

## CVC 123 Calibration Verification Controls

**LOT**

Set: 012325  
Level 1: 04123  
Level 2: 01533  
Level 3: 01632  
Level 4: 01733  
Level 5: 04224



Exp.: Set: 2023-10-31  
Level 1: 2023-10-31  
Level 2: 2023-10-31  
Level 3: 2023-10-31  
Level 4: 2023-10-31  
Level 5: 2023-10-31

**REF**

CVC 123

**IVD**For *In Vitro*  
Diagnostic  
Use

### INTENDED USE

RNA Medical® Brand **CVC 123 Calibration Verification Controls** are assayed materials used for confirming the calibration and linearity of blood gas, electrolyte, and metabolite instrumentation for the analytes and analyzers listed on the Expected Values Chart.

### PRODUCT DESCRIPTION

CVC 123 is provided in five (5) distinct levels of pH,  $p\text{CO}_2$ ,  $p\text{O}_2$ ,  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Cl}^-$ ,  $\text{Ca}^{++}$ ,  $\text{Mg}^{++}$ , glucose, and lactate covering the significant range of instrument performance. It is packaged in sealed glass ampuls, each containing 2.5 mL of solution. Ampuls are packaged in kits containing four (4) ampuls of each level.

#### Active Ingredients:

CVC 123 is a buffered solution containing electrolytes, glucose, and lactate. It has been equilibrated with specific levels of  $\text{CO}_2$ ,  $\text{O}_2$ , and  $\text{N}_2$ . This product contains no preservatives and no human or biological materials.

### STORAGE

The expiration date stated on the CVC 123 packaging is for product stored at 2-8 °C. The product may also be stored at room temperature (up to 25 °C) for nine (9) months, provided the labeled expiration date is not exceeded. Avoid exposure to freezing and temperatures greater than 30 °C.

### DIRECTIONS FOR USE

CVC 123 should be brought to a temperature of 20-25 °C before use (see instructions regarding Expected Values). Allow at least four (4) hours for the ampuls to equilibrate to this temperature prior to testing.

It is best to run calibration verification materials in the same manner as patient samples, however, please refer to the Expected Values Chart enclosed and/or any specific instructions for your analyzer regarding the use of aqueous control materials.

**For Roche OMNI 1-9, Omni-S and Cobas b 221 Analyzers: Always test CVC 123 as an aqueous material in the Sample or QC Mode.**

Follow the procedures listed below:

1. Perform a two-point calibration on your instrument before beginning the calibration verification procedure.
2. Beginning with Level 1, hold the ampul at the top and bottom (with forefinger and thumb) and shake 15 to 20 times (about 10 seconds) to mix the solution. Tap the ampul to restore the liquid to the bottom of the ampul.
3. Open the ampul by snapping off the tip at the score. Use the Snapper® provided to protect fingers from cuts.
4. Immediately introduce the liquid from the ampul to the analyzer. Use direct aspiration, syringe transfer, or capillary mode techniques.
5. Record the results on the Data Collection and Linearity Worksheet provided for each analyte.
6. Repeat steps 2 through 5 for the remaining ampuls of Level 1 until three (3) replicates are completed (a fourth ampul of each level is provided in case of accidental breakage or obvious sampling error). Test Levels 2, 3, 4, and 5 the same way. Record all values on the worksheets.
7. Calculate the mean value for each test analyte and compare your mean to the range on the Expected Values Chart. If your mean is within the range, circle **Y** at the question **OK?**. If your mean is outside the range, circle **N** and take corrective action.
8. To graph the linearity of your results:
  - a) Using the graph area provided, plot the Test Value (mean) against the Expected Value.
  - b) Connect the plotted points to visualize linearity.

**Note:** Steps 7 and 8 may be performed on-line as a feature of PeerQC described below.

### EXPECTED VALUES

The values for each analyte on the enclosed Expected Values Chart are based on multiple determinations performed on randomly selected samples from each lot. The listing for each instrument represents the expected range and mean value for this range for ampuls that are at 25 °C when tested. (Note:  $p\text{O}_2$  values will vary inversely by about one percent (1%) per degree Celsius that the temperature of the ampul varies from 25 °C.)

The Expected Values are provided as a guide in evaluating analyzer performance. Since instrument design and operating conditions may vary, each laboratory should establish its own acceptance criteria.

### STATISTICAL SUPPORT

RNA Medical PeerQC®, available at [www.RNAMedical.com](http://www.RNAMedical.com), features web-based graphing and reporting for its Calibration Verification Controls and is available at no charge to RNA Medical customers. The graphing steps outlined above may be performed on-line as a feature of this service. Please contact RNA Medical or visit our website for information about utilizing PeerQC for this product.

