Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K

Equivalence statements

For each temperature in the comparison the key comparison reference value, T_R, is the weighted mean of T_i, the individual temperature values of thermometers.
The weighted mean is calculated using the laboratory uncertainty combined with the comparison uncertainty, to set the weights. T_R is used as the baseline for the comparison, but has no special significance with respect to the ITS-90, and is used without uncertainty.

The degree of equivalence of each temperature T_i with respect to the key comparison reference value, T_R, is given by a pair of terms: $D_i = (T_i - T_R)$ and U_i, its expanded uncertainty at 95 % confidence, both expressed in mK.
U_i includes the uncertainties in the original laboratory calibrations and in the comparison measurements, but not in T_R.

The degrees of equivalence between each pair of thermometers is given by:
$D_{ij} = (D_i - D_j) = (T_i - T_R) - (T_j - T_R)$ and $U_{ij} = (U_i^2 + U_j^2)^{1/2}$, its expanded uncertainty (at 95 % confidence), both expressed in mK.

T_R / K		T_R / K		T_R / K		T_R / K
0.649875		1.996554		4.477522		16.999335
0.676928		2.248485		5.000458		18.597377
0.704354		2.600776		5.948165		20.298899
0.761580		2.699911		7.201544		21.575444
0.858421		2.896733		8.296372		22.676998
0.991223		2.996648		8.399612		23.496448
1.031584		3.099398		9.508020		24.101970
1.224991		3.400235		10.803390		24.340317
1.249542		3.429250		12.297309		24.446403
1.503370		3.800903		13.798183		24.551354
1.754822		4.224794		15.499566		

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 0.650 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.205 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	0.650152	0.139
NIST A129	0.649998	0.139
NMi-VSL 226246	0.650370	0.182
NPL 221481	0.649615	0.254
NPL 221483	0.649625	0.254
NPL 221485	0.649681	0.254
PTB 229074	0.649546	0.180
PTB 229075	0.649551	0.180
VNIIFTRI 79	0.650145	0.540
VNIIFTRI 89	0.650376	0.550

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 0.649875 K

Matrix of equivalence

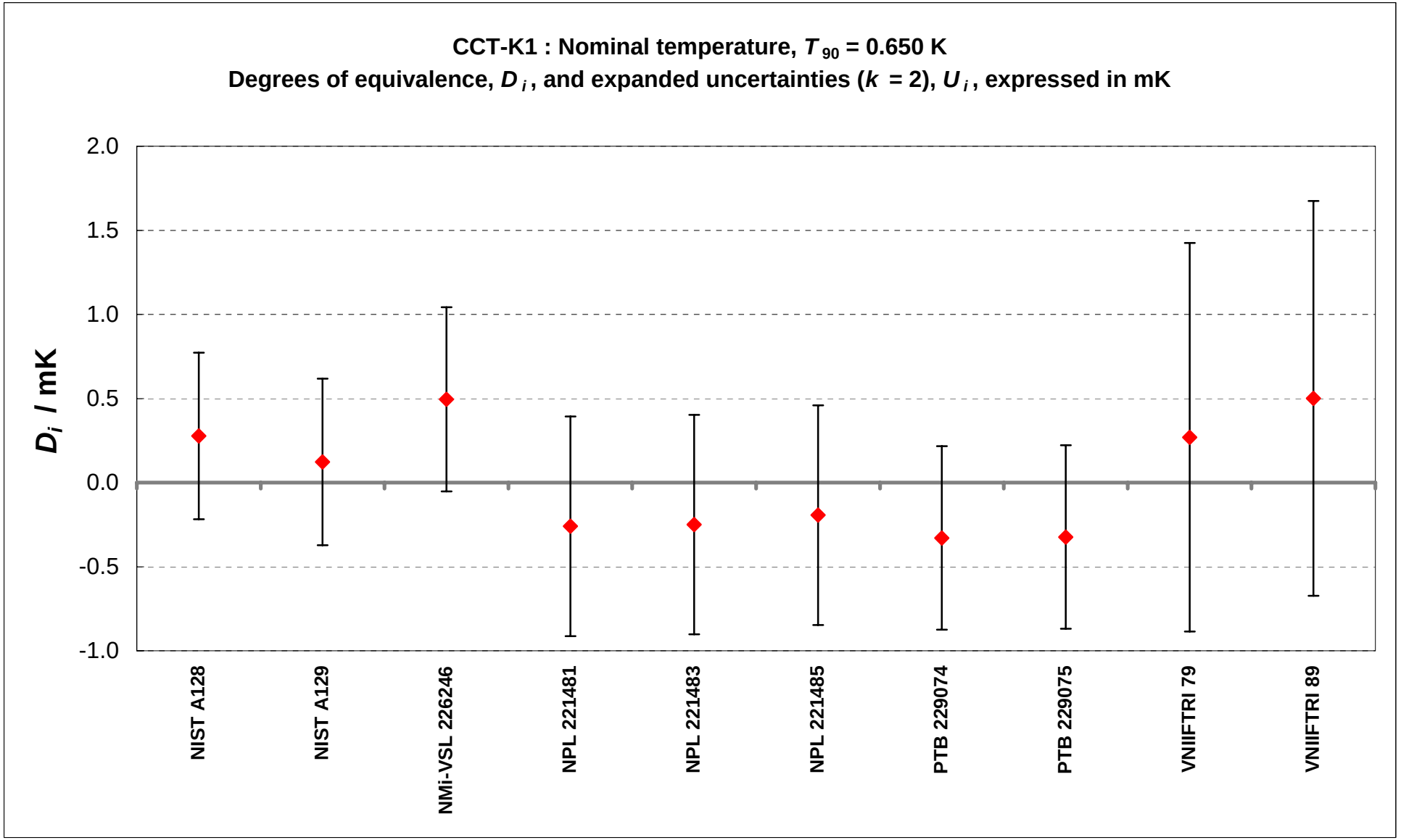
Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.277**	0.495			**0.154**	0.700	**-0.218**	0.739	**0.536**	0.819	**0.526**	0.819	**0.470**	0.819
NIST A129	**0.123**	0.495	**-0.154**	0.700			**-0.372**	0.739	**0.383**	0.819	**0.373**	0.819	**0.316**	0.819
NMi-VSL 226246	**0.495**	0.548	**0.218**	0.739	**0.372**	0.739			**0.755**	0.852	**0.745**	0.852	**0.689**	0.852
NPL 221481	**-0.260**	0.653	**-0.536**	0.819	**-0.383**	0.819	**-0.755**	0.852			**-0.010**	0.923	**-0.066**	0.923
NPL 221483	**-0.250**	0.653	**-0.526**	0.819	**-0.373**	0.819	**-0.745**	0.852	**0.010**	0.923			**-0.056**	0.923
NPL 221485	**-0.194**	0.653	**-0.470**	0.819	**-0.316**	0.819	**-0.689**	0.852	**0.066**	0.923	**0.056**	0.923		
PTB 229074	**-0.329**	0.546	**-0.606**	0.737	**-0.452**	0.737	**-0.824**	0.773	**-0.069**	0.851	**-0.079**	0.851	**-0.135**	0.851
PTB 229075	**-0.324**	0.546	**-0.601**	0.737	**-0.447**	0.737	**-0.819**	0.773	**-0.064**	0.851	**-0.074**	0.851	**-0.130**	0.851
VNIIFTRI 79	**0.270**	1.155	**-0.007**	1.257	**0.147**	1.257	**-0.225**	1.279	**0.529**	1.327	**0.519**	1.327	**0.463**	1.327
VNIIFTRI 89	**0.501**	1.174	**0.224**	1.274	**0.378**	1.274	**0.005**	1.295	**0.760**	1.343	**0.750**	1.343	**0.694**	1.343

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.277**	0.495	**0.606**	0.737	**0.601**	0.737	**0.007**	1.257	**-0.224**	1.274
NIST A129	**0.123**	0.495	**0.452**	0.737	**0.447**	0.737	**-0.147**	1.257	**-0.378**	1.274
NMi-VSL 226246	**0.495**	0.548	**0.824**	0.773	**0.819**	0.773	**0.225**	1.279	**-0.005**	1.295
NPL 221481	**-0.260**	0.653	**0.069**	0.851	**0.064**	0.851	**-0.529**	1.327	**-0.760**	1.343
NPL 221483	**-0.250**	0.653	**0.079**	0.851	**0.074**	0.851	**-0.519**	1.327	**-0.750**	1.343
NPL 221485	**-0.194**	0.653	**0.135**	0.851	**0.130**	0.851	**-0.463**	1.327	**-0.694**	1.343
PTB 229074	**-0.329**	0.546			**-0.005**	0.772	**-0.599**	1.278	**-0.830**	1.294
PTB 229075	**-0.324**	0.546	**0.005**	0.772			**-0.594**	1.278	**-0.825**	1.294
VNIIFTRI 79	**0.270**	1.155	**0.599**	1.278	**0.594**	1.278			**-0.231**	1.647
VNIIFTRI 89	**0.501**	1.174	**0.8296**	1.2945	**0.825**	1.294	**0.231**	1.647		


CCT-K1 : Nominal temperature, T_{90} = 0.650 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 0.677 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.201 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	0.677079	0.121
NIST A129	0.676957	0.121
NMi-VSL 226246	0.677410	0.182
NPL 221481	0.677030	0.245
NPL 221483	0.676970	0.245
NPL 221485	0.676438	0.245
PTB 229074	0.676573	0.180
PTB 229075	0.676440	0.180
VNIIFTRI 79	0.677630	0.533
VNIIFTRI 89	0.677956	0.548

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 0.676928 K

Matrix of equivalence

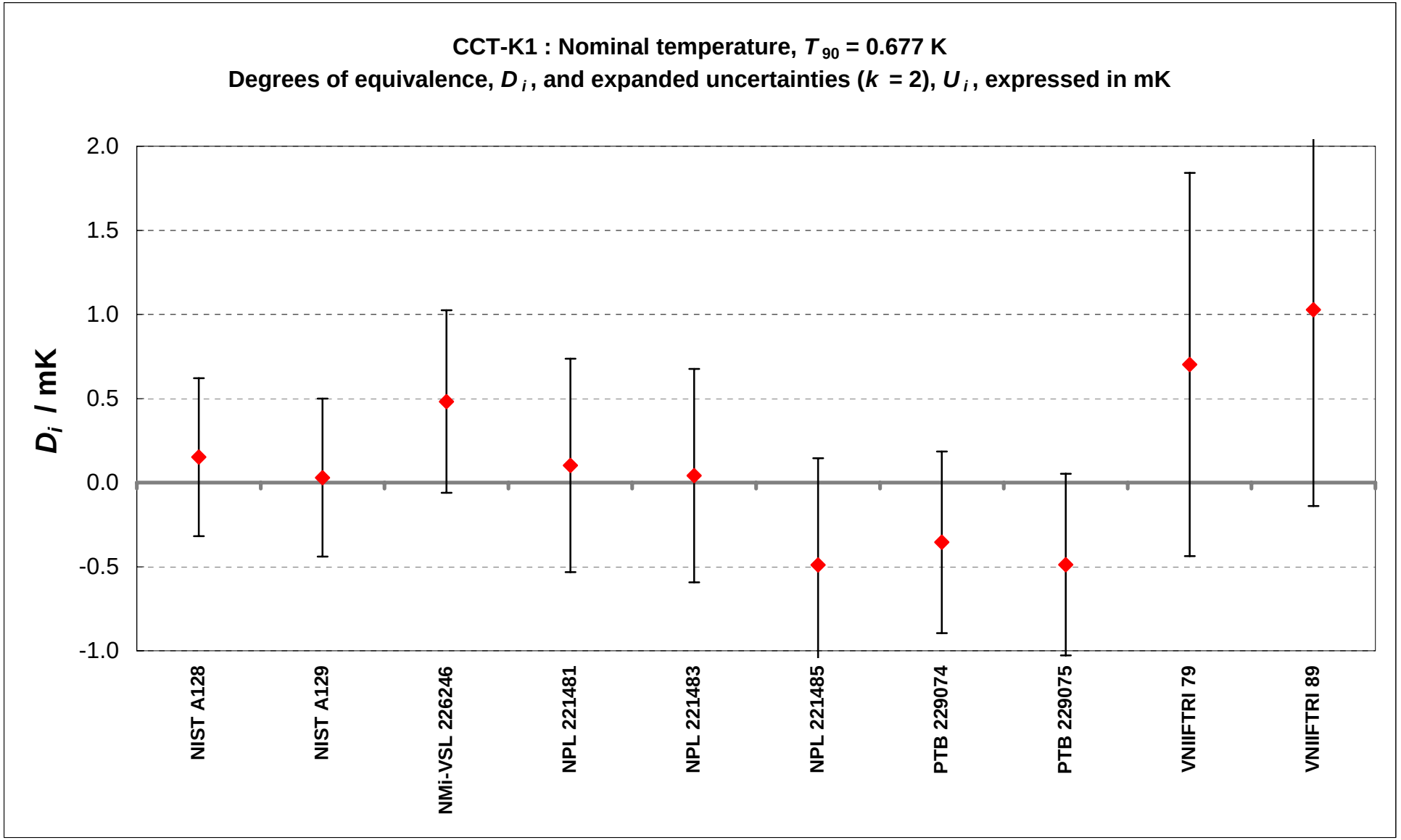
Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128 D_{ij} / mK	NIST A128 U_{ij} / mK	NIST A129 D_{ij} / mK	NIST A129 U_{ij} / mK	NMi-VSL 226246 D_{ij} / mK	NMi-VSL 226246 U_{ij} / mK	NPL 221481 D_{ij} / mK	NPL 221481 U_{ij} / mK	NPL 221483 D_{ij} / mK	NPL 221483 U_{ij} / mK	NPL 221485 D_{ij} / mK	NPL 221485 U_{ij} / mK
NIST A128	**0.151**	0.470			**0.122**	0.664	**-0.330**	0.718	**0.049**	0.790	**0.109**	0.790	**0.641**	0.790
NIST A129	**0.029**	0.470	**-0.122**	0.664			**-0.452**	0.718	**-0.073**	0.790	**-0.013**	0.790	**0.519**	0.790
NMi-VSL 226246	**0.482**	0.543	**0.330**	0.718	**0.452**	0.718			**0.380**	0.835	**0.440**	0.835	**0.971**	0.835
NPL 221481	**0.102**	0.635	**-0.049**	0.790	**0.073**	0.790	**-0.380**	0.835			**0.060**	0.898	**0.592**	0.898
NPL 221483	**0.042**	0.635	**-0.109**	0.790	**0.013**	0.790	**-0.440**	0.835	**-0.060**	0.898			**0.532**	0.898
NPL 221485	**-0.490**	0.635	**-0.641**	0.790	**-0.519**	0.790	**-0.971**	0.835	**-0.592**	0.898	**-0.532**	0.898		
PTB 229074	**-0.355**	0.540	**-0.506**	0.716	**-0.384**	0.716	**-0.836**	0.766	**-0.457**	0.833	**-0.397**	0.833	**0.135**	0.833
PTB 229075	**-0.488**	0.540	**-0.639**	0.716	**-0.517**	0.716	**-0.970**	0.766	**-0.590**	0.833	**-0.530**	0.833	**0.002**	0.833
VNIIFTRI 79	**0.702**	1.139	**0.551**	1.232	**0.673**	1.232	**0.220**	1.262	**0.600**	1.304	**0.660**	1.304	**1.192**	1.304
VNIIFTRI 89	**1.028**	1.167	**0.877**	1.258	**0.999**	1.258	**0.547**	1.287	**0.926**	1.328	**0.986**	1.328	**1.518**	1.328

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	PTB 229074 D_{ij} / mK	PTB 229074 U_{ij} / mK	PTB 229075 D_{ij} / mK	PTB 229075 U_{ij} / mK	VNIIFTRI 79 D_{ij} / mK	VNIIFTRI 79 U_{ij} / mK	VNIIFTRI 89 D_{ij} / mK	VNIIFTRI 89 U_{ij} / mK
NIST A128	**0.151**	0.470	**0.506**	0.716	**0.639**	0.716	**-0.551**	1.232	**-0.877**	1.258
NIST A129	**0.029**	0.470	**0.384**	0.716	**0.517**	0.716	**-0.673**	1.232	**-0.999**	1.258
NMi-VSL 226246	**0.482**	0.543	**0.836**	0.766	**0.970**	0.766	**-0.220**	1.262	**-0.547**	1.287
NPL 221481	**0.102**	0.635	**0.457**	0.833	**0.590**	0.833	**-0.600**	1.304	**-0.926**	1.328
NPL 221483	**0.042**	0.635	**0.397**	0.833	**0.530**	0.833	**-0.660**	1.304	**-0.986**	1.328
NPL 221485	**-0.490**	0.635	**-0.135**	0.833	**-0.002**	0.833	**-1.192**	1.304	**-1.518**	1.328
PTB 229074	**-0.355**	0.540			**0.133**	0.764	**-1.057**	1.261	**-1.383**	1.286
PTB 229075	**-0.488**	0.540	**-0.133**	0.764			**-1.190**	1.261	**-1.516**	1.286
VNIIFTRI 79	**0.702**	1.139	**1.057**	1.261	**1.190**	1.261			**-0.326**	1.631
VNIIFTRI 89	**1.028**	1.167	**1.383**	1.2858	**1.516**	1.286	**0.326**	1.631		


CCT-K1 : Nominal temperature, T_{90} = 0.677 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 0.704 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.198 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	0.704853	0.110
NIST A129	0.704179	0.110
NMi-VSL 226246	0.704626	0.182
NPL 221481	0.704350	0.236
NPL 221483	0.704305	0.236
NPL 221485	0.704029	0.236
PTB 229074	0.704040	0.180
PTB 229075	0.703875	0.180
VNIIFTRI 79	0.705043	0.526
VNIIFTRI 89	0.705293	0.545

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 0.704354 K

Matrix of equivalence

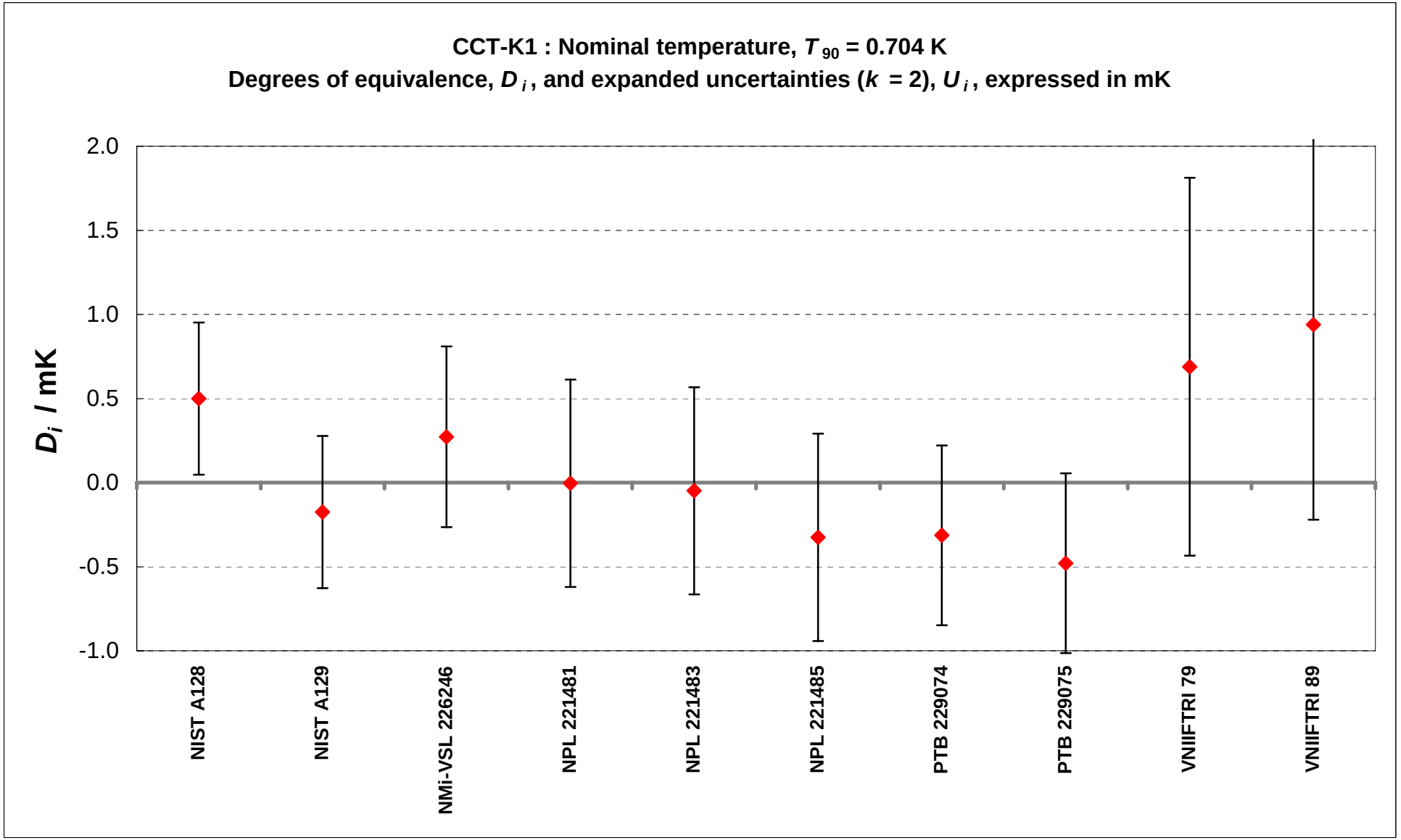
Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.499**	0.453			**0.674**	0.640	**0.227**	0.702	**0.503**	0.765	**0.548**	0.765	**0.824**	0.765
NIST A129	**-0.175**	0.453	**-0.674**	0.640			**-0.447**	0.702	**-0.171**	0.765	**-0.126**	0.765	**0.150**	0.765
NMi-VSL 226246	**0.272**	0.537	**-0.227**	0.702	**0.447**	0.702			**0.276**	0.817	**0.321**	0.817	**0.598**	0.817
NPL 221481	**-0.004**	0.616	**-0.503**	0.765	**0.171**	0.765	**-0.276**	0.817			**0.045**	0.872	**0.322**	0.872
NPL 221483	**-0.049**	0.616	**-0.548**	0.765	**0.126**	0.765	**-0.321**	0.817	**-0.045**	0.872			**0.277**	0.872
NPL 221485	**-0.325**	0.616	**-0.824**	0.765	**-0.150**	0.765	**-0.598**	0.817	**-0.322**	0.872	**-0.277**	0.872		
PTB 229074	**-0.314**	0.535	**-0.813**	0.701	**-0.139**	0.701	**-0.586**	0.758	**-0.310**	0.816	**-0.265**	0.816	**0.012**	0.816
PTB 229075	**-0.479**	0.535	**-0.978**	0.701	**-0.304**	0.701	**-0.752**	0.758	**-0.476**	0.816	**-0.431**	0.816	**-0.154**	0.816
VNIIFTRI 79	**0.689**	1.124	**0.190**	1.211	**0.864**	1.211	**0.416**	1.245	**0.693**	1.281	**0.738**	1.281	**1.014**	1.281
VNIIFTRI 89	**0.939**	1.160	**0.440**	1.245	**1.114**	1.245	**0.667**	1.278	**0.943**	1.314	**0.988**	1.314	**1.264**	1.314

