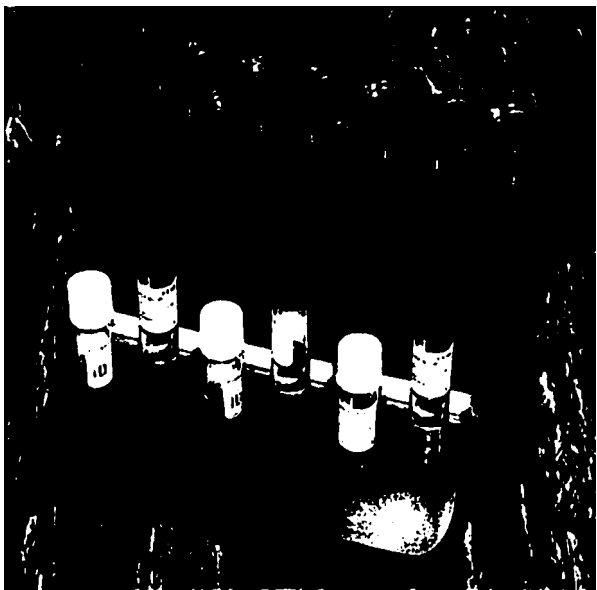


Рис. 1–2. Станция заправки панелей

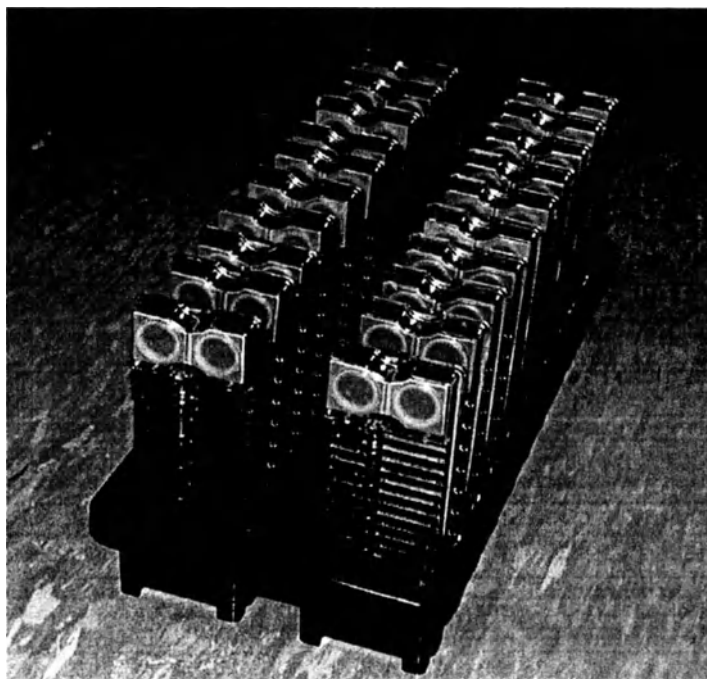


Рис. 1–3. Транспортировочная кассета для панелей

1.5.4 Обзор тестирования

После открытия и закрытия двери прибор считывает штрих-коды на панелях, а затем выполняет сканирование с помощью красных светодиодов для проверки наличия панелей и определения положений ячеек. Считывание информации панелей выполняется каждый час, а также через 20 и через 40 минут после каждого часа. Последовательность теста прибора начинается с проверки блокировки двери. На уровнях выполняется чтение данных в темноте, затем включается УФ-лампа и начинается прогрев. Затем выполняется чтение данных с помощью УФ-излучения в течение одного оборота вращения. После этого УФ-лампа выключается. Затем включаются красные светодиоды, выполняется их прогрев и чтение данных светодиодов. Та же операция выполняется с использованием зеленых светодиодов. И, наконец, выполняется эта же процедура с синими светодиодами.

1.5.5 Нормализаторы

Нормализаторы служат эталонными панелями для настройки системы оптического детектирования прибора. Они используются для настройки светодиодов (красных, зеленых и синих) и флуоресцентных ламп.

Для коррекции красного, зеленого и синего цвета используются данные панелей нормализаторов, которые позволяют учесть вариации оптического усиления канала и компенсировать смещение от ячейки к ячейке. Необработанные сигналы корректируются монитором источника, затем рассчитывается их соотношение со значениями соответствующих ячеек панели нормализатора. Это соотношение умножается на поправочный коэффициент, представляющий собой ожидаемый коэффициент пропускания нормализатора, для определения результирующих значений. Флуоресцентный (УФ) сигнал нормализатора используется для обеспечения допустимого диапазона интенсивности УФ-излучения при его прохождении до панели, что необходимо для правильного чтения информации о флуоресцентных субстратах идентификации на панели Phoenix. Если уровень УФ-излучения у нормализатора слишком высок или низок, в следующий период отсутствия панелей будет выполнена настройка УФ-лампы. Чрезмерные отклонения от обычного уровня УФ-сигнала вызывают системное предупреждение, которое приводит к прерыванию тестирования панелей на соответствующих уровнях. Затем предпринимается попытка выполнения настройки УФ-лампы.

Нормализаторы необходимо заменять через два года после установки. Перед окончанием срока службы система оповещает о необходимости замены, что позволяет спланировать ее.

Панели нормализатора всегда располагаются в станции с номером 0 на каждом уровне. При открывании двери получить доступ к панели нормализатора обычным способом доступа к поворотному механизму нельзя. Панель нормализатора помещена в собственный держатель, предотвращающий ее случайное извлечение.

Автоматическая настройка источников света

На основании результатов встроенного теста системы, а также при изменении времени и включении/отключении питания система может определить, что показания, полученные от источников ультрафиолетового (УФ) и видимого света, лежат за пределами допустимого диапазона. Существует два основных уровня этого состояния.

- 1 Отклонение достаточно велико для того, чтобы результаты для панелей признавались недействительными (прерывание тестирования панелей на уровне). Станции уровня блокируются, и после завершения тестирования всех панелей в приборе выполняется автоматическая настройка источников света.
- 2 Отклонение лежит в пределах, не влияющих на результаты панелей, однако доступные станции блокируются, а после завершения тестирования или извлечения панелей уровня выполняется автоматическая настройка источников света.

О любом из этих двух состояний для каждого уровня сообщают коды и подкоды ошибок типа «Е».

При автоматической настройке источников света выполняется попытка привести показания к допустимым диапазонам. Она выполняется при следующих условиях: прибор прогрет и находится в режиме ожидания, панели отсутствуют. При настройке УФ доступ к прибору для установки панелей на другие уровни, извлечения панелей, выполнения технического обслуживания и т. п. закрыт.

1.6 Структура руководства

Руководство пользователя состоит из 16 разделов, словаря терминов, указателя и карточки для комментариев читателя.

Раздел 1 — Введение — включает обзор системы Phoenix и ее применения в микробиологической лаборатории. В этот раздел включены также обзор структуры руководства и условные обозначения, а также описаны предупреждения и меры предосторожности, приведенные в руководстве.

Раздел 2 — Установка — содержит технические характеристики для установки прибора Phoenix и инструкции по настройке прибора.

Раздел 3 — Элементы управления и индикаторы — включает описание использования и назначения всех элементов управления и индикаторов системы.

Раздел 4 — Эксплуатация — содержит описание использования системы Phoenix для тестирования панелей и получения результатов.

Раздел 5 — Справочная информация — включает подробную справочную информацию обо всех экранах, отчетах, значках и других элементах пользовательского интерфейса.

Раздел 6 — Техническое обслуживание — содержит описание всех процедур технического обслуживания системы пользователем, включая замену деталей.

Раздел 7 — Устранение проблем — представляет собой удобное руководство по идентификации кодов ошибок и возможным способам их устранения.

Раздел 8 — Возможности и ограничения — содержит таблицы эксплуатационных характеристик и ограничений методики.

В словаре терминов приведены определения некоторых терминов и сокращений, используемых в руководстве для описания системы Phoenix и компьютера.

Разделы 10 – 17 содержат дополнительную информацию — сведения о гарантии, список заменяемых деталей, журнал обновлений программного обеспечения, контактную информацию BD для различных стран, информацию о панелях и т. д.

Предметный указатель представляет собой список основных тем с соответствующими номерами страниц.

1.7 Использование настоящего руководства

Настоящее руководство пользователя является неотъемлемой частью системы для технологов, руководителей и другого персонала, работающего с прибором Phoenix и выполняющего его регулярное техническое обслуживание. При его составлении были приложены все усилия, чтобы включить всю информацию, необходимую для нормальной эксплуатации и технического обслуживания системы. При возникновении вопросов, ответы на которые отсутствуют в руководстве, обращайтесь по следующим телефонам (США):

Для получения помощи по проблемам механической, электрической или программной производительности (Северная Америка):

☎ Обслуживание в условиях эксплуатации: 1-800-544-7434

Для получения ответов на вопросы о процедурах, панелях или работе программного обеспечения (Северная Америка):

☎ Технические службы: 1-800-638-8663

Контактная информация для разных стран приведена в приложении Д. Эту информацию можно также получить у местного представителя BD.

Комментарии или рекомендации по руководству пользователя можно изложить на карточке для комментариев читателя с оплаченной отправкой по почте, которая приведена в конце руководства, или отправить сообщение по адресу электронной почты TechWriting@bd.com.

Другая документация, необходимая для правильной эксплуатации системы:

Вкладыши в упаковке панелей — эти документы содержат важную информацию об эксплуатации панели, производительности, контроле качества и ограничениях процедур. Листки-вкладыши присутствуют в каждой коробке панелей. Их можно также получить у компании BD по требованию.

1.8 Условные обозначения

1.8.1 Клавиши

Шесть клавиш с фиксированными функциями: СТРЕЛКА ВВЕРХ (Увеличение), СТРЕЛКА ВНИЗ (Уменьшение), SILENCE ALARM (Отключение звука сигнала тревоги), TAB, LOAD PANELS (Загрузка панелей) и UNLOAD PANELS (Выгрузка панелей). Эти клавиши обозначаются символами, соответствующими их функциям, и выполняют одни и те же действия независимо от активного экрана или операции. Остальные восемь клавиш — программные клавиши — имеют зеленовато-голубой цвет и выполняют функции, зависящие от активного экрана. На каждом экране отображаются значки, указывающие текущие функции каждой программной клавиши. Для выполнения функции, обозначенной значком, нажмите соответствующую программную клавишу, расположенную непосредственно под этим значком. Для выполнения этой функции можно также нажать соответствующую функциональную клавишу на клавиатуре (например, клавиша **F1** соответствует программной клавише 1, расположенной слева).

Шесть клавиш с фиксированными функциями в руководстве Phoenix всегда обозначаются ЗАГЛАВНЫМИ БУКВАМИ (например SILENCE ALARM). Программные клавиши обозначаются строчными буквами в кавычках со словами *программная клавиша* (например программная клавиша «результаты панели»). Названия полей обозначаются жирным шрифтом.

1.8.2 Маркировка оборудования

На боковой панели прибора Phoenix используются следующие символы:

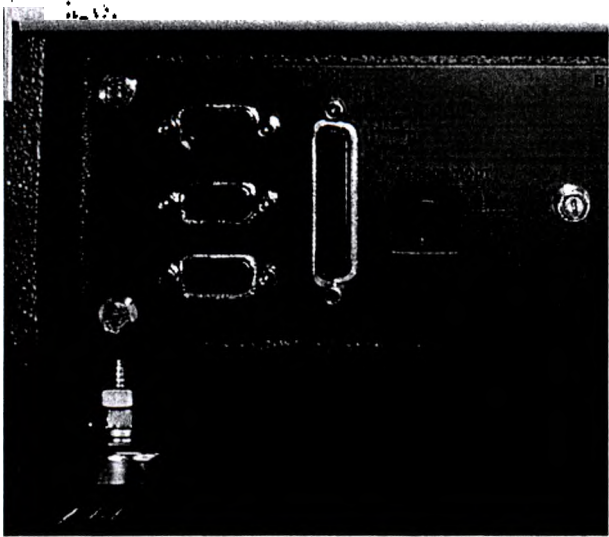


Рис. 1–4. Символы, используемые на приборе Phoenix

Верхний рисунок, по часовой стрелке из левого верхнего угла: символы последовательного порта, порта принтера, сетевого порта, порта удаленного сигнала тревоги, порта сканера штрих-кода; нижний рисунок, слева направо: символы опасности поражения электрическим током, «обратитесь к сопроводительной документации» (имеется в виду руководство пользователя), Вкл./Выкл., биологическая опасность, разъем для защитного провода

1.8.3 Примечания, предостережения и предупреждения

В руководстве важная информация представлена в рамках с отступами от основного текста и пометками «ПРИМЕЧАНИЕ», «ВНИМАНИЕ!» или «ОСТОРОЖНО!». Эти сообщения отформатированы, как показано далее, и имеют следующую важность:

ПРИМЕЧАНИЕ

Важная информация об использовании системы, заслуживающая особого внимания, обозначается как ПРИМЕЧАНИЕ.

ВНИМАНИЕ!

Информация о действии, которое может привести к повреждению прибора или системы, обозначается пометкой «ВНИМАНИЕ!».

ОСТОРОЖНО!
ИНФОРМАЦИЯ О ДЕЙСТВИИ, КОТОРОЕ МОЖЕТ ПРИВЕСТИ К
ТРАВМЕ ПОЛЬЗОВАТЕЛЯ, ОБОЗНАЧАЕТСЯ ПОМЕТКОЙ
«ОСТОРОЖНО!».

1.9 Общие предостережения и предупреждения

- Защита, обеспечиваемая данным оборудованием, может быть нарушена при несоблюдении инструкций, приведенных в этом руководстве.
- Необходимо обеспечить свободный доступ к всасывающему фильтру, расположенному в верхней части прибора Phoenix. Ограничение потока воздуха может привести к увеличению температуры прибора, что может повлиять на результаты тестирования и вызвать повреждение оборудования.
- Не пытайтесь поднять прибор без использования механических средств погрузки, так как прибор обладает большой массой и размерами. Попытка подъема прибора без соответствующих средств может привести к серьезным травмам.
- Перед началом работы с прибором всем пользователям системы необходимо внимательно ознакомиться со всеми элементами управления и индикаторами.
- Соблюдайте установленные меры предосторожности, направленные против микробиологических угроз, при выполнении всех процедур. Все образцы следует обрабатывать в соответствии с рекомендациями CDC-NIH, инструкциями CLSI или инструкциями учреждения по работе с потенциально инфекционной человеческой сывороткой, кровью или другими жидкостями организма. Перед утилизацией простерилизуйте контейнеры для образцов и другие инфицированные материалы автоклавированием.
- Кроме перчаток рекомендуется использовать одноразовые лабораторные халаты и защитные или предохранительные очки при работе с прибором.
- Дверь прибора блокируется электромеханическим замком под управлением программного обеспечения. Не пытайтесь отключить механизм блокировки двери или открыть дверь, если значок «разблокировано» не отображается. Вращающийся поворотный механизм может нанести травму. Если при открытии двери поворотный механизм не остановлен, немедленно обратитесь в компанию BD для обслуживания. Не пытайтесь вращать поворотный механизм вручную — это может привести к травме.
- Когда система уведомляет Вас об ошибке или предупреждении, необходимо немедленно предпринять соответствующие действия.
- Любые процедуры технического обслуживания или ремонта, отличные от процедур, описанных в разделе 6.2 «Регулярное техническое обслуживание» и разделе 6.3 «Замена модулей», должны осуществляться квалифицированными специалистами. Несоблюдение данного предупреждения может привести к несчастному случаю или неисправности прибора.
- При установке старого фильтра убедитесь, что фильтр занимает то же положение, что и при его извлечении (например стрелка на фильтре указывает в том же направлении).
- Перед началом процесса дезинфекции убедитесь, что все части тела, которые могут соприкасаться с задействованными поверхностями прибора, полностью закрыты.
- При появлении какого-либо подклада, отсутствующего в приведенном здесь списке, запишите его и обратитесь за помощью в компанию BD.
- Если рекомендуемое действие по устранению проблемы не помогло, обратитесь в компанию BD.

2 – Установка

2.1 Общая информация

В данном разделе приведены технические требования для установки и настройки системы BD Phoenix. В данном разделе рассмотрены следующие основные темы.

- ◆ Технические характеристики прибора
- ◆ Настройка программного обеспечения
- ◆ Установка программного обеспечения

ОСТОРОЖНО!

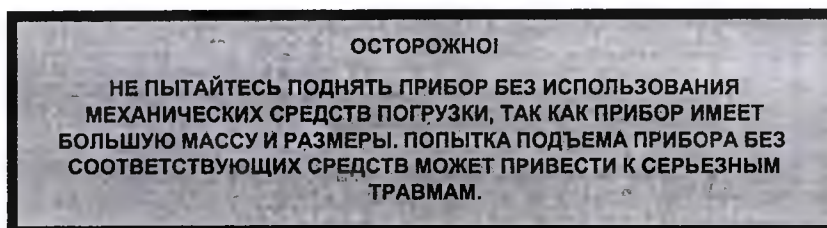
**ЗАЩИТА, ОБЕСПЕЧИВАЕМАЯ ДАННЫМ ОБОРУДОВАНИЕМ, МОЖЕТ
БЫТЬ НАРУШЕНА ПРИ НЕСОБЛЮДЕНИИ ИНСТРУКЦИЙ,
ПРИВЕДЕННЫХ В ЭТОМ РУКОВОДСТВЕ.**

ВНИМАНИЕ!

Необходимо обеспечить свободный доступ к всасывающему фильтру, расположенному в верхней части прибора Phoenix. Ограничение потока воздуха может привести к увеличению температуры прибора, что может повлиять на результаты тестирования и вызвать повреждение оборудования.

2.1.1 Установка

Установку прибора BD Phoenix должны выполнять только представители BD.



Прибор BD Phoenix необходимо устанавливать в помещении, в котором отсутствуют чрезмерная вибрация, прямые солнечные лучи, высокая влажность, пыль, высокие или низкие температуры, а также коррозионные или взрывоопасные пары или газы. Система будет функционировать в помещении с температурой от 18 °C до 30 °C (от 64,4 ° до 86 °F). Относительная влажность должна находиться в диапазоне от 20 % до 90 % (без конденсата). Левая, задняя и правая стороны прибора должны находиться как минимум в десяти сантиметрах от стены. Нарушение приведенных ограничений может отрицательно повлиять на производительность компонентов системы.

Колебания температуры поворотного механизма не должны превышать 1,5 °C от температуры контроллера (35 °C). Такая точность может быть получена только в том случае, если температура в помещении соответствует вышеприведенным требованиям.

В зонах с повышенной сейсмологической активностью рекомендуется использовать соответствующее крепление.

2.2 Технические характеристики прибора

Физические характеристики	
Высота	105,9 см
Ширина	112,5 см
Глубина	74,9 см
Расстояние до стены (справа, слева и сзади)	10,2 см
Расстояние до стены (спереди)	45,7 см
Масса (без заполнения)	151,4 кг
Масса (полная)	159,6 кг
Стойка должна выдерживать вес 227,3 кг	

Таблица 2–1: Физические характеристики

Требования окружающей среды	
Условия хранения	
Температура	–17,8 – >65,0 °С
Влажность	Относительная влажность 10 – 90 % без конденсации
Условия эксплуатации	
Температура	18 – 30 °С
Влажность	Относительная влажность 20 – 90 % без конденсации
Расположение	Ровная поверхность, без прямых солнечных лучей, без прямых источников тепла
В зонах с повышенной сейсмологической активностью настоятельно рекомендуется использовать соответствующее крепление.	
Категория установки II и степень загрязнения 2 в соответствии с IEC 664.	

Таблица 2–2: Требования окружающей среды

Требования к электросети	
Входное напряжение	100 – 117 В переменного тока или 220 – 240 В переменного тока ± 10 %
Входной ток	8 А
Входная частота линии	47 – 53 Гц или 57 – 63 Гц
Мощность	1,03 кВт
Теплота	3 515 ВТУ/час

Таблица 2–3: Требования к электросети

Оптические характеристики	
Пиковые значения длины волны	
от 428 до 623 нм, видимый спектр	
367 нм, УФ-возбуждение	
Полоса пропускания 410 – 640 нм, УФ-излучение	

Таблица 2–4: Оптические характеристики

2.3 Настройка программного обеспечения

Все параметры настройки поставляемой системы имеют заводские значения. Однако перед использованием прибора для тестирования панели необходимо просмотреть параметры установки и убедиться, что они подходят для лаборатории. Эти параметры сгруппированы по следующим категориям.

- ◆ Конфигурация прибора (раздел 2.3.1)
- ◆ Конфигурация связи (раздел 2.3.2)
- ◆ Пользовательский набор правил интерпретации (раздел 2.3.3)
- ◆ Конфигурация правил BDExpert (раздел 2.3.4)
- ◆ Конфигурация быстрого отчета (раздел 2.3.5)
- ◆ Определение лота панели (раздел 2.3.6)

Параметры настройки прибора приведены в следующих параграфах. Экран основного состояния, который отображается сразу же после запуска прибора, показан на рисунке 2-1.

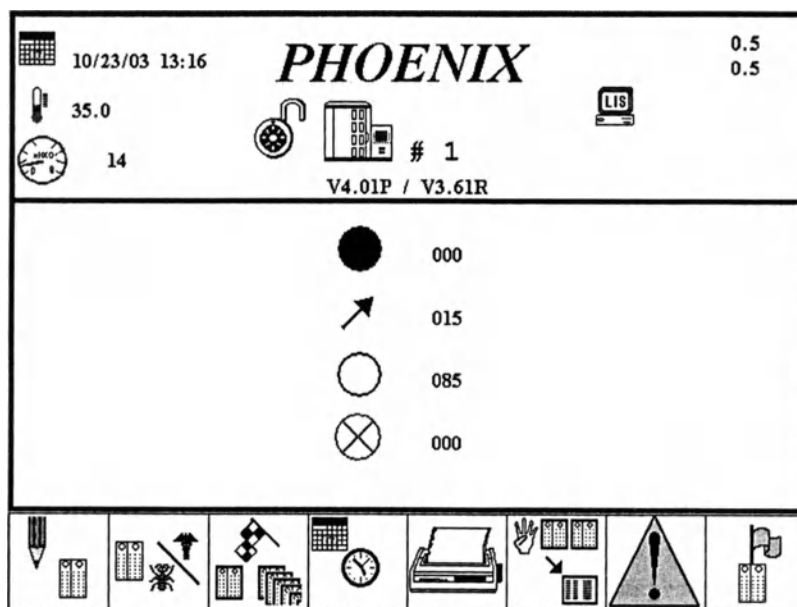


Рис. 2-1. Экран Основное состояние

Для доступа к меню конфигурации нажмите программную клавишу, соответствующую приведенному ниже значку (программная клавиша «конфигурация»).



При нажатии программной клавиши «конфигурация» отображается окно ввода пароля. Для доступа к функциям конфигурации введите требуемый пароль, затем нажмите программную клавишу «выполнить действие». Все пользователи, обладающие действительными паролями, имеют доступ к общим параметрам конфигурации прибора. Доступ к функциям управления паролями имеется только у администраторов.



Пункты меню конфигурации отображаются в виде новых последовательностей программных клавиш (рисунок 2–2). Нажмите программную клавишу, соответствующую функции конфигурации, которую нужно выполнить. Далее приведены программные клавиши.



«конфигурация прибора»



«техническое обслуживание»



«конфигурация связи»



«конфигурация пользовательского набора правил интерпретации*»



«конфигурация правил BDExpert*»



«конфигурация быстрого отчета»

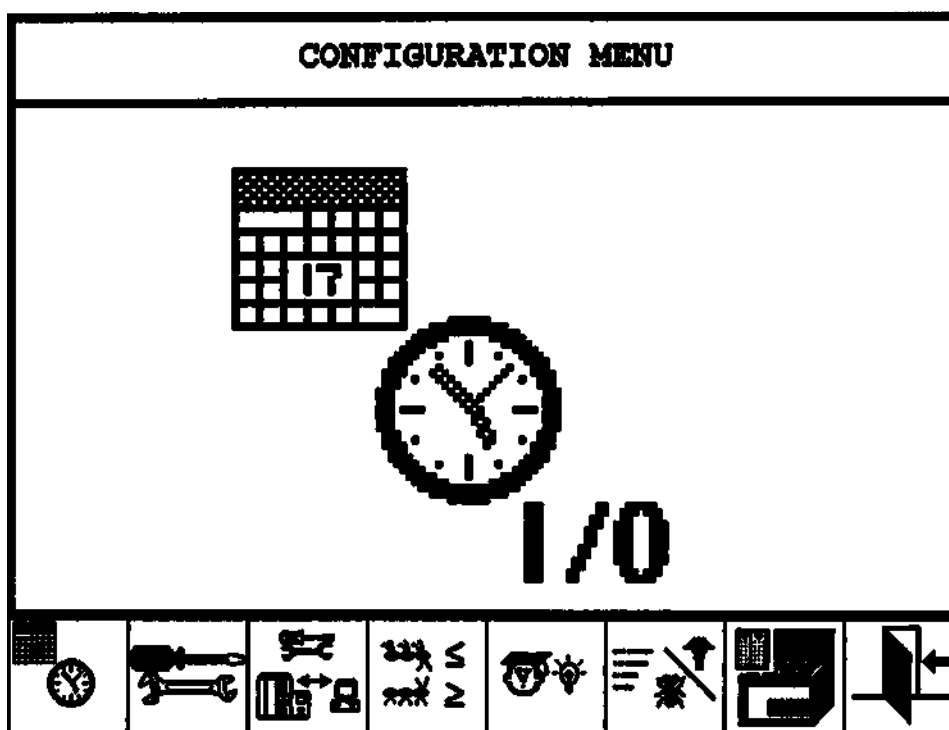


Рис. 2-2. «Configuration Menu» (Меню конфигурации)

Функции обслуживания, доступные при нажатии второй программной клавиши, описаны в других разделах данного руководства.



«определение лота панели»



«выход»

Любые изменения параметров конфигурации вступают в силу с момента внесения изменения.

* Помните, что значки «конфигурация пользовательского набора правил интерпретации» и «конфигурация правил BDExpert» не отображаются, если прибор Phoenix подключен к системе EpiCenter и взаимодействует с ней.

2.3.1 Instrument Configuration (Конфигурация прибора)

Для доступа к общим функциям конфигурации прибора нажмите программную клавишу «конфигурация прибора».



Отображается экран «Instrument Configuration» (Конфигурация прибора) (Рис. 2–3).

После ввода или изменения нужных параметров конфигурации нажмите программную клавишу «сохранить», чтобы сохранить данные.



2.3.1.1 Общая конфигурация прибора

Следующие параметры можно установить в конфигурации прибора.

Окно GENERAL (Общие)

Окно GENERAL (Общие) расположено в верхней левой части экрана.

Instrument Number (Номер прибора)

Выберите идентификационный номер прибора. По умолчанию используется значение 1. Для увеличения или уменьшения номера прибора воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ. Можно указать номер в диапазоне от 1 до 99. Если в лаборатории установлен только один прибор, необходимо использовать значение 1.

Language (Язык)

Выберите язык для экрана и отчетов прибора. По умолчанию используется английский язык. Чтобы просмотреть доступные пункты, воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ. Можно выбрать следующие языки (названия приводятся на соответствующем языке):

English	Английский	Español	Испанский
Français	Французский	Português	Португальский
Deutsch	Немецкий	日本語	Японский
Italiano	Итальянский		

Rule Set (Набор правил)

Выберите набор правил, который должен использоваться системой интерпретации. Можно использовать только один набор правил. Можно выбрать следующие варианты:

- Пользовательский (определено в пользовательском наборе правил интерпретации, раздел 2.3.3)
- EUCAST (Европейский комитет по определению чувствительности к антибиотикам)
- CLSI (Институт клинических и лабораторных стандартов)
- SFM (Французское микробиологическое общество)

Rule Version (Версия правил)

Это поле предназначено только для чтения. В нем отображается текущая версия набора правил, выбранного в предыдущем поле.

Alarm Volume (Громкость сигнала тревоги)

Выберите громкость звукового сигнала тревоги прибора. По умолчанию установлено значение 5 (среднее значение диапазона громкости). Чтобы увеличить или уменьшить громкость, воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ (образец звука будет воспроизводиться при каждом изменении параметра). Можно выбрать значение от 0 (звуковой сигнал тревоги выключен) до 10 (самый громкий сигнал). Этот параметр влияет только на громкость сигналов тревоги «Alert» (Предупреждение) и «Activity» (Активность) (см. Раздел 3.7. «Звуковые сигналы и сигналы тревоги»).

Флажок «Resistance/Critical» (Устойчивость/Критический)

Данный флажок отображается *только в том случае*, если прибор Phoenix подключен к системе BD EpiCenter, но система *не* взаимодействует с ним. Установите этот флажок, чтобы прибор Phoenix работал в автономном режиме, когда связь с системой EpiCenter нарушается. Когда этот флажок установлен, отображается флажок BDxpert System Active (Система BDxpert активна).

Флажок «BDxpert System Active» (Система BDxpert активна)

Нажмите **Spacebar** или программную клавишу «выбрать» для установки этого флажка. Установка этого флажка включает правила системы BDxpert, которые содержат правила CLSI, EUCAST, SFM или пользовательские правила интерпретации.

Это поле не отображается, если к прибору подключена система EpiCenter и осуществляется взаимодействие. Однако, если взаимодействие с системой EpiCenter будет прервано, флажок отображается повторно. Это позволяет повторно включить интерпретации правил BDxpert в автономной системе Phoenix. Когда взаимодействие с системой EpiCenter будет восстановлено, интерпретации правил BDxpert выполняются повторно в системе EpiCenter, и этот флажок перестает отображаться на экране.

ПРИМЕЧАНИЕ

Отключение всех правил BDxpert приводит к отключению обнаружения механизмов устойчивости (например ESBL), кроме механизмов, запущенных правилами серии 1500.

INSTRUMENT CONFIGURATION	
GENERAL Instrument # 1 Language English Rule Set CLSI Rule Version M100_S17 Alarm Volume 5 BDXpert System Active ☒ Rapid Completion ☒	DATE/TIME Date Format mm/dd/yy Time Format hh:mm Daylight Saving Time ☐ Time Zone Offset -5 : 00 Current Date 11 / 16 / 07 Current Time 14 : 29 Daily Instrument Report Printing Phoenix ☐
OPTIONS Abbreviated Lab Report ☐ QC Lot Support ☐	

Рис. 2–3. Экран «Instrument Configuration» (Конфигурация прибора).

Флажок «Rapid Completion» (Быстрое завершение)

Нажмите **Spacebar** или программную клавишу «выбрать» для установки этого флажка. Установка флажка позволяет прибору предоставить результаты BDXpert AST (SIR) перед определением действительных значений MIC. Значения MIC прибора предоставляются сразу же после точного определения. В процессе тестирования панели некоторые значения MIC становятся доступными раньше других. Функция быстрого завершения может использоваться для прогнозирования устойчивости для незавершенных антибиотиков с использованием только значений ID (внутренняя устойчивость), значений ID с готовыми MIC аналогичных антибиотиков или тестов маркера устойчивости (BL, ESBL). Система BDXpert используется для выполнения этих прогнозов. Это может использоваться в случаях, когда результаты препаратов, которые еще не получили MIC, не имеют клинического значения на основании других уже доступных результатов. Противомикробные препараты с интерпретациями «Rapid Complete BDXpert» (Быстрое завершение BDXpert) обозначаются буквой «С» в столбце «MIC» на экранах «Results» (Результаты) и в отчетах «Lab» (Лаборатория). Снимите флажок для выключения быстрого завершения.

Если функция «Rapid Completion» (Быстрое завершение) включена в системе EpiCenter, ее необходимо также включить на приборе Phoenix.

Окно OPTIONS (Параметры)

Окно OPTIONS (Параметры) расположено в нижней левой части экрана.

Abbreviated Lab Report (Краткий лабораторный отчет)

Нажмите **Spacebar** или программную клавишу «выбрать» для установки этого флажка. Данный флажок предназначен для печати сокращенной версии лабораторного отчета. В сокращенную версию не включаются результаты биохимических реакций (реакций идентификации). Снимите этот флажок для печати полного лабораторного отчета. По умолчанию флажок не установлен (печать полного отчета). Помните, что функция «QC Reports» (Отчеты контроля качества) всегда выполняет печать полных лабораторных отчетов.

QC Lot Support (Поддержка лота контроля качества)

Нажмите **[Spacebar]** или программную клавишу «выбрать» для установки этого флажка. Данный флажок включает функцию «QC Lot» (Лот контроля качества), которая может использоваться для упрощения отслеживания и тестирования контроля качества лота. Когда эта функция включена, в меню конфигурации отображается новая программная клавиша («определение лота панели»). Дополнительные сведения см. в разделе 2.3.6 «Определение лота панели».

Окно DATE/TIME (Дата/время)

Окно DATE/TIME (Дата/время) расположено в верхней правой части экрана.

Date Format (Формат даты)

Для настройки формата даты нажмите клавишу СТРЕЛКА ВНИЗ, чтобы открыть список всех доступных форматов даты. По умолчанию используется формат «ММ/ДД/ГГ». Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для перехода к нужному элементу. Можно выбрать следующие варианты:

Косая черта и разделителя (/)	ММ/ДД/ГГ или ММ/ДД/ГГГГ	ДД/ММ/ГГ или ДД/ММ/ГГГГ	ГГ/ММ/ДД или ГГГГ/ММ/ДД
Дефис в качестве разделителя (-)	ММ-ДД-ГГ или ММ-ДД-ГГГГ	ДД-ММ-ГГ или ДД-ММ-ГГГГ	ГГ-ММ-ДД или ГГГГ-ММ-ДД
Точка в качестве разделителя (.)	ММ.ДД.ГГ или ММ.ДД.ГГГГ	ДД.ММ.ГГ или ДД.ММ.ГГГГ	ГГ.ММ.ДД или ГГГГ.ММ.ДД

Таблица 2-5: Форматы даты

Нажмите **[Spacebar]** или программную клавишу «выбрать» для выбора выделенного элемента.

Time Format (Формат времени)

Для настройки формата времени нажмите клавишу СТРЕЛКА ВНИЗ, чтобы открыть список всех доступных форматов времени. По умолчанию используется формат «hh:mm» (чч:мм). Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения нужного элемента. Можно выбрать следующие варианты: hh:mm, hh:mm или hh:mm.

Нажмите **[Spacebar]** или программную клавишу «выбрать» для выбора выделенного элемента.

Флажок «Daylight Saving Time» (Переход на летнее время)

Нажмите **[Spacebar]** или программную клавишу «выбрать» для установки этого флажка. Установка этого флажка позволяет настроить прибор на переход на летнее время. Снимите флажок для перехода на стандартное время. Это поле не отображается, если к прибору подключена система EpiCenter и осуществляется взаимодействие.

Time Zone Offset (Настройка часового пояса)

Используйте клавиши СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы установить часовой пояс, отличающийся от GMT (время по Гринвичу). Выберите отрицательные целые числа, если Вы находитесь западнее нулевого меридиана и восточнее международной линии смены дат. Выберите положительные целые числа, если Вы находитесь восточнее нулевого меридиана и западнее международной линии смены дат. Это поле не отображается, если к прибору подключена система EpiCenter и осуществляется взаимодействие.

Current Date (Текущая дата)

Текущая дата отображается в формате, выбранном в поле «Date Format» (Формат даты).

Чтобы настроить месяц, день или год нажимайте клавишу «табуляция» (или клавишу ) для выделения нужного значения в соответствующем формате даты. Для увеличения или уменьшения отображаемого значения воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ. Это поле не отображается, если к прибору подключена система EpiCenter и осуществляется взаимодействие.

Current Time (Текущее время)

При первом открытии этого экрана выделяется значение часов. Чтобы настроить часы, воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для увеличения или уменьшения отображаемого значения.

Чтобы настроить значение минут, нажмите клавишу «табуляция» для выделения поля минут. Для увеличения или уменьшения отображаемого значения воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ. Это поле не отображается, если к прибору подключена система EpiCenter и осуществляется взаимодействие.

Нельзя изменить время, когда панели находятся в протоколе.

Окно «Daily Instrument Report Printing» (Печать ежедневного отчета прибора)

Окно «Daily Instrument Report Printing» (Печать ежедневного отчета прибора) находится в нижней правой части экрана.

Флажок «Phoenix»

Нажмите  или программную клавишу «выбрать» для установки этого флажка. Установка этого флажка приводит к отображению поля «Auto Time» (Время автоматической печати) и сообщает прибору о необходимости выполнения автоматической печати ежедневного отчета во время, указанное в поле **Auto Time** (Время автоматической печати). Снимите этот флажок для отключения автоматической печати. (При отключении автоматической печати можно распечатать отчет с помощью меню отчетов.)

Auto Time (Время автоматической печати)

В поле «Auto Time» (Время автоматической печати) с помощью клавиш СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ введите значение часов для автоматической печати ежедневного отчета прибора. Время указывается в 24-часовом международном формате. Нажмите клавишу  для перехода к следующему полю времени и воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода значения минут.

2.3.1.2 Дополнительные параметры конфигурации

Чтобы открыть окно с дополнительными параметрами конфигурации, нажмите программную клавишу «дополнительная конфигурация» на экране «Instrument Configuration» (Конфигурация прибора). См. рис. 2–4.



INSTRUMENT CONFIGURATION

Columbia Agar w/5% SB

LABORATORY INFORMATION

Name	Kirk Memorial Hospital
Address	1313 Kirk Boulevard
City	Kirkville, USA
Director	Dr. LJ Kirk

INOCULUM DENSITY

	0.25	0.5
Gram Negative	☐	☒
Gram Positive	☐	☒

DEFAULT MEDIA TYPE

Yeast

COLSB

CHOC

COLSB

SABDX

SABEM

SABHI

TSASB

Рис. 2-4. Экран «More Configuration Options» (Дополнительные параметры конфигурации)

Laboratory Information (Сведения о лаборатории)

Сведения, указанные в окне «Laboratory Information» (Сведения о лаборатории), отображаются в заголовке системных отчетов.

Name (Название)

Введите название лаборатории, длина названия не должна превышать 40 символов.

Address (Адрес)

Введите адрес, длина адреса не должна превышать 40 символов.

City (Город)

Введите название Вашего города (а также почтовый индекс при необходимости), длина названия не должна превышать 40 символов.

Director (Руководитель)

Введите имя руководителя лаборатории, длина имени не должна превышать 40 символов.

Inoculum Density (Плотность посева)

Окно «Inoculum Density» (Плотность посева) позволяет установить концентрацию McFarland по умолчанию для посева. Можно выбрать значение 0,25 (допустимая плотность 0,20–0,30) или 0,5 (допустимая плотность 0,50–0,60) для панелей «Gram Positive» (Грамположительные) и «Gram Negative» (Грамотрицательные) (для панелей Strep используется только значение 0,5). Для типов панелей «Gram Negative» (Грамотрицательные) и «Gram Positive» (Грамположительные) используется значение плотности по умолчанию 0,5. Плотность для панелей Yeast ID (Идентификация дрожжей) фиксируется на уровне 2,0 по стандарту Макфарланда (допустимая плотность 2,00 – 2,40). Плотность посева применима только к панелям, у которых есть сторона ID.

2-12

L-003342(R)

ООО ЦИРМИ INFO@CIRMI.RU WWW.GOSZDRAVNADZOR.RU

Чтобы указать другую плотность, выберите нужное значение и нажмите программную клавишу «выбрать». Рядом со значением выбранной плотности устанавливается флажок.

Default Media Type (Тип питательной среды по умолчанию)

Yeast (Дрожжи) — в этом поле можно выбрать тип питательной среды по умолчанию, который отображается во время «Panel Login» (Регистрация панели) при сканировании или вводе порядкового номера панели Yeast ID (Идентификация дрожжей). Нажмите кнопку ▼, чтобы открыть раскрывающийся список со всеми типами питательной среды (в сокращенном виде), отсортированными по алфавиту. (При выделении типа питательной среды его полное название отображается в правом верхнем углу экрана.) С помощью клавиш ▼ или ▲ выделите нужную питательную среду. Нажмите программную клавишу «выбрать» или **Enter** для выбора этой питательной среды. Тип питательной среды по умолчанию указывать не нужно, но необходимо выбрать тип питательной среды при входе в панели Yeast ID (Идентификация дрожжей).

2.3.1.3 Password Administration (Управление паролями)

Экран «Password Administration» (Управление паролями) позволяет установить пароли для трехуровневого доступа. Доступ к экрану «Password Administration» (Управление паролями) могут получить только пользователи с паролями уровня администратора. См. рис. 2–5.

Далее приведены уровни защиты, которые могут использоваться для паролей.

Administrator (Администратор) — самый высокий уровень доступа: доступ ко всем пользовательским функциям и экранам.

Supervisor (Руководитель) — промежуточный уровень доступа: доступ к экрану управления паролями запрещен, однако разрешен доступ ко всем другим функциям и экранам.

General (Общий) — самый низкий уровень доступа: доступ к экрану управления паролями запрещен, доступ к экрану журнала событий запрещен, однако разрешен доступ ко всем другим функциям и экранам.

Помните, что пароли для каждого уровня доступа должны быть уникальными.

Порядок доступа к экрану управления паролями.



На экране «Main Status» (Основное состояние) нажмите программную клавишу «конфигурация».



Появится окно пароля. Для доступа к функциям конфигурации введите требуемый пароль, затем нажмите программную клавишу «выполнить действие».



В меню конфигурации нажмите программную клавишу «конфигурация прибора».



На экране «Instrument Configuration» (Конфигурация прибора) нажмите программную клавишу «управление паролями».

Программные клавиши управления паролями:

«сохранить»



«выход»



PASSWORD ADMINISTRATION	
Administrator Password	CAPTKIRK
New Password	
Supervisor Password	ENTERPRISE
New Password	
General Password	EEANMEUP
New Password	
 	

Рис. 2–5. Экран «Password Administration» (Управление паролями).

Порядок назначения нового пароля.

- 1 В поле «Administrator Password» (Пароль администратора) отображается текущий пароль уровня администратора (по умолчанию установлено значение ADMIN). Чтобы изменить пароль, введите новый пароль в поле «New Password» (Новый пароль), состоящий из 5–20 символов. Пароль не учитывает регистр. Нажмите программную клавишу «сохранить» для сохранения изменений. Новый пароль немедленно отобразится в поле «Administrator Password» (Пароль администратора).
- 2 В поле «Supervisor Password» (Пароль руководителя) отображается текущий пароль уровня руководителя (по умолчанию установлено значение LISVIEW). Чтобы изменить пароль, введите новый пароль в поле «New Password» (Новый пароль), состоящий из 5–20 символов. Пароль не учитывает регистр. Нажмите программную клавишу «сохранить» для сохранения изменений. Новый пароль немедленно отобразится в поле «Supervisor Password» (Пароль руководителя).
- 3 В поле «General Password» (Общий пароль) отображается текущий общий пароль (по умолчанию установлено значение ECOLI). Чтобы изменить пароль, введите новый пароль в поле «New Password» (Новый пароль), состоящий из 5–20 символов. Пароль не учитывает регистр. Нажмите программную клавишу «сохранить» для сохранения изменений. Новый пароль немедленно отобразится в поле «General Password» (Общий пароль).

2.3.2 Communications Configuration (Конфигурация связи)

Экран «Communications Configuration» (Конфигурация связи) позволяет включить или выключить взаимодействие прибора Phoenix с совместимой системой ЛИС (Laboratory Information System — лабораторная информационная система) и настроить параметры связи для этого типа соединения. (Он также позволяет представителям BD включить, выключить или настроить взаимодействие с расширенной системой управления данными BD EpiCenter.) Можно включить только взаимодействие ЛИС *или* BD EpiCenter. Если у Вас есть система BD EpiCenter и нужно установить взаимодействие с системой ЛИС, систему BD EpiCenter можно сконфигурировать для взаимодействия с ЛИС.

Когда состояние взаимодействия ЛИС изменяется (с «выключено» на «включено»), прибор Phoenix необходимо перезагрузить, чтобы изменения вступили в силу. Кроме того, чтобы изменения любых параметров настройки взаимодействия ЛИС вступили в силу, необходимо перезагрузить прибор.

Операции ЛИС рассматриваются в разделе 4.17. В этом разделе приведено описание конфигурации только взаимодействия с системой ЛИС. См. рис. 2–6.

Порядок доступа к экрану «Communications Configuration» (Конфигурация связи):



На экране «Main Status» (Основное состояние) нажмите программную клавишу «конфигурация».



Появится окно пароля. Для доступа к функциям конфигурации введите требуемый пароль, затем нажмите программную клавишу «выполнить действие».



В меню конфигурации нажмите программную клавишу «конфигурация связи».

Программные клавиши конфигурации связи:

«сохранить»



«выбрать»



«конфигурация
микроорганизма»



«противомикробная
конфигурация»



«выход»



Следующие параметры можно установить в окне «Communications Configuration» (Конфигурация связи):

Окно «Communications Configuration» (Конфигурация связи)

Флажок «LIS Enabled» (ЛИС включена)

Нажмите программную клавишу «выбрать» или воспользуйтесь клавишами **[Spacebar]** или **[Enter]** для установки флажка и включения связи с системой ЛИС. Если связь с системой ЛИС включена и необходимо выключить ее, нажмите программную клавишу «выбрать» или воспользуйтесь клавишами **[Spacebar]** или **[Enter]**, чтобы снять флажок.

Окно «Options» (Параметры)

Флажок «Send Interpretation Results» (Отправка результатов интерпретации)

Данный флажок включает итоговые значения SIR для противомикробных препаратов в запись «Results» (Результаты), обновленную в системе ЛИС. По умолчанию флажок установлен (функция включена). Чтобы выключить эту функцию, нажмите программную клавишу «выбрать» или воспользуйтесь клавишами **[Spacebar]** или **[Enter]**.

Флажок «Unsolicited Queries» (Запросы без согласования)

Этот флажок позволяет прибору Phoenix запрашивать сведения панели у системы ЛИС, если для панели, установленной в приборе, *недостаточно* идентификационных сведений о микроорганизмах для панелей AST или комбинированных панелей, на которых включена только часть AST.

Флажок данного поля по умолчанию не установлен (функция выключена). Это значит, что прибор Phoenix не будет запрашивать недостающие сведения у системы ЛИС. Чтобы включить эту функцию, нажмите программную клавишу «выбрать» или воспользуйтесь клавишами **[Spacebar]** или **[Enter]**.

Флажок «Send When Placed in Instrument» (Отправка при установке в прибор)

Данный флажок инициирует отправку прибором Phoenix результатов в систему ЛИС, когда панель устанавливается в прибор.

По умолчанию этот флажок установлен (функция включена). Чтобы выключить эту функцию, нажмите программную клавишу «выбрать» или воспользуйтесь клавишами **[Spacebar]** или **[Enter]**.

Флажок «ASTM Byte Mode Comments» (Комментарии байтового режима ASTM)

Данный флажок отображается только в том случае, когда установлен японский язык.

Данный флажок позволяет использовать (функция включена/флажок установлен) или не использовать стандарт ASTM (функция выключена/флажок не установлен). Когда стандарт ASTM не используется, символы управляющей последовательности, которые обычно отклоняются, принимаются.

По умолчанию этот флажок установлен (функция включена). Чтобы выключить эту функцию, нажмите программную клавишу «выбрать» или воспользуйтесь клавишами **[Spacebar]** или **[Enter]**.

Окно «Results Upload Options» (Параметры передачи результатов)

Записи передачи результатов состоят из следующих сведений:

- ◆ Запись заголовка (поля разделителя, имя отправителя, номер версии, дата и время сообщения)
- ◆ Запись заказа (номер образца, номер культуры, микроорганизм, идентификатор теста, номер последовательности, приоритет, тип отчета)
- ◆ Запись комментария (содержит специальные сообщения или правила BDxpert)
- ◆ Запись результатов
 - ◆ Номер последовательности панели
 - ◆ Номер прибора
 - ◆ Тип прибора
 - ◆ Расположение прибора (станция)
 - ◆ Время для идентификации (если применимо)
 - ◆ Время запуска теста
 - ◆ Время завершения теста

◆ Состояние теста

Pending (задержка) — панель зарегистрирована, но не была обнаружена в процессе инвентаризации прибора.

Ongoing (выполняется) — панель зарегистрирована и обнаружена в процессе инвентаризации прибора, но результаты не доступны.

Partial complete (частичное выполнение) — сформированы некоторые результаты (MIC или ID), однако выполнены не все тесты панели. Правила BDХpert могут быть задержаны, а панель может иметь условие «Needs Attention» (Требуется внимание).

COMMUNICATIONS CONFIGURATION	
COMMUNICATIONS CONFIGURATION	
LIS Enabled ☒	
OPTIONS	
☒ Send Interpretation Results ☐ Unsolicited Queries	☒ Send When Placed in Instrument
RESULTS UPLOAD OPTIONS	COMMUNICATIONS SETUP
☐ Solicited ☐ Send on Finalization ☒ Send on Completion ☐ Send as Available ☐ Send at Fixed Time	Baud: 9600 Data Bits: 8 Parity: None Stop Bits: 1 Packed Frames: Yes

Рис. 2–6. Экран «Communications Configuration» (Конфигурация связи)

Complete (Готово) — прибор завершил считывание, все результаты тестов панели определены или не могут быть интерпретированы. Правила BDХpert могут быть задержаны, а панель может иметь условие «Needs Attention» (Требуется внимание).

Rapid complete (Быстрое завершение) — панель еще не завершила тестирование, но система определила результаты для всех препаратов.

Complete with unignored Needs Attention condition (Завершение с условием «Требуется внимание», не допускающим игнорирования) — панель завершила тестирование и требует внимания в соответствии с ассоциированными условиями. Панель не может обрабатываться до устранения или игнорирования условий, требующих внимания.

Complete with all ignored Needs Attention conditions (Завершение со всеми игнорированными условиями «Требуется внимание») — панель завершила тестирование и имеет условия «Needs Attention» (Требуется внимание), которые были игнорированы пользователем. После игнорирования условия «Needs Attention» (Требуется внимание) пользователь может обработать панель.

Complete QC Pass (Выполнение контроля качества выполнено) — панель, зарегистрированная как панель контроля качества, выполнила тестирование и соответствует критериям контроля качества.

Complete QC Fail (Выполнение контроля качества не выполнено) — панель, зарегистрированная как панель контроля качества, выполнила тестирование и не соответствует критериям контроля качества.

- ◆ Result type (Тип результата)
- ◆ Antimicrobial code (Код противомикробного препарата)
- ◆ MIC value (Значение MIC)
- ◆ S / I / R / No Interp / Error value (Значение S / I / R / нет интерпретации / ошибка)
- ◆ Resistance marker (Маркер устойчивости)
- ◆ ID or Final ID (Идентификация или итоговая идентификация)
- ◆ Results status (finalized or unfinalized) (Состояние результатов (обработано или не обработано))

Можно включить (установить) только **ОДИН** параметр передачи результатов.

Флажок «Solicited» (По требованию)

Если этот флажок установлен, прибор Phoenix отправляет записи результатов **ТОЛЬКО** в случае запроса этих сведений системой ЛИС. По умолчанию флажок не установлен (функция выключена). Чтобы включить эту функцию, нажмите программную клавишу «выбрать» или воспользуйтесь клавишами **[Spacebar]** или **[Enter]**.

Панели QC и отдельные панели отправляются только по требованию системы ЛИС.

Флажок «Send on Finalization» (Отправка после окончательной обработки)

Если этот флажок установлен, прибор Phoenix отправляет записи результатов **ТОЛЬКО** в случае, когда панель обработана. По умолчанию флажок не установлен (функция выключена). Чтобы включить эту функцию, нажмите программную клавишу «выбрать» или воспользуйтесь клавишами **[Spacebar]** или **[Enter]**.

Флажок «Send on Completion» (Отправка по завершении)

Если этот флажок установлен, прибор Phoenix отправляет записи результатов **ТОЛЬКО** после того, как состояние панели примет значение «завершено», ИЛИ если в панель с состоянием «завершено» будет внесено изменение. По умолчанию флажок установлен (функция включена). Для отключения этой функции перейдите к другому параметру отправки результатов и включите его.

Флажок «Send as Available» (Отправка по мере получения)

Данный флажок позволяет системе Phoenix отправлять записи результатов в следующих случаях: когда идентификация определена; когда результат AST определен; когда выполняется изменение записи панели, которая уже имеет промежуточные результаты. По умолчанию флажок не установлен (функция выключена). Чтобы включить эту функцию, нажмите программную клавишу «выбрать» или воспользуйтесь клавишами **[Spacebar]** или **[Enter]**.

Флажок «Send at Fixed Time» (Отправка в установленное время)

С помощью данного флажка прибор Phoenix может отправлять записи результатов для панели с промежуточными результатами в определенное указанное время. По умолчанию флажок не установлен (функция выключена). Чтобы включить эту функцию, нажмите программную клавишу «выбрать» или воспользуйтесь клавишами **[Spacebar]** или **[Enter]**.

При установке этого флажка отображаются два дополнительных поля, позволяющих указать время отправки записей результатов. В первом поле времени нажмите клавишу **▲** или **▼** для ввода значения часов, которое должно использоваться для отправки результатов. Время указывается в 24 часовом международном формате. По умолчанию установлено значение 16 (4 p.m.). Нажмите клавишу **[Tab]** для перехода к следующему полю времени и воспользуйтесь клавишами **▲** или **▼** для ввода значения минут.

ПРИМЕЧАНИЕ

Результаты функций «Send as Available» (Отправка по мере получения) и «Send at Fixed Time» (Отправка в установленное время) должны быть **ПРЕДВАРИТЕЛЬНО** определены до завершения операций панели.

Окно «Communications Setup» (Настройка связи)**Baud (BPS, количество бит в секунду)**

Нажмите клавишу ▲ или ▼ для выбора скорости передачи для последовательных соединений с системой ЛИС. Можно выбрать следующие значения: 2400, 4800, 9600 (по умолчанию), 14400, 19200, 38400.

Data Bits (Биты данных)

Нажмите клавишу ▲ или ▼ для выбора числа битов данных для последовательных соединений с системой ЛИС. Можно выбрать следующие значения: 7, 8 (по умолчанию).

Parity (Четность)

Нажмите клавишу ▲ или ▼ для выбора четности для последовательных соединений с системой ЛИС. Можно выбрать следующие значения: нет (по умолчанию), нечетный, четный.

Stop Bits (Стоповые биты)

Нажмите клавишу ▲ или ▼ для выбора стоповых битов для последовательных соединений с системой ЛИС. Можно выбрать следующие значения: 1 (по умолчанию), 2.

Packed Frames (Сжатые пакеты)

Нажмите клавишу ▲ или ▼, чтобы выбрать, нужно ли использовать сжатые пакеты для последовательных соединений с системой ЛИС. Можно выбрать следующие значения: «Yes» (Да) (по умолчанию), «No» (Нет). Значение «Yes» (Да) позволяет системе Phoenix отправлять несколько записей в пакете. Значение «No» (Нет) указывает, что в систему ЛИС передаются пакеты с одной записью.

2.3.2.1 Organism Configuration (Конфигурация микроорганизмов)

Экран «Organism Configuration» (Конфигурация микроорганизмов) позволяет изменять коды ЛИС для микроорганизмов в базе данных прибора Phoenix. Коды ЛИС для микроорганизмов должны быть уникальными.

На главном экране «Organism Configuration» (Конфигурация микроорганизмов) можно выбрать микроорганизм (или тестовый штамм для микроорганизмов контроля качества) для изменения. На втором экране можно выполнить действительные изменения. Микроорганизмы представлены в алфавитном порядке по сокращенным названиям (список полных и сокращенных названий см. в приложении Е); Микроорганизмы контроля качества представлены в алфавитном порядке, номер штамма ATCC отображается первым.

Порядок доступа к экрану «Organism Configuration» (Конфигурация микроорганизмов):

На экране «Main Status» (Основное состояние) нажмите программную клавишу «конфигурация».



Появится окно пароля. Для доступа к функциям конфигурации введите требуемый пароль, затем нажмите программную клавишу «выполнить действие».

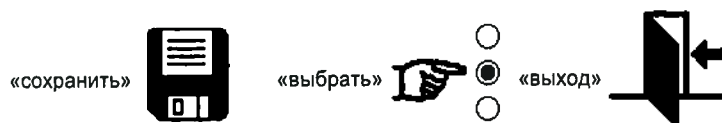


В меню конфигурации нажмите программную клавишу «конфигурация связи».



На экране «Communications Configuration» (Конфигурация связи) нажмите программную клавишу «конфигурация микроорганизмов».

Программные клавиши конфигурации микроорганизмов:



Порядок изменения кода ЛИС микроорганизма:

На экране конфигурации микроорганизмов (рис. 2–7а) нажмите клавишу ▲ или ▼ для выделения имени в списке и нажмите программную клавишу «выбрать», [Spacebar] или [Enter]. Вы можете перейти из поля микроорганизмов в поле микроорганизмов контроля качества, нажав клавишу [Tab].

На экране «Organism Edit» (Изменение микроорганизмов) (рис. 2–7б) введите требуемый код ЛИС, длина которого не превышает 20 буквенно-цифровых символов. Нажмите программную клавишу «подтверждение» для сохранения изменений.

ORGANISM CONFIGURATION		
Organism ID	BD Code	LIS Code
Achr. piechaudii	ALCP1E	ALCP1E
Achr. species	ACHRSPE	ACHRSPE
Achr. xylos. ssp denitrificans	ALCDEN	ALCDEN
Achr. xylos. ssp xylosoxidans	ALCXYL	ALCXYL
QC Organism ID	BD Code	LIS Code
10094 S. spiritovorum	BD10094	BD10094
10741 E. faecalis	ATCC10741	ATCC10741
11046 E. coli	BD11046	BD11046
11052 P. aeruginosa	BD11052	BD11052

Рис. 2–7а. Экран «Organism Configuration» (Конфигурация микроорганизмов)

ORGANISM CONFIGURATION		
Organism ID	BD Code	LIS Code
> Achr. piechaudii	ALCPIE	ALCPIE
Achr. species	ACHRSPE	ACHRSPE
Achr. xylos. ssp denitrificans	ALCDEN	ALCDEN
Achr. xylos. ssp xylosoxidans	ALCXYL	ALCXYL

LIS Code

OK 

Рис. 2-7b. Экран «Organism Edit» (Изменение микроорганизма)

2.3.2.2 Antimicrobial Configuration (Конфигурация противомикробных препаратов)

Экран «Antimicrobial Configuration» (Конфигурация противомикробных препаратов) позволяет изменять коды ЛИС для противомикробных препаратов в базе данных прибора Phoenix. Коды ЛИС для противомикробных препаратов должны быть уникальными.

На главном экране конфигурации противомикробных препаратов можно выбрать препараты для изменения. На втором экране можно выполнить действительные изменения. Противомикробные препараты представлены в алфавитном порядке по названиям.

Порядок доступа к экрану «Antimicrobial Configuration» (Конфигурация противомикробных препаратов):



На экране «Main Status» (Основное состояние) нажмите программную клавишу «конфигурация».



Появится окно пароля. Для доступа к функциям конфигурации введите требуемый пароль, затем нажмите программную клавишу «выполнить действие».



В меню конфигурации нажмите программную клавишу «конфигурация связи».



На экране «Communications Configuration» (Конфигурация связи) нажмите программную клавишу «конфигурация противомикробных препаратов».

Программные клавиши конфигурации противомикробных препаратов:



Порядок изменения кода ЛИС противомикробного препарата:

На экране конфигурации противомикробных препаратов (рис. 2–8а) нажмите клавишу ▲ или ▼ для выделения имени в списке и нажмите программную клавишу «выбрать», **Spacebar** или **Enter**.

На экране «Antimicrobial Edit» (Изменение противомикробного препарата) (рис. 2–8b) введите требуемый код ЛИС, длина которого не превышает 20 буквенно-цифровых символов. Нажмите программную клавишу «подтверждение» для сохранения изменений.

ANTIMICROBIAL CONFIGURATION		
Antimicrobial	BD Code	LIS Code
Amikacin	AM	AM
Amoxicillin	AMX	AMX
Amoxicillin-Clavulanate	AMC	AMC
Amoxicillin-Clavulanate (f)	AXC	AXC
Ampicillin	AM	AM
Ampicillin-Sulbactam	SAM	SAM
Ampicillin-Sulbactam (f)	SXA	SXA
Arbekacin	ARB	ARB
Azithromycin	AZM	AZM
Azlocillin	AZ	AZ
Aztreonam	ATM	ATM





Рис. 2-8а. Экран «Antimicrobial Configuration» (Конфигурация противомикробных препаратов)

ANTIMICROBIAL CONFIGURATION		
Antimicrobial	BD Code	LIS Code
Amikacin	AM	AM
Amoxicillin	AMX	AMX
Amoxicillin-Clavulanate	AMC	AMC
Amoxicillin-Clavulanate (f)	AXC	AXC
Ampicillin	AM	AM
Ampicillin-Sulbactam	SAM	SAM
Ampicillin-Sulbactam (f)	SXA	SXA
Arbekacin	ARB	ARB
Azithromycin	AZM	AZM
Azlocillin	AZ	AZ
Aztreonam	ATM	ATM

LIS Code

OK



Рис. 2-8б. Экран «Antimicrobial Edit» (Изменение противомикробных препаратов)

2.3.3 Custom Interpretation Rule Set (Пользовательский набор правил интерпретации)

Конфигурация пользовательского набора правил интерпретации позволяет создавать правила интерпретации, соответствующие определенным целям или требованиям лаборатории. Текущий набор правил (по умолчанию или настроенный) используется в качестве основы для пользовательских правил. Вы можете распечатать текущий пользовательский набор правил (если он выбран в конфигурации прибора), выбрав параметр «Interpretation Rule Set Report» (Отчет набора правил интерпретации) в меню отчетов (см. раздел 5.8.8). Помните, что данная функция конфигурации не доступна, если прибор Phoenix подключен к системе BD EpiCenter и взаимодействует с ней.

В процессе обновления программного обеспечения или при выполнении операции «Phoenix Update Disk» (Диск обновления Phoenix) могут быть установлены новые контрольные точки. При изменении пользовательских контрольных точек на экране «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации) отображается значок, позволяющий распечатать отчет «Custom Breakpoint Difference Report» (Отчет о различии пользовательских точек прерывания). В данном отчете представлены следующие сведения:

Заголовок: название отчета, сведения о лаборатории (если сконфигурировано), дата и время печати.

Основная часть отчета: набор правил, предыдущая версия, текущая версия, а также столбцы противомикробного препарата (в порядке сортировки) «Organism Group» (Группа микроорганизмов), «Organism Name» (Название микроорганизма), «Rule Set» (Набор правил), «Previous and Current Standard» (Предыдущий и текущий стандарт) и «Custom» (Пользовательский): значение «S(usceptible)» (Предполагаемое), «R(esistance)» (Устойчивость) и DTG. Точки прерывания приведены в строках отчета.

См. рис. 2–10.

Обновления правил (стандартов)

В следующей таблице приведен принцип обновления для наборов правил. В верхней части таблицы отображается результат изменений правил при настройке набора правил. В нижней части таблицы приведены остальные случаи для обновлений правил.

Буквы А, В и С, приведенные в таблице, отображают цельность набора правил (стандартов). Например для правила CLSI версии M100_S16 может быть обозначен значением «А». Обновление, поставляемое с помощью функции «Phoenix Update Disk (PUD)» (Диск обновления Phoenix) может установить правило CLSI версии M100_S17, которое может обозначаться значением «В». Ваши настройки «А» могут быть представлены значением «С». Поэтому, если следовать приведенной ниже таблице, в результате обновления значение «С» (настроенные правила, основанные на версии M100_S16) будет сохранено.

	Старый стандарт	Новый стандарт	Старая настройка	Результат после выполнения PUD (Новая настройка)
	A	A	B	B
Наличие пользовательских правил	A	B	C	C
	-	-	A	A
	-	A	A	A
	-	A	B	A
	A	-	B	B
Нет пользовательских правил	A	A	A	A
	A	B	A	B
	-	A	-	A
	A	A	-	A
	A	B	-	B
	A	-	A	-

Таблица 2–6: Обновления правил

Порядок печати отчета «Custom Breakpoint Difference Report» (Отчет о различиях пользовательских точек прерывания):



На экране конфигурации пользовательского набора правил интерпретации нажмите программную клавишу «печать»

Порядок доступа к экрану конфигурации пользовательского набора правил интерпретации:



На экране «Main Status» (Основное состояние) нажмите программную клавишу «конфигурация».



Появится окно пароля. Для доступа к функциям конфигурации введите требуемый пароль, затем нажмите программную клавишу «выполнить действие».



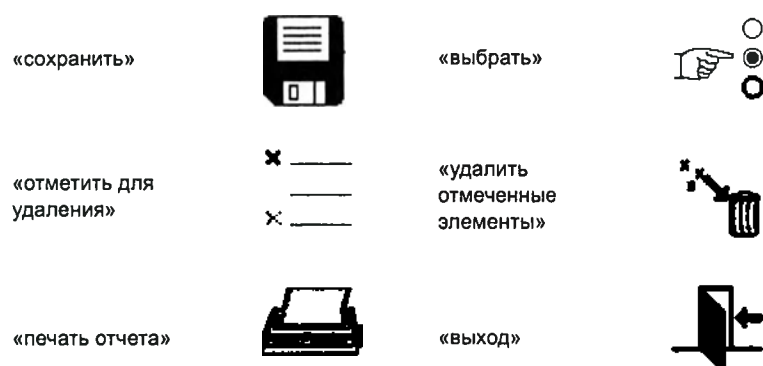
В меню конфигурации нажмите программную клавишу «конфигурация пользовательского набора правил интерпретации».

Откроется экран «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации) (Рис. 2–9а).

После ввода или изменения нужных параметров конфигурации нажмите программную клавишу «сохранить», чтобы сохранить данные.

Для использования пользовательского набора правил для интерпретации откройте экран «Instrument Configuration» (Конфигурация прибора) (раздел 2.3.1) и перейдите к полю **Rule Set (Набор правил)**. В раскрывающемся списке выделите параметр CUSTOM (Пользовательский) с помощью клавиши СТРЕЛКА ВНИЗ, затем нажмите **Enter** или программную клавишу «выбрать», чтобы выбрать этот параметр.

Программные клавиши пользовательского набора правил интерпретации:



Поля пользовательского набора правил интерпретации:

Based On (На основе)

Выберите стандартный набор правил, на котором основаны пользовательские правила. К стандартным наборам правил относятся следующие наборы: CLSI, EUCAST и SFM. Нажмите клавишу СТРЕЛКА ВНИЗ в раскрывающемся списке и выделите требуемый набор правил. Нажмите **Spacebar** или программную клавишу «выбрать» для выбора выделенного набора.

ПРИМЕЧАНИЕ

Если выбрать набор правил, отличный от текущего набора правил, определенные в данный момент *пользовательские правила интерпретации* удаляются.

Окно «Rules» (Правила)

В окне, расположенном в центре экрана, отображаются текущие правила в наборе правил. Список доступен только для чтения. Для его просмотра воспользуйтесь клавишами СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ. Следующие значения отображаются слева направо (описание элементов приведено после процедуры **Порядок изменения правила**):

Индикатор «Marked for Deletion» (Отмечен для удаления) (символ «x» указывает на отмеченное для удаления правило)

Antimicrobial (Противомикробный препарат)

DTG (Группа тестируемых препаратов, см. действие 4)

Org (anism) Group (Группа микроорганизм)

Organism (Микроорганизм)

S (usceptible Value) (Промежуточное значение): <=

R (esistant Value) (Устойчивое значение): >=

Порядок добавления правила:

- 1 Нажмите клавишу «табуляция» для выделения окна «Rules» (Правила).
- 2 Нажмите клавишу «End» (на клавиатуре) для перехода в нижнюю часть окна. Будет выделена пустая строка.
- 3 Нажмите программную клавишу «выбрать». Отображается экран, показанный на рис. 2–9b.
- 4 Выберите значения **Antimicrobial** (Противомикробный препарат), DTG, Org. Group (Группа микроорганизмов), Organism (Микроорганизм), Susceptible (Чувствительные) и Resistant (Устойчивые), используя клавишу СТРЕЛКА ВНИЗ для просмотра в раскрывающемся списке всех доступных значений для поля. Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения требуемых значений в списке, затем нажмите программную клавишу «выбрать» или клавишу Enter.

После выбора всех нужных значений нажмите программную клавишу «подтверждение» для принятия нового правила и возврата к окну «Rules» (Правила).
- 5 Нажмите программную клавишу «сохранить» для сохранения нового правила.

Порядок изменения правила:

- 1 Используйте клавиши СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для выделения требуемого правила в окне «Rules» (Правила). Название противомикробного препарата отображается в левой верхней части экрана.
- 2 Нажмите программную клавишу «выбрать». Отображается экран, показанный на рис. 2–9b.
- 3 Для изменения параметра **Antimicrobial** (Противомикробный препарат) нажмите клавишу СТРЕЛКА ВНИЗ для открытия списка со всеми доступными противомикробными препаратами. Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения требуемых препаратов в списке, затем нажмите программную клавишу «выбрать» или клавишу Enter.

CUSTOM INTERPRETATION RULE SET

Based On

CLSI

Antimicrobial	DTG	Org Group	Organism	S	R
AM	A	ENTC_IC	(all)	8.000	16.000
AM	A	ENTERIC_IC	(all)	8.000	32.000
AM	A	HAEIFC_IC	(all)	1.000	4.000
AM	A	HAETH_IC	(all)	1.000	4.000
AM	A	LISHON_IC	(all)	2.000	-
AM	A	LISTOTH_IC	(all)	2.000	-

Рис. 2–9а. «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации), экран А

CUSTOM INTERPRETATION RULE SET

Ampicillin

Based On

Antimicrobial	DTG	Org Group	Organism	S	R
>AM	A	ENTC_IC	(all)	8.000	16.000
AM	A	ENTERIC_IC	(all)	8.000	32.000
AM	A	HAEINF_IC	(all)	1.000	4.000
AM	A	HAEOTH_IC	(all)	1.000	4.000
AM	A	LISMOM_IC	(all)	2.000	-
AM	A	LISTOTH_IC	(all)	2.000	-

Antimicrobial

Org Group

Organism

Susceptible <= Resistant >=

OK  

Рис. 2-9b. «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации), экран В

- 4 Для изменения параметра **DTG** нажмите клавишу СТРЕЛКА ВНИЗ для открытия списка со всеми доступными значениями DTG. Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения требуемых значений DTG в списке, затем нажмите программную клавишу «выбрать» или клавишу **Enter**.

Значения DTG доставляются из параметра «AST Standards» (Стандарты AST) и используются для распределения антибиотиков по категориям в отдельные группы. Для каждого препарата группы являются характерными группами микроорганизмов и представляют рекомендации по использованию этого препарата.

Элементы DTG не используются в системе Phoenix по отдельности. Они используются вместе с правилами BDxpert и являются обязательными для интерфейса с системой BD EpiCenter.

Обычно они разделяются на семь групп, приведенных ниже. Только коды A, B, C и U могут быть включены в отчеты лаборатории. Группы B и C включаются в отчет, если они поддерживаются A системой BDxpert.

- A** Всегда тестируется и всегда включается в отчет.
- B** Обычно тестируется, но не всегда включается в отчет.
- C** Иногда тестируется, но не всегда включается в отчет.
- U** Специальный препарат для мочевых путей. Тестируется и включается в отчет для исходных мочевых путей.
- O** Другие препараты, которые могут тестироваться. Включаются в отчет по запросу пользователя.
- I** Исследуемые препараты. Препараты, не одобренные для клинического использования, никогда не включаются в отчет.
- N** Не группируется по стандарту. Включаются в отчет по запросу пользователя.

Эти коды тестирования препаратов используются в системе Phoenix для двух целей. Вы можете изменить коды тестирования препаратов для более точного соответствия формуле антибиотика и правилам использования препарата в рамках Вашего учреждения. Начальные коды будут определены по выбранному стандарту интерпретации AST. Далее приведены допустимые изменения.

Начальный код	Допустимые (рекомендуемые) изменения
A	B, C, U, O
B	A, C, U, O
C	A, B, U, O
U	A, B, C, O
O	A, B, C, U
I	Нет
N	A, B, C, U

Второе применение кодов тестирования препаратов заключается в содействии или в подавлении результатов препарата для отчета. Данное применение основывается правилами в системе BDxpert. Если правила изменяют коды тестирования препаратов, это будет отображено в отчете лаборатории, который формируется системой Phoenix. Далее приведены действия по подавлению и содействию. На уровне EpiCenter коды тестирования препаратов будут использоваться для определения того, какие результаты действительно отображаются в отчете.

Начальный код	Содействие	Подавление
A	Не применяется	C
B	A	C
C	A	Не применяется
U	Не применяется	C
O	Запрещено	Запрещено
I	Запрещено	Запрещено

Custom Breakpoint Difference Report									
03/05/05 09:11									
Rule Set		CLSI							
Previous Version		M100_S12							
Current Version		M100_S13							
Antimicrobial	Organism Group	Organism Name	Rule Set	Previous			Current		
				S	R	DTG	S	R	DTG
AM	ENTERIC_IC	(all)	CLSI	8.000	32.000	A	2.000	4.000	B
			Custom	4.000	32.000	A	4.000	32.000	A
AM	STRPNE_IC	(all)	CLSI	-	-	-	2.000	-	A
			Custom	2.000	-	A	2.000	-	A
AN	ACIN_IC	(all)	CLSI	16.000	64.000	B	2.000	4.000	A
			Custom	16.000	64.000	B	2.000	4.000	A
*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
End of Report									

Рис. 2–10. Отчет о различиях пользовательских точек прерывания «Custom Breakpoint Difference Report»

- 5 Для изменения параметра **Org(anism) Group** (Группа микроорганизмов) нажмите клавишу СТРЕЛКА ВНИЗ для открытия списка со всеми доступными группами. «(All)» (Все) указывает, что все группы микроорганизмов определены в правиле. Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения требуемой группы (или всех микроорганизмов) в списке, затем нажмите программную клавишу «выбрать» или клавишу **Enter**. (Список микроорганизмов представлен в разделе 5.8.8.)
- 6 Для изменения или выбора параметра **Organism** (Микроорганизм) нажмите клавишу СТРЕЛКА ВНИЗ для открытия списка со всеми доступными микроорганизмами. «(All)» (Все) указывает, что все микроорганизмы в указанной группе определены в правиле. Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения требуемых микроорганизмов в списке, затем нажмите программную клавишу «выбрать» или клавишу **Enter**. (Помните, если группа микроорганизмов выбрана, в списке отображаются только микроорганизмы выбранной группы.)
- 7 Для изменения значения **S** (susceptible Value) (Промежуточное значение) (т. е. концентрации, при которой или ниже которой значение MIC для микроорганизма или группы будет возвращать интерпретацию «Susceptible» (Чувствительные) нажмите СТРЕЛКУ ВНИЗ для открытия списка всех доступных концентраций. Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения требуемых значений в списке, затем нажмите программную клавишу «выбрать» или клавишу **Enter**.
- 8 Для изменения значения **R** (esistant Value) (Устойчивое значение) (т. е. концентрации, при которой или выше которой значение MIC для микроорганизма или группы будет возвращать интерпретацию «Resistant» (Устойчивые) нажмите СТРЕЛКУ ВНИЗ для открытия списка всех доступных концентраций. Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения требуемых значений в списке, затем нажмите программную клавишу «выбрать» или клавишу **Enter**.
- 9 После изменения требуемых значений для текущего правила нажмите программную клавишу «подтвердить» для возврата к окну «Rules» (Правила) с целью выбора другого правила для изменения.

OK



- 10 После изменения требуемых правил нажмите программную клавишу «сохранить» для сохранения изменений в наборе правил.



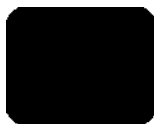
Порядок удаления правила:

- 1 Используйте клавиши СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для выделения требуемого правила в окне «Rules» (Правила). Название противомикробного препарата отображается в левой верхней части экрана.
- 2 Нажмите программную клавишу «отметить для удаления». Справа от сокращенного названия противомикробного препарата отображается значок «X».

X _____

X _____

X _____



- 3 Отметьте любые дополнительные правила, которые нужно удалить (см. действие 2).
- 4 Для удаления выбранных правил нажмите программную клавишу «удалить отмеченные элементы».



- 5 Сохраните результаты удаления, нажав программную клавишу «сохранить».



2.3.4 BDXpert Rule Configuration (Конфигурация правил BDXpert)

Конфигурация правил BDXpert позволяет включить или выключить отдельные правила BDXpert или установить, чтобы они запускались автоматически или вручную (в зависимости от конкретных целей или требований лаборатории). Чтобы распечатать существующий набор правил BDXpert, выберите пункт «BDXpert Rule Set Database Report» (Отчет базы данных набора правил BDXpert) в меню «Reports» (Отчеты) (см. раздел 5.8.9). Помните, что данная функция конфигурации не доступна, если прибор Phoenix подключен к системе EpiCenter и взаимодействует с ней.

Порядок доступа к конфигурации правила BDXpert:



На экране «Main Status» (Основное состояние) нажмите программную клавишу «конфигурация».



Появится окно пароля. Для доступа к функциям конфигурации введите требуемый пароль, затем нажмите программную клавишу «выполнить действие».



В меню конфигурации нажмите программную клавишу «конфигурация набора правил BDXpert».

Отображается экран «BDXpert Rule Set Configuration» (Конфигурация набора правил BDXpert) (Рис. 2–10).

После ввода или изменения нужных параметров конфигурации нажмите программную клавишу «сохранить», чтобы сохранить данные.

Программные клавиши набора правил BDXpert:

«сохранить»



«включить/
выключить»

I/O

«автоматически/
вручную»



«выход»



BDXpert RULE CONFIGURATION

Rule Set

BD_STD

Only results for ampicillin, a fluoroquinolone, and trimethoprim-sulfamethoxazole should be reported for fecal isolates of Salmonella spp. or Shigella spp. No other drugs should be reported.

Rule #	En/Disabled	Auto/Man
103	Enabled	Automatic
104	Enabled	Automatic
105	Enabled	Manual
106	Enabled	Automatic
110	Enabled	Automatic
111	Enabled	Manual

Рис. 2–11. «BDXpert Rule Configuration» (Конфигурация набора правил BDXpert)

Помните, что программная клавиша «автоматически/вручную» не отображается, если правило выключено. Поле «Based On» (На основе) отображается только для пользовательского набора правил.

Поля набора правил BDXpert:

Rule Set (Набор правил)

В данном поле представлен набор правил, отображающийся в данный момент. Могут использоваться следующие значения: «CLSI», «SFM», «EUCAST» или «Custom» (Пользовательский). Только правила в выбранном наборе отображаются в окне выбора правил.

Based On (На основе)

В этом поле отображается набор правил, на котором основаны значения пользовательского правила.

Окно «Rule» (Правило)

Окно «Rule» (Правило) расположено в верхней части экрана. В нем отображается текст правила, которое указано в окне выбора правил в нижней части экрана. ЗЕЛЕНЫЙ цвет текста указывает, что правило включено и запускается автоматически. КРАСНЫЙ цвет текста указывает, что правило выключено (состояние «автоматически/вручную» не применимо). СИНИЙ цвет текста указывает, что правило включено и запускается вручную.

Окно «Rule Selection» (Выбор правил)

Окно выбора правил находится в нижней части экрана. В нем отображается сводная информация о состоянии каждого правила BDExpert. Данное окно позволяет выбрать правила для изменения.

Чтобы выбрать правило для изменения, воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить нужное правило в списке.

Для включения или выключения правила воспользуйтесь программной клавишей «включить/выключить», позволяющей изменить состояние правила. Выключенное правило недоступно для использования в системе.

Чтобы установить автоматическое включение или включение вручную для правила, нажмите программную клавишу «автоматически/вручную» для изменения состояния. Если установить значение «автоматически», правило будет запускаться автоматически системой. Если установлено значение «вручную», правило должно пройти одобрение пользователя перед применением к результатам.

При выборе правил серии 1500 для просмотра состояние этих правил изменяется на «включено» и «автоматически». Данные настройки не могут быть изменены.

2.3.5 Rapid Reporting Configuration (Конфигурация быстрого отчета)

Конфигурация быстрого отчета позволяет указать критерии уведомления о критических панелях и маркерах устойчивости. Для критических панелей можно получать уведомления с помощью автоматической печати отчета лаборатории или с помощью звукового сигнала, а также с помощью передачи в систему ЛИС при получении определенных результатов в панелях, не относящихся к панелям контроля качества. Типы результатов, которые можно выбрать: только идентификация, частичные результаты и полные результаты. Для маркера устойчивости Вы можете назначить тип уведомлений, которые будут поступать при запуске маркеров устойчивости (которые включены). Можно отключить печать и звуковые сигналы для критических панелей и для маркеров устойчивости. В этом случае в качестве единственного уведомления будет использоваться красный текст панели, отображаемый на экране «Panel Inventory» (Инвентаризация панели).

Для сигналов тревоги функции быстрого отчета используют следующие два состояния: неизвестный и известный. Для панелей с неизвестным сигналом тревоги продолжает отображаться красный сигнал на экране «Panel Inventory» (Инвентаризация панели). Состояние «Acknowledgment» (Известный) достигается при печати автоматического отчета лаборатории для панели или при просмотре панели в окне «Panel Results» (Результаты панели). Звуковой сигнал тревоги будет подаваться для неизвестных сигналов до тех пор, пока не будет нажата клавиша ОТКЛЮЧЕНИЕ ЗВУКА СИГНАЛА ТРЕВОГИ.

Порядок доступа к конфигурации быстрого отчета:



На экране «Main Status» (Основное состояние) нажмите программную клавишу «конфигурация».



Появится окно пароля. Для доступа к функциям конфигурации введите требуемый пароль, затем нажмите программную клавишу «выполнить действие».



В меню конфигурации нажмите программную клавишу «конфигурация быстрого отчета».

Отображается экран «Rapid Reporting Configuration» (Конфигурация быстрого отчета) (Рис. 2–11).

После ввода или изменения нужных параметров конфигурации нажмите программную клавишу «сохранить», чтобы сохранить данные.

Программные клавиши быстрого отчета:**Поля быстрого отчета:****Окно «Critical Panel Notification» (Уведомление критической панели)**

Окно «Critical Panel Notification» (Уведомление критической панели) позволяет установить параметры для уведомления критических панелей. Критические панели — это любые панели, для которых требуется специальное уведомление при получении результатов. Уведомление можно получить с помощью звукового сигнала или с помощью печати отчета лаборатории (можно также отказаться от этих способов уведомления). Отметить критические панели можно при регистрации их с помощью окна «Panel Login» (Регистрация панели) или на экране «Panel Results» (Результаты панели).

Auto Print (Автоматическая печать)

Нажмите программную клавишу «выбрать», чтобы установить (включить) это поле. Когда эта функция включена, система выполняет печать отчета лаборатории при каждом появлении выбранных параметров результатов («ID Only» (Только идентификация), «Partial» (Частично) или «Complete» (Полный), см. далее). По умолчанию это поле выключено (автоматическая печать выключена). Автоматическую печать и звуковой сигнал тревоги можно включить одновременно.

Upload to LIS (Передача в ЛИС)

Данный флажок отображается только в том случае, если включена функция связи ЛИС.

Нажмите программную клавишу «выбрать», чтобы установить (включить) это поле. По умолчанию флажок не установлен (функция выключена). Когда эта функция включена, система отправляет записи результатов при каждом появлении выбранных параметров результатов («ID Only» (Только идентификация), «Partial» (Частично) или «Complete» (Полный), см. далее).

Это поле переопределяет значения отправки результатов, которые установлены в конфигурации связи (раздел 2.3.2).

Audible Alarm (Звуковой сигнал тревоги)

Нажмите программную клавишу «выбрать», чтобы установить (включить) это поле. Когда эта функция включена, система воспроизводит звуковой сигнал тревоги при каждом появлении выбранных параметров результатов («ID Only» (Только идентификация), «Partial» (Частично) или «Complete» (Полный), см. далее). По умолчанию это поле включено (звуковой сигнал тревоги включен). Автоматическую печать и звуковой сигнал тревоги можно включить одновременно.

Tone Select (Выбор сигнала)

Данное поле позволяет выбрать сигналы, воспроизводимые при звуковом оповещении критической панели. Оно отображается, если установлен флажок «Audible Alarm» (Звуковой сигнал тревоги) (функция включена). По умолчанию для этого поля установлен сигнал 1. Нажмите клавишу ▲ или ▼ для изменения значения «Tone 1» (Сигнал 1) на значение «Tone 2» (Сигнал 2) и «Tone 3» (Сигнал 3). Система воспроизводит образец сигнала при каждом выборе поля или при каждом изменении его значений.

RAPID REPORTING CONFIGURATION

CRITICAL PANEL NOTIFICATION

☐ Auto Print

☐ Upload to LIS

☒ Audible Alarm

☐ Tone Select

☐ ID Only

☒ Partial Results

☐ Complete

RESISTANCE MARKER NOTIFICATION

☐ Auto Print

☐ Upload to LIS

☐ All Panels

☒ Critical Panels Only

Resistance Marker	En/Disable
BLACT Beta-lactamase	Enabled
ESBL Extended Spectrum Beta-lactamase	Enabled
HLGR High Level Gentamicin Resistant	Enabled
HLKR High Level Kanamycin Resistant	Enabled
HLNUP High Level Mupiricin Resistant Staphylococcus	Enabled
HLPRSP High Level Penicillin Resistant S. pneumoniae	Enabled
HLSR High Level Streptomycin Resistant	Enabled

I/O

Рис. 2-12. Экран конфигурации быстрого отчета «Rapid Reporting Configuration»

ПРИМЕЧАНИЕ

Для получения любых уведомлений критических панелей необходимо установить (включить) одно из следующих трех полей.

ID Only (Только идентификация)

Нажмите программную клавишу «выбрать», чтобы установить (включить) это поле. Когда эта функция включена, уведомление критической панели осуществляется только в случае обнаружения ИД микроорганизма на панели. Данное поле по умолчанию выключено (сигнал тревоги/отчет при промежуточных результатах). Если эта функция включена, функции **Partial Results** (Промежуточные результаты) и **Complete** (Итоговые) не могут быть включены.

Partial Results (Промежуточные результаты)

Нажмите программную клавишу «выбрать», чтобы установить (включить) это поле. Когда эта функция включена, уведомление критической панели выполняется при получении промежуточных результатов панели. Данное поле по умолчанию включено (сигнал тревоги/отчет при промежуточных результатах). Если эта функция включена, функции **ID Only** (Только идентификация) и **Complete** (Итоговые) не могут быть включены.

Complete (Итоговые)

Нажмите программную клавишу «выбрать», чтобы установить (включить) это поле. Когда эта функция включена, уведомление критической панели выполняется только при получении итоговых результатов панели. Данное поле по умолчанию выключено (сигнал тревоги/отчет при промежуточных результатах). Если эта функция включена, функции **ID Only** (Только идентификация) и **Partial Results** (Промежуточные результаты) не могут быть включены.

Окно «Resistance Marker Notification» (Уведомление маркера устойчивости)

Данное окно не отображается, если система EpiCenter подключена.

Auto Print (Автоматическая печать)

Нажмите программную клавишу «выбрать», чтобы установить (включить) это поле. Когда эта функция включена, система печатает отчет лаборатории при каждом включении маркера устойчивости. По умолчанию это поле выключено.

Upload to LIS (Передача в ЛИС)

Данный флажок отображается только в том случае, если включена функция связи ЛИС.

Нажмите программную клавишу «выбрать», чтобы установить (включить) это поле. По умолчанию флажок не установлен (функция выключена). Когда эта функция включена, система отправляет записи результатов при каждом появлении выбранных параметров результатов («ID Only» (Только идентификация), «Partial» (Частично) или «Complete» (Полный), см. далее).

Это поле переопределяет значения отправки результатов, которые установлены в конфигурации связи (раздел 2.3.2).

Audible Alarm (Звуковой сигнал тревоги)

Нажмите программную клавишу «выбрать», чтобы установить (включить) это поле. Когда эта функция включена, система воспроизводит звуковой сигнал тревоги при каждом включении маркера устойчивости. По умолчанию это поле включено (звуковой сигнал тревоги включен).

Tone Select (Выбор сигнала)

Данное поле позволяет выбрать сигналы, воспроизводимые при звуковом оповещении маркера устойчивости. Это поле отображается, если установлен флажок «Audible Alarm» (Звуковой сигнал тревоги) (функция включена). По умолчанию для этого поля установлен сигнал 1. Нажмите клавишу ▲ или ▼ для изменения значения «Tone 1» (Сигнал 1) на значение «Tone 2» (Сигнал 2) и «Tone 3» (Сигнал 3). Система воспроизводит образец сигнала при каждом выборе поля или при каждом изменении его значений.

ПРИМЕЧАНИЕ

Для получения любых уведомлений маркера устойчивости необходимо установить (включить) одно из следующих двух полей.

All Panels (Все панели)

Нажмите программную клавишу «выбрать», чтобы установить (включить) это поле. Когда эта функция включена, сигналы тревоги маркера устойчивости формируются для всех панелей, в которых обнаружены маркеры. Данное поле по умолчанию выключено. Если это поле включено, функцию **Critical Panels Only** (Только критические панели) нельзя включить.

Critical Panels Only (Только критические панели)

Нажмите программную клавишу «выбрать», чтобы установить (включить) это поле. Когда эта функция включена, сигналы тревоги маркера устойчивости формируются только для критических панелей, в которых обнаружены маркеры. Данное поле по умолчанию включено. Если это поле включено, функцию **All Panels** (Все панели) нельзя включить.

Resistance Marker (Маркер устойчивости)

Окно «Resistance Marker» (Маркер устойчивости), расположенное в нижней части экрана, позволяет включить и выключить уведомления для отдельных маркеров устойчивости. В данном окне отображаются сокращения и текст маркеров, а также сведения о включении или выключении маркера в данный момент. По умолчанию все маркеры устойчивости включены. Уведомление сигнала тревоги маркера устойчивости выполняется только для включенных маркеров.

Для отключения уведомления маркера устойчивости выделите нужный маркер и нажмите программную клавишу «включить/выключить». Состояние поля изменится с «Enabled» (Включено) на «Disabled» (Выключено).

2.3.6 Panel Lot Definition (Определение лота панели)

Экран «Panel Lot Definition» (Определение лота панели) позволяет определить лоты панели для упрощения отслеживания и тестирования контроля качества. В определении лота панели хранится номер лота, начальный и конечный номера последовательности, дату определения, а также даты первого и последнего использования. Текущие и предыдущие результаты контроля качества можно просмотреть и распечатать. Помните, что данная функция конфигурации не доступна, если прибор Phoenix подключен к системе EpiCenter и взаимодействует с ней.

На этом экране можно выполнить следующие действия:

- Определить новые лоты панелей
- Повторно вызвать существующие лоты панелей
- Просмотреть текущие и предыдущие результаты контроля качества для лотов панелей
- Увеличить даты срока годности для лотов панелей
- Распечатать отчеты по лотам панелей (текущие и предыдущие)

Пользователи с паролями уровня «General» (Общий) и «Supervisor» (Руководитель) могут определять новые лоты панелей и повторно вызывать существующие лоты панелей. Пользователи с паролями уровня «Administrator» (Администратор) также могут выполнить эти операции и могут увеличить дату срока годности существующих лотов панелей.

После сохранения определения лота панели любые существующие рекомендации «Test Strain» (Тестовый штамм) отображаются в окне «Current QC Results» (Результаты текущего контроля качества). С помощью программной клавиши «переключение экрана» можно переключаться между окнами текущих и предыдущих результатов контроля качества. В текущих результатах приведена сводная информация по последнему тестированию каждого штамма для всех приборов (до 20 записей). В предыдущих результатах представлена информация по всем тестам штаммов только для текущего прибора (200 записей). Чтобы просмотреть результаты для других приборов, лоты панелей должны быть сохранены на этих приборах и восстановлены на текущем приборе (см. раздел 6.2.4.5/6 «Сохранение и восстановление лотов панелей»).

Описание полей, представленных в этих окнах, приведено далее.

Порядок доступа к определению лота панели:



На экране «Main Status» (Основное состояние) нажмите программную клавишу «конфигурация».



Появится окно пароля. Для доступа к функциям конфигурации введите требуемый пароль, затем нажмите программную клавишу «выполнить действие».



В меню конфигурации нажмите программную клавишу «определение лота панели».

Отображается экран «Panel Lot Definition» (Определение лота панели) (Рис. 2–13).

После ввода или изменения нужных параметров конфигурации нажмите программную клавишу «сохранить», чтобы сохранить данные.

Программные клавиши экрана «Panel Lot Definition» (Определение лота панели):

«сохранить»

«ОЧИСТИТЬ»

«выбрать»

«результаты панели»

«печать»

«переключение экрана»

«выход»

PANEL LOT DEFINITION

PQC01

Panel Lot #

7500001

Definition Date

07/12/04

Expiration Date

04/01/06

First Used Date

10/22/03

Start Sequence #

425200001443

Last Used Date

07/12/04

End Sequence #

425200001468

Where Defined

1

Current QC Results

Test Strain	Test Date	Sequence #	Type	QC Status
25923 S. aureus	07/12/04	425200001444	ID/AST	REVIEW
29212 E. faecalis	07/12/04	425200001445	ID/AST	FAIL
29213 S. aureus	07/12/04	425200001446	ID/AST	ERROR
51299 E. faecalis	07/12/04	425200001447	ID/AST	PASS

Рис. 2–13. Экран определения лота панели «Panel Lot Definition»

Поля на экране «Panel Lot» (Лот панели):

«Panel Lot #» (Лот панели №)

В этом поле отображается номер лота для панели. Для ввода нового номера лота панели необходимо выполнить сканирование штрих-код номера лота (рядом с символом «L») в поле. Номер лота панели зашифрован в штрих-коде. Номер лота не может быть введен в это поле при определении новых лотов панелей.

Для повторного вызова определения лота панели нажмите клавишу СТРЕЛКА ВНИЗ, чтобы открыть список со всеми панелями, или введите первые цифры номера лота панели, чтобы перейти к этой части в списке, или выполните сканирование штрих-кода лота панели.

Expiration date (Срок годности)

В данном поле отображается дата срока годности лота. Данные сведения закодированы в штрих-коде лота панели. Они заполняются автоматически при сканировании штрих-кода лота панели. Дата срока годности не может быть введена при определении новых лотов панели. Эта дата может быть изменена только при сканировании штрих-кода новой панели, представленной отделом контроля качества BD (только для пользователей с привилегиями администратора).

Start Sequence # (Начальный № последовательности)

В данном поле отображается начальный номер последовательности штрих-кода для лота панели. Для ввода нового начального номера последовательности выполните сканирование самого низкого номера последовательности в лоте (рядом с символом  в поле). Это поле может быть заполнено только при сканировании штрих-кода последовательности панели. Номер последовательности нельзя ввести в это поле.

End Sequence # (Конечный № последовательности)

В данном поле отображается конечный номер последовательности штрих-кода для лота панели. Для ввода нового конечного номера последовательности выполните сканирование самого высокого номера последовательности в лоте (рядом с символом  в поле). Это поле может быть заполнено только при сканировании штрих-кода последовательности панели. Номер последовательности нельзя ввести в это поле.

Definition Date (Дата определения)

В данном поле отображается дата определения лота панели. Это поле заполняется автоматически при сохранении определения лота панели. Данное поле доступно только для чтения и не может быть изменено пользователем.

First Used Date (Дата первого применения)

В данном поле отображается дата первого использования панели из этого лота. Это поле заполняется автоматически при помещении панели в прибор. Данное поле доступно только для чтения и не может быть изменено пользователем.

Last Used Date (Дата последнего применения)

В данном поле отображается дата последнего использования панели из этого лота. Это поле заполняется автоматически при помещении панели в прибор. Данное поле доступно только для чтения и не может быть изменено пользователем.

Where Defined (Место определения)

Данное поле отображается только в том случае, если лот панели определен на приборе с другим номером, отличающимся от текущего. В этом поле отображается номер прибора, на котором была определена панель. Определения лота панели могут быть сохранены на одном приборе и восстановлены на другом приборе с помощью функций **Save/Restore Panel Lot Definitions** (Сохранение и восстановление определений лотов панели) в меню **Maintenance (Техническое обслуживание)** (Раздел 6.2.4.5/6).

Окно «Current QC Results» (Результаты текущего контроля качества)

Данное окно отображается только после сохранения лота панели. После сохранения определения лота панели любые существующие рекомендации «QC Test Strain» (Тестовый штамм контроля качества) отображаются в окне «Current QC Results» (Результаты текущего контроля качества). Отображаются только самые последние тесты контроля качества для каждого тестового штамма (не более 20 тестов). Результаты других приборов можно отобразить в этом окне с помощью сохранения этих результатов на нужном приборе и восстановления их на текущем приборе (см. **Сохранение и восстановление определений лотов панели**, раздел 6.2.4.5/6).

В окне «Current Results» (Текущие результаты) отображаются следующие поля, доступные только для чтения: «Test Strain» (Тестовый штамм) (сортировка по названию); «Test Date» (Дата теста); «Sequence Number» (Номер последовательности); «(Test) Type (ID, AST, or ID/AST)» (Тип тестирования (идентификация, AST или идентификация/AST)); «QC Status» (Состояние контроля качества) («None» (Нет) для неполных тестов; «Pass» (Пройдено), «Fail» (Сбой), «Review» (Просмотр) или «Error» (Ошибка) для выполненных тестов).

Вы можете просмотреть результаты, когда панель находится в базе данных прибора. Для этого выполните следующие действия. Нажмите клавишу TAB для перехода к окну «Current Results» (Текущие результаты). Воспользуйтесь клавишами СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения нужного штамма, затем нажмите программную клавишу «результаты панели».

Для печати отчета «Current QC Panel Lot Report» (Отчет по текущему лоту панели контроля качества) нажмите программную клавишу «печать» (когда отображается окно текущих результатов контроля качества). Кроме перечисленных выше полей, в отчете содержатся стандартные сведения заголовка (название отчета, сведения лаборатории (если сконфигурированы), дата и время печати, номер прибора, на котором напечатан отчет), а также поля «Panel Lot number» (Номер лота панели), «Panel Type» (Тип панели), «Expiration Date» (Срок годности), «Instrument number for each strain tested» (Номер прибора для каждого штамма в тесте) (пустое поле, если используется одинаковый прибор) и «Tech ID» (Идентификация техника). Образец отчета по текущему лоту панели контроля качества см. на рис. 2–14.

С помощью программной клавиши «переключение экрана» можно переключаться между окнами текущих и предыдущих результатов контроля качества.

Current QC Panel Lot Report						
07/15/04 09:11						
Instrument #1						
Panel Lot #	7500001					
Panel Type	PQC01					
Expiration Date	04/01/06					
Test Strain	Test Date	Sequence #	Type	QC Status	Instrument #	Tech ID
25923 S. aureus	07/12/04	425200001444	ID/AST	REVIEW	.	ljc
29212 E. faecalis	07/12/04	425200001445	ID/AST	FAIL	.	bee
29213 S. aureus	07/12/04	425200001446	ID/AST	ERROR	.	me
51299 E. faecalis	07/12/04	425200001447	ID/AST	PASS	.	up
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
End of Report						

Рис. 2–14. Образец отчета по текущему лоту панели контроля качества «Current QC Panel Lot Report»

Окно **Historical QC Results** (Результаты предыдущего контроля качества)

Данное окно отображается только после сохранения лота панели. В предыдущих результатах представлена информация по всем тестам штаммов только для текущего прибора (200 записей). Для выбора тестового штамма нажмите клавишу **TAB**, чтобы перейти к полю «**Test Strain**» (Тестовый штамм), затем нажмите клавишу **СТРЕЛКА ВНИЗ**, чтобы открыть список штаммов. Используйте клавиши **СТРЕЛКА ВВЕРХ** и **СТРЕЛКА ВНИЗ** для выделения требуемого штамма, затем нажмите программную клавишу «выбрать». Когда выделена нужная панель, можно перейти к экрану «**QC Panel Results**» (Результаты панели контроля качества) или распечатать отчет по предыдущим лотам панели контроля качества.

В окне «**Historical Results**» (Предыдущие результаты) отображаются следующие поля, доступные только для чтения: «**Test Strain**» (Тестовый штамм) (раскрывающийся список), «**Test Date**» (Дата тестирования) (порядок сортировки), «**Sequence #**» (№ последовательности), «**(Test) Type (ID, AST, or ID/AST)**» (Тип тестирования (идентификация, AST или идентификация/AST), «**QC Status**» (Состояние контроля качества) («None» (Нет), «Pass» (Пройдено), «Fail» (Сбой), «Review» (Просмотр) или «Error» (Ошибка); «**Tech ID**» (Идентификация техника).

Для печати отчета «**Historical QC Panel Lot Report**» (Отчет по предыдущим лотам панели контроля качества) нажмите программную клавишу «печать» (когда отображается окно предыдущих результатов контроля качества). Кроме перечисленных выше полей, в отчете содержатся стандартные сведения заголовка (название отчета, сведения лаборатории (если сконфигурированы), дата и время печати, номер прибора, на котором напечатан отчет), а также поля «**Panel Lot number**» (Номер лота панели), «**Panel Type**» (Тип панели) и «**Expiration Date**». Образец отчета по предыдущим лотам панели контроля качества см. на рис. 2–15.

С помощью программной клавиши «переключение экрана» можно переключаться между окнами текущих и предыдущих результатов контроля качества.

Historical QC Panel Lot Report				
07/15/04 09:11				
Instrument #1				
Panel Lot #	7500001			
Panel Type	PMIC/ID			
Expiration Date	04/01/06			
<u>Test Strain</u> – 25923 S. aureus				
<u>Test Date</u>	<u>Sequence #</u>	<u>Type</u>	<u>QC Status</u>	<u>Tech ID</u>
07/12/04	425350000012	ID/AST	REVIEW	ljk
<u>Test Strain</u> – 29212 E. faecalis				
<u>Test Date</u>	<u>Sequence #</u>	<u>Type</u>	<u>QC Status</u>	<u>Tech ID</u>
07/12/04	425350000014	ID/AST	FAIL	bee
<u>Test Strain</u> – 29213 S. aureus				
<u>Test Date</u>	<u>Sequence #</u>	<u>Type</u>	<u>QC Status</u>	<u>Tech ID</u>
07/12/04	425350000016	ID/AST	ERROR	me
<u>Test Strain</u> – 51299 E. faecalis				
<u>Test Date</u>	<u>Sequence #</u>	<u>Type</u>	<u>QC Status</u>	<u>Tech ID</u>
07/12/04	425350000018	ID/AST	PASS	up
End of Report				

Рис. 2–15. Образец отчета по предыдущим лотам панели контроля качества «**Historical QC Panel Lot Report**»

2.4 Запуск системы

При включении питания происходит инициализация системы, выполняется диагностика, и пользователю сообщаются любые проблемы в виде сигналов тревоги. При обнаружении отсутствующих или поврежденных файлов, влияющих на правильную работу системы, процесс запуска прерывается. Если такие файлы не обнаружены, компьютер загружает операционную систему и интерфейс пользователя и начинает период прогрева (отображается приведенный ниже значок «Выполняется прогрев прибора»). Затем система ожидает начальных действий по тестированию панели.



Стандартная панель температуры должна быть оставлена в приборе как минимум за 45 минут перед ее чтением с момента первого включения питания прибора.

2.5 Установка программного обеспечения

Обновления программного обеспечения выполняются представителями BD.

ПРИМЕЧАНИЕ

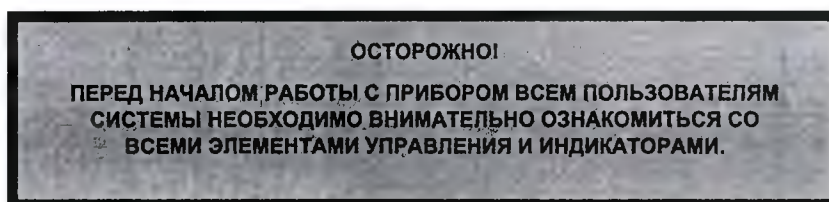
Пользовательские точки прерывания

При выполнении обновления программного обеспечения или при выполнении операции «Phoenix Update Disk» (Диск обновления Phoenix), если любые стандартные наборы правил интерпретации были изменены, новые наборы правил устанавливаются в базу данных системы. Так как пользовательские наборы правил основываются на стандартных наборах правил, набор пользовательских правил интерпретации может быть переопределен новыми стандартными правилами. При использовании пользовательских точек прерывания выполняйте печать отчета о различиях пользовательских точек прерывания (раздел 2.3.3) после каждого обновления системы или выполнения операции «Phoenix Update Disk» (Диск обновления Phoenix).

3 – Элементы управления и индикаторы

3.1 Общая информация

В данном разделе описано назначение и использование элементов управления и индикаторов прибора Phoenix. Общий вид прибора показан на рис. 3–1. Отдельные компоненты представлены на рисунках, иллюстрирующих текст.



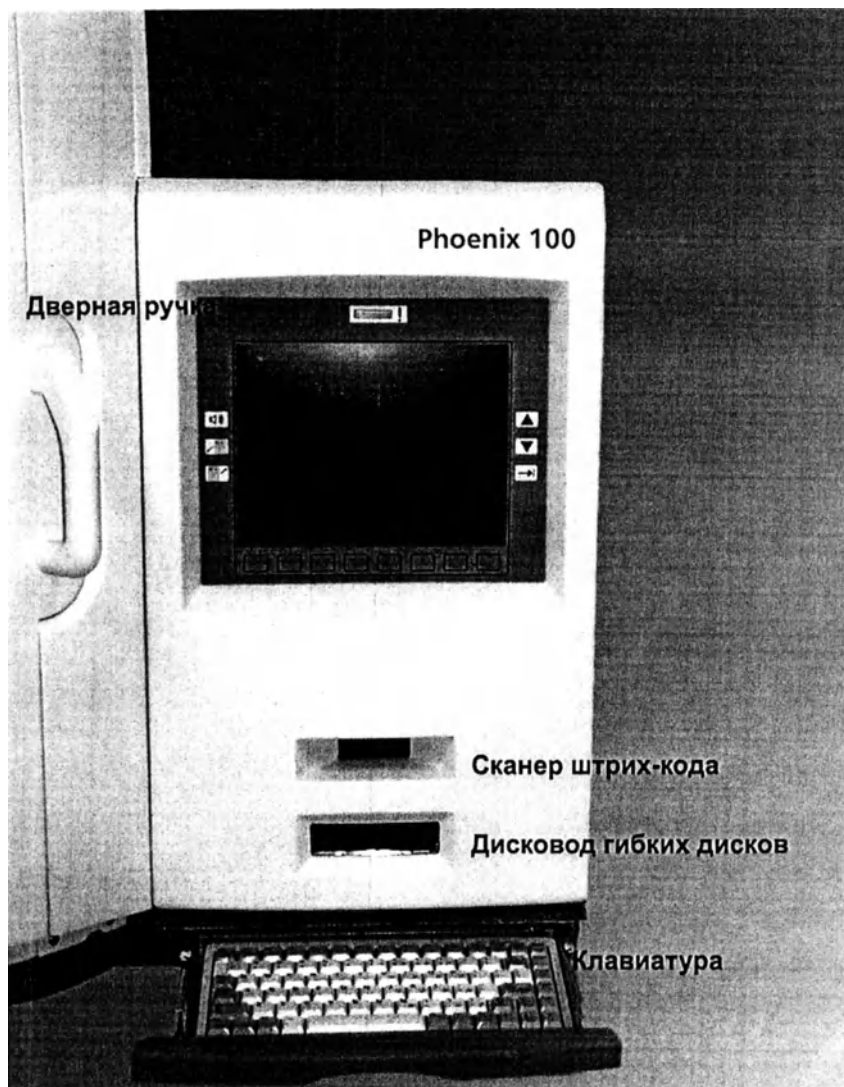


Рис. 3-1. Общий вид прибора Phoenix

3.2 Выключатель питания

Выключатель питания системы (Вкл./Выкл.) находится на правой стороне прибора внизу (см. рис. 3–2). В положении «О» (Выкл.) питание прибора отключено. В положении «I» (Вкл.) выключатель светится зеленым светом, что означает, что питание включено. Для работы модулей инкубации и проведения тестов питание должно быть включено. Для нормальной работы питание должно быть включено всегда (за исключением некоторых работ по обслуживанию оборудования).

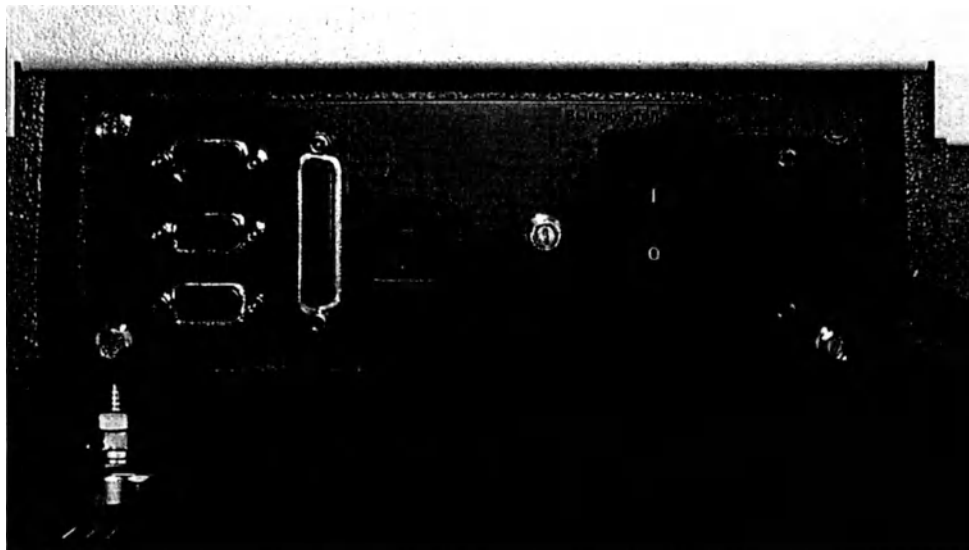


Рис. 3–2. Выключатель питания

3.3 Клавишная панель и ЖК-дисплей

Клавишная панель и ЖК-дисплей расположены на передней панели прибора, в верхней его части. Клавишная панель используется для ввода команд. На ЖК-дисплее отображается вводная информация и сведения о состоянии системы, а также описание клавиш клавишной панели, позволяющих выполнять стандартные операции. См. рис. 3–3.

Элементы управления и индикаторы клавишной панели и ЖК-дисплея представлены по часовой стрелке от верхней правой части модуля.

3.3.1 Клавиши СТРЕЛКА ВНИЗ/ВВЕРХ

Клавиши СТРЕЛКА ВНИЗ и СТРЕЛКА ВВЕРХ расположены в правой части клавишной панели/ЖК-дисплея. Клавиша СТРЕЛКА ВНИЗ, показанная острием стрелки, направленным вниз, используется для уменьшения отображаемой величины или для прокрутки списка вниз. Клавиша СТРЕЛКА ВВЕРХ, показанная острием стрелки, направленным вверх, используется для увеличения отображаемой величины или для прокрутки списка вверх.

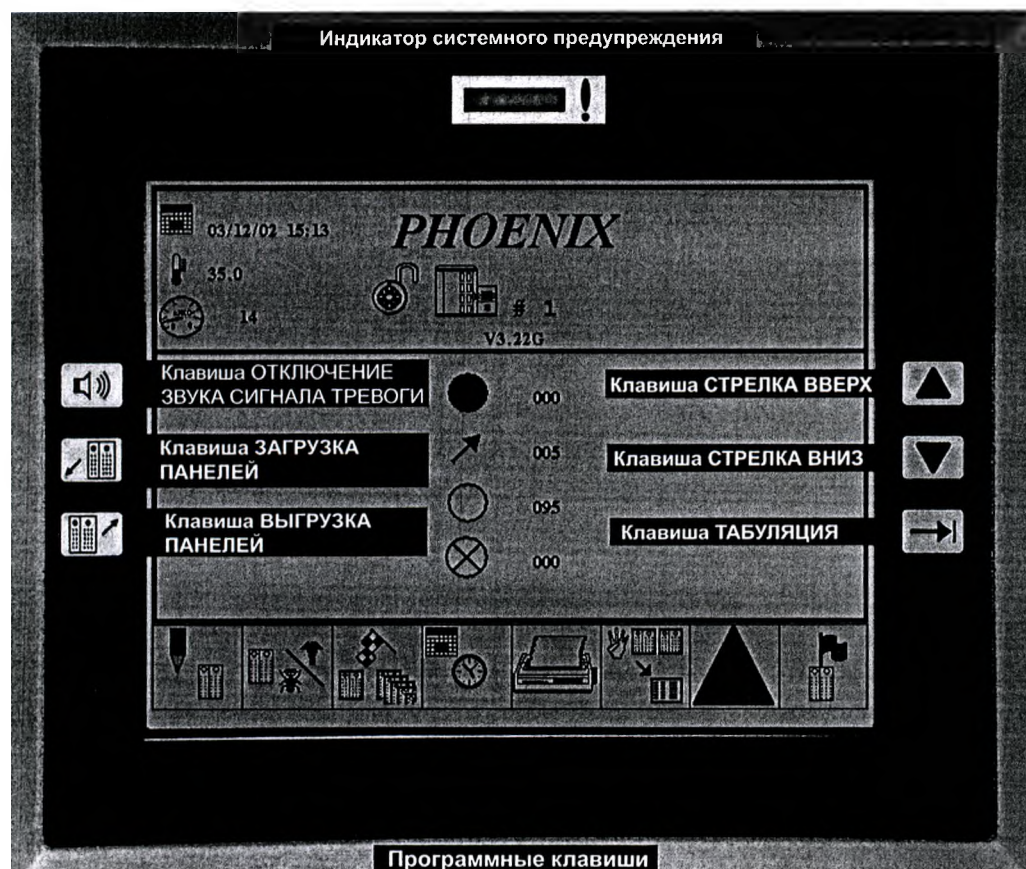


Рис. 3–3. Клавишная панель и ЖК-дисплей.

3.3.2 Клавиша ТАБУЛЯЦИЯ

Клавиша ТАБУЛЯЦИЯ расположена ниже клавиш СТРЕЛКА ВНИЗ и СТРЕЛКА ВВЕРХ. Она работает так же, как и клавиша **Tab** на клавиатуре. При нажатии курсор перемещается в следующее поле на дисплее.

3.3.3 Программные клавиши

Восемь программных клавиш расположены в нижней части клавишной панели/ЖК-дисплея, по центру. Эти клавиши окрашены в зеленовато-голубой цвет. Ни у одной из этих клавиш нет постоянной функции — их функции меняются в зависимости от информации, отображаемой на дисплее в данный момент. На каждом экране отображаются значки, указывающие текущие функции каждой программной клавиши. Чтобы выполнить функцию, указанную значком, нажмите соответствующую программную клавишу. Все функции программных клавиш представлены в разделе 5 «Справочная информация».

3.3.4 Клавиша ВЫГРУЗКА ПАНЕЛЕЙ

Клавиша ВЫГРУЗКА ПАНЕЛЕЙ используется для выгрузки панелей, подготовленных для удаления из прибора. При ее нажатии поворотный механизм прибора поворачивается, и первый набор сменных панелей (обозначенных зеленым светодиодом) становится доступным, когда дверь открыта. Затем дверь разблокируется для извлечения панелей. Для извлечения дополнительных панелей закройте дверь и дождитесь, пока поворотный механизм прибора повернется, и дополнительные панели будут доступны.

3.3.5 Клавиша ЗАГРУЗКА ПАНЕЛЕЙ

Клавиша ЗАГРУЗКА ПАНЕЛЕЙ используется для загрузки панелей в прибор для тестирования. При ее нажатии поворотный механизм прибора поворачивается, и первый набор имеющихся в распоряжении станций становится доступным, когда дверь открыта. Затем дверь открывается, и панели можно вставлять. Для вставки дополнительных панелей закройте дверь и дождитесь, пока поворотный механизм прибора повернется, и дополнительные станции будут доступны. Панели можно размещать в любой незанятой станции, ни один из светодиодов которой не светится.

3.3.6 Клавиша ОТКЛЮЧЕНИЕ ЗВУКА СИГНАЛА ТРЕВОГИ

Клавиша ОТКЛЮЧЕНИЕ ЗВУКА СИГНАЛА ТРЕВОГИ расположена слева от модуля клавишной панели/ЖК-дисплея. При ее нажатии звуковой сигнал тревоги для текущего предупреждения отключается. При этом звуковые сигналы тревоги типа «дверь открыта» не отключаются, и условия возникновения ошибки не очищаются. (Информацию о типах сигналов тревоги и тональных сигналов см. в разделе 3.7 «Звуковые тональные сигналы и сигналы тревоги»).

3.3.7 Индикатор системного предупреждения/открытой двери

Индикатор сигнала тревоги расположен в верхней части клавишной панели/ЖК-дисплея, над областью отображения. Когда индикатор светится или мигает желтым светом, это говорит об определенном состоянии прибора.

- Если индикатор МИГАЕТ, это означает наличие предупреждения. Индикатор продолжает мигать до тех пор, пока не будет устранена причина возникновения ошибки.
- Если индикатор светится постоянно, это означает, что предупреждений нет и можно открывать дверь прибора.
- Если индикатор не светится, это означает, что предупреждений нет, но открывать дверь прибора нельзя.

При срабатывании сигнала тревоги в области назначений программных клавиш экрана «Main Status» (Основное состояние) отображается соответствующий значок (аналогичный значку индикатора сигнала тревоги). Нажмите программную клавишу, соответствующую значку системного предупреждения. На экране появится код первой ошибки. Исправьте причины ошибок как можно быстрее, следуя инструкциям в разделе 7 «Устранение проблем». Просмотреть журнал ошибок можно с помощью клавиш СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ.

Если раздается звуковой сигнал тревоги, его можно отключить, нажав клавишу ОТКЛЮЧЕНИЯ ЗВУКА СИГНАЛА ТРЕВОГИ.

3.3.8 Область отображения

Область отображения расположена в центре клавишной панели/ЖК-дисплея. Она используется для отображения информации, а также описания назначений программных клавиш, позволяющих выполнять стандартные операции. При запуске прибора на дисплее отображается экран «Main Status» (Основное состояние). Отображаемая на экране информация меняется в зависимости от выполняемой операции.

ЖК-дисплей запрограммирован на автоматическое гашение экрана после 10 минут бездействия. Для возврата к обычному режиму работы нажмите любую клавишу на клавиатуре или программную клавишу.

Дополнительную информацию о дисплее см. в разделе 5 «Справочная информация».

3.4 Сканеры штрих-кодов

Встроенный сканер штрих-кода расположен ниже модуля клавишной панели/ЖК-дисплея. Сканер всегда готов к считыванию штрих-кода. См. рис. 3–1.

Для считывания штрих-кода разместите панель в углублении под сканером. При необходимости медленно наклоняйте панель, пока не раздастся звуковой сигнал подтверждения (указывающий, что штрих-код считан успешно).

Сканер с ручным управлением также поставляется с системой для упрощения определенных операций считывания, например, считывания большого количества панелей. Для сканирования штрих-кода с помощью сканера, управляемого вручную, нажмите кнопку запуска в нижней части сканера. Один звуковой сигнал указывает, что сканирование проведено успешно. Нажимайте кнопку для каждой панели или каждого штрих-кода, который необходимо считывать.

3.5 Дисковод гибких дисков

Дисковод гибких дисков расположен на передней панели прибора, под встроенным сканером штрих-кодов. В основном он используется для сохранения данных на дискете и выполнения обновления программного обеспечения при выходе новых версий. См. рис. 3–4.

3.5.1 Индикатор дисковода гибких дисков

Индикатор дисковода гибких магнитных дисков расположен слева от дисковода под отверстием для дискет. Если он не светится, это означает, что дисковод не работает. Если он светится или мигает, это означает, что дисковод работает с дискетой. **Не пытайтесь извлечь дискету, когда светится этот индикатор.**

3.5.2 Кнопка извлечения дискеты

Кнопка извлечения дискеты расположена ниже отверстия для дискет, справа. Когда дискета полностью вставлена в дисковод, эта кнопка автоматически выдвигается. Для извлечения дискеты полностью нажмите кнопку извлечения. **Не пытайтесь извлечь дискету, когда светится индикатор дисковода гибких дисков.**



Рис. 3–4. Элементы управления дисководом гибких дисков и индикаторы.

3.6 Индикаторы станции

У каждой доступной станции есть набор светодиодных индикаторов, информирующих о состоянии станции или панели. Индикаторы состояния расположены сверху станции, слева. См. рис. 3–5. Цвет (красный, зеленый, желтый) и состояние (светится, не светится) указывают на различные обстоятельства, показанные в таблице ниже для данной станции.

Желтый	СВЕТИТСЯ	Панель была найдена с помощью программной клавиши «locate panel» (определить панель).
Красный	СВЕТИТСЯ	Станция заблокирована (также панель стандарта температуры)
Зеленый	СВЕТИТСЯ	Сменная панель
Все цвета	НЕ СВЕТИТСЯ	Текущая панель (если панель находится в станции) ИЛИ доступная станция (если станция пуста)

Таблица 3–1: Индикаторы станции



Рис. 3–5. Индикаторы состояния станции

3.7 Звуковые сигналы и сигналы тревоги

При выполнении различных операций прибором Phoenix генерируются многочисленные звуковые сигналы. Каждый из них уникален. Эти сигналы служат для информирования о различных рабочих состояниях прибора.

Вид	Пример	Звуковой сигнал
Информационные		
Подтверждение	Считывание штрих-кода	Однократный короткий сигнал высокой частоты
Пробный звуковой сигнал предупреждения	В режиме «Configuration» (Конфигурация) был настроен уровень громкости звукового сигнала предупреждения	Три тональных сигнала с изменением частоты от высокой до низкой («Фигаро»)
Остановка поворотного механизма	Поворотный механизм остановлен, дверь может быть открыта.	Три тональных сигнала с изменением частоты от низкой до высокой
Дверь закрыта	Дверь полностью закрыта и зафиксирована	Два коротких сигнала высокой частоты
Работа завершена	Операция завершена	Три коротких сигнала высокой частоты
Замена дискеты	Текущий гибкий диск заполнен, вставьте другой гибкий диск	Длинный сигнал средней частоты
Сигналы тревоги		
Ошибка работы (громкость настраивается)	Считан неправильный штрих-код	Один короткий сигнал высокой частоты, затем короткий сигнал низкой частоты — последовательность повторяется четыре раза
Системное предупреждение (громкость настраивается)	Оптическая ошибка	Однократный сигнал средней частоты в течение одной секунды, пауза следующие три секунды, затем повторение
Тональный сигнал ошибки	Попытка выполнения действия, которое не может быть выполнено	Короткий сигнал высокой частоты, затем короткий сигнал низкой частоты
Сигнал тревоги открытой двери	Дверь оставалась открытой более пяти минут	Продолжительная пронзительная трель
Нет доступа к прибору	Операция более высокого приоритета не дает пользователю доступа к прибору	Однократный сигнал низкой частоты
Критическое уведомление панели/маркера устойчивости	Критическая панель: определены частичные результаты, панель завершена или выполнена идентификация; маркеры устойчивости: маркер был запущен	Звук 1 (средняя частота): длинный сигнал, короткий сигнал, длинный сигнал, короткий сигнал. Звуки 2 (низкая частота) и 3 (очень высокая частота): длинный сигнал, короткий сигнал, длинный сигнал, длинный сигнал
Заедание поворотного механизма	Движение поворотного механизма невозможно	Высокая трель

Таблица 3–2: Звуковые сигналы/сигналы тревоги

3.8 Клавиатура

С помощью клавиатуры можно вводить демографическую информацию (например, инвентарные номера), а также выполнять все функции программных клавиш и клавиш клавишной панели. В дополнение к стандартным функциям буквенно-цифровых клавиш предусмотрены следующие функции клавиш:

 — перемещение курсора на следующее поле; эквивалентно экранной клавише ТАБУЛЯЦИЯ.

 — перемещение курсора на предыдущее поле.

 — перемещение на одну «страницу» вверх в поле раскрывающегося списка.

 — перемещение на одну «страницу» вниз в поле раскрывающегося списка.

 — установка или очистка флажков; вставка пробела в текстовом поле.

 — выбор элемента в раскрывающемся списке.

 — перемещение вверх в поле раскрывающегося списка; отображение предыдущего выбора в некоторых полях с предустановленными значениями (например, номер прибора); эквивалентно экранной клавише СТРЕЛКА ВВЕРХ.

 — перемещение вниз в поле раскрывающегося списка; отображение следующего выбора в некоторых полях с предустановленными значениями (например, номер прибора); эквивалентно экранной кнопке СТРЕЛКА ВНИЗ.

 –  — соответствуют восьми программным клавишам зеленовато-голубого цвета слева направо.

 — соответствует клавише ЗАГРУЗКА ПАНЕЛЕЙ

 — соответствует клавише ВЫГРУЗКА ПАНЕЛЕЙ

 — соответствует клавише ОТКЛЮЧЕНИЕ ЗВУКА СИГНАЛА ТРЕВОГИ

3.9 Принтер

Информацию об элементах управления и индикаторах принтера см. в инструкциях по эксплуатации производителя, предоставляемых отдельно.

4 – Эксплуатация

4.1 Общая информация

В данном разделе описаны стандартные операции прибора Phoenix 100. Рассмотрены следующие основные темы.

- ◆ Техническое обслуживание системы
- ◆ Хранение и обращение
- ◆ Подготовка панелей
- ◆ Вход в панели
- ◆ Установка панелей в прибор
- ◆ Тестирование панели
- ◆ Действия с панелями, требующими внимания
- ◆ Автоматическое объединение панелей
- ◆ Получение результатов
- ◆ Окончательная обработка панели
- ◆ Реагирование на сигналы тревоги и ошибки
- ◆ Печать отчетов
- ◆ Выгрузка и утилизация панелей
- ◆ Установка новых форматов панелей
- ◆ Диск обновления Phoenix (Phoenix Update Disk — PUD)
- ◆ Операции ЛИС

4.2 Ежедневное техническое обслуживание системы

Каждый день необходимо осуществлять следующие процедуры технического обслуживания. Самым подходящим временем для технического обслуживания является утро, но данные процедуры можно осуществлять и в любое удобное время. Необходимо проверить следующие элементы.

- 1 Наличие бумаги в принтере. Если бумаги мало или она закончилась, замените бумагу в соответствии с инструкциями по эксплуатации производителя.
- 2 Запись показания температуры на жидкокристаллическом мониторе и панели стандарта температуры. Обратите внимание, что показания панели температуры можно посмотреть, выбрав одну из функций проверки индикаторов прибора в меню технического обслуживания (см. раздел 6.2.2). Температура должна составлять $35 \pm 1,5$ °C.

4.3 Хранение и обработка

Панели Phoenix. Панели находятся в индивидуальных пакетах и упакованы в коробки по 25 штук. Панели необходимо хранить закрытыми при комнатной температуре (15–25 °C). Не охлаждайте и не замораживайте их. Внимательно осмотрите упаковку из фольги на наличие повреждений или разрывов. Не используйте панель, если упаковка повреждена. Не используйте панель, если отсутствует влагопоглотитель или если пакет с влагопоглотителем порван. При соблюдении рекомендуемых условий хранения ожидаемая реакционная способность панелей сохранится до истечения срока годности.

Бульон идентификации Phoenix. Пробирки упакованы в пакеты по 100 штук. Внимательно осмотрите пробирки на наличие трещин, протечек и других повреждений. Не используйте пробирку при обнаружении протечки, повреждения пробирки или крышки или очевидного загрязнения (например, затемнение, помутнение). Храните пробирки с бульоном идентификации Phoenix при 2 – 25 °C. Срок годности указан на этикетке пробирки.

Бульон Phoenix AST и бульон Phoenix AST-S. Пробирки упакованы в пакеты по 100 штук. Внимательно осмотрите пробирки на наличие трещин, протечек и других повреждений. Не используйте пробирку при обнаружении протечки, повреждения пробирки или крышки или очевидного загрязнения (например, затемнение, помутнение). Храните пробирки с бульоном Phoenix AST при 2 – 25 °C. Срок годности указан на этикетке пробирки.

Индикаторный раствор Phoenix AST и индикаторный раствор Phoenix AST-S. Индикаторный раствор хранится в индивидуальной упаковке в пакетах по 10 бутылок с пипеткой. Внимательно осмотрите бутылки на наличие трещин, протечек и других повреждений. Не используйте бутылку при обнаружении протечки, повреждения бутылки или крышки или отклонения цвета от темно-синего. Храните индикаторный раствор Phoenix AST при температуре 2 – 8 °C. В каждой бутылке содержится количество раствора, достаточное для тестирования 100 панелей. Срок годности, относящийся к закрытым бутылкам, указан на коробке, упаковке и этикетке бутылки. Открытая бутылка хранится до 14 дней при температуре 2 – 8 °C. Держите бутылку вертикально при дозировании индикаторного раствора AST.

4.4 Подготовка панелей

Система Phoenix не предназначена для использования непосредственно с клиническими образцами. Для тестирования должны использоваться только изоляты чистой культуры аэробных и/или факультативно-анаэробных грамотрицательных, грамположительных и дрожжевых микроорганизмов. Изолят для тестирования должен быть чистой культурой. Рекомендуется использовать культуры со сроком жизни от 18 до 24 часов для грамотрицательных и грамположительных микроорганизмов и от 18 до 48 часов для дрожжевых микроорганизмов. Для тестирования в системе Phoenix рекомендуется использовать культуры из неселективной среды. Не рекомендуется использовать среду, содержащую антибиотики, для тестируемых в системе Phoenix микроорганизмов, кроме специально указанных в приведенной ниже таблице. Селективная среда может подавлять некоторые штаммы бактерий и дрожжей, поэтому необходимо соблюдать осторожность при выборе изолированных колоний из такой среды. Используйте культуры с пластины с кровяным агаром, например триптиказо-соевый агар с 5 % бараньей крови. Питательная среда, выбранная во время входа в панели Yeast ID (Идентификация дрожжей), определяет питательную среду, в которой микроорганизм был выращен.

Другие рекомендованные среды приведены в таблице ниже:

Рекомендованная среда	Утверждено для использования			
	ID	AST	Strep	Yeast D
BBL CHROMagar Orientation	Да	Да ¹	X	X
Агар бессолевого лактозной питательной среды с цистином (CLED)	Да ⁵	Да	X	X
Агар МакКонки (грамотрицательные)	Да	Да	X	X
Агар с эозином и метиленовым синим (грамотрицательные)	Да	Да	X	X
Агар Сабуро с сердечно-мозговым экстрактом — SAB HI (дрожжи)	X	X	X	Да
Агар фенилэтилового спирта (грамположительные)	Да	X	Да	X
Гектоеновый энтеро-агар (грамотрицательные)	Да	X	X	X
Декстрозный агар Сабуро (дрожжи)	X	X	X	Да
Декстрозный агар Сабуро в модификации Эммонса (дрожжи)	X	X	X	Да
Колумбийский агар CNA с 5 % бараньей крови (грамположительные)	Да	X	Да	X
Колумбийский агар с 5 % бараньей крови	Да	Да	Да	Да
Колумбийский агар с 5 % лошадиной крови	Да	Да	Да ³	X
Ксилозо-лизин-дезоксихолатный агар (грамотрицательные)	Да	X	X	X
Лактозный агар с бромтимоловым синим (БТВ)	Да ⁴	Да	X	X
Нейтрализующий агар по Ди-Ингли (грамотрицательные)	Да	X	X	X
Триптиказо-соевый агар без крови	Да	X	X	X
Триптиказо-соевый агар с 5% бараньей крови	Да	Да	Да	Да
Триптиказо-соевый агар с лецитином и твином 80	Да	X	X	X
Шоколадный агар	Да	Да	Да ²	Да

¹ Использование CHROMagar Orientation может привести к неправильным значениям чувствительности при тестировании эритромицина с грамположительными микроорганизмами. Результаты тестирования чувствительности противомикробных препаратов должны быть подтверждены с помощью триптиказо-соевого агара с 5% бараньей крови.

² Этот тип среды не должен использоваться для идентификации стрептококков с панелями SMIC/ID. Шоколадный агар может использоваться только для тестирования чувствительности стрептококков.

³ Использование колумбийского агара с 5 % лошадиной крови может привести к значительно более высокому значению MIC для SXT с видами *Streptococcus*, что может привести к неправильному значению чувствительности. Результаты тестирования чувствительности противомикробных препаратов должны быть подтверждены с помощью триптиказо-соевого агара с 5% бараньей крови.

⁴ Использование лактозного агара с бромтимоловым синим с грамположительными организмами следует ограничить видом *Staphylococci* для обеих систем 0,5 и 0,25 GP.

⁵ Использование агара бессолевого лактозной питательной среды с цистином с грамположительными организмами следует ограничить видом *Staphylococci* для системы 0,25 GP.

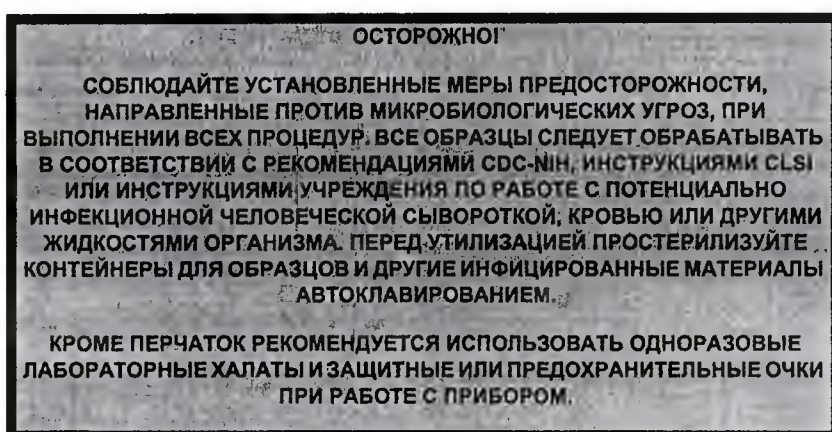
Табл. 4-1 – Рекомендованная среда

Не используйте среды, содержащие антибиотики, для тестирования организмов в системе Phoenix, кроме специально указанных в приведенной выше таблице. В качестве тампонов аппликатора рекомендуется использовать стерильные ватные тампоны. Использование полиэфирных тампонов не рекомендуется. Качество тампонов аппликатора зависит от изготовителя и обстоятельств. Отделение волокон от тампона может повлиять на показания по Макфарланду.

Пригодность системы Phoenix или других диагностических процедур, выполняемых на клинических образцах, напрямую зависит от качества самих образцов. Настоятельно рекомендуется в лабораториях применять методы сбора образцов, транспортировки и помещения в начальную питательную среду, приведенные в *Руководстве по клинической микробиологии*¹⁷.

Из-за разнообразия концентраций посевного материала, подготовленного по стандартам McFarland, необходимо использовать нефелометр BBL CrystalSpec, BD PhoenixSpec или прибор BD Phoenix AP для адаптации посевного материала до использования в системе Phoenix.

В конце данного подраздела приведены инструкции для дополнительной проверки чистоты.



Необходимые материалы

- Панели Phoenix
- Бульон идентификации Phoenix или бульон посева Phoenix
- Бульон Phoenix AST и/или Phoenix AST-S
- Индикаторный раствор Phoenix AST и/или Phoenix AST-S
- Крышки для панелей Phoenix
- Станция заправки Phoenix.
- Транспортировочная кассета Phoenix
- Нефелометр BBL CrystalSpec, BD PhoenixSpec или прибор BD Phoenix AP
- Автоматическая пипетка на 25 мкл с наконечниками.

Необходимые, но не предоставленные материалы

- Красители Грама
- Стерильные ватные тампоны, бактериологические петли или иглы
- Неселективные среды для культур, расположенные на пластинах (см. ¶1, раздел 4.4)
- Термостаты
- Одноразовые контейнеры для биологически опасных веществ
- Маркеры и т. д.
- Вихревая мешалка.

ПРИМЕЧАНИЯ

С панелями Phoenix следует обращаться осторожно. Следует держать панели **только за края** во избежание оставшихся следов, загрязнения или помутнения нижней или верхней части панели каким-либо образом.

Этикетки со штрих-кодом образца, прикрепленные к панели Phoenix

- Не должны быть из люминесцирующего материала.
- Не должны закрывать ни одну из реакционных ячеек панели Phoenix.
- Не должны закрывать штрих-код порядкового номера (панели) Phoenix.

Следующая процедура описывает все действия при подготовке комбинированной панели для идентификации и тестирования чувствительности. При использовании комбинированной панели только для идентификации или

Общая подготовка панели

При использовании прибора прибор BD Phoenix AP информацию о подготовке панели см. в *Руководстве пользователя прибора BD Phoenix AP*.

Для панелей Phoenix Strep, панелей Phoenix Yeast ID, панелей Phoenix Plus, бульона посева Phoenix и панелей Phoenix MIC существуют отдельные инструкции, они приведены в действии 19 данных инструкций.

- 1 Подтвердите окрашивание по Граму культуры до выполнения подготовки посевной культуры, используемой в приборе Phoenix. После подтверждения реакции окрашивания по Граму выберите панель Phoenix для заправки.
- 2 Проверьте упаковку. Если упаковка повреждена или открыта, не используйте панель. Извлеките панель из упаковки. Выбросьте влагопоглотитель. Не используйте панель, если отсутствует влагопоглотитель или если пакет с влагопоглотителем порван.

ПРИМЕЧАНИЕ

Панели необходимо заправить в течение 2 часов после извлечения из упаковки.

- 3 Поместите панель на станцию заправки портами для заправки вверх, а прокладкой вниз.
- 4 Прикрепите этикетку с номером образца пациента к пробирке с бульоном идентификации Phoenix. Используя асептическую технику, отберите колонии одинаковой морфологии кончиком стерильного ватного тампона (не используйте полиэфирные тампоны) или деревянным аппликатором из одной из указанных сред.
- 5 Поместите колонии в бульон идентификации Phoenix (4,5 мл).
- 6 Закройте пробирку и встряхивайте в течение 5 секунд.

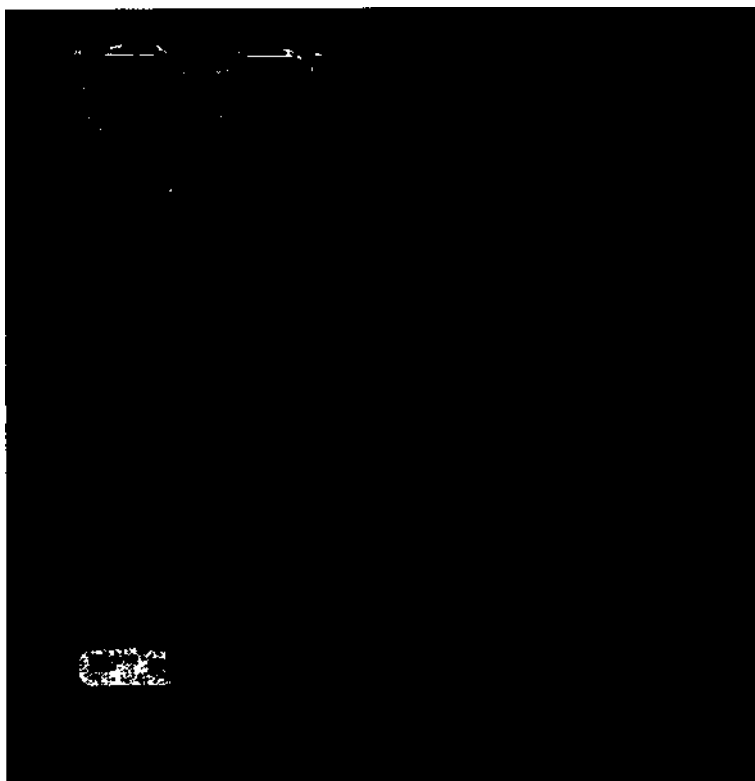


Рис. 4–1. Панель и крышки

- 7 Подождите примерно десять секунд, пока пузырьки всплывут. Слегка постучите по пробирке, чтобы удалить пузырьки.
- 8 Установите пробирку в нефелометр CrystalSpec или BD PhoenixSpec. Убедитесь, что пробирка установлена до упора. (Инструкции по использованию см. на вкладыше нефелометра BBL CrystalSpec или BD PhoenixSpec.)
- 9 Если плотность посева составляет 0,5 McFarland для используемого типа панели, применяется диапазон 0,50–0,60. Если плотность посева составляет 0,25 McFarland для используемого типа панели, применяется диапазон 0,20–0,30. **При низкой плотности организмов** можно добавить колонии из культуры. Повторно встряхните образец и проверьте еще раз, чтобы убедиться, что достигнуто необходимое значение McFarland. **Если плотность организмов превышает 0,6 McFarland**, выполните приведенные ниже действия для разбавления бульона. Важно точно определить уровень жидкости в пробирке, поскольку для правильного заполнения ячеек панели необходимо знать объем жидкости.
 - a С помощью маркера отметьте уровень бульона на заправленной пробирке с бульоном идентификации Phoenix.
 - b С помощью стерильной пипетки добавьте свежий бульон идентификации Phoenix в посевной материал. Для разбавления посевного материала можно использовать только бульон идентификации Phoenix.
 - c Встряхните пробирку и дайте отстояться в течение 10 секунд.
 - d Поместите пробирку в нефелометр и повторно измерьте мутность суспензии.
 - Если показание больше 0,6, повторите действия «b-d».
 - Если показание находится в диапазоне 0,5 – 0,6, перейдите к действию «e».

- С помощью стерильной пипетки удалите излишек бульона до начального уровня, отмеченного на пробирке в действии «а».

Удалите излишек бульона во избежание переполнения панели. Не удаляйте слишком большое количество бульона, поскольку бульона может не хватить для правильного заполнения панели.

- † Теперь бульон можно использовать для заправки бульона Phoenix AST и/или панели Phoenix.

ПРИМЕЧАНИЯ

- Панели Yeast ID (Идентификация дрожжей) должны быть засеяны с использованием плотности посева 2,00 – 2,40 по стандарту Макфарланда.
- Подтвердите текущие значения плотности посева прибора перед заправкой панелей.
- Информацию об использовании альтернативных значений плотности см. в приведенных ниже инструкциях **Изменение плотности посева при идентификации**.
 - Для выполнения посева плотностью 0,25 McFarland можно использовать только BD PhoenixSpec Nephelometer и прибор BD Phoenix AP.
 - Стандартизованную бактериальную суспензию в бульоне идентификации или бульоне посева необходимо использовать в течение 60 минут после приготовления.

- 10 При проведении только идентификации, перейдите к действию 15 и продолжайте процедуру. Информацию о заправке панели Phoenix Plus см. в приведенном ниже разделе **Панели Phoenix Plus**.
- 11 Прикрепите этикетку с номером образца пациента к пробирке с бульоном теста чувствительности Phoenix (емкость 8,0 мл). Добавьте одну каплю индикаторного раствора AST в пробирку с бульоном теста чувствительности. Переверните для перемешивания. **НЕ ВСТРЯХИВАЙТЕ.**

ПРИМЕЧАНИЯ

- Дайте индикаторному раствору AST нагреться до комнатной температуры перед введением в бульон AST.
- Неиспользованную порцию индикатора следует охладить до 2 – 8 °C как можно быстрее. **Не храните индикатор при комнатной температуре более 2 часов. Открытые бутылки следует выбросить через 14 дней после раскупоривания.**
- Если случайно было добавлено более одной капли, выбросьте пробирку и используйте новую пробирку с бульоном AST.
- После добавления индикатора в бульон AST перемешанный раствор можно хранить в темном месте при комнатной температуре в течение 8 часов.
- Пробирки необходимо использовать в течение 2 часов после добавления индикаторного раствора AST, если они не хранятся в темном месте.

- 12 Если использовалась плотность посева 0,50–0,60, перенесите 25 мкл бактериальной суспензии из пробирки идентификации в пробирку с бульоном AST. Если использовалась плотность посева 0,20–0,30, перенесите 50 мкл (2 дозы при использовании пипетки на 25 мкл) бактериальной суспензии из пробирки идентификации в пробирку с бульоном AST.

ПРИМЕЧАНИЕ

Панели необходимо заправить в течение 30 минут после приготовления посевного материала бульона AST.

- 13 Закройте пробирку AST и переверните несколько раз для перемешивания.
- 14 Подождите несколько секунд, пока всплывут пузырьки. Слегка постучите по пробирке, чтобы удалить пузырьки.
- 15 Перелейте посевной материал из пробирки идентификации в порт для заполнения на стороне идентификации панели (сторона с 51 ячейкой). Не перемещайте панель, пока жидкость не спустится по каналу. При использовании только панели AST НЕ заправляйте сторону идентификации панели. Сохраните пробирку идентификации для дополнительной проверки чистоты (см. ниже).
- 16 Перелейте посевной материал бульона AST в порт для заполнения на стороне теста чувствительности к противомикробным препаратам панели (сторона с 85 ячейками). Не перемещайте панель, пока жидкость не спустится по каналу.
- 17 Прежде чем закрыть панель крышками, проверьте наличие остаточных капель посевного материала на краях портов для заполнения. Если капля осталась, удалите ее с помощью поглощающего материала. Использованный поглощающий материал необходимо дезинфицировать перед утилизацией.
- 18 Защелкните крышки панели. **Убедитесь, что крышки плотно закрыты. Используйте 2 крышки независимо от типа панели.**
- 19 Внимательно осмотрите панели, убедитесь, что все ячейки заполнены. Осмотрите обе стороны панели. Убедитесь, что ячейки не переполнены. Если какая-либо из ячеек не заполнена или переполнена, заправьте новую панель.

ПРИМЕЧАНИЯ

- Необходимо установить панели в прибор в течение 30 минут после заправки (см. раздел 4.6).
- Необходимо держать панели в станции заправки после заправки, пока избыточная жидкость не будет полностью поглощена прокладкой.
- Панели должны стоять в кассете вертикально, пока не будут загружены.
- С заправленными панелями следует обращаться осторожно. Не ударяйте и не трясите панели.

ПРИМЕЧАНИЕ

ДОПОЛНИТЕЛЬНАЯ ПРОВЕРКА ЧИСТОТЫ

Настоятельно рекомендуется проводить проверку чистоты посевного материала как ID так и AST, подготавливая пластину чистоты.

Для проведения проверки чистоты с использованием стерильной петли возьмите небольшую каплю из пробирки с посевным материалом либо до, либо после заправки панели и заправьте агаровую пластинку (с любой подходящей средой) для проверки чистоты. Выбросьте пробирку с жидкостью посевного материала и крышку в контейнер для биологически опасных отходов. Выдержите пластинку при температуре 35 °C в течение 24 – 48 часов при соответствующих условиях.

Панели Phoenix Strep

Панели Phoenix Strep предназначены для идентификации и тестирования чувствительности к противомикробным препаратам большинства видов *Streptococcus*. Несмотря на то, что виды *Streptococcus* можно определить на панелях для грамположительных организмов, с помощью этих панелей нельзя определить чувствительность к противомикробным препаратам. Панели Phoenix Strep, которые должны использоваться с бульоном Phoenix AST-S и индикаторным раствором Phoenix AST-S, создают необходимые условия для быстрого тестирования чувствительности к противомикробным препаратам большинства видов *Streptococcus*.

- 1 Выполните действия 1 – 9 (Общая подготовка панели), чтобы подготовить бактериальную суспензию.
- 2 Добавьте одну каплю индикатора Phoenix AST-S в каждую пробирку с бульоном AST-S. Переверните для перемешивания. НЕ ВСТРЯХИВАЙТЕ.

ПРИМЕЧАНИЯ

- Бульон AST-S и индикатор AST-S предназначены для использования только с панелями Phoenix Strep (SMIC/ID, SMIC). Эти реагенты не взаимозаменяемы с бульоном AST и индикаторным раствором AST, которые используются для панелей Phoenix «Gram Positive» и «Gram Negative».
- Дайте индикаторному раствору AST-S нагреться до комнатной температуры перед введением в бульон AST-S.
- Неиспользованную порцию индикатора следует охладить до 2 – 8 °C как можно быстрее. Не храните индикатор при комнатной температуре более 2 часов. Открытые бутылки следует выбрасывать через 14 дней после откупоривания.
- Если случайно было добавлено более одной капли, выбросьте пробирку и используйте новую пробирку с бульоном AST-S.
- После добавления индикатора в бульон AST-S перемешанный раствор можно хранить в темном месте при комнатной температуре в течение 8 часов.
- Пробирки необходимо использовать в течение 2 часов после добавления индикаторного раствора AST-S, если они не хранятся в темном месте.

- 3 С помощью пипетки перенесите 25 мкл стандартизированной бактериальной суспензии из пробирки идентификации в пробирку с бульоном AST-S.

ПРИМЕЧАНИЕ

Панели необходимо заправить в течение 30 минут после приготовления посевного материала бульона AST-S.

- 4 Закройте пробирку AST-S и переверните несколько раз для перемешивания.
- 5 Подождите несколько секунд, пока всплывут пузырьки. Слегка постучите по пробирке, чтобы удалить пузырьки.
- 6 Перелейте посевной материал из пробирки идентификации в порт для заполнения на стороне идентификации панели (сторона с 51 ячейкой). Не перемещайте панель, пока жидкость не спустится по каналу. При использовании только панели Phoenix Strep MIC HE заправляйте сторону идентификации панели. Сохраните пробирку идентификации для дополнительной проверки чистоты (см. ниже).

- 7 Перелейте посевной материал бульона AST-S в порт для заполнения на стороне тестирования чувствительности к противомикробным препаратам панели (сторона с 85 ячейками). Не перемещайте панель, пока жидкость не спустится по каналу.
- 8 Прежде чем закрыть панель крышками, проверьте наличие остаточных капель посевного материала на краях портов для заполнения. Если капля осталась, удалите ее с помощью поглощающего материала. Использованный поглощающий материал необходимо утилизировать как биологически опасные отходы.
- 9 Защелкните крышки панели. **Убедитесь, что крышки плотно закрыты.**
- 10 Внимательно осмотрите панели, убедитесь, что все ячейки заполнены. Осмотрите обе стороны панели. Убедитесь, что ячейки не переполнены. Если какая-либо из ячеек не заполнена или переполнена, заправьте новую панель.

ПРИМЕЧАНИЯ

- Необходимо установить панели в прибор в течение 30 минут после заправки (см. раздел 4.6).
- Необходимо держать панели в станции заправки после заправки, пока избыточная жидкость не будет полностью поглощена прокладкой.
- Панели должны стоять в кассете вертикально, пока не будут загружены.
- С заправленными панелями следует обращаться осторожно. Не ударяйте и не трясите панели.

ПРИМЕЧАНИЕ

ДОПОЛНИТЕЛЬНАЯ ПРОВЕРКА ЧИСТОТЫ

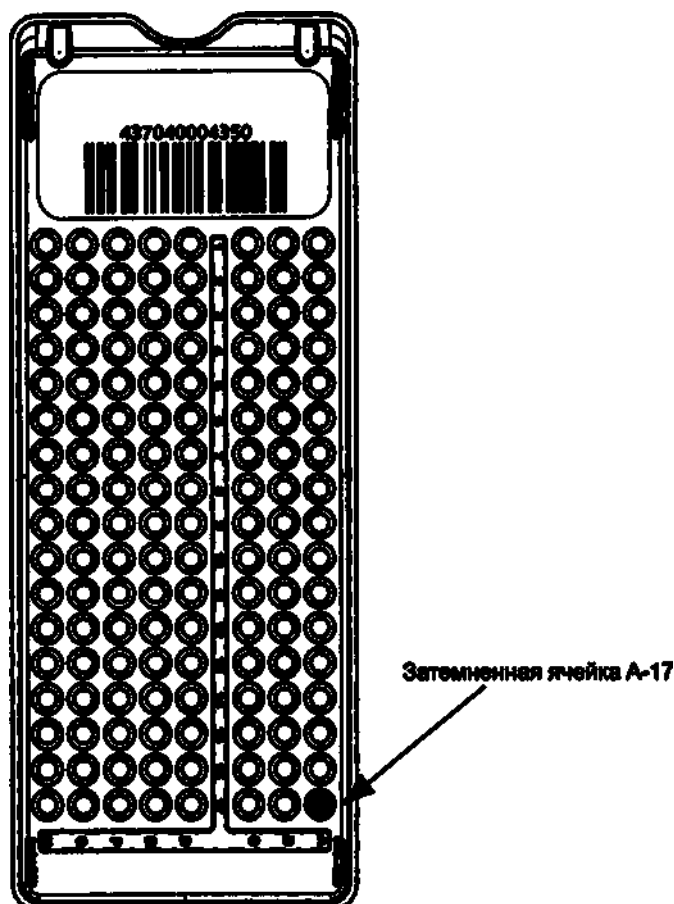
Настоятельно рекомендуется проводить проверку чистоты посевного материала как ID так и AST-S, подготавливая пластину чистоты.

Для проведения и проверки чистоты с использованием стерильной петли возьмите небольшую каплю из пробирки с посевным материалом либо до, либо после заправки панели и заправьте агаровую пластинку (с любой подходящей средой) для проверки чистоты. Выбросьте пробирку с жидкостью посевного материала и крышку в контейнер для биологически опасных отходов. Выдержите пластинку при температуре 35 °C в течение 24 – 48 часов при соответствующих условиях.

Изменение плотности посева для идентификации

Можно использовать часть идентификации панели в режиме, обратном установленному, затемнив ячейку A-17 на задней стороне панели перед помещением панели в прибор. Это позволяет использовать панель при плотности посева 0,20 – 0,30, даже если для данного типа панели установлена плотность 0,5. Подобным образом можно использовать панель с плотностью посева 0,50 – 0,60, если установлена плотность 0,25.

На экране «Panel Login» (Регистрация панели) изменить настройку плотности нельзя. Для использования панели в режиме обратной плотности с помощью черного несмываемого маркера Sharpie закрасьте полностью ячейку A-17, как показано на приведенном ниже рисунке.



Плотности посева, отправленные из прибора Phoenix AP (через систему EpiCenter), нельзя изменить, затемнив ячейку A-17. Плотности посева, отправленные из прибора Phoenix AP, недействительны, если они были получены после завершения первого цикла тестирования, если часть идентификации панели отключена или если плотность посева не поддерживается типом панели. Если прибор получает недействительное значение плотности посева для панели идентификации, которое отличается от плотности посева, определенной для панели, происходит сбой в работе стороны идентификации панели, инициируется код «Needs Attention» (Требуется внимания) («Can Not Determine Organism ID» (Невозможно определить идентификацию микроорганизма)) и «Special Message» (Специальное сообщение).

В следующей таблице показано, как запустить режим плотности, противоположной установленной в приборе.

Текущая конфигурация плотности посева прибора	Концентрация посева, необходимая для тестируемой панели	Количество идентификационного посевного материала, добавляемого в бульон AST**	Ячейка A-17
0,50	0,25	50 мкл	Затемнена
0,25	0,50	25 мкл	Затемнена
** Если также выполняется AST			

Панели Phoenix Yeast ID (Идентификация дрожжей)

Панели Phoenix Yeast ID (Идентификация дрожжей) предназначены для идентификации большинства видов клинически значимых дрожжей и дрожжеподобных микроорганизмов.

- 1 Выполните действия 1 – 8 (**Общая подготовка панели**), чтобы подготовить дрожжевую суспензию.
- 2 Плотность посева составляет 2,0 по стандарту Макфарланда для панелей Yeast ID (Идентификация дрожжей) с допустимым диапазоном от 2,00 до 2,40. Если плотность микроорганизмом более низкая или превышает 2,40 по стандарту Макфарланда, выполните инструкции, описанные в действии 9 (**Общая подготовка панели**), чтобы получить правильную плотность по Макфарланду.
- 3 Перелейте посевной материал из пробирки идентификации в порт для заполнения на стороне идентификации панели (сторона с 51 ячейкой). Не перемещайте панель, пока жидкость не спустится по каналу.
- 4 Прежде чем закрыть панель крышками, проверьте наличие остаточных капель посевного материала на краях портов для заполнения. Если капля осталась, удалите ее с помощью поглощающего материала. И использованный поглощающий материал необходимо утилизировать как биологически опасные отходы.
- 5 Защелкните крышки панели. **Убедитесь, что крышки плотно закрыты. Используйте 2 крышки независимо от типа панели.**
- 6 Внимательно осмотрите панели, убедитесь, что все ячейки заполнены. Если какая-либо из ячеек не заполнена или переполнена, заправьте новую панель.

ПРИМЕЧАНИЯ

- Панели Yeast ID (Идентификация дрожжей) должны быть засеяны с использованием плотности посева 2,00 – 2,40 по стандарту Макфарланда.
- Стандартизованную бактериальную суспензию в бульоне идентификации или бульоне посева необходимо использовать в течение 60 минут после приготовления.

ПРИМЕЧАНИЯ

- Необходимо установить панели в прибор в течение 30 минут после заправки (см. раздел 4.6).
- Необходимо держать панели в станции заправки после заправки, пока избыточная жидкость не будет полностью поглощена прокладкой.
- Панели должны стоять в кассете вертикально, пока не будут загружены.
- С заправленными панелями следует обращаться осторожно. Не ударяйте и не трясите панели.

ПРИМЕЧАНИЕ**ДОПОЛНИТЕЛЬНАЯ ПРОВЕРКА ЧИСТОТЫ**

Настоятельно рекомендуется проводить проверку чистоты посевного материала ID, подготавливая пластину чистоты.

Для проведения и проверки чистоты с использованием стерильной петли возьмите небольшую каплю из пробирки с посевным материалом либо до, либо после заправки панели и заправьте агаровую пластинку (с любой подходящей средой) для проверки чистоты. Выбросьте пробирку с жидкостью посевного материала и крышку в контейнер для биологически опасных отходов. Выдержите пластинку при температуре 35 °C в течение 24 – 48 часов при соответствующих условиях.

Панели Phoenix Plus

Панели Phoenix Plus предназначены для проведения тестирования чувствительности к большему количеству противомикробных препаратов. Для этого противомикробные препараты присутствуют на обеих сторонах панели Phoenix. Эти панели никогда не используются для проведения бактериальной идентификации. Из-за конструктивных особенностей в них используется другая техника заправки, она приведена ниже. Требуется две пробирки с бульоном AST.

- 1 Выполните действия 1–9 (**Общая подготовка панели**), чтобы подготовить бактериальную суспензию.
- 2 Добавьте одну каплю индикатора Phoenix AST в каждую пробирку с бульоном AST.
- 3 Перенесите 25 мкл (50 мкл, если используется параметр низкой концентрации посевного материала) суспензии в пробирки с бульоном Phoenix AST. Закройте и плавно переверните.
- 4 С помощью стерильных материалов удалите 3,5 мл бульона из одной из заправленных пробирок с бульоном Phoenix AST и выбросьте в соответствующий контейнер.
- 5 Перелейте оставшиеся 4,5 мл в левую сторону панели Phoenix Plus. Перелейте бульон Phoenix AST из другой пробирки в правую сторону панели Phoenix Plus.
- 6 Закройте панели и выполните стандартную процедуру регистрации панели.

Бульон посева Phoenix

Бульон посева Phoenix можно использовать для создания начальной суспензии микроорганизмов McFarland только при применении панелей Phoenix MIC (PMIC, NMIC, SMIC). Бульон посева Phoenix заполняется 2,2 мл бульона идентификации Phoenix и достигает правильной плотности посева путем использования меньшего количества колоний бактерий.

- 1 Выполните действия 1–9 (**Общая подготовка панели**) для подготовки бактериальной суспензии, используя бульон посева Phoenix, а не бульон идентификации Phoenix.
- 2 Для панелей NMIC и PMIC добавьте одну каплю индикатора Phoenix AST в пробирку с бульоном Phoenix AST.
Для панелей SMIC добавьте одну каплю индикатора Phoenix AST-S в пробирку с бульоном Phoenix AST-S.
- 3 Перенесите 25 мкл (50 мкл, если используется параметр низкой концентрации посевного материала) суспензии бульона посева Phoenix в пробирки с бульоном Phoenix AST или AST-S.
- 4 Выполните действия 16–19 (**Общая подготовка панели**). Выполните стандартную процедуру регистрации панели.

Панели Phoenix MIC (NMIC, PMIC, SMIC)

Посевной материал можно подготовить, используя либо бульон идентификации Phoenix, либо бульон посева Phoenix (действие 4 раздела «Общая подготовка панели»).

- 1 Выполните действия 1–9 (**Общая подготовка панели**), чтобы подготовить бактериальную суспензию.
- 2 Для панелей NMIC и PMIC добавьте одну каплю индикатора Phoenix AST в пробирку с бульоном Phoenix AST.
Для панелей SMIC добавьте одну каплю индикатора Phoenix AST-S в пробирку с бульоном Phoenix AST-S.
- 3 Перенесите 25 мкл (50 мкл при использовании низкой концентрации посевного материала с панелями NMIC или PMIC) бульона идентификации Phoenix в пробирку Phoenix AST или AST-S. Закройте и плавно переверните. Сохраните пробирку идентификации или пробирку посева для дополнительной проверки чистоты (см. выше).
- 4 Выполните действия 16–19 (**Общая подготовка панели**). Выполните стандартную процедуру регистрации панели.

4.4.1 Контроль качества

Информацию о контроле качества ID/AST см. на вкладыше упаковки панели. Обратите внимание, что панели контроля качества нельзя отметить как критические. См. рис. 4–2.

Рекомендуется проводить тестирование контроля качества для каждого лота панелей. Функция «QC Lot Support» (Поддержка лота контроля качества) может способствовать отслеживанию и тестированию панели контроля качества. Если функция «QC Lot Support» (Поддержка лота контроля качества) включена, необходимо определить номер лота панели до входа в панели контроля качества.

- 1 Заправьте панель одним из видов организмов, перечисленных на вкладыше упаковки. Все микробные культуры, включая организмы контроля качества, являются потенциально инфекционными и требуют соблюдения универсальных мер предосторожности. Организмы контроля качества подготавливаются для заправки панели в соответствии с инструкциями раздела 4.4 «Подготовка панелей», непосредственно предшествующего данному разделу.

ПРИМЕЧАНИЕ

Для получения наиболее надежных результатов рекомендуется пересевать микроорганизмы контроля качества как минимум дважды в два идущих подряд дня в TSA с агаром с 5% бараньей крови перед использованием в системе Phoenix. Используйте только хорошо изолированные колонии.

Для контроля качества панелей Yeast ID (Идентификация дрожжей) также допустимо использование декстрозного агара Сабуро в качестве среды перeseва.

- 2 Зарегистрируйте панель как панель контроля качества следующим образом:
 - a Нажмите программную клавишу «регистрация панели».



- б Нажмите программную клавишу «панель контроля качества».



- с В поле **Sequence #** (Порядковый №) введите или считайте порядковый номер панели.
 д При необходимости в поле **Accession #** (Образец №) введите или считайте номер образца. Нажмите  для перехода к следующему полю.
 е При использовании комбинированной панели автоматически устанавливаются оба флажка: «ID» (Идентификация) и «AST» (Тест чувствительности к противомикробным препаратам).

Рис. 4–2. Экран «QC Panel Login» (Регистрация панели контроля качества).

Для панелей Yeast ID (Идентификация дрожжей) поле «Media» (Питательная среда) отображается справа от поля «Isolate #» (Культура №).

- ф В поле **Isolate #** (Культура №) по умолчанию используется номер культуры 1. Введите номер культуры или нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для увеличения или уменьшения значения. Допустимые номера культур могут иметь значение от 1 до 20. Нажмите  для перехода к следующему полю.

- g Для панелей Yeast ID (Идентификация дрожжей) необходимо указать питательную среду в поле **Media** (Питательная среда). Если не указать тип питательной среды, при попытке сохранения панели возникает ошибка рабочего процесса. Если не войти в панель Yeast ID (Идентификация дрожжей) перед ее размещением в приборе для тестирования, обработка панели прерывается после первого прочтения, поскольку не указана питательная среда.
- Можно настроить тип питательной среды по умолчанию (см. раздел 2.3.1.2 «Дополнительные параметры конфигурации»), который отображается во время входа в панель при сканировании порядкового номера панели Yeast ID (Идентификация дрожжей).
- Для выбора другой питательной среды нажмите клавишу СТРЕЛКА ВНИЗ, чтобы открыть раскрывающийся список со всеми типами питательной среды (в сокращенном виде), отсортированными по алфавиту. (При выделении типа питательной среды его полное название отображается в правом верхнем углу экрана.) Используйте клавиши СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для перехода к нужной питательной среде. Нажмите программную клавишу «выбрать» или **Enter** для выбора этой питательной среды.
- h В поле **Test Strain** (Тестовый штамм), нажмите клавишу СТРЕЛКА ВНИЗ для открытия списка выбора микроорганизмов контроля качества. (Только если это установлено заранее, отображаются необходимые тестовые штаммы [если доступно], иначе отображаются все тестовые штаммы. Если номер последовательности не был введен, отображается сообщение об отсутствии данных «No Data Available».) Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для перехода к нужному микроорганизму контроля качества. Нажмите **Enter** для выбора микроорганизма. Нажмите **Tab** для перехода к следующему полю.
- i В поле **Tech ID** (Идентификация технолога), введите идентификатор технолога, выполняющего тестирование контроля качества. Можно ввести до 3 буквенно-цифровых символов. Нажмите **Tab** для перехода к следующему полю.

Следующие два поля не отображаются при взаимодействии с системой EpiCenter.

- j В поле **Panel Lot #** (Лот панели №) введите или считайте номер лота панели. Номер лота должен содержать 7 цифр. Нажмите **Tab** для перехода к следующему полю. (Если включена функция «QC Lot Support» (Поддержка лота контроля качества), данное поле заполняется автоматически при сканировании штрих-кода порядкового номера.)
- k В первом поле **Panel Lot # Exp Date** (Срок годности лота панели) нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода дня, месяца или года истечения срока годности (в зависимости от конфигурации). Нажмите клавишу **Tab** для перехода к следующему полю даты и воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода дня, месяца или года истечения срока годности. Нажмите клавишу **Tab** для перехода к следующему полю даты и воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода оставшейся части даты. (Если включена функция «QC Lot Support» (Поддержка лота контроля качества), данное поле заполняется автоматически при сканировании штрих-кода порядкового номера.)
- l При необходимости в поле **ID Broth Lot #** (Лот бульона идентификации №) введите или считайте номер лота бульона. Номер лота должен содержать 7 цифр. Нажмите **Tab** для перехода к следующему полю.
- m При необходимости в первом поле **ID Broth Lot # Exp Date** (Срок годности лота бульона идентификации) нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода дня, месяца или года истечения срока годности (в зависимости от конфигурации). Нажмите клавишу **Tab** для перехода к следующему полю даты и воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода дня, месяца или года истечения срока годности. Нажмите клавишу **Tab** для перехода к следующему полю даты и воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода оставшейся части даты.
- n При необходимости в поле **AST Broth Lot #** (Лот бульона теста чувствительности №) введите или считайте номер лота бульона. Номер лота должен содержать 7 цифр. Нажмите **Tab** для перехода к следующему полю.
- o При необходимости в первом поле **AST Broth Lot # Exp Date** (Срок годности лота бульона теста чувствительности №) нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода дня, месяца или года истечения срока годности (в зависимости от конфигурации). Нажмите клавишу **Tab** для перехода к следующему полю даты и воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода дня, месяца или года истечения срока годности. Нажмите клавишу **Tab** для перехода к следующему полю даты и воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода оставшейся части даты.

- При необходимости в поле **Indicator Lot #** (Лот индикатора №) введите или считайте номер лота бульона. Номер лота должен содержать 7 цифр. Нажмите **[Tab]** для перехода к следующему полю.
- При необходимости в первом поле **Indicator Lot # Exp** (Срок годности лота индикатора №) **Date** (Дата) нажмите клавишу **СТРЕЛКА ВВЕРХ** или **СТРЕЛКА ВНИЗ** для ввода дня, месяца или года истечения срока годности (в зависимости от конфигурации). Нажмите клавишу **[Tab]** для перехода к следующему полю даты и воспользуйтесь клавишами **СТРЕЛКА ВВЕРХ** или **СТРЕЛКА ВНИЗ** для ввода дня, месяца или года истечения срока годности. Нажмите клавишу **[Tab]** для перехода к следующему полю даты и воспользуйтесь клавишами **СТРЕЛКА ВВЕРХ** или **СТРЕЛКА ВНИЗ** для ввода оставшейся части даты.
- Нажмите программную клавишу сохранения для сохранения информации.



- 3 Поместите панель в инструмент (см. раздел 4.6).
- 4 По завершении тестирования панели проверьте точность результатов на дисплее результатов панели (см. раздел 4.10).

4.5 Panel Login (Регистрация панели)

4.5.1 Использование интерфейса прибора

На жидкокристаллическом дисплее (ЖК-дисплее) отображается вся информация, необходимая для мониторинга состояния прибора, установки и извлечения панелей, настройки прибора, печати отчетов и выполнения регулярного технического обслуживания. Информация представлена в форме экранов и значков, отображающих информацию графически (например, для индикации текущей температуры используется термометр). В верхней части экрана «Main Status» (Основное состояние) отображается информация о состоянии прибора, которая обновляется каждые несколько секунд. В середине дисплея изначально отображается информация о состоянии станции. По мере доступа к различным экранам и функциям они отображаются вместо верхнего и среднего окон состояния. В нижней части экранов отображается ряд значков, определяющих текущие функции программных клавиш. Отображаемые области более подробно описаны в разделе 5 «Справочная информация».

Большинство операций с прибором выполняется с помощью программных клавиш. Функции программных клавиш изменяются при их использовании, а также при доступе к различным экранам и операциям.

Вместо программных клавиш можно использовать клавиатуру. Программные клавиши (слева направо) соответствуют функциональным клавишам клавиатуры **[F1]** – **[F8]**. Клавиши **СТРЕЛКА ВВЕРХ**, **СТРЕЛКА ВНИЗ** и **TAB** соответствуют аналогичным клавишам на клавиатуре.

Кроме программных клавиш имеется шесть клавиш с собственными значками, которые выполняют фиксированные функции независимо от текущего экрана или операции. Клавиша **LOAD PANELS** (Загрузка панелей) используется при подготовке прибора к загрузке панелей для тестирования, клавиша **UNLOAD PANELS** (Выгрузка панелей) — для извлечения панелей из прибора, клавиша **SILENCE ALARM** (Отключение звука сигнала тревоги) отключает все звуковые сигналы предупреждения, клавиши **СТРЕЛКА ВВЕРХ** и **СТРЕЛКА ВНИЗ** используются для прокрутки списков, а также для увеличения или уменьшения значений, а клавиша **TAB** — для перемещения курсора в следующее поле на экране. При одновременном нажатии клавиш **SILENCE ALARM** (Отключение звука сигнала тревоги) + **СТРЕЛКА ВВЕРХ** распечатывается текущий экран.

4.5.2 Вход в панели

В зависимости от выбранного типа панели на экране «Panel Login» (Регистрация панели) отображаются различные поля. (Информацию о входе в панели контроля качества см. в разделе 4.4.1.)

Плотность посева панели задается на экране «Configuration» (Конфигурация). На экране «Panel Login» (Регистрация панели) изменить настройку плотности нельзя. Единственным способом использовать другую плотность посева является затемнение ячейки A-17, как описано в подразделе «Изменение плотности посева с помощью идентификации» раздела 4.4 «Подготовка панелей».

При использовании панелей Yeast ID (Идентификация дрожжей) (только в этом случае) для обеспечения оптимальной производительности системы необходимо указать правильный тип питательной среды в раскрывающемся списке или настроить питательную среду по умолчанию. Тип питательной среды требуется выбирать только для панелей Yeast ID (Идентификация дрожжей), и это поле не отображается для других типов панелей.

Установите панель в прибор следующим образом.

- 1 Нажмите программную клавишу «регистрация панели».



- 2 В поле **Sequence #** (Последовательность №) введите или отсканируйте номер последовательности панелей.
- 3 В поле **Accession #** (Образец №) введите или считайте номер образца. Нажмите **[Tab]** для перехода к следующему полю (не требуется при считывании штрих-кода).
- 4 В поле **Isolate #** (Культура №) по умолчанию используется номер культуры 1. Введите номер культуры или нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для увеличения или уменьшения значения. Допустимые номера культур могут иметь значение от 1 до 20. Нажмите **[Tab]** для перехода к следующему полю. (Необходимо ввести номер культуры, если введен номер образца.)
- 5 Для панелей Yeast ID (Идентификация дрожжей) необходимо указать питательную среду в поле **Media** (Питательная среда). Если не указать тип питательной среды, при попытке сохранения панели возникает ошибка рабочего процесса. Если не войти в панель Yeast ID (Идентификация дрожжей) перед ее размещением в приборе для тестирования, обработка панели прерывается после первого прочтения, поскольку не указана питательная среда.

Можно настроить тип питательной среды по умолчанию (см. раздел 2.3.1.2 «Дополнительные параметры конфигурации»), который отображается во время входа в панель при сканировании порядкового номера панели Yeast ID (Идентификация дрожжей).

Для выбора другой питательной среды нажмите клавишу ▼, чтобы открыть раскрывающийся список со всеми типами питательной среды (в сокращенном виде), отсортированными по алфавиту. (При выделении типа питательной среды его полное название отображается в правом верхнем углу экрана.) Используйте клавиши ▼ или ▲ для перехода к нужной питательной среде. Нажмите программную клавишу «выбрать» или **[Enter]** для выбора этой питательной среды.

- 6 Если необходимо получать специальное уведомление (звуковые сигналы тревоги и/или автоматическая печать лабораторного отчета) при получении результатов панели (только результаты идентификации, частичные или полные), нажмите программную клавишу «выбрать», чтобы установить флажок **Critical** (Критическая). Дополнительная информация о критических панелях представлена в разделе 2.3.5.
- 7 При использовании только идентификации либо части теста чувствительности комбинированной панели, нажмите клавишу «табуляция» для перемещения курсора к флажку **ID** (Идентификация) или **AST** (Тест чувствительности к противомикробным препаратам). Нажмите программную клавишу «выбрать», чтобы ОЧИСТИТЬ флажок неиспользуемой части панели.

- 8 При ОЧИСТКЕ флажка ID (Идентификация) либо при использовании только панели AST или Phoenix Plus отображается поле **Organism ID** (Идентификация микроорганизмов). Если система не выполняет идентификацию микроорганизмов, необходимо предоставить идентификацию микроорганизмов для интерпретации SIR. (При выполнении тестирования панели AST и при отсутствии идентификации микроорганизмов, когда прибор завершит чтение, для панели будет установлено состояние «Needs Attention» (Требуется внимания). Будет необходимо ввести идентификацию микроорганизмов, чтобы система BDxpert выполнила интерпретацию результатов MIC.)

Нажмите клавишу СТРЕЛКА ВНИЗ для выбора микроорганизмов в раскрывающемся списке. Микроорганизмы перечислены в алфавитном порядке. Можно ввести несколько первых символов названия микроорганизма, чтобы быстро перейти в соответствующую часть списка. Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для перехода к нужному микроорганизму. Нажмите программную клавишу «выбрать» или **Enter** для выбора микроорганизма. Можно также считать необходимый микроорганизм из списка штрих-кодов микроорганизмов краткого справочного руководства.

- 9 Нажмите программную клавишу «сохранить» для сохранения информации.



- 10 Поместите панель в прибор (см. раздел 4.6).

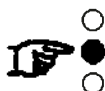
На экране «Panel Login» (Регистрация панели) можно выполнить следующие функции программных клавиш:



«Сохранить» — сохранение отображаемой информации



«Очистить» — удаление записи, отображаемой в данный момент на экране



«Выбрать» — установка или очистка флажка или выбор выделенного элемента в окне раскрывающегося списка



«Панель контроля качества» — открытие полей, необходимых для регистрации панели контроля качества



«Повторить данные» — ввод номера последнего образца и типа питательной среды для панелей или информации о типе питательной среды и лоте для панелей контроля качества, как указано ниже: если отключена поддержка лота контроля качества (лот панели со сроком годности, лот бульона идентификации со сроком годности, лот бульона теста чувствительности со сроком годности, лот индикатора со сроком годности), если включена поддержка лота контроля качества (лот бульона идентификации со сроком годности, лот бульона теста чувствительности со сроком годности, лот индикатора со сроком годности)



«Заказы ЛИС» — открытие окна, отображающего все записи заказов, полученных от системы ЛИС (дополнительную информацию см. в разделе 4.5.3).

4.5.3 Объединение и удаление заказов ЛИС

Прибор Phoenix может сохранять до 200 записей заказов, отправленных подключенной системой ЛИС. Эти записи заказов можно просмотреть на экране «Panel Login» (Регистрация панели), «LIS Orders» (Заказы ЛИС). Экран «LIS Orders» (Заказы ЛИС) можно открыть из основного экрана «Panel Login» (Регистрация панели) с помощью программной клавиши.

Порядок открытия экрана «LIS Orders» (Заказы ЛИС):

- 1 На экране «Main Status» (Основное состояние) нажмите программную клавишу «регистрация панели».



- 2 Введите или считайте порядковый номер панели. (При вводе порядкового номера система отобразит только заказы ЛИС, содержащие данный тип панели.)
- 3 Очистите флажок ID (Идентификация) или AST (Тест чувствительности к противомикробным препаратам), чтобы отключить эту часть комбинированной панели, если это необходимо.
- 4 На экране «Panel Login» (Регистрация панели) нажмите программную клавишу «заказы ЛИС».



- 5 Отображается экран «LIS Orders» (Заказы ЛИС) (Рис. 4–3).
- 6 В поле «LIS Orders» (Заказы ЛИС) нажмите ▼ для открытия списка записей заказов ЛИС для данного типа панели, отсортированных в алфавитном порядке по номеру образца. В списке содержится следующая информация: номер образца, номер культуры и микроорганизм или тестовый штамм (если доступно). Обратите внимание, что критические панели выделены в раскрывающемся списке красным цветом.
- 7 С помощью клавиш ▼ или ▲ выберите запись заказа, которую необходимо объединить с панелью. Нажмите программную клавишу «выбрать» или **Enter** для выбора этого заказа.
- 8 Нажмите программную клавишу «сохранить» для сохранения объединения. После этого заказ ЛИС будет удален из списка заказов ЛИС.

Удаление заказов ЛИС

Чтобы удалить одну или несколько записей заказов ЛИС из списка заказов ЛИС, можно открыть окно «Удаление заказов ЛИС». В данном окне перечислены все заказы ЛИС в соответствии с типом панели. Сначала отметьте записи заказов, затем удалите их с помощью функций программных клавиш.

Порядок удаления записей заказов ЛИС:



В окне «LIS Orders» (Заказы ЛИС) нажмите программную клавишу «дополнительные функции ЛИС».

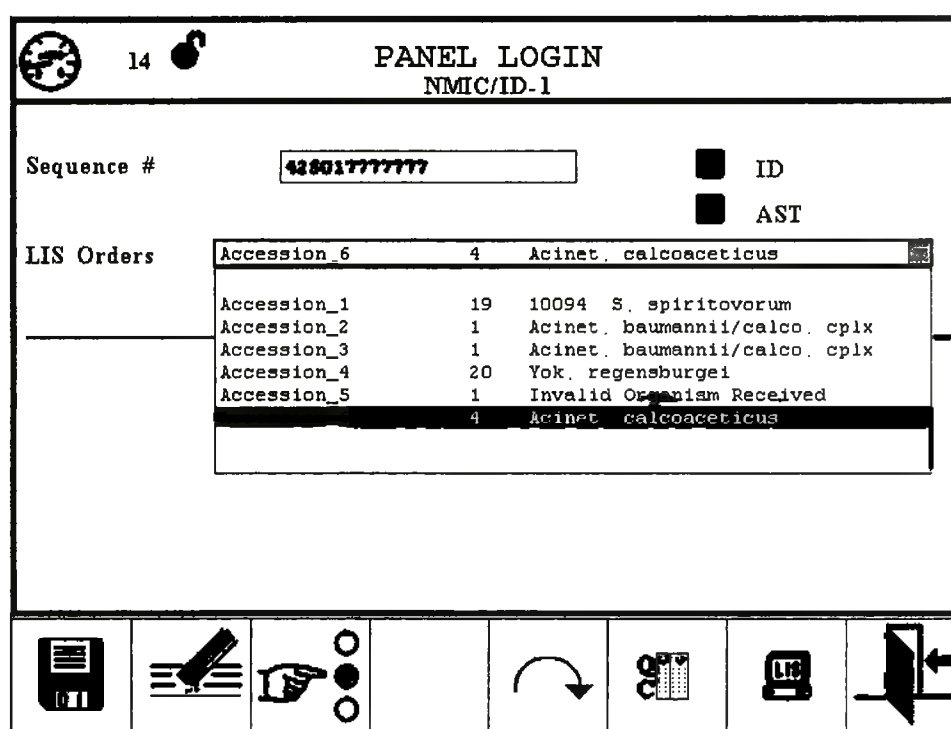


Рис. 4–3. Экран «Panel Login — LIS Orders» (Регистрация панели — Заказы ЛИС).