### LIMITATIONS

1. CVC 123 is sensitive to many instrument related factors that would affect analytical results. Because it is not a blood-based material, it may not detect certain malfunctions that would affect the testing of blood.
2. This product is intended for use in evaluating the performance of laboratory instruments. It is not for use as a calibration standard and its use should not replace other aspects of a complete quality control program.

RNA Medical is a registered trademark and PeerQC is a registered service mark of Bionostics, Inc.

# CVC 123 Calibration Verification Controls

## Level 1

**LOT** 04123

**Exp.:** 2023-10-31

### Expected Values Chart

Analyzers	pH		pCO <sub>2</sub> mmHg		pO <sub>2</sub> mmHg		Na <sup>+</sup> mmol/L		K <sup>+</sup> mmol/L		Cl <sup>-</sup> mmol/L		Ca <sup>++</sup> mmol/L		Mg <sup>++</sup> mmol/L		Glucose mg/dL		Lactate mmol/L		
	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	
<b>EPOCAL</b>																					
EPOC	6.80	6.75 - 6.85	94	82 - 106	33	18 - 48	93	88 - 98	DNA <sup>3</sup>				2.77	2.27 - 3.27			481	381 - 581	DNA <sup>3</sup>		
<b>IL</b>																					
GEM Premier 3000 Series	ORL <sup>2</sup>		89	77 - 101	39	24 - 54	ORL <sup>2</sup>		11.6	9.1 - 14.1			2.82	2.32 - 3.32			DNA <sup>3</sup>		DNA <sup>3</sup>		
GEM Premier 4000 Series	6.81	6.78 - 6.84	88	76 - 100	41	26 - 56	ORL <sup>2</sup>		11.9	9.4 - 14.4	65	60 - 70	3.07	2.57 - 3.57			449	399 - 499	15.1	11.6 - 18.6	
GEM Premier 5000 Series	6.78	6.74 - 6.82	89	82 - 96	37	27 - 47	ORL <sup>2</sup>		11.9	11.1 - 12.7	65	61 - 69	3.13	2.82 - 3.44			459	413 - 505	16.8	14.3 - 19.3	
<b>LifeHealth</b>																					
IRMA TRUpoint	Contact LifeHealth Technical Support or the LifeHealth website ( <a href="http://www.lifehealthmed.com">www.lifehealthmed.com</a> ) for assigned values.																				
<b>Medica</b>																					
EasyBloodGas	ORL <sup>2</sup>		93	81 - 105	31	19 - 43															
EasyStat	6.81	6.78 - 6.84	101	89 - 113	26	14 - 38	84	79 - 89	11.5	9.5 - 13.5	65	60 - 70	2.85	2.45 - 3.25							
<b>Nova</b>																					
CCX, pHox Ultra	6.89	6.86 - 6.92	82	70 - 94	27	12 - 42	89	84 - 94	12.0	9.5 - 14.5	73	68 - 78	DNA <sup>3</sup>		DNA <sup>3</sup>		459	409 - 509	16.5	13.0 - 20.0	
