

APPENDIX 5

**RESULTS OF THE ANALYSIS OF THE FIXED-POINT AND VARIABLE
TEMPERATURE BLACKBODY MEASUREMENTS USING A
CALIBRATION FIT FROM THE MEDIAN OF THE RESULTS FROM
ALL THE LABORATORIES**

**EURAMET 658 EXTENSION PROJECT TO EXAMINE UNDERLYING
PARAMETERS IN RADIANCE TEMPERATURE SCALE REALISATION
FROM 156 °C TO 1000 °C**

HELEN MCEVOY

JANUARY 2018

APPENDIX 5

Results of the Analysis of the Fixed-Point and Variable Temperature
Blackbody Measurements using a Calibration Fit from the Median of the
Results from all the Laboratories

EURAMET 658 Extension Project to Examine Underlying Parameters in
Radiance Temperature Scale Realisation from 156 °C to 1000 °C

Helen McEvoy
Engineering, Materials & Electrical Science

© NPL Management Limited, 2018

ISSN 1754-2987

National Physical Laboratory
Hampton Road, Teddington, Middlesex, TW11 0LW

Extracts from this report may be reproduced provided the source is acknowledged
and the extract is not taken out of context.

Approved on behalf of NPL by
Dr Stephanie Bell, Science Area Leader

CONTENTS

1	ANALYSIS USING A FIT OF THE MEDIAN OF ALL THE RESULTS.....	1
2	VTBB RESULTS WITH THE INRIM THERMOMETER USING THE MEDIAN OF THE VTBB DATA FOR THE FITTING PROCESS.....	2
3	AVERAGE LABORATORY RESULTS FOR VARIABLE TEMPERATURE BLACKBODY MEASUREMENTS WITH THE INRIM THERMOMETER.....	9
4	RESULTS OF THE FITTING PROCESS USING THE SAKUMA HATTORI FIT – VTBB MEASUREMENTS ONLY WITH THE INRIM THERMOMETER.....	11
5	THE FP RESULTS WITH THE INRIM THERMOMETER USING THE MEDIAN OF ALL THE FP DATA FOR THE FITTING PROCESS.....	14
6	RESULTS OF THE FITTING PROCESS USING THE SAKUMA HATTORI FIT – FP MEASUREMENTS ONLY WITH THE INRIM THERMOMETER.....	16
7	THE VTBB AND FP RESULTS WITH THE INRIM THERMOMETER USING THE MEDIAN OF ALL THE VTBB AND FP DATA FOR THE FITTING PROCESS.....	18
8	AVERAGE LABORATORY RESULTS FOR THE VTBB AND FP BLACKBODY MEASUREMENTS WITH THE INRIM THERMOMETER.....	26
9	RESULTS OF THE FITTING PROCESS USING THE SAKUMA HATTORI FIT – VTBB AND FP MEASUREMENTS WITH THE INRIM THERMOMETER.....	28
10	ANALYSIS OF THE VTBB RESULTS WITH THE LP5 USING THE MEDIAN OF ALL THE VTBB DATA FOR THE FITTING PROCESS.....	31
11	AVERAGE LABORATORY RESULTS FOR VARIABLE TEMPERATURE BLACKBODY MEASUREMENTS WITH THE LP5.....	42
12	RESULTS OF THE FITTING PROCESS USING THE SAKUMA HATTORI FIT – VTBB MEASUREMENTS ONLY WITH THE LP5 ON RANGE R1.....	45
13	RESULTS OF THE FITTING PROCESS USING THE SAKUMA HATTORI FIT – VTBB MEASUREMENTS ONLY WITH THE LP5 ON RANGE R2.....	46
14	THE FP RESULTS WITH THE LP5 USING THE MEDIAN OF ALL THE FP DATA FOR THE FITTING PROCESS.....	49
15	RESULTS OF THE FITTING PROCESS USING THE SAKUMA HATTORI FIT – FP MEASUREMENTS ONLY WITH THE LP5 ON RANGES R1 AND R2.....	52
16	THE VTBB AND FP RESULTS WITH THE LP5 USING THE MEDIAN OF ALL THE VTBB AND FP DATA FOR THE FITTING PROCESS.....	55
17	AVERAGE LABORATORY RESULTS FOR FIXED-POINT AND VARIABLE TEMPERATURE BLACKBODY MEASUREMENTS WITH THE LP5.....	68
18	RESULTS OF THE FITTING PROCESS USING THE SAKUMA HATTORI FIT – VTBB AND FP MEASUREMENTS WITH THE LP5 ON RANGE R1.....	71
19	RESULTS OF THE FITTING PROCESS USING THE SAKUMA HATTORI FIT – VTBB AND FP MEASUREMENTS WITH THE LP5 ON RANGE R2.....	72
20	THE QDE ₉₅ AND DOE VALUES FOR THE FIXED-POINT AND VARIABLE TEMPERATURE BLACKBODY COMPARISON, USING THE FIT OF ALL THE DATA	84
20.1	THE RESULTS FOR THE INRIM THERMOMETER USING THE FIT OF ALL THE FIXED-POINT AND VARIABLE TEMPERATURE BLACKBODY DATA.....	84
20.2	THE RESULTS FOR THE LP5 ON RANGE R1 USING THE FIT OF ALL THE FIXED-POINT AND VARIABLE TEMPERATURE BLACKBODY DATA.....	106

1 ANALYSIS USING A FIT OF THE MEDIAN OF ALL THE RESULTS

A calibration fit was also determined using the median of all the laboratory values. For each laboratory's measurements, the thermometer signals were firstly corrected to a common gain or range ($\times 10^6$ for the INRiM thermometer and ranges R1 and R2 for the LP5) using the laboratory's gain or range ratio values (where available) as described previously (Section 5 of the main report). Using the zinc point measurements (Section 1 of the report) the results were corrected to compensate for any drift from the start of the comparison (i.e. relative to PTB). For temperatures other than the zinc point, the correction was scaled using the ratio $(t_{\text{source}})^2/(t_{\text{zinc}})^2$. This temperature correction could be converted to an equivalent signal correction using Equation 1. This correction was applied to the signal values.

$$\Delta S = \Delta T \frac{c_2}{\lambda T^2} S \quad \text{Equation 1}$$

where ΔS is the correction to the thermometer signal S for a temperature correction ΔT , T is the source temperature in K, and λ is the operational wavelength, taken to be $1.57 \mu\text{m}$ and $1.60 \mu\text{m}$ respectively for the LP5 and the INRiM thermometer, as given in the technical specifications for the thermometers.

An additional uncertainty was also added to the laboratory measurement uncertainty to allow for the drift of the thermometer during the comparison. The results were then corrected to account for any difference between the actual blackbody temperature, t_{BB} , and the required comparison temperature, t_{nom} also using Equation 1. The average thermometer signal for each laboratory at each temperature t_{nom} was then calculated. Finally, the median of all the results from all the laboratories was calculated for each t_{nom} .

A least squares fit of the median results was performed using a version of the Planck form of the Sakuma-Hattori interpolation equation, Equation 2. This was done in three ways: i) using the FPBB results only; ii) using the VTBB results only; iii) using all the VTBB and FP results to provide a calibration fit for the entire data set of results.

$$S(T) = \frac{a_1}{\exp(c_2 / (\lambda T + a_3)) - 1} \quad \text{Equation 2}$$

where $S(T)$ is the output voltage of the thermometer, T is the temperature in kelvin, c_2 is the second radiation constant and a_1 , a_2 and a_3 are constants.

The results of the comparison of all the fitted measurements are given in Tables 1 to 113 below and in the accompanying plots. It was found that, for both thermometers, discrepancies in the results at 1000°C resulted in a poor calibration fit, as is evidenced by the (relatively) large RMS residuals of the fit. The fitting was therefore also done with the 1000°C data excluded, and this led to a much better result (lower, more acceptable residuals).

The DOE or QDE₉₅ for the results using the calibration fit of the medians of the entire datasets (i.e. including all the FP and VTBB data), with the 1000°C points excluded from the fits, were calculated for both thermometers (for the LP5 using range R1 only), and are given in this Appendix for reference. Again it should be emphasised that the results are only applicable for a wavelength near 1.6 microns and do not ensure equivalence at other wavelengths.

2 VTBB RESULTS WITH THE INRIM THERMOMETER USING THE MEDIAN OF THE VTBB DATA FOR THE FITTING PROCESS

t_{nom} / °C	Gain used	t_{BB} / °C	Bgrd corrected Signal/ V	Signal at $\times 10^6$ gain/ V	Zn point check drift [‡] / °C	Signal corrected for Zn point drift/ V	dt (t_{nom} - t_{BB})/ °C	Signal corrected to t_{nom} / V	t from median fit/ °C	dt (t_{fit} - t_{BB})/ °C	t from fit without 1000 °C data/ °C	dt (t_{fit} - t_{BB})/ °C	U ($k=2$)/ °C
156.60	10 ¹⁰	156.57	0.776219	7.6972E-05	0.009	7.7007E-05	0.03	7.7120E-05	156.609	0.039	156.712	0.142	0.56
200.00	10 ¹⁰	200.00	5.135394	5.0924E-04	0.011	5.0947E-04	0.00	5.0947E-04	199.875	-0.125	199.924	-0.076	0.51
231.93	10 ⁹	231.88	1.838722	1.6801E-03	0.013	1.6808E-03	0.05	1.6838E-03	231.976	0.096	231.990	0.110	0.30
250.00	10 ⁹	250.04	3.381156	3.0894E-03	0.014	3.0908E-03	-0.04	3.0867E-03	250.088	0.048	250.085	0.045	0.30
300.00	10 ⁸	300.02	1.370938	1.3638E-02	0.016	1.3644E-02	-0.02	1.3637E-02	300.174	0.154	300.130	0.110	0.30
400.00	10 ⁷	399.89	1.362019	0.136273	0.023	1.3633E-01	0.11	1.3663E-01	399.957	0.067	399.864	-0.026	0.31
419.53	10 ⁷	419.49	1.983845	0.198487	0.024	1.9858E-01	0.04	1.9873E-01	419.643	0.153	419.546	0.056	0.31
500.00	10 ⁷	499.89	7.547499	0.755141	0.030	7.5548E-01	0.11	7.5673E-01	499.944	0.054	499.846	-0.044	0.32
600.00	10 ⁶	600.03	2.837789	2.837789	0.038	2.839066	-0.03	2.838061	600.169	0.139	600.109	0.079	0.29
660.32	10 ⁶	660.29	5.480883	5.480883	0.044	5.483348	0.03	5.485046	660.306	0.016	660.291	0.001	0.31
700.00	10 ⁶	700.03	8.093755	8.093755	0.047	8.097395	-0.03	8.095089	699.979	-0.051	700.001	-0.029	0.32
800.00	10 ⁵	799.87	1.899449	19.000850	0.058	19.009397	0.13	19.028698	799.765	-0.105	799.913	0.043	0.35
900.00	10 ⁵	899.98	3.858663	38.599565	0.069	38.616927	0.02	38.621974	899.581	-0.399	899.898	-0.082	0.39
231.93	10 ⁹	232.02	1.842625	1.6836E-03	0.013	1.6844E-03	-0.09	1.6790E-03	232.037	0.017	232.051	0.031	0.30
300.00	10 ⁸	300.08	1.375069	1.3679E-02	0.016	1.3685E-02	-0.08	1.3655E-02	300.285	0.205	300.241	0.161	0.30
500.00	10 ⁷	500.03	7.566450	0.757037	0.030	7.5738E-01	-0.03	7.5704E-01	500.112	0.082	500.015	-0.015	0.32
700.00	10 ⁶	699.99	8.094334	8.094334	0.047	8.097975	0.01	8.098744	699.986	-0.004	700.009	0.019	0.32
900.00	10 ⁵	899.88	3.856424	38.577167	0.069	38.594519	0.12	38.624786	899.492	-0.388	899.808	-0.072	0.39

Table 1 - results of the CEM VTBB measurements performed on the ‘low range’ with the INRiM thermometer, analysed using the fit of the median of the VTBB data

[‡] calculated relative to the start of the comparison, i.e. from the PTB Zn point check

t_{nom} / °C	Gain used	t_{BB} / °C	Bgrd corrected Signal/ V	Signal at $\times 10^6$ gain/ V	Zn point check drift [†] / °C	Signal corrected for Zn point drift/ V	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / V	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit without 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$)/ °C
156.60	10 ⁹	156.57	0.084268	7.6997E-05	0.009	7.7031E-05	0.03	7.7144E-05	156.616	0.046	156.718	0.148	0.36
200.00	10 ⁹	200.00	0.557157	5.0908E-04	0.011	5.0931E-04	0.00	5.0931E-04	199.867	-0.133	199.916	-0.084	0.31
231.93	10 ⁸	231.88	0.168944	1.6807E-03	0.013	1.6814E-03	0.05	1.6844E-03	231.986	0.106	232.000	0.120	0.30
250.00	10 ⁸	250.04	0.310514	3.0890E-03	0.014	3.0904E-03	-0.04	3.0863E-03	250.084	0.044	250.081	0.041	0.30
300.00	10 ⁷	300.02	0.136309	1.3638E-02	0.016	1.3644E-02	-0.02	1.3637E-02	300.174	0.154	300.130	0.110	0.30
400.00	10 ⁶	399.89	0.136278	0.136278	0.023	1.3634E-01	0.11	1.3664E-01	399.959	0.069	399.867	-0.023	0.31
419.53	10 ⁶	419.49	0.198507	0.198507	0.024	1.9860E-01	0.04	1.9875E-01	419.649	0.159	419.552	0.062	0.31
500.00	10 ⁶	499.89	0.755142	0.755142	0.030	7.5548E-01	0.11	7.5673E-01	499.944	0.054	499.846	-0.044	0.32
600.00	10 ⁵	600.03	0.283681	2.837761	0.038	2.839038	-0.03	2.838033	600.168	0.138	600.109	0.079	0.29
660.32	10 ⁵	660.29	0.547934	5.481181	0.044	5.483646	0.03	5.485344	660.311	0.021	660.296	0.006	0.31
700.00	10 ⁵	700.03	0.809106	8.093774	0.047	8.097415	-0.03	8.095108	699.979	-0.051	700.002	-0.028	0.32
800.00	10 ⁴	799.87	0.191880	18.999437	0.058	19.007983	0.13	19.027283	799.756	-0.114	799.904	0.034	0.35
900.00	10 ⁴	899.98	0.389795	38.596576	0.069	38.613937	0.02	38.618983	899.569	-0.411	899.886	-0.094	0.39
231.93	10 ⁸	232.02	0.169206	1.6833E-03	0.013	1.6840E-03	-0.09	1.6787E-03	232.031	0.011	232.045	0.025	0.30
300.00	10 ⁷	300.08	0.136723	1.3679E-02	0.016	1.3686E-02	-0.08	1.3656E-02	300.286	0.206	300.242	0.162	0.30
500.00	10 ⁶	500.03	0.756917	0.756917	0.030	7.5726E-01	-0.03	7.5692E-01	500.102	0.072	500.004	-0.026	0.32
700.00	10 ⁵	699.99	0.809125	8.093962	0.047	8.097603	0.01	8.098372	699.981	-0.009	700.004	0.014	0.32
900.00	10 ⁴	899.88	0.389568	38.574084	0.069	38.591435	0.12	38.621700	899.479	-0.401	899.796	-0.084	0.39

Table 2 - results of the CEM VTBB measurements performed on the ‘high range’ with the INRiM thermometer, analysed using the fit of the median of the VTBB data

t_{nom} / °C	Gain used	t_{BB} / °C	Bgrd corrected Signal/ V	Signal at $\times 10^6$ gain/ V	Zn point check drift [†] / °C	Signal corrected for Zn point drift/ V	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / V	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit without 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
156.60	10^{10}	156.566	0.771526	7.64095E-05	0.00	7.64095E-05	0.034	7.65365E-05	156.447	-0.119	156.550	-0.016	0.070
200	10^{10}	200.035	5.165212	5.11546E-04	0.00	5.11546E-04	-0.035	5.10833E-04	199.977	-0.057	200.026	-0.009	0.072
231.93	10^9	231.947	1.837326	1.67760E-03	0.00	1.67760E-03	-0.017	1.67662E-03	231.921	-0.026	231.935	-0.011	0.076
250	10^9	250.039	3.377719	3.08409E-03	0.00	3.08409E-03	-0.039	3.08014E-03	250.021	-0.018	250.018	-0.021	0.080
300	10^8	300.023	1.366982	1.35988E-02	0.00	1.35988E-02	-0.023	1.35904E-02	300.051	0.028	300.007	-0.015	0.107
400	10^7	400.021	1.366276	1.36699E-01	0.00	1.36699E-01	-0.021	1.36643E-01	400.093	0.072	400.000	-0.020	0.075
419.53	10^7	419.519	1.983355	1.98439E-01	0.00	1.98439E-01	0.011	1.98479E-01	419.606	0.087	419.509	-0.010	0.079
500	10^6	500.020	0.757357	7.57357E-01	0.00	7.57357E-01	-0.020	7.57134E-01	500.111	0.091	500.013	-0.007	0.096
600	10^6	600.019	2.835811	2.83581E+00	0.00	2.83581E+00	-0.019	2.83516E+00	600.071	0.051	600.011	-0.008	0.120
660.32	10^6	660.328	5.483683	5.48368E+00	0.00	5.48368E+00	-0.008	5.48321E+00	660.312	-0.017	660.296	-0.032	0.147
700	10^6	700.032	8.097138	8.09714E+00	0.00	8.09714E+00	-0.032	8.09469E+00	699.975	-0.057	699.998	-0.034	0.157
800	10^5	800.017	1.900651	1.90228E+01	0.00	1.90228E+01	-0.017	1.90203E+01	799.857	-0.160	800.005	-0.012	0.187
900	10^5	900.026	3.861526	3.86484E+01	0.00	3.86484E+01	-0.026	3.86420E+01	899.706	-0.319	900.023	-0.002	0.219
961.78	10^5	961.728	5.647521	5.65237E+01	0.00	5.65237E+01	0.052	5.65410E+01	961.278	-0.450	961.720	-0.008	0.242
156.60	10^{10}	156.623	0.773692	7.66239E-05	0.00	7.66239E-05	-0.023	7.65389E-05	156.505	-0.117	156.608	-0.015	0.070
250	10^9	250.087	3.382039	3.08803E-03	0.00	3.08803E-03	-0.087	3.07922E-03	250.061	-0.026	250.058	-0.029	0.078
419.53	10^7	419.516	1.983341	1.98438E-01	0.00	1.98438E-01	0.014	1.98490E-01	419.606	0.090	419.508	-0.008	0.079
500	10^6	500.042	0.757390	7.57390E-01	0.00	7.57390E-01	-0.042	7.56915E-01	500.114	0.072	500.016	-0.026	0.096
700	10^5	700.048	0.809186	8.09881E+00	0.00	8.09881E+00	-0.048	8.09510E+00	699.997	-0.051	700.020	-0.028	0.157
961.78	10^5	961.693	5.646728	5.65158E+01	0.00	5.65158E+01	0.087	5.65447E+01	961.254	-0.439	961.697	0.003	0.242

Table 3 - results of the PTB VTBB measurements with the INRiM thermometer, analysed using the fit of the median of the VTBB data

t_{nom} / °C	Gain used	t_{BB} / °C	Bgrd corrected Signal/ V	Signal at $\times 10^6$ gain/ V	Zn point check drift [‡] / °C	Signal corrected for Zn point drift/ V	dt (t_{nom} - t_{BB})/ °C	Signal corrected to t_{nom} / V	t from median fit/ °C	dt (t_{fit} - t_{BB})/ °C	t from fit without 1000 °C data/ °C	dt (t_{fit} - t_{BB})/ °C	U ($k=2$)/ °C
156.60	10 ⁸	156.53	0.007810	7.76065E-05	-0.002	7.76006E-05	0.071	7.78687E-05	156.769	0.240	156.871	0.342	0.21
200	10 ⁷	199.90	0.004967	4.96682E-04	-0.002	4.96645E-04	0.104	4.98711E-04	199.233	-0.663	199.283	-0.613	0.25
200	10 ⁷	199.89	0.005054	5.05373E-04	-0.002	5.05335E-04	0.107	5.07498E-04	199.670	-0.224	199.719	-0.175	0.25
200	10 ⁸	199.90	0.051248	5.09253E-04	-0.002	5.09214E-04	0.100	5.11262E-04	199.862	-0.038	199.911	0.011	0.25
231.93	10 ⁷	231.76	0.016235	1.62356E-03	-0.002	1.62344E-03	0.174	1.63341E-03	230.981	-0.775	230.996	-0.760	0.28
231.93	10 ⁸	231.76	0.167536	1.66481E-03	-0.002	1.66468E-03	0.170	1.67469E-03	231.699	-0.061	231.714	-0.046	0.28
250	10 ⁷	249.83	0.030599	3.05999E-03	-0.002	3.05976E-03	0.171	3.07694E-03	249.778	-0.052	249.775	-0.054	0.30
250	10 ⁸	249.83	0.307849	3.05909E-03	-0.002	3.05886E-03	0.171	3.07610E-03	249.769	-0.060	249.766	-0.063	0.30
300	10 ⁷	300.17	0.136254	0.0136257	-0.003	0.0136246	-0.175	0.0135595	300.121	-0.054	300.077	-0.098	0.32
300	10 ⁸	300.08	1.366253	0.0135764	-0.003	0.0135754	-0.084	0.0135441	299.987	-0.097	299.944	-0.141	0.33
400	10 ⁷	399.91	1.356838	0.135687	-0.004	0.135676	0.095	0.135932	399.711	-0.194	399.619	-0.287	0.37
400	10 ⁷	400.12	1.365849	0.136588	-0.004	0.136577	-0.124	0.136242	400.048	-0.076	399.955	-0.169	0.34
419.53	10 ⁷	419.68	1.984168	0.198421	-0.004	0.198406	-0.151	0.197843	419.597	-0.084	419.500	-0.181	0.35
500	10 ⁷	500.11	7.564966	0.756512	-0.005	0.756455	-0.108	0.755228	500.031	-0.077	499.933	-0.175	0.37
600	10 ⁶	600.11	2.833294	2.833294	-0.006	2.833082	-0.112	2.829329	599.988	-0.124	599.929	-0.183	0.39
600	10 ⁶	600.02	2.828271	2.828271	-0.006	2.828059	-0.020	2.827406	599.837	-0.183	599.777	-0.242	0.40
600	10 ⁶	600.01	2.824760	2.824760	-0.006	2.824548	-0.014	2.824068	599.731	-0.284	599.671	-0.343	1.09
660.32	10 ⁶	660.02	5.447661	5.447661	-0.007	5.447252	0.297	5.463960	659.661	-0.362	659.646	-0.377	1.09
700	10 ⁶	699.85	8.043894	8.043894	-0.008	8.043290	0.149	8.054703	699.268	-0.583	699.290	-0.561	1.12
700	10 ⁶	700.11	8.060855	8.060855	-0.008	8.060251	-0.112	8.051669	699.491	-0.621	699.513	-0.599	1.11
800	10 ⁵	800.20	1.893828	18.949308	-0.010	18.947888	-0.203	18.917923	799.348	-0.855	799.495	-0.707	1.41
900	10 ⁵	899.89	3.844127	38.463648	-0.011	38.460763	0.112	38.488876	898.958	-0.930	899.273	-0.615	1.26
900	10 ⁵	899.92	3.841956	38.441921	-0.011	38.439039	0.084	38.460167	898.871	-1.045	899.186	-0.730	1.27
961.78	10 ⁵	961.62	5.618921	56.221912	-0.013	56.217696	0.160	56.270615	960.354	-1.267	960.794	-0.826	1.55

Table 4 - results of the LNE VTBB measurements with the INRiM thermometer, analysed using the fit of the median of the VTBB data

t_{nom} / °C	Gain used	t_{BB} / °C	Bgrd corrected Signal/ mV	Bgrd corrected signal/ V	Signal at $\times 10^6$ gain/ V	Zn point drift/ °C	Signal corrected for Zn point drift/ V	Signal corrected to t_{nom} / V	t from median fit/ °C	dt (t_{fit} – t_{BB}) / °C	t from fit without 1000 °C data/ °C	dt (t_{fit} – t_{BB}) / °C	U ($k=2$) / °C
156.60	10^{10}	156.604	777.185	0.777185	7.69634E-05	0.00	7.69691E-05	7.69549E-05	156.599	-0.005	156.702	0.098	0.43
231.93	10^9	231.915	1833.114	1.833114	1.67462E-03	0.00	1.67475E-03	1.67563E-03	231.872	-0.043	231.887	-0.028	0.45
419.53	10^7	419.485	1980.357	1.980357	1.98186E-01	0.00	1.98201E-01	1.98369E-01	419.541	0.056	419.444	-0.041	0.12
660.32	10^6	660.174	5508.215	5.508215	5.50821	0.01	5.50863	5.51695	660.755	0.581	660.740	0.567	0.22
961.78	10^5	961.861	5705.270	5.705270	57.08111	0.01	57.08539	57.05824	962.966	1.105	963.412	1.551	0.81
200	10^{10}	199.995	5154.564	5.154564	5.10448E-04	0.00	5.10486E-04	5.10597E-04	199.925	-0.070	199.974	-0.021	0.44
250	10^9	249.986	3368.463	3.368463	3.07723E-03	0.00	3.07746E-03	3.07886E-03	249.955	-0.031	249.952	-0.034	0.36
300	10^8	300.010	1367.415	1.367415	1.36047E-02	0.00	1.36057E-02	1.36019E-02	300.070	0.059	300.026	0.016	0.23
400	10^7	400.063	1366.687	1.366687	1.36773E-01	0.00	1.36783E-01	1.36612E-01	400.124	0.061	400.032	-0.031	0.12
500 ¹	10^7	499.953	7560.209	7.560209	7.56595E-01	0.00	7.56652E-01	7.57182E-01	500.048	0.095	499.950	-0.003	0.14
500 ²	10^7	499.976	7563.477	7.563477	7.56923E-01	0.00	7.56979E-01	7.57256E-01	500.077	0.102	499.979	0.004	0.16
600 ¹	10^6	600.015	2835.845	2.835845	2.83584	0.01	2.83606	2.83556	600.078	0.063	600.019	0.004	0.16
600 ²	10^6	599.731	2825.946	2.825946	2.82595	0.01	2.82616	2.83512	599.779	0.048	599.720	-0.011	0.19
300 ¹	10^8	300.040	1369.291	1.369291	1.36233E-02	0.00	1.36243E-02	1.36094E-02	300.120	0.080	300.077	0.036	0.23
400 ¹	10^7	400.058	1366.927	1.366927	1.36797E-01	0.00	1.36807E-01	1.36650E-01	400.133	0.075	400.041	-0.017	0.12
600 ¹	10^6	599.988	2834.872	2.834872	2.83487	0.01	2.83508	2.83549	600.049	0.061	599.989	0.002	0.16
500 ³	10^7	499.820	7563.477	7.563477	7.56923E-01	0.00	7.56979E-01	7.59030E-01	500.077	0.257	499.979	0.159	0.48
600 ³	10^6	599.280	2825.946	2.825946	2.82595	0.01	2.82616	2.85020	599.779	0.499	599.720	0.440	0.52
700 ³	10^6	699.941	8125.120	8.125120	8.12512	0.01	8.12573	8.13028	700.349	0.408	700.372	0.431	0.55
800 ³	10^5	799.917	1908.946	1.908946	19.09896	0.01	19.10039	19.11273	800.381	0.464	800.530	0.613	0.64
900 ³	10^5	899.924	3882.634	3.882634	38.84568	0.01	38.84859	38.86780	900.502	0.578	900.820	0.896	0.75
1000 ³	10^5	1000.048	7070.470	7.070470	70.73992	0.01	70.74522	70.72651	1000.745	0.697	1001.276	1.228	0.87
800 ³	10^5	799.950	1909.781	1.909781	19.10732	0.01	19.10876	19.11617	800.438	0.487	800.587	0.636	0.64
1000 ³	10^5	1000.095	7071.588	7.071588	70.75110	0.01	70.75640	70.71924	1000.773	0.679	1001.304	1.210	0.87

Table 5 - results of the METAS VTBB measurements with the INRiM thermometer, analysed using the fit of the median of the VTBB data

t_{nom} / °C	Gain used	t_{BB} / °C	Bgrd corrected Signal/ V	Signal at $\times 10^6$ gain/ V	Zn point check drift/ °C	Signal corrected for Zn point drift/ V	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / V	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit without 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
200	10^9	201.26	0.587914	5.37003E-04	-0.019	5.36590E-04	-1.261	5.09558E-04	201.185	-0.076	201.232	-0.028	0.957
250	10^9	250.78	3.470968	3.17040E-03	-0.023	3.16796E-03	-0.783	3.08667E-03	250.849	0.065	250.845	0.062	0.810
300	10^8	299.80	1.365282	1.35800E-02	-0.028	1.35695E-02	0.200	1.36439E-02	299.971	0.171	299.928	0.128	0.825
419.53	10^7	417.73	1.923257	0.192423	-0.041	0.192275	1.796	0.198779	417.910	0.176	417.813	0.079	0.862
500	10^7	497.10	7.285188	0.728886	-0.051	0.728326	2.896	0.760296	497.498	0.394	497.400	0.296	0.815
600	10^6	596.25	2.739827	2.739827	-0.065	2.737722	3.750	2.859868	597.072	0.822	597.011	0.761	0.857
660.32	10^6	655.68	5.281204	5.281204	-0.074	5.277146	4.640	5.532395	656.578	0.899	656.560	0.880	0.832
700	10^6	695.58	7.833208	7.833208	-0.080	7.827189	4.421	8.158800	696.391	0.813	696.410	0.832	0.835
800	10^5	797.27	1.910186	19.055416	-0.098	19.040774	2.730	19.448674	799.978	2.708	800.126	2.856	1.222
900	10^5	897.37	3.894053	38.845858	-0.117	38.816008	2.628	39.485398	900.373	3.000	900.691	3.318	1.230
1000	10^5	1000.09	7.221856	72.042977	-0.139	71.987617	-0.087	71.952881	1003.911	3.824	1004.450	4.363	1.141

Table 6 - results of the UME VTBB measurements with the INRiM thermometer, analysed using the fit of the median of the VTBB data

t_{nom} / °C)	Gain used	t_{BB} / °C	Bgrd corrected Signal/ V	Signal at $\times 10^6$ gain/ V	Zn point drift/ °C	Signal corrected for Zn point drift/ V	Signal corrected to t_{nom} / V	t from median fit/ °C	dt (t_{fit} – t_{BB}) / °C	t from fit no 1000 °C data/ °C	dt (t_{fit} – t_{BB}) / °C	U ($k=2$) / °C
156.6	$\times 10^{10}$	156.63	0.777632	7.70750E-05	-0.025	7.69796E-05	7.68604E-05	156.602	-0.030	156.704	0.073	0.20
200	$\times 10^9$	199.93	0.556989	5.08879E-04	-0.031	5.08249E-04	5.09679E-04	199.814	-0.116	199.863	-0.067	0.20
200	$\times 10^9$	200.02	0.562683	5.14081E-04	-0.031	5.13445E-04	5.13005E-04	200.071	0.049	200.119	0.098	0.20
200	$\times 10^{10}$	200.02	5.186709	5.14081E-04	-0.031	5.13445E-04	5.13037E-04	200.071	0.051	200.119	0.100	0.20
231.93	$\times 10^9$	232.05	1.841034	1.68201E-03	-0.035	1.67993E-03	1.67282E-03	231.961	-0.089	231.975	-0.075	0.20
250	$\times 10^9$	250.01	3.372291	3.08100E-03	-0.038	3.07719E-03	3.07602E-03	249.952	-0.059	249.950	-0.062	0.20
250	$\times 10^9$	250.05	3.376714	3.08505E-03	-0.038	3.08123E-03	3.07580E-03	249.993	-0.061	249.990	-0.064	0.20
250	$\times 10^8$	250.05	0.310083	3.08505E-03	-0.038	3.08123E-03	3.07580E-03	249.993	-0.061	249.990	-0.064	0.20
300	$\times 10^8$	300.06	1.365190	1.35824E-02	-0.045	1.35656E-02	1.35444E-02	299.961	-0.096	299.917	-0.140	0.22
300	$\times 10^7$	300.02	0.135586	1.35670E-02	-0.045	1.35503E-02	1.35418E-02	299.919	-0.104	299.875	-0.148	0.22
300	$\times 10^8$	300.02	1.363646	1.35670E-02	-0.045	1.35502E-02	1.35417E-02	299.919	-0.104	299.875	-0.148	0.22
400	$\times 10^7$	400.22	1.369248	0.137010	-0.062	0.136840	0.136235	400.146	-0.077	400.053	-0.170	0.21
400	$\times 10^7$	400.00	1.363649	0.136449	-0.062	0.136280	0.136270	399.937	-0.067	399.844	-0.160	0.21
419.53	$\times 10^7$	419.43	1.976805	0.197803	-0.066	0.197558	0.197930	419.366	-0.063	419.269	-0.160	0.21
500	$\times 10^7$	499.89	7.546142	0.755081	-0.082	0.754147	0.755422	499.826	-0.062	499.728	-0.160	0.22
500	$\times 10^6$	499.89	0.755081	0.755081	-0.082	0.754147	0.755378	499.826	-0.066	499.728	-0.164	0.22
500	$\times 10^7$	500.22	7.612328	0.761704	-0.082	0.760761	0.758302	500.412	0.197	500.314	0.099	0.49
600	$\times 10^6$	600.05	2.842331	2.842331	-0.105	2.838815	2.837102	600.161	0.110	600.102	0.051	0.48
600	$\times 10^5$	600.05	0.283980	2.842244	-0.105	2.838729	2.837104	600.159	0.110	600.099	0.051	0.48
660.32	$\times 10^6$	660.03	5.477611	5.477611	-0.120	5.470836	5.487479	660.083	0.057	660.067	0.042	0.50
660.32	$\times 10^5$	660.03	0.547319	5.477901	-0.120	5.471125	5.487392	660.088	0.056	660.072	0.040	0.50
700	$\times 10^6$	699.95	8.105329	8.105329	-0.130	8.095303	8.099225	699.951	0.002	699.974	0.025	0.50
700	$\times 10^5$	699.96	0.809842	8.105389	-0.130	8.095362	8.098718	699.952	-0.004	699.975	0.018	0.50
700	$\times 10^6$	700.00	8.111707	8.111707	-0.130	8.101673	8.101673	700.035	0.035	700.057	0.057	0.50
800	$\times 10^5$	799.81	1.899315	19.009499	-0.158	18.985984	19.014538	799.607	-0.201	799.754	-0.053	0.52
900	$\times 10^5$	900.19	3.867533	38.708629	-0.189	38.660748	38.613394	899.756	-0.432	900.072	-0.115	0.53
900	$\times 10^4$	900.17	0.390889	38.708630	-0.189	38.660748	38.616849	899.756	-0.418	900.072	-0.101	0.53
900	$\times 10^5$	900.03	3.865023	38.683503	-0.189	38.635652	38.628543	899.656	-0.373	899.972	-0.056	0.53
961.78	$\times 10^5$	961.78	5.656693	56.615634	-0.210	56.545602	56.545602	961.344	-0.436	961.787	0.007	0.54
1000	$\times 10^5$	1000.00	7.025350	70.313988	-0.223	70.227011	70.227011	999.412	-0.588	999.940	-0.060	0.54
1000	$\times 10^5$	1000.12	7.034740	70.407971	-0.223	70.320878	70.274399	999.654	-0.465	1000.182	0.063	0.54

Table 7- results of the NPL VTBB measurements with the INRiM thermometer, analysed using the fit of the median of the VTBB data

3 AVERAGE LABORATORY RESULTS FOR VARIABLE TEMPERATURE BLACKBODY MEASUREMENTS WITH THE INRIM THERMOMETER

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ V	U (k=2)/ $^\circ\text{C}$
156.6	7.71316E-05	0.46
200	5.09391E-04	0.41
231.93	1.68147E-03	0.30
250	3.08653E-03	0.30
300	1.36461E-02	0.30
400	0.136635	0.31
419.53	0.198735	0.31
500	0.756854	0.32
600	2.838047	0.29
660.32	5.485195	0.31
700	8.096828	0.32
800	19.027990	0.35
900	38.621861	0.39

Table 8 – CEM results

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ V	U (k=2)/ $^\circ\text{C}$
156.6	7.65377E-05	0.070
200	5.10833E-04	0.072
231.93	1.67662E-03	0.076
250	3.07968E-03	0.079
300	1.35904E-02	0.107
400	0.136643	0.075
419.53	0.198484	0.079
500	0.757025	0.096
600	2.835165	0.120
660.32	5.483208	0.147
700	8.094893	0.157
800	19.020313	0.187
900	38.641963	0.219
961.78	56.542882	0.242

Table 9 - PTB results

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ V	U (k=2)/ $^\circ\text{C}$
156.6	7.78687E-05	0.21
200	5.05824E-04	0.25
231.93	1.65405E-03	0.28
250	3.07652E-03	0.30
300	0.0135518	0.33
400	0.136087	0.36
419.53	0.197843	0.35
500	0.755228	0.37
600	2.826935	0.63
660.32	5.463960	1.09
700	8.053186	1.12
800	18.917923	1.41
900	38.474521	1.26
961.78	56.270615	1.55
600 Cs	2.828368	0.40
600 Na	2.824068	1.09

Table 10 - LNE results

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ V	U (k=2)/ $^\circ\text{C}$
200	5.09558E-04	0.957
250	3.08667E-03	0.810
300	1.36439E-02	0.825
419.53	0.198779	0.862
500	0.760296	0.815
600	2.859868	0.857
660.32	5.532395	0.832
700	8.158800	0.835
800	19.448674	1.222
900	39.485398	1.230
1000	71.952881	1.141

Table 11 – UME results

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ V	U (k=2)/ $^\circ\text{C}$
156.6	7.69549E-05	0.43
200	5.10597E-04	0.44
231.93	1.67563E-03	0.45
250	3.07886E-03	0.36
300	1.36056E-02	0.23
400	0.136631	0.12
419.53	0.198369	0.12
500	0.757823	0.26
600	2.839092	0.26
660.32	5.516949	0.22
700	8.130282	0.55
800	19.114447	0.64
900	38.867797	0.75
961.78	57.058238	0.81
1000	70.722878	0.87
Cs at 500	0.757182	0.14
Na at 500 1	0.757256	0.16
Na at 500 2	0.759030	0.48
Cs at 600	2.835526	0.16
Na at 600 1	2.835120	0.19
Na at 600 2	2.850198	0.52

Table 12 - METAS results

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ V	$U (k=2)/^\circ\text{C}$
156.6	7.68604E-05	0.20
200	5.11907E-04	0.20
231.93	1.67282E-03	0.20
250	3.07587E-03	0.20
300	1.35426E-02	0.22
400	0.136252	0.21
419.53	0.197930	0.21
500	0.756367	0.31
600	2.837103	0.48
660.32	5.487435	0.50
700	8.099872	0.50
800	19.014538	0.52
900	38.619595	0.53
961.78	56.545602	0.54
1000	70.250705	0.54
Cs at 500	0.755400	0.22
WRC at 500	0.758302	0.49

Table 13 - NPL results

$t_{\text{nom}}/^\circ\text{C}$	Median signal/ V
156.6	7.69549E-05
200	5.10077E-04
231.93	1.67563E-03
250	3.07927E-03
300	1.35980E-02
400	1.36631E-01
419.53	0.198427
500	0.756939
600	2.837575
660.32	5.486315
700	8.098350
800	19.024152
900	38.631912
961.78	56.544242
1000	70.722878

Table 14 – median values for all the INRiM thermometer VTBB measurements

4 RESULTS OF THE FITTING PROCESS USING THE SAKUMA HATTORI FIT – VTBB MEASUREMENTS ONLY WITH THE INRIM THERMOMETER

Thermometer signal/ V	Temperature/ K	Fitted temperature/ K	Residual/ K
7.69549E-05	429.75	429.745	-0.005
5.10077E-04	473.15	473.055	-0.095
1.67563E-03	505.08	505.037	-0.043
3.07927E-03	523.15	523.123	-0.027
1.35980E-02	573.15	573.199	+0.049
1.36631E-01	673.15	673.218	+0.068
0.198427	692.68	692.753	+0.073
0.756939	773.15	773.224	+0.074
2.837575	873.15	873.274	+0.124
5.486315	933.47	933.508	+0.038
8.098350	973.15	973.141	-0.009
19.024152	1073.15	1073.015	-0.135
38.631912	1173.15	1172.791	-0.359
56.544242	1234.93	1234.490	-0.440
70.722878	1273.15	1273.837	+0.687

Table 15 – results of the fit using all the data points

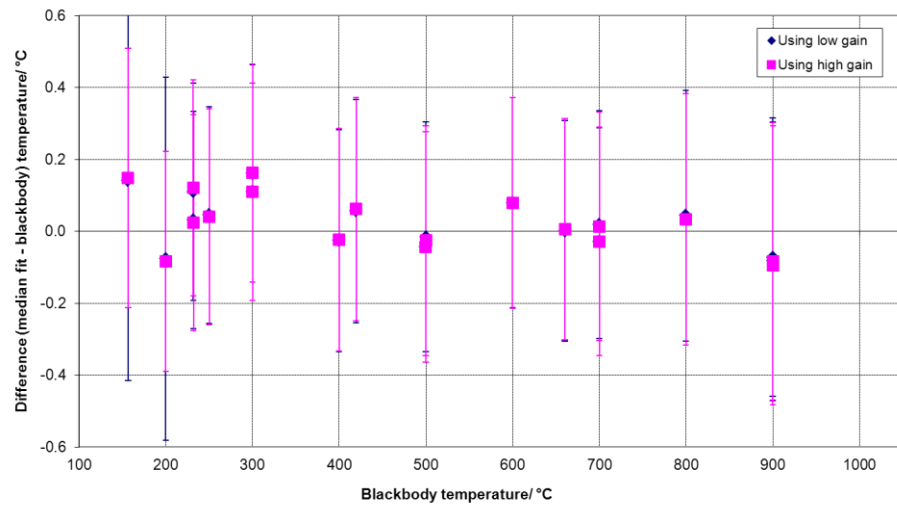
Coefficients of the fit: $a_1 = 7.9623414810\text{E}+04$
 $a_2 = 1.6044766473\text{E}-06$
 $a_3 = 3.6358270522\text{E}-06$

Thermometer signal/ V	Temperature/ K	Fitted temperature/ K	Residual/ K
7.69549E-05	429.75	429.848	0.098
5.10077E-04	473.15	473.104	-0.046
1.67563E-03	505.08	505.052	-0.028
3.07927E-03	523.15	523.120	-0.030
1.35980E-02	573.15	573.155	0.005
1.36631E-01	673.15	673.125	-0.025
0.198427	692.68	692.656	-0.024
0.756939	773.15	773.126	-0.024
2.837575	873.15	873.215	0.065
5.486315	933.47	933.493	0.023
8.098350	973.15	973.164	0.014
19.024152	1073.15	1073.164	0.014
38.631912	1173.15	1173.107	-0.043
56.544242	1234.93	1234.932	0.002
70.722878*	1273.15*	1274.368*	1.218*

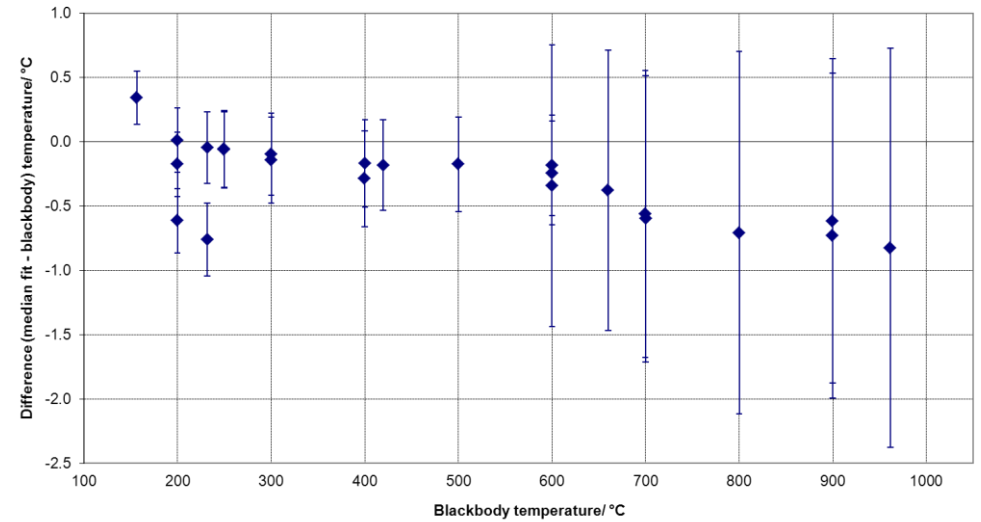
Table 16 – results of the fit, excluding the 1000 °C data in the fitting process but using the coefficients to calculate the corresponding fitted temperature at 1000 °C

Coefficients of the fit: $a_1 = 7.8080727969\text{E}+04$
 $a_2 = 1.6096510783\text{E}-06$
 $a_3 = 1.9010860243\text{E}-06$

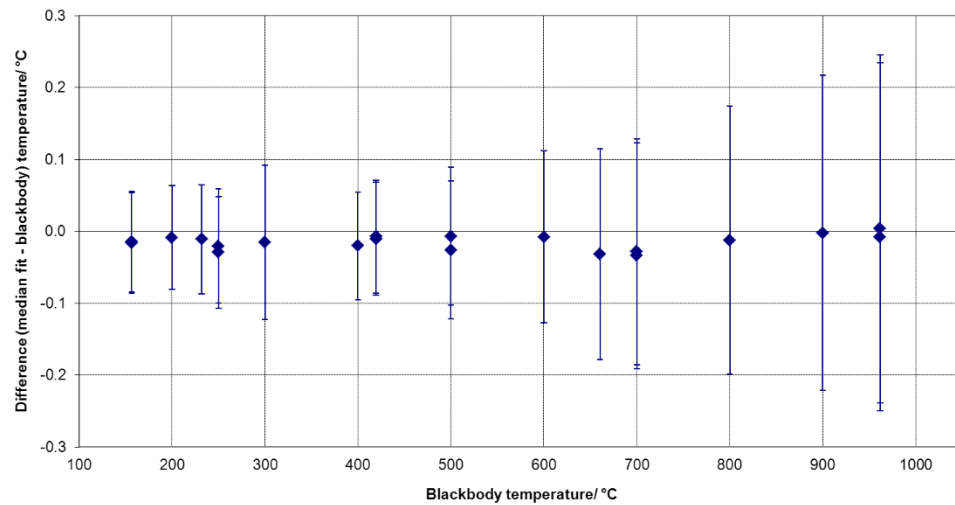
CEM results - Difference between temperature using median data fit excluding 1000 °C data and blackbody temperature with the INRIM thermometer



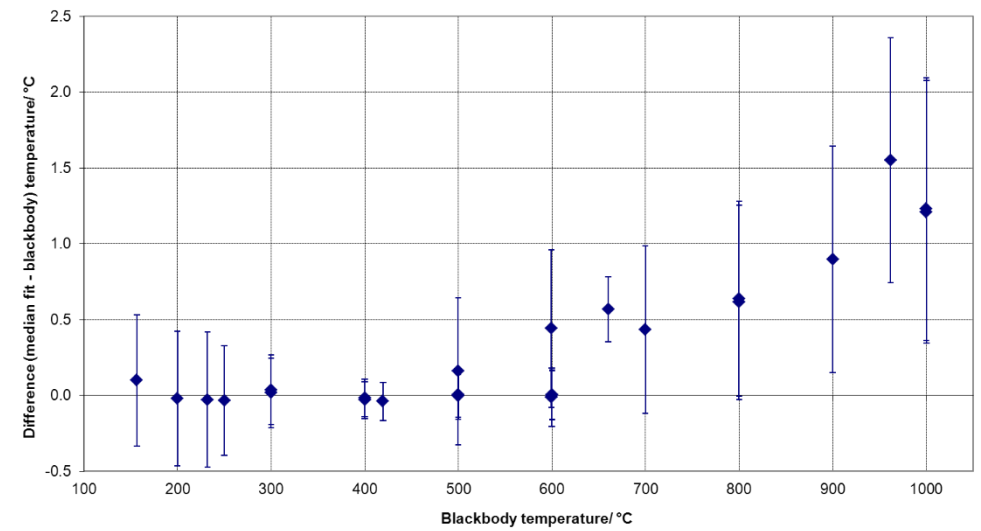
LNE results - Difference between temperature using median data fit excluding 1000 °C data and blackbody temperature with the INRIM thermometer



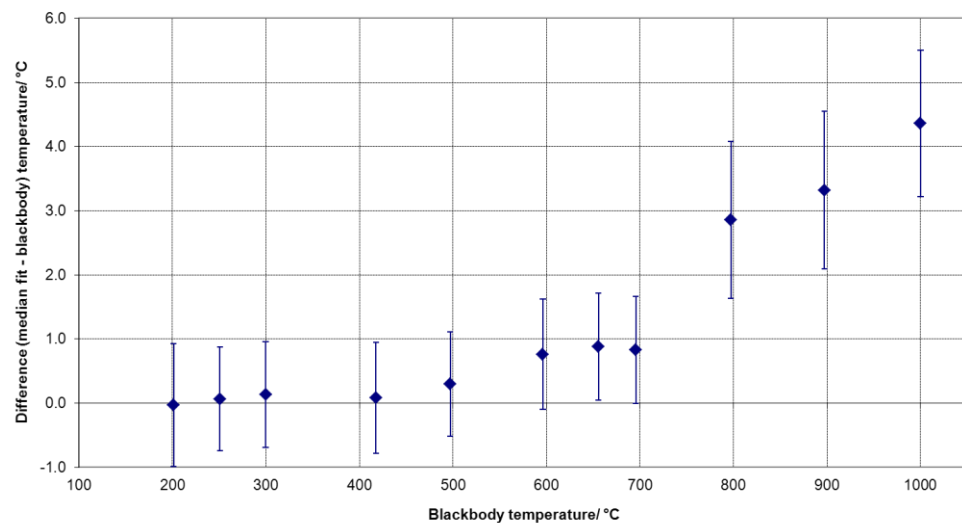
PTB results - Difference between temperature using median data fit excluding the 1000 °C data and blackbody temperature with the INRIM thermometer



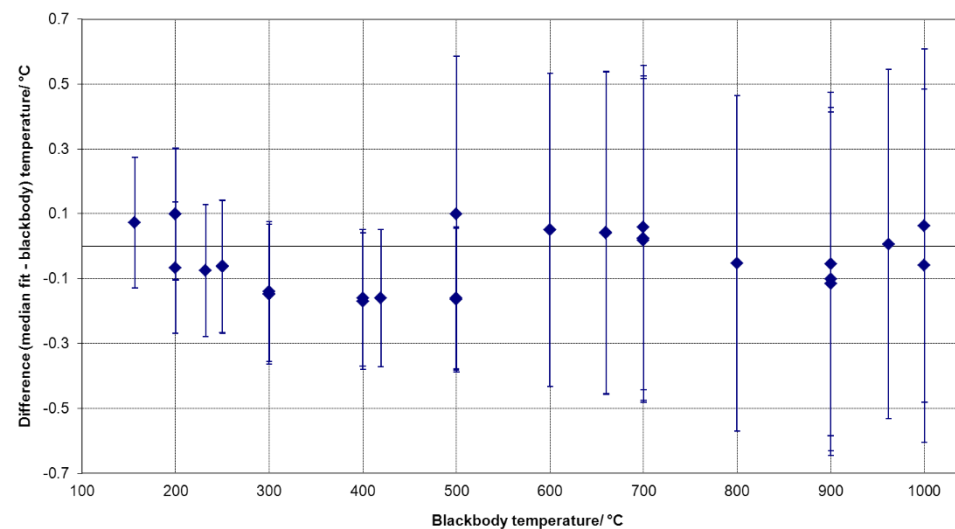
METAS results - Difference between temperature using median data fit excluding 1000 °C data and blackbody temperature with the INRIM thermometer



UME results - Difference between temperature using median data fit excluding 1000 °C data and blackbody temperature with the INRIM thermometer



NPL results - Difference between temperature using median data fit excluding 1000 °C point and blackbody temperature with the INRIM thermometer



5 THE FP RESULTS WITH THE INRIM THERMOMETER USING THE MEDIAN OF ALL THE FP DATA FOR THE FITTING PROCESS

t_{nom} / °C	Gain used	t_{BB} / °C	Bgrd corrected Signal/ V	Signal at $\times 10^6$ gain/ V	Zn point check drift/ °C	Signal corrected for Zn point drift/ V	$dt (t_{\text{nom}} -$ $t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / V	t from median fit/ °C	$dt (t_{\text{fit}} -$ $t_{\text{BB}})$ / °C	U ($k=2$) / °C
419.527	10^7	419.527	1.982037	0.198307	0.024	0.198396	0.00	0.198396	419.534*	0.007	0.09
419.527	10^6	419.527	0.198307	0.198307	0.024	0.198396	0.00	0.198396	-	-	-
961.78	10^5	961.78	5.642604	56.444951	0.076	56.470340	0.00	56.470340	961.777*	-0.003	0.30
961.78	10^4	961.78	0.570133	56.453143	0.076	56.478537	0.00	56.478537	-	-	-

Table 17 - results of the CEM FP measurements with the INRiM thermometer, analysed using the fit of the median of the FP data

* average temperature values calculated

t_{nom} / °C	Gain used	t_{BB} / °C	Bgrd corrected Signal/ V	Signal at $\times 10^6$ gain/ V	Zn point check drift/ °C	Signal corrected for Zn point drift/ V	$dt (t_{\text{nom}} -$ $t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / V	t from median fit/ °C	$dt (t_{\text{fit}} -$ $t_{\text{BB}})$ / °C	U ($k=2$) / °C
156.599	10^{10}	156.599	0.772745	7.65952E-05	-0.016	7.65363E-05	0.000	7.65363E-05	156.611	0.012	0.08
231.928	10^9	231.928	1.834863	1.67617E-03	-0.022	1.67488E-03	0.000	1.67488E-03	231.913	-0.015	0.04
419.527	10^7	419.527	1.983950	0.198495	-0.041	0.198343	0.000	0.198343	419.519	-0.008	0.08

Table 18 - results of the UME FP measurements with the INRiM thermometer, analysed using the fit of the median of the FP data

t_{nom} / °C	Gain used	t_{BB} / °C	Bgrd corrected Signal/ V	Signal at $\times 10^6$ gain/ V	Zn point check drift/ °C	Signal corrected for Zn point drift/ V	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / V	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
156.599	10^{10}	156.599	0.775825	7.68959E-05	-0.025	7.68007E-05	0.00	7.68007E-05	156.682	0.084	0.09
231.928	10^9	231.928	1.836495	0.0016779	-0.035	1.67579E-03	0.00	1.67579E-03	231.929	0.001	0.07
419.527	10^7	419.527	1.984784	0.198601	-0.066	0.198355	0.00	0.198355	419.523	-0.004	0.07
660.323	10^6	660.323	5.488178	5.488178	-0.120	5.481389	0.00	5.481389	660.343	0.020	0.13
961.78	10^5	961.78	5.653369	56.582364	-0.210	56.512373	0.00	56.512373	961.891	0.111	0.23

Table 19 - results of the NPL FP measurements with the INRiM thermometer, analysed using the fit of the median of the FP data

t_{nom} / °C	Gain used	t_{BB} / °C	Bgrd corrected Signal/ V	Signal at $\times 10^6$ gain/ V	Zn point check drift/ °C	Signal corrected for Zn point drift/ V	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / V	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
156.599	10^9	156.599	0.08375	7.65000E-05	-0.003	7.64885E-05	0.00	7.64885E-05	156.598	-0.001	0.032
231.928	10^9	231.928	1.83388	0.0016752	-0.004	0.0016750	0.00	0.0016750	231.915	-0.013	0.040
419.527	10^7	419.527	1.98246	0.198341	-0.008	0.198311	0.00	0.198311	419.511	-0.016	0.073
660.323	10^6	660.323	5.48120	5.481196	-0.015	5.480374	0.00	5.480374	660.324	0.001	0.129
961.78	10^5	961.78	5.64510	56.475224	-0.025	56.466756	0.00	56.466756	961.753	-0.027	0.224

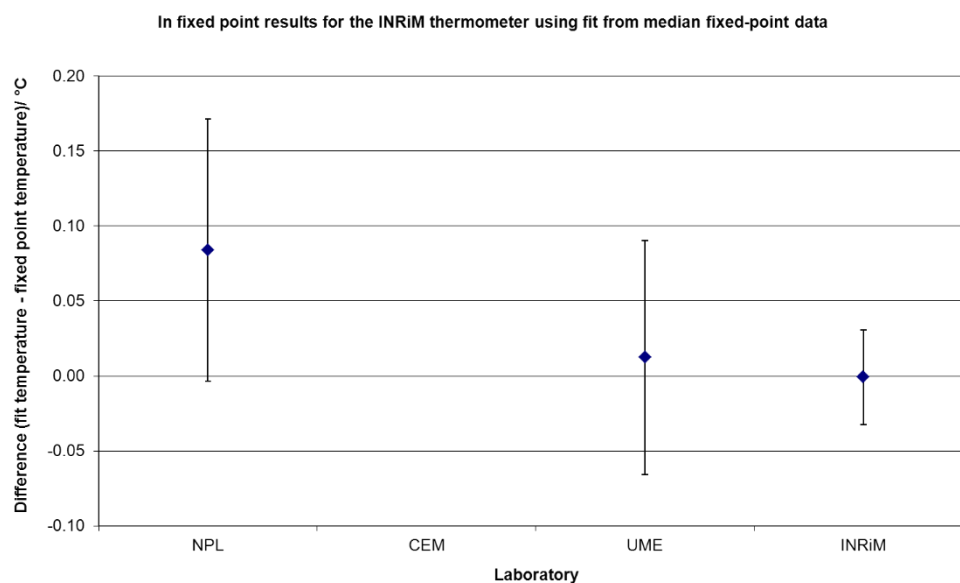
Table 20 - results of the INRiM FP measurements with the INRiM thermometer, analysed using the fit of the median of the FP data