Отрывается окно «Remove LIS Orders» (Удаление заказов ЛИС).

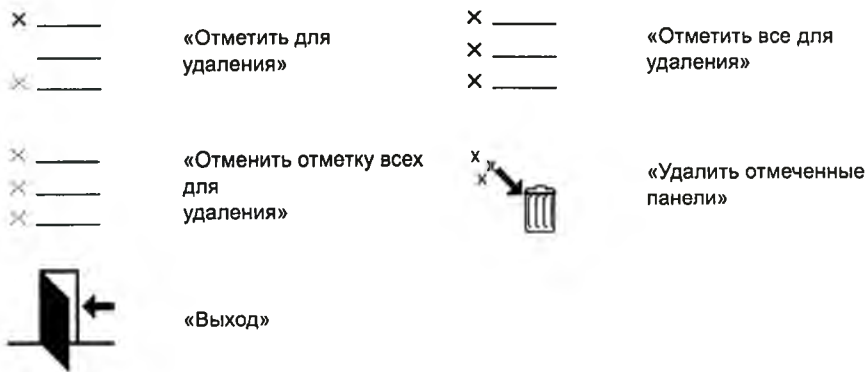
С помощью клавиш СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ выберите отдельные записи заказов для удаления, затем нажмите программную клавишу «отметить для удаления».

Чтобы отметить все записи, нажмите программную клавишу «отметить все для удаления».

Нажмите программную клавишу «удалить отмеченные панели», чтобы удалить заказы.

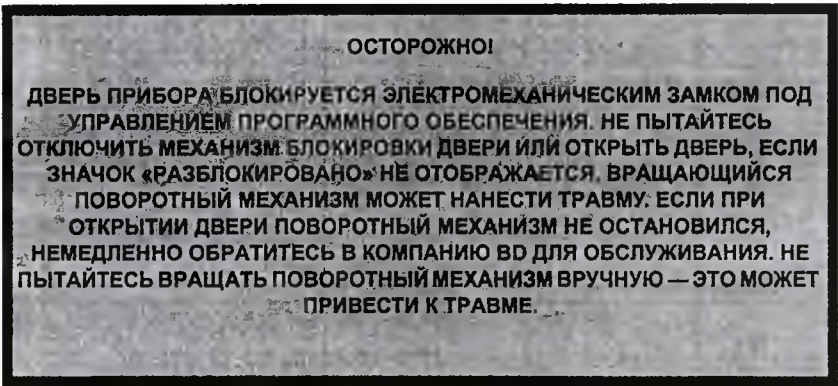
Нажмите программную клавишу «выход», чтобы закрыть окно.

Программные клавиши окна «Remove LIS Orders» (Удаление заказов ЛИС):

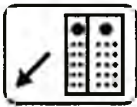


4.6 Установка панелей в прибор

Панели устанавливаются реакционной стороной (и этикеткой со штрих-кодом порядкового номера панели) к внутренней части прибора. См. рис. 4–4.



- 1 Нажмите клавишу LOAD PANELS (Загрузка панелей).



- 2 Когда раздастся звуковой сигнал (и появится значок «дверь разблокирована»), откройте дверь прибора.



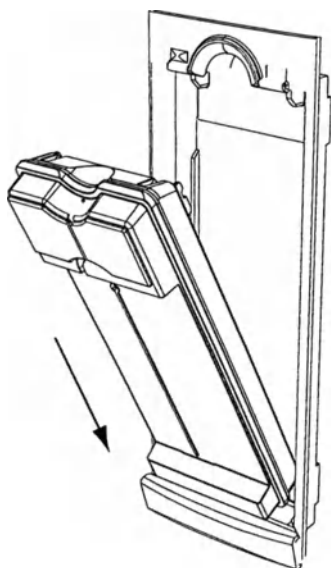
- 3 Выберите держатель панели, в который еще не установлена панель и у которого не светится светодиод. Поместите нижнюю часть панели в держатель панели.
- 4 Нажмите вниз.
- 5 Прижмите верхнюю часть панели задней стороной к держателю панели.

ПРИМЕЧАНИЕ

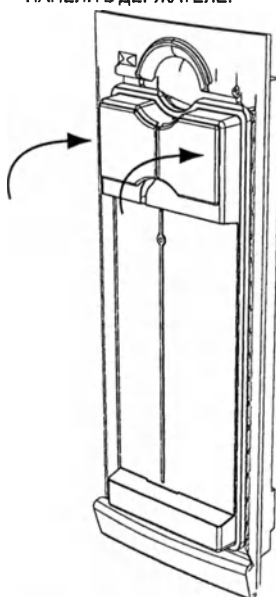
Не защелкивайте заднюю сторону панели в держателе. Это может привести к разбрызгиванию посевного материала и к неточным результатам.

- 6 Панель должна иметь возможность перемещения вверх на место.
- 7 Закройте дверь прибора. Если количество панелей, которые необходимо установить, больше количества держателей, доступных в текущем отсеке, дождитесь, когда поворотный механизм повернется и предоставит дополнительные доступные держатели, после этого повторите действия 2 – 7.
- 8 Система осуществляет предварительное сканирование для определения только что установленных панелей и считывает штрих-коды этих панелей.

Вставьте нижнюю часть панели в держатель панели.



Поверните верхнюю часть панели вверх и вставьте в держатель. НЕ ЗАЩЕЛКИВАЙТЕ ЗАДНЮЮ СТОРОНУ ПАНЕЛИ В ДЕРЖАТЕЛЕ.



Убедитесь, что панель передвигается вверх на место.

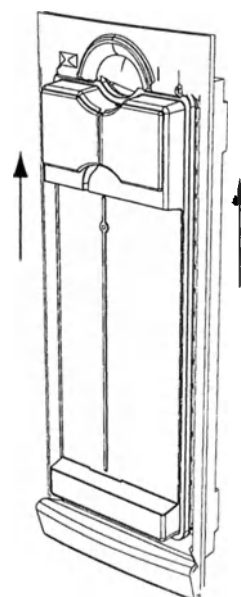


Рис. 4–4. Установка панелей.

4.7 Тестирование панели

Панели, установленные в прибор, находятся при постоянно поддерживаемой температуре 35 °С. Прибор тестирует панели каждые 20 минут: в начале каждого часа, через 20 минут после начала часа и через 40 минут после начала часа.

Перед каждым циклом тестирования считывается текущее время. Если цикл тестирования завершен успешно, время сохраняется. Цикл теста выполняется успешно, когда не возникают сбои в поворотном механизме и пользователь не останавливает тест, запуская операции загрузки панелей, выгрузки панелей или определения панели. При запуске этих операций текущее время сопоставляется со временем запуска последнего цикла тестирования. Если НЕ прошло более 30 минут, выполняются требуемые операции («Load Panels» (Загрузка панелей), «Unload Panels» (Выгрузка панелей) и другие). Если ПРОШЛО 30 минут от запуска последнего цикла тестирования, необходимо завершить цикл тестирования, прежде чем будет разрешено выполнить операции загрузки панелей, выгрузки панелей или определения панели. Если прошло более 30 минут от последнего цикла тестирования, при попытке выполнить операции с панелями системное предупреждение/светодиодный индикатор открытой двери также отключается (если системное предупреждение неактивно) и звучит сигнал «нет доступа к прибору».

После каждого теста:

- Суммирующие счетчики на экране «Main Status» (Основное состояние) изменяются для отображения текущих состояний.
- Для панелей/записей, требующих реакции пользователя, установлены флаги «Needs Attention» (Требуется внимания).
- Системные предупреждения вносятся в список «System Alerts» (Системные предупреждения).
- Выполняется автоматическое объединение (см. раздел 4.9).

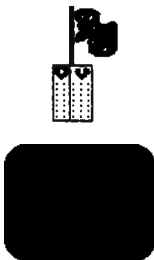
На ЖК-дисплее отображается значок, информирующий о выполнении тестирования панели.



Число возле значка обозначает количество минут, оставшихся до окончания цикла тестирования.

4.8 Действия с панелями, требующими внимания

По мере выполнения системой операций некоторые панели могут перейти в состояние, при котором они будут отмечены как требующие внимания. Обычно для исправления сложившейся ситуации можно предпринять определенные меры. В некоторых случаях отобразится сообщение о том, что требуется тщательное изучение результатов панели. Список панелей, требующих внимания, можно открыть, нажав программную клавишу «требуется внимания» на экране «Main Status» (Основное состояние).



Условия, приводящие к состоянию «Требуется внимания» (см. раздел 5.11), приведены ниже в порядке значимости:

• «Test Aborted» (Тест прерван)	Активные программные клавиши: «игнорировать», «определить панель», «удалить панель»
• «Can Not Identify Barcode» (Невозможно определить штрих-код)	Активные программные клавиши: «игнорировать», «определить панель»
• «Can Not Read Panel Wells» (Невозможно считать ячейки панели)	Активные программные клавиши: «определить панель», «удалить панель»
• «Panel Lot Expired» (Истек срок годности лота панели)	Активные программные клавиши: «игнорировать», «удалить условие, требующее внимания»
• «Invalid AST Results» (Недействительные результаты теста чувствительности к противомикробным препаратам)	Активные программные клавиши: «игнорировать»
• «Panel Missing» (Отсутствует панель)	Активные программные клавиши: «игнорировать», «удалить панель»
• «No Growth on Panel» (Нет роста на панели)	Активные программные клавиши: «игнорировать», «определить панель», «удалить панель»
• «Panel Lot Undefined» (Лот панели не определен)	Активные программные клавиши: отсутствуют для указанного состояния
• «Review QC results» (Просмотр результатов контроля качества)	Активные программные клавиши: «результаты панели», «игнорировать», «определить панель», «удалить панель»
• «Missing Accession Number» (Отсутствует номер образца)	Активные программные клавиши: «результаты панели», «определить панель»
• «Missing Organism ID» (Отсутствует идентификация микроорганизма)	Активные программные клавиши: «результаты панели»
• «Can Not Determine Organism ID» (Невозможно определить идентификацию микроорганизмов)	Активные программные клавиши управления: «результаты панели», «игнорировать»
• «Invalid Organism ID» (Неправильная идентификация микроорганизма)	Активные программные клавиши: «результаты панели», «игнорировать»
• «Organism ID Conflict» (Несоответствие идентификации микроорганизма)	Активные программные клавиши: «результаты панели»
• «BDXpert Rule Flagged» (Отмечено правило BDXpert) (если включено и запускается вручную)	Активные программные клавиши: «результаты панели»
• «Pending Too Long» (Слишком долгое ожидание)	Активные программные клавиши: «игнорировать»

На экране «Needs Attention» (Требуется внимания) отображаются первые 30 панелей с флажками «Needs Attention» (Требуется внимания), отсортированные по коду причины (в том же порядке, что и в приведенном выше списке) и по номеру образца внутри каждого кода причины. В каждом коде причины состояния «Needs Attention» (Требуется внимания) первыми отображаются панели без номера образца. Обратите внимание, что даже после удаления панелей из списка «Needs Attention» (Требуется внимания) можно просматривать код причины высшего приоритета на экране «Panel Results» (Результаты панели).

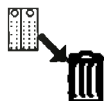
В зависимости от причины состояния «Needs Attention» (Требуется внимания), в некоторых случаях для изменения состояния можно использовать следующие программные клавиши.



«результаты панели»



«игнорировать»



«удалить панель»



«определить панель»



«печать»



«переключение экрана»



«удалить условие,
требующее внимания»

Эти программные клавиши предназначены для корректировки (если возможно) требующего внимания состояния панели. Если это невозможно, с помощью программных клавиш предоставляются другие решения.

При нажатии клавиши «результаты панели» открывается экран «Panel Results» (Результаты панели), где можно изменить код «Needs Attention» (Требуется внимания), добавив информацию к записи панели.

При нажатии клавиши «игнорировать» код причины «Needs Attention» (Требуется внимания) не изменяется, но система информируется о том, что Вы знаете о проблеме.

При нажатии клавиши «удалить панель» открывается экран «Panel Results» (Результаты панели), где можно удалить панель.

При нажатии клавиши «определить панель» поворотный механизм поворачивается к местоположению панелей и загорается индикатор станции, в которой находится панель.

Клавиша «печать» позволяет распечатать «Needs Attention List Report» (Отчет со списком панелей, требующих внимания). Фильтр отчета включается или отключается при выборе вида.

С помощью клавиши «переключение экрана» осуществляется переключение между экраном с отфильтрованными на основании высшего приоритета (по умолчанию) причинами и экраном без фильтра (отображающем все причины, вызывающие состояние требуемого внимания «Needs Attention»). При выполнении фильтрации списка в нем отображается только самое приоритетное условие, требующее внимания. Панели отображаются синим цветом, если существуют дополнительные требующие внимания условия для данной панели.

С помощью клавиши «удалить условие, требующее внимания» удаляется условие, требующее внимания.

Действия с панелями, требующими внимания.

- 1 Откройте экран «Needs Attention» (Требуется внимания).
- 2 Дополнительную информацию о конкретной причине, требующей внимания, см. в разделе 5.11 и приведенной ниже таблице.
- 3 Нажмите соответствующую программную клавишу, чтобы открыть «Panel Results» (Результаты панели) (для добавления или изменения информации), удалить панель, проигнорировать или удалить причину или найти панель в приборе.

Состояние	Значение	Возможные причины	Действия
«Test aborted» (Тест прерван)	При возникновении такого состояния панель становится недействительной	- Данная панель не тестировалась более часа. - Прибор был отключен свыше одного часа. - Дверь прибора была открыта свыше одного часа. - Панель перемещена на другой уровень или в другой прибор - Слишком высокая или слишком низкая температура термостата. - Программное обеспечение системы не выполняло алгоритмы тестирования свыше одного часа. - Для панели Yeast ID (Идентификация дрожжей) не указан тип питательной среды.	- Удалите панель. - Повторите тестирование.
«Cannot identify barcode» (Невозможно определить штрих-код)	Внутренний сканер штрих-кода не может прочитать штрих-код панели в станции, в которой прибор определил наличие панели.	- Этикетка со штрих-кодом неразборчива или отсутствует. - В прибор установлен неизвестный тип панели.	Найдите панель в приборе и проверьте штрих-код. - Если штрих-код неразборчив, необходимо удалить панель и заправить другую. - Если штрих-код в порядке, снова установите панель и закройте дверь. После следующей инвентаризации проверьте экран панелей, требующих внимания. Если проблемная панель уже не отображается, внутренний сканер может теперь прочитать панель.
«Cannot read panel wells» (Невозможно считать ячейки панели)	Внутренний сканер штрих-кода прочитал порядковый номер, но прибор не определил наличие панели в этой станции.	Панель установлена неправильно.	Найдите панель, извлеките и установите снова, как описано выше.
«Panel lot expired» (Истек срок годности лота панели)	Выполнена регистрация панели (или указана дата запуска теста) с истекшим сроком годности номера лота панели.	Панель, вход в которую выполняется или которая помещается в прибор, из лота с истекшим сроком годности.	Удалите панель, заправьте культурой панель лота с неистекшим сроком годности.
«Invalid AST results» (Недействительные результаты теста чувствительности к противомикробным препаратам)	Как минимум одно значение MIC не может быть интерпретировано. (За исключением панелей контроля качества.)	См. таблицу 5–1.	Повторите тестирование противомикробного препарата, интерпретация которого не может быть выполнена.
«Panel missing» (Отсутствует панель)	Внутренний сканер штрих-кода прочитал порядковый номер текущей панели, но панель отсутствует.	- Панель извлечена до завершения теста. - Сбой в работе внутреннего сканера, номер последовательности не может больше считываться.	Если панель будет помещена на тот же уровень в течение часа после извлечения, тестирование возобновится. Если панель не будет возвращена, тестирование будет прервано.
«No growth on panel» (Нет роста на панели)	Нет роста в ячейке контроля роста. (За исключением панелей только идентификации и панелей контроля качества.)	Прибор не определил рост в ячейке контроля роста панели.	- Пересейте микроорганизм (чтобы убедиться, что он жизнеспособен) и заправьте новую панель. Тестирование панели прервано. - На экране «Needs Attention» (Требуется внимание) удалите или проигнорируйте панель.

Табл. 4-2 – Разрешение состояния, требующего внимания

Состояние	Значение	Возможные причины	Действия
«Panel Lot Undefined» (Лот панели не определен)	Установлена панель, лот которой не определен (не панель контроля качества).	Панель из неопределенного лота.	Определите лот панели или проигнорируйте.
«Review QC results» (Просмотр результатов контроля качества)	Состояние завершенной панели контроля качества «Review» (Просмотр).	Панель контроля качества, для которой получены неправильные результаты идентификации или теста чувствительности хотя бы для одного противомикробного препарата, или панель, в ячейке контроля роста которой нет роста.	Повторите проверку качества микроорганизмов. Проверьте чистоту культуры и плотность посева.
«Missing Accession Number» (Отсутствует номер образца)	Отсутствует информация об образце или культуре для панели. (Отдельная панель.)	Сбой при вводе информации об образце или культуре.	Нажмите клавишу «результаты панели». Введите номер образца или считайте штрих-код.
«Missing Organism ID» (Отсутствует идентификация микроорганизма)	Нет идентификации микроорганизма для панели. (Идентификация требуется для определения результатов SIR. За исключением панелей контроля качества.)	- Для панели только теста чувствительности: идентификация не была введена. - Панель содержит неразрешенную связь или триплетный идентификатор прибора и не имеет соответствующей панели с идентификатором.	Введите идентификацию микроорганизма (курсор будет в поле идентификации, и поле будет выделено). ИЛИ откройте раскрывающийся список, нажимая клавишу СТРЕЛКА ВНИЗ и вводя первые буквы названия микроорганизма. Выполняется прокрутка списка до введенных букв организма. Нажмите программную клавишу «выбрать» для выбора выделенного микроорганизма. Все правила BDxpert, применяемые данной идентификацией, автоматически будут отображены в данном пункте. Выберите или проигнорируйте правила. По завершении нажмите клавишу «выход» для просмотра результатов всего теста.
«Can Not Determine Organism ID» (Невозможно определить идентификатор микроорганизма)	Панель идентифицирована прибором как «No identification» (Нет идентификации) или связана с панелью с окончательной идентификацией «No identification» (Нет идентификации).	Панель тестировалась в течение 12 часов и прибор не может выполнить идентификацию.	Повторите тестирование. Проверьте следующее: - Чистоту культуры - Плотность посева - Использование надлежащей панели - Наличие сведений о микроорганизме в базе данных Phoenix.
«Invalid Organism ID» (Неправильный идентификатор микроорганизма)	Идентификатор микроорганизма отсутствует в базе данных Phoenix.	Панель получила информацию о загрузке идентификатора микроорганизма, отсутствующего в базе данных Phoenix.	Используйте альтернативный метод.
«Organism ID conflict» (Несоответствие идентификации микроорганизма)	Панель завершает тестирование и связана, по крайней мере, с одной необработанной панелью, которая содержит другую итоговую идентификацию. За исключением панелей контроля качества.	Завершенная панель связана, как минимум, с одной панелью, которая содержит другую идентификацию.	Нажмите программную клавишу «результаты панели» и выберите микроорганизм. Выбор микроорганизма может запустить правила BDxpert. Если установлен запуск правил вручную, отобразится программная клавиша «BDxpert».

Табл. 4-2 – Разрешение состояния, требующего внимания

Состояние	Значение	Возможные причины	Действия
«BDXpert Rule Flagged» (Отмечено правило BDXpert)	Панель запустила, как минимум, одно правило BDXpert, и правило было включено вручную в меню конфигурации.	Чтобы определить результаты теста чувствительности, необходимо применить правило BDXpert. Панель отмечается, если правило BDXpert настроено как включено/запуск вручную. (Правила, которые настроены как включенные или запускаемые автоматически, будут запущены автоматически и панель не будет отображаться в списке «Needs Attention» (Требуется внимания).	Каждое правило «Expert» (Эксперт) отображается отдельно и последовательно. Чтобы применить правило, нажмите программную клавишу «ОК»; чтобы отклонить, нажмите программную клавишу «отклонить». С помощью программной клавиши «обновить» удалите «решения» системы BDXpert и перезапустите. При отображении и установке всех правил отображаются полные результаты теста чувствительности. После того как все правила были применены, нажмите программную клавишу «Special Messages» (Специальные сообщения) для просмотра специальных сообщений о характеристиках микроорганизма.
«Pending Too Long» (Слишком долгое ожидание)	Панель не была считана (в период инвентаризации) в течение 30 минут после открытия экрана «Panel Login» (Регистрация панели).	Панель была введена в прибор, но не была установлена в течение 2 циклов считывания (примерно 30 минут).	Повторите тестирование. Удалите панель.

Табл. 4-2 – Разрешение состояния, требующего внимания

4.9 Автоматическое объединение панелей

4.9.1 Обзор

Автоматическое объединение, или автообъединение, — это процесс, запускаемый системой после выполнения определенных процедур запуска, описанных ниже. Основной целью этой процедуры является объединение результатов идентификации одной панели (панель идентификации или комбинированная панель) с панелями AST, связанными с ней, в которых эта идентификация еще отсутствует. Связь устанавливается между панелями с одинаковыми номерами образцов и культур. (Так, панели с одинаковым номером образца, но разными номерами культуры НЕ связаны, и для них процедура автоматического объединения не выполняется.)

Часто к процедуре автоматического объединения относится начальная стадия проверки соответствия идентификации микроорганизмов. Условия выполнения этой проверки описаны ниже. Проверка соответствия представляет собой выполняемую системой процедуру, во время которой проверяется, не различаются ли итоговая идентификация панели, которая запустила процесс, и итоговая идентификация связанной с ней панели. Если имеется несовместимость, процедура автоматического объединения связанных панелей не выполняется.

Процедура автоматического объединения позволяет избежать необязательных действий оператора, устраняя необходимость вручную вводить идентификацию микроорганизмов для связанных панелей. Кроме того, функция проверки соответствия позволяет гарантировать, что один и тот же идентификатор микроорганизма применяется ко всем панелям, связанным с образцом пациента.

Помните, что автоматическое объединение не устанавливает параметр критической панели для связанных панелей.

4.9.2 Типы панелей

Со связанными панелями сопоставляется информация идентификации следующих типов панелей: панели идентификации, комбинированные панели (с задействованными сторонами ID и AST) и комбинированные панели только со стороной ID. В автоматическом объединении используется итоговая идентификация.

В ходе автоматического объединения устанавливаются идентификации следующих связанных панелей: панели AST и комбинированные панели только со стороной AST.

4.9.3 Случаи невыполнения автоматического объединения

Автоматическое объединение НЕ выполняется в следующих случаях:

- ◆ когда имеется несоответствие идентификаторов микроорганизма для образца или культуры;
- ◆ для связанной обработанной или удаленной панели AST или панели, у которой уже имеется итоговая идентификация;
- ◆ для связанных панелей типа ID;
- ◆ для связанных панелей типа AST;
- ◆ для панели QC (контроля качества) и обычной панели;
- ◆ для связанных панелей QC (контроля качества);
- ◆ когда в поле «Instrument ID» (Идентификация прибора) содержится связь/триплет, и эта информация не относится ни к одной связанной панели AST, тем не менее сведения итоговой идентификации автоматически ОБЪЕДИНЯЮТСЯ.

4.9.4 Проверка соответствия идентификации микроорганизмов

Проверка соответствия идентификации микроорганизмов выполняется с применением итоговой идентификации для панелей одного образца и культуры (то есть связанных панелей), которые не обработаны (и не являются панелями QC). Если обе панели имеют итоговую идентификацию (обе панели не пусты) и они не совпадают в точности, считается, что имеется несоответствие идентификации микроорганизмов. В этом случае автоматическое объединение не выполняется. Для всех панелей, между которыми имеется несоответствие, устанавливается флаг «Needs Attention» (Требуется внимания), указывающий на несоответствие микроорганизмов. Как только несоответствие разрешено (и выполняются все прочие условия, необходимые для проведения автоматического объединения), выполняется автоматическое объединение.

Помните, что проверка соответствия идентификации микроорганизмов не выполняется для панелей QC.

4.9.5 Автоматическое объединение и связанные с ним действия

К событиям запуска, которые инициируют автоматическое объединение, относятся: изменение состояния панели идентификации или комбинированной панели на сменную панель, а также изменение информации образца/культуры. В случае, если нет неразрешенных условий связь/триплет и несоответствия идентификации микроорганизмов, выполняются следующие действия:

- 1 Прибором выполняется поиск первой *необработанной* связанной панели идентификации или комбинированной панели с итоговой идентификацией. Если панель с заданными критериями найдена, выполняется автоматическое объединение.

Если панель с описанными выше критериями не найдена, прибором выполняется поиск первой *обработанной* связанной панели ID или комбинированной панели. Если обработанная панель найдена, выполняется автоматическое объединение.

Если при инициализации автоматического объединения панелью AST (и наличии условия несоответствия идентификации микроорганизмов) имеются связанные панели идентификации с итоговой идентификацией, для панели AST, если она является сменной, прибором устанавливается причина «Missing Organism ID Needs Attention» (Отсутствует идентификация микроорганизма. Требуется внимания.).

- 2 Автоматическое объединение выполняется для всех связанных панелей AST, в поле итоговой идентификации которых отсутствует информация, если они обрабатываются в данный момент или являются сменными (автоматическое объединение не выполняется для панелей AST в состоянии ожидания).

В ходе автоматического объединения изменяется поле итоговой идентификации панели AST (когда это поле не заполнено) и в него заносится информация, идентичная информации связанной панели ID.

Информация идентификации прибора объединяется только в том случае, если она представляет собой идентификатор одного микроорганизма, а не условие связи/триплет.

Комбинированная панель с обеими задействованными сторонами использует результат этой идентификации для выполнения интерпретации на стороне панели AST.

- 3 При успешном выполнении автоматического объединения все существующие основания «Missing Organism ID Needs Attention» (Отсутствует идентификация микроорганизма. Требуется внимания.) удаляются из панелей AST.

4.9.6 Типичные примеры автоматического объединения

Объединение идентификации прибора

Панель ID и панель AST зарегистрированы с одним и тем же номером образца/культуры. (Панель AST не зарегистрирована с идентификацией микроорганизма.) Обе панели были размещены в приборе в одно и то же время. Завершено тестирование панели ID. Панели выглядят следующим образом:

Панель	Идентификация прибора	Итоговая идентификация
ID	Org A	Org A
AST		

При завершении тестирования панели идентификации выполняется поиск связанных панелей. Затем обнаруживается панель AST без итоговой идентификации. Выполняется проверка соответствия идентификации микроорганизмов. Несоответствия идентификации микроорганизмов нет, поэтому идентификация прибора панели ID заносится в поле панели AST «Instrument ID» (Идентификация прибора) (независимо от состояния панели AST). Панели выглядят следующим образом:

Панель	Идентификация прибора	Итоговая идентификация
ID	Org A	Org A
AST	Org A	Org A

Объединение идентификации прибора и итоговой идентификации

Панель идентификации зарегистрирована с номером образца/культуры. Она размещена в приборе для тестирования. Тестирование завершено, и панель выглядит следующим образом:

Панель	Идентификация прибора	Итоговая идентификация
ID	Org A	Org A

Пользователь изменяет итоговую идентификацию для этой панели. Теперь она выглядит следующим образом:

Панель	Идентификация прибора	Итоговая идентификация
ID	Org A	Org B

Затем пользователь регистрирует панель AST с тем же самым номером образца/культуры, что и панель идентификации. (Панель AST не зарегистрирована с идентификацией микроорганизма.) Тестирование панели AST завершено; выполняется поиск связанных панелей. Обнаруживается панель идентификации, и выполняется проверка соответствия идентификации микроорганизма по культуре. Несоответствия идентификации микроорганизмов нет, поэтому идентификация панели ID заносится в панель AST. Теперь панели выглядят следующим образом:

Панель	Идентификация прибора	Итоговая идентификация
ID	Org A	Org B
AST	Org A	Org B

Объединение итоговой идентификации

Панель ID зарегистрирована с номером образца/культуры. Она размещена в приборе для тестирования. Сначала завершается тестирование панели ID с условием связи/триплет. По завершении панель выглядит следующим образом:

Панель	Идентификация прибора	Итоговая идентификация
ID	Org A	
	Org B	
	Org C	

Когда условие связи/триплет разрешено (пользователь выбрал один из перечисленных микроорганизмов или другой микроорганизм), панель идентификации будет выглядеть следующим образом:

Панель	Идентификация прибора	Итоговая идентификация
ID	Org A	
	Org B	
	Org C	Org A

Затем пользователь регистрирует панель AST с тем же самым номером образца/культуры, что и панель идентификации. (Панель AST не зарегистрирована с идентификацией микроорганизма.) Тестирование панели AST завершено; выполняется поиск связанных панелей. Обнаруживается панель идентификации, и выполняется проверка соответствия идентификации микроорганизма по культуре. Несоответствия идентификации микроорганизмов нет, поэтому итоговая идентификация панели идентификации заносится в панель AST. Теперь панели выглядят следующим образом:

Панель	Идентификация прибора	Итоговая идентификация
ID	Org A	
	Org B	
	Org C	Org A
AST		Org A

4.10 Получение результатов

Основным средством для просмотра результатов тестирования панелей является экран «Panel Results» (Результаты панели). Экран «Panel Results» (Результаты панели) позволяет выполнять следующие функции:

- отображение панели, данные которой сохранены в базе данных Phoenix;
- изменение информации панели, присутствующей в базе данных;
- обозначение панели как критической;
- печать лабораторных отчетов для любой панели, которую можно вызвать или отобразить на экране;
- нахождение панели, установленной в том же приборе, в котором вызываются данные панели;
- удаление информации о панели из базы данных Phoenix;
- выполнение или отображение любых запущенных применяемых правил BDxpert;
- отображение любых специальных сообщений;
- завершение обработки панели.

Перейти к экрану «Panel Results» (Результаты панели) можно несколькими различными способами:

- считывание известного порядкового номера панели или номера образца с помощью внешнего сканера, когда отображается основной экран;
- выбор на экране «Main Status» (Основное состояние) программной клавиши «результаты панели» или ее эквивалента на клавиатуре;



- считывание или ввод известного порядкового номера панели, когда отображается экран «Panel Login» (Регистрация панели);
- выбор на экране «Needs Attention» (Требуется внимания) программной клавиши «удалить панель» или клавиши «результаты панели», или же их эквивалентов на клавиатуре, когда активен параметр «Delete» (Удаление);
- выбор на экране «Batch Finalization» (Окончательная обработка партии) программной клавиши «результаты панели» или ее эквивалента на клавиатуре;
- выбор на экране «Panel Inventory» (Инвентаризация панелей) или экране «Panel Lot Definition» (Определение лота панели) программной клавиши «результаты панели» или ее эквивалента на клавиатуре.

Типичные экраны результатов панели показаны на рис. 4–5 и рис. 4–6.

При вызове панели на экране «Panel Results» (Результаты панели) отображаются следующие поля (примите во внимание, что в зависимости от типа панели и от того, подключен прибор к системе EpiCenter или нет, могут отображаться не все поля):

- Accession Number (Номер образца);
- Sequence Number (Порядковый номер);
- Isolate Number (Номер культуры);
- Media (Питательная среда);
- Status (Состояние);
- Final ID (Итоговая идентификация) — тестовый штамм для панели QC;
- Panel Lot # (Лот панели №) — если включена поддержка лота контроля качества;
- (Panel Lot) Expiration Date (Срок годности лота панели) — если доступна панель QC и имеется поддержка лота контроля качества;
- Test Start (Начало теста);
- Test End (Окончание теста);
- Location (Местоположение);
- Finalized Status (Состояние обработки) — состояние контроля качества для панели QC;
- Critical Status (Критическое состояние);
- Флаг «Needs attention» (Требуется внимания);
- Флаг «Resistance marker» (Маркер устойчивости);
- Instrument Organism ID (Идентификация микроорганизмов прибора) — может содержать следующие элементы:
 - Instrument Organism ID (Идентификация микроорганизмов прибора);
 - Confidence Value (Значение степени достоверности);
 - до 5 дополнительных тестов.

- Поля для панелей QC:

  0.5		PANEL RESULTS GNIDAST 951	
Accession #	1313	Test Start	10/21/03 14:27
Sequence #	429510001405	Test End	10/21/03 14:27
Isolate #	1 	Location	1/A01
Status	COMPLETE	Modify Related Panels	
Final ID	Prot. mirabilis 	Finalized	
		Critical	

Instrument	Organism ID	Confidence
	Prot. mirabilis	97%

Biochemical	Actual	Expected
A_ARARR	+	+
A_GLPRB	-	+
A_GLYB	+	+
A_GUGAH	-	+
A_LARGH	+	+

Следующие значки обозначают перечисленные условия:



Имеется причина для сигнала «Needs Attention» (Требуется внимания)



Запущен маркер устойчивости

На экране «Panel Results» (Результаты панели) можно выполнить следующие функции программных клавиш.



«Сохранить» — сохранение отображаемой информации.



«Очистить» — удаление записи, отображаемой в данный момент на экране.



«Выбрать» — установка или очистка флажка или выбор выделенного элемента в окне раскрывающегося списка

0.5

PANEL RESULTS
NQC01

Accession #
Sequence #
Isolate #
Status
Final ID

425190008038

6

COMPLETE

Esch. coli

Test Start
Test End
Location

11/13/07 14 ..

11/13/07 11:29

1/A04

Finalized
Critical

Antimicr MIC	I	E	F	Antimicr MIC	I	E	F	Antimicr MIC	I	E	F
GM 4	S		☐	ATM 4	S	R	☐	CIP <=0.5	S		☐
NN 8	I		☐	AM >16	R		☐	NOR <=0.5	S		☐
IPM <=0.5	S		☐	PIP >64	R		☐	TE >16	R		☐
CF >32	R		☐	AMC 8/4	S	R	☐				
FOX 2	S		☐	TZP <=2/4	S		☐				
CTX <=4	S	R	☐	SXT <=0.5/9.5	S		☐				
FEP <=2	S	R	☐	FM <=32	S		☐				

Рис. 4–6. Экран «Panel Results» (Результаты панели) — результаты AST.



«Поиск» — вызов данных для введенного номера образца (или отображение списка результатов панели, если для данного образца имеется более одной панели).



«Переключение экрана» — переключение между результатами идентификации, результатами AST и экранами маркера устойчивости (если используется) для комбинированных панелей.



«Переключение программных клавиш» — переключение между отображаемым на экране в данный момент набором программных клавиш и дополнительным набором.



«Печать лабораторного отчета» — печать копии лабораторного отчета для текущей панели.



«Определить панель» — определение размещения, индикация текущей панели в приборе и разблокировка двери.



«Удалить панель» — удаление текущей панели из базы данных.



«Переход к правилам BDxpert» — переход к экрану «BDxpert Rules Triggered» (Применяемые правила BDxpert).



«Дополнительные противомикробные препараты» — отображение дополнительных противомикробных препаратов, если их количество превышает предельно допустимое для отображения на экране.



«Специальные сообщения» — переход к экрану специальных сообщений.



«Выход» — выход из данного экрана.

4.10.2 Изменение результатов AST

Могут возникнуть ситуации, когда будет необходимо изменить результаты SIR для панели. Помните, что при наличии ожидающих правил BDxpert, запускаемых вручную, изменить итоговые результаты SIR нельзя. Сначала необходимо принять или отклонить все ожидающие правила, чтобы дать системе выполнить обработку итоговых результатов. После завершения итоговой обработки можно будет при необходимости вручную изменить результаты SIR.

Порядок изменения итоговых результатов SIR:

- 1 На экране «Panel Results» (Результаты панели) нажмите программную клавишу «табуляция» для перехода к полю Final SIR (Итоговая SIR) для требуемого противомикробного препарата.
- 2 Нажмите клавишу СТРЕЛКА ВНИЗ для переключения записи в поле между следующими результатами:

«S(usceptible)» (Чувствительные);

«I(ntermediate)» (Промежуточные);

«R(esistant)» (Устойчивые);

«X = Invalid, cannot interpret» (X = неправильное значение, интерпретация невозможна), см. таблицу 5–1;

«N(ot Susceptible)» (Нечувствительные)*;

«Blank» (Пустые) (указывает необходимость идентификации).

* «N» указывает на то, что у противомикробного препарата или микроорганизма нет верхней точки прерывания. При отсутствии верхней точки прерывания нет критерия отнесения микроорганизма к категории промежуточных или устойчивых. Это часто случается, когда у микроорганизма нет известных устойчивых штаммов. В этом случае, если минимальная ингибирующая концентрация (MIC) не превышает нижнюю точку прерывания, результаты SIR будут объявлены чувствительными, а если минимальная ингибирующая концентрация (MIC) превышает нижнюю точку прерывания, единственным предоставленным результатом будет «N», или нечувствительные.

4.10.3 Экран «BDxpert Triggered Rules» (Применяемые правила BDxpert)

По умолчанию правила BDxpert включены и установлены на автоматический запуск во время обработки результатов тестирования. Однако предусмотрена возможность отключения некоторых правил (это означает, что они не будут применяться к результатам) на экране «BDxpert Rule Configuration» (Конфигурация правил BDxpert) или возможность запуска правил BDxpert вручную. Пользователю необходимо принять или отклонить все правила, для которых установлен запуск вручную, до обработки дополнительных правил или до того, как произойдет итоговое определение SIR.

Порядок перехода к экрану «BDxpert Triggered Rules» (Применяемые правила BDxpert):

- 1 Чтобы перейти к экрану «BDxpert Triggered Rules» (Применяемые правила BDxpert), на экране «Panel Results» (Результаты панели) нажмите программную клавишу «переход к правилам BDxpert».
- 2 Первое ожидающее правило выделено в окне «Rules» (Правила) в нижней левой части экрана.
- 3 Влияние применения правила на итоговые значения SIR можно посмотреть в окне «AST Results» (Результаты AST) справа внизу.
- 4 Нажмите: программную клавишу «принять», чтобы перейти к незавершенному правилу; «отмена», чтобы отклонить правило; «выполнить повторно», чтобы повторно применить все правила интерпретации к необработанным данным, или «выход», чтобы вернуться к экрану «Panel Results» (Результаты панели).

«принять»

OK

«отклонить»



«выполнить
повторно»

«ВЫХОД»



4.10.4 Экран «Resistance Marker» (Маркер устойчивости)

Если маркеры устойчивости были запущены для определенной панели, с помощью программной клавиши «переключение экрана» можно переключаться между экранами «AST results» (Результаты AST), «Resistance Marker review» (Просмотр маркеров устойчивости) (рис. 4–8) и «ID results» (Результаты идентификации).

В верхнем окне экрана «Resistance Marker review» (Просмотр маркеров устойчивости) отображается та же информация, что и на других двух экранах — «ID results» (Результаты идентификации) и «AST results» (Результаты AST). В нижнем окне отображается следующая информация:

- номер правила BDxpert, запустившего маркер устойчивости;
- код маркера устойчивости (сокращение);
- наименование маркера устойчивости;
- описание правила BDxpert.

0.5
PANEL RESULTS
CT01P

Accession #	1313	Test Start	10/21/03 14:27
Sequence #	424940000111	Test End	10/21/03 14:27
Isolate #	1	Location	1/A03
Status	COMPLETE		
Final ID	Enterococcus faecalis	Finalized	☒
		Critical	☒

Rule #	RM	Name
1507	VRE	Vancomycin Resistant Enterococcus
0224	HLGR	High Level Gentamicin Resistant
0227	HLSR	High Level Streptomycin Resistant

Rule Description

For isolates with an interpretation of resistant for high levels of streptomycin (HLGR), synergy with cell wall active agents (e.g., ampicillin, penicillin, vancomycin) is not achievable.

Рис. 4–8. Экран «Resistance Marker Review» (Просмотр маркеров устойчивости).

4.11 Окончательная обработка панели

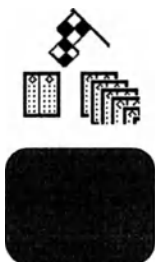
Функция окончательной обработки панели позволяет обработать результаты тестирования панели по одному или партией. Окончательную обработку можно выполнять как для всех панелей, подготовленных к обработке, так и лишь для некоторых из них. Результаты отдельных панелей можно просмотреть перед окончательной обработкой.

Все поля экрана «Finalization» (Окончательная обработка) предназначены только для чтения. Для *изменения* информации панели нажмите программную клавишу «результаты панели».

Если прибор подключен к системе управления данными EpiCenter, экран «Finalization» (Окончательная обработка) недоступен.

Порядок выполнения окончательной обработки панелей:

- 1 На экране «Main Status» (Основное состояние) нажмите программную клавишу «окончательная обработка». Отображается экран «Finalization» (Окончательная обработка) (рис. 4–9).



Если панелей для окончательной обработки нет, доступна только программная клавиша «выход».

Если **ИМЕЮТСЯ** панели для окончательной обработки, отображаются следующие программные клавиши:



«печать сводного отчета»



«обработать одну»



«обработать все»

- 2 Для окончательной обработки **ВСЕХ** готовых панелей нажмите программную клавишу «обработать все».
- 3 Для окончательной обработки панелей по одной нажмите программную клавишу «обработать одну».

Первая из доступных для окончательной обработки панелей отображается в основной части экрана. Нажмите одну из следующих клавиш:

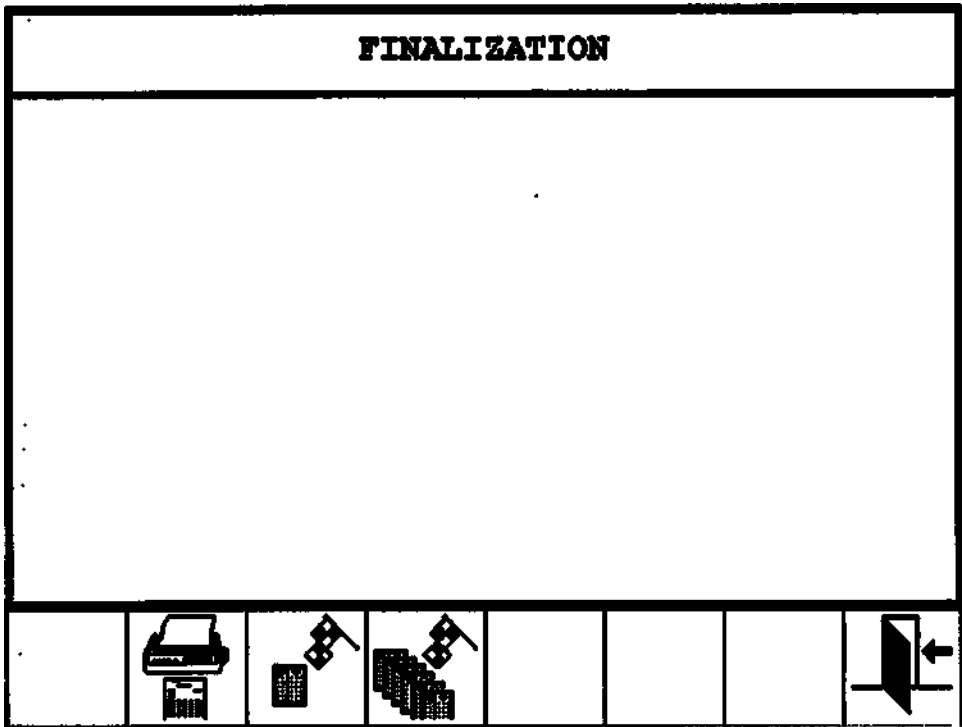


Рис. 4-8. Экран «Finalization» (Окончательная обработка).

OK	«принять»	окончательная обработка текущей и отображение следующей записи
	«отмена»	пропуск текущей и отображение следующей записи
	«переключение экрана»	просмотр результатов AST (если отображаются результаты идентификации) или наоборот
	«результаты панели»	переход к экрану «Panel Results» (Результаты панели)

- 4 Для печати сводного отчета по всем панелям, доступным для окончательной обработки, нажмите программную клавишу «сводный отчет по окончательной обработке». Пример показан на рис. 4-10. В этом отчете показаны номер образца (первый критерий сортировки), номер культуры (второй критерий сортировки), дата и время окончания теста, порядковый номер, номер прибора/станция и состояние обработки (* — если обработано, пусто — если не обработано).

Finalization Summary Report

08/15/01 09:11

<u>Accession #</u>	<u>Isolate #</u>	<u>Test End</u>	<u>Sequence #</u>	<u>Instr # / Station</u>	<u>Finalized</u>
1313	1	08/15/01 13:13	420011234567	1/A02	*
1344	1	08/15/01 13:13	420027654321	1/B03	*
1489	1	08/15/01 13:13	420031234123	1/C04	*
1566	1	08/15/01 13:13	420047654765	1/D05	

End of Report

Рис. 4–10. «Finalization Summary Report» (Сводный отчет по окончательной обработке).

- 3 При переходе к экрану «Panel Results» (Результаты панели) для добавления или изменения информации до окончательной обработки панели, убедитесь, что все изменения сохранены. На экране «Panel Results» (Результаты панели) нажмите программную клавишу «выход», чтобы вернуться на экран «Finalize Single» (Обработка одной панели).
- 6 По завершении окончательной обработки отдельной панели (или партии панелей) на экране «Finalization» (Окончательная обработка) появляется программная клавиша «печать лабораторного отчета». С помощью этой клавиши можно распечатать лабораторные отчеты для всех панелей, обработанных в ходе данного сеанса (не более 200).



- 7 Продолжайте просмотр записей панелей и их окончательную обработку до тех пор, пока не будут обработаны все панели.

4.12 Реагирование на сигналы тревоги и ошибки

Во время работы с прибором Phoenix, а также при выполнении его тестирования могут произойти системные предупреждения и ошибки. Различные типы предупреждений и ошибок выделяются с помощью следующих средств: коды ошибок «E» и «W», звуковые сигналы, значок «System Alert» (Системное предупреждение), появляющийся на ЖК-дисплее, а также мигающий индикатор прибора «System Alert» (Системное предупреждение). Как правило, чем серьезнее ошибка, тем больше уведомлений о проблеме получает пользователь.

ВНИМАНИЕ!

Когда система уведомляет Вас об ошибке или предупреждении, необходимо немедленно предпринять соответствующие действия.

Системные предупреждения, которые составляют все коды ошибок типа «E», заносятся в список системных предупреждений. Эти ошибки приводят к следующим действиям системы: появление на экране «Main Status» (Основное состояние) значка системного предупреждения, мигание индикатора «System Alert» (Системное предупреждение) и срабатывание звукового сигнала тревоги. Их можно просмотреть, нажав программную клавишу «системное предупреждение» (см. ниже) и перемещаясь по списку с помощью клавиш СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ. Ошибки необходимо просмотреть, чтобы очистить условие системного предупреждения.



Ошибки работы заключают в себе все коды ошибок типа «W». Такие ошибки, например, попытка ввести неправильный порядковый номер на экране «Panel Login» (Регистрация панели), приводят к появлению на активном в данный момент экране значка ошибки работы. При появлении таких ошибок предупреждения не срабатывают. Зачастую исправить такие ошибки можно, просто правильно выполняя операцию (например, указав правильный порядковый номер).



Более подробную информацию о кодах ошибок «E» и «W» см. в разделе 7.2 «Сообщения об ошибке или предупреждающие сообщения». Информацию о звуковых сигналах см. в разделе 3.7 «Звуковые сигналы и сигналы тревоги». Звуковой сигнал тревоги типа «System alert» (Системное предупреждение) можно отключить, нажав клавишу ОТКЛЮЧЕНИЕ ЗВУКА СИГНАЛА ТРЕВОГИ.

4.13 Печать отчетов

Если к прибору подключен совместимый принтер, можно распечатать следующие отчеты (см. рис. 4–11):

- ◆ **Completed Lab Report** (Завершенный лабораторный отчет) — в нем содержится информация обо всех панелях, которые перешли в состояние «Complete» (Выполнено) за выбранный временной интервал (не более 48 часов).
- ◆ **Accession Lab Report** (Лабораторный отчет для образца) — представлена информация для образца с указанным номером.
- ◆ **Needs Attention List Report** (Отчет со списком панелей, требующих внимания) — перечислены все панели в базе данных прибора, для которых был установлен флаг «Needs Attention» (Требуется внимания), который не был проигнорирован.
- ◆ **Resident Panel Report** (Отчет установленных панелей) — перечислены панели, содержащиеся в станциях 1–25 для каждого уровня.
- ◆ **QC Lab Report** (Лабораторный отчет контроля качества) — перечислены все микроорганизмы тестового штамма, тестирование которых было завершено и были получены все биохимические результаты и/или результаты MIC противомикробного препарата (для определенного номера лота панели), которые имеются в базах данных Phoenix при запросе отчета.*
- ◆ **Cumulative QC Report** (Сводный отчет контроля качества) — приводится информация о тестировании контроля качества всех типов панелей. *
- ◆ **Daily Instrument Report** (Ежедневный отчет прибора) — перечислены состояния прибора на момент формирования отчета вместе с контрольным перечнем технического обслуживания.
- ◆ **Interpretation Rule Set Report** (Отчет набора правил интерпретации) — перечислены точки прерывания противомикробного препарата для набора правил интерпретации, установленного как набор правил по умолчанию на экране «Instrument Configuration» (Конфигурация прибора).
- ◆ **BDXpert Rule Set Database Report** (Отчет базы данных набора правил BDXpert) — перечислены все номера правил BDXpert и приводится текст, поясняющий каждое правило, а также информация о том, включено или выключено то или иное правило, и о том, автоматический запуск или запуск вручную установлен для каждого правила.
- ◆ **Organism ID Code List Report** (Отчет списка кодов идентификации микроорганизмов) — отображение всех названий микроорганизмов и их сокращений, существующих в базе данных Phoenix.
- ◆ **Antimicrobial Code Report** (Отчет кодов противомикробных препаратов) — отображение всех противомикробных препаратов, их сокращений и кодов ЛИС, существующих в базе данных Phoenix для всех конфигураций панелей.
- ◆ **Lab Report** (Лабораторный отчет) — приводится вся информация о панели с указанным порядковым номером, записанная в базе данных Phoenix, включая всю информацию экрана «Panel Results» (Результаты панели), все специальные сообщения, запущенные правила BDXpert или причины «Needs Attention» (Требуется внимания), если таковые существуют. Этот отчет можно распечатать только на экране «Panel Results» (Результаты панели) или экране «Finalization» (Окончательная обработка).
- ◆ **Finalization Summary Report** (Сводный отчет по окончательной обработке) — содержатся все панели, доступные для окончательной обработки на момент создания отчета, а также состояние окончательной обработки. Этот отчет можно распечатать только на экране «Finalization» (Окончательная обработка).
- ◆ **Panel Inventory Lab Report** (Лабораторный отчет инвентаризации панелей) — печать лабораторного отчета для всех панелей прибора. Этот отчет можно распечатать только на экране «Panel Inventory» (Инвентаризация панелей).
- ◆ **Custom Breakpoint Difference Report** (Специальный отчет о различиях точек прерывания) — печать списка различий между старыми и новыми точками прерывания после запуска диска с обновлениями Phoenix и выполнения установки/обновления. Этот отчет можно распечатать только на экране «Custom Interpretation Rule Set (Configuration)» (Пользовательский набор правил интерпретации).
- ◆ **Current QC Panel Lot Report** (Текущий отчет лота панели контроля качества) — приводится информация о самом последнем тестировании контроля качества для каждого из требуемых штаммов для лота панели (не более 20 штаммов). Этот отчет можно распечатать только на экране «Panel Lot Definition» (Определение лота панели).
- ◆ **Historical QC Panel Lot Report** (Отчет истории лота панели контроля качества) — содержится информация всех тестов для штамма для данного прибора (не более 200 тестов). Этот отчет можно распечатать только на экране «Panel Lot Definition» (Определение лота панели).

- ◆ Panel Lot Report (Отчет лота панели) — перечислены все записи панелей для любого номера лота панели в данном приборе.
- ◆ Panel Lot Database Report (Отчет базы данных лотов панелей) — перечислены все определенные лоты панелей в данном приборе, а также приводится статистическая и справочная информация по этим лотам.

*Отчет не отображается, если подключение EpiCenter активно.

Дополнительную информацию об этих отчетах и образцы отчетов см. в разделе 5 «Справочная информация».

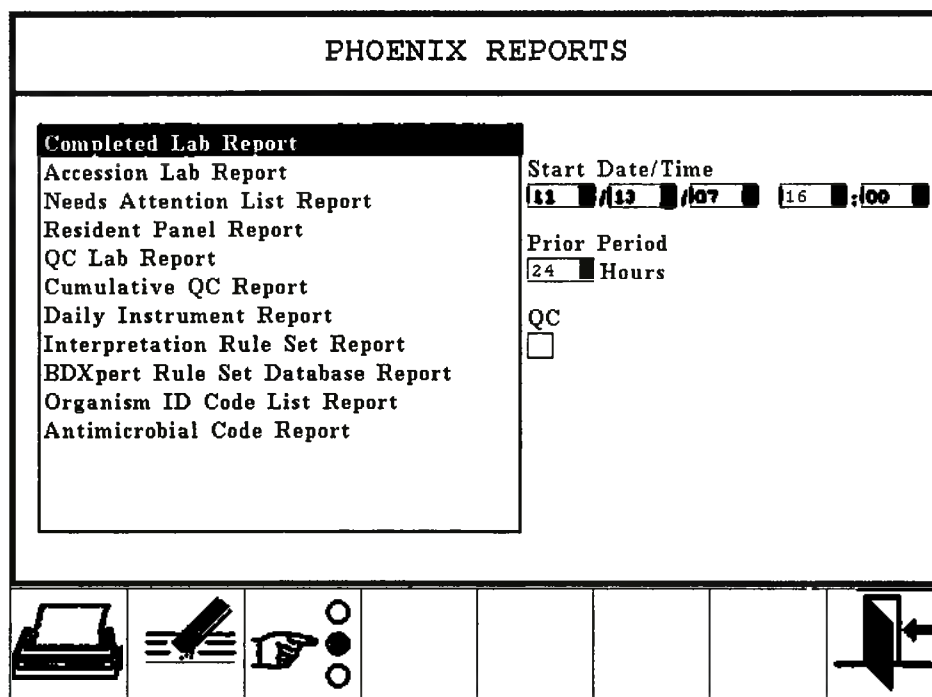


Рис. 4–11. Меню «Reports» (Отчеты)

Порядок печати отчета:

- 1 На экране «Main Status» (Основное состояние) нажмите программную клавишу «печать отчетов».

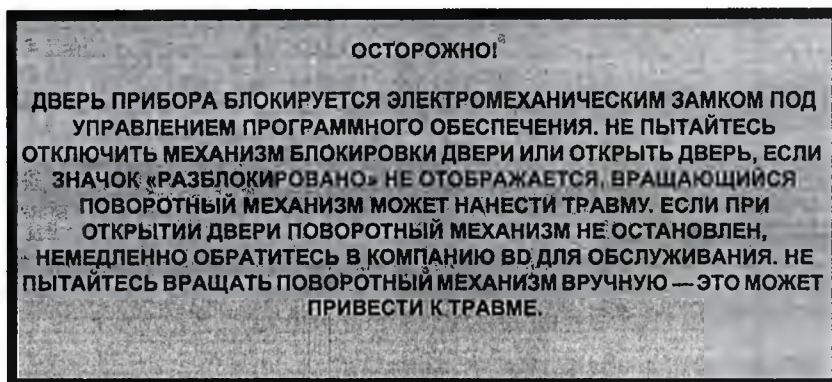


- 2 Появится меню отчетов.
- 3 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить отчет, который необходимо распечатать.
- 4 Заполните все дополнительные поля (например, номер образца для лабораторного отчета образца) и нажмите программную клавишу «печать отчетов», чтобы распечатать отчет. (Требования к дополнительным полям см. в разделе 5.)

Некоторые отчеты можно также распечатать прямо с экранов, связанных с ними, например, с экрана «Needs Attention List Report» (Отчет со списком панелей, требующих внимания).

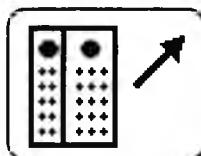
4.14 Выгрузка и утилизация панелей

После завершения тестирования панелей их можно извлечь из прибора и утилизировать.



Порядок извлечения панелей:

- 1 Нажмите клавишу ВЫГРУЗКА ПАНЕЛЕЙ.



- 2 Когда появится значок «Дверь разблокирована», откройте дверь прибора.



- 3 Все панели, которые можно извлечь, отмечаются СВЕЯЩИМСЯ ЗЕЛЕНЫМ индикатором.
- 4 Для извлечения панели нажмите на нее вниз, поверните верх панели наружу и извлеките панель из держателя.
- 5 Если завершенные панели находятся в недоступных станциях, закройте дверь и подождите, пока прибор переместит поворотный механизм так, чтобы получить доступ к этим панелям. Когда появится значок «Дверь разблокирована» (также прозвучит сигнал остановки поворотного механизма), откройте дверь и продолжите извлечение панелей.
- 6 Утилизируйте панели в контейнере для биологически опасных веществ.

4.15 Установка новых форматов панелей

Время от времени будут создаваться новые форматы панелей, которые Вы, возможно, захотите применить в системе. В приборе Phoenix предусмотрена возможность обновления базы данных панелей с помощью штрих-кодов, включая новые панели, которые необходимо сканировать. Это позволяет обновлять базу данных быстро и легко для работы с новыми панелями.

Напечатанный штрих код содержит следующую информацию: название новой панели, версия программного обеспечения, необходимого для использования новой панели, противомикробные препараты на новой панели, концентрации используемых препаратов, контрольная информация для проверки ввода всех необходимых данных в правильном порядке.

Только панели AST и части AST комбинированных панелей можно обновлять таким способом.

При попытке использовать новую панель без предварительного обновления базы данных панелей прибора, появится рабочее предупреждение («производственная» ошибка) — «W100 Invalid Panel Sequence Number» (W100 Неправильный порядковый номер), что не позволит начать работу с новой панелью. Просто выполните процедуру обновления панели, описанную ниже, для обновления базы данных панелей, а затем можно начать работу с новой панелью. Обычно процесс обновления занимает лишь несколько минут.

Порядок выполнения обновления панели:

1. Перейдите к экрану «Main Status» (Основное состояние).
2. Извлеките страницу формата панели BD Phoenix из коробки панели. Считайте первый штрих-код на странице. Автоматически появится экран «File Transfer» (Передача файла).
3. Нет необходимости держать переключатель сканера штрих-кода нажатым. Когда начинается передача файла, считывающее устройство остается включенным до тех пор, пока не произойдет ошибка сканирования. Проведите сканером сверху вниз в первом столбце (система может обрабатывать около 3 – 4 штрих-кодов в секунду).
4. Когда первый столбец штрих-кодов завершен, начните считывание второго столбца. Выполняйте сканирование в следующем **СТРОГОМ** порядке: сначала все штрих-коды в левом столбце сверху вниз, затем во втором столбце и т. д.
5. Графический индикатор выполнения показывает, на какой стадии процесса обновления Вы находитесь. В целях информативности также отображаются номер текущего штрих-кода и имя.
6. В случае возникновения ошибки на экране появляется сообщение, указывающее номер штрих-кода, который не был считан. Просто нажмите переключатель сканера и возобновите считывание со штрих-кода под этим номером. При возникновении ошибок других типов свяжитесь с представителем BD для получения помощи.
7. Для отмены обновления панели остановите считывание штрих-кодов и нажмите программную клавишу «выход». Обновление отменяется, и изменения не сохраняются в базе данных прибора Phoenix.
8. Когда все штрих-коды считаны, система обрабатывает информацию и обновляет базу данных панелей. О ходе выполнения этой процедуры Вы узнаете из сообщения. Когда обработка завершена, на экране появляется сообщение «Merge complete» (Объединение выполнено). Нажмите программную клавишу «выход» для выхода из экрана «File Transfer» (Передача файла).
9. Для удобства создайте диск «данные панели» с новыми сведениями панели, которые были добавлены. См. ниже, **Сохранение обновлений панелей**.

Сохранение обновлений панелей

После обновления базы данных панелей мы настоятельно рекомендуем создать диск «данных панели» с новыми сведениями панели. Во-первых, если программное обеспечение будет обновлено позднее, база данных новой панели, установленная как часть *этого* обновления, может не содержать панель, добавленную вручную. Диск «данных панели» позволяет просто «обновить» базу данных панели. Во-вторых, если приборов несколько или используется система BD EpiCenter, можно использовать диск «данных панели» для обновления их баз данных.

Порядок создания диска «данных панели»:

см. раздел 6.2.4.7 «Сохранение конфигурации панели».

Порядок установки этих «данных панели» на приборе Phoenix:

см. раздел 6.2.4.8 «Установка конфигурации панели».

Порядок установки файлов «данных панели» в системе BD EpiCenter:

см. справку или руководство пользователя системы BD EpiCenter.

4.16 Диск обновления Phoenix (Phoenix Update Disk — PUD)

Диски обновления Phoenix можно использовать для периодического обновления баз данных прибора Phoenix и обслуживания файлов. Эти обновления не оказывают никакого влияния на основное программное обеспечение прибора и не вносят никаких изменений в его работу. Поэтому на экране «Main Status» (Основное состояние) отображаются как версия программного обеспечения, так и версия диска обновления Phoenix в верхней части экрана.

Информацию по обновлению прибора с помощью диска обновления Phoenix см. в разделе 6.2.4.9 «Диск обновления Phoenix».

4.17 Операции ЛИС

4.17.1 Общая информация

Система связи ЛИС позволяет прибору BD Phoenix обмениваться информацией с совместимой лабораторной информационной системой (ЛИС). Систему связи ЛИС можно настроить на многократный обмен записей заказов и записей результатов.

Записи заказов можно загрузить из системы ЛИС в прибор Phoenix. Эти записи заказов могут содержать информацию, приведенную во втором пункте ниже. Если вся эта информация передана из системы ЛИС, панель затем автоматически регистрируется, как если бы регистрация была выполнена на приборе. Если порядковый номер панели пропущен, запись заказа может быть связана с определенной панелью вручную на экране «Panel Login» (Регистрация панели). Записи заказов также могут быть настроены на загрузку в систему ЛИС.

Записи результатов отправляются из прибора Phoenix в систему ЛИС. В эти записи входят:

- ◆ Запись заголовка (поля разделителя, имя отправителя, номер версии, дата и время сообщения)
- ◆ Запись заказа (номер образца, номер культуры, микроорганизм, идентификатор теста, порядковый номер, приоритет, тип отчета)

Помните, что если код микроорганизма включен в запись заказа для новой или уже существующей панели, то сторона ID панели отключается.

- ◆ Запись комментария (содержит специальные сообщения или правила BDxpert)
- ◆ Запись результатов
 - ◆ Порядковый номер панели
 - ◆ Номер прибора
 - ◆ Тип прибора
 - ◆ Расположение прибора (станция)
 - ◆ Время на получение результатов идентификации или MIC
 - ◆ Время запуска теста
 - ◆ Время завершения теста
 - ◆ Состояние теста (выполняется, завершен, частично завершен, завершен с причиной «Требуется внимания», завершен с игнорированием всех причин «Требуется внимания», контроль качества завершен, обзор контроля качества завершен, ожидание или быстрое завершение)

- ◆ Тип результата
- ◆ Код противомикробного препарата
- ◆ Значение MIC
- ◆ Значение S / I / R / нет интерпретации / ошибка
- ◆ Маркер устойчивости
- ◆ Идентификация или итоговая идентификация
- ◆ Состояние результатов (обработано или не обработано)

Система связи ЛИС основана на стандартах связи (1381 и 1394) Американского общества тестирования материалов (ASTM) и совместима с большинством известных систем ЛИС. Информацию о совместимых системах ЛИС можно получить у местного представителя компании BD. *Характеристики интерфейса поставщика ЛИС* (доступно по запросу) содержат исчерпывающую информацию по реализации системы связи ЛИС в приборе BD Phoenix.

ПРИМЕЧАНИЕ

Если прибор Phoenix подключен к ЛИС, его нельзя подключить к системе EpiCenter. Однако если прибор Phoenix подключен к системе EpiCenter, подключение к ЛИС можно организовать через систему EpiCenter.

4.17.2 Важные понятия

Имеется несколько общих понятий, с которыми необходимо ознакомиться для понимания представленной здесь информации и правильной организации системы связи ЛИС в лаборатории. Эти понятия представлены ниже.

С помощью системы связи ЛИС можно пересылать записи результатов с прибора в систему ЛИС (*загрузка*), а также записи заказов при размещении панелей в приборе и запросы для записей заказов, как в систему ЛИС, так и из нее. Отправку результатов можно настроить на включение или исключение результатов интерпретации (SIR). Прибор можно настроить на передачу записей результатов только по запросу ЛИС (*отправка по требованию*) или в одном из следующих случаев **передачи без согласования**: при окончательной обработке панелей, при завершении тестирования или изменении записей завершенной панели, при определении результатов идентификации или AST или в установленное время. Данные панелей QC и отдельных панелей отправляются только по требованию системы LIS. Если прибор настроен на передачу без согласования, он все еще отвечает на запросы результатов от ЛИС (требования и запросы). Если прибор настроен на передачу без согласования, система ЛИС всегда должна быть готова принять данные с прибора.

Загружая порядковые номера штрих-кода (панели), прибор может автоматически регистрировать панели при приеме записей. Если в записи заказа опущены порядковые номера, панель все равно можно связать с записью заказа на экране «Panel Login» (Регистрация панели).

Если переданные записи не содержат порядковых номеров панелей, эти записи сохраняются (не более 200 записей заказов) для объединения панелей вручную. Эта процедура описана в разделе 4.5.3 «Объединение и удаление заказов ЛИС».

С помощью конфигурации микроорганизмов и конфигурации противомикробного препарата можно вводить специальные коды, требуемые системой ЛИС для микроорганизмов и противомикробных препаратов, загруженных в записях результатов. Дополнительную информацию см. в разделах 2.3.2.1 и 2.3.2.2.

Настройки конфигурации ЛИС не зависят от настроек конфигурации критической панели. (Например, если конфигурация ЛИС установлена на отправку результатов только после завершения обработки панели, результаты не загружаются, если панель критическая и конфигурация быстрого отчета настроена на уведомление о результатах идентификации или частичных результатах.)

4.17.3 Обработка заказов панелей

Подробные инструкции см. в разделе 4.5.3 «Объединение и удаление заказов ЛИС».

4.17.4 Стандартное функционирование системы

Работа прибора Phoenix с интерфейсом ЛИС незначительно отличается от стандартного функционирования системы. Главное отличие заключается в возможности вводить в систему данные панели/образца с помощью ЛИС.

Благодаря системе связи ЛИС информацию о пациенте можно ввести в ЛИС и передать ее прибору Phoenix. (Полную информацию о вводе данных и загрузке записей см. в руководстве по эксплуатации производителя ЛИС.)

Системы ЛИС работают как в режиме реального времени, когда система автоматически загружает каждый регистрируемый заказ, так и в пакетном режиме, когда регистрируется и загружается сразу несколько заказов. После регистрации записей пациентов необходимо передать их в прибор Phoenix.

Все данные, переданные прибору Phoenix, которые не соответствуют ни одному из полей, определенных как «Order record» (Запись заказа), игнорируются системой. Все сведения, переданные из ЛИС для обработанной панели, отклоняются.

После передачи записей заказа и подключения панелей к этим записям (при необходимости), стандартные операции системы выполняются без каких-либо отличий. Необходимо продолжать загружать прибор, выполнять печать отчетов, наблюдать за завершением обработки панелей системой, выполнять обслуживание и т. д. Однако рекомендуется особенно внимательно следить за любыми системными предупреждениями и предупреждениями работы и вовремя реагировать на них.

5 – Справочная информация

5.1 Общая информация

В данном разделе приведены справочные материалы по пользовательскому интерфейсу прибора Phoenix. Все экраны, значки, отчеты и функции пользовательского интерфейса описываются в том порядке, в котором они доступны с экрана «Main Status» (Основное состояние). Описываются следующие компоненты:

- ◆ Экран «Main Status» (Основное состояние)
- ◆ Экран «Panel Login» (Регистрация панели)
- ◆ Экран «Panel Results» (Результаты панели)
- ◆ Экран «Finalization» (Окончательная обработка)
- ◆ Экран «Configuration/Maintenance» (Конфигурация/техническое обслуживание)
- ◆ Отчеты
- ◆ Экран «Panel Inventory» (Инвентаризация панелей)
- ◆ Экран «System Alerts» (Системные предупреждения)
- ◆ Экран «Needs Attention» (Требуется внимания)

5.2 Дерево программных элементов

Ниже приведен иерархический список всех экранов и функций системы. Разделы, в которых приведено подробное описание данных функций, указаны в скобках.

- Экран «Main Status» (Основное состояние) (раздел 5.3)
 - Экран «Panel Login» (Регистрация панели) (раздел 5.4)
 - Экран «Panel Results» (Результаты панели) (раздел 5.5)
 - Экран «BDXpert Rules Triggered» (Применяемые правила BDXpert) (раздел 5.5.1)
 - Экран «Resistance Markers» (Маркеры устойчивости) (раздел 5.5.2)
 - Экран «Special Messages» (Специальные сообщения) (раздел 5.5.3)
 - «Lab Report» (Лабораторный отчет) (раздел 5.5.4)
 - Экран «Finalization» (Окончательная обработка) (раздел 5.6)
 - «Finalization Summary Report» (Сводный отчет по окончательной обработке) (раздел 5.6)
 - Экран «Configuration/Maintenance» (Конфигурация/техническое обслуживание) (раздел 5.7)
 - Экран «Instrument Configuration» (Конфигурация прибора) (раздел 2.3.1)
 - Область «General» (Общие) экрана «Instrument Configuration» (Конфигурация прибора) (раздел 2.3.1.1)
 - Окно «Laboratory Information» (Сведения о лаборатории) (раздел 2.3.1.2)
 - Экран «Password Administration» (Управление паролями) (раздел 2.3.1.3)
 - Maintenance (Техническое обслуживание) (разделы 4.2, 2.5, 7.3, 6.2.2, 6.2.4)
 - Экран «Communications Configuration» (Конфигурация связи) (раздел 2.3.2)
 - Экран «Organism Configuration» (Конфигурация микроорганизмов) (раздел 2.3.2.1)
 - Экран «Antimicrobial Configuration» (Конфигурация противомикробных препаратов) (раздел 2.3.2.2)
 - Конфигурация на экране «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации) (точки прерывания) (раздел 2.3.3)
 - Экран «BDXpert Rule Configuration» (Конфигурация правил BDXpert) (раздел 2.3.4)
 - Экран «Rapid Reporting Configuration» (Конфигурация быстрого отчета) (раздел 2.3.5)
 - Экран «Panel Lot Definition» (Определение лота панели) (раздел 2.3.6)
 - Отчеты (раздел 5.8)
 - «Completed Lab Report» (Завершенный лабораторный отчет) (раздел 5.8.1)
 - «Accession Lab Report» (Лабораторный отчет для образца) (Раздел 5.8.2)
 - «Needs Attention List Report» (Отчет со списком панелей, требующих внимания) (раздел 5.8.3)
 - «Resident Panel Report» (Отчет установленных панелей) (раздел 5.8.4)
 - «QC Lab Report» (Лабораторный отчет контроля качества) (раздел 5.8.5)
 - «Cumulative QC Report» (Сводный отчет контроля качества) (раздел 5.8.6)
 - «Daily Instrument Report» (Ежедневный отчет прибора) (раздел 5.8.7)
 - «Interpretation Rule Set Report» (Отчет набора правил интерпретации) (раздел 5.8.8)
 - «BDXpert Rule Set Database Report» (Отчет базы данных набора правил BDXpert) (раздел 5.8.9)
 - «Organism ID Code List Report» (Отчет списка кодов идентификации микроорганизмов) (раздел 5.8.10)
 - «Antimicrobial Code Report» (Отчет кодов противомикробных препаратов) (раздел 5.8.11)
 - «Lab Report/QC Lab Report» (Лабораторный отчет/Лабораторный отчет контроля качества) (раздел 5.8.12)
 - «Finalization Summary Report» (Сводный отчет по окончательной обработке) (раздел 5.8.13)
 - «Custom Breakpoint Difference Report» (Отчет о различиях пользовательских точек прерывания) (раздел 5.8.14)
 - «Panel Lot Report» (Отчет лота панели) (раздел 5.8.17)
 - «Panel Lot Database Report» (Отчет базы данных лотов панелей) (раздел 5.8.18)
 - Экран «Panel Inventory» (Инвентаризация панелей) (раздел 5.9)
 - Экран «System Alerts» (Системные предупреждения) (раздел 5.10)
 - Экран «Needs Attention» (Требуется внимания) (раздел 5.11)

5.3 Экран «Main Status» (Основное состояние)

Экран «Main Status» (Основное состояние) (рис. 5–1) отображается по умолчанию, если не выполняются никакие действия. На этом экране отображается до восьми значков, представляющих программные клавиши, которые позволяют выполнять различные операции. Доступны следующие значки:

- ◆ Значок «регистрация панели», с помощью которого можно регистрировать новые панели.
- ◆ Значок «результаты панели», который позволяет просматривать, изменять и удалять результаты идентификации или проверки чувствительности к противомикробным препаратам для панелей.
- ◆ Значок «окончательная обработка», с помощью которого можно выполнять окончательную обработку панелей, завершивших тестирование. (Данный значок недоступен, когда прибор подключен к системе управления данными EpiCenter.)
- ◆ Значок «конфигурация», который позволяет настроить прибор, задать используемые в лаборатории правила и параметры связи, а также выполнить проверки для технического обслуживания прибора.
- ◆ Значок «печать отчетов». Данный значок отображается только тогда, когда принтер подключен, включен и находится в рабочем состоянии.
- ◆ Значок «инвентаризация панелей», который позволяет просмотреть список всех панелей в приборе и отсортировать его по различным критериям (например, по порядковому номеру панели, номеру образца, результату и т. д.)
- ◆ Значок «системное предупреждение», который позволяет просмотреть все системные предупреждения, произошедшие ранее или активные в данный момент времени. (Значок отображается только при наличии системных предупреждений.)
- ◆ Значок «требуется внимания», который позволяет перейти к панелям, требующим внимания. Обычно для исправления сложившейся ситуации можно предпринять определенные меры. (Значок отображается, если имеются панели, требующие внимания.)

Экран «Main Status» (Основное состояние) содержит три области: в верхней области представлена информация о состоянии системы, в средней области представлена информация о состоянии станции, а в нижней области отображаются функции программных клавиш.

Информация о состоянии системы, представленная в верхней части экрана, содержит следующие сведения:

Текущая дата и время



Температура поворотного механизма



Н Состояние прибора

ожидание



тестирование



сканирование
инвентаризации



обработка данных теста



= количество минут до следующего теста

= количество оставшихся минут текущего теста для состояния тестирования

настройка источника
ультрафиолетового света



настройка источника красного,
зеленого и синего света



* = количество минут, в течение которых выполняется регулировка

При отображении значка «обработка данных теста» не изменяйте настройки конфигурации.

Дверь разблокирована (пусто, если
заблокирована)



Номер прибора



Версия ПО / версия диска обновления Phoenix (Phoenix Update Disk — PUD) (VX.XXY) / VA.AAB)

Плотность посева (красный для грамотрицательных [вверху], синий для грамположительных [внизу])

Сеть работает



Сеть не работает



ЛИС включена



Состояния станции представлены в средней области экрана и включают следующие сведения:

Выполняются



Сменные



Доступны



Заблокированы



Числа (#) справа от значков обозначают количество станций/панелей, находящихся в данном состоянии.

В области назначения программных клавиш (в самой нижней части экрана) отображаются текущие функции программных клавиш. Эти функции изменяются по мере доступа к различным операциям и экранам. На экране «Main Status» (Основное состояние) доступны следующие значки:

«регистрация панели»		«результаты панели»	
«окончательная обработка»		«конфигурация»	
«печать отчетов»		«инвентаризация панелей»	
«системное предупреждение»		«требуется внимания»	

Обратите внимание на то, что значок «окончательная обработка» не отображается, когда прибор Phoenix подключен к системе EpiCenter и взаимодействует с ней.

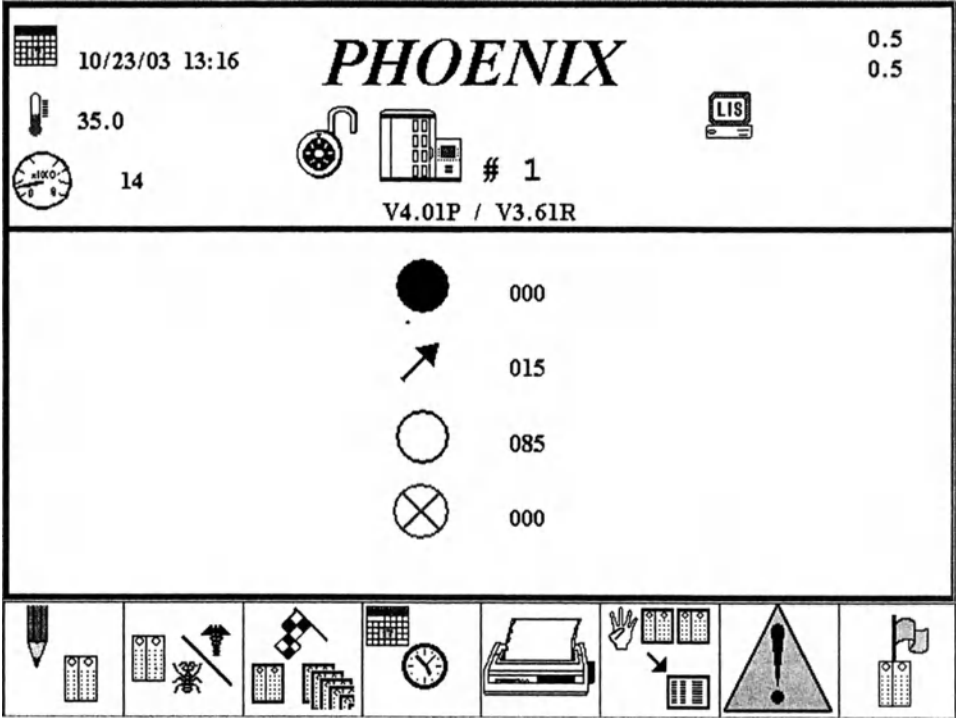


Рис. 5–1. Экран Основное состояние (с дополнительным индикатором ЛИС).

5.4 «Panel Login» (Регистрация панели)

Экран «Panel Login» (Регистрация панели) позволяет вводить демографические сведения о тестируемых панелях. В зависимости от типа используемой панели на экране могут отображаться не все поля, перечисленные ниже. Для номера образца панель одного типа можно зарегистрировать несколько раз, но система сообщит о таком дублировании с помощью сообщения об ошибке работы.

Плотность посева панели задается на экране «Configuration» (Конфигурация). На экране «Panel Login» (Регистрация панели) изменить настройку плотности нельзя. Единственным способом использовать другую плотность посева является затемнение ячейки A-17, как описано в подразделе «Изменение плотности посева с помощью идентификации» раздела 4.4 «Подготовка панелей».

См. рис. 5–2.

Порядок доступа к экрану «Panel Login» (Регистрация панели):



Нажмите программную клавишу «регистрация панели» на экране «Main Status» (Основное состояние)..

или

Выполните считывание *нового* образца с помощью ручного сканера штрих-кода или выполните считывание штрих-кода новой панели с помощью сканера на экране «Main Status» (Основное состояние).

Программные клавиши экрана «Panel Login» (Регистрация панели):

«сохранить»



«ОЧИСТИТЬ»



«выбрать»



«панель контроля качества»



«повторить данные»



«заказы ЛИС»



«выход»



Поля на экране «Panel Login» (Регистрация панели):

«Sequence #» (Последовательный №)

Введите или считайте порядковый номер панели. (Если для доступа к экрану «Panel Login» (Регистрация панели) выполнялось считывание порядкового номера, это поле заполняется автоматически.) Порядковый номер содержит цифры, указывающие на тип панели. Действительные порядковые номера содержат 12 цифр и должны соответствовать спецификациям для порядковых номеров панелей BD. Для сохранения записи необходимо ввести порядковый номер панели. Если введен существующий порядковый номер, система отображает экран «Panel Results» (Результаты панели).

PANEL LOGIN
NMIC/ID-1

Sequence # 425017777777

Accession # 1313

Isolate # 1

☐ Critical
☒ ID
☒ AST

Рис. 5–2. Экран «Panel Login» (Регистрация панели)

Для панелей Yeast ID (Идентификация дрожжей) поле «Media» (Питательная среда) отображается справа от поля «Isolate #» (Культура №).

«Accession #» (Образец №)

Введите или считайте номер образца (до 20 буквенно-цифровых символов). (Если для доступа к экрану «Panel Login» (Регистрация панели) выполнялось считывание штрих-кода образца, поле «Accession #» (Образец №) заполняется автоматически.) Пробелы в начале и в конце номера игнорируются, а пробелы между цифрами учитываются. В номерах образцов запрещено использование следующих символов: * ? [] ! # |.

«Isolate #» (Культура №)

По умолчанию используется номер культуры 1. Введите номер культуры или нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для увеличения или уменьшения значения. Действительные номера культур могут иметь значение от 1 до 20. Если введен номер образца, необходимо также ввести и номер культуры. Если номер культуры «1» изменяется на другое значение, необходимо ввести номер образца.

«Media» (Питательная среда)

Это поле отображается, только если был отсканирован или введен порядковый номер панели Yeast ID (Идентификация дрожжей):

По умолчанию выбран тип питательной среды, указанный в конфигурации (необязательно). Для выбора другой питательной среды для изолята нажмите клавишу ▼, чтобы открыть раскрывающийся список со всеми типами питательной среды (в сокращенном виде), отсортированными по алфавиту. (При выделении типа питательной среды его полное название отображается в правом верхнем углу экрана.) С помощью клавиш ▼ или ▲ выделите нужную питательную среду. Нажмите программную клавишу «выбрать» или **Enter** для выбора этой питательной среды. Можно выбрать или изменить тип питательной среды до первого теста панели. Тест панели прерывается, если тип питательной среды не определен до первого цикла тестирования.

Необходимо выбрать тип питательной среды, чтобы сохранить информацию о панели.

Флажок **Critical** (Критическая)

По умолчанию этот флажок очищен. Нажмите программную клавишу «выбрать», чтобы установить флажок и пометить панель как критическую. Систему можно настроить (экран «Rapid Reporting Configuration» (Конфигурация быстрого отчета), раздел 2.3.5) для уведомления о результатах критических панелей (полученные результаты идентификации, промежуточные результаты панели или полные результаты панели) с помощью звукового сигнала и/или автоматической печати лабораторного отчета (эти способы уведомления можно также отключить).

Флажок **ID** (Идентификация)

По умолчанию данный флажок установлен, если считан порядковый номер комбинированной панели. Если используется только часть AST комбинированной панели, нажмите программную клавишу «выбрать», чтобы очистить этот флажок. Данный флажок отображается только при использовании комбинированной панели. Флажок автоматически устанавливается (включается) при регистрации панели контроля качества.

Флажок **AST** (Тест чувствительности к противомикробным препаратам)

По умолчанию данный флажок установлен, если считан порядковый номер комбинированной панели. Если используется только часть ID комбинированной панели, нажмите программную клавишу «выбрать», чтобы очистить этот флажок. Данный флажок отображается только при использовании комбинированной панели. Флажок автоматически устанавливается (включается) при регистрации панели контроля качества.

«Organism ID» (Идентификация микроорганизмов)/«Test Strain» (Тестовый штамм)

Нажмите клавишу СТРЕЛКА ВНИЗ для открытия списка выбора микроорганизмов. Микроорганизмы перечислены в алфавитном порядке. Можно ввести несколько первых символов названия микроорганизма, чтобы быстро перейти в соответствующую часть списка. Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения нужного микроорганизма. Нажмите  для выбора микроорганизма.

Данное поле отображается для панелей, предназначенных только для теста AST, или при использовании части AST комбинированной панели.

Для панелей контроля качества данное поле называется «Test Strain» (Тестовый штамм), и в нем указываются только штаммы микроорганизмов, которые были предварительно заданы в базе данных, отсортированные по номеру штамма (в алфавитном порядке). Для сохранения панели контроля качества необходимо ввести тестовый штамм.

«Tech ID» (Идентификация техника)

Данное поле отображается для панелей контроля качества. Введите идентификацию для техника, выполняющего тест контроля качества. Можно ввести до 3 буквенно-цифровых символов. Идентификацию техника необходимо ввести для сохранения панели контроля качества.

«Panel Lot #» (Лот панели №)

Данное поле отображается для панелей контроля качества. Введите или считайте номер лота панели. Номер лота должен содержать 7 цифр. Номер лота необходимо ввести для сохранения панели контроля качества. (Если включена функция «QC Lot Support» (Поддержка лота контроля качества), данное поле заполняется автоматически при считывании штрих-кода порядкового номера.)

«Panel Lot #» (Лот панели №) «Exp. Date» (Срок годности)

Данное поле отображается для панелей контроля качества. В первом поле «Exp. Date» (Срок годности) «Panel Lot #» (Лот панели №) нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода дня, месяца или года истечения срока годности (в зависимости от конфигурации). Нажмите клавишу  для перехода к следующему полю даты и воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода дня, месяца или года истечения срока годности. Нажмите клавишу  для перехода к следующему полю даты и воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода оставшейся части даты. Срок годности необходимо ввести для сохранения панели контроля качества. (Если включена функция «QC Lot Support» (Поддержка лота контроля качества), данное поле заполняется автоматически при считывании штрих-кода порядкового номера.)

«ID Broth Lot #» (Лот бульона идентификации №)

Данное поле отображается для панелей контроля качества. Введите или считайте номер лота бульона. Длина номера лота не должна превышать 7 символов.

(«ID Broth Lot #» (Лот бульона идентификации №)) «Exp. Date» (Срок годности)

Данное поле отображается для панелей контроля качества. В первом поле «Exp. Date» (Срок годности) «ID Broth Lot #» (Лот бульона идентификации №) нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода дня, месяца или года истечения срока годности (в зависимости от конфигурации). Нажмите клавишу  для перехода к следующему полю даты и воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода дня, месяца или года истечения срока годности. Нажмите клавишу  для перехода к следующему полю даты и воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода оставшейся части даты.

«AST Broth Lot #» (Лот бульона теста чувствительности №)

Данное поле отображается для панелей контроля качества. Введите или считайте номер лота бульона. Длина номера лота не должна превышать 7 символов.

(«AST Broth Lot #» (Лот бульона теста чувствительности №)) «Exp. Date» (Срок годности)

Данное поле отображается для панелей контроля качества. В первом поле «Exp. Date» (Срок годности) «AST Broth Lot #» (Лот бульона теста чувствительности №) нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода дня, месяца или года истечения срока годности (в зависимости от конфигурации). Нажмите клавишу  для перехода к следующему полю даты и воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода дня, месяца или года истечения срока годности. Нажмите клавишу  для перехода к следующему полю даты и воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода оставшейся части даты.

«Indicator Lot #» (Лот индикатора №)

Данное поле отображается для панелей контроля качества. Введите или считайте номер лота индикатора. Длина номера лота не должна превышать 7 символов.

(«Indicator Lot #» (Лот индикатора №)) «Exp. Date» (Срок годности)

Данное поле отображается для панелей контроля качества. В первом поле «Exp. Date» (Срок годности) «Indicator Lot #» (Лот индикатора №) нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода дня, месяца или года истечения срока годности (в зависимости от конфигурации). Нажмите клавишу  для перехода к следующему полю даты и воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода дня, месяца или года истечения срока годности. Нажмите клавишу  для перехода к следующему полю даты и воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода оставшейся части даты.

«LIS Orders» (Заказы ЛИС)

Данное поле отображается при нажатии программной клавиши «LIS Orders» (Заказы ЛИС). При вводе порядкового номера и нажатии клавиши СТРЕЛКА ВНИЗ открывается раскрывающийся список, включающий до 200 полученных от ЛИС записей заказов. В списке содержатся только записи заказов LIS, относящиеся к тому же типу панели, что и введенный порядковый номер. Сортировка списка осуществляется в алфавитном порядке по номеру образца. В списке содержится следующая информация: номер образца, номер культуры и микроорганизм или тестовый штамм (если доступно). Все критические записи заказов выделены в списке красным цветом. Используйте клавиши СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для выделения необходимой записи заказа и нажмите программную клавишу «выбрать», чтобы назначить этот заказ введенному порядковому номеру.

5.5 «Panel Results» (Результаты панели)

Экран «Panel Results» (Результаты панели) позволяет просматривать и изменять результаты тестов панели. На этом экране можно использовать следующие функции:

- ◆ отображение панели, данные которой сохранены в базе данных Phoenix;
- ◆ изменение информации о панели в базе данных Phoenix;
- ◆ пометка панели как критичной;
- ◆ печать лабораторных отчетов для любой панели, которую можно вызвать или отобразить на экране;
- ◆ нахождение панели, установленной в приборе;
- ◆ удаление информации о панели из базы данных Phoenix;
- ◆ использование или отображение любых применяемых правил BDxpert;
- ◆ отображение любых специальных сообщений;
- ◆ окончательная обработка панели.

Данные, доступные на экране «Panel Results» (Результаты панели) (клинические панели), сохраняются в течение 31 дня (возможно и больше — в зависимости от числа протестированных панелей контроля качества). Результаты панели контроля качества хранятся не менее 6 месяцев.

Дополнительная информация о панели отображается в области заголовка экрана. Тип панели отображается под заголовком. Кроме того, плотность посева, используемая для идентификации (если применимо), отображается в верхней левой части экрана после завершения первого цикла тестирования.

Если для панели установлен флаг «Needs Attention» (Требуется внимания), он отображается над полем **Test Start** (Начало теста). Если существует несколько оснований для флага «Needs Attention» (Требуется внимания), отображается только основание с наивысшим приоритетом. Если для панели применен флаг «Resistance Marker» (Маркер устойчивости), значок отображается непосредственно слева от поля **Location** (Местоположение).

Если панель вызывается только по номеру образца, а образцу назначено несколько панелей, отображается экран «Panel Results List» (Список результатов панели). На этом экране можно выбрать конкретную панель для просмотра или изменения. Изображение экрана «Panel Results List» (Список результатов панели) см. на рис. 5–3. Пример экрана «ID Panel Results» (Результаты панели ID) приведен на рис. 5–4а, а пример экрана «AST Panel Results» (Результаты панели AST) — на рис. 5–4б.

Обратите внимание на то, что в зависимости от типа используемой панели, а также от других обстоятельств на экране могут отображаться не все поля, перечисленные ниже.

Типы панелей AST или комбинированные (на которых по крайней мере включена часть AST) содержат набор противомикробных препаратов. Прибор выдает результат для каждого противомикробного препарата на панели. Для каждого противомикробного препарата получается индивидуальное значение MIC. После получения значения MIC прибор рассчитывает значение чувствительности прибора (SIR) для каждого определенного значения MIC. (Для получения значений SIR на базе значений MIC для панели должно быть задано значение «Organism ID» (Идентификация микроорганизма). Кроме того, следует обратить внимание на то, что значения SIR не рассчитываются прибором, если он подключен к системе управления данными EpiCenter.)

Если включена функция «Rapid Completion» (Быстрое завершение), прибор может предоставить результаты BDxpert AST (SIR) перед определением действительных значений MIC. Значения MIC прибора предоставляются сразу же после точного определения. В процессе тестирования панели некоторые значения MIC становятся доступными раньше других. Функция быстрого завершения может использоваться для прогнозирования устойчивости к незавершенным антибиотикам на основе только значений ID (внутренняя устойчивость), значений ID с готовыми MIC аналогичных антибиотиков или тестирований маркера устойчивости (BL, ESBL). Система BDxpert используется для выполнения этих прогнозов. Это может использоваться в случаях, когда результаты препаратов, которые еще не получили MIC, не будут иметь клинического значения в свете уже доступных результатов. Противомикробные препараты с интерпретациями «Rapid Complete BDxpert» (Быстрое завершение BDxpert) обозначаются буквой «C» в столбце «MIC» (Минимальная ингибирующая концентрация) на экранах «Results» (Результаты) и в отчетах «Lab» (Лаборатория).

Когда для противомикробного препарата определено и значение MIC, и значение SIR прибора, прибор применяет правила BDxpert (при условии, что система BDxpert включена). Прибор отображает значение в поле «BDxpert SIR» (Значение SIR BDxpert), если применено включенное правило BDxpert и полученное значение BDxpert SIR отличается от значения в поле «Instrument SIR» (SIR прибора).

Порядок доступа к экрану «Panel Results» (Результаты панели):

Нажмите программную клавишу «результаты панели» на экране «Main Status» (Основное состояние).

или

Выполните считывание имеющегося образца с помощью ручного сканера штрих-кода с экрана «Main Status» (Основное состояние) или выполните считывание штрих-кода имеющейся панели с помощью сканера на экране «Panel Login» (Регистрация панели) или «Main Status» (Основное состояние).

В некоторых случаях доступ к экрану «Panel Results» (Результаты панели) можно получить с экранов «Needs Attention» (Требуется внимания) и «Batch Finalization» (Окончательная обработка партии).

Программные клавиши экрана «Panel Results» (Результаты панели):

«сохранить»



«очистить»



«выбрать»



«поиск»



«переключение экрана»



«переключение программных клавиш»



«печать лабораторного отчета»



«разместить панель»



«удалить панель»



«переход к правилам BDxpert*»



«дополнительные противомикробные препараты»



«специальные сообщения»



«панель контроля качества»



«выход»



*Помните, что это поле не отображается, если к прибору подключена система EpiCenter и осуществляется взаимодействие.

Поля на экране «Panel Results» (результаты панели):

ПРИМЕЧАНИЕ

Изменение значения «Accession #» (Образец №) или «Isolate #» (Культура №) может вызвать автоматическое объединение и привести к изменению результатов.

«Accession #» (Образец №)

Введите или считайте номер образца, который необходимо вызвать. Если введен только номер образца, а образцу назначено несколько панелей, отображается экран «Panel Results List» (Список результатов панели).

Данное поле можно изменить для панелей без окончательной обработки. Введите для образца до 20 буквенно-цифровых символов, запрещено использовать символы * ? [] ! # | . Изменение номера образца не влияет на номер образца связанных панелей.

«Sequence #» (Последовательность №)

Введите или считайте порядковый номер панели, который необходимо вызвать. Это поле нельзя изменить.

«Isolate #» (Культура №)

Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для увеличения и уменьшения номера. Действительные номера культур могут иметь значение от 1 до 20. Данное поле можно изменить для панелей без окончательной обработки, однако существующий номер культуры нельзя изменить на пустое значение.

PANEL RESULTS

Accession #

Sequence #

Iso#	Panel Type	Final ID	Status	Test Start	Sequence #
1	GNIDAST	ENTBCLO	COMPLETE	02/15/00	42001555555
2	GNID		COMPLETE	02/15/00	42002222222
3	GNIDAST	ESCCOL	COMPLETE	02/15/00	420031112774

Рис. 5–3. Экран «Panel Results List» (Список результатов панели).

В списке может отображаться не более 30 панелей. Чтобы выбрать панель, используйте клавиши СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для выделения панели и нажмите программную клавишу «выбрать».

«Media» (Питательная среда)

Это поле можно редактировать только до завершения первого цикла тестирования.

Здесь показан тип питательной среды, выбранный во время входа в панели Yeast ID (Идентификация дрожжей). В данном поле могут отображаться следующие значения: пусто, если тип питательной среды не определен; INVLD (Недопустимый тип питательной среды); SABDX (Декстрозный агар Сабуро); TSASB (Триптиказо-соевый агар с 5% бараньей крови); COLSB (Колумбийский агар с 5 % бараньей крови); CHOC («Шоколадный» агар II); SABEM (Декстрозный агар Сабуро в модификации Эммонса); SABHI (Агар Сабуро с сердечно-мозговым экстрактом с глубоким погружением)

«Status» (Состояние)

Это поле доступно только для чтения, и в нем отображается состояние тестирования панели: «Pending» (Ожидание), «Ongoing» (Выполняется), «Complete» (Завершение) или «Rapid Complete» (Быстрое завершение) (если разрешено). Тестирование панелей «Rapid Complete» (Быстрое завершение) не завершено, для них отображаются результаты BDxpert. Если панель «Rapid Complete» (Быстрое завершение) извлекается из прибора, ее состояние изменяется на «Complete» (Завершение). Если она оставлена в приборе, значения MIC для «Rapid Complete» (Быстрое завершение) заменяются действительными результатами MIC, когда они будут определены.

«Final ID» (Итоговая идентификация)

Поле Final ID (Итоговая идентификация) может заполняться системой автоматически на базе одного значения ID, полученного на приборе, или пользователем, которому необходимо выбрать одно из значений связанных ID, полученных на приборе. Для панелей ID (или участков ID комбинированных панелей) нельзя вручную установить идентификацию микроорганизмов, если не указано значение ID, определенное на приборе.

Помните, если установлен флажок **Modify Related Panels** (Изменение связанных панелей), для значения ID в базе данных с помощью функции автоматического объединения для всех связанных панелей (панелей с одинаковым номером образца и номером культуры) устанавливается одно значение идентификации микроорганизмов (см. раздел 4.9).

Нажмите клавишу СТРЕЛКА ВНИЗ для открытия списка выбора микроорганизмов. Микроорганизмы перечислены в алфавитном порядке. Можно ввести несколько первых символов названия микроорганизмов, чтобы быстро перейти в соответствующую часть списка. Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения нужного микроорганизма. Нажмите **Enter** для выбора микроорганизма.

При изменении этого поля пользователем прибор изменяет цвет фона поля на голубой. Кроме того, если при изменении поля Final ID (Итоговая идентификация) был установлен флажок **Modify Related Panels** (Изменение связанных панелей), все измененные поля Final ID (Итоговая идентификация) панелей также отображаются с голубым фоном. При изменении поля система выполняет повторную оценку значения SIR прибора для каждого противомикробного препарата, а также информации BDxpert.

Данное поле не может быть изменено, если панель обработана.

Для панелей контроля качества данное поле называется **Test Strain** (Тестовый штамм), и в нем указываются только штаммы ATCC микроорганизмов, которые были предварительно заданы в базе данных, отсортированные по номеру штамма.

«Panel Lot #» (Лот панели №)

Это поле доступно только для чтения, и в нем отображается номер лота для панели. Данное поле отображается, только когда включена функция «QC Lot Support» (Поддержка лота контроля качества).

«Exp. Date» (Срок годности)

Это поле доступно только для чтения, и в нем отображается дата и время истечения срока годности лота панели. Данное поле отображается, только для панелей контроля качества и только когда включена функция «QC Lot Support» (Поддержка лота контроля качества).

0.5 **PANEL RESULTS**
GNIDAST 951

Accession # 1313 Test Start 10/21/03 14:27
 Sequence # 429510001405 Test End 10/21/03 14:27
 Isolate # 1 Location 1/A01
 Status COMPLETE Modify Related Panels ☐
 Final ID Prot. mirabilis Finalized ☐
 Critical ☐

Instrument	Organism ID	Confidence
Prot. mirabilis		97%

Biochemical	Actual	Expected
A_ARARR	+	+
A_GLPFB	-	+
A_GLYB	+	+
A_GUGAH	-	+
A_LARGH	+	+

Toolbar icons: Save, Print, Point, Test, Quality, Review, Exit.

Рис. 5–4а. Экран «Panel Results» (Результаты панели) — идентификация

Для панелей Yeast ID (Идентификация дрожжей) поле «Media» (Питательная среда) отображается справа от поля «Isolate #» (Культура №).

Флажок Modify Related Panels (Изменение связанных панелей)

Это поле отображается при изменении поля «Final ID» (Итоговая идентификация). По умолчанию при изменении поля «Final ID» (Итоговая идентификация) данный флажок устанавливается. Если не требуется изменять значение ID для связанных панелей без окончательной обработки при изменении текущей отображаемой панели, нажмите программную клавишу «выбрать», чтобы очистить этот флажок. Этот флажок не влияет на связанные панели контроля качества. Этот флажок не отображается, если к прибору подключена система EpiCenter и осуществляется взаимодействие.

«Test Start» (Начало теста)

Это поле доступно только для чтения, и в нем отображается дата и время начала тестирования панели.

«Test End» (Окончание теста)

Это поле доступно только для чтения, и в нем отображается дата и время завершения тестирования панели.

«Location» (Местоположение)

Это поле доступно только для чтения, и в нем отображается местоположение панели в формате «I/Tst», где «I» — это номер прибора, «T» — это уровень, а «st» — это номер станции.

«QC Status» (Состояние контроля качества)

В этом поле отображается состояние панели контроля качества. Это поле остается пустым, пока состояние панели не изменится на «Complete» (Завершение). Изначально установлены состояния «PASS» (Пройдено) или «REVIEW» (Просмотр). Состояние «Review» (Просмотр) указывает, что панель не прошла тестирование. Необходимо проверять все панели с состоянием «Review» (Просмотр), чтобы определить причину, по которой панель не прошла тестирование.

Состояние «REVIEW» (Просмотр) устанавливается при наличии любого из следующих условий:

- ◆ Штамм контроля качества был идентифицирован неправильно.
- ◆ Отменен тест панели контроля качества.
- ◆ Получен хотя бы один неудовлетворительный результат для противомикробных препаратов.

При наличии состояния «REVIEW» (Просмотр) можно установить окончательное состояние «REPEAT» (Повтор), если было обнаружено, что сбой панели вызван ошибкой при подготовке или обработке панели. Если таких ошибок не обнаружено, необходимо установить окончательное состояние «FAIL» (Сбой). При выборе значения «REPEAT» (Повтор) или «FAIL» (Сбой) состояние «Needs Attention» (Требуется внимания) в поле «Review QC Results» (Просмотр результатов контроля качества) удаляется.

«Finalized» (Обработана)

Нажмите программную клавишу «выбрать» или **[Spacebar]**, чтобы установить флажок и выполнить окончательную обработку панели. Поле **Finalized** (Обработана) доступно только для чтения, если подключена система Phoenix и выполняется взаимодействие с центром управления данными EpiCenter. В этом случае вся окончательная обработка выполняется в системе EpiCenter. Поле **Finalized** (Обработана) не отображается для панелей контроля качества.

Если выполняется окончательная обработка панели с состоянием «Rapid Complete» (Быстрое завершение), обработка результатов MIC прекращается и для панели устанавливается состояние «Complete» (Завершение). Для всех препаратов, которые не прошли тестирование, сохраняется текущее значение MIC (то есть значение «C» в столбце «MIC» (Минимальная ингибирующая концентрация) остается значением «C», значение «X» остается значением «X» и т. д.).

«Critical» (Критическая)

Нажмите программную клавишу «выбрать» или **[Spacebar]**, чтобы установить флажок и пометить панель как критическую. Систему можно настроить (экран «Rapid Reporting Configuration» (Конфигурация быстрого отчета), раздел 2.3.5) на уведомление о результатах критических панелей (полученные результаты идентификации, промежуточные результаты панели или полные результаты панели) с помощью звукового сигнала и/или автоматической печати лабораторного отчета (эти способы уведомления можно также отключить).

Чтобы отменить пометку ранее помеченных критических панелей, очистите данный флажок.

Данное поле не отображается для панелей контроля качества.

PANEL RESULTS
NQC01

Accession # **EN11002** Test Start **11/13/07 14:29**
Sequence # **425190008038** Test End **11/13/07 14:29**
Isolate # **6** Location **1/A04**
Status **COMPLETE**
Final ID **Esch. coli** Finalized ☒
Critical ☒

Antimicr MIC	I	E	F	Antimicr MIC	I	E	F	Antimicr MIC	I	E	F
GM 4	S		☒	ATM 4	S	R	☒	CIP <=0.5	S		☒
NN 8	I		☒	AM >16	R		☒	NOR <=0.5	S		☒
IPM <=0.5	S		☒	PIP >64	R		☒	TE >16	R		☒
CF >32	R		☒	AMC 8/4	S	R	☒				
FOX 2	S		☒	TZP <=2/4	S		☒				
CTX <=4	S	R	☒	SXT <=0.5/9.5	S		☒				
FEP <=2	S	R	☒	FM <=32	S		☒				

Рис. 5–4b. Экран «Panel Results» (Результаты панели) — чувствительность к противомикробным препаратам

«Antimicrobial» (Противомикробный препарат)

Это поле доступно только для чтения, и в нем отображается сокращение для противомикробного препарата.

«MIC» (Минимальная ингибирующая концентрация)

Значение минимальной ингибирующей концентрации определяется прибором. В данном поле также могут отображаться следующие значения:

- > рост присутствует для всех концентраций противомикробного препарата.
- ≤ рост **отсутствует** для всех концентраций противомикробного препарата.
- ? ожидается определение значения MIC (значения SIR остаются пустыми).
- X не удается получить значение MIC, «Final ID» (Итоговая идентификация) не заявлена в списке таксонов (приложение Ж.3) для тестирования AST, последовательности разбавления препарата для панели не охватывают требуемый в системе Phoenix диапазон значений MIC, или имеются другие причины, см. табл. 5–1. Пояснение должно отображаться на экране «Special Messages» (Специальные сообщения) (раздел 5.5.3).
- C «Rapid Complete» (Быстрое завершение) (ожидается получение значения MIC, значение SIR BDxpert основано на ID и полученных результатах для препарата и/или маркера устойчивости). Эти значения заменяются действительными значениями MIC, когда они будут определены.

Для панелей контроля качества в данном поле могут отображаться следующие значения:

Действительное значение MIC (номер, знак «?» или буква «X» при ошибке).

Ожидаемый диапазон MIC (если задан).

Результат контроля качества

- P действительное значение MIC лежит в пределах ожидаемого диапазона MIC.
- F действительное значение MIC лежит за пределами ожидаемого диапазона MIC.
- R повтор: действительное значение MIC — «X».
- пусто диапазон для комбинации микроорганизма/противомикробного препарата не задан.

«Instrument SIR» (SIR прибора)

Данное поле содержит интерпретацию прибора для MIC, основанную на точках прерывания, используемых в системе в данный момент (точки, выбранные на экране «Instrument Configuration» (Конфигурация прибора)).

Значение SIR не отображается для противомикробных препаратов, которым для выполнения интерпретации SIR требуется значение ID. В этом случае поле **BDxpert SIR** (Значение SIR BDxpert) (если присутствует) и поле **Final SIR** (Итоговая SIR) также пусты.

Значения интерпретации представлены следующим образом:

- S «Susceptible» (Чувствительные)
- I «Intermediate» (Промежуточные)
- R «Resistant» (Устойчивые)
- N «Not Susceptible»* (Нечувствительные)
- X Выполнение интерпретации невозможно
- Пусто Нет значения SIR (отсутствующее или неправильное значение «Final ID» (Итоговая идентификация); значение MIC равно значению «?», «C» или «X»; не указан микроорганизм для итоговой идентификации)

* «N» указывает на то, что у противомикробного препарата или микроорганизма нет верхней точки прерывания. При отсутствии верхней точки прерывания нет критерия отнесения микроорганизма к категории промежуточных или устойчивых. Это часто случается, когда у микроорганизма отсутствуют устойчивые штаммы или они очень редки. В этом случае, если минимальная ингибирующая концентрация (MIC) не превышает нижнюю точку прерывания, результаты SIR будут объявлены чувствительными, а если минимальная ингибирующая концентрация (MIC) превышает нижнюю точку прерывания, единственным предоставленным результатом будет «N» (нечувствительные).

Поле «Instrument SIR» (SIR прибора) не отображается, если к прибору подключена система EpiCenter и осуществляется взаимодействие. Если соединение с системой EpiCenter прервано, это поле автоматически отображается.

«(BD)E(Xpert SIR)» (Значение SIR BDХpert)

Возможные значения поля: Пусто, «S», «I», «R», «N» и «X». Эти значения соответствуют значениям описанного выше поля «I(nstrument SIR)» (SIR прибора).

Поле «BDХpert SIR» (Значение SIR BDХpert) не отображается, когда отключена система BDХpert. Оно также не отображается для панелей контроля качества, панелей ID или панелей ID/AST при выключенной функции AST. В этом поле отображаются результаты, рассчитанные системой BDХpert и основанные на выполнении всех включенных правил BDХpert. Значения отображаются в этом поле только в том случае, когда примененное правило BDХpert привело к изменению значения «BDХpert SIR» (Значение SIR BDХpert) и оно стало отличаться от интерпретации прибора.

«F inal SIR)» (Итоговая SIR)

Эти значения соответствуют значениям описанного выше поля «I(nstrument SIR)» (SIR прибора). «Final SIR» (Итоговая SIR) может принимать одно из следующих значений (по убыванию приоритета): введенное пользователем значение SIR, значение SIR системы BDХpert, значение SIR прибора или отсутствие значения.

Значения «Final SIR» (Итоговая SIR) определяются при нахождении значения MIC или обнаружении ошибки, если отсутствуют ожидающие настраиваемые вручную правила BDХpert (если включена система BDХpert).

Если отсутствует подключение к системе EpiCenter и отключена система BDХpert, поле «Final SIR» (Итоговая SIR) не отображается для противомикробного препарата до тех пор, пока не будет получено значение MIC, отличное от «?».

В приведенной ниже таблице находятся пояснения для различных сочетаний результатов с пустым полем и результатов «X». Подробные пояснения для действительных результатов выводятся в форме специальных сообщений (см. раздел 5.5.3).

Противомикробный препарат	MIC	SIR прибора	SIR экспертной системы	Итоговая SIR	Пример возможных причин
Любой препарат	?	[Пусто]	[Пусто]	[Пусто]	Ожидание результатов.
Любой препарат	Результат MIC системы Phoenix	S, I, R	[Пусто]	S, I, R	SIR прибора = итоговая SIR (без SIR по правилу BDХpert).
Любой препарат	Результат MIC системы Phoenix	S или I	R	R	Итоговая SIR = значение SIR системы BDХpert, если принято правило.
Любой препарат	Результат MIC системы Phoenix	[Пусто]	[Пусто]	[Пусто]	Нет точек прерывания для этой комбинации микроорганизма/противомикробного препарата в рамках выбранного стандарта (CLSI, SFM, EUCAST, пользовательское значение).
Любой препарат	Результат MIC системы Phoenix	X	[Пусто]	X	Значение MIC выходит за пределы точек прерывания для выбранного стандарта. Пример: диапазон препарата панели 1 – 16 мкг/мл, чувствительная точка прерывания 0,5 мкг/мл.
Любой препарат	Результат MIC системы Phoenix	X	[Пусто]	X	Значение SIR блокируется правилом BDХpert. Пользователь должен указать значение «Final SIR» (Итоговая SIR), основанное на ручной интерпретации или дополнительном тестировании.
Любой препарат	X	[Пусто]	[Пусто]	[Пусто]	Значение MIC для этой комбинации препарата и микроорганизма не определено системой Phoenix. Необходимо использовать альтернативный метод.

Табл. 5-1 – Значения MIC/SIR и причины

Противомикробный препарат	MIC	SIR прибора	SIR экспертной системы	Итоговая SIR	Пример возможных причин
Все препараты	X	[Пусто]	[Пусто]	[Пусто]	Эти виды не включены в классификацию AST системы Phoenix; используйте альтернативный метод. В панели обнаружено слишком большое количество индикатора. Обработка части AST панели прервана, необходимо выполнить повторное тестирование культуры.
Любой препарат	X	[Пусто]	[Пусто] или R	[Пусто] или R	Значение MIC для этого антибиотика не определено (см. специальное сообщение). Интерпретация, основанная на правиле BDxpert.
Любой препарат	C	[Пусто]	R	R	Значение SIR быстрого завершения (значение SIR системы BDxpert, основанное на значении ID и/или другом полученном результате для препарата и/или маркера устойчивости).

Табл. 5-1 – Значения MIC/SIR и причины

«Instrument Organism ID» (Идентификация микроорганизмов прибора)

Это поле доступно только для чтения, и в нем отображается микроорганизм, идентифицированный прибором на основании биохимических результатов в панели ID или ID/AST. Значения идентификации микроорганизмов, указанные для двойного совпадения (результатам соответствуют два возможных микроорганизма), отображаются в поле «Instrument Organism ID» (Идентификация микроорганизмов прибора) как «микроорганизм 1/микроорганизм 2».

«Confidence» (Степень достоверности)

Значение «Confidence» (Степень достоверности) рассчитывается системой на основе сравнения действительных биохимических результатов с предполагаемыми результатами. Значение «Confidence» (Степень достоверности) представляет собой процентное отношение от 0 до 99.

Дополнительные тесты

Дополнительные тесты отображаются в поле «Instrument Organism ID» (Идентификация микроорганизмов прибора) и/или на экране «Special Messages» (Специальные сообщения), если отображается более одного микроорганизма. После выполнения этих тестов их результаты позволят определить значение идентификации микроорганизмов, которое следует связать с результатами AST. На этом этапе можно выбрать отдельное значение идентификации микроорганизмов в поле «Final ID» (Итоговая идентификация).

«Biochemical» (Биохимический препарат)

Это поле доступно только для чтения, и в нем отображается сокращение для биохимического препарата, используемого для определения значения ID.

«Actual» (Действительный)

Это поле доступно только для чтения, и в нем отображается полученный биохимический результат на момент определения значения идентификации организма: «+» для положительного или «-» для отрицательного. Значение «?» указывает, что ожидается получение биохимического результата или, что тест был отменен до определения результатов ID. «X» обозначает ошибку.

«Expected» (Предполагаемый)

Это поле доступно только для чтения, и в нем отображается предполагаемый биохимический результат, соответствующий значению «Instrument Organism ID» (Идентификация микроорганизмов прибора). «+» или «-» для микроорганизма. Значение «V» указывает, что результат может изменяться. Это поле остается пустым, если для действительных результатов отображается значение «?» (для панелей, отличных от панелей контроля качества), до определения значения «Organism ID» (Идентификация микроорганизмов) или при отображении в поле «Instrument Organism ID» (Идентификация микроорганизмов прибора) нескольких микроорганизмов.

5.5.1 Экран «BDXpert Triggered Rules» (Применяемые правила BDXpert)

Экран «BDXpert Triggered Rules» (Применяемые правила BDXpert) позволяет просматривать правила системы BDXpert, которые применяются для панели (выбранной в данный момент на экране «Panel Results» (Результаты панели)). Можно просмотреть список применяемых правил, содержание этих правил, их влияние на значение «Final SIR» (Итоговая SIR) и принять или отклонить ожидающие правила (настраиваемые вручную). Можно также выполнить все правила повторно. См. рис. 5–5.

После просмотра и принятия/отклонения всех правил любые изменения необходимо сохранить на экране «Panel Results» с помощью программной клавиши «сохранить».

Значок «BDXpert Triggered Rules» (Применяемые правила BDXpert) не отображается, а экран недоступен, если подключена система EpiCenter и выполняется взаимодействие с прибором Phoenix. Однако, если подключение к системе EpiCenter прервано, а система BDXpert повторно включена на экране «Instrument Configuration» (Конфигурация прибора) (раздел 2.3.1), этот значок снова отображается, а соответствующий экран становится доступен. Когда взаимодействие с системой EpiCenter будет восстановлено, интерпретации правил BDXpert выполняются повторно в системе EpiCenter и значок «переход к правилам BDXpert» на экране «Panel Results» (Результаты панели) не отображается.

Порядок перехода к экрану «BDXpert Triggered Rules» (Применяемые правила BDXpert):



Нажмите программную клавишу «переход к правилам BDXpert» на экране «Panel Results» (Результаты панели).

Этот экран отображается автоматически при изменении значения в поле «Final ID» (Итоговая идентификация) (на экране «Panel Results» (Результаты панели)), которое вызывает применение настраиваемого вручную правила BDXpert.

Программные клавиши экрана «BDXpert Triggered Rules» (Применяемые правила BDXpert):

«принять»

OK

«отклонить»



«выполнить повторно»



«выход»



Поля экрана «BDXpert Triggered Rules» (Применяемые правила BDXpert):

«Accession #» (Образец №)

Это поле доступно только для чтения, и в нем отображается номер образца для текущей панели.

«Sequence #» (Последовательность №)

Это поле доступно только для чтения, и в нем отображается текущий порядковый номер штрих-кода панели.

«Isolate #» (Культура №)

Это поле доступно только для чтения, и в нем отображается текущий номер культуры для панели.

«Final ID» (Итоговая идентификация)

Это поле доступно только для чтения, и в нем отображается итоговая идентификация микроорганизма для панели.

Окно «Rule Description» (Описание правила)

Это поле доступно только для чтения, и в нем отображается текст текущего правила. (Текущее правило выделено в нижнем левом окне (окно «Rules» (Правила)) экрана.) Цвет текста правила указывает на следующие состояния:

- ЗЕЛЕНЫЙ Автоматическое правило.
- СИНИЙ Ожидающее правило, настраиваемое вручную; выполнение дополнительных правил приостанавливается до тех пор, пока пользователь не примет или не отклонит данное правило.
- ЗЕЛЕНЫЙ Настраиваемое вручную правило, которое было принято.
- КРАСНЫЙ Настраиваемое вручную правило, которое было отклонено.

BDXpert TRIGGERED RULES

Accession #

Isolate #

Sequence #

Final ID

Rule Description

Klebsiella oxytoca is usually susceptible to aminoglycosides. Verification of organism purity, identification and/or susceptibility is suggested.

Rule #	Status
1503	Automatic
1522	Automatic

Antimicr MIC		I	F
GM	>16	R	
NN	16	R	
IPM	4	S	
CF	>32	R	
FOX	>16	R	
CTX	>32	R	
FEP	16	I	R

OK

Рис. 5–5. Экран «BDXpert Triggered Rules» (Применяемые правила BDXpert).

На экране отображаются правила, примененные до момента доступа к данному экрану. Экран не обновляется динамически при применении новых правил.

Окно «Rules» (Правила)

«Rule #» (Правило №)

Это поле доступно только для чтения, и в нем отображается числовое обозначение выделенного правила. В данном окне может быть отображено не более 25 правил.

«Status» (Состояние)

Показывает состояние выделенного правила. Изначальное состояние «Automatic» (Автоматически) (правило выполняется автоматически без вмешательства пользователя) или «Manual» (Вручную) (правило должно быть принято или отклонено пользователем) устанавливается на экране «BDXpert Rule Configuration» (Конфигурация правил BDXpert) (раздел 2.3.3). В этом окне отображаются следующие состояния:

«Automatic» (Автоматически) — правило включено и находится в состоянии «Automatic» (Автоматически).

Pending (Ожидание) — правило включено и находится в состоянии «Manual» (Вручную), правила, настраиваемые вручную, должны быть приняты или отклонены; состояние «Pending» (Ожидание) имеет только первое настраиваемое вручную правило.

«Accepted» (Принято) — правило включено, находится в состоянии «Manual» (Вручную) и принято пользователем.

«Rejected» (Отклонено) — правило включено, находится в состоянии «Manual» (Вручную) и отклонено пользователем.

Ожидающие правила можно принимать и отклонять с помощью клавиши «принять» или «отмена». После принятия или отклонения правила состояние можно изменить, только выполнив правила повторно.

Окно «AST Results» (Результаты AST)**«Antimicrob(ial)» (Противомикробный препарат)**

Это поле доступно только для чтения, и в нем отображается сокращение для противомикробного препарата.

«MIC» (Минимальная ингибирующая концентрация)

Это поле доступно только для чтения, и в нем отображается значение MIC для данной панели.

«Instrument SIR» (SIR прибора)

Это поле доступно только для чтения, и в нем отображается интерпретация прибора для данного препарата/значения MIC.

«Final SIR» (Итоговая SIR)

Это поле доступно только для чтения, и в нем отображается итоговая интерпретация после применения к результатам каких-либо правил.

5.5.2 Экран «Resistance Marker» (Маркер устойчивости)

Экран «Resistance Marker» (Маркер устойчивости) позволяет просматривать маркеры устойчивости, примененные для данной панели. Для доступа к нему необходимо нажать программную клавишу на экране «Panel Results» (Результаты панели). См. рис. 5 –6.

В верхнем окне экрана «Resistance Marker review» (Просмотр маркеров устойчивости) отображается та же информация, что и на экранах «ID Panel Results» (Результаты панели ID) и «AST Panel Results» (Результаты панели AST). В нижнем окне отображается следующая информация:

- номер правила BDХpert, запустившего маркер устойчивости;
- код маркера устойчивости (сокращение);
- наименование маркера устойчивости;
- Описание правила BDХpert (зеленый цвет, если правило выполняется автоматически или принято вручную; синий цвет, если правило выполняется вручную и находится в состоянии ожидания).

Маркеры устойчивости отображаются в том порядке, в котором они применяются.

Порядок открытия экрана «Resistance Marker» (Маркер устойчивости):



Нажмите программную клавишу «переключение экрана» на экране «Panel Results» (Результаты панели).

На экране «Resistance Marker» (Маркер устойчивости) доступны те же программные клавиши, что и на экране «Panel Results» (Результаты панели).



0.5

PANEL RESULTS
CT01P

Accession #
Sequence #
Isolate #
Status
Final ID

1313
424940000111
1
COMPLETE
Enteroc faecal14

Test Start
Test End
Location

10/21/03 14:27
10/21/03 14:27
1/A03

Finalized
Critical

Rule #	RM	Name
1507	VRE	Vancomycin Resistant Enterococcus
0224	HLGR	High Level Gentamicin Resistant
0227	HLSR	High Level Streptomycin Resistant

Rule Description

For isolates with an interpretation of resistant for high levels of streptomycin (HLSR), synergy with cell wall active agents (e.g., ampicillin, penicillin, vancomycin) is not achievable.

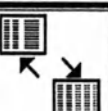
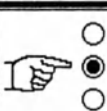


Рис. 5–6. Экран «Resistance Marker Review» (Просмотр маркеров устойчивости).

5–22

L-003342(R)

 ООО ЦИРМИ  INFO@CIRMI.RU  WWW.GOSZDRAVNADZOR.RU

5.5.3 Экран «Special Messages» (Специальные сообщения)

Экран «Special Messages» (Специальные сообщения) позволяет получить доступ к информации о результатах ID и AST для определенной панели, а также к некоторым параметрам панели. Эти специальные сообщения запускаются и могут быть просмотрены независимо от того, включена ли система BDxpert. Если для вызываемой панели имеется специальное сообщение, на экране «Panel Results» (Результаты панели) отображается программная клавиша «специальные сообщения». См. рис. 5.7.

Специальные сообщения для вызванной панели отображаются в соответствии с иерархией на экране «Special Messages» (Специальные сообщения) и могут содержать до 1000 символов. (Отображаются только полные специальные сообщения. Если длина сообщения превышает 1000 символов, оно не отображается на экране. Для просмотра всех сообщений целиком распечатайте лабораторный отчет.

На экране «Special Messages» (Специальные сообщения) отображаются сообщения, существующие на момент доступа к этому экрану: экран не обновляется динамически при появлении новых сообщений. Чтобы просмотреть новые сообщения, необходимо вернуться на экран «Panel Results» (Результаты панели), снова вызвать панель и еще раз войти на экран «Special Messages» (Специальные сообщения).

Порядок открытия экрана «Special Messages» (Специальные сообщения):

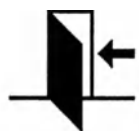
- 1 На экране «Panel Results» (Результаты панели) нажмите программную клавишу «дополнительные программные клавиши» для просмотра описания дополнительных программных клавиш.



- 2 При отображении новых программных клавиш нажмите программную клавишу «специальные сообщения».



- 3 Чтобы вернуться на экран «Panel Results» (Результаты панели), нажмите программную клавишу «выход».



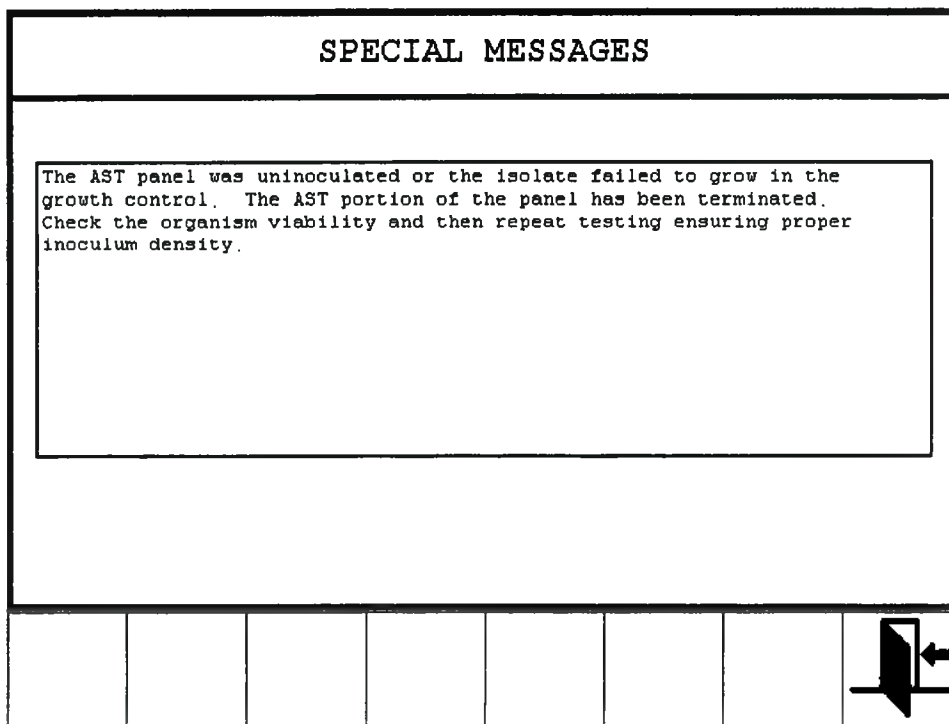


Рис. 5-7. Экран «Special Messages» (Специальные сообщения).

5.5.4 «Lab Report» (Лабораторный отчет)

«Lab Report» (Лабораторный отчет) содержит информацию о порядковом номере панели, записанном в базе данных Phoenix, включая всю информацию экрана «Panel Results» (Результаты панели), все специальные сообщения, примененные правила BDxpert или причины «Needs Attention» (Требуется внимания), если они существуют. Лабораторный отчет недоступен из меню «Reports» (Отчеты). Его можно распечатать с экрана «Panel Results» (Результаты панели) или «Finalization» (Окончательная обработка).

«QC Lab Report» (Лабораторный отчет контроля качества) также доступен на экране «Panel Results» (Результаты панели). Он содержит те же сведения, что и «Lab Report» (Лабораторный отчет), но распечатывается, когда отображается панель контроля качества и запрошен отчет.

В данном отчете представлены следующие сведения:

Заголовок: название отчета, предварительная индикация (если в поле «Status» (Состояние) установлено значение «Ongoing» (выполняется), «Pending» (Ожидание) или «Partial Complete» (Частичное завершение); и/или если имеются условия «Needs Attention» (Требуется внимания), не допускающие игнорирования, или условие «Needs Attention» (Требуется внимания) «Cannot Identify Barcode» (Невозможно определить штрих-код); и/или если панель не подходит для окончательной обработки), сведения лаборатории (если заданы), дата и время печати, версия ПО (X.XXY)/версия диска обновления Phoenix (PUD) (A.AAB).

Основная часть отчета: верхняя часть — «Accession #» (Образец №), «Isolate #» (Культура №), «Sequence #» (Порядковый №), «Panel Type» (Тип панели), «Status» (Состояние) («Ongoing» (Выполняется), «Complete» (Завершение)), индикация КРИТИЧЕСКИХ панелей, «Test Start» (Начало теста) и соответствующее время, «Test End» (Окончание теста) и соответствующее время, «Instr #» (Инструмент №)/«Station» (Станция) (location), состояние «Finalized» (Обработана), «Panel Lot #» (Лот панели №) (если включена функция «QC Lot Support» (Поддержка лота контроля качества)) и «Inoculum Density» (Плотность посева). «Lab Report» (Лабораторный отчет) сортируется по значению «Accession #» (Образец №), а затем по значению «Isolate #» (Культура №) в рамках образцов.

Ниже этих сведений приведено значение «Final ID» (Итоговая идентификация) для микроорганизма. Звездочка рядом со значением «Final ID» (Итоговая идентификация) показывает, что значение ID было изменено пользователем. Ниже отображается «Media Type» (тип питательной среды) (только для панелей «Yeast ID» [Идентификация дрожжей]).

Ниже приведены результаты идентификации прибора, а также «Confidence Value» (Значение степени достоверности) для результата. В нижней части отчета для тестов ID приведены значения «Biochemical» (Биохимический препарат), «Instrument Result» (Результат прибора) и «Expected Result» (Предполагаемый результат). Для тестов AST приведены значения «Antimicrobial» (Противомикробный препарат), «Instrument MIC» (Значение MIC прибора), «Instrument SIR» (Значение SIR прибора), «BDxpert SIR» (Значение SIR BDxpert), «Final SIR» (Итоговая SIR) и «Rule #» (Правило №). Если какие-либо панели имеют маркеры устойчивости, правила BDxpert, флаги «Needs Attention» (Требуется внимания) или специальные сообщения, то они распечатываются в нижней части отчета.

Разделы ID и AST комбинированных панелей печатаются на отдельных страницах отчета.

Для панелей контроля качества кроме приведенной выше информации указываются следующие сведения: «Panel Lot #» (Лот панели №) и «Expiration Date» (Срок годности), «Tech ID» (Идентификация техника), «ID Broth Lot #» (Лот бульона идентификации №) и «Expiration Date» (Срок годности), «AST Broth Lot #» (Лот бульона теста чувствительности №) и «Expiration Date» (Срок годности), «Indicator Lot #» (Лот индикатора №) и «Expiration Date» (Срок годности), а также «Test Strain» (Тестовый штамм). Указывается «QC Status» (Состояние контроля качества) «PASS» (Пройдено), «REVIEW» (Просмотр), «ERROR» (Ошибка) или «FAIL» (Сбой).

Систему можно настроить (область «General» (Общие) экрана «Instrument Configuration» (Конфигурация прибора), раздел 2.3.1.1) на печать краткого лабораторного отчета. Краткий отчет не содержит индивидуальных биохимических результатов для панелей ID или ID/AST.

См. рис. 5–8.

Порядок печати лабораторного отчета:



На экране «Panel Results» (Результаты панели) нажмите программную клавишу «печать».

Lab Report

03/30/03 09:11
VX.XXY / VA.AAB

Accession #	1313	Test Start	03/28/03 18:16
Isolate #	1	Test End	03/29/03 22:07
Sequence #	420011234567	Instru # / Station	1/A01
Panel Type	GPIDAST	Finalized	No
Status	COMPLETE		

Final ID	Staphylococcus haemolyticus	Inoculum Density	0.5
-----------------	-----------------------------	-------------------------	-----

Instrument ID(s)	Confidence Value
Staph. haemolyticus	99%

<u>Biochemical</u>	<u>Instr</u>	<u>Expected</u>	<u>Biochemical</u>	<u>Instr</u>	<u>Expected</u>	<u>Biochemical</u>	<u>Instr</u>	<u>Expected</u>
	<u>Result</u>	<u>Result</u>		<u>Result</u>	<u>Result</u>		<u>Result</u>	<u>Result</u>
A_ARARR	-	-	A_GLPRB	-	-	A_LALT	-	-
A_LARGH	-	-	A_LHIST	-	-	A_LISO	-	-
A_LLEUH	-	-	A_LPHET	-	-	A_LPROB	-	-
.			.			.		
.			.			.		
.			.			.		

[second page, header identical]

<u>Antimicrobial</u>	<u>Instr</u>	<u>Instr</u>	<u>BDXpert</u>	<u>Final</u>	<u>Rule #</u>
	<u>MIC</u>	<u>SIR</u>	<u>SIR</u>	<u>SIR</u>	
Ampicillin	>32	R		R	
Azithromycin	>8	R		R	
Ceftazidime	>64	R		R	
Clindamycin	0.25	S		S	
.		.		.	
.		.		.	
.		.		.	

RESISTANCE MARKERS

abcd - ABRV Text of triggered resistance markers appears here.

BDXpert TRIGGERED RULES

1234 - AUTO Text of BDXpert triggered rule appears here.

End of Report

Рис. 5–8. Пример лабораторного отчета «Lab Report»

5.6 «Finalization» (Окончательная обработка)

Экран «Finalization» (Окончательная обработка) позволяет просматривать и обрабатывать результаты тестов панелей партиями или индивидуально. Можно выполнить окончательную обработку результатов для одной или всех панелей, соответствующих заданным условиям, перейти к новой панели или изменить результаты для отдельной панели и выполнить их окончательную обработку. Все поля экрана «Finalization» (Окончательная обработка) предназначены только для чтения. Для изменения информации панели нажмите программную клавишу «результаты панели». Если прибор подключен к системе управления данными EpiCenter, экран «Finalization» (Окончательная обработка) недоступен.

При выборе экрана «Finalization» (Окончательная обработка) прибор находит записи, готовые к окончательной обработке. Для этого панель должна иметь состояние «Removable» (Сменная), не являться панелью контроля качества и не иметь флагов «Needs Attention» (Требуется внимания), не допускающих игнорирования. Подходящие панели сортируются сначала по номеру образца, а затем по номеру культуры.

Значок с изображением песочных часов, отображаемый при нажатии программной клавиши «окончательная обработка партии», указывает, что выполняется процедура окончательной обработки. За отдельный сеанс окончательной обработки может быть обработано не более 200 панелей.

Можно распечатать два вида отчетов: стандартный «Lab Report» (Лабораторный отчет) и «Finalization Summary Report» (Сводный отчет по окончательной обработке). Лабораторный отчет можно напечатать только после окончательной обработки одной или нескольких панелей. Сводный отчет можно распечатать в любое время.

См. рис. 5–9.

Порядок доступа к экрану «Finalization» (Окончательная обработка):



Нажмите программную клавишу «окончательная обработка» на экране «Main Status» (Основное состояние).

Программные клавиши экрана «Finalization» (Окончательная обработка):

«подтверждение»

OK

«отмена»



«обработать все»



«обработать одну»



«печать лабораторного отчета»



«печать сводного отчета»



«переключение экрана»



«результаты панели»



«дополнительные
противомикробные
препараты»



«выход»



Поля экрана «Finalization» (Окончательная обработка):

«Accession #» (Образец №)

Это поле доступно только для чтения, и в нем отображается номер образца для панели.

«Sequence #» (Порядковый №)

Это поле доступно только для чтения, и в нем отображается порядковый номер панели.

«Isolate #» (Культура №)

Это поле доступно только для чтения, и в нем отображается номер культуры для панели.

«Media» (Питательная среда)

Поле, доступное только для чтения, в котором показан тип питательной среды, выбранный во время входа в панель Yeast ID (Идентификация дрожжей).

«Status» (Состояние)

Это поле доступно только для чтения, и в нем отображается состояние панели.

«Final ID» (Итоговая идентификация)

Это поле доступно только для чтения, и в нем отображается итоговая идентификация микроорганизма для панели.

«Test Start» (Начало теста)

Это поле доступно только для чтения, и в нем отображается дата и время начала тестирования.

«Test End» (Окончание теста)

Это поле доступно только для чтения, и в нем отображается дата и время окончания тестирования.

«Location» (Местоположение)

Это поле доступно только для чтения, и в нем отображается местоположение панели.

«Finalized» (Обработана)

Это поле доступно только для чтения, и в нем отображается состояние окончательной обработки панели.

«Instrument Organism ID» (Идентификация микроорганизмов прибора)

Это поле доступно только для чтения, и в нем отображается идентификация микроорганизма прибора.

«Confidence» (Степень достоверности)

Это поле доступно только для чтения, и в нем отображается значение степени достоверности для значения «Instrument Organism ID» (Идентификация микроорганизмов прибора).

«Biochemical» (Биохимический препарат)

Это поле доступно только для чтения, и в нем отображается сокращение для биохимического препарата.

«Actual» (Действительный)

Это поле доступно только для чтения, и в нем отображается действительный биохимический результат.

«Expected» (Предполагаемый)

Это поле доступно только для чтения, и в нем отображается предполагаемый биохимический результат.

«Drug» (Препарат)

Это поле доступно только для чтения, и в нем отображается название препарата.

«MIC» (Минимальная ингибирующая концентрация)

Это поле доступно только для чтения, и в нем отображается значение минимальной ингибирующей концентрации.

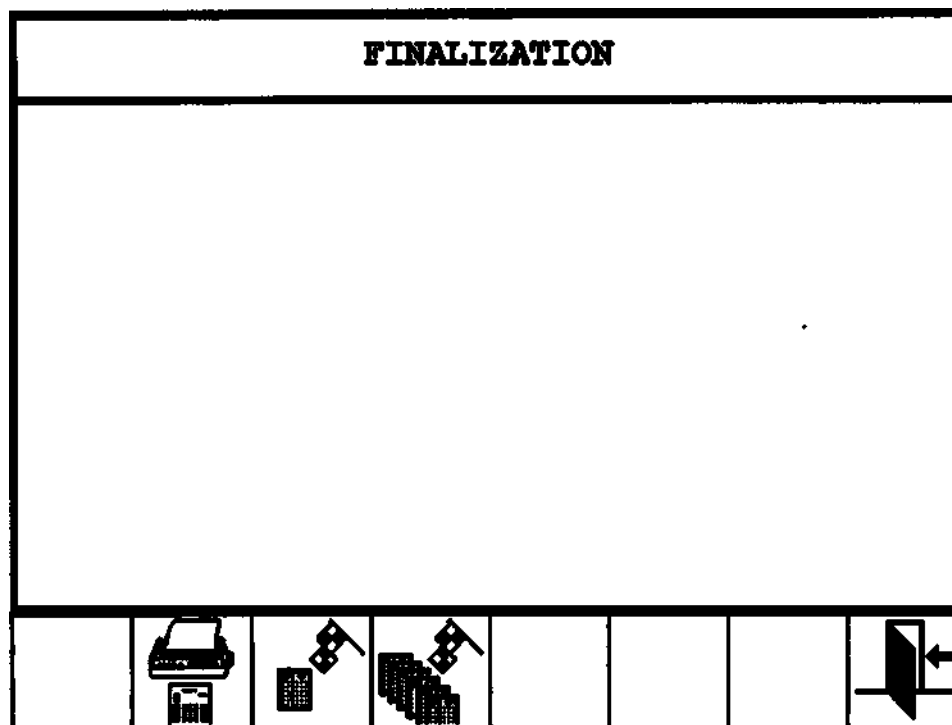


Рис. 5–9. Экран «Finalization» (Окончательная обработка).

«Interpretation» (Интерпретация)

Это поле доступно только для чтения, и в нем отображается интерпретация чувствительности.

«BDXpert SIR» (Значение SIR BDXpert)

Это поле доступно только для чтения, и в нем отображаются итоговые результаты, рассчитанные системой BDXpert и основанные на выполнении всех включенных правил BDXpert, как если бы эти правила выполнялись автоматически.

«Final SIR» (Итоговая SIR)

Это поле доступно только для чтения, и в нем отображается итоговая интерпретация чувствительности. Чтобы изменить значение «Final SIR» (Итоговая SIR), нажмите программную клавишу «результаты панели» для перехода к экрану «Panel Results» (Результаты панели).

5.7 Экран «Configuration/Maintenance» (Конфигурация/техническое обслуживание)

Полное описание конфигурации системы приведено в разделе 2.3. Сведения о техническом обслуживании системы см. в разделе 4.2 и разделе 6.

5.8 Отчеты

Для печати доступны различные отчеты прибора. Возможна печать следующих отчетов:

- ◆ «Completed Lab Report» (Завершенный лабораторный отчет) — информация обо всех панелях, состояние которых изменилось на «Complete» (Выполнено) за выбранный временной интервал (не более 48 часов).
- ◆ «Accession Lab Report» (Лабораторный отчет для образца) — информация о номере определенного образца.
- ◆ «Needs Attention List Report» (Отчет со списком панелей, требующих внимания) — список всех панелей в базе данных прибора, для которых был установлен флаг «Needs Attention» (Требуется внимания), который не был проигнорирован.
- ◆ «Resident Panel Report» (Отчет установленных панелей) — список панелей, содержащихся в станциях 1–25 для каждого уровня.
- ◆ «QC Lab Report» (Лабораторный отчет контроля качества) — список всех микроорганизмов тестового штамма, тестирование которых было завершено и были получены все биохимические результаты и/или результаты MIC противомикробного препарата (для определенного номера лота панели), которые представлены в базах данных Phoenix при запросе отчета.
- ◆ «Cumulative QC Report» (Сводный отчет контроля качества) — сведения о тестировании контроля качества всех типов панелей.
- ◆ «Daily Instrument Report» (Ежедневный отчет прибора) — состояние прибора на момент формирования отчета вместе с контрольным перечнем технического обслуживания.
- ◆ «Interpretation Rule Set Report» (Отчет набора правил интерпретации) — список точек прерывания противомикробного препарата для набора правил интерпретации, установленного как набор правил по умолчанию на экране «Instrument Configuration» (Конфигурация прибора).
- ◆ «BDXpert Rule Set Database Report» (Отчет базы данных набора правил BDXpert) — список всех номеров правил BDXpert с пояснением для каждого правила, а также информация о состоянии (включено/выключено) и параметрах запуска (автоматический запуск/запуск вручную) каждого правила.
- ◆ «Organism ID Code List Report» (Отчет списка кодов идентификации микроорганизмов) — отображение всех названий микроорганизмов, кодов BD и ЛИС для всех названий микроорганизмов, существующих в базе данных Phoenix.
- ◆ «Antimicrobial Code Report» (Отчет кодов противомикробных препаратов) — отображение всех противомикробных препаратов, кодов BD и ЛИС, существующих в базе данных Phoenix для всех конфигураций панелей.
- ◆ «Lab Report» (Лабораторный отчет) — информация панели с указанным порядковым номером, записанная в базе данных Phoenix, включая всю информацию экрана «Panel Results» (Результаты панели), все специальные сообщения, примененные правила BDXpert или существующие причины «Needs Attention» (Требуется внимания). Этот отчет можно распечатать только на экране «Panel Results» (Результаты панели) или «Finalization» (Окончательная обработка).
- ◆ «Finalization Summary Report» (Сводный отчет по окончательной обработке) — все панели, доступные для окончательной обработки на момент создания отчета, а также состояние окончательной обработки. Этот отчет можно распечатать только на экране «Finalization» (Окончательная обработка).
- ◆ «Panel Inventory Lab Report» (Лабораторный отчет инвентаризации панелей) — печать лабораторного отчета для всех панелей прибора. Этот отчет можно распечатать только на экране «Panel Inventory» (Инвентаризация панелей).
- ◆ «Custom Breakpoint Difference Report» (Отчет о различиях пользовательских точек прерывания) — печать списка различий между старыми и новыми точками прерывания после запуска диска с обновлениями Phoenix и выполнения установки/обновления. Этот отчет можно распечатать только на экране «Custom Interpretation Rule Set (Configuration)» (Пользовательский набор правил интерпретации (Конфигурация)).
- ◆ «Current QC Panel Lot Report» (Текущий отчет лота панели контроля качества) — информация о самом последнем тестировании контроля качества для каждого из требуемых штаммов для лота панели (не более 20 штаммов). Этот отчет можно распечатать только на экране «Panel Lot Definition» (Определение лота панели).
- ◆ «Historical QC Panel Lot Report» (Отчет истории лота панели контроля качества) — информация обо всех тестах для штамма для данного прибора (не более 200 тестов). Этот отчет можно распечатать только на экране «Panel Lot Definition» (Определение лота панели).

- ◆ «Panel Lot Report» (Отчет лота панели) — список всех записей панелей для любого номера лота панели в данном приборе.
- ◆ «Panel Lot Database Report» (Отчет базы данных лотов панели) — список всех определенных лотов панелей в данном приборе, а также статистическая и справочная информация по этим лотам.

Более подробная информация о каждом типе отчетов представлена в следующих разделах.

5.8.1 «Completed Lab Report» (Завершенный лабораторный отчет)

«Completed Lab Report» (Завершенный лабораторный отчет) содержит информацию о **всех панелях**, состояние которых изменилось на «Complete» (Выполнено) за выбранный временной интервал (не более 48 часов). В данном отчете представлены следующие сведения:

Заголовок: название отчета, предварительная индикация (если в поле «Status» (Состояние) установлено значение «Ongoing» (Выполняется), «Pending» (Ожидание) или «Partial Complete» (Частичное завершение); и/или если имеются условия «Needs Attention» (Требуется внимания), не допускающие игнорирования, или условие «Needs Attention» (Требуется внимания) «Cannot Identify Barcode» (Невозможно определить штрих-код); и/или если панель не подходит для окончательной обработки, сведения о лаборатории (если заданы), дата и время печати, версия ПО (X.XXY)/версия диска обновления Phoenix (PUD) (A.AAB).

Основная часть отчета: верхняя часть — «Accession #» (Образец №), «Isolate #» (Культура №), «Sequence #» (Последовательность №), «Panel Type» (Тип панели), «Status» (Состояние) («Ongoing» (Выполняется), «Complete» (Завершение)), индикация КРИТИЧЕСКИХ панелей, «Test Start» (Начало теста) и соответствующее время, «Test End» (Окончание теста) и соответствующее время, «Instr #» (Прибор №)/«Station» (Станция) (местоположение), состояние «Finalized» (Обработано), «Panel Lot #» (Лот панели №) (если включена функция «QC Lot Support» (Поддержка лота контроля качества)) и «Inoculum Density» (Плотность посева). «Completed Lab Report» (Завершенный лабораторный отчет) сортируется по значению «Accession #» (Образец №), а затем по значению «Isolate #» (Культура №) в рамках образцов.

Для панелей контроля качества, кроме приведенной выше информации, указываются следующие сведения: «Panel Lot #» (Лот панели №) и «Expiration Date» (Срок годности), «Tech ID» (Идентификация техника), «ID Broth Lot #» (Лот бульона идентификации №) и «Expiration Date» (Срок годности), «AST Broth Lot #» (Лот бульона теста чувствительности №) и «Expiration Date» (Срок годности), «Indicator Lot #» (Лот индикатора №) и «Expiration Date» (Срок годности), а также «Test Strain» (Тестовый штамм). Указывается «QC Status» (Состояние контроля качества) «PASS» (Пройдено), «REVIEW» (Просмотр), «ERROR» (Ошибка) или «FAIL» (Сбой).

Ниже этих сведений приведено значение «Final ID» (Итоговая идентификация) для микроорганизма. Звездочка рядом со значением «Final ID» (Итоговая идентификация) показывает, что значение ID было изменено пользователем. Ниже отображается «Media Type» (тип питательной среды) (только для панелей «Yeast ID» [Идентификация дрожжей]).

Ниже приведены результаты идентификации прибора, а также «Confidence Value» (Значение степени достоверности) для результата. В нижней части отчета для тестов ID приведены значения «Biochemical» (Биохимический препарат), «Instr(ument) Result» (Результат прибора) и «Expected Result» (Предполагаемый результат). Для тестов AST приведены значения «Antimicrobial» (Противомикробный препарат), «Instr(ument) MIC» (Значение MIC прибора), «Instr(ument) SIR» (Значение SIR прибора), «BDXpert SIR» (Значение SIR BDXpert), «Final SIR» (Итоговая SIR) и «Rule #» (Правило №). Если какие-либо панели имеют маркеры устойчивости, правила BDXpert, флаги «Needs Attention» (Требуется внимания) или специальные сообщения, то они распечатываются в нижней части отчета. Значения SIR и значения «Rule #» (Правило №) не включаются в отчет для панелей QC.

Разделы ID и AST комбинированных панелей печатаются на отдельных страницах отчета.

См. рис. 5–10.

Порядок печати завершенного лабораторного отчета:



На экране «Main Status» (Основное состояние) нажмите программную клавишу «печать» для доступа к меню «Reports» (Отчеты).



Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения завершенного лабораторного отчета.

«Start Date/Time»
(Дата/время
начала)

В данном поле по умолчанию отображается текущая дата и время. Это *время завершения* интервала печати завершенного лабораторного отчета. Начальное время — это сдвиг времени, указанный в поле «Prior Period» (Интервал до) (ниже). Нажмите клавишу ▲ или ▼, чтобы увеличить или уменьшить отображаемое значение («Month» (Месяц), «Day» (День), «Year» (Год), «Hour» (Час) или «Minute» (Минута)) в соответствии с необходимой датой/временем завершения.

«Prior Period»
(Интервал до)

В этом поле представлено число часов до печати отчета. То есть при выборе значения «2» для данного поля система печатает лабораторный отчет для всех панелей, тестирование которых было завершено в течение двух часов до момента **Start Date/Time** (Дата/время начала). В этом поле по умолчанию установлено значение 24 часа. Нажмите клавишу ▲ или ▼, чтобы увеличить или уменьшить отображаемое значение числа часов в соответствии с требованиями. Можно выбрать значение от 1 до 48 часов.

Флажок QC
(Контроль
качества)

Нажмите «выбрать» для печати завершенного лабораторного отчета с контролем качества (по умолчанию флажок очищен).



Нажмите программную клавишу «печать» еще раз для печати отчета.

Completed Lab Report

03/30/03 09:11
VX.XXY / VA.AAB

Accession #	1313	Test Start	03/28/03 18:16
Isolate #	1	Test End	03/29/03 22:07
Sequence #	420011234567	Instru # / Station	1/A01
Panel Type	GPIDAST	Finalized	No
Status	COMPLETE		

Final ID	Staphylococcus haemolyticus	Inoculum Density	0.5
-----------------	-----------------------------	-------------------------	-----

Instrument ID(s)	Confidence Value	Supplemental Test(s)
Staph. haemolyticus	99%	

<u>Biochemical</u>	<u>Instr</u>	<u>Expected</u>	<u>Biochemical</u>	<u>Instr</u>	<u>Expected</u>	<u>Biochemical</u>	<u>Instr</u>	<u>Expected</u>
	<u>Result</u>	<u>Result</u>		<u>Result</u>	<u>Result</u>		<u>Result</u>	<u>Result</u>
A_ARARR	-	-	A_GLPRB	-	-	A_LALT	-	-
A_LARGH	-	-	A_LHIST	-	-	A_LISO	-	-
A_LLEUH	-	-	A_LPHET	-	-	A_LPROB	-	-
.			.			.		
.			.			.		
.			.			.		

[second page, header identical]

<u>Antimicrobial</u>	<u>Instr</u>	<u>Instr</u>	<u>BDXpert</u>	<u>Final</u>	<u>Rule #</u>
	<u>MIC</u>	<u>SIR</u>	<u>SIR</u>	<u>SIR</u>	
Ampicillin	>32	R		R	
Azithromycin	>8	R		R	
Ceftazidime	>64	R		R	
Clindamycin	0.25	S		S	
.	.	.		.	
.	.	.		.	
.	.	.		.	

RESISTANCE MARKERS

abcd - ABRV Text of triggered resistance markers appears here.

BDXpert TRIGGERED RULES

1234 - AUTO Text of BDXpert triggered rule appears here.

End of Report

Рис. 5–10. Пример завершено лабораторного отчета «Completed Lab Report»

5.8.2 «Accession Lab Report» (Лабораторный отчет для образца)

«Accession Lab Report» (Лабораторный отчет для образца), как правило, является набором лабораторных отчетов для номера определенного образца. Он содержит информацию для образца с определенным номером. По мере необходимости в отчет включается следующая информация: результаты идентификации микроорганизма, включая определенные биохимические реакции, результаты AST, включая результаты MIC и интерпретации SIR, результаты прохождения/сбоя контроля качества и запущенные правила BDxpert. В данном отчете представлены следующие сведения:

Заголовок: название отчета, предварительная индикация (если в поле «Status» (Состояние) установлено значение «Ongoing» (Выполняется), «Pending» (Ожидание) или «Partial Complete» (Частичное завершение); и/или если имеются условия «Needs Attention» (Требуется внимания), не допускающие игнорирования, или условие «Needs Attention» (Требуется внимания) «Cannot Identify Barcode» (Невозможно определить штрих-код); и/или если панель не подходит для окончательной обработки, сведения о лаборатории (если заданы), дата и время печати, версия ПО (X.XXY)/версия диска обновления Phoenix (PUD) (A.AAB).

Основная часть отчета: верхняя часть — «Accession #» (Образец №), «Isolate #» (Культура №), «Sequence #» (Порядковый №), «Panel Type» (Тип панели), «Status» (Состояние) («Ongoing» (Выполняется), «Complete» (Завершение)), индикация КРИТИЧЕСКИХ панелей, «Test Start» (Начало теста) и соответствующее время, «Test End» (Окончание теста) и соответствующее время, «Instr #» (Прибор №)/«Station» (Станция) (местоположение), состояние «Finalized» (Обработано), «Panel Lot #» (Лот панели №) (если включена функция «QC Lot Support» (Поддержка лота контроля качества)) и «Inoculum Density» (Плотность посева). «Completed Lab Report» (Завершенный лабораторный отчет) сортируется по значению «Accession #» (Образец №), а затем по значению «Isolate #» (Культура №) в рамках образцов.

Ниже этих сведений приведено значение «Final ID» (Итоговая идентификация) для микроорганизма. Звездочка рядом со значением «Final ID» (Итоговая идентификация) показывает, что значение ID было изменено пользователем. Ниже отображается «Media Type» (тип питательной среды) (только для панелей «Yeast ID» [Идентификация дрожжей]).

Ниже приведены результаты идентификации прибора, а также «Confidence Value» (Значение степени достоверности) для результата. В нижней части отчета для тестов ID приведены значения «Biochemical» (Биохимический препарат), «Instrument Result» (Результат прибора) и «Expected Result» (Предполагаемый результат). Для тестов AST приведены значения «Antimicrobial» (Противомикробный препарат), «Instrument MIC» (Значение MIC прибора), «Instrument SIR» (Значение SIR прибора), «BDXpert SIR» (Значение SIR BDxpert), «Final SIR» (Итоговая SIR) и «Rule #» (Правило №). Если какие-либо панели имеют маркеры устойчивости, правила BDxpert, флаги «Needs Attention» (Требуется внимания) или специальные сообщения, то они распечатываются в нижней части отчета. Значения SIR и значения «Rule #» (Правило №) не включаются в отчет для панелей QC.

Разделы ID и AST комбинированных панелей печатаются на отдельных страницах отчета.

Для панелей контроля качества, кроме приведенной выше информации, указываются следующие сведения: «Panel Lot #» (Лот панели №) и «Expiration Date» (Срок годности), «Tech ID» (Идентификация техника), «ID Broth Lot #» (Лот бульона идентификации №) и «Expiration Date» (Срок годности), «AST Broth Lot #» (Лот бульона теста чувствительности №) и «Expiration Date» (Срок годности), «Indicator Lot #» (Лот индикатора №) и «Expiration Date» (Срок годности), а также «Test Strain» (Тестовый штамм). Указывается «QC Status» (Состояние контроля качества) «PASS» (Пройдено), «REVIEW» (Просмотр), «ERROR» (Ошибка) или «FAIL» (Сбой).

См. рис. 5–11.

Порядок печати лабораторного отчета для образца:



На экране «Main Status» (Основное состояние) нажмите программную клавишу «печать» для доступа к меню «Reports» (Отчеты).



Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения лабораторного отчета для образца.

«Accession #»
(Образец №)

Введите или считайте необходимый номер образца. Если номер был введен неправильно, можно нажать программную клавишу «очистить», чтобы очистить поле и ввести правильный номер.



Нажмите программную клавишу «печать» еще раз для печати отчета.

Accession Lab Report

03/30/03 09:11
VX.XXY / VA.AAB

Accession #
Isolate #
Sequence #
Panel Type
Status

1313
1
420011234567
GPIDAST
COMPLETE

Test Start
Test End
Instru # / Station
Finalized

03/28/03 18:16
03/29/03 22:07
1/A01
No

Final ID

Staphylococcus haemolyticus

Inoculum Density

0.5

Instrument ID(s)
Staph. haemolyticus

Confidence Value
99%

Biochemical

Instr

Expected

Result

Result

A_ARARR

-

-

A_LARGH

-

-

A_LLEUH

-

-

-

-

-

Biochemical

Instr

Expected

Result

Result

A_GLPRB

-

-

A_LHIST

-

-

A_LPHET

-

-

-

-

-

Biochemical

Instr

Expected

Result

Result

A_LALT

-

-

A_LISO

-

-

A_LPROB

-

-

-

-

-

[second page, header identical]

Antimicrobial

Instr

MIC

Instr

SIR

BDXpert

SIR

Final

SIR

Rule #

Ampicillin

>32

R

R

Azithromycin

>8

R

R

Ceftazidime

>64

R

R

Clindamycin

0.25

S

S

-

-

-

-

-

-

-

-

-

RESISTANCE MARKERS

abcd -

ABRV

Text of triggered resistance markers appears here.

BDXpert TRIGGERED RULES

1234 -

AUTO

Text of BDXpert triggered rule appears here.

End of Report

Рис. 5–11. Пример лабораторного отчета для образца «Accession Lab Report»

L-003342(R)

5–35

ООО ЦИРМИ INFO@CIRMI.RU WWW.GOSZDRAVNADZOR.RU

5.8.3 «Needs Attention List Report»
(Отчет со списком панелей, требующих внимания)

«Needs Attention List Report» (Отчет со списком панелей, требующих внимания) содержит список всех панелей в базе данных прибора, для которых был установлен флаг «Needs Attention» (Требуется внимания), который не был проигнорирован. Этот отчет можно также распечатать на экране «Needs Attention» (Требуется внимания). В данном отчете представлены следующие сведения:

Заголовок: название отчета, уведомление о фильтрации отчета (если выбрано), сведения о лаборатории (если сконфигурированы), дата и время печати.

Основная часть отчета: основание «Needs Attention» (Требуется внимания), «Sequence #» (Порядковый №), «Accession #» (Образец №), «Isolate #» (Культура №), «Instr #» (Прибор №)/«Station» (Станция) (местоположение) и «Status» (Состояние) («Ongoing» (Выполняется), «Complete» (Завершение)). Если фильтр отчета включен (значение по умолчанию), слева от заголовка «Reason» (Причина) для панелей с несколькими состоянием «Needs Attention» (Требуется внимания) появляется символ «звездочка». Отчет сортируется по приоритету причин «Needs Attention» (Требуется внимания) (см. раздел 5.11) и по образцу для каждого типа причины.

См. рис. 5–12.

Порядок печати отчета со списком панелей, требующих внимания:



На экране «Main Status» (Основное состояние) нажмите программную клавишу «печать» для доступа к меню «Reports» (Отчеты).



Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения отчета со списком панелей, требующих внимания.



Если необходимо распечатать неотфильтрованный отчет, нажмите **Tab** для перехода к флажку «Filtered» (Фильтр). Нажмите **Spacebar** или программную клавишу «выбрать», чтобы очистить этот флажок.



Нажмите программную клавишу «печать» еще раз для печати отчета.

Needs Attention List Report					
Filtered on highest priority reason					
10/27/03 09:11					
<u>Reason</u>	<u>Sequence #</u>	<u>Accession #</u>	<u>Isolate #</u>	<u>Instr # / Station</u>	<u>Status</u>
No Growth On Panel	420011234567	1313	1	1/A02	COMPLETE
Review QC Results	420027654321	1344	1	1/B03	COMPLETE
Can Not Determine Organism ID	420031234123	1489	1	1/C04	ONGOING
Can Not Identify Barcode	420047654765	1566	1	1/D05	COMPLETE
End of Report					

Рис. 5–12. Пример отчета со списком панелей, требующих внимания «Needs Attention List Report»

5.8.4 «Resident Panel Report» (Отчет установленных панелей)

«Resident Panel Report» (Отчет установленных панелей) включает список панелей, содержащихся в станциях 1–25 для каждого уровня и обнаруженных при последнем сканировании оборудования. В данном отчете представлены следующие сведения:

Заголовок: название отчета, сведения о лаборатории (если сконфигурировано), дата и время печати и номер прибора.

Основная часть отчета: «Accession #» (Образец №), «Isolate #» (Культура №), «Sequence #» (Порядковый №), «QC» (Контроль качества) (если контроль качества для панели выполняется), «Test Start» (Начало теста) и соответствующее время, «Inoculum Density» (Плотность посева), «Panel Type» (Тип панели), «Status» (Состояние) («Ongoing» (Выполняется), «Complete» (Завершение)) и причина «Needs Attention» (Требуется внимания) с самым высоким приоритетом, если такая причина существует. Отчет сортируется по значению «Accession #» (Образец №), а затем по значению «Isolate #» (Культура №) в рамках каждого образца.

См. рис. 5–13.

Порядок печати отчета установленных панелей:



На экране «Main Status» (Основное состояние) нажмите программную клавишу «печать» для доступа к меню «Reports» (Отчеты).



Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения отчета установленных панелей.



Нажмите программную клавишу «печать» еще раз для печати отчета.

Resident Panel Report								
07/30/99 09:11								
Instrument #1								
Accession #	Isolate #	Sequence #	QC	Test Start	Inoculum Density	Panel Type	Status	Needs Attention
1654	1	420011234567		07/28/99 14:52	0.5	GNIDAST	COMPLETE	Missing Accession Number
1876	1	420011234568		07/28/99 15:33	0.5	GNIDAST	COMPLETE	.
11899	1	420011234569		07/28/99 15:36	0.5	GNIDAST	COMPLETE	.
1945	1	420011234560		07/28/99 15:45	0.5	GNIDAST	COMPLETE	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
End of Report								

Рис. 5–13. Пример отчета установленных панелей «Resident Panel Report»

5.8.5 «QC Lab Report» (Лабораторный отчет контроля качества)

«QC Lab Report» (Лабораторный отчет контроля качества) содержит список всех панелей контроля качества в диапазоне от значения, введенного в поле даты «Test Start» (Запуск теста), до текущей даты. Отчет включает список всех микроорганизмов тестового штамма, тестирование которых было завершено и были получены все биохимические результаты и/или результаты MIC противомикробного препарата (для определенного номера лота панели), которые представлены в базе данных Phoenix. В данном отчете представлены следующие сведения:

Заголовок: название отчета, сведения о лаборатории (если сконфигурировано), дата и время печати, версия ПО (X.XXY)/версия диска обновления Phoenix (PUD) (A.AAB).

Основная часть отчета: «Panel Lot #» (Лот панели №) и «Expiration Date» (Срок годности), «Test Start» (Начало теста) и соответствующее время, «Panel Type» (Тип панели), «Instr #» (Прибор №)/«Station» (Станция) (местоположение), «Status» (Состояние) («Ongoing» (Выполняется), «Complete» (Завершение)), «Tech ID» (Идентификация техника), «ID Broth Lot #» (Лот бульона идентификации №) и «Expiration Date» (Срок годности), «AST Broth Lot #» (Лот бульона теста чувствительности №) и «Expiration Date» (Срок годности), «Indicator Lot #» (Лот индикатора №) и «Expiration Date» (Срок годности), «Sequence #» (Последовательность №), «Accession #» (Образец №), «Isolate #» (Культура №), «Test Strain» (Тестовый штамм), «Inoculum Density» (Плотность посева), «Media Type» (Тип питательной среды) (только для панелей «Yeast ID» [Идентификация дрожжей]), «Instrument ID» (идентификаторы приборов) и «QC Status» (Состояние контроля качества) («PASS» (Пройдено) / «FAIL» (Сбой) / «REPEAT» (Повтор) / «REVIEW» (Просмотр)). В нижней части отчета печатаются причины «Needs Attention» (Требуется внимания) или «Special Messages» (Специальные сообщения). Включаются значения «Biochemical» (Биохимический препарат), «Instr(ument) Result» (Результат прибора) и «Expected Result» (Предполагаемый результат), а также противомикробные препараты, значения MIC прибора, ожидаемые значения MIC и состояние «Pass» (Пройдено)/«Fail» (Сбой).

Этот отчет доступен только при отключении системы BD EpiCenter.

См. рис. 5–14.

Порядок печати лабораторного отчета контроля качества:



На экране «Main Status» (Основное состояние) нажмите программную клавишу «печать» для доступа к меню «Reports» (Отчеты).



Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения лабораторного отчета контроля качества.

«Panel Lot #» (Лот панели №)

Введите или считайте номер лота панели в поле «Panel Lot #» (Лот панели №), если включена поддержка лота контроля качества, нажмите клавишу TAB для перехода к полю «Panel Lot #» (Лот панели №), затем нажмите клавишу СТРЕЛКА ВНИЗ, чтобы раскрыть список всех определенных номеров лота, и выделите необходимый номер лота, затем нажмите программную клавишу «выбрать» для выбора лота.

«Test Start»
(Начало теста)

В первом поле даты «Test Start» (Запуск теста) нажмите СТРЕЛКУ ВВЕРХ или СТРЕЛКУ ВНИЗ, чтобы ввести необходимый день, месяц или год (в зависимости от конфигурации). Нажмите клавишу  для перехода к следующему полю даты и воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода необходимого дня, месяца или года. Нажмите клавишу  для перехода к следующему полю даты и воспользуйтесь клавишами СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для ввода оставшейся части даты. Если номер был введен неправильно, можно нажать программную клавишу «очистить», чтобы очистить все поля и ввести правильный номер.

Если дата «Test Start» (Запуск теста) не введена, прибор выполняет печать всех данных из базы данных для введенного номера лота панели.



Нажмите программную клавишу «печать» еще раз для печати отчета.

QC Lab Report

10/30/03 09:11
VX.XXY / VA.AAB

Panel Lot #
Test Start

777777
10/28/03 10:02

Expiration Date
Test End

10/07/05
10/29/03 22:07

Panel Type
Status

GPIDAST
COMPLETE

Instru # / Station
Tech ID

1/A01
ljk

ID Broth Lot #
AST Broth Lot #
Indicator Lot #

6666666
5555555
4444444

Expiration Date
Expiration Date
Expiration Date

07/07/05
08/08/05
09/09/05

Sequence #
Accession #
Isolate #

42001222222
9911
1

Test Strain

29213 Staphylococcus aureus

Inoculum Density

0.5

Instrument ID(s)
Staph. aureus

QC Status

PASS

Biochemical	Instr Result	Expected Result	Biochemical	Instr Result	Expected Result	Biochemical	Instr Result	Expected Result
A_ARARR	•	•	A_GLPRB	•	•	A_LALT	-	-
A_LARGH	•	V	A_LHIST	•	•	A_LISO	-	-
A_LLEUH	•	•	A_LPHET	•	•	A_LPROB	-	•

[second page, header identical]

Antimicrobial	Instr MIC	Expected MIC	Pass/Fail
Amikacin	2	1.00-4.00	Pass
Chloramphenicol	4	2.00-8.00	Pass
Ciprofloxacin	0.25	0.13-0.50	Pass
Cephalexin	4	2.00-8.00	Pass
.	.	.	.
.	.	.	.

Needs Attention Reasons

Text of Needs Attention Reasons goes here

SPECIAL MESSAGES

The beta-lactamase test (nitrocefin based) passed QC.

End of Report

Рис. 5–14. Пример лабораторного отчета контроля качества «QC Lab Report»

5-40

L-003342(R)

ООО ЦИРМИ INFO@CIRMI.RU WWW.GOSZDRAVNADZOR.RU

5.8.6 «Cumulative QC Report» (Сводный отчет контроля качества)

«Cumulative QC Report» (Сводный отчет контроля качества) содержит сведения о завершенном тестировании контроля качества всех типов панелей. В данном отчете представлены следующие сведения:

Заголовок: название отчета, сведения о лаборатории (если сконфигурировано), дата и время печати и номер прибора.

Основная часть отчета: критерии выбора — «Panel Lot #» (Лот панели №), «Panel Type» (Тип панели) и выбранные тестовые штаммы.

Ниже располагаются следующие данные: «Sequence #» (Порядковый №) для панели (порядок сортировки), «QC Status» (Состояние контроля качества) («PASS» (Пройдено), «FAIL» (Сбой), «REVIEW» (Просмотр), «ERROR» (Ошибка)), «Test Strain» (Тестовый штамм), «Test Start» (Начало теста) и соответствующее время, «Panel Lot #» (Лот панели №), «ID Broth Lot #» (Лот бульона идентификации №), «AST Broth Lot #» (Лот бульона теста чувствительности №), «Indicator Lot #» (Лот индикатора №) и «Tech ID» (Идентификация техника) для каждой панели.

Этот отчет доступен только при отключении системы BD EpiCenter.

См. рис. 5–15.

Порядок печати сводного отчета контроля качества:



На экране «Main Status» (Основное состояние) нажмите программную клавишу «печать» для доступа к меню «Reports» (Отчеты).



Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения сводного отчета контроля качества.

Если поддержка лота контроля качества отключена:

«Panel Lot #» (Лот панели №)	Введите или считайте необходимый номер лота панели. Если номер был введен неправильно, можно нажать программную клавишу «очистить», чтобы очистить все поля и ввести правильный номер.
Флажок All (Все)	По умолчанию этот флажок установлен, что указывает на печать всех завершенных данных контроля качества. Нажмите программную клавишу «переход к следующему полю» для перемещения курсора к этому флажку и нажмите программную клавишу «выбрать» для очистки флажка, чтобы указать типы панелей или тестовых штаммов, которые необходимо включить в отчет. Флажок «All» (Все) переопределяет любое значение, введенное в поле «Panel Lot #» (Лот панели №).
«Panel Type» (Тип панели)	Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить необходимый тип панели, или выберите «All» (Все) для выбора всех типов. В списке отображаются только завершенные типы панелей.
«Test Strain» (Тестовый штамм)	Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить необходимый тестовый штамм, или выберите «(all)» (Все) для выбора всех штаммов.

Если поддержка лота контроля качества включена:

«Panel Lot #» (Лот панели №)	Используйте это поле, чтобы выбрать результаты для печати по номеру лота. Выберите «(all)» (Все) для печати всех номеров лота панели. Для указания конкретного номера лота нажмите клавишу СТРЕЛКА ВНИЗ, чтобы раскрыть список всех определенных номеров лота, и выделите необходимый номер лота, затем нажмите программную клавишу «выбрать» для выбора лота. Поле типа панели заполняется автоматически.
------------------------------	--

«Panel Type» (Тип панели)

Используйте это поле, чтобы выбрать результаты для печати по типу панели. Нажмите клавишу СТРЕЛКА ВНИЗ, чтобы выделить определенный тип панели для печати, или выберите «(all)» (Все) для выбора всех типов.

«Test Strain» (Тестовый штамм)

Используйте это поле, чтобы выбрать результаты для печати по тестовому штамму. Нажмите клавишу СТРЕЛКА ВНИЗ, чтобы выделить необходимый тестовый штамм, или выберите «(all)» (Все) для выбора всех штаммов. Выбор значения «(all)» (Все) приводит к печати всех штаммов при указании номера лота панели (даже если штаммы для типа панели не требуются).



Нажмите программную клавишу «печать» еще раз для печати отчета.

Cumulative QC Report								
10/30/03 09:11								
Instrument #1								
Panel Lot #	(all)							
Panel Type	(all)							
Test Strain	(all)							
Sequence #	QC Status	Test Strain	Test Start	Panel Lot #	ID Broth Lot #	AST Broth Lot #	Indicator Lot #	Tech ID
420011234567	PASS	ATCC51299	10/28/03 14:52	1111111	5555555	9999999	7878787	ljk
420011234568	PASS	ATCC25923	10/28/03 15:33	2222222	6666666	1212121	9090909	bee
420011234569	PASS	ATCC29213	10/28/03 15:36	3333333	7777777	3434343	1234567	me
420011234560	PASS	ATCC29062	10/28/03 15:45	4444444	8888888	5656565	2345678	up
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
End of Report								

Рис. 5–15. Пример сводного отчета контроля качества «Cumulative QC Report»

5.8.7 «Daily Instrument Report» (Ежедневный отчет прибора)

«Daily Instrument Report» (Ежедневный отчет прибора) содержит список состояний прибора на момент формирования отчета, а также области для записи операций технического обслуживания. Можно настроить автоматическую печать ежедневного отчета прибора в указанное время. См. раздел 2.3.1.

В данном отчете представлены следующие сведения:

Заголовок: название отчета, сведения о лаборатории (если сконфигурировано), дата и время печати, версия ПО (X.XXY)/версия диска обновления Phoenix (PUD) (A.AAB).

Основная часть отчета: «Instrument #» (Прибор №), «Serial #» (Серийный №), состояние «Instrument Temperature» (Температура прибора) («Pass» (Пройдено)/«Fail» (Сбой)), состояние «Carousel Rotational Test» (Проверка поворотного механизма) («Pass» (Пройдено)/«Fail» (Сбой)), состояние «Power Supply Check» (Проверка источника питания) («Pass» (Пройдено)/«Fail» (Сбой)), «Normalizer Panels Sequence #» (Порядковый № панелей нормализатора), состояние «Pass» (Пройдено)/«Fail» (Сбой), состояние «Expiration» (Срок годности) (дата, если срок годности истекает более чем через 60 дней; «expires on date» (дата истечения срока годности), если до истечения срока годности осталось от 60 до 0 дней; и «EXPIRED» (Срок годности истек), если срок годности панели истек) для каждого уровня и пробелы для записи показаний, состояние «Pass» (Пройдено)/«Fail» (Сбой) и «Tech ID» (Идентификация техника) для каждой из следующих—технических проверок: ежедневно — проверка температуры прибора (экран «Main Status» (Основное состояние)), температуры стандартной панели, наличия бумаги в принтере; еженедельно — проверка внутренних зеленых светодиодов, внутренних красных светодиодов, внутренних оранжевых светодиодов, индикатора системного предупреждения и звукового сигнала тревоги прибора. В нижней части отчета содержится область для добавления комментариев.

Считается, что температура прибора проходит проверку, если неподтвержденные предупреждения о температуре E01 отсутствуют.

См. рис. 5–16.

Порядок печати ежедневного отчета прибора:



На экране «Main Status» (Основное состояние) нажмите программную клавишу «печать» для доступа к меню «Reports» (Отчеты).



Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения ежедневного отчета прибора.



Нажмите программную клавишу «печать» еще раз для печати отчета.

Daily Instrument Report

11/30/07 09:11
VX.XXY / VA.AAB

Instrument # 1
Serial # 12345

Instrument Temperature Pass
Carousel Rotational Test Pass
Power Supply Check Pass

Normalizer Panels

<u>Tier</u>	<u>Sequence #</u>	<u>Status</u>	<u>Expiration Status</u>
A	429990000001	Pass	10/21/08
B	429990000002	Pass	10/21/08
C	429990000003	Pass	10/21/08
D	429990000004	Pass	10/21/08

Daily

	<u>Pass</u>	<u>Fail</u>	<u>Tech ID</u>
Record Instrument Temperature From Main Screen Range: (33.5 - 36.5)	_____	_____	_____
Record Standard Panel Temperature Range: (33.5 - 36.5)	_____	_____	_____
Check Printer Paper Supply	_____		

Weekly

Instrument Internal Green LEDs	_____	_____	_____
Instrument Internal Red LEDs	_____	_____	_____
Instrument Internal Amber LEDs	_____	_____	_____
Instrument System Alert Indicator	_____	_____	_____
Instrument Audible Alarm	_____	_____	_____

Comments

End of Report

Рис. 5–16. Пример ежедневного отчета прибора «Daily Instrument Report»

5.8.8 «Interpretation Rule Set Report» (Отчет набора правил интерпретации)

«Interpretation Rule Set Report» (Отчет набора правил интерпретации) содержит список точек прерывания противомикробного препарата для текущего выбранного набора правил интерпретации, установленного как набор правил по умолчанию на экране «Instrument Configuration» (Конфигурация прибора). В данном отчете представлены следующие сведения:

Заголовок: название отчета, сведения о лаборатории (если сконфигурировано), дата и время печати.

Основная часть отчета: набор правил, версия правила, столбцы «Antimicrobial» (Противомикробный препарат) (критерий сортировки), «Organism Group» (Группа микроорганизмов), «Organism Name» (Название микроорганизма), «S(usceptible)» (Чувствительные), значение «R(esistance)» (Устойчивость). Каждая точка прерывания противомикробного препарата представлена в отдельной строке отчета.

Отчет набора правил интерпретации содержит большой объем данных. Буферизация и печать отчета может привести к использованию большого объема ресурсов системы, в результате чего печать других отчетов будет невозможна до завершения операций с данным отчетом.

Для печати отчетов по ВСЕМ наборам правил прибора сначала выберите набор правил в конфигурации прибора (раздел 2.3.1), затем перейдите к меню «Reports» (Отчеты) и выберите «Interpretation Rule Set Report» (Отчет набора правил интерпретации). Выполняется печать текущего выбранного набора правил. По завершении печати выполните возврат на экран «Instrument Configuration» (Конфигурация прибора) и выберите следующий набор правил. Затем снова перейдите к меню «Reports» (Отчеты) и напечатайте набор правил интерпретации. Выбирайте и печатайте наборы правил, пока все возможные наборы правил не будут распечатаны. После того как печать будет выполнена, необходимо выбрать требуемый набор правил, используемый для интерпретации, на экране «Instrument Configuration» (Конфигурация прибора).

ПРИМЕЧАНИЕ

Изменение набора правил интерпретации не должно осуществляться при наличии задействованных панелей. Это может привести к неправильной интерпретации.

См. рис. 5–17.

Порядок печати отчета набора правил интерпретации:



На экране «Main Status» (Основное состояние) нажмите программную клавишу «печать» для доступа к меню «Reports» (Отчеты).



Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения отчета набора правил интерпретации.



Нажмите программную клавишу «печать» еще раз.

OK

В сообщении содержится информация о размере отчета. Нажмите программную клавишу «подтверждение» для печати отчета или программную клавишу «отмена», чтобы отменить печать.

Interpretation Rule Set Report					
03/30/05 09:11					
Rule Set		CLSI			
Rule Version		M100-S13			
Antimicrobial	Test Group	Organism Group	Organism Name	S	R
Ampicillin	A	ENTC_IC	(all)	<=8.00	>=16.00
Ampicillin	A	ENTERIC_IC	(all)	<=8.00	>=32.00
Ampicillin	A	HAEINF_IC	(all)	<=1.00	>=4.00
Ampicillin	A	HAEIOTHF_IC	(all)	<=1.00	>=4.00
Ampicillin	A	LISMON_IC	(all)	<=2.00	-
Ampicillin	O	STAAUE_IC	(all)	<=0.25	>=0.50
Ampicillin	O	STAOTH_IC	(all)	<=0.25	>=0.50
Ampicillin	A	STRBET_IC	(all)	<=0.25	-
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
End of Report					

Рис. 5–17. Пример отчета набора правил интерпретации (пример данных) «Interpretation Rule Set Report»

**Коды групп микроорганизмов (интерпретация):
CLSI, SFM или EUCAST**

Код интерпретации	Имя интерпретации
ACIN_IC	<i>Acinetobacter</i> spp.
AERM_IC	<i>Aeromonas</i> spp.
AERMHC_IC	<i>Aeromonas hydrophila</i> комплекс
BACI_IC	<i>Bacillus</i> spp.
BURCEP_IC	<i>Burkholderia cepacia</i>
CARHOM_IC	<i>Cardiobacterium hominis</i>
CORY_IC	<i>Corynebacterium</i> spp.
EIKCOR_IC	<i>Eikenella corrodens</i>
ENTC_IC	<i>Enterococcus</i> spp.
ENTERIC_IC	<i>Enterobacteriaceae</i>
ERYRHU_IC	<i>Erysipelothrix rhusiopathiae</i>
GNCBOTH_IC	Грамотрицательные коккобациллы, включая <i>Moraxella</i> spp., отличный от MORBCAT_IC
GNROTH_IC	Грамотрицательная палочка, отличная от ACIN_IC, BURCEP_IC, ENTERIC, NFGNROTH_IC, PSEAER_IC, STEMAL_IC, PAST_IC
GPCOTH_IC	Грамположительные, отличные от <i>Staphylococcus</i> spp., <i>Streptococcus</i> spp., ENTC_IC, LEUC_IC, PEDI_IC
GPROTH_IC	Грамположительная палочка, отличная от BACI_IC, CORY_IC, ERYRHU_IC
KIN_IC	<i>Kingella</i> spp.
LEUC_IC	<i>Leuconostoc</i> spp.
LISMON_IC	<i>Listeria monocytogenes</i>
LISTOTH_IC	<i>Listeria</i> spp., отличный от LISMON_IC
MORBCAT_IC	<i>Moraxella (Branhamella) catarrhalis</i>
NFGNROTH_IC	Неферментирующие грамотрицательные палочки, отличные от ACIN_IC, BURCEP_IC, PSEAER_IC, STEMAL_IC, ACTBACT_IC, CARHOM_IC, EIKCOR_IC
NO_INTERP_IC	Без интерпретации
PAST_IC	<i>Pasteurella</i> spp.
PEDI_IC	<i>Pediococcus</i> spp.
PLESI_IC	<i>Plesiomonas shigelloides</i>
PSEAER_IC	<i>Pseudomonas aeruginosa</i>
STAAUE_IC	<i>Staphylococcus aureus</i>
STAOTH_IC	<i>Staphylococcus</i> spp., отличный от STAAUE_IC
STEMAL_IC	<i>Stenotrophomonas maltophilia</i>
STRBET_IC	<i>Streptococcus</i> бета-гемолитический
STROTH_IC	<i>Streptococcus</i> spp., отличный от STRBET_IC, STRPNE_IC, STRVIR_IC
STRPNE_IC	<i>Streptococcus pneumoniae</i>
STRVIR_IC	Группа <i>Streptococcus viridans</i>
VIBCHO_IC	<i>Vibrio cholerae</i>
VIBROTH_IC	<i>Vibrio</i> spp., отличный от VIBCHO_IC

Табл. 5-2 – Коды групп микроорганизмов

5.8.9 «BDXpert Rule Set Database Report» (Отчет базы данных набора правил BDXpert)

«BDXpert Rule Set Database Report» (Отчет базы данных набора правил BDXpert) содержит список всех номеров правил BDXpert с пояснением для каждого правила, а также информацию о состоянии (включено/выключено) и параметрах запуска (автоматический запуск/запуск вручную) каждого правила. В данном отчете представлены следующие сведения:

Заголовок: название отчета, сведения о лаборатории (если сконфигурировано), дата и время печати, набор правил (CLSI, SFM, EUCAST или пользовательский набор) и «Based On» (На основе) (CLSI, SFM или EUCAST, если выбран пользовательский набор правил).

