

## CVC 123 Calibration Verification Controls

**LOT**

Set: 212326  
Level 1: 24124  
Level 2: 21536  
Level 3: 21636  
Level 4: 21736  
Level 5: 24226



Exp.: Set: 2025-08-31  
Level 1: 2025-08-31  
Level 2: 2025-08-31  
Level 3: 2025-08-31  
Level 4: 2025-08-31  
Level 5: 2025-08-31

**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** 24124

**Exp.:** 2025-08-31

### 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	95	83 - 107	34	19 - 49	93	88 - 98	DNA <sup>3</sup>				2.76	2.26 - 3.26				482	382 - 582		DNA <sup>3</sup>						
<b>IL</b>																											
GEM Premier 3000 Series	ORL <sup>2</sup>		90	78 - 102	40	25 - 55	ORL <sup>2</sup>		11.6	9.1 - 14.1				2.81	2.31 - 3.31				488	442 - 534		ORL <sup>2</sup>					
GEM Premier 4000 Series	6.81	6.78 - 6.84	89	77 - 101	42	27 - 57	ORL <sup>2</sup>		11.9	9.4 - 14.4		65	60 - 70		3.06	2.56 - 3.56				450	400 - 500		15.1	11.6 - 18.6			
GEM Premier 5000 Series	DNA <sup>3</sup>		93	86 - 100	34	24 - 44	DNA <sup>3</sup>		12.3	11.5 - 13.1		68	64 - 72		3.35	3.04 - 3.66				510	464 - 556		17.7	15.2 - 20.2			
<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	6.84	6.81 - 6.87	97	85 - 109	25	13 - 37		86	81 - 91		11.6	9.6 - 13.6		64	59 - 69		2.76	2.36 - 3.16									
<b>Nova</b>																											
CCX, pHox Ultra	6.89	6.86 - 6.92	83	71 - 95	28	13 - 43		89	84 - 94		12.0	9.5 - 14.5		73	68 - 78		DNA <sup>3</sup>		DNA <sup>3</sup>		460	410 - 510		16.5	13.0 - 20.0		
pHOx	6.89	6.86 - 6.92	82	70 - 94	29	14 - 44																					
pHOx Plus	6.89	6.86 - 6.92	82	70 - 94	25	10 - 40		90	85 - 95		12.0	9.5 - 14.5		69	64 - 74		DNA <sup>3</sup>				432	382 - 482		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	89	77 - 101	57	42 - 72		ORL <sup>2</sup>		ORL <sup>2</sup>		80	75 - 85		ORL <sup>2</sup>				ORL <sup>2</sup>			14.1	10.6 - 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>				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>				
<b>Radiometer</b>																											
ABL 700 Series	6.84	6.81 - 6.87	90	78 - 102	40	25 - 55		86	81 - 91		11.3	8.8 - 13.8		65	60 - 70		2.95	2.45 - 3.45				431	381 - 481		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>				DNA <sup>3</sup>				DNA <sup>3</sup>		
ABL 800 Series	6.84	6.81 - 6.87	88	76 - 100	45	30 - 60		85	80 - 90		11.3	8.8 - 13.8		64	59 - 69		2.94	2.44 - 3.44				431	381 - 481		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>				DNA <sup>3</sup>				DNA <sup>3</sup>		
<b>Roche</b>																											
Cobas b 221	6.89	6.86 - 6.92	91	79 - 103	8	0 - 23		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'	6.89	6.86 - 6.92	90	78 - 102	21	6 - 36		87	82 - 92		11.5	9.0 - 14.0		73	68 - 78		2.81	2.31 - 3.31				422	372 - 472		16.2	12.7 - 19.7	
<b>Siemens</b>																											
238	6.84	6.81 - 6.87	101	89 - 113	36	21 - 51																					
248	6.85	6.82 - 6.88	101	89 - 113	22	7 - 37																					
400 Series	6.78	6.74 - 6.82	102	88 - 116	42	26 - 58		ORL <sup>2</sup>		11.0	8.5 - 13.5		ORL <sup>2</sup>		2.77	2.27 - 3.27				460	410 - 510						
800 Series	6.86	6.83 - 6.89	93	81 - 105	31	16 - 46		86	81 - 91		11.5	9.0 - 14.0		66	61 - 71		2.71	2.21 - 3.21				432	382 - 482		14.3	10.8 - 17.8	
500 Series	6.78	6.74 - 6.82	98	84 - 112	43	27 - 59		ORL <sup>2</sup>		11.0	8.5 - 13.5		ORL <sup>2</sup>		2.81	2.31 - 3.31				DNA <sup>3</sup>				DNA <sup>3</sup>			
1200 Series	6.86	6.83 - 6.89	93	81 - 105	33	18 - 48		86	81 - 91		11.7	9.2 - 14.2		71	66 - 76		2.81	2.31 - 3.31				416	366 - 466		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** 21536