6 RESULTS OF THE FITTING PROCESS USING THE SAKUMA HATTORI FIT – FP MEASUREMENTS ONLY WITH THE INRIM THERMOMETER

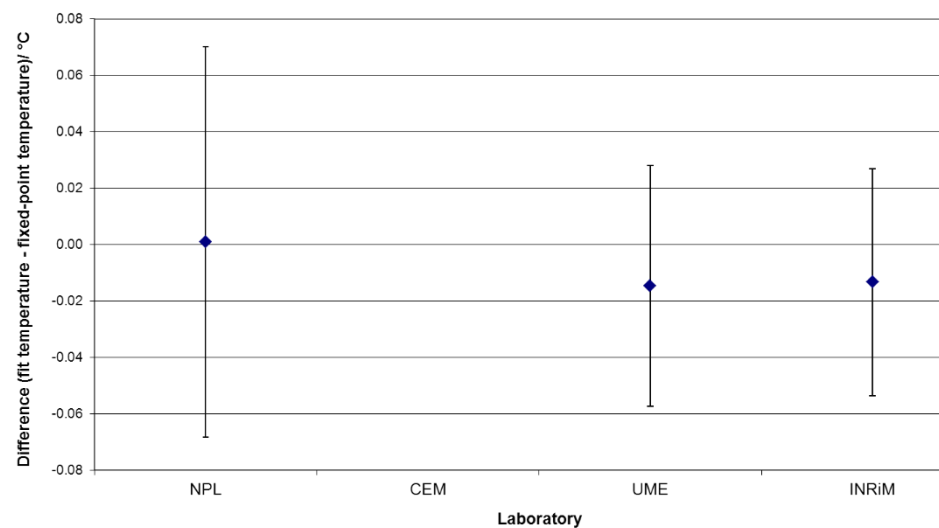
Median thermometer signal/ V	Temperature/ K	Fitted temperature/ K	Residual/ K
7.65363E-05	429.748	429.761	0.012
1.67495E-03	505.078	505.065	-0.013
1.98349E-01	692.677	692.671	-0.006
5.48088E+00	933.473	933.484	0.011
5.64744E+01	1234.930	1234.927	-0.003

Table 21 – results of the fit using all the data points

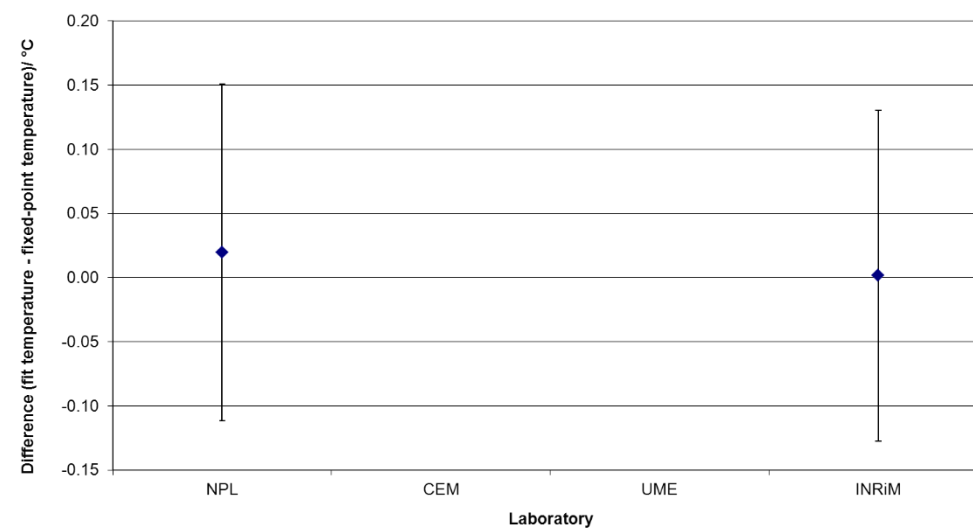
Coefficients of the fit: $a_1 = 7.7844496301\text{E}+04$
 $a_2 = 1.6102028635\text{E}-06$
 $a_3 = 1.7227117692\text{E}-06$



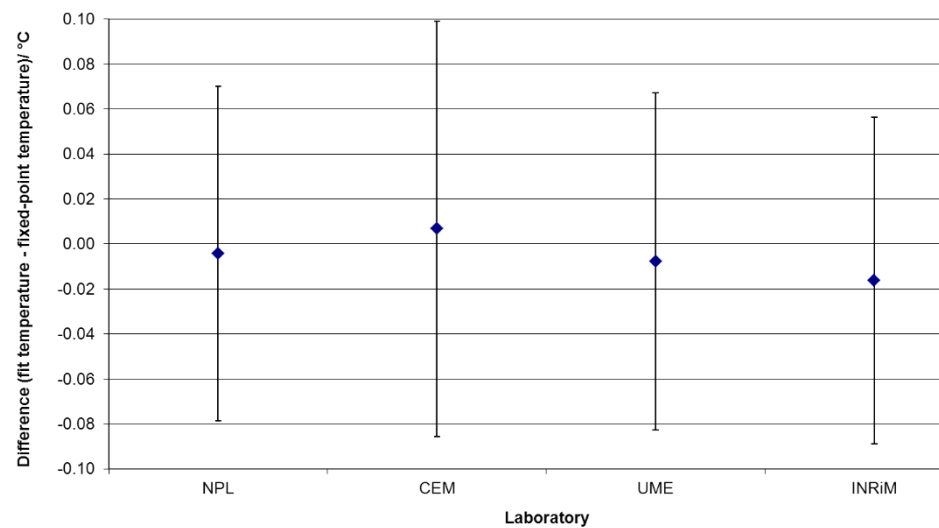
Sn fixed point results for the INRiM thermometer using fit from median fixed-point data



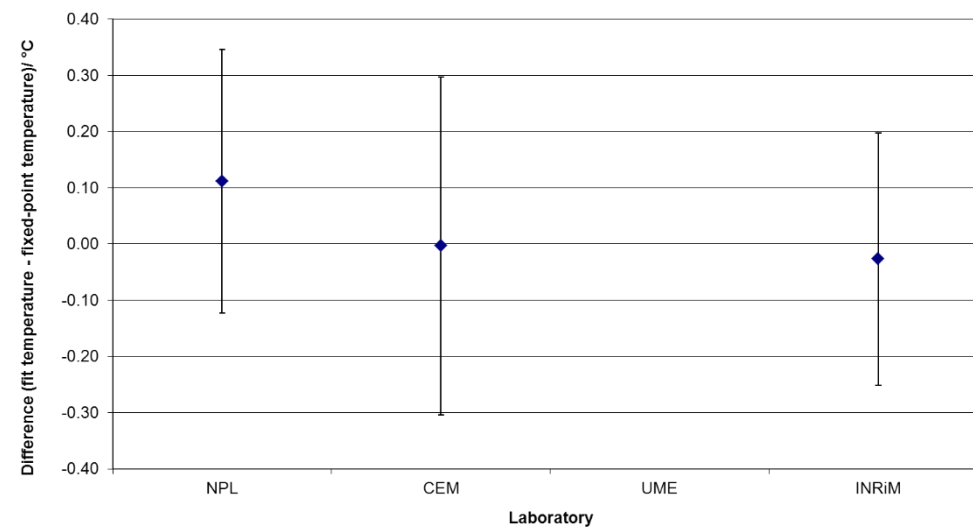
Al fixed point results for the INRiM thermometer using fit from median fixed-point data



Zn fixed point results for the INRiM thermometer using fit from median fixed-point data



Ag fixed point results for the INRiM thermometer using fit from median fixed-point data



7 THE VTBB AND FP RESULTS WITH THE INRIM THERMOMETER USING THE MEDIAN OF ALL THE VTBB AND FP DATA FOR THE FITTING PROCESS

t_{nom} / °C	Gain used	t_{BB} / °C	Bgnd corrected Signal/ V	Signal at $\times 10^6$ gain/ V	Zn point check drift [‡] / °C	Signal corrected for Zn point drift/ V	dt (t_{nom} – t_{BB}) / °C	Signal corrected to t_{nom} / V	t from median fit/ °C	dt (t_{fit} – t_{BB}) / °C	t from fit without 1000 °C data/ °C	dt (t_{fit} – t_{BB}) / °C	U ($k=2$) / °C
156.60	10 ¹⁰	156.57	0.776219	7.6972E-05	0.009	7.7007E-05	0.03	7.7120E-05	156.628	0.058	156.737	0.167	0.56
200.00	10 ¹⁰	200.00	5.135394	5.0924E-04	0.011	5.0947E-04	0.00	5.0947E-04	199.889	-0.111	199.941	-0.059	0.51
231.93	10 ⁹	231.88	1.838722	1.6801E-03	0.013	1.6808E-03	0.05	1.6838E-03	231.987	0.107	232.002	0.122	0.30
250.00	10 ⁹	250.04	3.381156	3.0894E-03	0.014	3.0908E-03	-0.04	3.0867E-03	250.097	0.057	250.094	0.054	0.30
300.00	10 ⁸	300.02	1.370938	1.3638E-02	0.016	1.3644E-02	-0.02	1.3637E-02	300.180	0.160	300.133	0.113	0.30
400.00	10 ⁷	399.89	1.362019	0.136273	0.023	1.3633E-01	0.11	1.3663E-01	399.958	0.068	399.858	-0.032	0.31
419.53	10 ⁷	419.49	1.983845	0.198487	0.024	1.9858E-01	0.04	1.9873E-01	419.643	0.153	419.539	0.049	0.31
419.53*	$\times 10^7$	419.53	1.982037	0.198307	0.024	0.198396	0.00	0.198396	419.594*	0.064*	419.490*	-0.040*	0.09*
419.53*	$\times 10^6$	419.53	0.198307	0.198307	0.024	0.198396	0.00	0.198396	-	-	-	-	-
500.00	10 ⁷	499.89	7.547499	0.755141	0.030	7.5548E-01	0.11	7.5673E-01	499.944	0.054	499.839	-0.051	0.32
600.00	10 ⁶	600.03	2.837789	2.837789	0.038	2.839066	-0.03	2.838061	600.171	0.141	600.107	0.077	0.29
660.32	10 ⁶	660.29	5.480883	5.480883	0.044	5.483348	0.03	5.485046	660.311	0.021	660.294	0.004	0.31
700.00	10 ⁶	700.03	8.093755	8.093755	0.047	8.097395	-0.03	8.095089	699.986	-0.044	700.011	-0.019	0.32
800.00	10 ⁵	799.87	1.899449	19.000850	0.058	19.009397	0.13	19.028698	799.783	-0.087	799.941	0.071	0.35
900.00	10 ⁵	899.98	3.858663	38.599565	0.069	38.616927	0.02	38.621974	899.612	-0.368	899.951	-0.029	0.39
961.78*	$\times 10^5$	961.78	5.642604	56.444951	0.076	56.470340	0.00	56.470340	961.170*	-0.610*	961.643*	-0.137*	0.30*
961.78*	$\times 10^4$	961.78	0.570133	56.453143	0.076	56.478537	0.00	56.478537	-	-	-	-	-
231.93	10 ⁹	232.02	1.842625	1.6836E-03	0.013	1.6844E-03	-0.09	1.6790E-03	232.047	0.027	232.063	0.043	0.30
300.00	10 ⁸	300.08	1.375069	1.3679E-02	0.016	1.3685E-02	-0.08	1.3655E-02	300.291	0.211	300.244	0.164	0.30
500.00	10 ⁷	500.03	7.566450	0.757037	0.030	7.5738E-01	-0.03	7.5704E-01	500.112	0.082	500.007	-0.023	0.32
700.00	10 ⁶	699.99	8.094334	8.094334	0.047	8.097975	0.01	8.098744	699.994	0.004	700.018	0.028	0.32
900.00	10 ⁵	899.88	3.856424	38.577167	0.069	38.594519	0.12	38.624786	899.523	-0.357	899.861	-0.019	0.39

Table 22 – results of the CEM measurements on the ‘low range’ with the INRiM thermometer, analysed using the fit of the median of the FP & VTBB data

[‡] calculated relative to the start of the comparison, i.e. from the PTB Zn point check

* FP measurements. For these, temperatures for the average data from the two ranges was calculated

t_{nom} / °C	Gain used	t_{BB} / °C	Bgrd corrected Signal/ V	Signal at $\times 10^6$ gain/ V	Zn point check drift [†] / °C	Signal corrected for Zn point drift/ V	$dt (t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / V	t from median fit/ °C	$dt (t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit without 1000 °C data/ °C	$dt (t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
156.60	10 ⁹	156.57	0.084268	7.6997E-05	0.009	7.7031E-05	0.03	7.7144E-05	156.634	0.064	156.744	0.174	0.36
200.00	10 ⁹	200.00	0.557157	5.0908E-04	0.011	5.0931E-04	0.00	5.0931E-04	199.881	-0.119	199.933	-0.067	0.31
231.93	10 ⁸	231.88	0.168944	1.6807E-03	0.013	1.6814E-03	0.05	1.6844E-03	231.997	0.117	232.012	0.132	0.30
250.00	10 ⁸	250.04	0.310514	3.0890E-03	0.014	3.0904E-03	-0.04	3.0863E-03	250.093	0.053	250.090	0.050	0.30
300.00	10 ⁷	300.02	0.136309	1.3638E-02	0.016	1.3644E-02	-0.02	1.3637E-02	300.179	0.159	300.132	0.112	0.30
400.00	10 ⁶	399.89	0.136278	0.136278	0.023	1.3634E-01	0.11	1.3664E-01	399.960	0.070	399.861	-0.029	0.31
419.53	10 ⁶	419.49	0.198507	0.198507	0.024	1.9860E-01	0.04	1.9875E-01	419.649	0.159	419.545	0.055	0.31
500.00	10 ⁶	499.89	0.755142	0.755142	0.030	7.5548E-01	0.11	7.5673E-01	499.944	0.054	499.839	-0.051	0.32
600.00	10 ⁵	600.03	0.283681	2.837761	0.038	2.839038	-0.03	2.838033	600.170	0.140	600.106	0.076	0.29
660.32	10 ⁵	660.29	0.547934	5.481181	0.044	5.483646	0.03	5.485344	660.316	0.026	660.300	0.010	0.31
700.00	10 ⁵	700.03	0.809106	8.093774	0.047	8.097415	-0.03	8.095108	699.987	-0.043	700.011	-0.019	0.32
800.00	10 ⁴	799.87	0.191880	18.999437	0.058	19.007983	0.13	19.027283	799.773	-0.097	799.932	0.062	0.35
900.00	10 ⁴	899.98	0.389795	38.596576	0.069	38.613937	0.02	38.618983	899.600	-0.380	899.939	-0.041	0.39
231.93	10 ⁸	232.02	0.169206	1.6833E-03	0.013	1.6840E-03	-0.09	1.6787E-03	232.041	0.021	232.057	0.037	0.30
300.00	10 ⁷	300.08	0.136723	1.3679E-02	0.016	1.3686E-02	-0.08	1.3656E-02	300.291	0.211	300.244	0.164	0.30
500.00	10 ⁶	500.03	0.756917	0.756917	0.030	7.5726E-01	-0.03	7.5692E-01	500.101	0.071	499.996	-0.034	0.32
700.00	10 ⁵	699.99	0.809125	8.093962	0.047	8.097603	0.01	8.098372	699.989	-0.001	700.013	0.023	0.32
900.00	10 ⁴	899.88	0.389568	38.574084	0.069	38.591435	0.12	38.621700	899.510	-0.370	899.849	-0.031	0.39

Table 23 – results of the CEM measurements on the ‘high range’ with the INRiM thermometer, analysed using the fit of the median of the FP & VTBB data

t_{nom} / °C	Gain used	t_{BB} / °C	Bgrd corrected Signal/ V	Signal at $\times 10^6$ gain/ V	Zn point check drift [‡] / °C	Signal corrected for Zn point drift/ V	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to $t_{\text{nom}}/$ V	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit without 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
156.60	10 ¹⁰	156.566	0.771526	7.64095E-05	0.00	7.64095E-05	0.034	7.65365E-05	156.466	-0.100	156.576	0.010	0.070
200	10 ¹⁰	200.035	5.165212	5.11546E-04	0.00	5.11546E-04	-0.035	5.10833E-04	199.991	-0.044	200.043	0.009	0.072
231.93	10 ⁹	231.947	1.837326	1.67760E-03	0.00	1.67760E-03	-0.017	1.67662E-03	231.932	-0.015	231.947	0.000	0.076
250	10 ⁹	250.039	3.377719	3.08409E-03	0.00	3.08409E-03	-0.039	3.08014E-03	250.030	-0.009	250.027	-0.012	0.080
300	10 ⁸	300.023	1.366982	1.35988E-02	0.00	1.35988E-02	-0.023	1.35904E-02	300.056	0.034	300.010	-0.013	0.107
400	10 ⁷	400.021	1.366276	1.36699E-01	0.00	1.36699E-01	-0.021	1.36643E-01	400.094	0.073	399.994	-0.026	0.075
419.53	10 ⁷	419.519	1.983355	1.98439E-01	0.00	1.98439E-01	0.011	1.98479E-01	419.606	0.087	419.502	-0.017	0.079
500	10 ⁶	500.020	0.757357	7.57357E-01	0.00	7.57357E-01	-0.020	7.57134E-01	500.110	0.090	500.005	-0.014	0.096
600	10 ⁶	600.019	2.835811	2.83581E+00	0.00	2.83581E+00	-0.019	2.83516E+00	600.072	0.053	600.009	-0.010	0.120
660.32	10 ⁶	660.328	5.483683	5.48368E+00	0.00	5.48368E+00	-0.008	5.48321E+00	660.317	-0.012	660.300	-0.028	0.147
700	10 ⁶	700.032	8.097138	8.09714E+00	0.00	8.09714E+00	-0.032	8.09469E+00	699.983	-0.049	700.007	-0.025	0.157
800	10 ⁵	800.017	1.900651	1.90228E+01	0.00	1.90228E+01	-0.017	1.90203E+01	799.874	-0.143	800.033	0.016	0.187
900	10 ⁵	900.026	3.861526	3.86484E+01	0.00	3.86484E+01	-0.026	3.86420E+01	899.737	-0.288	900.076	0.051	0.219
961.78	10 ⁵	961.728	5.647521	5.65237E+01	0.00	5.65237E+01	0.052	5.65410E+01	961.319	-0.409	961.793	0.064	0.242
156.60	10 ¹⁰	156.623	0.773692	7.66239E-05	0.00	7.66239E-05	-0.023	7.65389E-05	156.524	-0.099	156.634	0.011	0.070
250	10 ⁹	250.087	3.382039	3.08803E-03	0.00	3.08803E-03	-0.087	3.07922E-03	250.070	-0.017	250.066	-0.020	0.078
419.53	10 ⁷	419.516	1.983341	1.98438E-01	0.00	1.98438E-01	0.014	1.98490E-01	419.606	0.090	419.502	-0.014	0.079
500	10 ⁶	500.042	0.757390	7.57390E-01	0.00	7.57390E-01	-0.042	7.56915E-01	500.113	0.071	500.008	-0.034	0.096
700	10 ⁵	700.048	0.809186	8.09881E+00	0.00	8.09881E+00	-0.048	8.09510E+00	700.005	-0.043	700.029	-0.019	0.157
961.78	10 ⁵	961.693	5.646728	5.65158E+01	0.00	5.65158E+01	0.087	5.65447E+01	961.295	-0.398	961.769	0.075	0.242

Table 24 - results of the PTB measurements with the INRiM thermometer, analysed using the fit of the median of the FP & VTBB data

t_{nom} / °C	Gain used	t_{BB} / °C	Bgrd corrected Signal/ V	Signal at $\times 10^6$ gain/ V	Zn point check drift $\ddagger$ / °C	Signal corrected for Zn point drift/ V	dt ($t_{\text{nom}} - t_{\text{BB}}$) / °C	Signal corrected to t_{nom} / V	t from median fit/ °C	dt ($t_{\text{fit}} - t_{\text{BB}}$) / °C	t from fit without 1000 °C data/ °C	dt ($t_{\text{fit}} - t_{\text{BB}}$) / °C	U ($k=2$) / °C
156.60	10 ⁸	156.53	0.007810	7.76065E-05	-0.002	7.76006E-05	0.071	7.78687E-05	156.788	0.259	156.897	0.368	0.21
200	10 ⁷	199.90	0.004967	4.96682E-04	-0.002	4.96645E-04	0.104	4.98711E-04	199.247	-0.649	199.300	-0.596	0.25
200	10 ⁷	199.89	0.005054	5.05373E-04	-0.002	5.05335E-04	0.107	5.07498E-04	199.683	-0.210	199.736	-0.157	0.25
200	10 ⁸	199.90	0.051248	5.09253E-04	-0.002	5.09214E-04	0.100	5.11262E-04	199.876	-0.024	199.928	0.028	0.25
231.93	10 ⁷	231.76	0.016235	1.62356E-03	-0.002	1.62344E-03	0.174	1.63341E-03	230.991	-0.765	231.008	-0.748	0.28
231.93	10 ⁸	231.76	0.167536	1.66481E-03	-0.002	1.66468E-03	0.170	1.67469E-03	231.710	-0.050	231.725	-0.034	0.28
250	10 ⁷	249.83	0.030599	3.05999E-03	-0.002	3.05976E-03	0.171	3.07694E-03	249.787	-0.043	249.784	-0.046	0.30
250	10 ⁸	249.83	0.307849	3.05909E-03	-0.002	3.05886E-03	0.171	3.07610E-03	249.778	-0.051	249.775	-0.054	0.30
300	10 ⁷	300.17	0.136254	0.0136257	-0.003	0.0136246	-0.175	0.0135595	300.126	-0.048	300.080	-0.095	0.32
300	10 ⁸	300.08	1.366253	0.0135764	-0.003	0.0135754	-0.084	0.0135441	299.993	-0.092	299.946	-0.138	0.33
400	10 ⁷	399.91	1.356838	0.135687	-0.004	0.135676	0.095	0.135932	399.712	-0.193	399.613	-0.293	0.37
400	10 ⁷	400.12	1.365849	0.136588	-0.004	0.136577	-0.124	0.136242	400.048	-0.075	399.949	-0.175	0.34
419.53	10 ⁷	419.68	1.984168	0.198421	-0.004	0.198406	-0.151	0.197843	419.597	-0.084	419.493	-0.188	0.35
500	10 ⁷	500.11	7.564966	0.756512	-0.005	0.756455	-0.108	0.755228	500.030	-0.078	499.925	-0.183	0.37
600	10 ⁶	600.11	2.833294	2.833294	-0.006	2.833082	-0.112	2.829329	599.990	-0.122	599.927	-0.186	0.39
600	10 ⁶	600.02	2.828271	2.828271	-0.006	2.828059	-0.020	2.827406	599.839	-0.181	599.775	-0.245	0.40
600	10 ⁶	600.01	2.824760	2.824760	-0.006	2.824548	-0.014	2.824068	599.732	-0.282	599.669	-0.346	1.09
660.32	10 ⁶	660.02	5.447661	5.447661	-0.007	5.447252	0.297	5.463960	659.666	-0.357	659.649	-0.374	1.09
700	10 ⁶	699.85	8.043894	8.043894	-0.008	8.043290	0.149	8.054703	699.276	-0.575	699.299	-0.551	1.12
700	10 ⁶	700.11	8.060855	8.060855	-0.008	8.060251	-0.112	8.051669	699.499	-0.613	699.523	-0.589	1.11
800	10 ⁵	800.20	1.893828	18.949308	-0.010	18.947888	-0.203	18.917923	799.365	-0.837	799.523	-0.679	1.41
900	10 ⁵	899.89	3.844127	38.463648	-0.011	38.460763	0.112	38.488876	898.989	-0.900	899.326	-0.562	1.26
900	10 ⁵	899.92	3.841956	38.441921	-0.011	38.439039	0.084	38.460167	898.902	-1.014	899.239	-0.677	1.27
961.78	10 ⁵	961.62	5.618921	56.221912	-0.013	56.217696	0.160	56.270615	960.394	-1.226	960.866	-0.755	1.55

Table 25 - results of the LNE measurements with the INRiM thermometer, analysed using the fit of the median of the FP & VTBB data

t_{nom} / °C	Gain used	t_{BB} / °C	Bgrd corrected Signal/ V	Signal at $\times 10^6$ gain/ V	Zn point check drift [‡] / °C	Signal correcte d for Zn point drift/ V	$dt (t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / V	t from median fit/ °C	$dt (t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit without 1000 °C data/ °C	$dt (t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
156.60	10 ¹⁰	156.604	777.185	0.777185	7.69634E-05	0.00	7.69691E-05	7.69549E-05	156.617	0.014	156.727	0.123	0.43
231.93	10 ⁹	231.915	1833.114	1.833114	1.67462E-03	0.00	1.67475E-03	1.67563E-03	231.883	-0.032	231.898	-0.017	0.45
419.53	10 ⁷	419.485	1980.357	1.980357	1.98186E-01	0.00	1.98201E-01	1.98369E-01	419.541	0.057	419.437	-0.047	0.12
660.32	10 ⁶	660.174	5508.215	5.508215	5.50821	0.01	5.50863	5.51695	660.760	0.586	660.744	0.571	0.22
961.78	10 ⁵	961.861	5705.270	5.705270	57.08111	0.01	57.08539	57.05824	963.007	1.146	963.484	1.624	0.81
200	10 ¹⁰	199.995	5154.564	5.154564	5.10448E-04	0.00	5.10486E-04	5.10597E-04	199.939	-0.056	199.991	-0.004	0.44
250	10 ⁹	249.986	3368.463	3.368463	3.07723E-03	0.00	3.07746E-03	3.07886E-03	249.964	-0.022	249.961	-0.025	0.36
300	10 ⁸	300.010	1367.415	1.367415	1.36047E-02	0.00	1.36057E-02	1.36019E-02	300.075	0.065	300.028	0.018	0.23
400	10 ⁷	400.063	1366.687	1.366687	1.36773E-01	0.00	1.36783E-01	1.36612E-01	400.125	0.062	400.026	-0.037	0.12
500 ¹	10 ⁷	499.953	7560.209	7.560209	7.56595E-01	0.00	7.56652E-01	7.57182E-01	500.048	0.094	499.943	-0.011	0.14
500 ²	10 ⁷	499.976	7563.477	7.563477	7.56923E-01	0.00	7.56979E-01	7.57256E-01	500.077	0.101	499.972	-0.004	0.16
600 ¹	10 ⁶	600.015	2835.845	2.835845	2.83584	0.01	2.83606	2.83556	600.080	0.065	600.016	0.002	0.16
600 ²	10 ⁶	599.731	2825.946	2.825946	2.82595	0.01	2.82616	2.83512	599.781	0.050	599.717	-0.014	0.19
300 ¹	10 ⁸	300.040	1369.291	1.369291	1.36233E-02	0.00	1.36243E-02	1.36094E-02	300.126	0.086	300.079	0.039	0.23
400 ¹	10 ⁷	400.058	1366.927	1.366927	1.36797E-01	0.00	1.36807E-01	1.36650E-01	400.134	0.076	400.034	-0.023	0.12
600 ¹	10 ⁶	599.988	2834.872	2.834872	2.83487	0.01	2.83508	2.83549	600.051	0.063	599.987	-0.001	0.16
500 ³	10 ⁷	499.820	7563.477	7.563477	7.56923E-01	0.00	7.56979E-01	7.59030E-01	500.077	0.257	499.972	0.152	0.48
600 ³	10 ⁶	599.280	2825.946	2.825946	2.82595	0.01	2.82616	2.85020	599.781	0.501	599.717	0.437	0.52
700 ³	10 ⁶	699.941	8125.120	8.125120	8.12512	0.01	8.12573	8.13028	700.357	0.416	700.382	0.441	0.55
800 ³	10 ⁵	799.917	1908.946	1.908946	19.09896	0.01	19.10039	19.11273	800.399	0.482	800.558	0.641	0.64
900 ³	10 ⁵	899.924	3882.634	3.882634	38.84568	0.01	38.84859	38.86780	900.533	0.609	900.874	0.950	0.75
1000 ³	10 ⁵	1000.048	7070.470	7.070470	70.73992	0.01	70.74522	70.72651	1000.792	0.745	1001.361	1.313	0.87
800 ³	10 ⁵	799.950	1909.781	1.909781	19.10732	0.01	19.10876	19.11617	800.455	0.505	800.615	0.665	0.64
1000 ³	10 ⁵	1000.095	7071.588	7.071588	70.75110	0.01	70.75640	70.71924	1000.821	0.726	1001.390	1.295	0.87

Table 26 - results of the METAS measurements with the INRiM thermometer, analysed using the fit of the median of the FP & VTBB data

t_{nom} / °C	Gain used	t_{BB} / °C	Bgrd corrected Signal/ V	Signal at $\times 10^6$ gain/ V	Zn point check drift [‡] / °C	Signal corrected for Zn point drift/ V	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / V	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit without 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
156.60*	10 ¹⁰	156.60	0.772745	7.65952E-05	-0.016	7.65363E-05	0.000	7.65363E-05	156.500	-0.100	156.610	0.010	0.08
200	10 ⁹	201.26	0.587914	5.37003E-04	-0.019	5.36590E-04	-1.261	5.09558E-04	201.199	-0.062	201.249	-0.012	0.957
231.93*	10 ⁹	231.93	1.834863	1.67617E-03	-0.022	1.67488E-03	0.000	1.67488E-03	231.885	-0.045	231.900	-0.030	0.04
250	10 ⁹	250.78	3.470968	3.17040E-03	-0.023	3.16796E-03	-0.783	3.08667E-03	250.858	0.074	250.854	0.070	0.810
300	10 ⁸	299.80	1.365282	1.35800E-02	-0.028	1.35695E-02	0.200	1.36439E-02	299.977	0.177	299.930	0.130	0.825
419.53	10 ⁷	417.73	1.923257	0.192423	-0.041	0.192275	1.796	0.198779	417.910	0.176	417.807	0.072	0.862
419.53*	10 ⁷	419.53	1.983950	0.198495	-0.041	0.198343	0.000	0.198343	419.580	0.050	419.476	-0.054	0.08
500	10 ⁷	497.10	7.285188	0.728886	-0.051	0.728326	2.896	0.760296	497.497	0.393	497.392	0.288	0.815
600	10 ⁶	596.25	2.739827	2.739827	-0.065	2.737722	3.750	2.859868	597.074	0.824	597.008	0.759	0.857
660.32	10 ⁶	655.68	5.281204	5.281204	-0.074	5.277146	4.640	5.532395	656.583	0.903	656.563	0.884	0.832
700	10 ⁶	695.58	7.833208	7.833208	-0.080	7.827189	4.421	8.158800	696.399	0.820	696.419	0.841	0.835
800	10 ⁵	797.27	1.910186	19.055416	-0.098	19.040774	2.730	19.448674	799.996	2.725	800.154	2.884	1.222
900	10 ⁵	897.37	3.894053	38.845858	-0.117	38.816008	2.628	39.485398	900.404	3.031	900.744	3.372	1.230
1000	10 ⁵	1000.09	7.221856	72.042977	-0.139	71.987617	-0.087	71.952881	1003.960	3.873	1004.536	4.449	1.141

Table 27 - results of the UME measurements with the INRiM thermometer, analysed using the fit of the median of the FP & VTBB data

* Fixed point measurements

t_{nom} / °C	Gain used	t_{BB} / °C	Bgrd corrected Signal/ V	Signal at $\times 10^6$ gain/ V	Zn point check drift [‡] / °C	Signal corrected for Zn point drift/ V	$dt (t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / V	t from median fit/ °C	$dt (t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit without 1000 °C data/ °C	dt ($t_{\text{fit}} - t_{\text{BB}}$) / °C
156.6	$\times 10^{10}$	156.63	0.777632	7.70750E-05	-0.025	7.69796E-05	7.68604E-05	156.620	-0.011	156.730	0.098	0.20
156.6*	$\times 10^{10}$	156.6	0.775825	7.68959E-05	-0.025	7.68007E-05	7.68007E-05	156.572	-0.028	156.682	0.082	0.09
200	$\times 10^9$	199.93	0.556989	5.08879E-04	-0.031	5.08249E-04	5.09679E-04	199.828	-0.102	199.881	-0.049	0.20
200	$\times 10^9$	200.02	0.562683	5.14081E-04	-0.031	5.13445E-04	5.13005E-04	200.084	0.063	200.137	0.115	0.20
200	$\times 10^{10}$	200.02	5.186709	5.14081E-04	-0.031	5.13445E-04	5.13037E-04	200.084	0.065	200.137	0.117	0.20
231.93	$\times 10^9$	232.05	1.841034	1.68201E-03	-0.035	1.67993E-03	1.67282E-03	231.971	-0.079	231.987	-0.063	0.20
231.93*	$\times 10^9$	231.93	1.836495	0.0016779	-0.035	1.67579E-03	1.67579E-03	231.900	-0.030	231.916	-0.014	0.07
250	$\times 10^9$	250.01	3.372291	3.08100E-03	-0.038	3.07719E-03	3.07602E-03	249.961	-0.050	249.958	-0.053	0.20
250	$\times 10^9$	250.05	3.376714	3.08505E-03	-0.038	3.08123E-03	3.07580E-03	250.002	-0.052	249.999	-0.055	0.20
250	$\times 10^8$	250.05	0.310083	3.08505E-03	-0.038	3.08123E-03	3.07580E-03	250.002	-0.052	249.999	-0.055	0.20
300	$\times 10^8$	300.06	1.365190	1.35824E-02	-0.045	1.35656E-02	1.35444E-02	299.966	-0.091	299.919	-0.138	0.22
300	$\times 10^7$	300.02	0.135586	1.35670E-02	-0.045	1.35503E-02	1.35418E-02	299.924	-0.099	299.878	-0.145	0.22
300	$\times 10^8$	300.02	1.363646	1.35670E-02	-0.045	1.35502E-02	1.35417E-02	299.924	-0.099	299.877	-0.146	0.22
400	$\times 10^7$	400.22	1.369248	0.137010	-0.062	0.136840	0.136235	400.146	-0.077	400.047	-0.176	0.21
400	$\times 10^7$	400.00	1.363649	0.136449	-0.062	0.136280	0.136270	399.938	-0.066	399.838	-0.166	0.21
419.53	$\times 10^7$	419.43	1.976805	0.197803	-0.066	0.197558	0.197930	419.366	-0.063	419.262	-0.167	0.21
419.53*	$\times 10^7$	419.53	1.984784	0.198601	-0.066	0.198355	0.198355	419.583	0.053	419.479	-0.051	0.07
500	$\times 10^7$	499.89	7.546142	0.755081	-0.082	0.754147	0.755422	499.825	-0.062	499.720	-0.167	0.22
500	$\times 10^6$	499.89	0.755081	0.755081	-0.082	0.754147	0.755378	499.825	-0.066	499.720	-0.171	0.22
500	$\times 10^7$	500.22	7.612328	0.761704	-0.082	0.760761	0.758302	500.411	0.196	500.306	0.091	0.49
600	$\times 10^6$	600.05	2.842331	2.842331	-0.105	2.838815	2.837102	600.163	0.112	600.100	0.048	0.48
600	$\times 10^5$	600.05	0.283980	2.842244	-0.105	2.838729	2.837104	600.160	0.112	600.097	0.048	0.48
660.32	$\times 10^6$	660.03	5.477611	5.477611	-0.120	5.470836	5.487479	660.088	0.062	660.071	0.046	0.50
660.32	$\times 10^5$	660.03	0.547319	5.477901	-0.120	5.471125	5.487392	660.093	0.061	660.076	0.044	0.50
660.32*	$\times 10^6$	660.32	5.488178	5.488178	-0.120	5.481389	5.481389	660.276	-0.044	660.260	-0.060	0.13
700	$\times 10^6$	699.95	8.105329	8.105329	-0.130	8.095303	8.099225	699.959	0.010	699.983	0.034	0.50
700	$\times 10^5$	699.96	0.809842	8.105389	-0.130	8.095362	8.098718	699.960	0.004	699.984	0.028	0.50
700	$\times 10^6$	700.00	8.111707	8.111707	-0.130	8.101673	8.101673	700.043	0.043	700.067	0.067	0.50
800	$\times 10^5$	799.81	1.899315	19.009499	-0.158	18.985984	19.014538	799.624	-0.183	799.782	-0.025	0.52
900	$\times 10^5$	900.19	3.867533	38.708629	-0.189	38.660748	38.613394	899.786	-0.401	900.126	-0.062	0.53
900	$\times 10^4$	900.17	0.390889	38.708630	-0.189	38.660748	38.616849	899.786	-0.387	900.126	-0.048	0.53
900	$\times 10^5$	900.03	3.865023	38.683503	-0.189	38.635652	38.628543	899.686	-0.342	900.025	-0.003	0.53

Table 28 - results of the NPL measurements with the INRiM thermometer, analysed using the fit of the median of the FP & VTBB data

961.78	x10 ⁵	961.78	5.656693	56.615634	-0.210	56.545602	56.545602	961.385	-0.395	961.859	0.079	0.54
961.78*	x10 ⁵	961.78	5.653369	56.582364	-0.210	56.512373	56.512373	961.285	-0.495	961.758	-0.022	0.23
1000	x10 ⁵	1000.00	7.025350	70.313988	-0.223	70.227011	70.227011	999.460	-0.540	1000.025	0.025	0.54
1000	x10 ⁵	1000.12	7.034740	70.407971	-0.223	70.320878	70.274399	999.702	-0.418	1000.267	0.148	0.54

Table 28- results of the NPL measurements with the INRiM thermometer, analysed using the fit of the median of the FP & VTBB data - continued

* Fixed point measurements

t_{nom} / °C	Gain used	t_{BB} / °C	Bgrd corrected Signal/ V	Signal at x10 ⁶ gain/ V	Zn point check drift [‡] / °C	Signal corrected for Zn point drift/ V	dt ($t_{\text{nom}} - t_{\text{BB}}$) / °C	Signal corrected to t_{nom} / V	t from median fit/ °C	dt ($t_{\text{fit}} - t_{\text{BB}}$) / °C	t from fit without 1000 °C data/ °C	dt ($t_{\text{fit}} - t_{\text{BB}}$) / °C
156.60*	10 ⁹	156.60	0.08375	7.65000E-05	-0.003	7.64885E-05	7.64885E-05	156.487	-0.113	156.597	-0.003	0.032
231.93*	10 ⁹	231.93	1.83388	0.0016752	-0.004	0.0016750	0.0016750	231.886	-0.044	231.902	-0.028	0.040
419.53*	10 ⁷	419.53	1.98246	0.198341	-0.008	0.198311	0.198311	419.571	0.041	419.467	-0.063	0.073
660.32*	10 ⁶	660.32	5.48120	5.481196	-0.015	5.480374	5.480374	660.258	-0.062	660.241	-0.079	0.129
961.78*	10 ⁵	961.78	5.64510	56.475224	-0.025	56.466756	56.466756	961.147	-0.633	961.620	-0.160	0.224

Table 29 – results of the INRiM measurements with the INRiM thermometer, analysed using the fit of the median of the FP & VTBB data

* Fixed-point measurements

8 AVERAGE LABORATORY RESULTS FOR THE VTBB AND FP BLACKBODY MEASUREMENTS WITH THE INRIM THERMOMETER

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ V	$U(k=2)/^\circ\text{C}$
156.6	7.71316E-05	0.46
200	5.09391E-04	0.41
231.93	1.68147E-03	0.30
250	3.08653E-03	0.30
300	1.36461E-02	0.30
400	1.36635E-01	0.31
419.53	1.98622E-01	0.24
500	7.56854E-01	0.32
600	2.83805E+00	0.29
660.32	5.48520E+00	0.31
700	8.09683E+00	0.32
800	1.90280E+01	0.35
900	3.86219E+01	0.39
961.78	5.64744E+01	0.30
419.53 VTBB	1.98735E-01	0.31
419.53 FP	1.98396E-01	0.09

Table 30 – CEM results

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ V	$U(k=2)/^\circ\text{C}$
156.6	7.65377E-05	0.070
200	5.10833E-04	0.072
231.93	1.67662E-03	0.076
250	3.07968E-03	0.079
300	1.35904E-02	0.107
400	1.36643E-01	0.075
419.53	1.98484E-01	0.079
500	7.57025E-01	0.096
600	2.83516E+00	0.120
660.32	5.48321E+00	0.147
700	8.09489E+00	0.157
800	1.90203E+01	0.187
900	3.86420E+01	0.219
961.78	5.65429E+01	0.242

Table 31 - PTB results

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ V	$U(k=2)/^\circ\text{C}$
156.6	7.78687E-05	0.21
200	5.05824E-04	0.25
231.93	1.65405E-03	0.28
250	3.07652E-03	0.30
300	0.0135518	0.33
400	0.136087	0.36
419.53	0.197843	0.35
500	0.755228	0.37
600	2.826935	0.63
660.32	5.463960	1.09
700	8.053186	1.12
800	18.917923	1.41
900	38.474521	1.26
961.78	56.270615	1.55
600 Cs	2.828368	0.40
600 Na	2.824068	1.09

Table 32 - LNE results

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ V	$U(k=2)/^\circ\text{C}$
156.6	7.69549E-05	0.43
200	5.10597E-04	0.44
231.93	1.675634E-03	0.45
250	3.078861E-03	0.36
300	0.0136056	0.23
400	0.136631	0.12
419.53	0.198369	0.12
500	0.757823	0.26
600	2.839092	0.26
660.32	5.516949	0.22
700	8.130282	0.55
800	19.114447	0.64
900	38.867797	0.75
961.78	57.058238	0.81
1000	70.722878	0.87
Cs at 500	0.7571825	0.14
Na at 500 1	0.7572563	0.16
Na at 500 2	0.7590300	0.48
Cs at 600	2.8355255	0.16
Na at 600 1	2.8351201	0.19
Na at 600 2	2.8501981	0.52

Table 33 - METAS results

$t_{\text{nom}}/^\circ\text{C}$	Average signal/	$U(k=2)/$
---------------------------------	-----------------	-----------

	V	°C
156.6	7.68306E-05	0.15
200	5.11907E-04	0.20
231.93	1.67431E-03	0.14
250	3.07587E-03	0.20
300	1.35426E-02	0.22
400	0.136252	0.21
419.53	0.198143	0.14
500	0.756367	0.31
600	2.837103	0.48
660.32	5.485420	0.37
700	8.099872	0.50
800	19.014538	0.52
900	38.619595	0.53
961.78	56.528987	0.38
1000	70.250705	0.54
Cs at 500	0.755400	0.22
WRC at 500	0.758302	0.49
156.6 VTBB	7.68604E-05	0.20
156.6 FP	7.68007E-05	0.09
231.93 VTBB	1.67282E-03	0.20
231.93 FP	1.67579E-03	0.07
419.53 VTBB	0.197930	0.21
419.53 FP	0.198355	0.07
660.32 VTBB	5.487435	0.50
660.32 FP	5.481389	0.13
961.78 VTBB	56.545602	0.54
961.78 FP	56.512373	0.23

Table 34 - NPL results

$t_{\text{nom}}/^{\circ}\text{C}$	Average signal/	$U(k=2)/$
-----------------------------------	-----------------	-----------

	V	°C
156.6	7.65363E-05	0.078
200	5.09558E-04	0.957
231.93	1.67488E-03	0.043
250	3.08667E-03	0.810
300	1.36439E-02	0.825
419.53	0.198561	0.469
500	0.760296	0.815
600	2.859868	0.857
660.32	5.532395	0.832
700	8.158800	0.835
800	19.448674	1.222
900	39.485398	1.230
1000	71.952881	1.141
419.53 VTBB	0.198779	0.862
419.53 FP	0.198343	0.075

Table 35 – UME results

$t_{\text{nom}}/^{\circ}\text{C}$	Average signal/ V	$U(k=2)/^{\circ}\text{C}$
156.6	7.64885E-05	0.032
231.93	0.0016750	0.040
419.53	0.198311	0.073
660.32	5.480374	0.129
961.78	56.466756	0.224

Table 36 - the INRiM results

$t_{\text{nom}}/^{\circ}\text{C}$	Median signal/ V
-----------------------------------	------------------

156.6	7.68306E-05
200	5.10077E-04
231.93	1.67495E-03
250	3.07927E-03
300	1.35980E-02
400	0.136631
419.53	0.198369
500	0.756939
600	2.837575
660.32	5.485195
700	8.098350
800	19.024152
900	38.631912
961.78	56.501713
1000	70.722878

Table 37 – median values for all the INRiM thermometer VTBB and FP measurements

9 RESULTS OF THE FITTING PROCESS USING THE SAKUMA HATTORI FIT – VTBB AND FP MEASUREMENTS WITH THE INRIM THERMOMETER

Thermometer signal/ V	Temperature/ K	Fitted temperature/ K	Residual/ K
7.68306E-05	429.75	429.730	-0.020
5.10077E-04	473.15	473.069	-0.081
1.67495E-03	505.08	505.036	-0.044
3.07927E-03	523.15	523.132	-0.018
1.35980E-02	573.15	573.204	0.054
0.136631	673.15	673.218	0.068
0.198369	692.68	692.737	0.057
0.756939	773.15	773.223	0.073
2.837575	873.15	873.276	0.126
5.485195	933.47	933.494	0.024
8.098350	973.15	973.149	-0.001
19.024152	1073.15	1073.033	-0.117
38.631912	1173.15	1172.822	-0.328
56.501713	1234.93	1234.403	-0.527
70.722878	1273.15	1273.885	0.735

Table 38 – results of the fit using all the data points

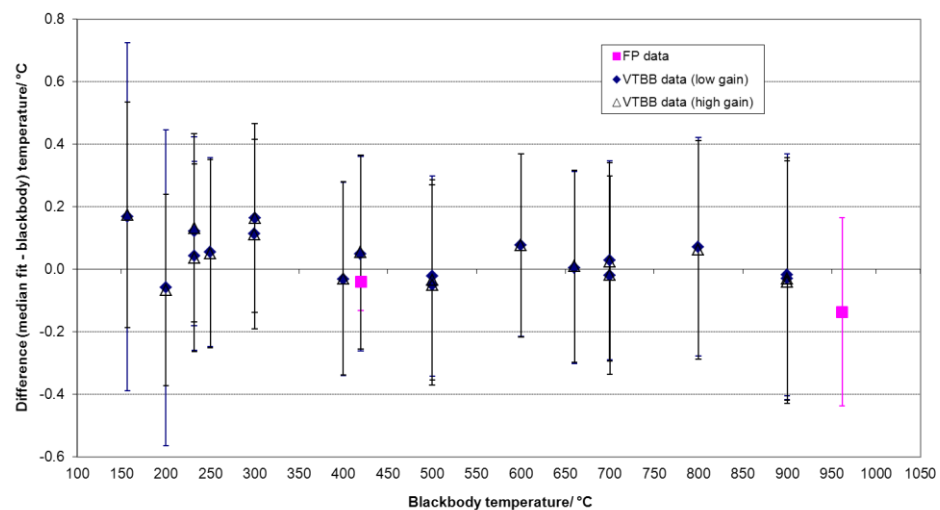
Coefficients of the fit: $a_1 = 7.9494048587\text{E}+04$
 $a_2 = 1.6049172730\text{E}-06$
 $a_3 = 3.4711159949\text{E}-06$

Thermometer signal/ V	Temperature/ K	Fitted temperature/ K	Residual/ K
7.68306E-05	429.75	429.840	0.090
5.10077E-04	473.15	473.121	-0.029
1.67495E-03	505.08	505.052	-0.028
3.07927E-03	523.15	523.129	-0.021
1.35980E-02	573.15	573.157	0.007
0.136631	673.15	673.119	-0.031
0.198369	692.68	692.633	-0.047
0.756939	773.15	773.118	-0.032
2.837575	873.15	873.212	0.062
5.485195	933.47	933.477	0.007
8.098350	973.15	973.173	0.023
19.024152	1073.15	1073.192	0.042
38.631912	1173.15	1173.161	0.011
56.501713	1234.93	1234.876	-0.054
70.722878*	1273.15*	1274.454*	1.304*

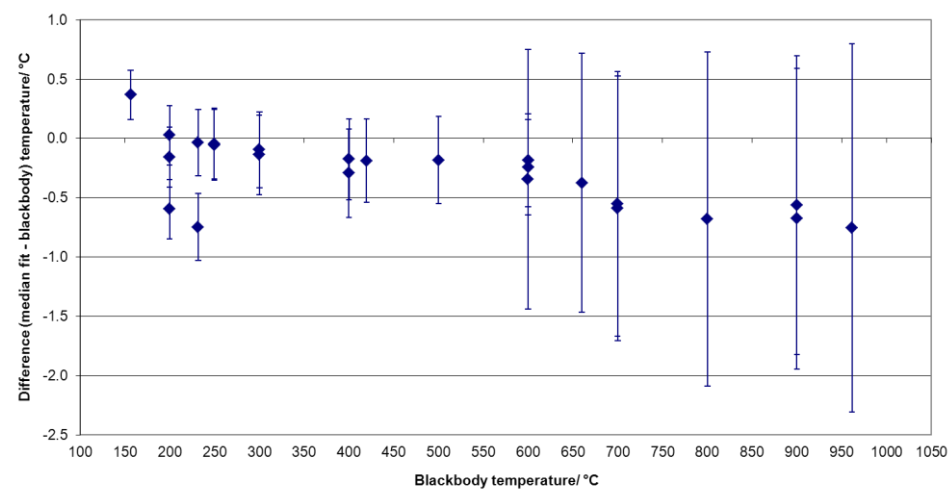
Table 39 – results of the fit, excluding the 1000 °C data in the fitting process but using the coefficients to calculate the corresponding fitted temperature at 1000 °C

Coefficients of the fit: $a_1 = 7.7847021794\text{E}+04$
 $a_2 = 1.6104579903\text{E}-06$
 $a_3 = 1.6131384647\text{E}-06$

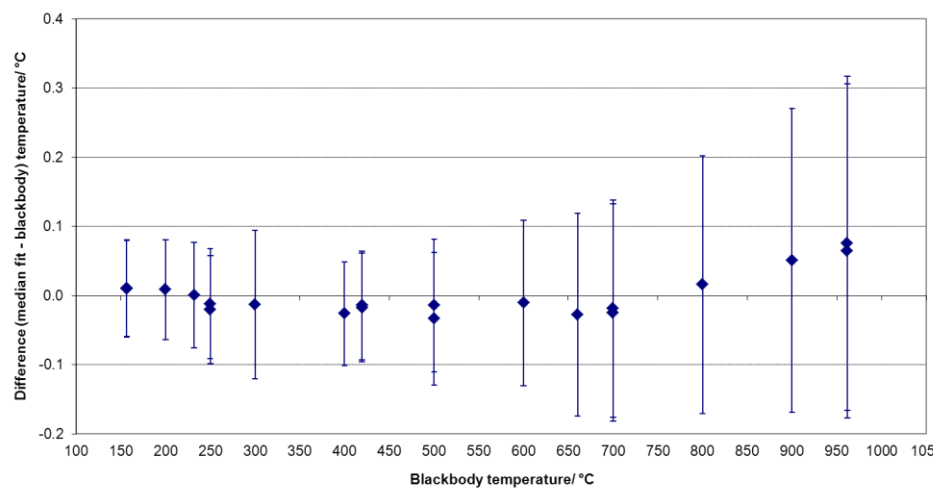
CEM results - Difference between fit temperature using median of VTBB and FP data (excluding 1000 °C) and blackbody temperature with the INRIM thermometer



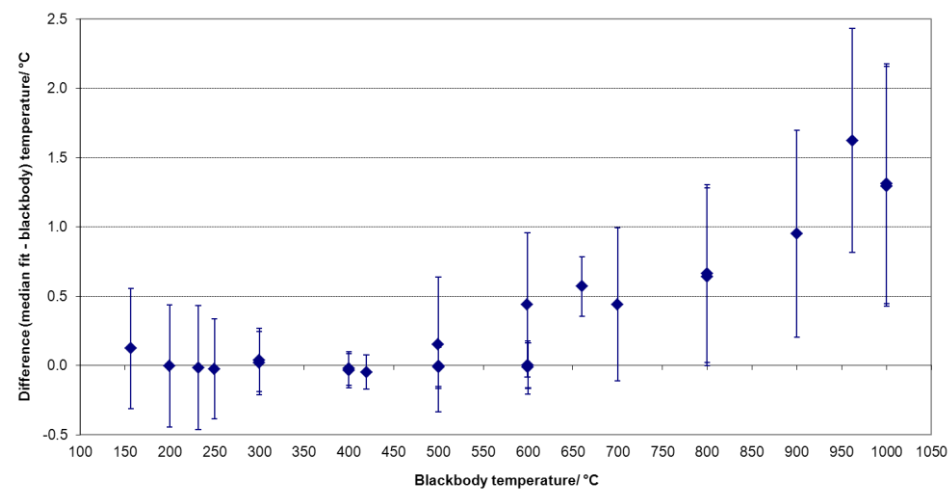
LNE results - Difference between fit temperature using median of VTBB and FP data (excluding 1000 °C) and blackbody temperature with the INRIM thermometer



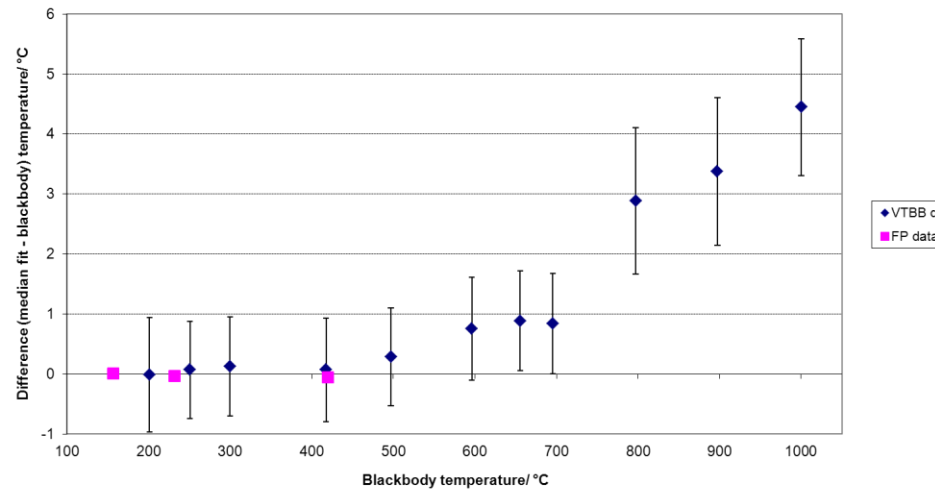
PTB results - Difference between fit temperature using median of VTBB and FP data (excluding 1000 °C) and blackbody temperature with the INRIM thermometer



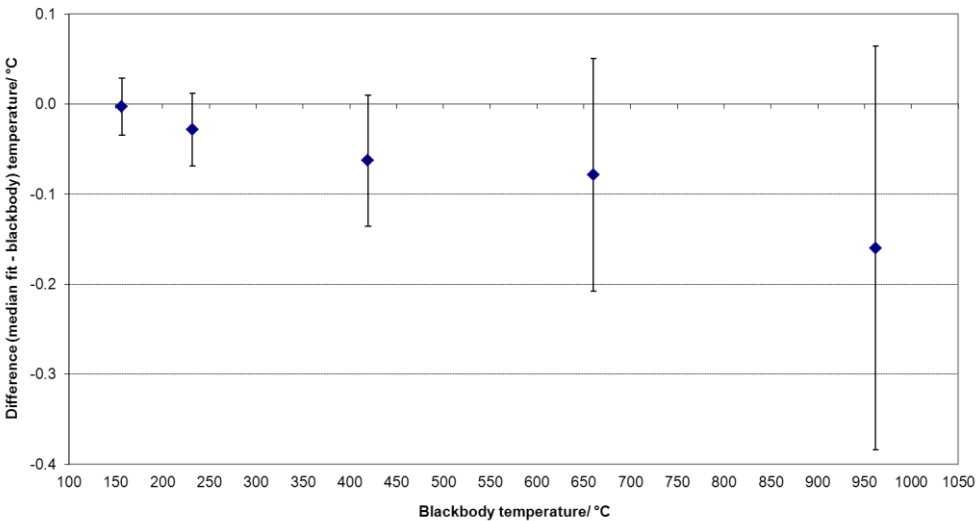
METAS results - Difference between fit temperature using median of VTBB and FP data (excluding 1000 °C) and blackbody temperature with the INRIM thermometer



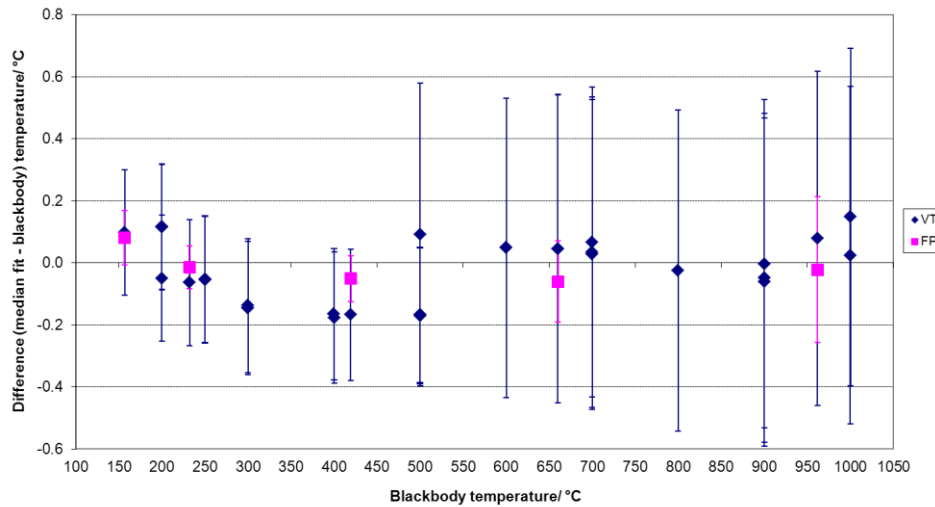
UME results - Difference between fit temperature using median of VTBB and FP data (excluding 1000 °C) and blackbody temperature with the INRIM thermometer



INRiM results - Difference between fit temperature using median of VTBB and FP data (excluding 1000 °C) and blackbody temperature with the INRiM thermometer



NPL results - Difference between fit temperature using median of VTBB and FP data (excluding 1000 °C) and blackbody temperature with the INRiM thermometer



10 ANALYSIS OF THE VTBB RESULTS WITH THE LP5 USING THE MEDIAN OF ALL THE VTBB DATA FOR THE FITTING PROCESS

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check [‡] / °C	Signal corrected for Zn point drift/ A	dt (t_{nom} - t_{BB}) / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	dt (t_{fit} - t_{BB}) / °C	t from fit no 1000 °C data/ °C	dt (t_{fit} - t_{BB}) / °C	U ($k=2$) / °C
231.93	R1	231.91	3.02262E-12	3.02262E-12	0.02	3.02523E-12	0.02	3.02740E-12	231.766	-0.144	231.861	-0.049	0.43
250.00	R1	250.11	5.72417E-12	5.72417E-12	0.03	5.72910E-12	-0.11	5.70798E-12	250.198	0.088	250.266	0.156	0.36
300.00	R1	300.09	2.62564E-11	2.62564E-11	0.03	2.62790E-11	-0.09	2.62129E-11	300.099	0.009	300.103	0.013	0.36
400.00	R1	399.94	2.81427E-10	2.81427E-10	0.04	2.81669E-10	0.06	2.82011E-10	399.986	0.046	399.906	-0.034	0.40
419.53	R1	419.55	4.14299E-10	4.14299E-10	0.05	4.14656E-10	-0.02	4.14497E-10	419.660	0.110	419.569	0.019	0.41
500.00	R1	499.98	1.63872E-09	1.63872E-09	0.06	1.64013E-09	0.02	1.64063E-09	499.987	0.007	499.877	-0.103	0.45
600.00	R1	600.09	6.39791E-09	6.39791E-09	0.07	6.40342E-09	-0.09	6.39648E-09	600.252	0.162	600.168	0.078	0.50
660.32	R2	660.35	1.25941E-08	1.25884E-08	0.08	1.25993E-08	-0.03	1.25953E-08	660.390	0.040	660.348	-0.002	0.56
700.00	R2	700.10	1.88022E-08	1.87938E-08	0.09	1.88099E-08	-0.10	1.87917E-08	700.060	-0.040	700.058	-0.042	0.59
800.00	R2	799.91	4.51797E-08	4.51593E-08	0.11	4.51982E-08	0.09	4.52306E-08	799.775	-0.135	799.909	-0.001	0.70
900.00	R2	900.01	9.36263E-08	9.35841E-08	0.13	9.36646E-08	-0.01	9.36584E-08	899.610	-0.400	899.936	-0.074	0.82
231.93	R1	232.07	3.05435E-12	3.05435E-12	0.02	3.05698E-12	-0.14	3.04159E-12	232.057	-0.013	232.152	0.082	0.41
300.00	R1	300.14	2.63234E-11	2.63234E-11	0.03	2.63461E-11	-0.14	2.62431E-11	300.190	0.050	300.195	0.055	0.36
500.00	R1	500.09	1.64322E-09	1.64322E-09	0.06	1.64463E-09	-0.09	1.64236E-09	500.166	0.076	500.056	-0.034	0.45
700.00	R2	700.04	1.87879E-08	1.87794E-08	0.09	1.87956E-08	-0.04	1.87883E-08	699.982	-0.058	699.979	-0.061	0.59
900.00	R2	899.92	9.36075E-08	9.35653E-08	0.13	9.36458E-08	0.08	9.36958E-08	899.580	-0.340	899.906	-0.014	0.82

Table 40- results of the CEM variable temperature blackbody measurements for analysis using the fit of the median VTBB data – range R1[‡] Compared to the PTB value at the start of the comparison.

