

EURAMET 1187
ANNEX 4
CALCULATIONS AND GRAPHS

(also accessible via

https://www.bipm.org/documents/20126/56401676/Annex+4_Calculations_and_Graphs_E-limit_final.xlsx/61c916cc-e97f-6046-e15d-9010d751a776)

$E_{std-Limit}(\epsilon)$		1.0								
5 VA		CMI					PTB			
k_I (kA/A)	I_1 (% I_N)	ϵ_L (ppm)	$u(\epsilon_L)$ (ppm)	$\Delta\epsilon$ (ppm)	$u(\Delta\epsilon_{std})$ (ppm)	$E(\epsilon)$ (-)	ϵ_L (ppm)	$u(\epsilon_L)$ (ppm)	$\Delta\epsilon$ (ppm)	$u(\Delta\epsilon_{std})$ (ppm)
4/5	120	-93	9	0	10	0.019	-92	4	0	6
	100	-90	9	1	10	0.026	-91	4	0	6
	50	-81	9	1	9	0.080	-83	4	-1	5
	20	-71	9	1	9	0.043	-73	4	-1	5
	10	-65	9	2	9	0.103	-68	4	-1	5
	5	-61	9	1	9	0.052	-64	4	-2	5
	2	-58	9	1	9	0.033	-60	4	-1	6
	1	-56	9	0	9	0.024	-57	4	-1	6
10/5	120						-34	4	-1	4
	100	-31	9	1	9	0.051	-33	4	-1	5
	50	-21	9	1	9	0.034	-24	4	-2	5
	20	-11	9	1	9	0.060	-14	4	-2	5
	10	-6	9	1	9	0.043	-9	4	-2	5
	5	-2	9	1	9	0.030	-5	4	-2	4
	2	2	9	1	9	0.084	-2	4	-2	4
	1	1	9	0	9	0.008	-1	4	-2	4
15 VA		CMI					PTB			
k_I (kA/A)	I_1 (% I_N)	ϵ_L (ppm)	$u(\epsilon_L)$ (ppm)	$\Delta\epsilon$ (ppm)	$u(\Delta\epsilon_{std})$ (ppm)	$E(\epsilon)$ (-)	ϵ_L (ppm)	$u(\epsilon_L)$ (ppm)	$\Delta\epsilon$ (ppm)	$u(\Delta\epsilon_{std})$ (ppm)
4/5	120	-131	9	-3	9	0.174	-130	4	-2	6
	100	-128	9	-2	10	0.078	-128	4	-1	7
	50	-117	9	-1	10	0.052	-117	4	-1	7
	20	-101	9	-1	10	0.038	-102	4	-2	6
	10	-92	9	0	10	0.014	-94	4	-1	6
	5	-86	9	0	9	0.000	-88	4	-2	6
	2	-81	9	-1	10	0.038	-82	4	-2	7
	1	-76	9	0	11	0.013	-77	4	-1	8
5/5	120	-99	9	-2	10	0.104	-99	4	-2	6
	100	-98	9	-2	10	0.115	-97	4	-2	6
	50	-87	9	-1	10	0.031	-88	4	-1	6
	20	-73	9	0	10	0.000	-74	4	-1	6
	10	-66	9	1	10	0.030	-68	4	-2	6
	5	-61	9	0	10	0.013	-63	4	-3	7
	2	-56	9	0	10	0.013	-57	4	-1	7
	1	-52	9	0	10	0.015	-53	4	0	7
6/5	120	-75	9	2	10	0.081	-78	4	-1	6
	100	-73	9	2	10	0.090	-76	4	-1	6
	50	-64	9	2	10	0.113	-67	4	-1	6
	20	-51	9	3	10	0.149	-56	4	-2	6
	10	-44	9	3	10	0.148	-49	4	-2	7
	5	-40	9	3	10	0.127	-45	4	-2	6
	2	-32	9	6	11	0.271	-40	4	-2	7

	1	-27	9	7	11	0.339	-36	4	-2	7
8/5	120	-59	9	-5	11	0.218	-55	4	0	7
	100	-59	9	-6	10	0.339	-53	4	-1	6
	50	-48	9	-3	10	0.177	-44	4	0	6
	20	-35	9	-2	10	0.126	-33	4	0	6
	10	-27	9	-1	10	0.051	-27	4	-1	6
	5	-22	9	-1	10	0.031	-23	4	-1	6
	2	-18	9	0	10	0.023	-18	4	-1	6
	1	-3	9	10	11	0.449	-15	4	-2	7
10/5	120						-40	4	-1	5
	100	-37	9	1	9	0.056	-39	4	-1	5
	50	-27	9	0	10	0.024	-30	4	-2	6
	20	-16	9	1	10	0.066	-19	4	-2	6
	10	-10	9	1	10	0.075	-13	4	-2	6
	5	-5	9	1	10	0.077	-9	4	-2	6
	2	-1	9	2	11	0.117	-5	4	-2	7
	1	-1	9	-1	11	0.026	-2	4	-1	8

Annex 4 TAB A4-1. Calculation from results of all labs.

Meaning of individual symbols:

I_1 Primary current (% I_N)

k_1 Transformation ratio I (kA/A)

B Burden (VA)

I_{1N} Rated primary current (A)

ε_L Ratio error of each participating laboratory (ppm)

$u(\varepsilon_L)$ Standard uncertainty of ratio error of each participating laboratory (ppm)

ε_r CRV for ratio error calculated from results of all laboratories see eq. (2) (ppm)

$u(\varepsilon_r)$ CRV uncertainty calculated from results of all laboratories see eq. (3) (ppm)

$\Delta\varepsilon$ Difference between results of individual laboratory ε_L and ε_r see eq. (5) (ppm)

$u(\Delta\varepsilon_{std})$ The uncertainty of the difference $\Delta\varepsilon$ according to (8) with transfer standard uncertainty

$u(\varepsilon_{std})$ Pilot laboratory evaluated uncertainty component of ratio error of transfer standard

$E(\varepsilon)$ confidence coefficient of ratio error calculated from results of all laboratories
 red and underlined results are for $E(\varepsilon) > 1.0$

5 VA		CMI	CMI	CMI	CMI	CMI	PTB	PTB	PTB	PTB
k_1 (kA/A)	I_1 (% I_N)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)
4/5	120	-93	9	0	10	0.019	-92	4	0	6
	100	-90	9	1	10	0.026	-91	4	0	6
	50	-81	9	1	9	0.080	-83	4	-1	5
	20	-71	9	1	9	0.043	-73	4	-1	5
	10	-65	9	2	9	0.103	-68	4	-1	5

		5	-61	9	1	9	0.052	-64	4	-2	5
		2	-58	9	1	9	0.044	-60	4	-1	6
		1	-56	9	0	9	0.007	-57	4	-1	6
10/5		120						-34	4	-1	4
		100	-31	9	1	9	0.051	-33	4	-1	5
		50	-21	9	1	9	0.034	-24	4	-2	5
		20	-11	9	1	9	0.060	-14	4	-2	5
		10	-6	9	1	9	0.061	-9	4	-2	5
		5	-2	9	1	9	0.049	-5	4	-2	4
		2	2	9	1	9	0.060	-2	4	-3	4
		1	1	9	0	9	0.011	-1	4	-1	4
15 VA			CMI	CMI	CMI	CMI	CMI	PTB	PTB	PTB	PTB
k_1 (kA/A)	I_1 (% I_N)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)	
4/5		120	-131	9	-2	9	0.124	-130	4	-1	6
		100	-128	9	-1	10	0.031	-128	4	0	7
		50	-117	9	0	10	0.008	-117	4	0	7
		20	-101	9	-1	10	0.038	-102	4	-2	6
		10	-92	9	0	10	0.014	-94	4	-1	6
		5	-86	9	0	9	0.000	-88	4	-2	6
		2	-81	9	0	10	0.024	-82	4	-1	7
		1	-76	9	0	11	0.003	-77	4	-1	8
5/5		120	-99	9	-2	10	0.104	-99	4	-2	6
		100	-98	9	-2	10	0.115	-97	4	-2	6
		50	-87	9	-1	10	0.031	-88	4	-1	6
		20	-73	9	0	10	0.000	-74	4	-1	6
		10	-66	9	1	10	0.030	-68	4	-2	6
		5	-61	9	0	10	0.013	-63	4	-3	7
		2	-56	9	-1	10	0.039	-57	4	-2	7
		1	-52	9	1	10	0.031	-53	4	0	7
6/5		120	-75	9	2	10	0.081	-78	4	-1	6
		100	-73	9	2	10	0.090	-76	4	-1	6
		50	-64	9	2	10	0.113	-67	4	-1	6
		20	-51	9	3	10	0.149	-56	4	-2	6
		10	-44	9	4	10	0.181	-49	4	-1	6
		5	-40	9	4	10	0.181	-45	4	-1	6
		2	-32	9	6	11	0.276	-40	4	-2	7
		1	-27	9	7	11	0.351	-36	4	-2	7
8/5		120	-59	9	-5	11	0.218	-55	4	0	7
		100	-59	9	-6	10	0.339	-53	4	-1	6
		50	-48	9	-3	10	0.177	-44	4	0	6
		20	-35	9	-2	10	0.126	-33	4	0	6
		10	-27	9	-1	10	0.051	-27	4	-1	6
		5	-22	9	0	10	0.017	-23	4	-1	6
		2	-18	9	-1	10	0.044	-18	4	-1	6
		1	-3	9	10	11	0.462	-15	4	-2	7

10/5	120						-40	4	-1	5
	100	-37	9	1	9	0.056	-39	4	-1	5
	50	-27	9	0	10	0.024	-30	4	-2	6
	20	-16	9	1	10	0.066	-19	4	-2	6
	10	-10	9	2	10	0.091	-13	4	-2	6
	5	-5	9	2	10	0.094	-9	4	-2	6
	2	-1	9	2	11	0.097	-5	4	-2	7
	1	-1	9	0	11	0.013	-2	4	-1	8

Annex 4. TAB A4-2 Calculation without outliers.

Meaning of individual symbols:

- I_1 Primary current (%) I_N
- k_1 Transformation ratio I (kA/A)
- B** Burden (VA)
- I_{1N} Rated primary current (A)
- ε_L Ratio error of each participating laboratory (ppm)
- $u(\varepsilon_L)$ Standard uncertainty of ratio error of each participating laboratory (ppm)
- ε_{rC} CRVc for ratio error according to (2) calculated without outliers (ppm)
- $u(\varepsilon_{rC})$ CRVc uncertainty according to (3) calculated without outliers (ppm)
- $\Delta\varepsilon_C$ Difference between results of individual laboratory ε_L and ε_{rC} without outliers
- $u(\Delta\varepsilon_{stdC})$ The uncertainty of the difference $\Delta\varepsilon_C$ without outliers according to (11) with t
- $E_C(\varepsilon)$ Corrected confidence coefficient without outliers, according to (12)

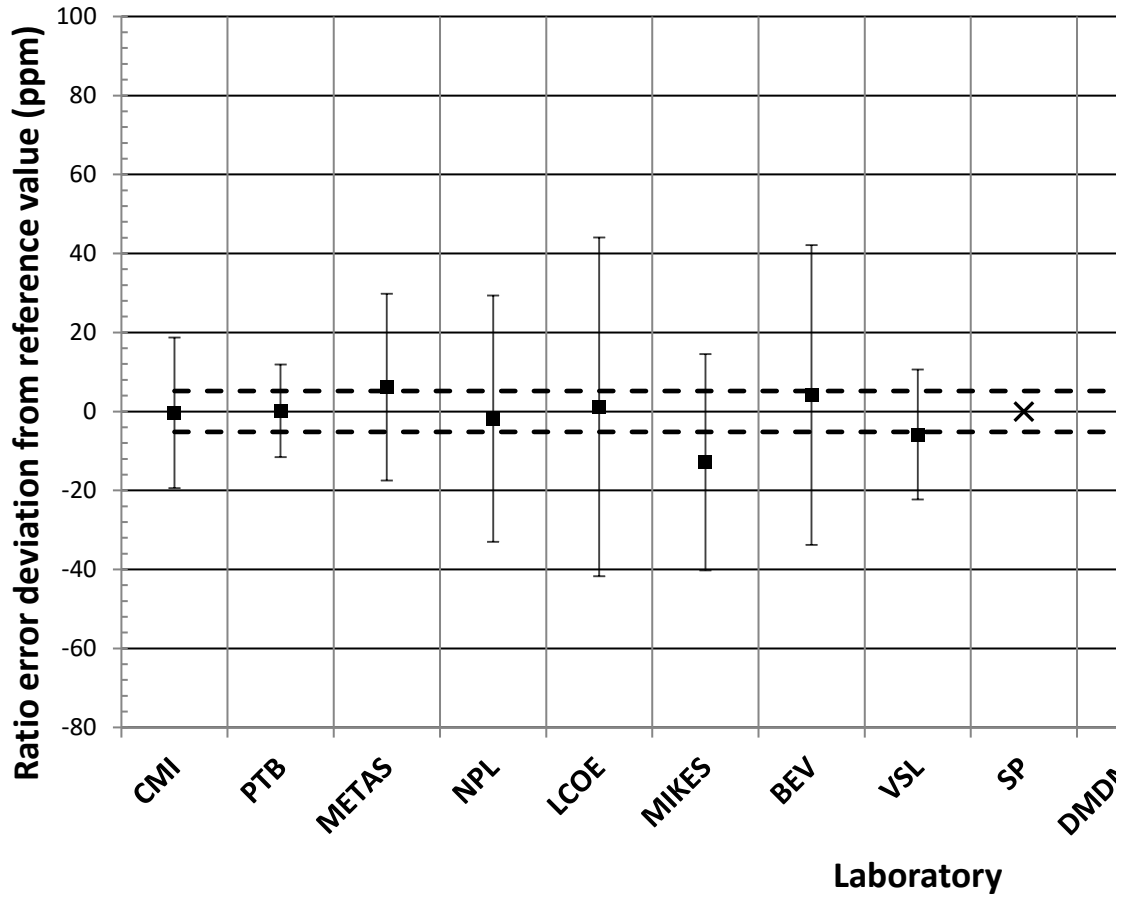
5 VA		CMI	CMI			PTB	PTB	
k_1 (kA/A)	I_1 (% I_N)	$\Delta\varepsilon_C$ (ppm)	$U(\Delta\varepsilon_{stdC})$ (ppm)	novalue	$\Delta\varepsilon_C$ (ppm)	$U(\Delta\varepsilon_{stdC})$ (ppm)	$\Delta\varepsilon_C$ (ppm)	$U(\Delta\varepsilon_{stdC})$ (ppm)
4/5	120	0	19	#N/A	0	19	0	12
	100	1	19	#N/A	1	19	0	12
	50	1	18	#N/A	1	18	-1	10
	20	1	18	#N/A	1	18	-1	10
	10	2	18	#N/A	2	18	-1	10
	5	1	18	#N/A	1	18	-2	10
	2	1	19	#N/A	1	19	-1	11
	1	0	19	#N/A	0	19	-1	11
10/5	120			0	#N/A	#N/A	-1	9
	100	1	18	#N/A	1	18	-1	9
	50	1	18	#N/A	1	18	-2	9
	20	1	18	#N/A	1	18	-2	9
	10	1	18	#N/A	1	18	-2	9
	5	1	17	#N/A	1	17	-2	8
	2	1	17	#N/A	1	17	-3	7
	1	0	17	#N/A	0	17	-1	7

15 VA		CMI	CMI				PTB	PTB
k_1 (kA/A)	I_1 (% I_N)	$\Delta\varepsilon_C$ (ppm)	$U(\Delta\varepsilon_{stdC})$ (ppm)				$\Delta\varepsilon_C$ (ppm)	$U(\Delta\varepsilon_{stdC})$ (ppm)
4/5	120	-2	19	#N/A	-2	19	-1	12
	100	-1	20	#N/A	-1	20	0	13
	50	0	20	#N/A	0	20	0	13
	20	-1	19	#N/A	-1	19	-2	12
	10	0	19	#N/A	0	19	-1	12
	5	0	19	#N/A	0	19	-2	12
	2	0	20	#N/A	0	20	-1	13
	1	0	23	#N/A	0	23	-1	17
5/5	120	-2	20	#N/A	-2	20	-2	12
	100	-2	19	#N/A	-2	19	-2	12
	50	-1	19	#N/A	-1	19	-1	12
	20	0	19	#N/A	0	19	-1	12
	10	1	19	#N/A	1	19	-2	12
	5	0	20	#N/A	0	20	-3	13
	2	-1	20	#N/A	-1	20	-2	13
	1	1	20	#N/A	1	20	0	13
6/5	120	2	19	#N/A	2	19	-1	11
	100	2	19	#N/A	2	19	-1	11
	50	2	19	#N/A	2	19	-1	11
	20	3	19	#N/A	3	19	-2	11
	10	4	20	#N/A	4	20	-1	13
	5	4	20	#N/A	4	20	-1	13
	2	6	21	#N/A	6	21	-2	15
	1	7	21	#N/A	7	21	-2	15
8/5	120	-5	21	#N/A	-5	21	0	15
	100	-6	19	#N/A	-6	19	-1	11
	50	-3	19	#N/A	-3	19	0	11
	20	-2	19	#N/A	-2	19	0	11
	10	-1	20	#N/A	-1	20	-1	13
	5	0	20	#N/A	0	20	-1	13
	2	-1	20	#N/A	-1	20	-1	13
	1	10	21	#N/A	10	21	-2	15
10/5	120			0 #N/A	#N/A	#N/A	-1	10
	100	1	19	#N/A	1	19	-1	11
	50	0	19	#N/A	0	19	-2	11
	20	1	19	#N/A	1	19	-2	11
	10	2	19	#N/A	2	19	-2	11
	5	2	19	#N/A	2	19	-2	11
	2	2	21	#N/A	2	21	-2	15
	1	0	23	#N/A	0	23	-1	17

Annex 4. TAB A4-3 auxiliary calculation for graphs

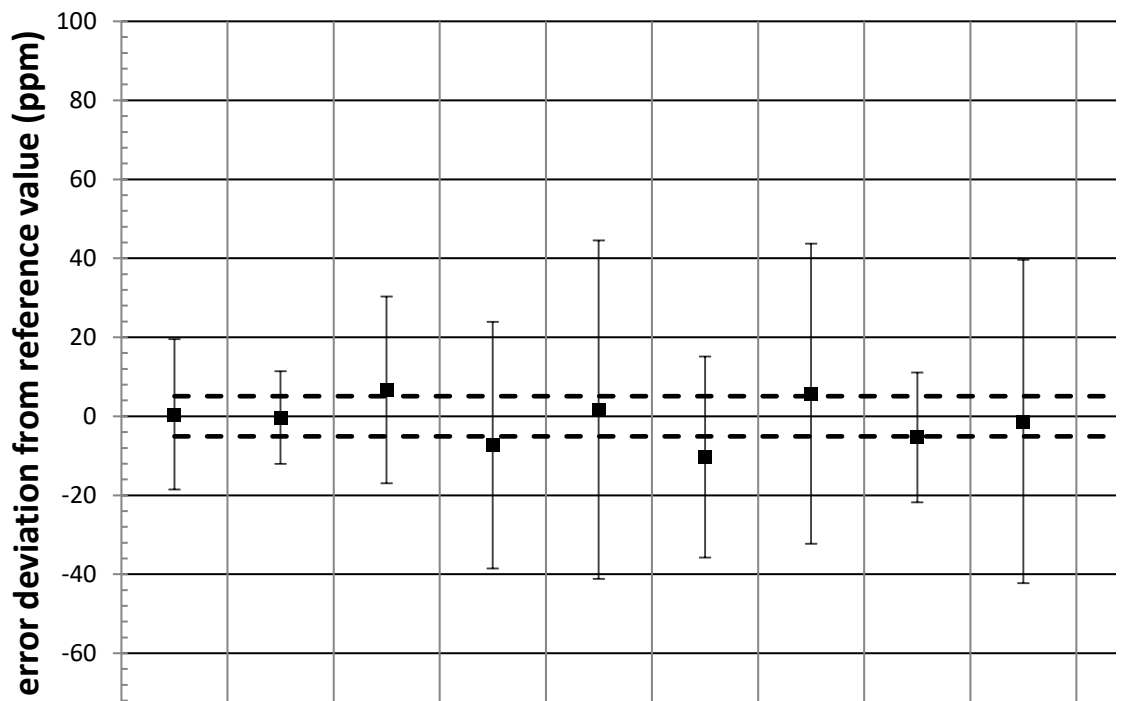
Ratio error deviation from referen

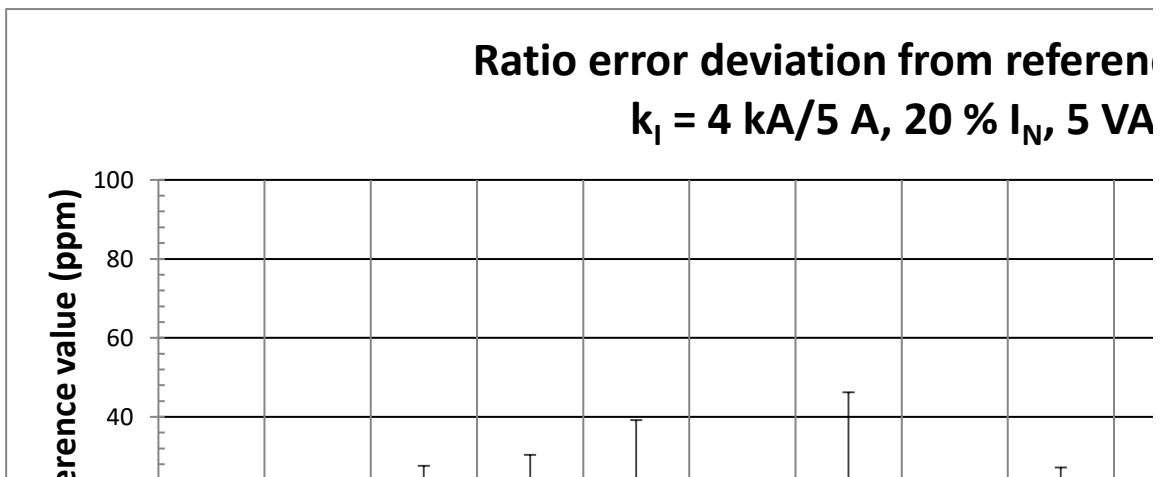
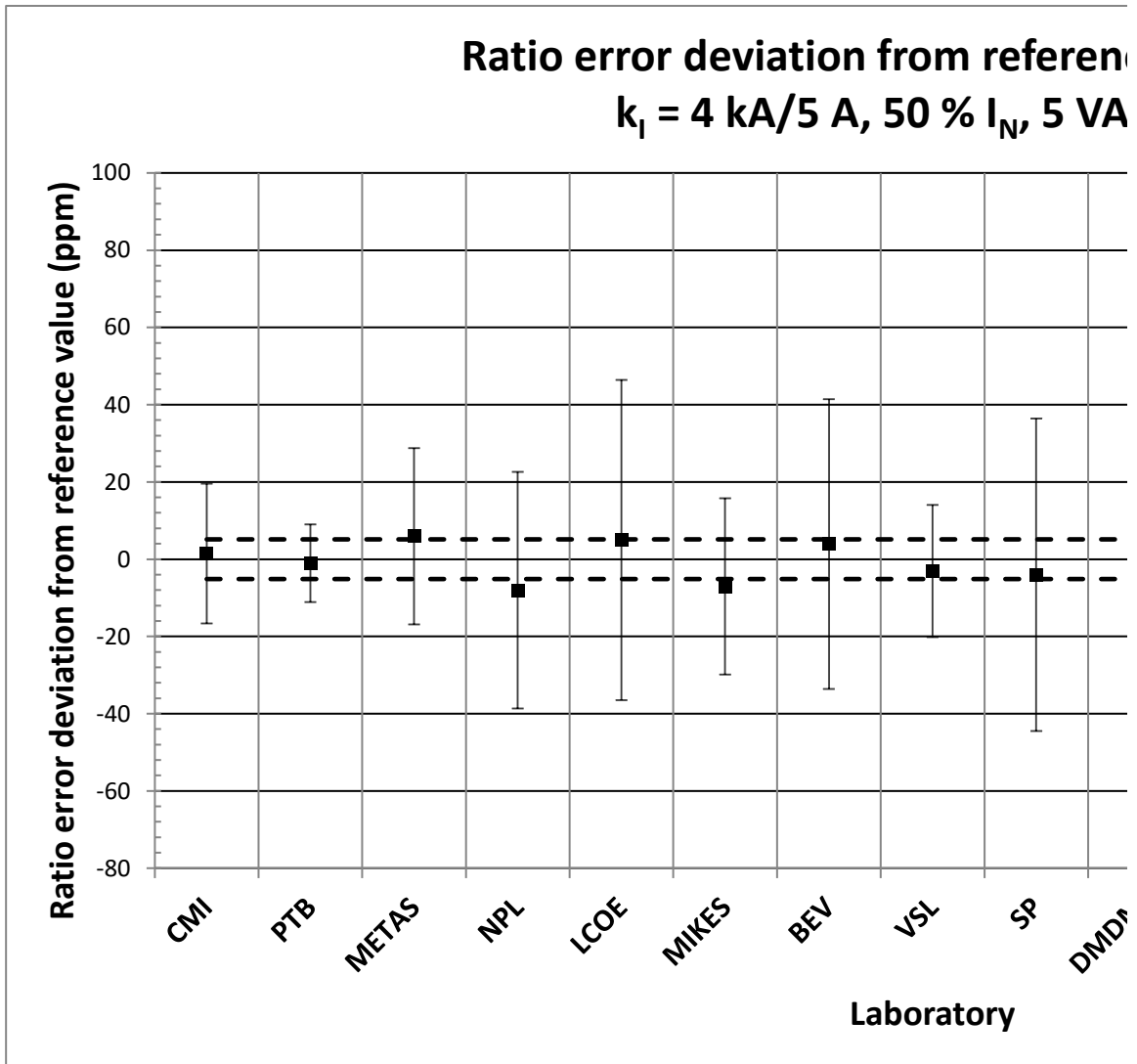
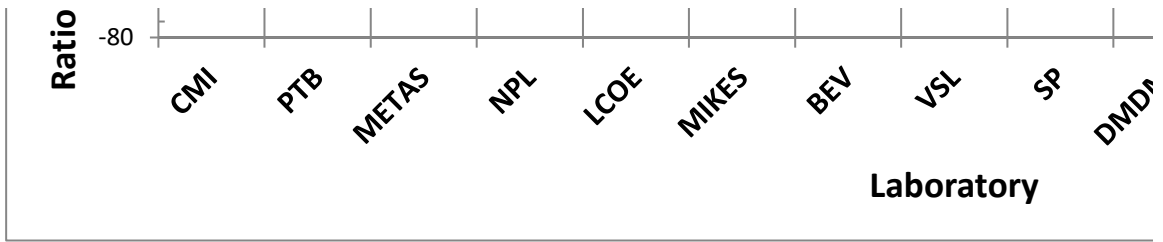
$k_1 = 4 \text{ kA}/5 \text{ A}, 120 \% I_N, 5 \text{ V}$

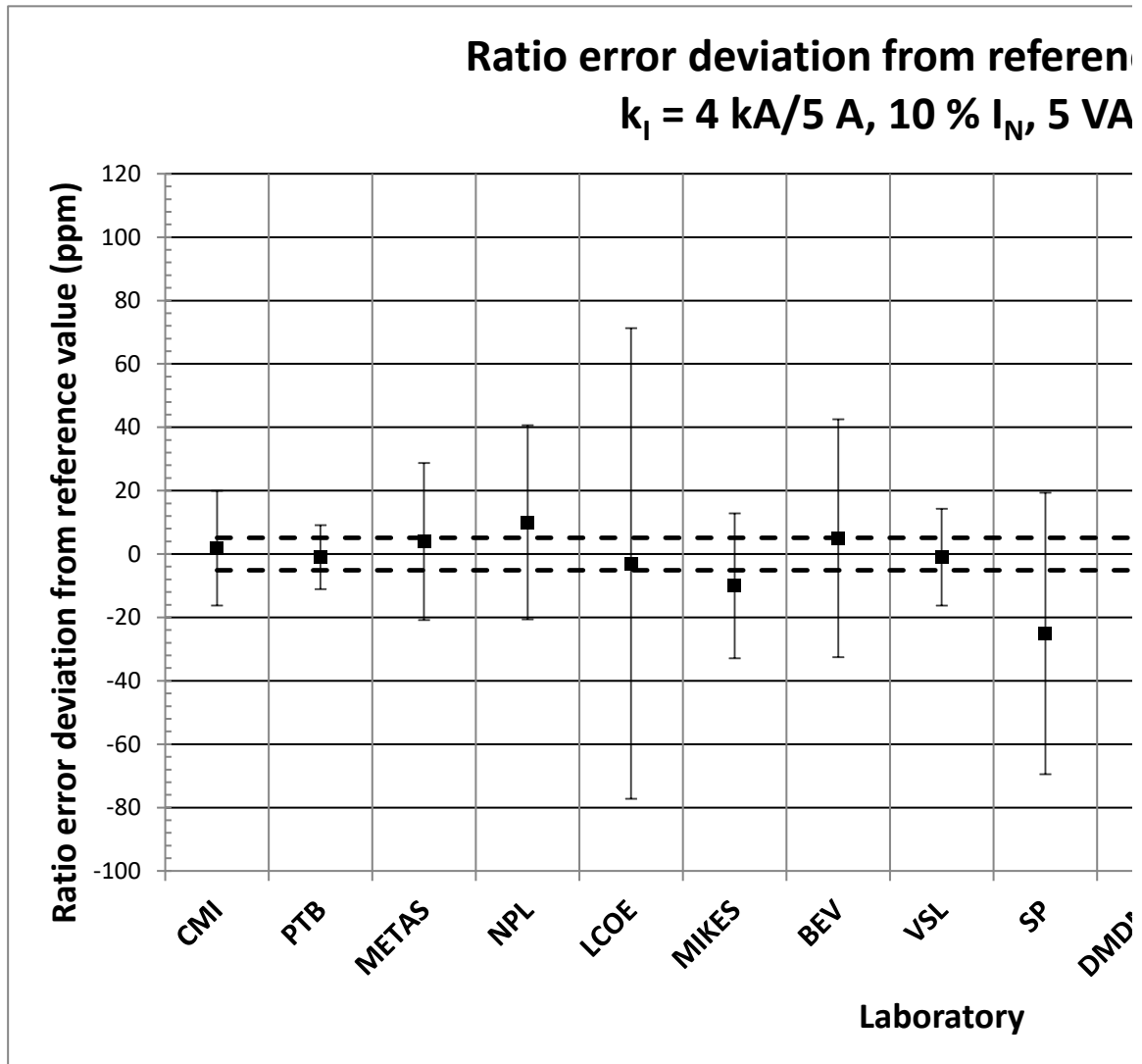
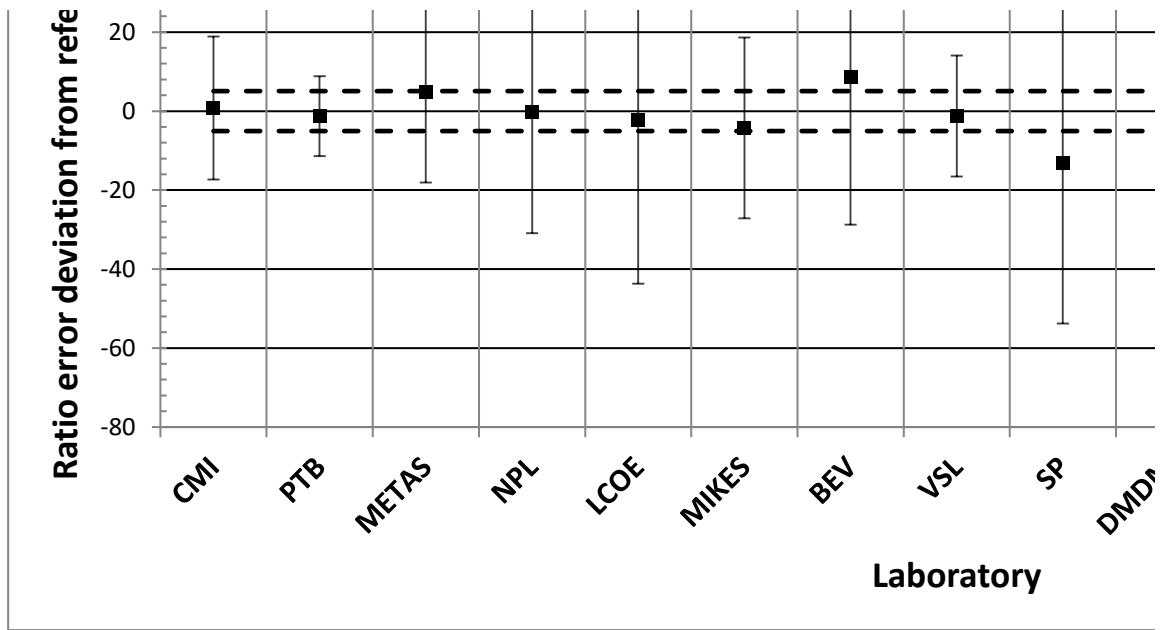


Ratio error deviation from referen

$k_1 = 4 \text{ kA}/5 \text{ A}, 100 \% I_N, 5 \text{ V}$

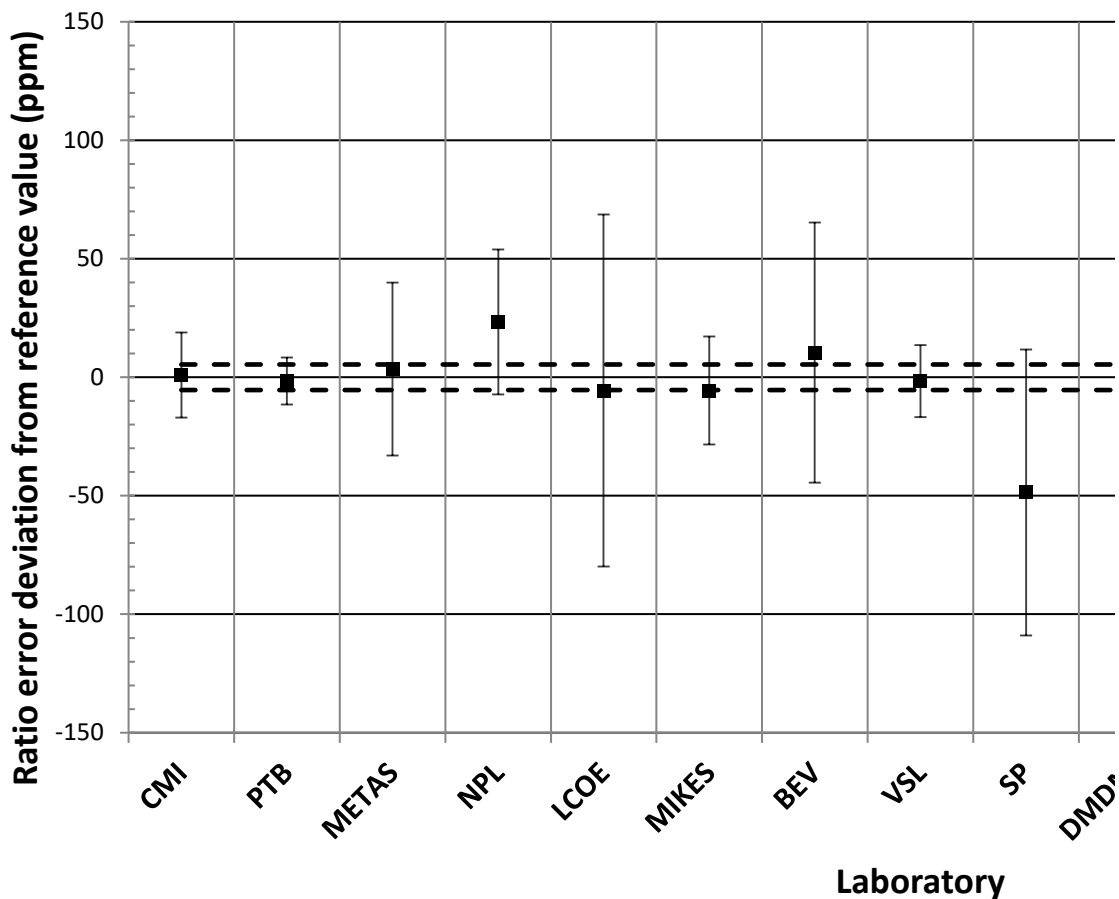




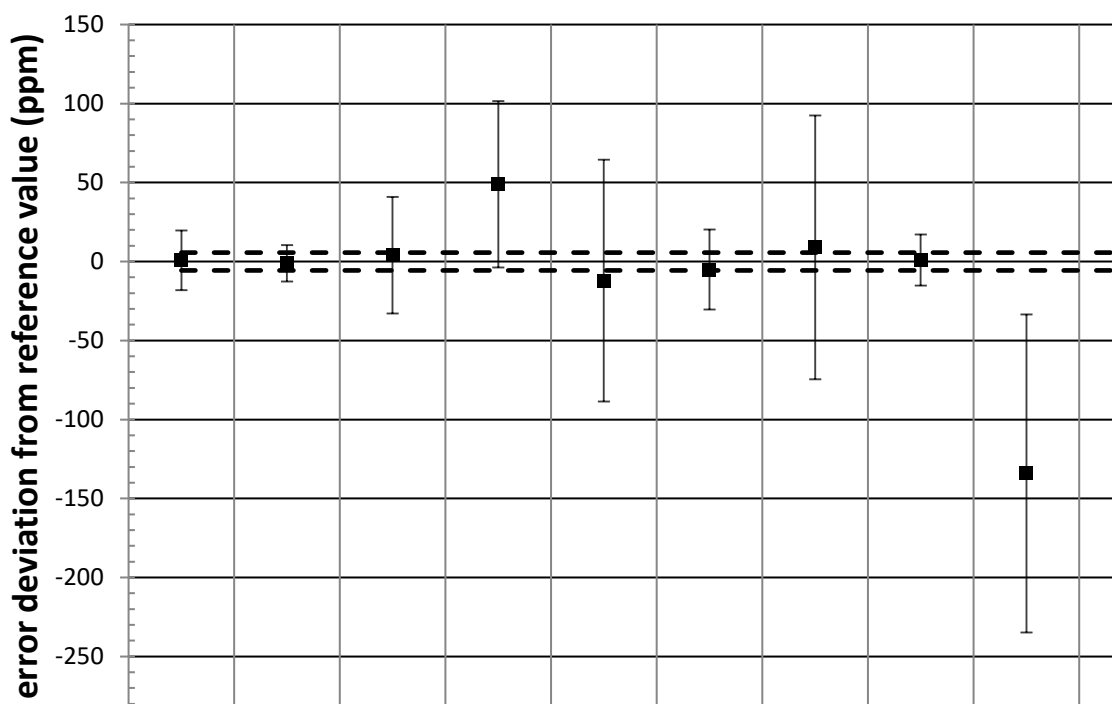


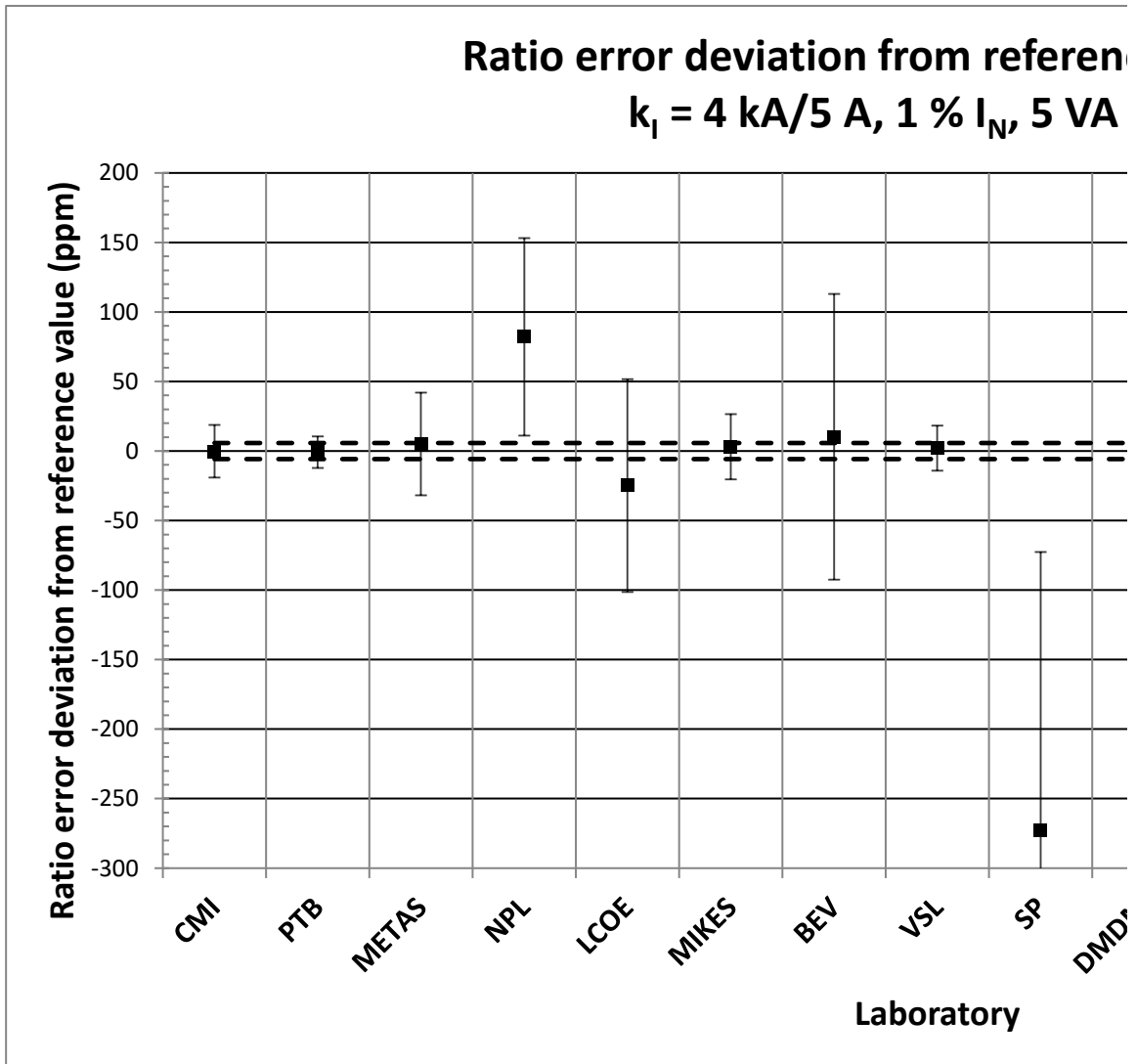
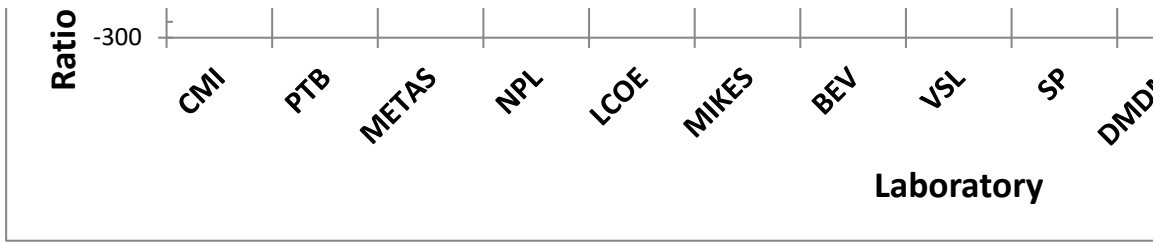
Ratio error deviation from referen

$k_1 = 4 \text{ kA}/5 \text{ A}, 5 \% I_N, 5 \text{ VA}$



Ratio error deviation from referen
 $k_1 = 4 \text{ kA}/5 \text{ A}, 2 \% I_N, 5 \text{ VA}$





METAS						NPL				
E(ϵ) (-)	ϵ_L (ppm)	u(ϵ_L) (ppm)	$\Delta\epsilon$ (ppm)	u($\Delta\epsilon_{std}$) (ppm)	E(ϵ) (-)	ϵ_L (ppm)	u(ϵ_L) (ppm)	$\Delta\epsilon$ (ppm)	u($\Delta\epsilon_{std}$) (ppm)	E(ϵ) (-)
0.014	-86	11	6	12	0.261	-94	15	-2	16	0.059
0.027	-84	11	7	12	0.283	-98	15	-7	16	0.234
0.104	-76	11	6	11	0.260	-90	15	-8	15	0.263
0.125	-67	11	5	11	0.207	-72	15	0	15	0.009
0.102	-63	12	4	12	0.160	-57	15	10	15	0.326
0.161	-59	18	3	18	0.093	-39	15	23	15	0.765
0.110	-55	18	4	18	0.101	-10	26	49	26	0.925
0.102	-51	18	5	18	0.131	26	35	82	35	1.161
0.099	-33	11	0	11	0.007					
0.149	-32	11	0	11	0.015	-33	15	-1	15	0.044
0.221	-24	11	-2	11	0.091	-22	15	0	15	0.002
0.192	-9	11	3	11	0.139	-18	15	-6	15	0.190
0.214	-1	12	6	12	0.241	-2	15	5	15	0.163
0.299	4	19	7	19	0.176	16	15	19	15	0.621
0.287	8	19	8	19	0.206	47	26	47	26	0.900
0.243	10	19	9	19	0.242	85	35	84	35	1.203
METAS						NPL				
E(ϵ) (-)	ϵ_L (ppm)	u(ϵ_L) (ppm)	$\Delta\epsilon$ (ppm)	u($\Delta\epsilon_{std}$) (ppm)	E(ϵ) (-)	ϵ_L (ppm)	u(ϵ_L) (ppm)	$\Delta\epsilon$ (ppm)	u($\Delta\epsilon_{std}$) (ppm)	E(ϵ) (-)
0.160	-121	11	7	12	0.303	-130	15	-2	16	0.060
0.094	-120	11	7	12	0.275	-133	15	-6	16	0.196
0.078	-111	11	5	12	0.202	-121	15	-5	16	0.158
0.159	-97	11	3	12	0.133	-99	15	1	16	0.036
0.125	-89	12	4	13	0.139	-80	15	13	16	0.402
0.199	-84	18	2	18	0.046	-61	15	25	16	0.793
0.117	-77	18	3	19	0.092	-29	26	51	27	0.969
0.053	-71	18	5	19	0.131	8	35	84	36	1.175
0.162	-90	11	7	12	0.302	-94	15	3	16	0.100
0.131	-89	11	6	12	0.274	-98	15	-3	16	0.081
0.107	-82	11	5	12	0.201	-93	15	-6	16	0.201
0.078	-70	11	3	12	0.130	-75	15	-2	16	0.062
0.130	-64	12	2	13	0.097	-57	15	9	16	0.304
0.188	-58	18	2	19	0.066	-39	15	21	16	0.674
0.076	-54	18	2	19	0.053	-7	26	49	27	0.923
0.036	-51	18	2	19	0.041	30	35	83	35	1.166
0.134	-78	11	-1	12	0.063	-70	15	7	16	0.208
0.109	-76	11	-1	12	0.051	-72	15	3	16	0.089
0.060	-65	11	1	12	0.056	-74	15	-8	16	0.246
0.157	-48	11	6	12	0.264	-57	15	-3	16	0.088
0.132	-41	12	6	13	0.238	-40	15	7	16	0.228
0.188	-35	19	8	20	0.192	-22	15	21	16	0.645
0.120	-31	19	7	20	0.180	10	26	48	27	0.900

0.144	-26	19	8	20	0.197	47	35	81	36	1.136
0.034	-52	11	3	13	0.098	-57	15	-2	16	0.077
0.051	-50	11	2	12	0.103	-50	15	2	16	0.078
0.022	-42	11	2	12	0.095	-43	15	1	16	0.040
0.031	-27	11	6	12	0.239	-33	15	0	16	0.011
0.074	-18	12	8	13	0.305	-16	15	10	16	0.314
0.103	-13	19	9	20	0.219	2	15	24	16	0.742
0.071	-8	19	9	20	0.230	34	26	51	27	0.962
0.143	-5	19	8	20	0.197	70	35	83	36	1.165
0.077	-38	11	1	12	0.051					
0.127	-37	11	1	12	0.027	-42	15	-4	16	0.141
0.202	-29	11	-1	12	0.052	-27	15	1	16	0.024
0.172	-14	11	3	12	0.130	-22	15	-5	16	0.157
0.163	-4	12	7	13	0.281	-6	15	5	16	0.166
0.207	0	19	7	19	0.172	13	15	20	16	0.632
0.109	4	19	7	20	0.184	45	26	48	27	0.903
0.078	8	19	9	20	0.213	82	35	83	36	1.155

taity (ppm)

urd (ppm)

as see eq. (9)

PTB	METAS	METAS	METAS	METAS	METAS	NPL	NPL	NPL	NPL	NPL
$E_C(\epsilon)$ (-)	ϵ_L (ppm)	$u(\epsilon_L)$ (ppm)	$\Delta\epsilon_C$ (ppm)	$u(\Delta\epsilon_{stdC})$ (ppm)	$E_C(\epsilon)$ (-)	ϵ_L (ppm)	$u(\epsilon_L)$ (ppm)	$\Delta\epsilon_C$ (ppm)	$u(\Delta\epsilon_{stdC})$ (ppm)	$E_C(\epsilon)$ (-)
0.014	-86	11	6	12	0.261	-94	15	-2	16	0.059
0.027	-84	11	7	12	0.283	-98	15	-7	16	0.234
0.104	-76	11	6	11	0.260	-90	15	-8	15	0.263
0.125	-67	11	5	11	0.207	-72	15	0	15	0.009
0.102	-63	12	4	12	0.160	-57	15	10	15	0.326

0.161	-59	18	3	18	0.093	-39	15	23	15	0.765
0.093	-55	18	4	18	0.106	-10	26	49	26	0.929
0.074	-51	18	5	18	0.140	26	35	82	35	1.158
0.099	-33	11	0	11	0.007					
0.149	-32	11	0	11	0.015	-33	15	-1	15	0.044
0.221	-24	11	-2	11	0.091	-22	15	0	15	0.002
0.192	-9	11	3	11	0.139	-18	15	-6	15	0.190
0.181	-1	12	6	12	0.254	-2	15	5	15	0.173
0.257	4	19	7	19	0.185	16	15	19	15	0.632
0.343	8	19	7	19	0.195	47	26	46	26	0.892
0.200	10	19	10	19	0.250	85	35	85	35	1.199
PTB	METAS	METAS	METAS	METAS	METAS	NPL	NPL	NPL	NPL	NPL
$E_C(\epsilon)$	ϵ_L	$u(\epsilon_L)$	$\Delta\epsilon_C$	$u(\Delta\epsilon_{stdC})$	$E_C(\epsilon)$	ϵ_L	$u(\epsilon_L)$	$\Delta\epsilon_C$	$u(\Delta\epsilon_{stdC})$	$E_C(\epsilon)$
(-)	(ppm)	(ppm)	(ppm)	(ppm)	(-)	(ppm)	(ppm)	(ppm)	(ppm)	(-)
0.078	-121	11	8	12	0.343	-130	15	-1	16	0.029
0.024	-120	11	8	12	0.313	-133	15	-5	16	0.167
0.013	-111	11	6	12	0.238	-121	15	-4	16	0.131
0.159	-97	11	3	12	0.133	-99	15	1	16	0.036
0.125	-89	12	4	13	0.139	-80	15	13	16	0.402
0.199	-84	18	2	18	0.046	-61	15	25	16	0.793
0.096	-77	18	4	19	0.099	-29	26	52	27	0.975
0.032	-71	18	5	19	0.140	8	35	84	36	1.172
0.162	-90	11	7	12	0.302	-94	15	3	16	0.100
0.131	-89	11	6	12	0.274	-98	15	-3	16	0.081
0.107	-82	11	5	12	0.201	-93	15	-6	16	0.201
0.078	-70	11	3	12	0.130	-75	15	-2	16	0.062
0.130	-64	12	2	13	0.097	-57	15	9	16	0.304
0.188	-58	18	2	19	0.066	-39	15	21	16	0.674
0.115	-54	18	1	19	0.039	-7	26	48	27	0.913
0.011	-51	18	2	19	0.049	30	35	83	36	1.162
0.134	-78	11	-1	12	0.063	-70	15	7	16	0.208
0.109	-76	11	-1	12	0.051	-72	15	3	16	0.089
0.060	-65	11	1	12	0.056	-74	15	-8	16	0.246
0.157	-48	11	6	12	0.264	-57	15	-3	16	0.088
0.079	-41	12	7	13	0.264	-40	15	8	16	0.249
0.104	-35	19	9	20	0.219	-22	15	22	16	0.679
0.112	-31	19	7	20	0.183	10	26	48	27	0.902
0.126	-26	19	8	20	0.203	47	35	81	36	1.133
0.034	-52	11	3	13	0.098	-57	15	-2	16	0.077
0.051	-50	11	2	12	0.103	-50	15	2	16	0.078
0.022	-42	11	2	12	0.095	-43	15	1	16	0.040
0.031	-27	11	6	12	0.239	-33	15	0	16	0.011
0.074	-18	12	8	13	0.305	-16	15	10	16	0.314
0.080	-13	19	9	20	0.227	2	15	24	16	0.751
0.104	-8	19	9	20	0.219	34	26	51	27	0.954
0.125	-5	19	8	20	0.204	70	35	83	36	1.162

0.077	-38	11	1	12	0.051					
0.127	-37	11	1	12	0.027	-42	15	-4	16	0.141
0.202	-29	11	-1	12	0.052	-27	15	1	16	0.024
0.172	-14	11	3	12	0.130	-22	15	-5	16	0.157
0.135	-4	12	7	13	0.294	-6	15	5	16	0.176
0.177	0	19	7	19	0.181	13	15	20	16	0.642
0.138	4	19	7	20	0.174	45	26	48	27	0.895
0.061	8	19	9	20	0.220	82	35	83	36	1.152

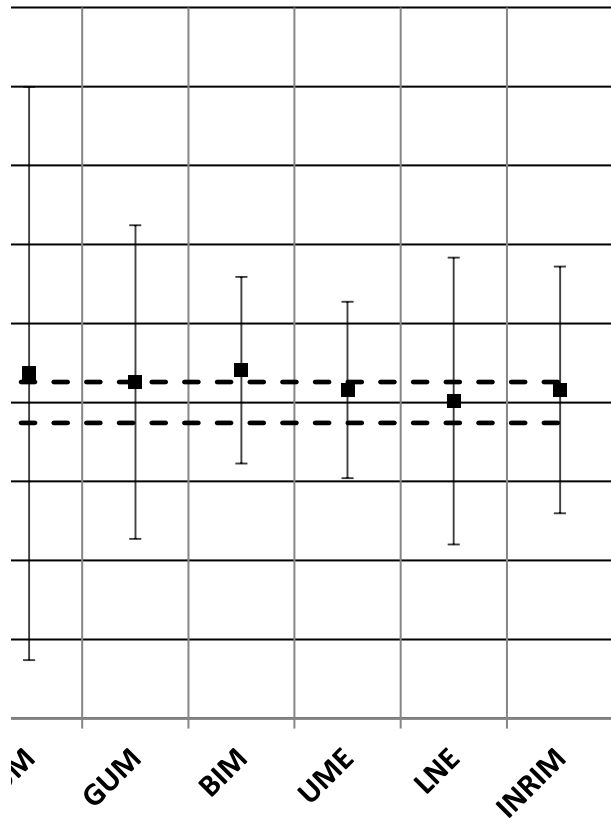
, see eq. (10) (ppm)

transfer standard uncertainty (ppm)

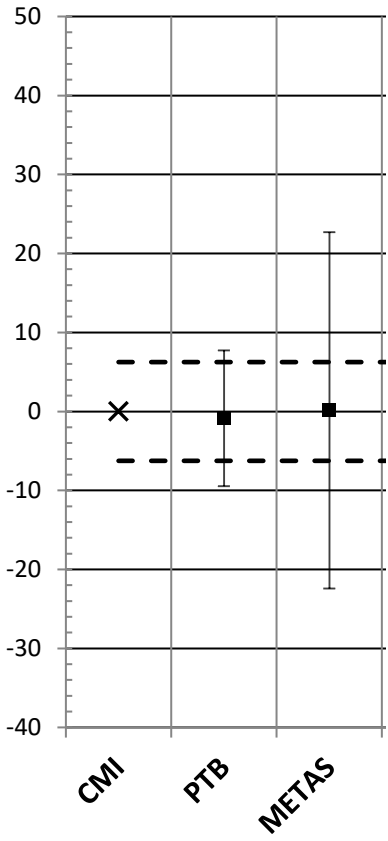
		METAS		METAS				NPL		NPL			
novalue	$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	novalue	$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	novalue			novalue
#N/A	0	12	6	24	#N/A	6	24	-2	31	#N/A			#N/A
#N/A	0	12	7	24	#N/A	7	24	-7	31	#N/A			#N/A
#N/A	-1	10	6	23	#N/A	6	23	-8	31	#N/A			#N/A
#N/A	-1	10	5	23	#N/A	5	23	0	31	#N/A			#N/A
#N/A	-1	10	4	25	#N/A	4	25	10	31	#N/A			#N/A
#N/A	-2	10	3	36	#N/A	3	36	23	31	#N/A			#N/A
#N/A	-1	11	4	37	#N/A	4	37	49	53	#N/A			#N/A
#N/A	-1	11	5	37	#N/A	5	37	82	71	#N/A			#N/A
#N/A	-1	9	0	23	#N/A	0	23					0	
#N/A	-1	9	0	23	#N/A	0	23	-1	31	#N/A			#N/A
#N/A	-2	9	-2	23	#N/A	-2	23	0	31	#N/A			#N/A
#N/A	-2	9	3	23	#N/A	3	23	-6	31	#N/A			#N/A
#N/A	-2	9	6	25	#N/A	6	25	5	31	#N/A			#N/A
#N/A	-2	8	7	38	#N/A	7	38	19	30	#N/A			#N/A
#N/A	-3	7	7	38	#N/A	7	38	46	52	#N/A			#N/A
#N/A	-1	7	10	38	#N/A	10	38	85	70	#N/A			#N/A

		METAS				NPL				
		$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)			$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)			
#N/A	-1	12	8	24	#N/A	8	24	-1	31	#N/A
#N/A	0	13	8	25	#N/A	8	25	-5	32	#N/A
#N/A	0	13	6	25	#N/A	6	25	-4	32	#N/A
#N/A	-2	12	3	24	#N/A	3	24	1	31	#N/A
#N/A	-1	12	4	25	#N/A	4	25	13	31	#N/A
#N/A	-2	12	2	37	#N/A	2	37	25	31	#N/A
#N/A	-1	13	4	38	#N/A	4	38	52	53	#N/A
#N/A	-1	17	5	39	#N/A	5	39	84	72	#N/A
#N/A	-2	12	7	24	#N/A	7	24	3	31	#N/A
#N/A	-2	12	6	24	#N/A	6	24	-3	31	#N/A
#N/A	-1	12	5	24	#N/A	5	24	-6	31	#N/A
#N/A	-1	12	3	24	#N/A	3	24	-2	31	#N/A
#N/A	-2	12	2	25	#N/A	2	25	9	31	#N/A
#N/A	-3	13	2	38	#N/A	2	38	21	32	#N/A
#N/A	-2	13	1	38	#N/A	1	38	48	53	#N/A
#N/A	0	13	2	37	#N/A	2	37	83	71	#N/A
#N/A	-1	11	-1	24	#N/A	-1	24	7	31	#N/A
#N/A	-1	11	-1	24	#N/A	-1	24	3	31	#N/A
#N/A	-1	11	1	24	#N/A	1	24	-8	31	#N/A
#N/A	-2	11	6	24	#N/A	6	24	-3	31	#N/A
#N/A	-1	13	7	26	#N/A	7	26	8	32	#N/A
#N/A	-1	13	9	40	#N/A	9	40	22	32	#N/A
#N/A	-2	15	7	40	#N/A	7	40	48	54	#N/A
#N/A	-2	15	8	40	#N/A	8	40	81	72	#N/A
#N/A	0	15	3	25	#N/A	3	25	-2	33	#N/A
#N/A	-1	11	2	24	#N/A	2	24	2	31	#N/A
#N/A	0	11	2	24	#N/A	2	24	1	31	#N/A
#N/A	0	11	6	24	#N/A	6	24	0	31	#N/A
#N/A	-1	13	8	26	#N/A	8	26	10	32	#N/A
#N/A	-1	13	9	40	#N/A	9	40	24	32	#N/A
#N/A	-1	13	9	39	#N/A	9	39	51	53	#N/A
#N/A	-2	15	8	40	#N/A	8	40	83	72	#N/A
#N/A	-1	10	1	23	#N/A	1	23			0
#N/A	-1	11	1	24	#N/A	1	24	-4	31	#N/A
#N/A	-2	11	-1	24	#N/A	-1	24	1	31	#N/A
#N/A	-2	11	3	24	#N/A	3	24	-5	31	#N/A
#N/A	-2	11	7	26	#N/A	7	26	5	31	#N/A
#N/A	-2	11	7	39	#N/A	7	39	20	31	#N/A
#N/A	-2	15	7	40	#N/A	7	40	48	54	#N/A
#N/A	-1	17	9	41	#N/A	9	41	83	72	#N/A

A

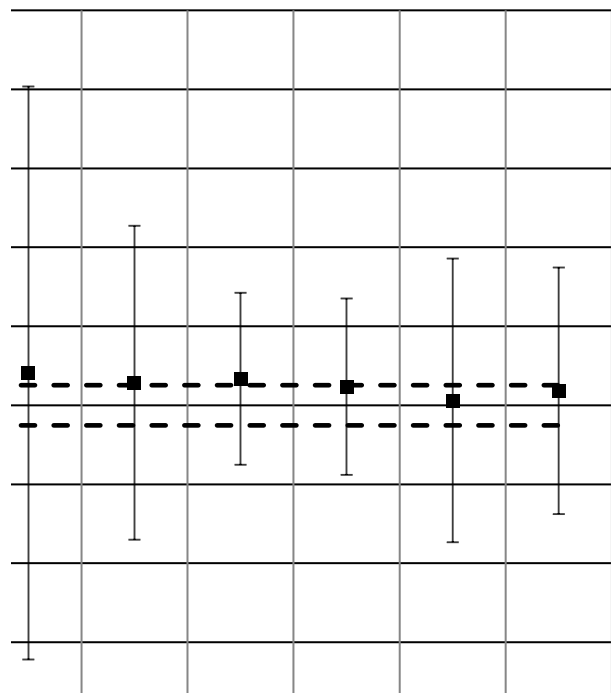


Ratio error deviation from reference value (ppm)

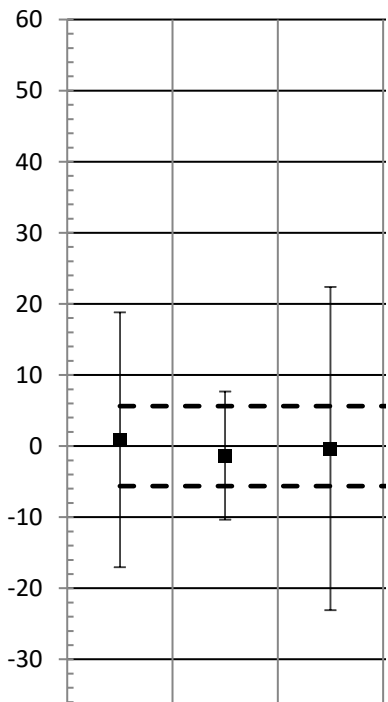


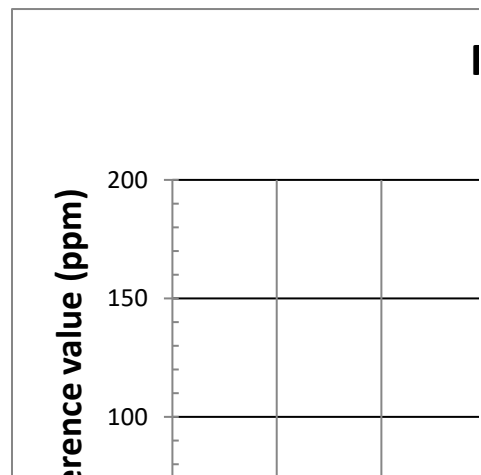
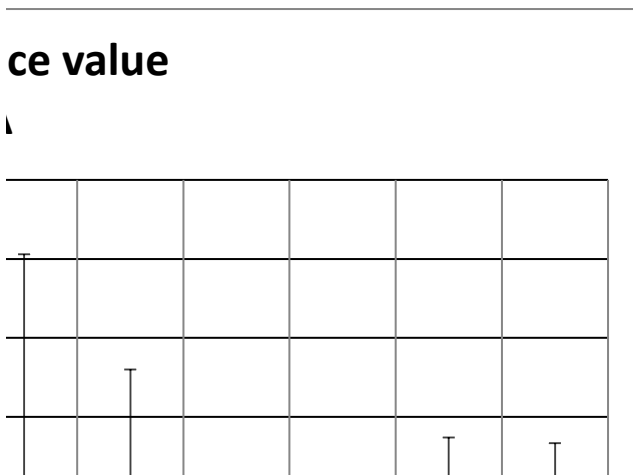
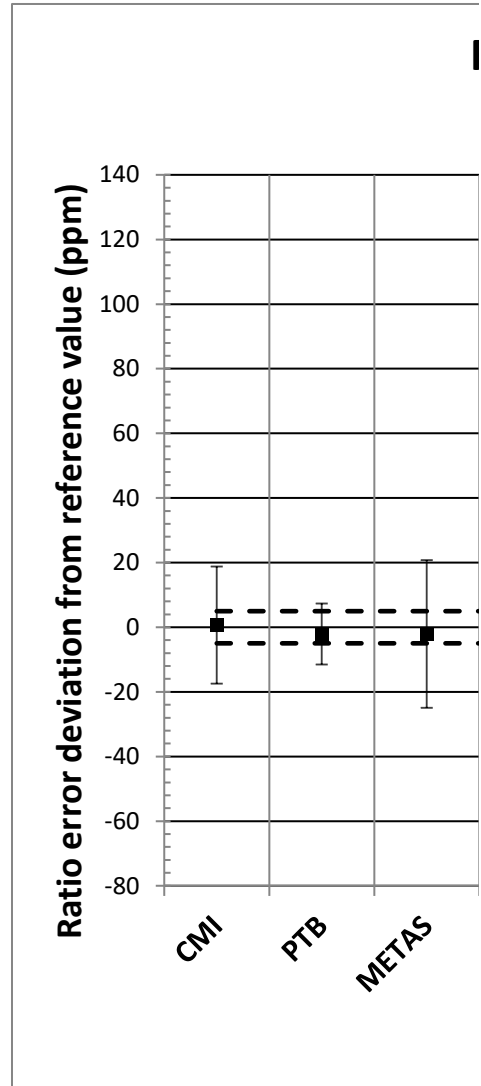
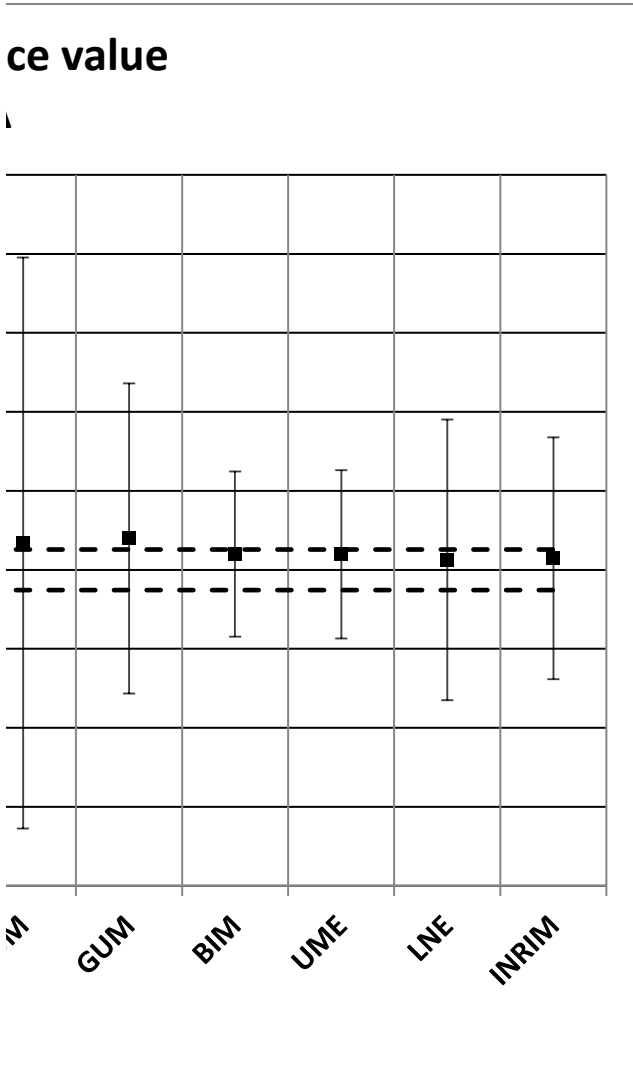
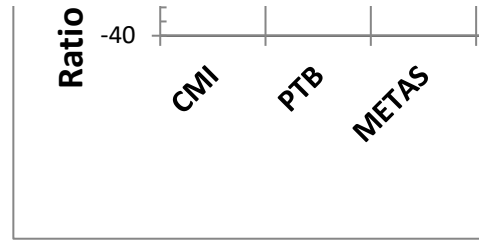
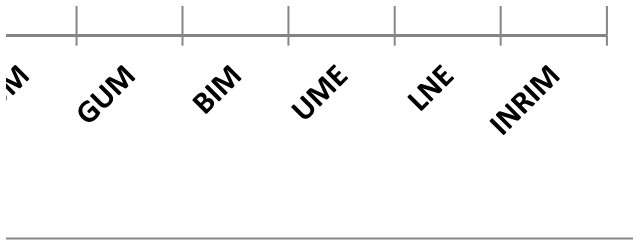
reference value

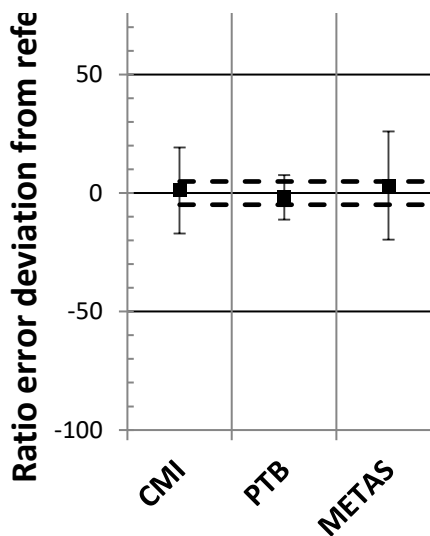
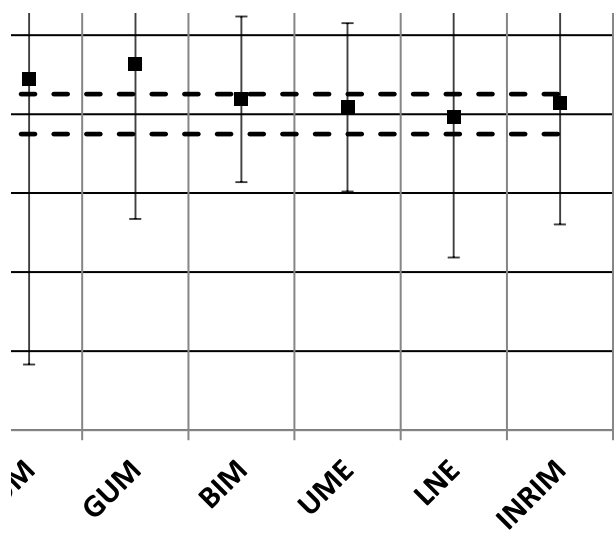
A



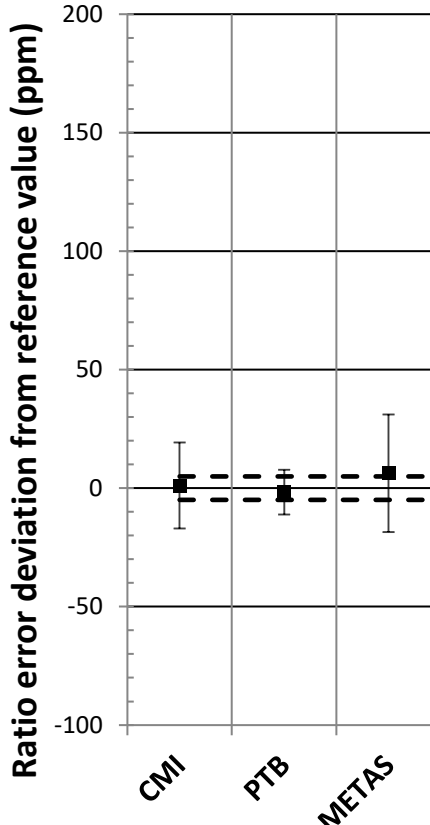
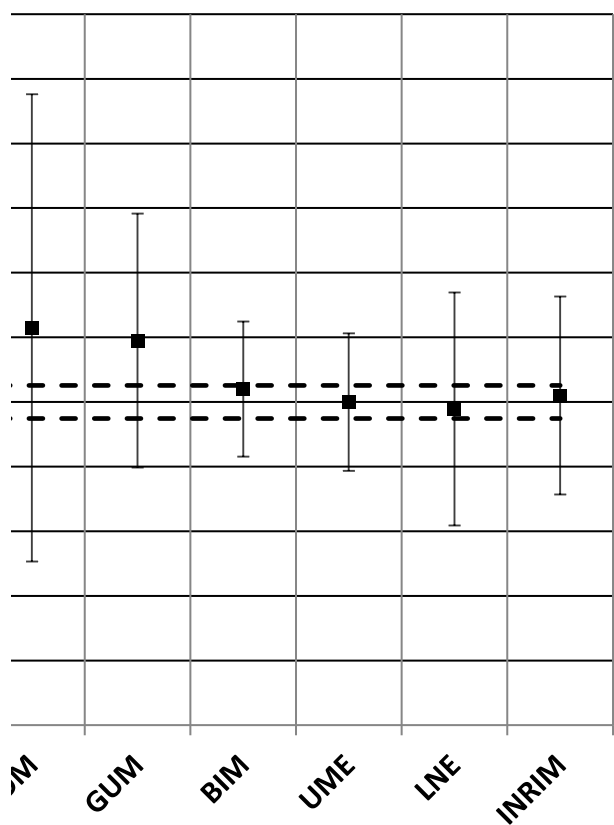
error deviation from reference value (ppm)



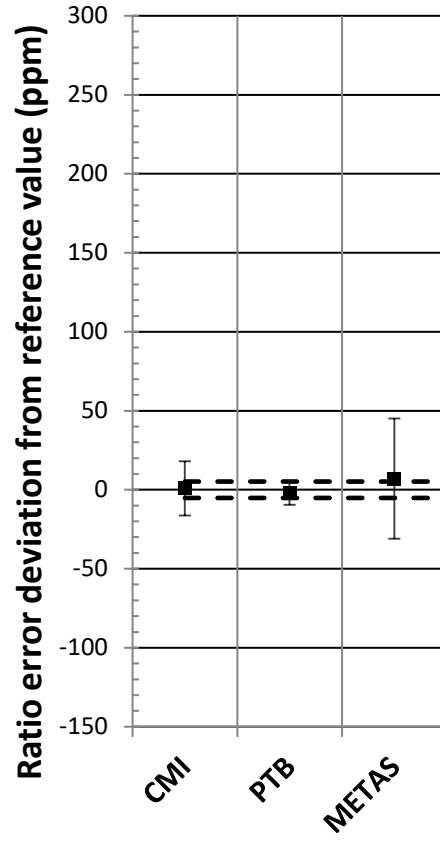
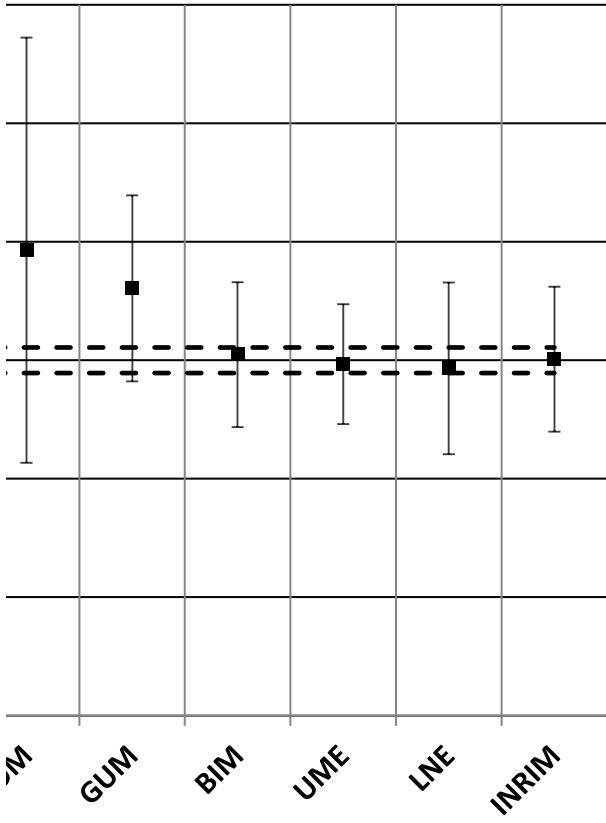




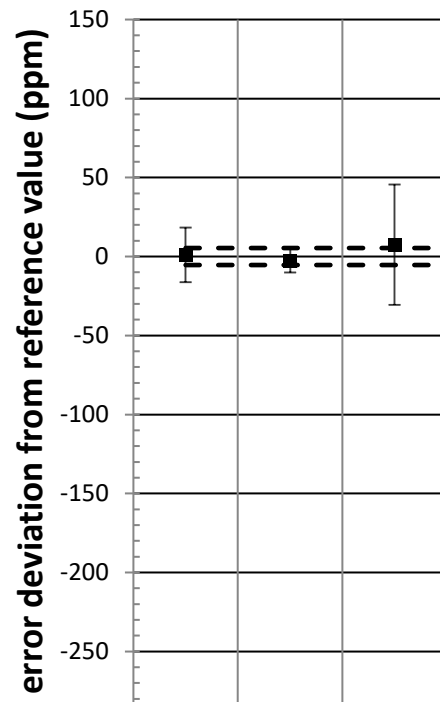
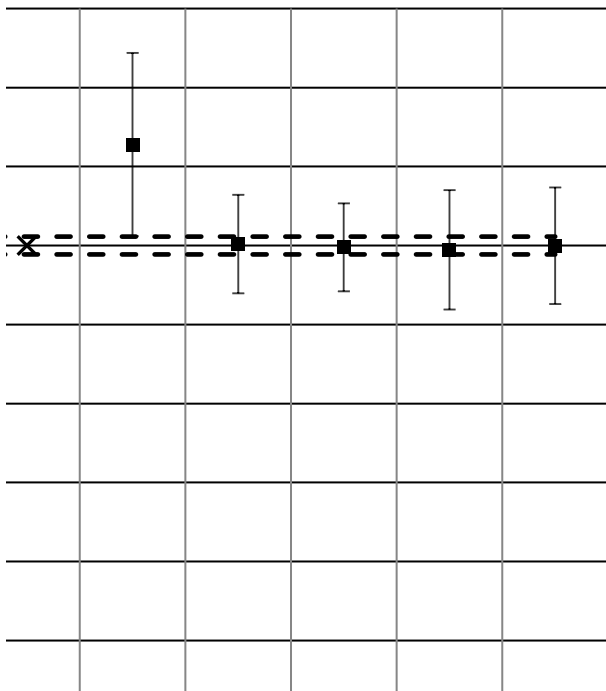
ce value

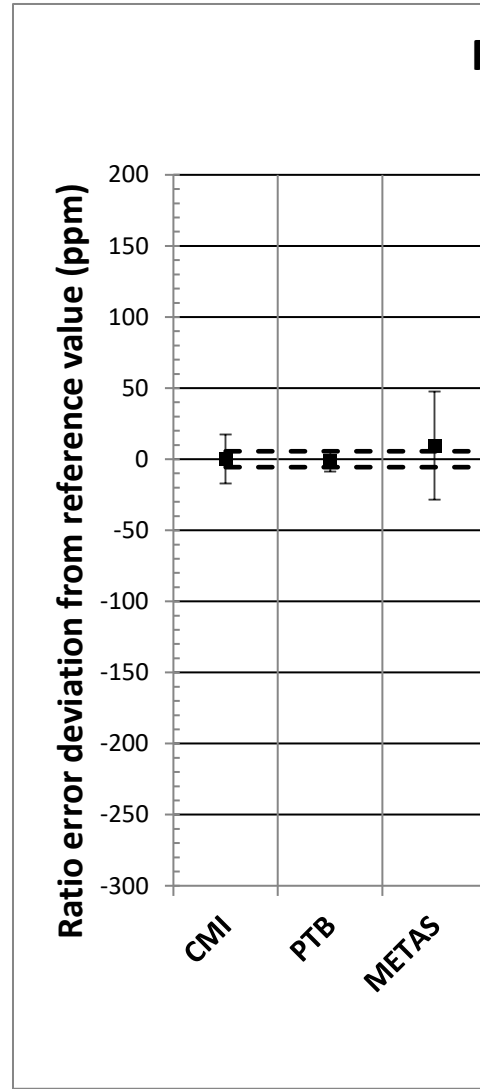
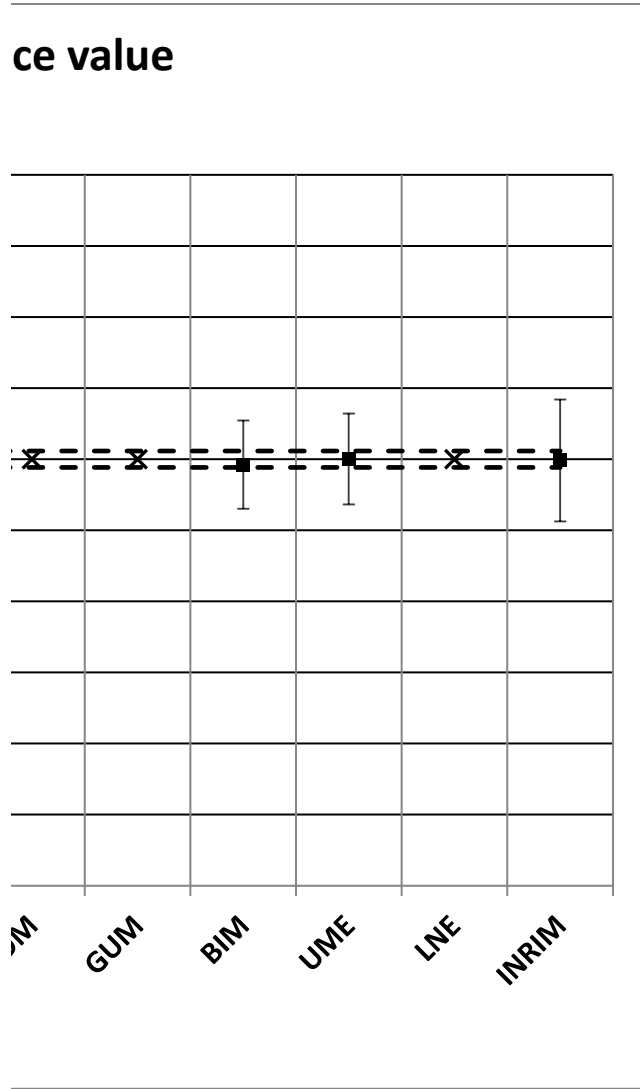
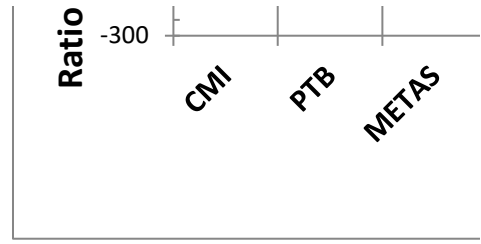
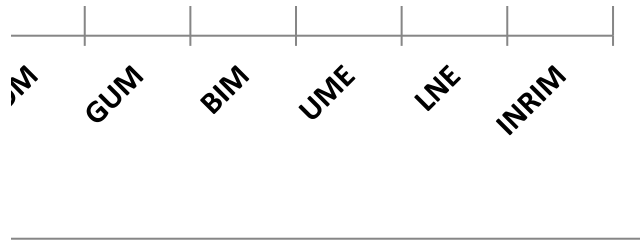


ce value



ce value





LCOE					MIKES						
ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)
-91	21	1	21	0.027	-105	13	-13	14	0.469	-88	19
-89	21	2	21	0.039	-101	12	-10	13	0.405	-85	19
-77	21	5	21	0.119	-89	11	-7	11	0.309	-78	19
-74	21	-2	21	0.055	-76	11	-4	11	0.187	-63	19
-70	37	-3	37	0.041	-77	11	-10	11	0.439	-62	19
-68	37	-6	37	0.075	-68	11	-6	11	0.246	-52	27
-71	38	-12	38	0.160	-64	12	-5	13	0.208	-50	42
-81	38	-25	38	0.329	-53	11	3	12	0.121	-46	51
										-30	19
										-28	19
-24	27	-2	27	0.039	-22	13	0	13	0.003	-9	19
-7	27	5	27	0.097	-12	11	0	11	0.008	-3	19
-9	26	-2	26	0.038	-10	11	-3	11	0.132	-2	19
-6	40	-3	40	0.041	-3	11	0	11	0.013	8	27
-5	49	-5	49	0.053	-1	11	-1	11	0.052	10	42
-11	49	-12	49	0.120	0	11	-1	11	0.035	13	51
LCOE					MIKES						
ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)
-129	21	-1	21	0.020	-138	12	-10	13	0.387	-126	19
-126	21	1	22	0.017	-135	11	-8	12	0.337	-124	19
-113	21	3	21	0.070	-123	11	-7	12	0.288	-114	19
-97	21	3	21	0.075	-106	11	-6	12	0.248	-94	19
-94	37	-1	37	0.020	-101	10	-8	11	0.389	-90	19
-91	37	-5	37	0.071	-95	11	-9	12	0.395	-77	27
-92	38	-12	38	0.151	-89	11	-9	12	0.350	-73	42
-100	38	-24	39	0.308	-76	11	0	13	0.004	-66	51
-98	21	-1	21	0.021	-105	14	-8	15	0.270	-94	19
-95	21	0	21	0.011	-102	12	-7	13	0.256	-92	19
-82	21	5	21	0.113	-92	12	-5	13	0.206	-83	19
-71	21	2	21	0.050	-78	11	-5	12	0.208	-65	19
-66	37	0	37	0.006	-73	11	-7	12	0.276	-61	19
-68	37	-8	37	0.101	-68	11	-8	12	0.307	-50	27
-69	38	-13	38	0.170	-64	11	-8	12	0.328	-46	42
-79	38	-26	38	0.345	-56	11	-3	12	0.143	-41	51
-81	26	-4	26	0.085	-83	16	-6	17	0.196	-73	19
-75	26	0	26	0.004	-79	13	-4	14	0.154	-71	19
-68	28	-2	28	0.030	-69	12	-3	13	0.105	-63	19
-58	26	-4	26	0.071	-59	11	-5	12	0.201	-45	19
-49	26	-2	27	0.032	-53	10	-6	11	0.250	-42	19
-51	40	-8	40	0.104	-48	11	-5	12	0.221	-41	27
-55	49	-17	49	0.170	-47	11	-9	13	0.343	-27	42

-60	49	-26	49	0.264	-35	11	-1	13	0.044	-22	51
										-50	19
-57	26	-5	26	0.087	-53	17	-1	18	0.016	-48	19
-42	28	2	28	0.040	-45	12	-1	13	0.029	-40	19
-40	26	-7	26	0.139	-37	11	-4	12	0.184	-23	19
-35	26	-9	27	0.169	-30	11	-4	12	0.161	-20	19
-31	40	-9	40	0.116	-28	11	-6	12	0.258	-19	27
-35	49	-18	49	0.182	-25	11	-8	12	0.323	-6	42
-32	49	-19	49	0.193	-20	11	-7	13	0.278	-1	51
										-37	19
										-35	19
-29	26.5	-1	27	0.023	-28	13	0	14	0.009	-16	19
-14	26	3	26	0.058	-20	11	-3	12	0.123	-9	19
-14	26	-3	26	0.053	-16	11	-5	12	0.204	-7	19
-7	40	0	40	0.004	-12	11	-5	12	0.224	4	27
-7	49	-4	49	0.036	-10	11	-7	13	0.259	5	42
-12	49	-11	50	0.114	-4	11	-3	13	0.124	10	51

LCOE	LCOE	LCOE	LCOE	LCOE	MIKES	MIKES	MIKES	MIKES	MIKES	BEV	BEV
ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)
-91	21	1	21	0.027	-105	13	-13	14	0.469	-88	19
-89	21	2	21	0.039	-101	12	-10	13	0.405	-85	19
-77	21	5	21	0.119	-89	11	-7	11	0.309	-78	19
-74	21	-2	21	0.055	-76	11	-4	11	0.187	-63	19
-70	37	-3	37	0.041	-77	11	-10	11	0.439	-62	19