**Exp.:** 2025-08-31

### 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	7.10	7.05 - 7.15	69	61 - 77	71	56 - 86	111	106 - 116	DNA <sup>3</sup>				1.42	1.27 - 1.57				79	68 - 90		0.6	0.3 - 0.9				
<b>IL</b>																										
GEM Premier 3000 Series	7.14	7.10 - 7.18	70	61 - 79	74	62 - 86	112	107 - 117	1.8	1.3 - 2.3				1.50	1.35 - 1.65				71	64 - 78		0.5	0.1 - 0.9			
GEM Premier 4000 Series	7.13	7.09 - 7.17	68	59 - 77	73	61 - 85	113	108 - 118	1.9	1.4 - 2.4		78	73 - 83		1.53	1.38 - 1.68				75	65 - 85		0.6	0.3 - 0.9		
GEM Premier 5000 Series	7.13	7.09 - 7.17	70	64 - 76	65	55 - 75	110	105 - 115	1.5	1.0 - 2.0		79	75 - 83		1.55	1.40 - 1.70				76	69 - 83		0.6	0.2 - 1.0		
<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	71	64 - 78	67	57 - 77																				
EasyStat	7.15	7.12 - 7.18	72	65 - 79	65	55 - 75	113	108 - 118	1.8	1.3 - 2.3		72	67 - 77		1.41	1.31 - 1.51										
<b>Nova</b>																										
CCX, pHox Ultra	7.18	7.15 - 7.21	64	57 - 71	67	58 - 76	112	107 - 117	2.0	1.5 - 2.5		82	77 - 87		1.56	1.41 - 1.71		1.08	0.93 - 1.23		82	72 - 92		0.5	0.2 - 0.8	
pHOx	7.18	7.15 - 7.21	63	56 - 70	66	57 - 75																				
pHOx Plus	7.21	7.18 - 7.24	63	56 - 70	65	56 - 74	115	110 - 120	2.0	1.5 - 2.5		73	68 - 78		1.49	1.34 - 1.64				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	7.19	7.14 - 7.24	70	62 - 78	77	62 - 92	116	108 - 124	1.8	1.3 - 2.3		91	86 - 96		1.30	1.15 - 1.45				86	70 - 102		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>					
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>											
<b>Radiometer</b>																										
ABL 700 Series	7.15	7.12 - 7.18	68	61 - 75	75	65 - 85	115	110 - 120	2.1	1.6 - 2.6		76	71 - 81		1.56	1.41 - 1.71				78	68 - 88		0.6	0.3 - 0.9		
ABL 77, 80 Series	7.15	7.10 - 7.20	69	62 - 76	60	50 - 70	115	110 - 120	2.0	1.5 - 2.5		65	60 - 70		1.42	1.27 - 1.57				75	65 - 85					
ABL 800 Series	7.15	7.12 - 7.18	67	60 - 74	77	67 - 87	113	108 - 118	2.0	1.5 - 2.5		75	70 - 80		1.56	1.41 - 1.71				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>					
<b>Roche</b>																										
Cobas b 221	7.16	7.13 - 7.19	71	63 - 79	55	40 - 70	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'	7.16	7.13 - 7.19	70	62 - 78	64	49 - 79	115	110 - 120	2.0	1.5 - 2.5		84	79 - 89		1.50	1.35 - 1.65				80	65 - 95		0.6	0.3 - 0.9		
<b>Siemens</b>																										
238	7.16	7.13 - 7.19	70	62 - 78	72	62 - 82																				
248	7.16	7.13 - 7.19	67	59 - 75	54	44 - 64																				
400 Series	7.12	7.08 - 7.16	75	65 - 85	74	62 - 86	110	105 - 115	1.9	1.4 - 2.4		72	66 - 78		1.50	1.34 - 1.66				77	67 - 87					
800 Series	7.17	7.14 - 7.20	69	62 - 76	68	58 - 78	110	105 - 115	1.8	1.3 - 2.3		78	73 - 83		1.45	1.30 - 1.60				78	68 - 88		0.6	0.3 - 0.9		
500 Series	7.13	7.09 - 7.17	71	61 - 81	77	65 - 89	110	105 - 115	1.9	1.4 - 2.4		72	66 - 78		1.50	1.34 - 1.66				77	67 - 87		DNA <sup>3</sup>			
1200 Series	7.17	7.14 - 7.20	68	61 - 75	68	58 - 78	111	106 - 116	1.8	1.3 - 2.3		79	74 - 84		1.46	1.31 - 1.61				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** 21636