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.499**	0.453	**0.813**	0.701	**0.978**	0.701	**-0.190**	1.211	**-0.440**	1.245
NIST A129	**-0.175**	0.453	**0.139**	0.701	**0.304**	0.701	**-0.864**	1.211	**-1.114**	1.245
NMi-VSL 226246	**0.272**	0.537	**0.586**	0.758	**0.752**	0.758	**-0.416**	1.245	**-0.667**	1.278
NPL 221481	**-0.004**	0.616	**0.310**	0.816	**0.476**	0.816	**-0.693**	1.281	**-0.943**	1.314
NPL 221483	**-0.049**	0.616	**0.265**	0.816	**0.431**	0.816	**-0.738**	1.281	**-0.988**	1.314
NPL 221485	**-0.325**	0.616	**-0.012**	0.816	**0.154**	0.816	**-1.014**	1.281	**-1.264**	1.314
PTB 229074	**-0.314**	0.535			**0.166**	0.756	**-1.003**	1.244	**-1.253**	1.277
PTB 229075	**-0.479**	0.535	**-0.166**	0.756			**-1.168**	1.244	**-1.418**	1.277
VNIIFTRI 79	**0.689**	1.124	**1.003**	1.244	**1.168**	1.244			**-0.250**	1.615
VNIIFTRI 89	**0.939**	1.160	**1.2527**	1.2772	**1.418**	1.277	**0.250**	1.615		


CCT-K1 : Nominal temperature, T_{90} = 0.704 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 0.762 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.190 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	0.761654	0.082
NIST A129	0.761491	0.082
NMi-VSL 226246	0.761866	0.182
NPL 221481	0.761820	0.218
NPL 221483	0.761770	0.218
NPL 221485	0.761112	0.218
PTB 229074	0.761082	0.180
PTB 229075	0.761437	0.180
VNIIFTRI 79	0.762375	0.511
VNIIFTRI 89	0.762682	0.540

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 0.761580 K

Matrix of equivalence

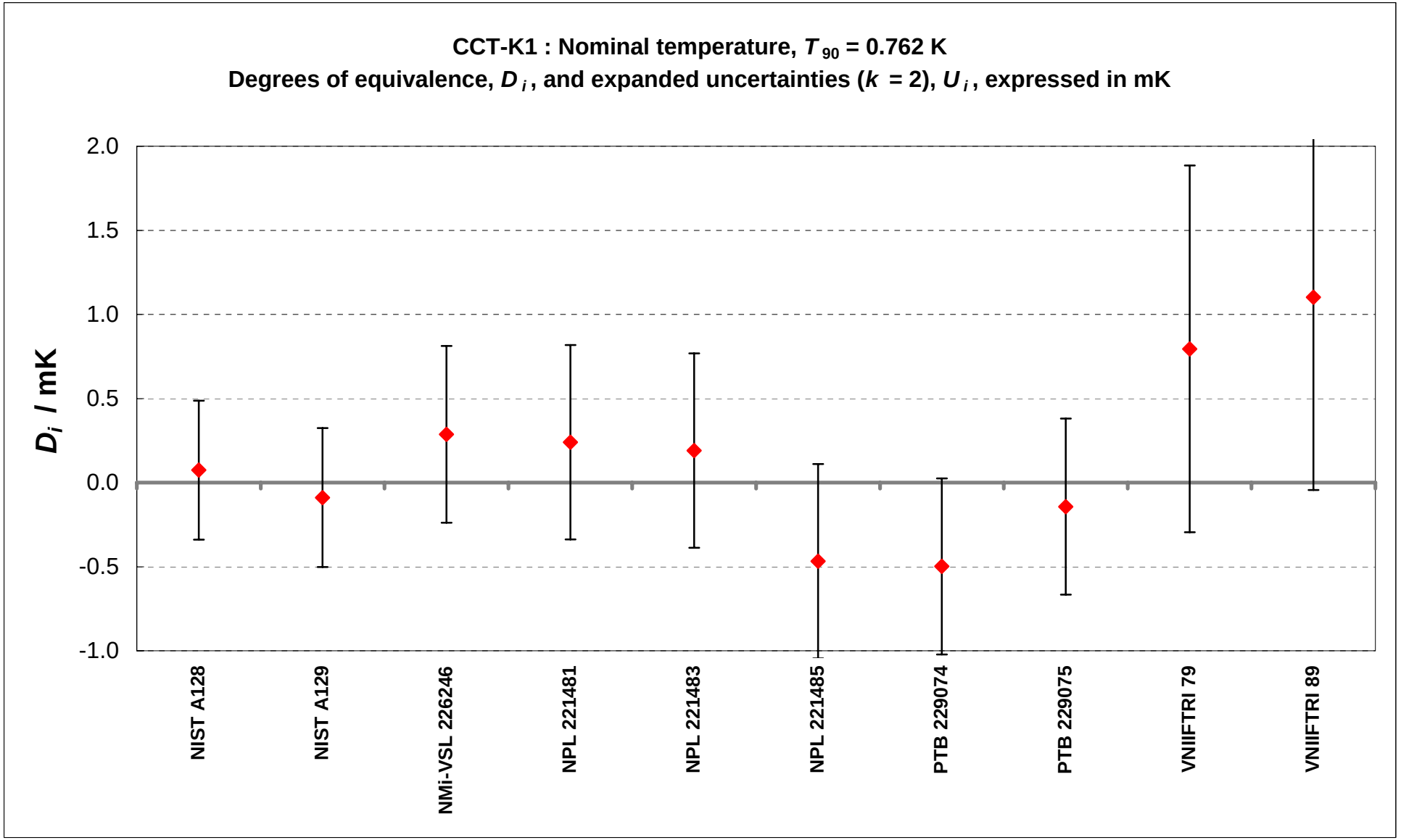
Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.074**	0.413			**0.163**	0.585	**-0.213**	0.669	**-0.166**	0.711	**-0.116**	0.711	**0.541**	0.711
NIST A129	**-0.089**	0.413	**-0.163**	0.585			**-0.376**	0.669	**-0.329**	0.711	**-0.279**	0.711	**0.379**	0.711
NMi-VSL 226246	**0.286**	0.526	**0.213**	0.669	**0.376**	0.669			**0.046**	0.781	**0.096**	0.781	**0.754**	0.781
NPL 221481	**0.240**	0.578	**0.166**	0.711	**0.329**	0.711	**-0.046**	0.781			**0.050**	0.817	**0.708**	0.817
NPL 221483	**0.190**	0.578	**0.116**	0.711	**0.279**	0.711	**-0.096**	0.781	**-0.050**	0.817			**0.658**	0.817
NPL 221485	**-0.468**	0.578	**-0.541**	0.711	**-0.379**	0.711	**-0.754**	0.781	**-0.708**	0.817	**-0.658**	0.817		
PTB 229074	**-0.498**	0.523	**-0.572**	0.667	**-0.409**	0.667	**-0.785**	0.742	**-0.738**	0.780	**-0.688**	0.780	**-0.031**	0.780
PTB 229075	**-0.143**	0.523	**-0.217**	0.667	**-0.054**	0.667	**-0.430**	0.742	**-0.383**	0.780	**-0.333**	0.780	**0.324**	0.780
VNIIFTRI 79	**0.795**	1.090	**0.721**	1.166	**0.884**	1.166	**0.508**	1.211	**0.555**	1.234	**0.605**	1.234	**1.262**	1.234
VNIIFTRI 89	**1.102**	1.145	**1.028**	1.218	**1.191**	1.218	**0.815**	1.260	**0.862**	1.283	**0.912**	1.283	**1.569**	1.283

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.074**	0.413	**0.572**	0.667	**0.217**	0.667	**-0.721**	1.166	**-1.028**	1.218
NIST A129	**-0.089**	0.413	**0.409**	0.667	**0.054**	0.667	**-0.884**	1.166	**-1.191**	1.218
NMi-VSL 226246	**0.286**	0.526	**0.785**	0.742	**0.430**	0.742	**-0.508**	1.211	**-0.815**	1.260
NPL 221481	**0.240**	0.578	**0.738**	0.780	**0.383**	0.780	**-0.555**	1.234	**-0.862**	1.283
NPL 221483	**0.190**	0.578	**0.688**	0.780	**0.333**	0.780	**-0.605**	1.234	**-0.912**	1.283
NPL 221485	**-0.468**	0.578	**0.031**	0.780	**-0.324**	0.780	**-1.262**	1.234	**-1.569**	1.283
PTB 229074	**-0.498**	0.523			**-0.355**	0.740	**-1.293**	1.210	**-1.600**	1.259
PTB 229075	**-0.143**	0.523	**0.355**	0.740			**-0.938**	1.210	**-1.245**	1.259
VNIIFTRI 79	**0.795**	1.090	**1.293**	1.210	**0.938**	1.210			**-0.307**	1.582
VNIIFTRI 89	**1.102**	1.145	**1.6001**	1.2593	**1.245**	1.259	**0.307**	1.582		


CCT-K1 : Nominal temperature, T_{90} = 0.762 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 0.858 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.177 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	0.858267	0.076
NIST A129	0.858267	0.076
NMi-VSL 226246	0.858603	0.182
NPL 221481	0.858740	0.186
NPL 221483	0.858680	0.186
NPL 221485	0.858267	0.186
PTB 229074	0.858122	0.180
PTB 229075	0.858288	0.180
VNIIFTRI 79	0.859183	0.486
VNIIFTRI 89	0.859376	0.532

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 0.858421 K

Matrix of equivalence

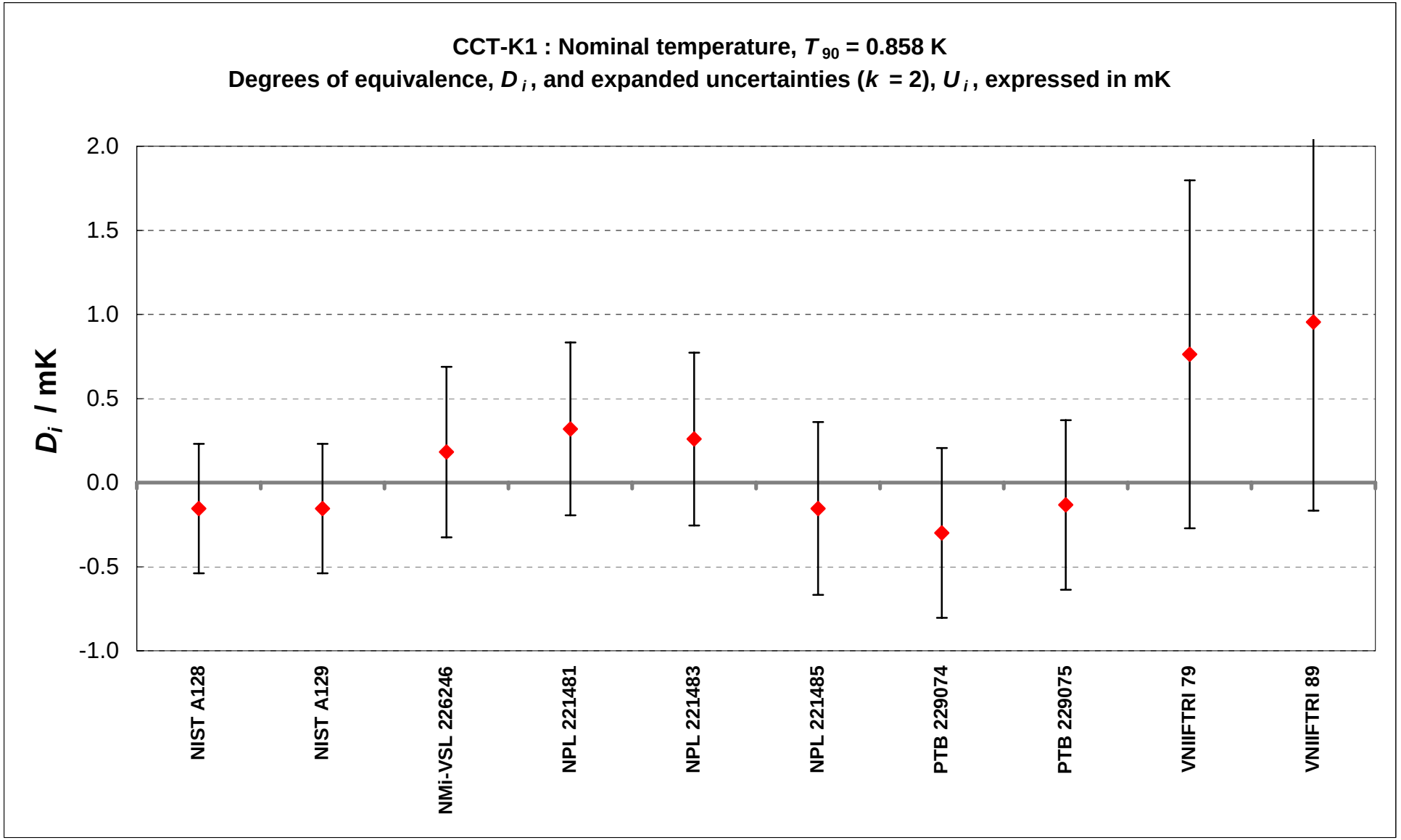
Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.154**	0.384			**0.000**	0.544	**-0.336**	0.636	**-0.473**	0.642	**-0.413**	0.642	**0.000**	0.642
NIST A129	**-0.154**	0.384	**0.000**	0.544			**-0.336**	0.636	**-0.473**	0.642	**-0.413**	0.642	**0.000**	0.642
NMi-VSL 226246	**0.182**	0.507	**0.336**	0.636	**0.336**	0.636			**-0.137**	0.722	**-0.077**	0.722	**0.336**	0.722
NPL 221481	**0.319**	0.514	**0.473**	0.642	**0.473**	0.642	**0.137**	0.722			**0.060**	0.727	**0.473**	0.727
NPL 221483	**0.259**	0.514	**0.413**	0.642	**0.413**	0.642	**0.077**	0.722	**-0.060**	0.727			**0.413**	0.727
NPL 221485	**-0.154**	0.514	**0.000**	0.642	**0.000**	0.642	**-0.336**	0.722	**-0.473**	0.727	**-0.413**	0.727		
PTB 229074	**-0.299**	0.505	**-0.145**	0.634	**-0.145**	0.634	**-0.481**	0.715	**-0.619**	0.720	**-0.559**	0.720	**-0.145**	0.720
PTB 229075	**-0.133**	0.505	**0.021**	0.634	**0.021**	0.634	**-0.315**	0.715	**-0.452**	0.720	**-0.392**	0.720	**0.021**	0.720
VNIIFTRI 79	**0.762**	1.035	**0.917**	1.104	**0.917**	1.104	**0.581**	1.152	**0.443**	1.155	**0.503**	1.155	**0.916**	1.155
VNIIFTRI 89	**0.955**	1.121	**1.109**	1.185	**1.109**	1.185	**0.773**	1.231	**0.636**	1.233	**0.696**	1.233	**1.109**	1.233

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.154**	0.384	**0.145**	0.634	**-0.021**	0.634	**-0.917**	1.104	**-1.109**	1.185
NIST A129	**-0.154**	0.384	**0.145**	0.634	**-0.021**	0.634	**-0.917**	1.104	**-1.109**	1.185
NMi-VSL 226246	**0.182**	0.507	**0.481**	0.715	**0.315**	0.715	**-0.581**	1.152	**-0.773**	1.231
NPL 221481	**0.319**	0.514	**0.619**	0.720	**0.452**	0.720	**-0.443**	1.155	**-0.636**	1.233
NPL 221483	**0.259**	0.514	**0.559**	0.720	**0.392**	0.720	**-0.503**	1.155	**-0.696**	1.233
NPL 221485	**-0.154**	0.514	**0.145**	0.720	**-0.021**	0.720	**-0.916**	1.155	**-1.109**	1.233
PTB 229074	**-0.299**	0.505			**-0.166**	0.714	**-1.062**	1.151	**-1.255**	1.230
PTB 229075	**-0.133**	0.505	**0.166**	0.714			**-0.895**	1.151	**-1.088**	1.230
VNIIFTRI 79	**0.762**	1.035	**1.062**	1.151	**0.895**	1.151			**-0.193**	1.526
VNIIFTRI 89	**0.955**	1.121	**1.2545**	1.2296	**1.088**	1.230	**0.193**	1.526		


CCT-K1 : Nominal temperature, T_{90} = 0.858 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 0.991 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

u_{comp} = 0.159 mK

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	0.991179	0.078
NIST A129	0.991012	0.078
NMi-VSL 226246	0.991361	0.182
NPL 221481	0.991590	0.144
NPL 221485	0.991375	0.144
PTB 229074	0.991133	0.180
PTB 229075	0.990995	0.180

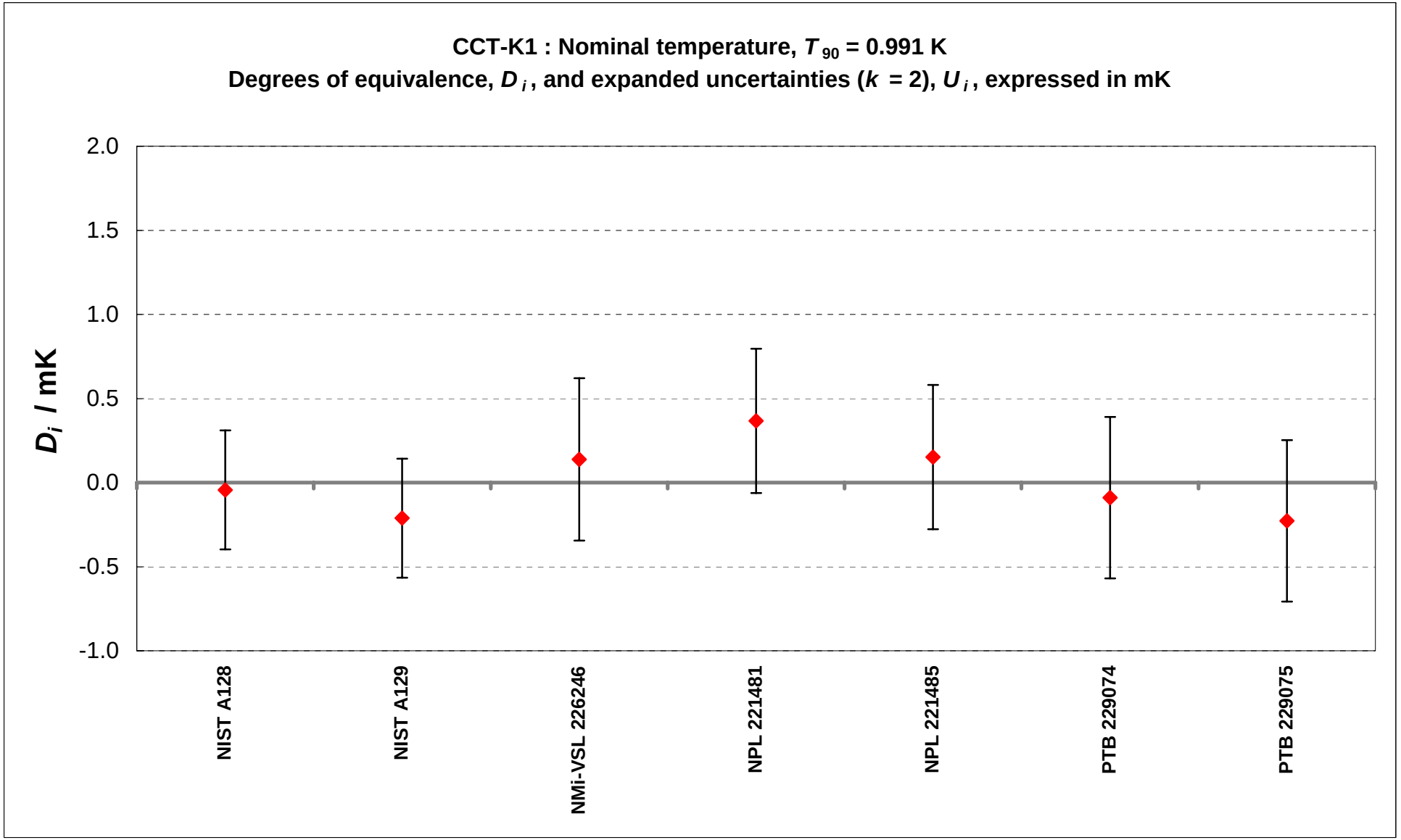
Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 0.991223 K

Matrix of equivalence

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221485		PTB 229074		PTB 229075	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.044**	0.354			**0.168**	0.500	**-0.182**	0.599	**-0.411**	0.556	**-0.196**	0.556	**0.046**	0.597	**0.184**	0.597
NIST A129	**-0.211**	0.354	**-0.168**	0.500			**-0.349**	0.599	**-0.578**	0.556	**-0.363**	0.556	**-0.121**	0.597	**0.016**	0.597
NMi-VSL 226246	**0.138**	0.483	**0.182**	0.599	**0.349**	0.599			**-0.229**	0.646	**-0.014**	0.646	**0.228**	0.681	**0.366**	0.681
NPL 221481	**0.367**	0.429	**0.411**	0.556	**0.578**	0.556	**0.229**	0.646			**0.215**	0.607	**0.457**	0.644	**0.595**	0.644
NPL 221485	**0.152**	0.429	**0.196**	0.556	**0.363**	0.556	**0.014**	0.646	**-0.215**	0.607			**0.242**	0.644	**0.380**	0.644
PTB 229074	**-0.090**	0.480	**-0.046**	0.597	**0.121**	0.597	**-0.228**	0.681	**-0.457**	0.644	**-0.242**	0.644			**0.138**	0.679
PTB 229075	**-0.228**	0.480	**-0.184**	0.597	**-0.016**	0.597	**-0.366**	0.681	**-0.595**	0.644	**-0.380**	0.644	**-0.138**	0.679		


CCT-K1 : Nominal temperature, T_{90} = 0.991 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221485
PTB 229074
PTB 229075

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 1.032 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.157 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	1.031395	0.078
NIST A129	1.031369	0.078
NMi-VSL 226246	1.031678	0.182
NPL 221481	1.031835	0.145
NPL 221483	1.031765	0.145
NPL 221485	1.031717	0.145
PTB 229074	1.031415	0.180
PTB 229075	1.031397	0.180
VNIIFTRI 79	1.032281	0.454
VNIIFTRI 89	1.032306	0.526