Основная часть отчета: «Rule #» (Правило №), текст правила, состояние «Enabled» (Вкл.)/«Disabled» (Выкл.) и «Automatic» (Автоматически)/«Manual» (Вручную).

Отчет базы данных набора правил BDXpert содержит большой объем данных. Буферизация и печать отчета может потребовать большого количества ресурсов системы, в результате чего печать других отчетов будет невозможна до завершения операций с данным отчетом.

См. рис. 5–18.

Порядок печати отчета базы данных набора правил BDXpert:



На экране «Main Status» (Основное состояние) нажмите программную клавишу «печать» для доступа к меню «Reports» (Отчеты).



Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения отчета базы данных набора правил BDXpert.



Нажмите программную клавишу «печать» еще раз.

OK

В сообщении содержится информация о размере отчета. Нажмите программную клавишу «подтверждение» для печати отчета или программную клавишу «отмена», чтобы отменить печать.

BDXpert Rule Set Database Report			
		03/17/05 09:11	
Rule Set Based On	CLSI		
<u>Rule #</u>			
101	Only results for ampicillin, a fluoroquinolone, and trimethoprim-sulfamethoxazole should be reported for fecal isolates of <i>Salmonella</i> spp. or <i>Shigella</i> spp. No other drugs should be reported.	Enabled	Automatic
103	Results for chloramphenicol and a third generation cephalosporin should be reported for <i>Salmonella</i> spp. from extraintestinal sites.	Enabled	Automatic
104	<i>Salmonella</i> spp. and <i>Shigella</i> spp. should not be reported as susceptible or intermediate to first and second generation cephalosporins even if they appear to be susceptible in vitro because they are not effective clinically.	Enabled	Automatic
105	Ampicillin is the class representative for amoxicillin.	Enabled	Automatic
106	-		
.			
.			
.			
End of Report			

Рис. 5–18. Пример отчета базы данных набора правил BDXpert «BDXpert Rule Set Database Report»

5.8.10 «Organism ID Code List Report»
(Отчет списка кодов идентификации микроорганизмов)

«Organism ID Code List Report» (Отчет списка кодов идентификации микроорганизмов) предназначен для печати всех названий микроорганизмов и сокращений для них, существующих в базе данных Phoenix. В данном отчете представлены следующие сведения:

Заголовок: название отчета, сведения о лаборатории (если сконфигурировано), дата и время печати.

Основная часть отчета: «Organism name» (Название микроорганизма) (порядок сортировки), «BD Code» (Код BD) (сокращение) и «LIS Code» (Код ЛИС) (если включен).

Отчет списка кодов идентификации микроорганизмов содержит большой объем данных. Буферизация и печать отчета может потребовать использования большого объема ресурсов системы, в результате чего печать других отчетов будет невозможна до завершения операций с данным отчетом.

См. рис. 5–19.

Порядок печати отчета списка кодов идентификации микроорганизмов:



На экране «Main Status» (Основное состояние) нажмите программную клавишу «печать» для доступа к меню «Reports» (Отчеты).



Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения отчета списка кодов идентификации микроорганизмов.



Нажмите программную клавишу «печать» еще раз.

OK

В сообщении содержится информация о размере отчета. Нажмите программную клавишу «подтверждение» для печати отчета или программную клавишу «отмена», чтобы отменить печать.

Organism ID Code List Report		
07/30/99 09:11		
Organism	BD Code	LIS Code
Achr. species	ACHRSPE	
Acinet. baumannii	ACINBAU	
Acinet. baumannii/calco. cplx	ACINBCX	
Acinet. calcoaceticus	ACINCAL	
.	.	
.	.	
.	.	
End of Report		

Рис. 5–19. Пример отчета списка кодов идентификации микроорганизмов «Organism ID Code List Report»

5.8.11 «Antimicrobial Code Report» (Отчет кодов противомикробных препаратов)

«Antimicrobial Code Report» (Отчет кодов противомикробных препаратов) предназначен для печати всех противомикробных препаратов и их сокращений, существующих в базе данных Phoenix для каждой конфигурации панели. В данном отчете представлены следующие сведения:

Заголовок: название отчета, сведения о лаборатории (если сконфигурировано), дата и время печати.

Основная часть отчета: «Antimicrobial name» (Название противомикробного препарата) (порядок сортировки), «BD Code» (Код BD) (сокращение) и «LIS Code» (Код ЛИС) (если включен).

Отчет кодов противомикробных препаратов содержит большой объем данных. Буферизация и печать отчета может потребовать использования большого объема ресурсов системы, в результате чего печать других отчетов будет невозможна до завершения операций с данным отчетом.

См. рис. 5–20.

Порядок печати отчета кодов противомикробных препаратов:



На экране «Main Status» (Основное состояние) нажмите программную клавишу «печать» для доступа к меню «Reports» (Отчеты).



Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения отчета кодов противомикробных препаратов.



Нажмите программную клавишу «печать» еще раз.

OK

В сообщении содержится информация о размере отчета. Нажмите программную клавишу «подтверждение» для печати отчета или программную клавишу «отмена», чтобы отменить печать.

Antimicrobial Code Report		
03/30/05 09:11		
<u>Antimicrobial</u>	<u>BD Code</u>	<u>LIS Code</u>
Amikacin	AN	AN
Amoxicillin	AMX	AMX
Amoxicillin/Clavulanate	AMC	AMC
•	•	•
•	•	•
•	•	•
End of Report		

Рис. 5–20. Пример отчета кодов противомикробных препаратов «Antimicrobial Code Report»

5.8.12 «Lab Report» (Лабораторный отчет)/ «QC Lab Report» (Лабораторный отчет контроля качества)

«Lab Report» (Лабораторный отчет) (Раздел 5.5.4) содержит информацию о панели с порядковым номером, записанным в базе данных Phoenix, включая всю информацию экрана «Panel Results» (Результаты панели), все специальные сообщения, примененные правила BDExpert или основания «Needs Attention» (Требуется внимания), если они существуют. Лабораторный отчет недоступен из меню «Reports» (Отчеты). Его можно распечатать с экрана «Panel Results» (Результаты панели) или «Finalization» (Окончательная обработка). «Panel Inventory Lab Report» (Лабораторный отчет инвентаризации панелей) предназначен для печати одних и тех же сведений для всех панелей, список которых представлен на экране «Panel Inventory» (Инвентаризация панелей) (то есть тех, которые установлены в приборе и для которых имеются полные или частичные результаты). Дополнительную информацию см. в разделе 5.5.4.

«QC Lab Report» (Лабораторный отчет контроля качества) (Раздел 5.8.5) также доступен на экране «Panel Results» (Результаты панели). В нем содержатся те же сведения, что и в лабораторном отчете, но для панелей QC.

5.8.13 «Finalization Summary Report» (Сводный отчет по окончательной обработке)

«Finalization Summary Report» (Сводный отчет по окончательной обработке) содержит список всех панелей, доступных для окончательной обработки на момент создания отчета, а также состояние окончательной обработки. Сводный отчет по окончательной обработке недоступен из меню «Reports» (Отчеты). Этот отчет можно распечатать только на экране «Finalization» (Окончательная обработка). Дополнительную информацию см. в разделе 5.6.

5.8.14 «Custom Breakpoint Difference Report» (Отчет о различиях пользовательских точек прерывания)

«Custom Breakpoint Difference Report» (Отчет о различиях пользовательских точек прерывания) содержит список различий между старыми и новыми точками прерывания после запуска диска с обновлениями Phoenix и выполнения установки/обновления. Отчет о различиях пользовательских точек прерывания недоступен из меню «Reports» (Отчеты). Этот отчет можно распечатать только на экране «Custom Interpretation Rule Set (Configuration)» (Пользовательский набор правил интерпретации (Конфигурация)). Дополнительную информацию см. в разделе 2.3.3.

5.8.15 «Current QC Panel Lot Report» (Текущий отчет лота панели контроля качества)

«Current QC Panel Lot Report» (Текущий отчет лота панели контроля качества) содержит информацию о самом последнем тестировании контроля качества для каждого из требуемых штаммов для лота панели (не более 20 штаммов). Отчет содержит информацию для всех приборов, данные которых были восстановлены на текущем приборе. Печать текущего отчета лота панели контроля качества из меню «Reports» (Отчеты) невозможна. Этот отчет можно распечатать только на экране «Panel Lot Definition» (Определение лота панели). См. раздел 2.3.6 «Определение лота панели».

5.8.16 «Historical QC Panel Lot Report» (Отчет истории лота панели контроля качества)

«Historical QC Panel Lot Report» (Отчет истории лота панели контроля качества) содержит информацию обо всех тестах для штамма только для текущего прибора (не более 200 тестов). Печать отчета истории лота панели контроля качества из меню «Reports» (Отчеты) невозможна. Этот отчет можно распечатать только на экране «Panel Lot Definition» (Определение лота панели). См. раздел 2.3.6 «Определение лота панели».

5.8.17 «Panel Lot Report» (Отчет лота панели)

«Panel Lot Report» (Отчет лота панели) содержит список всех записей панелей для любого номера лота панели в данном приборе. В отчет сначала включаются клинические панели, а затем панели QC. В рамках каждой группы отчет сортируется по значениям «Accession #» (Образец №), а затем по значениям «Isolate #» (Культура №).

В данном отчете представлены следующие сведения:

Заголовок: название отчета, сведения о лаборатории (если сконфигурировано), дата и время печати, прибор для печати.

Основная часть отчета: «Panel Lot #» (Лот панели №) и «Panel Type» (Тип панели), «Accession #» (Образец №), «Isolate #» (Культура №), «Sequence #» (Порядковый №), «QC» (Контроль качества) (если контроль качества для панели выполняется), «Test Date» (Дата теста) и «Status» (Состояние) («Pending» (Ожидание), «Ongoing» (Выполняется), «Complete» (Завершение)) для каждой тестируемой панели, которая относится к лоту.

Этот отчет доступен только при отключении системы BD EpiCenter и включении поддержки лота контроля качества.

См. рис. 5–21.

Порядок печати отчета лота панели:



На экране «Main Status» (Основное состояние) нажмите программную клавишу «печать» для доступа к меню «Reports» (Отчеты).



Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для выделения отчета лота панели.



Нажмите клавишу TAB для перехода к полю «Panel Lot» (Лот панели).



Нажмите клавишу СТРЕЛКА ВНИЗ, чтобы раскрыть список всех определенных лотов панели, и выделите необходимый лот, затем нажмите программную клавишу «выбрать» для выбора выделенного лота.



Нажмите программную клавишу «печать» еще раз.

Panel Lot Report					
07/15/04 09:11					
Instrument #1					
Panel Lot #	7500001				
Panel Type	PMIC/ID				
<u>Accession #</u>	<u>Isolate #</u>	<u>Sequence #</u>	<u>QC</u>	<u>Test Date</u>	<u>Status</u>
QCA25923	2	425350001444	QC	07/12/04	COMPLETE
QCA29212	1	425350001445	QC	07/12/04	COMPLETE
QCA29213	1	425350001446	QC	07/12/04	COMPLETE
1313.	2	425350001447	.	07/12/04	COMPLETE
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
End of Report					

Рис. 5–21. Пример отчета лота панели «Panel Lot Report»

5.9 «Panel Inventory» (Инвентаризация панелей)

Экран «Panel Inventory» (Инвентаризация панелей) позволяет просматривать список всех панелей прибора (кроме эталонных панелей температуры). Этот список можно сортировать в порядке возрастания (0–9, A–Z) или убывания (9–0, Z–A) по следующим полям: порядковый номер панели, номер образца/культуры, результаты или основание «требуется внимания». В качестве начального порядка сортировки по умолчанию используется сортировка в порядке возрастания по номеру образца/культуры. Затем список по умолчанию обновляется с использованием последнего критерия сортировки, и отображается используемая конфигурация (основная/дополнительная). Если в приборе отсутствуют панели, на экране отображается сообщение «No Data Available» (Нет доступных данных).

В верхней части экрана «Panel Inventory» (Инвентаризация панелей) отображается число панелей в списке (при наличии нескольких панелей), поле сортировки и порядок сортировки (по возрастанию/убыванию). См. рис. 5–23.

На экране «Panel Inventory» (Инвентаризация панелей) отображаются следующие поля (при наличии этих сведений):

- ①② «Sequence #» (Порядковый №) панели
- ①② «Accession #» (Образец №) (панели без номеров образца располагаются в верхней части списка)
- ①② «Iso(late number)» (Номер культуры)
- ① «(Inoculum) Density» (Плотность посева) (поле остается пустым для панелей AST; символ «?» отображается для панелей ID до завершения первой проверки)
- ① «Status» (Состояние) («Ongoing» (Выполняется); «Complete» (Готово); «Rapid» (Быстро), если функция «Rapid Completion» (Быстрое завершение) включена и применяется для панели)
- ①② «Results» (Результаты) (final (итоговые), если обработка панели завершена и активные условия «Needs Attention» (Требуется внимания) отсутствуют [все результаты MIC для панели AST определены, все значения MIC и идентификаторы микроорганизмов для комбинированной панели определены, или идентификаторы микроорганизмов для панели ID определены]; partial (частичные), если панель находится в состоянии обработки или ее обработка завершена, но имеются активные условия «Needs Attention» (Требуется внимания), не допускающие игнорирования [как минимум одно значение MIC определено для панели AST или комбинированной панели, либо идентификатор микроорганизма определен для комбинированной панели]; none (нет), если ни для одного типа панелей не определены значения MIC или идентификаторы микроорганизмов; символ «+» перед результатом показывает, что для данной панели запущен маркер устойчивости)
- ① «N(eeds) A(ttention)» (Требуется внимания)/«C(ritical Panel)» (Критическая панель) («*», если существует причина «Needs Attention» (Требуется внимания), которая не была проигнорирована; пустое поле, если причины «Needs Attention» (Требуется внимания) отсутствуют или были проигнорированы; ♦, если инициировано событие критической панели)
- ② Final (Organism) ID (Итоговая идентификация микроорганизма)

Перечисленные выше поля со значком «один» (①) отображаются на основном экране «Panel Inventory» (Инвентаризация панели). Перечисленные выше поля со значком «два» (②) отображаются на дополнительном экране (рис. 5–24), для доступа к которому используется программная клавиша на основном экране.

После отображения списка можно использовать клавишу ▲ или ▼ для выделения панели и доступа к экрану «Panel Results» (Результаты панели), чтобы просмотреть или изменить сведения панели, выполнить операцию «определить панель» для прибора или напечатать лабораторный отчет для панелей с окончательными или промежуточными результатами. Эти функции выполняются с помощью программных клавиш, описанных ниже. Критические панели, которые не были подтверждены, отображаются красным цветом.

PANEL INVENTORY						
15 Panels Sorted By Accession # Ascending						
Sequence #	Accession #	Iso	Density	Status	Results	NA/C
425810003591	3952	4	0.5	Complete	+Final	
425810003588	A49619	4	0.5	Complete	+Final	
425190008038	EN11002	6	0.5	Complete	+Final	
425190008902	EN11021	6	0.5	Complete	+Partial	*
425200001443	QCA29213	4	0.5	Complete	+Final	
425200001452	QCA43300	6	0.5	Complete	+Partial	*
425200001468	QCA51299	6	0.5	Complete	+Final	
428510004208	41583	1	0.5	Complete	Final	
425190008891	EN10909	4	0.5	Complete	Partial	*
425190000025	EN10909	4	0.5	Complete	Partial	*
425190008898	EN11764	7	0.5	Complete	Partial	*
425190008900	EN11807	7	0.5	Complete	Partial	*
425190008021	QCA25922	6	0.5	Complete	Final	
425190008910	SEC2009	4	0.5	Complete	Partial	*
425190008899	SEFR197	6	0.5	Complete	Final	

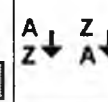
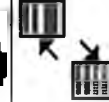
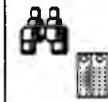


Рис. 5–23. Экран «Panel Inventory» (Инвентаризация панелей) (основной)

PANEL INVENTORY				
15 Panels Sorted By Accession # Ascending				
Sequence #	Accession #	Iso	Final ID	Results
425810003591	3952	4	Streptoc. pneumoniae	+Final
425810003588	A49619	4	Streptoc. pneumoniae	+Final
425190008038	EN11002	6	Esch. coli	+Final
425190008902	EN11021	6	Kleb. pneumo. ssp pneu.	+Partial
425200001443	QCA29213	4	Staph. aureus	+Final
425200001452	QCA43300	6	Staph. aureus	+Partial
425200001468	QCA51299	6	Enteroc. faecalis	+Final
428510004208	41583	1	Streptoc. mitis	Final
425190008891	EN10909	4	Kleb. oxytoca	Partial
425190000025	EN10909	4	Kleb. oxytoca	Partial
425190008898	EN11764	7	Salm. species	Partial
425190008900	EN11807	7	Cit. farmeri	Partial
425190008021	QCA25922	6	Esch. coli	Final
425190008910	SEC2009	4	Pseud. aeruginosa	Partial
425190008899	SEFR197	6	Ser. marcescens	Final

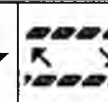
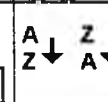
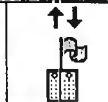
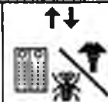
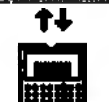


Рис. 5–24. Экран «Panel Inventory» (Инвентаризация панелей) (дополнительный)

Порядок доступа к экрану «Panel Inventory» (Инвентаризация панелей):



Нажмите программную клавишу «инвентаризация панелей» на экране «Main Status» (Основное состояние).

Программные клавиши экрана «Panel Inventory» (Инвентаризация панелей):

«выполнить повторно»		«результаты»	
«определить панель»		«печать лабораторного отчета»	
«переключение экрана»		«сортировка по возрастанию/по убыванию»	
«переключение клавиш»		«сортировка по порядковому номеру»	
«сортировка по номеру образца»		«сортировка по результатам»	
«сортировка по требованию внимания»		«выход»	

5.10 «System Alerts» (Системные предупреждения)

Экран «System Alerts» (Системные предупреждения) позволяет просматривать все существующие системные предупреждения, произошедшие ранее или активные в данный момент времени.

При доступе к экрану «System Alerts» (Системные предупреждения) в средней части экрана отображается первое предупреждение в списке. Это предупреждение представлено в виде кода «Е» (например E12). Ниже кода «Епп» (где «пп» — двузначное число) отображается один или несколько подкодов, состоящих из 8 цифр. Подкод указывает на конкретное состояние предупреждения. Например, E07 — это предупреждение источника питания, а подкод 00000002 указывает на проблему источника питания 5 В.

Для просмотра других существующих предупреждений нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ. Все ошибки типа «Е» перечислены в разделе 7 «Устранение неполадок». Не все подкоды ошибок предназначены для рассмотрения пользователем.

Значки экрана «System Alerts» (Системные предупреждения)

Подача питания была прекращена в указанное время



Подача питания была восстановлена в указанное время



Дополнительная информация о системных предупреждениях представлена в разделе 4.12. Полный список системных и рабочих предупреждений представлен в разделе 7 «Устранение неполадок».

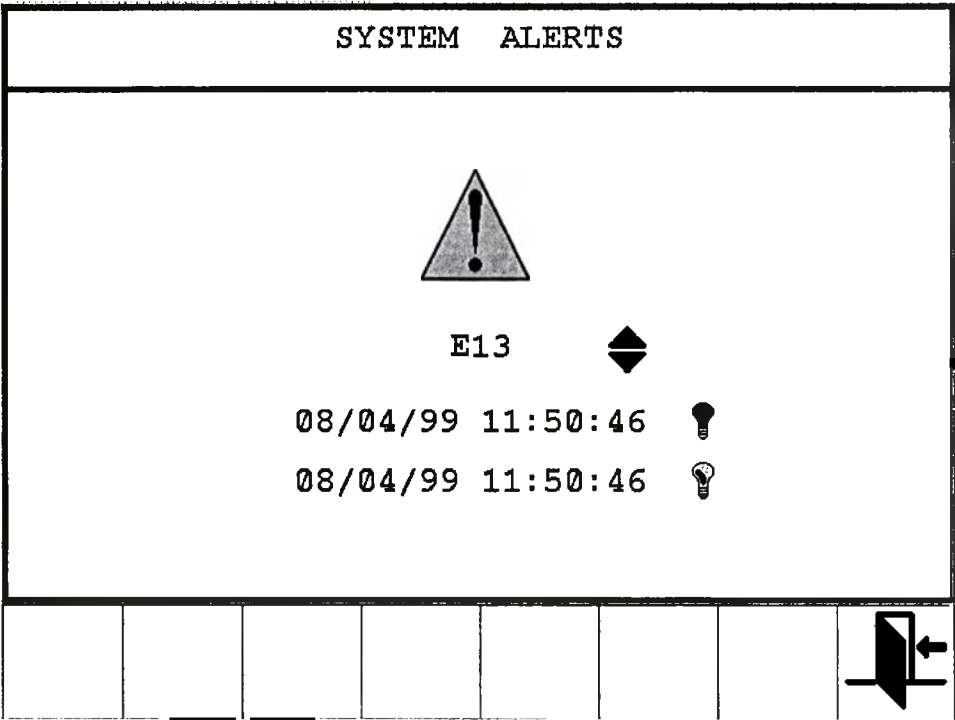


Рис. 5–25. Экран «System Alerts» (Системные предупреждения)

5.11 «Needs Attention» (Требуется внимания)

Экран «Needs Attention» (Требуется внимания) позволяет просматривать список панелей, для которых возникло состояние, требующее внимания оператора, в базе данных прибора. Эти условия, как правило, указывают на проблемы, связанные непосредственно с панелями или с информацией, относящейся к панелям. Во многих случаях эти состояния исправляются оператором. См. рис. 5–26.

При просмотре списка панелей «Needs Attention» (Требуется внимания) можно воспользоваться системной возможностью устранения или игнорирования состояния, которое привело к помещению панели в данный список. Если панель была помещена в список по причине отсутствующей или неразрешенной информации (например, условия «Спорный результат»), прибор предоставляет возможность добавления или изменения информации для устранения состояния. Если панель была помещена в список по причине программной, аппаратной ошибки или ошибки панели, прибор предоставляет возможность удаления панели для устранения состояния ошибки. Удаление панели, тестирование которой выполняется, приводит к прерыванию протокола панели. На экране отображаются только те панели, причина «Needs Attention» (Требуется внимания) для которых не была проигнорирована.

Возможна фильтрация экрана «Needs Attention» (Требуется внимания) таким образом, чтобы отображалась одна строка для панели (с фильтрацией) или одна строка для каждого требующего внимания условия (без фильтрации). Программная клавиша «переключение экрана» позволяет переключаться между режимом с фильтрацией (стандартное отображение) и без фильтрации. При фильтрации экрана в списке отображается только причина с самым высоким приоритетом. Панели отображаются синим цветом, если существуют дополнительные требующие внимания условия для данной панели. Если фильтрация экрана не осуществляется, каждое требующее внимания условие показывается отдельно. Возможна печать отчета с фильтрацией и без фильтрации в зависимости от текущего режима отображения.

При переключении из режима без фильтрации в режим с фильтрацией выделяется код причины «Needs Attention» (Требуется внимания) с самым высоким приоритетом для выбранной панели. При повторном переключении в режим без фильтрации выделяется этот же код причины, если он все еще присутствует в списке (см. ниже).

На экране «Needs Attention» (Требуется внимания) отображаются первые 30 панелей с флажками «Needs Attention» (Требуется внимания), отсортированные по коду причины (в том же порядке, что и в приведенном ниже списке) и по номеру образца. В каждом коде причины состояния «Needs Attention» (Требуется внимания) первыми отображаются панели без номера образца. Если более 30 панелей требуют внимания, отображаются только 30 панелей с самым высоким приоритетом, пока это состояние не будет устранено для какой-либо панели.

При очистке или игнорировании кода причины «Needs Attention» (Требуется внимания) выделяется следующий код причины с самым высоким приоритетом для этой панели. Если другие коды причин для данной панели отсутствуют, выделяется элемент в верхней части списка.

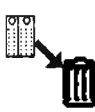
Если пользователь выделяет код причины «Needs Attention» (Требуется внимания), переключается на экран «Panel Results» (Результаты панели), а затем осуществляет возврат на экран «Needs Attention» (Требуется внимания), выделяется тот же код причины. Если эта причина устранена, выделяется следующий код причины с самым высоким приоритетом для этой панели. Если другие коды причин для данной панели отсутствуют, выделяется элемент в верхней части списка.

Порядок доступа к экрану «Needs Attention» (Требуется внимания):



Нажмите программную клавишу «требуется внимания» на экране «Main Status» (Основное состояние).

Программные клавиши экрана «Needs Attention» (Требуется внимания):

«результаты»		«игнорировать»	
«удалить панель»		«определить панель»	
«печать»		«выход»	
«переключение экрана»		«удалить условие, требующее внимания»	

Для панели может существовать несколько причин «Needs Attention» (Требуется внимания). В этом случае причины располагаются в списке в соответствии с их приоритетом. Возможны следующие причины «Needs Attention» (Требуется внимания) (в порядке приоритета):

- **Test Aborted** (Тест прерван) — возникло одно из нескольких системных предупреждений термостата; тестирование задействованной панели в приборе не выполнялось более часа; прибор был отключен более часа; дверь прибора была открыта более часа; программное обеспечение системы не выполняло алгоритмы тестирования более часа; панель была перемещена на другой уровень либо в другой прибор; или для панели Yeast ID (Идентификация дрожжей) не указан тип питательной среды.
- **Can Not Identify Barcode** (Невозможно определить штрих-код) — внутреннему сканеру штрих-кода не удается считать порядковый номер панели в той же станции, где прибор может определить наличие панели (возможно, этикетка повреждена или отсутствует); был считан неправильный порядковый номер панели; выполнялось считывание неизвестного типа панели.
- **Can Not Read Panel Wells** (Невозможно считать ячейки панели) — внутренний сканер штрих-кода считал порядковый номер в станции, но прибору не удается определить наличие панели в той же станции.
- **Panel Lot Expired** (Истек срок годности лота панели) — выполнена регистрация панели (или указана дата запуска теста) с истекшим сроком годности номера лота панели.
- **Invalid AST Results** (Недействительные результаты теста чувствительности к противомикробным препаратам) — по крайней мере одно поле MIC содержит значение «X»; за исключением панелей контроля качества.
- **Panel Missing** (Отсутствует панель) — внутренний сканер штрих-кода считывает порядковый номер на задействованной панели во время сканирования инвентаризации, но либо панель была удалена до завершения протокола тестирования и результат не был получен, либо произошла ошибка внутреннего сканера и порядковый номер не может быть считан.
- **No Growth on Panel** (Нет роста на панели) — прибор не обнаруживает рост в ячейке контроля роста панели; за исключением панелей контроля качества и панелей идентификации.
- **Panel Lot Undefined** (Лот панели не определен) — не определен лот регистрируемой или устанавливаемой в прибор панели.
- **Review QC Results** (Просмотр результатов контроля качества) — завершенная панель контроля качества имеет состояние «REVIEW» (Просмотр). Следует просмотреть результаты для панели, чтобы определить, произошла ли ошибка во время подготовки или обработки панели (выберите состояние «REPEAT» (Повторить)) или произошел сбой тестирования контроля качества (выберите состояние «FAIL» (Сбой)).
- **Missing Accession Number** (Отсутствует поле номера образца) — отсутствуют сведения об образце или культуре панели; за исключением панелей контроля качества.

- **Missing Organism ID** (Отсутствует идентификация микроорганизма) — отсутствует идентификатор микроорганизма панели или имеются неразрешенные спорные идентификаторы, и связанная панель с идентификатором микроорганизма отсутствует (включая связанные панели с неразрешенными идентификаторами уровня или несоответствием микроорганизмов); за исключением панелей контроля качества.
- **Can Not Determine Organism ID** (Невозможно выполнить идентификацию микроорганизмов) — для панели имеется идентификация микроорганизма прибора (или идентификация, выбранная пользователем) со значением «No Identification» (Нет идентификации), или идентификация отсутствует, и итоговая идентификация для связанной панели имеет значение «No Identification» (Нет идентификации), или панель идентификации завершает протокол тестирования без получения результата идентификации; за исключением панелей QC.
- **Invalid Organism ID** (Неправильное поле идентификатора микроорганизма) — у панели отсутствует определенная идентификация микроорганизма, и определенная идентификация микроорганизма связанных панелей имеет значение «Invalid Organism Received» (Получен неправильный микроорганизм) (назначенное панели посредством автоматического объединения); панель получает идентификацию микроорганизма, отсутствующую в базе данных Phoenix; была выполнена регистрация панели или установка значения «Invalid Organism Received» (Получен неправильный микроорганизм) в поле идентификации микроорганизма.
- **Organism ID Conflict** (Несоответствие идентификации микроорганизмов) — панель завершает тестирование и связана, по крайней мере, с одной необработанной панелью, которая содержит другую итоговую идентификацию; за исключением панелей контроля качества. Имейте в виду, что данный код может ошибочно возникать в результате несоответствия системных операций, например, когда панель выполняет тестирование и начинает автоматическое объединение результатов, а система изменяет все связанные панели с идентификацией, выбранной пользователем. Если это происходит до завершения изменений, вносимых вручную, система может определить причину «Needs Attention» (Требуется внимания), так как идентификации не совпадают по причине выполнения двух независимых процессов. Это можно определить путем просмотра всех результатов идентификации панели.
- **BDXpert Rule Flagged** (Отмечено правило BDXpert) — панель запустила одно определенное правило BDXpert, правило BDXpert разрешено вручную в меню «Configuration» (Конфигурация), и запущенное правило BDXpert находится в состоянии ожидания; за исключением панелей контроля качества, панелей ID и комбинированных панелей только с одной разрешенной частью ID.
- **Pending Too Long** (Слишком долгое ожидание) — панель не была считана прибором (при инвентаризации) в течение 30 минут после открытия экрана «Panel Login» (Регистрация панели).

NEEDS ATTENTION				
Filtered on highest priority reason				
Reason	Sequence#	Accession#	Isolate	Station
Missing Organism ID	424940000099			01/A04
Missing Organism ID	429530001405	1313	1	01/A05
Organism ID Conflict	429511111405	1313	1	01/A02



Рис. 5-26. Экран «Needs Attention» (Требуется внимания)

В следующей таблице показаны программные клавиши, активные для каждого кода причины.

	«результаты панели»	«игнорировать»	«определить панель»	«удалить панель»	«удалить условие, требующее внимания»
«Test aborted» (Тест прерван)		*	*	*	
«Can Not Identify Barcode» (Невозможно определить штрих-код)		*	*		
«Can Not Read Panel Wells» (Невозможно считать ячейки панели)			*	*	
«Panel Lot Expired» (Истек срок годности лота панели)		*			*
«Invalid AST Results» (Недействительные результаты теста чувствительности к противомикробным препаратам)		*			
«Panel Missing» (Отсутствует панель)		*		*	
«No Growth on Panel» (Нет роста на панели)		*	*	*	
«Review QC Results» (Просмотр результатов контроля качества)	*	*	*	*	
«Panel Lot Undefined» (Лот панели не определен)					
«Missing Accession Number» (Отсутствует номер образца)	*		*		
«Missing Organism ID» (Отсутствует идентификация микроорганизма)	*				
«Can Not Determine Organism ID» (Невозможно выполнить идентификацию микроорганизма)	*	*			
«Invalid Organism ID» (Неправильная идентификация микроорганизма)	*	*			
«Organism ID Conflict» (Несоответствие идентификации микроорганизма)	*				
«BDXpert Rule Flagged» (Отмечено правило BDXpert)	*				
«Pending Too Long» (Слишком долгое ожидание)		*			

Табл. 5-3 – Экран «Needs Attention» (Требуется внимания): активные программные клавиши

Поля «Needs Attention» (Требуется внимания):

Имейте в виду, что некоторые поля могут быть пустыми, так как панели часто помещаются в список «Needs Attention» (Требуется внимания) по причине отсутствия информации.

«Reason» (Причина)

Поле, доступное только для чтения, в котором отображается причина «Needs Attention» (Требуется внимания) (полный список см. выше).

«Sequence #» (Порядковый №)

Поле, доступное только для чтения, в котором отображается порядковый номер штрих-кода панели.

«Accession #» (Образец №)

Поле, доступное только для чтения, в котором отображается номер образца.

«Isolate» (Культура)

Поле, доступное только для чтения, в котором отображается номер культуры.

«Station» (Позиция)

Поле, доступное только для чтения, в котором отображается последнее известное местоположение панели в формате «П/Уст» (где «П» — это номер прибора, «У» — уровень, а «ст» — номер станции).

6 – Техническое обслуживание

6.1 Общая информация

Для надежной работы системы Phoenix не требуется больших объемов технического обслуживания. Ежедневно необходимо проверять температуру прибора и наличие бумаги для принтера. Каждую неделю необходимо проверять работу индикаторов состояния станции (светодиодов), звукового сигнала тревоги и индикатора системного предупреждения. В стандартное профилактическое техническое обслуживание входит ежемесячная проверка воздушного фильтра системы циркуляции. Все остальные процедуры необходимо проводить по мере необходимости. Техническое обслуживание или ремонт, которые не описаны в данном разделе, должны проводиться только сотрудниками BD.

ОСТОРОЖНО!

ЛЮБЫЕ ПРОЦЕДУРЫ ТЕХНИЧЕСКОГО ОБСЛУЖИВАНИЯ ИЛИ РЕМОНТА, ОТЛИЧНЫЕ ОТ ПРОЦЕДУР, ОПИСАННЫХ В РАЗДЕЛЕ 6.2 «РЕГУЛЯРНОЕ ТЕХНИЧЕСКОЕ ОБСЛУЖИВАНИЕ» И РАЗДЕЛЕ 6.3 «ЗАМЕНА МОДУЛЕЙ», ДОЛЖНЫ ОСУЩЕСТВЛЯТЬСЯ КВАЛИФИЦИРОВАННЫМИ СПЕЦИАЛИСТАМИ. НЕСОБЛЮДЕНИЕ ДАННОГО ПРЕДУПРЕЖДЕНИЯ МОЖЕТ ПРИВЕСТИ К НЕСЧАСТНОМУ СЛУЧАЮ ИЛИ НЕИСПРАВНОСТИ ПРИБОРА.

6.2 Регулярное техническое обслуживание

6.2.1 Ежедневное техническое обслуживание

Каждый день необходимо осуществлять следующие процедуры технического обслуживания. Самым подходящим временем для технического обслуживания является утро, но данные процедуры можно осуществлять и в любое удобное время. Необходимо проверить следующие элементы:

- 1 Проверьте наличие бумаги для принтера. Если бумаги мало или она закончилась, замените бумагу в соответствии с инструкциями по эксплуатации производителя.
- 2 Записывайте показания приборов о температуре с жидкокристаллического монитора и стандартной панели температуры. Обратите внимание, что показания панели температуры можно посмотреть, выбрав одну из функций проверки индикаторов прибора в меню технического обслуживания (см. раздел 6.2.2). Температура должна быть $35 \pm 1,5$ °C.

6.2.2 Ежедневное техническое обслуживание

Каждую неделю необходимо проверять работу ламп индикаторов прибора и звукового сигнала тревоги. (Данные элементы отображаются в ежедневном отчете прибора и при желании их можно проверять каждый день.)

- 1 Чтобы проверить лампы, перейдите к экрану «Main Status» (Основное состояние) (Рис. 6–1):

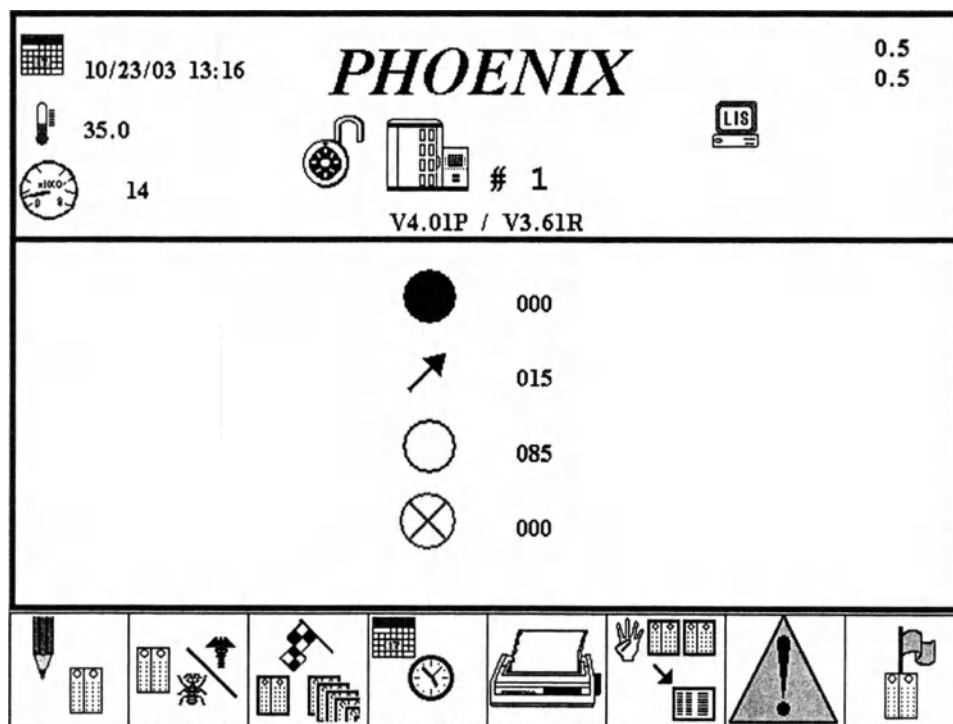


Рис. 6–1. Экран Основное состояние

- 2 Нажмите программную клавишу «конфигурация»:



- 3 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



- 4 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».



- 5 Проверьте внешние и внутренние светодиоды и звуковой сигнал тревоги (см. список ниже). Чтобы выбрать элемент, используйте клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ для выделения элемента. Затем нажмите программную клавишу «выполнить действие» (ниже). Для проверки внутренних индикаторов после появления значка «дверь разблокирована» и соответствующего сигнала откройте дверь (необходимо только при первой проверке элемента; дверь может оставаться открытой до завершения процедуры технического обслуживания) и проверьте необходимый элемент.



Необходимо проверить каждый из следующих элементов, содержащихся в меню технического обслуживания:

«Test internal green LEDs» (Проверка внутренних зеленых светодиодов) (светятся зеленые светодиоды на 20 доступных станциях)

«Test internal red LEDs» (Проверка внутренних красных светодиодов) (светятся красные светодиоды на 20 доступных станциях)

«Test internal amber LEDs» (Проверка внутренних оранжевых светодиодов) (светятся оранжевые светодиоды на 20 доступных станциях)

«Test System Alert Indicator» (Проверка индикатора системного предупреждения) (индикатор системного предупреждения мигает в течение одной секунды пять раз, а затем секунду не работает)

«Test Alarm» (Проверка сигнала тревоги) (звучит сигнал тревоги с громкостью по умолчанию 5)

Если один из проверяемых элементов (индикаторы, звуковой сигнал тревоги) не работает, обратитесь к представителю BD для планирования ремонта.

6.2.3 Периодическое техническое обслуживание

6.2.3.1 Замена воздушного фильтра

В приборе Phoenix содержится три воздушных фильтра. Фильтр отсека электронного оборудования находится справа выше портов ввода-вывода. Фильтр отсека подачи расположен слева ниже центра. Воздушный фильтр термостата расположен справа в центральном отсеке рядом с верхней частью.

Проверяйте и при необходимости заменяйте данные воздушные фильтры каждые шесть месяцев. Если прибор работает в пыльной среде, проверяйте фильтры чаще. Фильтры должны оставаться чистыми и незасоренными; ограничение воздушного потока может привести к достижению избыточной температуры внутри прибора, что может повлиять на результаты и возможно стать причиной неисправности работы оборудования. В частности, важно, чтобы воздушный фильтр термостата оставался чистым.

Необходимые материалы

Новые воздушные фильтры (номера по каталогу см. в разделе 11)

Средняя крестообразная отвертка (№ 2)

Процедура замены воздушного фильтра отсека электронного оборудования (Рис. 6-2)

- 1 Фильтр отсека электронного оборудования находится справа выше портов ввода-вывода. Воздушный фильтр располагается за крышкой, закрепленной двумя винтами с крестообразным шлицем.
- 2 Чтобы снять фильтр, используйте крестообразную отвертку № 2 для ослабления двух винтов, крепящих крышку фильтра. Данные винты являются невыпадающими и необходимо повернуть их только на четверть оборота. Их нельзя полностью вынуть.
- 3 Выньте фильтр и проверьте его на наличие пыли и мусора. Либо замените фильтр новым фильтром, либо поместите фильтр обратно в прибор.
- 4 Поместите крышку фильтра на место. Закрепите два невыпадающих винта.

(Правая сторона прибора)

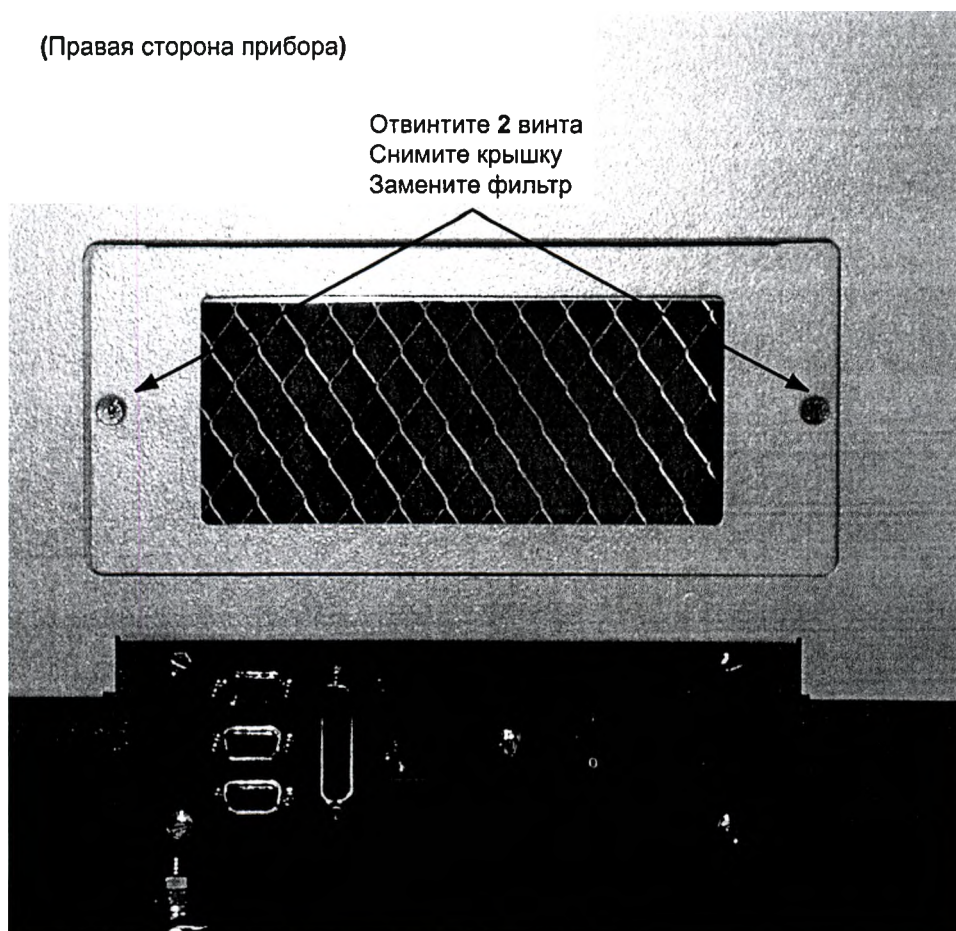


Рис. 6-2. Замена фильтра отсека электронного оборудования.

Процедура замены воздушного фильтра отсека подачи (Рис. 6-3)

- 1 Фильтр отсека подачи расположен слева ниже центра. Воздушный фильтр располагается за крышкой, закрепленной двумя винтами с крестообразным шлицем.
- 2 Чтобы снять фильтр, используйте крестообразную отвертку № 2 для ослабления двух винтов, крепящих крышку фильтра. Данные винты являются невыпадающими и необходимо повернуть их только на четверть оборота. Их нельзя полностью вынуть.
- 3 Выньте фильтр и проверьте его на наличие пыли и мусора. Либо замените фильтр новым фильтром, либо поместите фильтр обратно в прибор.
- 4 Поместите крышку фильтра на место. Закрепите два невыпадающих винта

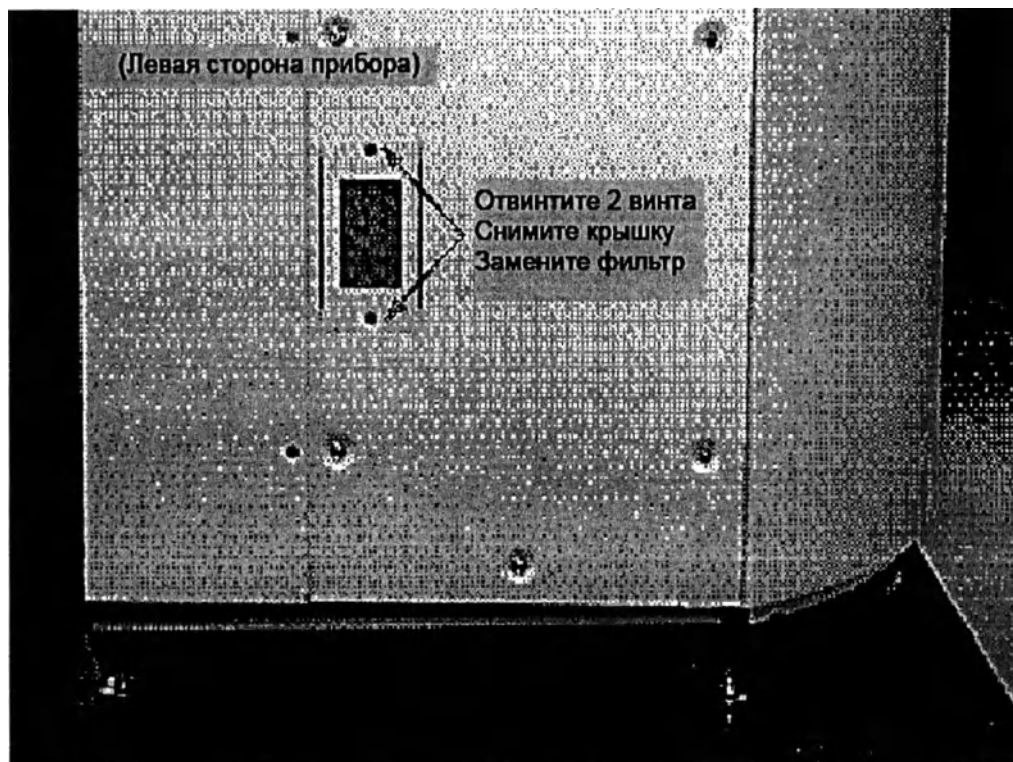


Рис. 6-3. Замена фильтра отсека подачи.

Процедура замены воздушного фильтра термостата (Рис. 6-4)

- 1 Воздушный фильтр термостата расположен справа в центральном отсеке рядом с верхней частью. Воздушный фильтр располагается за крышкой, закрепленной двумя винтами с крестообразным шлицем.
- 2 Чтобы снять фильтр, используйте крестообразную отвертку № 2 для ослабления двух винтов, крепящих крышку фильтра. Данные винты являются невыпадающими и необходимо повернуть их только на четверть оборота. Их нельзя полностью вынуть.
- 3 Выньте фильтр и проверьте его на наличие пыли и мусора. Либо замените фильтр новым фильтром, либо поместите фильтр обратно в прибор.

ВНИМАНИЕ!

При установке старого фильтра убедитесь, что фильтр занимает то же положение, что и при его извлечении (стрелка на фильтре указывает в том же направлении).

- 4 Поместите крышку фильтра на место. Закрепите два невыпадающих винта.

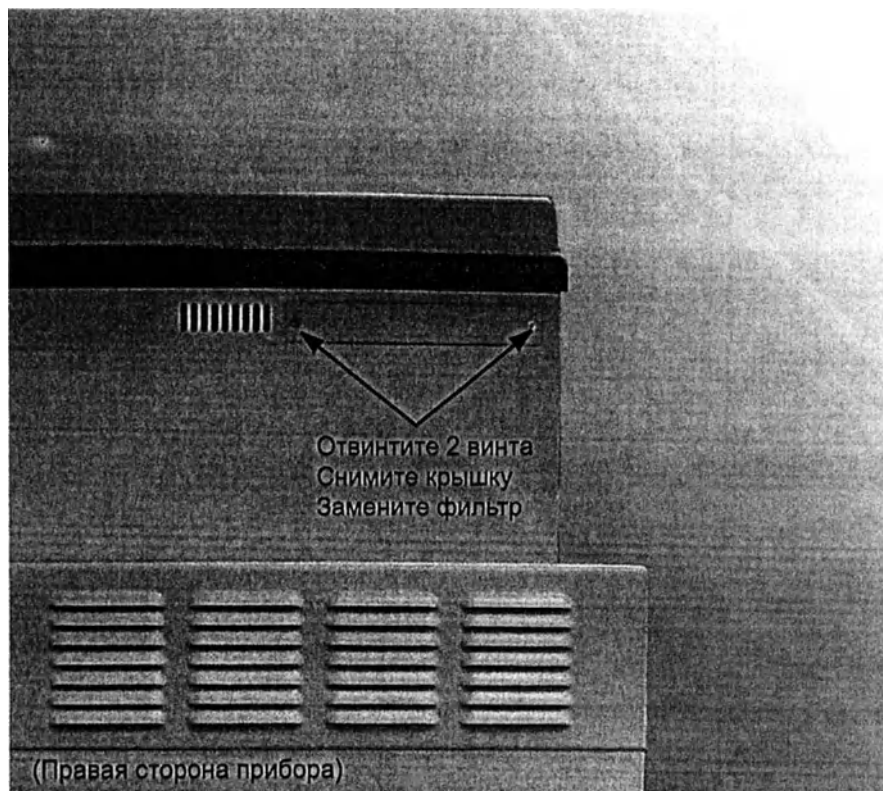


Рис. 6–4. Замена фильтра термостата.

6.2.3.2 Очистка окна сканера штрих-кода

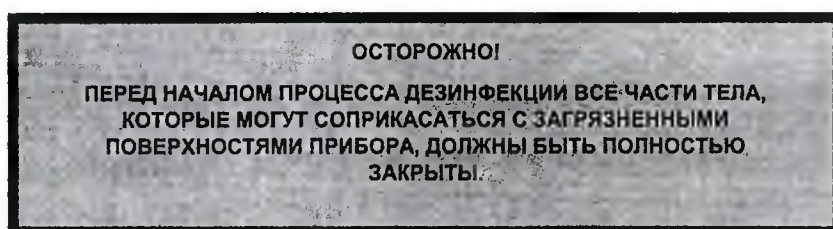
В сканерах штрих-кодов нет деталей, которые обслуживаются пользователем. После некоторого времени использования может обнаружиться, что сканер распознает штрих-коды не так хорошо, как раньше. Если это произошло, можно попробовать решить проблему с помощью очистки окна сканера. Для очистки окна используйте безворсовую неабразивную ткань, смоченную дистиллированной водой. Протрите окно сухой безворсовой неабразивной тканью.

6.2.3.3 Очистка/дезинфекция

Ситуация, когда необходима дезинфекция одного или нескольких участков панели, может возникнуть при утечке из панели в приборе. Приоритет в данной ситуации отдается ограничению участка загрязнения, затем необходимо продезинфицировать участки панели и другие доступные области прибора, взаимодействующие с жидкостью. Если жидкость достигает областей поворотного механизма, недоступных для локальной дезинфекции, обратитесь к местному представителю компании BD для получения дальнейших указаний.

Дезинфекция участков панели поворотного механизма

Для очистки загрязненных поверхностей рекомендуется использовать раствор бытового отбеливателя с концентрацией не менее 10 процентов. Все поверхности должны быть тщательно вымыты с помощью свежего раствора отбеливателя так, чтобы они «блестели». Если не удастся точно определить область загрязнения, тщательно промойте открытые участки поворотного механизма и корпус с помощью свежего раствора отбеливателя.



- 1 Наденьте перчатки и медицинский халат, полностью закрывающие поверхности тела, которые могут соприкасаться с загрязненными поверхностями прибора.
- 2 Выключите питание прибора. Выньте шнур питания прибора из розетки перед тем, как продолжить.
- 3 Полностью соберите грязную жидкость (лучше всего подойдет марлевая прокладка).
- 4 Обработайте раствором отбеливателя загрязненные поверхности так, чтобы они «блестели». Подождите 15 минут.
- 5 Соберите раствор с помощью марлевых прокладок или бумажных салфеток.
- 6 Смочите чистую ткань водой. Протрите дезинфицируемые поверхности.
- 7 Тщательно протрите сухой тканью все влажные поверхности.
- 8 Утилизируйте все материалы очистки как биологически опасные отходы.

6.2.4 Меню технического обслуживания

В меню «Maintenance» (Техническое обслуживание), доступном из меню «Configuration» (Конфигурация), представлено несколько функций для осуществления технического обслуживания прибора. Несколько из этих функций, перечисленных ниже, предназначены только для использования ВД. Другие предназначены для еженедельного технического обслуживания и обслуживания по мере необходимости пользователем. В меню «Maintenance» (Техническое обслуживание) представлены следующие функции:

- «Test Internal Green LEDs» (Проверка внутренних зеленых светодиодов) (Раздел 6.2.2)
- «Test Internal Red LEDs» (Проверка внутренних красных светодиодов) (Раздел 6.2.2)
- «Test Internal Amber LEDs» (Проверка внутренних оранжевых светодиодов) (Раздел 6.2.2)
- «Test System Alert Indicator» (Проверка индикатора системного предупреждения) (Раздел 6.2.2)
- «Test Alarm» (Проверка сигнала тревоги) (Раздел 6.2.2)
- «Install/Upgrade» (Установка/обновление) (Раздел 2.5)
- «Save System Data to Disk» (Сохранение системных данных на диске) (Раздел 7.3)
- «Save Syslog to Disk» (Сохранение системного журнала на диске) (Раздел 7.4)
- «Access Normalizer Panel» (Доступ к панели нормализатора) (только для использования ВД)
- «Save User Data to Disk» (Сохранение данных пользователя на диске) (Раздел 6.2.4.1)
- «Restore User Data from Disk» (Восстановление данных пользователя с диска) (Раздел 6.2.4.2)
- «Save LIS Codes to Disk» (Сохранение кодов ЛИС на диске) (Раздел 6.2.4.3)
- «Restore LIS Codes from Disk» (Восстановление кодов ЛИС с диска) (Раздел 6.2.4.4)
- «Save Panel Lot Definitions» (Сохранение определений лотов панелей) (Раздел 6.2.4.5)
- «Restore Panel Lot Definitions» (Восстановление определений лотов панелей) (Раздел 6.2.4.6)
- «Save Panel Configuration» (Сохранение конфигурации панели) (Раздел 6.2.4.7)
- «Install Panel Configuration» (Установка конфигурации панели) (Раздел 6.2.4.8)
- «Phoenix Update Disk» (Диск обновления Phoenix) (Раздел 6.2.4.9)
- «Modify Panel Usage» (Изменение использования панели) (Раздел 6.2.4.10)
- «Write Lightsrc to Diskette» (Запись файла источника света на дискету) (Раздел 6.2.4.11)
- «Read Lightsrc from Diskette» (Чтение файла источника света с дискеты) (Раздел 6.2.4.12)
- «View Syslog» (Просмотр системного журнала) (Раздел 6.2.4.13)
- «Save Syslog to Network» (Сохранение системного журнала в сети) (Раздел 6.2.4.14)
- «Display UV and RGB Status» (Отображение состояния УФ и RGB) (Раздел 6.2.4.15)
- «Force Front UV Bulb Adjustment» (Принудительная настройка передней лампы УФ) (Раздел 6.2.4.16)
- «Force Rear UV Bulb Adjustment» (Принудительная настройка задней лампы УФ) (Раздел 6.2.4.17)
- «Force RGB LED Adjustment» (Принудительная настройка светодиодов RGB) (Раздел 6.2.4.18)
- «Front Panel Reader Setup» (Настройка считывающего устройства передней панели) (Раздел 6.2.4.19)

6.2.4.1 «Save User Data to Disk» (Сохранение данных пользователя на диске)

Функция «Save User Data to Disk» (Сохранение данных пользователя на диске) позволяет записывать резервную копию установленных параметров конфигурации на дискету. Данные содержат: «Custom Interpretation Rule Set Configuration» (Пользовательский набор правил интерпретации) и «BDXpert Rules Configuration» (Конфигурация правил BDXpert). Сохраненная информация пригодна только для данного прибора. Однако информация, сохраненная на одном приборе, может быть восстановлена на другом приборе. Это позволяет иметь согласованные конфигурации на всех приборах. Для сохранения данных на диске выполните следующие действия:

- 1 Нажмите программную клавишу «конфигурация».



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».



- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «SAVE USER DATA TO DISK» (СОХРАНЕНИЕ ДАННЫХ ПОЛЬЗОВАТЕЛЯ НА ДИСКЕ).
- 5 Вставьте в дисковод пустую, отформатированную, доступную для записи дискету.

- 6 Нажмите программную клавишу «выполнить действие».



- 7 Система запросит подтверждение сохранения данных на диске. Нажмите программную клавишу «подтвердить» для продолжения сохранения или «отмена» для отмены операции.



- 8 Во время записи информации на дискету появляется значок песочных часов.



- 9 По завершении действий звучит сигнал «действие выполнено» и значок песочных часов исчезает. Убедитесь, что индикатор дисководов не горит, затем извлеките дискету, нажав кнопку извлечения диска.
- 10 Защитите дискету от записи.

6.2.4.2 «Restore User Data from Disk» (Восстановление данных пользователя с диска)

Функция «Restore User Data from Disk» (Восстановление данных пользователя с диска) позволяет восстановить на приборе параметры конфигурации, скопированные на дискету. Данные содержат: «Custom Interpretation Rule Set Configuration» (Пользовательский набор правил интерпретации) и «BDXpert Rules Configuration» (Конфигурация правил BDXpert). Для восстановления необходимо, чтобы дверь прибора была закрыта. Для восстановления данных с диска выполните следующие действия:

ПРИМЕЧАНИЕ

Данное действие не должно осуществляться, если имеются обрабатываемые панели.

- 1 Нажмите программную клавишу «конфигурация».



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



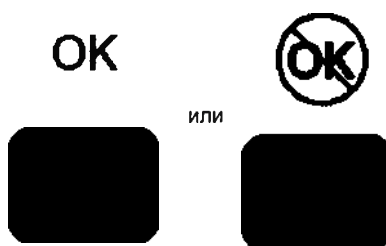
- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».



- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «RESTORE USER DATA FROM DISK» (ВОССТАНОВЛЕНИЕ ДАННЫХ ПОЛЬЗОВАТЕЛЯ С ДИСКА).
- 5 Вставьте в дисковод дискету с сохраненными данными пользователя.
- 6 Нажмите программную клавишу «выполнить действие».



- 7 Система запросит подтверждение восстановления данных с дискеты и предложит перезапустить прибор по завершении восстановления. Нажмите программную клавишу «подтвердить» для продолжения восстановления или «отмена» для отмены операции.



- 8 Система проверит даты создания скопированных файлов на дискете. Если существуют файлы более старые, чем текущие файлы на приборе, будет запрошено подтверждение замены файлов на приборе более старыми файлами с дискеты. Можно отменить замену, заменить один, несколько или все более новые файлы.
- 9 Во время копирования информации на дискету появляется значок песочных часов и сообщение «Restoring Data» (Восстановление данных).



- 10 По завершении действий звучит сигнал «действие выполнено» и значок песочных часов исчезает. Затем прибор автоматически перезапускается.
- 11 Убедитесь, что индикатор дисководов не горит, затем извлеките дискету, нажав кнопку извлечения диска. **Обратите внимание, что для загрузки новых файлов в память прибора потребуется не менее 15 минут.**

6.2.4.3 «Save LIS Codes to Disk» (Сохранение кодов ЛИС на диске)

Функция «Save LIS Codes to Disk» (Сохранение кодов ЛИС на диске) позволяет сохранить все указанные коды ЛИС организмов и противомикробных препаратов на дискету. Результатом операции является текстовый файл, который можно изменять на ПК, что может ускорить процесс для пользователей, которым необходимо вносить много изменений. Затем измененные коды могут быть восстановлены (раздел 6.2.4.4) на приборе Phoenix. Эта функция также позволяет копировать коды с одного прибора на другой. Функция «Save LIS Codes to Disk» (Сохранение кодов ЛИС на диске) появляется в меню «Maintenance» (Техническое обслуживание) только в том случае, если включена система связи ЛИС.

Записи в текстовом поле состоят из следующих параметров:

Идентификатор (ORG, QC_ORG, DRUG) | Код BD | Короткое имя/препарат | Код ЛИС

Коды не могут быть добавлены или удалены, и **только** часть кода ЛИС может быть изменена. Если изменить другое поле, прибор не восстановит коды.

Для сохранения кодов на дискету выполните следующие действия:

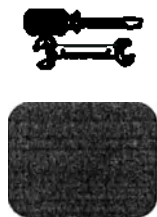
- 1 Нажмите программную клавишу «конфигурация».



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



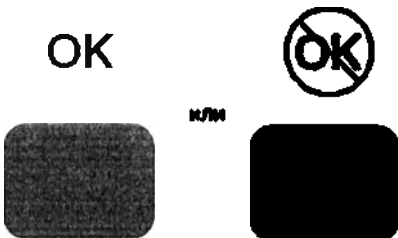
- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».



- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «SAVE LIS CODES TO DISK» (СОХРАНЕНИЕ КОДОВ ЛИС НА ДИСКЕ).
- 5 Вставьте в дисковод пустую, отформатированную, доступную для записи дискету.
- 6 Нажмите программную клавишу «выполнить действие».



- 7 Система запросит подтверждение сохранения данных на дискете. Нажмите программную клавишу «подтвердить» для продолжения сохранения или «отмена» для отмены операции.



- 8 Во время записи информации на дискету появляется значок песочных часов.



- 9 По завершении действий звучит сигнал «действие выполнено» и значок песочных часов исчезает. Убедитесь, что индикатор дисководов не горит, затем извлеките дискету, нажав кнопку извлечения диска.

6.2.4.4 «Restore LIS Codes from Disk» (Восстановление кодов ЛИС с диска)

Функция «Restore LIS Codes from Disk» (Восстановление кодов ЛИС с диска) позволяет восстановить на приборе коды организмов и противомикробных препаратов, ранее сохраненные на дискете. Операция восстановления полностью перезаписывает существующую базу данных кодов ЛИС организмов и противомикробных препаратов. Коды не будут восстановлены, если любое другое поле, кроме кода ЛИС, было изменено, или код ЛИС был введен в неправильном формате. Если это произошло, на дискету записывается журнал ошибок, и этот файл можно просмотреть, чтобы выяснить причину ошибки. Функция «Restore LIS Codes from Disk» (Восстановление кодов ЛИС с диска) появляется в меню «Maintenance» (Техническое обслуживание) только в том случае, если включена система связи ЛИС.

Для восстановления кодов с дискеты выполните следующие действия:

- 1 Нажмите программную клавишу «конфигурация».



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



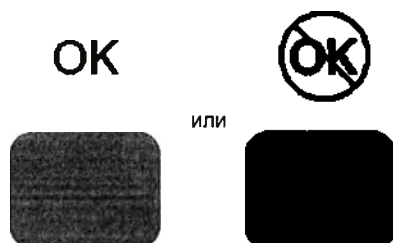
- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».



- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «RESTORE LIS CODES FROM DISK» (ВОССТАНОВЛЕНИЕ КОДОВ ЛИС С ДИСКА).
- 5 Вставьте в дисковод дискету с сохраненными кодами ЛИС.
- 6 Нажмите программную клавишу «выполнить действие».



- 7 Система запросит подтверждение восстановления данных с дискеты. Нажмите программную клавишу «подтвердить» для продолжения восстановления или «отмена» для отмены операции.



- 8 Во время копирования информации на дискету появляется значок песочных часов и сообщение «Restoring Data» (Восстановление данных).



- 9 По завершении действий на экране появится сообщение «Complete» (Выполнено), прозвучит сигнал «действие выполнено» и значок песочных часов исчезает.
- 10 Убедитесь, что индикатор дисковода не горит, затем извлеките дискету, нажав кнопку извлечения диска.

6.2.4.5 «Save Panel Lot Definitions» (Сохранение определений лотов панелей)

Функция «Save Panel Lot Definitions» (Сохранение определений лотов панелей) позволяет сохранить лоты панелей прибора на дискету. Это позволяет передавать определения лотов (и результаты панелей контроля качества) на другие приборы, позволяя просматривать и использовать записи на этих приборах. Функция **Save Panel Lot Definitions (Сохранение определений лотов панелей)** сохраняет указанные лоты панелей, соответствующие данные (порядковые номера, сроки годности и т.п.) и результаты контроля качества для любых тестируемых штаммов в данных лотах. Функция «Save Panel Lot Definitions» (Сохранение определений лотов панелей) появляется в меню «Maintenance» (Техническое обслуживание) только в том случае, если включена поддержка лота контроля качества.

Для сохранения определений лотов панелей на дискету выполните следующие действия:

- 1 Нажмите программную клавишу «конфигурация».



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».

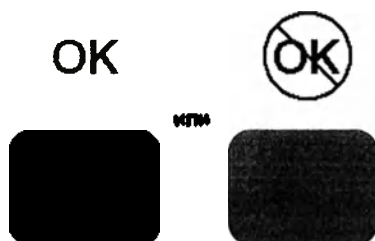


- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «SAVE PANEL LOT DEFINITIONS» (СОХРАНЕНИЕ ОПРЕДЕЛЕНИЙ ЛОТОВ ПАНЕЛЕЙ).
- 5 Вставьте в дисковод пустую, отформатированную, доступную для записи дискету.

- 6 Нажмите программную клавишу «выполнить действие».



- 7 Система запросит подтверждение сохранения данных на дискете. Нажмите программную клавишу «подтвердить» для продолжения сохранения или «отмена» для отмены операции.



- 8 Во время записи информации на дискету появляется значок песочных часов.



- 9 По завершении действий звучит сигнал «действие выполнено» и значок песочных часов исчезает. Убедитесь, что индикатор дисководов не горит, затем извлеките дискету, нажав кнопку извлечения диска.

6.2.4.6 «Restore Panel Lot Definitions» (Восстановление определений лотов панелей)

Функция «Restore Panel Lot Definitions» (Восстановление определений лотов панелей) позволяет восстановить определения лотов панелей с одного прибора на другом. Это делает возможным передачу определений лотов панели и результатов контроля качества панели в лабораториях, где используется несколько приборов, позволяя определить лот только один раз с помощью штрих-кода на коробке. Функция «Restore Panel Lot Definitions» (Восстановление определений лотов панелей) появляется в меню «Maintenance» (Техническое обслуживание) только в том случае, если включена поддержка лота контроля качества.

Для восстановления определений лотов панелей с диска выполните следующие действия:

- 1 Нажмите программную клавишу «конфигурация».



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».

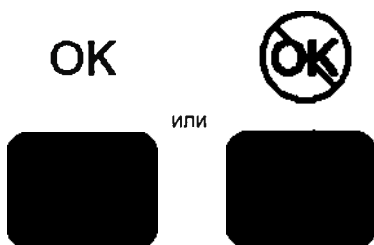


- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «RESTORE PANEL LOT DEFINITIONS» (ВОССТАНОВЛЕНИЕ ОПРЕДЕЛЕНИЙ ЛОТОВ ПАНЕЛЕЙ).
- 5 Вставьте в дисковод дискету с сохраненными определениями.

- 6 Нажмите программную клавишу «выполнить действие».



- 7 Система запросит подтверждение восстановления данных с дискеты. Нажмите программную клавишу «подтвердить» для продолжения восстановления или «отмена» для отмены операции.



- 8 Во время копирования информации на дискету появляется значок песочных часов и сообщение «Restoring Data» (Восстановление данных).



- 9 При получении сообщения о конфликте между дискетой для восстановления и информацией о лотах панели прибора обратитесь за помощью к BD.

В противном случае, по завершении действий на экране появится сообщение «Complete» (Выполнено), прозвучит сигнал «действие выполнено» и значок песочных часов исчезает.

- 10 Убедитесь, что индикатор дисководов не горит, затем извлеките дискету, нажав кнопку извлечения диска.

6.2.4.7 «Save Panel Configuration» (Сохранение конфигурации панелей)

Функция «Save Panel Configuration» (Сохранение конфигурации панелей) позволяет записывать резервную копию конфигураций панелей прибора на дискету. Сохраняется информация только для данного прибора. Однако информация, сохраненная на одном приборе, может быть установлена на другом приборе. Это позволяет иметь согласованные конфигурации панелей на всех приборах. Для сохранения конфигураций панелей на дискету выполните следующие действия:

- 1 Нажмите программную клавишу «конфигурация».



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».

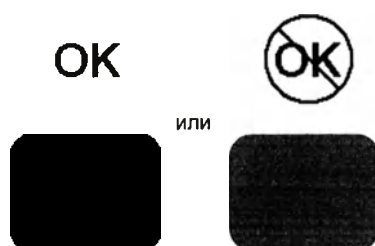


- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «SAVE PANEL CONFIGURATION» (СОХРАНЕНИЕ КОНФИГУРАЦИИ ПАНЕЛЕЙ).
- 5 Вставьте в дисковод пустую, отформатированную, доступную для записи дискету.

- 6 Нажмите программную клавишу «выполнить действие».



- 7 Система запросит подтверждение сохранения данных на дискете. Нажмите программную клавишу «подтвердить» для продолжения сохранения или «отмена» для отмены операции.



- 8 Во время записи информации на дискету появляется значок песочных часов.



- 9 По завершении действий звучит сигнал «действие выполнено» и значок песочных часов исчезает. Убедитесь, что индикатор дисководов не горит, затем извлеките дискету, нажав кнопку извлечения диска.
- 10 Защитите диск от записи.

6.2.4.8 «Install Panel Configuration» (Установка конфигурации панелей)

Функция «Install Panel Configuration» (Установка конфигурации панелей) позволяет обновлять конфигурацию панелей прибора. Для выполнения данной операции необходимо, чтобы дверь прибора была закрыта.

Для установки конфигураций панелей выполните следующие действия:

ПРИМЕЧАНИЕ

Данное действие не должно осуществляться, если имеются обрабатываемые панели.

- 1 Нажмите программную клавишу «конфигурация».



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».



- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «INSTALL PANEL CONFIGURATION» (УСТАНОВКА КОНФИГУРАЦИИ ПАНЕЛЕЙ).
- 5 Вставьте в дисковод (первую, если их больше одной) дискету с конфигурацией панели.

- 6 Нажмите программную клавишу «выполнить действие».



- 7 Система запросит подтверждение установки данных с дискеты и предложит перезапустить прибор по завершении установки. Нажмите программную клавишу «подтвердить» для продолжения установки или «отмена» для отмены операции.



- 8 Во время копирования информации с дискеты появляется значок песочных часов.

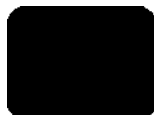


- 9 По завершении действий звучит сигнал «действие выполнено» и значок песочных часов исчезает. Затем прибор автоматически перезапускается.
- 10 Убедитесь, что индикатор дисководов не горит, затем извлеките дискету, нажав кнопку извлечения диска.

6.2.4.9 «Phoenix Update Disk» (Диск обновления Phoenix)

Функция «Phoenix Update Disk» (Диск обновления Phoenix) позволяет обновлять несколько типов файлов данных прибора, например контрольные точки и правила противомикробных препаратов, данные контроля качества, препараты, организмы и т.п. Для установки диска обновления Phoenix выполните следующие действия:

- 1 Нажмите программную клавишу «конфигурация».



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».



- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «PHOENIX UPDATE DISK» (ДИСК ОБНОВЛЕНИЯ PHOENIX).
- 5 Вставьте в дисковод (первую, если их больше одной) дискету обновления.
- 6 Нажмите программную клавишу «выполнить действие».



- 7 Система запросит подтверждение установки данных с дискеты и предложит перезапустить прибор по завершении установки. Нажмите программную клавишу «подтвердить» для продолжения установки или «отмена» для отмены операции.



- 8 Система проверит версию и конфигурацию файлов на дискете. Если имеются файлы более старые, чем файлы на приборе, прибор выдаст предупреждение (E34) и не выполнит обновление.
- 9 Во время копирования информации с дискеты появляется значок песочных часов.



- 10 В случае необходимости дополнительных дисков система выдаст следующее сообщение: «Please insert disk # n of Phoenix update set, then press OK to continue» (Вставьте диск № n из набора обновления Phoenix, затем нажмите OK, чтобы продолжить).

Извлеките диск и вставьте в дисковод дискету обновления Phoenix № n.

- 11 По завершении действий звучит сигнал «действие выполнено» и значок песочных часов исчезает. Затем прибор автоматически перезапускается.
- 12 Убедитесь, что индикатор дисковода не горит, затем извлеките дискету, нажав кнопку извлечения диска.

6.2.4.10 «Modify Panel Usage» (Изменение использования панели)

Функция «Modify Panel Usage» (Изменение использования панели) позволяет отключать либо сторону идентификации, либо сторону тестирования восприимчивости к противомикробным препаратам комбинированной панели, которая не является съемной (при условии, что в данный момент обе стороны задействованы). Процедура изменения использования панели:

- 1 Нажмите программную клавишу «конфигурация».



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».



- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «MODIFY PANEL USAGE» (ИЗМЕНЕНИЕ ИСПОЛЬЗОВАНИЯ ПАНЕЛИ).
- 5 Появится следующий экран:

MODIFY PANEL USAGE	
Sequence #	
Accession #	
Isolate #	☐
ID	☐
AST	☐



- 6 Введите или считайте штрих-код порядкового номера панели, использование которой необходимо изменить. Система автоматически заполняет поля **Accession #** (Образец №) и **Isolate #** (Культура №), которые предназначены только для чтения.
- 7 Используйте клавишу «табуляция» для перехода к флажку **ID** (Идентификация) или **AST** (Проверка восприимчивости к противомикробным препаратам) (в зависимости от того, какую часть панели необходимо отключить). Нажмите программную клавишу «выбрать» или **[Spacebar]**, чтобы очистить флажок.
- 8 Нажмите программную клавишу «сохранить» для сохранения изменений.

Обратите внимание на следующие условия изменения использования панели:

- ◆ При изменении использования панели информация о связанных панелях не изменяется.
- ◆ Если пользователь не ввел итоговый идентификатор и сторона идентификации отключена, информация об идентификаторе прибора, биохимических результатах, значениях степени достоверности, значениях SIR и специальных сообщениях идентификатора будет удалена из записи.
- ◆ Если пользователь ВВЕЛ итоговый идентификатор и сторона идентификации отключена, этот идентификатор сохраняется, как и значения SIR. Однако информация об идентификаторе прибора, биохимических результатах, значениях степени достоверности и специальных сообщениях идентификатора удаляется из записи.

6.2.4.11 «Write Light Source to Disk» (Запись файла источника света на дискету)

Функция «Write Light Source to Disk» (Запись файла источника света на дискету) позволяет создавать дискету, содержащую текущие значения, необходимые прибору для установки заданных значений для светодиодов. Данную операцию следует выполнять только по рекомендации местного представителя BD.

- 1 На экране «Main Status» (Основное состояние) нажмите программную клавишу «конфигурация». Появится экран основной конфигурации.



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



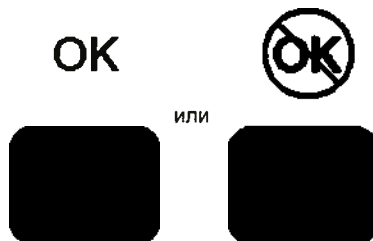
- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».



- 4 Вставьте в дисковод пустую, отформатированную, доступную для записи дискету. Убедитесь, что на дискете имеется этикетка «Light Source Disk» (Дискета источника света) и серийный номер прибора.
- 5 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «WRITE LIGHTSRC TO DISKETTE» (ЗАПИСЬ ФАЙЛА ИСТОЧНИКА СВЕТА НА ДИСКЕТУ). Прибор проверит правильность дискеты.
- 6 Нажмите программную клавишу «выполнить действие».



- 7 Система запросит подтверждение сохранения данных на дискете. Нажмите программную клавишу «подтвердить» для продолжения сохранения или «отмена» для отмены операции.



- 8 Во время записи информации об источнике света на дискету появляется значок песочных часов.

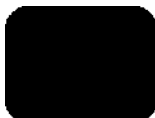


- 9 По завершении действий звучит сигнал «действие выполнено» и значок песочных часов исчезает. Убедитесь, что индикатор дисковода не горит, затем извлеките дискету, нажав кнопку извлечения диска.
- 10 Защитите дискету от записи.

6.2.4.12 «Read Light Source from Diskette» (Чтение файла источника света с дискеты)

Функция «Light Source from Disk» (Чтение файла источника света с дискеты) позволяет устанавливать новые файлы источника света, сохраненные на дискете (либо предоставленной с системой при установке или созданная по рекомендации BD). Операция может быть осуществлена только в том случае, если прибор не работает, нет задействованных панелей и прибор закончил сканирование оборудования. Те же панели нормализатора должны быть в приборе при создании диска с информацией об источнике света.

- 1 Нажмите программную клавишу «конфигурация».



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».

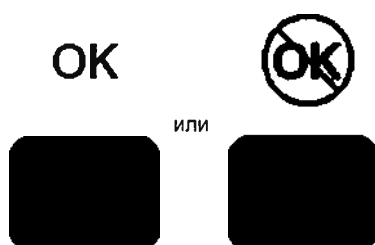


- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «READ LIGHTSRC FROM DISKETTE» (ЧТЕНИЕ ФАЙЛА ИСТОЧНИКА СВЕТА С ДИСКЕТЫ).
- 5 Вставьте в дисковод дискету с информацией об источнике света.

- 6 Нажмите программную клавишу «выполнить действие».



- 7 Система запросит подтверждение записи данных с дискеты на энергонезависимое ОЗУ. Нажмите программную клавишу «подтвердить» для продолжения установки или «отмена» для отмены операции.



- 8 Система проверит даты создания файлов на дискете. Если существуют файлы более старые, чем текущие файлы на приборе, будет запрошено подтверждение замены файлов на приборе более старыми файлами с дискеты. Можно отменить замену, заменить один, несколько или все более новые файлы.
- 9 Во время копирования информации с дискеты появляется значок песочных часов.



- 10 По завершении действий звучит сигнал «действие выполнено» и значок песочных часов исчезает.
- 11 Убедитесь, что индикатор дисководов не горит, затем извлеките дискету, нажав кнопку извлечения диска.

6.2.4.13 «View Syslog» (Просмотр системного журнала)

Функция «View Syslog» (Просмотр системного журнала) позволяет просматривать список сообщений, которые сгенерировала функция системы связи ЛИС. Обратите внимание, что на экране не содержится сообщений, если подключена система BD EpiCenter. Эти сообщения являются сообщениями о состоянии, которые были созданы во время обмена информацией, например сообщения заказа, записи журнала, интерфейсные сообщения и т.п. Записи в списке можно отбирать по дате, печатать (потенциально большой отчет, который печатается в альбомной ориентации) и осуществлять в них поиск определенных слов или фраз (с повторным поиском термина).

См. разделе 17 «Сообщения журнала событий, полный список сообщений и действия по устранению проблем».

Программные клавиши для просмотра системного журнала:

«печать»



«поиск»



«повторить
данные»



«выбрать
фильтр»



«выход»



Процедура просмотра системного журнала:

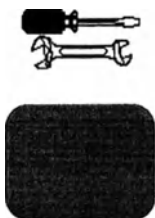
- 1 Нажмите программную клавишу «конфигурация».



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



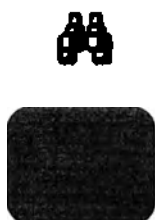
- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».



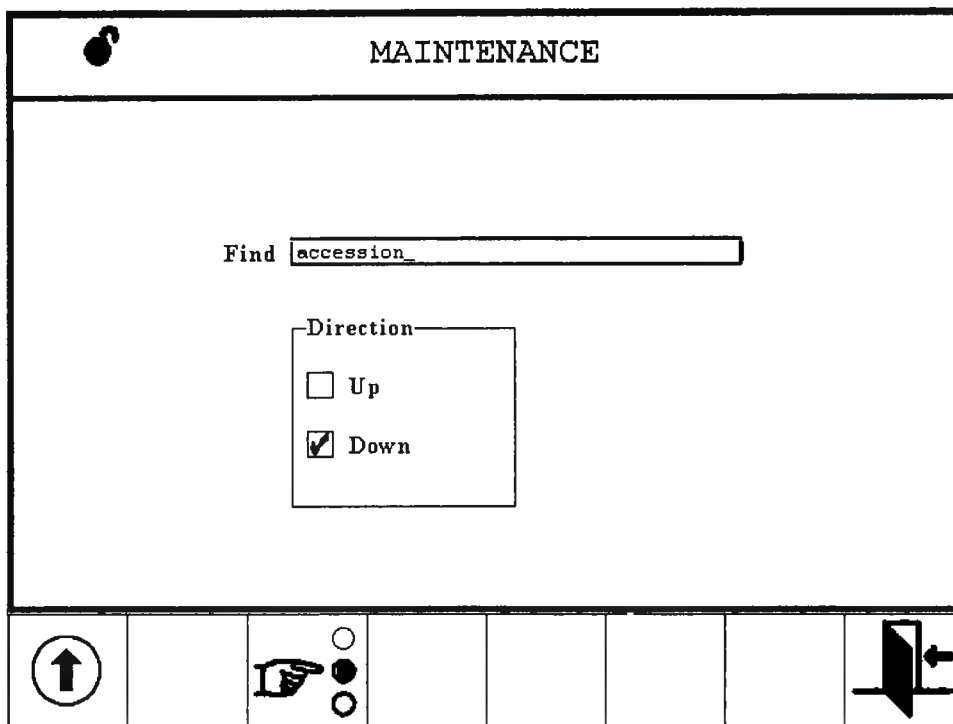
- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «VIEW SYSLOG» (ПРОСМОТР СИСТЕМНОГО ЖУРНАЛА) и нажмите программную клавишу «выполнить действие». Появится системный журнал.
- 5 Все доступные сообщения ЛИС отображаются в окне, более старые сообщения находятся сверху. Если все сообщения не помещаются на экране, используйте СТРЕЛКУ ВНИЗ для просмотра сообщений, не попадающих на экран. Если длина сообщения больше ширины экрана, нажмите  на клавиатуре для просмотра остальной части сообщения. Нажмите  для возврата экрана к начальному состоянию.

Процедура поиска в системном журнале:

- 1 Нажмите программную клавишу «поиск».



- 2 Появится окно поиска.
- 3 В поле «Find» (Поиск) можно ввести до 37 символов (регистр букв не учитывается), которые необходимо найти.
- 4 Флажки «Direction» (Направление) позволяют указать направление поиска вверх или вниз (по умолчанию). Нажмите программную клавишу «выбрать», чтобы установить или очистить флажок направления. Можно выбрать только одно направление.
- 5 Для начала поиска нажмите программную клавишу «выполнить действие». На экране появится системный журнал; первое сообщение, содержащее термин, будет находиться в верхней части окна и оно будет выделено. Если термин не найден, ни одно сообщение не будет выделено.
- 6 Для продолжения поиска термина нажмите клавишу «повторить данные». Если термин еще раз встретится, он будет выделен в системном журнале. Если термин больше нигде не встречается, то же сообщение останется выделенным, а клавиша «повторить данные» исчезнет.



Процедура отбора записей в системном журнале:

- 1 Нажмите программную клавишу «выбрать фильтр».



- 2 Можно ввести дату/время начала, дату/время завершения или не вводить ни то, ни другое.

Если ввести только дату начала, отобразятся все сообщения, начиная с заданной даты до текущего времени.

Если ввести только дату завершения, отобразятся все сообщения, начиная с самых старых сообщений до сообщений заданной даты.

Если ввести обе даты, отобразятся все сообщения между этими двумя датами.

Если не ввести ни одной даты, отобразятся все сообщения журнала (аналогично первоначальному доступу к журналу).

- 3 Появится окно выбора фильтра.

The screenshot shows a screen titled "MAINTENANCE". Below the title is a section labeled "Dates". Inside this section, there is a checked checkbox for "Start Date" and an unchecked checkbox for "End Date". The "Start Date" is set to 07 / 30 / 01 and 09 : 20. Below the "Dates" section is a row of icons: a circular arrow, a hand pointing at a button, and a right-pointing arrow.

- 4 Чтобы ввести дату/время начала или дату/время завершения, выделите соответствующий флажок и нажмите программную клавишу «выбрать». Поля даты и времени появляются, если флажок установлен. Переместите курсор в поле дня, месяца, года, часа или минуты и нажмите СТРЕЛКУ ВВЕРХ или СТРЕЛКУ ВНИЗ для увеличения или уменьшения отображаемого значения.
- 5 Когда необходимые дата и время введены, нажмите программную клавишу «выполнить действие», чтобы выполнить отбор.

6.2.4.14 «Save Syslog to Network» (Сохранение системного журнала в сети)

Функцию «Save Syslog to Network» (Сохранение системного журнала в сети) следует использовать только по рекомендации местного представителя BD.

Функция «Save Syslog to Network» (Сохранение системного журнала в сети) доступна только в том случае, когда прибор подключен к системе BD EpiCenter. Эта функция позволяет сохранить событие в системе EpiCenter.

При определенных обстоятельствах представитель BD может посоветовать сохранять (записывать) системный журнал в систему EpiCenter. Эти обстоятельства включают некоторые ошибки и неисправности системы. Функция «Save Syslog» (Сохранение системного журнала) копирует системный журнал событий, который содержит зарегистрированные системные сообщения о различных событиях системы, прибора и связи. Для сохранения системного журнала дверь прибора должна быть закрыта, и прибор должен находиться в режиме ожидания.

- 1 Нажмите программную клавишу «конфигурация».



- 2 Появится окно пароля. Для доступа к функциям конфигурации введите требуемый пароль, затем нажмите программную клавишу «выполнить действие».



- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание»



- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «SAVE SYSLOG TO NETWORK» (СОХРАНЕНИЕ СИСТЕМНОГО ЖУРНАЛА В СЕТИ).
- 5 Убедитесь, что на компьютере EpiCenter запущено приложение сбора данных.

- 6 Нажмите программную клавишу «выполнить действие».



- 7 Во время передачи данных появляется значок песочных часов.



- 8 По завершении действий звучит сигнал «действие выполнено» и значок песочных часов исчезает, а файл журнала событий сохраняется на компьютере EpiCenter в том каталоге, где находится приложение сбора данных.

6.2.4.15 «Display UV and RGB Status» (Отображение состояния УФ и RGB)

Функция «Display UV and RGB Status» (Отображение состояния УФ и RGB) позволяет просматривать информацию о лампах УФ и RGB. Данную операцию следует выполнять только по рекомендации местного представителя BD.

- 1 На экране «Main Status» (Основное состояние) нажмите программную клавишу «конфигурация». Появится экран основной конфигурации.



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое

обслуживание».



- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «DISPLAY UV AND RGB STATUS» (ОТОБРАЖЕНИЕ СОСТОЯНИЯ УФ И RGB).
- 5 Нажмите программную клавишу «выполнить действие».



- 6 Слева на экране прибора отобразится следующая информация:

Для передней и задней лампы УФ:

«In Service» (Используется) (YES/NO) (ДА/НЕТ)
«Telsum» (значение)
«Cycles» (Циклы) (значение)
«Time (Min)» (Время (Мин.)) (значение)
«Available» (Доступно) (YES/NO) (ДА/НЕТ)
«Intensity» (Интенсивность) (%)
«Adjustment» (Настройка) (-----/PEND) (-----/Ожидание)

Для светодиодов RGB:

«Adjustment» (Настройка) (-----/PEND) (-----/Ожидание)

- 7 Нажмите программную клавишу «выход» для возврата в меню «Maintenance» (Техническое обслуживание).

6.2.4.16 «Force Front UV Bulb Adjustment» (Принудительная настройка передней лампы УФ)

С помощью функции «Force Front UV Bulb Adjustment» (Принудительная настройка передней лампы УФ) прибор настраивает переднюю лампу УФ. **Данную операцию следует выполнять только по рекомендации местного представителя ВД.** Если передняя лампа УФ в данный момент используется, появляется сообщение, уведомляющее о том, что настройка не будет произведена, пока имеются обрабатываемые панели в приборе. Если задняя лампа УФ в данный момент используется, передняя лампа УФ находится в состоянии «in service» (используется), и настройка не будет произведена, пока имеются обрабатываемые панели в приборе

- 1 На экране «Main Status» (Основное состояние) нажмите программную клавишу «конфигурация». Появится экран основной конфигурации.



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».



- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «FORCE FRONT UV BULB ADJUSTMENT» (ПРИНУДИТЕЛЬНАЯ НАСТРОЙКА ПЕРЕДНЕЙ ЛАМПЫ УФ).

- 5 Нажмите программную клавишу «выполнить действие».



- 6 Если передняя лампа УФ в данный момент используется, появляется сообщение, уведомляющее о том, что осуществление настройки будет отложено, пока имеются обрабатываемые панели в приборе.

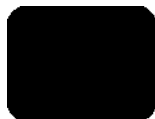
Если задняя лампа УФ в данный момент используется, появится сообщение, уведомляющее, что передней лампе УФ будет присвоено состояние «in service» (используется). Выполнение настройки будет отложено, пока имеются обрабатываемые панели в приборе.

Для продолжения процесса настройки УФ нажмите программную клавишу «подтвердить». Для отмены процесса нажмите программную клавишу «отмена».

OK



или



- 7 Система ожидает отсутствия обрабатываемых панелей и выполняет настройку лампы УФ.
8 Во время выполнения настройки появляется значок песочных часов.



- 9 По завершении действий звучит сигнал «действие выполнено» и значок песочных часов исчезает.
10 Нажмите программную клавишу «выход» для возврата в меню «Maintenance» (Техническое обслуживание).

6.2.4.17 «Force Rear UV Bulb Adjustment» (Принудительная настройка задней лампы УФ)

С помощью функции «Force Rear UV Bulb Adjustment» (Принудительная настройка задней лампы УФ) прибор настраивает заднюю лампу УФ. Данную операцию следует выполнять только по рекомендации местного представителя ВД. Если задняя лампа УФ в данный момент используется, появляется сообщение, уведомляющее о том, что настройка не будет произведена, пока имеются обрабатываемые панели в приборе. Если передняя лампа УФ в данный момент используется, задняя лампа УФ находится в состоянии «in service» (используется), и настройка не будет произведена, пока имеются обрабатываемые панели в приборе.

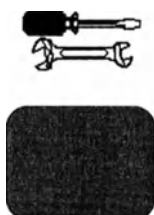
- 1 На экране «Main Status» (Основное состояние) нажмите программную клавишу «конфигурация». Появится экран основной конфигурации.



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».



- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «FORCE REAR UV BULB ADJUSTMENT» (ПРИНУДИТЕЛЬНАЯ НАСТРОЙКА ЗАДНЕЙ ЛАМПЫ УФ).

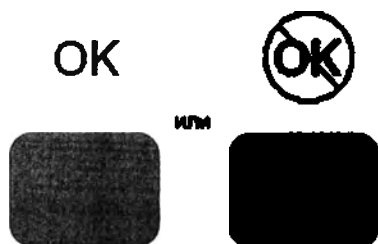
- 5 Нажмите программную клавишу «выполнить действие».



- 6 Если задняя лампа УФ в данный момент используется, появляется сообщение, уведомляющее о том, что выполнение настройки будет отложено, пока имеются обрабатываемые панели в приборе.

Если передняя лампа УФ в данный момент используется, появится сообщение, уведомляющее, что задней лампе УФ будет присвоено состояние «in service» (используется). Выполнение настройки будет отложено, пока имеются обрабатываемые панели в приборе.

Для продолжения процесса настройки УФ нажмите программную клавишу «подтвердить». Для отмены процесса нажмите программную клавишу «отмена».



- 7 Система ожидает отсутствия обрабатываемых панелей и выполняет настройку лампы УФ.
8 Во время выполнения настройки появляется значок песочных часов.



- 9 По завершении действий звучит сигнал «действие выполнено» и значок песочных часов исчезает.
10 Нажмите программную клавишу «выход» для возврата в меню «Maintenance» (Техническое обслуживание).

6.2.4.18 «Force RGB LED Adjustment» (Принудительная настройка светодиодов RGB)

С помощью функции «Force RGB LED Adjustment» (Принудительная настройка светодиодов RGB) прибор настраивает красные, зеленые и синие светодиоды. **Данную операцию следует выполнять только по рекомендации местного представителя ВД.** При выборе данной операции появляется сообщение, уведомляющее, что настройка не будет выполнена, пока в приборе имеются обрабатываемые панели.

- 1 На экране «Main Status» (Основное состояние) нажмите программную клавишу «конфигурация». Появится экран основной конфигурации.



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».

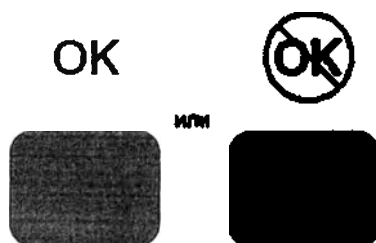


- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «FORCE RGB LED ADJUSTMENT» (ПРИНУДИТЕЛЬНАЯ НАСТРОЙКА СВЕТОДИОДОВ RGB).

- 5 Нажмите программную клавишу «выполнить действие».



- 6 Появится сообщение, уведомляющее о том, что выполнение настройки будет отложено, пока имеются обрабатываемые панели в приборе. Для продолжения процесса настройки нажмите программную клавишу «подтвердить». Для отмены процесса нажмите программную клавишу «отмена».



- 7 Система ожидает отсутствия обрабатываемых панелей и выполняет настройку светодиодов RGB.
8 Во время выполнения настройки появляется значок песочных часов.



- 9 По завершении действий звучит сигнал «действие выполнено» и значок песочных часов исчезает.
10 Нажмите программную клавишу «выход» для возврата в меню «Maintenance» (Техническое обслуживание).

6.2.4.19 «Front Panel Reader Setup» (Настройка считывающего устройства передней панели)

Функция «Front Panel Reader Setup» (Настройка считывающего устройства передней панели) позволяет просматривать и изменять процесс взаимодействия со встроенным сканером штрих-кода при перезапуске прибора. **Данную операцию следует выполнять только по рекомендации местного представителя BD.** Предлагается 2 варианта: 1) настройкам сканера присваиваются заводские значения; 2) при перезапуске прибора сохраняются текущие настройки.

- 1 На экране «Main Status» (Основное состояние) нажмите программную клавишу «конфигурация». Появится экран основной конфигурации.



- 2 Появится окно пароля. Введите соответствующий пароль и нажмите программную клавишу «выполнить действие».



- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».



- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «FRONT PANEL READER SETUP» (НАСТРОЙКА СЧИТЫВАЮЩЕГО УСТРОЙСТВА ПЕРЕДНЕЙ ПАНЕЛИ).

- 5 Нажмите программную клавишу «выполнить действие».



- 6 Текущее состояние запуска отображается в левой части экрана.
- 7 Для изменения отображаемого параметра нажмите программную клавишу «выполнить действие». Установите для параметра «Startup Status» (Состояние запуска) значение «Initialize» (Присвоить начальные значения), чтобы присвоить настройкам сканера заводские значения при перезапуске прибора Phoenix. Установите для параметра «Startup Status» (Состояние запуска) значение «Retain» (Сохранить значения), чтобы сохранить текущие настройки сканера при перезапуске прибора Phoenix.
- 8 Нажмите программную клавишу «выход» для возврата в меню «Configuration» (Конфигурация).

6.3 Замена модулей

6.3.1 Общая информация

Прибор Phoenix был создан и проверен для обеспечения бесперебойной работы. В случае неисправности необходимо обратиться для обслуживания в компанию BD согласно условиям существующего договора об оказании услуг или гарантии. Только внешний сканер штрих-кода может быть заменен пользователем.

Отказавшие модули, которые затем возвращаются в компанию BD, можно поменять на модули для замены. Гарантия затем распространяется и на модули для замены. В процедуре, описанной в данном разделе, необходимо использовать только детали для замены, поставленные компанией BD.

6.3.2 Замена сканера штрих-кода

Сканер штрих-кода подключен к прибору через панель ввода-вывода в правой части прибора. См. рис. 6–5.

Необходимые материалы

Отвертка с прямым шлицем 3,2 мм

Процедура замены сканера штрих-кода

- 1 На панели ввода-вывода в правой части прибора найдите кабель подключения сканера штрих-кода. Данный кабель закреплен двумя маленькими винтами. Отвинтите винты и отсоедините кабель.
- 2 Обратите внимание, что разъем кабеля по форме напоминает трапецию: верхняя часть разъема шире, чем нижняя. Подключите кабель нового сканера, при этом убедитесь, что разъем кабеля занимает правильное положение. Затяните винты.
- 3 Для проверки правильности положения нового сканера перейдите к экрану «Panel Login» (Регистрация панели), переместите курсор в поле **Sequence #** (Порядковый №), и выполните считывание штрих-кода номера панели. Убедитесь, что в поле введено правильное число. Нажмите программную клавишу «выход» для выхода из данного экрана без сохранения записи.



Рис. 6–5. Замена сканера штрих-кода.

6.3.3 Замена термометра

Если обнаружится, что жидкость в термометре стандартной панели температуры разделена, следуйте описанной ниже процедуре для снятия термометра и его замены.

Процедура снятия/замены термометра

- 1 Снимите стандартную панель температуры с прибора Phoenix.
- 2 С помощью маленького отверстия в нижней части панели аккуратно вытолкните термометр вверх через большое щелевое отверстие в верхней части панели температуры.
- 3 Пальцами полностью извлеките термометр из панели через щелевое отверстие в верхней части панели температуры.
- 4 Соедините разделенный столб жидкости в соответствии с приведенной ниже инструкцией.
- 5 Установите термометр, применив описанную выше процедуру в обратном порядке.

6.3.4 Соединение разделенной жидкости в термометре

Если обнаружится, что жидкость в термометре стандартной панели температуры разделена, следуйте описанной ниже процедуре соединения жидкости.

Процедура соединения разделенной жидкости

- 1 В случае разделения в капиллярной трубке или в расширительной камере в верхней части термометра, нагревайте шарик термометра с помощью горячей жидкости, температура которой превышает температурный диапазон термометра, до тех пор, пока жидкости не соединятся в расширительной камере.
- 2 Быстро извлеките термометр из жидкости так, чтобы жидкость не успела полностью заполнить расширительную камеру, что может привести к повреждению термометра.
- 3 Проверьте термометр с помощью сертифицированного термометра или в ледяной ванне, чтобы убедиться в правильности его показаний.

7 – Устранение неполадок

7.1 Общая информация

7.1.1 Обслуживание прибора

При возникновении сбоя в работе прибора BD Phoenix 100 или при необычной ситуации в его функционировании можно попробовать решить проблему, следуя рекомендациям, изложенным в данном разделе. Попытки самостоятельного устранения других неисправностей, не описанных здесь, приведут к снятию ответственности с производителя по условиям гарантии.

Если у Вас не получается устранить неисправность системы, обратитесь к местному представителю BD (контактные телефоны приведены в разделе 13).

В данном разделе обсуждаются сообщения об ошибках, которые появляются при возникновении в системе известной проблемы. В порядке возрастания номеров приведены сообщения вместе с возможными причинами, а также действия по устранению проблемы.

7.2 Сообщения об ошибке или предупреждающие сообщения

ВНИМАНИЕ!

При появлении сообщения об ошибке или предупреждении необходимо немедленно предпринять соответствующие действия.

При возникновении ошибки или условия, вызывающего предупреждение код ошибки (EXX или WXXX, где XX или XXX — число) будет либо выведен на экран, либо записан в список системных предупреждений. Код ошибки — это сокращение для условий, описанных в списке ниже.

Различные типы предупреждений и ошибок требуют различных действий. Существует три основных типа предупреждения:

- ① Самоустраняющиеся — эти предупреждения удаляются с экрана «System Alert Screen» (Экран системных предупреждений) после их отображения и выхода из этого экрана. Никаких других дополнительных действий выполнять не нужно.
- ② Постоянные — эти предупреждения остаются на экране «System Alert Screen» (Экран системных предупреждений) (даже после отображения кода предупреждения) до тех пор, пока прибор не определит, что ошибка, вызывающая предупреждение, устранена. Ошибка может быть устранена как самим пользователем, так и без его вмешательства, в зависимости от типа предупреждения.
- ③ Автоматически очищаемые — эти ошибки удаляются с экрана «System Alert Screen» (Экран системных предупреждений) после устранения условий, вызвавших ошибки. В данном случае код предупреждения не отображается на экране «System Alerts List Screen» (Экран списка системных предупреждений). Если предупреждение все еще присутствует при просмотре списка «Alert» (Предупреждение), то оно будет отображено.

Коды ошибок типа «W» отображаются на экране в случае их возникновения. (При их возникновении выдается звуковой сигнал «ошибка работы» [последовательность коротких высокочастотных сигналов и коротких низкочастотных сигналов, повторяющаяся четыре раза].) Эти ошибки являются ошибками работы (или «производственными» ошибками). В большинстве случаев это означает, что какое-то действие, выполненное Вами, не ожидалось системой, но можно исправить эту ситуацию, как указано ниже, не выходя из текущей операции. Такие ошибки в работе помечаются специальным значком:



Коды ошибок типа «W» сгруппированы следующим образом:

W1XX	Проблема с порядковым номером
W2XX	Проблема с номером образца, номером культуры или типом питательной среды
W3XX	Проблема только с панелью QC
W4XX	Действие для использования прибора запрещено
W5XX	Работа с экраном «Configuration/Maintenance» (Конфигурация/техническое обслуживание) запрещена (если это не является действием самого прибора)
W6XX	Работа с экраном запрещена
W7XX	Ошибки системы ЛИС
W8XX	Ошибки поддержки лота контроля качества

Системные предупреждения, которые составляют все коды ошибок типа «Е», заносятся в список системных предупреждений. Эти ошибки вызывают воспроизведение (если включено) звукового сигнала ошибки (сигнал средней частоты длительностью в одну секунду, пауза в 3 секунды, повторение). Также на экране «Main Status» (Основное состояние) появляется значок системной ошибки, и мигает индикатор системной ошибки. Ошибки необходимо просмотреть, чтобы устранить условие возникновения системного предупреждения. Список системных предупреждений можно просмотреть на экране «Main Status» (Основное состояние), нажав программную клавишу «системное предупреждение»:



Коды ошибок приведены в порядке возрастания номеров. Подкоды представляют собой числовые коды из 8 цифр, которые отображаются под строкой EXX в списке системных предупреждений. Подкоды указывают на конкретное определенное условие. Многие подкоды приведены в разделах «Возможные причины» и «Действия по устранению» ниже.

ВНИМАНИЕ!

При появлении какого-либо подкода, отсутствующего в этом списке, запишите его и обратитесь за помощью в компанию BD.

Если рекомендуемое действие по устранению проблемы не помогло, обратитесь в компанию BD.

E01 Incubator temperature alert (Предупреждение о температуре термостата)

Показания температуры считываются каждые 5 секунд на протяжении 10 минут и эти значения усредняются.

ТИП ПРЕДУПРЕЖДЕНИЯ — постоянное — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

- 00000001 — средняя температура слишком высока ($> 36,5^{\circ}\text{C}$)
- 00000002 — средняя температура слишком низка ($< 33^{\circ}\text{C}$)
- 00000010 — средняя температура слишком высока на протяжении более одного часа ($> 36,5^{\circ}\text{C}$)
- 00000020 — средняя температура слишком низка на протяжении более одного часа ($< 33^{\circ}\text{C}$)
- 00000040 — абсолютно высокая температура ($> 38,5^{\circ}\text{C}$)

Учтите, если температура прибора достигает $39^{\circ}\text{C} \pm 0,5^{\circ}\text{C}$, прибор отключает нагревательный элемент.

Для всех подкодов причиной могут служить следующие причины: температура комнаты находится за пределами рекомендуемого диапазона или не выполнены другие технические требования, касающиеся окружающей среды (например, прибор находится под воздействием прямых солнечных лучей или расположен слишком близко к воздушной заслонке отопления, вентиляции кондиционирования воздуха). Воздушные фильтры загрязнены, препятствуя прохождению свежего воздуха.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Убедитесь, что выполнены технические требования, касающиеся окружающей среды (см. раздел 2 «Установка»).
- ☐ Замените воздушные фильтры.

E02 Lightbay temperature alert (Предупреждение о температуре отсека освещения)

Прибор обнаружил, что на одном из уровней температура слишком высока или слишком низка, либо связь с датчиком отсека освещения разорвана. Прибор продолжает тестирование, как запланировано.

ТИП ПРЕДУПРЕЖДЕНИЯ — постоянное — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Температура слишком высока (источник света: > 50 °C; микро-уровень: > 60 °C)
 - Уровень A (соответствующие подкоды: 00000001, 00000008)
 - Уровень B (соответствующие подкоды: 00000040, 00000200)
 - Уровень C (соответствующие подкоды: 00001000, 00008000)
 - Уровень D (соответствующие подкоды: 00040000, 00200000)
- Температура слишком низка (< 18 °C):
 - Уровень A (соответствующие подкоды: 00000002, 00000010)
 - Уровень B (соответствующие подкоды: 00000080, 00000400)
 - Уровень C (соответствующие подкоды: 00002000, 00010000)
 - Уровень D (соответствующие подкоды: 00080000, 00400000)
- Причинами могут служить следующие условия: температура комнаты находится за пределами рекомендуемого диапазона или не выполнены другие технические требования, касающиеся окружающей среды (например, прибор находится под воздействием прямых солнечных лучей или расположен слишком близко к воздушной заслонке отопления, вентиляции кондиционирования воздуха). Воздушный фильтр загрязнен, препятствуя прохождению свежего воздуха.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Убедитесь, что выполнены технические требования, касающиеся окружающей среды (см. раздел 2 «Установка»).
- ☐ Замените воздушные фильтры.

E03 Ambient temperature alert (Предупреждение о температуре внешней среды)

Связь с датчиком внешней среды разорвана. Прибор продолжает тестирование, как запланировано.

ТИП ПРЕДУПРЕЖДЕНИЯ — постоянное — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

Ошибка в работе датчика температуры внешней среды

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Обратитесь к местному представителю компании BD.

E05 Carousel alert (Предупреждение о поворотном механизме)

Прибор выдает такое предупреждение в следующих случаях: измеренная частота вращения ниже указанной в технических требованиях, определенные флаги чтения неправильны или произошло заедание поворотного механизма. Это определяется во время каждого поворота механизма. Любое текущее сканирование инвентаризации или тестирование панели останавливается, и прибор игнорирует любые данные, получаемые от теста или сканирования.

ТИП ПРЕДУПРЕЖДЕНИЯ — постоянное — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

- 00000001 — скорость вращения ниже заявленной
- 00000040 — поворотный механизм застопорился
- 00000080 — поворотный механизм заклинило

Приведенные коды: что-то мешает вращению поворотного механизма.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Откройте дверь, найдите и устраните любые помехи, такие как приоткрытая панель или незафиксированный край панели. **Не вращайте поворотный механизм вручную.** Закройте дверь. Если сообщение появляется снова, обратитесь к местному представителю компании BD.

E06 Tier alert (Предупреждение об уровне)

Это общее условие появления предупреждения для проблем, связанных с конкретным уровнем. Такие проблемы включают следующее: флаги чтения неправильны, оптические ошибки, условия окончания времени ожидания и проблемы с нормализатором. Предупреждение выводится в следующем формате (приведены типичные подкоды):

E06	00000001
	00000000
	00000100
	00000280

Первая строка ошибки представляет уровень А, вторая строка представляет уровень В, третья строка представляет уровень С, а четвертая строка представляет уровень D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

Во время прохождения теста или сканирования инвентаризации обнаружены предупреждения об уровне. Прибор игнорирует любые данные, получаемые от теста или сканирования. Данные, полученные от исправных уровней, сохраняются. Все позиции на неисправных уровнях автоматически блокируются.

ТИП ПРЕДУПРЕЖДЕНИЯ — постоянное — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

- 00000020 — время ожидания ротора
- 00002000 — уровень в нерабочем состоянии (прибор не может связаться с уровнем)

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ 00000020 — удалите объект, мешающий вращению поворотного механизма
- ☐ 00002000 — перезапустите прибор (отключите питание, подождите 10 секунд, включите питание)

Power supply alert (Предупреждение о подаче питания)

Один из источников питания не удовлетворяет техническим требованиям. Прибор игнорирует любые данные, получаемые от теста или сканирования.

ТИП ПРЕДУПРЕЖДЕНИЯ — постоянное — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Временная электрическая аномалия.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Обратитесь к местному представителю компании BD.

Tier power supply alert (Предупреждение о подаче питания на уровень)

Один из источников питания уровня не удовлетворяет техническим требованиям. Прибор игнорирует любые данные, получаемые от теста панелей на том уровне. Предупреждение выводится в следующем формате (приведены типичные подкоды):

```
E17      00000001
          00000002
          00000004
          0000000A
```

Первая строка ошибки представляет уровень A, вторая строка представляет уровень B, третья строка представляет уровень C, а четвертая строка представляет уровень D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

Во время прохождения теста обнаружены предупреждения об уровне. Прибор игнорирует любые данные, получаемые от теста или сканирования. Данные, полученные от исправных уровней, сохраняются. Все позиции на неисправных уровнях автоматически блокируются.

ТИП ПРЕДУПРЕЖДЕНИЯ — постоянное — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Временная электрическая аномалия.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Обратитесь к местному представителю компании BD.

E09 Test aborted (Тест прерван)

Тестирование панели не проводилось больше часа.

ТИП ПРЕДУПРЕЖДЕНИЯ — самоустраняющееся — очищается, когда код предупреждения был отображен на экране «System Alerts» (Системные предупреждения)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- 20000000 — причинами могут служить следующие условия: прибор был отключен или дверь была открыта на протяжении более одного часа, системные часы были установлены вперед на один час или более, выполнение теста не вызывалось больше одного часа и т. д.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Все обрабатываемые панели помечаются как «Needs Attention» (Требуется внимания) и их состояние устанавливается как «Removable» (Сменная). Некоторые результаты могут быть неполными и необходимо просмотреть результаты всех затронутых панелей.

System database corruption (Повреждение системной базы данных)

ТИП ПРЕДУПРЕЖДЕНИЯ — самоустраняющееся — очищается, когда код предупреждения был отображен на экране «System Alerts» (Системные предупреждения)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- 00000002, 00000008, 00000020, 00000040, 00000100, 00000200, 00000400 — ошибка проверки контрольной суммы базы данных или данные в одной из баз данных (см. ниже) повреждены и заменены базой данных по умолчанию.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Запишите данные на диск (см. раздел 7.3) и свяжитесь с компанией BD.
- ☐ 00000002 — проверьте настройки на экране «Configuration» (Конфигурация) и задайте их в соответствии со своими предпочтениями (см. раздел 2.3.1).
- ☐ 00000008 — проверьте настройки на экране «BDXpert Rule Configuration» (Конфигурация правил BDXpert) и задайте их в соответствии со своими предпочтениями (см. раздел 2.3.4).
- ☐ 00000020 — проверьте настройки точки прерывания на экране «Custom Interpretation Rule Set Configuration» (Конфигурация пользовательского набора правил интерпретации) и задайте их в соответствии со своими предпочтениями (см. раздел 2.3.3).
- ☐ 00000040 — проверьте настройки на экранах «Organism Configuration» (Конфигурация микроорганизмов) и «Antimicrobial Configuration» (Конфигурация противомикробных препаратов) и задайте их в соответствии со своими предпочтениями (см. разделы 2.3.2.1 и 2.3.2.2).
- ☐ 00000100 — выполните операцию «Read Light Source from Diskette» (Считывание источника света с дискеты), как описано в разделе 6.2.4.12.
- ☐ 00000200 — выполните операцию «Read Light Source from Diskette» (Считывание источника света с дискеты), как описано в разделе 6.2.4.12.
- ☐ 00000400 — информационное сообщение, указывающее, что заказы ЛИС были удалены из базы данных. Такое может произойти в случае возникновения ошибки контрольной суммы в области заказов ЛИС в базе данных или когда внешние структуры данных были изменены во время обновления программного обеспечения. Необходимо заново отправить заказы, удаленные в результате этого предупреждения.

E11 Printer error (Ошибка принтера)

ТИП ПРЕДУПРЕЖДЕНИЯ — самоустраняющееся — очищается, когда код предупреждения был отображен на экране «System Alerts» (Системные предупреждения)

ВОЗМОЖНЫЕ ПРИЧИНЫ

20000000

- Бумага в принтере закончилась или застряла.
- Кабель принтера отключен во время печати.
- Питание принтера отключено во время печати.
- Принтер был переведен в отключенное состояние во время печати.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Проверьте бумагу и уберите застрявшую бумагу или добавьте бумагу при необходимости.
- ☐ Проверьте кабели принтера (питание и связь), переподключите их при необходимости.
- ☐ Включите питание принтера.
- ☐ Переведите принтер в активное состояние.
- ☐ Отчет продолжит печататься автоматически при устранении условия ошибки.

E12 Source monitor error (Ошибка монитора источника)

Это условие предупреждения для проблем, связанных с тестированием светодиодов на уровнях. Предупреждение выводится в следующем формате (приведены типичные подкоды):

E12	00000100
	00000000
	00000000
	00000000

Первая строка ошибки представляет позиции с ошибками на уровне А, вторая строка представляет позиции с ошибками на уровне В, третья строка представляет позиции с ошибками на уровне С, а четвертая строка представляет позиции с ошибками на уровне D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

Во время прохождения теста обнаружены ошибки монитора источника. Прибор игнорирует любые данные, получаемые от теста панели или позиции, вызвавшей ошибку. Данные, полученные от исправных панелей, сохраняются, если позиция, вызвавшая ошибку, не является позицией нормализатора. Все неисправные позиции автоматически блокируются. Если данная ошибка возникла на нормализаторе, блокируется весь уровень.

ТИП ПРЕДУПРЕЖДЕНИЯ — постоянное — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Оптическая проблема со светодиодами источника.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Обратитесь к местному представителю компании BD.

E13 Power failure (Сбой в питании)

ТИП ПРЕДУПРЕЖДЕНИЯ — самоустраняющееся — очищается, когда код предупреждения был отображен на экране «System Alerts» (Системные предупреждения)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- 20000000 — подача питания на прибор была прекращена.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Сообщение является информационным. Если произошло несколько отключений питания, в списке предупреждений отображается только последнее. Учтите, что время сбоя в питании и восстановление подачи питания записываются в журнал прибора. Учтите, что события сбоя питания не распознаются до тех пор, пока пользовательский интерфейс прибора не будет успешно загружен.

E14 CCD underrun (Отставание CCD)

Сканирование панели остановлено преждевременно. Предупреждение выводится в следующем формате:

E14	00000000
	00000100
	00000000
	00000000

Первая строка ошибки представляет позиции с ошибками на уровне А, вторая строка представляет позиции с ошибками на уровне В, третья строка представляет позиции с ошибками на уровне С, а четвертая строка представляет позиции с ошибками на уровне D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

Во время прохождения теста обнаружены ошибки отставания CCD. Прибор игнорирует любые данные, получаемые от теста панели или позиции, вызвавшей ошибку. Данные, полученные от исправных панелей, сохраняются, если позиция, вызвавшая ошибку, не является позицией нормализатора. Все неисправные позиции автоматически блокируются. Если данная ошибка возникла на нормализаторе, блокируется весь уровень.

ТИП ПРЕДУПРЕЖДЕНИЯ — постоянное — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Проблема в уровне.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Обратитесь к местному представителю компании BD.

E15 UV bulb switched (УФ лампа включена)

ТИП ПРЕДУПРЕЖДЕНИЯ — самоустраняющееся — очищается, когда код предупреждения был отображен на экране «System Alerts» (Системные предупреждения)

ВОЗМОЖНЫЕ ПРИЧИНЫ

Одна из двух:

- 00000001 — задняя ультрафиолетовая лампа
 - 00000002 — передняя ультрафиолетовая лампа
- была включена.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Сообщение является информационным. Включение произошло в результате автоматической настройки источника света.

11. 485 master communication error (Ошибка связи с базой 485)

Произошла ошибка связи, связанная с тестом. Предупреждение выводится в следующем формате:

```
E16      00000001
          00000000
          00000000
          00000000
```

Первая строка ошибки представляет уровень А, вторая строка представляет уровень В, третья строка представляет уровень С, а четвертая строка представляет уровень D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

Прибор игнорирует любые данные, получаемые от теста или сканирования уровня, вызвавшего ошибку. Данные, полученные от исправных уровней, сохраняются. Все позиции на неисправных уровнях автоматически блокируются.

ТИП ПРЕДУПРЕЖДЕНИЯ — постоянное — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Проблемы связи в приборе.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Обратитесь к местному представителю компании BD.

12. Normalizer alert – row averages (Предупреждение нормализатора — средние данные ряда)

Проблема с данными панели нормализатора. Предупреждение выводится в следующем формате:

```
E18      00000001
          00000000
          00000000
          00000000
```

Первая строка ошибки представляет уровень А, вторая строка представляет уровень В, третья строка представляет уровень С, а четвертая строка представляет уровень D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

Во время прохождения теста возникли ошибки нормализатора. Полученные данные могут быть сохранены или удалены, в зависимости от подкода ошибки (см. ниже). Все доступные позиции на неисправном уровне автоматически блокируются, позиции на текущий момент блокируются после окончания теста или извлечения панелей.

ТИП ПРЕДУПРЕЖДЕНИЯ — постоянное — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

- 00000001, 00000002, 00000004, 00000008 — настройка источников света будет выполнена, когда не будет обрабатываемых панелей
- 00000010, 00000020, 00000040, 00000080 — на затронутых уровнях прерываются все тесты, настройка источника света будет выполнена, когда все панели будут завершены или извлечены

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Автоматическая настройка источника света будет произведена, когда в приборе не будет обрабатываемых панелей. Не добавляйте новые панели и не перемещайте обрабатываемые панели на уровень, вызвавший эту ошибку (т. е. на уровень, подкод которого отличается от 00000000). Прибор сможет исправить эту ошибку путем настройки источника света.

Е 19 Passed read position (Пройдено положение чтения)

Один из уровней прошел положение, при котором должно производиться сканирование. Предупреждение выводится в следующем формате:

```
E19      00000000
          00000000
          00000100
          00000000
```

Первая строка ошибки представляет позиции с ошибками на уровне А, вторая строка представляет позиции с ошибками на уровне В, третья строка представляет позиции с ошибками на уровне С, а четвертая строка представляет позиции с ошибками на уровне D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

Прибор игнорирует любые данные, полученные от теста панели или позиции, которые вызвали эту ошибку. Данные, полученные от исправных панелей, сохраняются, если позиция, вызвавшая ошибку, не является позицией нормализатора. Все неисправные позиции автоматически блокируются. Если данная ошибка возникла на нормализаторе, блокируется весь уровень.

ТИП ПРЕДУПРЕЖДЕНИЯ — постоянное — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Оптическая или механическая проблема с прибором.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Обратитесь к местному представителю компании BD.

Е 20 Barcode scanner not communicating (Отсутствует связь со сканером штрих-кода)

ТИП ПРЕДУПРЕЖДЕНИЯ — самоустраняющееся — очищается, когда код предупреждения был отображен на экране «System Alerts» (Системные предупреждения)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Прибор не может связаться со сканером штрих-кода.

00000001 — сканер уровня А

00000002 — сканер уровня В

00000004 — сканер уровня С

00000008 — сканер уровня D

00000010 — внешний сканер

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Во время возникновения этой ошибки не проводилось тестирование уровней, и все позиции уровня автоматически блокируются. Необходимо перезапустить прибор до того, как предупреждение будет очищено.

1.1 Level 2 rotor step warning (Предупреждение уровня 2 о вращении ротора)

Прибор обнаружил, что вращение ротора не идеально, хотя и приемлемо. Предупреждение выводится в следующем формате:

```
E21      00000000
          00000100
          00000000
          00000000
```

Первая строка ошибки представляет позиции с ошибками на уровне А, вторая строка представляет позиции с ошибками на уровне В, третья строка представляет позиции с ошибками на уровне С, а четвертая строка представляет позиции с ошибками на уровне D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

ТИП ПРЕДУПРЕЖДЕНИЯ — постоянное — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Возможная помеха или проблема с поворотным механизмом ротора. Убедитесь, что панель находится в поддерживающем приспособлении, крышка панели закреплена правильно и этикетка пользователя не отклеилась.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Если очевидной причины этой ошибки не обнаружено, свяжитесь с местным представителем компании BD.

1.2 Level 3 rotor step error (Ошибка уровня 3 о вращении ротора)

Прибор обнаружил, что вращение ротора не удовлетворяет техническим требованиям. Предупреждение выводится в следующем формате:

```
E22      00000100
          00000000
          00000000
          00000000
```

Первая строка ошибки представляет позиции с ошибками на уровне А, вторая строка представляет позиции с ошибками на уровне В, третья строка представляет позиции с ошибками на уровне С, а четвертая строка представляет позиции с ошибками на уровне D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

Прибор игнорирует любые данные, полученные от теста панели или позиции, которые вызвали эту ошибку. Данные, полученные от исправных панелей, сохраняются, если позиция, вызвавшая ошибку, не является позицией нормализатора. Все неисправные позиции автоматически блокируются. Если данная ошибка возникла на нормализаторе, блокируется весь уровень.

ТИП ПРЕДУПРЕЖДЕНИЯ — постоянное — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Возможная помеха или проблема с поворотным механизмом ротора. Убедитесь, что панель или крышка панели находится в поддерживающем приспособлении и этикетка не отклеилась.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Если очевидной причины этой ошибки не обнаружено, свяжитесь с местным представителем компании BD.

Normalizer alert – highest/lowest well reading (Предупреждение нормализатора — максимальный / минимальный результат считывания ячейки)

Проблема с панелью данных нормализатора. Предупреждение выводится в следующем формате:

E23	00000001
	00000000
	00000000
	00000000

Первая строка ошибки представляет уровень A, вторая строка представляет уровень B, третья строка представляет уровень C, а четвертая строка представляет уровень D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

Во время прохождения теста обнаружены ошибки нормализатора. Прибор игнорирует любые данные, получаемые от теста или сканирования. Данные, полученные от исправных уровней, сохраняются. Все позиции на неисправных уровнях автоматически блокируются.

ТИП ПРЕДУПРЕЖДЕНИЯ — постоянное — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Проблема с панелью данных нормализатора.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Обратитесь к местному представителю компании BD.

E25 UV bulb error (Ошибка УФ-лампы)

ТИП ПРЕДУПРЕЖДЕНИЯ — самоустраняющееся — очищается, когда код предупреждения был отображен на экране «System Alerts» (Системные предупреждения)

ВОЗМОЖНЫЕ ПРИЧИНЫ

Одна из двух:

- 00000001 — задняя ультрафиолетовая лампа
- 00000002 — передняя ультрафиолетовая лампа

перегорела, и системе не удастся использовать запасную лампу. Система попыталась переключить лампы в результате автоматической настройки источника света.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Для замены УФ-лампы свяжитесь с местным представителем компании BD.

Normalizer Expiration Alert (Предупреждение об истечении срока использования нормализатора)

Прибор выдает предупреждение раз в неделю, когда остается 60 дней до истечения срока использования панели нормализатора, и каждый день, когда остается 30 дней до истечения срока. Предупреждение выводится в следующем формате:

```
E30      00000001
          00000001
          00000001
          00000001
```

Первая строка ошибки представляет нормализаторы уровня А, вторая строка представляет нормализаторы уровня В, третья строка представляет нормализаторы уровня С, а четвертая строка представляет нормализаторы уровня D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

ТИП ПРЕДУПРЕЖДЕНИЯ — самоустраняющееся — очищается, когда код предупреждения был отображен на экране «System Alerts» (Системные предупреждения)

ВОЗМОЖНЫЕ ПРИЧИНЫ

```
00000001
```

- Срок годности панели нормализатора находится в диапазоне от 60 до 30 дней.

```
00000002
```

- Срок годности панели нормализатора меньше 30 дней (но срок еще не вышел).

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

```
00000001, 00000002
```

- ☐ Запланируйте замену панели нормализатора для затронутых уровней до того, как истечет срок их использования (срок годности отображен в отчете «Daily Instrument» [Ежедневный отчет прибора]).

Normalizer Expired (Срок годности нормализатора истек)

Срок годности панели нормализатора истек. Позиции на всех затронутых уровнях блокируются. Тестирование обрабатываемой панели прерывается. Предупреждение выводится в следующем формате:

```
E31      00000001
          00000001
          00000001
          00000001
```

Первая строка ошибки представляет нормализаторы уровня А, вторая строка представляет нормализаторы уровня В, третья строка представляет нормализаторы уровня С, а четвертая строка представляет нормализаторы уровня D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

ТИП ПРЕДУПРЕЖДЕНИЯ — постоянное — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

```
00000001
```

- Срок годности панели нормализатора истек.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

```
00000001
```

- ☐ Немедленно запланируйте замену панели нормализатора.

E34 Update error (Ошибка обновления)

ТИП ПРЕДУПРЕЖДЕНИЯ — самоустраняющееся — очищается, когда код предупреждения был отображен на экране «System Alerts» (Системные предупреждения)

ВОЗМОЖНЫЕ ПРИЧИНЫ

00000001

- Во время выполнения операции «Restore User Data» (Восстановление данных пользователя) произошла ошибка.

00000002

- Во время выполнения операции «Install Panel Configuration» (Установка конфигурации панели) произошла ошибка.

00000004

- Во время установки «Phoenix Update Disk» (Диск обновления Phoenix) количество точек прерывания или различий между точками прерывания превышает 1200.

00000008

- Во время установки «Phoenix Update Disk» (Диск обновления Phoenix) произошла ошибка.

00000010

- Во время выполнения операции «Restore Panel Lot Definition» (Восстановление определения лота панели) произошла ошибка.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

00000001, 00000002, 00000008, 00000010

- ☐ Вернитесь к операции, указанной выше, и повторите ее.

00000004

- ☐ Проверьте точки прерывания на экране «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации). Если количество точек прерывания превышает 1200, все точки прерывания после 1200 удаляются. Эти точки прерывания появились бы в конце списка.

E40 IP Address Network error (Ошибка IP-адреса сети)

Прибору не удалось получить необходимую сетевую информацию.

ТИП ПРЕДУПРЕЖДЕНИЯ — 00000001 — самоустраняющееся — очищается, когда код предупреждения был отображен на экране «System Alerts» (Системные предупреждения), 00000010 — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

- 00000001 — попытка подключить слишком много приборов.
- 00000010 — система BD EpiCenter не запущена или имеет место аппаратная проблема между системами, например, отключен кабель между прибором и рабочей станцией EpiCenter, неисправна сетевая интерфейсная карта в рабочей станции или приборе и т. д.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ 00000001 — не пытайтесь подключить более 28 одинаковых приборов.
- ☐ 00000010 — запустите систему EpiCenter. Найдите очевидный источник проблемы (например, отсоединенный кабель). Если очевидной причины ошибки не обнаружено, свяжитесь с местным представителем компании BD.

E44 LIS communications error (Ошибка связи с системой ЛИС)

Прибору не удалось связаться с присоединенной системой ЛИС.

ТИП ПРЕДУПРЕЖДЕНИЯ — постоянное — очищается, когда а) прибор полагает, что выводимый подкод очищен, и б) код предупреждения был отображен на экране «System Alerts» (Системные предупреждения).

ВОЗМОЖНЫЕ ПРИЧИНЫ

- 00000001 — система ЛИС не запущена или имеет место аппаратная проблема между системами, например, отключен кабель между прибором и системой ЛИС и т. д.
- 00000004 — очередь системы ЛИС заполнена.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ 00000010 — запустите систему ЛИС. Найдите очевидный источник проблемы (например отсоединенный кабель). Если очевидной причины ошибки не обнаружено, свяжитесь с местным представителем BD.
- ☐ 00000004 — подождите, пока система ЛИС выполнит обработку ожидающих данных от системы Phoenix, прежде чем передавать дополнительные данные.

E50 Internal software error (Внутренняя ошибка программного обеспечения)

ТИП ПРЕДУПРЕЖДЕНИЯ — самоустраняющееся — очищается, когда код предупреждения был отображен на экране «System Alerts» (Системные предупреждения)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- В системе произошла ошибка программного обеспечения.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Запишите данные на диск (см. раздел 7.3) и свяжитесь с местным представителем компании BD.

E99 Memory Error (Ошибка памяти)

ТИП ПРЕДУПРЕЖДЕНИЯ — самоустраняющееся — очищается, когда код предупреждения был отображен на экране «System Alerts» (Системные предупреждения)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Программному обеспечению прибора не хватает памяти.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Обратитесь к местному представителю компании BD.

W100 Invalid Panel Sequence Number (Неправильный порядковый номер панели)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Введенный или считанный сканером порядковый номер панели не удовлетворяет необходимому формату номера.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Штрих-код порядкового номера панели расположен в верхней части реакционной стороны панели. Считайте сканером или введите правильный порядковый номер панели. Проверьте коробку панели на наличие штрих-кодов обновления панели; если они присутствуют, см. раздел 4.15 «Установка новых форматов панелей».

W101 Missing Panel Sequence Number (Отсутствует порядковый номер панели)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Была осуществлена попытка запуска операции (найти, удалить, печать и т. д.), но значение в поле панели **Sequence #** (Порядковый №) не указано.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Введите или считайте сканером правильный порядковый номер панели перед повторной попыткой запуска операции.

W102 Unknown Panel Sequence Number (Неизвестный порядковый номер панели)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Была выполнена попытка сохранения или выбора порядкового номера панели, которого нет в базе данных системы Phoenix.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Убедитесь, что был введен правильный порядковый номер панели. Если ошибка повторяется, возможно, необходимо выполнить регистрацию панели, если эта панель новая. Старые, завершенные и обработанные панели со временем удаляются из базы данных.

W200 Invalid Accession Number (Неправильный номер образца)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Была выполнена попытка сохранить, найти или распечатать информацию для неправильного номера образца.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Введите правильный номер образца, до 20 символов, за исключением: * ? [] ! # |

W201 Missing Accession Number (Отсутствует номер образца)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Была осуществлена попытка запуска операции (найти, сохранить, печать и т. д.), но значение в поле **Accession #** (Образец №) было неверно или пусто. Сюда также входят: запись с действительным значением «Sequence #» (Порядковый №) для панели и значением «Isolate #» (Культура №) больше 1, а значение «Accession #» (Образец №) отсутствует; отдельная панель только со значением поля «Isolate #» (Культура №); попытка изменения поля записи «Accession #» (Образец №) на пустое и т. д.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Введите или считайте сканером правильный номер образца перед повторной попыткой запуска операции.

W202 Unknown Accession Number (Неизвестный номер образца)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Была выполнена попытка найти данные или распечатать отчет для номера образца, отсутствующего в базе данных системы Phoenix.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Убедитесь, что введен правильный номер образца. Если ошибка повторяется, возможно, необходимо выполнить регистрацию записи, если эта запись новая. Старые, завершенные и обработанные записи со временем удаляются из базы данных.

W203 Missing Isolate Number (Отсутствует номер культуры)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Была выполнена попытка сохранить запись, когда номер образца существует без номера культуры.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Для сохранения записи, если введен номер образца, необходимо ввести номер культуры.

W204 Missing Media Type (Отсутствует тип питательной среды)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Была выполнена попытка сохранения панели Yeast ID (Идентификация дрожжей) во время входа в панель, но не был указан тип питательной среды.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Для сохранения записи, если был введен порядковый номер панели Yeast ID (Идентификация дрожжей), необходимо выбрать тип питательной среды.

W300 Missing Test Strain for a QC Panel (Отсутствует тестовый штамм для панели контроля качества)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Была выполнена попытка сохранить панель контроля качества с отсутствующей идентификацией микроорганизма (**Test Strain** (Тестовый штамм)).

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Необходимо выбрать микроорганизм (**Test Strain** (Тестовый штамм)) для сохранения панели контроля качества. Перейдите к полю **Test Strain** (Тестовый штамм) с помощью программной клавиши «табуляция» и нажмите клавишу СТРЕЛКА ВНИЗ для вывода списка доступных тестовых штаммов. Используйте клавиши СТРЕЛКА ВВЕРХ и СТРЕЛКА ВНИЗ для перехода к нужному микроорганизму. Нажмите программную клавишу «выбрать» для выбора выделенного микроорганизма.

W301 Missing Tech ID for a QC Panel (Отсутствует идентификация техника для панели контроля качества)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Была выполнена попытка сохранения панели контроля качества с отсутствующей идентификацией техника.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Для сохранения панели контроля качества необходимо ввести идентификацию техника. Перейдите к полю **Tech ID** (Идентификация техника) с помощью программной клавиши «табуляция» и введите значение идентификации техника, состоящее из 3 (максимум) буквенно-цифровых символов, за исключением: * ? [] ! # |

W302 Invalid Tech ID (Неправильная идентификация техника)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Была выполнена попытка сохранения панели контроля качества с неправильной идентификацией техника.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Для идентификации техника введите до 3 буквенно-цифровых символов, за исключением: * ? [] ! # |.

W303 Invalid Lot Number (Неправильный номер лота)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Была выполнена попытка сохранения записи или печати отчета с неправильным номером лота панели, номером лота бульона идентификации, номером лота бульона теста чувствительности или номером лота индикатора.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Введите правильный номер лота. Длина номера лота не должна превышать 7 символов. Номер лота указан на коробке изделия.

W304 Missing Lot Number (Отсутствует номер лота)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Была выполнена попытка сохранить или распечатать отчет для панели контроля качества с отсутствующим номером лота панели или срок годности был введен для одного из дополнительных полей номера лота («ID Broth» (Бульон идентификации), «AST Broth» (Бульон теста чувствительности), «Indicator» (Индикатор)) без указания соответствующего номера лота.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Для сохранения панели контроля качества необходимо ввести номер лота панели. Перейдите к полю **Panel Lot # (Лот панели №)** с помощью программной клавиши «табуляция» и введите номер лота (максимум 7 цифр). Номер лота указан на коробке панели.
- ☐ При вводе срока годности для одного из дополнительных полей номера лота необходимо также ввести соответствующий номер лота.

W305 ID or AST Must be Enabled (Идентификация или проверка чувствительности должна быть включена)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Была выполнена попытка сохранения панели или панели контроля качества, когда оба флажка «ID» (Идентификация) и «AST» (Проверка чувствительности) были очищены.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Флажки **ID/AST (Идентификация/Проверка чувствительности)** устанавливаются или снимаются в зависимости от типа панели в соответствии с порядковым номером панели. При очистке одного из флажков отключается соответствующий тип тестирования. Для сохранения записи панели и выполнения тестирования необходимо, чтобы хотя бы один флажок был установлен.

W401 Can Not Perform Panel Locate (Не удается выполнить определение панели)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Определяемая панель находится не в приборе или не удается получить доступ к прибору с помощью функции «Normalizer Panel Replacement» (Замена панели нормализатора) (например, присутствуют обрабатываемые панели).

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Убедитесь, что введен правильный порядковый номер панели или, что к прибору можно получить доступ (во время выполнения функции «Normalizer Panel Replacement» (Замена панели нормализатора) обрабатываемые панели делают прибор недоступным для этой функции).

W500 Upgrade Error (Ошибка обновления)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Дискета в дисковом диске не содержит доступной для чтения такой же или новой версии программного обеспечения прибора. Причинами могут служить: более старая версия программного обеспечения на дискете, дискета была извлечена до окончания обновления, дискета содержит поврежденный файл или файл отсутствует и т. д.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Убедитесь, что на этикетке дискеты напечатана правильная версия (текущая или более поздняя). Попробуйте еще раз выполнить операцию обновления. Если ошибка повторяется, обратитесь к местному представителю компании BD.

W501 Duplicate Instrument Number (Дублирование номера прибора)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Была выполнена попытка изменения номера прибора так, что он совпадает с номером другого прибора. (Такое может произойти только в том случае, если подключена система EpiCenter.)

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Номер прибора должен быть уникальным. Введите уникальный номер прибора.

W502 Diskette Error (Ошибка дискеты)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Дисковому не удастся прочитать дискету. Причинами могут служить: отсутствие дискеты в приводе; не отформатированная дискета в приводе; дискета была неправильно вставлена в дисковод; нет или не осталось свободного места на дискете; дискета защищена от записи; дискета была извлечена до окончания операции; неисправный дисковод.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Вставьте дискету защелкой вперед, этикеткой вверх. Для сохранения на дискету: она должна быть отформатирована, не защищена от записи, на ней должно присутствовать достаточно свободного места для сохраняемой информации, и она должна оставаться в приводе до окончания операции.

W503 Duplicate Rule (Дублирование правила)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- При определении пользовательских правил данные, содержащиеся в полях **Antimicrobial** (Противомикробный препарат), **Org(anism) Group** (Группа микроорганизмов) и **Organism** (Микроорганизм) для сохраняемого правила являются такими же, как и для другого ранее определенного правила в этом наборе правил.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Один из параметров («Antimicrobial» (Противомикробный препарат), «Organism Group» (Группа микроорганизмов) или «Organism» (Микроорганизм)) должен быть уникальным для сохраняемой **записи**.

W504 Can Not Change Parameter / Ongoing Panels (Не удается изменить параметр или обрабатываемые панели)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Была выполнена попытка сохранения изменений полей **Current Date** (Текущая дата) или **Current Time** (Текущее время) в конфигурации прибора, и в приборе присутствовали обрабатываемые панели.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Прежде чем выполнять операцию дождитесь завершения обработки всех панелей в приборе.

W505 Ineligible For Usage Modification (Непригодное для использования изменение)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- На экране «Maintenance» (Техническое обслуживание) была выполнена попытка вызова функции «Modify Panel Usage» (Изменение использования панели), но панель недоступна для модификации. Для модификации доступны только комбинированные незанятые панели с включенными параметрами идентификации и проверки чувствительности.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Если был введен неправильный порядковый номер панели, введите правильный. В противном случае использование панели нельзя будет изменить.

W506 Instrument Not Idle (Прибор не в режиме ожидания)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Была выполнена попытка считывания файлов источника света или сохранения системного журнала с дискеты или на нее или в сеть, и прибор не находился в режиме ожидания (т. е. он тестировался, сканирование инвентаризации длилось меньше 30 секунд, разогревался и т. д.), или поворотный механизм застопорился.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Перед выполнением этого действия подождите, пока прибор перейдет в состояние ожидания (или устраните заедание поворотного механизма).

W507 Invalid Password (Неправильный пароль)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Для доступа к экрану «Configuration» (Конфигурация) был введен неправильный пароль или пароль не был введен.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Введите правильный пароль (ECOLI) и нажмите программную клавишу «выполнить действие».

W510 Invalid Time Zone (Неправильный часовой пояс)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- В конфигурации прибора была выполнена попытка сохранить параметр «Time Zone Offset» (Настройка часового пояса) больше чем +12 часов или меньше чем –12 часов.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Действительное значение параметра «Time Zone Offset» (Настройка часового пояса) должно быть между –12:00 и +12:00 часами

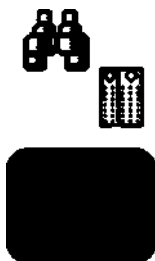
W600 Panel Can Not Be Deleted (Не удается удалить панель)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Была выполнена попытка удалить панель, которая физически находится в приборе, или не находящуюся в очереди панель контроля качества, которая физически не находится в приборе (если включена поддержка лота контроля качества).

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Извлеките панель из прибора, прежде чем удалять ее. Можно использовать программную клавишу «найти панель» (ниже), чтобы можно было получить доступ к панели при открывании двери поворотным механизмом.



- ☐ Если Вы уверены, что уже извлекли панель, закройте дверь прибора и позвольте ему завершить сканирование инвентаризации перед началом удаления панели.

W601 Cannot Finalize (Не удается обработать)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Была выполнена попытка обработки панели, состояние которой не было установлено как «Removable» (Сменная) или которая имеет набор флагов «Needs Attention» (Требуется внимания), которые не помечены для игнорирования.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Если состояние панели — «Ongoing» (Обрабатывается), подождите, пока состояние не изменится на «Removable» (Сменная) перед ее обработкой. Если панель имеет флаги «Needs Attention» (Требуется внимания), разрешите эту проблему перед попыткой обработки панели.

W602 Invalid Date (Неправильная дата)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Была выполнена попытка сохранить запись или распечатать отчет, содержащий неправильную дату. Возможно, был считан штрих-код лота панели, содержащий недействительный срок годности.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Информацию о правильном вводе данных см. в разделе 5 «Справочная информация».

W603 Database Underwrite (Ошибка записи базы данных)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Была выполнена попытка сохранить отображаемую информацию, но база данных была изменена другим процессом, например, процессом сканирования инвентаризации, процессом загрузки из системы EpiCenter или ЛИС и т. д.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Повторно вызовите информацию, внесите необходимые изменения и сохраните информацию.

W604 Panel Still Testing (Панель все еще тестируется)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Была выполнена попытка сохранить значение «Final ID» (Итоговая идентификация) в панели идентификации или комбинированной панели, которая не сообщила прибору идентификацию микроорганизма.
- Была сделана попытка выполнить операцию «Read Light Source from Disk» (Чтение источника света с дискеты).

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ «Final ID» (Итоговая идентификация) не может быть выбрана и сохранена до получения результатов идентификации прибора. Перед попыткой выбрать «Final ID» (Итоговая идентификация) подождите, пока прибор рассчитает идентификацию.
- ☐ Прежде чем выполнять операцию дождитесь обработки всех панелей.

W605 Invalid Date Range (Неправильный диапазон даты)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- В отчете была указана дата, превышающая текущую системную дату, или был введен диапазон даты, превышающий 30 дней.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Указывайте дату, которая не превышает текущую системную дату.
- ☐ При вводе диапазона не превышайте диапазон в 30 дней.

W606 Cannot Modify Data for a Finalized Panel (Не удается изменить дату для обработанной панели)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Информация для панели, которая была обработана, вызвана и изменена. Изменения обработанной панели не могут быть сохранены.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Если информация для обработанной панели должна быть изменена, вызовите панель и очистите флажок «Finalize» (Обработана). Внесите необходимые изменения и сохраните информацию.

W607 Missing Date (Дата отсутствует)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Была выполнена попытка сохранить панель без срока годности номера лота панели или без срока годности для других полей номеров лота при условии, что номера лота панели были введены.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Для панелей необходимо ввести действительный срок годности номера лота панели. Если другие поля номера лота заполнены, должны быть введены сроки годности, соответствующие им.

W608 Improper Barcode Scan (Ошибка сканирования штрих-кода)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Считываемый номер штрих-кода превышает длину активного поля или тип штрих-кода не соответствует типу для данного поля (например, производится считывание номера лота в поле не для номера лота).

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Проверьте, какое поле в данный момент активно, и считывание какого типа штрих-кода выполняется. Информацию о длине полей см. в разделе 5 «Справочная информация».

W609 Database Full (База данных заполнена)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Была выполнена попытка регистрации новой панели, но в базе данных прибора уже существует 100 панелей, ожидающих записи, и ни одна из панелей недоступна для удаления.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Панели, находящиеся в ожидании, необходимо поместить в прибор и позволить завершить сканирование инвентаризации до начала регистрации новых панелей.

W700 Invalid LIS Code (Неправильный код ЛИС)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- На экране «Organism Configuration» (Конфигурация микроорганизмов) или «Antimicrobial Configuration» (Конфигурация противомикробных препаратов) был введен неправильный код ЛИС.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Длина кодов ЛИС не может превышать 20 буквенно-цифровых символов.

W701 Duplicate LIS Code (Дублирование кода ЛИС)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- На экране «Organism Configuration» (Конфигурация микроорганизмов) или «Antimicrobial Configuration» (Конфигурация противомикробных препаратов) был введен дублированный код ЛИС.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Коды ЛИС должны быть уникальны в системе.

W702 Invalid LIS Association (Неправильное объединение ЛИС)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Во время регистрации панели при объединении загружаемых записей заказов ЛИС была выполнена попытка объединить запись заказа, содержащую идентификацию микроорганизма, с панелью идентификации или с комбинированной панелью, либо попытка объединить запись заказа, содержащую идентификацию микроорганизма, с панелью контроля качества, либо попытка объединить запись заказа, содержащую тестовый штамм, с панелью, не являющейся панелью контроля качества.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Нельзя объединить идентификацию микроорганизма с панелью идентификации Phoenix или комбинированной панелью или с панелью контроля качества; также нельзя объединить тестовый штамм с панелью, не являющейся панелью контроля качества.

W800 Panel Lot Undefined (Лот панели не определен)

ВОЗМОЖНЫЕ ПРИЧИНЫ

- Была выполнена попытка регистрации панели контроля качества, но порядковый номер панели находится за пределами диапазона определенного или сохраненного лота панели.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Если в конфигурации включена поддержка лота проверки качества, все панели контроля качества принадлежат к определенному или сохраненному лоту панелей. Клинические панели могут принадлежать к неопределенному лоту панели и в них можно выполнить вход, хотя такие панели будут создавать условие, что неопределенный лот панели требует внимания.

W801 Panel Lot Range Incomplete (Диапазон лота панелей не завершен)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Во время определения лота панелей была выполнена попытка сохранения лота панелей, но одно или оба поля порядкового номера панели были пусты.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Начальный порядковый номер (низший) и конечный порядковый номер (высший) должны быть считаны сканером для каждого лота панелей, который необходимо сохранить. Порядковые номера могут считываться в любом порядке, но важно считать **оба** порядковых номера. Нельзя ввести порядковый номер на экране «Panel Lot Definition» (Определение лота панелей).

W802 Panel Lot Range Invalid (Неправильный диапазон лота панелей)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Во время определения лота панелей была выполнена попытка сохранить лот панели, но две сканируемые панели были различных типов.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Для сохранения лота обе панели должны быть одного типа.

W803 Panel Lot Range Conflict (Конфликт диапазона лота панелей)**ВОЗМОЖНЫЕ ПРИЧИНЫ**

- Во время определения лота панелей была выполнена попытка сохранения лота панелей, но один или оба порядковых номера панелей конфликтуют с существующим определением лота панелей.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ

- ☐ Порядковый номер панели может принадлежать только одному определенному или сохраненному лоту. Свяжитесь с местным представителем компании BD.

7.3 Функция «Save System Data to Disk» (Сохранение системных данных на диске)

При определенных обстоятельствах BD советует сохранять (записывать) системные данные на дискету. Эти обстоятельства включают некоторые ошибки и неисправности системы. Функция «Save System Data» (Сохранение системных данных) — это не резервная копия, и эти данные не могут быть восстановлены пользователем. Порядок сохранения данных на диск:

- 1 Нажмите программную клавишу «конфигурация».

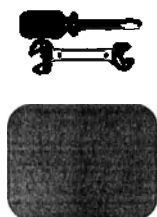


- 2 Появится окно пароля. Для доступа к функциям конфигурации введите требуемый пароль, затем

нажмите программную клавишу «выполнить действие».



- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».



- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «SAVE SYSTEM DATA TO DISK» (СОХРАНЕНИЕ СИСТЕМНЫХ ДАННЫХ НА ДИСКЕ).
- 5 Вставьте в дисковод пустую, отформатированную, доступную для записи дискету.
- 6 Нажмите программную клавишу «выполнить действие».



- 7 Во время записи информации на дискету появляется значок песочных часов.



- 8 В случае необходимости дополнительных дисков система отобразит следующий значок:



Извлеките дискету и вставьте другую пустую, отформатированную, доступную для записи дискету.

- 9 По завершении действий звучит сигнал «действие выполнено», и значок песочных часов исчезает. Убедитесь, что индикатор дисковода не горит, затем извлеките дискету, нажав кнопку извлечения диска. Если дискет несколько, пронумеруйте их и укажите дату и название лаборатории на этикетке.

7.4 Функция «Save Syslog to Disk» (Сохранение системного журнала на диске)

При определенных обстоятельствах BD советует сохранять (записывать) системный журнал на дискету. Эти обстоятельства включают некоторые ошибки и неисправности системы. Функция «Save Syslog» (Сохранение системного журнала) копирует системный журнал событий, который содержит зарегистрированные системные сообщения о различных событиях системы, прибора и связи. Для сохранения системного журнала дверь прибора должна быть закрыта, и прибор должен находиться в ожидании.

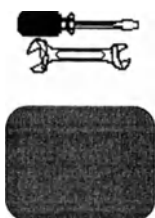
- 1 Нажмите программную клавишу «конфигурация».



- 2 Появится окно пароля. Для доступа к функциям конфигурации введите требуемый пароль, затем нажмите программную клавишу «выполнить действие».



- 3 На основном экране «Configuration» (Конфигурация) нажмите программную клавишу «техническое обслуживание».

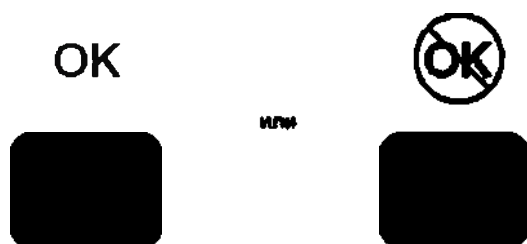


- 4 Нажмите клавишу СТРЕЛКА ВВЕРХ или СТРЕЛКА ВНИЗ, чтобы выделить «SAVE SYSLOG TO DISK» (СОХРАНЕНИЕ СИСТЕМНОГО ЖУРНАЛА НА ДИСКЕ).
- 5 Вставьте в дисковод пустую, отформатированную, доступную для записи дискету.

- 6 Нажмите программную клавишу «выполнить действие».



- 7 Система спросит, действительно ли Вы хотите сохранить системный журнал. Нажмите программную клавишу «подтвердить» для продолжения или «отмена» для отмены операции.



- 8 Во время записи информации на диск появляется значок песочных часов и сообщение «Saving Data» (Сохранение данных).



- 9 По завершении действий звучит сигнал «действие выполнено», и значок песочных часов исчезает. Убедитесь, что индикатор дисководов не горит, затем извлеките дискету, нажав кнопку извлечения диска.

8 – Характеристики и ограничения

8.1 Характеристики работы системы

Определения:

Существенное совпадение (СС): существенное совпадение наблюдается, когда результаты теста MIC системы Phoenix и теста с микроразбавлением бульона CLSI совпадают или различаются не более чем на ± 1 разбавление.

Категориальное совпадение (КС): категориальное совпадение наблюдается, когда результаты теста MIC системы Phoenix и теста с микроразбавлением бульона CLSI различаются не более чем на ± 1 разбавление, учитывая категориальные критерии интерпретации CLSI.

8.1.1 Эффективность работы с грамотрицательными бактериями

Идентификация грамотрицательных бактерий

Эффективность идентификации грамотрицательных бактерий системы Phoenix была измерена с помощью двух внутренних исследований. Значения плотности посева 0,5 и 0,25 были протестированы с 721 штаммом (для значения 0,5) и 784 штаммами (для значения 0,25). Культуры брюшного и не брюшного типа оценивались коммерческими и некоммерческими методами.

Результаты идентификации грамотрицательных бактерий системы Phoenix приведены ниже:

	Плотность посева (McFarland)	Совпадение	Отсутствие Свпадения	Отсутствие идентификации
Уровень рода	0,5	97,3 %	2,1 %	0,6 %
	0,25	98,5 %	1,0 %	0,5 %
Уровень вида	0,5	95,6 %	3,6 %	0,8 %
	0,25	98,1 %	1,4 %	0,5 %

Чувствительность грамотрицательных бактерий

ПРОТИВОМИКРОБНЫЙ ПРЕПАРАТ	КОД	СС N	СС %	КС N	КС %
Азтреонам	ATM	848	96,7	967	97,3
Амикацин	AN	974	94,3	974	99,2
Амоксициллин	AMX	725	95,9	839	96,9
Амоксициллин-клавуланат	AMC	636	97,8	749	97,1
Амоксициллин-клавуланат (f)	AXC	364	96,4	411	97,6
Ампициллин	AM	639	97,5	753	98,0
Ампициллин-сульбактам	SAM	848	96,8	962	96,9
Ампициллин-сульбактам (f)	SXA	1682	92,3	1682	94,5
Арбекацин	ARB	2083	94,1	2083	99,2
Гаренохацин	GRN	1977	98,1	1977	99,4
Гатифлоксацин	GAT	752	99,5	752	99,6
Гемифлоксацин	GEM	2096	98,6	2096	99,0
Гентамицин	GM	973	95,8	973	99,8
Имипенем	IPM	975	95,0	975	98,9
Исепамыцин	ISP	468	93,8	468	99,4
Канамицин	K	735	95,8	735	99,9
Колистин	CL	467	91,0	467	98,7
Левифлоксацин	LVX	972	99,6	972	100,0
Ломефлоксацин	LOM	976	99,1	976	99,6
Меропенем	MEM	969	98,7	969	99,4
Мециллин	MEC	345	95,7	345	94,8
Миноциклин	MI	2094	93,8	2094	98,3
Моксалактам	MOX	2063	96,9	2063	98,3
Моксифлоксацин	MXF	746	98,5	747	99,7
Налидиксовая кислота	NA	750	94,0	750	99,1
Нетилмицин	NET	974	96,7	974	99,3
Нитрофурантоин	FM	744	98,4	744	98,8
Норфлоксацин	NOR	976	98,9	976	99,6
Офлоксацин	OFX	971	99,3	971	99,7
Пефлоксацин	PEF	469	98,5	469	99,4
Пиперациллин	PIP	860	94,7	973	97,1
Пиперациллин-тазобактам	TZP	856	92,9	970	96,2
Темоциллин	TEM	1410	96,1	1410	98,9
Тетрациклин	TE	975	95,6	975	98,5

ПРОТИВОМИКРОБНЫЙ ПРЕПАРАТ	КОД	СС N	СС %	КС N	КС %
Тигециклин	TGC	1428	97,1	1110	96,7
Тицарциллин	TIC	859	94,8	973	97,8
Тицарциллин-клавуланат	TIM	495	92,7	557	94,6
Тобрамицин	NN	977	94,2	977	99,4
Триметоприм	TMP	752	96,0	752	99,6
Триметоприм-сульфаметоксазол	SXT	976	95,5	976	97,3
Триметоприм-сульфат (DIN)	STG	463	97,8	463	97,8
Фосфомицин	FF	446	93,0	446	96,9
Хлорамфеникол	C	978	97,7	978	98,7
Цефазолин	CZ	634	97,0	752	97,1
Цефалексин	CN	319	97,8	366	96,5
Цефалотин	CF	613	98,0	731	98,5
Цефдинир	CDR	633	92,7	747	94,5
Цефдиторен	CDN	1270	97,2	1270	98,4
Цефепим	FEP	858	95,7	974	97,0
Цефетамет	CAT	629	96,0	746	97,7
Цефиксим	CFM	1454	96,7	1454	98,1
Цефметазол	CMZ	608	94,7	718	96,4
Цефокситин	FOX	628	96,7	748	97,6
Цефоперазон	CFP	854	95,1	972	97,7
Цефоперазон-сульбактам	SCP	1921	93,1	1921	96,0
Цефотаксим	CTX	849	96,9	970	97,2
Цефотетан	CTT	627	96,2	748	96,4
Цефотиам	CFT	1428	94,9	1428	97,6
Цефпиром	CPO	846	96,2	964	97,0
Цефподоксим	CPD	616	94,5	737	97,0
Цефсулодин	CFS	55	98,2	56	98,2
Цефтазидим	CAZ	848	95,9	969	97,5
Цефтибутен	CTB	590	90,5	708	95,9
Цефтизоксим	ZOX	854	97,3	971	97,2
Цефтриаксон	CRO	847	95,0	968	96,7
Цефуроксим	CXM	623	97,0	744	98,5
Ципрофлоксацин	CIP	977	99,4	977	99,7
Эртапенем*	ETP	1381	98,8	1381	99,6

* Возможность обнаружения устойчивости неизвестна

8.1.2 Эффективность работы с грамположительными бактериями

Идентификация грамположительных бактерий

Эффективность идентификации грамположительных бактерий системы Phoenix была измерена с помощью двух внутренних исследований. Значения плотности посева 0,5 и 0,25 были протестированы с 696 штаммами (для значения 0,5) и 755 штаммами (для значения 0,25). Результаты сравнивали с результатами коммерческих и некоммерческих методов.

Результаты идентификации грамположительных бактерий системы Phoenix приведены ниже:

	Плотность посева (McFarland)	Совпадение	Отсутствие совпадения	Отсутствие идентификации
Уровень рода	0,5	99,1 %	0,3 %	0,6 %
	0,25	99,6 %	0,0 %	0,4 %
Уровень вида	0,5	95,4 %	3,9 %	0,7 %
	0,25	98,0 %	1,6 %	0,4 %

Чувствительность грамположительных бактерий

ПРОТИВОМИКРОБНЫЙ ПРЕПАРАТ	КОД	СС N	СС %	КС N	КС %
Азитромицин	AZM	702	95,7	702	97,7
Амикацин	AN	487	95,7	487	95,7
Амоксициллин	AMX	395	90,6	659	97,1
Амоксициллин-клавуланат	AMC	180	97,8	446	97,6
Амоксициллин-клавуланат (f)	AXC	397	96,8	664	97,6
Ампициллин	AM	402	94,0	667	98,7
Ампициллин-сульбактам	SAM	179	96,7	445	97,1
Ампициллин-сульбактам (f)	SXA	1449	94,6	1449	95,2
Арбекацин*	ARB	973	96,2	973	99,9
Ванкомицин	VA	702	99,3	702	99,9
Высокоактивный мупироцин	MUH	968	100,0	968	99,9
Гаренохацин	GRN	1212	97,1	1212	99,0
Гатифлоксацин	GAT	481	98,8	481	100,0
Гемифлоксацин	GEM	1400	96,2	1400	97,4
Гентамицин	GM	487	98,4	487	99,2
Гентамицин-син	GMS			210	100,0
Гентамицин-син (SFM)	GMF			87	100,0
Даптомицин*	DAP	1361	97,6	1361	99,8
Доксициклин	D	1211	96,5	1211	99,8
Имипенем	IPM	185	100,0	448	97,5
Канамицин	K	463	92,2	464	97,4

ПРОТИВОМИКРОБНЫЙ ПРЕПАРАТ	КОД	СС N	СС %	КС N	КС %
Канамицин-синергизм	KS	501	100,0	501	96,6
Кларитромицин	CLR	485	96,3	485	98,1
Клиндамицин	CC	703	98,2	703	98,3
Куинупристин-далфопристин	SYN	704	97,2	704	97,6
Левифлоксацин	LVX	698	96,9	698	98,6
Линезолид	LZD	474	99,4	474	100
Линкомицин	L	696	98,3	696	98,7
Ломефлоксацин	LOM	486	97,7	486	99,2
Меропенем	MEM	185	98,4	447	97,5
Миноциклин	MI	1448	98,5	1448	99,2
Моксалактам	MOX	935	95,9	935	96,0
Моксифлоксацин	MXF	486	99,0	486	99,6
Мупиноцин	MUP	938	96,6	938	99,7
Нетилмицин	NET	488	93,9	488	96,3
Нитрофурантоин	FM	707	98,3	707	98,3
Норфлоксацин	NOR	674	96,0	674	97,8
Оксациллин	OX	449	95,8	449	97,8
Офлоксацин	OFX	487	99,2	488	99,8
Пенициллин	P	401	96,0	662	98,0
Пефлоксацин	PEF	706	97,9	706	98,0
Пиперацillin	PIP	382	81,7	639	98,0
Пиперацillin-тазобактам	TZP	386	100,0	649	98,3
Пристинамицин	PR	695	93,2	695	95,5
Рифампин	RA	700	84,0	700	88,3
Стрептомицин-син	STS			210	100,0
Стрептомицин-син (SFM)	STF			87	98,8
Тейкопланин	TEC	671	97,6	671	99,4
Телитромицин	TEL	898	97,3	898	98,9
Тест устойчивости к индуцибельным макролидам (iMLSB)				295	97,6
Тетрациклин	TE	707	96,3	707	98,6
Тицарциллин	TIC	395	95,4	659	98,2
Тицарциллин-клавуланат	TIM	396	97,5	656	97,9
Тобрамицин	NN	473	97,0	473	97,3

ПРОТИВОМИКРОБНЫЙ ПРЕПАРАТ	КОД	СС N	СС %	КС N	КС %
Триметоприм	TMP	479	95,4	479	97,9
Триметоприм-сульфаметоксазол	SXT	654	89,5	654	93,0
Триметоприм-сульфат (DIN)	STG	645	91,0	646	92,7
Фосфомицин	FF	472	97,0	472	98,3
Фузидовая кислота	FA	477	96,7	477	99,0
Хлорамфеникол	C	705	92,8	705	95,3
Цефазолин	CZ	180	97,2	441	97,5
Цефаклор	CEC	182	91,8	449	95,6
Цефалексин	CN	185	90,3	452	97,4
Цефалотин	CF	182	97,8	441	97,3
Цефдинир	CDR	182	94,5	434	96,8
Цефдиторен	CDN	944	96,2	944	97,8
Цефепим	FEP	181	97,2	446	97,6
Цефметазол	CMZ	174	96,5	430	97,2
Цефозопран	CFZ	1130	89,8	1130	89,6
Цефокситин	FOX	184	96,2	445	97,5
Цефоперазон	CFP	184	95,7	447	97,8
Цефотаксим	CTX	185	96,2	446	97,8
Цефотетан	CTT	183	94,5	439	96,6
Цефотиам	CFT	965	91,5	965	94,0
Цефпиром	CPO	183	100,0	446	97,5
Цефподоксим	CPD	185	91,4	451	95,6
Цефтазидим	CAZ	183	95,1	448	97,1
Цефтизоксим	ZOX	184	93,5	447	96,2
Цефтриаксон	CRO	184	95,4	447	97,3
Цефуросим	CXM	184	94,6	447	98,2
Ципрофлоксацин	CIP	686	96,4	686	97,4
Эритромицин	E	474	95,4	474	95,8
Эртапенем	ETP	670	91,6	670	95,4

* Возможность обнаружения устойчивости неизвестна

8.1.3 Эффективность работы со стрептококками (с панелями Phoenix SMIC/ID и SMIC)

Идентификация стрептококков (только SMIC/ID)

Эффективность идентификации стрептококков системы Phoenix была измерена с помощью внутреннего исследования. Результаты для 655 культур сравнивали с результатами коммерческих и некоммерческих методов.

Результаты идентификации стрептококков системы Phoenix приведены ниже:

	Совпадение	Отсутствие совпадения	Отсутствие идентификации
Уровень вида	96,3 %	2,4 %	1,2 %

Чувствительность стрептококков

Эффективность системы Phoenix Streptococci AST была оценена в четырех клинических лабораториях при использовании клинических культур. Сравнивались результаты AST, полученные из панелей тестов с микроразбавлением бульона, подготовленных в соответствии с требованиями стандарта CLSI. Противоречащие результаты исправлялись в результате повторного тестирования в обеих системах.

ПРОТИВОМИКРОБНЫЙ ПРЕПАРАТ*	КОД	СС N	СС %	КС N	КС %
Амоксициллин	AMX	1563	99,2	1572	99,7
Амоксициллин-клавуланат	AMC	1531	97,9	1553	99,3
Ампициллин	AM	1537	98,0	1560	99,4
Ванкомицин*	VA	1559	98,2	1586	99,9
Гаренохацин*	GRN	1447	95,5	1511	99,7
Гатифлоксацин	GAT	1510	95,1	1579	99,5
Гемифлоксацин*	GEM	1575	98,9	1587	99,7
Гентамицин-син	GMS	1029	99,6	1028	99,6
Даптомицин	DAP	1458	93,1	1564	99,9
Имипенем	IPM	1553	98,2	1574	99,6
Канамицин-син	KS	1028	99,6	1028	99,6
Клиндамицин	CC	1495	94,0	1550	97,4
Куинупристин-далфопристин*	SYN	1539	97,3	1577	99,7
Левифлоксацин	LVX	1555	97,4	1592	99,8
Линезолид	LZD	1537	97,2	1576	99,6
Меропенем	MEM	1538	97,4	1574	99,7
Моксифлоксацин*	MXF	1523	95,8	1584	99,6
Офлоксацин	OFX	1565	98,2	1574	98,7
Пенициллин	P	1489	93,9	1562	98,5
Пристинамицин*	PR	1501	94,8	1580	99,8

ПРОТИВОМИКРОБНЫЙ ПРЕПАРАТ	КОД	СС N	СС %	КС N	КС %
Стрептомицин-син	STS	1030	99,9	1030	99,9
Тейкопланин*	TEC	1590	99,8	1592	99,9
Телитромицин*	TEL	1509	95,9	1550	98,5
Тетрациклин	TE	1482	93,3	1551	97,6
Триметоприм-сульфаметоксазол	SXT	1008	93,8	991	98,3
Хлорамфеникол	C	1545	97,4	1581	99,6
Цефелим	FEP	1534	97,6	1566	99,7
Цефотаксим	CTX	1554	98,5	1572	99,6
Цефтриаксон	CRO	1556	98,5	1576	99,8
Цефуросим	CXM	1544	97,7	1562	98,8
Эритромицин	E	1469	93,2	1548	98,2
Эртапенем	ETP	1551	97,9	1578	99,6

* Возможность обнаружения устойчивости неизвестна

8.1.4 Идентификация вида дрожжей

Чтобы определить эффективность идентификации дрожжей в системе Phoenix, были проведены тесты в нескольких учреждениях с использованием чистых колоний, выделенных из декстрозного агара Сабура(SAB) и триптиказо-соевого агара с 5 % бараньей крови (TSA). Результаты для 519 (SAB) и 510 (TSA) клинических и экспериментальных изолятов сравнивали с результатами традиционных и молекулярных методов.

Результаты идентификации дрожжей в системе Phoenix приведены ниже:

	Питательная среда	Совпадение	Отсутствие совпадения	Отсутствие идентификации
Уровень рода/вида	SAB	95,2%	3,8%	1,0%
	TSA	96,5%	2,7%	0,8%

Тестирование проводилось в нескольких учреждениях с целью продемонстрировать воспроизводимость. Результаты идентификации, полученные с помощью системы Phoenix, сравнивались с ожидаемыми результатами. Это тестирование эффективности продемонстрировало воспроизводимость между учреждениями на уровне $\geq 95\%$.

8.2 Ограничения методики

Для уточнения особых случаев ограничений для противомикробных препаратов или микроорганизмов см. поставляемый вместе с панелью листок-вкладыш в упаковке.

Общие характеристики

Тест окрашивания по Граму необходим для выбора соответствующих типов панелей Phoenix. Точную идентификацию и/или AST нельзя проводить без этих тестов.

Используйте только тщательно выделенные колонии бактерий или дрожжей из одной из рекомендованных начальных питательных сред. Использование смешанных колоний может привести к неточности идентификации и/или интерпретаций AST.

Если плотность посева прибора (для используемого типа панели) составляет 0,5, то должно использоваться значение плотности посева 0,50–0,60 McFarland. Для измерения плотности посева может использоваться только нефелометр BBL CrystalSpec или BD PhoenixSpec.

Если плотность посева прибора (для используемого типа панели) составляет 0,25, то должно использоваться значение плотности посева 0,20–0,30 McFarland. Для измерения плотности посева этого диапазона может использоваться только нефелометр BD PhoenixSpec.

Для идентификации дрожжей требуется суспензия, мутность которой находится в диапазоне 2,00–2,40 по стандарту Макфарланда; при подготовке такой суспензии должен обязательно использоваться нефелометр BD PhoenixSpec. Использование других методов при подготовке суспензии может привести к ошибочным результатам идентификации.

Информация панелей Phoenix считывается только прибором Phoenix. Визуальная интерпретация панелей Phoenix недопустима. Любые попытки интерпретировать результаты панели вручную могут привести к неправильной идентификации и/или неточности интерпретаций AST.

Панели должны быть помещены в прибор Phoenix в течение 30 минут после заправки.

Для получения наиболее надежных результатов рекомендуется пересеивать микроорганизмы контроля качества как минимум дважды в два идущих подряд дня в TSA с 5 % бараньей крови перед использованием в системе Phoenix.

Идентификация

Уникальное окружение панели, совмещенное с уменьшенным временем инкубации, может привести к реакциям панели Phoenix, отличающимся от полученных при использовании традиционной биохимической среды.

Тестирование чувствительности к противомикробным препаратам

Индикаторный раствор AST может добавляться в пробирку с бульоном AST и храниться в темном месте до 8 часов перед использованием. Используйте только одну каплю индикаторного раствора AST из бутылки с пипеткой. Если случайно было добавлено более одной капли, выбросьте пробирку и используйте новую пробирку с бульоном AST.

После добавления индикаторного раствора AST в пробирку с бульоном AST, смешайте их, перевернув пробирку. НЕ ВСТРЯХИВАЙТЕ. Встряхивание может привести к появлению пузырьков в бульоне AST, что может привести к неправильному заполнению панели Phoenix во время заправки.

Некоторые микроорганизмы, включенные в идентификацию таксонов, не включены в базу данных AST из-за малой вероятности их появления. При обнаружении этих микроорганизмов будет выведено сообщение «Organism not included in the AST database, perform alternate method» (Микроорганизма нет в базе данных AST, используйте альтернативный метод).

Для некоторых комбинаций микроорганизмов/противомикробных препаратов отсутствие устойчивых штаммов препятствует определению любых категорий результатов кроме «susceptible» (чувствительные). Для штаммов, вызывающих результаты в категории «nonsusceptible» (нечувствительные), идентификация микроорганизмов и результаты тестирования чувствительности к противомикробным препаратам должны

быть подтверждены. После этого культуры должны быть сохранены и представлены на рассмотрение в уполномоченную лабораторию для подтверждения результата с использованием метода микроразбавления бульона CLSI.

Использование CHROMagar Orientation может привести к неправильным значениям чувствительности при тестировании эритромицина с грамположительными микроорганизмами. Результаты тестирования чувствительности противомикробных препаратов должны быть подтверждены с помощью соевого агара Trypticase с 5 % бараньей крови.

Этот тип среды [«шоколадный» агар] *не* должен использоваться для идентификации стрептококков с панелями SMIC/ID. «Шоколадный» агар может использоваться только для тестирования чувствительности стрептококков.

Использование колумбийского агара с 5 % лошадиной крови может привести к значительно более высокому значению MIC для SXT с видами *стрептококков* (*Streptococcus*), что может привести к неправильному значению чувствительности. Результаты тестирования чувствительности к противомикробным препаратам должны быть подтверждены с помощью соевого агара Trypticase с 5 % бараньей крови.

ПРИМЕЧАНИЯ

Результаты MIC для культур без идентификации рода и вида в поле результатов «Final ID» (Итоговая идентификация) не могут быть действительными.

При изменении значения «Final ID» (Итоговая идентификация) микроорганизма с незаявленного в списке таксонов AST (см. раздел F.3) на заявленный результаты MIC и интерпретации будут основываться на итоговой идентификации, которая заявлена в списке таксонов AST.

9 – Словарь терминов и сокращения

«быстрые» результаты	Результаты AST, полученные в течение 16 часов после заправки панели.
AST	Тест восприимчивости к действию противомикробных препаратов (Antimicrobial Susceptibility Test(ing)).
ATCC	Американская коллекция типовых культур (American Type Culture Collection).
BP	Тромбоцит (blood plate).
CLSI	Институт клинических и лабораторных стандартов (Clinical and Laboratory Standards Institute).
CNA	Агар с колистином и налидиксовой кислотой (Colistin Nalidixic Acid).
CoI (HRBC)	Колумбийский агар с лошадиной кровью.
CoI (SRBC)	Колумбийский агар с бараньей кровью.
DIN	Германский институт стандартизации.
DTG	Группа тестируемых препаратов (Drug Test Group).
EMB	Агар с эозином и метиленовым синим (Eosin Methylene Blue).
EUCAST	Европейский комитет по определению чувствительности к антибиотикам
HE	Гектоеновый энтеро-агар (Hektoen Enteric).
ID	Идентификация (IDentification) микроорганизмов.

MIC	Минимальная ингибирующая концентрация (Minimum Inhibitory Concentration); самая низкая концентрация противомикробного препарата, препятствующая дальнейшему росту тестируемого микроорганизма.
PEA	Агар с фенилэтиловым спиртом (Phenylethyl Alcohol).
Resistance Marker (Маркер устойчивости)	Условие, которое применяется, когда определенные результаты свидетельствуют об устойчивости к противомикробным препаратам. Действие некоторых правил BDExpert состоит в применении маркеров устойчивости; другие правила могут вызываться в результате применения определенного маркера устойчивости.
RGB	Красный, зеленый, синий (Red, Green, Blue). Краткое обозначение источников видимого света или диапазонов волн, используемых для опроса панели Phoenix.
SFM	Французское общество микробиологов (Société Française de Microbiologie).
SIR	Чувствительные, промежуточные или устойчивые (Susceptible, Intermediate или Resistant); обозначение категорий результатов AST в контрольных точках. См. также контрольная точка .
TSA	Триптиказо-соевый агар (Trypticase Soy Agar).
XLD	Ксилоза-лизин-дезоксихолат агар (Xylose Lysine Deoxycholate).
абсолютное пороговое значение	Оценка положительности, которая определяется тем, находятся ли показания ячеек панели нормализатора выше (положительная) или ниже (отрицательная) заданного фиксированного порогового значения.
база данных	База данных — это хранилище всей информации, которую собирает прибор для тестируемых панелей. В базе данных сохраняются данные результатов для протестированных панелей за 31 день (возможно и дольше, это зависит от количества протестированных панелей контроля качества). Результаты панелей контроля качества хранятся не менее 6 месяцев. В базе данных сохраняются также настраиваемая пользователем информация для прибора.
демографические данные	Информация об образце для записи панели.
держатель панели	Пластмассовая вставка в карусели, которая фиксирует каждую панель проб Phoenix на месте. Карусель содержит 104 вставки — по 26 на каждом из четырех уровней.
детектор	Оптическая система, измеряющая колориметрическую и флуориметрическую интенсивность реакции реагента в ячейках панели Phoenix.
индикатор AST Phoenix	Индикатор окисления-восстановления, используемый для обозначения микробного метаболизма в панелях Phoenix. Индикатор меняет цвет с синего на розовый, как только начинается восстановление. При дальнейшем восстановлении индикатор меняется с розового на бесцветный.
карусель	Вращающийся барабан, в котором размещаются 100 панелей Phoenix и который помещает их в определенное положение для считывания показаний, считывания штрих-кода, а также загрузки или выгрузки.
кассета	Принадлежность, которая используется для транспортировки заправленных панелей в прибор для загрузки.

комбинированная панель ID/AST	Одноразовое устройство, содержащее все реагенты, необходимые для ID и AST.
контроллер	Электронный модуль, включающий ЦП, память и аппаратный интерфейс для управления работой прибора.
контрольная точка	Интерпретация данных MIC панели, при которой результаты систематизируются как «Susceptible» (Чувствительные), «Intermediate» (Промежуточные) или «Resistant» (Устойчивые). Контрольные точки в данных MIC устанавливаются Институтом клинических и лабораторных стандартов CLSI (Clinical and Laboratory Standards Institute) и другими группами.
набор данных панели	Связанный с каждой панелью набор данных: измерения красителя и флюоресценции, идентификатор положения панели, отметки времени тестирования и флаги ошибок, записываемые для каждого цикла тестирования по протоколу тестирования. Параметры тестирования, определяющие результаты каждой ячейки, обозначаются на индивидуальной этикетке со штрих-кодом с указанием типа панели и типа теста.
номер тестовой последовательности	Номер набора показаний, полученных прибором для данной ячейки с пробой в конкретной тестовой панели, который инициализируется в ноль во время ввода панели.
нормализатор	Реферативная панель для использования в приборе Phoenix. Панель нормализатора содержит матрицу вещества, поглощающего видимый свет, и флюоресцентный материал в виде панели с ячейками; используется для корректировки сигналов отдельных ячеек в случае потери сигналов в оптической системе.
отдельная панель	Панель с действительным номером последовательности, но не связанным с номером образца и номером культуры.
позиция	Станция. Физическое местоположение панели Phoenix в приборе. Идентификатор включает номер прибора, букву уровня карусели и цифровую позицию на этом уровне.
пороговое значение обнаружения присутствия панели	При каждом сканировании инвентаризации или в каждом цикле тестирования прибор «ищет» этикетку панели со штрих-кодом в каждой позиции карусели и данные ячеек панели, красителя или флюоресценции. Если что-либо из перечисленного обнаружено, прибор объявляет о логическом присутствии панели в этом местоположении. Панель, у которой отсутствует штрих-код, предоставляющий информацию о типе панели, не обрабатывается, но помечается флагом «Needs Attention» (Требуется внимания).
проба	Образец, содержащийся в панели Phoenix. Фактически это должен быть обработанный и ресуспендированный слабый раствор микробиологической культуры из первичной выделенной культуры в растворе идентификации или бульоне AST, помещаемый затем в тестовую панель.
результаты в конечной точке	Результаты по показаниям ячейки, полученным после 16-часового инкубационного периода. Микробиологические результаты, достигшие окончательных значений, или значений «конечной точки».
связанная панель	Панели с одинаковыми номерами образца и культуры считаются связанными.

стандартная панель	Особая панель, содержащая специальные концентрации различных красителей и флюорогенов или материалов, используемых для тестирования работы оптической системы прибора, которые предназначены для внутреннего использования в инженерных, производственных и испытательных целях.
станция	Карусель прибора вертикально разделена на четыре уровня (A, B, C, D), каждый из которых вмещает 26 панелей. Одно из местоположений занято панелью нормализатора, а в 25 местоположений на каждом уровне можно поместить тестовые панели. Это означает, что тестовыми панелями можно заполнить в общей сложности 100 местоположений. Каждому местоположению присваивается буква уровня и номер, определяющий позицию местоположения на уровне. Светодиоды, расположенные на держателе каждой панели, показывают состояние станции (см. Раздел 3. Элементы управления и индикаторы).
станция заправки	Станция заправки вмещает три панели Phoenix под соответствующим углом для оптимального заполнения. Станция вмещает также шесть пробирок с бульоном, по две для каждого тестируемого микроорганизма. Одна пробирка предназначена для разбавления колонии, которая выращивается для идентификации, другая — для AST.
станция ошибки	Станция, на которой произошла оптическая или электромеханическая ошибка и которая была заблокирована.
цикл тестирования прибора	Полное тестирование всех панелей проб, размещенных в карусели, результатом которого являются данные об образовании красителя и/или данные флуоресценции, записанные для каждой соответствующей ячейки каждой панели.
штрих-код	Машинно-считываемая маркировка на этикетке панели, однозначно идентифицирующая эту панель. Содержит код продукта и порядковый номер в числовом формате Code-128.