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check [‡] / °C	Signal corrected for Zn point drift/ A	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit no 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.93	R2	231.91	3.04783E-12	3.04783E-12	0.02	3.05045E-12	0.02	3.05265E-12	232.028	0.118	232.053	0.143	2.90
250.00	R2	250.11	5.77088E-12	5.77088E-12	0.03	5.77584E-12	-0.11	5.75455E-12	250.457	0.347	250.475	0.365	1.55
300.00	R2	300.09	2.61516E-11	2.61516E-11	0.03	2.61741E-11	-0.09	2.61083E-11	299.937	-0.153	299.939	-0.151	0.52
400.00	R2	399.94	2.81632E-10	2.81632E-10	0.04	2.81874E-10	0.06	2.82217E-10	399.961	0.021	399.940	0.000	0.40
419.53	R2	419.55	4.14570E-10	4.14570E-10	0.05	4.14927E-10	-0.02	4.14768E-10	419.629	0.079	419.605	0.055	0.41
500.00	R2	499.98	1.63960E-09	1.63960E-09	0.06	1.64101E-09	0.02	1.64152E-09	499.951	-0.029	499.922	-0.058	0.46
600.00	R2	600.09	6.40066E-09	6.40066E-09	0.07	6.40617E-09	-0.09	6.39923E-09	600.239	0.149	600.217	0.127	0.50
660.32	R2	660.35	1.25941E-08	1.25941E-08	0.08	1.26050E-08	-0.03	1.26010E-08	660.414	0.064	660.403	0.053	0.55
700.00	R2	700.10	1.88022E-08	1.88022E-08	0.09	1.88184E-08	-0.10	1.88002E-08	700.114	0.014	700.114	0.014	0.59
800.00	R2	799.91	4.51797E-08	4.51797E-08	0.11	4.52186E-08	0.09	4.52510E-08	799.928	0.018	799.964	0.054	0.70
900.00	R2	900.01	9.36263E-08	9.36263E-08	0.13	9.37069E-08	-0.01	9.37007E-08	899.895	-0.115	899.982	-0.028	0.81
231.93	R2	232.07	3.08452E-12	3.08452E-12	0.02	3.08718E-12	-0.14	3.07164E-12	232.361	0.291	232.386	0.316	1.81
300.00	R2	300.14	2.61924E-11	2.61924E-11	0.03	2.62150E-11	-0.14	2.61125E-11	299.993	-0.147	299.994	-0.146	0.45
500.00	R2	500.09	1.64412E-09	1.64412E-09	0.06	1.64553E-09	-0.09	1.64326E-09	500.131	0.041	500.101	0.011	0.46
700.00	R2	700.04	1.87879E-08	1.87879E-08	0.09	1.88041E-08	-0.04	1.87968E-08	700.036	-0.004	700.035	-0.005	0.59
900.00	R2	899.92	9.36075E-08	9.36075E-08	0.13	9.36881E-08	0.08	9.37381E-08	899.865	-0.055	899.952	0.032	0.81

Table 41 - results of the CEM variable temperature blackbody measurements for analysis using the fit of the median VTBB data – range R2

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check [*] / °C	Signal corrected for Zn point drift/ A	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit no 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.93	R1	231.946	3.03946E-12	3.03946E-12	0.00	3.03946E-12	-0.016	3.03773E-12	231.90	-0.05	231.99	0.05	0.13
250	R1	250.089	5.70504E-12	5.70504E-12	0.00	5.70504E-12	-0.089	5.68800E-12	250.07	-0.02	250.14	0.05	0.11
300	R1	300.020	2.62226E-11	2.62226E-11	0.00	2.62226E-11	-0.020	2.62081E-11	300.02	0.00	300.03	0.01	0.13
400	R1	400.021	2.82049E-10	2.82049E-10	0.00	2.82049E-10	-0.021	2.81932E-10	400.05	0.03	399.97	-0.05	0.12
419.53	R1	419.530	4.14019E-10	4.14019E-10	0.00	4.14019E-10	0.000	4.14019E-10	419.58	0.05	419.49	-0.04	0.13
500	R1	500.015	1.64206E-09	1.64206E-09	0.00	1.64206E-09	-0.015	1.64169E-09	500.06	0.05	499.95	-0.06	0.15
600	R1	600.017	6.38577E-09	6.38577E-09	0.00	6.38577E-09	-0.017	6.38444E-09	600.02	0.01	599.94	-0.08	0.20
660.32	R2	660.312	1.25796E-08	1.25809E-08	0.00	1.25809E-08	0.008	1.25819E-08	660.25	-0.06	660.21	-0.10	0.23
700	R2	700.031	1.87788E-08	1.87806E-08	0.00	1.87806E-08	-0.031	1.87749E-08	699.90	-0.13	699.90	-0.13	0.25
800	R2	800.012	4.52005E-08	4.52049E-08	0.00	4.52049E-08	-0.011	4.52008E-08	799.79	-0.22	799.93	-0.08	0.30
900	R2	900.011	9.37001E-08	9.37093E-08	0.00	9.37093E-08	-0.011	9.37021E-08	899.68	-0.33	900.01	0.00	0.36
961.78	R2	961.748	1.38461E-07	1.38475E-07	0.00	1.38475E-07	0.032	1.38501E-07	961.21	-0.53	961.69	-0.06	0.39
231.93	R1	231.947	3.03869E-12	3.03869E-12	0.00	3.03869E-12	-0.017	3.03689E-12	231.89	-0.06	231.98	0.04	0.15
300	R1	300.027	2.62522E-11	2.62522E-11	0.00	2.62522E-11	-0.027	2.62324E-11	300.06	0.04	300.07	0.04	0.20
419.53	R1	419.512	4.13968E-10	4.13968E-10	0.00	4.13968E-10	0.018	4.14109E-10	419.57	0.06	419.48	-0.03	0.13
500	R1	500.049	1.64205E-09	1.64205E-09	0.00	1.64205E-09	-0.048	1.64083E-09	500.06	0.02	499.95	-0.10	0.15
700	R2	700.028	1.87822E-08	1.87840E-08	0.00	1.87840E-08	-0.028	1.87789E-08	699.92	-0.11	699.92	-0.11	0.25
961.78	R2	961.696	1.38400E-07	1.38414E-07	0.00	1.38414E-07	0.084	1.38484E-07	961.14	-0.55	961.61	-0.08	0.39

Table 42 - results of the PTB variable temperature blackbody measurements for analysis using the fit of the median VTBB data – range R1

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check [*] / °C	Signal corrected for Zn point drift/ A	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit no 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.93	R1	231.946	3.03946E-12	3.03916E-12	0.00	3.03916E-12	-0.016	3.03744E-12	231.92	-0.02	231.95	0.00	0.13
250	R1	250.089	5.70504E-12	5.70448E-12	0.00	5.70448E-12	-0.089	5.68745E-12	250.09	0.00	250.10	0.01	0.11
300	R1	300.020	2.62226E-11	2.62200E-11	0.00	2.62200E-11	-0.020	2.62056E-11	300.00	-0.02	300.00	-0.02	0.13
400	R1	400.021	2.82049E-10	2.82021E-10	0.00	2.82021E-10	-0.021	2.81904E-10	399.99	-0.03	399.97	-0.05	0.12
419.53	R1	419.530	4.14019E-10	4.13978E-10	0.00	4.13978E-10	0.000	4.13979E-10	419.51	-0.02	419.48	-0.05	0.13
500	R1	500.015	1.64206E-09	1.64190E-09	0.00	1.64190E-09	-0.015	1.64153E-09	499.99	-0.03	499.96	-0.06	0.16
600	R1	600.017	6.38577E-09	6.38515E-09	0.00	6.38515E-09	-0.017	6.38381E-09	599.97	-0.05	599.94	-0.07	0.20
660.32	R2	660.312	1.25796E-08	1.25796E-08	0.00	1.25796E-08	0.008	1.25807E-08	660.22	-0.09	660.21	-0.10	0.23
700	R2	700.031	1.87788E-08	1.87788E-08	0.00	1.87788E-08	-0.031	1.87731E-08	699.90	-0.13	699.90	-0.14	0.25
800	R2	800.012	4.52005E-08	4.52005E-08	0.00	4.52005E-08	-0.011	4.51963E-08	799.88	-0.13	799.91	-0.10	0.30
900	R2	900.011	9.37001E-08	9.37001E-08	0.00	9.37001E-08	-0.011	9.36930E-08	899.88	-0.13	899.97	-0.04	0.36
961.78	R2	961.748	1.38461E-07	1.38461E-07	0.00	1.38461E-07	0.032	1.38488E-07	961.51	-0.24	961.63	-0.12	0.39
231.93	R1	231.947	3.03869E-12	3.03839E-12	0.00	3.03839E-12	-0.017	3.03659E-12	231.92	-0.03	231.94	0.00	0.15
300	R1	300.027	2.62522E-11	2.62496E-11	0.00	2.62496E-11	-0.027	2.62298E-11	300.04	0.01	300.04	0.01	0.20
419.53	R1	419.512	4.13968E-10	4.13928E-10	0.00	4.13928E-10	0.018	4.14069E-10	419.50	-0.01	419.48	-0.03	0.13
500	R1	500.049	1.64205E-09	1.64189E-09	0.00	1.64189E-09	-0.048	1.64067E-09	499.99	-0.06	499.96	-0.09	0.16
700	R2	700.028	1.87822E-08	1.87822E-08	0.00	1.87822E-08	-0.028	1.87770E-08	699.92	-0.11	699.91	-0.11	0.25
961.78	R2	961.696	1.38400E-07	1.38400E-07	0.00	1.38400E-07	0.084	1.38470E-07	961.43	-0.26	961.56	-0.14	0.39

Table 43 - results of the PTB variable temperature blackbody measurements for analysis using the fit of the median VTBB data – range R2

t_{nom} /°C	Range used	t_{BB} /°C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check [‡] / °C	Signal corrected for Zn point drift/ A	$dt(t_{\text{nom}} - t_{\text{BB}})$ /°C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ /°C	t from fit no 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ /°C	U ($k=2$) /°C
231.93	R1	231.76	2.99090E-12	2.99090E-12	0.293	3.02242E-12	0.17	3.04056E-12	231.74	-0.02	231.84	0.07	0.60
250	R1	249.83	5.59107E-12	5.59107E-12	0.314	5.64998E-12	0.17	5.68232E-12	249.78	-0.05	249.85	0.02	0.44
250	R1	249.84	5.30973E-12	5.30973E-12	0.314	5.36569E-12	0.16	5.39480E-12	248.25	-1.59	248.32	-1.52	0.48
250	R1	249.83	5.59853E-12	5.59853E-12	0.314	5.65753E-12	0.17	5.69005E-12	249.82	-0.01	249.89	0.06	0.44
300	R1	300.19	2.60880E-11	2.60880E-11	0.378	2.63629E-11	-0.19	2.62213E-11	300.21	0.02	300.22	0.03	0.36
400	R1	399.93	2.77908E-10	2.77908E-10	0.520	2.80836E-10	0.07	2.81215E-10	399.84	-0.09	399.76	-0.17	0.33
400	R1	400.14	2.79379E-10	2.79379E-10	0.521	2.82322E-10	-0.14	2.81534E-10	400.10	-0.04	400.02	-0.12	0.34
419.53	R1	419.63	4.09805E-10	4.09805E-10	0.551	4.14123E-10	-0.10	4.13363E-10	419.59	-0.03	419.50	-0.12	0.34
500	R1	500.11	1.62441E-09	1.62441E-09	0.687	1.64152E-09	-0.11	1.63864E-09	500.04	-0.07	499.93	-0.18	0.37
600	R2	600.16	6.32775E-09	6.32775E-09	0.876	6.39443E-09	-0.16	6.38247E-09	600.14	-0.02	600.05	-0.10	0.45
600	R2	600.13	6.32566E-09	6.32566E-09	0.876	6.39232E-09	-0.13	6.38241E-09	600.11	-0.02	600.02	-0.11	0.47
660.32	R2	660.06	1.23955E-08	1.23955E-08	1.000	1.25261E-08	0.26	1.25608E-08	659.84	-0.22	659.79	-0.26	1.06
700	R2	699.83	1.84743E-08	1.84743E-08	1.087	1.86689E-08	0.17	1.86990E-08	699.28	-0.55	699.28	-0.55	1.06
700	R2	700.11	1.85300E-08	1.85300E-08	1.088	1.87253E-08	-0.11	1.87050E-08	699.60	-0.52	699.59	-0.52	1.08
800	R2	800.07	4.45481E-08	4.45481E-08	1.323	4.50175E-08	-0.07	4.49920E-08	799.27	-0.80	799.41	-0.66	1.17
900	R2	899.88	9.22973E-08	9.22973E-08	1.580	9.32699E-08	0.12	9.33437E-08	898.98	-0.90	899.30	-0.58	1.22
900	R2	899.94	9.23564E-08	9.23564E-08	1.580	9.33297E-08	0.06	9.33649E-08	899.07	-0.87	899.40	-0.54	1.24
961.78	R2	961.63	1.36561E-07	1.36561E-07	1.751	1.38000E-07	0.15	1.38126E-07	960.64	-0.98	961.12	-0.51	1.30

Table 44- results of the LNE variable temperature blackbody measurements for analysis using the fit of the median VTBB data – range R1

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check [‡] / °C	Signal corrected for Zn point drift/ A	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit no 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.93	R1	231.76	2.99090E-12	2.99090E-12	0.293	3.02242E-12	0.17	3.04056E-12	231.77	0.01	231.80	0.03	0.60
250	R1	249.83	5.59107E-12	5.59107E-12	0.314	5.64998E-12	0.17	5.68232E-12	249.80	-0.03	249.82	-0.01	0.44
250	R1	249.84	5.30973E-12	5.30973E-12	0.314	5.36569E-12	0.16	5.39480E-12	248.26	-1.58	248.28	-1.56	0.48
250	R1	249.83	5.59853E-12	5.59853E-12	0.314	5.65753E-12	0.17	5.69005E-12	249.84	0.01	249.86	0.03	0.44
300	R1	300.19	2.60880E-11	2.60880E-11	0.378	2.63629E-11	-0.19	2.62213E-11	300.20	0.00	300.20	0.00	0.36
400	R1	399.93	2.77908E-10	2.77908E-10	0.520	2.80836E-10	0.07	2.81215E-10	399.78	-0.15	399.76	-0.18	0.33
400	R1	400.14	2.79379E-10	2.79379E-10	0.521	2.82322E-10	-0.14	2.81534E-10	400.04	-0.10	400.02	-0.12	0.34
419.53	R1	419.63	4.09805E-10	4.09805E-10	0.551	4.14123E-10	-0.10	4.13363E-10	419.53	-0.10	419.50	-0.12	0.34
500	R1	500.11	1.62441E-09	1.62441E-09	0.687	1.64152E-09	-0.11	1.63864E-09	499.97	-0.14	499.94	-0.17	0.37
600	R2	600.16	6.32775E-09	6.32775E-09	0.876	6.39443E-09	-0.16	6.38247E-09	600.09	-0.07	600.06	-0.09	0.45
600	R2	600.13	6.32566E-09	6.32566E-09	0.876	6.39232E-09	-0.13	6.38241E-09	600.06	-0.07	600.04	-0.09	0.47
660.32	R2	660.06	1.23955E-08	1.23955E-08	1.000	1.25261E-08	0.26	1.25608E-08	659.82	-0.24	659.81	-0.25	1.06
700	R2	699.83	1.84743E-08	1.84743E-08	1.087	1.86689E-08	0.17	1.86990E-08	699.29	-0.54	699.29	-0.54	1.06
700	R2	700.11	1.85300E-08	1.85300E-08	1.088	1.87253E-08	-0.11	1.87050E-08	699.60	-0.51	699.60	-0.51	1.08
800	R2	800.07	4.45481E-08	4.45481E-08	1.323	4.50175E-08	-0.07	4.49920E-08	799.37	-0.70	799.40	-0.67	1.17
900	R2	899.88	9.22973E-08	9.22973E-08	1.580	9.32699E-08	0.12	9.33437E-08	899.19	-0.69	899.28	-0.60	1.22
900	R2	899.94	9.23564E-08	9.23564E-08	1.580	9.33297E-08	0.06	9.33649E-08	899.29	-0.65	899.38	-0.57	1.24
961.78	R2	961.63	1.36561E-07	1.36561E-07	1.751	1.38000E-07	0.15	1.38126E-07	960.95	-0.68	961.08	-0.55	1.30

Table 45- results of the LNE variable temperature blackbody measurements for analysis using the fit of the median VTBB data – range R2

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check [‡] / °C	Signal corrected for Zn point drift/ A	dt (t_{nom} - t_{BB}) / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	dt (t_{fit} - t_{BB}) / °C	t from fit no 1000 °C data/ °C	dt (t_{fit} - t_{BB}) / °C	U ($k=2$) / °C
231.93	R1	231.913	3.0206E-12	3.02059E-12	0.237	3.04635E-12	0.02	3.04824E-12	231.960	0.047	232.055	0.142	0.450
419.53	R1	419.500	4.1029E-10	4.10295E-10	0.446	4.13795E-10	0.03	4.14035E-10	419.551	0.052	419.460	-0.039	0.158
660.32	R2	660.335	1.2502E-08	1.24947E-08	0.810	1.26013E-08	-0.02	1.25993E-08	660.405	0.070	660.363	0.028	0.278
961.78	R2	961.678	1.3834E-07	1.38261E-07	1.417	1.39441E-07	0.10	1.39526E-07	962.368	0.690	962.843	1.165	0.865
250	R1	249.986	5.6051E-12	5.60506E-12	0.254	5.65287E-12	0.01	5.65558E-12	249.798	-0.188	249.866	-0.119	0.365
300	R1	300.011	2.6007E-11	2.60067E-11	0.305	2.62285E-11	-0.01	2.62204E-11	300.030	0.019	300.034	0.023	0.239
400	R1	400.063	2.8005E-10	2.80050E-10	0.421	2.82439E-10	-0.06	2.82080E-10	400.121	0.059	400.041	-0.022	0.153
500 ¹	R1	499.955	1.6277E-09	1.62775E-09	0.556	1.64163E-09	0.05	1.64278E-09	500.047	0.092	499.937	-0.018	0.186
500 ²	R1	499.963	1.6276E-09	1.62764E-09	0.556	1.64152E-09	0.04	1.64246E-09	500.043	0.080	499.932	-0.031	0.201
600 ¹	R1	600.014	6.3365E-09	6.33653E-09	0.709	6.39058E-09	-0.01	6.38946E-09	600.085	0.071	600.001	-0.014	0.225
600 ²	R1	599.728	6.3123E-09	6.31232E-09	0.708	6.36616E-09	0.27	6.38703E-09	599.767	0.039	599.682	-0.045	0.247
300	R1	300.040	2.6079E-11	2.60794E-11	0.305	2.63019E-11	-0.04	2.62726E-11	300.130	0.090	300.134	0.095	0.239
400	R1	400.060	2.8016E-10	2.80163E-10	0.421	2.82553E-10	-0.06	2.82210E-10	400.141	0.081	400.060	0.001	0.153
600 ¹	R1	599.988	6.3348E-09	6.33481E-09	0.709	6.38885E-09	0.01	6.38975E-09	600.062	0.074	599.978	-0.010	0.225
500 ³	R1	499.803	1.6276E-09	1.62764E-09	0.555	1.64152E-09	0.20	1.64648E-09	500.043	0.239	499.932	0.129	0.500
600 ³	R1	599.237	6.3123E-09	6.31232E-09	0.707	6.36616E-09	0.76	6.42475E-09	599.767	0.530	599.682	0.446	0.541
700 ³	R2	699.935	1.8713E-08	1.87029E-08	0.880	1.88624E-08	0.07	1.88743E-08	700.348	0.413	700.345	0.411	0.584
800 ³	R2	799.890	4.5069E-08	4.50439E-08	1.070	4.54281E-08	0.11	4.54680E-08	800.412	0.522	800.547	0.657	0.682
900 ³	R2	899.923	9.3482E-08	9.34300E-08	1.279	9.42269E-08	0.08	9.42755E-08	900.507	0.585	900.835	0.913	0.797
1000 ³	R2	1000.039	1.7303E-07	1.72936E-07	1.507	1.74411E-07	-0.04	1.74373E-07	1000.693	0.654	1001.269	1.231	0.926
800 ³	R2	799.949	4.5097E-08	4.50721E-08	1.070	4.54566E-08	0.05	4.54749E-08	800.491	0.541	800.626	0.676	0.682
1000 ³	R2	1000.080	1.7314E-07	1.73044E-07	1.507	1.74520E-07	-0.08	1.74441E-07	1000.803	0.723	1001.380	1.300	0.926

Table 46- results of the METAS variable temperature blackbody measurements for analysis using the fit of the median VTBB data – range R1

¹ values obtained using a Cs heatpipe with PRT;

² values obtained using a Na heatpipe with PRT;

³ values obtained using a Na heatpipe with thermocouple.

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check [‡] / °C	Signal corrected for Zn point drift/ A	dt (t_{nom} - t_{BB}) / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	dt (t_{fit} - t_{BB}) / °C	t from fit no 1000 °C data/ °C	dt (t_{fit} - t_{BB}) / °C	U ($k=2$) / °C
231.93	R1	231.913	3.0206E-12	3.02225E-12	0.237	3.04803E-12	0.02	3.04992E-12	232.006	0.093	232.031	0.118	0.450
419.53	R1	419.500	4.1029E-10	4.10521E-10	0.446	4.14023E-10	0.03	4.14264E-10	419.515	0.015	419.491	-0.009	0.158
660.32	R2	660.335	1.2502E-08	1.25016E-08	0.810	1.26082E-08	-0.02	1.26062E-08	660.439	0.104	660.428	0.093	0.278
961.78	R2	961.678	1.3834E-07	1.38337E-07	1.417	1.39517E-07	0.10	1.39603E-07	962.770	1.092	962.896	1.218	0.865
250	R1	249.986	5.6051E-12	5.60815E-12	0.254	5.65599E-12	0.01	5.65870E-12	249.830	-0.155	249.849	-0.137	0.365
300	R1	300.011	2.6007E-11	2.60210E-11	0.305	2.62430E-11	-0.01	2.62349E-11	300.032	0.021	300.033	0.022	0.239
400	R1	400.063	2.8005E-10	2.80205E-10	0.421	2.82595E-10	-0.06	2.82236E-10	400.088	0.025	400.066	0.003	0.153
500 ¹	R1	499.955	1.6277E-09	1.62865E-09	0.556	1.64254E-09	0.05	1.64368E-09	500.012	0.057	499.983	0.028	0.186
500 ²	R1	499.963	1.6276E-09	1.62854E-09	0.556	1.64243E-09	0.04	1.64336E-09	500.008	0.045	499.978	0.015	0.201
600 ¹	R1	600.014	6.3365E-09	6.34002E-09	0.709	6.39410E-09	-0.01	6.39299E-09	600.083	0.068	600.060	0.046	0.225
600 ²	R1	599.728	6.3123E-09	6.31581E-09	0.708	6.36968E-09	0.27	6.39055E-09	599.764	0.037	599.742	0.014	0.247
300	R1	300.040	2.6079E-11	2.60938E-11	0.305	2.63164E-11	-0.04	2.62871E-11	300.132	0.092	300.133	0.093	0.239
400	R1	400.060	2.8016E-10	2.80318E-10	0.421	2.82709E-10	-0.06	2.82366E-10	400.108	0.048	400.086	0.026	0.153
600 ¹	R1	599.988	6.3348E-09	6.33831E-09	0.709	6.39237E-09	0.01	6.39328E-09	600.060	0.072	600.038	0.050	0.225
500 ³	R1	499.803	1.6276E-09	1.62854E-09	0.555	1.64243E-09	0.20	1.64739E-09	500.008	0.204	499.978	0.175	0.500
600 ³	R1	599.237	6.3123E-09	6.31581E-09	0.707	6.36968E-09	0.76	6.42830E-09	599.764	0.528	599.742	0.505	0.541
700 ³	R2	699.935	1.8713E-08	1.87132E-08	0.880	1.88728E-08	0.07	1.88847E-08	700.412	0.478	700.412	0.477	0.584
800 ³	R2	799.890	4.5069E-08	4.50687E-08	1.070	4.54531E-08	0.11	4.54931E-08	800.578	0.688	800.614	0.724	0.682
900 ³	R2	899.923	9.3482E-08	9.34816E-08	1.279	9.42789E-08	0.08	9.43275E-08	900.808	0.886	900.896	0.973	0.797
1000 ³	R2	1000.039	1.7303E-07	1.73032E-07	1.507	1.74507E-07	-0.04	1.74469E-07	1001.163	1.124	1001.316	1.278	0.926
800 ³	R2	799.949	4.5097E-08	4.50970E-08	1.070	4.54816E-08	0.05	4.55000E-08	800.657	0.707	800.693	0.743	0.682
1000 ³	R2	1000.080	1.7314E-07	1.73140E-07	1.507	1.74617E-07	-0.08	1.74537E-07	1001.274	1.193	1001.427	1.347	0.926

Table 47 - results of the METAS variable temperature blackbody measurements for analysis using the fit of the median VTBB data – range R2

t_{nom} /°C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check [‡] / °C	Signal corrected for Zn point drift/ A	$dt(t_{nom}$ - t_{BB}) / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{fit}$ - t_{BB}) / °C	t from fit no 1000 °C data/ °C	$dt(t_{fit}$ - t_{BB}) / °C	U ($k=2$) / °C
250	R1	250.78	5.76788E-12	5.76788E-12	0.129	5.79270E-12	-0.78	5.64102E-12	250.53	-0.25	250.60	-0.19	0.96
300	R2	299.80	2.60561E-11	2.63989E-11	0.154	2.65125E-11	0.20	2.66607E-11	300.42	0.62	300.42	0.62	1.27
419.53	R2	417.73	3.98655E-10	4.03899E-10	0.224	4.05637E-10	1.80	4.19639E-10	418.51	0.78	418.42	0.69	1.54
500	R2	497.10	1.56268E-09	1.58323E-09	0.278	1.59005E-09	2.90	1.66126E-09	497.97	0.87	497.86	0.76	1.83
600	R2	596.25	6.07226E-09	6.15213E-09	0.354	6.17861E-09	3.75	6.45990E-09	597.29	1.04	597.20	0.95	2.24
660.32	R2	655.68	1.19562E-08	1.21135E-08	0.405	1.21656E-08	4.64	1.27661E-08	657.08	1.40	657.03	1.35	2.57
700	R2	695.58	1.80514E-08	1.82889E-08	0.440	1.83676E-08	4.42	1.91616E-08	697.61	2.03	697.61	2.03	2.75
800	R2	797.27	4.40370E-08	4.46163E-08	0.537	4.48083E-08	2.73	4.57878E-08	798.69	1.42	798.82	1.55	3.34
900	R2	897.37	9.18374E-08	9.30455E-08	0.643	9.34458E-08	2.63	9.50902E-08	899.26	1.89	899.59	2.21	3.96
1000	R2	1000.09	1.72885E-07	1.75159E-07	0.760	1.75913E-07	-0.09	1.75826E-07	1002.21	2.12	1002.79	2.70	4.59

Table 48- results of the UME variable temperature blackbody measurements for analysis using the fit of the median VTBB data – range R1

t_{nom} /°C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check [‡] / °C	Signal corrected for Zn point drift/ A	$dt(t_{nom}$ - t_{BB}) / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{fit}$ - t_{BB}) / °C	t from fit no 1000 °C data/ °C	$dt(t_{fit}$ - t_{BB}) / °C	U ($k=2$) / °C
250	R1	250.78	5.76788E-12	5.69299E-12	0.129	5.71749E-12	-0.78	5.56778E-12	250.15	-0.63	250.17	-0.61	1.20
300	R2	299.80	2.60561E-11	2.60561E-11	0.154	2.61683E-11	0.20	2.63146E-11	299.93	0.13	299.93	0.13	0.90
419.53	R2	417.73	3.98655E-10	3.98655E-10	0.224	4.00371E-10	1.80	4.14191E-10	417.76	0.03	417.74	0.01	0.81
500	R2	497.10	1.56268E-09	1.56268E-09	0.278	1.56940E-09	2.90	1.63970E-09	497.05	-0.05	497.02	-0.08	0.84
600	R2	596.25	6.07226E-09	6.07226E-09	0.354	6.09839E-09	3.75	6.37603E-09	596.16	-0.09	596.14	-0.11	0.85
660.32	R2	655.68	1.19562E-08	1.19562E-08	0.405	1.20077E-08	4.64	1.26004E-08	655.82	0.14	655.81	0.13	0.99
700	R2	695.58	1.80514E-08	1.80514E-08	0.440	1.81291E-08	4.42	1.89128E-08	696.28	0.70	696.27	0.70	0.95
800	R2	797.27	4.40370E-08	4.4037E-08	0.537	4.42265E-08	2.73	4.51933E-08	797.15	-0.12	797.19	-0.09	1.14
900	R2	897.37	9.18374E-08	9.18374E-08	0.643	9.22326E-08	2.63	9.38556E-08	897.52	0.15	897.61	0.23	1.26
1000	R2	1000.09	1.72885E-07	1.72885E-07	0.760	1.73629E-07	-0.09	1.73543E-07	1000.27	0.18	1000.42	0.34	1.25

Table 49 - results of the UME variable temperature blackbody measurements for analysis using the fit of the median VTBB data – range R2

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check [‡] / °C	Signal corrected for Zn point drift/ A	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit no 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.93	R1	232.03	3.061856E-12	3.061856E-12	-0.003	3.061563E-12	-0.10	3.050555E-12	232.10	0.07	232.19	0.16	0.27
250	R1	249.99	5.672646E-12	5.672646E-12	-0.003	5.672104E-12	0.01	5.674006E-12	249.90	-0.09	249.97	-0.02	0.26
250	R1	249.99	5.681434E-12	5.681434E-12	-0.003	5.680891E-12	0.01	5.683748E-12	249.95	-0.04	250.01	0.03	0.26
250	R1	250.06	5.695074E-12	5.695074E-12	-0.003	5.694529E-12	-0.06	5.684031E-12	250.02	-0.04	250.09	0.03	0.26
300	R1	300.06	2.618329E-11	2.618329E-11	-0.003	2.618078E-11	-0.06	2.614057E-11	299.96	-0.09	299.97	-0.09	0.26
400	R1	400.00	2.817535E-10	2.817535E-10	-0.005	2.817266E-10	0.00	2.817551E-10	400.00	0.00	399.92	-0.08	0.27
400	R1	400.06	2.821617E-10	2.821617E-10	-0.005	2.821347E-10	-0.06	2.817919E-10	400.07	0.01	399.99	-0.07	0.27
419.53	R1	419.42	4.128693E-10	4.128693E-10	-0.005	4.128298E-10	0.11	4.136617E-10	419.43	0.00	419.34	-0.09	0.27
500 ¹	R2	499.89	1.639063E-09	1.638486E-09	-0.006	1.638330E-09	0.11	1.641029E-09	499.92	0.02	499.81	-0.09	0.29
500 ¹	R1	499.89	1.638486E-09	1.638486E-09	-0.006	1.638329E-09	0.11	1.641013E-09	499.92	0.02	499.81	-0.09	0.29
500 ²	R1	500.22	1.652192E-09	1.652192E-09	-0.006	1.652034E-09	-0.22	1.646458E-09	500.46	0.24	500.35	0.13	0.52
600	R1	600.04	6.398232E-09	6.398232E-09	-0.008	6.397620E-09	-0.04	6.394339E-09	600.18	0.13	600.09	0.05	0.54
660.32	R2	660.04	1.256802E-08	1.256359E-08	-0.009	1.256239E-08	0.28	1.259983E-08	660.11	0.07	660.07	0.03	0.55
700	R2	700.00	1.881512E-08	1.880850E-08	-0.010	1.880670E-08	0.00	1.880670E-08	700.04	0.04	700.04	0.04	0.56
700	R2	700.00	1.884819E-08	1.884156E-08	-0.010	1.883976E-08	0.00	1.883976E-08	700.22	0.22	700.22	0.22	0.56
800	R2	799.80	4.515964E-08	4.514375E-08	-0.012	4.513943E-08	0.20	4.521235E-08	799.61	-0.18	799.75	-0.05	0.59
900	R2	900.19	9.380092E-08	9.376791E-08	-0.014	9.375895E-08	-0.19	9.364140E-08	899.76	-0.43	900.09	-0.10	0.62
900	R2	900.01	9.385286E-08	9.381983E-08	-0.014	9.381086E-08	-0.01	9.380233E-08	899.84	-0.17	900.17	0.16	0.62
961.78	R2	961.78	1.386374E-07	1.385886E-07	-0.016	1.385754E-07	0.00	1.385754E-07	961.33	-0.45	961.81	0.03	0.64
1000	R2	1000.00	1.733113E-07	1.732503E-07	-0.017	1.732337E-07	0.00	1.732337E-07	999.50	-0.50	1000.07	0.07	0.65
1000	R2	1000.17	1.734897E-07	1.734286E-07	-0.017	1.734120E-07	-0.17	1.732406E-07	999.68	-0.50	1000.25	0.08	0.65

Table 50- results of the NPL variable temperature blackbody measurements for analysis using the fit of the median VTBB data – range R1

¹ values obtained using a Cs heatpipe with PRT;² values obtained using the NPL wide range cavity (WRC).

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check [†] / °C	Signal corrected for Zn point drift/ A	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit no 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.93	R1	232.03	3.061856E-12	3.062934E-12	-0.003	3.062641E-12	-0.10	3.051629E-12	232.14	0.11	232.16	0.13	0.27
250	R1	249.99	5.672646E-12	5.674643E-12	-0.003	5.674100E-12	0.01	5.676003E-12	249.93	-0.06	249.94	-0.05	0.26
250	R1	249.99	5.681434E-12	5.683434E-12	-0.003	5.682890E-12	0.01	5.685749E-12	249.97	-0.01	249.99	0.01	0.26
250	R1	250.06	5.695074E-12	5.697079E-12	-0.003	5.696534E-12	-0.06	5.686032E-12	250.04	-0.01	250.06	0.01	0.26
300	R1	300.06	2.618329E-11	2.619250E-11	-0.003	2.619000E-11	-0.06	2.614977E-11	299.96	-0.10	299.96	-0.09	0.26
400	R1	400.00	2.817535E-10	2.818527E-10	-0.005	2.818258E-10	0.00	2.818543E-10	399.95	-0.04	399.93	-0.06	0.27
400	R1	400.06	2.821617E-10	2.822610E-10	-0.005	2.822340E-10	-0.06	2.818911E-10	400.02	-0.04	400.00	-0.06	0.27
419.53	R1	419.42	4.128693E-10	4.130146E-10	-0.005	4.129751E-10	0.11	4.138073E-10	419.38	-0.04	419.36	-0.07	0.27
500	R2	499.89	1.639063E-09	1.639063E-09	-0.006	1.638906E-09	0.11	1.641607E-09	499.87	-0.03	499.84	-0.05	0.29
500	R1	499.89	1.638486E-09	1.639063E-09	-0.006	1.638906E-09	0.11	1.641591E-09	499.87	-0.03	499.84	-0.05	0.29
500	R1	500.22	1.652192E-09	1.652774E-09	-0.006	1.652616E-09	-0.22	1.647038E-09	500.41	0.19	500.38	0.16	0.52
600	R1	600.04	6.398232E-09	6.400484E-09	-0.008	6.399872E-09	-0.04	6.396590E-09	600.16	0.11	600.14	0.09	0.54
660.32	R2	660.04	1.256802E-08	1.256802E-08	-0.009	1.256681E-08	0.28	1.260427E-08	660.13	0.09	660.12	0.08	0.55
700	R2	700.00	1.881512E-08	1.881512E-08	-0.010	1.881332E-08	0.00	1.881332E-08	700.09	0.09	700.09	0.09	0.56
700	R2	700.00	1.884819E-08	1.884819E-08	-0.010	1.884639E-08	0.00	1.884639E-08	700.27	0.27	700.27	0.27	0.56
800	R2	799.80	4.515964E-08	4.515964E-08	-0.012	4.515532E-08	0.20	4.522827E-08	799.75	-0.05	799.79	-0.01	0.59
900	R2	900.19	9.380092E-08	9.380092E-08	-0.014	9.379195E-08	-0.19	9.367436E-08	900.03	-0.16	900.12	-0.07	0.62
900	R2	900.01	9.385286E-08	9.385286E-08	-0.014	9.384388E-08	-0.01	9.383535E-08	900.11	0.10	900.20	0.19	0.62
961.78	R2	961.78	1.386374E-07	1.386374E-07	-0.016	1.386241E-07	0.00	1.386241E-07	961.70	-0.08	961.83	0.05	0.64
1000	R2	1000.00	1.733113E-07	1.733113E-07	-0.017	1.732947E-07	0.00	1.732947E-07	999.93	-0.07	1000.08	0.08	0.65
1000	R2	1000.17	1.734897E-07	1.734897E-07	-0.017	1.734731E-07	-0.17	1.733016E-07	1000.11	-0.06	1000.27	0.09	0.65

Table 51 - results of the NPL variable temperature blackbody measurements for analysis using the fit of the median VTBB data – range R2

11 AVERAGE LABORATORY RESULTS FOR VARIABLE TEMPERATURE BLACKBODY MEASUREMENTS WITH THE LP5

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	$U(k=2)/^\circ\text{C}$
231.93	3.034497E-12	0.42
250	5.707980E-12	0.36
300	2.622800E-11	0.36
400	2.820111E-10	0.40
419.53	4.144973E-10	0.41
500	1.641497E-09	0.45
600	6.396482E-09	0.50
660.32	1.259529E-08	0.56
700	1.879001E-08	0.59
800	4.523057E-08	0.70
900	9.367706E-08	0.82

Table 52 – CEM results – range R1

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	$U(k=2)/^\circ\text{C}$
231.93	3.062145E-12	2.36
250	5.754551E-12	1.55
300	2.611042E-11	0.48
400	2.822168E-10	0.40
419.53	4.147678E-10	0.41
500	1.642389E-09	0.46
600	6.399232E-09	0.50
660.32	1.260098E-08	0.55
700	1.879850E-08	0.59
800	4.525100E-08	0.70
900	9.371937E-08	0.81

Table 53 - CEM results - range R2

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	$U(k=2)/^\circ\text{C}$
231.93	3.03731E-12	0.14
250	5.68800E-12	0.11
300	2.62203E-11	0.16
400	2.81932E-10	0.12
419.53	4.14064E-10	0.13
500	1.64126E-09	0.15
600	6.38444E-09	0.20
660.32	1.25819E-08	0.23
700	1.87769E-08	0.25
800	4.52008E-08	0.30
900	9.37021E-08	0.36
961.78	1.38493E-07	0.39

Table 54 - PTB results – range R1

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	$U(k=2)/^\circ\text{C}$
231.93	3.03701E-12	0.14
250	5.68745E-12	0.11
300	2.62177E-11	0.16
400	2.81904E-10	0.12
419.53	4.14024E-10	0.13
500	1.64110E-09	0.16
600	6.38381E-09	0.20
660.32	1.25807E-08	0.23
700	1.87750E-08	0.25
800	4.51963E-08	0.30
900	9.36930E-08	0.36
961.78	1.38479E-07	0.39

Table 55 - PTB results - range R2

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	$U(k=2)/^\circ\text{C}$
231.93	3.04056E-12	0.60
250	5.58906E-12	0.45
300	2.62213E-11	0.36
400	2.81374E-10	0.34
419.53	4.13363E-10	0.34
500	1.63864E-09	0.37
600	6.38244E-09	0.46
660.32	1.25608E-08	1.06
700	1.87020E-08	1.07
800	4.49920E-08	1.17
900	9.33543E-08	1.23
961.78	1.38126E-07	1.30

Table 56 - LNE results – range R1

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	$U(k=2)/^\circ\text{C}$
231.93	3.04056E-12	0.60
250	5.58906E-12	0.45
300	2.62213E-11	0.36
400	2.81374E-10	0.34
419.53	4.13363E-10	0.34
500	1.63864E-09	0.37
600	6.38244E-09	0.46
660.32	1.25608E-08	1.06
700	1.87020E-08	1.07
800	4.49920E-08	1.17
900	9.33543E-08	1.23
961.78	1.38126E-07	1.30

Table 57 - LNE results - range R2

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	U ($k=2$)/ $^\circ\text{C}$
250	5.64102E-12	0.96
300	2.66607E-11	1.27
419.53	4.19639E-10	1.54
500	1.66126E-09	1.83
600	6.45990E-09	2.24
660.32	1.27661E-08	2.57
700	1.91616E-08	2.75
800	4.57878E-08	3.34
900	9.50902E-08	3.96
1000	1.75826E-07	4.59

Table 58 – UME results – range R1

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	U ($k=2$)/ $^\circ\text{C}$
250	5.56778E-12	1.20
300	2.63146E-11	0.90
419.53	4.14191E-10	0.81
500	1.63970E-09	0.84
600	6.37603E-09	0.85
660.32	1.26004E-08	0.99
700	1.89128E-08	0.95
800	4.51933E-08	1.14
900	9.38556E-08	1.26
1000	1.73543E-07	1.25

Table 59 - UME results - range R2

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	U ($k=2$)/ $^\circ\text{C}$
231.93	3.048237E-12	0.45
250	5.655583E-12	0.36
300	2.624654E-11	0.24
400	2.821450E-10	0.15
419.53	4.140355E-10	0.16
500	1.643905E-09	0.30
600	6.397750E-09	0.31
660.32	1.259928E-08	0.28
700	1.887433E-08	0.58
800	4.547147E-08	0.68
900	9.427552E-08	0.80
961.78	1.395261E-07	0.86
1000	1.744070E-07	0.93
Cs at 500	1.642776E-09	0.19
Na at 500 1	1.642455E-09	0.20
Na at 500 2	1.646482E-09	0.50
Cs at 600	6.389609E-09	0.23
Na at 600 1	6.387026E-09	0.25
Na at 600 2	6.424754E-09	0.54

Table 60 - METAS results – range R1

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	U ($k=2$)/ $^\circ\text{C}$
231.93	3.049919E-12	0.45
250	5.658704E-12	0.36

300	2.626102E-11	0.24
400	2.823007E-10	0.15
419.53	4.142639E-10	0.16
500	1.644812E-09	0.30
600	6.401280E-09	0.31
660.32	1.260623E-08	0.28
700	1.888474E-08	0.58
800	4.549656E-08	0.68
900	9.432754E-08	0.80
961.78	1.396031E-07	0.86
1000	1.745032E-07	0.93
Cs at 500	1.643683E-09	0.19
Na at 500 1	1.643362E-09	0.20
Na at 500 2	1.647391E-09	0.50
Cs at 600	6.393135E-09	0.23
Na at 600 1	6.390551E-09	0.25
Na at 600 2	6.428299E-09	0.54

Table 61 - METAS results - range R2

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	U ($k=2$)/ $^\circ\text{C}$
231.93	3.05056E-12	0.27
250	5.68059E-12	0.26
300	2.61406E-11	0.26
400	2.81774E-10	0.27
419.53	4.13662E-10	0.27
500	1.64283E-09	0.37
600	6.39426E-09	0.54
660.32	1.25998E-08	0.55

NPL Report ENG 67

700	1.88229E-08	0.56
800	4.52124E-08	0.59
900	9.37219E-08	0.62
961.78	1.38578E-07	0.64
1000	1.73237E-07	0.65
Cs at 500	1.641021E-09	0.29
WRC at 500	1.646458E-09	0.52

Table 62 - NPL results – range R1

$t_{nom}/\text{ }^{\circ}\text{C}$	Average signal/ A	U (k=2)/ $^{\circ}\text{C}$
231.93	3.05163E-12	0.27
250	5.68259E-12	0.26
300	2.61498E-11	0.26
400	2.81873E-10	0.27
419.53	4.13807E-10	0.27
500	1.64341E-09	0.37
600	6.39651E-09	0.54
660.32	1.26043E-08	0.55
700	1.88295E-08	0.56
800	4.52283E-08	0.59
900	9.37549E-08	0.62
961.78	1.38627E-07	0.64
1000	1.73298E-07	0.65
Cs at 500	1.641599E-09	0.29
WRC at 500	1.647038E-09	0.52

Table 63 - NPL results - range R2

$t_{nom}/\text{ }^{\circ}\text{C}$	Median signal/ A
231.93	3.040555E-12
250	5.668089E-12
300	2.622467E-11
400	2.819319E-10
419.53	4.140499E-10
500	1.642165E-09
600	6.395373E-09
660.32	1.259729E-08

700	1.880645E-08
800	4.522146E-08
900	9.371201E-08
961.78	1.385354E-07
1000	1.744070E-07

Table 64 – median values for all the LP5 range R1 VTBB measurements

700	1.881401E-08
800	4.521230E-08
900	9.373711E-08
961.78	1.385530E-07
1000	1.735433E-07

Table 65 - median values for all the LP5 range R2 VTBB measurements

$t_{nom}/\text{ }^{\circ}\text{C}$	Median signal/ A
231.93	3.049919E-12
250	5.670649E-12
300	2.621952E-11
400	2.819044E-10
419.53	4.141072E-10
500	1.641743E-09
600	6.390163E-09
660.32	1.260069E-08

12 RESULTS OF THE FITTING PROCESS USING THE SAKUMA HATTORI FIT – VTBB MEASUREMENTS ONLY WITH THE LP5 ON RANGE R1

Thermometer signal/ V	Temperature/ K	Fitted temperature/ K	Residual/ K
3.04056E-12	505.08	505.057	-0.023
5.66809E-12	523.15	523.028	-0.122
2.62247E-11	573.15	573.175	0.025
2.81932E-10	673.15	673.183	0.033
4.14050E-10	692.68	692.734	0.054
1.64216E-09	773.15	773.218	0.068
6.39537E-09	873.15	873.297	0.147
1.25973E-08	933.47	933.525	0.055
1.88065E-08	973.15	973.191	0.041
4.52215E-08	1073.15	1072.990	-0.160
9.37120E-08	1173.15	1172.836	-0.314
1.38535E-07	1234.93	1234.437	-0.493
1.74407E-07	1273.15	1273.839	0.689

Table 66 – results of the fit using all the data points

Coefficients of the fit: $a_1 = 2.3753775486E-04$
 $a_2 = 1.5632785418E-06$
 $a_3 = 2.1442667274E-06$

Thermometer signal/ V	Temperature/ K	Fitted temperature/ K	Residual/ K
3.040555E-12	505.08	505.152	0.072
5.668089E-12	523.15	523.096	-0.054
2.622467E-11	573.15	573.179	0.029
2.819319E-10	673.15	673.102	-0.048
4.140499E-10	692.68	692.643	-0.037
1.642165E-09	773.15	773.108	-0.042
6.395373E-09	873.15	873.213	0.063
1.259729E-08	933.47	933.483	0.013
1.880645E-08	973.15	973.189	0.039
4.522146E-08	1073.15	1073.124	-0.026
9.371201E-08	1173.15	1173.162	0.012
1.385354E-07	1234.93	1234.909	-0.021
1.744070E-07	1273.15	1274.415	1.265

Table 67 – results of the fit, excluding the 1000 °C data in the fitting process but using the coefficients to calculate the corresponding fitted temperature at 1000 °C

Coefficients of the fit: $a_1 = 2.3153835258E-04$
 $a_2 = 1.5700593246E-06$
 $a_3 = -3.1279215261E-07$

13 RESULTS OF THE FITTING PROCESS USING THE SAKUMA HATTORI FIT – VTBB MEASUREMENTS ONLY WITH THE LP5 ON RANGE R2

Thermometer signal/ A	Temperature/ K	Fitted temperature/ K	Residual/ K
3.04992E-12	505.08	505.173	0.093
5.67065E-12	523.15	523.058	-0.092
2.62195E-11	573.15	573.150	0.000
2.81904E-10	673.15	673.117	-0.033
4.14107E-10	692.68	692.675	-0.005
1.64174E-09	773.15	773.130	-0.020
6.39016E-09	873.15	873.181	0.031
1.26007E-08	933.47	933.532	0.062
1.88140E-08	973.15	973.240	0.090
4.52123E-08	1073.15	1073.060	-0.090
9.37371E-08	1173.15	1173.093	-0.057
1.38553E-07	1234.93	1234.766	-0.164
1.73543E-07	1273.15	1273.334	0.184

Table 68 – results of the fit using all the data points

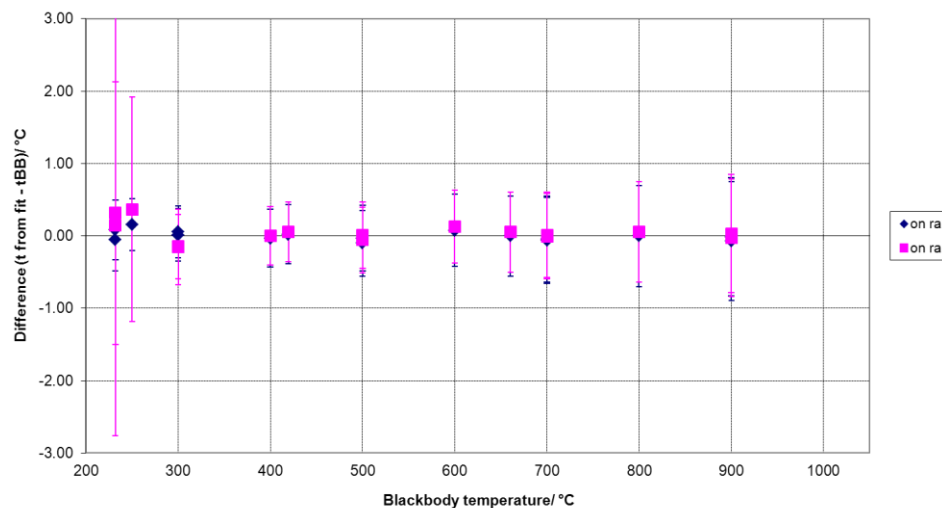
Coefficients of the fit: $a_1 = 2.3396415485E-04$
 $a_2 = 1.5671745633E-06$
 $a_3 = 7.9012079839E-07$

Thermometer signal/ A	Temperature/ K	Fitted temperature/ K	Residual/ K
3.049919E-12	505.08	505.198	0.118
5.670649E-12	523.15	523.076	-0.074
2.621952E-11	573.15	573.151	0.001
2.819044E-10	673.15	673.095	-0.055
4.141072E-10	692.68	692.651	-0.029
1.641743E-09	773.15	773.101	-0.049
6.390163E-09	873.15	873.159	0.009
1.260069E-08	933.47	933.521	0.051
1.881401E-08	973.15	973.240	0.090
4.521230E-08	1073.15	1073.096	-0.054
9.373711E-08	1173.15	1173.180	0.030
1.385530E-07	1234.93	1234.892	-0.038
1.735433E-07	1273.15	1273.487	0.337

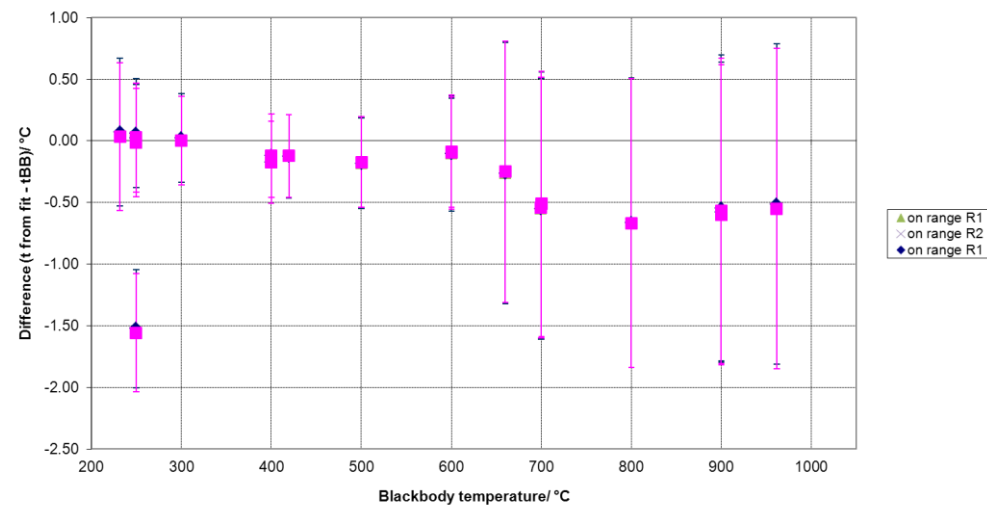
Table 69 – results of the fit, excluding the 1000 °C data in the fitting process but using the coefficients to calculate the corresponding fitted temperature at 1000 °C

Coefficients of the fit: $a_1 = 2.3238246941E-04$
 $a_2 = 1.5689746552E-06$
 $a_3 = 1.3773345985E-07$

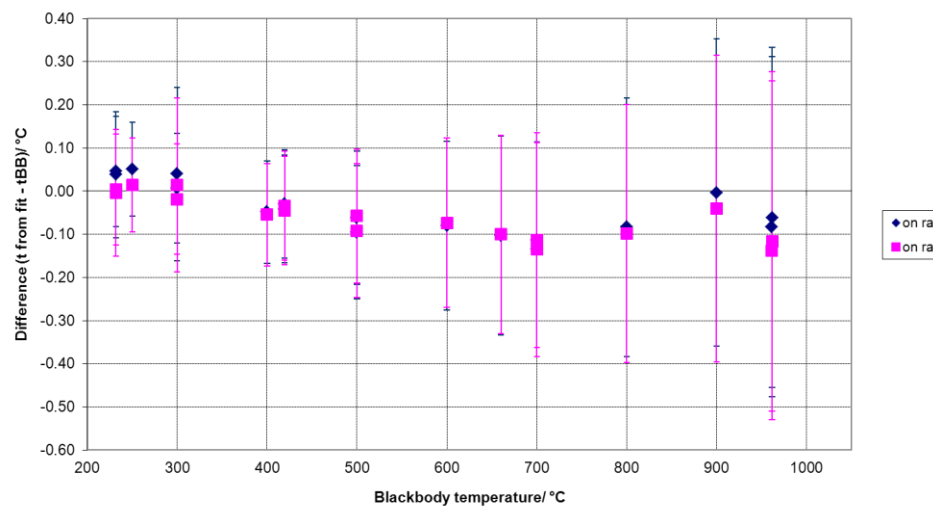
CEM results - plot of differences (LP5 median calibration fit temperature excluding 1000 °C data - blackbody temperature) (VTBB data)



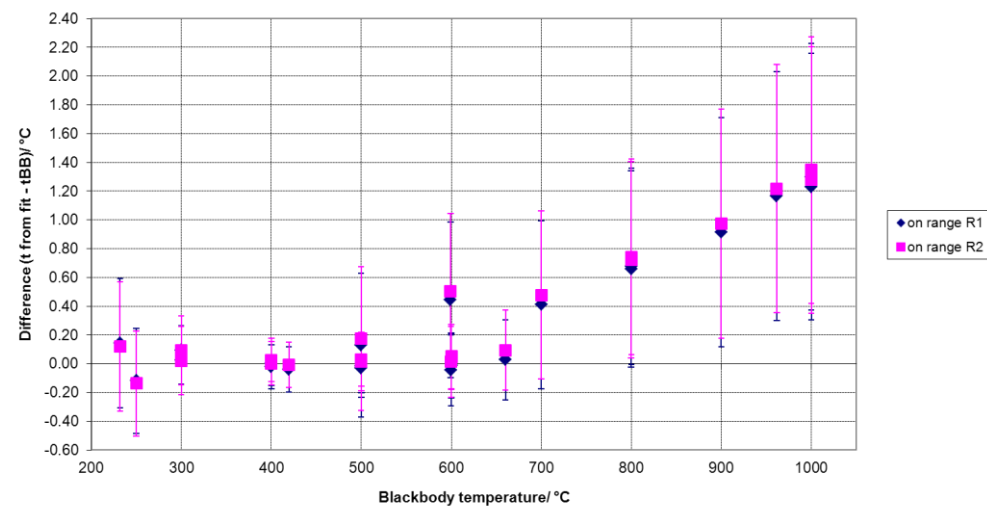
LNE results - plot of differences (LP5 median calibration fit temperature excluding 1000 °C data - blackbody temperature) (VTBB data)