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 1.031584 K

Matrix of equivalence

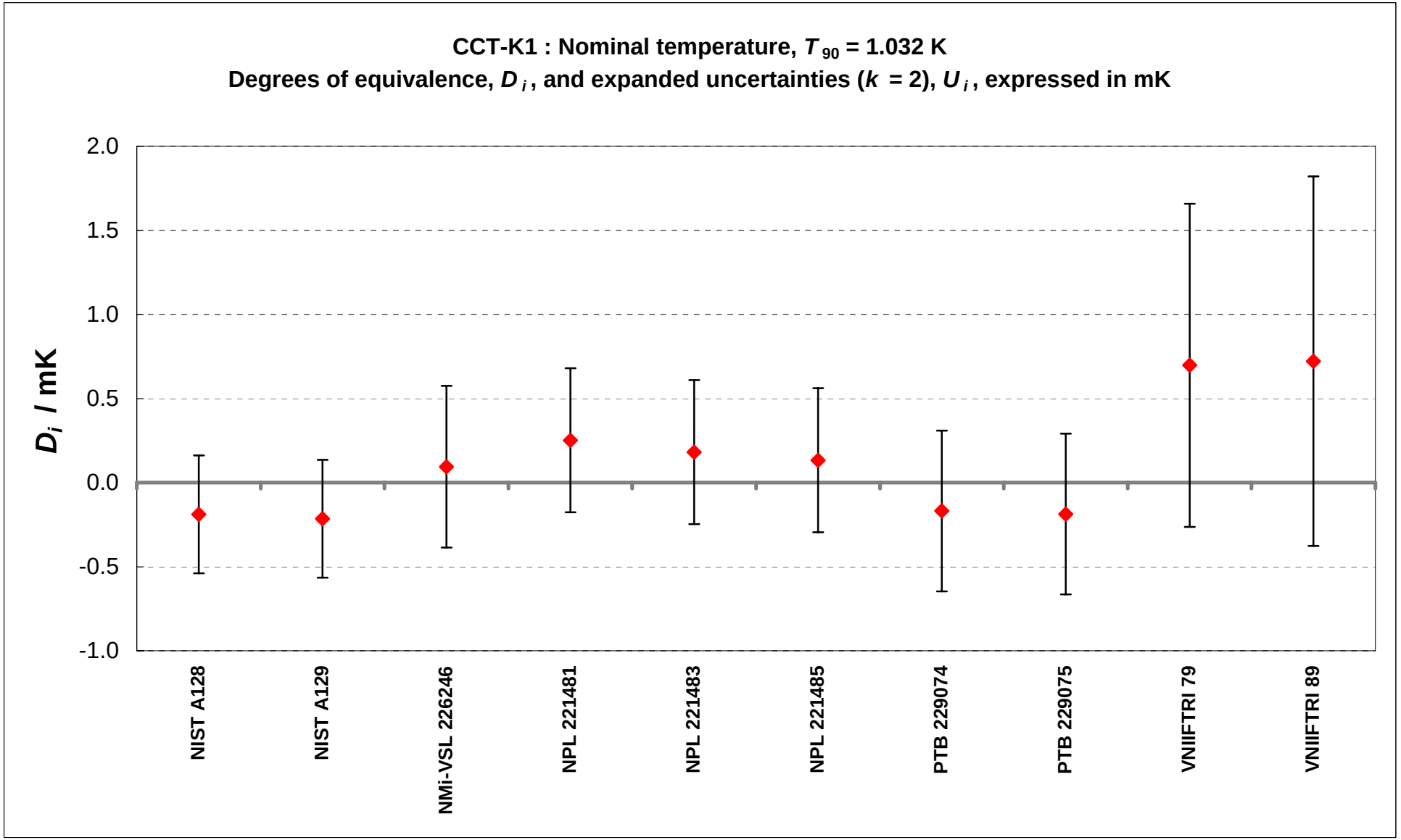
Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.189**	0.351			**0.026**	0.496	**-0.283**	0.595	**-0.440**	0.553	**-0.370**	0.553	**-0.322**	0.553
NIST A129	**-0.215**	0.351	**-0.026**	0.496			**-0.310**	0.595	**-0.467**	0.553	**-0.397**	0.553	**-0.348**	0.553
NMi-VSL 226246	**0.094**	0.481	**0.283**	0.595	**0.310**	0.595			**-0.157**	0.644	**-0.087**	0.644	**-0.039**	0.644
NPL 221481	**0.251**	0.428	**0.440**	0.553	**0.467**	0.553	**0.157**	0.644			**0.070**	0.605	**0.118**	0.605
NPL 221483	**0.181**	0.428	**0.370**	0.553	**0.397**	0.553	**0.087**	0.644	**-0.070**	0.605			**0.048**	0.605
NPL 221485	**0.133**	0.428	**0.322**	0.553	**0.348**	0.553	**0.039**	0.644	**-0.118**	0.605	**-0.048**	0.605		
PTB 229074	**-0.169**	0.478	**0.021**	0.593	**0.047**	0.593	**-0.263**	0.678	**-0.420**	0.642	**-0.350**	0.642	**-0.302**	0.642
PTB 229075	**-0.187**	0.478	**0.002**	0.593	**0.028**	0.593	**-0.281**	0.678	**-0.438**	0.642	**-0.368**	0.642	**-0.320**	0.642
VNIIFTRI 79	**0.697**	0.961	**0.886**	1.023	**0.913**	1.023	**0.603**	1.074	**0.446**	1.052	**0.516**	1.052	**0.564**	1.052
VNIIFTRI 89	**0.722**	1.099	**0.911**	1.153	**0.937**	1.153	**0.628**	1.199	**0.471**	1.179	**0.541**	1.179	**0.589**	1.179

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.189**	0.351	**-0.021**	0.593	**-0.002**	0.593	**-0.886**	1.023	**-0.911**	1.153
NIST A129	**-0.215**	0.351	**-0.047**	0.593	**-0.028**	0.593	**-0.913**	1.023	**-0.937**	1.153
NMi-VSL 226246	**0.094**	0.481	**0.263**	0.678	**0.281**	0.678	**-0.603**	1.074	**-0.628**	1.199
NPL 221481	**0.251**	0.428	**0.420**	0.642	**0.438**	0.642	**-0.446**	1.052	**-0.471**	1.179
NPL 221483	**0.181**	0.428	**0.350**	0.642	**0.368**	0.642	**-0.516**	1.052	**-0.541**	1.179
NPL 221485	**0.133**	0.428	**0.302**	0.642	**0.320**	0.642	**-0.564**	1.052	**-0.589**	1.179
PTB 229074	**-0.169**	0.478			**0.018**	0.676	**-0.866**	1.073	**-0.890**	1.198
PTB 229075	**-0.187**	0.478	**-0.018**	0.676			**-0.884**	1.073	**-0.909**	1.198
VNIIFTRI 79	**0.697**	0.961	**0.866**	1.073	**0.884**	1.073			**-0.025**	1.460
VNIIFTRI 89	**0.722**	1.099	**0.8904**	1.1983	**0.909**	1.198	**0.025**	1.460		


CCT-K1 : Nominal temperature, T_{90} = 1.032 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 1.225 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.149 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	1.224814	0.065
NIST A129	1.224828	0.065
NMi-VSL 226246	1.225123	0.256
NPL 221481	1.225340	0.151
NPL 221485	1.225201	0.151
PTB 229074	1.224998	0.180
PTB 229075	1.224931	0.180

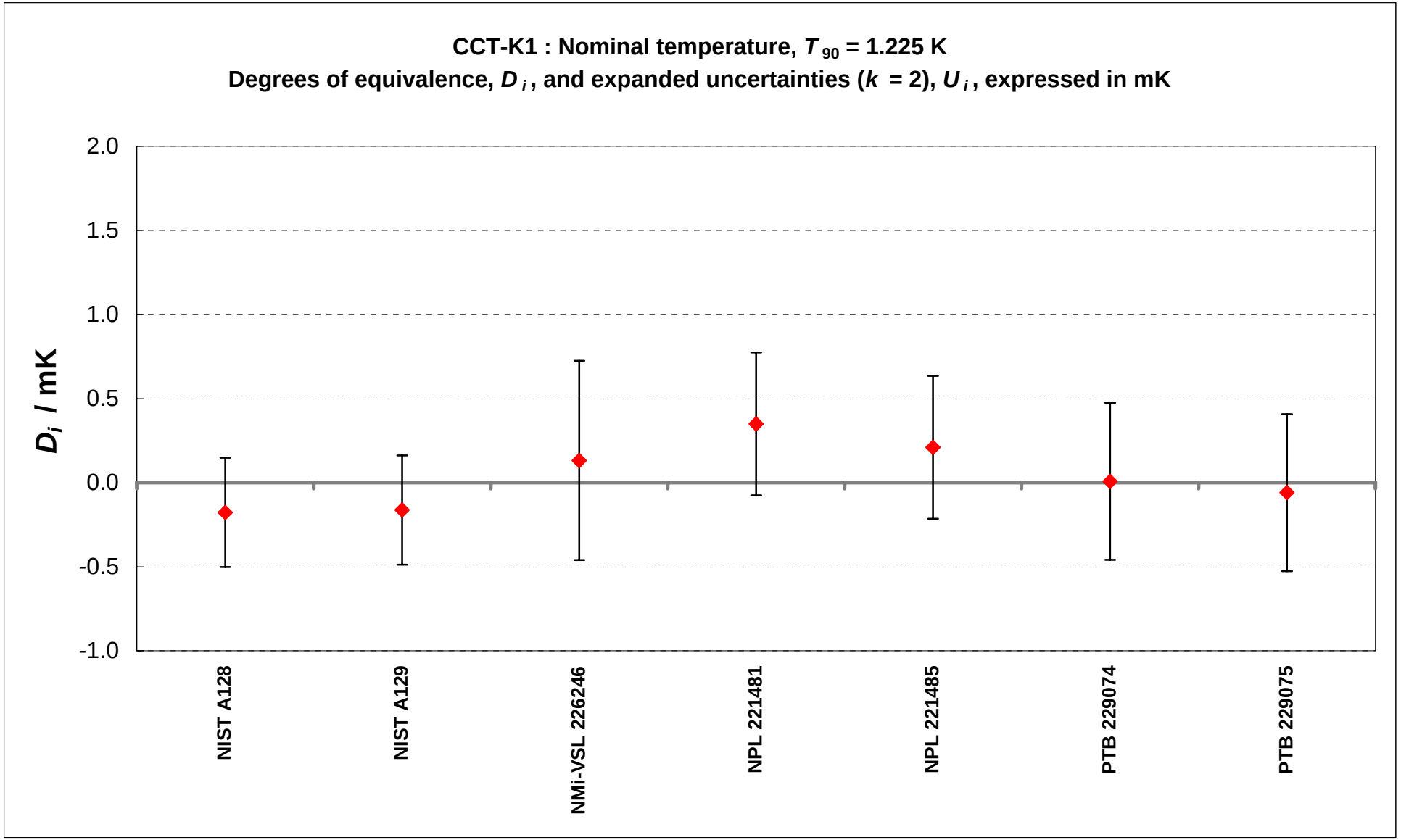
Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 1.224991 K

Matrix of equivalence

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128 D_{ij} / mK	NIST A128 U_{ij} / mK	NIST A129 D_{ij} / mK	NIST A129 U_{ij} / mK	NMi-VSL 226246 D_{ij} / mK	NMi-VSL 226246 U_{ij} / mK	NPL 221481 D_{ij} / mK	NPL 221481 U_{ij} / mK	NPL 221485 D_{ij} / mK	NPL 221485 U_{ij} / mK	PTB 229074 D_{ij} / mK	PTB 229074 U_{ij} / mK	PTB 229075 D_{ij} / mK	PTB 229075 U_{ij} / mK
NIST A128	**-0.177**	0.325			**-0.014**	0.459	**-0.309**	0.675	**-0.526**	0.534	**-0.388**	0.534	**-0.185**	0.569	**-0.118**	0.569
NIST A129	**-0.163**	0.325	**0.014**	0.459			**-0.295**	0.675	**-0.512**	0.534	**-0.373**	0.534	**-0.171**	0.569	**-0.103**	0.569
NMi-VSL 226246	**0.132**	0.592	**0.309**	0.675	**0.295**	0.675			**-0.217**	0.729	**-0.078**	0.729	**0.124**	0.754	**0.191**	0.754
NPL 221481	**0.349**	0.425	**0.526**	0.534	**0.512**	0.534	**0.217**	0.729			**0.139**	0.600	**0.341**	0.631	**0.408**	0.631
NPL 221485	**0.210**	0.425	**0.388**	0.534	**0.373**	0.534	**0.078**	0.729	**-0.139**	0.600			**0.203**	0.631	**0.270**	0.631
PTB 229074	**0.007**	0.467	**0.185**	0.569	**0.171**	0.569	**-0.124**	0.754	**-0.341**	0.631	**-0.203**	0.631			**0.067**	0.661
PTB 229075	**-0.060**	0.467	**0.118**	0.569	**0.103**	0.569	**-0.191**	0.754	**-0.408**	0.631	**-0.270**	0.631	**-0.067**	0.661		


CCT-K1 : Nominal temperature, T_{90} = 1.225 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221485
PTB 229074
PTB 229075

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 1.250 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.148 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	1.249254	0.065
NIST A129	1.249283	0.065
NMi-VSL 226246	1.249645	0.256
NPL 221481	1.250010	0.152
NPL 221483	1.249780	0.152
NPL 221485	1.249814	0.152
PTB 229074	1.249406	0.180
PTB 229075	1.249394	0.180
VNIIFTRI 79	1.249940	0.480
VNIIFTRI 89	1.250150	0.570

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 1.249542 K

Matrix of equivalence

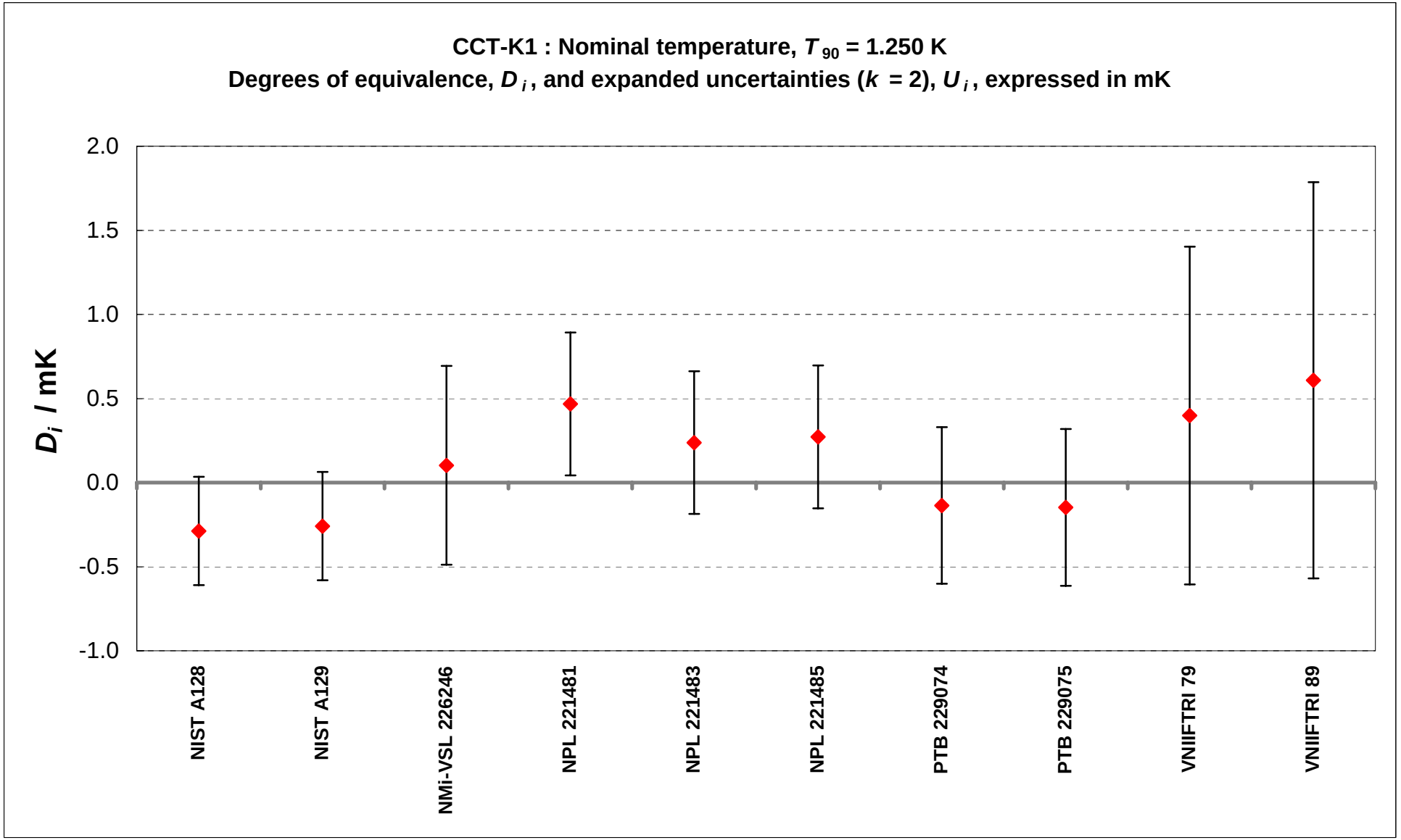
Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.288**	0.323			**-0.029**	0.456	**-0.390**	0.673	**-0.755**	0.533	**-0.525**	0.533	**-0.559**	0.533
NIST A129	**-0.259**	0.323	**0.029**	0.456			**-0.361**	0.673	**-0.726**	0.533	**-0.496**	0.533	**-0.530**	0.533
NMi-VSL 226246	**0.103**	0.591	**0.390**	0.673	**0.361**	0.673			**-0.365**	0.728	**-0.135**	0.728	**-0.169**	0.728
NPL 221481	**0.468**	0.424	**0.755**	0.533	**0.726**	0.533	**0.365**	0.728			**0.230**	0.600	**0.196**	0.600
NPL 221483	**0.238**	0.424	**0.525**	0.533	**0.496**	0.533	**0.135**	0.728	**-0.230**	0.600			**-0.034**	0.600
NPL 221485	**0.272**	0.424	**0.559**	0.533	**0.530**	0.533	**0.169**	0.728	**-0.196**	0.600	**0.034**	0.600		
PTB 229074	**-0.136**	0.466	**0.152**	0.567	**0.123**	0.567	**-0.239**	0.753	**-0.604**	0.630	**-0.374**	0.630	**-0.408**	0.630
PTB 229075	**-0.148**	0.466	**0.140**	0.567	**0.111**	0.567	**-0.250**	0.753	**-0.615**	0.630	**-0.385**	0.630	**-0.419**	0.630
VNIIFTRI 79	**0.398**	1.004	**0.686**	1.055	**0.657**	1.055	**0.296**	1.166	**-0.069**	1.090	**0.161**	1.090	**0.127**	1.090
VNIIFTRI 89	**0.608**	1.178	**0.896**	1.221	**0.867**	1.221	**0.505**	1.318	**0.141**	1.252	**0.371**	1.252	**0.336**	1.252

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.288**	0.323	**-0.152**	0.567	**-0.140**	0.567	**-0.686**	1.055	**-0.896**	1.221
NIST A129	**-0.259**	0.323	**-0.123**	0.567	**-0.111**	0.567	**-0.657**	1.055	**-0.867**	1.221
NMi-VSL 226246	**0.103**	0.591	**0.239**	0.753	**0.250**	0.753	**-0.296**	1.166	**-0.505**	1.318
NPL 221481	**0.468**	0.424	**0.604**	0.630	**0.615**	0.630	**0.069**	1.090	**-0.141**	1.252
NPL 221483	**0.238**	0.424	**0.374**	0.630	**0.385**	0.630	**-0.161**	1.090	**-0.371**	1.252
NPL 221485	**0.272**	0.424	**0.408**	0.630	**0.419**	0.630	**-0.127**	1.090	**-0.336**	1.252
PTB 229074	**-0.136**	0.466			**0.012**	0.659	**-0.534**	1.107	**-0.744**	1.267
PTB 229075	**-0.148**	0.466	**-0.012**	0.659			**-0.546**	1.107	**-0.756**	1.267
VNIIFTRI 79	**0.398**	1.004	**0.534**	1.107	**0.546**	1.107			**-0.210**	1.548
VNIIFTRI 89	**0.608**	1.178	**0.744**	1.2665	**0.756**	1.267	**0.210**	1.548		


CCT-K1 : Nominal temperature, T_{90} = 1.250 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 1.503 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.137 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	1.503103	0.062
NIST A129	1.503008	0.062
NMi-VSL 226246	1.503751	0.256
NPL 221481	1.503610	0.160
NPL 221483	1.503650	0.160
NPL 221485	1.503561	0.160
NRC A138	1.503715	0.225
NRC A140	1.503918	0.225
PTB 229074	1.503155	0.180
PTB 229075	1.503100	0.180
VNIIFTRI 79	1.503876	0.510
VNIIFTRI 89	1.504156	0.620

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 1.503370 K

Matrix of equivalence

Lab, S/N *j* ⟹

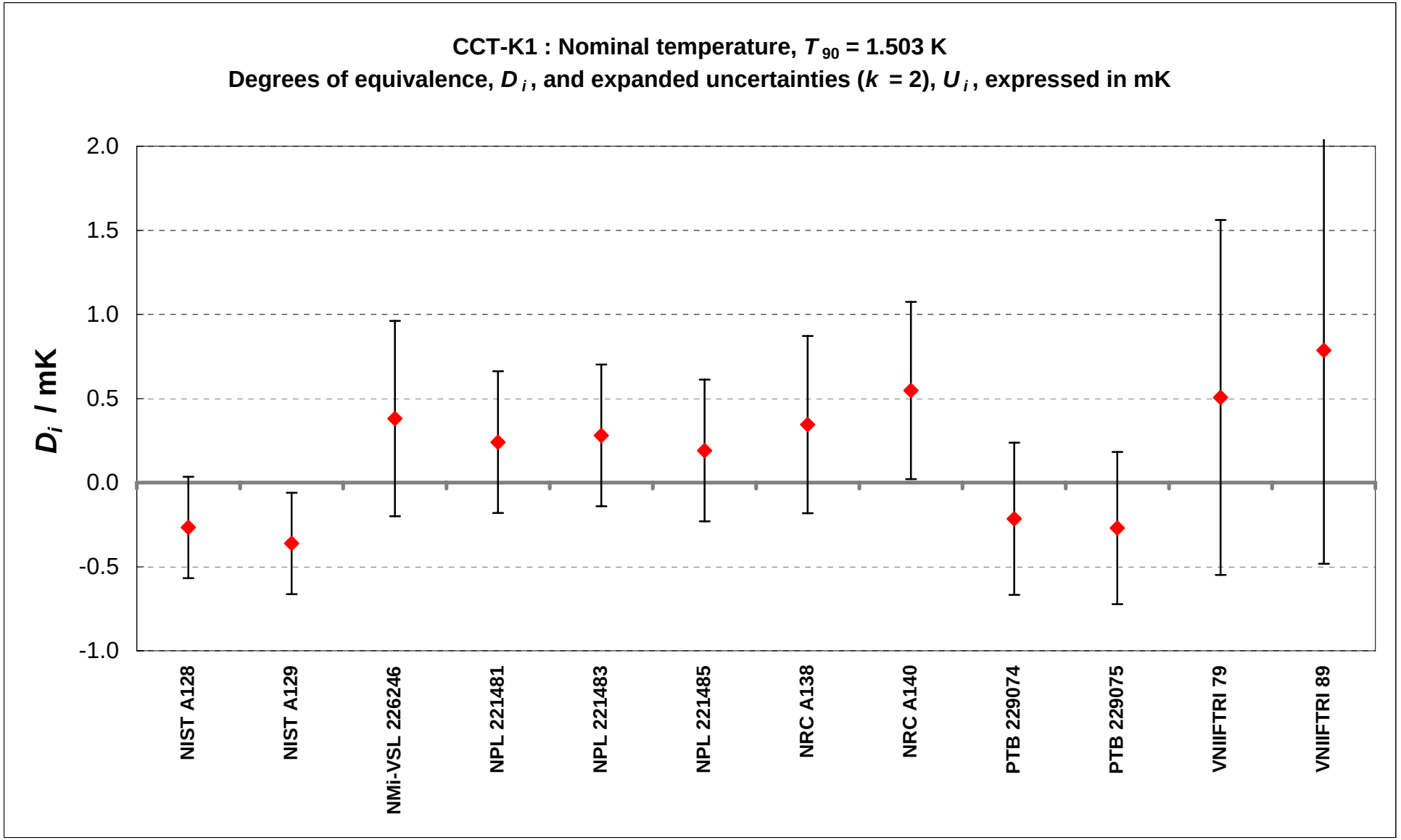
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.267**	0.301			**0.095**	0.426	**-0.648**	0.654	**-0.507**	0.518	**-0.547**	0.518	**-0.457**	0.518
NIST A129	**-0.362**	0.301	**-0.095**	0.426			**-0.743**	0.654	**-0.602**	0.518	**-0.642**	0.518	**-0.552**	0.518
NMi-VSL 226246	**0.381**	0.581	**0.648**	0.654	**0.743**	0.654			**0.141**	0.717	**0.101**	0.717	**0.190**	0.717
NPL 221481	**0.240**	0.421	**0.507**	0.518	**0.602**	0.518	**-0.141**	0.717			**-0.040**	0.596	**0.050**	0.596
NPL 221483	**0.280**	0.421	**0.547**	0.518	**0.642**	0.518	**-0.101**	0.717	**0.040**	0.596			**0.090**	0.596
NPL 221485	**0.191**	0.421	**0.457**	0.518	**0.552**	0.518	**-0.190**	0.717	**-0.050**	0.596	**-0.090**	0.596		
NRC A138	**0.345**	0.527	**0.611**	0.607	**0.706**	0.607	**-0.036**	0.784	**0.104**	0.675	**0.064**	0.675	**0.154**	0.675
NRC A140	**0.548**	0.527	**0.815**	0.607	**0.910**	0.607	**0.167**	0.784	**0.308**	0.675	**0.268**	0.675	**0.357**	0.675
PTB 229074	**-0.215**	0.452	**0.052**	0.543	**0.147**	0.543	**-0.596**	0.736	**-0.455**	0.618	**-0.495**	0.618	**-0.405**	0.618
PTB 229075	**-0.270**	0.452	**-0.004**	0.543	**0.092**	0.543	**-0.651**	0.736	**-0.511**	0.618	**-0.551**	0.618	**-0.461**	0.618
VNIIFTRI 79	**0.506**	1.055	**0.773**	1.098	**0.868**	1.098	**0.125**	1.205	**0.266**	1.136	**0.226**	1.136	**0.316**	1.136
VNIIFTRI 89	**0.786**	1.269	**1.052**	1.304	**1.147**	1.304	**0.405**	1.396	**0.545**	1.337	**0.505**	1.337	**0.595**	1.337