-68	37	-6	37	0.075	-68	11	-6	11	0.246	-52	27
-71	38	-12	38	0.158	-64	12	-5	13	0.200	-50	42
-81	38	-25	38	0.325	-53	11	3	12	0.135	-46	51
										-30	19
										-28	19
-24	27	-2	27	0.039	-22	13	0	13	0.003	-9	19
-7	27	5	27	0.097	-12	11	0	11	0.008	-3	19
-9	26	-2	26	0.032	-10	11	-3	11	0.118	-2	19
-6	40	-3	40	0.037	-3	11	0	11	0.002	8	27
-5	49	-6	49	0.057	-1	11	-2	11	0.071	10	42
-11	49	-11	49	0.117	0	11	0	11	0.021	13	51
LCOE	LCOE	LCOE	LCOE	LCOE	MIKES	MIKES	MIKES	MIKES	MIKES	BEV	BEV
ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)
-129	21	0	21	0.002	-138	12	-9	13	0.350	-126	19
-126	21	2	22	0.039	-135	11	-7	12	0.299	-124	19
-113	21	4	21	0.090	-123	11	-6	12	0.252	-114	19
-97	21	3	21	0.075	-106	11	-6	12	0.248	-94	19
-94	37	-1	37	0.020	-101	10	-8	11	0.389	-90	19
-91	37	-5	37	0.071	-95	11	-9	12	0.395	-77	27
-92	38	-11	38	0.147	-89	11	-8	12	0.339	-73	42
-100	38	-24	39	0.304	-76	11	0	13	0.017	-66	51
-98	21	-1	21	0.021	-105	14	-8	15	0.270	-94	19
-95	21	0	21	0.011	-102	12	-7	13	0.256	-92	19
-82	21	5	21	0.113	-92	12	-5	13	0.206	-83	19
-71	21	2	21	0.050	-78	11	-5	12	0.208	-65	19
-66	37	0	37	0.006	-73	11	-7	12	0.276	-61	19
-68	37	-8	37	0.101	-68	11	-8	12	0.307	-50	27
-69	38	-14	38	0.176	-64	11	-9	12	0.349	-46	42
-79	38	-26	38	0.341	-56	11	-3	12	0.129	-41	51
-81	26	-4	26	0.085	-83	16	-6	17	0.196	-73	19
-75	26	0	26	0.004	-79	13	-4	14	0.154	-71	19
-68	28	-2	28	0.030	-69	12	-3	13	0.105	-63	19
-58	26	-4	26	0.071	-59	11	-5	12	0.201	-45	19
-49	26	-1	27	0.019	-53	10	-5	11	0.221	-42	19
-51	40	-7	40	0.091	-48	11	-4	12	0.177	-41	27
-55	49	-17	49	0.168	-47	11	-9	13	0.339	-27	42
-60	49	-26	49	0.262	-35	11	-1	13	0.033	-22	51
										-50	19
-57	26	-5	26	0.087	-53	17	-1	18	0.016	-48	19
-42	28	2	28	0.040	-45	12	-1	13	0.029	-40	19
-40	26	-7	26	0.139	-37	11	-4	12	0.184	-23	19
-35	26	-9	27	0.169	-30	11	-4	12	0.161	-20	19
-31	40	-9	40	0.112	-28	11	-6	12	0.246	-19	27
-35	49	-18	49	0.186	-25	11	-8	12	0.340	-6	42
-32	49	-19	49	0.190	-20	11	-7	13	0.268	-1	51

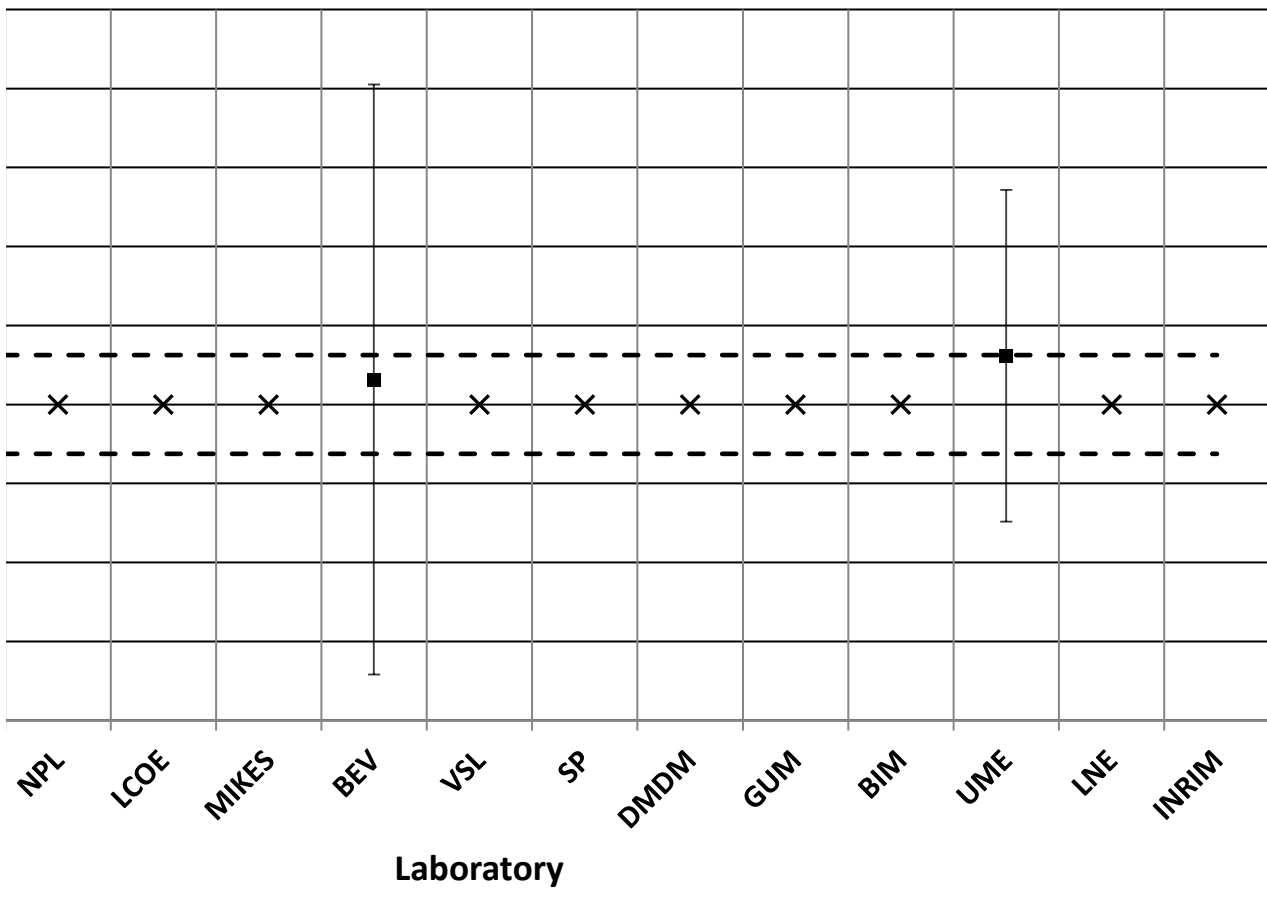
										-37	19
										-35	19
-29	26.5	-1	27	0.023	-28	13	0	14	0.009	-16	19
-14	26	3	26	0.058	-20	11	-3	12	0.123	-9	19
-14	26	-3	26	0.047	-16	11	-5	12	0.190	-7	19
-7	40	0	40	0.000	-12	11	-5	12	0.210	4	27
-7	49	-4	49	0.041	-10	11	-7	13	0.275	5	42
-12	49	-11	50	0.111	-4	11	-3	13	0.113	10	51

		LCOE	LCOE			MIKES	MIKES			MIKES	MIKES
$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	novalue	$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	novalue	$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)
-2	31	1	43	#N/A	1	43	-13	27	#N/A	-13	27
-7	31	2	43	#N/A	2	43	-10	25	#N/A	-10	25
-8	31	5	41	#N/A	5	41	-7	23	#N/A	-7	23
0	31	-2	41	#N/A	-2	41	-4	23	#N/A	-4	23
10	31	-3	74	#N/A	-3	74	-10	23	#N/A	-10	23
23	31	-6	74	#N/A	-6	74	-6	23	#N/A	-6	23
49	53	-12	76	#N/A	-12	76	-5	25	#N/A	-5	25
82	71	-25	76	#N/A	-25	76	3	23	#N/A	3	23
#N/A	#N/A			0	#N/A	#N/A			0	#N/A	#N/A
-1	31			0	#N/A	#N/A			0	#N/A	#N/A
0	31	-2	53	#N/A	-2	53	0	27	#N/A	0	27
-6	31	5	53	#N/A	5	53	0	23	#N/A	0	23
5	31	-2	52	#N/A	-2	52	-3	23	#N/A	-3	23
19	30	-3	80	#N/A	-3	80	0	22	#N/A	0	22
46	52	-6	98	#N/A	-6	98	-2	22	#N/A	-2	22
85	70	-11	98	#N/A	-11	98	0	22	#N/A	0	22

		LCOE				MIKES					
		$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)			$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)				
-1	31	0	43	#N/A	0	43	-9	25	#N/A	-9	25
-5	32	2	43	#N/A	2	43	-7	25	#N/A	-7	25
-4	32	4	42	#N/A	4	42	-6	25	#N/A	-6	25
1	31	3	42	#N/A	3	42	-6	24	#N/A	-6	24
13	31	-1	74	#N/A	-1	74	-8	22	#N/A	-8	22
25	31	-5	74	#N/A	-5	74	-9	24	#N/A	-9	24
52	53	-11	77	#N/A	-11	77	-8	24	#N/A	-8	24
84	72	-24	77	#N/A	-24	77	0	27	#N/A	0	27
3	31	-1	43	#N/A	-1	43	-8	29	#N/A	-8	29
-3	31	0	43	#N/A	0	43	-7	25	#N/A	-7	25
-6	31	5	42	#N/A	5	42	-5	25	#N/A	-5	25
-2	31	2	42	#N/A	2	42	-5	24	#N/A	-5	24
9	31	0	74	#N/A	0	74	-7	24	#N/A	-7	24
21	32	-8	75	#N/A	-8	75	-8	24	#N/A	-8	24
48	53	-14	77	#N/A	-14	77	-9	24	#N/A	-9	24
83	71	-26	77	#N/A	-26	77	-3	24	#N/A	-3	24
7	31	-4	53	#N/A	-4	53	-6	33	#N/A	-6	33
3	31	0	53	#N/A	0	53	-4	27	#N/A	-4	27
-8	31	-2	56	#N/A	-2	56	-3	26	#N/A	-3	26
-3	31	-4	53	#N/A	-4	53	-5	24	#N/A	-5	24
8	32	-1	53	#N/A	-1	53	-5	23	#N/A	-5	23
22	32	-7	81	#N/A	-7	81	-4	25	#N/A	-4	25
48	54	-17	99	#N/A	-17	99	-9	26	#N/A	-9	26
81	72	-26	99	#N/A	-26	99	-1	26	#N/A	-1	26
-2	33			0 #N/A	#N/A			0 #N/A	#N/A		
2	31	-5	53	#N/A	-5	53	-1	35	#N/A	-1	35
1	31	2	57	#N/A	2	57	-1	26	#N/A	-1	26
0	31	-7	53	#N/A	-7	53	-4	24	#N/A	-4	24
10	32	-9	53	#N/A	-9	53	-4	25	#N/A	-4	25
24	32	-9	81	#N/A	-9	81	-6	25	#N/A	-6	25
51	53	-18	99	#N/A	-18	99	-8	24	#N/A	-8	24
83	72	-19	99	#N/A	-19	99	-7	26	#N/A	-7	26
#N/A	#N/A			0 #N/A	#N/A			0 #N/A	#N/A		
-4	31			0 #N/A	#N/A			0 #N/A	#N/A		
1	31	-1	54	#N/A	-1	54	0	27	#N/A	0	27
-5	31	3	53	#N/A	3	53	-3	24	#N/A	-3	24
5	31	-3	53	#N/A	-3	53	-5	24	#N/A	-5	24
20	31	0	80	#N/A	0	80	-5	24	#N/A	-5	24
48	54	-4	99	#N/A	-4	99	-7	26	#N/A	-7	26
83	72	-11	99	#N/A	-11	99	-3	27	#N/A	-3	27

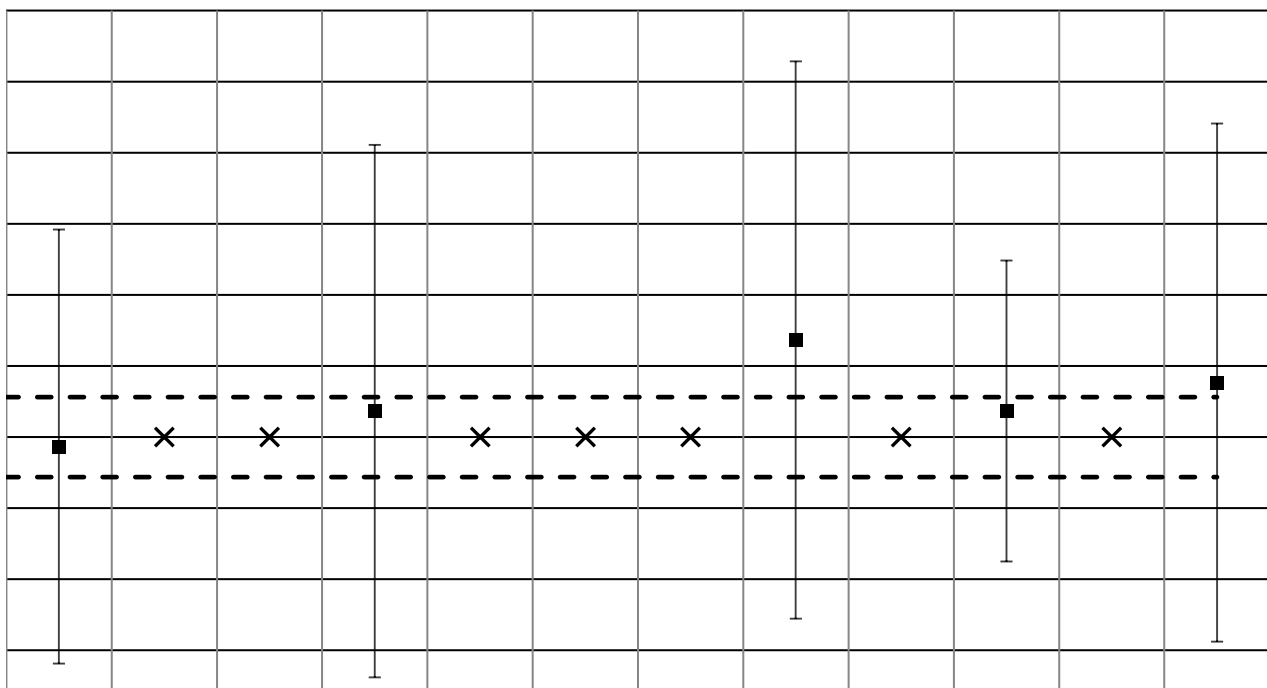
Ratio error deviation from reference value

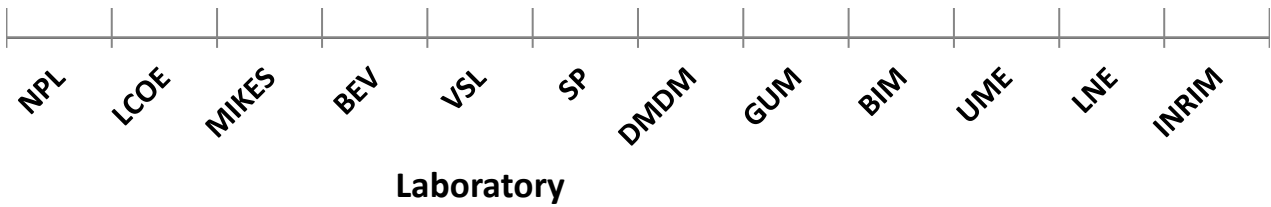
$k_1 = 10 \text{ kA}/5 \text{ A}, 120 \% I_N, 5 \text{ VA}$



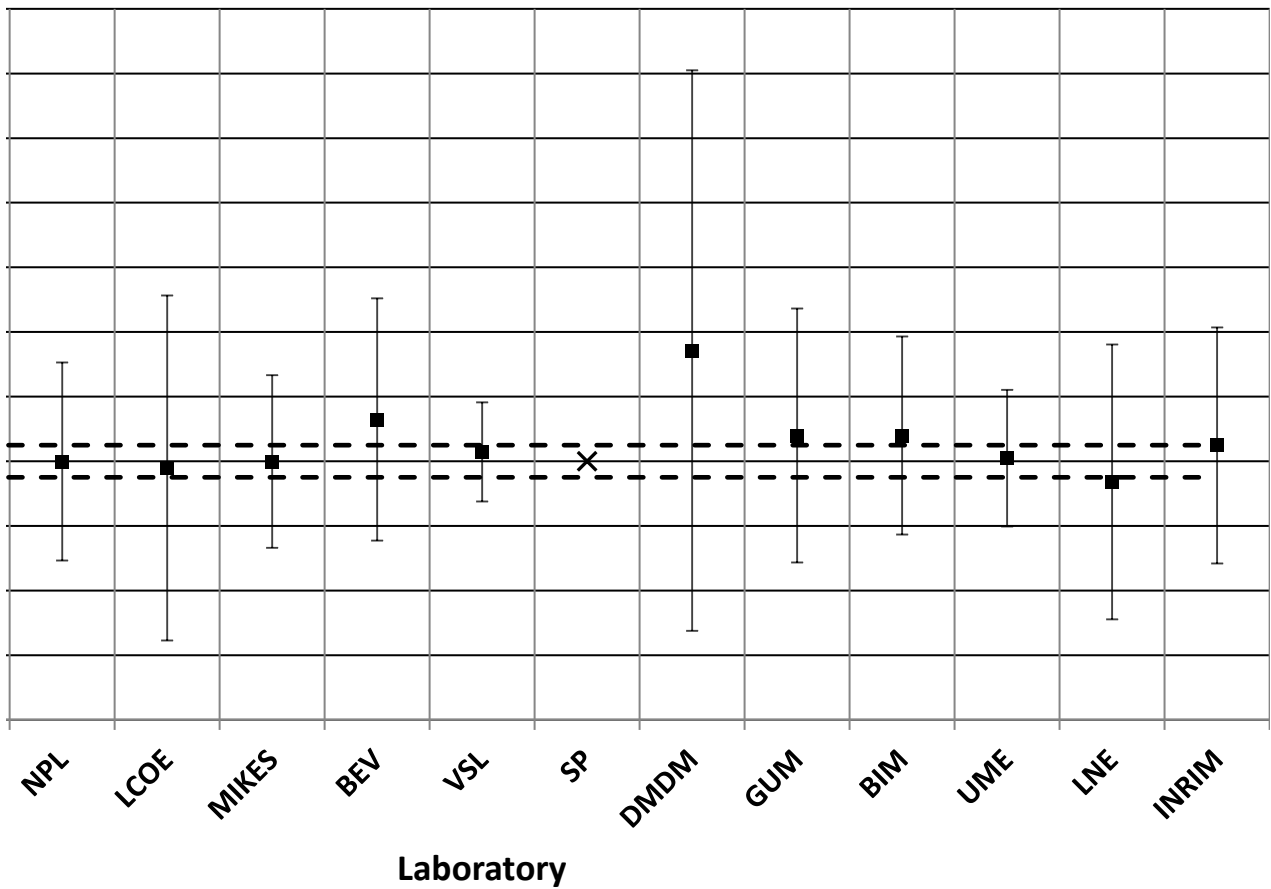
Ratio error deviation from reference value

$k_1 = 10 \text{ kA}/5 \text{ A}, 100 \% I_N, 5 \text{ VA}$

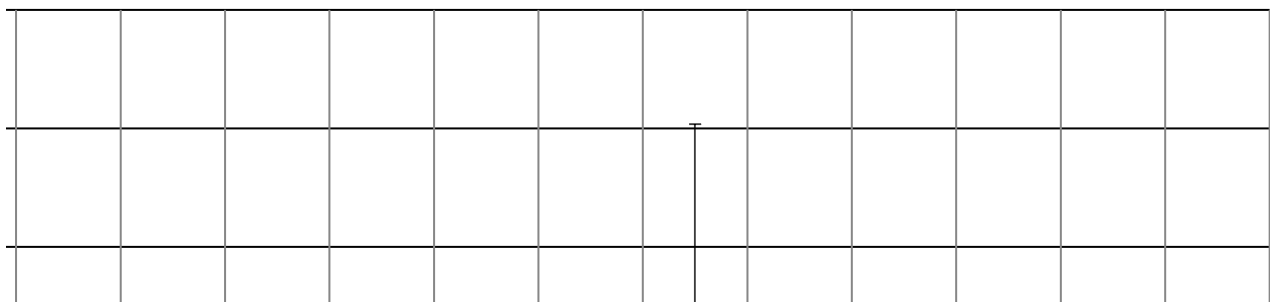


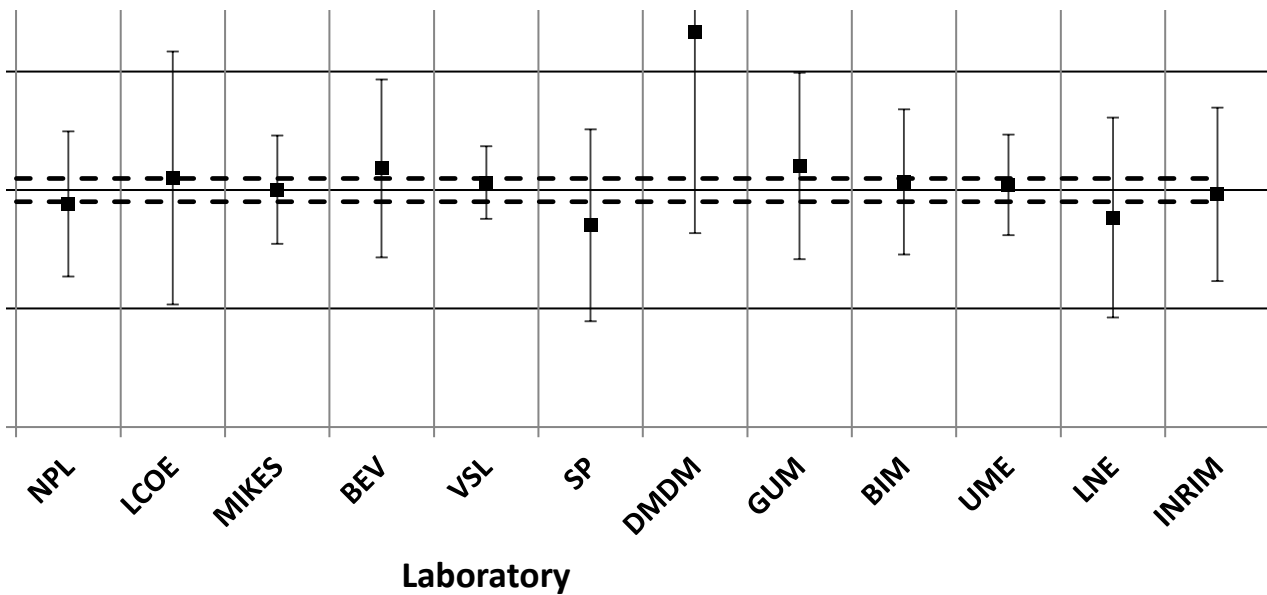


Ratio error deviation from reference value
 $k_1 = 10 \text{ kA}/5 \text{ A}, 50 \% I_N, 5 \text{ VA}$



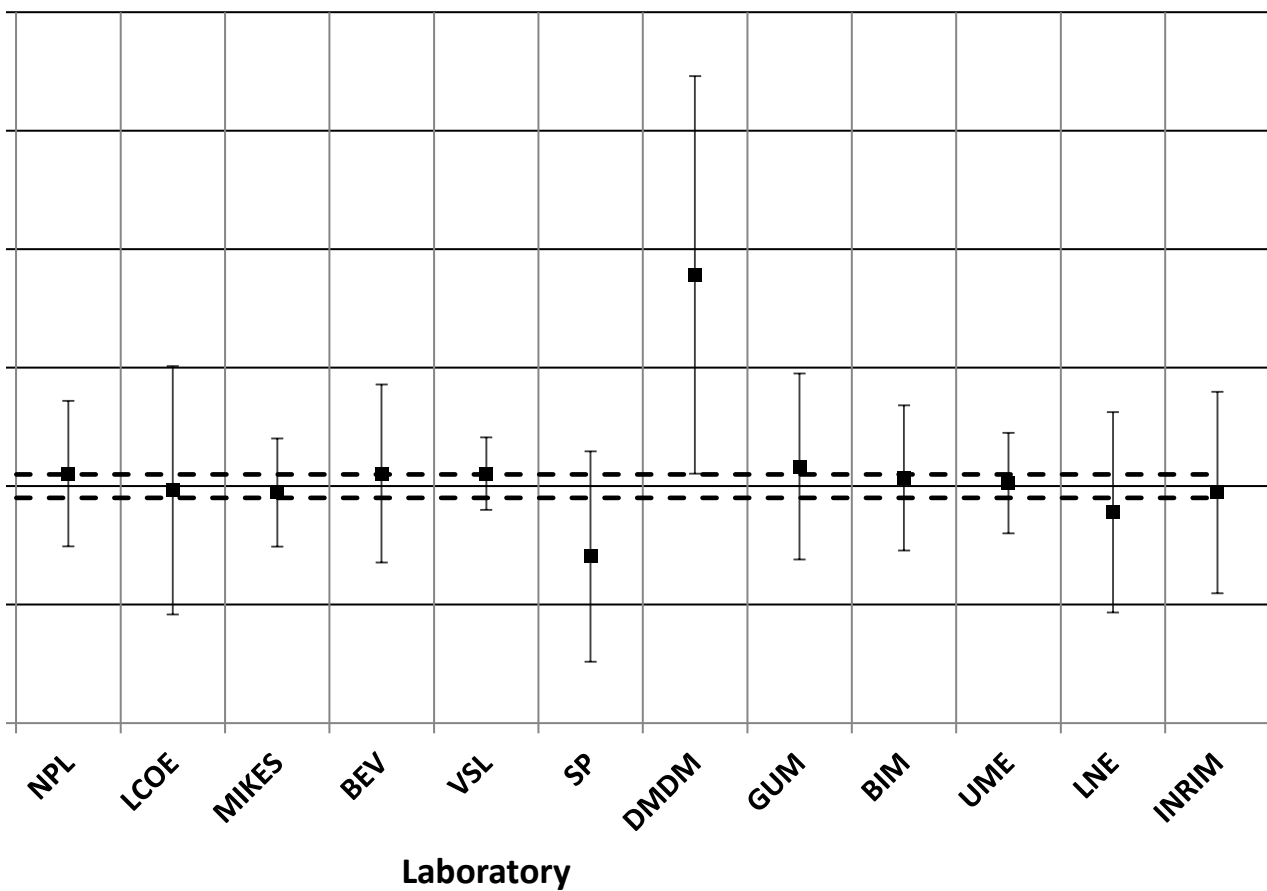
Ratio error deviation from reference value
 $k_1 = 10 \text{ kA}/5 \text{ A}, 20 \% I_N, 5 \text{ VA}$





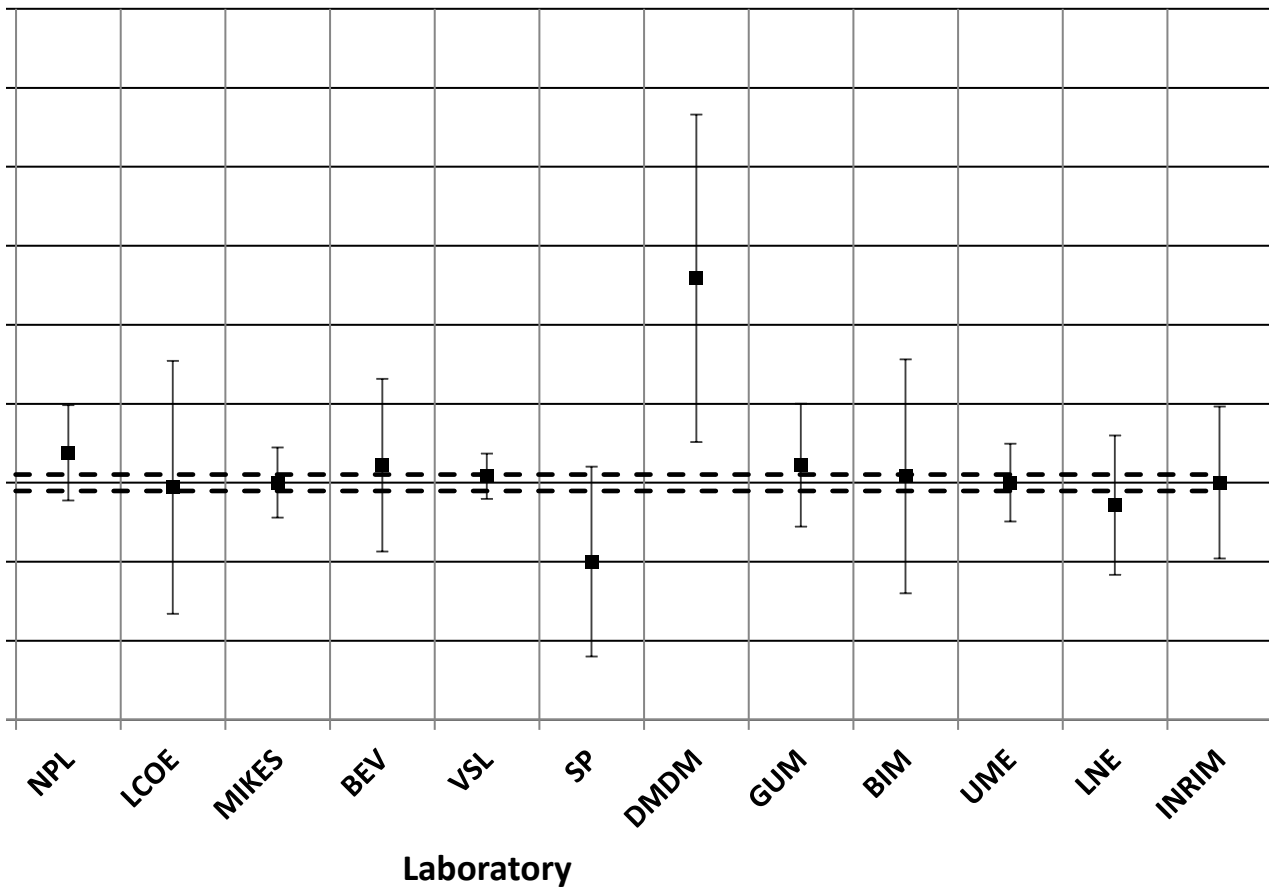
Ratio error deviation from reference value

$k_I = 10 \text{ kA}/5 \text{ A}, 10 \% I_N, 5 \text{ VA}$



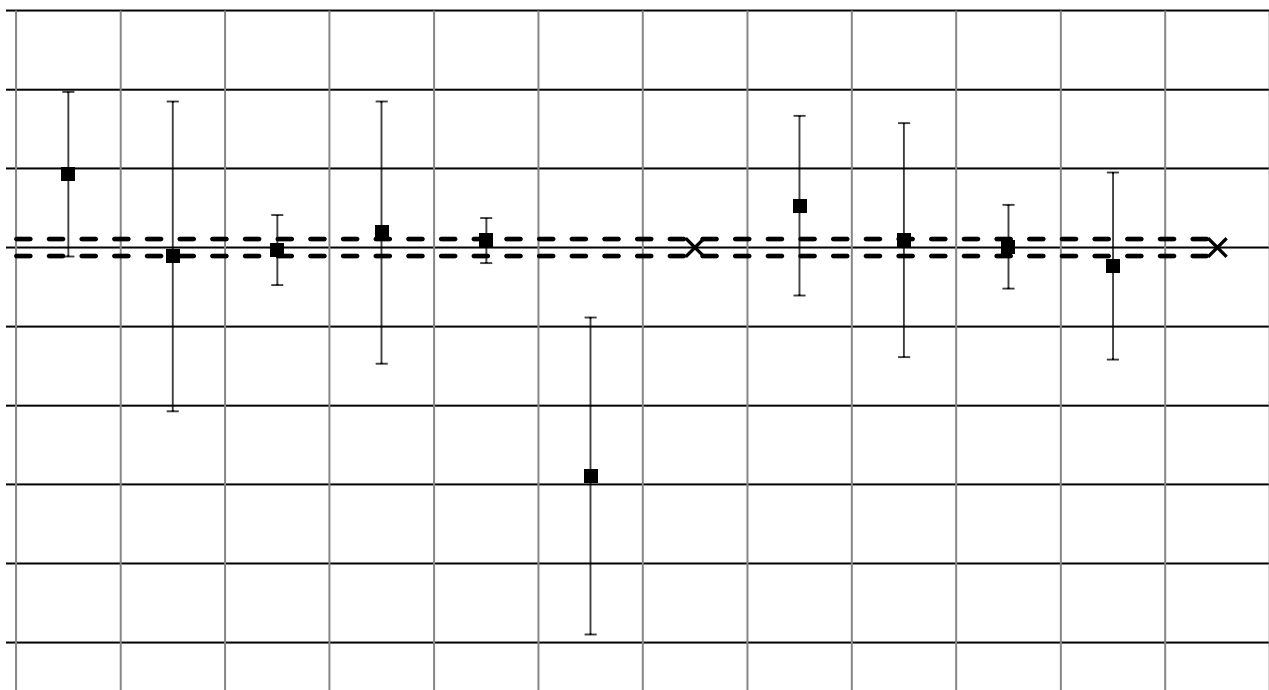
Ratio error deviation from reference value

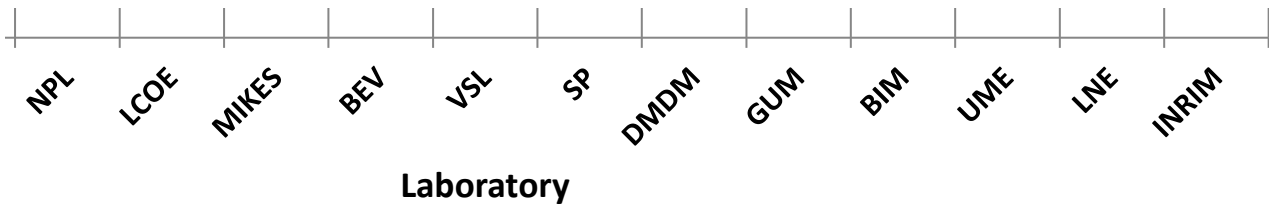
$k_1 = 10 \text{ kA}/5 \text{ A}, 5 \% I_N, 5 \text{ VA}$



Ratio error deviation from reference value

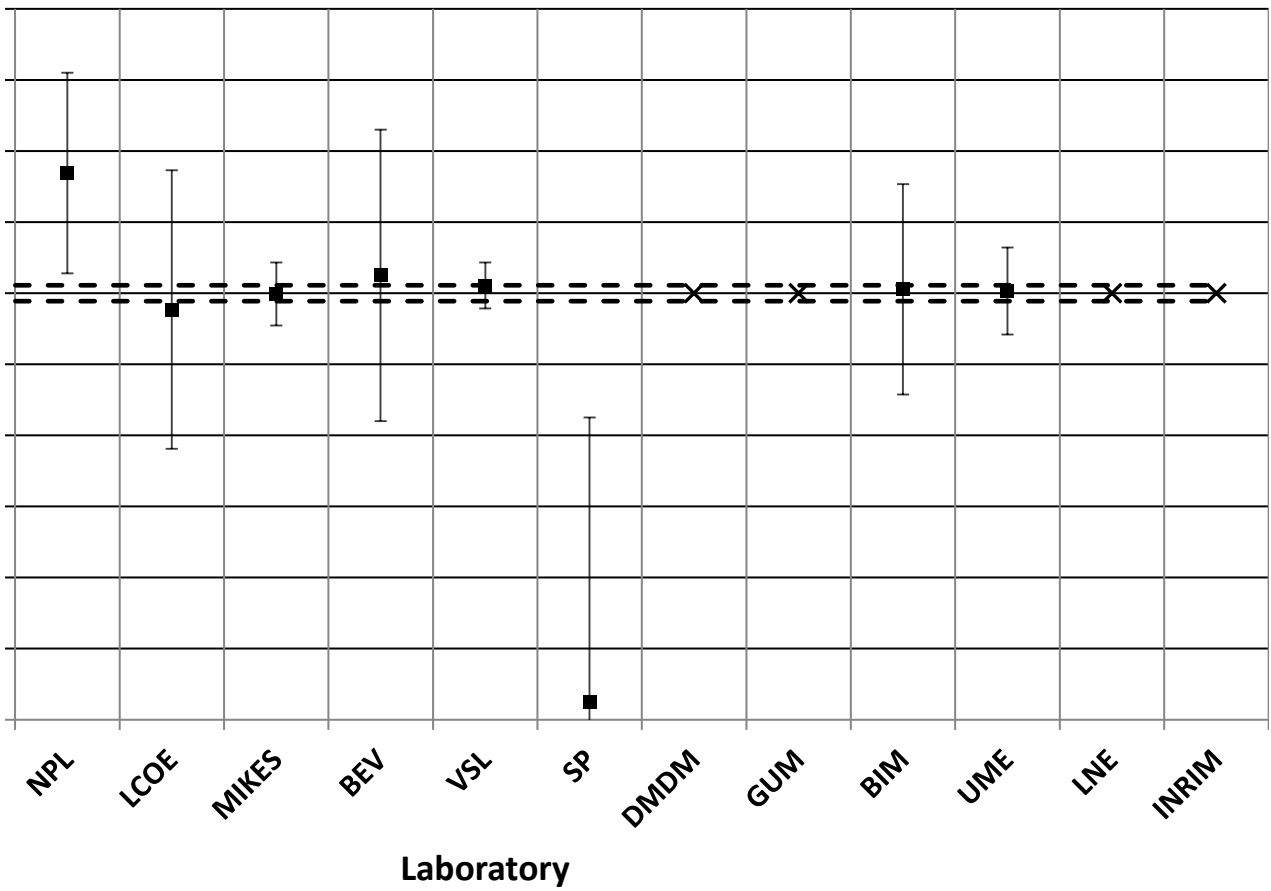
$k_1 = 10 \text{ kA}/5 \text{ A}, 2 \% I_N, 5 \text{ VA}$





Ratio error deviation from reference value

$k_1 = 10 \text{ kA}/5 \text{ A}, 1 \% I_N, 5 \text{ VA}$



BEV			VSL					SF		
$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)
4	19	0.110	-98	7	-6	8	0.356			
6	19	0.150	-96	7	-5	8	0.323	-92	20	-1
4	19	0.105	-85	8	-3	9	0.178	-86	20	-4
9	19	0.233	-73	7	-1	8	0.083	-85	20	-13
5	19	0.133	-68	7	-1	8	0.067	-92	22	-25
10	27	0.189	-64	7	-2	8	0.105	-111	30	-49
9	42	0.105	-58	7	1	8	0.045	-193	50	-134
10	51	0.096	-54	7	2	8	0.113	-329	100	-273
3	19	0.084								
4	19	0.098								
13	19	0.344	-19	7	3	8	0.191			
9	19	0.245	-9	7	3	8	0.207	-27	20	-15
5	19	0.133	-2	7	5	8	0.325	-37	22	-30
11	27	0.196	1	7	4	7	0.260	-53	30	-50
10	42	0.119	5	7	5	7	0.340	-144	50	-144
12	51	0.119	6	8	5	8	0.323	-287	100	-288
BEV			VSL					SF		
$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)
2	19	0.056	-135	9	-7	10	0.345			
3	19	0.071	-134	8	-7	10	0.376	-136	20	-9
2	19	0.051	-121	8	-5	10	0.262	-121	20	-5
6	19	0.161	-102	7	-2	8	0.114	-104	20	-4
3	19	0.067	-94	7	-1	8	0.089	-114	22	-21
9	28	0.157	-86	7	0	8	0.019	-132	30	-46
7	42	0.089	-79	7	1	9	0.082	-213	50	-133
10	52	0.098	-74	7	2	10	0.103	-342	100	-266
3	19	0.082	-100	7	-3	8	0.177			
3	19	0.091	-99	7	-4	8	0.215	-98	20	-3
4	19	0.098	-89	7	-2	8	0.137	-92	20	-5
8	19	0.213	-73	7	0	8	0.005	-84	20	-11
5	19	0.144	-66	7	0	8	0.029	-92	22	-26
10	28	0.188	-58	7	2	9	0.141	-118	30	-58
10	42	0.119	-54	7	2	9	0.113	-220	50	-164
12	51	0.112	-49	9	4	10	0.170	-365	100	-312
4	19	0.092	-79	7	-2	8	0.152			
4	19	0.100	-77	7	-2	8	0.135			
3	19	0.087	-68	7	-2	8	0.102	-71	20	-5
9	19	0.243	-53	7	1	8	0.075	-67	20	-13
5	19	0.137	-46	7	1	9	0.072	-74	22	-27
2	28	0.028	-40	7	3	9	0.145	-99	30	-56
11	42	0.134	-36	7	2	10	0.117	-198	50	-160

12	52	0.115	-32	7	2	10	0.099	-348	100	-314
5	20	0.115								
4	19	0.117	-51	7	1	8	0.087			
4	19	0.112	-42	8	2	9	0.124	-50	20	-6
10	19	0.254	-28	7	5	8	0.282	-48	20	-15
6	19	0.156	-22	7	4	9	0.227	-57	22	-31
3	28	0.048	-18	7	4	9	0.207	-75	30	-53
11	42	0.132	-11	7	6	9	0.345	-168	50	-151
12	52	0.115	-11	7	2	10	0.100	-322	100	-309
2	19	0.058								
3	19	0.069								
12	19	0.310	-25	8	3	9	0.152			
8	19	0.213	-14	7	3	8	0.187	-34	20	-17
4	19	0.110	-8	7	3	8	0.193	-42	22	-31
11	28	0.194	-3	7	4	8	0.226	-58	30	-51
8	42	0.100	1	7	4	10	0.230	-149	50	-146
11	52	0.103	3	7	4	10	0.180	-291	100	-290

BEV	BEV	BEV	VSL	VSL	VSL	VSL	VSL	SP	SP	SP
$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)
4	19	0.110	-98	7	-6	8	0.356			
6	19	0.150	-96	7	-5	8	0.323	-92	20	-1
4	19	0.105	-85	8	-3	9	0.178	-86	20	-4
9	19	0.233	-73	7	-1	8	0.083	-85	20	-13
5	19	0.133	-68	7	-1	8	0.067	-92	22	-25

10	27	0.189	-64	7	-2	8	0.105	-111	30	-49
9	42	0.107	-58	7	1	8	0.057	-193	50	-134
10	51	0.099	-54	7	2	8	0.133	-329	100	-273
3	19	0.084								
4	19	0.098								
13	19	0.344	-19	7	3	8	0.191			
9	19	0.245	-9	7	3	8	0.207	-27	20	-15
5	19	0.141	-2	7	5	8	0.345	-37	22	-30
11	27	0.202	1	7	4	7	0.282	-53	30	-50
9	42	0.114	5	7	4	7	0.311	-144	50	-145
13	51	0.122	6	8	6	8	0.342	-287	100	-287
BEV	BEV	BEV	VSL	VSL	VSL	VSL	VSL	SP	SP	SP
$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)
3	19	0.081	-135	9	-6	10	0.297			
4	19	0.095	-134	8	-6	10	0.328	-136	20	-8
3	19	0.073	-121	8	-4	10	0.216	-121	20	-4
6	19	0.161	-102	7	-2	8	0.114	-104	20	-4
3	19	0.067	-94	7	-1	8	0.089	-114	22	-21
9	28	0.157	-86	7	0	8	0.019	-132	30	-46
8	42	0.092	-79	7	2	9	0.098	-213	50	-132
10	52	0.101	-74	7	2	10	0.120	-342	100	-266
3	19	0.082	-100	7	-3	8	0.177			
3	19	0.091	-99	7	-4	8	0.215	-98	20	-3
4	19	0.098	-89	7	-2	8	0.137	-92	20	-5
8	19	0.213	-73	7	0	8	0.005	-84	20	-11
5	19	0.144	-66	7	0	8	0.029	-92	22	-26
10	28	0.188	-58	7	2	9	0.141	-118	30	-58
9	42	0.113	-54	7	1	9	0.084	-220	50	-165
12	51	0.115	-49	9	4	10	0.185	-365	100	-312
4	19	0.092	-79	7	-2	8	0.152			
4	19	0.100	-77	7	-2	8	0.135			
3	19	0.087	-68	7	-2	8	0.102	-71	20	-5
9	19	0.243	-53	7	1	8	0.075	-67	20	-13
6	19	0.155	-46	7	2	9	0.111	-74	22	-26
3	28	0.048	-40	7	4	9	0.207	-99	30	-55
11	42	0.135	-36	7	2	10	0.123	-198	50	-160
12	52	0.118	-32	7	2	10	0.113	-348	100	-314
5	20	0.115								
4	19	0.117	-51	7	1	8	0.087			
4	19	0.112	-42	8	2	9	0.124	-50	20	-6
10	19	0.254	-28	7	5	8	0.282	-48	20	-15
6	19	0.156	-22	7	4	9	0.227	-57	22	-31
3	28	0.053	-18	7	4	9	0.224	-75	30	-53
11	42	0.127	-11	7	6	9	0.321	-168	50	-151
12	52	0.118	-11	7	2	10	0.114	-322	100	-309

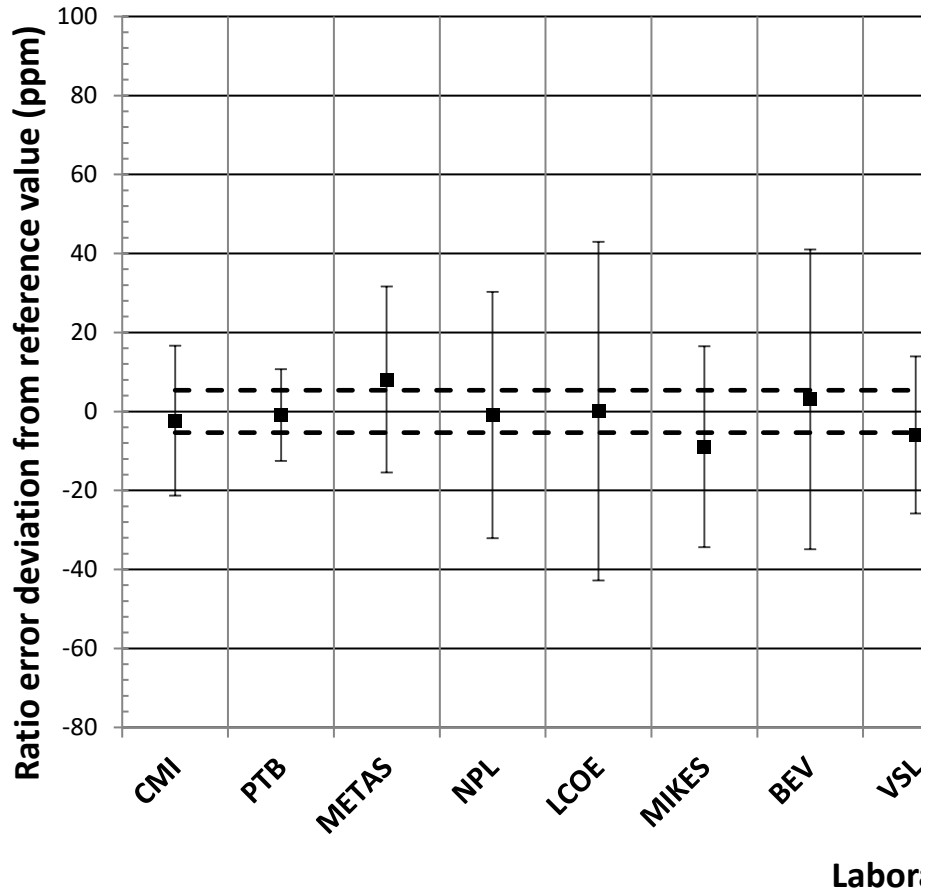
2	19	0.058								
3	19	0.069								
12	19	0.310	-25	8	3	9	0.152			
8	19	0.213	-14	7	3	8	0.187	-34	20	-17
4	19	0.118	-8	7	3	8	0.212	-42	22	-31
11	28	0.200	-3	7	4	8	0.246	-58	30	-51
8	42	0.095	1	7	4	10	0.209	-149	50	-146
11	52	0.106	3	7	4	10	0.195	-291	100	-290

BEV	BEV				VSL	VSL				SP
$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	novalue	$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	novalue	$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	$\Delta\epsilon_C$ (ppm)
4	38	#N/A	4	38	-6	16	#N/A	-6	16	
6	38	#N/A	6	38	-5	16	#N/A	-5	16	-1
4	38	#N/A	4	38	-3	17	#N/A	-3	17	-4
9	38	#N/A	9	38	-1	15	#N/A	-1	15	-13
5	38	#N/A	5	38	-1	15	#N/A	-1	15	-25
10	55	#N/A	10	55	-2	15	#N/A	-2	15	-49
9	83	#N/A	9	83	1	16	#N/A	1	16	-134
10	103	#N/A	10	103	2	16	#N/A	2	16	-273
3	37	#N/A	3	37			0	#N/A	#N/A	
4	37	#N/A	4	37			0	#N/A	#N/A	
13	38	#N/A	13	38	3	15	#N/A	3	15	
9	38	#N/A	9	38	3	15	#N/A	3	15	-15
5	38	#N/A	5	38	5	15	#N/A	5	15	-30
11	55	#N/A	11	55	4	14	#N/A	4	14	-50
9	83	#N/A	9	83	4	14	#N/A	4	14	-145
13	102	#N/A	13	102	6	16	#N/A	6	16	-287

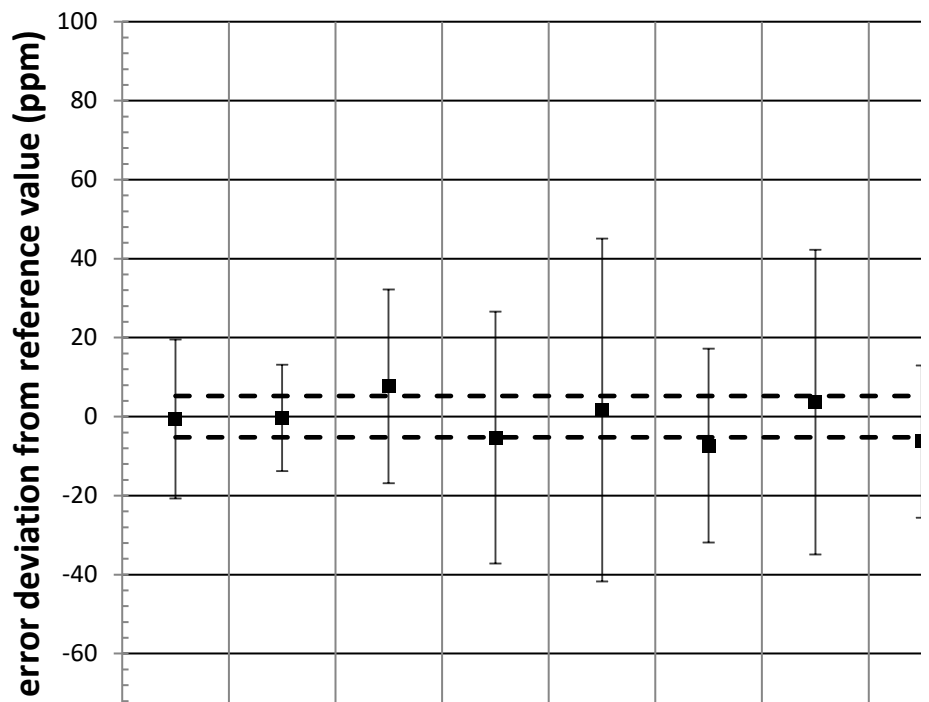
BEV				VSL				SP		
$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)			$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)			$\Delta\epsilon_C$ (ppm)		
3	38	#N/A	3	38	-6	20	#N/A	-6	20	
4	39	#N/A	4	39	-6	19	#N/A	-6	19	-8
3	39	#N/A	3	39	-4	19	#N/A	-4	19	-4
6	38	#N/A	6	38	-2	16	#N/A	-2	16	-4
3	38	#N/A	3	38	-1	16	#N/A	-1	16	-21
9	55	#N/A	9	55	0	16	#N/A	0	16	-46
8	84	#N/A	8	84	2	18	#N/A	2	18	-132
10	103	#N/A	10	103	2	20	#N/A	2	20	-266
3	38	#N/A	3	38	-3	16	#N/A	-3	16	
3	38	#N/A	3	38	-4	16	#N/A	-4	16	-3
4	38	#N/A	4	38	-2	16	#N/A	-2	16	-5
8	38	#N/A	8	38	0	16	#N/A	0	16	-11
5	38	#N/A	5	38	0	16	#N/A	0	16	-26
10	56	#N/A	10	56	2	18	#N/A	2	18	-58
9	84	#N/A	9	84	1	18	#N/A	1	18	-165
12	103	#N/A	12	103	4	21	#N/A	4	21	-312
4	38	#N/A	4	38	-2	16	#N/A	-2	16	
4	38	#N/A	4	38	-2	16	#N/A	-2	16	
3	38	#N/A	3	38	-2	16	#N/A	-2	16	-5
9	38	#N/A	9	38	1	16	#N/A	1	16	-13
6	39	#N/A	6	39	2	18	#N/A	2	18	-26
3	56	#N/A	3	56	4	18	#N/A	4	18	-55
11	84	#N/A	11	84	2	19	#N/A	2	19	-160
12	103	#N/A	12	103	2	19	#N/A	2	19	-314
5	39	#N/A	5	39			0 #N/A	#N/A		
4	38	#N/A	4	38	1	16	#N/A	1	16	
4	38	#N/A	4	38	2	18	#N/A	2	18	-6
10	38	#N/A	10	38	5	16	#N/A	5	16	-15
6	39	#N/A	6	39	4	18	#N/A	4	18	-31
3	56	#N/A	3	56	4	18	#N/A	4	18	-53
11	84	#N/A	11	84	6	18	#N/A	6	18	-151
12	103	#N/A	12	103	2	19	#N/A	2	19	-309
2	38	#N/A	2	38			0 #N/A	#N/A		
3	38	#N/A	3	38			0 #N/A	#N/A		
12	38	#N/A	12	38	3	18	#N/A	3	18	
8	38	#N/A	8	38	3	16	#N/A	3	16	-17
4	38	#N/A	4	38	3	16	#N/A	3	16	-31
11	55	#N/A	11	55	4	16	#N/A	4	16	-51
8	84	#N/A	8	84	4	19	#N/A	4	19	-146
11	103	#N/A	11	103	4	21	#N/A	4	21	-290

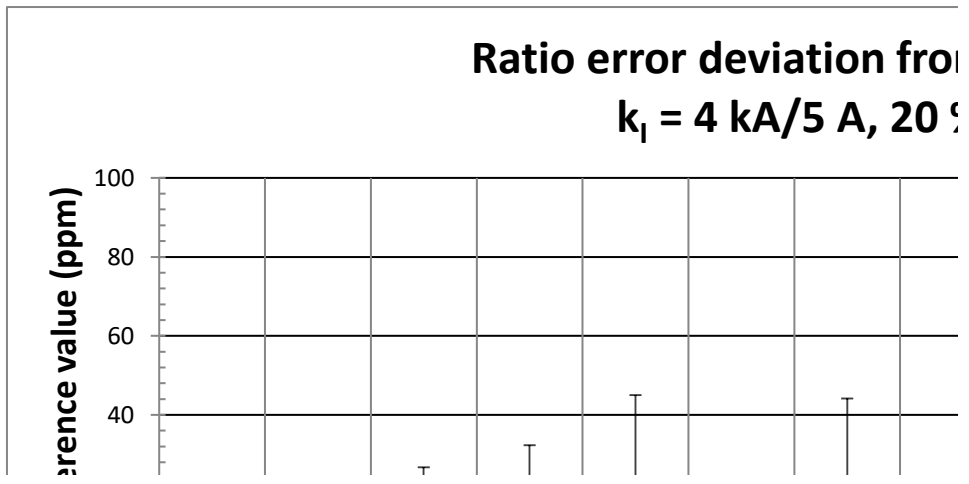
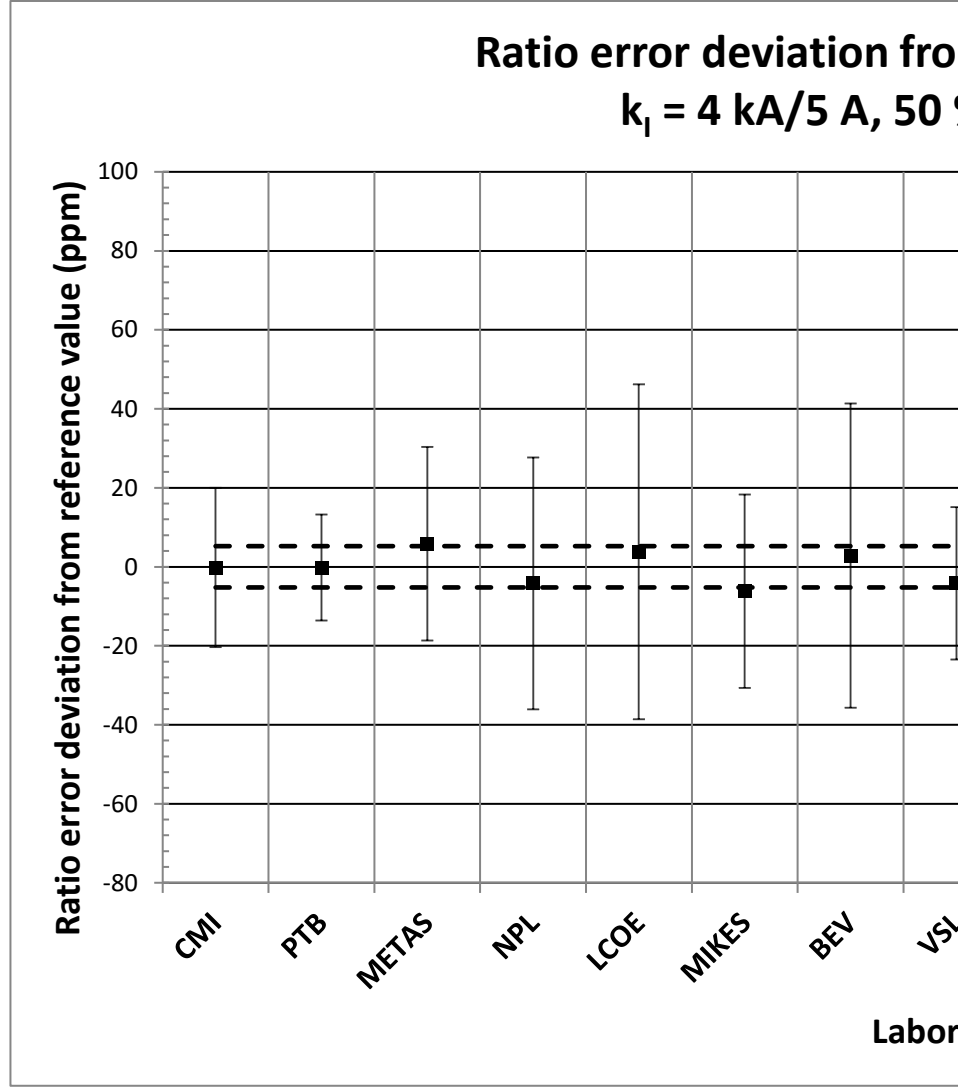
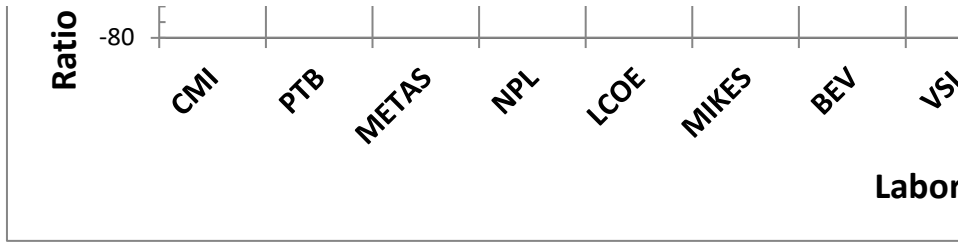
Ratio error deviation from

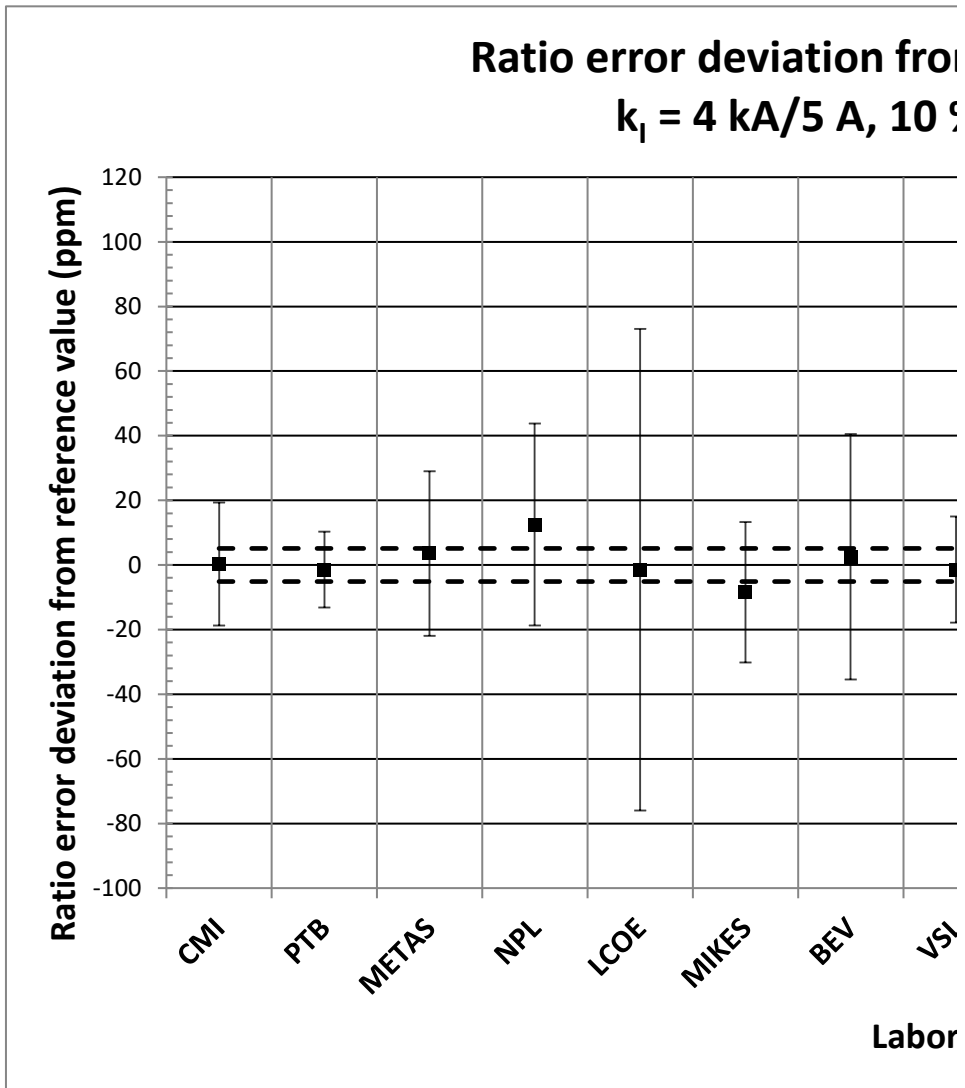
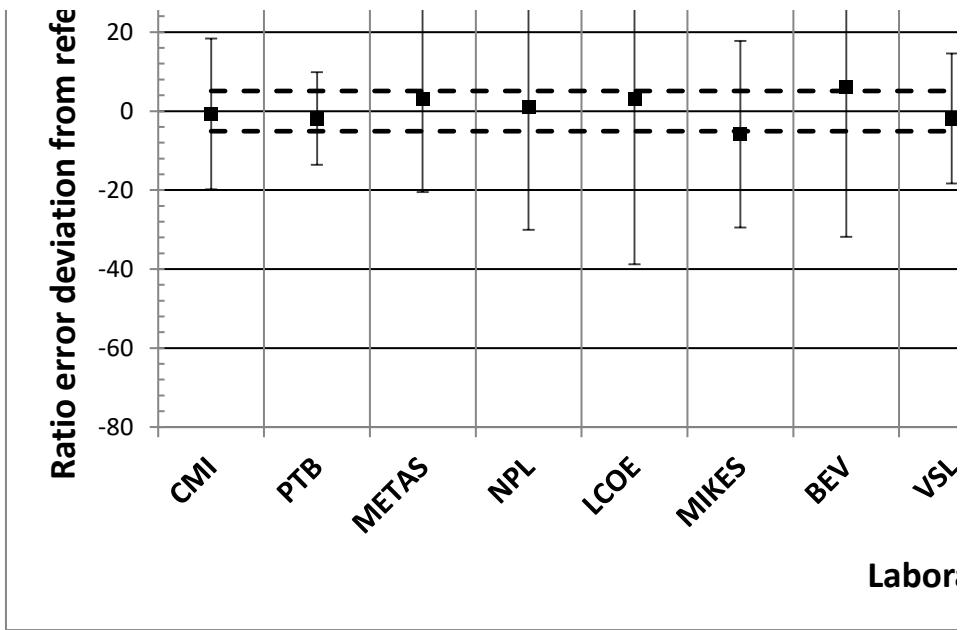
$k_1 = 4 \text{ kA}/5 \text{ A}, 120$



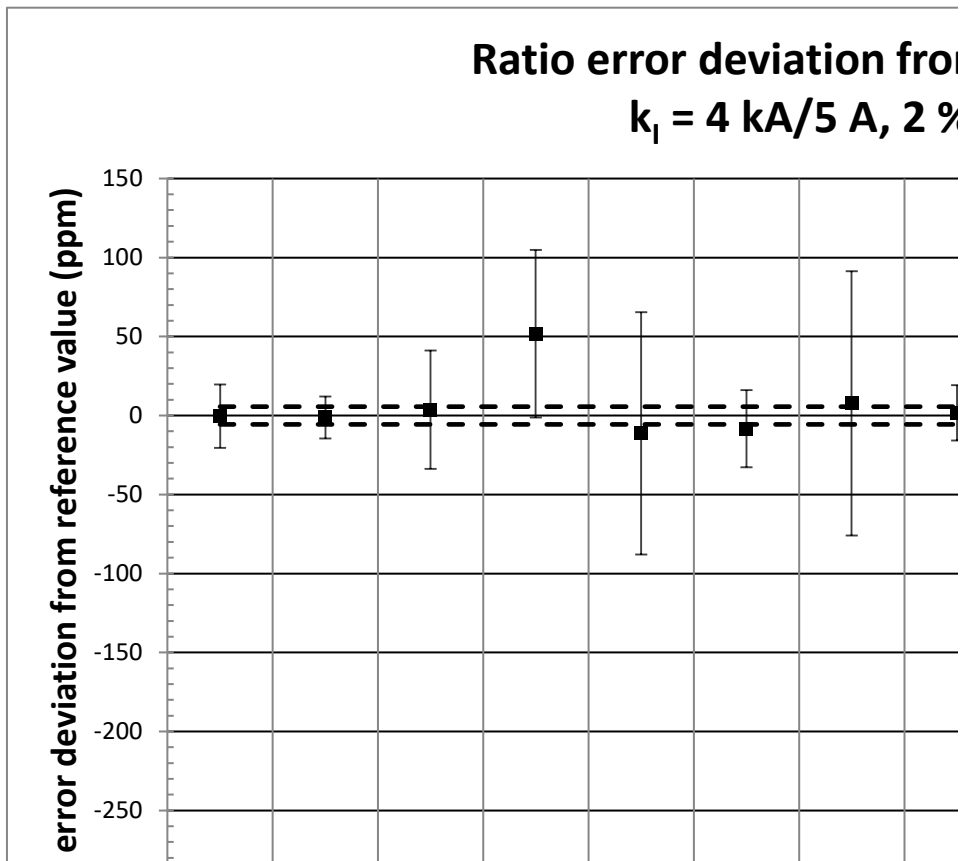
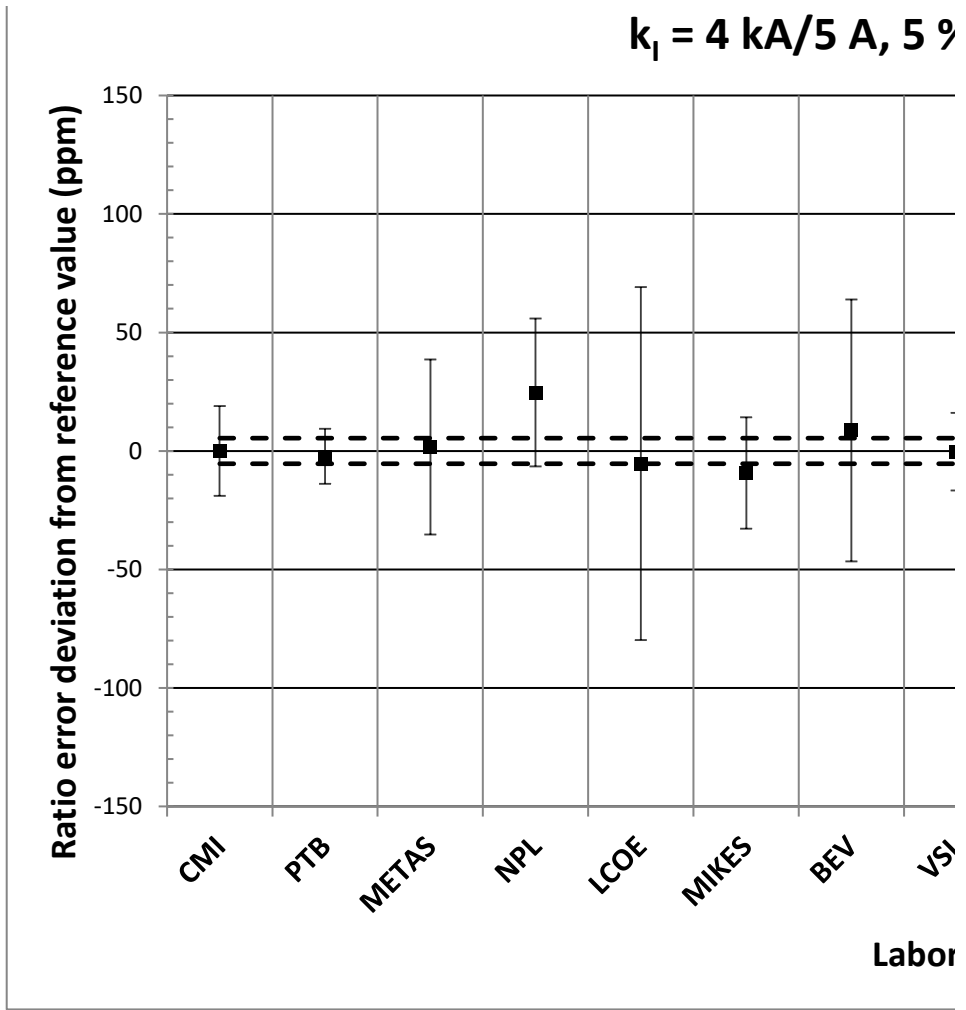
Ratio error deviation from
 $k_1 = 4 \text{ kA}/5 \text{ A}, 100$

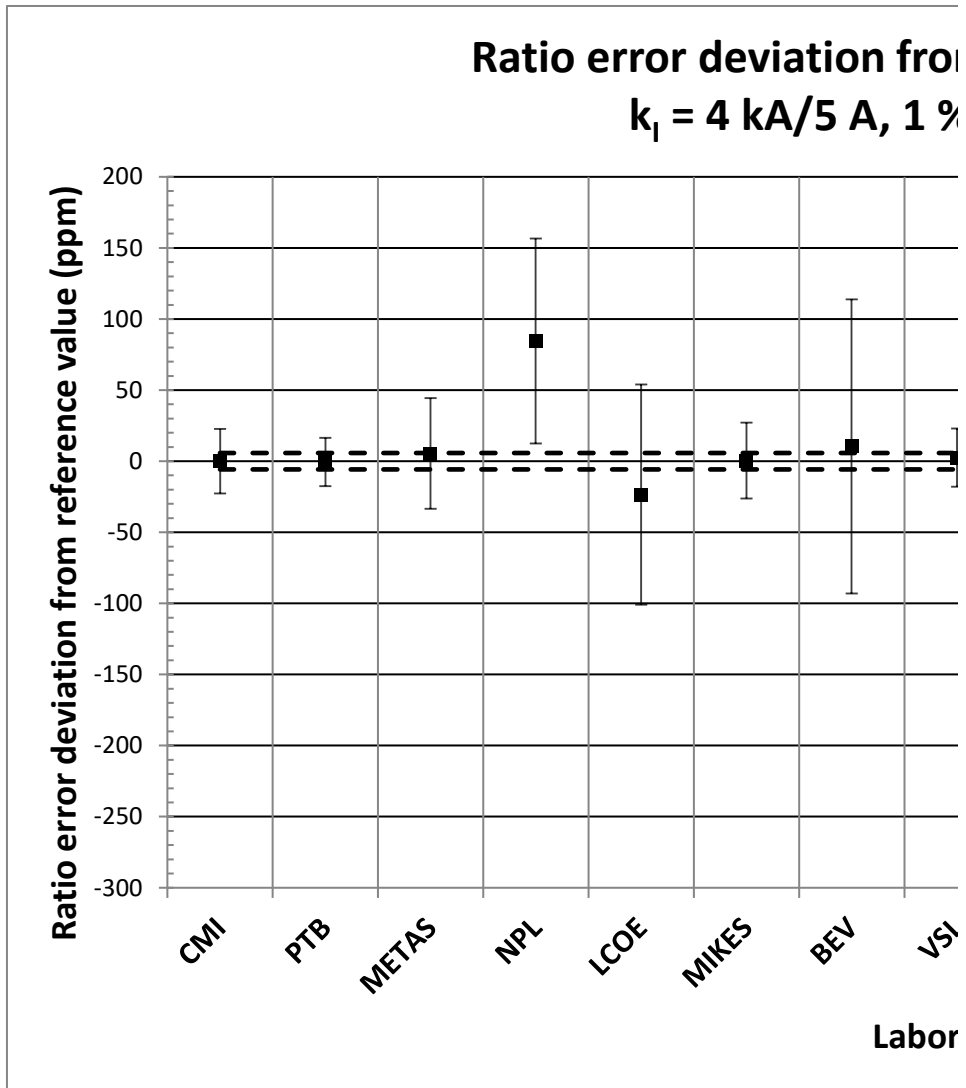
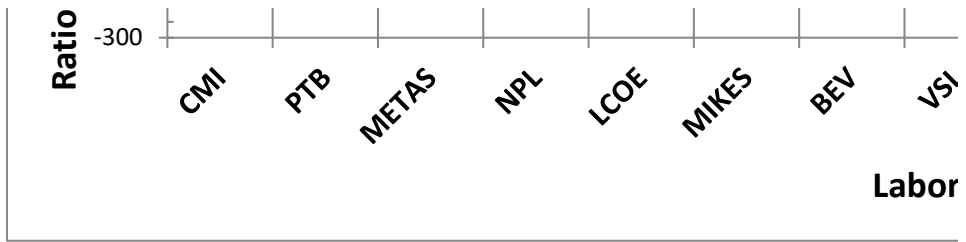






Ratio error deviation fro





		DMDM					GUM			
$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)
		-85	36	7	36	0.101	-87	19	5	20
20	0.032	-83	36	8	36	0.113	-85	19	6	20
20	0.100	-75	36	7	36	0.094	-74	19	8	20
20	0.328	-63	36	9	36	0.123	-59	19	13	20
22	0.563	-44	36	23	36	0.318	-48	19	19	20
30	0.806	-16	45	46	45	0.517	-32	19	30	20
50	<u>1.338</u>						5	28	64	29
100	<u>1.365</u>									
							-18	19	14	20
		12	43	34	43	0.395	-14	19	8	20
20	0.366	55	42	67	42	0.787	-2	19	10	20
22	0.675	82	42	89	42	<u>1.062</u>	1	19	8	20
30	0.837	126	52	129	52	<u>1.249</u>	8	19	11	19
50	<u>1.441</u>						27	28	27	28
100	<u>1.439</u>									

		DMDM					GUM			
$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)
		-121	36	7	36	0.100	-120	19	8	20
21	0.224	-119	36	8	37	0.112	-118	19	9	20
21	0.122	-106	36	10	37	0.136	-109	19	7	20
20	0.094	-89	36	11	36	0.156	-87	19	13	20
22	0.479	-73	36	19	36	0.267	-74	19	19	20
30	0.764	-39	45	47	45	0.525	-55	19	31	20
50	<u>1.318</u>						-9	28	71	29
100	<u>1.326</u>									
							-85	19	12	20
20	0.062	-116	41	-21	41	0.252	-87	19	8	20
20	0.129	-106	41	-20	41	0.237	-78	19	9	20
20	0.267	-87	41	-14	41	0.164	-59	19	14	20
22	0.569	-62	41	4	41	0.050	-45	19	21	20
30	0.944	-11	51	49	51	0.481	-26	19	34	20
50	<u>1.631</u>						-2	28	54	29
100	<u>1.560</u>									
							-40	19	37	20
							-41	19	34	20
20	0.114	-25	43	42	43	0.482	-33	19	33	20
20	0.312	-18	42	37	42	0.432	-19	19	35	20
23	0.589	23	42	70	42	0.829	-5	19	42	20
30	0.926	84	52	126	52	<u>1.217</u>	0	19	43	20
50	<u>1.584</u>						26	28	64	29

100	<u>1.567</u>									
							-41	19	14	20
							-42	19	10	20
20	0.141	-55	43	-10	43	0.118	-35	19	9	20
20	0.375	20	43	53	43	0.606	-20	19	13	20
23	0.683	58	43	84	43	0.972	-9	19	17	20
30	0.875	106	53	128	54	<u>1.188</u>	-5	19	17	20
50	<u>1.500</u>						19	28	36	29
100	<u>1.542</u>									
							-18	19	20	20
		5	43	33	43	0.382	-14	19	14	20
20	0.413	50	43	67	43	0.785	-2	19	15	20
22	0.687	79	42	90	42	<u>1.066</u>	1	19	12	20
30	0.846	129	53	135	53	<u>1.282</u>	8	19	15	20
50	<u>1.444</u>						27	28	30	29
100	<u>1.447</u>									

SP	SP	DMDM	DMDM	DMDM	DMDM	DMDM	GUM	GUM	GUM	GUM
$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)
		-85	36	7	36	0.101	-87	19	5	20
20	0.032	-83	36	8	36	0.113	-85	19	6	20
20	0.100	-75	36	7	36	0.094	-74	19	8	20
20	0.328	-63	36	9	36	0.123	-59	19	13	20
22	0.563	-44	36	23	36	0.318	-48	19	19	20

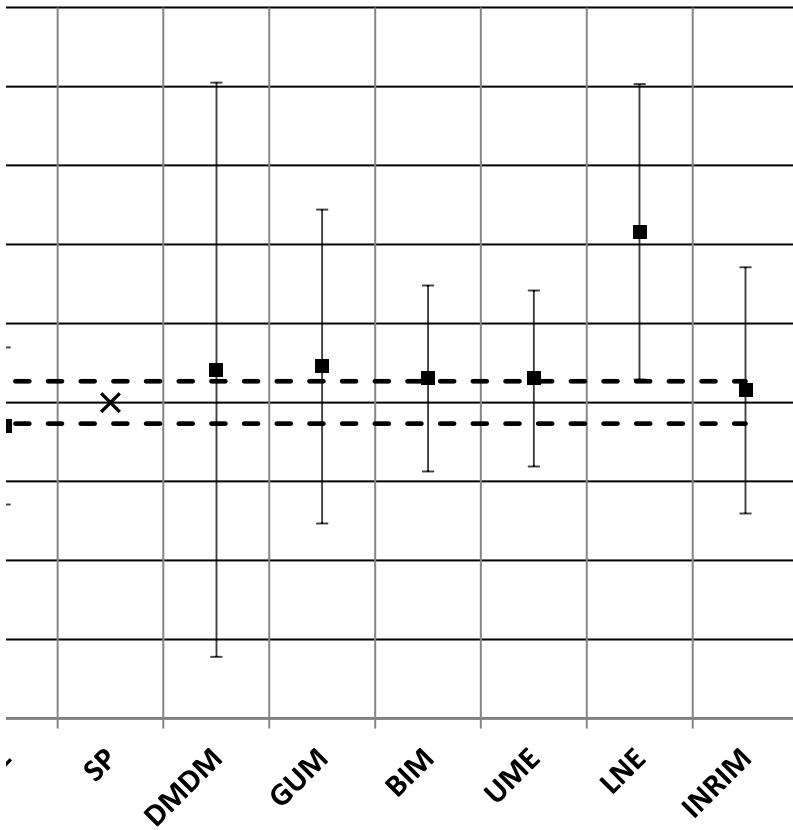
							-18	19	20	20
		5	43	33	43	0.382	-14	19	14	20
20	0.413	50	43	67	43	0.785	-2	19	15	20
22	0.680	79	42	90	42	1.066	1	19	12	20
30	0.841	129	53	136	53	1.282	8	19	15	20
51	1.444						27	28	30	29
100	1.445									

SP			DMDM	DMDM			GUM	GUM
$U(\Delta\epsilon_{stdC})$ (ppm)	novalue	$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	novalue	$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)
	0	#N/A	#N/A	7	73	#N/A	7	73
41	#N/A	-1	41	8	73	#N/A	8	73
40	#N/A	-4	40	7	72	#N/A	7	72
40	#N/A	-13	40	9	72	#N/A	9	72
44	#N/A	-25	44	23	72	#N/A	23	72
60	#N/A	-49	60	46	90	#N/A	46	90
101	#N/A	-134	101			0	#N/A	#N/A
200	#N/A	-273	200			0	#N/A	#N/A
	0	#N/A	#N/A			0	#N/A	#N/A
	0	#N/A	#N/A			0	#N/A	#N/A
	0	#N/A	#N/A	34	87	#N/A	34	87
40	#N/A	-15	40	67	85	#N/A	67	85
44	#N/A	-30	44	89	84	#N/A	89	84
60	#N/A	-50	60	129	104	#N/A	129	104
100	#N/A	-145	100			0	#N/A	#N/A
200	#N/A	-287	200			0	#N/A	#N/A

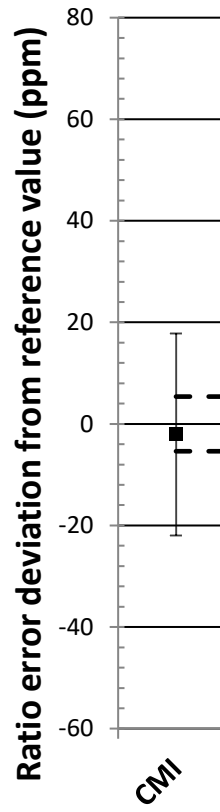
SP				DMDM					GUM	
U($\Delta\epsilon_{stdC}$) (ppm)				$\Delta\epsilon_C$ (ppm)	U($\Delta\epsilon_{stdC}$) (ppm)				$\Delta\epsilon_C$ (ppm)	U($\Delta\epsilon_{stdC}$) (ppm)
	0	#N/A	#N/A	8	73	#N/A	8	73	9	40
41	#N/A	-8	41	9	73	#N/A	9	73	10	40
41	#N/A	-4	41	11	73	#N/A	11	73	8	40
41	#N/A	-4	41	11	73	#N/A	11	73	13	40
45	#N/A	-21	45	19	73	#N/A	19	73	19	40
61	#N/A	-46	61	47	90	#N/A	47	90	31	40
101	#N/A	-132	101			0	#N/A	#N/A	72	58
201	#N/A	-266	201			0	#N/A	#N/A		
	0	#N/A	#N/A			0	#N/A	#N/A	12	40
41	#N/A	-3	41	-21	83	#N/A	-21	83	8	40
41	#N/A	-5	41	-20	83	#N/A	-20	83	9	40
41	#N/A	-11	41	-14	83	#N/A	-14	83	14	40
45	#N/A	-26	45	4	83	#N/A	4	83	21	40
61	#N/A	-58	61	49	103	#N/A	49	103	34	40
101	#N/A	-165	101			0	#N/A	#N/A	53	58
200	#N/A	-312	200			0	#N/A	#N/A		
	0	#N/A	#N/A			0	#N/A	#N/A	37	40
	0	#N/A	#N/A			0	#N/A	#N/A	34	40
41	#N/A	-5	41	42	87	#N/A	42	87	33	40
41	#N/A	-13	41	37	85	#N/A	37	85	35	40
45	#N/A	-26	45	71	85	#N/A	71	85	43	41
61	#N/A	-55	61	127	104	#N/A	127	104	44	41
101	#N/A	-160	101			0	#N/A	#N/A	64	59
201	#N/A	-314	201			0	#N/A	#N/A		
	0	#N/A	#N/A			0	#N/A	#N/A	14	41
	0	#N/A	#N/A			0	#N/A	#N/A	10	40
41	#N/A	-6	41	-10	87	#N/A	-10	87	9	40
41	#N/A	-15	41	53	87	#N/A	53	87	13	40
45	#N/A	-31	45	84	87	#N/A	84	87	17	40
61	#N/A	-53	61	128	108	#N/A	128	108	17	40
101	#N/A	-151	101			0	#N/A	#N/A	36	58
201	#N/A	-309	201			0	#N/A	#N/A		
	0	#N/A	#N/A			0	#N/A	#N/A		
	0	#N/A	#N/A			0	#N/A	#N/A	20	40
	0	#N/A	#N/A	33	87	#N/A	33	87	14	40
41	#N/A	-17	41	67	86	#N/A	67	86	15	40
45	#N/A	-31	45	90	85	#N/A	90	85	12	40
61	#N/A	-51	61	136	106	#N/A	136	106	15	40
101	#N/A	-146	101			0	#N/A	#N/A	30	58
201	#N/A	-290	201			0	#N/A	#N/A		

m reference value

% I_N, 15 VA

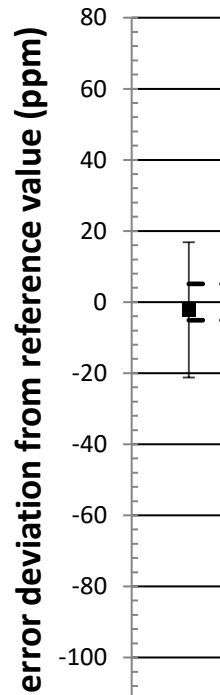
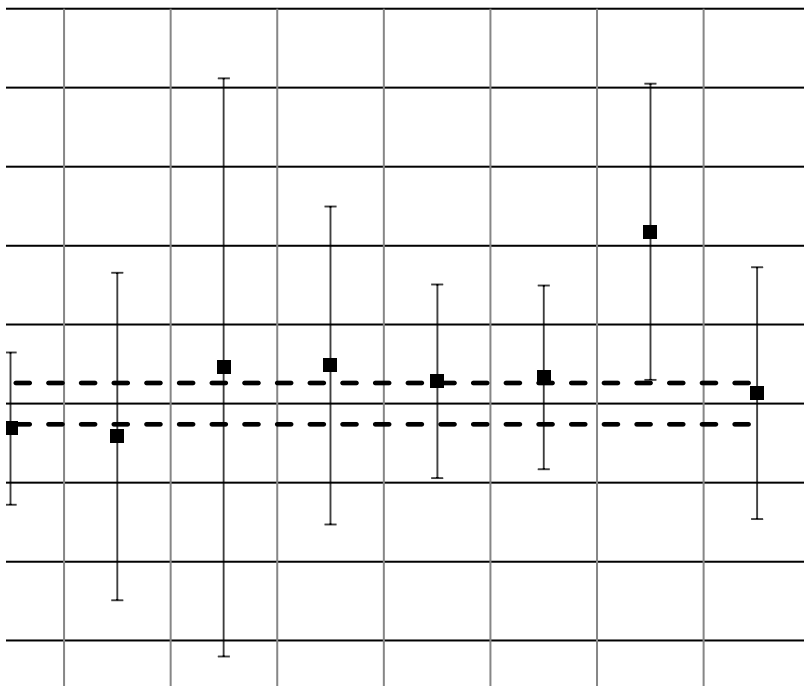


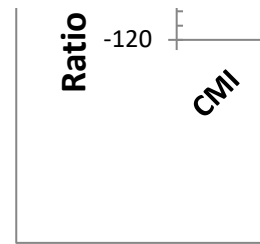
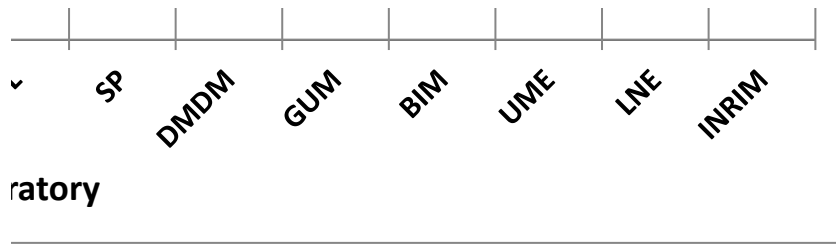
atory