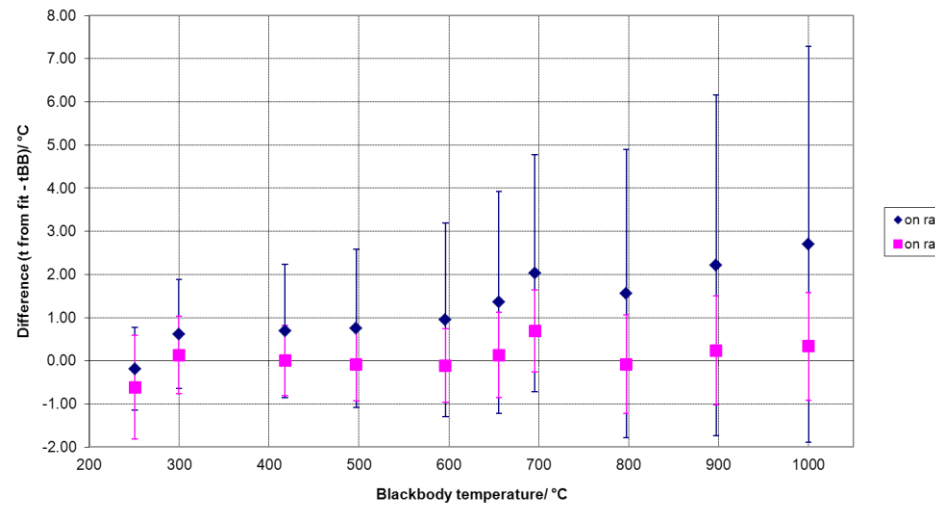
PTB results - plot of differences (LP5 median calibration fit temperature excluding 1000 °C data - blackbody temperature) (VTBB data)



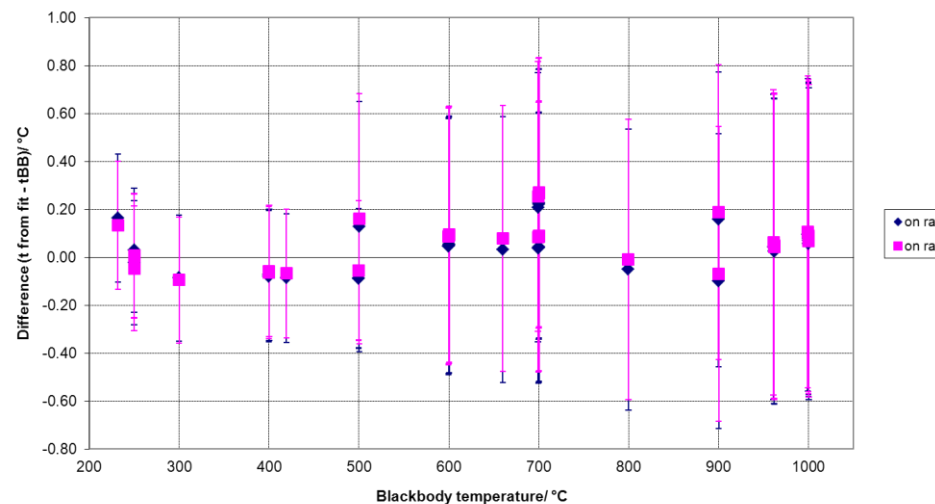
METAS results - plot of differences (LP5 median calibration fit temperature excluding 1000 °C data - blackbody temperature) (VTBB data)



UME results - plot of differences (LP5 median calibration fit temperature excluding 1000 °C data - blackbody temperature) (VTBB data)



NPL results - plot of differences (LP5 median calibration fit temperature excluding 1000 °C data - blackbody temperature) (VTBB data)



14 THE FP RESULTS WITH THE LP5 USING THE MEDIAN OF ALL THE FP DATA FOR THE FITTING PROCESS

t_{nom} / °C)	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check / °C	Signal corrected for Zn point drift/ A	$dt (t_{nom} - t_{BB})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt (t_{fit} - t_{BB})$ / °C	U ($k=2$) / °C
419.527	R1	419.527	4.13748E-10*	4.13748E-10	0.05	4.14093E-10 [†]	0.00	4.14093E-10 [†]	419.457	-0.070	0.28
419.527	R2	419.527	4.13913E-10*	4.13726E-10	0.05	-	0.00	-	-	-	-
961.78	R2	961.78	1.38289E-07*	1.38227E-07	0.14	1.38346E-07	0.00	1.38346E-07	961.457	-0.323	0.92

Table 70 - results of the CEM FP blackbody measurements for analysis using the fit of the median FP data – range R1

t_{nom} / °C)	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check / °C	Signal corrected for Zn point drift/ A	$dt (t_{nom} - t_{BB})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt (t_{fit} - t_{BB})$ / °C	U ($k=2$) / °C
419.527	R2	419.527	4.13913E-10*	4.13913E-10	0.05	4.14269E-10	0.00	4.14269E-10	419.529	0.002	0.28
961.78	R2	961.78	1.38289E-07*	1.38289E-07	0.14	1.38408E-07	0.00	1.38408E-07	961.332	-0.448	0.91

Table 71 results of the CEM FP blackbody measurements for analysis using the fit of the median FP data – range R2

* taking average signals

† average temperature calculated

t_{nom} / °C)	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check / °C	Signal corrected for Zn point drift/ A	$dt (t_{nom} - t_{BB})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt (t_{fit} - t_{BB})$ / °C	U ($k=2$) / °C
231.928	R1	231.928	3.03065E-12	3.03065E-12	0.120	3.04369E-12	0.00	3.04369E-12	231.940	0.012	0.47
419.527	R2	419.527	4.11979E-10	4.17417E-10	0.225	4.19213E-10	0.00	4.19213E-10	420.101	0.574	1.29
660.323	R2	660.323	1.25181E-08	1.26833E-08	0.409	1.27379E-08	0.00	1.27379E-08	661.365	1.042	2.29

Table 72 - results of the UME FP blackbody measurements for analysis using the fit of the median FP data – range R1

t_{nom} / °C)	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check / °C	Signal corrected for Zn point drift/ A	$dt (t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt (t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.928	R1	231.928	3.03065E-12	2.99130E-12	0.120	3.00417E-12	0.00	3.00417E-12	231.524	-0.404	0.83
419.527	R2	419.527	4.11979E-10	4.11979E-10	0.225	4.13752E-10	0.00	4.13752E-10	419.464	-0.063	0.17
660.323	R2	660.323	1.25181E-08	1.25181E-08	0.409	1.25720E-08	0.00	1.25720E-08	660.156	-0.167	0.22

Table 73 - results of the UME FP blackbody measurements for analysis using the fit of the median FP data – range R2

t_{nom} / °C)	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check / °C	Signal corrected for Zn point drift/ A	$dt (t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt (t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.928	R1	231.928	3.04800E-12	3.04800E-12	-0.003	3.04770E-12	0.00	3.04770E-12	231.977	0.049	0.11
419.527	R1	419.527	4.14357E-10	4.14357E-10	-0.005	4.14317E-10	0.00	4.14317E-10	419.485	-0.042	0.13
660.323	R2	660.323	1.25937E-08	1.25893E-08	-0.009	1.25881E-08	0.00	1.25881E-08	660.239	-0.084	0.23
961.78	R2	961.78	1.38800E-07	1.38751E-07	-0.016	1.38738E-07	0.00	1.38738E-07	961.927	0.147	0.40

Table 74 results of the NPL FP blackbody measurements for analysis using the fit of the median FP data – range R1

t_{nom} / °C)	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check / °C	Signal corrected for Zn point drift/ A	$dt (t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt (t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.928	R1	231.928	3.04800E-12	3.04907E-12	-0.003	3.04878E-12	0.00	3.04878E-12	231.935	0.007	0.11
419.527	R1	419.527	4.14357E-10	4.14503E-10	-0.005	4.14463E-10	0.00	4.14463E-10	419.554	0.027	0.13
660.32	R2	660.32	1.25937E-08	1.25937E-08	-0.009	1.25925E-08	0.00	1.25925E-08	660.312	-0.011	0.23
961.78	R2	961.78	1.38800E-07	1.38800E-07	-0.016	1.38787E-07	0.00	1.38787E-07	961.785	0.005	0.40

Table 75 - results of the NPL FP blackbody measurements for analysis using the fit of the median FP data – range R2

t_{nom} / °C)	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check / °C	Signal corrected for Zn point drift/ A	dt ($t_{\text{nom}} -$ t_{BB})/ °C	Signal corrected to t_{nom} / A	t from median fit/ °C	dt ($t_{\text{fit}} -$ t_{BB}) / °C	U ($k=2$) / °C
231.928	R1	231.928	3.01309E-12	3.01309E-12	0.281	3.04352E-12	0.00	3.04352E-12	231.939	0.011	0.520
419.527	R1	419.527	4.10363E-10	4.10363E-10	0.528	4.14507E-10	0.00	4.14507E-10	419.509	-0.018	0.122
660.323	R2	660.323	1.24922E-08	1.24763E-08	0.959	1.26023E-08	0.00	1.26023E-08	660.347	0.024	0.219
961.78	R2	961.78	1.37398E-07	1.37224E-07	1.678	1.38610E-07	0.00	1.38610E-07	961.773	-0.007	0.383

Table 76- results of the INRiM FP blackbody measurements for analysis using the fit of the median FP data – range R1

t_{nom} / °C)	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check / °C	Signal corrected for Zn point drift/ A	dt ($t_{\text{nom}} -$ t_{BB})/ °C	Signal corrected to t_{nom} / A	t from median fit/ °C	dt ($t_{\text{fit}} -$ t_{BB}) / °C	U ($k=2$) / °C
231.928	R1	231.928	3.01309E-12	3.01691E-12	0.281	3.04737E-12	0.00	3.04737E-12	231.922	-0.006	0.520
419.527	R1	419.527	4.10363E-10	4.10884E-10	0.528	4.15033E-10	0.00	4.15033E-10	419.626	0.099	0.122
660.323	R2	660.323	1.24922E-08	1.24922E-08	0.959	1.26183E-08	0.00	1.26183E-08	660.506	0.183	0.219
961.78	R2	961.78	1.37398E-07	1.37398E-07	1.678	1.38785E-07	0.00	1.38785E-07	961.783	0.003	0.383

Table 77- results of the INRiM FP blackbody measurements for analysis using the fit of the median FP data – range R2

15 RESULTS OF THE FITTING PROCESS USING THE SAKUMA HATTORI FIT – FP MEASUREMENTS ONLY WITH THE LP5 ON RANGES R1 AND R2

Median thermometer signal/ A	Temperature/ K	Fitted temperature/ K	Residual/ K
3.04369E-12	505.078	505.090	0.012
4.14412E-10	692.677	692.647	-0.030
1.26023E-08	933.473	933.497	0.024
1.38610E-07	1234.93	1234.924	-0.006

Table 78 – results of the fit using range R1

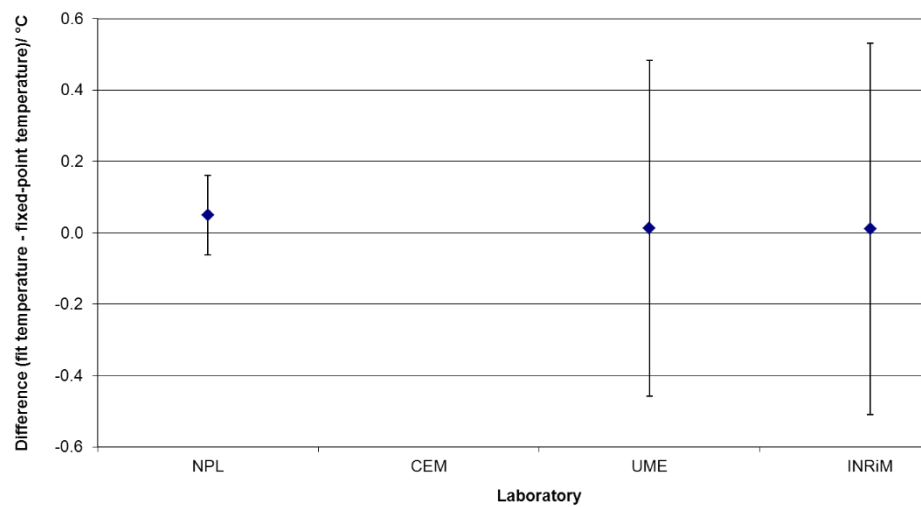
Coefficients of the fit: $a_1 = 2.3247408177\text{E-}04$
 $a_2 = 1.5688268391\text{E-}06$
 $a_3 = 2.7454651265\text{E-}07$

Median thermometer signal/ A	Temperature/ K	Fitted temperature/ K	Residual/ K
3.047370E-12	505.078	505.072	-0.006
4.143660E-10	692.677	692.691	0.014
1.259250E-08	933.473	933.462	-0.011
1.387850E-07	1234.93	1234.933	0.003

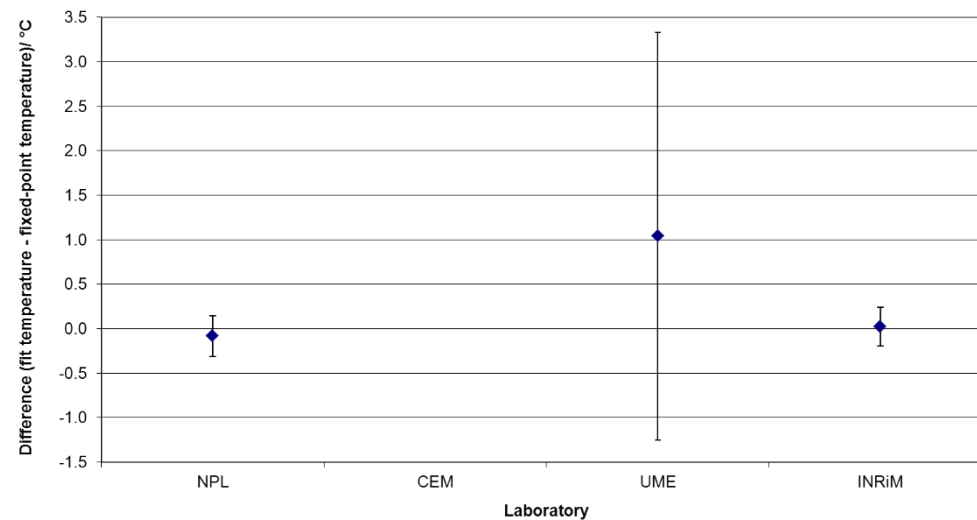
Table 79– results of the fit using range R2

Coefficients of the fit: $a_1 = 2.3544818438\text{E-}04$
 $a_2 = 1.5653700980\text{E-}06$
 $a_3 = 1.5474554056\text{E-}06$

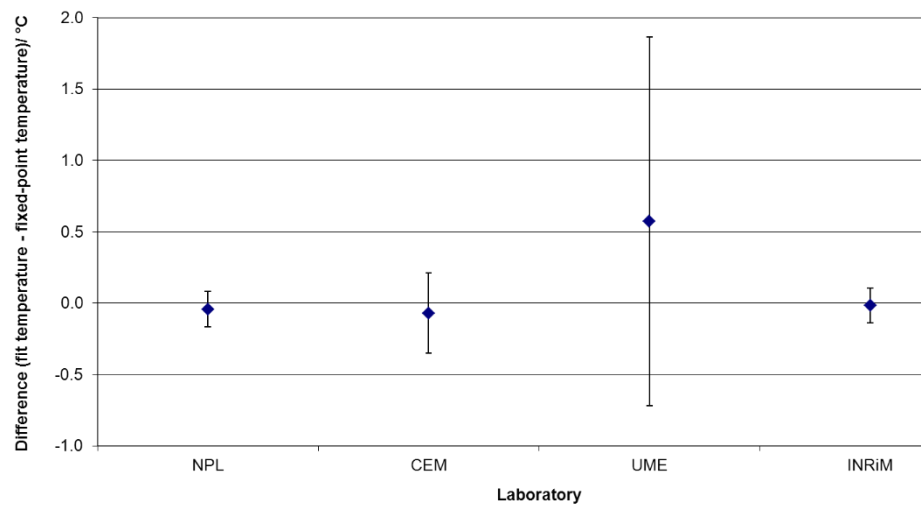
Calibration of the LP5 at the tin fixed-point
(Fitting done using median of fixed-point data on range R1)



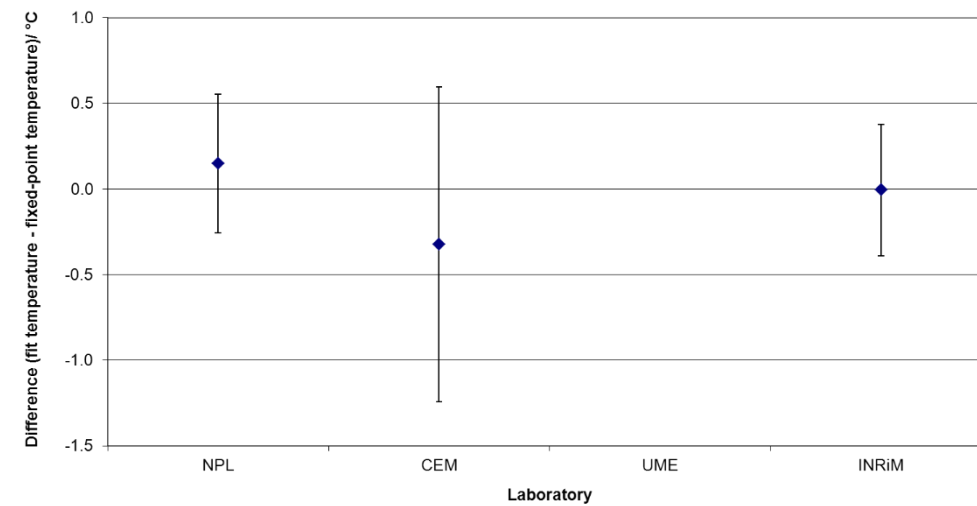
Calibration of the LP5 at the aluminium fixed-point
(Fitting done using median of fixed-point data on range R1)



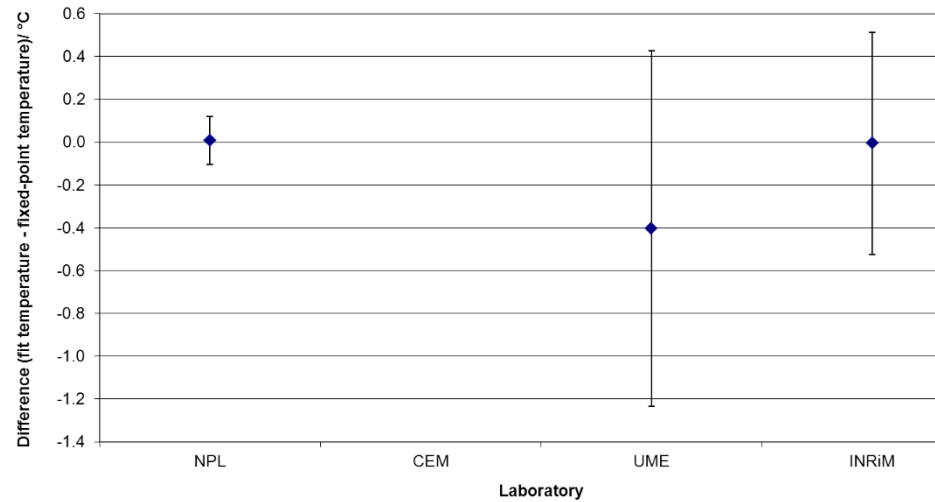
Calibration of the LP5 at the zinc fixed-point
(Fitting done using median of fixed-point data on range R1)



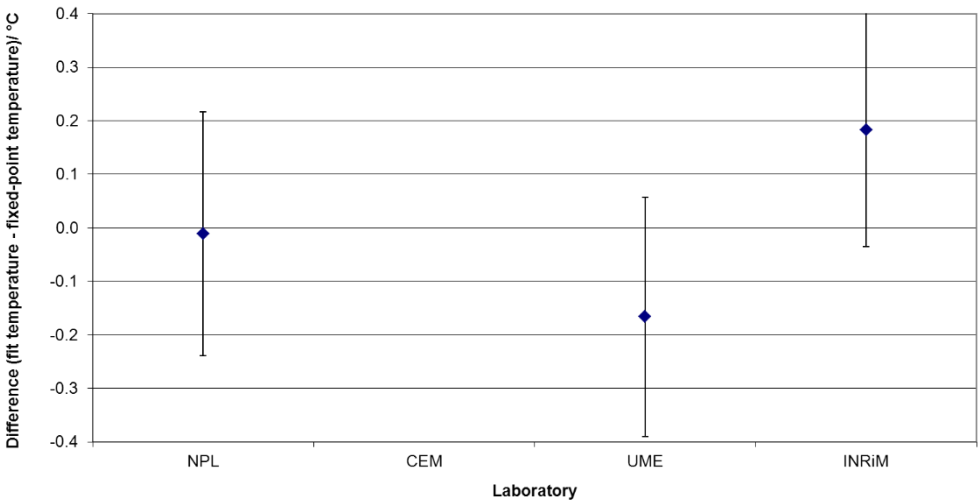
Calibration of the LP5 at the silver fixed-point
(Fitting done using median of fixed-point data on range R1)



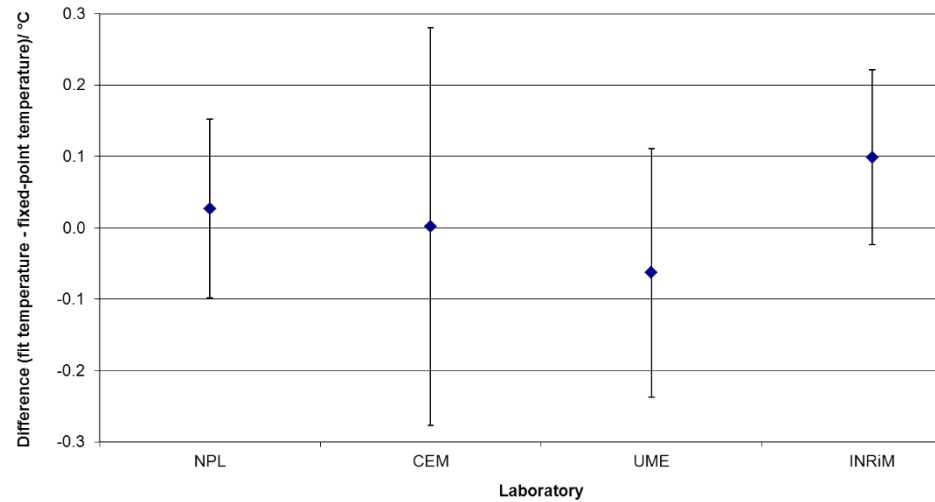
Calibration of the LP5 at the tin fixed-point
(Fitting done with median of fixed-point data on range R2)



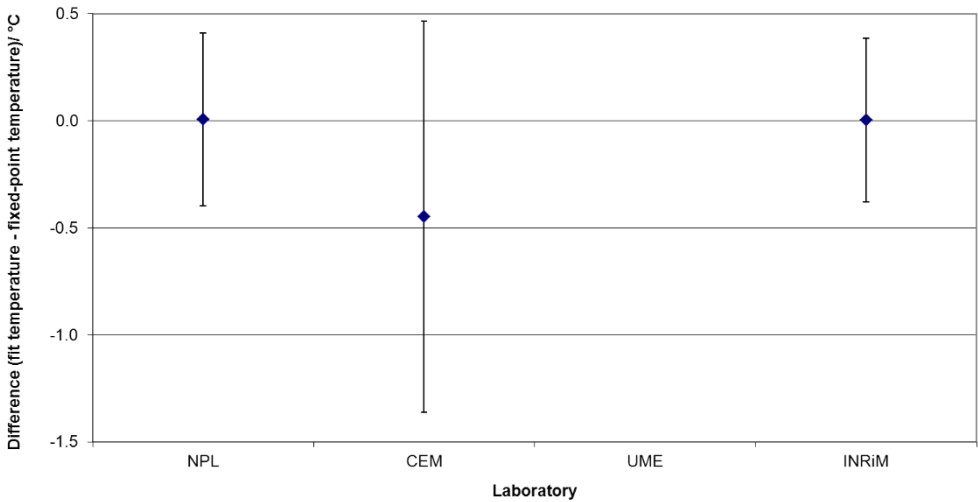
Calibration of the LP5 at the aluminium fixed-point
(Fitting done using median of fixed-point data on range R2)



Calibration of the LP5 at the zinc fixed-point
(Fitting done using median of fixed-point data on range R2)



Calibration of the LP5 at the silver fixed-point
(Fitting done using median of fixed-point data on range R2)



16 THE VTBB AND FP RESULTS WITH THE LP5 USING THE MEDIAN OF ALL THE VTBB AND FP DATA FOR THE FITTING PROCESS

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check/ °C	Signal corrected for Zn point drift/ A	$dt(t_{nom}$ - t_{BB}) / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{fit}$ - t_{BB}) / °C	t from fit no 1000 °C data/ °C	$dt(t_{fit}$ - t_{BB}) / °C	U ($k=2$) / °C
231.93	R1	231.91	3.02262E-12	3.02262E-12	0.02	3.02523E-12	0.02	3.02740E-12	231.754	-0.156	231.847	-0.063	0.43
250.00	R1	250.11	5.72417E-12	5.72417E-12	0.03	5.72910E-12	-0.11	5.70798E-12	250.188	0.078	250.254	0.144	0.36
300.00	R1	300.09	2.62564E-11	2.62564E-11	0.03	2.62790E-11	-0.09	2.62129E-11	300.092	0.002	300.096	0.006	0.36
400.00	R1	399.94	2.81427E-10	2.81427E-10	0.04	2.81669E-10	0.06	2.82011E-10	399.985	0.045	399.906	-0.034	0.40
419.53	R1	419.55	4.14299E-10	4.14299E-10	0.05	4.14656E-10	-0.02	4.14497E-10	419.660	0.110	419.570	0.020	0.41
419.53*	R1	419.53	4.13748E-10	4.13748E-10	0.05	4.14093E-10 [†]	0.00	4.14093E-10 [†]	419.589 [†]	0.059	419.499 [†]	-0.031	0.28
419.53*	R2	419.53	4.13913E-10	4.13726E-10	0.05	-	0.00	-	-	-	-	-	-
500.00	R1	499.98	1.63872E-09	1.63872E-09	0.06	1.64013E-09	0.02	1.64063E-09	499.990	0.010	499.881	-0.099	0.45
600.00	R1	600.09	6.39791E-09	6.39791E-09	0.07	6.40342E-09	-0.09	6.39648E-09	600.256	0.166	600.173	0.083	0.50
660.32	R2	660.35	1.25941E-08	1.25884E-08	0.08	1.25993E-08	-0.03	1.25953E-08	660.395	0.045	660.353	0.003	0.56
700.00	R2	700.10	1.88022E-08	1.87938E-08	0.09	1.88099E-08	-0.10	1.87917E-08	700.064	-0.036	700.062	-0.038	0.59
800.00	R2	799.91	4.51797E-08	4.51593E-08	0.11	4.51982E-08	0.09	4.52306E-08	799.777	-0.133	799.909	-0.001	0.70
900.00	R2	900.01	9.36263E-08	9.35841E-08	0.13	9.36646E-08	-0.01	9.36584E-08	899.608	-0.402	899.929	-0.081	0.82
961.78*	R2	961.78	1.38289E-07	1.38227E-07	0.14	1.38346E-07	0.00	1.38346E-07	961.054	-0.726	961.519	-0.261	0.92
231.93	R1	232.07	3.05435E-12	3.05435E-12	0.02	3.05698E-12	-0.14	3.04159E-12	232.045	-0.025	232.138	0.068	0.41
300.00	R1	300.14	2.63234E-11	2.63234E-11	0.03	2.63461E-11	-0.14	2.62431E-11	300.183	0.043	300.187	0.047	0.36
500.00	R1	500.09	1.64322E-09	1.64322E-09	0.06	1.64463E-09	-0.09	1.64236E-09	500.169	0.079	500.060	-0.030	0.45
700.00	R2	700.04	1.87879E-08	1.87794E-08	0.09	1.87956E-08	-0.04	1.87883E-08	699.986	-0.054	699.983	-0.057	0.59
900.00	R2	899.92	9.36075E-08	9.35653E-08	0.13	9.36458E-08	0.08	9.36958E-08	899.578	-0.342	899.899	-0.021	0.82

Table 80- results of the CEM variable temperature and FP blackbody measurements for analysis using the fit of the median FP & VTBB data – range R1

* fixed-point data

[†] average value used

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check/ °C	Signal corrected for Zn point drift/ A	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit no 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.93	R2	231.91	3.04783E-12	3.04783E-12	0.02	3.05045E-12	0.02	3.05265E-12	232.034	0.124	232.058	0.148	2.90
250.00	R2	250.11	5.77088E-12	5.77088E-12	0.03	5.77584E-12	-0.11	5.75455E-12	250.463	0.353	250.480	0.370	1.55
300.00	R2	300.09	2.61516E-11	2.61516E-11	0.03	2.61741E-11	-0.09	2.61083E-11	299.943	-0.147	299.944	-0.146	0.52
400.00	R2	399.94	2.81632E-10	2.81632E-10	0.04	2.81874E-10	0.06	2.82217E-10	399.966	0.026	399.946	0.006	0.40
419.53	R2	419.55	4.14570E-10	4.14570E-10	0.05	4.14927E-10	-0.02	4.14768E-10	419.633	0.083	419.610	0.060	0.41
419.53*	R2	419.53	4.13913E-10	4.13913E-10	0.05	4.14269E-10	0.00	4.14269E-10	419.550	0.020	419.527	-0.003	0.28
500.00	R2	499.98	1.63960E-09	1.63960E-09	0.06	1.64101E-09	0.02	1.64152E-09	499.955	-0.025	499.927	-0.053	0.46
600.00	R2	600.09	6.40066E-09	6.40066E-09	0.07	6.40617E-09	-0.09	6.39923E-09	600.241	0.151	600.220	0.130	0.50
660.32	R2	660.35	1.25941E-08	1.25941E-08	0.08	1.26050E-08	-0.03	1.26010E-08	660.415	0.065	660.405	0.055	0.55
700.00	R2	700.10	1.88022E-08	1.88022E-08	0.09	1.88184E-08	-0.10	1.88002E-08	700.114	0.014	700.114	0.014	0.59
800.00	R2	799.91	4.51797E-08	4.51797E-08	0.11	4.52186E-08	0.09	4.52510E-08	799.926	0.016	799.960	0.050	0.70
900.00	R2	900.01	9.36263E-08	9.36263E-08	0.13	9.37069E-08	-0.01	9.37007E-08	899.890	-0.120	899.974	-0.036	0.81
961.78*	R2	961.78	1.38289E-07	1.38289E-07	0.14	1.38408E-07	0.00	1.38408E-07	961.436	-0.344	961.557	-0.223	0.91
231.93	R2	232.07	3.08452E-12	3.08452E-12	0.02	3.08718E-12	-0.14	3.07164E-12	232.368	0.298	232.392	0.322	1.81
300.00	R2	300.14	2.61924E-11	2.61924E-11	0.03	2.62150E-11	-0.14	2.61125E-11	299.999	-0.141	300.000	-0.140	0.45
500.00	R2	500.09	1.64412E-09	1.64412E-09	0.06	1.64553E-09	-0.09	1.64326E-09	500.134	0.044	500.106	0.016	0.46
700.00	R2	700.04	1.87879E-08	1.87879E-08	0.09	1.88041E-08	-0.04	1.87968E-08	700.036	-0.004	700.035	-0.005	0.59
900.00	R2	899.92	9.36075E-08	9.36075E-08	0.13	9.36881E-08	0.08	9.37381E-08	899.860	-0.060	899.943	0.023	0.81

Table 81 - results of the CEM variable temperature and FP blackbody measurements for analysis using the fit of the median FP & VTBB data – range R2

* fixed-point data

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check/ °C	Signal corrected for Zn point drift/ A	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit no 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.93	R1	231.946	3.03946E-12	3.03946E-12	0.00	3.03946E-12	-0.016	3.03773E-12	231.88	-0.06	231.98	0.03	0.13
250	R1	250.089	5.70504E-12	5.70504E-12	0.00	5.70504E-12	-0.089	5.68800E-12	250.06	-0.03	250.13	0.04	0.11
300	R1	300.020	2.62226E-11	2.62226E-11	0.00	2.62226E-11	-0.020	2.62081E-11	300.01	-0.01	300.02	0.00	0.13
400	R1	400.021	2.82049E-10	2.82049E-10	0.00	2.82049E-10	-0.021	2.81932E-10	400.05	0.03	399.97	-0.05	0.12
419.53	R1	419.530	4.14019E-10	4.14019E-10	0.00	4.14019E-10	0.000	4.14019E-10	419.58	0.05	419.49	-0.04	0.13
500	R1	500.015	1.64206E-09	1.64206E-09	0.00	1.64206E-09	-0.015	1.64169E-09	500.07	0.05	499.96	-0.06	0.15
600	R1	600.017	6.38577E-09	6.38577E-09	0.00	6.38577E-09	-0.017	6.38444E-09	600.03	0.01	599.94	-0.07	0.20
660.32	R2	660.312	1.25796E-08	1.25809E-08	0.00	1.25809E-08	0.008	1.25819E-08	660.26	-0.06	660.21	-0.10	0.23
700	R2	700.031	1.87788E-08	1.87806E-08	0.00	1.87806E-08	-0.031	1.87749E-08	699.90	-0.13	699.90	-0.13	0.25
800	R2	800.012	4.52005E-08	4.52049E-08	0.00	4.52049E-08	-0.011	4.52008E-08	799.80	-0.22	799.93	-0.08	0.30
900	R2	900.011	9.37001E-08	9.37093E-08	0.00	9.37093E-08	-0.011	9.37021E-08	899.68	-0.33	900.00	-0.01	0.36
961.78	R2	961.748	1.38461E-07	1.38475E-07	0.00	1.38475E-07	0.032	1.38501E-07	961.21	-0.54	961.67	-0.07	0.39
231.93	R1	231.947	3.03869E-12	3.03869E-12	0.00	3.03869E-12	-0.017	3.03689E-12	231.88	-0.07	231.97	0.02	0.15
300	R1	300.027	2.62522E-11	2.62522E-11	0.00	2.62522E-11	-0.027	2.62324E-11	300.06	0.03	300.06	0.03	0.20
419.53	R1	419.512	4.13968E-10	4.13968E-10	0.00	4.13968E-10	0.018	4.14109E-10	419.57	0.06	419.48	-0.03	0.13
500	R1	500.049	1.64205E-09	1.64205E-09	0.00	1.64205E-09	-0.048	1.64083E-09	500.07	0.02	499.96	-0.09	0.15
700	R2	700.028	1.87822E-08	1.87840E-08	0.00	1.87840E-08	-0.028	1.87789E-08	699.92	-0.11	699.92	-0.11	0.25
961.78	R2	961.696	1.38400E-07	1.38414E-07	0.00	1.38414E-07	0.084	1.38484E-07	961.13	-0.56	961.60	-0.10	0.39

Table 82 - results of the PTB variable temperature blackbody measurements for analysis using the fit of the median FP & VTBB data – range R1

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check/ °C	Signal corrected for Zn point drift/ A	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit no 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.93	R1	231.946	3.03946E-12	3.03916E-12	0.00	3.03916E-12	-0.016	3.03744E-12	231.93	-0.01	231.95	0.01	0.13
250	R1	250.089	5.70504E-12	5.70448E-12	0.00	5.70448E-12	-0.089	5.68745E-12	250.09	0.00	250.11	0.02	0.11
300	R1	300.020	2.62226E-11	2.62200E-11	0.00	2.62200E-11	-0.020	2.62056E-11	300.01	-0.01	300.01	-0.01	0.13
400	R1	400.021	2.82049E-10	2.82021E-10	0.00	2.82021E-10	-0.021	2.81904E-10	399.99	-0.03	399.97	-0.05	0.12
419.53	R1	419.530	4.14019E-10	4.13978E-10	0.00	4.13978E-10	0.000	4.13979E-10	419.51	-0.02	419.49	-0.04	0.13
500	R1	500.015	1.64206E-09	1.64190E-09	0.00	1.64190E-09	-0.015	1.64153E-09	499.99	-0.02	499.96	-0.05	0.16
600	R1	600.017	6.38577E-09	6.38515E-09	0.00	6.38515E-09	-0.017	6.38381E-09	599.97	-0.05	599.95	-0.07	0.20
660.32	R2	660.312	1.25796E-08	1.25796E-08	0.00	1.25796E-08	0.008	1.25807E-08	660.22	-0.09	660.21	-0.10	0.23
700	R2	700.031	1.87788E-08	1.87788E-08	0.00	1.87788E-08	-0.031	1.87731E-08	699.90	-0.13	699.90	-0.14	0.25
800	R2	800.012	4.52005E-08	4.52005E-08	0.00	4.52005E-08	-0.011	4.51963E-08	799.88	-0.14	799.91	-0.10	0.30
900	R2	900.011	9.37001E-08	9.37001E-08	0.00	9.37001E-08	-0.011	9.36930E-08	899.88	-0.13	899.96	-0.05	0.36
961.78	R2	961.748	1.38461E-07	1.38461E-07	0.00	1.38461E-07	0.032	1.38488E-07	961.50	-0.25	961.62	-0.13	0.39
231.93	R1	231.947	3.03869E-12	3.03839E-12	0.00	3.03839E-12	-0.017	3.03659E-12	231.92	-0.02	231.95	0.00	0.15
300	R1	300.027	2.62522E-11	2.62496E-11	0.00	2.62496E-11	-0.027	2.62298E-11	300.05	0.02	300.05	0.02	0.20
419.53	R1	419.512	4.13968E-10	4.13928E-10	0.00	4.13928E-10	0.018	4.14069E-10	419.51	-0.01	419.48	-0.03	0.13
500	R1	500.049	1.64205E-09	1.64189E-09	0.00	1.64189E-09	-0.048	1.64067E-09	499.99	-0.06	499.96	-0.09	0.16
700	R2	700.028	1.87822E-08	1.87822E-08	0.00	1.87822E-08	-0.028	1.87770E-08	699.92	-0.11	699.91	-0.11	0.25
961.78	R2	961.696	1.38400E-07	1.38400E-07	0.00	1.38400E-07	0.084	1.38470E-07	961.43	-0.27	961.55	-0.15	0.39

Table 83 - results of the PTB variable temperature blackbody measurements for analysis using the fit of the median FP & VTBB data – range R2

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check/ °C	Signal corrected for Zn point drift/ A	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit no 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.93	R1	231.76	2.99090E-12	2.99090E-12	0.293	3.02242E-12	0.17	3.04056E-12	231.73	-0.04	231.82	0.06	0.60
250	R1	249.83	5.59107E-12	5.59107E-12	0.314	5.64998E-12	0.17	5.68232E-12	249.77	-0.06	249.84	0.01	0.44
250	R1	249.84	5.30973E-12	5.30973E-12	0.314	5.36569E-12	0.16	5.39480E-12	248.23	-1.60	248.30	-1.53	0.48
250	R1	249.83	5.59853E-12	5.59853E-12	0.314	5.65753E-12	0.17	5.69005E-12	249.81	-0.02	249.88	0.05	0.44
300	R1	300.19	2.60880E-11	2.60880E-11	0.378	2.63629E-11	-0.19	2.62213E-11	300.21	0.01	300.21	0.02	0.36
400	R1	399.93	2.77908E-10	2.77908E-10	0.520	2.80836E-10	0.07	2.81215E-10	399.84	-0.09	399.76	-0.17	0.33
400	R1	400.14	2.79379E-10	2.79379E-10	0.521	2.82322E-10	-0.14	2.81534E-10	400.10	-0.04	400.02	-0.12	0.34
419.53	R1	419.63	4.09805E-10	4.09805E-10	0.551	4.14123E-10	-0.10	4.13363E-10	419.59	-0.03	419.50	-0.12	0.34
500	R1	500.11	1.62441E-09	1.62441E-09	0.687	1.64152E-09	-0.11	1.63864E-09	500.05	-0.07	499.94	-0.18	0.37
600	R2	600.16	6.32775E-09	6.32775E-09	0.876	6.39443E-09	-0.16	6.38247E-09	600.14	-0.02	600.06	-0.10	0.45
600	R2	600.13	6.32566E-09	6.32566E-09	0.876	6.39232E-09	-0.13	6.38241E-09	600.11	-0.02	600.03	-0.10	0.47
660.32	R2	660.06	1.23955E-08	1.23955E-08	1.000	1.25261E-08	0.26	1.25608E-08	659.84	-0.22	659.80	-0.26	1.06
700	R2	699.83	1.84743E-08	1.84743E-08	1.087	1.86689E-08	0.17	1.86990E-08	699.29	-0.54	699.29	-0.55	1.06
700	R2	700.11	1.85300E-08	1.85300E-08	1.088	1.87253E-08	-0.11	1.87050E-08	699.60	-0.51	699.60	-0.52	1.08
800	R2	800.07	4.45481E-08	4.45481E-08	1.323	4.50175E-08	-0.07	4.49920E-08	799.28	-0.80	799.41	-0.66	1.17
900	R2	899.88	9.22973E-08	9.22973E-08	1.580	9.32699E-08	0.12	9.33437E-08	898.98	-0.91	899.30	-0.59	1.22
900	R2	899.94	9.23564E-08	9.23564E-08	1.580	9.33297E-08	0.06	9.33649E-08	899.07	-0.87	899.39	-0.55	1.24
961.78	R2	961.63	1.36561E-07	1.36561E-07	1.751	1.38000E-07	0.15	1.38126E-07	960.64	-0.99	961.10	-0.53	1.30

Table 84- results of the LNE variable temperature blackbody measurements for analysis using the fit of the median FP & VTBB data – range R1

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check/ °C	Signal corrected for Zn point drift/ A	$dt(t_{nom}$ - t_{BB}) / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{fit}$ - t_{BB}) / °C	t from fit no 1000 °C data/ °C	$dt(t_{fit}$ - t_{BB}) / °C	U ($k=2$) / °C
231.93	R1	231.76	2.99090E-12	2.99090E-12	0.293	3.02242E-12	0.17	3.04056E-12	231.78	0.01	231.80	0.04	0.60
250	R1	249.83	5.59107E-12	5.59107E-12	0.314	5.64998E-12	0.17	5.68232E-12	249.80	-0.02	249.82	-0.01	0.44
250	R1	249.84	5.30973E-12	5.30973E-12	0.314	5.36569E-12	0.16	5.39480E-12	248.27	-1.57	248.29	-1.55	0.48
250	R1	249.83	5.59853E-12	5.59853E-12	0.314	5.65753E-12	0.17	5.69005E-12	249.84	0.02	249.86	0.03	0.44
300	R1	300.19	2.60880E-11	2.60880E-11	0.378	2.63629E-11	-0.19	2.62213E-11	300.20	0.01	300.20	0.01	0.36
400	R1	399.93	2.77908E-10	2.77908E-10	0.520	2.80836E-10	0.07	2.81215E-10	399.78	-0.15	399.76	-0.17	0.33
400	R1	400.14	2.79379E-10	2.79379E-10	0.521	2.82322E-10	-0.14	2.81534E-10	400.04	-0.09	400.02	-0.11	0.34
419.53	R1	419.63	4.09805E-10	4.09805E-10	0.551	4.14123E-10	-0.10	4.13363E-10	419.53	-0.09	419.51	-0.12	0.34
500	R1	500.11	1.62441E-09	1.62441E-09	0.687	1.64152E-09	-0.11	1.63864E-09	499.98	-0.14	499.95	-0.17	0.37
600	R2	600.16	6.32775E-09	6.32775E-09	0.876	6.39443E-09	-0.16	6.38247E-09	600.09	-0.07	600.07	-0.09	0.45
600	R2	600.13	6.32566E-09	6.32566E-09	0.876	6.39232E-09	-0.13	6.38241E-09	600.06	-0.07	600.04	-0.09	0.47
660.32	R2	660.06	1.23955E-08	1.23955E-08	1.000	1.25261E-08	0.26	1.25608E-08	659.82	-0.24	659.81	-0.25	1.06
700	R2	699.83	1.84743E-08	1.84743E-08	1.087	1.86689E-08	0.17	1.86990E-08	699.29	-0.54	699.29	-0.54	1.06
700	R2	700.11	1.85300E-08	1.85300E-08	1.088	1.87253E-08	-0.11	1.87050E-08	699.60	-0.51	699.60	-0.51	1.08
800	R2	800.07	4.45481E-08	4.45481E-08	1.323	4.50175E-08	-0.07	4.49920E-08	799.37	-0.70	799.40	-0.67	1.17
900	R2	899.88	9.22973E-08	9.22973E-08	1.580	9.32699E-08	0.12	9.33437E-08	899.19	-0.69	899.27	-0.61	1.22
900	R2	899.94	9.23564E-08	9.23564E-08	1.580	9.33297E-08	0.06	9.33649E-08	899.29	-0.66	899.37	-0.57	1.24
961.78	R2	961.63	1.36561E-07	1.36561E-07	1.751	1.38000E-07	0.15	1.38126E-07	960.95	-0.68	961.07	-0.56	1.30

Table 85- results of the LNE variable temperature blackbody measurements for analysis using the fit of the median FP & VTBB data – range R2

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check/ °C	Signal corrected for Zn point drift/ A	$dt (t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt (t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit no 1000 °C data/ °C	$dt (t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.93	R1	231.913	3.0206E-12	3.02059E-12	0.237	3.04635E-12	0.02	3.04824E-12	231.948	0.035	232.041	0.128	0.450
419.53	R1	419.500	4.1029E-10	4.10295E-10	0.446	4.13795E-10	0.03	4.14035E-10	419.551	0.052	419.461	-0.038	0.158
660.32	R2	660.335	1.2502E-08	1.24947E-08	0.810	1.26013E-08	-0.02	1.25993E-08	660.410	0.075	660.369	0.033	0.278
961.78	R2	961.678	1.3834E-07	1.38261E-07	1.417	1.39441E-07	0.10	1.39526E-07	962.361	0.683	962.830	1.152	0.865
250	R1	249.986	5.6051E-12	5.60506E-12	0.254	5.65287E-12	0.01	5.65558E-12	249.787	-0.199	249.855	-0.131	0.365
300	R1	300.011	2.6007E-11	2.60067E-11	0.305	2.62285E-11	-0.01	2.62204E-11	300.023	0.012	300.027	0.016	0.239
400	R1	400.063	2.8005E-10	2.80050E-10	0.421	2.82439E-10	-0.06	2.82080E-10	400.120	0.057	400.041	-0.022	0.153
500 ¹	R1	499.955	1.6277E-09	1.62775E-09	0.556	1.64163E-09	0.05	1.64278E-09	500.050	0.095	499.941	-0.014	0.186
500 ²	R1	499.963	1.6276E-09	1.62764E-09	0.556	1.64152E-09	0.04	1.64246E-09	500.046	0.082	499.937	-0.026	0.201
600 ¹	R1	600.014	6.3365E-09	6.33653E-09	0.709	6.39058E-09	-0.01	6.38946E-09	600.089	0.075	600.006	-0.008	0.225
600 ²	R1	599.728	6.3123E-09	6.31232E-09	0.708	6.36616E-09	0.27	6.38703E-09	599.771	0.044	599.688	-0.040	0.247
300	R1	300.040	2.6079E-11	2.60794E-11	0.305	2.63019E-11	-0.04	2.62726E-11	300.123	0.083	300.127	0.088	0.239
400	R1	400.060	2.8016E-10	2.80163E-10	0.421	2.82553E-10	-0.06	2.82210E-10	400.140	0.080	400.060	0.001	0.153
600 ¹	R1	599.988	6.3348E-09	6.33481E-09	0.709	6.38885E-09	0.01	6.38975E-09	600.067	0.079	599.984	-0.005	0.225
500 ³	R1	499.803	1.6276E-09	1.62764E-09	0.555	1.64152E-09	0.20	1.64648E-09	500.046	0.242	499.937	0.133	0.500
600 ³	R1	599.237	6.3123E-09	6.31232E-09	0.707	6.36616E-09	0.76	6.42475E-09	599.771	0.535	599.688	0.451	0.541
700 ³	R2	699.935	1.8713E-08	1.87029E-08	0.880	1.88624E-08	0.07	1.88743E-08	700.352	0.417	700.350	0.415	0.584
800 ³	R2	799.890	4.5069E-08	4.50439E-08	1.070	4.54281E-08	0.11	4.54680E-08	800.414	0.524	800.547	0.657	0.682
900 ³	R2	899.923	9.3482E-08	9.34300E-08	1.279	9.42269E-08	0.08	9.42755E-08	900.504	0.582	900.828	0.905	0.797
1000 ³	R2	1000.039	1.7303E-07	1.72936E-07	1.507	1.74411E-07	-0.04	1.74373E-07	1000.684	0.645	1001.252	1.213	0.926
800 ³	R2	799.949	4.5097E-08	4.50721E-08	1.070	4.54566E-08	0.05	4.54749E-08	800.492	0.543	800.626	0.676	0.682
1000 ³	R2	1000.080	1.7314E-07	1.73044E-07	1.507	1.74520E-07	-0.08	1.74441E-07	1000.794	0.714	1001.363	1.282	0.926

Table 86- results of the METAS variable temperature blackbody measurements for analysis using the fit of the median FP & VTBB data – range R1

¹ values obtained using a Cs heatpipe with PRT;

² values obtained using a Na heatpipe with PRT;

³ values obtained using a Na heatpipe with thermocouple.

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check/ °C	Signal corrected for Zn point drift/ A	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit no 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.93	R1	231.913	3.0206E-12	3.02225E-12	0.237	3.04803E-12	0.02	3.04992E-12	232.012	0.099	232.036	0.123	0.450
419.53	R1	419.500	4.1029E-10	4.10521E-10	0.446	4.14023E-10	0.03	4.14264E-10	419.519	0.020	419.496	-0.003	0.158
660.32	R2	660.335	1.2502E-08	1.25016E-08	0.810	1.26082E-08	-0.02	1.26062E-08	660.440	0.105	660.429	0.094	0.278
961.78	R2	961.678	1.3834E-07	1.38337E-07	1.417	1.39517E-07	0.10	1.39603E-07	962.763	1.085	962.884	1.206	0.865
250	R1	249.986	5.6051E-12	5.60815E-12	0.254	5.65599E-12	0.01	5.65870E-12	249.837	-0.149	249.854	-0.132	0.365
300	R1	300.011	2.6007E-11	2.60210E-11	0.305	2.62430E-11	-0.01	2.62349E-11	300.037	0.026	300.039	0.027	0.239
400	R1	400.063	2.8005E-10	2.80205E-10	0.421	2.82595E-10	-0.06	2.82236E-10	400.092	0.030	400.072	0.009	0.153
500 ¹	R1	499.955	1.6277E-09	1.62865E-09	0.556	1.64254E-09	0.05	1.64368E-09	500.015	0.061	499.987	0.033	0.186
500 ²	R1	499.963	1.6276E-09	1.62854E-09	0.556	1.64243E-09	0.04	1.64336E-09	500.011	0.048	499.983	0.020	0.201
600 ¹	R1	600.014	6.3365E-09	6.34002E-09	0.709	6.39410E-09	-0.01	6.39299E-09	600.084	0.070	600.063	0.049	0.225
600 ²	R1	599.728	6.3123E-09	6.31581E-09	0.708	6.36968E-09	0.27	6.39055E-09	599.766	0.038	599.745	0.017	0.247
300	R1	300.040	2.6079E-11	2.60938E-11	0.305	2.63164E-11	-0.04	2.62871E-11	300.138	0.098	300.139	0.099	0.239
400	R1	400.060	2.8016E-10	2.80318E-10	0.421	2.82709E-10	-0.06	2.82366E-10	400.112	0.052	400.092	0.032	0.153
600 ¹	R1	599.988	6.3348E-09	6.33831E-09	0.709	6.39237E-09	0.01	6.39328E-09	600.062	0.074	600.041	0.052	0.225
500 ³	R1	499.803	1.6276E-09	1.62854E-09	0.555	1.64243E-09	0.20	1.64739E-09	500.011	0.208	499.983	0.180	0.500
600 ³	R1	599.237	6.3123E-09	6.31581E-09	0.707	6.36968E-09	0.76	6.42830E-09	599.766	0.530	599.745	0.508	0.541
700 ³	R2	699.935	1.8713E-08	1.87132E-08	0.880	1.88728E-08	0.07	1.88847E-08	700.412	0.478	700.412	0.477	0.584
800 ³	R2	799.890	4.5069E-08	4.50687E-08	1.070	4.54531E-08	0.11	4.54931E-08	800.575	0.686	800.610	0.720	0.682
900 ³	R2	899.923	9.3482E-08	9.34816E-08	1.279	9.42789E-08	0.08	9.43275E-08	900.804	0.881	900.887	0.965	0.797
1000 ³	R2	1000.039	1.7303E-07	1.73032E-07	1.507	1.74507E-07	-0.04	1.74469E-07	1001.156	1.117	1001.303	1.264	0.926
800 ³	R2	799.949	4.5097E-08	4.50970E-08	1.070	4.54816E-08	0.05	4.55000E-08	800.654	0.705	800.689	0.740	0.682
1000 ³	R2	1000.080	1.7314E-07	1.73140E-07	1.507	1.74617E-07	-0.08	1.74537E-07	1001.266	1.186	1001.413	1.333	0.926

Table 87 - results of the METAS variable temperature blackbody measurements for analysis using the fit of the median FP & VTBB data – range R2

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check/ °C	Signal corrected for Zn point drift/ A	$dt (t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt (t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit no 1000 °C data/ °C	$dt (t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.93*	R1	231.93	3.03065E-12	3.03065E-12	0.120	3.04369E-12	0.00	3.04369E-12	231.92	-0.01	232.02	0.09	0.47
250	R1	250.78	5.76788E-12	5.76788E-12	0.129	5.79270E-12	-0.78	5.64102E-12	250.52	-0.27	250.58	-0.20	0.96
300	R2	299.80	2.60561E-11	2.63989E-11	0.154	2.65125E-11	0.20	2.66607E-11	300.41	0.61	300.41	0.61	1.27
419.53	R2	417.73	3.98655E-10	4.03899E-10	0.224	4.05637E-10	1.80	4.19639E-10	418.51	0.78	418.42	0.69	1.54
419.53*	R2	419.53	4.11979E-10	4.17417E-10	0.225	4.19213E-10	0.00	4.19213E-10	420.23	0.70	420.14	0.61	1.29
500	R2	497.10	1.56268E-09	1.58323E-09	0.278	1.59005E-09	2.90	1.66126E-09	497.97	0.87	497.87	0.76	1.83
600	R2	596.25	6.07226E-09	6.15213E-09	0.354	6.17861E-09	3.75	6.45990E-09	597.29	1.05	597.21	0.96	2.24
660.32	R2	655.68	1.19562E-08	1.21135E-08	0.405	1.21656E-08	4.64	1.27661E-08	657.08	1.40	657.04	1.36	2.57
660.32*	R2	660.32	1.25181E-08	1.26833E-08	0.409	1.27379E-08	0.00	1.27379E-08	661.43	1.11	661.39	1.07	2.29
700	R2	695.58	1.80514E-08	1.82889E-08	0.440	1.83676E-08	4.42	1.91616E-08	697.61	2.04	697.61	2.03	2.75
800	R2	797.27	4.40370E-08	4.46163E-08	0.537	4.48083E-08	2.73	4.57878E-08	798.69	1.42	798.82	1.55	3.34
900	R2	897.37	9.18374E-08	9.30455E-08	0.643	9.34458E-08	2.63	9.50902E-08	899.26	1.89	899.58	2.21	3.96
1000	R2	1000.09	1.72885E-07	1.75159E-07	0.760	1.75913E-07	-0.09	1.75826E-07	1002.20	2.11	1002.77	2.68	4.59

Table 88- results of the UME variable temperature and FP blackbody measurements for analysis using the fit of the median FP & VTBB data – range R1

* fixed-point data

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check/ °C	Signal corrected for Zn point drift/ A	$dt (t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt (t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit no 1000 °C data/ °C	$dt (t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.93*	R1	231.93	3.03065E-12	2.99130E-12	0.120	3.00417E-12	0.00	3.00417E-12	231.61	-0.32	231.63	-0.30	0.83
250	R1	250.78	5.76788E-12	5.69299E-12	0.129	5.71749E-12	-0.78	5.56778E-12	250.16	-0.62	250.18	-0.61	1.20
300	R2	299.80	2.60561E-11	2.60561E-11	0.154	2.61683E-11	0.20	2.63146E-11	299.94	0.14	299.94	0.14	0.90
419.53	R2	417.73	3.98655E-10	3.98655E-10	0.224	4.00371E-10	1.80	4.14191E-10	417.77	0.03	417.75	0.01	0.81
419.53*	R2	419.53	4.11979E-10	4.11979E-10	0.225	4.13752E-10	0.00	4.13752E-10	419.48	-0.05	419.46	-0.07	0.17
500	R2	497.10	1.56268E-09	1.56268E-09	0.278	1.56940E-09	2.90	1.63970E-09	497.06	-0.05	497.03	-0.07	0.84
600	R2	596.25	6.07226E-09	6.07226E-09	0.354	6.09839E-09	3.75	6.37603E-09	596.16	-0.08	596.14	-0.11	0.85
660.32	R2	655.68	1.19562E-08	1.19562E-08	0.405	1.20077E-08	4.64	1.26004E-08	655.82	0.15	655.81	0.13	0.99
660.32*	R2	660.32	1.25181E-08	1.25181E-08	0.409	1.25720E-08	0.00	1.25720E-08	660.17	-0.15	660.16	-0.16	0.22
700	R2	695.58	1.80514E-08	1.80514E-08	0.440	1.81291E-08	4.42	1.89128E-08	696.28	0.70	696.27	0.70	0.95
800	R2	797.27	4.40370E-08	4.4037E-08	0.537	4.42265E-08	2.73	4.51933E-08	797.15	-0.12	797.18	-0.09	1.14
900	R2	897.37	9.18374E-08	9.18374E-08	0.643	9.22326E-08	2.63	9.38556E-08	897.52	0.14	897.60	0.23	1.26
1000	R2	1000.09	1.72885E-07	1.72885E-07	0.760	1.73629E-07	-0.09	1.73543E-07	1000.26	0.18	1000.41	0.32	1.25

Table 89 - results of the UME variable temperature and FP blackbody measurements for analysis using the fit of the median FP & VTBB data – range R2

* fixed-point data

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check/ °C	Signal corrected for Zn point drift/ A	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit no 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.93	R1	232.03	3.061856E-12	3.061856E-12	-0.003	3.061563E-12	-0.10	3.050555E-12	232.09	0.06	232.18	0.15	0.27
231.93*	R1	231.93	3.04800E-12	3.04800E-12	-0.003	3.04770E-12	0.00	3.04770E-12	231.96	0.03	232.05	0.12	0.11
250	R1	249.99	5.672646E-12	5.672646E-12	-0.003	5.672104E-12	0.01	5.674006E-12	249.89	-0.10	249.96	-0.03	0.26
250	R1	249.99	5.681434E-12	5.681434E-12	-0.003	5.680891E-12	0.01	5.683748E-12	249.93	-0.05	250.00	0.02	0.26
250	R1	250.06	5.695074E-12	5.695074E-12	-0.003	5.694529E-12	-0.06	5.684031E-12	250.01	-0.05	250.07	0.02	0.26
300	R1	300.06	2.618329E-11	2.618329E-11	-0.003	2.618078E-11	-0.06	2.614057E-11	299.96	-0.10	299.96	-0.09	0.26
400	R1	400.00	2.817535E-10	2.817535E-10	-0.005	2.817266E-10	0.00	2.817551E-10	400.00	0.00	399.92	-0.08	0.27
400	R1	400.06	2.821617E-10	2.821617E-10	-0.005	2.821347E-10	-0.06	2.817919E-10	400.07	0.01	399.99	-0.07	0.27
419.53	R1	419.42	4.128693E-10	4.128693E-10	-0.005	4.128298E-10	0.11	4.136617E-10	419.43	0.00	419.34	-0.09	0.27
419.53*	R1	419.53	4.14357E-10	4.14357E-10	-0.005	4.14317E-10	0.00	4.14317E-10	419.62	0.09	419.53	0.00	0.13
500 ¹	R2	499.89	1.639063E-09	1.638486E-09	-0.006	1.638330E-09	0.11	1.641029E-09	499.92	0.03	499.81	-0.08	0.29
500 ¹	R1	499.89	1.638486E-09	1.638486E-09	-0.006	1.638329E-09	0.11	1.641013E-09	499.92	0.03	499.81	-0.08	0.29
500 ²	R1	500.22	1.652192E-09	1.652192E-09	-0.006	1.652034E-09	-0.22	1.646458E-09	500.46	0.24	500.35	0.13	0.52
600	R1	600.04	6.398232E-09	6.398232E-09	-0.008	6.397620E-09	-0.04	6.394339E-09	600.18	0.14	600.10	0.06	0.54
660.32	R2	660.04	1.256802E-08	1.256359E-08	-0.009	1.256239E-08	0.28	1.259983E-08	660.12	0.08	660.07	0.04	0.55
660.32*	R2	660.32	1.25937E-08	1.25893E-08	-0.009	1.25881E-08	0.00	1.25881E-08	660.31	-0.01	660.27	-0.05	0.23
700	R2	700.00	1.881512E-08	1.880850E-08	-0.010	1.880670E-08	0.00	1.880670E-08	700.05	0.05	700.04	0.04	0.56
700	R2	700.00	1.884819E-08	1.884156E-08	-0.010	1.883976E-08	0.00	1.883976E-08	700.23	0.23	700.23	0.23	0.56
800	R2	799.80	4.515964E-08	4.514375E-08	-0.012	4.513943E-08	0.20	4.521235E-08	799.61	-0.18	799.75	-0.05	0.59
900	R2	900.19	9.380092E-08	9.376791E-08	-0.014	9.375895E-08	-0.19	9.364140E-08	899.76	-0.43	900.08	-0.11	0.62
900	R2	900.01	9.385286E-08	9.381983E-08	-0.014	9.381086E-08	-0.01	9.380233E-08	899.84	-0.17	900.16	0.15	0.62
961.78	R2	961.78	1.386374E-07	1.385886E-07	-0.016	1.385754E-07	0.00	1.385754E-07	961.33	-0.45	961.79	0.01	0.64
961.78*	R2	961.78	1.38800E-07	1.38751E-07	-0.016	1.38738E-07	0.00	1.38738E-07	961.52	-0.26	961.99	0.21	0.40
1000	R2	1000.00	1.733113E-07	1.732503E-07	-0.017	1.732337E-07	0.00	1.732337E-07	999.49	-0.51	1000.05	0.05	0.65
1000	R2	1000.17	1.734897E-07	1.734286E-07	-0.017	1.734120E-07	-0.17	1.732406E-07	999.67	-0.50	1000.24	0.06	0.65

Table 90- results of the NPL variable temperature blackbody and FP measurements for analysis using the fit of the median FP & VTBB data – range R1

* fixed-point data

¹ values obtained using a Cs heatpipe with PRT;² values obtained using the NPL wide range cavity (WRC).