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A138		NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.267**	0.301	**-0.611**	0.607	**-0.815**	0.607	**-0.052**	0.543	**0.004**	0.543	**-0.773**	1.098	**-1.052**	1.304
NIST A129	**-0.362**	0.301	**-0.706**	0.607	**-0.910**	0.607	**-0.147**	0.543	**-0.092**	0.543	**-0.868**	1.098	**-1.147**	1.304
NMi-VSL 226246	**0.381**	0.581	**0.036**	0.784	**-0.167**	0.784	**0.596**	0.736	**0.651**	0.736	**-0.125**	1.205	**-0.405**	1.396
NPL 221481	**0.240**	0.421	**-0.104**	0.675	**-0.308**	0.675	**0.455**	0.618	**0.511**	0.618	**-0.266**	1.136	**-0.545**	1.337
NPL 221483	**0.280**	0.421	**-0.064**	0.675	**-0.268**	0.675	**0.495**	0.618	**0.551**	0.618	**-0.226**	1.136	**-0.505**	1.337
NPL 221485	**0.191**	0.421	**-0.154**	0.675	**-0.357**	0.675	**0.405**	0.618	**0.461**	0.618	**-0.316**	1.136	**-0.595**	1.337
NRC A138	**0.345**	0.527			**-0.203**	0.745	**0.559**	0.694	**0.615**	0.694	**-0.161**	1.180	**-0.441**	1.374
NRC A140	**0.548**	0.527	**0.203**	0.745			**0.763**	0.694	**0.818**	0.694	**0.042**	1.180	**-0.238**	1.374
PTB 229074	**-0.215**	0.452	**-0.559**	0.694	**-0.763**	0.694			**0.056**	0.640	**-0.721**	1.148	**-1.000**	1.347
PTB 229075	**-0.270**	0.452	**-0.615**	0.694	**-0.818**	0.694	**-0.056**	0.640			**-0.776**	1.148	**-1.056**	1.347
VNIIFTRI 79	**0.506**	1.055	**0.161**	1.180	**-0.042**	1.180	**0.721**	1.148	**0.776**	1.148			**-0.279**	1.651
VNIIFTRI 89	**0.786**	1.269	**0.441**	1.374	**0.238**	1.374	**1.000**	1.347	**1.056**	1.347	**0.279**	1.651		


CCT-K1 : Nominal temperature, T_{90} = 1.503 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 1.755 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.132 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	1.754643	0.038
NIST A129	1.754505	0.038
NMi-VSL 226246	1.755116	0.256
NPL 221481	1.755060	0.157
NPL 221483	1.755070	0.157
NPL 221485	1.754965	0.157
NRC A138	1.755172	0.225
NRC A140	1.755291	0.225
PTB 229074	1.754594	0.180
PTB 229075	1.754562	0.180
VNIIFTRI 79	1.755577	0.484
VNIIFTRI 89	1.755761	0.592

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 1.754822 K

Matrix of equivalence

Lab, S/N *j* ⟹

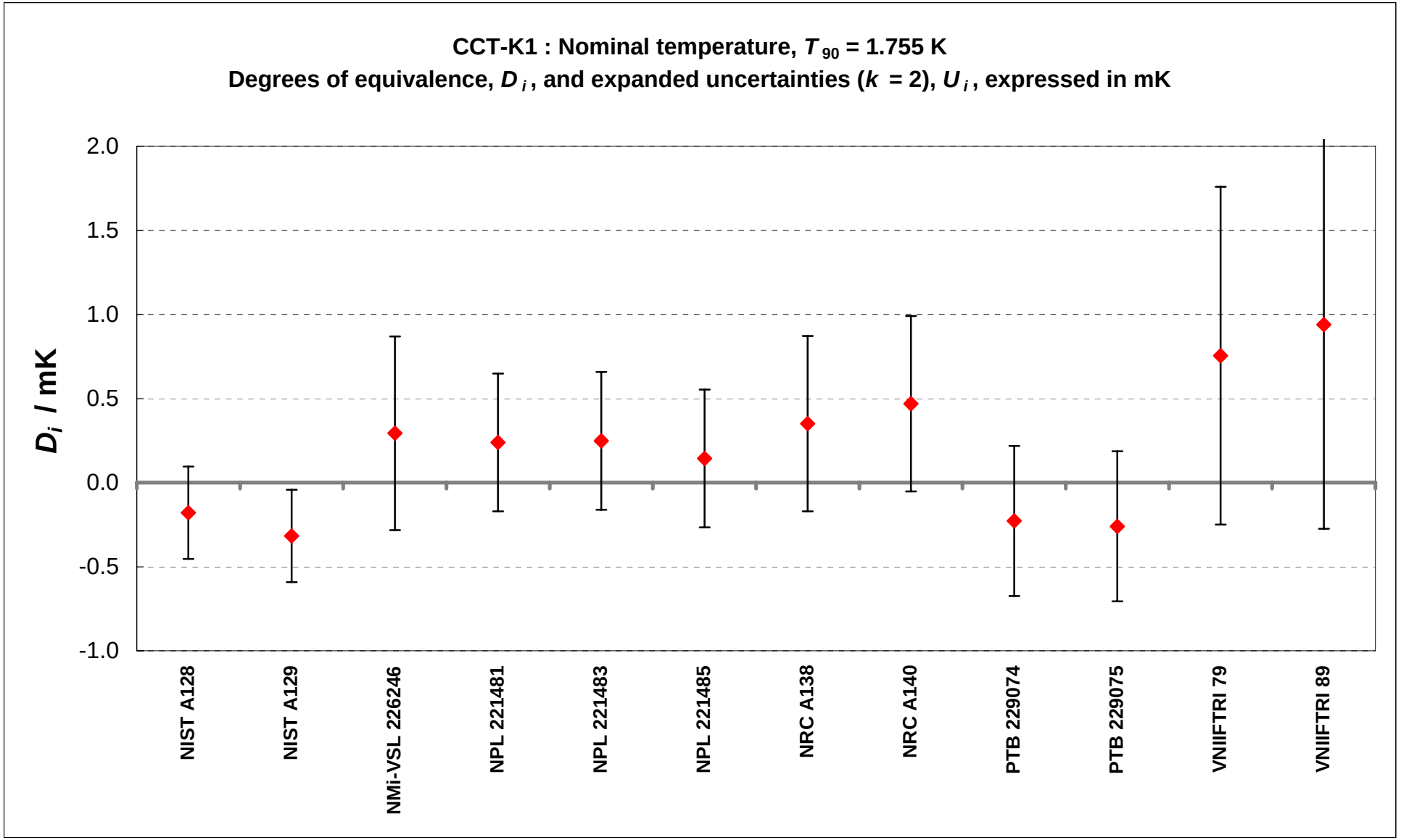
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.179**	0.275			**0.138**	0.388	**-0.473**	0.638	**-0.418**	0.493	**-0.428**	0.493	**-0.322**	0.493
NIST A129	**-0.317**	0.275	**-0.138**	0.388			**-0.611**	0.638	**-0.556**	0.493	**-0.566**	0.493	**-0.460**	0.493
NMi-VSL 226246	**0.294**	0.576	**0.473**	0.638	**0.611**	0.638			**0.055**	0.707	**0.045**	0.707	**0.151**	0.707
NPL 221481	**0.238**	0.410	**0.418**	0.493	**0.556**	0.493	**-0.055**	0.707			**-0.010**	0.579	**0.095**	0.579
NPL 221483	**0.248**	0.410	**0.428**	0.493	**0.566**	0.493	**-0.045**	0.707	**0.010**	0.579			**0.105**	0.579
NPL 221485	**0.143**	0.410	**0.322**	0.493	**0.460**	0.493	**-0.151**	0.707	**-0.095**	0.579	**-0.105**	0.579		
NRC A138	**0.350**	0.522	**0.529**	0.590	**0.668**	0.590	**0.056**	0.777	**0.112**	0.663	**0.102**	0.663	**0.207**	0.663
NRC A140	**0.469**	0.522	**0.649**	0.590	**0.787**	0.590	**0.176**	0.777	**0.231**	0.663	**0.221**	0.663	**0.326**	0.663
PTB 229074	**-0.228**	0.446	**-0.049**	0.524	**0.090**	0.524	**-0.521**	0.729	**-0.466**	0.606	**-0.476**	0.606	**-0.371**	0.606
PTB 229075	**-0.260**	0.446	**-0.081**	0.524	**0.057**	0.524	**-0.554**	0.729	**-0.499**	0.606	**-0.509**	0.606	**-0.403**	0.606
VNIIFTRI 79	**0.755**	1.004	**0.934**	1.041	**1.073**	1.041	**0.461**	1.158	**0.517**	1.085	**0.507**	1.085	**0.612**	1.085
VNIIFTRI 89	**0.939**	1.213	**1.118**	1.243	**1.256**	1.243	**0.645**	1.343	**0.701**	1.280	**0.691**	1.280	**0.796**	1.280

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A138		NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.179**	0.275	**-0.529**	0.590	**-0.649**	0.590	**0.049**	0.524	**0.081**	0.524	**-0.934**	1.041	**-1.118**	1.243
NIST A129	**-0.317**	0.275	**-0.668**	0.590	**-0.787**	0.590	**-0.090**	0.524	**-0.057**	0.524	**-1.073**	1.041	**-1.256**	1.243
NMi-VSL 226246	**0.294**	0.576	**-0.056**	0.777	**-0.176**	0.777	**0.521**	0.729	**0.554**	0.729	**-0.461**	1.158	**-0.645**	1.343
NPL 221481	**0.238**	0.410	**-0.112**	0.663	**-0.231**	0.663	**0.466**	0.606	**0.499**	0.606	**-0.517**	1.085	**-0.701**	1.280
NPL 221483	**0.248**	0.410	**-0.102**	0.663	**-0.221**	0.663	**0.476**	0.606	**0.509**	0.606	**-0.507**	1.085	**-0.691**	1.280
NPL 221485	**0.143**	0.410	**-0.207**	0.663	**-0.326**	0.663	**0.371**	0.606	**0.403**	0.606	**-0.612**	1.085	**-0.796**	1.280
NRC A138	**0.350**	0.522			**-0.119**	0.738	**0.578**	0.686	**0.610**	0.686	**-0.405**	1.132	**-0.589**	1.320
NRC A140	**0.469**	0.522	**0.119**	0.738			**0.697**	0.686	**0.730**	0.686	**-0.286**	1.132	**-0.470**	1.320
PTB 229074	**-0.228**	0.446	**-0.578**	0.686	**-0.697**	0.686			**0.033**	0.631	**-0.983**	1.099	**-1.167**	1.292
PTB 229075	**-0.260**	0.446	**-0.610**	0.686	**-0.730**	0.686	**-0.033**	0.631			**-1.015**	1.099	**-1.199**	1.292
VNIIFTRI 79	**0.755**	1.004	**0.405**	1.132	**0.286**	1.132	**0.983**	1.099	**1.015**	1.099			**-0.184**	1.575
VNIIFTRI 89	**0.939**	1.213	**0.589**	1.320	**0.470**	1.320	**1.167**	1.292	**1.199**	1.292	**0.184**	1.575		


CCT-K1 : Nominal temperature, T_{90} = 1.755 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 1.997 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.127 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	1.996327	0.039
NIST A129	1.996288	0.039
NMi-VSL 226246	1.996820	0.256
NPL 221481	1.996780	0.154
NPL 221483	1.996840	0.154
NPL 221485	1.996757	0.154
NRC A138	1.996922	0.225
NRC A140	1.996943	0.225
PTB 229074	1.996278	0.180
PTB 229075	1.996315	0.180
VNIIFTRI 79	1.997300	0.460
VNIIFTRI 89	1.997462	0.565

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 1.996554 K

Matrix of equivalence

Lab, S/N *j* ⟹

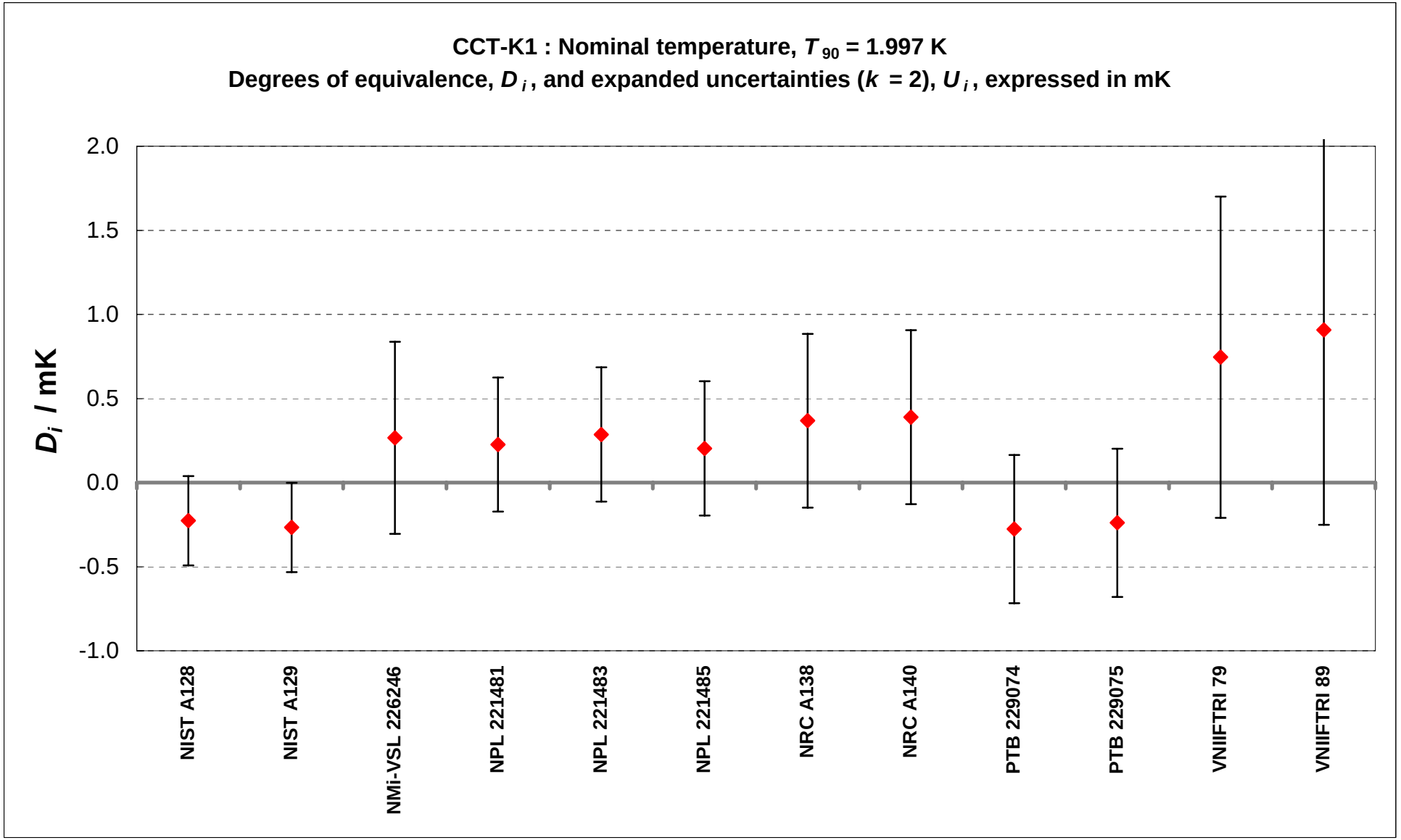
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.227**	0.266			**0.040**	0.376	**-0.493**	0.630	**-0.453**	0.479	**-0.513**	0.479	**-0.430**	0.479
NIST A129	**-0.266**	0.266	**-0.040**	0.376			**-0.532**	0.630	**-0.492**	0.479	**-0.552**	0.479	**-0.470**	0.479
NMi-VSL 226246	**0.266**	0.572	**0.493**	0.630	**0.532**	0.630			**0.040**	0.697	**-0.020**	0.697	**0.063**	0.697
NPL 221481	**0.226**	0.399	**0.453**	0.479	**0.492**	0.479	**-0.040**	0.697			**-0.060**	0.564	**0.023**	0.564
NPL 221483	**0.286**	0.399	**0.513**	0.479	**0.552**	0.479	**0.020**	0.697	**0.060**	0.564			**0.083**	0.564
NPL 221485	**0.203**	0.399	**0.430**	0.479	**0.470**	0.479	**-0.063**	0.697	**-0.023**	0.564	**-0.083**	0.564		
NRC A138	**0.368**	0.517	**0.594**	0.581	**0.634**	0.581	**0.102**	0.771	**0.142**	0.653	**0.082**	0.653	**0.165**	0.653
NRC A140	**0.389**	0.517	**0.615**	0.581	**0.655**	0.581	**0.123**	0.771	**0.163**	0.653	**0.103**	0.653	**0.185**	0.653
PTB 229074	**-0.276**	0.441	**-0.049**	0.515	**-0.010**	0.515	**-0.542**	0.722	**-0.502**	0.594	**-0.562**	0.594	**-0.479**	0.594
PTB 229075	**-0.239**	0.441	**-0.012**	0.515	**0.027**	0.515	**-0.505**	0.722	**-0.465**	0.594	**-0.525**	0.594	**-0.442**	0.594
VNIIFTRI 79	**0.746**	0.955	**0.973**	0.991	**1.012**	0.991	**0.480**	1.113	**0.520**	1.035	**0.460**	1.035	**0.543**	1.035
VNIIFTRI 89	**0.908**	1.159	**1.135**	1.189	**1.174**	1.189	**0.642**	1.292	**0.682**	1.225	**0.622**	1.225	**0.705**	1.225

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A138		NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.227**	0.266	**-0.594**	0.581	**-0.615**	0.581	**0.049**	0.515	**0.012**	0.515	**-0.973**	0.991	**-1.135**	1.189
NIST A129	**-0.266**	0.266	**-0.634**	0.581	**-0.655**	0.581	**0.010**	0.515	**-0.027**	0.515	**-1.012**	0.991	**-1.174**	1.189
NMi-VSL 226246	**0.266**	0.572	**-0.102**	0.771	**-0.123**	0.771	**0.542**	0.722	**0.505**	0.722	**-0.480**	1.113	**-0.642**	1.292
NPL 221481	**0.226**	0.399	**-0.142**	0.653	**-0.163**	0.653	**0.502**	0.594	**0.465**	0.594	**-0.520**	1.035	**-0.682**	1.225
NPL 221483	**0.286**	0.399	**-0.082**	0.653	**-0.103**	0.653	**0.562**	0.594	**0.525**	0.594	**-0.460**	1.035	**-0.622**	1.225
NPL 221485	**0.203**	0.399	**-0.165**	0.653	**-0.185**	0.653	**0.479**	0.594	**0.442**	0.594	**-0.543**	1.035	**-0.705**	1.225
NRC A138	**0.368**	0.517			**-0.021**	0.731	**0.644**	0.679	**0.607**	0.679	**-0.378**	1.086	**-0.540**	1.269
NRC A140	**0.389**	0.517	**0.021**	0.731			**0.665**	0.679	**0.628**	0.679	**-0.357**	1.086	**-0.519**	1.269
PTB 229074	**-0.276**	0.441	**-0.644**	0.679	**-0.665**	0.679			**-0.037**	0.623	**-1.022**	1.052	**-1.184**	1.240
PTB 229075	**-0.239**	0.441	**-0.607**	0.679	**-0.628**	0.679	**0.037**	0.623			**-0.985**	1.052	**-1.147**	1.240
VNIIFTRI 79	**0.746**	0.955	**0.378**	1.086	**0.357**	1.086	**1.022**	1.052	**0.985**	1.052			**-0.162**	1.502
VNIIFTRI 89	**0.908**	1.159	**0.540**	1.269	**0.519**	1.269	**1.184**	1.240	**1.147**	1.240	**0.162**	1.502		


CCT-K1 : Nominal temperature, T_{90} = 1.997 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 2.248 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

u_{comp} = 0.122 mK

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	2.248374	0.039
NIST A129	2.248385	0.039
NMi-VSL 226246	2.248743	0.225
NPL 221481	2.248710	0.150
NPL 221483	2.248750	0.150
NPL 221485	2.248685	0.150
NRC A138	2.248713	0.225
NRC A140	2.248734	0.225
PTB 229074	2.248321	0.180
PTB 229075	2.248306	0.180
VNIIFTRI 79	2.249248	0.435
VNIIFTRI 89	2.249363	0.538
NMIJ B271	2.248277	0.095
NMIJ B310	2.248308	0.094

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 2.248485 K

Matrix of equivalence

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485		NRC A138	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.111**	0.256			**-0.011**	0.363	**-0.368**	0.573	**-0.336**	0.465	**-0.376**	0.465	**-0.311**	0.465	**-0.339**	0.573
NIST A129	**-0.100**	0.256	**0.011**	0.363			**-0.358**	0.573	**-0.325**	0.465	**-0.365**	0.465	**-0.300**	0.465	**-0.328**	0.573
NMi-VSL 226246	**0.258**	0.512	**0.368**	0.573	**0.358**	0.573			**0.033**	0.642	**-0.007**	0.642	**0.057**	0.642	**0.029**	0.724
NPL 221481	**0.225**	0.387	**0.336**	0.465	**0.325**	0.465	**-0.033**	0.642			**-0.040**	0.548	**0.024**	0.548	**-0.003**	0.642
NPL 221483	**0.265**	0.387	**0.376**	0.465	**0.365**	0.465	**0.007**	0.642	**0.040**	0.548			**0.064**	0.548	**0.037**	0.642
NPL 221485	**0.200**	0.387	**0.311**	0.465	**0.300**	0.465	**-0.057**	0.642	**-0.024**	0.548	**-0.064**	0.548			**-0.028**	0.642
NRC A138	**0.228**	0.512	**0.339**	0.573	**0.328**	0.573	**-0.029**	0.724	**0.003**	0.642	**-0.037**	0.642	**0.028**	0.642		
NRC A140	**0.249**	0.512	**0.360**	0.573	**0.349**	0.573	**-0.009**	0.724	**0.024**	0.642	**-0.016**	0.642	**0.049**	0.642	**0.021**	0.724
PTB 229074	**-0.164**	0.435	**-0.053**	0.505	**-0.064**	0.505	**-0.421**	0.672	**-0.388**	0.582	**-0.428**	0.582	**-0.364**	0.582	**-0.392**	0.672
PTB 229075	**-0.179**	0.435	**-0.068**	0.505	**-0.079**	0.505	**-0.437**	0.672	**-0.404**	0.582	**-0.444**	0.582	**-0.380**	0.582	**-0.407**	0.672
VNIIFTRI 79	**0.763**	0.904	**0.873**	0.939	**0.863**	0.939	**0.505**	1.039	**0.538**	0.983	**0.498**	0.983	**0.562**	0.983	**0.534**	1.039
VNIIFTRI 89	**0.878**	1.102	**0.989**	1.132	**0.978**	1.132	**0.621**	1.216	**0.654**	1.169	**0.614**	1.169	**0.678**	1.169	**0.650**	1.216
NMIJ B271	**-0.208**	0.309	**-0.097**	0.402	**-0.108**	0.402	**-0.465**	0.598	**-0.432**	0.496	**-0.472**	0.496	**-0.408**	0.496	**-0.436**	0.598
NMIJ B310	**-0.177**	0.308	**-0.066**	0.401	**-0.077**	0.401	**-0.435**	0.597	**-0.402**	0.495	**-0.442**	0.495	**-0.378**	0.495	**-0.405**	0.597

