ÖQUASTA

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Overall Report

Round 75 of

Blood gas analysis

External Quality Assessment

Vienna, 10.03.2021

Dear Colleague,

The distribution of samples for round 75 of the external quality assessment scheme Blood gas analysis was started on 16.02.2021. The return deadline was 28.02.2021. Statistical analysis and evaluation of results were performed on 10.03.2021.
The following samples were circulated:

Sample option	Name	Manufacturer
A	BG 459 87	RfB
B	BG 459 88	RfB

Explanatory notes on the table columns

Sample	respective sample
AnzE	number of reported results

Metric results

Collective	collective of methods to which your results were assigned
*	collective not evaluated (either because the number of results in the collective is less than 6 or the number of results within the acceptance limits is less than 5); results are given for informative purposes only
Target value	target value assigned to the sample in this round [method used to determine the target value]: [a] Reference value [b] Consensus value
%-Dev	acceptable deviation from target value in %
ALimits	acceptance interval
Inside	number and proportion of results that lie within the acceptance interval
Outside	number and proportion of results that lie outside the acceptance interval
MV	mean
Median	median
SD	Standard deviation
CV	coefficient of variation

Nominal results

Result	results reported by participants
Reference	the result(s) assigned to the sample in the respective round [method used to determine the reference]: [a] Reference value [b] Consensus value
Proportion	Number and proportion of results that correspond to the reference(s)

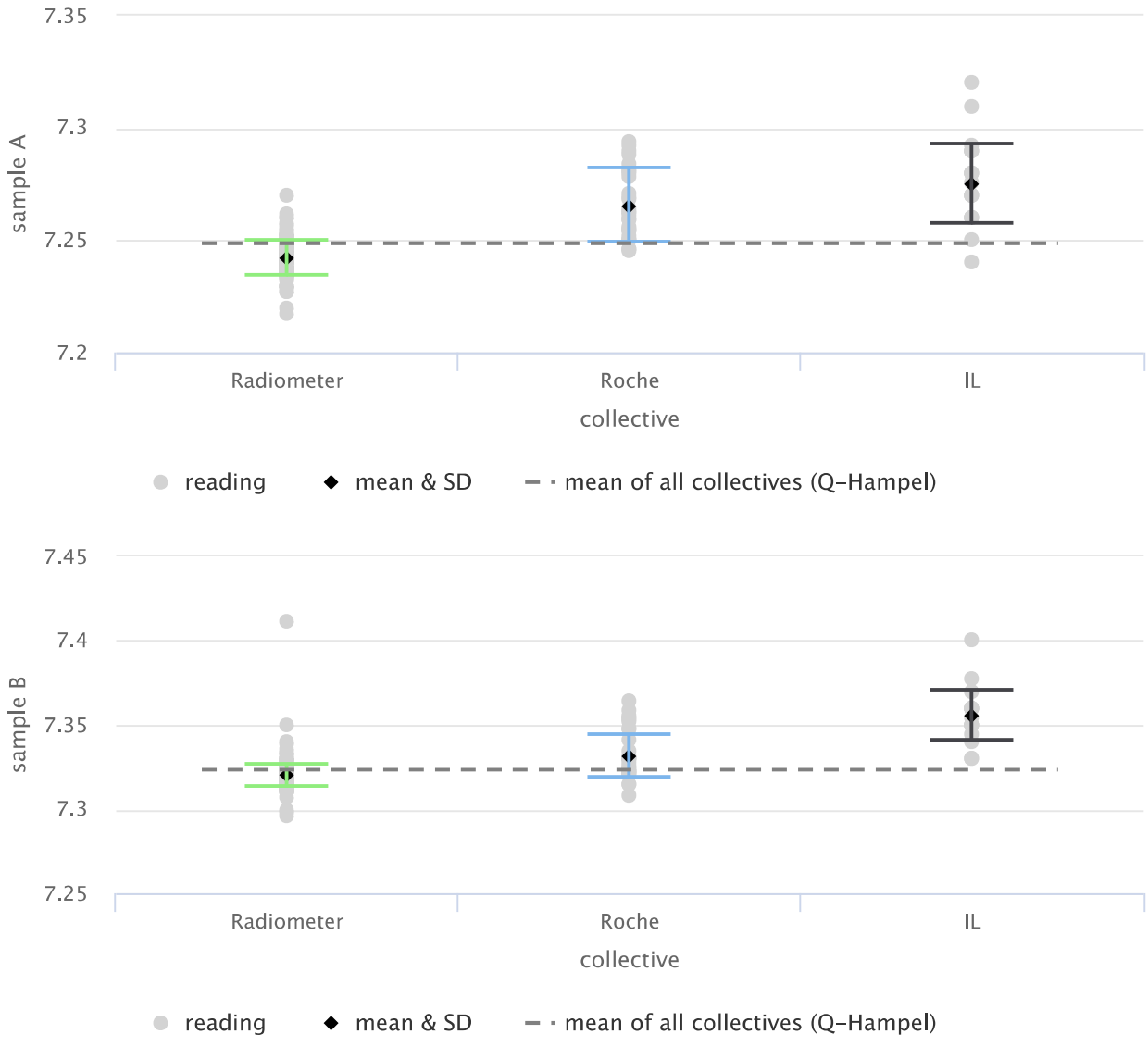
The following results were obtained:

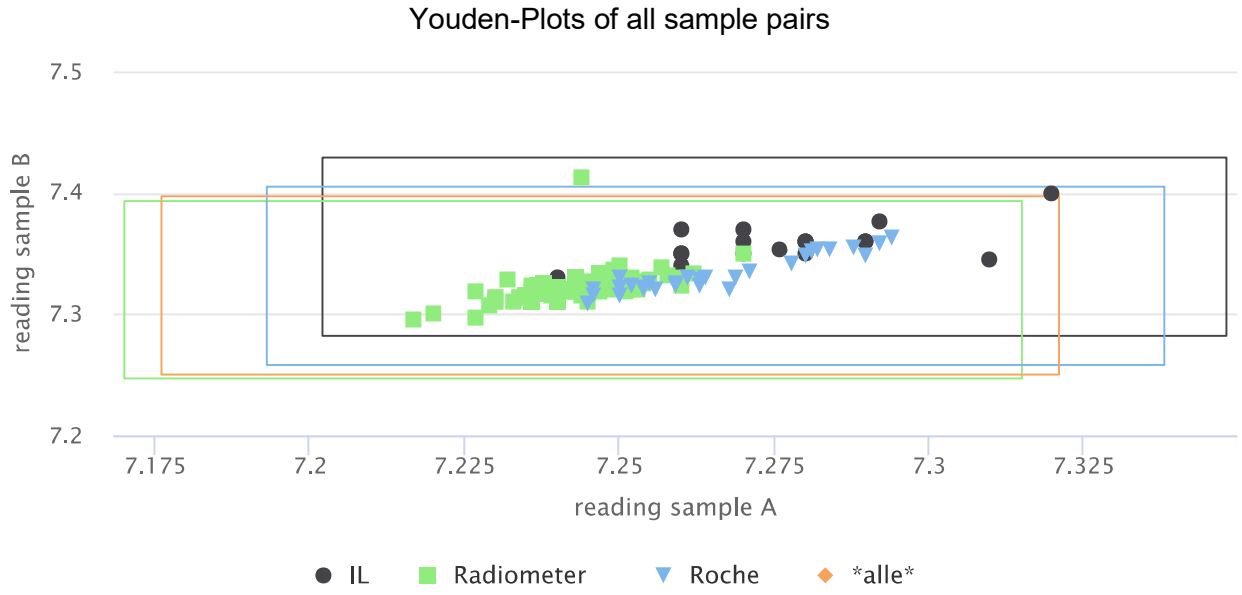
pH

Split: Gerät

Collective	Sample	AnzE	Target	%-Abw	limits	correct	outliers	MW	Median	SD	CV %
all	A	157	7.249 [b]	1	[7.176...7.321]	157 (100%)	0 (0%)	7.249	7.247	0.014	0.19
	B	157	7.323 [b]	1	[7.250...7.397]	155 (99%)	2 (1%)	7.323	7.322	0.010	0.14
IL	A	22	7.275 [b]	1	[7.202...7.348]	22 (100%)	0 (0%)	7.275	7.278	0.018	0.25
	B	22	7.355 [b]	1	[7.282...7.429]	22 (100%)	0 (0%)	7.355	7.360	0.015	0.20
Radiometer	A	106	7.242 [b]	1	[7.170...7.315]	106 (100%)	0 (0%)	7.242	7.241	0.008	0.11
	B	106	7.320 [b]	1	[7.247...7.393]	105 (99%)	1 (1%)	7.320	7.320	0.007	0.09
Roche	A	29	7.265 [b]	1	[7.193...7.338]	29 (100%)	0 (0%)	7.265	7.263	0.016	0.22
	B	29	7.331 [b]	1	[7.258...7.405]	29 (100%)	0 (0%)	7.331	7.328	0.012	0.17