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check/ °C	Signal corrected for Zn point drift/ A	$dt(t_{\text{nom}} - t_{\text{BB}})$ / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	t from fit no 1000 °C data/ °C	$dt(t_{\text{fit}} - t_{\text{BB}})$ / °C	U ($k=2$) / °C
231.93	R1	232.03	3.061856E-12	3.062934E-12	-0.003	3.062641E-12	-0.10	3.051629E-12	232.15	0.12	232.17	0.14	0.27
231.93*	R1	231.93	3.04800E-12	3.04907E-12	-0.003	3.04878E-12	0.00	3.04878E-12	232.02	0.09	232.04	0.11	0.11
250	R1	249.99	5.672646E-12	5.674643E-12	-0.003	5.674100E-12	0.01	5.676003E-12	249.93	-0.06	249.95	-0.04	0.26
250	R1	249.99	5.681434E-12	5.683434E-12	-0.003	5.682890E-12	0.01	5.685749E-12	249.98	-0.01	250.00	0.01	0.26
250	R1	250.06	5.695074E-12	5.697079E-12	-0.003	5.696534E-12	-0.06	5.686032E-12	250.05	-0.01	250.07	0.01	0.26
300	R1	300.06	2.618329E-11	2.619250E-11	-0.003	2.619000E-11	-0.06	2.614977E-11	299.96	-0.09	299.97	-0.09	0.26
400	R1	400.00	2.817535E-10	2.818527E-10	-0.005	2.818258E-10	0.00	2.818543E-10	399.96	-0.04	399.94	-0.06	0.27
400	R1	400.06	2.821617E-10	2.822610E-10	-0.005	2.822340E-10	-0.06	2.818911E-10	400.03	-0.03	400.01	-0.05	0.27
419.53	R1	419.42	4.128693E-10	4.130146E-10	-0.005	4.129751E-10	0.11	4.138073E-10	419.39	-0.04	419.36	-0.06	0.27
419.53*	R1	419.53	4.14357E-10	4.14503E-10	-0.005	4.14463E-10	0.00	4.14463E-10	419.57	0.04	419.55	0.02	0.13
500	R2	499.89	1.639063E-09	1.639063E-09	-0.006	1.638906E-09	0.11	1.641607E-09	499.87	-0.02	499.84	-0.05	0.29
500	R1	499.89	1.638486E-09	1.639063E-09	-0.006	1.638906E-09	0.11	1.641591E-09	499.87	-0.02	499.84	-0.05	0.29
500	R1	500.22	1.652192E-09	1.652774E-09	-0.006	1.652616E-09	-0.22	1.647038E-09	500.41	0.19	500.39	0.17	0.52
600	R1	600.04	6.398232E-09	6.400484E-09	-0.008	6.399872E-09	-0.04	6.396590E-09	600.16	0.12	600.14	0.10	0.54
660.32	R2	660.04	1.256802E-08	1.256802E-08	-0.009	1.256681E-08	0.28	1.260427E-08	660.13	0.09	660.12	0.08	0.55
660.32*	R2	660.32	1.25937E-08	1.25937E-08	-0.009	1.25925E-08	0.00	1.25925E-08	660.32	0.00	660.31	-0.01	0.23
700	R2	700.00	1.881512E-08	1.881512E-08	-0.010	1.881332E-08	0.00	1.881332E-08	700.09	0.09	700.09	0.09	0.56
700	R2	700.00	1.884819E-08	1.884819E-08	-0.010	1.884639E-08	0.00	1.884639E-08	700.27	0.27	700.27	0.27	0.56
800	R2	799.80	4.515964E-08	4.515964E-08	-0.012	4.515532E-08	0.20	4.522827E-08	799.75	-0.05	799.78	-0.01	0.59
900	R2	900.19	9.380092E-08	9.380092E-08	-0.014	9.379195E-08	-0.19	9.367436E-08	900.03	-0.16	900.11	-0.08	0.62
900	R2	900.01	9.385286E-08	9.385286E-08	-0.014	9.384388E-08	-0.01	9.383535E-08	900.11	0.10	900.19	0.18	0.62
961.78	R2	961.78	1.386374E-07	1.386374E-07	-0.016	1.386241E-07	0.00	1.386241E-07	961.70	-0.08	961.82	0.04	0.64
961.78*	R2	961.78	1.38800E-07	1.38800E-07	-0.016	1.38787E-07	0.00	1.38787E-07	961.89	0.11	962.01	0.23	0.40
1000	R2	1000.00	1.733113E-07	1.733113E-07	-0.017	1.732947E-07	0.00	1.732947E-07	999.92	-0.08	1000.07	0.07	0.65
1000	R2	1000.17	1.734897E-07	1.734897E-07	-0.017	1.734731E-07	-0.17	1.733016E-07	1000.10	-0.07	1000.25	0.08	0.65

Table 91 - results of the NPL variable temperature and FP blackbody measurements for analysis using the fit of the median FP & VTBB data – range R2

* fixed-point data

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check/ °C	Signal corrected for Zn point drift/ A	dt (t_{nom} - t_{BB}) / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	dt (t_{fit} - t_{BB}) / °C	t from fit no 1000 °C data/ °C	dt (t_{fit} - t_{BB}) / °C	U ($k=2$) / °C
231.93*	R1	231.93	3.01309E-12	3.01309E-12	0.281	3.04352E-12	0.00	3.04352E-12	231.922	-0.008	232.015	0.085	0.520
419.53*	R1	419.53	4.10363E-10	4.10363E-10	0.528	4.14507E-10	0.00	4.14507E-10	419.641	0.111	419.552	0.022	0.122
660.32*	R2	660.32	1.24922E-08	1.24763E-08	0.959	1.26023E-08	0.00	1.26023E-08	660.418	0.098	660.376	0.056	0.219
961.78*	R2	961.78	1.37398E-07	1.37224E-07	1.678	1.38610E-07	0.00	1.38610E-07	961.369	-0.411	961.835	0.055	0.383

Table 92- results of the INRiM FP blackbody measurements for analysis using the fit of the median FP & VTBB data – range R1

t_{nom} / °C	Range used	t_{BB} / °C	Bgrd corrected Signal/ A	Signal on range R1/ A	Drift from Zn point check/ °C	Signal corrected for Zn point drift/ A	dt (t_{nom} - t_{BB}) / °C	Signal corrected to t_{nom} / A	t from median fit/ °C	dt (t_{fit} - t_{BB}) / °C	t from fit no 1000 °C data/ °C	dt (t_{fit} - t_{BB}) / °C	U ($k=2$) / °C
231.93*	R1	231.93	3.01309E-12	3.01691E-12	0.281	3.04737E-12	0.00	3.04737E-12	232.006	0.076	232.030	0.100	0.520
419.53*	R1	419.53	4.10363E-10	4.10884E-10	0.528	4.15033E-10	0.00	4.15033E-10	419.647	0.117	419.624	0.094	0.122
660.32*	R2	660.32	1.24922E-08	1.24922E-08	0.959	1.26183E-08	0.00	1.26183E-08	660.516	0.196	660.505	0.185	0.219
961.78*	R2	961.78	1.37398E-07	1.37398E-07	1.678	1.38785E-07	0.00	1.38785E-07	961.888	0.108	962.009	0.229	0.383

Table 93- results of the INRiM FP blackbody measurements for analysis using the fit of the median FP & VTBB data – range R2

* fixed-point data

17 AVERAGE LABORATORY RESULTS FOR FIXED-POINT AND VARIABLE TEMPERATURE BLACKBODY MEASUREMENTS WITH THE LP5

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	$U(k=2)/^\circ\text{C}$
231.93	3.034497E-12	0.42
250	5.707980E-12	0.36
300	2.622800E-11	0.36
400	2.820111E-10	0.40
419.53	4.142952E-10	0.34
500	1.641497E-09	0.45
600	6.396482E-09	0.50
660.32	1.259529E-08	0.56
700	1.879001E-08	0.59
800	4.523057E-08	0.70
900	9.367706E-08	0.82
961.78	1.38346E-07	0.92
419.53 VTBB	4.144973E-10	0.41
419.53 FP	4.14093E-10	0.28

Table 94 – CEM results – range R1

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	$U(k=2)/^\circ\text{C}$
231.93	3.062145E-12	2.36
250	5.754551E-12	1.55
300	2.611042E-11	0.48
400	2.822168E-10	0.40
419.53	4.145186E-10	0.35
500	1.642389E-09	0.46
600	6.399232E-09	0.50
660.32	1.260098E-08	0.55
700	1.879850E-08	0.59
800	4.525100E-08	0.70
900	9.371937E-08	0.81
961.78	1.38408E-07	0.91
419.53 VTBB	4.14768E-10	0.41
419.53 FP	4.14269E-10	0.28

Table 95 - CEM results - range R2

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	$U(k=2)/^\circ\text{C}$
231.93	3.03731E-12	0.14
250	5.68800E-12	0.11
300	2.62203E-11	0.16
400	2.81932E-10	0.12
419.53	4.14064E-10	0.13
500	1.64126E-09	0.15
600	6.38444E-09	0.20
660.32	1.25819E-08	0.23
700	1.87769E-08	0.25
800	4.52008E-08	0.30
900	9.37021E-08	0.36
961.78	1.38493E-07	0.39

Table 96 - PTB results – range R1

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	$U(k=2)/^\circ\text{C}$
231.93	3.03701E-12	0.14
250	5.68745E-12	0.11
300	2.62177E-11	0.16
400	2.81904E-10	0.12
419.53	4.14024E-10	0.13
500	1.64110E-09	0.16
600	6.38381E-09	0.20
660.32	1.25807E-08	0.23
700	1.87750E-08	0.25
800	4.51963E-08	0.30
900	9.36930E-08	0.36
961.78	1.38479E-07	0.39

Table 97 - PTB results - range R2

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	$U(k=2)/^\circ\text{C}$
231.93	3.04056E-12	0.60
250	5.58906E-12	0.45
300	2.62213E-11	0.36
400	2.81374E-10	0.34
419.53	4.13363E-10	0.34
500	1.63864E-09	0.37
600	6.38244E-09	0.46
660.32	1.25608E-08	1.06
700	1.87020E-08	1.07
800	4.49920E-08	1.17
900	9.33543E-08	1.23
961.78	1.38126E-07	1.30

Table 98 - LNE results – range R1

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	$U(k=2)/^\circ\text{C}$
231.93	3.04056E-12	0.60
250	5.58906E-12	0.45
300	2.62213E-11	0.36
400	2.81374E-10	0.34
419.53	4.13363E-10	0.34
500	1.63864E-09	0.37
600	6.38244E-09	0.46
660.32	1.25608E-08	1.06
700	1.87020E-08	1.07
800	4.49920E-08	1.17
900	9.33543E-08	1.23
961.78	1.38126E-07	1.30

Table 99 - LNE results - range R2

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	$U(k=2)/^\circ\text{C}$
231.93	3.04369E-12	0.47
250	5.64102E-12	0.96
300	2.66607E-11	1.27
419.53	4.19426E-10	1.42
500	1.66126E-09	1.83
600	6.45990E-09	2.24
660.32	1.27520E-08	2.43
700	1.91616E-08	2.75
800	4.57878E-08	3.34
900	9.50902E-08	3.96
1000	1.75826E-07	4.59
419.53 VTBB	4.19639E-10	1.54
419.53 FP	4.19213E-10	1.29
660.32 VTBB	1.27661E-08	2.57
660.32 FP	1.27379E-08	2.29

Table 100 – UME results – range R1

$t_{\text{nom}}/^\circ\text{C}$	Average signal/ A	$U(k=2)/^\circ\text{C}$
231.93	3.00417E-12	0.83
250	5.56778E-12	1.20
300	2.63146E-11	0.90
419.53	4.13971E-10	0.49
500	1.63970E-09	0.84
600	6.37603E-09	0.85
660.32	1.25862E-08	0.61
700	1.89128E-08	0.95
800	4.51933E-08	1.14
900	9.38556E-08	1.26
1000	1.73543E-07	1.25
419.53 VTBB	4.14191E-10	0.81
419.53 FP	4.13752E-10	0.17
660.32 VTBB	1.26004E-08	0.99
660.32 FP	1.25720E-08	0.22

Table 101 - UME results - range R2

$t_{\text{nom}}/^\circ\text{C}$	Average signal/	$U(k=2)/^\circ\text{C}$
---------------------------------	-----------------	-------------------------

	A	
231.93	3.048237E-12	0.45
250	5.655583E-12	0.36
300	2.624654E-11	0.24
400	2.821450E-10	0.15
419.53	4.140355E-10	0.16
500	1.643905E-09	0.30
600	6.397750E-09	0.31
660.32	1.259928E-08	0.28
700	1.887433E-08	0.58
800	4.547147E-08	0.68
900	9.427552E-08	0.80
961.78	1.395261E-07	0.86
1000	1.744070E-07	0.93
Cs at 500	1.642776E-09	0.19
Na at 500 1	1.642455E-09	0.20
Na at 500 2	1.646482E-09	0.50
Cs at 600	6.389609E-09	0.23
Na at 600 1	6.387026E-09	0.25
Na at 600 2	6.424754E-09	0.54

Table 102 - METAS results – range R1

	A	
231.93	3.049919E-12	0.45
250	5.658704E-12	0.36
300	2.626102E-11	0.24
400	2.823007E-10	0.15
419.53	4.142639E-10	0.16
500	1.644812E-09	0.30
600	6.401280E-09	0.31
660.32	1.260623E-08	0.28
700	1.888474E-08	0.58
800	4.549656E-08	0.68
900	9.432754E-08	0.80
961.78	1.396031E-07	0.86
1000	1.745032E-07	0.93
Cs at 500	1.643683E-09	0.19
Na at 500 1	1.643362E-09	0.20
Na at 500 2	1.647391E-09	0.50
Cs at 600	6.393135E-09	0.23
Na at 600 1	6.390551E-09	0.25
Na at 600 2	6.428299E-09	0.54

Table 103 - METAS results - range R2

$t_{\text{nom}}/^\circ\text{C}$	Average signal/	$U(k=2)/^\circ\text{C}$
---------------------------------	-----------------	-------------------------

t _{nom} / °C	Average signal/ A	U (k=2)/ °C
231.93	3.04913E-12	0.19
250	5.68059E-12	0.26
300	2.61406E-11	0.26
400	2.81774E-10	0.27
419.53	4.13989E-10	0.20
500	1.64283E-09	0.37
600	6.39426E-09	0.54
660.32	1.25940E-08	0.39
700	1.88229E-08	0.56
800	4.52124E-08	0.59
900	9.37219E-08	0.62
961.78	1.38618E-07	0.58
1000	1.73237E-07	0.65
Cs at 500	1.641021E-09	0.29
WRC at 500	1.646458E-09	0.52
231.93 VTBB	3.050555E-12	0.27
231.93 FP	3.047705E-12	0.11
419.53 VTBB	4.136617E-10	0.27
419.53 FP	4.143172E-10	0.13
660.32 VTBB	1.259983E-08	0.55
660.32 FP	1.258807E-08	0.23
961.78 VTBB	1.385781E-07	0.64
961.78 FP	1.38738E-07	0.40

Table 104 - NPL results – range R1

t _{nom} / °C	Average signal/ A	U (k=2)/ °C
231.93	3.04352E-12	0.520
419.53	4.14507E-10	0.122
660.32	1.26023E-08	0.219
961.78	1.38610E-07	0.383

Table 105 - INRiM results – range R1

t _{nom} / °C	Average signal/ A	U (k=2)/ °C
231.93	3.05020E-12	0.19
250	5.68259E-12	0.26
300	2.61498E-11	0.26
400	2.81873E-10	0.27
419.53	4.14135E-10	0.20
500	1.64341E-09	0.37
600	6.39651E-09	0.54
660.32	1.25984E-08	0.39
700	1.88295E-08	0.56
800	4.52283E-08	0.59
900	9.37549E-08	0.62
961.78	1.38667E-07	0.58
1000	1.73298E-07	0.65
Cs at 500	1.641599E-09	0.29
WRC at 500	1.647038E-09	0.52
231.93 VTBB	3.051629E-12	0.27
231.93 FP	3.048777E-12	0.11
419.53 VTBB	4.138073E-10	0.27
419.53 FP	4.144630E-10	0.13
660.32 VTBB	1.260427E-08	0.55
660.32 FP	1.259250E-08	0.23
961.78 VTBB	1.386269E-07	0.64
961.78 FP	1.38787E-07	0.40

Table 106 - NPL results - range R2

t _{nom} / °C	Average signal/ A	U (k=2)/ °C
231.93	3.04737E-12	0.520
419.53	4.15033E-10	0.122
660.32	1.26183E-08	0.219
961.78	1.38785E-07	0.383

Table 107 - INRiM results - range R2

t _{nom} / °C	Median signal/ A
231.93	3.043515E-12
250	5.668089E-12
300	2.622467E-11
400	2.819319E-10
419.53	4.140643E-10
500	1.642165E-09
600	6.395373E-09
660.32	1.259529E-08
700	1.880645E-08
800	4.522146E-08
900	9.371201E-08
961.78	1.385511E-07
1000	1.744070E-07

Table 108 – median values for all the LP5 range R1 VTBB and FP measurements

t _{nom} / °C	Median signal/ A
231.93	3.047374E-12
250	5.670649E-12
300	2.621952E-11
400	2.819044E-10
419.53	4.141351E-10
500	1.641743E-09
600	6.390163E-09
660.32	1.259838E-08
700	1.881401E-08
800	4.521230E-08
900	9.373711E-08
961.78	1.385730E-07
1000	1.735433E-07

Table 109 - median values for all the LP5 range R2 VTBB and FP measurements

18 RESULTS OF THE FITTING PROCESS USING THE SAKUMA HATTORI FIT – VTBB AND FP MEASUREMENTS WITH THE LP5 ON RANGE R1

Thermometer signal/ V	Temperature/ K	Fitted temperature/ K	Residual/ K
3.04351E-12	505.08	505.072	-0.008
5.66809E-12	523.15	523.017	-0.133
2.62247E-11	573.15	573.168	0.018
2.81932E-10	673.15	673.181	0.031
4.14064E-10	692.68	692.735	0.055
1.64216E-09	773.15	773.221	0.071
6.39537E-09	873.15	873.302	0.152
1.25953E-08	933.47	933.514	0.044
1.88065E-08	973.15	973.195	0.045
4.52215E-08	1073.15	1072.992	-0.158
9.37120E-08	1173.15	1172.833	-0.317
1.38551E-07	1234.93	1234.449	-0.481
1.74407E-07	1273.15	1273.829	0.679

Table 110 – results of the fit using all the data points

Coefficients of the fit: $a_1 = 2.3776587965E-04$
 $a_2 = 1.5629825223E-06$
 $a_3 = 2.2711068851E-06$

Thermometer signal/ V	Temperature/ K	Fitted temperature/ K	Residual/ K
3.043515E-12	505.08	505.165	0.085
5.668089E-12	523.15	523.085	-0.065
2.622467E-11	573.15	573.172	0.022
2.819319E-10	673.15	673.102	-0.048
4.140643E-10	692.68	692.646	-0.034
1.642165E-09	773.15	773.112	-0.038
6.395373E-09	873.15	873.219	0.069
1.259529E-08	933.47	933.473	0.003
1.880645E-08	973.15	973.193	0.043
4.522146E-08	1073.15	1073.124	-0.026
9.371201E-08	1173.15	1173.155	0.005
1.385511E-07	1234.93	1234.915	-0.015
1.744070E-07	1273.15	1274.398	1.248

Table 111 – results of the fit, excluding the 1000 °C data in the fitting process but using the coefficients to calculate the corresponding fitted temperature at 1000 °C

Coefficients of the fit: $a_1 = 2.3184090065E-04$
 $a_2 = 1.5696694426E-06$
 $a_3 = -1.5164544373E-07$

19 RESULTS OF THE FITTING PROCESS USING THE SAKUMA HATTORI FIT – VTBB AND FP MEASUREMENTS WITH THE LP5 ON RANGE R2

Thermometer signal/ V	Temperature/ K	Fitted temperature/ K	Residual/ K
3.04737E-12	505.08	505.156	0.076
5.67065E-12	523.15	523.064	-0.086
2.62195E-11	573.15	573.155	0.005
2.81904E-10	673.15	673.121	-0.029
4.14135E-10	692.68	692.683	0.003
1.64174E-09	773.15	773.134	-0.016
6.39016E-09	873.15	873.183	0.033
1.25984E-08	933.47	933.516	0.046
1.88140E-08	973.15	973.240	0.090
4.52123E-08	1073.15	1073.058	-0.092
9.37371E-08	1173.15	1173.089	-0.061
1.38573E-07	1234.93	1234.784	-0.146
1.73543E-07	1273.15	1273.326	0.176

Table 112 – results of the fit using all the data points

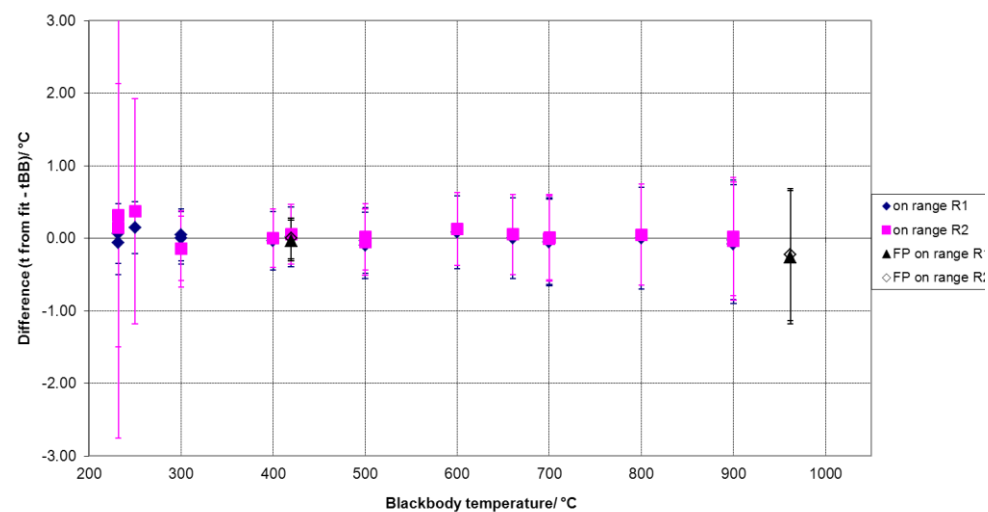
Coefficients of the fit: $a_1 = 2.3399679213E-04$
 $a_2 = 1.5671605021E-06$
 $a_3 = 7.8122016526E-07$

Thermometer signal/ V	Temperature/ K	Fitted temperature/ K	Residual/ K
3.047374E-12	505.08	505.180	0.100
5.670649E-12	523.15	523.081	-0.069
2.621952E-11	573.15	573.156	0.006
2.819044E-10	673.15	673.101	-0.049
4.141351E-10	692.68	692.660	-0.020
1.641743E-09	773.15	773.106	-0.044
6.390163E-09	873.15	873.162	0.012
1.259838E-08	933.47	933.505	0.035
1.881401E-08	973.15	973.240	0.090
4.521230E-08	1073.15	1073.093	-0.057
9.373711E-08	1173.15	1173.172	0.022
1.385730E-07	1234.93	1234.904	-0.026
1.735433E-07	1273.15	1273.473	0.323

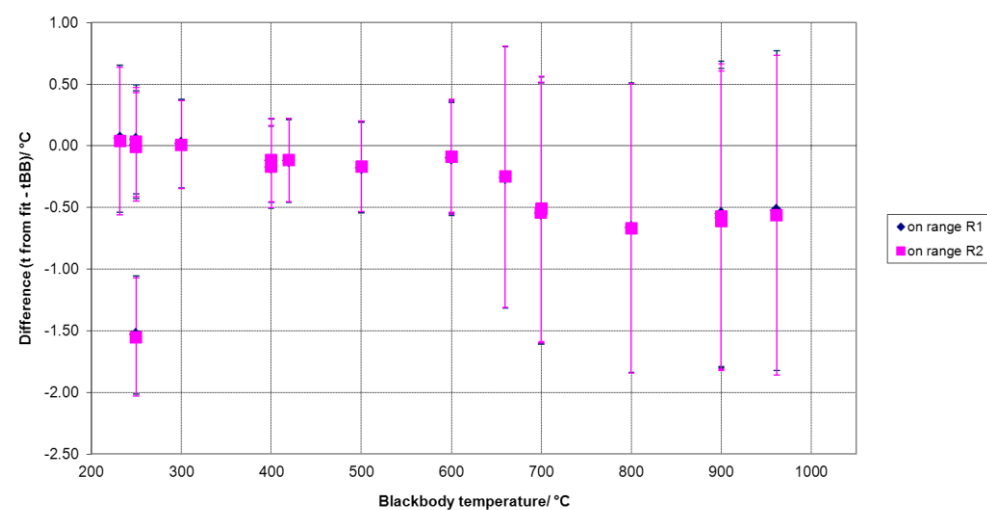
Table 113 – results of the fit, excluding the 1000 °C data in the fitting process but using the coefficients to calculate the corresponding fitted temperature at 1000 °C

Coefficients of the fit: $a_1 = 2.3247978764E-04$
 $a_2 = 1.5688863581E-06$
 $a_3 = 1.5575130071E-07$

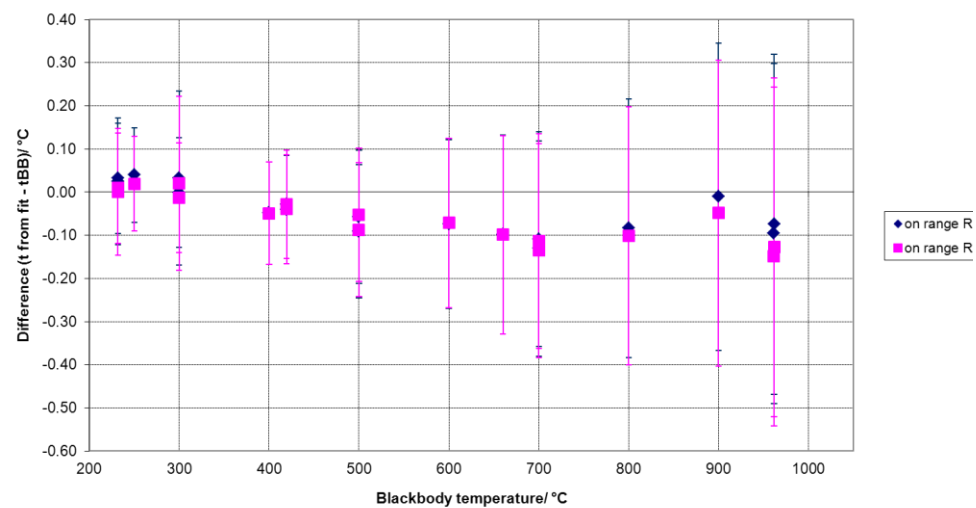
CEM results - Differences (fit temperature using median of VTBB and FP data (excluding 1000 °C) - blackbody temperature) for LP5



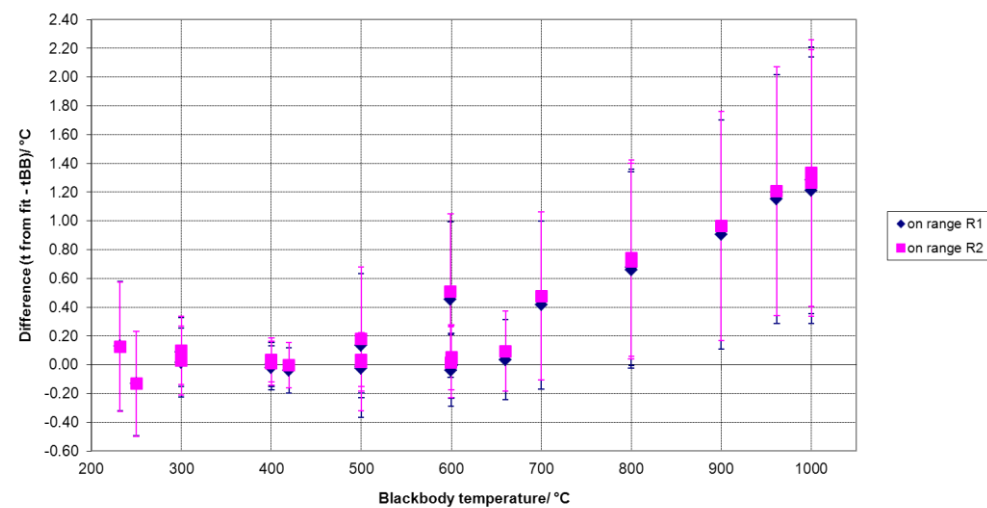
LNE results - Differences (fit temperature using median of VTBB and FP data (excluding 1000 °C) - blackbody temperature) for LP5



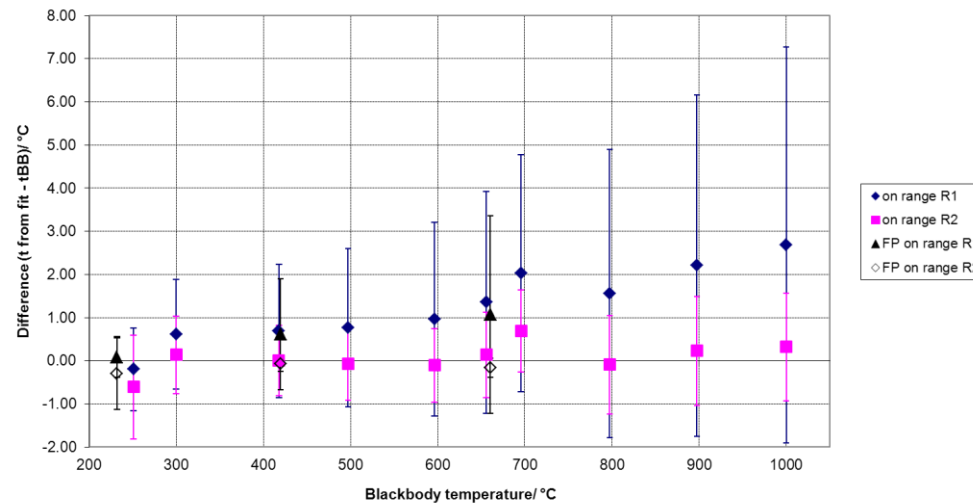
PTB results - Differences (fit temperature using median of VTBB and FP data (excluding 1000 °C) - blackbody temperature) for LP5



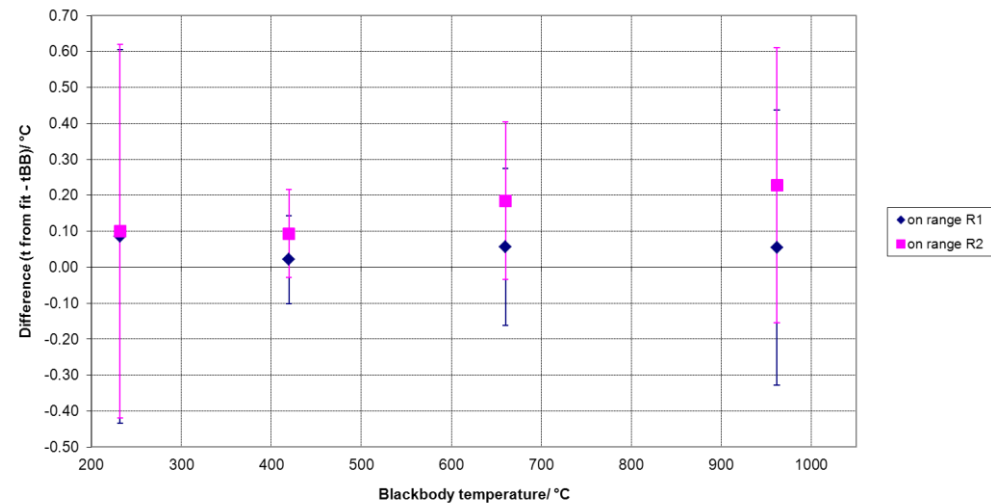
METAS results - Differences (fit temperature using median of VTBB and FP data (excluding 1000 °C) - blackbody temperature) for LP5



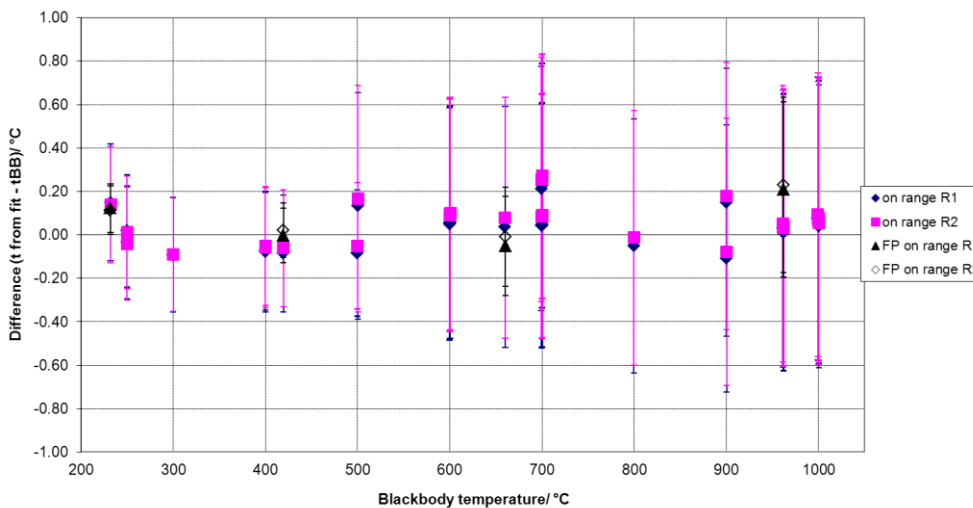
UME results - Differences (fit temperature using median of VTBB and FP data (excluding 1000 °C) - blackbody temperature) for LP5



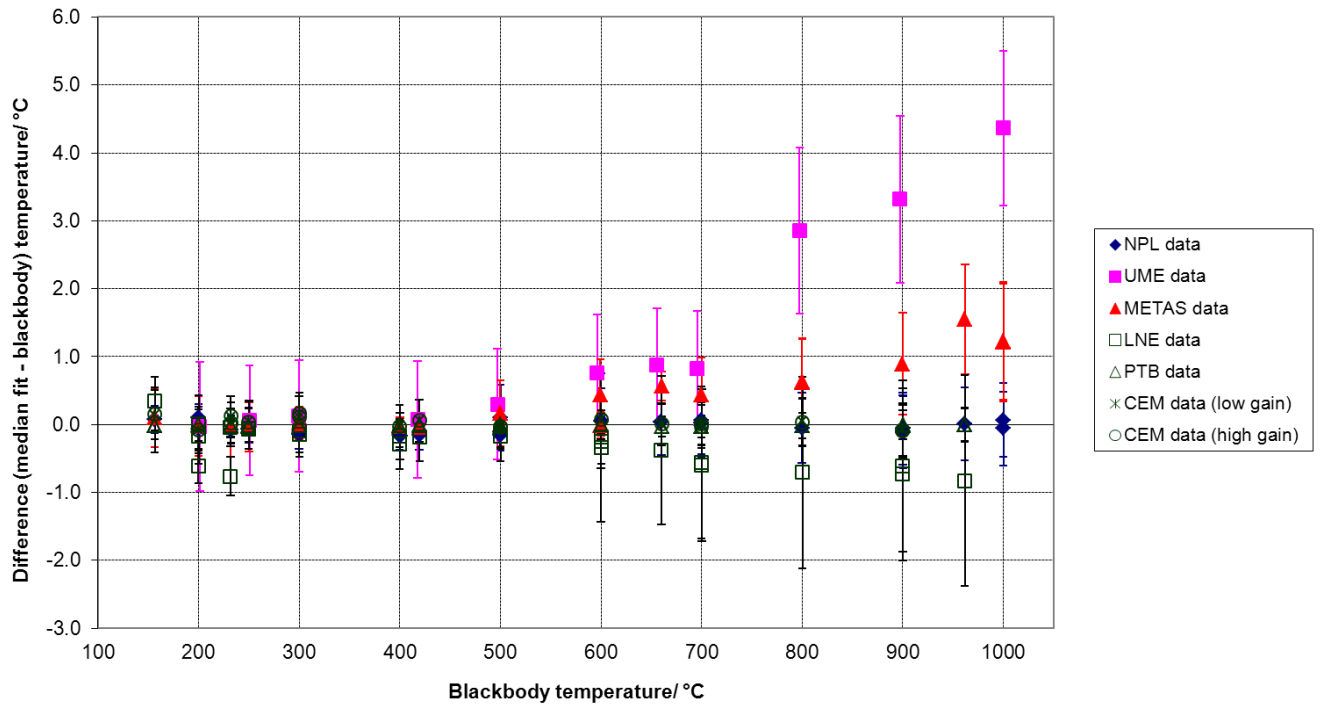
INRiM results - Differences (fit temperature using median of VTBB and FP data (excluding 1000 °C) - blackbody temperature) for LP5



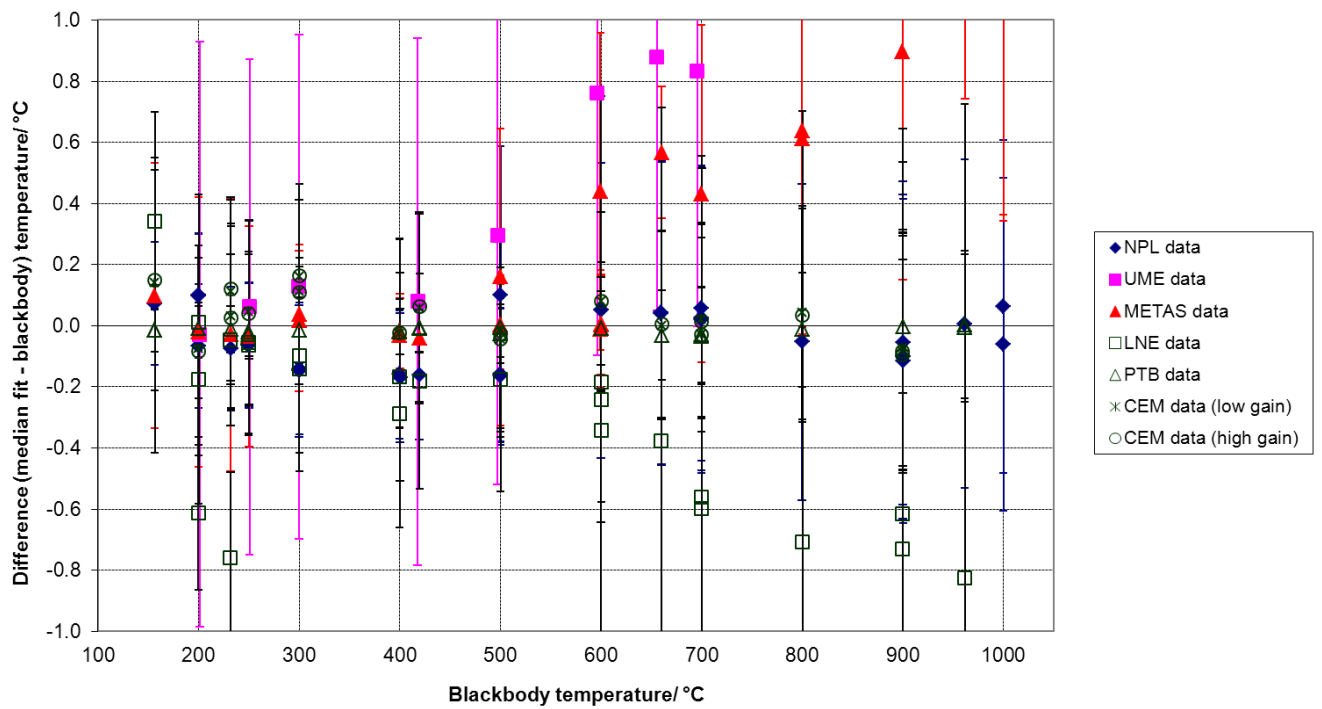
NPL results - Differences (fit temperature using median of VTBB and FP data (excluding 1000 °C) - blackbody temperature) for LP5

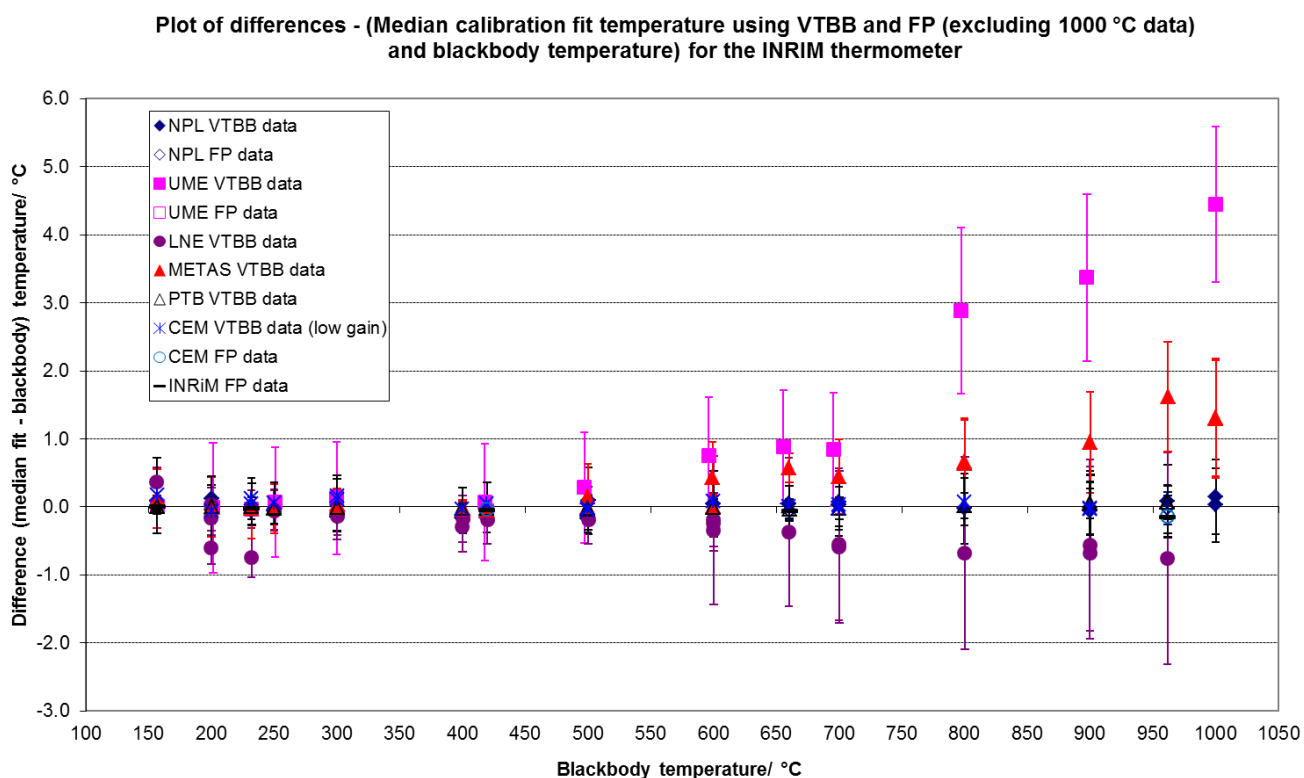
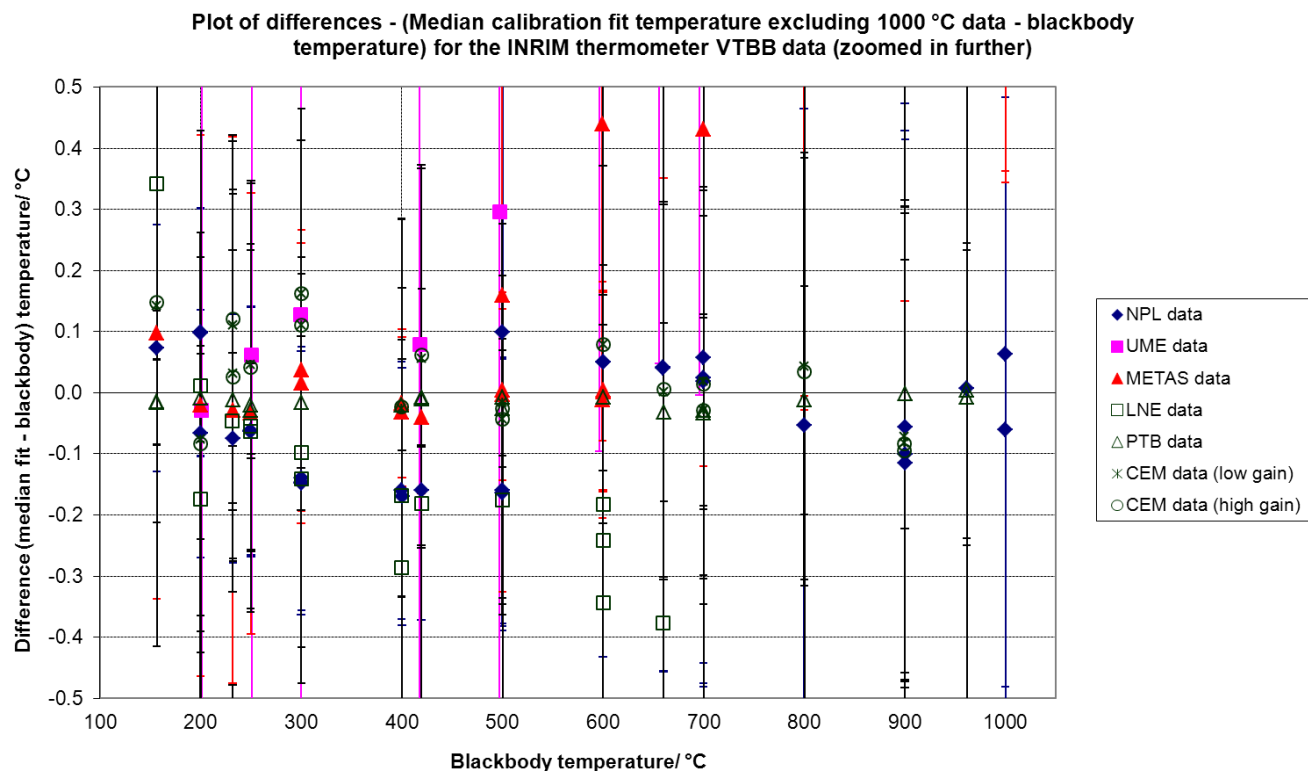


Plot of differences - (Median calibration fit temperature excluding 1000 °C data - blackbody temperature) for the INRIM thermometer VTBB data

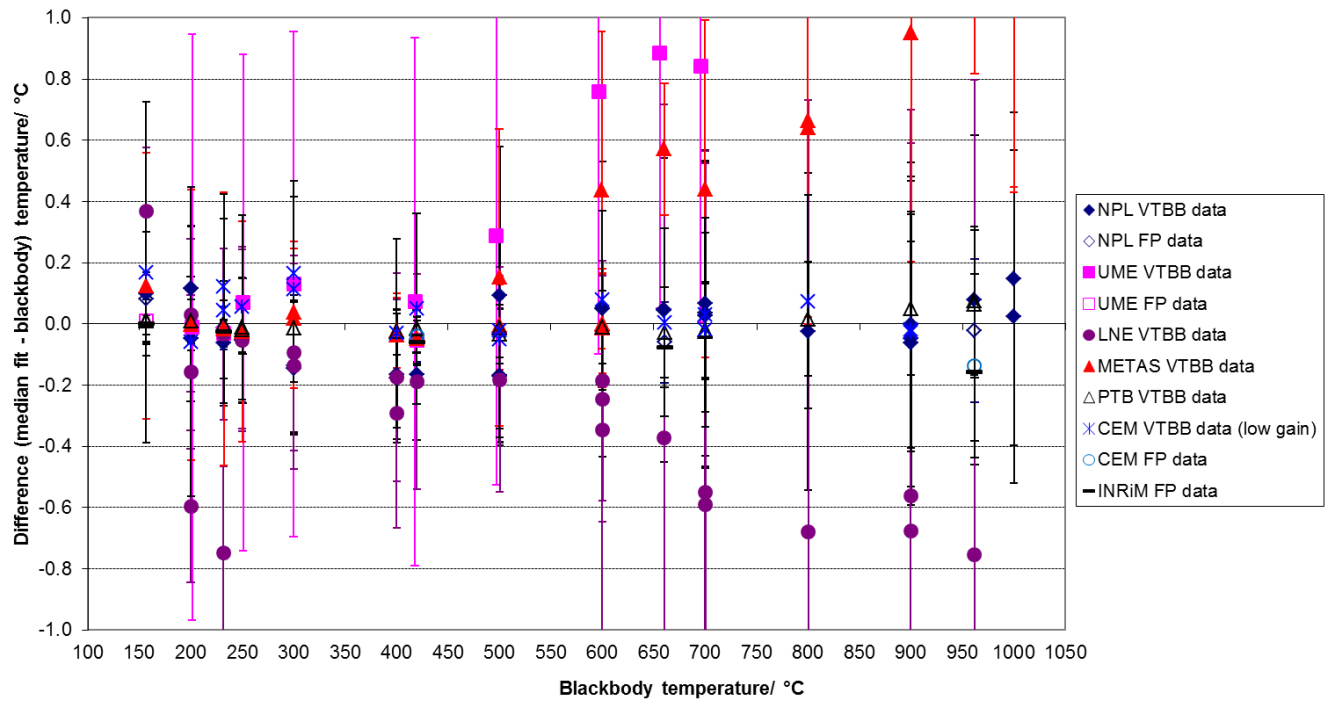


Plot of differences - (Median calibration fit temperature excluding 1000 °C data - blackbody temperature) for the INRIM thermometer VTBB data - zoomed in

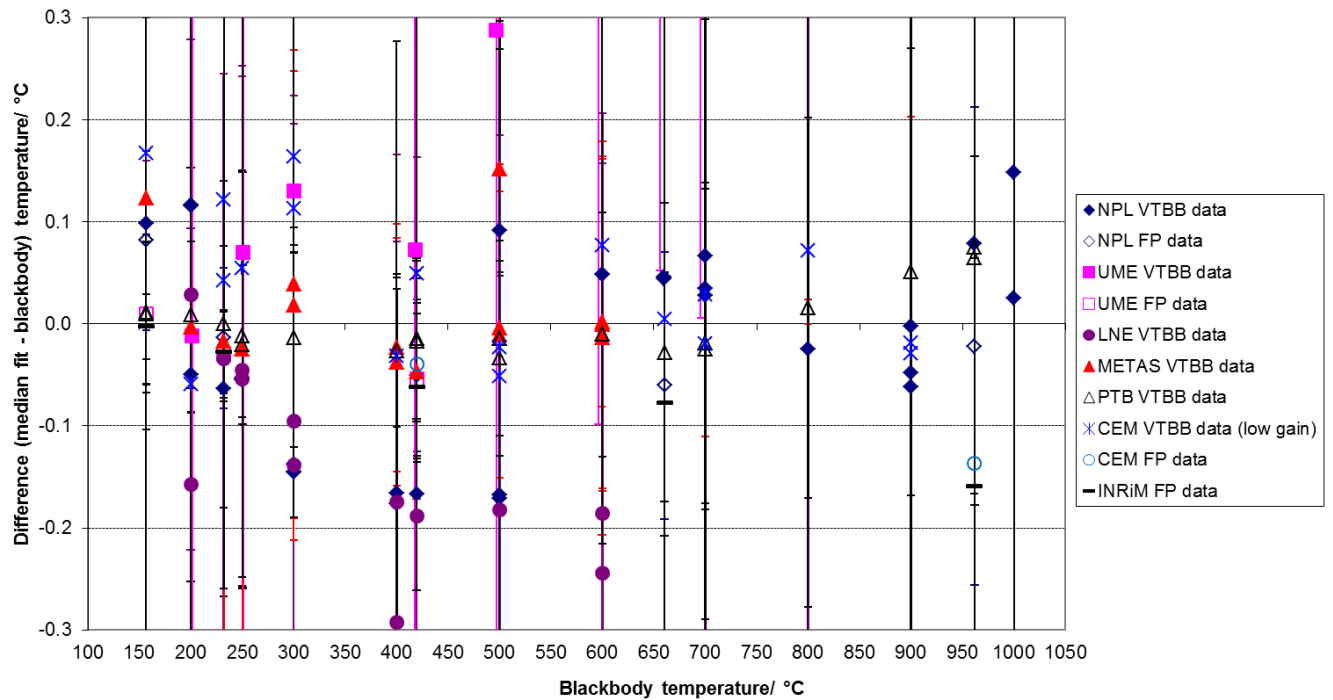




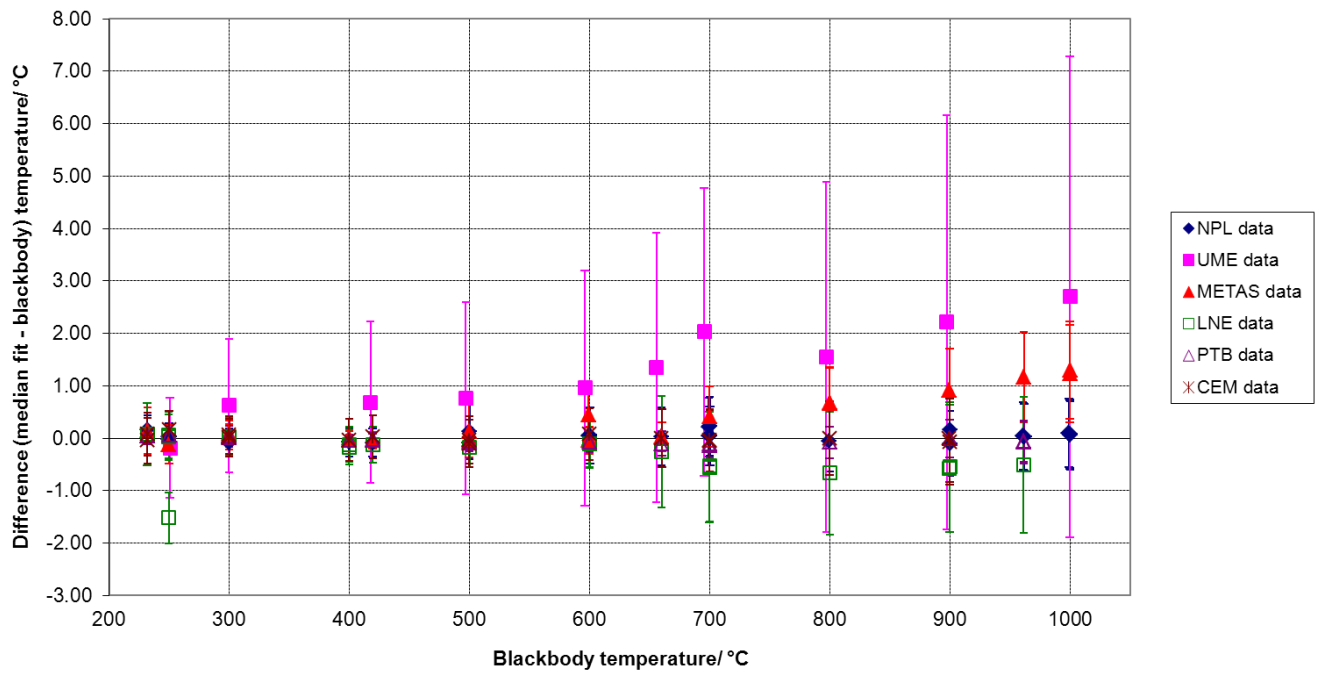
Plot of differences - (Median calibration fit temperature using VTBB and FP (excluding 1000 °C data) and blackbody temperature) for the INRIM thermometer - zoomed in