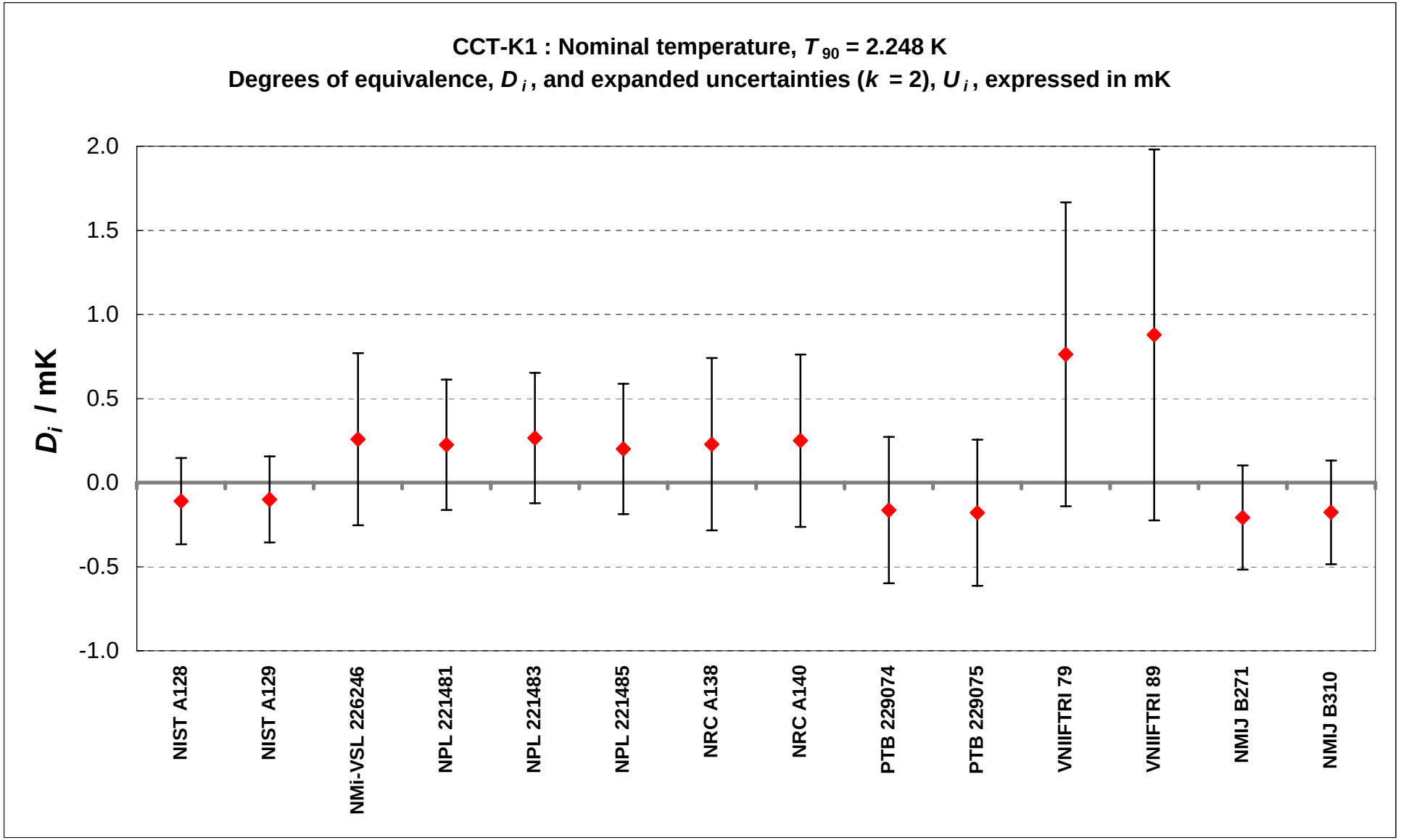
MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 2.248485 K

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89		NMIJ B271		NMIJ B310	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.111**	0.256	**-0.360**	0.573	**0.053**	0.505	**0.068**	0.505	**-0.873**	0.939	**-0.989**	1.132	**0.097**	0.402	**0.066**	0.401
NIST A129	**-0.100**	0.256	**-0.349**	0.573	**0.064**	0.505	**0.079**	0.505	**-0.863**	0.939	**-0.978**	1.132	**0.108**	0.402	**0.077**	0.401
NMi-VSL 226246	**0.258**	0.512	**0.009**	0.724	**0.421**	0.672	**0.437**	0.672	**-0.505**	1.039	**-0.621**	1.216	**0.465**	0.598	**0.435**	0.597
NPL 221481	**0.225**	0.387	**-0.024**	0.642	**0.388**	0.582	**0.404**	0.582	**-0.538**	0.983	**-0.654**	1.169	**0.432**	0.496	**0.402**	0.495
NPL 221483	**0.265**	0.387	**0.016**	0.642	**0.428**	0.582	**0.444**	0.582	**-0.498**	0.983	**-0.614**	1.169	**0.472**	0.496	**0.442**	0.495
NPL 221485	**0.200**	0.387	**-0.049**	0.642	**0.364**	0.582	**0.380**	0.582	**-0.562**	0.983	**-0.678**	1.169	**0.408**	0.496	**0.378**	0.495
NRC A138	**0.228**	0.512	**-0.021**	0.724	**0.392**	0.672	**0.407**	0.672	**-0.534**	1.039	**-0.650**	1.216	**0.436**	0.598	**0.405**	0.597
NRC A140	**0.249**	0.512			**0.413**	0.672	**0.428**	0.672	**-0.514**	1.039	**-0.629**	1.216	**0.457**	0.598	**0.426**	0.597
PTB 229074	**-0.164**	0.435	**-0.413**	0.672			**0.016**	0.615	**-0.926**	1.003	**-1.042**	1.185	**0.044**	0.534	**0.014**	0.533
PTB 229075	**-0.179**	0.435	**-0.428**	0.672	**-0.016**	0.615			**-0.942**	1.003	**-1.058**	1.185	**0.028**	0.534	**-0.002**	0.533
VNIIFTRI 79	**0.763**	0.904	**0.514**	1.039	**0.926**	1.003	**0.942**	1.003			**-0.116**	1.426	**0.970**	0.955	**0.940**	0.955
VNIIFTRI 89	**0.878**	1.102	**0.629**	1.216	**1.042**	1.185	**1.058**	1.185	**0.116**	1.426			**1.086**	1.145	**1.056**	1.145
NMIJ B271	**-0.208**	0.309	**-0.457**	0.598	**-0.044**	0.534	**-0.028**	0.534	**-0.970**	0.955	**-1.086**	1.145			**-0.030**	0.436
NMIJ B310	**-0.177**	0.308	**-0.426**	0.597	**-0.014**	0.533	**0.002**	0.533	**-0.940**	0.955	**-1.056**	1.145	**0.030**	0.436		


CCT-K1 : Nominal temperature, T_{90} = 2.248 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89
NMIJ B271
NMIJ B310

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 2.601 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.115 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	2.600642	0.040
NIST A129	2.600648	0.040
NMi-VSL 226246	2.600862	0.181
NPL 221481	2.600827	0.146
NPL 221483	2.600842	0.146
NPL 221485	2.600863	0.146
NRC A138	2.600854	0.225
NRC A140	2.600896	0.225
PTB 229074	2.600646	0.180
PTB 229075	2.600798	0.180
VNIIFTRI 79	2.601411	0.406
VNIIFTRI 89	2.601495	0.498
NMIJ B271	2.600793	0.084
NMIJ B310	2.600816	0.082

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 2.600776 K

Matrix of equivalence

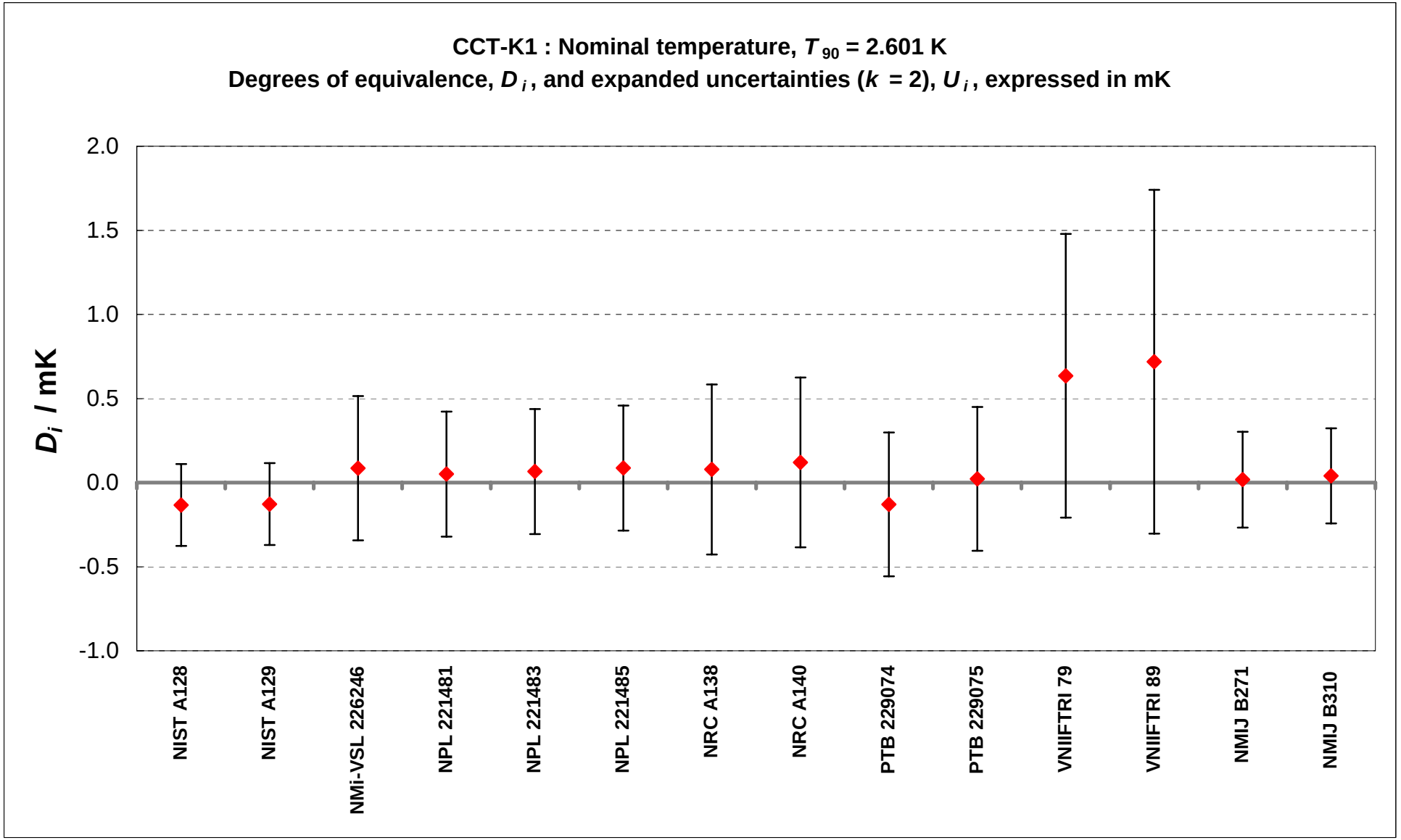
Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485		NRC A138	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.134**	0.243			**-0.006**	0.344	**-0.219**	0.493	**-0.184**	0.444	**-0.199**	0.444	**-0.220**	0.444	**-0.212**	0.561
NIST A129	**-0.128**	0.243	**0.006**	0.344			**-0.214**	0.493	**-0.179**	0.444	**-0.194**	0.444	**-0.215**	0.444	**-0.206**	0.561
NMi-VSL 226246	**0.086**	0.429	**0.219**	0.493	**0.214**	0.493			**0.035**	0.567	**0.020**	0.567	**-0.001**	0.567	**0.008**	0.663
NPL 221481	**0.051**	0.372	**0.184**	0.444	**0.179**	0.444	**-0.035**	0.567			**-0.015**	0.526	**-0.036**	0.526	**-0.028**	0.627
NPL 221483	**0.066**	0.372	**0.199**	0.444	**0.194**	0.444	**-0.020**	0.567	**0.015**	0.526			**-0.021**	0.526	**-0.013**	0.627
NPL 221485	**0.087**	0.372	**0.220**	0.444	**0.215**	0.444	**0.001**	0.567	**0.036**	0.526	**0.021**	0.526			**0.009**	0.627
NRC A138	**0.078**	0.505	**0.212**	0.561	**0.206**	0.561	**-0.008**	0.663	**0.028**	0.627	**0.013**	0.627	**-0.009**	0.627		
NRC A140	**0.120**	0.505	**0.253**	0.561	**0.248**	0.561	**0.034**	0.663	**0.069**	0.627	**0.054**	0.627	**0.033**	0.627	**0.042**	0.715
PTB 229074	**-0.130**	0.427	**0.004**	0.492	**-0.002**	0.492	**-0.215**	0.605	**-0.180**	0.566	**-0.195**	0.566	**-0.216**	0.566	**-0.208**	0.662
PTB 229075	**0.022**	0.427	**0.155**	0.492	**0.150**	0.492	**-0.064**	0.605	**-0.029**	0.566	**-0.044**	0.566	**-0.065**	0.566	**-0.056**	0.662
VNIIFTRI 79	**0.635**	0.844	**0.769**	0.878	**0.763**	0.878	**0.549**	0.947	**0.584**	0.922	**0.569**	0.922	**0.548**	0.922	**0.557**	0.984
VNIIFTRI 89	**0.719**	1.022	**0.852**	1.050	**0.846**	1.050	**0.633**	1.108	**0.668**	1.087	**0.653**	1.087	**0.632**	1.087	**0.640**	1.140
NMIJ B271	**0.017**	0.285	**0.151**	0.375	**0.145**	0.375	**-0.068**	0.515	**-0.033**	0.468	**-0.048**	0.468	**-0.069**	0.468	**-0.061**	0.580
NMIJ B310	**0.040**	0.282	**0.174**	0.373	**0.168**	0.373	**-0.046**	0.513	**-0.011**	0.467	**-0.026**	0.467	**-0.047**	0.467	**-0.038**	0.579

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89		NMIJ B271		NMIJ B310	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.134**	0.243	**-0.253**	0.561	**-0.004**	0.492	**-0.155**	0.492	**-0.769**	0.878	**-0.852**	1.050	**-0.151**	0.375	**-0.174**	0.373
NIST A129	**-0.128**	0.243	**-0.248**	0.561	**0.002**	0.492	**-0.150**	0.492	**-0.763**	0.878	**-0.846**	1.050	**-0.145**	0.375	**-0.168**	0.373
NMi-VSL 226246	**0.086**	0.429	**-0.034**	0.663	**0.215**	0.605	**0.064**	0.605	**-0.549**	0.947	**-0.633**	1.108	**0.068**	0.515	**0.046**	0.513
NPL 221481	**0.051**	0.372	**-0.069**	0.627	**0.180**	0.566	**0.029**	0.566	**-0.584**	0.922	**-0.668**	1.087	**0.033**	0.468	**0.011**	0.467
NPL 221483	**0.066**	0.372	**-0.054**	0.627	**0.195**	0.566	**0.044**	0.566	**-0.569**	0.922	**-0.653**	1.087	**0.048**	0.468	**0.026**	0.467
NPL 221485	**0.087**	0.372	**-0.033**	0.627	**0.216**	0.566	**0.065**	0.566	**-0.548**	0.922	**-0.632**	1.087	**0.069**	0.468	**0.047**	0.467
NRC A138	**0.078**	0.505	**-0.042**	0.715	**0.208**	0.662	**0.056**	0.662	**-0.557**	0.984	**-0.640**	1.140	**0.061**	0.580	**0.038**	0.579
NRC A140	**0.120**	0.505			**0.250**	0.662	**0.098**	0.662	**-0.515**	0.984	**-0.599**	1.140	**0.103**	0.580	**0.080**	0.579
PTB 229074	**-0.130**	0.427	**-0.250**	0.662			**-0.152**	0.604	**-0.765**	0.946	**-0.848**	1.108	**-0.147**	0.513	**-0.170**	0.512
PTB 229075	**0.022**	0.427	**-0.098**	0.662	**0.152**	0.604			**-0.613**	0.946	**-0.697**	1.108	**0.005**	0.513	**-0.018**	0.512
VNIIFTRI 79	**0.635**	0.844	**0.515**	0.984	**0.765**	0.946	**0.613**	0.946			**-0.084**	1.325	**0.618**	0.891	**0.595**	0.890
VNIIFTRI 89	**0.719**	1.022	**0.599**	1.140	**0.848**	1.108	**0.697**	1.108	**0.084**	1.325			**0.701**	1.061	**0.679**	1.060
NMIJ B271	**0.017**	0.285	**-0.103**	0.580	**0.147**	0.513	**-0.005**	0.513	**-0.618**	0.891	**-0.701**	1.061			**-0.023**	0.401
NMIJ B310	**0.040**	0.282	**-0.080**	0.579	**0.170**	0.512	**0.018**	0.512	**-0.595**	0.890	**-0.679**	1.060	**0.023**	0.401		


CCT-K1 : Nominal temperature, T_{90} = 2.601 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89
NMIJ B271
NMIJ B310

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 2.700 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.115 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	2.699899	0.040
NIST A129	2.699752	0.040
NMi-VSL 226246	2.700027	0.169
NPL 221481	2.699890	0.147
NPL 221483	2.699940	0.147
NPL 221485	2.699849	0.147
NRC A138	2.699987	0.225
NRC A140	2.700099	0.225
PTB 229074	2.699794	0.180
PTB 229075	2.699936	0.180
VNIIFTRI 79	2.700463	0.402
VNIIFTRI 89	2.700602	0.486
NMIJ B271	2.699928	0.085
NMIJ B310	2.699939	0.082

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 2.699911 K

Matrix of equivalence

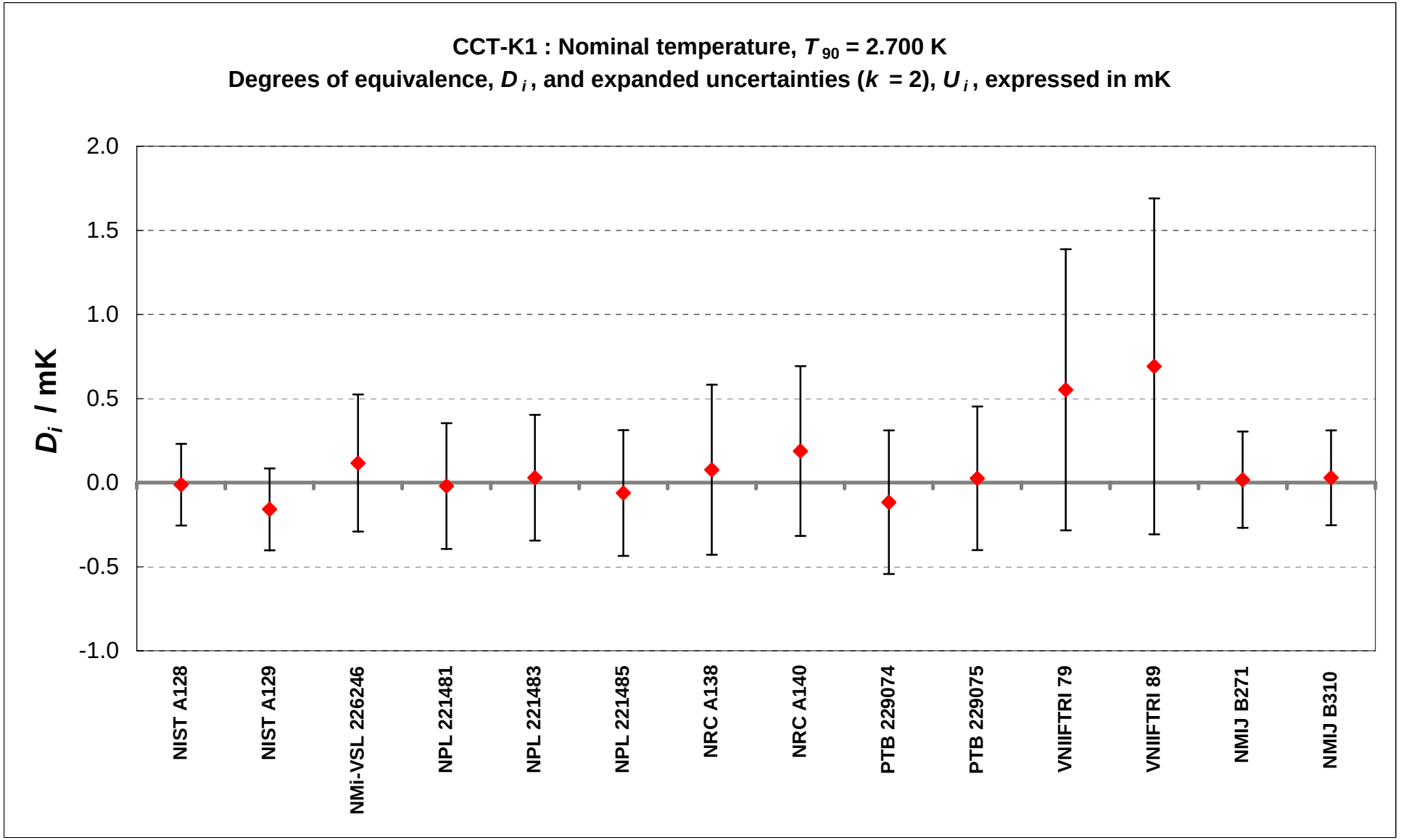
Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485		NRC A138	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.012**	0.243			**0.147**	0.344	**-0.129**	0.475	**0.008**	0.446	**-0.042**	0.446	**0.049**	0.446	**-0.089**	0.561
NIST A129	**-0.159**	0.243	**-0.147**	0.344			**-0.275**	0.475	**-0.138**	0.446	**-0.188**	0.446	**-0.097**	0.446	**-0.236**	0.561
NMi-VSL 226246	**0.116**	0.408	**0.129**	0.475	**0.275**	0.475			**0.137**	0.553	**0.087**	0.553	**0.178**	0.553	**0.040**	0.649
NPL 221481	**-0.021**	0.373	**-0.008**	0.446	**0.138**	0.446	**-0.137**	0.553			**-0.050**	0.528	**0.041**	0.528	**-0.097**	0.628
NPL 221483	**0.029**	0.373	**0.042**	0.446	**0.188**	0.446	**-0.087**	0.553	**0.050**	0.528			**0.091**	0.528	**-0.047**	0.628
NPL 221485	**-0.062**	0.373	**-0.049**	0.446	**0.097**	0.446	**-0.178**	0.553	**-0.041**	0.528	**-0.091**	0.528			**-0.138**	0.628
NRC A138	**0.076**	0.505	**0.089**	0.561	**0.236**	0.561	**-0.040**	0.649	**0.097**	0.628	**0.047**	0.628	**0.138**	0.628		
NRC A140	**0.188**	0.505	**0.200**	0.561	**0.347**	0.561	**0.072**	0.649	**0.209**	0.628	**0.159**	0.628	**0.250**	0.628	**0.111**	0.714
PTB 229074	**-0.117**	0.427	**-0.104**	0.491	**0.042**	0.491	**-0.233**	0.590	**-0.096**	0.567	**-0.146**	0.567	**-0.055**	0.567	**-0.193**	0.661
PTB 229075	**0.025**	0.427	**0.038**	0.491	**0.184**	0.491	**-0.091**	0.590	**0.046**	0.567	**-0.004**	0.567	**0.087**	0.567	**-0.051**	0.661
VNIIFTRI 79	**0.552**	0.836	**0.564**	0.871	**0.711**	0.871	**0.436**	0.930	**0.573**	0.916	**0.523**	0.916	**0.614**	0.916	**0.476**	0.977
VNIIFTRI 89	**0.691**	0.999	**0.704**	1.028	**0.851**	1.028	**0.575**	1.079	**0.712**	1.066	**0.662**	1.066	**0.753**	1.066	**0.615**	1.119
NMIJ B271	**0.017**	0.286	**0.030**	0.375	**0.176**	0.375	**-0.099**	0.498	**0.038**	0.470	**-0.012**	0.470	**0.079**	0.470	**-0.059**	0.580
NMIJ B310	**0.028**	0.282	**0.041**	0.372	**0.188**	0.372	**-0.088**	0.496	**0.049**	0.468	**-0.001**	0.468	**0.090**	0.468	**-0.048**	0.579