pHOx	6.89	6.86 - 6.92	81	69 - 93	28	13 - 43															
pHOx Plus	6.89	6.86 - 6.92	81	69 - 93	24	9 - 39	90	85 - 95	12.0	9.5 - 14.5	69	64 - 74	DNA <sup>3</sup>				431	381 - 481	DNA <sup>3</sup>		
Prime	Call Nova Biomedical Hot line 1-800-545-6682 for assigned values.																				
<b>OPTI Medical</b>																					
OPTI CCA	6.88	6.83 - 6.93	88	76 - 100	59	44 - 74	ORL <sup>2</sup>		ORL <sup>2</sup>		85	80 - 90	ORL <sup>2</sup>				ORL <sup>2</sup>		ORL <sup>2</sup>		
OPTI R	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>				DNA <sup>3</sup>		DNA <sup>3</sup>		
OPTI LION	DNA <sup>3</sup>						DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>								
<b>Radiometer</b>																					
ABL 700 Series	6.84	6.81 - 6.87	89	77 - 101	39	24 - 54	86	81 - 91	11.3	8.8 - 13.8	65	60 - 70	2.96	2.46 - 3.46			430	380 - 480	14.9	11.4 - 18.4	
ABL 77, 80 Series	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>				DNA <sup>3</sup>		DNA <sup>3</sup>		
ABL 800 Series	6.84	6.81 - 6.87	87	75 - 99	44	29 - 59	85	80 - 90	11.3	8.8 - 13.8	64	59 - 69	2.95	2.45 - 3.45			430	380 - 480	15.6	12.1 - 19.1	
ABL 90 Series	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>				DNA <sup>3</sup>		DNA <sup>3</sup>		
<b>Roche</b>																					
Cobas b 221	6.89	6.86 - 6.92	90	78 - 102	7	0 - 22	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>				DNA <sup>3</sup>		DNA <sup>3</sup>		
OMNI 1-9'	6.89	6.86 - 6.92	89	77 - 101	20	5 - 35	87	82 - 92	11.5	9.0 - 14.0	73	68 - 78	2.82	2.32 - 3.32			421	371 - 471	16.2	12.7 - 19.7	
<b>Siemens</b>																					
238	6.84	6.81 - 6.87	100	88 - 112	35	20 - 50															
248	6.85	6.82 - 6.88	100	88 - 112	21	6 - 36															
400 Series	6.78	6.74 - 6.82	101	87 - 115	41	25 - 57	ORL <sup>2</sup>		11.0	8.5 - 13.5	ORL <sup>2</sup>		2.78	2.28 - 3.28			459	409 - 509			
800 Series	6.86	6.83 - 6.89	92	80 - 104	30	15 - 45	86	81 - 91	11.5	9.0 - 14.0	66	61 - 71	2.72	2.22 - 3.22			431	381 - 481	14.3	10.8 - 17.8	
500 Series	6.78	6.74 - 6.82	97	83 - 111	42	26 - 58	ORL <sup>2</sup>		11.0	8.5 - 13.5	ORL <sup>2</sup>		2.82	2.32 - 3.32			DNA <sup>3</sup>		DNA <sup>3</sup>		
1200 Series	6.86	6.83 - 6.89	92	80 - 104	32	17 - 47	86	81 - 91	11.7	9.2 - 14.2	71	66 - 76	2.82	2.32 - 3.32			415	365 - 465	15.4	11.9 - 18.9	

