

## CVC 123 Calibration Verification Controls

**LOT**

Set: 812324R  
Level 1: 84122  
Level 2: 81531  
Level 3: 81630  
Level 4: 81731  
Level 5: 84223



Exp.: Set: 2021-08  
Level 1: 2021-08  
Level 2: 2021-08  
Level 3: 2021-08  
Level 4: 2021-08  
Level 5: 2021-08

**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** 84122

 Exp.: 2021-08

### Expected Values Chart

Analyzers	pH		pCO <sub>2</sub> mmHg		pO <sub>2</sub> mmHg		Na <sup>+</sup> mmol/L	
	mean	range	mean	range	mean	range	mean	range
<b>EPOCAL</b>								
EPOC	6.80	6.75 - 6.85	94	82 - 106	34	19 - 49	92	87 - 97
<b>IL</b>								
GEM Premier 3000 Series	ORL <sup>2</sup>		89	77 - 101	40	25 - 55	ORL <sup>2</sup>	
GEM Premier 4000 Series	6.81	6.78 - 6.84	88	76 - 100	42	27 - 57	ORL <sup>2</sup>	
GEM Premier 5000 Series	6.79	6.75 - 6.83	91	84 - 98	36	26 - 46	ORL <sup>2</sup>	
<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>		96	84 - 108	27	15 - 39		
EasyStat	6.80	6.77 - 6.83	97	85 - 109	32	20 - 44	81	76 - 86
<b>Nova</b>								
CCX, pHox Ultra	6.89	6.86 - 6.92	82	70 - 94	28	13 - 43	88	83 - 93
pHOx	6.89	6.86 - 6.92	81	69 - 93	29	14 - 44		
pHOx Plus	6.89	6.86 - 6.92	81	69 - 93	25	10 - 40	89	84 - 94
Prime	Call Nova Biomedical Hot line 1-800-545-6682 for assigned values.							
<b>OPTI Medical</b>								
OPTI CCA	6.90	6.85 - 6.95	87	75 - 99	60	45 - 75	DNA <sup>3</sup>	
OPTI R	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>	
OPTI LION	6.86	6.80 - 6.92					92	86 - 98
<b>Radiometer</b>								
ABL 700 Series	6.84	6.81 - 6.87	89	77 - 101	40	25 - 55	85	80 - 90
ABL 77, 80 Series	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	45	30 - 60	84	79 - 89
ABL 90 Series	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	8	0 - 23	DNA <sup>3</sup>	
OMNI 1-9'	6.89	6.86 - 6.92	89	77 - 101	21	6 - 36	86	81 - 91
<b>Siemens</b>								
238	6.84	6.81 - 6.87	100	88 - 112	36	21 - 51		
248	6.85	6.82 - 6.88	100	88 - 112	22	7 - 37		
400 Series	6.78	6.74 - 6.82	101	87 - 115	42	26 - 58	ORL <sup>2</sup>	
800 Series	6.86	6.83 - 6.89	92	80 - 104	31	16 - 46	85	80 - 90
500 Series	6.78	6.74 - 6.82	97	83 - 111	43	27 - 59	ORL <sup>2</sup>	
1200 Series	6.86	6.83 - 6.89	92	80 - 104	33	18 - 48	85	80 - 90