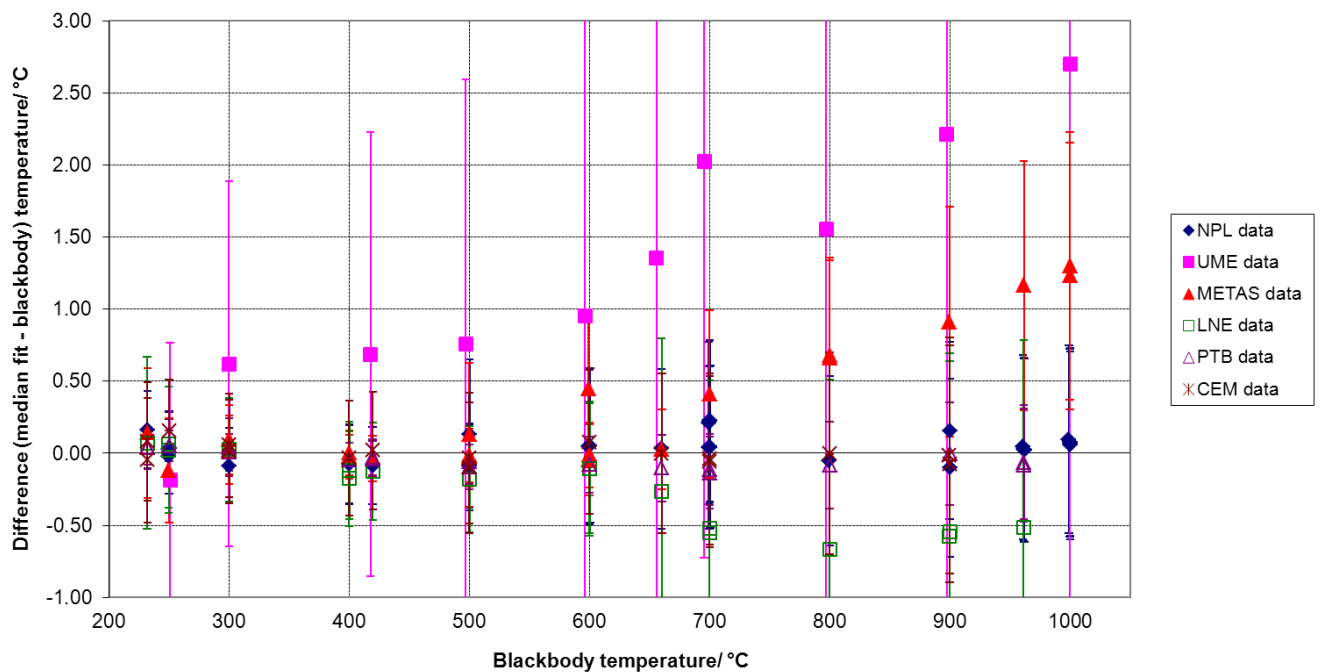
Plot of differences - (Median calibration fit temperature using VTBB and FP (excluding 1000 °C data) and blackbody temperature) for the INRIM thermometer - zoomed in further



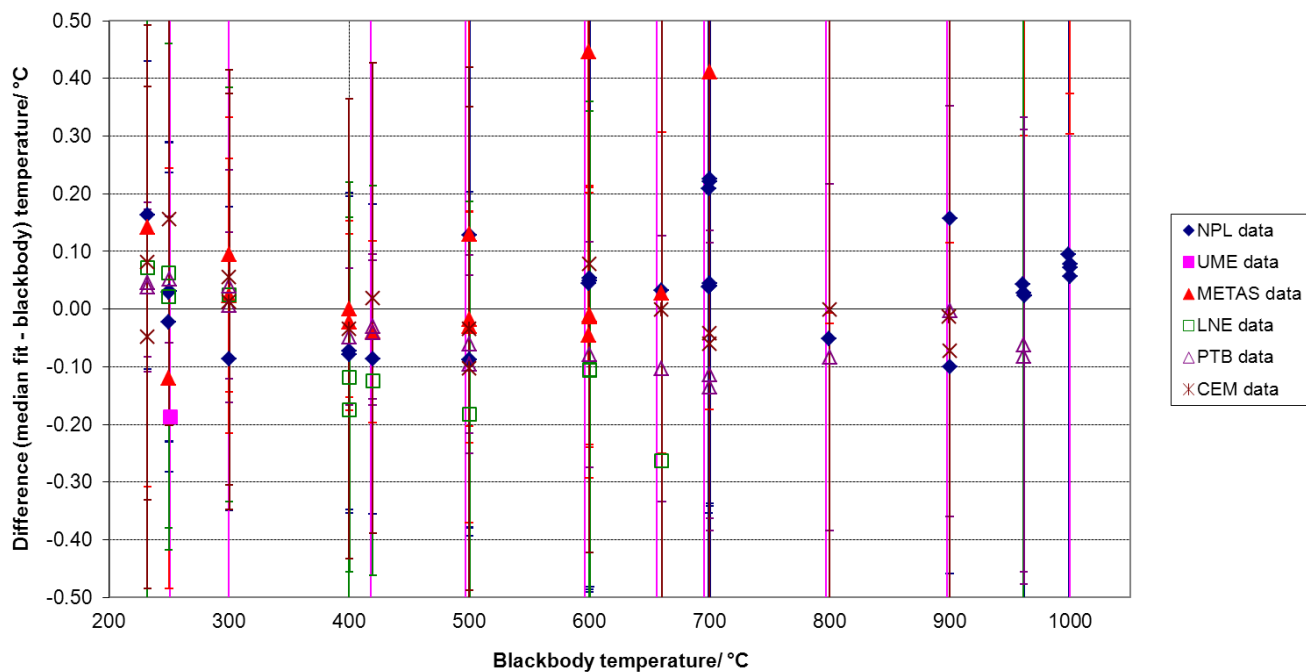
Plot of differences - (Median calibration fit temperature excluding 1000 °C data - blackbody temperature) for the LP5 on range R1 - all data (VTBB data)



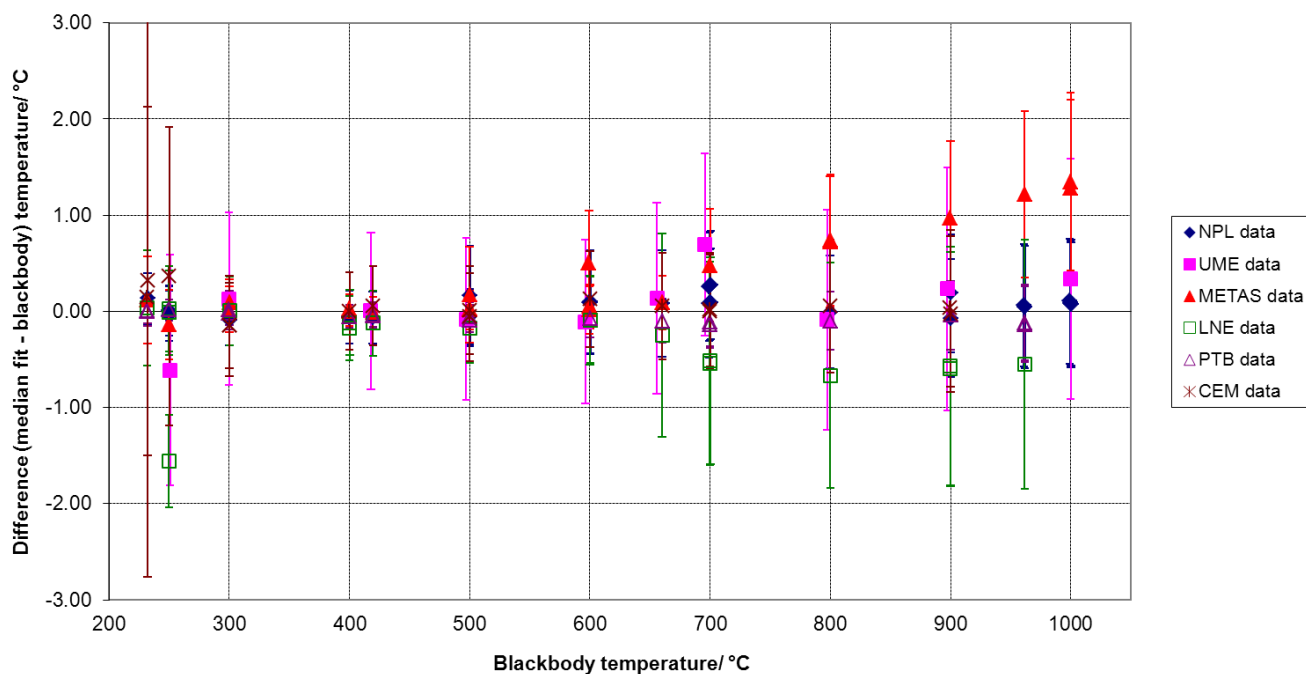
Plot of differences - (Median calibration fit temperature excluding 1000 °C data - blackbody temperature) for the LP5 on range R1 - all data (VTBB data zoomed in)



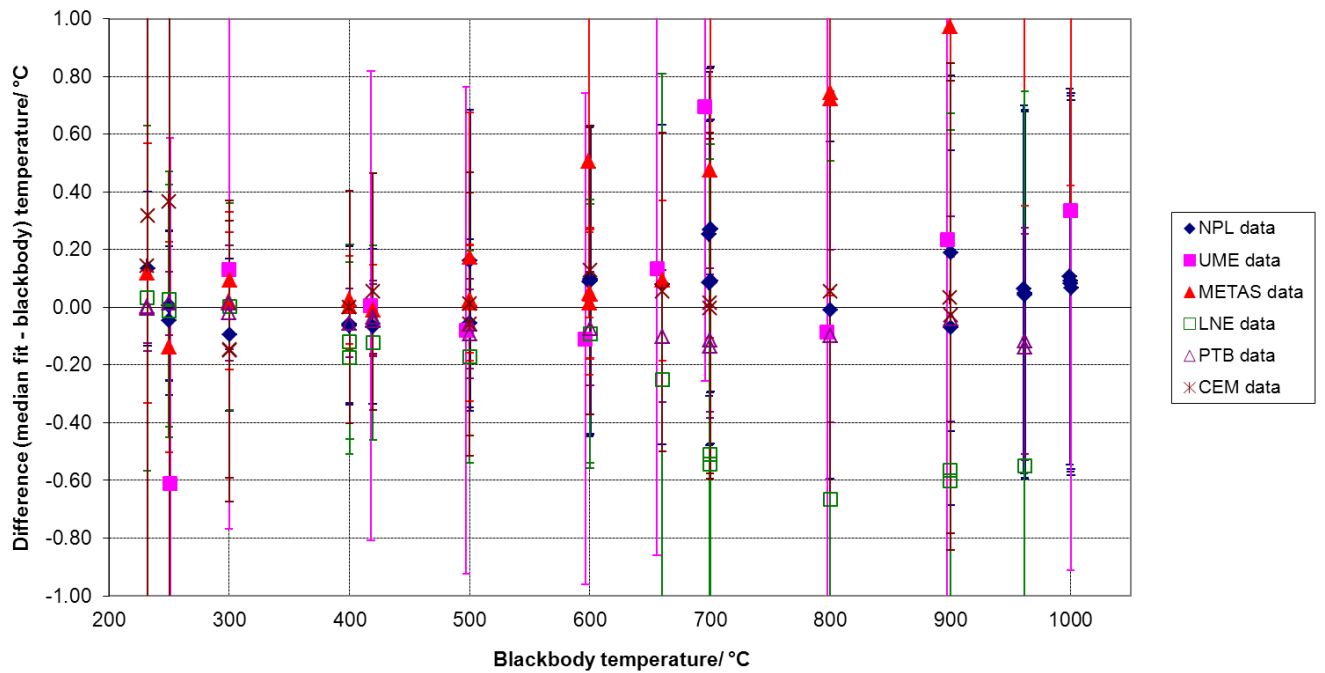
Plot of differences - (Median calibration fit temperature excluding 1000 °C data - blackbody temperature) for the LP5 on range R1 - all data (VTBB data zoomed in further)



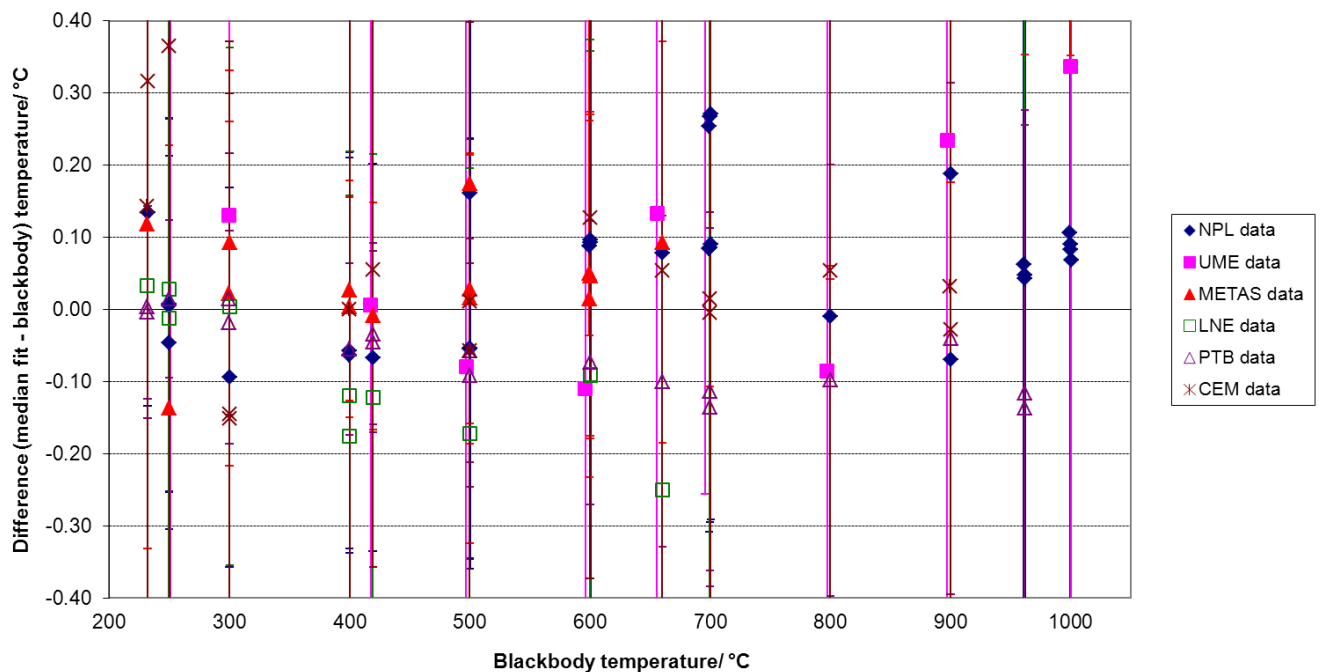
Plot of differences - (Median calibration fit temperature excluding 1000 °C data - blackbody temperature) for the LP5 on range R2 - all data (VTBB data)



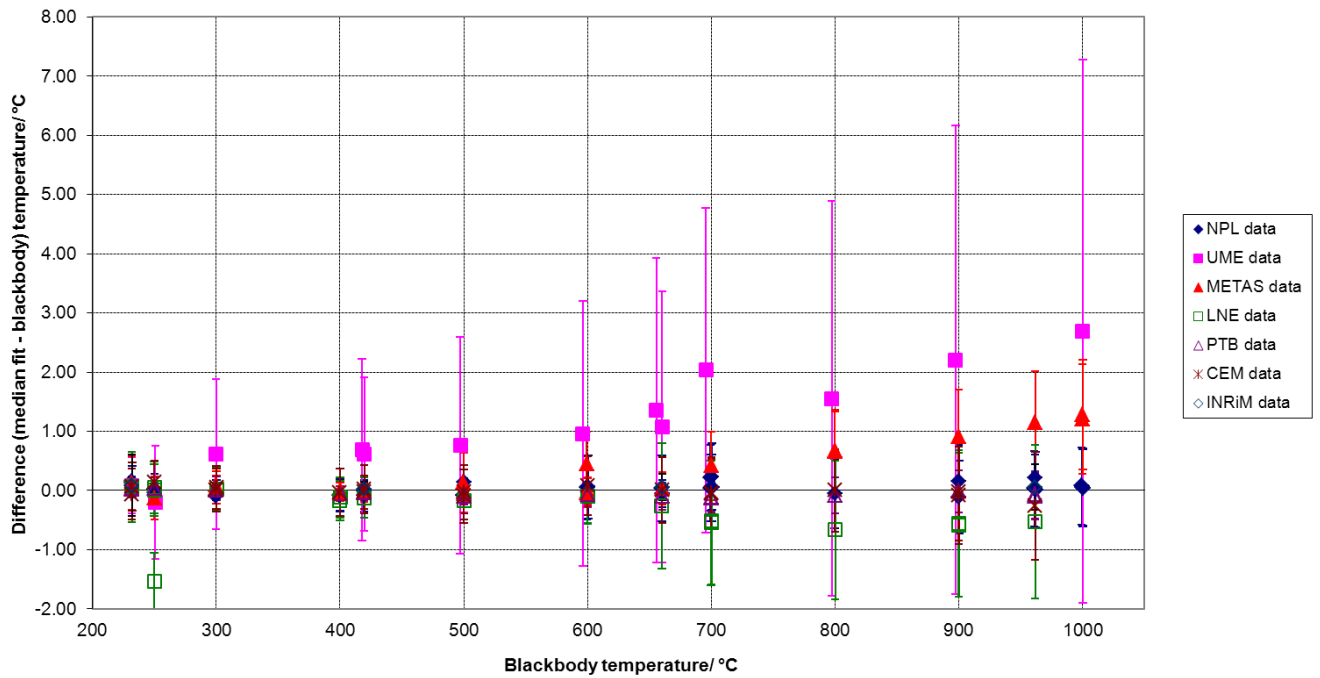
Plot of differences - (Median calibration fit temperature excluding 1000 °C data - blackbody temperature) for the LP5 on range R2 - all data (VTBB data) - zoomed in



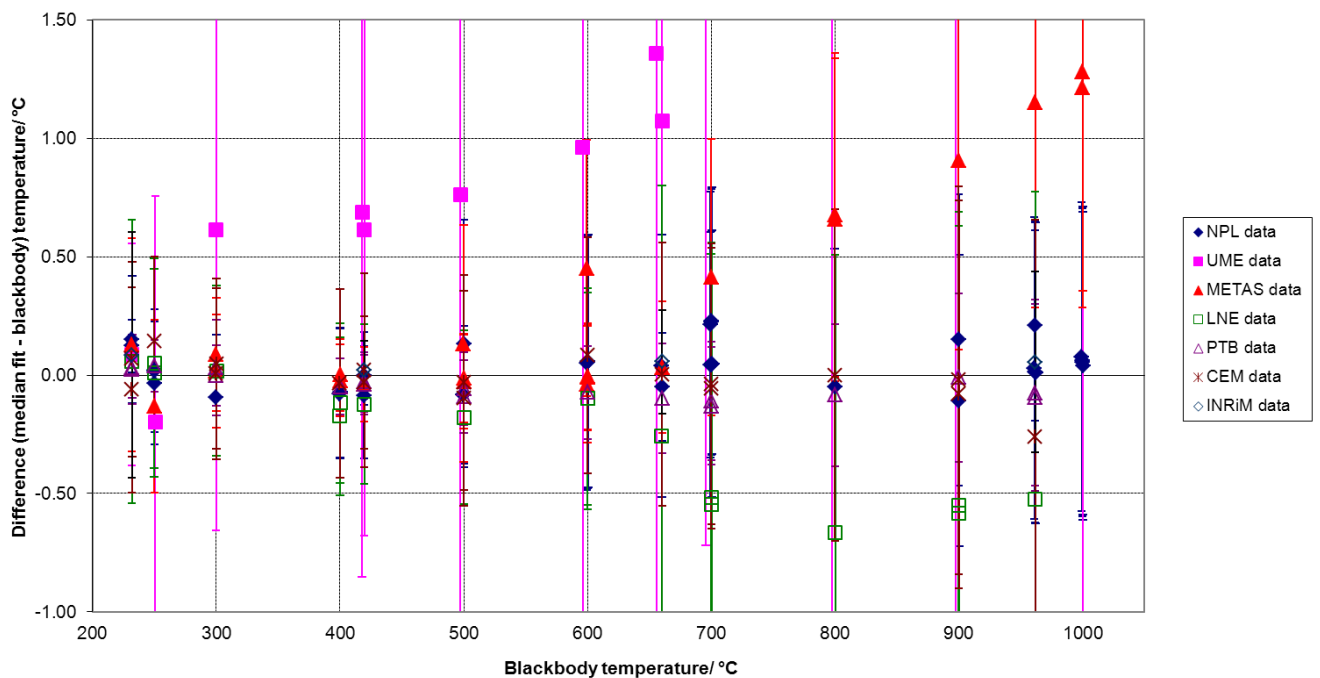
Plot of differences - (Median calibration fit temperature excluding 1000 °C data - blackbody temperature) for the LP5 on range R2 - all data (VTBB data) - zoomed in further



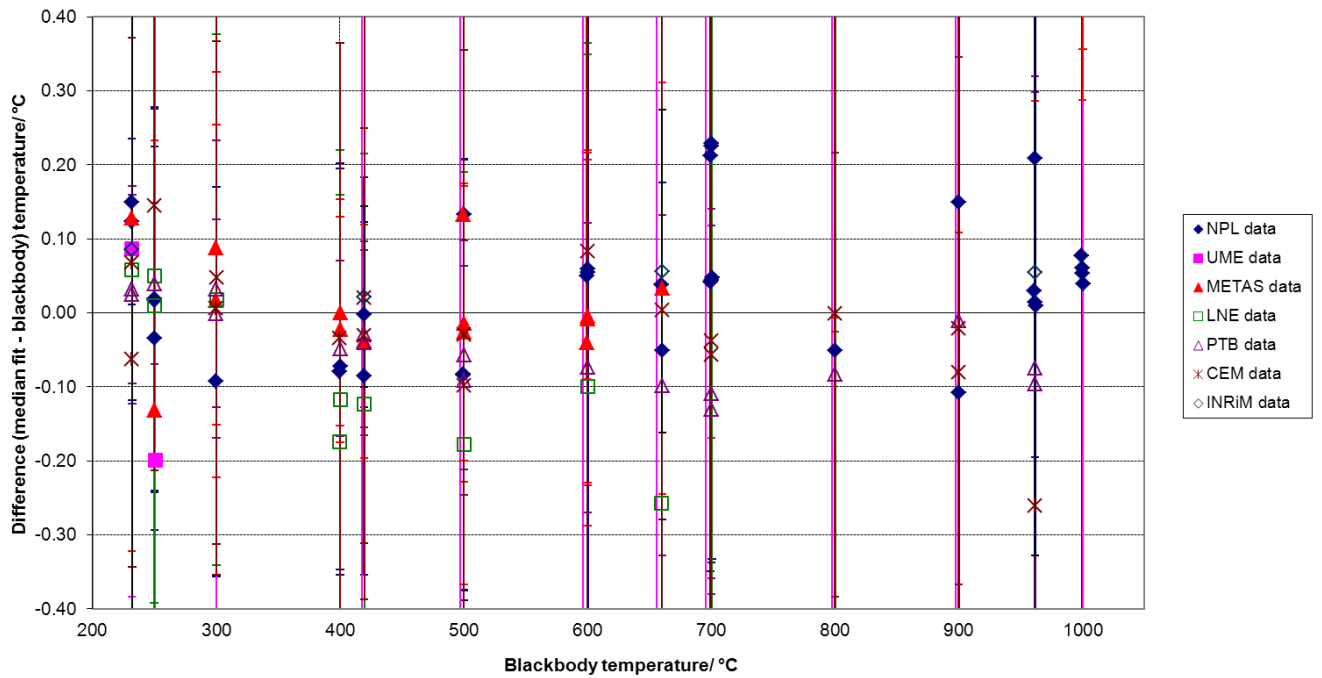
Plot of differences - (Median calibration fit temperature excluding 1000 °C data - blackbody temperature) for the LP5 on range R1 - all data (VTBB & FP data)



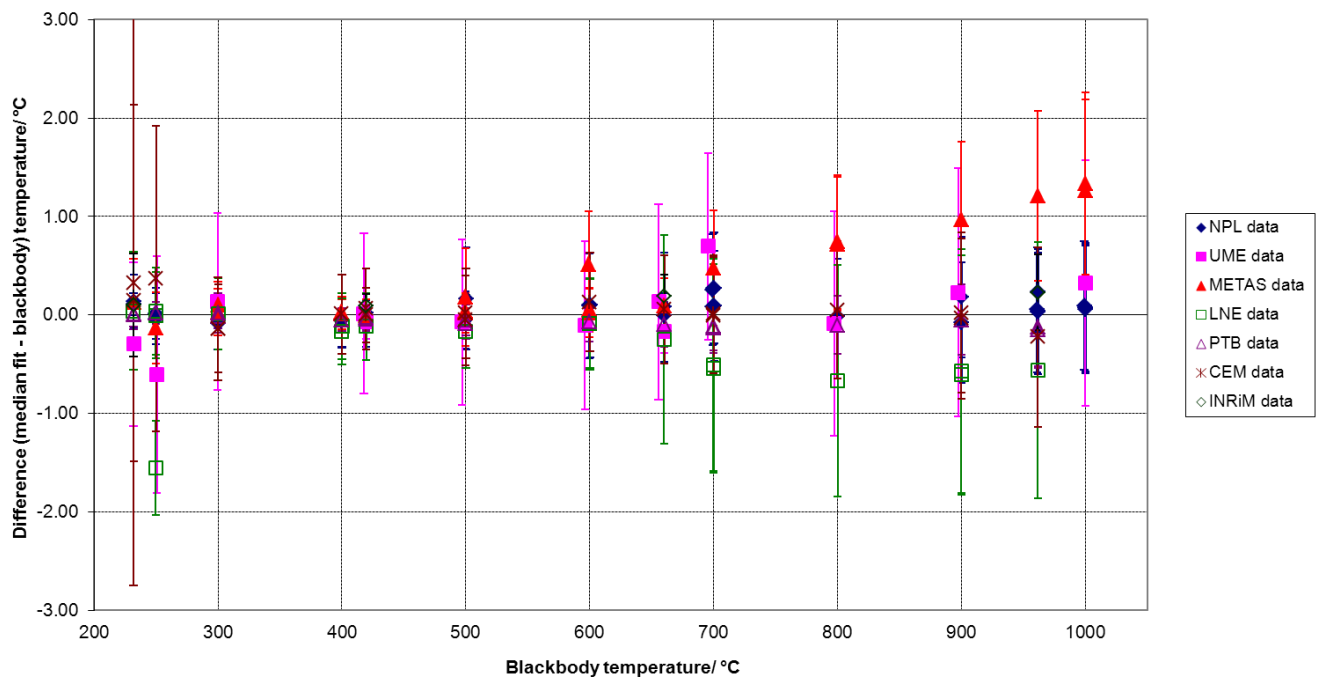
Plot of differences - (Median calibration fit temperature excluding 1000 °C data - blackbody temperature) for the LP5 on range R1 - all data zoomed in (VTBB & FP data)



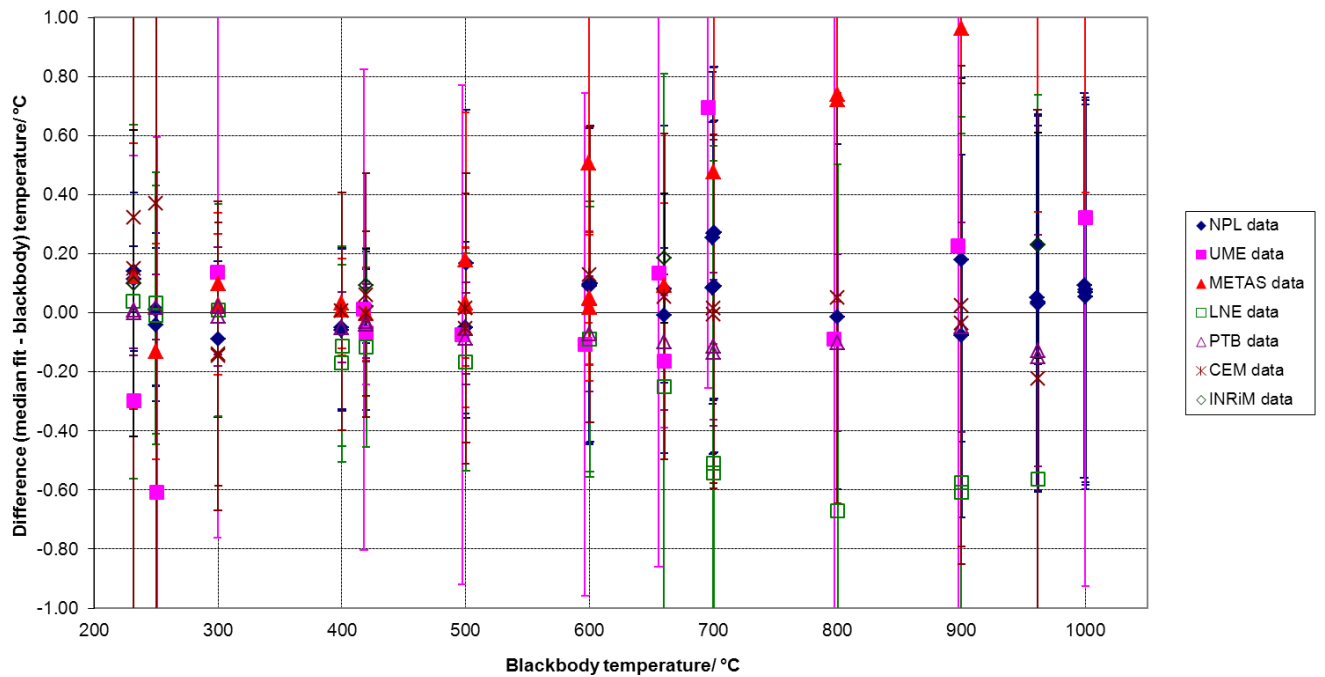
Plot of differences - (Median calibration fit temperature excluding 1000 °C data - blackbody temperature) for the LP5 on range R1 - all data zoomed in further (VTBB & FP data)



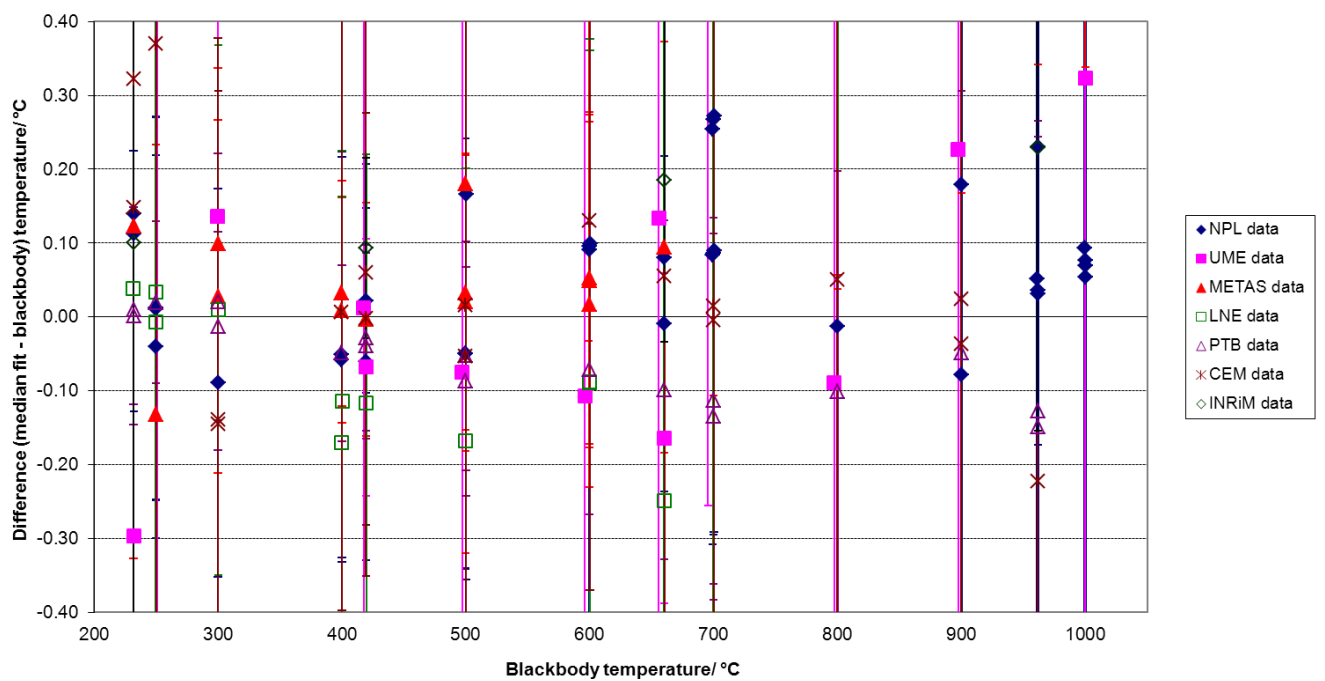
Plot of differences - (Median calibration fit temperature excluding 1000 °C data - blackbody temperature) for the LP5 on range R2 - all data (VTBB & FP data)



Plot of differences - (Median calibration fit temperature excluding 1000 °C data - blackbody temperature) for the LP5 on range R2 - all data zoomed in (VTBB & FP data)



Plot of differences - (Median calibration fit temperature excluding 1000 °C data - blackbody temperature) for the LP5 on range R2 - all data zoomed in further (VTBB & FP data)

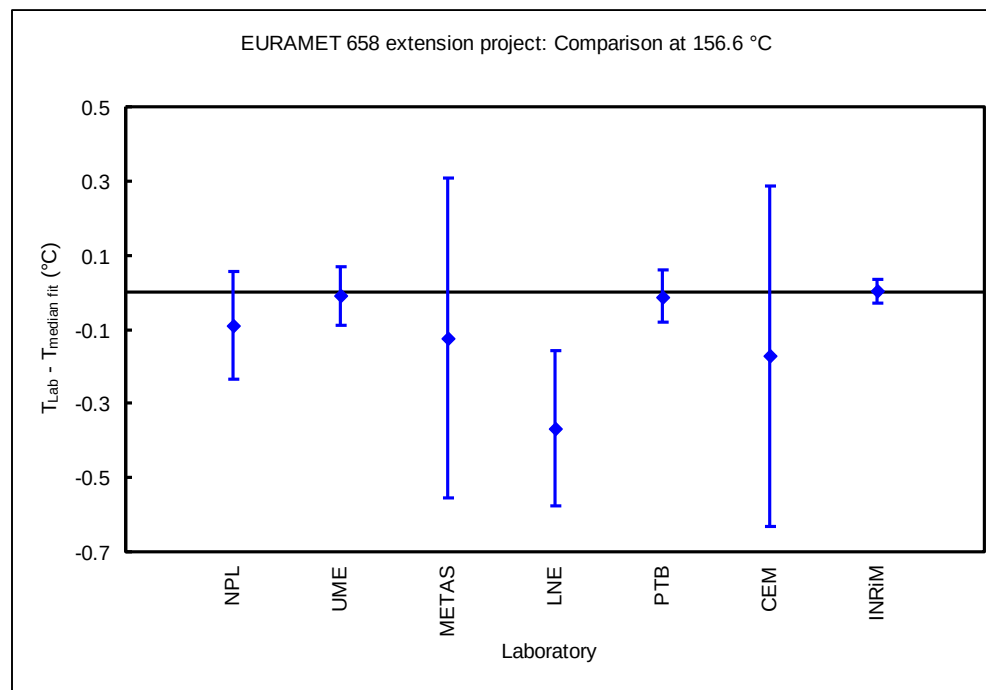


20 THE QDE₉₅ AND DOE VALUES FOR THE FIXED-POINT AND VARIABLE TEMPERATURE BLACKBODY COMPARISON, USING THE FIT OF ALL THE DATA

20.1 THE RESULTS FOR THE INRiM THERMOMETER USING THE FIT OF ALL THE FIXED-POINT AND VARIABLE TEMPERATURE BLACKBODY DATA

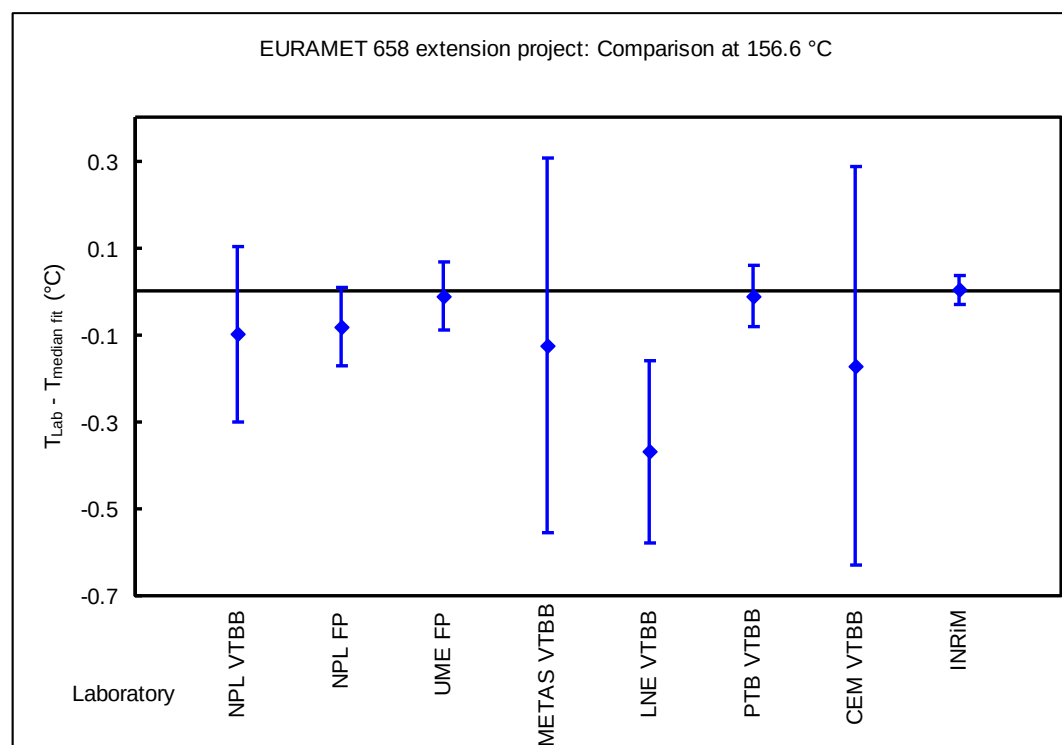
	NPL	UME	METAS	LNE	PTB	CEM	INRiM
NPL	-	-0.08 ± 0.165	0.03 ± 0.454	0.28 ± 0.256	-0.08 ± 0.162	0.08 ± 0.482	-0.09 ± 0.149
UME	0.22	-	0.11 ± 0.437	0.36 ± 0.224	0.00 ± 0.104	0.16 ± 0.465	-0.01 ± 0.084
METAS	0.45	0.48	-	0.24 ± 0.479	-0.11 ± 0.436	0.05 ± 0.629	-0.13 ± 0.431
LNE	0.49	0.54	0.64	-	-0.36 ± 0.221	-0.20 ± 0.505	-0.37 ± 0.212
PTB	0.21	0.10	0.48	0.54	-	0.16 ± 0.464	-0.01 ± 0.077
CEM	0.50	0.55	0.62	0.62	0.55	-	-0.17 ± 0.460
INRiM	0.22	0.09	0.49	0.55	0.08	0.56	-

Table 114 – the results for the INRiM thermometer at 156.6 °C – all data averaged



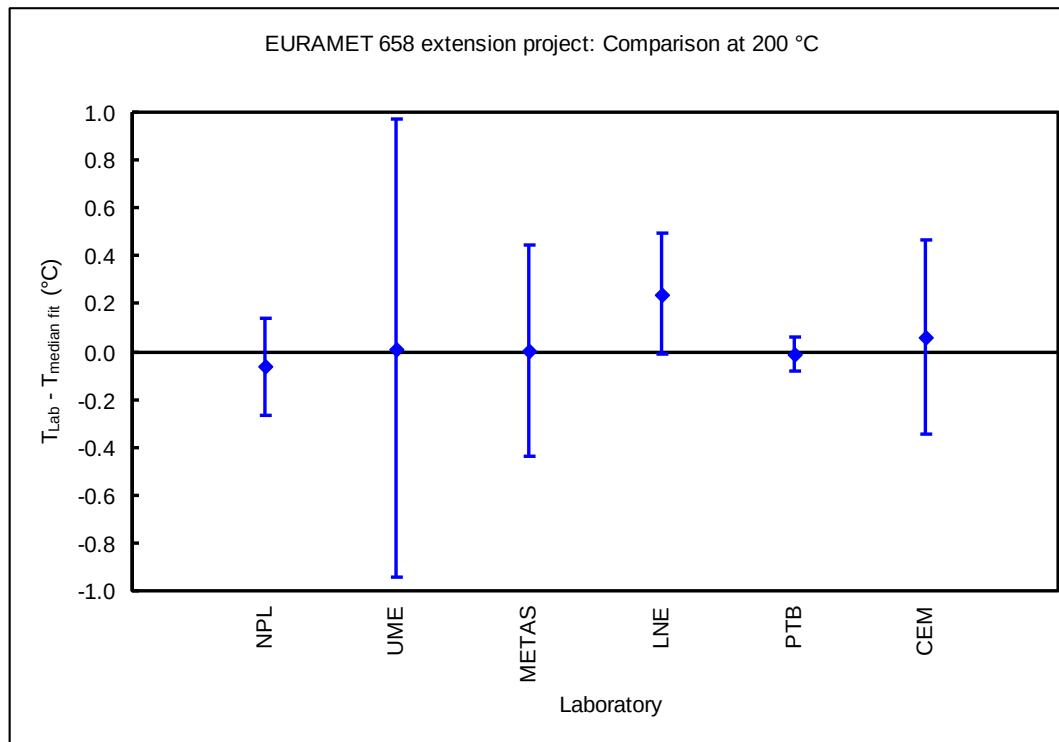
	NPL VTBB	NPL FP	UME FP	METAS VTBB	LNE VTBB	PTB VTBB	CEM VTBB	INRiM
NPL VTBB	-	-0.02 ± 0.221	-0.09 ± 0.216	0.03 ± 0.475	0.27 ± 0.291	-0.09 ± 0.214	0.07 ± 0.501	-0.10 ± 0.204
NPL FP	0.22	-	-0.07 ± 0.119	0.04 ± 0.439	0.29 ± 0.228	-0.07 ± 0.114	0.09 ± 0.468	-0.08 ± 0.095
UME FP	0.27	0.17	-	0.11 ± 0.437	0.36 ± 0.224	0.00 ± 0.104	0.16 ± 0.465	-0.01 ± 0.084
METAS VTBB	0.47	0.44	0.48	-	0.24 ± 0.479	-0.11 ± 0.436	0.05 ± 0.629	-0.13 ± 0.431
LNE VTBB	0.51	0.47	0.54	0.64	-	-0.36 ± 0.221	-0.20 ± 0.505	-0.37 ± 0.212
PTB VTBB	0.26	0.17	0.10	0.48	0.54	-	0.16 ± 0.464	-0.01 ± 0.077
CEM VTBB	0.51	0.49	0.55	0.62	0.62	0.55	-	-0.17 ± 0.460
INRiM	0.27	0.16	0.09	0.49	0.55	0.08	0.56	-

Table 115 – the results for the INRiM thermometer at 156.6 °C – FP and VTBB data separated



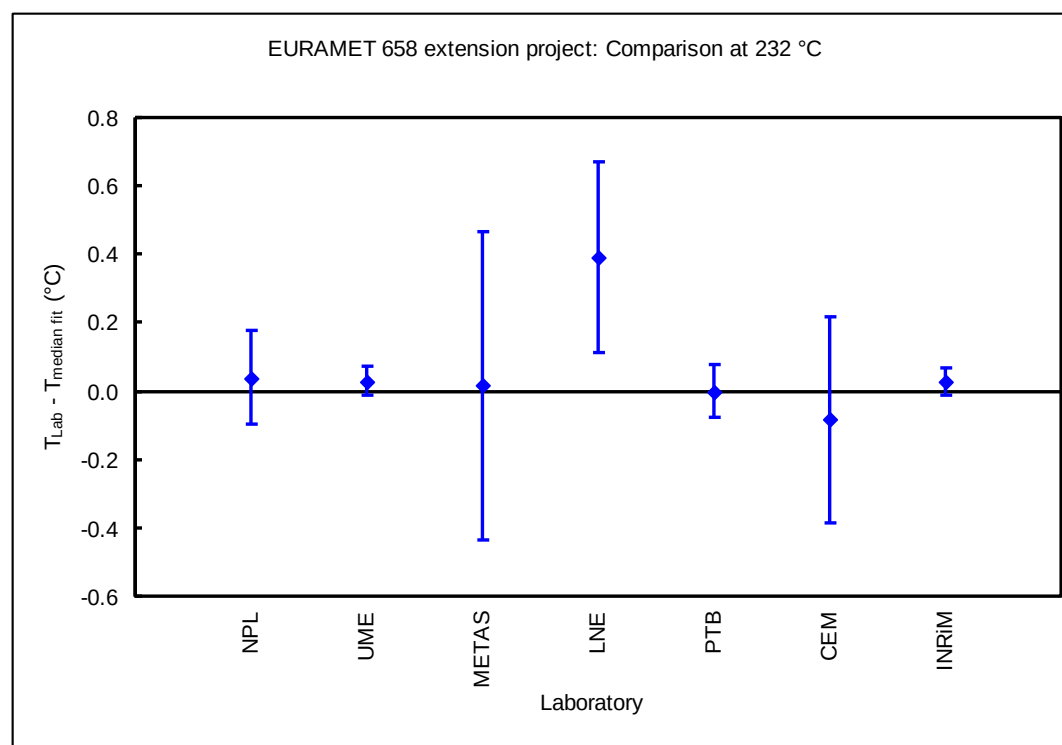
	NPL	UME	METAS	LNE	PTB	CEM
NPL	-	-0.07 ± 0.978	-0.06 ± 0.484	-0.30 ± 0.322	-0.05 ± 0.215	-0.12 ± 0.453
UME	0.97	-	0.01 ± 1.053	-0.23 ± 0.989	0.02 ± 0.959	-0.05 ± 1.039
METAS	0.49	1.04	-	-0.24 ± 0.506	0.01 ± 0.446	-0.06 ± 0.598
LNE	0.57	1.07	0.66	-	0.25 ± 0.260	0.18 ± 0.476
PTB	0.23	0.94	0.44	0.46	-	-0.07 ± 0.412
CEM	0.50	1.02	0.60	0.57	0.43	-

Table 116 – the results for the INRiM thermometer at 200 °C – all data averaged



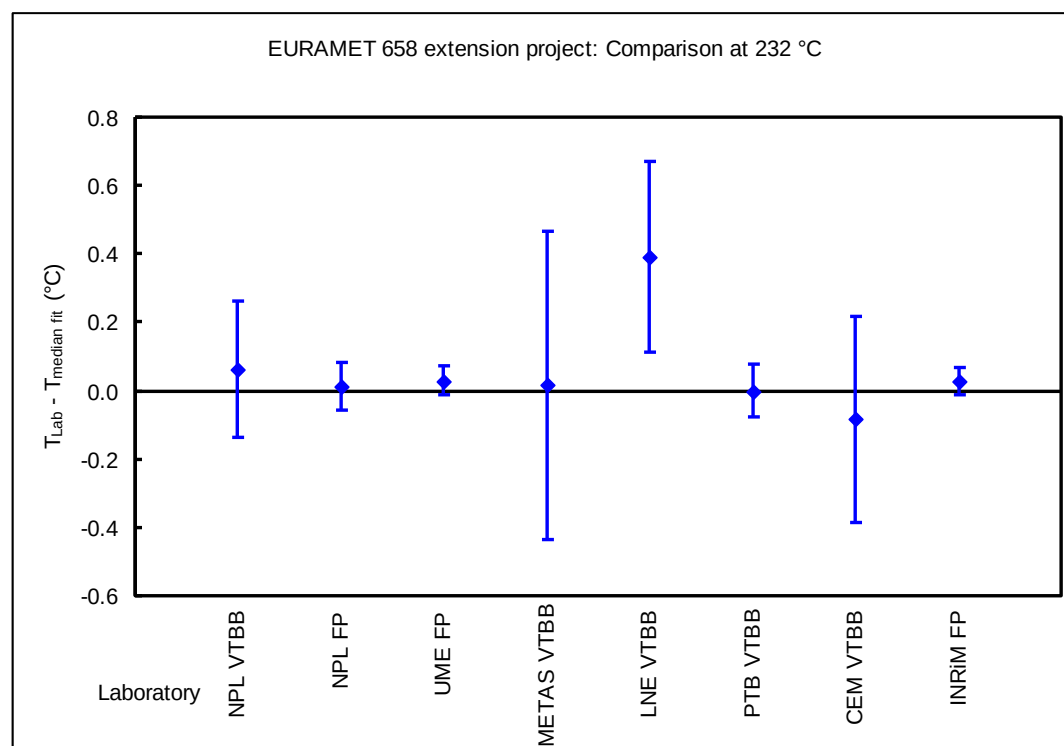
	NPL	UME	METAS	LNE	PTB	CEM	INRiM
NPL	-	0.01 ± 0.143	0.02 ± 0.470	-0.35 ± 0.312	0.04 ± 0.156	0.12 ± 0.330	0.01 ± 0.143
UME	0.14	-	0.01 ± 0.452	-0.36 ± 0.283	0.03 ± 0.087	0.11 ± 0.303	0.00 ± 0.059
METAS	0.46	0.44	-	-0.37 ± 0.530	0.02 ± 0.456	0.10 ± 0.541	-0.01 ± 0.452
LNE	0.61	0.59	0.81	-	0.39 ± 0.290	0.47 ± 0.410	0.36 ± 0.283
PTB	0.17	0.10	0.45	0.63	-	0.08 ± 0.309	-0.03 ± 0.086
CEM	0.40	0.36	0.56	0.81	0.34	-	-0.11 ± 0.303
INRiM	0.14	0.06	0.44	0.60	0.10	0.36	-

Table 117 – the results for the INRiM thermometer at 232°C – all data averaged



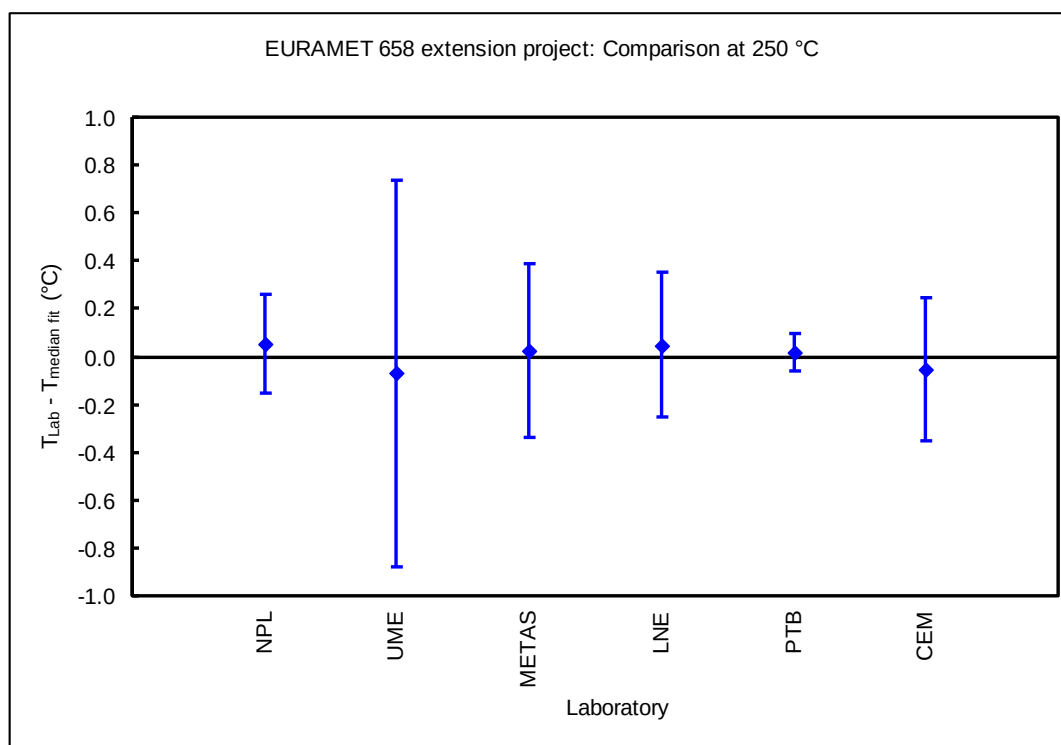
	NPL VTBB	NPL FP	UME FP	METAS VTBB	LNE VTBB	PTB VTBB	CEM VTBB	INRiM FP
NPL VTBB	-	0.05 ± 0.212	0.03 ± 0.205	0.05 ± 0.492	-0.33 ± 0.344	0.06 ± 0.214	0.15 ± 0.361	0.03 ± 0.204
NPL FP	0.23	-	-0.02 ± 0.082	0.00 ± 0.455	-0.38 ± 0.289	0.01 ± 0.103	0.10 ± 0.308	-0.01 ± 0.081
UME FP	0.21	0.09	-	0.01 ± 0.452	-0.36 ± 0.283	0.03 ± 0.087	0.11 ± 0.303	0.00 ± 0.059
METAS VTBB	0.49	0.45	0.44	-	-0.37 ± 0.530	0.02 ± 0.456	0.10 ± 0.541	-0.01 ± 0.452
LNE VTBB	0.61	0.61	0.59	0.81	-	0.39 ± 0.290	0.47 ± 0.410	0.36 ± 0.283
PTB VTBB	0.24	0.10	0.10	0.45	0.63	-	0.08 ± 0.309	-0.03 ± 0.086
CEM VTBB	0.45	0.35	0.36	0.56	0.81	0.34	-	-0.11 ± 0.303
INRiM FP	0.21	0.08	0.06	0.44	0.60	0.10	0.36	-

Table 118 – the results for the INRiM thermometer at 232 °C – FP and VTBB data separated



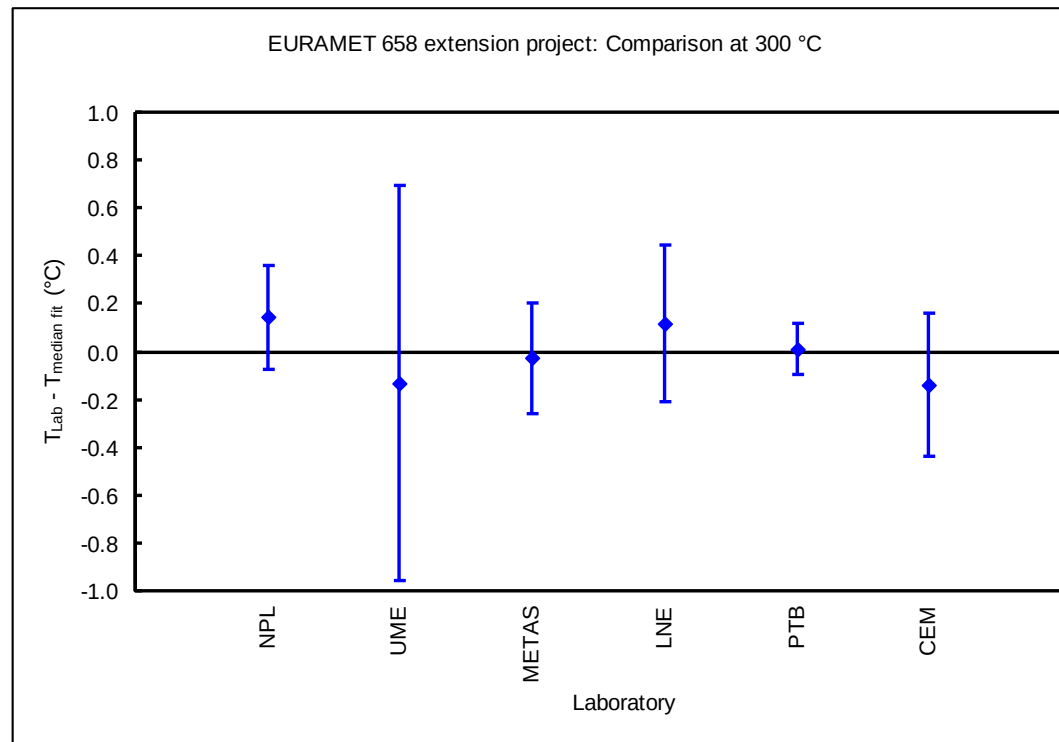
	NPL	UME	METAS	LNE	PTB	CEM
NPL	-	0.12 ± 0.836	0.03 ± 0.414	0.00 ± 0.363	0.04 ± 0.219	0.11 ± 0.363
UME	0.85	-	-0.10 ± 0.887	-0.12 ± 0.864	-0.09 ± 0.814	-0.02 ± 0.864
METAS	0.41	0.89	-	-0.02 ± 0.469	0.01 ± 0.369	0.08 ± 0.469
LNE	0.36	0.88	0.46	-	0.03 ± 0.310	0.10 ± 0.424
PTB	0.23	0.81	0.36	0.31	-	0.07 ± 0.310
CEM	0.41	0.85	0.48	0.46	0.33	-