**FOOTNOTES:** 1. Always Test as an Aqueous Material in the Sample or QC Mode  
 2. ORL - Outside (Analyzer's) Reportable Limits  
 3. DNA - Data Not Available at Time of Printing

# CVC 123 Calibration Verification Controls

## Level 2

**LOT** 01533

**Exp.:** 2023-10-31

### Expected Values Chart

Analyzers	pH		pCO <sub>2</sub> mmHg		pO <sub>2</sub> mmHg		Na <sup>+</sup> mmol/L		K <sup>+</sup> mmol/L		Cl <sup>-</sup> mmol/L		Ca <sup>++</sup> mmol/L		Mg <sup>++</sup> mmol/L		Glucose mg/dL		Lactate mmol/L									
	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range								
<b>EPOCAL</b>																												
EPOC	7.09	7.04 - 7.14	69	61 - 77	70	55 - 85	110	105 - 115	DNA <sup>3</sup>				1.43	1.28 - 1.58				79	68 - 90		0.6	0.3 - 0.9						
<b>IL</b>																												
GEM Premier 3000 Series	7.13	7.09 - 7.17	70	61 - 79	73	61 - 85	111	106 - 116	1.8	1.3 - 2.3				1.51	1.36 - 1.66				DNA <sup>3</sup>		DNA <sup>3</sup>							
GEM Premier 4000 Series	7.12	7.08 - 7.16	68	59 - 77	72	60 - 84	112	107 - 117	1.9	1.4 - 2.4		79	74 - 84		1.54	1.39 - 1.69		75	65 - 85		0.6	0.3 - 0.9						
GEM Premier 5000 Series	7.11	7.07 - 7.15	74	68 - 80	69	59 - 79	111	106 - 116	1.8	1.3 - 2.3		77	73 - 81		1.46	1.31 - 1.61		72	65 - 79		0.7	0.3 - 1.1						
<b>LifeHealth</b>																												
IRMA TRUpoint	Contact LifeHealth Technical Support or the LifeHealth website ( <a href="http://www.lifehealthmed.com">www.lifehealthmed.com</a> ) for assigned values.																											
<b>Medica</b>																												
EasyBloodGas	7.14	7.11 - 7.17	70	63 - 77	67	57 - 77																						
EasyStat	7.13	7.10 - 7.16	74	67 - 81	64	54 - 74		111	106 - 116		1.7	1.2 - 2.2		72	67 - 77		1.43	1.33 - 1.53										
<b>Nova</b>																												
CCX, pHox Ultra	7.17	7.14 - 7.20	64	57 - 71	66	57 - 75		111	106 - 116		2.0	1.5 - 2.5		83	78 - 88		1.57	1.42 - 1.72		1.08	0.93 - 1.23		82	72 - 92		0.5	0.2 - 0.8	
pHOx	7.17	7.14 - 7.20	63	56 - 70		65	56 - 74																					
pHOx Plus	7.20	7.17 - 7.23	63	56 - 70		64	55 - 73		114	109 - 119		2.0	1.5 - 2.5		74	69 - 79		1.50	1.35 - 1.65		86	76 - 96		DNA <sup>3</sup>				
Prime	Call Nova Biomedical Hot line 1-800-545-6682 for assigned values.																											
<b>OPTI Medical</b>																												
OPTI CCA	7.18	7.13 - 7.23	68	60 - 76		79	64 - 94		117	109 - 125		1.8	1.3 - 2.3		94	89 - 99		1.32	1.17 - 1.47		84	68 - 100		0.7	0.4 - 1.0			
OPTI R	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>					
OPTI LION	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>					
<b>Radiometer</b>																												
ABL 700 Series	7.14	7.11 - 7.17	68	61 - 75		74	64 - 84		114	109 - 119		2.1	1.6 - 2.6		77	72 - 82		1.57	1.42 - 1.72		78	68 - 88		0.6	0.3 - 0.9			
ABL 77, 80 Series	7.14	7.09 - 7.19	69	62 - 76		59	49 - 69		114	109 - 119		2.0	1.5 - 2.5		66	61 - 71		1.43	1.28 - 1.58		75	65 - 85						
ABL 800 Series	7.14	7.11 - 7.17	67	60 - 74		76	66 - 86		112	107 - 117		2.0	1.5 - 2.5		76	71 - 81		1.57	1.42 - 1.72		81	71 - 91		0.6	0.3 - 0.9			
ABL 90 Series	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>					
<b>Roche</b>																												
Cobas b 221	7.15	7.12 - 7.18	71	63 - 79		54	39 - 69		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>					
OMNI 1-9'	7.15	7.12 - 7.18	70	62 - 78		63	48 - 78		114	109 - 119		2.0	1.5 - 2.5		85	80 - 90		1.51	1.36 - 1.66		80	65 - 95		0.6	0.3 - 0.9			
<b>Siemens</b>																												
238	7.15	7.12 - 7.18	70	62 - 78		71	61 - 81																					
248	7.15	7.12 - 7.18	67	59 - 75		53	43 - 63																					
400 Series	7.11	7.07 - 7.15	75	65 - 85		73	61 - 85		109	104 - 114		1.9	1.4 - 2.4		73	67 - 79		1.51	1.35 - 1.67		77	67 - 87						
800 Series	7.16	7.13 - 7.19	69	62 - 76		67	57 - 77		109	104 - 114		1.8	1.3 - 2.3		79	74 - 84		1.46	1.31 - 1.61		78	68 - 88		0.6	0.3 - 0.9			
500 Series	7.12	7.08 - 7.16	71	61 - 81		76	64 - 88		109	104 - 114		1.9	1.4 - 2.4		73	67 - 79		1.51	1.35 - 1.67		77	67 - 87		DNA <sup>3</sup>				
1200 Series	7.16	7.13 - 7.19	68	61 - 75		67	57 - 77		110	105 - 115		1.8	1.3 - 2.3		80	75 - 85		1.47	1.32 - 1.62		75	65 - 85		0.7	0.4 - 1.0			

**FOOTNOTES:** 1. Always Test as an Aqueous Material in the Sample or QC Mode  
 2. ORL - Outside (Analyzer's) Reportable Limits  
 3. DNA - Data Not Available at Time of Printing

