CALIBRATION CERTIFICATE

Certificate No: CC/BS-240 PRO

Customer: **Dr. Path Expert Diagnostics**

Equipment Owner

Dr. Path Expert Diagnostics

Address:
A-266-267, gurudwara road, bhalswa
Diary , bhalswa, delhi -110042

Analyzer Model: BS-240 PRO

Calibration Date: 16.08.21

Recommended Due: 16.08.22

Certificate No:003

As Received: In Tolerance Blo
Procedure: 33KB-4-1-1

As Returned: InTolerance

Manufacturer: Mindray
Model: BS 240 Pro
Description: Automated Clinical Chemistry Analyzer
Size/Range: Medium through-put analyzer (240T/hr)
Serial Number: **BC7-96000350**
Location: Delhi
Department: Central Laboratory

Environment: 23^0C & 43% RH

This instrument/analyzer has been calibrated in accordance with the service manual of the manufacturer & this report may not be reproduced, except in full, without the written approval of an authorized technical representative/service representative of M/s. Avantor Performance Materials India Limited unless stated otherwise. The expanded measurement of uncertainty of the measurement process & does not exceed 25% of the tolerance allowed for the individual characteristics measured. The measurement uncertainties for this calibration are based upon 95% confidence limits, no sampling plan or other process was used for this calibration, the results achieved here in apply only to the calibration of the item described above & no limitations of use apply to the calibrated unit.

Calibration Accuracy: Manufacturer's Specification

Conditions/Analysis

Certified By:

Vikas Verma
Area Service Manager
Avantor
IVD-Automation

Signature:

Accepted By:

Mr. Gourav Madan

Function/Range	Normal Value	As Found	Result	As Left	Result	Minimum	Maximum
DC Voltage							
200mv	190.00	189.99	Pass	Same	Pass	189.89	190.11
	-190.00	-190.04	Pass	Same	Pass	-190.11	-189.89
2V	1.9000	1.9002	Pass	Same	Pass	1.8959	1.9011
20V	19.000	19.003	Pass	Same	Pass	18.985	19.015
200V	190.00	190.03	Pass	Same	Pass	189.85	190.15
1000V	1000.00	1000.00	Pass	Same	Pass	999.10	1000.90
AC Voltage							
200mv @ 200Hz	100.00	100.07	Pass	Same	Pass	99.40	100.60
200 kHz	100.00	100.12	Pass	Same	Pass	98.60	101.40
2V @ 20Hz	1.0000	1.0002	Pass	Same	Pass	0.9890	1.0110
200Hz	1.0000	1.0012	Pass	Same	Pass	0.9940	1.0060
1kHz	1.0000	1.0002	Pass	Same	Pass	0.9930	1.0070
10kHz	1.0000	1.0033	Pass	Same	Pass	0.9930	1.0070
30kHz	1.0000	1.0046	Pass	Same	Pass	0.9860	1.0140
200Hz	0.1000	0.1000	Pass	Same	Pass	0.0985	0.1015
30kHz	0.1000	0.1041	Pass	Same	Pass	0.0950	0.1050
20V @ 200Hz	10.000	10.025	Pass	Same	Pass	9.940	10.060
10 kHz	10.000	10.034	Pass	Same	Pass	9.480	10.520
30kHz	10.000	10.037	Pass	Same	Pass	9.460	10.540
200V @ 200Hz	100.00	100.28	Pass	Same	Pass	99.40	100.60
10 kHz	100.00	100.46	Pass	Same	Pass	94.80	105.20
30kHz	100.00	100.44	Pass	Same	Pass	94.80	105.40
750V @ 400 Hz	750.0	752.60	Pass	Same	Pass	734.00000	768.00000
750V @ 1000 Hz	750.0	754.50	Pass	Same	Pass	734.00000	766.00000
DC Current							
200uA	190.00	190.05	Pass	Same	Pass	189.41	190.59
	-190.00	-190.06	Pass	Same	Pass	-190.59	-189.41
2mA	1.9	1.9007	Pass	Same	Pass	1.8941	1.9059
20mA	19.000	19.011	Pass	Same	Pass	18.941	19.059
200mA	190.00	190.49	Pass	Same	Pass	188.65	191.35
2000mA	1900.0	1900.2	Pass	Same	Pass	1886.5	1913.5
	-1900.0	-1900.2	Pass	Same	Pass	-1913.5	-1888.5
AC Current @ 1Khz							
20mA	19.000	19.053	Pass	Same	Pass	18.847	19.153
Resistance in Ohms							
200	100.00	100.06	Pass	Same	Pass	99.86	100.14
2 K	1.0000	0.9998	Pass	Same	Pass	0.9988	1.0012
20 K	10.000	9.997	Pass	Same	Pass	9.988	10.012
200K	100.00	99.97	Pass	Same	Pass	99.88	100.12
2 M	1.000	0.9999	Pass	Same	Pass	0.9978	1.0022
20 M	10.00	10.00	Pass	Same	Pass	9.95	10.05