S-Curves of all samples



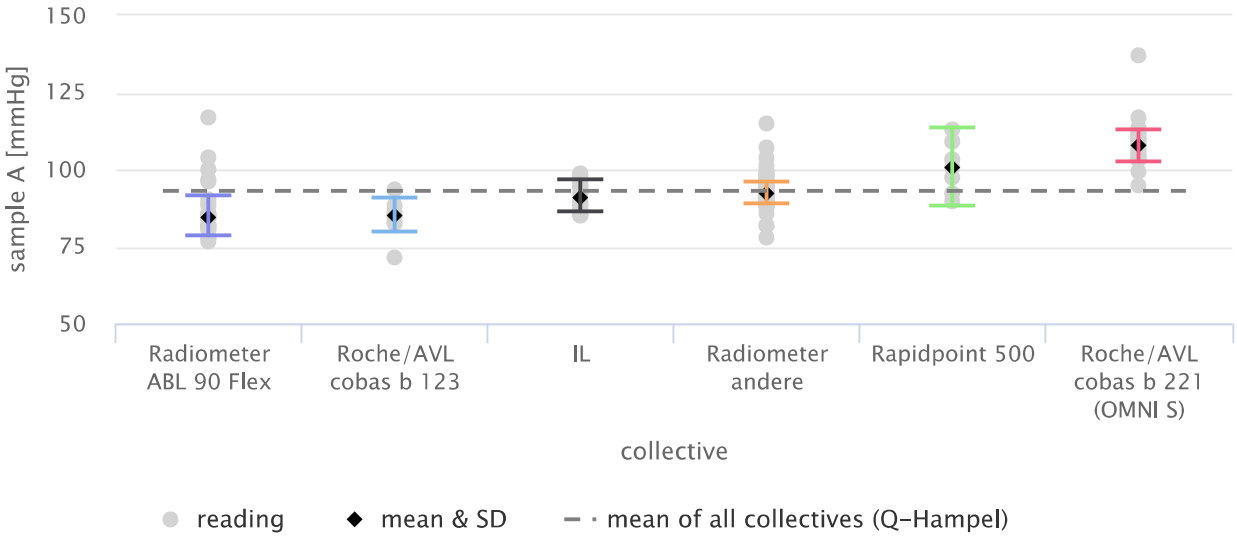


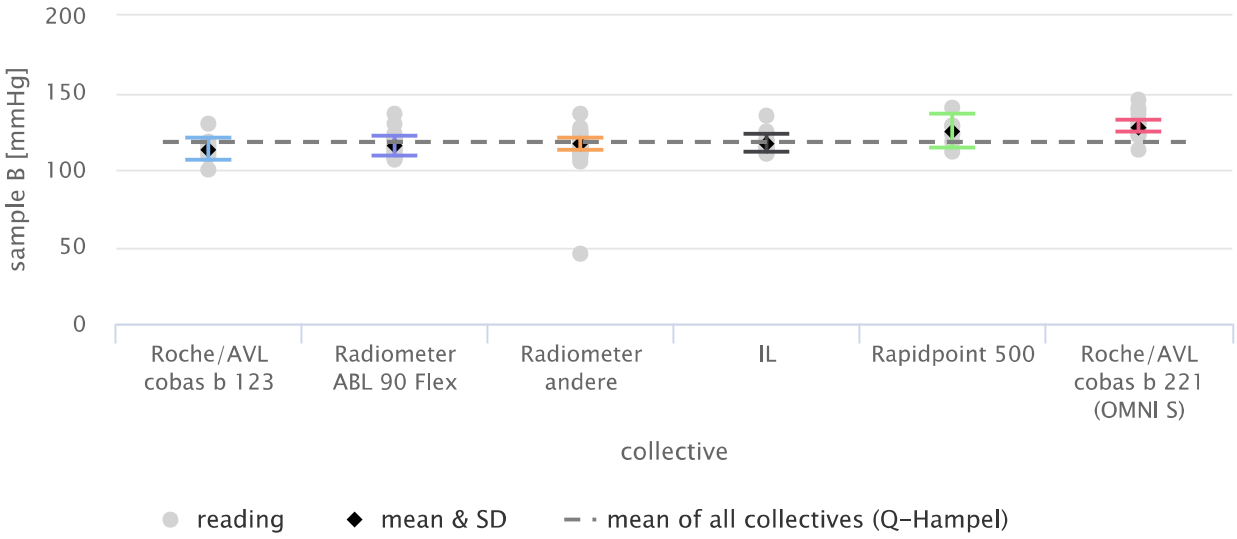
pO2 mmHg

Split: Gerät

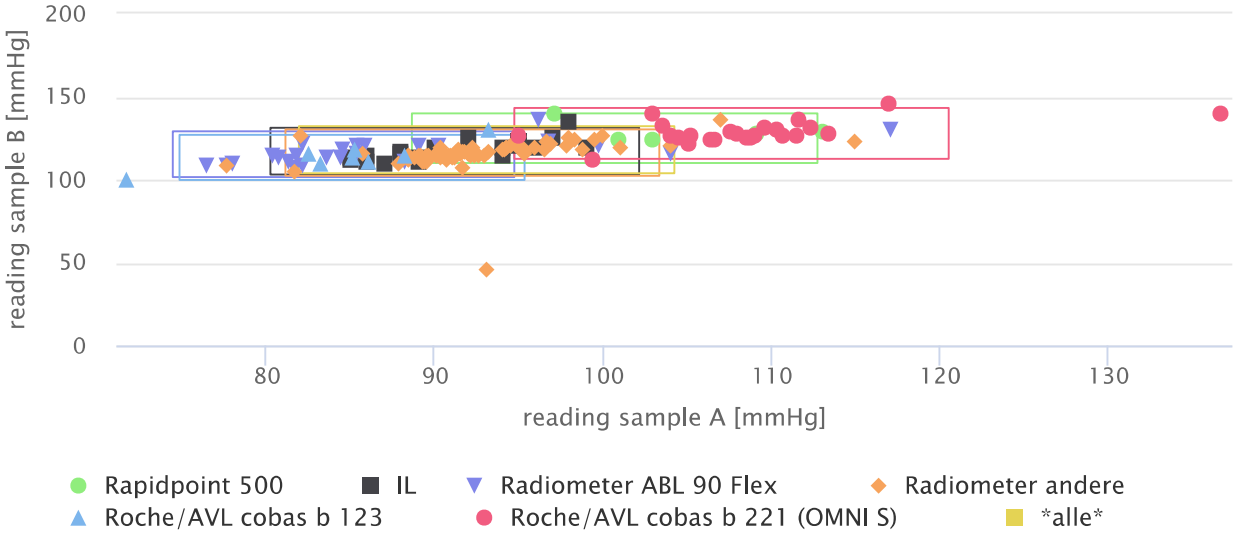
Collective	Sample	AnzE	Target	%-Abw	limits	correct	outliers	MW	Median	SD	CV %
Rapidpoint 500	A	7	100.6 [b]	12	[88.6...112.7]	6 (86%)	1 (14%)	100.6	100.9	12.7	12.62
	B	7	125.0 [b]	12	[110.0...140.0]	7 (100%)	0 (0%)	125.0	124.0	11.2	8.97
all	A	156	93.0 [b]	12	[81.9...104.2]	119 (76%)	37 (24%)	93.0	92.0	8.3	8.95
	B	156	118.0 [b]	12	[103.8...132.1]	145 (93%)	11 (7%)	118.0	117.0	6.3	5.32
IL	A	19	91.2 [b]	12	[80.2...102.1]	19 (100%)	0 (0%)	91.2	90.0	4.9	5.42
	B	19	117.2 [b]	12	[103.1...131.2]	18 (95%)	1 (5%)	117.2	117.0	6.0	5.08
Radiometer ABL 90 Flex	A	27	84.6 [b]	12	[74.4...94.7]	22 (81%)	5 (19%)	84.6	84.4	6.6	7.81
	B	27	115.3 [b]	12	[101.5...129.1]	25 (93%)	2 (7%)	115.3	114.0	6.6	5.75
Radiometer andere	A	71	92.2 [b]	12	[81.1...103.3]	67 (94%)	4 (6%)	92.2	91.7	3.6	3.85
	B	71	116.3 [b]	12	[102.3...130.2]	69 (97%)	2 (3%)	116.3	116.0	4.0	3.42
Roche/AVL cobas b 123	A	8	85.1 [b]	12	[74.8...95.3]	7 (88%)	1 (12%)	85.1	85.2	5.2	6.13
	B	8	113.4 [b]	12	[99.8...127.0]	7 (88%)	1 (12%)	113.4	113.8	7.0	6.16
Roche/AVL cobas b 221 (OMNI S)	A	24	107.6 [b]	12	[94.7...120.5]	23 (96%)	1 (4%)	107.6	108.2	5.2	4.87
	B	24	127.9 [b]	12	[112.5...143.2]	23 (96%)	1 (4%)	127.9	126.6	4.5	3.52