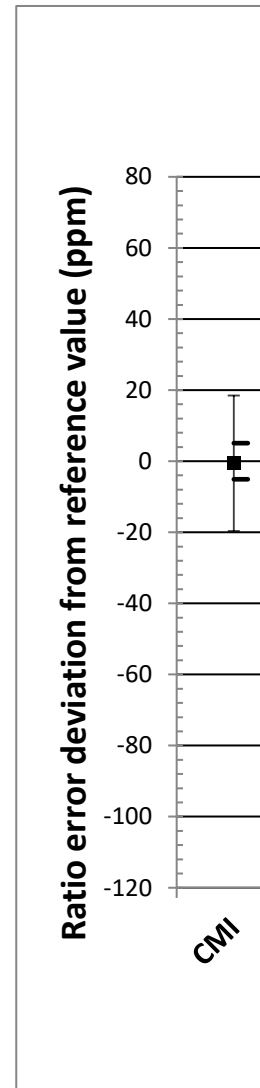
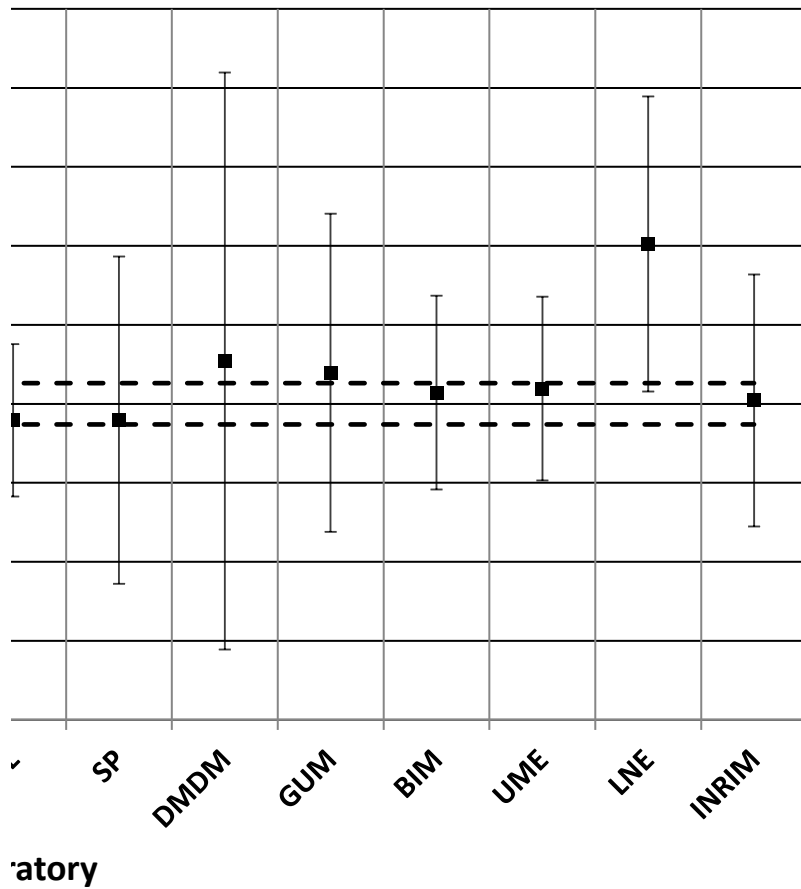
from reference value

% I_N, 15 VA

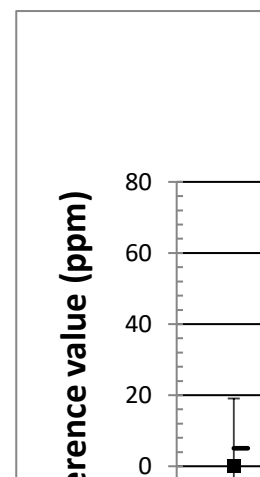
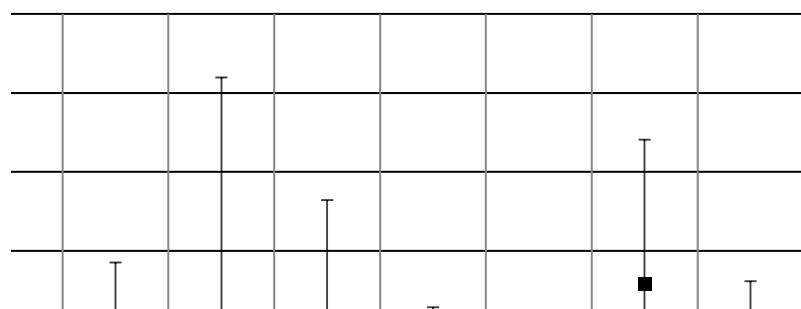


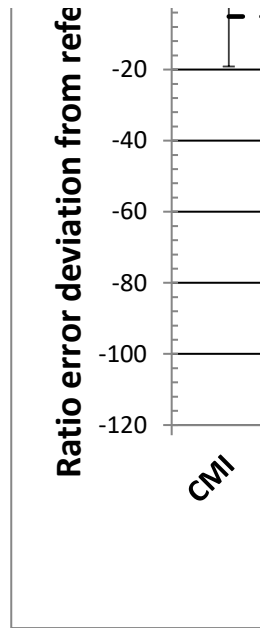
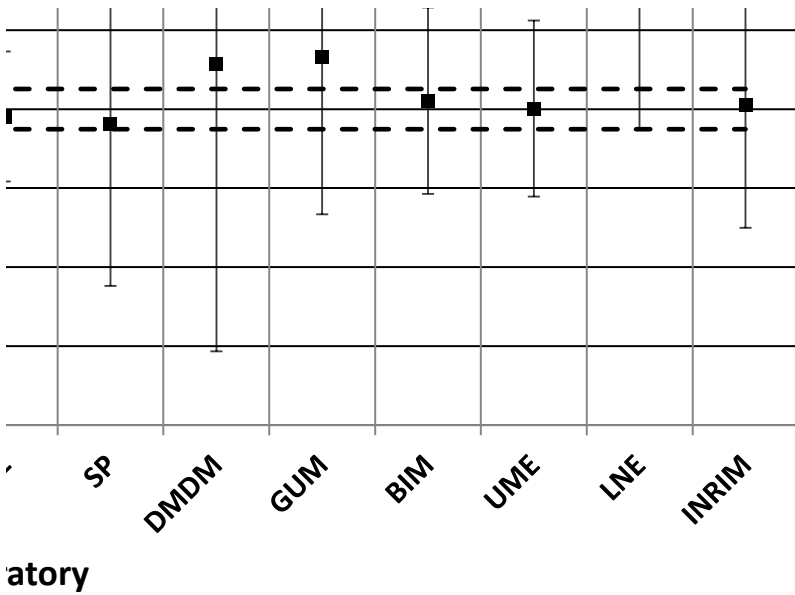


m reference value
% I_N , 15 VA

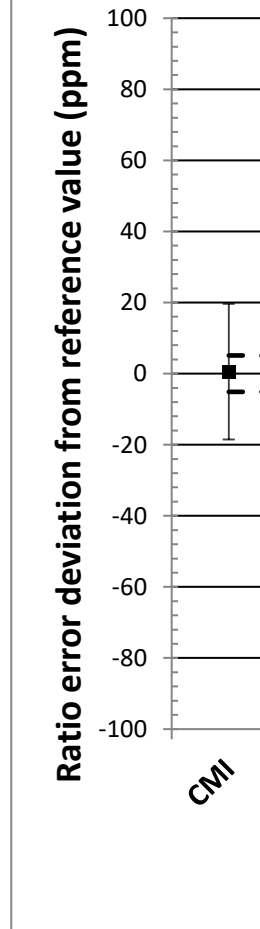
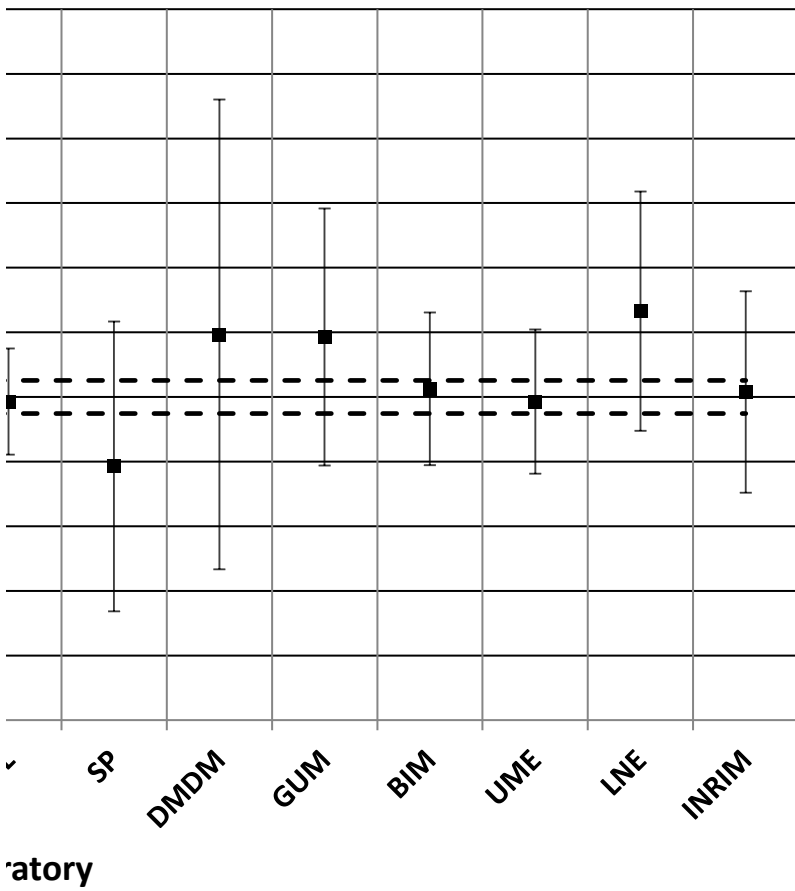


m reference value
% I_N , 15 VA



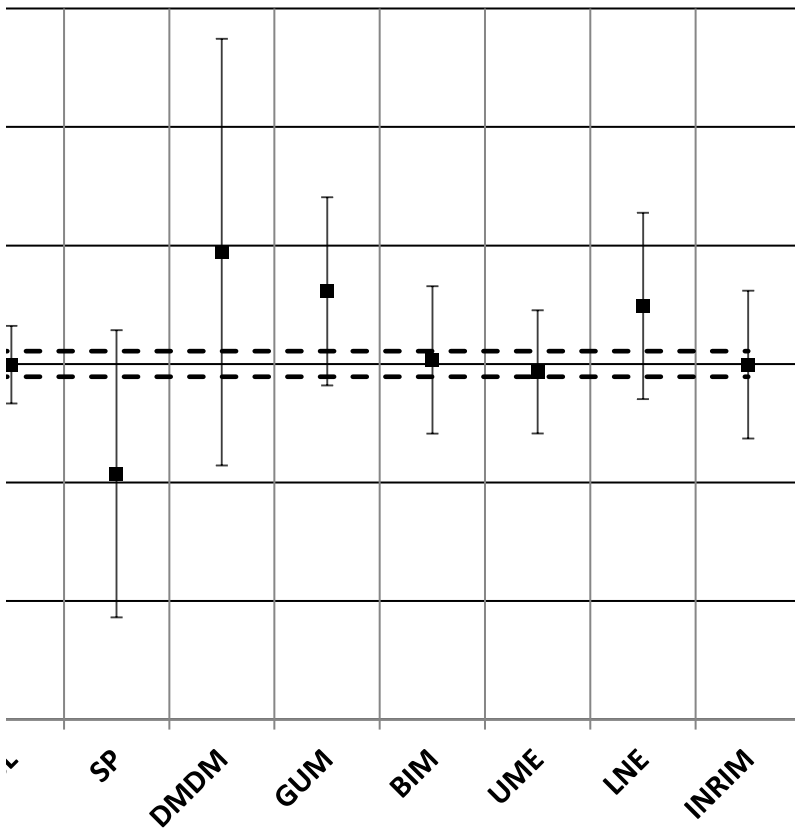


m reference value
% I_N , 15 VA

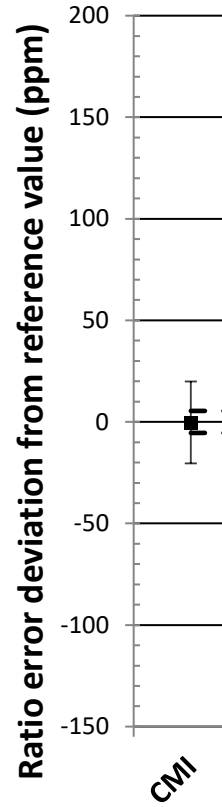


m reference value

$\% I_N, 15 VA$

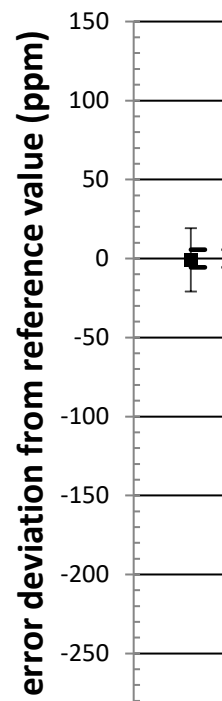
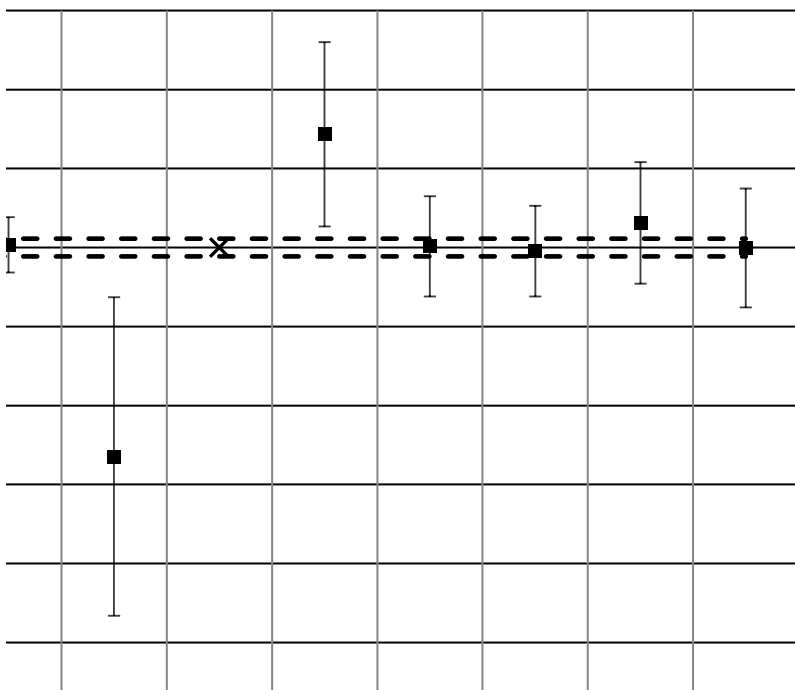


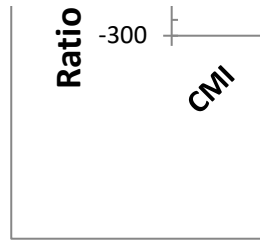
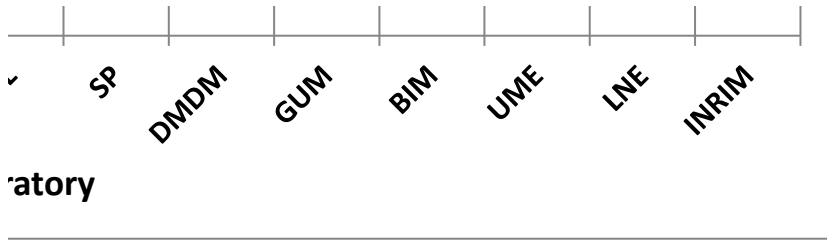
ratory



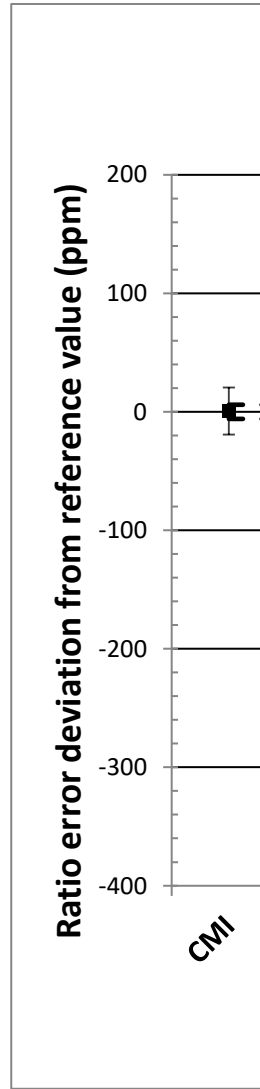
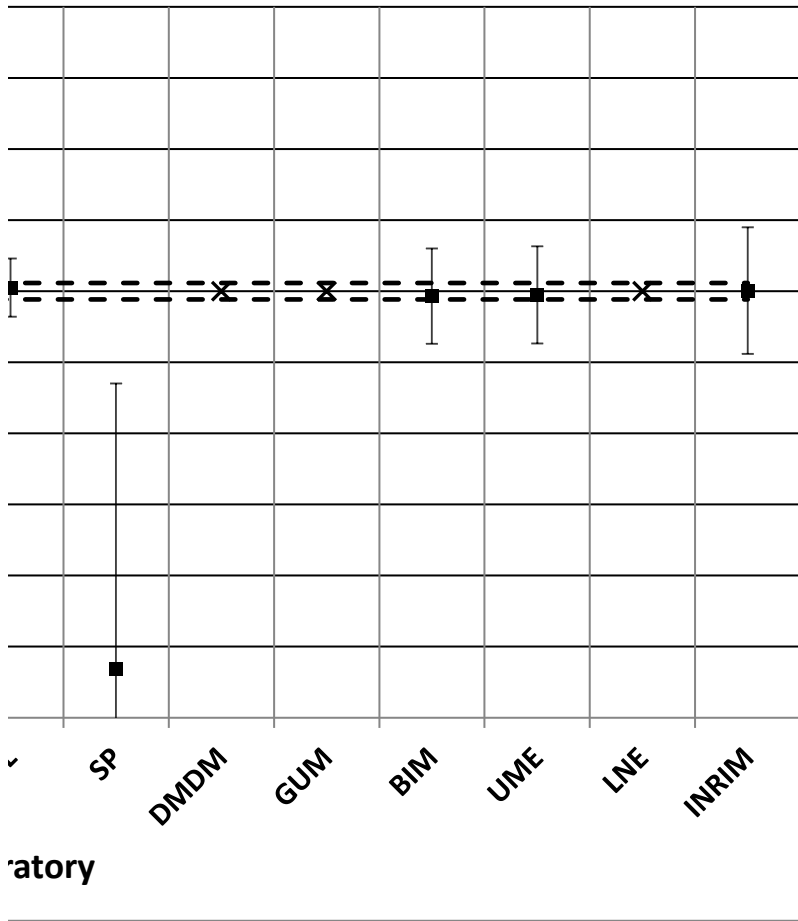
m reference value

$\% I_N, 15 VA$





from reference value
 $\pm I_N, 15 VA$



BIM											
$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	weighted mean ε_r (ppm)	$u(\varepsilon_r)$ (ppm)	$U(\varepsilon_r)$ (ppm)	$u(\varepsilon_{std})$ (ppm)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)
0.130	-84	11	8	12	0.346	-92	3	5	5	-89	10
0.143	-84	10	7	11	0.307	-91	3	5	5	-86	10
0.202	-78	10	4	10	0.189	-82	3	5	4	-78	10
0.324	-68	10	4	10	0.178	-72	3	5	4	-70	10
0.483	-63	10	4	10	0.190	-67	3	5	4	-67	10
0.775	-60	15	2	15	0.079	-62	3	5	4	-64	12
<u>1.110</u>	-58	15	1	16	0.023	-59	3	6	5	-60	13
	-60	15	-4	16	0.134	-56	3	6	5	-56	15
						-33	3	6	4	-27	10
0.348						-32	3	6	4	-28	10
0.202	-14	15	8	15	0.259	-22	2	5	4	-21	10
0.259	-9	15	3	15	0.114	-12	2	5	4	-10	10
0.203	-4	15	3	15	0.104	-7	2	5	4	-6	10
0.275	1	37	4	37	0.052	-3	3	5	3	-3	12
0.472	5	37	5	37	0.070	0.2	3	5	3	1	13
	3	37	2	37	0.033	0.8	3	6	3	2	15
BIM											
$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	weighted mean ε_r (ppm)	$u(\varepsilon_r)$ (ppm)	$U(\varepsilon_r)$ (ppm)	$u(\varepsilon_{std})$ (ppm)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)
0.205	-123	11	5	12	0.218	-128	3	5	5	-123	10
0.217	-122	11	5	12	0.193	-127	3	5	6	-121	10
0.172	-114	11	2	12	0.079	-116	3	5	6	-113	10
0.330	-98	11	2	12	0.090	-100	3	5	5	-100	10
0.466	-90	11	3	12	0.107	-93	3	5	5	-94	10
0.773	-84	15	2	16	0.054	-86	3	5	5	-89	12
<u>1.236</u>	-80	15	0	16	0.014	-80	3	6	6	-83	13
	-80	15	-4	17	0.116	-76	3	6	8	-79	15
0.305						-97	3	5	5	-93	10
0.213	-88	11	7	12	0.316	-95	3	5	5	-91	10
0.220	-84	10	3	11	0.126	-87	3	5	5	-83	10
0.354	-73	10	0	11	0.004	-73	3	5	5	-73	10
0.540	-66	10	0	11	0.022	-66	3	5	5	-67	10
0.857	-60	15	0	16	0.015	-60	3	5	6	-62	12
0.934	-56	15	0	16	0.000	-56	3	6	6	-57	13
	-57	15	-4	16	0.141	-53	3	6	6	-52	15
0.918						-77	3	5	5	-73	10
0.850						-75	3	5	5	-72	10
0.838	-69	15	-3	16	0.086	-66	2	5	5	-65	10
0.886	-58	15	-4	16	0.120	-54	2	5	5	-53	10
<u>1.049</u>	-49	15	-2	16	0.054	-47	2	5	6	-49	10
<u>1.057</u>	-43	37	0	37	0.006	-43	3	5	6	-45	12
<u>1.103</u>	-36	37	2	38	0.030	-38	3	5	7	-40	13

	-25	37	9	38	0.118	-34	3	5	7	-36	15
0.330						-55	3	6	7	-49	10
0.262						-52	3	5	5	-49	10
0.233	-55	15	-11	16	0.344	-44	2	5	5	-42	10
0.318	-46	15	-13	16	0.427	-33	2	5	5	-30	10
0.423	-37	15	-11	16	0.343	-26	2	5	6	-25	10
0.414	-31	37	-9	37	0.125	-22	3	5	6	-21	12
0.624	-23	37	-6	37	0.079	-17	3	5	6	-17	13
	-7	37	6	38	0.079	-13	3	5	7	-13	15
						-39	3	6	5	-34	10
0.495						-38	3	6	5	-35	10
0.346	-20	15	8	16	0.249	-28	3	5	5	-27	10
0.379	-14	15	3	16	0.099	-17	2	5	5	-14	10
0.306	-8	15	3	16	0.102	-11	2	5	5	-11	10
0.370	-3	37	4	37	0.050	-7	3	5	5	-8	12
0.522	3	37	6	38	0.085	-3	3	5	7	-3	13
	0	37	1	38	0.009	-1	3	5	8	0	15

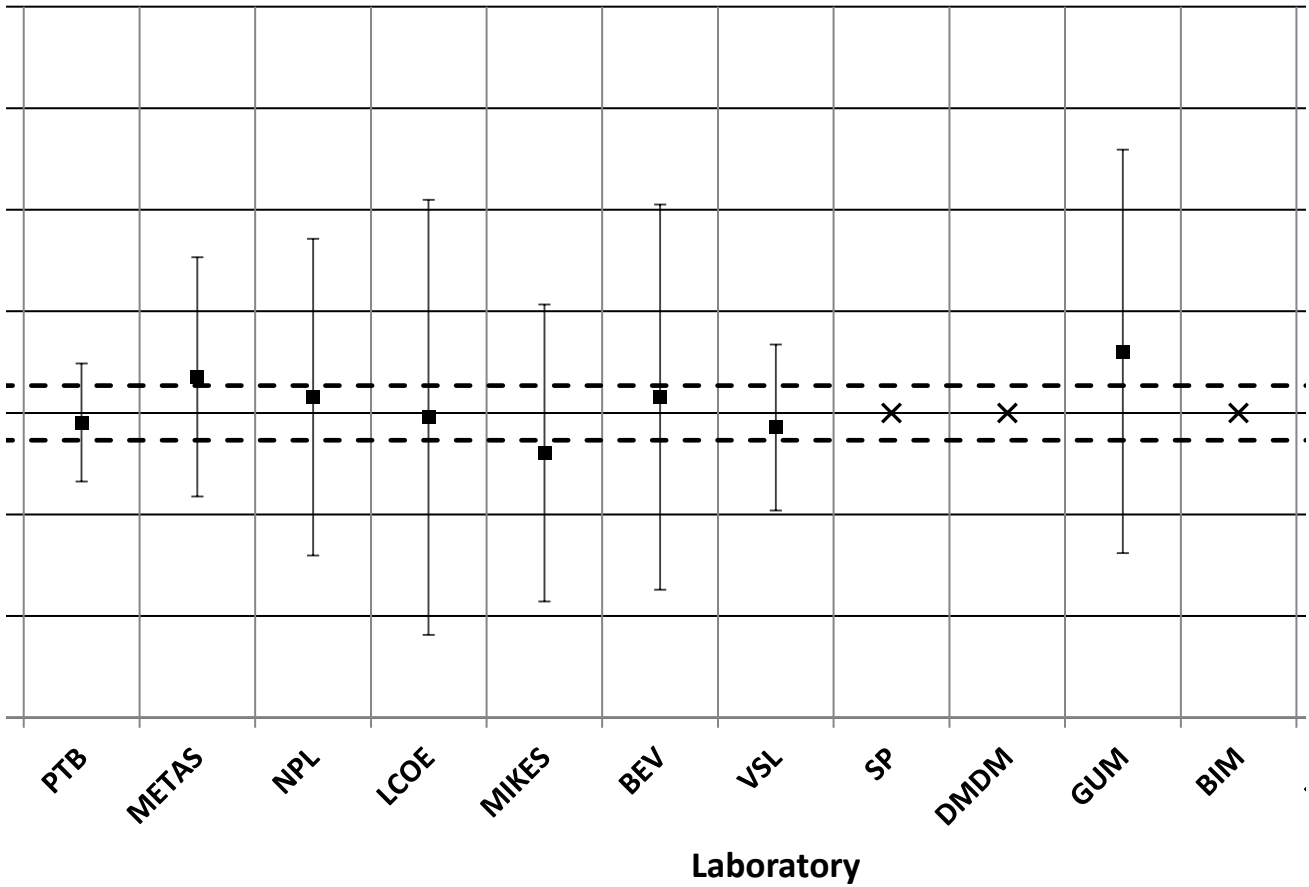
GUM	BIM	BIM	BIM	BIM	BIM	weighted mean ε_{rc} (ppm)	$u(\varepsilon_{rc})$ (ppm)	$U(\varepsilon_{rc})$ (ppm)	$u(\varepsilon_{std})$ (ppm)	UME	UME
$E_C(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)					ε_L (ppm)	$u(\varepsilon_L)$ (ppm)
0.130	-84	11	8	12	0.346	-92	3	5	5	-89	10
0.143	-84	10	7	11	0.307	-91	3	5	5	-86	10
0.202	-78	10	4	10	0.189	-82	3	5	4	-78	10
0.324	-68	10	4	10	0.178	-72	3	5	4	-70	10
0.483	-63	10	4	10	0.190	-67	3	5	4	-67	10

0.775	-60	15	2	15	0.079	-62	3	5	4	-64	12
1.103	-58	15	1	16	0.030	-59	3	6	5	-60	13
	-60	15	-4	16	0.124	-56	3	6	5	-56	15
						-33	3	6	4	-27	10
0.348						-32	3	6	4	-28	10
0.202	-14	15	8	15	0.259	-22	2	5	4	-21	10
0.259	-9	15	3	15	0.114	-12	2	5	4	-10	10
0.211	-4	15	3	15	0.114	-7	2	5	4	-6	10
0.284	1	37	4	37	0.056	-3	3	5	3	-3	12
0.465	5	37	5	37	0.064	0.6	3	5	3	1	13
	3	37	3	37	0.037	0.5	3	6	3	2	15
GUM	BIM	BIM	BIM	BIM	BIM					UME	UME
$E_C(\epsilon)$ (-)	ϵ_L (ppm)	$u(\epsilon_L)$ (ppm)	$\Delta\epsilon_C$ (ppm)	$u(\Delta\epsilon_{stdC})$ (ppm)	$E_C(\epsilon)$ (-)	weighted mean ϵ_{rc} (ppm)	$u(\epsilon_{rc})$ (ppm)	$U(\epsilon_{rc})$ (ppm)	$u(\epsilon_{std})$ (ppm)	ϵ_L (ppm)	$u(\epsilon_L)$ (ppm)
0.229	-123	11	6	12	0.259	-129	3	5	5	-123	10
0.240	-122	11	6	12	0.232	-128	3	5	6	-121	10
0.194	-114	11	3	12	0.116	-117	3	5	6	-113	10
0.330	-98	11	2	12	0.090	-100	3	5	5	-100	10
0.466	-90	11	3	12	0.107	-93	3	5	5	-94	10
0.773	-84	15	2	16	0.054	-86	3	5	5	-89	12
1.230	-80	15	1	16	0.023	-81	3	6	6	-83	13
	-80	15	-4	17	0.106	-76	3	6	8	-79	15
0.305						-97	3	5	5	-93	10
0.213	-88	11	7	12	0.316	-95	3	5	5	-91	10
0.220	-84	10	3	11	0.126	-87	3	5	5	-83	10
0.354	-73	10	0	11	0.004	-73	3	5	5	-73	10
0.540	-66	10	0	11	0.022	-66	3	5	5	-67	10
0.857	-60	15	0	16	0.015	-60	3	5	6	-62	12
0.925	-56	15	-1	16	0.016	-55	3	6	6	-57	13
	-57	15	-4	16	0.131	-53	3	6	6	-52	15
0.918						-77	3	5	5	-73	10
0.850						-75	3	5	5	-72	10
0.838	-69	15	-3	16	0.086	-66	2	5	5	-65	10
0.886	-58	15	-4	16	0.120	-54	2	5	5	-53	10
1.050	-49	15	-1	16	0.032	-48	2	5	6	-49	10
1.066	-43	37	1	37	0.009	-44	3	5	6	-45	12
1.095	-36	37	2	38	0.031	-38	3	5	7	-40	13
	-25	37	9	38	0.122	-34	3	5	7	-36	15
0.330						-55	3	6	7	-49	10
0.262						-52	3	5	5	-49	10
0.233	-55	15	-11	16	0.344	-44	2	5	5	-42	10
0.318	-46	15	-13	16	0.427	-33	2	5	5	-30	10
0.423	-37	15	-11	16	0.343	-26	2	5	6	-25	10
0.421	-31	37	-9	37	0.121	-22	3	5	6	-21	12
0.617	-23	37	-6	37	0.085	-17	3	5	6	-17	13
	-7	37	6	38	0.082	-13	3	5	7	-13	15

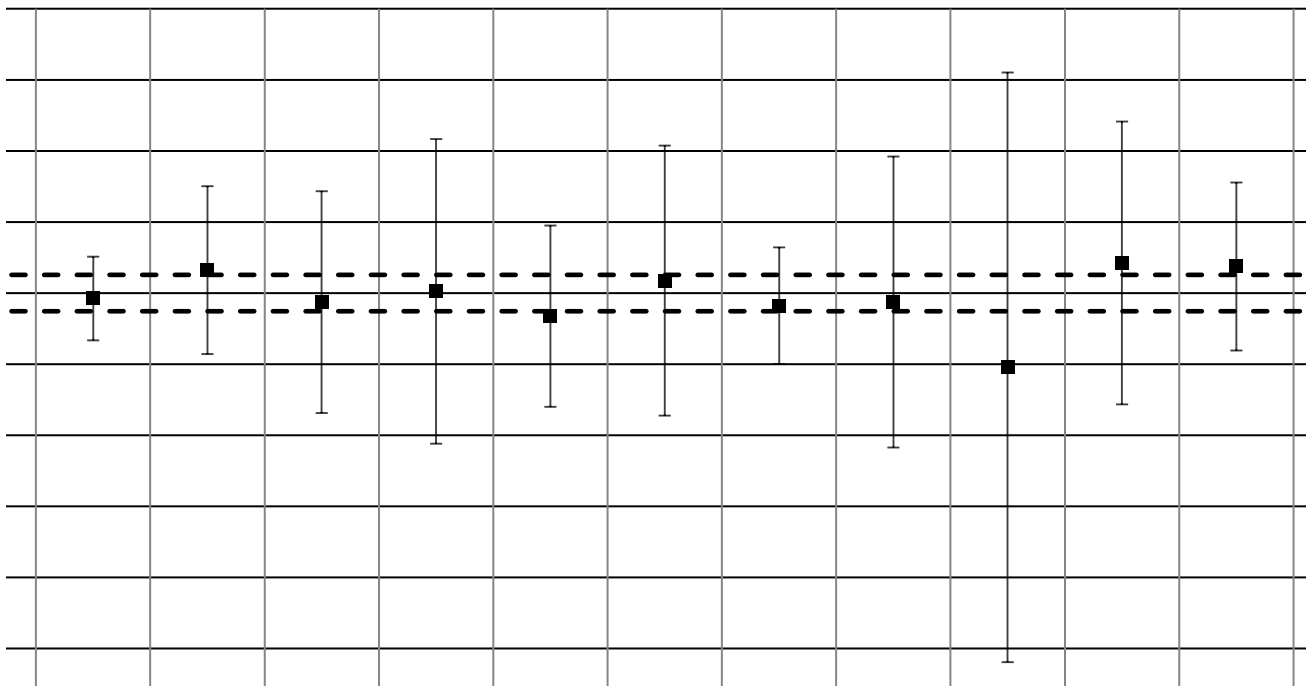
			BIM	BIM				-U(ϵ_{rc})	U(ϵ_{rc})
			$\Delta\epsilon_C$	U($\Delta\epsilon_{stdC}$)				(ppm)	(ppm)
			(ppm)	(ppm)					
#N/A	9	40	6	24	#N/A	6	24	-5	5
#N/A	10	40	6	25	#N/A	6	25	-5	5
#N/A	8	40	3	25	#N/A	3	25	-5	5
#N/A	13	40	2	24	#N/A	2	24	-5	5
#N/A	19	40	3	24	#N/A	3	24	-5	5
#N/A	31	40	2	31	#N/A	2	31	-5	5
#N/A	72	58	1	32	#N/A	1	32	-6	6
0	#N/A	#N/A	-4	34	#N/A	-4	34	-6	6
#N/A	12	40			0	#N/A	#N/A	-5	5
#N/A	8	40	7	24	#N/A	7	24	-5	5
#N/A	9	40	3	22	#N/A	3	22	-5	5
#N/A	14	40	0	22	#N/A	0	22	-5	5
#N/A	21	40	0	22	#N/A	0	22	-5	5
#N/A	34	40	0	32	#N/A	0	32	-5	5
#N/A	53	58	-1	32	#N/A	-1	32	-6	6
0	#N/A	#N/A	-4	32	#N/A	-4	32	-6	6
#N/A	37	40			0	#N/A	#N/A	-5	5
#N/A	34	40			0	#N/A	#N/A	-5	5
#N/A	33	40	-3	31	#N/A	-3	31	-5	5
#N/A	35	40	-4	31	#N/A	-4	31	-5	5
#N/A	43	41	-1	32	#N/A	-1	32	-5	5
#N/A	44	41	1	75	#N/A	1	75	-5	5
#N/A	64	59	2	75	#N/A	2	75	-5	5
0	#N/A	#N/A	9	75	#N/A	9	75	-5	5
#N/A	14	41			0	#N/A	#N/A	-6	6
#N/A	10	40			0	#N/A	#N/A	-5	5
#N/A	9	40	-11	31	#N/A	-11	31	-5	5
#N/A	13	40	-13	31	#N/A	-13	31	-5	5
#N/A	17	40	-11	32	#N/A	-11	32	-5	5
#N/A	17	40	-9	75	#N/A	-9	75	-5	5
#N/A	36	58	-6	75	#N/A	-6	75	-5	5
0	#N/A	#N/A	6	75	#N/A	6	75	-5	5
0	#N/A	#N/A			0	#N/A	#N/A	-6	6
#N/A	20	40			0	#N/A	#N/A	-6	6
#N/A	14	40	8	31	#N/A	8	31	-5	5
#N/A	15	40	3	31	#N/A	3	31	-5	5
#N/A	12	40	3	31	#N/A	3	31	-5	5
#N/A	15	40	4	74	#N/A	4	74	-5	5
#N/A	30	58	6	75	#N/A	6	75	-5	5
0	#N/A	#N/A	1	76	#N/A	1	76	-5	5

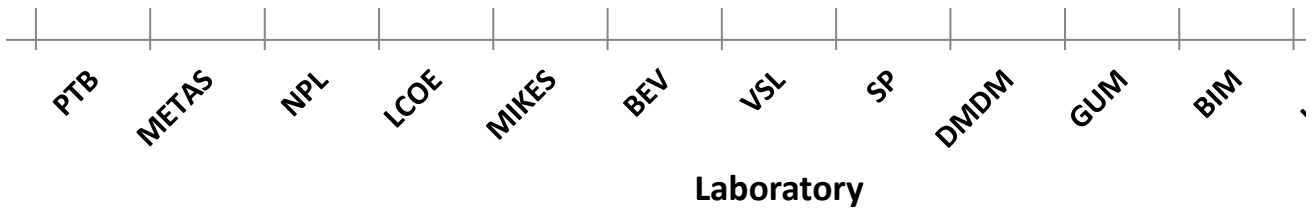
Ratio error deviation from reference value

$k_1 = 5 \text{ kA}/5 \text{ A}, 120 \% I_N, 15 \text{ VA}$



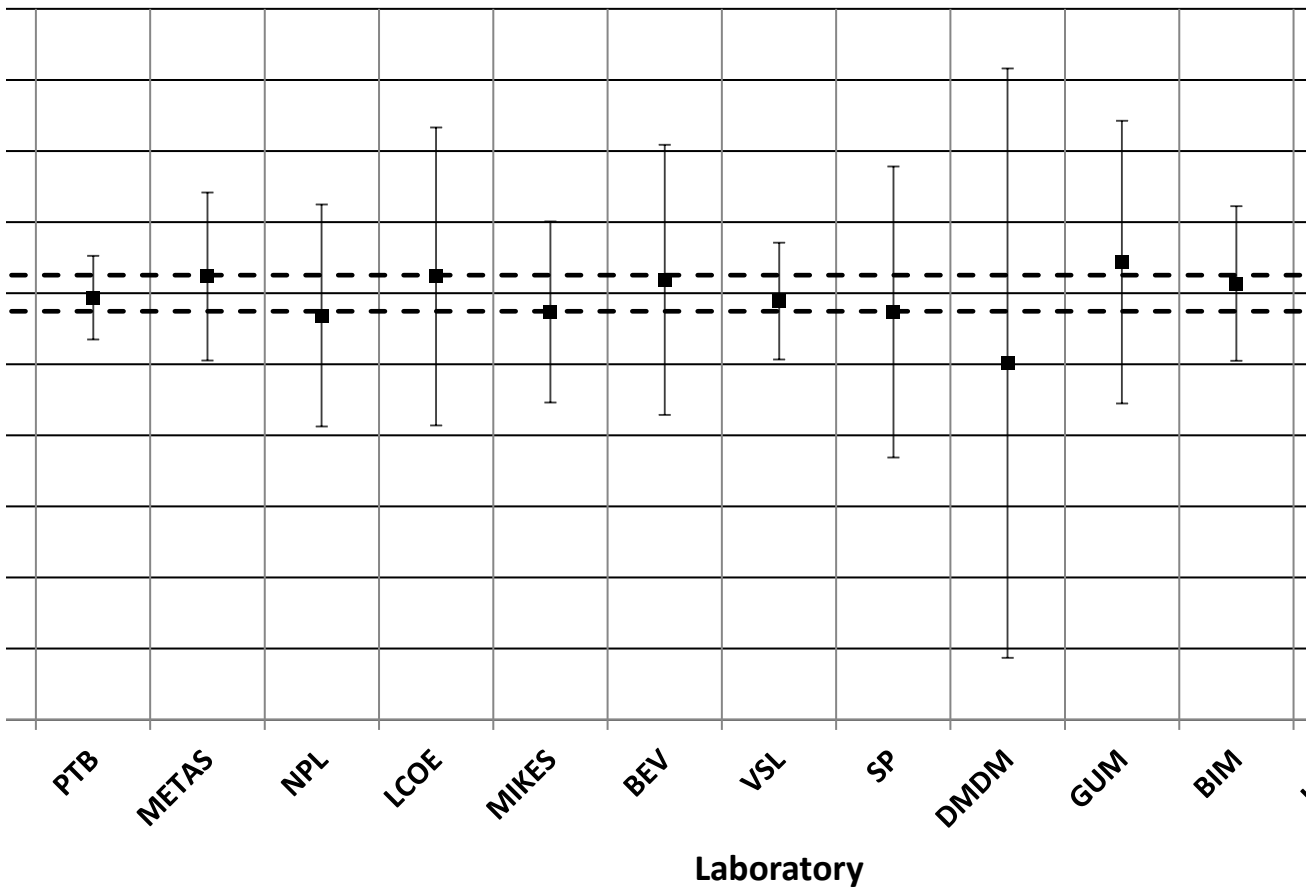
Ratio error deviation from reference value
 $k_1 = 5 \text{ kA}/5 \text{ A}, 100 \% I_N, 15 \text{ VA}$





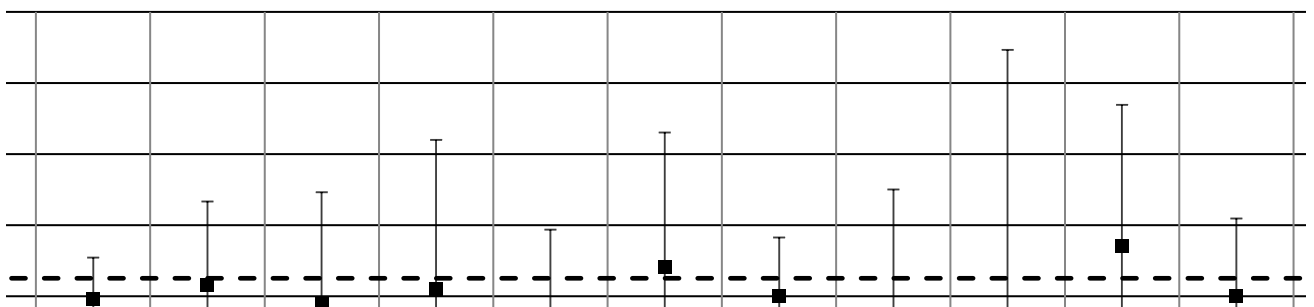
Laboratory

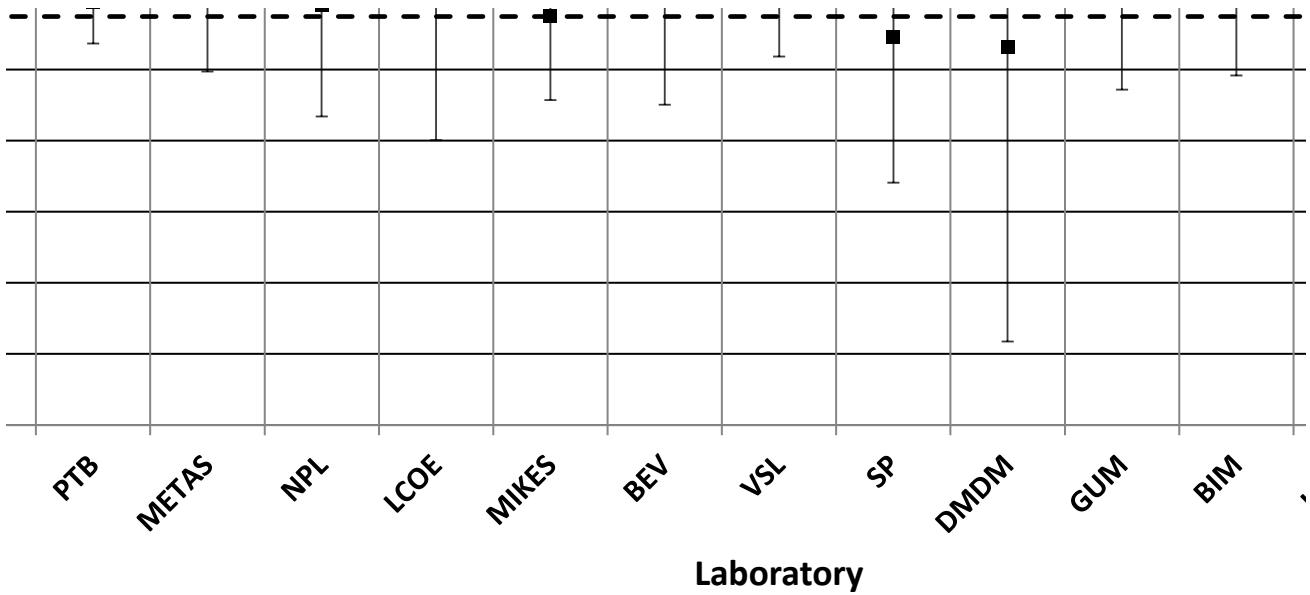
Ratio error deviation from reference value
 $k_1 = 5 \text{ kA}/5 \text{ A}, 50 \% I_N, 15 \text{ VA}$



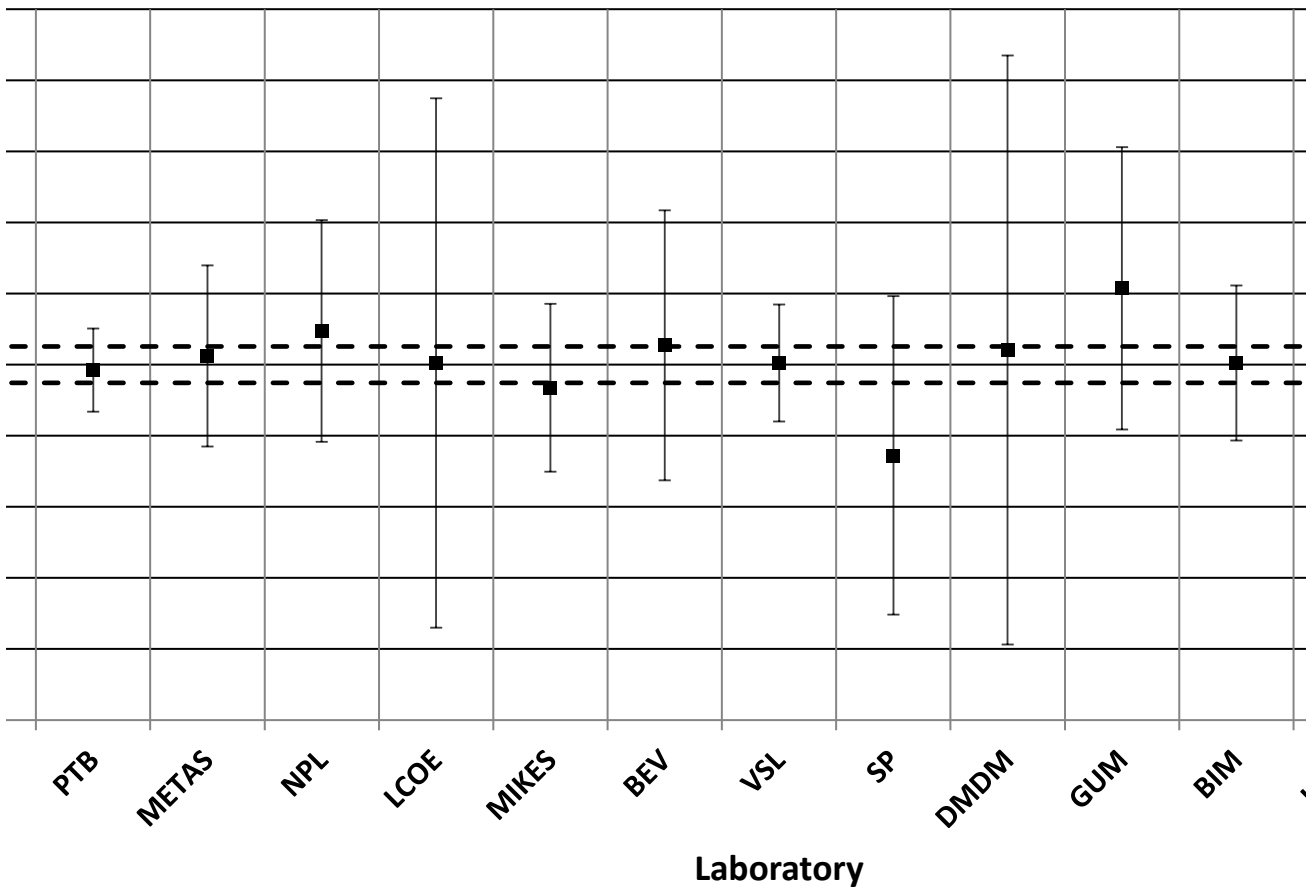
Laboratory

Ratio error deviation from reference value
 $k_1 = 5 \text{ kA}/5 \text{ A}, 20 \% I_N, 15 \text{ VA}$



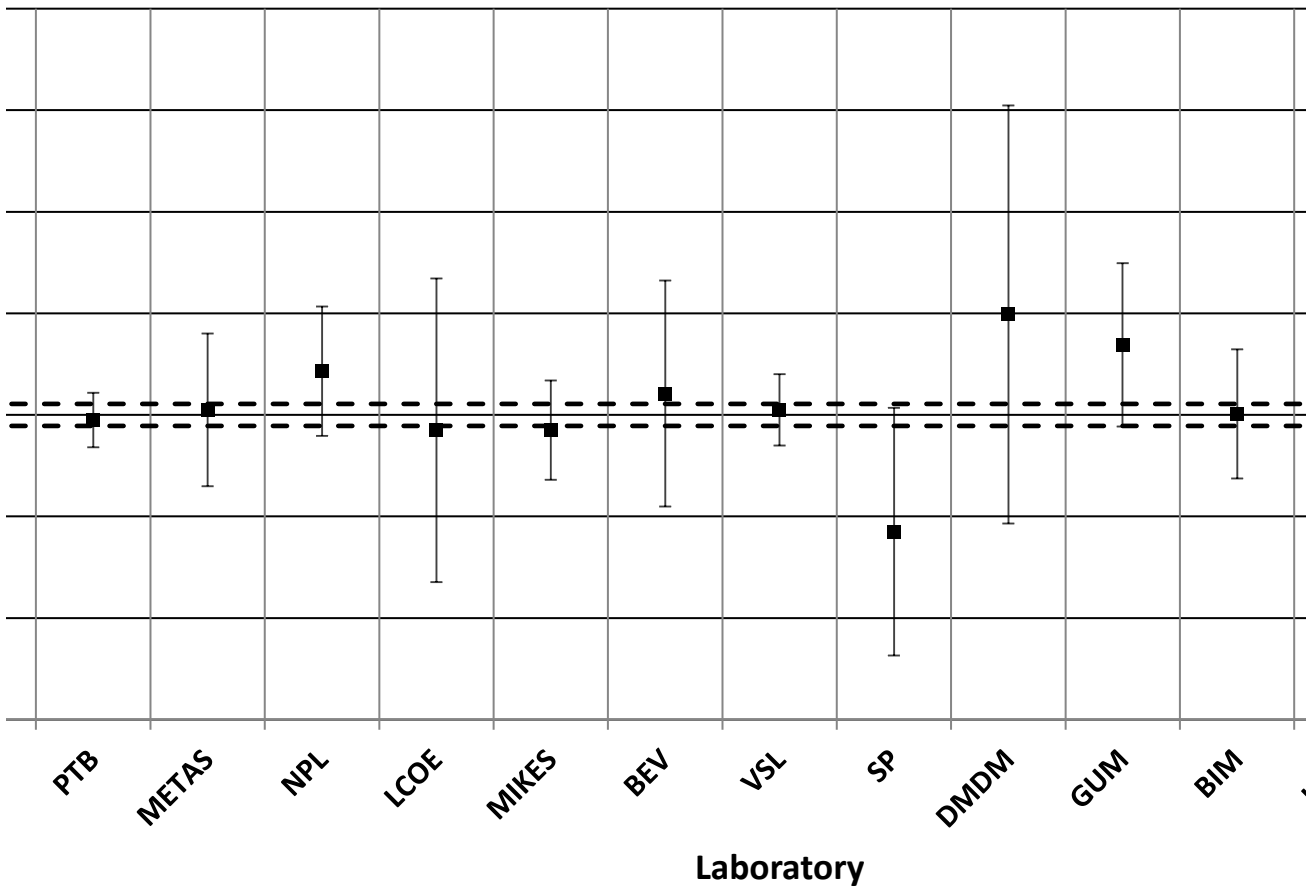


Ratio error deviation from reference value
 $k_1 = 5 \text{ kA}/5 \text{ A}, 10 \% I_N, 15 \text{ VA}$



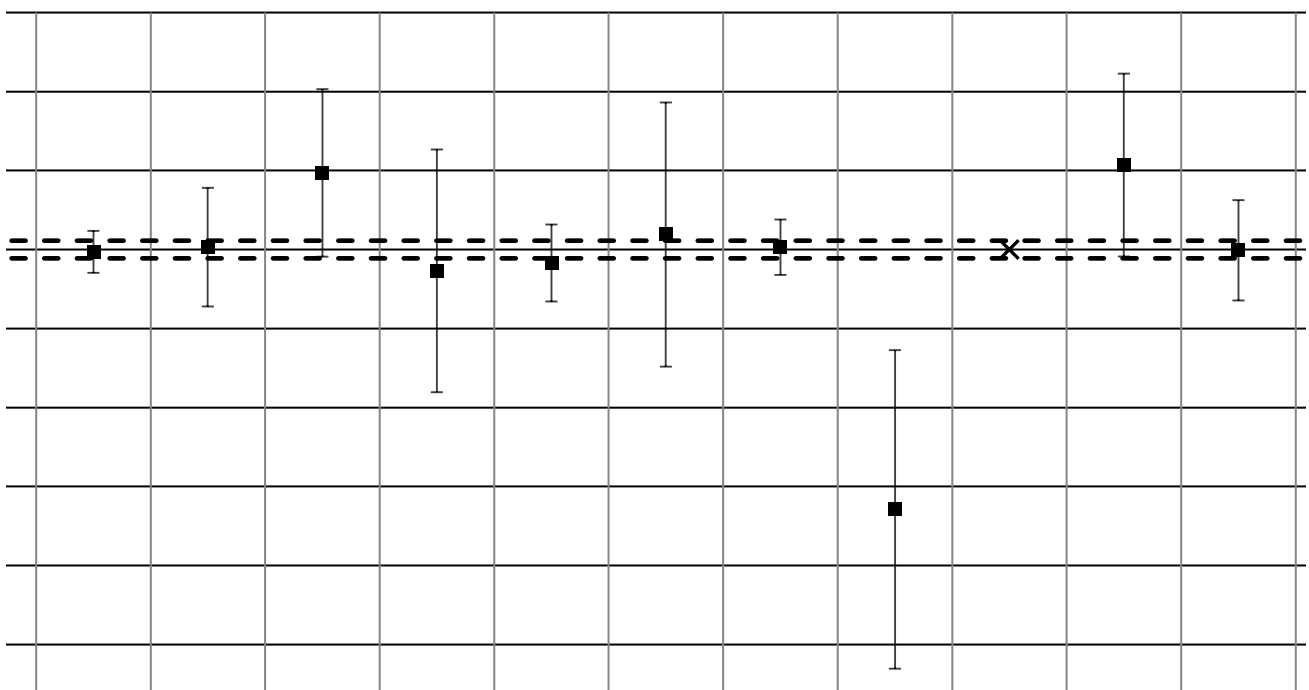
Ratio error deviation from reference value

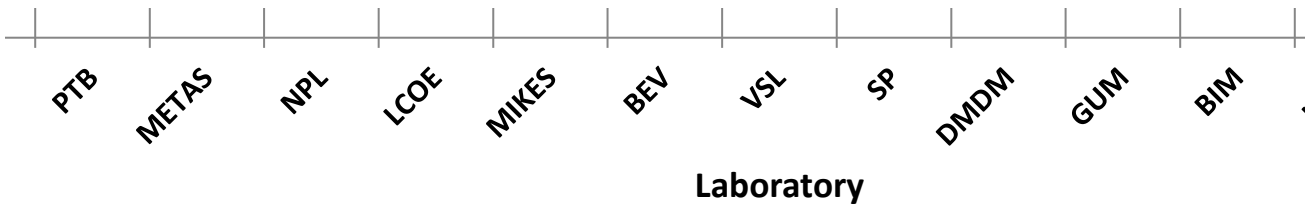
$k_1 = 5 \text{ kA}/5 \text{ A}, 5 \% I_N, 15 \text{ VA}$



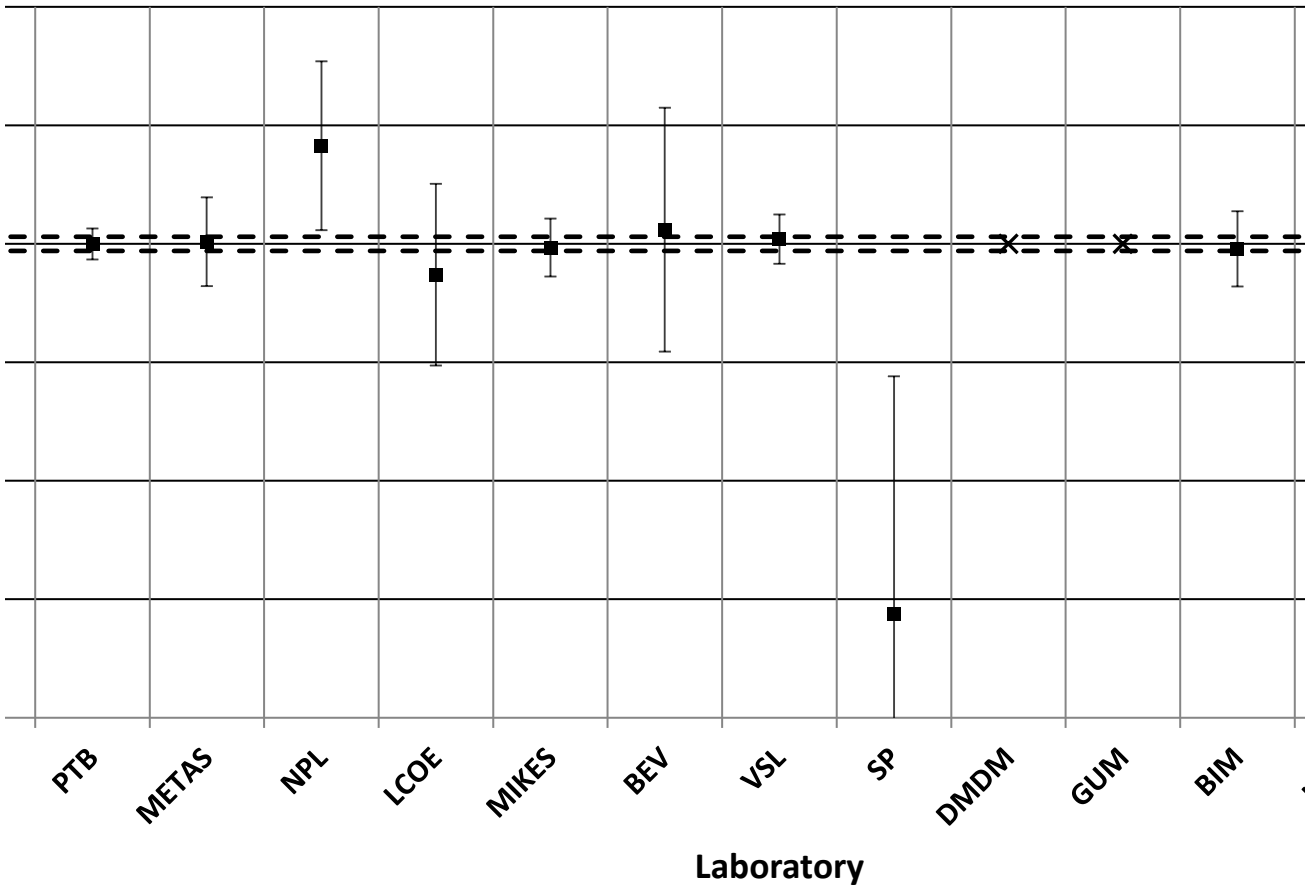
Ratio error deviation from reference value

$k_1 = 5 \text{ kA}/5 \text{ A}, 2 \% I_N, 15 \text{ VA}$





Ratio error deviation from reference value
 $k_1 = 5 \text{ kA}/5 \text{ A}, 1 \% I_N, 15 \text{ VA}$



UME			LNE					INR		
$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)
3	11	0.142	-92	18	0	18	0.010	-89	15	3
5	11	0.210	-89	17	1	18	0.034	-87	15	4
4	11	0.185	-79	17	3	18	0.071	-79	15	3
2	11	0.081	-72	17	-1	18	0.021	-69	15	3
0	11	0.001	-69	18	-2	18	0.060	-65	15	2
-2	13	0.063	-66	18	-3	18	0.093	-62	15	0
-1	14	0.046	-62	18	-3	19	0.075	-59	18	0
0	16	0.005						-57	21	-1
6	11	0.293								
4	11	0.173						-24	18	8
1	11	0.044	-28	21	-6	21	0.151	-17	18	5
2	11	0.103	-24	21	-12	21	0.276	-14	18	-2
1	11	0.047	-18	21	-11	21	0.268	-10	21	-3
0	12	0.011	-17	22	-15	22	0.330	-3	24	0
1	13	0.032	-11	30	-11	30	0.191			
1	15	0.040								
UME			LNE					INR		
$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)	$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon$ (ppm)
5	11	0.231	-86	18	42	18	1.153	-126	15	2
6	12	0.246	-84	18	43	18	1.157	-125	15	2
3	12	0.127	-76	18	40	18	1.081	-116	15	0
0	11	0.006	-69	18	31	18	0.857	-99	15	1
-1	11	0.066	-66	18	27	19	0.717	-91	15	2
-3	13	0.127	-61	19	24	20	0.623	-86	15	0
-3	14	0.089	-65	19	15	19	0.397	-81	18	-1
-3	17	0.084						-76	21	0
4	11	0.185	-76	18	21	18	0.593	-92	15	5
4	11	0.200	-76	17	19	18	0.531	-91	15	4
4	11	0.169	-68	17	19	18	0.521	-84	15	3
0	11	0.004	-60	18	13	18	0.366	-72	15	1
-1	11	0.024	-53	17	13	18	0.366	-65	15	1
-2	13	0.057	-51	22	10	23	0.215	-60	15	0
-1	14	0.035	-48	19	8	20	0.202	-56	18	0
1	16	0.016						-52	21	1
4	11	0.158	-64	18	13	19	0.331	-79	15	-2
3	11	0.126	-64	19	11	20	0.279	-78	15	-3
1	11	0.060	-60	19	7	19	0.171	-72	15	-6
1	11	0.056	-50	18	5	19	0.124	-62	15	-8
-2	12	0.074	-45	19	2	20	0.056	-56	15	-9
-2	13	0.090	-41	25	1	26	0.025	-51	15	-8
-2	15	0.060	-33	18	6	20	0.141	-46	18	-8

-2	17	0.064						-36	21	-2
6	12	0.228						-56	15	-1
3	11	0.155	-46	22	6	22	0.141	-53	15	-1
2	11	0.101	-44	21	0	21	0.003	-49	15	-5
3	11	0.120	-36	21	-4	22	0.081	-42	15	-9
1	11	0.045	-30	21	-4	22	0.101	-35	15	-9
1	13	0.025	-28	22	-7	23	0.144	-32	15	-10
0	14	0.003	-26	21	-9	22	0.217	-29	18	-12
0	17	0.003						-13	21	0
5	11	0.238								
3	11	0.119						-29	18	9
1	11	0.034	-30	22	-2	22	0.053	-22	18	6
3	11	0.140	-27	21	-10	22	0.233	-13	18	4
0	11	0.008	-24	21	-12	22	0.286	-5	21	6
-1	13	0.050	-17	22	-10	23	0.226	-1	24	6
0	15	0.013	-13	22	-10	23	0.213			
1	17	0.021								

UME	UME	UME	LNE	LNE	LNE	LNE	LNE	INRIM	INRIM	INRIM
$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)
3	11	0.142	-92	18	0	18	0.010	-89	15	3
5	11	0.210	-89	17	1	18	0.034	-87	15	4
4	11	0.185	-79	17	3	18	0.071	-79	15	3
2	11	0.081	-72	17	-1	18	0.021	-69	15	3
0	11	0.001	-69	18	-2	18	0.060	-65	15	2

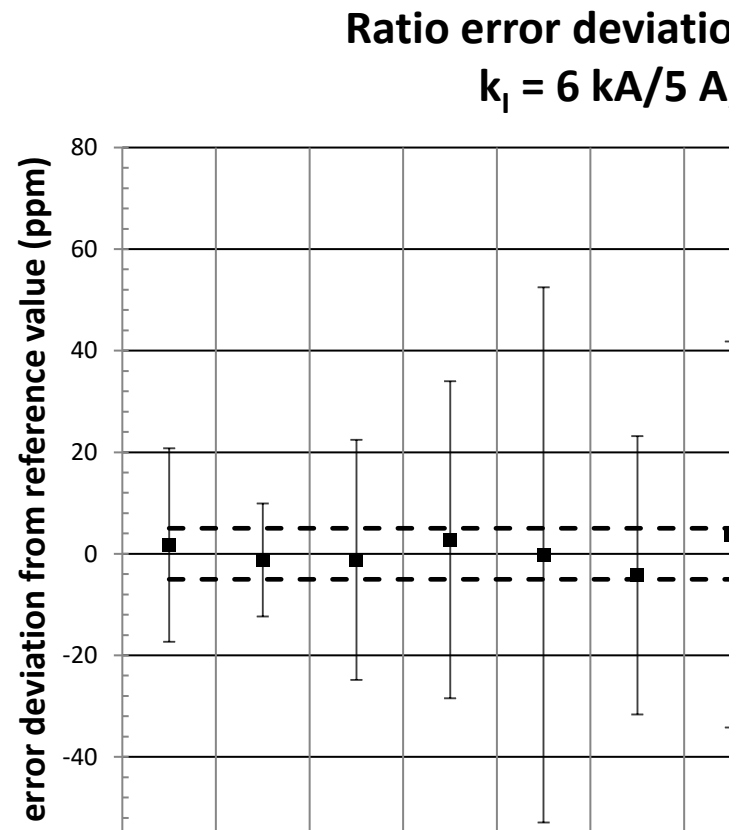
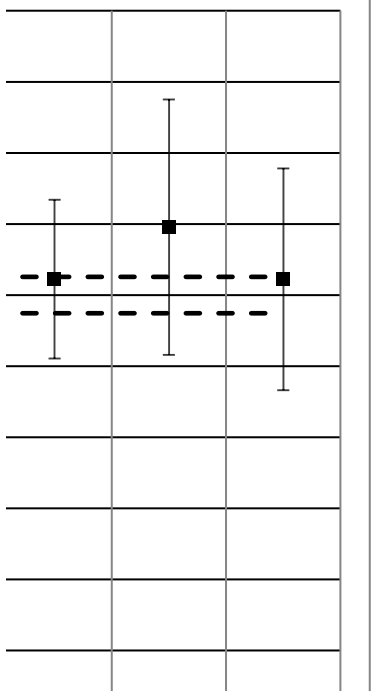
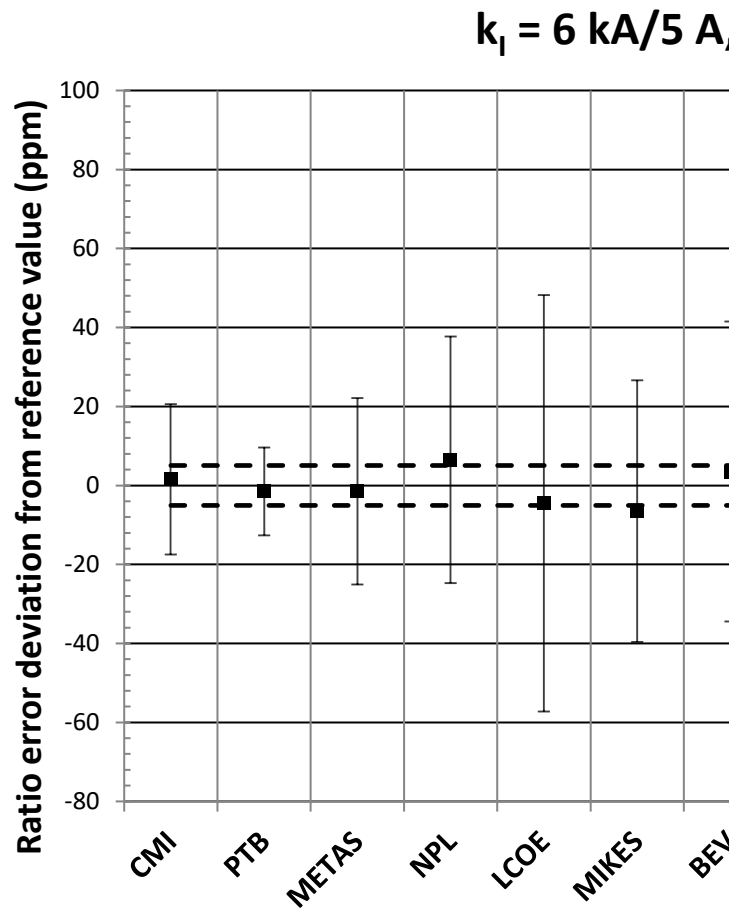
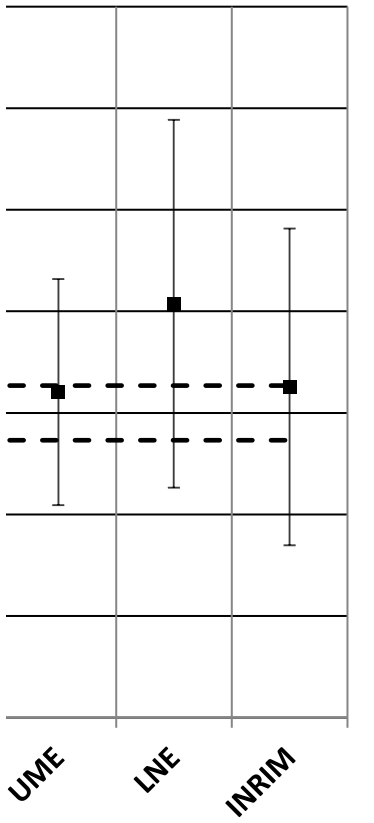
-2	13	0.063	-66	18	-3	18	0.093	-62	15	0
-1	14	0.038	-62	18	-3	19	0.070	-59	18	0
0	16	0.005						-57	21	-1
6	11	0.293								
4	11	0.173						-24	18	8
1	11	0.044	-28	21	-6	21	0.151	-17	18	5
2	11	0.103	-24	21	-12	21	0.276	-14	18	-2
1	11	0.061	-18	21	-11	21	0.261	-10	21	-3
0	12	0.002	-17	22	-14	22	0.323	-3	24	0
0	13	0.016	-11	30	-12	30	0.198			
2	15	0.050								
UME	UME	UME	LNE	LNE	LNE	LNE	LNE	INRIM	INRIM	INRIM
$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)	$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)	ε_L (ppm)	$u(\varepsilon_L)$ (ppm)	$\Delta\varepsilon_C$ (ppm)
6	11	0.274	-86	18	43	19	1.155	-126	15	3
7	12	0.287	-84	18	43	19	1.160	-125	15	3
4	12	0.165	-76	18	40	19	1.084	-116	15	1
0	11	0.006	-69	18	31	18	0.857	-99	15	1
-1	11	0.066	-66	18	27	19	0.717	-91	15	2
-3	13	0.127	-61	19	24	20	0.623	-86	15	0
-2	14	0.079	-65	19	16	19	0.405	-81	18	0
-3	17	0.074						-76	21	0
4	11	0.185	-76	18	21	18	0.593	-92	15	5
4	11	0.200	-76	17	19	18	0.531	-91	15	4
4	11	0.169	-68	17	19	18	0.521	-84	15	3
0	11	0.004	-60	18	13	18	0.366	-72	15	1
-1	11	0.024	-53	17	13	18	0.366	-65	15	1
-2	13	0.057	-51	22	10	23	0.215	-60	15	0
-2	14	0.053	-48	19	8	20	0.189	-56	18	-1
1	16	0.026						-52	21	1
4	11	0.158	-64	18	13	19	0.331	-79	15	-2
3	11	0.126	-64	19	11	20	0.279	-78	15	-3
1	11	0.060	-60	19	7	19	0.171	-72	15	-6
1	11	0.056	-50	18	5	19	0.124	-62	15	-8
-1	12	0.045	-45	19	3	20	0.072	-56	15	-8
-1	13	0.050	-41	25	2	26	0.046	-51	15	-7
-2	15	0.056	-33	18	6	20	0.143	-46	18	-8
-2	17	0.056						-36	21	-2
6	12	0.228						-56	15	-1
3	11	0.155	-46	22	6	22	0.141	-53	15	-1
2	11	0.101	-44	21	0	21	0.003	-49	15	-5
3	11	0.120	-36	21	-4	22	0.081	-42	15	-9
1	11	0.045	-30	21	-4	22	0.101	-35	15	-9
1	13	0.036	-28	22	-6	23	0.137	-32	15	-10
0	14	0.012	-26	21	-10	22	0.227	-29	18	-12
0	17	0.005						-13	21	0

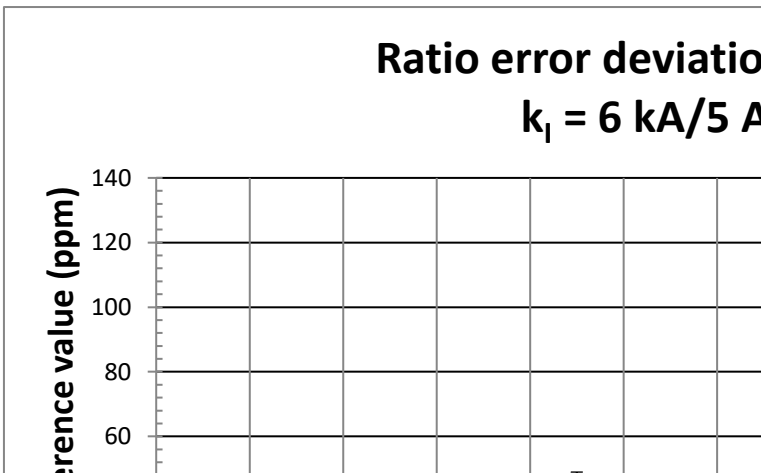
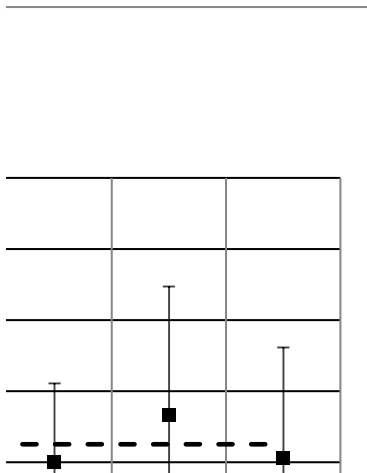
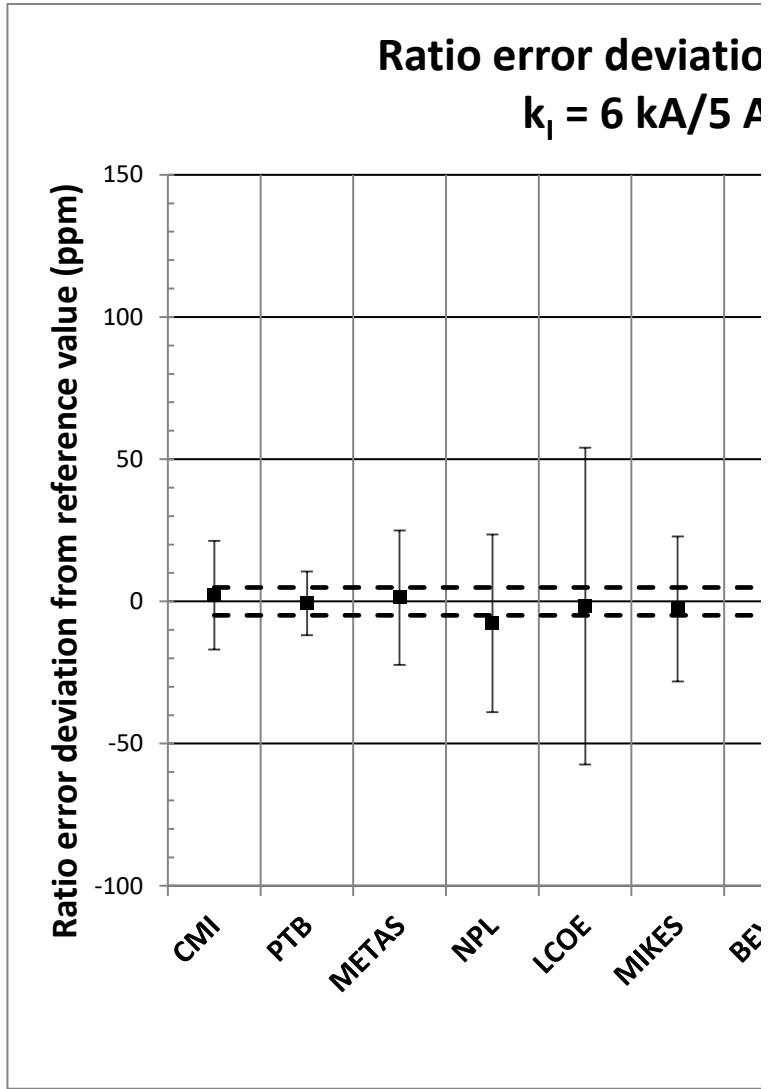
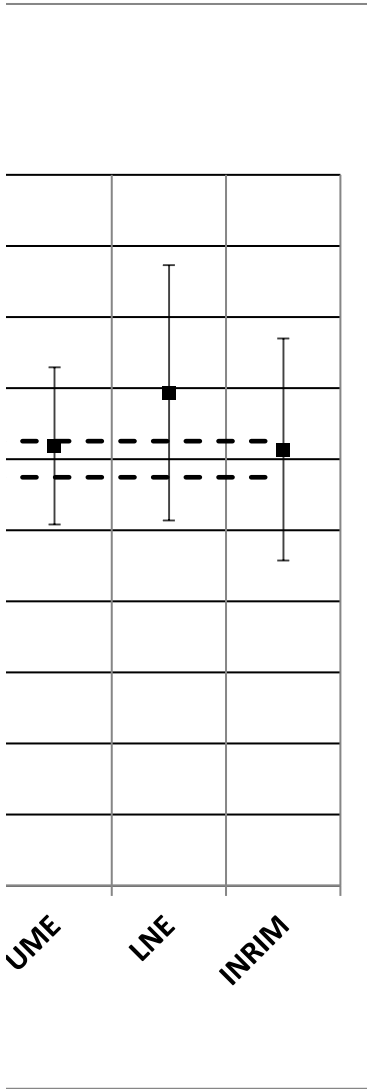
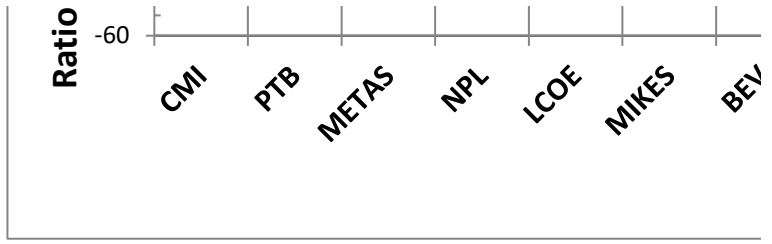
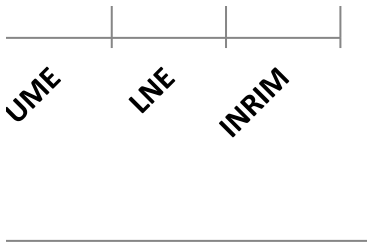
5	11	0.238								
3	11	0.119						-29	18	9
1	11	0.034	-30	22	-2	22	0.053	-22	18	6
3	11	0.140	-27	21	-10	22	0.233	-13	18	4
0	11	0.023	-24	21	-12	22	0.279	-5	21	6
-1	13	0.037	-17	22	-10	23	0.218	-1	24	6
0	15	0.001	-13	22	-10	23	0.222			
1	17	0.029								

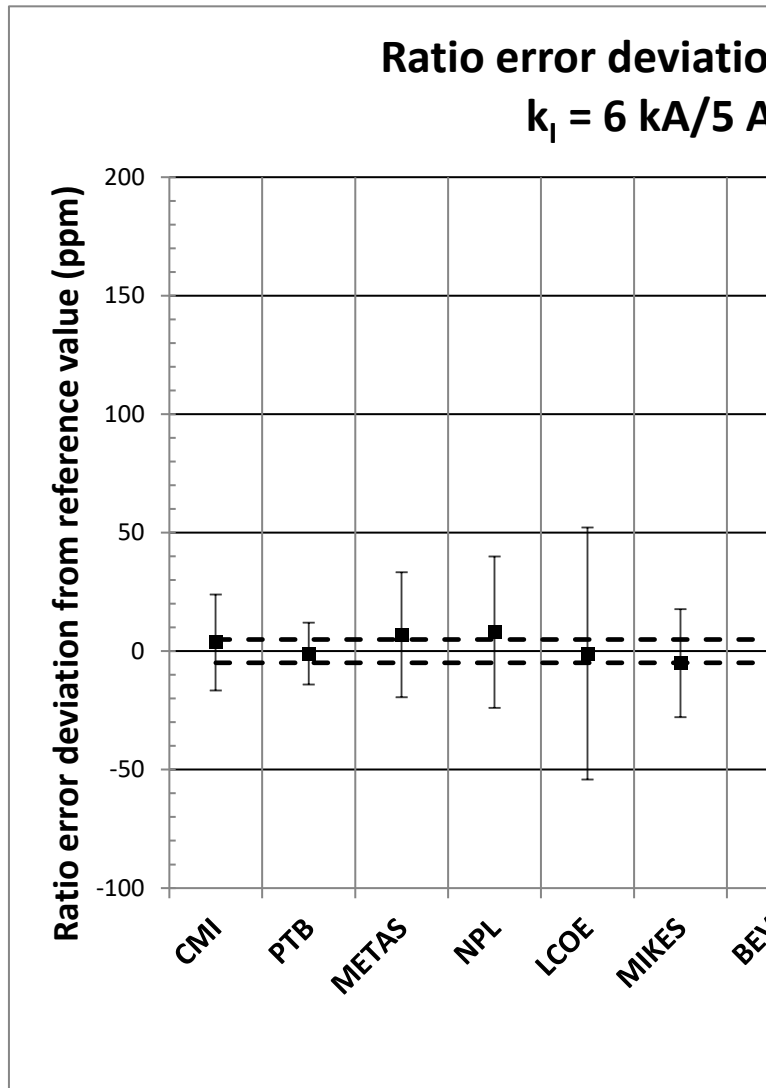
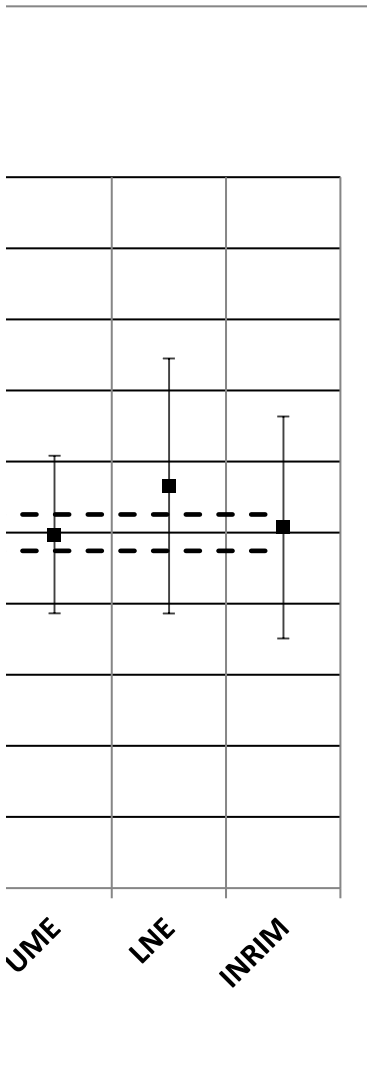
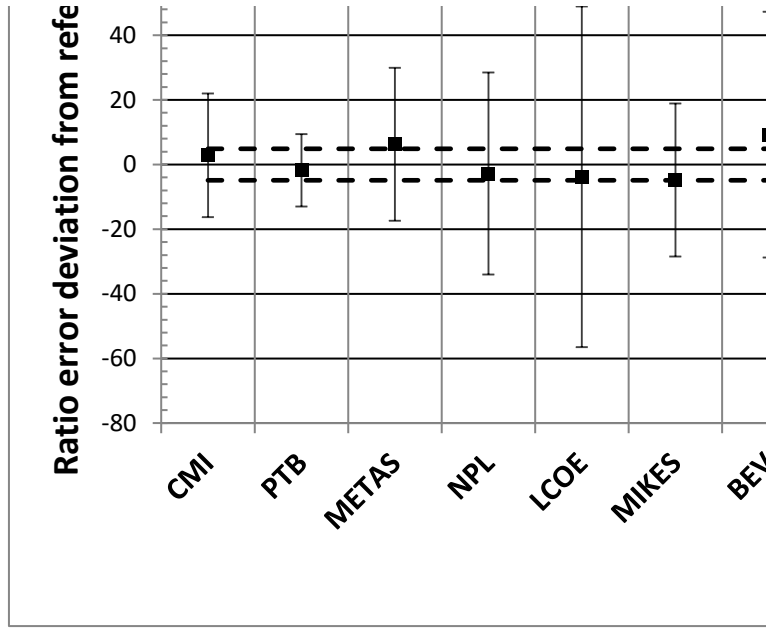
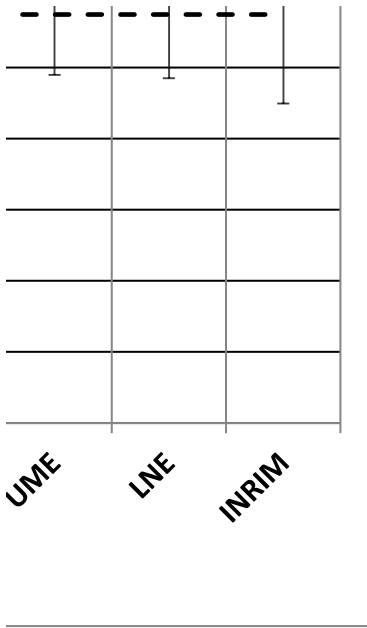
UME	UME				LNE	LNE					INRIM
$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	novalue	$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	novalue	$\Delta\epsilon_C$ (ppm)	$U(\Delta\epsilon_{stdC})$ (ppm)	$\Delta\epsilon_C$ (ppm)	
3	22	#N/A	3	22	0	36	#N/A	0	36	3	
5	22	#N/A	5	22	1	36	#N/A	1	36	4	
4	21	#N/A	4	21	3	36	#N/A	3	36	3	
2	21	#N/A	2	21	-1	36	#N/A	-1	36	3	
0	21	#N/A	0	21	-2	36	#N/A	-2	36	2	
-2	25	#N/A	-2	25	-3	36	#N/A	-3	36	0	
-1	28	#N/A	-1	28	-3	38	#N/A	-3	38	0	
0	32	#N/A	0	32				0	#N/A	#N/A	-1
6	21	#N/A	6	21				0	#N/A	#N/A	
4	21	#N/A	4	21				0	#N/A	#N/A	8
1	21	#N/A	1	21	-6	42	#N/A	-6	42	5	
2	21	#N/A	2	21	-12	42	#N/A	-12	42	-2	
1	21	#N/A	1	21	-11	42	#N/A	-11	42	-3	
0	25	#N/A	0	25	-14	44	#N/A	-14	44	0	
0	27	#N/A	0	27	-12	59	#N/A	-12	59		
2	31	#N/A	2	31				0	#N/A	#N/A	

UME				LNE				INRIM		
$\Delta\varepsilon_C$ (ppm)	$U(\Delta\varepsilon_{stdC})$ (ppm)			$\Delta\varepsilon_C$ (ppm)	$U(\Delta\varepsilon_{stdC})$ (ppm)			$\Delta\varepsilon_C$ (ppm)		
6	22	#N/A	6	22	43	37	#N/A	43	37	3
7	23	#N/A	7	23	43	37	#N/A	43	37	3
4	23	#N/A	4	23	40	37	#N/A	40	37	1
0	22	#N/A	0	22	31	37	#N/A	31	37	1
-1	22	#N/A	-1	22	27	37	#N/A	27	37	2
-3	26	#N/A	-3	26	24	39	#N/A	24	39	0
-2	29	#N/A	-2	29	16	39	#N/A	16	39	0
-3	34	#N/A	-3	34			0	#N/A	#N/A	0
4	22	#N/A	4	22	21	36	#N/A	21	36	5
4	22	#N/A	4	22	19	36	#N/A	19	36	4
4	22	#N/A	4	22	19	36	#N/A	19	36	3
0	22	#N/A	0	22	13	36	#N/A	13	36	1
-1	22	#N/A	-1	22	13	36	#N/A	13	36	1
-2	27	#N/A	-2	27	10	46	#N/A	10	46	0
-2	29	#N/A	-2	29	8	40	#N/A	8	40	-1
1	33	#N/A	1	33			0	#N/A	#N/A	1
4	22	#N/A	4	22	13	38	#N/A	13	38	-2
3	22	#N/A	3	22	11	39	#N/A	11	39	-3
1	22	#N/A	1	22	7	39	#N/A	7	39	-6
1	22	#N/A	1	22	5	38	#N/A	5	38	-8
-1	23	#N/A	-1	23	3	40	#N/A	3	40	-8
-1	27	#N/A	-1	27	2	52	#N/A	2	52	-7
-2	29	#N/A	-2	29	6	39	#N/A	6	39	-8
-2	33	#N/A	-2	33			0	#N/A	#N/A	-2
6	24	#N/A	6	24			0	#N/A	#N/A	-1
3	22	#N/A	3	22	6	44	#N/A	6	44	-1
2	22	#N/A	2	22	0	43	#N/A	0	43	-5
3	22	#N/A	3	22	-4	43	#N/A	-4	43	-9
1	23	#N/A	1	23	-4	44	#N/A	-4	44	-9
1	27	#N/A	1	27	-6	45	#N/A	-6	45	-10
0	29	#N/A	0	29	-10	43	#N/A	-10	43	-12
0	33	#N/A	0	33			0	#N/A	#N/A	0
5	22	#N/A	5	22			0	#N/A	#N/A	
3	22	#N/A	3	22			0	#N/A	#N/A	9
1	22	#N/A	1	22	-2	44	#N/A	-2	44	6
3	22	#N/A	3	22	-10	44	#N/A	-10	44	4
0	22	#N/A	0	22	-12	43	#N/A	-12	43	6
-1	26	#N/A	-1	26	-10	45	#N/A	-10	45	6
0	29	#N/A	0	29	-10	46	#N/A	-10	46	
1	34	#N/A	1	34			0	#N/A	#N/A	