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Sample/Reagent Unit 17-08-2021

* 4:
* 1:
* 78:
* 3:
* Position at Aspirate Port on Outer Ring When Passing Mechanical Zero Position Forwardly: 0 39
* Total microsteps of one circle of carousel: 1 9600
* Total Cuvettes of One Circle around Carousel: 2 50
* Sample/Reagent Carousel Outer Ring Aspirate Stop Position Offset: 3 110
* Sample/Reagent Carousel Middle Ring Aspirate Stop Position Offset: 4 41
* Sample/Reagent Carousel Inner Ring Aspirate Stop Position Offset: 5 146
* Outer Ring Bar Code Scanning Offset: 6 44
* Middle Ring Bar Code Scanning Offset: 7 130
* Outer Ring Bar Code Scanning Offset: 8 44
* Middle Ring Bar Code Scanning Offset: 9 130
* Scanning Time: 10 200
* Bar Code Instruction Response Time: 11 240
* Bar Code Response Time: 12 100
* Excessive ISE Sample Volume Aspirated: 13 180
* Air Aspirated after Dispensing ISE Sample: 14 50
* Probe Height after First Aspiration of ISE Sample: 15 28
* Air Aspirated before Aspirating ISE Sample: 16 50
* ISE Sample Vertical Dispense Position Limit: 17 1396
* ISE Sample Vertical Dispense Position: 18 1276
* ISE Sample Horizontal Dispense Position: 19 -1608
* Air Aspirated before Aspirating Sample: 20 60
* Excessive Sample Volume Aspirated: 21 70
* Push-back Volume after Aspirating Sample: 22 20
* Air Aspirated after Aspirating Sample: 23 5
* Air Aspirated after Dispensing Sample: 24 50
* Height for Aspirating Air after Dispensing Sample: 25 185
* Probe Interior Wash Time: 26 60
* Probe Forward Horizontal Wash Position: 27 148
* Probe Reverse Horizontal Wash Position: 28 149
* Probe Vertical Wash Position: 29 78
* Probe Vertical Wash Position for Whole Blood Test: 30 1554
* Probe Vertical Wash Limit Position: 31 1650
* Sample Carousel Aspirating Mode: 32 2
* Dispensing Mode after Aspirating on Sample Carousel: 33 2
* Horizontal Aspirate Position on Sample/Reagent Carousel Outer Ring: 34 -152
* Horizontal Aspirate Position on Sample/Reagent Carousel Middle Ring: 35 -253
* Horizontal Aspirate Position on Sample/Reagent Carousel Inner Ring: 36 -373
* Standard Dispensing Height after Aspirating on Sample Carousel: 37 314
* Reaction Carousel Horizontal Position 1: 38 739
* Reaction Carousel Horizontal Position 2: 39 495
* Fixed Dispense Position on Reaction Carousel: 40 1040
* Below-Liquid Aspirate Position on Reaction Carousel: 41 30
* Conversion Coefficients of Syringe Volume and Motor Steps: 42 16
* Below-Liquid Aspirate Position on Sample Carousel: 43 42
* Sample Carousel Vertical Limit Position: 44 2868
* Probe Horizontal Forward Limit: 45 772
* Probe Horizontal Home Position: 46 0