S-Curves of all samples





Youden-Plots of all sample pairs

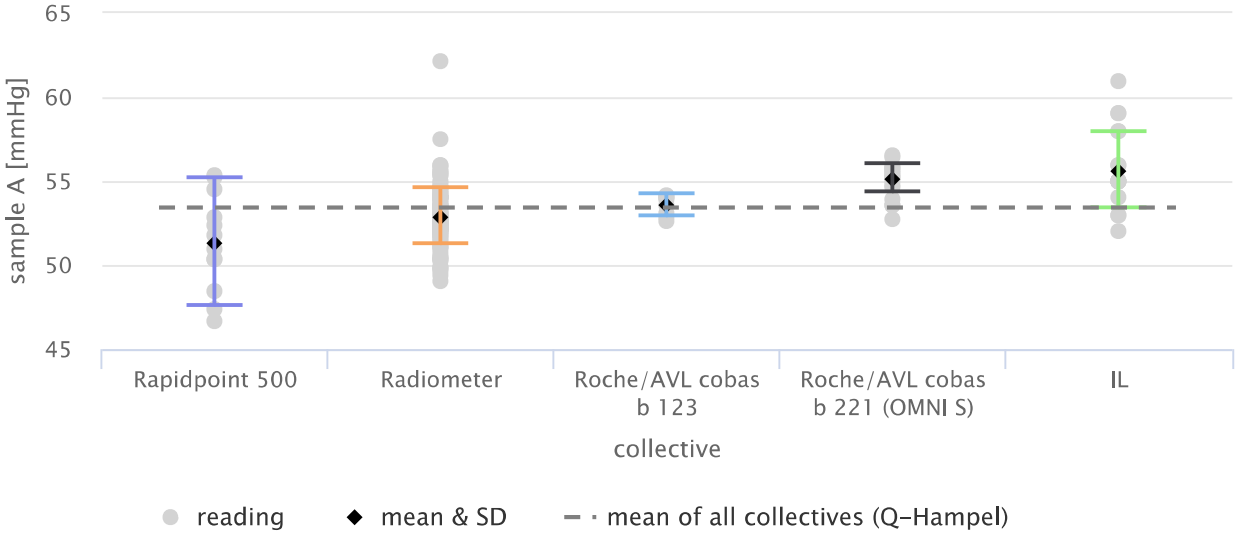


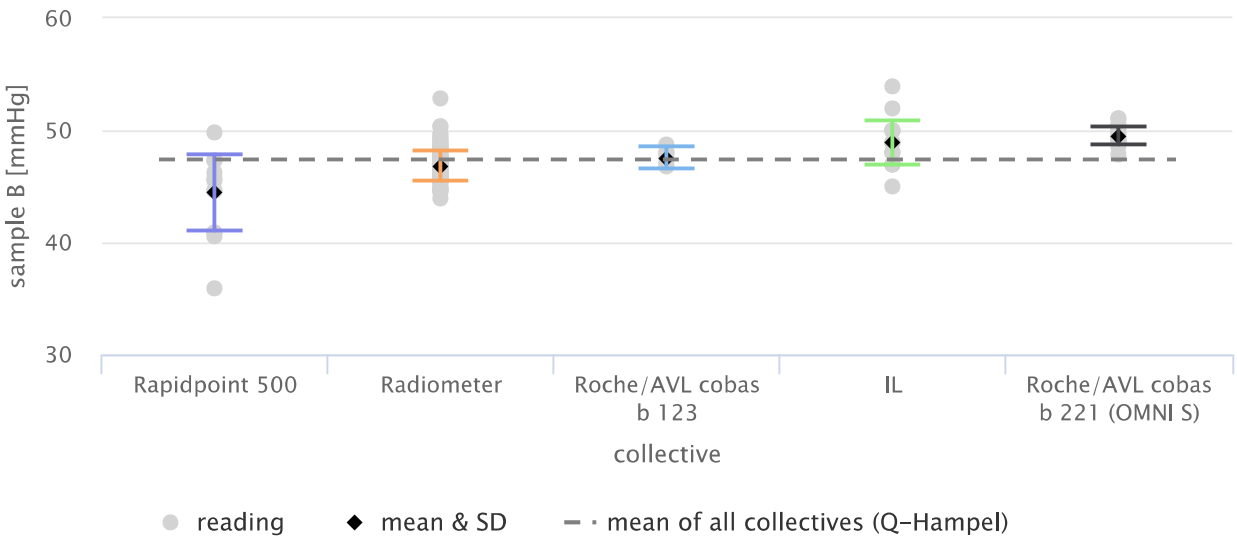
pCO2 mmHg

Split: Gerät

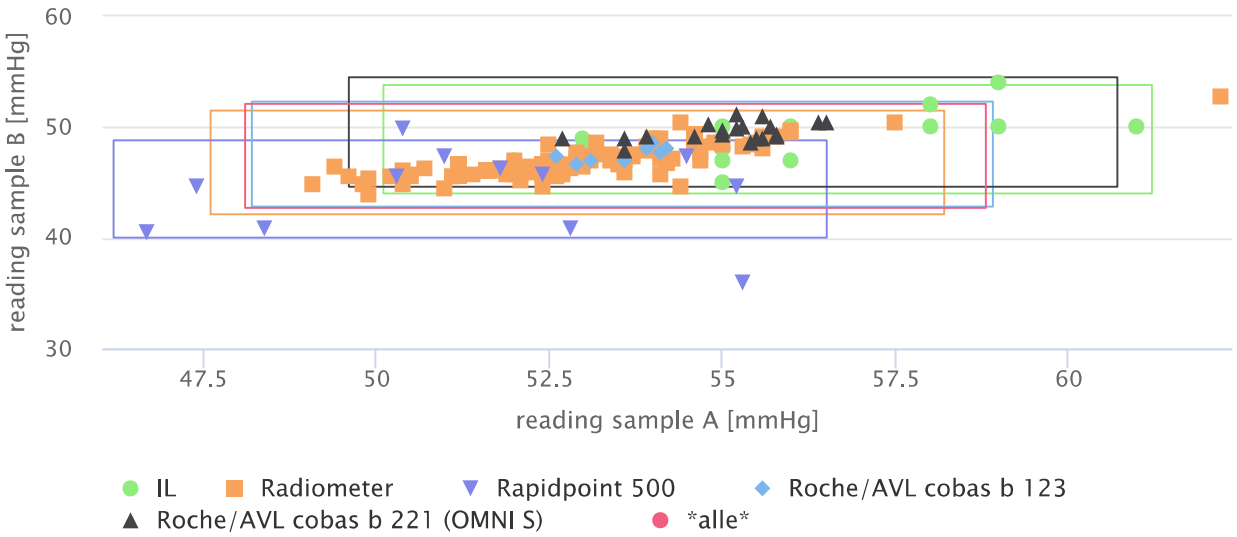
Collective	Sample	AnzE	Target	%-Abw	limits	correct	outliers	MW	Median	SD	CV %
all	A	157	53.4 [b]	10	[48.1...58.8]	151 (96%)	6 (4%)	53.4	53.5	2.0	3.75
	B	157	47.4 [b]	10	[42.7...52.1]	151 (96%)	6 (4%)	47.4	47.1	1.9	3.93
IL	A	19	55.6 [b]	10	[50.1...61.2]	19 (100%)	0 (0%)	55.6	55.0	2.3	4.13
	B	19	48.9 [b]	10	[44.0...53.8]	18 (95%)	1 (5%)	48.9	49.0	1.9	3.97
Radiometer	A	98	52.9 [b]	10	[47.6...58.2]	97 (99%)	1 (1%)	52.9	52.8	1.7	3.21
	B	98	46.8 [b]	10	[42.1...51.5]	97 (99%)	1 (1%)	46.8	46.6	1.3	2.85
Rapidpoint 500	A	12	51.4 [b]	10	[46.2...56.5]	12 (100%)	0 (0%)	51.3	51.4	3.8	7.49
	B	12	44.4 [b]	10	[40.0...48.8]	10 (83%)	2 (17%)	44.4	45.2	3.4	7.72
Roche/AVL cobas b 123	A	8	53.6 [b]	10	[48.2...58.9]	8 (100%)	0 (0%)	53.6	53.8	0.6	1.17
	B	8	47.6 [b]	10	[42.8...52.3]	8 (100%)	0 (0%)	47.6	47.5	1.0	2.03
Roche/AVL cobas b 221 (OMNI S)	A	20	55.1 [b]	10	[49.6...60.7]	20 (100%)	0 (0%)	55.1	55.2	0.8	1.52
	B	20	49.5 [b]	10	[44.6...54.5]	20 (100%)	0 (0%)	49.5	49.3	0.8	1.63