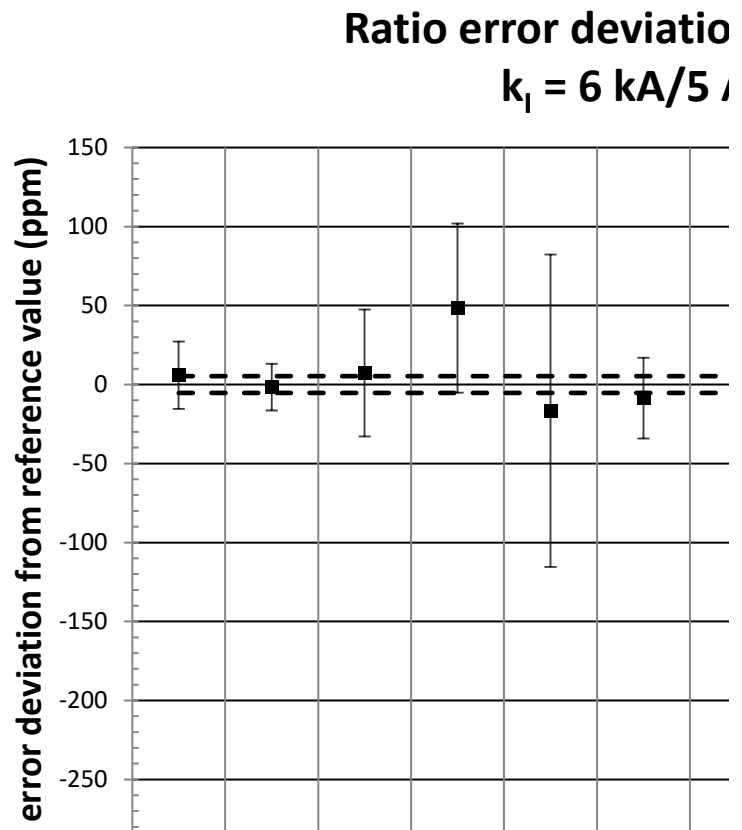
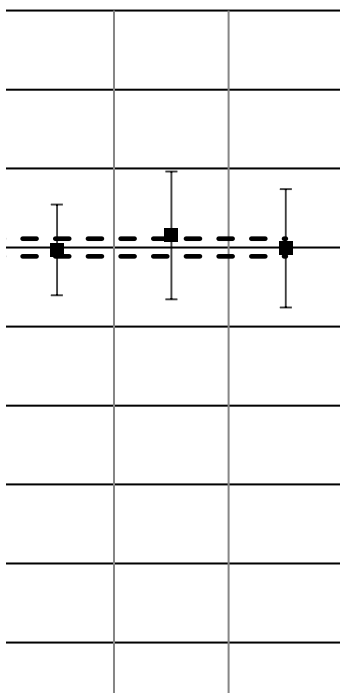
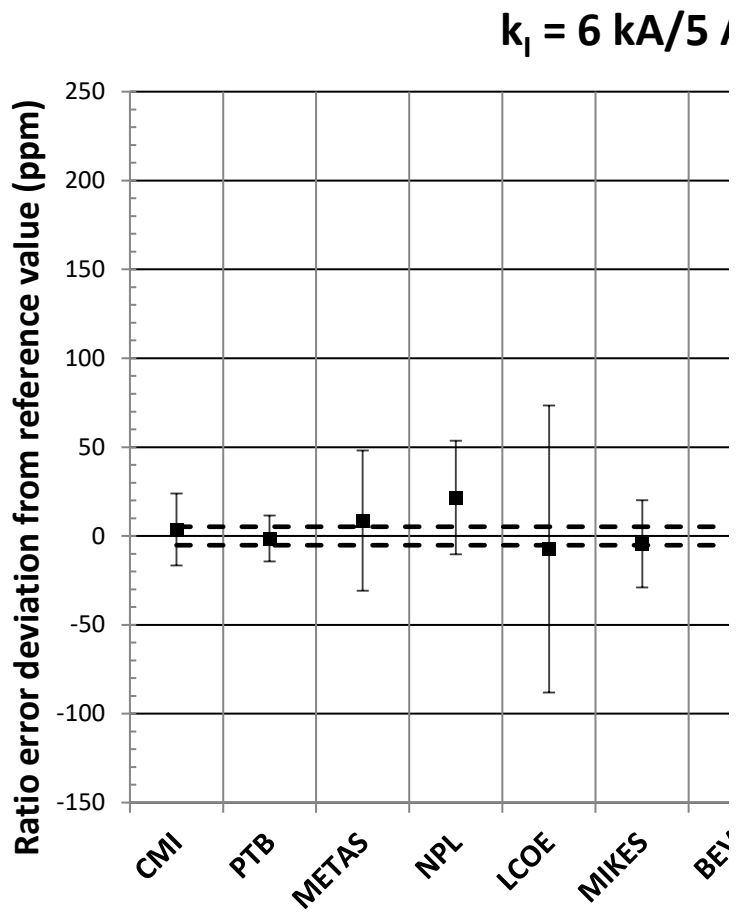
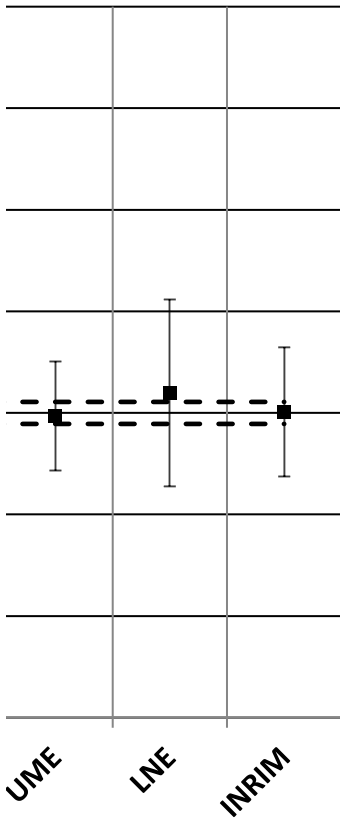
Ratio error deviatio

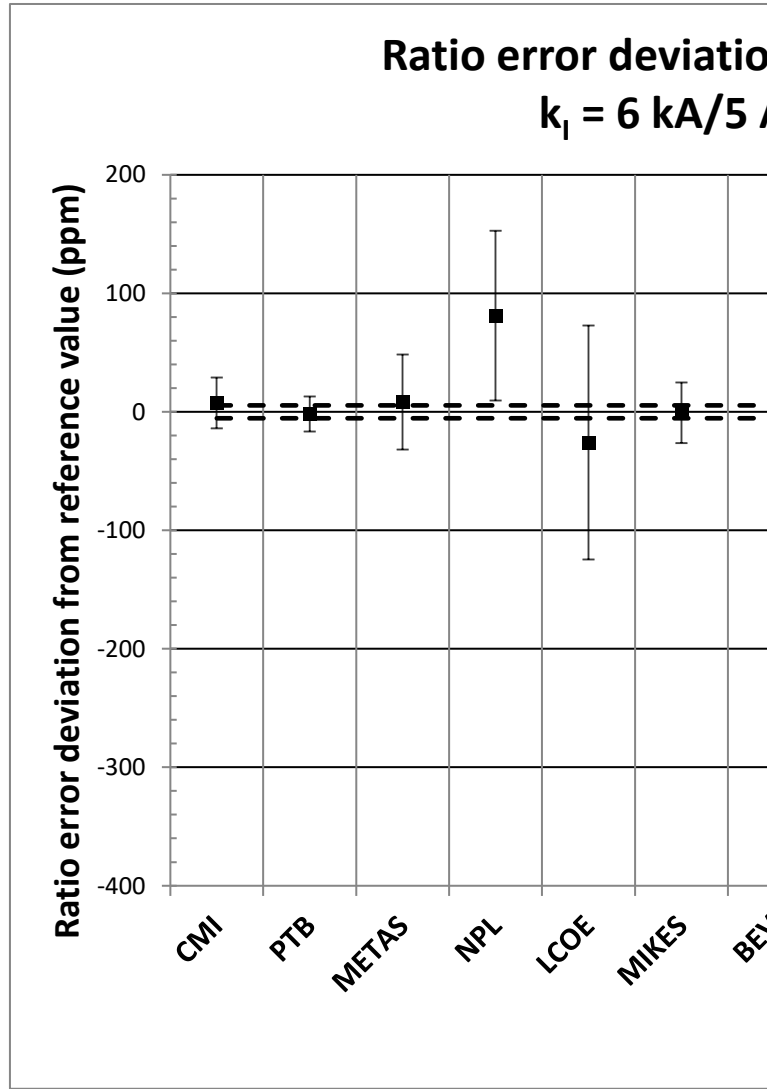
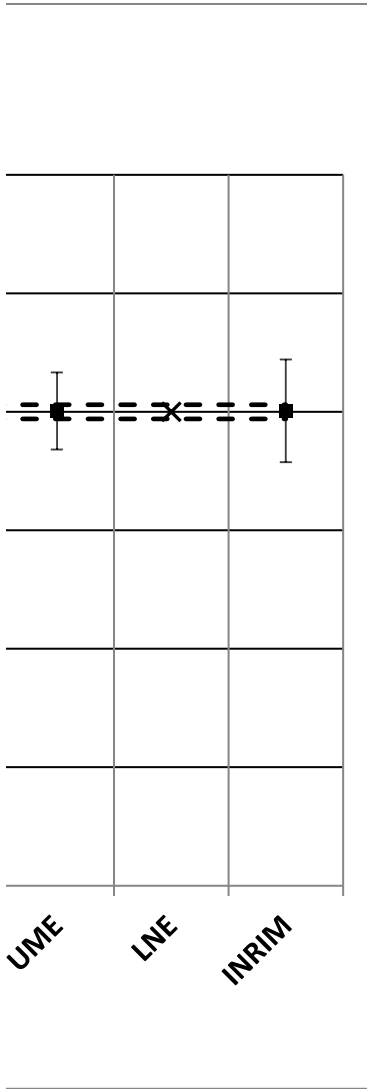
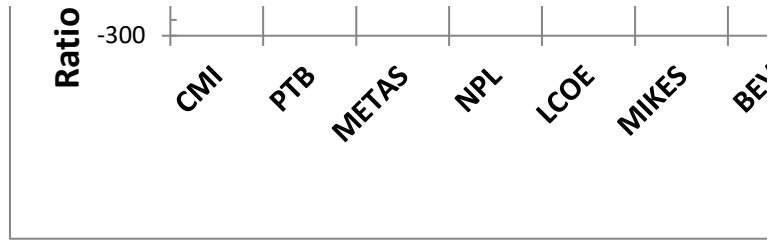
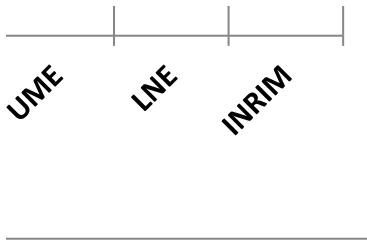






Ratio error deviatio





IM	
$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)
16	0.101
16	0.118
15	0.096
15	0.089
15	0.064
15	0.013
18	0.007
21	0.027
18	0.210
18	0.135
18	0.050
21	0.071
24	0.006

IM	
$u(\Delta\varepsilon_{std})$ (ppm)	$E(\varepsilon)$ (-)
16	0.069
16	0.054
16	0.002
16	0.036
16	0.049
16	0.010
19	0.015
22	0.002
16	0.164
16	0.143
16	0.088
16	0.035
16	0.047
16	0.015
19	0.000
22	0.012
16	0.080
16	0.103
16	0.182
16	0.248
16	0.273
16	0.264
19	0.203

22	0.048
16	0.046
16	0.018
16	0.152
16	0.299
16	0.281
16	0.324
19	0.317
22	0.002
18	0.234
19	0.156
19	0.110
21	0.144
24	0.117

INRIM	INRIM
$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)
16	0.101
16	0.118
15	0.096
15	0.089
15	0.064

15	0.013
18	0.002
21	0.020
18	0.210
18	0.135
18	0.050
21	0.064
24	0.001
INRIM	INRIM
$u(\Delta\varepsilon_{stdC})$ (ppm)	$E_C(\varepsilon)$ (-)
16	0.099
16	0.084
16	0.026
16	0.036
16	0.049
16	0.010
19	0.007
22	0.010
16	0.164
16	0.143
16	0.088
16	0.035
16	0.047
16	0.015
19	0.014
22	0.020
16	0.080
16	0.103
16	0.182
16	0.248
16	0.252
16	0.230
19	0.200
22	0.042
16	0.046
16	0.018
16	0.152
16	0.299
16	0.281
16	0.315
19	0.328
22	0.004

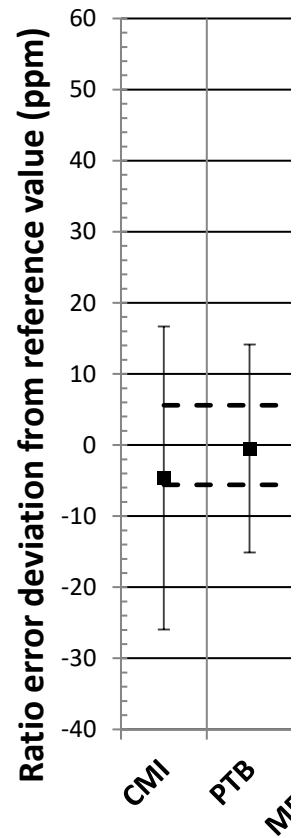
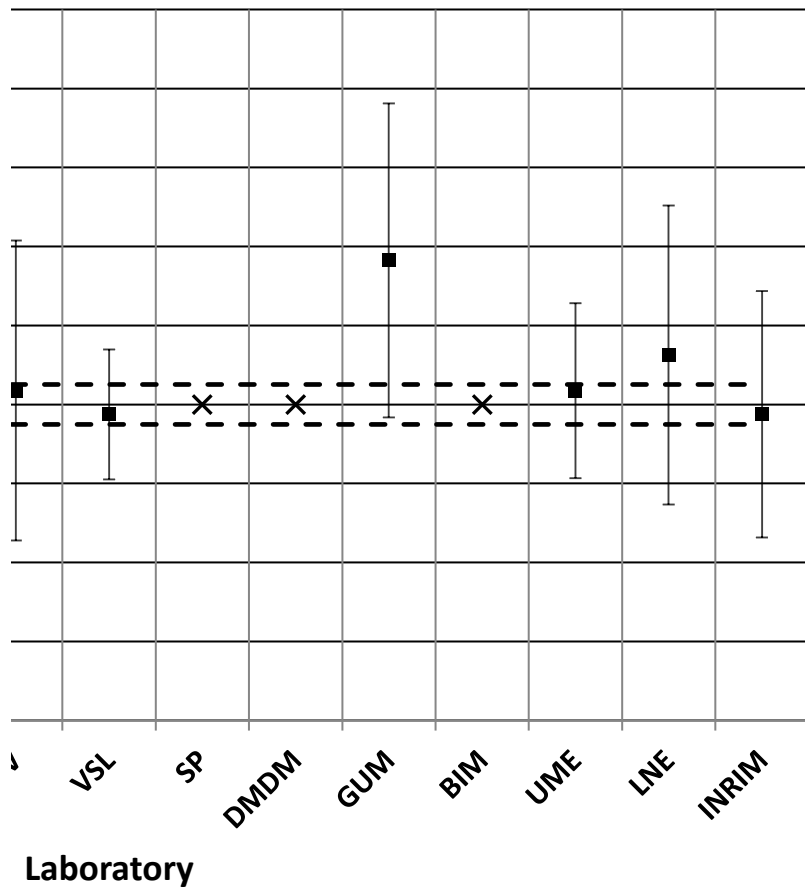
18	0.234
19	0.156
19	0.110
21	0.151
24	0.124

INRIM			
$U(\Delta\varepsilon_{\text{stdC}})$ (ppm)	novalue	$\Delta\varepsilon_{\text{C}}$ (ppm)	$U(\Delta\varepsilon_{\text{stdC}})$ (ppm)
31	#N/A	3	31
31	#N/A	4	31
31	#N/A	3	31
31	#N/A	3	31
31	#N/A	2	31
31	#N/A	0	31
37	#N/A	0	37
43	#N/A	-1	43
	0	#N/A	#N/A
36	#N/A	8	36
37	#N/A	5	37
37	#N/A	-2	37
42	#N/A	-3	42
48	#N/A	0	48
	0	#N/A	#N/A
	0	#N/A	#N/A

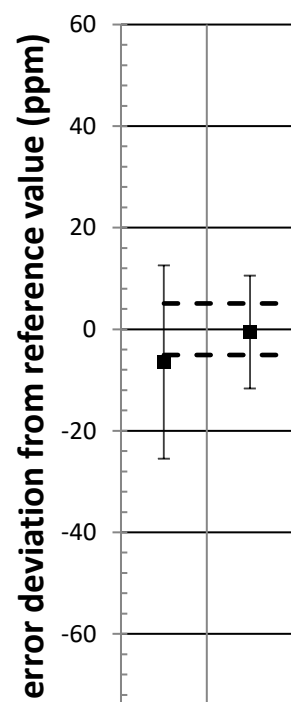
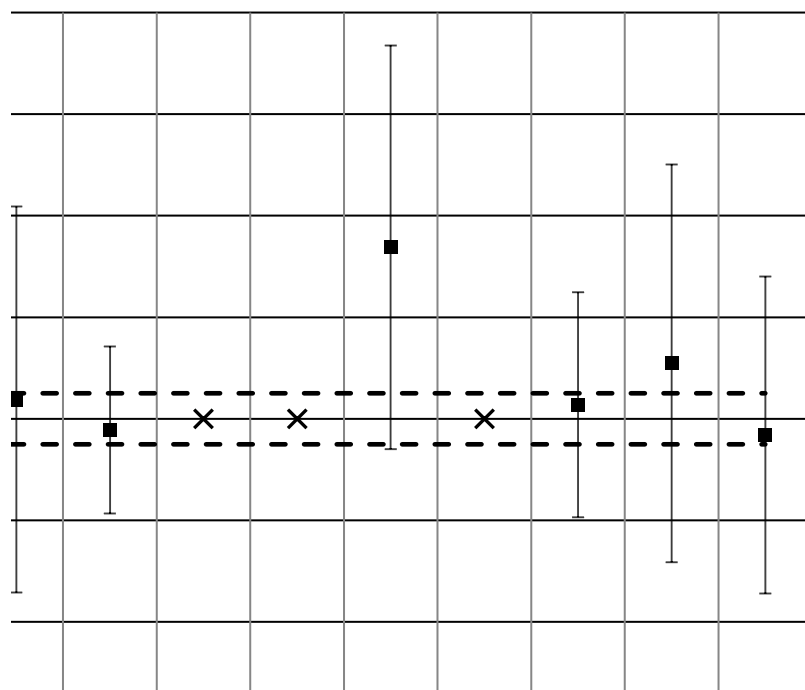
INRIM			
U(ΔE_{stdC})			
(ppm)			
31	#N/A	3	31
32	#N/A	3	32
32	#N/A	1	32
31	#N/A	1	31
31	#N/A	2	31
31	#N/A	0	31
38	#N/A	0	38
45	#N/A	0	45
31	#N/A	5	31
31	#N/A	4	31
31	#N/A	3	31
31	#N/A	1	31
31	#N/A	1	31
32	#N/A	0	32
38	#N/A	-1	38
43	#N/A	1	43
31	#N/A	-2	31
31	#N/A	-3	31
31	#N/A	-6	31
31	#N/A	-8	31
32	#N/A	-8	32
32	#N/A	-7	32
38	#N/A	-8	38
44	#N/A	-2	44
33	#N/A	-1	33
31	#N/A	-1	31
31	#N/A	-5	31
31	#N/A	-9	31
32	#N/A	-9	32
32	#N/A	-10	32
38	#N/A	-12	38
44	#N/A	0	44
	0	#N/A	#N/A
37	#N/A	9	37
37	#N/A	6	37
37	#N/A	4	37
43	#N/A	6	43
49	#N/A	6	49
	0	#N/A	#N/A
	0	#N/A	#N/A

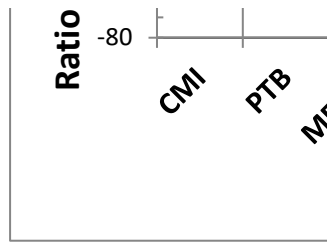
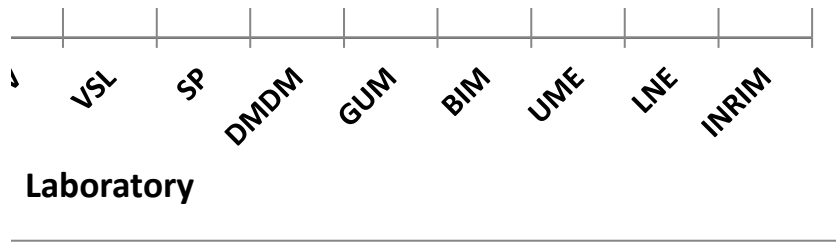
on from reference value

, 120 % I_N , 15 VA

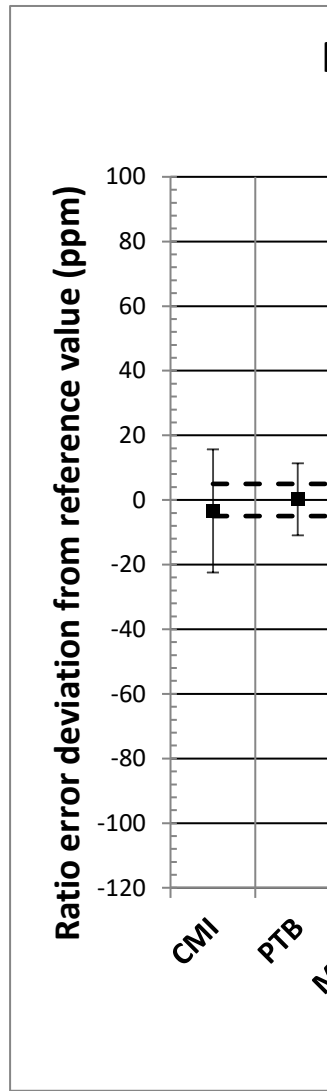
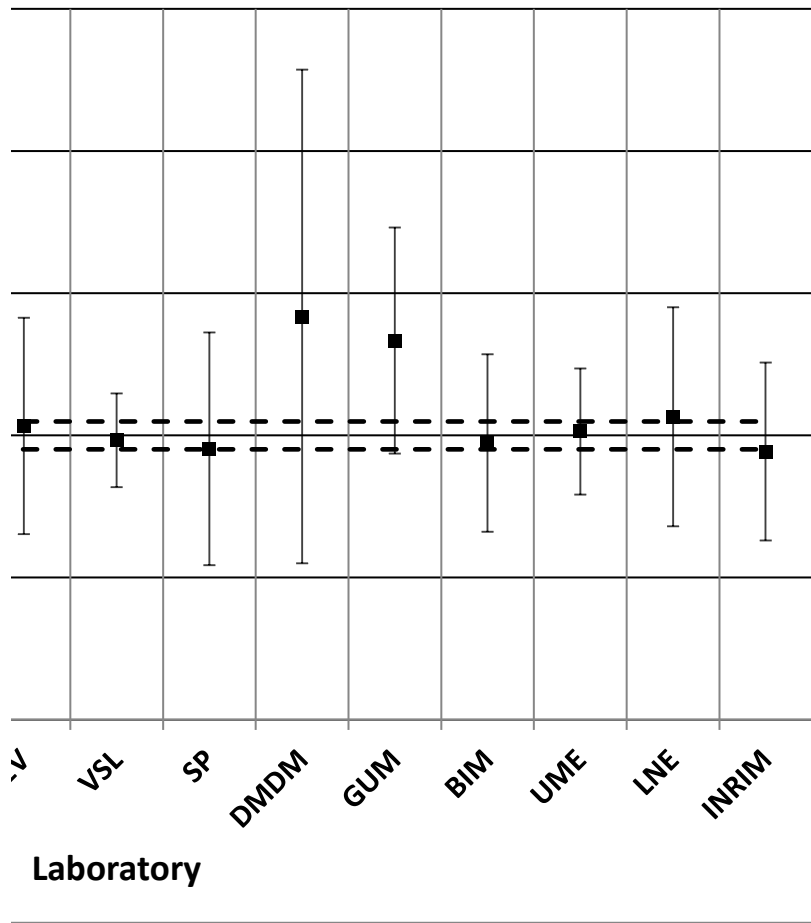


on from reference value
, 100 % I_N , 15 VA

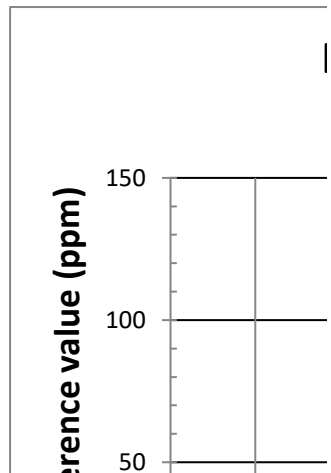
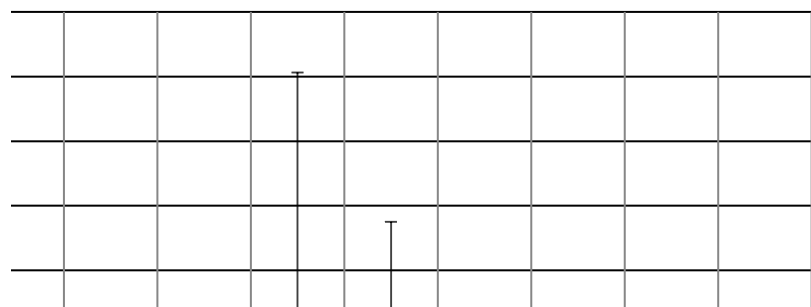


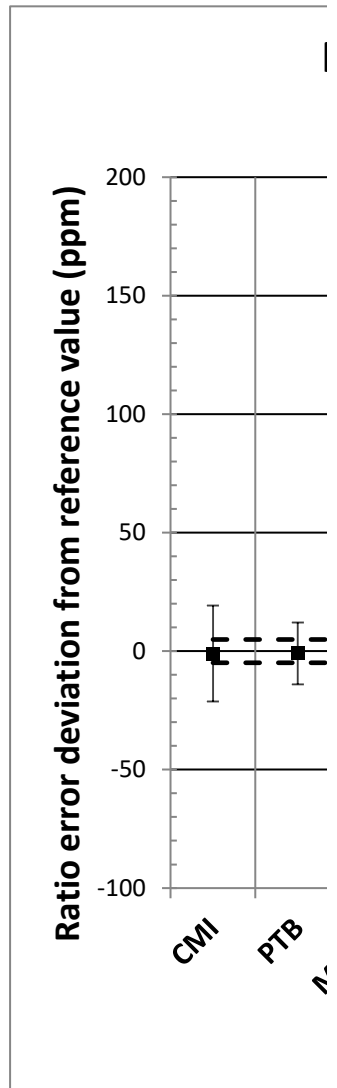
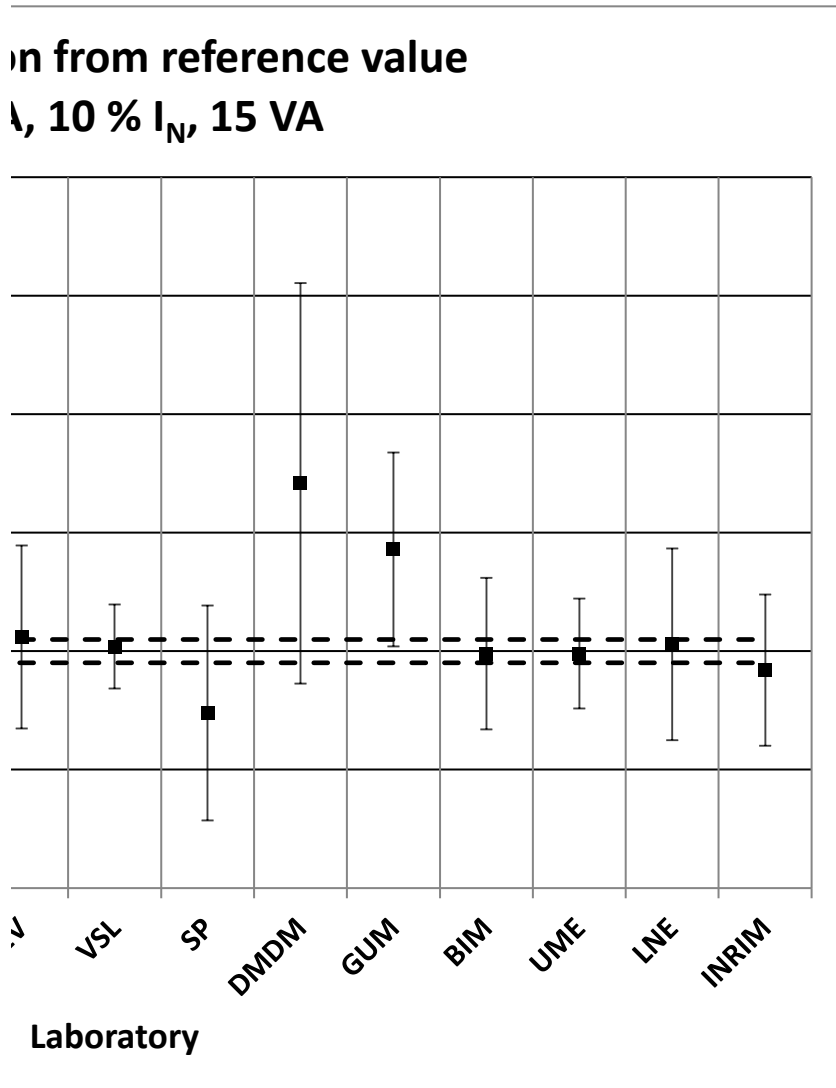
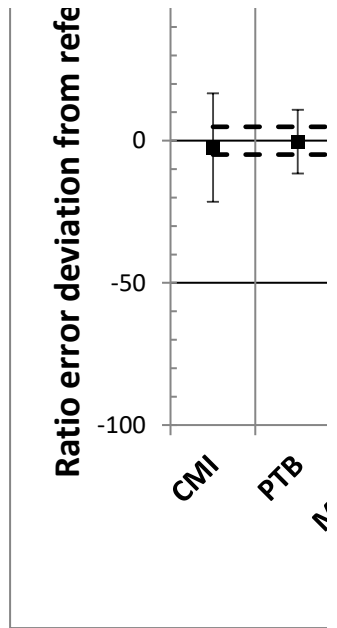
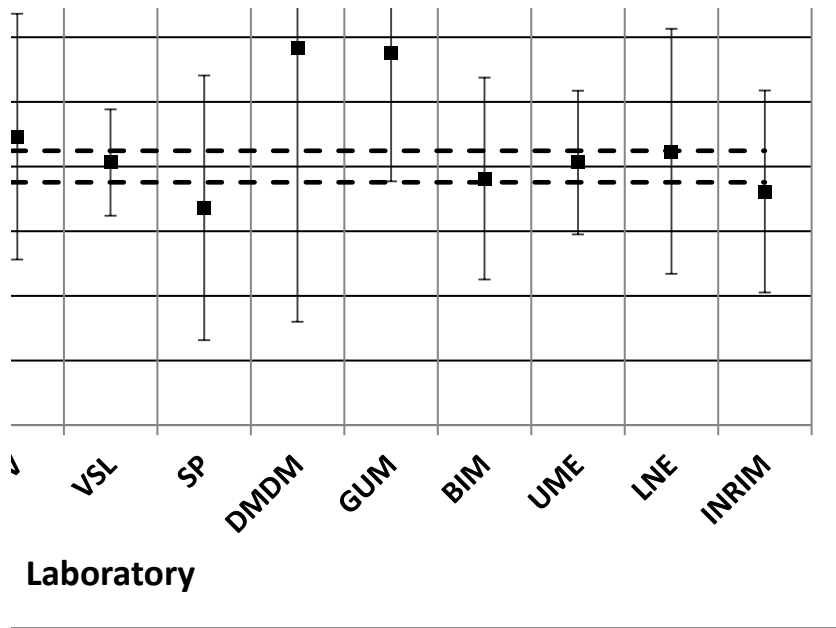


on from reference value
 I_N , 50 % I_N , 15 VA

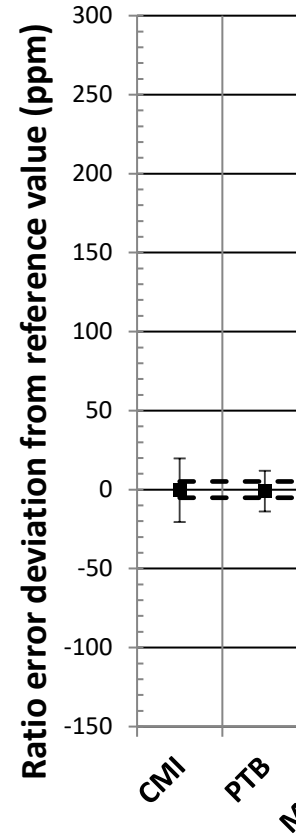
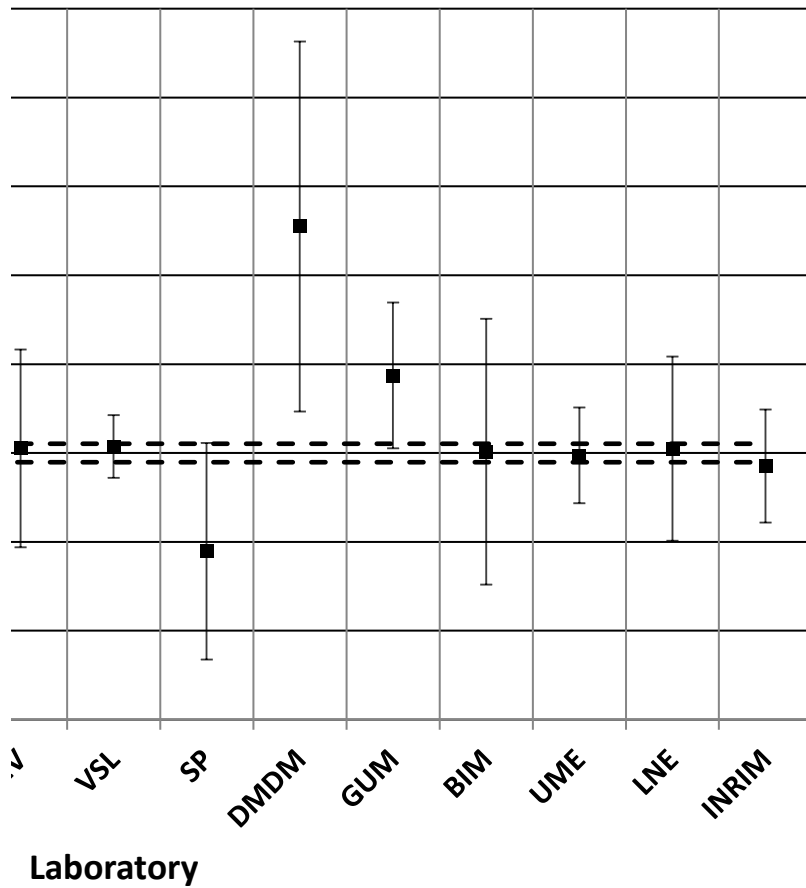


on from reference value
 I_N , 20 % I_N , 15 VA

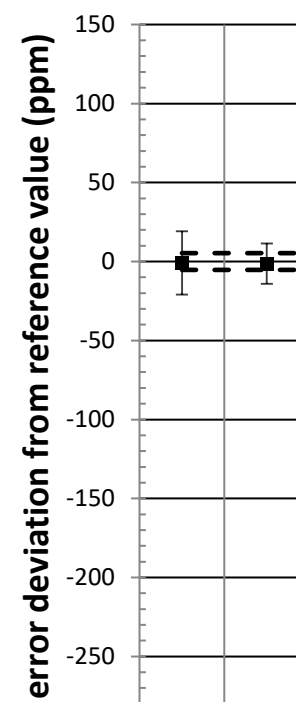
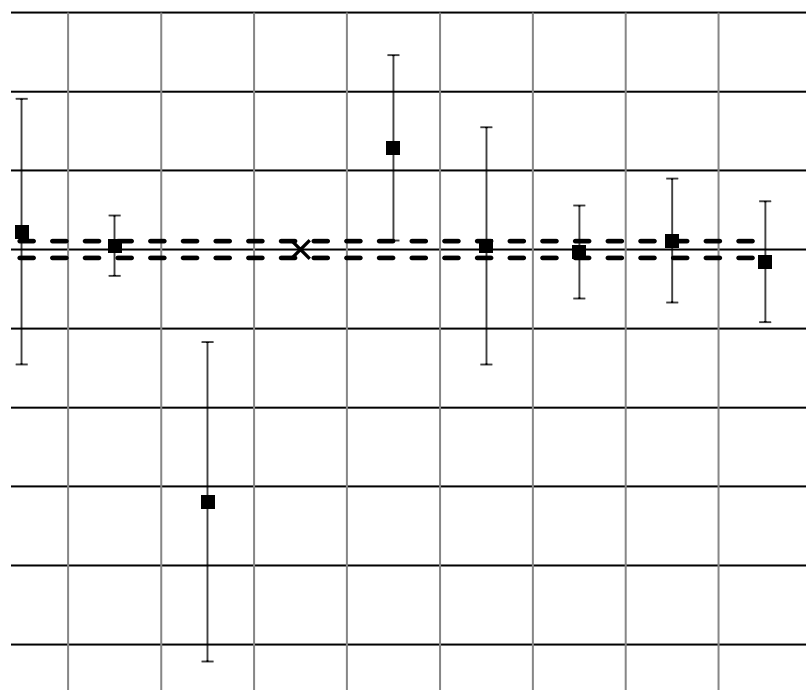


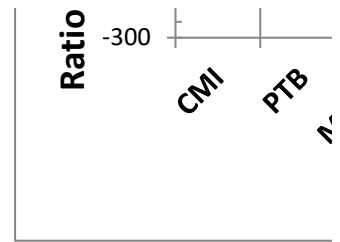
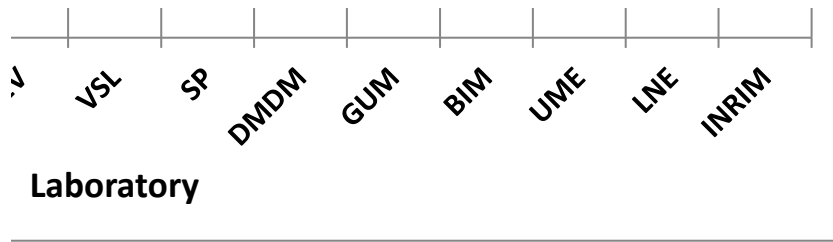


A, 5 % I_N , 15 VA

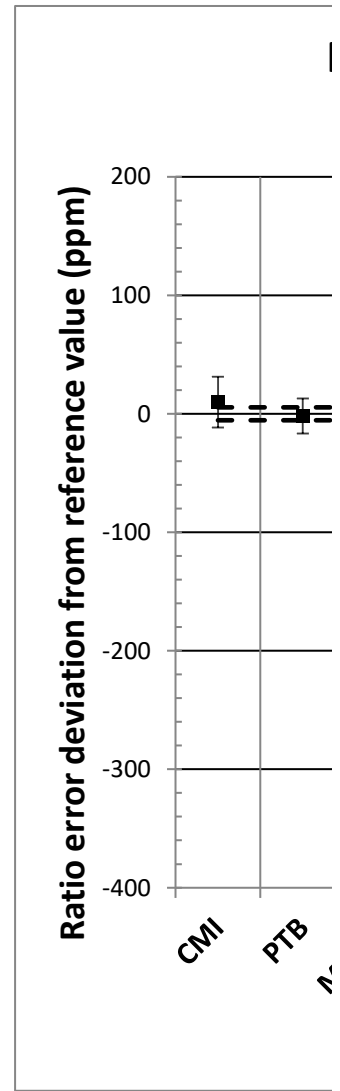
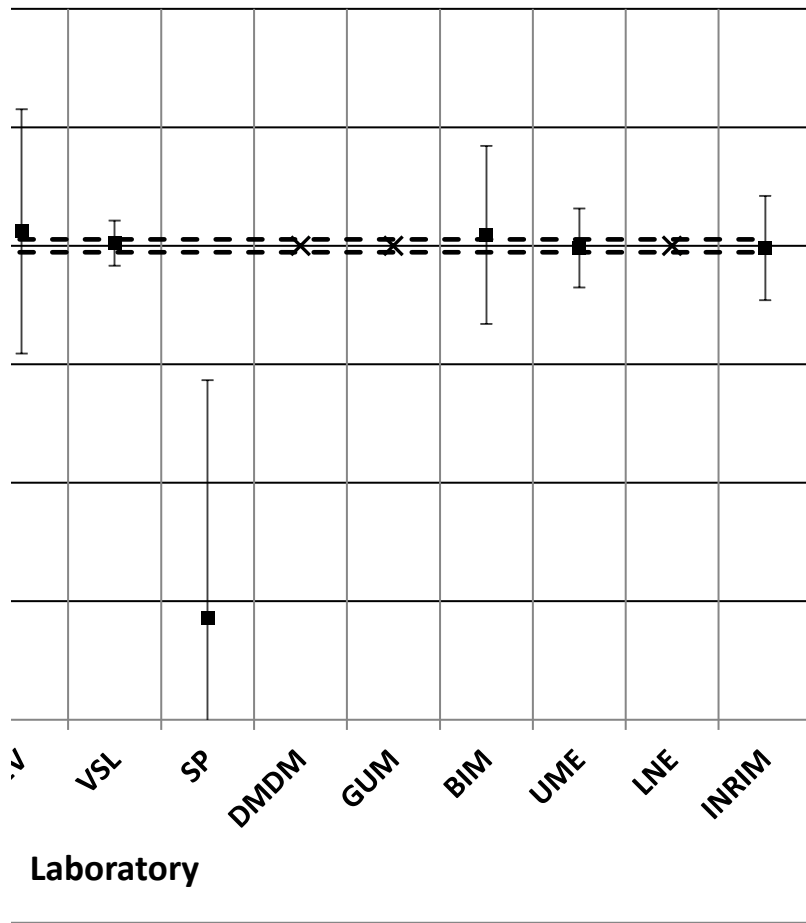


**on from reference value
A, 2 % I_N , 15 VA**



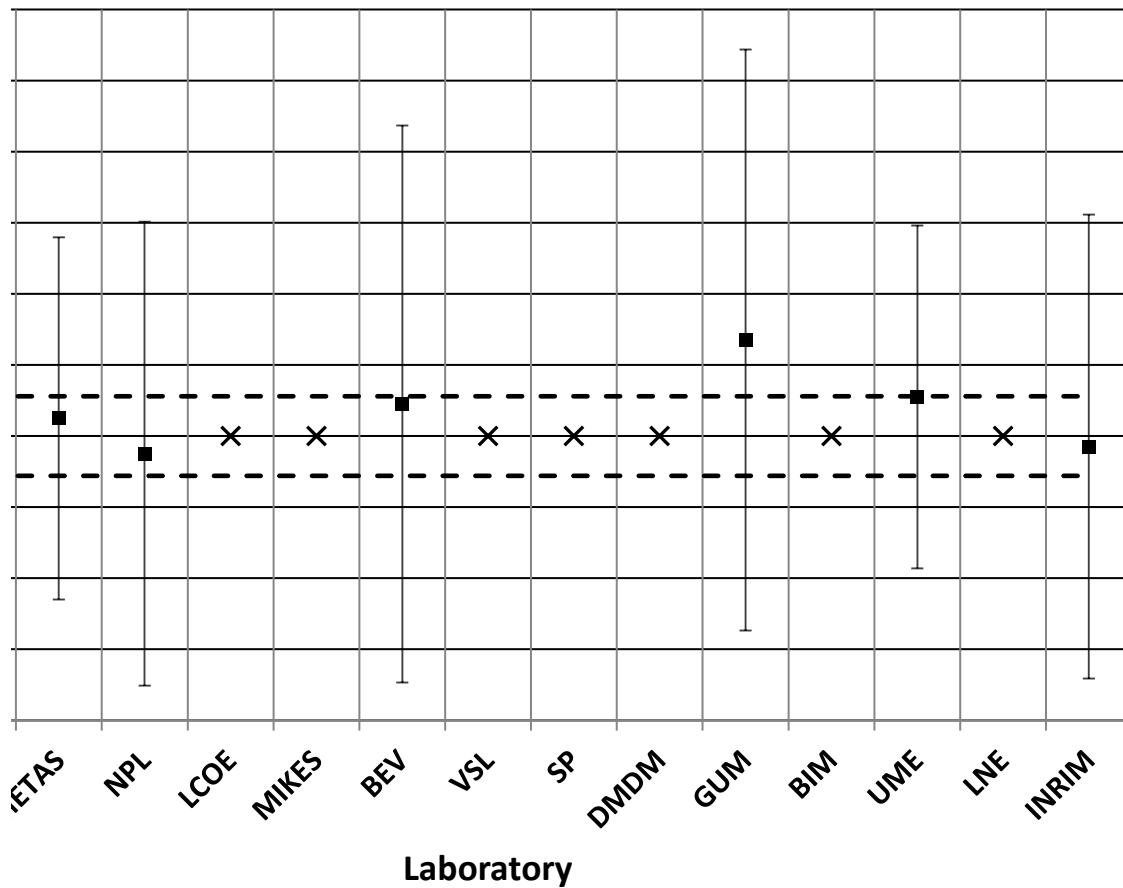


on from reference value
 A, 1 % I_N , 15 VA



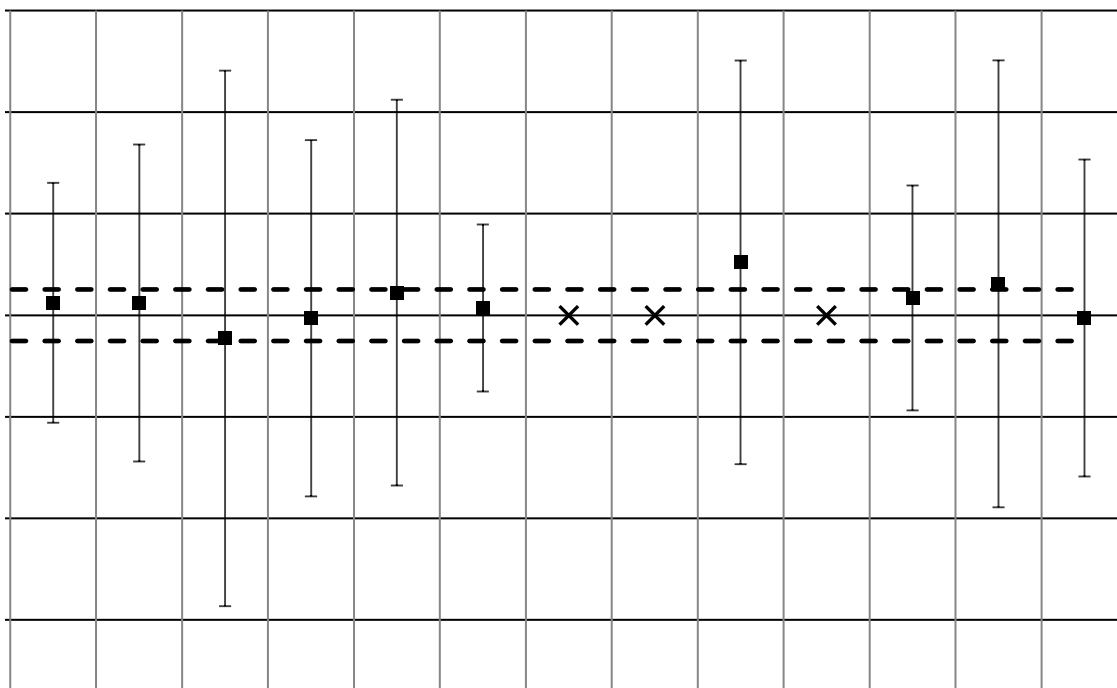
Ratio error deviation from reference value

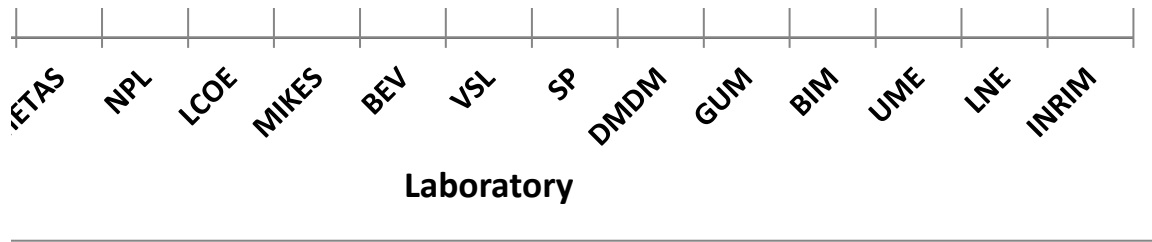
$k_1 = 8 \text{ kA}/5 \text{ A}, 120 \% I_N, 15 \text{ VA}$



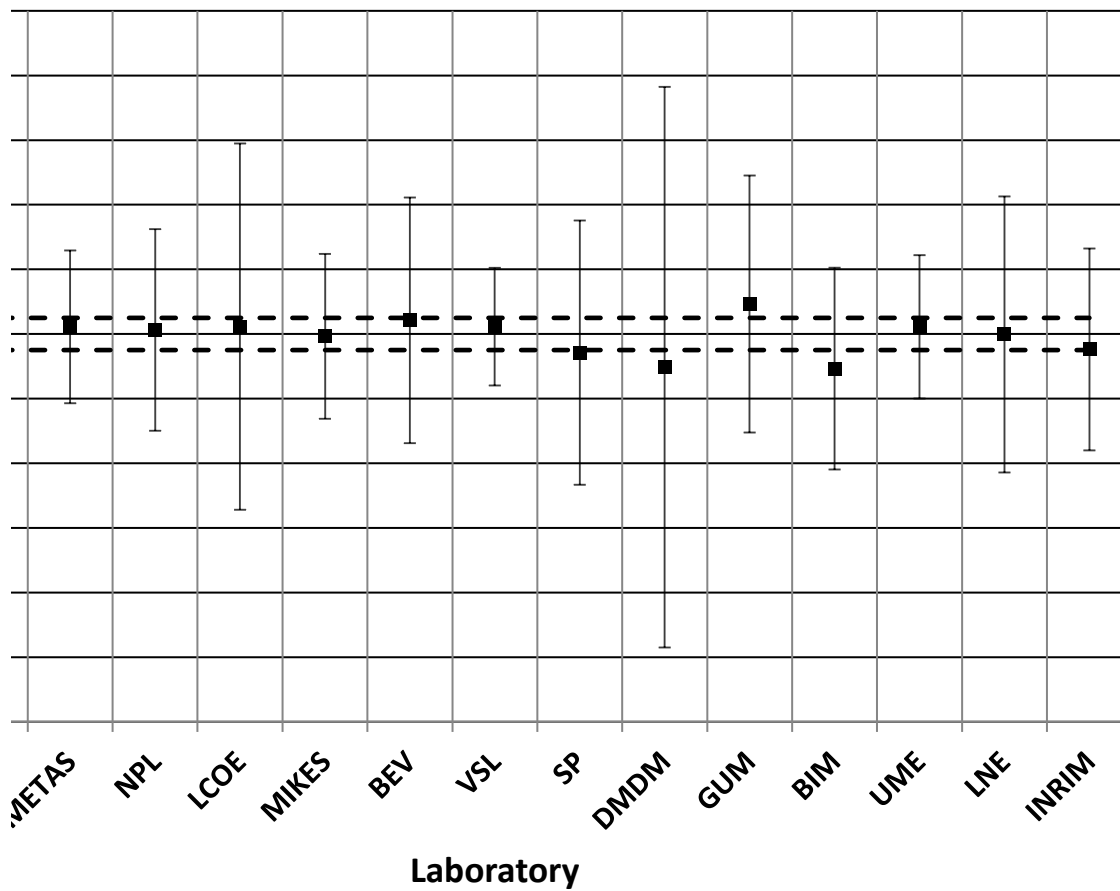
Ratio error deviation from reference value

$k_1 = 8 \text{ kA}/5 \text{ A}, 100 \% I_N, 15 \text{ VA}$

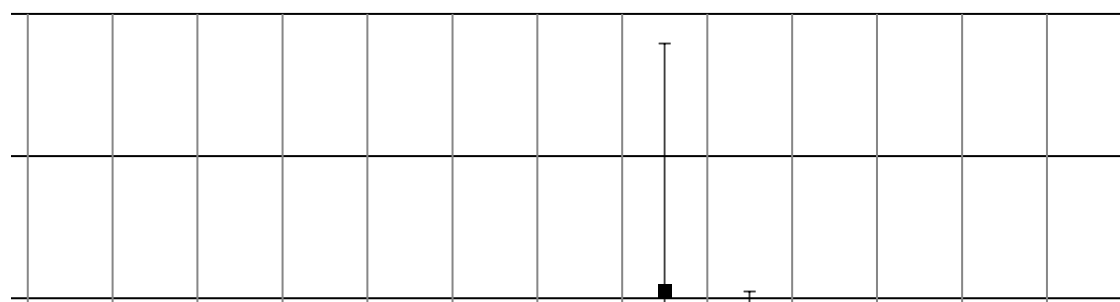


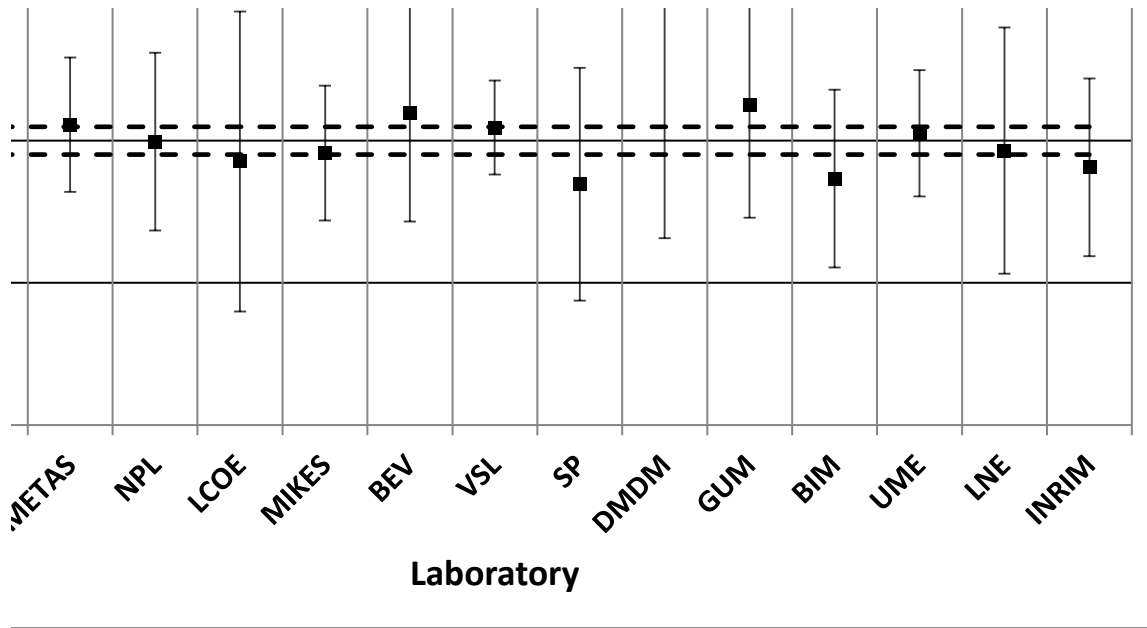


Ratio error deviation from reference value
 $k_1 = 8 \text{ kA}/5 \text{ A}, 50 \% I_N, 15 \text{ VA}$

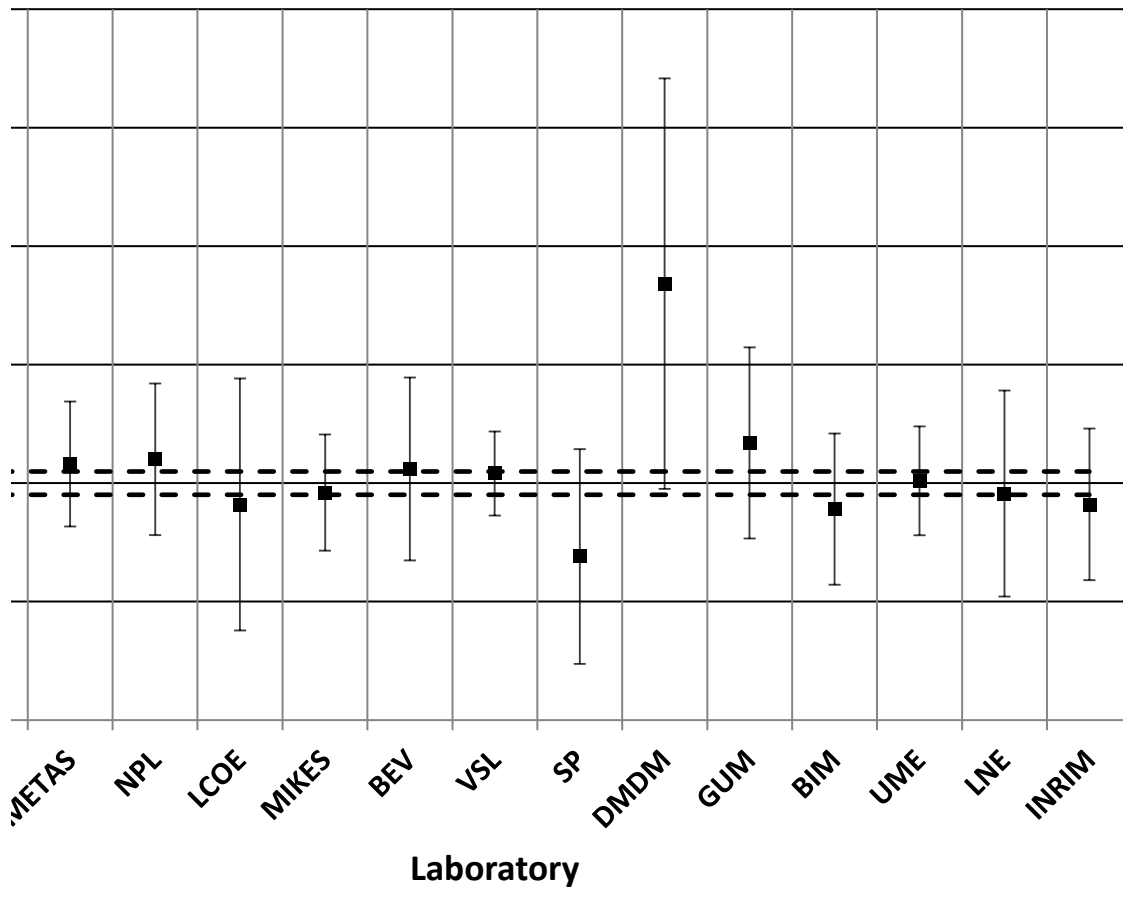


Ratio error deviation from reference value
 $k_1 = 8 \text{ kA}/5 \text{ A}, 20 \% I_N, 15 \text{ VA}$



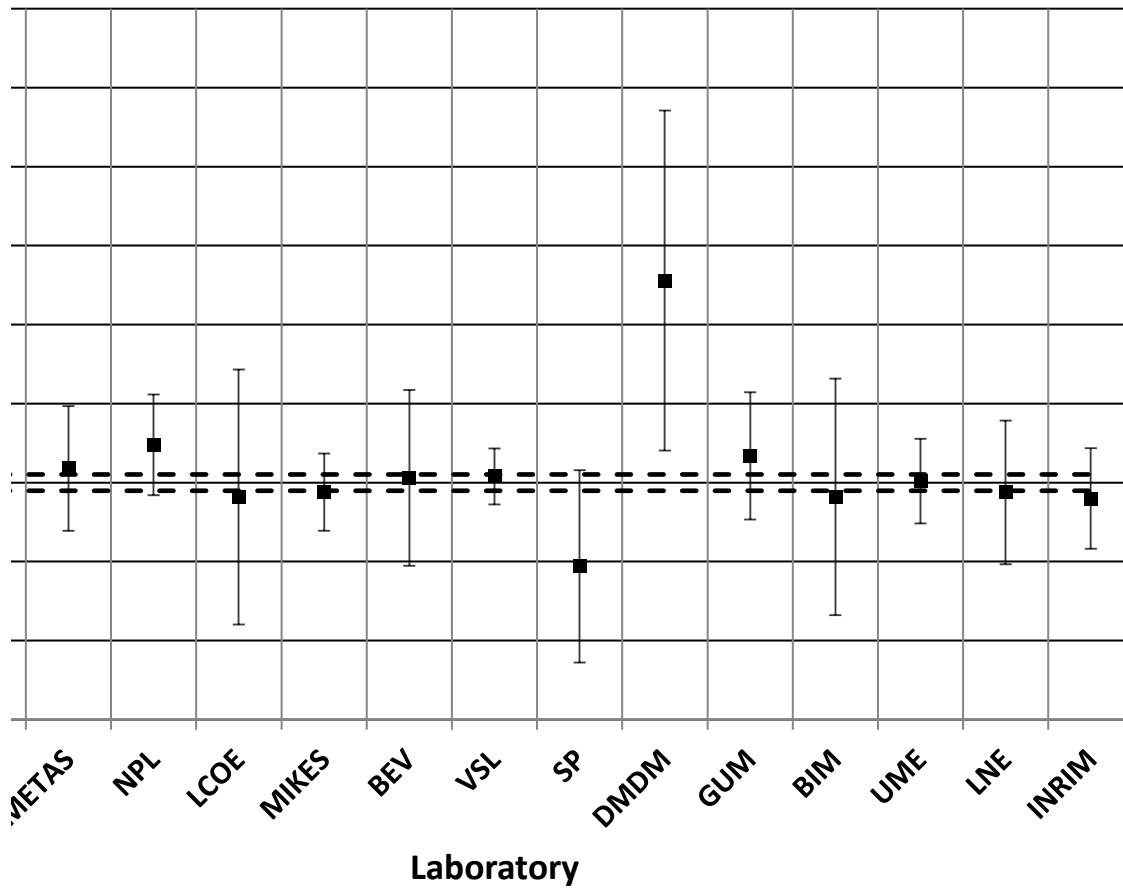


Ratio error deviation from reference value
 $k_1 = 8 \text{ kA}/5 \text{ A}, 10 \% I_N, 15 \text{ VA}$



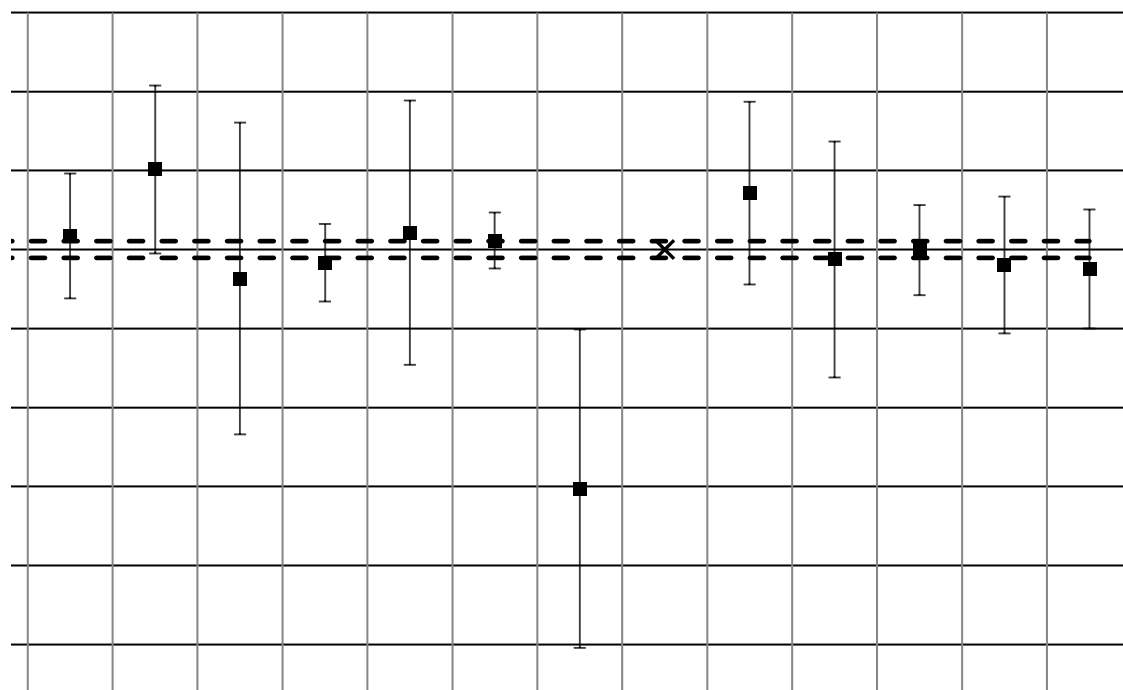
Ratio error deviation from reference value

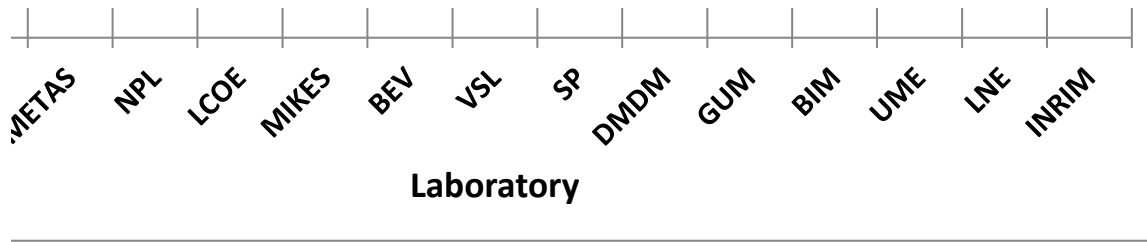
$k_1 = 8 \text{ kA}/5 \text{ A}, 5 \% I_N, 15 \text{ VA}$



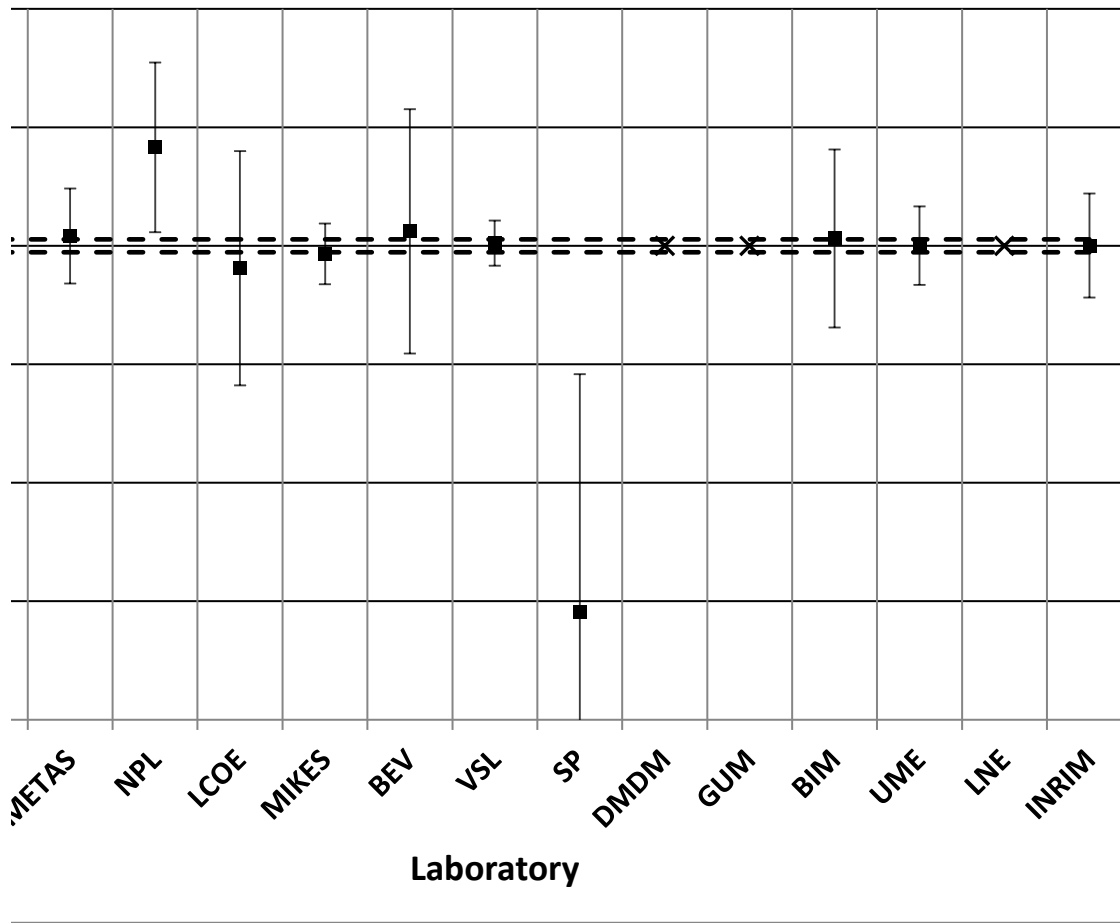
Ratio error deviation from reference value

$k_1 = 8 \text{ kA}/5 \text{ A}, 2 \% I_N, 15 \text{ VA}$



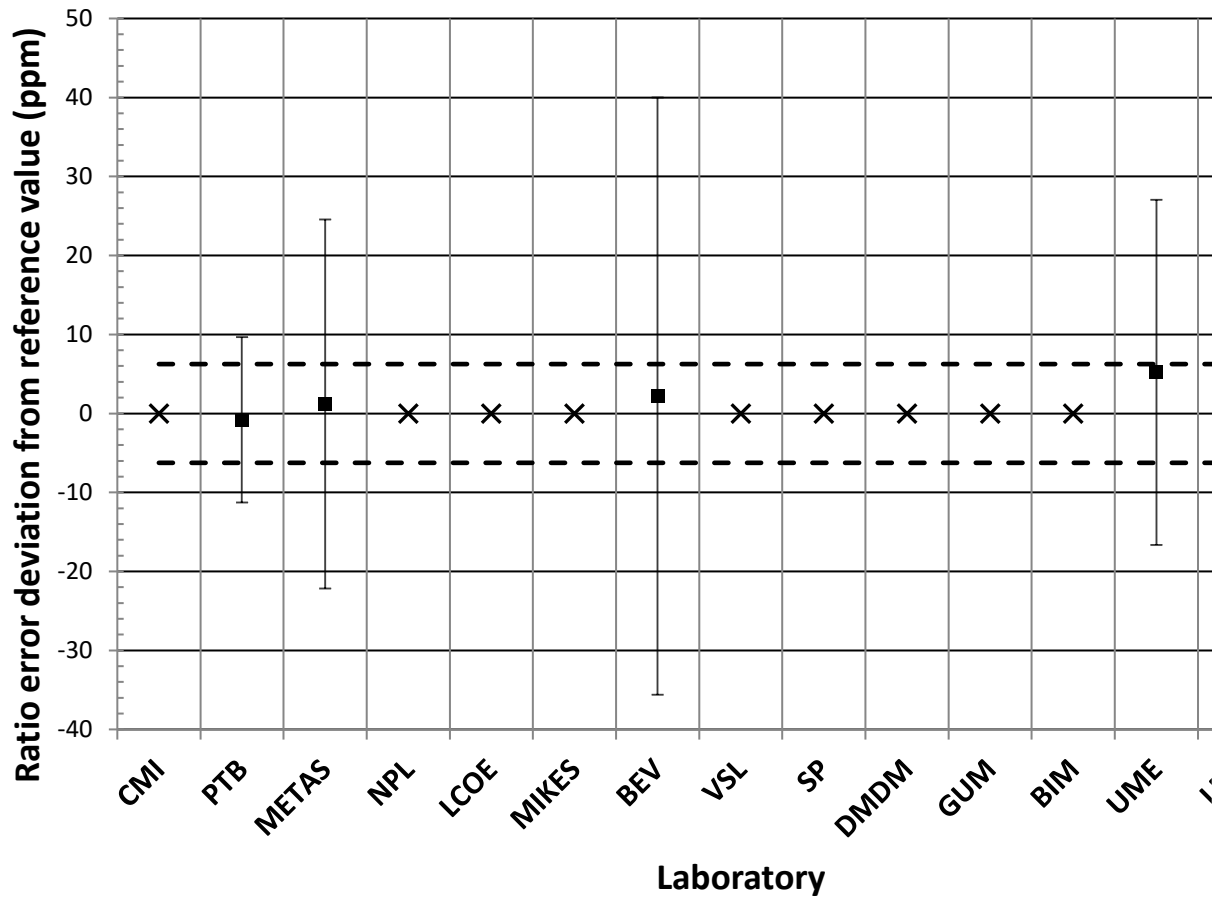


Ratio error deviation from reference value
 $k_1 = 8 \text{ kA}/5 \text{ A}, 1 \% I_N, 15 \text{ VA}$



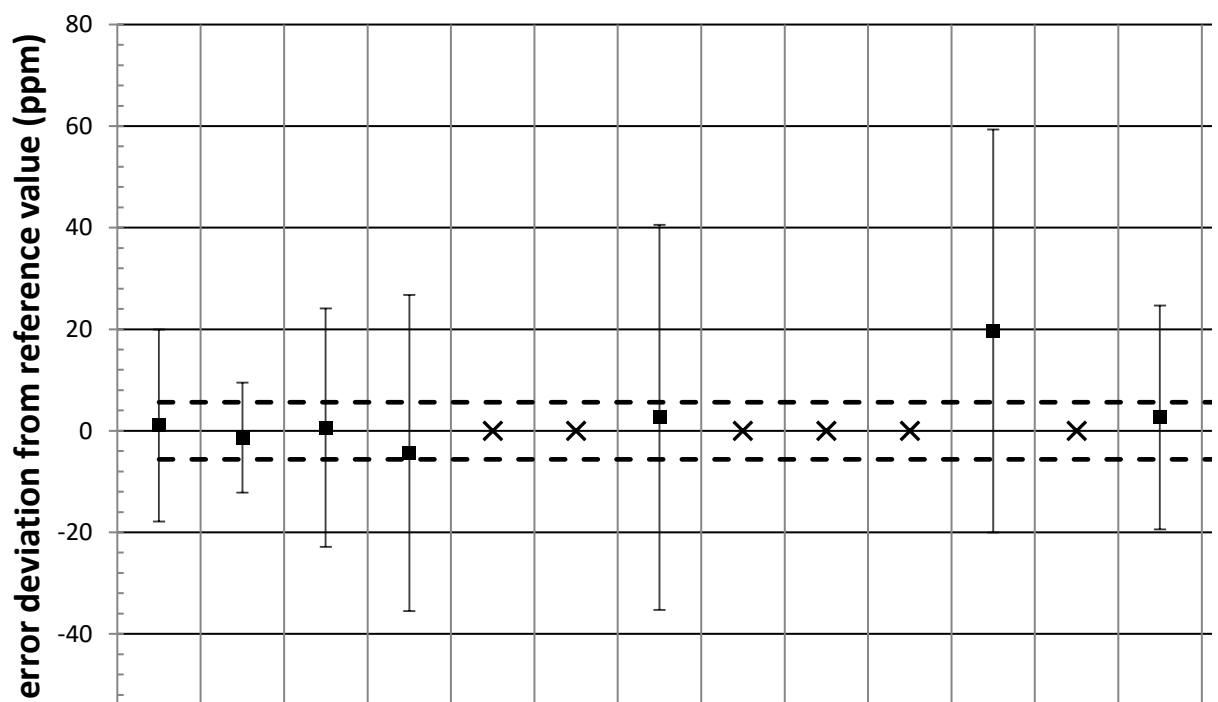
Ratio error deviation from reference value

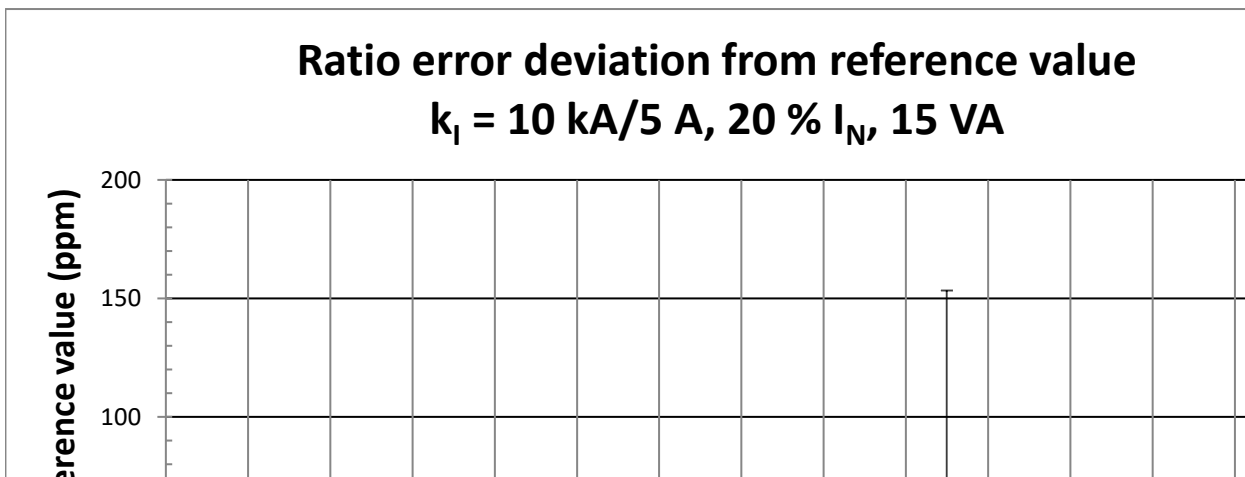
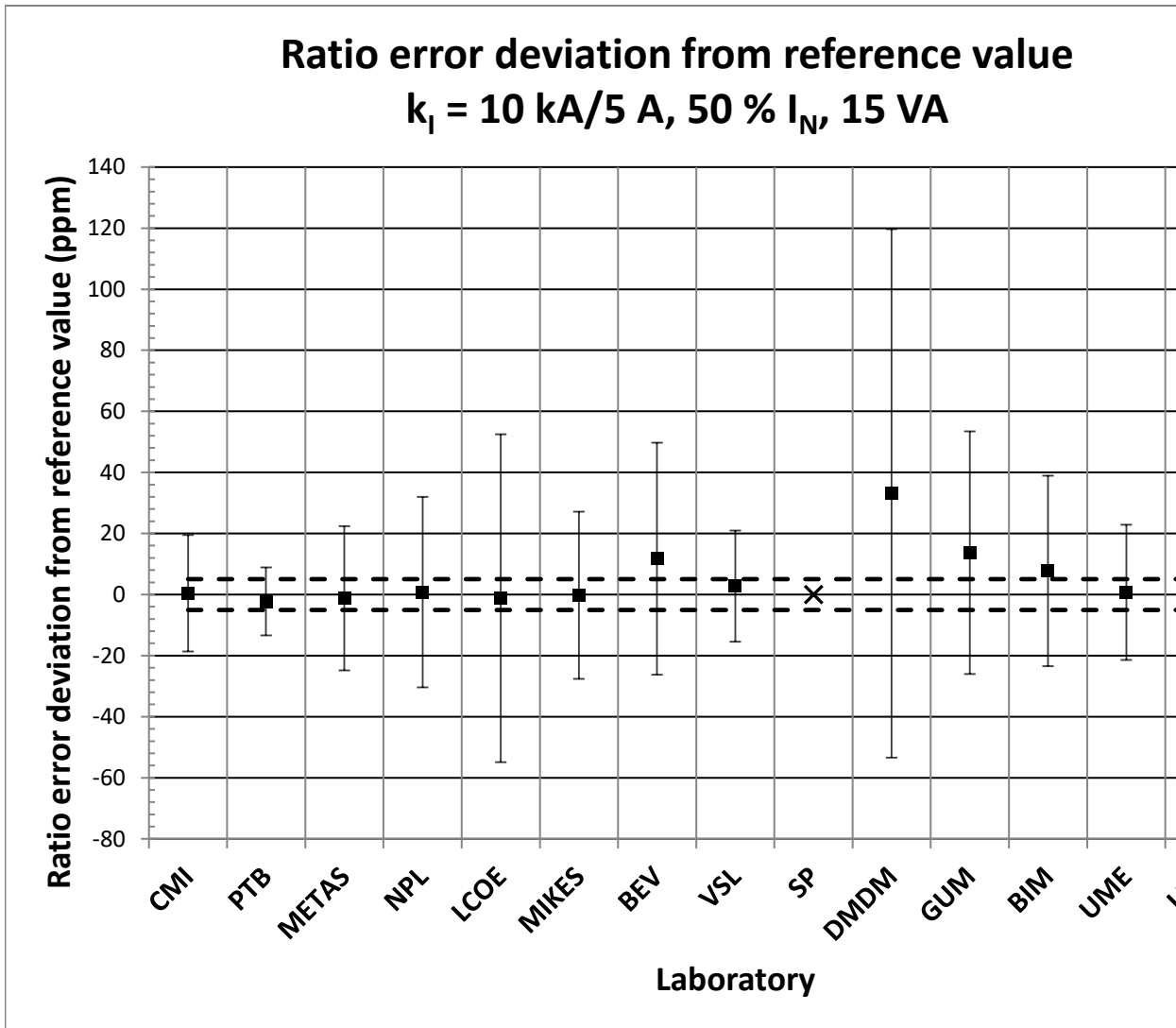
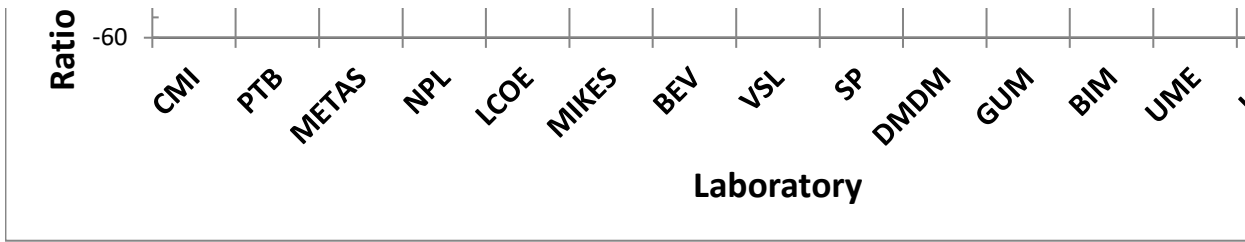
$k_1 = 10 \text{ kA/5 A}, 120 \% I_N, 15 \text{ VA}$

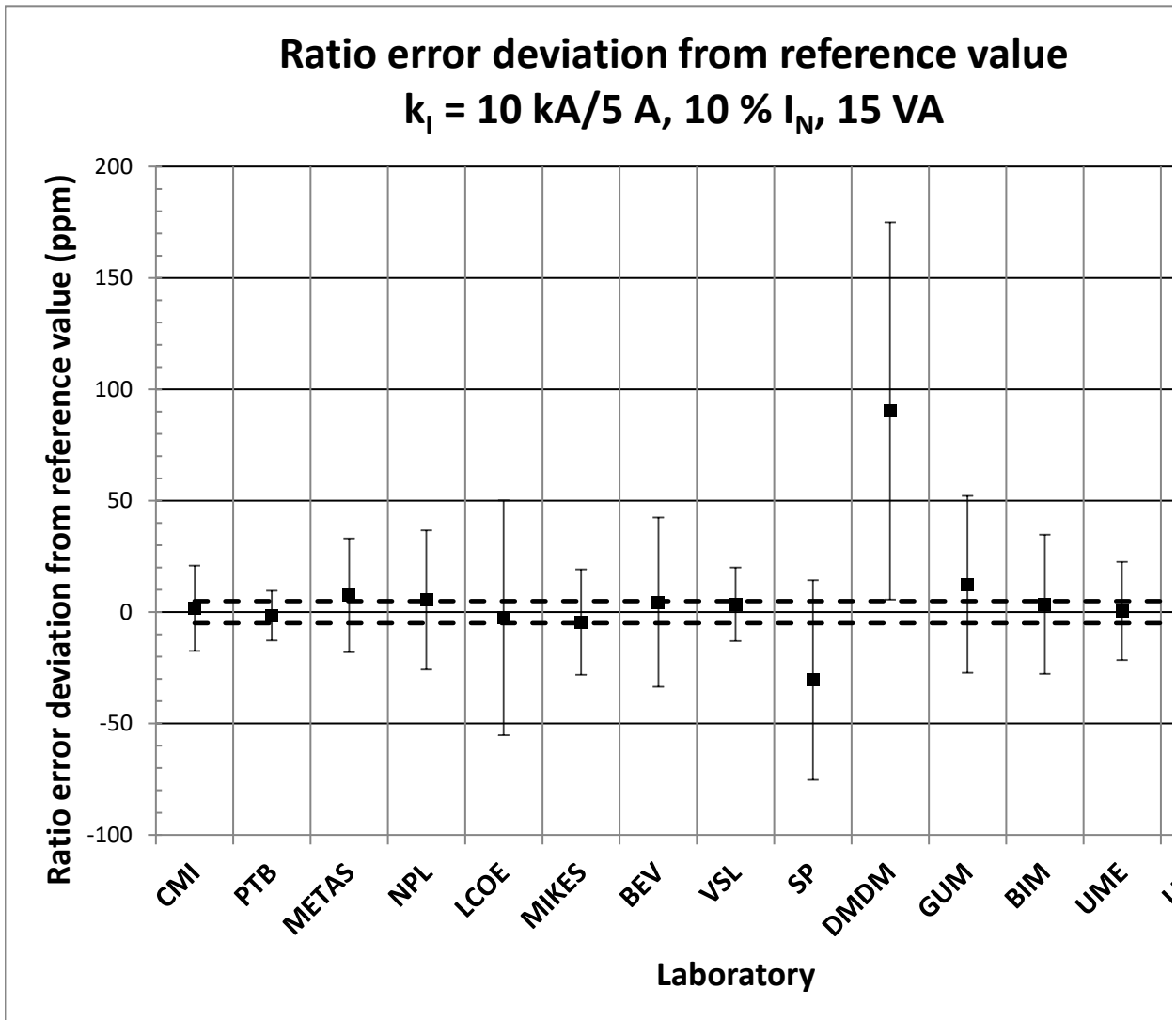
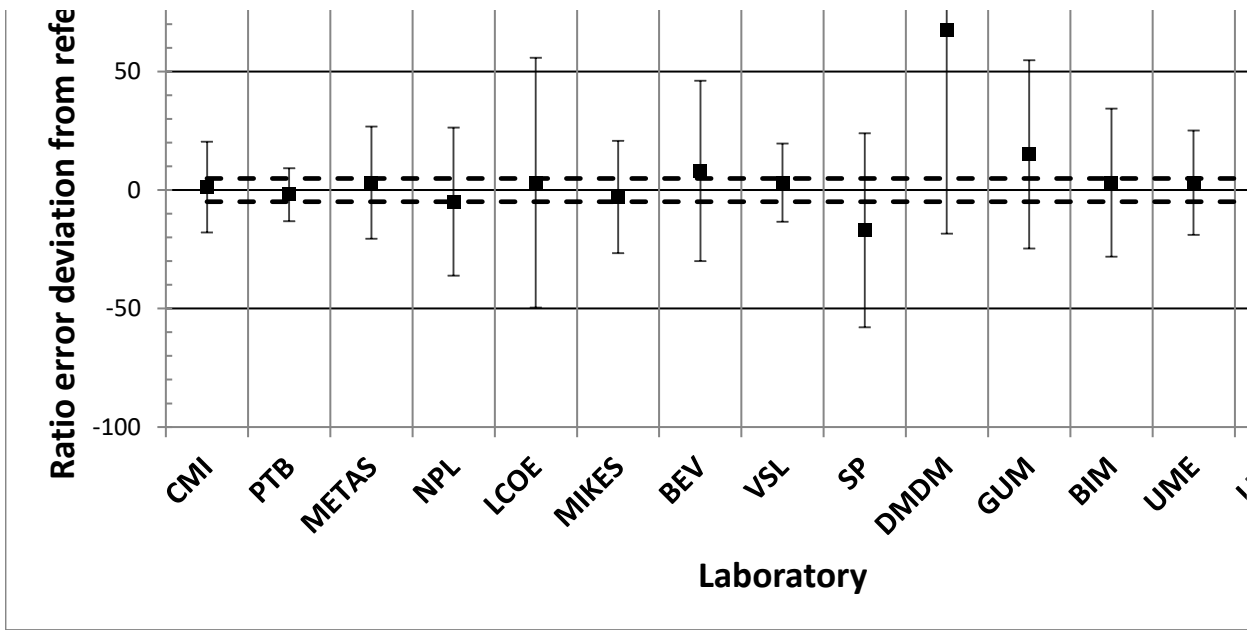