Дополнительные сокращения теста ИДЕНТИФИКАЦИИ

Сокращение	Значение
10C	Рост при 10 градусах по Цельсию
42C	Рост при 42 градусах по Цельсию
45C	Рост при 45 градусах по Цельсию
50C	Рост при 50 градусах по Цельсию
ACE	МВМ + ацетат
ALC	α-Лактоза
ANR	Анаэробный рост
ARA	Арабиноза
ARG	Аргинин
BE	Желчно-эскулин
BSO	Растворимость в желчи
CAM	CAMP со <i>Staphylococcus aureus</i>
CAT	Каталаза
CEL	Целлобиоза
CIT	Цитрат
COA	Коагулаза
DNA	ДНКаза
ESC	Эскулин
FRU	Фруктоза
GAS	Газ из глюкозы
GEL	Желатин
GLC	Бета-глюкуронидаза
GLU	Глюкоза
H ₂ S	Сероводород
HGN	Гемолиз — грамотрицательные
HGP	Гемолиз — грамположительные
HIP	Гиппурат
IND	Индол
KCN	Рост в цианиде калия
LAC	Лактоза
LYS	Лизин
MAC	Рост в среде MacConkey
MAL	Мальтоза
MEL	Мелибиоза

Сокращение	Значение
MNS	Манноза
MNT	Маннитол
MOR	Морфология
MOT	Подвижность
MR	Метилловый красный
NIT	Нитратный
NVR	Устойчивость к новобиоцину
OPS	Восприимчивость к оптоцину
ORN	Орнитин
OX	Оксидаза
PXR	Устойчивость к полимиксину
PXS	Восприимчивость к полимиксину
PYR	Пирролидонил ариламидаза
RAF	Рафиноза
SBT	Сорбит
SLT	Рост в NaCl 6,5 %
SOR	Сорбоза
SUC	Сахароза
TRE	Трегалоза
URE	Мочевина
VAN	Ванкомицин
VP	Фогес-Проскауер
XYL	Ксилоза
YEL	Желтый или оранжевый пигмент

10 – Ограниченная гарантия

Эта гарантия предоставляет особые законные права. Кроме того, у Вас могут быть другие права, отличающиеся от региона к региону.

Первичному покупателю автоматизированной микробиологической системы BD Phoenix 100 предоставляется гарантия на отсутствие дефектов материалов и изготовления в течение одного года после установки. Исключительная ответственность компании BD по данной гарантии предусматривает ремонт и замену любых приборов и их компонентов (за исключением таких расходных материалов, как картриджи для принтеров, бумага или фильтры), которые при нормальном режиме работы стали неисправными в течение одного года после поставки.

Компания BD предоставит новые или отремонтированные компоненты по своему усмотрению. Все компоненты, поставляемые для замены, будут соответствовать новым конструктивным параметрам и будут иметь гарантию до окончания срока в один год. Замененные компоненты становятся собственностью компании BD.

Необходимо, чтобы оборудование, к которому применимо это соглашение, было установлено в соответствии с рекомендациями и инструкциями *Руководства пользователя системы BD Phoenix*.

Повреждения системы BD Phoenix, вызванные подключением или отключением кабелей, соединяющих этот прибор с системами, не одобренными или не поставляемыми компанией BD, или несоблюдением достаточной осторожности при работе с прибором и обслуживании системы, приводят к прекращению гарантии и освобождают производителя от указанных в настоящем документе обязательств.

Эта гарантия заменяет все другие выраженные или подразумеваемые гарантии, включая гарантии товарной пригодности или пригодности для определенного использования. Компания BD не несет ответственности за косвенные, побочные, фактические или последующие убытки ни при каких обстоятельствах независимо от наличия или отсутствия уведомления компании BD о таких убытках.

11 – Запасные части

Следующие детали можно заказать при обращении к местному представителю компании BD по телефонам, указанным в разделе 13.

Позиция	Номер по каталогу
Воздушный фильтр отсека подачи	447101
Воздушный фильтр отсека электронного оборудования термостата	447103
Дискеты с высокой плотностью записи, форматированные (10)	445847
Источник бесперебойного питания (ИБП), Европа (1,3 кВт*А)	445879
Источник бесперебойного питания (ИБП), Северная Америка (1,3 кВт*А)	445880
Источник бесперебойного питания (ИБП), Япония (1,3 кВт*А)	445878
Кабель Ethernet	445884
Кабель к принтеру	445401
Картридж к лазерному принтеру	445886
Лазерный принтер	445882
Руководство пользователя системы BD Phoenix	448021
Сканер штрих-кодов (внешний)	440503
Стандартная панель температуры	448984

12 – Журнал обновлений программного обеспечения

При получении обновлений программного обеспечения занесите данные в журнал ниже. Это поможет Вам и персоналу BD определить изменения программного обеспечения, потенциальные проблемы с программным обеспечением и т. д.

Дата получения	Версия ПО	Дата установки	Метод установки	Примечания

13 – Международные контакты

BD

7 Loveton Circle
Sparks, Maryland 21152 USA
Телефон: (410) 316-4000 • Факс: (410) 527-0244
Бесплатные телефонные номера: Техническое обслуживание: 1-800-638-8663
Обслуживание на месте: 1-800-544-7434
Служба работы с покупателями: 1-800-638-8663
www.bd.com/microbiology

2771 Bristol Circle
Oakville, Ontario
Canada L6H 6R5
Телефон: (905) 855-5550, 800-268-5430

Monte Pelvoux 111 • 9th Floor
Col. Lomas de Chapultepec
11000 Mexico D.F.
Телефон: 52 5 237 1200 • Факс: 52 5 237 1287

11 Rue Aristide Bergès BP4
38800 Le Pont de Claix France
Телефон: 33 476 68 36 36 • Факс: 33 476 68 34 95

Akasaka DS Building
5-26 Akasaka 8-chome
Minato-ku, Tokyo 107-0052
Japan
Телефон: (81) 3 54138181 • Факс: (81) 3 54138144

30 Tuas Avenue 2
Singapore 639461
Телефон: (65) 8610633 • Факс: (65) 8601590

Rua Alexandre Dumas 1976
04717-004 Sao Paulo, S.P. Brazil
Телефон: (55) 11 5459833 • Факс: (55) 11 2478644

14 – Коды

14.1 Коды микроорганизмов, сокращенные названия, полные названия

Полное название	Сокращенное название	Код
<i>Achromobacter denitrificans</i>	Achr. denitrificans	ALCDEN
<i>Achromobacter piechaudii</i>	Achr. piechaudii	ALCPIE
<i>Achromobacter</i> виды	Achr. виды	ACHRSPE
<i>Achromobacter xylosoxidans</i> ssp <i>xylosoxidans</i>	Achr. xylos. ssp xylosoxidans	ALCXYL
<i>Acinetobacter baumannii</i>	Acinet. baumannii	ACINBAU
<i>Acinetobacter baumannii/calcoaceticus</i> комплекс	Acinet. baumannii/calco. комплекс	ACINBCX
<i>Acinetobacter calcoaceticus</i>	Acinet. calcoaceticus	ACINCAL
<i>Acinetobacter haemolyticus</i>	Acinet. haemolyticus	ACINHAE
<i>Acinetobacter johnsonii</i>	Acinet. johnsonii	ACINJOH
<i>Acinetobacter junii</i>	Acinet. junii	ACINJUN
<i>Acinetobacter lwoffii</i>	Acinet. lwoffii	ACINLWO
<i>Acinetobacter radioresistens</i>	Acinet. radioresistens	ACINRAD
<i>Acinetobacter</i> виды	Acinet. виды	ACINSPE

Полное название	Сокращенное название	Код
<i>Actinobacillus lignieresii</i>	Actinob. lignieresii	ACTBLIG
<i>Actinobacillus suis</i>	Actinob. suis	ACTBSUI
<i>Actinobacillus ureae</i>	Actinob. ureae	ACTBURE
<i>Aerococcus</i> виды	Aeroc. виды	AERCSPE
<i>Aerococcus urinae</i>	Aeroc. urinae	AERCURI
<i>Aerococcus viridans</i>	Aeroc. viridans	AERCVIR
<i>Aeromonas allosaccharophila</i>	Aerom. allosaccharophila	AERMALL
<i>Aeromonas caviae</i>	Aerom. caviae	AERMCAV
<i>Aeromonas eucrenophila</i>	Aerom. eucrenophila	AERMEUC
<i>Aeromonas hydrophila</i>	Aerom. hydrophila	AERMHYD
<i>Aeromonas jandaei</i>	Aerom. jandaei	AERMJAN
<i>Aeromonas media</i>	Aerom. media	AERMMED
<i>Aeromonas salmonicida</i>	Aerom. salmonicida	AERMSAL
<i>Aeromonas salmonicida</i> ssp <i>achromogenes</i>	Aerom. salmonic. ssp ach.	AERMSALA
<i>Aeromonas salmonicida</i> ssp <i>masoucida</i>	Aerom. salmonic. ssp mas.	AERMSALM
<i>Aeromonas salmonicida</i> ssp <i>pectinolytica</i>	Aerom. salmonic. ssp pec.	AERMSALPE
<i>Aeromonas salmonicida</i> ssp <i>salmonicida</i>	Aerom. salmonic. ssp sal.	AERMSALSA
<i>Aeromonas salmonicida</i> ssp <i>smithia</i>	Aerom. salmonic. ssp smit.	AERMSALSM
<i>Aeromonas schubertii</i>	Aerom. schubertii	AERMSCH
<i>Aeromonas sobria</i>	Aerom. sobria	AERMVERS
<i>Aeromonas trota</i>	Aerom. trota	AERMTRO
<i>Aeromonas veronii</i>	Aerom. veronii	AERMVERV
<i>Alcaligenes faecalis</i>	Alc. faecalis	ALCFAE
<i>Alloiococcus otitidis</i>	All. otitidis	ALLOTI
<i>Arcanobacterium haemolyticum</i>	Arcan. haemolyticum	ARCAHAE
<i>Arcanobacterium pyogenes</i>	Arcan. pyogenes	ACTMPYO
<i>Aureobasidium pullulans</i>	Aureobs. pullulans	AURPUL
<i>Bacillus cereus</i>	Baci. cereus	BACICER
<i>Bacillus circulans</i>	Baci. circulans	BACICIR

Полное название	Сокращенное название	Код
<i>Bacillus coagulans</i>	Baci. coagulans	BACICOA
<i>Bacillus licheniformis</i>	Baci. licheniformis	BACILIC
<i>Bacillus megaterium</i>	Baci. megaterium	BACIMEG
<i>Bacillus pumilus</i>	Baci. pumilus	BACIPUM
<i>Bacillus subtilis</i>	Baci. subtilis	BACISUB
<i>Bacillus thuringiensis</i>	Baci. thuringiensis	BACITHU
<i>Bergeyella zoohelcum</i>	Ber. zoohelcum	BERZOO
<i>Blastoschizomyces capitatus</i>	Blasto. capitatus	BLACAP
<i>Bordetella bronchiseptica</i>	Bord. bronchiseptica	BORBROS
<i>Brevibacillus brevis</i>	Brevs. brevis	BACIBRE
<i>Brevibacterium</i> виды	Brevm. виды	BREISPE
<i>Brevundimonas diminuta</i>	Brevu. diminuta	BREUDIM
<i>Brevundimonas vesicularis</i>	Brevu. vesicularis	BREUVES
<i>Burkholderia caryophylli</i>	Burk. caryophylli	BURCAR
<i>Burkholderia cepacia</i>	Burk. cepacia	BURCEP
<i>Burkholderia gladioli</i>	Burk. gladioli	BURGLA
<i>Burkholderia glathei</i>	Burk. glathei	BURGLT
<i>Burkholderia graminis</i>	Burk. graminis	BURGRA
<i>Burkholderia multivorans</i>	Burk. multivorans	BURMUL
<i>Burkholderia phenazinium</i>	Burk. phenazinium	BURPHE
<i>Burkholderia pyrrocinia</i>	Burk. pyrrocinia	BURPYR
<i>Candida albicans</i>	Can. albicans	CANALB
<i>Candida apicola</i>	Can. apicola	CANAPI
<i>Candida boidinii</i>	Can. boidinii	CANBOI
<i>Candida bracarensis</i>	Can. bracarensis	CANBRA
<i>Candida catenulata</i>	Can. catenulata	CANCAT
<i>Candida ciferrii</i>	Can. ciferrii	CANCIF
<i>Candida colliculosa</i>	Can. colliculosa	CANCOL
<i>Candida dubliniensis</i>	Can. dubliniensis	CANDUB

Полное название	Сокращенное название	Код
<i>Candida famata</i>	Can. famata	CANFAM
<i>Candida firmetaria</i>	Can. firmetaria	CANLAM
<i>Candida freyschussii</i>	Can. freyschussii	CANFRE
<i>Candida glabrata</i>	Can. glabrata	TORGLA
<i>Candida guilliermondii</i>	Can. guilliermondii	CANGUI
<i>Candida guilliermondii</i> var <i>membranaefaciens</i>	Can. guillier. var membranaef.	CANGUIM
<i>Candida haemulonii</i>	Can. haemulonii	CANHAE
<i>Candida inconspicua</i>	Can. inconspicua	CANINC
<i>Candida intermedia</i>	Can. intermedia	CANINT
<i>Candida kefyr</i>	Can. kefyr	CANKEF
<i>Candida krusei</i>	Can. krusei	CANKRU
<i>Candida lipolytica</i>	Can. lipolytica	CANLIP
<i>Candida lusitanae</i>	Can. lusitanae	CANLUS
<i>Candida magnoliae</i>	Can. magnoliae	CANMAG
<i>Candida melibiosica</i>	Can. melibiosica	CANMEL
<i>Candida membranaefaciens</i>	Can. membranaefaciens	CANMEM
<i>Candida metapsilosis</i>	Can. metapsilosis	CANMET
<i>Candida norvegensis</i>	Can. norvegensis	CANNOR
<i>Candida orthopsilosis</i>	Can. orthopsilosis	CANORT
<i>Candida parapsilosis</i>	Can. parapsilosis	CANPARP
<i>Candida parapsilosis</i> комплекс	Can. parapsilosis комплекс	CANPARPX
<i>Candida pararugosa</i>	Can. pararugosa	CANPARR
<i>Candida pelliculosa</i>	Can. pelliculosa	CANPEL
<i>Candida pulcherrima</i>	Can. pulcherrima	CANPUL
<i>Candida rugosa</i>	Can. rugosa	CANRUG
<i>Candida sake</i>	Can. sake	CANSAK
<i>Candida sphaerica</i>	Can. sphaerica	CANSPH
<i>Candida tropicalis</i>	Can. tropicalis	CANTRO
<i>Candida utilis</i>	Can. utilis	CANUTI

Полное название	Сокращенное название	Код
<i>Candida viswanathii</i>	Can. viswanathii	CANVIS
<i>Candida zeylanoides</i>	Can. zeylanoides	CANZEY
<i>Cardiobacterium hominis</i>	Card. hominis	CARHOM
CDC группа EF-4a	EF-4a	CDCEF4a
CDC группа EF-4b	EF-4b	CDCEF4b
CDC группа EO-2	EO-2	CDCEO2
CDC группа Vb-3	CDCVb-3	CDCVb3
<i>Cedecea davisae</i>	Ced. davisae	CEDDAV
<i>Cedecea lapagei</i>	Ced. lapagei	CEDLAP
<i>Cedecea neteri</i>	Ced. neteri	CEDNET
<i>Cedecea</i> виды 3	Ced. виды 3	CEDSPE3
<i>Cedecea</i> виды 5	Ced. виды 5	CEDSPE5
<i>Cellulomonas turbata</i>	Cell. turbata	OERTUR
<i>Chromobacterium violaceum</i>	Chrom. violaceum	CHROVIO
<i>Chryseobacterium gleum</i>	Chryseob. gleum	CHRBGLE
<i>Chryseobacterium indologenes</i>	Chryseob. indologenes	CHRBIND
<i>Chryseobacterium scophthalmum</i>	Chryseob. scophthalmum	CHRBSCO
<i>Citrobacter amalonaticus</i>	Cit. amalonaticus	CITAMA
<i>Citrobacter braakii</i>	Cit. braakii	CITBRA
<i>Citrobacter farmeri</i>	Cit. farmeri	CITFAR
<i>Citrobacter freundii</i>	Cit. freundii	CITFRE
<i>Citrobacter gillenii</i>	Cit. gillenii	CITSPE10
<i>Citrobacter koseri</i>	Cit. koseri	CITKOS
<i>Citrobacter murlinae</i>	Cit. murlinae	CITSPE11
<i>Citrobacter rodentium</i>	Cit. rodentium	CITSPE9
<i>Citrobacter sedlakii</i>	Cit. sedlakii	CITSED
<i>Citrobacter werkmanii</i>	Cit. werkmanii	CITWER
<i>Citrobacter youngae</i>	Cit. youngae	CITYOU
<i>Comamonas terrigena</i>	Coma. terrigena	COMTER

Полное название	Сокращенное название	Код
<i>Comamonas testosteroni</i>	Coma. testosteroni	COMTES
<i>Corynebacterium amycolatum</i>	Cory. amycolatum	CORAMY
<i>Corynebacterium bovis</i>	Cory. bovis	CORBOV
<i>Corynebacterium diphtheriae</i>	Cory. diphtheriae	CORDIP
<i>Corynebacterium jeikeium</i>	Cory. jeikeium	CORJEI
<i>Corynebacterium kutscheri</i>	Cory. kutscheri	CORKUT
<i>Corynebacterium matruchotii</i>	Cory. matruchotii	CORMAT
<i>Corynebacterium minutissimum</i>	Cory. minutissimum	CORMIN
<i>Corynebacterium propinquum</i>	Cory. propinquum	CORPRO
<i>Corynebacterium pseudodiphtheriticum</i>	Cory. pseudodiphth.	CORPSD
<i>Corynebacterium pseudotuberculosis</i>	Cory. pseudotuberc.	CORPST
<i>Corynebacterium renale</i>	Cory. renale	CORREN
<i>Corynebacterium striatum</i>	Cory. striatum	CORSTR
<i>Corynebacterium ulcerans</i>	Cory. ulcerans	CORULC
<i>Corynebacterium urealyticum</i>	Cory. urealyticum	CORURE
<i>Corynebacterium xerosis</i>	Cory. xerosis	CORXER
<i>Cryptococcus albidus</i>	Cryp. albidus	CRYALB
<i>Cryptococcus gattii</i>	Cryp. gattii	CRYNEOG
<i>Cryptococcus humicolus</i>	Cryp. humicolus	CRYHUM
<i>Cryptococcus laurentii</i>	Cryp. laurentii	CRYLAU
<i>Cryptococcus luteolus</i>	Cryp. luteolus	CRYLUT
<i>Cryptococcus neoformans</i>	Cryp. neoformans	CRYNEO
<i>Cryptococcus terreus</i>	Cryp. terreus	CRYTER
<i>Cryptococcus uniguttulatus</i>	Cryp. uniguttulatus	CRYUNI
<i>Cupriavidus gilardii</i>	Cup. gilardii	RALGIL
<i>Cupriavidus pauculus</i>	Cup. pauculus	CDCIVC2
<i>Delfia acidovorans</i>	Delf. acidovorans	COMACI
<i>Dermabacter hominis</i>	Dermab. hominis	DERBHM
<i>Dermacoccus nishinomiyaensis</i>	Derm. nishinomiyaen.	MICNIS

Полное название	Сокращенное название	Код
<i>Edwardsiella hoshinae</i>	Ed. hoshinae	EDWHOS
<i>Edwardsiella ictaluri</i>	Ed. ictaluri	EDWICT
<i>Edwardsiella tarda</i>	Ed. tarda	EDWTAR
<i>Eikenella corrodens</i>	Eik. corrodens	EIKCOR
<i>Elizabethkingia meningoseptica</i>	Eliz. meningosept.	CHRBMEN
<i>Empedobacter brevis</i>	Emp. brevis	EMPBRE
<i>Enterobacter aerogenes</i>	Enterob. aerogenes	ENTBAER
<i>Enterobacter amnigenus</i>	Enterob. amnigenus	ENTBAMN
<i>Enterobacter amnigenus</i> биогруппа 1	Enterob. amnigen. биогруппа 1	ENTBAMN1
<i>Enterobacter amnigenus</i> биогруппа 2	Enterob. amnigen. биогруппа 2	ENTBAMN2
<i>Enterobacter asburiae</i>	Enterob. asburiae	ENTBASB
<i>Enterobacter cancerogenus</i>	Enterob. cancerogenus	ENTBCAN
<i>Enterobacter cloacae</i>	Enterob. cloacae	ENTBCLO
<i>Enterobacter cloacae</i> ssp <i>dissolvens</i>	Enterob. cloacae ssp <i>dissolvens</i>	ENTBDIS
<i>Enterobacter cowanii</i>	Enterob. cowanii	ENTBCOW
<i>Enterobacter gergoviae</i>	Enterob. gergoviae	ENTBGER
<i>Enterobacter hormaechei</i>	Enterob. hormaechei	ENTBHOR
<i>Enterobacter kobei</i>	Enterob. kobei	ENTBKOB
<i>Enterobacter nimipressuralis</i>	Enterob. nimipressuralis	ENTBNIM
<i>Enterobacter sakazakii</i>	Enterob. sakazakii	ENTBSAK
<i>Enterococcus asini</i>	Enteroc. asini	ENTCASI
<i>Enterococcus avium</i>	Enteroc. avium	ENTCAVI
<i>Enterococcus casseliflavus</i>	Enteroc. casseliflavus	ENTCCAS
<i>Enterococcus cecorum</i>	Enteroc. cecorum	ENTCCEC
<i>Enterococcus columbae</i>	Enteroc. columbae	ENTCCOL
<i>Enterococcus dispar</i>	Enteroc. dispar	ENTCDIS
<i>Enterococcus durans</i>	Enteroc. durans	ENTCDUR
<i>Enterococcus faecalis</i>	Enteroc. faecalis	ENTCFAA
<i>Enterococcus faecium</i>	Enteroc. faecium	ENTCFAI

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<i>Enterococcus flavescens</i>	Enteroc. flavescens	ENTCFLA
<i>Enterococcus gallinarum</i>	Enteroc. gallinarum	ENTCGAL
<i>Enterococcus gilvus</i>	Enteroc. gilvus	ENTCGIL
<i>Enterococcus haemoperoxidus</i>	Enteroc. haemoperoxidus	ENTCHAE
<i>Enterococcus hirae</i>	Enteroc. hirae	ENTCHIR
<i>Enterococcus malodoratus</i>	Enteroc. malodoratus	ENTCMAL
<i>Enterococcus moraviensis</i>	Enteroc. moraviensis	ENTCMOR
<i>Enterococcus mundtii</i>	Enteroc. mundtii	ENTCMUN
<i>Enterococcus pallens</i>	Enteroc. pallens	ENTCPAL
<i>Enterococcus pseudoavium</i>	Enteroc. pseudoavium	ENTCPSE
<i>Enterococcus raffinosus</i>	Enteroc. raffinosus	ENTCRAF
<i>Enterococcus ratti</i>	Enteroc. ratti	ENTCRAT
<i>Enterococcus saccharolyticus</i>	Enteroc. saccharolyticus	ENTCSAC
<i>Enterococcus sulfureus</i>	Enteroc. sulfureus	ENTCSUL
<i>Erysipelothrix rhusiopathiae</i>	Ery. rhusiopathiae	ERYRHU
<i>Escherichia blattae</i>	Esch. blattae	ESCBLA
<i>Escherichia coli</i>	Esch. coli	ESCCOL
<i>Escherichia fergusonii</i>	Esch. fergusonii	ESCFER
<i>Escherichia hermannii</i>	Esch. hermannii	ESCHER
<i>Escherichia vulneris</i>	Esch. vulneris	ESCVUL
<i>Ewingella americana</i>	Ew. americana	EWIAME
<i>Exophiala castellani</i>	Exo. castellanii	EXOCAS
<i>Exophiala heteromorpha</i>	Exo. heteromorpha	EXOJEAH
<i>Exophiala jeanselmei</i>	Exo. jeanselmei	EXOJEA
<i>Exophiala lecanii-cornii</i>	Exo. lecanii-cornii	EXOJEAL
<i>Exophiala moniliae</i>	Exo. moniliae	EXOMON
<i>Exophiala</i> виды	Exo. виды	EXOSPE
<i>Exophiala spinifera</i>	Exo. spinifera	EXOSPI
<i>Gardnerella vaginalis</i>	Gard. vaginalis	GARVAG

Полное название	Сокращенное название	Код
<i>Gemella haemolysans</i>	Gem. haemolysans	GEMHAE
<i>Gemella morbillorum</i>	Gem. morbillorum	GEMMOR
<i>Gemella</i> виды	Gem. виды	GEMSPE
<i>Geotrichum</i> виды	Geo. виды	GEOSPE
<i>Globicatella sanguinis</i>	Glob. sanguinis	GLOSAN
<i>Grimontia hollisae</i>	Grim. hollisae	VIBHOL
<i>Hafnia alvei</i>	Haf. alvei	HAFALV
<i>Helcococcus kunzii</i>	Helco. kunzii	HELCKUN
<i>Hortaea werneckii</i>	Hor. werneckii	HORWER
<i>Kingella denitrificans</i>	King. denitrificans	KINDEN
<i>Kingella kingae</i>	King. kingae	KINKIN
<i>Klebsiella granulomatis</i>	Kleb. granulomatis	CALYGRA
<i>Klebsiella oxytoca</i>	Kleb. oxytoca	KLEOXY
<i>Klebsiella pneumoniae</i> ssp <i>ozaenae</i>	Kleb. pneumo. ssp ozae.	KLEPNEO
<i>Klebsiella pneumoniae</i> ssp <i>pneumoniae</i>	Kleb. pneumo. ssp pneu.	KLEPNEP
<i>Klebsiella pneumoniae</i> ssp <i>rhinoscleromatis</i>	Kleb. pneumo. ssp rhino.	KLEPNER
<i>Kloeckera</i> виды	Kloeck. виды	KLOSPE
<i>Kluyvera ascorbata</i>	Kluyvera ascorbata	KLUASC
<i>Kluyvera cryocrescens</i>	Kluyvera cryocres.	KLUCRY
<i>Kluyvera georgiana</i>	Kluyvera georgiana	KLUGEO
<i>Kluyvera intermedia</i>	Kluyvera intermedia	ENTBINT
<i>Kocuria kristinae</i>	Koc. kristinae	MICKRI
<i>Kocuria rosea</i>	Koc. rosea	MICROS
<i>Kocuria varians</i>	Koc. varians	MICVAR
<i>Kytococcus sedentarius</i>	Kyto. sedentarius	MICSED
<i>Lactococcus garvieae</i>	Lactoc. garvieae	LACCGAR
<i>Lactococcus lactis</i> ssp <i>cremoris</i>	Lactoc. lactis ssp crem.	LACCLACC
<i>Lactococcus lactis</i> ssp <i>hordniae</i>	Lactoc. lactis ssp hord.	LACCLACH
<i>Lactococcus lactis</i> ssp <i>lactis</i>	Lactoc. lactis ssp lactis	LACCLACL

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<i>Lactococcus plantarum</i>	Lactoc. plantarum	LACCPLA
<i>Lactococcus raffinolactis</i>	Lactoc. raffinolactis	LACCRAF
<i>Lactococcus</i> виды	Lactoc. виды	LACCSPE
<i>Leclercia adecarboxylata</i>	Lec. adecarboxylata	LECADE
<i>Leifsonia aquatica</i>	Leif. aquatica	CORAQU
<i>Leminorella grimontii</i>	Lem. grimontii	LEMGRI
<i>Leminorella richardii</i>	Lem. richardii	LEMRIC
<i>Leuconostoc citreum</i>	Leu. citreum	LEUCIT
<i>Leuconostoc lactis</i>	Leu. lactis	LEULAC
<i>Leuconostoc mesenteroides</i> ssp <i>cremoris</i>	Leu. mesenter. ssp crem.	LEUMESC
<i>Leuconostoc mesenteroides</i> ssp <i>mesenteroides</i>	Leu. mesenter. ssp mes.	LEUMESM
<i>Leuconostoc pseudomesenteroides</i>	Leu. pseudomesenter.	LEUPSE
<i>Leuconostoc</i> виды	Leu. виды	LEUSPE
<i>Listeria grayi</i>	Lis. grayi	LISGRA
<i>Listeria innocua</i>	Lis. innocua	LISINN
<i>Listeria ivanovii</i>	Lis. ivanovii	LISIVA
<i>Listeria monocytogenes</i>	Lis. monocytogenes	LISMON
<i>Listeria</i> виды	Lis. виды	LISSPE
<i>Listeria welshimeri</i>	Lis. welshimeri	LISWEL
<i>Lysinibacillus sphaericus</i>	Lysini. sphaericus	BACISPH
<i>Macrococcus caseolyticus</i>	Macro. caseolyticus	STACAS
<i>Malassezia furfur</i> комплекс	Mal. furfur комплекс	MALFURX
<i>Malassezia pachydermatis</i>	Mal. pachydermatis	MALPAC
<i>Malassezia sympodialis</i>	Mal. sympodialis	MALSYM
<i>Mannheimia haemolytica</i>	Mann. haemolytica	PASHAE
<i>Methylobacterium extorquens</i>	Methylob. extorquens	METEXT
<i>Micrococcus luteus</i>	Microc. luteus	MICLUT
<i>Micrococcus lylae</i>	Microc. lylae	MICLYL
<i>Moellerella wisconsensis</i>	Moel. wisconsensis	MOEWIS

Полное название	Сокращенное название	Код
<i>Moraxella (Branhamella) catarrhalis</i>	Morax. (Bran.) cat.	MORABRACAT
<i>Moraxella</i> виды	Morax. виды	MORASPE
<i>Morganella morganii</i>	Morg. morganii	MORGMOR
<i>Myroides odoratus/odoratimimus</i>	Myr. odoratus/odoratimimus	MYRODAODI
<i>Ochrobactrum anthropi</i>	Och. anthropi	OCHANT
<i>Oerskovia xanthineolytica</i>	Oers. xanthineolytica	OERXAN
<i>Oligella ureolytica</i>	Olig. ureolytica	OLIURO
<i>Oligella urethralis</i>	Olig. urethralis	OLIURT
<i>Paenibacillus alvei</i>	Paen. alvei	PAEALV
<i>Paenibacillus macerans</i>	Paen. macerans	PAEMAC
<i>Pantoea agglomerans</i>	Pan. agglomerans	PANAGG
<i>Pantoea ananatis</i>	Pan. ananatis	ERWANA
<i>Pantoea dispersa</i>	Pan. dispersa	PANDIS
<i>Pantoea stewartii</i> ssp <i>indologenes</i>	Pan. ste. ssp indologenes	PANSTEI
<i>Pantoea stewartii</i> ssp <i>stewartii</i>	Pan. ste. ssp stewartii	PANSTES
<i>Pasteurella aerogenes</i>	Past. aerogenes	PASAER
<i>Pasteurella multocida</i>	Past. multocida	PASMUL
<i>Pasteurella pneumotropica</i>	Past. pneumotropica	PASPNE
<i>Pediococcus acidilactici</i>	Ped. acidilactici	PEDACI
<i>Pediococcus damnosus</i>	Ped. damnosus	PEDDAM
<i>Pediococcus dextrinicus</i>	Ped. dextrinicus	PEDDEX
<i>Pediococcus parvulus</i>	Ped. parvulus	PEDPAR
<i>Pediococcus pentosaceus</i>	Ped. pentosaceus	PEDPEN
<i>Pediococcus</i> виды	Ped. виды	PEDSPE
<i>Photobacterium damsela</i>	Photob. damsela	PHOBDAM
<i>Pichia angusta</i>	Pic. angusta	PICANG
<i>Pichia burtonii</i>	Pic. burtonii	PICBUR
<i>Pichia farinosa</i>	Pic. farinosa	PICFAR
<i>Plesiomonas shigelloides</i>	Ples. shigelloides	PLESHI

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<i>Pragia fontium</i>	Prag. fontium	PRAFON
<i>Proteus hauseri</i>	Prot. hauseri	PROTHAU
<i>Proteus mirabilis</i>	Prot. mirabilis	PROTMIR
<i>Proteus myxofaciens</i>	Prot. myxofaciens	PROTMYX
<i>Proteus penneri</i>	Prot. penneri	PROTPEN
<i>Proteus vulgaris</i>	Prot. vulgaris	PROTVUL
<i>Prototheca</i> виды	Protot. виды	PROHSPE
<i>Prototheca wickerhamii</i>	Protot. wick.	PROHWIC
<i>Prototheca zopfii</i>	Protot. zopfii	PROHZOP
<i>Providencia alcalifaciens</i>	Prov. alcalifaciens	PROVALC
<i>Providencia heimbachae</i>	Prov. heimbachae	PROVHEI
<i>Providencia rettgeri</i>	Prov. rettgeri	PROVRET
<i>Providencia rustigianii</i>	Prov. rustigianii	PROVRUS
<i>Providencia stuartii</i>	Prov. stuartii	PROVSTU
<i>Pseudomonas aeruginosa</i>	Pseud. aeruginosa	PSEAER
<i>Pseudomonas alcaligenes</i>	Pseud. alcaligenes	PSEALC
<i>Pseudomonas fluorescens</i>	Pseud. fluorescens	PSEFLU
<i>Pseudomonas luteola</i>	Pseud. luteola	CHRMLUT
<i>Pseudomonas mendocina</i>	Pseud. mendocina	PSEMEN
<i>Pseudomonas monteilii</i>	Pseud. monteilii	PSEMON
<i>Pseudomonas oryzae</i>	Pseud. oryzae	FLAIORY
<i>Pseudomonas pertucinogena</i>	Pseud. pertucinogena	PSEPER
<i>Pseudomonas pseudoalcaligenes</i>	Pseud. pseudoalcaligenes	PSEPSE
<i>Pseudomonas putida</i>	Pseud. putida	PSEPUT
<i>Pseudomonas</i> виды	Pseud. виды	PSESPE
<i>Pseudomonas stutzeri</i>	Pseud. stutzeri	PSESTU
<i>Pseudomonas veronii</i>	Pseud. veronii	PSEVER
<i>Rahnella aquatilis</i>	Rah. aquatilis	RAHAQU
<i>Ralstonia pickettii</i>	Ral. pickettii	BURPIC

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<i>Ralstonia solanacearum</i>	Ral. solanacearum	BURSOL
<i>Ralstonia</i> виды	Ral. виды	RALSPE
<i>Raoultella ornithinolytica</i>	Rao. ornithinolytica	KLEORN
<i>Raoultella planticola</i>	Rao. planticola	KLEPLA
<i>Raoultella terrigena</i>	Rao. terrigena	KLETER
<i>Rhizobium radiobacter</i>	Rhizob. radiobacter	AGRRAD
<i>Rhodococcus equi</i>	Rhodoc. equi	RHOCEQU
<i>Rhodotorula glutinis</i>	Rhodot. glutinis	RHOTGLU
<i>Rhodotorula minuta</i>	Rhodot. minuta	RHOTMIN
<i>Rhodotorula mucilaginosa</i> var <i>mucilaginosa</i>	Rhodot. mucilag. var mucilag.	RHOTMUCM
<i>Rothia dentocariosa</i>	Roth. dentocariosa	ROTDEN
<i>Rothia mucilaginosa</i>	Roth. mucilaginosa	STOMUC
<i>Saccharomyces cerevisiae</i>	Sac. cerevisiae	SAC CER
<i>Salmonella aberdeen</i>	Salm. aberdeen	SALABE
<i>Salmonella abortus-equi</i>	Salm. abortus-equi	SALABOE
<i>Salmonella adelaide</i>	Salm. adelaide	SALADL
<i>Salmonella aderike</i>	Salm. aderike	SALADR
<i>Salmonella agona</i>	Salm. agona	SALAGO
<i>Salmonella alachua</i>	Salm. alachua	SALALA
<i>Salmonella anatum</i>	Salm. anatum	SALANA
<i>Salmonella arizonae</i>	Salm. arizonae	SALARI
<i>Salmonella avana</i>	Salm. avana	SALAVA
<i>Salmonella bahrenfeld</i>	Salm. bahrenfeld	SALBAH
<i>Salmonella blockley</i>	Salm. blockley	SALBLO
<i>Salmonella bongori</i>	Salm. bongori	SALBON
<i>Salmonella braenderup</i>	Salm. braenderup	SALBRA
<i>Salmonella bredeney</i>	Salm. bredeney	SALBRE
<i>Salmonella bunn</i>	Salm. bunn	SALBUN
<i>Salmonella californica</i>	Salm. californica	SALCAL

Полное название	Сокращенное название	Код
<i>Salmonella carrau</i>	Salm. carrau	SALCAR
<i>Salmonella cerro</i>	Salm. cerro	SALCER
<i>Salmonella champaign</i>	Salm. champaign	SALCHA
<i>Salmonella chittagong</i>	Salm. chittagong	SALCHI
<i>Salmonella choleraesuis</i>	Salm. choleraesuis	SALCHO
<i>Salmonella choleraesuis ssp arizonae</i>	Salm. choleraesuis ssp ariz.	SALCHOA
<i>Salmonella choleraesuis ssp choleraesuis</i>	Salm. choleraesuis ssp chol.	SALCHOC
<i>Salmonella choleraesuis ssp diarizonae</i>	Salm. choleraesuis ssp diariz.	SALCHOD
<i>Salmonella choleraesuis ssp houtenae</i>	Salm. choleraesuis ssp hout.	SALCHOH
<i>Salmonella choleraesuis ssp indica</i>	Salm. choleraesuis ssp indica	SALCHOI
<i>Salmonella choleraesuis ssp salamae</i>	Salm. choleraesuis ssp salamae	SALCHOS
<i>Salmonella cubana</i>	Salm. cubana	SALCUB
<i>Salmonella dakar</i>	Salm. dakar	SALDAK
<i>Salmonella daressalaam</i>	Salm. daressalaam	SALDAR
<i>Salmonella derby</i>	Salm. derby	SALDER
<i>Salmonella dessau</i>	Salm. dessau	SALDES
<i>Salmonella DT</i>	Salm. DT	SALDT
<i>Salmonella dublin</i>	Salm. dublin	SALDUB
<i>Salmonella duesseldorf</i>	Salm. duesseldorf	SALDUE
<i>Salmonella enteritidis</i>	Salm. enteritidis	SALENT
<i>Salmonella fresno</i>	Salm. fresno	SALFRE
<i>Salmonella gallinarum</i>	Salm. gallinarum	SALGAL
<i>Salmonella gaminara</i>	Salm. gaminara	SALGAM
<i>Salmonella give</i>	Salm. give	SALGIV
<i>Salmonella haardt</i>	Salm. haardt	SALHAA
<i>Salmonella hadar</i>	Salm. hadar	SALHAD
<i>Salmonella hamburg</i>	Salm. hamburg	SALHAM
<i>Salmonella hartford</i>	Salm. hartford	SALHAR
<i>Salmonella heidelberg</i>	Salm. heidelberg	SALHEI

Полное название	Сокращенное название	Код
<i>Salmonella illinois</i>	Salm. illinois	SALILL
<i>Salmonella infantis</i>	Salm. infantis	SALINF
<i>Salmonella inverness</i>	Salm. inverness	SALINV
<i>Salmonella java</i>	Salm. java	SALJAA
<i>Salmonella javiana</i>	Salm. javiana	SALJAI
<i>Salmonella kentucky</i>	Salm. kentucky	SALKEN
<i>Salmonella kirkee</i>	Salm. kirkee	SALKIR
<i>Salmonella kunduchi</i>	Salm. kunduchi	SALKUN
<i>Salmonella kvittingfoss</i>	Salm. kvittingfoss	SALKVI
<i>Salmonella lansing</i>	Salm. lansing	SALLAN
<i>Salmonella litchfield</i>	Salm. litchfield	SALLIT
<i>Salmonella liverpool</i>	Salm. liverpool	SALLIV
<i>Salmonella london</i>	Salm. london	SALLON
<i>Salmonella luciana</i>	Salm. luciana	SALLUC
<i>Salmonella manhattan</i>	Salm. manhattan	SALMAN
<i>Salmonella mbandaka</i>	Salm. mbandaka	SALMBA
<i>Salmonella meleagridis</i>	Salm. meleagridis	SALMEL
<i>Salmonella memphis</i>	Salm. memphis	SALMEM
<i>Salmonella michigan</i>	Salm. michigan	SALMIC
<i>Salmonella minneapolis</i>	Salm. minneapolis	SALMIA
<i>Salmonella minnesota</i>	Salm. minnesota	SALMIS
<i>Salmonella montevideo</i>	Salm. montevideo	SALMON
<i>Salmonella muenchen</i>	Salm. muenchen	SALMUE
<i>Salmonella muenster</i>	Salm. muenster	SALMUS
<i>Salmonella newington</i>	Salm. newington	SALNEI
<i>Salmonella newport</i>	Salm. newport	SALNEP
<i>Salmonella nottingham</i>	Salm. nottingham	SALNOT
<i>Salmonella ohio</i>	Salm. ohio	SALOHJ
<i>Salmonella onderstepoort</i>	Salm. onderstepoort	SALOND

Полное название	Сокращенное название	Код
<i>Salmonella oranienburg</i>	Salm. oranienburg	SALORA
<i>Salmonella panama</i>	Salm. panama	SALPAN
<i>Salmonella paratyphi A</i>	Salm. paratyphi A	SALPARA
<i>Salmonella paratyphi B</i>	Salm. paratyphi B	SALPARB
<i>Salmonella poona</i>	Salm. poona	SALPOO
<i>Salmonella pullorum</i>	Salm. pullorum	SALPUL
<i>Salmonella quinhon</i>	Salm. quinhon	SALQUI
<i>Salmonella rubislaw</i>	Salm. rubislaw	SALRUB
<i>Salmonella saintpaul</i>	Salm. saintpaul	SALSAI
<i>Salmonella schwarzengrund</i>	Salm. schwarzengrund	SALSCH
<i>Salmonella senftenberg</i>	Salm. senftenberg	SALSEN
<i>Salmonella</i> виды	Salm. виды	SALSPE
<i>Salmonella tallahassee</i>	Salm. tallahassee	SALTAL
<i>Salmonella thompson</i>	Salm. thompson	SALTHO
<i>Salmonella typhi</i>	Salm. typhi	SALTYP
<i>Salmonella typhimurium</i>	Salm. typhimurium	SALTYPM
<i>Salmonella virginia</i>	Salm. virginia	SALVIR
<i>Salmonella westerstede</i>	Salm. westerstede	SALWES
<i>Salmonella worthington</i>	Salm. worthington	SALWOR
<i>Serratia entomophila</i>	Ser. entomophila	SERENT
<i>Serratia ficaria</i>	Ser. ficaria	SERFIC
<i>Serratia fonticola</i>	Ser. fonticola	SERFON
<i>Serratia grimesii</i>	Ser. grimesii	SERGRI
<i>Serratia liquefaciens</i>	Ser. liquefaciens	SERLIQ
<i>Serratia marcescens</i>	Ser. marcescens	SERMAR
<i>Serratia odorifera</i>	Ser. odorifera	SERODO
<i>Serratia odorifera 1</i>	Ser. odorifera 1	SERODO1
<i>Serratia odorifera 2</i>	Ser. odorifera 2	SERODO2
<i>Serratia plymuthica</i>	Ser. plymuthica	SERPLY

Полное название	Сокращенное название	Код
<i>Serratia proteamaculans</i> ssp <i>proteamaculans</i>	Ser. proteamac. ssp proteam.	SERPROP
<i>Serratia proteamaculans</i> ssp <i>quinovora</i>	Ser. proteamac. ssp quino.	SERPROQ
<i>Serratia rubidaea</i>	Ser. rubidaea	SERRUB
<i>Shewanella algae</i>	Shew. algae	SHEALG
<i>Shewanella putrefaciens</i>	Shew. putrefaciens	SHEPUT
<i>Shigella boydii</i>	Shig. boydii	SHIBOY
<i>Shigella dysenteriae</i>	Shig. dysenteriae	SHIDYS
<i>Shigella flexneri</i>	Shig. flexneri	SHIFLE
<i>Shigella sonnei</i>	Shig. sonnei	SHISON
<i>Shigella</i> виды	Shig. виды	SHISPE
<i>Sphingobacterium multivorum</i>	Sphingob. multivorum	SPHBMUL
<i>Sphingobacterium spiritivorum</i>	Sphingob. spiritivorum	SPHBSPI
<i>Sphingobacterium thalpophilum</i>	Sphingob. thalpophilum	SPHBTHA
<i>Sphingomonas paucimobilis</i>	Sphingom. paucimobilis	SPHMPAU
<i>Sporobolomyces salmonicolor</i>	Sporobol. salmonicolor	SPOBSAL
<i>Staphylococcus arlettae</i>	Staph. arlettae	STAARL
<i>Staphylococcus aureus</i>	Staph. aureus	STAAUE
<i>Staphylococcus auricularis</i>	Staph. auricularis	STAAUI
<i>Staphylococcus capitis</i>	Staph. capitis	STACAI
<i>Staphylococcus capitis</i> ssp <i>capitis</i>	Staph. capitis ssp capitis	STACAIC
<i>Staphylococcus capitis</i> ssp <i>ureolyticus</i>	Staph. capitis ssp ureolyt.	STACAIU
<i>Staphylococcus caprae</i>	Staph. caprae	STACAP
<i>Staphylococcus carnosus</i>	Staph. carnosus	STACAR
<i>Staphylococcus chromogenes</i>	Staph. chromogenes	STACHR
<i>Staphylococcus cohnii</i>	Staph. cohnii	STACOH
<i>Staphylococcus cohnii</i> ssp <i>cohnii</i>	Staph. cohnii ssp cohnii	STACOH C
<i>Staphylococcus cohnii</i> ssp <i>urealyticum</i>	Staph. cohnii ssp urealyt.	STACOHU
<i>Staphylococcus condimentii</i>	Staph. condimentii	STACON
<i>Staphylococcus delphini</i>	Staph. delphini	STADEL

Полное название	Сокращенное название	Код
<i>Staphylococcus epidermidis</i>	Staph. epidermidis	STAEPI
<i>Staphylococcus equorum</i>	Staph. equorum	STAEQU
<i>Staphylococcus felis</i>	Staph. felis	STAFEL
<i>Staphylococcus fleurettii</i>	Staph. fleurettii	STAFLE
<i>Staphylococcus gallinarum</i>	Staph. gallinarum	STAGAL
<i>Staphylococcus haemolyticus</i>	Staph. haemolyticus	STAHAE
<i>Staphylococcus hominis</i>	Staph. hominis	STAHOM
<i>Staphylococcus hyicus</i>	Staph. hyicus	STAHYI
<i>Staphylococcus intermedius</i>	Staph. intermedius	STAINI
<i>Staphylococcus kloosii</i>	Staph. kloosii	STAKLO
<i>Staphylococcus lentus</i>	Staph. lentus	STALEN
<i>Staphylococcus lugdunensis</i>	Staph. lugdunensis	STALUG
<i>Staphylococcus lutrae</i>	Staph. lutrae	STALUT
<i>Staphylococcus muscae</i>	Staph. muscae	STAMUS
<i>Staphylococcus pasteurii</i>	Staph. pasteurii	STAPAS
<i>Staphylococcus piscifermentans</i>	Staph. piscifermentans	STAPIS
<i>Staphylococcus pulvereri</i>	Staph. pulvereri	STAPUL
<i>Staphylococcus saccharolyticus</i>	Staph. saccharolyticus	STASAC
<i>Staphylococcus saprophyticus</i>	Staph. saprophyticus	STASAP
<i>Staphylococcus schleiferi</i>	Staph. schleiferi	STASCH
<i>Staphylococcus schleiferi</i> ssp <i>coagulans</i>	Staph. schleiferi ssp coagul.	STASCHC
<i>Staphylococcus schleiferi</i> ssp <i>schleiferi</i>	Staph. schleiferi ssp schleif.	STASCHS
<i>Staphylococcus sciuri</i>	Staph. sciuri	STASCI
<i>Staphylococcus simulans</i>	Staph. simulans	STASIM
<i>Staphylococcus succinus</i> ssp <i>casei</i>	Staph. suc. ssp casei	STASUCCA
<i>Staphylococcus succinus</i> ssp <i>succinus</i>	Staph. suc. ssp succinus	STASUCSU
<i>Staphylococcus vitulinus</i>	Staph. vitulinus	STAVIT
<i>Staphylococcus warneri</i>	Staph. warneri	STAWAR
<i>Staphylococcus xylosum</i>	Staph. xylosum	STAXYL

Полное название	Сокращенное название	Код
<i>Stenotrophomonas africana</i>	Sten. africana	STEAFR
<i>Stenotrophomonas maltophilia</i>	Sten. maltophilia	STEMAL
<i>Streptococcus acidominimus</i>	Strep. acidominimus	STRACI
<i>Streptococcus agalactiae</i> (Strep. группа B)	Strep. agalactiae (Str. gr. B)	STRAGA
<i>Streptococcus alactolyticus</i>	Strep. alactolyticus	STRALA
<i>Streptococcus anginosus</i>	Strep. anginosus	STRANG
<i>Streptococcus anginosus</i> (ранее <i>milleri</i>) группа	Strep. anginosus (milleri) gr.	STRANGGR
<i>Streptococcus bovis</i> (Strep. группа D)	Strep. bovis (Str. gr. D)	STRBOV
<i>Streptococcus bovis</i> I (Strep. группа D)	Strep. bovis I (Str. gr. D)	STRBOVI
<i>Streptococcus bovis</i> II (Strep. группа D)	Strep. bovis II (Str. gr. D)	STRBOVII
<i>Streptococcus canis</i>	Strep. canis	STRCAN
<i>Streptococcus constellatus</i>	Strep. constellatus	STRCON
<i>Streptococcus criceti</i>	Strep. criceti	STRCRC
<i>Streptococcus cristatus</i>	Strep. cristatus	STRCRS
<i>Streptococcus downei</i>	Strep. downei	STRDOW
<i>Streptococcus dysgalactiae</i>	Strep. dysgalactiae	STRDYS
<i>Streptococcus dysgalactiae</i> ssp <i>dysgalactiae</i>	Strep. dysgal. ssp dysgal.	STRDYSDY
<i>Streptococcus dysgalactiae</i> ssp <i>equisimilis</i>	Strep. dysgal. ssp equis.	STRDYSEM
<i>Streptococcus dysgalactiae/canis</i>	Strep. dysgal./canis	STRDYSCAN
<i>Streptococcus equi</i>	Strep. equi	STREQU
<i>Streptococcus equi</i> ssp <i>equi</i>	Strep. equi ssp equi	STREQUE
<i>Streptococcus equi</i> ssp <i>zooepidemicus</i>	Strep. equi ssp zooepid.	STREQUZ
<i>Streptococcus equinus</i>	Strep. equinus	STREQN
<i>Streptococcus ferus</i>	Strep. ferus	STRFER
<i>Streptococcus gallolyticus</i> ssp <i>macedonicus</i>	Strep. gallolyti. ssp macedon.	STRMAC
<i>Streptococcus gordonii</i>	Strep. gordonii	STRGOR
<i>Streptococcus</i> группа A (<i>Strep. pyogenes</i>)	Strep. группа A (Str. pyogenes)	STRGRA
<i>Streptococcus</i> группа B (<i>Strep. agalactiae</i>)	Strep. группа B (Str. agalact.)	STRGRB
<i>Streptococcus</i> группа C (большая колония)	Strep. группа C (большая колония)	STRGRC

Полное название	Сокращенное название	Код
<i>Streptococcus</i> группа C/G (большая колония)	Strep. группа C/G (большая колония)	STRGRCG
<i>Streptococcus</i> группа CFG (маленькая колония)	Strep. группа CFG (маленькая колония)	STRGRCFG
<i>Streptococcus</i> группа D ((не энтерококк)	Strep. группа D ((не энтерококк)	STRGRDNE
<i>Streptococcus</i> группа E	Strep. группа E	STRGRE
<i>Streptococcus</i> группа F	Strep. группа F	STRGRF
<i>Streptococcus</i> группа G (большая колония)	Strep. группа G (большая колония)	STRGRG
<i>Streptococcus</i> группа L	Strep. группа L	STRGRL
<i>Streptococcus hyointestinalis</i>	Strep. hyointestinalis	STRHYO
<i>Streptococcus infantarius</i> ssp <i>coli</i>	Strep. infa ssp <i>coli</i>	STRINACO
<i>Streptococcus infantarius</i> ssp <i>infantarius</i>	Strep. infa ssp <i>infantarius</i>	STRINAIN
<i>Streptococcus infantis</i>	Strep. <i>infantis</i>	STRINF
<i>Streptococcus iniae</i>	Strep. <i>iniae</i>	STRINI
<i>Streptococcus intermedius</i>	Strep. <i>intermedius</i>	STRINR
<i>Streptococcus milleri</i> группа	Strep. <i>milleri</i> gr.	STRMILGR
<i>Streptococcus mitis</i>	Strep. <i>mitis</i>	STRMIT
<i>Streptococcus mitis</i> группа	Strep. <i>mitis</i> gr.	STRMITGR
<i>Streptococcus mutans</i>	Strep. <i>mutans</i>	STRMUT
<i>Streptococcus mutans</i> группа	Strep. <i>mutans</i> gr.	STRMUTGR
<i>Streptococcus oralis</i>	Strep. <i>oralis</i>	STRORA
<i>Streptococcus parasanguinis</i>	Strep. <i>parasanguinis</i>	STRPAR
<i>Streptococcus peroris</i>	Strep. <i>peroris</i>	STRPER
<i>Streptococcus pneumoniae</i>	Strep. <i>pneumoniae</i>	STRPNE
<i>Streptococcus porcinus</i>	Strep. <i>porcinus</i>	STRPOR
<i>Streptococcus pyogenes</i> (Strep. группа A)	Strep. <i>pyogenes</i> (Str. gr. A)	STRPYO
<i>Streptococcus rattii</i>	Strep. <i>rattii</i>	STRRAT
<i>Streptococcus salivarius</i>	Strep. <i>salivarius</i>	STRSAL
<i>Streptococcus salivarius</i> группа	Strep. <i>salivarius</i> gr.	STRSALGR
<i>Streptococcus sanguinis</i>	Strep. <i>sanguinis</i>	STRSAN

Полное название	Сокращенное название	Код
<i>Streptococcus sanguinis</i> rpyнна	Strep. sanguinis gr.	STRSANGR
<i>Streptococcus sobrinus</i>	Strep. sobrinus	STRSOB
<i>Streptococcus suis</i>	Strep. suis	STRSUI
<i>Streptococcus thermophilus</i>	Strep. thermophilus	STRTHE
<i>Streptococcus uberis</i>	Strep. uberis	STRUBE
<i>Streptococcus vestibularis</i>	Strep. vestibularis	STRVES
<i>Streptococcus viridans</i> rpyнна	Strep. viridans rpyнна	STRVIRGR
<i>Suttonella indologenes</i>	Sutto. indologenes	SUTIND
<i>Tatumella ptyseos</i>	Tat. ptyseos	TATPTY
<i>Trichosporon asahii</i>	Tric. asahii	TRIASA
<i>Trichosporon asteroides</i>	Tric. asteroides	TRIAST
<i>Trichosporon cutaneum</i>	Tric. cutaneum	TRICUT
<i>Trichosporon inkin</i>	Tric. inkin	TRIINK
<i>Trichosporon loubieri</i>	Tric. loubieri	TRILOU
<i>Trichosporon mucoides</i>	Tric. mucoides	TRIMUC
<i>Trichosporon ovoides</i>	Tric. ovoides	TRIOVO
<i>Trichosporon pullulans</i>	Tric. pullulans	TRIPUL
<i>Vibrio alginolyticus</i>	Vib. alginolyticus	VIBALG
<i>Vibrio cholerae</i>	Vib. cholerae	VIBCHO
<i>Vibrio fluvialis</i>	Vib. fluvialis	VIBFLU
<i>Vibrio metschnikovii</i>	Vib. metschnikovii	VIBMET
<i>Vibrio mimicus</i>	Vib. mimicus	VIBMIM
<i>Vibrio parahaemolyticus</i>	Vib. parahaemolyticus	VIBPAR
<i>Vibrio vulnificus</i>	Vib. vulnificus	VIBVUL
<i>Wangiella dermatitidis</i>	Wan. dermatitidis	WANDER
<i>Weeksella virosa</i>	Week. virosa	WEEVIR
<i>Yersinia aldovae</i>	Yer. aldovae	YERALD
<i>Yersinia bercovieri</i>	Yer. bercovieri	YERBER
<i>Yersinia enterocolitica</i>	Yer. enterocolitica	YERENT

Полное название	Сокращенное название	Код
<i>Yersinia frederiksenii</i>	Yer. frederiksenii	YERFRE
<i>Yersinia intermedia</i>	Yer. intermedia	YERINT
<i>Yersinia kristensenii</i>	Yer. kristensenii	YERKRI
<i>Yersinia mollaretii</i>	Yer. mollaretii	YERMOL
<i>Yersinia pseudotuberculosis</i>	Yer. pseudotuberculosis	YERPSE
<i>Yersinia rohdei</i>	Yer. rohdei	YERROH
<i>Yersinia ruckeri</i>	Yer. ruckeri	YERRUC
<i>Yokenella regensburgei</i>	Yok. regensburgei	YOKREG
<i>Zygosaccharomyces bailli</i>	Zyg. bailli	ZYGBAI

15 – Информация о панелях

15.1 Список противомикробных препаратов на панелях Phoenix

Противомикробный препарат			Доступные концентрации		
			Грамотрица тельные	Грамполож ительные	Strep
Класс	Название препарата ↓	Код препарата	Диапазон	Диапазон	Диапазон
Макролид линкозамид стрептограмины	Азитромицин	AZM	—	0,06 – 8	—
Бета-лактам	Азтреонам	ATM	0,5 – 64	—	—
Аминогликозид	Амикацин	AN	0,5 – 64	0,5 – 64	—
Бета-лактам	Амоксициллин	AMX	0,5 – 32	0,25 – 32	0,125 – 32
Бета-лактам	Амоксициллин- клавуланат	AMC	0,5/0,25 – 32/ 16	0,25/0,12 – 32/16	0,125/0,06 – 32/16
Бета-лактам	Амоксициллин- клавуланат (f)	AXC	0,5/2 – 32/2	0,25/2 – 32/2	—
Бета-лактам	Ампициллин	AM	0,5 – 32	0,06 – 32	0,06 – 32
Бета-лактам	Ампициллин- сульбактам	SAM	1/0,5 – 32/16	0,5/0,25 – 32/16	—
Бета-лактам	Ампициллин- сульбактам (f)	SXA	0,5/8 – 32/8	0,5/8 – 32/8	—

Противомикробный препарат			Доступные концентрации		
Класс	Название препарата ↓	Код препарата	Грамотрица	Грамполож	Strep
			тельные	ительные	Диапазон
Аминогликозид	Арбекацин	ARB	0,25 – 16	0,25 – 16	—
Гликопептид	Ванкомицин	VA	—	0,5 – 32	0,06 – 32
Псевдомониевая кислота	Высокоактивный мупироцин	MUH	—	256	—
Хинолон	Гареноксацин	GRN	0,125 – 16	0,25 – 8	0,03 – 4
Хинолон	Гатифлоксацин	GAT	0,25 – 8	0,25 – 8	0,06 – 8
Хинолон	Гемифлоксацин	GEM	0,125 – 8	0,125 – 2	0,06 – 8
Аминогликозид	Гентамицин	GM	0,5 – 16	0,5 – 16	—
Аминогликозид	Гентамицин-син.	GMS	—	500	250 – 1000
Аминогликозид	Гентамицин-син. (SFM)	GMF	—	250	—
Циклический липопептид	Даптомицин	DAP	—	0,125 – 32	0,03 – 16
Тетрациклин	Доксициклин	D	—	0,25 – 16	—
Аминогликозид	Изепамицин	ISP	0,5 – 32	—	—
Бета-лактам	Имипенем	IPM	0,25 – 16	0,5 – 16	0,015 – 4
Аминогликозид	Канамицин	K	0,5 – 64	0,5 – 64	—
Аминогликозид	Канамицин-син.	KS	—	250	250 – 1000
Макролид линкозамид стрептограммины	Кларитромицин	CLR	—	0,06 – 8	—
Макролид линкозамид	Клиндамицин	CC	—	0,12 – 8	0,03 – 4
Циклический пептид	Колистин	CL	0,5 – 4	—	—
Макролид линкозамид стрептограммины	Куинупристин-далфопристин	SYN	—	0,5 – 4	0,12 – 8
Хинолон	Левифлоксацин	LVX	0,25 – 8	0,25 – 8	0,25 – 16
Оксазолидинон	Линезолид	LZD	—	0,25 – 32	0,25 – 16
Макролид линкозамид стрептограммины	Линкомицин	L	—	0,5 – 16	—
Хинолон	Ломефлоксацин	LOM	0,25 – 8	0,25 – 8	—
Бета-лактам	Меропенем	MEM	0,25 – 16	0,5 – 16	0,03 – 2
Бета-лактам	Мециллинам	MEC	0,5 – 32	—	—
Тетрациклин	Миноциклин	MI	0,5 – 16	0,5 – 32	—
Бета-лактам	Моксалактам	MOX	1 – 64	1 – 64	—

Противомикробный препарат			Доступные концентрации		
Класс	Название препарата ↓	Код препарата	Грамотрица	Грамполож	Strep
			тельные	ительные	
			Диапазон	Диапазон	Диапазон
Хинолон	Моксифлоксацин	MXF	0,12 – 8	0,12 – 8	0,06 – 8
Псевдомониевая кислота	Мупироцин	MUP	—	0,0625 – 8	—
Хинолон	Налидиксовая кислота	NA	1 – 32	—	—
Аминогликозид	Нетилмицин	NET	0,5 – 32	0,5 – 32	—
Нитрофуран	Нитрофурантоин	FM	8 – 512	16 – 512	—
Хинолон	Норфлоксацин	NOR	0,25 – 16	0,25 – 16	—
Бета-лактам	Оксациллин	OX	—	0,06 – 4	—
Хинолон	Офлоксацин	OFX	0,25 – 8	0,25 – 8	0,5 – 16
Бета-лактам	Пенициллин G	P	—	0,06 – 32	0,03 – 8
Хинолон	Пефлоксацин	PEF	0,25 – 8	0,25 – 8	—
Бета-лактам	Пиперациллин	PIP	0,5 – 128	1 – 128	—
Бета-лактам	Пиперациллин-тазобактам	TZP	0,5/4 – 128/4	1/4 – 128/4	—
Макролид линкозамид стрептограммины	Пристинамицин	PR	—	0,25 – 4	0,06 – 4
Рифамицин	Рифампин	RA	—	0,25 – 32	—
Аминогликозид	Стрептомицин-син.	STS	—	1000	250 – 1000
Аминогликозид	Стрептомицин-син. (SFM)	STF	—	250	—
Гликопептид	Тейкопланин	TEC	—	0,5 – 32	1 – 32
Кетолид	Телитромицин	TEL	—	0,03125 – 8	0,06 – 4
Бета-лактам	Темоциллин	TEM	2 – 32	—	—
Тетрациклин	Тетрациклин	TE	0,5 – 16	0,5 – 16	0,06 – 16
Глицилциклин	Тигециклин	TGC	0,25 – 16	—	—
Бета-лактам	Тицарциллин	TIC	1 – 128	1 – 128	—
Бета-лактам	Тицарциллин-клавуланат	TIM	1/2-128/2	1/2 – 128/2	—
Аминогликозид	Тобрамицин	NN	0,12 – 16	1 – 16	—
Антагонист фолатов	Триметоприм	TMP	0,5 – 16	0,5 – 16	—
Антагонист фолатов	Триметоприм-сульфаметоксазол	SXT	0,5/9,5 – 16/304	0,5/9,5 – 16/304	0,06/1,19 – 16/304
Антагонист фолатов	Триметоприм/сульфат (DIN)	STG	0,4/7,6 – 12,8/243,2	0,4/7,6 – 12,8/243,2	—

Противомикробный препарат			Доступные концентрации		
Класс	Название препарата ↓	Код препарата	Грамотрица	Грамполож	Strep
			тельные	ительные	
			Диапазон	Диапазон	Диапазон
Фосфомицин	Фосфомицин	FF	8 – 256	8 – 256	—
Фузидан	Фузидовая кислота	FA	—	0,5 – 32	—
Феникол	Хлорамфеникол	C	1 – 32	1 – 32	1 – 32
Бета-лактам	Цефазолин	CZ	0,5 – 32	0,5 – 32	—
Бета-лактам	Цефаклор	CEC	—	0,5 – 32	—
Бета-лактам	Цефалексин	CN	1 – 64	0,5 – 64	—
Бета-лактам	Цефалотин	CF	1 – 64	0,5 – 64	—
Бета-лактам	Цефдинир	CDR	0,12 – 4	0,12 – 4	—
Бета-лактам	Цефдиторен	CDN	0,125 – 8	0,125 – 8	—
Бета-лактам	Цефепим	FEP	0,5 – 64	1 – 64	0,06 – 4
Бета-лактам	Цефетамет- пивоксил	CAT	0,25 – 16	—	—
Бета-лактам	Цефиксим	CFM	0,125 – 8	—	—
Бета-лактам	Цефметазол	CMZ	2 – 64	1 – 64	—
Бета-лактам	Цефозопран	CFZ	—	1 – 64	—
Бета-лактам	Цефокситин	FOX	0,5 – 64	1 – 64	—
Бета-лактам	Цефоперазон	CFP	0,5 – 64	1 – 64	—
Бета-лактам	Цефоперазон- сульбактам	SCP	0,5/8 – 64/8	—	—
Бета-лактам	Цефотаксим	CTX	0,5 – 64	1 – 64	0,06 – 4
Бета-лактам	Цефотетан	CTT	2 – 64	1 – 64	—
Бета-лактам	Цефотиам	CFT	0,5 – 64	0,5 – 64	—
Бета-лактам	Цефпиром	CPO	0,5 – 64	0,5 – 64	—
Бета-лактам	Цефподоксим	CPD	0,12 – 8	0,5 – 8	—
Бета-лактам	Цефсулодин	CFS	1 – 64	—	—
Бета-лактам	Цефтазидим	CAZ	0,5 – 64	1 – 64	—
Бета-лактам	Цефтибутен	CTB	0,5 – 32	—	—
Бета-лактам	Цефтизоксим	ZOX	0,5 – 64	1 – 64	—
Бета-лактам	Цефтриаксон	CRO	0,5 – 64	1 – 64	0,06 – 4
Бета-лактам	Цефуроксим	CXM	1 – 64	1 – 64	0,12 – 4
Хинолон	Ципрофлоксацин	CIP	0,12 – 4	0,12 – 4	—

Противомикробный препарат			Доступные концентрации		
Класс	Название препарата ↓	Код препарата	Грамотрица	Грамполож	Strep
			тельные	ительные	
			Диапазон	Диапазон	Диапазон
Макролид линкозамид	Эритромицин	Е	—	0,125 – 8	0,015 – 4
Бета-лактам	Эртапенем	ЕТР	0,25 – 32	0,25 – 32	0,06 – 4

ЖИРНЫЙ = Разный диапазон для грамотрицательных и грамположительных типов

Вообще, система Phoenix предоставляет MIC для всех микроорганизмов в любых концентрациях, указанных на определенной панели. Для определенных комбинаций препаратов и микроорганизмов, приведенных в следующей таблице, выводится определенная минимальная/максимальная концентрация MIC, даже если на панели указана более низкая/высокая концентрация.

Противомикробный препарат	Микроорганизм	Мин. MIC (мкг/мл)	Макс. MIC (мкг/мл)
Грамотрицательные			
Амикацин	<i>Morganella morganii</i>	2	
Амоксициллин/клавулановая кислота (пост конц. клав. кислоты)	<i>Proteus mirabilis</i>	1/2	
Амоксициллиновая/клавулановая кислота (изм. конц. клав. кислоты)	<i>Proteus mirabilis</i>	2/1	
Арбекацин	<i>Enterobacter aerogenes</i>	1	
	<i>Morganella morganii</i>	1	
	Род <i>Providencia</i>	1	
Цефдинир	<i>Proteus mirabilis</i>	0,25	
Цефиксим	<i>Proteus mirabilis</i>	0,5	
	Род <i>Providencia</i>	0,5	
Цефотиам	<i>Citrobacter freundii</i>	2	
	<i>Proteus mirabilis</i>	4	
	Род <i>Providencia</i>	4	
Цефтриаксон	<i>Morganella morganii</i>	2	
Фосфомицин w/G6P	<i>Pseudomonas aeruginosa</i>	16	64
Фосфомицин w/G6P	Род <i>Serratia</i>	32	256
Гареноксацин	<i>Stenotrophomonas maltophilia</i>	1	
Имипенем	<i>Acinetobacter baumannii</i>	1	
	<i>Enterobacter aerogenes</i>	1	
	<i>Enterobacter cloacae</i>	1	
	<i>Morganella morganii</i>	2	
	<i>Proteus mirabilis</i>	2	
Канамицин	<i>Proteus mirabilis</i>	4	
Меропенем	<i>Proteus mirabilis</i>	0,5	
Тицарциллин	<i>Proteus mirabilis</i>	4	

Противомикробный препарат	Микроорганизм	Мин. MIC (мкг/мл)	Макс. MIC (мкг/мл)
Грамположительные			
Амикацин	<i>Staphylococcus epidermidis</i>	8	
	<i>Staphylococcus</i> другие*	8	
Амоксициллин	<i>Staphylococcus aureus</i>	2	
	<i>Staphylococcus epidermidis</i>	2	
Ампициллин	<i>Staphylococcus aureus</i>		1
	<i>Enterococcus</i> другие**	1	
Ампициллин/сульбактам (f) (SXA)	<i>Staphylococcus epidermidis</i>	1	
Ампициллин/сульбактам (SAM)	<i>Enterococcus</i> другие**	2	
Цефотетан	<i>Staphylococcus epidermidis</i>	8	
Цефтриаксон	<i>Staphylococcus aureus</i>	2	
Цефалексин	<i>Staphylococcus epidermidis</i>	1	
Даптомицин	<i>Enterococcus casseliflavus/</i> <i>gallinarum</i>	2	
	<i>Enterococcus</i> другие**	1	8
Нетилмицин	<i>Staphylococcus epidermidis</i>	2	
Норфлоксацин	<i>Enterococcus</i> другие**	2	
Пенициллин	<i>Staphylococcus aureus</i>		1
	<i>Staphylococcus epidermidis</i>		1
	<i>Enterococcus</i> другие**	2	
Пиперациллин	<i>Staphylococcus epidermidis</i>	2	
Тейкопланин	<i>Staphylococcus epidermidis</i>	2	
Тицарциллин	<i>Staphylococcus epidermidis</i>	4	
	<i>Staphylococcus</i> другие*	4	
Тицарциллин/клавуланат	<i>Staphylococcus aureus</i>	4/2	
Тровафлоксацин	<i>Enterococcus faecium</i>	1	

Streptococci

Даптомицин	Группа Viridans	0,25	
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* Коагулаза-отрицательный *Staphylococcus*, не *S. epidermidis*** *Enterococcus* sp., не *E. faecalis* и не *E. faecium*

15.2 Список реагентов и принципов, используемых в системе Phoenix

15.2.1 Грамотрицательные реагенты

НАЗВАНИЕ СУБСТРАТА	КОД	ПРИНЦИП
L-ФЕНИЛАЛАНИН-АМС	A_LPHET	Ферментативный гидролиз амидной или гликозидной связи приводит к высвобождению производной флюоресцентного кумарина или 4-метилумбеллиферона.
4МУ-N-АЦЕТИЛ-BD-ГЛЮКОЗАМИНИД	M_NAG	
ГЛУТАМИНОВАЯ КИСЛОТА (L-)-АМС	A_LGTA	
L-ТРИПТОФАН-АМС	A_LTRY	
L-ПИРОГЛУТАМИНОВАЯ КИСЛОТА-АМС	A_LPYR	
L-ПРОЛИН-АМС	A_LPROB	
L-АРГИНИН-АМС	A_LARGH	
АРГИНИН-АРГИНИН-АМС	A_ARARR	
ГЛИЦИН-АМС	A_GLYB	
L-ЛЕЙЦИН-АМС	A_LLEUH	
ЛИЗИН-АЛАНИН-АМС	A_LYALD	
ГЛУТАРИЛ-ГЛИЦИН-АРГИНИН-АМС	A_GUGAN	
ГЛИЦИН-ПРОЛИН-АМС	A_GLPRB	
КОЛИСТИН	C_CLST	Устойчивость к противомикробному препарату приводит к восстановлению индикатора на основе резазурина.
ПОЛИМИКСИН В	C_PXB	
D-МАННИТ	C_DMNT	Использование углеродных источников приводит к восстановлению индикатора на основе резазурина.
ЦИТРАТ	C_CIT	
АЦЕТАТ	C_ACT	
АДОНИТОЛ	C_ADO	
МАЛОНАТ	C_MLO	
АЛЬФА-КЕТОГЛУТАРОВАЯ КИСЛОТА	C_KGA	
ТИГЛИНОВАЯ КИСЛОТА	C_TIG	
ПОЛОЖИТЕЛЬНЫЙ КОНТРОЛЬ ФЛУОРЕСЦЕНЦИИ	FLR_CTL	Контроль для стандартизации результатов для флуоресцентных субстратов.
ПОЛОЖИТЕЛЬНЫЙ КОНТРОЛЬ ФЛУОРЕСЦЕНЦИИ	FLR_CTL	
L-ПРОЛИН-NA	N_LPROT	Ферментативный гидролиз бесцветного амидного субстрата высвобождает желтый п-нитроанилин.
ГАММА-L-ГЛУТАМИЛ-NA	N_LGGH	
BIS (PNP) ФОСФАТ	P_BPHO	Ферментативный гидролиз бесцветного арильного субстрата гликозида высвобождает желтый п-нитрофенол.
PNP-BD-ГЛЮКОЗИД	P_BDGLU	

BETA-ALLOSE	R BALL	Использование углеводородного субстрата приводит к снижению pH и изменению цвета индикатора (фенолового красного).
N-АЦЕТИЛ-ГАЛАКТОЗАМИН	R_NGA	
N-АЦЕТИЛ-ГЛЮКОЗАМИН	R_NGU	
СОРБИТ	R_DSBT	
САХАРОЗА	R_DSUC	
ГАЛАКТУРОНОВАЯ КИСЛОТА	R_GRA	
МАЛЬТУЛОЗА	R_MTU	
L-РАМНОЗА	R_LRHA	
BETA-GENTIOBIOSE	R_BGEN	
ДЕКСТРОЗА	R_DEX	
D-ГАЛАКТОЗА	R_DGAL	
D-ФРУКТОЗА	R_DFRU	
D-ГЛЮКОНОВАЯ КИСЛОТА	R_DGUA	
D-МЕЛИБИОЗА	R_DMLB	
L-АРАБИНОЗА	R_LARA	
МЕТИЛ-В-ГЛЮКОЗИД	R_MBGU	
ОРНИТИН	S_ORN	Использование орнитина приводит к увеличению pH и изменению флуоресцентного индикатора.
МОЧЕВИНА	S_URE	Гидролиз мочевины и образование аммиака приводят к увеличению pH и изменению цвета флуоресцентного индикатора.
ЭСКУЛИН	T_ESC	При наличии ионов железа гидролиз эскулина приводит к выпадению черного осадка.

15.2.2 Грамотрицательные реагенты

НАЗВАНИЕ СУБСТРАТА	КОД	ПРИНЦИП
4МУ-BD-ЦЕЛЛОБИОЗИД	M_BDCEL	Ферментативный гидролиз амидной или гликозидной связи приводит к высвобождению флуоресцентного производного кумарина или 4-метилумбеллиферона.
L-АЛАНИН-АМС	A_LALT	
4МУ-BD-ГЛЮКОЗИД	M_BDGLU	
L-ПРОЛИН-АМС	A_LPROB	
L-ПИРОГЛУТАМИНОВАЯ КИСЛОТА-АМС	A_LPYR	
L-ФЕНИЛАЛАНИН-АМС	A_LPHET	
L-ТРИПТОФАН-АМС	A_LTRY	
4МУ-ФОСФАТ	M_PHOS	
МЕТИОНИН-АМС	A_META	
4МУ-AD-ГЛЮКОЗИД	P_ADGLU	
АРГИНИН-АРГИНИН-АМС	A_ARARR	
ГЛИЦИН-ПРОЛИН-АМС	A_GLPRB	
4МУ-BD-ГЛЮКОРОНИД	M_BDGLC	
L-ЛЕЙЦИН-АМС	A_LLEUH	
4МУ-N-АЦЕТИЛ-BD-ГЛЮКОЗАМИНИД	M_NAG	
L-АРГИНИН-АМС	A_LARGH	
4МУ-ФОСФАТ (с трегалозой)	M_PHOT	
L-ГИСТИДИН-АМС	A_LHIST	
L-ИЗОЛЕЙЦИН-АМС	A_LISO	
4МУ-BD-ГАЛАКТОЗИД	M_BDGAL	

КОЛИСТИН	C_CLST	}	Устойчивость к противомикробному препарату приводит к восстановлению индикатора на основе резазурина.
ПОЛИМИКСИН В	C_PXB		
ГЛЮКОНОВАЯ КИСЛОТА (D-)	C_DGUA	}	Использование углеродных источников приводит к восстановлению индикатора на основе резазурина.
3-МЕТИЛГЛУТАРОВАЯ КИСЛОТА	C_3MGA		
D-ФРУКТОЗА	C_DFRU		
ИМИНОДИУКСУСНАЯ КИСЛОТА	C_IMN		
АЛЬФА-КЕТОГЛУТАРОВАЯ КИСЛОТА	C_KGA		
D-МАННИТ	C_DMNT		
3-МЕТИЛАДИПИНОВАЯ КИСЛОТА	C_MAA		
ТИМИДИН	C_THY		
ПОЛОЖИТЕЛЬНЫЙ КОНТРОЛЬ ФЛУОРЕСЦЕНЦИИ	FLR_CTL	}	Контроль для стандартизации результатов для флуоресцентных субстратов.
ПОЛОЖИТЕЛЬНЫЙ КОНТРОЛЬ ФЛУОРЕСЦЕНЦИИ	FLR_CTL		
АЛАНИН-АЛАНИН-PNA	N_ALALH	}	Ферментативный гидролиз бесцветного амидного субстрата высвобождает желтый п-нитроанилин.
L-ПРОЛИН-PNA	N_LPROT		
ВАЛИН-АЛАНИН-PNA	N_VAALA		
PNP-AD-ГЛЮКОЗИД	P_PAGLU	}	Ферментативный гидролиз бесцветного арильного субстрата гликозида высвобождает желтый п-нитрофенол.
PNP-ФОСФАТ	P_PHOL		
БЕТА-ГЕНТИОБИОЗ	R_BGEN	}	Использование углеводородного субстрата приводит к снижению pH и изменению цвета индикатора (фенолового красного).
D-САХАРОЗА	R_DSUC		
МАЛЬТОТРИОЗА	R_MTT		
N-АЦЕТИЛ-ГЛЮКОЗАМИН	R_NGU		
D-ТРЕГАЛОЗА	R_DTRE		
D-ТАГАТОЗА	R_DTAG		
МАЛЬТОЗА	R_MAL		
ДЕКСТРОЗА	R_DEX		
МЕТИЛ- α -D-ГЛЮКОЗИД	R_MGP		
МОЧЕВИНА	S_URE	}	Гидролиз мочевины и образование аммиака приводят к увеличению pH и изменению цвета флуоресцентного индикатора.
ЭСКУЛИН	T_ESC	}	При наличии ионов железа гидролиз эскулина приводит к выпадению черного осадка.
НИТРОЦЕФИН	L_NCF	}	Ферментативный гидролиз бета-лактама приводит к изменению цвета

15.2.3 Панель стрептококков

НАЗВАНИЕ СУБСТРАТА	КОД	ПРИНЦИП
АМИГДАЛИН	R_AMY	Использование углеводородного субстрата приводит к снижению pH и изменению цвета индикатора (феноловый красный).
D-ГАЛАКТОЗА	R_DGAL	
D-МАННИТ	R_DMTL	
D-РАФФИНОЗА	R_DRAF	
D-СОРБИТ	R_DSBT	
D-ТРЕГАЛОЗА	R_DTRE	
ДЕКСТРИН	R_DNX	
N-АЦЕТИЛ-ГЛЮКОЗАМИН	R_NGU	
ФЕНИЛГЛЮКОЗИД	R_PHG	
САЛИЦИН	R_SAL	
ONP-BD-ГЛЮКОЗИД	O_BOGLU	Ферментативный гидролиз бесцветного арилзамещенного гликозида высвобождает желтый п-нитрофенол.
PNP-AD-ГАЛАКТОЗИД	P_ADGAL	
PNP-BD-ЦЕЛЛОБИОЗИД	P_CELB	
PNP-BD-ГАЛАКТОЗИД	P_GALB	
PNP-AD-ГЛЮКОЗИД	P_PAGLU	
PNP-ФОСФАТ	P_PHOL	
АЛАНИН-АЛАНИН-PNA	N_ALALH	Ферментативный гидролиз бесцветного амидного субстрата высвобождает п-нитроанилид.
ВАЛИН-АЛАНИН-PNA	N_VAALA	
L-ЛИЗИН-PNA	N_LLYSB	
ПОЛОЖИТЕЛЬНЫЙ КОНТРОЛЬ ФЛУОРЕСЦЕНЦИИ	FLR_CTL	Контроль для стандартизации результатов для флуоресцентных субстратов.
ПОЛОЖИТЕЛЬНЫЙ КОНТРОЛЬ ФЛУОРЕСЦЕНЦИИ	FLR_CTL	
ТИМИДИН	THY	Использование углеродных источников приводит к восстановлению индикатора (на основе резазурина).
ПУЛЛУЛАН	PUL	
D-ТРЕГАЛОЗА	TRL	
D-ЛАКТОЗА	DLAC	

ЛИЗИН-АМС	A_LYSA	Ферментативный гидролиз амидной или гликозидной связи приводит к высвобождению флуоресцентного производного кумарина или 4-метилумбеллиферона.
СЕРИН-ТИРОЗИН-АМС	A_SETY	
L-ЦИТРУЛЛИН-АМС	A_LCTU	
ПОЛИГЛУТАМИНОВАЯ КИСЛОТА (L-)-АМС	A_LPYR	
ИЗОЛЕЙЦИН-АМС	A_LISO	
L-ТРИПТОФАН-АМС	A_LTRY	
L-ВАЛИН-АМС	A_LVAL	
АРГИНИН-АРГИНИН-АМС	A_ARARR	
ЛИЗИН-АЛАНИН-АМС	A_LYALD	
АСПАРАГИН-АМС	A_APGT	
L-АРГИНИН-АМС	A_LARGH	
L-ГИСТИДИН-АМС	A_LHIST	
АЛАНИН-АФС	Z_ALFT	
4МУ-BD-ЦЕЛЛОБИОЗИД	M_BDCEL	
4МУ-BD-ГЛЮКОЗИД	M_BDGLU	
4МУ-ФОСФАТ	M_PHOS	
4МУ-AD-ГЛЮКОЗИД	M_ADGLU	
4МУ-BD-ГЛЮКОРОНИД	M_BDGLC	
4МУ-N-АЦЕТИЛ-BD-ГЛЮКОЗАМИН	M_NAG	
4МУ-ФОСФАТ (с трегалозой)	M_PHOT	При наличии ионов железа гидролиз эскулина приводит к выпадению черного осадка.
4МУ-BD-ГАЛАКТОЗИД	M_BDGAL	
ЭСКУЛИН	T_ESC	

15.2.4 Панель дрожжей

НАЗВАНИЕ СУБСТРАТА	КОД	ПРИНЦИП
PNP-BD-ГЛЮКОЗИД	P_BDGLU	Ферментативный гидролиз бесцветного арильного субстрата гликозида высвобождает желтый п-нитрофенол.
PNP-AD-ГЛЮКОЗИД	P_PAGLU	
ONP-BD-ГЛЮКОЗИД	O_BOGLU	
L-СОРБОЗА	C_LSBO	Использование углеродных источников приводит к восстановлению индикатора на основе резазурина.
ДЕКСТРОЗА	C_DEX	
D-МАННИТ	C_DMNT	
D-САХАРОЗА	C_DSUC	
METHYL-AD-ГЛЮКОПИРАНОЗИД	C_MGP	
N-АЦЕТИЛ-BD-ГЛЮКОЗАМИНИД	C_NAG	
ДЕКСТРОЗА	R_DEX	Использование углеводородного субстрата приводит к снижению pH и изменению цвета индикатора (фенолового красного).
D-ФРУКТОЗА	R_DFRU	
D-ГАЛАКТОЗА	R_DGAL	
САХАРОЗА	R_DSUC	
D-ТРЕГАЛОЗА	R_DTRE	
МАЛЬТОТРИОЗА	R_MTT	
ЭСКУЛИН	T_ESC	При наличии ионов железа гидролиз эскулина приводит к выпадению черного осадка.
ОТРИЦАТЕЛЬНЫЙ ФЛУОРЕСЦЕНТНЫЙ КОНТРОЛЬ	Z_FTST	Контроль наличия флуоресцентных помех.
ПОЛОЖИТЕЛЬНЫЙ ФЛУОРЕСЦЕНТНЫЙ КОНТРОЛЬ	FLR_CTL	Контроль для стандартизации результатов для флуоресцентных субстратов.
ПОЛОЖИТЕЛЬНЫЙ ФЛУОРЕСЦЕНТНЫЙ КОНТРОЛЬ	FLR_CTL	
ГАММА-L-ГЛУТАМИЛ-NA	N_LGGH	Ферментативный гидролиз бесцветного амидного субстрата высвобождает желтый п-нитроанилин.
L-ПРОЛИН-PNA	N_LPROT	

АСПАРАГИН-АМС	A_APGT	Ферментативный гидролиз амидной или гликозидной связи приводит к высвобождению флуоресцентных производных кумарина или 4-метилумбеллиферона.
L-АРГИНИН-АМС	A_LARGH	
ГЛУТАМИНОВАЯ КИСЛОТА (L-)-АМС	A_LGLNB	
L-ТИРОЗИН-АМС	A_LTYO	
L-ГИСТИДИН-АМС	A_LHIST	
ОРНИТИН-АМК	A_ORN	
ТРЕОНИН-АМС	A_THR	
ОКСИПРОЛИН-АМС	A_LHYP	
4МУ-N-АЦЕТИЛ-BD-ГЛЮКОЗАМИН	M_NAG	
4МУ-AD-ГЛЮКОЗИД	M_ADGLU	
4МУ-ФОСФАТ	M_PHOS	
ЛИЗИН-АЛАНИН-АМС	A_LYALD	
ГЛИЦИН-АРГИНИН-АМС	A_GLARH	
АЛАНИН-AFC	Z_ALFT	
ГЛИЦИН-АМС	A_GLYB	
L-ЦИТРУЛЛИН-АМС	A_LCTU	
ГЛУТАМИНОВАЯ КИСЛОТА (L-)-АМС	A_LGTA	
L-ВАЛИН-АМС	A_LVAL	
L-АЛАНИН-АМС	A_LALT	
L-ПРОЛИН-АМС	A_LPROB	
L-ТРИПТОФАН-АМС	A_LTRY	
Н-В-АЛАНИН-АМС	A_HBALT	
4МУ-BD-ЦЕЛЛОБИОЗИД	M_BDCEL	
4МУ-BD-ГЛЮКОЗИД	M_BDGLU	
ГЛИЦИН-ПРОЛИН-АМС	A_GLPRB	
ЛИЗИН-ПРОЛИН-АМС	A_LYPRA	
БЕНЗИЛ-L-ЦИСТЕИН-АМС	A_BZLCY	
АМИНОКИСЛОТА	S_GTN	Использование аминокислоты приводит к изменению флуоресценции.
МОЧЕВИНА	S_URE	Гидролиз мочевины и образование аммиака приводят к увеличению pH и изменению цвета флуоресцентного индикатора.

15.3 Таксоны для определения ID/AST

15.3.1 Грамотрицательные реагенты (0,5 McFarland)

ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Achromobacter denitrificans</i>	AST	<i>Aeromonas schubertii</i>	ID/AST
<i>Achromobacter piechaudii</i>	AST	<i>Aeromonas sobria</i>	ID/AST
<i>Achromobacter</i> виды	ID/AST	<i>Aeromonas trota</i>	AST
<i>Achromobacter xylosoxidans</i> ssp <i>xylosoxidans</i>	AST	<i>Aeromonas veronii</i>	ID/AST
<i>Acinetobacter baumannii</i> ²	ID/AST	<i>Alcaligenes faecalis</i>	ID/AST
<i>Acinetobacter baumannii</i> / <i>calcoaceticus</i> комплекс ²	ID/AST	<i>Bergeyella zoohelcum</i>	ID
<i>Acinetobacter calcoaceticus</i>	AST	<i>Bordetella bronchiseptica</i>	ID
<i>Acinetobacter haemolyticus</i>	ID/AST	<i>Brevundimonas diminuta</i>	ID/AST
<i>Acinetobacter johnsonii</i>	AST	<i>Brevundimonas vesicularis</i>	ID/AST
<i>Acinetobacter junii</i>	AST	<i>Burkholderia caryophylli</i>	AST
<i>Acinetobacter lwoffii</i>	ID/AST	<i>Burkholderia cepacia</i>	ID/AST
<i>Acinetobacter radioresistens</i>	AST	<i>Burkholderia gladioli</i>	ID/AST
<i>Acinetobacter</i> виды	ID/AST	<i>Burkholderia glathei</i>	AST
<i>Actinobacillus lignieresii</i>	ID	<i>Burkholderia graminis</i>	AST
<i>Actinobacillus suis</i>	ID	<i>Burkholderia multivorans</i>	AST
<i>Actinobacillus ureae</i>	ID	<i>Burkholderia phenazinium</i>	AST
<i>Aeromonas allosaccharophila</i>	AST	<i>Burkholderia pyrocinia</i>	AST
<i>Aeromonas caviae</i>	ID/AST	<i>Cardiobacterium hominis</i>	ID
<i>Aeromonas eucrenophila</i>	AST	Грынна EF-4a CDC	ID
<i>Aeromonas hydrophila</i>	ID/AST	Грынна EF-4b CDC	ID
<i>Aeromonas jandaei</i>	AST	Грынна EO-2 CDC	ID
<i>Aeromonas media</i>	AST	Грынна Vb-3 CDC	ID
<i>Aeromonas salmonicida</i>	AST	<i>Cedecea davisae</i>	ID/AST
<i>Aeromonas salmonicida</i> ssp <i>achromogenes</i>	AST	<i>Cedecea lapagei</i>	ID/AST
<i>Aeromonas salmonicida</i> ssp <i>masoucida</i>	ID/AST	<i>Cedecea neteri</i>	ID/AST
<i>Aeromonas salmonicida</i> ssp <i>pectinolytica</i>	AST	<i>Cedecea</i> виды 3	AST
<i>Aeromonas salmonicida</i> ssp <i>salmonicida</i>	ID/AST	<i>Cedecea</i> виды 5	AST
<i>Aeromonas salmonicida</i> ssp <i>smithia</i>	ID/AST	<i>Chromobacterium violaceum</i>	ID
		<i>Chryseobacterium gleum</i>	ID/AST

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем «Набора правил интерпретации» (раздел 2.3.1).

¹ Оценка клинических характеристик проводилась не для всех видов

² Микроорганизмы, исследованные в клинических лабораториях, и ≥ 20 штаммов, доступных для противомикробного/микроорганизменного анализа характеристик

ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Chryseobacterium indologenes</i>	ID/AST	<i>Enterobacter nimipressuralis</i>	AST
<i>Chryseobacterium scophthalmum</i>	AST	<i>Enterobacter sakazakii</i>	ID/AST
<i>Citrobacter amalonaticus</i>	ID/AST	<i>Escherichia blattae</i>	AST
<i>Citrobacter braakii</i>	ID/AST	<i>Escherichia coli</i> ²	ID/AST
<i>Citrobacter farmeri</i>	ID/AST	<i>Escherichia fergusonii</i>	ID/AST
<i>Citrobacter freundii</i>	ID/AST	<i>Escherichia hermannii</i>	ID/AST
<i>Citrobacter gillenii</i>	AST	<i>Escherichia vulneris</i>	ID/AST
<i>Citrobacter koseri</i>	ID/AST	<i>Ewingella americana</i>	ID
<i>Citrobacter murlinae</i>	AST	<i>Grimontia hollisae</i>	ID
<i>Citrobacter rodentium</i>	AST	<i>Hafnia alvei</i>	ID/AST
<i>Citrobacter sedlakii</i>	ID/AST	<i>Kingella denitrificans</i>	ID
<i>Citrobacter werkmanii</i>	ID/AST	<i>Kingella kingae</i>	ID
<i>Citrobacter youngae</i>	ID/AST	<i>Klebsiella granulomatis</i>	AST
<i>Comamonas terrigena</i>	ID	<i>Klebsiella oxytoca</i> ²	ID/AST
<i>Comamonas testosteroni</i>	ID	<i>Klebsiella pneumoniae ssp ozaenae</i>	ID/AST
<i>Cupriavidus gilardii</i>	AST	<i>Klebsiella pneumoniae ssp pneumoniae</i> ²	ID/AST
<i>Cupriavidus pauculus</i>	ID/AST	<i>Klebsiella pneumoniae ssp rhinoscleromatis</i>	ID/AST
<i>Delftia acidovorans</i>	ID/AST	<i>Kluyvera ascorbata</i>	ID/AST
<i>Edwardsiella hoshinae</i>	ID/AST	<i>Kluyvera cryocrescens</i>	ID/AST
<i>Edwardsiella ictaluri</i>	ID/AST	<i>Kluyvera georgiana</i>	AST
<i>Edwardsiella tarda</i>	ID/AST	<i>Kluyvera intermedia</i>	ID/AST
<i>Eikenella corrodens</i>	ID	<i>Leclercia adecarboxylata</i>	ID/AST
<i>Elizabethkingia meningoseptica</i>	ID/AST	<i>Leminorella grimontii</i>	ID
<i>Empedobacter brevis</i>	ID	<i>Leminorella richardii</i>	ID
<i>Enterobacter aerogenes</i> ²	ID/AST	<i>Mannheimia haemolytica</i>	ID
<i>Enterobacter amnigenus</i>	AST	<i>Methylobacterium extorquens</i>	ID
<i>Enterobacter amnigenus</i> биорепнна 1	ID/AST	<i>Moellerella wisconsensis</i>	ID/AST
<i>Enterobacter amnigenus</i> биорепнна 2	ID/AST	<i>Moraxella (Branhamella) catarrhalis</i>	ID
<i>Enterobacter asburiae</i>	ID/AST	<i>Moraxella</i> виды	ID
<i>Enterobacter cancerogenus</i>	ID/AST	<i>Morganella morganii</i> ²	ID/AST
<i>Enterobacter cloacae</i> ²	ID/AST	<i>Myroides odoratus/odoratimimus</i>	ID/AST
<i>Enterobacter cloacae ssp dissolvens</i>	AST	<i>Ochrobactrum anthropi</i>	ID/AST
<i>Enterobacter cowanii</i>	AST	<i>Oligella ureolytica</i>	ID
<i>Enterobacter gergoviae</i>	ID/AST	<i>Oligella urethralis</i>	ID
<i>Enterobacter hormaechei</i>	ID/AST	<i>Pantoea agglomerans</i>	ID/AST
<i>Enterobacter kobei</i>	AST	<i>Pantoea ananatis</i>	AST

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¹ Оценка клинических характеристик проводилась не для всех видов

² Микроорганизмы, исследованные в клинических лабораториях, и ≥ 20 штаммов, доступных для противомикробного/микроорганизменного анализа характеристик

ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ [*]	ID, AST, ID/AST [*]	ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST [*]
<i>Pantoea dispersa</i>	AST	<i>Ralstonia</i> виды	AST
<i>Pantoea stewartii</i> ssp <i>indologenes</i>	AST	<i>Raoultella ornithinolytica</i>	ID/AST
<i>Pantoea stewartii</i> ssp <i>stewartii</i>	AST	<i>Raoultella planticola</i>	AST
<i>Pasteurella aerogenes</i>	ID	<i>Raoultella terrigena</i>	AST
<i>Pasteurella multocida</i>	ID	<i>Rhizobium radiobacter</i>	ID
<i>Pasteurella pneumotropica</i>	ID	<i>Salmonella aberdeen</i>	AST
<i>Photobacterium damsela</i>	ID	<i>Salmonella abortus-equi</i>	AST
<i>Plesiomonas shigelloides</i>	ID	<i>Salmonella adelaide</i>	AST
<i>Pragia fontium</i>	ID	<i>Salmonella aderike</i>	AST
<i>Proteus hauseri</i>	AST	<i>Salmonella agona</i>	AST
<i>Proteus mirabilis</i> ²	ID/AST	<i>Salmonella alachua</i>	AST
<i>Proteus myxofaciens</i>	AST	<i>Salmonella anatum</i>	AST
<i>Proteus penneri</i>	ID/AST	<i>Salmonella arizonae</i>	AST
<i>Proteus vulgaris</i>	ID/AST	<i>Salmonella avana</i>	AST
<i>Providencia alcalifaciens</i>	ID/AST	<i>Salmonella bahrenfeld</i>	AST
<i>Providencia heimbachae</i>	AST	<i>Salmonella blockley</i>	AST
<i>Providencia rettgeri</i>	ID/AST	<i>Salmonella bongori</i>	AST
<i>Providencia rustigianii</i>	ID/AST	<i>Salmonella braenderup</i>	AST
<i>Providencia stuartii</i>	ID/AST	<i>Salmonella bredeney</i>	AST
<i>Pseudomonas aeruginosa</i> ²	ID/AST	<i>Salmonella bunn</i>	AST
<i>Pseudomonas alcaligenes</i>	AST	<i>Salmonella californica</i>	AST
<i>Pseudomonas fluorescens</i>	ID/AST	<i>Salmonella carrau</i>	AST
<i>Pseudomonas luteola</i>	ID/AST	<i>Salmonella cerro</i>	AST
<i>Pseudomonas mendocina</i>	ID/AST	<i>Salmonella champaign</i>	AST
<i>Pseudomonas monteilii</i>	AST	<i>Salmonella chittagong</i>	AST
<i>Pseudomonas oryzae</i>	ID/AST	<i>Salmonella choleraesuis</i>	AST
<i>Pseudomonas pertucinogena</i>	AST	<i>Salmonella choleraesuis</i> ssp <i>arizonae</i>	ID/AST
<i>Pseudomonas pseudoalcaligenes</i>	ID/AST	<i>Salmonella choleraesuis</i> ssp <i>choleraesuis</i>	ID/AST
<i>Pseudomonas putida</i>	ID/AST	<i>Salmonella choleraesuis</i> ssp <i>diarizonae</i>	AST
<i>Pseudomonas</i> виды	ID/AST	<i>Salmonella choleraesuis</i> ssp <i>houtenae</i>	AST
<i>Pseudomonas stutzeri</i>	ID/AST	<i>Salmonella choleraesuis</i> ssp <i>indica</i>	AST
<i>Pseudomonas veronii</i>	AST	<i>Salmonella choleraesuis</i> ssp <i>salamae</i>	AST
<i>Rahnella aquatilis</i>	ID	<i>Salmonella cubana</i>	AST
<i>Ralstonia pickettii</i>	ID/AST	<i>Salmonella dakar</i>	AST
<i>Ralstonia solanacearum</i>	AST	<i>Salmonella daressalaam</i>	AST

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² Микроорганизмы, исследованные в клинических лабораториях, и ≥ 20 штаммов, доступных для противомикробного/микроорганизменного анализа характеристик

ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Salmonella derby</i>	AST	<i>Salmonella montevideo</i>	AST
<i>Salmonella dessau</i>	AST	<i>Salmonella muenchen</i>	AST
<i>Salmonella DT</i>	AST	<i>Salmonella muenster</i>	AST
<i>Salmonella dublin</i>	AST	<i>Salmonella newington</i>	AST
<i>Salmonella duesseldorf</i>	AST	<i>Salmonella newport</i>	AST
<i>Salmonella enteritidis</i>	AST	<i>Salmonella nottingham</i>	AST
<i>Salmonella fresno</i>	AST	<i>Salmonella ohio</i>	AST
<i>Salmonella gallinarum</i>	ID/AST	<i>Salmonella onderstepoort</i>	AST
<i>Salmonella gaminara</i>	AST	<i>Salmonella oranienburg</i>	AST
<i>Salmonella give</i>	AST	<i>Salmonella panama</i>	AST
<i>Salmonella haardt</i>	AST	<i>Salmonella paratyphi A</i>	ID/AST
<i>Salmonella hadar</i>	AST	<i>Salmonella paratyphi B</i>	AST
<i>Salmonella hamburg</i>	AST	<i>Salmonella poona</i>	AST
<i>Salmonella hartford</i>	AST	<i>Salmonella pullorum</i>	ID/AST
<i>Salmonella heidelberg</i>	AST	<i>Salmonella quinhon</i>	AST
<i>Salmonella illinois</i>	AST	<i>Salmonella rubislaw</i>	AST
<i>Salmonella infantis</i>	AST	<i>Salmonella saintpaul</i>	AST
<i>Salmonella invernass</i>	AST	<i>Salmonella schwarzengrund</i>	AST
<i>Salmonella java</i>	AST	<i>Salmonella senftenberg</i>	AST
<i>Salmonella javiana</i>	AST	<i>Salmonella</i> виды	ID/AST
<i>Salmonella kentucky</i>	AST	<i>Salmonella tallahassee</i>	AST
<i>Salmonella kirkee</i>	AST	<i>Salmonella thompson</i>	AST
<i>Salmonella kunduchi</i>	AST	<i>Salmonella typhi</i>	ID/AST
<i>Salmonella kvittingfoss</i>	AST	<i>Salmonella typhimurium</i>	AST
<i>Salmonella lansing</i>	AST	<i>Salmonella virginia</i>	AST
<i>Salmonella litchfield</i>	AST	<i>Salmonella westerstede</i>	AST
<i>Salmonella liverpool</i>	AST	<i>Salmonella worthington</i>	AST
<i>Salmonella london</i>	AST	<i>Serratia entomophila</i>	AST
<i>Salmonella luciana</i>	AST	<i>Serratia ficaria</i>	ID/AST
<i>Salmonella manhattan</i>	AST	<i>Serratia fonticola</i>	ID/AST
<i>Salmonella mbandaka</i>	AST	<i>Serratia grimesii</i>	AST
<i>Salmonella meleagridis</i>	AST	<i>Serratia liquefaciens</i>	ID/AST
<i>Salmonella memphis</i>	AST	<i>Serratia marcescens</i> ²	ID/AST
<i>Salmonella michigan</i>	AST	<i>Serratia odorifera</i>	AST
<i>Salmonella minneapolis</i>	AST	<i>Serratia odorifera</i> 1	ID/AST

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² Микроорганизмы, исследованные в клинических лабораториях, и ≥ 20 штаммов, доступных для противомикробного/микроорганизменного анализа характеристик

ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Serratia odorifera</i> 2	ID/AST	<i>Vibrio alginolyticus</i>	ID
<i>Serratia plymuthica</i>	ID/AST	<i>Vibrio cholerae</i>	ID
<i>Serratia proteamaculans</i> ssp <i>proteamaculans</i>	AST	<i>Vibrio fluvialis</i>	ID
<i>Serratia proteamaculans</i> ssp <i>quinovora</i>	AST	<i>Vibrio metschnikovii</i>	ID
<i>Serratia rubidaea</i>	ID/AST	<i>Vibrio mimicus</i>	ID
<i>Shewanella algae</i>	AST	<i>Vibrio parahaemolyticus</i>	ID
<i>Shewanella putrefaciens</i>	ID/AST	<i>Vibrio vulnificus</i>	ID
<i>Shigella boydii</i>	ID/AST	<i>Weeksella virosa</i>	ID
<i>Shigella dysenteriae</i>	ID/AST	<i>Yersinia aldovae</i>	AST
<i>Shigella flexneri</i>	ID/AST	<i>Yersinia bercovieri</i>	AST
<i>Shigella sonnei</i>	ID/AST	<i>Yersinia enterocolitica</i>	ID/AST
<i>Shigella</i> виды	ID/AST	<i>Yersinia frederiksenii</i>	ID/AST
<i>Sphingobacterium multivorum</i>	ID/AST	<i>Yersinia intermedia</i>	ID/AST
<i>Sphingobacterium spiritivorum</i>	ID/AST	<i>Yersinia kristensenii</i>	ID/AST
<i>Sphingobacterium thalophilum</i>	ID/AST	<i>Yersinia mollaretii</i>	AST
<i>Sphingomonas paucimobilis</i>	ID/AST	<i>Yersinia pseudotuberculosis</i>	ID/AST
<i>Stenotrophomonas africana</i>	AST	<i>Yersinia rohdei</i>	AST
<i>Stenotrophomonas maltophilia</i> ²	ID/AST	<i>Yersinia ruckeri</i>	ID/AST
<i>Suttonella indologenes</i>	ID	<i>Yokenella regensburgei</i>	ID
<i>Tatumella ptyseos</i>	ID		

15.3.2 Грамотрицательные реагенты (0,25 McFarland)

ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Achromobacter</i> виды	ID/AST	<i>Aeromonas caviae</i>	ID/AST
<i>Acinetobacter baumannii</i> / <i>calcoaceticus</i> комплекс	ID/AST	<i>Aeromonas hydrophila</i>	ID/AST
<i>Acinetobacter haemolyticus</i>	ID/AST	<i>Aeromonas salmonicida</i> ssp <i>masoucida</i>	ID/AST
<i>Acinetobacter lwoffii</i>	ID/AST	<i>Aeromonas salmonicida</i> ssp <i>salmonicida</i>	ID/AST
<i>Actinobacillus lignieresii</i>	ID	<i>Aeromonas salmonicida</i> ssp <i>smithia</i>	ID/AST
<i>Actinobacillus suis</i>	ID	<i>Aeromonas schubertii</i>	ID/AST
<i>Actinobacillus ureae</i>	ID	<i>Aeromonas sobria</i>	ID/AST
		<i>Aeromonas veronii</i>	ID/AST

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем «Набора правил интерпретации» (раздел 2.3.1).

¹ Оценка клинических характеристик проводилась не для всех видов

² Микроорганизмы, исследованные в клинических лабораториях, и ≥ 20 штаммов, доступных для противомикробного/микроорганизменного анализа характеристик

ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ*	ID, AST, ID/AST*	ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ¹	ID, AST, ID/AST*
<i>Alcaligenes faecalis</i>	ID/AST	<i>Eikenella corrodens</i>	ID
<i>Bergeyella zoohelcum</i>	ID	<i>Elizabethkingia meningoseptica</i>	ID/AST
<i>Bordetella bronchiseptica</i>	ID	<i>Empedobacter brevis</i>	ID
<i>Brevundimonas diminuta</i>	ID/AST	<i>Enterobacter aerogenes</i>	ID/AST
<i>Brevundimonas vesicularis</i>	ID/AST	<i>Enterobacter amnigenus</i> биопрпнна 1	ID/AST
<i>Burkholderia cepacia</i>	ID/AST	<i>Enterobacter amnigenus</i> биопрпнна 2	ID/AST
<i>Burkholderia gladioli</i>	ID/AST	<i>Enterobacter asburiae</i>	ID/AST
<i>Cardiobacterium hominis</i>	ID	<i>Enterobacter cancerogenus</i>	ID/AST
Грпнна EF-4a CDC	ID	<i>Enterobacter cloacae</i>	ID/AST
Грпнна EF-4b CDC	ID	<i>Enterobacter gergoviae</i>	ID/AST
Грпнна EO-2 CDC	ID	<i>Enterobacter hormaechei</i>	ID/AST
Грпнна Vb-3 CDC	ID	<i>Enterobacter sakazakii</i>	ID/AST
<i>Cedecea davisae</i>	ID/AST	<i>Escherichia coli</i>	ID/AST
<i>Cedecea lapagei</i>	ID/AST	<i>Escherichia fergusonii</i>	ID/AST
<i>Cedecea neteri</i>	ID/AST	<i>Escherichia hermannii</i>	ID/AST
<i>Chromobacterium violaceum</i>	ID	<i>Escherichia vulneris</i>	ID/AST
<i>Chryseobacterium gleum</i>	ID/AST	<i>Ewingella americana</i>	ID
<i>Chryseobacterium indologenes</i>	ID/AST	<i>Grimontia hollisae</i>	ID
<i>Citrobacter amalonaticus</i>	ID/AST	<i>Hafnia alvei</i>	ID/AST
<i>Citrobacter braakii</i>	ID/AST	<i>Klebsiella oxytoca</i>	ID/AST
<i>Citrobacter farmeri</i>	ID/AST	<i>Klebsiella pneumoniae</i> ssp ozaenae	ID/AST
<i>Citrobacter freundii</i>	ID/AST	<i>Klebsiella pneumoniae</i> ssp pneumoniae	ID/AST
<i>Citrobacter koseri</i>	ID/AST	<i>Klebsiella pneumoniae</i> ssp rhinoscleromatis	ID/AST
<i>Citrobacter sedlakii</i>	ID/AST	<i>Kluyvera ascorbata</i>	ID/AST
<i>Citrobacter werkmanii</i>	ID/AST	<i>Kluyvera cryocrescens</i>	ID/AST
<i>Citrobacter youngae</i>	ID/AST	<i>Kluyvera intermedia</i>	ID/AST
<i>Comamonas terrigena</i>	ID	<i>Leclercia adecarboxylata</i>	ID/AST
<i>Comamonas testosteroni</i>	ID	<i>Leminorella grimontii</i>	ID
<i>Cupriavidus pauculus</i>	ID/AST	<i>Leminorella richardii</i>	ID
<i>Delftia acidovorans</i>	ID/AST	<i>Mannheimia haemolytica</i>	ID
<i>Edwardsiella hoshinae</i>	ID/AST	<i>Moellerella wisconsensis</i>	ID/AST
<i>Edwardsiella ictaluri</i>	ID/AST	<i>Morganella morganii</i>	ID/AST
<i>Edwardsiella tarda</i>	ID/AST	<i>Myroides odoratus/odoratimimus</i>	ID/AST

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем «Набора правил интерпретации» (раздел 2.3.1).

¹ Оценка клинических характеристик проводилась не для всех видов

ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Ochrobactrum anthropi</i>	ID/AST	<i>Serratia ficaria</i>	ID/AST
<i>Oligella ureolytica</i>	ID	<i>Serratia fonticola</i>	ID/AST
<i>Oligella urethralis</i>	ID	<i>Serratia liquefaciens</i>	ID/AST
<i>Pantoea agglomerans</i>	ID/AST	<i>Serratia marcescens</i>	ID/AST
<i>Pasteurella aerogenes</i>	ID	<i>Serratia odorifera</i> 1	ID/AST
<i>Pasteurella multocida</i>	ID	<i>Serratia odorifera</i> 2	ID/AST
<i>Pasteurella pneumotropica</i>	ID	<i>Serratia plymuthica</i>	ID/AST
<i>Photobacterium damsela</i>	ID	<i>Serratia rubidaea</i>	ID/AST
<i>Plesiomonas shigelloides</i>	ID	<i>Shewanella putrefaciens</i>	ID/AST
<i>Pragia fontium</i>	ID	<i>Shigella boydii</i>	ID/AST
<i>Proteus mirabilis</i>	ID/AST	<i>Shigella dysenteriae</i>	ID/AST
<i>Proteus penneri</i>	ID/AST	<i>Shigella flexneri</i>	ID/AST
<i>Proteus vulgaris</i>	ID/AST	<i>Shigella sonnei</i>	ID/AST
<i>Providencia alcalifaciens</i>	ID/AST	<i>Sphingobacterium multivorum</i>	ID/AST
<i>Providencia rettgeri</i>	ID/AST	<i>Sphingobacterium spiritivorum</i>	ID/AST
<i>Providencia rustigianii</i>	ID/AST	<i>Sphingobacterium thalpophilum</i>	ID/AST
<i>Providencia stuartii</i>	ID/AST	<i>Sphingomonas paucimobilis</i>	ID/AST
<i>Pseudomonas aeruginosa</i>	ID/AST	<i>Stenotrophomonas maltophilia</i>	ID/AST
<i>Pseudomonas fluorescens</i>	ID/AST	<i>Suttonella indologenes</i>	ID
<i>Pseudomonas luteola</i>	ID/AST	<i>Tatumella ptyseos</i>	ID
<i>Pseudomonas mendocina</i>	ID/AST	<i>Vibrio alginolyticus</i>	ID
<i>Pseudomonas oryzae</i>	ID/AST	<i>Vibrio cholerae</i>	ID
<i>Pseudomonas putida</i>	ID/AST	<i>Vibrio fluvialis</i>	ID
<i>Pseudomonas stutzeri</i>	ID/AST	<i>Vibrio metschnikovii</i>	ID
<i>Rahnella aquatilis</i>	ID	<i>Vibrio mimicus</i>	ID
<i>Ralstonia pickettii</i>	ID/AST	<i>Vibrio parahaemolyticus</i>	ID
<i>Raoultella ornithinolytica</i>	ID/AST	<i>Vibrio vulnificus</i>	ID
<i>Rhizobium radiobacter</i>	ID	<i>Weeksella virosa</i>	ID
<i>Salmonella choleraesuis</i> ssp <i>arizonae</i>	ID/AST	<i>Yersinia enterocolitica</i>	ID/AST
<i>Salmonella choleraesuis</i> ssp <i>choleraesuis</i>	ID/AST	<i>Yersinia frederiksenii</i>	ID/AST
<i>Salmonella gallinarum</i>	ID/AST	<i>Yersinia intermedia</i>	ID/AST
<i>Salmonella paratyphi</i> A	ID/AST	<i>Yersinia kristensenii</i>	ID/AST
<i>Salmonella pullorum</i>	ID/AST	<i>Yersinia pseudotuberculosis</i>	ID/AST
<i>Salmonella</i> виды	ID/AST	<i>Yersinia ruckeri</i>	ID/AST
<i>Salmonella typhi</i>	ID/AST	<i>Yokenella regensburgeri</i>	ID

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем «Набора правил интерпретации» (раздел 2.3.1).

¹ Оценка клинических характеристик проводилась не для всех видов

15.3.3 Грамположительные таксоны (0,5 McFarland)

ГРАМ ПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМ ПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Aerococcus urinae</i>	ID	<i>Enterococcus casseliflavus</i>	ID/AST
<i>Aerococcus viridans</i>	ID	<i>Enterococcus cecorum</i>	AST
<i>Alloiococcus otitidis</i>	ID	<i>Enterococcus columbae</i>	AST
<i>Arcanobacterium haemolyticum</i>	ID	<i>Enterococcus dispar</i>	AST
<i>Arcanobacterium pyogenes</i>	ID	<i>Enterococcus durans</i>	ID/AST
<i>Bacillus cereus</i>	ID	<i>Enterococcus faecalis</i>	ID/AST
<i>Bacillus circulans</i>	ID	<i>Enterococcus faecium</i>	ID/AST
<i>Bacillus coagulans</i>	ID	<i>Enterococcus flavescens</i>	AST
<i>Bacillus licheniformis</i>	ID	<i>Enterococcus gallinarum</i>	ID/AST
<i>Bacillus megaterium</i>	ID	<i>Enterococcus gilvus</i>	AST
<i>Bacillus pumilus</i>	ID	<i>Enterococcus haemoperoxidus</i>	AST
<i>Bacillus subtilis</i>	ID	<i>Enterococcus hirae</i>	ID/AST
<i>Bacillus thuringiensis</i>	ID	<i>Enterococcus malodoratus</i>	AST
<i>Brevibacillus brevis</i>	ID	<i>Enterococcus moraviensis</i>	AST
<i>Brevibacterium</i> виды	ID	<i>Enterococcus mundtii</i>	AST
<i>Cellulomonas turbata</i>	ID	<i>Enterococcus pallens</i>	AST
<i>Corynebacterium amycolatum</i>	ID	<i>Enterococcus pseudoavium</i>	AST
<i>Corynebacterium bovis</i>	ID	<i>Enterococcus raffinosus</i>	ID/AST
<i>Corynebacterium diphtheriae</i>	ID	<i>Enterococcus ratti</i>	AST
<i>Corynebacterium jeikeium</i>	ID	<i>Enterococcus saccharolyticus</i>	AST
<i>Corynebacterium kutscheri</i>	ID	<i>Enterococcus sulfureus</i>	AST
<i>Corynebacterium matruchotii</i>	ID	<i>Erysipelothrix rhusiopathiae</i>	ID
<i>Corynebacterium minutissimum</i>	ID	<i>Gardnerella vaginalis</i>	ID
<i>Corynebacterium propinquum</i>	ID	<i>Gemella haemolysans</i>	ID
<i>Corynebacterium pseudodiphtheriticum</i>	ID	<i>Gemella morbillorum</i>	ID
<i>Corynebacterium pseudotuberculosis</i>	ID	<i>Globicatella sanguinis</i>	ID
<i>Corynebacterium renale</i>	ID	<i>Helcococcus kunzii</i>	ID
<i>Corynebacterium striatum</i>	ID	<i>Kocuria kristinae</i>	ID
<i>Corynebacterium ulcerans</i>	ID	<i>Kocuria rosea</i>	ID
<i>Corynebacterium urealyticum</i>	ID	<i>Kocuria varians</i>	ID
<i>Corynebacterium xerosis</i>	ID	<i>Kytococcus sedentarius</i>	ID
<i>Dermabacter hominis</i>	ID	<i>Lactococcus garvieae</i>	ID
<i>Dermacoccus nishinomiyaensis</i>	ID	<i>Lactococcus lactis ssp cremoris</i>	ID
<i>Enterococcus asini</i>	AST	<i>Lactococcus lactis ssp hordniae</i>	ID
<i>Enterococcus avium</i>	ID/AST	<i>Lactococcus lactis ssp lactis</i>	ID

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем «Набора правил интерпретации» (раздел 2.3.1).

¹ Оценка клинических характеристик проводилась не для всех видов

ГРАМ ПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМ ПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Lactococcus plantarum</i>	ID	<i>Staphylococcus carnosus</i>	ID/AST
<i>Lactococcus raffinolactis</i>	ID	<i>Staphylococcus chromogenes</i>	ID/AST
<i>Leifsonia aquatica</i>	ID	<i>Staphylococcus cohnii</i>	ID/AST
<i>Leuconostoc citreum</i>	ID	<i>Staphylococcus cohnii ssp cohnii</i>	ID/AST
<i>Leuconostoc lactis</i>	ID	<i>Staphylococcus cohnii ssp urealyticum</i>	ID/AST
<i>Leuconostoc mesenteroides ssp cremoris</i>	ID	<i>Staphylococcus condimentii</i>	AST
<i>Leuconostoc mesenteroides ssp mesenteroides</i>	ID	<i>Staphylococcus delphini</i>	AST
<i>Leuconostoc pseudomesenteroides</i>	ID	<i>Staphylococcus epidermidis</i>	ID/AST
<i>Listeria grayi</i>	ID	<i>Staphylococcus equorum</i>	ID/AST
<i>Listeria innocua</i>	ID	<i>Staphylococcus felis</i>	ID/AST
<i>Listeria ivanovii</i>	ID	<i>Staphylococcus fleurettii</i>	AST
<i>Listeria monocytogenes</i>	ID	<i>Staphylococcus gallinarum</i>	ID/AST
<i>Listeria welshimeri</i>	ID	<i>Staphylococcus haemolyticus</i>	ID/AST
<i>Lysinibacillus sphaericus</i>	ID	<i>Staphylococcus hominis</i>	ID/AST
<i>Macrococcus caseolyticus</i>	ID	<i>Staphylococcus hyicus</i>	ID/AST
<i>Micrococcus luteus</i>	ID	<i>Staphylococcus intermedius</i>	ID/AST
<i>Micrococcus lylae</i>	ID	<i>Staphylococcus kloosii</i>	ID/AST
<i>Oerskovia xanthineolytica</i>	ID	<i>Staphylococcus lentus</i>	ID/AST
<i>Paenibacillus alvei</i>	ID	<i>Staphylococcus lugdunensis</i>	ID/AST
<i>Paenibacillus macerans</i>	ID	<i>Staphylococcus lutrae</i>	AST
<i>Pediococcus acidilactici</i>	ID	<i>Staphylococcus muscae</i>	AST
<i>Pediococcus damnosus</i>	ID	<i>Staphylococcus pasteurii</i>	ID/AST
<i>Pediococcus dextrinicus</i>	ID	<i>Staphylococcus piscifermentans</i>	AST
<i>Pediococcus parvulus</i>	ID	<i>Staphylococcus pulvereri</i>	AST
<i>Pediococcus pentosaceus</i>	ID	<i>Staphylococcus saccharolyticus</i>	AST
<i>Rhodococcus equi</i>	ID	<i>Staphylococcus saprophyticus</i>	ID/AST
<i>Rothia dentocariosa</i>	ID	<i>Staphylococcus schleiferi</i>	ID/AST
<i>Rothia mucilaginosa</i>	ID	<i>Staphylococcus schleiferi ssp coagulans</i>	ID/AST
<i>Staphylococcus arlettae</i>	AST	<i>Staphylococcus schleiferi ssp schleiferi</i>	ID/AST
<i>Staphylococcus aureus</i>	ID/AST	<i>Staphylococcus sciuri</i>	ID/AST
<i>Staphylococcus auricularis</i>	ID/AST	<i>Staphylococcus simulans</i>	ID/AST
<i>Staphylococcus capitis</i>	ID/AST	<i>Staphylococcus succinus ssp casei</i>	AST
<i>Staphylococcus capitis ssp capitis</i>	ID/AST	<i>Staphylococcus succinus ssp succinus</i>	AST
<i>Staphylococcus capitis ssp ureolyticus</i>	ID/AST	<i>Staphylococcus vitulinus</i>	ID/AST
<i>Staphylococcus caprae</i>	ID/AST		

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем «Набора правил интерпретации» (раздел 2.3.1).

¹ Оценка клинических характеристик проводилась не для всех видов

ГРАМ ПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ¹	ID, AST, ID/AST*	ГРАМ ПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ¹	ID, AST, ID/AST*
<i>Staphylococcus warneri</i>	ID/AST	<i>Streptococcus equinus</i>	ID
<i>Staphylococcus xylosus</i>	ID/AST	<i>Streptococcus gordonii</i>	ID
<i>Streptococcus acidominimus</i>	ID	<i>Streptococcus</i> группа C/G (большая колония)	ID
<i>Streptococcus agalactiae</i> (Strep. группа B)	ID	<i>Streptococcus intermedius</i>	ID
<i>Streptococcus anginosus</i>	ID	<i>Streptococcus mitis</i>	ID
<i>Streptococcus bovis</i> (Strep. группа D)	ID	<i>Streptococcus mutans</i>	ID
<i>Streptococcus bovis</i> I (Strep. группа D)	ID	<i>Streptococcus oralis</i>	ID
<i>Streptococcus bovis</i> II (Strep. группа D)	ID	<i>Streptococcus parasanguinis</i>	ID
<i>Streptococcus canis</i>	ID	<i>Streptococcus pneumoniae</i>	ID
<i>Streptococcus constellatus</i>	ID	<i>Streptococcus porcinus</i>	ID
<i>Streptococcus cristatus</i>	ID	<i>Streptococcus pyogenes</i> (Strep. группа A)	ID
<i>Streptococcus dysgalactiae</i> ssp <i>dysgalactiae</i>	ID	<i>Streptococcus salivarius</i>	ID
<i>Streptococcus dysgalactiae</i> ssp <i>equisimilis</i>	ID	<i>Streptococcus sanguinis</i>	ID
<i>Streptococcus equi</i>	ID	<i>Streptococcus sobrinus</i>	ID
<i>Streptococcus equi</i> ssp <i>equi</i>	ID	<i>Streptococcus uberis</i>	ID
<i>Streptococcus equi</i> ssp <i>zooepidemicus</i>	ID	<i>Streptococcus vestibularis</i>	ID

15.3.4 Грамположительные таксоны (0,25 McFarland)

ГРАМ ПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ¹	ID, AST, ID/AST*	ГРАМ ПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ¹	ID, AST, ID/AST*
<i>Aerococcus urinae</i>	ID	<i>Enterococcus raffinosus</i>	ID/AST
<i>Aerococcus viridans</i>	ID	<i>Gemella haemolysans</i>	ID
<i>Alloiococcus otitidis</i>	ID	<i>Gemella morbillorum</i>	ID
<i>Dermacoccus nishinomiyaensis</i>	ID	<i>Globicatella sanguinis</i>	ID
<i>Enterococcus avium</i>	ID/AST	<i>Helcococcus kunzii</i>	ID
<i>Enterococcus casseliflavus</i>	ID/AST	<i>Kocuria kristinae</i>	ID
<i>Enterococcus durans</i>	ID/AST	<i>Kocuria rosea</i>	ID
<i>Enterococcus faecalis</i>	ID/AST	<i>Kocuria varians</i>	ID
<i>Enterococcus faecium</i>	ID/AST	<i>Kytococcus sedentarius</i>	ID
<i>Enterococcus gallinarum</i>	ID/AST	<i>Lactococcus lactis</i> ssp <i>cremoris</i>	ID
<i>Enterococcus hirae</i>	ID/AST	<i>Lactococcus lactis</i> ssp <i>hordniae</i>	ID

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем «Набора правил интерпретации» (раздел 2.3.1).

¹ Оценка клинических характеристик проводилась не для всех видов

ГРАМ ПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМ ПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Lactococcus plantarum</i>	ID	<i>Staphylococcus lugdunensis</i>	ID/AST
<i>Leuconostoc citreum</i>	ID	<i>Staphylococcus pasteurii</i>	ID/AST
<i>Leuconostoc lactis</i>	ID	<i>Staphylococcus saprophyticus</i>	ID/AST
<i>Leuconostoc mesenteroides</i> ssp <i>mesenteroides</i>	ID	<i>Staphylococcus schleiferi</i> ssp <i>coagulans</i>	ID/AST
<i>Listeria innocua</i>	ID	<i>Staphylococcus schleiferi</i> ssp <i>schleiferi</i>	ID/AST
<i>Listeria monocytogenes</i>	ID	<i>Staphylococcus sciuri</i>	ID/AST
<i>Macrococcus caseolyticus</i>	ID	<i>Staphylococcus simulans</i>	ID/AST
<i>Micrococcus luteus</i>	ID	<i>Staphylococcus vitulinus</i>	ID/AST
<i>Micrococcus lylae</i>	ID	<i>Staphylococcus warneri</i>	ID/AST
<i>Pediococcus acidilactici</i>	ID	<i>Staphylococcus xylosus</i>	ID/AST
<i>Pediococcus damnosus</i>	ID	<i>Streptococcus agalactiae</i> (Strep. рpynnа B)	ID
<i>Pediococcus dextrinicus</i>	ID	<i>Streptococcus anginosus</i>	ID
<i>Pediococcus parvulus</i>	ID	<i>Streptococcus bovis</i> (Strep. рpynnа D)	ID
<i>Pediococcus pentosaceus</i>	ID	<i>Streptococcus bovis</i> I (Strep. рpynnа D)	ID
<i>Rothia mucilaginosa</i>	ID	<i>Streptococcus bovis</i> II (Strep. рpynnа D)	ID
<i>Staphylococcus aureus</i>	ID/AST	<i>Streptococcus constellatus</i>	ID
<i>Staphylococcus auricularis</i>	ID/AST	<i>Streptococcus cristatus</i>	ID
<i>Staphylococcus capitis</i>	ID/AST	<i>Streptococcus equi</i>	ID
<i>Staphylococcus caprae</i>	ID/AST	<i>Streptococcus gordonii</i>	ID
<i>Staphylococcus carnosus</i>	ID/AST	<i>Streptococcus</i> рpynnа C/G (большая колония)	ID
<i>Staphylococcus chromogenes</i>	ID/AST	<i>Streptococcus intermedius</i>	ID
<i>Staphylococcus cohnii</i> ssp <i>cohnii</i>	ID/AST	<i>Streptococcus mitis</i>	ID
<i>Staphylococcus cohnii</i> ssp <i>urealyticum</i>	ID/AST	<i>Streptococcus mutans</i>	ID
<i>Staphylococcus epidermidis</i>	ID/AST	<i>Streptococcus oralis</i>	ID
<i>Staphylococcus equorum</i>	ID/AST	<i>Streptococcus parasanguinis</i>	ID
<i>Staphylococcus felis</i>	ID/AST	<i>Streptococcus pneumoniae</i>	ID
<i>Staphylococcus gallinarum</i>	ID/AST	<i>Streptococcus porcinus</i>	ID
<i>Staphylococcus haemolyticus</i>	ID/AST	<i>Streptococcus pyogenes</i> (Strep. рpynnа A)	ID
<i>Staphylococcus hominis</i>	ID/AST	<i>Streptococcus salivarius</i>	ID
<i>Staphylococcus hyicus</i>	ID/AST	<i>Streptococcus sanguinis</i>	ID
<i>Staphylococcus intermedius</i>	ID/AST	<i>Streptococcus sobrinus</i>	ID
<i>Staphylococcus kloosii</i>	ID/AST	<i>Streptococcus uberis</i>	ID
<i>Staphylococcus lentus</i>	ID/AST	<i>Streptococcus vestibularis</i>	ID

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем «Набора правил интерпретации» (раздел 2.3.1).

¹ Оценка клинических характеристик проводилась не для всех видов

15.3.5 Стрептококки

СТРЕПТОКОККИ ТАКСОНЫ¹	ID, AST, ID/AST*	СТРЕПТОКОККИ ТАКСОНЫ¹	ID, AST, ID/AST*
<i>Streptococcus acidominimus</i>	ID/AST	<i>Streptococcus</i> группа C/G (большая колония)	ID/AST
<i>Streptococcus agalactiae</i> (Strep. группа B)	ID/AST	<i>Streptococcus</i> группа CFG (маленькая колония)	AST
<i>Streptococcus alactolyticus</i>	AST	<i>Streptococcus</i> группа D (не-энтерококк)	AST
<i>Streptococcus anginosus</i>	ID/AST	<i>Streptococcus</i> группа E	AST
<i>Streptococcus anginosus</i> (ранее <i>milleri</i>) группа	ID/AST	<i>Streptococcus</i> группа F	AST
<i>Streptococcus bovis</i> (Strep. группа D)	AST	<i>Streptococcus</i> группа G (большая колония)	AST
<i>Streptococcus bovis</i> I (Strep. группа D)	ID/AST	<i>Streptococcus</i> группа L	AST
<i>Streptococcus bovis</i> II (Strep. группа D)	ID/AST	<i>Streptococcus hyointestinalis</i>	AST
<i>Streptococcus canis</i>	ID/AST	<i>Streptococcus infantarius</i> ssp <i>coli</i>	AST
<i>Streptococcus constellatus</i>	ID/AST	<i>Streptococcus infantarius</i> ssp <i>infantarius</i>	AST
<i>Streptococcus criceti</i>	AST	<i>Streptococcus infantis</i>	AST
<i>Streptococcus cristatus</i>	ID/AST	<i>Streptococcus iniae</i>	AST
<i>Streptococcus downei</i>	AST	<i>Streptococcus intermedius</i>	ID/AST
<i>Streptococcus dysgalactiae</i>	AST		
<i>Streptococcus dysgalactiae</i> ssp <i>dysgalactiae</i>	ID/AST	<i>Streptococcus milleri</i> группа	AST
<i>Streptococcus dysgalactiae</i> ssp <i>equisimilis</i>	ID/AST	<i>Streptococcus mitis</i>	ID/AST
<i>Streptococcus dysgalactiae/canis</i>	ID/AST	<i>Streptococcus mitis</i> группа	ID/AST
<i>Streptococcus equi</i>	ID/AST	<i>Streptococcus mutans</i>	ID/AST
<i>Streptococcus equi</i> ssp <i>equi</i>	ID/AST	<i>Streptococcus mutans</i> группа	AST
<i>Streptococcus equi</i> ssp <i>zooepidemicus</i>	ID/AST	<i>Streptococcus oralis</i>	ID/AST
<i>Streptococcus equinus</i>	ID/AST	<i>Streptococcus parasanguinis</i>	ID/AST
<i>Streptococcus ferus</i>	AST	<i>Streptococcus peroris</i>	AST
<i>Streptococcus gallolyticus</i> ssp <i>macedonicus</i>	AST	<i>Streptococcus pneumoniae</i>	ID/AST
<i>Streptococcus gordonii</i>	ID/AST	<i>Streptococcus porcinus</i>	ID/AST
<i>Streptococcus</i> группа A (<i>Strep. pyogenes</i>)	AST	<i>Streptococcus pyogenes</i> (Strep. группа A)	ID/AST
<i>Streptococcus</i> группа B (<i>Strep. agalactiae</i>)	AST	<i>Streptococcus rattii</i>	AST
<i>Streptococcus</i> группа C (большая колония)	AST	<i>Streptococcus salivarius</i>	ID/AST

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем «Набора правил интерпретации» (раздел 2.3.1).

¹ Оценка клинических характеристик проводилась не для всех видов

СТРЕПТОКОККИ ТАКСОНЫ ¹	ID, AST, ID/AST*	СТРЕПТОКОККИ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Streptococcus salivarius</i> группа	AST	<i>Streptococcus thermophilus</i>	AST
<i>Streptococcus sanguinis</i>	ID/AST	<i>Streptococcus uberis</i>	ID/AST
<i>Streptococcus sanguinis</i> группа	AST	<i>Streptococcus vestibularis</i>	ID/AST
<i>Streptococcus sobrinus</i>	ID/AST	<i>Streptococcus viridans</i> группа	AST
<i>Streptococcus suis</i>	AST		

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем «Набора правил интерпретации» (раздел 2.3.1).

¹ Оценка клинических характеристик проводилась не для всех видов

15.3.6 Дрожжи

ТАКСОНЫ ДРОЖЖЕЙ	ID, AST, ID/AST	ТАКСОНЫ ДРОЖЖЕЙ	ID, AST, ID/AST
<i>Blastoschizomyces capitatus</i>	ID	<i>Candida rugosa</i>	ID
<i>Candida albicans</i>	ID	<i>Candida sake</i>	ID
<i>Candida apicola</i>	ID	<i>Candida sphaerica</i>	ID ¹
<i>Candida boidinii</i>	ID ²	<i>Candida tropicalis</i>	ID
<i>Candida braccarensis</i>	ID ¹	<i>Candida utilis</i>	ID
<i>Candida catenulata</i>	ID	<i>Candida viswanathii</i>	ID
<i>Candida ciferrii</i>	ID	<i>Candida zeylanoides</i>	ID
<i>Candida dubliniensis</i>	ID	<i>Cryptococcus albidus</i>	ID
<i>Candida firmetaria</i>	ID	<i>Cryptococcus humicolus</i>	ID
<i>Candida freyschussii</i>	ID	<i>Cryptococcus laurentii</i>	ID ²
<i>Candida glabrata</i>	ID	<i>Cryptococcus luteolus</i>	ID
<i>Candida guilliermondii</i>	ID	<i>Cryptococcus neoformans</i>	ID
<i>Candida guilliermondii</i> var <i>membranaefaciens</i>	ID	<i>Cryptococcus terreus</i>	ID ¹
<i>Candida haemulonii</i>	ID	<i>Cryptococcus uniguttulatus</i>	ID
<i>Candida inconspicua</i>	ID	<i>Exophiala</i> виды	ID
<i>Candida kefyr</i>	ID	<i>Geotrichum</i> виды	ID
<i>Candida krusei</i>	ID	<i>Hortaea werneckii</i>	ID
<i>Candida lipolytica</i>	ID	<i>Kloeckera</i> виды	ID ¹
<i>Candida lusitanae</i>	ID	<i>Malassezia furfur</i> комплекс	ID ¹
<i>Candida magnoliae</i>	ID	<i>Malassezia pachydermatis</i>	ID ¹
<i>Candida melibiosica</i>	ID	<i>Malassezia sympodialis</i>	ID ¹
<i>Candida membranaefaciens</i>	ID	<i>Pichia burtonii</i>	ID
<i>Candida norvegensis</i>	ID	<i>Pichia farinosa</i>	ID
<i>Candida parapsilosis</i> комплекс	ID	<i>Prototheca wickerhamii</i>	ID
<i>Candida pararugosa</i>	ID	<i>Prototheca zopfii</i>	ID
<i>Candida pelliculosa</i>	ID	<i>Rhodotorula glutinis</i>	ID
<i>Candida pulcherrima</i>	ID	<i>Rhodotorula minuta</i>	ID

¹ Только для сред SABDX, SABEM и SABHI

² Только для сред CHOC, COLSB, TSASB

ТАКСОНЫ ДРОЖЖЕЙ	ID, AST, ID/AST	ТАКСОНЫ ДРОЖЖЕЙ	ID, AST, ID/AST
<i>Rhodotorula mucilaginosa</i> var <i>mucilaginosa</i>	ID	<i>Trichosporon loubieri</i>	ID ¹
<i>Saccharomyces cerevisiae</i>	ID	<i>Trichosporon mucoides</i>	ID
<i>Sporobolomyces salmonicolor</i>	ID	<i>Trichosporon ovoides</i>	ID ²
<i>Trichosporon asahii</i>	ID	<i>Wangiella dermatitidis</i>	ID
<i>Trichosporon inkin</i>	ID ¹	<i>Zygosaccharomyces bailii</i>	ID ¹

¹ Только для сред SABDX, SABEM и SABHI

² Только для сред CHOC, COLSB, TSASB

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17 – Сообщения журнала событий

17.1 Сообщения, связанные с ЛИС

Функция «View Syslog» (Просмотр системного журнала) в меню «Maintenance» (Техническое обслуживание) позволяет просматривать сообщения, которые прибор записывает в журнал событий. Сообщения имеют следующий формат:

дата время тип сообщения: текст сообщения

где *дата* представляет собой день, месяц и год в выбранном Вами формате

время представляет собой время в выбранном Вами формате

тип сообщения — это один из следующих типов:

Интерфейсное сообщение ЛИС

Сообщение без согласования с системой ЛИС

Отмена заказов системы ЛИС

Сборка запросов ЛИС

Получение запросов ЛИС

Изменение конфигурации ЛИС

текст сообщения — это само текстовое сообщение

Ниже приведен список сообщений с описанием каждого сообщения и действий, которые можно предпринять для устранения проблемы. Эти сообщения группируются по *типам сообщений*, приведенным выше.

Интерфейсные сообщения ЛИС

Интерфейсные сообщения ЛИС — это сообщения библиотеки, генерируемые диспетчером системы ЛИС. Сообщения приведены в алфавитном порядке ниже.

«Bad Frame Received From LIS» (От системы ЛИС поступил пакет неправильного формата)

ОПИСАНИЕ. Эта ошибка генерируется, если система ЛИС загрузила пакет неправильного формата. Тип ошибки — LIS_NON_FATAL.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Для решения этой проблемы необходимо проверить отправляемую на прибор информацию с помощью монитора линии связи. Сравните полученную информацию с техническими характеристиками, приведенными в документации BD по интерфейсу системы ЛИС. Все обнаруженные расхождения необходимо исправить и повторить попытку передачи данных.

«Detailed Download Message Attached To Notification» (Подробное сообщение о загрузке отправлено в уведомлении)

ОПИСАНИЕ. Уведомления генерируются в том случае, если через порт было отправлено или получено полное сообщение. Тип ошибки — LIS_NOTIFY. Подробное описание не отображается.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Detailed Upload Message Attached To Notification» (Подробное сообщение о передаче отправлено в уведомлении)

ОПИСАНИЕ. Уведомления генерируются в том случае, если через порт было отправлено или получено полное сообщение. При этом главное приложение получает поступившую полную строку сообщения ASTM. Тип ошибки — LIS_NOTIFY. Подробное описание содержит строку сообщения ASTM.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Disallowed Characters Contained In Field» (Поле содержит недопустимые символы)

ОПИСАНИЕ. Эта ошибка генерируется в том случае, если передаваемое поле содержит недопустимые для передаваемого сообщения символы. Эти символы отличаются в зависимости от логического протокола, и они будут исключены из передаваемого поля. Тип ошибки — LIS_NON_FATAL. Подробное описание не отображается.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. При появлении данной ошибки необходимо сообщить об этом местному представителю компании BD для ее изучения.

«Download Field Was Concatenated» (Загружаемое поле сегментировано)

ОПИСАНИЕ. Это уведомление генерируется в том случае, если размер загружаемого поля превышает максимальный размер, установленный главным приложением. Поле будет разбито на несколько сегментов, чтобы соответствовать требованиям к максимальному размеру поля. Тип ошибки — LIS_LOG. Подробное описание не отображается.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. В данном случае содержимое необходимо проверить. Проверьте характеристики интерфейса системы ЛИС BD на ограничения длины полей в сообщениях. Затем необходимо обновить код ЛИС, чтобы информация, передаваемая на прибор, оставалась в определенных границах.

Интерфейсные сообщения ЛИС (продолжение)

**«Download Message Has A Bad Or Missing Header Record»
(Запись заголовка сообщения о загрузке имеет неправильный формат или отсутствует)**

ОПИСАНИЕ. Эта ошибка генерируется в том случае, если запись заголовка сообщения о загрузке имеет неправильный формат. Система мгновенного обмена сообщениями ЛИС не может продолжить обработку сообщения, и оно будет удалено. Тип ошибки — LIS_NON_FATAL. Подробное описание содержит сообщение ASTM, полученное от системы ЛИС.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Проверьте строку заголовка. Исправьте ошибку в заголовке и отправьте сообщение снова.

**«Download Physical Communication With LIS Has Begun»
(Началась загрузка по физической линии связи с ЛИС)**

ОПИСАНИЕ. Это уведомление генерируется в том случае, если процесс загрузки на физическом уровне активно загружает сообщение.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Это информационное сообщение, которое не требует выполнения каких-либо действий.

**«Download Physical Communication With LIS Has Completed»
(Загрузка по физической линии связи с ЛИС завершена)**

ОПИСАНИЕ. Это уведомление генерируется в том случае, если процесс загрузки на логическом уровне закончил обработку загружаемого сообщения.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Это информационное сообщение, которое не требует выполнения каких-либо действий.

**Download Record Is Out Of Sequence Or Has Bad Sequence Number
(Загружаемая запись находится вне последовательности или имеет неправильный порядковый номер).**

ОПИСАНИЕ. Эта ошибка генерируется в том случае, если загружаемая запись содержит записи с неправильными порядковыми номерами или записи с нарушением иерархии записей протокола логического уровня. Эта ошибка приводит к удалению сообщения из очереди загрузки. Тип ошибки — LIS_NON_FATAL.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Необходимо обновить приложение, генерирующее логическое сообщение, чтобы структура соответствовала техническим характеристикам стандарта ASTM для интерфейса. Большинство ответов на вопросы о содержимом сообщения можно найти в характеристиках интерфейса ЛИС BD и в характеристиках ASTM для интерфейса.

**«Early Termination Of Transfer Session By LIS»
(Система ЛИС преждевременно завершила процесс передачи данных)**

ОПИСАНИЕ. Эта ошибка генерируется в том случае, если возникает проблема связи с ЛИС. Контрольный символ окончания сеанса передачи данных был получен до того, как было получено соответствующее количество символов для пакета.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Проверьте пакеты, которыми производится обмен между прибором и ЛИС, чтобы убедиться, что в этих пакетах содержится правильное количество символов. Если в пакете содержится неправильное количество символов, обновите код таким образом, чтобы в каждом пакете содержалось правильное количество символов.

Интерфейсные сообщения ЛИС (продолжение)

«Expected Frame Not Sent» (Ожидаемый пакет не отправлен).

ОПИСАНИЕ. Эта ошибка генерируется в том случае, если возникает проблема связи с ЛИС. Система ЛИС инициировала сеанс передачи данных, но не отправила данные до истечения времени ожидания. Тип ошибки — LIS_NON_FATAL.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Подключите монитор линии связи и перезапустите передачу данных. Понаблюдайте за передачей данных, чтобы определить, была ли полностью закончена передача данных или она была прервана преждевременно. Если передача данных была завершена или система ЛИС пытается отправить данные, обратитесь к местному представителю компании BD за помощью. Если передача данных со стороны ЛИС оказалась неполной, необходимо исследовать код ЛИС на наличие проблем, которые могли бы прервать передачу данных преждевременно.

«Internal Assert Condition Found In LIS Library» (В библиотеке ЛИС обнаружено условие внутренней защиты)

ОПИСАНИЕ. Это сообщение указывает на то, что возникла непредвиденная ошибка в приборе. Появление данной ошибки приведет к перезагрузке прибора.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Обратитесь к местному представителю BD. При возникновении этой проблемы приложение записывает данные, которые указывают на причину защиты, в файл журнала. Представитель компании BD проинструктирует Вас, как правильно собрать данные при возникновении этого условия.

«LIS Debug Error» (Ошибка отладки ЛИС)

ОПИСАНИЕ. Эта ошибка генерируется при возникновении проблемы внутреннего физического уровня прибора. Эта ошибка может возникать при наличии запрещенного индекса или неподдерживаемых ID области памяти и т. д. Тип ошибки — LIS_FATAL.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Это неисправимая ошибка. Если эта ошибка появилась в файле журнала, обратитесь к местному представителю компании BD. Последовательность событий, вызвавших эту ошибку, должна быть документирована, чтобы представители компании BD могли воспроизвести ошибку и затем предоставить соответствующий порядок действий по устранению проблемы.

Интерфейсные сообщения ЛИС (продолжение)

«LIS Did Not Acknowledge Sent Frame» (ЛИС не подтвердила получение отправленного пакета)

ОПИСАНИЕ. Эта ошибка генерируется в том случае, если прибор отправил пакет системе ЛИС, но не получил подтверждение по истечении времени ожидания. Тип ошибки — LIS_NON_FATAL.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Это сообщение не должно появляться при нормальной работе интерфейса прибора. Если эта ошибка произошла при разработке интерфейса, группе разработчиков ЛИС нужно подключить монитор связи к последовательному кабелю интерфейса и проверить информацию, которой обмениваются два прибора. Возможно, система ЛИС не сгенерировала соответствующий ответ на отправленное прибором сообщение.

«LIS Is Not Responding To Output Request» (ЛИС не отвечает на исходящий запрос)

ОПИСАНИЕ – Эта ошибка возникает в том случае, если прибор пытается установить сеанс передачи данных, а система ЛИС не отвечает. При отправке этого сообщения прибор считает, что связь с системой ЛИС разорвана или система ЛИС отключена. Тип ошибки — LIS_NON_FATAL.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Проверьте, готов ли интерфейс ЛИС получать сообщения от прибора. Если ЛИС функционирует правильно, подключите монитор линии связи и проверьте полученную информацию. Если прибор пытается установить связь с ЛИС, необходимо проверить код для обмена информацией с прибором, и убедиться, что код подходит для получения информации, отправленной прибором.

«LIS Never Completed Current Frame» (ЛИС не завершает передачу текущего пакета)

ОПИСАНИЕ. Эта ошибка генерируется в том случае, если возникает проблема связи с ЛИС. Не были получены контрольные символы, означающие окончание передаваемого пакета.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. С помощью монитора линии связи проверьте пакеты, которыми производится обмен между прибором и ЛИС. Убедитесь, что проверены все передаваемые пакеты. Если какие-либо пакеты не содержат соответствующие символы окончания, внесите соответствующие изменения в код интерфейса для устранения проблемы.

«Logical Processing Of LIS Data Has Begun» (Началась логическая обработка данных ЛИС)

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Logical Processing Of LIS Data Has Completed» (Завершена логическая обработка данных ЛИС)

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Message Packet Passed To Host Application» (Пакет сообщений передан главному приложению)

ОПИСАНИЕ. Это уведомление генерируется в том случае, если система мгновенного обмена сообщениями ЛИС передала сообщение главному приложению. Это уведомление появляется в основном как сообщение отладки. Тип ошибки — LIS_LOG.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Пользователю не требуется предпринимать какие-либо действия. Информация включена, чтобы помочь производителям ЛИС отладить и реализовать интерфейс.

Интерфейсные сообщения ЛИС (продолжение)

«Message Received By LIS» (Система ЛИС получила сообщение)

ОПИСАНИЕ. Это уведомление генерируется после получения и подтверждения системой ЛИС сообщения от прибора.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Message Received From LIS» (Получено сообщение от ЛИС)

ОПИСАНИЕ. Это уведомление генерируется в том случае, если физический интерфейс получил загружаемое сообщение ЛИС надлежащим образом. Тип ошибки — LIS_LOG.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Это информационное сообщение, которое не требует выполнения каких-либо действий. Передача данных успешно завершена. Это сообщение генерируется даже в том случае, если сообщение содержало ошибки.

«Must Re-send Output Frame To LIS» (Необходимо отправить исходящий пакет системе ЛИС еще раз)

ОПИСАНИЕ. Это уведомление генерируется в том случае, если пакет, отправленный системой мгновенного обмена сообщениями ЛИС, не был получен системой ЛИС. Пакет сообщения будет отправлен снова в соответствии с техническими характеристиками протокола нижнего уровня. Тип ошибки — LIS_LOG.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Если это сообщение появляется редко, а сообщения, которыми производится обмен, завершены правильно, вероятно, не требуется предпринимать каких-либо действий. Если указанное выше сообщение появляется часто, вероятно, существует проблема в интерфейсе. Необходимо обратиться к производителю ЛИС и представителю компании BD для диагностики правильности функционирования интерфейса. Данное сообщение не должно появляться в журнале, если интерфейс функционирует правильно.

«No Queue Memory For Download Messages» (Недостаточно памяти для загрузки сообщений из очереди)

ОПИСАНИЕ. Прибор Phoenix разработан для функционирования с ограниченным объемом памяти (как определено в структуре конфигурации). Это сообщение генерируется в том случае, если ресурсы памяти полностью используются загружаемыми или передаваемыми сообщениями. Это уведомление может быть частым, если ЛИС пытается загрузить слишком много информации за один раз. Прибор Phoenix НЕ ПОДТВЕРДИТ данные, для которых он не может выделить память; системе ЛИС необходимо отправить эти данные снова.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Отправьте отклоненные прибором сообщения еще раз.

«No Queue Memory For Upload Messages» (Недостаточно памяти для передачи сообщений из очереди)

ОПИСАНИЕ. Прибор Phoenix разработан для функционирования с ограниченным объемом памяти (как определено в структуре конфигурации). Это сообщение генерируется в том случае, если ресурсы памяти полностью используются загружаемыми или передаваемыми сообщениями. Это сообщение не должно появляться при использовании интерфейса ЛИС прибора.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. При появлении этого сообщения необходимо сообщить представителю компании BD о данной проблеме. Если процесс, вызвавший проблему, документирован, это может помочь в ее устранении.

Интерфейсные сообщения ЛИС (продолжение)

«No Response Received From Previous LIS Request Message» (Не получен ответ на предыдущее сообщение запроса ЛИС)

ОПИСАНИЕ. Это уведомление генерируется в том случае, если система мгновенного обмена сообщениями ЛИС передала запрос, но не получила ответ. Это уведомление указывает на то, что первоначальный запрос был отменен. Это уведомление появляется после запроса спустя некоторый интервал времени, значение которого определено в структуре конфигурации. Тип ошибки — LIS_LOG. Подробное описание не отображено в текущей версии.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Проверьте правильность подключения системы ЛИС к прибору и убедитесь, что интерфейс ЛИС был активирован.

«Operating System Error» (Ошибка операционной системы)

ОПИСАНИЕ. Эта ошибка генерируется в том случае, если возникает ошибка в одном из компонентов системы. Эта ошибка может быть вызвана некоторыми ошибками ОС, включая неправильную инициализацию порта или неправильное создание идентификатора события и т. д. Эти ошибки не должны происходить при нормальном функционировании, и система мгновенного обмена сообщениями ЛИС не может быть восстановлена после них. Тип ошибки — LIS_FATAL.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. При появлении данной ошибки необходимо сообщить об этом местному представителю компании BD для ее изучения.

«Output Message Was Sent To LIS» (Системе ЛИС отправлено исходящее сообщение)

ОПИСАНИЕ. Это уведомление генерируется в том случае, если сообщение было успешно передано системе ЛИС. Тип ошибки — LIS_NOTIFY. Уведомление отправляется, когда прибор начинает отправлять сообщение системе ЛИС. Получение этого уведомления не означает, что сообщение было принято системой ЛИС..

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Queue Memory For Download Messages Free» (Память для загрузки сообщений из очереди свободна)

ОПИСАНИЕ. Это уведомление используется в паре с приведенным выше уведомлением «No Queue Memory For Download Messages» (Недостаточно памяти для загрузки сообщений из очереди). Это сообщение генерируется в том случае, если занятая до этого память освободилась.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Сообщение указывает пользователю пакетно-ориентированного интерфейса на то, что прибор может получать следующую группу сообщений.

«Queue Memory For Upload Messages Free» (Память для передачи сообщений из очереди свободна)

ОПИСАНИЕ. Это уведомление используется в паре с приведенным выше уведомлением «No Queue Memory For Upload Messages» (Недостаточно памяти для передачи сообщений из очереди). Это сообщение генерируется в том случае, если занятая до этого память освободилась.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Это сообщение не должно появляться в журнале при работе интерфейса. Если это сообщение появилось в файле журнала, обратитесь к местному представителю компании BD.

Интерфейсные сообщения ЛИС (продолжение)

«Response Message Received» (Получено ответное сообщение)

ОПИСАНИЕ. Это уведомление генерируется в том случае, если система ЛИС загрузила ответ на сгенерированный запрос BD. Это сообщение также указывает на то, что система мгновенного обмена сообщениями может передавать другой запрос системе ЛИС. Тип ошибки — LIS_NOTIFY. Подробное описание не отображено в текущей версии.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Unsupported Field In Configuration File» (В файле конфигурации содержится неподдерживаемое поле)

ОПИСАНИЕ. Эта ошибка генерируется при запуске, если поле в структуре конфигурации не соответствует ни одной из поддерживаемых конфигураций системы мгновенного обмена сообщениями ЛИС. Тип ошибки — LIS_FATAL.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. При появлении данной ошибки необходимо сообщить об этом местному представителю компании BD для ее изучения.

«Upload Physical Communication With LIS Has Begun» (Началась передача данных по физической линии связи с ЛИС)

ОПИСАНИЕ. Это уведомление генерируется в том случае, если процесс передачи на физическом уровне передает сообщение.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Upload Physical Communication With LIS Has Completed » (Передача по физической линии связи с ЛИС завершена)

ОПИСАНИЕ. Это уведомление генерируется в том случае, если процесс передачи на физическом уровне закончил отправку сообщения системе ЛИС.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Это информационное сообщение, которое не требует выполнения каких-либо действий.

Сообщение без согласования с системой ЛИС

Следующие разделы содержат возможные сообщения, связанные с записями журнала событий в ответ на несогласованные запросы загрузки. Сообщения приведены в алфавитном порядке ниже.

«LIS Response Error» (Ошибка ответа ЛИС)

ОПИСАНИЕ. Это сообщение появляется в том случае, если система ЛИС отправляет на прибор сообщение запроса неправильного формата. Системе ЛИС будет отправлено ответное сообщение об ошибке.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. При правильном функционировании интерфейса это сообщение не должно присутствовать в журнале. Если это сообщение обнаружено в журнале во время проверки или разработки интерфейса, необходимо пересмотреть и настроить код, ответственный за создание запросов, таким образом, чтобы запрос не включал неправильное поле. Неправильное поле будет последним сообщением «LIS Query Assembly» (Сборка запросов ЛИС), приведенным перед данным сообщением в файле журнала.

«LIS Sent Query Before Previous Query Completed» (Система ЛИС отправила запрос до того, как был завершен предыдущий запрос)

ОПИСАНИЕ. Это сообщение появляется в том случае, если система ЛИС инициирует запрос и, пока прибор обрабатывает этот запрос, ЛИС отменяет первый запрос и сразу же начинает другой.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. При правильном функционировании интерфейса это сообщение не должно присутствовать в журнале. Если это сообщение обнаружено в журнале во время проверки или разработки интерфейса, необходимо пересмотреть и настроить код, ответственный за создание запросов, таким образом, чтобы ЛИС не отправляла другой запрос, пока она ожидает отмену невыполненного запроса.

Сообщения об отмене заказов системы ЛИС

(Сообщение состоит из названия поля, обозначенного ниже символом *, и содержимого неправильного поля.)

ОПИСАНИЕ. Не удалось проверить ошибки указанного поля.

- * «Invalid Sequence Number Field» (Неправильное поле порядкового номера)
- «Missing Accession Number Field» (Отсутствует поле номера образца)
- «Invalid Accession Number Field» (Неправильное поле номера образца) [это поле не может содержать 12 цифр и начинаться с 42 или 50 – 59; см. прочие требования в разделе 5 «Справочная информация»]
- «Missing Isolate Field» (Отсутствует поле культуры)
- «Invalid Isolate Field» (Неправильное поле культуры)
- «Invalid Panel Usage» (Неправильное использование панели)
- «Invalid Test ID Field» (Неправильное поле идентификатора теста)
- «Invalid Test Strain for this QC Panel Type» (Неправильный тестовый штамм для данного типа панели контроля качества)
- «Mismatch Sequence Number & Test ID» (Несоответствие порядкового номера последовательности и идентификатора теста)
- «Missing Test ID Field» (Отсутствует поле идентификатора теста)
- «Invalid Organism ID Field» (Неправильное поле идентификатора микроорганизма)
- «Invalid Priority Field» (Неправильное поле приоритета)
- «Problem Storing Record to Database» (Проблема сохранения записи в базу данных)

При обнаружении этой ошибки сообщение о ней заносится в журнал, а оставшиеся проверки сообщения отменяются. В заказе могут быть другие ошибки, о которых не было сообщено. Приоритет проверки ошибки зависит от того, содержит ли заказ порядковый номер.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. В работающем интерфейсе возможно появление этих ошибок, если реализация ЛИС позволяет вводить в поля данные, которые нарушают правила полей прибора. В этом случае пользователь ЛИС должен ограничить символы, которые можно вводить в отправляемые прибору поля, символами, указанными в руководстве пользователя системы и допустимыми для полей. После согласования информации с правилами прибора и ее обновления нужно отправить заказ на прибор снова.

При разработке интерфейса разработчик интерфейса должен ограничить данные, которые можно отправлять на прибор, соответствующими для полей символами.

Сообщения о сборке запросов ЛИС

Приведенные ниже сообщения записываются в журнал независимо от того, правильные они или нет. Они помещаются в журнал для совместного использования с последующими сообщениями. При обнаружении ошибки в одном из полей содержимое неправильного поля записывается в журнал.

(Сообщение состоит из названия поля, обозначенного ниже символом **.)

ОПИСАНИЕ. Сообщение записывается в журнал, когда прибор передает запрос системе ЛИС.

- ** «Accession Number» (Номер образца)
- «Sequence Number» (Порядковый номер)
- «Test ID» (Идентификатор теста)
- «Test Status» (Состояние теста)
- «Result Qualifier» (Определитель результатов)
- «Time Qualifier» (Определитель времени)
- «Start Date/Time» (Дата/время начала)
- «End Date/Time» (Дата/время окончания)

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Если запрос является действительным, это сообщение является информационным; не требуется предпринимать каких-либо действий. Если запрос является недействительным, проверьте поле с ошибкой, исправьте ее и отправьте запрос снова.

(Сообщение состоит из названия поля и значения, обозначенного ниже символом *.)**

ОПИСАНИЕ. Сообщение записывается в журнал, когда прибор передает запрос системе ЛИС.

- *** «Sequence Number and the value» (Порядковый номер и значение)

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Это информационное сообщение, которое не требует выполнения каких-либо действий.

Сообщения об изменении конфигурации ЛИС

(Сообщение состоит из параметра конфигурации, обозначенного ниже символом * старого и нового значений.)

ОПИСАНИЕ. Сообщение записывается в журнал при изменении конфигурации ЛИС.

- ** «LIS Enabled Value Changed» (Система ЛИС включила измененное значение)
- «Send Interpretation Results Option Changed» (Изменен параметр отправки результатов интерпретации)
- «Unsolicited Queries Option Changed» (Изменен параметр запросов без согласования)
- «Send When Placed In Instrument Option Changed» (Изменен параметр отправки при установке в прибор)
- «Results Upload Options Changed» (Изменены параметры передачи результатов)
- «Baud Value Changed» (Изменено значение скорости передачи)
- «Data Bits Value Changed» (Изменено значение количества битов данных)
- «Parity Value Changed» (Изменено значение четности)
- «Stop Bits Value Changed» (Изменено значение количества стоповых битов)
- «Packed Frames Value Changed» (Изменено значение поля сжатых пакетов)

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ. Это информационное сообщение, которое не требует выполнения каких-либо действий.

[illegible]

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Указатель

Symboler

реагенты	E13 7-8
используемые на панелях Phoenix 7-8	E14 7-9
результаты идентификации 4-29, 4-30, 5-18	E15 7-9
добавление 4-35	E16 7-10
изменение 4-35	E18 7-10
результаты теста AST 5-16	E19 7-11
маркеры устойчивости 2-37, 3-8, 4-37	E20 7-11
руководство	E21 7-12
использование 1-11	E22 7-12
общие предостережения и предупреждения 1-13	E23 7-13
примечания, предостережения и	E25 7-13
предупреждения 1-12	E30 7-14
структура 1-10	E31 7-14
условные обозначения 1-11	E34 7-15
	E40 7-15
	E44 7-16
	E50 7-16

B

BD Diagnostics	
международные контакты 7-1	

E

E01 7-3	
E02 7-4	
E03 7-4	
E05 7-5	
E06 7-5	
E07 7-6	
E08 7-6	
E09 7-6	
E10 7-7	
E11 7-7, 7-8	
E12 7-8	

W

W100 7-16	
W101 7-17	
W102 7-17	
W200 7-17	
W201 7-17	
W202 7-17	
W203 7-18	
W300 7-18	
W301 7-18	
W302 7-18	
W303 7-18	
W304 7-19	
W305 7-19	

W (продолжение)

W401 7–19
W500 7–19
W501 7–20
W502 7–20
W503 7–20
W504 7–20
W505 7–21
W506 7–21
W507 7–21
W510 7–21
W600 7–22
W601 7–22
W602 7–22
W603 7–22
W604 7–23
W605 7–23
W606 7–23
W607 7–23
W608 7–24
W609 7–24
W700 7–24
W701 7–24
W702 7–24
W800 7–25
W801 7–25
W802 7–25
W803 7–25

Ж

ЖК-дисплей
автоматическое гашение экрана 3–5

Б

бульон AST (а также бульон AST-S)
использование 4–7
бульон идентификации
использование 4–5
хранение и обращение 4–2
быстрый отчет по результатам 2–34, 2–35, 2–36, 2–37

В

время
настройка часового пояса 2–10
установка 2–11
установка перехода на летнее время 2–10
установка формата 2–11
выключатель питания 3–3

Д

дезинфекция 6–8
дата
установка 2–11
установка формата 2–10
дискета
кнопка извлечения 3–6
дисковод гибких дисков
индикатор 3–6

Г

гарантия 7–1

З

запасные части 7–1
звуковые сигналы тревоги
значение 3–8
проверка 6–4
установка громкости 2–8
значки 2–32, 2–35, 2–39
экран «BDXpert Triggered Rules» (Применяемые
правила BDXpert) 4–37
BDXpert Triggered Rules, экран 5–19
Finalization, экран 5–27
Main Status, экран 5–4
Needs Attention, экран 5–58, 5–61
Panel Inventory, экран 5–58
Panel Login, экран 5–6
Panel Results, экран 5–10, 5–11
System Alerts, экран 5–59
конфигурация 2–5, 2–6, 2–24, 2–43

И

индикаторный раствор AST (а также индикаторный
раствор AST-S)
использование 4–7, 4–9
инструкция
ввод названия или адреса клиники или
лаборатории 2–12
включение/выключение связи с ЛИС 2–15
включить/выключить правила BDXpert 2–34
вход в панели 4–15, 4–16
вход в панели, загруженные из системы ЛИС 4–
19
выбор набора правил 2–8
действия с панелями, требующими внимания 4–
24
заправка панелей 4–8, 4–9
использование интерфейса прибора 4–15
конфигурация пользовательских правил 2–26, 2–
29, 2–31, 7–7
копирование конфигурации с одного прибора на
другой 6–13
настройка программного обеспечения 2–4, 2–5,
2–6, 2–7, 2–10, 2–11
настройка перехода на летнее время 2–10
обновление базы данных панелей 6–23, 6–25
осуществление обслуживания 7–1
отключение идентификации или проверки
чувствительности к противомикробным
препаратам на панели 4–16
отключение идентификации или теста
восприимчивости к противомикробным
препаратам на панели 6–27
проверка панели контроля качества 4–13, 4–14
просмотр результатов панели 4–32, 4–34, 4–35
просмотр инвентаризации панелей 5–56
печать отчета 4–44

И (продолжение)

подготовка панелей 4–4, 4–5, 4–8, 4–10
 сканирование штрих-кода 3–6
 установка времени 2–11
 установка даты 2–11
 установка громкости звукового сигнала тревоги 2–8
 установка кодов ЛИС для микроорганизмов 2–20
 установка кодов ЛИС для противомикробных препаратов 2–22
 установка номера прибора 2–7
 установка параметров связи ЛИС 2–14
 установка панелей в прибор 4–20
 установка плотности посева 2–12
 установка формата времени 2–11
 установка формата даты 2–10
 установка языка 2–7
 тестирование панели контроля качества 4–15

К

критические панели 2–35, 2–36, 3–8, 4–16, 4–18, 4–30
 клавиши

ЗАГРУЗКА ПАНЕЛЕЙ 3–5
 СТРЕЛКА ВНИЗ/ВВЕРХ 3–3
 программные 3–4
 ВЫГРУЗКА ПАНЕЛЕЙ 3–5
 ОТКЛЮЧЕНИЕ ЗВУКА СИГНАЛА ТРЕВОГИ 3–5
 ТАБУЛЯЦИЯ 3–4

клавиатура

местоположение 3–2
 функции клавиш 3–9

контроль качества 4–14, 4–15

М

маркеры устойчивости 2–37, 3–8, 4–33, 4–37

О

ошибки 4–42

отчеты 4–44

Различие точек прерывания 2–25
 Accession Lab, отчет 5–34
 BDxpert Rule Set Database, отчет 5–49
 Completed Lab, отчет 5–31
 Cumulative QC, отчет 5–41
 Lab Report 5–24
 Needs Attention List, отчет 5–36
 Organism ID Code List, отчет 5–50
 Resident Panel, отчет 5–37
 ежедневный отчет прибора 5–43
 ввод названия или адреса клиники или лаборатории 2–12
 включение/выключение автоматической печати 2–11
 краткий лабораторный отчет 2–9
 номер лота контроля качества 5–39
 маркеры устойчивости 2–37, 3–8, 4–32
 отчет базы данных лотов панелей 5–55
 отчет кодов противомикробных препаратов 5–51

О (продолжение)

отчет лота панели 5–53
 отчет набора правил интерпретации 5–45
 сводный отчет по окончательной обработке 4–40, 4–41
 установка времени автоматической печати отчета 2–11

П

предостережения 1–13

предупреждения 1–13

правила интерпретации

включение/выключение правил BDxpert 2–34
 включение/выключение системы BDxpert 2–8
 инструкции по выбору набора правил 2–8
 конфигурация пользовательских правил 2–26, 2–29, 2–31, 7–7

просмотр версии набора правил 2–8

просмотр применяемых правил BDxpert 4–35

прибор

электронное управление 1–7
 автоматическая настройка источника света 1–10
 индикаторы состояния панели 1–6
 инкубация 1–6
 нормализаторы 1–9
 маркировка 1–12
 оптическая система 1–5
 приводной механизм 1–5
 поворотный механизм 1–5
 сканеры штрих-кода 1–6

программное обеспечение

журнал обновлений 7–1

дерево меню 5–2

инструкция по использованию 4–15

настройка 2–4, 2–5, 2–6, 2–7, 2–10, 2–11

обзор 1–7

установка 2–43

программные клавиши

местоположение 3–4

противомикробный препарат

используемый на панелях Phoenix 7–1, 7–4, 7–5
 панели

реагенты 7–8

результаты идентификации 4–29, 4–30

рекомендации по обработке 4–5, 4–10

рекомендации по обращению 4–8

этикетки (применение) 4–5

«Phoenix Update Disk» (Диск обновления Phoenix) 6–24

автоматическое объединение результатов идентификации 4–30

временные требования 4–5, 4–7, 4–8, 4–9, 4–10

выгрузка 4–45

заправка 4–8, 4–9

изменение использования панели 6–25

инструкции по тестированию 4–22

инструкция по входу 4–15

критические 2–35, 2–36, 3–8, 4–16, 4–18, 4–30

П (продолжение)

- культуры 4–2
- материалы, необходимые для подготовки 4–4
- микробиологические опасности 4–4
- обзор 1–8
- обновление базы данных панелей 4–46, 6–25
- окончательная обработка 5–14
- окончательная обработка партии 4–39, 4–41
- отключение идентификации или теста восприимчивости к противомикробным препаратам на панели 6–27
- проверка после заправки 4–8, 4–10
- просмотр результатов 4–32, 4–34, 4–35
- противомикробные препараты 7–1
- противопоказанные среды 4–4
- порядок установки в прибор 4–20
- подготовка 4–4, 4–7, 4–8, 4–10
- станция заправки (фото) 1–8
- утилизация 4–45
- требуется внимания 4–24
- транспортировочная кассета (фото) 1–9
- таксоны для определения ID/AST 7–13
- хранение и обращение 4–2
- Таксоны для определения ID/AST 7–13
- плотность посева 2–12, 4–6, 4–7, 4–10

С

- сигналы тревоги 4–42
- система BD Phoenix
 - журнал обновлений программного обеспечения 7–1
 - ежедневное техническое обслуживание 6–2
 - еженедельное техническое обслуживание 6–4
 - дезинфекция 6–8
 - запасные части 7–1
 - контроль качества 4–13, 4–14, 4–15
 - назначение 1–1
 - настройка программного обеспечения 2–4, 2–5, 2–7, 2–10, 2–11
 - меры предосторожности 1–5
 - обзор прибора 1–5, 1–7
 - обзор программного обеспечения 1–7
 - обзор панели 1–8
 - обзор тестирования 1–9
 - обслуживание 7–1
 - общий вид прибора 3–2
 - предостережения 1–13
 - предупреждения 1–12
 - принципы методики 1–3
 - процесс запуска 2–43
 - пояснение теста 1–2
 - сигналы тревоги и ошибки 4–42
 - системные предупреждения 5–59
 - установка 2–2
 - установка программного обеспечения 2–43
 - тестирование панели 4–22
 - технические характеристики 2–3
- система связи LIS
 - просмотр системного журнала 6–31

С (продолжение)

- система связи LIS
 - эксплуатация 4–47, 4–49
 - настройка 2–15
 - просмотр системного журнала 6–32, 6–33, 6–34
- системные предупреждения
 - коды ошибок типа «E» 7–2
 - коды ошибок типа «W» 7–2
 - обзор 7–2
 - проверка 6–4
 - подкоды 7–3
 - типы 7–2
- сканеры штрих-кода
 - замена 6–44
 - очистка 6–7
- сканеры штрих-кодов 3–6
- станции
 - индикаторы состояния 3–7
 - проверка светодиодов 6–4

У

- уровни доступа 2–13, 2–14
- управление паролями 2–13, 2–14

Т

- техническое обслуживание
 - «Install Panel Configuration» (Установка конфигурации панелей) 6–22
 - «Modify Panel Usage» (Изменение использования панели) 6–25
 - «Phoenix Update Disk» (Диск обновления Phoenix) 6–24
 - «Read Light Source from Diskette» (Чтение файла источника света с дискеты) 6–29
 - «Restore LIS Codes from Disk» (Восстановление кодов ЛИС с диска) 6–14
 - «Restore Panel Lot Definitions» (Восстановление определений лотов панелей) 6–18
 - «Restore User Data from Disk» (Восстановление данных пользователя с диска) 6–11
 - «Save LIS Codes to Disk» (Сохранение кодов ЛИС на диске) 6–13
 - «Save Panel Configuration» (Сохранение конфигурации панелей) 6–20
 - «Save Panel Lot Definitions» (Сохранение определений лотов панелей) 6–16
 - «Save User Data to Disk» (Сохранение данных пользователя на диске) 6–9
 - «View Syslog» (Просмотр системного журнала) 6–31
 - «Write Light Source to Disk» (Запись файла источника света на дискету) 6–27
- ежедневное 4–2
- еженедельно 6–4
- дезинфекция 6–8
- замена воздушного фильтра 6–4, 6–5, 6–6
- исполнители 6–1
- меню программного обеспечения технического обслуживания 6–9

Б

Бульон AST (а также бульон AST-S)
хранение и обращение 4–2

Индикационный раствор AST (а также
индикационный раствор AST-S)
хранение и обращение 4–2

Карточка комментариев читателя

Руководство пользователя системы BD Phoenix (L-003342)

После ознакомления с прибором и прилагаемой к нему документацией уделите несколько минут оценке руководства. Ваши комментарии очень важны для нас. Они помогают повышать качество документации.
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Спасибо!

	Отлично	Хорошо	Нормально	Удовлетворительно	Плохо
Главы					
Содержание	☐	☐	☐	☐	☐
Введение	☐	☐	☐	☐	☐
Установка	☐	☐	☐	☐	☐
Элементы управления и индикаторы	☐	☐	☐	☐	☐
Эксплуатация	☐	☐	☐	☐	☐
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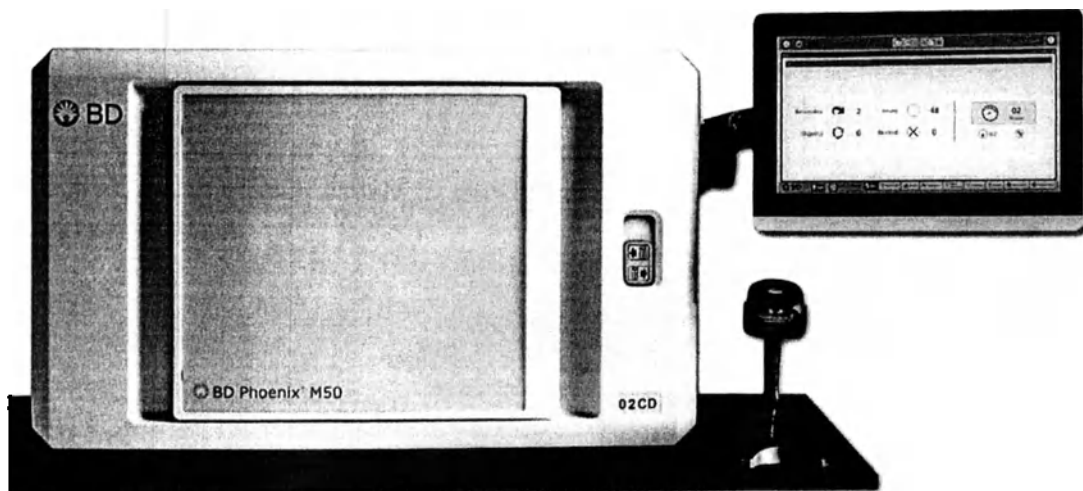
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 Автоматизированная микробиологическая система BD Phoenix™ M50

Руководство пользователя



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Оглавление

1 – Введение	1
1.1 Назначение	1
1.2 Общее описание и пояснение теста	1
1.3 Принципы методики	1
1.4 Меры предосторожности	5
1.5 Обзор системы	5
1.5.1 Обзор прибора	5
1.5.1.1 Оптическая система прибора и приводной механизм прибора	5
1.5.1.2 Узел поворотного механизма	6
1.5.1.3 Система инкубации	6
1.5.1.4 Индикаторы состояния панелей и внутренний сканер штрих-кодов	6
1.5.1.5 Внешний сканер штрих-кодов	6
1.5.2 Обзор программного обеспечения и работы	6
1.5.3 Обзор панелей	8
1.5.4 Обзор тестирования	9
1.5.5 Панели нормализатора	10
1.6 Ограниченная гарантия	11
1.7 Обозначения в этом руководстве	11
1.7.1 Примечания, предостережения и предупреждения	11
1.7.2 Общие предостережения и предупреждения	12
1.8 Список литературы	12
2 – Элементы управления, значки, индикаторы и установка	15
2.1 Общая информация	15
2.2 Запуск системы	15
2.2.1 Установка прибора	15
2.3 Спецификации прибора	17
2.3.1 Спецификации	17
2.3.2 Элементы управления и индикаторы	18
2.3.2.1 Выключатель и разъем питания	18
2.3.2.2 Панель разъемов	19
2.3.2.3 Элементы управления планшетного компьютера	20
2.3.2.4 Выключатель питания	20
2.3.2.5 Другие обозначения	21
2.3.2.6 Индикатор предупреждений прибора	21
2.3.2.7 Системные предупреждения	22
2.3.2.8 Звуковые сигналы и сигналы тревоги	22
2.3.2.9 Индикатор состояния кнопок загрузки/выгрузки и двери	23
2.3.2.10 Индикаторы станции	24
2.3.3 Принтер	25
2.3.4 Сканеры штрих-кодов	25
2.3.5 Клавиатура на сенсорном экране	25
2.3.5.1 Включение/выключение переключателей на сенсорном экране	25
2.4 Доступ пользователей и управление пользователями – сводка	25
2.5 Значки программы	27
2.6 Настройка программы	29
2.7 Автономный режим	29
2.8 Работа с ЛИС	31
2.8.1 Общая информация	31
2.8.2 Записи передачи результатов	32
2.8.3 Запись результатов	32
2.8.4 Важные понятия	33
2.8.5 Работа системы	33
3 - Работа с пользовательским интерфейсом	35
3.1 Использование интерфейса прибора	35
3.2 Вкладка «Status» (Состояние)	35
3.3 Вкладка «Panel Login» (Регистрация панели)	35
3.3.1 Регистрация панелей	37
3.3.2 Загрузка панелей в прибор	38
3.3.3 Удаление и утилизация панелей	40
3.4 Вкладка «Results» (Результаты)	41
3.4.1 Добавление/изменение результатов ID	47

3.4.2	Изменение результатов AST.....	47
3.4.3	Подвкладка «Modify Panel Usage» (Изменить использование панели)	48
3.4.4	Подвкладка «AST Results» (Результаты AST)	49
3.4.5	Подвкладка «BDXpert Rules» (Правила BDXpert).....	52
3.4.6	Подвкладка «Lot Information» (Информация о партиях)	53
3.4.7	Подвкладка «Instrument Organism ID» (Инструментальная идентификация микроорганизма)	54
3.4.8	Подвкладка «Special Messages» (Специальные сообщения).....	54
3.4.9	Подвкладка «Needs Attention» (Требуется внимания)	55
3.4.10	Лабораторный отчет	55
3.5	Вкладка «Finalization» (Финализация).....	56
3.6	Вкладка «Needs Attention» (Требуется внимания)	58
3.7	Вкладка «Inventory» (Панели в приборе)	61
3.8	Вкладка «Reports» (Отчеты)	62
3.8.1	Как печатать отчеты	63
3.8.2	«Completed Lab Report» (Лабораторный отчет для завершенных панелей).....	63
3.8.3	«Accession Lab Report» (Лабораторный отчет для образца)	64
3.8.4	«Needs Attention List Report» (Отчет со списком «Требуется внимания»)	64
3.8.5	«Resident Panel Report» (Отчет о панелях в приборе)	65
3.8.6	«QC Lab Report» (Лабораторный отчет контроля качества).....	66
3.8.7	«Cumulative QC Report» (Кумулятивный отчет контроля качества).....	66
3.8.8	«Daily Instrument Report» (Ежедневный отчет о работе прибора)	66
3.8.9	«Interpretation Rule Set Report» (Отчет о наборе правил интерпретации)	67
3.8.10	«BDXpert Rule Set Database Report» (Отчет о базе данных наборов правил BDXpert)	68
3.8.11	«Organism ID Code List Report» (Отчет о кодах идентификации микроорганизмов).....	68
3.8.12	«Antimicrobial Code Report» (Отчет о кодах антибиотиков).....	68
3.8.13	«Lab Report» (Лабораторный отчет) и «QC Lab Report» (Лабораторный отчет контроля качества).....	68
3.8.14	«Finalization Summary Report» (Сводный отчет о финализации).....	68
3.8.15	«Custom Breakpoint Difference Report» (Отчет об изменениях пользовательских пороговых значений)	69
3.8.16	«Current QC Panel Lot Report» (Текущий отчет о партии панелей контроля качества)	69
3.8.17	«Historical QC Panel Lot Report» (Хронологический отчет о партии панелей контроля качества).....	69
3.8.18	«Panel Lot Report» (Отчет о партиях панелей)	69
3.8.19	«Panel Lot Database Report» (Отчет о базе данных партий панелей)	69
3.9	Вкладка «Maintenance» (Обслуживание).....	69
3.9.1	Задачи технического обслуживания прибора	70
3.9.2	Задачи технического обслуживания ПО	70
3.9.3	Задачи технического обслуживания ЛИС	75
3.9.4	Задачи технического обслуживания для панелей	75
3.9.5	Задачи технического обслуживания на месте	76
3.9.6	Задачи технического обслуживания для внутреннего использования BD	76
3.9.7	Вкладка «Event Log» (Журнал событий) экрана «Maintenance» (Обслуживание)	76
3.10	Вкладка «Configuration» (Конфигурация)	77
3.10.1	Подвкладка «Users» (Пользователи).....	77
3.10.2	Подвкладка «System Configuration» (Конфигурация системы)	77
3.10.3	Подвкладка «Communications» (Соединения).....	81
3.10.4	Подвкладка «Organism Configuration» (Коды микроорганизмов).....	83
3.10.5	Подвкладка «Antimicrobial Configuration» (Коды антибиотиков).....	83
3.10.6	Подвкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)	84
3.10.7	Подвкладка «BDXpert Rules» (Правила BDXpert).....	88
3.10.8	Подвкладка «Rapid Reporting» (Быстрый отчет)	89
3.10.9	Подвкладка «Panel Lot Definition» (Определение партии панелей)	91
3.10.10	Подвкладка «Instrument» (Прибор)	93
4	Работа с панелями	95
4.1	Общая информация	95
4.2	Хранение и обработка	95
4.3	Подготовка панелей	95
4.3.1	Контроль качества	108
4.4	Автоматическое объединение панелей.....	110
4.4.1	Обзор	110
4.4.2	Типы панелей.....	110
4.4.3	Когда автоматическое объединение не выполняется.....	110

4.4.4	Проверка конфликтов идентификаций микроорганизмов.....	110
4.4.5	Как выполняется автоматическое объединение панелей.....	111
4.4.6	Типичные примеры автоматического объединения панелей.....	111
4.4.7	Экран запущенных правил BDХpert.....	113
4.4.8	Маркеры резистентности.....	114
5	– Техническое обслуживание	115
5.1	Общая информация	115
5.2	Регулярное техническое обслуживание	115
5.2.1	Проверка и очистка воздушного фильтра	117
5.2.2	Удаление воздушного фильтра	117
5.2.3	Очистка воздушного фильтра.....	118
5.2.4	Ежедневный отчет о работе прибора.....	118
5.2.5	Очистка / дезинфекция.....	120
5.3	Замена модулей.....	121
5.3.1	Общая информация	121
5.3.2	Удаление термометра.....	122
5.3.3	Восстановление целостности столбика жидкости в термометре	122
6	– Предупреждающие сообщения системы	123
6.1	Сообщения об ошибках или предупреждающие сообщения	123
6.2	Системные предупреждения (коды ошибок E).....	124
6.3	Предупреждения «ошибка работы» (коды ошибок W).....	137
6.4	Сообщения журнала событий.....	150
6.4.1	Сообщения, связанные с ЛИС	150
7	– Характеристики, ограничения, коды микроорганизмов и информация о панелях	161
7.1	Характеристики работы системы.....	161
7.1.1	Эффективность работы с грамотрицательными бактериями	161
7.1.2	Эффективность работы с грамположительными бактериями	164
7.1.3	Эффективность работы со стрептококками (с панелями BD Phoenix SMIC/ID и SMIC).....	166
7.1.4	Идентификация вида дрожжей.....	168
7.2	Ограничения методики	168
7.3	Коды микроорганизмов, сокращенные названия, полные названия.....	169
7.4	Список противомикробных препаратов в панелях BD Phoenix	193
7.4.1	Грамотрицательные.....	193
7.5	Список реагентов и принципы, применяемые в системе BD Phoenix	200
7.5.1	Панель для грамотрицательных бактерий.....	200
7.5.2	Панель для грамположительных бактерий	202
7.5.3	Панель для стрептококков	203
7.5.4	Панель для дрожжей	204
7.6	Таксоны для определения ID/AST	206
7.6.1	Грамотрицательные (мутность 0,5 по шкале Макфарланда).....	206
7.6.2	Грамотрицательные (мутность 0,25 по шкале Макфарланда).....	210
7.6.3	Грамположительные (мутность 0,5 по шкале Макфарланда).....	212
7.6.4	Грамположительные (мутность 0,25 по шкале Макфарланда).....	215
7.6.5	Стрептококки	217
7.6.6	Дрожжи 218	
8	– Словарь терминов и сокращения.....	221
8.1	Словарь терминов.....	221
8.2	Аббревиатуры дополнительных тестов идентификации	223
8.3	Условные обозначения.....	224
9	– Запасные части	225
10	– Журнал обновлений программного обеспечения.....	227
11	– Международные контакты	229

1 – Введение

1.1 Назначение

Автоматизированная микробиологическая система BD Phoenix™ предназначена для быстрой идентификации (ID) и определение чувствительности к антибиотикам (antimicrobial susceptibility testing – AST) клинически значимых бактерий. Система BD Phoenix обеспечивает быстрые результаты для большинства аэробных и некоторых анаэробных грамположительных бактерий, а также для большинства аэробных и некоторых анаэробных грамотрицательных бактерий, паразитирующих на человеке. Система BD Phoenix также предназначена для быстрой идентификации дрожжей и дрожжеподобных микроорганизмов.