S-Curves of all samples





Youden-Plots of all sample pairs

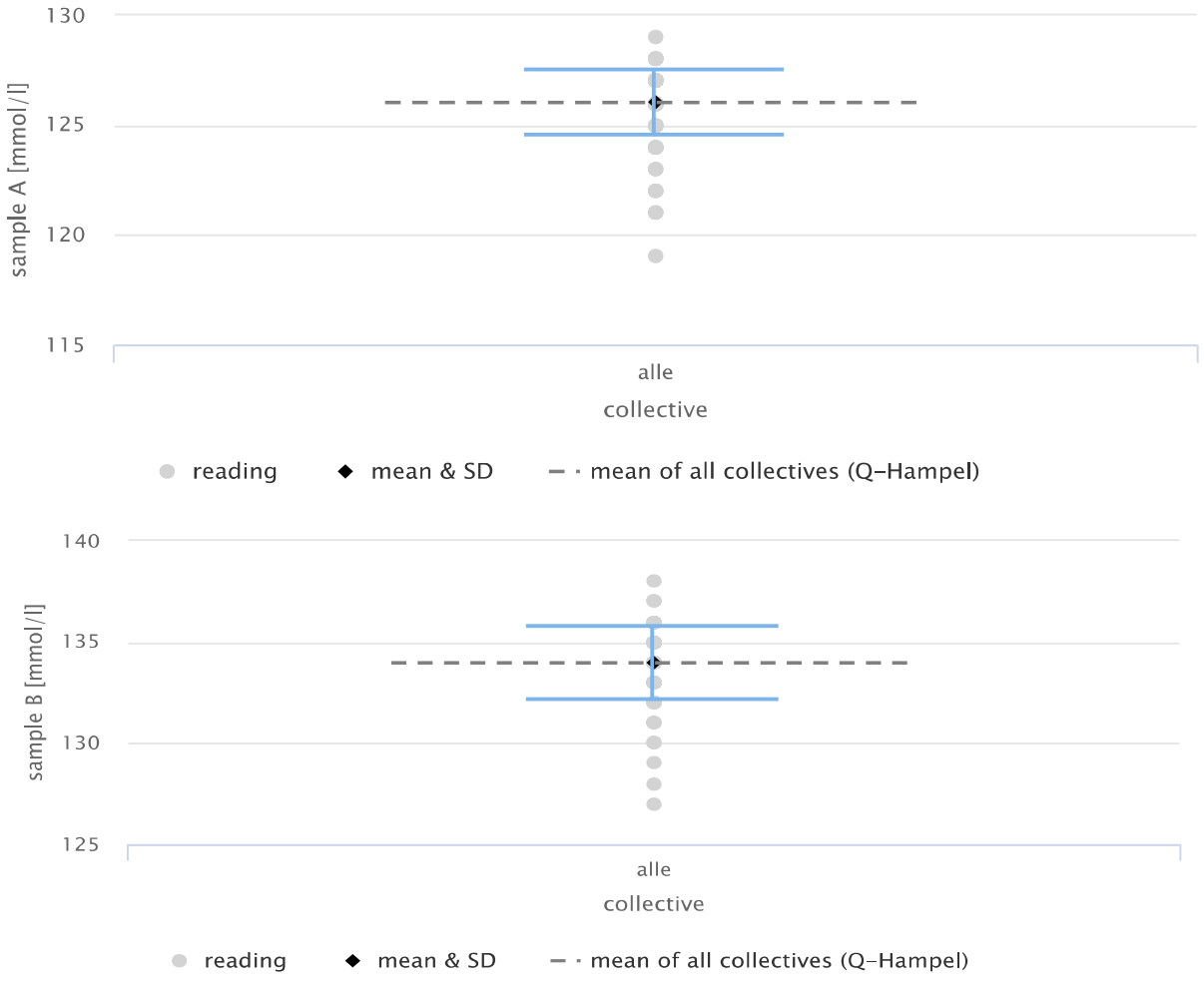


c-Sodium mmol/l

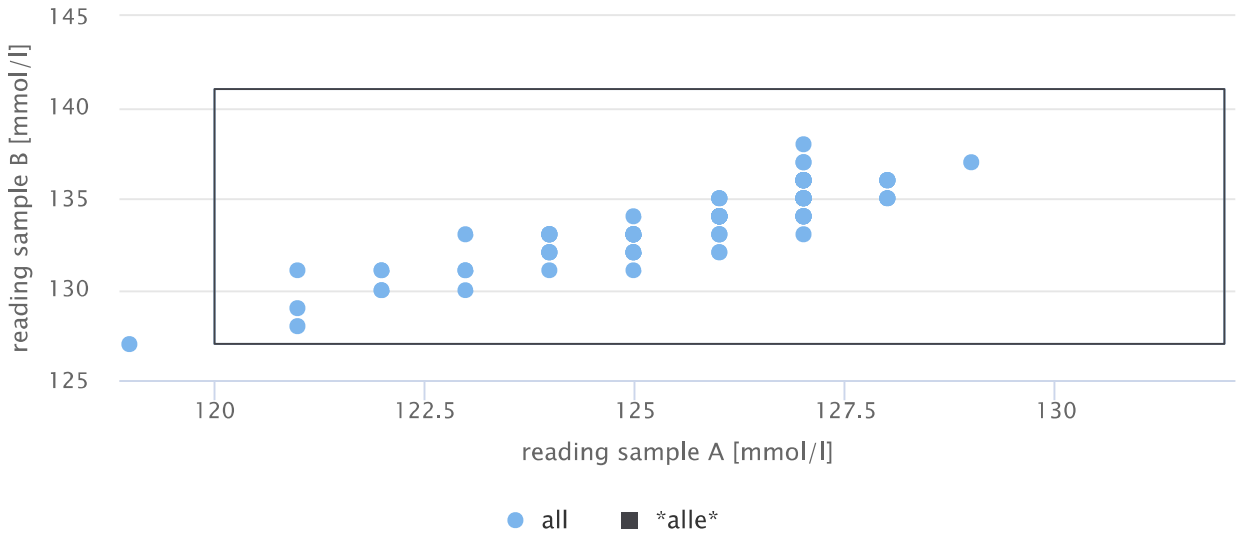
Split: Gerät

Collective	Sample	AnzE	Target	%-Abw	limits	correct	outliers	MW	Median	SD	CV %
alle	A	122	126 [b]	5	[120...132]	121 (99%)	1 (1%)	126	126	1	1.18
	B	122	134 [b]	5	[127...141]	122 (100%)	0 (0%)	134	134	2	1.36

S-Curves of all samples



Youden-Plots of all sample pairs

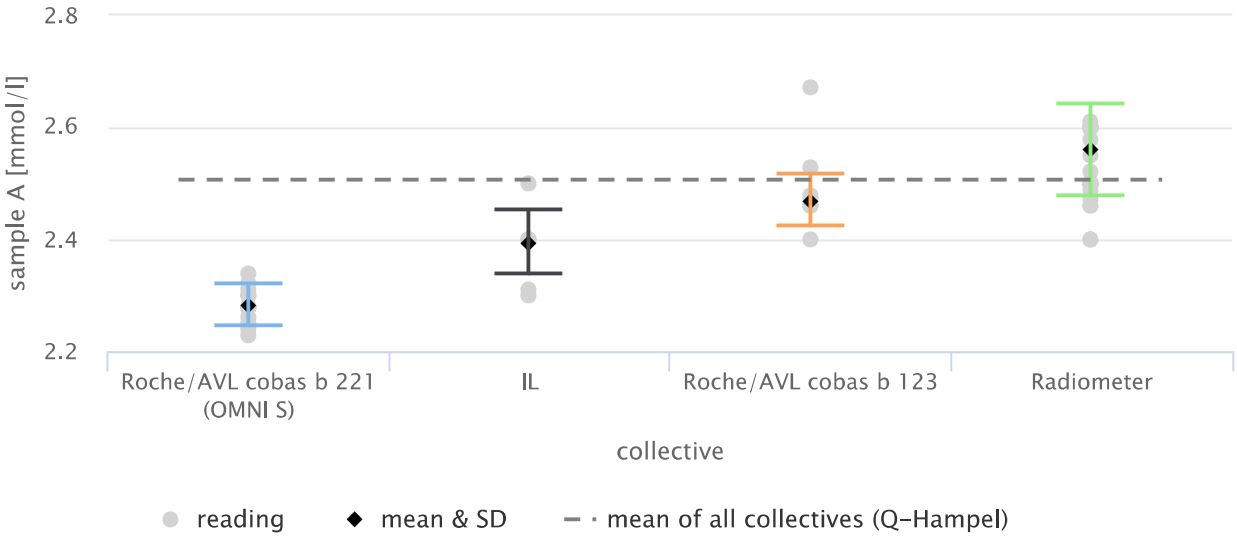


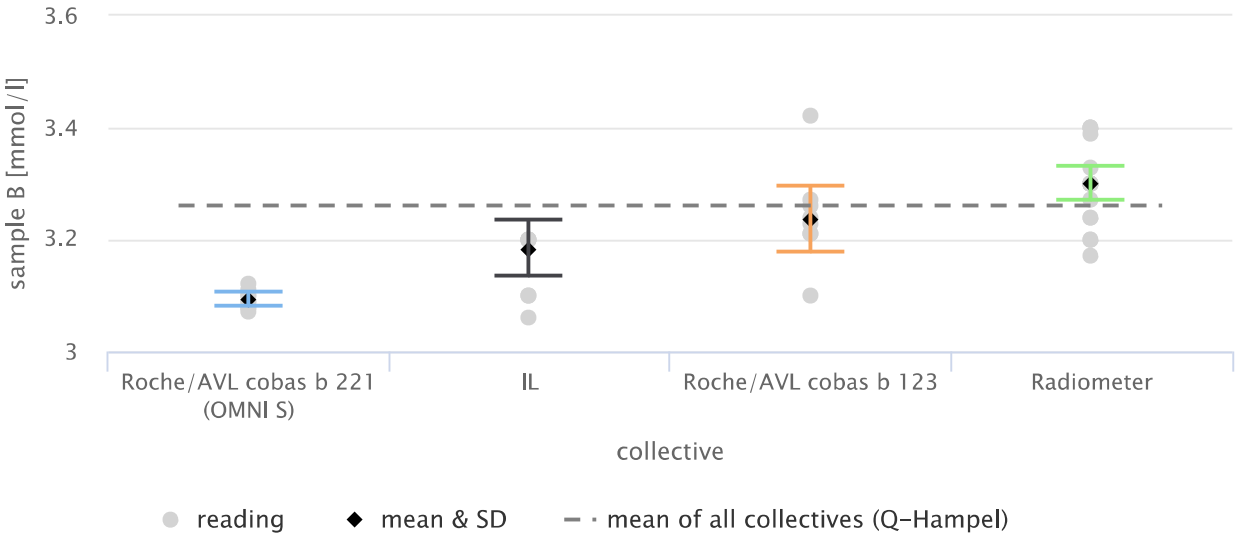
c-Potassium mmol/l

Split: Gerät

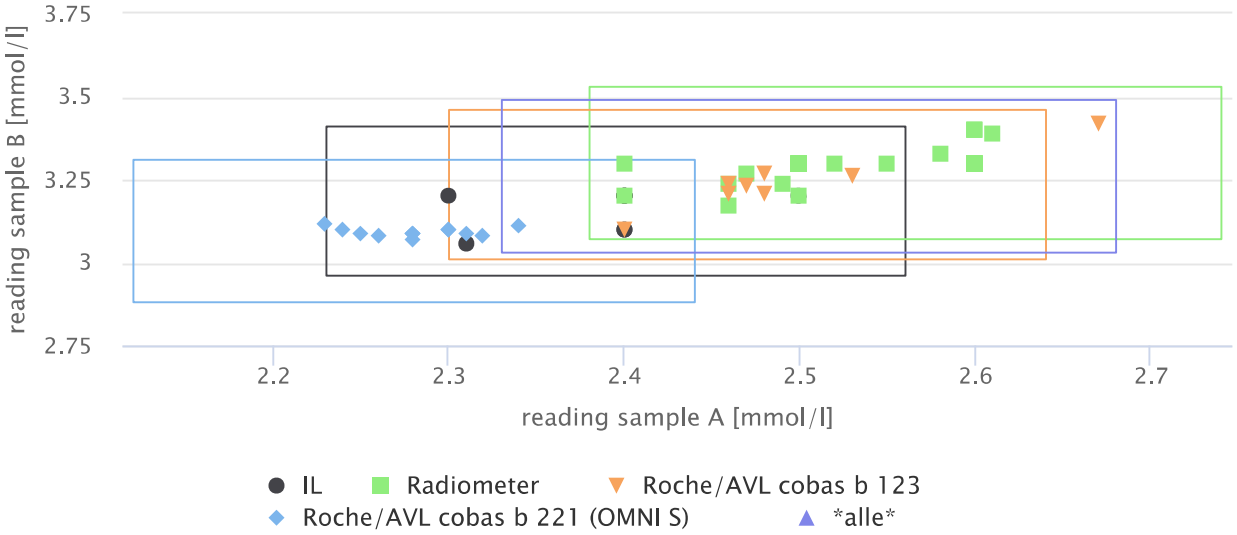
Collective	Sample	AnzE	Target	%-Abw	limits	correct	outliers	MW	Median	SD	CV %
all	A	122	2.51 [b]	7	[2.33...2.68]	107 (88%)	15 (12%)	2.51	2.50	0.12	4.86
	B	122	3.26 [b]	7	[3.03...3.49]	122 (100%)	0 (0%)	3.26	3.30	0.09	2.73
IL	A	16	2.39 [b]	7	[2.23...2.56]	16 (100%)	0 (0%)	2.39	2.40	0.06	2.41
	B	16	3.18 [b]	7	[2.96...3.41]	16 (100%)	0 (0%)	3.18	3.20	0.05	1.56
Radiometer	A	84	2.56 [b]	7	[2.38...2.74]	84 (100%)	0 (0%)	2.56	2.60	0.08	3.18
	B	84	3.30 [b]	7	[3.07...3.53]	84 (100%)	0 (0%)	3.30	3.30	0.03	0.89
Roche/AVL cobas b 123	A	8	2.47 [b]	7	[2.30...2.64]	7 (88%)	1 (12%)	2.47	2.48	0.05	1.84
	B	8	3.24 [b]	7	[3.01...3.46]	8 (100%)	0 (0%)	3.24	3.24	0.06	1.81
Roche/AVL cobas b 221 (OMNI S)	A	14	2.28 [b]	7	[2.12...2.44]	14 (100%)	0 (0%)	2.28	2.28	0.04	1.58
	B	14	3.09 [b]	7	[2.88...3.31]	14 (100%)	0 (0%)	3.09	3.09	0.01	0.43