**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

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
DNA <sup>3</sup>				2.77	2.27 - 3.27			482	382 - 582	DNA <sup>3</sup>	
11.5	9.0 - 14.0			2.82	2.32 - 3.32			DNA <sup>3</sup>		DNA <sup>3</sup>	
11.8	9.3 - 14.3	65	60 - 70	3.07	2.57 - 3.57			450	400 - 500	14.9	11.4 - 18.4
11.8	11.0 - 12.6	65	61 - 69	3.09	2.78 - 3.40			457	411 - 503	16.7	14.2 - 19.2
11.4	9.4 - 13.4	62	57 - 67	2.78	2.38 - 3.18						
11.9	9.4 - 14.4	73	68 - 78	DNA <sup>3</sup>		DNA <sup>3</sup>		460	410 - 510	16.3	12.8 - 19.8
11.9	9.4 - 14.4	69	64 - 74	DNA <sup>3</sup>				432	382 - 482	DNA <sup>3</sup>	
DNA <sup>3</sup>		84	79 - 89	DNA <sup>3</sup>				DNA <sup>3</sup>		14.2	10.7 - ORL <sup>2</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>		75	69 - 81	2.02	1.87 - 2.17						
11.2	8.7 - 13.7	65	60 - 70	2.96	2.46 - 3.46			431	381 - 481	14.7	11.2 - 18.2
DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>				DNA <sup>3</sup>		DNA <sup>3</sup>	
11.2	8.7 - 13.7	64	59 - 69	2.95	2.45 - 3.45			431	381 - 481	15.4	11.9 - 18.9
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>	
11.4	8.9 - 13.9	73	68 - 78	2.82	2.32 - 3.32			422	372 - 472	16.0	12.5 - 19.5
10.9	8.4 - 13.4	ORL <sup>2</sup>		2.78	2.28 - 3.28			460	410 - 510		
11.4	8.9 - 13.9	66	61 - 71	2.72	2.22 - 3.22			432	382 - 482	14.1	10.6 - 17.6
10.9	8.4 - 13.4	ORL <sup>2</sup>		2.82	2.32 - 3.32			DNA <sup>3</sup>		DNA <sup>3</sup>	
11.6	9.1 - 14.1	71	66 - 76	2.82	2.32 - 3.32			416	366 - 466	15.2	11.7 - 18.7

# CVC 123 Calibration Verification Controls

## Level 2

**LOT** 81531

 Exp.: 2021-08

### Expected Values Chart

Analyzers	pH		pCO <sub>2</sub> mmHg		pO <sub>2</sub> mmHg		Na <sup>+</sup> mmol/L	
	mean	range	mean	range	mean	range	mean	range
<b>EPOCAL</b>								
EPOC	7.10	7.05 - 7.15	69	61 - 77	70	55 - 85	110	105 - 115
<b>IL</b>								
GEM Premier 3000 Series	7.14	7.10 - 7.18	70	61 - 79	73	61 - 85	111	106 - 116
GEM Premier 4000 Series	7.13	7.09 - 7.17	68	59 - 77	72	60 - 84	112	107 - 117
GEM Premier 5000 Series	7.12	7.08 - 7.16	75	69 - 81	71	61 - 81	112	107 - 117
<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	7.15	7.12 - 7.18	70	63 - 77	67	57 - 77		
EasyStat	7.14	7.11 - 7.17	72	65 - 79	68	58 - 78	108	103 - 113
<b>Nova</b>								
CCX, pHox Ultra	7.18	7.15 - 7.21	64	57 - 71	66	57 - 75	111	106 - 116
pHOx	7.18	7.15 - 7.21	63	56 - 70	65	56 - 74		
pHOx Plus	7.21	7.18 - 7.24	63	56 - 70	64	55 - 73	114	109 - 119
Prime	Call Nova Biomedical Hot line 1-800-545-6682 for assigned values.							
<b>OPTI Medical</b>								
OPTI CCA	7.20	7.15 - 7.25	67	59 - 75	80	65 - 95	117	109 - 125
OPTI R	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>	
OPTI LION	7.19	7.13 - 7.25					109	104 - 114
<b>Radiometer</b>								
ABL 700 Series	7.15	7.12 - 7.18	68	61 - 75	74	64 - 84	114	109 - 119
ABL 77, 80 Series	7.15	7.10 - 7.20	69	62 - 76	59	49 - 69	114	109 - 119
ABL 800 Series	7.15	7.12 - 7.18	67	60 - 74	76	66 - 86	112	107 - 117
ABL 90 Series	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>	
<b>Roche</b>								
Cobas b 221	7.16	7.13 - 7.19	71	63 - 79	54	39 - 69	DNA <sup>3</sup>	
OMNI 1-9 <sup>1</sup>	7.16	7.13 - 7.19	70	62 - 78	63	48 - 78	114	109 - 119
<b>Siemens</b>								
238	7.16	7.13 - 7.19	70	62 - 78	71	61 - 81		
248	7.16	7.13 - 7.19	67	59 - 75	53	43 - 63		
400 Series	7.12	7.08 - 7.16	75	65 - 85	73	61 - 85	109	104 - 114
800 Series	7.17	7.14 - 7.20	69	62 - 76	67	57 - 77	109	104 - 114
500 Series	7.13	7.09 - 7.17	71	61 - 81	76	64 - 88	109	104 - 114
1200 Series	7.17	7.14 - 7.20	68	61 - 75	67	57 - 77	110	105 - 115