Ratio error deviation from reference value

$k_1 = 10 \text{ kA/5 A}, 100 \% I_N, 15 \text{ VA}$

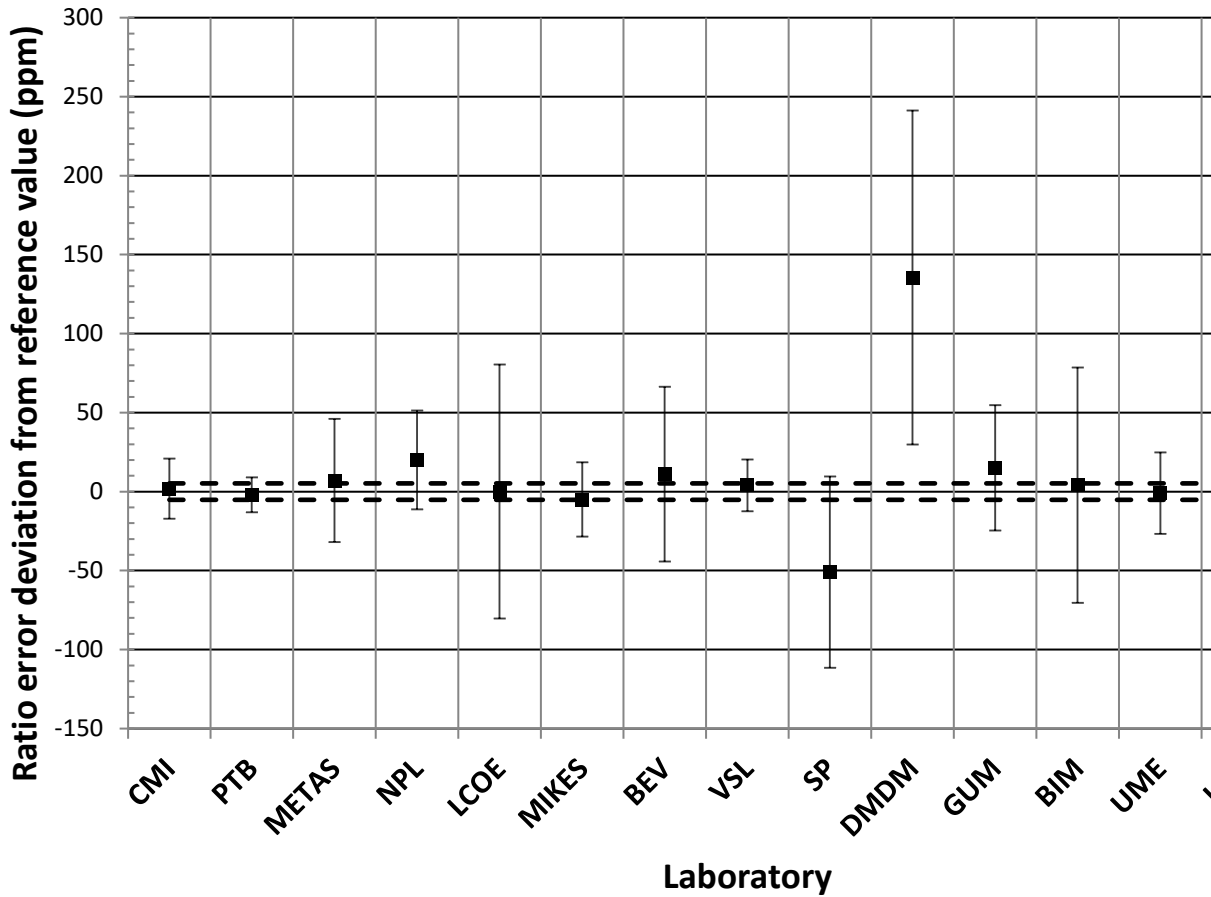






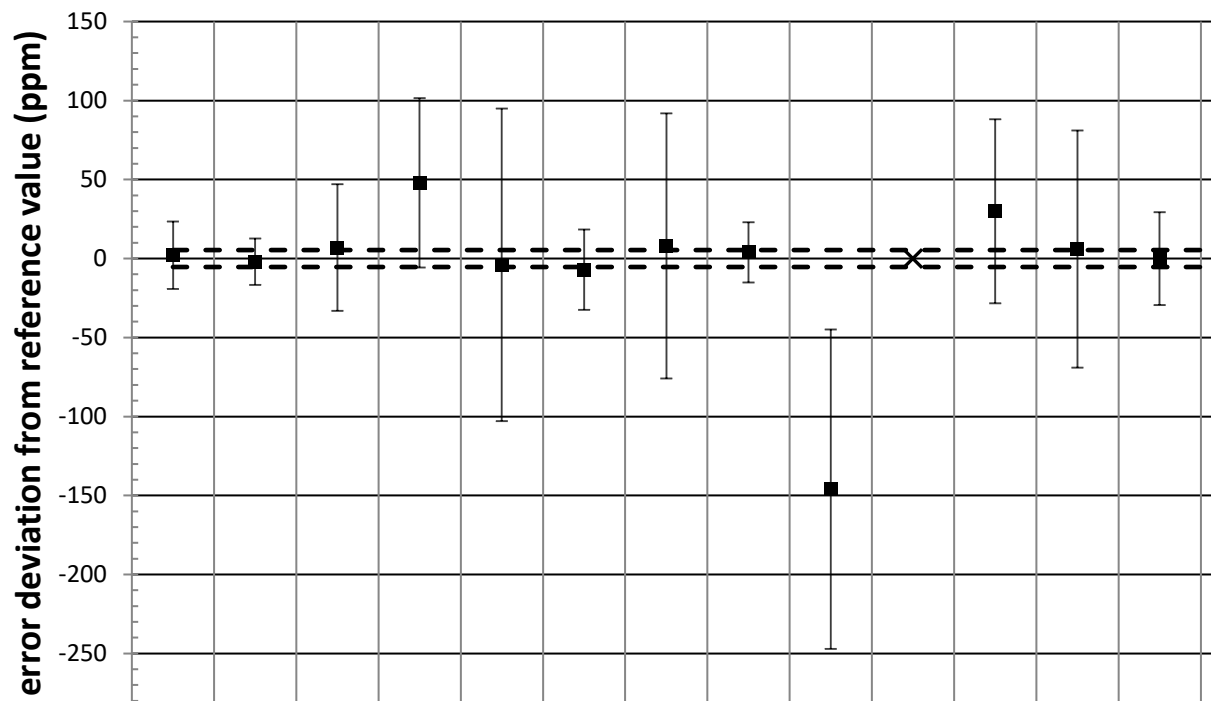
Ratio error deviation from reference value

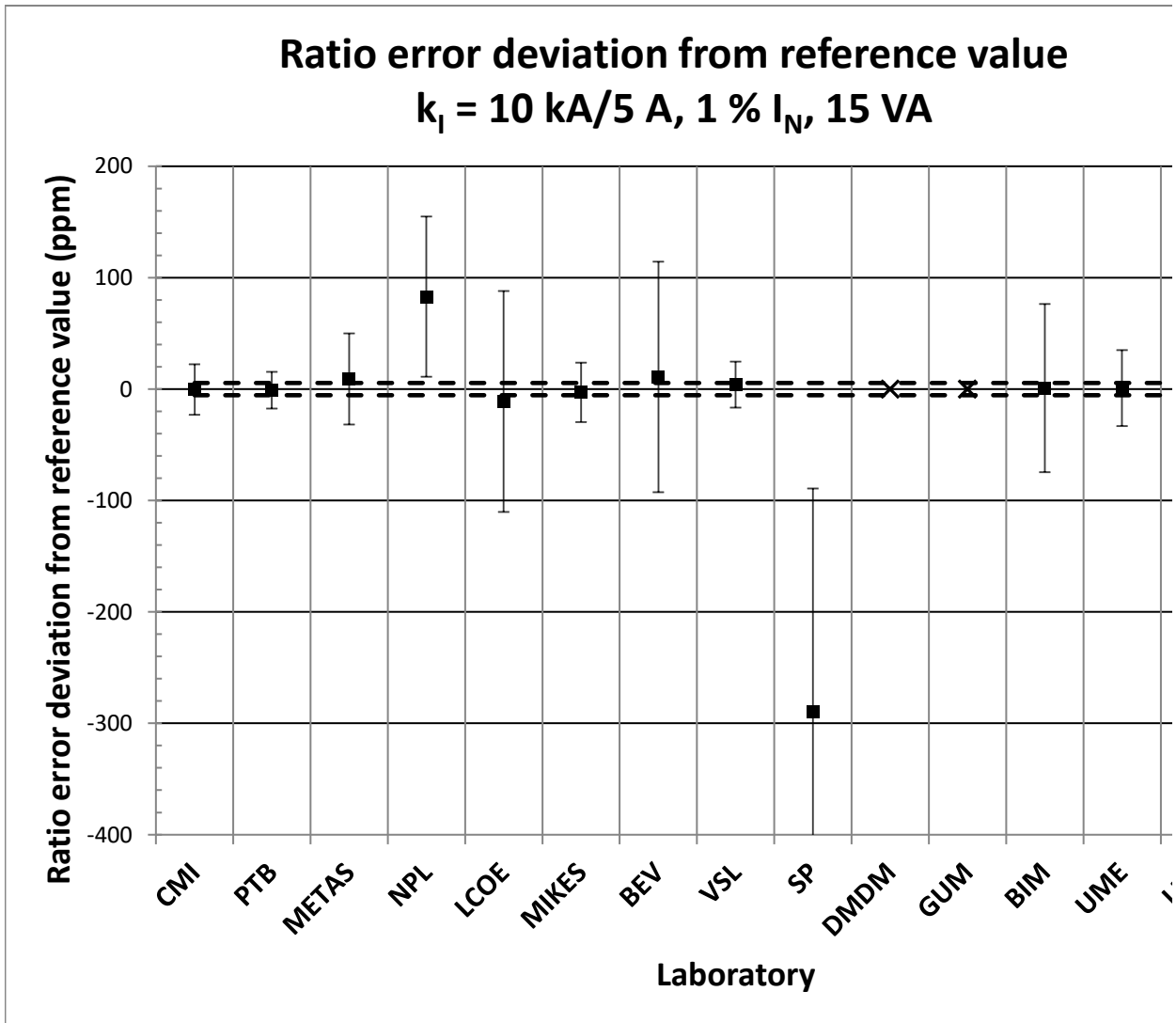
$k_1 = 10 \text{ kA}/5 \text{ A}, 5 \% I_N, 15 \text{ VA}$



Ratio error deviation from reference value

$k_1 = 10 \text{ kA}/5 \text{ A}, 2 \% I_N, 15 \text{ VA}$





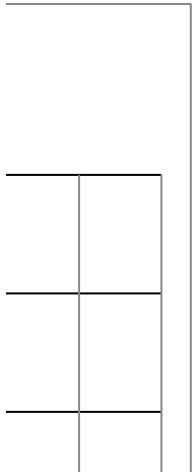
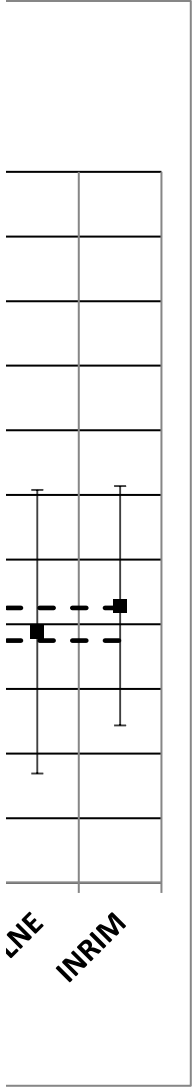
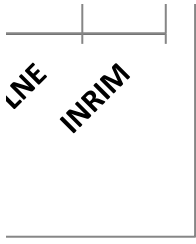


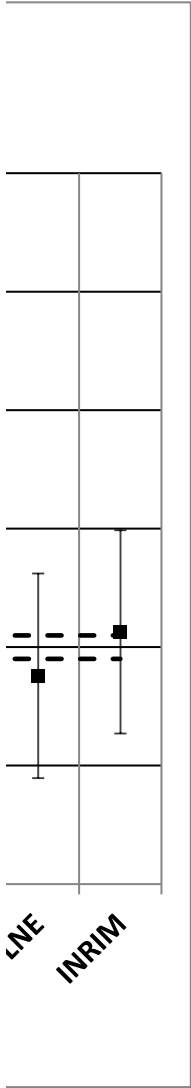
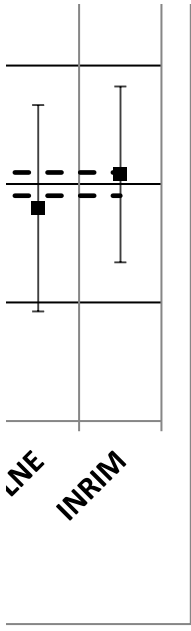
- - - - -	- - - - -
x	x
- - - - -	- - - - -

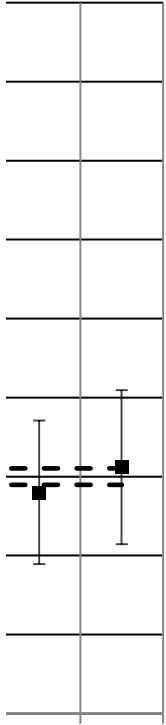
LINE
INRIM

- - - - -	- - - - -
x	
- - - - -	- - - - -

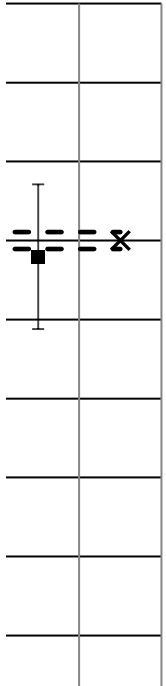


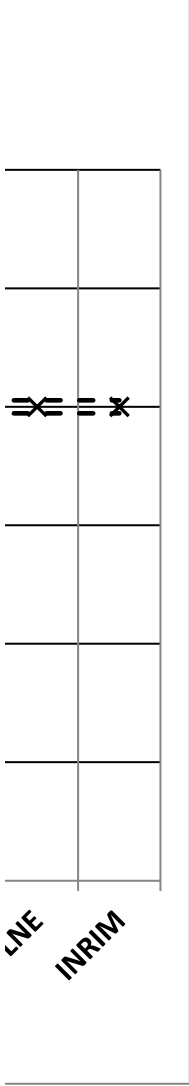
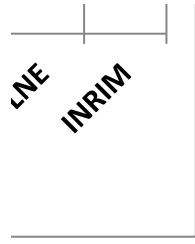






LNE
INRIM





$E_{\text{std-Limit}}(\delta)$		1.0								
5 VA		CMI					PTB			
k_1 (kA/A)	I_1 (% I_N)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{\text{std}})$ (μrad)	$E(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{\text{std}})$ (μrad)
4/5	120	159	30	7	31	0.114	144	10	-8	13
	100	169	30	8	31	0.127	151	10	-10	12
	50	209	30	10	31	0.170	190	10	-8	12
	20	248	30	9	30	0.156	232	10	-7	10
	10	270	35	4	35	0.064	257	10	-8	10
	5	290	35	4	35	0.057	275	10	-11	10
	2	305	40	-1	40	0.016	295	10	-11	10
	1	316	40	-1	40	0.009	305	10	-12	9
10/5	120						67	7.5	-5	7
	100	81	30	2	30	0.031	71	7.5	-8	7
	50	98	30	7	30	0.121	89	7.5	-1	8
	20	115	30	3	30	0.055	107	7.5	-5	7
	10	126	35	2	35	0.024	119	7.5	-5	7
	5	135	35	1	35	0.011	128	7.5	-6	7
	2	143	40	1	40	0.009	137	7.5	-6	7
	1	148	40	0	40	0.001	142	7.5	-6	6
15 VA		CMI					PTB			
k_1 (kA/A)	I_1 (% I_N)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{\text{std}})$ (μrad)	$E(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{\text{std}})$ (μrad)
4/5	120	184	30	-9	30	0.150	165	20	-28	20
	100	206	30	-4	30	0.063	180	20	-29	20
	50	262	30	9	30	0.148	236	20	-17	20
	20	323	30	6	30	0.108	299	20	-17	20
	10	358	35	4	35	0.051	335	20	-20	20
	5	386	35	5	35	0.072	364	20	-17	19
	2	412	40	4	40	0.047	393	20	-16	19
	1	429	40	7	40	0.090	409	20	-13	19
5/5	120	156	30	-11	30	0.179	134	20	-32	20
	100	167	30	-2	30	0.028	144	20	-25	20
	50	209	30	6	30	0.108	188	20	-14	20
	20	257	30	7	30	0.109	238	20	-13	20
	10	284	35	3	35	0.040	264	20	-18	20
	5	306	35	3	35	0.048	287	20	-15	19
	2	327	40	5	40	0.057	309	20	-13	19
	1	338	40	5	40	0.058	322	20	-11	19
6/5	120	129	30	-11	30	0.189	114	15	-26	15
	100	142	30	-3	30	0.046	121	15	-24	15
	50	176	30	9	30	0.150	156	15	-11	15
	20	215	30	8	30	0.133	196	15	-11	15
	10	238	35	7	35	0.095	219	15	-12	15
	5	255	35	5	35	0.073	237	15	-13	14
	2	272	40	4	40	0.045	256	15	-12	14

	1	278	40	1	40	0.011	266	15	-11	14
8/5	120	104	30	0	30	0.008	86	15	-18	15
	100	113	30	6	30	0.097	93	15	-14	16
	50	137	30	9	30	0.153	119	15	-9	15
	20	167	30	8	30	0.141	149	15	-9	15
	10	184	35	12	35	0.167	166	15	-6	15
	5	197	35	10	35	0.138	180	15	-7	14
	2	210	40	9	40	0.113	194	15	-7	14
	1	213	40	2	40	0.027	201	15	-10	14
10/5	120						69	15	-9	14
	100	85	30	-1	30	0.013	75	15	-10	14
	50	103	30	4	30	0.063	95	15	-5	15
	20	125	30	0	30	0.008	117	15	-9	15
	10	138	35	3	35	0.045	130	15	-5	15
	5	149	35	2	35	0.024	141	15	-6	14
	2	159	40	4	40	0.048	152	15	-4	14
	1	165	40	2	40	0.021	158	15	-6	14

Annex 4 TAB A4-1 Calculation from results of all labs. |

Meaning of individual symbols:

- I_1 Primary current (%) I_N
- k_1 Transformation ratio I (kA/A)
- B** Burden (VA)
- I_{1N} Rated primary current (A)
- δ_L Phase displacement of individual laboratory (μrad)
- $u(\delta_L)$ Standard uncertainty of phase displacement of individual laboratory (μrad)
- δ_r CRV for phase displacement calculated from results of all laboratories see eqv. (2)
- $u(\delta_r)$ CRV uncertainty calculated from results of all laboratories see eqv. (3) (μrad)
- $\Delta\delta$ Difference between results of individual laboratory dL and dr see eqv. (5) (μrad)
- $u(\Delta\delta_{\text{std}})$ The uncertainty of the difference $\Delta\delta$ according to (8) with transfer standard unce
- $u(\delta_{\text{std}})$ Pilot laboratory evaluated uncertainty component of phase displacement of tran
- $E(\delta)$ Confidence coefficient of phase displacement calculated from results of all labor: red and underlined results are for $E(\delta) > 1.0$

5 VA		CMI	CMI	CMI	CMI	CMI	PTB	PTB	PTB	PTB
k_1 (kA/A)	I %	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{\text{std}C})$ (μrad)	$E_C(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{\text{std}C})$ (μrad)
10/5	120	159	30	4	31	0.061	144	10	-11	13
	100	169	30	11	31	0.174	151	10	-7	12
	50	209	30	11	31	0.178	190	10	-8	12
	20	248	30	9	30	0.156	232	10	-7	10

4/3	10	270	35	4	35	0.064	257	10	-8	10
	5	290	35	4	35	0.057	275	10	-11	10
	2	305	40	-1	40	0.016	295	10	-11	10
	1	316	40	-1	40	0.009	305	10	-12	9
10/5	120						67	7.5	-5	7
	100	81	30	2	30	0.031	71	7.5	-8	7
	50	98	30	8	30	0.134	89	7.5	-1	8
	20	115	30	3	30	0.055	107	7.5	-5	7
	10	126	35	2	35	0.024	119	7.5	-5	7
	5	135	35	1	35	0.011	128	7.5	-6	7
	2	143	40	1	40	0.009	137	7.5	-6	7
1	148	40	0	40	0.001	142	7.5	-6	6	
15 VA		CMI	CMI	CMI	CMI	CMI	PTB	PTB	PTB	PTB
k_I (kA/A)	l %	δ_L (μ rad)	$u(\delta_L)$ (μ rad)	$\Delta\delta_C$ (μ rad)	$u(\Delta\delta_{stdC})$ (μ rad)	$E_C(\delta)$ (-)	δ_L (μ rad)	$u(\delta_L)$ (μ rad)	$\Delta\delta_C$ (μ rad)	$u(\Delta\delta_{stdC})$ (μ rad)
4/5	120	184	30	-9	30	0.159	165	20	-28	19
	100	206	30	2	29	0.034	180	20	-24	19
	50	262	30	8	29	0.137	236	20	-18	19
	20	323	30	0	30	0.006	299	20	-24	20
	10	358	35	-4	35	0.056	335	20	-27	19
	5	386	35	5	35	0.072	364	20	-17	19
	2	412	40	4	40	0.047	393	20	-16	19
1	429	40	7	40	0.090	409	20	-13	19	
5/5	120	156	30	-11	30	0.179	134	20	-32	20
	100	167	30	-9	30	0.142	144	20	-32	20
	50	209	30	-1	30	0.023	188	20	-22	20
	20	257	30	-1	30	0.015	238	20	-20	20
	10	284	35	-5	35	0.069	264	20	-25	20
	5	306	35	3	35	0.048	287	20	-15	19
	2	327	40	5	40	0.057	309	20	-13	19
1	338	40	5	40	0.058	322	20	-11	19	
6/5	120	129	30	-11	30	0.189	114	15	-26	15
	100	142	30	-3	30	0.046	121	15	-24	15
	50	176	30	4	30	0.073	156	15	-15	15
	20	215	30	8	30	0.133	196	15	-11	15
	10	238	35	7	35	0.095	219	15	-12	15
	5	255	35	5	35	0.073	237	15	-13	14
	2	272	40	4	40	0.045	256	15	-12	14
1	278	40	1	40	0.011	266	15	-11	14	
8/5	120	104	30	0	30	0.008	86	15	-18	15
	100	113	30	6	30	0.097	93	15	-14	16
	50	137	30	10	30	0.173	119	15	-8	15
	20	167	30	8	30	0.141	149	15	-9	15
	10	184	35	12	35	0.167	166	15	-6	15
	5	197	35	10	35	0.138	180	15	-7	14
2	210	40	9	40	0.113	194	15	-7	14	

	1	213	40	2	40	0.027	201	15	-10	14
10/5	120						69	15	-9	14
	100	85	30	-1	30	0.013	75	15	-10	14
	50	103	30	5	30	0.086	95	15	-3	15
	20	125	30	0	30	0.008	117	15	-9	15
	10	138	35	3	35	0.045	130	15	-5	15
	5	149	35	2	35	0.024	141	15	-6	14
	2	159	40	4	40	0.048	152	15	-4	14
1	165	40	2	40	0.021	158	15	-6	14	

Annex 4 TAB A4-2. Calculation without outliers.

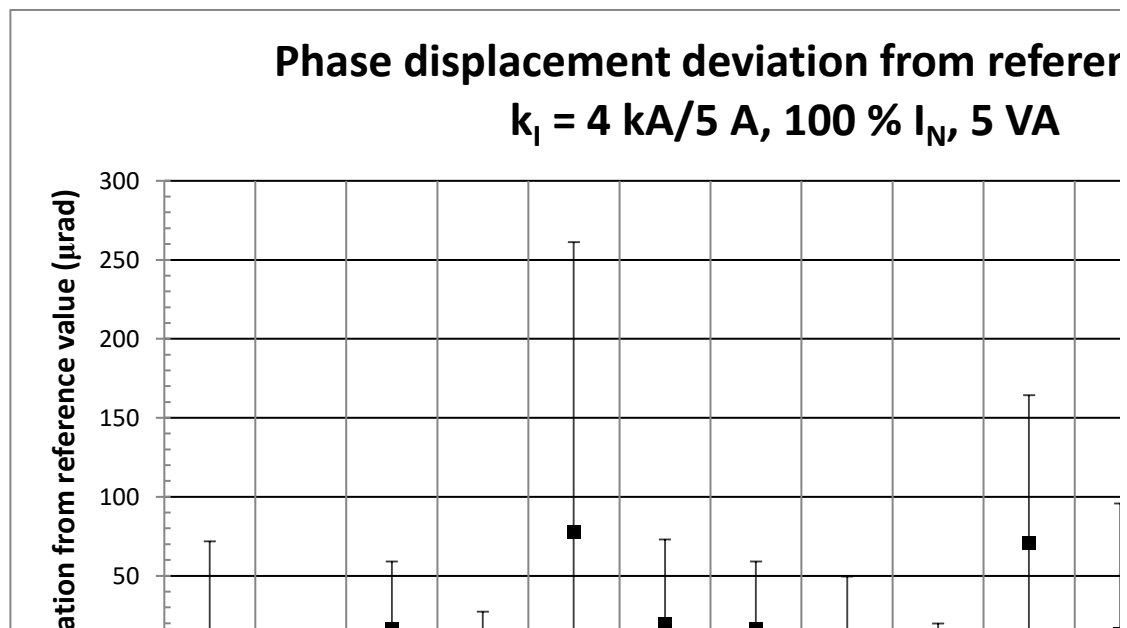
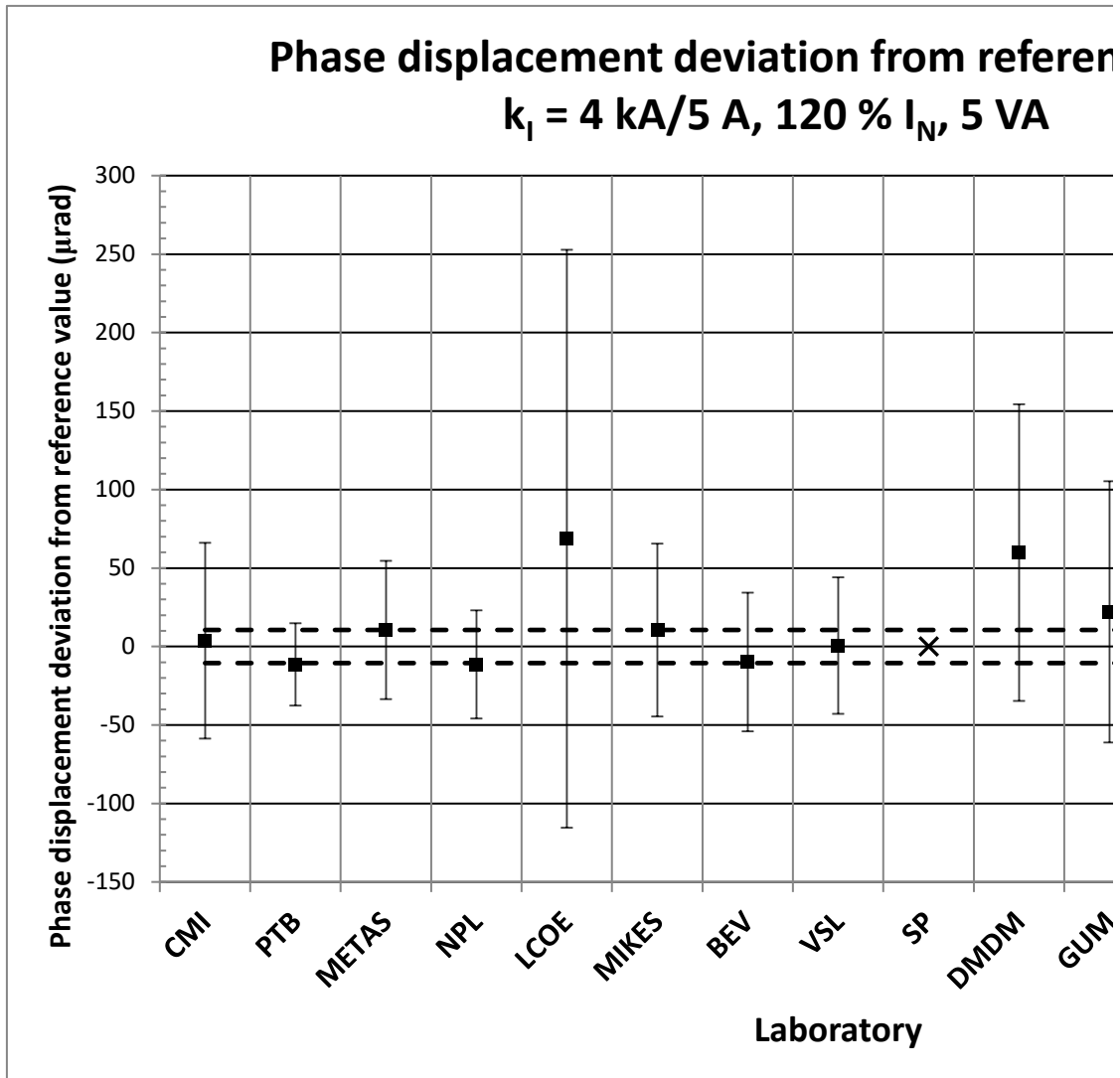
Meaning of individual symbols:

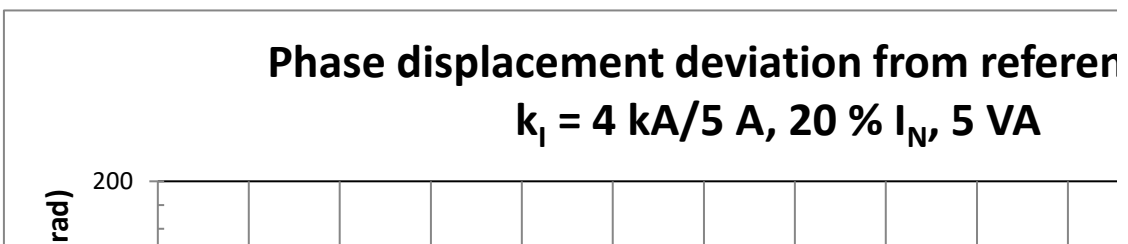
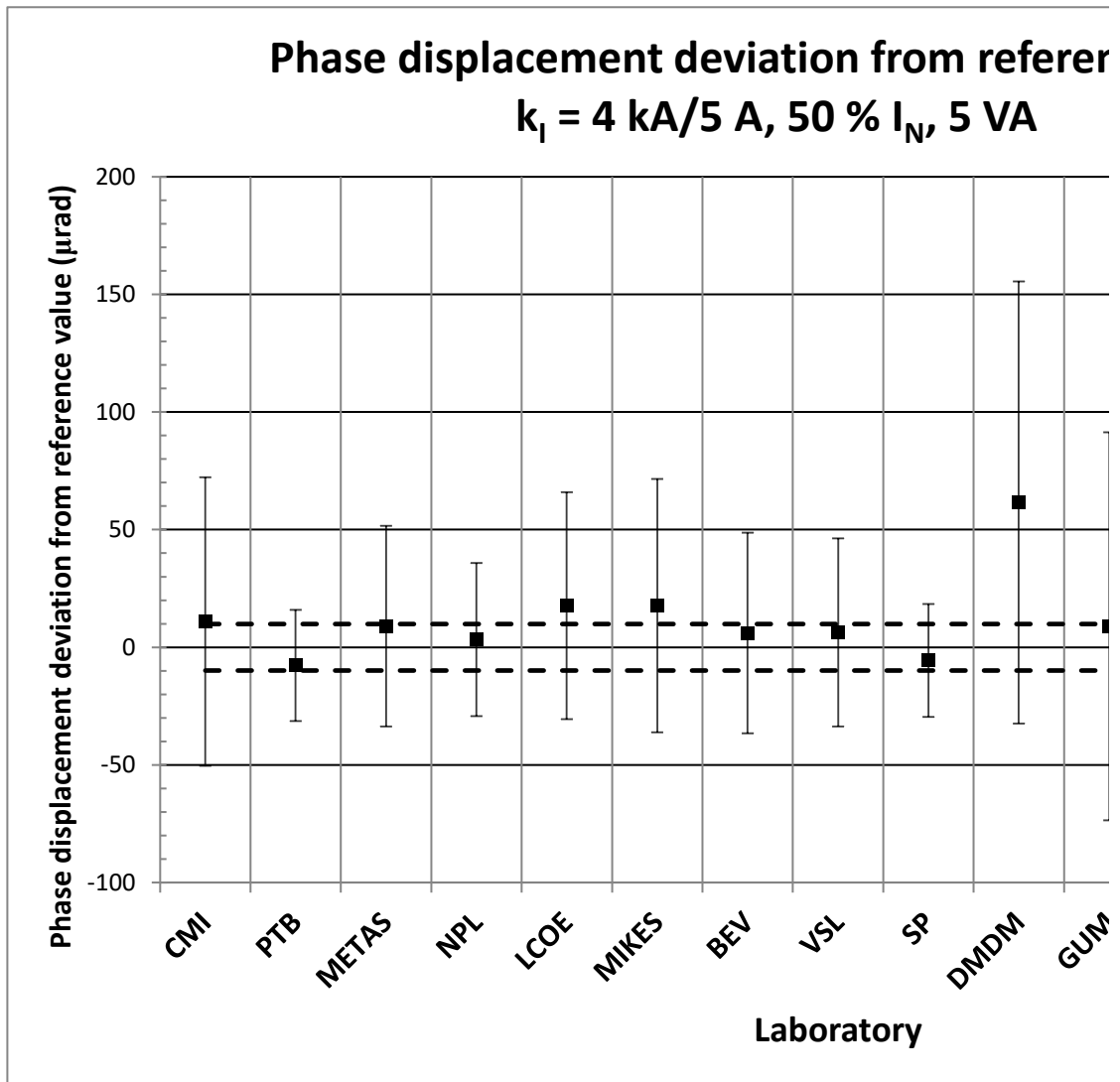
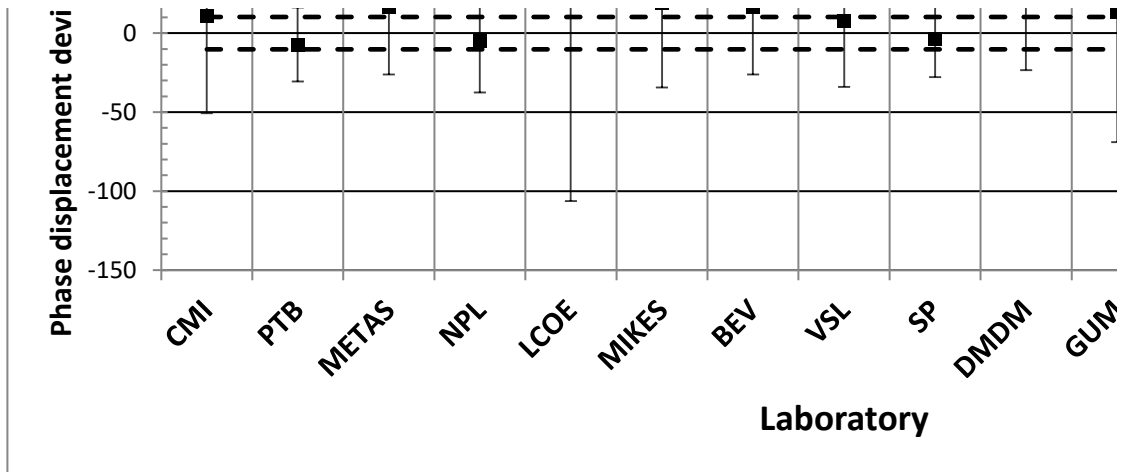
- I_1 Primary current (%) I_N
- k_1 Transformation ratio I (kA/A)
- B** Burden (VA)
- I_{1N} Rated primary current (A)
- δ_L Phase displacement of each participating laboratory (μrad)
- $u(\delta_L)$ Standard uncertainty of phase displacement of each participating laboratory (μrad)
- δ_{rc} CRVc for phase displacement according to (2) without outliers (μrad)
- $u(\delta_{rc})$ CRVc uncertainty according to (3) without outliers (μrad)
- $\Delta\delta_C$ Difference between results of individual laboratory δ_L and δ_{rc} without outliers, see
- $u(\Delta\delta_{stdC})$ The uncertainty of the difference $\Delta\delta_C$ without outliers according to (11) with tran
- $E_C(\delta)$ Corrected confidence coefficient whitout outliers, accoring to (12)

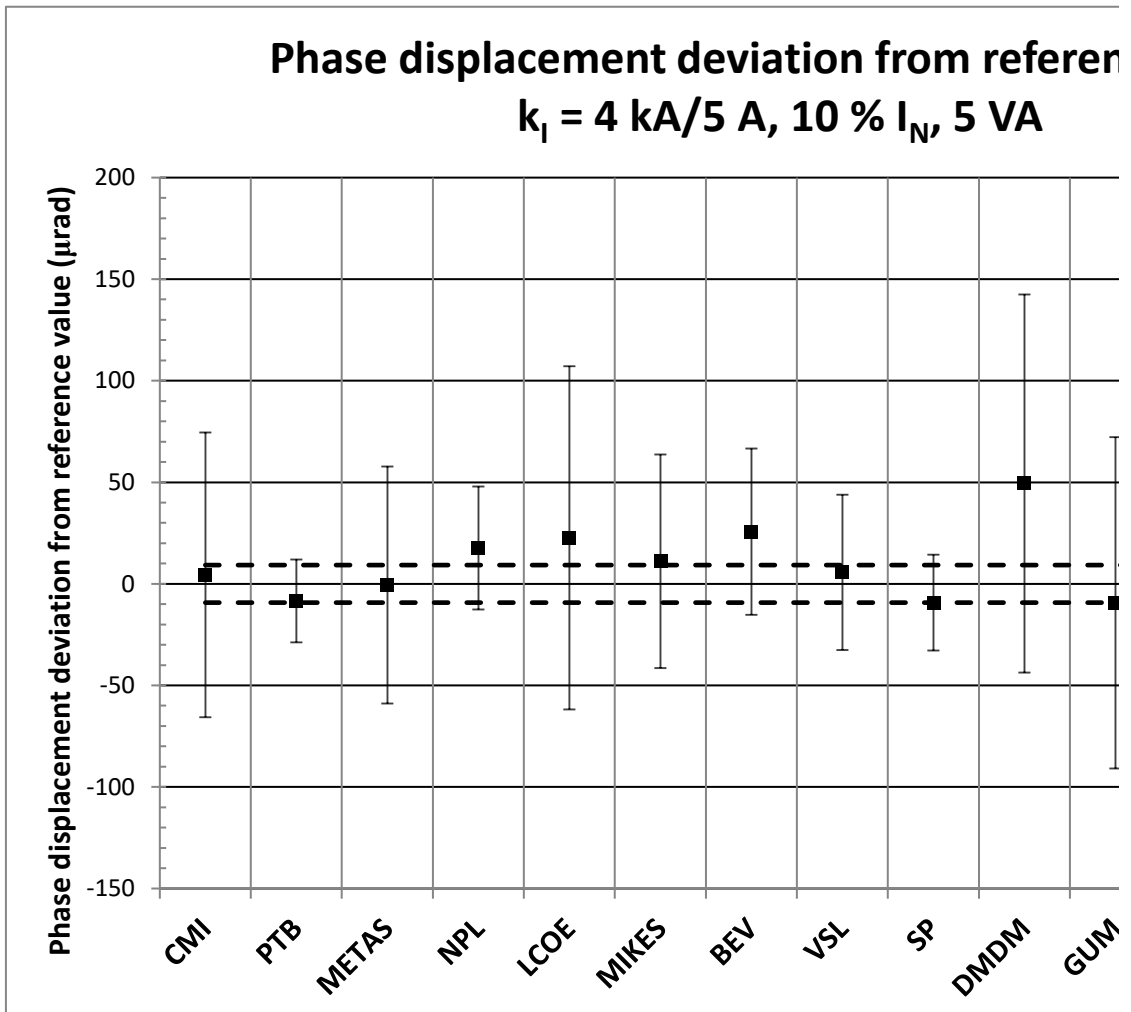
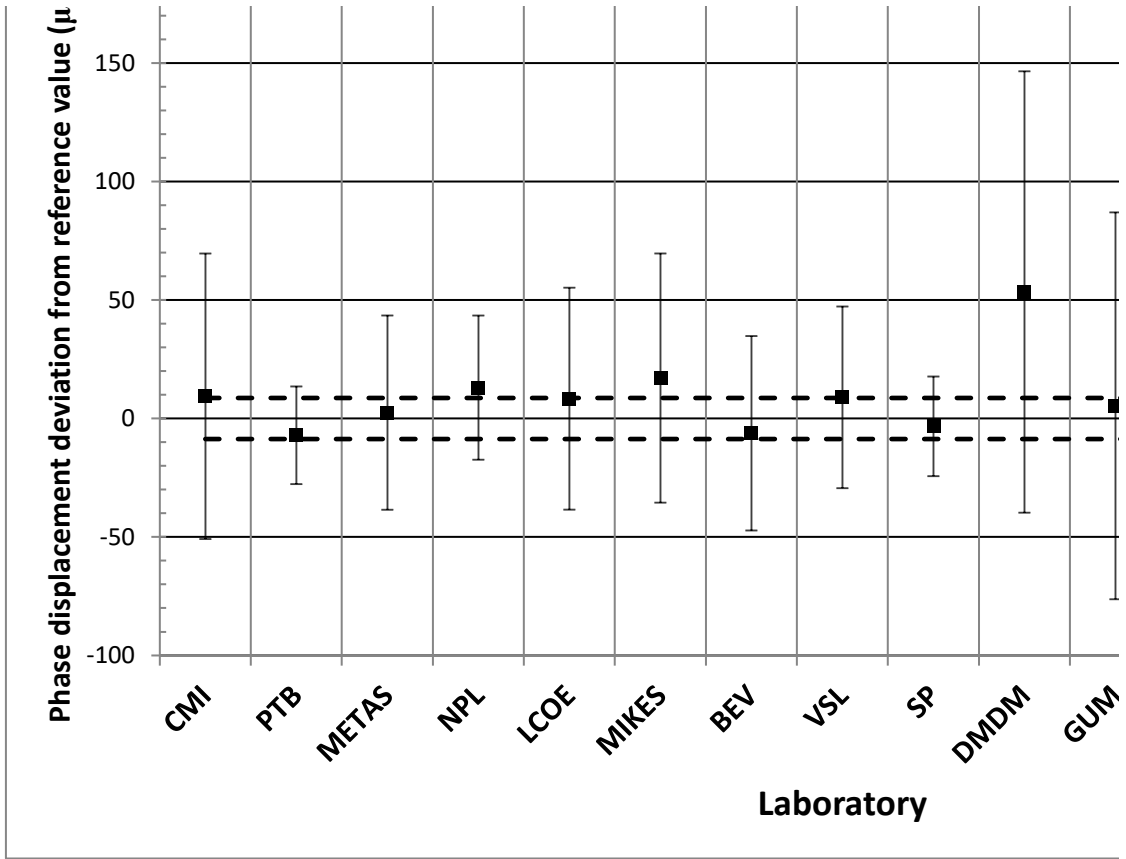
5 VA		CMI	CMI			PTB	PTB	
k_1 (kA/A)	I %	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{stdC})$ (μrad)	novalue	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{stdC})$ (μrad)	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{stdC})$ (μrad)
4/5	120	4	62	#N/A	4	62	-11	26
	100	11	61	#N/A	11	61	-7	23
	50	11	61	#N/A	11	61	-8	24
	20	9	60	#N/A	9	60	-7	21
	10	4	70	#N/A	4	70	-8	20
	5	4	70	#N/A	4	70	-11	20
	2	-1	80	#N/A	-1	80	-11	19
	1	-1	80	#N/A	-1	80	-12	19
10/5	120			0	#N/A	#N/A	-5	14
	100	2	60	#N/A	2	60	-8	15
	50	8	60	#N/A	8	60	-1	15
	20	3	60	#N/A	3	60	-5	15
	10	2	70	#N/A	2	70	-5	15

15 VA	k_1 (kA/A)	I %	CMI	CMI	$\Delta\delta_c$ (μ rad)	U($\Delta\delta_{stdc}$) (μ rad)	#N/A				$\Delta\delta_c$ (μ rad)	U($\Delta\delta_{stdc}$) (μ rad)
		5	1	70	#N/A		1	70			-6	14
		2	1	80	#N/A		1	80			-6	13
		1	0	80	#N/A		0	80			-6	13
			CMI	CMI							PTB	PTB
			$\Delta\delta_c$ (μ rad)	U($\Delta\delta_{stdc}$) (μ rad)							$\Delta\delta_c$ (μ rad)	U($\Delta\delta_{stdc}$) (μ rad)
4/5		120	-9	59	#N/A		-9	59			-28	39
		100	2	59	#N/A		2	59			-24	38
		50	8	59	#N/A		8	59			-18	38
		20	0	59	#N/A		0	59			-24	39
		10	-4	69	#N/A		-4	69			-27	39
		5	5	69	#N/A		5	69			-17	39
		2	4	79	#N/A		4	79			-16	39
		1	7	79	#N/A		7	79			-13	38
5/5		120	-11	61	#N/A		-11	61			-32	41
		100	-9	60	#N/A		-9	60			-32	40
		50	-1	59	#N/A		-1	59			-22	39
		20	-1	59	#N/A		-1	59			-20	39
		10	-5	69	#N/A		-5	69			-25	39
		5	3	69	#N/A		3	69			-15	39
		2	5	79	#N/A		5	79			-13	39
		1	5	79	#N/A		5	79			-11	38
6/5		120	-11	60	#N/A		-11	60			-26	30
		100	-3	60	#N/A		-3	60			-24	30
		50	4	60	#N/A		4	60			-15	29
		20	8	60	#N/A		8	60			-11	29
		10	7	70	#N/A		7	70			-12	29
		5	5	69	#N/A		5	69			-13	28
		2	4	79	#N/A		4	79			-12	28
		1	1	79	#N/A		1	79			-11	28
8/5		120	0	60	#N/A		0	60			-18	31
		100	6	61	#N/A		6	61			-14	31
		50	10	60	#N/A		10	60			-8	31
		20	8	60	#N/A		8	60			-9	30
		10	12	70	#N/A		12	70			-6	30
		5	10	70	#N/A		10	70			-7	29
		2	9	79	#N/A		9	79			-7	28
		1	2	79	#N/A		2	79			-10	28
10/5		120					0	#N/A	#N/A		-9	28
		100	-1	59	#N/A		-1	59			-10	29
		50	5	60	#N/A		5	60			-3	30
		20	0	60	#N/A		0	60			-9	29
		10	3	70	#N/A		3	70			-5	29
		5	2	69	#N/A		2	69			-6	28
		2	4	79	#N/A		4	79			-4	28
		1	2	79	#N/A		2	79			-6	28

Annex 4. TAB A4-3 auxiliary calculation for graphs



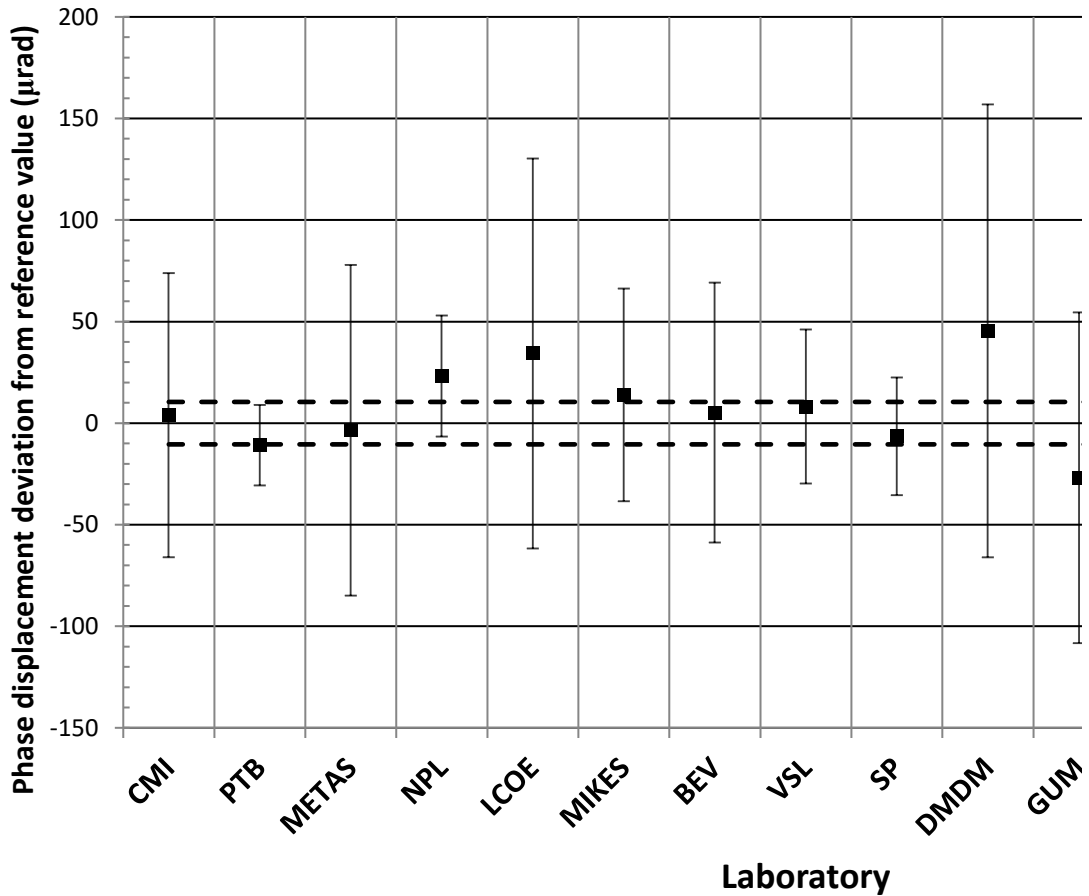




Laboratory

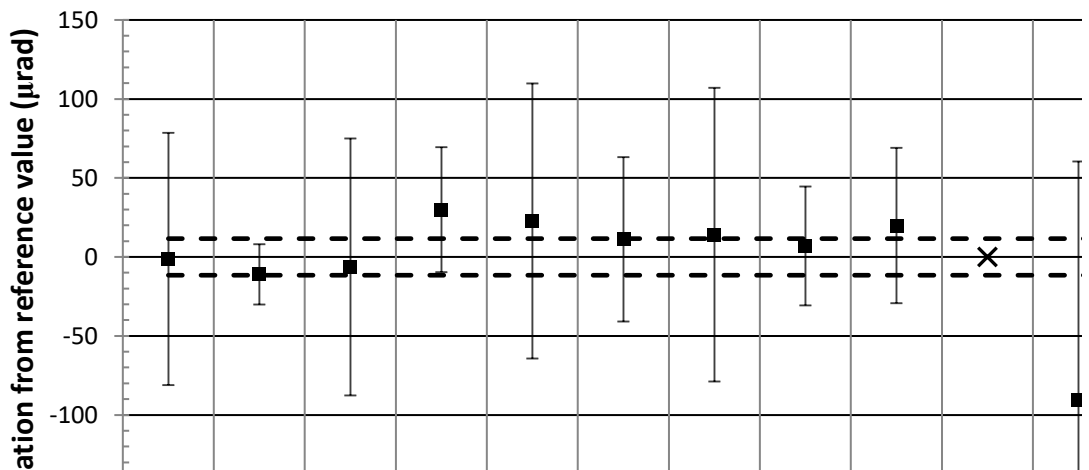
Phase displacement deviation from referen

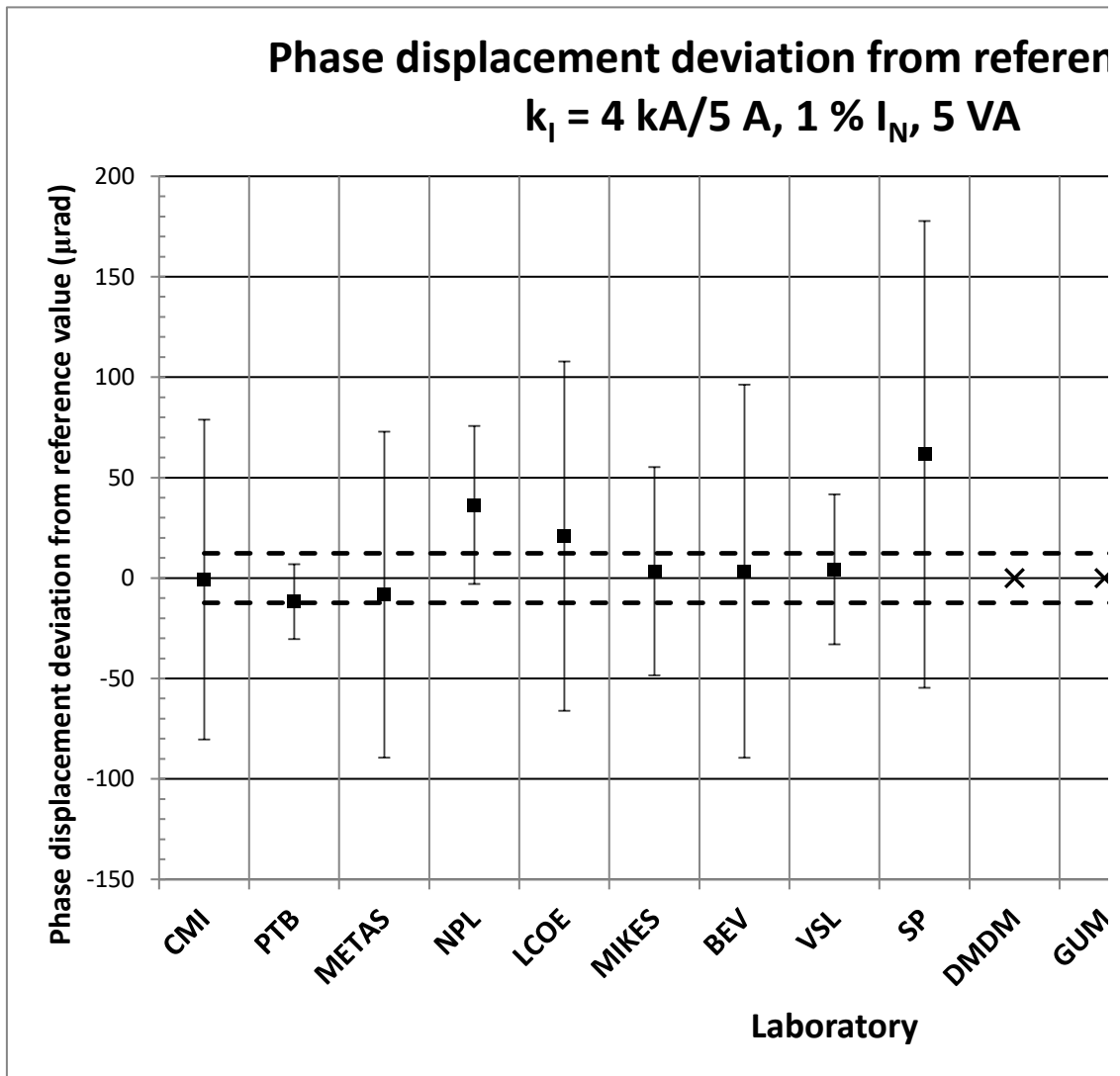
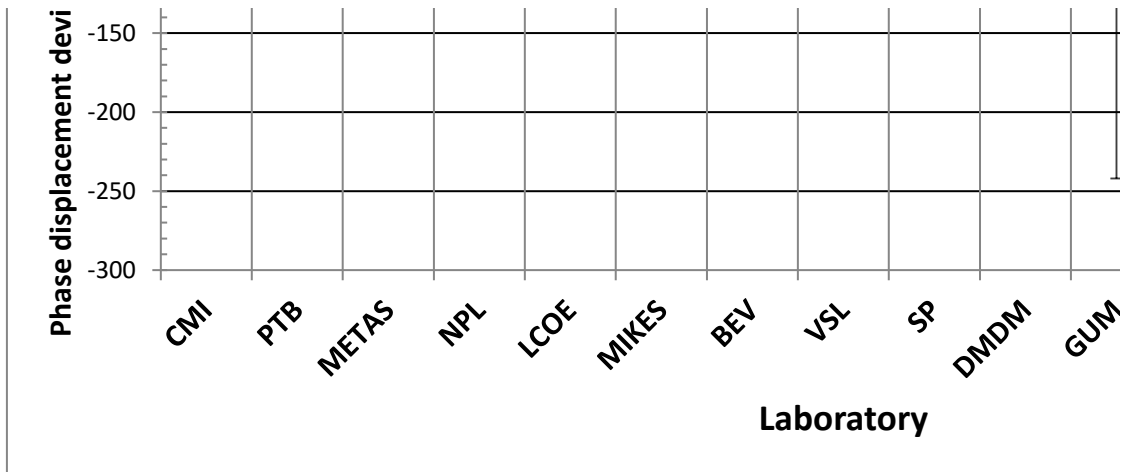
$k_i = 4 \text{ kA}/5 \text{ A}, 5 \% I_N, 5 \text{ VA}$



Phase displacement deviation from referen

$k_i = 4 \text{ kA}/5 \text{ A}, 2 \% I_N, 5 \text{ VA}$





METAS						NPL					
E(δ) (-)	δ_L (μrad)	u(δ_L) (μrad)	$\Delta\delta$ (μrad)	u($\Delta\delta_{\text{std}}$) (μrad)	E(δ) (-)	δ_L (μrad)	u(δ_L) (μrad)	$\Delta\delta$ (μrad)	u($\Delta\delta_{\text{std}}$) (μrad)	E(δ) (-)	δ_L (μrad)
0.301	166	20	14	22	0.313	144	15	-8	17	0.231	224
0.416	175	20	14	21	0.317	153	15	-8	16	0.244	236
0.337	207	20	8	21	0.198	201	15	3	16	0.087	215
0.341	242	20	2	21	0.061	252	15	13	15	0.426	247
0.411	265	29	-1	29	0.010	283	15	18	15	0.583	288
0.548	282	41	-4	41	0.044	309	15	23	15	0.776	320
0.577	300	41	-6	41	0.078	336	20	30	20	0.757	329
0.626	308	41	-8	41	0.101	353	20	36	20	0.923	338
0.356	81	20	10	20	0.237						
0.560	81	20	2	20	0.055	98	15	19	15	0.629	
0.086	90	20	0	20	0.003	89	15	-1	15	0.044	96
0.312	105	20	-7	20	0.168	112	15	0	15	0.014	143
0.342	113	29	-10	29	0.181	129	15	5	15	0.169	128
0.416	125	41	-9	41	0.106	145	15	11	15	0.381	146
0.419	134	41	-9	41	0.107	163	20	20	20	0.521	148
0.446	140	41	-8	41	0.098	174	20	26	20	0.675	154
METAS						NPL					
E(δ) (-)	δ_L (μrad)	u(δ_L) (μrad)	$\Delta\delta$ (μrad)	u($\Delta\delta_{\text{std}}$) (μrad)	E(δ) (-)	δ_L (μrad)	u(δ_L) (μrad)	$\Delta\delta$ (μrad)	u($\Delta\delta_{\text{std}}$) (μrad)	E(δ) (-)	δ_L (μrad)
0.696	207	41	14	41	0.168	175	30	-18	30	0.298	236
0.740	218	41	9	41	0.110	186	30	-23	30	0.390	259
0.438	265	41	11	41	0.142	255	30	2	30	0.028	329
0.433	320	41	4	41	0.049	320	30	4	30	0.065	320
0.502	355	58	0	58	0.002	366	30	11	30	0.189	390
0.435	381	81	0	81	0.002	403	30	22	30	0.374	404
0.405	407	81	-1	81	0.008	441	40	32	40	0.406	428
0.327	422	81	0	81	0.002	463	40	41	40	0.523	439
0.794	172	41	5	41	0.064	139	30	-27	30	0.453	195
0.613	180	41	11	41	0.140	142	30	-27	30	0.445	221
0.357	215	41	13	41	0.163	197	30	-5	30	0.086	303
0.326	256	41	5	41	0.064	250	30	-1	30	0.015	294
0.444	282	58	1	58	0.006	284	30	2	30	0.041	343
0.398	303	81	0	81	0.001	314	30	12	30	0.194	326
0.340	323	81	1	81	0.005	345	40	23	40	0.287	343
0.285	332	81	-1	81	0.007	364	40	31	40	0.392	355
0.881	131	41	-9	41	0.113	127	30	-13	30	0.220	143
0.803	134	41	-11	41	0.135	117	30	-28	30	0.465	204
0.371	157	41	-10	41	0.120	156	30	-11	30	0.183	242
0.379	192	41	-15	41	0.186	202	30	-5	30	0.086	210
0.426	215	58	-16	58	0.139	233	30	2	30	0.025	279
0.464	236	81	-14	81	0.089	257	30	7	30	0.117	262
0.426	253	81	-15	81	0.092	286	40	18	40	0.225	282

0.392	268	81	-9	81	0.056	303	40	26	40	0.330	291
0.576	111	41	7	41	0.085	113	30	9	30	0.155	
0.459	111	41	3	41	0.039	97	30	-10	30	0.171	119
0.297	122	41	-6	41	0.072	124	30	-4	30	0.069	189
0.314	143	41	-16	41	0.194	156	30	-2	30	0.040	160
0.199	163	58	-9	58	0.077	177	30	5	30	0.084	175
0.251	178	81	-10	81	0.060	198	30	11	30	0.181	195
0.252	192	81	-9	81	0.055	221	40	20	40	0.253	210
0.352	201	81	-10	81	0.061	236	40	25	40	0.319	215
0.309	90	41	13	40	0.156						
0.357	90	41	5	41	0.061	99	30	14	30	0.232	
0.156	99	41	-1	41	0.009	94	30	-6	30	0.094	105
0.298	116	41	-9	41	0.115	126	30	0	30	0.005	151
0.175	128	58	-7	58	0.061	144	30	9	30	0.149	143
0.226	140	81	-8	81	0.047	162	30	15	30	0.248	166
0.124	151	81	-4	81	0.026	181	40	25	40	0.321	175
0.204	160	81	-4	81	0.022	194	40	30	40	0.384	183

) (μrad)

ertainty (μrad)

sfer standard (μrad)

atories see eqv. (9)

PTB	METAS	METAS	METAS	METAS	METAS	NPL	NPL	NPL	NPL	NPL	LCOE
$E_C(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{\text{stdC}})$ (μrad)	$E_C(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{\text{stdC}})$ (μrad)	$E_C(\delta)$ (-)	δ_L (μrad)
0.432	166	20	11	22	0.239	144	15	-11	17	0.329	224
0.307	175	20	16	21	0.385	153	15	-5	16	0.161	236
0.325	207	20	9	21	0.210	201	15	3	16	0.102	215
0.341	242	20	2	21	0.061	252	15	13	15	0.426	247

0.411	265	29	-1	29	0.010	283	15	18	15	0.583	288
0.548	282	41	-4	41	0.044	309	15	23	15	0.776	320
0.577	300	41	-6	41	0.078	336	20	30	20	0.757	329
0.626	308	41	-8	41	0.101	353	20	36	20	0.923	338
0.356	81	20	10	20	0.237						
0.560	81	20	2	20	0.055	98	15	19	15	0.629	
0.035	90	20	1	20	0.016	89	15	-1	15	0.018	96
0.312	105	20	-7	20	0.168	112	15	0	15	0.014	143
0.342	113	29	-10	29	0.181	129	15	5	15	0.169	128
0.416	125	41	-9	41	0.106	145	15	11	15	0.381	146
0.419	134	41	-9	41	0.107	163	20	20	20	0.521	148
0.446	140	41	-8	41	0.098	174	20	26	20	0.675	154
PTB	METAS	METAS	METAS	METAS	METAS	NPL	NPL	NPL	NPL	NPL	LCOE
$E_C(\delta)$	δ_L	$u(\delta_L)$	$\Delta\delta_C$	$u(\Delta\delta_{stdC})$	$E_C(\delta)$	δ_L	$u(\delta_L)$	$\Delta\delta_C$	$u(\Delta\delta_{stdC})$	$E_C(\delta)$	δ_L
(-)	(μrad)	(μrad)	(μrad)	(μrad)	(-)	(μrad)	(μrad)	(μrad)	(μrad)	(-)	(μrad)
0.731	207	41	13	40	0.164	175	30	-18	30	0.310	236
0.619	218	41	15	40	0.182	186	30	-18	29	0.299	259
0.476	265	41	11	40	0.133	255	30	1	29	0.015	329
0.610	320	41	-3	41	0.035	320	30	-3	30	0.049	320
0.699	355	58	-7	58	0.062	366	30	4	30	0.064	390
0.435	381	81	0	81	0.002	403	30	22	30	0.374	404
0.405	407	81	-1	81	0.008	441	40	32	40	0.406	428
0.327	422	81	0	81	0.002	463	40	41	40	0.523	439
0.794	172	41	5	41	0.064	139	30	-27	30	0.453	195
0.790	180	41	5	41	0.056	142	30	-34	30	0.562	221
0.561	215	41	5	41	0.066	197	30	-13	30	0.218	303
0.519	256	41	-2	41	0.028	250	30	-8	30	0.140	294
0.644	282	58	-7	58	0.059	284	30	-5	30	0.087	343
0.398	303	81	0	81	0.001	314	30	12	30	0.194	326
0.340	323	81	1	81	0.005	345	40	23	40	0.287	343
0.285	332	81	-1	81	0.007	364	40	31	40	0.392	355
0.881	131	41	-9	41	0.113	127	30	-13	30	0.220	143
0.803	134	41	-11	41	0.135	117	30	-28	30	0.465	204
0.532	157	41	-14	41	0.177	156	30	-15	30	0.260	242
0.379	192	41	-15	41	0.186	202	30	-5	30	0.086	210
0.426	215	58	-16	58	0.139	233	30	2	30	0.025	279
0.464	236	81	-14	81	0.089	257	30	7	30	0.117	262
0.426	253	81	-15	81	0.092	286	40	18	40	0.225	282
0.392	268	81	-9	81	0.056	303	40	26	40	0.330	291
0.576	111	41	7	41	0.085	113	30	9	30	0.155	
0.459	111	41	3	41	0.039	97	30	-10	30	0.171	119
0.259	122	41	-5	41	0.058	124	30	-3	30	0.049	189
0.314	143	41	-16	41	0.194	156	30	-2	30	0.040	160
0.199	163	58	-9	58	0.077	177	30	5	30	0.084	175
0.251	178	81	-10	81	0.060	198	30	11	30	0.181	195
0.252	192	81	-9	81	0.055	221	40	20	40	0.253	210

0.352	201	81	-10	81	0.061	236	40	25	40	0.319	215
0.309	90	41	13	40	0.156						
0.357	90	41	5	41	0.061	99	30	14	30	0.232	
0.111	99	41	1	41	0.007	94	30	-4	30	0.072	105
0.298	116	41	-9	41	0.115	126	30	0	30	0.005	151
0.175	128	58	-7	58	0.061	144	30	9	30	0.149	143
0.226	140	81	-8	81	0.047	162	30	15	30	0.248	166
0.124	151	81	-4	81	0.026	181	40	25	40	0.321	175
0.204	160	81	-4	81	0.022	194	40	30	40	0.384	183

ad)

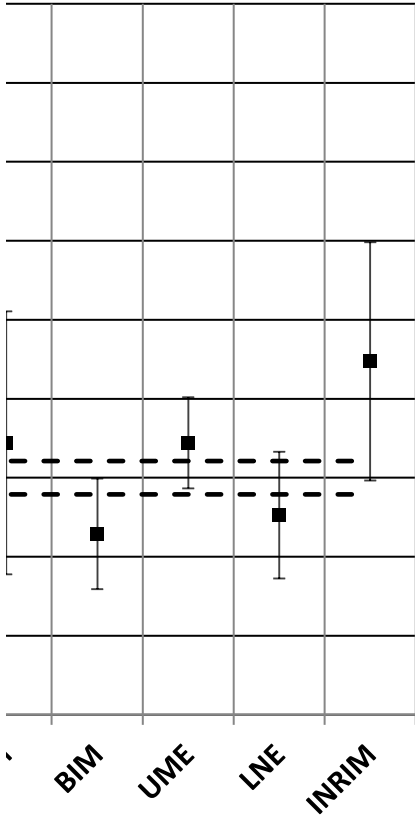
see eq. (10) (μrad)

transfer standard uncertainty (μrad)

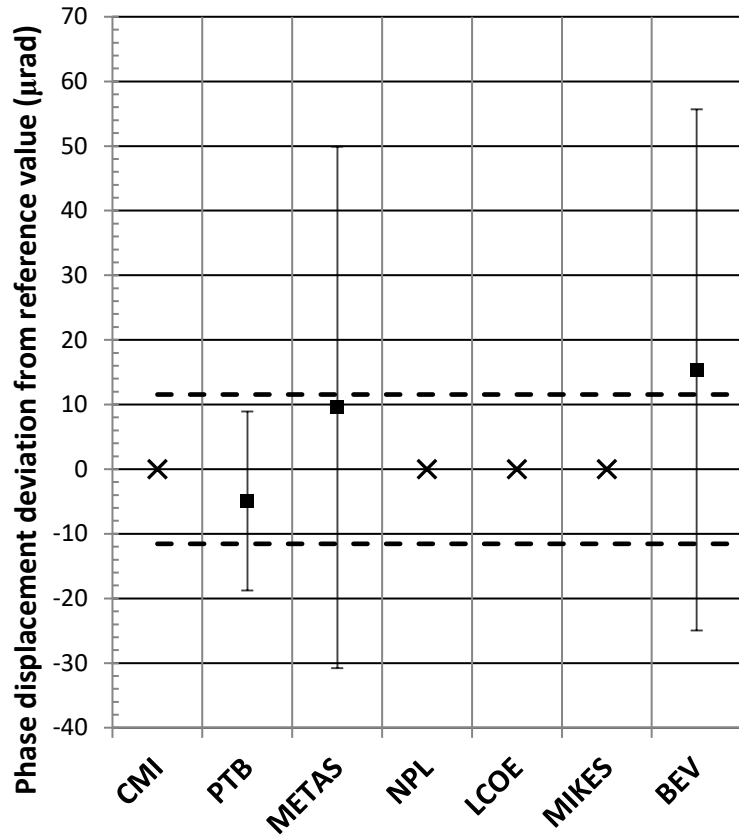
		METAS		METAS				NPL		NPL	
novalue	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{\text{stdC}})$ (μrad)	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{\text{stdC}})$ (μrad)	novalue	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{\text{stdC}})$ (μrad)	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{\text{stdC}})$ (μrad)	novalue	$\Delta\delta_C$ (μrad)
#N/A	-11	26	11	44	#N/A	11	44	-11	34	#N/A	-11
#N/A	-7	23	16	43	#N/A	16	43	-5	32	#N/A	-5
#N/A	-8	24	9	43	#N/A	9	43	3	33	#N/A	3
#N/A	-7	21	2	41	#N/A	2	41	13	30	#N/A	13
#N/A	-8	20	-1	58	#N/A	-1	58	18	30	#N/A	18
#N/A	-11	20	-4	81	#N/A	-4	81	23	30	#N/A	23
#N/A	-11	19	-6	81	#N/A	-6	81	30	40	#N/A	30
#N/A	-12	19	-8	81	#N/A	-8	81	36	39	#N/A	36
#N/A	-5	14	10	40	#N/A	10	40			0	#N/A
#N/A	-8	15	2	41	#N/A	2	41	19	30	#N/A	19
#N/A	-1	15	1	41	#N/A	1	41	-1	30	#N/A	-1
#N/A	-5	15	-7	41	#N/A	-7	41	0	30	#N/A	0
#N/A	-5	15	-10	58	#N/A	-10	58	5	30	#N/A	5

#N/A	-6	14	-9	81	#N/A	-9	81	11	29	#N/A	11
#N/A	-6	13	-9	81	#N/A	-9	81	20	39	#N/A	20
#N/A	-6	13	-8	81	#N/A	-8	81	26	39	#N/A	26
			METAS	METAS				NPL	NPL		
			$\Delta\delta_c$ (μrad)	$U(\Delta\delta_{\text{stdC}})$ (μrad)				$\Delta\delta_c$ (μrad)	$U(\Delta\delta_{\text{stdC}})$ (μrad)		
#N/A	-28	39	13	81	#N/A	13	81	-18	59	#N/A	-18
#N/A	-24	38	15	81	#N/A	15	81	-18	59	#N/A	-18
#N/A	-18	38	11	81	#N/A	11	81	1	59	#N/A	1
#N/A	-24	39	-3	81	#N/A	-3	81	-3	59	#N/A	-3
#N/A	-27	39	-7	116	#N/A	-7	116	4	59	#N/A	4
#N/A	-17	39	0	163	#N/A	0	163	22	59	#N/A	22
#N/A	-16	39	-1	163	#N/A	-1	163	32	79	#N/A	32
#N/A	-13	38	0	163	#N/A	0	163	41	79	#N/A	41
#N/A	-32	41	5	82	#N/A	5	82	-27	61	#N/A	-27
#N/A	-32	40	5	82	#N/A	5	82	-34	60	#N/A	-34
#N/A	-22	39	5	81	#N/A	5	81	-13	59	#N/A	-13
#N/A	-20	39	-2	81	#N/A	-2	81	-8	59	#N/A	-8
#N/A	-25	39	-7	116	#N/A	-7	116	-5	59	#N/A	-5
#N/A	-15	39	0	163	#N/A	0	163	12	59	#N/A	12
#N/A	-13	39	1	163	#N/A	1	163	23	79	#N/A	23
#N/A	-11	38	-1	163	#N/A	-1	163	31	79	#N/A	31
#N/A	-26	30	-9	81	#N/A	-9	81	-13	60	#N/A	-13
#N/A	-24	30	-11	81	#N/A	-11	81	-28	60	#N/A	-28
#N/A	-15	29	-14	81	#N/A	-14	81	-15	60	#N/A	-15
#N/A	-11	29	-15	81	#N/A	-15	81	-5	60	#N/A	-5
#N/A	-12	29	-16	116	#N/A	-16	116	2	60	#N/A	2
#N/A	-13	28	-14	163	#N/A	-14	163	7	59	#N/A	7
#N/A	-12	28	-15	163	#N/A	-15	163	18	79	#N/A	18
#N/A	-11	28	-9	163	#N/A	-9	163	26	79	#N/A	26
#N/A	-18	31	7	82	#N/A	7	82	9	60	#N/A	9
#N/A	-14	31	3	82	#N/A	3	82	-10	61	#N/A	-10
#N/A	-8	31	-5	82	#N/A	-5	82	-3	60	#N/A	-3
#N/A	-9	30	-16	81	#N/A	-16	81	-2	60	#N/A	-2
#N/A	-6	30	-9	116	#N/A	-9	116	5	60	#N/A	5
#N/A	-7	29	-10	163	#N/A	-10	163	11	59	#N/A	11
#N/A	-7	28	-9	163	#N/A	-9	163	20	79	#N/A	20
#N/A	-10	28	-10	163	#N/A	-10	163	25	79	#N/A	25
#N/A	-9	28	13	81	#N/A	13	81			0	#N/A
#N/A	-10	29	5	81	#N/A	5	81	14	59	#N/A	14
#N/A	-3	30	1	81	#N/A	1	81	-4	60	#N/A	-4
#N/A	-9	29	-9	81	#N/A	-9	81	0	60	#N/A	0
#N/A	-5	29	-7	116	#N/A	-7	116	9	60	#N/A	9
#N/A	-6	28	-8	163	#N/A	-8	163	15	59	#N/A	15
#N/A	-4	28	-4	163	#N/A	-4	163	25	79	#N/A	25
#N/A	-6	28	-4	163	#N/A	-4	163	30	79	#N/A	30

nce value

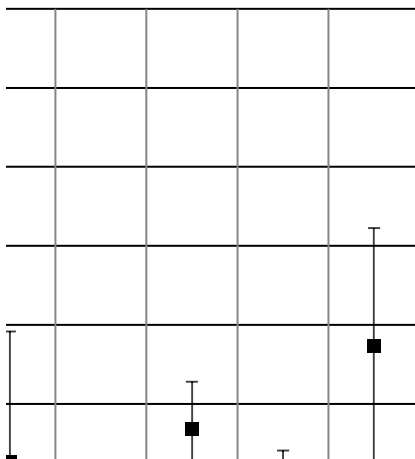


Phase displacement devia
 $k_1 = 10 \text{ kA}/5 \text{ A},$

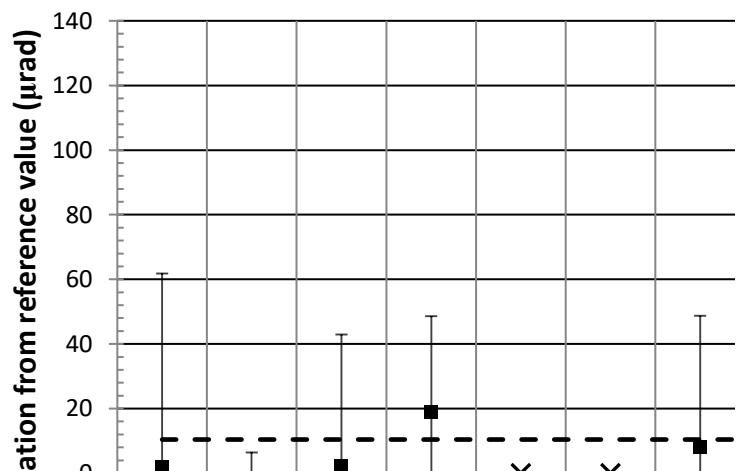


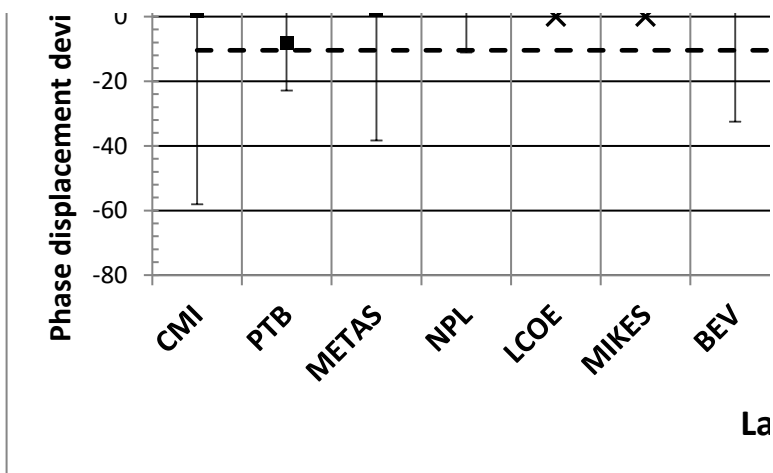
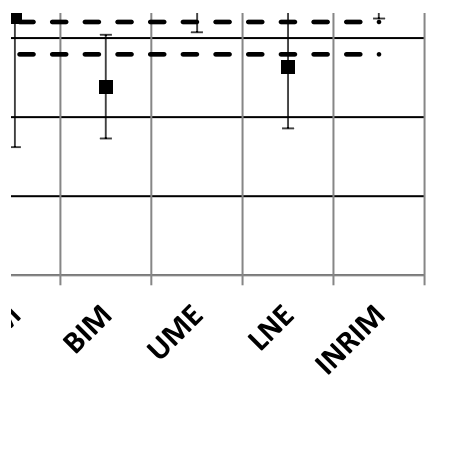
La

nce value

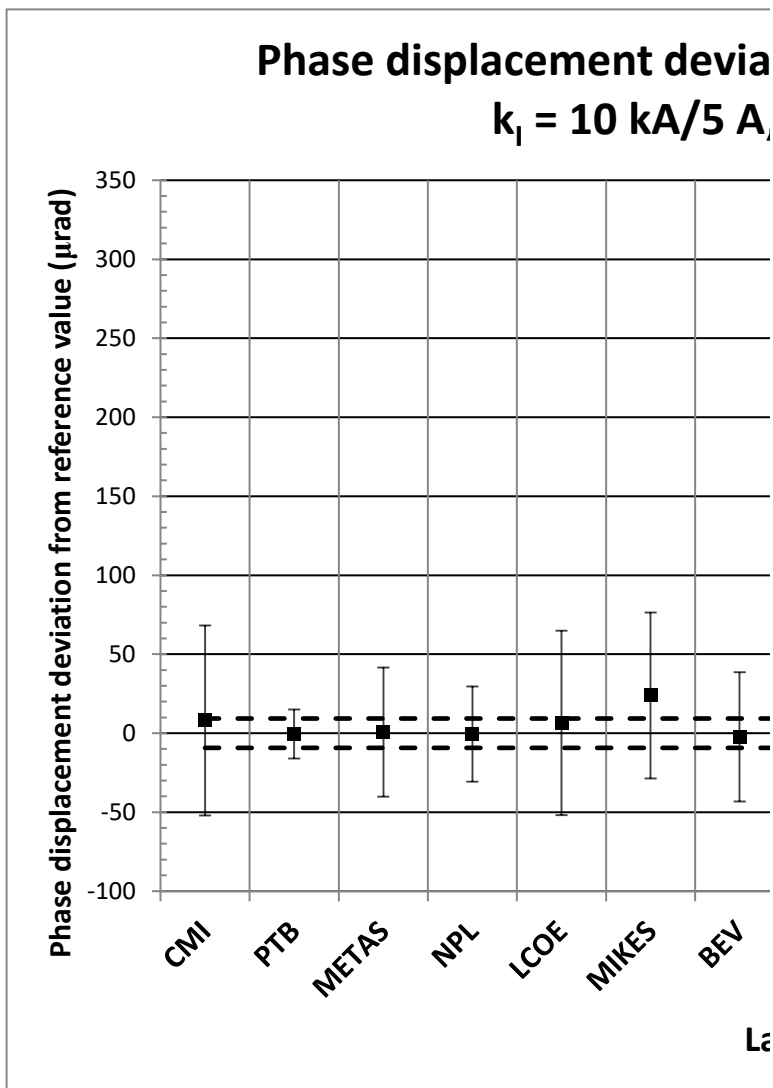
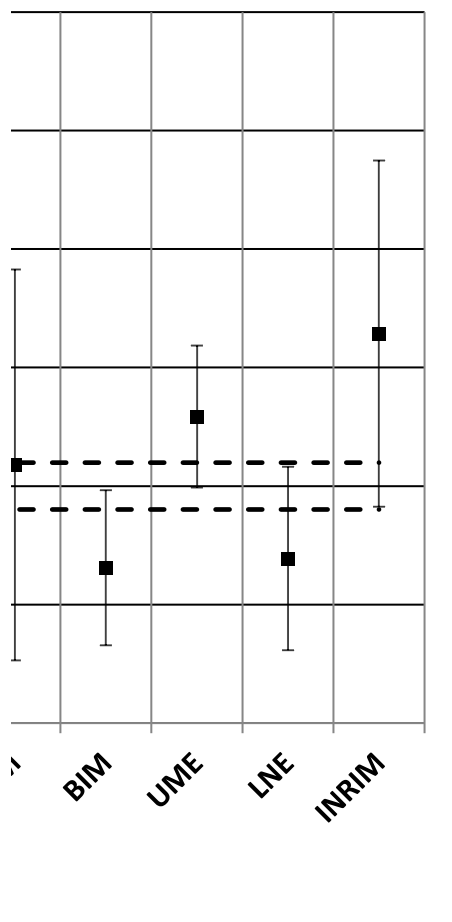


Phase displacement devia
 $k_1 = 10 \text{ kA}/5 \text{ A},$

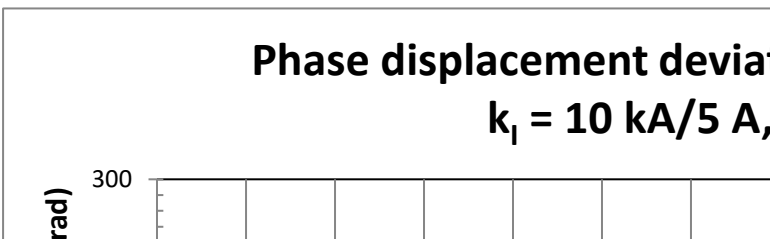
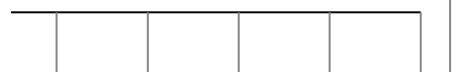


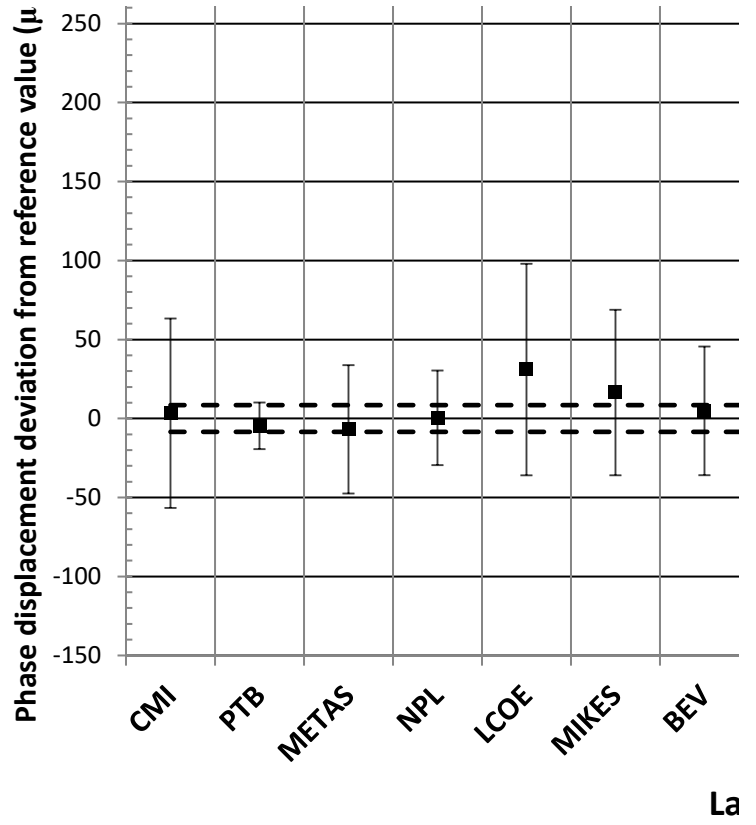
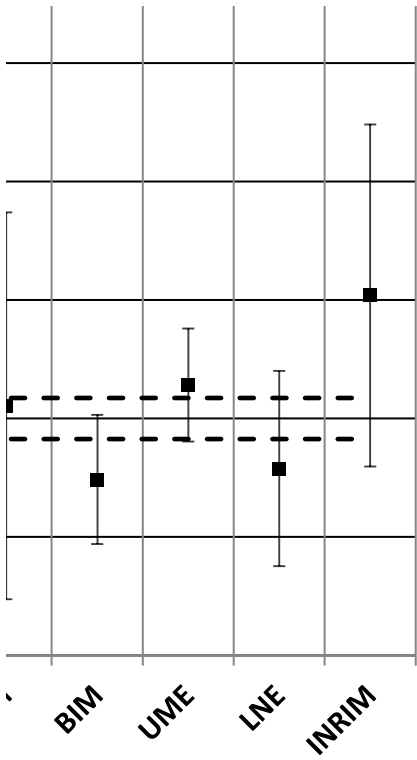


reference value

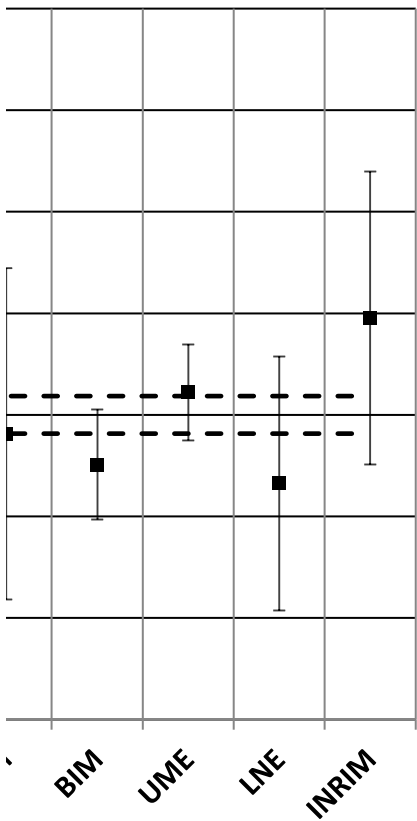


reference value

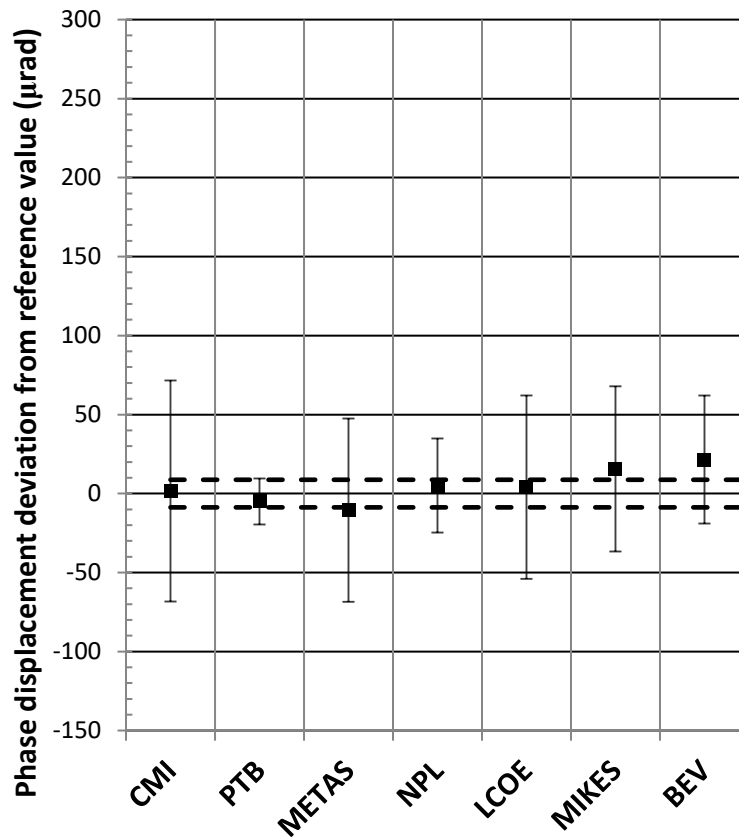




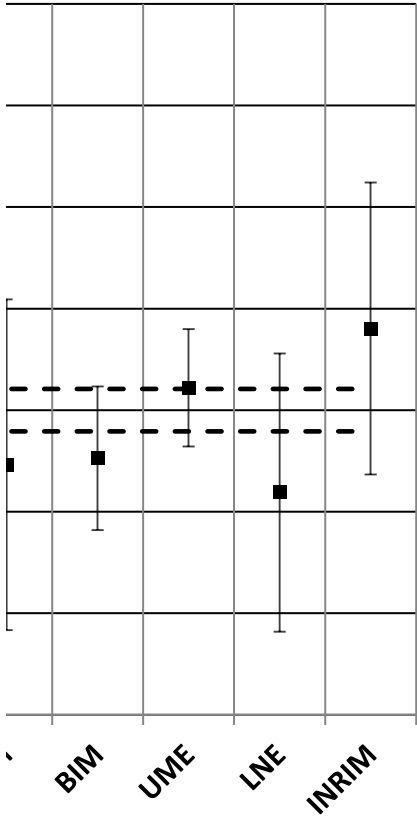
ice value



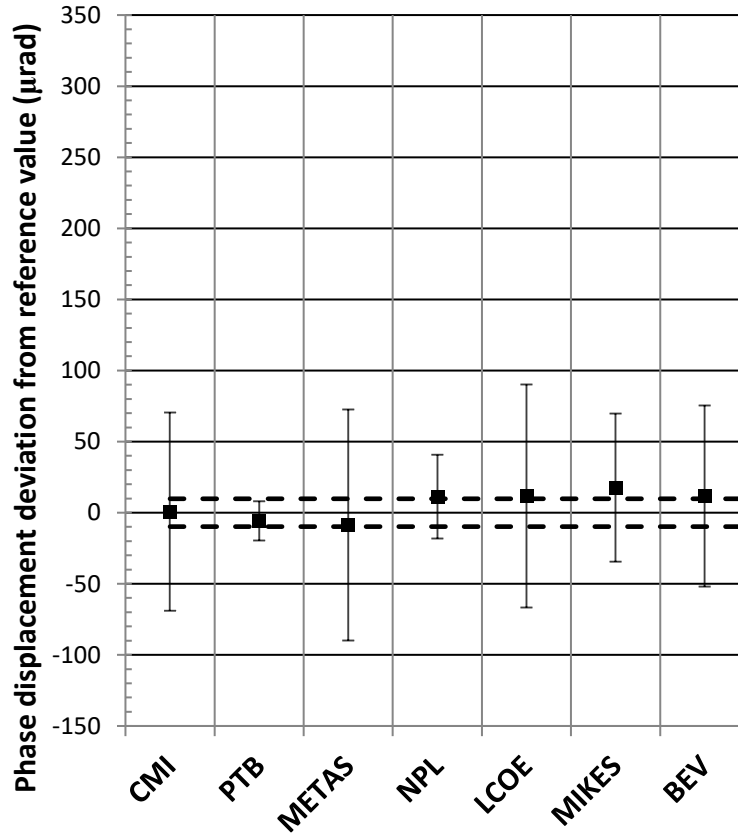
Phase displacement devia
 $k_1 = 10 \text{ kA/5 A,}$