S-Curves of all samples





Youden-Plots of all sample pairs

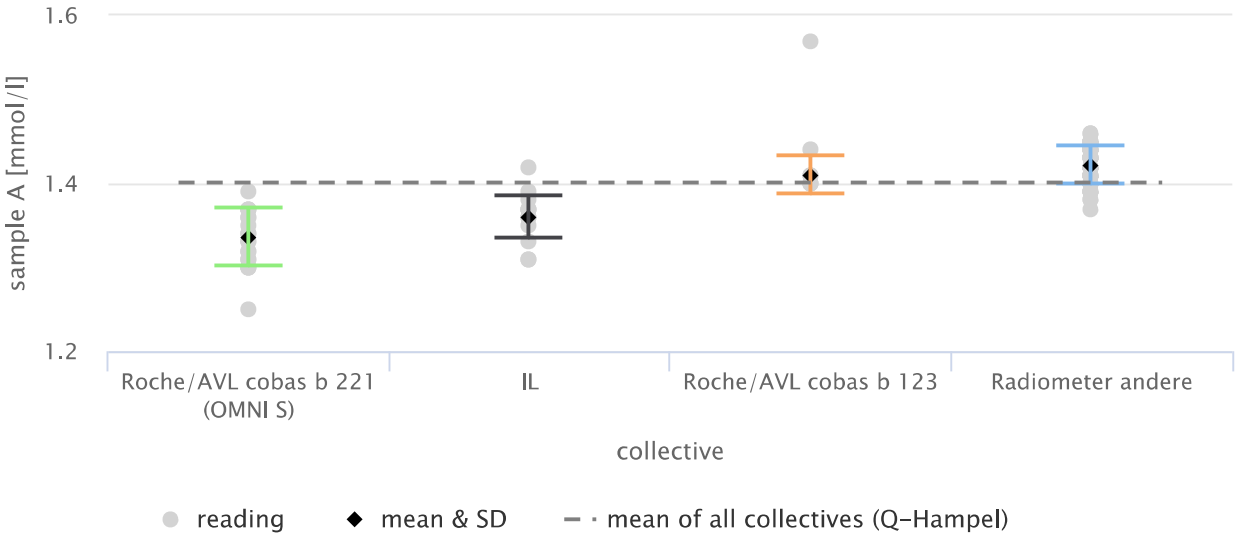


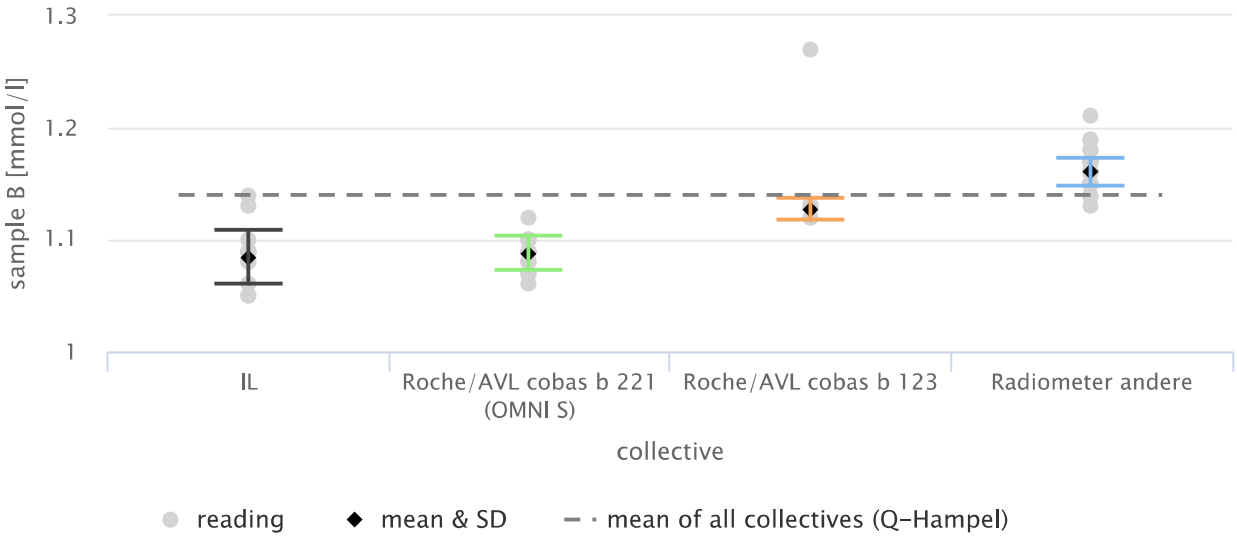
c-Calcium mmol/l

Split: Gerät

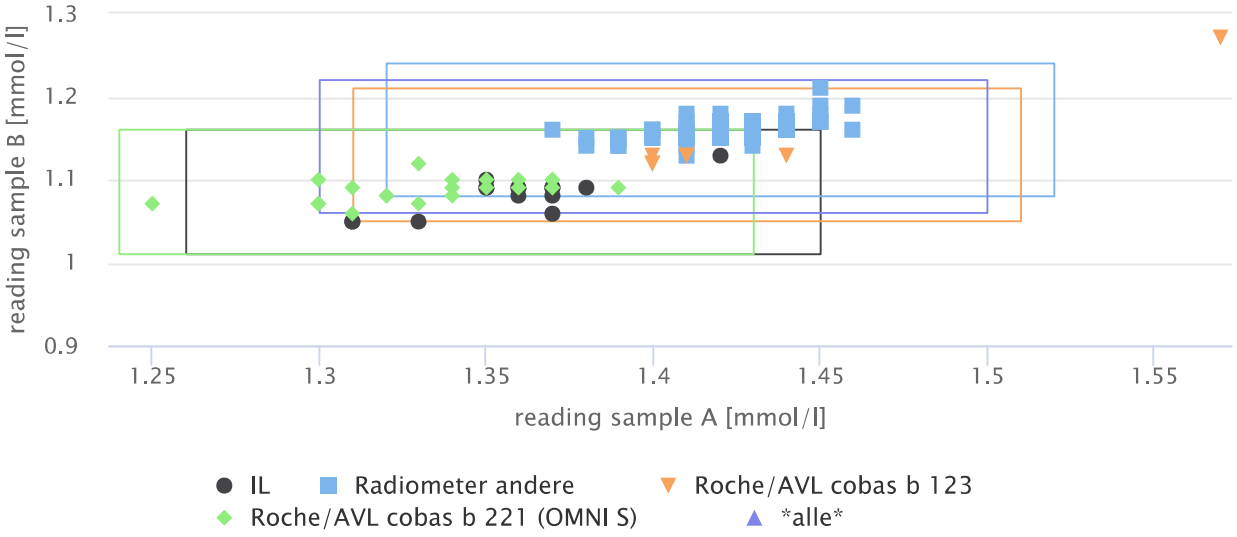
Collective	Sample	AnzE	Target	%-Abw	limits	correct	outliers	MW	Median	SD	CV %
all	A	121	1.40 [b]	7	[1.30...1.50]	119 (98%)	2 (2%)	1.40	1.41	0.04	2.78
	B	121	1.14 [b]	7	[1.06...1.22]	117 (97%)	4 (3%)	1.14	1.15	0.03	2.57
IL	A	16	1.36 [b]	7	[1.26...1.45]	16 (100%)	0 (0%)	1.36	1.36	0.03	1.88
	B	16	1.08 [b]	7	[1.01...1.16]	16 (100%)	0 (0%)	1.08	1.09	0.02	2.17
Radiometer andere	A	77	1.42 [b]	7	[1.32...1.52]	77 (100%)	0 (0%)	1.42	1.42	0.02	1.54
	B	77	1.16 [b]	7	[1.08...1.24]	77 (100%)	0 (0%)	1.16	1.16	0.01	1.11
Roche/AVL cobas b 123	A	7	1.41 [b]	7	[1.31...1.51]	6 (86%)	1 (14%)	1.41	1.41	0.02	1.58
	B	7	1.13 [b]	7	[1.05...1.21]	6 (86%)	1 (14%)	1.13	1.13	0.01	0.89
Roche/AVL cobas b 221 (OMNI S)	A	21	1.34 [b]	7	[1.24...1.43]	21 (100%)	0 (0%)	1.34	1.34	0.03	2.57
	B	21	1.09 [b]	7	[1.01...1.16]	21 (100%)	0 (0%)	1.09	1.09	0.02	1.44