**Exp.:** 2025-08-31

### 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	7.40	7.35 - 7.45	38	33 - 43	103	86 - 120	133	128 - 138	DNA <sup>3</sup>				1.14	1.04 - 1.24			191	161 - 221	2.3	1.7 - 2.9	
<b>IL</b>																					
GEM Premier 3000 Series	7.43	7.39 - 7.47	40	33 - 47	110	98 - 122	134	129 - 139	4.3	3.8 - 4.8			1.14	1.04 - 1.24			183	165 - 201	2.3	1.9 - 2.7	
GEM Premier 4000 Series	7.42	7.38 - 7.46	39	32 - 46	110	98 - 122	132	127 - 137	4.5	4.0 - 5.0	99	94 - 104	1.14	1.04 - 1.24			186	166 - 206	2.1	1.6 - 2.6	
GEM Premier 5000 Series	7.47	7.43 - 7.51	38	33 - 43	97	86 - 108	131	127 - 135	4.3	3.8 - 4.8	99	94 - 104	1.14	1.03 - 1.25			195	177 - 213	2.6	2.2 - 3.0	
<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	7.43	7.40 - 7.46	41	36 - 46	108	98 - 118															
EasyStat	7.45	7.42 - 7.48	40	35 - 45	109	99 - 119	134	129 - 139	4.3	3.8 - 4.8	94	89 - 99	1.08	0.98 - 1.18							
<b>Nova</b>																					
CCX, pHox Ultra	7.43	7.40 - 7.46	39	34 - 44	108	99 - 117	130	125 - 135	4.4	3.9 - 4.9	99	94 - 104	1.16	1.06 - 1.26	0.54	0.44 - 0.64	196	176 - 216	2.6	2.1 - 3.1	
pHOx	7.46	7.43 - 7.49	38	33 - 43	105	96 - 114															
pHOx Plus	7.45	7.42 - 7.48	38	33 - 43	107	98 - 116	133	128 - 138	4.4	3.9 - 4.9	94	89 - 99	1.11	1.01 - 1.21			211	191 - 231	DNA <sup>3</sup>		
Prime	Call Nova Biomedical Hot line 1-800-545-6682 for assigned values.																				
<b>OPTI Medical</b>																					
OPTI CCA	7.44	7.39 - 7.49	39	34 - 44	102	85 - 119	140	131 - 149	4.5	4.0 - 5.0	104	99 - 109	1.14	1.04 - 1.24			203	180 - 226	2.4	1.9 - 2.9	
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>		
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>		
<b>Radiometer</b>																					
ABL 700 Series	7.40	7.37 - 7.43	41	36 - 46	110	100 - 120	133	128 - 138	4.4	3.9 - 4.9	95	90 - 100	1.18	1.08 - 1.28			187	167 - 207	2.3	1.8 - 2.8	
ABL 77, 80 Series	7.40	7.35 - 7.45	41	36 - 46	100	90 - 110	133	128 - 138	4.3	3.8 - 4.8	93	88 - 98	1.13	1.03 - 1.23			187	167 - 207			
ABL 800 Series	7.41	7.38 - 7.44	40	35 - 45	111	101 - 121	132	127 - 137	4.5	4.0 - 5.0	95	90 - 100	1.18	1.08 - 1.28			189	169 - 209	2.4	1.9 - 2.9	
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>		
<b>Roche</b>																					
Cobas b 221	7.41	7.38 - 7.44	43	38 - 48	101	89 - 113	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'	7.40	7.37 - 7.43	43	38 - 48	104	92 - 116	134	129 - 139	4.5	4.0 - 5.0	101	96 - 106	1.14	1.04 - 1.24			188	168 - 208	2.7	2.2 - 3.2	
<b>Siemens</b>																					
238	7.41	7.38 - 7.44	42	36 - 48	102	92 - 112															
248	7.41	7.38 - 7.44	42	36 - 48	93	83 - 103															
400 Series	7.41	7.37 - 7.45	42	36 - 48	107	95 - 119	130	125 - 135	4.3	3.8 - 4.8	97	91 - 103	1.08	0.96 - 1.20			195	175 - 215			
800 Series	7.43	7.40 - 7.46	42	37 - 47	106	96 - 116	129	124 - 134	4.4	3.9 - 4.9	98	93 - 103	1.08	0.98 - 1.18			195	175 - 215	2.6	2.1 - 3.1	
500 Series	7.42	7.38 - 7.46	41	35 - 47	108	96 - 120	130	125 - 135	4.3	3.8 - 4.8	97	91 - 103	1.08	0.96 - 1.20			195	175 - 215	DNA <sup>3</sup>		
1200 Series	7.43	7.40 - 7.46	39	34 - 44	103	93 - 113	129	124 - 134	4.2	3.7 - 4.7	97	92 - 102	1.08	0.98 - 1.18			187	167 - 207	2.5	2.0 - 3.0	