1.2 Общее описание и пояснение теста

Первые микрометоды биохимической идентификации микроорганизмов были предложены в 1918 г.¹ В нескольких публикациях упоминались методы с использованием пропитанных реагентами бумажных дисков и микропробирок для различения кишечных бактерий.¹⁻⁹ Интерес к миниатюрным системам идентификации привел к разработке нескольких коммерческих систем в конце 1960-х годов. Преимущества этих систем заключались в их компактности, длительном сроке хранения, стандартизированном контроле качества и простоте использования. Многие из тестов, применяемых в панелях идентификации BD Phoenix, представляют собой модификации классических методов. Это относится к тестам на ферментацию, окисление, расщепление и гидролиз различных субстратов. Кроме того, для идентификации организмов система BD Phoenix использует хромогенные и флуорогенные субстраты, а также субстраты с единственным источником углерода.^{10, 11, 12-15}

Современный метод микроразведений в жидкой питательной среде берет свое начало в методе серийных разведений в пробирках, который Раммелькамп (Rammelkamp) и Максон (Maxon) применяли в 1942 году для тестов *in vitro* на определение чувствительности к антибиотикам бактериальных изолятов, полученных из клинических образцов.¹² При методе разведений в жидкой питательной среде проверяется воздействие на бактерии различных концентраций антибиотика в жидкой среде – на каждом шаге концентрация снижается в два раза. Наименьшая концентрация антибиотика, при которой не наблюдается видимый рост микроорганизма, называется минимальной подавляющей концентрацией (МПК).

Появление в 1956 г. системы микротитратора, использующей точно откалиброванные точные проволочные петли и пипетки для выполнения точного разведения позволило Мэримонту (Marymont) и Вентцу (Wentz) разработать тест на чувствительность к антибиотикам (AST) методом последовательных разведений.¹³ Система микротитратора была точной и позволяла снизить объемы противомикробных препаратов. Термин «микроразведения» введен в 1970 году для описания тестов МПК, выполняемых при объемах противомикробного препарата не более 0,1 мл.¹⁴

Для тестов на чувствительность к антибиотикам (AST) система BD Phoenix использует уменьшенную версию метода микроразведений с двукратным разведением на каждом шаге. При выполнении теста AST система BD Phoenix инкубирует панели BD Phoenix в непрерывном режиме и считывает микролушки этих панелей, проверяя при помощи индикатора AST наличие бактериального роста в присутствии различных концентраций антибиотика.

1.3 Принципы методики

Прибор BD Phoenix M50 позволяет одновременно выполнять до 50 тестов идентификации и определения чувствительности к антибиотикам, используя комбинированные панели BD Phoenix. Однократно используемая закрытая полистироловая панель BD Phoenix содержит 136 микролунок с сухими реагентами и встроенную систему заполнения. В комбинированных панелях есть сторона ID с сухими субстратами для идентификации бактерий или дрожжей и сторона AST с различными концентрациями антибиотиков, а также специальные лунки для контроля роста и флуоресценции. В системе BD Phoenix используется оптимизированный колориметрический окислительно-восстановительный индикатор для AST и различные колориметрические и флуоресцентные индикаторы для ID. Для повышения качества тестов AST для них используется жидкая питательная среда, в которую добавлены необходимые катионы (такие как Ca^{2+} и Mg^{2+}).

Панель BD Phoenix содержит 51 лунку на стороне ID и 85 лунок на стороне AST. Сторона ID содержит 45 лунок с сухими биохимическими субстратами и 2 лунки контроля флуоресценции. Сторона AST может содержать до 84 лунок с сухими противомикробными препаратами и 1 лунку контроля роста. Существуют различные типы панелей: панели только для идентификации (панели ID), панели только для определения чувствительности к антибиотикам (панели AST), комбинированные панели для ID/AST, а также панели с расширенным спектром антибиотиков (панели Emerge). Неиспользуемые лунки зарезервированы для будущего использования. Для заправки панелей BD Phoenix используется стандартизированная суспензия микроорганизмов. Для приготовления суспензий можно использовать только один из следующих приборов: нефелометр BD BBL™ CrystalSpec™, нефелометр BD PhoenixSpec™ или прибор BD Phoenix AP. После заправки панели помещаются в прибор и инкубируются в непрерывном режиме при температуре 35 °C. Прибор тестирует панели через час и затем каждые 20 минут. При необходимости общая длительность анализа может достигать 16 часов. Для считывания панелей BD Phoenix необходимо применять прибор BD Phoenix M50. Панели BD Phoenix нельзя считывать вручную.

Идентификация микроорганизмов

Сторона ID панели BD Phoenix использует для идентификации микроорганизма набор традиционных, хромогенных и флуорогенных биохимических тестов. Субстраты для проверки роста и активности ферментов позволяют определять различные типы метаболической активности у разных микроорганизмов. В этих тестах при помощи различных систем индикаторов определяется способность микроорганизма утилизировать и расщеплять конкретные субстраты. Если изолят способен утилизировать углеводородные субстраты, образующаяся кислота детектируется по изменению цвета индикатора феноловый красный. Хромогенные субстраты окрашиваются в желтый цвет при ферментативном гидролизе пара-нитрофенильных соединений или пара-нитроанилидов. При ферментативном гидролизе флуорогенных субстратов выделяются флуоресцентные производные кумарина. Микроорганизмы, утилизирующие определенные источники углерода, восстанавливают индикатор на основе резазурина. Кроме того, существуют другие тесты, определяющие способность микроорганизма гидролизовать, расщеплять, восстанавливать или иным образом использовать субстрат.

Полный список таксонов, внесенных в базу данных BD Phoenix, смотрите в разделе «7.6 Таксоны для определения ID/AST». Реакции в различных субстратах и краткое объяснение принципов, применяемых в панелях BD Phoenix для грамотрицательных бактерий, грамположительных бактерий, стрептококков и панелях идентификации дрожжей описаны в разделе «7 – Характеристики, ограничения, коды микроорганизмов и информация о панелях».

Определение чувствительности к антибиотикам

Для определения чувствительности к антибиотикам (AST) система BD Phoenix использует метод микроразведений в жидкой питательной среде. Для обнаружения роста микроорганизма в присутствии антибиотика система BD Phoenix использует окислительно-восстановительный индикатор.¹⁵ Последовательно проверяя изменение цвета индикатора, а также вызванное бактериями помутнение, система определяет, есть ли бактериальный рост. Каждая конфигурация панели AST содержит несколько антибиотиков, каждый из которых представлен широким диапазоном концентраций (последовательных двукратных разведений). При интерпретации значений МПК для каждого антибиотика учитываются результаты идентификации микроорганизма. Полный список таксонов, для которых панели BD Phoenix могут давать результаты AST, смотрите в разделе «7 – Характеристики, ограничения, коды микроорганизмов и информация о панелях». Список противомикробных препаратов и концентраций, доступных для определения чувствительности в системе BD Phoenix, представлен в разделе «7.4 Список противомикробных препаратов в панелях BD Phoenix».

Для выполнения тестов требуются следующие компоненты:

- 1 Панели BD Phoenix и крышки для панелей
- 2 Бульон ID (BD Phoenix ID Broth – Бульон для идентификации микроорганизмов)
- 3 Бульон AST (BD Phoenix AST Broth – Бульон для исследования чувствительности микроорганизмов к антибиотикам)
- 4 Раствор индикатора AST (BD Phoenix AST Indicator Solution – Реагент-индикатор для исследования чувствительности микроорганизмов)
- 5 Бульон AST-S (BD Phoenix AST-S Broth – Бульон для исследования чувствительности стрептококков к антибиотикам) (используется только для панелей BD Phoenix Strep)
- 6 Раствор индикатора AST-S (BD Phoenix AST-S Indicator Solution – Реагент-индикатор для исследования чувствительности стрептококков к антибиотикам) (используется только для панелей BD Phoenix Strep)
- 7 Штатив для заполнения панелей (BD Phoenix Inoculation Station)
- 8 Штатив переносной для панелей (BD Phoenix Panel Caddy)

- 9 Нефелометр BD BBL CrystalSpec, нефелометр BD PhoenixSpec или прибор BD Phoenix AP
- 10 Дозатор на 25 мкл со стерильными наконечниками
- 11 Различные лабораторные материалы (перечисленные в списке «Требуемые материалы, которые нужно приобрести отдельно» в разделе «4.3 Подготовка панелей»).

Панели BD Phoenix для прибора BD Phoenix M50 бывают трех типов: панели для идентификации микроорганизма (ID), панели для определения чувствительности к антибиотикам (AST) и комбинированные панели, включающие в себя как ID, так и AST. Поместите панель в наклонное положение, чтобы порты для заполнения были сверху. В каждый из портов для заполнения (для ID и AST) необходимо вручную ввести отдельную порцию бактериальной суспензии. Введенная суспензия стекает внутри панели по извилистому каналу, заполняя лунки. Избыток суспензии впитывается поглотителем в нижней части панели. Порты нужно вручную закрыть крышками. Вентиляционное отверстие, расположенное около средней линии на верхней стороне корпуса панели, обеспечивает поступление внутрь панели необходимого количества кислорода в процессе тестирования.

Основные методы тестов AST в системе BD Phoenix для определения маркеров резистентности

В следующих разделах описаны основные методы тестов AST системы BD Phoenix для определения маркеров резистентности грамположительных и грамотрицательных бактерий: 1) определение продукции ESBL у видов *Enterobacteriaceae*; 2) определение резистентности к ванкомицину у видов *Enterococcus* (VRE); 3) высокий уровень устойчивости к аминогликозидам у видов *Enterococcus* и *Streptococcus* (HLAR); 4) определение устойчивости стафилококков к метициллину (MRS); 5) определение продукции β -лактамаз у видов *Staphylococcus* (BL); 6) определение устойчивости к макролидам у видов *Streptococcus* (MLSb); 7) определение *mecA*-обусловленной резистентности у *S. aureus* (*mecA*); 8) определение ванкомицин-резистентных штаммов *Staphylococcus aureus* (VRSA); 9) определение индуцибельной устойчивости к макролидам по методу BD Phoenix (IMLS) у видов *Staphylococcus*. Более подробную информацию смотрите в руководстве по BDxpert.

Тест BD Phoenix на определение β -лактамаз расширенного спектра (Extended Spectrum β -Lactamase – ESBL)¹⁶

Тест ESBL системы BD Phoenix основан на опубликованных в современной литературе данным по известным вариантам резистентности ESBL.¹⁸⁻²¹ При разработке теста ESBL системы BD Phoenix использовались выбранные штаммы различных видов семейства *Enterobacteriaceae* с известными (по анализам генотипа или фенотипа) характеристиками продукции β -лактамаз, в том числе: *Escherichia coli* и различные виды *Klebsiella*, *Citrobacter*, *Enterobacter*, *Proteus* и *Serratia*. В тесте ESBL система BD Phoenix определяет различия в эффекте ингибирования выбранных цефалоспоринов второго и третьего поколения в присутствии и в отсутствии ингибитора β -лактамаз – клавулановой кислоты. Принципы теста ESBL в системе BD Phoenix аналогичны принципам рекомендованного CLSI подтверждающего теста ESBL методом микроразведений в жидкой питательной среде.²² Тест ESBL системы BD Phoenix применяется для *E. coli*, *K. pneumoniae* и *K. oxytoca*. Кроме того, по выбору пользователя он может применяться для других видов кишечных бактерий, которые могут продуцировать ESBL. Если результат теста ESBL позитивный, то для всех пенициллинов, цефалоспоринов (кроме цефамицинов) и азтреонама в той же панели BD Phoenix полученная категория чувствительности будет изменена на «R» (резистентный) согласно правилу BDxpert 1529. Пользователи могут активировать соответствующие правила, чтобы тест считался пройденным.²²

Тест BD Phoenix на устойчивость энтерококков к ванкомицину (Vancomycin Resistant Enterococci – VRE)

Тест VRE в системе BD Phoenix основан на интерпретации чувствительности к ванкомицину. Для определения категории чувствительности используются пороговые значения, заданные в конфигурации прибора. Тест VRE в системе BD Phoenix был разработан и оптимизирован таким образом, чтобы он соответствовал рекомендованному CLSI стандартному тесту ESBL методом микроразведений.^{22, 23} Если задать пороговое значение, отличающееся от значения в тесте CLSI, изменится критерий определения категории и качество результатов теста может снизиться. Положительный результат выводится только для *Enterococcus faecalis* и *E. faecium* с приобретенной устойчивостью (*vanA* или *vanB*).²²

Тесты BD Phoenix на высокий уровень устойчивости к аминогликозидам (High-Level Aminoglycoside Resistance – HLAR)

Тесты HLAR в системе BD Phoenix для вида *Enterococcus* основаны на реакции роста в отдельной ячейке с высокой концентрацией гентамицина или стрептомицина. Эти тесты разработаны и оптимизированы таким образом, чтобы они соответствовали как рекомендованному CLSI стандартному тесту методом микроразведений, так и рекомендованному CLSI скрининговому тесту в агаре.²²

Тесты HLAR в системе BD Phoenix для вида *Streptococcus* основаны на реакции роста в отдельной ячейке, содержащей гентамицин, канамицин или стрептомицин. Эти тесты разработаны и оптимизированы таким образом, чтобы они соответствовали рекомендованному CLSI стандартному тесту методом микроразведений.

Тест BD Phoenix на устойчивость стафилококков к метициллину (Methicillin-Resistance in Staphylococci – MRS)

Тест MRS в системе BD Phoenix основан на интерпретации чувствительности к оксациллину видов *Staphylococcus*. Для случаев, когда тест MRS дает положительный результат, созданы несколько правил BDxpert для вывода и интерпретации результатов для всех бета-лактамовых антибиотиков. Полученное в системе BD Phoenix значение МПК цефокситина используется для предсказания резистентности *Staphylococcus aureus*, вызванной геном *mecA*. Создано специальное правило BDxpert, сообщающее о метициллин-резистентности *Staphylococcus aureus* на основании результатов тестов с цефокситином. Доказано, что цефокситин является лучшим индикатором наличия гена *mecA* в стафилококках. Для определения категории чувствительности используются пороговые значения, заданные в конфигурации прибора.

Тест BD Phoenix на продукцию β-лактамаз грамположительными бактериями (β-lactamase – BL)¹⁶

В качестве теста BL в наборе тестов AST системы BD Phoenix применяется тест на β-лактамазы на основе нитроцефина. Тест на основе нитроцефина – это прямой метод определения, его лунка находится на стороне ID панели BD Phoenix. Эффективность этого теста сравнивалась с референсным методом – тестом на дисках BD BBL Cefinase™ Discs (номер по каталогу 231650). В настоящее время этот тест применяется только для видов *Staphylococcus*. Если результат теста BL положительный, то для всех пенициллинов, чувствительных к пенициллазе, в той же панели BD Phoenix полученная категория чувствительности будет изменена на «R» (резистентный).²²

Тест BD Phoenix на устойчивость стрептококков к макролидам (Macrolide Resistance in Streptococci – MLSb)

Тест BD Phoenix на устойчивость к макролидам основан на интерпретации чувствительности к эритромицину и клиндамицину. Для определения категории чувствительности используются пороговые значения, заданные в конфигурации прибора. Изоляты *Streptococcus*, устойчивые к эритромицину и клиндамицину, обозначаются в отчете как изоляты с фенотипом MLSb (macrolide/lincosamide/streptogramin B – макролид/линкозамин/стрептограмин B).

Определение в BD Phoenix маркера *mecA*-обусловленной резистентности *Staphylococcus aureus* (*mecA*)

Тест *mecA* в системе BD Phoenix используется для предсказания резистентности *Staphylococcus aureus*, вызванной геном *mecA*. Метод выполнения этого теста аналогичен рекомендованному CLSI диско-диффузионному методу, в котором диск с цефокситином (FOX) используется для предсказания *mecA*-обусловленной резистентности *S. aureus*. Эффективность этого теста сравнивалась с методами мультиплекс-ПЦР²⁵, а также с диско-диффузионным тестом. Значения МПК FOX, используемые в BD Phoenix для определения маркера резистентности, вызванной геном *mecA*, сохраняются в конфигурации прибора. Если обнаружен маркер резистентности *mecA*, то для всех бета-лактамовых антибиотиков в той же панели BD Phoenix полученная категория чувствительности будет изменена на «R» (резистентный)²² и будет установлен флажок маркера резистентности *mecA* BD Phoenix.

Тест BD Phoenix на устойчивость *Staphylococcus aureus* к ванкомицину (Vancomycin Resistant *Staphylococcus aureus* – VRSA)

Тест VRSA в системе BD Phoenix основан на интерпретации чувствительности *Staphylococcus aureus* к ванкомицину. Для определения категории чувствительности используются пороговые значения, заданные в конфигурации прибора. Тест VRSA в системе BD Phoenix разработан и оптимизирован таким образом, чтобы он соответствовал рекомендованному CLSI стандартному тесту методом микроразведений. Результаты теста

проверены на известных изолятах VRSA. Если задать пороговое значение, отличающееся от значения в CLSI M100-S25, изменится критерий определения категории и качество результатов теста может снизиться. Только изоляты *Staphylococcus aureus* с истинной резистентностью (то есть изоляты, содержащие маркер резистентности, такой как ген *vanA*) обозначаются в отчете как VRSA.

Идентификация и данные отчета для штаммов *S. aureus* с промежуточной чувствительностью к ванкомицину (GISA/VISA) определяются отдельными правилами BDxpert. Панель AST BD Phoenix для грамположительных микроорганизмов успешно определяет резистентность к ванкомицину тех штаммов VRSA *S. aureus*, которые были доступны в момент проведения сравнительных тестов. Возможность определения устойчивости в других штаммах *S. aureus* неизвестна из-за ограниченности количества устойчивых штаммов, доступных для сравнительных тестов.

Тест BD Phoenix на индуцибельную устойчивость к макролидам у видов *Staphylococcus* (Inducible Macrolide Resistance – IMLS)

Тест BD Phoenix по определению индуцибельной устойчивости к макролидам (IMLS) используется для определения индуцибельной устойчивости видов *Staphylococcus* к макролидам, линкозамиду и стрептограмину В (MLSb). Резистентность к MLSb обычно кодируется генами *ermA* или *ermC*. Она может быть конститутивной (постоянная экспрессия генов) или индуцибельной, то есть возникающей после воздействия макролидных антибиотиков (например, эритромицина, кларитромицина и т.д.). Тест IMLS в системе BD Phoenix основан на том же принципе, что и рекомендованный CLSI диско-диффузионный D-тест для определения индуцибельной резистентности к клиндамицину. Если результат теста IMLS положительный, категория чувствительности для клиндамицина в той же панели BD Phoenix будет указана в отчете как «R» (резистентный) и будет сопровождаться отдельным сообщением BDxpert. Изоляты *Staphylococcus*, которые при исходном тестировании оказались резистентными как к эритромицину, так и к клиндамицину, будут указаны в отчете как обладающие конститутивной резистентностью к MLSb. Это позволит отличать их от изолятов, которые обладают только резистентностью к макролидам, вызванной эффлюксом.

1.4 Меры предосторожности

Для диагностики *in vitro*.

Все образцы пациентов и микробные культуры потенциально инфекционны и требуют соблюдения стандартных мер предосторожности. Смотрите руководство CDC *Biosafety in Microbiological and Biomedical Laboratories* (Биологическая безопасность в микробиологических и биомедицинских лабораториях), 5 издание, 2009 г., а также к другую рекомендованную литературу.

С запрограммированными панелями следует обращаться осторожно, пока они не будут помещены в прибор.

1.5 Обзор системы

1.5.1 Обзор прибора

1.5.1.1 Оптическая система прибора и приводной механизм прибора

Единственные движущиеся части внутри главного инкубационного отсека прибора – это цилиндрический поворотный механизм и его двигатель. Поворотный механизм обычно вращается со скоростью 1,0 или 2,0 оборота в минуту. Скоростью вращения, ускорением и замедлением двигателя управляет центральный процессор. Поворотный механизм делится по вертикали на два уровня. В каждом уровне своя, относительно независимая, система источников излучения и детекторов, работающая с панелями на этом уровне. Для сбора и передачи данных в каждом уровне используется свой микроконтроллер. Эти два микроконтроллера взаимодействуют с центральным процессором через линию связи с последовательной передачей данных.

Блок светодиодов для каждого уровня содержит источники видимого излучения (красный, зеленый и синий). Сила тока через светодиоды может программно изменяться для компенсации потерь сигнала в крайних положениях панели, вызванных оптическим смещением и другими факторами. Система мониторинга источников отслеживает интенсивность источника видимого излучения, усредняя сигналы с двух фотодиодов. Ультрафиолетовые (УФ) светодиоды генерируют ультрафиолетовое излучение для измерений флуоресценции.

1.5.1.2 Узел поворотного механизма

Узел поворотного механизма представляет собой каркасную конструкцию из алюминиевых колец и соединяющих их вертикальных ребер. Вместе они образуют вертикальный цилиндр. На поворотном механизме в два уровня расположены 52 держателя панелей. В каждом уровне размещаются одна панель нормализатора и 25 панелей с пробами.

В обычном режиме работы поворотный механизм вращается со скоростью 1,0 или 2,0 оборота в минуту, в зависимости от выполняемой операции. При поиске панели поворотный механизм может вращаться со скоростью до 10,0 оборотов в минуту. Поворотный механизм вращается против часовой стрелки. После закрывания двери прибора поворотный механизм делает один полный оборот для инвентаризационного сканирования – чтобы идентифицировать панели внутри прибора. Полный цикл тестирования занимает 7 минут.

1.5.1.3 Система инкубации

Система инкубации поддерживает поворотный механизм, держатели панелей и сами панели при постоянной номинальной температуре 35 °С. В ней используется принудительная циркуляция воздуха и применяется воздушный фильтр, защищающий от пыли электронные компоненты. Система инкубации состоит из радиального вентилятора с бесщеточным двигателем постоянного тока, кольцеобразного нагревателя с автоматическим отключением при перегреве, изогнутыми трубками подачи и возврата воздуха и сменного воздушного фильтра из полиэфирного волокна.

1.5.1.4 Индикаторы состояния панелей и внутренний сканер штрих-кодов

Индикаторы состояния панели и средства идентификации панели размещены в приборе на одной стойке, расположенной прямо за поворотным механизмом в области двери. Индикаторы состояния панели – это красные, зеленые и желтые светодиоды, которые находятся за поворотным механизмом. Их свет проходит через световоды и панели. Когда дверь прибора открыта, доступны два вертикальных ряда панелей.

На той же стойке, что и индикаторы, расположены два сканера штрих-кодов, которые могут считывать штрих-коды панелей. Каждый сканер считывает штрих-коды панелей на своем уровне поворотного механизма. Штрих-код панели прикрепляется к верхней части задней стороны панели, поэтому когда панель вставлена в прибор, ее штрих-код повернут внутрь поворотного механизма.

1.5.1.5 Внешний сканер штрих-кодов

Внешний сканер штрих-кодов можно использовать для считывания номеров образцов, помещенных в панели, а также для считывания собственного порядкового номера панели. Штрих-коды образцов можно использовать, чтобы связать информацию идентификации образца с конкретной панелью в приборе.

1.5.2 Обзор программного обеспечения и работы

Экран состояния

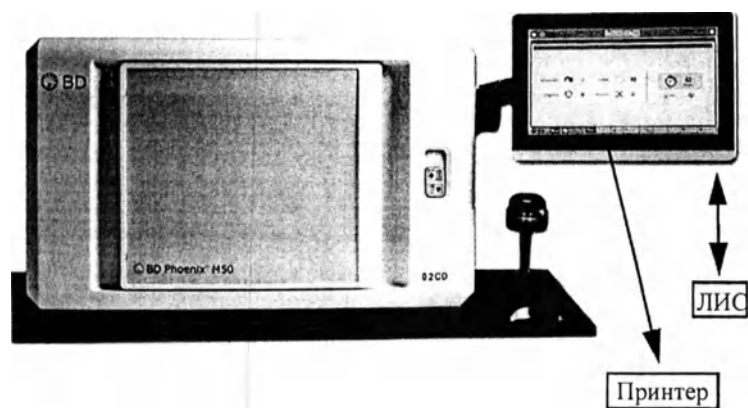


Рис. 1-1 – Прибор BD Phoenix M50

На экране планшетного компьютера выводится вся необходимая информация для отслеживания состояния прибора, для ввода и удаления панелей, настройки прибора, печати отчетов и выполнения регулярных операций технического обслуживания прибора. Планшетный компьютер может управлять одним или двумя приборами BD Phoenix M50 (см. рис. 1-3 – Пользовательский интерфейс BD Phoenix M50 для двух приборов). Кроме того, к планшетному компьютеру можно подключить ручной сканер штрих-кодов и принтер. Также планшетный компьютер может быть соединен с системой управления данными BD или системой ЛИС.

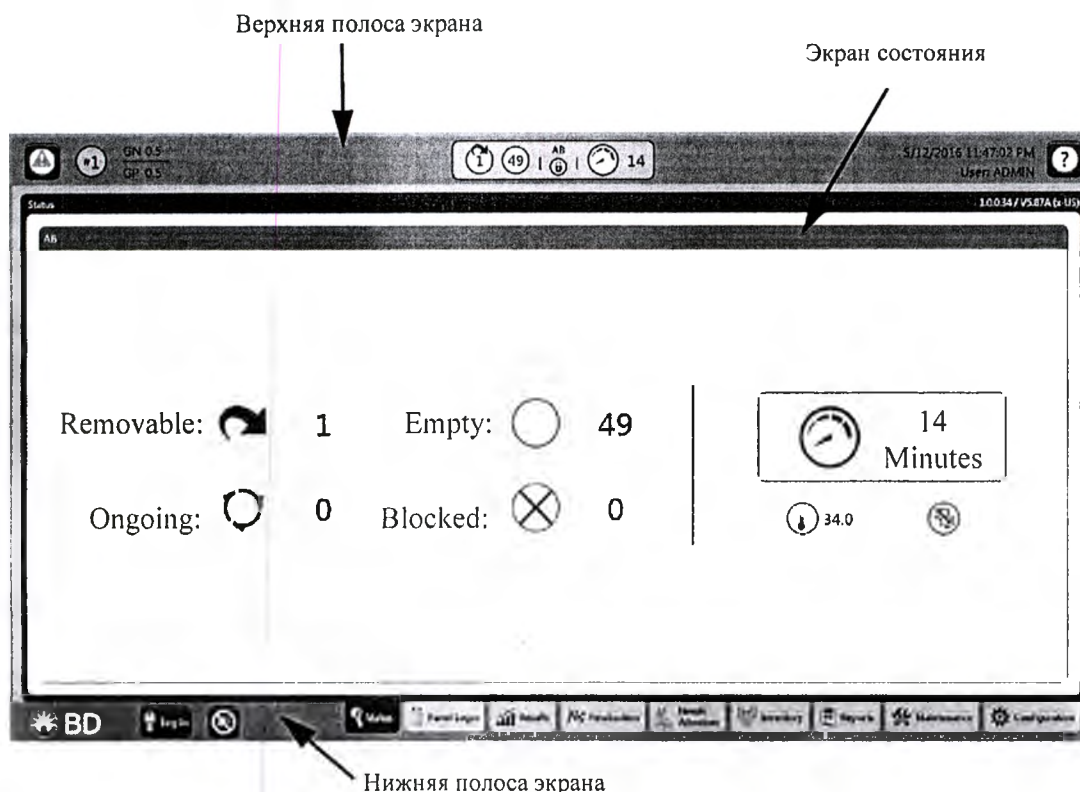


Рис. 1-2 – Пользовательский интерфейс BD Phoenix M50 для одного прибора

Пользовательский интерфейс планшетного компьютера делится на три области (см. рис. 1-2 – Пользовательский интерфейс BD Phoenix M50 для одного прибора). Верхняя и нижняя полоса выводятся на всех экранах пользовательского интерфейса прибора BD Phoenix M50. Средняя область экрана соответствует вкладке, выбранной в нижней полосе. На предыдущем рисунке выбрана вкладка «Status» (Состояние). В верхней полосе экрана выводится информация о состоянии прибора BD Phoenix M50. В центре верхней полосы выводятся одна или две группы общей информации для прибора (см. рис. 1-3 – Пользовательский интерфейс BD Phoenix M50 для двух приборов). В нижней полосе экрана находятся вкладки, позволяющие перемещаться между экранами программы.

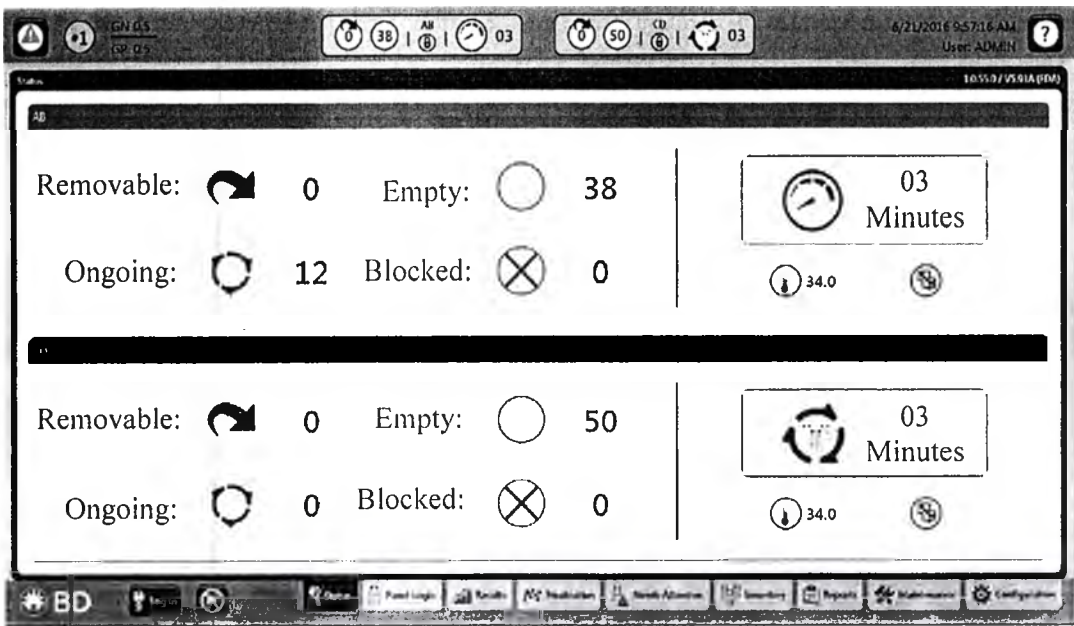


Рис. 1-3 – Пользовательский интерфейс BD Phoenix M50 для двух приборов

1.5.3 Обзор панелей

Панели BD Phoenix доступны в трех форматах: для ID, для AST и комбинированные (для ID и AST). Специальная конструкция панели обеспечивает безопасность и защищает от утечки. Каждая лунка панели вмещает приблизительно 50 мкл бактериальной суспензии; внутреннее устройство панели обеспечивает отсутствие существенного испарения жидкости на протяжении всего процесса инкубации.

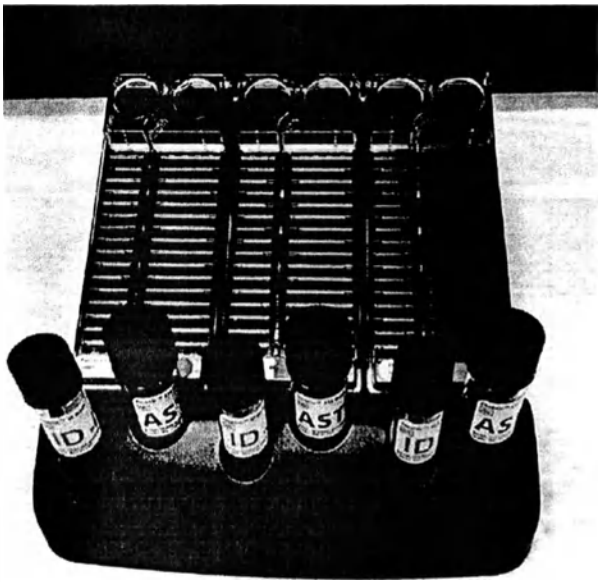


Рис. 1-4 – Штатив для заполнения панелей

На штативе для заполнения панелей можно разместить шесть пробирок с бульонами (ID, AST) и три панели. Панели лежат в наклонном положении, под углом 24°, что обеспечивает требуемое продвижение бактериальной суспензии внутри панели. Смотрите рис. 1-4 – Штатив для заполнения панелей.

Пластиковый переносной штатив применяется для переноски заполненных и запечатанных панелей Phoenix от рабочего места лаборанта к прибору BD Phoenix M50. Переносной штатив вмещает 20 панелей. Смотрите рис. 1-5 – Штатив переносной для панелей.



Рис. 1-5 – Штатив переносной для панелей

1.5.4 Обзор тестирования

После того, как дверь прибора была открыта и затем закрыта, прибор считывает этикетки со штрих-кодами панелей и затем, используя красные светодиоды, проверяет наличие панелей и определяет позиции лунок. Прибор считывает панели через час и затем каждые 20 минут. Последовательность операций тестирования начинается с проверки того, что дверь закрыта, затем считывается текущее время. Для каждого уровня считываются показания детекторов в отсутствии света, затем включаются и прогреваются ультрафиолетовые светодиоды. Поворотный механизм делает один оборот – считываются показания для ультрафиолета. Ультрафиолетовые светодиоды выключаются. Затем включаются и прогреваются красные светодиоды и считываются показания для красного света. Затем те же операции выполняются для зеленых светодиодов. И наконец те же операции выполняются для синих светодиодов.

Если цикл тестирования успешно завершен, записывается время окончания. Цикл тестирования считается успешным, если не возникло ошибок поворотного механизма и пользователь не прервал тест, запустив операцию загрузки, извлечения или поиска панели. Если пользователь запускает одну из этих операций, текущее время сравнивается с временем начала последнего цикла тестирования. Если прошло менее 30 минут, выполняется запрошенная операция (например, загрузка или извлечение панелей). Если с момента начала последнего цикла тестирования прошло более 30 минут, необходимо дождаться успешного завершения этого цикла; только после этого пользователь сможет выполнить операцию загрузки, извлечения или поиска панелей. Индикатор загрузки/выгрузки панелей будет выключен (см. рис. 2-7 – Индикатор загрузки/выгрузки панелей) и при попытке начать одну из этих операций будет выдан звуковой сигнал «Прибор нельзя открыть».

После каждого теста:

- Обновляются значения сводных счетчиков на экране «Status» (Состояние), чтобы они отражали текущее состояние
- Для панелей/записей, для которых требуется вмешательство пользователя, активируется значок «Needs Attention» (Требуется внимания)
- В списке «System Alerts» (Системные предупреждения) выводятся системные предупреждения
- Выполняется операция автоматического объединения панелей

Во время тестирования панелей на экране выводится показанный ниже значок. Рядом с этим значком выводится длительность времени (в минутах) до завершения данного цикла тестирования.



1.5.5 Панели нормализатора

Панели нормализатора (нормализаторы) – это референсные панели для настройки системы оптического детектирования прибора, они используются для настройки светодиодов (красных, зеленых, синих и УФ). Для сигналов красного, зеленого, синего и УФ источников данные нормализаторов позволяют учесть изменения степени передачи оптического канала и компенсировать оптические смещения между лунками. Исходные сигналы корректируются в соответствии с данными системы мониторинга источников, затем вычисляется отношение полученного значения к значению для соответствующей лунки в панели нормализатора. Это отношение умножается на поправочный коэффициент, равный ожидаемому уровню пропускания нормализатора, чтобы получить значения результата в правильном масштабе. Полученный от нормализатора сигнал флуоресценции в ультрафиолетовом свете используется для настройки интенсивности ультрафиолета, попадающего на панель, с тем чтобы он был в приемлемом диапазоне для проверки флуоресценции субстратов ID в панелях BD Phoenix.

Срок годности нормализатора – два года после установки в прибор. Перед истечением этого срока выводится системное предупреждение, позволяющее заранее спланировать замену нормализаторов.

Панели нормализатора всегда размещаются в станции с номером 0 каждого уровня. При открывании двери нельзя обычным способом получить доступ к станции нормализатора на поворотном механизме. Панель нормализатора помещена в собственный держатель, предотвращающий ее случайное извлечение.

Автоматическая настройка источников излучения

Операция автоматической настройки источников излучения старается привести сигналы от нормализатора в область приемлемых значений. Она выполняется, когда прибор прогрет и находится в режиме ожидания и нет обрабатываемых панелей. При выполнении настройки ультрафиолетового источника не разрешается выполнять такие операции, как загрузка панелей на незатронутый уровень, извлечение панелей и выполнение операций технического обслуживания.

Основываясь на результатах встроенного теста системы (Built-In-Test, BIT) и учитывая длительность работы и количество включений, система определяет, когда значения для ультрафиолетового и видимых источников излучения выходят из диапазона приемлемых значений. В этом случае возможны две ситуации:

- 1 Отклонение слишком велико и результаты панелей недействительны (тестирование панелей на данном уровне прекращается); станции этого уровня блокируются; после завершения тестирования всех панелей в приборе выполняется автоматическая настройка источников излучения.
- 2 Отклонение не выходит за допустимые границы, поэтому не влияет на результаты панелей; однако доступные станции блокируются; после того, как будет завершено тестирование всех панелей на данном уровне или эти панели будут удалены, выполняется автоматическая настройка источников излучения.

В любой из этих ситуаций в кодах и субкодах ошибок типа «Е» выводится информация для каждого уровня.

1.6 Ограниченная гарантия

В соответствии с данным гарантийным обязательством Вам предоставляются определенные юридические права. Кроме того, Вы можете обладать иными правами в зависимости от региона.

Первичному покупателю автоматизированной микробиологической системы BD Phoenix M50 предоставляется гарантия на отсутствие дефектов материалов и изготовления в течение одного года с момента установки. В соответствии с данным гарантийным обязательством компания BD несет исключительную ответственность за ремонт или замену каких-либо приборов или их компонентов (за исключением таких расходных материалов, как картриджи для принтеров, бумага или фильтры), которые были признаны неисправными при использовании в нормальных условиях эксплуатации в течение одного года с момента поставки.

Компания BD предоставит новые или отремонтированные компоненты по своему усмотрению. Все компоненты, поставляемые для замены, будут соответствовать новым конструктивным параметрам и будут иметь гарантию до окончания срока в один год. Замененные компоненты становятся собственностью компании BD.

Необходимо, чтобы оборудование, к которому применимо это соглашение, было установлено в соответствии с рекомендациями и инструкциями Руководства пользователя системы BD Phoenix M50.

Любые повреждения системы BD Phoenix M50 вследствие установки или отключения кабелей, служащих для подключения данного прибора к системам, которые не одобрены или не поставляются компанией BD, либо несоблюдения владельцем достаточной осторожности и мер предосторожности при эксплуатации и техническом обслуживании системы, приводят к аннулированию данной гарантии и освобождают производителя от обязательств, указанных в настоящем документе.

Эта гарантия заменяет все иные выраженные или подразумеваемые гарантии, включая гарантии товарной пригодности или пригодности для определенных целей. Ни при каких обстоятельствах компания BD не несет ответственности за любые косвенные, побочные, фактические или последующие убытки независимо от наличия или отсутствия уведомления компании BD о таких убытках.

1.7 Обозначения в этом руководстве

1.7.1 Примечания, предостережения и предупреждения

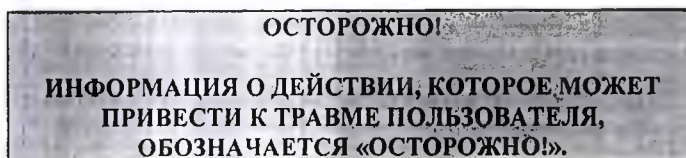
В этом руководстве важная информация представлена в рамках с отступами от основного текста и заголовками «ПРИМЕЧАНИЕ», «ВНИМАНИЕ!» или «ОСТОРОЖНО!». Ниже показан формат таких сообщений и указано их значение:

ПРИМЕЧАНИЕ

Важная информация об использовании системы, заслуживающая особого внимания, обозначается как ПРИМЕЧАНИЕ.

ВНИМАНИЕ!

Информация о действии, которое может привести к повреждению прибора или системы, обозначается «ВНИМАНИЕ!».



1.7.2 Общие предостережения и предупреждения

- Степень защиты, которую обеспечивает данное оборудование, может снизиться, если прибор используется не в соответствии с инструкциями данного руководства.
- Поскольку прибор BD Phoenix M50 обладает большой массой и размерами, чтобы поднять его без механических средств погрузки требуется не менее двух человек.
- Перед началом работы с системой все пользователи системы должны хорошо ознакомиться со всеми элементами управления и индикаторами.
- Во всех процедурах следуйте установленным правилам безопасности при работе с опасными микробиологическими материалами. Со всеми образцами необходимо обращаться в соответствии с рекомендациями CDC-NIH, инструкциями CLSI или правилами вашей организации по работе с потенциально инфекционной человеческой сывороткой, кровью или другими жидкостями организма. Перед утилизацией простерилизуйте контейнеры для образцов и другие инфицированные материалы автоклавированием.
- Кроме перчаток рекомендуется использовать при работе с прибором одноразовые лабораторные халаты и защитные или предохранительные очки.
- Дверь прибора блокируется электромеханическим замком, которым управляет программное обеспечение прибора. Не пытайтесь отключить механизм блокировки двери или открыть дверь, если на экране не показан значок «Дверь разблокирована». Вращающийся поворотный механизм может нанести травму. Если открыв дверь вы видите, что поворотный механизм не полностью остановился, немедленно обратитесь в сервисную службу компании BD. Не пытайтесь вращать поворотный механизм вручную – это может привести к травме.
- При появлении сообщения об ошибке или предупреждения необходимо немедленно предпринять соответствующие действия.
- Любые процедуры технического обслуживания или ремонта, отличные от процедур, описанных в разделе «5.2 Регулярное техническое обслуживание» и разделе «5.3 Замена модулей», должны осуществляться квалифицированными специалистами. Несоблюдение данного предупреждения может привести к несчастному случаю или поломке прибора.
- Перед началом процесса дезинфекции убедитесь, что все части тела, которые могут соприкасаться с загрязненными поверхностями прибора, полностью закрыты.
- Если выводится субкод, который не указан в этом руководстве, запишите его и обратитесь за помощью в компанию BD.
- Если рекомендуемое действие по устранению проблемы не помогло, обратитесь в компанию BD.

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2 – Элементы управления, значки, индикаторы и установка

2.1 Общая информация

В этом разделе описываются спецификации прибора, значки программы, элементы управления и индикаторы, а также задание конфигурации прибора BD Phoenix M50.

ОСТОРОЖНО!

СТЕПЕНЬ ЗАЩИТЫ, КОТОРУЮ ОБЕСПЕЧИВАЕТ ДАННОЕ ОБОРУДОВАНИЕ, МОЖЕТ СНИЗИТЬСЯ, ЕСЛИ ПРИБОР ИСПОЛЬЗУЕТСЯ НЕ В СООТВЕТСТВИИ С ИНСТРУКЦИЯМИ ДАННОГО РУКОВОДСТВА.

ВНИМАНИЕ!

Входной воздушный фильтр, расположенный в передней части прибора BD Phoenix M50, в правом нижнем углу, должен быть всегда чистым. Если фильтр мешает подаче воздуха, это может привести к перегреву прибора, что повлияет на результаты тестов и может нарушить работоспособность прибора.

2.2 Запуск системы

После включения питания система инициализируется, проводит само-диагностику и сообщает пользователю обо всех проблемах с помощью системных предупреждений. Если повреждены или отсутствуют какие-либо файлы, без которых невозможна нормальная работа системы, процесс запуска прекращается. В противном случае компьютер загружает операционную систему и пользовательский интерфейс и начинает фазу прогрева (на экране вводится значок Прогрев). После этого система ожидает запуска процесса тестирования панелей.

После включения прибора нужно оставить в нем панель измерения температуры не менее чем на 45 минут и только потом выполнять измерение.

2.2.1 Установка прибора

Установку прибора BD Phoenix M50 должен выполнять только представитель компании BD.

ВНИМАНИЕ!

Поскольку прибор BD Phoenix M50 обладает большой массой и размерами, чтобы поднять его без механических средств погрузки требуется не менее двух человек.

Язык

Рабочий язык системы задается во время установки представителем компании BD. Поддерживаются следующие языки:

- Английский
- Испанский
- Французский
- Португальский
- Немецкий
- Японский
- Итальянский

В месте установки прибора BD Phoenix M50 должны отсутствовать сильные вибрации, прямой солнечный свет, высокая влажность, пыль, слишком низкая или слишком высокая температура, а также едкие или взрывоопасные пары или газы. Температура в рабочем помещении должна быть в диапазоне 18-30 °C. Относительная влажность должна быть от 20% до 80% (без образования конденсата). Левая, задняя и правая сторона прибора должны располагаться не менее чем в трех дюймах (7,5 см) от ближайшей стены. Если место размещения прибора не удовлетворяет этим условиям, это может негативно повлиять на качество работы компонентов системы.

Температура поворотного механизма не должна отклоняться от заданного в контроллере значения (35 °C) более чем на 1,5 °C. Такая точность поддержания температуры может быть достигнута только при соблюдении указанных выше требований к температуре помещения.

В зонах с повышенной сейсмической активностью рекомендуется использовать соответствующее крепление.

Чтобы разместить два прибора один над другим, необходимо использовать набор для монтажа дополнительного модуля BD Phoenix M50.

Классификация по стандарту IEC 664:

Категория перенапряжения II (Installation Category II)

Степень загрязнения 2 (Pollution Degree 2)

2.3 Спецификации прибора

2.3.1 Спецификации

Физические размеры	
Высота	535 мм (21 дюйм)
Ширина	815 мм (32 дюйма)
Глубина	765 мм (30 дюймов)
Свободное пространство справа	546 мм (21,5 дюйм)
Свободное пространство слева и сзади	76 мм (3 дюйма)
Свободное пространство спереди	457 мм (18 дюймов)
Вес (прибор не заполнен)	53,5 кг (118 фунтов)
Вес (прибор заполнен)	57,6 кг (127 фунтов)

Требования к окружающей среде	
Хранение	
Температура	от -17,8 °C до +65 °C (0-149 °F)
Относительная влажность	20 – 80% (без выпадения конденсата)
Условия эксплуатации	
Температура	от +18 °C до +30 °C (64,4-86 °F)
Относительная влажность	20 – 80% (без выпадения конденсата)
Место размещения	Горизонтальная поверхность, без прямого солнечного света, вдали от источников тепла
Высота над уровнем моря	До 2000 м
Уровень шума	≤ 55 dBA (на расстоянии 1 м; использовать измеритель стандарта ANSI Type 2)

Требования к питанию	
Входное напряжение	100-240 В (переменный ток)
Потребляемый ток	6 А
Частота	50/60 Гц

Выделяемое тепло (входное напряжение 120 В)	
Температура окружающей среды	BTU/час
18 °C	648
24 °C	464
30 °C	287

Оптические спецификации	
Длины волн (максимум излучения)	
От 428 нм до 623 нм – видимый спектр	
375 нм – ультрафиолетовый источник для возбуждения флуоресценции	
От 410 нм до 640 нм – полоса пропускания канала для сигналов флуоресценции	

2.3.2 Элементы управления и индикаторы

2.3.2.1 Выключатель и разъем питания

Отключение питания прибора:

1. Выключите переключатель питания – переведите его в положение **OFF**, для чего нажмите на сторону **0**.
2. Отсоедините кабель питания от прибора.

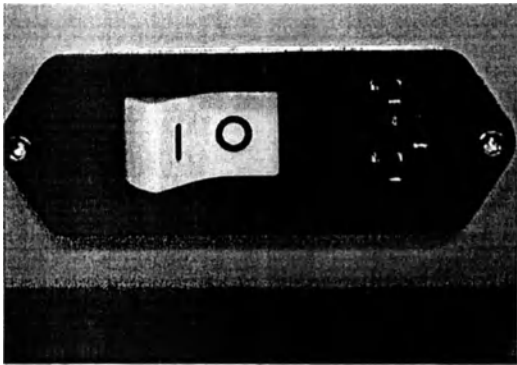


Рис. 2-1 – Питание выключено, кабель питания отсоединен

2.3.2.2 Панель разъемов

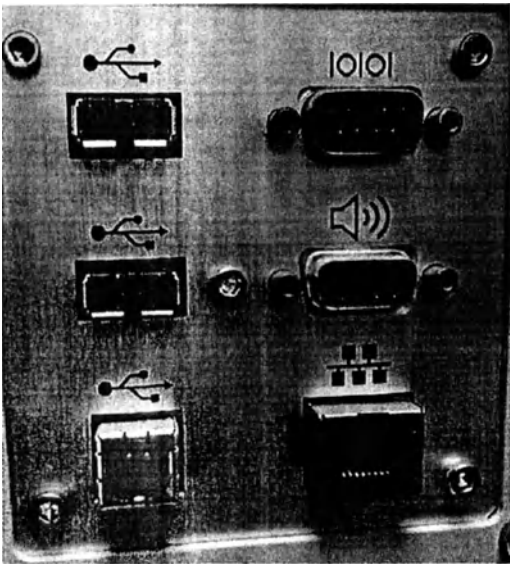


Рис. 2-2 – Панель разъемов BD Phoenix M50

Разъем USB	Разъем последовательного интерфейса (ЛИС)
Разъем USB	Разъем для сигналов тревоги
Разъем USB-хост (для подключения к планшетному компьютеру)	Разъем для локальной сети

2.3.2.3 Элементы управления планшетного компьютера



Рис. 2-3 – Элементы управления планшетного компьютера

Пояснительные значки расположены около соответствующих кнопок, вдоль нижнего края компьютера. Когда компьютер расположен вертикально, кнопки управления находятся на его нижней стороне, прямо под значками.

2.3.2.4 Выключатель питания

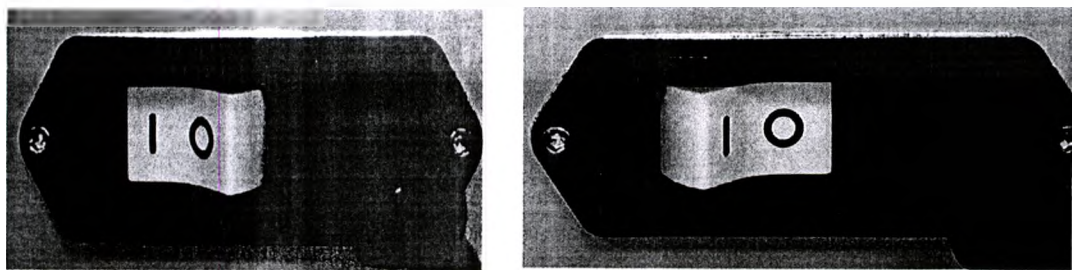


Рис. 2-4 – Выключатель питания включен и выключен

2.3.2.5 Другие обозначения



Рис. 2-5 – Обозначения на корпусе прибора BD Phoenix M50

Слева направо:

- Биологическая опасность
- Электронное оборудование, требуется переработка
- Включен/Выключен

2.3.2.6 Индикатор предупреждений прибора

Индикатор
предупреждений

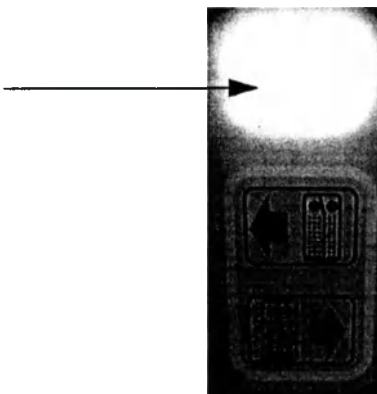


Рис. 2-6 – Индикатор предупреждений прибора

Индикатор предупреждений прибора показывает текущее состояние предупреждения. Ниже представлено описание состояний:

Индикатор предупреждений прибора		
Светодиодный индикатор	Состояние	Значение
Не горит	Нет предупреждений / Прибор подключен к компьютеру	У прибора в настоящее время нет требующих внимания предупреждений, прибор соединен с компьютером.
Мигает	Нет соединения с компьютером	Прибор не соединен с планшетным компьютером или не взаимодействует с ним.
Горит	Предупреждения прибора	У прибора есть требующие внимания предупреждения. Подробную информацию о предупреждениях можно увидеть на соответствующем экране компьютера. Прибор подключен к планшетному компьютеру.

2.3.2.7 Системные предупреждения

В процессе работы прибора BD Phoenix M50 могут возникать системные предупреждения и ошибки. Для различных типов предупреждений и ошибок: могут выводиться коды ошибки «E» и «W» (см. разделы «6.2 Системные предупреждения (коды ошибок E)» и «6.3 Предупреждения «ошибка работы» (коды ошибок W)»), могут генерироваться звуковые сигналы (см. раздел «2.3.2.8 Звуковые сигналы и сигналы тревоги»), на экране компьютера может появляться значок «Системное предупреждение», может загораться индикатор предупреждений прибора. Значок «Системное предупреждение» (см. раздел «2.5 Значки программы»), появляющийся в верхнем левом углу экрана, указывает на наличие системного предупреждения. Коснитесь этого значка, чтобы перейти на экран «System Alerts» (Системные предупреждения). На этом экране можно просмотреть все системные предупреждения, возникшие ранее или до сих пор активные.

Коснитесь значка >>, чтобы увидеть сообщение о системном предупреждении, содержащее более подробную информацию. Типы ошибок «E» описаны в разделе «6.1 Сообщения об ошибках или предупреждающие сообщения». Не все типы ошибок могут быть исправлены пользователем.

ВНИМАНИЕ!

Незамедлительно реагируйте на сообщения об ошибке или предупреждения.

2.3.2.8 Звуковые сигналы и сигналы тревоги

Как говорилось выше, звуковые сигналы информируют пользователя о различных состояниях прибора. Подробное описание звуковых сигналов представлено в следующей таблице.

Тип	Пример	Звук
Информационные		
Распознан	Сканирование штрих-кода	Один краткий высокий тон
Пример звукового сигнала	В режиме конфигурации при настройке громкости звука	Три тона, идущих от высокого к низкому ("Фигаро")
Поворотный механизм остановлен	Поворотный механизм остановлен, можно открыть дверь	Три тона, идущих от низкого к высокому
Дверь закрыта	Дверь полностью закрыта и заблокирована	Два кратких высоких тона
Действие завершено	Операция завершена	Три кратких высоких тон

Гип	Пример	Звук
Предупреждение		
Ошибка действия (громкость настраивается)	Сканирован неверный штрих-код	Краткий высокий тон, затем краткий низкий тон – эта последовательность повторяется четыре раза
Системное предупреждение (громкость настраивается)	Сбой оптической системы	Один звук средней длительности – звучит одну секунду, три секунды пауза, затем повтор
Сигнал ошибки	Запрошенное действие нельзя выполнить	Краткий высокий тон, затем краткий низкий тон
Дверь открыта	Дверь остается открытой более 5 минут	Непрекращающаяся пронзительная трель
Прибор нельзя открыть	Операция более высокого приоритета не позволяет пользователю вмешиваться в работу прибора	Один низкий тон
Уведомление о критической панели или маркере резистентности	Критическая панель: неполные результаты, панель завершена или определена идентификация. Маркер резистентности: обнаружен маркер	Тон 1 (средняя частота): длинный звук, краткий звук, длинный звук, краткий звук. Тоны 2 (низкая частота) и 3 (очень высокая частота): длинный звук, краткий звук, длинный звук
Поворотный механизм застопорился	Что-то мешает вращению поворотного механизма	Высокая трель

2.3.2.9 Индикатор состояния кнопок загрузки/выгрузки и двери

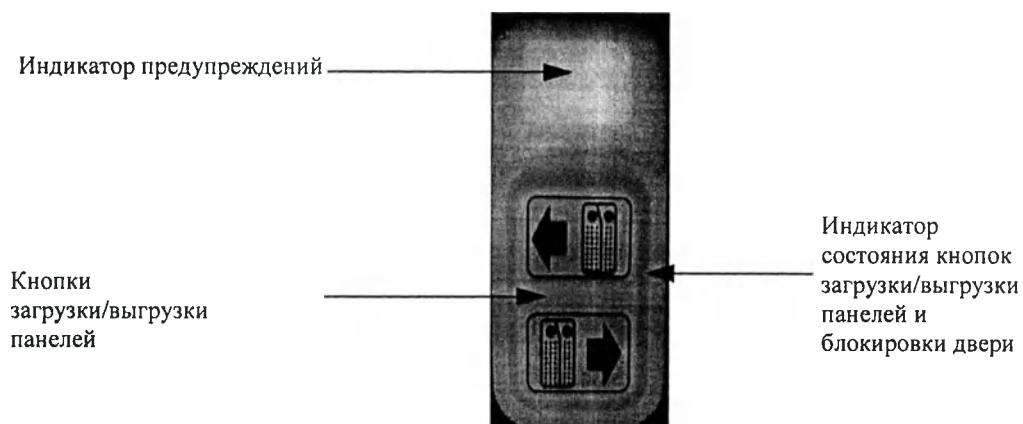


Рис. 2-7 – Индикатор загрузки/выгрузки панелей

На приборе находится индикатор, сообщающий пользователю текущее состояние кнопок загрузки/выгрузки панелей и двери. Состояния индикатора описываются в следующей таблице (см. раздел «3.3.2 Загрузка панелей в прибор»).

Индикатор загрузки/выгрузки панелей		
Светодиодный индикатор	Состояние	Значение
		Если прибор включен: В настоящее время нельзя выполнять операции загрузки и извлечения панелей.
Не горит	Кнопки загрузки/выгрузки панелей неактивны	Дверь заблокирована, пользователь не может ее открыть. Этот индикатор не горит, когда прибор выполняет какую-либо операцию, которую нельзя прерывать операцией загрузки или извлечения панелей.
Мигает	Дверь прибора разблокирована	Дверь разблокирована, пользователь может открыть ее и получить доступ к панелям.
Горит	Кнопки загрузки/выгрузки панелей активны	Дверь заблокирована, пользователь не может ее открыть. Пользователь может нажать кнопку загрузки или кнопку выгрузки панелей.

2.3.2.10 Индикаторы станции

У каждой доступной станции есть набор светодиодных индикаторов, информирующих о состоянии станции или панели. Индикаторы станции расположены по центральной линии станции (см. рис. 2-8 – Индикаторы станций). Состояние станции указывается цветом индикатора (зеленый, желтый или красный). Значения цветов представлены в следующей таблице.

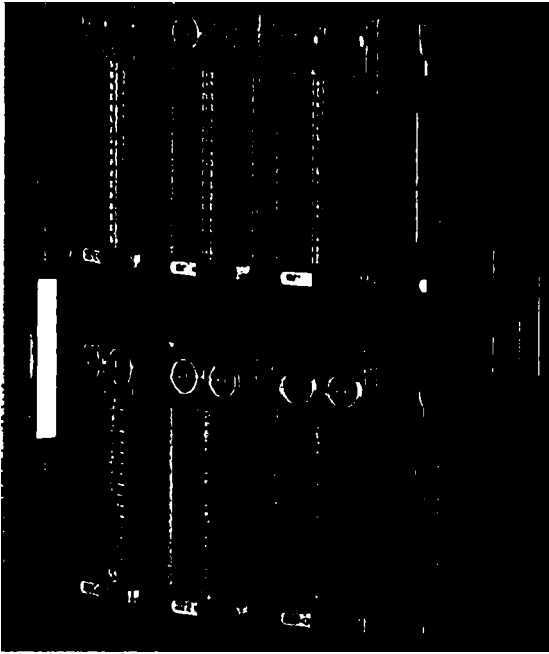


Рис. 2-8 – Индикаторы станций

Индикаторы состояния станции	
Светодиодный индикатор	Значение
Не горит	Панель обрабатывается (если в станции есть панель) или Станция доступна (если станция пустая)
Зеленый	Панель можно удалить
Желтый	Панель найдена с помощью функции «Locate Panel» (Найти панель)
Красный	Станция заблокирована (а также для панели измерения температуры)

2.3.3 Принтер

Описание элементов управления и индикаторов принтера смотрите в документации по данному принтеру. Принтер должен быть подключен к одному из USB-портов прибора. Один принтер может обслуживать два прибора BD Phoenix M50, подключенных к одному планшетному компьютеру.

2.3.4 Сканеры штрих-кодов

Вместе с системой поставляется ручной сканер для сканирования штрих-кодов панелей. Чтобы сканировать штрих-код, нажмите кнопку на нижней стороне сканера. Одиночный звуковой сигнал указывает на успешное сканирование. Для каждого последующего штрих-кода, еще раз нажмите кнопку сканера.

2.3.5 Клавиатура на сенсорном экране

На экране сенсорном экране планшетного компьютера может выводиться клавиатура для ручного ввода данных в экранные поля. Чтобы вызвать экранную клавиатуру, коснитесь поля, в которое хотите ввести данные. Затем коснитесь появившегося значка клавиатуры, чтобы развернуть экранную клавиатуру в полный размер. Данные можно вводить непосредственно на сенсорном экране, или же можно использовать обычную клавиатуру. Закончив ввод данных с помощью экранной клавиатуры, коснитесь клавиши «Return», чтобы закрыть клавиатуру.

2.3.5.1 Включение/выключение переключателей на сенсорном экране

Некоторые поля пользовательского интерфейса – это переключатели опций, которые можно включить или выключить. Чтобы включить или выключить переключатель, просто коснитесь его прямоугольника и/или круга. Если нажать на прямоугольный переключатель, в нем появится галочка, указывающая, что данная опция включена. Если нажать на это поле еще раз, галочка исчезнет (опция выключена).

2.4 Доступ пользователей и управление пользователями – сводка

Доступ пользователей

Чтобы войти в систему, пользователь должен коснуться значка «Log In» (Вход в систему) на экране «Status» (Состояние) программы прибора BD Phoenix M50. После входа в систему эта надпись изменится на «Log Out» (Выход из системы). Имя текущего пользователя выводится в правой части верхней панели программы.

Вход в систему

Коснитесь поля «Log In» (Вход в систему) – появится экран регистрации пользователя. В поле имени пользователя нужно ввести полное имя пользователя. Идентификатор технолога («Tech ID») нельзя использовать в качестве имени пользователя для регистрации. Если введены неверные значения регистрации, система выдаст предупреждение и попросит повторить ввод.

После пяти неудачных попыток учетная запись пользователя будет заблокирована. Если вы случайно попали на этот экран или хотите выйти из него без регистрации, коснитесь кнопки «Cancel» (Отмена) на главном экране.

ПРИМЕЧАНИЕ

Если пользователь вошел в систему, но экран был неактивен в течение 15 минут, сеанс пользователя будет автоматически завершен и все несохраненные данные будут утеряны.

Выход из системы

Чтобы вызвать экран выхода, коснитесь поля «Log Out» (**Выход из системы**) на экране «Status» (**Состояние**). Появится окно с просьбой подтвердить выход. Чтобы остаться в системе, выберите «Cancel» (**Отмена**). Вы вернетесь на главный экран программы.

Краткое описание ролей пользователей

- «Administrator» (Администратор) — администратор этой лаборатории. Администратор имеет доступ ко всем функциям системы, включая конфигурацию системы. Администраторы могут создавать и удалять других администраторов и обычных пользователей.
- «General User» (Обычный пользователь) — доступны все функции системы, кроме задания конфигурации (конфигурация доступна в режиме только для чтения). Пользователи могут изменять свои пароли.

Управление пользователями

Для управления пользователями перейдите на экран «Configuration» (Конфигурация). Вкладка «Users» (Пользователи) — это первая вкладка на списке вкладок экрана «Configuration» (Конфигурация).

Обычные пользователи лаборатории

Для обычных пользователей из всех функций управления доступна только функция изменения их собственного пароля. Через определенные промежутки времени система требует от всех пользователей, чтобы они сменили свои пароли. Чтобы изменить пароль, введите новый пароль и затем введите его еще раз в поле «Confirm» (**Подтверждение**). Затем выберите «Update Password» (**Изменить пароль**).

Пользователи-администраторы

Для пользователей с полномочиями администратора лаборатории доступны все функции управления.

Администратору выводится список активных и неактивных пользователей системы. Для выбранного пользователя выводится подробная информация — его роль и идентификатор технолога.

Администратор может выбрать в списке пользователя и выполнить следующие действия:

- Сбросить пароль пользователя.
- Деактивировать/запретить учетную запись пользователя. Деактивированные учетные записи пользователей остаются в списке.
- Добавить новых пользователей в систему.

2.5 Значки программы

* Значок не выводится в режиме соединения с BD EpiCenter™.

** Значок не выводится в автономном режиме

ОБЩИЕ				
				
Свернут	Развернут	Включен	Печать	Справка

ЭКРАН СОСТОЯНИЯ			
			
Вход в систему/Выход из системы	Без звуковых сигналов	Состояние	Регистрация панелей
			
Результаты	* Финализация	Панели в приборе	Отчеты

ПРЕДУПРЕЖДЕНИЯ/ОПОВЕЩЕНИЯ			СОСТОЯНИЕ СТАНЦИИ	
				
* Финализация невозможна	Системное предупреждение	Специальное сообщение	Станция заблокирована	Станция пустая

ПАНЕЛИ				ТРЕБУЕТ ВНИМАНИЯ			
							
Панель обрабатывается	Панели можно удалить, они завершены	Итоговый результат ID или AST изменен	* Маркер резистентности	Быстрое завершение	Активное предупреждение	Нет активных сигналов, требующих внимания	Есть активные сигналы, требующие внимания

Состояние прибора					
 Дверь заблокирована	 Дверь разблокирована	 В режиме ожидания	 Обработка данных	 Прогревается	 Температура
 Тестирование	 Номер прибора	 Настройка источников излучения (видимый свет, УФ)	 Инвентаризацион- ное сканирование	 Восстановление после автономного режима (загрузка данных)	 ** Соединение с EpiCenter сконфигурирова- но и установлено
 ** Соединение с EpiCenter сконфигуриров- ано, но не установлено	 ** Соединение с ЛИС сконфигурирован о и установлено	 ** Соединение с ЛИС сконфигурировано , но не установлено	 Состояние соединения прибора с планшетным компьютером – Есть соединение	 Состояние соединения прибора с планшетным компьютером – Нет соединения	

2.6 Настройка программы

При поставке системы для всех параметров конфигурации заданы заводские значения по умолчанию. Но прежде, чем использовать прибор для тестирования панелей, просмотрите параметры конфигурации, чтобы увидеть, подходят ли они для вашей лаборатории. Эти параметры сгруппированы в следующие категории:

- Управление пользователями (раздел «2.4 Доступ пользователей и управление пользователями – сводка»)
- Конфигурация прибора (раздел «3.10.10 Подкладка «Instrument» (Прибор)»)
- Конфигурация соединений (раздел «3.10.3 Подкладка «Communications» (Соединения)»)
- Пользовательский набор правил интерпретации (раздел «3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)»)
- Конфигурация правил BDxpert (раздел «3.10.7 Подкладка «BDxpert Rules» (Правила BDxpert)»)
- Конфигурация быстрых отчетов (раздел «3.10.8 Подкладка «Rapid Reporting» (Быстрый отчет)»)
- Задание информации о партии панелей (раздел «3.10.9 Подкладка «Panel Lot Definition» (Определение партии панелей)»)

Параметры конфигурации прибора описаны ниже. После включения прибора выводится экран «Status» (Состояние). Он показан на рис. 1-2 – Пользовательский интерфейс BD Phoenix M50 для одного прибора. Экран «Status» (Состояние) выводится по умолчанию, если не запущены никакие операции. Вкладки этого экрана подробно описаны в разделе «3 – Работа с пользовательским интерфейсом».

Пользователи могут устанавливать обновления программного обеспечения (ПО). Вставьте в разъем USB планшетного компьютера полученный от компании BD USB флеш-накопитель. На вкладке «Maintenance» (Обслуживание) выберите «Task Category: Software» (Категория задач: Программное обеспечение), «Task : Upgrade Execute» (Задача: Выполнить обновление). Сообщение об обновлении ПО будет записано в ежедневный отчет о работе прибора. Пошаговые инструкции смотрите в разделе «3.9.1 Задачи технического обслуживания прибора».

ПРИМЕЧАНИЕ

Пользовательские пороговые значения

Если при обновлении ПО или при установке нового пакета данных обновления BD Phoenix Update Data (PUD) были изменены какие-либо из стандартных наборов правил интерпретации, в базу данных системы будут установлены новые наборы правил. Поскольку пользовательские наборы правил основаны на стандартных наборах правил, пользовательский набор правил интерпретации будет объединен с новыми стандартными правилами. Если вы задавали пользовательские пороговые значения, после каждой операции обновления ПО или установки пакета обновления данных Phoenix (PUD) обязательно распечатайте Отчет об изменениях пользовательских пороговых значений (раздел «3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)»).

2.7 Автономный режим

Автономный режим – это ситуация, когда прервано соединение между прибором BD Phoenix M50 и планшетным компьютером. Автономный режим разработан для того, чтобы избежать пауз в цикле тестов ID/AST в случае временного отсоединения компьютера от прибора. В автономном режиме прибор не прекращает инкубацию панелей и продолжает выполнять цикл сбора данных панелей. Однако в режиме изоляции не разрешается выполнять такие рабочие операции, как регистрация панелей или удаление завершенных панелей. Поскольку анализ результатов панелей происходит в планшетном компьютере, результаты для завершенных панелей в автономном режиме не доступны.

Обратите внимание на следующие особенности работы системы в автономном режиме:

- Когда прибор находится в автономном режиме, на нем мигает желтый индикатор предупреждений прибора.
- Когда потеряно соединение с прибором, на экране планшетного компьютера выводятся сообщения об ошибках. На экране состояния недоступна информация о состоянии прибора (см. рис. 2-9 – Автономный режим).

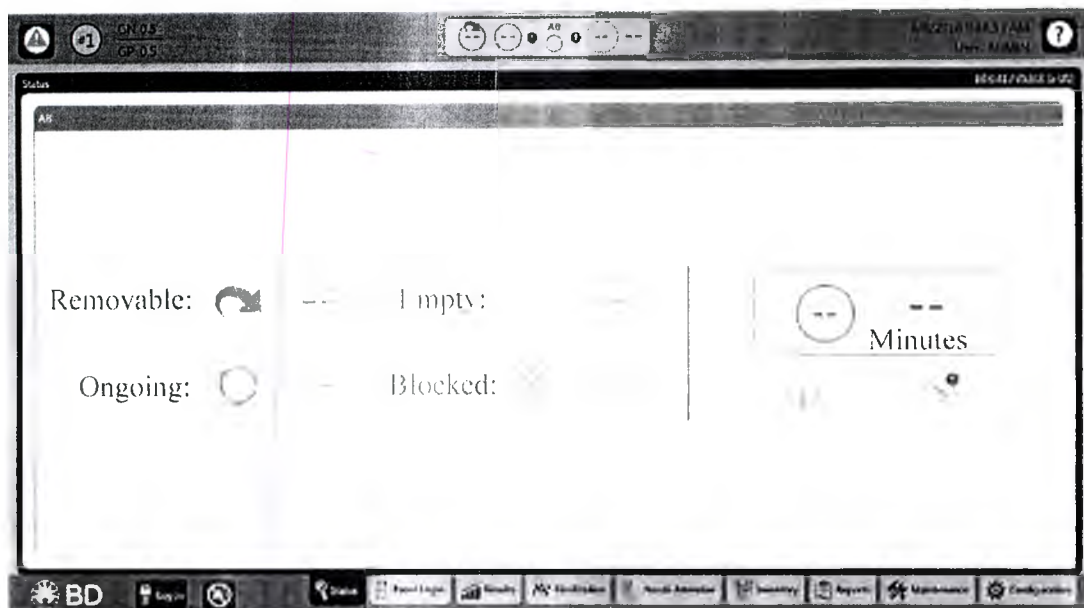


Рис. 2-9 – Автономный режим

- Если к одному планшетному компьютеру подключены два прибора BD Phoenix M50, каждый прибор может находиться в автономном режиме независимо от другого прибора (см. рис. 2-10 – Автономный режим для одного прибора).

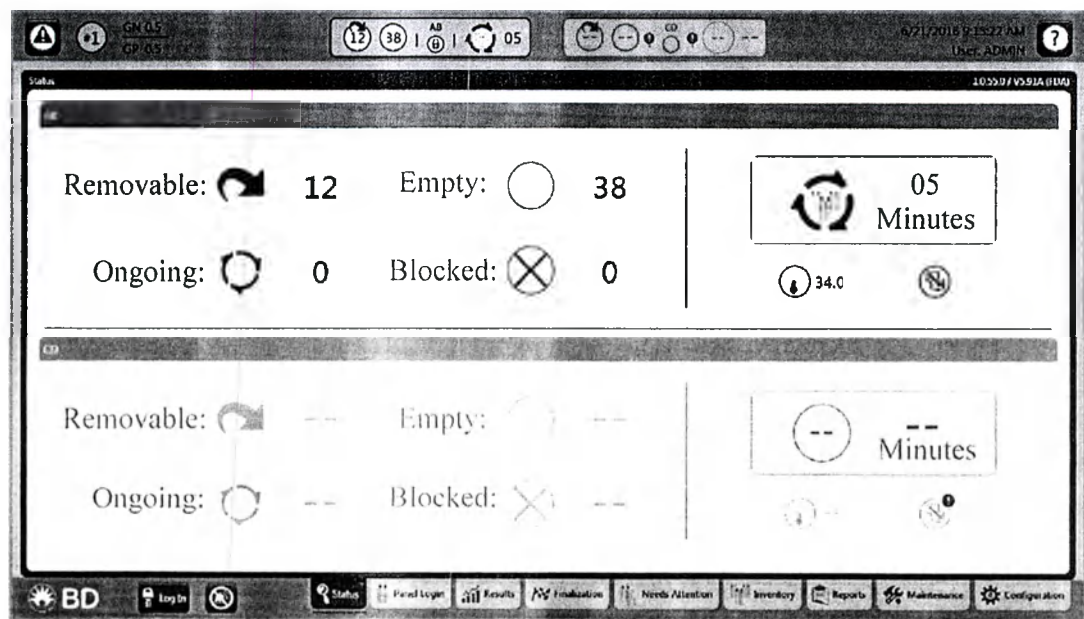


Рис. 2-10 – Автономный режим для одного прибора

- События перехода каждого прибора в автономный режим и из него обрабатываются компьютером независимо.
- В автономном режиме, если открыта дверь прибора, индикаторы состояния станций не горят. Обычные рабочие операции в автономном режиме не поддерживаются.
- Когда соединение между прибором и планшетным компьютером восстановлено, оба возвращаются к нормальному режиму работы. При восстановлении соединения все данные цикла тестирования, собранные прибором в автономном режиме, передаются на планшетный компьютер и обрабатываются им. При восстановлении из автономного режима оцениваются результаты для всех панелей, которые еще находятся в приборе.

Индикатор предупреждений прибора при работе в автономном режиме		
Светодиодный индикатор	Состояние	Значение
Мигает	Нет соединения с компьютером	Прибор не соединен с планшетным компьютером или не взаимодействует с ним.

Работа в автономном режиме

- Обычные рабочие операции в автономном режиме не поддерживаются

Исправление автономного режима

Автономный режим может быть вызван следующими причинами:

- Неисправность планшетного компьютера
- От планшетного компьютера отсоединены кабель питания или кабель связи (USB)
- Программа прибора BD Phoenix M50 прекратила работу на планшетном компьютере

Чтобы вернуться в нормальный режим работы, проверьте подключение USB-кабеля и кабеля питания и при необходимости заново подключите их. Также может потребоваться перезапуск планшетного компьютера и/или прибора. Если эти действия не привели к исправлению проблемы, обратитесь к вашему локальному представителю компании BD.

2.8 Работа с ЛИС

2.8.1 Общая информация

Система связи ЛИС позволяет прибору BD Phoenix M50 обмениваться информацией с совместимой лабораторной информационной системой (ЛИС). Систему связи ЛИС можно настроить для обмена записями заказов и записями результатов в различные моменты времени.

Записи заказов могут загружаться из ЛИС в прибор BD Phoenix M50. Эти записи заказов могут содержать информацию, перечисленную в следующем разделе. Если из ЛИС передана вся эта информация, панель регистрируется автоматически (точно также, как при регистрации в самом приборе). Если в переданной информации нет порядкового номера панели, эту запись заказа можно вручную связать с конкретной панелью на экране «Panel Login» (Регистрация панели). Также в конфигурации можно настроить передачу записей заказов из прибора в ЛИС.

2.8.2 Записи передачи результатов

Записи результатов передаются из прибора BD Phoenix M50 в систему ЛИС. Эти записи состоят из:

- Запись заголовка (поля разделителей, имя отправителя, номер версии, дата и время сообщения)
- Запись заказа (номер образца, номер изолята, микроорганизм, идентификатор теста, порядковый номер, приоритет, тип отчета)

Учтите, что если запись заказа для новой или уже существующей панели содержит код микроорганизма, сторона ID этой панели будет отключена.

- Запись комментария (содержит специальные сообщения и/или правила BDxpert)

2.8.3 Запись результатов

- Порядковый номер панели
- Номер прибора
- Тип прибора
- Позиция в приборе (станция)
- Время до получения результата идентификации или МПК
- Время начала теста
- Время окончания теста
- Состояние теста (выполняется, завершен, частично завершен, завершен с условием «Требуется внимания», завершен с игнорированием всех условий «Требуется внимания», тест контроля качества завершен с состоянием «PASS» (Тест пройден), тест контроля качества завершен с состоянием «REVIEW» (Требуется проверка), ожидает обработки или быстрое завершение)
- Тип результатов
- Код противомикробного препарата
- Значение МПК
- Значение S / I / R / нет интерпретации / код ошибки
- Маркер резистентности
- Идентификация или итоговая идентификация
- Состояние результатов (финализированы или нет)

Система связи ЛИС основана на стандартах связи (1381 и 1394) Американского общества тестирования материалов (American Society of Testing and Materials – ASTM) и совместима с большинством известных систем ЛИС. Информацию о совместимых системах ЛИС можно получить у локального представителя компании BD. Спецификация интерфейса поставщика ЛИС (доступна по запросу) содержит исчерпывающую информацию по реализации системы связи ЛИС в приборе BD Phoenix.

ПРИМЕЧАНИЕ

Если прибор BD Phoenix M50 подключен к ЛИС, его нельзя подключить к системе BD EpiCenter. Однако если прибор BD Phoenix M50 подключен к системе BD EpiCenter, подключение к ЛИС можно организовать через систему BD EpiCenter.

2.8.4 Важные понятия

Существуют некоторые общие понятия, с которыми необходимо ознакомиться для понимания представленной здесь информации и правильной организации системы связи ЛИС в лаборатории. Эти понятия изложены ниже.

С помощью системы связи ЛИС можно пересылать записи результатов с прибора в систему ЛИС (**передача**), а также записи заказов при загрузке панелей в прибор и запросы для записей заказов, как в систему ЛИС, так и из нее. Отправку результатов можно настроить, включив или исключив результаты интерпретации чувствительности (SIR). Прибор можно настроить на передачу записей результатов только по запросу ЛИС (**передача по требованию**) или в одном из следующих случаев **передачи без согласования**: при финализации панелей, при завершении тестирования или изменении записей завершенной панели, при определении результатов идентификации или AST или в фиксированные моменты времени. Данные для панелей контроля качества и панелей неизвестных образцов передаются только по требованию системы ЛИС. Если прибор настроен на передачу без согласования, он по-прежнему будет отвечать на запросы результатов от ЛИС (требования и запросы). Если прибор настроен на передачу без согласования, система ЛИС всегда должна быть готова принять данные от прибора.

Загружая порядковые номера штрих-кода (панели), прибор может автоматически регистрировать панели при приеме записей. Если полученные записи заказа не содержат порядковых номеров панелей, соответствующие панели можно связать с этой записью заказа на экране «Panel Login» (Регистрация панели).

Полученные записи, в которых не указаны порядковые номера панелей, сохраняются (до 200 записей заказов), чтобы пользователь вручную связал их с панелями. Этот процесс описан в разделе «3.3.2 Загрузка панелей в прибор».

Подвкладки «Organism Configuration» (Коды микроорганизмов) и «Antimicrobial Configuration» (Коды антибиотиков) позволяют пользователю задать коды, которые используются в записях результатов, передаваемых в ЛИС. Дополнительную информацию смотрите в описании группы полей «Options» (Опции) в разделе «3.10.2 Подкладка «System Configuration» (Конфигурация системы)».

Настройки конфигурации ЛИС не зависят от настроек конфигурации критической панели. (Например, если панель критическая и в конфигурации быстрого отчета задано уведомление о результатах идентификации или частичных результатах, но в конфигурации ЛИС задана передача результатов только после завершения обработки панели, результаты незавершенной панели не будут передаваться.)

2.8.5 Работа системы

Работа прибора BD Phoenix M50 с интерфейсом ЛИС незначительно отличается от обычного режима работы системы. Основное различие – возможность с помощью ЛИС вводить в систему данные о панели/образце. Благодаря системе связи ЛИС информацию о пациенте можно ввести в ЛИС и передать ее прибору BD Phoenix M50. Подробные инструкции о вводе данных и загрузке записей смотрите в документации по вашей ЛИС.

Системы ЛИС могут работать или в режиме реального времени, когда система автоматически загружает каждый регистрируемый заказ, или в пакетном режиме, когда регистрируется и загружается сразу несколько заказов. После регистрации записей пациентов в ЛИС, загрузите их в прибор BD Phoenix M50.

Все переданные прибору данные, которые не соответствуют ни одному из полей записи заказа, игнорируются системой. Любая информация, переданная от ЛИС для финализированных панелей, отклоняется.

После того, как прибор получит записи заказов и с этими записями будут связаны панели (если это необходимо), работа системы не будет отличаться от обычного режима. Например, пользователь по-прежнему может выполнять такие задачи как: загрузка панелей в прибор, печать отчетов, отслеживание завершения обработки панелей системой и операции технического обслуживания; однако рекомендуется, чтобы пользователь был более внимателен и быстро реагировал на все появляющиеся системные предупреждения и предупреждения работы.

3 - Работа с пользовательским интерфейсом

3.1 Использование интерфейса прибора

На сенсорном экране выводится вся необходимая информация для отслеживания состояния прибора, регистрации панелей, настройки прибора, печати отчетов и выполнения регулярных операций технического обслуживания прибора. Более подробную информацию об использовании сенсорного экрана смотрите в разделе «2.3.5 Клавиатура на сенсорном экране». Для различных операций используются отдельные экраны вкладки. Когда вкладка выбрана, появляется соответствующий интерактивный экран. Также на экране выводятся значки, представляющие информацию в графической форме (например, значок термометра показывает текущую температуру). На верхней панели программы выводится информация о состоянии прибора, которая обновляется каждые несколько секунд. В середине экрана исходно выводится информация о состоянии станций. Области экрана более подробно описаны в разделе «2 – Элементы управления, значки, индикаторы и установка».

Далее описаны функции вкладок (по порядку вкладок, слева направо), которые выводятся на нижней панели программы.

3.2 Вкладка «Status» (Состояние)

На вкладке «Status» (Состояние) выводится информация о состоянии одного или двух приборов:

- «Removable» (Можно удалить): число панелей, которые можно удалить.
- «Ongoing» (Обрабатывается): число панелей, находящихся в процессе тестирования
- «Empty» (Пустые): число пустых станций
- «Blocked» (Заблокированы): доступные станции, которые нельзя использовать из-за ошибки системы.
- «Time» (Время): оставшееся время до завершения цикла тестирования
- Температура
- Состояние соединения

3.3 Вкладка «Panel Login» (Регистрация панели)

Вкладка «Panel Login» (Регистрация панели) позволяет ввести информацию о пациенте для панели, которая будет тестироваться. В зависимости от типа используемой панели на экране могут выводиться не все перечисленные ниже поля. Информацию о регистрации панелей контроля качества смотрите в разделе «4.3.1 Контроль качества». Для одного номера образца можно зарегистрировать несколько панелей одного типа, но система выведет уведомление о дублировании и сгенерирует сообщение об ошибке операции.

Поля вкладки «Panel Login» (Регистрация панели):

«Accession Number» (Номер образца)

Введите или сканируйте номер образца (до 20 алфавитно-цифровых символов). При сканировании штрих-кода с номером образца поле «Accession Number» (Номер образца) заполняется автоматически. Пробелы в начале и конце числа игнорируются, но пробелы внутри числа допустимы. В номере образца НЕЛЬЗЯ использовать следующие символы: * ? [] ! # |.

«Sequence Number» (Порядковый номер)

Введите или сканируйте порядковый номер панели. (При сканировании штрих-кода с порядковым номером панели это поле заполняется автоматически.) Порядковый номер панели содержит цифры, указывающие тип панели. Правильный порядковый номер должен содержать 12 цифр и соответствовать спецификациям на порядковые номера панелей BD. Введите порядковый номер панели, чтобы можно было сохранить запись. Если введен существующий порядковый номер, система покажет экран с результатами панелей.

«Isolate Number» (Номер изолята)

По умолчанию номер изолята равен 1. Допустимые значения: от 1 до 20. Если введен номер образца, необходимо также ввести номер изолята. Если номер изолята изменен со значения 1 на другое значение, необходимо ввести номер образца.

Переключатель «Critical» (Критическая)

По умолчанию выключен. Систему можно сконфигурировать (раздел «3.10.8 Подкладка «Rapid Reporting» (Быстрый отчет)»), чтобы она сообщала (или не сообщала) о результатах критических панелей (получены результаты ID, частичные результаты панели или полные результаты панели) путем звукового сигнала и/или автоматической печати лабораторного отчета.

Переключатель «ID»

Если сканирован порядковый номер комбинированной панели, этот переключатель будет по умолчанию включен. Этот переключатель выводится только для комбинированных панелей. Этот переключатель автоматически включается при регистрации панели контроля качества.

Переключатель «AST»

Если сканирован порядковый номер комбинированной панели, этот переключатель будет по умолчанию включен. Этот переключатель выводится только для комбинированных панелей. Этот переключатель автоматически включается при регистрации панели контроля качества.

«Organism ID»/«Test Strain» (Идентификация микроорганизма/Тестовый штамм)

В этом выпадающем списке выберите название микроорганизма. Названия выводятся в алфавитном порядке. Чтобы быстро перейти к нужной части списка, введите несколько первых символов названия микроорганизма.

Это поле выводится только для панелей AST или для комбинированных панелей, в которых используется сторона AST.

Для панелей контроля качества это поле называется «Test Strain» (Тестовый штамм); в нем выводятся только штаммы микроорганизмов, заранее определенные в базе данных (в порядке возрастания номеров штаммов). Тестовый штамм должен быть выбран, иначе вы не сможете сохранить информацию о панели контроля качества.

«Tech ID» (Идентификатор технолога)

Это поле выводится для панелей контроля качества. Введите идентификатор технолога, выполняющего тест контроля качества. Идентификатор может содержать до 3 алфавитно-цифровых символов. Идентификатор технолога должен быть задан, иначе вы не сможете сохранить информацию о панели контроля качества.

«Panel Lot Number» (Номер партии панелей)

Это поле выводится для панелей контроля качества. Введите и сканируйте номер партии этой панели. Номер партии должен содержать 7 цифр. Номер партии должен быть задан, иначе вы не сможете сохранить информацию о панели контроля качества. (Если включен переключатель «QC Lot Support» (Поддержка партии контроля качества), это поле будет заполнено автоматически при сканировании штрих-кода с порядковым номером.)

«Expiration Date (Panel Lot)» (Срок годности партии панелей)

Это поле выводится для панелей контроля качества. Срок годности должен быть задан, иначе вы не сможете сохранить информацию о панели контроля качества. (Если включен переключатель «QC Lot Support» (Поддержка партии контроля качества), это поле будет заполнено автоматически при сканировании штрих-кода с порядковым номером.)

«ID Broth Lot Number» (Номер партии бульона ID)

Это поле выводится для панелей контроля качества. Введите или сканируйте номер партии бульона. Номер партии может содержать до 7 цифр.

«Expiration Date (ID Broth)» (Срок годности бульона ID)

Это поле выводится для панелей контроля качества. Срок годности должен быть задан, иначе вы не сможете сохранить информацию о панели контроля качества.

«ID Broth Lot Number» (Номер партии бульона AST)

Это поле выводится для панелей контроля качества. Введите или сканируйте номер партии бульона. Номер партии может содержать до 7 цифр.

«Expiration Date (AST Broth)» (Срок годности бульона AST)

Это поле выводится для панелей контроля качества. Срок годности должен быть задан, иначе вы не сможете сохранить информацию о панели контроля качества.

«Indicator Lot Number» (Номер партии индикатора)

Это поле выводится для панелей контроля качества. Введите и сканируйте номер партии индикатора. Номер партии может содержать до 7 цифр.

«Expiration Date (Indicator Lot)» (Срок годности партии индикатора)

Это поле выводится для панелей контроля качества. Срок годности должен быть задан, иначе вы не сможете сохранить информацию о панели контроля качества.

3.3.1 Регистрация панелей

Мутность бактериальной суспензии для панели задается в конфигурации системы. При регистрации панели значение мутности нельзя изменить. Единственный способ использовать другую мутность бактериальной суспензии – затемнить лунку A-17, как это описано в разделе «4.3 Подготовка панелей».

Только для панелей идентификации дрожжей: чтобы получить лучшие результаты, нужно выбрать в выпадающем списке правильный тип среды (или использовать заданный по умолчанию). Поле выбора типа среды применяется только для панелей идентификации дрожжей и не выводится для других типов панелей. Чтобы зарегистрировать панель в приборе:

- 1 Выберите вкладку «Panel Login» (Регистрация панели).
- 2 Выберите опцию «Clinical» (Клиническая).
- 3 Если вы хотите получить специальное уведомление (звуковой сигнал и/или автоматически напечатанный лабораторный отчет) при получении результатов панели (только ID, частичные или полные), включите переключатель «Critical» (Критическая). Более подробная информация о критических панелях представлена в разделе «3.10.8 Подкладка «Rapid Reporting» (Быстрый отчет)» в описании уведомлений для критических панелей.
- 4 В поле «Accession Number» (Номер образца) введите или сканируйте номер образца.
- 5 В поле «Sequence Number» (Порядковый номер) введите или сканируйте порядковый номер панели.
- 6 В поле «Isolate Number» (Номер изолята) по умолчанию выводится значение 1. Введите номер изолята или коснитесь значков +/-, чтобы увеличить/уменьшить номер. Допустимые значения: от 1 до 20. Если введен номер образца, необходимо также ввести номер изолята.
- 7 Для панелей идентификации дрожжей необходимо задать тип среды в поле «Media» (Среда). Если тип среды не задан, при попытке сохранения панели возникнет ошибка работы. Если в прибор обнаружит,

что в него вставлена незарегистрированная панель идентификации дрожжей, он прекратит обработку этой панели, так как среда для нее не задана.

В конфигурации можно задать тип среды по умолчанию (см. раздел «3.10.2 Подкладка «System Configuration» (Конфигурация системы)»), который будет выводиться в этом поле, если при регистрации панели сканирован порядковый номер панели идентификации дрожжей. Чтобы выбрать другой тип среды, используйте выпадающий список, в котором выводятся краткие названия всех типов сред (по алфавиту). (Когда выбран тип среды, полное название среды выводится в правой верхней части экрана.) Выберите тип среды.

- 8 Если в комбинированной панели будет использоваться только сторона ID или сторона AST, отключите переключатель для неиспользуемой стороны.
- 9 Если вы отключили сторону ID комбинированной панели или используется панель только для AST или панель BD Phoenix Emerge (панель с расширенным спектром антибиотиков), выводится поле «Organism ID» (Идентификация микроорганизма). Если система не выполняет идентификацию микроорганизма, необходимо задать идентификацию микроорганизма для интерпретации чувствительности. (Если тестируется панель AST и для нее не задана идентификация микроорганизма, после завершения считывания панели в приборе она будет переведена в состояние «Требуется внимания». Нужно будет задать идентификацию микроорганизма, чтобы система BDxpert могла интерпретировать полученные результаты МПК.) Выберите нужный микроорганизм в выпадающем списке. Названия выводятся в алфавитном порядке. Чтобы быстро перейти к нужной части списка, введите несколько первых символов названия микроорганизма. Выберите нужный микроорганизм. Можно также сканировать штрих-код нужного микроорганизма в поставляемом с прибором руководстве «Quick Reference Guide» (Краткий справочник).
- 10 Коснитесь кнопки «Save» (Сохранить), чтобы сохранить введенную информацию.
- 11 Вставьте панель в прибор (смотрите раздел «3.3.2 Загрузка панелей в прибор»). На вкладке «Panel Login»

(Регистрация панели) есть следующие кнопки:

«Save» (Сохранить) – сохраняет показанную на экране информацию

«Repeat Data» (Повторить данные) – заполняет последними введенными данными поля номера образца и типа среды для обычных панелей. Для панелей контроля качества заполняет поля типа среды и информации о партиях (партии бульона ID и AST, партия индикатора и сроки годности этих партий, а также, если не включен переключатель «QC Lot Support» (Поддержка партии контроля качества), партия панелей и ее срок годности)

«Cancel» (Отмена) – стирает выведенную запись с экрана

3.3.2 Загрузка панелей в прибор

Панели вставляются в прибор таким образом, чтобы они были обращены задней стороной (там находится зона реакции и расположена этикетка штрих-кода с порядковым номером панели) внутрь прибора.

- 1 Нажмите кнопку загрузки панелей на передней стороне прибора (см. рис. 2-7 – Индикатор загрузки/выгрузки панелей).
- 2 Когда голубой индикатор начнет мигать, откройте дверь прибора. Раздастся звуковой сигнал и на экране появится значок «Дверь разблокирована».

ОСТОРОЖНО!

ДВЕРЬ ПРИБОРА ЗАПИРАЕТСЯ ЭЛЕКТРОМЕХАНИЧЕСКИМ ЗАМКОВ, КОТОРЫМ УПРАВЛЯЕТ ПРОГРАММНОЕ ОБЕСПЕЧЕНИЕ ПРИБОРА. НЕ ПЫТАЙТЕСЬ ОТКЛЮЧИТЬ МЕХАНИЗМ БЛОКИРОВКИ ДВЕРИ ИЛИ ОТКРЫТЬ ДВЕРЬ; ЕСЛИ НА ЭКРАНЕ НЕ ПОКАЗАН ЗНАЧОК «ДВЕРЬ РАЗБЛОКИРОВАНА», ВРАЩАЮЩИЙСЯ ПОВОРОТНЫЙ МЕХАНИЗМ МОЖЕТ НАНЕСТИ ТРАВМУ. ЕСЛИ ОТКРЫВ ДВЕРЬ ВЫ ВИДИТЕ, ЧТО ПОВОРОТНЫЙ МЕХАНИЗМ НЕ ПОЛНОСТЬЮ ОСТАНОВИЛСЯ, НЕМЕДЛЕННО ОБРАТИТЕСЬ В СЕРВИСНУЮ СЛУЖБУ КОМПАНИИ ВД. НЕ ПЫТАЙТЕСЬ ВРАЩАТЬ ПОВОРОТНЫЙ МЕХАНИЗМ ВРУЧНУЮ – ЭТО МОЖЕТ ПРИВЕСТИ К ТРАВМЕ.

- 3 Выберите держатель панели, в котором нет панели и не горят светодиодные индикаторы. Вставьте нижнюю часть панели в держатель панели (см. рис. 3-1 – Вставка панели).
- 4 Прижмите панель вниз.
- 5 Поверните верхнюю часть панели, чтобы она коснулась держателя.
- 6 Сдвиньте панель вверх, чтобы она встала на место.
- 7 Закройте дверь прибора. Если нужно вставить больше панелей, чем доступно свободных держателей в данном блоке, дождитесь, когда поворотный механизм повернется и станут доступны дополнительные держатели панелей, затем повторите Шаги с 2 по 7.
- 8 Система выполняет инвентаризационное сканирование, чтобы найти все вновь вставленные панели и считать их штрих-коды.

ПРИМЕЧАНИЕ

Не прижимайте панель к держателю резким движением. Это может вызвать всплески и перетекание бактериальной суспензии, что может привести к неточным результатам.

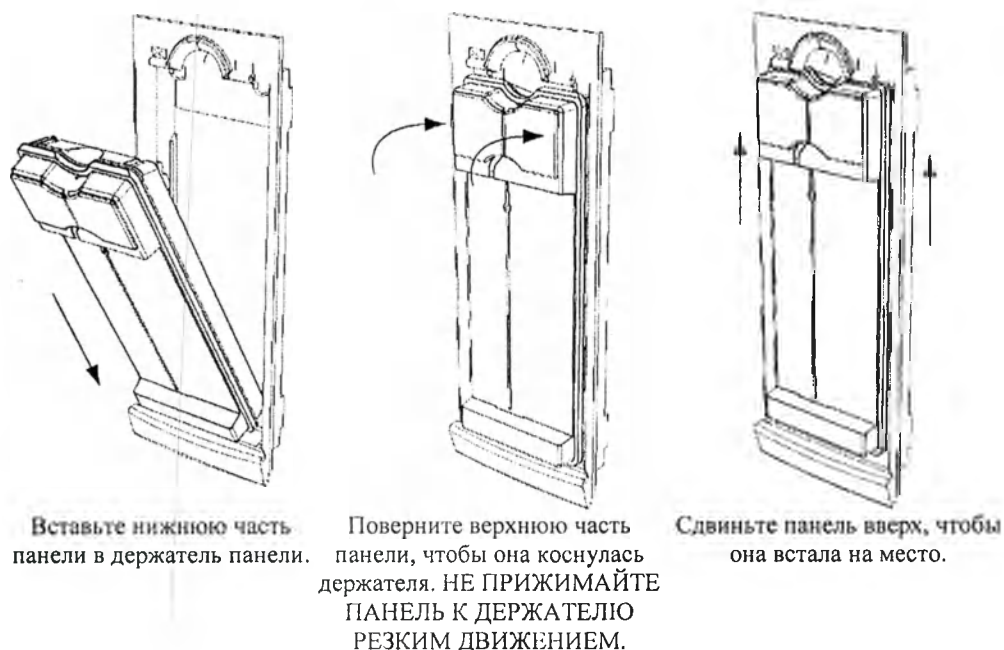


Рис. 3-1 – Вставка панели

3.3.3 Удаление и утилизация панелей

Когда тестирование панели завершено, ее следует вынуть из прибора и выкинуть.

ОСТОРОЖНО!
ДВЕРЬ ПРИБОРА БЛОКИРУЕТСЯ ЭЛЕКТРОМЕХАНИЧЕСКИМ ЗАМКОМ, КОТОРЫМ УПРАВЛЯЕТ ПРОГРАММНОЕ ОБЕСПЕЧЕНИЕ ПРИБОРА. НЕ ПЫТАЙТЕСЬ ОТКЛЮЧИТЬ МЕХАНИЗМ БЛОКИРОВКИ ДВЕРИ ИЛИ ОТКРЫТЬ ДВЕРЬ, ЕСЛИ НА ЭКРАНЕ НЕ ПОКАЗАН ЗНАЧОК «ДВЕРЬ РАЗБЛОКИРОВАНА». ВРАЩАЮЩИЙСЯ ПОВОРОТНЫЙ МЕХАНИЗМ МОЖЕТ НАНЕСТИ ТРАВМУ. ЕСЛИ ОТКРЫВ ДВЕРЬ ВЫ ВИДИТЕ, ЧТО ПОВОРОТНЫЙ МЕХАНИЗМ НЕ ПОЛНОСТЬЮ ОСТАНОВИЛСЯ, НЕМЕДЛЕННО ОБРАТИТЕСЬ В СЕРВИСНУЮ СЛУЖБУ КОМПАНИИ BD. НЕ ПЫТАЙТЕСЬ ВРАЩАТЬ ПОВОРОТНЫЙ МЕХАНИЗМ ВРУЧНУЮ – ЭТО МОЖЕТ ПРИВЕСТИ К ТРАВМЕ.

Чтобы удалить панели:

- 1 Нажмите кнопку выгрузки панелей на передней стороне прибора.
- 2 Когда голубой индикатор загрузки/выгрузки панелей начнет мигать, откройте дверь прибора.
- 3 Для всех панелей, которые можно удалить, будет светиться зеленый светодиод.
- 4 Извлеките эти панели: сдвиньте панель вниз, поверните верхнюю часть панели на себя и выньте панель из держателя панели.

-
- 5 Если остались завершённые панели в недоступных станциях, закройте дверь и позвольте прибору повернуть поворотный механизм, чтобы эти панели стали доступными. Откройте дверь и удалите завершённые панели.
 - 6 Выбросьте панели в контейнер для опасных биологических отходов.

3.4 Вкладка «Results» (Результаты)

На вкладке «Results» (Результаты) можно просмотреть и изменить результаты тестирования панели. С помощью этой вкладки можно:

- ❖ вывести для панели данные, сохранённые в базе данных BD Phoenix
- ❖ изменить информацию о панели в базе данных BD Phoenix
- ❖ пометить панель как критическую
- ❖ напечатать лабораторный отчет для любой панели (информация о которой показана на экране или вызвана из базы данных прибора)
- ❖ найти панель, которая находится внутри прибора
- ❖ удалить информацию о панели из базы данных BD Phoenix
- ❖ просмотреть запущенные правила BDExpert и принять или отвергнуть их
- ❖ вывести на экран специальные сообщения
- ❖ финализировать панель

Вкладку «Results» (Результаты) можно открыть различными способами:

- когда выводится экран «Status» (Состояние), сканируйте известный системе порядковый номер панели или номер образца с помощью внешнего сканера
- выберите вкладку «Results» (Результаты) в нижней полосе экрана «Status» (Состояние)
- работая с экраном «Panel Login» (Регистрация панели), сканируйте или введите известный системе порядковый номер панели
- на вкладке «Needs Attention» (Требуется внимания) включите переключатель «Delete» (Удалить) и выберите для панели «Delete» (Удалить) или «AST Results» (Результаты AST)
- выберите «AST Results» (Результаты AST) на экране «Finalization» (Финализация) для финализации в пакетном режиме.
- выберите «Results» (Результаты) на вкладке «Inventory» (Панели в приборе) (раздел «3.7 Вкладка «Inventory» (Панели в приборе)») или «Panel Lot Definition» (Определение партии панелей) (раздел «3.10.9 Подвкладка «Panel Lot Definition» (Определение партии панелей)»).

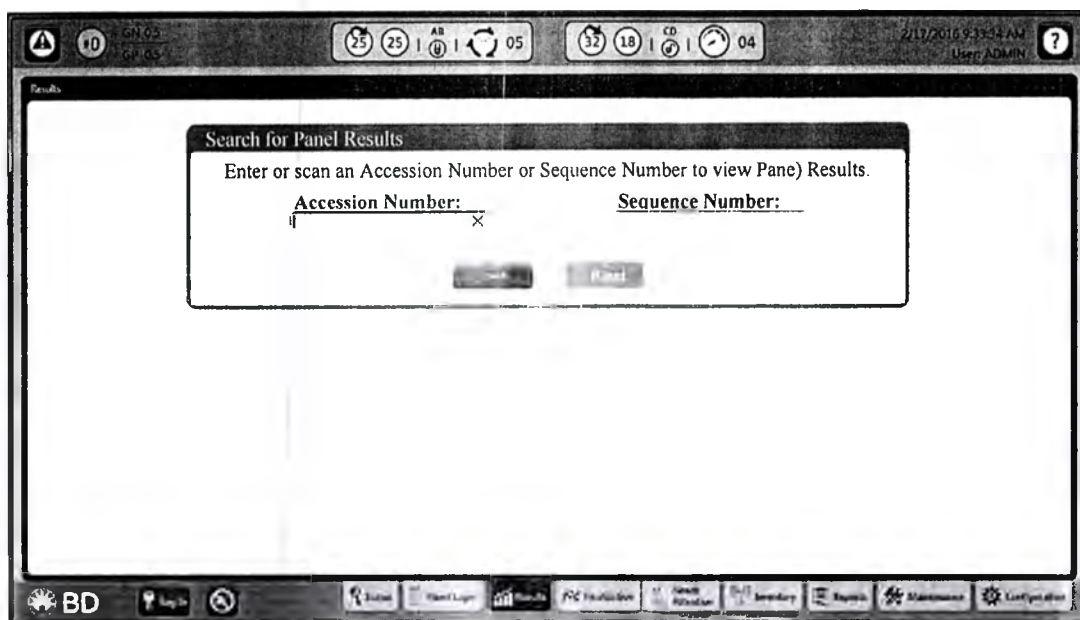


Рис. 3-2 – Экран «Results» (Результаты)

Типичные результаты панели показаны на следующем рисунке (рис. 3-3 – Экран результатов панели)

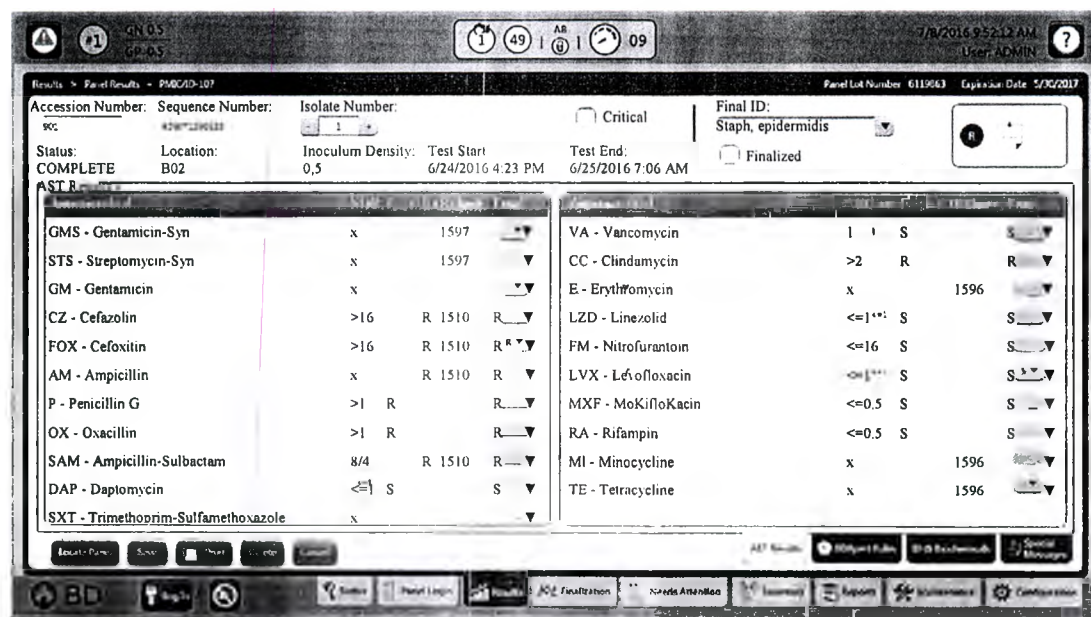


Рис. 3-3 – Экран результатов панели

Этот экран содержит следующие кнопки:

- **«Locate Panel» (Найти панель)** – прибор найдет и укажет текущую панель и разблокирует дверь
- **«Save» (Сохранить)** – сохраняет все изменения
- **«Print» (Печать)** – печатает копию лабораторного отчета для текущей панели
- **«Delete» (Удалить)** – удаляет результаты панели
- **«Cancel» (Отмена)** – возвращает пользователя на исходный экран «Search for Panel Results» (Поиск результатов панели)

Результаты для клинических панелей сохраняются в течение 31 дня (возможно, дольше – это зависит от числа протестированных панелей контроля качества). Результаты для панелей контроля качества сохраняются не менее 6 месяцев.

Тип панели выводится в области заголовка экрана. После завершения первого цикла тестирования в верхней полосе экрана результатов выводится информация о мутности суспензии, которая использовалась для ID (когда это применимо).

«BDXpert Rules» (Правила BDXpert)

Когда выбрана подвкладка «BDXpert Rules» (Правила BDXpert), на экране выводится следующая информация (в зависимости от типа панели и наличия соединения с системой BD EpiCenter могут выводиться не все эти поля):

- **«Rule Number»** (Номер правила)
- **«Status»** (Состояние)
- **«Resistance Marker»** (Маркер резистентности)
- **«Name»** (Имя)
- **«Rule Description»** (Описание правила)

«ID and Biochemicals» (Результаты ID и биохимические результаты)

Когда выбрана подвкладка «ID and Biochemicals» (Результаты ID и биохимические результаты), на ней выводятся:

- Поле «Instrument Organism ID» (Инструментальная идентификация микроорганизма) может содержать следующую информацию: полученный прибором («инструментальный») результат идентификации микроорганизма («Instrument Organism ID»), уровень достоверности («Confidence Value») и до 5 рекомендаций по проведению дополнительных тестов («Supplemental Tests»), если для панели использовалась суспензия низкой мутности
- Список «Biochemical Results» (Биохимические результаты), в котором выводятся: краткое название биохимического субстрата («Biochemical Abbreviation»), полученный результат («Actual Result»: +, –, ? или X) и ожидаемый результат («Expected Result»: +, –, V или пробел) (см. рис. 3-4 – Результаты ID и биохимические результаты)
- Значок «Специальные сообщения»
- Значок «Требуется внимания»

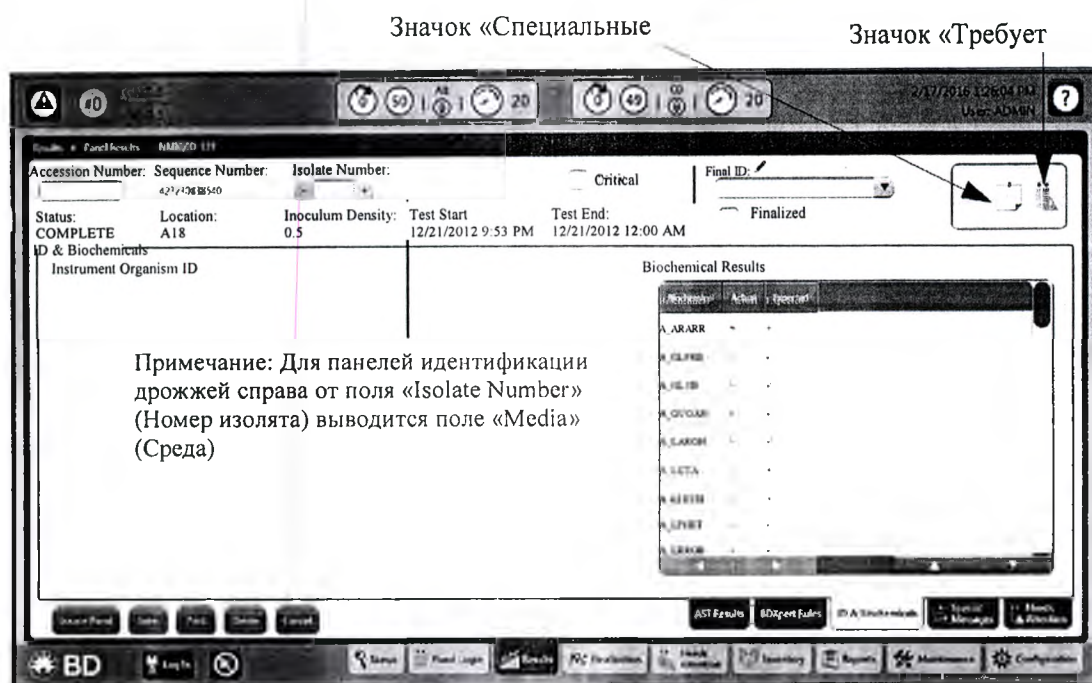


Рис. 3-4 – Результаты ID и биохимические результаты

Если для панели существует условие «Требуется внимания» (см. раздел «3.6 Вкладка «Needs Attention» (Требуется внимания)»), в правой части заголовка результатов выводится значок «Требуется внимания». Если для панели есть специальные сообщения (см. раздел «3.4.8 Подвкладка «Special Messages» (Специальные сообщения)»), в заголовке результатов выводится значок «Специальные сообщения». Если для панели обнаружен маркер резистентности, в заголовке результатов выводится значок «Маркер резистентности» (см. раздел «2.5 Значки программы»).

Если для поиска результатов задан только номер образца и с этим образцом связаны несколько панелей, появляется экран «Results List» (Список результатов). На этом экране выберите конкретную панель, результаты которой хотите проверить или изменить.

В зависимости от типа используемой панели и других обстоятельств на экране могут выводиться не все перечисленные ниже поля.

Каждая панель AST и комбинированная панель (в которой используется сторона AST) содержит набор антибиотиков. Прибор сообщает результат для каждого антибиотика в панели. Для каждого антибиотика выводится отдельное значение МПК. Для каждого антибиотика, для которого было определено значение МПК, прибор вычисляет инструментальное значение чувствительности (SIR). (Для вычисления инструментальных значений SIR по значениям МПК прибору требуется, чтобы для панели была определена идентификация микроорганизма. Также имейте в виду, что значения SIR не вычисляются прибором, если он подключен к системе управления данными EpiCenter.)

Если включена опция «Rapid Completion» (Быстрое завершение), прибор сможет вывести вычисленные системой BDxpert («экспертные») результаты AST (значения SIR) еще до определения действительных значений МПК. Полученные прибором значения МПК будут выводиться сразу после того, как они будут определены. Некоторые значения МПК могут быть доступны ранее других значений в той же тестовой панели. Функцию быстрого завершения можно использовать, чтобы предсказать резистентность к антибиотикам, для которых тестирование еще не завершено. Для такой оценки резистентности используется только значение идентификации (конституционная резистентность), значение идентификации и полученные МПК для родственных антибиотиков или результаты тестов на маркеры резистентности (BL, ESBL). Для таких предсказаний используется система BDxpert. Эта функция может быть полезна в таких случаях, когда, например, результаты для антибиотиков, для которых еще не определены МПК, не так важны, как уже полученные результаты. Антибиотики, для которых выводятся результаты интерпретации системы BDxpert в режиме быстрого завершения, обозначаются буквой С в столбце МПК экрана «Results» (Результаты) и в лабораторных отчетах.

Когда для антибиотика определены значение МПК и инструментальное значение SIR, прибор применяет правила BDxpert (если система BDxpert включена). Прибор выводит значение в поле «BDxpert SIR» (Экспертное значение SIR), если применялось правило BDxpert и полученное значение SIR не совпадает со значением в поле «Instrument SIR» (Инструментальное значение SIR).

В зависимости от выбранной подкладки на экране результатов выводится различная информация. Информация в заголовке экрана не зависит от выбранной вкладки:

Поля результатов панели:

ПРИМЕЧАНИЕ

Если вы измените номер образца или номер изолята, может запуститься автоматическое объединение панелей и результаты могут измениться.

«Accession Number» (Номер образца)

Введите или сканируйте номер образца, который нужно найти. Если задан только номер образца и с этим образцом связаны несколько панелей, появляется экран «Results List» (Список результатов).

Это поле можно изменить для нефинализированных панелей. В качестве номера образца введите до 20 алфавитно-цифровых символов (кроме символов * ? [] ! # |). Изменение номера образца не повлияет на номер образца каких-либо панелей, связанных с данной.

«Sequence Number» (Порядковый номер)

Это поле нельзя изменить.

«Isolate Number» (Номер изолята)

Допустимые значения: от 1 до 20. Это поле можно изменить для нефинализированных панелей, однако заданный номер изолята нельзя изменить на пустое значение.

«Media» (Среда)

Это поле разрешается изменять только до завершения первого цикла тестирования.

В нем выводится тип среды, выбранный на экране «Panel Login» (Регистрация панели) для панелей идентификации дрожжей. В этом поле могут быть следующие значения: пустое значение, если тип среды не выбран; «INVLD» (Недопустимый тип среды); «SABDX» (Агар Сабуро с декстрозой); «TSASB» (Триптиказо-соевый агар BD Trypticase™ с 5% бараньей крови); «COLSB» (Колумбийский агар с 5% бараньей крови); «CHOC» (Шоколадный агар с контролем роста II); «SABEM» (Агар Сабуро с декстрозой, модифицированный); «SABHI» (Агар с сердечно-мозговой вытяжкой, глубокое заполнение)

«Status» (Состояние)

Поле только для чтения, в котором выводится состояние процесса тестирования этой панели: «Pending» (Ожидание), «Ongoing» (Обрабатывается), «Complete» (Завершена) или «Rapid Complete» (Быстрое завершение) (если включена эта опция). Если у панели состояние «Rapid Complete» (Быстрое завершение), ее тестирование еще не завершено и выводятся результаты, вычисленные системой BDxpert. Если панель в состоянии «Rapid Complete» (Быстрое завершение) удалена из прибора, ее состояние меняется на «Complete» (Завершена). Если такая панель останется в приборе, ее значения МПК, вычисленные в режиме быстрого завершения, будут заменены на реальные МПК по мере определения последних.

«Final ID» (Итоговая идентификация)

Поле «Final ID» (Итоговая идентификация) система может заполнить автоматически, если прибор получил единственный результат идентификации, или на основе выбора пользователем одного из полученных прибором результатов идентификации. Для панелей ID (или стороны ID комбинированных панелей), значение идентификации микроорганизма нельзя выбрать вручную, если прибор не предлагает список результатов идентификации.

Учтите, что если включен переключатель **«Modify Related Panels» (Изменить связанные панели)**, функция Автоматического объединения панелей (см. раздел «4.4 Автоматическое объединение панелей») задаст то же значение идентификации микроорганизма для всех связанных панелей (панелей с теми же номерами образца и изолята) в базе данных.

Названия выводятся в алфавитном порядке. Чтобы быстро перейти к нужной части списка, введите несколько первых символов названия микроорганизма.

Если это значение изменено, система заново оценивает все полученные прибором значения SIR и вновь применяет правила BDxpert.

Это поле нельзя изменить, если панель финализована.

Для панелей контроля качества это поле называется **«Test Strain» (Тестовый штамм)**; в нем выводятся только штаммы ATCC микроорганизмов, заранее определенные в базе данных (в порядке возрастания номеров штаммов).

«Panel Lot Number» (Номер партии панелей)

Поле только для чтения, в котором выводится состояние процесса тестирования этой панели: Это поле выводится, только когда включен переключатель **«QC Lot Support» (Поддержка партии контроля качества)**.

«Expiration Date» (Срок годности)

Поле только для чтения, в котором выводятся дата и время истечения срока годности этой партии панелей. Это поле выводится, только когда включен переключатель **«QC Lot Support» (Поддержка партии контроля качества)**.

Переключатель «Modify Final ID of Related Panels» (Изменить итоговую идентификацию для связанных панелей)

Этот переключатель появляется, только если изменено поле **«Final ID» (Итоговая идентификация)**. По умолчанию этот переключатель включен. Если значение идентификации для нефинализированных связанных панелей НЕ нужно изменять при изменении данной панели, выключите этот переключатель (он не влияет на связанные панели контроля качества). Этот переключатель не появляется, если система работает в режиме соединения с EpiCenter.

«Test Start» (Время начала теста)

Поле только для чтения, в котором выводятся дата и время начала теста этой панели.

«Test End» (Время окончания теста)

Поле только для чтения, в котором выводятся дата и время окончания теста этой панели.

«Location» (Позиция)

Поле только для чтения, в котором указана позиция панели в формате Zuу, где Z – уровень, а уу – номер станции.

«QC Status» (Состояние контроля качества)

В этом поле выводится состояние панели контроля качества. Это поле будет пустым до тех пор, пока панель не перейдет в состояние **«Complete» (Завершена)**. Сначала в этом поле выводится значение **«PASS» (Тест пройден)** или **«REVIEW» (Требуется проверка)**. Значение **«REVIEW»** означает, что тест панели не пройден. Проверьте все панели со значением **«REVIEW»** и выясните, почему они не прошли тест.

Состояние **«REVIEW»** выводится в следующих случаях:

- ❖ Неверно идентифицирован штамм контроля качества
- ❖ Тестирование панели контроля качества прервано
- ❖ Не удалось получить результаты как минимум для одного антибиотика

Значение состояния «REVIEW» можно изменить на итоговое состояние «REPEAT» (Повторить), если вы выяснили, что неудачное тестирование панели вызвано ошибкой подготовки или обработки панели. В противном случае нужно задать итоговое значение «FAIL» (Неудача). После выбора значения «REPEAT» или «FAIL» будет сброшено условие «Требуется внимания»: «Review QC Results» (Проверьте результаты контроля качества)

«Finalized» (Финализована)

Включите этот переключатель, чтобы финализировать панель. Если система BD Phoenix работает в режиме соединения с системой управления данными BD EpiCenter, поле «Finalized» (Финализована) выводится в режиме только для чтения. В этом случае все операции финализации проводятся в системе BD EpiCenter. Переключатель «Finalized» (Финализована) не выводится для панелей контроля качества.

Если панель в состоянии «Rapid Complete» (Быстрое завершение) финализована, обработка результатов МПК прекращается, а состояние панели меняется на «Complete» (Завершена). Для всех антибиотиков, тестирование которых не завершено, сохраняется текущее значение МПК (то есть значение «С» в столбце «MIC» (МПК) остается значением «С», значение «Х» остается значением «Х» и т.д.).

«Critical» (Критическая)

Включите этот переключатель, чтобы отметить панель как критическую. Систему можно сконфигурировать (раздел «3.10.8 Подкладка «Rapid Reporting» (Быстрый отчет)»), чтобы она сообщала (или не сообщала) о результатах критических панелей (получены результаты ID, частичные результаты панели или полные результаты панели) путем звукового сигнала и/или автоматической печати лабораторного отчета.

Если панель ранее была отмечена как критическая, эту опцию нельзя выключить.

Это поле не выводится для панелей контроля качества.

3.4.1 Добавление/изменение результатов ID

Система позволяет вручную ввести идентификацию микроорганизма или переопределить идентификацию микроорганизма, определенную прибором. Кроме того, в некоторых случаях система не сможет однозначно идентифицировать микроорганизм по результатам панели. В этих случаях в поле «Instrument ID» (Инструментальная идентификация) могут выводиться два или три названия микроорганизмов. Если в поле «Instrument ID» (Инструментальная идентификация) выводится более одного микроорганизма, система НЕ сможет автоматически определить значение поля «Final ID» (Итоговая идентификация). Пользователь должен выбрать название микроорганизма. Чтобы выяснить, какой это микроорганизм, можно провести дополнительные тесты, рекомендованные в окне «Instrument ID» (Инструментальная идентификация) и/или на экране «Special Messages» (Специальные сообщения) (выберите подкладку «Special Messages» (Специальные сообщения)), или другие тесты. Чтобы добавить или изменить итоговую идентификацию:

- 1 Коснитесь поля «Final ID» (Итоговая идентификация) в заголовке экрана результатов.
- 2 Выделите нужный микроорганизм.
- 3 Коснитесь кнопки «Save» (Сохранить), чтобы сохранить изменения.

Появится следующий значок:



3.4.2 Изменение результатов AST

В некоторых случаях может потребоваться изменение итоговых результатов SIR для панели. Имейте в виду, что итоговые результаты SIR нельзя изменить, если ожидается ручное применение правил BDxpert. Нужно сначала принять или отвергнуть такие ожидающие применения правила, после чего система выполнит обработку итоговых результатов. После завершения обработки можно будет при желании вручную изменить результаты SIR.

Чтобы изменить итоговые результаты SIR:

- 1 На экране «Results» (Результаты) выберите подвкладку «AST Results» (Результаты AST).
- 2 Выберите поле «FINAL SIR» (Итоговое значение SIR) для соответствующего антибиотика.

Возможные значения:

«S(usceptible)» (Чувствительный)
«I(ntermediate)» (Промежуточная чувствительность)
«R(esistant)» (Устойчивый)
«X» = Неверное значение, интерпретация невозможна
(см. таблицу 3-1 – Значения МПК/SIR и причины в разделе «2 – Элементы управления, значки, индикаторы и установка»)
«N(not Susceptible)»* (Не чувствительный)
Пустое поле (указывает, что требуется значение идентификации)

* Значение N указывает, что для сочетания антибиотик/микроорганизм не известно верхнее пороговое значение. Когда верхнее пороговое значение не известно, нет критерия, по которому можно было бы считать микроорганизм устойчивым или обладающим промежуточной чувствительностью. Такое часто случается, когда для микроорганизма не известны резистентные штаммы. В этом случае для МПК, которые ниже нижнего порогового значения, в результатах SIR выводится значение «I» (Чувствительный), а для МПК, которые выше нижнего порогового значения, выводится значение «N» (Не чувствительный).

3.4.3 Подвкладка «Modify Panel Usage» (Изменить использование панели)

Подвкладка «Modify Panel Usage» (Изменить использование панели) появляется на экране «Results» (Результаты), когда найденная панель:

- является комбинированной панелью для ID/AST и включены обе стороны панели
- тестирование панели не завершено
- прибор не смог определить ни одного микроорганизма для этой панели
- не завершен ни один из тестов для стороны AST

Пользователь может отключить сторону ID или сторону AST, если на экране «Results» (Результаты) не было внесено никаких других изменений. Когда пользователь отключит сторону ID или сторону AST, другие вкладки становятся недоступными. Если пользователь попытается уйти с этой вкладки, появится сообщение, указывающее, что нужно сохранить или отменить внесенные изменения использования панели.

Чтобы изменить использование панели:

- 1 Перейдите на экран «Results» (Результаты).
- 2 Введите или сканируйте порядковый номер панели («Sequence Number»), использование которой хотите изменить. Система автоматически заполнит поля «Accession Number» (Номер образца) и «Isolate Number» (Номер изолята), которые будут полями только для чтения.
- 3 Выберите подвкладку «Modify Panel Usage» (Изменить использование панели).
- 4 Появится следующий экран:

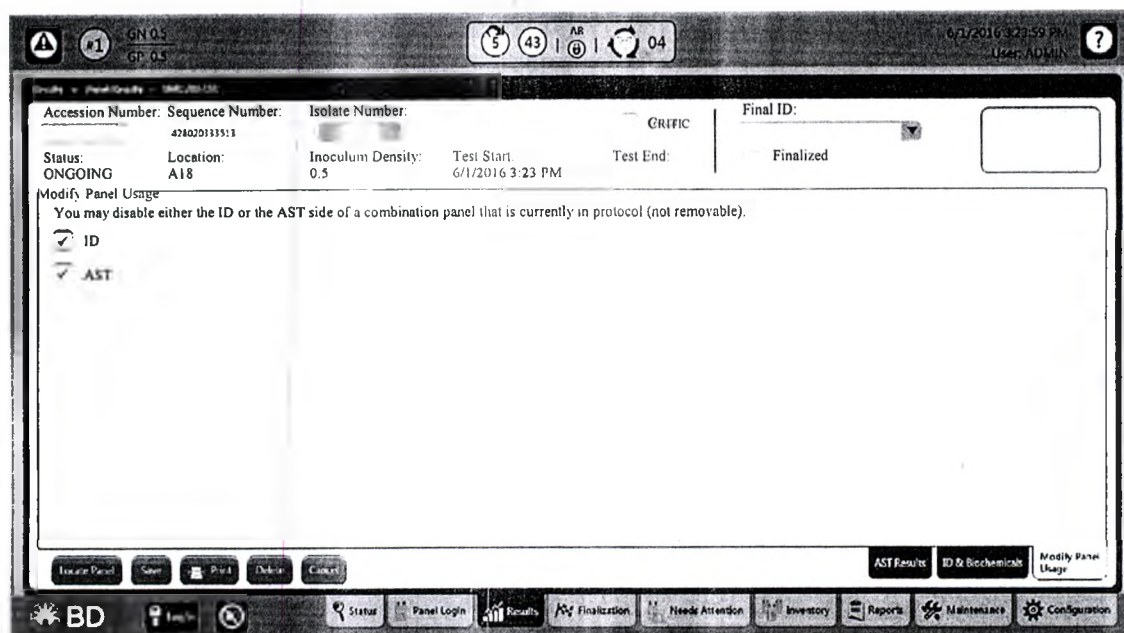


Рис. 3-5 – Экран «Modify Panel Usage» (Изменить использование панели)

- 5 Коснитесь переключателя «ID» или «AST», чтобы отключить соответствующую сторону панели. (Если отключены обе стороны, будет выведено предупреждение «ошибка работы» с кодом W305. Информация останется на экране и ее нельзя будет сохранить.)
- 6 Выберите «Save» (Сохранить), чтобы сохранить внесенные для панели изменения.

Изменяя использование панели, учитывайте следующее:

- При изменении использования панели не изменяется никакая информация для связанных панелей.
- Если пользователь не задал итоговую идентификацию для панели, при отключении в ней стороны ID из записи удаляются поля «Instrument ID» (Инструментальная идентификация), «Biochemical Results» (Биохимические результаты), «Confidence Values» (Уровни достоверности), «SIR Values» (Значения SIR) и «ID Special Messages» (Специальные сообщения для ID).
- Если пользователь задал итоговую идентификацию для панели, это значение идентификации и значения SIR сохраняются и после отключения стороны ID. Однако поля «Instrument ID», «Biochemical Results», «Confidence Values» и «ID Special Messages» будут удалены из записи.

3.4.4 Подкладка «AST Results» (Результаты AST)

«Antimicrobial» (Антибиотик)

Поле только для чтения, в котором выводятся аббревиатура и название антибиотика.

«MIC» (МПК)

Определенное прибором значение минимальной подавляющей концентрации (МПК). В этом поле также могут выводиться такие значения:

- > рост при всех концентрациях антибиотика
- ≤ отсутствие роста при всех концентрациях антибиотика
- ? значение МПК еще не определено (значения SIR остаются пустыми)

- X** Не удалось получить значение МПК; или итоговая идентификация отсутствует в списке таксонов для тестов AST (см. раздел «7.6 Таксоны для определения ID/AST»); или последовательность разведений антибиотика в этой панели вне допустимого диапазона МПК BD Phoenix; описание других возможных причин смотрите в таблице 3-1 – Значения МПК/SIR и причины. Объяснение смотрите в выводимых на экран специальных сообщениях (раздел «3.4.8 Подкладка «Special Messages» (Специальные сообщения)).
- C** Быстрое завершение (значение МПК еще не получены, система BDxpert вычислила SIR на основе значения идентификации и уже полученных результатов для других антибиотиков и/или маркеров резистентности). Эти значения заменяются на реальные значения МПК по мере их определения.

Для панелей контроля качества в этом поле могут выводиться такие значения:

Реальное значение MIC: число, ? или X (ошибка)

Диапазон ожидаемых значений МПК (если определен)

Состояние

P реальное значение МПК внутри диапазона ожидаемых значений МПК

F реальное значение МПК вне диапазона ожидаемых значений МПК

R повторить тест: реальное значение МПК равно X (ошибка)

пустое значение для этого сочетания антибиотик/микроорганизм не определен диапазон значений

«I(nstrument SIR)» (Инструментальное значение SIR)

В этом поле выводится сделанная прибором интерпретация значения МПК на основе заданных в системе пороговых значений (они задаются на вкладке, описанной в разделе «3.10.2 Подкладка «System Configuration» (Конфигурация системы)).

Если для интерпретации чувствительности для антибиотика требуется значение идентификации, значение SIR будет пустым. В этом случае также будут пустыми поля «BDxpert SIR» (Экспертное значение SIR) (если присутствует) и «Final SIR» (Итоговое значение SIR).

Ниже перечислены значения интерпретации:

S Чувствительный

I Промежуточная чувствительность

R Устойчивый

N Не чувствительный*

X Не удалось выполнить интерпретацию

пустое значение нет значения SIR (не задана или задана неверная идентификация; MIC = ?, S или X; в поле итоговой идентификации указан неизвестный микроорганизм)

* Значение N указывает, что для сочетания антибиотик/микроорганизм не известно верхнее пороговое значение. Когда верхнее пороговое значение не известно, нет критерия, по которому можно было бы считать микроорганизм устойчивым или обладающим промежуточной чувствительностью. Такое часто случается, когда для микроорганизма не известны или редко встречаются резистентные штаммы. В этом случае для МПК, которые ниже нижнего порогового значения, в результатах SIR выводится значение «I» (Чувствительный), а для МПК, которые выше нижнего порогового значения, выводится значение «N» (Не чувствительный).

Поле «I(nstrument SIR)» (Инструментальное значение SIR) не выводится, если система работает в режиме соединения с BD EpiCenter. Если соединение с BD EpiCenter будет прервано, это поле автоматически появится на экране.

«(BD)E(Xpert SIR)» (Экспертное значение SIR)

Возможные значения этого поля: Пустое значение, S, I, R, N и X. Их описание такое же, как для поля «I(nstrument SIR)» (Инструментальное значение SIR).

Поле «BDXpert SIR» (Экспертное значение SIR) не выводится, если система BDXpert отключена. Оно также не выводится для панелей контроля качества, панелей ID и панелей ID/AST, в которых отключена сторона AST. В этом поле выводятся результаты, вычисленные системой BDXpert путем применения всех включенных правил BDXpert. Значение выводится в этом поле только в том случае, когда сработало правило BDXpert и полученное системой BDXpert значение SIR не совпадает с интерпретацией прибора.

«Rule #» (Номер правила)

Поле только для чтения, в котором выводится числовое обозначение выделенного правила.

F(inal SIR) (Итоговое значение SIR)

В этом поле используются те же значения, что и в описанном выше поле «I(nstrument SIR)» (Инструментальное значение SIR). Поле «Final SIR» (Итоговое значение SIR) может содержать (от наибольшего к наименьшему приоритету): введенное пользователем значение SIR; вычисленное системой BDXpert значение SIR; полученное прибором значение SIR; или пустое значение.

Итоговые значения SIR генерируются, когда получено значение МПК (или ошибка МПК) и нет правил BDXpert, ожидающих ответа пользователя (если включена система BDXpert).

Если нет соединения с системой BD EpiCenter и система BDXpert отключена, итоговое значение SIR для антибиотика не выводится до тех пор, пока не будет получено значение МПК, отличное от «?».

В следующей таблице приводятся объяснения различных сочетаний пустых значений и значений «X». Подробные объяснения для действительных результатов приводятся в специальных сообщениях (раздел «3.4.8 Подвкладка «Special Messages» (Специальные сообщения)»).

Antimicrobial (Антибиотик)	MIC (МПК)	Instrument SIR (Инструментальное значение SIR)	BDXpert SIR (Экспертное значение SIR)	Final SIR (Итоговое значение SIR)	Примеры возможных причин
любой	?	[пустой]	[пустой]	[пустой]	Результаты еще не получены.
любой	Результат МПК системы BD Phoenix	S, I, R	[пустой]	S, I, R	Instrument SIR = Final SIR (нет правил BDXpert для SIR).
любой	Результат МПК системы BD Phoenix	S или I	R	R	Final SIR = BDXpert SIR, правило принято.
любой	Результат МПК системы BD Phoenix	[пустой]	[пустой]	[пустой]	В выбранном стандарте (CLSI, SFM, EUCAST или пользовательский) нет пороговых значений для данного сочетания антибиотик/микроорганизм.
любой	Результат МПК системы BD Phoenix	X	[пустой]	X	Значение МПК вне пороговых значений для выбранного стандарта. Пример: Диапазон концентраций антибиотика в панели = 1-16 мкг/мл, пороговое значение чувствительности = 0,5 мкг/мл
любой	Результат МПК системы BD Phoenix	X	[пустой]	X	Результат SIR отменен правилом BDXpert. Пользователь должен задать итоговое значение SIR, выполнив интерпретацию вручную или проведя дополнительные тесты.

Antimicrobial (Антибиотик)	MIC (МПК)	Instrument SIR (Инструментальное значение SIR)	BDXpert SIR (Экспертное значение SIR)	Final SIR (Итоговое значение SIR)	Примеры возможных причин
любой	X	[пустой]	[пустой]	[пустой]	Система BD Phoenix не определила МПК для этого сочетания антибиотика и микроорганизма. Следует использовать альтернативный метод.
					Этого вида нет в списке таксонов для тестов AST BD Phoenix. Используйте альтернативный метод.
все	X	[пустой]	[пустой]	[пустой]	В панели обнаружено избыточное количество индикатора. Обработка стороны AST панели прекращена. Этот изолят необходимо протестировать повторно.
любой	X	[пустой]	[пустой] или R	[пустой] или R	Для этого антибиотика не получено значение МПК (см. специальное сообщение). Для интерпретации использовалось правило BDXpert.
любой	C	[пустой]	R	R	SIR при быстром завершении (система BDXpert вычислила SIR на основе значения идентификации и уже полученных результатов для других антибиотиков и/или маркеров резистентности).

Таблица 3-1 – Значения МПК/SIR и причины

3.4.5 Подкладка «BDXpert Rules» (Правила BDXpert)

На подкладке «BDXpert Rules» (Правила BDXpert) выводятся правила системы BDXpert, запущенные для данной панели (то есть панели, выбранной на вкладке «Results» (Результаты)). Кроме списка запущенных правил на этой подкладке выводится текст этих правил, указывается, как они повлияли на итоговое значение SIR, а также здесь можно принять или отвергнуть ожидающие правила (которые применяются вручную). Кроме того, можно заново выполнить все правила.

Посмотрев все правила и приняв или отвергнув ожидающие правила, необходимо сохранить все изменения.

Если прибор BD Phoenix M50 работает в режиме соединения с системой BD EpiCenter, вкладка «BDXpert Rules» (Правила BDXpert) не выводится и этот экран недоступен. Однако если соединение с системой BD EpiCenter будет прервано и система BDXpert будет вновь активирована в конфигурации системы (раздел «3.10.2 Подкладка «System Configuration» (Конфигурация системы)»), эта вкладка вновь появится и соответствующий экран станет доступным. Когда соединение с системой BD EpiCenter восстановится, интерпретация правил BDXpert вновь будет выполняться в системе BD EpiCenter.

Поле «Rules» (Правила)

«Rule #» (Номер правила)

Поле только для чтения, в котором выводится числовое обозначение выделенного правила.

Состояние

Показывает состояние правила. Исходное состояние «Automatic» (правило выполняется автоматически, без вмешательства пользователя) или «Manual» (пользователь должен вручную принять или отвергнуть правило) задается на экране конфигурации правил BDXpert (раздел «3.10.7 Подкладка «BDXpert Rules» (Правила BDXpert)»). Возможные значения состояния:

«Automatic» (Автоматическое) – правило включено и для него задан режим автоматического выполнения
 «Pending» (Ожидает) – правило включено и для него задано выполнение вручную («Manual»); такое правило необходимо либо принять, либо отвергнуть; только для первого ручного правила выводится состояние «Pending» (Ожидает)

«Accepted» (Принято) – правило включено и для него задано выполнение вручную («Manual»); правило принято пользователем

«Rejected» (Отвергнуто) – правило включено и для него задано выполнение вручную («Manual»); правило отвергнуто пользователем

Чтобы принять или отвергнуть ожидающее правило, выберите «Accept» (Принять) или «Cancel» (Отмена). После того, как правило было принято или отвергнуто, его состояние можно изменить только повторно выполнив все правила.

3.4.6 Подкладка «Lot Information» (Информация о партиях)

На этой подкладке содержится информация о расходных материалах, используемых для настройки панелей. Чтобы перейти на эту подкладку, выполните следующие шаги:

- 1 В конфигурации системы включите переключатель «QC Lot Support» (Поддержка партии контроля качества) (см. раздел 3.10.2 Подкладка «System Configuration» (Конфигурация системы)).
- 2 Перейдите на определение партии панелей (см. раздел 3.10.9 Подкладка «Panel Lot Definition» (Определение партии панелей)) и сканируйте штрих-коды.
- 3 Перейдите на вкладку «Results» (Результаты) и введите номер образца («Accession Number»).
- 4 Запустите поиск (кнопка «Search»).
- 5 Появится подкладка «Lot Information» (Информация о партиях) (см. рис. 3-6 – Подкладка «Lot Information» (Информация о партиях)).

рис. 3-6 – Подкладка «Lot Information» (Информация о партиях)

3.4.7 Подкладка «Instrument Organism ID» (Инструментальная идентификация микроорганизма)

В поле только для чтения выводится название микроорганизма, идентифицированного прибором по результатам биохимических тестов в панели ID или ID/AST. Если результатам тестов удовлетворяют два возможных микроорганизма, их названия выводятся в поле «Instrument Organism ID» как **микроорганизм 1/микроорганизм 2**. В некоторых случаях система не сможет однозначно идентифицировать микроорганизм по результатам панели. В этих случаях в этом поле могут выводиться два или три названия микроорганизмов. Пользователь должен ввести название микроорганизма и ввести его в поле «Final ID» (Итоговая идентификация).

«Confidence» (Достоверность)

Система вычисляет значение достоверности, сравнивая полученные биохимические результаты с ожидаемыми результатами. Значение достоверности выражается в процентах и может быть числом от 0 до 99.

«Supplemental Tests» (Дополнительные тесты)

Информация о дополнительных тестах выводится в поле «Instrument Organism ID» (Инструментальная идентификация микроорганизма) и на экране специальных сообщений в случаях, когда идентифицировано более одного микроорганизма. Выполнив эти тесты, вы сможете определить, какую идентификацию микроорганизма нужно выбрать для этих результатов AST. Вы сможете выбрать одно значение идентификации микроорганизма в поле «Final ID» (Итоговая идентификация).

«Biochemical» (Биохимический субстрат)

Поле только для чтения, в котором выводится аббревиатура биохимического субстрата, использованного для идентификации.

«Actual» (Полученный результат)

Поле только для чтения, в котором выводится результат биохимического теста, полученный при идентификации микроорганизма: «+» для положительного и «-» для отрицательного. Значение «?» указывает, что биохимический результат еще не получен или что тест был прерван до получения результатов идентификации. Значение «X» указывает, что произошла ошибка.

«Expected» (Ожидаемый результат)

Поле только для чтения, в котором выводится ожидаемый результат биохимического теста, соответствующий значению в поле «Instrument Organism ID»: «+» или «-» для этого микроорганизма. Значение «V» указывает, что результат может быть изменен. Это поле будет пустым, пока в поле полученных результатов не будет значения «?» (для обычных панелей, не для панелей контроля качества) или пока не будет определена идентификация микроорганизма, а также если в поле «Instrument Organism ID» указано более одного микроорганизма.

Поле «Resistance Marker» (Маркер резистентности)

Маркеры резистентности выводятся в том порядке, в котором они были обнаружены. Выводится следующая информация, когда маркер резистентности обнаружен и показан на вкладке «BDXpert Rules» (Правила BDXpert):

- Номер правил BDXpert, по которому обнаружен этот маркер резистентности
- Код маркера резистентности (аббревиатура)
- Название маркера резистентности
- Описание правила BDXpert

3.4.8 Подкладка «Special Messages» (Специальные сообщения)

На подкладке «Special Messages» (Специальные сообщения) можно увидеть информацию о конкретных результатах ID и AST, а также о некоторых операциях считывания панелей. Эти специальные сообщения генерируются и доступны для просмотра независимо от того, включена или нет система BDXpert. Если с найденной панелью связано специальное сообщение, в области заголовка экрана результатов появляется соответствующий значок. Специальные сообщения для запрошенной панели выводятся на экране «Special Messages» (Специальные сообщения) в порядке приоритета.

На экране «Special Messages» (Специальные сообщения) выводятся сообщения, существующие на момент, когда был открыт этот экран: сообщения не обновляются динамически, не выводятся те сообщения, которые были сгенерированы после открытия этого экрана. Чтобы увидеть новые сообщения, заново запросите информацию об этой панели или вновь войдите на экран «Special Messages» (Специальные сообщения).

3.4.9 Подкладка «Needs Attention» (Требуется внимания)

На подкладке «Needs Attention» (Требуется внимания) выводится список всех причин, требующих внимания, в порядке их приоритетов (см. таблицу 3-2 – Действия по исправлению ситуаций «Требуется внимания»). При возникновении такой ситуации для панели задается код причины «Требуется внимания» и информация об этом выводится на экране «Needs Attention» (Требуется внимания). Чтобы игнорировать причину «Требуется внимания», коснитесь соответствующего поля рядом с описанием причины. Дополнительную информацию о ситуациях «Требуется внимания» смотрите в разделе «3.6 Вкладка «Needs Attention» (Требуется внимания)».

3.4.10 Лабораторный отчет

Лабораторный отчет можно напечатать с экрана «Results» (Результаты) или экрана «Finalization» (Финализация), но он недоступен на вкладке «Reports» (Отчеты). В этом отчете выводится вся информация для панели с данным порядковым номером, которая есть в базе данных BD Phoenix, включая всю информацию на экране «Results» (Результаты), все специальные сообщения, запущенные правила BDxpert и причины «Требуется внимания» (если они есть).

Лабораторный отчет контроля качества можно вызвать из меню «Reports» (Отчеты) или с экрана «Results» (Результаты). Он содержит информацию, аналогичную информации в лабораторном отчете, но печатается, когда на экране выводится информация о панели контроля качества и запрошен отчет.

Отчет содержит следующую информацию:

Заголовок: Заголовок отчета, характеристика «Preliminary» (Предварительный) (если в поле «Status» (Состояние) значение «Ongoing» (Обрабатывается), «Pending» (Ожидание) или «Partial Complete» (Частично завершена); и/или если есть проигнорированные условия «Требуется внимания» или условие «Требуется внимания» с причиной «Cannot Identify Barcode» (Не удалось прочитать штрих-код); и/или если панель не может быть финализирована, информация о лаборатории («Laboratory Information») (если она задана), дата и время печати («Date and Time Printed»), версия ПО/версия PUD («Software version/PUD version»).

Тело отчета: Верхняя часть: Номер образца («Accession Number»), номер изолята («Isolate Number»), порядковый номер панели («Sequence Number»), тип панели («Panel Type»), состояние («Status») («Ongoing» (Обрабатывается), «Complete» (Завершена)), характеристика «CRITICAL» (Критическая), время начала теста («Test Start»), время окончания теста («Test End»), прибор и станция («Location»), состояние финализации («Finalized»), номер партии панели («Panel Lot Number») (если включена опция «QC Lot Support» (Поддержка партии контроля качества)) и мутность суспензии («Inoculum Density»). Данные лабораторного отчета отсортированы по номеру образца и затем по номеру изолята в данном образце.

Под этой информацией выводится итоговое значение идентификации микроорганизма («Final ID»). Если после значения итоговой идентификации выводится звездочка, это означает, что идентификация была изменена пользователем. Ниже выводится тип среды («Media Type») (только для панелей идентификации дрожжей).

Затем выводятся все полученные прибором результаты идентификации и их значения достоверности («Confidence Value»). В нижней части отчета для тестов ID выводятся название биохимической среды («Biochemical»), инструментальный результат («Instrument Result») и ожидаемый результат («Expected Result»). Для тестов AST выводятся название антибиотика («Antimicrobial»), инструментальное значение МПК («Instrument MIC»), инструментальное значение SIR («Instrument SIR»), экспертное значение SIR («BDxpert SIR»), итоговое значение SIR («Final SIR») и номер правила («Rule #»). Если для панели есть маркеры резистентности, правила BDxpert, флаги «Требуется внимания» или специальные сообщения, все они выводятся в нижней части отчета.

Информация о частях ID и AST комбинированной панели выводится на отдельных страницах отчета.

Для панелей контроля качества кроме указанной выше информации также выводится следующая информация: Номер партии панели и ее срок годности («Panel Lot Number» и «Expiration Date»), идентификатор технолога («Tech ID»), номер партии бульона ID и ее срок годности («ID Broth Lot Number» и «Expiration Date»), номер партии бульона AST и ее срок годности («AST Broth Lot Number» и «Expiration Date»), номер партии индикатора и ее срок годности («Indicator Lot Number» и «Expiration Date») и тестовый штамм («Test Strain»). Указывается состояние контроля качества: «PASS» (Тест пройден), «REVIEW» (Требуется проверка), «ERROR» (Ошибка) или «FAIL» (Неудача).

В конфигурации системы можно указать (раздел «3.10.2 Подкладка «System Configuration» (Конфигурация системы)), чтобы печатались сокращенные лабораторные отчеты. В сокращенном отчете не приводятся результаты отдельных биохимических тестов для панелей ID и ID/AST.

3.5 Вкладка «Finalization» (Финализация)

Вкладка «Finalization» (Финализация) позволяет просмотреть и финализировать результаты тестирования панелей (группами или по-отдельности). Можно финализировать результаты для одной панели или всех панелей, удовлетворяющих заданным условиям, перейти к новой панели или изменить или финализировать результаты для одной панели. Все поля на экране «Finalization» (Финализация) предназначены только для чтения. Чтобы изменить информацию для панели, перейдите на вкладку «Results» (Результаты). Когда прибор работает в режиме соединения с системой управления данными BD EpiCenter, экран «Finalization» (Финализация) недоступен.

Когда вы выбираете вкладку «Finalization» (Финализация), прибор находит все записи, для которых возможна финализация. Чтобы для панели была возможна финализация, у этой панели должно быть состояние «Removable» (Можно удалить), она не должна быть панелью контроля качества и у нее не должно быть проигнорированных условий «Требуется внимания». Панели, для которых возможна финализация, сортируются по номеру образца и затем по номеру изолята.

Когда выбрана опция «Batch Finalize» (Пакетная финализация), значок песочных часов указывает, что операция финализации выполняется. В одном сеансе финализации можно финализировать максимум 200 панелей.

Для финализации или пакетной финализации панелей:

- 1 Если нет панелей ожидающих финализации, на экране «Finalization» (Финализация) не выводятся никакие данные. Если есть панели для финализации, вы можете выполнить следующие действия:
- 2 Чтобы финализировать ВСЕ доступные панели, выберите «Finalize» (Финализировать).
- 3 Чтобы финализировать панели по одной, включите переключатель рядом с панелью, затем выберите «Finalize» (Финализировать).
- 4 Чтобы напечатать сводный отчет по всем панелям, для которых возможна финализация, выберите «Finalized» (Финализированные). В этом отчете выводятся номер образца («Accession Number»), номер изолята («Isolate Number»), дата и время окончания теста («Test End»), порядковый номер («Sequence Number»), номер прибора/станции («Instrument Number/Station») и состояние финализации («Finalized») («*» – панель финализирована, пробел – нет). Записи выводятся упорядоченными по номеру образца и затем по номеру изолята. Выберите строчку для конкретной панели, чтобы перейти на вкладку «Results» (Результаты).
- 5 Если перед финализацией панели вы добавили или изменили информацию о панели на вкладке «Results» (Результаты), не забудьте сохранить внесенные изменения, а затем вернитесь на экран «Finalization» (Финализация).
- 6 После финализации отдельной панели (или группы панелей) на экране «Finalization» (Финализация) появляется кнопка «Finalized» (Финализированные). Эта кнопка позволяет напечатать лабораторные отчеты для всех панелей, финализированных в этом сеансе (максимум 200 панелей).
- 7 Продолжайте просматривать записи панелей и финализировать их, пока не обработаете все записи.

Можно напечатать два типа отчетов: обычные лабораторные отчеты и сводный отчет о финализации. Лабораторный отчет можно напечатать только после того, как будет финализирована хотя бы одна панель. Сводный отчет можно напечатать в любое время.

Поля вкладки «Finalization» (Финализация): «Sequence Number» (Порядковый номер)

Поле только для чтения, в котором выводится порядковый номер панели.

«Accession Number» (Номер образца)

Поле только для чтения, в котором выводится номер образца.

«Isolate Number» (Номер изолята)

Поле только для чтения, в котором выводится номер изолята этой панели.

«Media» (Среда)

Поле только для чтения, в котором выводится тип среды, выбранный на экране «Panel Login» (Регистрация панели) для панелей идентификации дрожжей.

Status (Состояние)

Поле только для чтения, в котором выводится состояние панели.

«Final ID» (Итоговая идентификация)

Поле только для чтения, в котором выводится итоговая идентификация микроорганизма для этой панели.

«Test Start» (Время начала теста)

Поле только для чтения, в котором выводятся дата и время начала тестирования этой панели.

«Test End» (Время окончания теста)

Поле только для чтения, в котором выводятся дата и время окончания тестирования этой панели.

«Location» (Позиция)

Поле только для чтения, в котором выводится позиция панели.

«Finalized» (Финализована)

Поле только для чтения, в котором выводится состояние финализации панели.

«Instrument Organism ID» (Инструментальная идентификация микроорганизма)

Поле только для чтения, в котором выводится полученный прибором результат идентификации микроорганизма.

«Confidence» (Достоверность)

Поле только для чтения, в котором выводится уровень достоверности для инструментальной идентификации микроорганизма.

«Biochemical» (Биохимический субстрат)

Поле только для чтения, в котором выводится аббревиатура биохимического субстрата.

«Actual» (Полученный)

Поле только для чтения, в котором выводится полученный результат биохимического теста.

«Expected» (Ожидаемый)

Поле только для чтения, в котором выводится ожидаемый результат биохимического теста.

«Antimicr(obial)» (Антибиотик)

Поле только для чтения, в котором выводится название антибиотика.

«MIC» (МПК)

Поле только для чтения, в котором выводится значение минимальной подавляющей концентрации (МПК).

«Interpretation» (Интерпретация)

Поле только для чтения, в котором выводится интерпретация чувствительности к антибиотику.

BDXpert SIR (Экспертное значение SIR)

Поле только для чтения, в котором выводятся итоговые результаты, вычисленные системой BDXpert путем выполнения всех включенных правил BDXpert, которые выполняются автоматически.

«Final SIR» (Итоговое значение SIR)

Поле только для чтения, в котором выводится итоговая интерпретация чувствительности к антибиотику. Чтобы изменить итоговое значение SIR, перейдите на вкладку «Results» (Результаты).

3.6 Вкладка «Needs Attention» (Требуется внимания)

На вкладке «Needs Attention» (Требуется внимания) выводится список панелей из базы данных прибора, для которых обнаружены условия, требующие внимания оператора. Обычно эти условия связаны с проблемами самих панелей или заданной информации о них. Во многих случаях оператор может исправить эти ситуации.

При просмотре списка панелей на вкладке «Needs Attention» (Требуется внимания) система позволяет вам либо исправить, либо проигнорировать условие, из-за которого панель попала в этот список. Если панель помещена в этот список из-за того, что для нее отсутствует нужная информация или эта информация неоднозначна (например, определены два значения идентификации), система позволит добавить или отредактировать эту информацию, чтобы исправить ситуацию. Если панель помещена в этот список из-за программной или аппаратной ошибки или проблемы с самой панелью, прибор позволит удалить панель, чтобы исправить ошибку. При удалении панели, тестирование которой не завершено, прерывается выполнение протокола для этой панели. На этой панели выводятся только панели, причины которых не были проигнорированы.

В списке на экране «Needs Attention» (Требуется внимания) выводится причина с наибольшим приоритетом (см. таблицу 3-2 – Действия по исправлению ситуаций «Требуется внимания»). Если выбрать панель, на вкладке «Needs Attention» (Требуется внимания) откроется окно результатов, где выводятся другие причины (если они есть). Можно напечатать два отчета: все причины «Требуется внимания» и наиболее приоритетные причины «Требуется внимания».

Условие	Возможные действия
«Test Aborted» (Тест прерван)	«ignore» (игнорировать) «locate panel» (найти панель) «delete panel» (удалить панель)
«Cannot Identify Barcode» (Не удалось прочитать штрих-код)	«ignore» (игнорировать) «locate panel» (найти панель)
«Can Not Read Panel Wells» (Не удалось считать лунки панели)	«locate panel» (найти панель) «delete panel» (удалить панель)
«Panel Lot Expired» (Истек срок годности партии панели)	«ignore» (игнорировать) «clear NA» (сбросить флаг «Требуется внимания»)
«Invalid AST Results» (Недопустимые результаты AST)	«ignore» (игнорировать)
«Panel Missing» (Панель отсутствует)	«ignore» (игнорировать) «delete panel» (удалить панель)
«No Growth on Panel» (На панели нет роста)	«ignore» (игнорировать) «locate panel» (найти панель) «delete panel» (удалить панель)
«Panel Lot Undefined» (Не определена партия панели)	никаких действий
«Review QC results» (Проверьте результаты контроля качества)	«ignore» (игнорировать) «locate panel» (найти панель) «delete panel» (удалить панель) «panel results» (результаты панели)
«Missing Accession Number» (Не задан номер образца)	«locate panel» (найти панель) «panel results» (результаты панели)
«Missing Organism ID» (Не определена идентификация микроорганизма)	«panel results» (результаты панели)

Условие	Возможные действия
«Can Not Determine Organism ID» (Не удалось определить идентификацию микроорганизма)	«ignore» (игнорировать) «panel results» (результаты панели)
«Invalid Organism ID» (Недопустимая идентификация микроорганизма)	«ignore» (игнорировать) «panel results» (результаты панели)
«Organism ID Conflict» (Конфликт идентификаций микроорганизмов)	«panel results» (результаты панели)
«BDXpert Rule Flagged» (Активировано правило BDXpert) (которое включено в ручном режиме)	«panel results» (результаты панели)
«Pending Too Long» (Слишком длительное ожидание)	«ignore» (игнорировать)

Таблица 3-2 – Действия по исправлению ситуаций «Требуется внимания»

На экране «Needs Attention» (Требуется внимания) выводится список первых 100 панелей с условием «Требуется внимания», отсортированных по коду причины (в том же порядке приоритетов, что и в таблице выше) и затем по номерам образцов с одним кодом причины. Панели, для которых не задан номер образца, выводятся первыми в группе данного кода причины. Обратите внимание, что даже после удаления панели из списка «Needs Attention» (Требуется внимания) код причины с наибольшим приоритетом будет по-прежнему показан на экране «Results» (Результаты) для этой панели.

Возможные действия по исправлению по исправлению ситуаций «Требуется внимания»

Переключатель «Ignore» (Игнорировать) – включите этот переключатель, чтобы проигнорировать это условие «Требуется внимания». Если включен этот переключатель, код причины «Требуется внимания» не будет исправлен, но система будет проинформирован, что пользователь знает о проблеме.

Кнопка «Reason» (Причина) – выводит описание причины для этого условия «Требуется внимания».

Кнопка «Locate panel» (Найти панель) – поворачивает поворотный механизм, чтобы стала доступна станция панели, и включает индикаторы этой станции.

Кнопка «Save» (Сохранить) – сохраняет все внесенные изменения.

«Print» (Печать) – позволяет напечатать отчет, содержащий список «Требуется внимания».

«Delete» (Удалить) – удаляет все результаты панели.

«Cancel» (Отмена) – отменяет все внесенные изменения.

Эти действия позволяют исправить причину состояния «Требуется внимания» в тех случаях, когда это возможно. В противном случае воспользуйтесь другими средствами исправления. На вкладке «AST Results» (Результаты AST) выводятся результаты для панели. Там можно исправить ситуацию «Требуется внимания», добавив нужную информацию для панели.

Чтобы исправить ситуации «Требуется внимания» для панелей:

1. Перейдите на экран «Needs Attention» (Требуется внимания).
2. Подробное описание конкретного кода причины смотрите в таблице ниже.
3. Перейдите на вкладку «AST Results» (Результаты AST), чтобы увидеть результаты и добавить или изменить информацию, коснитесь кнопки «Delete» (Удалить), чтобы удалить панель, включите переключатель «Ignore» (Игнорировать) или коснитесь кнопки «Locate panel» (Найти панель), чтобы найти панель в приборе.

«Test Aborted» (Тест прерван)	Обнаружена причина, из-за которой тестирование панели невозможно	• Панель в процессе тестирования не считывалась более 1 часа • Прибор был выключен более 1 часа • Дверь прибора была открыта более 1 часа • Панель была перемещена на другой уровень или в другой прибор • Температура инкубации слишком мала или слишком велика • Программа системы не запускала алгоритм тестирования более 1 часа • Для панели идентификации дрожжей не задан тип среды	• Удалите панель • Повторите тестирование
«Cannot Identify Barcode» (Не удалось прочитать штрих-код)	Внутренний сканер штрих-кодов не смог прочитать штрих-код в той станции, где прибор обнаружил наличие панели.	• Этикетка штрих-кода нечеткая или отсутствует • В прибор помещена панель неизвестного типа	Найдите панель в приборе и проверьте штрих-код • Если штрих-код панели нечеткий, выбросьте эту панель и заполните бактериальной суспензией другую панель • Если штрих-код не поврежден, верните панель на место и закройте дверь. После завершения следующей операции инвентаризационного сканирования посмотрите экран «Needs Attention» (Требуется внимания). Если этой панели нет в списке, значит внутренний сканер смог прочитать штрих-код панели.
«Can Not Read Panel Wells» (Не удалось считать лунки панели)	Внутренний сканер прочитал порядковый номер панели в станции, но прибор не обнаружил наличия панели в этой станции.	Панель не вставлена надлежащим образом	Найдите панель, извлеките ее и вновь вставьте в держатель
«Panel Lot Expired» (Истек срок годности партии панели)	При регистрации панели (или в начале теста) обнаружено, что истек срок годности для указанного номера партии панели	Зарегистрированная или помещенная в прибор панель взята из партии, срок годности которой уже истек	Выбросьте панель, повторите инокуляцию изолята, используя панель из другой партии, срок годности которой не истек
«Invalid AST Results» (Недопустимые результаты AST)	Как минимум одно значение МПК невозможно проинтерпретировать. (Не применяется к панелям контроля качества.)	Смотрите таблицу 3-1 – Значения МПК/SIR и причины	Повторите тестирование для антибиотика, значение МПК для которого не удалось проинтерпретировать
«Panel Missing» (Панель отсутствует)	Внутренний сканер прочитал порядковый номер панели, тестирование которой не выполнено, но панель отсутствует	• Панель была удалена до завершения тестирования • Ошибка внутреннего сканера, этот порядковый номер более не должен считываться	Если вернуть панель на тот же уровень в течение одного часа после удаления, тестирование будет возобновлено. Если панель не возвращается, тестирование будет прервано
«No Growth on Panel» (На панели нет роста)	Нет роста в лунке контроля роста. (Не применяется для панелей ID и панелей контроля качества.)	Прибор не обнаружил роста в лунке контроля роста этой панели	• Выращите субкультуру микроорганизма (чтобы убедиться в его жизнеспособности) и залейте новую панель. Обработка данной панели прервана • На экране «Needs Attention» (Требуется внимания) выберите для этой панели действие «Delete» (Удалить) или «Ignore» (Игнорировать)
«Panel Lot Undefined» (Не определена партия панели)	Введена панель, для которой не определен номер партии (не панель контроля качества)	Панель из неопределенной партии	Определите партию панели или проигнорируйте это условие
«Review QC results» (Проверьте результаты контроля качества)	Панель контроля качества завершена с состоянием «REVIEW» (Требуется проверка)	Панель контроля качества, для которой получен неверный результат ID или AST хотя бы для одного антибиотика или в которой нет роста в лунке контроля роста	Повторите тестирование штамма контроля качества. Проверьте чистоту культуры, мутность бактериальной суспензии
«Missing Accession Number» (Не задан номер образца)	Для панели не задана информация об образце или изоляте. (Панель неизвестного образца.)	Не задана информация об образце или изоляте	Выберите действие «panel results» (результаты панели). Добавьте номер образца, используя сканер штрих-кодов или введя номер вручную
«Missing Organism ID» (Не определена идентификация микроорганизма)	Для панели не определена идентификация микроорганизма. (Значение идентификации необходимо для получения результатов SIR. Не применяется к панелям контроля качества.)	• Только для панели AST. Не введено значение идентификации микроорганизма • У панели неоднозначный (двойное или тройное) инструментальное значение идентификации и нет связанных панелей с определенной идентификацией	Выберите идентификацию микроорганизма. Будут автоматически показаны все правила BDxpert, которые запускаются для данного значения идентификации. Выберите, нужно ли применить или игнорировать эти правила, и сохраните изменения. Выполните эти действия, покиньте вкладку, чтобы увидеть завершённые результаты тестирования.

Условие	Значение	Возможные причины	Исправление
«Can Not Determine Organism ID» (Не удалось определить идентификацию микроорганизма)	У панели не определено инструментальное значение идентификации (значение "No identification") или есть связанная панель с не определенной итоговой идентификацией ("No identification")	Панель тестировалась в течение 12 часов, но прибор не смог определить идентификацию микроорганизма	Повторите тестирование. Проверьте: • Чистоту культуры • Мутность бактериальной суспензии • Правильная ли панель используется? • Возможно, микроорганизма нет в базе данных BD Phoenix
«Invalid Organism ID» (Недопустимая идентификация микроорганизма)	Идентификация микроорганизма отсутствует в базе данных BD Phoenix	В загруженной для панели информации указана идентификация микроорганизма, которой нет в базе данных BD Phoenix	Используйте альтернативный метод
«Organism ID Conflict» (Конфликт идентификаций микроорганизмов)	Тестирование панели завершено, с этой панелью связана как минимум одна нефинализированная панель с другой итоговой идентификацией. Не применяется к панелям контроля качества.	У завершённой панели есть как минимум одна связанная панель с другим значением идентификации	Перейдите на вкладку «Results» (Результаты) и выберите идентификацию микроорганизма. Выбор идентификации микроорганизма может запускать правила BDxpert. Если эти правила сконфигурированы как ручные, откроется экран BDxpert.
«BDxpert Rule Flagged» (Активировано правило BDxpert)	Для панели запущено как минимум одно правило BDxpert, которое включено и определено в конфигурации как ручное.	Для определения результатов AST необходимо применить правило BDxpert. Правила BDxpert активируются для панели, если они включены в ручном режиме. (Правила, которые включены в автоматическом режиме, запускаются автоматически, и панель не выводится на экране «Needs Attention» (Требуется внимания).)	Правила BDxpert выводятся по отдельности, по очереди. Чтобы принять правило, выберите «Assess» (Принять). Чтобы отвергнуть правило, выберите «Reject» (Отвергнуть). Чтобы удалить результаты системы BDxpert и вычислить их заново, выберите «ReRun» (Повторить). Когда все правила будут показаны и обработаны, будут показаны завершённые результаты AST. После обработки всех правил выберите подвкладку «Special Messages» (Специальные сообщения) (если она есть), чтобы просмотреть специальные сообщения о характеристиках этого микроорганизма.
«Pending Too Long» (Слишком длительное ожидание)	Панель не была сканирована (в процессе инвентаризационного сканирования) в течение 30 минут после ее регистрации на экране «Panel Login» (Регистрация панели).	Панель зарегистрирована в системе, но не была помещена в прибор в течение 2 циклов считывания (примерно 30 минут).	Повторите тестирование. Удалите панель.

3.7 Вкладка «Inventory» (Панели в приборе)

На вкладке «Inventory» (Панели в приборе) выводится список всех панелей, которые находятся в приборе (кроме панелей измерения температуры). Этот список можно отсортировать по возрастанию или по убыванию значений следующих полей: порядковый номер, номер образца, результаты, условие «Требуется внимания». Исходно данные выводятся упорядоченными по возрастанию номера образца и номера изолята. При последующих посещениях этой вкладки применяется последний использованный метод сортировки (первичное и вторичное поля сортировки и порядок сортировки). Если в приборе нет панелей, на экране выводится сообщение «No Data Available» (Данные не доступны).

В верхней части экрана «Panel Inventory» (Панели в приборе) указано число панелей в списке (если там более одной панели), поле сортировки и порядок сортировки данных.

На экране «Panel Inventory» (Панели в приборе) выводятся следующие поля (если эта информация известна):

- Символ ! (восклицательный знак) в начале строки указывает, что это критическая панель или панель, для которой пользователь не подтвердил получение уведомления о маркере резистентности.
- «Critical» (Критическая) – это поле отмечено, если панель была обозначена как критическая при регистрации.
- «Sequence Number» (Порядковый номер) – порядковый номер этой панели
- «Accession Number» (Номер образца) (панели без номеров образца выводятся первыми.)
- «Isolate Number» (Номер изолята).
- «Inoculum Density» (Мутность суспензии) (пустое значение для панелей AST; «?» для панелей ID до завершения теста).
- «Status» (Состояние) («ongoing» (обрабатывается); «complete» (завершена); «rapid» (быстрое завершение), если для панели включен и запущен режим быстрого завершения).
- «Final (Organism) ID» (Итоговое значение идентификации микроорганизма).
- «Results» (Результаты):
- «final» (итоговый) – если панель завершена и нет активных условий «Требуется внимания» (для панели AST определены все значения МПК, или для комбинированной панели определены все значения МПК и идентификация микроорганизма, или для панели ID определена идентификация микроорганизма);
- «partial» (частичный) – если панель обрабатывается или завершена и для нее есть активные (непроегнорированные) условия «Требуется внимания» (для панели AST или комбинированной панели определено хотя бы одно значение МПК или для комбинированной панели определена идентификация микроорганизма);
- «none» (нет) – если для панели любого типа не определены значения МПК и идентификация микроорганизма.

- «Needs Attention» (Требуется внимания) – значок активных условий «Требуется внимания» выводится, когда есть непроигнорированное условие «Требуется внимания»; **пустое значение**, когда нет условий «Требуется внимания» или все они проигнорированы).
- «Instrument» (Прибор) – в каком приборе находится панель.

Когда появится этот список, выделите панель и перейдите на экран «Results» (Результаты), чтобы просмотреть или отредактировать информацию о панели, выполнить операцию поиска панели в приборе или напечатать лабораторный отчет для панелей с итоговыми или частичными результатами.

3.8 Вкладка «Reports» (Отчеты)

Для прибора можно напечатать множество различных отчетов:

- «Accession Lab Report» (Лабораторный отчет для образца) – содержит информацию для указанного номера образца.
- «Antimicrobial Code Report» (Отчет о кодах антибиотиков) – содержит список всех антибиотиков, которые есть в базе данных BD Phoenix для всех конфигураций панелей, и коды BD и ЛИС для этих антибиотиков.
- «BDXpert Rule Set Database Report» (Отчет о базе данных наборов правил BDXpert) – содержит список всех правил BDXpert, в котором указываются номер и текстовое описание правила, включено или выключено это правило, и режим применения этого правила (автоматически или вручную).
- «Completed Lab Report» (Лабораторный отчет для завершенных панелей) – содержит информацию для всех панелей, завершенных в указанный интервал времени (до 48 последних часов).
- «Cumulative QC Report» (Кумулятивный отчет контроля качества) – содержит информацию о тестах контроля качества для всех типов панелей. Этот отчет не выводится, если система работает режиме соединения с BD EpiCenter.
- «Daily Instrument Report» (Ежедневный отчет о работе прибора) – содержит информацию о состоянии прибора на момент создания отчета, а также контрольный список операций технического обслуживания.
- «Interpretation Rule Set Report» (Отчет о наборе правил интерпретации) – содержит информацию о пороговых значениях для антибиотиков, заданных в наборе правил интерпретации, который задан в качестве набора правил по умолчанию на экране «System Configuration» (Конфигурация системы).
- «Needs Attention List Report» (Отчет со списком «Требуется внимания») – содержит список всех панелей в базе данных прибора, для которых есть непроигнорированное условие «Требуется внимания».
- «Organism ID Code List Report» (Отчет о кодах идентификации микроорганизмов) – содержит все названия микроорганизмов, которые есть в базе данных BD Phoenix, и коды BD и ЛИС для этих микроорганизмов.
- «Panel Lot Report» (Отчет о партиях панелей) – в нем выводятся все записи панелей для каждого номера партии, используемой в приборе.
- «Panel Lot Database Report» (Отчет о базе данных партий панелей) – содержит список всех партий панелей, определенных в приборе, и статистическую и справочную информацию об этих партиях.
- «QC Lab Report» (Лабораторный отчет контроля качества) – содержит список всех тестовых штаммов микроорганизмов, для которых выполнено тестирование, и все результаты биохимических тестов и/или значения МПК для антибиотиков (для указанного номера партии панелей), информация о которых есть в базе данных BD Phoenix на момент создания отчета.
- «Resident Panel Report» (Отчет о панелях в приборе) – содержит список панелей в станциях 1-25 для каждого уровня поворотного механизма.
- «Lab Report» (Лабораторный отчет) – содержит всю информацию для панели с данным порядковым номером, которая есть в базе данных BD Phoenix, включая всю информацию на экране «Results» (Результаты) для этой панели, все специальные сообщения, запущенные правила BDXpert и причины «Требуется внимания» (если они есть). Этот отчет можно напечатать только с вкладок «Results» (Результаты) или «Finalization» (Финализация).
- «Finalization Summary Report» (Сводный отчет о финализации) – содержит информацию обо всех панелях, которые можно финализировать, на момент создания отчета, а также состояние финализации. Этот отчет можно напечатать только с вкладки «Finalization» (Финализация).
- «Panel Inventory Lab Report» (Лабораторный отчет для панелей в приборе) – лабораторный отчет для всех панелей, которые находятся в приборе. Этот отчет можно напечатать только с вкладки «Inventory» (Панели в приборе).

- «Custom Breakpoint Difference Report» (Отчет об изменениях пользовательских пороговых значений) – содержит список различий между старыми пороговыми значениями и новыми пороговыми значениями, образованными после выполнения операции обновления данных Phoenix или установки/обновления ПО. Этот отчет можно напечатать только с вкладки «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации) экрана «Configuration» (Конфигурация).
- «Current QC Panel Lot Report» (Текущий отчет о партии панелей контроля качества) – содержит информацию о самом последнем тесте контроля качества для каждого из требуемых штаммов для партии панелей (максимум 20 штаммов). Этот отчет можно напечатать только с вкладки «Panel Lot Definition» (Определение партии панелей).
- «Historical QC Panel Lot Report» (Хронологический отчет о партии панелей контроля качества) – содержит информацию обо всех тестах штамма в данном приборе (до 200 тестов). Этот отчет можно напечатать только с вкладки «Panel Lot Definition» (Определение партии панелей).

3.8.1 Как печатать отчеты

Чтобы напечатать отчет:

- 1 Перейдите на вкладку «Reports» (Отчеты).
- 2 Выделите нужный отчет.
- 3 Заполните все дополнительные поля (например, задайте номер образца для лабораторного отчета для образца) и выберите «Print Reports» (Напечатать отчеты). (Дополнительную информацию смотрите в разделе «3.8 Вкладка «Reports» (Отчеты).»)

Некоторые отчеты можно также напечатать с соответствующих экранов (например, Отчет со списком «Требуется внимания»).

Каждый из этих отчетов подробно описан в последующих разделах.

3.8.2 «Completed Lab Report» (Лабораторный отчет для завершенных панелей)

Этот отчет содержит информацию для **всех панелей**, которые перешли в состояние «Complete» (Завершена) в течение выбранного интервала времени (до 48 последних часов). Отчет содержит следующую информацию:

Заголовок: Заголовок отчета, характеристика «Preliminary» (Предварительный) (если в поле «Status» (Состояние) значение «Ongoing» (Обрабатывается), «Pending» (Ожидание) или «Partial Complete» (Частично завершена); и/или если есть проигнорированные условия «Требуется внимания» или условие «Требуется внимания» с причиной «Cannot Identify Barcode» (Не удалось прочитать штрих-код); и/или если панель не может быть финализована), информация о лаборатории («Laboratory Information») (если она задана), дата и время печати («Date and Time Printed»), версия ПО/версия PUD («Software version/PUD version»).