S-Curves of all samples





Youden-Plots of all sample pairs

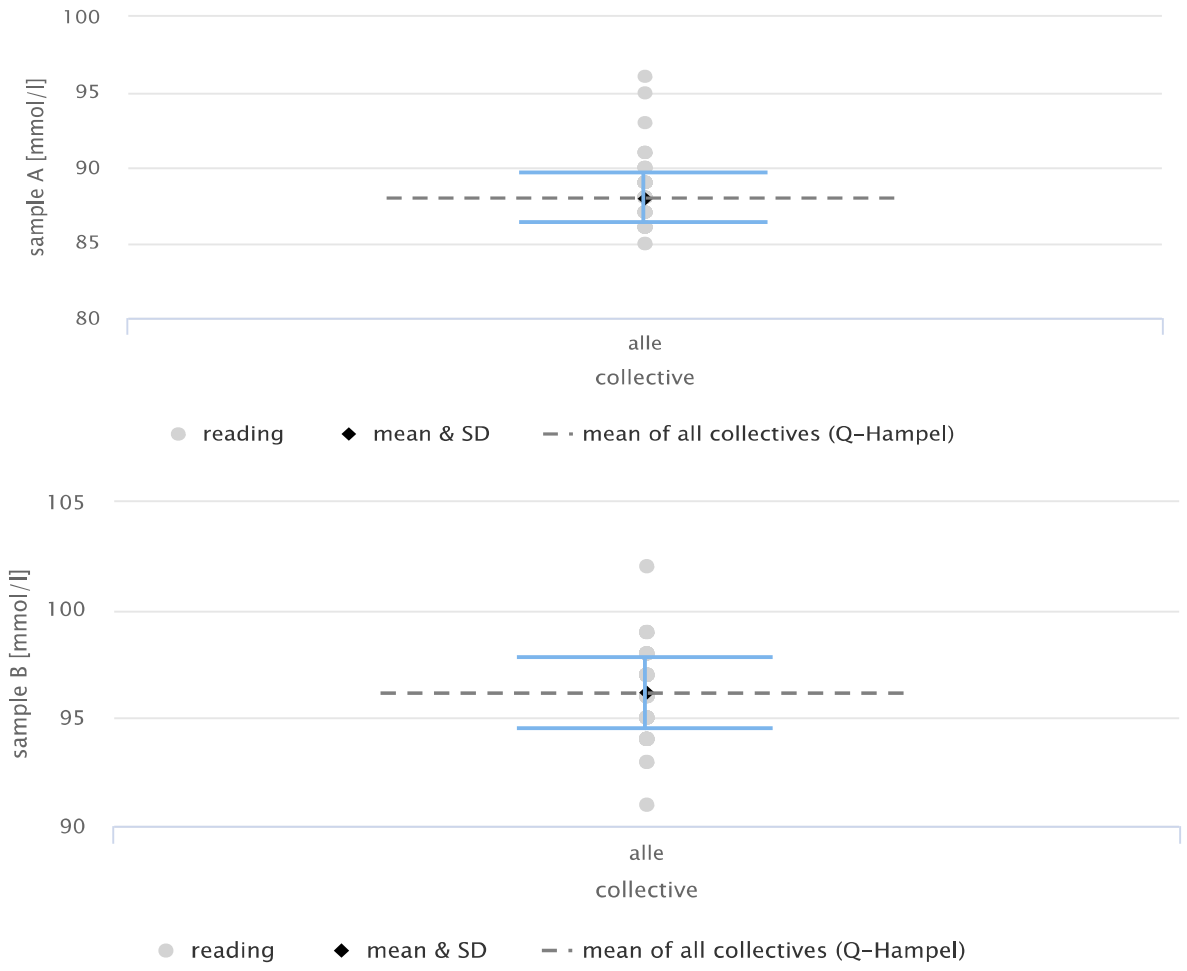


c-Chloride mmol/l

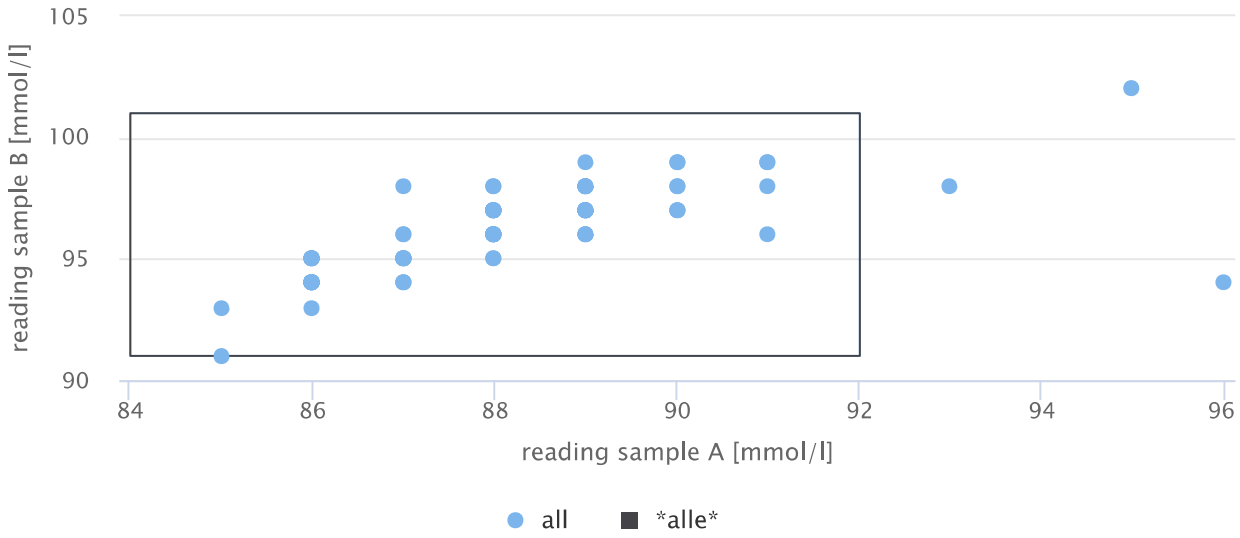
Split: Gerät

Collective	Sample	AnzE	Target	%-Abw	limits	correct	outliers	MW	Median	SD	CV %
alle	A	113	88 [b]	5	[84...92]	110 (97%)	3 (3%)	88	88	2	1.83
	B	113	96 [b]	5	[91...101]	112 (99%)	1 (1%)	96	96	2	1.72