**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

<b>K<sup>+</sup> mmol/L</b>		<b>Cl<sup>-</sup> mmol/L</b>		<b>Ca<sup>++</sup> mmol/L</b>		<b>Mg<sup>++</sup> mmol/L</b>		<b>Glucose mg/dL</b>		<b>Lactate mmol/L</b>	
<i>mean</i>	<i>range</i>	<i>mean</i>	<i>range</i>	<i>mean</i>	<i>range</i>	<i>mean</i>	<i>range</i>	<i>mean</i>	<i>range</i>	<i>mean</i>	<i>range</i>
DNA <sup>3</sup>				1.44	1.29 - 1.59			79	68 - 90	0.6	0.3 - 0.9
1.8	1.3 - 2.3			1.52	1.37 - 1.67			DNA <sup>3</sup>		DNA <sup>3</sup>	
1.9	1.4 - 2.4	79	74 - 84	1.55	1.40 - 1.70			75	65 - 85	0.6	0.3 - 0.9
1.8	1.3 - 2.3	78	74 - 82	1.50	1.35 - 1.65			72	65 - 79	0.7	0.3 - 1.1
1.7	1.2 - 2.2	71	66 - 76	1.45	1.35 - 1.55						
2.0	1.5 - 2.5	83	78 - 88	1.58	1.43 - 1.73	1.08	0.93 - 1.23	82	72 - 92	0.5	0.2 - 0.8
2.0	1.5 - 2.5	74	69 - 79	1.51	1.36 - 1.66			86	76 - 96	DNA <sup>3</sup>	
1.7	1.2 - 2.2	93	88 - 98	1.33	1.18 - 1.48			87	71 - 103	0.7	0.4 - 1.0
DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>				DNA <sup>3</sup>		DNA <sup>3</sup>	
1.7	1.2 - 2.2	87	81 - 93	1.21	1.06 - 1.36						
2.1	1.6 - 2.6	77	72 - 82	1.58	1.43 - 1.73			78	68 - 88	0.6	0.3 - 0.9
2.0	1.5 - 2.5	66	61 - 71	1.44	1.29 - 1.59			75	65 - 85		
2.0	1.5 - 2.5	76	71 - 81	1.58	1.43 - 1.73			81	71 - 91	0.6	0.3 - 0.9
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>	
2.0	1.5 - 2.5	85	80 - 90	1.52	1.37 - 1.67			80	65 - 95	0.6	0.3 - 0.9
1.9	1.4 - 2.4	73	67 - 79	1.52	1.36 - 1.68			77	67 - 87		
1.8	1.3 - 2.3	79	74 - 84	1.47	1.32 - 1.62			78	68 - 88	0.6	0.3 - 0.9
1.9	1.4 - 2.4	73	67 - 79	1.52	1.36 - 1.68			77	67 - 87	DNA <sup>3</sup>	
1.8	1.3 - 2.3	80	75 - 85	1.48	1.33 - 1.63			75	65 - 85	0.7	0.4 - 1.0