Тело отчета: Верхняя часть: Номер образца («Accession Number»), номер изолята («Isolate Number»), порядковый номер панели («Sequence Number»), тип панели («Panel Type»), состояние («Status») («Ongoing» (Обрабатывается), «Complete» (Завершена)), характеристика «CRITICAL» (Критическая), время начала теста («Test Start»), время окончания теста («Test End»), прибор и станция («Location»), состояние финализации («Finalized»), номер партии панели («Panel Lot Number») (если включена опция «QC Lot Support» (Поддержка партии контроля качества)) и мутность суспензии («Inoculum Density»). Данные в лабораторном отчете для завершенных панелей отсортированы по номеру образца и затем по номеру изолята в данном образце.

Для панелей контроля качества кроме указанной выше информации также выводится следующая информация: Номер партии панели и ее срок годности («Panel Lot Number» и «Expiration Date»), идентификатор технолога («Tech ID»), номер партии бульона ID и ее срок годности («ID Broth Lot Number» и «Expiration Date»), номер партии бульона AST и ее срок годности («AST Broth Lot Number» и «Expiration Date»), номер партии индикатора и ее срок годности («Indicator Lot Number» и «Expiration Date») и тестовый штамм («Test Strain»). Указывается состояние контроля качества: «PASS» (Тест пройден), «REVIEW» (Требуется проверка), «ERROR» (Ошибка) или «FAIL» (Неудача).

Под этой информацией выводится итоговое значение идентификации микроорганизма («Final ID»). Если после значения итоговой идентификации выводится звездочка, это означает, что идентификация была изменена пользователем. Ниже выводится тип среды («Media Type») (только для панелей идентификации дрожжей). Затем выводятся все полученные прибором результаты ID и их значения достоверности («Confidence Value»). В нижней части отчета для тестов ID выводятся название биохимической среды («Biochemical»), инструментальный результат («Instrument Result») и ожидаемый результат («Expected Result»). Для тестов AST выводятся название антибиотика («Antimicrobial»), инструментальное значение МПК («Instrument MIC»), инструментальное значение SIR («Instrument SIR»), экспертное значение SIR («BDXpert SIR»), итоговое значение SIR («Final SIR») и номер правила («Rule #»). Если для панели есть маркеры резистентности, правила BDXpert, флаги «Требуется внимания» или специальные сообщения, все они выводятся в нижней части отчета. Для панелей контроля качества не выводятся значения SIR и номера правил.

Информация о частях ID и AST комбинированной панели выводится на отдельных страницах отчета.

3.8.3 «Accession Lab Report» (Лабораторный отчет для образца)

Этот отчет в основном представляет собой собрание лабораторных отчетов для указанного номера образца. В нем выводится информация для указанного номера образца. В том числе в нем выводятся: результаты идентификации микроорганизма, включая информацию о конкретных биохимических реакциях; результаты AST, включая интерпретацию чувствительности и МПК; результаты тестов контроля качества (пройден или нет); и информация обо всех запущенных BDxpert правилах. Отчет содержит следующую информацию:

Заголовок: Заголовок отчета, характеристика «Preliminary» (Предварительный) (если в поле «Status» (Состояние) значение «Ongoing» (Обрабатывается), «Pending» (Ожидание) или «Partial Complete» (Частично завершена); и/или если есть проигнорированные условия «Требуется внимания» или условие «Требуется внимания» с причиной «Cannot Identify Barcode» (Не удалось прочитать штрих-код); и/или если панель не может быть финализирована, информация о лаборатории («Laboratory Information») (если она задана), дата и время печати («Date and Time Printed»), версия ПО/версия PUD («Software version/PUD version»).

Тело отчета: Верхняя часть: Номер образца («Accession Number»), номер изолята («Isolate Number»), порядковый номер панели («Sequence Number»), тип панели («Panel Type»), состояние («Status») («Ongoing» (Обрабатывается), «Complete» (Завершена)), характеристика «CRITICAL» (Критическая), время начала теста («Test Start»), время окончания теста («Test End»), прибор и станция («Location»), состояние финализации («Finalized»), номер партии панели («Panel Lot Number») (если включена опция «QC Lot Support» (Поддержка партии контроля качества)) и мутность суспензии («Inoculum Density»). Данные в лабораторном отчете для завершенных панелей отсортированы по номеру образца и затем по номеру изолята в данном образце.

Под этой информацией выводится итоговое значение идентификации микроорганизма («Final ID»). Если после значения итоговой идентификации выводится звездочка, это означает, что идентификация была изменена пользователем. Ниже выводится тип среды («Media Type») (только для панелей идентификации дрожжей).

Затем выводятся все полученные прибором результаты идентификации и их значения достоверности («Confidence Value»). В нижней части отчета для тестов ID выводятся название биохимической среды («Biochemical»), инструментальный результат («Instrument Result») и ожидаемый результат («Expected Result»). Для тестов AST выводятся название антибиотика («Antimicrobial»), инструментальное значение МПК («Instrument MIC»), инструментальное значение SIR («Instrument SIR»), экспертное значение SIR («BDxpert SIR»), итоговое значение SIR («Final SIR») и номер правила («Rule #»). Если для панели есть маркеры резистентности, правила BDxpert, флаги «Требуется внимания» или специальные сообщения, все они выводятся в нижней части отчета. Для панелей контроля качества не выводятся значения SIR и номера правил.

Информация о частях ID и AST комбинированной панели выводится на отдельных страницах отчета.

Для панелей контроля качества кроме указанной выше информации также выводится следующая информация: Номер партии панели и ее срок годности («Panel Lot Number» и «Expiration Date»), идентификатор технолога («Tech ID»), номер партии бульона ID и ее срок годности («ID Broth Lot Number» и «Expiration Date»), номер партии бульона AST и ее срок годности («AST Broth Lot Number» и «Expiration Date»), номер партии индикатора и ее срок годности («Indicator Lot Number» и «Expiration Date») и тестовый штамм («Test Strain»). Указывается состояние контроля качества: «PASS» (Тест пройден), «REVIEW» (Требуется проверка), «ERROR» (Ошибка) или «FAIL» (Неудача).

3.8.4 «Needs Attention List Report» (Отчет со списком «Требуется внимания»)

В этом отчете выводится список всех панелей в базе данных прибора, для которых есть непроигнорированное условие «Требуется внимания». Этот отчет можно также напечатать с экрана «Needs Attention» (Требуется внимания). Отчет содержит следующую информацию:

Заголовок: Заголовок отчета, указание на то, что данные отчета отфильтрованы («Filtered») (если была выбрана такая опция), информация о лаборатории («Laboratory Information») (если она задана) и дата и время печати («Date and Time Printed»).

Тело отчета: Причина условия «Требуется внимания» («Needs Attention Reason»), порядковый номер панели («Sequence Number»), номер образца («Accession Number»), номер изолята («Isolate Number»), прибор и станция («Location») и состояние («Ongoing» (Обрабатывается), «Complete» (Завершена)). Если данные отчета отфильтрованы (опция по умолчанию), для панелей с несколькими условиями «Требуется внимания» слева от поля причины выводится звездочка. Данные отчета сортируются по приоритетам причины «Требуется внимания» и по номеру образца внутри каждого типа причины (рис. 3-7 – Отчет со списком «Требуется внимания»).

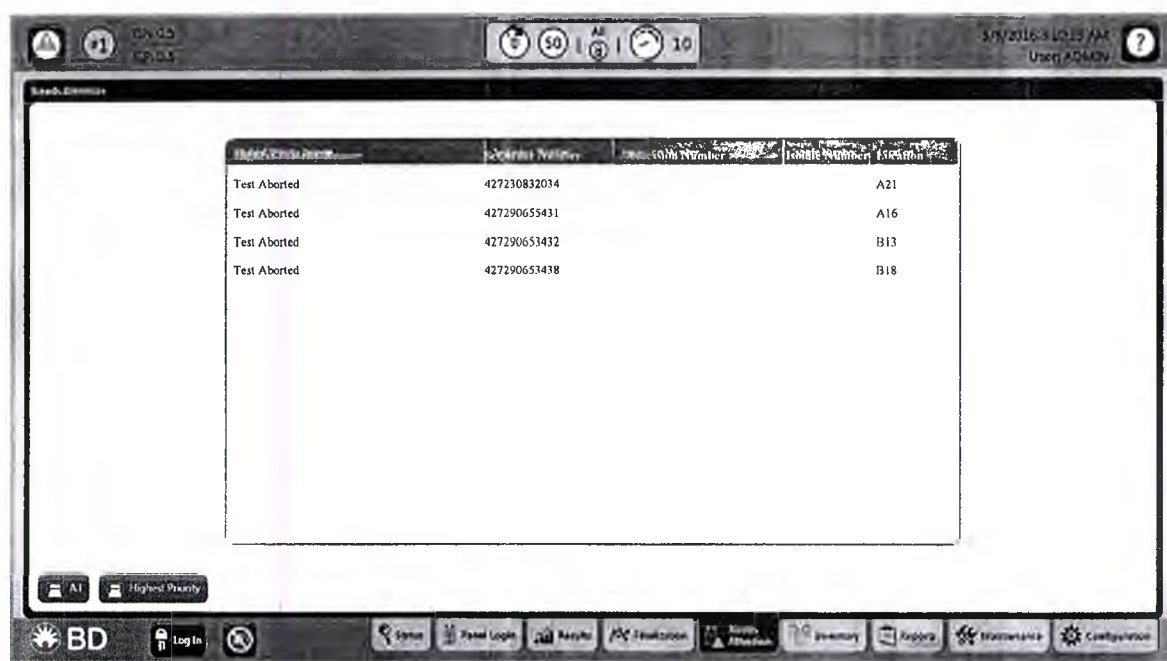


Рис. 3-7 – Отчет со списком «Требуется внимания»

3.8.5 «Resident Panel Report» (Отчет о панелях в приборе)

В этом отчете выводятся панели, которые находятся в станциях 1-25 каждого уровня поворотного механизма и были обнаружены при последней операции инвентаризационного сканирования. Отчет содержит следующую информацию:

Заголовок: Заголовок отчета, информация о лаборатории («Laboratory Information») (если она задана), дата и время печати («Date and Time Printed») и номер прибора («Instrument Number»).

Тело отчета: номер образца («Accession Number»), номер изолята («Isolate Number»), порядковый номер панели («Sequence Number»), «QC» (если это панель контроля качества), время начала теста («Test Start»), мутность суспензии («Inoculum Density»), тип панели («Panel Type»), состояние («Status») («Ongoing» (Обрабатывается), «Complete» (Завершена)) и причина «Требуется внимания» с наибольшим приоритетом («Needs Attention Reason»), если они есть. Данные этого отчета отсортированы по номеру образца и затем по номеру изолята в данном образце.

3.8.6 «QC Lab Report» (Лабораторный отчет контроля качества)

В этом отчете выводится список всех панелей контроля качества с момента, указанного в поле ввода «Test Start» (Время начала теста), и до настоящего времени. В этом списке выводятся все тестовые штаммы микроорганизмов, для которых выполнено тестирование, и все результаты биохимических тестов и/или значения МПК для антибиотиков (для указанного номера партии панелей), информация о которых есть в базе данных BD Phoenix. Отчет содержит следующую информацию:

Заголовок: Заголовок отчета, информация о лаборатории («Laboratory Information») (если она задана), дата и время печати («Date and Time Printed»), версия ПО/версия PUD («Software version/PUD version»)

Тело отчета: номер и срок годности партии панели («Panel Lot Number» и «Expiration Date»), время начала теста («Test Start»), время окончания теста («Test End»), тип панели («Panel Type»), прибор и станция («Location»), состояние («Status») («Ongoing» (Обрабатывается), «Complete» (Завершена)), ID технолога («Tech ID»), номер и срок годности партии бульона ID («ID Broth Lot Number» и «Expiration Date»), номер и срок годности партии бульона AST («AST Broth Lot Number» и «Expiration Date»), номер и срок годности партии индикатора («Indicator Lot Number» и «Expiration Date»), порядковый номер панели («Sequence Number»), номер образца («Accession Number»), номер изолята («Isolate Number»), тестовый штамм («Test Strain»), мутность суспензии («Inoculum Density»), тип среды («Media Type») (только для панелей идентификации дрожжей), инструментальная идентификация («Instrument ID») и состояние контроля качества («QC Status») (PASS/FAIL/REPEAT/REVIEW). В нижней части отчета выводятся все причины «Требуется внимания» и специальные сообщения. Для каждого биохимического субстрата («Biochemical») выводятся инструментальный результат и ожидаемый результат («Instrument Result» и «Expected Result»). Для антибиотиков («Antimicrobial») выводятся приборные и ожидаемые МПК («Instrument MIC» и «Expected MIC») и указывается, пройден тест («Pass») или нет («Fail»).

Этот отчет доступен, только если не используется соединение с BD EpiCenter.

3.8.7 «Cumulative QC Report» (Кумулятивный отчет контроля качества)

Этот отчет содержит информацию о выполненных тестах контроля качества для всех типов панелей. Отчет содержит следующую информацию:

Заголовок: Заголовок отчета, информация о лаборатории («Laboratory Information») (если она задана), дата и время печати («Date and Time Printed») и номер прибора («Instrument Number»).

Тело отчета: Критерий выбора: Выбранные номер партии панели («Panel Lot Number»), тип панели («Panel Type») и тестовый штамм («Test Strain»).

Затем для каждой панели выводится порядковый номер («Sequence Number») (столбец сортировки), состояние контроля качества («QC Status») (PASS, FAIL, REVIEW, ERROR), тестовый штамм («Test Strain»), время начала теста («Test Start»), номер партии панели («Panel Lot Number»), номер партии бульона ID («ID Broth Lot Number»), номер партии бульона AST («AST Broth Lot Number»), номер партии индикатора («Indicator Lot Number») и ID технолога («Tech ID»).

Этот отчет доступен, только если не используется соединение с BD EpiCenter.

3.8.8 «Daily Instrument Report» (Ежедневный отчет о работе прибора)

Этот отчет содержит информацию о состоянии прибора на момент создания отчета. В нем также предусмотрено место для записи информации об операциях технического обслуживания. Можно задать, чтобы Ежедневный отчет о работе прибора печатался автоматически в указанное время.

Отчет содержит следующую информацию:

Заголовок: Заголовок отчета, информация о лаборатории («Laboratory Information») (если она задана), дата и время печати («Date and Time Printed») и версия ПО/версия PUD («Software version/PUD version»)

Тело отчета: номер прибора («Instrument Number»), серийный номер («Serial Number»), тест температуры прибора («Instrument Temperature») – «Pass»/«Fail» (Пройден/Нет), тест вращения поворотного механизма («Carousel Rotational Test») – «Pass»/«Fail» (Пройден/Нет), проверка питания («Power Supply Check») – «Pass»/«Fail» (Пройдена/Нет), для каждого уровня поворотного механизма: порядковый номер панели нормализатора («Normalizer Panel Sequence Number»), состояние ее теста («Pass»/«Fail») и срок годности («Expiration Status») (в этом поле выводится дата, если до истечения срока годности более 60 дней; фраза "expires on date" ("срок годности истечет" [дата]), если до истечения срока годности менее 60 дней; и "EXPIRED" ("ИСТЕК"), если срок годности уже истек). Затем оставлено место для записи результатов проверки, состояния «Проверка пройдена» («Pass/Fail status») («Да»/«Нет») и ID технолога («Tech ID») для каждой из следующих операций проверки работоспособности прибора: Ежедневные: Температура прибора («Instrument Temperature») (на экране «Status» (Состояние)), температура стандартной панели («Standard Panel Temperature»), наличие бумаги в принтере («Printer Paper Supply»); Еженедельные: Внутренние зеленые светодиоды («Internal Green LEDs»), внутренние красные светодиоды («Internal Red LEDs»), внутренние желтые светодиоды («Internal Amber LEDs»), индикатор предупреждений («Alert Indicator») и звуковые сигналы тревоги прибора («Instrument Audible Alarm»). Внизу оставлено место для комментариев.

Тест температуры прибора считается пройденным, если нет активных предупреждений о температуре (код E01).

3.8.9 «Interpretation Rule Set Report» (Отчет о наборе правил интерпретации)

Этот отчет содержит информацию о пороговых значениях для антибиотиков, заданных в текущем наборе правил интерпретации (который задан в качестве набора правил по умолчанию на экране «System Configuration» (Конфигурация системы)). Отчет содержит следующую информацию:

Заголовок: Заголовок отчета, информация о лаборатории («Laboratory Information») (если она задана), дата и время печати («Date and Time Printed»).

Тело отчета: набор правил («Rule Set»), версия правил («Rule Version») и следующие столбцы: «Antimicrobial» (Антибиотик) (столбец сортировки), «Test Group» (Группа тестов), «Organism Group» (Группа микроорганизмов), «Organism Name» (Название микроорганизма), «S(usceptible)» (Чувствительность) и «R(esistance)» (Резистентность). Каждое пороговое значение для антибиотика выводится в отдельной строке отчета.

Отчет о наборе правил интерпретации – это отчет большого размера. Для его подготовки и печати требуется много ресурсов системы, поэтому до его завершения нельзя будет напечатать другие отчеты.

Чтобы напечатать отчеты для VCEX наборов правил в системе, сначала выберите набор правил на экране «System Configuration» (Конфигурация системы) (раздел «3.10.2 Подкладка «System Configuration» (Конфигурация системы)»), затем перейдите на вкладку «Reports» (Отчеты) и запустите печать отчета о наборе правил интерпретации. Будет напечатан отчет для выбранного набора правил. Когда процесс печати завершится, вернитесь на экран «System Configuration» (Конфигурация системы) и выберите следующий набор правил. Затем вновь перейдите на вкладку «Reports» (Отчеты) и напечатайте выбранный набор правил интерпретации. Продолжайте выбирать и печатать наборы правил, пока не напечатаете все наборы. Завершив печать, не забудьте вернуться на экран «System Configuration» (Конфигурация системы) и выбрать нужный набор правил, который будет использоваться для интерпретации.

ПРИМЕЧАНИЕ

Не изменяйте набор правил интерпретации, если обрабатываются какие-либо панели. Это может привести к неверным интерпретациям.

Коды интерпретации:

CLSI или EUCAST

Коды интерпретации	Название микроорганизма
ACIN_IC	<i>Acinetobacter</i> , различные виды
AERM_IC	<i>Aeromonas</i> , различные виды.
BURCEP_IC	<i>Burkholderia cepacia</i> , комплекс
ENTC_IC	<i>Enterococcus</i> , различные виды
ENTERIC_IC	<i>Enterobacteriaceae</i>
NFGNROTH_IC	Неферментирующие грамотрицательные палочки, кроме ACIN_IC, BURCEP_IC, PSEAER_IC, STEMAL_IC, ACTBACT_IC, CARHOM_IC, EIKCOR_IC
PSEAER_IC	<i>Pseudomonas aeruginosa</i>
STAAUE_IC	<i>Staphylococcus aureus</i>
STAOTH_IC	<i>Staphylococcus</i> , различные виды, кроме STAAUE_IC
STEMAL_IC	<i>Stenotrophomonas maltophilia</i>
STRBET_IC	<i>Streptococcus</i> бета-гемолитический
STROTH_IC	<i>Streptococcus</i> , различные виды, кроме STRBET_IC, STRPNE_IC, STRVIR_IC
STRPNE_IC	<i>Streptococcus pneumoniae</i>
STRVIR_IC	<i>Streptococcus viridans</i> группа

3.8.10 «BDXpert Rule Set Database Report» (Отчет о базе данных наборов правил BDXpert)

В этом отчете выводится список всех правил BDXpert, в котором указываются номер и текстовое описание правила, включено или выключено это правило, и режим применения этого правила (автоматически или вручную). Отчет содержит следующую информацию:

Заголовок: Заголовок отчета, информация о лаборатории («Laboratory Information») (если она задана), дата и время печати («Date and Time Printed»), набор правил («Rule Set») (CLSI, SFM, EUCAST или «Custom» (Пользовательский)), а для пользовательского набора также набор правил, на котором он основан («Based On») (CLSI, SFM или EUCAST).

Тело отчета: номер правила («Rule #»), текст правила, состояние Включено/Выключено («Enabled»/ «Disabled») и состояние Автоматически/Вручную («Automatic»/«Manual»).

Отчет о базе данных наборов правил BDXpert – это отчет большого размера. Для его подготовки и печати требуется много ресурсов системы, поэтому до его завершения нельзя будет напечатать другие отчеты.

3.8.11 «Organism ID Code List Report» (Отчет о кодах идентификации микроорганизмов)

Этот отчет содержит все названия и аббревиатуры микроорганизмов, которые есть в базе данных BD Phoenix. Отчет содержит следующую информацию:

Заголовок: Заголовок отчета, информация о лаборатории («Laboratory Information») (если она задана), дата и время печати («Date and Time Printed»).

Тело отчета: название микроорганизма («Organism name») (столбец сортировки), краткий код BD («BD Code») и код ЛИС («LIS Code») (при работе с ЛИС).

Отчет о кодах идентификации микроорганизмов – это отчет большого размера. Для его подготовки и печати требуется много ресурсов системы, поэтому до его завершения нельзя будет напечатать другие отчеты.

3.8.12 «Antimicrobial Code Report» (Отчет о кодах антибиотиков)

В этом отчете выводится список всех антибиотиков, которые есть в базе данных BD Phoenix для всех конфигураций панелей, и коды (аббревиатуры) для этих антибиотиков. Отчет содержит следующую информацию:

Заголовок: Заголовок отчета, информация о лаборатории («Laboratory Information») (если она задана), дата и время печати («Date and Time Printed»).

Тело отчета: название антибиотика («Antimicrobial») (столбец сортировки), краткий код BD («BD Code») и код ЛИС (LIS «Code») (при работе с ЛИС).

Отчет о кодах антибиотиков – это отчет большого размера. Для его подготовки и печати требуется много ресурсов системы, поэтому до его завершения нельзя будет напечатать другие отчеты.

3.8.13 «Lab Report» (Лабораторный отчет) и «QC Lab Report» (Лабораторный отчет контроля качества)

Этот отчет (раздел «3.4.9 Подкладка «Needs Attention» (Требуется внимания)») содержит всю информацию для панели с данным порядковым номером, которая есть в базе данных BD Phoenix, включая всю информацию на экране «Results» (Результаты) для этой панели, все специальные сообщения, запущенные правила BDXpert и причины «Требуется внимания» (если они есть). Лабораторный отчет нельзя напечатать с вкладки «Reports» (Отчеты). Его можно напечатать только с вкладок «Results» (Результаты) или «Finalization» (Финализация). Лабораторный отчет для панелей в приборе («Panel Inventory Lab Report») выводит ту же информацию для всех панелей, которые выводятся на экране «Panel Inventory» (Панели в приборе), то есть панелей, которые находятся в приборе и для которых получены итоговые или частичные результаты. Дополнительную информацию смотрите в разделе «3.4.9 Подкладка «Needs Attention» (Требуется внимания)».

С экрана «Results» (Результаты) можно также создать Лабораторный отчет контроля качества («QC Lab Report») (раздел «3.8.6 «QC Lab Report» (Лабораторный отчет контроля качества)»). Он содержит информацию, аналогичную обычному лабораторному отчету, но для панелей контроля качества.

3.8.14 «Finalization Summary Report» (Сводный отчет о финализации)

Этот отчет содержит список всех панелей, которые можно финализировать, на момент создания отчета, а также состояние финализации. Сводный отчет о финализации нельзя напечатать с экрана «Reports» (Отчеты); его можно напечатать только с экрана «Finalization» (Финализация). Дополнительную информацию смотрите в разделе «3.8.14 «Finalization Summary Report» (Сводный отчет о финализации)».

3.8.15 «Custom Breakpoint Difference Report» (Отчет об изменениях пользовательских пороговых значений)

Этот отчет содержит список различий между старыми пороговыми значениями и новыми пороговыми значениями, образованными после выполнения операции обновления данных BD Phoenix или установки/обновления ПО. Отчет об изменениях пользовательских пороговых значений нельзя напечатать с экрана «Reports» (Отчеты). Его можно напечатать только с подвкладки «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации) на вкладке «Configuration» (Конфигурация), коснувшись кнопки «Difference Report» (Отчет об изменениях), расположенной в нижней части экрана. При установке пакета данных обновления BD Phoenix Update Data (PUD) заданные пользователем пороговые значения не перезаписываются. Отчет об изменениях пользовательских пороговых значений позволяет выяснить, нужно ли вручную обновить настроенные пользователем пороговые значения в соответствии с данными PUD. Подробную информацию об обновлении пороговых значений смотрите в таблице 3-3 – Обновление правил.

3.8.16 «Current QC Panel Lot Report» (Текущий отчет о партии панелей контроля качества)

Этот отчет содержит информацию о самом последнем тесте контроля качества для каждого из требуемых штаммов для партии панелей (максимум 20 штаммов). В отчет включается информация для всех приборов, данные которых были загружены (восстановлены) в данный прибор. Текущий отчет о партии панелей контроля качества нельзя напечатать с экрана «Reports» (Отчеты). Его можно напечатать только с экрана Panel Lot Definition (Определение партии панелей). Смотрите раздел «3.10.9 Подвкладка «Panel Lot Definition» (Определение партии панелей)».

3.8.17 «Historical QC Panel Lot Report» (Хронологический отчет о партии панелей контроля качества)

Этот отчет содержит информацию обо всех тестах штамма в данном приборе (только в нем) (до 200 тестов). Хронологический отчет о партии панелей контроля качества нельзя напечатать с экрана «Reports» (Отчеты). Его можно напечатать только с экрана «Panel Lot Definition» (Определение партии панелей). Смотрите раздел «3.10.9 Подвкладка «Panel Lot Definition» (Определение партии панелей)».

3.8.18 «Panel Lot Report» (Отчет о партиях панелей)

В этом отчете выводятся все записи панелей для каждого номера партии, используемой в приборе. Сначала в этом отчете выводятся клинические панели, затем панели контроля качества. В каждой из этих групп панели сортируются по номеру образца, затем по номеру изолята.

Отчет содержит следующую информацию:

Заголовок: Заголовок отчета, информация о лаборатории («Laboratory Information») (если она задана), дата и время печати («Date and Time Printed») и прибор («Instrument»), на котором напечатан отчет.

Тело отчета: номер партии панелей («Panel Lot Number») и тип панелей («Panel Type»); для каждой протестированной панели из данной партии: номер образца («Accession Number»), номер изолята («Isolate Number»), порядковый номер («Sequence Number»), «QC» (если это панель контроля качества), дата тестирования («Test Date») и состояние («Status») («Pending» (Ожидает), «Ongoing» (Обрабатывается), «Complete» (Завершена)).

Этот отчет доступен, только если не используется соединение с BD EpiCenter и включен переключатель «QC Lot Support» (Поддержка партии контроля качества).

3.8.19 «Panel Lot Database Report» (Отчет о базе данных партий панелей)

Этот отчет содержит список всех партий панелей, определенных в приборе, и статистическую и справочную информацию об этих партиях.

Отчет содержит следующую информацию:

Заголовок: Заголовок отчета, информация о лаборатории («Laboratory Information») (если она задана), дата и время печати («Date and Time Printed») и прибор («Instrument»), на котором напечатан отчет.

Тело отчета: номер партии панелей («Panel Lot Number») (столбец сортировки, по убыванию); тип панели («Panel Type»); срок годности («Expiration Date»); продленный срок годности («Extension Date») (если срок годности был продлен); диапазон порядковых номеров (начальный и конечный номера) («Range»); дата определения («Definition Date»); даты первого и последнего использования («First Used Date» и «Last Used Date»); число использованных панелей («Panels Used»). Этот отчет доступен, только если не используется соединение с BD EpiCenter и включен переключатель «QC Lot Support» (Поддержка партии контроля качества).

3.9 Вкладка «Maintenance» (Обслуживание)

Вкладка «Maintenance» (Обслуживание) (см. рис. 3-8 – Экран «Maintenance» (Обслуживание)) позволяет выполнять различные задачи по обслуживанию прибора. Некоторые задачи выполняются еженедельно, другие по мере необходимости. Ряд задач технического обслуживания могут выполнять только представители компании BD.

В списке «Task Category» (Категория задач) выберите категорию выполняемой задачи:

- «Hardware» (Прибор)
- «Software» (Программное обеспечение)
- «LIS» (ЛИС)
- «Panel» (Панели)
- «Field Service» (Техническое обслуживание на месте)
- «Internal BD Use» (Для внутреннего использования BD)

Instrument: Task Category: Task: Task Related Information:

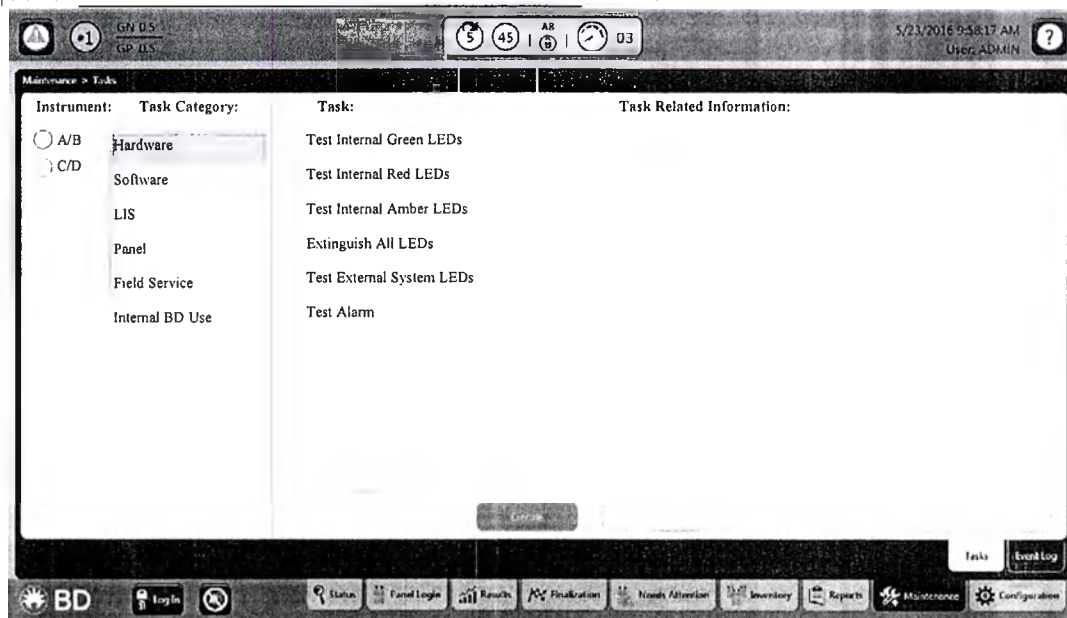


Рис. 3-8 – Экран «Maintenance» (Обслуживание)

3.9.1 Задачи технического обслуживания прибора

Подробную информацию смотрите в разделе «5.2 Регулярное техническое обслуживание».

- Проверьте индикаторы системы
- Проверьте звуковые сигналы тревоги

3.9.2 Задачи технического обслуживания ПО

Каждая из задач технического обслуживания программного обеспечения (ПО) подробно описана ниже. Если не указано иное, после выполнения каждой задачи технического обслуживания ПО на вкладке «Maintenance» (Обслуживание) выполните следующие шаги, чтобы сохранить данные.

- 1 Вставьте в разъем USB планшетного компьютера USB флеш-накопитель (BD кат. № 443866).
- 2 Перейдите на вкладку «Maintenance» (Обслуживание).
- 3 На экране «Maintenance» (Обслуживание) в списке «Task Category» (Категория задач) выберите «Software» (Программное обеспечение).
- 4 В списке «Task» (Задача) выберите нужную задачу.
- 5 Коснитесь кнопки «Execute» (Выполнить); появится сообщение «Are You Sure?» (Вы уверены?).
- 6 Выберите «OK».

Задача «Save System Data» (Сохранить данные системы)

В определенных ситуациях, например, при некоторых ошибках и неисправностях системы, представитель компании BD может предложить сохранить данные системы на USB флеш-накопитель. Сохраненные данные НЕ являются резервной копией и не могут быть восстановлены пользователем.

Задача «Save Event Log» (Сохранить журнал событий)

Функцию сохранения журнала событий в локальной сети следует использовать, только когда это рекомендует ваш локальный представитель компании BD. Опция «Save Event Log to Network» (Сохранить журнал событий в локальной сети) появляется только при работе в режиме соединения с системой BD EpiCenter. Эта опция позволяет сохранить журнал событий в системе BD EpiCenter.

В определенных ситуациях, например, при некоторых ошибках и неисправностях системы, представитель компании BD может предложить сохранить журнал событий в системе BD EpiCenter или на USB флеш-накопитель. Функция сохранения журнала событий копирует журнал событий системы, содержащий системные сообщения о различных событиях системы, прибора и связи. Сохранить журнал событий можно только когда дверь прибора закрыта и прибор в режиме ожидания.

Задача «Upgrade» (Обновление)

Задача «Upgrade» (Обновление) позволяет выполнить обновление ПО прибора и планшетного компьютера. Выполнить эту операцию можно только когда дверь прибора закрыта. Сообщение об обновлении ПО будет записано в ежедневный отчет о работе прибора. Чтобы выполнить обновление ПО, следуйте инструкциям в разделе «3.9.1. Задачи технического обслуживания прибора». Когда вы выберете «ОК», появится следующее окно:

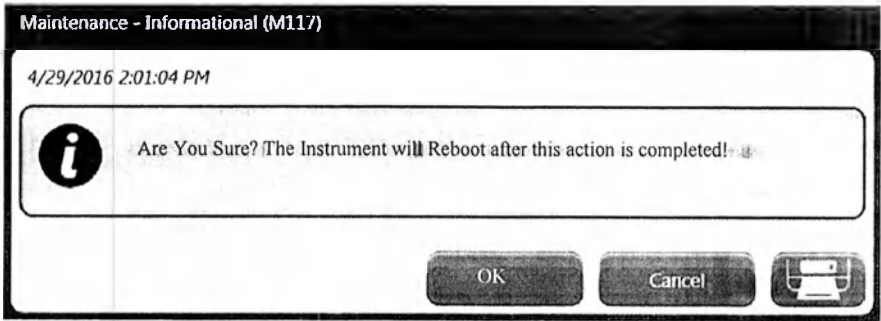


Рис. 3-9 – Сообщение о перезагрузке прибора

Когда вы подтвердите перезагрузку, будут проверены файлы обновления на USB флеш-накопителе. Затем система скопирует эти файлы обновления и выполнит перезагрузку.

После завершения перезагрузки планшетного компьютера появится следующее сообщение:

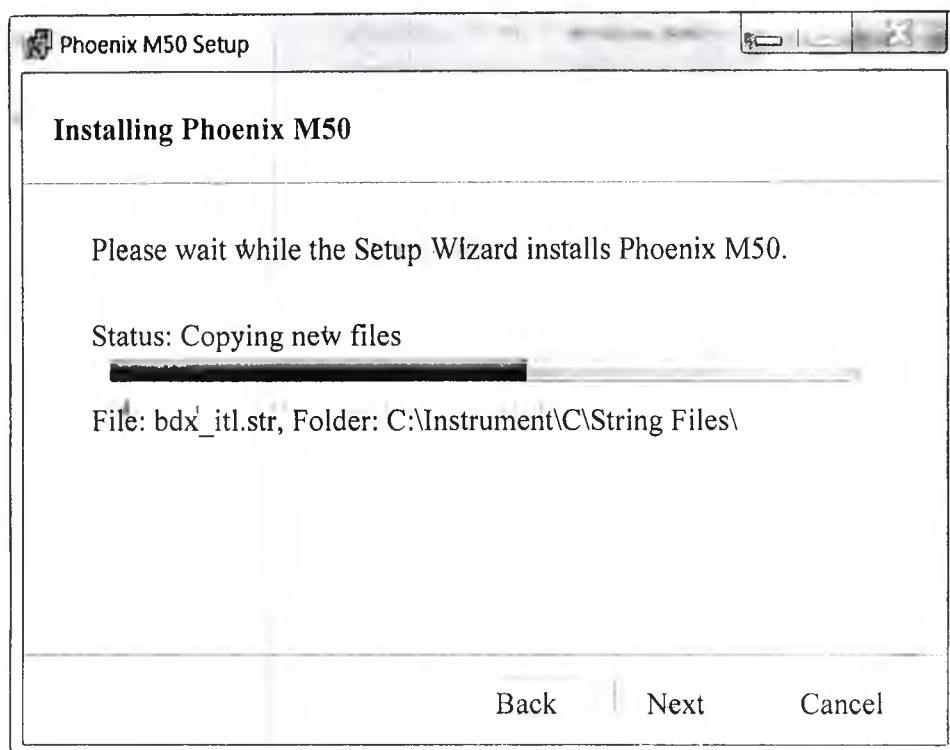


Рис. 3-10 – Сообщение об установке

В показанном выше сообщении об установке выводится информация о выполняемых шагах процесса обновления. После того, как процесс обновления был запущен, его нельзя отменить.

После успешного завершения процесса обновления появится следующее сообщение:

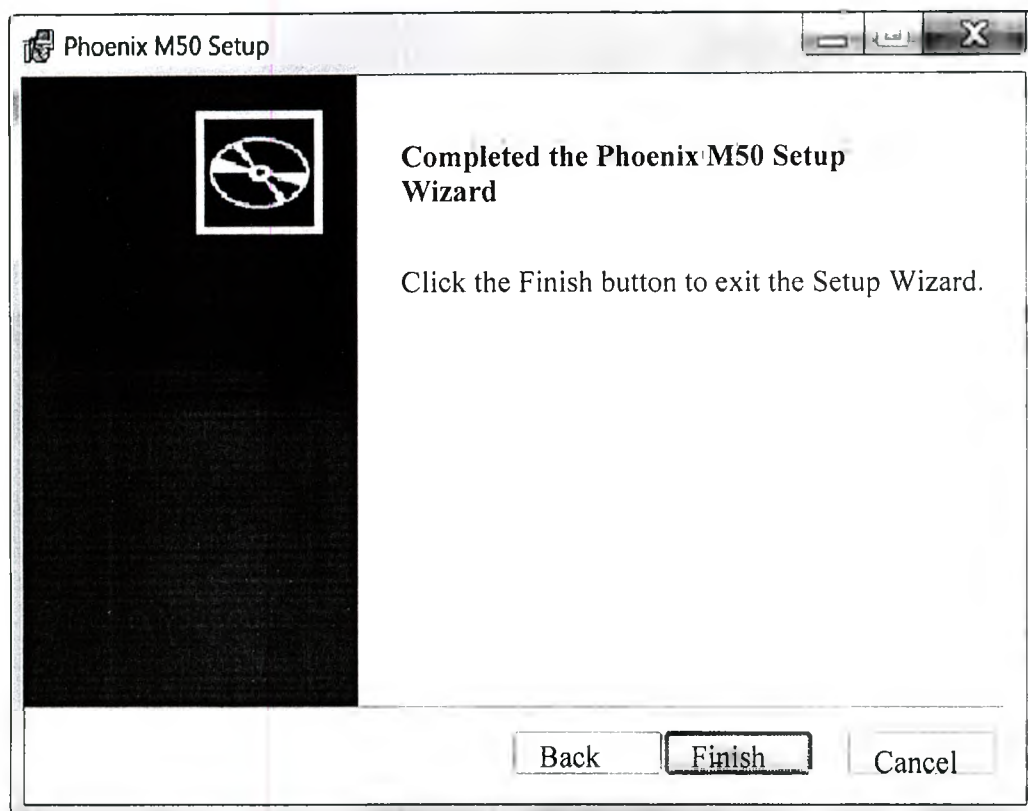


Рис. 3-11 – Сообщение мастера установки

Когда вы коснетесь кнопки «Finish» (Завершить), система перезагрузится и новая версия прикладной программы на планшетном компьютере выполнит синхронизацию с прибором. Если обновление содержит новое программное обеспечение для внутренних компонентов прибора, эти обновления немедленно вступают в силу и использование прикладной программы будет временно заблокировано. Когда программное обеспечение прибора будет успешно обновлено, прикладная программа станет доступной для пользователя.

Если были заданы пользовательские пороговые значения, напечатайте Отчет об изменениях пользовательских пороговых значений (см. раздел «3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)»)

ПРИМЕЧАНИЕ

Если при обновлении ПО или при установке пакета данных обновления BD Phoenix Update Data (PUD) были изменены какие-либо из стандартных наборов правил интерпретации, в базу данных системы будут установлены новые наборы правил. Поскольку пользовательские наборы правил основаны на стандартных наборах правил, пользовательский набор правил интерпретации будет объединен с новыми стандартными правилами. Если вы задавали пользовательские пороговые значения, после каждой операции обновления ПО или установки пакета обновления данных Phoenix (PUD) обязательно распечатайте Отчет об изменениях пользовательских пороговых значений (раздел «3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)»).

Задача «Save User Data» (Сохранить пользовательские данные)

Задача «Save User Data» (Сохранить пользовательские данные) позволяет вам сохранить резервную копию параметров конфигурации на USB флеш-накопитель. Сохраняется конфигурация пользовательского набора правил интерпретации и конфигурация правил BDxpert. Сохраняется информация только для данного прибора. Однако информацию, сохраненную на одном приборе, можно восстановить на другом приборе. Рекомендуется сохранять параметры конфигурации на USB флеш-накопитель при возникновении системных сбоев.

Задача «Restore User Data» (Восстановить пользовательские данные)

Задача «Restore User Data» (Восстановить пользовательские данные) позволяет восстановить сохраненные параметры конфигурации. Сохраненные данные содержат: конфигурацию пользовательского набора правил интерпретации и конфигурацию правил BDxpert. Выполнить эту операцию можно только когда дверь прибора закрыта.

Данные обновления BD Phoenix Update Data (PUD)

Время от времени компания BD может поставлять данные обновления BD Phoenix (PUD) для обновления баз данных прибора BD Phoenix M50 и файлов поддержки. Эти обновления не изменяют основное программное обеспечение прибора. Поэтому в верхней части экрана «Status» (Состояние) выводятся как версия программного обеспечения, так и номер PUD.

Данные обновления BD Phoenix могут содержать обновления различных файлов данных прибора, например, пороговые значения и правила для антибиотиков, данные контроля качества, коды антибиотиков, микроорганизмов и т.д.

ПРИМЕЧАНИЕ

После установки распечатайте и просмотрите Отчет об изменениях пользовательских пороговых значений, чтобы выяснить, нужно ли вручную обновить заданные пользователем пороговые значения. Дополнительную информацию об этом отчете смотрите в разделе «3.8.15 «Custom Breakpoint Difference Report» (Отчет об изменениях пользовательских пороговых значений)». Дополнительную информацию о том, как изменяются пользовательские правила интерпретации при установке PUD, смотрите в разделе «3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)».

Задача «Backup SQL Database» (Резервное копирование базы данных SQL)

Эта функция сохраняет данные, которые сервисная служба компании BD использует для устранения неисправностей прибора.

3.9.3 Задачи технического обслуживания ЛИС

Каждая из этих задач подробно описана ниже. Если не указано иное, после выполнения каждой задачи технического обслуживания ПО на вкладке «Maintenance» (Обслуживание) выполните следующие шаги, чтобы сохранить данные.

- 1 Вставьте в разъем USB планшетного компьютера USB флеш-накопитель (BD кат. № 443866).
- 2 Перейдите на вкладку «Maintenance» (Обслуживание).
- 3 На экране «Maintenance» (Обслуживание) в списке «Task Category» (Категория задач) выберите «LIS» (ЛИС).
- 4 В списке «Task» (Задача) выберите нужную задачу.
- 5 Коснитесь кнопки «Execute» (Выполнить); появится сообщение «Are You Sure?» (Вы уверены?).
- 6 Выберите «OK».

Задача «Save LIS Codes» (Сохранить коды ЛИС)

Задача «Save LIS Codes» (Сохранить коды ЛИС) позволяет сохранить все определенные вами коды ЛИС для микроорганизмов и антибиотиков. Коды сохраняются в виде текстового файла, который можно отредактировать при помощи персонального компьютера. Это позволяет ускорить процесс редактирования в случаях, когда требуется внести много изменений. Отредактированные коды можно загрузить назад в прибор BD Phoenix M50. Эта функция позволяет также скопировать коды с одного прибора в другой. Задача «Save LIS Codes» (Сохранить коды ЛИС) появляется на вкладке «Maintenance» (Обслуживание), только если включено взаимодействие с ЛИС.

Формат записи тестового файла:

Идентификатор (ORG, QC_ORG, DRUG) | Код BD | Краткое название/Антибиотик | Код ЛИС

Коды нельзя добавлять или удалять, изменять можно только часть записи, содержащую Код ЛИС. Если изменено другое поле, прибор не загрузит эти коды.

Задача «Restore LIS Codes» (Восстановить коды ЛИС)

Задача «Restore LIS Codes» (Восстановить коды ЛИС) позволяет восстановить (загрузить в прибор) ранее сохраненные коды микроорганизмов и антибиотиков. Операция восстановления полностью перезаписывает существующую базу данных кодов ЛИС для микроорганизмов и антибиотиков. Коды не будут восстановлены, если изменено какое-либо поле, кроме поля кода ЛИС, или если код ЛИС задан в неверном формате. В этом случае создается журнал ошибки, где указывается причина ошибки. Задача «Restore LIS Codes» (Восстановить коды ЛИС) появляется на вкладке «Maintenance» (Обслуживание), только если включено взаимодействие с ЛИС.

3.9.4 Задачи технического обслуживания для панелей

Каждая из этих задач подробно описана ниже. Если не указано иное, после выполнения каждой задачи технического обслуживания ПО на вкладке «Maintenance» (Обслуживание) выполните следующие шаги, чтобы сохранить данные.

- 1 Вставьте в разъем USB планшетного компьютера USB флеш-накопитель (BD кат. № 443866).
- 2 Перейдите на вкладку «Maintenance» (Обслуживание).
- 3 На экране «Maintenance» (Обслуживание) в списке «Task Category» (Категория задач) выберите «Panel» (Панели).
- 4 В списке «Task» (Задача) выберите нужную задачу.
- 5 Коснитесь кнопки «Execute» (Выполнить); появится сообщение «Are You Sure?» (Вы уверены?).
- 6 Выберите «OK».

Задача «Save Panel Lot Definitions» (Сохранить определения партий панелей)

Эта функция позволяет скопировать определения партий (и результаты панелей контроля качества) в другие приборы, чтобы эти записи можно было просмотреть или использовать там. Функция «Save Panel Lot Definitions» (Сохранить определения партий панелей) сохраняет информацию о партиях панелей и связанные с ними данные (порядковые номера, сроки годности и т.д.), а также результаты контроля качества для всех протестированных в них штаммов. Задача «Save Panel Lot Definitions» (Сохранить определения партий панелей) выводится в списке, только когда включен переключатель «QC Lot Support» (Поддержка партии контроля качества).

Задача «Restore Panel Lot Definitions» (Восстановить определения партий панелей)

Эта функция позволяет копировать определения партий панелей и результаты контроля качества внутри лаборатории с несколькими приборами, только один раз вводя информацию о партии с упаковки панелей. Задача «Restore Panel Lot Definitions» (Восстановить определения партий панелей) выводится в списке, только когда включен переключатель «QC Lot Support» (Поддержка партии контроля качества).

Задача «Save Panel Configuration» (Сохранить конфигурацию панелей)

Функция «Save Panel Configuration» (Сохранить конфигурацию панелей) позволяет создавать резервные копии конфигурации панелей прибора. Сохраняется информация только для данного прибора. Однако информацию, сохраненную на одном приборе, можно загрузить на другой прибор. Это позволяет иметь одинаковые конфигурации панелей в всех приборах.

Задача «Install Panel Configuration» (Установить конфигурацию панелей)

Функция «Install Panel Configuration» (Установить конфигурацию панелей) позволяет обновлять конфигурации панелей прибора. Выполнить эту операцию можно только когда дверь прибора закрыта.

ПРИМЕЧАНИЕ

Не выполняйте эту операцию, когда в приборе есть необработанные панели.

3.9.5 Задачи технического обслуживания на месте

Используются только инженерами технического обслуживания BD.

3.9.6 Задачи технического обслуживания для внутреннего использования BD

Только для внутреннего использования BD.

3.9.7 Вкладка «Event Log» (Журнал событий) экрана «Maintenance» (Обслуживание)

На вкладке «Event Log» (Журнал событий) выводится список сообщений системы взаимодействия с ЛИС. Учтите, что эта вкладка (см. рис. 3-12 – Экран журнала событий) не выводится при работе в режиме соединения с системой BD EpiCenter. В списке выводятся сообщения о состоянии, возникающие в процессе взаимодействия с ЛИС, такие как сообщения о запросах, записи журнала и сообщения интерфейса.

Сообщения ЛИС в списке событий можно отфильтровать, задав диапазон дат. Функция поиска (поле «Find» (Найти)) позволяет искать сообщения по содержанию.



Рис. 3-12 – Экран журнала событий

3.10 Вкладка «Configuration» (Конфигурация)

Чтобы настроить конфигурацию, выберите вкладку «Configuration» (Конфигурация). Появится экран конфигурации с подвкладками для настройки различных параметров: «Users» (Пользователи), «System Configuration» (Конфигурация системы), «Communications» (Соединения), «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации), «BDXpert Rules» (Правила BDXpert), «Rapid Reporting» (Быстрый отчет) и «Instrument» (Прибор). Задав нужные параметры конфигурации, коснитесь кнопки «Save» (Сохранить), чтобы сохранить внесенные изменения.

* Обратите внимание, что подвкладки «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации) и «BDXpert Rules» (Правила BDXpert) не выводятся, если прибор BD Phoenix M50 работает в режиме соединения с системой BD EpiCenter.

3.10.1 Подвкладка «Users» (Пользователи)

Смотрите раздел «2.4 Доступ пользователей и управление пользователями – сводка».

3.10.2 Подвкладка «System Configuration» (Конфигурация системы)

На подвкладке «System Configuration» (Конфигурация системы) можно задать следующие параметры (см. рис. 3-13 – Экран «System Configuration» (Конфигурация системы)):

«GENERAL» (Общие системные настройки)

«System Number» (Номер системы)

Выберите идентификационный номер системы. Значение по умолчанию: 0. Выберите число от 1 до 99. Если у вас только один прибор, оставьте в этом поле значение 1.

«Rule Set» (Набор правил)

Выберите набор правил, которые должен использовать механизм интерпретации. Может использоваться только один набор правил. Выберите одно из следующих значений:

CLSI (Clinical and Laboratory Standards Institute – Институт клинических и лабораторных стандартов)

EUCAST (European Committee on Antimicrobial Susceptibility Testing – Европейский комитет по определению чувствительности к антибиотикам)

SFM (Société Française de Microbiologie – Французское общество микробиологов)

«Custom» (Пользовательский) – информацию об определении пользовательских наборов смотрите в разделе «3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)»

«Rule Version» (Версия правил)

Это поле только для чтения, в котором выводится текущая версия набора правил, выбранного в предыдущем поле.

«Alarm Volume» (Громкость звуковых сигналов)

Выберите громкость издаваемых прибором звуковых сигналов тревоги. Значение по умолчанию: 5. Выберите значение от 0 (звуковые сигналы отключены) до 10 (наибольшая громкость). Этот параметр влияет только на громкость звуковых сигналов тревоги и ошибок операций (см. раздел «2.3.2.8 Звуковые сигналы и сигналы тревоги»).

«Resistance Marker Notification» (Уведомление о маркерах резистентности)

Этот переключатель появляется только в том случае, когда прибор BD Phoenix M50 подключен к системе BD EpiCenter, но не взаимодействует с ней. Включите этот переключатель, чтобы прибор работал без соединения с системой BD EpiCenter, когда эта связь прервана. Когда этот переключатель включен, появляется переключатель «BDXpert System Active» (Система BDXpert активна).

«BDXpert System Active» (Система BDXpert активна)

Этот переключатель активирует весь набор правил интерпретации системы BDXpert (набор правил CLSI, EUCAST, SFM или пользовательский набор).

Этот переключатель не появляется, если система работает в режиме соединения с BD EpiCenter. Однако если соединение с BD EpiCenter будет прервано, этот переключатель вновь появится на экране. Он позволит активировать применение правил BDXpert при работе прибора BD Phoenix M50 без соединения с BD EpiCenter. Когда соединение с системой BD EpiCenter восстановится, интерпретация правил BDXpert вновь будет выполняться в системе BD EpiCenter и этот переключатель исчезнет с экрана.

ПРИМЕЧАНИЕ

Отключение всех правил BDXpert также отключает обнаружение маркеров резистентности (например, ESBL), кроме маркеров, которые определяются правилами серии 1500.

«Rapid Completion» (Быстрое завершение)

Этот переключатель позволяет прибору применять систему BDxpert для вычисления результатов AST (SIR) еще до определения действительных значений МПК. Полученные прибором значения МПК будут выводиться сразу после того, как они будут определены. Некоторые значения МПК могут быть доступны ранее других значений в той же тестовой панели. Функцию быстрого завершения можно использовать, чтобы предсказать резистентность к антибиотикам, для которых тестирование еще не завершено. Для такой оценки резистентности используется только значение идентификации (конституционная резистентность), значение идентификации и полученные МПК для родственных антибиотиков или результаты тестов на маркеры резистентности (BL, ESBL). Для таких предсказаний используется система BDxpert. Эта функция может быть полезна в таких случаях, когда, например, результаты для антибиотиков, для которых еще не определены МПК, не так важны, как уже полученные результаты. Антибиотики, для которых выводятся результаты интерпретации системы BDxpert в режиме быстрого завершения, обозначаются буквой С в столбце МПК экрана «Results» (Результаты) и в лабораторных отчетах.

Если опция «Rapid Completion» (Быстрое завершение) включена в приборе BD Phoenix M50 и этот прибор соединен с системой BD EpiCenter, эта опция должна быть также включена в BD EpiCenter.

«OPTIONS» (Опции)

«Abbreviated Lab Report» (Сокращенный лабораторный отчет)

Если этот переключатель включен, система будет печатать сокращенную версию лабораторного отчета. В сокращенном отчете не приводятся результаты для биохимических реакций (при идентификации). Если этот переключатель выключен, выводятся стандартные лабораторные отчеты полной длины. Значение по умолчанию: выключен (полные отчеты). Примечание: Лабораторные отчеты контроля качества всегда выводятся полной длины.

«QC Lot Support» (Поддержка партии контроля качества)

Этот переключатель включает функцию поддержки партий контроля качества, которая упрощает тестирование и отслеживание партий панелей контроля качества (см. раздел «3.4.6 Подкладка «Lot Information» (Информация о партиях)»).

«Daily Instrument Report» (Ежедневный отчет о работе прибора)

Переключатель System (Система)

Если включен этот переключатель, появятся поля «Daily Print Hour» и «Daily Print Minute» (Время печати отчета – час и минуты). Прибор будет автоматически печатать Ежедневный отчет о своей работе в указанное время. Если автоматическая печать отчета отключена, отчет можно напечатать в любое время с экрана «Reports» (Отчеты).

«Laboratory Information» (Информация о лаборатории)

Информация, введенная в этой группе полей, выводится в заголовке отчетов системы.

«Name» (Название)

Введите название лаборатории (до 40 символов).

«Address» (Адрес)

Введите адрес лаборатории (до 40 символов).

«City» (Город)

Введите название города, а также, если требуются, название региона/области и почтовый код (до 40 символов).

«Director» (Руководитель)

Введите имя руководителя лаборатории (до 40 символов).

«Inoculum Density» (Мутность суспензии)

В этой группе опций можно задать используемое по умолчанию значение концентрации бактериальной суспензии по шкале Макфарланда. Выберите значение «0.25» (допустимая мутность 0,20-0,30) или «0.5» (допустимая мутность 0,50-0,60) для панелей грамположительных («Gram Positive») и грамотрицательных («Gram Negative») микроорганизмов (для панелей стрептококков используется только мутность 0,5). Значение по умолчанию: 0,5 (для грамположительных и для грамотрицательных панелей). Для панелей идентификации дрожжей используется фиксированное значение мутности 2,0 (допустимая мутность 2,00-2,40) Значение мутности бактериальной суспензии применяется только для панелей, в которых есть сторона ID.

«Default Media Type» (Тип среды по умолчанию)

«Yeast» (Дрожжи) – в этом поле можно выбрать тип среды по умолчанию, который будет выводиться при регистрации панели, если сканирован или введен порядковый номер панели идентификации дрожжей. В выпадающем списке выберите нужный тип среды, затем коснитесь кнопки «Save» (Сохранить), чтобы сохранить заданные параметры конфигурации. Тип среды по умолчанию можно не задавать, но при регистрации панелей идентификации дрожжей необходимо выбрать тип среды.

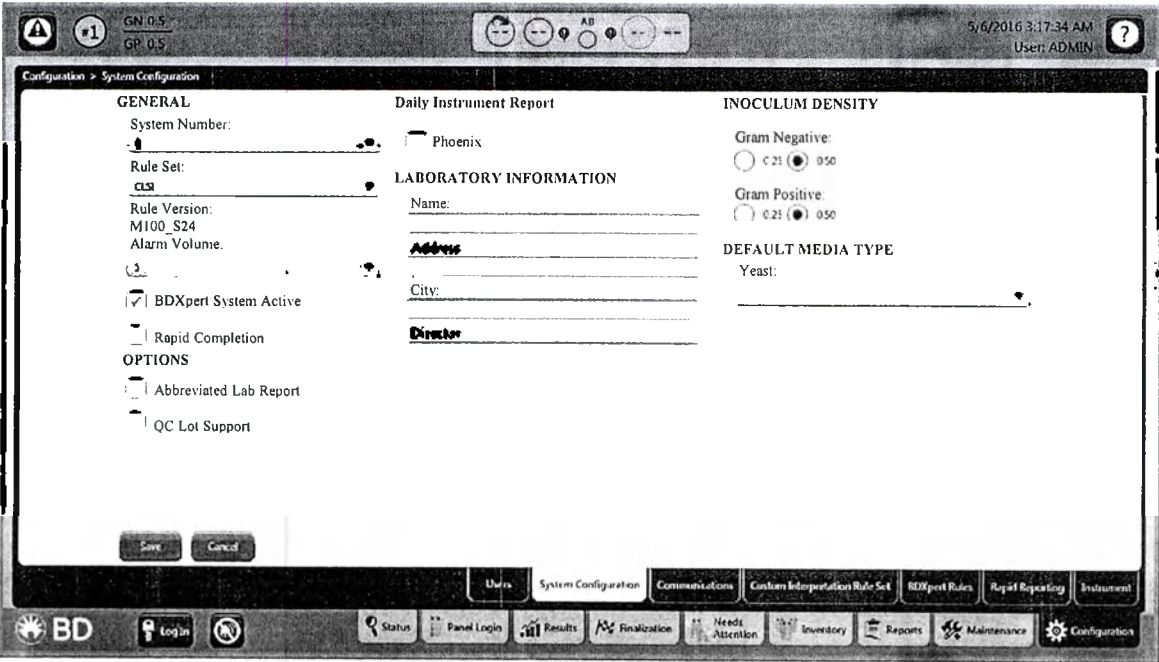


Рис. 3-13 – Экран «System Configuration» (Конфигурация системы)

3.10.3 Подкладка «Communications» (Соединения)

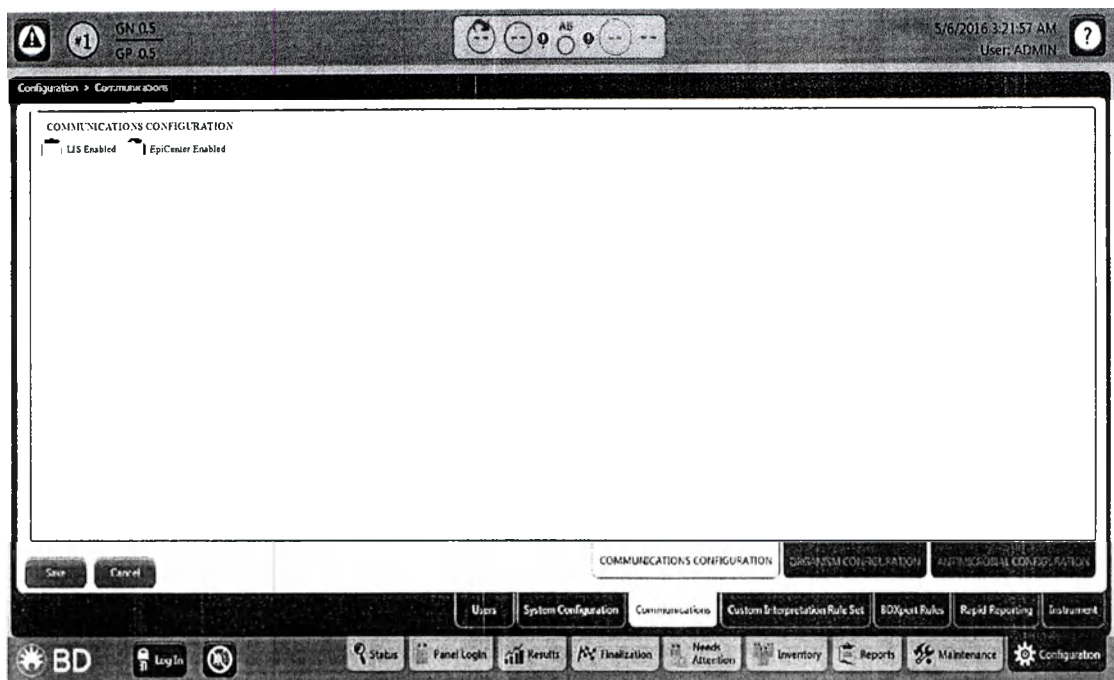


Рис. 3-14 – Экран Communications Configuration (Конфигурация соединений)

Подкладка «Communications Configuration» (Конфигурация соединений) (рис. 3-14 – Экран «Communications Configuration» (Конфигурация соединений)) позволяет включить или выключить соединение прибора BD Phoenix M50 с совместимой лабораторной информационной системой (ЛИС). Она также позволяет представителю BD включить/отключить/настроить соединение с расширенной системой управления данными BD EpiCenter. Можно включить соединение либо с ЛИС, либо с BD EpiCenter. Если включено соединение с системой BD EpiCenter и также требуется соединение с ЛИС, можно настроить BD EpiCenter для связи с ЛИС.

Работа с ЛИС описывается в разделе «2.8 Работа с ЛИС». Значок состояния соединения с ЛИС выводится в верхнем левом углу экрана состояния планшетного компьютера.

«LIS Enabled» (Соединение с ЛИС включено)

Коснитесь переключателя «LIS Enabled» (Соединение с ЛИС включено), чтобы установить соединение. Когда этот переключатель включен, появляются следующие поля: «Network Configuration» (Конфигурация сети), «Options» (Опции) и «Results Upload Options» (Опции загрузки результатов).

«Network Configuration» (Конфигурация сети)

«Baud» (Скорость)

Возможные значения: 2400, 4800, 9600 (по умолчанию), 14400, 19200, 38400.

«Data Bits» (Число битов данных)

Возможные значения: 7, 8 (по умолчанию).

«Parity» (Четность)

Возможные значения: «None» (Нет) (по умолчанию), «odd» (нечетный), «even» (четный).

«Stop Bits» (Число стоп-битов)

Возможные значения: 1 (по умолчанию), 2.

«Packed Frames» (Упаковка кадров)

Выберите эту опцию, если в протоколе последовательной передачи данных в систему ЛИС можно использовать упаковку кадров. Если эта опция включена, прибор BD Phoenix M50 может передавать в одном кадре несколько записей. Если эта опция выключена, в каждом кадре в систему ЛИС передается только одна запись.

«Options» (Опции)

«Send Interpretation Results» (Посылать результаты интерпретации)

Если эта опция включена, в загружаемую в ЛИС запись результатов будут включены итоговые значения SIR для антибиотиков. По умолчанию эта опция включена.

«Unsolicited Queries» (Запросы без согласования)

Если включена эта опция, прибор BD Phoenix M50 будет запрашивать у ЛИС информацию о панели, когда для помещенной в прибор панели нет информации об идентификации микроорганизма (для панелей AST или комбинированных панелей, в которых включена только сторона AST).

По умолчанию эта опция выключена, то есть прибор BD Phoenix M50 НЕ запрашивает недостающую информацию у ЛИС.

«Send When Placed in Instrument» (Передача при загрузке в прибор)

Если включена эта опция, прибор BD Phoenix M50 будет передавать запись результатов в ЛИС, когда панель вставлена в прибор. По умолчанию эта опция включена.

«ASTM Byte Mode Comments» ((Комментарии байтового режима ASTM)

Эта опция появляется, только если выбран японский язык. Если она включена система будет следовать стандарту ASTM. Если система не следует стандарту ASTM, управляющие символы не будут восприниматься.

По умолчанию эта опция включена.

«Results Upload Options» (Опции передачи результатов)

Можно выбрать только одну из указанных ниже опций.

«Solicited» (Передача по требованию)

Если включена эта опция, прибор BD Phoenix M50 передает в ЛИС записи результатов, только когда ЛИС запрашивает эту информацию. По умолчанию эта опция выключена.

Данные для панелей контроля качества и панелей неизвестных образцов передаются только по требованию системы ЛИС.

«Send on Finalization» (Передавать при финализации)

Если включена эта опция, прибор BD Phoenix M50 передает в ЛИС записи результатов, только когда панель финализирована. По умолчанию эта опция выключена.

«Send on Completion» (Передавать при завершении)

Если включена эта опция, прибор BD Phoenix M50 передает в ЛИС записи результатов, только когда панель переходит в состояние «Complete» (Завершена) или когда внесены изменения в завершенную панель. По умолчанию эта опция включена.

«Send as Available» (Передавать по мере доступности)

Если включена эта опция, прибор BD Phoenix M50 передает в ЛИС записи результатов в следующие моменты: когда определена идентификация; когда определен результат AST; когда изменена запись панели, в которой уже были результаты (хотя бы частичные). По умолчанию эта опция выключена.

«Send at Fixed Time» (Передавать в фиксированное время)

Если включена эта опция, прибор BD Phoenix M50 передает в ЛИС записи результатов для панелей с частичными результатами в указанное фиксированное время. По умолчанию эта опция выключена.

ПРИМЕЧАНИЕ

Результаты, передаваемые при выбранных опциях «Send as Available» (Передавать по мере доступности) и «Send at Fixed Time» (Передавать в фиксированное время) должны считаться ПРЕДВАРИТЕЛЬНЫМИ до тех пор, пока панель не будет завершена.

Записи результатов загружаются из прибора BD Phoenix M50 в ЛИС. Эти записи подробно описываются в разделе «2.8.2 Записи передачи результатов».

3.10.4 Подкладка «Organism Configuration» (Коды микроорганизмов)

Экран «Organism Configuration» (Коды микроорганизмов) позволяет отредактировать коды ЛИС для микроорганизмов в базе данных прибора BD Phoenix M50. Коды ЛИС для микроорганизмов должны быть уникальными.

На этом экране можно выбрать микроорганизм (или тестовый штамм для микроорганизмов контроля качества) для редактирования кода ЛИС.

Чтобы отредактировать код ЛИС для микроорганизма:

На экране «Organism Configuration» (Коды микроорганизмов) выберите название микроорганизма в списке и введите новый код ЛИС («LIS Code») в области «Modify Organism ID LIS Code» (Изменить код ЛИС для этой идентификации микроорганизма) в нижней части экрана. Выберите «Save LIS Code» (Сохранить код ЛИС), чтобы сохранить изменения. Внеся все необходимые изменения в коды ЛИС и сохранив изменения, покиньте вкладку «Organism Configuration» (Коды микроорганизмов).

3.10.5 Подкладка «Antimicrobial Configuration» (Коды антибиотиков)

Экран «Antimicrobial Configuration» (Коды антибиотиков) позволяет отредактировать коды ЛИС для антибиотиков в базе данных прибора BD Phoenix M50. Коды ЛИС для антибиотиков должны быть уникальными.

На этом экране вы можете выбрать антибиотик для редактирования кода ЛИС. Названия антибиотиков выводятся в алфавитном порядке.

Чтобы отредактировать код ЛИС для антибиотика:

На экране «Antimicrobial Configuration» (Коды антибиотиков) выберите антибиотик в списке и введите новый код ЛИС («LIS Code») в области «Modify LIS Code» (Изменить код ЛИС) в нижней части экрана. Выберите «Save LIS Code» (Сохранить код ЛИС), чтобы сохранить изменения. Внеся все необходимые изменения в коды ЛИС и сохранив изменения, покиньте вкладку «Antimicrobial Configuration» (Коды антибиотиков).

3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)

Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации) позволяет настроить правила интерпретации в соответствии с потребностями или требованиями вашей лаборатории. В качестве основы для пользовательских правил используется текущий набор правил (стандартный или уже настроенный). Информацию о текущем наборе правил интерпретации можно напечатать с экрана «Reports» (Отчеты) (см. раздел «3.8 Вкладка «Reports» (Отчеты)»). Учтите, что эта функция конфигурации недоступна, если прибор BD Phoenix M50 работает в режиме соединения с системой BD EpiCenter.

Время от времени при обновлении ПО или при установке пакета данных обновления BD Phoenix Update Data (PUD) могут устанавливаться новые пороговые значения. После выполнения операции обновления ПО или установки PUD, коснитесь кнопки «Difference Report» (Отчет об изменениях) в нижней части экрана, чтобы распечатать Отчет об изменениях пользовательских пороговых значений. При установке пакета данных обновления BD Phoenix Update Data (PUD) заданные пользователем пороговые значения не перезаписываются. Отчет об изменениях пользовательских пороговых значений позволяет выяснить, нужно ли вручную обновить настроенные пользователем пороговые значения в соответствии с данными PUD. Подробную информацию об обновлении пороговых значений смотрите в таблице 3-3 – Обновление правил. Более подробную информацию об этом отчете смотрите в разделе «3.8.15 «Custom Breakpoint Difference Report» (Отчет об изменениях пользовательских пороговых значений)».

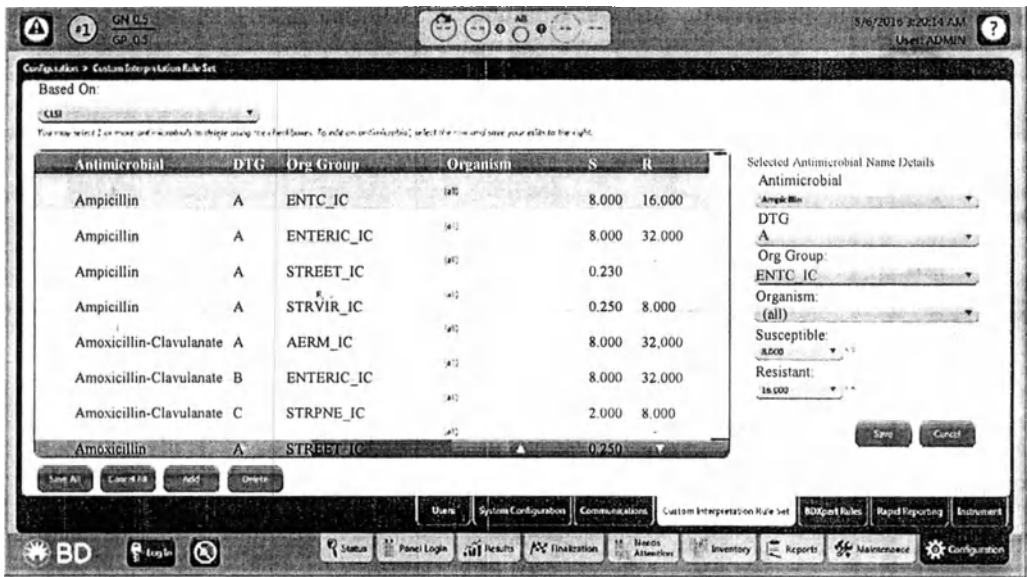


Рис. 3-15 – Экран «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)

Как изменяются правила при обновлении стандартных правил

В следующей таблице показано, как обновляются наборы правил. В верхней половине таблицы показано, как влияет изменение правил, когда используется пользовательский набор правил. В нижней части показаны оставшиеся варианты обновления правил.

В этой таблице буквами А, В и С обозначаются конкретные версии наборов правил. Например, буква А может обозначать правило CLSI версии M100_S25. После установки PUD обновленное правило CLSI версии M100_S26 может обозначаться буквой В. Настроенная версия правила А может обозначаться буквой С. Таким образом в таблице указано, что результатом после обновления будет то, что останется набор правил С (настроенные правила, основанные на версии M100_S25).

	Старое стандартное	Новое стандартное	Старое пользовательское	Результат после PUD (новое пользовательское)
Пользовательские правила заданы	А	А	В	В
	А	В	С	С
	–	–	А	А
	–	А	А	А
	–	А	В	А
	А	–	В	В
Пользовательских правил нет	А	А	А	А
	А	В	А	В
	–	А	–	А
	А	А	–	А
	А	В	–	В
	А	–	А	–

Таблица 3-3 – Обновление правил

ПРИМЕЧАНИЕ

Правило интерпретации считается пользовательским, если изменено какое-либо из следующих значений: пороговое значение чувствительности, пороговое значение устойчивости или DTG (группа тестирования антибиотика).

Чтобы использовать для интерпретации пользовательский набор правил, перейдите на вкладку «System Configuration» (Конфигурация системы) и выберите «Custom» (Пользовательский) в выпадающем списке «Rule Set» (Набор правил).

На чем основан пользовательский набор правил интерпретации

В выпадающем списке «**Based On**» (**Основан на**) выберите стандартный набор правил, на основе которого создаются пользовательские правила. Стандартные наборы правил: CLSI, EUCAST и SFM.

ПРИМЕЧАНИЕ

Если выбрать набор правил, отличающийся от выбранного в настоящее время, заданные пользовательские правила интерпретации будут удалены.

Таблица пользовательского набора правил

Основную часть этого экрана занимает таблица, в которой показаны текущие правила в этом наборе правил. Строка содержит следующие поля (слева направо; значения полей описаны ниже):

Переключатель рядом с правилом (указывает, что правило отмечено для удаления)

«Antimicrobial» (Антибиотик)

«DTG» (Drug Test Group – Группа тестирования антибиотиков; см. информацию ниже)

«Org (anism) Group» (Группа микроорганизмов)

«Organism» (Микроорганизм)

«S (usceptible Value)» (Значение чувствительности)

«R (esistant Value)» (Значение устойчивости)

Чтобы добавить правило:

- 1 Коснитесь кнопки «**Add**» (**Добавить**). В конец списка добавится новое правило. Оно будет выбрано для изменения.
- 2 Измените атрибуты правила в области «**Selected Antimicrobial Name Details**» (Подробности для выбранного антибиотика) и коснитесь кнопки «**Save**» (**Сохранить**).
- 3 Добавив все нужные новые правила, коснитесь кнопки «**Save All**» (**Сохранить все**), чтобы сохранить эти новые правила, покиньте экран конфигурации пользовательского набора правил интерпретации.

Чтобы изменить правило:

- 1 Выберите строку с правилом, которое нужно изменить. Эта строка будет выделена, а атрибуты правила появятся в области «**Selected Antimicrobial Name Details**» (Подробности для выбранного антибиотика). Примечание: не касайтесь переключателя в начале строки правила. Он используется для удаления правил.
- 2 Измените атрибуты правила и коснитесь кнопки «**Save**» (**Сохранить**).

Группы тестирования антибиотиков (DTG) определены в стандартах AST. Они объединяют антибиотики в группы по их свойствам. Антибиотики из данной группы применяются для определенной группы микроорганизмов и для них рекомендуется определенный способ утилизации.

Группы тестирования антибиотиков не имеют значения для самого прибора BD Phoenix. Они используются в правилах BDxpert и необходимы для взаимодействия с системой BD EpiCenter.

Обычно используются семь групп, показанных ниже. В лабораторных отчетах могут выводиться только коды групп A, B, C и U. Группы B и C выводятся в отчетах, только если система BDxpert повысила уровень до A.

- A Всегда тестируется, всегда выводится в отчете.
- B Обычно тестируется, но не всегда выводится в отчете.

- C Иногда тестируется и не всегда выводится в отчете.
- U Специальный антибиотик для мочевыводящих путей. Тестируется и выводится в отчете для образцов из мочевыводящих путей.
- O Другие антибиотики, которые могут тестироваться. Не выводятся в отчете, если это не задано пользователем.
- I Антибиотики, свойства которых еще исследуются. Антибиотики, не разрешенные для клинического использования, никогда не выводятся в отчете.
- N Существующий стандарт не относит этот антибиотик ни к одной группе. Не выводятся в отчете, если это не задано пользователем.

Эти коды тестирования антибиотиков используются в приборе BD Phoenix M50 для двух целей. Во-первых, коды тестирования антибиотиков можно изменить, чтобы более точно соответствовать правилам применения и утилизации антибиотиков, принятым в вашей организации. Исходные коды задаются в соответствии с выбранным стандартом AST. Разрешенные изменения показаны ниже.

Исходный код	Разрешенные (рекомендуемые) изменения
A	B, C, U, O
B	A, C, U, O
C	A, B, U, O
U	A, B, C, O
O	A, B, C, U
I	Отсутствуют
N	A, B, C, U

Кроме того, коды тестирования антибиотиков применяются для повышение или понижение уровня результатов антибиотика для отчета. Изменение уровня происходит согласно правилам системы BDxpert. Если правила изменяют коды тестирования антибиотиков, это указывается в лабораторном отчете, созданном прибором BD Phoenix M50. Возможное повышение и понижение уровня представлено в следующей таблице. На уровне BD EpiCenter коды тестирования антибиотиков используются для определения того, какие результаты антибиотика будут выводиться в отчете.

Начальный код	Повышение уровня	Понижение уровня
A	Не применимо	C
B	A	C
C	A	Не применимо
U	Не применимо	C
O	Не разрешено	Не разрешено
I	Не разрешено	Не разрешено

Внеся в правила нужные изменения, коснитесь кнопки «Save All» (Сохранить все), чтобы сохранить изменения, и покиньте подвкладку конфигурации «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации).

Чтобы удалить правило:

- 1 Включите переключатель в начале строки правила, которое хотите удалить.
- 2 Коснитесь кнопки «Delete» (Удалить).
- 3 В окне с сообщением «Are you sure?» (Вы уверены?), выберите «OK».
- 4 Коснитесь кнопки «Save All» (Сохранить все) чтобы сохранить изменения, и покиньте подвкладку конфигурации «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации).

3.10.7 Подкладка «BDXpert Rules» (Правила BDXpert)

На экране конфигурации правил BDXpert можно настроить правила в соответствии с потребностями или требованиями конкретной лаборатории. Можно включить или отключить отдельные правила BDXpert и задать, как они должны применяться (автоматически или вручную). Чтобы напечатать существующий набор правил BDXpert, выберите «BDXpert Rule Set Database Report» (Отчет о базе данных наборов правил BDXpert) на вкладке «Reports» (Отчеты) (см. раздел «3.8 Вкладка «Reports» (Отчеты)»). Учтите, что эта функция конфигурации недоступна, если прибор BD Phoenix M50 работает в режиме соединения с системой BD EpiCenter. См. рис. 3-16 – Экран конфигурации «BDXpert Rule» (Правила BDXpert)

Поля экрана «BDXpert Rules» (Правила BDXpert):

«Rule Set» (Набор правил)

В этом поле показан набор правил, для которого выводится информация. Возможные значения: CLSI, SFM, EUCAST и «Custom» (Пользовательский). На этом экране выводятся только правила из выбранного набора правил.

«Based On» (Основан на)

Если выбран набор правил «Custom» (Пользовательский), в этом поле выводится набор правил, на основе которого создан пользовательский набор правил.

«Rule Description» (Описание правила)

В этом поле выводится текст выбранного правила.

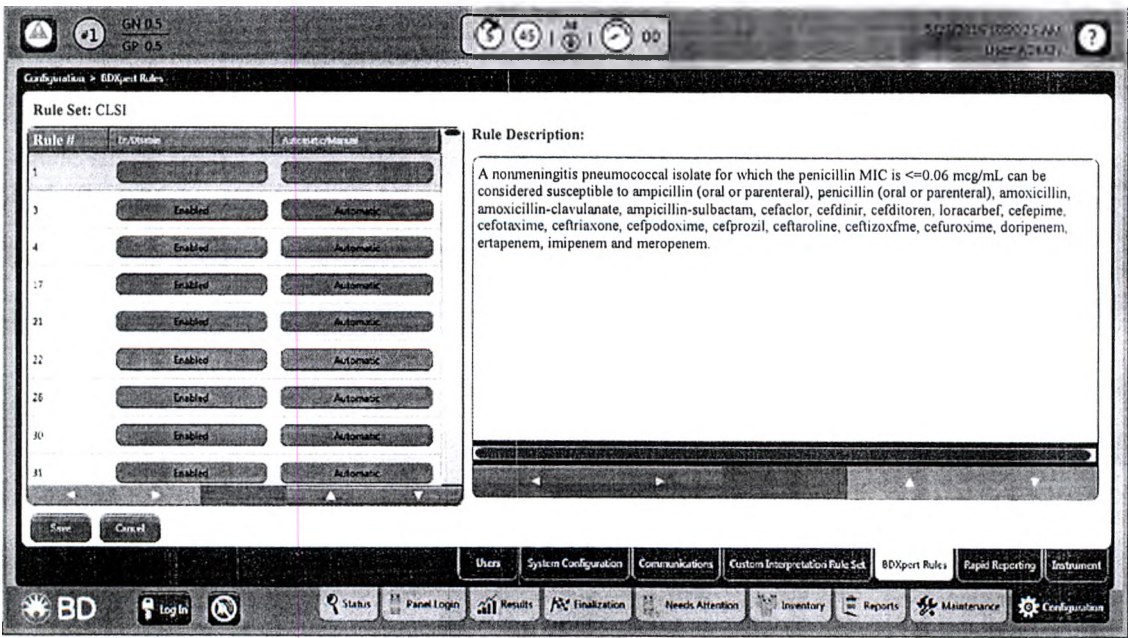


Рис. 3-16 – Экран конфигурации BDXpert Rule (Правила BDXpert)

В этой таблице выводится информация о состоянии каждого из правил BDxpert. Правила можно выбрать и внести изменения.

Чтобы включить или отключить правило, коснитесь его поля **«Enabled»/«Disabled»** (Включено/Отключено) – состояние правила изменится на противоположное. Когда правило отключено, оно не используется системой.

Чтобы задать для правила режим выполнения, коснитесь его поля **«Automatic»/«Manual»** (Автоматически/Вручную) – режим изменится на противоположный. Если задан режим **«Automatic»** (Автоматически), система автоматически выполняет это правило. Если задан режим **«Manual»** (Вручную), пользователь должен принять это правило, чтобы оно было применено к результатам.

Правила серии 1500 можно выбрать для просмотра, но их состояние и режим нельзя изменить (эти правила всегда включены и применяются автоматически). Внеся все необходимые изменения, нажмите кнопку **«Save»** (Сохранить).

3.10.8 Подкладка **«Rapid Reporting»** (Быстрый отчет)

На экране **«Rapid Reporting»** (Быстрый отчет) задаются критерии уведомления для критических панелей и маркеров резистентности. В качестве средства уведомления могут применяться: автоматическая печать лабораторного отчета, звуковой сигнал и/или загрузка данных в ЛИС, если получены определенные типы результатов для клинических панелей (не панелей контроля качества). Типы результатов, которые можно выбрать: только идентификация, частичные результаты, полные результаты. Для маркеров резистентности укажите тип уведомления, применяемый при обнаружении включенных маркеров резистентности. Для обоих случаев можно отключить печать и звуковые сигналы. В этом случае единственным уведомлением будет то, что данная панель будет отмечена красным восклицательным знаком на экране **«Panel Inventory»** (Панели в приборе).

Уведомления быстрого отчета могут быть в двух состояниях: неподтверждены и подтверждены. Для панелей с неподтвержденными уведомлениями на экране **«Panel Inventory»** (Панели в приборе) продолжает выводиться красный **«!»** (восклицательный знак). Уведомление становится подтвержденным при автоматической печати лабораторного отчета для этой панели или когда эта панель выведена на экране **«Results»** (Результаты). Звуковой сигнал для неподтвержденного уведомления звучит до тех пор, пока вы не коснетесь значка **«Без звуковых сигналов»**.

«Critical Panel Notification» (Уведомления для критических панелей)

В этой группе полей можно задать параметры для уведомлений о критических панелях. Критическая панель – это любая панель, для которой выводится специальное уведомление, когда результаты становятся доступны. Уведомлением может быть звуковой сигнал и/или немедленная печать лабораторного отчета (или можно отключить оба типа уведомлений). Панель можно пометить как критическую при регистрации на экране **«Panel Login»** (Регистрация панели) или позже, на экране **«Results»** (Результаты).

«Auto Print» (Автоматическая печать)

Когда включен этот переключатель, система печатает лабораторный отчет сразу после получения результатов указанного типа (только идентификация, частичные или полные результаты – см. ниже). По умолчанию этот переключатель выключен (автоматическая печать отключена). Можно одновременно включить автоматическую печать и звуковой сигнал.

«Upload to LIS» (Передать в ЛИС)

Этот переключатель появляется только в режиме соединения с ЛИС. По умолчанию этот переключатель выключен. Когда включен этот переключатель, система загружает записи результатов в ЛИС сразу после получения результатов указанного типа (только идентификация, частичные или полные результаты – см. ниже). Этот переключатель переопределяет значение параметра загрузки результатов в ЛИС, заданное на экране **«Communications»** (Соединения) вкладки **«Configuration»** (Конфигурация).

«Audible Alarm» (Звуковой сигнал)

Когда включен этот переключатель, система издает звуковой сигнал сразу после получения результатов указанного типа (только идентификация, частичные или полные результаты – см. ниже). По умолчанию этот переключатель включен (генерируются звуковые сигналы). Можно одновременно включить автоматическую печать и звуковой сигнал.

«Tone Select» (Выбор звука)

В этом поле можно выбрать звуковой сигнал для уведомлений о критических панелях. Оно появляется, только если включен переключатель «Audible Alarm» (Звуковой сигнал). По умолчанию в этом поле выводится значение «Tone 1» (Звук 1). Система генерирует образец этого звука каждый раз, когда поле выбрано или его значение изменено.

ПРИМЕЧАНИЕ

Чтобы получать уведомления о критических панелях, выберите одну из трех следующих опций.

«ID Only» (Только идентификация)

Когда выбрана эта опция, уведомление о критической панели генерируется только тогда, когда для панели определена идентификация микроорганизма. По умолчанию эта опция выключена (а выбрана опция «Partial Results» (Частичные результаты)). Если выбрана эта опция, нельзя включить опции «Partial Results» (Частичные результаты) и «Complete» (Полные результаты).

«Partial Results» (Частичные результаты)

Когда выбрана эта опция, уведомление о критической панели генерируется, когда для панели получены частичные результаты. По умолчанию эта опция включена (звуковой сигнал/отчет для частичных результатов). Если выбрана эта опция, нельзя включить опции «ID Only» (Только ID) и «Complete» (Полные результаты).

«Complete» (Полные результаты)

Когда выбрана эта опция, уведомление о критической панели генерируется, только когда для панели получены полные результаты. По умолчанию эта опция выключена (а выбрана опция «Partial Results» (Частичные результаты)). Если выбрана эта опция, нельзя включить опции «ID Only» (Только идентификация) и «Partial Results» (Частичные результаты).

«Resistance Marker Notification» (Уведомления для маркеров резистентности)

Этот переключатель не появляется, если система работает в режиме соединения с BD EpiCenter.

«Auto Print» (Автоматическая печать)

Когда включен этот переключатель, система печатает лабораторный отчет сразу после обнаружения маркера резистентности. По умолчанию этот переключатель выключен.

«Upload to LIS» (Передать в ЛИС)

Этот переключатель появляется только в режиме соединения с ЛИС. По умолчанию этот переключатель выключен. Когда включен этот переключатель, система загружает записи результатов в ЛИС сразу после получения результатов указанного типа (только идентификация, частичные или полные результаты – см. выше).

Этот переключатель переопределяет значение параметра загрузки результатов в ЛИС, заданное в конфигурации соединений (раздел «3.10.3 Подвкладка «Communications» (Соединения)»).

ПРИМЕЧАНИЕ

Чтобы получать уведомления о маркерах резистентности, выберите одну из двух следующих опций.

«All Panels» (Все панели)

Когда выбрана эта опция, уведомление о маркере резистентности генерируется для всех панелей, в которых обнаружены маркеры резистентности. По умолчанию эта опция выключена. Если выбрана эта опция, нельзя включить опцию «Critical Panels Only» (Только критические панели).

«Critical Panels Only» (Только критические панели)

Когда выбрана эта опция, уведомление о маркере резистентности генерируется только для критических панелей, в которых обнаружены маркеры резистентности. По умолчанию эта опция включена. Если выбрана эта опция, нельзя включить опцию «All Panels» (Все панели).

«Resistance Marker» (Маркер резистентности)

В этом поле можно включить или отключить уведомление для отдельных маркеров резистентности. В этом поле выводится аббревиатура и название маркера, а также его текущее состояние (включено или отключено уведомление). По умолчанию уведомление включено для всех маркеров резистентности. Уведомления генерируются только для тех маркеров, для которых уведомление включено.

3.10.9 Подкладка «Panel Lot Definition» (Определение партий панелей)

Экран «Panel Lot Definition» (Определение партии панелей) позволяет задать определения партий панелей, чтобы упростить проведение тестов контроля качества и отслеживание их результатов. В определении партии панелей сохраняется следующая информация: номер партии, начальный и конечный порядковый номер панели, дата создания определения, первая и последняя даты использования. Вы можете просмотреть и напечатать текущие и хронологические результаты контроля качества. Учтите, что эта функция конфигурации недоступна, если прибор BD Phoenix M50 работает в режиме соединения с системой BD EpiCenter.

На этой вкладке можно выполнить следующие действия:

- Определить новые партии панелей
- Вызвать информацию о существующих партиях панелей
- Просмотреть текущие и хронологические результаты контроля качества для партий панелей
- Напечатать текущий и хронологический отчеты для партий панелей

Когда определение партии панелей сохранено, в окне «Current QC Results» (Текущие результаты контроля качества) выводятся все существующие рекомендации по тестовым штаммам. Можно переключать режим вывода, выводя текущие («Current QC Results») или хронологические результаты («Historical QC Results»). В текущих результатах выводится сводная информация о самых последних тестах для каждого штамма для всех приборов (до 20 записей). В хронологических результатах выводится информация обо всех тестах для штаммов, только для данного прибора (до 200 записей). Чтобы вывести результаты для других приборов, нужно сохранить определения партий панелей на тех приборах и затем восстановить их на данном приборе (см. задачу «Restore Panel Lot Definitions» (Восстановить определения партий панелей) в разделе «3.9.4 Задачи технического обслуживания для панелей»).

Ниже описаны поля этого экрана.

«Panel Lot Number» (Номер партии панелей)

В этом поле выводится номер партии для панели. Чтобы ввести новый номер партии, сканируйте штрих-код с номером партии (на коробке, рядом с буквой L). Номер партии панелей закодирован в штрих-коде. Его нельзя вручную ввести в это поле при определении новой партии панелей.

Чтобы вызвать определение партии панелей, выберите партию панелей из выпадающего списка (можете ввести несколько первых цифр номера, чтобы переместиться в нужное место списка) или сканируйте штрих-код этой партии панелей.

«Expiration Date» (Срок годности)

В этом поле выводится дата истечения срока годности. Эта информация закодирована в штрих-коде партии панелей. Это поле заполняется автоматически при сканировании штрих-кода партии панелей. Срок годности нельзя ввести вручную при определении новой партии панелей. Эту дату можно изменить, только сканировав новый штрих-код партии панелей, полученный от Отдела качества компании BD (сделать это можно, только войдя в систему с полномочиями администратора).

«Start Sequence Number» (Начальный порядковый номер)

В этом поле выводится начальный порядковый номер панели в этой партии панелей. Чтобы ввести новый начальный порядковый номер, штрих-код наименьшего порядкового номера в партии (на коробке, рядом с символом). Это поле можно заполнить только путем сканирования штрих-кода с порядковым номером; порядковый номер нельзя ввести вручную.

«End Sequence Number» (Конечный порядковый номер)

В этом поле выводится конечный порядковый номер панели в этой партии панелей. Чтобы ввести новый конечный порядковый номер, сканируйте штрих-код наибольшего порядкового номера в партии (на коробке, рядом с символом). Это поле можно заполнить только путем сканирования штрих-кода с порядковым номером; порядковый номер нельзя ввести вручную.

«Definition Date» (Дата определения)

В этом поле выводится дата, когда создано определение этой партии панелей. Оно заполняется автоматически при сохранении определения партии панелей. Это поле только для чтения; пользователь не может изменить его значение.

«First Used Date» (Дата первого использования)

В этом поле выводится первая дата, когда использовались панели из этой партии. Оно заполняется автоматически, когда панель вводится в прибор. Это поле только для чтения; пользователь не может изменить его значение.

«Last Used Date» (Дата последнего использования)

В этом поле выводится последняя дата, когда использовались панели из этой партии. Оно заполняется автоматически, когда панель вводится в прибор. Это поле только для чтения; пользователь не может изменить его значение.

«Where Defined» (Где определена)

Это поле выводится только в том случае, когда партия панелей была определена на другом приборе. В нем выводится номер прибора, где было создано определение этой партии панелей. Определения партий панелей можно сохранить на одном приборе и затем восстановить на другом приборе при помощи функций «Save/Restore Panel Lot Definitions» (Сохранить/Восстановить определения партий панелей) на вкладке «Maintenance» (Обслуживание) (см. раздел «3.9 Вкладка «Maintenance» (Обслуживание))).

«Current QC Results» (Текущие результаты контроля качества)

Это окно появляется, только когда сохранено определение партии панелей. Когда определение партии панелей сохранено, в окне «Current QC Results» (Текущие результаты контроля качества) выводятся все существующие рекомендации по тестовым штаммам для контроля качества. Выводятся только информация о самых последних тестах контроля качества для каждого тестового штамма (максимум 20 тестов). Результаты для других приборов можно вывести в этом окне, сохранив результаты на тех приборах и затем восстановив их на данном приборе (см. задачи «Save Panel Configuration (Сохранить конфигурацию панелей)» и «Restore Panel Lot Definitions (Восстановить определения партий панелей)» в разделе «3.9 Вкладка Maintenance (Обслуживание)»).

В окне «Current QC Results» (Текущие результаты контроля качества) выводятся следующие поля только для чтения: «Test Strain» (Тестовый штамм, названия упорядочены по возрастанию); «Test Date» (Дата тестирования); «Sequence Number» (Порядковый номер); «(Test) Type» (Тип теста – ID, AST или ID/AST); «QC Status» (Состояние контроля качества: пустое значение для незавершенных тестов; значение «Pass» (Тест пройден), «Fail» (Неудача), «Review» (Требуется проверка) или «Error» (Ошибка) для завершенных тестов).

Чтобы напечатать Текущий отчет о партии панелей контроля качества завершите работу с вкладкой «Panel Lot Definition» (Определение партии панелей) и перейдите на вкладку «Reports» (Отчеты). Кроме перечисленных выше полей этот отчет содержит стандартную начальную информацию отчета (заголовок отчета, информацию о лаборатории (если она задана), дату и время печати и номер прибора, на котором напечатан отчет); номер партии панелей («Panel Lot Number»); тип панелей («Panel Type»); срок годности («Expiration Date»); номер прибора для каждого протестированного штамма (пустое значение, если это тот же прибор); ID технолога («Tech ID»).

«Historical QC Results» (Хронологические результаты контроля качества)

Это окно появляется, только когда сохранено определение партии панелей. В хронологических результатах выводится информация обо всех тестах для штаммов, только для данного прибора (до 200 записей). Выделите нужную панель и перейдите на экран «Results» (Результаты) для этой панели контроля качества или напечатайте Хронологический отчет о партии панелей контроля качества.

В окне «Historical QC Results» (Хронологические результаты контроля качества) выводятся следующие поля только для чтения: «Test Strain» (Тестовый штамм, выпадающий список); «Test Date» (Дата тестирования, поле сортировки); «Sequence Number» (Порядковый номер); «(Test) Type» (Тип теста – ID, AST или ID/AST); «QC Status» (Состояние контроля качества: «Pass» (Тест пройден), «Fail» (Неудача), «Review» (Требуется проверка) или «Error» (Ошибка)); «Tech ID» (ID технолога).

Чтобы напечатать Хронологический отчет о партии панелей контроля качества завершите работу с вкладкой «Panel Lot Definition» (Определение партии панелей) и перейдите на вкладку «Reports» (Отчеты). Кроме перечисленных выше полей этот отчет содержит стандартную начальную информацию отчета (заголовок отчета, информацию о лаборатории (если она задана), дату и время печати и номер прибора, на котором напечатан отчет); номер партии панелей («Panel Lot Number»); тип панелей («Panel Type»); срок годности («Expiration Date»).

3.10.10 Подкладка «Instrument» (Прибор)

Используется только инженерами сервисной службы компании BD.

4 – Работа с панелями

4.1 Общая информация

В этом разделе описаны стандартные операции с панелями: подготовка, контроль качества и автоматическое объединение.

4.2 Хранение и обработка

Панели BD Phoenix

Панели находятся в индивидуальных пакетах и упакованы в коробки по 25 штук. Панели необходимо хранить закрытыми при комнатной температуре (15–25 °C). Не охлаждайте и не замораживайте их. Внимательно осмотрите упаковку из фольги, убедитесь, что в ней нет повреждений или разрывов. Не используйте панель, если упаковка повреждена. Не используйте панель, если отсутствует влагопоглотитель или если пакет с влагопоглотителем порван. При соблюдении рекомендуемых условий хранения ожидаемая реакционная способность панелей сохранится до истечения срока годности.

Бульон ID BD Phoenix

Пробирки упакованы по 100 штук. Внимательно осмотрите пробирки и убедитесь, что в них нет трещин, протечек и других повреждений. Не используйте пробирку, если она протекает, если пробирка или крышка повреждены или если есть видимые признаки загрязнения (например, затемнение, помутнение). Храните пробирки с бульоном ID BD Phoenix при температуре 2–25 °C. Срок годности указан на этикетке пробирки.

Бульон AST BD Phoenix и бульон AST-S BD Phoenix

Пробирки упакованы по 100 штук. Внимательно осмотрите пробирки и убедитесь, что в них нет трещин, протечек и других повреждений. Не используйте пробирку, если она протекает, если пробирка или крышка повреждены или если есть видимые признаки загрязнения (например, затемнение, помутнение). Храните пробирки с бульоном AST BD Phoenix при температуре 2–25 °C. Срок годности указан на этикетке пробирки.

Растворы индикаторов AST BD Phoenix и AST-S BD Phoenix

Раствор индикатора поставляется во флаконах с капельницей. Флаконы помещены в индивидуальные пакеты и упакованы по 10 штук. Внимательно осмотрите флакон, убедитесь, что он не треснул и не протекает. Не используйте индикатор, если есть признаки протечки, флакон или крышка повреждены или цвет раствора изменился (он должен быть темно-синим). Храните раствор индикатора AST BD Phoenix при температуре 2–8 °C. Каждый флакон содержит объем раствора, достаточный для тестирования 100 панелей. Срок годности закрытых флаконов указан на коробке, на упаковке и на этикетке флакона. Открытый флакон можно хранить до 14 дней при температуре 2–8 °C. Когда добавляете раствор индикатора AST, держите флакон вертикально.

4.3 Подготовка панелей

Система BD Phoenix не предназначена для работы непосредственно с клиническими образцами. Тестировать в ней можно только чистые культуры изолятов аэробных и/или факультативно анаэробных грамотрицательных, грамположительных и дрожжевых микроорганизмов. Тестируемый изолят должен быть чистой культурой. Рекомендуется использовать культуры с возрастом от 18 до 24 часов для грамотрицательных и грамположительных микроорганизмов и культуры с возрастом от 18 до 48 часов для грибов и дрожжей. Для тестов AST в системе BD Phoenix рекомендуется использовать изоляты, полученные из неселективных сред. Для микроорганизмов, которые будут тестироваться в системе BD Phoenix, не рекомендуется использовать среды с антибиотиками (за исключением тех сред, которые указаны в таблице ниже). Селективная среда может подавлять некоторые штаммы бактерий и дрожжей, поэтому следует проявлять осторожность, выбирая изолированные колонии из таких сред.

Используйте изоляты из чашек с кровяным агаром, таким как триптиказо-соевый агар BD с 5% бараньей крови. Среда, выбираемая при регистрации панелей идентификации дрожжей – это питательная среда, в которой культивировался данный микроорганизм.

Другие рекомендованные среды перечислены в следующей таблице:

Рекомендованная среда	Одобрена для панелей			
	ID	AST	Strep	Yeast ID
BD BBL™ CHROMagar™ Orientation	Да	Да ¹	X	X
Лактозный агар с бромтимоловым синим (BTB)	Да ⁴	Да	X	X
Шоколадный агар	Да	Да	Да ²	Да
Колумбийский агар с 5 % лошадиной крови	Да	Да	Да ³	X
Колумбийский агар с 5 % бараньей крови	Да	Да	Да	Да
Колумбийский агар CNA с 5 % бараньей крови (грамположительные)	Да	X	Да	X
Лактозо-цистиновый агар с дефицитом электролитов (CLED)	Да ⁵	Да	X	X
Нейтрализующий агар по Ди-Ингли (грамотрицательные)	Да	X	X	X
Агар с эозином и метиленовым синим (грамотрицательные)	Да	Да	X	X
Гектоеновый энтеро-агар (грамотрицательные)	Да	X	X	X
Агар МакКонки (грамотрицательные)	Да	Да	X	X
Агар с фенилэтиловым спиртом (грамположительные)	Да	X	Да	X
Агар Сабуро с сердечно-мозговым экстрактом — SAB HI (дрожжи)	X	X	X	Да
Декстрозный агар Сабуро (дрожжи)	X	X	X	Да
Декстрозный агар Сабуро в модификации Эммонса (дрожжи)	X	X	X	Да
Триптиказо-соевый агар с 5% бараньей крови	Да	Да	Да	Да
Триптиказо-соевый агар с лецитином и твином 80	Да	X	X	X
Триптиказо-соевый агар без крови	Да	X	X	X
Ксилозо-лизин-дезоксихолатный агар (грамотрицательные)	Да	X	X	X

Использование среды CHROMagar Orientation может привести к неправильным значениям чувствительности при тестировании эритромицина с грамположительными микроорганизмами. Результаты тестов на чувствительность к антибиотикам следует подтвердить, используя триптиказо-соевый агар BD с 5% бараньей крови.

Этот тип среды не следует использовать для идентификации стрептококков в панелях SMIC/ID.

Шоколадный агар можно использовать только для тестирования чувствительности стрептококков.

Использование колумбийского агара с 5% лошадиной крови может привести к значительно более высокому значению МПК в тестах на чувствительность видов *Streptococcus* к SXT (триметоприм-сульфаметоксазол), что может дать ложный результат, указывающий на резистентность. Результаты тестов на чувствительность к антибиотикам следует подтвердить, используя триптиказо-соевый агар BD с 5% бараньей крови.

Лактозный агар с бромтимоловым синим для грамположительных микроорганизмов следует использовать только для стафилококков (при мутности суспензии 0,5 и 0,25).

Лактозо-цистиновый агар с дефицитом электролитов для грамположительных микроорганизмов следует использовать только для стафилококков (при мутности суспензии 0,25).

Таблица 4-1 – Рекомендованные среды

В качестве аппликаторов рекомендуется использовать стерильные ватные тампоны. Полиэфирные тампоны не рекомендуются. Качество тампонов-аппликаторов может различаться у разных производителей, иногда из них могут выпадать волокна и это может повлиять на измерение мутности раствора по шкале Макфарланда.

Пригодность результатов системы BD Phoenix, как и любой другой диагностической процедуры с клиническими образцами, напрямую зависит от качества самих образцов. Настоятельно рекомендуется, чтобы в лаборатории применялись методы сбора образцов, транспортировки и помещения в первичную питательную среду для выделения изолятов, описанные в *Руководстве по клинической микробиологии*.¹⁷

Из-за различий в концентрациях бактериальных суспензий, приготовленных в соответствии со стандартами Макфарланда, необходимо использовать нефелометр BD BBL CrystalSpec, нефелометр BD PhoenixSpec или прибор BD Phoenix AP для настройки концентрации тестовой бактериальной суспензии перед ее использованием в системе BD Phoenix.

Инструкции по дополнительной проверке чистоты приведены в конце этого раздела.

ОПАСНО ВО ВСЕХ ПРОЦЕДУРАХ СЛЕДУЙТЕ УСТАНОВЛЕННЫМ ПРАВИЛАМ БЕЗОПАСНОСТИ ПРИ РАБОТЕ С ОПАСНЫМИ МИКРОБИОЛОГИЧЕСКИМИ МАТЕРИАЛАМИ. СО ВСЕМИ ОБРАЗЦАМИ НЕОБХОДИМО ОБРАЩАТЬСЯ В СООТВЕТСТВИИ С РЕКОМЕНДАЦИЯМИ CDC-NIH, ИНСТРУКЦИЯМИ CLSI ИЛИ ПРАВИЛАМИ ВАШЕЙ ОРГАНИЗАЦИИ ПО РАБОТЕ С ПОТЕНЦИАЛЬНО ИНФЕКЦИОННОЙ ЧЕЛОВЕЧЕСКОЙ СЫВОРОТКОЙ, КРОВЬЮ ИЛИ ДРУГИМИ ЖИДКОСТЯМИ ОРГАНИЗМА. ПЕРЕД УТИЛИЗАЦИЕЙ ПРОСТЕРИЛИЗУЙТЕ КОНТЕЙНЕРЫ ДЛЯ ОБРАЗЦОВ И ДРУГИЕ ИНФИЦИРОВАННЫЕ МАТЕРИАЛЫ АВТОКЛАВИРОВАНИЕМ. КРОМЕ ПЕРЧАТОК РЕКОМЕНДУЕТСЯ ИСПОЛЬЗОВАТЬ ПРИ РАБОТЕ С ПРИБОРОМ ОДНОРАЗОВЫЕ ЛАБОРАТОРНЫЕ ХАЛАТЫ И ЗАЩИТНЫЕ ИЛИ ПРЕДОХРАНИТЕЛЬНЫЕ ОЧКИ.

Требуемые материалы:

- Панели BD Phoenix
- Бульон ID BD Phoenix или посевной бульон BD Phoenix
- Бульон AST BD Phoenix и/или бульон AST-S BD Phoenix
- Раствор индикатора AST BD Phoenix и/или AST-S BD Phoenix
- Крышки для панелей BD Phoenix
- Штатив для заполнения панелей BD Phoenix
- Штатив переносной для панелей BD Phoenix
- Нефелометр BD BBL CrystalSpec, нефелометр BD PhoenixSpec или прибор BD Phoenix AP
- Дозатор на 25 мкл с наконечниками

Требуемые материалы, которые приобретаются отдельно:

- Реагенты для окрашивания по Граму
- Стерильные ватные тампоны, инокуляционные петли или иглы
- Неселективная культуральная среда в чашках Петри (см. раздел «4.3 Подготовка панелей»)
- Инкубаторы
- Контейнер для опасных биологических отходов
- Маркеры и т.п.
- Вихревая мешалка «вортекс»

ПРИМЕЧАНИЯ

С панелями BD Phoenix следует обращаться осторожно. Следует держать панели только за края, чтобы избежать любого загрязнения верхней и нижней стороны панели.

Этикетки со штрих-кодами образцов, прикрепленные к панелям BD Phoenix: Не должны содержать флуоресцентных материалов. Не должны закрывать лунки панели BD Phoenix. Не должны закрывать штрих-код с порядковым номером панели BD Phoenix.

Ниже описываются все шаги подготовки комбинированной панели для выполнения обоих тестов (ID и AST). Если комбинированная панель используется только для теста ID и только для теста AST, некоторые из этих шагов не будут применяться.

Общая методика подготовки панели

Если вы используете прибор BD Phoenix AP, смотрите инструкции по подготовке панелей в *Руководстве пользователя BD Phoenix AP*.

Для панелей стрептококков (BD Phoenix Strep), панелей идентификации дрожжей (BD Phoenix Yeast ID), панелей с расширенным спектром антибиотиков (BD Phoenix Emerge) и панелей определения МПК (BD Phoenix MIC), а также для посевного бульона (BD Phoenix Inoculum Broth) есть отдельные инструкции (они приведены после шага 19 этих инструкций).

- 1 Прежде чем приступить к подготовке бактериальной суспензии для использования в приборе BD Phoenix M50, подтвердите реакцию окрашивания по Граму для этого изолята. Когда реакция окрашивания подтверждена, выберите подходящую панель BD Phoenix для заправки.
- 2 Проверьте упаковку панели. Если упаковка повреждена или открыта, не используйте панель. Извлеките панель из упаковки. Выбросьте влагопоглотитель. Не используйте панель, если влагопоглотитель отсутствует или если пакет с влагопоглотителем порван.

ПРИМЕЧАНИЕ

Панели необходимо заправить в течение 2 часов после извлечения из упаковки.

- 3 Поместите панель на штатив для заполнения, так чтобы порты для заполнения были вверх, а поглотитель вниз.

- 4 Пометьте пробирку с бульоном ID BD Phoenix, указав на ней номер образца пациента. Используя асептическую технику, отберите колонии одинаковой морфологии кончиком стерильного ватного тампона (не используйте полиэфирные тампоны) или деревянным аппликатором-палочкой из одной из рекомендованных сред.
- 5 Поместите колонии в бульон ID BD Phoenix (4,5 мл).
- 6 Закройте пробирку и перемешайте на «вортексе» в течение 5 секунд.
- 7 Подождите примерно 10 секунд, чтобы пузырьки воздуха успели всплыть. Слегка постучите по пробирке, чтобы удалить пузырьки.
- 8 Вставьте пробирку в нефелометр BD BBL CrystalSpec или BD PhoenixSpec. Убедитесь, что пробирка вставлена до упора. (Инструкции по использованию нефелометра смотрите в документации по BD BBL CrystalSpec или BD PhoenixSpec.)
- 9 Если для этого типа панелей задана мутность суспензии 0,5 по шкале Макфарланда, приемлемы значения мутности 0,50-0,60. Если для этого типа панелей задана мутность суспензии 0,25 по шкале Макфарланда, приемлемы значения мутности 0,20-0,30. Если мутность суспензии микроорганизмов мала, можно добавить колонии из изолята. Повторите перемешивание на «вортексе» и вновь измерьте мутность, чтобы убедиться, что достигнуто требуемое значение. Если мутность микроорганизмов превышает 0,6 по шкале Макфарланда, выполните следующие шаги, чтобы разбавить бульон. Очень важно точно отметить уровень жидкости в пробирке, поскольку именно этот объем требуется для правильного заполнения лунок в панели.
 - a Используя маркер, отметьте уровень жидкости в пробирке с бульоном ID BD Phoenix, в которую внесено слишком много микроорганизмов.
 - b Используя стерильную пипетку, асептически добавьте в бактериальную суспензию чистый бульон ID BD Phoenix. Для разведения бактериальной суспензии можно использовать только бульон ID BD Phoenix.
 - c Перемешайте на пробирку «вортексе» и дайте ей отстояться в течение 10 секунд.
 - d Поместите пробирку в нефелометр и вновь измерьте мутность суспензии.
 - Если значение мутности больше 0,6, повторите шаги «b-d».
 - Если значение мутности находится в диапазоне 0,5-0,6, перейдите к шагу «e».
 - e Используя стерильную пипетку, асептически удалите избыток бульона, чтобы вернуть его объем к исходному уровню (отмеченному на пробирке на шаге «a»).Избыток бульона необходимо удалить, чтобы избежать переполнения панели. Но не удаляйте слишком много бульона, иначе его может не хватить для правильного заполнения панели.
- f Теперь этот бульон можно использовать для инокуляции бульона AST BD Phoenix и/или для заправки панели BD Phoenix.

ПРИМЕЧАНИЯ

- Для панелей идентификации дрожжей необходимо использовать суспензию с мутностью 2,00-2,40 по шкале Макфарланда.
- Перед заправкой панелей проверьте заданные в приборе значения мутности суспензии.
- Информацию об использовании суспензии с другой мутностью смотрите ниже в разделе «Альтернативная концентрация суспензии для ID».
- Для измерения мутности 0,25 по шкале Макфарланда можно использовать только нефелометр BD PhoenixSpec или прибор BD Phoenix AP.
- Стандартизированную бактериальную суспензию в бульоне ID или в посевном бульоне необходимо использовать в течение 60 минут после приготовления.

- 10 Если выполняется только идентификация, перейдите к шагу 15. Информацию о заправке панелей BD Phoenix Emerge (панелей с расширенным спектром антибиотиков) смотрите в специальном разделе ниже.
- 11 Пометьте пробирку с бульоном AST BD Phoenix (8,0 мл), указав на ней номер образца пациента. В пробирку с бульоном AST добавьте одну полную каплю индикаторного раствора AST. Переверните пробирку, чтобы перемешать. НЕ ИСПОЛЬЗУЙТЕ «ВОРТЕКС».

ПРИМЕЧАНИЯ

- Прежде чем добавлять раствор индикатора AST в бульон AST, позвольте раствору индикатора нагреться до комнатной температуры.
- Неиспользованную часть раствора индикатора необходимо как можно быстрее вернуть в место хранения с температурой 2-8 °C. Не храните его при комнатной температуре более 2 часов. Открытые флаконы с индикатором следует выбросить через 14 дней после того, как они были открыты первый раз.
- Если случайно была добавлена не одна капля, а другой объем, выбросьте пробирку и используйте новую пробирку с бульоном AST.
- После добавления индикатора в бульон AST полученный раствор можно хранить в темноте при комнатной температуре до 8 часов.
- Если после добавления раствора индикатора AST пробирки хранятся на свету, они должны быть использованы в течение 2 часов.

- 12 Если используется бактериальная суспензия с мутностью 0,50-0,60, перенесите 25 мкл суспензии из пробирки с бульоном ID в пробирку с бульоном AST. Если используется бактериальная суспензия с мутностью 0,20-0,30, перенесите 50 мкл (два раза по 25 мкл, если используется дозатор на 25 мкл) суспензии из пробирки с бульоном ID в пробирку с бульоном AST.

ПРИМЕЧАНИЕ

Панели необходимо заправить в течение 30 минут после приготовления бактериальной суспензии в бульоне AST.

- 13 Закройте пробирку AST крышкой и переверните ее несколько раз, чтобы перемешать.
- 14 Подождите несколько секунд, чтобы пузырьки воздуха успели всплыть. Слегка постучите по пробирке, чтобы удалить пузырьки.
- 15 Влейте бактериальную суспензию из пробирки с бульоном ID в порт для заполнения на стороне ID панели (сторона с 51 лункой). Не перемещайте панель, пока жидкость не спустится по каналу внутри панели. Если используется панель AST, то НЕ вводите бактериальную суспензию на сторону ID этой панели. Сохраните эту пробирку с бульоном ID для дополнительной проверки чистоты (см. ниже).
- 16 Влейте бактериальную суспензию из пробирки с бульоном AST в порт для заполнения на стороне AST панели (сторона с 85 лунками). Не перемещайте панель, пока жидкость не спустится по каналу внутри панели.

-
- 17 Прежде чем закрывать крышкой порт для заполнения панели, проверьте, не остались ли по краю порта капельки бактериальной суспензии. Если капельки есть, удалите их впитывающим материалом. Использованный впитывающий материал необходимо дезинфицировать перед утилизацией.
 - 18 Закройте порты крышками. Убедитесь, что крышки полностью вставлены. Используйте две крышки независимо от типа панели.
 - 19 Внимательно осмотрите панель и убедитесь, что все лунки заполнены. Осмотрите обе стороны панели. Убедитесь, что лунки не переполнены. Если какие-либо из лунок не заполнены или переполнены, заправьте новую панель.

ПРИМЕЧАНИЯ

Смотрите примечание выше

- Панели должны быть помещены в прибор в течение 30 минут после заправки.
- После заправки панели должны оставаться на штативе для заполнения до тех пор, пока избыток жидкости не будет полностью впитан поглотителем.
- Панели должны находиться в вертикальном положении на переносном штативе до момента загрузки в прибор.
- С заправленными панелями следует обращаться осторожно. Не ударяйте и не трясите панели.

ПРИМЕЧАНИЕ

ДОПОЛНИТЕЛЬНАЯ ПРОВЕРКА ЧИСТОТЫ

Настоятельно рекомендуется проверить чистоту бактериальных суспензий для ID и AST, подготовив чашки Петри для проверки чистоты.

Чтобы проверить чистоту, с помощью стерильной петли возьмите небольшую каплю из пробирки с бактериальной суспензией (до или после заправки панели) и инокулируйте чашку Петри с агаром (любая подходящая среда). Выбросьте пробирку от бактериальной суспензии и ее крышку в контейнер для опасных биологических отходов. Инкубируйте чашку Петри в течение 24-48 часов при 35 °C в соответствующих условиях.

Панели BD Phoenix Strep

Панели BD Phoenix Strep предназначены для выполнения тестов по идентификации и определению чувствительности к антибиотикам для большинства видов *Streptococcus*. Хотя виды *Streptococcus* можно идентифицировать с помощью панелей для грамположительных микроорганизмов, в таких панелях нельзя определить чувствительность к антибиотикам. Панели BD Phoenix Strep позволяют выполнять быстрое тестирование чувствительности к антибиотикам для большинства видов *Streptococcus*. С этими панелями необходимо использовать бульон AST-S BD Phoenix и раствор индикатора AST-S BD Phoenix.

- 1 Выполните шаги «1-9» (раздел «Общая методика подготовки панели»), чтобы подготовить суспензию бактерий.
- 2 В пробирку с бульоном AST-S добавьте одну каплю индикаторного раствора AST-S BD Phoenix. Переверните пробирку, чтобы перемешать. НЕ ИСПОЛЬЗУЙТЕ «ВОРТЕКС».

ПРИМЕЧАНИЯ (см. примечание выше)

- Бульон AST-S и раствор индикатора AST-S должны использоваться только с панелями BD Phoenix Strep (SMIC/ID, SMIC). Их нельзя использовать вместо бульона AST и раствора индикатора AST, которые используются с панелями BD Phoenix для грамположительных и грамотрицательных микроорганизмов.
- Прежде чем добавлять раствор индикатора AST-S в бульон AST-S, позвольте раствору индикатора нагреться до комнатной температуры.
- Неиспользованную часть раствора индикатора необходимо как можно быстрее вернуть в место хранения с температурой 2-8 °C. Не храните его при комнатной температуре более 2 часов. Открытые флаконы с индикатором следует выбросить через 14 дней после того, как они были открыты первый раз.
- Если случайно была добавлена не одна капля, а другой объем, выбросьте пробирку и используйте новую пробирку с бульоном AST-S.
- После добавления индикатора в бульон AST-S полученный раствор можно хранить в темноте при комнатной температуре до 8 часов.
- Если после добавления раствора индикатора AST-S пробирки хранятся на свету, они должны быть использованы в течение 2 часов.

- 3 При помощи дозатора перенесите 25 мкл стандартной бактериальной суспензии из пробирки с бульоном ID в пробирку с бульоном AST-S.

ПРИМЕЧАНИЕ

Панели необходимо заправить в течение 30 минут после приготовления бактериальной суспензии в бульоне AST-S.

- 4 Закройте пробирку AST-S крышкой и переверните ее несколько раз, чтобы перемешать.
- 5 Подождите несколько секунд, чтобы пузырьки воздуха успели всплыть. Слегка постучите по пробирке, чтобы удалить пузырьки.

- 6 Влейте бактериальную суспензию из пробирки с бульоном ID в порт для заполнения на стороне ID панели (сторона с 51 лункой). Не перемещайте панель, пока жидкость не спустится по каналу внутри панели. Если используется панель BD Phoenix Strep только для МПК, то НЕ вводите бактериальную суспензию на сторону ID этой панели. Сохраните эту пробирку с бульоном ID для дополнительной проверки чистоты (см. ниже).
- 7 Влейте бактериальную суспензию из пробирки с бульоном AST-S в порт для заполнения на стороне AST панели (сторона с 85 лунками). Не перемещайте панель, пока жидкость не спустится по каналу внутри панели.
- 8 Прежде чем закрывать крышкой порт для заполнения панели, проверьте, не остались ли по краю порта капельки бактериальной суспензии. Если капельки есть, удалите их впитывающим материалом. Использованный впитывающий материал необходимо выбросить в контейнер для опасных биологических отходов.
- 9 Закройте порты крышками. Убедитесь, что крышки полностью вставлены.
- 10 Внимательно осмотрите панель и убедитесь, что все лунки заполнены. Осмотрите обе стороны панели. Убедитесь, что лунки не переполнены. Если какие-либо из лунок не заполнены или переполнены, заправьте новую панель.

ПРИМЕЧАНИЯ

- Панели должны быть загружены в прибор в течение 30 минут после заправки.
- После заправки панели должны оставаться на штативе для заполнения до тех пор, пока избыток жидкости не будет полностью впитан поглотителем.
- Панели должны находиться в вертикальном положении на переносном штативе до момента загрузки в прибор.
- С заправленными панелями следует обращаться осторожно. Не ударяйте и не трясите панели.

ПРИМЕЧАНИЕ

ДОПОЛНИТЕЛЬНАЯ ПРОВЕРКА ЧИСТОТЫ

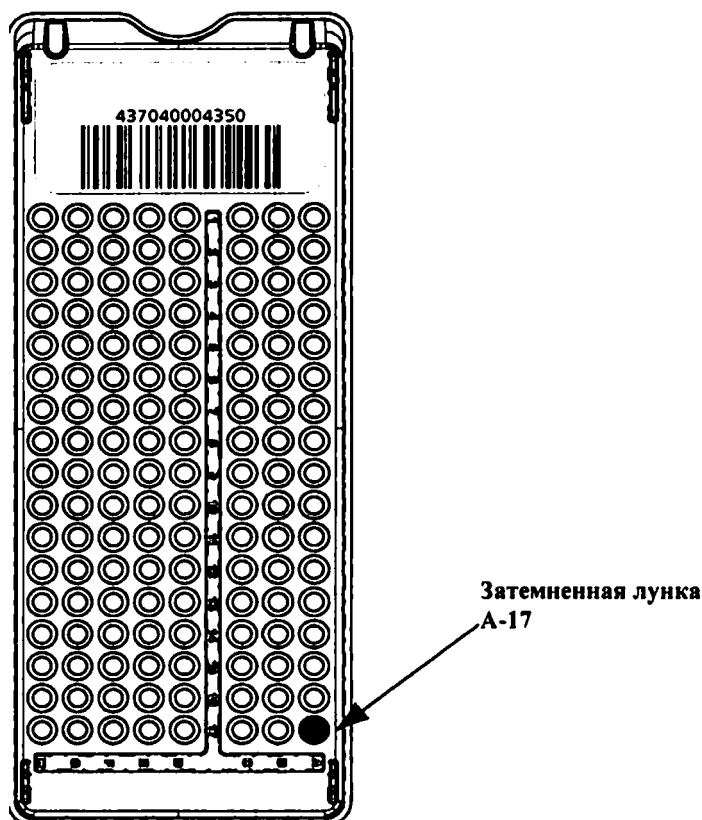
Настоятельно рекомендуется проверить чистоту бактериальных суспензий для ID и AST-S, подготовив чашки Петри для проверки чистоты.

Чтобы проверить чистоту, с помощью стерильной петли возьмите небольшую каплю из пробирки с бактериальной суспензией (до или после заправки панели) и инокулируйте чашку Петри с агаром (любая подходящая среда). Выбросьте пробирку от бактериальной суспензии и ее крышку в контейнер для опасных биологических отходов. Инкубируйте чашку Петри в течение 24-48 часов при 35 °C в соответствующих условиях.

Альтернативная концентрация суспензии для идентификации

Часть ID панели можно использовать в режиме, противоположном режиму, заданному в конфигурации. Для этого нужно перед вводом панели в прибор затемнить лунку A-17 с обратной стороны панели. Это позволит использовать панель с мутностью суспензии 0,20-0,30, даже если для этого типа панелей в конфигурации указана мутность 0,5. Аналогичным образом, можно использовать панель с мутностью суспензии 0,50-0,60, когда в конфигурации указана мутность 0,25.

При регистрации панели вы не можете изменить заданное в конфигурации значение мутности. Чтобы использовать панель в другом режиме мутности, полностью закрасьте лунку A-17 черным несмываемым маркером, как это показано на рисунке ниже.



Значения мутности суспензии, переданные из прибора BD Phoenix AP (через систему BD EpiCenter) нельзя изменить закрасиванием лунки A-17. Значения мутности суспензии, переданные из прибора BD Phoenix AP, считаются неправильными, если они получены после завершения первого цикла тестирования, или если сторона ID панели отключена, или если для этого типа панелей нельзя задать мутность суспензии. Если прибор получает для панели ID неправильное значение мутности суспензии, не совпадающее с определенной мутностью суспензии для этой панели, тестирование стороны ID этой панели считается неудачным, генерируется код «Требуется внимания» («Can Not Determine Organism ID») – Не удалось определить идентификацию микроорганизма) и создается специальное сообщение.

В следующей таблице показано, как использовать режим мутности, противоположный заданному в конфигурации прибора.

Заданное в конфигурации прибора значение мутности суспензии	Желательная мутность суспензии для панели	Объем суспензии ID, добавляемый в бульон AST**	Лунка A-17
0,50	0,25	50 мкл	Затемнена
0,25	0,50	25 мкл	Затемнена
** Если также выполняется тест AST			

Панели BD Phoenix Yeast ID для идентификации дрожжей

Панели BD Phoenix Yeast ID предназначены для идентификации большинства клинически значимых видов дрожжей и дрожжеподобных микроорганизмов.

- 1 Выполните шаги 1-8 (раздел «Общая методика подготовки панели»), чтобы подготовить суспензию дрожжей.
- 2 Для панелей идентификации дрожжей используется мутность суспензии 2,0 по шкале Макфарланда (допустимый диапазон: 2,00-2,40). Если мутность суспензии слишком мала или слишком велика, выполните действия, описанные в шаге 9 (раздел «Общая методика подготовки панели»), чтобы получить требуемое значение мутности по шкале Макфарланда.
- 3 Влейте суспензию дрожжей из пробирки с бульоном ID в порт для заполнения на стороне ID панели (сторона с 51 лункой). Не перемещайте панель, пока жидкость не спустится по каналу внутри панели.
- 4 Прежде чем закрывать крышкой порт для заполнения панели, проверьте, не остались ли по краю порта капельки суспензии. Если капельки есть, удалите их впитывающим материалом. Использованный впитывающий материал необходимо выбросить в контейнер для опасных биологических отходов.
- 5 Закройте порты крышками. Убедитесь, что крышки полностью вставлены. Используйте две крышки независимо от типа панели.
- 6 Внимательно осмотрите панель и убедитесь, что все лунки заполнены. Если какие-либо из лунок не заполнены или переполнены, заправьте новую панель.

ПРИМЕЧАНИЯ

Смотрите примечание выше

- Для панелей идентификации дрожжей необходимо использовать суспензию с мутностью 2,00-2,40 по шкале Макфарланда.
- Стандартизированную суспензию в бульоне ID или в посевном бульоне необходимо использовать в течение 60 минут после приготовления.

ПРИМЕЧАНИЯ

Смотрите примечание выше

- Панели должны быть помещены в прибор в течение 30 минут после заправки.
- После заправки панели должны оставаться на штативе для заполнения до тех пор, пока избыток жидкости не будет полностью впитан поглотителем.
- Панели должны находиться в вертикальном положении на переносном штативе до момента загрузки в прибор.
- С заправленными панелями следует обращаться осторожно. Не ударяйте и не трясите панели.

ПРИМЕЧАНИЕ

ДОПОЛНИТЕЛЬНАЯ ПРОВЕРКА ЧИСТОТЫ

Настоятельно рекомендуется проверить чистоту суспензии для ID, подготовив чашку Петри для проверки чистоты.

Чтобы проверить чистоту, с помощью стерильной петли возьмите небольшую каплю из пробирки с суспензией (до или после заправки панели) и инокулируйте чашку Петри с агаром (любая подходящая среда). Выбросьте пробирку от суспензии и ее крышку в контейнер для опасных биологических отходов. Инкубируйте чашку Петри в течение 24-48 часов при 35 °C в соответствующих условиях.

Панели BD Phoenix Emerge

Панели BD Phoenix Emerge предназначены для определения чувствительности к большему числу антибиотиков. Чтобы можно было выполнить такое число тестов, антибиотики помещены в лунки на обеих сторонах панели BD Phoenix. Эти панели нельзя использовать для идентификации бактерий. В связи с особенностями устройства этих панелей для них применяется особая техника заправки. Она описана ниже. Потребуются две пробирки с бульоном AST.

- 1 Выполните шаги 1-9 (раздел «Общая методика подготовки панели»), чтобы подготовить суспензию бактерий.
- 2 В каждую пробирку с бульоном AST добавьте одну каплю индикаторного раствора AST BD Phoenix.
- 3 Перенесите по 25 мкл (или 50 мкл, если используется суспензия низкой мутности) этой суспензии в каждую из двух пробирок с бульоном AST BD Phoenix. Закройте пробирки крышками и осторожно переверните, чтобы перемешать.
- 4 Используя стерильную технику, удалите 3,5 мл бульона из одной из инокулированных пробирок с бульоном AST BD Phoenix и выбросьте в соответствующий контейнер.
- 5 Влейте оставшиеся 4,5 мл в левую сторону панели BD Phoenix Emerge. Влейте вторую пробирку с бульоном AST BD Phoenix в правую сторону панели BD Phoenix Emerge.
- 6 Закройте панель крышками и выполните обычные действия по регистрации панели.

Посевной бульон BD Phoenix

Посевной бульон BD Phoenix (BD Phoenix Inoculum Broth) можно использовать для приготовления исходной суспензии микроорганизмов с требуемой мутностью по шкале Макфарланда для панелей МПК BD Phoenix (панели BD Phoenix MIC – PMIC, NMIC, SMIC). Пробирка посевного бульона BD Phoenix содержит 2,2 мл бульона ID BD Phoenix, она позволяет получить требуемую мутность суспензии при использовании меньшего числа бактериальных колоний.

- 1 Выполните шаги **1-9** (раздел «Общая методика подготовки панели»), чтобы подготовить суспензию бактерий, но вместо пробирок с бульоном ID BD Phoenix используйте пробирки с посевным бульоном BD Phoenix.
- 2 Для панелей NMIC и PMIC добавьте одну каплю индикатора AST BD Phoenix в пробирку AST BD Phoenix.
- 3 Для панелей SMIC добавьте одну каплю индикатора AST-S BD Phoenix в пробирку с бульоном AST-S BD Phoenix.
- 4 Перенесите 25 мкл (или 50 мкл, если используется суспензия низкой мутности) суспензии из посевного бульона BD Phoenix в пробирку с бульоном AST или AST-S BD Phoenix.
- 5 Выполните шаги **16-19** (раздел «Общая методика подготовки панели»). Выполните обычные действия по регистрации панели.

Панели МПК BD Phoenix (NMIC, PMIC, SMIC)

Бактериальную суспензию для этих панелей можно приготовить в бульоне ID BD Phoenix или посевном бульоне BD Phoenix (шаг 4 раздела «Общая методика подготовки панели»).

- 1 Выполните шаги **1-9** (раздел «Общая методика подготовки панели»), чтобы подготовить суспензию бактерий.
- 2 Для панелей NMIC и PMIC добавьте одну каплю индикатора AST BD Phoenix в пробирку AST BD Phoenix.
Для панелей SMIC добавьте одну каплю индикатора AST-S BD Phoenix в пробирку с бульоном AST-S BD Phoenix.
- 3 Перенесите 25 мкл (или 50 мкл, если для панелей NMIC или PMIC используется суспензия низкой мутности) суспензии из бульона ID BD Phoenix в пробирку AST или AST-S BD Phoenix. Закройте пробирку крышками и осторожно переверните, чтобы перемешать. Сохраните эту пробирку с бульоном ID или с посевным бульоном для дополнительной проверки чистоты (см. выше).
- 4 Выполните шаги **16-19** (раздел «Общая методика подготовки панели»). Выполните обычные действия по регистрации панели.

4.3.1 Контроль качества

Информацию о контроле качества для ID/AST, смотрите на вкладыше упаковки панелей. Учтите, что панели контроля качества нельзя пометить как критические.

Рекомендуется выполнять тесты контроля качества для каждой партии панелей. Функция «QC Lot Support» (Поддержка партии контроля качества) упрощает проведение тестов контроля качества и отслеживание их результатов. Если функция «QC Lot Support» (Поддержка партии контроля качества) включена, перед регистрацией панелей контроля качества необходимо задать определение партии панелей.

- 1 Заправьте панель суспензией одного из микроорганизмов, указанных на вкладыше упаковки. Все микробные культуры, в том числе культуры, применяемые для контроля качества, являются потенциально инфекционными и требуют соблюдения стандартных мер предосторожности. Подготовка микроорганизмов контроля качества для заправки панелей описана в предыдущем разделе (раздел «4.3 Подготовка панелей»).
- 2 Зарегистрируйте панель как панель контроля качества:

ПРИМЕЧАНИЕ

Для получения наиболее надежных результатов рекомендуется пересевать микроорганизмы контроля качества как минимум дважды в два идущих подряд дня в TSA с 5 % бараньей крови и только затем использовать их в приборе BD Phoenix M50. Используйте только хорошо изолированные колонии.

Для контроля качества идентификации дрожжей в качестве среды для субкультур можно также использовать декстрозный агар Сабуро.

- a Перейдите на вкладку «Panel Login» (Регистрация панели).
- b Выберите опцию «QC» (Контроль качества).
- c Необязательно: Введите идентификатор технолога («Tech ID»).
- d Обязательно: В поле «Accession Number» (Номер образца) введите или сканируйте номер образца.
- e В поле «Sequence Number» (Порядковый номер) введите или сканируйте порядковый номер панели. Если введен недопустимый порядковый номер, появится сообщение об ошибке с кодом W100: «Invalid Panel Sequence Number» (Недопустимый порядковый номер панели) (см. рис. 4-1 – Экран регистрации панели контроля качества).
- f В поле «Isolate Number» (Номер изолята) по умолчанию выводится значение 1. Введите номер изолята или коснитесь значка + или –, чтобы увеличить или уменьшить номер. Допустимые значения: от 1 до 20.
- g Для панелей идентификации дрожжей справа от поля «Isolate Number» (Номер изолята) выводится поле «Media» (Среда). Если тип среды не задан, при попытке сохранения панели возникнет ошибка работы. Если в прибор обнаружит, что в него вставлена незарегистрированная панель идентификации дрожжей, он прекратит обработку этой панели, так как среда для нее не задана. В конфигурации можно задать тип среды по умолчанию (см. раздел «3.10.2 Подкладка «System Configuration» (Конфигурация системы)), который будет выводиться в этом поле, если при регистрации панели сканирован порядковый номер панели идентификации дрожжей. Чтобы выбрать другой тип среды, коснитесь стрелки вниз – появится выпадающий список, в котором выводятся краткие названия всех типов сред (по алфавиту). (Когда выбран тип среды, полное название среды выводится в правой верхней части экрана.) Выберите нужную среду. Коснитесь кнопки «Save» (Сохранить).
- h В поле «Test Strain» (Тестовый штамм) выберите из выпадающего списка используемый микроорганизм контроля качества. Если определены требуемые тестовые штаммы, в списке выводятся только они, в противном случае выводятся все тестовые штаммы. Если не введен порядковый номер панели, появится сообщение «No Data Available» (Данные не доступны). Выделите нужный микроорганизм контроля качества. Выберите этот микроорганизм.

- і В поле «Panel Lot Number» (Номер партии панелей) введите или сканируйте номер партии панелей. Номер партии должен содержать 7 цифр. Коснитесь клавиши «Tab», чтобы перейти в следующее поле. (Если включен переключатель «QC Lot Support» (Поддержка партии контроля качества), это поле будет заполнено автоматически при сканировании штрих-кода с порядковым номером.)
- ј В поле «Expiration Date» (Срок годности) коснитесь значка календаря и укажите день, месяц и год. (Если включен переключатель «QC Lot Support» (Поддержка партии контроля качества), это поле будет заполнено автоматически при сканировании штрих-кода с порядковым номером.)
- к Необязательно: В поле «ID Broth Lot Number» (Номер партии бульона ID), введите или сканируйте номер партии бульона. Номер партии должен содержать 7 цифр.
- l Необязательно: В поле «Expiration Date» (Срок годности) коснитесь значка календаря и укажите день, месяц и год.
- m Необязательно: В поле «AST Broth Lot Number» (Номер партии бульона AST), введите или сканируйте номер партии бульона. Номер партии должен содержать 7 цифр.
- п Необязательно: В поле «Expiration Date» (Срок годности) коснитесь значка календаря и укажите день, месяц и год.
- о Необязательно: В поле «Indicator Lot Number» (Номер партии индикатора), введите или сканируйте номер партии индикатора. Номер партии должен содержать 7 цифр.
- р Необязательно: В поле «Expiration Date» (Срок годности) коснитесь значка календаря и укажите день, месяц и год.
- q Коснитесь кнопки «Save» (Сохранить), чтобы сохранить заданную информацию.

Вставьте панель в прибор (смотрите раздел «3.3.2 Загрузка панелей в прибор»).

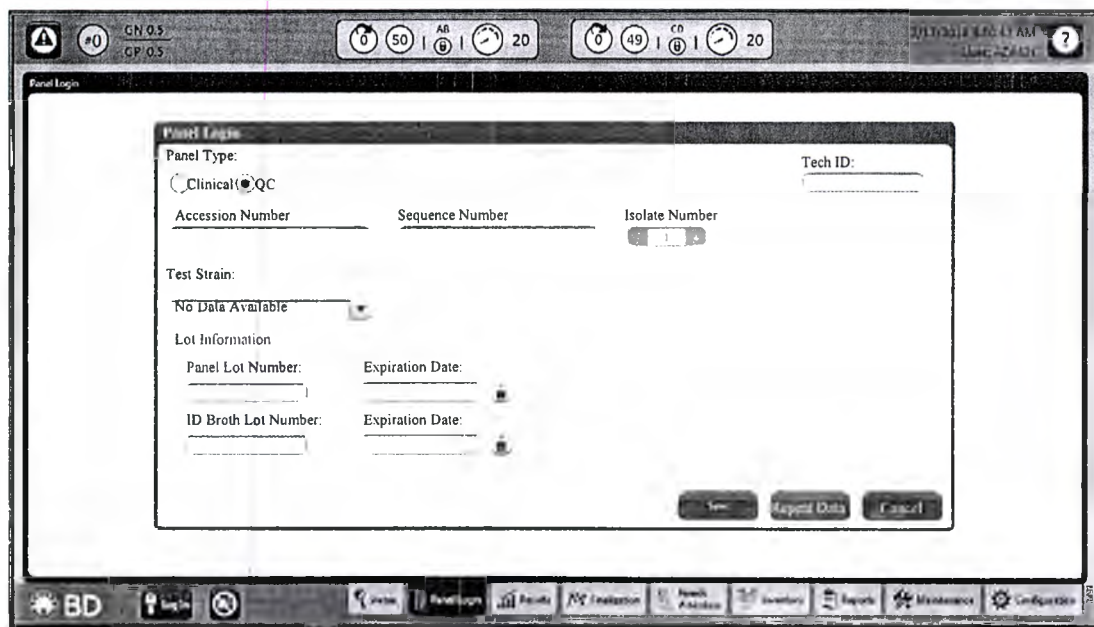


Рис. 4-1 – Экран регистрации панели контроля качества

Показанный выше экран не выводится при работе в режиме соединения с BD EpiCenter.

4.4 Автоматическое объединение панелей

4.4.1 Обзор

Функция автоматического объединения панелей позволяет использовать результаты идентификации из одной панели (панели ID или комбинированной панели) для соответствующих панелей AST, для которых не задано значение идентификации. Панели считаются связанными, если у них одинаковые номера образцов и изолятов. (Панели с одинаковыми номерами образцов и разными номерами изолятов НЕ считаются связанными, поэтому функция автоматического объединения панелей к ним не применяется.)

Во многих случаях на первом этапе автоматического объединения панелей выполняется проверка конфликтов идентификаций микроорганизмов. Обстоятельства, при которых выполняется проверка конфликтов, описаны ниже. Проверка конфликтов это процесс, при котором система проверяет, нет ли для данной панели, для которой запущена проверка, связанных с ней панелей, у которых итоговая идентификация не совпадает с итоговой идентификацией данной панели. Если обнаружен конфликт, автоматическое объединение панелей на выполняется.

Функция автоматического объединения панелей помогает избавиться от лишней работы, позволяя не вводить вручную идентификацию микроорганизма для связанных панелей. Кроме того, функция проверки конфликтов помогает гарантировать, что для всех панелей с конкретным образцом пациента задана одинаковая идентификация микроорганизма.

Учтите, что функция автоматического объединения панелей не помечает связанные панели как критические.

4.4.2 Типы панелей

Типы панелей, информация идентификации из которых ассоциируется со связанными панелями: Панели ID, комбинированные панели (в которых включены обе стороны – ID и AST) и комбинированные панели в которых включена только сторона ID. Функция автоматического объединения панелей использует итоговое значение идентификации.

Связанные панели, идентификацию которых задает функция автоматического объединения панелей: Панели AST и комбинированные панели, в которых включена только сторона AST.

4.4.3 Когда автоматическое объединение не выполняется

Операция автоматического объединения панелей НЕ выполняется в следующих случаях:

- Когда обнаружен конфликт идентификаций микроорганизмов для панелей с одинаковыми образцами/изолятами
- Для связанной панели AST, которая финализирована или удалена, или для которой уже задана итоговая идентификация.
- Между связанными панелями ID
- Между связанными панелями AST
- Между панелями контроля качества и обычными панелями
- Между связанными панелями контроля качества
- Если поле «Instrument ID» (Инструментальная идентификация) содержит двойное или тройное значение, эта информация не будет копироваться в связанные панели AST, однако значение поля «Final ID» (Итоговая идентификация) будет автоматически скопировано

4.4.4 Проверка конфликтов идентификаций микроорганизмов

При проверке конфликтов идентификаций микроорганизмов используется итоговая идентификация из панелей с одинаковыми образцами/изолятами (то есть из связанных панелей), которые не финализированы (и не являются панелями контроля качества). Если у обеих панелей есть итоговая идентификация (у обеих это поле содержит непустое значение) и эти значения не совпадают точно, считается, что есть конфликт идентификаций микроорганизмов, автоматическое объединение панелей не выполняется. Для всех панелей, участвующих в конфликте, устанавливается флаг «Требуется внимания», указывающий на наличие конфликта идентификаций микроорганизмов. Если конфликт разрешен (и если выполняются все остальные условия для автоматического объединения панелей), выполняется автоматическое объединение панелей.

Примечание: Проверка конфликтов идентификаций микроорганизмов не выполняется для панелей контроля качества.

4.4.5 Как выполняется автоматическое объединение панелей

События, запускающие процесс автоматического объединения панелей: состояние панели ID или комбинированной панели изменяется на «Removable» (Можно удалить) или изменяется информация об образце/изоляте. Если нет двойных/тройных значений идентификации, для которых не сделан выбор, и нет конфликтов идентификаций микроорганизмов:

- 1 Прибор ищет первую нефинализированную связанную панель ID или комбинированную панель, у которой есть итоговая идентификация. Если найдена панель, удовлетворяющая этим критериям, прибор выполняет автоматическое объединение панелей.
- 2 Если такая панель не найдена, прибор ищет первую финализированную связанную панель ID или комбинированную панель. Если финализированная панель найдена, прибор выполняет автоматическое объединение панелей.
- 3 Если при запуске процесса автоматического объединения панелей для панели AST в состоянии «Removable» (Можно удалить) есть связанные панели ID, для которых нет итоговой идентификации (и нет конфликтов идентификаций микроорганизмов), прибор устанавливает для этой панели AST флаг «Требуется внимания»: «Missing Organism ID» (Не определена идентификация микроорганизма).
- 4 Операция автоматического объединения панелей выполняется для всех связанных панелей AST, у которых нет значений в поле «Final ID» (Итоговая идентификация) и которые находятся в состоянии «Ongoing» (Обрабатывается) или «Removable» (Можно удалить) (автоматическое объединение не выполняется для панелей AST в состоянии «Pending» (Ожидание)).
- 5 Операция автоматического объединения панелей изменяет поле «Final ID» (Итоговая идентификация) панели AST (если это поле пустое), копируя в него информацию из связанной панели ID.
- 6 Информация из поля «Instrument ID» (Инструментальная идентификация) копируется только в тех случаях, когда там одно значение идентификации микроорганизма, а не двойное или тройное значение.
- 7 Если в комбинированной панели разрешены обе стороны, ее результат ID используется для интерпретации стороны AST этой панели.
- 8 Если операция автоматического объединения панелей выполнена успешно, автоматически очищаются все существующие для этих панелей AST коды причины «Требуется внимания»: «Missing Organism ID» (Не определена идентификация микроорганизма).

4.4.6 Типичные примеры автоматического объединения панелей

Копируется инструментальное значение идентификации

Панель ID и панель AST зарегистрированы с одинаковыми номерами образца/изолята. (При регистрации панели AST для нее не задан ID микроорганизма.) Обе панели одновременно помещены в прибор. Тестирование панели ID завершено. Записи панелей выглядят таким образом:

Панель	Инструментальная идентификация	Итоговая идентификация
ID	Org A	Org A
AST		

Когда тестирование панели ID завершено, система выполняет поиск связанных панелей. Она ищет панель AST, для которой не задано итоговая идентификация. Панель ID проверяется на наличие конфликтов идентификаций микроорганизмов. Конфликтов нет, поэтому значение поля «Instrument ID» (Инструментальная идентификация) панели ID копируется в поле «Instrument ID» панели AST (независимо от состояния панели AST).

Записи панелей выглядят таким образом:

Панель	Инструментальная идентификация	Итоговая идентификация
ID	Org A	Org A
AST	Org A	Org A

Копируются инструментальное и итоговое значения идентификации

Панель ID регистрируется, для нее задаются номера образца/изолята. Панель помещена в прибор для тестирования. Тестирование завершено, запись панели выглядит так:

Панель	Инструментальная идентификация	Итоговая идентификация
ID	Org A	Org A

Пользователь изменил итоговую идентификацию для этой панели. Теперь ее запись выглядит так:

Панель	Инструментальная идентификация	Итоговая идентификация
ID	Org A	Org B

Затем пользователь регистрирует панель AST с теми же номерами образца/изолята, что и для панели ID. (При регистрации панели AST для нее не задан ID микроорганизма.) Тестирование панели AST завершено. Система ищет связанные с ней панели. Она находит эту панель ID и проверяет, нет ли конфликтов идентификаций микроорганизмов для данных образца/изолята. Конфликтов нет, поэтому система копирует значения идентификации из панели ID в эту панель AST. Теперь записи панелей выглядят так:

Панель	Инструментальная идентификация	Итоговая идентификация
ID	Org A	Org B
AST	Org A	Org B

Копируется итоговое значение идентификации

Панель ID регистрируется, для нее задаются номера образца/изолята. Панель помещена в прибор для тестирования. Тестирование панели ID завершено, в поле инструментальной идентификации несколько значений. В этом случае запись панели выглядит так:

Панель	Инструментальная идентификация	Итоговая идентификация
ID	Org A	
	Org B	
	Org C	

Когда пользователь решит эту ситуацию двойного/тройного значения (выберет один из указанных микроорганизмов или задаст другой микроорганизм), запись панели ID будет выглядеть так:

Панель	Инструментальная идентификация	Итоговая идентификация
ID	Org A	
	Org B	
	Org C	Org A

Затем пользователь регистрирует панель AST с теми же номерами образца/изолята, что и для панели ID. (При регистрации панели AST для нее не задана идентификация микроорганизма.) Тестирование панели AST завершено. Система ищет связанные с ней панели. Она находит эту панель ID и проверяет, нет ли конфликтов идентификаций микроорганизмов для данных образца/изолята. Конфликтов нет, поэтому система копирует итоговую идентификацию из панели ID в эту панель AST. Теперь записи панелей выглядят так:

Панель	Инструментальная идентификация	Итоговая идентификация
ID	Org A	
	Org B	
	Org C	Org A
AST		Org A

4.4.7 Экран запущенных правил BDXPert

По умолчанию правила BDXPert включены и для них задан режим автоматического выполнения при обработке результатов тестирования. Однако в конфигурации правил BDXPert можно отключить некоторые правила (тем самым они не будут применяться для обработки результатов) или задать для некоторых правил BDXPert ручной режим выполнения. Все правила, для которых задан ручной режим, должны быть приняты или отвергнуты пользователем – только после этого продолжится обработка других правил и могут быть получены итоговые результаты SIR.

Чтобы принять запущенные правила BDXPert:

- 1 Перейдите на подвкладку «BDXPert Rules» (Правила BDXPert) экрана «Results» (Результаты).
- 2 Там будет выделено первое из правил, ожидающих решения.
- 3 Эффект от применения этого правила можно увидеть в поле «Final (SIR)» (Итоговое значение SIR) на экране «AST Results» (Результаты AST).
- 4 Выберите «Accept» (Принять), чтобы применить это ожидающее правило, «Reject» (Отвергнуть), чтобы отвергнуть его, или «Re-Run» (Повторить), чтобы заново применить все правила интерпретации к исходным данным.

4.4.8 Маркеры резистентности

Если для конкретной панели обнаружены маркеры резистентности, информация о них выводится вместе с правилами BDХpert. Выводится следующая информация:

- Номер правила BDХpert, по которому обнаружен этот маркер резистентности
- Код маркера резистентности (аббревиатура)
- Название маркера резистентности
- Описание правила BDХpert и возможные действия: «Accept» (Принять), «Reject» (Отвергнуть), «Re-execute» (Повторить) и «Exit» (Выход).

5 – Техническое обслуживание

5.1 Общая информация

Для надежной работы прибора BD Phoenix M50 от пользователя требуется лишь небольшое количество операций технического обслуживания. Ежедневно нужно проверять температуру в приборе и наличие бумаги в принтере. Каждую неделю нужно проверять светодиоды станций поворотного механизма, звуковой сигнал и индикатор предупреждений прибора. Профилактическое ежемесячное техническое обслуживание состоит в проверке входного воздушного фильтра. Все остальные процедуры выполняются **по мере необходимости**. Любые операции технического обслуживания или ремонта, не описанные в этом разделе, должны выполняться только сотрудниками BD.

ОСТОРОЖНО!
ЛЮБЫЕ ПРОЦЕДУРЫ ТЕХНИЧЕСКОГО ОБСЛУЖИВАНИЯ ИЛИ РЕМОНТА, ОТЛИЧНЫЕ ОТ ПРОЦЕДУР, ОПИСАННЫХ В РАЗДЕЛЕ «5.2 РЕГУЛЯРНОЕ ТЕХНИЧЕСКОЕ ОБСЛУЖИВАНИЕ» И РАЗДЕЛЕ «5.3 ЗАМЕНА МОДУЛЕЙ», ДОЛЖНЫ ОСУЩЕСТВЛЯТЬСЯ КВАЛИФИЦИРОВАННЫМИ СПЕЦИАЛИСТАМИ. НЕСОБЛЮЖДЕНИЕ ДАННОГО ПРЕДУПРЕЖДЕНИЯ МОЖЕТ ПРИВЕСТИ К НЕСЧАСТНОМУ СЛУЧАЮ ИЛИ ПОЛОМКЕ ПРИБОРА.

Ежегодное профилактическое техническое обслуживание, выполняемое сотрудниками сервисной службы BD, для этого прибора не требуется.

5.2 Регулярное техническое обслуживание

Периодичность	Процедура
Ежедневно Внесите результаты в Ежедневный отчет о работе прибора	• Проверьте наличие бумаги в принтере. • Запишите температуру, показанную на экране «Status» (Состояние). Температура должна быть 35 °C ± 1.5 °C. • Запишите температуру панели измерения температуры. Чтобы увидеть панель измерения температуры, выберите одну из функций проверки светодиодов прибора на вкладке «Maintenance» (Обслуживание). Температура должна быть 35°C ± 1.5 °C. • Выполните ежедневную проверку нефелометра BD PhoenixSpec. • Смотрите раздел «Nephelometer Calibration» (Калибровка нефелометра) в инструкции к BD PhoenixSpec. Результаты этих проверок запишите в Ежедневный отчет о работе прибора.

Периодичность	Процедура
Еженедельно	• Проверьте зеленые внутренние светодиоды • Проверьте красные внутренние светодиоды • Проверьте желтые внутренние светодиоды • Выключите все светодиоды • Проверьте внешние светодиоды системы • Проверьте звуковые сигналы тревоги Выполните все задачи из списка в категории задач «Hardware» (Прибор) на вкладке «Maintenance» (Обслуживание). Описание задач смотрите ниже.
Раз в три месяца	Выполните калибровку нефелометра BD PhoenixSpec. • Смотрите раздел «Nephelometer Calibration» (Калибровка нефелометра) в инструкции к BD PhoenixSpec. Выполните очистку станций поворотного механизма, если они были загрязнены протекающими панелями. В этой ситуации необходимо прежде всего ограничить распространение загрязнения и затем очистить позиции панелей и другие доступные области в приборе, на которое могло попасть загрязнение.
При необходимости	• Эта процедура очистки от загрязнений применяется только для доступных областей. • Если загрязнение распространилось на недоступные области поворотного механизма, обратитесь к вашему локальному представителю сервисной службы BD. • В качестве чистящего средства для загрязненных поверхностей рекомендуется применять раствор отбеливателя (не менее 10%). Все поверхности следует тщательно вымыть свежеприготовленным раствором отбеливателя. Количество раствора должно быть таким, чтобы поверхности были влажными и блестели. Если не удастся точно определить область загрязнения, вымойте свежеприготовленным раствором отбеливателя все доступные части поворотного механизма и внутренней поверхности корпуса прибора. Подробное описание процедуры очистки смотрите в разделе «5.2.5 Очистка / дезинфекция».

Периодичность	Процедура
	Замените сканер штрих-кодов 1 Найдите кабель, соединяющий сканер штрих-кодов с прибором. 2 Отсоедините кабель. 3 Подключите кабель нового сканера. 4 Проверьте правильность работы нового сканера, для чего сканируйте порядковый номер панели на экране регистрации панели. 5 Убедитесь, что номер сканирован правильно. • Коснитесь кнопки «Cancel», отмена, чтобы покинуть этот экран, не сохраняя информацию о панели.

5.2.1 Проверка и очистка воздушного фильтра

Фильтр необходимо проверять ежемесячно и при необходимости очищать или заменять (смотрите ниже раздел «Очистка воздушного фильтра»).

Если прибор работает в пыльном помещении, входной воздушный фильтр нужно проверять чаще (и при необходимости очищать или заменять). Фильтр должен быть всегда чистым и не мешать движению воздуха; грязный фильтр замедляет поток воздуха и может привести к чрезмерному повышению температуры внутри прибора, что может повлиять на результаты и вызвать сбой или поломку прибора. Фильтр можно очистить и затем вновь использовать в приборе.

Входной фильтр прибора находится внутри области доступа к панелям, внизу справа. Для извлечения фильтра не требуются инструменты.

5.2.2 Удаление воздушного фильтра

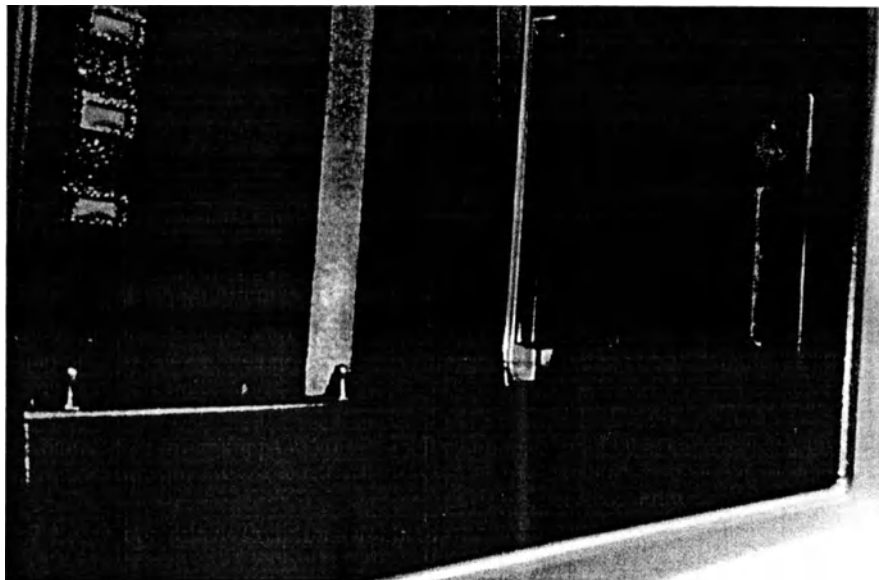


Рис. 5-1 – Положение воздушного фильтра

- 1 Нажмите кнопку загрузки или выгрузки панелей на передней стороне прибора, чтобы открыть дверь и увидеть область доступа к панелям.
- 2 Фильтр расположен на правой внутренней стороне корпуса, внизу.
- 3 Чтобы извлечь фильтр, возьмитесь за планку на торце фильтра и потяните влево.
- 4 Извлеченный фильтр необходимо очистить и высушить и только затем поместить назад в прибор. На время очистки и сушки старого фильтра можно поместить в прибор новый фильтр.
- 5 Чтобы вставить фильтр, возьмите его за планку на торце фильтра, вставьте в гнездо и вдвиньте вправо до тех пор, пока фланец фильтра не прижмется к стенке прибора.
- 6 Закройте дверь прибора.

5.2.3 Очистка воздушного фильтра

- 1 Промойте грязный фильтр в дезинфицирующем (бактерицидном) растворе.
- 2 Положите фильтр на бумажное полотенце и тщательно высушите (если собираетесь сразу повторно использовать этот фильтр).
- 3 Для экономии времени можно заменить грязный фильтр на чистый запасной фильтр. Промойте удаленный грязный фильтр, высушите и отложите его, чтобы использовать при следующей замене фильтра.

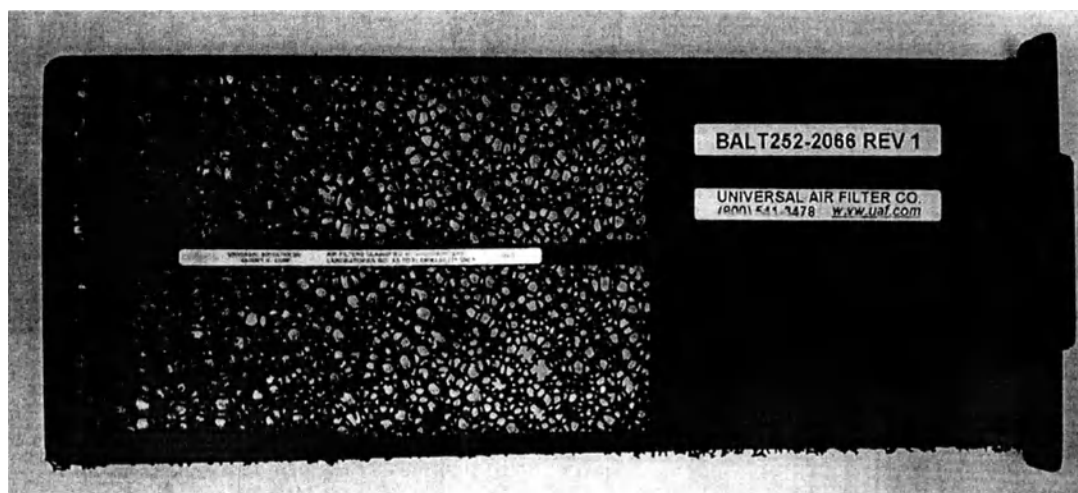


Рис. 5-2 – Воздушный фильтр

5.2.4 Ежедневный отчет о работе прибора

Ежедневный отчет о работе прибора («Daily Instrument Report») может печататься автоматически в указанное пользователем время, или его можно напечатать по запросу (см. рис. 5-3 – Ежедневный отчет о работе прибора).

Информацию о том, как задать время автоматической печати отчета, смотрите в разделе «3.10.2 Подкладка «System Configuration» (Конфигурация системы)».

Ежедневный отчет о работе прибора содержит три раздела:

Раздел	Описание
Верхний	Здесь выводится информация, заданная в конфигурации системы: • Название и адрес лаборатории • Дата и время печати отчета • Номер прибора • Серийный номер
Средний	Здесь выводится информация о внутренних операциях системы Phoenix, а также о нормализаторах. • Следует ежедневно проверять этот раздел, чтобы убедиться, что проверка всех операций прошла успешно.
Нижний	Здесь выводится список ежедневных и еженедельных операций технического обслуживания. Нужно выполнить их и записать результаты в этом списке.

Daily Instrument Report
The Diagnostic Switch is ON7/8/2016 3:20 PM
1.0.55.0 / V5.91A(x-US)

System Number 56
AB Serial Number PFW0015
Instrument Temperature Pass
Carousel Rotational Test Pass
Power Supply Check ?

Normalizer Panels

<u>Tier</u>	<u>Sequence Number</u>	<u>Status</u>	<u>Expiration Status</u>
A	429932154527	Pass	7/9/2018
B	429932154528	Pass	7/9/2018

Daily

Record Instrument Temperature From Main Screen

Range: (33.5 - 36.5)

Record Standard Panel Temperature

Range: (33.5 - 36.5)

Check Printer Paper Supply

Weekly

Instrument Internal Green LEDs

Instrument Internal Red LEDs

Instrument Internal Amber LEDs

Индикатор предупреждений прибора

PC Audible Alarm

Comments**Pass** **Fail** **Tech ID**

This report may contain PHI and/or PII, handle appropriately.

Page 1 of 1

Рис. 5-3 – Ежедневный отчет о работе прибора

5.2.5 Очистка / дезинфекция

Если в одной или нескольких панелях, находящихся внутри прибора, произойдет утечка содержимого, потребуется очистка от микробиологического загрязнения. В этой ситуации необходимо прежде всего ограничить распространение загрязнения и затем очистить позиции панелей и другие доступные области в приборе, на которое могло попасть загрязнение. Если загрязнение распространилось на области поворотного механизма, поверхность которых недоступна для очистки, обратитесь за инструкциями к вашему локальному представителю сервисной службы BD.

Чтобы очистить позиции панелей в поворотном механизме

В качестве чистящего средства для загрязненных поверхностей рекомендуется применять раствор отбеливателя (не менее 10%). Все поверхности следует тщательно вымыть свежеприготовленным раствором отбеливателя. Количество раствора должно быть таким, чтобы поверхности были влажными и блестели. Если не удастся точно определить область загрязнения, вымойте свежеприготовленным раствором отбеливателя все доступные части поворотного механизма и внутренней поверхности корпуса прибора.

Необходимые материалы:

- 10% раствор отбеливателя
- Личные средства защиты: перчатки, защитная одежда, средства защиты глаз (защитные очки или маска)
- Марлевые тампоны или бумажное полотенце
- Вода (водопроводная)

Процедура очистки:

- 1 Наденьте перчатки и защитную одежду, полностью закройте все места тела, которые могут коснуться загрязненных поверхностей прибора.
- 2 Выключите прибор. Отсоедините кабель питания прибора и только после этого приступайте к дальнейшим операциям.
- 3 Полностью соберите разлитую жидкость впитывающим материалом (наиболее эффективны марлевые тампоны).
- 4 Вымойте загрязненные поверхности раствором отбеливателя. Количество раствора должно быть таким, чтобы поверхности были влажными и блестящими. Оставьте раствор на поверхностях (около 15 минут).
- 5 Соберите раствор марлевыми тампонами или бумажным полотенцем.
- 6 Намочите чистый впитывающий материал в воде. Протрите загрязненные поверхности.
- 7 Тщательно вытрите все мокрые поверхности.
- 8 Выбросьте все использованные для очистки материалы в контейнер для опасных биологических отходов.

ОСТОРОЖНО!
ПЕРЕД НАЧАЛОМ ПРОЦЕССА ДЕЗИНФЕКЦИИ
УБЕДИТЕСЬ, ЧТО ВСЕ ЧАСТИ ТЕЛА, КОТОРЫЕ
МОГУТ СОПРИКАСАТЬСЯ С ЗАГРЯЗНЕННЫМИ
ПОВЕРХНОСТЯМИ ПРИБОРА, ПОЛНОСТЬЮ
ЗАКРЫТЫ.

5.3 Замена модулей

5.3.1 Общая информация

Прибор BD Phoenix M50 был создан и проверен для обеспечения бесперебойной работы. В случае неисправности обратитесь в компанию BD для обслуживания согласно условиям существующего договора об оказании услуг или гарантии. Пользователь может заменять только внешний сканер штрих-кодов.

Отдельные модули могут быть заменены на новые. В описанных ниже процедурах можно использовать только запасные части, поставляемые компанией BD.

5.3.2 Удаление термометра

Если столбик жидкости в термометре в панели измерения температуры разделен на части, выполните следующие действия, чтобы извлечь термометр и заменить его.

Чтобы удалить/заменить термометр

- 1 Выньте панель измерения температуры из прибора BD Phoenix M50.
- 2 С помощью маленького отверстия в нижней части панели аккуратно вытолкните термометр вверх через большое щелевое отверстие в верхней части панели измерения температуры.
- 3 Пальцами полностью извлеките термометр из панели через щелевое отверстие в верхней части панели измерения температуры.
- 4 Восстановите целостность столбика жидкости в термометре, как это описано ниже.
- 5 Действуя в обратном порядке, установите термометр на прежнее место.

5.3.3 Восстановление целостности столбика жидкости в термометре

Если столбик жидкости в термометре в панели измерения температуры разделен на части, выполните следующие действия, чтобы восстановить его целостность.

Чтобы восстановить целостность столбика жидкости

- 1 Если зазор между частями жидкости находится в капиллярной трубке или в расширительной камере в верхней части термометра, нагревайте шарик термометра с помощью горячей жидкости, температура которой превышает температурный диапазон термометра, до тех пор, пока части жидкости не соединятся в расширительной камере.
- 2 Быстро извлеките термометр из горячей жидкости, чтобы жидкость внутри термометра не успела заполнить расширительную камеру (это может повредить термометр).
- 3 Проверьте правильность показаний термометра, сравнив их с показаниями калиброванного термометра или используя баню с водой и льдом.

6 – Предупреждающие сообщения системы

6.1 Сообщения об ошибках или предупреждающие сообщения

ВНИМАНИЕ!

При появлении сообщения об ошибке или предупреждения необходимо немедленно предпринять соответствующие действия.

Когда система обнаруживает ошибку или условие предупреждения, код ошибки (ЕХХ или WXXX, где ХХ или ХХХ – число) либо выводится на экран, либо записывается в список системных предупреждений. Код ошибки – это краткое обозначение условий, описанных ниже.

Различные типы предупреждений и ошибок требуют различных действий. Существует три основных типа предупреждений:

- Самоустраняющиеся — эти предупреждения удаляются с экрана системных предупреждений после их отображения и выхода из этого экрана. Никаких других действий не требуется.
- Постоянные — эти предупреждения остаются на экране системных предупреждений (даже после отображения кода предупреждения) до тех пор, пока прибор не определит, что ошибка, вызывающая предупреждение, устранена. В зависимости от типа предупреждения ошибка может быть устранена как самим пользователем, так и без его вмешательства.
- Автоматически очищаемые — эти ошибки удаляются с экрана системных предупреждений после устранения условий, вызвавших ошибки. В данном случае код предупреждения может не выводиться на экране списка системных предупреждений. Он выводится там, если предупреждение все еще присутствует на момент просмотра этого списка.

В описаниях кодов ошибок в этой главе указывается, к какому из трех типов относится данное предупреждение и ошибка.

При возникновении ошибки типа W ее код ошибки выводится на экране. (Кроме того, для них генерируется звуковой сигнал «ошибка работы» – короткий высокий тон и короткий низкий тон, повторяющиеся четыре раза.) Эти ошибки являются ошибками работы (или «производственными» ошибками). В большинстве случаев это означает, что какое-то действие, выполненное Вами, не ожидалось системой, но можно исправить эту ситуацию, как указано ниже, не выходя из текущей операции. Для таких ошибок работы на экране выводится специальное сообщение (см. рис. 6-1 – Сообщение об ошибке работы).

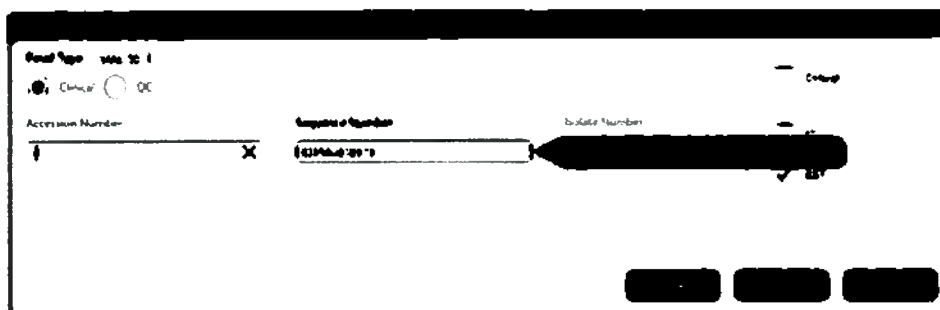


Рис. 6-1 – Сообщение об ошибке работы

Коды ошибок типа «W» сгруппированы следующим образом (полные описания кодов приведены в разделе «6.3 Предупреждения «ошибка работы» (коды ошибок W)»):

- W1XX Проблема с порядковым номером
- W2XX Проблема с номером образца, номером изолята или типом среды
- W3XX Проблема с данными, которые задаются только для панелей контроля качества
- W4XX Неразрешенная операция по доступу внутрь прибора
- W5XX Неразрешенная операция на экране конфигурации или обслуживания (если это не действие самого прибора)
- W6XX Неразрешенная операция на этом экране
- W7XX Ошибки ЛИС
- W8XX Ошибки функции поддержки партии контроля качества

6.2 Системные предупреждения (коды ошибок E)

Все коды ошибок типа «E» – это системные предупреждения, которые заносятся в список системных предупреждений. Они описываются ниже. Для этих ошибок генерируется звуковой сигнал предупреждения (если он разрешен) – тон средней высоты (1 секунда), пауза (3 секунды), затем повтор. Кроме того, на экране «Status» (Состояние) появляется значок «Системное предупреждение» и на приборе загорается индикатор предупреждений. Сообщения об ошибках необходимо просмотреть, чтобы сбросить флаг условия системного предупреждения. Список системных предупреждений можно просмотреть на экране «Status» (Состояние), коснувшись значка предупреждения в верхнем левом углу экрана.

Коды ошибок «E» перечислены по возрастанию номеров. Субкоды ошибок – это 8-значные числовые коды, которые отображаются под строкой EXX в списке системных предупреждений. Субкоды указывают конкретные обнаруженные условия, многие из них перечислены в таблицах ниже.

ВНИМАНИЕ!

Если выводится субкод, который не указан в этом руководстве, запишите его и обратитесь за помощью в компанию BD. Если рекомендуемое действие по устранению проблемы не помогло, обратитесь в компанию BD.

E01 Incubator Temperature (Температура инкубатора)			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
00000001	Постоянное	Средняя температура слишком высока (> 36,5 °C)	Для всех субкодов возможны следующие причины: температура комнаты вне рекомендуемого диапазона или не удовлетворяются другие требования к окружающей среде (например, прибор находится под воздействием прямых солнечных лучей или расположен слишком близко к воздушной заслонке отопления, вентиляции или кондиционирования воздуха). Убедитесь, что выполнены все требования к окружающей среде (смотрите раздел «2.3 Спецификации прибора»). Очистите или замените воздушный фильтр прибора, чтобы обеспечить доступ свежего воздуха.
00000002		Средняя температура слишком низка (< 33,5 °C)	
00000004		Утеряна связь с температурным датчиком инкубатора	
00000010		Средняя температура слишком высока (> 36,5 °C) в течение более одного часа	
00000020		Средняя температура слишком низка (< 33,5 °C) в течение более одного часа	
00000040		Превышена предельная температура (> 38,5 °C)	
00000080		Расхождения между показаниями контрольного датчика температуры и значениями температуры контроля качества.	
00000100		Температура контроля качества вне допустимого диапазона	

Значение температуры считываются каждые 5 секунд в течение 10 минут, затем эти значения усредняются. Учтите, если температура прибора достигает 38,5 °C, прибор отключает нагревательный элемент.

E05 Carousel Alert (Предупреждение о поворотном механизме)			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
00000001	Постоянное	Слишком низкая скорость вращения поворотного механизма	Прибор выводит такое сообщение, если что-то мешает движению поворотного механизма. Оно может выводиться в одной из следующих ситуаций: слишком низкая скорость вращения, неверно считаны флаги панелей или поворотный механизм заторможен или остановлен. Эти условия проверяются при всех операциях вращения поворотного механизма. Все выполнявшиеся операции инвентаризационного сканирования или тестирования панели будут прерваны и прибор игнорирует все данные, полученные в прерванной операции.
00000080		Поворотный механизм застрял (флаги панелей не обнаружены, барабан не вращается)	Откройте дверь, найдите и устраните любые помехи, такие как приоткрытая панель или незафиксированный край панели. Не вращайте поворотный механизм вручную. Закройте дверь. Если сообщение появляется снова, обратитесь к локальному представителю компании BD.

E06 Tier Alert (Предупреждение об уровне)*			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
00000001 00000002 00000004 00000008 00000010 00000040 00000080 00000100 00000200 00000400 00004000 00020000 00040000 00080000 00100000 00200000 00400000	Постоянное	Это общее предупреждение о проблемах, связанных с конкретным уровнем: ошибки считывания флагов, оптические ошибки, превышен срок ожидания или проблемы с нормализатором.	Эти условия могут быть обнаружены в цикле тестирования или при инвентаризационном сканировании. Прибор игнорирует все данные, полученные во время теста или сканирования для уровня, на котором обнаружена эта ошибка. Данные, полученные от исправных уровней, сохраняются. Все позиции на неисправных уровнях автоматически блокируются. Некоторые условия, для которых выводится предупреждение E05, также обнаруживаются микроконтроллером уровня и выводятся вместе с предупреждением E06. Это могут быть отсутствующие или лишние флаги панелей, флаг начальной позиции и т.д. Чтобы исправить ошибку, выполните показанные на экране инструкции.

* Первая строка ошибки представляет уровень А, вторая строка представляет уровень В, третья строка представляет уровень С, а четвертая строка представляет уровень D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

E09 Test Aborted (Тест прерван)			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
20000000	Самоустраняюще еся	Тестирование панели не проводилось больше часа. Возможные причины: прибор был отключен или дверь была открыта на протяжении более одного часа, системные часы были переведены вперед на один час или более, цикл тестирования не запускался более одного часа.	Все обрабатываемые панели помечаются как «Needs Attention» (Требуется внимания) и переводятся в состояние «Removable» (Можно удалить). Некоторые результаты могут быть неполными, необходимо просмотреть результаты всех затронутых панелей.

E10 System Database Corruption (Системная база данных повреждена)			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
00000002	Самоустраняющееся	Повреждена база данных параметров системы	Проверьте настройки на экране «Configuration» (Конфигурация) и задайте их в соответствии со своими предпочтениями (см. раздел «3.10.2 Подвкладка «System Configuration» (Конфигурация системы)»). Сохраните данные на USB флеш-накопитель и свяжитесь с локальным представителем компании BD.
00000008		Повреждена база данных правил BDExpert	Проверьте настройки на экране «BDExpert Rules» (Правила BDExpert) и задайте их в соответствии со своими предпочтениями (см. раздел «3.4.5 Подвкладка «BDExpert Rules» (Правила BDExpert)»). Сохраните данные на USB флеш-накопитель и свяжитесь с локальным представителем компании BD.
00000020		Повреждена база данных пользовательских пороговых значений	Проверьте пороговые значения на экране «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации) и задайте их в соответствии со своими предпочтениями (см. раздел «3.10.6 Подвкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)»). Сохраните данные на USB флеш-накопитель и свяжитесь с локальным представителем компании BD.
00000040		Повреждена база данных пользовательских кодов	Проверьте настройки на экранах «Organism Configuration» (Коды микроорганизмов) и «Antimicrobial Configuration» (Коды антибиотиков) и задайте их в соответствии со своими предпочтениями (см. разделы «3.10.4 Подвкладка «Organism Configuration» (Коды микроорганизмов)» и «3.10.5 Подвкладка «Antimicrobial Configuration» (Коды антибиотиков)»). Сохраните данные на USB флеш-накопитель и свяжитесь с локальным представителем компании BD.
00000001 00000010 00000080 00001000 00002000 00004000 00008000 00010000 00020000 00040000 00080000 00100000 00200000		Повреждена база данных: информация о панелях, партиях панелей, журнал предупреждений/событий.	Сохраните данные на USB флеш-накопитель и свяжитесь с локальным представителем компании BD.
00400000		Повреждены записи конфигурации прибора, хронологическая информация прибора, системные параметры, информация об источниках излучения и т.д.	

E11 Printer Error (Ошибка принтера)			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
20000000	Самоустраняющееся	Застывшая бумага или проблемы с питанием	Проверьте бумагу в принтере (устраните застрявшую), кабель питания, включен ли принтер и индикатор подключения.

E13 Power Failure (Сбой питания)			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
0x20000000	Самоустраняющееся	Подача питания на прибор была прекращена	Это информационное сообщение. Если произошло несколько отключений питания, в списке предупреждений отображается только последнее. Учтите, что время сбоя в питании и время восстановления подачи питания записываются в журнал прибора. Учтите, что события сбоя питания не распознаются до тех пор, пока пользовательский интерфейс прибора не будет успешно загружен.

E14 CCD Underrun (Отставание CCD)*			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
00000000	Постоянное	Сканирование панели преждевременно остановлено во время цикла тестирования	Прибор игнорирует все данные, полученные во время теста для панели/станции, в которой возникла эта ошибка. Данные, полученные от исправных панелей, сохраняются, если станция, в которой возникла ошибка, не является станцией нормализатора. Все неисправные станции автоматически блокируются. Если эта ошибка возникла на нормализаторе, блокируется весь уровень. Чтобы сбросить состояние ошибки, перезапустите прибор.

* Первая строка ошибки представляет станции с ошибками на уровне А, вторая строка – станции с ошибками на уровне В, третья строка – станции с ошибками на уровне С, а четвертая строка – станции с ошибками на уровне D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

E18 Normalizer Row Averages (Предупреждение нормализатора – средние данные ряда)			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
00000001 00000002 00000004 00000008 00000010 00000020 00000040 00000080	Самоустраняющееся	На уровне возникли проблемы с усредненными данными нормализатора	Настройка источников излучения может выполняться, только когда в приборе нет обрабатываемых панелей. Во время цикла тестирования возникли ошибки нормализатора. Полученные данные могут быть сохранены или удалены, в зависимости от субкода ошибки. Все доступные станции на неисправном уровне автоматически блокируются; станции, в которых находятся обрабатываемые панели, блокируются после окончания теста или извлечения панелей. Не добавляйте новые панели и не перемещайте обрабатываемые панели на уровень, вызвавший эту ошибку. Прибор сможет исправить эту ошибку путем настройки источника излучения.

• Первая строка ошибки представляет уровень А, вторая строка представляет уровень В, третья строка представляет уровень С, а четвертая строка представляет уровень D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

E20 Barcode Scanner Not Communicating (Отсутствует связь со сканером штрих-кода)			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
00000001 00000002 00000004 00000008 00000010	Самоустраняющееся	Прибор не может связаться со сканером штрих-кода уровня (или ручным сканером); все станции на этом уровне автоматически блокируются	Перезапустите прибор.

E21 Level 2 Rotor Step Warning (Вращение ротора –предупреждение уровня 2)*			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
00000000	Постоянное	Прибор обнаружил, что вращение ротора не идеально, хотя и приемлемо	Убедитесь, что панель правильно размещена в держателе, крышка панели закреплена правильно и этикетка пользователя не отклеилась. Если видимой причины этой ошибки не обнаружено, свяжитесь с локальным представителем компании BD.