**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 4

**LOT** 21736

 Exp.: 2025-08-31

### 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	158	153 - 163	DNA <sup>3</sup>				0.47	0.37 - 0.57				293	228 - 358		7.0	5.5 - 8.5						
<b>IL</b>																												
GEM Premier 3000 Series	7.64	7.60 - 7.68	20	14 - 26	159	147 - 171	161	156 - 166	6.2	5.7 - 6.7				0.46	0.36 - 0.56				273	246 - 300		6.7	5.7 - 7.7					
GEM Premier 4000 Series	7.62	7.58 - 7.66	20	14 - 26	154	142 - 166	157	152 - 162	6.3	5.8 - 6.8		126	121 - 131		0.46	0.36 - 0.56				284	254 - 314		6.2	4.7 - 7.7				
GEM Premier 5000 Series	7.69	7.65 - 7.73	19	14 - 24	148	133 - 163	153	149 - 157	6.3	5.8 - 6.8		122	116 - 128		0.44	0.34 - 0.54				290	263 - 317		6.8	5.8 - 7.8				
<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	157	145 - 169																						
EasyStat	7.64	7.61 - 7.67	20	16 - 24	158	146 - 170		159	154 - 164		6.3	5.8 - 6.8		119	114 - 124		0.51 0.41 - 0.61											
<b>Nova</b>																												
CCX, pHox Ultra	7.59	7.56 - 7.62	21	17 - 25	158	148 - 168		158	153 - 163		6.5	6.0 - 7.0		126	121 - 131		0.56	0.46 - 0.66		0.28	0.20 - 0.36		298	268 - 328		7.4	5.9 - 8.9	
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		159	154 - 164		6.5	6.0 - 7.0		119	114 - 124		0.61	0.51 - 0.71				309	279 - 339		DNA <sup>3</sup>			
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	22	18 - 26	148	136 - 160		165	155 - 175		6.7	6.2 - 7.2		127	121 - 133		0.43	0.38 - 0.48				304	254 - 354		6.0	4.5 - 7.5		
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		157	152 - 162		6.1	5.6 - 6.6		122	117 - 127		0.58	0.48 - 0.68				284	254 - 314		6.4	4.9 - 7.9		
ABL 77, 80 Series	7.57	7.51 - 7.63	22	18 - 26	145	135 - 155		157	152 - 162		6.0	5.5 - 6.5		123	118 - 128		0.54	0.44 - 0.64				284	254 - 314					
ABL 800 Series	7.58	7.55 - 7.61	23	19 - 27	153	143 - 163		157	152 - 162		6.3	5.8 - 6.8		123	118 - 128		0.55	0.45 - 0.65				284	254 - 314		6.7	5.2 - 8.2		
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		160	155 - 165		6.4	5.9 - 6.9		126	121 - 131		0.51	0.41 - 0.61				294	259 - 329		7.4	5.9 - 8.9		
<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		157	150 - 164		6.1	5.6 - 6.6		124	114 - 134		0.46	0.36 - 0.56				293	263 - 323					
800 Series	7.60	7.57 - 7.63	22	18 - 26	151	140 - 162		154	149 - 159		6.3	5.8 - 6.8		123	118 - 128		0.50	0.40 - 0.60				297	267 - 327		7.2	5.7 - 8.7		
500 Series	7.60	7.56 - 7.64	21	16 - 26	151	139 - 163		157	150 - 164		6.1	5.6 - 6.6		124	114 - 134		0.46	0.36 - 0.56				293	263 - 323		DNA <sup>3</sup>			
1200 Series	7.61	7.58 - 7.64	20	16 - 24	148	137 - 159		154	149 - 159		6.1	5.6 - 6.6		123	118 - 128		0.51	0.41 - 0.61				284	254 - 314		7.1	5.6 - 8.6		