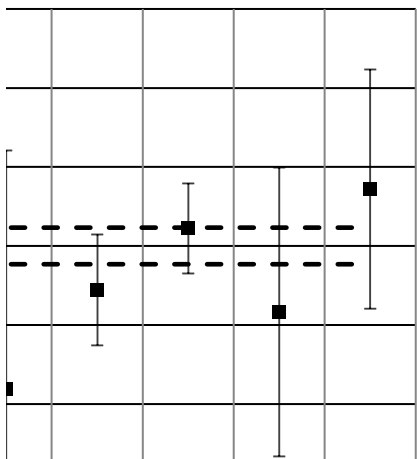
nce value



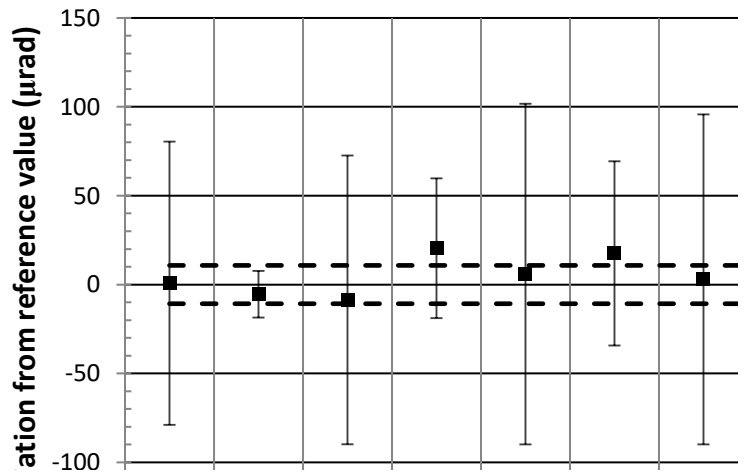
Phase displacement deviation from reference value (μrad)
 $k_1 = 10 \text{ kA}/5 \text{ A}$

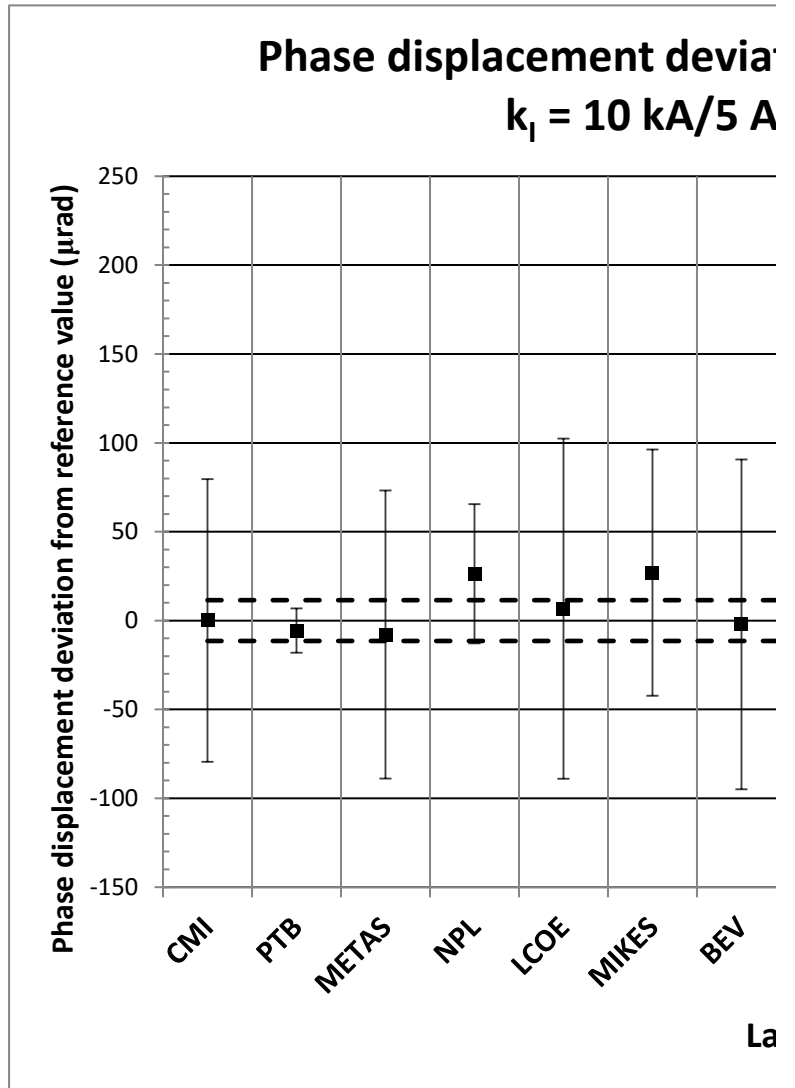
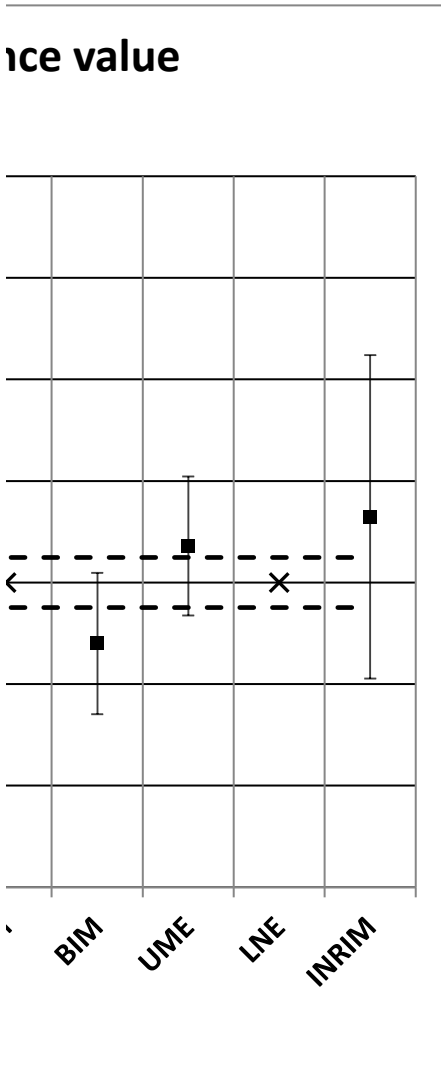
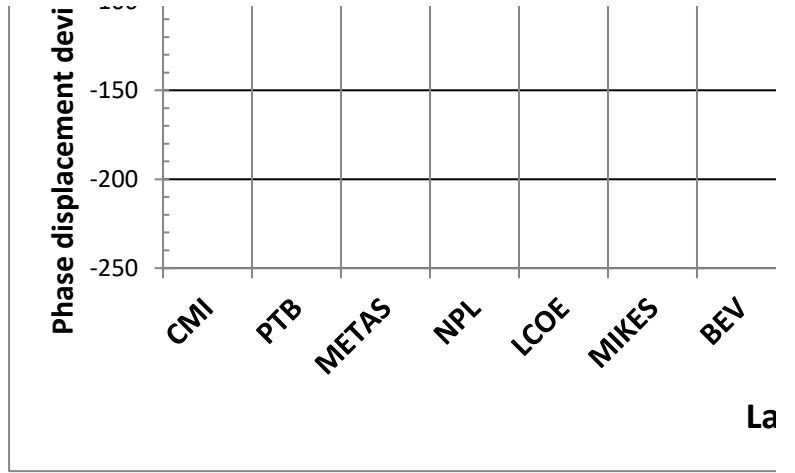
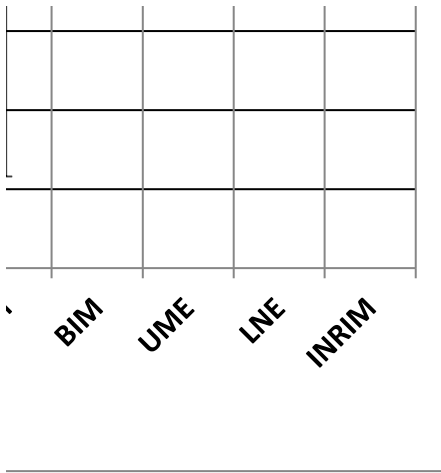


nce value



Phase displacement deviation from reference value (μrad)
 $k_1 = 10 \text{ kA}/5 \text{ A}$





La

La

LCOE				MIKES					BEV		
$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{\text{std}})$ (μrad)	$E(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{\text{std}})$ (μrad)	$E(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)
92	72	92	0.391	166	26	14	28	0.251	146	20	-7
92	75	92	0.406	178	26	16	27	0.305	175	20	14
23	17	24	0.355	215	26	17	27	0.318	204	20	6
23	8	23	0.178	256	26	17	26	0.324	233	20	-6
42	23	42	0.269	276	26	11	26	0.211	291	20	26
48	34	48	0.357	300	26	14	26	0.266	291	32	5
44	23	44	0.262	317	26	11	26	0.214	320	47	14
44	21	44	0.240	320	26	3	26	0.066	320	47	3
									87	20	15
									87	20	8
29	6	29	0.098	113	26	23	26	0.441	87	20	-3
33	31	33	0.463	128	26	16	26	0.314	116	20	5
29	4	29	0.070	140	26	16	26	0.300	146	20	22
39	12	39	0.150	151	26	18	26	0.337	146	32	12
48	6	48	0.062	160	26	18	26	0.338	146	47	3
48	7	48	0.069	175	35	27	35	0.389	146	47	-2
LCOE				MIKES					BEV		
$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{\text{std}})$ (μrad)	$E(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{\text{std}})$ (μrad)	$E(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)
28	43	28	0.773	198	26	5	26	0.098	175	20	-18
23	50	23	1.075	212	26	3	26	0.052	204	20	-6
93	76	93	0.406	268	26	15	26	0.284	262	20	9
28	4	27	0.072	329	26	13	26	0.249	320	20	4
60	35	60	0.295	361	26	6	26	0.121	378	20	24
47	24	46	0.255	387	26	6	26	0.120	378	32	-3
45	19	45	0.212	410	26	1	26	0.024	407	47	-1
44	18	43	0.206	431	29	9	28	0.166	407	47	-14
64	29	64	0.223	160	26	-6	26	0.122	146	20	-21
81	52	82	0.320	172	26	3	26	0.058	175	20	6
71	101	71	0.705	215	26	13	26	0.249	204	20	2
39	43	39	0.549	262	26	11	26	0.215	262	20	11
36	62	36	0.853	285	26	3	26	0.067	291	20	9
47	23	46	0.253	308	26	6	26	0.108	291	32	-11
44	21	43	0.244	332	26	10	26	0.191	320	47	-2
44	22	43	0.255	352	29	19	28	0.335	320	47	-13
28	2	28	0.044	140	32	0	32	0.002	146	20	5
45	59	45	0.653	146	26	1	26	0.022	146	20	1
54	75	54	0.694	183	26	16	26	0.312	175	20	8
29	2	29	0.041	221	26	14	26	0.268	204	20	-3
44	48	44	0.550	242	26	11	26	0.204	233	20	1
39	12	39	0.151	259	26	9	25	0.174	262	32	12
48	14	48	0.148	276	26	8	26	0.155	262	47	-6

48	14	48	0.148	285	26	8	25	0.160	262	47	-15
									87	20	-16
26	12	27	0.224	125	32	18	32	0.272	87	20	-20
63	61	63	0.487	143	26	15	26	0.283	146	20	17
26	2	26	0.031	169	26	11	26	0.203	175	20	16
26	3	26	0.051	186	26	14	26	0.270	175	20	3
39	8	39	0.099	198	26	11	26	0.209	175	32	-13
48	9	48	0.090	212	26	11	25	0.218	204	47	3
48	5	48	0.048	227	29	16	28	0.286	204	47	-7
									87	20	10
									87	20	2
28	5	28	0.092	119	26	19	26	0.372	87	20	-12
28	26	27	0.466	140	26	14	26	0.277	146	20	20
26	7	26	0.144	151	26	16	26	0.308	146	20	10
41	19	40	0.229	160	26	13	25	0.249	146	32	-2
49	19	49	0.194	172	26	16	26	0.323	146	47	-10
49	20	49	0.201	169	26	5	25	0.106	146	47	-18

LCOE	LCOE	LCOE	LCOE	MIKES	MIKES	MIKES	MIKES	MIKES	BEV	BEV	BEV
$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{\text{stdC}})$ (μrad)	$E_C(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{\text{stdC}})$ (μrad)	$E_C(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)
92	69	92	0.373	166	26	11	28	0.191	146	20	-10
92	77	92	0.422	178	26	19	27	0.359	175	20	16
23	18	24	0.366	215	26	18	27	0.328	204	20	6
23	8	23	0.178	256	26	17	26	0.324	233	20	-6

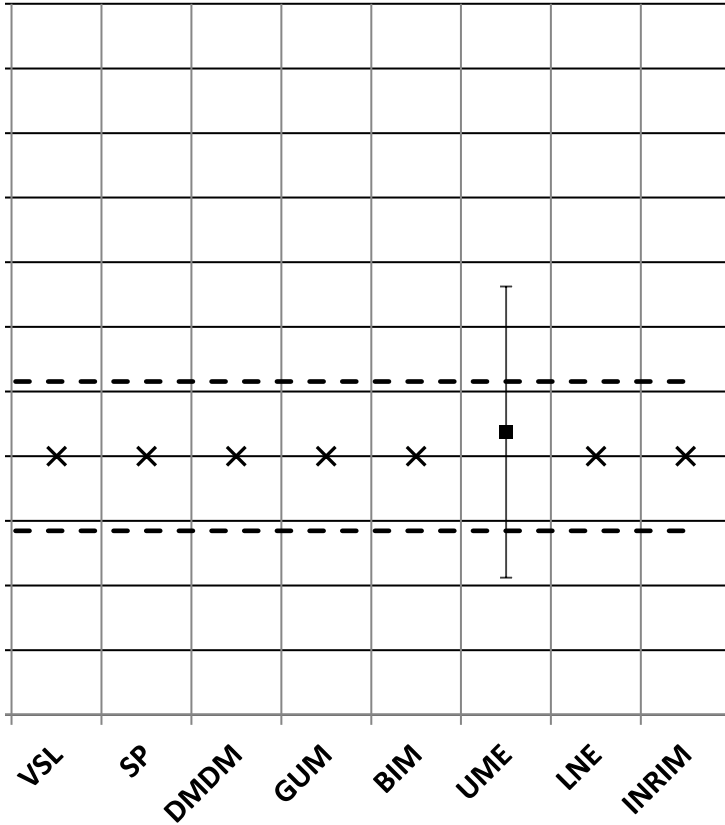
42	23	42	0.269	276	26	11	26	0.211	291	20	26
48	34	48	0.357	300	26	14	26	0.266	291	32	5
44	23	44	0.262	317	26	11	26	0.214	320	47	14
44	21	44	0.240	320	26	3	26	0.066	320	47	3
									87	20	15
									87	20	8
29	6	29	0.111	113	26	24	26	0.456	87	20	-2
33	31	33	0.463	128	26	16	26	0.314	116	20	5
29	4	29	0.070	140	26	16	26	0.300	146	20	22
39	12	39	0.150	151	26	18	26	0.337	146	32	12
48	6	48	0.062	160	26	18	26	0.338	146	47	3
48	7	48	0.069	175	35	27	35	0.389	146	47	-2
LCOE	LCOE	LCOE	LCOE	MIKES	MIKES	MIKES	MIKES	MIKES	BEV	BEV	BEV
$u(\delta_L)$	$\Delta\delta_C$	$u(\Delta\delta_{stdC})$	$E_C(\delta)$	δ_L	$u(\delta_L)$	$\Delta\delta_C$	$u(\Delta\delta_{stdC})$	$E_C(\delta)$	δ_L	$u(\delta_L)$	$\Delta\delta_C$
(μrad)	(μrad)	(μrad)	(-)	(μrad)	(μrad)	(μrad)	(μrad)	(-)	(μrad)	(μrad)	(μrad)
28	42	27	0.779	198	26	5	26	0.092	175	20	-19
23	55	25	1.104	212	26	8	25	0.167	204	20	0
93	75	93	0.402	268	26	14	25	0.275	262	20	8
28	-3	27	0.052	329	26	6	26	0.118	320	20	-3
60	28	59	0.233	361	26	-1	26	0.023	378	20	16
47	24	46	0.255	387	26	6	26	0.120	378	32	-3
45	19	45	0.212	410	26	1	26	0.024	407	47	-1
44	18	43	0.206	431	29	9	28	0.166	407	47	-14
64	29	64	0.223	160	26	-6	26	0.122	146	20	-21
81	45	82	0.278	172	26	-4	26	0.073	175	20	-1
71	93	71	0.651	215	26	5	26	0.098	204	20	-6
39	36	39	0.455	262	26	4	26	0.071	262	20	4
36	54	36	0.751	285	26	-4	26	0.081	291	20	2
47	23	46	0.253	308	26	6	26	0.108	291	32	-11
44	21	43	0.244	332	26	10	26	0.191	320	47	-2
44	22	43	0.255	352	29	19	28	0.335	320	47	-13
28	2	28	0.044	140	32	0	32	0.002	146	20	5
45	59	45	0.653	146	26	1	26	0.022	146	20	1
54	70	54	0.652	183	26	12	26	0.224	175	20	3
29	2	29	0.041	221	26	14	26	0.268	204	20	-3
44	48	44	0.550	242	26	11	26	0.204	233	20	1
39	12	39	0.151	259	26	9	25	0.174	262	32	12
48	14	48	0.148	276	26	8	26	0.155	262	47	-6
48	14	48	0.148	285	26	8	25	0.160	262	47	-15
									87	20	-16
26	12	27	0.224	125	32	18	32	0.272	87	20	-20
63	62	63	0.496	143	26	16	26	0.306	146	20	19
26	2	26	0.031	169	26	11	26	0.203	175	20	16
26	3	26	0.051	186	26	14	26	0.270	175	20	3
39	8	39	0.099	198	26	11	26	0.209	175	32	-13
48	9	48	0.090	212	26	11	25	0.218	204	47	3

48	5	48	0.048	227	29	16	28	0.286	204	47	-7
									87	20	10
									87	20	2
28	6	28	0.116	119	26	21	26	0.398	87	20	-11
28	26	27	0.466	140	26	14	26	0.277	146	20	20
26	7	26	0.144	151	26	16	26	0.308	146	20	10
41	19	40	0.229	160	26	13	25	0.249	146	32	-2
49	19	49	0.194	172	26	16	26	0.323	146	47	-10
49	20	49	0.201	169	26	5	25	0.106	146	47	-18

	LCOE	LCOE				MIKES	MIKES				BEV
$U(\Delta\delta_{stdC})$ (μrad)	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{stdC})$ (μrad)	novalue	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{stdC})$ (μrad)	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{stdC})$ (μrad)	novalue	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{stdC})$ (μrad)	$\Delta\delta_C$ (μrad)
34	69	184	#N/A	69	184	11	55	#N/A	11	55	-10
32	77	184	#N/A	77	184	19	54	#N/A	19	54	16
33	18	48	#N/A	18	48	18	54	#N/A	18	54	6
30	8	47	#N/A	8	47	17	53	#N/A	17	53	-6
30	23	84	#N/A	23	84	11	53	#N/A	11	53	26
30	34	96	#N/A	34	96	14	52	#N/A	14	52	5
40	23	87	#N/A	23	87	11	52	#N/A	11	52	14
39	21	87	#N/A	21	87	3	52	#N/A	3	52	3
#N/A			0	#N/A	#N/A			0	#N/A	#N/A	15
30			0	#N/A	#N/A			0	#N/A	#N/A	8
30	6	58	#N/A	6	58	24	53	#N/A	24	53	-2
30	31	67	#N/A	31	67	16	52	#N/A	16	52	5
30	4	58	#N/A	4	58	16	52	#N/A	16	52	22

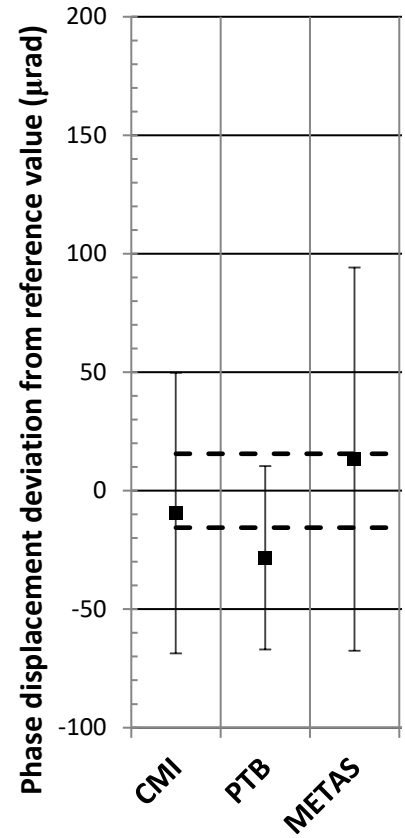
	LCOE	LCOE				MIKES	MIKES				BEV
	$\Delta\delta_c$ (μrad)	$U(\Delta\delta_{\text{stdC}})$ (μrad)				$\Delta\delta_c$ (μrad)	$U(\Delta\delta_{\text{stdC}})$ (μrad)				$\Delta\delta_c$ (μrad)
29	12	78	#N/A	12	78	18	52	#N/A	18	52	12
39	6	96	#N/A	6	96	18	52	#N/A	18	52	3
39	7	96	#N/A	7	96	27	69	#N/A	27	69	-2
	LCOE	LCOE				MIKES	MIKES				BEV
	$\Delta\delta_c$ (μrad)	$U(\Delta\delta_{\text{stdC}})$ (μrad)				$\Delta\delta_c$ (μrad)	$U(\Delta\delta_{\text{stdC}})$ (μrad)				$\Delta\delta_c$ (μrad)
59	42	54	#N/A	42	54	5	51	#N/A	5	51	-19
59	55	50	#N/A	55	50	8	51	#N/A	8	51	0
59	75	186	#N/A	75	186	14	51	#N/A	14	51	8
59	-3	55	#N/A	-3	55	6	51	#N/A	6	51	-3
59	28	119	#N/A	28	119	-1	51	#N/A	-1	51	16
59	24	93	#N/A	24	93	6	51	#N/A	6	51	-3
79	19	90	#N/A	19	90	1	51	#N/A	1	51	-1
79	18	87	#N/A	18	87	9	57	#N/A	9	57	-14
61	29	128	#N/A	29	128	-6	53	#N/A	-6	53	-21
60	45	163	#N/A	45	163	-4	52	#N/A	-4	52	-1
59	93	142	#N/A	93	142	5	51	#N/A	5	51	-6
59	36	78	#N/A	36	78	4	51	#N/A	4	51	4
59	54	72	#N/A	54	72	-4	51	#N/A	-4	51	2
59	23	93	#N/A	23	93	6	51	#N/A	6	51	-11
79	21	87	#N/A	21	87	10	51	#N/A	10	51	-2
79	22	87	#N/A	22	87	19	57	#N/A	19	57	-13
60	2	55	#N/A	2	55	0	64	#N/A	0	64	5
60	59	90	#N/A	59	90	1	52	#N/A	1	52	1
60	70	107	#N/A	70	107	12	51	#N/A	12	51	3
60	2	58	#N/A	2	58	14	52	#N/A	14	52	-3
60	48	87	#N/A	48	87	11	52	#N/A	11	52	1
59	12	78	#N/A	12	78	9	51	#N/A	9	51	12
79	14	96	#N/A	14	96	8	51	#N/A	8	51	-6
79	14	95	#N/A	14	95	8	51	#N/A	8	51	-15
60			0 #N/A	#N/A	#N/A			0 #N/A	#N/A	#N/A	-16
61	12	53	#N/A	12	53	18	65	#N/A	18	65	-20
60	62	125	#N/A	62	125	16	52	#N/A	16	52	19
60	2	52	#N/A	2	52	11	52	#N/A	11	52	16
60	3	52	#N/A	3	52	14	52	#N/A	14	52	3
59	8	78	#N/A	8	78	11	51	#N/A	11	51	-13
79	9	95	#N/A	9	95	11	51	#N/A	11	51	3
79	5	95	#N/A	5	95	16	57	#N/A	16	57	-7
#N/A			0 #N/A	#N/A	#N/A			0 #N/A	#N/A	#N/A	10
59			0 #N/A	#N/A	#N/A			0 #N/A	#N/A	#N/A	2
60	6	55	#N/A	6	55	21	52	#N/A	21	52	-11
60	26	55	#N/A	26	55	14	52	#N/A	14	52	20
60	7	52	#N/A	7	52	16	52	#N/A	16	52	10
59	19	81	#N/A	19	81	13	51	#N/A	13	51	-2
79	19	98	#N/A	19	98	16	51	#N/A	16	51	-10
79	20	98	#N/A	20	98	5	51	#N/A	5	51	-18

Deviation from reference value
120 % I_N , 5 VA

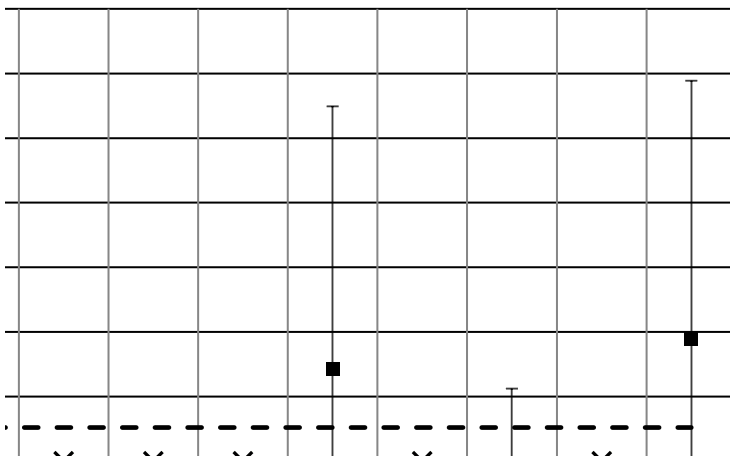


Laboratory

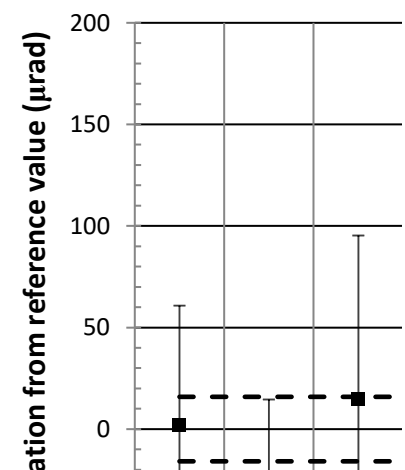
Phase displacement deviation from reference value (μrad)

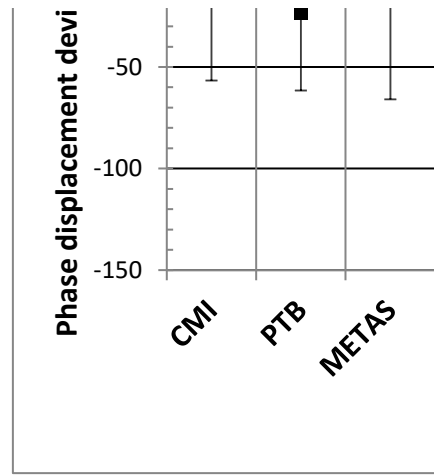
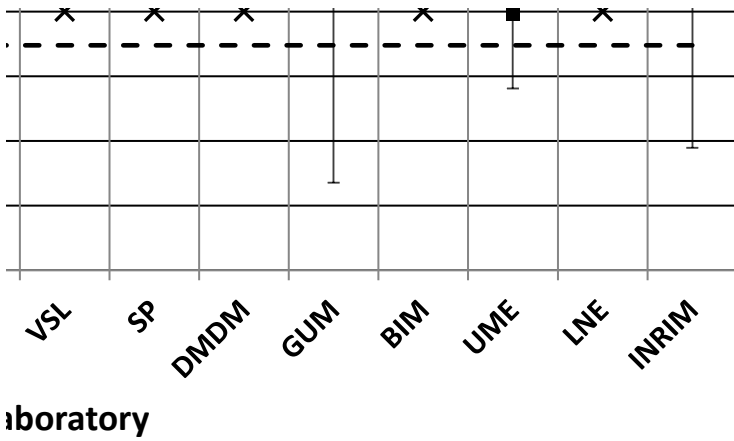


Deviation from reference value
100 % I_N , 5 VA

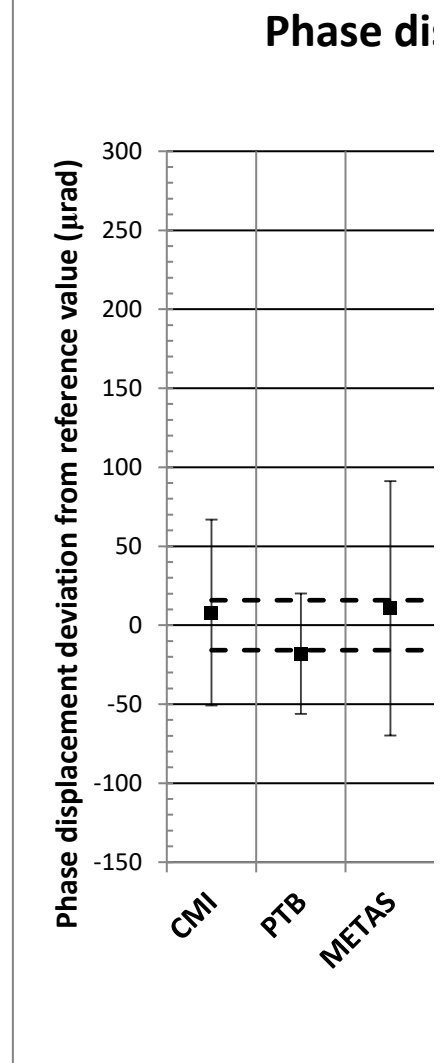
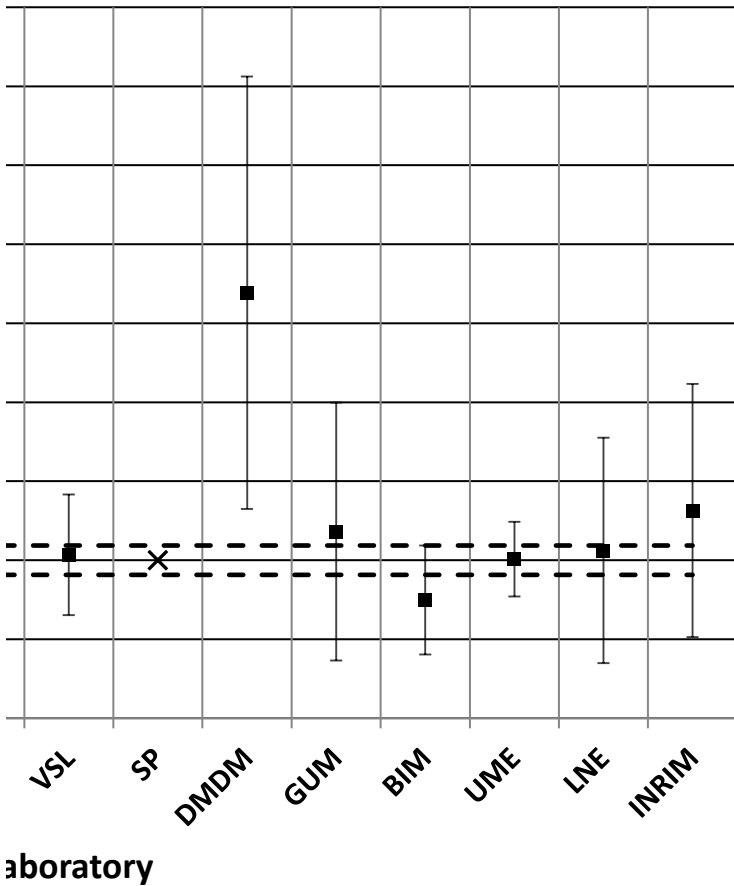


Phase displacement deviation from reference value (μrad)

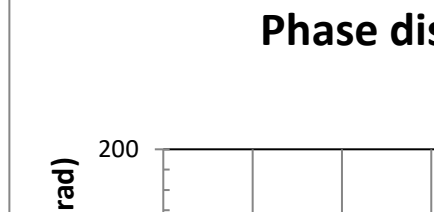


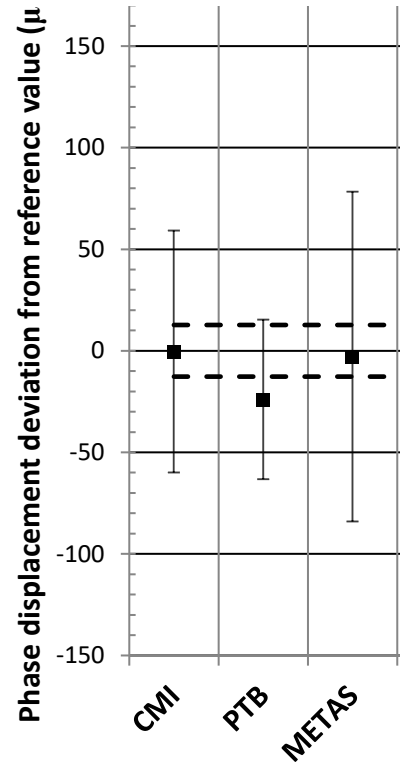
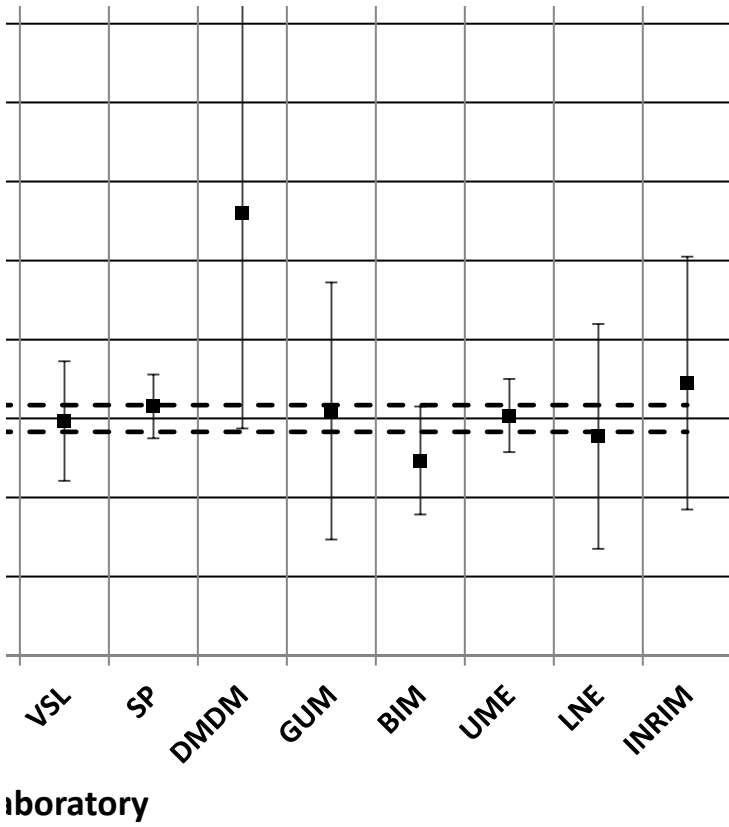


Deviation from reference value
at 50 % I_N , 5 VA

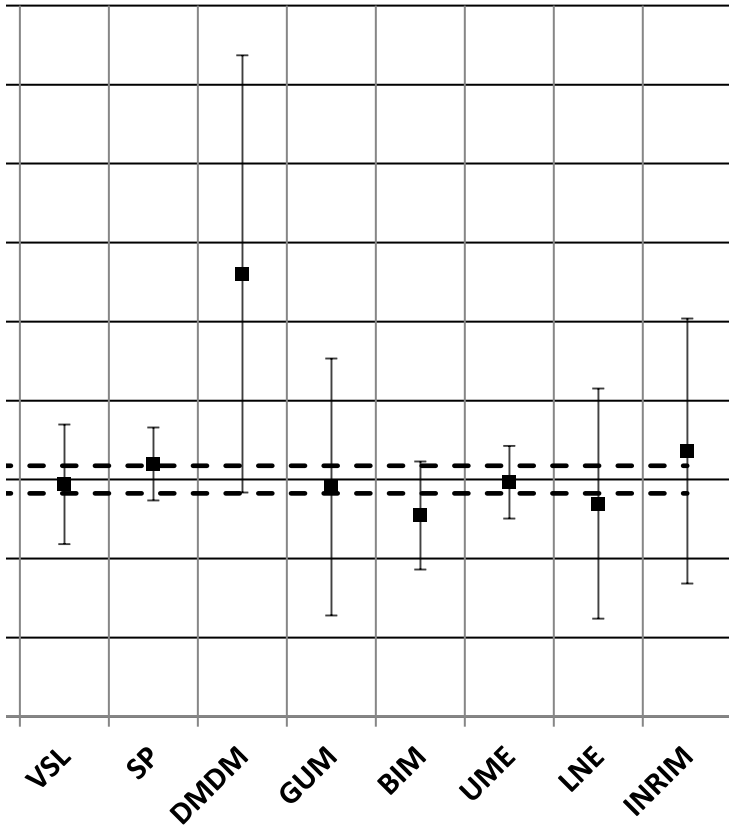


Deviation from reference value
at 20 % I_N , 5 VA

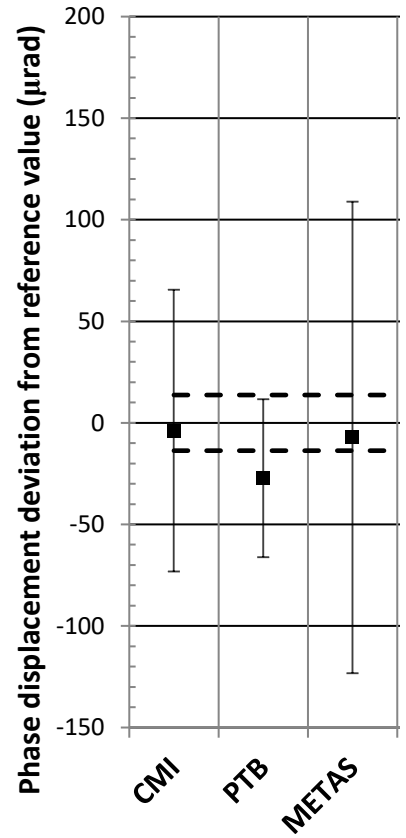




tion from reference value
, 10 % I_N , 5 VA



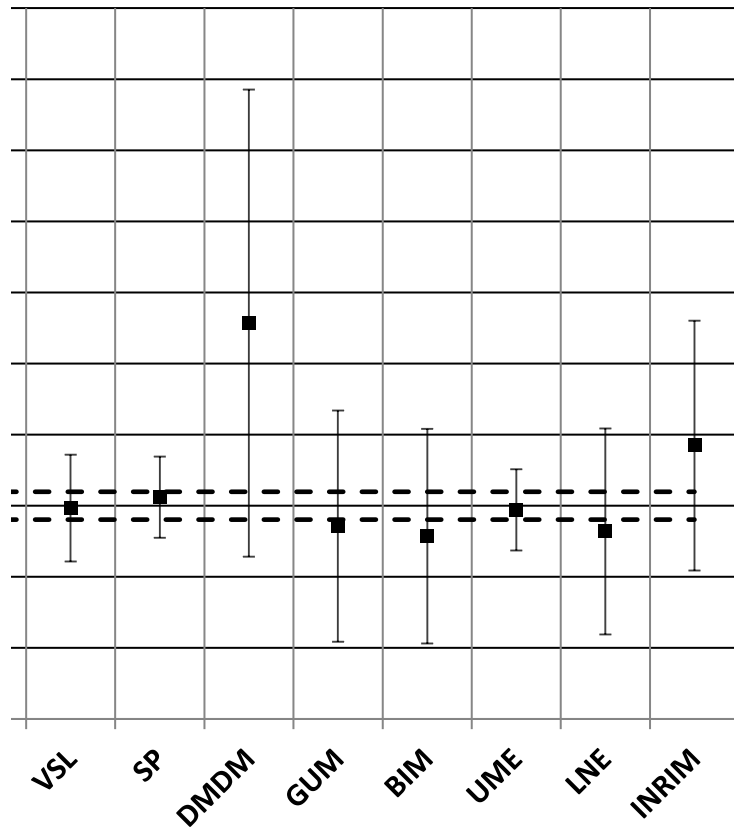
Phase dis



laboratory

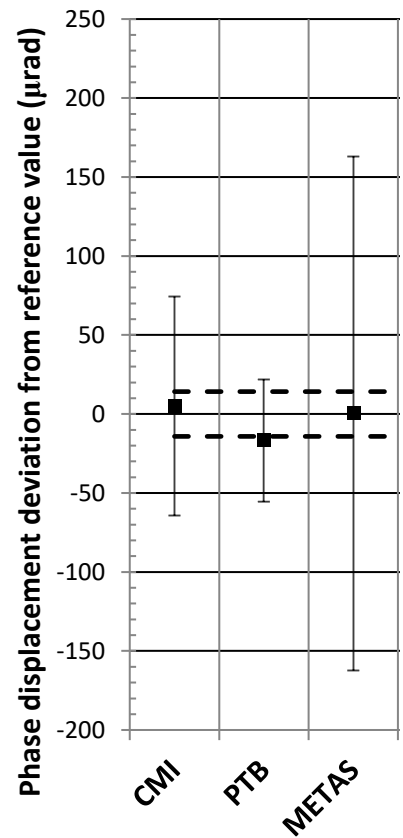
tion from reference value

, 5 % I_N , 5 VA



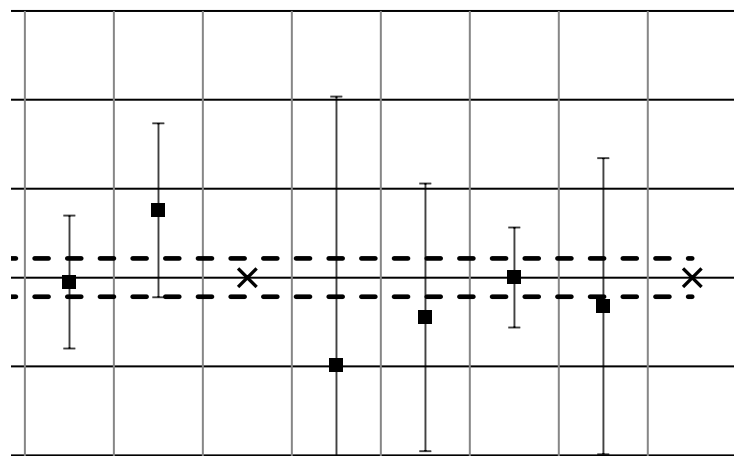
laboratory

Phase dis

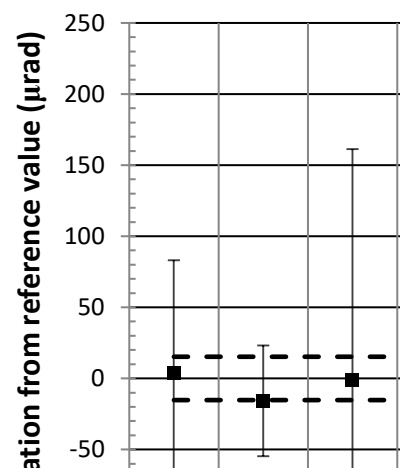


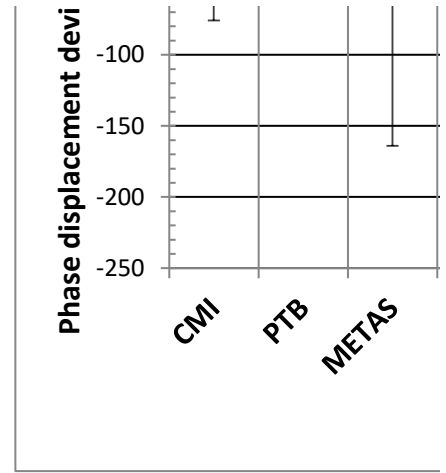
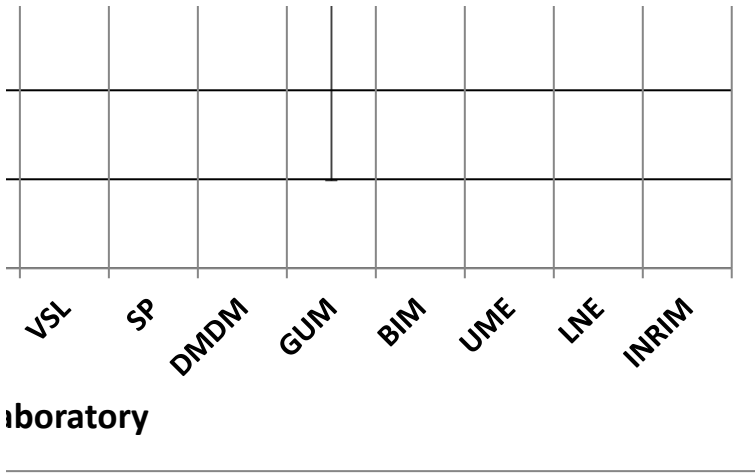
tion from reference value

, 2 % I_N , 5 VA

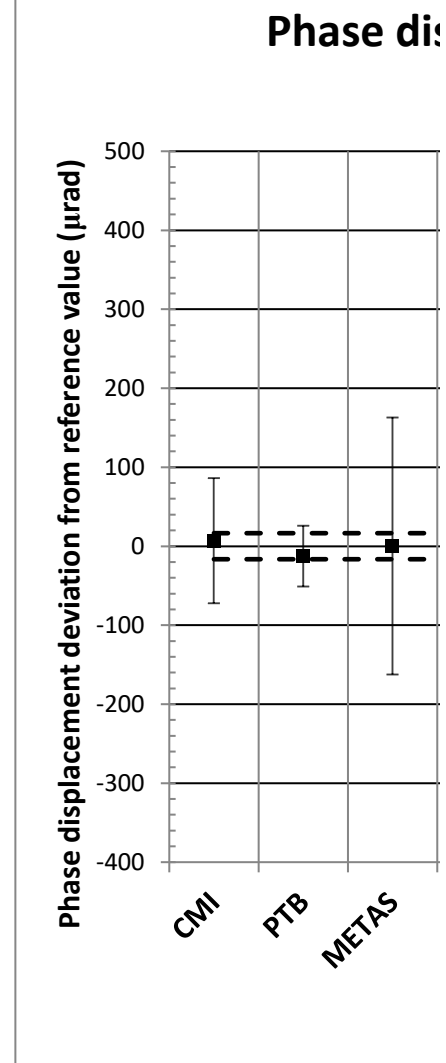
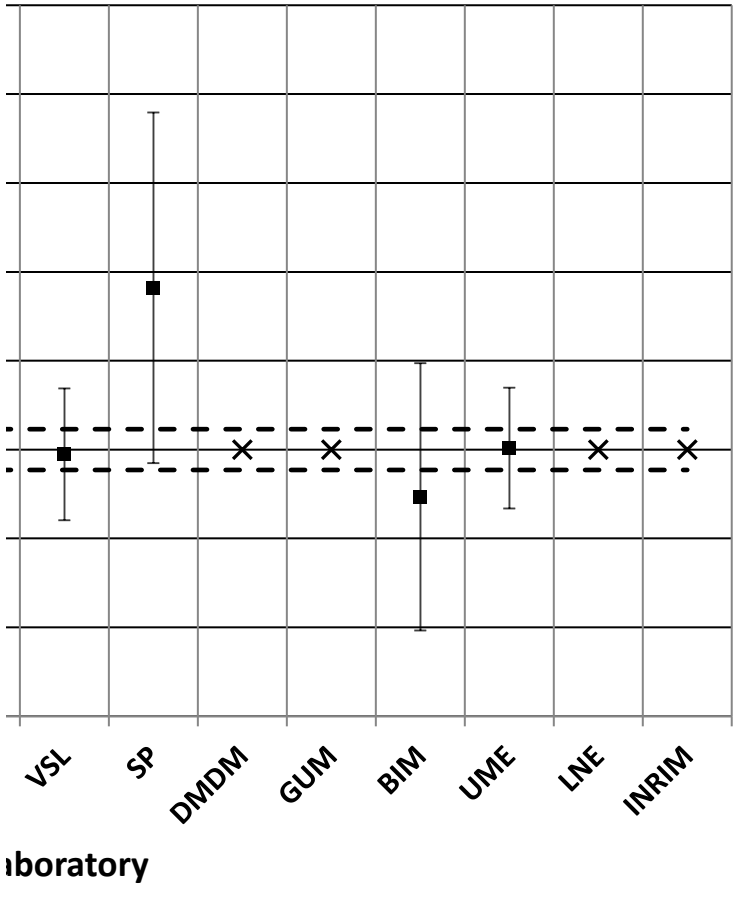


Phase dis





tion from reference value
 $1\% I_N, 5 VA$



		VSL					SP			
$u(\Delta\delta_{std})$ (μrad)	$E(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{std})$ (μrad)	$E(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{std})$ (μrad)
22	0.147	156	20	4	22	0.092				
21	0.317	166	20	5	21	0.118	154	10	-7	12
21	0.130	204	19	6	20	0.146	192	10	-6	12
21	0.152	248	19	9	19	0.234	236	10	-3	10
20	0.626	271	19	6	19	0.147	256	12	-9	12
32	0.081	294	19	8	19	0.216	279	15	-6	14
46	0.151	313	19	7	19	0.186	326	25	20	25
46	0.037	321	19	4	19	0.116	378	58	62	58
20	0.381									
20	0.199									
20	0.074	93	19	3	19	0.070				
20	0.118	110	19	-2	19	0.042	119	10	8	10
20	0.530	121	19	-3	19	0.079	134	12	10	12
32	0.184	132	19	-2	19	0.047	140	15	6	14
46	0.032	140	19	-3	19	0.067	180	25	38	24
46	0.023	145	19	-3	19	0.070	239	49	91	49
		VSL					SP			
$u(\Delta\delta_{std})$ (μrad)	$E(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{std})$ (μrad)	$E(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{std})$ (μrad)
20	0.448	187	27	-6	27	0.109				
20	0.139	199	26	-10	26	0.199	169	41	-41	41
20	0.213	255	26	2	26	0.033	233	41	-21	41
20	0.098	320	24	4	24	0.081	297	41	-19	41
20	0.587	354	24	-1	24	0.016	335	47	-20	46
32	0.040	386	24	5	23	0.110	367	58	-14	58
46	0.015	413	24	4	24	0.090	425	99	16	99
46	0.153	427	24	5	23	0.117	474	198	53	198
21	0.503	149	25	-17	25	0.344				
21	0.137	159	25	-10	25	0.196	151	41	-18	41
20	0.039	201	24	-1	24	0.024	186	41	-16	41
20	0.273	250	24	-1	24	0.019	250	41	-1	41
20	0.235	276	24	-6	24	0.116	279	47	-2	46
32	0.181	300	24	-2	24	0.053	329	58	26	58
46	0.023	321	24	-1	24	0.026	384	99	62	99
46	0.139	332	24	-1	23	0.020	463	198	130	198
20	0.132	125	24	-15	24	0.317				
20	0.016	132	24	-13	24	0.269				
20	0.191	166	24	-1	24	0.019	157	41	-10	41
20	0.085	208	24	1	24	0.018	210	41	2	41
20	0.033	229	24	-2	24	0.052	227	47	-5	46
32	0.187	248	24	-2	23	0.045	247	58	-3	58
46	0.067	264	24	-4	24	0.087	297	99	29	99

46	0.162	274	24	-3	23	0.062	358	198	81	198
21	0.396									
21	0.481	104	24	-3	24	0.069				
21	0.420	127	24	-1	24	0.024	116	41	-12	41
20	0.397	157	24	-1	24	0.030	151	41	-7	41
20	0.065	173	24	1	24	0.022	172	47	0	47
32	0.199	186	24	-1	24	0.026	180	58	-7	58
46	0.030	198	24	-3	23	0.064	224	99	23	99
46	0.076	205	24	-6	23	0.123	279	198	69	198
20	0.248									
20	0.052									
20	0.304	102	24	2	24	0.049	102	41	2	41
20	0.492	123	24	-3	24	0.057	125	41	-1	41
20	0.259	134	24	-1	24	0.024	143	47	7	46
32	0.029	146	24	-1	23	0.029	151	58	4	58
46	0.108	156	24	0	23	0.010	189	99	34	99
46	0.196	162	24	-2	23	0.035	247	198	84	198

BEV	BEV	VSL	VSL	VSL	VSL	VSL	SP	SP	SP	SP
$u(\Delta\delta_{stdC})$ (μrad)	$E_C(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{stdC})$ (μrad)	$E_C(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{stdC})$ (μrad)
22	0.223	156	20	1	22	0.015				
21	0.385	166	20	8	21	0.186	154	10	-4	12
21	0.141	204	19	6	20	0.158	192	10	-6	12
21	0.152	248	19	9	19	0.234	236	10	-3	10

20	0.626	271	19	6	19	0.147	256	12	-9	12
32	0.081	294	19	8	19	0.216	279	15	-6	14
46	0.151	313	19	7	19	0.186	326	25	20	25
46	0.037	321	19	4	19	0.116	378	58	62	58
20	0.381									
20	0.199									
20	0.055	93	19	3	19	0.091				
20	0.118	110	19	-2	19	0.042	119	10	8	10
20	0.530	121	19	-3	19	0.079	134	12	10	12
32	0.184	132	19	-2	19	0.047	140	15	6	14
46	0.032	140	19	-3	19	0.067	180	25	38	24
46	0.023	145	19	-3	19	0.070	239	49	91	49
BEV	BEV	VSL	VSL	VSL	VSL	VSL	SP	SP	SP	SP
$u(\Delta\delta_{stdC})$ (μrad)	$E_C(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{stdC})$ (μrad)	$E_C(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{stdC})$ (μrad)
20	0.474	187	27	-6	27	0.119				
19	0.003	199	26	-5	25	0.090	169	41	-35	40
19	0.200	255	26	1	25	0.018	233	41	-21	40
20	0.071	320	24	-3	24	0.062	297	41	-26	41
20	0.406	354	24	-8	24	0.174	335	47	-28	46
32	0.040	386	24	5	23	0.110	367	58	-14	58
46	0.015	413	24	4	24	0.090	425	99	16	99
46	0.153	427	24	5	23	0.117	474	198	53	198
21	0.503	149	25	-17	25	0.344				
20	0.030	159	25	-17	25	0.335	151	41	-24	41
20	0.157	201	24	-9	24	0.189	186	41	-24	41
20	0.089	250	24	-8	24	0.176	250	41	-8	41
20	0.046	276	24	-13	24	0.279	279	47	-10	46
32	0.181	300	24	-2	24	0.053	329	58	26	58
46	0.023	321	24	-1	24	0.026	384	99	62	99
46	0.139	332	24	-1	23	0.020	463	198	130	198
20	0.132	125	24	-15	24	0.317				
20	0.016	132	24	-13	24	0.269				
20	0.078	166	24	-5	24	0.115	157	41	-14	41
20	0.085	208	24	1	24	0.018	210	41	2	41
20	0.033	229	24	-2	24	0.052	227	47	-5	46
32	0.187	248	24	-2	23	0.045	247	58	-3	58
46	0.067	264	24	-4	24	0.087	297	99	29	99
46	0.162	274	24	-3	23	0.062	358	198	81	198
21	0.396									
21	0.481	104	24	-3	24	0.069				
21	0.449	127	24	0	24	0.001	116	41	-11	41
20	0.397	157	24	-1	24	0.030	151	41	-7	41
20	0.065	173	24	1	24	0.022	172	47	0	47
32	0.199	186	24	-1	24	0.026	180	58	-7	58
46	0.030	198	24	-3	23	0.064	224	99	23	99

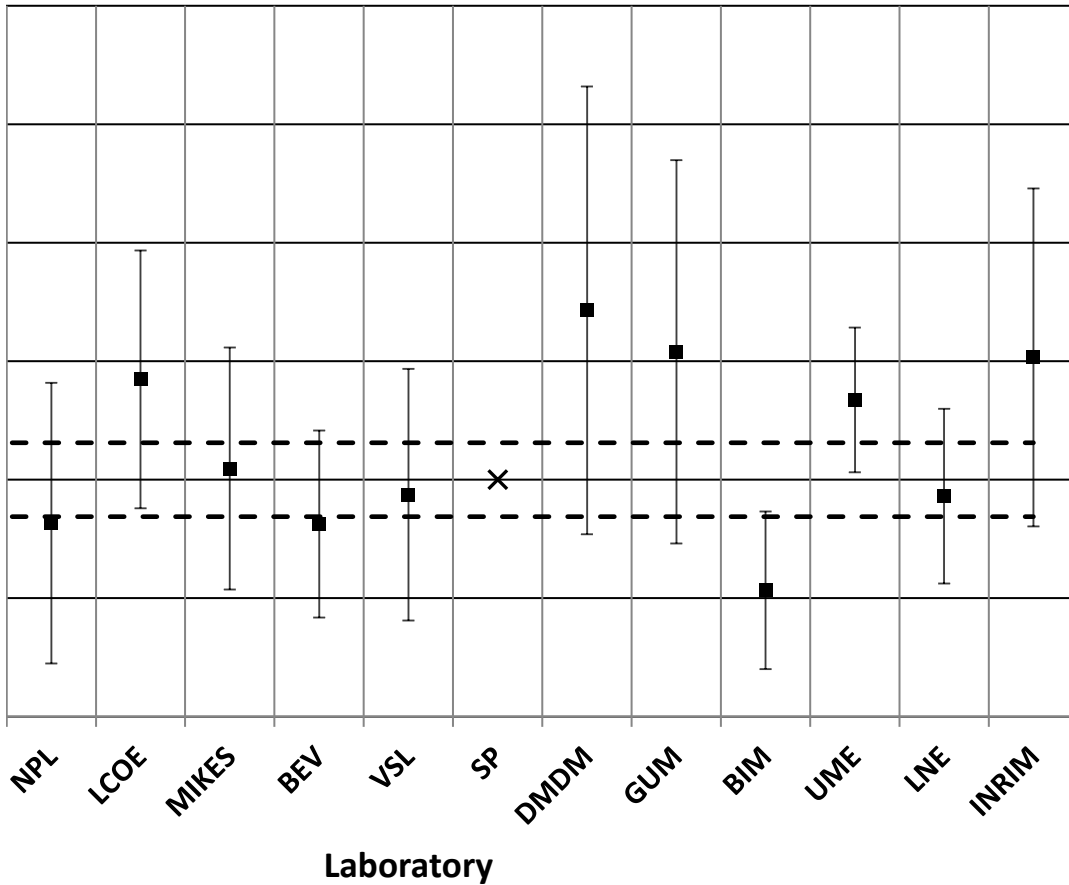
46	0.076	205	24	-6	23	0.123	279	198	69	198
20	0.248									
20	0.052									
20	0.271	102	24	4	24	0.076	102	41	4	41
20	0.492	123	24	-3	24	0.057	125	41	-1	41
20	0.259	134	24	-1	24	0.024	143	47	7	46
32	0.029	146	24	-1	23	0.029	151	58	4	58
46	0.108	156	24	0	23	0.010	189	99	34	99
46	0.196	162	24	-2	23	0.035	247	198	84	198

BEV				VSL	VSL				SP	SP
$U(\Delta\delta_{stdC})$ (μrad)	novalue	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{stdC})$ (μrad)	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{stdC})$ (μrad)	novalue	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{stdC})$ (μrad)	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{stdC})$ (μrad)
44	#N/A	-10	44	1	43	#N/A	1	43		
43	#N/A	16	43	8	42	#N/A	8	42	-4	24
43	#N/A	6	43	6	40	#N/A	6	40	-6	24
41	#N/A	-6	41	9	38	#N/A	9	38	-3	21
41	#N/A	26	41	6	38	#N/A	6	38	-9	24
64	#N/A	5	64	8	38	#N/A	8	38	-6	29
93	#N/A	14	93	7	38	#N/A	7	38	20	49
93	#N/A	3	93	4	37	#N/A	4	37	62	116
40	#N/A	15	40			0	#N/A	#N/A		
41	#N/A	8	41			0	#N/A	#N/A		
41	#N/A	-2	41	3	38	#N/A	3	38		
41	#N/A	5	41	-2	38	#N/A	-2	38	8	20
41	#N/A	22	41	-3	38	#N/A	-3	38	10	23

64	#N/A	12	64	-2	38	#N/A	-2	38	6	29
93	#N/A	3	93	-3	37	#N/A	-3	37	38	49
93	#N/A	-2	93	-3	37	#N/A	-3	37	91	99
BEV				VSL	VSL				SP	SP
U($\Delta\delta_{stdC}$)				$\Delta\delta_C$	U($\Delta\delta_{stdC}$)				$\Delta\delta_C$	U($\Delta\delta_{stdC}$)
(μrad)				(μrad)	(μrad)				(μrad)	(μrad)
40	#N/A	-19	40	-6	53	#N/A	-6	53		
39	#N/A	0	39	-5	51	#N/A	-5	51	-35	81
39	#N/A	8	39	1	51	#N/A	1	51	-21	81
40	#N/A	-3	40	-3	47	#N/A	-3	47	-26	81
40	#N/A	16	40	-8	47	#N/A	-8	47	-28	93
63	#N/A	-3	63	5	47	#N/A	5	47	-14	116
93	#N/A	-1	93	4	47	#N/A	4	47	16	198
92	#N/A	-14	92	5	47	#N/A	5	47	53	396
42	#N/A	-21	42	-17	51	#N/A	-17	51		
41	#N/A	-1	41	-17	50	#N/A	-17	50	-24	82
40	#N/A	-6	40	-9	47	#N/A	-9	47	-24	81
40	#N/A	4	40	-8	47	#N/A	-8	47	-8	81
40	#N/A	2	40	-13	47	#N/A	-13	47	-10	93
63	#N/A	-11	63	-2	47	#N/A	-2	47	26	116
93	#N/A	-2	93	-1	47	#N/A	-1	47	62	198
92	#N/A	-13	92	-1	47	#N/A	-1	47	130	396
41	#N/A	5	41	-15	48	#N/A	-15	48		
41	#N/A	1	41	-13	48	#N/A	-13	48		
40	#N/A	3	40	-5	47	#N/A	-5	47	-14	81
40	#N/A	-3	40	1	48	#N/A	1	48	2	81
40	#N/A	1	40	-2	48	#N/A	-2	48	-5	93
63	#N/A	12	63	-2	47	#N/A	-2	47	-3	116
93	#N/A	-6	93	-4	47	#N/A	-4	47	29	198
92	#N/A	-15	92	-3	47	#N/A	-3	47	81	396
41	#N/A	-16	41			0	#N/A	#N/A		
42	#N/A	-20	42	-3	49	#N/A	-3	49		
41	#N/A	19	41	0	48	#N/A	0	48	-11	82
41	#N/A	16	41	-1	48	#N/A	-1	48	-7	81
41	#N/A	3	41	1	48	#N/A	1	48	0	93
64	#N/A	-13	64	-1	47	#N/A	-1	47	-7	116
92	#N/A	3	92	-3	47	#N/A	-3	47	23	198
92	#N/A	-7	92	-6	47	#N/A	-6	47	69	396
39	#N/A	10	39			0	#N/A	#N/A		
40	#N/A	2	40			0	#N/A	#N/A		
41	#N/A	-11	41	4	48	#N/A	4	48	4	81
40	#N/A	20	40	-3	48	#N/A	-3	48	-1	81
40	#N/A	10	40	-1	48	#N/A	-1	48	7	93
63	#N/A	-2	63	-1	47	#N/A	-1	47	4	116
93	#N/A	-10	93	0	47	#N/A	0	47	34	198
92	#N/A	-18	92	-2	46	#N/A	-2	46	84	396

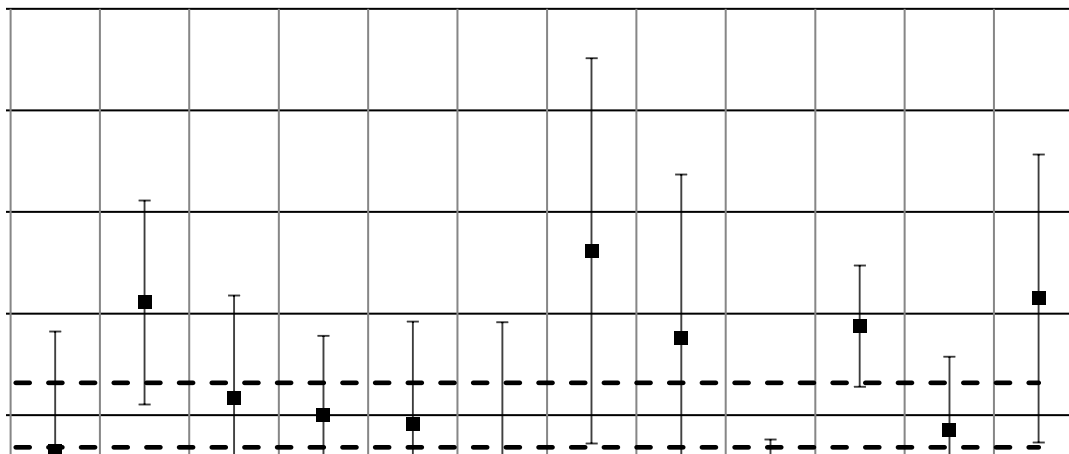
placement deviation from reference value

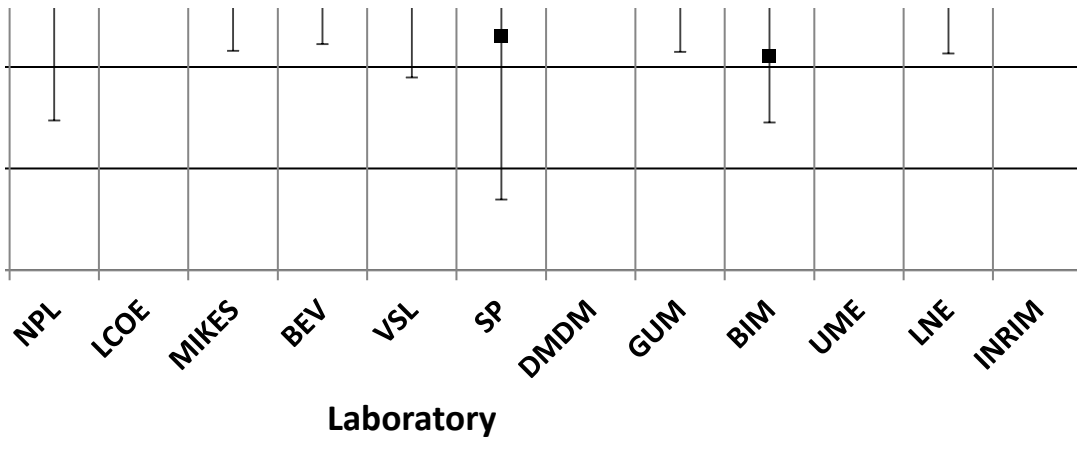
$k_1 = 4 \text{ kA}/5 \text{ A}, 120 \% I_N, 15 \text{ VA}$



placement deviation from reference value

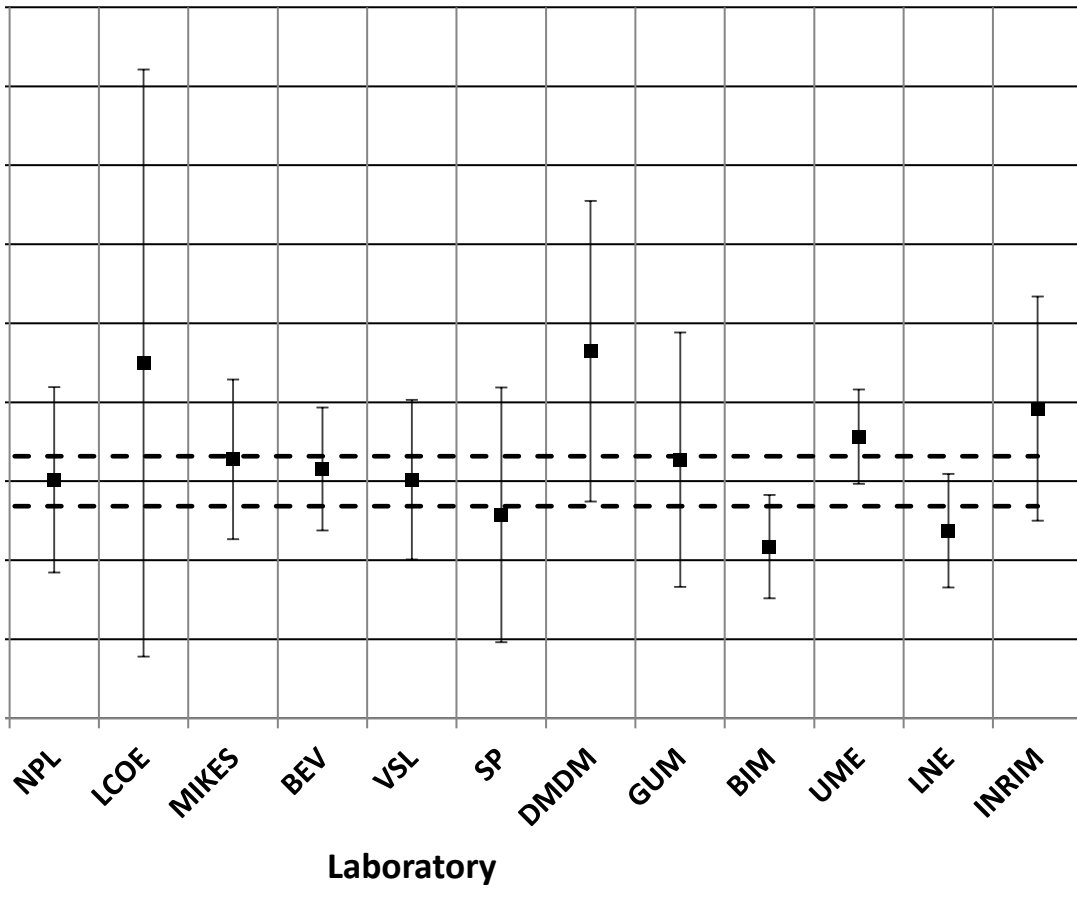
$k_1 = 4 \text{ kA}/5 \text{ A}, 100 \% I_N, 15 \text{ VA}$





placement deviation from reference value

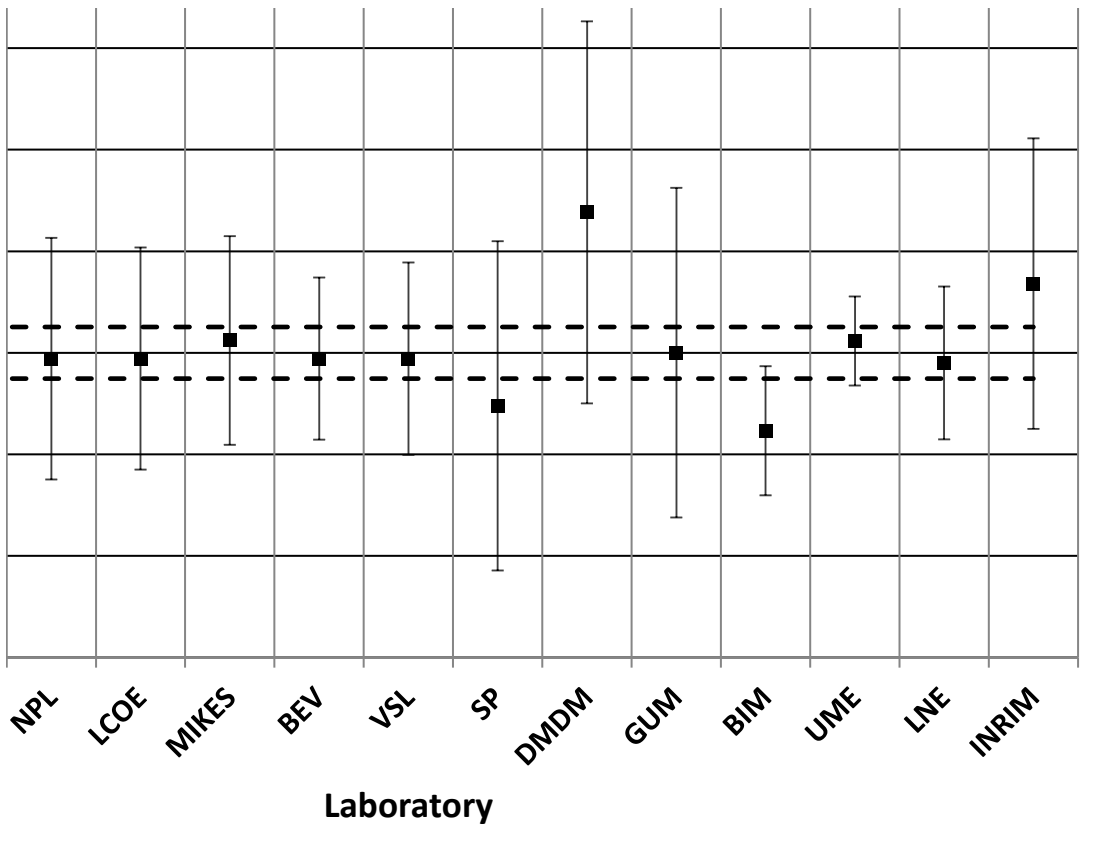
$k_1 = 4 \text{ kA/5 A, } 50 \% I_N, 15 \text{ VA}$



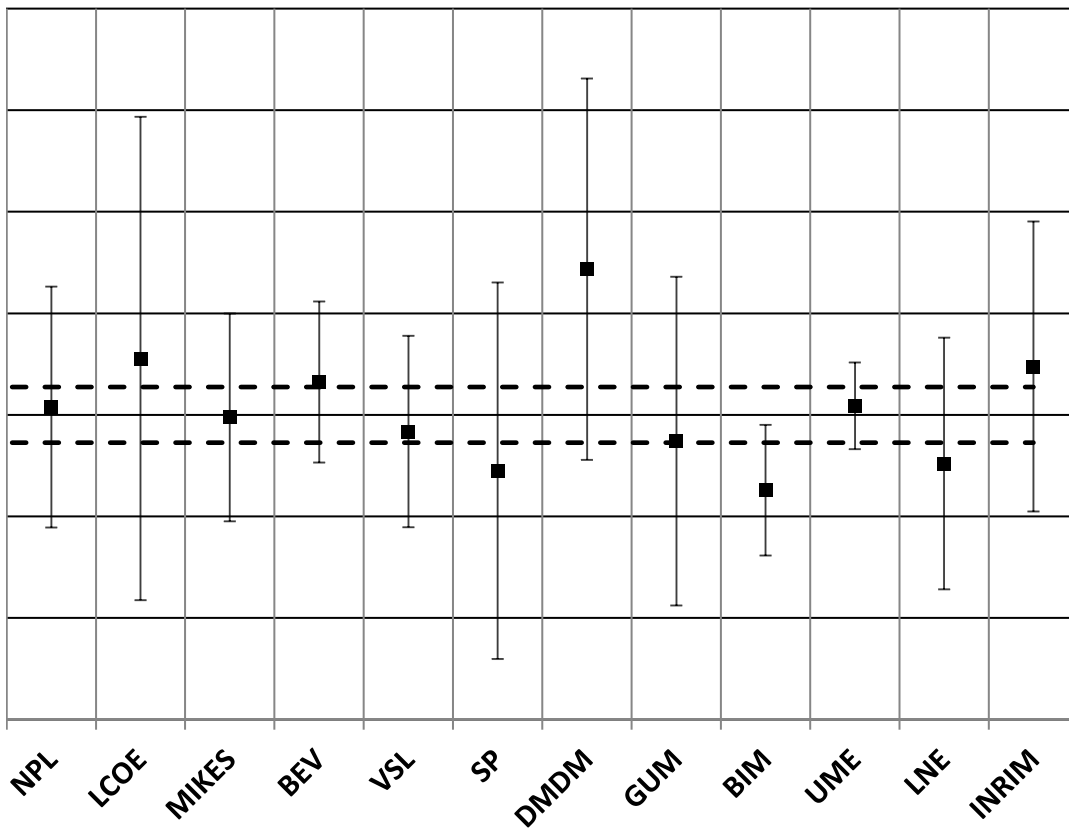
placement deviation from reference value

$k_1 = 4 \text{ kA/5 A, } 20 \% I_N, 15 \text{ VA}$





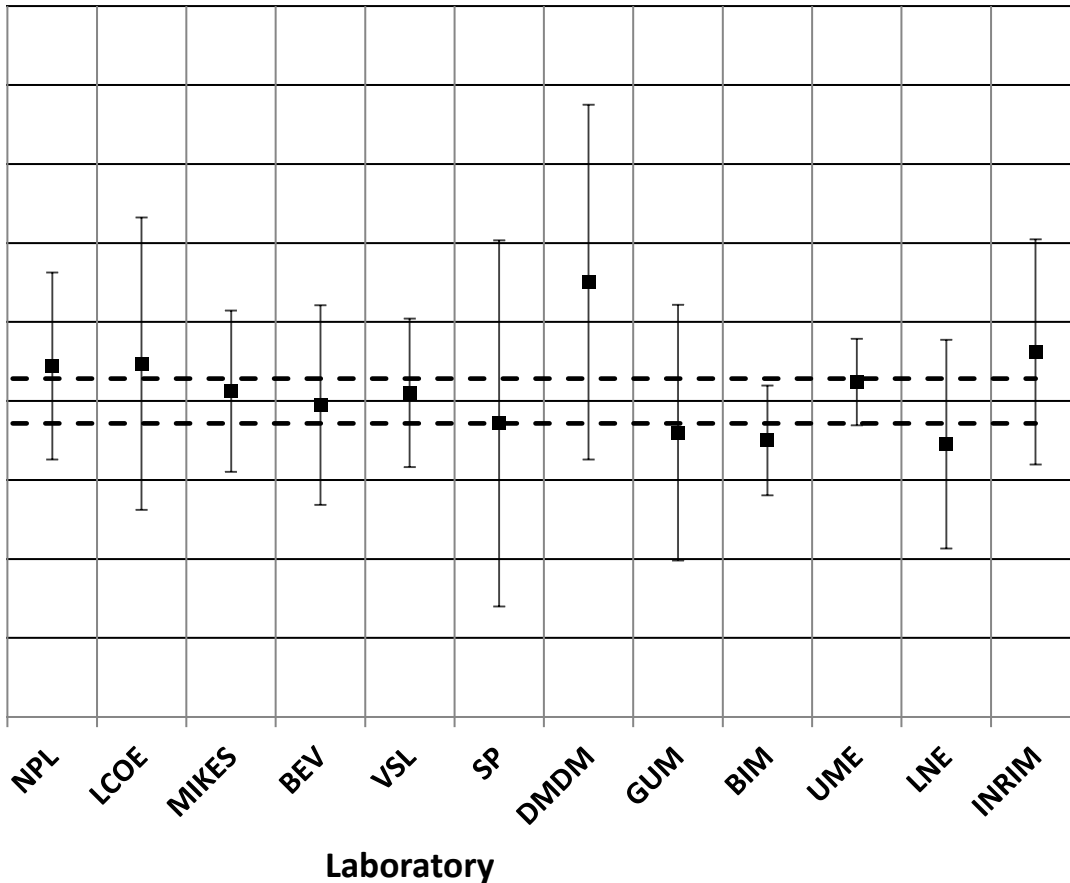
placement deviation from reference value
 $k_1 = 4 \text{ kA}/5 \text{ A}, 10 \% I_N, 15 \text{ VA}$



Laboratory

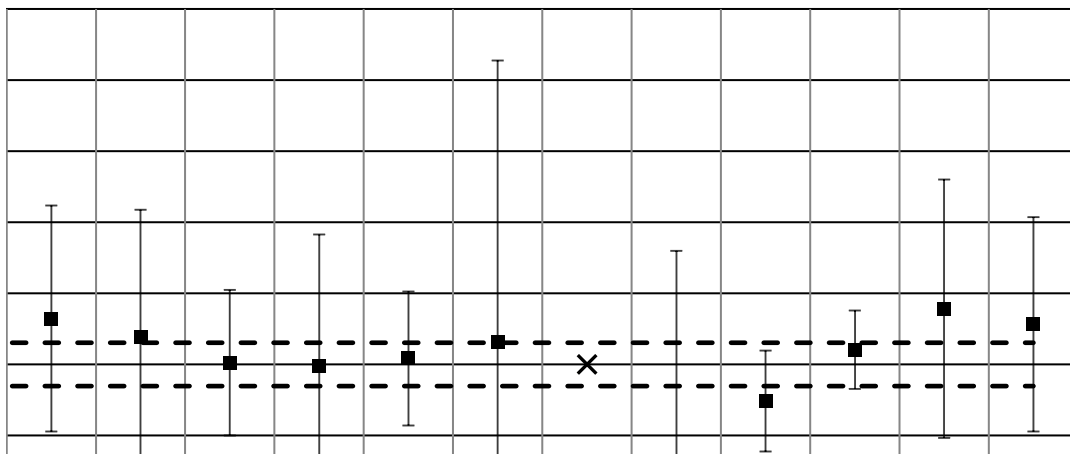
placement deviation from reference value

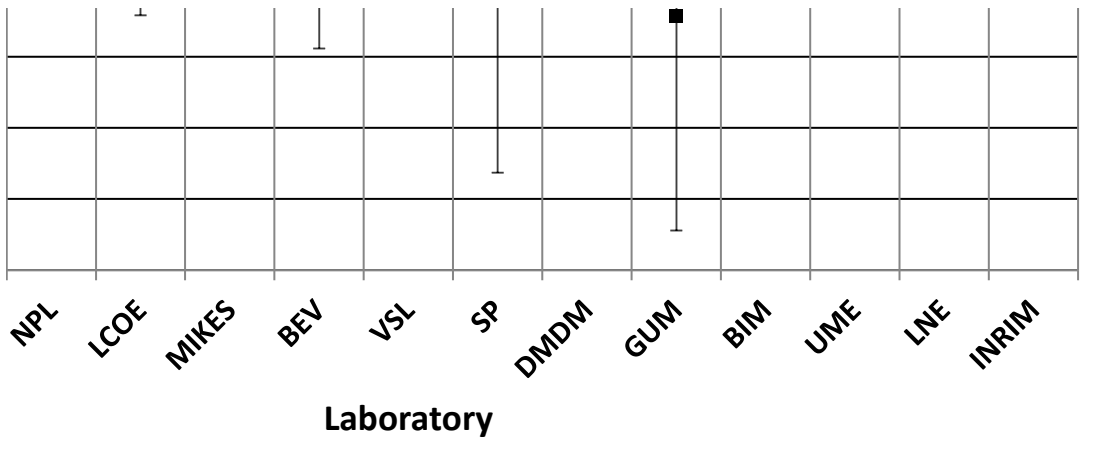
$k_1 = 4 \text{ kA}/5 \text{ A}, 5 \% I_N, 15 \text{ VA}$



placement deviation from reference value

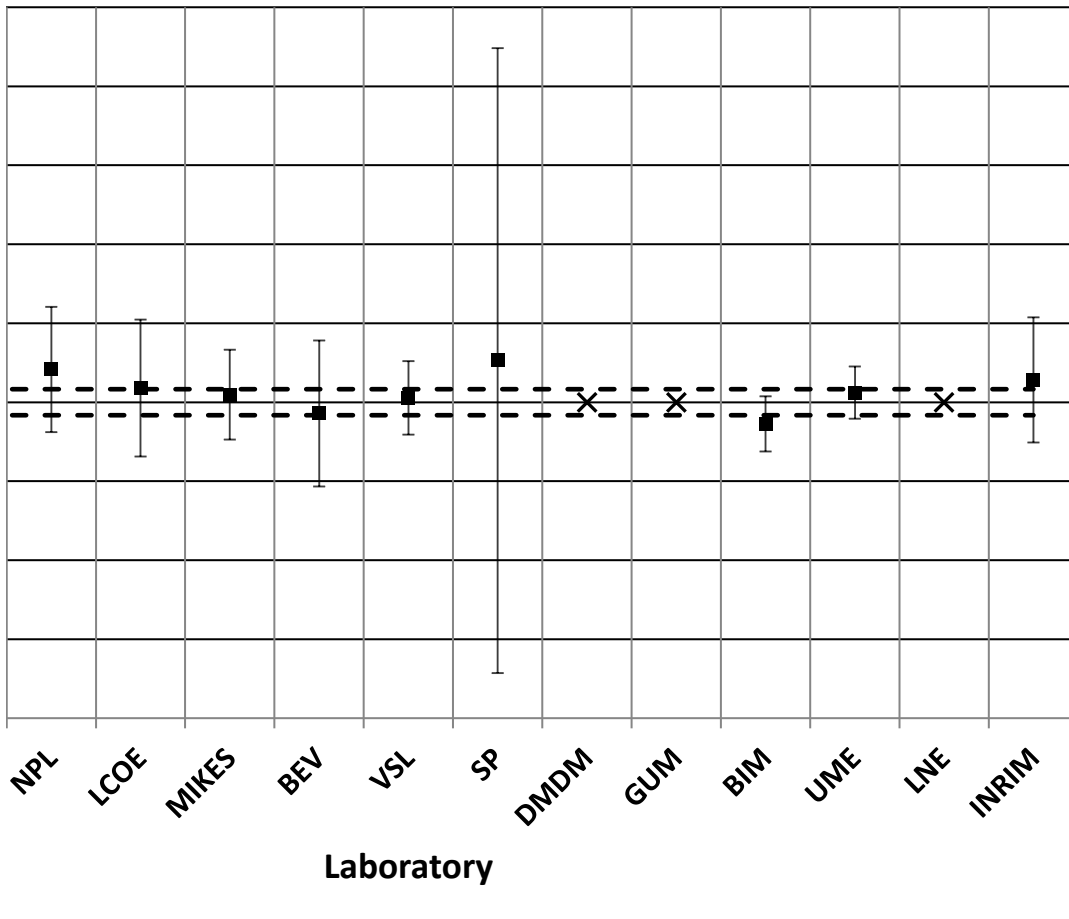
$k_1 = 4 \text{ kA}/5 \text{ A}, 2 \% I_N, 15 \text{ VA}$





placement deviation from reference value

$k_1 = 4 \text{ kA}/5 \text{ A}, 1 \% I_N, 15 \text{ VA}$



DMDM						GUM					
E(δ) (-)	δ_L (μ rad)	u(δ_L) (μ rad)	$\Delta\delta$ (μ rad)	u($\Delta\delta_{std}$) (μ rad)	E(δ) (-)	δ_L (μ rad)	u(δ_L) (μ rad)	$\Delta\delta$ (μ rad)	u($\Delta\delta_{std}$) (μ rad)	E(δ) (-)	δ_L (μ rad)
	215	46	63	47	0.668	178	41	26	42	0.306	120
0.278	229	47	68	47	0.720	172	41	11	41	0.129	127
0.248	259	47	61	47	0.649	207	41	8	41	0.103	163
0.158	292	47	53	47	0.573	244	41	5	41	0.066	213
0.394	315	47	49	47	0.530	256	41	-9	41	0.114	241
0.223	331	56	45	56	0.408	259	41	-27	41	0.330	262
0.405						215	76	-91	76	0.600	278
0.530											287
						108	41	28	41	0.349	
	259	68	169	68	1.237	108	41	17	41	0.213	64
0.382	242	68	130	68	0.953	116	41	5	41	0.059	85
0.429	254	69	130	69	0.940	119	41	-5	41	0.057	101
0.207	262	82	128	82	0.781	119	41	-14	41	0.178	112
0.775						93	76	-49	76	0.327	120
0.923											121
DMDM						GUM					
E(δ) (-)	δ_L (μ rad)	u(δ_L) (μ rad)	$\Delta\delta$ (μ rad)	u($\Delta\delta_{std}$) (μ rad)	E(δ) (-)	δ_L (μ rad)	u(δ_L) (μ rad)	$\Delta\delta$ (μ rad)	u($\Delta\delta_{std}$) (μ rad)	E(δ) (-)	δ_L (μ rad)
	265	47	72	47	0.757	247	41	54	41	0.668	147
0.499	284	48	75	48	0.787	242	41	32	41	0.396	159
0.252	336	48	83	48	0.869	268	41	14	41	0.177	213
0.238	392	47	76	47	0.807	323	41	7	41	0.085	285
0.216	434	47	79	47	0.841	349	41	-6	41	0.068	325
0.122	456	56	75	56	0.671	361	41	-20	40	0.248	356
0.081						338	76	-71	76	0.471	383
0.133											394
						215	41	49	41	0.597	
0.215	358	68	189	68	1.384	198	41	29	41	0.354	134
0.196	364	68	162	68	1.192	201	41	-1	41	0.017	163
0.008	383	68	132	68	0.971	250	41	-1	41	0.008	219
0.023	390	68	109	68	0.797	268	41	-14	41	0.170	250
0.227	388	82	86	82	0.524	271	41	-32	40	0.394	275
0.313						233	76	-89	76	0.592	296
0.328											303
						175	81	34	81	0.213	
						160	41	15	41	0.187	
0.120	199	70	32	70	0.225	169	41	2	41	0.023	132
0.029	196	73	-11	73	0.078	204	41	-3	41	0.042	178
0.049	190	76	-42	76	0.273	218	41	-13	41	0.163	206
0.024	195	90	-55	90	0.305	215	41	-35	40	0.430	226
0.145						186	73	-82	73	0.564	244