* Первая строка ошибки представляет станции с ошибками на уровне А, вторая строка – станции с ошибками на уровне В, третья строка – станции с ошибками на уровне С, а четвертая строка – станции с ошибками на уровне D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

E22 Level 3 Rotor Step Error (Вращение ротора – ошибка уровня 3)			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
00000000	Постоянное	Прибор обнаружил, что вращение ротора не удовлетворяет техническим требованиям	Прибор игнорирует все данные, полученные во время теста для панели/станции, в которой возникла эта ошибка. Данные, полученные от исправных панелей, сохраняются, если станция, в которой возникла ошибка, не является станцией нормализатора. Все неисправные станции автоматически блокируются. Если эта ошибка возникла на нормализаторе, блокируется весь уровень. Убедитесь, что панель правильно размещена в держателе, крышка панели закреплена правильно и этикетка пользователя не отклеилась. Если видимой причины этой ошибки не обнаружено, свяжитесь с локальным представителем компании BD.

* Первая строка ошибки представляет станции с ошибками на уровне А, вторая строка – станции с ошибками на уровне В, третья строка – станции с ошибками на уровне С, а четвертая строка – станции с ошибками на уровне D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

E30 Normalizer Expiration Alert (Предупреждение об истечении срока использования нормализатора)*			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
00000001	Самоустраняюще еся	До даты истечение срока годности нормализатора данного уровня осталось от 30 до 60 дней	Прибор выдает предупреждение раз в неделю, когда до истечения срока использования нормализатора остается менее 60 дней, и каждый день, когда остается менее 30 дней. Запланируйте замену нормализаторов для затронутых уровней до того, как истечет срок их использования (срок годности указан в Ежедневном отчете о работе прибора).
00000002		До даты истечение срока годности нормализатора данного уровня осталось менее 30 (но срок еще не истек)	

* Первая строка ошибки представляет нормализаторы на уровне А, вторая строка – нормализаторы на уровне В, третья строка – нормализаторы на уровне С, а четвертая строка – нормализаторы на уровне D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

E31 Normalizer Expired (Срок годности нормализатора истек)*			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
00000001	Постоянное	Срок годности нормализатора истек. Станции на всех затронутых уровнях блокируются	Чтобы возобновить тестирование необходимо немедленно заменить нормализатор.

* Первая строка ошибки представляет нормализаторы на уровне А, вторая строка – нормализаторы на уровне В, третья строка – нормализаторы на уровне С, а четвертая строка – нормализаторы на уровне D. Код 00000000 указывает, что для этого уровня ошибок не обнаружено.

E44 LIS Fatal Operating System Error (Фатальная ошибка взаимодействия с ЛИС)			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
00000001	Постоянное	Прибор не может передать данные в ЛИС из-за того, что в библиотеке взаимодействия с ЛИС в этом приборе возникла фатальная исключительная ситуация	Запустите ЛИС. Проверьте самые простые возможные источники ошибки, например, отключенный кабель. Если явной причины нет, свяжитесь с локальным представителем компании BD.
00000008		В модуле LIS_IM возникла фатальная ошибка выполнения	Обратитесь к локальному представителю компании BD.

E50 Internal Software Error (Внутренняя ошибка программного обеспечения)			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
00000001	Самоустраняющееся	В программном обеспечении системы возникла общая ошибка защиты.	Сохраните данные на USB флеш-накопитель и свяжитесь с локальным представителем компании BD (см. раздел «3.9.1 Задачи технического обслуживания прибора»).
00000002		Внутренняя ошибка программного обеспечения	

E51 Duplicate Panel Barcode Detected (Обнаружен повторяющийся штрих-код панели)			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
00000000	Самоустраняющееся	Обнаружены одинаковые штрих-коды панелей.	Тщательно проверьте указанные станции на наличие одинаковых штрих-кодов. Обработка всех панелей с одинаковыми штрих-кодами прерывается. Если Вы нашли панели с одинаковыми штрих-кодами, удалите их из системы и немедленно свяжитесь с локальным представителем компании BD. Если панелей с одинаковыми штрих-кодами нет, это предупреждение может быть вызвано перемещением существующей панели между инструментами. Не перемещайте панели между инструментами, иначе их обработка будет прервана. Если предупреждение появляется снова, обратитесь к локальному представителю компании BD.

E52 Instrument Communications Application Layer (ICAL) Alert (Предупреждение уровня прикладной программы связи прибора)			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
00000001	Самоустраняющееся	Прибор не зарегистрирован	Сконфигурируйте прибор в системе.
00000002		Хронологическая информация прибора стерта, поскольку прибор слишком долго был в автономном режиме.	Восстановите соединение прибора и планшетного компьютера или обратитесь к локальному представителю компании BD.
00000004		Избыточное устройство: с прикладной программой соединены три или более приборов.	Удалите приборы, которые не сконфигурированы в системе.

E98 PC Alert (Предупреждение компьютера)			
Субкод	Тип предупреждения	Возможные причины	Действия по устранению
00000001	Постоянное	Превышен срок ожидания для слоя IDS	Если предупреждение появляется снова, обратитесь к локальному представителю компании BD.
00000002		Системе IDS передан недопустимый параметр	Обратитесь к локальному представителю компании BD.
00000004		Система IDS отвергла сообщение	
00000008		Обнаружен недопустимый субкод предупреждения	

6.3 Предупреждения «ошибка работы» (коды ошибок W)

Предупреждения уровня поля выводятся, когда в конкретное поле введены неверные данные. Такие ошибки (например, попытка ввести неверный порядковый номер на экране «Panel Login» (Регистрация панели)) на экране выводятся сообщения об ошибках работы. Они не переводят систему в состояние ошибки. Обычно такие ошибки можно исправив, просто выполнив действие правильно (например, введя правильный порядковый номер). Когда ошибка исправлена, предупреждение уровня поля исчезает с экрана. Все остальные предупреждения «ошибка работы» выводятся в диалоговом окне с двумя или большим числом кнопок.

W100 Invalid Panel Sequence Number (Неправильный порядковый номер панели)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Введенный или считанный сканером порядковый номер панели не удовлетворяет требуемому формату номера.	Штрих-код порядкового номера панели расположен в верхней части обратной стороны панели (сторона реакции). Считайте сканером или введите правильный порядковый номер панели. Проверьте коробку панели на наличие штрих-кодов обновления панели.

W101 Missing Panel Sequence Number (Отсутствует порядковый номер панели)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Предпринята попытка сохранить данные при пустом поле порядкового номера панели.	Введите или считайте сканером правильный порядковый номер панели перед повторной попыткой запуска операции.

W102 Unknown Panel Sequence Number (Неизвестный порядковый номер панели)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Предпринята попытка сохранения или выбора порядкового номера панели, которого нет в базе данных системы BD Phoenix.	Убедитесь, что был введен правильный порядковый номер панели. Если ошибка повторяется, возможно, необходимо выполнить регистрацию панели, если эта панель новая. Старые завершенные и финализированные панели со временем удаляются из базы данных.

W103 Invalid Panel Type for Region (Недопустимый тип панели для региона)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Предпринята попытка зарегистрировать штрих-код панели, которые недопустим для данного региона.	Убедитесь, что был введен правильный штрих-код панели.

W200 Invalid Accession Number (Неправильный номер образца)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Предпринята попытка сохранить, найти или напечатать информацию для неправильного номера образца.	Введите правильный номер образца (до 20 символов, кроме символов * ? [] ! #)

W201 Missing Accession Number (Отсутствует номер образца)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Предпринята попытка запуска операции (сохранить, найти или напечатать), когда поле «Accession Number» (Номер образца) пустое или содержит неправильное значение. Сюда также входят: запись с правильным порядковым номером панели, для которой задан номер изолята больше 1 и не задан номер образца; панель неизвестного образца, для которой задан только номер изолята; попытка изменить номер образца в сохраненной записи.	Введите или считайте сканером правильный номер образца перед повторной попыткой запуска операции.

W202 Unknown Accession Number (Неизвестный номер образца)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Предпринята попытка найти данные или напечатать отчет для номера образца, отсутствующего в базе данных системы BD Phoenix.	Убедитесь, что введен правильный номер образца. Если ошибка повторяется, возможно, необходимо выполнить регистрацию записи, если эта запись новая. Старые завершенные и финализированные записи со временем удаляются из базы данных.

W203 Missing Isolate Number (Отсутствует номер изолята)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Предпринята попытка сохранить запись, для которой задан номер образца, но не задан номер изолята.	Чтобы сохранить запись, для которой введен номер образца, необходимо также ввести номер изолята.

W204 Missing Media Type (Не задан тип среды)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	При регистрации панели идентификации дрожжей предпринята попытка сохранения, но не задан тип питательной среды.	Чтобы сохранить запись, для которой введен порядковый номер панели идентификации дрожжей, необходимо выбрать тип питательной среды.

W205 Panel Not Found (Панель не найдена)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«ОК» «Print Screen» (Печать экрана)	Предпринята попытка найти информацию по порядковому номеру и номеру образца, но ее нет в базе данных BD Phoenix.	Записи с такими порядковым номером и номером образца нет в базе данных BD Phoenix.

W300 Missing Test Strain for a QC Panel (Отсутствует тестовый штамм для панели контроля качества)

Тип сообщения	Причина предупреждения	Исправляющие действия
«ОК» «Print Screen» (Печать экрана)	Предпринята попытка сохранить запись для панели контроля качества, для которой не задана идентификация микроорганизма (поле «Test Strain» (Тестовый штамм)).	Для сохранения панели контроля качества необходимо выбрать микроорганизм (тестовый штамм). Поле «Test Strain» (Тестовый штамм) содержит выпадающий список доступных тестовых штаммов. Выделите нужный микроорганизм. Выберите выделенный микроорганизм.

W301 Missing Tech ID for a QC Panel (Отсутствует идентификатор технолога для панели контроля качества)

Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Предпринята попытка сохранить запись для панели контроля качества, для которой не задан идентификатор технолога.	Чтобы можно было сохранить информацию о панели контроля качества, необходимо задать идентификатор технолога. Перейдите в поле «Tech ID» (Идентификатор технолога) и введите идентификатор (до трех алфавитно-цифровых символов, кроме * ? [] ! #).

W302 Invalid Tech ID for a QC Panel (Неправильный идентификатор технолога для панели контроля качества)

Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Предпринята попытка сохранить запись для панели контроля качества, для которой задан нправильный идентификатор технолога.	Введите идентификатор (до трех алфавитно-цифровых символов, кроме * ? [] ! #).

W303 Invalid Lot Number (Неправильный номер партии)

Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Предпринята попытка сохранить запись или напечатать отчет для неправильного номера партии панелей, номера партии бульона ID, номера партии бульона AST или номера партии индикатора.	Введите правильный номер партии. Номер партии может содержать до 7 цифр. Номер партии указан на упаковке.

W304 Missing Lot Number (Отсутствует номер партии)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Предпринята попытка сохранить или напечатать отчет для панели контроля качества, для которой не задан номер партии, или в одном из дополнительных полей номера партии (для бульона ID, бульона AST или индикатора) введен срок годности, но не задан номер партии.	Чтобы можно было сохранить информацию о панели контроля качества, необходимо задать номер партии панелей. Передите в поле «Panel Lot Number» (Номер партии панелей) и введите номер партии (до 7 цифр). Номер партии указан на коробке панелей.

W305 ID or AST Must be Enabled (Должна быть включена сторона ID или сторона AST)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«ОК» «Print Screen» (Печать экрана)	Предпринята попытка сохранить запись для панели или панели контроля качества, для которой отключены обе стороны панели (ID и AST).	Переключатели «ID» и «AST» (Идентификация и Определение чувствительности) включаются или выключаются в соответствии с типом панели (он определяется по порядковому номеру панели). Чтобы можно было сохранить запись панели и выполнить тестирование, необходимо включить хотя бы один из этих переключателей.

W400 Door Already Open (Дверь уже открыта)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«ОК» «Print Screen» (Печать экрана)	Запрошено выполнение операции, для которой дверь должна быть открыта, но дверь уже открыта.	Выберите «ОК».

W401 Can Not Perform Panel Locate (Не удалось найти панель)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«OK» «Print Screen» (Печать экрана)	Панель, которую Вы пытаетесь найти, отсутствует в приборе, или при попытке запустить операцию замены нормализаторов у Вас нет доступа к прибору (поскольку в приборе есть обрабатываемые панели).	Проверьте, что введен правильный порядковый номер панели, или убедитесь, что у Вас есть доступ к прибору (пока в приборе есть обрабатываемые панели, он недоступен для операции замены нормализаторов).

W500 Upgrade Error (Ошибка обновления)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«OK» «Print Screen» (Печать экрана)	USB флеш-накопитель не содержит правильную версию программного обеспечения прибора. Возможные причины: старая версия программного обеспечения прибора; USB флеш-накопитель извлечен до завершения процесса обновления или на USB флеш-накопителе обнаружен поврежденный или отсутствующий файл.	Попробуйте еще раз выполнить операцию обновления. Если ошибка повторяется, обратитесь к локальному представителю компании BD.

W502 Removable Media Error (Ошибка сменного носителя)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«Retry» (Повторить) «Cancel» (Отмена) «Print Screen» (Печать экрана)	USB флеш-накопитель не вставлен в разъем, переполнен, защищен от записи или извлечен до завершения задачи.	Попробуйте еще раз выполнить операцию обновления. Если ошибка повторяется, обратитесь к локальному представителю компании BD.

W503 Duplicate Rule (Дублирование правила)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«OK» «Print Screen» (Печать экрана)	Данные в полях «Antimicrobial» (Антибиотик), «Org(anism) Group» (Группа микроорганизмов) и «Organism» (Микроорганизм) для сохраняемого правила совпадают со значениями для другого правила, уже определенного в этом наборе правил.	Чтобы запись можно было сохранить, один из этих параметров (антибиотик, группа микроорганизмов или название микроорганизма) должен быть уникальным.

W506 Instrument Not Idle (Прибор не в режиме ожидания)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«OK» «Print Screen» (Печать экрана)	Попытка обновления закончилась неудачей, поскольку прибор не находится в режиме ожидания	Дождитесь пока прибор перейдет в режим ожидания (или исправьте застревание поворотного механизма) и только потом выполняйте эту операцию.

W507 Invalid Password (Неправильный пароль)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«OK» «Print Screen» (Печать экрана)	Для доступа к экрану «Configuration» (Конфигурация) был введен неправильный пароль или пароль не был введен.	Введите правильный пароль и повторите действие.

W511 Battery Mode (Режим работы от батареи)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«ОК» «Print Screen» (Печать экрана)	Попытка выполнить установку или восстановление данных, когда планшетный компьютер отключен от прибора и работает от батареи.	Повторите установку или восстановление данных, когда планшетный компьютер не работает от батареи.

W600 Panel Can Not Be Deleted (Невозможно удалить панель)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«ОК» «Print Screen» (Печать экрана)	Предпринята попытка удалить панель, которая физически находится в приборе, или не находящуюся в очереди панель контроля качества, которая физически не находится в приборе (если включена поддержка партий контроля качества).	Извлеките панель из прибора. Можно вкладку поиска панели, чтобы поворотным механизмом сделал панель доступной при открывании двери. Если Вы уверены, что уже извлекли панель, закройте дверь прибора и позвольте ему завершить инвентаризационное сканирование перед попыткой удаления панели.

W601 Can Not Finalize (Не удастся финализировать)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Предпринята попытка финализировать панель, которая не находится в состоянии «Removable» (Можно удалить) или у которой есть непроигнорированный флаг «Needs Attention» (Требуется внимания).	Если панели в состоянии «Ongoing» (Обрабатывается), дождитесь, когда она перейдет в состояние «Removable» (Можно удалить), прежде чем пытаться финализировать панель. Если для панели есть флаг «Needs Attention» (Требуется внимания), исправьте его причину, прежде чем пытаться финализировать панель.

W602 Invalid Date (Неправильная дата)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Предпринята попытка сохранить запись или распечатать отчет, содержащие неправильную дату. Возможно, был считан штрих-код партии панелей, содержащий недействительный срок годности.	Введите правильную дату.

W604 Panel Still Testing (Панель все еще тестируется)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Предпринята попытка сохранить значение «Final ID» (Итоговая идентификация) для панели ID или комбинированной панели, для которой еще не получено значение «Instrument ID» (Инструментальная идентификация).	Итоговую идентификацию нельзя выбрать и сохранить, пока не получены результаты идентификации от прибора. Дождитесь, когда прибор определит идентификацию, прежде чем пытаться сохранить итоговую идентификацию.

W606 Cannot Modify Date for a Finalized Panel (Нельзя изменить дату для финализированной панели)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«OK» «Print Screen» (Печать экрана)	Предпринята попытка сохранить запись панели, для которой не задан срок годности партии панелей или сроки годности для других полей номеров партий, если номера партий были заданы.	Если необходимо изменить информацию для финализированной панели, вызовите на экране информацию об этой панели и отмените финализацию, выключив переключатель «Finalize» (Финализировать). Внесите необходимые изменения и сохраните информацию.

W607 Missing Date (Не задана дата)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Предпринята попытка сохранить запись панели, для которой не задан срок годности партии панелей или сроки годности для других полей номеров партий, если номера партий были заданы.	Для панелей должны быть заданы правильные даты истечения срока годности. Если другие поля номеров партий заполнены, для них необходимо задать соответствующие сроки годности.

W608 Improper Barcode Scan (Ошибка сканирования штрих-кода)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«OK» «Print Screen» (Печать экрана)	Считанный сканером номер штрих-кода превышает длину активного поля или тип штрих-кода не соответствует типу для данного поля (например, производится считывание номера партии в поле не для номера партии).	Проверьте, какое поле в данный момент активно, и считывание какого типа штрих-кода выполняется.

W609 Database Full (База данных переполнена)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«OK» «Print Screen» (Печать экрана)	Предпринята попытка регистрации новой панели, но в базе данных прибора уже есть 50 панелей в состоянии ожидания и ни одна из панелей недоступна для удаления.	Прежде чем регистрировать новые панели, следует поместить в прибор ожидающие панели и позволить прибору выполнить инвентаризационное сканирование.

W700 Invalid LIS Code (Неправильный код ЛИС)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«ОК» «Print Screen» (Печать экрана)	На экране «Organism Configuration» (Коды микроорганизмов) или «Antimicrobial Configuration» (Коды антибиотиков) был введен неправильный код ЛИС.	Код ЛИС может содержать до 20 алфавитно-цифровых символов.

W701 Duplicate LIS Code (Дублирование кода ЛИС)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«ОК» «Print Screen» (Печать экрана)	На экране «Organism Configuration» (Коды микроорганизмов) или «Antimicrobial Configuration» (Коды антибиотиков) был введен дублирующий код ЛИС.	Коды ЛИС должны быть уникальны в системе.

W800 Panel Lot Undefined (Партия панели не определена)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Предпринята попытка регистрации панели контроля качества, но порядковый номер панели находится вне диапазона определенной/сохраненной партии панелей.	Если в конфигурации включена поддержка партии контроля качества, все панели контроля качества должны быть из определенной/сохраненной партии панелей. Клинические панели из неопределенной партии панелей можно зарегистрировать, но для таких панелей будет генерироваться условие «Needs Attention» (Требуется внимания) с сообщением «Panel Lot Undefined» (Партия панели не определена).

W801 Panel Lot Range Incomplete (Диапазон партии панелей задан не полностью)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Во время определения партии панелей предпринята попытка сохранить информацию, но одно или оба поля порядковых номеров панелей не заполнены.	Чтобы можно было сохранить информацию о партии панелей, для нее необходимо считать сканером начальный порядковый номер (наименьший) и конечный порядковый номер (наибольший). Порядковые номера можно считать в любом порядке, но важно считать оба порядковых номера. Порядковый номер нельзя ввести вручную на экране «Panel Lot Definition» (Определение партии панелей).

W802 Panel Lot Range Invalid (Неправильный диапазон партии панелей)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Во время определения партии панелей была выполнена попытка сохранить информацию, но две сканированные панели были различных типов.	Чтобы можно было сохранить информацию о партии панелей, нужно сканировать две панели одного типа.

W803 Panel Lot Range Conflict (Конфликт диапазона партии панелей)		
Тип сообщения	Причина предупреждения	Исправляющие действия
Уровень поля	Во время определения партии панелей предпринята попытка сохранить информацию, но один или оба порядковых номера панелей конфликтуют с существующим определением партии панелей.	Порядковый номер панели может принадлежать только одной определенной/ сохраненной партии панелей. Обратитесь к локальному представителю компании BD.

W806 Panel Lot Expired (Истек срок годности партии панелей)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«ОК» «Print Screen» (Печать экрана)	Считанный сканером штрих-код номера партии панелей содержит срок годности, который уже истек.	Введите штрих-код номера партии панелей, срок годности которой не истек.

W900 Commission Duplicate Serial Number (Дублируется серийный номер прибора)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«ОК» «Print Screen» (Печать экрана)	Уже зарегистрирован прибор с таким же серийным номером.	Введите уникальный серийный номер.

W901 Commission Duplicate Instrument Identifier (Дублируется идентификатор прибора)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«ОК» «Print Screen» (Печать экрана)	Уже зарегистрирован прибор с таким же идентификатором.	Проверьте дублирование идентификаторов приборов.

W904 Commission Invalid Serial Number (Неправильный серийный номер прибора)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«ОК» «Print Screen» (Печать экрана)	Серийный номер должен содержать не менее шести символов.	Серийный номер должен содержать шесть символов.

W905 Decommission of Connected Instrument (Отмена регистрации подключенного прибора)		
Тип сообщения	Причина предупреждения	Исправляющие действия
«ОК» «Print Screen» (Печать экрана)	Предпринята попытка отменить регистрацию прибора в системе.	Сначала необходимо отключить этот прибор.

6.4 Сообщения журнала событий

6.4.1 Сообщения, связанные с ЛИС

Вкладка «Event Log» (Журнал событий), расположенная в правом нижнем углу экрана «Maintenance» (Обслуживание) позволяет просматривать сообщения, которые прибор записывает в журнал событий. Сообщения имеют следующий формат:

дата время тип сообщения: текст сообщения
где *дата* представляет собой день, месяц и год в выбранном Вами формате
время представляет собой время в выбранном Вами формате
тип сообщения – один из следующих типов:
LIS Interface Message (Сообщение интерфейса ЛИС)
LIS Unsolicited Message (Сообщение о несогласованном запросе ЛИС)
LIS Order Cancelled (Отмена заказов системы ЛИС)
LIS Query Assembly (Сборка запросов ЛИС)
LIS Receiving Query (Получение запросов ЛИС)
LIS Configuration Change (Изменение конфигурации ЛИС)
текст сообщения – само текстовое сообщение

Ниже приведен список сообщений с описанием каждого сообщения и действий, которые можно предпринять для устранения проблемы. Эти сообщения группируются по типам сообщений, перечисленным выше.

Сообщения интерфейса ЛИС

Сообщения интерфейса ЛИС – это сообщения библиотеки, генерируемые диспетчером системы ЛИС. Сообщения приведены ниже в алфавитном порядке.

«Bad Frame Received From LIS» (От ЛИС поступил пакет неправильного формата)

ОПИСАНИЕ – Эта ошибка генерируется, если система ЛИС загрузила пакет неправильного формата. Тип ошибки – LIS_NON_FATAL.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Для решения этой проблемы необходимо проверить отправляемую на прибор информацию с помощью монитора линии связи. Сравните полученную информацию с техническими характеристиками, приведенными в документации по интерфейсу BD-ЛИС. Все обнаруженные расхождения необходимо исправить и повторить попытку передачи данных.

«Detailed Download Message Attached to Notification» (Подробное сообщение о загрузке отправлено в уведомлении)

ОПИСАНИЕ – Уведомления генерируются в том случае, если через порт было отправлено или получено полное сообщение. Тип ошибки – LIS_NOTIFY. Подробное описание не выводится.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Detailed Upload Message Attached to Notification» (Подробное сообщение о передаче отправлено в уведомлении)

ОПИСАНИЕ – Уведомления генерируются в том случае, если через порт было отправлено или получено полное сообщение. При этом управляющая программа получает полную поступившую строку сообщения ASTM. Тип ошибки – LIS_NOTIFY. Подробное описание содержит строку сообщения ASTM.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Disallowed Characters Contained in Field» (Поле содержит недопустимые символы)

ОПИСАНИЕ – Эта ошибка генерируется в том случае, если передаваемое поле содержит недопустимые для передаваемого сообщения символы. Эти символы отличаются в зависимости от логического протокола, и они будут исключены из передаваемого поля. Тип ошибки – LIS_NON_FATAL. Подробное описание не выводится.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – При появлении данной ошибки необходимо сообщить об этом локальному представителю компании BD для ее изучения.

«Download Field Was Concatenated» (Загружаемое поле сегментировано)

ОПИСАНИЕ – Это уведомление генерируется в том случае, если размер загружаемого поля превышает максимальный размер, установленный управляющей программой. Поле будет разбито на несколько сегментов, чтобы соответствовать требованиям к максимальному размеру поля. Тип ошибки – LIS_LOG. Подробное описание не выводится.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – В данном случае содержимое необходимо проверить. Проверьте характеристики интерфейса BD-ЛИС на ограничения длины полей в сообщениях. Затем необходимо обновить код ЛИС, чтобы информация, передаваемая на прибор, оставалась в определенных границах.

«Download Message Has a Bad or Missing Header Record» (Запись заголовка сообщения о загрузке имеет неправильный формат или отсутствует)

ОПИСАНИЕ – Эта ошибка генерируется в том случае, если запись заголовка сообщения о загрузке имеет неправильный формат. Система мгновенного обмена сообщениями ЛИС не может продолжить обработку сообщения, и оно будет удалено. Тип ошибки – LIS_NON_FATAL. Подробное описание содержит сообщение ASTM, полученное от системы ЛИС.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Проверьте строку заголовка. Исправьте ошибку в заголовке и отправьте сообщение снова.

«Download Physical Communication with LIS Has Begun» (Началась загрузка по физической линии связи с ЛИС)

ОПИСАНИЕ – Это уведомление генерируется в том случае, если процесс загрузки на физическом уровне активно загружает сообщение.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Download Physical Communication with LIS Has Completed» (Загрузка по физической линии связи с ЛИС завершена)

ОПИСАНИЕ – Это уведомление генерируется в том случае, если процесс загрузки на логическом уровне закончил обработку загружаемого сообщения.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Download Record is Out Of Sequence Or Has Bad Sequence Number» (Загружаемая запись находится вне последовательности или имеет неправильный порядковый номер)

ОПИСАНИЕ – Эта ошибка генерируется в том случае, если загружаемая запись содержит записи с неправильными порядковыми номерами или записи с нарушением иерархии записей протокола логического уровня. Эта ошибка приводит к удалению сообщения из очереди загрузки. Тип ошибки – LIS_NON_FATAL.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Необходимо обновить программу, генерирующую логическое сообщение, чтобы его структура соответствовала техническим характеристикам стандарта ASTM для интерфейса. Большинство ответов на вопросы о содержимом сообщения можно найти в спецификациях интерфейса BD-ЛИС и в спецификациях ASTM для интерфейса.

«Early Termination of Transfer Session By LIS» (Система ЛИС преждевременно завершила процесс передачи данных)

ОПИСАНИЕ – Эта ошибка генерируется в том случае, если возникает проблема связи с ЛИС. Контрольный символ окончания сеанса передачи данных был получен до того, как было получено соответствующее количество символов для пакета.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Проверьте пакеты, которыми производится обмен между прибором и ЛИС, чтобы убедиться, что в этих пакетах содержится правильное количество символов. Если в пакете содержится неправильное количество символов, обновите код таким образом, чтобы в каждом пакете содержалось правильное количество символов.

«Expected Frame Not Sent» (Ожидаемый пакет не отправлен)

ОПИСАНИЕ – Эта ошибка генерируется в том случае, если возникает проблема связи с ЛИС. Система ЛИС инициировала сеанс передачи данных, но не отправила данные до истечения времени ожидания. Тип ошибки – LIS_NON_FATAL.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Подключите монитор линии связи и перезапустите передачу данных. Понаблюдайте за передачей данных, чтобы определить, была ли полностью закончена передача данных или она была прервана преждевременно. Если передача данных была завершена или система ЛИС пытается отправить данные, обратитесь к местному представителю компании BD за помощью. Если передача данных со стороны ЛИС оказалась неполной, необходимо исследовать код ЛИС на наличие проблем, которые могли бы прервать передачу данных преждевременно.

«Internal Assert Condition Found in LIS Library» (В библиотеке ЛИС обнаружено условие внутренней защиты)

ОПИСАНИЕ – Это сообщение указывает на то, что возникла непредвиденная ошибка в приборе. Появление данной ошибки приведет к перезагрузке прибора.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Обратитесь к локальному представителю компании BD. При возникновении этой проблемы программа записывает в файл журнала данные, которые указывают на причину защиты. Представитель компании BD проинструктирует Вас, как правильно собрать данные при возникновении этого условия.

«LIS Debug Error» (Ошибка отладки ЛИС)

ОПИСАНИЕ – Эта ошибка генерируется при возникновении проблемы на внутреннем физическом уровне прибора. Эта ошибка может возникать при наличии запрещенного индекса или неподдерживаемых идентификаторов областей памяти и т.д. Тип ошибки – LIS_FATAL.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Это неисправимая ошибка. Если эта ошибка появилась в файле журнала, обратитесь к локальному представителю компании BD. Последовательность событий, вызвавших эту ошибку, должна быть документирована, чтобы представители компании BD могли воспроизвести ошибку и затем предоставить соответствующий порядок действий по устранению проблемы.

«LIS Did Not Acknowledge Sent Frame» (ЛИС не подтвердила получение отправленного пакета)

ОПИСАНИЕ – Эта ошибка генерируется в том случае, если прибор отправил пакет системе ЛИС, но не получил подтверждение по истечении времени ожидания. Тип ошибки – LIS_NON_FATAL.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Это сообщение не должно появляться при нормальной работе интерфейса прибора. Если эта ошибка произошла при разработке интерфейса, группе разработчиков ЛИС нужно подключить монитор связи к последовательному кабелю интерфейса и проверить информацию, которой обмениваются два прибора. Возможно, система ЛИС не сгенерировала соответствующий ответ на отправленное прибором сообщение.

«LIS Is Not Responding To Output Request» (ЛИС не отвечает на исходящий запрос)

ОПИСАНИЕ – Эта ошибка возникает в том случае, если прибор пытается установить сеанс передачи данных, а система ЛИС не отвечает. При отправке этого сообщения прибор считает, что связь с системой ЛИС разорвана или система ЛИС отключена. Тип ошибки – LIS_NON_FATAL.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Проверьте, готов ли интерфейс ЛИС получать сообщения от прибора. Если ЛИС функционирует правильно, подключите монитор линии связи и проверьте полученную информацию. Если прибор пытается установить связь с ЛИС, необходимо проверить код для обмена информацией с прибором, и убедиться, что код подходит для получения информации, отправленной прибором.

«LIS Never Completed Current Frame» (ЛИС не завершает передачу текущего пакета)

ОПИСАНИЕ – Эта ошибка генерируется в том случае, если возникает проблема связи с ЛИС. Не были получены контрольные символы, означающие окончание передаваемого пакета.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – С помощью монитора линии связи проверьте пакеты, которыми производится обмен между прибором и ЛИС. Убедитесь, что проверены все передаваемые пакеты. Если какие-либо пакеты не содержат соответствующие символы окончания, внесите соответствующие изменения в код интерфейса для устранения проблемы.

«Logical Processing of LIS Data Has Begun» (Началась логическая обработка данных ЛИС)

ОПИСАНИЕ/ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Logical Processing of LIS Data Has Completed» (Завершена логическая обработка данных ЛИС)

ОПИСАНИЕ/ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Message Packet Passed to Host Application» (Пакет сообщения передан управляющей программе)

ОПИСАНИЕ – Это уведомление генерируется в том случае, если система мгновенного обмена сообщениями ЛИС передала сообщение управляющей программе. Это уведомление появляется в основном как сообщение отладки. Тип ошибки – LIS_LOG.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Действия пользователя не требуются. Это сообщение помогает производителям ЛИС отладить и реализовать интерфейс.

«Message Received By LIS» (Система ЛИС получила сообщение)

ОПИСАНИЕ – Это уведомление генерируется после получения и подтверждения системой ЛИС сообщения от прибора.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Message Received From LIS» (Получено сообщение от ЛИС)

ОПИСАНИЕ – Это уведомление генерируется в том случае, если физический интерфейс надлежащим образом получил загружаемое сообщение от ЛИС. Тип ошибки – LIS_LOG.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Это информационное сообщение, которое не требует выполнения каких-либо действий. Передача данных успешно завершена. Это сообщение генерируется даже в том случае, если сообщение содержало ошибки.

«Must Re-send Output Frame to LIS» (Необходимо повторно отправить исходящий пакет системе ЛИС)

ОПИСАНИЕ – Это уведомление генерируется в том случае, если пакет, отправленный системой мгновенного обмена сообщениями ЛИС, не был получен системой ЛИС. Пакет сообщения будет отправлен снова в соответствии с техническими характеристиками протокола нижнего уровня. Тип ошибки – LIS_LOG.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Если это сообщение появляется редко, а сообщения, которыми производится обмен, завершены правильно, вероятно, не требуется предпринимать каких-либо действий. Если указанное выше сообщение появляется часто, вероятно, существует проблема в интерфейсе. Необходимо обратиться к производителю ЛИС и представителю компании BD для диагностики правильности функционирования интерфейса. Если интерфейс функционирует правильно, данное сообщение не должно появляться в журнале.

«No Queue Memory for Download Messages» (Недостаточно памяти очереди для загрузки сообщений)

ОПИСАНИЕ – Прибор BD Phoenix M50 разработан для функционирования с ограниченным объемом памяти (как определено в структуре конфигурации). Это сообщение генерируется в том случае, если ресурсы памяти полностью используются загружаемыми или передаваемыми сообщениями. Это уведомление может появляться часто, если ЛИС пытается загрузить слишком много информации за один раз. Прибор BD Phoenix M50 НЕ ПОДТВЕРДИТ данные, для которых он не может выделить память; системе ЛИС необходимо отправить эти данные снова.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Отправьте отклоненные прибором сообщения еще раз.

«No Queue Memory for Upload Messages» (Недостаточно памяти очереди для передачи сообщений)

ОПИСАНИЕ – Прибор BD Phoenix M50 разработан для функционирования с ограниченным объемом памяти (как определено в структуре конфигурации). Это сообщение генерируется в том случае, если ресурсы памяти полностью используются загружаемыми или передаваемыми сообщениями. Это сообщение не должно появляться при использовании интерфейса ЛИС прибора.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – При появлении этого сообщения необходимо сообщить о проблеме представителю компании BD. Если процесс, вызвавший проблему, документирован, это может помочь в ее устранении.

«No Response Received From Previous LIS Request Message» (Не получен ответ на предыдущее сообщение запроса ЛИС)

ОПИСАНИЕ – Это уведомление генерируется в том случае, если система мгновенного обмена сообщениями ЛИС передала запрос, но не получила ответ. Это уведомление указывает на то, что первоначальный запрос был отменен. Это уведомление появляется после запроса через некоторый промежуток времени, длительность которого задана в структуре конфигурации. Тип ошибки – LIS_LOG. Подробное описание в текущей версии не выводится.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Проверьте правильность подключения системы ЛИС к прибору и убедитесь, что интерфейс ЛИС был активирован.

«Operating System Error» (Ошибка операционной системы)

ОПИСАНИЕ – Эта ошибка генерируется в том случае, если возникает ошибка в одном из компонентов системы. Эта ошибка может быть вызвана некоторыми ошибками ОС, включая неправильную инициализацию порта или неправильное создание идентификатора события и т.д. Эти ошибки не должны происходить при нормальном функционировании, и система мгновенного обмена сообщениями ЛИС не может быть восстановлена после них. Тип ошибки – LIS_FATAL.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – При появлении данной ошибки необходимо сообщить об этом локальному представителю компании BD для ее изучения.

«Output Message Was Sent To LIS» (Системе ЛИС отправлено исходящее сообщение)

ОПИСАНИЕ – Это уведомление генерируется в том случае, если сообщение было успешно передано системе ЛИС. Тип ошибки – LIS_NOTIFY. Уведомление отправляется, когда прибор начинает отправлять сообщение системе ЛИС. Получение этого уведомления не означает, что сообщение было принято системой ЛИС.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Queue Memory for Download Messages Free» (Память очереди для загрузки сообщений свободна)

ОПИСАНИЕ – Это уведомление используется в паре с приведенным выше уведомлением «No Queue Memory For Download Messages» (Недостаточно памяти очереди для загрузки сообщений). Это сообщение генерируется в том случае, если занятая до этого память освободилась.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Сообщение указывает пользователю пакетно-ориентированного интерфейса на то, что прибор может получать следующую группу сообщений.

«Queue Memory for Upload Messages Free» (Память очереди для передачи сообщений свободна)

ОПИСАНИЕ – Это уведомление используется в паре с приведенным выше уведомлением «No Queue Memory For Upload Messages» (Недостаточно памяти очереди для передачи сообщений). Это сообщение генерируется в том случае, если занятая до этого память освободилась.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Это сообщение не должно появляться в журнале при работе интерфейса. Если это сообщение появилось в файле журнала, обратитесь к локальному представителю компании BD.

«Response Message Received» (Получено ответное сообщение)

ОПИСАНИЕ – Это уведомление генерируется в том случае, если система ЛИС загрузила ответ на сгенерированный запрос BD. Это сообщение также указывает на то, что система мгновенного обмена сообщениями может передавать другой запрос системе ЛИС. Тип ошибки – LIS_NOTIFY. Подробное описание в текущей версии не выводится.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Unsupported Field in Configuration File» (Неподдерживаемое поле в файле конфигурации)

ОПИСАНИЕ – Эта ошибка генерируется при запуске, если поле в структуре конфигурации не соответствует ни одной из поддерживаемых конфигураций системы мгновенного обмена сообщениями ЛИС. Тип ошибки – LIS_FATAL.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – При появлении данной ошибки необходимо сообщить об этом локальному представителю компании BD для ее изучения.

«Upload Physical Communication With LIS Has Begun» (Началась передача данных по физической линии связи с ЛИС)

ОПИСАНИЕ – Это уведомление генерируется в том случае, если процесс передачи на физическом уровне передает сообщение.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Это информационное сообщение, которое не требует выполнения каких-либо действий.

«Upload Physical Communication With LIS Has Completed» (Передача по физической линии связи с ЛИС завершена)

ОПИСАНИЕ – Это уведомление генерируется в том случае, если процесс передачи на физическом уровне закончил отправку сообщения системе ЛИС.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Это информационное сообщение, которое не требует выполнения каких-либо действий.

Сообщения о несогласованном запросе ЛИС

Следующие разделы содержат возможные сообщения, связанные с записями журнала событий в ответ на несогласованные запросы загрузки. Сообщения приведены ниже в алфавитном порядке.

«LIS Response Error» (Ошибка ответа ЛИС)

ОПИСАНИЕ – Это сообщение появляется в том случае, если система ЛИС отправляет на прибор сообщение запроса неправильного формата. Системе ЛИС будет отправлено ответное сообщение об ошибке.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – При правильном функционировании интерфейса это сообщение не должно присутствовать в журнале. Если это сообщение обнаружено в журнале во время проверки или разработки интерфейса, необходимо пересмотреть и настроить код, ответственный за создание запросов, таким образом, чтобы запрос не включал неправильное поле. Неправильное поле будет последним сообщением «LIS Query Assembly» (Сборка запросов ЛИС), приведенным перед данным сообщением в файле журнала.

«LIS Sent Query Before Previous Query Completed» (Система ЛИС отправила запрос до того, как был завершен предыдущий запрос)

ОПИСАНИЕ – Это сообщение появляется в том случае, если система ЛИС инициирует запрос и, пока прибор обрабатывает этот запрос, ЛИС отменяет первый запрос и сразу же начинает другой.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – При правильном функционировании интерфейса это сообщение не должно присутствовать в журнале. Если это сообщение обнаружено в журнале во время проверки или разработки интерфейса, необходимо пересмотреть и настроить код, ответственный за создание запросов, таким образом, чтобы ЛИС не отправляла другой запрос, пока она ожидает отмену невыполненного запроса.

Сообщения об отмене заказов системы ЛИС

ОПИСАНИЕ – *

При проверке указанного поля обнаружена ошибка.
«Invalid Sequence Number Field» (Неправильное поле порядкового номера)
«Missing Accession Number Field» (Отсутствует поле номера образца)
«Invalid Accession Number Field» (Неправильное поле номера образца) (это поле не может содержать 12 цифр и начинаться с 42 или 50 – 59; другие требования смотрите в разделе «3.3 Вкладка «Panel Login» (Регистрация панели)»)
«Missing Isolate Field» (Отсутствует поле изолята)
«Invalid Isolate Field» (Неправильное поле изолята)
«Invalid Panel Usage» (Неправильное использование панели)
«Invalid Test ID Field» (Неправильное поле идентификатора теста)
«Invalid Test Strain for this QC Panel Type» (Неправильный тестовый штамм для данного типа панели контроля качества)
«Mismatch Sequence Number & Test ID» (Несоответствие порядкового номера и идентификатора теста)
«Missing Test ID Field» (Отсутствует поле идентификатора теста)
«Invalid Organism ID Field» (Неправильное поле идентификатора микроорганизма)
«Invalid Priority Field» (Неправильное поле приоритета)
«Problem Storing Record to Database» (Проблема сохранения записи в базу данных)

При обнаружении этой ошибки сообщение о ней заносится в журнал, а оставшиеся проверки сообщения отменяются. В заказе могут быть другие ошибки, о которых не было сообщено. Приоритет проверки ошибки зависит от того, содержит ли заказ порядковый номер.

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – В работающем интерфейсе возможно появление этих ошибок, если реализация ЛИС позволяет вводить в поля данные, которые нарушают правила полей прибора. В этом случае пользователь ЛИС должен ограничить символы, которые можно вводить в отправляемые прибору поля, символами, указанными в руководстве пользователя системы и допустимыми для полей. После согласования информации с правилами прибора и ее обновления нужно отправить заказ на прибор снова.

При разработке интерфейса разработчик интерфейса должен ограничить данные, которые можно отправлять на прибор, соответствующими для полей символами.

Сообщения о сборке запросов ЛИС

Приведенные ниже сообщения записываются в журнал независимо от того, правильные они или нет. Они помещаются в журнал для совместного использования с последующими сообщениями. При обнаружении ошибки в одном из полей содержимое неправильного поля записывается в журнал.

(Сообщение состоит из названия поля, обозначенного ниже символом **.)

ОПИСАНИЕ – **	Сообщение записывается в журнал, когда прибор передает запрос системе ЛИС. «Accession Number» (Номер образца) «Sequence Number» (Порядковый номер) «Test ID» (Идентификатор теста) «Test Status» (Состояние теста) «Result Qualifier» (Определитель результатов) «Time Qualifier» (Определитель времени) «Start Date/Time» (Дата/время начала) «End Date/Time» (Дата/время окончания)
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ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Если запрос является действительным, это сообщение является информационным; не требуется предпринимать каких-либо действий. Если запрос является недействительным, проверьте поле с ошибкой, исправьте ее и отправьте запрос снова.

(Сообщение состоит из названия поля и значения, обозначенного ниже символом *)**

ОПИСАНИЕ – Сообщение записывается в журнал, когда прибор передает запрос системе ЛИС.

*** «Sequence Number and the value» (Порядковый номер и значение)

ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Это информационное сообщение, которое не требует выполнения каких-либо действий.

Сообщения об изменении конфигурации ЛИС

(Сообщение состоит из параметра конфигурации, обозначенного ниже символом **, старого и нового значений.)

ОПИСАНИЕ – **	Сообщение записывается в журнал при изменении конфигурации ЛИС. «LIS Enabled Value Changed» (Система ЛИС включила измененное значение) «Send Interpretation Results Option Changed» (Изменен параметр отправки результатов интерпретации) «Unsolicited Queries Option Changed» (Изменен параметр запросов без согласования) «Send When Placed In Instrument Option Changed» (Изменен параметр отправки при установке в прибор) «Results Upload Options Changed» (Изменены параметры передачи результатов) «Baud Value Changed» (Изменено значение скорости передачи) «Data Bits Value Changed» (Изменено значение количества битов данных) «Parity Value Changed» (Изменено значение четности) «Stop Bits Value Changed» (Изменено значение количества стоповых битов) «Packed Frames Value Changed» (Изменено значение поля сжатых пакетов)
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ДЕЙСТВИЯ ПО УСТРАНЕНИЮ ОШИБКИ – Это информационное сообщение, которое не требует выполнения каких-либо действий.

7 – Характеристики, ограничения, коды микроорганизмов и информация о панелях

7.1 Характеристики работы системы

Определения:

Существенное согласование (СС): существенное согласование наблюдается, когда полученные системой BD Phoenix значения МПК и результаты референсного теста CLSI по методу микроразведений в жидкой питательной среде совпадают или различаются не более чем на ± 1 разведение.

Согласование категории (СК): Согласование категории наблюдается, когда результаты системы BD Phoenix и референсного теста CLSI по методу микроразведений в жидкой питательной среде отличаются в интерпретации категории (согласно критериям CLSI) не более чем на ± 1 разведение.

7.1.1 Эффективность работы с грамотрицательными бактериями

Идентификация грамотрицательных бактерий

Эффективность идентификации грамотрицательных бактерий системой BD Phoenix оценивалась в двух внутренних исследованиях. Для тестирования при мутностях суспензии 0,5 и 0,25 использовались 721 штамм (мутность 0,5) и 784 штамма (мутность 0,25). Результаты тестирования изолятов кишечных бактерий и изолятов других типов бактерий сравнивались с результатами коммерческих и некоммерческих методов.

Результаты идентификации грамотрицательных бактерий системой BD Phoenix приведены ниже:

	Мутность суспензии (по шкале Макфарланга)	Согласуются	Не согласуются	Нет идентификации
Уровень рода	0,5	97,3 %	2,1 %	0,6 %
	0,25	98,5 %	1,0 %	0,5 %
Уровень вида	0,5	95,6 %	3,6 %	0,8 %
	0,25	98,1 %	1,4 %	0,5 %

Чувствительность грамотрицательных бактерий

ПРОТИВОМИКРОБНЫЙ ПРЕПАРАТ	КОД	СС N	СС %	СК N	СК %
Амикацин	AN	974	94,3	974	99,2
Амоксициллин	AMX	725	95,9	839	96,9
Амоксициллин-клавуланат	AMC	636	97,8	749	97,1
Амоксициллин-клавуланат (f)	AXC	364	96,4	411	97,6
Ампициллин	AM	639	97,5	753	98,0
Ампициллин-сульбактам	SAM	848	96,8	962	96,9
Ампициллин-сульбактам (f)	SXA	1682	92,3	1682	94,5
Арбекацин	ARB	2083	94,1	2083	99,2
Азтреонам	ATM	1488	97,8	1431	98,5
Цефазолин	CZ	634	97,0	752	97,1
Цефдинир	CDR	633	92,7	747	94,5
Цефдиторен	CDN	1270	97,2	1270	98,4
Цефепим	FEP	1463	97,8	1463	98,6
Цефетамет	CAT	629	96,0	746	97,7
Цефиксим	CFM	1454	96,7	1454	98,1
Цефметазол	CMZ	608	94,7	718	96,4
Цефоперазон	CFP	854	95,1	972	97,7
Цефоперазон-сульбактам	SCP	1921	93,1	1921	96,0
Цефотаксим	CTX	849	96,9	970	97,2
Цефотетан	CTT	627	96,2	748	96,4
Цефотиам	CFT	1428	94,9	1428	97,6
Цефокситин	FOX	628	96,7	748	97,6
Цефпиром	CPO	846	96,2	964	97,0
Цефподоксим	CPD	616	94,5	737	97,0
Цефсулодин	CFS	55	98,2	56	98,2
Цефтазидим	CAZ	848	95,9	969	97,5
Цефтибутен	CTB	590	90,5	708	95,9
Цефтизоксим	ZOX	854	97,3	971	97,2
Цефтриаксон	CRO	2416	96,1	2416	91,6
Цефуроксим	CXM	623	97,0	744	98,5
Цефалексин	CN	319	97,8	366	96,5

ПРОТИВМИКРОБНЫЙ ПРЕПАРАТ	КОД	СС N	СС %	СК N	СК %
Цефалотин	CF	613	98,0	731	98,5
Хлорамфеникол	C	978	97,7	978	98,7
Ципрофлоксацин	CIP	977	99,4	977	99,7
Колистин	CL	467	97,9	467	98,7
Эртапенем*	ETP	1632	97,7	1265	99,4
Фосфомицин	FF	446	93,0	446	96,9
Гареноксацин	GRN	1977	98,1	1977	99,4
Гатифлоксацин	GAT	752	99,5	752	99,6
Гемифлоксацин	GEM	2096	98,6	2096	99,0
Гентамицин	GM	973	95,8	973	99,8
Имипенем	IPM	1545	94,8	1483	99,0
Изепамицин	ISP	468	93,8	468	99,4
Канамицин	K	735	95,8	735	99,9
Левифлоксацин	LVX	972	99,6	972	100,0
Ломефлоксацин	LOM	976	99,1	976	99,6
Мециллин	MEC	345	95,7	345	94,8
Меропенем	MEM	1450	97,0	1394	98,3
Миноциклин	MI	2094	93,8	2094	98,3
Моксалактам	MOX	2063	96,9	2063	98,3
Моксифлоксацин	MXF	746	98,5	747	99,7
Налидиксовая кислота	NA	750	94,0	750	99,1
Нетилмицин	NET	974	96,7	974	99,3
Нитрофурантоин	FM	744	98,4	744	98,8
Норфлоксацин	NOR	976	98,9	976	99,6
Офлоксацин	OFX	971	99,3	971	99,7
Пефлоксацин	PEF	469	98,5	469	99,4
Пиперациллин	PIP	860	94,7	973	97,1
Пиперациллин-тазобактам	TZP	856	92,9	970	96,2
Темоциллин	TEM	1410	96,1	1410	98,9
Тетрациклин	TE	975	95,6	975	98,5
Тикарциллин	TIC	859	94,8	973	97,8
Тикарциллин-клавуланат	TIM	534	92,7	589	94,6
Тигециклин	TGC	1428	97,1	1110	96,7
Тобрамицин	NN	977	94,2	977	99,4
Триметоприм	TMP	752	96,0	752	99,6
Триметоприм-сульфаметоксазол (DIN)	STG	463	97,8	463	97,8
Триметоприм-сульфаметоксазол	SXT	976	95,5	976	97,3

* Способность обнаруживать резистентность не определена

7.1.2 Эффективность работы с грамположительными бактериями

Идентификация грамположительных бактерий

Эффективность идентификации грамположительных бактерий системой BD Phoenix оценивалась в двух внутренних исследованиях. Для тестирования при мутностях суспензии 0,5 и 0,25 использовались 696 штаммов (мутность 0,5) и 755 штаммов (мутность 0,25). Результаты тестирования сравнивались с результатами коммерческих и некоммерческих методов.

Результаты идентификации грамположительных бактерий системой BD Phoenix приведены ниже:

	Мутность суспензии (по шкале Макфарланда)	Согласуются	Не согласуются	Нет идентификации
Уровень рода	0,5	99,1 %	0,3 %	0,6 %
	0,25	99,6 %	0,0 %	0,4 %
Уровень вида	0,5	95,4 %	3,9 %	0,7 %
	0,25	98,0 %	1,6 %	0,4 %

Чувствительность грамположительных бактерий

ПРОТИВОМИКРОБНЫЙ ПРЕПАРАТ	КОД	СС N	СС %	СК N	СК %
Амикацин	AN	487	95,7	487	95,7
Амоксициллин	AMX	395	90,6	659	97,1
Амоксициллин-клавуланат	AMC	180	97,8	446	97,5
Амоксициллин-клавуланат (f)	AXC	397	96,7	664	97,6
Ампициллин	AM	402	94,0	667	98,7
Ампициллин-сульбактам	SAM	179	96,7	445	97,1
Ампициллин-сульбактам (f)	SXA	1449	94,6	1449	95,2
Арбекацин	ARB	973	96,2	973	99,9
Азитромицин	AZM	702	95,7	702	97,7
Цефаклор	CEC	182	91,8	449	95,6
Цефазолин	CZ	180	97,2	441	97,5
Цефдинир	CDR	182	94,5	434	96,8
Цефдиторен	CDN	944	96,2	944	97,8
Цефепим	FEP	181	97,2	446	97,5
Цефметазол	CMZ	174	96,6	430	97,2
Цефоперазон	CFP	184	95,7	447	97,8
Цефотаксим	CTX	185	96,2	446	97,8
Цефотетан	CTT	183	94,5	439	96,6
Цефотиам	CFT	965	91,5	965	94,0
Цефокситин	FOX	184	96,2	445	97,5
Цефозопран	CFZ	1130	89,8	1130	89,6
Цефпиром	CPO	183	100,0	446	97,5
Цефподоксим	CPD	185	91,4	451	95,6

ПРОТИВМИКРОБНЫЙ ПРЕПАРАТ	КОД	СС N	СС %	СК N	СК %
Цефтаролин	CPT	1313	94,5	866	99,7
Цефтазидим	CAZ	183	95,1	448	97,1
Цефтизоксим	ZOX	184	93,5	447	96,2
Цефтриаксон	CRO	184	95,1	447	97,3
Цефуроксим	CXM	184	94,6	447	98,2
Цефалексин	CN	185	90,3	452	97,4
Цефалотин	CF	182	97,8	441	97,3
Хлорамфеникол	C	705	92,8	705	95,3
Ципрофлоксацин	CIP	686	96,4	686	97,4
Кларитромицин	CLR	485	96,3	485	98,1
Клиндамицин	CC	703	98,2	703	98,3
Даптомицин	DAP	1361	97,6	1361	99,8
Доксициклин	D	1211	96,5	1211	99,8
Эртапенем	ETP	670	91,6	670	95,4
Эритромицин	E	474	95,4	474	95,8
Фосфомицин	FF	472	97,0	472	98,3
Фузидовая кислота	FA	477	96,7	477	99,0
Гареноксацин	GRN	1212	97,1	1212	99,0
Гатифлоксацин	GAT	481	98,8	481	100,0
Гемифлоксацин	GEM	1400	96,2	1400	97,4
Гентамицин	GM	487	98,4	487	99,2
Гентамицин-син.	GMS	—	—	198	97,5
Гентамицин-син. (SFM)	GMF	—	—	87	100,0
Имипенем	IPM	185	100,0	448	97,5
Тест на индуцибельную устойчивость к макролидам (iMLSB)	ECC	—	—	295	97,6
Канамицин	K	463	92,2	464	97,4
Канамицин-синергизм	KS	501	100,0	501	96,6
Левифлоксацин	LVX	698	96,9	698	98,6
Линкомицин	L	696	98,3	696	98,7
Линезолид	LZD	474	99,4	474	100,0
Ломефлоксацин	LOM	486	97,7	486	99,2
Меропенем	MEM	185	98,4	447	97,5
Миноциклин	MI	1448	98,5	1448	99,2
Моксалактам	MOX	935	95,9	935	96,0
Моксифлоксацин	MXF	486	99,0	486	99,6
Мупироцин	MUP	938	96,6	938	99,7
Высокоактивный мупироцин	MUH	968	100,0	968	99,9

ПРОТИВОМИКРОБНЫЙ ПРЕПАРАТ	КОД	CC N	CC %	СК N	СК %
Нетилмицин	NET	488	93,9	488	96,3
Нитрофурантоин	FM	707	98,3	707	98,3
Норфлоксацин	NOR	674	96,0	674	97,8
Офлоксацин	OFX	487	99,2	488	99,8
Оксациллин	OX	449	95,8	449	97,8
Пефлоксацин	PEF	706	97,9	706	98,0
Пенициллин	P	401	96,0	662	98,0
Пиперациллин	PIP	382	81,7	639	98,0
Пиперациллин-тазобактам	TZP	386	100,0	649	98,3
Пристинамицин	PR	695	93,2	695	95,5
Куинупристин-далфопристин	SYN	704	97,2	704	97,6
Рифампин	RA	700	84,0	700	88,3
Стрептомицин-син.	STS	—	—	198	99,0
Стрептомицин-син. (SFM)	STF	—	—	87	98,8
Тейкопланин	TEC	671	97,6	671	99,4
Телитромицин	TEL	898	97,3	898	98,9
Тетрациклин	TE	707	96,3	707	98,6
Тикарциллин	TIC	395	95,4	659	98,2
Тикарциллин-клавуланат	TIM	396	97,5	656	97,9
Тигециклин	TGC	1356	96,8	1044	100
Тобрамицин	NN	473	97,0	473	97,3
Триметоприм	TMP	479	95,4	479	97,9
Триметоприм-сульфаметоксазол (DIN)	STG	645	91,0	646	92,7
Триметоприм-сульфаметоксазол	SXT	654	89,5	654	93,0
Ванкомицин	VA	702	99,3	702	99,9

* Способность обнаруживать резистентность не определена

7.1.3 Эффективность работы со стрептококками (с панелями BD Phoenix SMIC/ID и SMIC)

Идентификация стрептококков (только панели SMIC/ID)

Эффективность идентификации стрептококков системой BD Phoenix оценивалась во внутреннем исследовании. Результаты тестов для 655 изолятов сравнивались с результатами коммерческих и некоммерческих методов.

Результаты идентификации стрептококков системой BD Phoenix приведены ниже:

	Совпадения	Несовпадения	Не идентифицировано
Уровень вида	96,3 %	2,4 %	1,2 %

Чувствительность стрептококков

Эффективность выполнения системой BD Phoenix тестов AST для стрептококков была оценена в четырех клинических лабораториях с использованием клинических изолятов. Результаты сравнивались с результатами AST, полученными по референсному методу микроразведений в жидкой питательной среде в соответствии со стандартными рекомендациями CLSI. Противоречащие результаты исправлялись в результате повторного тестирования в обеих системах.

ПРОТИВОМИКРОБНЫЙ ПРЕПАРАТ	КОД	СС N	СС %	СК N	СК %
Амоксициллин	AMX	1576	99,2	1576	99,7
Амоксициллин-клавуланат	AMC	1564	97,9	1564	99,3
Ампициллин	AM	1569	98,0	1569	99,4
Цефепим	FEP	1571	97,6	1571	99,7
Цефотаксим	CTX	1578	98,5	1578	99,6
Цефтриаксон	CRO	1579	98,5	1579	99,8
Цефуроксим	CXM	1581	97,7	1581	98,8
Хлорамфеникол	C	1587	97,4	1587	99,6
Клиндамицин	CC	1591	94,0	1591	97,4
Даптомицин	DAP	1566	93,1	1566	99,9
Эртапенем	ETP	1585	97,9	1585	99,6
Эритромицин	E	1577	93,2	1577	98,2
Гареноксацин	GRN	1515	95,5	1515	99,7
Гатифлоксацин	GAT	1587	95,1	1587	99,5
Гемифлоксацин	GEM	1592	98,9	1592	99,7
Гентамицин-син.	GMS	1032	99,6	1032	99,6
Имипенем	IPM	1581	98,0	1581	99,6
Канамицин-син.	KS	1032	99,6	1032	99,6
Левифлоксацин	LVX	1595	97,4	1595	99,8
Линезолид	LZD	1586	97,1	1586	99,4
Меропенем	MEM	1579	97,4	1579	99,7
Моксифлоксацин	MXF	1590	95,8	1590	99,6
Офлоксацин	OFX	1594	98,2	1594	98,7
Пенициллин	P	1585	93,9	1585	98,5
Пристинамицин	PR	1583	94,8	1583	99,8
Куинуристин-далфопристин	SYN	1581	97,3	1581	99,7
Стрептомицин-син.	STS	1031	99,9	1031	99,9
Тейкопланин	TEC	1593	99,8	1593	99,9
Телитромицин	TEL	1574	95,9	1574	98,5
Тетрациклин	TE	1589	93,3	1589	97,6
Триметоприм-сульфаметоксазол	SXT	1008	93,8	1008	98,3
Ванкомицин	VA	1588	98,2	1588	99,9

* Способность обнаруживать резистентность не определена

7.1.4 Идентификация вида дрожжей

Чтобы определить эффективность идентификации дрожжей в системе BD Phoenix, были проведены тесты в нескольких лабораториях с использованием чистых колоний, выделенных из декстрозного агара Сабуро (SAB) и триптиказо-соевого агара с 5 % бараньей крови (TSA). Результаты для 519 (SAB) и 510 (TSA) клинических и экспериментальных изолятов сравнивались с результатами традиционных и молекулярных методов.

Результаты идентификации дрожжей системой BD Phoenix приведены ниже:

	Исходная среда	Согласуются	Не согласуются	Нет идентификации
Уровень рода/вида	SAB	95,2 %	3,8 %	1,0 %
	TSA	96,5 %	2,7 %	0,8 %

Дополнительно проводилось тестирование в нескольких лабораториях, чтобы определить воспроизводимость. Результаты идентификации, полученные с помощью системы BD Phoenix, сравнивались с ожидаемыми результатами. Эти тесты продемонстрировали воспроизводимость между лабораториями $\geq 95\%$.

7.2 Ограничения методики

Информацию об особых ограничениях для сочетаний микроорганизм/антибиотик смотрите на поставляемом с панелью листке-вкладыше.

Общие характеристики

Чтобы выбрать правильный тип панелей BD Phoenix, необходимо провести тест окрашивания по Граму. Без таких тестов нельзя получить точные результаты идентификации и/или AST.

Используйте только хорошо изолированные колонии бактерий или дрожжей из одной из рекомендованных первичных питательных сред. Использование смешанных колоний может привести к неточным результатам идентификации и/или интерпретации AST.

Если для используемого типа панели в приборе задано значение мутности суспензии 0,5, необходимо использовать суспензию с мутностью 0,50 – 0,60 по шкале Макфарланда. Для измерения мутности суспензии может использоваться только нефелометр BD BBL CrystalSpec или BD PhoenixSpec.

Если для используемого типа панели в приборе задано значение мутности суспензии 0,25, необходимо использовать суспензию с мутностью 0,20 – 0,30 по шкале Макфарланда. Для измерения мутности суспензии в этом диапазоне может использоваться только нефелометр BD PhoenixSpec.

Для идентификации дрожжей требуется суспензия с мутностью 2,00 – 2,40 по шкале Макфарланда. При подготовке такой суспензии можно использовать только нефелометр BD PhoenixSpec. Использование других методов при подготовке суспензии может привести к ошибочным результатам идентификации.

Для считывания панелей BD Phoenix можно применять только прибор BD Phoenix M50. Визуальная интерпретация панелей BD Phoenix недопустима. Любые попытки интерпретировать результаты панели вручную могут привести к неправильной идентификации и/или неточности интерпретаций AST.

Панели должны быть помещены в прибор BD Phoenix M50 в течение 30 минут после заправки.

Для получения наиболее надежных результатов рекомендуется пересеивать микроорганизмы контроля качества как минимум дважды в два идущих подряд дня в TSA с 5 % бараньей крови и только затем использовать их в приборе BD Phoenix M50.

Идентификация

Уникальная внутренняя среда панели и уменьшенное время инкубации могут привести к тому, что реакции в панели BD Phoenix будут отличаться от реакций в традиционной биохимической среде.

Определение чувствительности к антибиотикам

Можно добавить индикаторный раствор AST в пробирки с бульоном AST и хранить эти пробирки в темноте до 8 часов перед использованием. Добавьте только одну полную каплю индикаторного раствора AST из флакона с капельницей. Если случайно было добавлено более одной капли, выбросьте пробирку и используйте новую пробирку с бульоном AST.

После добавления индикаторного раствора AST BD Phoenix в пробирку с бульоном AST, смешайте их, перевернув пробирку. НЕ ИСПОЛЬЗУЙТЕ «ВОРТЕКС». При перемешивании на «вортексе» в бульоне AST могут появиться пузырьки, которые помешают правильному заполнению панели BD Phoenix во время заправки.

Некоторые микроорганизмы, включенные в идентификацию таксонов, не включены в базу данных AST из-за малой вероятности их появления. При обнаружении этих микроорганизмов будет выведено сообщение «Organism not included in the AST database, perform alternate method» (Микроорганизма нет в базе данных AST, используйте альтернативный метод).

Поскольку для некоторых сочетаний микроорганизм/антибиотик не обнаружены резистентные штаммы, в результатах может определяться только категория «чувствительный». Если результаты тестирования штамма позволяют предположить, что он относится к категории «нечувствительный», необходимо подтвердить идентификацию микроорганизма и результаты определения чувствительности к антибиотикам. После этого изоляты должны быть сохранены и представлены на рассмотрение в уполномоченную лабораторию для подтверждения результата с использованием рекомендованного CLSI референсного метода микроразведений в жидкой питательной среде.

Использование среды CHROMagar Orientation может привести к неправильным значениям чувствительности при тестировании эритромицина с грамположительными микроорганизмами. Результаты тестов на чувствительность к антибиотикам следует подтвердить, используя триптиказо-соевый агар BD с 5% бараньей крови.

Этот тип среды (шоколадный агар) не следует использовать для идентификации стрептококков в панелях SMIC/ID. Шоколадный агар можно использовать только для тестирования чувствительности стрептококков.

Использование колумбийского агара с 5% лошадиной крови может привести к значительно более высокому значению МПК в тестах на чувствительность видов *Streptococcus* к SXT (триметоприм-сульфаметоксазол), что может дать ложный результат, указывающий на резистентность. Результаты тестов на чувствительность к антибиотикам следует подтвердить, используя триптиказо-соевый агар BD с 5% бараньей крови.

ПРИМЕЧАНИЯ

Если для изолята в поле результатов «Final ID» (Итоговая идентификация) не указаны род и вид, его результаты МПК не могут использоваться.

Если значение в поле «Final ID» (Итоговая идентификация) изменяется и вместо микроорганизма, которого нет в списке таксонов для AST, там задается микроорганизм из этого списка, МПК и результаты интерпретации будут основаны на итоговой идентификации из списка таксонов для AST.

7.3 Коды микроорганизмов, сокращенные названия, полные названия

Полное название	Краткое название	Код
<i>Achromobacter denitrificans</i>	Achr. denitrificans	ALCDEN
<i>Achromobacter piechaudii</i>	Achr. piechaudii	ALCPIE
<i>Achromobacter</i> виды	Achr. species	ACHRSPE
<i>Achromobacter xylosoxidans</i>	Achr. xylosoxidans	ALCXYL

Полное название	Краткое название	Код
<i>Acinetobacter baumannii</i>	Acinet. baumannii	ACINBAU
<i>Acinetobacter baumannii/calcoaceticus</i> комплекс	Acinet. baumannii/calco. cplx	ACINBCX
<i>Acinetobacter baumannii/haemolyticus</i>	Acinet. baumannii/haemolyticus	ACINBAUHAE
<i>Acinetobacter calcoaceticus</i>	Acinet. calcoaceticus	ACINCAL
<i>Acinetobacter haemolyticus</i>	Acinet. haemolyticus	ACINHAE
<i>Acinetobacter johnsonii</i>	Acinet. johnsonii	ACINJOH
<i>Acinetobacter junii</i>	Acinet. junii	ACINJUN
<i>Acinetobacter lwoffii</i>	Acinet. lwoffii	ACINLWO
<i>Acinetobacter lwoffii/haemolyticus</i>	Acinet. lwoffii/haemol.	ACINLWOHAE
<i>Acinetobacter radioresistens</i>	Acinet. radioresistens	ACINRAD
<i>Acinetobacter</i> виды	Acinet. species	ACINSPE
<i>Actinobacillus lignieresii</i>	Actinob. lignieresii	ACTBLIG
<i>Actinobacillus suis</i>	Actinob. suis	ACTBSUI
<i>Actinobacillus ureae</i>	Actinob. ureae	ACTBURE
<i>Aerococcus</i> виды	Aeroc. species	AERCSPE
<i>Aerococcus urinae</i>	Aeroc. urinae	AERCURI
<i>Aerococcus viridans</i>	Aeroc. viridans	AERCVIR
<i>Aeromonas allosaccharophila</i>	Aerom. allosaccharophila	AERMALL
<i>Aeromonas caviae</i>	Aerom. caviae	AERMCAV
<i>Aeromonas eucrenophila</i>	Aerom. eucrenophila	AERMEUC
<i>Aeromonas hydrophila</i>	Aerom. hydrophila	AERMHYD
<i>Aeromonas hydrophila</i> группа	Aerom. hydrophila gr.	AERMHYDGR
<i>Aeromonas jandaei</i>	Aerom. jandaei	AERMJAN
<i>Aeromonas media</i>	Aerom. media	AERMMED
<i>Aeromonas salmonicida</i>	Aerom. salmonicida	AERMSAL

Полное название	Краткое название	Код
<i>Aeromonas salmonicida</i> ssp <i>achromogenes</i>	Aerom. salmonic. ssp ach.	AERMSALA
<i>Aeromonas salmonicida</i> ssp <i>masoucida</i>	Aerom. salmonic. ssp mas.	AERMSALM
<i>Aeromonas salmonicida</i> ssp <i>pectinolytica</i>	Aerom. salmonic. ssp pec.	AERMSALPE
<i>Aeromonas salmonicida</i> ssp <i>salmonicida</i>	Aerom. salmonic. ssp sal.	AERMSALSA
<i>Aeromonas salmonicida</i> ssp <i>smithia</i>	Aerom. salmonic. ssp smit.	AERMSALSM
<i>Aeromonas schubertii</i>	Aerom. schubertii	AERMSCH
<i>Aeromonas</i> виды	Aerom. species	AERMSPE
<i>Aeromonas trota</i>	Aerom. trota	AERMTRO
<i>Aeromonas veronii</i> bv <i>sobria</i>	Aerom. veronii bv sobria	AERMVERS
<i>Aeromonas veronii</i> bv <i>veronii</i>	Aerom. veronii bv veronii	AERMVERV
<i>Alcaligenes faecalis</i>	Alc. faecalis	ALCFAE
<i>Alcaligenes faecalis</i> ssp <i>faecalis</i>	Alc. faecalis ssp faecalis	ALCFAEF
<i>Alcaligenes</i> виды	Alc. species	ALCSPE
<i>Alloiococcus otitis</i>	All. otitis	ALLOTI
<i>Arcanobacterium haemolyticum</i>	Arcan. haemolyticum	ARCAHAE
<i>Bacillus cereus</i>	Baci. cereus	BACICER
<i>Bacillus circulans</i>	Baci. circulans	BACICIR
<i>Bacillus coagulans</i>	Baci. coagulans	BACICOA
<i>Bacillus licheniformis</i>	Baci. licheniformis	BACILIC
<i>Bacillus megaterium</i>	Baci. megaterium	BACIMEG
<i>Bacillus pumilus</i>	Baci. pumilus	BACIPUM
<i>Bacillus subtilis</i>	Baci. subtilis	BACISUB
<i>Bacillus thuringiensis</i>	Baci. thuringiensis	BACITHU
<i>Bergeyella zoohelcum</i>	Ber. zoohelcum	BERZOO
<i>Bordetella bronchiseptica</i>	Bord. bronchiseptica	BORBROS
<i>Brevibacillus brevis</i>	Brevs. brevis	BACIBRE

Полное название	Краткое название	Код
<i>Brevibacterium</i> виды	Brevm. species	BREISPE
<i>Brevundimonas diminuta</i>	Brevu. diminuta	BREUDIM
<i>Brevundimonas</i> виды	Brevu. species	BREUSPE
<i>Brevundimonas vesicularis</i>	Brevu. vesicularis	BREUVES
<i>Burkholderia caryophylli</i>	Burk. caryophylli	BURCAR
<i>Burkholderia cepacia</i> комплекс	Burk. cepacia complex	BURCEP
<i>Burkholderia cepacia/Ralstonia pickettii</i>	Burk. cepacia/Ral. pickettii	BURCEPRALPIC
<i>Burkholderia gladioli</i>	Burk. gladioli	BURGLA
<i>Burkholderia glathei</i>	Burk. glathei	BURGLT
<i>Burkholderia graminis</i>	Burk. graminis	BURGRA
<i>Burkholderia multivorans</i>	Burk. multivorans	BURMUL
<i>Burkholderia phenazinium</i>	Burk. phenazinium	BURPHE
<i>Burkholderia pyrrocinia</i>	Burk. pyrrocinia	BURPYR
<i>Burkholderia</i> виды	Burk. species	BURSPE
<i>Burkholderia</i> виды/ <i>Ralstonia</i> виды	Burk. species/Ral. species	BURSPERALSPE
<i>Candida albicans</i>	Can. albicans	CANALB
<i>Candida apicola</i>	Can. apicola	CANAPI
<i>Candida boidinii</i>	Can. boidinii	CANBOI
<i>Candida bracarensis</i>	Can. bracarensis	CANBRA
<i>Candida catenulata</i>	Can. catenulata	CANCAT
<i>Candida ciferrii</i>	Can. ciferrii	CANCIF
<i>Candida dubliniensis</i>	Can. dubliniensis	CANDUB
<i>Candida firmetaria</i>	Can. firmetaria	CANLAM
<i>Candida freyschussii</i>	Can. freyschussii	CANFRE
<i>Candida glabrata</i>	Can. glabrata	TORGLA
<i>Candida guilliermondii</i>	Can. guilliermondii	CANGUI

Полное название	Краткое название	Код
<i>Candida guilliermondii</i> var <i>membranaefaciens</i>	Can. guillier. var membranaef.	CANGUIM
<i>Candida haemulonii</i>	Can. haemulonii	CANHAE
<i>Candida inconspicua</i>	Can. inconspicua	CANINC
<i>Candida kefyr</i>	Can. kefyr	CANKEF
<i>Candida krusei</i>	Can. krusei	CANKRU
<i>Candida lipolytica</i>	Can. lipolytica	CANLIP
<i>Candida lusitanae</i>	Can. lusitanae	CANLUS
<i>Candida magnoliae</i>	Can. magnoliae	CANMAG
<i>Candida melibiosica</i>	Can. melibiosica	CANMEL
<i>Candida membranifaciens</i>	Can. membranifaciens	CANMEM
<i>Candida norvegensis</i>	Can. norvegensis	CANNOR
<i>Candida parapsilosis</i> комплекс	Can. parapsilosis complex	CANPARPX
<i>Candida pararugosa</i>	Can. pararugosa	CANPARR
<i>Candida pelliculosa</i>	Can. pelliculosa	CANPEL
<i>Candida pulcherrima</i>	Can. pulcherrima	CANPUL
<i>Candida rugosa</i>	Can. rugosa	CANRUG
<i>Candida sake</i>	Can. sake	CANSAK
<i>Candida sphaerica</i>	Can. sphaerica	CANSPH
<i>Candida tropicalis</i>	Can. tropicalis	CANTRO
<i>Candida utilis</i>	Can. utilis	CANUTI
<i>Candida viswanathii</i>	Can. viswanathii	CANVIS
<i>Candida zeylanoides</i>	Can. zeylanoides	CANZEY
<i>Cardiobacterium hominis</i>	Card. hominis	CARHOM
Гриппа Vb-3 CDC	CDC Vb-3	CDCVb3
<i>Cedecea davisae</i>	Ced. davisae	CEDDAV
<i>Cedecea lapagei</i>	Ced. lapagei	CEDLAP

Полное название	Краткое название	Код
<i>Cedecea neteri</i>	Ced. neteri	CEDNET
<i>Cedecea</i> виды	Ced. species	CEDSPE
<i>Cedecea</i> виды 3	Ced. species 3	CEDSPE3
<i>Cedecea</i> виды 5	Ced. species 5	CEDSPE5
<i>Cellulomonas turbata</i>	Cell. turbata	OERTUR
<i>Cellulosimicrobium cellulans</i>	Cellulo. cellulans	OERXAN
<i>Chromobacterium violaceum</i>	Chrom. violaceum	CHROVIO
<i>Chryseobacterium gleum</i>	Chryseob. gleum	CHRBGLE
<i>Chryseobacterium indologenes</i>	Chryseob. indologenes	CHRBIND
<i>Chryseobacterium scophthalmum</i>	Chryseob. scophthalmum	CHRBSCO
<i>Chryseobacterium</i> виды	Chryseob. species	CHRBSPPE
<i>Citrobacter amalonaticus</i>	Cit. amalonaticus	CITAMA
<i>Citrobacter braakii</i>	Cit. braakii	CITBRA
<i>Citrobacter farmeri</i>	Cit. farmeri	CITFAR
<i>Citrobacter freundii</i>	Cit. freundii	CITFRE
<i>Citrobacter gillenii</i>	Cit. gillenii	CITSPE10
<i>Citrobacter koseri</i>	Cit. koseri	CITKOS
<i>Citrobacter murlinae</i>	Cit. murlinae	CITSPE11
<i>Citrobacter rodentium</i>	Cit. rodentium	CITSPE9
<i>Citrobacter sedlakii</i>	Cit. sedlakii	CITSED
<i>Citrobacter</i> виды	Cit. species	CITSPE
<i>Citrobacter werkmanii</i>	Cit. werkmanii	CITWER
<i>Citrobacter youngae</i>	Cit. youngae	CITYOU
<i>Comamonas terrigena</i>	Coma. terrigena	COMTER
<i>Comamonas testosteroni</i>	Coma. testosteroni	COMTES
<i>Corynebacterium amycolatum</i>	Cory. amycolatum	CORAMY

Полное название	Краткое название	Код
<i>Corynebacterium amycolatum/ minutissimum</i>	Cory. amycolatum/ minutissimum	CORAMYMIN
<i>Corynebacterium amycolatum/ striatum</i>	Cory. amycolatum/ striatum	CORAMYSTR
<i>Corynebacterium bovis</i>	Cory. bovis	CORBOV
<i>Corynebacterium diphtheriae</i>	Cory. diphtheriae	CORDIP
<i>Corynebacterium jeikeium</i>	Cory. jeikeium	CORJEI
<i>Corynebacterium kutscheri</i>	Cory. kutscheri	CORKUT
<i>Corynebacterium matruchotii</i>	Cory. matruchotii	CORMAT
<i>Corynebacterium minutissimum</i>	Cory. minutissimum	CORMIN
<i>Corynebacterium propinquum</i>	Cory. propinquum	CORPRO
<i>Corynebacterium pseudodiphtheriticum</i>	Cory. pseudodiphth.	CORPSD
<i>Corynebacterium pseudotuberculosis</i>	Cory. pseudotuberc.	CORPST
<i>Corynebacterium renale</i>	Cory. renale	CORREN
<i>Corynebacterium striatum</i>	Cory. striatum	CORSTR
<i>Corynebacterium ulcerans</i>	Cory. ulcerans	CORULC
<i>Corynebacterium urealyticum</i>	Cory. urealyticum	CORURE
<i>Corynebacterium xerosis</i>	Cory. xerosis	CORXER
<i>Cosenzaea myxofaciens</i>	Cosen. myxofaciens	PROTMYX
<i>Cronobacter sakazakii</i> комплекс	Cronob. sakazakii complex	ENTBSAK
<i>Cryptococcus albidus</i>	Cryp. albidus	CRYALB
<i>Cryptococcus humicola</i>	Cryp. humicola	CRYHUM
<i>Cryptococcus laurentii</i>	Cryp. laurentii	CRYLAU
<i>Cryptococcus luteolus</i>	Cryp. luteolus	CRYLUT
<i>Cryptococcus neoformans</i>	Cryp. neoformans	CRYNEO
<i>Cryptococcus terreus</i>	Cryp. terreus	CRYTER
<i>Cryptococcus uniguttulatus</i>	Cryp. uniguttulatus	CRYUNI
<i>Cupriavidus gilardii</i>	Cup. gilardii	RALGIL

Полное название	Краткое название	Код
<i>Cupriavidus pauculus</i>	Cup. pauculus	CDCIVC2
<i>Delftia acidovorans</i>	Delf. acidovorans	COMACI
<i>Dermabacter hominis</i>	Dermab. hominis	DERBHOM
<i>Dermacoccus nishinomiyaensis</i>	Derm. nishinomiyaen.	MICNIS
<i>Edwardsiella hoshinae</i>	Ed. hoshinae	EDWHOS
<i>Edwardsiella ictaluri</i>	Ed. ictaluri	EDWICT
<i>Edwardsiella</i> виды	Ed. species	EDWSPE
<i>Edwardsiella tarda</i>	Ed. tarda	EDWTAR
<i>Edwardsiella tarda</i> биогруппа 1	Ed. tarda biogr. 1	EDWTARI
<i>Eikenella corrodens</i>	Eik. corrodens	EIKCOR
<i>Elizabethkingia meningoseptica</i>	Eliz. meningosept.	CHRBMEN
<i>Empedobacter brevis</i>	Emp. brevis	EMPBRE
<i>Enterobacter aerogenes</i>	Enterob. aerogenes	ENTBAER
<i>Enterobacter asburiae</i>	Enterob. asburiae	ENTBASB
<i>Enterobacter cancerogenus</i>	Enterob. cancerogenus	ENTBCAN
<i>Enterobacter cloacae</i>	Enterob. cloacae	ENTBCLO
<i>Enterobacter cloacae</i> ssp <i>dissolvens</i>	Enterob. cloacae ssp dissolven	ENTBDIS
<i>Enterobacter hormaechei</i>	Enterob. hormaechei	ENTBHOR
<i>Enterobacter kobei</i>	Enterob. kobei	ENTBKOB
<i>Enterobacter nimipressuralis</i>	Enterob. nimipressuralis	ENTBNIM
<i>Enterobacter</i> виды	Enterob. species	ENTBSPE
<i>Enterococcus asini</i>	Enteroc. asini	ENTCASI
<i>Enterococcus avium</i>	Enteroc. avium	ENTCAVI
<i>Enterococcus casseliflavus</i>	Enteroc. casseliflavus	ENTCCAS
<i>Enterococcus casseliflavus/gallinarum</i>	Enteroc. cassel./gallin.	ENTCCASGAL
<i>Enterococcus cecorum</i>	Enteroc. cecorum	ENTCCEC

Полное название	Краткое название	Код
<i>Enterococcus columbae</i>	Enteroc. columbae	ENTCCOL
<i>Enterococcus dispar</i>	Enteroc. dispar	ENTCDIS
<i>Enterococcus durans</i>	Enteroc. durans	ENTCDUR
<i>Enterococcus durans/faecium</i>	Enteroc. durans/faecium	ENTCDURFAI
<i>Enterococcus faecalis</i>	Enteroc. faecalis	ENTCFAA
<i>Enterococcus faecalis/faecium</i>	Enteroc. faecalis/faecium	ENTCFAAFAI
<i>Enterococcus faecium</i>	Enteroc. faecium	ENTCFAI
<i>Enterococcus flavescens</i>	Enteroc. flavescens	ENTCFLA
<i>Enterococcus gallinarum</i>	Enteroc. gallinarum	ENTCGAL
<i>Enterococcus gilvus</i>	Enteroc. gilvus	ENTCGIL
<i>Enterococcus haemoperoxidus</i>	Enteroc. haemoperoxidus	ENTCHAE
<i>Enterococcus hirae</i>	Enteroc. hirae	ENTCHIR
<i>Enterococcus hirae/faecium</i>	Enteroc. hirae/faecium	ENTCHIRFAI
<i>Enterococcus malodoratus</i>	Enteroc. malodoratus	ENTCMAL
<i>Enterococcus moraviensis</i>	Enteroc. moraviensis	ENTCMOR
<i>Enterococcus mundtii</i>	Enteroc. mundtii	ENTCMUN
<i>Enterococcus pallens</i>	Enteroc. pallens	ENTCPAL
<i>Enterococcus pseudoavium</i>	Enteroc. pseudoavium	ENTCPSE
<i>Enterococcus raffinosus</i>	Enteroc. raffinosus	ENTCRAF
<i>Enterococcus raffinosus/avium</i>	Enteroc. raffinosus/avium	ENTCRAFAVI
<i>Enterococcus ratti</i>	Enteroc. ratti	ENTCRAT
<i>Enterococcus saccharolyticus</i>	Enteroc. saccharolyticus	ENTCSAC
<i>Enterococcus</i> виды	Enteroc. species	ENTCSPE
<i>Enterococcus sulfureus</i>	Enteroc. sulfureus	ENTCSUL
<i>Erysipelothrix rhusiopathiae</i>	Ery. rhusiopathiae	ERYRHU
<i>Escherichia coli</i>	Esch. coli	ESCCOL

Полное название	Краткое название	Код
<i>Escherichia coli</i> серотип O111	Esch. coli O111	ESCCOL0111
<i>Escherichia coli</i> серотип O157	Esch. coli O157	ESCCOL0157
<i>Escherichia fergusonii</i>	Esch. fergusonii	ESCFER
<i>Escherichia hermannii</i>	Esch. hermannii	ESCHER
<i>Escherichia</i> виды	Esch. species	ESCSPE
<i>Escherichia vulneris</i>	Esch. vulneris	ESCVUL
<i>Ewingella americana</i>	Ew. americana	EWIAME
<i>Exophiala dermatitidis</i>	Exo. dermatitidis	WANDER
<i>Exophiala</i> виды	Exo. species	EXOSPE
<i>Gardnerella vaginalis</i>	Gard. vaginalis	GARVAG
<i>Gemella haemolysans</i>	Gem. haemolysans	GEMHAE
<i>Gemella morbillorum</i>	Gem. morbillorum	GEMMOR
<i>Gemella</i> виды	Gem. species	GEMSPE
<i>Geotrichum</i> виды	Geo. species	GEOSPE
<i>Globicatella sanguinis</i>	Glob. sanguinis	GLOSAN
Грамотрицательные палочки, неидентифицированные кишечные	GNR unident. enteric	GNRUNIE
Грамотрицательные палочки, неидентифицированные неферментирующие	GNR unident. NF	GNRUNINF
<i>Grimontia hollisae</i>	Grim. hollisae	VIBHOL
<i>Hafnia alvei</i>	Haf. alvei	HAFALV
<i>Hafnia alvei</i> группа 1	Haf. alvei gr. 1	HAFALV1
<i>Helcococcus kunzii</i>	Helco. kunzii	HELCKUN
<i>Hortaea werneckii</i>	Hor. werneckii	HORWER
<i>Hyphopichia burtonii</i>	Hyphop. burtonii	PICBUR
<i>Kingella denitrificans</i>	King. denitrificans	KINDEN
<i>Kingella kingae</i>	King. kingae	KINKIN
<i>Klebsiella granulomatis</i>	Kleb. granulomatis	CALYGRA

Полное название	Краткое название	Код
<i>Klebsiella oxytoca</i>	Kleb. oxytoca	KLEOXY
<i>Klebsiella ozaenae</i>	Kleb. ozaenae	KLEPNEO
<i>Klebsiella pneumoniae</i>	Kleb. pneumoniae	KLEPNEP
<i>Klebsiella rhinoscleromatis</i>	Kleb. rhinoscleromatis	KLEPNER
<i>Klebsiella</i> виды	Kleb. species	KLESPE
<i>Kloeckera</i> виды	Kloeck. species	KLOSPE
<i>Kluyvera ascorbata</i>	Kluyvera ascorbata	KLUASC
<i>Kluyvera cryocrescens</i>	Kluyvera cryocres.	KLUCRY
<i>Kluyvera georgiana</i>	Kluyvera georgiana	KLUGEO
<i>Kluyvera intermedia</i>	Kluyvera intermedia	ENTBINT
<i>Kluyvera</i> виды	Kluyvera species	KLUSPE
<i>Kocuria kristinae</i>	Koc. kristinae	MICKRI
<i>Kocuria rosea</i>	Koc. rosea	MICROS
<i>Kocuria varians</i>	Koc. varians	MICVAR
<i>Kosakonia cowanii</i>	Kosak. cowanii	ENTBCOW
<i>Kytococcus sedentarius</i>	Kyto. sedentarius	MICSED
<i>Lactococcus garvieae</i>	Lactoc. garvieae	LACCGAR
<i>Lactococcus lactis</i> ssp <i>cremoris</i>	Lactoc. lactis ssp crem.	LACCLACC
<i>Lactococcus lactis</i> ssp <i>hordniae</i>	Lactoc. lactis ssp hord.	LACCLACH
<i>Lactococcus lactis</i> ssp <i>lactis</i>	Lactoc. lactis ssp lactis	LACCLACL
<i>Lactococcus plantarum</i>	Lactoc. plantarum	LACCPA
<i>Lactococcus raffinolactis</i>	Lactoc. raffinolactis	LACCRAF
<i>Lactococcus</i> виды	Lactoc. species	LACCSPE
<i>Leclercia adecarboxylata</i>	Lec. adecarboxylata	LECADE
<i>Leifsonia aquatica</i>	Leif. aquatica	CORAQU
<i>Lelliottia amnigena</i>	Lell. amnigena	ENTBAMN

Полное название	Краткое название	Код
<i>Lelliottia amnigena</i> биогруппа 1	Lell. amnigena biogr. 1	ENTBAMN1
<i>Lelliottia amnigena</i> биогруппа 2	Lell. amnigena biogr. 2	ENTBAMN2
<i>Leminorella grimontii</i>	Lem. grimontii	LEMGR1
<i>Leminorella richardii</i>	Lem. richardii	LEMRIC
<i>Leuconostoc citreum</i>	Leu. citreum	LEUCIT
<i>Leuconostoc lactis</i>	Leu. lactis	LEULAC
<i>Leuconostoc mesenteroides</i> ssp <i>cremoris</i>	Leu. mesenter. ssp crem.	LEUMESC
<i>Leuconostoc mesenteroides</i> ssp <i>mesenteroides</i>	Leu. mesenter. ssp mes.	LEUMESM
<i>Leuconostoc pseudomesenteroides</i>	Leu. pseudomesenter.	LEUPSE
<i>Leuconostoc</i> виды	Leu. species	LEUSPE
<i>Listeria grayi</i>	Lis. grayi	LISGRA
<i>Listeria innocua</i>	Lis. innocua	LISINN
<i>Listeria ivanovii</i>	Lis. ivanovii	LISIVA
<i>Listeria monocytogenes</i>	Lis. monocytogenes	LISMON
<i>Listeria monocytogenes/innocua</i>	Lis. monocytogenes/innocua	LISMONINN
<i>Listeria</i> виды	Lis. species	LISSPE
<i>Listeria welshimeri</i>	Lis. welshimeri	LISWEL
<i>Lysinibacillus sphaericus</i>	Lysini. sphaericus	BACISPH
<i>Macrococcus caseolyticus</i>	Macro. caseolyticus	STACAS
<i>Magnusiomyces capitatus</i>	Magnus. capitatus	BLACAP
<i>Malassezia furfur</i> комплекс	Mal. furfur complex	MALFURX
<i>Malassezia pachydermatis</i>	Mal. pachydermatis	MALPAC
<i>Malassezia sympodialis</i>	Mal. sympodialis	MALSYM
<i>Mannheimia haemolytica</i>	Mann. haemolytica	PASHAE
<i>Methylobacterium extorquens</i>	Methylob. extorquens	METEXT
<i>Micrococcus luteus</i>	Microc. luteus	MICLUT

Полное название	Краткое название	Код
<i>Micrococcus lylae</i>	Microc. lylae	MICLYL
<i>Millerozyma farinosa</i>	Mill. farinosa	PICFAR
<i>Moellerella wisconsensis</i>	Moel. wisconsensis	MOEWIS
<i>Moraxella (Branhamella) catarrhalis</i>	Morax. (Bran.) cat.	MORABRACAT
<i>Moraxella</i> виды	Morax. species	MORASPE
<i>Morganella morganii</i>	Morg. morganii	MORGMOR
<i>Morganella morganii ssp morganii</i>	Morg. morg. ssp morg.	MORGMORM
<i>Morganella morganii ssp morganii</i> биогруппа 1	Morg. morg. ssp morg. biog. 1	MORGMORM1
<i>Morganella morganii ssp sibonii</i>	Morg. morg. ssp sibonii	MORGMORS
<i>Morganella</i> виды	Morg. species	MORGSPPE
<i>Myroides odoratimimus</i>	Myr. odoratimimus	MYRODI
<i>Myroides odoratus</i>	Myr. odoratus	MYRODA
<i>Myroides odoratus/odoratimimus</i>	Myr. odoratus/odoratimimus	MYRODAODI
<i>Myroides</i> виды	Myr. species	MYRSPE
<i>Neisseria animaloris</i>	Nei. animaloris	CDCEF4a
<i>Neisseria zoodegmatis</i>	Nei. zoodegmatis	CDCEF4b
<i>Ochrobactrum anthropi</i>	Och. anthropi	OCHANT
<i>Oligella ureolytica</i>	Olig. ureolytica	OLIURO
<i>Oligella urethralis</i>	Olig. urethralis	OLIURT
<i>Paenibacillus alvei</i>	Paen. alvei	PAEALV
<i>Paenibacillus macerans</i>	Paen. macerans	PAEMAC
<i>Pantoea agglomerans</i>	Pan. agglomerans	PANAGG
<i>Pantoea ananatis</i>	Pan. ananatis	ERWANA
<i>Pantoea dispersa</i>	Pan. dispersa	PANDIS
<i>Pantoea</i> виды	Pan. species	PANSPE
<i>Pantoea stewartii</i>	Pan. stewartii	PANSTE

Полное название	Краткое название	Код
<i>Pantoea stewartii ssp indologenes</i>	Pan. ste. ssp indologenes	PANSTEI
<i>Pantoea stewartii ssp stewartii</i>	Pan. ste. ssp stewartii	PANSTES
<i>Paracoccus yeei</i>	Parac. yeei	CDCEO2
<i>Pasteurella aerogenes</i>	Past. aerogenes	PASAER
<i>Pasteurella multocida</i>	Past. multocida	PASMUL
<i>Pasteurella pneumotropica</i>	Past. pneumotropica	PASPNE
<i>Pediococcus acidilactici</i>	Ped. acidilactici	PEDACI
<i>Pediococcus damnosus</i>	Ped. damnosus	PEDDAM
<i>Pediococcus dextrinicus</i>	Ped. dextrinicus	PEDDEX
<i>Pediococcus parvulus</i>	Ped. parvulus	PEDPAR
<i>Pediococcus pentosaceus</i>	Ped. pentosaceus	PEDPEN
<i>Pediococcus</i> виды	Ped. species	PEDSPE
<i>Photobacterium damsela</i>	Photob. damsela	PHOBDAM
<i>Plesiomonas shigelloides</i>	Ples. shigelloides	PLESHI
<i>Pluralibacter gergoviae</i>	Plural. gergoviae	ENTBGER
<i>Pragia fontium</i>	Prag. fontium	PRAFON
<i>Proteus hauseri</i>	Prot. hauseri	PROTHAU
<i>Proteus mirabilis</i>	Prot. mirabilis	PROTMIR
<i>Proteus penneri</i>	Prot. penneri	PROTPEN
<i>Proteus</i> виды	Prot. species	PROTSPE
<i>Proteus vulgaris</i>	Prot. vulgaris	PROTVUL
<i>Proteus vulgaris/penneri</i>	Prot. vulgaris/penneri	PROTVULPEN
<i>Prototheca wickerhamii</i>	Protot. wick.	PROHWIC
<i>Prototheca zopfii</i>	Protot. zopfii	PROHZOP
<i>Providencia alcalifaciens</i>	Prov. alcalifaciens	PROVALC
<i>Providencia heimbachae</i>	Prov. heimbachae	PROVHEI

Полное название	Краткое название	Код
<i>Providencia rettgeri</i>	Prov. rettgeri	PROVRET
<i>Providencia rustigianii</i>	Prov. rustigianii	PROVRUS
<i>Providencia</i> виды	Prov. species	PROVSPE
<i>Providencia stuartii</i>	Prov. stuartii	PROVSTU
<i>Pseudomonas aeruginosa</i>	Pseud. aeruginosa	PSEAER
<i>Pseudomonas alcaligenes</i>	Pseud. alcaligenes	PSEALC
<i>Pseudomonas fluorescens</i>	Pseud. fluorescens	PSEFLU
<i>Pseudomonas fluorescens/putida</i>	Pseud. fluorescens/putida	PSEFLUPUT
<i>Pseudomonas luteola</i>	Pseud. luteola	CHRMLUT
<i>Pseudomonas mendocina</i>	Pseud. mendocina	PSEMEN
<i>Pseudomonas monteilii</i>	Pseud. monteilii	PSEMON
<i>Pseudomonas oryzihabitans</i>	Pseud. oryzihabitans	FLAIORY
<i>Pseudomonas pertucinogena</i>	Pseud. pertucinogena	PSEPER
<i>Pseudomonas pseudoalcaligenes</i>	Pseud. pseudoalcaligenes	PSEPSE
<i>Pseudomonas pseudoalcaligenes ssp pseudoalcaligenes</i>	Pseud. pseudoal. ssp pseud.	PSEPSEP
<i>Pseudomonas putida</i>	Pseud. putida	PSEPUT
<i>Pseudomonas</i> виды	Pseud. species	PSESPE
<i>Pseudomonas stutzeri</i>	Pseud. stutzeri	PSESTU
<i>Pseudomonas veronii</i>	Pseud. veronii	PSEVER
<i>Rahnella aquatilis</i>	Rah. aquatilis	RAHAQU
<i>Ralstonia pickettii</i>	Ral. pickettii	BURPIC
<i>Ralstonia solanacearum</i>	Ral. solanacearum	BURSOL
<i>Ralstonia</i> виды	Ral. species	RALSPE
<i>Raoultella ornithinolytica</i>	Rao. ornithinolytica	KLEORN
<i>Raoultella planticola</i>	Rao. planticola	KLEPLA
<i>Raoultella</i> виды	Rao. species	RAOSPE

Полное название	Краткое название	Код
<i>Raoultella terrigena</i>	Rao. terrigena	KLETER
<i>Rhizobium radiobacter</i>	Rhizob. radiobacter	AGRRAD
<i>Rhodococcus equi</i>	Rhodoc. equi	RHOCEQU
<i>Rhodotorula glutinis</i>	Rhodot. glutinis	RHOTGLU
<i>Rhodotorula minuta</i>	Rhodot. minuta	RHOTMIN
<i>Rhodotorula mucilaginosa</i> var <i>mucilaginosa</i>	Rhodot. mucilag. var mucilag.	RHOTMUCM
<i>Rothia dentocariosa</i>	Roth. dentocariosa	ROTDEN
<i>Rothia mucilaginosa</i>	Roth. mucilaginosa	STOMUC
<i>Saccharomyces cerevisiae</i>	Sac. cerevisiae	SACCER
<i>Salmonella enterica</i> ssp <i>arizonae</i>	Salm. enterica ssp arizonae	SALCHOA
<i>Salmonella enterica</i> ssp <i>diarizonae</i>	Salm. enterica ssp diarizonae	SALCHOD
<i>Salmonella enterica</i> ssp <i>enterica</i> serovar <i>Choleraesuis</i>	Salm. enterica sv Choleraesuis	SALCHOC
<i>Salmonella enterica</i> ssp <i>enterica</i> sv <i>Gallinarum</i> bv <i>Gallinarum</i>	Salm. Gallinarum	SALGAL
<i>Salmonella enterica</i> ssp <i>enterica</i> sv <i>Gallinarum</i> bv <i>Pullorum</i>	Salm. Pullorum	SALPUL
<i>Salmonella enterica</i> ssp <i>enterica</i> sv <i>Paratyphi</i> A	Salm. Paratyphi A	SALPARA
<i>Salmonella enterica</i> ssp <i>enterica</i> sv <i>Typhi</i>	Salm. Typhi	SALTYP
<i>Salmonella enterica</i> ssp <i>houtenae</i>	Salm. enterica ssp houtenae	SALCHOH
<i>Salmonella enterica</i> ssp <i>indica</i>	Salm. enterica ssp indica	SALCHOI
<i>Salmonella enterica</i> ssp <i>salamae</i>	Salm. enterica ssp salamae	SALCHOS
<i>Salmonella</i> виды	Salm. species	SALSPE
<i>Serratia entomophila</i>	Ser. entomophila	SERENT
<i>Serratia ficaria</i>	Ser. ficaria	SERFIC
<i>Serratia fonticola</i>	Ser. fonticola	SERFON
<i>Serratia grimesii</i>	Ser. grimesii	SERGRI
<i>Serratia liquefaciens</i>	Ser. liquefaciens	SERLIQ

Полное название	Краткое название	Код
<i>Serratia marcescens</i>	Ser. marcescens	SERMAR
<i>Serratia odorifera</i>	Ser. odorifera	SERODO
<i>Serratia odorifera</i> биогруппа 1	Ser. odorifera 1	SERODO1
<i>Serratia odorifera</i> биогруппа 2	Ser. odorifera 2	SERODO2
<i>Serratia plymuthica</i>	Ser. plymuthica	SERPLY
<i>Serratia proteamaculans</i> ssp <i>proteamaculans</i>	Ser. proteamac. ssp proteam.	SERPROP
<i>Serratia proteamaculans</i> ssp <i>quinovora</i>	Ser. proteamac. ssp quino.	SERPROQ
<i>Serratia rubidaea</i>	Ser. rubidaea	SERRUB
<i>Serratia</i> виды	Ser. species	SERSPE
<i>Shewanella algae</i>	Shew. algae	SHEALG
<i>Shewanella putrefaciens</i>	Shew. putrefaciens	SHEPUT
<i>Shewanella</i> виды	Shew. species	SHEspe
<i>Shigella boydii</i>	Shig. boydii	SHIBOY
<i>Shigella dysenteriae</i>	Shig. dysenteriae	SHIDYS
<i>Shigella flexneri</i>	Shig. flexneri	SHIFLE
<i>Shigella sonnei</i>	Shig. sonnei	SHISON
<i>Shigella</i> виды	Shig. species	SHISPE
<i>Shimwellia blattae</i>	Shim. blattae	ESCBLA
<i>Sphingobacterium multivorum</i>	Sphingob. multivorum	SPHBMUL
<i>Sphingobacterium multivorum/thalpophilum</i>	Sphb. multivorum/thalpophilum	SPHBMULTHA
<i>Sphingobacterium</i> виды	Sphingob. species	SPHBSPE
<i>Sphingobacterium spiritivorum</i>	Sphingob. spiritivorum	SPHBSPI
<i>Sphingobacterium thalpophilum</i>	Sphingob. thalpophilum	SPHBTHA
<i>Sphingomonas paucimobilis</i>	Sphingom. paucimobilis	SPHMPAU
<i>Sporobolomyces salmonicolor</i>	Sporobol. salmonicolor	SPOBSAL
<i>Staphylococcus arlettae</i>	Staph. arlettae	STAARL

Полное название	Краткое название	Код
<i>Staphylococcus aureus</i>	Staph. aureus	STAAUE
<i>Staphylococcus aureus</i> ssp <i>anaerobius</i>	Staph. aureus ssp anaerob.	STAAUEAN
<i>Staphylococcus aureus</i> ssp <i>aureus</i>	Staph. aureus ssp aureus	STAAUEAU
<i>Staphylococcus auricularis</i>	Staph. auricularis	STAAUI
<i>Staphylococcus capitis</i>	Staph. capitis	STACAI
<i>Staphylococcus capitis</i> ssp <i>capitis</i>	Staph. capitis ssp capitis	STACAIC
<i>Staphylococcus capitis</i> ssp <i>urealyticus</i>	Staph. capitis ssp urealyt.	STACAIU
<i>Staphylococcus caprae</i>	Staph. caprae	STACAP
<i>Staphylococcus carnosus</i>	Staph. carnosus	STACAR
<i>Staphylococcus carnosus</i> ssp <i>carnosus</i>	Staph. carn. ssp carn.	STACARC
<i>Staphylococcus carnosus</i> ssp <i>utilis</i>	Staph. carn. ssp utilis	STACARU
<i>Staphylococcus chromogenes</i>	Staph. chromogenes	STACHR
<i>Staphylococcus chromogenes/hyicus</i>	Staph. chromogenes/hyicus	STACHRHYI
<i>Staphylococcus</i> коагулазоотрицательный	Staph. coag. neg.	STACNEG
<i>Staphylococcus</i> коагулазоположительный	Staph. coag. pos.	STACPOS
<i>Staphylococcus cohnii</i>	Staph. cohnii	STACOH
<i>Staphylococcus cohnii</i> ssp <i>cohnii</i>	Staph. cohnii ssp cohnii	STACOHHC
<i>Staphylococcus cohnii</i> ssp <i>urealyticum</i>	Staph. cohnii ssp urealyt.	STACOHU
<i>Staphylococcus condimenti</i>	Staph. condimenti	STACON
<i>Staphylococcus delphini</i>	Staph. delphini	STADEL
<i>Staphylococcus epidermidis</i>	Staph. epidermidis	STAEPI
<i>Staphylococcus equorum</i>	Staph. equorum	STAEQU
<i>Staphylococcus felis</i>	Staph. felis	STAFEL
<i>Staphylococcus fleurettii</i>	Staph. fleurettii	STAFLE
<i>Staphylococcus gallinarum</i>	Staph. gallinarum	STAGAL
<i>Staphylococcus haemolyticus</i>	Staph. haemolyticus	STAHAE

Полное название	Краткое название	Код
<i>Staphylococcus haemolyticus/lugdunensis</i>	Staph. haemol./lugdun.	STAHAEUG
<i>Staphylococcus hominis</i>	Staph. hominis	STAHOM
<i>Staphylococcus hominis ssp hominis</i>	Staph. hom. ssp hom.	STAHOMH
<i>Staphylococcus hominis ssp novobiosepticus</i>	Staph. hom. ssp novo.	STAHOMN
<i>Staphylococcus hyicus</i>	Staph. hyicus	STAHYI
<i>Staphylococcus intermedius</i>	Staph. intermedius	STAINI
<i>Staphylococcus kloosii</i>	Staph. kloosii	STAKLO
<i>Staphylococcus lentus</i>	Staph. lentus	STALEN
<i>Staphylococcus lugdunensis</i>	Staph. lugdunensis	STALUG
<i>Staphylococcus lutrae</i>	Staph. lutrae	STALUT
<i>Staphylococcus muscae</i>	Staph. muscae	STAMUS
<i>Staphylococcus pasteurii</i>	Staph. pasteurii	STAPAS
<i>Staphylococcus pettenkoferi</i>	Staph. pettenkoferi	STAPET
<i>Staphylococcus piscifermentans</i>	Staph. piscifermentans	STAPIS
<i>Staphylococcus pulvereri</i>	Staph. pulvereri	STAPUL
<i>Staphylococcus saccharolyticus</i>	Staph. saccharolyticus	STASAC
<i>Staphylococcus saprophyticus</i>	Staph. saprophyticus	STASAP
<i>Staphylococcus saprophyticus ssp bovis</i>	Staph. sap. ssp bovis	STASAPB
<i>Staphylococcus saprophyticus ssp saprophyticus</i>	Staph. sap. ssp saprophyticus	STASAPS
<i>Staphylococcus schleiferi</i>	Staph. schleiferi	STASCH
<i>Staphylococcus schleiferi ssp coagulans</i>	Staph. schleiferi ssp coagul.	STASCHC
<i>Staphylococcus schleiferi ssp schleiferi</i>	Staph. schleiferi ssp schleif.	STASCHS
<i>Staphylococcus sciuri</i>	Staph. sciuri	STASCI
<i>Staphylococcus sciuri ssp carnaticus</i>	Staph. sciuri ssp carnaticus	STASCIC
<i>Staphylococcus sciuri ssp rodentium</i>	Staph. sciuri ssp rodentium	STASCIR
<i>Staphylococcus sciuri ssp sciuri</i>	Staph. sciuri ssp sciuri	STASCIS

Полное название	Краткое название	Код
<i>Staphylococcus simulans</i>	Staph. simulans	STASIM
<i>Staphylococcus</i> виды	Staph. species	STASPE
<i>Staphylococcus succinus</i>	Staph. succinus	STASUC
<i>Staphylococcus succinus</i> ssp <i>casei</i>	Staph. suc. ssp casei	STASUCCA
<i>Staphylococcus succinus</i> ssp <i>succinus</i>	Staph. suc. ssp succinus	STASUCSU
<i>Staphylococcus vitulinus</i>	Staph. vitulinus	STAVIT
<i>Staphylococcus warneri</i>	Staph. warneri	STAWAR
<i>Staphylococcus warneri/pasteuri</i>	Staph. warneri/pasteuri	STAWARPAS
<i>Staphylococcus xylosus</i>	Staph. xylosus	STAXYL
<i>Stenotrophomonas africana</i>	Sten. africana	STEAFR
<i>Stenotrophomonas maltophilia</i>	Sten. maltophilia	STEMAL
<i>Streptococcus acidominimus</i>	Strep. acidominimus	STRACI
<i>Streptococcus agalactiae</i> (Strep. группа B)	Strep. agalactiae (Str. gr. B)	STRAGA
<i>Streptococcus alactolyticus</i>	Strep. alactolyticus	STRALA
<i>Streptococcus</i> альфа-гемолитический	Strep. alpha-hemolytic	STRAHE
<i>Streptococcus anginosus</i>	Strep. anginosus	STRANG
<i>Streptococcus anginosus</i> (ранее <i>milleri</i>) группа	Strep. anginosus (<i>milleri</i>) gr.	STRANGGR
<i>Streptococcus</i> бета-гемолитический ACG (большая колония)	Strep. beta-hemo ACG (lg col)	STRBHE
<i>Streptococcus bovis</i> (Strep. группа D)	Strep. bovis (Str. gr. D)	STRBOV
<i>Streptococcus bovis</i> I (Strep. группа D)	Strep. bovis I (Str. gr. D)	STRBOVI
<i>Streptococcus bovis</i> II (Strep. группа D)	Strep. bovis II (Str. gr. D)	STRBOVII
<i>Streptococcus canis</i>	Strep. canis	STRCAN
<i>Streptococcus constellatus</i>	Strep. constellatus	STRCON
<i>Streptococcus constellatus</i> ssp <i>constellatus</i>	Strep. con ssp constellatus	STRCONCO
<i>Streptococcus constellatus</i> ssp <i>pharyngis</i>	Strep. con ssp pharyngis	STRCONPH
<i>Streptococcus criceti</i>	Strep. criceti	STRCRC

Полное название	Краткое название	Код
<i>Streptococcus cristatus</i>	Strep. cristatus	STRCRS
<i>Streptococcus downei</i>	Strep. downei	STRDOW
<i>Streptococcus dysgalactiae</i>	Strep. dysgalactiae	STRDYS
<i>Streptococcus dysgalactiae</i> ssp <i>dysgalactiae</i>	Strep. dysgal. ssp dysgal.	STRDYSDY
<i>Streptococcus dysgalactiae</i> ssp <i>equisimilis</i>	Strep. dysgal. ssp equis.	STRDYSEM
<i>Streptococcus dysgalactiae/canis</i>	Strep. dysgal./canis	STRDYSCAN
<i>Streptococcus equi</i>	Strep. equi	STREQU
<i>Streptococcus equi</i> ssp <i>equi</i>	Strep. equi ssp equi	STREQUE
<i>Streptococcus equi</i> ssp <i>zooepidemicus</i>	Strep. equi ssp zooepid.	STREQUZ
<i>Streptococcus equinus</i>	Strep. equinus	STREQN
<i>Streptococcus ferus</i>	Strep. ferus	STRFER
<i>Streptococcus gallolyticus</i> ssp <i>macedonicus</i>	Strep. gallolyti. ssp macedon.	STRMAC
<i>Streptococcus gordonii</i>	Strep. gordonii	STRGOR
<i>Streptococcus</i> группа А (маленькая колония)	Strep. group A (sm col)	STRGRAS
<i>Streptococcus</i> группа А (<i>Strep. pyogenes</i>)	Strep. group A (Str. pyogenes)	STRGRA
<i>Streptococcus</i> группа В (<i>Strep. agalactiae</i>)	Strep. group B (Str. agalact.)	STRGRB
<i>Streptococcus</i> группа С (большая колония)	Strep. group C (lg col)	STRGRC
<i>Streptococcus</i> группа С (маленькая колония)	Strep. group C (sm col)	STRGRCS
<i>Streptococcus</i> группа C/G (большая колония)	Strep. group C/G (lg col)	STRGRCG
<i>Streptococcus</i> группа C/G (маленькая колония)	Strep. group C/G (sm col)	STRGRCGS
<i>Streptococcus</i> группа CFG (маленькая колония)	Strep. group CFG (sm col)	STRGRCFG
<i>Streptococcus</i> группа D (не энтерококк)	Strep. group D (non-enteroc.)	STRGRDNE
<i>Streptococcus</i> группа Е	Strep. group E	STRGRE
<i>Streptococcus</i> группа F	Strep. group F	STRGRF
<i>Streptococcus</i> группа G (большая колония)	Strep. group G (lg col)	STRGRG
<i>Streptococcus</i> группа G (маленькая колония)	Strep. group G (sm col)	STRGRGS

Полное название	Краткое название	Код
<i>Streptococcus</i> группа L	Strep. group L	STRGRL
<i>Streptococcus hyointestinalis</i>	Strep. hyointestinalis	STRHYO
<i>Streptococcus infantarius</i>	Strep. infantarius	STRINA
<i>Streptococcus infantarius ssp coli</i>	Strep. infa ssp coli	STRINACO
<i>Streptococcus infantarius ssp infantarius</i>	Strep. infa ssp infantarius	STRINAIN
<i>Streptococcus infantis</i>	Strep. infantis	STRINF
<i>Streptococcus iniae</i>	Strep. iniae	STRINI
<i>Streptococcus intermedius</i>	Strep. intermedius	STRINR
<i>Streptococcus milleri</i> группа	Strep. milleri gr.	STRMILGR
<i>Streptococcus mitis</i>	Strep. mitis	STRMIT
<i>Streptococcus mitis</i> группа	Strep. mitis gr.	STRMITGR
<i>Streptococcus mitis/oralis</i>	Strep. mitis/oralis	STRMITORA
<i>Streptococcus mitis/pneumoniae</i>	Strep. mitis/pneum.	STRMITPNE
<i>Streptococcus mutans</i>	Strep. mutans	STRMUT
<i>Streptococcus mutans</i> группа	Strep. mutans gr.	STRMUTGR
<i>Streptococcus oralis</i>	Strep. oralis	STRORA
<i>Streptococcus parasanguinis</i>	Strep. parasanguinis	STRPAR
<i>Streptococcus peroris</i>	Strep. peroris	STRPER
<i>Streptococcus pneumoniae</i>	Strep. pneumoniae	STRPNE
<i>Streptococcus porcinus</i>	Strep. porcinus	STRPOR
<i>Streptococcus pyogenes</i> (Strep. группа A)	Strep. pyogenes (Str. gr. A)	STRPYO
<i>Streptococcus rattii</i>	Strep. rattii	STRRAT
<i>Streptococcus salivarius</i>	Strep. salivarius	STRSAL
<i>Streptococcus salivarius</i> группа	Strep. salivarius gr.	STRSALGR
<i>Streptococcus salivarius ssp thermophilus</i>	Strep. salivar. ssp thermoph.	STRTHE
<i>Streptococcus sanguinis</i>	Strep. sanguinis	STRSAN

Полное название	Краткое название	Код
<i>Streptococcus sanguinis</i> группа	Strep. sanguinis gr.	STRSANGR
<i>Streptococcus sobrinus</i>	Strep. sobrinus	STRSOB
<i>Streptococcus</i> виды	Strep. species	STRSPE
<i>Streptococcus suis</i>	Strep. suis	STRSUI
<i>Streptococcus uberis</i>	Strep. uberis	STRUBE
<i>Streptococcus vestibularis</i>	Strep. vestibularis	STRVES
<i>Streptococcus viridans</i> бета-гемолитический (маленькая колония)	Strep. vir. beta-hemo (sm col)	STRBHES
<i>Streptococcus viridans</i> группа	Strep. viridans gr.	STRVIRGR
<i>Suttonella indologenes</i>	Sutto. indologenes	SUTIND
<i>Tatumella pyseos</i>	Tat. pyseos	TATPTY
<i>Trichosporon asahii</i>	Tric. asahii	TRIASA
<i>Trichosporon inkin</i>	Tric. inkin	TRIINK
<i>Trichosporon loubieri</i>	Tric. loubieri	TRILOU
<i>Trichosporon mucoides</i>	Tric. mucoides	TRIMUC
<i>Trichosporon ovoides</i>	Tric. ovoides	TRIOVO
<i>Trueperella pyogenes</i>	True. pyogenes	ACTMPYO
<i>Vibrio alginolyticus</i>	Vib. alginolyticus	VIBALG
<i>Vibrio cholerae</i>	Vib. cholerae	VIBCHO
<i>Vibrio fluvialis</i>	Vib. fluvialis	VIBFLU
<i>Vibrio metschnikovii</i>	Vib. metschnikovii	VIBMET
<i>Vibrio mimicus</i>	Vib. mimicus	VIBMIM
<i>Vibrio parahaemolyticus</i>	Vib. parahaemolyticus	VIBPAR
<i>Vibrio vulnificus</i>	Vib. vulnificus	VIBVUL
<i>Weeksella virosa</i>	Week. virosa	WEEVIR
<i>Yersinia aldovae</i>	Yer. aldovae	YERALD
<i>Yersinia bercovieri</i>	Yer. bercovieri	YERBER

Полное название	Краткое название	Код
<i>Yersinia enterocolitica</i>	Yer. enterocolitica	YERENT
<i>Yersinia enterocolitica</i> группа	Yer. enterocolitica gr.	YERENTGR
<i>Yersinia frederiksenii</i>	Yer. frederiksenii	YERFRE
<i>Yersinia intermedia</i>	Yer. intermedia	YERINT
<i>Yersinia kristensenii</i>	Yer. kristensenii	YERKRI
<i>Yersinia mollaretii</i>	Yer. mollaretii	YERMOL
<i>Yersinia pseudotuberculosis</i>	Yer. pseudotuberculosis	YERPSE
<i>Yersinia rohdei</i>	Yer. rohdei	YERROH
<i>Yersinia ruckeri</i>	Yer. ruckeri	YERRUC
<i>Yersinia</i> виды	Yer. species	YERSPE
<i>Yokenella regensburgei</i>	Yok. regensburgei	YOKREG
<i>Zygosaccharomyces bailii</i>	Zyg. bailii	ZYGBAI

Информация о панелях

7.4 Список противомикробных препаратов в панелях BD Phoenix

7.4.1 Грамотрицательные

Противомикробный препарат			Доступные концентрации		
			Гриб	Гриб	Strep
			отрицательные	положительные	
Аминогликозид	Амикацин	AN	0,5 – 64	0,5 – 64	—
Бета-лактам	Амоксициллин	AMX	0,5 – 32	0,25 – 32	0,125 – 32
Бета-лактам	Амоксициллин-клавуланат (f)	AXC	0,5/2 – 32/2	0,25/2 – 32/2	—
Бета-лактам	Амоксициллин-клавуланат	AMC	0,5/0,25 – 32/16	0,25/0,125 – 32/16	0,125/0,06 – 32/16
Бета-лактам	Ампициллин	AM	0,5 – 32	0,0625 – 32	0,0625 – 32
Бета-лактам	Ампициллин-сульбактам (f)	SXA	0,5/8 – 32/8	0,5/8 – 32/8	—
Бета-лактам	Ампициллин-сульбактам	SAM	1/0,5 – 32/16	0,5/0,25 – 32/16	—
Аминогликозид	Арбекацин	ARB	0,25 – 16	0,25 – 16	—
Макролид линкозамид стрептограмин	Азитромицин	AZM	—	0,06 – 8	—
Бета-лактам	Азтреонам	ATM	0,5 – 64	—	—
Бета-лактам	Цефаклор	CEC	—	0,5 – 32	—
Бета-лактам	Цефазолин	CZ	0,5 – 32	0,5 – 32	—
Бета-лактам	Цефдинир	CDR	0,125 – 4	0,125 – 4	—
Бета-лактам	Цефдиторен	CDN	0,125 – 8	0,125 – 8	—
Бета-лактам	Цефепим	FEP	0,125 – 64	1 – 64	0,0625 – 4
Бета-лактам	Цефетамет-пивоксил	CAT	0,25 – 16	—	—
Бета-лактам	Цефиксим	CFM	0,125 – 8	—	—

Противомикробный препарат			Доступные концентрации		
			1 грам-	1 г/мл	
			отрицательные	положительные	Strep
Бета-лактам	Цефметазол	CMZ	2 – 64	1 – 64	—
Бета-лактам	Цефоперазон	CFP	0,5 – 64	1 – 64	—
Бета-лактам	Цефоперазон- сульбактам	SCP	0,5/8 – 64/8	—	—
Бета-лактам	Цефотаксим	CTX	0,5 – 64	1 – 64	0,0625 – 4
Бета-лактам	Цефотетан	CTT	2 – 64	1 – 64	—
Бета-лактам	Цефотиам	CFT	0,5 – 64	0,5 – 64	—
Бета-лактам	Цефокситин	FOX	0,5 – 64	1 – 64	—
Бета-лактам	Цефзопран	CFZ	—	1 – 64	—
Бета-лактам	Цефпиром	CPO	0,5 – 64	0,5 – 64	—
Бета-лактам	Цефподоксим	CPD	0,125 – 8	0,5 – 8	—
Бета-лактам	Цефсулодин	CFS	1 – 64	—	—
Бета-лактам	Цеftarолин	CPT	—	0,0625 – 4	—
Бета-лактам	Цефтазидим	CAZ	0,5 – 64	1 – 64	—
Бета-лактам	Цефтибутен	CTB	0,5 – 32	—	—
Бета-лактам	Цефтизоксим	ZOX	0,5 – 64	1 – 64	—
Бета-лактам	Цефтриаксон	CRO	0,5 – 64	1 – 64	0,0625 – 4
Бета-лактам	Цефуроксим	CXM	1 – 64	1 – 64	0,125 – 4
Бета-лактам	Цефалексин	CN	1 – 64	0,5 – 64	—
Бета-лактам	Цефалотин	CF	1 – 64	0,5 – 64	—
Феникол	Хлорамфеникол	C	1 – 32	1 – 32	1 – 32
Хинолон	Ципрофлоксацин	CIP	0,125 – 4	0,125 – 4	—
Макролид линкозамид стрептограмин	Кларитромицин	CLR	—	0,06 – 8	—
Макролид линкозамид	Клиндамицин	CC	—	0,12 – 8	0,03 – 4
Циклический пептид	Колистин	CL	0,5 – 4	—	—
Циклический липопептид	Даптомицин	DAP	—	0,125 – 32	0,03 – 16
Тетрациклин	Доксициклин	D	—	0,25 – 16	—

Противомикробный препарат			Доступные концентрации		
			Грам-отрицательные	Грам-положительные	Супер
Бета-лактам	Эртапенем	ETP	0,0625 – 4	0,25 – 32	0,0625 – 4
Макролид линкозамид	Эритромицин	E	—	0,125 – 8	0,015 – 4
Фосфомицин	Фосфомицин	FF	16 – 256	8 – 256	—
Фузидан	Фузидовая кислота	FA	—	0,5 – 32	—
Хинолон	Гареноксацин	GRN	0,125 – 16	0,25 – 8	0,03125 – 4
Хинолон	Гатифлоксацин	GAT	0,25 – 8	0,25 – 8	0,0625 – 8
Хинолон	Гемифлоксацин	GEM	0,125 – 8	0,125 – 2	0,0625 – 8
Аминогликозид	Гентамицин	GM	0,5 – 16	0,5 – 16	—
Аминогликозид	Гентамицин-син.	GMS	—	500	250 – 1000
Аминогликозид	Гентамицин-син. (SFM)	GMF	—	250	—
Бета-лактам	Имипенем	IPM	0,0625 – 16	0,5 – 16	0,015 – 4
Аминогликозид	Изепамицин	ISP	0,5 – 32	—	—
Аминогликозид	Канамицин	K	0,5 – 64	0,5 – 64	—
Аминогликозид	Канамицин-син.	KS	—	250	250 – 1000
Хинолон	Левифлоксацин	LVX	0,25 – 8	0,25 – 8	0,25 – 16
Макролид линкозамид стрептограмин	Линкомицин	L	—	0,5 – 16	—
Оксазолидинон	Линезолид	LZD	—	0,25 – 32	0,25 – 16
Хинолон	Ломефлоксацин	LOM	0,25 – 8	0,25 – 8	—
Бета-лактам	Мециллинам	MEC	0,5 – 32	—	—
Бета-лактам	Меропенем	MEM	0,125 – 32	0,5 – 16	0,03125 – 2
Тетрациклин	Миноциклин	MI	0,5 – 16	1 – 32	—
Бета-лактам	Моксалактам	MOX	1 – 64	1 – 64	—
Хинолон	Моксифлоксацин	MXF	0,125 – 8	0,25 – 8	0,0625 – 8
Псевдомониевая кислота	Мупироцин	MUP	—	0,0625 – 8	—
Псевдомониевая кислота	Высокоактивный мупироцин	MUH	—	256	—

Противомикробный препарат			Доступные концентрации		
			Грам-отрицательные	Грам-положительные	Сред.
Хинолон	Налидиксовая кислота	—	1 – 32	—	—
Аминогликозид	Нетилмицин	NET	0,5 – 32	0,5 – 32	—
Нитрофуран	Нитрофурантоин	FM	8 – 512	16 – 512	—
Хинолон	Норфлоксацин	NOR	0,25 – 16	0,25 – 16	—
Хинолон	Офлоксацин	OFX	0,25 – 8	0,25 – 8	0,5 – 16
Бета-лактамы	Оксациллин	OX	—	0,06 – 4	—
Хинолон	Пефлоксацин	PEF	0,25 – 8	0,25 – 8	—
Бета-лактамы	Пенициллин G	P	—	0,0625 – 32	0,03125 – 8
Бета-лактамы	Пиперациллин	PIP	0,5 – 128	1 – 128	—
Бета-лактамы	Пиперациллин-тазобактам	TZP	0,5/4 – 128/4	1/4 – 128/4	—
Макролид линкозамид стрептограммины	Пристинамицин	PR	—	0,25 – 4	0,0625 – 4
Макролид линкозамид стрептограммины	Куинуристин-далфопристин	SYN	—	0,5 – 4	0,125 – 8
Рифамицин	Рифампин	RA	—	0,25 – 32	—
Аминогликозид	Стрептомицин-син.	STS	—	1000	250 – 1000
Аминогликозид	Стрептомицин-син. (SFM)	STF	—	250	—
Гликопептид	Тейкопланин	TEC	—	0,5 – 32	1 – 32
Кетолид	Телитромицин	TEL	—	0,03125 – 8	0,0625 – 4
Бета-лактамы	Темоциллин	TEM	2 – 32	—	—
Тетрациклин	Тетрациклин	TE	0,5 – 16	0,5 – 16	0,0625 – 16
Бета-лактамы	Тикарциллин	TIC	1 – 128	1 – 128	—
Бета-лактамы	Тикарциллин-клавуланат	TIM	1/2 – 128/2	1/2 – 128/2	—
Глицилциклин	Тигециклин	TGC	0,25 – 16	0,03125 – 4	—
Аминогликозид	Тобрамицин	NN	0,12 – 16	1 – 16	—

Противомикробный препарат			Доступные концентрации		
			Грам-отрицательные	Грам-положительные	Strep
Антагонист фолатов	Триметоприм-сульфаметоксазол (DIN)	STG	0,4/7,6 – 12,8/243,2	0,4/7,6 – 12,8/243,2	—
Антагонист фолатов	Триметоприм	TMP	0,5 – 16	0,5 – 16	—
Антагонист фолатов	Триметоприм-сульфаметоксазол	SXT	0,5/9,5 – 16/304	0,5/9,5 – 16/304	0,06/1,19 – 16/304
Гликопептид	Ванкомицин	VA	—	0,5 – 32	0,0625 – 32

ЖИРНЫЙ ШРИФТ = Разный диапазон для грамотрицательных и грамположительных типов

ПРИМЕЧАНИЕ

Здесь приведены концентрации разведений для определения МПК, которые получаются при реальной серии двукратных разведений. В отчетах могут выводиться округленные значения МПК.

В общем случае прибор BD Phoenix M50 определяет МПК для всех микроорганизмов при любых концентрациях, представленных в конкретной панели. Для определенных комбинаций препаратов и микроорганизмов, приведенных в следующей таблице, в отчете выводится определенная минимальная/максимальная МПК, даже если в панели есть более низкая/высокая концентрация.

Противомикробный препарат	Микроорганизм	Мин. МПК (мкг/мл)	Макс. МПК (мкг/мл)
Грамотрицательные			
Амикацин	<i>Morganella morganii</i>	2	
Амоксициллин/клавулановая кислота			
(пост. конц. клав. кислоты)	<i>Proteus mirabilis</i>	1/2	
Амоксициллин/клавулановая кислота			
(изм. конц. клав. кислоты)	<i>Proteus mirabilis</i>	2/1	
Арбекацин	<i>Enterobacter aerogenes</i>	1	
	<i>Morganella morganii</i>	1	
	<i>Providencia</i> под	1	
Цефдинир	<i>Proteus mirabilis</i>	0,25	

Противомикробный препарат	Микроорганизм	Мин. МПК (мкг/мл)	Макс. МПК (мкг/мл)
Цефиксим	<i>Proteus mirabilis</i>	0,5	
	<i>Providencia</i> род	0,5	
Цефотиам	<i>Citrobacter freundii</i>	2	
	<i>Proteus mirabilis</i>	4	
	<i>Providencia</i> род	4	
Фосфомицин с G6P	<i>Pseudomonas aeruginosa</i>	16	64
Фосфомицин с G6P	<i>Pod Serratia</i>	32	256
Гареноксацин	<i>Stenotrophomonas maltophilia</i>	1	
Канамицин	<i>Proteus mirabilis</i>	4	
Меропенем	<i>Proteus mirabilis</i>	0,5	
Тикарциллин	<i>Proteus mirabilis</i>	4	

Противомикробный препарат	Микроорганизм	Мин. МПК (мкг/мл)	Макс. МПК (мкг/мл)
Грамположительные			
Амикацин	<i>Staphylococcus epidermidis</i>	8	
	<i>Staphylococcus</i> другие*	8	
Амоксициллин	<i>Staphylococcus aureus</i>	2	
	<i>Staphylococcus epidermidis</i>	2	
Ампициллин	<i>Staphylococcus aureus</i>		1
	<i>Enterococcus</i> другие**	1	
Ампициллин/сульбактам (f) (SXA)	<i>Staphylococcus epidermidis</i>	1	
Ампициллин/сульбактам (f) (SXA)	<i>Enterococcus</i> другие**	2	
Цефотетан	<i>Staphylococcus epidermidis</i>	8	
Цефтриаксон	<i>Staphylococcus aureus</i>	2	
Цефалексин	<i>Staphylococcus epidermidis</i>	1	
Даптомицин	<i>Enterococcus casseliflavus/ gallinarum</i>	2	
Линкомицин	<i>Enterococcus</i> другие**	1	8
Нетилмицин	<i>Staphylococcus epidermidis</i>	2	
Миноциклин**	<i>Enterococcus</i> другие**	1	32
	<i>Staphylococcus</i> другие**	1	32
Норфлоксацин	<i>Enterococcus</i> другие**	2	
Пенициллин	<i>Staphylococcus aureus</i>		1
	<i>Staphylococcus epidermidis</i>		1
	<i>Enterococcus</i> другие**	2	
Пиперацillin	<i>Staphylococcus epidermidis</i>	2	
Тейкопланин	<i>Staphylococcus epidermidis</i>	2	
Тикарциллин	<i>Staphylococcus epidermidis</i>	4	
	<i>Staphylococcus</i> другие*	4	
Тикарциллин/клавуланат	<i>Staphylococcus aureus</i>	4/2	
Тровафлоксацин	<i>Enterococcus faecium</i>	1	
Streptococci			
Даптомицин	<i>Groupa Viridans</i>	0,25	

* Коагулазоотрицательный *Staphylococcus* (кроме *S. epidermidis*)

** Виды *Enterococcus* (кроме *E. faecalis* и *E. faecium*)

7.5 Список реагентов и принципы, применяемые в системе BD Phoenix

7.5.1 Панель для грамотрицательных бактерий

НАЗВАНИЕ СУБСТРАТА	КОД	ПРИНЦИП
L-ФЕНИЛАЛАНИН-АМС	A_LPHET	Ферментативный гидролиз амидной или гликозидной связи приводит к высвобождению флюоресцентного производного кумарина или 4-метилумбеллиферона
4МУ-N-АЦЕТИЛ-BD-ГЛЮКОЗАМИНИД	M_NAG	
L-ГЛУТАМИНОВАЯ КИСЛОТА-АМС	A_LGTA	
L-ТРИПТОФАН-АМС	A_LTRY	
L-ПИРОГЛУТАМИНОВАЯ КИСЛОТА-АМС	A_LPYR	
L-ПРОЛИН-АМС	A_LPROB	
L-АРГИНИН-АМС	A_LARGH	
АРГИНИН-АРГИНИН-АМС	A_ARARR	
ГЛИЦИН-АМС	A_GLYB	
L-ЛЕЙЦИН-АМС	A_LLEUH	
ЛИЗИН-АЛАНИН-АМС	A_LYALD	
ГЛУТАРИЛ-ГЛИЦИН-АРГИНИН-АМС	A_GUGAH	
ГЛИЦИН-ПРОЛИН-АМС	A_GLPRB	
КОЛИСТИН	C_CLST	Устойчивость к противомикробному препарату приводит к восстановлению индикатора на основе резазурина.
ПОЛИМИКСИН В	C_PXB	
D-МАННИТ	C_DMNT	Утилизация источников углерода приводит к восстановлению индикатора на основе резазурина.
ЦИТРАТ	C_CIT	
АЦЕТАТ	C_ACT	
АДОНИТОЛ	C_ADO	
МАЛОНАТ	C_MLO	
АЛЬФА-КЕТОГЛУТАРОВАЯ КИСЛОТА	C_KGA	
ТИГЛИНОВАЯ КИСЛОТА	C_TIG	Контроль для стандартизации результатов для флуоресцентных субстратов.
ПОЛОЖИТЕЛЬНЫЙ КОНТРОЛЬ ФЛУОРЕСЦЕНЦИИ	FLR_CTL	
ПОЛОЖИТЕЛЬНЫЙ КОНТРОЛЬ ФЛУОРЕСЦЕНЦИИ	FLR_CTL	Ферментативный гидролиз бесцветного амидного субстрата высвобождает желтый пара-нитроанилин.
L-ПРОЛИН-NA	N_LPROT	
ГАММА-L-ГЛУТАМИЛ-NA	N_LGGH	Ферментативный гидролиз бесцветного гликозида с ароматическим заместителем высвобождает желтый пара-нитрофенол.
BIS (PNP) ФОСФАТ	P_BPHO	
PNP-BD-ГЛЮКОЗИД	P_BDGLU	

БЕТА-АЛЛОЗА	R BALL
N-АЦЕТИЛ-ГАЛАКТОЗАМИН	R_NGA
N-АЦЕТИЛ-ГЛЮКОЗАМИН	R_NGU
СОРБИТ	R_DSBT
САХАРОЗА	R_DSUC
ГАЛАКТУРОНОВАЯ КИСЛОТА	R_GRA
МАЛЬТУЛОЗА	R_MTU
L-РАМНОЗА	R_LRHA
БЕТА-ГЕНЦИОБИОЗА	R_BGEN
ДЕКСТРОЗА	R_DEX
D-ГАЛАКТОЗА	R_DGAL
D-ФРУКТОЗА	R_DFRU
D-ГЛЮКОНОВАЯ КИСЛОТА	R_DGUA
D-МЕЛИБИОЗА	R_DMLB
L-АРАБИНОЗА	R_LARA
МЕТИЛ-В-ГЛЮКОЗИД	R_MBGU

Утилизация углеводородного субстрата приводит к снижению pH и изменению цвета индикатора (фенолового красного).

ОРНИТИН	S_ORN
МОЧЕВИНА	S_URE
ЭСКУЛИН	T_ESC
ЭСКУЛИН	T_ESC

Утилизация орнитина приводит к увеличению pH и изменению флуоресцентного индикатора.

Гидролиз мочевины и образование аммиака приводят к увеличению pH и изменению цвета флуоресцентного индикатора.

При наличии ионов железа гидролиз эскулина приводит к выпадению черного осадка.

При наличии ионов железа гидролиз эскулина приводит к выпадению черного осадка.

7.5.2 Панель для грамположительных бактерий

НАЗВАНИЕ СУБСТРАТА	КОД	ПРИНЦИП
4MU-BD-ЦЕЛЛОБИОЗИД	M_BDCEL	Ферментативный гидролиз амидной или гликозидной связи приводит к высвобождению флюоресцентного производного кумарина или 4-метилумбеллиферона.
L-АЛАНИН-АМС	A_LALT	
4MU-BD-ГЛЮКОЗИД	M_BDGLU	
L-ПРОЛИН-АМС	A_LPROB	
L-ПИРОГЛУТАМИНОВАЯ КИСЛОТА-АМС	A_LPYR	
L-ФЕНИЛАЛАНИН-АМС	A_LPHET	
L-ТРИПТОФАН-АМС	A_LTRY	
4MU-ФОСФАТ	M_PHOS	
МЕТИОНИН-АМС	A_META	
4MU-AD-ГЛЮКОЗИД	P_ADGLU	
АРГИНИН-АРГИНИН-АМС	A_ARARR	
ГЛИЦИН-ПРОЛИН-АМС	A_GLPRB	
4MU-BD-ГЛЮКОРОНИД	M_BDGLC	
L-ЛЕЙЦИН-АМС	A_LLEUH	
4MU-N-АЦЕТИЛ-BD-ГЛЮКОЗАМИНИД	M_NAG	
L-АРГИНИН-АМС	A_LARGH	
4MU-ФОСФАТ (с трегалозой)	M_PHOT	
L-ГИСТИДИН-АМС	A_LHIST	
L-ИЗОЛЕЙЦИН-АМС	A_LISO	
4MU-BD-ГАЛАКТОЗИД	M_BDGAL	
КОЛИСТИН	C_CLST	Устойчивость к противомикробному препарату приводит к восстановлению индикатора на основе резазурина.
ПОЛИМИКСИН В	C_PXB	
D-ГЛЮКОНОВАЯ КИСЛОТА	C_DGUA	Утилизация источников углерода приводит к восстановлению индикатора на основе резазурина.
3-МЕТИЛГЛУТАРОВАЯ КИСЛОТА	C_3MGA	
D-ФРУКТОЗА	C_DFRU	
ИМИНОДИУКСУСНАЯ КИСЛОТА	C_IMN	
АЛЬФА-КЕТОГЛУТАРОВАЯ КИСЛОТА	C_KGA	
D-МАННИТ	C_DMNT	
3-МЕТИЛАДИПИНОВАЯ КИСЛОТА	C_MAA	
ТИМИДИН	C_THY	
ПОЛОЖИТЕЛЬНЫЙ КОНТРОЛЬ ФЛУОРЕСЦЕНЦИИ	FLR_CTL	Контроль для стандартизации результатов для флуоресцентных субстратов.
ПОЛОЖИТЕЛЬНЫЙ КОНТРОЛЬ ФЛУОРЕСЦЕНЦИИ	FLR_CTL	
АЛАНИН-АЛАНИН-PNA	N_ALALH	Ферментативный гидролиз бесцветного амидного субстрата высвобождает желтый пара-нитроанилин.
L-ПРОЛИН-PNA	N_LPROT	
ВАЛИН-АЛАНИН-PNA	N_VAALA	
PNP-AD-ГЛЮКОЗИД	P_PAGLU	Ферментативный гидролиз бесцветного гликозида с ароматическим заместителем высвобождает желтый пара-нитрофенол.
PNP-ФОСФАТ	P_PHOL	

БЕТА-ГЕНЦИОБИОЗА	R_BGEN	Утилизация углеводородного субстрата приводит к снижению pH и изменению цвета индикатора (фенолового красного).
D-САХАРОЗА	R_DSUC	
МАЛЬТОТРИОЗА	R_MTT	
N-АЦЕТИЛ-ГЛЮКОЗАМИН	R_NGU	
D-ТРЕГАЛОЗА	R_DTRE	
D-ТАГАТОЗА	R_DTAG	
МАЛЬТОЗА	R_MAL	
ДЕКСТРОЗА	R_DEX	
МЕТИЛ- α -D-ГЛЮКОЗИД	R_MGP	
МОЧЕВИНА	S_URE	Гидролиз мочевины и образование аммиака приводят к увеличению pH и изменению цвета флуоресцентного индикатора.
ЭСКУЛИН	T_ESC	При наличии ионов железа гидролиз эскулина приводит к выпадению черного осадка.
НИТРОЦЕФИН	L_NCF	Ферментативный гидролиз бета-лактама приводит к изменению цвета.

7.5.3 Панель для стрептококков

НАЗВАНИЕ СУБСТРАТА	КОД	ПРИНЦИП
АМИГДАЛИН	R_AMY	Утилизация углеводородного субстрата приводит к снижению pH и изменению цвета индикатора (фенолового красного).
D-ГАЛАКТОЗА	R_DGAL	
D-МАННИТ	R_DMTL	
D-РАФФИНОЗА	R_DRAF	
D-СОРБИТ	R_DSBT	
D-ТРЕГАЛОЗА	R_DTRE	
ДЕКСТРИН	R_DNX	
N-АЦЕТИЛ-ГЛЮКОЗАМИН	R_NGU	
ФЕНИЛГЛЮКОЗИД	R_PHG	
САЛИЦИН	R_SAL	
ONP-BD-ГЛЮКОЗИД	O_BOGLU	Ферментативный гидролиз бесцветного гликозида с ароматическим заместителем высвобождает желтый пара-нитрофенол.
PNP-AD-ГАЛАКТОЗИД	P_ADGAL	
PNP-BD-ЦЕЛЛОБИОЗИД	P_CELB	
PNP-BD-ГАЛАКТОЗИД	P_GALB	
PNP-AD-ГЛЮКОЗИД	P_PAGLU	
PNP-ФОСФАТ	P_PHOL	
АЛАНИН-АЛАНИН-PNA	N_ALALH	Ферментативный гидролиз бесцветного амидного субстрата высвобождает желтый пара-нитроанилид.
ВАЛИН-АЛАНИН-PNA	N_VAALA	
L-ЛИЗИН-PNA	N_LLYSB	
ПОЛОЖИТЕЛЬНЫЙ КОНТРОЛЬ ФЛУОРЕСЦЕНЦИИ	FLR_CTL	Контроль для стандартизации результатов для флуоресцентных субстратов.
ПОЛОЖИТЕЛЬНЫЙ КОНТРОЛЬ ФЛУОРЕСЦЕНЦИИ	FLR_CTL	
ТИМИДИН	THY	Утилизация источников углерода приводит к восстановлению индикатора на основе резазурина.
ПУЛЛУЛАН	PUL	
D-ТРЕГАЛОЗА	TRL	
D-ЛАКТОЗА	DLAC	

НАЗВАНИЕ СУБСТРАТА	КОД	ПРИНЦИП
ЛИЗИН-АМС	A_LYSA	Ферментативный гидролиз амидной или гликозидной связи приводит к высвобождению флюоресцентного производного кумарина или 4-метилумбеллиферона.
СЕРИН-ТИРОЗИН-АМС	A_SETY	
L-ЦИТРУЛЛИН-АМС	A_LCTU	
L-ПИРОГЛУТАМИНОВАЯ КИСЛОТА-АМС	A_LPYR	
ИЗОЛЕЙЦИН-АМС	A_LISO	
L-ТРИПТОФАН-АМС	A_LTRY	
L-ВАЛИН-АМС	A_LVAL	
АРГИНИН-АРГИНИН-АМС	A_ARARR	
ЛИЗИН-АЛАНИН-АМС	A_LYALD	
АСПАРАГИН-АМС	A_APGT	
L-АРГИНИН-АМС	A_LARGH	
L-ГИСТИДИН-АМС	A_LHIST	
АЛАНИН-АФС	Z_ALFT	
4MU-BD-ЦЕЛЛОБИОЗИД	M_BDCEL	
4MU-BD-ГЛЮКОЗИД	M_BDGLU	
4MU-ФОСФАТ	M_PHOS	
4MU-AD-ГЛЮКОЗИД	M_ADGLU	
4MU-BD-ГЛЮКОРОНИД	M_BDGLC	
4MU-N-АЦЕТИЛ-BD-ГЛЮКОЗАМИН	M_NAG	
4MU-ФОСФАТ (с трегалозой)	M_PHOT	
4MU-BD-ГАЛАКТОЗИД	M_BDGAL	
ЭСКУЛИН	T_ESC	При наличии ионов железа гидролиз эскулина приводит к выпадению черного осадка.
7.5.4 Панель для дрожжей		
НАЗВАНИЕ СУБСТРАТА	КОД	ПРИНЦИП
PNP-BD-ГЛЮКОЗИД	P_BDGLU	Ферментативный гидролиз бесцветного гликозида с ароматическим заместителем высвобождает желтый пара-нитрофенол.
PNP-AD-ГЛЮКОЗИД	P_PAGLU	
ONP-BD-ГЛЮКОЗИД	O_BOGLU	Утилизация источников углерода приводит к восстановлению индикатора на основе резазурина.
L-СОРБОЗА	C_LSBO	
ДЕКСТРОЗА	C_DEX	
D-МАННИТ	C_DMNT	
D-САХАРОЗА	C_DSUC	
METHYL-AD-ГЛЮКОПИРАНОЗИД	C_MGP	Утилизация углеводородного субстрата приводит к снижению pH и изменению цвета индикатора (фенолового красного).
N-АЦЕТИЛ-BD-ГЛЮКОЗАМИНИД	C_NAG	
ДЕКСТРОЗА	R_DEX	
D-ФРУКТОЗА	R_DFRU	
D-ГАЛАКТОЗА	R_DGAL	
САХАРОЗА	R_DSUC	При наличии ионов железа гидролиз эскулина приводит к выпадению черного осадка.
D-ТРЕГАЛОЗА	R_DTRE	
МАЛЬТОТРИОЗА	R_MTT	Контроль наличия флуоресцентных помех.
ЭСКУЛИН	T_ESC	
ОТРИЦАТЕЛЬНЫЙ ФЛУОРЕСЦЕНТНЫЙ КОНТРОЛЬ	Z_FTST	

ПОЛОЖИТЕЛЬНЫЙ КОНТРОЛЬ ФЛУОРЕСЦЕНЦИИ	FLR_CTL	}	Контроль для стандартизации результатов для флуоресцентных субстратов.
ПОЛОЖИТЕЛЬНЫЙ КОНТРОЛЬ ФЛУОРЕСЦЕНЦИИ	FLR_CTL		
ГАММА-L-ГЛУТАМИЛ-NA	N_LGGH	}	Ферментативный гидролиз бесцветного амидного субстрата высвобождает желтый пара-нитроанилин.
L-ПРОЛИН-PNA	N_LPROT		
АСПАРАГИН-АМС	A_APGT	}	Ферментативный гидролиз амидной или гликозидной связи приводит к высвобождению флуоресцентного производного кумарина или 4-метилумбеллиферона.
L-АРГИНИН-АМС	A_LARGH		
L-ГЛУТАМИН-АМС	A_LGLNB		
L-ТИРОЗИН-АМС	A_LTYO		
L-ГИСТИДИН-АМС	A_LHIST		
ОРНИТИН-АМС	A_ORN		
ТРЕОНИН-АМС	A_THR		
ОКСИПРОЛИН-АМС	A_LHYP		
4MU-N-АЦЕТИЛ-BD-ГЛЮКОЗАМИН	M_NAG		
4MU-AD-ГЛЮКОЗИД	M_ADGLU		
4MU-ФОСФАТ	M_PHOS		
ЛИЗИН-АЛАНИН-АМС	A_LYALD		
ГЛИЦИН-АРГИНИН-АМС	A_GLARH		
АЛАНИН-AFC	Z_ALFT		
ГЛИЦИН-АМС	A_GLYB		
L-ЦИТРУЛЛИН-АМС	A_LCTU		
L-ГЛУТАМИНОВАЯ КИСЛОТА-АМС	A_LGTA		
L-ВАЛИН-АМС	A_LVAL		
L-АЛАНИН-АМС	A_LALT		
L-ПРОЛИН-АМС	A_LPROB		
L-ТРИПТОФАН-АМС	A_LTRY		
H-B-АЛАНИН-АМС	A_HBALT		
4MU-BD-ЦЕЛЛОБИОЗИД	M_BDCEL		
4MU-BD-ГЛЮКОЗИД	M_BDGLU		
ГЛИЦИН-ПРОЛИН-АМС	A_GLPRB		
ЛИЗИН-ПРОЛИН-АМС	A_LYPRA		
БЕНЗИЛ-L-ЦИСТЕИН-АМС	A_BZLCY		
АМИНОКИСЛОТА	S_GTN	}	Утилизация аминокислоты приводит к изменению флуоресценции.
МОЧЕВИНА	S_URE	}	Гидролиз мочевины и образование аммиака приводят к увеличению pH и изменению цвета флуоресцентного индикатора.

7.6 Таксоны для определения ID/AST

7.6.1 Грамотрицательные (мутность 0,5 по шкале Макфарланда)

ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Achromobacter denitrificans</i>	AST	<i>Aeromonas trota</i>	AST
<i>Achromobacter piechaudii</i>	AST	<i>Aeromonas veronii</i> bv <i>sobria</i>	ID/AST
<i>Achromobacter</i> виды	ID/AST	<i>Aeromonas veronii</i> bv <i>veronii</i>	ID/AST
<i>Achromobacter xylosoxidans</i>	AST	<i>Alcaligenes faecalis</i>	ID/AST
<i>Acinetobacter baumannii</i> ²	ID/AST	<i>Alcaligenes faecalis</i> ssp <i>faecalis</i>	AST
<i>Acinetobacter baumannii</i> / <i>calcoaceticus</i> комплекс ²	ID/AST	<i>Alcaligenes</i> виды	AST
<i>Acinetobacter baumannii</i> / <i>haemolyticus</i>	AST	<i>Bergeyella zoohelcum</i>	ID
<i>Acinetobacter calcoaceticus</i>	AST	<i>Bordetella bronchiseptica</i>	ID
<i>Acinetobacter haemolyticus</i>	ID/AST	<i>Brevundimonas diminuta</i>	ID/AST
<i>Acinetobacter johnsonii</i>	AST	<i>Brevundimonas</i> виды	AST
<i>Acinetobacter junii</i>	AST	<i>Brevundimonas vesicularis</i>	ID/AST
<i>Acinetobacter lwoffii</i>	ID/AST	<i>Burkholderia caryophylli</i>	AST
<i>Acinetobacter lwoffii/haemolyticus</i>	ID/AST	<i>Burkholderia cepacia</i> комплекс	ID/AST
<i>Acinetobacter radioresistens</i>	AST	<i>Burkholderia cepacia</i> / <i>Ralstonia pickettii</i>	ID/AST
<i>Acinetobacter</i> виды	ID/AST	<i>Burkholderia gladioli</i>	ID/AST
<i>Actinobacillus lignieresii</i>	ID	<i>Burkholderia glathei</i>	AST
<i>Actinobacillus suis</i>	ID	<i>Burkholderia graminis</i>	AST
<i>Actinobacillus ureae</i>	ID	<i>Burkholderia multivorans</i>	AST
<i>Aeromonas allosaccharophila</i>	AST	<i>Burkholderia phenazinium</i>	AST
<i>Aeromonas caviae</i>	ID/AST	<i>Burkholderia pyrrocinia</i>	AST
<i>Aeromonas eucrenophila</i>	AST	<i>Burkholderia</i> виды	AST
<i>Aeromonas hydrophila</i>	ID/AST	<i>Burkholderia</i> виды/ <i>Ralstonia</i> виды	ID/AST
<i>Aeromonas hydrophila</i> группа	AST	<i>Cardiobacterium hominis</i>	ID
<i>Aeromonas jandaei</i>	AST	Группа Vb-3 CDC	ID
<i>Aeromonas media</i>	AST	<i>Cedecea davisae</i>	ID/AST
<i>Aeromonas salmonicida</i>	AST	<i>Cedecea lapagei</i>	ID/AST
<i>Aeromonas salmonicida</i> ssp <i>achromogenes</i>	AST	<i>Cedecea neteri</i>	ID/AST
<i>Aeromonas salmonicida</i> ssp <i>masoucida</i>	ID/AST	<i>Cedecea</i> виды	AST
<i>Aeromonas salmonicida</i> ssp <i>pectinolytica</i>	AST	<i>Cedecea</i> виды 3	AST
<i>Aeromonas salmonicida</i> ssp <i>salmonicida</i>	ID/AST	<i>Cedecea</i> виды 5	AST
<i>Aeromonas salmonicida</i> ssp <i>smithia</i>	ID/AST	<i>Chromobacterium violaceum</i>	ID
<i>Aeromonas schubertii</i>	ID/AST	<i>Chryseobacterium gleum</i>	ID/AST
<i>Aeromonas</i> виды	AST	<i>Chryseobacterium indologenes</i>	ID/AST

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем набора правил интерпретации (раздел «3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)»).

¹ Оценка клинических характеристик проводилась не для всех видов.

² Для микроорганизма проводились клинические испытания. Для проверки эффективности тестов для сочетаний антимикробных средств и микроорганизмов доступны не менее 20 штаммов.

ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST
<i>Chryseobacterium scophthalmum</i>	AST	<i>Escherichia fergusonii</i>	ID/AST
<i>Chryseobacterium</i> виды	AST	<i>Escherichia hermannii</i>	ID/AST
<i>Citrobacter amalonoticus</i>	ID/AST	<i>Escherichia</i> виды	AST
<i>Citrobacter braakii</i>	ID/AST	<i>Escherichia vulneris</i>	ID/AST
<i>Citrobacter farmeri</i>	ID/AST	<i>Ewingella americana</i>	ID
<i>Citrobacter freundii</i>	ID/AST	Грамотрицательные палочки, неидентифицированные кишечные	AST
<i>Citrobacter gillenii</i>	AST	Грамотрицательные палочки, неидентифицированные неферментирующие	AST
<i>Citrobacter koseri</i>	ID/AST	<i>Grimontia hollisae</i>	ID
<i>Citrobacter murliniae</i>	AST	<i>Hafnia alvei</i>	ID/AST
<i>Citrobacter rodentium</i>	AST	<i>Hafnia alvei</i> группа 1	AST
<i>Citrobacter sedlakii</i>	ID/AST	<i>Kingella denitrificans</i>	ID
<i>Citrobacter</i> виды	AST	<i>Kingella kingae</i>	ID
<i>Citrobacter werkmanii</i>	ID/AST	<i>Klebsiella granulomatis</i>	AST
<i>Citrobacter youngae</i>	ID/AST	<i>Klebsiella oxytoca</i> ²	ID/AST
<i>Comamonas terrigena</i>	ID	<i>Klebsiella ozaenae</i>	ID/AST
<i>Comamonas testosteroni</i>	ID	<i>Klebsiella pneumoniae</i> ²	ID/AST
<i>Cosenzaea myxofaciens</i>	AST	<i>Klebsiella rhinoscleromatis</i>	ID/AST
<i>Cronobacter sakazakii</i> комплекс	ID/AST	<i>Klebsiella</i> виды	AST
<i>Cupriavidus gilardii</i>	AST	<i>Kluyvera ascorbata</i>	ID/AST
<i>Cupriavidus pauculus</i>	ID/AST	<i>Kluyvera cryocrescens</i>	ID/AST
<i>Delftia acidovorans</i>	ID/AST	<i>Kluyvera georgiana</i>	AST
<i>Edwardsiella hoshinae</i>	ID/AST	<i>Kluyvera intermedia</i>	ID/AST
<i>Edwardsiella ictaluri</i>	ID/AST	<i>Kluyvera</i> виды	AST
<i>Edwardsiella</i> виды	AST	<i>Kosakonia cowanii</i>	AST
<i>Edwardsiella tarda</i>	ID/AST	<i>Leclercia adecarboxylata</i>	ID/AST
<i>Edwardsiella tarda</i> биогруппа 1	AST	<i>Lelliottia amnigena</i>	AST
<i>Eikenella corrodens</i>	ID	<i>Lelliottia amnigena</i> биогруппа 1	ID/AST
<i>Elizabethkingia meningoseptica</i>	ID/AST	<i>Lelliottia amnigena</i> биогруппа 2	ID/AST
<i>Empedobacter brevis</i>	ID	<i>Leminorella grimonii</i>	ID
<i>Enterobacter aerogenes</i> ²	ID/AST	<i>Leminorella richardii</i>	ID
<i>Enterobacter asburiae</i>	ID/AST	<i>Mannheimia haemolytica</i>	ID
<i>Enterobacter cancerogenus</i>	ID/AST	<i>Methylobacterium extorquens</i>	ID
<i>Enterobacter cloacae</i> ²	ID/AST	<i>Moellerella wisconsensis</i>	ID/AST
<i>Enterobacter cloacae</i> ssp <i>dissolvens</i>	AST	<i>Moraxella (Branhamella) catarrhalis</i>	ID
<i>Enterobacter hormaechei</i>	ID/AST	<i>Moraxella</i> виды	ID
<i>Enterobacter kobei</i>	AST	<i>Morganella morganii</i> ²	ID/AST
<i>Enterobacter nimipressuralis</i>	AST	<i>Morganella morganii</i> ssp <i>morganii</i>	AST
<i>Enterobacter</i> виды	AST	<i>Morganella morganii</i> ssp <i>morganii</i> биогруппа 1	AST
<i>Escherichia coli</i> ²	ID/AST	<i>Morganella morganii</i> ssp <i>sibonii</i>	AST
<i>Escherichia coli</i> серотип O111	AST	<i>Morganella</i> виды	AST
<i>Escherichia coli</i> серотип O157	AST	<i>Myroides odoratimimus</i>	AST

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¹ Оценка клинических характеристик проводилась не для всех видов.

² Для микроорганизма проводились клинические испытания. Для проверки эффективности тестов для сочетаний антимикробных средств и микроорганизмов доступны не менее 20 штаммов.

ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Myroides odoratus</i>	AST	<i>Pseudomonas luteola</i>	ID/AST
<i>Myroides odoratus/odoratimimus</i>	ID/AST	<i>Pseudomonas mendocina</i>	ID/AST
<i>Myroides</i> виды	AST	<i>Pseudomonas monteilii</i>	AST
<i>Neisseria animaloris</i>	ID	<i>Pseudomonas oryzihabitans</i>	ID/AST
<i>Neisseria zoodegmatidis</i>	ID	<i>Pseudomonas pertucinogena</i>	AST
<i>Ochrobactrum anthropi</i>	ID/AST	<i>Pseudomonas pseudoalcaligenes</i>	ID/AST
<i>Oligella ureolytica</i>	ID	<i>Pseudomonas pseudoalcaligenes ssp.</i> <i>pseudoalcaligenes</i>	AST
<i>Oligella urethralis</i>	ID	<i>Pseudomonas putida</i>	ID/AST
<i>Pantoea agglomerans</i>	ID/AST	<i>Pseudomonas</i> виды	ID/AST
<i>Pantoea ananatis</i>	AST	<i>Pseudomonas stutzeri</i>	ID/AST
<i>Pantoea dispersa</i>	AST	<i>Pseudomonas veronii</i>	AST
<i>Pantoea</i> виды	AST	<i>Rahnella aquatilis</i>	ID
<i>Pantoea stewartii</i>	AST	<i>Ralstonia pickettii</i>	ID/AST
<i>Pantoea stewartii ssp indologenes</i>	AST	<i>Ralstonia solanacearum</i>	AST
<i>Pantoea stewartii ssp stewartii</i>	AST	<i>Ralstonia</i> виды	AST
<i>Paracoccus yeei</i>	ID	<i>Raoultella ornithinolytica</i>	ID/AST
<i>Pasteurella aerogenes</i>	ID	<i>Raoultella planticola</i>	AST
<i>Pasteurella multocida</i>	ID	<i>Raoultella</i> виды	AST
<i>Pasteurella pneumotropica</i>	ID	<i>Raoultella terrigena</i>	AST
<i>Photobacterium damsela</i>	ID	<i>Rhizobium radiobacter</i>	ID
<i>Plesiomonas shigelloides</i>	ID	<i>Salmonella enterica ssp arizonae</i>	ID/AST
<i>Pluralibacter gergoviae</i>	ID/AST	<i>Salmonella enterica ssp diarizonae</i>	AST
<i>Pragia fontium</i>	ID	<i>Salmonella enterica ssp enterica serovar</i> <i>Choleraesuis</i>	ID/AST
<i>Proteus hauseri</i>	AST	<i>Salmonella enterica ssp enterica sv</i> <i>Gallinarum bv Gallinarum</i>	ID/AST
<i>Proteus mirabilis</i> ²	ID/AST	<i>Salmonella enterica ssp enterica sv</i> <i>Gallinarum bv Pullorum</i>	ID/AST
<i>Proteus penneri</i>	ID/AST	<i>Salmonella enterica ssp enterica sv</i> <i>Paratyphi A</i>	ID/AST
<i>Proteus</i> виды	AST	<i>Salmonella enterica ssp enterica sv</i> <i>Typhi</i>	ID/AST
<i>Proteus vulgaris</i>	ID/AST	<i>Salmonella enterica ssp houtenae</i>	AST
<i>Proteus vulgaris/penneri</i>	ID/AST	<i>Salmonella enterica ssp indica</i>	AST
<i>Providencia alcalifaciens</i>	ID/AST	<i>Salmonella enterica ssp salamae</i>	AST
<i>Providencia heimbachae</i>	AST	<i>Salmonella</i> виды	ID/AST
<i>Providencia rettgeri</i>	ID/AST	<i>Serratia entomophila</i>	AST
<i>Providencia rustigianii</i>	ID/AST	<i>Serratia ficaria</i>	ID/AST
<i>Providencia</i> виды	AST	<i>Serratia fonticola</i>	ID/AST
<i>Providencia stuartii</i>	ID/AST	<i>Serratia grimesii</i>	AST
<i>Pseudomonas aeruginosa</i> ²	ID/AST	<i>Serratia liquefaciens</i>	ID/AST
<i>Pseudomonas alcaligenes</i>	AST	<i>Serratia marcescens</i> ²	ID/AST
<i>Pseudomonas fluorescens</i>	ID/AST	<i>Serratia odorifera</i>	AST
<i>Pseudomonas fluorescens/putida</i>	AST	<i>Serratia odorifera</i> биогруппа 1	ID/AST

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем набора правил интерпретации (раздел «3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)).

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² Для микроорганизма проводились клинические испытания. Для проверки эффективности тестов для сочетаний антимикробных средств и микроорганизмов доступны не менее 20 штаммов.

ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Serratia odorifera</i> биогруппа 2	ID/AST	<i>Vibrio fluvialis</i>	ID
<i>Serratia plymuthica</i>	ID/AST	<i>Vibrio metschnikovii</i>	ID
<i>Serratia proteamaculans</i> ssp <i>proteamaculans</i>	AST	<i>Vibrio mimicus</i>	ID
<i>Serratia proteamaculans</i> ssp <i>quinovora</i>	AST	<i>Vibrio parahaemolyticus</i>	ID
<i>Serratia rubidaea</i>	ID/AST	<i>Vibrio vulnificus</i>	ID
<i>Serratia</i> виды	AST	<i>Weeksella virosa</i>	ID
<i>Shewanella algae</i>	AST	<i>Yersinia aldovae</i>	AST
<i>Shewanella putrefaciens</i>	ID/AST	<i>Yersinia bercovieri</i>	AST
<i>Shewanella</i> виды	AST	<i>Yersinia enterocolitica</i>	ID/AST
<i>Shigella boydii</i>	ID/AST	<i>Yersinia enterocolitica</i> группа	AST
<i>Shigella dysenteriae</i>	ID/AST	<i>Yersinia frederiksenii</i>	ID/AST
<i>Shigella flexneri</i>	ID/AST	<i>Yersinia intermedia</i>	ID/AST
<i>Shigella sonnei</i>	ID/AST	<i>Yersinia kristensenii</i>	ID/AST
<i>Shigella</i> виды	ID/AST	<i>Yersinia mollaretii</i>	AST
<i>Shimwellia blattae</i>	AST	<i>Yersinia pseudotuberculosis</i>	ID/AST
<i>Sphingobacterium multivorum</i>	ID/AST	<i>Yersinia rohdei</i>	AST
<i>Sphingobacterium multivorum</i> / <i>thalpophilum</i>	ID/AST	<i>Yersinia ruckeri</i>	ID/AST
<i>Sphingobacterium</i> виды	AST	<i>Yersinia</i> виды	AST
<i>Sphingobacterium spiritivorum</i>	ID/AST	<i>Yokenella regensburgei</i>	ID
<i>Sphingobacterium thalpophilum</i>	ID/AST		
<i>Sphingomonas paucimobilis</i>	ID/AST		
<i>Stenotrophomonas africana</i>	AST		
<i>Stenotrophomonas maltophilia</i> ²	ID/AST		
<i>Suttonella indologenes</i>	ID		
<i>Tatumella ptyseos</i>	ID		
<i>Vibrio alginolyticus</i>	ID		
<i>Vibrio cholerae</i>	ID		

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем набора правил интерпретации (раздел «3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)»).

¹ Оценка клинических характеристик проводилась не для всех видов.

² Для микроорганизма проводились клинические испытания. Для проверки эффективности тестов для сочетаний антимикробных средств и микроорганизмов доступны не менее 20 штаммов.

7.6.2 Грамотрицательные (мутность 0,25 по шкале Макфарланда)

ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Achromobacter</i> виды	ID/AST	<i>Citrobacter youngae</i>	ID/AST
<i>Acinetobacter baumannii</i> / <i>calcoaceticus</i> комплекс	ID/AST	<i>Comamonas terrigena</i>	ID
<i>Acinetobacter haemolyticus</i>	ID/AST	<i>Comamonas testosteroni</i>	ID
<i>Acinetobacter lwoffii</i>	ID/AST	<i>Cronobacter sakazakii</i> комплекс	ID/AST
<i>Actinobacillus lignieresii</i>	ID	<i>Cupriavidus pauculus</i>	ID/AST
<i>Actinobacillus suis</i>	ID	<i>Delftia acidovorans</i>	ID/AST
<i>Actinobacillus ureae</i>	ID	<i>Edwardsiella hoshinae</i>	ID/AST
<i>Aeromonas caviae</i>	ID/AST	<i>Edwardsiella ictaluri</i>	ID/AST
<i>Aeromonas hydrophila</i>	ID/AST	<i>Edwardsiella tarda</i>	ID/AST
<i>Aeromonas salmonicida</i> ssp <i>masoucida</i>	ID/AST	<i>Eikenella corrodens</i>	ID
<i>Aeromonas salmonicida</i> ssp <i>salmonicida</i>	ID/AST	<i>Elizabethkingia meningoseptica</i>	ID/AST
<i>Aeromonas salmonicida</i> ssp <i>smithia</i>	ID/AST	<i>Empedobacter brevis</i>	ID
<i>Aeromonas schubertii</i>	ID/AST	<i>Enterobacter aerogenes</i>	ID/AST
<i>Aeromonas veronii</i> bv <i>sobria</i>	ID/AST	<i>Enterobacter asburiae</i>	ID/AST
<i>Aeromonas veronii</i> bv <i>veronii</i>	ID/AST	<i>Enterobacter cancerogenus</i>	ID/AST
<i>Alcaligenes faecalis</i>	ID/AST	<i>Enterobacter cloacae</i>	ID/AST
<i>Bergeyella zoohelcum</i>	ID	<i>Enterobacter hormaechei</i>	ID/AST
<i>Bordetella bronchiseptica</i>	ID	<i>Escherichia coli</i>	ID/AST
<i>Brevundimonas diminuta</i>	ID/AST	<i>Escherichia fergusonii</i>	ID/AST
<i>Brevundimonas vesicularis</i>	ID/AST	<i>Escherichia hermannii</i>	ID/AST
<i>Burkholderia cepacia</i> комплекс	ID/AST	<i>Escherichia vulneris</i>	ID/AST
<i>Burkholderia gladioli</i>	ID/AST	<i>Ewingella americana</i>	ID
<i>Cardiobacterium hominis</i>	ID	<i>Grimontia hollisae</i>	ID
Группа Vb-3 CDC	ID	<i>Hafnia alvei</i>	ID/AST
<i>Cedecea davisae</i>	ID/AST	<i>Klebsiella oxytoca</i>	ID/AST
<i>Cedecea lapagei</i>	ID/AST	<i>Klebsiella ozaenae</i>	ID/AST
<i>Cedecea neteri</i>	ID/AST	<i>Klebsiella pneumoniae</i>	ID/AST
<i>Chromobacterium violaceum</i>	ID	<i>Klebsiella rhinoscleromatis</i>	ID/AST
<i>Chryseobacterium gleum</i>	ID/AST	<i>Kluyvera ascorbata</i>	ID/AST
<i>Chryseobacterium indologenes</i>	ID/AST	<i>Kluyvera cryocrescens</i>	ID/AST
<i>Citrobacter amalonaticus</i>	ID/AST	<i>Kluyvera intermedia</i>	ID/AST
<i>Citrobacter braakii</i>	ID/AST	<i>Leclercia adecarboxylata</i>	ID/AST
<i>Citrobacter farmeri</i>	ID/AST	<i>Lelliottia amnigena</i> биогруппа 1	ID/AST
<i>Citrobacter freundii</i>	ID/AST	<i>Lelliottia amnigena</i> биогруппа 2	ID/AST
<i>Citrobacter koseri</i>	ID/AST	<i>Leminorella grimontii</i>	ID
<i>Citrobacter sedlakii</i>	ID/AST	<i>Leminorella richardii</i>	ID
<i>Citrobacter werkmanii</i>	ID/AST	<i>Mannheimia haemolytica</i>	ID

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем набора правил интерпретации (раздел «3.10.6 Подвкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)).

¹ Оценка клинических характеристик проводилась не для всех видов.

² Для микроорганизма проводились клинические испытания. Для проверки эффективности тестов для сочетаний антимикробных средств и микроорганизмов доступны не менее 20 штаммов.

ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Moellerella wisconsensis</i>	ID/AST	<i>Ralstonia pickettii</i>	ID
<i>Morganella morganii</i>	ID/AST	<i>Raoultella ornithinolytica</i>	ID/AST
<i>Myroides odoratus/odoratimimus</i>	ID/AST	<i>Rhizobium radiobacter</i>	ID
<i>Neisseria animaloris</i>	ID	<i>Salmonella enterica</i> ssp <i>arizonae</i>	ID/AST
<i>Neisseria zoodegmatidis</i>	ID	<i>Salmonella enterica</i> ssp <i>enterica</i> serovar <i>Choleraesuis</i>	ID/AST
<i>Ochrobactrum anthropi</i>	ID/AST	<i>Salmonella enterica</i> ssp <i>enterica</i> sv <i>Gallinarum</i> bv <i>Gallinarum</i>	ID/AST
<i>Oligella ureolytica</i>	ID	<i>Salmonella enterica</i> ssp <i>enterica</i> sv <i>Gallinarum</i> bv <i>Pullorum</i>	ID/AST
<i>Oligella urethralis</i>	ID	<i>Salmonella enterica</i> ssp <i>enterica</i> sv <i>Paratyphi</i> A	ID/AST
<i>Pantoea agglomerans</i>	ID/AST	<i>Salmonella enterica</i> ssp <i>enterica</i> sv <i>Typhi</i>	ID/AST
<i>Paracoccus yeei</i>	ID	<i>Salmonella</i> виды	ID/AST
<i>Pasteurella aerogenes</i>	ID	<i>Serratia ficaria</i>	ID/AST
<i>Pasteurella multocida</i>	ID	<i>Serratia fonticola</i>	ID/AST
<i>Pasteurella pneumotropica</i>	ID	<i>Serratia liquefaciens</i>	ID/AST
<i>Photobacterium damsela</i>	ID	<i>Serratia marcescens</i>	ID/AST
<i>Plesiomonas shigelloides</i>	ID	<i>Serratia odorifera</i> биогруппа 1	ID/AST
<i>Pluralibacter gergoviae</i>	ID/AST	<i>Serratia odorifera</i> биогруппа 2	ID/AST
<i>Pragia fontium</i>	ID	<i>Serratia plymuthica</i>	ID/AST
<i>Proteus mirabilis</i>	ID/AST	<i>Serratia rubidaea</i>	ID/AST
<i>Proteus penneri</i>	ID/AST	<i>Shewanella putrefaciens</i>	ID/AST
<i>Proteus vulgaris</i>	ID/AST	<i>Shigella boydii</i>	ID/AST
<i>Proteus vulgaris/penneri</i>	ID/AST	<i>Shigella dysenteriae</i>	ID/AST
<i>Providencia alcalifaciens</i>	ID/AST	<i>Shigella flexneri</i>	ID/AST
<i>Providencia rettgeri</i>	ID/AST	<i>Shigella sonnei</i>	ID/AST
<i>Providencia rustigianii</i>	ID/AST	<i>Sphingobacterium multivorum</i>	ID/AST
<i>Providencia stuartii</i>	ID/AST	<i>Sphingobacterium spiritivorum</i>	ID/AST
<i>Pseudomonas aeruginosa</i>	ID/AST	<i>Sphingobacterium thalpophilum</i>	ID/AST
<i>Pseudomonas fluorescens</i>	ID/AST	<i>Sphingomonas paucimobilis</i>	ID/AST
<i>Pseudomonas luteola</i>	ID/AST	<i>Stenotrophomonas maltophilia</i>	ID/AST
<i>Pseudomonas mendocina</i>	ID/AST	<i>Suttonella indologenes</i>	ID
<i>Pseudomonas oryzae</i>	ID/AST	<i>Tatumella ptyseos</i>	ID
<i>Pseudomonas putida</i>	ID/AST	<i>Vibrio alginolyticus</i>	ID
<i>Pseudomonas stutzeri</i>	ID/AST	<i>Vibrio cholerae</i>	ID
<i>Rahnella aquatilis</i>	ID	<i>Vibrio fluvialis</i>	ID
<i>Vibrio metschnikovii</i>	ID	<i>Yersinia intermedia</i>	ID/AST

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем набора правил интерпретации (раздел «3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)).

¹ Оценка клинических характеристик проводилась не для всех видов.

² Для микроорганизма проводились клинические испытания. Для проверки эффективности тестов для сочетаний антимикробных средств и микроорганизмов доступны не менее 20 штаммов.

ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМОТРИЦАТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Vibrio mimicus</i>	ID	<i>Yersinia kristensenii</i>	ID/AST
<i>Vibrio parahaemolyticus</i>	ID	<i>Yersinia pseudotuberculosis</i>	ID/AST
<i>Vibrio vulnificus</i>	ID	<i>Yersinia ruckeri</i>	ID/AST
<i>Weeksella virosa</i>	ID	<i>Yokenella regensburgei</i>	ID
<i>Yersinia enterocolitica</i>	ID/AST		
<i>Yersinia frederiksenii</i>	ID/AST		

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем набора правил интерпретации (раздел «3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)).

¹ Оценка клинических характеристик проводилась не для всех видов.

² Для микроорганизма проводились клинические испытания. Для проверки эффективности тестов для сочетаний антимикробных средств и микроорганизмов доступны не менее 20 штаммов.

7.6.3 Грамположительные (мутность 0,5 по шкале Макфарланда)

ГРАМПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Aerococcus urinae</i>	ID	<i>Corynebacterium matruchotii</i>	ID
<i>Aerococcus viridans</i>	ID	<i>Corynebacterium minutissimum</i>	ID
<i>Alloiococcus otitis</i>	ID	<i>Corynebacterium propinquum</i>	ID
<i>Arcanobacterium haemolyticum</i>	ID	<i>Corynebacterium pseudodiphtheriticum</i>	ID
<i>Bacillus cereus</i>	ID	<i>Corynebacterium pseudotuberculosis</i>	ID
<i>Bacillus circulans</i>	ID	<i>Corynebacterium renale</i>	ID
<i>Bacillus coagulans</i>	ID	<i>Corynebacterium striatum</i>	ID
<i>Bacillus licheniformis</i>	ID	<i>Corynebacterium ulcerans</i>	ID
<i>Bacillus megaterium</i>	ID	<i>Corynebacterium urealyticum</i>	ID
<i>Bacillus pumilus</i>	ID	<i>Corynebacterium xerosis</i>	ID
<i>Bacillus subtilis</i>	ID	<i>Dermabacter hominis</i>	ID
<i>Bacillus thuringiensis</i>	ID	<i>Dermacoccus nishinomiyaensis</i>	ID
<i>Brevibacillus brevis</i>	ID	<i>Enterococcus asini</i>	AST
<i>Brevibacterium</i> виды	ID	<i>Enterococcus avium</i>	ID/AST
<i>Cellulomonas turbata</i>	ID	<i>Enterococcus casseliflavus</i>	ID/AST
<i>Cellulosimicrobium cellulans</i>	ID	<i>Enterococcus casseliflavus/ gallinarum</i>	ID/AST
<i>Corynebacterium amycolatum</i>	ID	<i>Enterococcus cecorum</i>	AST
<i>Corynebacterium amycolatum/ minutissimum</i>	ID	<i>Enterococcus columbae</i>	AST
<i>Corynebacterium amycolatum/ striatum</i>	ID	<i>Enterococcus dispar</i>	AST
<i>Corynebacterium bovis</i>	ID	<i>Enterococcus durans</i>	ID/AST
<i>Corynebacterium diphtheriae</i>	ID	<i>Enterococcus durans/faecium</i>	AST
<i>Corynebacterium jeikeium</i>	ID	<i>Enterococcus faecalis</i>	ID/AST
<i>Corynebacterium kutscheri</i>	ID	<i>Enterococcus faecalis/faecium</i>	AST

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем набора правил интерпретации (раздел «3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)).

¹ Оценка клинических характеристик проводилась не для всех видов.

ГРАМПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Enterococcus faecium</i>	ID/AST	<i>Leuconostoc citreum</i>	ID
<i>Enterococcus flavescens</i>	AST	<i>Leuconostoc lactis</i>	ID
<i>Enterococcus gallinarum</i>	ID/AST	<i>Leuconostoc mesenteroides</i> ssp <i>cremoris</i>	ID
<i>Enterococcus gilvus</i>	AST	<i>Leuconostoc mesenteroides</i> ssp <i>mesenteroides</i>	ID
<i>Enterococcus haemoperoxidus</i>	AST	<i>Leuconostoc pseudomesenteroides</i>	ID
<i>Enterococcus hirae</i>	ID/AST	<i>Listeria grayi</i>	ID
<i>Enterococcus hirae/faecium</i>	AST	<i>Listeria innocua</i>	ID
<i>Enterococcus malodoratus</i>	AST	<i>Listeria ivanovii</i>	ID
<i>Enterococcus moraviensis</i>	AST	<i>Listeria monocytogenes</i>	ID
<i>Enterococcus mundtii</i>	AST	<i>Listeria monocytogenes/innocua</i>	ID
<i>Enterococcus pallens</i>	AST	<i>Listeria welshimeri</i>	ID
<i>Enterococcus pseudoavium</i>	AST	<i>Lysinibacillus sphaericus</i>	ID
<i>Enterococcus raffinosus</i>	ID/AST	<i>Macrococcus caseolyticus</i>	ID
<i>Enterococcus raffinosus/avium</i>	AST	<i>Micrococcus luteus</i>	ID
<i>Enterococcus ratti</i>	AST	<i>Micrococcus lylae</i>	ID
<i>Enterococcus saccharolyticus</i>	AST	<i>Paenibacillus alvei</i>	ID
<i>Enterococcus</i> виды	AST	<i>Paenibacillus macerans</i>	ID
<i>Enterococcus sulfureus</i>	AST	<i>Pediococcus acidilactici</i>	ID
<i>Erysipelothrix rhusiopathiae</i>	ID	<i>Pediococcus damnosus</i>	ID
<i>Gardnerella vaginalis</i>	ID	<i>Pediococcus dextrinicus</i>	ID
<i>Gemella haemolysans</i>	ID	<i>Pediococcus parvulus</i>	ID
<i>Gemella morbillorum</i>	ID	<i>Pediococcus pentosaceus</i>	ID
<i>Globicatella sanguinis</i>	ID	<i>Rhodococcus equi</i>	ID
<i>Helcococcus kunzii</i>	ID	<i>Rothia dentocariosa</i>	ID
<i>Kocuria kristinae</i>	ID	<i>Rothia mucilaginosa</i>	ID
<i>Kocuria rosea</i>	ID	<i>Staphylococcus arlettae</i>	AST
<i>Kocuria varians</i>	ID	<i>Staphylococcus aureus</i>	ID/AST
<i>Kytococcus sedentarius</i>	ID	<i>Staphylococcus aureus</i> ssp <i>anaerobius</i>	AST
<i>Lactococcus garvieae</i>	ID	<i>Staphylococcus aureus</i> ssp <i>aureus</i>	AST
<i>Lactococcus lactis</i> ssp <i>cremoris</i>	ID	<i>Staphylococcus aruicularis</i>	ID/AST
<i>Lactococcus lactis</i> ssp <i>hordniae</i>	ID	<i>Staphylococcus capitis</i>	ID/AST
<i>Lactococcus lactis</i> ssp <i>lactis</i>	ID	<i>Staphylococcus capitis</i> ssp <i>capitis</i>	ID/AST
<i>Lactococcus plantarum</i>	ID	<i>Staphylococcus capitis</i> ssp <i>ureolyticus</i>	ID/AST
<i>Lactococcus raffinolactis</i>	ID	<i>Staphylococcus caprae</i>	ID/AST
<i>Leifsonia aquatica</i>	ID	<i>Staphylococcus carnosus</i>	ID/AST
<i>Staphylococcus carnosus</i> ssp <i>carnosus</i>	AST	<i>Staphylococcus pasteurii</i>	ID/AST

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем набора правил интерпретации (раздел «3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)).