Table 119 – the results for the INRiM thermometer at 250 °C – all data averaged



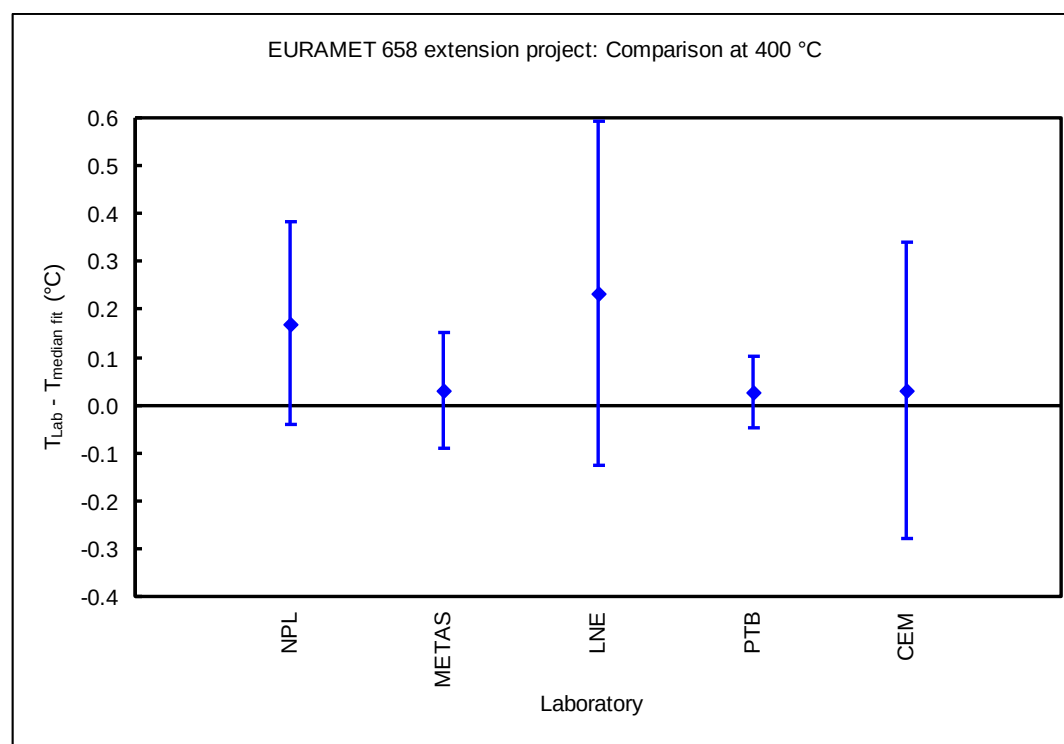
	NPL	UME	METAS	LNE	PTB	CEM
NPL	-	0.27 ± 0.852	0.17 ± 0.315	0.03 ± 0.394	0.13 ± 0.241	0.28 ± 0.369
UME	0.98	-	-0.10 ± 0.856	-0.25 ± 0.888	-0.14 ± 0.831	0.01 ± 0.877
METAS	0.43	0.86	-	-0.15 ± 0.402	-0.04 ± 0.254	0.11 ± 0.378
LNE	0.39	0.99	0.48	-	0.10 ± 0.347	0.25 ± 0.446
PTB	0.33	0.86	0.26	0.39	-	0.15 ± 0.319
CEM	0.58	0.86	0.43	0.62	0.41	-

Table 120 – the results for the INRiM thermometer at 300 °C – all data averaged



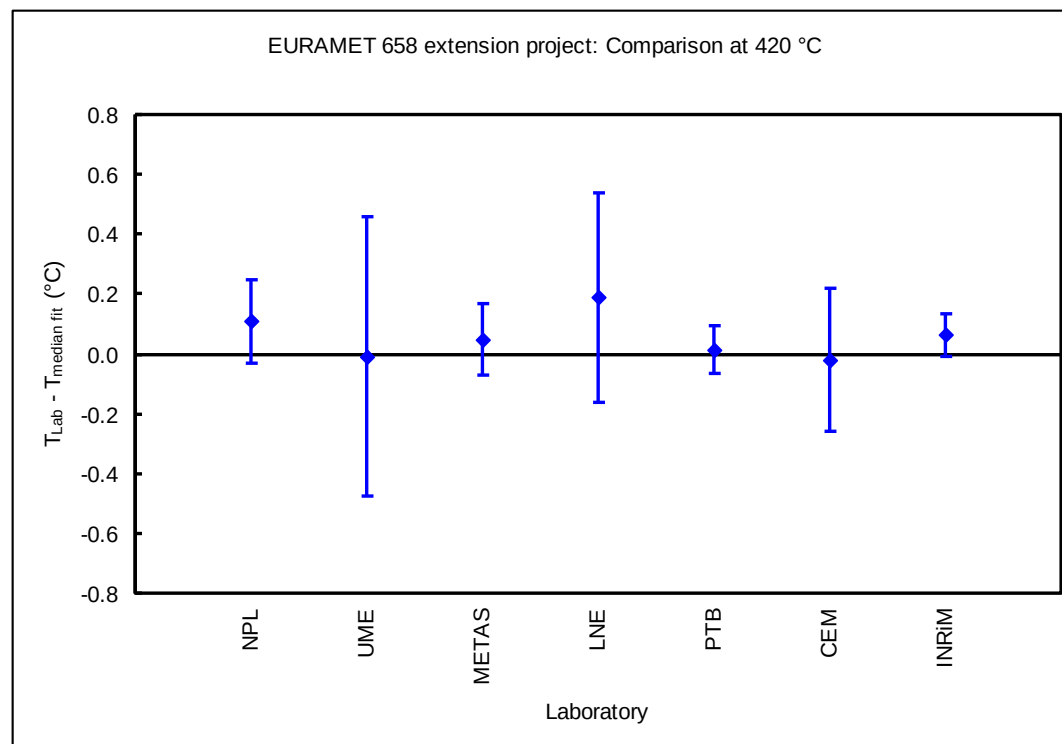
	NPL	METAS	LNE	PTB	CEM
NPL	-	0.14 ± 0.242	-0.06 ± 0.417	0.14 ± 0.224	0.14 ± 0.375
METAS	0.34	-	-0.20 ± 0.379	0.00 ± 0.141	0.00 ± 0.332
LNE	0.43	0.52	-	0.21 ± 0.368	0.20 ± 0.475
PTB	0.33	0.14	0.51	-	0.00 ± 0.319
CEM	0.45	0.33	0.60	0.31	-

Table 121 – the results for the INRiM thermometer at 400 °C – all data averaged



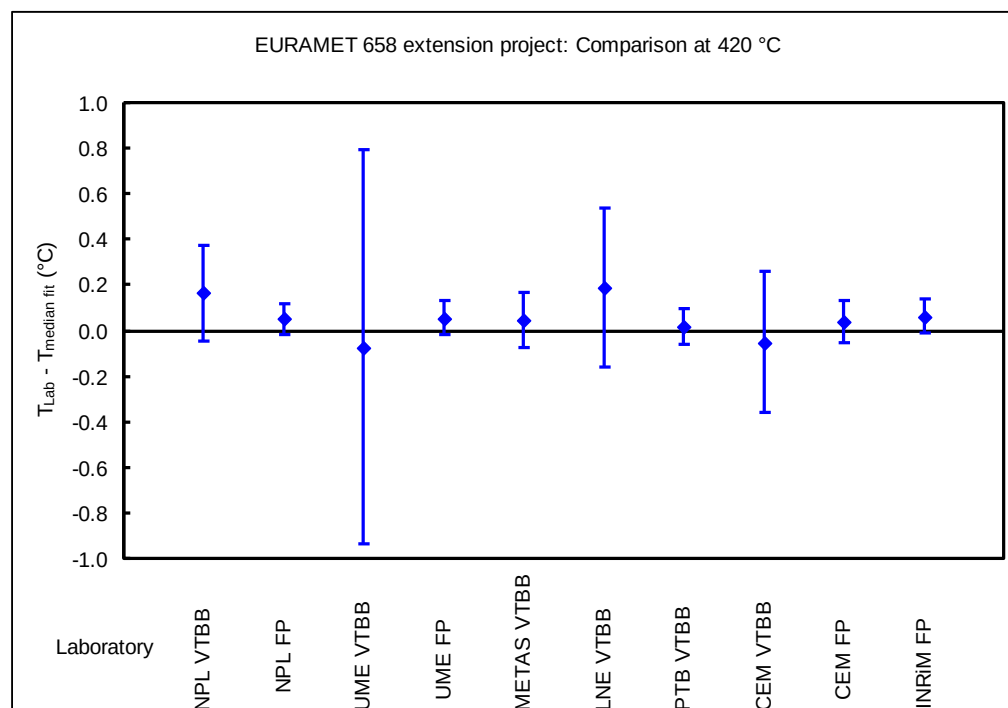
	NPL	UME	METAS	LNE	PTB	CEM	INRiM
NPL	-	0.12 ± 0.489	0.06 ± 0.185	-0.08 ± 0.377	0.09 ± 0.161	0.13 ± 0.277	0.05 ± 0.159
UME	0.53	-	-0.06 ± 0.484	-0.20 ± 0.585	-0.02 ± 0.475	0.01 ± 0.526	-0.07 ± 0.474
METAS	0.22	0.49	-	-0.14 ± 0.370	0.03 ± 0.144	0.07 ± 0.266	-0.02 ± 0.140
LNE	0.40	0.68	0.45	-	0.17 ± 0.359	0.21 ± 0.423	0.13 ± 0.357
PTB	0.23	0.47	0.15	0.47	-	0.04 ± 0.251	-0.05 ± 0.107
CEM	0.36	0.52	0.29	0.56	0.26	-	-0.08 ± 0.249
INRiM	0.18	0.48	0.14	0.42	0.14	0.29	-

Table 122 – the results for the INRiM thermometer at 420 °C – all data averaged



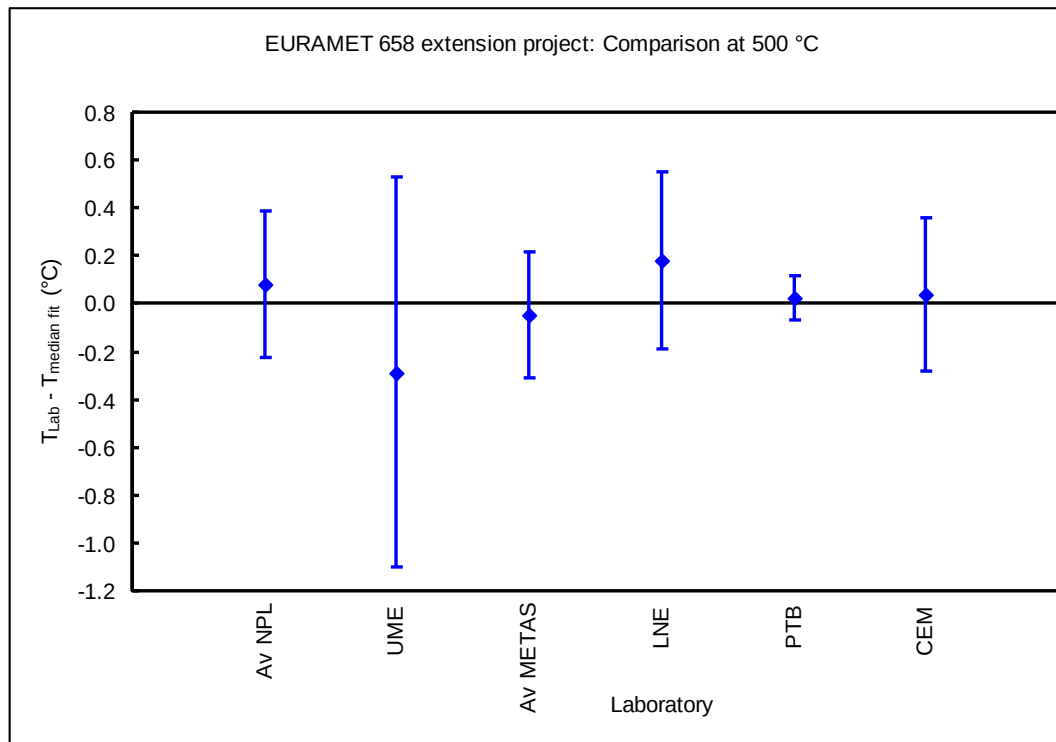
	NPL VTBB	NPL FP	UME VTBB	UME FP	METAS VTBB	LNE VTBB	PTB VTBB	CEM VTBB	CEM FP	INRiM FP
NPL VTBB	-	0.12 ± 0.221	0.24 ± 0.888	0.11 ± 0.223	0.12 ± 0.242	-0.02 ± 0.408	0.15 ± 0.224	0.22 ± 0.374	0.13 ± 0.228	0.10 ± 0.222
NPL FP	0.30	-	0.12 ± 0.865	0.00 ± 0.103	0.00 ± 0.139	-0.14 ± 0.357	0.03 ± 0.105	0.10 ± 0.318	0.01 ± 0.114	-0.01 ± 0.101
UME VTBB	0.99	0.88	-	-0.13 ± 0.866	-0.12 ± 0.871	-0.26 ± 0.931	-0.09 ± 0.866	-0.02 ± 0.916	-0.11 ± 0.867	-0.14 ± 0.865
UME FP	0.30	0.10	0.88	-	0.01 ± 0.142	-0.13 ± 0.358	0.04 ± 0.109	0.11 ± 0.319	0.01 ± 0.117	-0.01 ± 0.104
METAS VTBB	0.32	0.14	0.88	0.14	-	-0.14 ± 0.370	0.03 ± 0.144	0.10 ± 0.332	0.01 ± 0.150	-0.02 ± 0.140
LNE VTBB	0.40	0.43	1.04	0.43	0.45	-	0.17 ± 0.359	0.24 ± 0.468	0.15 ± 0.361	0.13 ± 0.357
PTB VTBB	0.34	0.12	0.86	0.13	0.15	0.47	-	0.07 ± 0.320	-0.02 ± 0.120	-0.05 ± 0.107
CEM VTBB	0.53	0.37	0.90	0.37	0.38	0.63	0.34	-	-0.09 ± 0.323	-0.11 ± 0.318
CEM FP	0.32	0.11	0.88	0.12	0.15	0.45	0.13	0.36	-	-0.02 ± 0.116
INRiM FP	0.29	0.10	0.89	0.10	0.14	0.42	0.14	0.38	0.12	-

Table 123 – the results for the INRiM thermometer at 420 °C – FP and VTBB data separated



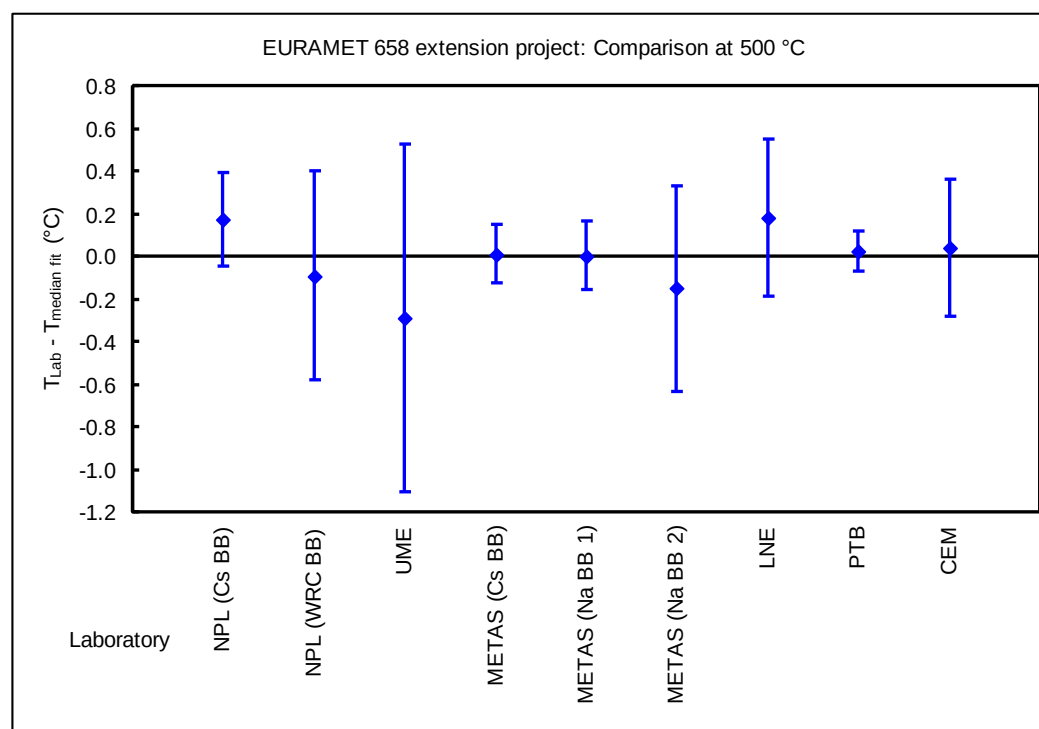
	Av NPL	UME	Av METAS	LNE	PTB	CEM
Av NPL	-	0.37 ± 0.871	0.13 ± 0.404	-0.10 ± 0.481	0.06 ± 0.323	0.04 ± 0.444
UME	1.09	-	-0.24 ± 0.856	-0.47 ± 0.895	-0.31 ± 0.820	-0.33 ± 0.875
Av METAS	0.47	0.96	-	-0.23 ± 0.453	-0.07 ± 0.279	-0.09 ± 0.414
LNE	0.51	1.21	0.60	-	0.16 ± 0.382	0.14 ± 0.489
PTB	0.34	0.99	0.31	0.48	-	-0.02 ± 0.334
CEM	0.44	1.05	0.44	0.55	0.33	-

Table 124 – the results for the INRiM thermometer at 500 °C – all data averaged



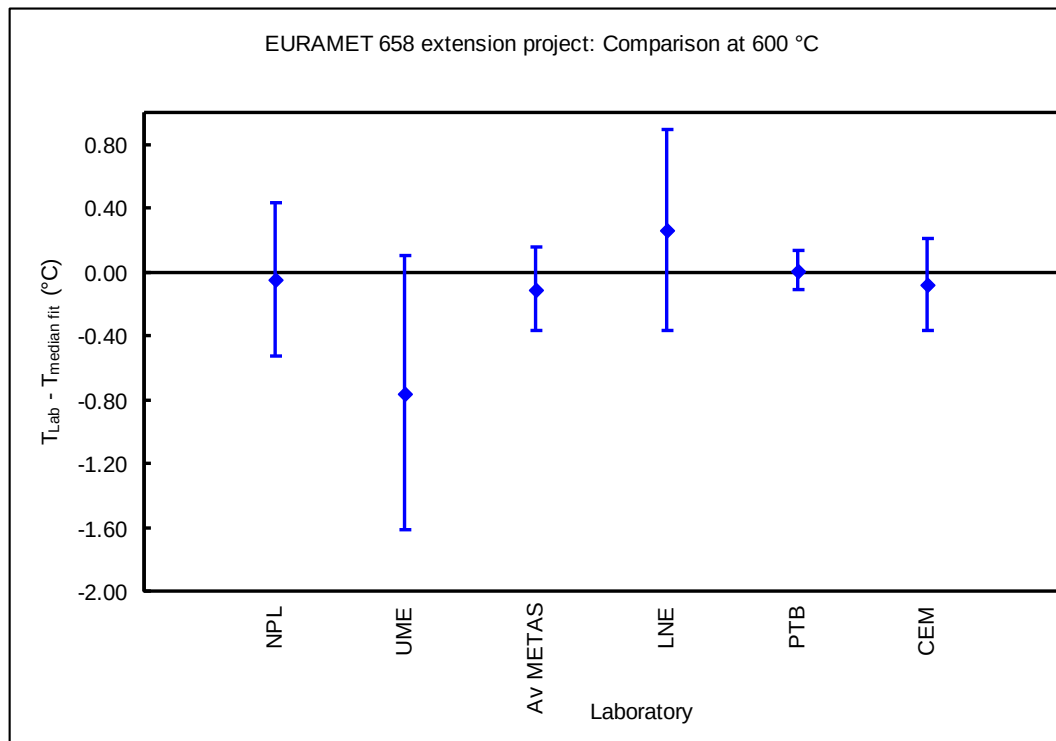
	NPL (Cs BB)	NPL (WRC BB)	UME	METAS (Cs BB)	METAS (Na BB 1)	METAS (Na BB 2)	LNE	PTB	CEM
NPL (Cs BB)	-	0.26 ± 0.537	0.46 ± 0.844	0.16 ± 0.261	0.17 ± 0.272	0.32 ± 0.528	-0.01 ± 0.428	0.15 ± 0.240	0.13 ± 0.388
NPL (WRC BB)	0.70	-	0.20 ± 0.951	-0.10 ± 0.510	-0.10 ± 0.515	0.06 ± 0.686	-0.27 ± 0.612	-0.12 ± 0.499	-0.13 ± 0.585
UME	1.15	1.01	-	-0.30 ± 0.827	-0.29 ± 0.830	-0.14 ± 0.945	-0.47 ± 0.893	-0.31 ± 0.820	-0.33 ± 0.875
METAS (Cs BB)	0.37	0.54	0.99	-	0.01 ± 0.213	0.16 ± 0.500	-0.17 ± 0.393	-0.01 ± 0.169	-0.03 ± 0.349
METAS (Na BB 1)	0.39	0.54	0.98	0.21	-	0.16 ± 0.506	-0.18 ± 0.400	-0.02 ± 0.186	-0.04 ± 0.358
METAS (Na BB 2)	0.76	0.68	0.96	0.58	0.58	-	-0.33 ± 0.604	-0.18 ± 0.489	-0.19 ± 0.577
LNE	0.42	0.78	1.21	0.50	0.51	0.83	-	0.16 ± 0.379	0.14 ± 0.487
PTB	0.34	0.54	0.99	0.17	0.19	0.58	0.47	-	-0.02 ± 0.334
CEM	0.45	0.63	1.05	0.35	0.36	0.67	0.55	0.33	-

Table 125 – the results for the INRiM thermometer at 500 °C – data separated according to source type



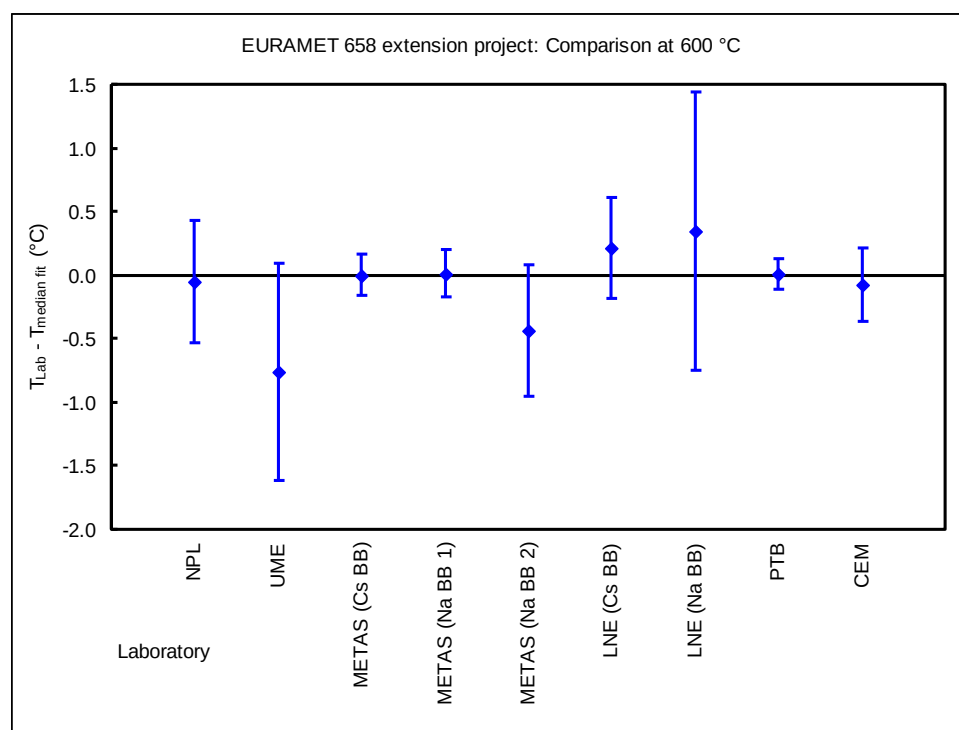
	NPL	UME	Av METAS	LNE	PTB	CEM
NPL	-	0.71 ± 0.984	0.06 ± 0.548	-0.31 ± 0.794	-0.06 ± 0.498	0.03 ± 0.563
UME	1.52	-	-0.65 ± 0.896	-1.02 ± 1.064	-0.77 ± 0.866	-0.68 ± 0.905
Av METAS	0.55	1.39	-	-0.36 ± 0.681	-0.12 ± 0.286	-0.03 ± 0.389
LNE	0.97	1.89	0.93	-	0.25 ± 0.641	0.34 ± 0.693
PTB	0.50	1.48	0.35	0.78	-	0.09 ± 0.314
CEM	0.55	1.43	0.38	0.91	0.35	-

Table 126 – the results for the INRiM thermometer at 600 °C – all data averaged



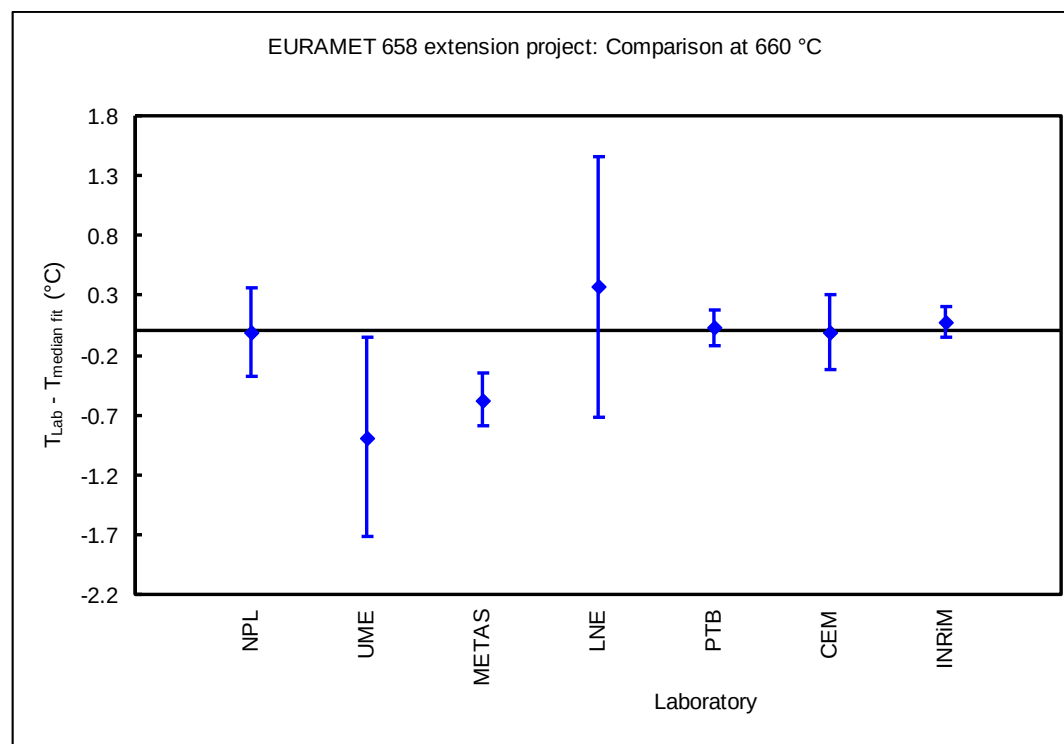
	NPL	UME	METAS (Cs BB)	METAS (Na BB 1)	METAS (Na BB 2)	LNE (Cs BB)	LNE (Na BB)	PTB	CEM
NPL	-	0.71 ± 0.984	-0.05 ± 0.509	-0.06 ± 0.519	0.39 ± 0.710	-0.26 ± 0.625	-0.39 ± 1.197	-0.06 ± 0.498	0.03 ± 0.563
UME	1.52	-	-0.76 ± 0.872	-0.77 ± 0.878	-0.32 ± 1.003	-0.97 ± 0.945	-1.10 ± 1.390	-0.77 ± 0.866	-0.68 ± 0.905
METAS (Cs BB)	0.51	1.48	-	-0.01 ± 0.248	0.44 ± 0.544	-0.22 ± 0.428	-0.35 ± 1.106	-0.01 ± 0.200	0.08 ± 0.331
METAS (Na BB 1)	0.52	1.49	0.24	-	0.45 ± 0.554	-0.20 ± 0.440	-0.33 ± 1.111	0.00 ± 0.225	0.09 ± 0.347
METAS (Na BB 2)	0.97	1.16	0.88	0.91	-	-0.65 ± 0.654	-0.78 ± 1.212	-0.45 ± 0.534	-0.36 ± 0.595
LNE (Cs BB)	0.78	1.75	0.57	0.57	1.19	-	-0.13 ± 1.165	0.20 ± 0.415	0.29 ± 0.492
LNE (Na BB)	1.39	2.25	1.27	1.26	1.78	1.17	-	0.34 ± 1.101	0.42 ± 1.133
PTB	0.50	1.48	0.20	0.22	0.89	0.55	1.26	-	0.09 ± 0.314
CEM	0.55	1.43	0.36	0.38	0.85	0.70	1.36	0.35	-

Table 127 – the results for the INRiM thermometer at 600 °C – data separated according to source type



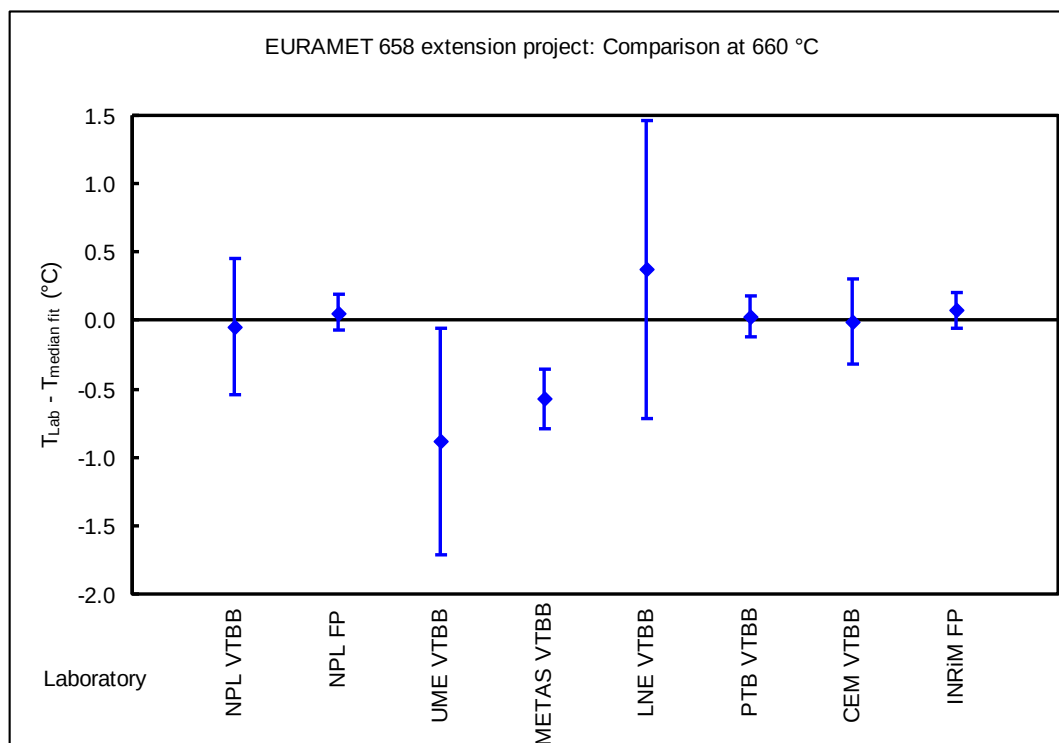
	NPL	UME	METAS	LNE	PTB	CEM	INRiM
NPL	-	0.87 ± 0.912	0.56 ± 0.434	-0.38 ± 1.152	-0.04 ± 0.402	0.00 ± 0.486	-0.09 ± 0.396
UME	1.62	-	-0.31 ± 0.860	-1.26 ± 1.371	-0.91 ± 0.845	-0.88 ± 0.888	-0.96 ± 0.842
METAS	0.92	1.03	-	-0.94 ± 1.112	-0.60 ± 0.264	-0.56 ± 0.380	-0.65 ± 0.255
LNE	1.34	2.39	1.86	-	0.35 ± 1.100	0.38 ± 1.133	0.29 ± 1.098
PTB	0.40	1.61	0.82	1.26	-	0.04 ± 0.343	-0.05 ± 0.195
CEM	0.48	1.61	0.88	1.33	0.34	-	-0.09 ± 0.336
INRiM	0.42	1.65	0.86	1.22	0.22	0.37	-

Table 128– the results for the INRiM thermometer at 660 °C – all data averaged



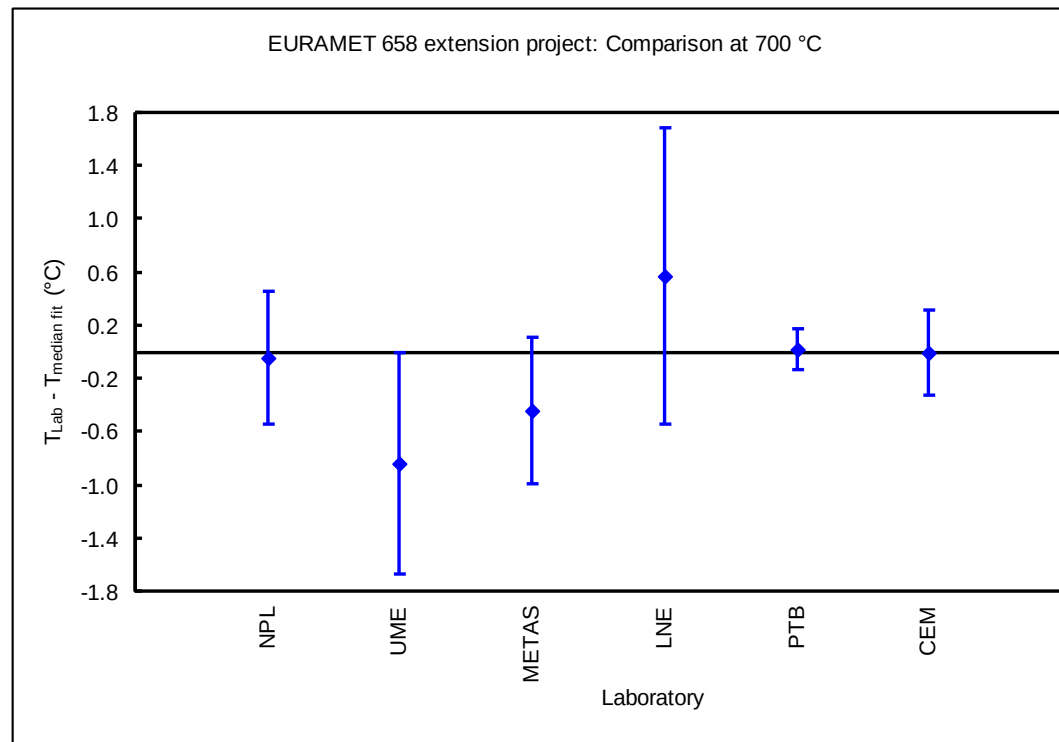
	NPL VTBB	NPL FP	UME VTBB	METAS VTBB	LNE VTBB	PTB VTBB	CEM VTBB	INRiM FP
NPL VTBB	-	-0.11 ± 0.517	0.84 ± 0.971	0.53 ± 0.546	-0.42 ± 1.199	-0.07 ± 0.521	-0.04 ± 0.588	-0.12 ± 0.516
NPL FP	0.55	-	0.94 ± 0.842	0.63 ± 0.256	-0.31 ± 1.098	0.03 ± 0.196	0.07 ± 0.336	-0.02 ± 0.183
UME VTBB	1.64	1.64	-	-0.31 ± 0.860	-1.26 ± 1.371	-0.91 ± 0.845	-0.88 ± 0.888	-0.96 ± 0.842
METAS VTBB	0.97	0.84	1.03	-	-0.94 ± 1.112	-0.60 ± 0.264	-0.56 ± 0.380	-0.65 ± 0.255
LNE VTBB	1.42	1.23	2.39	1.86	-	0.35 ± 1.100	0.38 ± 1.133	0.29 ± 1.098
PTB VTBB	0.53	0.20	1.61	0.82	1.26	-	0.04 ± 0.343	-0.05 ± 0.195
CEM VTBB	0.58	0.35	1.61	0.88	1.33	0.34	-	-0.09 ± 0.336
INRiM FP	0.56	0.18	1.65	0.86	1.22	0.22	0.37	-

Table 129 – the results for the INRiM thermometer at 660 °C – FP and VTBB data separated



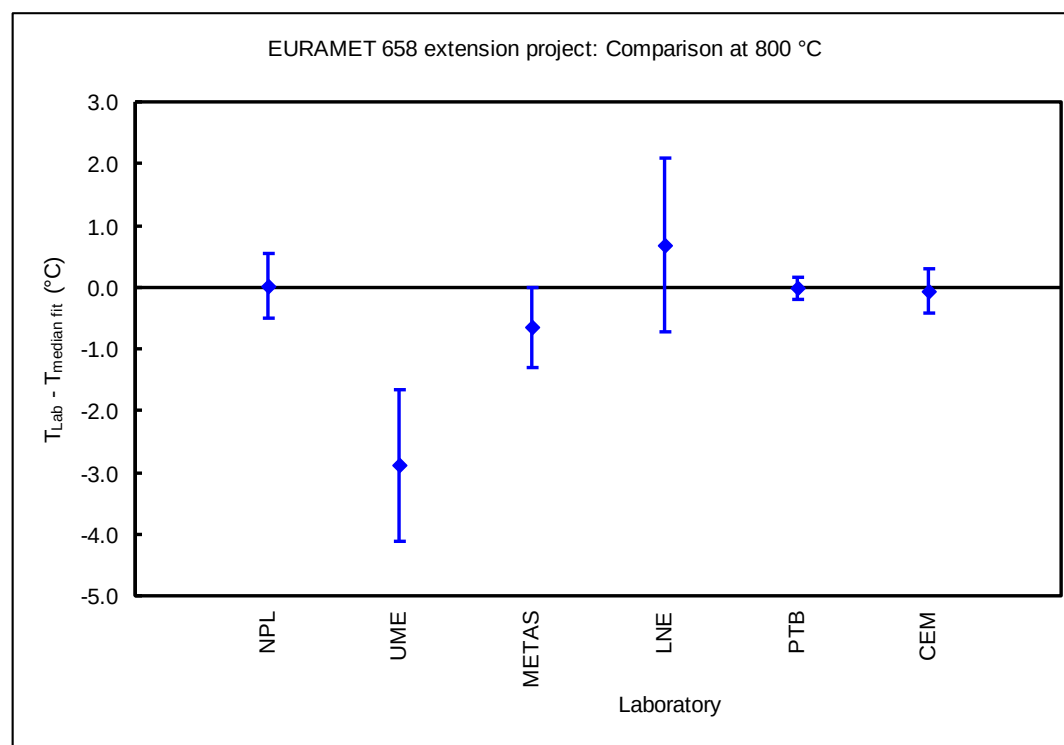
	NPL	UME	METAS	LNE	PTB	CEM
NPL	-	0.80 ± 0.973	0.40 ± 0.743	-0.61 ± 1.226	-0.06 ± 0.524	-0.04 ± 0.593
UME	1.60	-	-0.40 ± 1.000	-1.41 ± 1.397	-0.86 ± 0.850	-0.84 ± 0.894
METAS	1.01	1.23	-	-1.01 ± 1.248	-0.46 ± 0.572	-0.44 ± 0.636
LNE	1.63	2.56	2.04	-	0.55 ± 1.131	0.57 ± 1.165
PTB	0.53	1.56	0.93	1.48	-	0.03 ± 0.357
CEM	0.58	1.57	0.96	1.54	0.35	-

Table 130 – the results for the INRiM thermometer at 700 °C – all data averaged



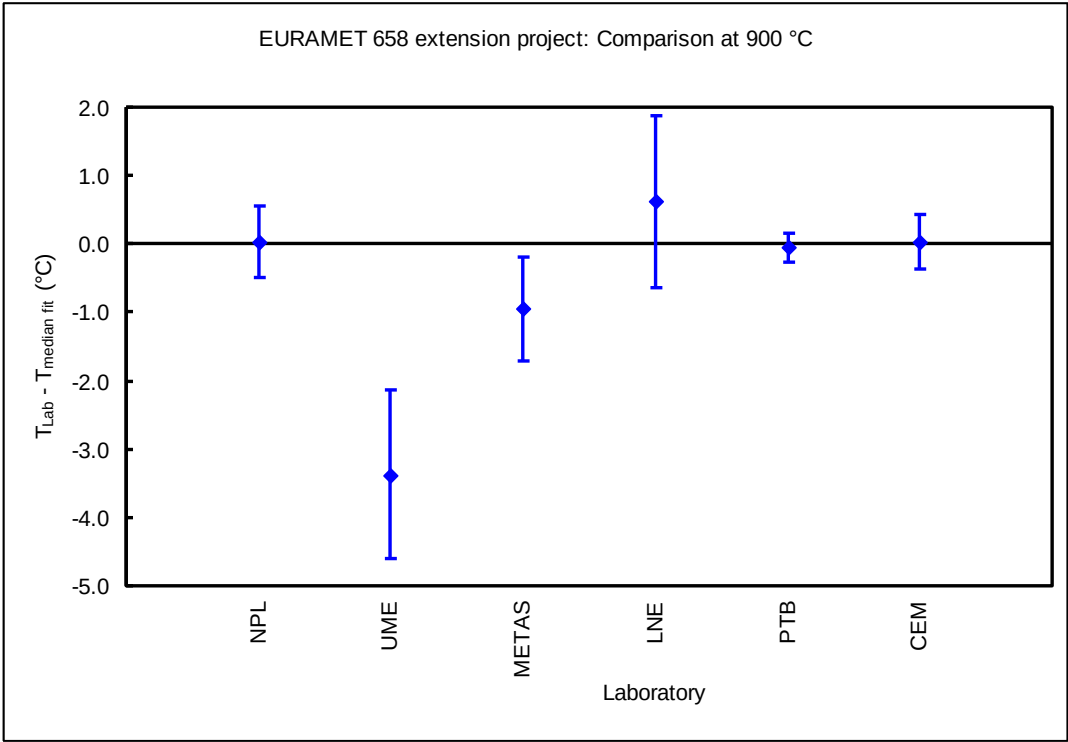
	NPL	UME	METAS	LNE	PTB	CEM
NPL	-	2.91 ± 1.327	0.68 ± 0.823	-0.65 ± 1.502	0.04 ± 0.551	0.09 ± 0.625
UME	4.00	-	-2.23 ± 1.380	-3.56 ± 1.866	-2.87 ± 1.236	-2.82 ± 1.271
METAS	1.36	3.37	-	-1.33 ± 1.548	-0.64 ± 0.667	-0.59 ± 0.729
LNE	1.90	5.10	2.61	-	0.70 ± 1.422	0.75 ± 1.453
PTB	0.54	3.89	1.19	1.87	-	0.05 ± 0.397
CEM	0.64	3.86	1.19	1.94	0.40	-

Table 131 – the results for the INRiM thermometer at 800 °C – all data averaged



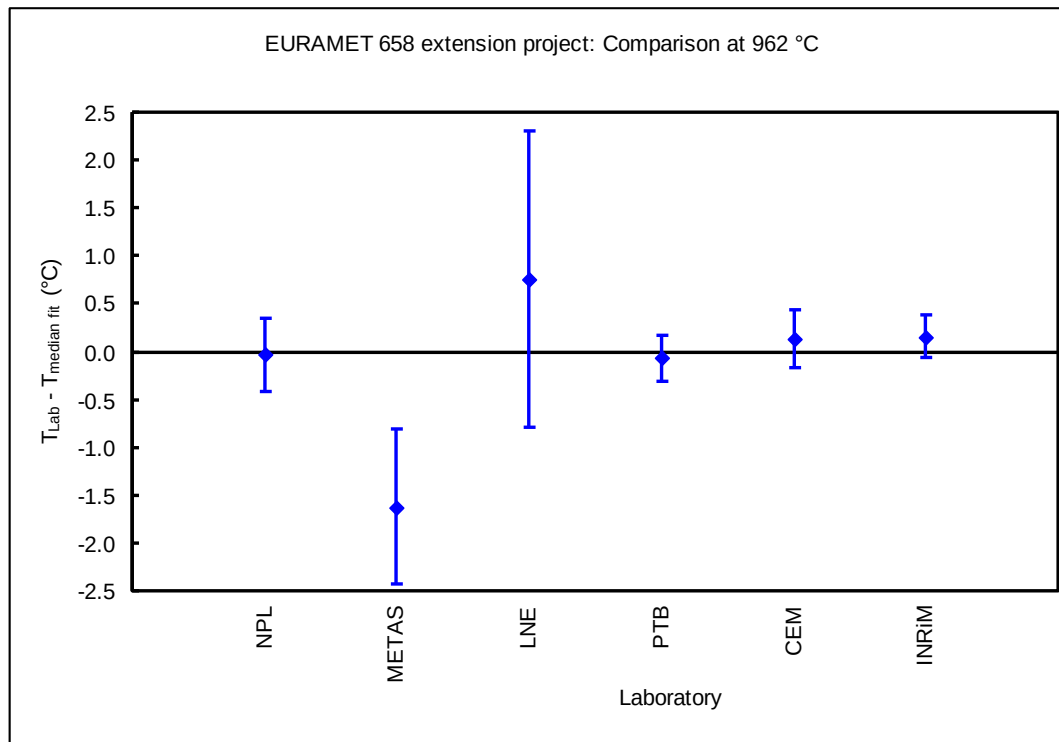
	NPL	UME	METAS	LNE	PTB	CEM
NPL	-	3.41 ± 1.339	0.99 ± 0.918	-0.58 ± 1.370	0.09 ± 0.573	0.01 ± 0.658
UME	4.51	-	-2.42 ± 1.441	-3.99 ± 1.763	-3.32 ± 1.249	-3.40 ± 1.290
METAS	1.74	3.61	-	-1.57 ± 1.469	-0.90 ± 0.781	-0.98 ± 0.845
LNE	1.72	5.44	2.78	-	0.67 ± 1.282	0.59 ± 1.322
PTB	0.59	4.35	1.54	1.73	-	-0.08 ± 0.447
CEM	0.65	4.46	1.67	1.68	0.47	-

Table 132 – the results for the INRiM thermometer at 900 °C – all data averaged



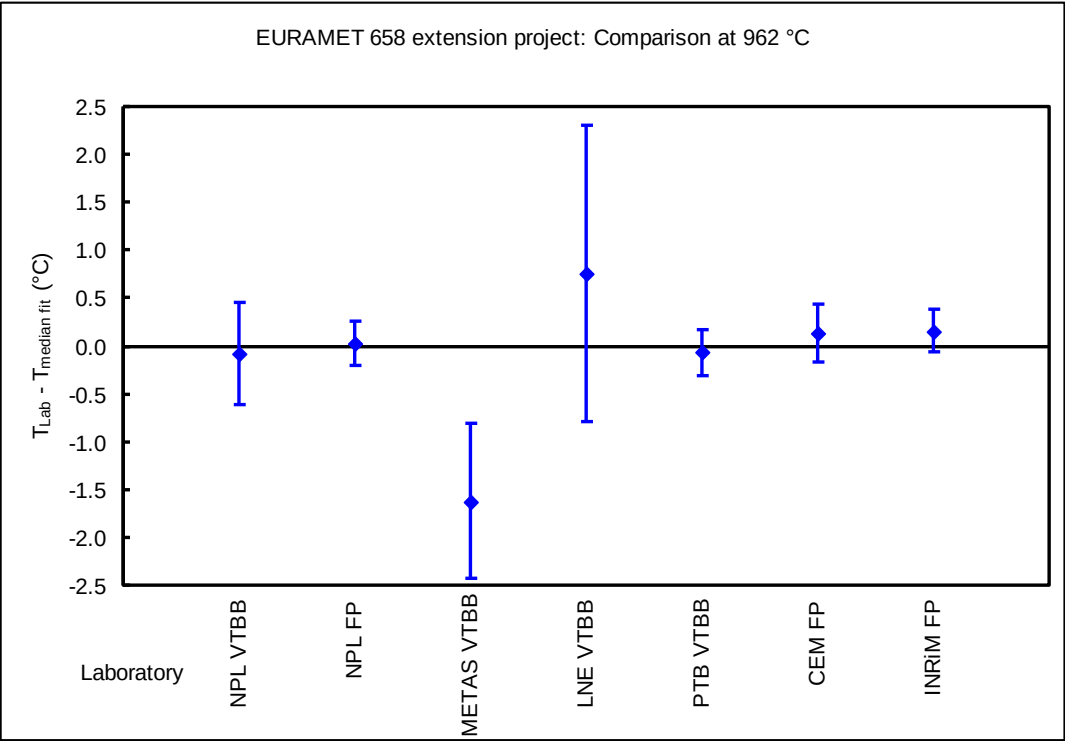
	NPL	METAS	LNE	PTB	CEM	INRiM
NPL	-	1.60 ± 0.896	-0.78 ± 1.597	0.04 ± 0.454	-0.16 ± 0.488	-0.19 ± 0.445
METAS	2.33	-	-2.38 ± 1.749	-1.55 ± 0.845	-1.76 ± 0.864	-1.78 ± 0.840
LNE	2.10	3.82	-	0.82 ± 1.569	0.62 ± 1.579	0.59 ± 1.566
PTB	0.45	2.25	2.12	-	-0.21 ± 0.386	-0.23 ± 0.330
CEM	0.57	2.47	1.93	0.52	-	-0.02 ± 0.375
INRiM	0.56	2.47	1.90	0.50	0.37	-

Table 133 – the results for the INRiM thermometer at 962 °C – all data averaged



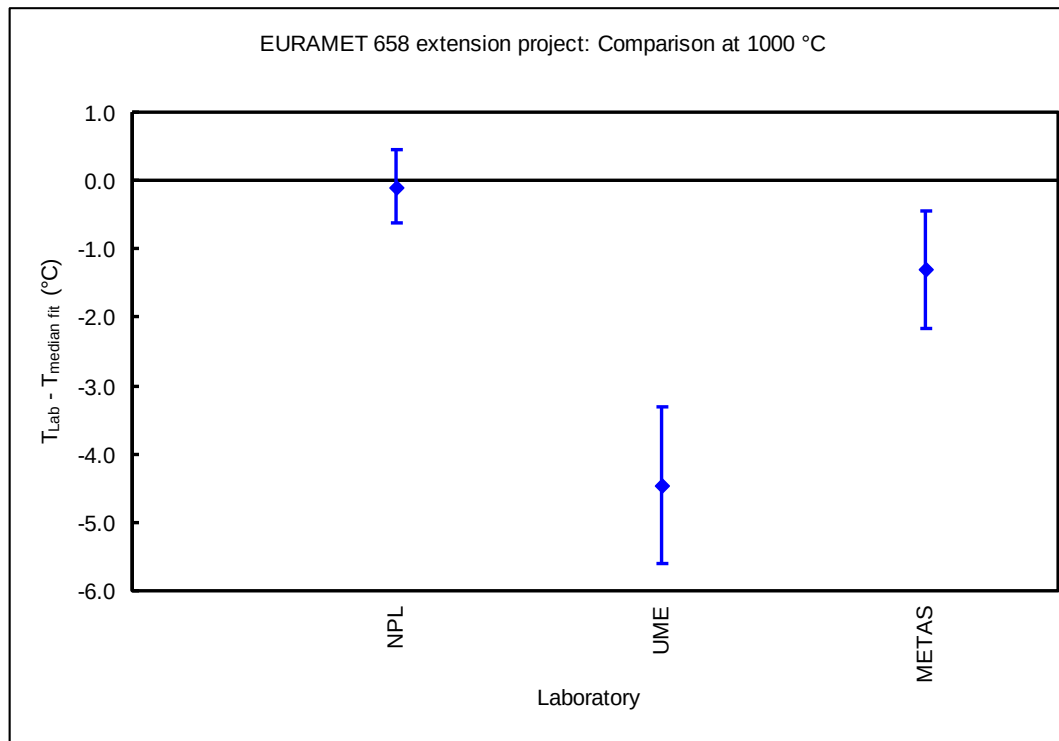
	NPL VTBB	NPL FP	METAS VTBB	LNE VTBB	PTB VTBB	CEM FP	INRiM FP
NPL VTBB	-	-0.10 ± 0.587	1.54 ± 0.973	-0.83 ± 1.644	-0.01 ± 0.592	-0.22 ± 0.618	-0.24 ± 0.585
NPL FP	0.61	-	1.65 ± 0.842	-0.73 ± 1.570	0.09 ± 0.334	-0.11 ± 0.379	-0.14 ± 0.321
METAS VTBB	2.35	2.34	-	-2.38 ± 1.751	-1.55 ± 0.845	-1.76 ± 0.864	-1.78 ± 0.840
LNE VTBB	2.19	2.03	3.82	-	0.82 ± 1.571	0.62 ± 1.582	0.59 ± 1.569
PTB VTBB	0.58	0.37	2.25	2.12	-	-0.21 ± 0.386	-0.23 ± 0.330
CEM FP	0.73	0.43	2.47	1.93	0.52	-	-0.02 ± 0.375
INRiM FP	0.72	0.40	2.47	1.90	0.50	0.37	-

Table 134 – the results for the INRiM thermometer at 962 °C – FP and VTBB data separated



	NPL	UME	METAS
NPL	-	4.36 ± 1.264	1.22 ± 1.026
UME	5.40	-	-3.15 ± 1.434
METAS	2.06	4.32	-

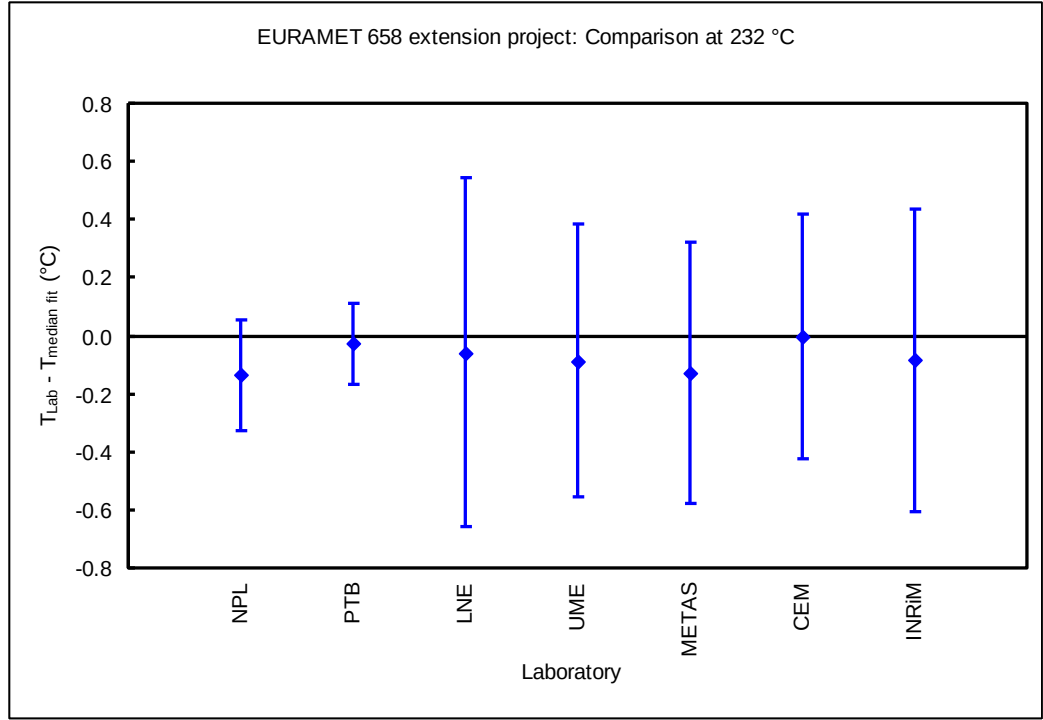
Table 135 – the results for the INRiM thermometer at 1000 °C – all data averaged



20.2 THE RESULTS FOR THE LP5 ON RANGE R1 USING THE FIT OF ALL THE FIXED-POINT AND VARIABLE TEMPERATURE BLACKBODY DATA

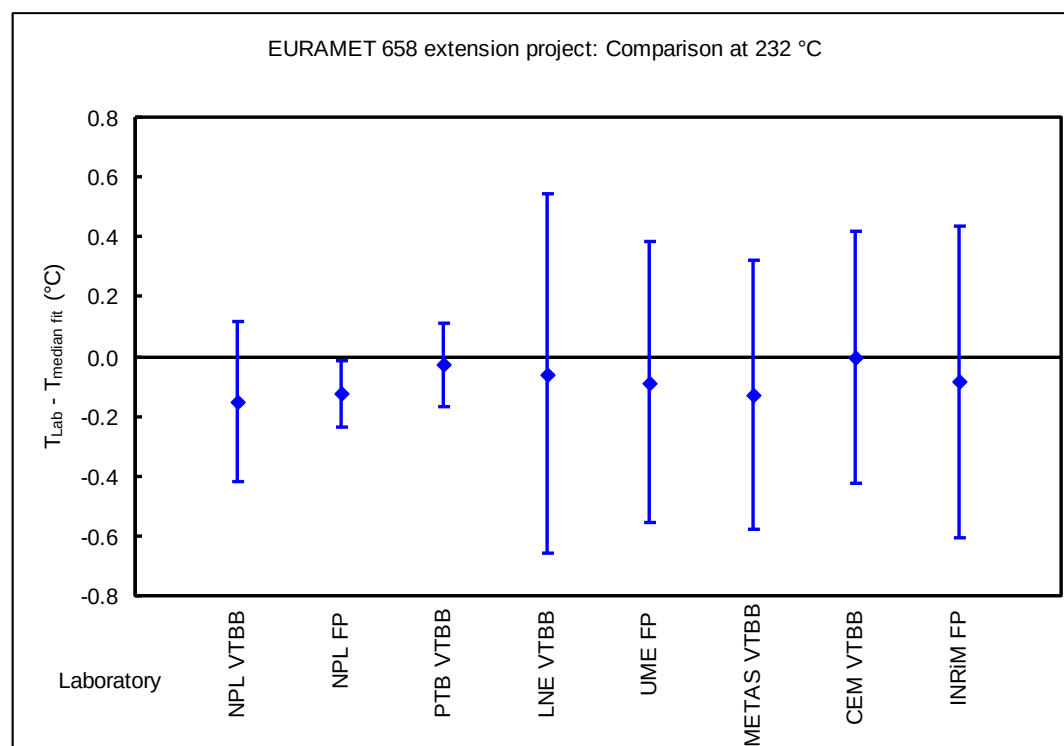
	NPL	PTB	LNE	UME	METAS	CEM	INRiM
NPL	-	-0.11 ± 0.234	-0.08 ± 0.629	-0.05 ± 0.507	-0.01 ± 0.488	-0.13 ± 0.464	-0.05 ± 0.553
PTB	0.30	-	0.03 ± 0.616	0.06 ± 0.490	0.10 ± 0.471	-0.03 ± 0.445	0.06 ± 0.538
LNE	0.63	0.60	-	0.03 ± 0.762	0.07 ± 0.750	-0.06 ± 0.734	0.03 ± 0.794
UME	0.50	0.49	0.75	-	0.04 ± 0.651	-0.08 ± 0.633	0.00 ± 0.701
METAS	0.48	0.50	0.74	0.64	-	-0.13 ± 0.618	-0.04 ± 0.688
CEM	0.52	0.44	0.73	0.64	0.65	-	0.08 ± 0.670
INRiM	0.55	0.54	0.78	0.69	0.68	0.67	-