# CVC 123 Calibration Verification Controls

## Level 3

**LOT** 01632

**Exp.:** 2023-10-31

### Expected Values Chart

Analyzers	pH		pCO <sub>2</sub> mmHg		pO <sub>2</sub> mmHg		Na <sup>+</sup> mmol/L		K <sup>+</sup> mmol/L		Cl <sup>-</sup> mmol/L		Ca <sup>++</sup> mmol/L		Mg <sup>++</sup> mmol/L		Glucose mg/dL		Lactate mmol/L		
	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	
<b>EPOCAL</b>																					
EPOC	7.39	7.34 - 7.44	39	34 - 44	105	88 - 122	134	129 - 139	DNA <sup>3</sup>				1.16	1.06 - 1.26			189	159 - 219	2.2	1.6 - 2.8	
<b>IL</b>																					
GEM Premier 3000 Series	7.42	7.38 - 7.46	41	34 - 48	112	100 - 124	135	130 - 140	4.3	3.8 - 4.8			1.16	1.06 - 1.26			DNA <sup>3</sup>		DNA <sup>3</sup>		
GEM Premier 4000 Series	7.41	7.37 - 7.45	40	33 - 47	112	100 - 124	133	128 - 138	4.5	4.0 - 5.0	100	95 - 105	1.16	1.06 - 1.26			184	164 - 204	2.0	1.5 - 2.5	
GEM Premier 5000 Series	7.44	7.40 - 7.48	40	35 - 45	106	95 - 117	132	128 - 136	4.4	3.9 - 4.9	97	92 - 102	1.10	0.99 - 1.21			176	158 - 194	2.5	2.1 - 2.9	
<b>LifeHealth</b>																					
IRMA TRUpoint	Contact LifeHealth Technical Support or the LifeHealth website ( <a href="http://www.lifehealthmed.com">www.lifehealthmed.com</a> ) for assigned values.																				
<b>Medica</b>																					
EasyBloodGas	7.42	7.39 - 7.45	42	37 - 47	108	98 - 118															
EasyStat	7.42	7.39 - 7.45	42	37 - 47	110	100 - 120	134	129 - 139	4.3	3.8 - 4.8	94	89 - 99	1.11	1.01 - 1.21							
<b>Nova</b>																					
CCX, pHox Ultra	7.42	7.39 - 7.45	40	35 - 45	110	101 - 119	131	126 - 136	4.4	3.9 - 4.9	100	95 - 105	1.18	1.08 - 1.28	0.54	0.44 - 0.64	194	174 - 214	2.5	2.0 - 3.0	
pHOx	7.45	7.42 - 7.48	39	34 - 44	107	98 - 116															
pHOx Plus	7.44	7.41 - 7.47	39	34 - 44	109	100 - 118	134	129 - 139	4.4	3.9 - 4.9	95	90 - 100	1.13	1.03 - 1.23			209	189 - 229	DNA <sup>3</sup>		
Prime	Call Nova Biomedical Hot line 1-800-545-6682 for assigned values.																				
<b>OPTI Medical</b>																					
OPTI CCA	7.41	7.36 - 7.46	39	34 - 44	105	88 - 122	139	130 - 148	4.5	4.0 - 5.0	106	101 - 111	1.16	1.06 - 1.26			187	164 - 210	2.6	2.1 - 3.1	
OPTI R	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>				DNA <sup>3</sup>		DNA <sup>3</sup>		
OPTI LION	DNA <sup>3</sup>						DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>								
<b>Radiometer</b>																					
ABL 700 Series	7.39	7.36 - 7.42	42	37 - 47	112	102 - 122	134	129 - 139	4.4	3.9 - 4.9	96	91 - 101	1.20	1.10 - 1.30			185	165 - 205	2.2	1.7 - 2.7	
ABL 77, 80 Series	7.39	7.34 - 7.44	42	37 - 47	102	92 - 112	134	129 - 139	4.3	3.8 - 4.8	94	89 - 99	1.15	1.05 - 1.25			185	165 - 205			
ABL 800 Series	7.40	7.37 - 7.43	41	36 - 46	113	103 - 123	133	128 - 138	4.5	4.0 - 5.0	96	91 - 101	1.20	1.10 - 1.30			187	167 - 207	2.3	1.8 - 2.8	
ABL 90 Series	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>				DNA <sup>3</sup>		DNA <sup>3</sup>		
<b>Roche</b>																					
Cobas b 221	7.40	7.37 - 7.43	44	39 - 49	103	91 - 115	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>				DNA <sup>3</sup>		DNA <sup>3</sup>		
OMNI 1-9'	7.39	7.36 - 7.42	44	39 - 49	106	94 - 118	135	130 - 140	4.5	4.0 - 5.0	102	97 - 107	1.16	1.06 - 1.26			186	166 - 206	2.6	2.1 - 3.1	
<b>Siemens</b>																					
238	7.40	7.37 - 7.43	43	37 - 49	104	94 - 114															
248	7.40	7.37 - 7.43	43	37 - 49	95	85 - 105															
400 Series	7.40	7.36 - 7.44	43	37 - 49	109	97 - 121	131	126 - 136	4.3	3.8 - 4.8	98	92 - 104	1.10	0.98 - 1.22			193	173 - 213			
800 Series	7.42	7.39 - 7.45	43	38 - 48	108	98 - 118	130	125 - 135	4.4	3.9 - 4.9	99	94 - 104	1.10	1.00 - 1.20			193	173 - 213	2.5	2.0 - 3.0	
500 Series	7.41	7.37 - 7.45	42	36 - 48	110	98 - 122	131	126 - 136	4.3	3.8 - 4.8	98	92 - 104	1.10	0.98 - 1.22			193	173 - 213	DNA <sup>3</sup>		
1200 Series	7.42	7.39 - 7.45	40	35 - 45	105	95 - 115	130	125 - 135	4.2	3.7 - 4.7	98	93 - 103	1.10	1.00 - 1.20			185	165 - 205	2.4	1.9 - 2.9	