**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** 24226

 Exp.: 2025-08-31

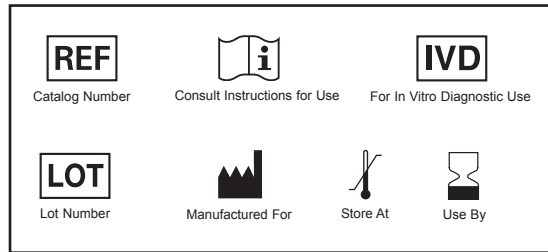
### Expected Values Chart

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	7.86	7.80 - 7.92	14	10 - 18	487	397 - 577	171	165 - 177	DNA <sup>3</sup>				0.21	0.11 - 0.31			0	0 - 10	DNA <sup>3</sup>		
<b>IL</b>																					
GEM Premier 3000 Series	ORL <sup>2</sup>		13	9 - 17	464	404 - 524	177	172 - 182	1.4	0.9 - 1.9			0.12	0.02 - 0.22			DNA <sup>3</sup>		12.3	10.6 - 14.0	
GEM Premier 4000 Series	7.85	7.81 - 7.89	13	9 - 17	464	404 - 524	164	159 - 169	1.4	0.9 - 1.9	135	130 - 140	0.12	0.02 - 0.22			ORL <sup>2</sup>		11.3	8.8 - 13.8	
GEM Premier 5000 Series	7.91	7.87 - 7.95	12	7 - 17	452	408 - 496	162	157 - 167	1.1	0.6 - 1.6	133	126 - 140	0.10	0.00 - 0.20			DNA <sup>3</sup>		12.2	10.5 - 13.9	
<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	7.78	7.73 - 7.83	13	9 - 17	516	466 - 566															
EasyStat	7.79	7.74 - 7.84	13	9 - 17	524	474 - 574	170	165 - 175	1.4	0.9 - 1.9	129	124 - 134	0.25	0.15 - 0.35							
<b>Nova</b>																					
CCX, pHox Ultra	7.80	7.76 - 7.84	14	10 - 18	487	427 - 547	168	163 - 173	1.6	1.1 - 2.1	131	126 - 136	0.24	0.14 - 0.34	DNA <sup>3</sup>		DNA <sup>3</sup>		12.0	9.5 - 14.5	
pHOx	7.82	7.78 - 7.86	14	10 - 18	512	452 - 572															
pHOx Plus	7.80	7.76 - 7.84	14	10 - 18	517	457 - 577	167	162 - 172	1.6	1.1 - 2.1	125	120 - 130	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>		15	11 - 19	474	414 - 534	ORL <sup>2</sup>		1.7	1.2 - 2.2	140	134 - 146	ORL <sup>2</sup>				ORL <sup>2</sup>		9.6	7.1 - 12.1	
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	7.80	7.76 - 7.84	13	9 - 17	447	387 - 507	166	161 - 171	1.7	1.2 - 2.2	129	124 - 134	0.32	0.22 - 0.42			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	7.80	7.76 - 7.84	13	9 - 17	447	387 - 507	166	161 - 171	1.7	1.2 - 2.2	130	125 - 135	0.32	0.22 - 0.42			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	7.77	7.73 - 7.81	13	9 - 17	487	427 - 547	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'	7.75	7.71 - 7.79	14	10 - 18	442	382 - 502	170	165 - 175	1.6	1.1 - 2.1	132	127 - 137	0.20	0.10 - 0.30			ORL <sup>2</sup>		11.8	9.3 - 14.3	
<b>Siemens</b>																					
238	7.81	7.77 - 7.85	13	9 - 17	477	417 - 537															
248	7.81	7.77 - 7.85	13	9 - 17	477	417 - 537															
400 Series	ORL <sup>2</sup>		ORL <sup>2</sup>		475	415 - 535	170	160 - 180	1.5	1.0 - 2.0	131	121 - 141	ORL <sup>2</sup>				ORL <sup>2</sup>				
800 Series	7.84	7.80 - 7.88	13	9 - 17	443	383 - 503	162	157 - 167	1.4	0.9 - 1.9	129	124 - 134	0.25	0.15 - 0.35			ORL <sup>2</sup>		9.9	7.4 - 12.4	
500 Series	ORL <sup>2</sup>		ORL <sup>2</sup>		473	413 - 533	170	160 - 180	1.5	1.0 - 2.0	130	120 - 140	ORL <sup>2</sup>				ORL <sup>2</sup>		DNA <sup>3</sup>		
1200 Series	7.84	7.80 - 7.88	12	8 - 16	487	427 - 547	162	157 - 167	1.4	0.9 - 1.9	130	125 - 135	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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