S-Curves of all samples



Youden-Plots of all sample pairs

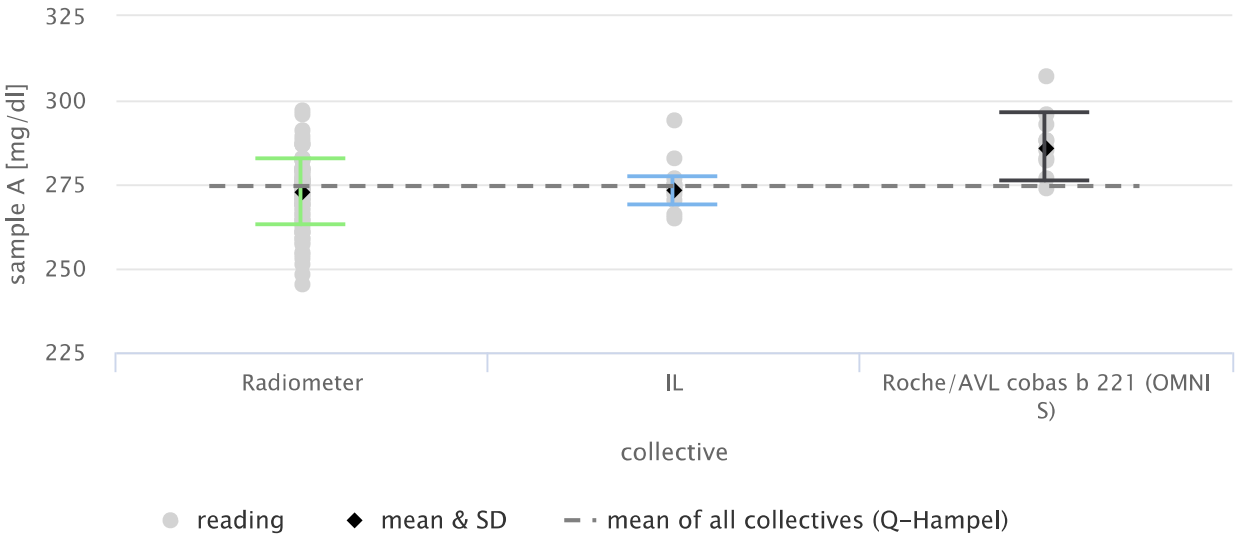


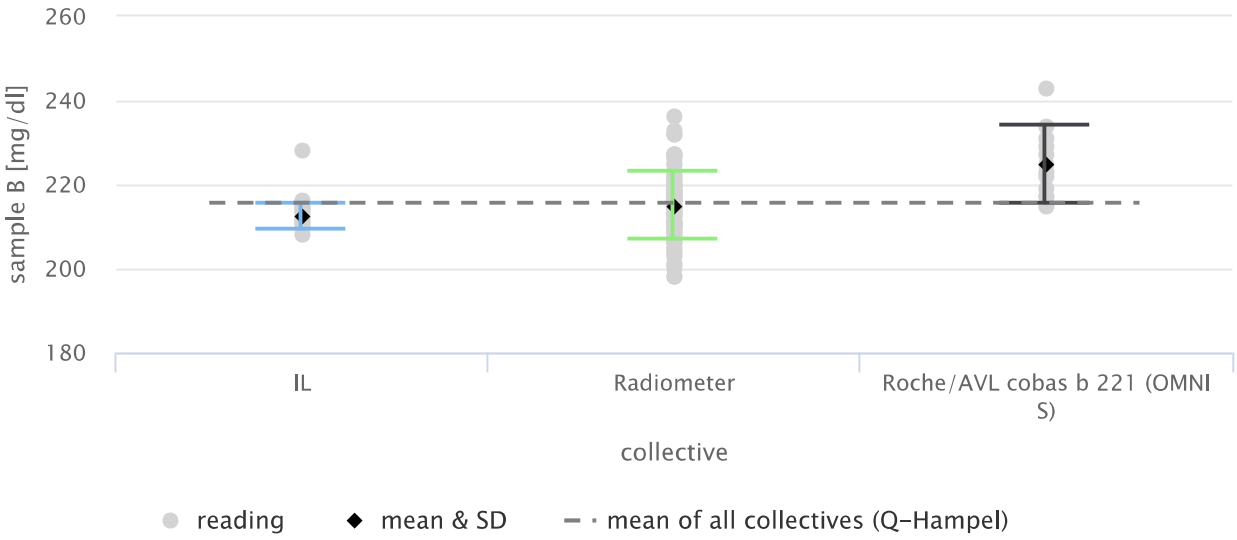
c-Glucose mg/dl

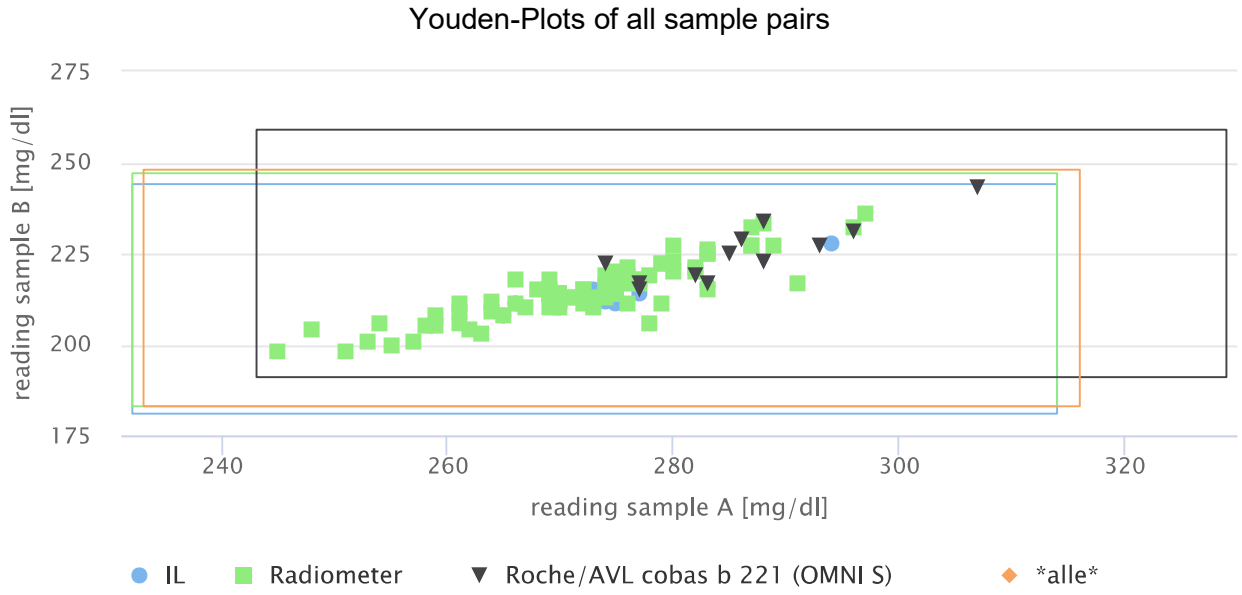
Split: Gerät

Collective	Sample	AnzE	Target	%-Abw	limits	correct	outliers	MW	Median	SD	CV %
all	A	104	274 [b]	15	[233...316]	104 (100%)	0 (0%)	274	275	10	3.52
	B	104	216 [b]	15	[183...248]	104 (100%)	0 (0%)	216	215	8	3.61
IL	A	14	273 [b]	15	[232...314]	14 (100%)	0 (0%)	273	274	4	1.51
	B	14	213 [b]	15	[181...244]	14 (100%)	0 (0%)	213	212	3	1.45
Radiometer	A	78	273 [b]	15	[232...314]	78 (100%)	0 (0%)	273	274	10	3.58
	B	78	215 [b]	15	[183...247]	78 (100%)	0 (0%)	215	215	8	3.75
Roche/AVL cobas b 221 (OMNI S)	A	12	286 [b]	15	[243...329]	12 (100%)	0 (0%)	286	286	10	3.55
	B	12	225 [b]	15	[191...259]	12 (100%)	0 (0%)	225	224	9	4.14

S-Curves of all samples





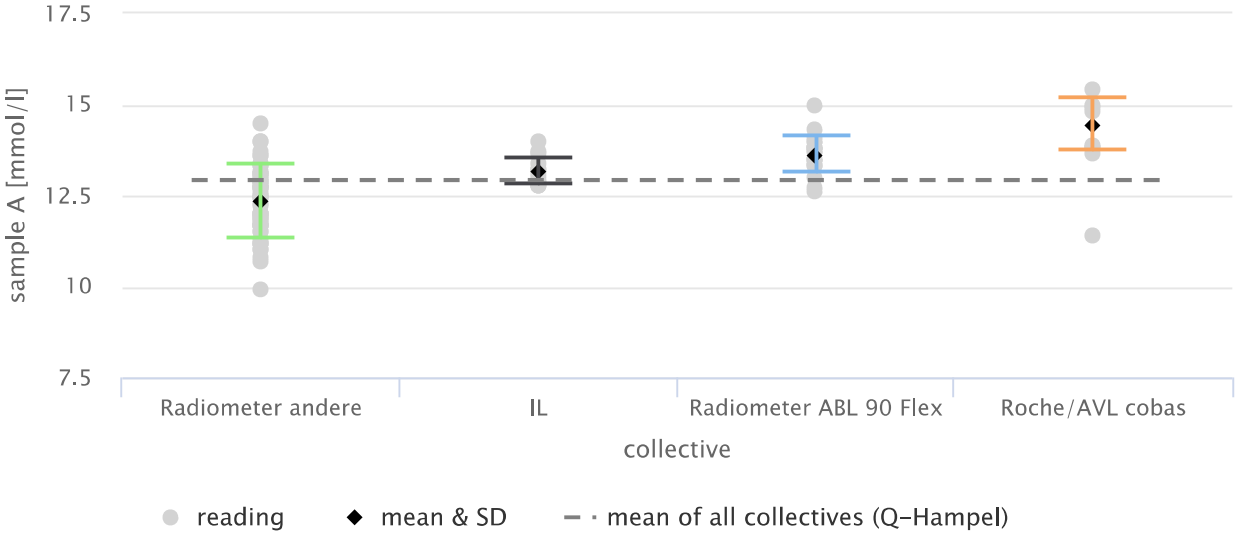


c-Lactat mmol/l

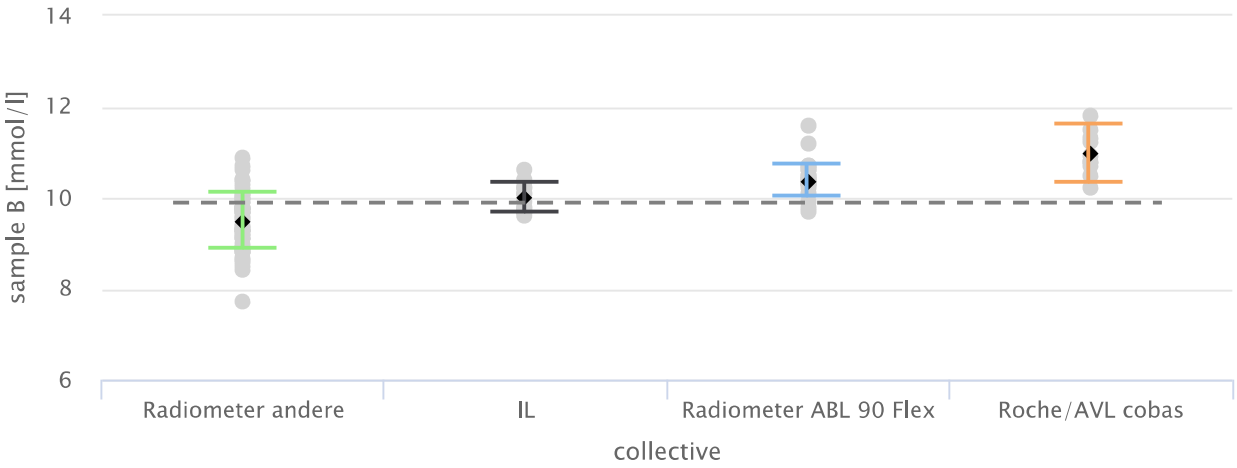
Split: Gerät

Collective	Sample	AnzE	Target	%-Abw	limits	correct	outliers	MW	Median	SD	CV %
all	A	104	12.92 [b]	15	[10.98...14.86]	97 (93%)	7 (7%)	12.92	13.00	1.03	7.97
	B	105	9.89 [b]	15	[8.41...11.37]	100 (95%)	5 (5%)	9.89	9.90	0.79	7.96
IL	A	14	13.16 [b]	15	[11.19...15.14]	14 (100%)	0 (0%)	13.16	13.10	0.38	2.88
	B	14	10.00 [b]	15	[8.50...11.50]	14 (100%)	0 (0%)	10.00	10.00	0.34	3.35
Radiometer ABL 90 Flex	A	22	13.62 [b]	15	[11.58...15.67]	22 (100%)	0 (0%)	13.62	13.70	0.49	3.57
	B	22	10.37 [b]	15	[8.82...11.93]	22 (100%)	0 (0%)	10.37	10.40	0.34	3.32
Radiometer andere	A	58	12.36 [b]	15	[10.50...14.21]	56 (97%)	2 (3%)	12.36	12.47	1.02	8.26
	B	59	9.49 [b]	15	[8.07...10.92]	58 (98%)	1 (2%)	9.49	9.57	0.60	6.36
Roche/AVL cobas	A	10	14.45 [b]	15	[12.28...16.61]	9 (90%)	1 (10%)	14.45	14.36	0.70	4.81
	B	10	10.97 [b]	15	[9.33...12.62]	10 (100%)	0 (0%)	10.97	10.86	0.63	5.76