# CVC 123 Calibration Verification Controls

## Level 3

**LOT** 81630

 Exp.: 2021-08

### Expected Values Chart

Analyzers	pH		pCO <sub>2</sub> mmHg		pO <sub>2</sub> mmHg		Na <sup>+</sup> mmol/L	
	mean	range	mean	range	mean	range	mean	range
<b>EPOCAL</b>								
EPOC	7.39	7.34 - 7.44	39	34 - 44	104	87 - 121	135	130 - 140
<b>IL</b>								
GEM Premier 3000 Series	7.42	7.38 - 7.46	41	34 - 48	111	99 - 123	136	131 - 141
GEM Premier 4000 Series	7.41	7.37 - 7.45	40	33 - 47	111	99 - 123	134	129 - 139
GEM Premier 5000 Series	7.43	7.39 - 7.47	41	36 - 46	107	96 - 118	133	129 - 137
<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	41	36 - 46	107	97 - 117		
EasyStat	7.43	7.40 - 7.46	42	37 - 47	109	99 - 119	133	128 - 138
<b>Nova</b>								
CCX, pHox Ultra	7.42	7.39 - 7.45	40	35 - 45	109	100 - 118	132	127 - 137
pHOx	7.45	7.42 - 7.48	39	34 - 44	106	97 - 115		
pHOx Plus	7.44	7.41 - 7.47	39	34 - 44	108	99 - 117	135	130 - 140
Prime	Call Nova Biomedical Hot line 1-800-545-6682 for assigned values.							
<b>OPTI Medical</b>								
OPTI CCA	7.43	7.38 - 7.48	39	34 - 44	105	88 - 122	140	131 - 149
OPTI R	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>	
OPTI LION	7.43	7.37 - 7.49					136	131 - 141
<b>Radiometer</b>								
ABL 700 Series	7.39	7.36 - 7.42	42	37 - 47	111	101 - 121	135	130 - 140
ABL 77, 80 Series	7.39	7.34 - 7.44	42	37 - 47	101	91 - 111	135	130 - 140
ABL 800 Series	7.40	7.37 - 7.43	41	36 - 46	112	102 - 122	134	129 - 139
ABL 90 Series	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	102	90 - 114	DNA <sup>3</sup>	
OMNI 1-9'	7.39	7.36 - 7.42	44	39 - 49	105	93 - 117	136	131 - 141
<b>Siemens</b>								
238	7.40	7.37 - 7.43	43	37 - 49	103	93 - 113		
248	7.40	7.37 - 7.43	43	37 - 49	94	84 - 104		
400 Series	7.40	7.36 - 7.44	43	37 - 49	108	96 - 120	132	127 - 137
800 Series	7.42	7.39 - 7.45	43	38 - 48	107	97 - 117	131	126 - 136
500 Series	7.41	7.37 - 7.45	42	36 - 48	109	97 - 121	132	127 - 137
1200 Series	7.42	7.39 - 7.45	40	35 - 45	104	94 - 114	131	126 - 136


**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

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
DNA <sup>3</sup>				1.15	1.05 - 1.25			194	164 - 224	2.3	1.7 - 2.9
4.3	3.8 - 4.8			1.15	1.05 - 1.25			DNA <sup>3</sup>		DNA <sup>3</sup>	
4.5	4.0 - 5.0	100	95 - 105	1.15	1.05 - 1.25			189	169 - 209	2.1	1.6 - 2.6
4.3	3.8 - 4.8	99	94 - 104	1.11	1.00 - 1.22			182	164 - 200	2.5	2.1 - 2.9
4.3	3.8 - 4.8	93	88 - 98	1.12	1.02 - 1.22						
4.4	3.9 - 4.9	100	95 - 105	1.17	1.07 - 1.27	0.53	0.43 - 0.63	199	179 - 219	2.6	2.1 - 3.1
4.4	3.9 - 4.9	95	90 - 100	1.12	1.02 - 1.22			214	194 - 234	DNA <sup>3</sup>	
4.4	3.9 - 4.9	105	100 - 110	1.16	1.06 - 1.26			199	176 - 222	2.5	2.0 - 3.0
DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>				DNA <sup>3</sup>		DNA <sup>3</sup>	
4.7	4.2 - 6.2	100	92 - 108	1.17	1.02 - 1.32						
4.4	3.9 - 4.9	96	91 - 101	1.19	1.09 - 1.29			190	170 - 210	2.3	1.8 - 2.8
4.3	3.8 - 4.8	94	89 - 99	1.14	1.04 - 1.24			190	170 - 210		
4.5	4.0 - 5.0	96	91 - 101	1.19	1.09 - 1.29			192	172 - 212	2.4	1.9 - 2.9
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>	
4.5	4.0 - 5.0	102	97 - 107	1.15	1.05 - 1.25			191	171 - 211	2.7	2.2 - 3.2
4.3	3.8 - 4.8	98	92 - 104	1.09	0.97 - 1.21			198	178 - 218		
4.4	3.9 - 4.9	99	94 - 104	1.09	0.99 - 1.19			198	178 - 218	2.6	2.1 - 3.1
4.3	3.8 - 4.8	98	92 - 104	1.09	0.97 - 1.21			198	178 - 218	DNA <sup>3</sup>	
4.2	3.7 - 4.7	98	93 - 103	1.09	0.99 - 1.19			190	170 - 210	2.5	2.0 - 3.0