**FOOTNOTES:** 1. Always Test as an Aqueous Material in the Sample or QC Mode  
 2. ORL - Outside (Analyzer's) Reportable Limits  
 3. DNA - Data Not Available at Time of Printing

# CVC 123 Calibration Verification Controls

## Level 4

**LOT** 01733

**Exp.:** 2023-10-31

### Expected Values Chart

Analyzers	pH		pCO <sub>2</sub> mmHg		pO <sub>2</sub> mmHg		Na <sup>+</sup> mmol/L		K <sup>+</sup> mmol/L		Cl <sup>-</sup> mmol/L		Ca <sup>++</sup> mmol/L		Mg <sup>++</sup> mmol/L		Glucose mg/dL		Lactate mmol/L									
	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range								
<b>EPOCAL</b>																												
EPOC	7.60	7.55 - 7.65	19	14 - 24	150	127 - 173	157	152 - 162	DNA <sup>3</sup>				0.49	0.39 - 0.59				288	223 - 353		7.1	5.6 - 8.6						
<b>IL</b>																												
GEM Premier 3000 Series	7.64	7.60 - 7.68	20	14 - 26	159	147 - 171	160	155 - 165	6.2	5.7 - 6.7				0.48	0.38 - 0.58				DNA <sup>3</sup>		DNA <sup>3</sup>							
GEM Premier 4000 Series	7.62	7.58 - 7.66	20	14 - 26	154	142 - 166	156	151 - 161	6.3	5.8 - 6.8		125	120 - 130		0.48	0.38 - 0.58		279	249 - 309		6.3	4.8 - 7.8						
GEM Premier 5000 Series	7.65	7.61 - 7.69	21	16 - 26	145	130 - 160	154	150 - 158	6.4	5.9 - 6.9		120	114 - 126		0.39	0.29 - 0.49		266	239 - 293		6.9	5.9 - 7.9						
<b>LifeHealth</b>																												
IRMA TRUpoint	Contact LifeHealth Technical Support or the LifeHealth website ( <a href="http://www.lifehealthmed.com">www.lifehealthmed.com</a> ) for assigned values.																											
<b>Medica</b>																												
EasyBloodGas	7.62	7.59 - 7.65	22	18 - 26	161	149 - 173																						
EasyStat	7.62	7.59 - 7.65	21	17 - 25	163	151 - 175		160	155 - 165		6.3	5.8 - 6.8		115	110 - 120		0.50		0.40 - 0.60									
<b>Nova</b>																												
CCX, pHox Ultra	7.59	7.56 - 7.62	21	17 - 25	158	148 - 168		157	152 - 162		6.5	6.0 - 7.0		125	120 - 130		0.58	0.48 - 0.68		0.28	0.20 - 0.36		293	263 - 323		7.5	6.0 - 9.0	
pHOx	7.61	7.58 - 7.64	21	17 - 25	158	148 - 168																						
pHOx Plus	7.61	7.58 - 7.64	21	17 - 25	165	155 - 175		158	153 - 163		6.5	6.0 - 7.0		118	113 - 123		0.63	0.53 - 0.73				304	274 - 334		DNA <sup>3</sup>			
Prime	Call Nova Biomedical Hot line 1-800-545-6682 for assigned values.																											
<b>OPTI Medical</b>																												
OPTI CCA	7.63	7.57 - 7.69	21	17 - 25	150	138 - 162		162	152 - 172		6.7	6.2 - 7.2		126	120 - 132		0.46	0.41 - 0.51				291	241 - 341		6.3	4.8 - 7.8		
OPTI R	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>			
OPTI LION	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>			
<b>Radiometer</b>																												
ABL 700 Series	7.58	7.55 - 7.61	22	18 - 26	151	141 - 161		156	151 - 161		6.1	5.6 - 6.6		121	116 - 126		0.60	0.50 - 0.70				279	249 - 309		6.5	5.0 - 8.0		
ABL 77, 80 Series	7.57	7.51 - 7.63	22	18 - 26	145	135 - 155		156	151 - 161		6.0	5.5 - 6.5		122	117 - 127		0.56	0.46 - 0.66				279	249 - 309					
ABL 800 Series	7.58	7.55 - 7.61	23	19 - 27	153	143 - 163		156	151 - 161		6.3	5.8 - 6.8		122	117 - 127		0.57	0.47 - 0.67				279	249 - 309		6.8	5.3 - 8.3		
ABL 90 Series	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>			
<b>Roche</b>																												
Cobas b 221	7.56	7.53 - 7.59	22	18 - 26	155	143 - 167		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		
OMNI 1-9'	7.56	7.53 - 7.59	23	19 - 27	151	139 - 163		159	154 - 164		6.4	5.9 - 6.9		125	120 - 130		0.53	0.43 - 0.63				289	254 - 324		7.5	6.0 - 9.0		
<b>Siemens</b>																												
238	7.57	7.54 - 7.60	23	18 - 28	139	128 - 150																						
248	7.57	7.54 - 7.60	23	18 - 28	140	129 - 151																						
400 Series	7.59	7.55 - 7.63	21	16 - 26	148	136 - 160		156	149 - 163		6.1	5.6 - 6.6		123	113 - 133		0.48	0.38 - 0.58				288	258 - 318					
800 Series	7.60	7.57 - 7.63	22	18 - 26	151	140 - 162		153	148 - 158		6.3	5.8 - 6.8		122	117 - 127		0.52	0.42 - 0.62				292	262 - 322		7.3	5.8 - 8.8		
500 Series	7.60	7.56 - 7.64	21	16 - 26	151	139 - 163		156	149 - 163		6.1	5.6 - 6.6		123	113 - 133		0.48	0.38 - 0.58				288	258 - 318		DNA <sup>3</sup>			
1200 Series	7.61	7.58 - 7.64	20	16 - 24	148	137 - 159		153	148 - 158		6.1	5.6 - 6.6		122	117 - 127		0.53	0.43 - 0.63				279	249 - 309		7.2	5.7 - 8.7		