* Probe Horizontal Reversed Limit: 47 -1645
* Syringe Volume: 48 420
* Sample Probe Wash Fluidic Path Control Vertical Position: 49 190
* Reaction Carousel Vertical Extreme Position: 50 1418
* Probe Vertical Reversed Limit Position: 51 -86
* Probe Vertical Home Position: 52 -36
* Air Aspirated before Aspirating Reagent: 53 150
* Air Aspirated after Aspirating Reagent: 54 10
* Excessive Reagent Volume Aspirated: 55 50
* Air Aspirated after Dispensing Reagent: 56 50
* Dispensing Mode after Aspirating on Reagent Carousel: 57 2
* Reagent Carousel Aspirating Mode: 58 2
* Steps for Aspirating Reagent Below Liquid Level: 59 42
* Reagent Carousel Vertical Extreme Position: 60 2948
* Probe Return Error Compensation: 61 0
* Return Error Limit for Reconfiguration: 62 5
* Return Error Alarm Limit: 63 80
* Probe Syringe's Reversed Extreme Position: 64 -200
* Probe Syringe's Home Position: 65 160
* Probe Syringe's Forward Extreme Position: 66 6950
* Aspirating height of whole blood sample: 67 84
* Bar Code Scanning Position When Passing Mechanical Zero Position Forwardly: 68 18
* Probe Above Cuvette Liquid Level Position: 69 100
* Delay after Cleaning: 70 200
* Calibrator Clog Detection Threshold: 71 13.0
* Control Clog Detection Threshold: 72 13.0
* Serum Clog Detection Threshold: 73 6.5
* Wash Solution Clog Detection Threshold: 74 13.0
* Interior Wash Threshold Value: 75 25.0
* Probe clog threshold when aspirating blood cell: 76 13.0

Reaction Unit 17-08-2021

* 6:
* 1:
* 24:
* 3:
* Steps for One Circle of Reaction Carousel: 104 4800
* Cuvettes for One Circle of Reaction Carousel: 105 80
* Cycles of Photoelectric Measurement: 106 1
* Photoelectric Gain Channel 340: 107 176
* Photoelectric Gain Channel 380: 108 57
* Photoelectric Gain Channel 412: 109 84
* Photoelectric Gain Channel 450: 110 89
* Photoelectric Gain Channel 505: 111 83
* Photoelectric Gain Channel 546: 112 111
* Photoelectric Gain Channel 570: 113 91
* Photoelectric Gain Channel 605: 114 90
* Photoelectric Gain Channel 660: 115 81
* Photoelectric Gain Channel 700: 116 81
* Photoelectric Gain Channel 740: 117 79
* Photoelectric Gain Channel 800: 118 75
* Start Position for Photoelectric Collection: 119 6
* Reaction Carousel Calibration: 120 28
* Deviation between Home Position Sensor and Coder: 121 0
* Position at Aspirate Port When Passing Mechanical Zero Position Forwardly: 122 29
* Best Cuvette Segment: 123 7
* Wash Station Forward Maximum Deviating Cuvette Segment: 124 4
* Wash Station Reversed Maximum Deviating Cuvette Segment: 125 3
* 340nm Gain Parameter low limit: 126 60