Table 136 – the results for the LP5 at 232 °C – all data averaged



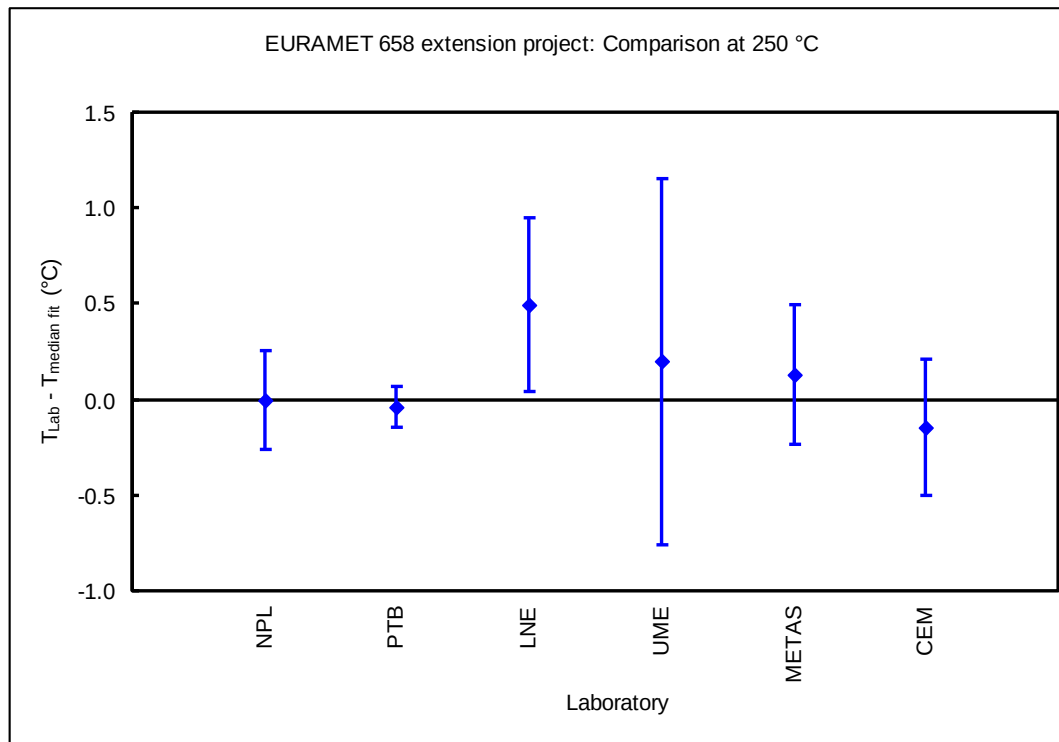
	NPL VTBB	NPL FP	PTB VTBB	LNE VTBB	UME FP	METAS VTBB	CEM VTBB	INRiM FP
NPL VTBB	-	-0.03 ± 0.290	-0.12 ± 0.301	-0.09 ± 0.657	-0.06 ± 0.541	-0.02 ± 0.524	-0.15 ± 0.501	-0.06 ± 0.585
NPL FP	0.29	-	-0.10 ± 0.177	-0.07 ± 0.610	-0.04 ± 0.483	0.00 ± 0.464	-0.12 ± 0.438	-0.04 ± 0.532
PTB VTBB	0.37	0.24	-	0.03 ± 0.616	0.06 ± 0.490	0.10 ± 0.471	-0.03 ± 0.445	0.06 ± 0.538
LNE VTBB	0.67	0.61	0.60	-	0.03 ± 0.762	0.07 ± 0.750	-0.06 ± 0.734	0.03 ± 0.794
UME FP	0.54	0.48	0.49	0.75	-	0.04 ± 0.651	-0.08 ± 0.633	0.00 ± 0.701
METAS VTBB	0.51	0.46	0.50	0.74	0.64	-	-0.13 ± 0.618	-0.04 ± 0.688
CEM VTBB	0.57	0.49	0.44	0.73	0.64	0.65	-	0.08 ± 0.670
INRiM FP	0.58	0.52	0.54	0.78	0.69	0.68	0.67	-

Table 137 – the results for the LP5 at 232 °C – FP and VTBB data separated



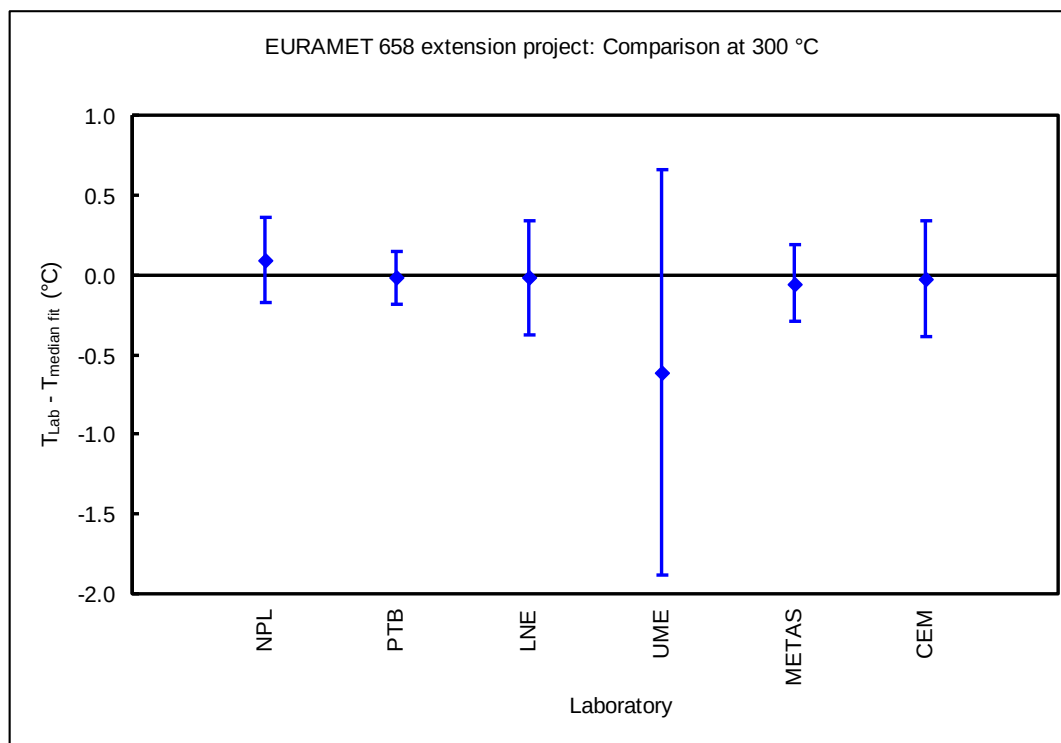
	NPL	PTB	LNE	UME	METAS	CEM
NPL	-	0.04 ± 0.281	-0.49 ± 0.522	-0.20 ± 0.990	-0.13 ± 0.448	0.14 ± 0.442
PTB	0.29	-	-0.53 ± 0.466	-0.24 ± 0.962	-0.17 ± 0.381	0.10 ± 0.374
LNE	0.92	0.91	-	0.29 ± 1.058	0.36 ± 0.582	0.64 ± 0.577
UME	1.05	1.05	1.18	-	0.07 ± 1.023	0.34 ± 1.020
METAS	0.51	0.49	0.84	1.01	-	0.28 ± 0.511
CEM	0.51	0.42	1.11	1.19	0.70	-

Table 138 – the results for the LP5 at 250 °C – all data averaged



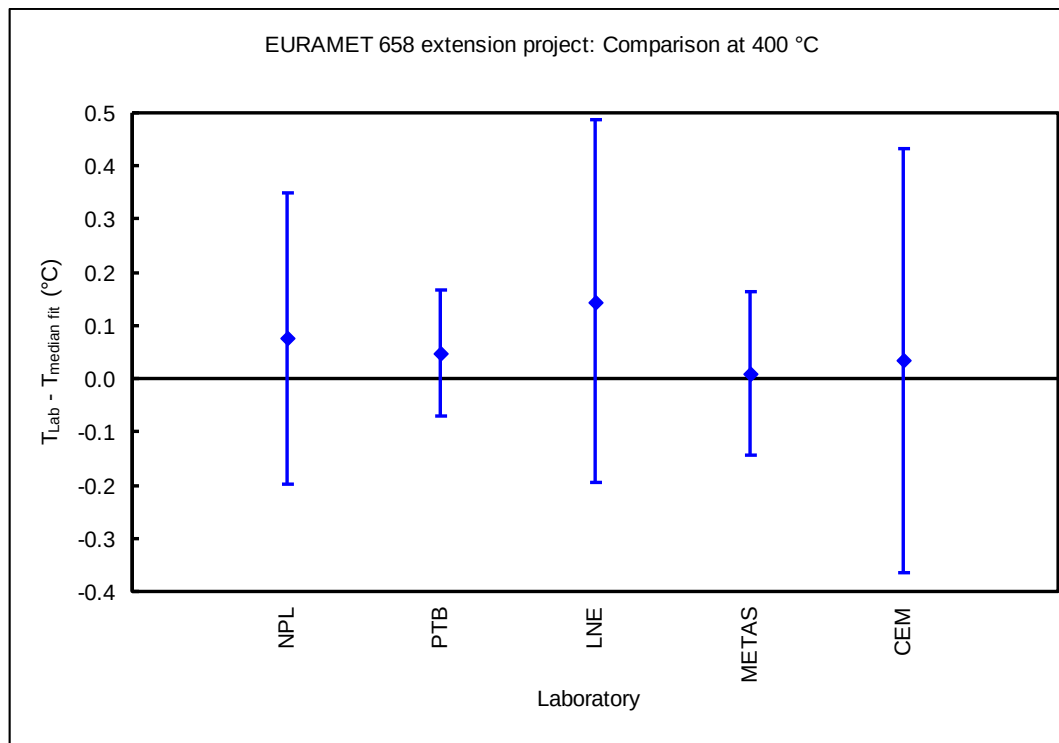
	NPL	PTB	LNE	UME	METAS	CEM
NPL	-	0.11 ± 0.310	0.11 ± 0.446	0.71 ± 1.295	0.14 ± 0.355	0.12 ± 0.446
PTB	0.37	-	0.00 ± 0.396	0.60 ± 1.278	0.04 ± 0.290	0.01 ± 0.396
LNE	0.49	0.39	-	0.60 ± 1.318	0.03 ± 0.432	0.01 ± 0.510
UME	1.77	1.65	1.68	-	-0.56 ± 1.290	-0.59 ± 1.318
METAS	0.44	0.29	0.43	1.63	-	-0.03 ± 0.433
CEM	0.50	0.39	0.50	1.68	0.43	-

Table 139– the results for the LP5 at 300 °C – all data averaged



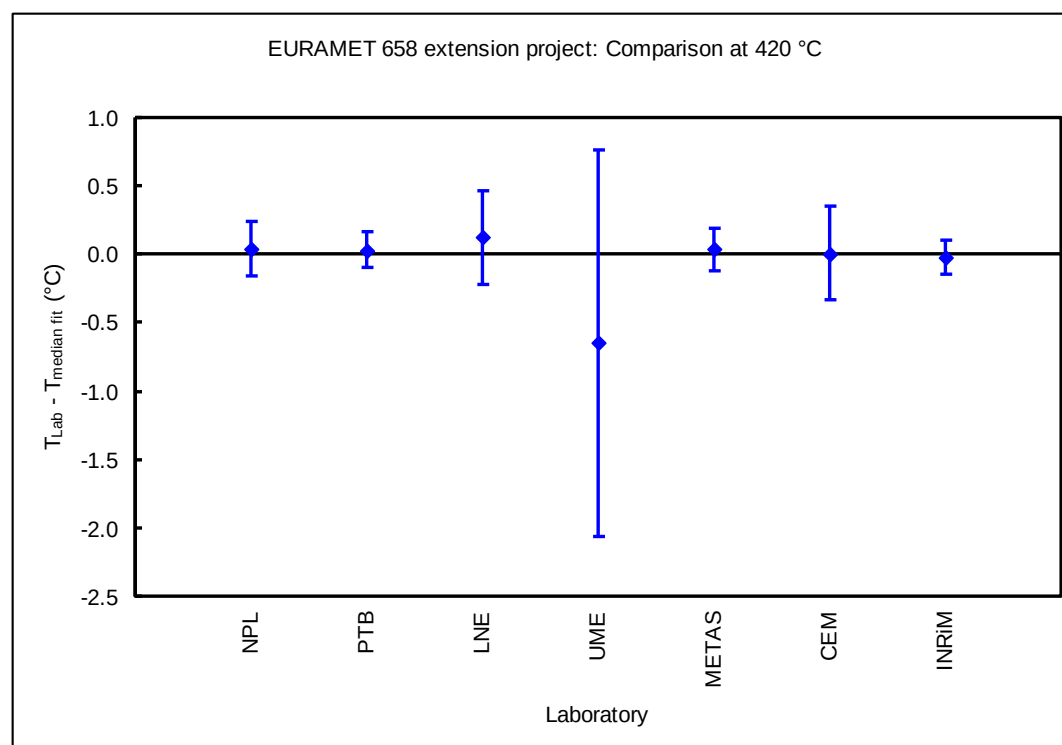
	NPL	PTB	LNE	METAS	CEM
NPL	-	0.03 ± 0.299	-0.07 ± 0.437	0.07 ± 0.314	0.04 ± 0.484
PTB	0.30	-	-0.10 ± 0.360	0.04 ± 0.194	0.01 ± 0.416
LNE	0.45	0.40	-	0.14 ± 0.373	0.11 ± 0.524
METAS	0.33	0.20	0.45	-	-0.02 ± 0.427
CEM	0.48	0.41	0.56	0.42	-

Table 140 – the results for the LP5 at 400 °C – all data averaged



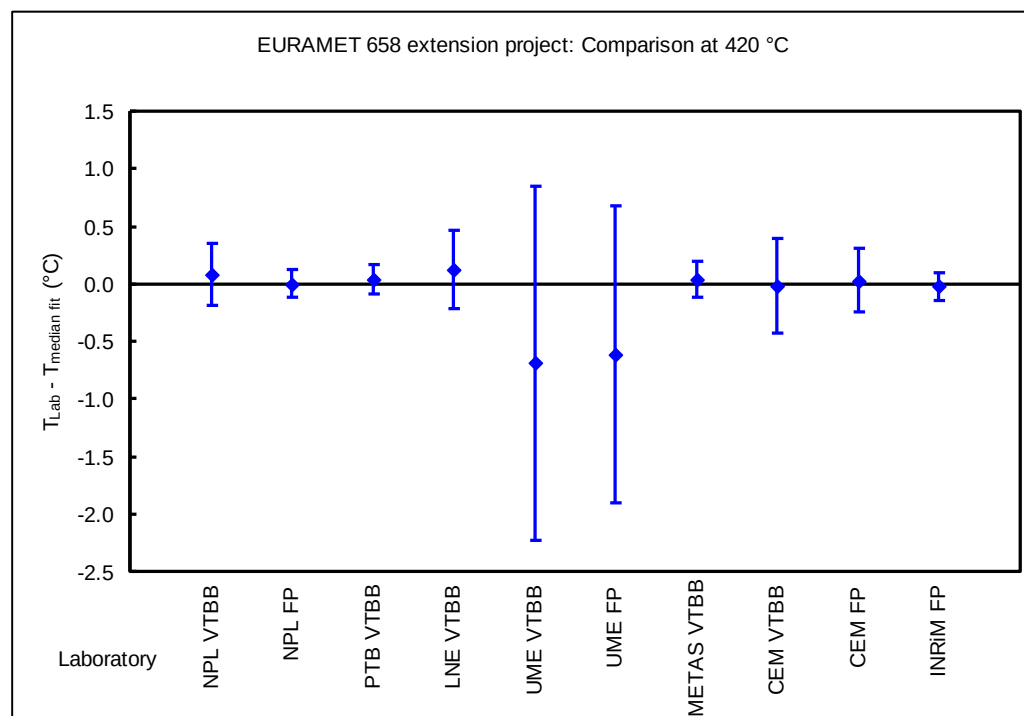
	NPL	PTB	LNE	UME	METAS	CEM	INRiM
NPL	-	0.01 ± 0.233	-0.08 ± 0.393	0.69 ± 1.430	0.01 ± 0.252	0.04 ± 0.397	0.07 ± 0.232
PTB	0.23	-	-0.09 ± 0.362	0.68 ± 1.422	0.00 ± 0.202	0.03 ± 0.366	0.06 ± 0.175
LNE	0.41	0.39	-	0.77 ± 1.457	0.08 ± 0.375	0.12 ± 0.484	0.14 ± 0.361
UME	1.87	1.86	1.97	-	-0.69 ± 1.425	-0.66 ± 1.458	-0.63 ± 1.422
METAS	0.25	0.20	0.40	1.86	-	0.03 ± 0.379	0.06 ± 0.200
CEM	0.39	0.36	0.53	1.86	0.38	-	0.03 ± 0.365
INRiM	0.26	0.20	0.44	1.80	0.23	0.36	-

Table 141 – the results for the LP5 at 420 °C – all data averaged



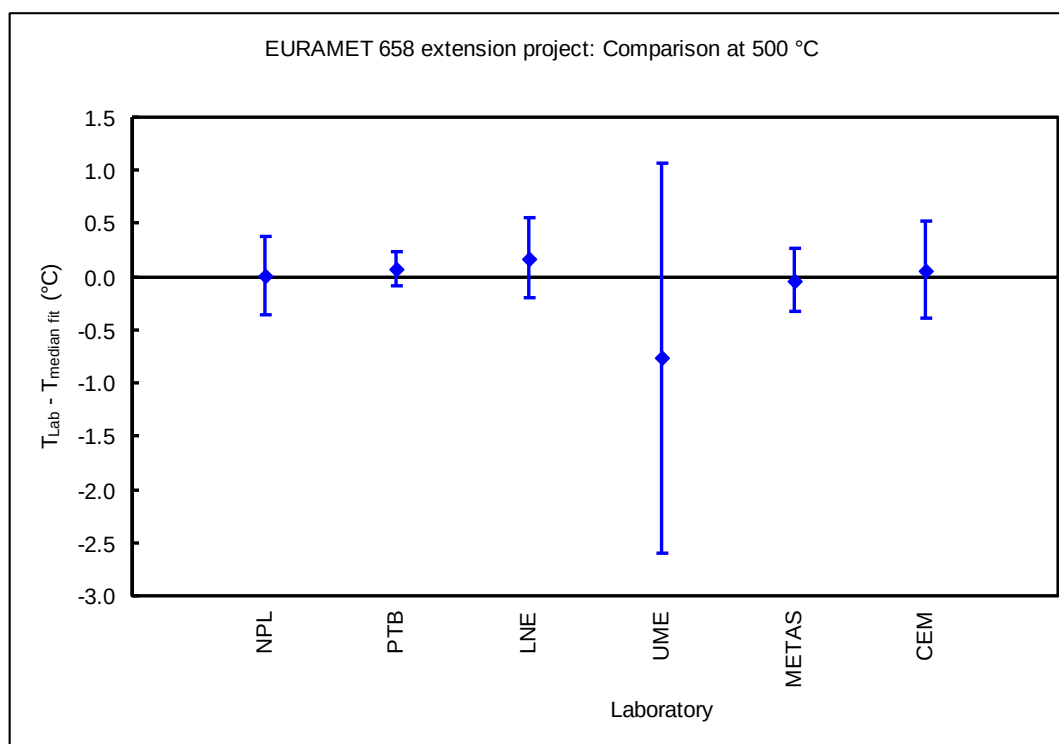
	NPL VTBB	NPL FP	PTB VTBB	LNE VTBB	UME VTBB	UME FP	METAS VTBB	CEM VTBB	CEM FP	INRiM FP
NPL VTBB	-	0.08 ± 0.296	0.05 ± 0.296	-0.04 ± 0.432	0.77 ± 1.564	0.70 ± 1.319	0.05 ± 0.311	0.11 ± 0.488	0.05 ± 0.388	0.11 ± 0.295
NPL FP	0.33	-	-0.03 ± 0.178	-0.12 ± 0.360	0.69 ± 1.546	0.62 ± 1.298	-0.04 ± 0.201	0.02 ± 0.427	-0.03 ± 0.307	0.02 ± 0.175
PTB VTBB	0.31	0.18	-	-0.09 ± 0.361	0.72 ± 1.546	0.65 ± 1.298	0.00 ± 0.202	0.05 ± 0.427	0.00 ± 0.307	0.06 ± 0.175
LNE VTBB	0.43	0.42	0.39	-	0.81 ± 1.578	0.74 ± 1.335	0.08 ± 0.373	0.14 ± 0.530	0.09 ± 0.439	0.14 ± 0.359
UME VTBB	2.06	1.97	2.00	2.11	-	-0.07 ± 2.011	-0.73 ± 1.549	-0.67 ± 1.594	-0.72 ± 1.566	-0.67 ± 1.546
UME FP	1.79	1.69	1.72	1.84	1.97	-	-0.65 ± 1.301	-0.59 ± 1.355	-0.64 ± 1.322	-0.59 ± 1.298
METAS VTBB	0.32	0.21	0.20	0.40	2.00	1.73	-	0.06 ± 0.437	0.01 ± 0.322	0.06 ± 0.200
CEM VTBB	0.52	0.42	0.43	0.59	1.99	1.71	0.44	-	-0.05 ± 0.495	0.00 ± 0.426
CEM FP	0.39	0.30	0.30	0.47	2.01	1.74	0.32	0.49	-	0.05 ± 0.306
INRiM FP	0.35	0.18	0.20	0.44	1.94	1.66	0.23	0.42	0.32	-

Table 142 – the results for the LP5 at 420 °C – FP and VTBB data separated



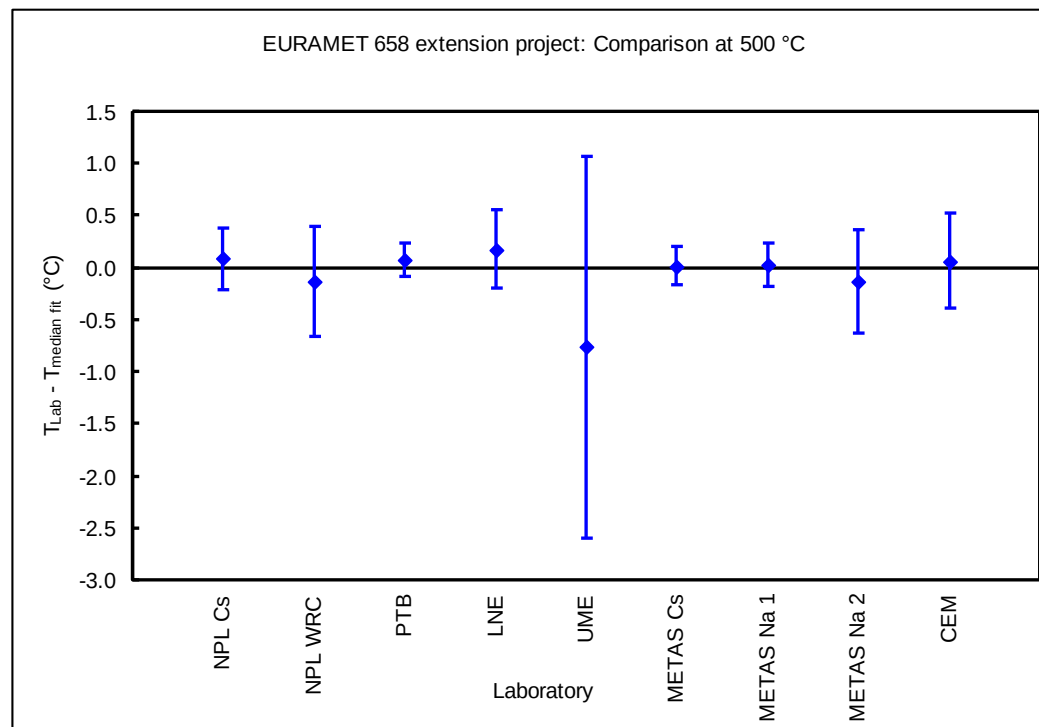
	NPL	PTB	LNE	UME	METAS	CEM
NPL	-	-0.06 ± 0.399	-0.17 ± 0.522	0.77 ± 1.871	0.04 ± 0.472	-0.05 ± 0.584
PTB	0.41	-	-0.10 ± 0.401	0.84 ± 1.841	0.10 ± 0.334	0.01 ± 0.480
LNE	0.60	0.44	-	0.94 ± 1.871	0.21 ± 0.474	0.11 ± 0.586
UME	2.32	2.36	2.48	-	-0.73 ± 1.858	-0.83 ± 1.890
METAS	0.47	0.38	0.60	2.27	-	-0.10 ± 0.542
CEM	0.58	0.47	0.62	2.39	0.56	-

Table 143 – the results for the LP5 at 500 °C – all data averaged



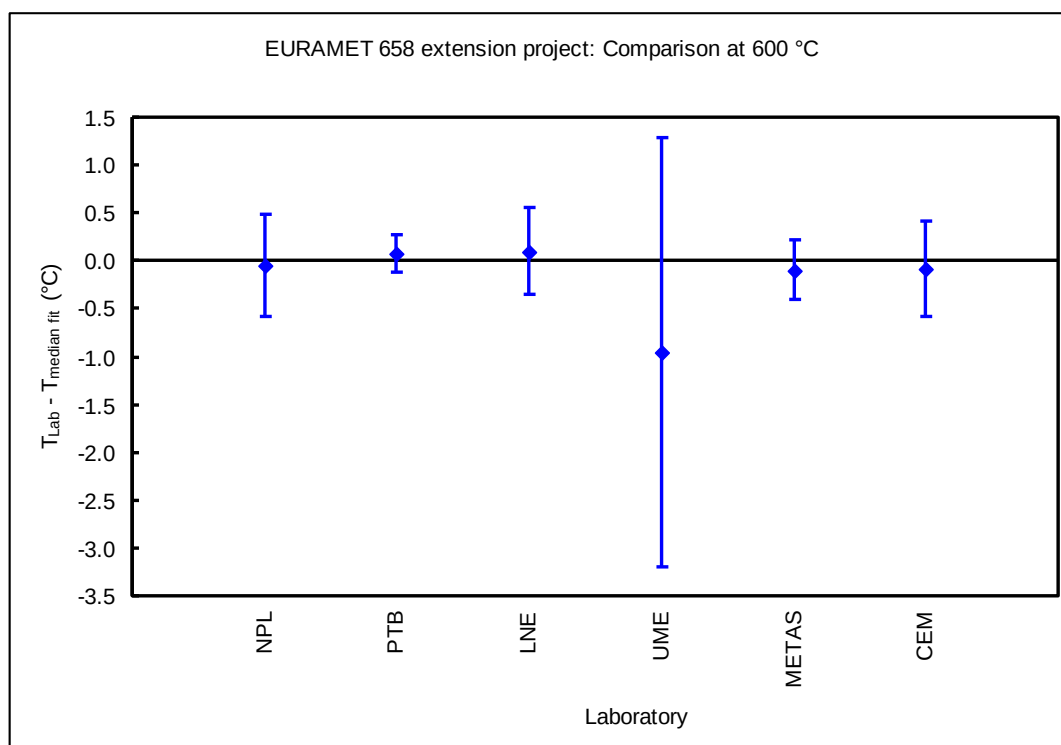
	NPL Cs	NPL WRC	PTB	LNE	UME	METAS Cs	METAS Na 1	METAS Na 2	CEM
NPL Cs	-	0.22 ± 0.598	0.01 ± 0.330	-0.09 ± 0.471	0.84 ± 1.857	0.07 ± 0.346	0.06 ± 0.354	0.22 ± 0.579	0.02 ± 0.539
NPL WRC	0.71	-	-0.21 ± 0.544	-0.31 ± 0.640	0.63 ± 1.907	-0.15 ± 0.554	-0.16 ± 0.559	0.00 ± 0.723	-0.20 ± 0.692
PTB	0.32	0.66	-	-0.10 ± 0.401	0.84 ± 1.841	0.06 ± 0.242	0.05 ± 0.254	0.21 ± 0.523	0.01 ± 0.480
LNE	0.50	0.84	0.44	-	0.94 ± 1.871	0.16 ± 0.414	0.15 ± 0.421	0.31 ± 0.622	0.11 ± 0.586
UME	2.38	2.22	2.36	2.48	-	-0.77 ± 1.844	-0.79 ± 1.845	-0.63 ± 1.901	-0.83 ± 1.890
METAS Cs	0.37	0.61	0.26	0.51	2.30	-	-0.01 ± 0.274	0.15 ± 0.533	-0.05 ± 0.491
METAS Na 1	0.36	0.63	0.27	0.50	2.31	0.27	-	0.16 ± 0.539	-0.04 ± 0.496
METAS Na 2	0.70	0.71	0.64	0.82	2.21	0.60	0.61	-	-0.20 ± 0.675
CEM	0.53	0.78	0.47	0.62	2.39	0.49	0.49	0.76	-

Table 144 – the results for the LP5 at 500 °C – data separated according to source type



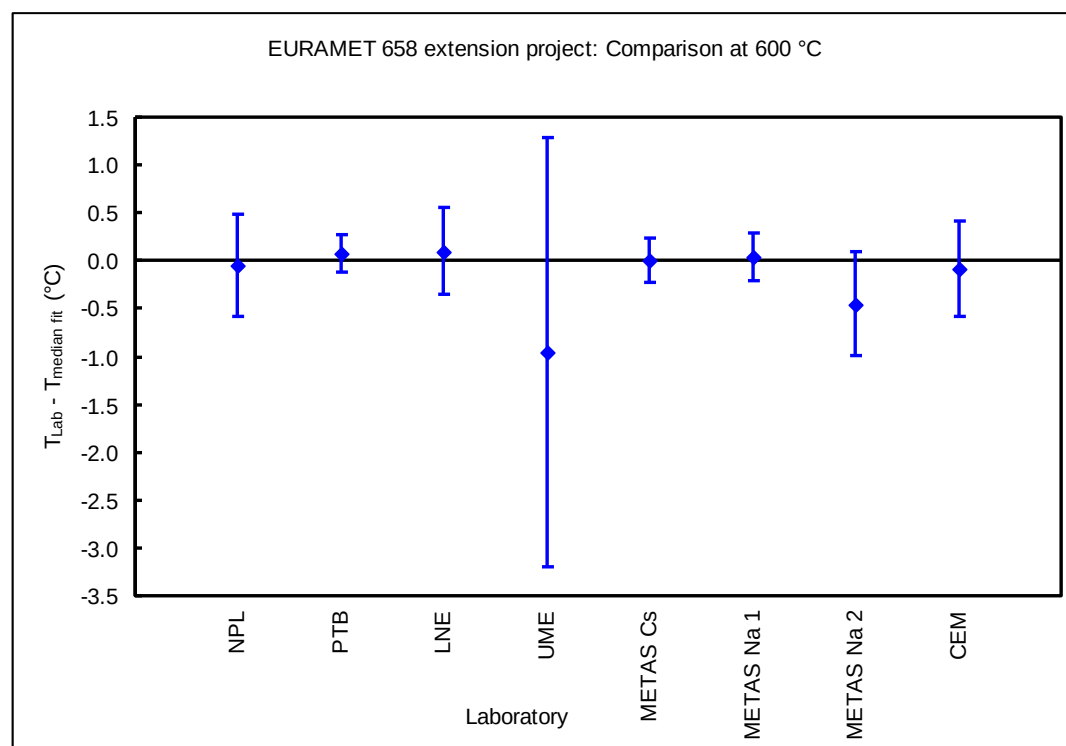
	NPL	PTB	LNE	UME	METAS	CEM
NPL	-	-0.13 ± 0.570	-0.15 ± 0.704	0.91 ± 2.307	0.04 ± 0.618	0.03 ± 0.732
PTB	0.61	-	-0.03 ± 0.498	1.03 ± 2.253	0.17 ± 0.367	0.16 ± 0.537
LNE	0.75	0.49	-	1.06 ± 2.290	0.20 ± 0.552	0.18 ± 0.677
UME	2.82	2.90	2.95	-	-0.86 ± 2.266	-0.88 ± 2.299
METAS	0.61	0.48	0.66	2.74	-	-0.02 ± 0.588
CEM	0.72	0.61	0.75	2.79	0.58	-

Table 145 – the results for the LP5 at 600 °C – all data averaged



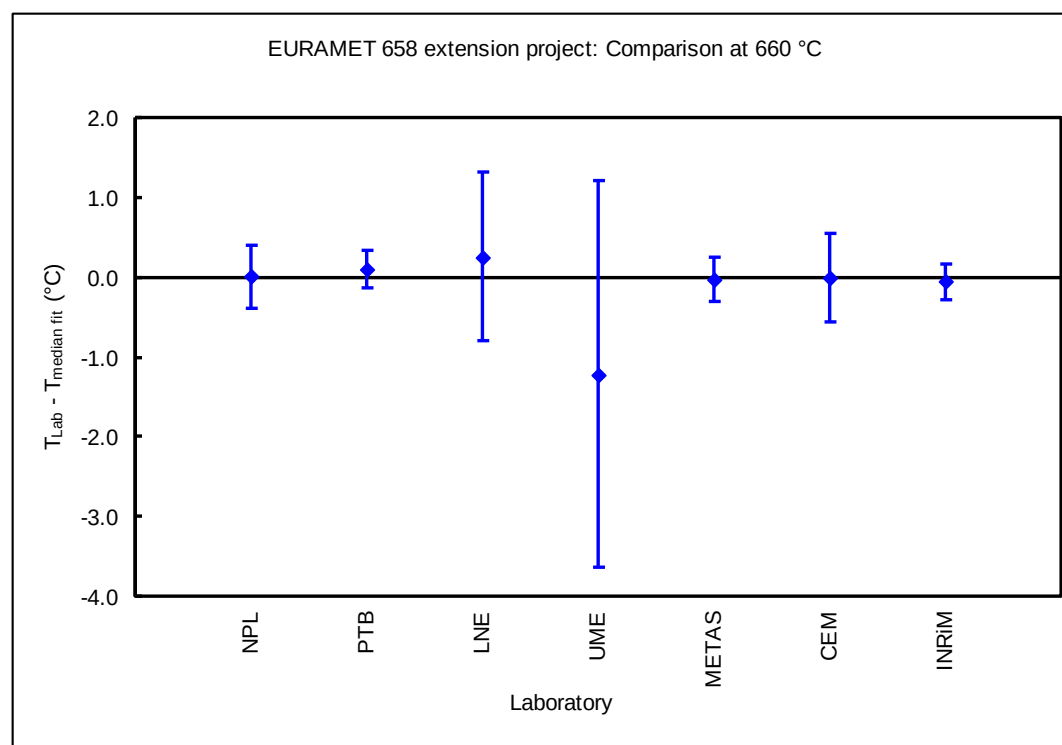
	NPL	PTB	LNE	UME	METAS Cs	METAS Na 1	METAS Na 2	CEM
NPL	-	-0.13 ± 0.570	-0.15 ± 0.704	0.91 ± 2.307	-0.06 ± 0.581	-0.09 ± 0.589	0.40 ± 0.761	0.03 ± 0.732
PTB	0.61	-	-0.03 ± 0.498	1.03 ± 2.253	0.07 ± 0.299	0.03 ± 0.316	0.53 ± 0.576	0.16 ± 0.537
LNE	0.75	0.49	-	1.06 ± 2.290	0.09 ± 0.510	0.06 ± 0.520	0.55 ± 0.708	0.18 ± 0.677
UME	2.82	2.90	2.95	-	-0.97 ± 2.256	-1.00 ± 2.258	-0.51 ± 2.309	-0.88 ± 2.299
METAS Cs	0.58	0.32	0.53	2.83	-	-0.03 ± 0.334	0.46 ± 0.586	0.09 ± 0.548
METAS Na 1	0.61	0.32	0.52	2.87	0.33	-	0.49 ± 0.595	0.12 ± 0.557
METAS Na 2	1.02	1.00	1.13	2.47	0.94	0.98	-	-0.37 ± 0.736
CEM	0.72	0.61	0.75	2.79	0.56	0.60	0.98	-

Table 146 – the results for the LP5 at 600 °C – data separated according to source type



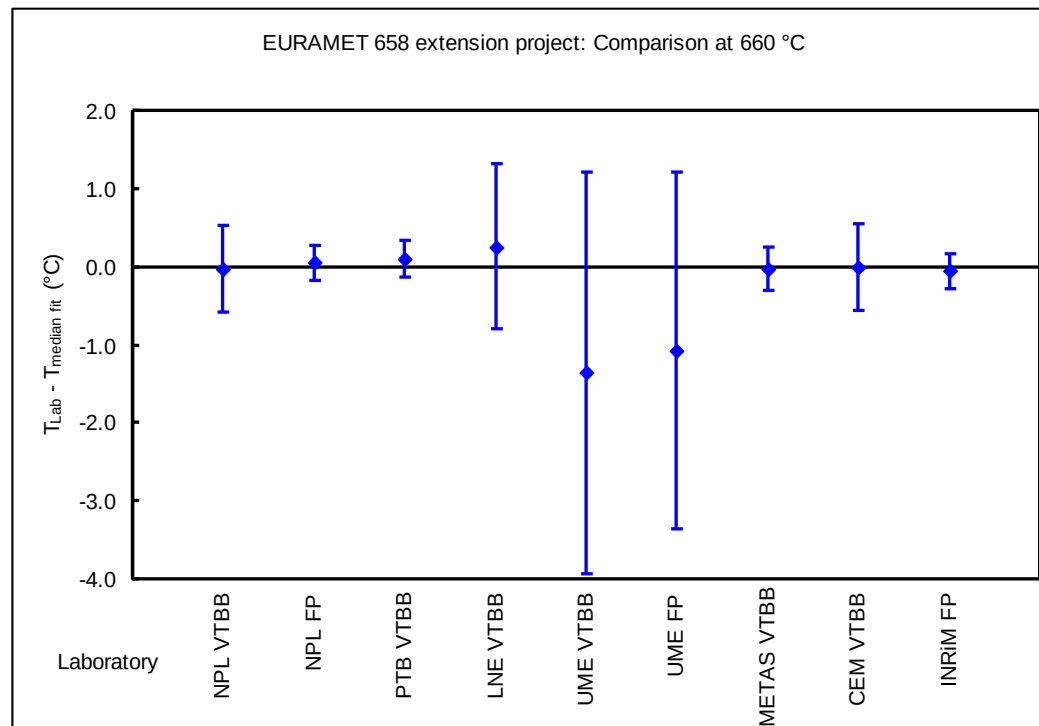
	NPL	PTB	LNE	UME	METAS	CEM	INRiM
NPL	-	-0.09 ± 0.453	-0.25 ± 1.130	1.22 ± 2.462	0.04 ± 0.480	0.01 ± 0.676	0.06 ± 0.448
PTB	0.48	-	-0.16 ± 1.085	1.31 ± 2.442	0.13 ± 0.361	0.10 ± 0.598	0.15 ± 0.317
LNE	1.21	1.11	-	1.47 ± 2.652	0.29 ± 1.096	0.26 ± 1.195	0.31 ± 1.082
UME	3.26	3.33	3.66	-	-1.18 ± 2.447	-1.21 ± 2.493	-1.16 ± 2.441
METAS	0.47	0.43	1.21	3.20	-	-0.03 ± 0.618	0.02 ± 0.354
CEM	0.67	0.62	1.28	3.27	0.61	-	0.05 ± 0.594
INRiM	0.46	0.42	1.22	3.18	0.35	0.59	-

Table 147 – the results for the LP5 at 660 °C – all data averaged



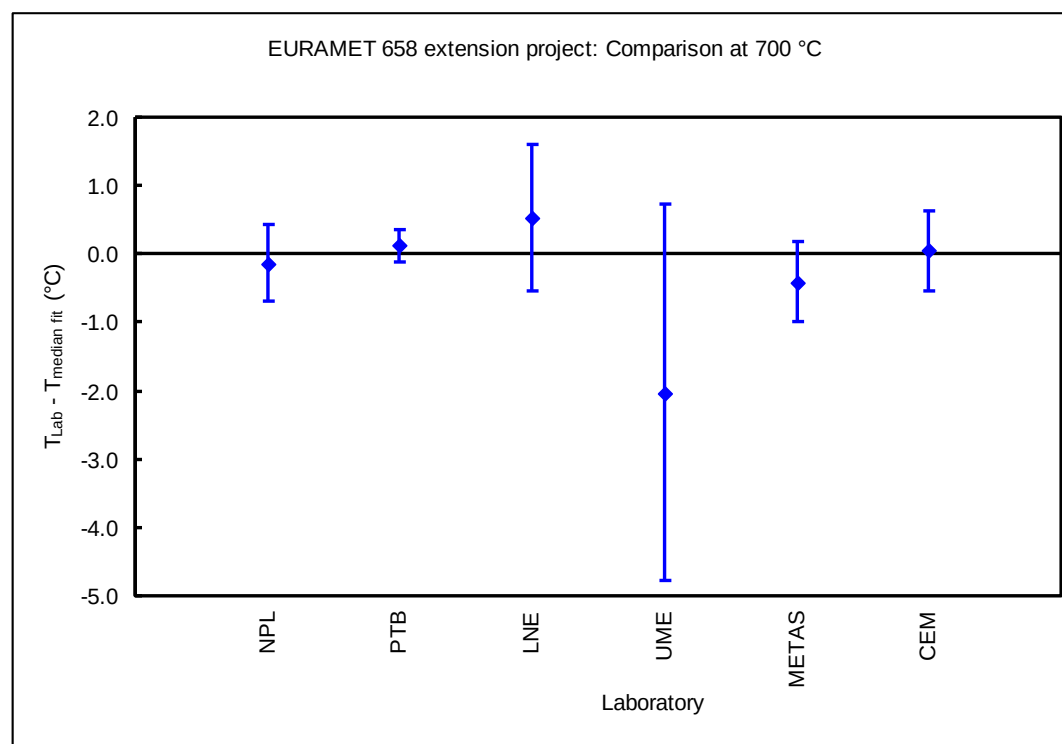
	NPL VTBB	NPL FP	PTB VTBB	LNE VTBB	UME VTBB	UME FP	METAS VTBB	CEM VTBB	INRiM FP
NPL VTBB	-	-0.09 ± 0.599	-0.14 ± 0.600	-0.29 ± 1.196	1.32 ± 2.630	1.04 ± 2.357	0.00 ± 0.620	-0.03 ± 0.785	0.02 ± 0.596
NPL FP	0.61	-	-0.05 ± 0.323	-0.21 ± 1.084	1.41 ± 2.581	1.13 ± 2.302	0.08 ± 0.359	0.05 ± 0.600	0.11 ± 0.316
PTB VTBB	0.65	0.33	-	-0.16 ± 1.085	1.46 ± 2.582	1.17 ± 2.302	0.13 ± 0.361	0.10 ± 0.601	0.15 ± 0.317
LNE VTBB	1.31	1.14	1.11	-	1.61 ± 2.781	1.33 ± 2.524	0.29 ± 1.096	0.26 ± 1.197	0.31 ± 1.082
UME VTBB	3.49	3.54	3.58	3.91	-	-0.28 ± 3.444	-1.32 ± 2.586	-1.35 ± 2.631	-1.30 ± 2.581
UME FP	2.99	3.03	3.07	3.41	3.41	-	-1.04 ± 2.308	-1.07 ± 2.357	-1.02 ± 2.301
METAS VTBB	0.61	0.39	0.43	1.21	3.46	2.95	-	-0.03 ± 0.621	0.02 ± 0.354
CEM VTBB	0.77	0.60	0.62	1.28	3.52	3.02	0.61	-	0.05 ± 0.597
INRiM FP	0.59	0.37	0.42	1.22	3.43	2.92	0.35	0.59	-

Table 148 – the results for the LP5 at 660 °C – FP and VTBB data separated



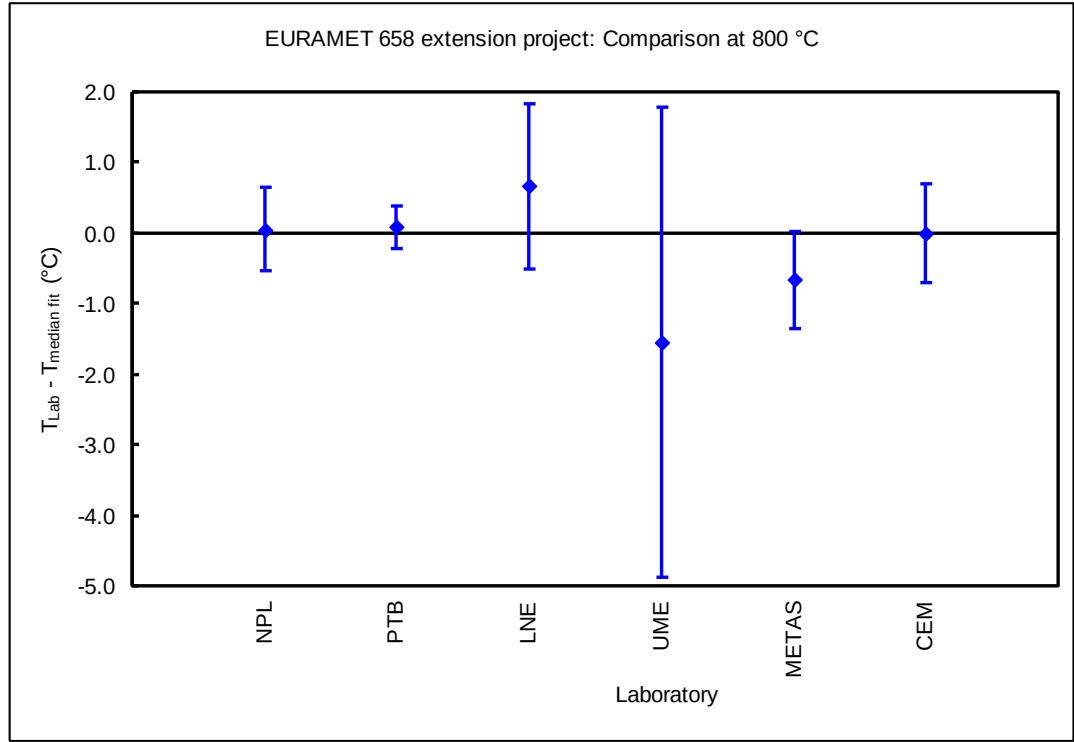
	NPL	PTB	LNE	UME	METAS	CEM
NPL	-	-0.25 ± 0.615	-0.67 ± 1.206	1.90 ± 2.806	0.28 ± 0.811	-0.18 ± 0.815
PTB	0.76	-	-0.41 ± 1.096	2.15 ± 2.760	0.53 ± 0.635	0.07 ± 0.640
LNE	1.66	1.32	-	2.56 ± 2.949	0.95 ± 1.216	0.48 ± 1.219
UME	4.21	4.42	4.99	-	-1.62 ± 2.810	-2.08 ± 2.812
METAS	0.96	1.06	1.95	3.93	-	-0.46 ± 0.830
CEM	0.87	0.64	1.50	4.39	1.15	-

Table 149 – the results for the LP5 at 700 °C – all data averaged



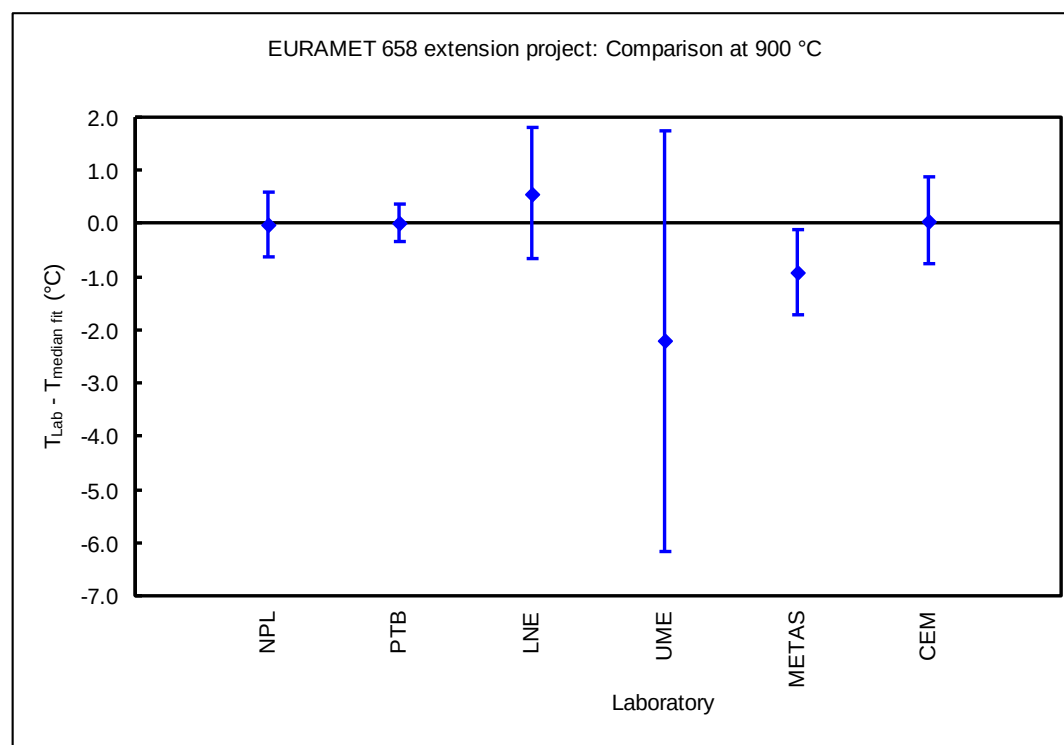
	NPL	PTB	LNE	UME	METAS	CEM
NPL	-	-0.03 ± 0.658	-0.61 ± 1.308	1.60 ± 3.389	0.72 ± 0.899	0.05 ± 0.909
PTB	0.65	-	-0.58 ± 1.208	1.64 ± 3.352	0.75 ± 0.745	0.08 ± 0.757
LNE	1.69	1.58	-	2.22 ± 3.538	1.33 ± 1.354	0.66 ± 1.361
UME	4.40	4.40	5.13	-	-0.89 ± 3.407	-1.55 ± 3.410
METAS	1.46	1.36	2.45	3.76	-	-0.67 ± 0.974
CEM	0.89	0.76	1.79	4.37	1.47	-

Table 150 – the results for the LP5 at 800 °C – all data averaged



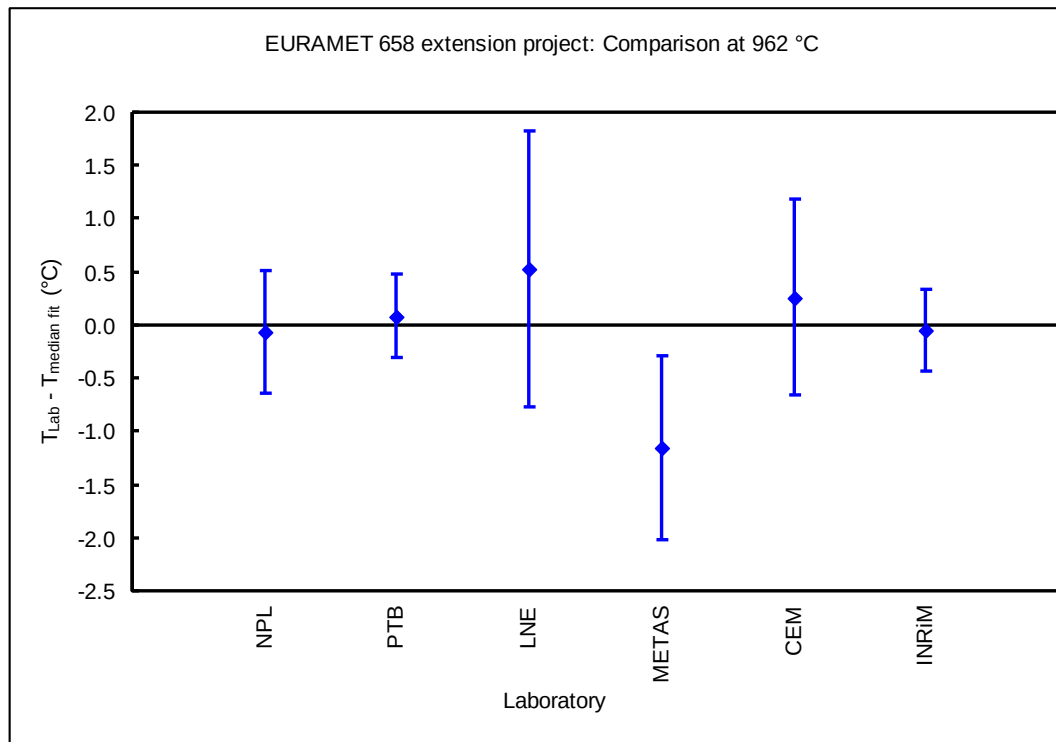
	NPL	PTB	LNE	UME	METAS	CEM
NPL	-	-0.03 ± 0.710	-0.59 ± 1.373	2.19 ± 4.003	0.88 ± 1.007	-0.07 ± 1.020
PTB	0.70	-	-0.56 ± 1.278	2.22 ± 3.971	0.92 ± 0.873	-0.04 ± 0.888
LNE	1.73	1.61	-	2.77 ± 4.141	1.47 ± 1.463	0.52 ± 1.473
UME	5.49	5.49	6.18	-	-1.30 ± 4.035	-2.26 ± 4.038
METAS	1.71	1.63	2.68	4.67	-	-0.96 ± 1.139
CEM	1.01	0.87	1.74	5.59	1.89	-

Table 151 – the results for the LP5 at 900 °C – all data averaged



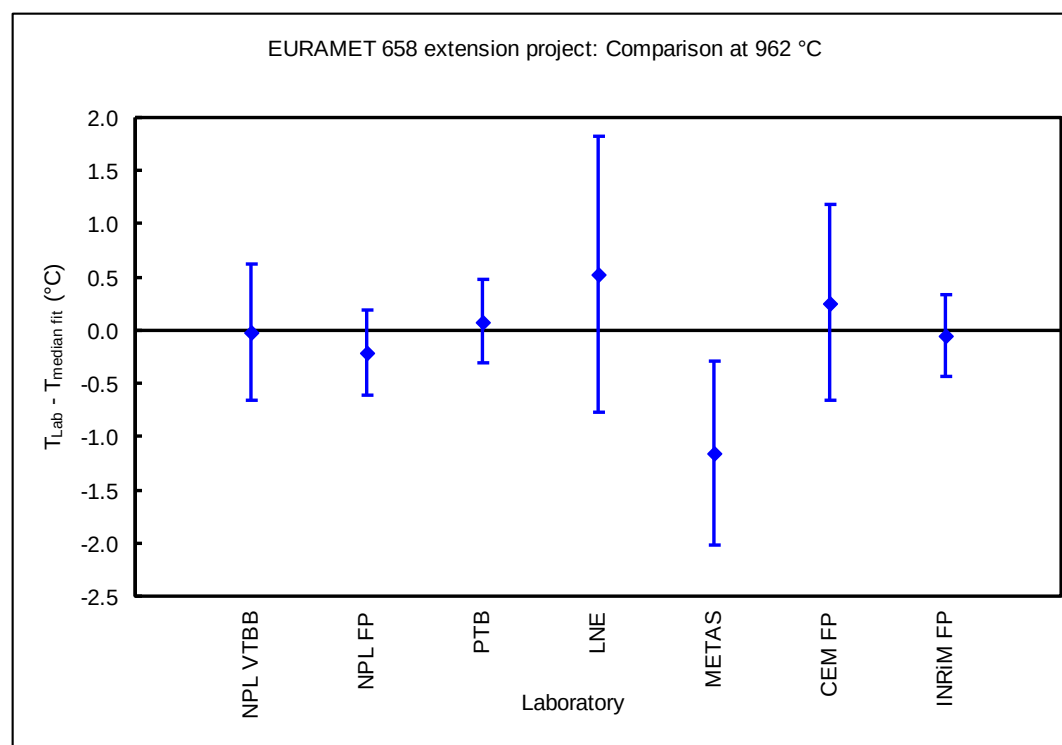
	NPL	PTB	LNE	METAS	CEM	INRiM
NPL	-	-0.15 ± 0.700	-0.59 ± 1.423	1.09 ± 1.040	-0.33 ± 1.085	-0.01 ± 0.694
PTB	0.75	-	-0.44 ± 1.358	1.24 ± 0.950	-0.18 ± 0.998	0.14 ± 0.549
LNE	1.77	1.57	-	1.68 ± 1.561	0.26 ± 1.591	0.58 ± 1.355
METAS	1.94	2.02	2.96	-	-1.41 ± 1.261	-1.10 ± 0.946
CEM	1.24	1.04	1.64	2.45	-	0.32 ± 0.994
INRiM	0.68	0.60	1.70	1.87	1.15	-

Table 152 – the results for the LP5 at 962 °C – all data averaged



	NPL VTBB	NPL FP	PTB	LNE	METAS	CEM FP	INRiM FP
NPL VTBB	-	0.19 ± 0.754	-0.10 ± 0.748	-0.54 ± 1.448	1.13 ± 1.074	-0.28 ± 1.117	0.04 ± 0.743
NPL FP	0.83	-	-0.29 ± 0.564	-0.73 ± 1.361	0.94 ± 0.954	-0.47 ± 1.003	-0.15 ± 0.556
PTB	0.76	0.76	-	-0.44 ± 1.358	1.24 ± 0.950	-0.18 ± 0.998	0.14 ± 0.549
LNE	1.75	1.86	1.57	-	1.68 ± 1.561	0.26 ± 1.591	0.58 ± 1.355
METAS	2.02	1.73	2.02	2.96	-	-1.41 ± 1.261	-1.10 ± 0.946
CEM FP	1.22	1.30	1.04	1.64	2.45	-	0.32 ± 0.994
INRiM FP	0.73	0.62	0.60	1.70	1.87	1.15	-

Table 153 – the results for the LP5 at 962 °C – FP and VTBB data separated



	NPL	UME	METAS
NPL	-	2.63 ± 4.634	1.19 ± 1.132
UME	6.45	-	-1.44 ± 4.680
METAS	2.12	5.35	-

Table 154 – the results for the LP5 at 1000 °C – all data averaged