# CVC 123 Calibration Verification Controls

## Level 4

**LOT** 81731

 Exp.: 2021-08

### Expected Values Chart

Analyzers	pH		pCO <sub>2</sub> mmHg		pO <sub>2</sub> mmHg		Na <sup>+</sup> mmol/L	
	mean	range	mean	range	mean	range	mean	range
<b>EPOCAL</b>								
EPOC	7.61	7.56 - 7.66	19	14 - 24	152	129 - 175	159	154 - 164
<b>IL</b>								
GEM Premier 3000 Series	7.65	7.61 - 7.69	20	14 - 26	161	149 - 173	162	157 - 167
GEM Premier 4000 Series	7.63	7.59 - 7.67	20	14 - 26	156	144 - 168	158	153 - 163
GEM Premier 5000 Series	7.65	7.61 - 7.69	21	16 - 26	146	131 - 161	157	153 - 161
<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	21	17 - 25	160	148 - 172		
EasyStat	7.63	7.60 - 7.66	21	17 - 25	158	146 - 170	161	156 - 166
<b>Nova</b>								
CCX, pHox Ultra	7.60	7.57 - 7.63	21	17 - 25	160	150 - 170	159	154 - 164
pHOx	7.62	7.59 - 7.65	21	17 - 25	160	150 - 170		
pHOx Plus	7.62	7.59 - 7.65	21	17 - 25	167	157 - 177	160	155 - 165
Prime	Call Nova Biomedical Hot line 1-800-545-6682 for assigned values.							
<b>OPTI Medical</b>								
OPTI CCA	7.65	7.59 - 7.71	21	17 - 25	151	139 - 163	165	155 - 175
OPTI R	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>	
OPTI LION	7.65	7.59 - 7.71					165	158 - 172
<b>Radiometer</b>								
ABL 700 Series	7.59	7.56 - 7.62	22	18 - 26	153	143 - 163	158	153 - 163
ABL 77, 80 Series	7.58	7.52 - 7.64	22	18 - 26	147	137 - 157	158	153 - 163
ABL 800 Series	7.59	7.56 - 7.62	23	19 - 27	155	145 - 165	158	153 - 163
ABL 90 Series	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>	
<b>Roche</b>								
Cobas b 221	7.57	7.54 - 7.60	22	18 - 26	157	145 - 169	DNA <sup>3</sup>	
OMNI 1-9 <sup>1</sup>	7.57	7.54 - 7.60	23	19 - 27	153	141 - 165	161	156 - 166
<b>Siemens</b>								
238	7.58	7.55 - 7.61	23	18 - 28	141	130 - 152		
248	7.58	7.55 - 7.61	23	18 - 28	142	131 - 153		
400 Series	7.60	7.56 - 7.64	21	16 - 26	150	138 - 162	158	151 - 165
800 Series	7.61	7.58 - 7.64	22	18 - 26	153	142 - 164	155	150 - 160
500 Series	7.61	7.57 - 7.65	21	16 - 26	153	141 - 165	158	151 - 165
1200 Series	7.62	7.59 - 7.65	20	16 - 24	150	139 - 161	155	150 - 160