¹ Оценка клинических характеристик проводилась не для всех видов.

ГРАМПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Staphylococcus carnosus</i> ssp <i>utilis</i>	AST	<i>Staphylococcus pettenkoferi</i>	ID/AST
<i>Staphylococcus chromogenes</i>	ID/AST	<i>Staphylococcus piscifermentans</i>	AST
<i>Staphylococcus chromogenes/ hyicus</i>	ID/AST	<i>Staphylococcus pulvereri</i>	AST
<i>Staphylococcus</i> коагулазоотрицательный	AST	<i>Staphylococcus saccharolyticus</i>	AST
<i>Staphylococcus</i> коагулазоположительный	AST	<i>Staphylococcus saprophyticus</i>	ID/AST
<i>Staphylococcus cohnii</i>	ID/AST	<i>Staphylococcus saprophyticus</i> ssp <i>bovis</i>	AST
<i>Staphylococcus cohnii</i> ssp <i>cohnii</i>	ID/AST	<i>Staphylococcus saprophyticus</i> ssp <i>saprophyticus</i>	AST
<i>Staphylococcus cohnii</i> ssp <i>urealyticum</i>	ID/AST	<i>Staphylococcus schleiferi</i>	ID/AST
<i>Staphylococcus condimenti</i>	AST	<i>Staphylococcus schleiferi</i> ssp <i>coagulans</i>	ID/AST
<i>Staphylococcus delphini</i>	AST	<i>Staphylococcus schleiferi</i> ssp <i>schleiferi</i>	ID/AST
<i>Staphylococcus epidermidis</i>	ID/AST	<i>Staphylococcus sciuri</i>	ID/AST
<i>Staphylococcus equorum</i>	ID/AST	<i>Staphylococcus sciuri</i> ssp <i>carnaticus</i>	AST
<i>Staphylococcus felis</i>	ID/AST	<i>Staphylococcus sciuri</i> ssp <i>rodentium</i>	AST
<i>Staphylococcus fleurettii</i>	AST	<i>Staphylococcus sciuri</i> ssp <i>sciuri</i>	AST
<i>Staphylococcus gallinarum</i>	ID/AST	<i>Staphylococcus simulans</i>	ID/AST
<i>Staphylococcus haemolyticus</i>	ID/AST	<i>Staphylococcus</i> виды	AST
<i>Staphylococcus haemolyticus/</i> <i>lugdunensis</i>	ID	<i>Staphylococcus succinus</i>	AST
<i>Staphylococcus hominis</i>	ID/AST	<i>Staphylococcus succinus</i> ssp <i>casei</i>	AST
<i>Staphylococcus hominis</i> ssp <i>hominis</i>	AST	<i>Staphylococcus succinus</i> ssp <i>succinus</i>	AST
<i>Staphylococcus hominis</i> ssp <i>novobiosepticus</i>	AST	<i>Staphylococcus vitulinus</i>	ID/AST
<i>Staphylococcus hyicus</i>	ID/AST	<i>Staphylococcus warneri</i>	ID/AST
<i>Staphylococcus intermedius</i>	ID/AST	<i>Staphylococcus warneri/pasteuri</i>	AST
<i>Staphylococcus kloosii</i>	ID/AST	<i>Staphylococcus xylosus</i>	ID/AST
<i>Staphylococcus lentus</i>	ID/AST	<i>Streptococcus acidominimus</i>	ID
<i>Staphylococcus lugdunensis</i>	ID/AST	<i>Streptococcus agalactiae</i> (Strep. группа B)	ID
<i>Staphylococcus lutrae</i>	AST	<i>Streptococcus anginosus</i>	ID
<i>Staphylococcus muscae</i>	AST	<i>Streptococcus bovis</i> (Strep. группа D)	ID
<i>Streptococcus bovis</i> I (Strep. группа D)	ID	<i>Streptococcus mitis</i>	ID

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем набора правил интерпретации (раздел «3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)»).

¹ Оценка клинических характеристик проводилась не для всех видов.

ГРАМПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Streptococcus bovis</i> II (Strep. группа D)	ID	<i>Streptococcus mitis/pneumoniae</i>	ID
<i>Streptococcus canis</i>	ID	<i>Streptococcus mutans</i>	ID
<i>Streptococcus constellatus</i>	ID	<i>Streptococcus oralis</i>	ID
<i>Streptococcus cristatus</i>	ID	<i>Streptococcus parasanguinis</i>	ID
<i>Streptococcus dysgalactiae</i> ssp <i>dysgalactiae</i>	ID	<i>Streptococcus pneumoniae</i>	ID
<i>Streptococcus dysgalactiae</i> ssp <i>equisimilis</i>	ID	<i>Streptococcus porcinus</i>	ID
<i>Streptococcus equi</i>	ID	<i>Streptococcus pyogenes</i> (Strep. группа A)	ID
<i>Streptococcus equi</i> ssp <i>equi</i>	ID	<i>Streptococcus salivarius</i>	ID
<i>Streptococcus equi</i> ssp <i>zooepidemicus</i>	ID	<i>Streptococcus sanguinis</i>	ID
<i>Streptococcus equinus</i>	ID	<i>Streptococcus sobrinus</i>	ID
<i>Streptococcus gordonii</i>	ID	<i>Streptococcus uberis</i>	ID
<i>Streptococcus</i> группа C/G (большая колония)	ID	<i>Streptococcus vestibularis</i>	ID
<i>Streptococcus intermedius</i>	ID	<i>Trueperella pyogenes</i>	ID

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем набора правил интерпретации (раздел «3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации))»).

¹ Оценка клинических характеристик проводилась не для всех видов.

7.6.4 Грамположительные (мутность 0,25 по шкале Макфарланда)

ГРАМПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Aerococcus urinae</i>	ID	<i>Gemella morbillorum</i>	ID
<i>Aerococcus viridans</i>	ID	<i>Globicatella sanguinis</i>	ID
<i>Alloiococcus otitis</i>	ID	<i>Helcococcus kunzii</i>	ID
<i>Dermacoccus nishinomiyaensis</i>	ID	<i>Kocuria kristinae</i>	ID
<i>Enterococcus avium</i>	ID/AST	<i>Kocuria rosea</i>	ID
<i>Enterococcus casseliflavus</i>	ID/AST	<i>Kocuria varians</i>	ID
<i>Enterococcus durans</i>	ID/AST	<i>Kytococcus sedentarius</i>	ID
<i>Enterococcus faecalis</i>	ID/AST	<i>Lactococcus lactis</i> ssp <i>cremoris</i>	ID
<i>Enterococcus faecium</i>	ID/AST	<i>Lactococcus lactis</i> ssp <i>hordniae</i>	ID
<i>Enterococcus gallinarum</i>	ID/AST	<i>Lactococcus plantarum</i>	ID
<i>Enterococcus hirae</i>	ID/AST	<i>Leuconostoc citreum</i>	ID
<i>Enterococcus raffinosus</i>	ID/AST	<i>Leuconostoc lactis</i>	ID
<i>Gemella haemolysans</i>	ID		
<i>Leuconostoc mesenteroides</i> ssp <i>mesenteroides</i>	ID	<i>Staphylococcus saprophyticus</i>	ID/AST

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем набора правил интерпретации (раздел «3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации))»).

¹ Оценка клинических характеристик проводилась не для всех видов.

ГРАМПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*	ГРАМПОЛОЖИТЕЛЬНЫЕ ТАКСОНЫ ¹	ID, AST, ID/AST*
<i>Listeria innocua</i>	ID	<i>Staphylococcus schleiferi</i> ssp <i>coagulans</i>	ID/AST
<i>Listeria monocytogenes</i>	ID	<i>Staphylococcus schleiferi</i> ssp <i>schleiferi</i>	ID/AST
<i>Macrococcus caseolyticus</i>	ID	<i>Staphylococcus sciuri</i>	ID/AST
<i>Micrococcus luteus</i>	ID	<i>Staphylococcus simulans</i>	ID/AST
<i>Micrococcus lylae</i>	ID	<i>Staphylococcus vitulinus</i>	ID/AST
<i>Pediococcus acidilactici</i>	ID	<i>Staphylococcus warneri</i>	ID/AST
<i>Pediococcus damnosus</i>	ID	<i>Staphylococcus xylosus</i>	ID/AST
<i>Pediococcus dextrinicus</i>	ID	<i>Streptococcus agalactiae</i> (Strep. группа B)	ID
<i>Pediococcus parvulus</i>	ID	<i>Streptococcus anginosus</i>	ID
<i>Pediococcus pentosaceus</i>	ID	<i>Streptococcus bovis</i> (Strep. группа D)	ID
<i>Rothia mucilaginosa</i>	ID	<i>Streptococcus bovis</i> I (Strep. группа D)	ID
<i>Staphylococcus aureus</i>	ID/AST	<i>Streptococcus bovis</i> II (Strep. группа D)	ID
<i>Staphylococcus auricularis</i>	ID/AST	<i>Streptococcus constellatus</i>	ID
<i>Staphylococcus capitis</i>	ID/AST	<i>Streptococcus cristatus</i>	ID
<i>Staphylococcus caprae</i>	ID/AST	<i>Streptococcus equi</i>	ID
<i>Staphylococcus carnosus</i>	ID/AST	<i>Streptococcus gordonii</i>	ID
<i>Staphylococcus chromogenes</i>	ID/AST	<i>Streptococcus</i> группа C/G (большая колония)	ID
<i>Staphylococcus cohnii</i> ssp <i>cohnii</i>	ID/AST	<i>Streptococcus intermedius</i>	ID
<i>Staphylococcus cohnii</i> ssp <i>urealyticum</i>	ID/AST	<i>Streptococcus mitis</i>	ID
<i>Staphylococcus epidermidis</i>	ID/AST	<i>Streptococcus mutans</i>	ID
<i>Staphylococcus equorum</i>	ID/AST	<i>Streptococcus oralis</i>	ID
<i>Staphylococcus felis</i>	ID/AST	<i>Streptococcus parasanguinis</i>	ID
<i>Staphylococcus gallinarum</i>	ID/AST	<i>Streptococcus porcinus</i>	ID
<i>Staphylococcus haemolyticus</i>	ID/AST	<i>Streptococcus pyogenes</i> (Strep. группа A)	ID
<i>Staphylococcus hominis</i>	ID/AST	<i>Streptococcus salivarius</i>	ID
<i>Staphylococcus hyicus</i>	ID/AST	<i>Streptococcus sanguinis</i>	ID
<i>Staphylococcus intermedius</i>	ID/AST	<i>Streptococcus sobrinus</i>	ID
<i>Staphylococcus kloosii</i>	ID/AST	<i>Streptococcus uberis</i>	ID
<i>Staphylococcus lugdunensis</i>	ID/AST	<i>Streptococcus vestibularis</i>	ID
<i>Staphylococcus pasteurii</i>	ID/AST		

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¹ Оценка клинических характеристик проводилась не для всех видов.

7.6.5 Стрептококки

ТАКСОНЫ СТРЕПТОКОККОВ ¹	ID, AST, ID/AST*	ТАКСОНЫ СТРЕПТОКОККОВ ¹	ID, AST, ID/AST*
<i>Streptococcus acidominimus</i>	ID/AST	<i>Streptococcus ferus</i>	AST
<i>Streptococcus agalactiae</i> (Strep. группа B)	ID/AST	<i>Streptococcus gallolyticus</i> ssp <i>macedonicus</i>	AST
<i>Streptococcus alactolyticus</i>	AST	<i>Streptococcus gordonii</i>	ID/AST
<i>Streptococcus</i> альфа- гемолитический	AST	<i>Streptococcus</i> группа A (маленькая колония)	AST
<i>Streptococcus anginosus</i>	ID/AST	<i>Streptococcus</i> группа A (<i>Strep.</i> <i>pyogenes</i>)	AST
<i>Streptococcus anginosus</i> (ранее <i>milleri</i>) группа	ID/AST	<i>Streptococcus</i> группа B (<i>Strep.</i> <i>agalactiae</i>)	AST
<i>Streptococcus</i> бета- гемолитический ACG (большая колония)	AST	<i>Streptococcus</i> группа C (большая колония)	AST
<i>Streptococcus bovis</i> (<i>Strep. группа</i> <i>D</i>)	AST	<i>Streptococcus</i> группа C (маленькая колония)	AST
<i>Streptococcus bovis</i> I (<i>Strep.</i> группа D)	ID/AST	<i>Streptococcus</i> группа C/G (большая колония)	ID/AST
<i>Streptococcus bovis</i> II (<i>Strep.</i> группа D)	ID/AST	<i>Streptococcus</i> group C/G (маленькая колония)	AST
<i>Streptococcus canis</i>	ID/AST	<i>Streptococcus</i> группа CFG (маленькая колония)	AST
<i>Streptococcus constellatus</i>	ID/AST	<i>Streptococcus</i> группа D (не- энтерококк)	AST
<i>Streptococcus constellatus</i> ssp <i>constellatus</i>	AST	<i>Streptococcus</i> группа E	AST
<i>Streptococcus constellatus</i> ssp <i>pharyngis</i>	AST	<i>Streptococcus</i> группа F	AST
<i>Streptococcus criceti</i>	AST	<i>Streptococcus</i> группа G (большая колония)	AST
<i>Streptococcus cristatus</i>	ID/AST	<i>Streptococcus</i> группа G (маленькая колония)	AST
<i>Streptococcus downei</i>	AST	<i>Streptococcus</i> группа L	AST
<i>Streptococcus dysgalactiae</i>	AST	<i>Streptococcus hyointestinalis</i>	AST
<i>Streptococcus dysgalactiae</i> ssp <i>dysgalactiae</i>	ID/AST	<i>Streptococcus infantarius</i>	AST
<i>Streptococcus dysgalactiae</i> ssp <i>equisimilis</i>	ID/AST	<i>Streptococcus infantarius</i> ssp <i>coli</i>	AST
<i>Streptococcus dysgalactiae/canis</i>	ID/AST	<i>Streptococcus infantarius</i> ssp <i>infantarius</i>	AST
<i>Streptococcus equi</i>	ID/AST	<i>Streptococcus infantis</i>	AST
<i>Streptococcus equi</i> ssp <i>equi</i>	ID/AST	<i>Streptococcus iniae</i>	AST
<i>Streptococcus equi</i> ssp <i>zooepidemicus</i>	ID/AST	<i>Streptococcus intermedius</i>	ID/AST
<i>Streptococcus equinus</i>	ID/AST	<i>Streptococcus milleri</i> группа	AST

* Таксоны для определения AST могут отличаться в зависимости от выбранного пользователем набора правил интерпретации (раздел «3.10.6 Подкладка «Custom Interpretation Rule Set» (Пользовательский набор правил интерпретации)).

¹ Оценка клинических характеристик проводилась не для всех видов.

ТАКСОНЫ СТРЕПТОКОККОВ ¹	ID, AST, ID/AST*	ТАКСОНЫ СТРЕПТОКОККОВ ¹	ID, AST, ID/AST*
<i>Streptococcus mitis</i>	ID/AST	<i>Streptococcus salivarius</i>	ID/AST
<i>Streptococcus mitis</i> группа	ID/AST	<i>Streptococcus salivarius</i> группа	AST
<i>Streptococcus mitis/oralis</i>	AST	<i>Streptococcus salivarius</i> ssp <i>thermophilus</i>	AST
<i>Streptococcus mitis/pneumoniae</i>	ID/AST	<i>Streptococcus sanguinis</i>	ID/AST
<i>Streptococcus mutans</i>	ID/AST	<i>Streptococcus sanguinis</i> группа	AST
<i>Streptococcus mutans</i> группа	AST	<i>Streptococcus sobrinus</i>	ID/AST
<i>Streptococcus oralis</i>	ID/AST	<i>Streptococcus</i> виды	AST
<i>Streptococcus parasanguinis</i>	ID/AST	<i>Streptococcus suis</i>	AST
<i>Streptococcus peroris</i>	AST	<i>Streptococcus uberis</i>	ID/AST
<i>Streptococcus pneumoniae</i>	ID/AST	<i>Streptococcus vestibularis</i>	ID/AST
<i>Streptococcus porcinus</i>	AST	<i>Streptococcus viridans</i> бета-гемолитический (маленькая колония)	AST
<i>Streptococcus pyogenes</i> (<i>Strep. группа A</i>)	ID/AST	<i>Streptococcus viridans</i> группа	AST
<i>Streptococcus rattii</i>	AST		

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¹ Оценка клинических характеристик проводилась не для всех видов.

7.6.6 Дрожжи

ТАКСОНЫ ДРОЖЖЕЙ ¹	SABDX SABEM SABHI	CHOC COLSB TSASB
<i>Candida albicans</i>	√	√
<i>Candida apicola</i>	√	√
<i>Candida boidinii</i>		√
<i>Candida bracarensis</i>	√	
<i>Candida catenulata</i>	√	√
<i>Candida ciferrii</i>	√	√
<i>Candida dubliniensis</i>	√	√
<i>Candida firmetaria</i>	√	√
<i>Candida freyschussii</i>	√	√
<i>Candida glabrata</i>	√	√
<i>Candida guilliermondii</i>	√	√
<i>Candida guilliermondii</i> var <i>membranaefaciens</i>	√	√
<i>Candida haemulonii</i>	√	√
<i>Candida inconspicua</i>	√	√
<i>Candida kefyr</i>	√	√
<i>Candida krusei</i>	√	√
<i>Candida lipolytica</i>	√	√
<i>Candida lusitaniae</i>	√	√

ТАКСОНЫ ДРОЖЖЕЙ ¹	SABDX SABEM SABHI	CHOC COLSB TSASB
<i>Candida magnoliae</i>	√	√
<i>Candida melibiosica</i>	√	√
<i>Candida membranaefaciens</i>	√	√
<i>Candida norvegensis</i>	√	√
<i>Candida parapsilosis</i> комплекс	√	√
<i>Candida pararugosa</i>	√	√
<i>Candida pelliculosa</i>	√	√
<i>Candida pulcherrima</i>	√	√
<i>Candida rugosa</i>	√	√
<i>Candida sake</i>	√	√
<i>Candida sphaerica</i>	√	
<i>Candida tropicalis</i>	√	√
<i>Candida utilis</i>	√	√
<i>Candida viswanathii</i>	√	√
<i>Candida zeylanoides</i>	√	√
<i>Cryptococcus albidus</i>	√	√
<i>Cryptococcus humicola</i>	√	√
<i>Cryptococcus laurentii</i>		√
<i>Cryptococcus luteolus</i>	√	√
<i>Cryptococcus neoformans</i>	√ ²	√
<i>Cryptococcus terreus</i>	√	
<i>Cryptococcus uniguttulatus</i>	√	√
<i>Exophiala dermatitidis</i>	√	√
<i>Exophiala</i> виды	√	√
<i>Geotrichum</i> виды	√	√
<i>Hortaea werneckii</i>	√	√
<i>Hyphopichia burtonii</i>	√	√
<i>Kloeckera</i> виды	√	
<i>Magnusiomyces capitatus</i>	√	√
<i>Malassezia furfur</i> комплекс	√	
<i>Malassezia pachydermatis</i>	√	
<i>Malassezia sympodialis</i>	√	
<i>Millerozyma farinosa</i>	√	√
<i>Prototheca wickerhamii</i>	√	√
<i>Prototheca zopfii</i>	√	√
<i>Rhodotorula glutinis</i>	√	√
<i>Rhodotorula minuta</i>	√	√

ТАКСОНЫ ДРОЖЖЕЙ ¹	SABDX SABEM SABHI	CHOC COLSB TSASB
<i>Rhodotorula mucilaginosa</i> var <i>mucilaginosa</i>	√	√
<i>Saccharomyces cerevisiae</i>	√	√
<i>Sporobolomyces salmonicolor</i>	√	√
<i>Trichosporon asahii</i>	√	√
<i>Trichosporon inkin</i>	√	
<i>Trichosporon loubieri</i>	√	
<i>Trichosporon mucoides</i>	√	√
<i>Trichosporon ovoides</i>		√
<i>Zygosaccharomyces bailii</i>	√	

¹ Оценка клинических характеристик проводилась не для всех видов.

² Если в качестве результата идентификации получен *Cryptococcus neoformans*, а профиль субстрата может также указывать на *C. gattii*, выводится следующее сообщение: «The instrument produced an ID result of *Cryptococcus neoformans* with a profile that may be indicative of *C. gattii*. Recommend testing to rule out *C. gattii*» (Прибор получил результат идентификации: *Cryptococcus neoformans*. Однако профиль может также указывать на *C. gattii*. Рекомендуется провести тест, чтобы исключить *C. gattii*).

8 – Словарь терминов и сокращения

8.1 Словарь терминов

AST	Определение чувствительности к антибиотикам (Antimicrobial Susceptibility Test(ing))
ATCC	Американская коллекция типовых культур (American Type Culture Collection)
BP	Тромбоцит (blood plate)
пороговое значение	Применяется при интерпретации значений данных МПК панели для классификации результатов как «Susceptible» (Чувствительный), «Intermediate» (Промежуточная чувствительность) или «Resistant» (Устойчивый). Пороговые значения для данных МПК устанавливаются Институтом клинических и лабораторных стандартов (Clinical and Laboratory Standards Institute, CLSI) и другими организациями.
штатив переносной	Дополнительное устройство, которое применяется для транспортировки заправленных панелей к прибору для загрузки.
поворотный механизм	Вращающийся барабан, на котором размещаются 50 панелей BD Phoenix и который помещает их в определенное положение для считывания показаний, считывания штрих-кода, а также загрузки или извлечения.
CLSI	Институт клинических и лабораторных стандартов (Clinical and Laboratory Standards Institute)
CNA	Агар с колистином и налидиксовой кислотой (Colistin Nalidixic Acid)
демографические данные	Информация об образце для записи панели
DTG	Группа тестируемых препаратов (Drug Test Group)
EMB	Агар с эозином и метиленовым синим (Eosin Methylene Blue)
станция с ошибкой	Станция, на которой произошла оптическая или электромеханическая ошибка и которая была заблокирована.
EUCAST	Европейский комитет по определению чувствительности к антибиотикам (European Committee on Antimicrobial Susceptibility Testing)
HE	Гектоеновый энтеро-агар (Hektoen Enteric)
ID	Идентификация (IDentification) микроорганизмов
комбинированная панель ID/AST	Одноразовое устройство, содержащее все реагенты, необходимые для ID и AST.
штатив для заполнения панелей	На штативе для заполнения панелей размещаются три панели BD Phoenix, которые расположены под соответствующим углом для оптимального заполнения. На штативе также размещаются шесть пробирок с бульоном, по две для каждого тестируемого микроорганизма. Одна пробирка предназначена для приготовления суспензии для идентификации, другая – для AST.

цикл тестирования прибора	Полное тестирование всех размещенных на поворотном механизме панелей с пробами. Результаты измерений цвета и/или флуоресценции записываются для каждой используемой ячейки каждой панели.
МПК	Минимальная подавляющая концентрация (Minimum Inhibitory Concentration, MIC); самая низкая концентрация противомикробного препарата, препятствующая дальнейшему росту тестируемого микроорганизма.
«Needs Attention» (Требуется внимания)	Панели в базе данных прибора, для которых обнаружены условия, требующие внимания оператора.
нормализатор	Реферативная панель для использования в приборе BD Phoenix M50. Панель нормализатора представляет собой панель с ячейками, содержащими вещества, поглощающие видимый свет, и флуоресцентные материалы; используется для коррекции потерь сигналов отдельных ячеек в оптической системе.
панель неизвестного образца	Панель с действительным порядковым номером, для которой не заданы номер образца и номер изолята.
держатель панели	Пластмассовая вставка в позиции поворотного механизма, которая фиксирует каждую панель BD Phoenix с пробой на ее месте. Поворотный механизм содержит 52 вставки (по 26 на каждом из двух уровней).
набор данных панели	Связанный с каждой панелью набор данных: измерения цвета и флуоресценции, идентификатор положения панели, отметки времени тестирования и флаги ошибок, записываемые для каждого цикла тестирования по протоколу тестирования. Параметры тестирования, определяющие результаты каждой ячейки, определяются по индивидуальной этикетке со штрих-кодом, который указывает тип панели и типа теста.
РЕА	Агар с фенилэтиловым спиртом (Phenylethyl Alcohol)
позиция	Станция. Указывает физическое местоположение панели BD Phoenix в приборе. Идентификатор включает номер прибора, букву уровня поворотного механизма и цифровую позицию на этом уровне.
пороговое значение обнаружения присутствия панели	При каждом инвентаризационном сканировании или в каждом цикле тестирования прибор проверяет наличие этикетки со штрих-кодом панели в каждой позиции поворотного механизма и измеряет цвет и флуоресценцию ячеек панели. Если что-либо из перечисленного обнаружено, прибор объявляет о логическом присутствии панели в этой позиции. Панель, у которой отсутствует штрих-код, дающий информацию и типе панели, не обрабатывается, но помечается флагом «Needs Attention» (Требуется внимания).
индикатор AST BD Phoenix	Окислительно-восстановительный индикатор, применяемый для измерений микробного метаболизма в панелях BD Phoenix. В начале процесса восстановления индикатор меняет цвет с синего на розовый. При дальнейшем восстановлении индикатор меняет цвет с розового на бесцветный.
«быстрые» результаты	Результаты AST, полученные в течение 16 часов после заправки панели.
связанная панель	Панели с одинаковыми номерами образца и изолята считаются связанными.
«Resistance Marker» (Маркер резистентности)	Условие, которое применяется, когда определенные результаты свидетельствуют об устойчивости к противомикробным препаратам. Действие некоторых правил BD Xpert состоит в применении маркеров устойчивости; другие правила могут вызываться в результате применения определенного маркера устойчивости.
RGB	Красный, зеленый, синий (Red, Green, Blue). Краткое обозначение источников видимого света или диапазонов волн, используемых для опроса панели BD Phoenix.

проба	Образец, содержащийся в панели BD Phoenix. Фактически это образец микробиологической культуры, выделенный из первичного изолята, ресуспендированный в растворе идентификации или бульоне AST и затем помещенный в тестовую панель.
SFM	Французское общество микробиологов (Société Française de Microbiologie)
SIR	Чувствительные, промежуточные или устойчивые (Susceptible, Intermediate или Resistant); обозначение категорий результатов AST. См. также пороговое значение.
станция	Поворотный механизм прибора вертикально разделен на два уровня (А и В или С и D), каждый из которых вмещает 26 панелей. Одно из местоположений занято панелью нормализатора, а в 25 местоположений на каждом уровне можно поместить тестовые панели. Это означает, что тестовыми панелями можно заполнить в общей сложности 50 местоположений. Каждому местоположению присваивается буква уровня и номер, определяющий позицию местоположения на уровне. Светодиоды, расположенные на держателе каждой панели, показывают состояние станции (см. раздел «2.3.2.10 Индикаторы станции»).
номер тестовой последовательности	Номер набора показаний, полученных прибором для данной ячейки с пробой в конкретной тестовой панели, который инициализируется в ноль во время ввода панели.
TSA	Триптиказо-соевый агар (Trypticase Soy Agar)
XLD	Ксилоза-лизин-дезоксихолат агар (Xylose Lysine Deoxycholate)

8.2 Аббревиатуры дополнительных тестов идентификации

Тест	Описание	Тест	Описание
10C	Рост при 10 градусах по Цельсию	CAT	Каталаза
42C	Рост при 42 градусах по Цельсию	CEL	Целлобиоза
45C	Рост при 45 градусах по Цельсию	CIT	Цитрат
50C	Рост при 50 градусах по Цельсию	COA	Коагулаза
ACE	МБМ + ацетат	DNA	ДНКаза
ALC	α-Лактоза	ESC	Эскулин
ANR	Анаэробный рост	FRU	Fructose
ARA	Арабиноза	GAS	Газ из глюкозы
ARG	Аргинин	GEL	Желатин
BE	Желчно-эскулин	GLC	Бета-глюкуронидаза
BSO	Растворимость в желчи	GLU	Глюкоза
CAM	CAMP со <i>Staphylococcus aureus</i>	H2S	Сероводород

Тест	Описание	Тест	Описание
HGN	Гемолиз – грамотрицательные	OPS	Восприимчивость к оптоцину
HGP	Гемолиз – грамположительные	ORN	Орнитин
HIP	Гиппурат	OX	Оксидаза
IND	Индол	PXR	Устойчивость к полимиксину
KCN	Рост в цианиде калия	PXS	Чувствительность к полимиксину
LAC	Лактоза	PYR	Пирролидонил ариламидаза
LYS	Лизин	RAF	Рафиноза
MAC	Рост в среде MacConkey	SBT	Сорбит
MAL	Мальтоза	SLT	Рост в NaCl 6,5 %
MEL	Мелибиоза	SOR	Сорбоза
MNS	Манноза	SUC	Сахароза
MNT	Маннитол	TRE	Трегалоза
MOR	Морфология	URE	Мочевина
MOT	Подвижность	VAN	Ванкомицин
MR	Метиловый красный	VP	Фогес-Проскауер
NIT	Нитратный	XYL	Ксилоза
NVR	Устойчивость к новобиоцину	YEL	Желтый или оранжевый пигмент

8.3 Условные обозначения

Значок	Значение
	Изготовитель
REF	Номер по каталогу
EC REP	Уполномоченный представитель в Европейском Сообществе
IVD	Медицинский прибор для диагностики In Vitro

9 – Запасные части

Следующие детали можно заказать, обратившись к локальному представителю компании BD (см. раздел «11 – Международные контакты»).

Номер по каталогу	Наименование
443809	Сканер штрих-кодов (внешний)
443866	Программное обеспечение системы
441107	Пакета данных обновления BD Phoenix™ Update Data (PUD)
443390	Держатель сканера штрих-кодов
443842	Воздушный фильтр
443575	Руководство пользователя системы BD Phoenix™ M50
443894	Краткий справочник
443431	Лазерный принтер
448984	Панель измерения температуры

10 – Журнал обновлений программного обеспечения

При получении обновлений программного обеспечения (ПО) занесите данные в журнал ниже. Это поможет Вам и персоналу BD определить изменения программного обеспечения, потенциальные проблемы с программным обеспечением и т.д.

[illegible]

11 – Международные контакты

BD 7 Loveton Circle Sparks, MD 21152 USA Телефон: (410) 316.4000 • Факс: 527.0244 Служба технической поддержки: 1.800.638.8663 Служба работы с покупателями: 1.800.675.0908 www.bd.com	2100 Derry Road West Suite 100 Mississauga, ON Canada L5N 0B3 Телефон: 905.288.6042 Факс: 905.288.6006
Monte Pelvoux 111 • 9th Floor Col. Lomas de Chapultepec 11000 Mexico D.F. Телефон: 52 5 237 1200 • Факс: 52 5 237 1287	11 Rue Aristide Berges BP4 38800 Le Pont de Claix France Телефон: 33 476 68 36 36 • Факс: 33 476 68 34 95
Akasaka DS Building 5-26 Akasaka 8-chome Minato-ku, Tokyo 107-0052 Japan Телефон: (81) 3 54138181 • Факс (81) 3 54138144	30 Tuas Avenue 2 Singapore 639461 Телефон: (65) 8610633 • Факс: (65) 8601590
Rua Alexandre Dumas 1976 04717-004 Sao Paulo, S.P. Brazil Телефон: (55) 11 5459833 • Факс: (55) 11 2478644	Австралийский партнер: Becton Dickinson Pty Ltd. 4 Research Park Drive Macquarie University Research Park North Ryde, NSW 2113 Australia

ПРИЛОЖЕНИЕ №1

к ЭКСПЛУАТАЦИОННОЙ ДОКУМЕНТАЦИИ

медицинского изделия:

Анализатор микробиологический BD Phoenix, варианты исполнения: BD Phoenix 100, BD Phoenix M50, с принадлежностями

Производитель:

Becton Dickinson and Company, 7 Loveton Circle, Sparks, Maryland 21152,
USA

1. Описание изделия

анализатор микробиологический BD Phoenix, варианты исполнения: BD Phoenix 100, BD Phoenix 150, с принадлежностями

Варианты исполнения:

I. Анализатор микробиологический BD Phoenix 100, с принадлежностями

Состав:

1. Базовый блок.
2. Внешний сканер бар-кода.
3. Руководство по работе с прибором BD Phoenix 100 (BD Phoenix - Quick Reference Guide, 448022).
4. Программное обеспечение BD Phoenix 100 (PX SYSTEM SOFTWARE, 448035).

Принадлежности:

1. Стартовый набор BD Phoenix (BD Phoenix - Starter Kit, 448040):
 - подставки для заполнения панелей – 5 шт.;
 - переносные штативы для панелей – 2 шт.;
 - наконечники для пипеток - 960 шт.;
 - термометр – 1 шт.;
 - запасные воздушные фильтры - 4 шт.;
 - внешний сканер бар-кода – 1 шт.;
 - кабель – 3 шт.;
 - краткое руководство по работе с прибором.
2. Стол для анализатора BD Phoenix (PX/PX AP TABLE, 441624).
3. Подставка для заполнения панелей BD Phoenix (BD Phoenix - Inoculation Station, 448030).
4. Штатив переносной для панелей BD Phoenix (BD Phoenix - Panel Caddy, 448020)
5. Подставка BD Phoenix для пипеток (BD Phoenix - Pipette Stand, 448028).
6. Крышки для панелей BD Phoenix (BD Phoenix - Panel Closure, 448031) – не более 200 шт.
7. Термометр (THERMOMETER PANEL, 448984).
8. Наклейки для ячеек (LABEL PANEL CARRIER, 447111) - 1 лист.
9. Наконечники BD Phoenix для пипеток (BD Phoenix - Pipette Tips, 448037) – не более 8 упаковок по 204 наконечника.

II. Анализатор микробиологический BD Phoenix M50 с принадлежностями

Состав:

1. Базовый блок.
2. USB кабель подключения
3. Кабель питания - 4 шт.
4. Наклейки для маркировки инструмента – 2 набора.

Принадлежности:

1. Стартовый набор BD Phoenix M50 (PHOENIX M50 STARTER KIT, 443625):
 - Планшетный компьютер в составе: планшетный компьютер, блок питания, кабель питания, руководство пользователя на CD, крепежные болты (4 шт.)
 - Кабель питания – 4 шт.
 - Держатель монитора – 1 шт.
 - Винты для крепления держателя монитора – 2 шт.
 - Внешний сканер бар-кода
 - USB кабель – 2 шт.
 - Подставка для сканера бар-кода
 - Пипетка фиксированного объема 25 мкл.
 - Пипетка фиксированного объема 50 мкл.
 - Подставка для пипеток – 2 шт.

- Наконечники BD Phoenix для пипеток – 1 коробка по 8 упаковок по 204 наконечника
 - Штатив переносной для панелей BD Phoenix – 2 шт.
 - Подставка для заполнения панелей BD Phoenix – 5 шт.
 - Воздушный фильтр
 - USB накопитель данных для резервного копирования пользовательских данных
2. Программное обеспечение BD Phoenix M50 (SOFTWARE PHX50, 443866).
 3. Краткое руководство по работе с прибором BD Phoenix M50 (QUICK REFERENCE GUIDE PHX50 PKG, 443894).
 4. Внешний сканер бар-кода (SCANNER BARCODE HANDHELD PACKAGED, 443809).
 5. Держатель монитора (MOUNTING ARM ERGOTRON PHX50, 443867).
 6. Блок бесперебойного питания (UPS SYNERGY SIII 2KVA ON-LINE, 257687).
 7. Набор батарей для блока бесперебойного питания (BATTERY PACK PAC SYN SIII 2KVA, 257688).
 8. Принтер (Printer Brother HL54440D, 257613).
 9. Набор для монтажа дополнительного модуля BD Phoenix M50 (KIT STACKING PHX50, 443910):
 - скоба – 2 шт.
 - шайба – 12 шт.
 - винт – 12 шт.
 - ножка регулируемая – 2 шт.
 - схема монтажа
 - кронштейн – 2 шт.
 - гайка – 2 шт.
 10. Набор для крепления инструмента (SEISMIC KIT PHX50, 443918):
 - скоба – 5 шт.
 - винт – 12 шт.
 - шайба (10 x 1.0) – 12 шт.
 - болт – 8 шт.
 - гайка – 4 шт.
 - шайба (11.31 x 0.095) – 8 шт.
 - гровер – 8 шт.
 11. Набор для монтажа BD Bactec FX40 к BD Phoenix M50 (ADAPTER PLATE FX40 TO PHX50 SPARE, 443873):
 - скоба – 6 шт.
 - винт – 12 шт.
 - шайба – 8 шт.

2. Сведения о производителе медицинского изделия

ПРОИЗВОДИТЕЛЬ

Becton Dickinson and Company, 7 Loveton Circle, Sparks, Maryland 21152, USA

АДРЕСА МЕСТ ПРОИЗВОДСТВА МЕДИЦИНСКОГО ИЗДЕЛИЯ

Becton Dickinson and Company, 7 Loveton Circle, Sparks, Maryland 21152, USA

3. Классификация медицинского изделия

- класс потенциального риска применения медицинского изделия, в соответствии с номенклатурной классификацией: 2a
- вид медицинского изделия в соответствии с номенклатурной классификацией GMDN: 56747

4. Тип контакта с организмом человека:

Контакт с организмом отсутствует.

5. Назначение медицинского изделия

Анализатор микробиологический BD Phoenix, варианты исполнения: BD Phoenix 100, BD Phoenix M50, с принадлежностями представляет собой автоматизированную микробиологическую систему, предназначенную для быстрой идентификации (ID) и проверки чувствительности к противомикробным препаратам (antimicrobial susceptibility testing — AST) клинически значимых бактерий. Анализатор микробиологический BD Phoenix обеспечивает быстрые результаты для большинства аэробных и некоторых анаэробных грамположительных бактерий, а также для большинства аэробных и некоторых анаэробных грамотрицательных бактерий, паразитирующих на человеке.

Показания к применению:

Изделие не предназначено для прямого применения на пациенте.

Анализатор применяется только для микробиологической диагностики IN VITRO.

Противопоказания:

Отсутствуют.

6. Область применения

Лабораторная диагностика IN VITRO, микробиология.

7. Описание и техническая спецификация изделия

Принципиальная схема устройства: см. ниже (рис. 1- 3)

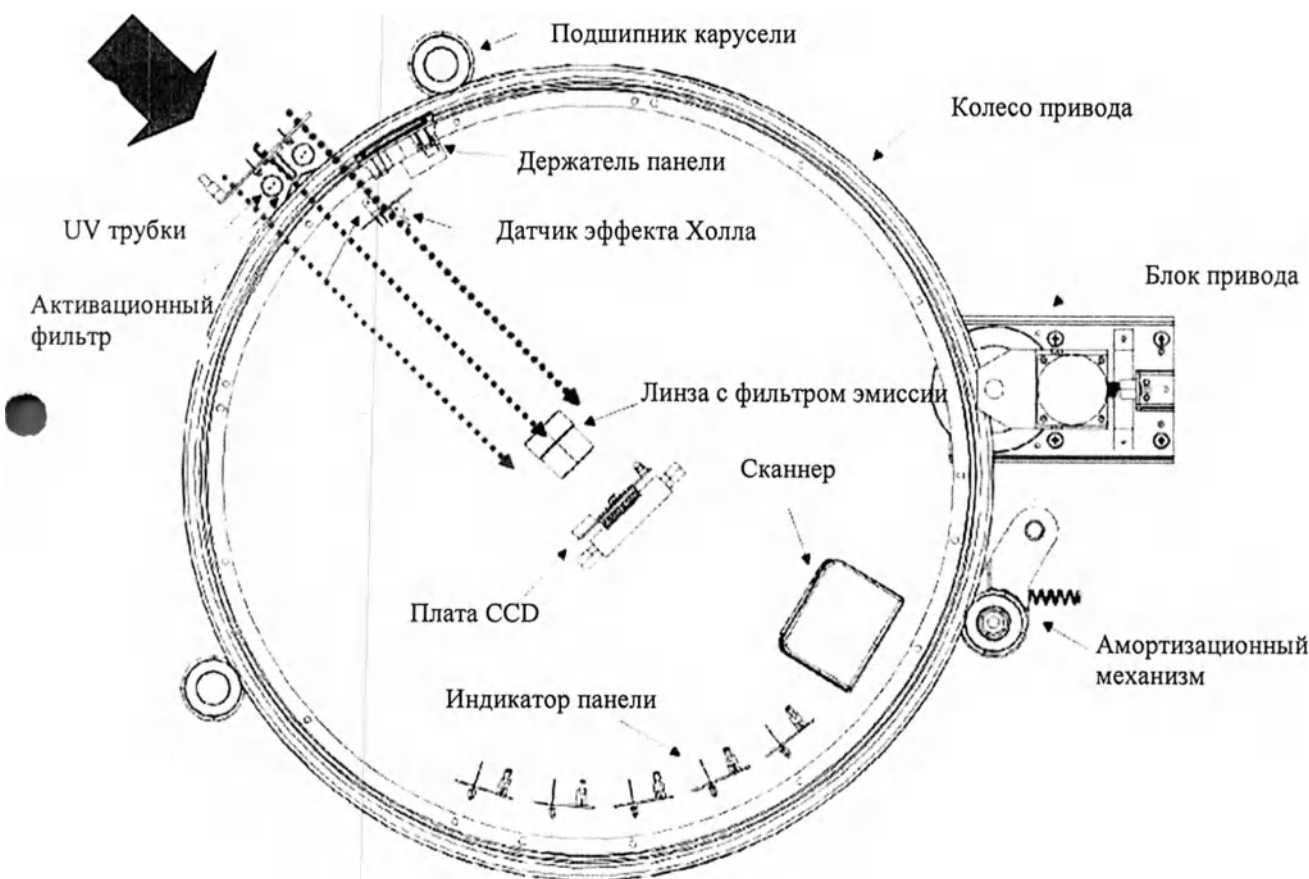


Рис. 1 –схема инкубаторного отсека анализатора BD Phoenix 100

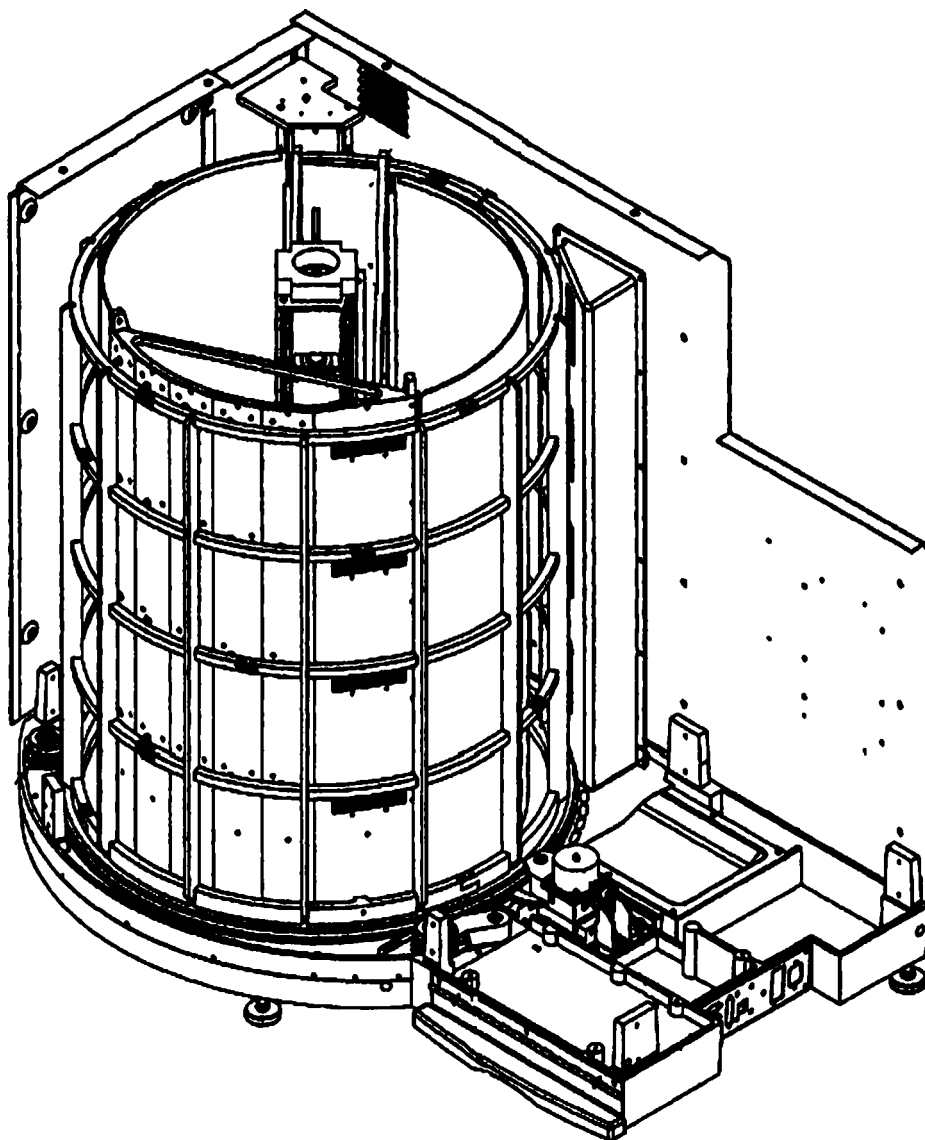


Рис. 2 – схема инкубаторного отсека анализатора BD Phoenix 100

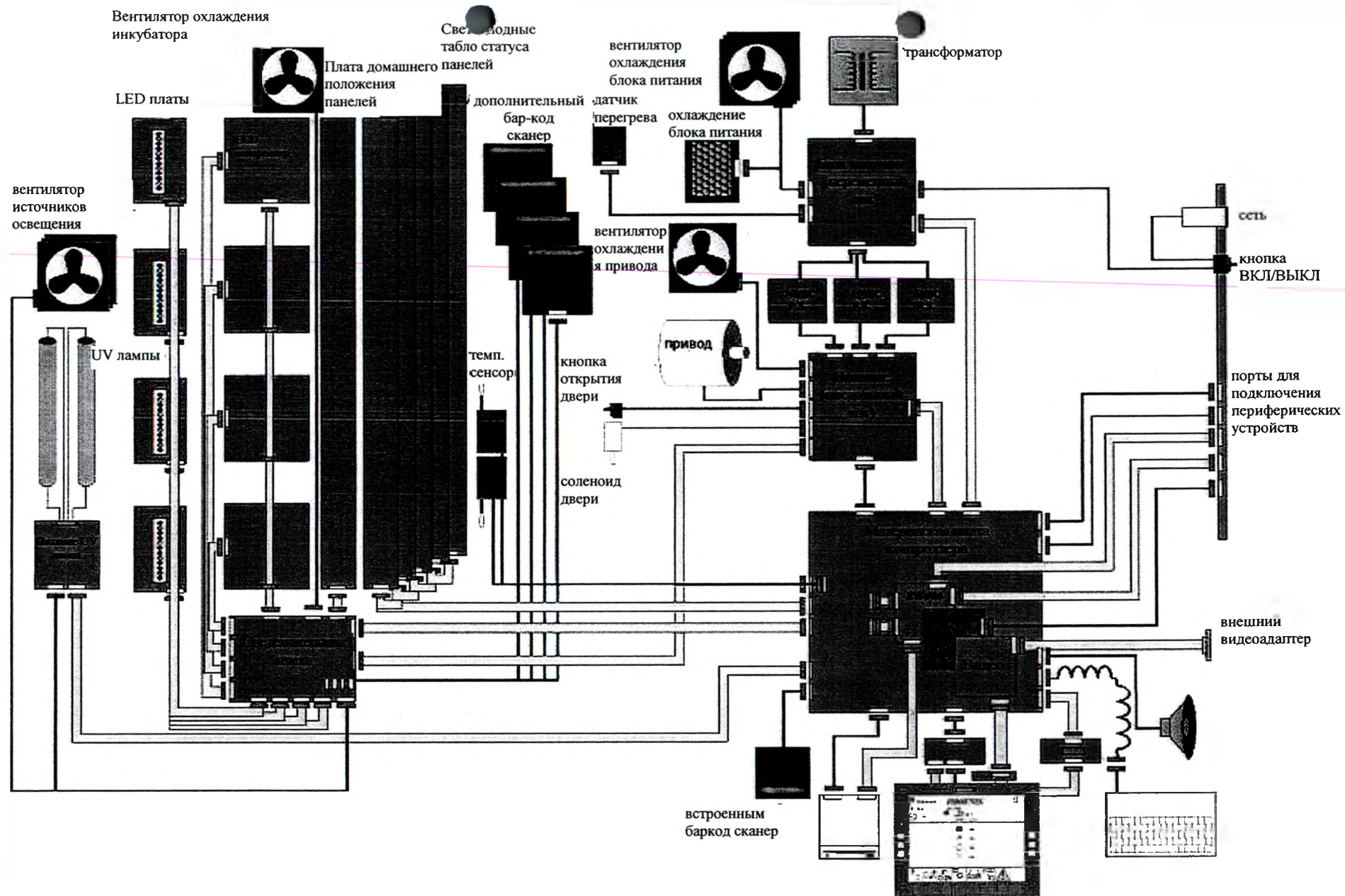


Рис. 3 – принципиальная схема анализатора BD Phoenix 100

Основными узлами анализатора микробиологического BD Phoenix 100 (далее по тексту – Phoenix, анализатор Phoenix), которые можно выделить условно, являются:

1. Оптическая система и приводной механизм прибора

Внутри главного инкубационного отсека прибора цилиндрический поворотный механизм и его двигатель являются единственными движущимися частями. Узел поворотного механизма поддерживается и вращается тремя узлами подшипников с V-образными пазами, в которые входят V-образные выступы на кольце поворотного механизма. Поворотный механизм обычно вращается со скоростью 1,0 или 2,0 об./мин. Скорость, ускорение и замедление двигателя регулируются центральным процессором.

Поворотный механизм разделен вертикально на четыре уровня, каждый из которых работает как относительно независимый оптический источник и система детектирования для панелей, помещенных на этот уровень.

Каждый уровень оснащен собственным микроконтроллером для управления сбором и передачей данных. Четыре микроконтроллера взаимодействуют с центральным процессором по каналу связи с последовательным интерфейсом.

Видимое излучение в красной, зеленой и синей спектральных областях для каждого уровня обеспечивается платой светодиодных источников. Токи светодиодных источников программируются с целью компенсации потери сигнала на краях панели из-за смещения и других факторов. Система мониторинга источников усредняет сигнал от двух фотодиодов платы для отслеживания интенсивности источника видимого излучения.

Флуоресцентная ультрафиолетовая (УФ) лампа, содержащая выбранный люминофор, обеспечивает УФ-излучение. Активная часть лампы проходит вертикально через все четыре уровня, обеспечивая постоянное УФ-излучение с точностью до 10 % по всей полезной длине лампы. Вторая УФ-лампа — запасная.

2. Узел поворотного механизма

Узел поворотного механизма представляет собой каркасную структуру из алюминиевых колец и вертикальных ребер, соединенных винтами в прямой цилиндр круглого сечения. Поворотный механизм вмещает 104 держателя панелей на четырех уровнях. На каждом уровне помещается одна панель нормализатора и 25 панелей с пробами.

В обычном режиме работы поворотный механизм вращается со скоростью 1,0 или 2,0 об./мин. в зависимости от выполняемой операции. Во время поиска панели поворотный механизм может вращаться со скоростью до 10,0 об./мин. Поворотный механизм вращается против часовой стрелки. Один оборот поворотного механизма используется для выполнения предварительного сканирования с целью идентификации панелей в приборе после закрытия двери. Полный цикл теста выполняется в течение семи минут.

3 Инкубационная система

Инкубационная система поддерживает постоянную номинальную температуру поворотного механизма, держателей панелей и самих панелей 35 °С. Система имеет конструкцию с принудительной циркуляционной воздушной конвекцией и оснащена фильтром для удаления пыли. Система состоит из вентилятора с приводом от бесщеточного двигателя постоянного тока, кольцеобразного нагревателя с автоматическим отключением при превышении температуры, термоформованной системы входных и возвратных трубок и заменяемого пользователем воздушного фильтра из полиэфирных волокон.

4 Узел состояния панели и внутреннего сканера штрих-кода

Индикация состояния панели и ее идентификация выполняются на одной и той же колонне прибора, расположенной непосредственно под поворотным механизмом в области двери. Состояние панели отображается установленными на панели за поворотным механизмом трехцветными светодиодами, которые светят через световоды в держателях панелей. При открытой двери видны пять колонок поворотного механизма и пять плат с четырьмя светодиодами на каждой.

Четыре сканера, считывающие штрих-коды панелей, расположены в той же колонне, что и индикаторы. Каждый сканер считывает штрих-коды панелей на соответствующем уровне поворотного механизма. Штрих-коды панелей находятся вверху основания (нижней части) панели, при помещении панели в прибор они расположены лицевой стороной внутрь.

5. Передняя панель и сканеры штрих-кодов

Анализатор BD Phoenix 100 оборудован встроенным сканером штрих-кодов (бар-код), расположенном на передней панели прибора (см. рис. 4 ниже).



Рис. 4

Также, для удобства работы, анализатор BD Phoenix 100 комплектуется внешним сканером штрих-кода, подключаемым через специальный порт, расположенный на боковой панели справа. Рис. 5-6

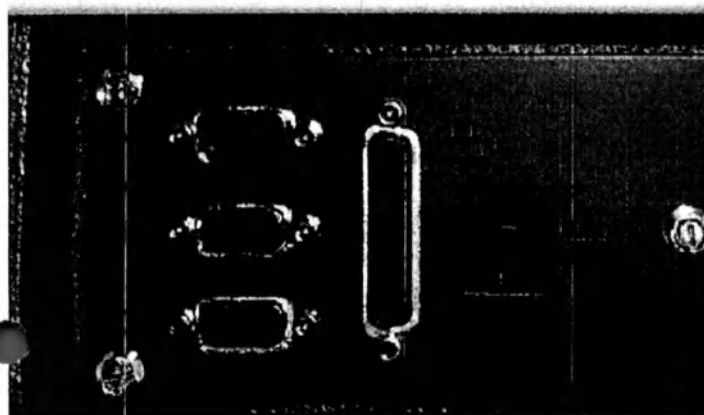


Рис. 5 – боковая панель анализатора BD Phoenix 100

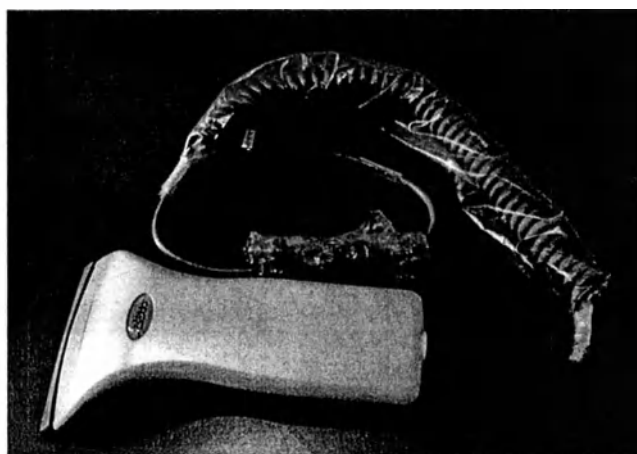


Рис. 6 – внешний сканер штрих-кода

Данные сканеры могут использоваться для считывания инвентарных номеров панелей на прикрепленных к панелям штрих-кодах, а также штрих-кодов собственных порядковых номеров панелей. Инвентарные номера могут использоваться для связывания информации об идентификации образца с определенными панелями в приборе.

6. Электронный узел управления

Электронный узел управления состоит из следующих двух плат: интерфейс ввода-вывода, центральный процессор

(ЦП) и память, Ethernet и драйвер жидкокристаллического дисплея (ЖК-дисплея). К другим электронным компонентам относятся устройства пользовательского интерфейса, такие как сканер штрих-кодов передней панели, дисковод для гибких дисков, ЖК-дисплей, специальная клавишная панель, клавиатура и громкоговоритель для звуковых сигналов тревоги.

Электронные управляющие устройства отвечают в первую очередь за следующие функции:

- планирование и мониторинг тестирования панелей;
- сбор данных теста панели;

- включение индикаторов состояния панели (станции);
- обработка данных, полученных от внешнего и внутреннего сканеров штрих-кода;
- интерпретация данных панелей идентификации для выполнения идентификации организмов;
- идентификация данных панелей чувствительности к противомикробным препаратам для получения результатов MIC или SIR (по соответствующим правилам);
- передача информации на ЖК-дисплей;
- обработка команд клавишной панели и клавиатуры;
- контроль состояния переключателя и блокировки двери;
- управление инкубацией шкафа;
- взаимодействие с внешними устройствами (например, с рабочей станцией EpiCenter);
- генерация сигналов тревоги;
- выполнение встроенного теста (Built-In-Test — BIT).

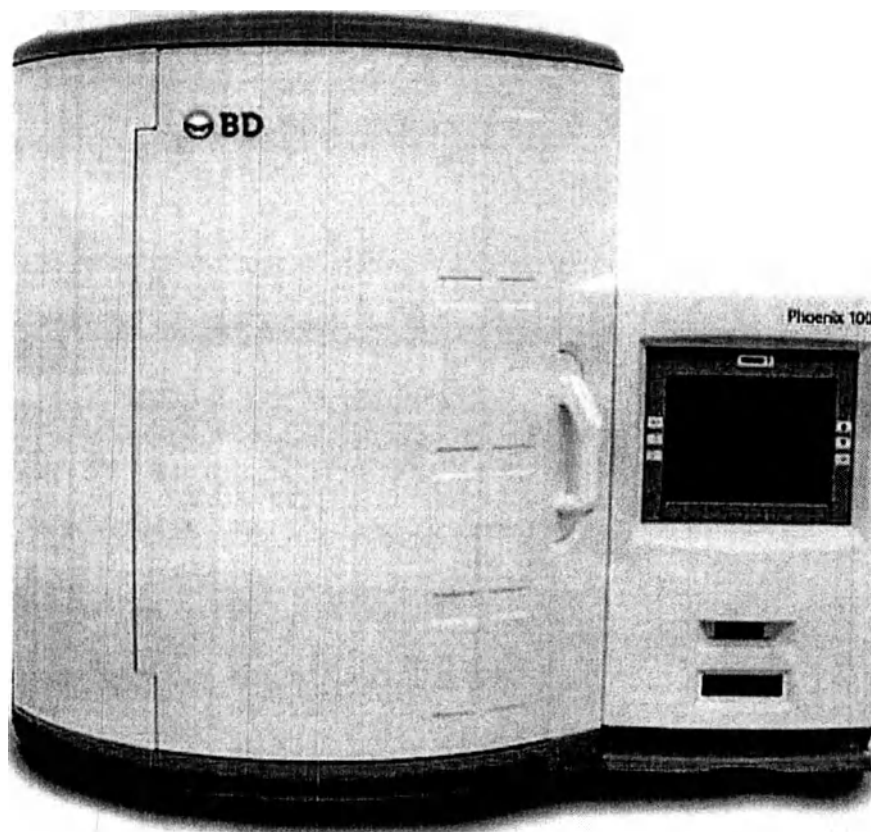


Рис. 7 Общий вид анализатора BD Phoenix 100

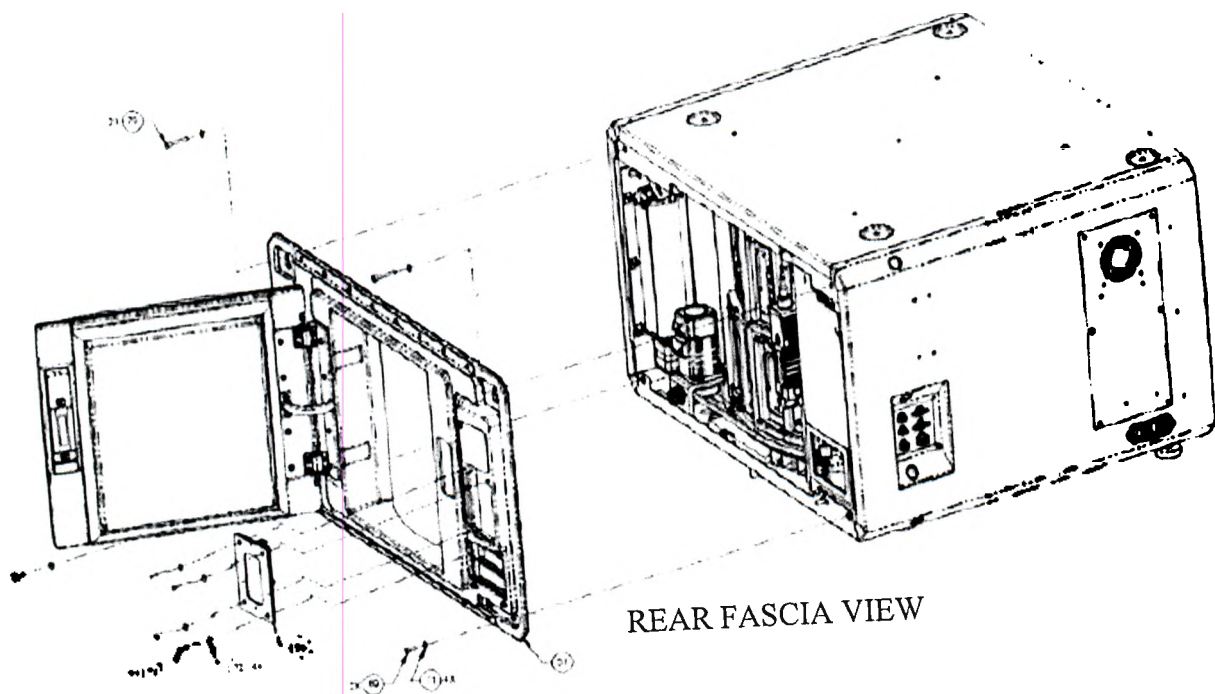


Рис. 8 Вид прибора BD Phoenix M50 сзади

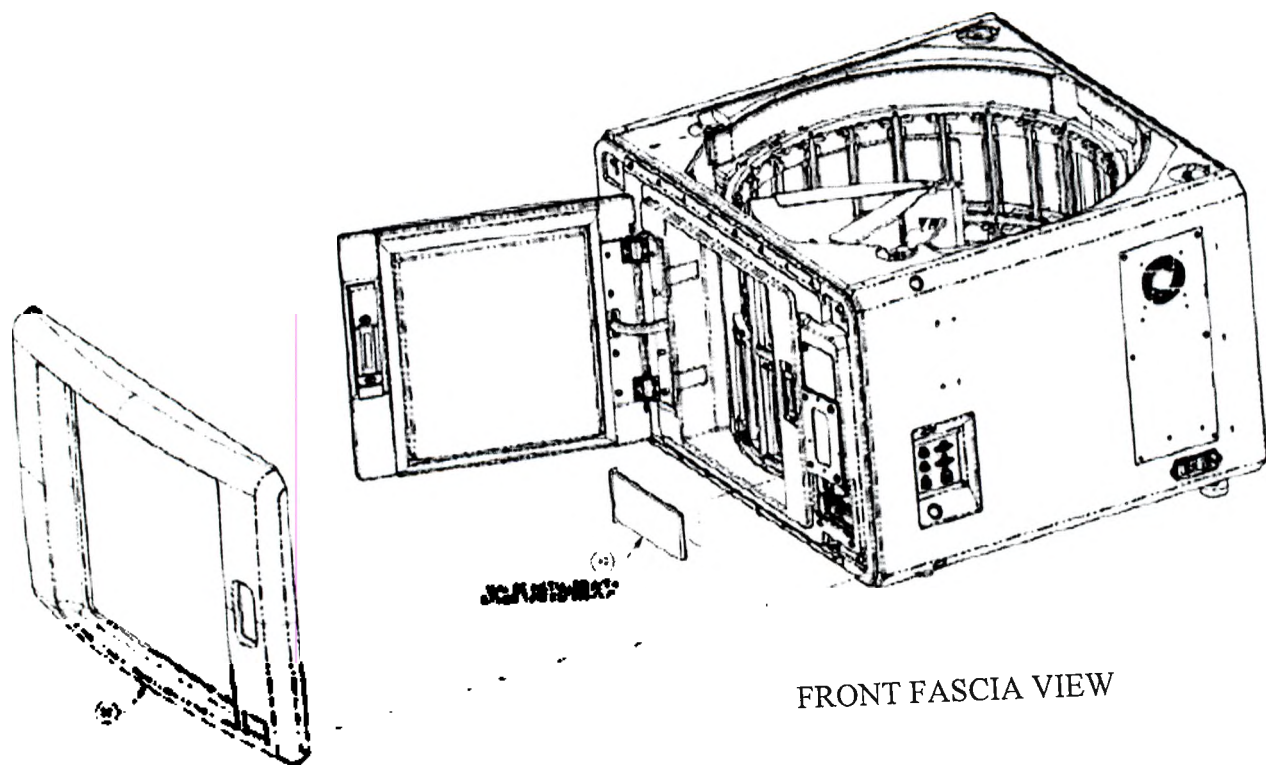


Рис. 9 Вид прибора BD Phoenix M50 спереди

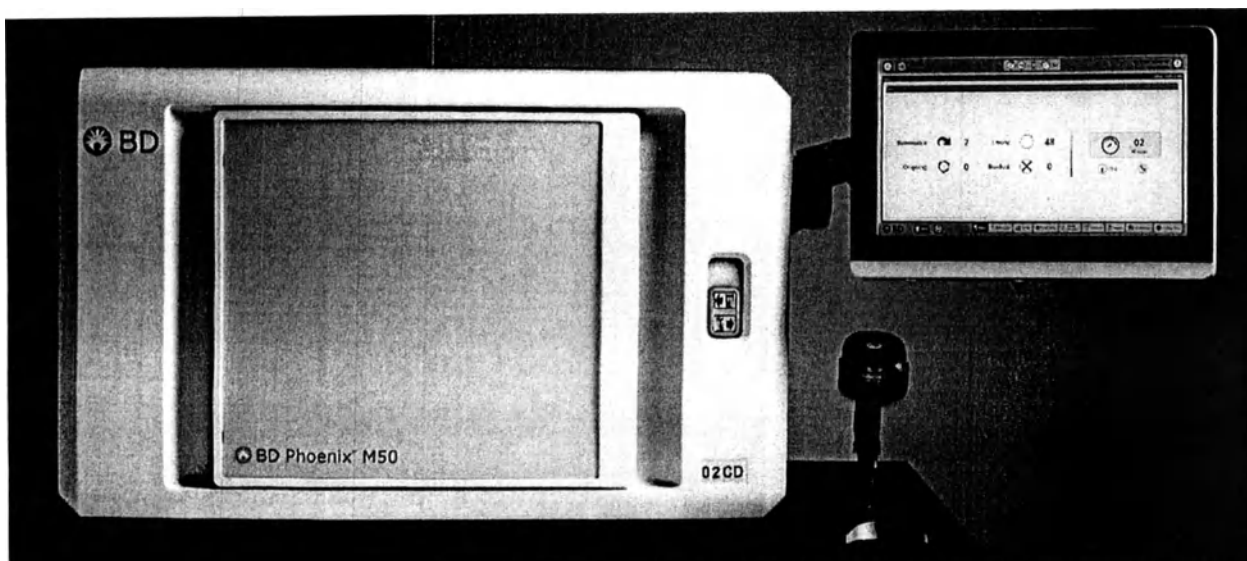


Рис. 10 Прибор BD Phoenix M50

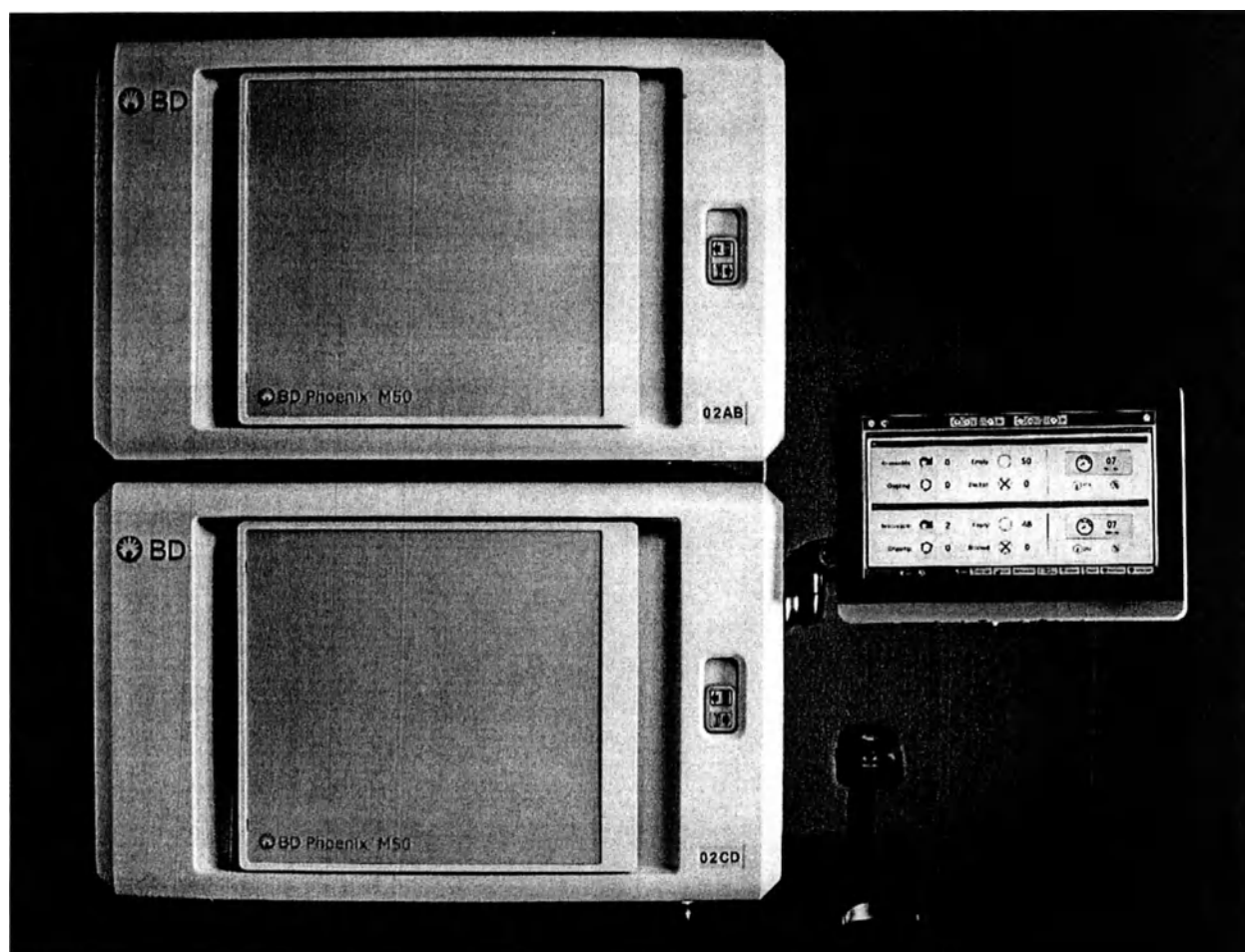


Рис. 11 Прибор BD Phoenix M50, показан в вертикально сблокированной конфигурации

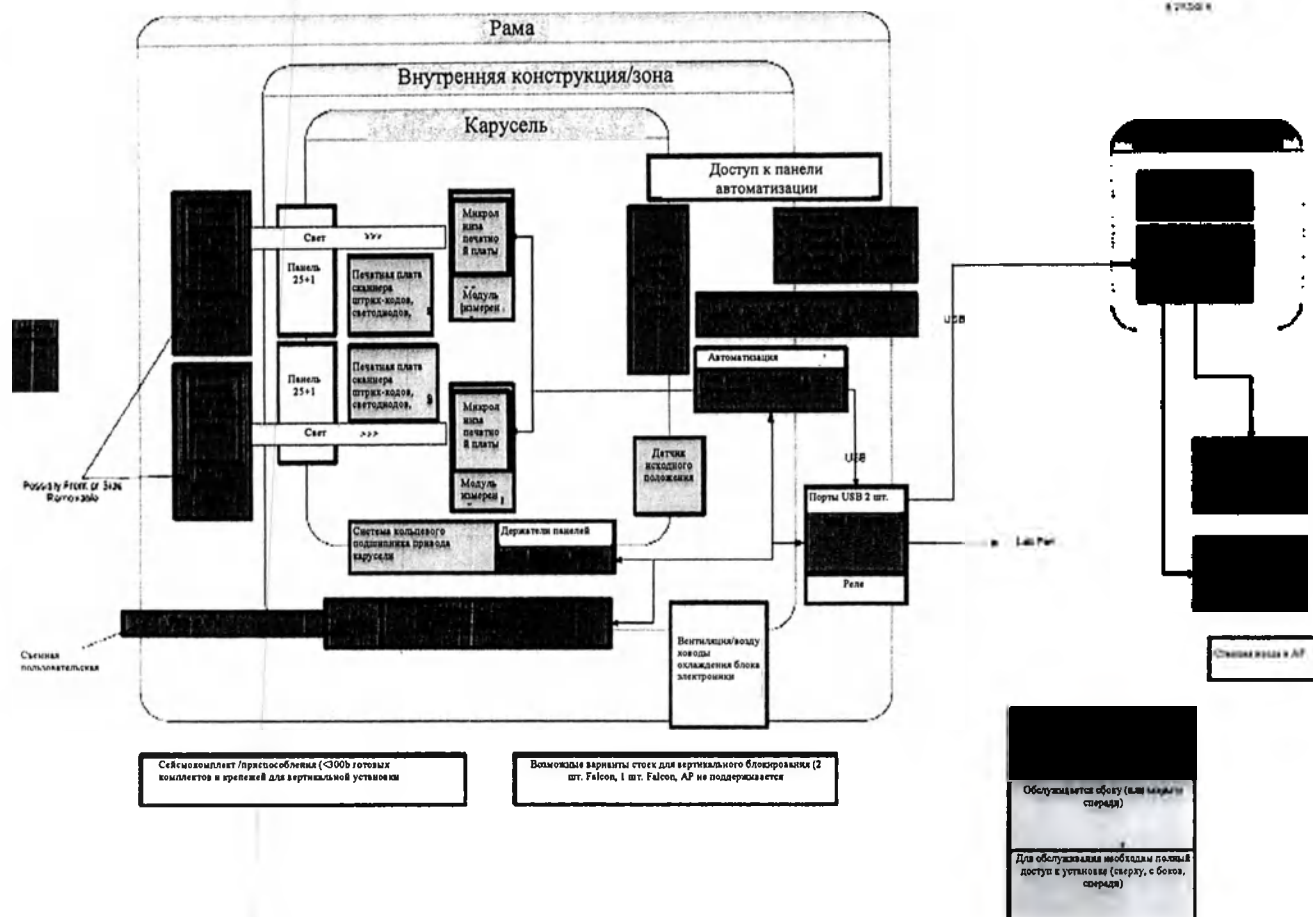


Рис. 12 Физическая блок-схема BD Phoenix M50

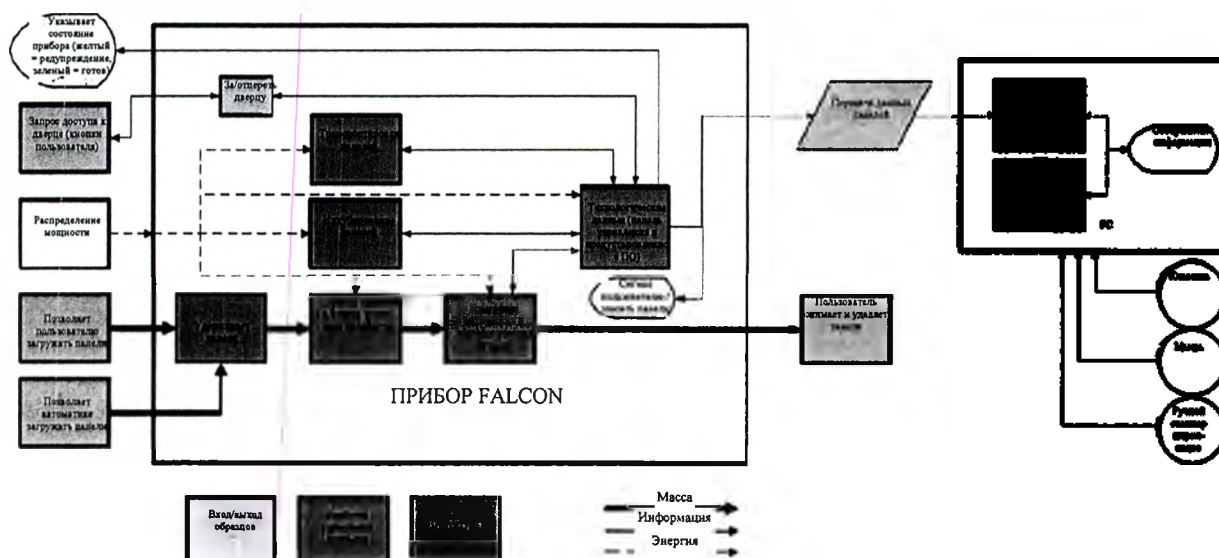


Рис. 13 Функциональная блок-схема BD Phoenix M50

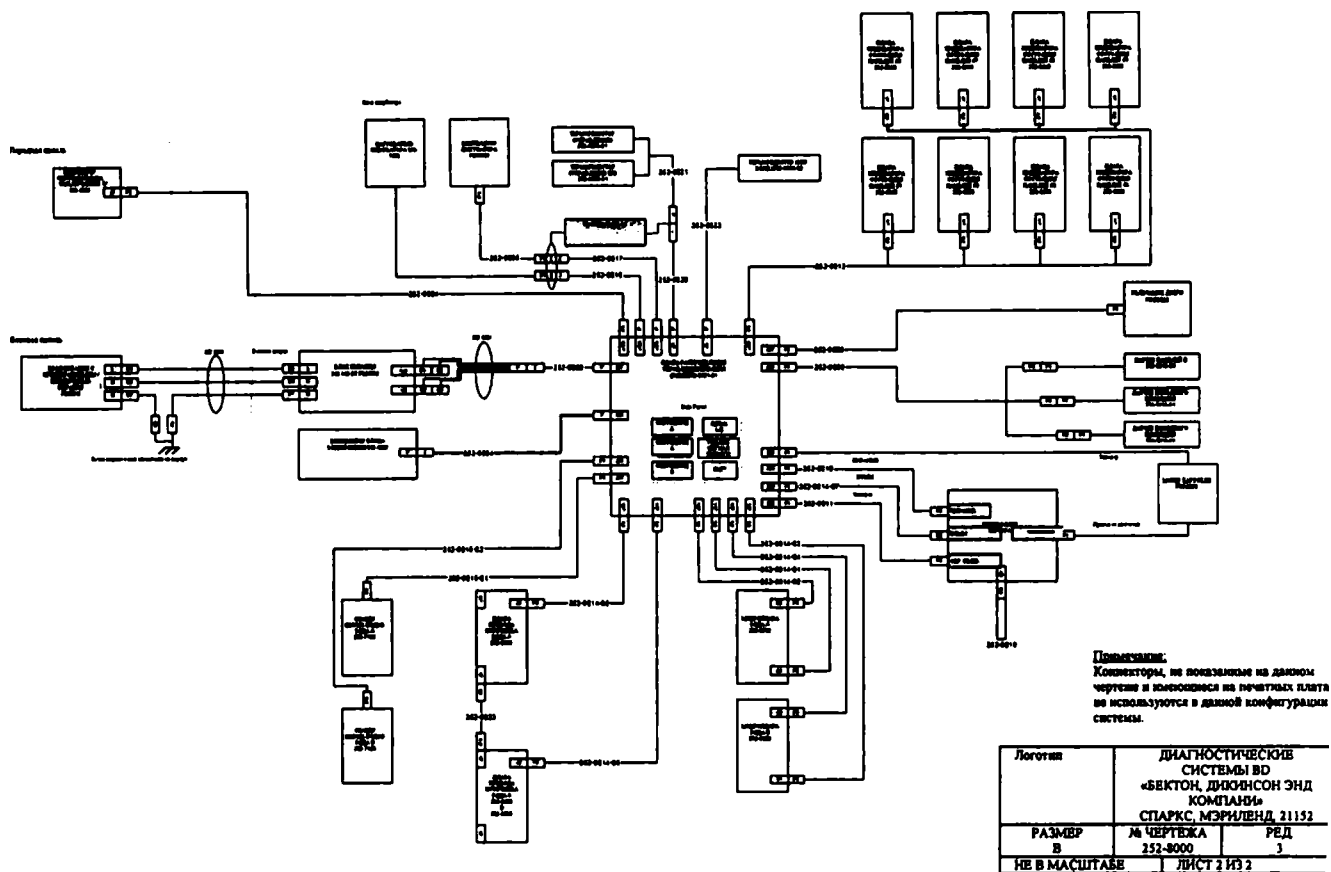


Рис. 14 Электрическая блок-схема BD Phoenix M50

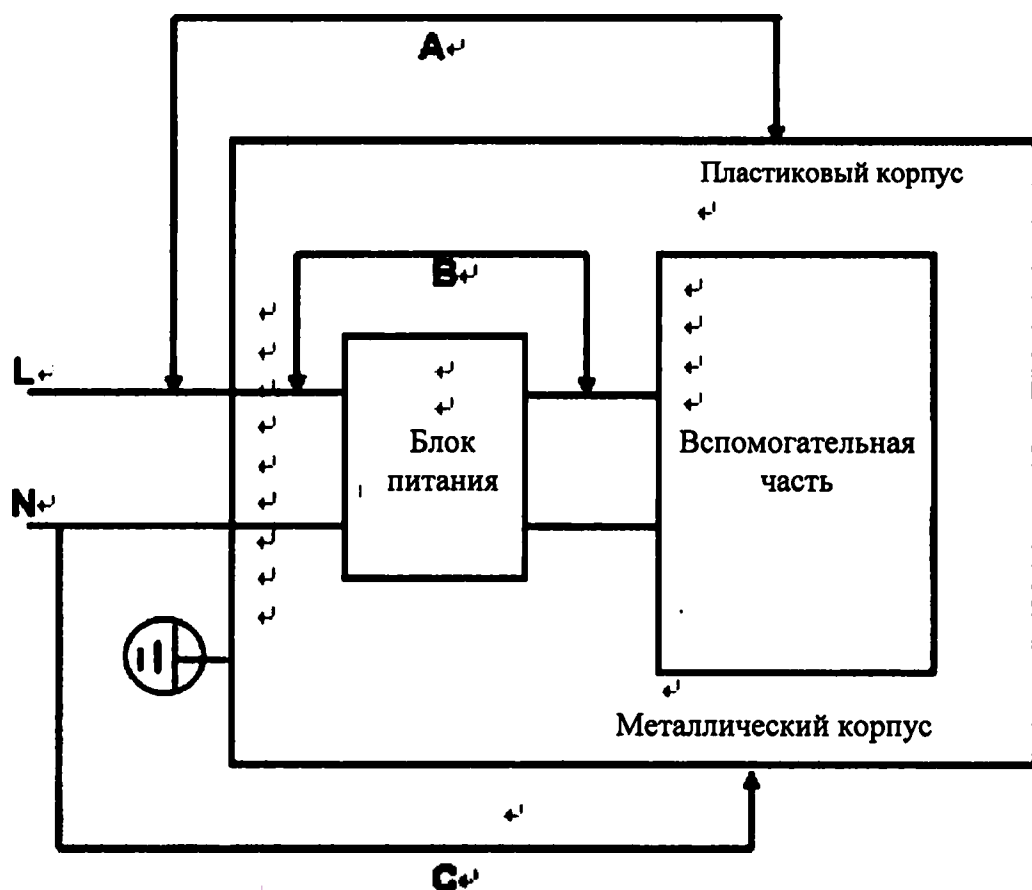


Рис. 15 Схема изоляции электронной части BD Phoenix M50

Таблица 1: таблица электронной изоляции

Расположение	Тип изоляции	Рабочее напряжение	Тестовое напряжение	Длина пути утечки (мм)	Зазор (мм)
A	Двойная изоляция	~240 В	~2224 В, 50 Гц	6,0	3,0
B	Основная изоляция	~240 В	~1390 В, 50 Гц	3,0	1,5
C	Основная изоляция	~240 В	~1390 В, 50 Гц	3,0	1,5

Phoenix M50 можно подключить к системе управления микробиологических данных BD EpiCenter™ Plus. Соединение прибора Phoenix M50 с ПО станции EpiCenter эквивалентно по функциональности с соединением прибора Phoenix 100 со станцией EpiCenter.

Система EpiCenter представляет собой систему управления клинических данных, предназначенную для использования с определенными системами приборов BD, включая Phoenix M50. Система EpiCenter предоставляет более широкие возможности в управлении данными, включая обширные демографические данные, полную функциональность по отчетности, включая мощный инструмент по выполнению запросов в базу данных, двунаправленную связь с лабораторной информационной системой (LIS) и долгосрочное хранение данных. Дополнительно, система EpiCenter предоставляет экспертную систему, которая может манипулировать или действовать по результатам AST.

Таблица 2: Краткие сведения по сходствам и различиям

Особенность/функция	Phoenix 100	Phoenix M50
Назначение	Анализатор микробиологический BD Phoenix предназначен для проведения быстрого анализа на идентификацию (ID) и определения чувствительности к противомикробным препаратам (AST) клинически значимых бактерий. Анализатор BD Phoenix обеспечивает быстрые результаты для большинства аэробных и некоторых анаэробных грамположительных бактерий, а также для большинства аэробных и некоторых анаэробных грамотрицательных бактерий, паразитирующих на человеке. Анализатор BD Phoenix также предназначен для быстрой идентификации дрожжей и дрожжеподобных микроорганизмов.	
Габариты	105,9 x 112,5 x 74,9 см (ВxШxГ)	535 x 815 x 765 мм (ВxШxГ)
Вместимость	до 100 панелей	до 50 панелей
Температура окружающей среды	18 – 30 °C	
Образец	Изолированные колонии из чистой культуры	то же самое
Подготовка посева	Одинаковая процедура подготовки посева для обеих систем.	
Система реагентов (бульоны, панели, индикаторы)	Одинаковая система реагентов для обеих систем.	
Оптика измерительной системы (результаты чувствительности)	Одинаковое оптическое оборудование для обеих систем	
Конфигурация механизма транспортировки карусели	Четыре ряда	Два ряда
Температура инкубации панелей	35 °C ±1,5 °C	
Алгоритмы	Одинаковые алгоритмы для обеих систем	
Производительность	Эквивалентная производительность в обеих системах.	
Отслеживание панелей по штрих-кодам	Внутренний сканнер штрих-кодов отслеживает положение каждой панели в приборе.	
Подача панелей	Дверца открывается и загружаются панели с образцами. Световые индикаторы загораются, обозначая заблокированные станции. Пользователь может поместить панель на любую незаблокированную пустую станцию, которая не подсвечена.	

8. Принцип работы медицинского изделия

Анализатор микробиологический BD Phoenix 100 позволяет одновременно выполнять до 100 тестов идентификации и определения чувствительности к противомикробным препаратам с использованием комбинированных панелей Phoenix*. Анализатор микробиологический BD Phoenix M50 позволяет одновременно выполнять максимум до 50 тестов идентификации и определения чувствительности к противомикробным препаратам с использованием комбинированных панелей Phoenix.

* Регистрационное удостоверение в Российской Федерации на панели для анализатора BD Phoenix 100: ФСЗ 2009/03983 от 16.03.2009

Виды исследований: (ID) идентификация до рода и вида организма. (AST) определение чувствительности к антимикробным препаратам способ получения оптимально подобранного списка антибиотиков для эффективного лечения пациента.

Принципы анализа: Идентификация ID - колориметрический и флуориметрический; Определение антибиотикочувствительности (AST) - измерение мутности и индикатора изменения цвета.

Измерение панелей и обработка данных проходит каждые 20 минут

Используются 4 источника измерения

- Красный спектр
- Зеленый спектр
- Синий спектр
- Ультрафиолетовый спектр

Единственная подвижная часть в приборе - карусель (что минимизирует возможность поломок). В карусели - 4 независимых ряда слотов для размещения панелей с клиническими образцами, со своими источниками излучения.

В приборе используются две ультрафиолетовые лампы, одна резервная переключается при ухудшении качества излучений основной лампы.

Герметичный прессованный лоток из полистирола с автоматическим посевом, содержащий 36 микроячеек с сухими реагентами, является расходным материалом для системы Phoenix. Комбинированная панель включает сторону ID с сухими субстратами для идентификации бактерий и сторону AST с различными концентрациями противомикробных препаратов, а также стандарты роста и флуоресценции в соответствующих ячейках. В системе Phoenix используется оптимизированный колориметрический индикатор окисления-восстановления для AST, а также ряд колориметрических и флуориметрических индикаторов для ID. Бульон AST является катионным (например, используются ионы Ca^{++} и Mg^{++}) для оптимизации производительности теста чувствительности.

Панель Phoenix имеет 51-ячеечную сторону ID и 85-ячеечную сторону AST. Сторона ID содержит 45 ячеек с сухими биохимическими субстратами и 2 контрольные флуоресцентные ячейки. Сторона AST может содержать до 84 ячеек с сухими противомикробными препаратами и одной ячейкой контроля роста. Доступны панели только для теста ID, только для теста AST и комбинация ID/AST. Неиспользованные ячейки зарезервированы для использования в будущем.

Панели Phoenix засеяны стандартной посевной культурой. Суспензии микроорганизмов должны быть приготовлены только с помощью нефелометра BBL CrystalSpec, BD PhoenixSpec или прибора BD Phoenix AP**. После посева панели помещаются в прибор и находятся при постоянно поддерживаемой температуре 35 °C. Прибор тестирует панели каждые 20 минут: в начале часа, через 20 минут после начала часа и через 40 минут после начала часа — до 16 часов, если это необходимо. Информация панелей Phoenix считывается только прибором Phoenix. Вручную

считать информацию панелей Phoenix нельзя.

**** Регистрационное удостоверение в Российской Федерации на нефелометр BD PhoenixSpec:
ФСЗ: 2008/01073 от 18.02.2008**

Идентификация бактерий

Часть ID панели Phoenix использует ряд традиционных, хромогенных и флуорогенных биохимических тестов для идентификации организмов. Для охвата различных типов активности в различных таксонах используются субстраты, основанные как на росте, так и на ферментах. Тесты основаны на поглощении и расщеплении микроорганизмами определенных субстратов, обнаруживаемом различными системами индикаторов.

Выделение кислоты сопровождается изменением цвета индикатора фенолового красного, когда культура способна использовать углеводородный субстрат. Хромогенные субстраты окрашиваются в желтый цвет при ферментативном гидролизе п-нитрофенильных или п-нитроанилидных соединений. Ферментативный гидролиз флуорогенных субстратов приводит к высвобождению флуоресцентного производного кумарина. Организмы, использующие определенные углеродные источники, восстанавливают индикатор на основе резазурина. Кроме того, существуют другие тесты для определения способности организма к гидролизу, расщеплению, восстановлению или другому воздействию на субстрат.

Тестирование чувствительности к противомикробным препаратам

Метод Phoenix AST — это тест с микроразбавлением бульона. Система Phoenix использует индикатор окисления-восстановления для определения роста организмов в присутствии противомикробного реагента.

Постоянные измерения индикаторов, а также мутности бактерий используются для определения роста бактерий. Каждая конфигурация панели AST содержит несколько противомикробных препаратов с широким диапазоном концентраций разбавления, отличающихся в два раза. Идентификация организмов используется в интерпретации значений MIC для каждого противомикробного препарата.

Необходимые компоненты для тестирования включают в себя: 1) панели Phoenix с крышками; 2) бульон Phoenix ID; 3) бульон Phoenix AST; 4) раствор индикатора Phoenix AST; 5) бульон Phoenix AST-S (только для использования с панелями Phoenix Strep); 6) раствор индикатора Phoenix AST-S (только для использования с панелями Phoenix Strep); 7) станция Phoenix; 8) кассета для панелей Phoenix; 9) нефелометр BBL CrystalSpec, BD PhoenixSpec или прибор BD Phoenix AP; 10) устройство для пипетирования вместимостью 25 мкл со стерильными наконечниками; 11) различные лабораторные принадлежности.

Расходные материалы Phoenix предназначены для использования с прибором Phoenix для идентификации организмов (ID), тестирования чувствительности к противомикробным препаратам (AST) или выполнения обоих тестов. Панель располагается портами для заправки вверх. Отдельные посевные материалы добавляются вручную в порты ID и AST. Посевные материалы проходят вглубь панели по извилистым каналам, заполняя ячейки панели по мере поступления жидкости к прокладке. Прокладка поглощает излишний посевной материал.

Крышки устанавливаются на порты для заполнения вручную. Порт впуска воздуха расположен в области разделителя крышки панели для обеспечения адекватного давления кислорода в панели на время теста.

Принципы тестов Phoenix AST для определения маркеров устойчивости

В следующих разделах описаны принципы работы системы Phoenix AST по определению маркеров устойчивости в грамотрицательных и грамположительных микроорганизмах, включая следующие: 1) определение образования ESBL у вида *Enterobacteriaceae*; 2) определение устойчивости к ванкомицину у вида *Enterococcus* (VRE); 3) определение высокоуровневой аминогликозидной устойчивости видов *Enterococcus* и *Streptococcus* (HLAR); 4) определение устойчивости к метициллину у стафилококков (MRS); 5) определение образования β-лактамазы у вида *Staphylococcus* (BL); 6) определение устойчивости к макролидам у видов *Streptococcus* (MLSb).

и MEFF); 7) определение высокого и низкого уровня устойчивости к пенициллину у *S.pneumoniae* (HLPRSP) (LLPRSP).

Тест Phoenix β-лактамазы расширенного спектра (Extended Spectrum β-Lactamase — ESBL)

Тест Phoenix ESBL основан на данных известных моделей антибиограмм ESBL. Для разработки теста Phoenix ESBL были выбраны штаммы различных микроорганизмов с известными генотипами и фенотипами β-лактамазы из семейств *Enterobacteriaceae*, включая виды *Escherichia coli*, *Klebsiella*, *Citrobacter*, *Enterobacter*, *Proteus* и *Serratia*. Тест Phoenix ESBL основан на принципе разной реакции на ингибирующее действие выбранного цефалоспоринового второго или третьего поколения в присутствии или отсутствии ингибитора β-лактамазы, клавулановой кислоты.

Принципы теста Phoenix ESBL аналогичны принципам подтверждающего теста с микроразбавлением бульона CLSI ESBL.22. Тест Phoenix ESBL применяется к бактериям *E. coli*, *K. pneumoniae* и *K. oxytoca*. Кроме того, по желанию заказчика тест может быть применен к другим видам энтеробактерий, если образование ESBL у них было упомянуто в литературе. При положительном результате теста ESBL категориальная интерпретация всех пенициллинов, цефалоспоринов (за исключением цефамицинов) и азтреонама на одной и той же панели Phoenix будет изменена на устойчивую.

Тест Phoenix устойчивости энтерококков к ванкомицину (Vancomycin Resistant Enterococci — VRE)

Тест Phoenix VRE основан на интерпретации SIR ванкомицина. Точка прерывания, выбранная в конфигурации прибора, используется для категориальной интерпретации. Тест Phoenix VRE был разработан и оптимизирован для соответствия стандартному тесту с микроразбавлением бульона CLSI.

Выбор точки прерывания, отличной от CLSI, может привести к неоптимальной производительности из-за различий в категориальных интерпретациях. Положительным результатом считаются только *Enterococcus faecalis* и *E. faecium* с приобретенной устойчивостью (vanA или vanB).

Тесты Phoenix высокого уровня сопротивляемости аминогликозидам (High-Level Aminoglycoside Resistance — HLAR)

Тесты Phoenix HLAR для вида *Enterococcus* основаны на реакции роста в отдельной ячейке с высокой концентрацией гентамицина или стрептомицина. Эти тесты были разработаны и оптимизированы относительно тестов с микроразбавлением бульона по стандарту CLSI и скрининговому тесту CLSI с агаром.

Тесты Phoenix HLAR для вида *Streptococcus* основаны на реакции роста в отдельной ячейке, содержащей гентамицин, канамицин или стрептомицин. Эти тесты были разработаны и оптимизированы с использованием рекомендованного стандартного микроразбавления бульона CLSI.

Тест Phoenix устойчивости стафилококков к метициллину (Methicillin-Resistance in Staphylococci — MRS)

Тест Phoenix MRS основан на интерпретации SIR оксациллина с видом *Staphylococcus*. Точка прерывания, выбранная в конфигурации прибора, используется для категориальной интерпретации. Тест был разработан и оптимизирован относительно теста с микроразбавлением бульона по стандарту CLSI22,23 и скринингового теста CLSI с агаром и солью оксациллина (BBL Oxacillin Screen Agar). Выбор точки прерывания, отличной от CLSI, может привести к неоптимальной производительности из-за различий в категориальных точках прерывания у разных стандартов. С помощью теста Phoenix MRS можно проверять все виды *Staphylococcus*. При положительном результате теста MRS интерпретации всех бета-лактамных препаратов на одной панели Phoenix будут изменены на устойчивые.

Тест Phoenix грамположительной β-лактамазы (β-lactamase — BL)

Тест BL, доступный в системе Phoenix AST — это тест β-лактамазы, основанный на нитроцефине. Тест, основанный на нитроцефине, является методом прямого определения с использованием стороны ID панели Phoenix. Эффективность этого теста была установлена по сравнению с результатами тестирования с дисками Cefinase (BBL), использованного в качестве эталонного

метода. В настоящее время эти тесты позволяют определять только вид *Staphylococcus*. При положительном результате теста BL категориальная интерпретация всех лабильных пенициллинов на очищенных ферментах на тех же панелях Phoenix будет изменена на устойчивую.

Тест Phoenix устойчивости стрептококков к макролидам (Macrolide Resistance in Streptococci — MLSb и MEFF)

Тест Phoenix устойчивости к макролидам основан на интерпретации SIR эритромицина, клиндамицина и хинупристина/дальфопристина. Точка прерывания, выбранная в конфигурации прибора, используется для категориальной интерпретации. Изоляты *Streptococcus*, устойчивые к эритромицину и клиндамицину и чувствительные к хинупристину/дальфопристину, относятся к фенотипу MLSb (macrolide/lincosamide/streptogramin B — макролид/линкозамид/стрептограмин В). Для штаммов, устойчивых к эритромицину и чувствительных к клиндамицину и хинупристину/дальфопристину, будет описан фенотип с выведением макролидов (Macrolide efflux — MEFF) или фенотип, индуцируемый MLSb. Рецепт клиндамицина составляется с учетом цели расширения определения устойчивых фенотипов. Этот тест был разработан и оптимизирован с использованием рекомендованного стандартного микроразбавления бульона CLSI.

Правила интерпретации определены по Ливермору (Livermore) и др. Тест Phoenix устойчивости к макролидам показал отличную корреляцию с генотипами *erm* и *mef*, определенными молекулярными методами на основе ПЦР.

Маркер Phoenix *mecA*-связанной устойчивости для вида *Staphylococcus aureus* (*mecA*)

Тест Phoenix *mecA* применяется для прогнозирования *mecA*-связанной устойчивости у вида *Staphylococcus aureus*. Принцип аналогичен принципу теста с диффузией диска, рекомендованного CLSI, который использует диск цефокситина (FOX) для прогнозирования *mecA*-связанной устойчивости у вида *S. aureus*. Эффективность теста была установлена по сравнению с несколькими методами ПЦР25, а также с тестом диффузии диска. С помощью теста Phoenix *mecA* в приборе настраиваются точки прерывания FOX для *mecA*, используемые для определения маркера устойчивости. При обнаружении маркера устойчивости *mecA* интерпретации всех бета-лактамов препаратов на той же панели Phoenix изменяются на устойчивые, и устанавливается маркер устойчивости Phoenix *mecA*.

Тест Phoenix устойчивости вида *Staphylococcus aureus* к ванкомицину (Vancomycin Resistant *Staphylococcus aureus* — VRSA)

Определение Phoenix VRSA основано на интерпретации SIR ванкомицина при тестировании *Staphylococcus aureus*. Точка прерывания, выбранная в конфигурации прибора, используется для категориальной интерпретации. Тест Phoenix VRSA был разработан и оптимизирован для соответствия стандартному тесту с микроразбавлением CLSI и проверен с известными изолятами VRSA. Выбор точки прерывания, отличной от обнаруженной в CLSI M100-S15, может привести к ухудшению эффективности из-за различий в категориальных интерпретациях. Только *Staphylococcus aureus* с истинной устойчивостью (изоляты, содержащие механизм устойчивости, например, ген *vanA*) будет определен как VRSA. Штаммы *S. aureus* с промежуточными результатами по ванкомицину (GISA/VISA) будут идентифицированы и описаны по отдельным правилам BDxpert. Грамположительная панель Phoenix AST определила устойчивость в штаммах VRSA *S. aureus*, доступных в ходе выполнения сравнительного тестирования. Возможность определения устойчивости в других штаммах *S. aureus* неизвестна из-за ограниченности количества устойчивых штаммов, доступных для сравнительного тестирования.

Тест Phoenix высокого уровня устойчивости вида *Streptococcus pneumoniae* к пенициллину (High Level Penicillin Resistant *Streptococcus pneumoniae* — HLPRSP)

Тест Phoenix низкого уровня устойчивости вида *Streptococcus pneumoniae* к пенициллину (Low Level Penicillin Resistant *Streptococcus pneumoniae* — LLPRSP)

Тест Phoenix HLPRSP основан на результатах минимальной ингибирующей концентрации (MIC) пенициллина для *S. pneumoniae*. MIC пенициллина ≥ 4 свидетельствует о высоком уровне устойчивости *S. pneumoniae* к пенициллину. MIC пенициллина в диапазоне от 0,125 до 2 свидетельствует о низком уровне устойчивости *S. pneumoniae* к пенициллину (LLPRSP).

9. Характеристики работы системы

Определения:

Существенное совпадение (Essential Agreement — EA): существенное совпадение наблюдается, когда результаты теста MIC системы Phoenix и теста с микроразбавлением бульона CLSI совпадают или различаются не более чем на ± 1 разбавление.

Категориальное совпадение (Category Agreement — CA): категориальное совпадение наблюдается, когда результаты теста MIC системы Phoenix и теста с микроразбавлением бульона CLSI.

Эффективность работы с грамотрицательными бактериями

Идентификация грамотрицательных бактерий

Эффективность идентификации грамотрицательных бактерий системы Phoenix была измерена с помощью двух внутренних исследований. Значения плотности посева 0,5 и 0,25 были протестированы с 721 штаммом (для значения 0,5) и 784 штаммами (для значения 0,25). Культуры брюшного и не брюшного типа оценивались коммерческими и некоммерческими методами.

Результаты идентификации грамотрицательных бактерий системы Phoenix приведены ниже:

	Плотность посева (McFarland)	Совпадение	Отсутствие совпадения	Отсутствие идентификации
Уровень рода	0,5	97,3 %	2,1%	0,6%
	0,25	98,5 %	1,0 %	0,5 %
Уровень вида	0,5	95,6 %	3,6 %	0,8%
	0,25	98,1 %	1,4 %	0,5 %

Чувствительность грамотрицательных бактерий

Противомикробный препарат	Код	EA N	EA %	CA N	CA %
Амикацин	AN	974	94,3	974	99,2
Амоксициллин	AMX	725	95,9	839	96,9
Амоксициллин-клавуланат	AMC	636	97,8	749	97,1
Амоксициллин-клавуланат (f)	AXC	364	96,4	411	97,6
Ампициллин	AM	639	97,5	753	98,0
Ампициллин-сульбактам	SAM	848	96,8	962	96,9
Ампициллин-сульбактам (f)	SXA	1682	92,3	1682	94,5
Арбекацин	ARB	2083	94,1	2083	99,2
Азтреонам	ATM	1488	97,8	1431	98,5
Цефазолин	CZ	634	97,0	752	97,1
Цефдинир	CDR	633	92,7	747	94,5
Цефдиторен	CDN	1270	97,2	1270	98,4
Цефепим	FEP	1463	97,8	1463	98,6
Цефетамет	CAT	629	96,0	746	97,7
Цефиксим	CFM	1454	96,7	1454	98,1
Цефметазол	CMZ	608	94,7	718	96,4
Цефоперазон	CFP	854	95,1	972	97,7
Цефоперазон-сульбактам	SCP	1921	93,1	1921	96,0
Цефотаксим	CTX	849	96,9	970	97,2
Цефотетан	CTT	627	96,2	748	96,4
Цефотиам	CFT	1428	94,9	1428	97,6
Цефокситин	FOX	628	96,7	748	97,6
Цефпиром	CPO	846	96,2	964	97,0
Цефподоксим	CPD	616	94,5	737	97,0
Цефсулодин	CFS	55	98,2	56	98,2
Цефтазидим	CAZ	848	95,9	969	97,5
Цефтибутен	CTB	590	90,5	708	95,9
Цефтизоксим	ZOX	854	97,3	971	97,2
Цефтриаксон	CRO	2416	96,1	2416	91,6
Цефуроксим	CXM	623	97,0	744	98,5
Цефалексин	CN	319	97,8	366	96,5
Цефалотин	CF	613	98,0	731	98,5

Хлорамфеникол	C	978	97,7	978	98,7
Ципрофлоксацин	CIP	977	99,4	977	99,7
Колистин	CL	467	97,9	467	98,7
Эртапенем*	ETP	1632	97,7	1265	99,4
Фосфомицин	FF	446	93,0	446	96,9
Гареноксацин	GRN	1977	98,1	1977	99,4
Гатифлоксацин	GAT	752	99,5	752	99,6
Гемифлоксацин	GEM	2096	98,6	2096	99,0
Гентамицин	GM	973	95,8	973	99,8
Имипенем	IPM	1545	94,8	1483	99,0
Изепамицин	ISP	468	93,8	468	99,4
Канамицин	K	735	95,8	735	99,9
Левифлоксацин	LVX	972	99,6	972	100,0
Ломефлоксацин	LOM	976	99,1	976	99,6
Мециллинам	MEC	345	95,7	345	94,8
Меропенем	MEM	1450	97,0	1394	98,3
Миноциклин	MI	2094	93,8	2094	98,3
Моксалактам	MOX	2063	96,9	2063	98,3
Моксифлоксацин	MXF	746	98,5	747	99,7
Налидиксовая кислота	НП	750	94,0	750	99,1
Нетилмицин	NET	974	96,7	974	99,3
Нитрофурантоин	FM	744	98,4	744	98,8
Норфлоксацин	NOR	976	98,9	976	99,6
Офлоксацин	OFX	971	99,3	971	99,7
Пефлоксацин	PEF	469	98,5	469	99,4
Пиперациллин	PIP	860	94,7	973	97,1
Пиперациллин-тазобактам	TZP	856	92,9	970	96,2
Темоциллин	TEM	1410	96,1	1410	98,9
Тетрациклин	TE	975	95,6	975	98,5
Тикарциллин	TIC	859	94,8	973	97,8
Тикарциллин-клавуланат	TIM	534	92,7	589	94,6
Тигециклин	TGC	1428	97,1	1110	96,7
Тобрамицин	NN	977	94,2	977	99,4
Триметоприм	TMP	752	96,0	752	99,6
Тримет-сульфа (DIN)	STG	463	97,8	463	97,8
Триметоприм-сульфаметоксазол	SXT	976	95,5	976	97,3

*Возможность обнаружения устойчивости неизвестна.

Эффективность работы с грамположительными бактериями

Идентификация грамположительных бактерий

Эффективность идентификации грамположительных бактерий системы Phoenix была измерена с помощью двух внутренних исследований. Значения плотности посева 0,5 и 0,25 были протестированы с 696 штаммами (для значения 0,5) и 755 штаммами (для значения 0,25).

Результаты сравнивали с результатами коммерческих и некоммерческих методов.

Результаты идентификации грамположительных бактерий системы Phoenix приведены ниже:

	Плотность посева (McFarland)	Совпадение	Отсутствие совпадения	Отсутствие идентификации
Уровень рода	0,5	99,1 %	0,3 %	0,6%
	0,25	99,6 %	0,0 %	0,4 %
Уровень вида	0,5	95,4 %	3,9 %	0,7%
	0,25	98,0 %	1,6 %	0,4 %

Чувствительность грамположительных бактерий

Противомикробный препарат	Код	EA N	EA %	CA N	CA %
Амикацин	AN	487	95,7	487	95,7

Амоксициллин	AMX	395	90,6	659	97,1
Амоксициллин-клавуланат	AMC	180	97,8	446	97,5
Амоксициллин-клавуланат (f)	AXC	397	96,7	664	97,6
Ампициллин	AM	402	94,0	667	98,7
Ампициллин-сульбактам	SAM	179	96,7	445	97,1
Ампициллин-сульбактам (f)	SXA	1449	94,6	1449	95,2
Арбекацин	ARB	973	96,2	973	99,9
Азитромицин	AZM	702	95,7	702	97,7
Цефаклор	CEC	182	91,8	449	95,6
Цефазолин	CZ	180	97,2	441	97,5
Цефдинир	CDR	182	94,5	434	96,8
Цефдиторен	CDN	944	96,2	944	97,8
Цефепим	FEP	181	97,2	446	97,5
Цефметазол	CMZ	174	96,6	430	97,2
Цефоперазон	CFP	184	95,7	447	97,8
Цефотаксим	CTX	185	96,2	446	97,8
Цефотетан	CTT	183	94,5	439	96,6
Цефотиам	CFT	965	91,5	965	94,0
Цефокситин	FOX	184	96,2	445	97,5
Цефозопран	CFZ	1130	89,8	1130	89,6
Цефпиром	CPO	183	100,0	446	97,5
Цефподоксим	CPD	185	91,4	451	95,6
Цефтаролин*	CPT	1313	94,5	866	99,7
Цефтазидим	CAZ	183	95,1	448	97,1
Цефтизоксим	ZOX	184	93,5	447	96,2
Цефтриаксон	CRO	184	95,1	447	97,3
Цефуросксим	CXM	184	94,6	447	98,2
Цефалексин	CN	185	90,3	452	97,4
Цефалотин	CF	182	97,8	441	97,3
Хлорамфеникол	C	705	92,8	705	95,3
Ципрофлоксацин	CIP	686	96,4	686	97,4
Кларитромицин	CLR	485	96,3	485	98,1
Клиндамицин	CC	703	98,2	703	98,3
Даптомицин*	DAP	1361	97,6	1361	99,8
Доксициклин	D	1211	96,5	1211	99,8
Эртапенем	ETP	670	91,6	670	95,4
Эритромицин	E	474	95,4	474	95,8
Фосфомицин	FF	472	97,0	472	98,3
Фузидовая кислота	FA	477	96,7	477	99,0
Гареноксацин	GRN	1212	97,1	1212	99,0
Гатифлоксацин	GAT	481	98,8	481	100,0
Гемифлоксацин	GEM	1400	96,2	1400	97,4
Гентамицин	GM	487	98,4	487	99,2
Гентамицин-син	GMS	НП	НП	198	97,5
Гентамицин-син (SFM)	GMF	НП	НП	87	100,0
Имипенем	IPM	185	100,0	448	97,5
Тест на индуцибельную резистентность к макролидам (iMSLB)	ECC	НП	НП	295	97,6
Канамицин	K	463	92,2	464	97,4
Канамицин синергет.	KS	501	100,0	501	96,6
Левифлоксацин	LVX	698	96,9	698	98,6
Линкомицин	L	696	98,3	696	98,7
Линезолид	LZD	474	99,4	474	100,0
Ломефлоксацин	LOM	486	97,7	486	99,2

Меропенем	MEM	185	98,4	447	97,5
Миноциклин	MI	1448	98,5	1448	99,2
Моксалактам	MOX	935	95,9	935	96,0
Моксифлоксацин	MXF	486	99,0	486	99,6
Мупироцин	MUP	938	96,6	938	99,7
Мупироцин выс. ур.	MUH	968	100,0	968	99,9
Нетилмицин	NET	488	93,9	488	96,3
Нитрофурантоин	FM	707	98,3	707	98,3
Норфлоксацин	NOR	674	96,0	674	97,8
Офлоксацин	OFX	487	99,2	488	99,8
Оксациллин	OX	449	95,8	449	97,8
Пефлоксацин	PEF	706	97,9	706	98,0
Пенициллин	P	401	96,0	662	98,0
Пиперациллин	PIP	382	81,7	639	98,0
Пиперациллин-тазобактам	TZP	386	100,0	649	98,3
Пристинамицин	PR	695	93,2	695	95,5
Куинупристин-далфопристин	SYN	704	97,2	704	97,6
Рифампин	OP	700	84,0	700	88,3
Стрептомицин-син	STS	НП	НП	198	99,0
Стрептомицин-син (SFM)	STF	НП	НП	87	98,8
Тейкопланин	TEC	671	97,6	671	99,4
Телитромицин	TEL	898	97,3	898	98,9
Тетрациклин	TE	707	96,3	707	98,6
Тикарциллин	TIC	395	95,4	659	98,2
Тикарциллин-клавуланат	TIM	396	97,5	656	97,9
Тигециклин*	TGC	1356	96,8	1044	100
Тобрамицин	NN	473	97,0	473	97,3
Триметоприм	TMP	479	95,4	479	97,9
Тримет-сульфа (DIN)	STG	645	91,0	646	92,7
Триметоприм-сульфаметоксазол	SXT	654	89,5	654	93,0
Ванкомицин	VA	702	99,3	702	99,9

*Возможность обнаружения устойчивости неизвестна.

Эффективность работы со стрептококками (с панелями SMIC/ID и SMIC)

Идентификация стрептококков (только SMIC/ID)

Эффективность идентификации стрептококков системы Phoenix была измерена с помощью внутреннего исследования. Результаты для 655 культур сравнивали с результатами коммерческих и некоммерческих методов.

Результаты идентификации стрептококков системы Phoenix приведены ниже:

	Совпадение	Отсутствие совпадения	Отсутствие идентификации
Уровень вида	96,3 %	2,4 %	1,2 %

Чувствительность стрептококков

Эффективность системы Phoenix Streptococci AST была оценена в четырех клинических лабораториях при использовании клинических культур. Сравнивались результаты AST, полученные из панелей тестов с микроразбавлением бульона, подготовленных в соответствии с требованиями стандарта CLSI. Противоречащие результаты исправлялись в результате повторного тестирования в обеих системах.

Противомикробный препарат	Код	EA N	EA %	CA N	CA %
Амоксициллин	AMX	1576	99,2	1576	99,7
Амоксициллин-клавуланат	AMC	1564	97,9	1564	99,3
Ампициллин	AM	1569	98,0	1569	99,4
Цефепим	FEP	1571	97,6	1571	99,7
Цефотаксим	CTX	1578	98,5	1578	99,6
Цефтриаксон	CRO	1579	98,5	1579	99,8
Цефуроксим	CXM	1581	97,7	1581	98,8
Хлорамфеникол	C	1587	97,4	1587	99,6
Клиндамицин	CC	1591	94,0	1591	97,4
Даптомицин	DAP	1566	93,1	1566	99,9
Эртапенем*	ETP	1585	97,9	1585	99,6
Эритромицин	E	1577	93,2	1577	98,2
Гареноксацин*	GRN	1515	95,5	1515	99,7
Гатифлоксацин	GAT	1587	95,1	1587	99,5
Гемифлоксацин*	GEM	1592	98,9	1592	99,7
Гентамицин-син	GMS	1032	99,6	1032	99,6
Имипенем	IPM	1581	98,0	1581	99,6
Канамицин-син	KS	1032	99,6	1032	99,6
Левифлоксацин	LVX	1595	97,4	1595	99,8
Линезолид	LZD	1586	97,1	1586	99,4
Меропенем	MEM	1579	97,4	1579	99,7
Моксифлоксацин*	MXF	1590	95,8	1590	99,6
Офлоксацин	OFX	1594	98,2	1594	98,7
Пенициллин	P	1585	93,9	1585	98,5
Пристинамицин*	PR	1583	94,8	1583	99,8
Куинупристин-далфопристин*	SYN	1581	97,3	1581	99,7
Стрептомицин-син	STS	1031	99,9	1031	99,9
Тейкопланин*	TEC	1593	99,8	1593	99,9
Телитромицин*	TEL	1574	95,9	1574	98,5
Тетрациклин	TE	1589	93,3	1589	97,6
Триметоприм-сульфаметоксазол	SXT	1008	93,8	1008	98,3
Ванкомицин*	VA	1588	98,2	1588	99,9

*Возможность обнаружения устойчивости неизвестна.

11. Ограничения методики

Для уточнения особых случаев ограничений для противомикробных препаратов или микроорганизмов см. поставляемый вместе с панелью вкладыш в упаковке.

Общие характеристики. Тест окрашивания по Граму необходим для выбора соответствующих типов панелей Phoenix. Точную идентификацию и/или AST нельзя проводить без этих тестов.

Используйте только тщательно выделенные колонии бактерий из одной из рекомендованных начальных питательных сред. Использование смешанных колоний может привести к неточности идентификации и/или интерпретаций AST.

Если плотность посева прибора (для используемого типа панели) составляет 0,5, то должно использоваться значение плотности посева 0,50-0,60 McFarland. Для измерения плотности посева может использоваться только нефелометр BBL CrystalSpec или BD PhoenixSpec.

Если плотность посева прибора (для используемого типа панели) составляет 0,25, то должно использоваться значение плотности посева 0,20 – 0,30 McFarland. Для измерения плотности посева этого диапазона может использоваться только нефелометр BD PhoenixSpec.

Информация панелей Phoenix считывается только прибором Phoenix. Визуальная интерпретация панелей Phoenix недопустима. Любые попытки интерпретировать результаты панели вручную могут привести к неправильной идентификации и/или неточности интерпретаций AST.

Панели должны быть помещены в прибор Phoenix в течение 30 минут после заправки.

Для получения наиболее надежных результатов рекомендуется пересевать микроорганизмы контроля качества как минимум дважды в два идущих подряд дня в TSA с 5 % бараньей крови перед использованием в системе Phoenix.

Идентификация

Уникальное окружение панели, совмещенное с уменьшенным временем инкубации, может привести к реакциям панели Phoenix, отличающимся от полученных при использовании традиционной биохимической среды.

Тестирование чувствительности к противомикробным препаратам. Индикаторный раствор AST может добавляться в пробирки с бульоном AST и храниться в темном месте до 8 часов перед использованием. Используйте только одну каплю индикаторного раствора AST из бутылки с пипеткой. Если случайно было добавлено более одной капли, выбросьте пробирку и используйте новую пробирку с бульоном AST. После добавления индикаторного раствора AST в пробирку с бульоном AST, смешайте их, перевернув пробирку. НЕ ВСТРЯХИВАЙТЕ. Встряхивание может привести к появлению пузырьков в бульоне AST, что может привести к неправильному заполнению панели Phoenix во время заправки. Некоторые микроорганизмы, включенные в идентификацию таксонов, не включены в базу данных AST из-за малой вероятности их появления.

При обнаружении этих микроорганизмов будет выведено сообщение «Organism not included in the AST database, perform alternate method» (Микроорганизма нет в базе данных AST, используйте альтернативный метод).

Для некоторых комбинаций микроорганизмов/противомикробных препаратов отсутствие устойчивых штаммов препятствует определению любых категорий результатов кроме «susceptible» (чувствительные). Для штаммов, вызывающих результаты в категории «nonsusceptible» (нечувствительные), идентификация микроорганизмов и результаты тестирования чувствительности к противомикробным препаратам должны быть подтверждены. После этого культуры должны быть сохранены и представлены на рассмотрение в уполномоченную лабораторию для подтверждения результата с использованием метода микроразбавления бульона CLSI.

Использование CHROMagar Orientation может привести к неправильным значениям чувствительности при тестировании эритромицина с грамположительными микроорганизмами. Результаты тестирования чувствительности противомикробных препаратов должны быть подтверждены с помощью соевого агара Trypticase с 5 % бараньей крови.

Этот тип среды («шоколадный агар») не должен использоваться для идентификации стрептококков с панелями SMIC/ID. «Шоколадный» агар может использоваться только для тестирования чувствительности стрептококков.

Использование колумбийского агара с 5 % лошадиной крови может привести к значительно более высокому значению MIC для SXT с видами стрептококков (Streptococcus), что может привести к

неправильному значению чувствительности. Результаты тестирования чувствительности к противомикробным препаратам должны быть подтверждены с помощью соевого агара Trypticase с 5 % бараньей крови.

ПРИМЕЧАНИЕ

Результаты MIC для культур без идентификации рода и вида в поле результатов «Final ID» (Итоговая идентификация) не могут быть действительными.

При изменении значения «Final ID» (Итоговая идентификация) микроорганизма с незаявленного в списке таксонов AST на заявленный результаты MIC и интерпретации будут основываться на итоговой идентификации, которая заявлена в списке таксонов AST.

12. Спецификация анализатора

Анализатор микробиологический BD Phoenix 100 с принадлежностями

Физические параметры

Высота 105,9 см

Ширина 112,5 см

Глубина 74,9 см

Расстояние до стены (справа, слева и сзади) 10,2 см

Расстояние до стены (спереди) 45,7 см

Масса (без заполнения) 151,4 кг

Масса (полная) 159,6 кг

Стойка должна выдерживать вес 227,3 кг.

Принципы анализа:

Идентификация ID - колориметрический и флуориметрический

Определение антибиотикочувствительности (AST) - измерение мутности и индикатора изменения цвета.

Требования к электросети

Входное напряжение: ~110 – 117 В или ~220 – 240 В $\pm 10\%$

Сила тока на входе: 8А

Входная частота сети: 47 - 53 Гц или 57 - 63 Гц

Мощность: 1,03 кВт

Теплоотдача: 3 515 БТЕ/час

Требования к окружающей среде

Условия хранения

Температура: 17,8 – $> 65,0$ °C

Влажность: Относительная влажность: 10 – 90% без конденсации

Условия эксплуатации

Температура: 17,8 – > 30 °C

Влажность: Относительная влажность: 20 – 90% без конденсации

Место установки: на ровной поверхности, отсутствие прямого солнечного света и воздействия источников тепла.

В зонах повышенной сейсмической активности настоятельно рекомендуется использовать подходящее крепление.

Категория установки: II, степень загрязнения: 2 в соответствии с IEC 664.

Оптические характеристики - пиковые значения длины волны

от 428 до 623 нм, видимый спектр

367 нм, УФ-возбуждение

Полоса пропускания: 410 – 641 нм, УФ-излучение

Наличие дисплея:

LCD

Анализатор микробиологический BD Phoenix M50 с принадлежностями

Физические параметры

Высота 53,5 см
Ширина 81,5 см
Глубина 76,5 см
Расстояние до стены справа 54,6 см
Расстояние до стены слева, сзади 7,6 см
Расстояние до стены спереди 45,7 см
Масса без заполнения 53,5 кг
Масса полная 57,6 кг

Принципы анализа:

Идентификация ID - колориметрический и флуориметрический
Определение антибиотикочувствительности (AST) - измерение мутности и индикатора изменения цвета.

Требования к окружающей среде

Хранение в нерабочем состоянии

Температура: -17,8 – +65,0 °C
Влажность: Относительная влажность: 20 – 80% без конденсации

Условия эксплуатации

Температура: 18 – +30 °C
Влажность: Относительная влажность: 20 – 80% без конденсации
Место установки: На ровной поверхности, отсутствие прямого солнечного света и воздействия источников тепла.
Высота 2000 метров
Шум на расстоянии 1 м $\leq$ 55 дБа при помощи шумомера Типа 2 по ANSI

Электрические параметры

Входное напряжение ~100-240 В
Сила тока на входе: 6 А
Входная частота сети 50/60 Гц

Теплоотдача прибора при входном напряжении = ~120 В

Температура окружающей среды	БТЕ/ч
18 °C	648
24 °C	464
30 °C	287

Оптические параметры: пиковые значения длины волны

от 428 до 623 нм, видимый спектр
375 нм, УФ-возбуждение
Полоса пропускания от 410 до 640 нм, УФ-излучение

Наличие дисплея:

LCD

13. Прочие функциональные характеристики анализатора

Диапазон измерения оптической плотности

- Начальная точка для идентификации посевного материала - 0,50 по МакФарланду или приблизительно $1,5 \times 10^8$ КОЕ/мл (E. coli)
- Нижний предел распознавания - 0,25 по МакФарланду или приблизительно $0,75 \times 10^8$ КОЕ/мл (E. coli)
- Инокулят для определения чувствительности составляет примерно 5×10^4 КОЕ/мл

Предельно допустимая погрешность

Зидимая спектральная оптическая передача нормализатора - 25 %; панель испускает голубой флуоресцентный свет в диапазоне около 440 нм при освещении ультрафиолетом с длиной волны 367 нм. Флуоресцентный сигнал эквивалентен сигналу, производимому микролюмом АМС 7,5 - 10,0 при рН=8,0. Нормализатор служит эталонной панелью для настройки системы оптического определения прибора. Он также используется для настройки светодиодов (красный, зеленый, синий) и флуоресцентных ламп.

Панель нормализатор всегда располагается в нулевом положении (0) каждого ряда. Обычный доступ к центрифуге скрывает панель нормализатора от пользователя, когда дверь центрифуги открыта. Панель нормализатора закреплена в крепёжном элементе, чтобы предотвратить неумышленное снятие пользователем. Доступ к панели нормализатора управляется с помощью выбора на кнопочной консоли инструмента диагностики.

Длина волны рассеянного излучения синей, зеленой и красной панелей

Характеристики длины волны светодиода-источника представлены в Таблице 1-1.

Светодиод	Пиковая длина волны (нм)	Диапазон при полумаксимальной интенсивности (нм)
Красный	623	15
Зеленый	525	45
Синий	428	65

Характеристики светодиода-источника Таблица 1-1

Время полного анализа

После открытия двери, оборудование читает штрих-код панели и проводит сканирование, используя красный светодиод, чтобы определить наличие или отсутствие панелей, а также определить положение. Показания с панели снимаются через час, а также на 20 и 40 минуте после часа.

Тестовая последовательность приведена ниже:

1. Запереть дверцу.
2. Подождать пока датчик исходного положения не синхронизирует ЦПУ, работающий с рядами.
3. Установить время начала тестового цикла на текущее время.
4. Установить скорость вращения на 1 об/мин.
5. Отправить сигнал старта-сканирования на ряды.
6. Подождать 10 секунд, пока ряды проводят начальные вычисления.
7. Включить УФ-лампу.
8. Подождать два оборота для разогрева УФ-лампы.
9. Снять показания УФ-лампы - один оборот барабана.
10. Выключить УФ-лампу.
11. Установить скорость вращения на 2 об/мин.
12. Включить красные светодиоды.
13. Подождать один оборот для разогрева красных светодиодов.
14. Снять показания красных светодиодов - один оборот.
15. Выключить красные светодиоды.
16. Включить зеленые светодиоды.
17. Подождать один оборот для разогрева зеленых светодиодов.
18. Снять показания зеленых светодиодов - один оборот.
19. Выключить зеленые светодиоды.

20. Установить скорость вращения на 1 об/мин.
21. Включить синие светодиоды.
22. Подождать один оборот для разогрева синих светодиодов.
23. Снять показания синих светодиодов - один оборот.
24. Выключить синие светодиоды.
25. Сохранить время начала выполнения тестового цикла, как стартовое время последнего цикла.
26. Отпереть дверцу.
27. Постобработка.

Производительность анализатора

На оборудовании Phoenix при использовании комбинированных панелей Phoenix может быть проведено максимум 100 одновременных тестов на подлинность и тестов антимикробной чувствительности.

Оборудование проверяет панели каждые 20 минут: каждый час, в 20 минут после часа и снова в 40 минут после часа в течение 16 часов при необходимости. Для того чтобы завершить тест каждой панели требуется 16 часов, однако, тестирование панели можно выполнить до окончания 16 часов. Данное время зависит от организма, а также времени, которое нужно для завершения теста для идентификации и/или теста антимикробной чувствительности.

14. Описание параметров ПО BD Phoenix

Параметр	Наименование	Соответствие ПО BD Phoenix требуемому параметру
1.1. Устойчивость функционирования	Способность программы продолжать работы после возникновения отклонений, вызванных сбоями технических средств, ошибками во входных данных и ошибками обслуживания	Соответствует
1.2. Работоспособность	Способность программы функционировать в заданных режимах и объемах обрабатываемой информации в соответствии с программными документами при отсутствии сбоев технических средств	Соответствует
2.1. Структурность	Организация всех взаимосвязанных частей программы в единое целое с использованием логических структур «последовательность», «выбор», «повторение»	Соответствует
2.2. Простота конструкции	Построение модульной структуры программы	Соответствует

	наиболее рациональным с точки зрения восприятия и понимания образом	
2.3. Наглядность	Наличие и представление в наиболее легко воспринимаемом виде исходных модулей ПС, полное их описание в соответствующих программных документах	Соответствует
2.4. Повторяемость	Степень использования типовых проектных решений или компонентов, входящих в ПС	Соответствует
3.1. Простота в освоении	Представление программных документов и программ в виде, способствующем пониманию логики функционирования программы в целом и ее частей	Соответствует
3.2. Доступность эксплуатационных программных документов	Понятность, наглядность и полнота описания взаимодействия пользователя с программой в эксплуатационных программных документах	Соответствует
3.3. Удобство эксплуатации и обслуживания	Соответствие процесса обработки данных и форм представления результатов характеру решаемых задач	Соответствует
4.1. Уровень автоматизации	Уровень автоматизации функций процесса обработки данных с учетом рациональности функциональной структуры программы с точки зрения взаимодействия с ней пользователя и использования вычислительных ресурсов	Соответствует
4.2. Эффективность по времени	Способность программы выполнять заданные действия в интервал времени, отвечающий заданным требованиям	Соответствует
4.3. Ресурсоемкость	Минимально необходимые вычислительные ресурсы и число обслуживающего персонала для эксплуатации ПС	Соответствует
5.1. Гибкость	Возможность использования ПС в различных областях	Не прим.

	применения	
5.2. Мобильность	Возможность применения ПС без существенных дополнительных трудозатрат на ЭВМ аналогичного класса	Не прим.
5.3. Модифицируемость	Обеспечение простоты внесения необходимых изменений и доработок в программу в процессе эксплуатации	Соответствует
6.1. Полнота реализации	Полнота реализации заданных функций ПС и достаточность их описания в программной документации	Соответствует
6.2. Согласованность	Однозначное, непротиворечивое описание и использование тождественных объектов, функций, терминов, определений, идентификаторов и т.д. в различных частях программных документов и текста программы	Соответствует
6.3. Логическая корректность	Функциональное и программное соответствие процесса обработки данных при выполнении задания общесистемным требованиям	Соответствует
6.4. Достоверность	Полнота проверки возможных маршрутов выполнения программы в процессе тестирования	Соответствует

Таблица 3: Сравнение параметров ПО

Особенность/функция ПО	Phoenix 100	Phoenix M50
Операционная система, используемая на компьютере измерительной системы	Компьютеры подсистемы измерения Phoenix 100 используют операционную систему реального времени (VRTX RTOS) для обеспечения	Компьютеры подсистемы измерения Phoenix M50 используют операционную систему реального времени (smxBlaze RTOS)

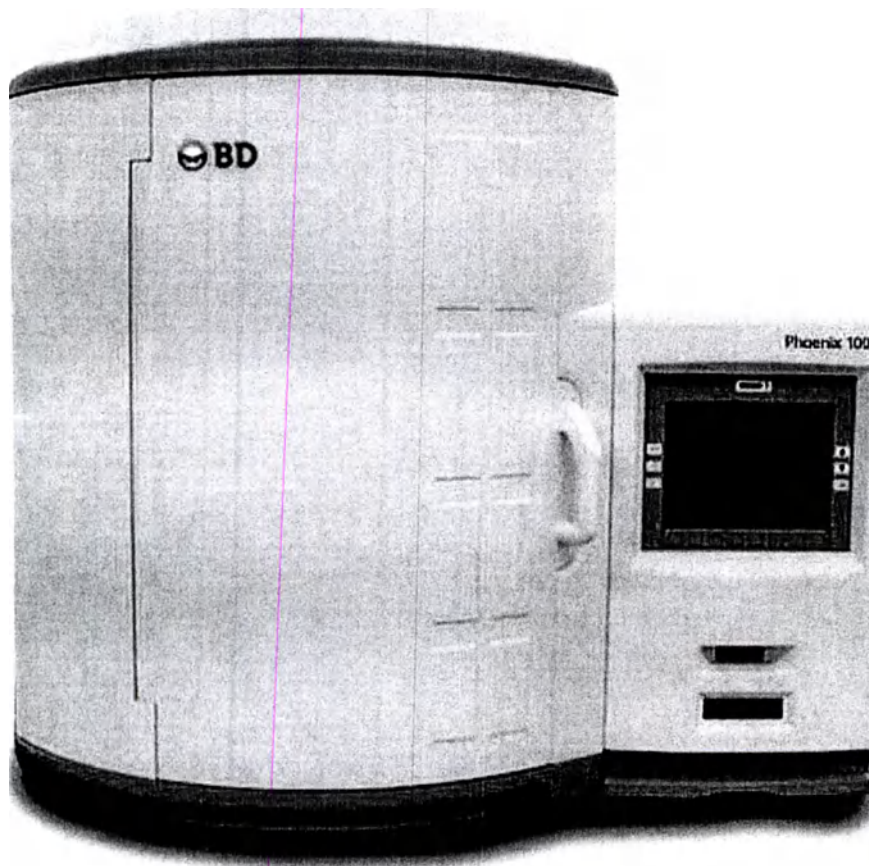
	<i>контроля высокого уровня, компьютеры низкого уровня не используют операционную систему.</i>	
	Функциональная работа системы измерения в Phoenix M50 была осуществлена через использование кода из Phoenix 100. Изменения в коде коснулись только изменений в физическом оборудовании. Механизмы кода Phoenix 100 обеспечили функциональную эквивалентность работы системы измерения Phoenix M50.	
Операционная система, используемая на компьютере приложения прибора	<i>Операционная система реального времени (VRTX RTOS)</i>	<i>Операционная система Microsoft Windows Embedded 7</i>
	Функциональная эквивалентность алгоритмов обработки, выполняемых в среде M50 осуществлена за счет использования кода из Phoenix 100. Расчеты результатов производятся при помощи кода Phoenix 100. Визуализация информации для пользователя в Phoenix M50 физически отличается, однако с точки зрения элементов представленная информация функционально вся представлена в Phoenix 100.	
Экспертная система	BDXpert (Доступна для отдельных приборов Phoenix, или на EpiCenter, если используется конфигурация Phoenix/EpiCenter)	
Пользовательский интерфейс	<i>ПО пользовательского интерфейса установлено на приборе.</i>	<i>Первичный пользовательский интерфейс переместился на поставляемый с системой ПК. Прибор позволяет пользователям загружать и выгружать панели, а также просматривать состояние панелей.</i>

Анализатор микробиологический BD Phoenix включает в себя следующие компоненты:

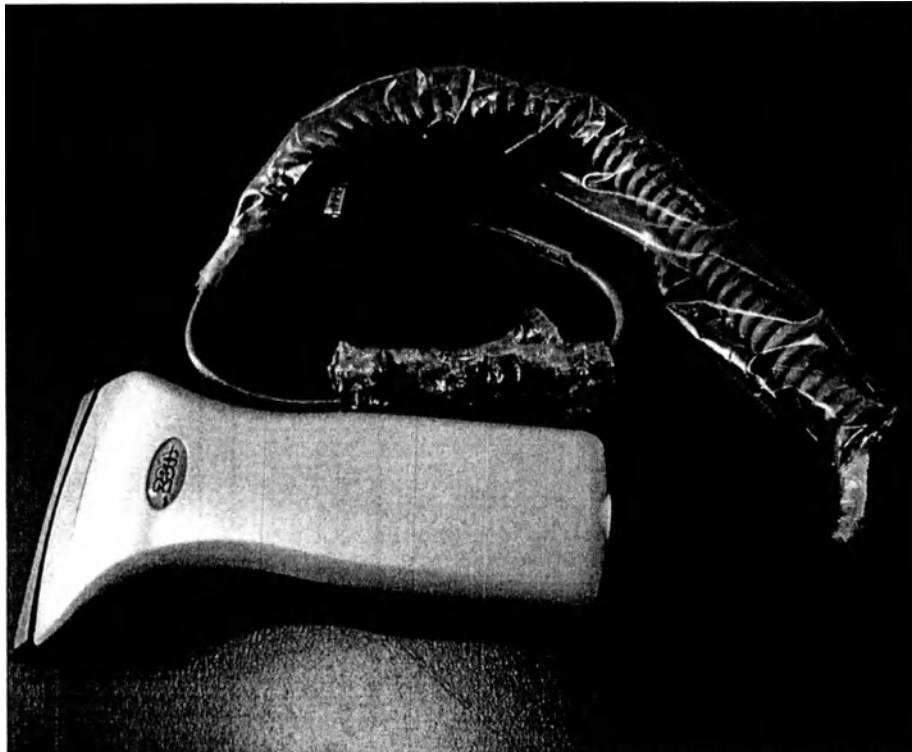
I. Анализатор микробиологический автоматический BD Phoenix 100 с принадлежностями:

Состав:

1. Базовый блок.

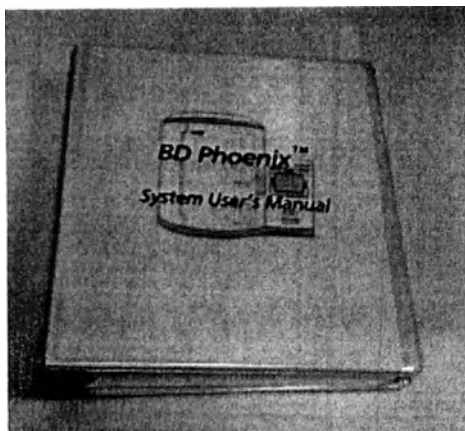


2. Внешний сканер бар-кода.



Также, для удобства работы, анализатор BD Phoenix 100 комплектуется внешним сканером бар-кода, подключаемым через специальный порт, расположенный на боковой панели справа (см. подробное описание выше).

3. Руководство по работе с прибором BD Phoenix 100 (BD Phoenix - Quick Reference Guide, 448022)



4. Программное обеспечение BD Phoenix 100 (PX SYSTEM SOFTWARE, 448035)



Специальное ПО для работы с микробиологическим анализатором BD Phoenix 100.
На носителе FDD 1,44 МБ типа 3,5 дюймов.

Принадлежности:

1. Стартовый набор BD Phoenix (BD Phoenix - Starter Kit, 448040)
Стартовый набор предназначен для запуска микробиологического анализатора.

- подставки для заполнения панелей – 5 шт.;

Пластиковые держатели для удобной работы с панелями.

- переносные штативы для панелей – 2 шт.;

Штативы для переноски панелей.

- наконечники для пипеток - 960 шт.;

Одноразовые полимерные наконечники пипеток используются для приготовления образцов.

- термометр – 1 шт.;

Спиртовой термометр для размещения в инкубационном отсеке анализатора. Подробное описание см. ниже. Предназначен для проверки показаний температурного датчика.

- запасные воздушные фильтры - 4 шт.;

НЕРА- фильтры для очистки поступающего в инкубационный отсек воздуха.

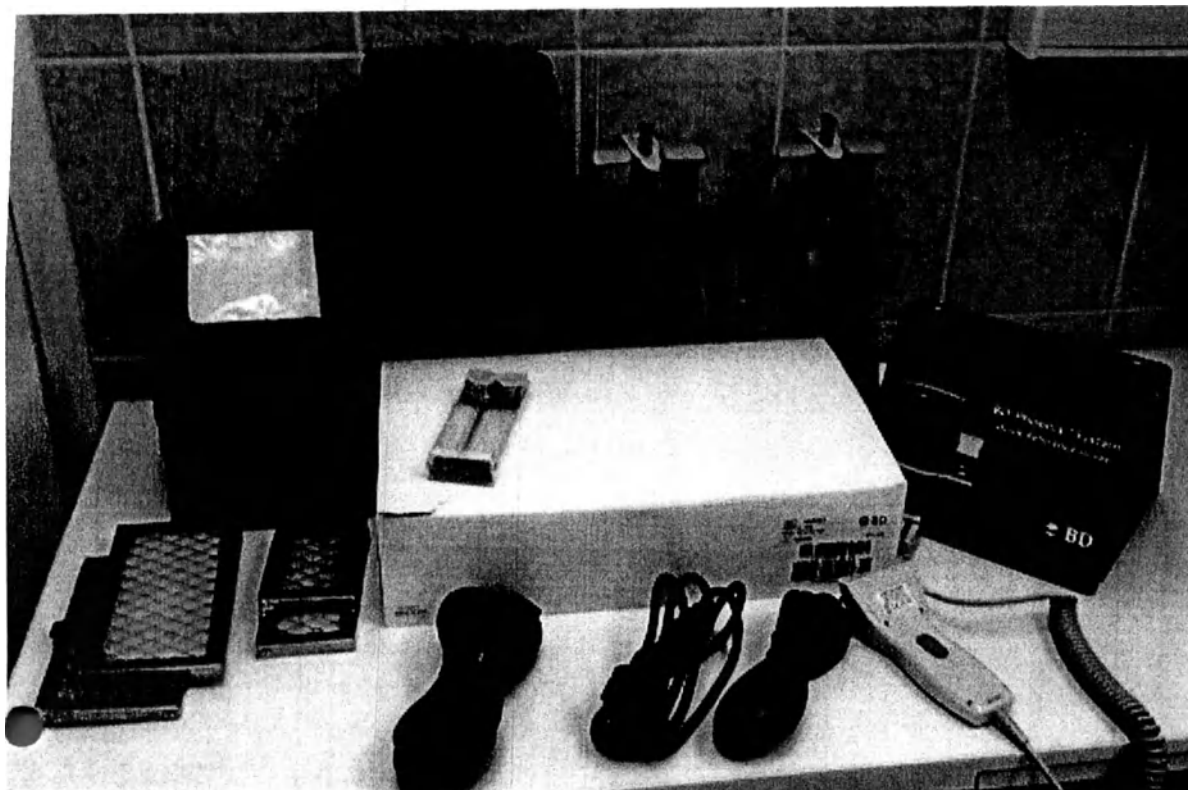
- внешний сканер бар-кода – 1 шт.;

Дополнительный внешний сканер бар-кодов для панелей, подключается через специальный порт, расположенный на боковой панели прибора (подробное описание см. выше).

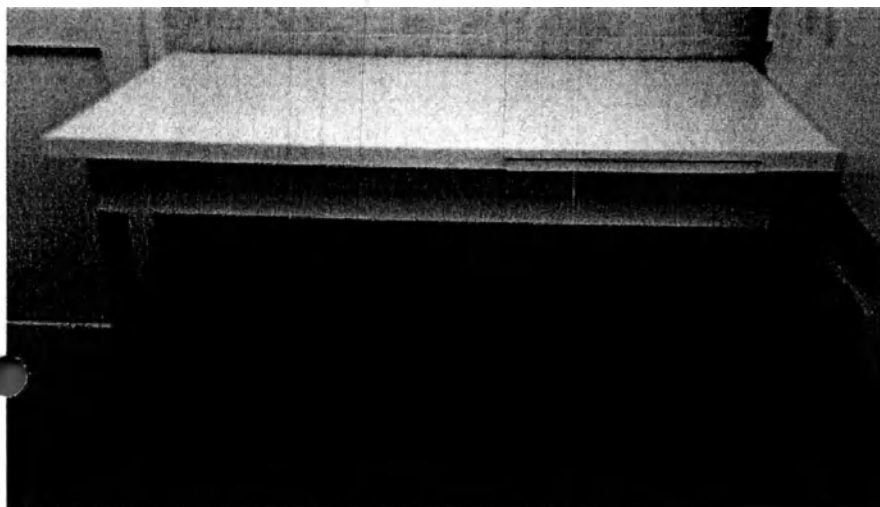
- кабель – 3 шт.;

Сетевые кабели питания для анализатора.

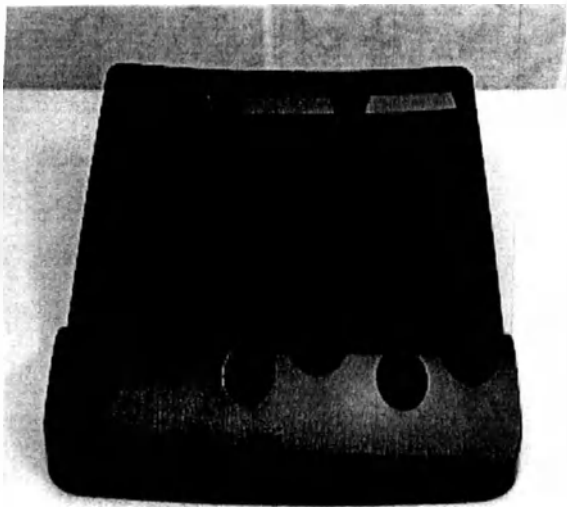
- краткое руководство по работе с прибором.



2. Стол для анализатора BD Phoenix (PX/PX AP TABLE, 441624).
 Стол анализатора предназначен для установки оборудования.

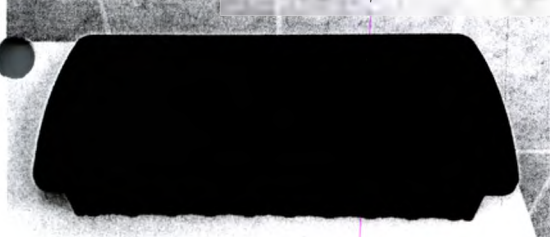


3. Подставка для заполнения панелей BD Phoenix (BD Phoenix - Inoculation Station, 448030).



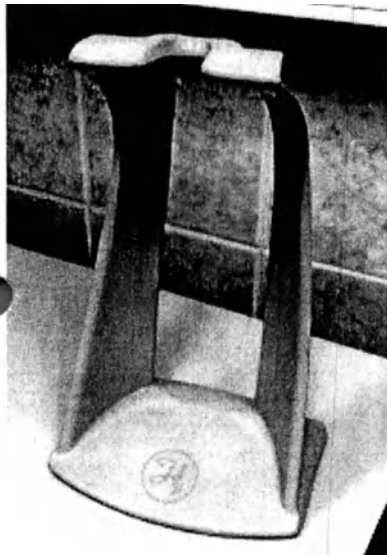
Описание см. выше.

4. Штатив переносной для панелей BD Phoenix (BD Phoenix - Panel Caddy, 448020).



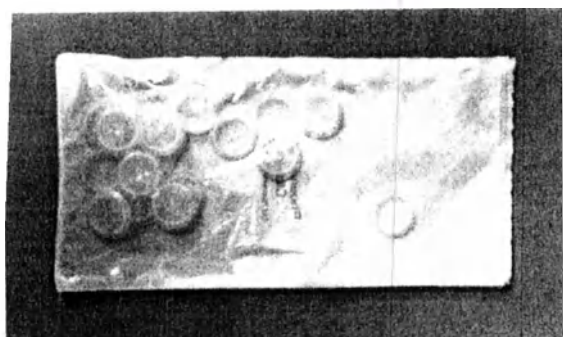
Описание см. выше.

5. Подставка BD Phoenix для пипеток (BD Phoenix - Pipette Stand, 448028).



Пластиковая подставка для удобства размещения пипеток на рабочем столе.

6. Крышки для панелей BD Phoenix (BD Phoenix - Panel Closure, 448031) - не более 200 штук.

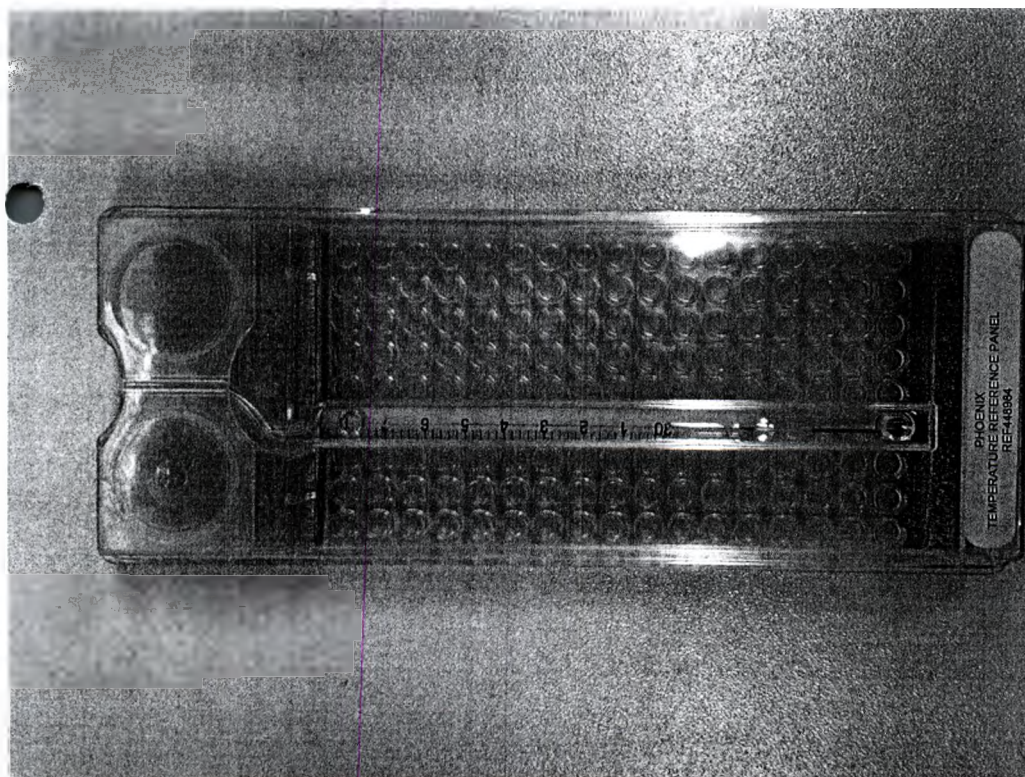


Упаковка: 200 шт.

Полимерные крышки для укупоривания панелей.

Применяются для герметизации панели после приготовления клинического образца для анализа.

7. Термометр (THERMOMETER PANEL, 448984).



Тип термометра: спиртовой термометр

Диапазон измерений: от 30 до 37°C.

Диапазон обусловлен тем, что нормальный диапазон температуры в работающем приборе: 35 °C±1,5.

Цена деления шкалы 0,2 °C

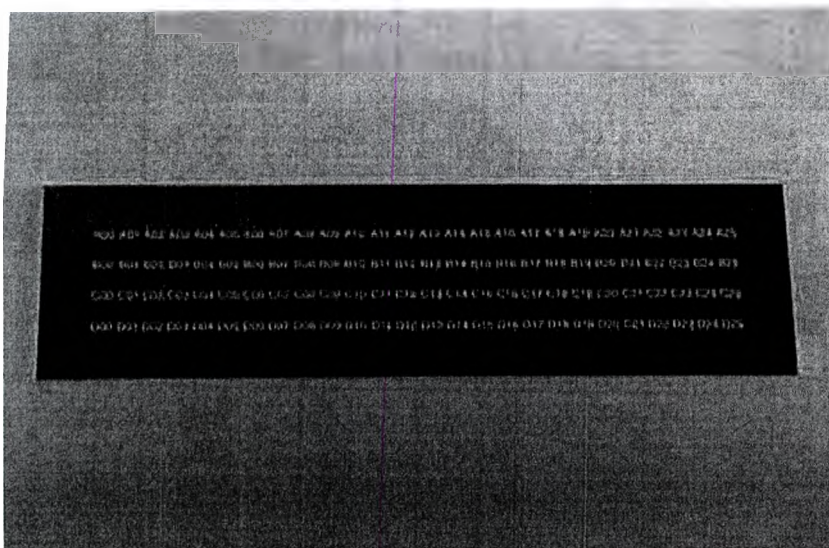
Погрешность измерения ± 0,2°C.

Размеры (д*ш*в, мм): 160*80*15.

Вес: 35 г

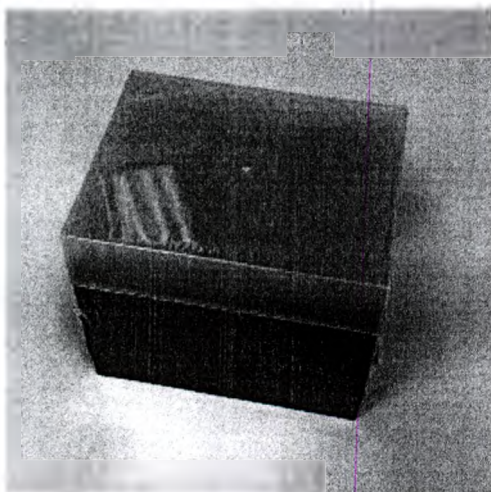
Назначение: предназначен для проверки показаний температурного датчика. Для контроля температуры в инкубационном отсеке анализатора.

8. Наклейки для ячеек (LABEL PANEL CARRIER, 447111) - 1 лист.



Клейкие стикеры для пометки ячеек карусели.

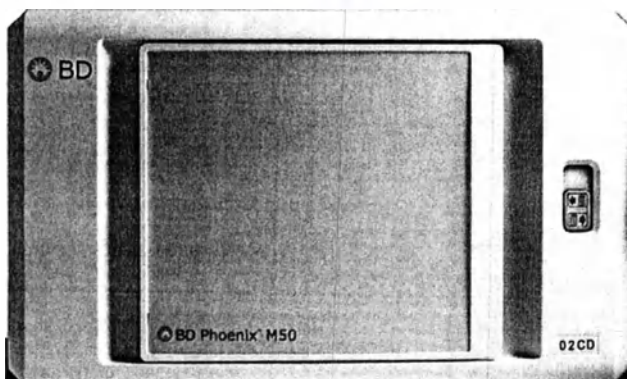
9. Наконечники BD Phoenix для пипеток (BD Phoenix - Pipette Tips, 448037) – не более 8 упаковок по 204 наконечника в каждой.



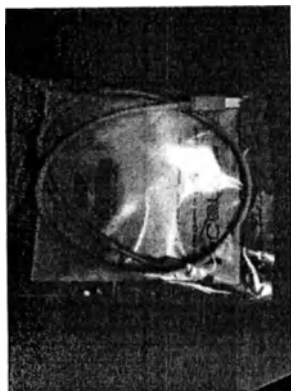
8 упаковок по 204 наконечника в каждой.
Описание см. выше.

II. Анализатор микробиологический BD Phoenix M50, с принадлежностями:
Состав:

I. Базовый блок.



2. USB кабель подключения



3. Кабель питания - 4 шт.

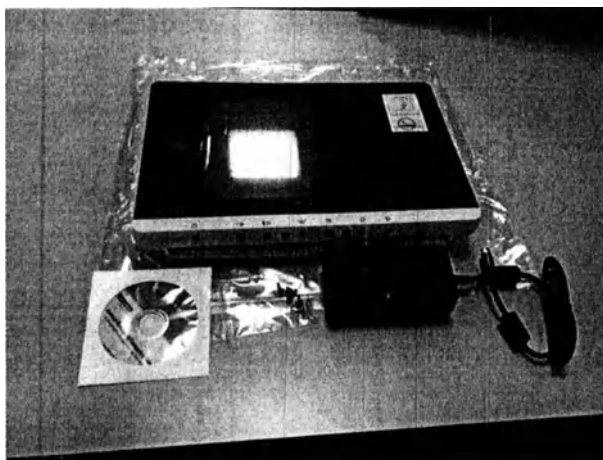


4. Наклейки для маркировки инструмента – 2 набора. Для обозначения и нумерации инструментов.



Принадлежности:

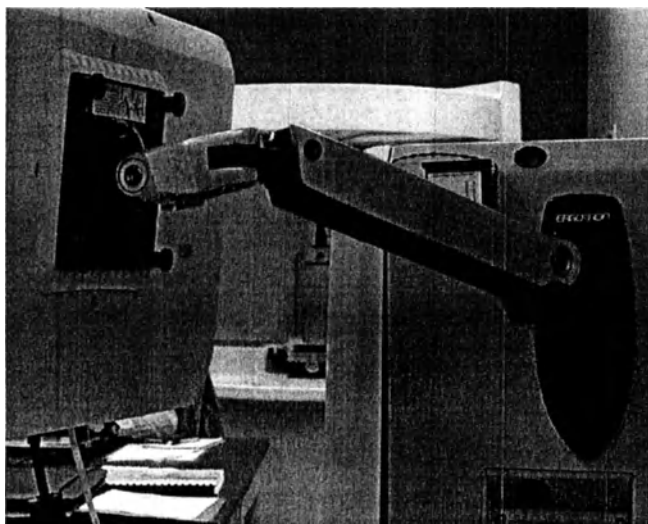
1. Стартовый набор BD Phoenix M50 (PHOENIX M50 STARTER KIT, 443625):
 - Планшетный компьютер в составе: планшетный компьютер, блок питания, кабель питания, руководство пользователя на CD, крепежные болты (4 шт.)



- Кабель питания - 4 шт.



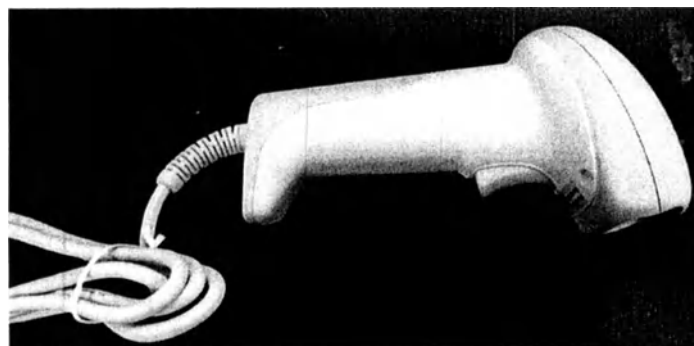
- Держатель монитора - 1 шт.
Для подключения прибора к моноблочному ПК.



- Винты для крепления держателя монитора - 2 шт.
Для крепления прибора к крепежному кронштейну.



- Внешний сканер бар-кода



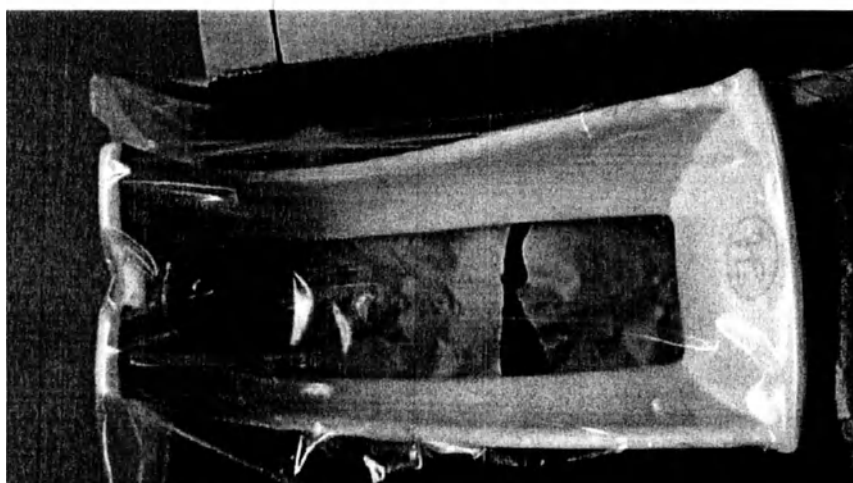
- USB кабель – 2 шт.
Для подключения периферийного оборудования



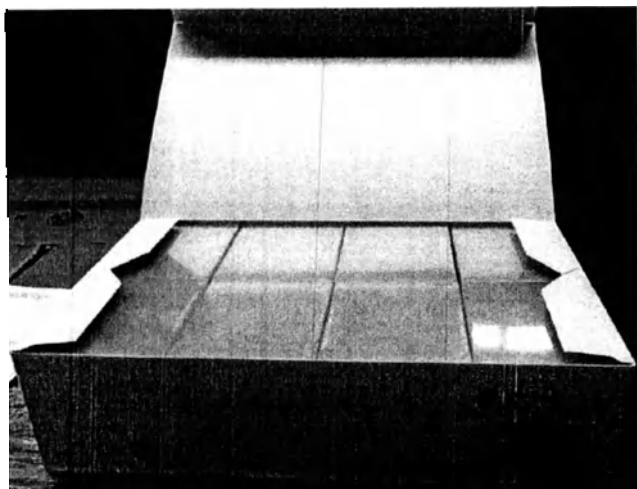
- Подставка для сканера бар-кода
Для установки сканера бар-кодов.



- Пипетка фиксированного объема 25 мкл., 50 мкл с подставкой (2 шт.)
Для выполнения посева.

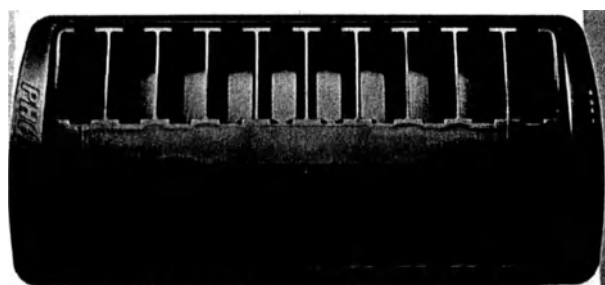


- Наконечники BD Phoenix для пипеток – 1 коробка по 8 упаковок по 204 наконечника



- Штатив переносной для панелей BD Phoenix – 2 шт.

Для переноски панелей до прибора.



- Подставка для заполнения панелей BD Phoenix – 5 шт.



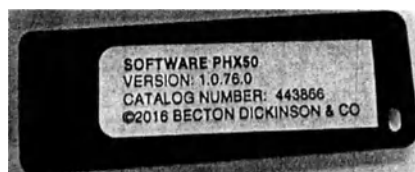
- Воздушный фильтр



- USB накопитель данных для резервного копирования пользовательских данных



2. Программное обеспечение BD Phoenix M50 (SOFTWARE PHX50, 443866).
Флэш-память USB с системным ПО и руководствами пользователя.

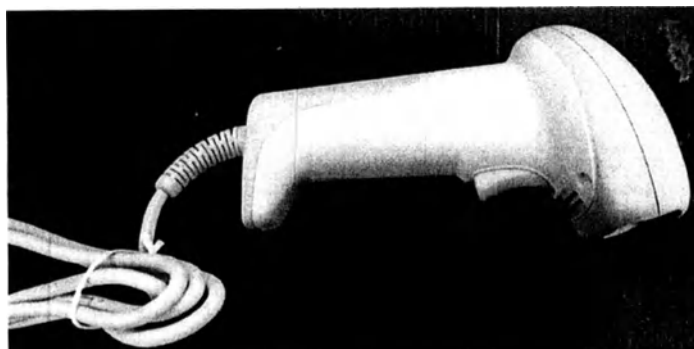


3. Краткое руководство по работе с прибором BD Phoenix M50 (QUICK REFERENCE GUIDE PHX50 PKG, 443894).

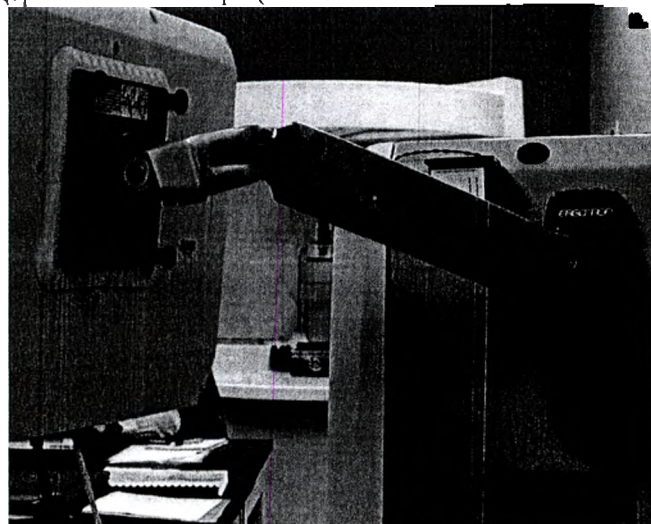
Бумажная версия руководства пользователя.



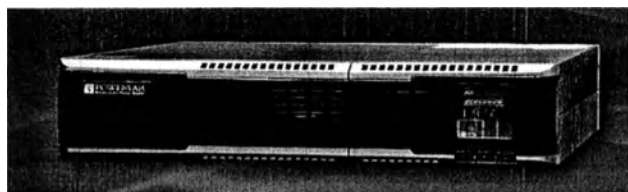
4. Внешний сканер бар-кода (SCANNER BARCODE HANDHELD PACKAGED, 443809)



5. Держатель монитора (MOUNTING ARM ERGOTRON PHX50, 443867)



6. Блок бесперебойного питания (UPS SYNERGY SIII 2KVA ON-LINE, 257687)
Защищает важное электронное оборудование от отключений электропитания.



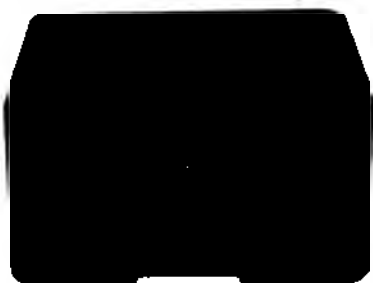
7. Набор батарей для блока бесперебойного питания (BATTERY PACK PAC SYN SIII 2KVA, 257688).

Используется совместно с ИБП SYNERGY SIII 2KVA



8. Принтер (Printer Brother HL54440D, 257613)

Для вывода на печать результатов анализов, полученных с прибора.



9. Набор для монтажа дополнительного модуля BD Phoenix M50 (KIT STACKING PHX50, 443910):

- скоба – 2 шт.
- шайба – 12 шт.
- винт – 12 шт.
- ножка регулируемая – 2 шт.
- схема монтажа
- кронштейн – 2 шт.
- гайка – 2 шт.

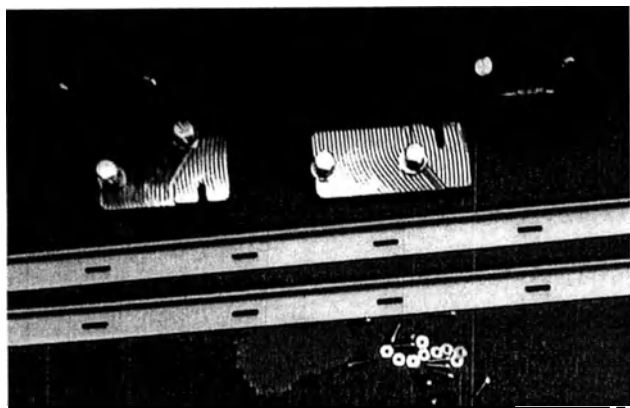
Для соединения двух анализаторов Phoenix M50 при вертикальной блокировке.



10. Набор для крепления инструмента (SEISMIC KIT PHX50, 443918):

- скоба – 5 шт.
- винт – 12 шт.
- шайба (10 x 1.0) – 12 шт.
- болт – 8 шт.
- гайка – 4 шт.
- шайба (11.31 x 0.095) – 8 шт.
- гровер – 8 шт.

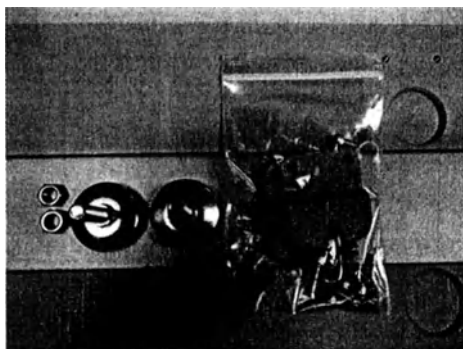
для крепления прибора Phoenix M50 к лабораторному столу, чтобы он не упал при землетрясении.



11. Набор для монтажа BD Bactec FX40 к BD Phoenix M50 (ADAPTER PLATE FX40 TO PHX50 SPARE, 443873):

- скоба – 6 шт.
- винт – 12 шт.
- шайба – 8 шт.

Для крепления бактериологического анализатора БАСТЕК FX40 сверху на Phoenix M50.



15. Особенности эксплуатации

Необходимо ежедневно выполнять процедуры текущего обслуживания для BD Phoenix 100. Самым подходящим временем для текущего обслуживания является утро, но данные процедуры можно осуществлять и в любое удобное время. Необходимо проверить следующие элементы:

1. Наличие бумаги в принтере. Если бумаги мало или она закончилась, замените бумагу в соответствии с инструкциями по эксплуатации производителя.

2. Запись показания температуры на жидкокристаллическом мониторе и панели стандарта температуры.

Обратите внимание, что показания панели температуры можно посмотреть, выбрав одну из функций проверки индикаторов прибора в меню технического обслуживания. Температура должна составлять $35 \pm 1,5$ °C.

Для обеспечения надежной работы анализатора BD Phoenix M50 со стороны пользователя требуется незначительный объем технического обслуживания. К ежедневным процедурам относятся проверка температуры анализатора и заправка принтера бумагой. Еженедельно следует проверять работу индикаторов состояния станции (светодиоды), звуковой сигнализации и индикатора тревоги. Обычное профилактическое обслуживание заключается в ежемесячной проверке воздушного фильтра. Все прочие процедуры выполняются по необходимости. Любые процедуры обслуживания или ремонта, не описанные в данном разделе, должны выполняться только персоналом BD.

16. Меры предосторожности

а. Необходимо обеспечить свободный доступ к всасывающему фильтру, расположенному в верхней части прибора Phoenix. Ограничение потока воздуха может привести к увеличению температуры прибора, что может повлиять на результаты тестирования и вызвать повреждение оборудования.

б. Не пытайтесь поднять прибор без использования механических подъемных механизмов, так как прибор обладает большой массой и размерами. Попытка подъема прибора без соответствующих средств может привести к серьезным травмам.

● Перед началом работы с прибором всем пользователям системы необходимо внимательно ознакомиться со всеми элементами управления и индикаторами.

д. Соблюдайте установленные меры предосторожности, направленные против микробиологических угроз, при выполнении всех процедур. Все образцы следует обрабатывать в соответствии с рекомендациями CDC-NIH, инструкциями CLSI или инструкциями учреждения по работе с потенциально инфицированной сывороткой человека, кровью или другими жидкостями человеческого организма. Перед повторным использованием простерилизуйте контейнеры для образцов и другие инфицированные материалы автоклавированием.

е. Помимо перчаток рекомендуется использовать одноразовые лабораторные халаты и защитные или предохранительные очки при работе с прибором.

ф. Дверь прибора блокируется электромеханическим замком под управлением программного обеспечения. Не пытайтесь отключить механизм блокировки двери или открыть дверь, если значок «разблокировано» не отображается. Вращающийся поворотный механизм может нанести травму. Если при открытии двери поворотный механизм не остановлен, немедленно обратитесь в компанию BD для обслуживания. Не пытайтесь вращать поворотный механизм вручную — это может привести к травме.

● Когда система уведомляет об ошибке или предупреждении, необходимо немедленно предпринять соответствующие действия.

h. Процедуры технического обслуживания или ремонта должны осуществляться квалифицированными специалистами. Несоблюдение данного предупреждения может привести к несчастному случаю или неисправности прибора.

i. При установке старого фильтра убедитесь, что фильтр занимает то же положение, что и при его извлечении (например, стрелка на фильтре указывает в том же направлении).

j. Перед началом процесса дезинфекции убедитесь, что все части тела, которые могут соприкасаться с задействованными поверхностями прибора, полностью закрыты.

k. При появлении какого-либо подклада, отсутствующего в приведенном здесь списке, запишите его и обратитесь за помощью в компанию BD.

17. Особые указания

Для диагностического использования *in vitro*.

Все пробы пациентов и микробные культуры потенциально инфекционны и требуют соблюдения универсальных мер предосторожности. Обратитесь к руководству CDC Bio-safety in Microbiological and Biomedical Laboratories (Биологическая безопасность в микробиологических и биомедицинских лабораториях), 4 издание, 1999 г., а также к другой рекомендованной литературе. После посева с панелями следует обращаться осторожно, пока они не будут помещены в прибор.

18. Обслуживание и текущий ремонт

Для надежной работы анализатора Phoenix не требуется больших объемов технического обслуживания. Ежедневно необходимо проверять температуру прибора и наличие бумаги для принтера. Каждую неделю необходимо проверять работу индикаторов состояния станции (светодиодов), звукового сигнала тревоги и индикатора системного предупреждения. В стандартное профилактическое техническое обслуживание входит ежемесячная проверка воздушного фильтра системы циркуляции. Все остальные процедуры необходимо проводить по мере необходимости.

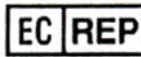
Для детальной информации о правилах обслуживания, см. пункт 6 («Техническое обслуживание») руководства пользователя для BD Phoenix M50. Техническое обслуживание или ремонт, которые не описаны в данном разделе руководства пользователя, должны проводиться только сотрудниками BD.

19. Упаковка

Транспортная упаковка:

коробка из гофрокартона с вставками - транспортировочными защитными приспособлениями (распорки из пенопластовых блоков).

20. Маркировка и символы технической документации

	Символы
	Изготовитель
	Европейский представитель
	Кодовый номер
	Номер серии
	Отметка CE
	Опасно! Следует соблюдать предупреждения данного рода в качестве обязательного условия для предупреждения травматизма. Ознакомьтесь с руководством пользователя.
	Электрические контакты с опасным уровнем напряжения!
	Температурный режим
	Для диагностики In Vitro
	Ознакомиться с инструкцией.
	Вкл./Выкл.
	Биологическая опасность
	Разъем для провода заземления

21. Транспортировка

Анализатор должен транспортироваться и перевозиться только в оригинальной упаковке с учетом правил перевозки, действующих на данном виде транспорта.

22. Хранение

Условия хранения

Температура: 17,8 – >65,0 °C

Влажность: Относительная влажность: 20 – 80 % без конденсации.

23. Срок службы

По оценке опыта эксплуатации прибора BD Phoenix 100, срок использования BD Phoenix M50 составляет 7 лет. При проведении технического обслуживания, ремонта и замены запасных частей анализатор BD Phoenix M50 можно использовать намного дольше 7 лет.

24. Требования безопасности при работе с изделиями

Система должна использоваться только специально подготовленным персоналом с соблюдением правил безопасности по работе с потенциально инфицированным материалом (руководство CDC Bio-safety in Microbiological and Biomedical Laboratories (Биологическая безопасность в микробиологических и биомедицинских лабораториях), 4 издание, 1999 г., или аналогичная рекомендованная литература, согласующаяся с государственными и местными нормативными актами).

Не использовать прибор в случаях возникновения неисправностей, соответствующих предупреждающих технических сообщений, нарушений изоляции токонесущих частей, в том числе сетевого кабеля, повреждениях корпуса.

25. Требования к охране окружающей среды в процессе эксплуатации изделий

Изделие в процессе жизненного цикла не оказывает воздействия на окружающую среду.

26. Правила утилизации

Собственник / оператор бактериологического анализатора BD Phoenix несет обязанность по утилизации всех отходов (материал проб), накапливающихся в результате измерений в соответствии с законодательными и местными нормативами, а также протоколами медицинского учреждения.

Утилизация проводится согласно действующим законодательным положениям по окончании срока службы анализатора BD Phoenix как отходы электронного оборудования.



Рекомендуется утилизировать данные изделия в соответствии с СанПиН 2.1.7.2790-10 «Санитарно-эпидемиологические требования к обращению с медицинскими отходами».

27. Ограниченная гарантия производителя

Эта гарантия предоставляет особые законные права. Кроме того, у Вас могут быть другие права, отличающиеся от региона к региону.

Первичному покупателю автоматизированной микробиологической системы BD Phoenix 100 предоставляется гарантия на отсутствие дефектов материалов и изготовления в течение одного года после установки. Исключительная ответственность компании BD по данной гарантии

предусматривает ремонт и замену любых приборов и их компонентов (за исключением таких расходных материалов, как картриджи для принтеров, бумага или фильтры), которые при нормальном режиме работы стали неисправными в течение одного года после поставки.

Компания BD предоставит новые или отремонтированные компоненты по своему усмотрению. Все компоненты, поставляемые для замены, будут соответствовать новым конструктивным параметрам и будут иметь гарантию до окончания срока в один год. Замененные компоненты становятся собственностью компании BD. Необходимо, чтобы оборудование, к которому применимо это соглашение, было установлено в соответствии с рекомендациями и инструкциями Руководства пользователя системы BD Phoenix.

Повреждения системы BD Phoenix, вызванные подключением или отключением кабелей, соединяющих этот прибор с системами, не одобренными или не поставляемыми компанией BD, или несоблюдением достаточной осторожности при работе с прибором и обслуживании системы, приводят к прекращению гарантии и освобождают производителя от указанных в настоящем документе обязательств.

Эта гарантия заменяет все другие выраженные или подразумеваемые гарантии, включая гарантии товарной пригодности или пригодности для определенного использования. Компания BD не несет ответственности за косвенные, побочные, фактические или последующие убытки ни при каких обстоятельствах независимо от наличия или отсутствия уведомления компании BD о таких убытках.

Первичному покупателю автоматизированной микробиологической системы BD Phoenix M50 предоставляется гарантия на отсутствие дефектов материалов и изготовления в течение одного года после установки. Исключительная ответственность компании BD по данной гарантии предусматривает ремонт и замену любых приборов и их компонентов (за исключением таких расходных материалов, как картриджи для принтеров, бумага или фильтры), которые при нормальном режиме работы стали неисправными в течение одного года после поставки.

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Любые повреждения системы BD Phoenix M50, вызванные подключением или отключением кабелей, соединяющих этот прибор с системами, не одобренными или не поставляемыми компанией BD, или несоблюдением достаточной осторожности при работе с прибором и обслуживании системы, приводят к прекращению гарантии и освобождают производителя от указанных в настоящем документе обязательств.

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28. Сведения о разработке и производстве медицинского изделия

Анализатор микробиологический BD Phoenix, варианты исполнения: BD Phoenix 100, BD Phoenix M50, с принадлежностями, производитель:

Бектон Дикинсон энд Компани, США / Becton Dickinson and Company, 7 Loveton Circle, Sparks,

Maryland 21152, USA должен соответствовать внутреннему техническому регламенту компании Бектон Дикинсон энд Компани, США (являющемуся конфиденциальной коммерческой информацией ввиду содержания технологических ноу-хау) по разработке и производству Анализатора микробиологического BD Phoenix.

Право на разработку медицинского изделия принадлежит компании Бектон Дикинсон энд Компани, США.

29. Название и юридический адрес уполномоченного представителя

Общество с ограниченной ответственностью «Бектон Дикинсон Восток».

(ООО «Бектон Дикинсон Восток»)

Юридический адрес: 127018, Российская Федерация, г. Москва, ул. Двинцев 12, блок С, корпус 1;

Фактический адрес: 127018, Российская Федерация, г. Москва, ул. Двинцев 12, блок С, корпус 1;

Тел./факс: +7 495 775 85 82

«УТВЕРЖДАЮ»

Becton Dickinson and Company,
7 Loveton Circle, Sparks, Maryland 21152, USA

Дата: 28 ноября 2016 г.

Подпись: (подписано)

М.П.

(подписано)

28.11.2016 г.

Дженнифер А. Кремер
Нотариус штата Мэриленд
Округ Балтимор
Срок моих полномочий истекает:
19 октября 2019 г.

Перевод с английского языка на русский язык выполнен переводчиком
Краплиным Денисом Александровичем

Подпись

Город Москва.

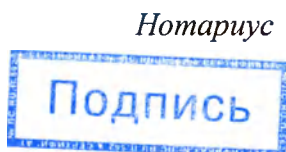
Двадцать второго декабря две тысячи шестнадцатого года.

Я, Прокошенкова Елена Евгеньевна, нотариус города Москвы, свидетельствую
подлинность подписи, сделанной переводчиком Краплиным Денисом Александровичем в
моем присутствии. Личность его установлена.

Зарегистрировано в реестре за № 1-19-48490
Взыскано по тарифу: 100 руб.



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Всего прошнуровано,
пронумеровано и скреплено
печатью 13/7 листов.

Нотариус

Город Москва

Двадцать второго декабря две тысячи шестнадцатого года

Я, Прокошенкова Елена Евгеньевна, нотариус города Москвы, свидетельствую
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Нотариус