Mixer Unit 17-08-2021

* 5:
* 1:
* 28:
* 3:
* Mixer Horizontal Wash Position: 77 -227
* Mixer Vertical Wash Position: 78 560
* Mixer Vertical Wash Position Limit: 79 580
* Mixer Horizontal Sample Mixing Position: 80 827
* Mixer Horizontal Reagent Mixing Position: 81 266
* Mixer Vertical Mixing Position: 82 744
* Mixer Vertical Mixing Position Limit: 83 772
* Mixer Mixing Time: 84 10
* Mixer motor rotation time: 85 21
* Mixer interior pump turn-on time: 86 28
* Mixer Vertical Reversed Limit Position: 87 -40
* Mixer Vertical Home Position: 88 -28
* Mixer Horizontal Reversed Limit Position: 89 -300
* Mixer Horizontal Home Position: 90 0
* Mixer Horizontal Forward Limit Position: 91 860
* DI Water Syringe Injection Volume for Washing Mixer: 92 2900
* DI Water Syringe Injection Volume for Washing Cuvettes: 93 1950
* DI Water Syringe Injection Volume for Washing Probe Exterior: 94 37
* DI Water Syringe Single Suckback Volume after Injecting: 95 500
* DI Water Syringe Injection Speed Step: 96 12
* DI Water Syringe Suckback Speed Step: 97 12
* DI Water Syringe Home Position: 98 -200
* DI Water Syringe Reversed Limit Position: 99 -280
* DI Water Syringe Forward Limit Position: 100 7267
* DI Water Syringe Return Error: 101 150
* Injection Volume for Washing Probe Exterior in Whole Blood Test: 102 89
* Conversion from Microlitre to Microstep for DI Water Syringe: 103 8000

Wash Unit 17-08-2021

* 8:
* 1:
* 20:
* 3:
* Wash Station Dispense Position on Reaction Carousel: 152 801
* Wash Station Wash Position on Reaction Carousel: 153 1557
* Wash Station Vertical Limit Position on Reaction Carousel: 154 1613
* Wash Station Upgoing Limit Position: 155 -110
* Wash Station Home Position: 156 -60
* Wash Station Speed Step: 157 29
* Wash Solution Syringe Speed Step: 158 5
* Wash Solution Syringe Forward Limit: 159 14200
* Wash Solution Syringe Reversed Limit: 160 -360
* Wash Solution Syringe Single Suckback Volume after Injecting: 161 250
* Wash Solution Syringe Aspirate Volume: 162 2050
* Wash Solution Syringe Single Injection Volume: 163 975
* Wash Solution Syringe Home Position: 164 -200
* Wash Solution Syringe Aspirating Speed Step: 165 9
* Wash Solution Syringe Injection Speed Step: 166 6
* Wash Solution Syringe Push-back Volume after Aspirating: 167 100
* Is Fluidic Prime Performed: 168 1
* Conversion from Microlitre to Microstep for Wash Solution Syringe: 169 63712
* Wash Station's Position above Cuvette Opening: 170 557

Temperature Unit 17-08-2021

* 7:
* 1:
* 26:
* 3:
* Reaction Carousel Heater Coefficient: 127 100
* Reaction Carousel Heater Integral Time: 128 250
* Reaction Carousel Heater Differential Time: 129 50
* Wash Solution Heater Coefficient: 130 30
* Wash Solution Heater Integral Time: 131 80
* Wash Solution Heater Differential Time: 132 20
* DI Water Heater Coefficient: 133 30
* DI Water Heater Integral Time: 134 80
* DI Water Heater Differential Time: 135 20
* Reagent Preheating Heater Coefficient: 136 12
* Reagent Preheating Heater Integral Time: 137 10
* Reagent Preheating Heater Differential Time: 138 2
* Reaction Carousel Target Temperature: 139 3780
* Wash Solution Heater Target Temperature: 140 4400
* DI Water Heater Target Temperature: 141 4400
* Reagent Preheating Target Temperature: 142 4500
* Reaction Carousel Sensor R0: 143 1000.04
* Reaction Carousel Sensor A: 144 0.00383
* Reaction Carousel Sensor B: 145 -0.000000612
* Reaction Carousel Sensor ?AD: 146 25
* Reagent Preheating Sensor R0: 147 1000.00
* Reagent Preheating Sensor A: 148 0.00375
* Reagent Preheating Sensor B: 149 0.000000000
* Reagent Preheating Sensor ?AD: 150 0
* Reaction Carousel ?T: 151 0.1