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89		NMIJ B271		NMIJ B310	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.012**	0.243	**-0.200**	0.561	**0.104**	0.491	**-0.038**	0.491	**-0.564**	0.871	**-0.704**	1.028	**-0.030**	0.375	**-0.041**	0.372
NIST A129	**-0.159**	0.243	**-0.347**	0.561	**-0.042**	0.491	**-0.184**	0.491	**-0.711**	0.871	**-0.851**	1.028	**-0.176**	0.375	**-0.188**	0.372
NMi-VSL 226246	**0.116**	0.408	**-0.072**	0.649	**0.233**	0.590	**0.091**	0.590	**-0.436**	0.930	**-0.575**	1.079	**0.099**	0.498	**0.088**	0.496
NPL 221481	**-0.021**	0.373	**-0.209**	0.628	**0.096**	0.567	**-0.046**	0.567	**-0.573**	0.916	**-0.712**	1.066	**-0.038**	0.470	**-0.049**	0.468
NPL 221483	**0.029**	0.373	**-0.159**	0.628	**0.146**	0.567	**0.004**	0.567	**-0.523**	0.916	**-0.662**	1.066	**0.012**	0.470	**0.001**	0.468
NPL 221485	**-0.062**	0.373	**-0.250**	0.628	**0.055**	0.567	**-0.087**	0.567	**-0.614**	0.916	**-0.753**	1.066	**-0.079**	0.470	**-0.090**	0.468
NRC A138	**0.076**	0.505	**-0.111**	0.714	**0.193**	0.661	**0.051**	0.661	**-0.476**	0.977	**-0.615**	1.119	**0.059**	0.580	**0.048**	0.579
NRC A140	**0.188**	0.505			**0.305**	0.661	**0.162**	0.661	**-0.364**	0.977	**-0.504**	1.119	**0.171**	0.580	**0.159**	0.579
PTB 229074	**-0.117**	0.427	**-0.305**	0.661			**-0.142**	0.604	**-0.669**	0.939	**-0.808**	1.086	**-0.134**	0.514	**-0.145**	0.512
PTB 229075	**0.025**	0.427	**-0.162**	0.661	**0.142**	0.604			**-0.527**	0.939	**-0.666**	1.086	**0.008**	0.514	**-0.003**	0.512
VNIIFTRI 79	**0.552**	0.836	**0.364**	0.977	**0.669**	0.939	**0.527**	0.939			**-0.139**	1.302	**0.535**	0.884	**0.524**	0.882
VNIIFTRI 89	**0.691**	0.999	**0.504**	1.119	**0.808**	1.086	**0.666**	1.086	**0.139**	1.302			**0.674**	1.039	**0.663**	1.038
NMIJ B271	**0.017**	0.286	**-0.171**	0.580	**0.134**	0.514	**-0.008**	0.514	**-0.535**	0.884	**-0.674**	1.039			**-0.011**	0.401
NMIJ B310	**0.028**	0.282	**-0.159**	0.579	**0.145**	0.512	**0.003**	0.512	**-0.524**	0.882	**-0.663**	1.038	**0.011**	0.401		


CCT-K1 : Nominal temperature, T_{90} = 2.700 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89
NMIJ B271
NMIJ B310

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 2.897 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.114 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	2.896679	0.040
NIST A129	2.896544	0.040
NMi-VSL 226246	2.896816	0.144
NPL 221481	2.896790	0.150
NPL 221483	2.896800	0.150
NPL 221485	2.896663	0.150
NRC A138	2.896787	0.225
NRC A140	2.896897	0.225
PTB 229074	2.896512	0.180
PTB 229075	2.896793	0.180
VNIIFTRI 79	2.897272	0.394
VNIIFTRI 89	2.897367	0.462
NMIJ B271	2.896750	0.081
NMIJ B310	2.896850	0.084

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 2.896733 K

Matrix of equivalence

Lab, S/N *j* ⟹

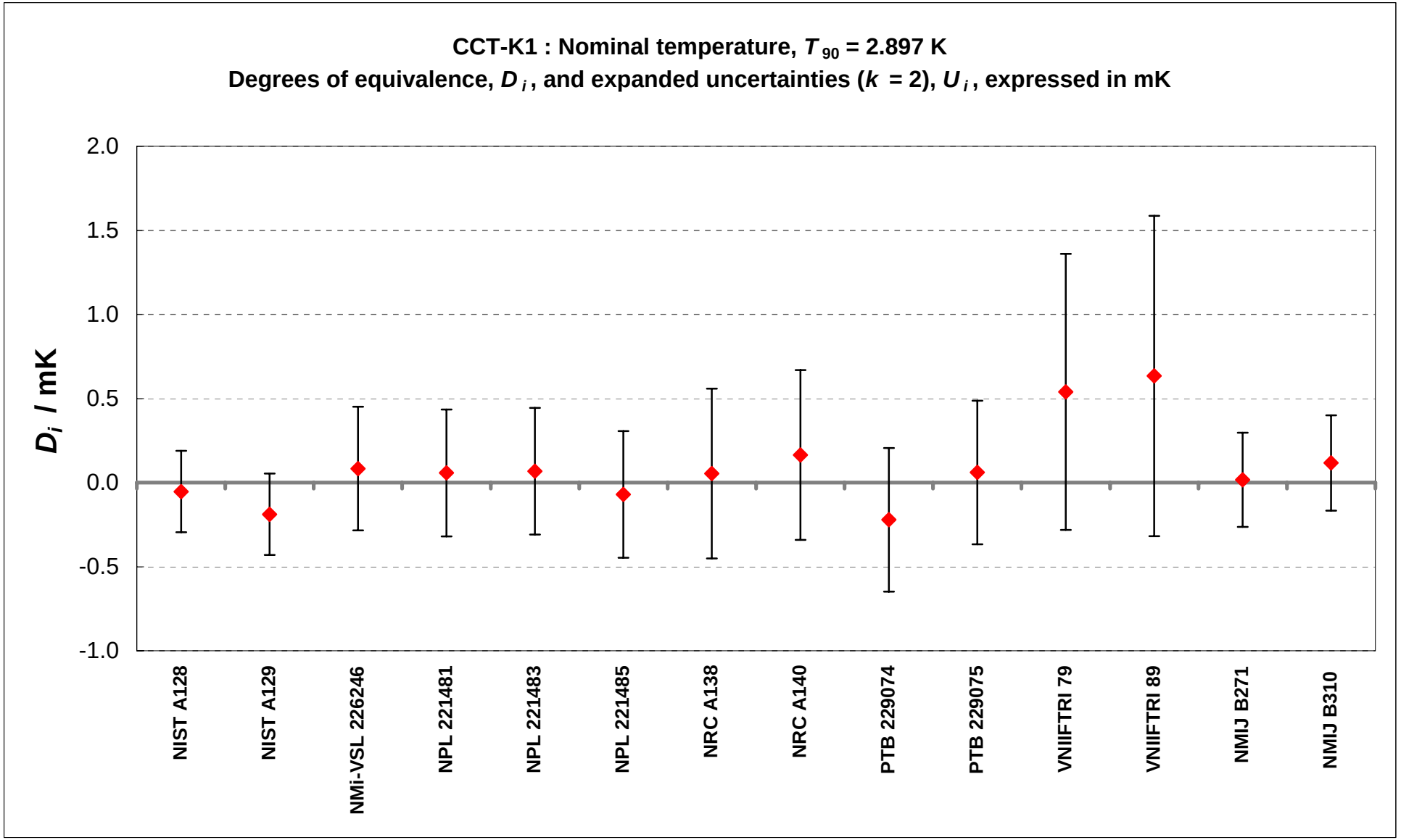
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485		NRC A138	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.054**	0.242			**0.135**	0.343	**-0.136**	0.440	**-0.111**	0.448	**-0.121**	0.448	**0.017**	0.448	**-0.108**	0.560
NIST A129	**-0.189**	0.242	**-0.135**	0.343			**-0.272**	0.440	**-0.246**	0.448	**-0.256**	0.448	**-0.118**	0.448	**-0.243**	0.560
NMi-VSL 226246	**0.083**	0.368	**0.136**	0.440	**0.272**	0.440			**0.026**	0.526	**0.016**	0.526	**0.153**	0.526	**0.029**	0.624
NPL 221481	**0.057**	0.377	**0.111**	0.448	**0.246**	0.448	**-0.026**	0.526			**-0.010**	0.533	**0.128**	0.533	**0.003**	0.630
NPL 221483	**0.067**	0.377	**0.121**	0.448	**0.256**	0.448	**-0.016**	0.526	**0.010**	0.533			**0.138**	0.533	**0.013**	0.630
NPL 221485	**-0.070**	0.377	**-0.017**	0.448	**0.118**	0.448	**-0.153**	0.526	**-0.128**	0.533	**-0.138**	0.533			**-0.125**	0.630
NRC A138	**0.054**	0.505	**0.108**	0.560	**0.243**	0.560	**-0.029**	0.624	**-0.003**	0.630	**-0.013**	0.630	**0.125**	0.630		
NRC A140	**0.164**	0.505	**0.218**	0.560	**0.353**	0.560	**0.081**	0.624	**0.107**	0.630	**0.097**	0.630	**0.235**	0.630	**0.110**	0.714
PTB 229074	**-0.221**	0.426	**-0.168**	0.490	**-0.033**	0.490	**-0.304**	0.563	**-0.279**	0.569	**-0.289**	0.569	**-0.151**	0.569	**-0.275**	0.661
PTB 229075	**0.060**	0.426	**0.114**	0.490	**0.249**	0.490	**-0.023**	0.563	**0.003**	0.569	**-0.007**	0.569	**0.131**	0.569	**0.006**	0.661
VNIIFTRI 79	**0.539**	0.821	**0.593**	0.856	**0.728**	0.856	**0.457**	0.899	**0.482**	0.903	**0.472**	0.903	**0.610**	0.903	**0.485**	0.963
VNIIFTRI 89	**0.634**	0.952	**0.687**	0.983	**0.823**	0.983	**0.551**	1.021	**0.577**	1.024	**0.567**	1.024	**0.704**	1.024	**0.580**	1.078
NMIJ B271	**0.017**	0.280	**0.070**	0.370	**0.205**	0.370	**-0.066**	0.462	**-0.041**	0.470	**-0.051**	0.470	**0.087**	0.470	**-0.038**	0.577
NMIJ B310	**0.117**	0.284	**0.170**	0.373	**0.305**	0.373	**0.034**	0.464	**0.059**	0.472	**0.049**	0.472	**0.187**	0.472	**0.062**	0.579

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89		NMIJ B271		NMIJ B310	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.054**	0.242	**-0.218**	0.560	**0.168**	0.490	**-0.114**	0.490	**-0.593**	0.856	**-0.687**	0.983	**-0.070**	0.370	**-0.170**	0.373
NIST A129	**-0.189**	0.242	**-0.353**	0.560	**0.033**	0.490	**-0.249**	0.490	**-0.728**	0.856	**-0.823**	0.983	**-0.205**	0.370	**-0.305**	0.373
NMi-VSL 226246	**0.083**	0.368	**-0.081**	0.624	**0.304**	0.563	**0.023**	0.563	**-0.457**	0.899	**-0.551**	1.021	**0.066**	0.462	**-0.034**	0.464
NPL 221481	**0.057**	0.377	**-0.107**	0.630	**0.279**	0.569	**-0.003**	0.569	**-0.482**	0.903	**-0.577**	1.024	**0.041**	0.470	**-0.059**	0.472
NPL 221483	**0.067**	0.377	**-0.097**	0.630	**0.289**	0.569	**0.007**	0.569	**-0.472**	0.903	**-0.567**	1.024	**0.051**	0.470	**-0.049**	0.472
NPL 221485	**-0.070**	0.377	**-0.235**	0.630	**0.151**	0.569	**-0.131**	0.569	**-0.610**	0.903	**-0.704**	1.024	**-0.087**	0.470	**-0.187**	0.472
NRC A138	**0.054**	0.505	**-0.110**	0.714	**0.275**	0.661	**-0.006**	0.661	**-0.485**	0.963	**-0.580**	1.078	**0.038**	0.577	**-0.062**	0.579
NRC A140	**0.164**	0.505			**0.385**	0.661	**0.104**	0.661	**-0.375**	0.963	**-0.470**	1.078	**0.148**	0.577	**0.047**	0.579
PTB 229074	**-0.221**	0.426	**-0.385**	0.661			**-0.281**	0.603	**-0.761**	0.925	**-0.855**	1.044	**-0.238**	0.510	**-0.338**	0.512
PTB 229075	**0.060**	0.426	**-0.104**	0.661	**0.281**	0.603			**-0.479**	0.925	**-0.574**	1.044	**0.043**	0.510	**-0.057**	0.512
VNIIFTRI 79	**0.539**	0.821	**0.375**	0.963	**0.761**	0.925	**0.479**	0.925			**-0.094**	1.257	**0.523**	0.867	**0.423**	0.868
VNIIFTRI 89	**0.634**	0.952	**0.470**	1.078	**0.855**	1.044	**0.574**	1.044	**0.094**	1.257			**0.617**	0.993	**0.517**	0.994
NMIJ B271	**0.017**	0.280	**-0.148**	0.577	**0.238**	0.510	**-0.043**	0.510	**-0.523**	0.867	**-0.617**	0.993			**-0.100**	0.399
NMIJ B310	**0.117**	0.284	**-0.047**	0.579	**0.338**	0.512	**0.057**	0.512	**-0.423**	0.868	**-0.517**	0.994	**0.100**	0.399		


CCT-K1 : Nominal temperature, T_{90} = 2.897 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89
NMIJ B271
NMIJ B310

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 2.997 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.114 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	2.996572	0.041
NIST A129	2.996576	0.041
NMi-VSL 226246	2.996750	0.131
NPL 221481	2.996710	0.151
NPL 221485	2.996632	0.151
NRC A138	2.996624	0.225
NRC A140	2.996781	0.225
PTB 229074	2.996582	0.180
PTB 229075	2.996720	0.180
NMIJ B271	2.996679	0.082
NMIJ B310	2.996688	0.080

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 2.996648 K

Matrix of equivalence

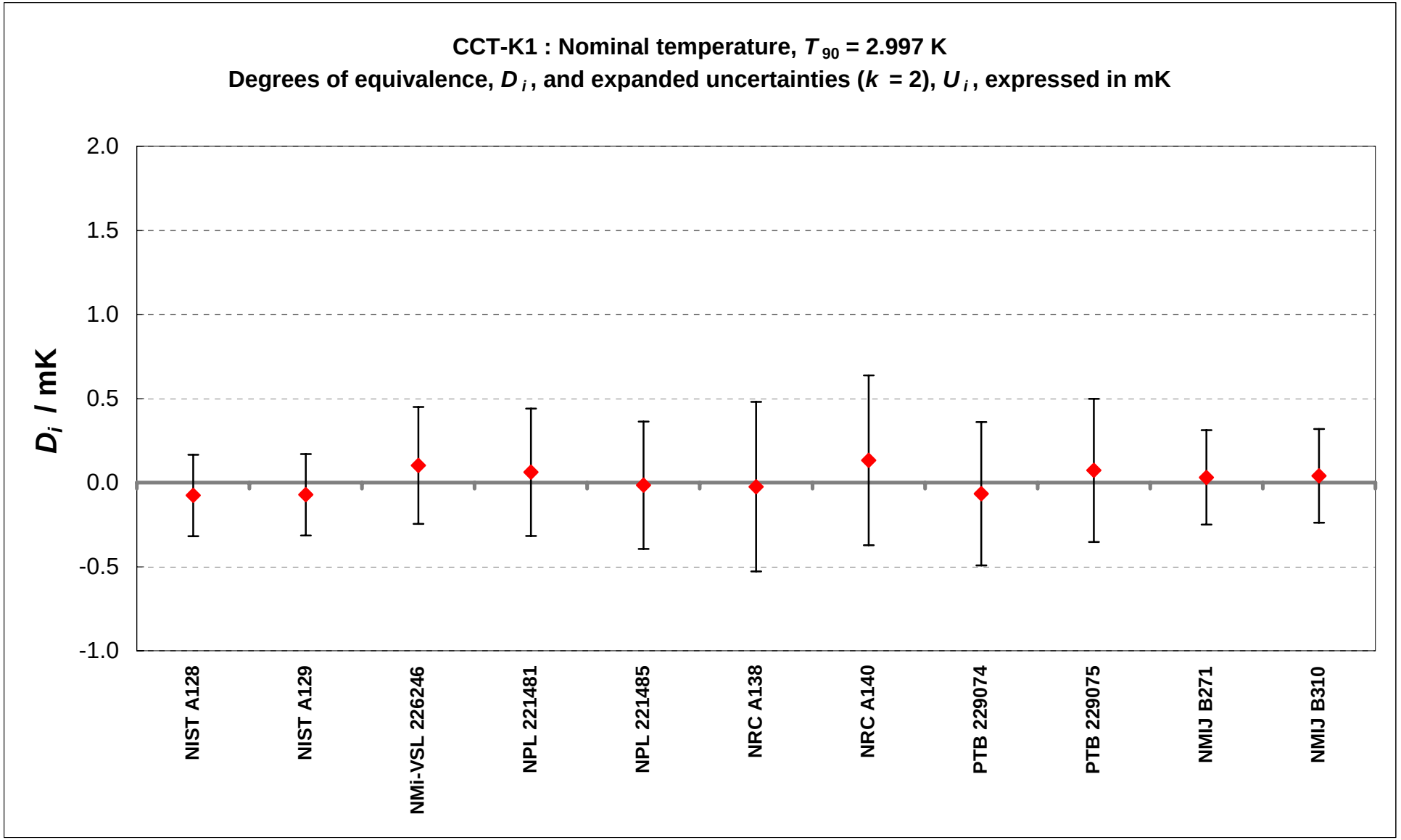
Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221485		NRC A138	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.076**	0.242			**-0.004**	0.343	**-0.178**	0.423	**-0.138**	0.450	**-0.061**	0.450	**-0.052**	0.560
NIST A129	**-0.072**	0.242	**0.004**	0.343			**-0.174**	0.423	**-0.134**	0.450	**-0.057**	0.450	**-0.048**	0.560
NMi-VSL 226246	**0.102**	0.347	**0.178**	0.423	**0.174**	0.423			**0.040**	0.514	**0.118**	0.514	**0.126**	0.612
NPL 221481	**0.062**	0.379	**0.138**	0.450	**0.134**	0.450	**-0.040**	0.514			**0.077**	0.536	**0.086**	0.631
NPL 221485	**-0.016**	0.379	**0.061**	0.450	**0.057**	0.450	**-0.118**	0.514	**-0.077**	0.536			**0.009**	0.631
NRC A138	**-0.024**	0.504	**0.052**	0.560	**0.048**	0.560	**-0.126**	0.612	**-0.086**	0.631	**-0.009**	0.631		
NRC A140	**0.133**	0.504	**0.209**	0.560	**0.205**	0.560	**0.031**	0.612	**0.071**	0.631	**0.148**	0.631	**0.157**	0.713
PTB 229074	**-0.066**	0.426	**0.010**	0.490	**0.007**	0.490	**-0.168**	0.550	**-0.127**	0.570	**-0.050**	0.570	**-0.042**	0.660
PTB 229075	**0.072**	0.426	**0.149**	0.490	**0.145**	0.490	**-0.030**	0.550	**0.011**	0.570	**0.088**	0.570	**0.097**	0.660
NMIJ B271	**0.031**	0.281	**0.107**	0.371	**0.103**	0.371	**-0.071**	0.447	**-0.031**	0.472	**0.046**	0.472	**0.055**	0.577
NMIJ B310	**0.040**	0.279	**0.116**	0.369	**0.112**	0.369	**-0.062**	0.445	**-0.022**	0.470	**0.055**	0.470	**0.064**	0.576

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NRC A140		PTB 229074		PTB 229075		NMIJ B271		NMIJ B310	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.076**	0.242	**-0.209**	0.560	**-0.010**	0.490	**-0.149**	0.490	**-0.107**	0.371	**-0.116**	0.369
NIST A129	**-0.072**	0.242	**-0.205**	0.560	**-0.007**	0.490	**-0.145**	0.490	**-0.103**	0.371	**-0.112**	0.369
NMi-VSL 226246	**0.102**	0.347	**-0.031**	0.612	**0.168**	0.550	**0.030**	0.550	**0.071**	0.447	**0.062**	0.445
NPL 221481	**0.062**	0.379	**-0.071**	0.631	**0.127**	0.570	**-0.011**	0.570	**0.031**	0.472	**0.022**	0.470
NPL 221485	**-0.016**	0.379	**-0.148**	0.631	**0.050**	0.570	**-0.088**	0.570	**-0.046**	0.472	**-0.055**	0.470
NRC A138	**-0.024**	0.504	**-0.157**	0.713	**0.042**	0.660	**-0.097**	0.660	**-0.055**	0.577	**-0.064**	0.576
NRC A140	**0.133**	0.504			**0.198**	0.660	**0.060**	0.660	**0.102**	0.577	**0.093**	0.576
PTB 229074	**-0.066**	0.426	**-0.198**	0.660			**-0.138**	0.603	**-0.097**	0.510	**-0.106**	0.509
PTB 229075	**0.072**	0.426	**-0.060**	0.660	**0.138**	0.603			**0.042**	0.510	**0.033**	0.509
NMIJ B271	**0.031**	0.281	**-0.102**	0.577	**0.097**	0.510	**-0.042**	0.510			**-0.009**	0.396
NMIJ B310	**0.040**	0.279	**-0.093**	0.576	**0.106**	0.509	**-0.033**	0.509	**0.009**	0.396		