**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




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
DNA <sup>3</sup>				0.49	0.39 - 0.59			296	231 - 361	7.0	5.5 - 8.5
6.2	5.7 - 6.7			0.48	0.38 - 0.58			DNA <sup>3</sup>		DNA <sup>3</sup>	
6.3	5.8 - 6.8	126	121 - 131	0.48	0.38 - 0.58			287	257 - 317	6.2	4.7 - 7.7
6.3	5.8 - 6.8	125	119 - 131	0.42	0.32 - 0.52			280	253 - 307	7.0	6.0 - 8.0
6.4	5.9 - 6.9	120	115 - 125	0.49	0.39 - 0.59						
6.5	6.0 - 7.0	126	121 - 131	0.58	0.48 - 0.68	0.27	0.19 - 0.35	301	271 - 331	7.4	5.9 - 8.9
6.5	6.0 - 7.0	119	114 - 124	0.63	0.53 - 0.73			312	282 - 342	DNA <sup>3</sup>	
6.6	6.1 - 7.1	125	119 - 131	0.53	0.48 - 0.58			308	258 - 358	6.1	4.6 - 7.6
DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>				DNA <sup>3</sup>		DNA <sup>3</sup>	
7.0	6.5 - 7.5	124	116 - 132	0.59	0.47 - 0.71						
6.1	5.6 - 6.6	122	117 - 127	0.60	0.50 - 0.70			287	257 - 317	6.4	4.9 - 7.9
6.0	5.5 - 6.5	123	118 - 128	0.56	0.46 - 0.66			287	257 - 317		
6.3	5.8 - 6.8	123	118 - 128	0.57	0.47 - 0.67			287	257 - 317	6.7	5.2 - 8.2
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>	
6.4	5.9 - 6.9	126	121 - 131	0.53	0.43 - 0.63			297	262 - 332	7.4	5.9 - 8.9
6.1	5.6 - 6.6	124	114 - 134	0.48	0.38 - 0.58			296	266 - 326		
6.3	5.8 - 6.8	123	118 - 128	0.52	0.42 - 0.62			300	270 - 330	7.2	5.7 - 8.7
6.1	5.6 - 6.6	124	114 - 134	0.48	0.38 - 0.58			296	266 - 326	DNA <sup>3</sup>	
6.1	5.6 - 6.6	123	118 - 128	0.53	0.43 - 0.63			287	257 - 317	7.1	5.6 - 8.6