**FOOTNOTES:** 1. Always Test as an Aqueous Material in the Sample or QC Mode  
 2. ORL - Outside (Analyzer's) Reportable Limits  
 3. DNA - Data Not Available at Time of Printing

# CVC 123 Calibration Verification Controls

## Level 5

**LOT** 04224

 Exp.: 2023-10-31

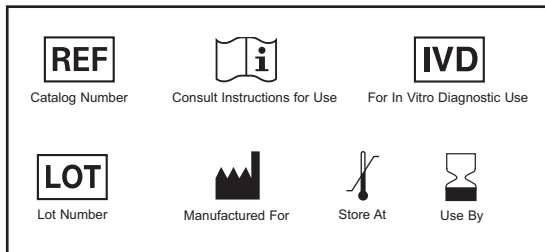
### Expected Values Chart

Analyzers	pH		pCO <sub>2</sub> mmHg		pO <sub>2</sub> mmHg		Na <sup>+</sup> mmol/L		K <sup>+</sup> mmol/L		Cl <sup>-</sup> mmol/L		Ca <sup>++</sup> mmol/L		Mg <sup>++</sup> mmol/L		Glucose mg/dL		Lactate mmol/L		
	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	mean	range	
<b>EPOCAL</b>																					
EPOC	7.87	7.81 - 7.93	13	9 - 17	485	395 - 575	171	165 - 177	DNA <sup>3</sup>				0.22	0.12 - 0.32			0	0 - 10	DNA <sup>3</sup>		
<b>IL</b>																					
GEM Premier 3000 Series	ORL <sup>2</sup>		12	8 - 16	462	402 - 522	177	172 - 182	1.4	0.9 - 1.9			0.13	0.03 - 0.23			DNA <sup>3</sup>		DNA <sup>3</sup>		
GEM Premier 4000 Series	7.86	7.82 - 7.90	12	8 - 16	462	402 - 522	164	159 - 169	1.4	0.9 - 1.9	136	131 - 141	0.13	0.03 - 0.23			ORL <sup>2</sup>		11.3	8.8 - 13.8	
GEM Premier 5000 Series	7.87	7.83 - 7.91	16	11 - 21	409	365 - 453	164	159 - 169	1.4	0.9 - 1.9	132	125 - 139	0.10	0.00 - 0.20			DNA <sup>3</sup>		12.0	10.3 - 13.7	
<b>LifeHealth</b>																					
IRMA TRUpoint	Contact LifeHealth Technical Support or the LifeHealth website ( <a href="http://www.lifehealthmed.com">www.lifehealthmed.com</a> ) for assigned values.																				
<b>Medica</b>																					
EasyBloodGas	7.83	7.78 - 7.88	14	10 - 18	466	416 - 516															
EasyStat	7.82	7.77 - 7.87	12	8 - 16	500	450 - 550	173	168 - 178	1.4	0.9 - 1.9	122	117 - 127	0.25	0.15 - 0.35							
<b>Nova</b>																					
CCX, pHox Ultra	7.81	7.77 - 7.85	13	9 - 17	485	425 - 545	168	163 - 173	1.6	1.1 - 2.1	132	127 - 137	0.25	0.15 - 0.35	DNA <sup>3</sup>		DNA <sup>3</sup>		12.0	9.5 - 14.5	
pHOx	7.83	7.79 - 7.87	13	9 - 17	510	450 - 570															
pHOx Plus	7.81	7.77 - 7.85	13	9 - 17	515	455 - 575	167	162 - 172	1.6	1.1 - 2.1	126	121 - 131	DNA <sup>3</sup>				DNA <sup>3</sup>		DNA <sup>3</sup>		
Prime	Call Nova Biomedical Hot line 1-800-545-6682 for assigned values.																				
<b>OPTI Medical</b>																					