CCT-K1 : Nominal temperature, T_{90} = 2.997 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
NMIJ B271
NMIJ B310

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 3.099 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.114 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	3.099314	0.041
NIST A129	3.099213	0.041
NMi-VSL 226246	3.099533	0.130
NPL 221481	3.099520	0.153
NPL 221483	3.099480	0.153
NPL 221485	3.099376	0.153
NRC A138	3.099336	0.225
NRC A140	3.099494	0.225
PTB 229074	3.099343	0.180
PTB 229075	3.099502	0.180
VNIIFTRI 79	3.099793	0.392
VNIIFTRI 89	3.099869	0.451
NMIJ B271	3.099409	0.082
NMIJ B310	3.099440	0.080

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 3.099398 K

Matrix of equivalence

Lab, S/N *j* ⟹

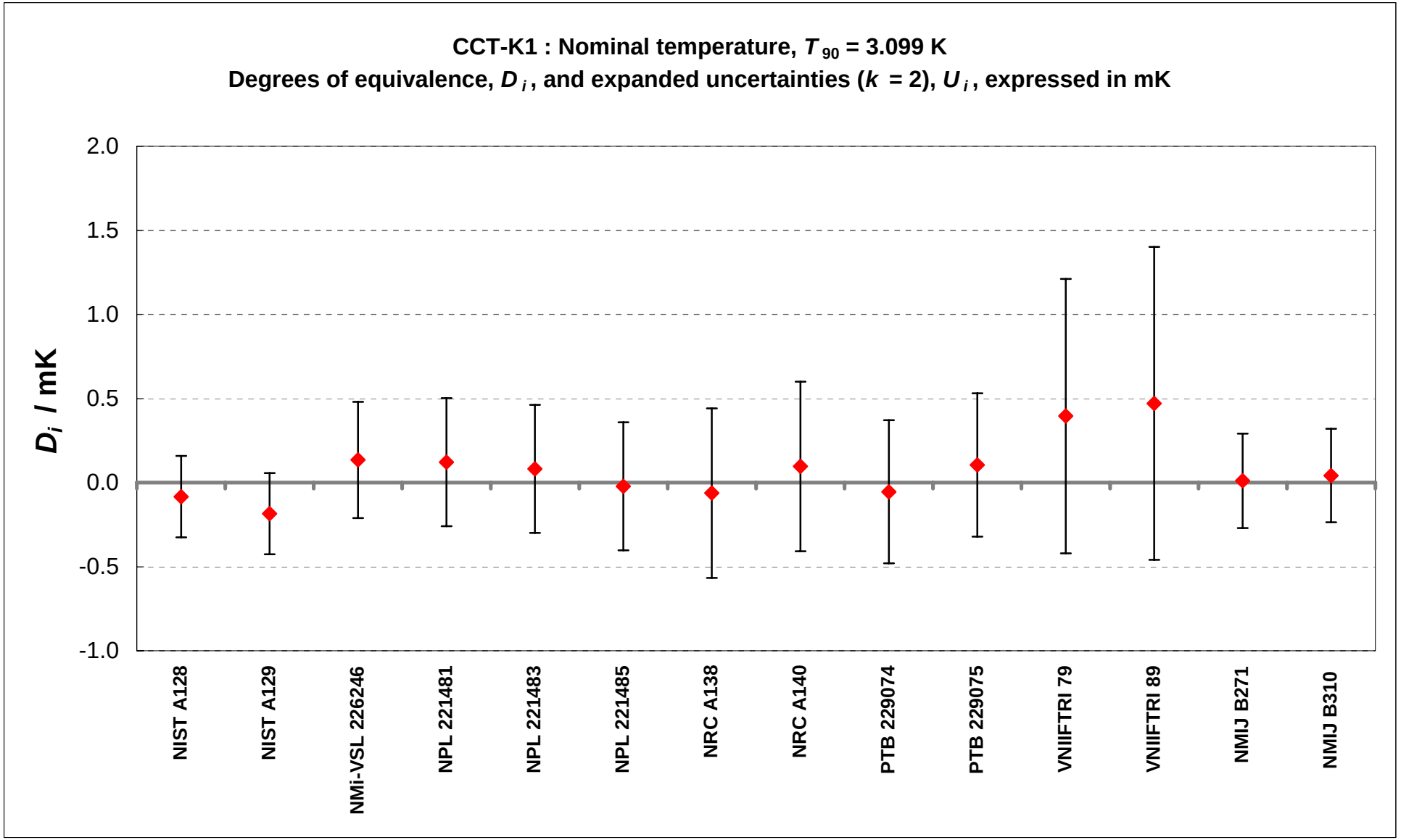
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485		NRC A138	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.084**	0.242			**0.101**	0.342	**-0.218**	0.422	**-0.205**	0.451	**-0.165**	0.451	**-0.062**	0.451	**-0.021**	0.559
NIST A129	**-0.185**	0.242	**-0.101**	0.342			**-0.320**	0.422	**-0.307**	0.451	**-0.267**	0.451	**-0.163**	0.451	**-0.123**	0.559
NMi-VSL 226246	**0.135**	0.346	**0.218**	0.422	**0.320**	0.422			**0.013**	0.514	**0.053**	0.514	**0.157**	0.514	**0.197**	0.611
NPL 221481	**0.122**	0.381	**0.205**	0.451	**0.307**	0.451	**-0.013**	0.514			**0.040**	0.538	**0.144**	0.538	**0.184**	0.632
NPL 221483	**0.082**	0.381	**0.165**	0.451	**0.267**	0.451	**-0.053**	0.514	**-0.040**	0.538			**0.104**	0.538	**0.144**	0.632
NPL 221485	**-0.022**	0.381	**0.062**	0.451	**0.163**	0.451	**-0.157**	0.514	**-0.144**	0.538	**-0.104**	0.538			**0.040**	0.632
NRC A138	**-0.062**	0.504	**0.021**	0.559	**0.123**	0.559	**-0.197**	0.611	**-0.184**	0.632	**-0.144**	0.632	**-0.040**	0.632		
NRC A140	**0.096**	0.504	**0.180**	0.559	**0.281**	0.559	**-0.038**	0.611	**-0.026**	0.632	**0.014**	0.632	**0.118**	0.632	**0.158**	0.713
PTB 229074	**-0.055**	0.426	**0.029**	0.490	**0.130**	0.490	**-0.189**	0.548	**-0.176**	0.571	**-0.136**	0.571	**-0.032**	0.571	**0.008**	0.660
PTB 229075	**0.104**	0.426	**0.188**	0.490	**0.289**	0.490	**-0.030**	0.548	**-0.017**	0.571	**0.023**	0.571	**0.127**	0.571	**0.167**	0.660
VNIIFTRI 79	**0.395**	0.816	**0.479**	0.851	**0.580**	0.851	**0.261**	0.886	**0.274**	0.900	**0.314**	0.900	**0.417**	0.900	**0.458**	0.959
VNIIFTRI 89	**0.471**	0.931	**0.555**	0.962	**0.656**	0.962	**0.336**	0.993	**0.349**	1.005	**0.389**	1.005	**0.493**	1.005	**0.533**	1.058
NMIJ B271	**0.011**	0.280	**0.095**	0.370	**0.196**	0.370	**-0.124**	0.445	**-0.111**	0.473	**-0.071**	0.473	**0.033**	0.473	**0.073**	0.577
NMIJ B310	**0.042**	0.278	**0.125**	0.369	**0.227**	0.369	**-0.093**	0.444	**-0.080**	0.471	**-0.040**	0.471	**0.064**	0.471	**0.104**	0.576

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89		NMIJ B271		NMIJ B310	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.084**	0.242	**-0.180**	0.559	**-0.029**	0.490	**-0.188**	0.490	**-0.479**	0.851	**-0.555**	0.962	**-0.095**	0.370	**-0.125**	0.369
NIST A129	**-0.185**	0.242	**-0.281**	0.559	**-0.130**	0.490	**-0.289**	0.490	**-0.580**	0.851	**-0.656**	0.962	**-0.196**	0.370	**-0.227**	0.369
NMi-VSL 226246	**0.135**	0.346	**0.038**	0.611	**0.189**	0.548	**0.030**	0.548	**-0.261**	0.886	**-0.336**	0.993	**0.124**	0.445	**0.093**	0.444
NPL 221481	**0.122**	0.381	**0.026**	0.632	**0.176**	0.571	**0.017**	0.571	**-0.274**	0.900	**-0.349**	1.005	**0.111**	0.473	**0.080**	0.471
NPL 221483	**0.082**	0.381	**-0.014**	0.632	**0.136**	0.571	**-0.023**	0.571	**-0.314**	0.900	**-0.389**	1.005	**0.071**	0.473	**0.040**	0.471
NPL 221485	**-0.022**	0.381	**-0.118**	0.632	**0.032**	0.571	**-0.127**	0.571	**-0.417**	0.900	**-0.493**	1.005	**-0.033**	0.473	**-0.064**	0.471
NRC A138	**-0.062**	0.504	**-0.158**	0.713	**-0.008**	0.660	**-0.167**	0.660	**-0.458**	0.959	**-0.533**	1.058	**-0.073**	0.577	**-0.104**	0.576
NRC A140	**0.096**	0.504			**0.151**	0.660	**-0.008**	0.660	**-0.299**	0.959	**-0.375**	1.058	**0.085**	0.577	**0.055**	0.576
PTB 229074	**-0.055**	0.426	**-0.151**	0.660			**-0.159**	0.602	**-0.450**	0.920	**-0.525**	1.023	**-0.065**	0.510	**-0.096**	0.509
PTB 229075	**0.104**	0.426	**0.008**	0.660	**0.159**	0.602			**-0.291**	0.920	**-0.366**	1.023	**0.094**	0.510	**0.063**	0.509
VNIIFTRI 79	**0.395**	0.816	**0.299**	0.959	**0.450**	0.920	**0.291**	0.920			**-0.076**	1.237	**0.384**	0.862	**0.354**	0.862
VNIIFTRI 89	**0.471**	0.931	**0.375**	1.058	**0.525**	1.023	**0.366**	1.023	**0.076**	1.237			**0.460**	0.972	**0.429**	0.971
NMIJ B271	**0.011**	0.280	**-0.085**	0.577	**0.065**	0.510	**-0.094**	0.510	**-0.384**	0.862	**-0.460**	0.972			**-0.031**	0.395
NMIJ B310	**0.042**	0.278	**-0.055**	0.576	**0.096**	0.509	**-0.063**	0.509	**-0.354**	0.862	**-0.429**	0.971	**0.031**	0.395		


CCT-K1 : Nominal temperature, T_{90} = 3.099 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89
NMIJ B271
NMIJ B310

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 3.400 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.113 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	3.400154	0.042
NIST A129	3.400049	0.042
NMi-VSL 226246	3.400396	0.127
NPL 221481	3.400390	0.157
NPL 221483	3.400290	0.157
NPL 221485	3.400242	0.157
NRC A138	3.400163	0.225
NRC A140	3.400390	0.225
PTB 229074	3.400225	0.180
PTB 229075	3.400352	0.180
VNIIFTRI 79	3.400410	0.396
VNIIFTRI 89	3.400480	0.455
NMIJ B271	3.400259	0.082
NMIJ B310	3.400234	0.081

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 3.400235 K

Matrix of equivalence

Lab, S/N *j* ⟹

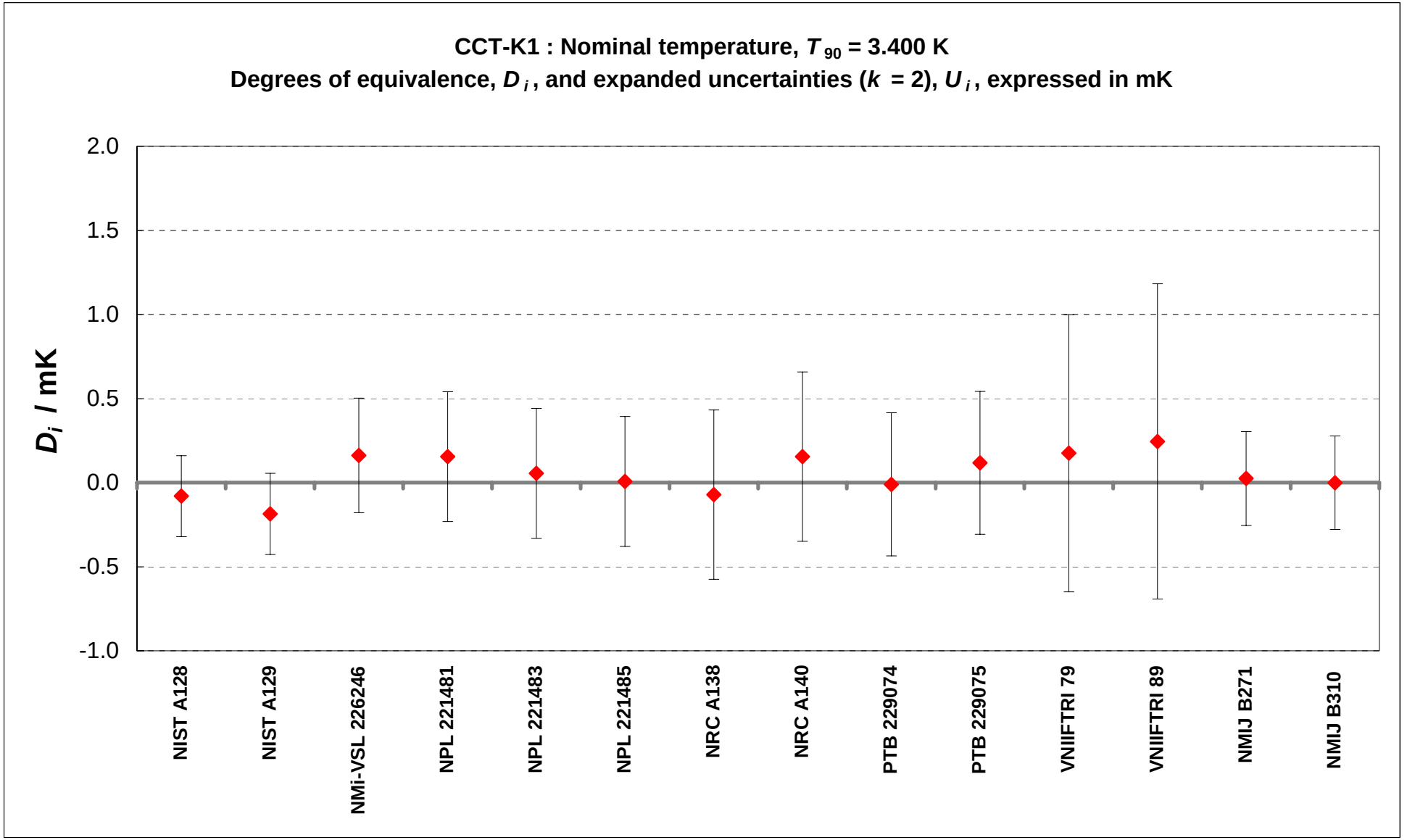
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485		NRC A138	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.081**	0.241			**0.106**	0.341	**-0.242**	0.417	**-0.235**	0.455	**-0.135**	0.455	**-0.088**	0.455	**-0.009**	0.558
NIST A129	**-0.186**	0.241	**-0.106**	0.341			**-0.348**	0.417	**-0.341**	0.455	**-0.241**	0.455	**-0.193**	0.455	**-0.114**	0.558
NMi-VSL 226246	**0.161**	0.341	**0.242**	0.417	**0.348**	0.417			**0.007**	0.515	**0.107**	0.515	**0.154**	0.515	**0.233**	0.608
NPL 221481	**0.155**	0.386	**0.235**	0.455	**0.341**	0.455	**-0.007**	0.515			**0.100**	0.546	**0.148**	0.546	**0.227**	0.635
NPL 221483	**0.055**	0.386	**0.135**	0.455	**0.241**	0.455	**-0.107**	0.515	**-0.100**	0.546			**0.048**	0.546	**0.127**	0.635
NPL 221485	**0.007**	0.386	**0.088**	0.455	**0.193**	0.455	**-0.154**	0.515	**-0.148**	0.546	**-0.048**	0.546			**0.079**	0.635
NRC A138	**-0.072**	0.504	**0.009**	0.558	**0.114**	0.558	**-0.233**	0.608	**-0.227**	0.635	**-0.127**	0.635	**-0.079**	0.635		
NRC A140	**0.155**	0.504	**0.236**	0.558	**0.341**	0.558	**-0.006**	0.608	**0.000**	0.635	**0.100**	0.635	**0.148**	0.635	**0.227**	0.712
PTB 229074	**-0.010**	0.425	**0.070**	0.489	**0.176**	0.489	**-0.172**	0.545	**-0.165**	0.574	**-0.065**	0.574	**-0.017**	0.574	**0.062**	0.659
PTB 229075	**0.117**	0.425	**0.198**	0.489	**0.304**	0.489	**-0.044**	0.545	**-0.037**	0.574	**0.063**	0.574	**0.110**	0.574	**0.189**	0.659
VNIIFTRI 79	**0.175**	0.824	**0.255**	0.859	**0.361**	0.859	**0.013**	0.892	**0.020**	0.910	**0.120**	0.910	**0.168**	0.910	**0.247**	0.966
VNIIFTRI 89	**0.245**	0.937	**0.325**	0.968	**0.431**	0.968	**0.083**	0.997	**0.090**	1.014	**0.190**	1.014	**0.237**	1.014	**0.316**	1.064
NMIJ B271	**0.024**	0.279	**0.105**	0.369	**0.211**	0.369	**-0.137**	0.440	**-0.130**	0.476	**-0.030**	0.476	**0.017**	0.476	**0.096**	0.576
NMIJ B310	**-0.001**	0.278	**0.080**	0.368	**0.186**	0.368	**-0.162**	0.440	**-0.156**	0.476	**-0.056**	0.476	**-0.008**	0.476	**0.071**	0.575

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89		NMIJ B271		NMIJ B310	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.081**	0.241	**-0.236**	0.558	**-0.070**	0.489	**-0.198**	0.489	**-0.255**	0.859	**-0.325**	0.968	**-0.105**	0.369	**-0.080**	0.368
NIST A129	**-0.186**	0.241	**-0.341**	0.558	**-0.176**	0.489	**-0.304**	0.489	**-0.361**	0.859	**-0.431**	0.968	**-0.211**	0.369	**-0.186**	0.368
NMi-VSL 226246	**0.161**	0.341	**0.006**	0.608	**0.172**	0.545	**0.044**	0.545	**-0.013**	0.892	**-0.083**	0.997	**0.137**	0.440	**0.162**	0.440
NPL 221481	**0.155**	0.386	**0.000**	0.635	**0.165**	0.574	**0.037**	0.574	**-0.020**	0.910	**-0.090**	1.014	**0.130**	0.476	**0.156**	0.476
NPL 221483	**0.055**	0.386	**-0.100**	0.635	**0.065**	0.574	**-0.063**	0.574	**-0.120**	0.910	**-0.190**	1.014	**0.030**	0.476	**0.056**	0.476
NPL 221485	**0.007**	0.386	**-0.148**	0.635	**0.017**	0.574	**-0.110**	0.574	**-0.168**	0.910	**-0.237**	1.014	**-0.017**	0.476	**0.008**	0.476
NRC A138	**-0.072**	0.504	**-0.227**	0.712	**-0.062**	0.659	**-0.189**	0.659	**-0.247**	0.966	**-0.316**	1.064	**-0.096**	0.576	**-0.071**	0.575
NRC A140	**0.155**	0.504			**0.165**	0.659	**0.038**	0.659	**-0.020**	0.966	**-0.089**	1.064	**0.131**	0.576	**0.156**	0.575
PTB 229074	**-0.010**	0.425	**-0.165**	0.659			**-0.128**	0.601	**-0.185**	0.927	**-0.255**	1.029	**-0.035**	0.509	**-0.009**	0.508
PTB 229075	**0.117**	0.425	**-0.038**	0.659	**0.128**	0.601			**-0.058**	0.927	**-0.127**	1.029	**0.093**	0.509	**0.118**	0.508
VNIIFTRI 79	**0.175**	0.824	**0.020**	0.966	**0.185**	0.927	**0.058**	0.927			**-0.070**	1.248	**0.150**	0.870	**0.176**	0.870
VNIIFTRI 89	**0.245**	0.937	**0.089**	1.064	**0.255**	1.029	**0.127**	1.029	**0.070**	1.248			**0.220**	0.978	**0.245**	0.978
NMIJ B271	**0.024**	0.279	**-0.131**	0.576	**0.035**	0.509	**-0.093**	0.509	**-0.150**	0.870	**-0.220**	0.978			**0.025**	0.394
NMIJ B310	**-0.001**	0.278	**-0.156**	0.575	**0.009**	0.508	**-0.118**	0.508	**-0.176**	0.870	**-0.245**	0.978	**-0.025**	0.394		


CCT-K1 : Nominal temperature, T_{90} = 3.400 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89
NMIJ B271
NMIJ B310

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 3.429 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.113 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	3.429195	0.042
NIST A129	3.429129	0.042
NMi-VSL 226246	3.429411	0.127
NPL 221481	3.429460	0.157
NPL 221485	3.429250	0.157
NRC A138	3.429182	0.225
NRC A140	3.429382	0.225
PTB 229074	3.429166	0.180
PTB 229075	3.429333	0.180
NMIJ B271	3.429255	0.082
NMIJ B310	3.429244	0.081