0.205												247
						140	41	36	41	0.441		
						131	41	24	41	0.287		
0.144	274	68	146	68	1.068	134	41	6	41	0.070		96
0.087	257	70	99	70	0.708	160	41	2	41	0.020		128
0.003	246	71	74	71	0.520	169	41	-3	41	0.039		151
0.059	246	86	59	86	0.343	166	41	-21	41	0.264		167
0.117						140	73	-61	73	0.423		180
0.173												179
						119	41	34	41	0.420		
0.027	270	68	171	68	1.252	116	41	17	41	0.205		71
0.007	251	69	125	69	0.909	125	41	-1	41	0.007		94
0.080	252	69	117	69	0.843	134	41	-1	41	0.015		113
0.034	267	84	120	84	0.715	137	41	-11	40	0.131		126
0.170						108	73	-48	73	0.330		136
0.212												137

SP	DMDM	DMDM	DMDM	DMDM	DMDM	GUM	GUM	GUM	GUM	GUM	BIM
$E_c(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{\text{stdC}})$ (μrad)	$E_c(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{\text{stdC}})$ (μrad)	$E_c(\delta)$ (-)	δ_L (μrad)
	215	46	60	47	0.633	178	41	22	42	0.266	120
0.167	229	47	70	47	0.751	172	41	13	41	0.164	127
0.234	259	47	62	47	0.655	207	41	9	41	0.108	163
0.158	292	47	53	47	0.573	244	41	5	41	0.066	213

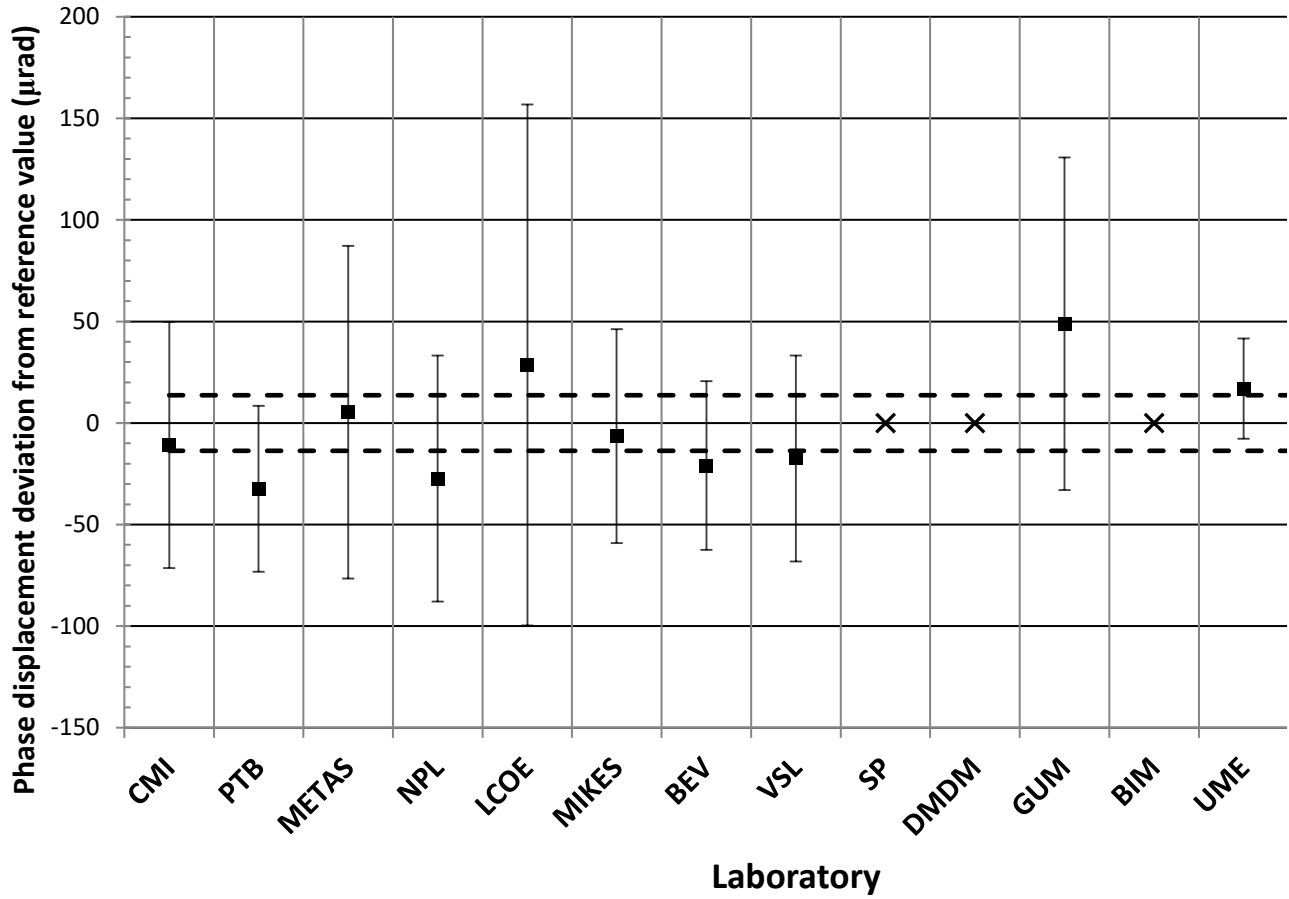
0.394	315	47	49	47	0.530	256	41	-9	41	0.114	241
0.223	331	56	45	56	0.408	259	41	-27	41	0.330	262
0.405						215	76	-91	76	0.600	278
0.530											287
						108	41	28	41	0.349	
	259	68	169	68	1.237	108	41	18	41	0.222	64
0.382	242	68	130	68	0.953	116	41	5	41	0.059	85
0.429	254	69	130	69	0.940	119	41	-5	41	0.057	101
0.207	262	82	128	82	0.781	119	41	-14	41	0.178	112
0.775						93	76	-49	76	0.327	120
0.923											121
SP	DMDM	DMDM	DMDM	DMDM	DMDM	GUM	GUM	GUM	GUM	GUM	BIM
$E_c(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{\text{stdC}})$ (μrad)	$E_c(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{\text{stdC}})$ (μrad)	$E_c(\delta)$ (-)	δ_L (μrad)
	265	47	71	47	0.757	247	41	54	40	0.668	147
0.432	284	48	81	47	0.853	242	41	38	40	0.471	159
0.265	336	48	82	48	0.866	268	41	14	40	0.169	213
0.322	392	47	69	47	0.736	323	41	0	41	0.001	285
0.297	434	47	72	47	0.764	349	41	-13	40	0.161	325
0.122	456	56	75	56	0.671	361	41	-20	40	0.248	356
0.081						338	76	-71	76	0.471	383
0.133											394
						215	41	49	41	0.597	
0.300	358	68	182	69	1.322	198	41	22	41	0.270	134
0.293	364	68	154	69	1.125	201	41	-9	41	0.113	163
0.100	383	68	125	68	0.917	250	41	-8	41	0.100	219
0.106	390	68	101	68	0.742	268	41	-21	41	0.265	250
0.227	388	82	86	82	0.524	271	41	-32	40	0.394	275
0.313						233	76	-89	76	0.592	296
0.328											303
						175	81	34	81	0.213	
						160	41	15	41	0.187	
0.177	199	70	27	70	0.193	169	41	-3	41	0.033	132
0.029	196	73	-11	73	0.078	204	41	-3	41	0.042	178
0.049	190	76	-42	76	0.273	218	41	-13	41	0.163	206
0.024	195	90	-55	90	0.305	215	41	-35	40	0.430	226
0.145						186	73	-82	73	0.564	244
0.205											247
						140	41	36	41	0.441	
						131	41	24	41	0.287	
0.129	274	68	147	69	1.068	134	41	7	41	0.084	96
0.087	257	70	99	70	0.708	160	41	2	41	0.020	128
0.003	246	71	74	71	0.520	169	41	-3	41	0.039	151
0.059	246	86	59	86	0.343	166	41	-21	41	0.264	167
0.117						140	73	-61	73	0.423	180

0.173											179
						119	41	34	41	0.420	
0.043	270	68	172	69	1.252	116	41	18	41	0.222	71
0.007	251	69	125	69	0.909	125	41	-1	41	0.007	94
0.080	252	69	117	69	0.843	134	41	-1	41	0.015	113
0.034	267	84	120	84	0.715	137	41	-11	40	0.131	126
0.170						108	73	-48	73	0.330	136
0.212											137

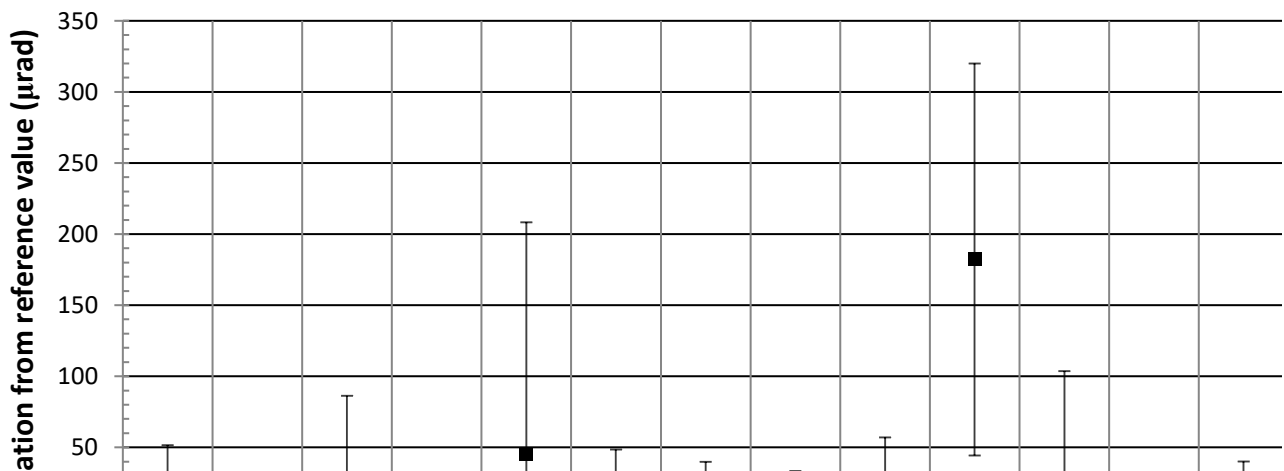
		DMDM		DMDM				GUM		GUM	
novalue	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{\text{stdC}})$ (μrad)	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{\text{stdC}})$ (μrad)	novalue	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{\text{stdC}})$ (μrad)	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{\text{stdC}})$ (μrad)	novalue	$\Delta\delta_C$ (μrad)
0	#N/A	#N/A	60	94	#N/A	60	94	22	83	#N/A	22
#N/A	-4	24	70	94	#N/A	70	94	13	82	#N/A	13
#N/A	-6	24	62	94	#N/A	62	94	9	82	#N/A	9
#N/A	-3	21	53	93	#N/A	53	93	5	82	#N/A	5
#N/A	-9	24	49	93	#N/A	49	93	-9	82	#N/A	-9
#N/A	-6	29	45	112	#N/A	45	112	-27	81	#N/A	-27
#N/A	20	49			0	#N/A	#N/A	-91	151	#N/A	-91
#N/A	62	116			0	#N/A	#N/A			0	#N/A
0	#N/A	#N/A			0	#N/A	#N/A			0	#N/A
0	#N/A	#N/A			0	#N/A	#N/A				
0	#N/A	#N/A			0	#N/A	#N/A	28	81	#N/A	28
0	#N/A	#N/A	169	137	#N/A	169	137	18	82	#N/A	18
#N/A	8	20	130	137	#N/A	130	137	5	81	#N/A	5
#N/A	10	23	130	138	#N/A	130	138	-5	81	#N/A	-5

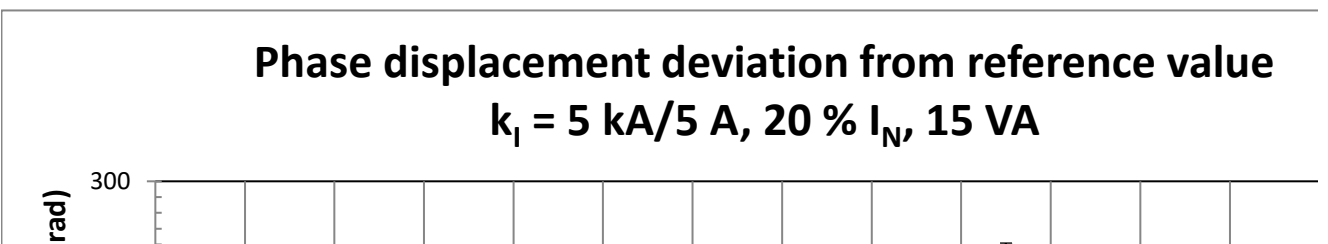
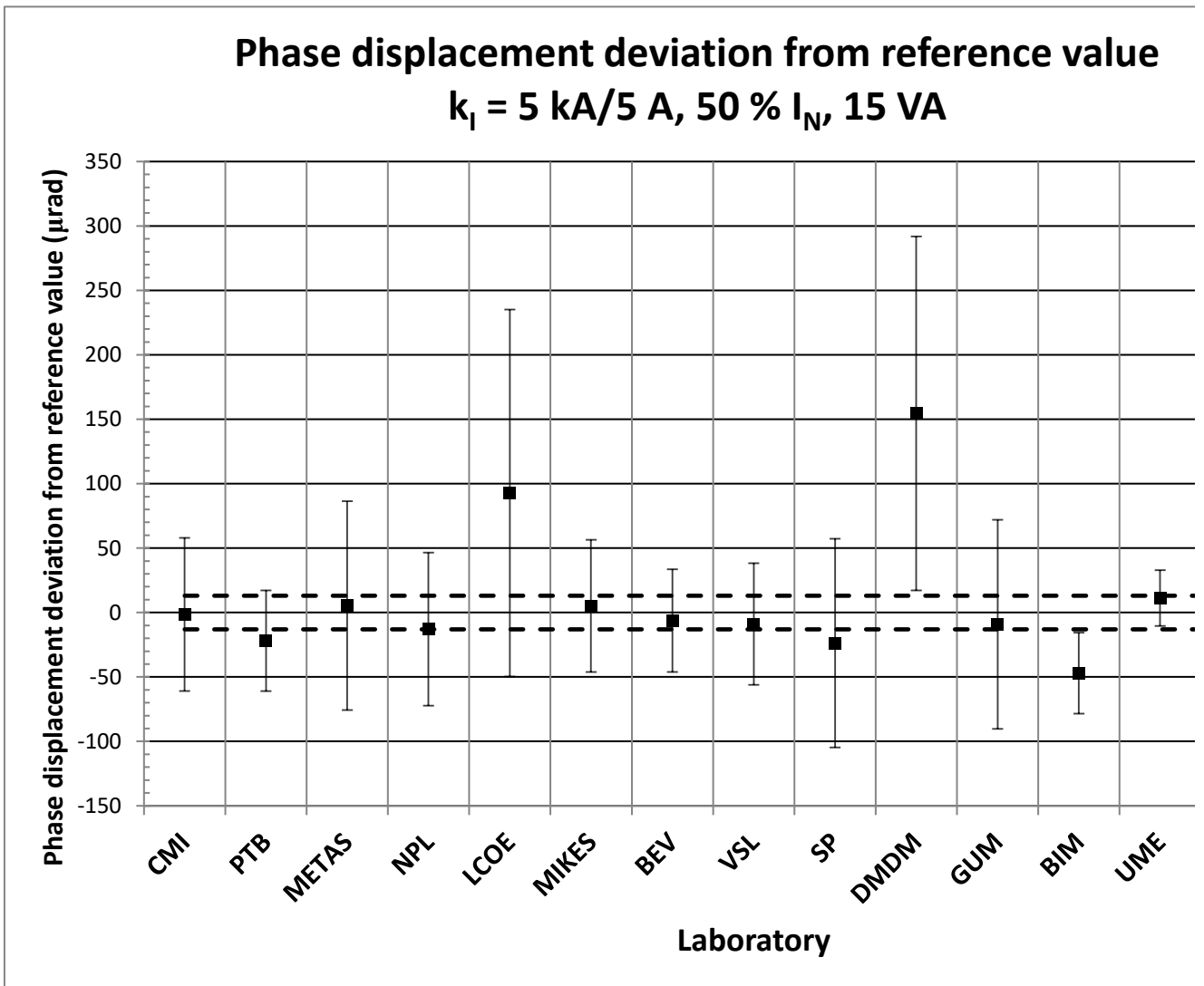
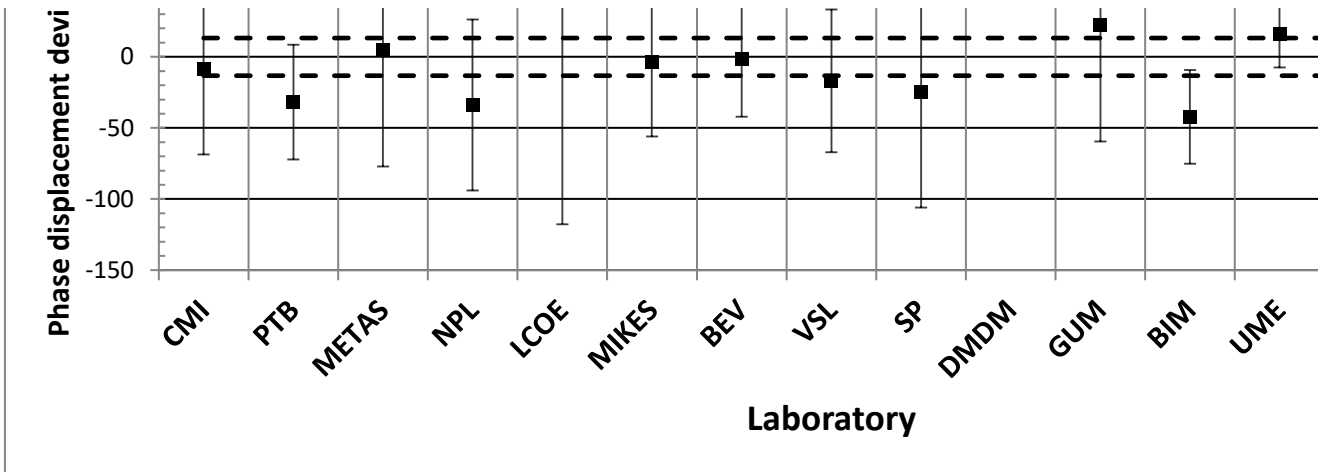
#N/A	6	29	128	164	#N/A	128	164	-14	81	#N/A	-14
#N/A	38	49			0	#N/A	#N/A	-49	151	#N/A	-49
#N/A	91	99			0	#N/A	#N/A			0	#N/A
			DMDM	DMDM				GUM	GUM		
			$\Delta\delta_c$	$U(\Delta\delta_{stdC})$				$\Delta\delta_c$	$U(\Delta\delta_{stdC})$		
			(μrad)	(μrad)				(μrad)	(μrad)		
0	#N/A	#N/A	71	94	#N/A	71	94	54	81	#N/A	54
#N/A	-35	81	81	95	#N/A	81	95	38	81	#N/A	38
#N/A	-21	81	82	95	#N/A	82	95	14	81	#N/A	14
#N/A	-26	81	69	94	#N/A	69	94	0	81	#N/A	0
#N/A	-28	93	72	94	#N/A	72	94	-13	81	#N/A	-13
#N/A	-14	116	75	112	#N/A	75	112	-20	81	#N/A	-20
#N/A	16	198			0	#N/A	#N/A	-71	151	#N/A	-71
#N/A	53	396			0	#N/A	#N/A			0	#N/A
0	#N/A	#N/A			0	#N/A	#N/A	49	82	#N/A	49
#N/A	-24	82	182	138	#N/A	182	138	22	82	#N/A	22
#N/A	-24	81	154	137	#N/A	154	137	-9	81	#N/A	-9
#N/A	-8	81	125	136	#N/A	125	136	-8	81	#N/A	-8
#N/A	-10	93	101	136	#N/A	101	136	-21	81	#N/A	-21
#N/A	26	116	86	163	#N/A	86	163	-32	81	#N/A	-32
#N/A	62	198			0	#N/A	#N/A	-89	151	#N/A	-89
#N/A	130	396			0	#N/A	#N/A			0	#N/A
0	#N/A	#N/A			0	#N/A	#N/A	34	162	#N/A	34
0	#N/A	#N/A			0	#N/A	#N/A	15	81	#N/A	15
#N/A	-14	81	27	141	#N/A	27	141	-3	81	#N/A	-3
#N/A	2	81	-11	146	#N/A	-11	146	-3	81	#N/A	-3
#N/A	-5	93	-42	152	#N/A	-42	152	-13	81	#N/A	-13
#N/A	-3	116	-55	181	#N/A	-55	181	-35	81	#N/A	-35
#N/A	29	198			0	#N/A	#N/A	-82	145	#N/A	-82
#N/A	81	396			0	#N/A	#N/A			0	#N/A
0	#N/A	#N/A			0	#N/A	#N/A	36	82	#N/A	36
0	#N/A	#N/A			0	#N/A	#N/A	24	82	#N/A	24
#N/A	-11	82	147	138	#N/A	147	138	7	82	#N/A	7
#N/A	-7	81	99	139	#N/A	99	139	2	81	#N/A	2
#N/A	0	93	74	142	#N/A	74	142	-3	81	#N/A	-3
#N/A	-7	116	59	172	#N/A	59	172	-21	81	#N/A	-21
#N/A	23	198			0	#N/A	#N/A	-61	145	#N/A	-61
#N/A	69	396			0	#N/A	#N/A			0	#N/A
0	#N/A	#N/A			0	#N/A	#N/A			0	#N/A
0	#N/A	#N/A			0	#N/A	#N/A	34	81	#N/A	34
#N/A	4	81	172	137	#N/A	172	137	18	81	#N/A	18
#N/A	-1	81	125	138	#N/A	125	138	-1	81	#N/A	-1
#N/A	7	93	117	139	#N/A	117	139	-1	81	#N/A	-1
#N/A	4	116	120	167	#N/A	120	167	-11	81	#N/A	-11
#N/A	34	198			0	#N/A	#N/A	-48	145	#N/A	-48
#N/A	84	396			0	#N/A	#N/A			0	#N/A

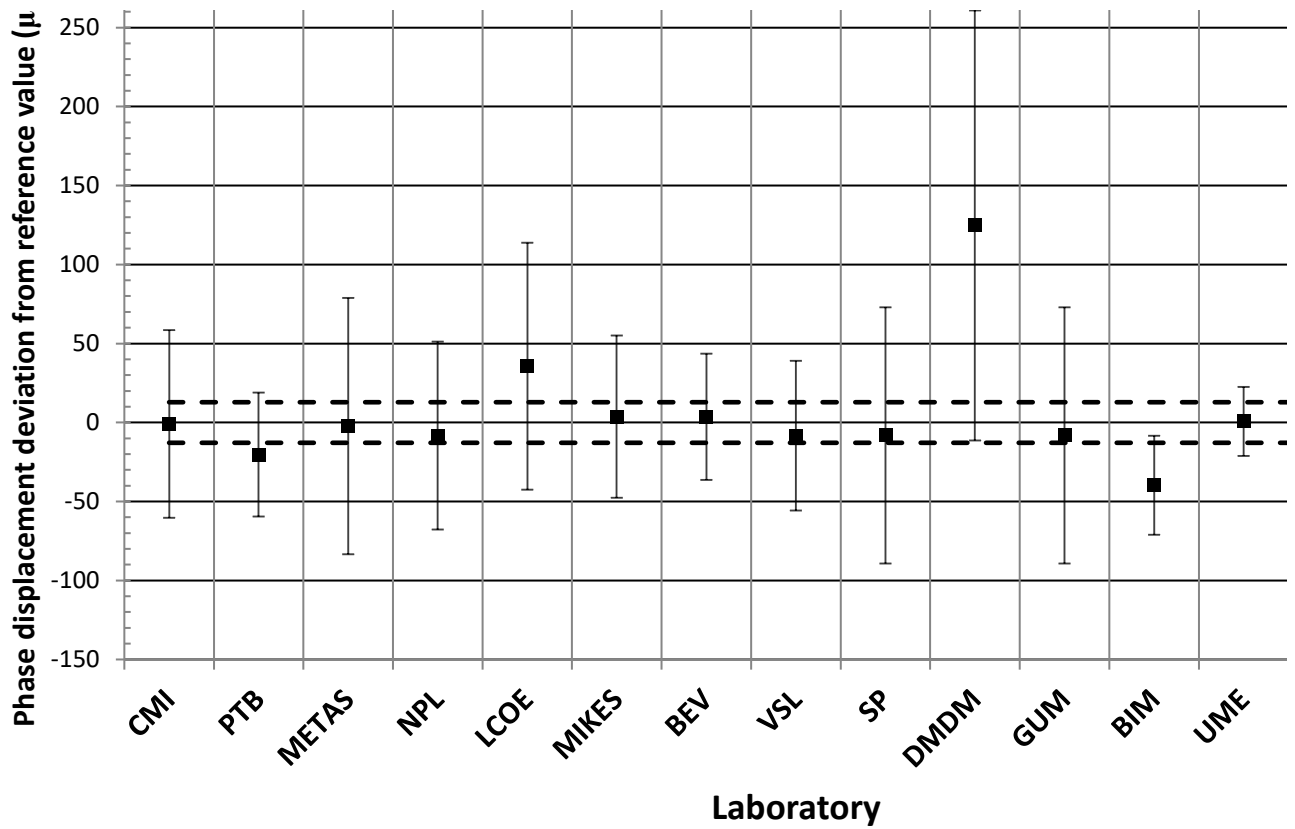
Phase displacement deviation from reference value
 $k_1 = 5 \text{ kA}/5 \text{ A}, 120 \% I_N, 15 \text{ VA}$



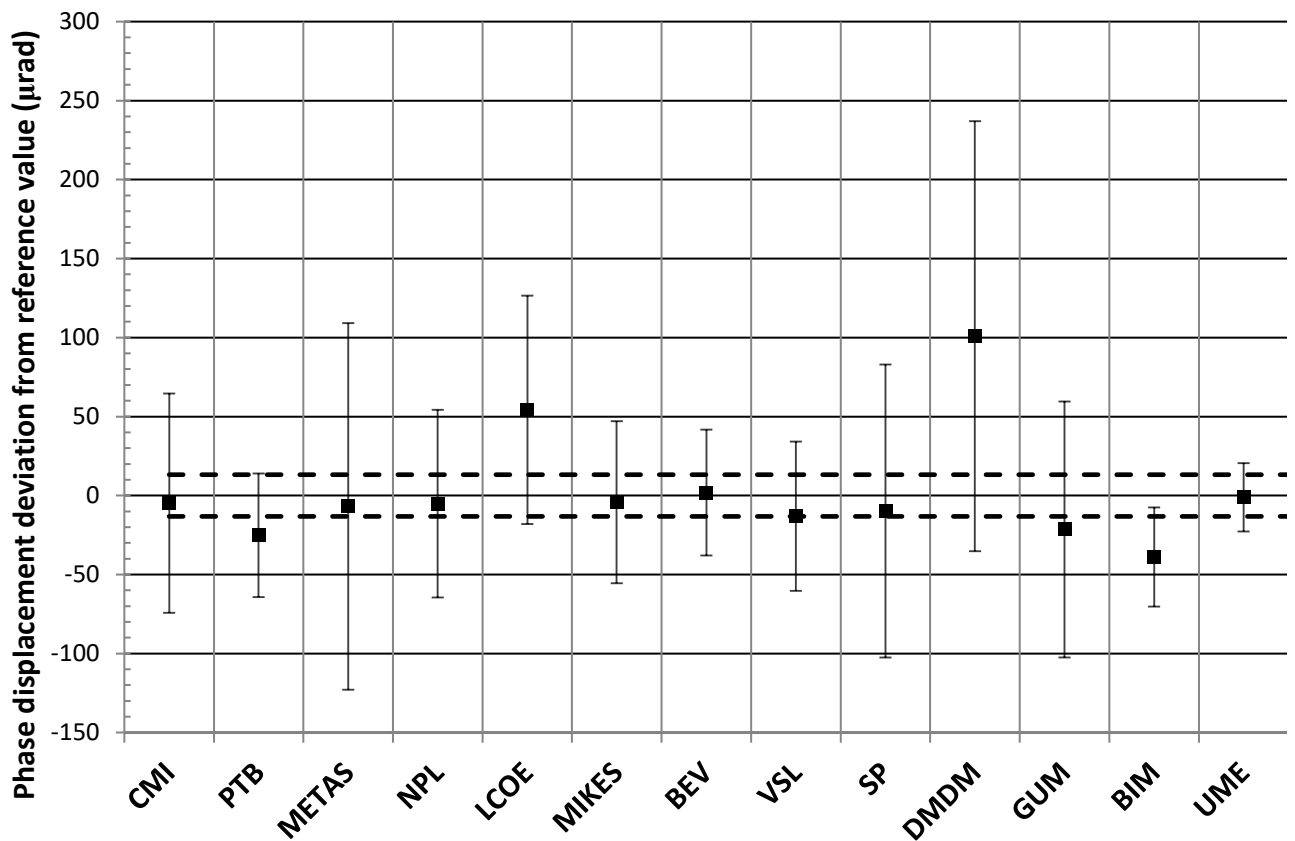
Phase displacement deviation from reference value
 $k_1 = 5 \text{ kA}/5 \text{ A}, 100 \% I_N, 15 \text{ VA}$







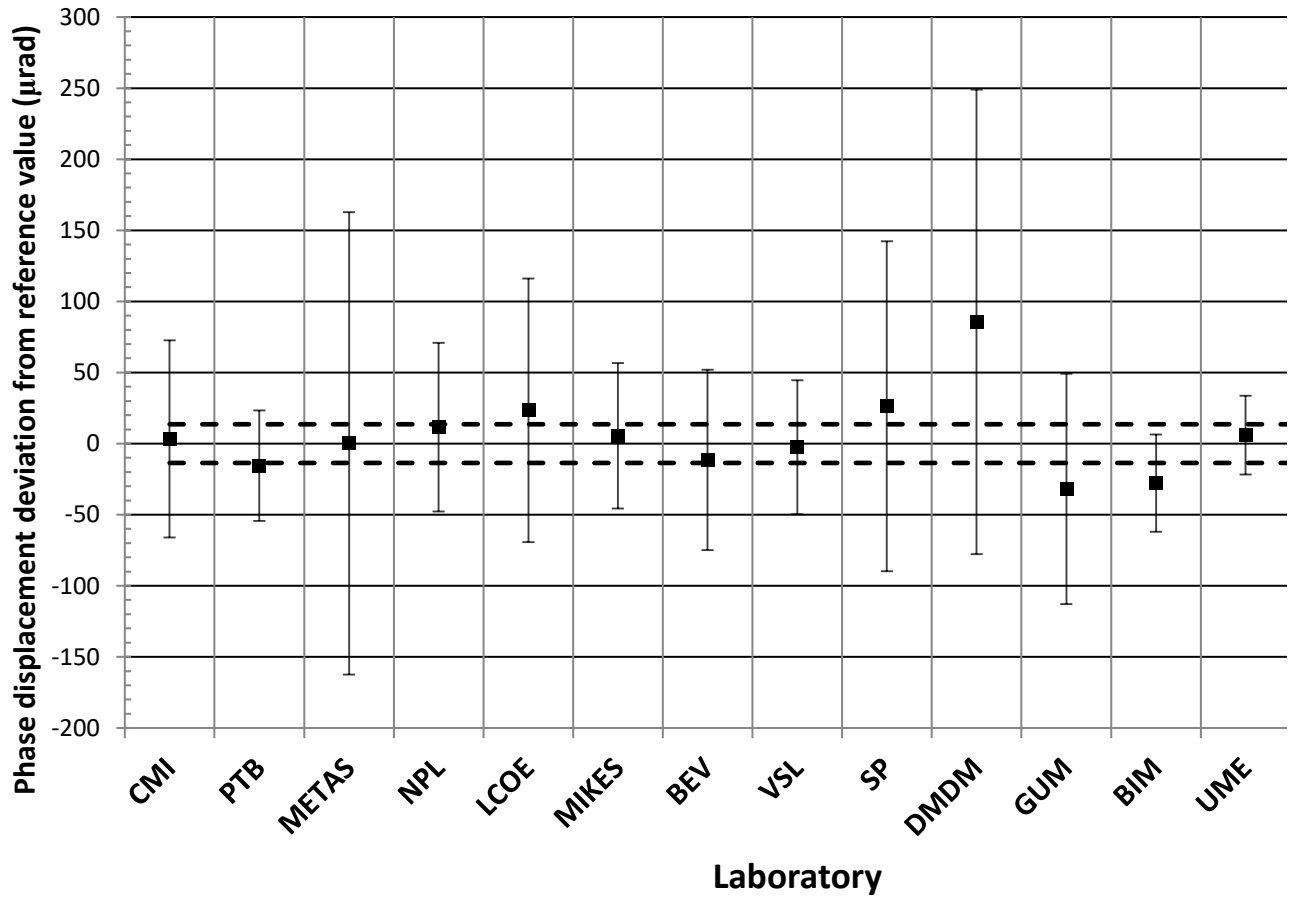
Phase displacement deviation from reference value
 $k_1 = 5 \text{ kA}/5 \text{ A}, 10 \% I_N, 15 \text{ VA}$



Laboratory

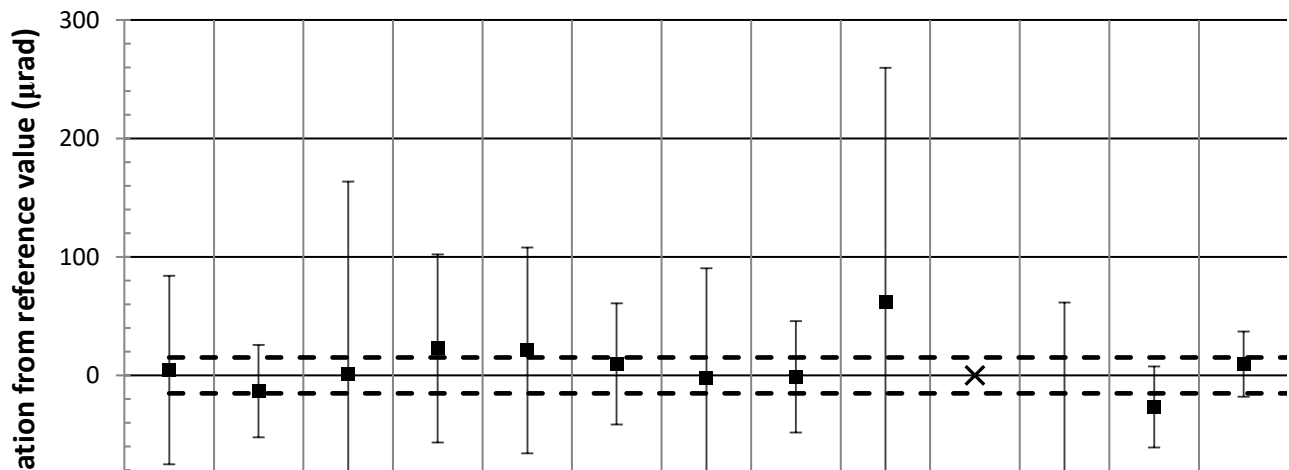
Phase displacement deviation from reference value

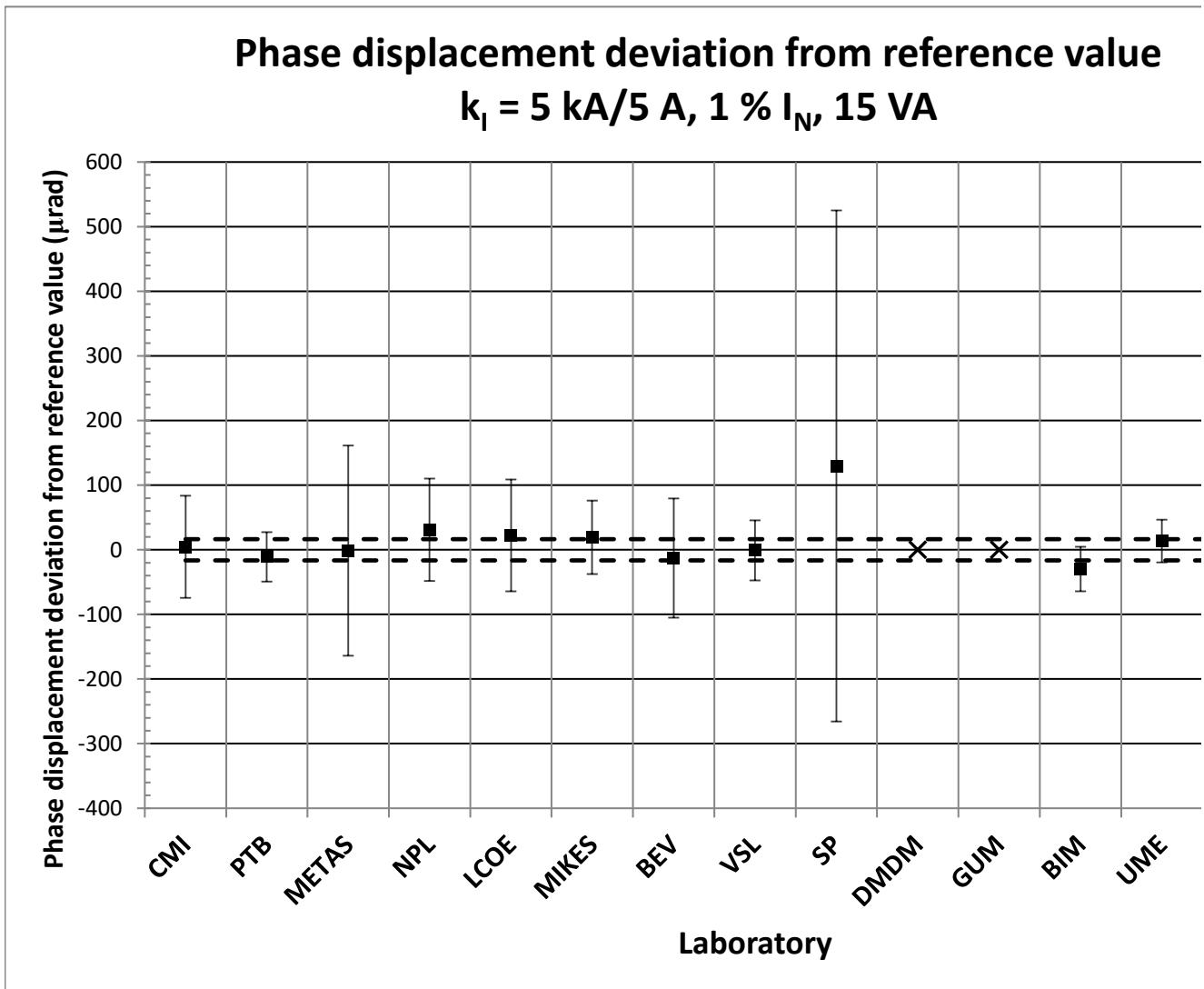
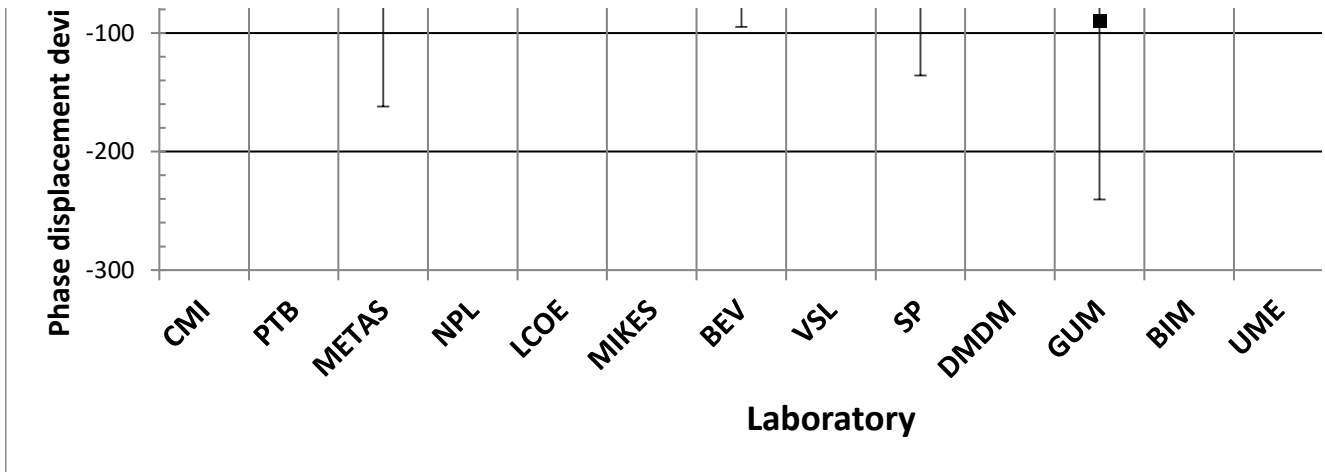
$k_I = 5 \text{ kA}/5 \text{ A}, 5 \% I_N, 15 \text{ VA}$



Phase displacement deviation from reference value

$k_I = 5 \text{ kA}/5 \text{ A}, 2 \% I_N, 15 \text{ VA}$





BIM				weighted mean δ_r (μrad)	$u(\delta_r)$ (μrad)	$U(\delta_r)$ (μrad)	$u(\delta_{\text{std}})$ (μrad)	UME		
$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{\text{std}})$ (μrad)	$E(\delta)$ (-)					δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)
13	-32	16	<u>1.004</u>	152	5	10	10	178	12	26
13	-34	15	<u>1.121</u>	161	4	9	8	192	12	31
13	-35	15	<u>1.163</u>	198	4	9	8	227	12	29
13	-26	14	0.945	239	4	9	5	253	12	14
13	-24	14	0.903	265	5	9	5	276	12	11
18	-24	18	0.668	286	5	10	5	297	15	11
18	-28	18	0.795	306	6	12	5	317	15	11
18	-30	17	0.864	317	6	12	5	335	17	18
				72	6	12	5	76	12	4
				79	5	10	5	79	12	-1
17	-26	17	0.753	90	5	9	5	90	12	0
17	-27	17	0.778	112	4	8	4	113	12	2
17	-23	17	0.665	124	4	9	4	122	12	-2
38	-21	38	0.284	134	5	10	4	131	15	-3
38	-22	38	0.296	143	5	11	4	143	15	0
38	-27	38	0.353	148	6	11	4	148	17	1
BIM				weighted mean δ_r (μrad)	$u(\delta_r)$ (μrad)	$U(\delta_r)$ (μrad)	$u(\delta_{\text{std}})$ (μrad)	UME		
$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{\text{std}})$ (μrad)	$E(\delta)$ (-)					δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)
13	-46	13	<u>1.718</u>	193	6	12	6	227	12	34
13	-50	13	<u>1.925</u>	209	6	11	5	247	12	38
13	-41	13	<u>1.558</u>	253	6	12	5	282	12	29
14	-32	13	<u>1.179</u>	316	6	12	5	329	12	13
14	-30	13	<u>1.124</u>	355	6	12	5	367	12	12
18	-25	17	0.720	381	7	14	5	393	15	12
18	-26	18	0.728	409	8	15	6	419	15	10
18	-27	17	0.781	422	8	16	6	434	17	12
				166	7	14	8	183	12	17
13	-35	14	<u>1.272</u>	169	6	12	7	192	12	23
13	-39	13	<u>1.502</u>	202	6	12	5	221	12	19
13	-32	13	<u>1.238</u>	251	6	12	5	259	12	8
13	-31	13	<u>1.203</u>	282	6	12	5	288	12	7
18	-28	17	0.810	302	7	14	5	308	15	6
18	-27	17	0.775	322	8	15	6	332	15	10
18	-30	17	0.866	333	8	16	6	346	17	13
				140	6	13	6	148	12	8
				145	6	13	6	154	12	9
17	-35	17	<u>1.029</u>	167	6	12	5	180	12	14
17	-29	17	0.867	207	6	12	5	221	12	14
17	-25	17	0.742	231	6	12	5	236	12	4
38	-24	37	0.320	250	7	14	5	253	15	3
38	-24	38	0.319	268	8	15	6	274	15	5

38	-30	37	0.399	277	8	17	6	285	17	8
				104	7	15	8	108	12	4
				107	7	13	8	108	12	0
17	-32	18	0.917	128	6	12	7	128	12	0
17	-30	17	0.876	158	6	12	6	166	12	7
17	-21	17	0.618	172	6	12	6	175	12	3
38	-21	38	0.273	187	7	14	6	189	15	2
38	-21	37	0.283	201	8	15	5	204	15	3
38	-32	37	0.425	211	8	17	6	218	17	8
				78	8	16	6	79	12	1
				85	7	15	6	81	12	-4
17	-29	17	0.843	100	6	12	6	102	12	2
17	-31	17	0.933	126	6	12	5	128	12	2
17	-22	17	0.660	135	6	12	5	134	12	-1
38	-21	37	0.281	147	7	15	5	143	15	-5
38	-20	37	0.262	156	8	16	6	157	15	2
38	-26	37	0.352	164	8	17	6	169	17	5

BIM	BIM	BIM	BIM	weighted mean δ_{rc} (μrad)	$u(\delta_{rc})$ (μrad)	$U(\delta_{rc})$ (μrad)	$u(\delta_{std})$ (μrad)	UME	UME	UME
$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{stdC})$ (μrad)	$E_C(\delta)$ (-)					δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)
13	-35	18	<u>1.012</u>	155	5	11	10	178	12	22
13	-31	16	0.937	158	5	10	8	192	12	34
13	-34	16	<u>1.052</u>	198	5	10	8	227	12	29
13	-26	14	0.945	239	4	9	5	253	12	14

13	-24	14	0.903	265	5	9	5	276	12	11
18	-24	18	0.668	286	5	10	5	297	15	11
18	-28	18	0.795	306	6	12	5	317	15	11
18	-30	17	0.864	317	6	12	5	335	17	18
				72	6	12	5	76	12	4
				79	5	10	5	79	12	-1
17	-25	17	0.731	90	5	9	5	90	12	1
17	-27	17	0.778	112	4	8	4	113	12	2
17	-23	17	0.665	124	4	9	4	122	12	-2
38	-21	38	0.284	134	5	10	4	131	15	-3
38	-22	38	0.296	143	5	11	4	143	15	0
38	-27	38	0.353	148	6	11	4	148	17	1
BIM	BIM	BIM	BIM					UME	UME	UME
$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{\text{stdC}})$ (μrad)	$E_C(\delta)$ (-)	weighted mean δ_{rc} (μrad)	$u(\delta_{rc})$ (μrad)	$U(\delta_{rc})$ (μrad)	$u(\delta_{\text{std}})$ (μrad)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)
13	-47	17	<u>1.404</u>	193	8	16	6	227	12	34
13	-45	16	<u>1.367</u>	204	8	16	5	247	12	44
13	-41	16	<u>1.267</u>	254	8	16	5	282	12	28
14	-38	16	<u>1.206</u>	323	6	13	5	329	12	6
14	-37	16	<u>1.154</u>	362	7	14	5	367	12	4
18	-25	17	0.720	381	7	14	5	393	15	12
18	-26	18	0.728	409	8	15	6	419	15	10
18	-27	17	0.781	422	8	16	6	434	17	12
				166	7	14	8	183	12	17
13	-42	16	<u>1.280</u>	176	7	13	7	192	12	16
13	-47	16	<u>1.496</u>	210	7	13	5	221	12	11
13	-40	16	<u>1.270</u>	258	6	13	5	259	12	1
13	-39	16	<u>1.235</u>	289	7	13	5	288	12	-1
18	-28	17	0.810	302	7	14	5	308	15	6
18	-27	17	0.775	322	8	15	6	332	15	10
18	-30	17	0.866	333	8	16	6	346	17	13
				140	6	13	6	148	12	8
				145	6	13	6	154	12	9
17	-39	19	<u>1.039</u>	171	6	12	5	180	12	9
17	-29	17	0.867	207	6	12	5	221	12	14
17	-25	17	0.742	231	6	12	5	236	12	4
38	-24	37	0.320	250	7	14	5	253	15	3
38	-24	38	0.319	268	8	15	6	274	15	5
38	-30	37	0.399	277	8	17	6	285	17	8
				104	7	15	8	108	12	4
				107	7	13	8	108	12	0
17	-31	18	0.884	127	6	12	7	128	12	1
17	-30	17	0.876	158	6	12	6	166	12	7
17	-21	17	0.618	172	6	12	6	175	12	3
38	-21	38	0.273	187	7	14	6	189	15	2
38	-21	37	0.283	201	8	15	5	204	15	3

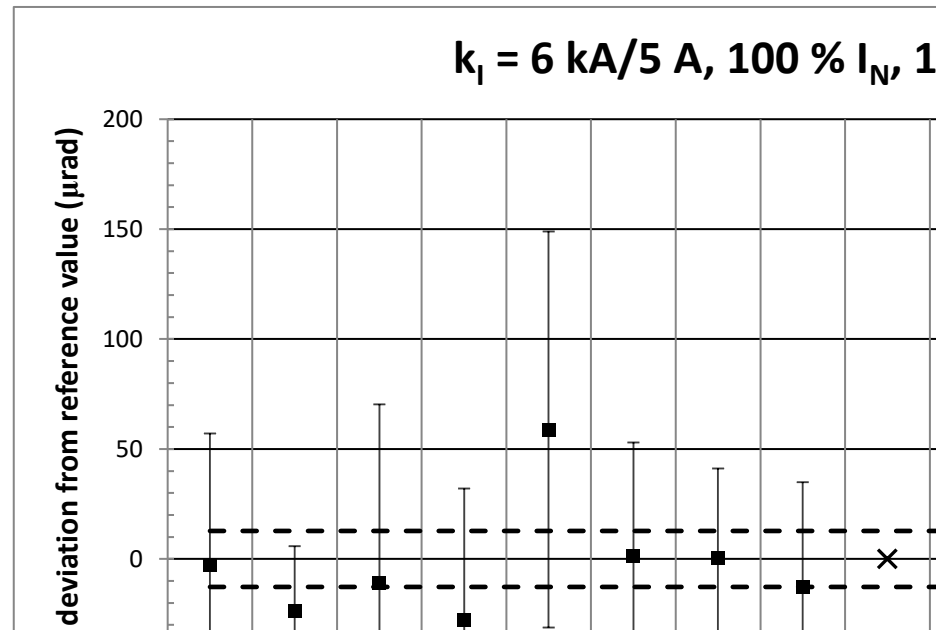
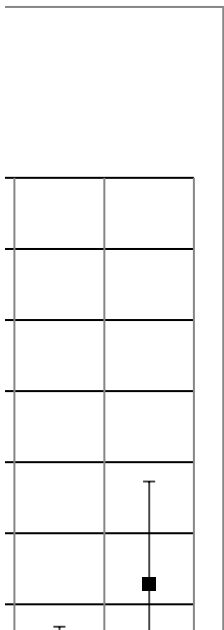
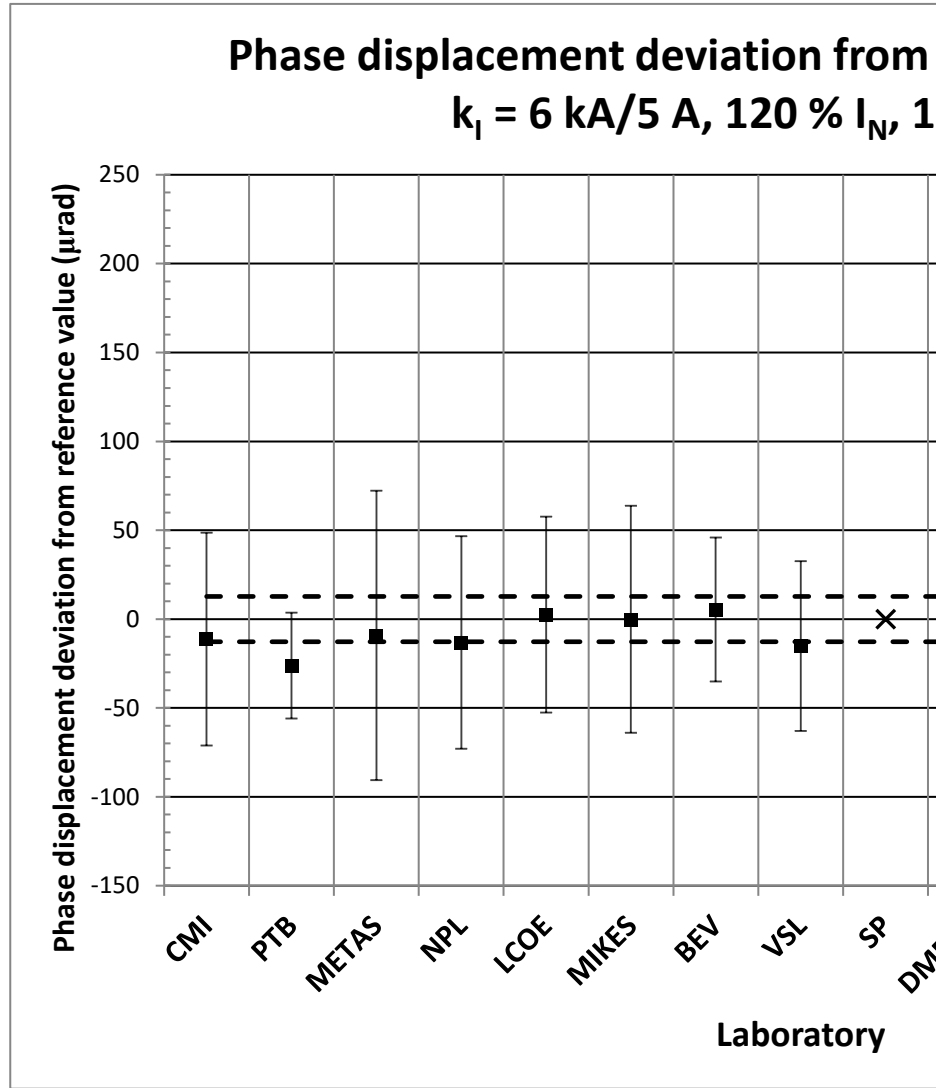
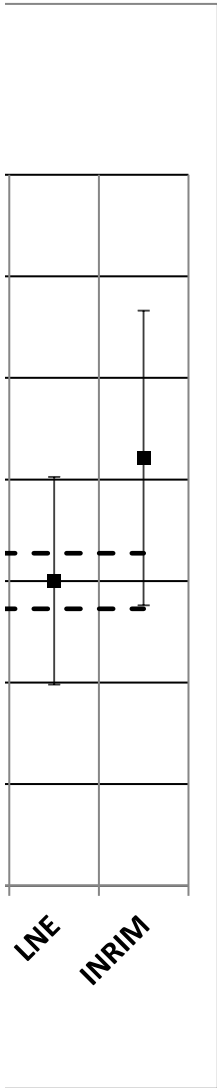
38	-32	37	0.425	211	8	17	6	218	17	8
				78	8	16	6	79	12	1
				85	7	15	6	81	12	-4
17	-28	17	0.805	98	6	12	6	102	12	4
17	-31	17	0.933	126	6	12	5	128	12	2
17	-22	17	0.660	135	6	12	5	134	12	-1
38	-21	37	0.281	147	7	15	5	143	15	-5
38	-20	37	0.262	156	8	16	6	157	15	2
38	-26	37	0.352	164	8	17	6	169	17	5

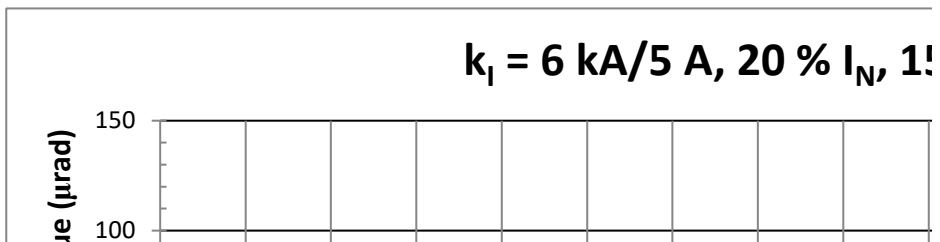
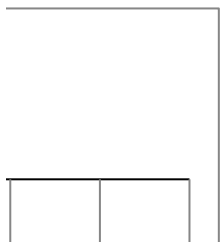
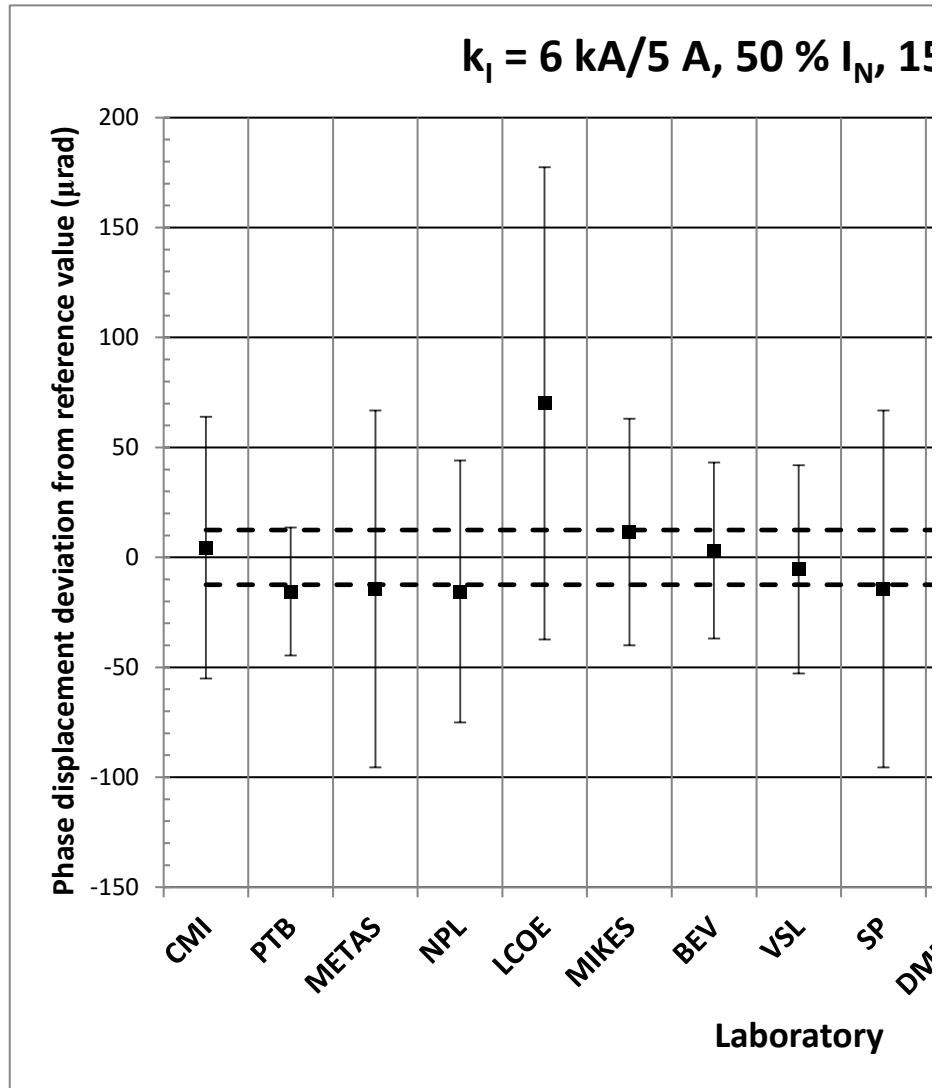
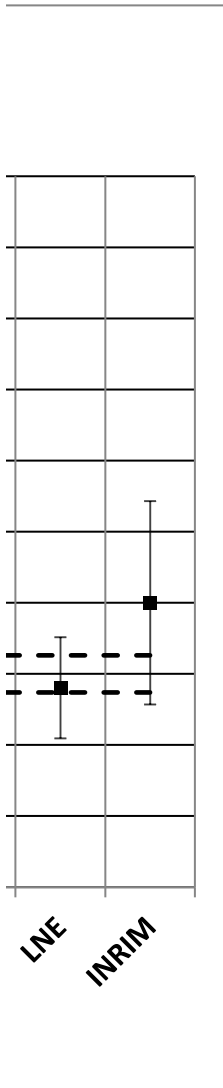
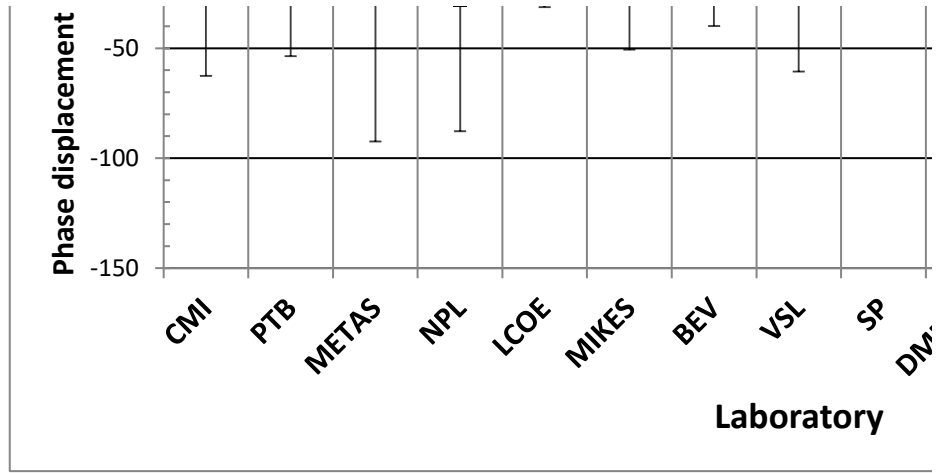
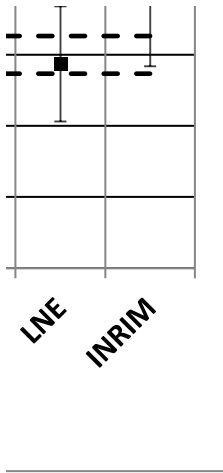
	BIM	BIM			
$U(\Delta\delta_{stdc})$ (μrad)	$\Delta\delta_c$ (μrad)	$U(\Delta\delta_{stdc})$ (μrad)	novalue	$\Delta\delta_c$ (μrad)	$U(\Delta\delta_{stdc})$ (μrad)
83	-35	35	#N/A	-35	35
82	-31	33	#N/A	-31	33
82	-34	33	#N/A	-34	33
82	-26	27	#N/A	-26	27
82	-24	27	#N/A	-24	27
81	-24	35	#N/A	-24	35
151	-28	35	#N/A	-28	35
#N/A	-30	35	#N/A	-30	35
#N/A			0	#N/A	#N/A
81			0	#N/A	#N/A
82	-25	35	#N/A	-25	35
81	-27	34	#N/A	-27	34
81	-23	34	#N/A	-23	34

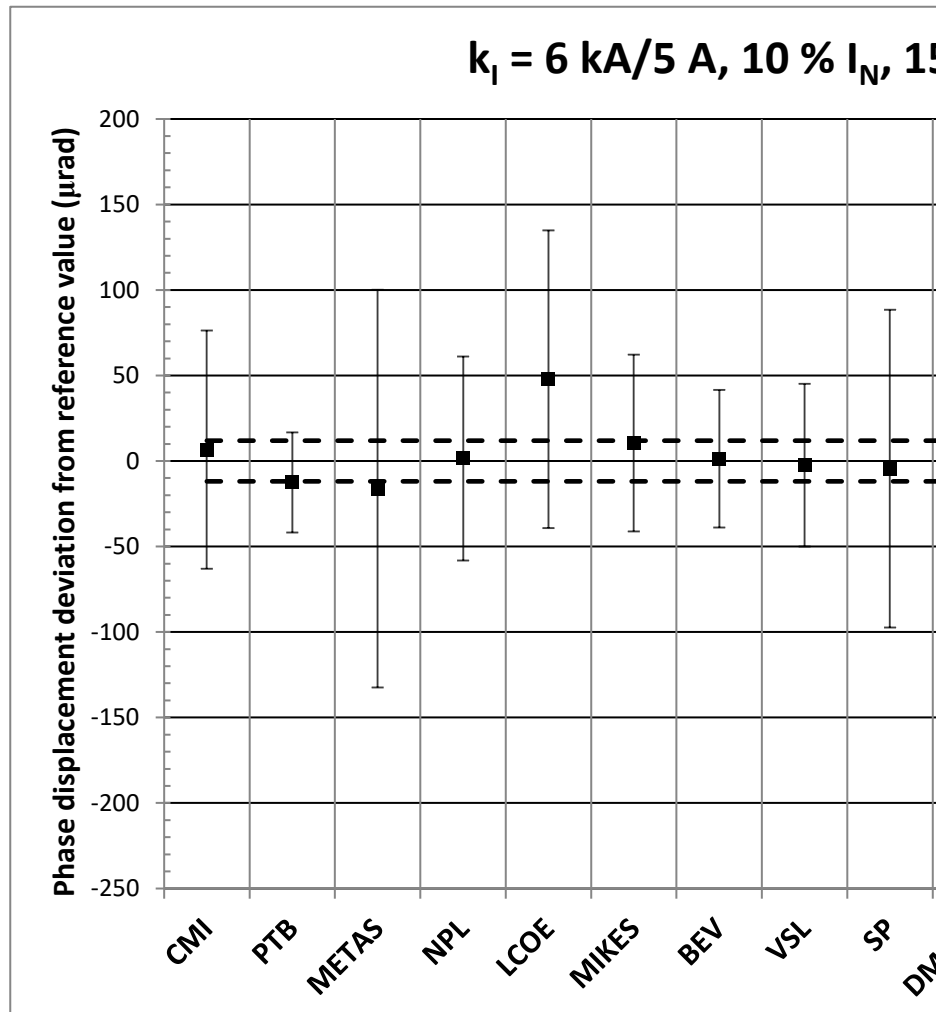
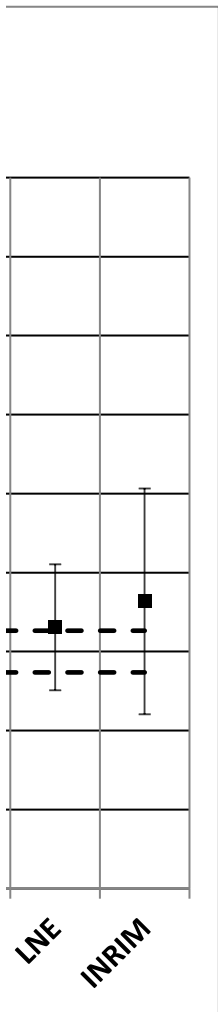
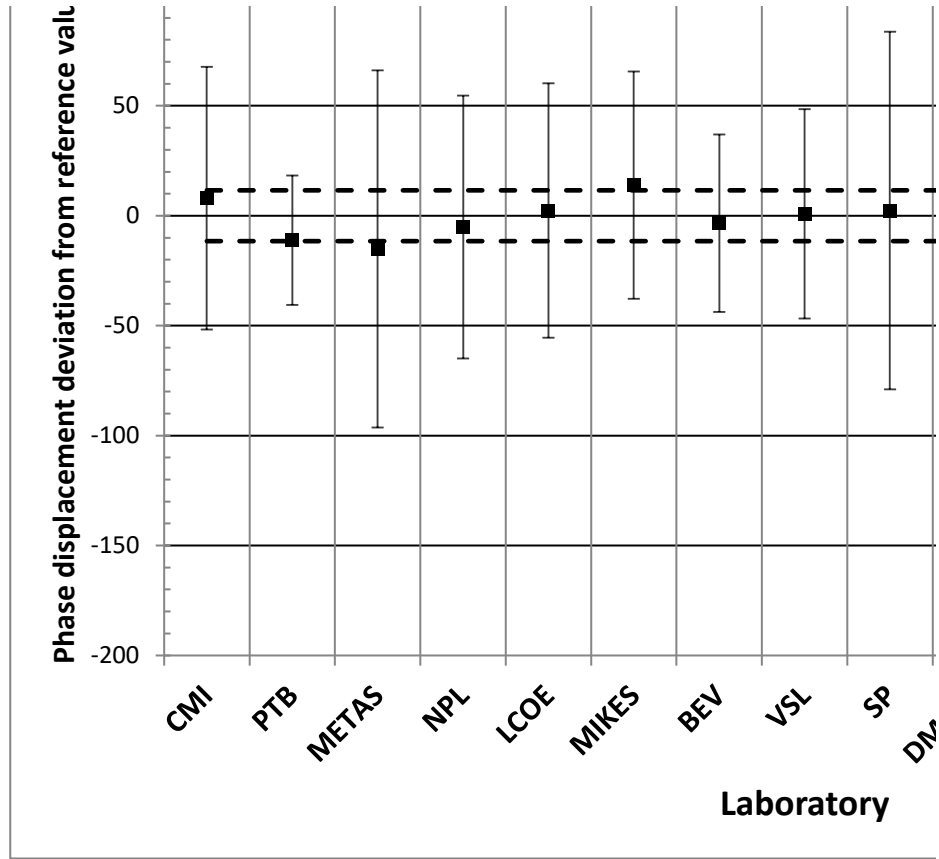
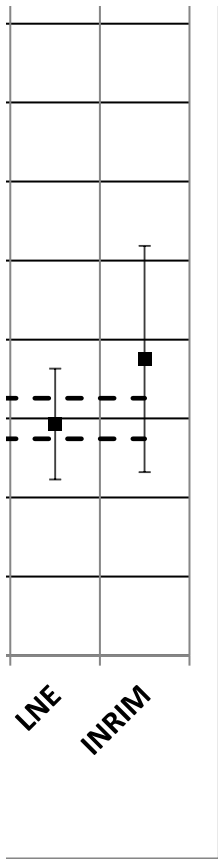
values for graphs	
$-U(\delta_{rc})$ (μrad)	$U(\delta_{rc})$ (μrad)
-11	11
-10	10
-10	10
-9	9
-9	9
-10	10
-12	12
-12	12
-12	12
-10	10
-9	9
-8	8
-9	9

UME
$\Delta\delta_c$ (μrad)
22
34
29
14
11
11
11
18
4
-1
1
2
-2

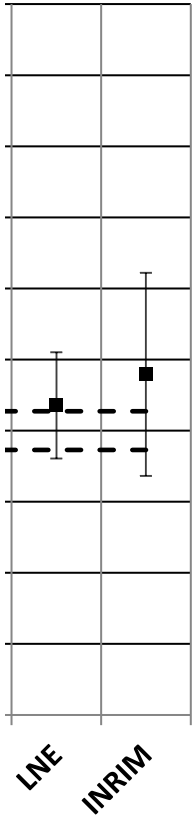
81	-21	75	#N/A	-21	75	-10	10	-3
151	-22	75	#N/A	-22	75	-11	11	0
#N/A	-27	75	#N/A	-27	75	-11	11	1
	BIM	BIM						UME
	$\Delta\delta_c$	$U(\Delta\delta_{stdc})$				$-U(\delta_{rc})$	$U(\delta_{rc})$	$\Delta\delta_c$
	(μrad)	(μrad)				(μrad)	(μrad)	(μrad)
81	-47	33	#N/A	-47	33	-16	16	34
81	-45	33	#N/A	-45	33	-16	16	44
81	-41	33	#N/A	-41	33	-16	16	28
81	-38	32	#N/A	-38	32	-13	13	6
81	-37	32	#N/A	-37	32	-14	14	4
81	-25	35	#N/A	-25	35	-14	14	12
151	-26	35	#N/A	-26	35	-15	15	10
#N/A	-27	35	#N/A	-27	35	-16	16	12
82			0	#N/A	#N/A	-14	14	17
82	-42	33	#N/A	-42	33	-13	13	16
81	-47	31	#N/A	-47	31	-13	13	11
81	-40	31	#N/A	-40	31	-13	13	1
81	-39	31	#N/A	-39	31	-13	13	-1
81	-28	34	#N/A	-28	34	-14	14	6
151	-27	34	#N/A	-27	34	-15	15	10
#N/A	-30	34	#N/A	-30	34	-16	16	13
162			0	#N/A	#N/A	-13	13	8
81			0	#N/A	#N/A	-13	13	9
81	-39	38	#N/A	-39	38	-12	12	9
81	-29	34	#N/A	-29	34	-12	12	14
81	-25	34	#N/A	-25	34	-12	12	4
81	-24	75	#N/A	-24	75	-14	14	3
145	-24	75	#N/A	-24	75	-15	15	5
#N/A	-30	75	#N/A	-30	75	-17	17	8
82			0	#N/A	#N/A	-15	15	4
82			0	#N/A	#N/A	-13	13	0
82	-31	35	#N/A	-31	35	-12	12	1
81	-30	34	#N/A	-30	34	-12	12	7
81	-21	34	#N/A	-21	34	-12	12	3
81	-21	75	#N/A	-21	75	-14	14	2
145	-21	75	#N/A	-21	75	-15	15	3
#N/A	-32	75	#N/A	-32	75	-17	17	8
#N/A			0	#N/A	#N/A	-16	16	1
81			0	#N/A	#N/A	-15	15	-4
81	-28	34	#N/A	-28	34	-12	12	4
81	-31	34	#N/A	-31	34	-12	12	2
81	-22	34	#N/A	-22	34	-12	12	-1
81	-21	75	#N/A	-21	75	-15	15	-5
145	-20	75	#N/A	-20	75	-16	16	2
#N/A	-26	75	#N/A	-26	75	-17	17	5



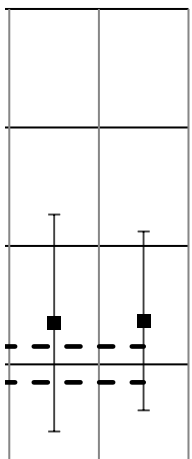
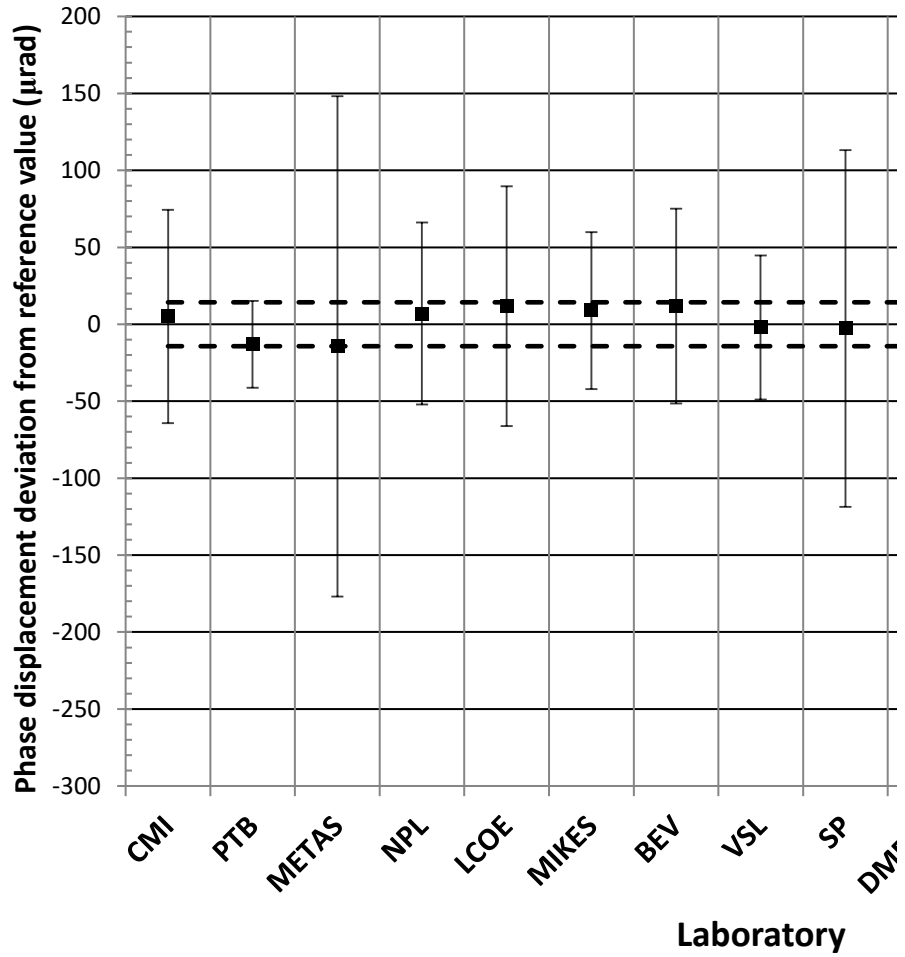




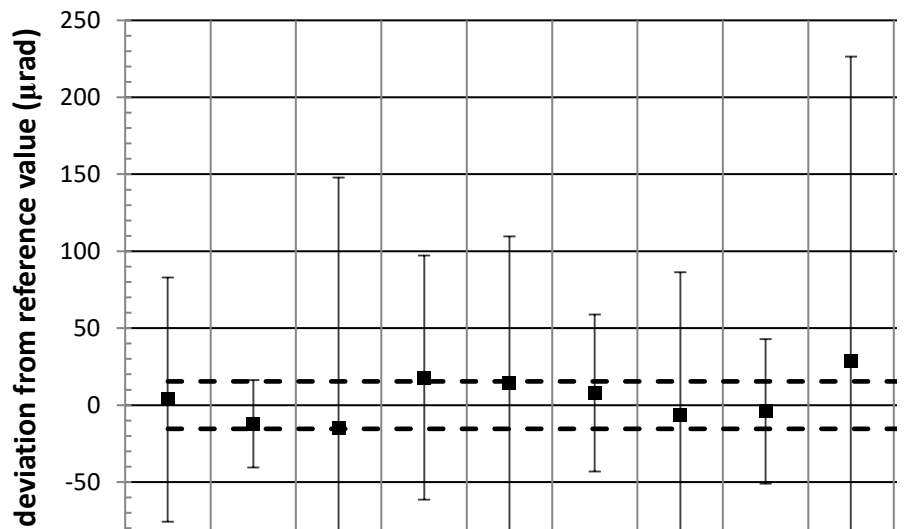
Laboratory

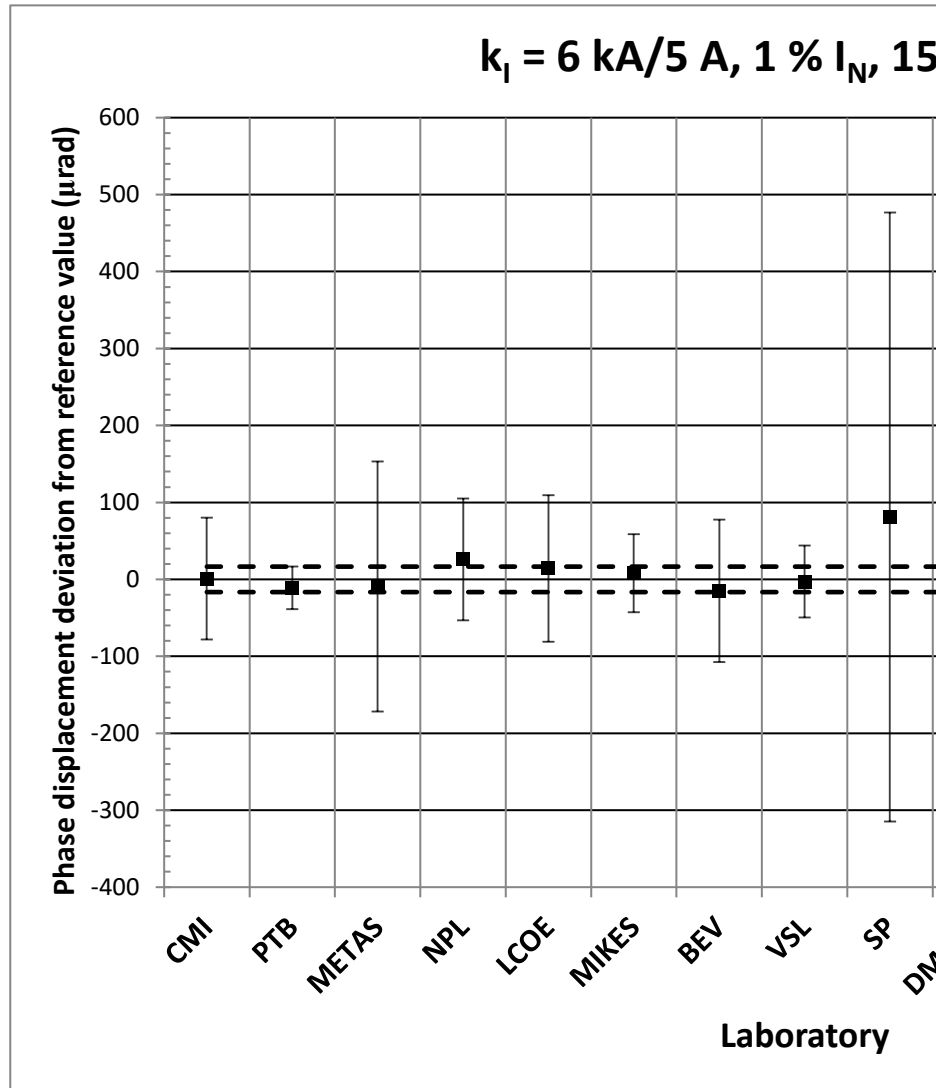
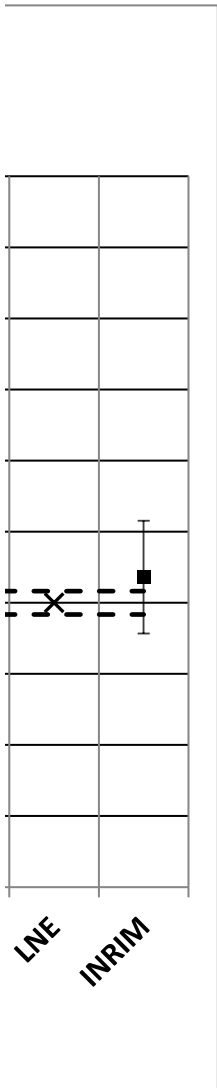
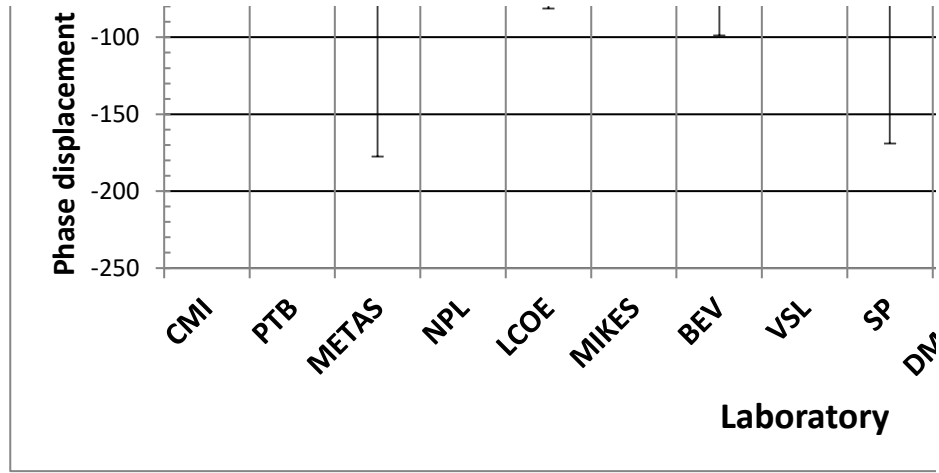
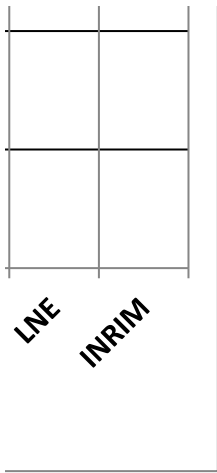


$k_1 = 6 \text{ kA/5 A, } 5 \% I_N, 15$



$k_1 = 6 \text{ kA/5 A, } 2 \% I_N, 15$





		LNE					INRIM			
$u(\Delta\delta_{std})$ (μrad)	$E(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{std})$ (μrad)	$E(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{std})$ (μrad)
15	0.876	132	18	-20	20	0.507	229	36	77	37
13	<u>1.156</u>	140	18	-21	20	0.542	245	36	84	37
13	<u>1.073</u>	167	18	-31	19	0.796	262	36	64	37
12	0.594	218	20	-21	21	0.513	291	36	52	36
12	0.470	232	31	-34	31	0.541	313	36	48	36
14	0.380	245	34	-41	34	0.592	326	36	40	36
14	0.391	264	46	-42	46	0.458	342	38	36	38
17	0.526						349	40	32	40
11	0.165									
12	0.029						117	40	38	40
12	0.005	96	36	5	36	0.076	121	40	31	40
12	0.082	100	36	-11	36	0.160	134	40	22	40
12	0.076	109	36	-15	36	0.210	142	42	18	42
14	0.099	116	36	-18	36	0.250	176	44	42	44
14	0.003	126	42	-16	42	0.193				
17	0.024									
		LNE					INRIM			
$u(\Delta\delta_{std})$ (μrad)	$E(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{std})$ (μrad)	$E(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta$ (μrad)	$u(\Delta\delta_{std})$ (μrad)
12	<u>1.453</u>	186	19	-7	19	0.171	245	36	52	36
11	<u>1.682</u>	196	19	-13	19	0.347	261	36	52	36
11	<u>1.290</u>	223	19	-31	19	0.815	300	36	47	36
11	0.563	318	19	2	19	0.049	357	36	41	36
11	0.537	338	31	-17	31	0.265	386	36	31	36
14	0.439	354	33	-27	33	0.414	412	36	31	36
14	0.373	448	46	39	45	0.431	437	38	28	38
17	0.364						450	40	28	40
12	0.684	167	25	0	26	0.002	227	36	61	36
12	0.946	170	20	1	20	0.014	240	36	71	36
11	0.846	200	18	-2	18	0.052	260	36	58	36
11	0.359	255	18	4	18	0.109	296	36	45	36
11	0.292	305	20	23	20	0.572	321	36	39	36
14	0.216	320	19	18	19	0.475	342	36	40	36
14	0.345	357	46	35	46	0.382	359	38	37	38
17	0.404						369	40	36	40
11	0.361	157	19	16	19	0.422	205	36	65	36
11	0.410	148	20	3	20	0.073	211	36	66	36
11	0.602	154	18	-13	18	0.360	226	36	59	36
11	0.622	208	18	1	18	0.023	253	36	46	36
11	0.189	251	19	19	19	0.512	270	36	39	36
14	0.112	271	31	21	30	0.346	287	36	37	36
14	0.198	299	46	31	45	0.339	302	38	34	38

17	0.251						306	40	29	40
12	0.167						170	36	66	36
13	0.011	133	40	26	40	0.318	178	36	71	36
12	0.004	130	36	2	36	0.029	182	36	54	36
12	0.320	145	36	-13	36	0.185	198	36	40	36
12	0.114	158	36	-14	36	0.192	213	36	41	36
14	0.068	175	38	-13	38	0.164	224	36	37	36
13	0.102	183	36	-18	35	0.250	234	38	33	38
16	0.229						235	40	24	40
10	0.048									
11	0.174						134	40	49	40
12	0.094	131	38	31	38	0.411	141	40	41	40
11	0.104	116	36	-10	36	0.144	156	40	30	40
11	0.057	123	36	-12	36	0.162	173	42	38	42
14	0.175	132	38	-16	38	0.208	190	44	43	44
14	0.059	131	36	-24	36	0.339				
16	0.157									

UME	UME	LNE	LNE	LNE	LNE	LNE	INRIM	INRIM	INRIM	INRIM
$u(\Delta\delta_{stdC})$ (μrad)	$E_C(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{stdC})$ (μrad)	$E_C(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{stdC})$ (μrad)
14	0.769	132	18	-24	20	0.592	229	36	74	38
15	1.126	140	18	-18	19	0.475	245	36	87	37
15	0.979	167	18	-31	19	0.790	262	36	64	37
12	0.594	218	20	-21	21	0.513	291	36	52	36