OPTI CCA	ORL <sup>2</sup>		14	10 - 18	473	413 - 533	ORL <sup>2</sup>		1.5	1.0 - 2.0	137	131 - 143	ORL <sup>2</sup>				ORL <sup>2</sup>		10.2	7.7 - 12.7	
OPTI R	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>				DNA <sup>3</sup>		DNA <sup>3</sup>		
OPTI LION	DNA <sup>3</sup>						DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>								
<b>Radiometer</b>																					
ABL 700 Series	7.81	7.77 - 7.85	12	8 - 16	445	385 - 505	166	161 - 171	1.7	1.2 - 2.2	130	125 - 135	0.33	0.23 - 0.43			0	0 - 5	10.8	8.3 - 13.3	
ABL 77, 80 Series	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>				DNA <sup>3</sup>				
ABL 800 Series	7.81	7.77 - 7.85	12	8 - 16	445	385 - 505	166	161 - 171	1.7	1.2 - 2.2	131	126 - 136	0.33	0.23 - 0.43			0	0 - 5	11.0	8.5 - 13.5	
ABL 90 Series	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>				DNA <sup>3</sup>		DNA <sup>3</sup>		
<b>Roche</b>																					
Cobas b 221	7.78	7.74 - 7.82	12	8 - 16	485	425 - 545	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>				DNA <sup>3</sup>		DNA <sup>3</sup>		
OMNI 1-9'	7.76	7.72 - 7.80	13	9 - 17	440	380 - 500	170	165 - 175	1.6	1.1 - 2.1	133	128 - 138	0.21	0.11 - 0.31			ORL <sup>2</sup>		11.8	9.3 - 14.3	
<b>Siemens</b>																					
238	7.82	7.78 - 7.86	12	8 - 16	475	415 - 535															
248	7.82	7.78 - 7.86	12	8 - 16	475	415 - 535															
400 Series	ORL <sup>2</sup>		ORL <sup>2</sup>		473	413 - 533	170	160 - 180	1.5	1.0 - 2.0	132	122 - 142	ORL <sup>2</sup>				ORL <sup>2</sup>				
800 Series	7.85	7.81 - 7.89	12	8 - 16	441	381 - 501	162	157 - 167	1.4	0.9 - 1.9	130	125 - 135	0.26	0.16 - 0.36			ORL <sup>2</sup>		9.9	7.4 - 12.4	
500 Series	ORL <sup>2</sup>		ORL <sup>2</sup>		471	411 - 531	170	160 - 180	1.5	1.0 - 2.0	131	121 - 141	ORL <sup>2</sup>				ORL <sup>2</sup>		DNA <sup>3</sup>		
1200 Series	7.85	7.81 - 7.89	11	7 - 15	485	425 - 545	162	157 - 167	1.4	0.9 - 1.9	131	126 - 136	ORL <sup>2</sup>				ORL <sup>2</sup>		11.4	8.9 - 13.9	

**FOOTNOTES:**  
 1. Always Test as an Aqueous Material in the Sample or QC Mode  
 2. ORL - Outside (Analyzer's) Reportable Limits  
 3. DNA - Data Not Available at Time of Printing

# CVC 123 Calibration Verification Controls

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