S-Curves of all samples

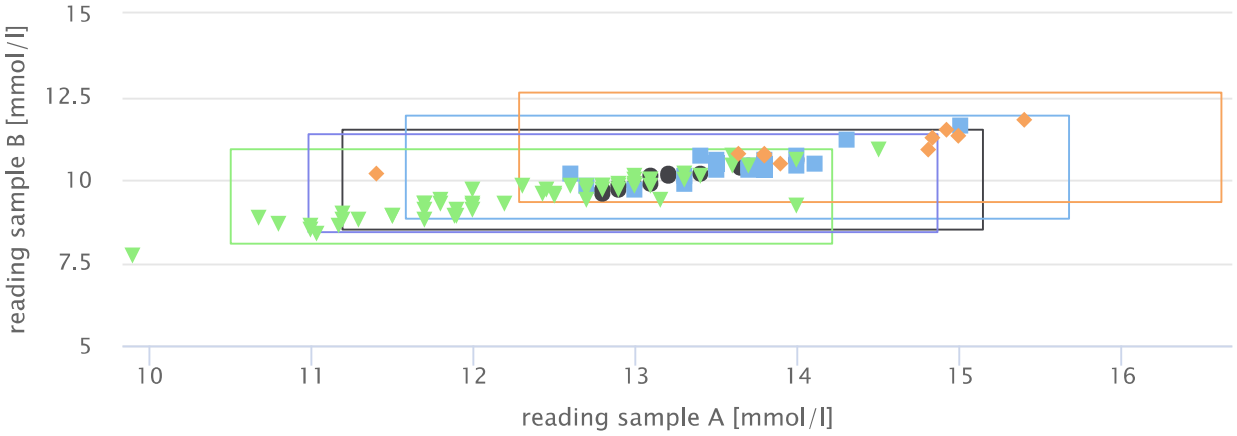


reading ◆ mean & SD – · mean of all collectives (Q-Hampel)



reading ◆ mean & SD – · mean of all collectives (Q-Hampel)

Youden-Plots of all sample pairs



IL ■ Radiometer ABL 90 Flex ▼ Radiometer andere ◆ Roche/AVL cobas
▲ *alle*

Category (Collectives)

pH

Number	Collective	Attribute	Specification
1	IL	Instrument	i-STAT IL Gem 3000 IL Gem 3500 IL Gem 4000 IL Gem 5000 Opti CCA-TS2
2	Radiometer	Instrument	Epoc Reader Radiometer ABL 700 Radiometer ABL 725 Radiometer ABL 80 Flex CO-OX Radiometer ABL 800 Basic Radiometer ABL 800 Flex Radiometer ABL 810 Flex Radiometer ABL 815 Flex Radiometer ABL 820 Flex Radiometer ABL 825 Flex Radiometer ABL 835 Flex Radiometer ABL 9 Radiometer ABL 90 Flex Radiometer TCM 4 RAPIDLab 348EX Rapidpoint 500
3	Roche	Instrument	cobas b 123 POC System Roche/AVL cobas b 123 Roche/AVL cobas b 221 (OMNI S)

pO2 mmHg

Number	Collective	Attribute	Specification
1	Rapidpoint 500	Instrument	Radiometer ABL 810 Flex Rapidpoint 500
2	IL	Instrument	IL Gem 3000 IL Gem 3500 IL Gem 4000 IL Gem 5000
3	Radiometer ABL 90 Flex	Instrument	Epoc Reader Radiometer ABL 90 Flex RAPIDLab 348EX
4	Radiometer andere	Instrument	Opti CCA-TS2 Radiometer ABL 700 Radiometer ABL 725 Radiometer ABL 80 Flex CO-OX Radiometer ABL 800 Basic Radiometer ABL 800 Flex Radiometer ABL 815 Flex Radiometer ABL 820 Flex Radiometer ABL 825 Flex Radiometer ABL 835 Flex Radiometer TCM 4
5	Roche/AVL cobas b 123	Instrument	Roche/AVL cobas b 123
6	Roche/AVL cobas b 221 (OMNI S)	Instrument	cobas b 123 POC System i-STAT

			Radiometer ABL 9 Roche/AVL cobas b 221 (OMNI S)

pCO2 mmHg

Number	Collective	Attribute	Specification
1	IL	Instrument	IL Gem 3000 IL Gem 3500 IL Gem 4000 IL Gem 5000
2	Radiometer	Instrument	Radiometer ABL 700 Radiometer ABL 725 Radiometer ABL 80 Flex CO-OX Radiometer ABL 800 Basic Radiometer ABL 800 Flex Radiometer ABL 810 Flex Radiometer ABL 815 Flex Radiometer ABL 820 Flex Radiometer ABL 825 Flex Radiometer ABL 835 Flex Radiometer ABL 9 Radiometer ABL 90 Flex Radiometer TCM 4
3	Rapidpoint 500	Instrument	cobas b 123 POC System Epoc Reader i-STAT Opti CCA-TS2 RAPIDLab 348EX Rapidpoint 500
4	Roche/AVL cobas b 123	Instrument	Roche/AVL cobas b 123
5	Roche/AVL cobas b 221 (OMNI S)	Instrument	Roche/AVL cobas b 221 (OMNI S)

c-Sodium mmol/l

Number	Collective	Attribute	Specification
1	alle	Instrument	cobas b 123 POC System i-STAT IL Gem 3000 IL Gem 4000 IL Gem 5000 Opti CCA-TS2 Radiometer ABL 700 Radiometer ABL 725 Radiometer ABL 800 Basic Radiometer ABL 800 Flex Radiometer ABL 815 Flex Radiometer ABL 825 Flex Radiometer ABL 835 Flex Radiometer ABL 9 Radiometer ABL 90 Flex Rapidpoint 500 Roche/AVL cobas b 123 Roche/AVL cobas b 221 (OMNI S)

c-Potassium mmol/l

Number	Collective	Attribute	Specification
1	IL	Instrument	IL Gem 3000 IL Gem 4000 IL Gem 5000 Opti CCA-TS2
2	Radiometer	Instrument	Radiometer ABL 700

			Radiometer ABL 725 Radiometer ABL 800 Basic Radiometer ABL 800 Flex Radiometer ABL 815 Flex Radiometer ABL 825 Flex Radiometer ABL 835 Flex Radiometer ABL 9 Radiometer ABL 90 Flex Rapidpoint 500
3	Roche/AVL cobas b 123	Instrument	cobas b 123 POC System i-STAT Roche/AVL cobas b 123
4	Roche/AVL cobas b 221 (OMNI S)	Instrument	Roche/AVL cobas b 221 (OMNI S)

c-Calcium mmol/l

Number	Collective	Attribute	Specification
1	IL	Instrument	i-STAT IL Gem 3000 IL Gem 4000 IL Gem 5000
2	Radiometer andere	Instrument	Radiometer ABL 700 Radiometer ABL 725 Radiometer ABL 800 Basic Radiometer ABL 800 Flex Radiometer ABL 815 Flex Radiometer ABL 825 Flex Radiometer ABL 835 Flex Radiometer ABL 90 Flex
3	Roche/AVL cobas b 123	Instrument	cobas b 123 POC System Roche/AVL cobas b 123
4	Roche/AVL cobas b 221 (OMNI S)	Instrument	Opti CCA-TS2 Radiometer ABL 9 Rapidpoint 500 Roche/AVL cobas b 221 (OMNI S)

c-Chloride mmol/l

Number	Collective	Attribute	Specification
1	alle	Instrument	cobas b 123 POC System IL Gem 4000 IL Gem 5000 Radiometer ABL 700 Radiometer ABL 725 Radiometer ABL 800 Basic Radiometer ABL 800 Flex Radiometer ABL 815 Flex Radiometer ABL 825 Flex Radiometer ABL 835 Flex Radiometer ABL 9 Radiometer ABL 90 Flex Rapidpoint 500 Roche/AVL cobas b 123 Roche/AVL cobas b 221 (OMNI S)

c-Glucose mg/dl

Number	Collective	Attribute	Specification
1	IL	Instrument	IL Gem 3000 IL Gem 4000 IL Gem 5000

2	Radiometer	Instrument	i-STAT Radiometer ABL 700 Radiometer ABL 725 Radiometer ABL 800 Basic Radiometer ABL 800 Flex Radiometer ABL 815 Flex Radiometer ABL 825 Flex Radiometer ABL 835 Flex Radiometer ABL 90 Flex Rapidpoint 500
3	Roche/AVL cobas b 221 (OMNI S)	Instrument	cobas b 123 POC System Roche/AVL cobas b 123 Roche/AVL cobas b 221 (OMNI S)

c-Lactat mmol/l

Number	Collective	Attribute	Specification
1	IL	Instrument	IL Gem 3000 IL Gem 4000 IL Gem 5000
2	Radiometer ABL 90 Flex	Instrument	Radiometer ABL 90 Flex
3	Radiometer andere	Instrument	Radiometer ABL 700 Radiometer ABL 725 Radiometer ABL 800 Basic Radiometer ABL 800 Flex Radiometer ABL 815 Flex Radiometer ABL 825 Flex Radiometer ABL 835 Flex Rapidpoint 500
4	Roche/AVL cobas	Instrument	cobas b 123 POC System Roche/AVL cobas b 123 Roche/AVL cobas b 221 (OMNI S)

With best regards

Dr. Christoph Buchta, MBA
Technical Management

Prim. Dr. Sabine Sussitz-Rack
EQA Scheme Director