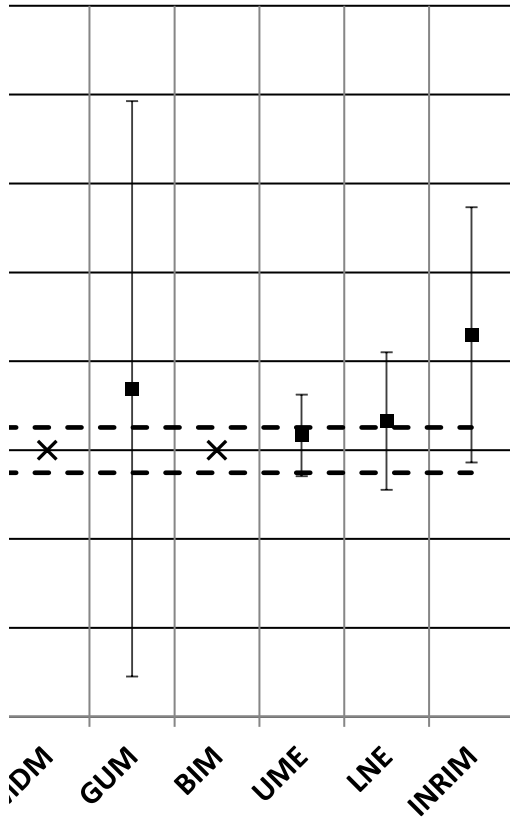
12	0.470	232	31	-34	31	0.541	313	36	48	36
14	0.380	245	34	-41	34	0.592	326	36	40	36
14	0.391	264	46	-42	46	0.458	342	38	36	38
17	0.526						349	40	32	40
11	0.165									
12	0.029						117	40	38	40
12	0.028	96	36	6	36	0.087	121	40	31	40
12	0.082	100	36	-11	36	0.160	134	40	22	40
12	0.076	109	36	-15	36	0.210	142	42	18	42
14	0.099	116	36	-18	36	0.250	176	44	42	44
14	0.003	126	42	-16	42	0.193				
17	0.024									
UME	UME	LNE	LNE	LNE	LNE	LNE	INRIM	INRIM	INRIM	INRIM
$u(\Delta\delta_{stdC})$ (μrad)	$E_C(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{stdC})$ (μrad)	$E_C(\delta)$ (-)	δ_L (μrad)	$u(\delta_L)$ (μrad)	$\Delta\delta_C$ (μrad)	$u(\Delta\delta_{stdC})$ (μrad)
15	1.104	186	19	-7	18	0.189	245	36	52	36
15	1.464	196	19	-7	18	0.203	261	36	57	35
15	0.943	223	19	-31	18	0.872	300	36	46	35
11	0.269	318	19	-5	19	0.131	357	36	34	36
11	0.209	338	31	-24	31	0.387	386	36	24	36
14	0.439	354	33	-27	33	0.414	412	36	31	36
14	0.373	448	46	39	45	0.431	437	38	28	38
17	0.364						450	40	28	40
12	0.684	167	25	0	26	0.002	227	36	61	36
12	0.685	170	20	-6	20	0.156	240	36	64	36
11	0.516	200	18	-10	18	0.273	260	36	50	36
11	0.030	255	18	-4	18	0.102	296	36	38	36
11	0.049	305	20	15	20	0.387	321	36	32	36
14	0.216	320	19	18	19	0.475	342	36	40	36
14	0.345	357	46	35	46	0.382	359	38	37	38
17	0.404						369	40	36	40
11	0.361	157	19	16	19	0.422	205	36	65	36
11	0.410	148	20	3	20	0.073	211	36	66	36
11	0.406	154	18	-17	18	0.491	226	36	55	36
11	0.622	208	18	1	18	0.023	253	36	46	36
11	0.189	251	19	19	19	0.512	270	36	39	36
14	0.112	271	31	21	30	0.346	287	36	37	36
14	0.198	299	46	31	45	0.339	302	38	34	38
17	0.251						306	40	29	40
12	0.167						170	36	66	36
13	0.011	133	40	26	40	0.318	178	36	71	36
12	0.044	130	36	3	36	0.046	182	36	55	36
12	0.320	145	36	-13	36	0.185	198	36	40	36
12	0.114	158	36	-14	36	0.192	213	36	41	36
14	0.068	175	38	-13	38	0.164	224	36	37	36
13	0.102	183	36	-18	35	0.250	234	38	33	38

16	0.229						235	40	24	40
10	0.048									
11	0.174						134	40	49	40
12	0.151	131	38	32	38	0.429	141	40	43	40
11	0.104	116	36	-10	36	0.144	156	40	30	40
11	0.057	123	36	-12	36	0.162	173	42	38	42
14	0.175	132	38	-16	38	0.208	190	44	43	44
14	0.059	131	36	-24	36	0.339				
16	0.157									

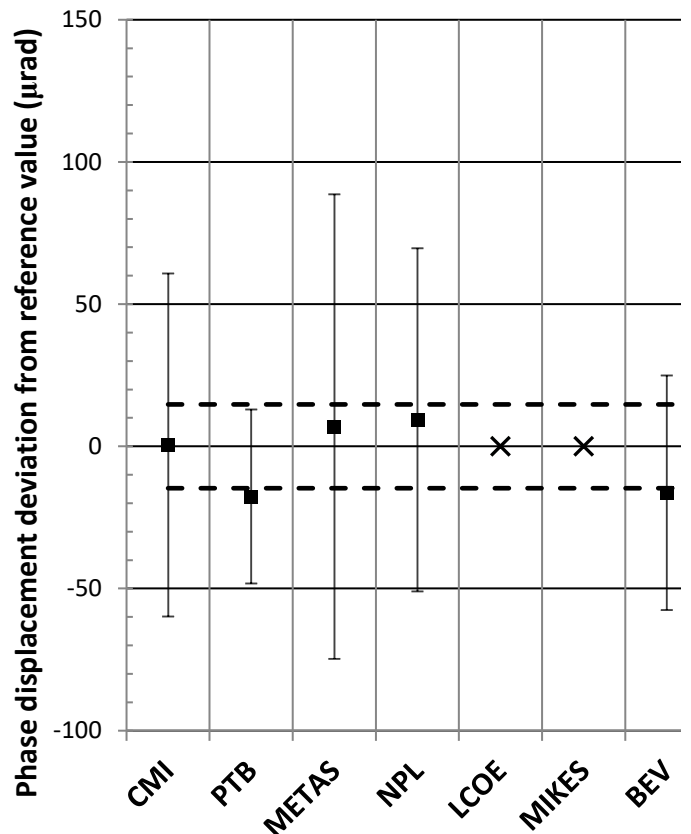
UME				LNE	LNE				INRIM	INRIM
$U(\Delta\delta_{stdC})$ (μrad)	novalue	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{stdC})$ (μrad)	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{stdC})$ (μrad)	novalue	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{stdC})$ (μrad)	$\Delta\delta_C$ (μrad)	$U(\Delta\delta_{stdC})$ (μrad)
29	#N/A	22	29	-24	40	#N/A	-24	40	74	75
30	#N/A	34	30	-18	39	#N/A	-18	39	87	74
30	#N/A	29	30	-31	39	#N/A	-31	39	64	73
24	#N/A	14	24	-21	41	#N/A	-21	41	52	72
24	#N/A	11	24	-34	63	#N/A	-34	63	48	72
29	#N/A	11	29	-41	69	#N/A	-41	69	40	72
29	#N/A	11	29	-42	91	#N/A	-42	91	36	76
34	#N/A	18	34			0	#N/A	#N/A	32	80
23	#N/A	4	23			0	#N/A	#N/A		
23	#N/A	-1	23			0	#N/A	#N/A	38	80
24	#N/A	1	24	6	71	#N/A	6	71	31	80
23	#N/A	2	23	-11	71	#N/A	-11	71	22	80
23	#N/A	-2	23	-15	73	#N/A	-15	73	18	84

29	#N/A	-3	29	-18	72	#N/A	-18	72	42	88
28	#N/A	0	28	-16	83	#N/A	-16	83		
34	#N/A	1	34			0	#N/A	#N/A		
UME				LNE	LNE				INRIM	INRIM
U($\Delta\delta_{stdC}$)				$\Delta\delta_c$	U($\Delta\delta_{stdC}$)				$\Delta\delta_c$	U($\Delta\delta_{stdC}$)
				(μrad)	(μrad)				(μrad)	(μrad)
30	#N/A	34	30	-7	37	#N/A	-7	37	52	71
30	#N/A	44	30	-7	36	#N/A	-7	36	57	71
30	#N/A	28	30	-31	36	#N/A	-31	36	46	71
22	#N/A	6	22	-5	38	#N/A	-5	38	34	72
21	#N/A	4	21	-24	62	#N/A	-24	62	24	71
27	#N/A	12	27	-27	66	#N/A	-27	66	31	71
28	#N/A	10	28	39	91	#N/A	39	91	28	75
33	#N/A	12	33			0	#N/A	#N/A	28	79
25	#N/A	17	25	0	51	#N/A	0	51	61	72
24	#N/A	16	24	-6	41	#N/A	-6	41	64	72
22	#N/A	11	22	-10	36	#N/A	-10	36	50	72
22	#N/A	1	22	-4	35	#N/A	-4	35	38	72
22	#N/A	-1	22	15	40	#N/A	15	40	32	71
28	#N/A	6	28	18	37	#N/A	18	37	40	71
28	#N/A	10	28	35	91	#N/A	35	91	37	75
33	#N/A	13	33			0	#N/A	#N/A	36	79
23	#N/A	8	23	16	39	#N/A	16	39	65	72
23	#N/A	9	23	3	39	#N/A	3	39	66	72
22	#N/A	9	22	-17	36	#N/A	-17	36	55	72
23	#N/A	14	23	1	36	#N/A	1	36	46	72
22	#N/A	4	22	19	37	#N/A	19	37	39	72
27	#N/A	3	27	21	60	#N/A	21	60	37	71
27	#N/A	5	27	31	91	#N/A	31	91	34	75
33	#N/A	8	33			0	#N/A	#N/A	29	79
24	#N/A	4	24			0	#N/A	#N/A	66	72
25	#N/A	0	25	26	81	#N/A	26	81	71	73
24	#N/A	1	24	3	72	#N/A	3	72	55	72
23	#N/A	7	23	-13	71	#N/A	-13	71	40	72
23	#N/A	3	23	-14	71	#N/A	-14	71	41	72
28	#N/A	2	28	-13	76	#N/A	-13	76	37	72
27	#N/A	3	27	-18	71	#N/A	-18	71	33	75
33	#N/A	8	33			0	#N/A	#N/A	24	79
20	#N/A	1	20			0	#N/A	#N/A		
22	#N/A	-4	22			0	#N/A	#N/A	49	80
23	#N/A	4	23	32	75	#N/A	32	75	43	80
22	#N/A	2	22	-10	71	#N/A	-10	71	30	80
22	#N/A	-1	22	-12	72	#N/A	-12	72	38	84
27	#N/A	-5	27	-16	75	#N/A	-16	75	43	87
27	#N/A	2	27	-24	71	#N/A	-24	71		
33	#N/A	5	33			0	#N/A	#N/A		

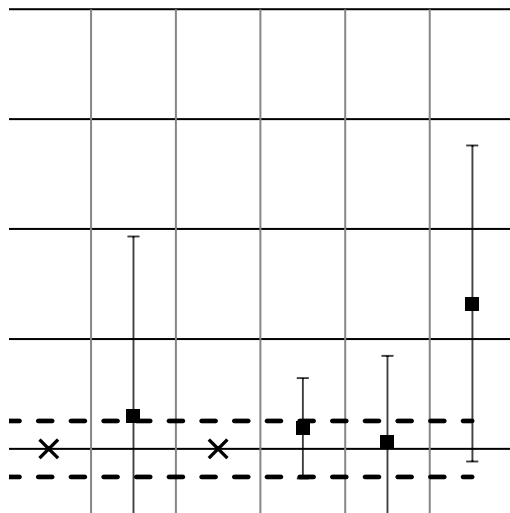
reference value
5 VA



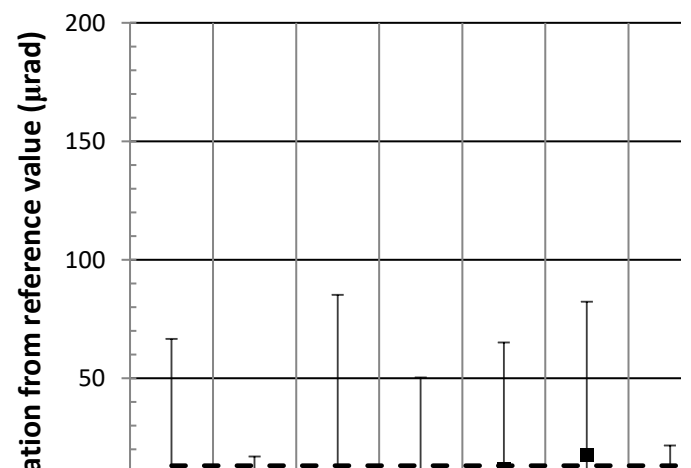
Phase displacement deviation
 $k_1 = 8 \text{ kA}/5 \text{ A}, \dots$

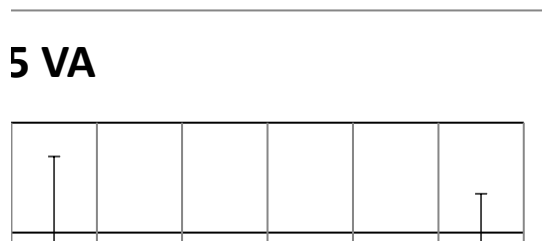
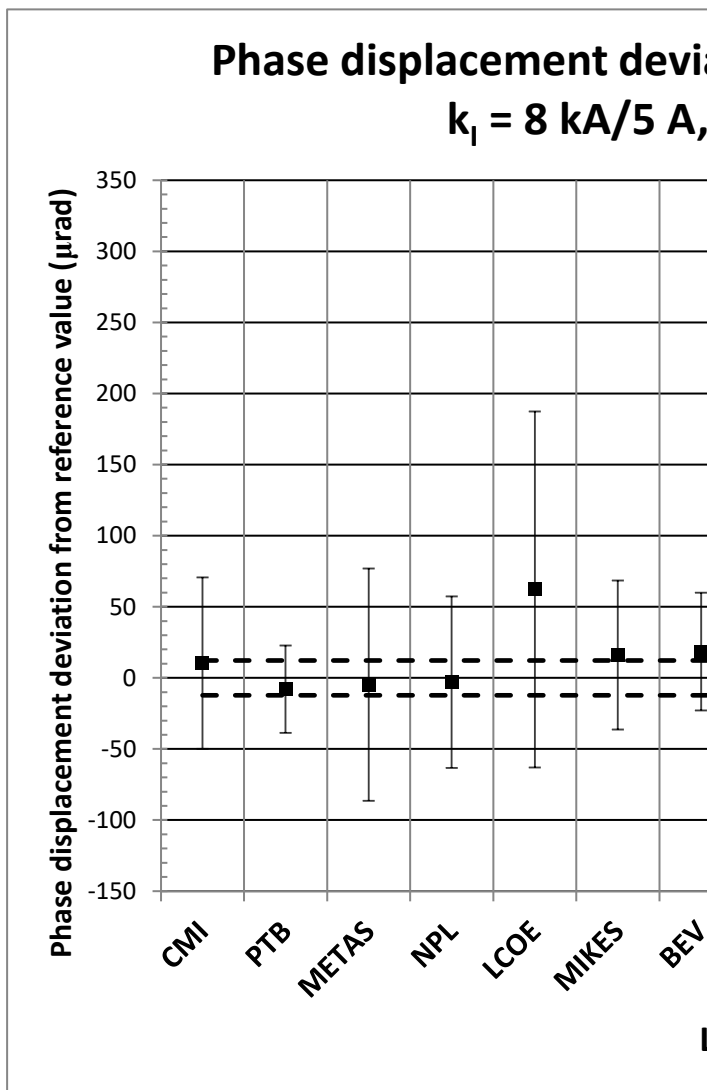
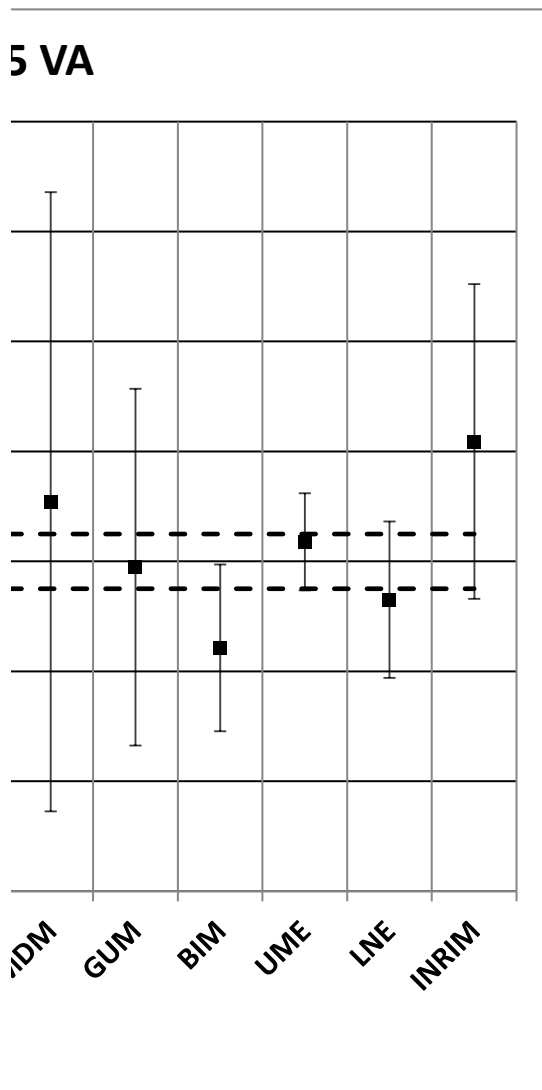
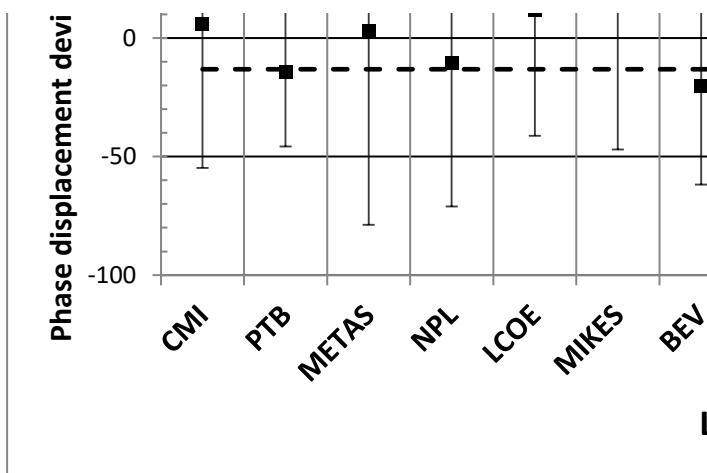
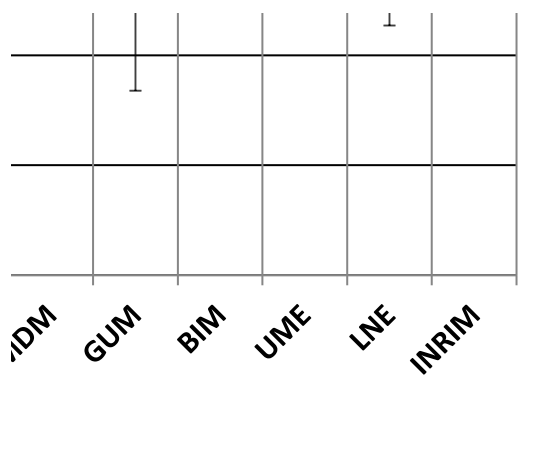


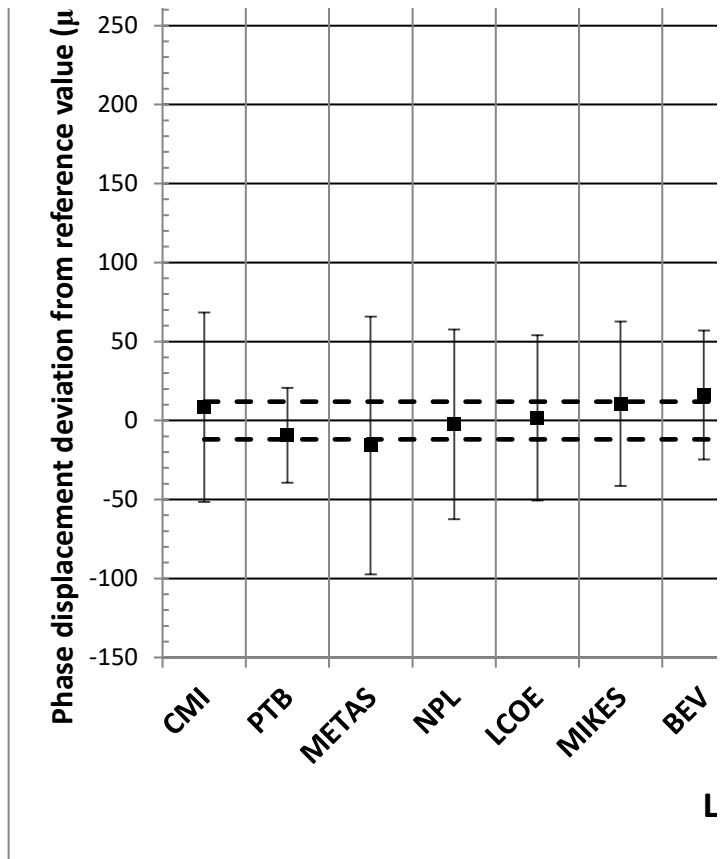
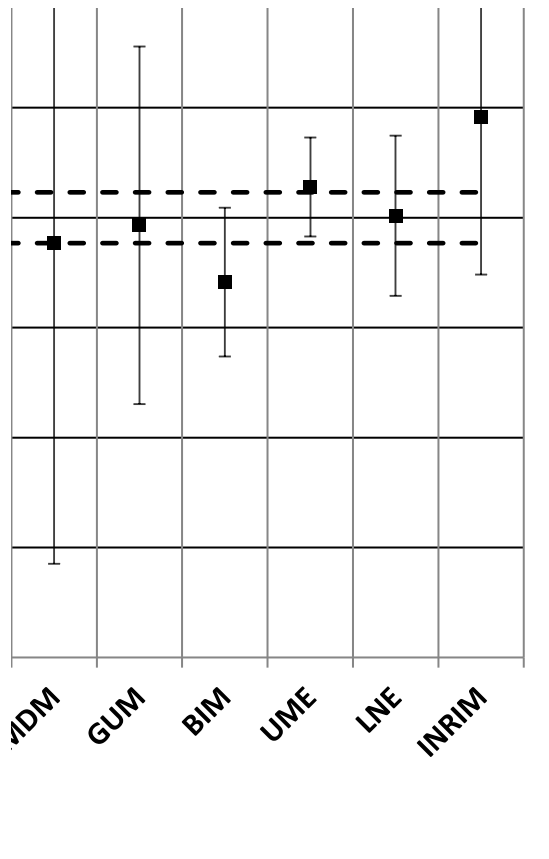
5 VA



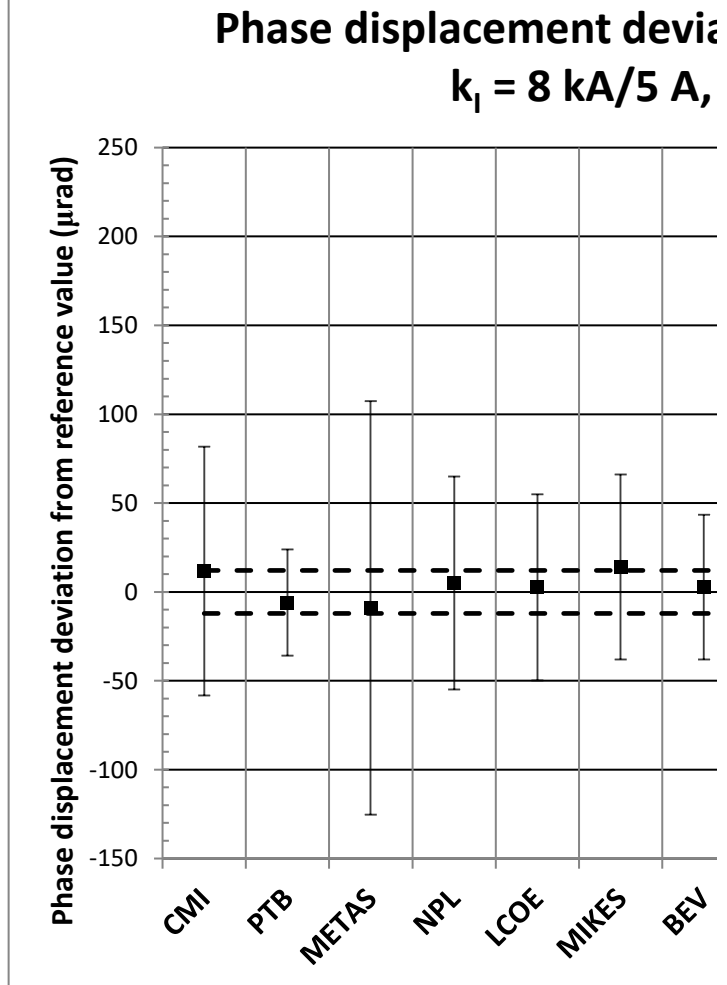
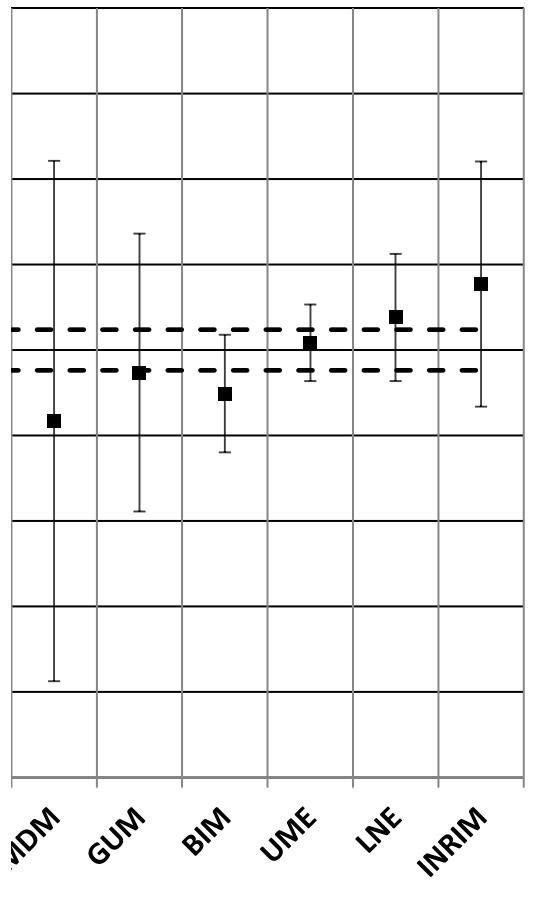
Phase displacement deviation
 $k_1 = 8 \text{ kA}/5 \text{ A}, \dots$



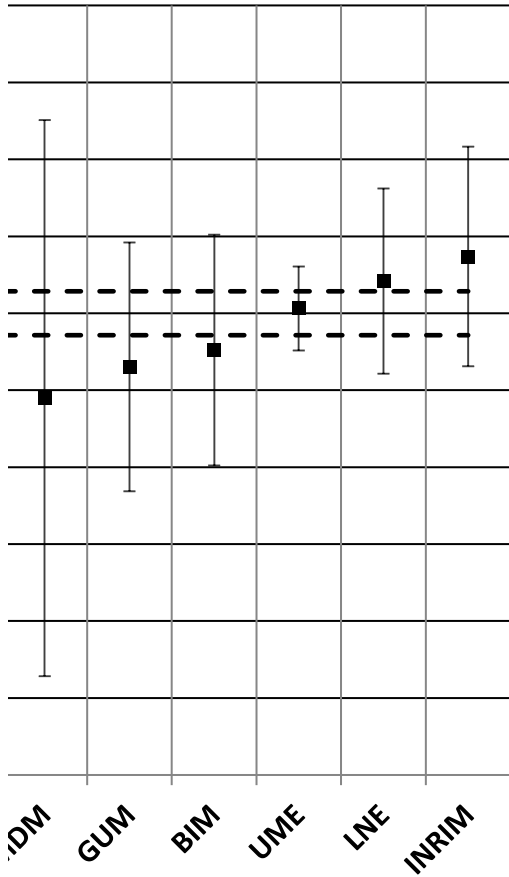




5 VA

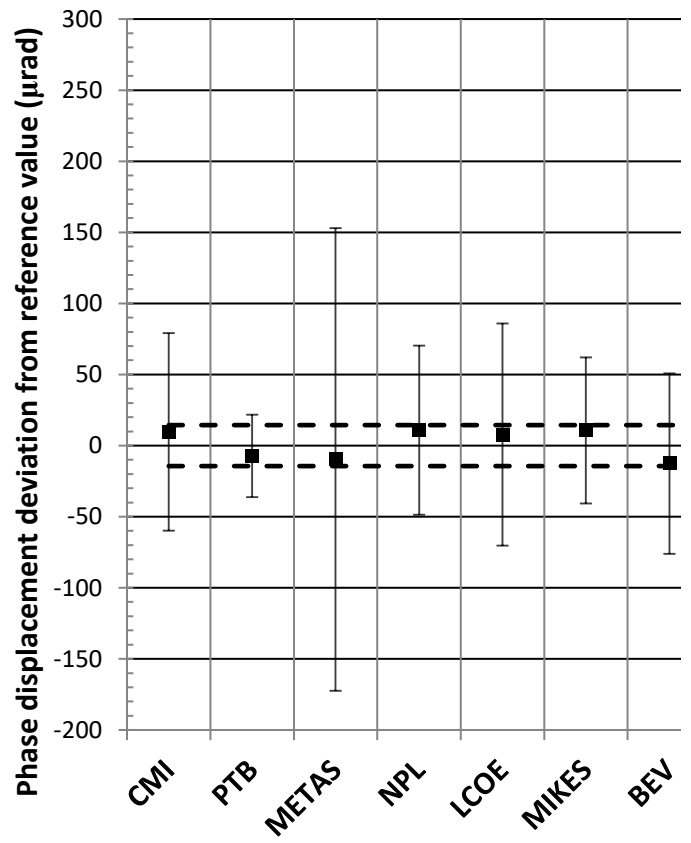


VA

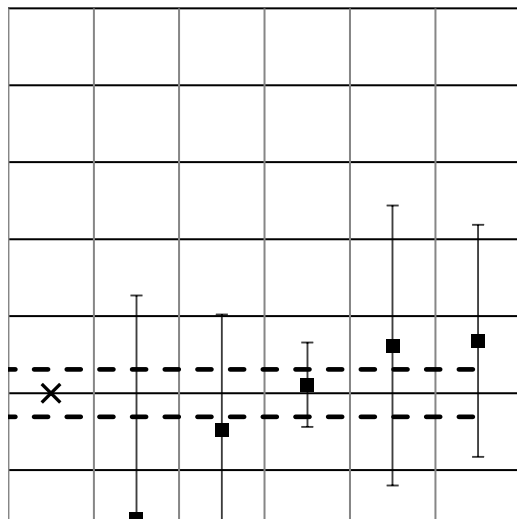


Phase displacement deviation

$$k_1 = 8 \text{ kA}/5 \text{ A}$$

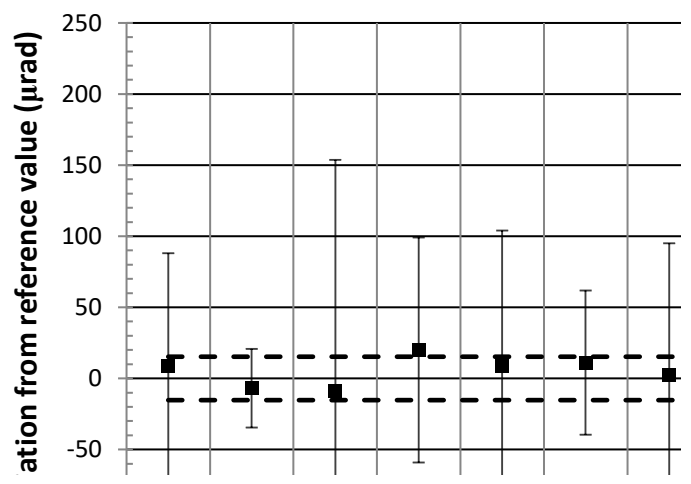


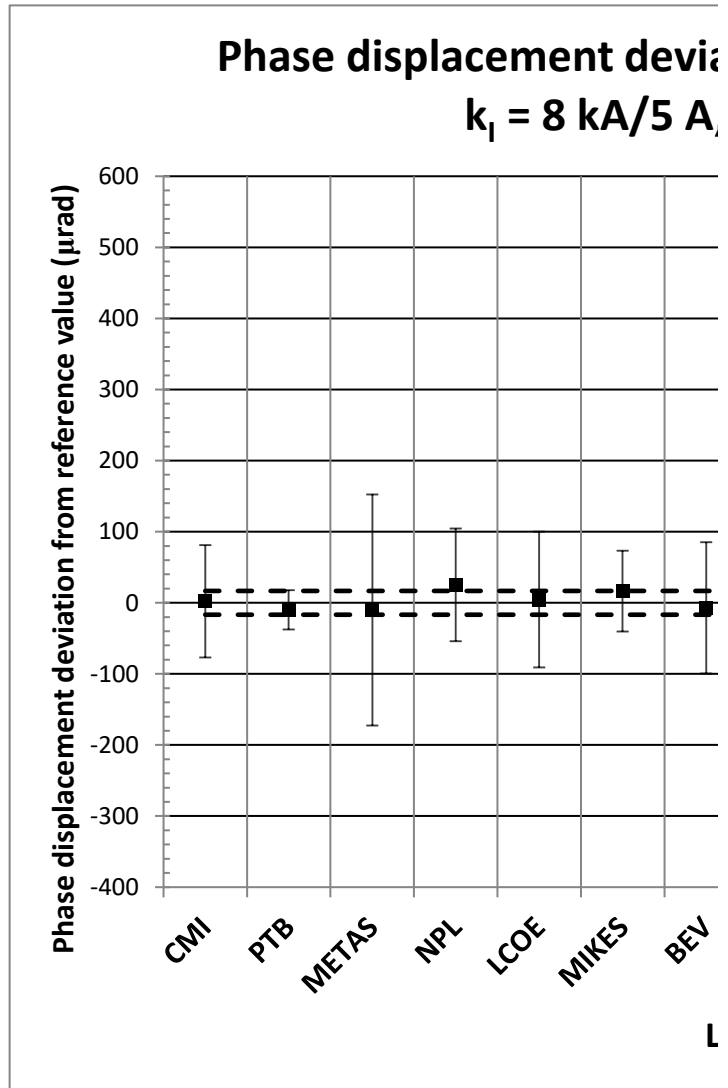
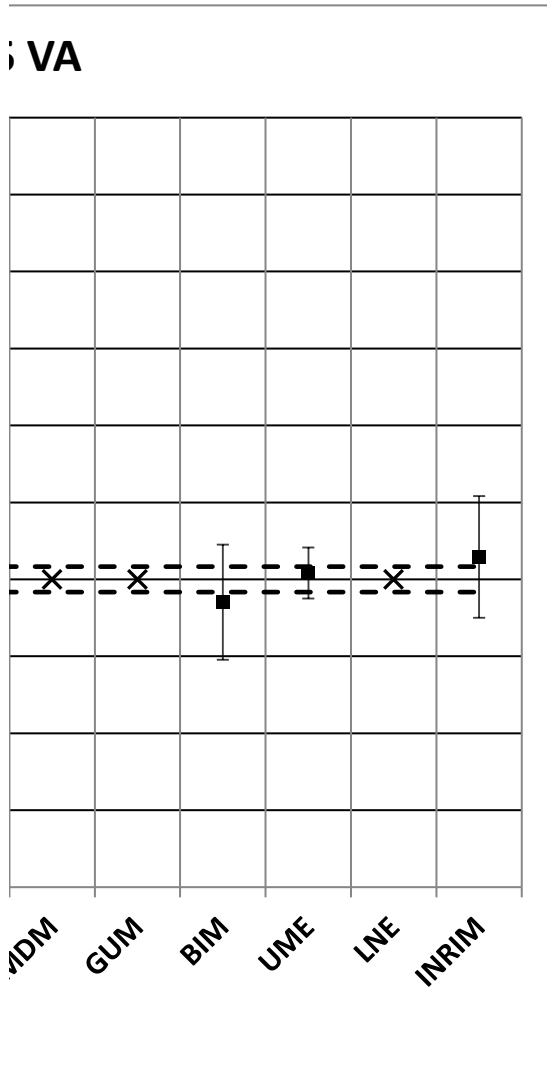
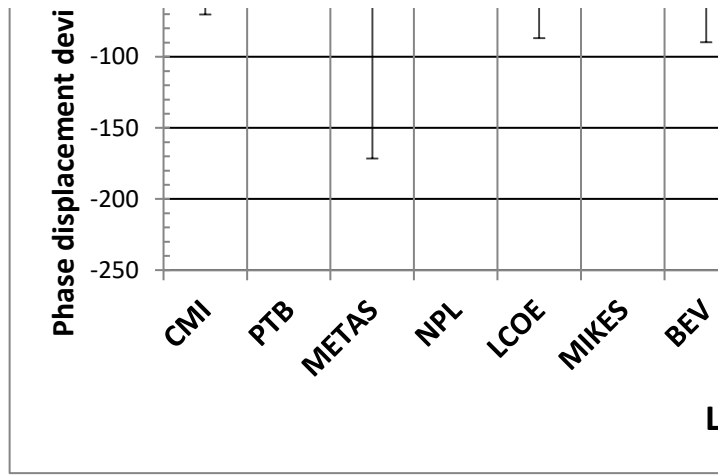
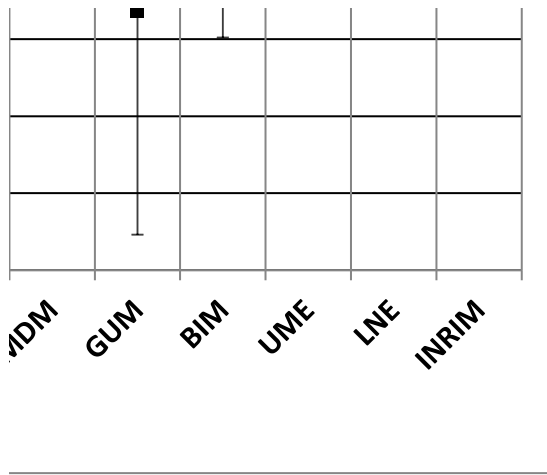
VA



Phase displacement deviation

$$k_1 = 8 \text{ kA}/5 \text{ A}$$





E(δ) (-)
1.039
1.147
0.872
0.720
0.661
0.558
0.475
0.406
0.472
0.383
0.280
0.215
0.481
E(δ) (-)
0.723
0.720
0.651
0.569
0.436
0.437
0.374
0.359
0.836
0.982
0.807
0.629
0.550
0.553
0.488
0.455
0.902
0.920
0.824
0.639
0.537
0.518
0.450

0.368
0.918
0.973
0.745
0.550
0.570
0.514
0.440
0.307
0.613
0.517
0.380
0.453
0.488

INRIM
$E_c(\delta)$ (-)
0.976
<u>1.165</u>
0.880
0.720

0.661
0.558
0.475
0.406
0.472
0.393
0.280
0.215
0.481
INRIM
$E_c(\delta)$ (-)
0.725
0.810
0.647
0.476
0.333
0.437
0.374
0.359
0.836
0.890
0.700
0.526
0.446
0.553
0.488
0.455
0.902
0.920
0.761
0.639
0.537
0.518
0.450
0.368
0.918
0.973
0.761
0.550
0.570
0.514
0.440

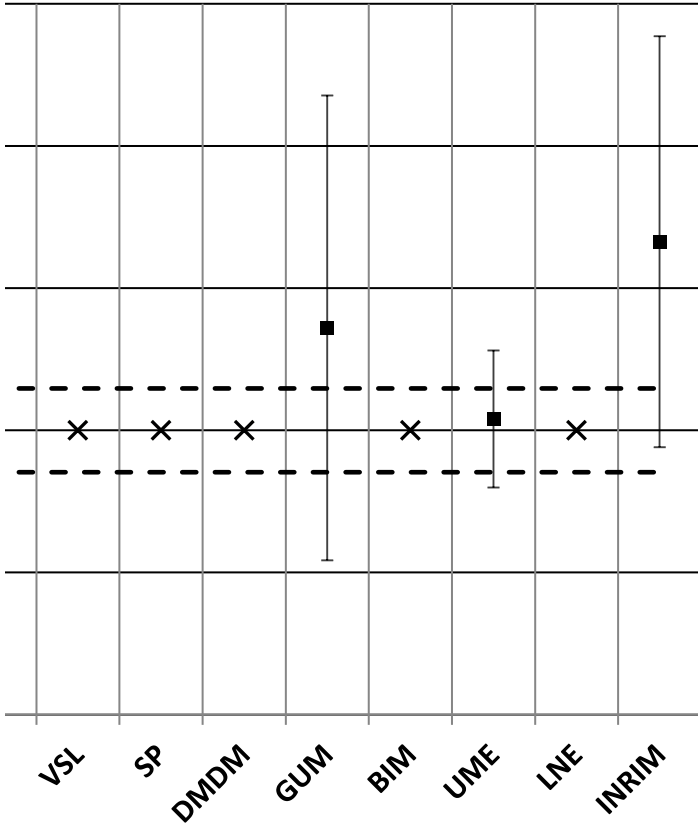
0.307
0.613
0.533
0.380
0.453
0.488

novalue	$\Delta\delta_c$ (μrad)	$U(\Delta\delta_{\text{stdC}})$ (μrad)
#N/A	74	75
#N/A	87	74
#N/A	64	73
#N/A	52	72
#N/A	48	72
#N/A	40	72
#N/A	36	76
#N/A	32	80
0	#N/A	#N/A
#N/A	38	80
#N/A	31	80
#N/A	22	80
#N/A	18	84

#N/A	42	88
0	#N/A	#N/A
0	#N/A	#N/A

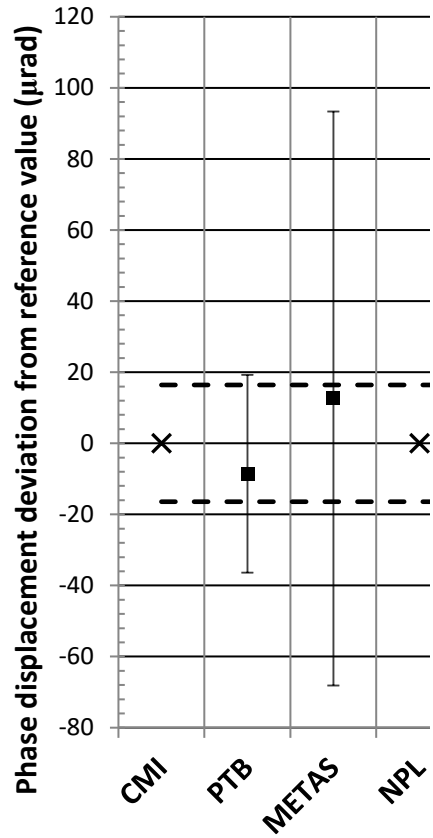
#N/A	52	71
#N/A	57	71
#N/A	46	71
#N/A	34	72
#N/A	24	71
#N/A	31	71
#N/A	28	75
#N/A	28	79
#N/A	61	72
#N/A	64	72
#N/A	50	72
#N/A	38	72
#N/A	32	71
#N/A	40	71
#N/A	37	75
#N/A	36	79
#N/A	65	72
#N/A	66	72
#N/A	55	72
#N/A	46	72
#N/A	39	72
#N/A	37	71
#N/A	34	75
#N/A	29	79
#N/A	66	72
#N/A	71	73
#N/A	55	72
#N/A	40	72
#N/A	41	72
#N/A	37	72
#N/A	33	75
#N/A	24	79
0	#N/A	#N/A
#N/A	49	80
#N/A	43	80
#N/A	30	80
#N/A	38	84
#N/A	43	87
0	#N/A	#N/A
0	#N/A	#N/A

Deviation from reference value
120 % I_N , 15 VA

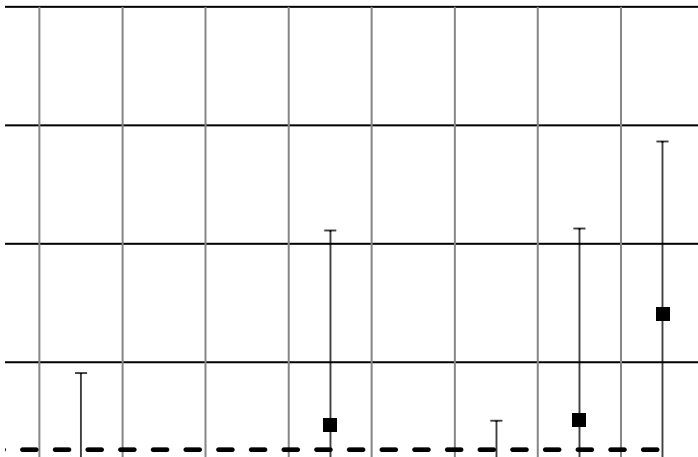


Laboratory

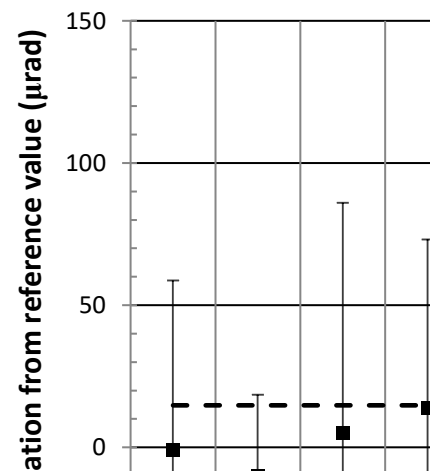
Phase displacement
k

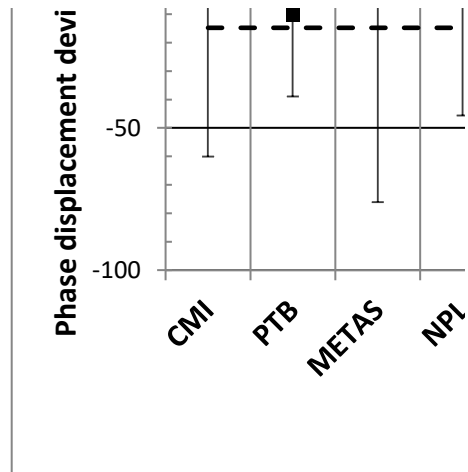
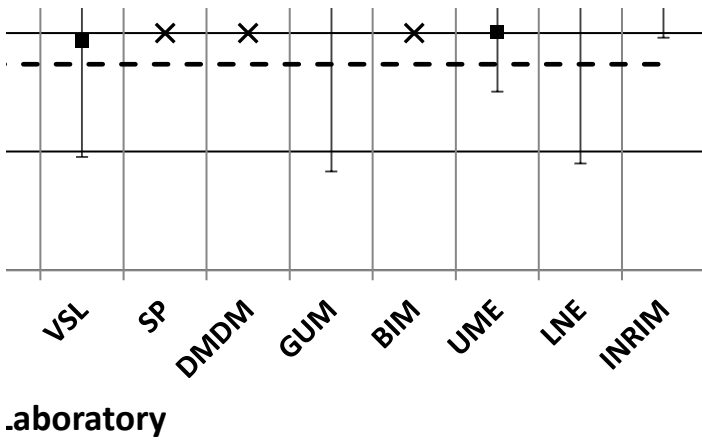


Deviation from reference value
100 % I_N , 15 VA

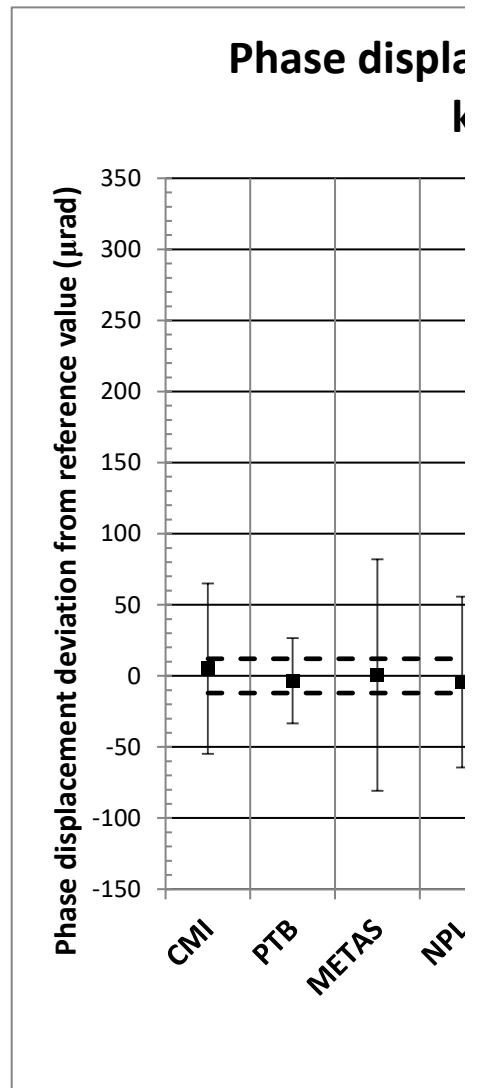
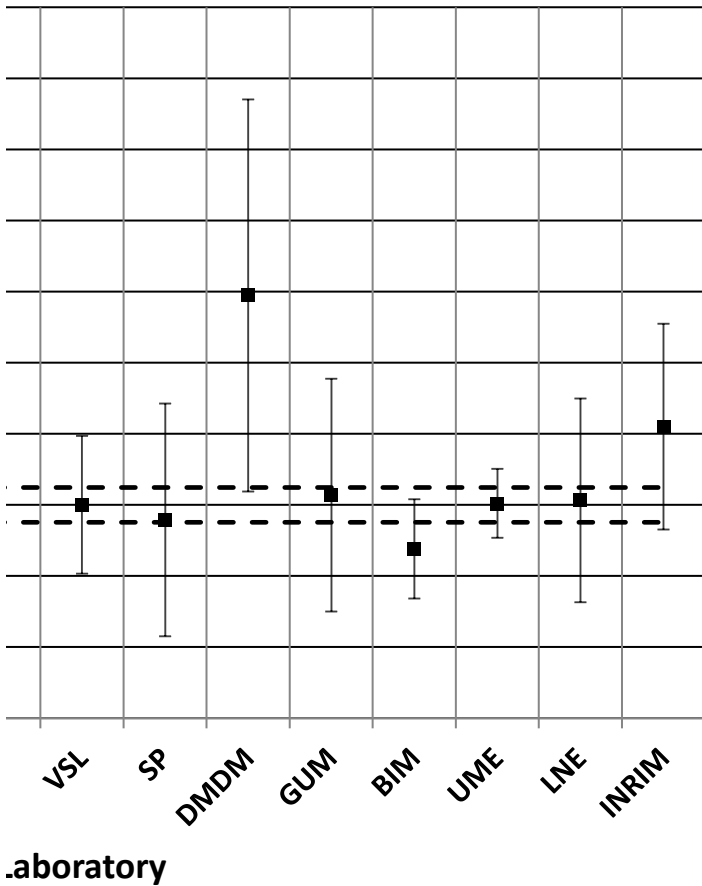


Phase displacement
k

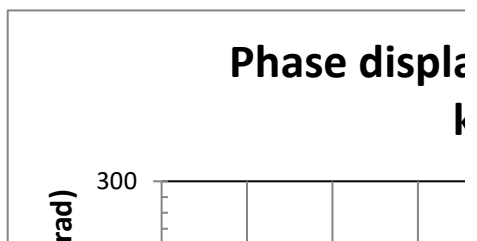
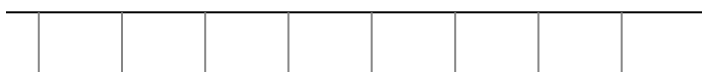


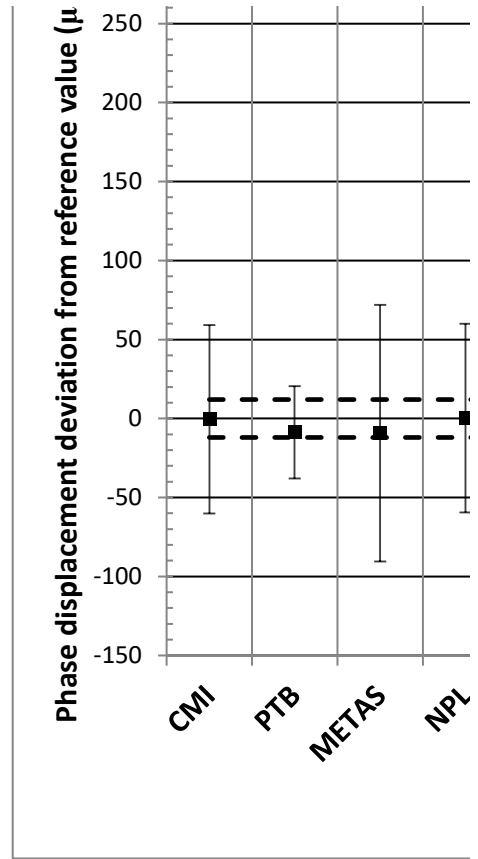
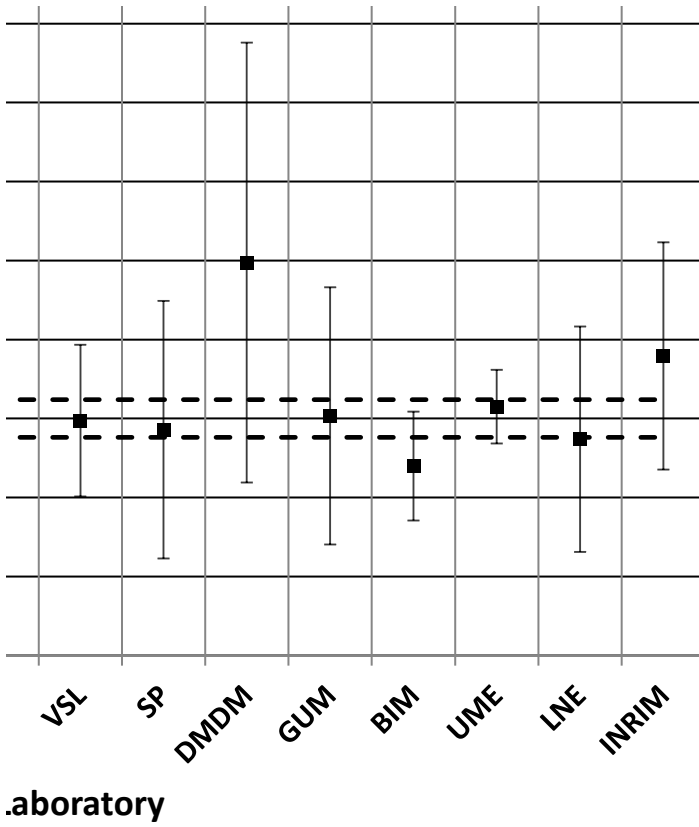


ation from reference value
50 % I_N , 15 VA

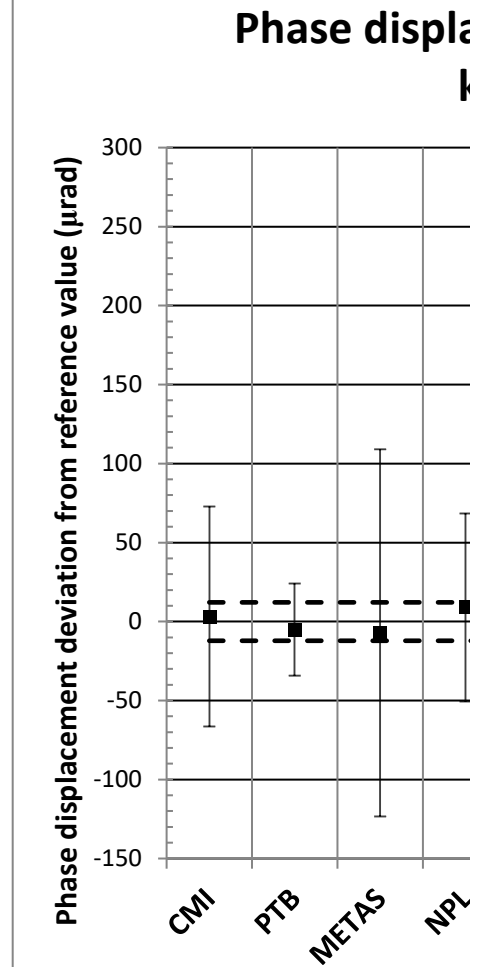
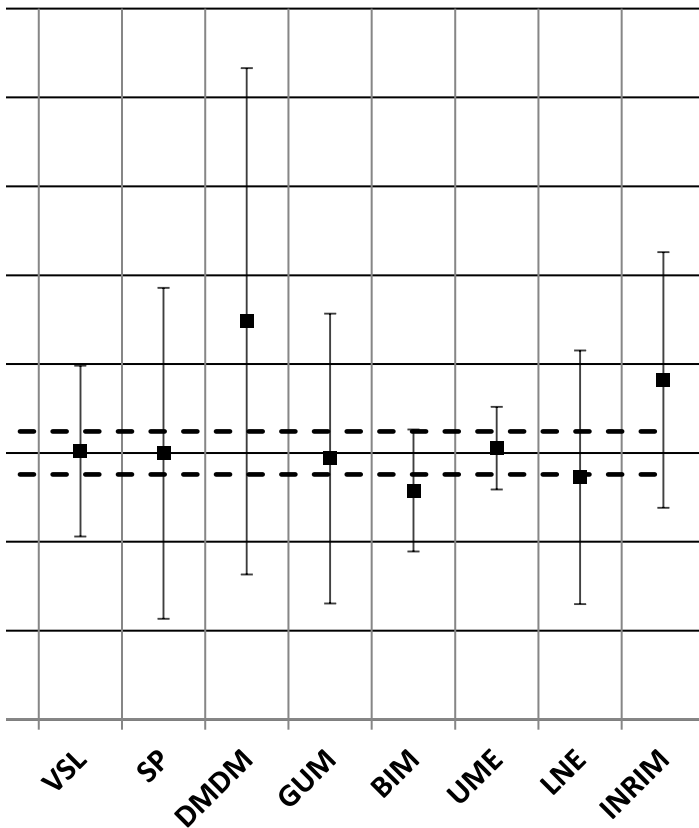


ation from reference value
20 % I_N , 15 VA



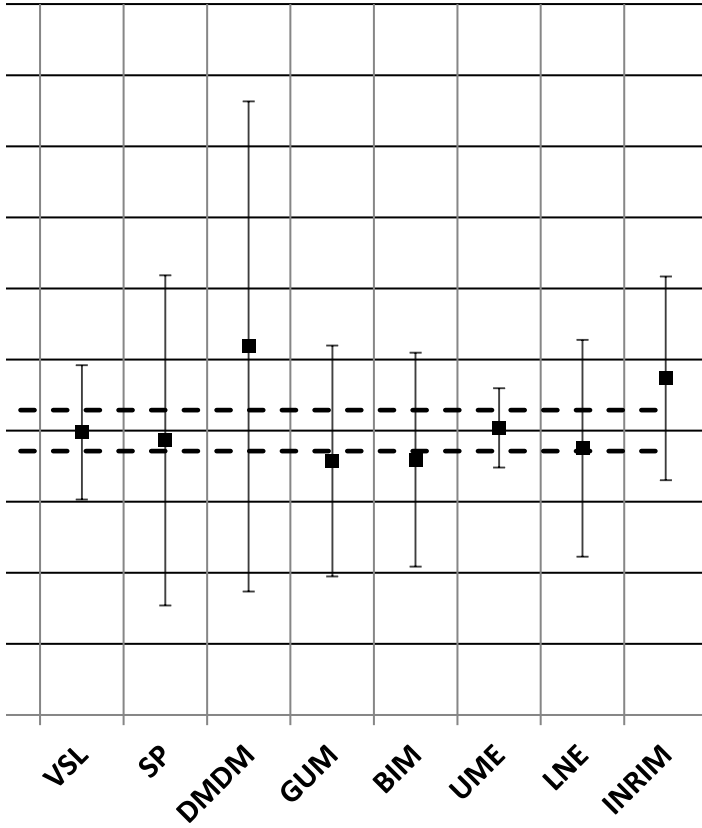


ation from reference value
10 % I_N , 15 VA



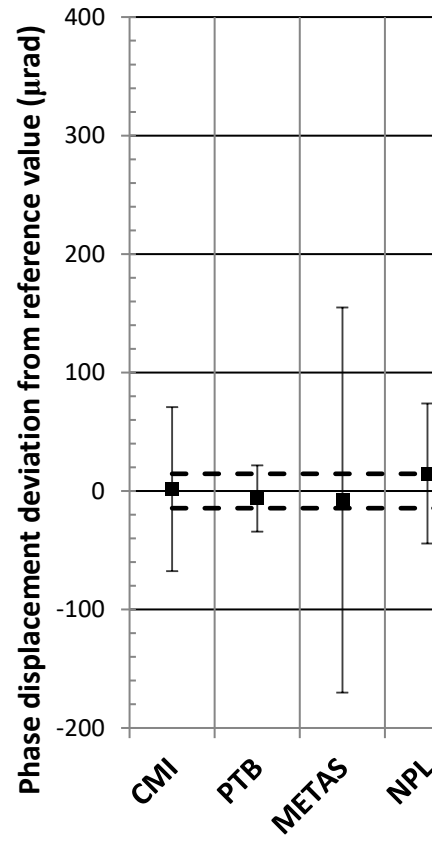
.aboratory

ation from reference value
, 5 % I_N , 15 VA

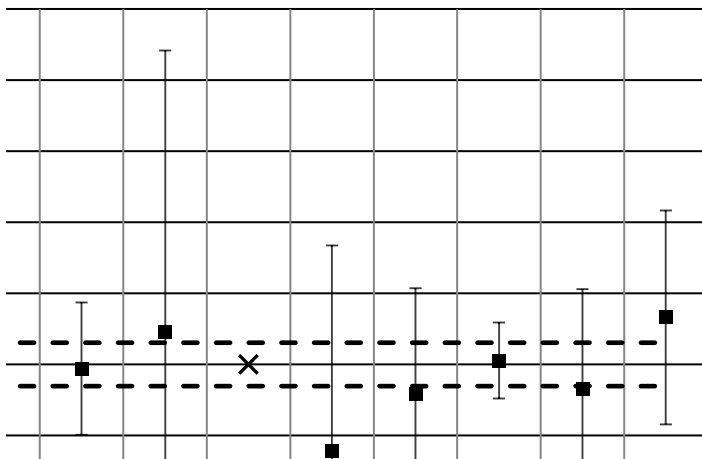


.aboratory

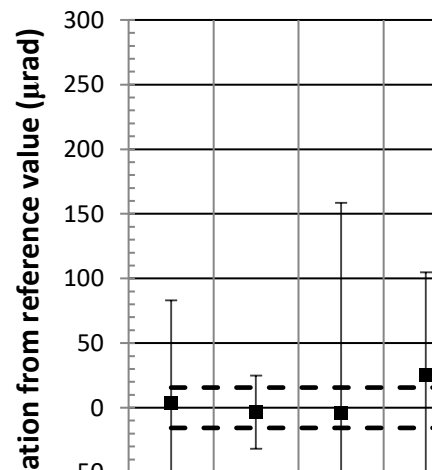
Phase displa

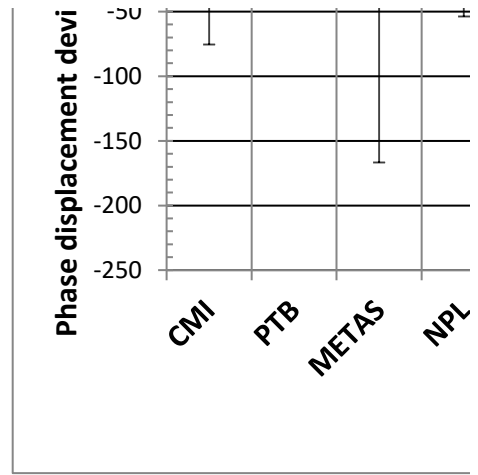
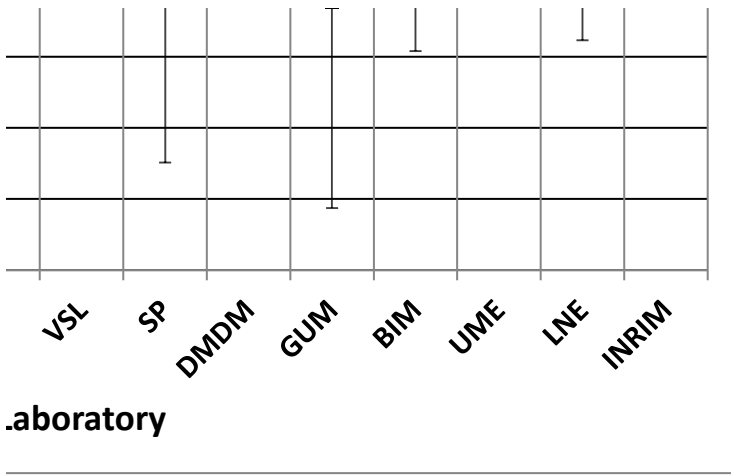


ation from reference value
, 2 % I_N , 15 VA

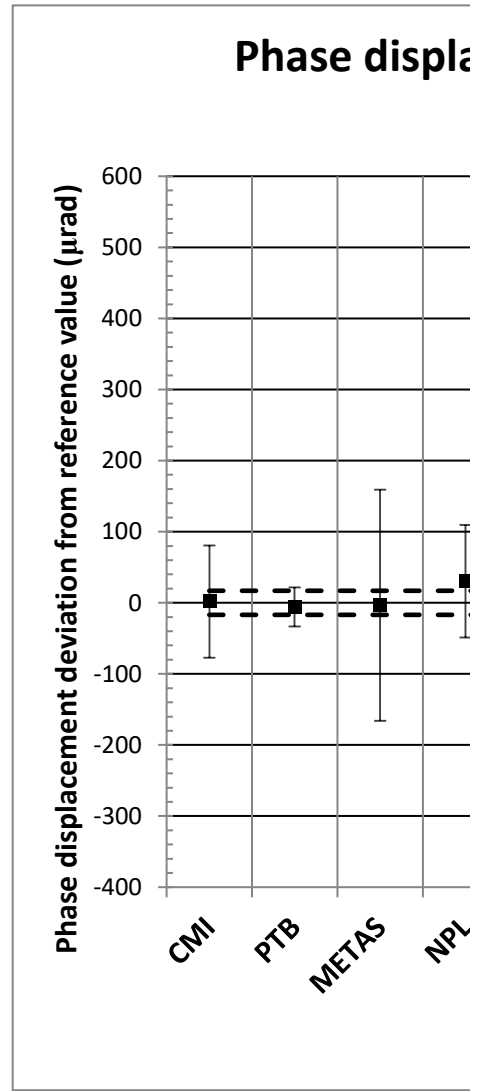
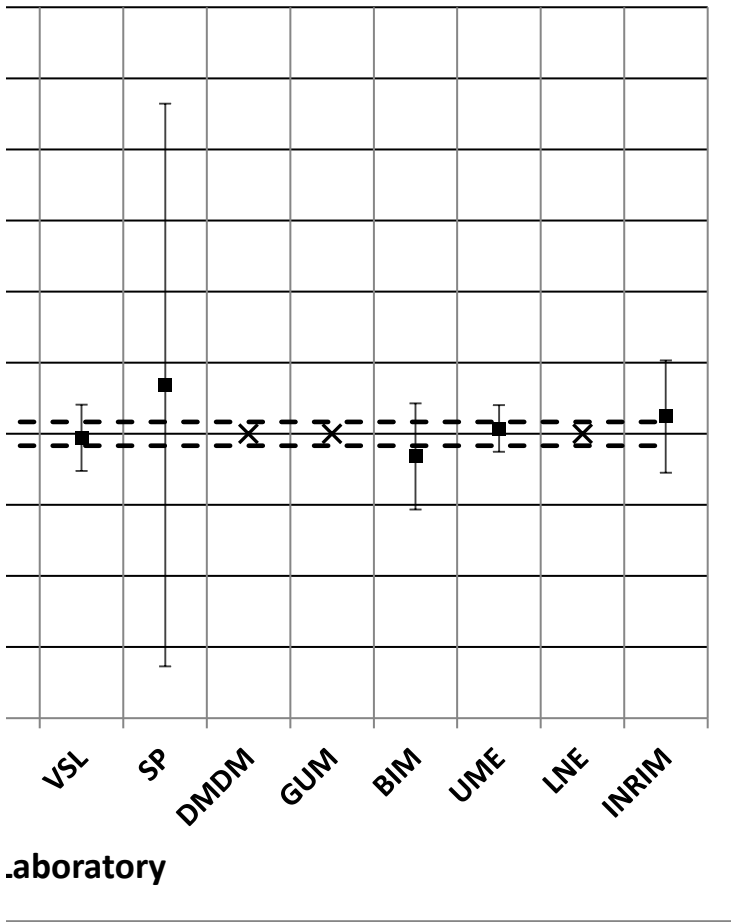


Phase displa



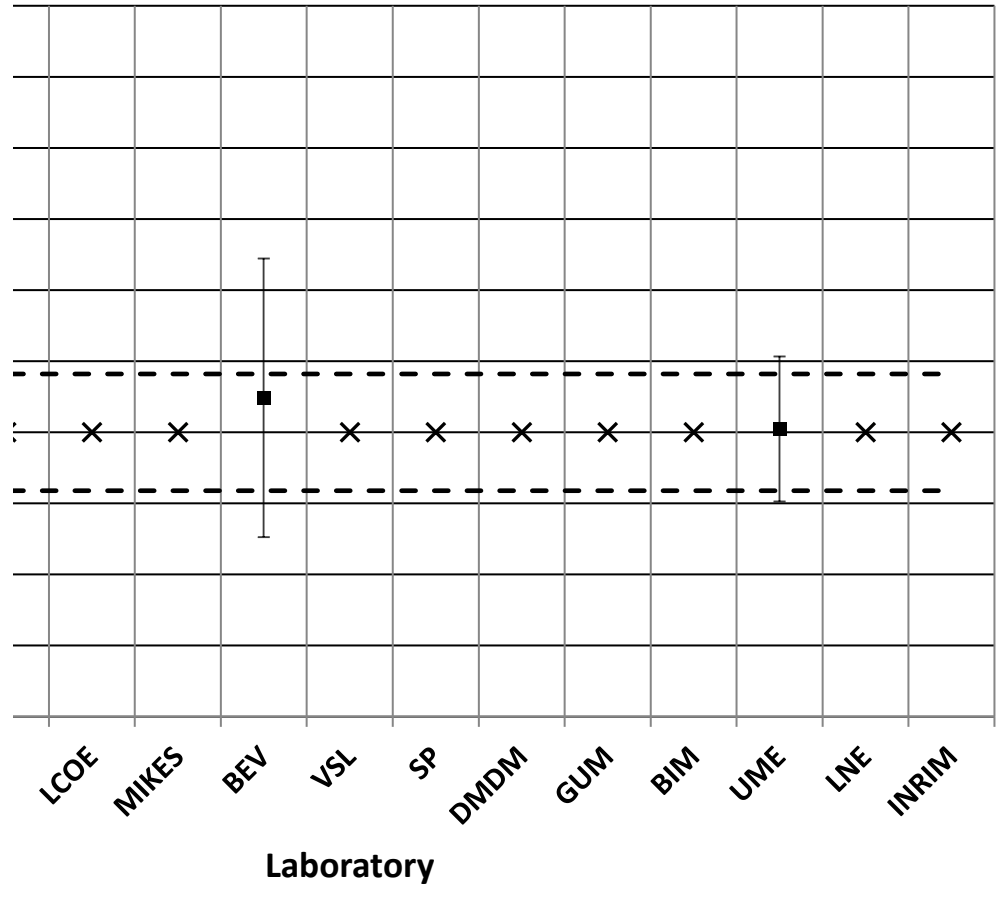


**ation from reference value
, 1 % I_N , 15 VA**



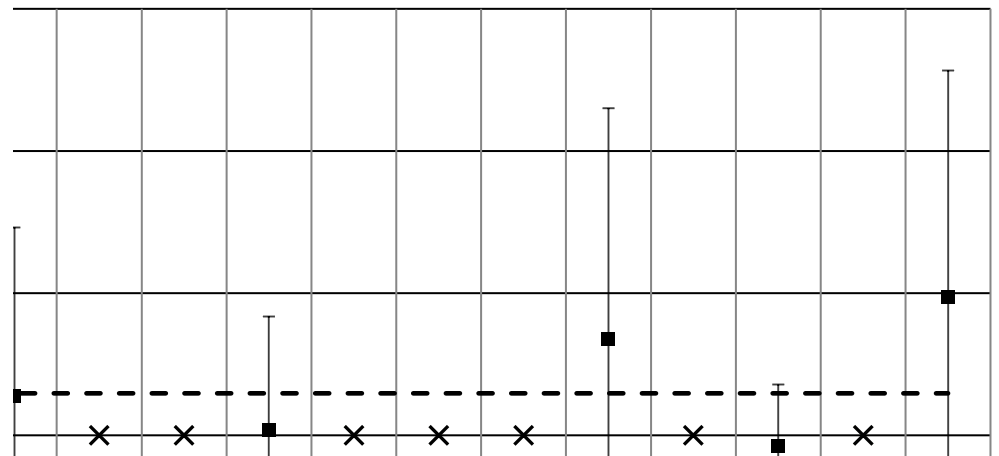
Measurement deviation from reference value

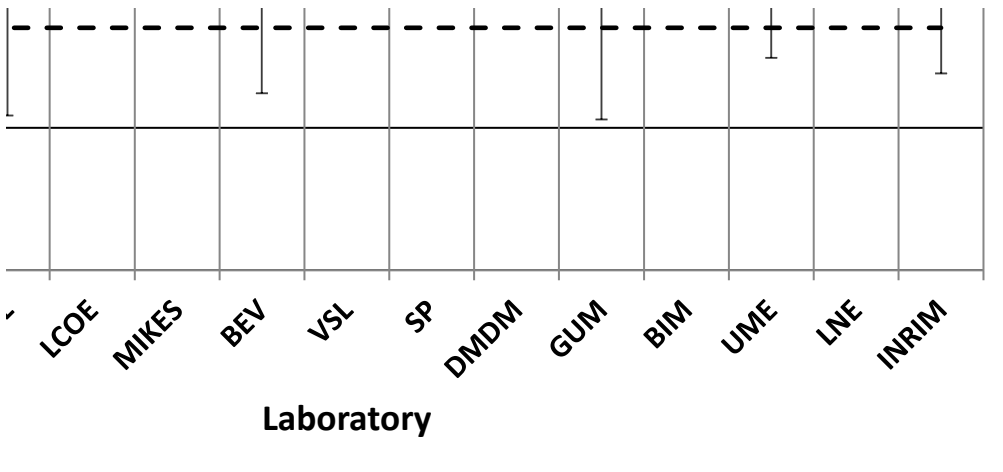
$I_1 = 10 \text{ kA}/5 \text{ A}, 120 \% I_N, 15 \text{ VA}$



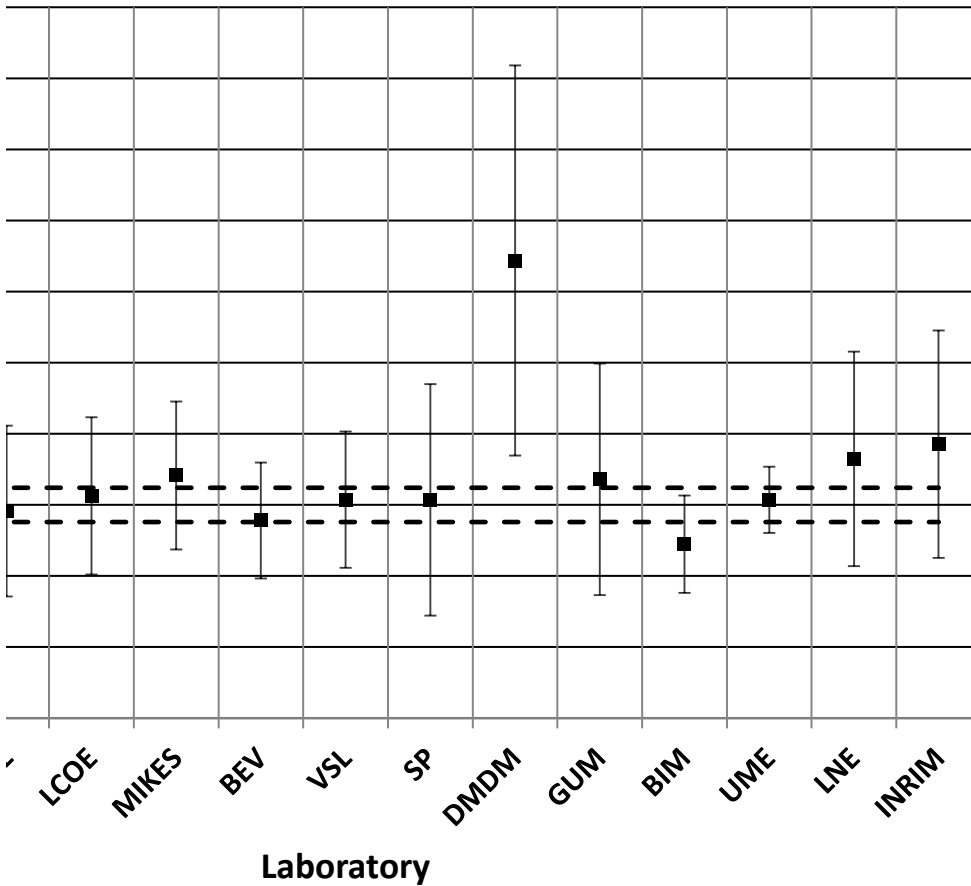
Measurement deviation from reference value

$I_1 = 10 \text{ kA}/5 \text{ A}, 100 \% I_N, 15 \text{ VA}$

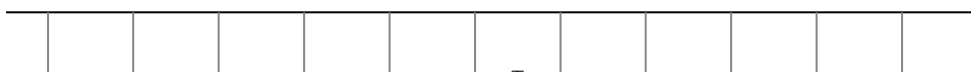


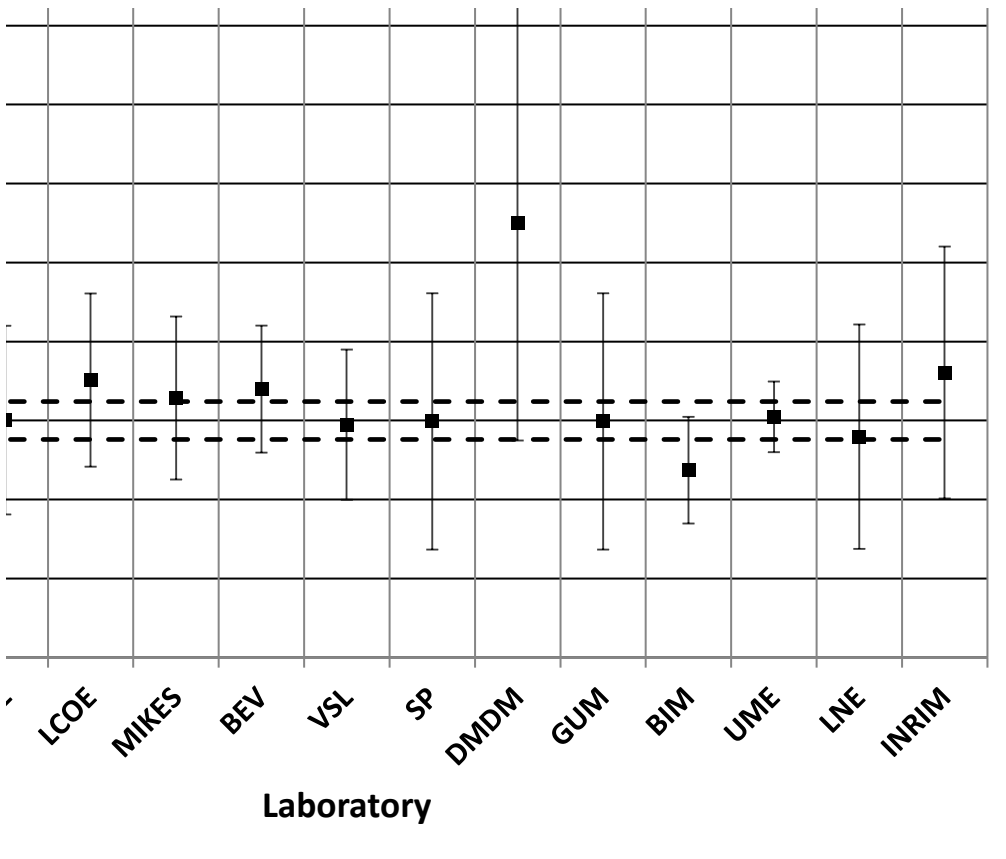


placement deviation from reference value
 $\zeta_1 = 10 \text{ kA}/5 \text{ A}, 50 \% I_N, 15 \text{ VA}$

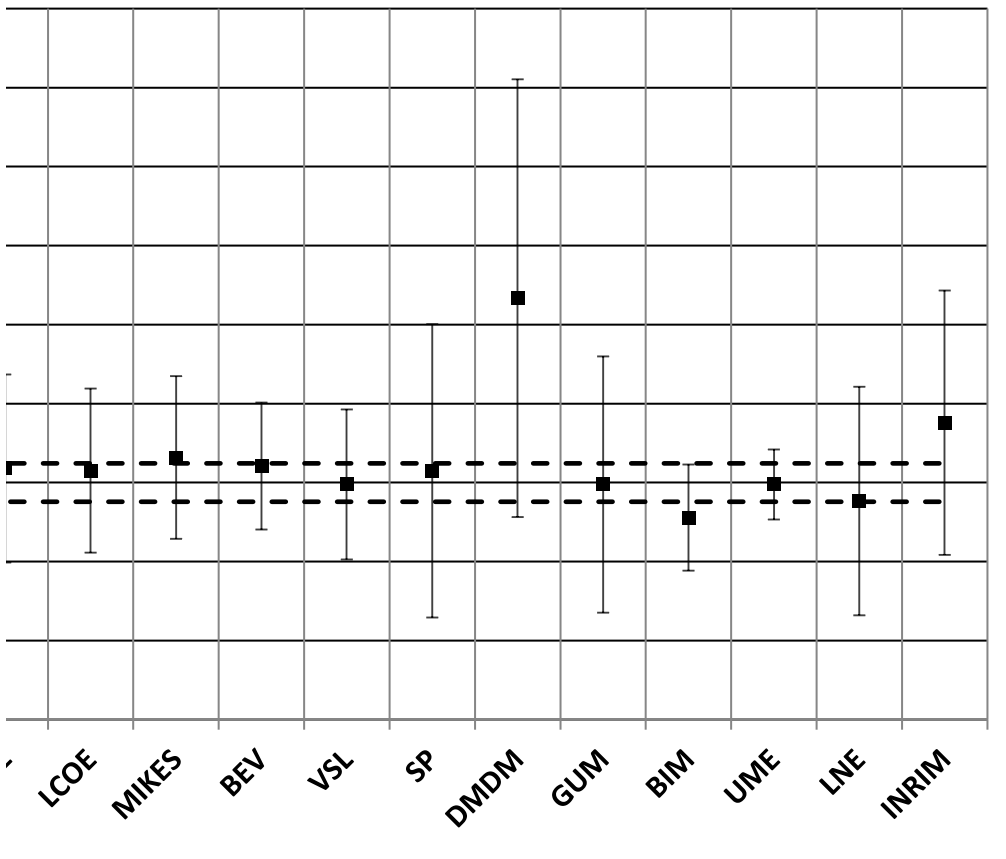


placement deviation from reference value
 $\zeta_1 = 10 \text{ kA}/5 \text{ A}, 20 \% I_N, 15 \text{ VA}$





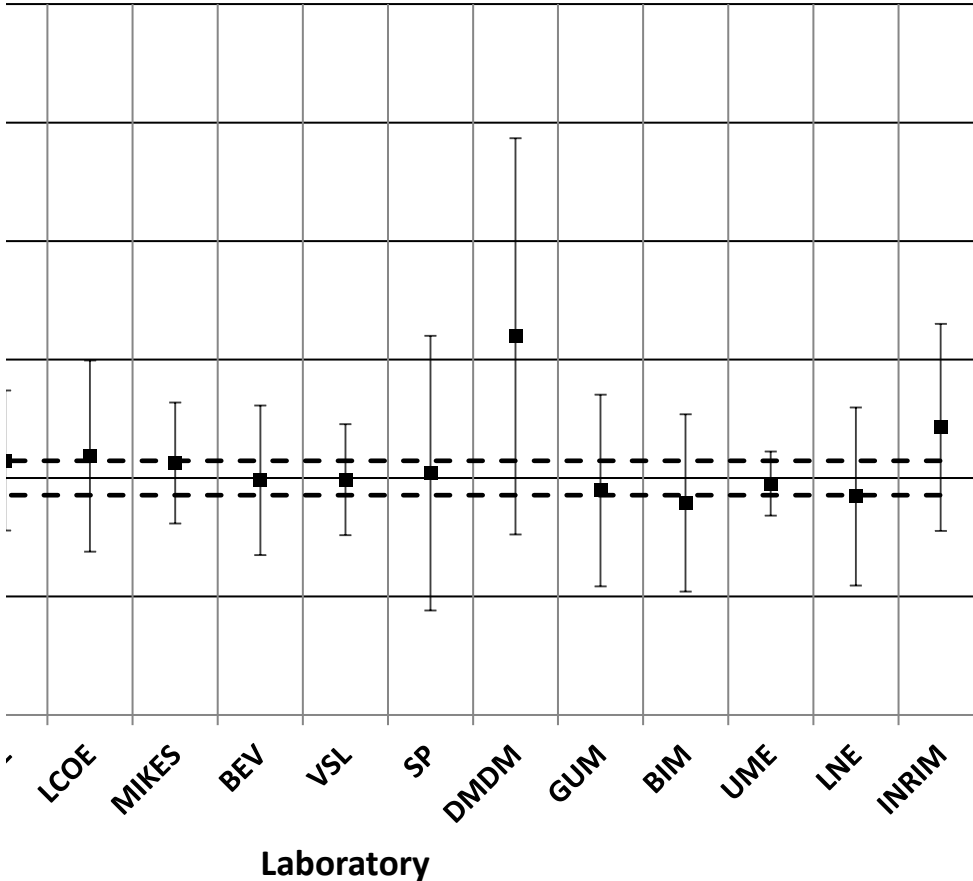
Measurement deviation from reference value
 $\kappa_1 = 10 \text{ kA}/5 \text{ A}, 10 \% I_N, 15 \text{ VA}$



Laboratory

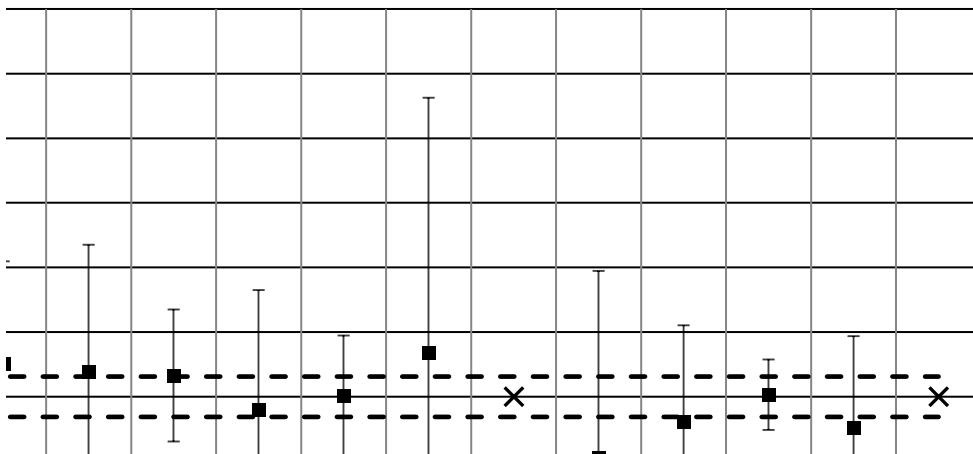
Measurement deviation from reference value

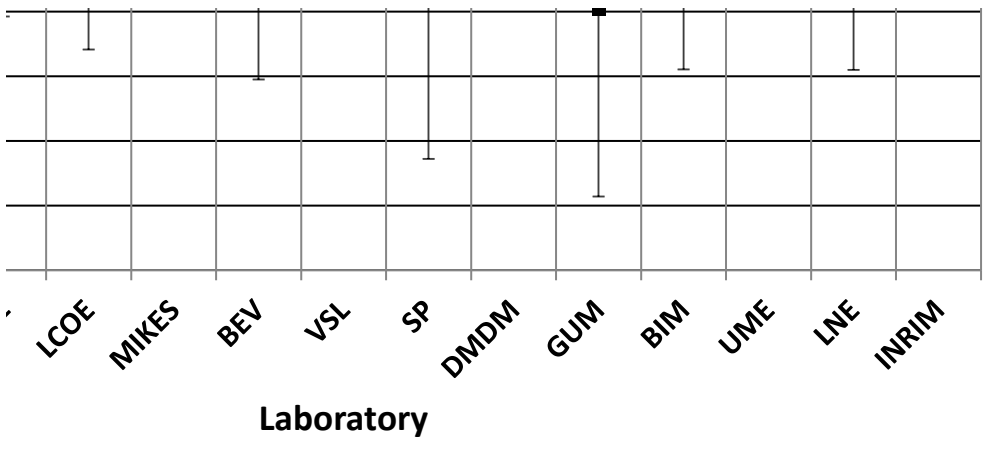
$k_1 = 10 \text{ kA}/5 \text{ A}, 5 \% I_N, 15 \text{ VA}$



Measurement deviation from reference value

$k_1 = 10 \text{ kA}/5 \text{ A}, 2 \% I_N, 15 \text{ VA}$





placement deviation from reference value

$k_1 = 10 \text{ kA/5 A, } 1 \% I_N, 15 \text{ VA}$