# CVC 123 Calibration Verification Controls

## Level 5

**LOT** 84223

 Exp.: 2021-08

### Expected Values Chart

Analyzers	pH		pCO <sub>2</sub> mmHg		pO <sub>2</sub> mmHg		Na <sup>+</sup> mmol/L	
	mean	range	mean	range	mean	range	mean	range
<b>EPOCAL</b>								
EPOC	7.87	7.81 - 7.93	13	9 - 17	480	390 - 570	171	165 - 177
<b>IL</b>								
GEM Premier 3000 Series	ORL <sup>2</sup>		12	8 - 16	457	397 - 517	177	172 - 182
GEM Premier 4000 Series	7.86	7.82 - 7.90	12	8 - 16	457	397 - 517	164	159 - 169
GEM Premier 5000 Series	7.86	7.82 - 7.90	15	10 - 20	411	367 - 455	165	160 - 170
<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	7.81	7.76 - 7.86	11	7 - 15	460	410 - 510		
EasyStat	7.83	7.78 - 7.88	12	8 - 16	443	393 - 493	172	167 - 177
<b>Nova</b>								
CCX, pHox Ultra	7.81	7.77 - 7.85	13	9 - 17	480	420 - 540	168	163 - 173
pHOx	7.83	7.79 - 7.87	13	9 - 17	505	445 - 565		
pHOx Plus	7.81	7.77 - 7.85	13	9 - 17	510	450 - 570	167	162 - 172
Prime	Call Nova Biomedical Hot line 1-800-545-6682 for assigned values.							
<b>OPTI Medical</b>								
OPTI CCA	ORL <sup>2</sup>		13	11 - 16	463	403 - 523	ORL <sup>2</sup>	
OPTI R	DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>	
OPTI LION	7.92	7.86 - 7.98					179	172 - 186
<b>Radiometer</b>								
ABL 700 Series	7.81	7.77 - 7.85	12	8 - 16	440	380 - 500	166	161 - 171
ABL 77, 80 Series	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	440	380 - 500	166	161 - 171
ABL 90 Series	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	480	420 - 540	DNA <sup>3</sup>	
OMNI 1-9'	7.76	7.72 - 7.80	13	9 - 17	435	375 - 495	170	165 - 175
<b>Siemens</b>								
238	7.82	7.78 - 7.86	12	8 - 16	470	410 - 530		
248	7.82	7.78 - 7.86	12	8 - 16	470	410 - 530		
400 Series	ORL <sup>2</sup>		ORL <sup>2</sup>		468	408 - 528	170	160 - 180
800 Series	7.85	7.81 - 7.89	12	8 - 16	436	376 - 496	162	157 - 167
500 Series	ORL <sup>2</sup>		ORL <sup>2</sup>		466	406 - 526	170	160 - 180
1200 Series	7.85	7.81 - 7.89	11	7 - 15	480	420 - 540	162	157 - 167

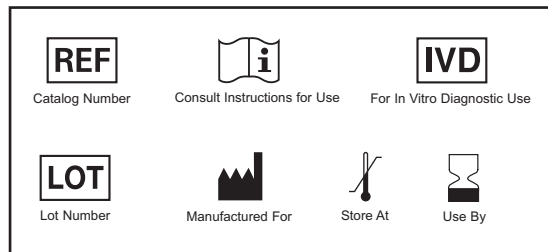
**FOOTNOTES:**

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

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
DNA <sup>3</sup>				0.22	0.12 - 0.32			0	0 - 10	DNA <sup>3</sup>	
1.4	0.9 - 1.9			0.13	0.03 - 0.23			DNA <sup>3</sup>		DNA <sup>3</sup>	
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
1.3	0.8 - 1.8	135	128 - 142	0.11	0.01 - 0.21			DNA <sup>3</sup>		11.9	10.2 - 13.6
1.3	0.8 - 1.8	127	122 - 132	0.25	0.15 - 0.35						
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
1.6	1.1 - 2.1	126	121 - 131	DNA <sup>3</sup>				DNA <sup>3</sup>		DNA <sup>3</sup>	
1.5	1.0 - 2.0	135	129 - 141	0.29	0.24 - 0.34			ORL <sup>2</sup>		10.3	7.8 - 12.8
DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>				DNA <sup>3</sup>		DNA <sup>3</sup>	
1.4	0.9 - 1.9	135	127 - 143	DNA <sup>3</sup>							
1.7	1.2 - 2.2	130	125 - 135	0.33	0.23 - 0.43			0	0 - 5	10.8	8.3 - 13.3
DNA <sup>3</sup>		DNA <sup>3</sup>		DNA <sup>3</sup>				DNA <sup>3</sup>			
1.7	1.2 - 2.2	131	126 - 136	0.33	0.23 - 0.43			0	0 - 5	11.0	8.5 - 13.5
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>	
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
1.5	1.0 - 2.0	132	122 - 142	ORL <sup>2</sup>				ORL <sup>2</sup>			
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
1.5	1.0 - 2.0	131	121 - 141	ORL <sup>2</sup>				ORL <sup>2</sup>		DNA <sup>3</sup>	
1.4	0.9 - 1.9	131	126 - 136	ORL <sup>2</sup>				ORL <sup>2</sup>		11.4	8.9 - 13.9

# CVC 123 Calibration Verification Controls

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