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 3.429250 K

Matrix of equivalence

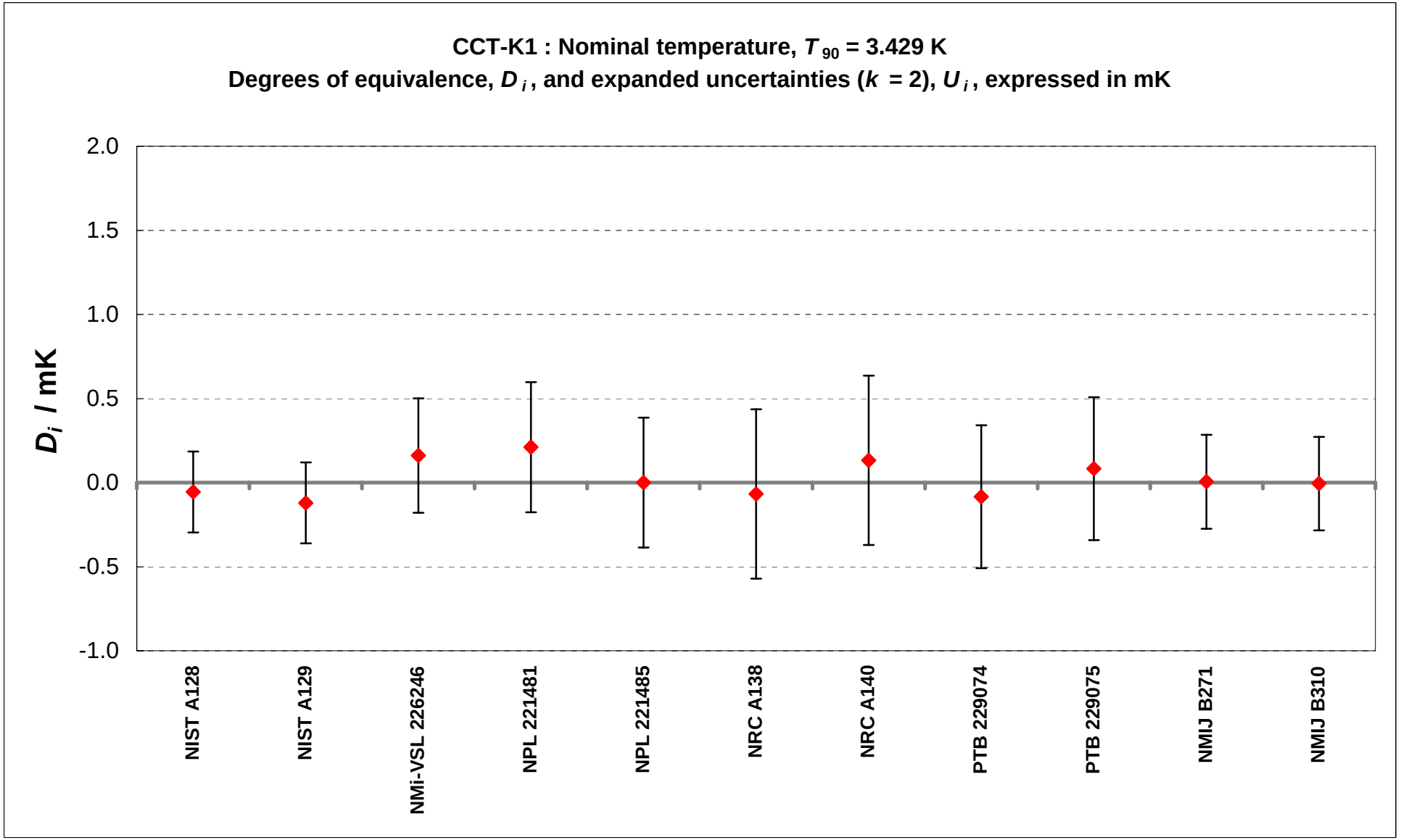
Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221485		NRC A138	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.055**	0.241			**0.066**	0.340	**-0.217**	0.417	**-0.266**	0.455	**-0.055**	0.455	**0.013**	0.558
NIST A129	**-0.121**	0.241	**-0.066**	0.340			**-0.282**	0.417	**-0.331**	0.455	**-0.121**	0.455	**-0.053**	0.558
NMi-VSL 226246	**0.161**	0.340	**0.217**	0.417	**0.282**	0.417			**-0.049**	0.515	**0.161**	0.515	**0.229**	0.608
NPL 221481	**0.210**	0.387	**0.266**	0.455	**0.331**	0.455	**0.049**	0.515			**0.210**	0.547	**0.279**	0.635
NPL 221485	**0.000**	0.387	**0.055**	0.455	**0.121**	0.455	**-0.161**	0.515	**-0.210**	0.547			**0.068**	0.635
NRC A138	**-0.068**	0.503	**-0.013**	0.558	**0.053**	0.558	**-0.229**	0.608	**-0.279**	0.635	**-0.068**	0.635		
NRC A140	**0.132**	0.503	**0.187**	0.558	**0.253**	0.558	**-0.029**	0.608	**-0.078**	0.635	**0.132**	0.635	**0.200**	0.712
PTB 229074	**-0.084**	0.425	**-0.029**	0.488	**0.037**	0.488	**-0.245**	0.544	**-0.294**	0.575	**-0.084**	0.575	**-0.016**	0.659
PTB 229075	**0.083**	0.425	**0.138**	0.488	**0.204**	0.488	**-0.078**	0.544	**-0.127**	0.575	**0.083**	0.575	**0.151**	0.659
NMIJ B271	**0.005**	0.279	**0.060**	0.369	**0.126**	0.369	**-0.156**	0.440	**-0.205**	0.477	**0.005**	0.477	**0.073**	0.576
NMIJ B310	**-0.006**	0.278	**0.050**	0.368	**0.115**	0.368	**-0.167**	0.439	**-0.216**	0.476	**-0.006**	0.476	**0.062**	0.575

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NRC A140		PTB 229074		PTB 229075		NMIJ B271		NMIJ B310	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.055**	0.241	**-0.187**	0.558	**0.029**	0.488	**-0.138**	0.488	**-0.060**	0.369	**-0.050**	0.368
NIST A129	**-0.121**	0.241	**-0.253**	0.558	**-0.037**	0.488	**-0.204**	0.488	**-0.126**	0.369	**-0.115**	0.368
NMi-VSL 226246	**0.161**	0.340	**0.029**	0.608	**0.245**	0.544	**0.078**	0.544	**0.156**	0.440	**0.167**	0.439
NPL 221481	**0.210**	0.387	**0.078**	0.635	**0.294**	0.575	**0.127**	0.575	**0.205**	0.477	**0.216**	0.476
NPL 221485	**0.000**	0.387	**-0.132**	0.635	**0.084**	0.575	**-0.083**	0.575	**-0.005**	0.477	**0.006**	0.476
NRC A138	**-0.068**	0.503	**-0.200**	0.712	**0.016**	0.659	**-0.151**	0.659	**-0.073**	0.576	**-0.062**	0.575
NRC A140	**0.132**	0.503			**0.216**	0.659	**0.049**	0.659	**0.127**	0.576	**0.138**	0.575
PTB 229074	**-0.084**	0.425	**-0.216**	0.659			**-0.167**	0.601	**-0.089**	0.508	**-0.078**	0.508
PTB 229075	**0.083**	0.425	**-0.049**	0.659	**0.167**	0.601			**0.078**	0.508	**0.089**	0.508
NMIJ B271	**0.005**	0.279	**-0.127**	0.576	**0.089**	0.508	**-0.078**	0.508			**0.011**	0.394
NMIJ B310	**-0.006**	0.278	**-0.138**	0.575	**0.078**	0.508	**-0.089**	0.508	**-0.011**	0.394		


CCT-K1 : Nominal temperature, T_{90} = 3.429 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
NMIJ B271
NMIJ B310

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 3.801 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.112 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	3.800754	0.042
NIST A129	3.800731	0.042
NMi-VSL 226246	3.801097	0.124
NPL 221481	3.801025	0.162
NPL 221483	3.800935	0.162
NPL 221485	3.800972	0.162
NRC A138	3.800894	0.225
NRC A140	3.800958	0.225
PTB 229074	3.800798	0.180
PTB 229075	3.801003	0.180
VNIIFTRI 79	3.801008	0.403
VNIIFTRI 89	3.801137	0.460
NMIJ B271	3.800962	0.085
NMIJ B310	3.800991	0.084

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 3.800903 K

Matrix of equivalence

Lab, S/N *j* ⟹

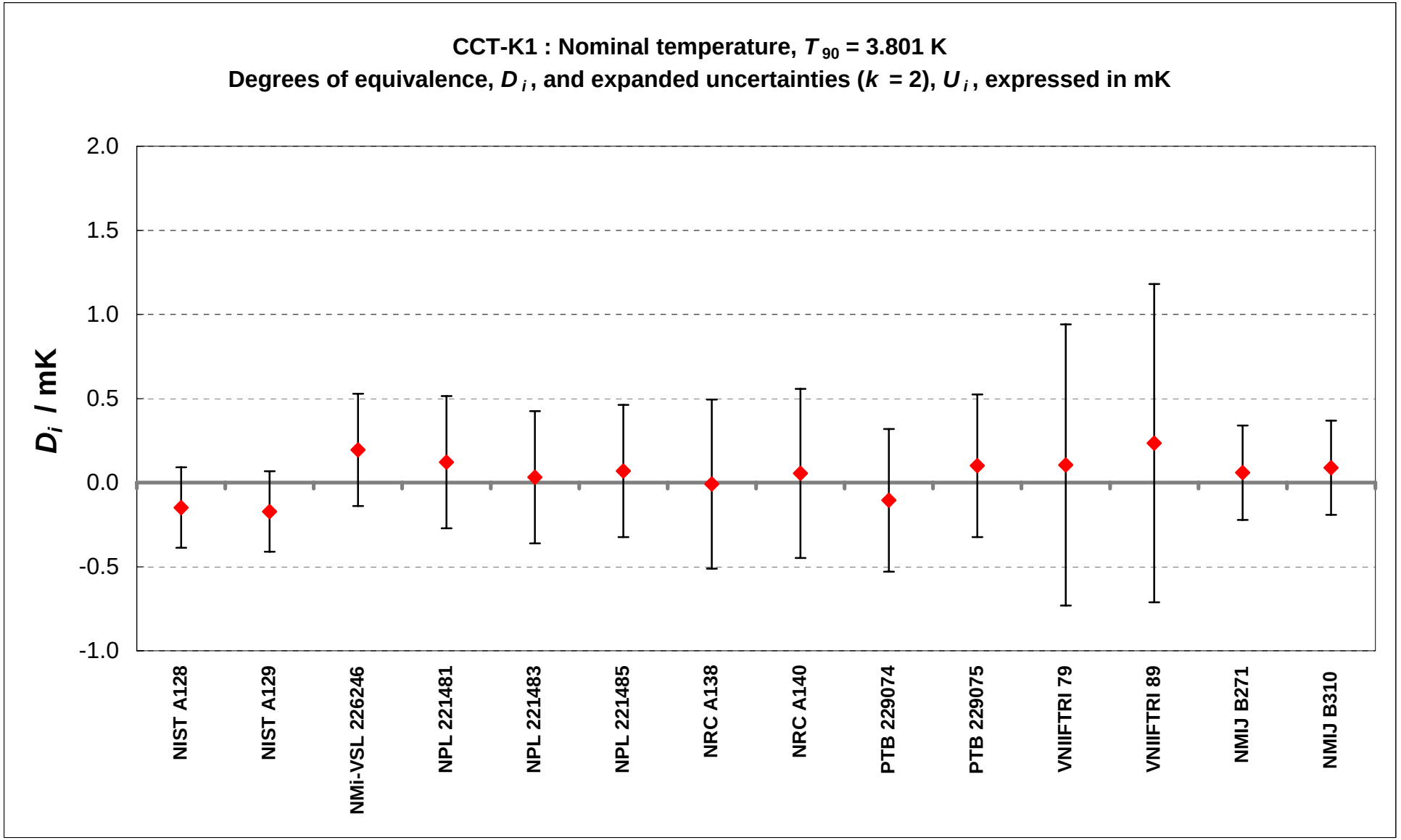
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485		NRC A138	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.149**	0.239			**0.023**	0.338	**-0.343**	0.411	**-0.270**	0.460	**-0.180**	0.460	**-0.218**	0.460	**-0.140**	0.557
NIST A129	**-0.172**	0.239	**-0.023**	0.338			**-0.366**	0.411	**-0.294**	0.460	**-0.204**	0.460	**-0.241**	0.460	**-0.163**	0.557
NMi-VSL 226246	**0.194**	0.334	**0.343**	0.411	**0.366**	0.411			**0.073**	0.516	**0.163**	0.516	**0.125**	0.516	**0.203**	0.603
NPL 221481	**0.122**	0.394	**0.270**	0.460	**0.294**	0.460	**-0.073**	0.516			**0.090**	0.556	**0.053**	0.556	**0.130**	0.638
NPL 221483	**0.032**	0.394	**0.180**	0.460	**0.204**	0.460	**-0.163**	0.516	**-0.090**	0.556			**-0.037**	0.556	**0.040**	0.638
NPL 221485	**0.069**	0.394	**0.218**	0.460	**0.241**	0.460	**-0.125**	0.516	**-0.053**	0.556	**0.037**	0.556			**0.078**	0.638
NRC A138	**-0.009**	0.503	**0.140**	0.557	**0.163**	0.557	**-0.203**	0.603	**-0.130**	0.638	**-0.040**	0.638	**-0.078**	0.638		
NRC A140	**0.055**	0.503	**0.204**	0.557	**0.227**	0.557	**-0.139**	0.603	**-0.067**	0.638	**0.023**	0.638	**-0.014**	0.638	**0.064**	0.711
PTB 229074	**-0.105**	0.424	**0.043**	0.487	**0.067**	0.487	**-0.299**	0.540	**-0.227**	0.578	**-0.137**	0.578	**-0.174**	0.578	**-0.096**	0.658
PTB 229075	**0.100**	0.424	**0.249**	0.487	**0.272**	0.487	**-0.094**	0.540	**-0.021**	0.578	**0.069**	0.578	**0.032**	0.578	**0.109**	0.658
VNIIFTRI 79	**0.105**	0.836	**0.253**	0.869	**0.276**	0.869	**-0.090**	0.900	**-0.017**	0.924	**0.073**	0.924	**0.036**	0.924	**0.113**	0.975
VNIIFTRI 89	**0.234**	0.946	**0.383**	0.976	**0.406**	0.976	**0.040**	1.003	**0.112**	1.025	**0.202**	1.025	**0.165**	1.025	**0.243**	1.071
NMIJ B271	**0.059**	0.281	**0.207**	0.369	**0.231**	0.369	**-0.136**	0.437	**-0.063**	0.484	**0.027**	0.484	**-0.010**	0.484	**0.068**	0.576
NMIJ B310	**0.088**	0.280	**0.237**	0.368	**0.260**	0.368	**-0.106**	0.436	**-0.033**	0.483	**0.057**	0.483	**0.019**	0.483	**0.097**	0.575

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89		NMIJ B271		NMIJ B310	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.149**	0.239	**-0.204**	0.557	**-0.043**	0.487	**-0.249**	0.487	**-0.253**	0.869	**-0.383**	0.976	**-0.207**	0.369	**-0.237**	0.368
NIST A129	**-0.172**	0.239	**-0.227**	0.557	**-0.067**	0.487	**-0.272**	0.487	**-0.276**	0.869	**-0.406**	0.976	**-0.231**	0.369	**-0.260**	0.368
NMi-VSL 226246	**0.194**	0.334	**0.139**	0.603	**0.299**	0.540	**0.094**	0.540	**0.090**	0.900	**-0.040**	1.003	**0.136**	0.437	**0.106**	0.436
NPL 221481	**0.122**	0.394	**0.067**	0.638	**0.227**	0.578	**0.021**	0.578	**0.017**	0.924	**-0.112**	1.025	**0.063**	0.484	**0.033**	0.483
NPL 221483	**0.032**	0.394	**-0.023**	0.638	**0.137**	0.578	**-0.069**	0.578	**-0.073**	0.924	**-0.202**	1.025	**-0.027**	0.484	**-0.057**	0.483
NPL 221485	**0.069**	0.394	**0.014**	0.638	**0.174**	0.578	**-0.032**	0.578	**-0.036**	0.924	**-0.165**	1.025	**0.010**	0.484	**-0.019**	0.483
NRC A138	**-0.009**	0.503	**-0.064**	0.711	**0.096**	0.658	**-0.109**	0.658	**-0.113**	0.975	**-0.243**	1.071	**-0.068**	0.576	**-0.097**	0.575
NRC A140	**0.055**	0.503			**0.160**	0.658	**-0.046**	0.658	**-0.050**	0.975	**-0.179**	1.071	**-0.004**	0.576	**-0.033**	0.575
PTB 229074	**-0.105**	0.424	**-0.160**	0.658			**-0.206**	0.600	**-0.210**	0.937	**-0.339**	1.037	**-0.164**	0.509	**-0.193**	0.508
PTB 229075	**0.100**	0.424	**0.046**	0.658	**0.206**	0.600			**-0.004**	0.937	**-0.133**	1.037	**0.042**	0.509	**0.012**	0.508
VNIIFTRI 79	**0.105**	0.836	**0.050**	0.975	**0.210**	0.937	**0.004**	0.937			**-0.129**	1.262	**0.046**	0.882	**0.016**	0.881
VNIIFTRI 89	**0.234**	0.946	**0.179**	1.071	**0.339**	1.037	**0.133**	1.037	**0.129**	1.262			**0.175**	0.987	**0.146**	0.987
NMIJ B271	**0.059**	0.281	**0.004**	0.576	**0.164**	0.509	**-0.042**	0.509	**-0.046**	0.882	**-0.175**	0.987			**-0.029**	0.397
NMIJ B310	**0.088**	0.280	**0.033**	0.575	**0.193**	0.508	**-0.012**	0.508	**-0.016**	0.881	**-0.146**	0.987	**0.029**	0.397		


CCT-K1 : Nominal temperature, T_{90} = 3.801 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89
NMIJ B271
NMIJ B310

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 4.225 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.111 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	4.224713	0.042
NIST A129	4.224680	0.042
NMi-VSL 226246	4.224827	0.122
NPL 221481	4.224760	0.167
NPL 221483	4.224731	0.167
NPL 221485	4.224823	0.167
NRC A138	4.224794	0.225
NRC A140	4.224867	0.225
PTB 229074	4.224704	0.180
PTB 229075	4.224800	0.180
VNIIFTRI 79	4.224908	0.409
VNIIFTRI 89	4.225064	0.465
NMIJ B271	4.224928	0.088
NMIJ B310	4.224923	0.087

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 4.224794 K

Matrix of equivalence

Lab, S/N *j* ⟹

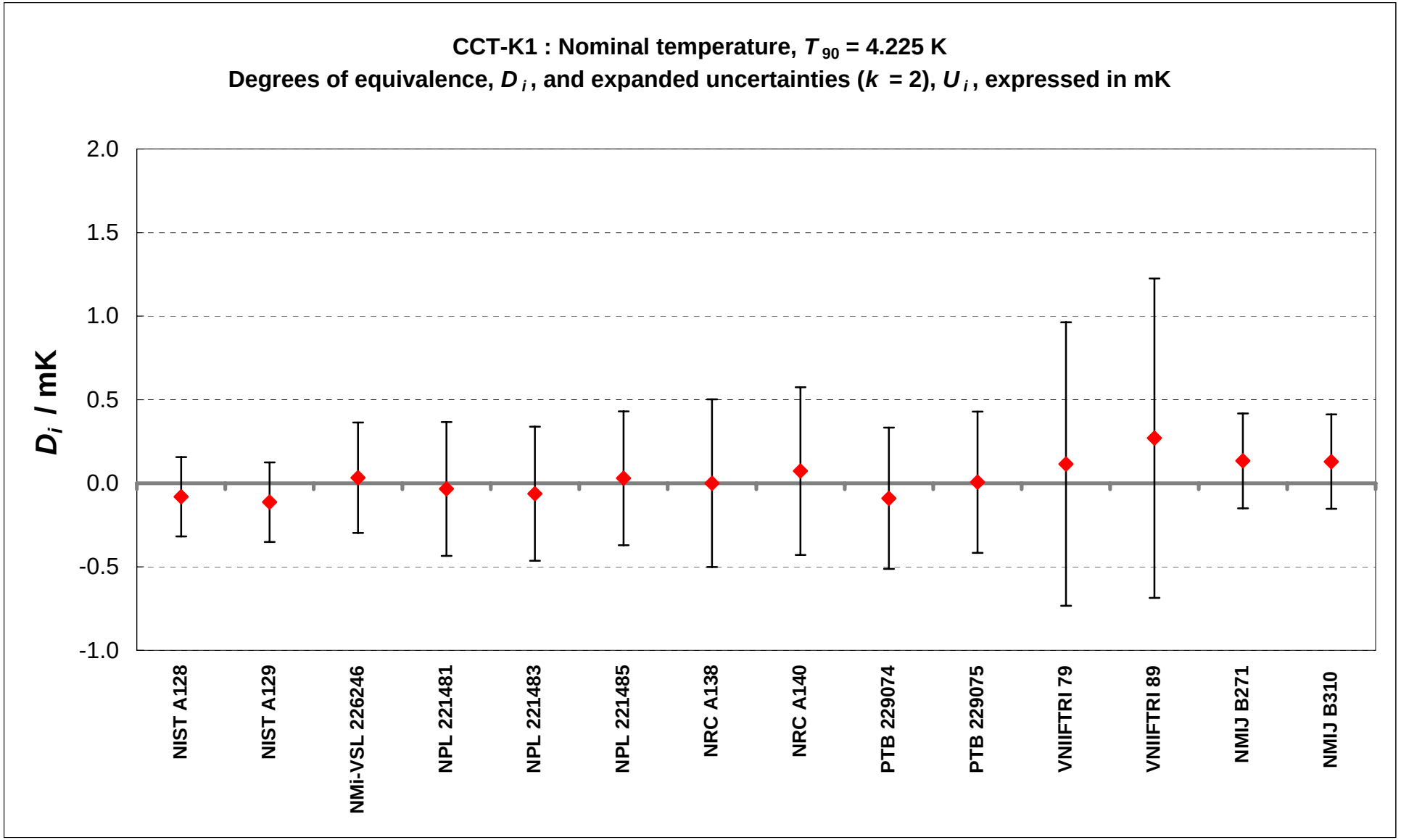
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485		NRC A138	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.081**	0.238			**0.033**	0.336	**-0.114**	0.407	**-0.046**	0.466	**-0.018**	0.466	**-0.110**	0.466	**-0.081**	0.555
NIST A129	**-0.114**	0.238	**-0.033**	0.336			**-0.146**	0.407	**-0.079**	0.466	**-0.051**	0.466	**-0.143**	0.466	**-0.114**	0.555
NMi-VSL 226246	**0.033**	0.330	**0.114**	0.407	**0.146**	0.407			**0.067**	0.519	**0.095**	0.519	**0.003**	0.519	**0.033**	0.601
NPL 221481	**-0.034**	0.401	**0.046**	0.466	**0.079**	0.466	**-0.067**	0.519			**0.028**	0.567	**-0.064**	0.567	**-0.035**	0.642
NPL 221483	**-0.063**	0.401	**0.018**	0.466	**0.051**	0.466	**-0.095**	0.519	**-0.028**	0.567			**-0.092**	0.567	**-0.063**	0.642
NPL 221485	**0.029**	0.401	**0.110**	0.466	**0.143**	0.466	**-0.003**	0.519	**0.064**	0.567	**0.092**	0.567			**0.029**	0.642
NRC A138	**0.000**	0.502	**0.081**	0.555	**0.114**	0.555	**-0.033**	0.601	**0.035**	0.642	**0.063**	0.642	**-0.029**	0.642		
NRC A140	**0.073**	0.502	**0.154**	0.555	**0.186**	0.555	**0.040**	0.601	**0.107**	0.642	**0.135**	0.642	**0.043**	0.642	**0.073**	0.710
PTB 229074	**-0.090**	0.423	**-0.009**	0.485	**0.023**	0.485	**-0.123**	0.537	**-0.056**	0.583	**-0.028**	0.583	**-0.120**	0.583	**-0.090**	0.656
PTB 229075	**0.006**	0.423	**0.087**	0.485	**0.120**	0.485	**-0.026**	0.537	**0.041**	0.583	**0.069**	0.583	**-0.023**	0.583	**0.006**	0.656
VNIIFTRI 79	**0.114**	0.848	**0.195**	0.881	**0.228**	0.881	**0.082**	0.910	**0.149**	0.938	**0.177**	0.938	**0.085**	0.938	**0.114**	0.985
VNIIFTRI 89	**0.270**	0.956	**0.351**	0.985	**0.383**	0.985	**0.237**	1.011	**0.304**	1.036	**0.332**	1.036	**0.240**	1.036	**0.270**	1.079
NMIJ B271	**0.134**	0.283	**0.214**	0.370	**0.247**	0.370	**0.101**	0.435	**0.168**	0.491	**0.196**	0.491	**0.104**	0.491	**0.133**	0.576
NMIJ B310	**0.129**	0.282	**0.210**	0.369	**0.243**	0.369	**0.097**	0.434	**0.164**	0.490	**0.192**	0.490	**0.100**	0.490	**0.129**	0.576

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89		NMIJ B271		NMIJ B310	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.081**	0.238	**-0.154**	0.555	**0.009**	0.485	**-0.087**	0.485	**-0.195**	0.881	**-0.351**	0.985	**-0.214**	0.370	**-0.210**	0.369
NIST A129	**-0.114**	0.238	**-0.186**	0.555	**-0.023**	0.485	**-0.120**	0.485	**-0.228**	0.881	**-0.383**	0.985	**-0.247**	0.370	**-0.243**	0.369
NMi-VSL 226246	**0.033**	0.330	**-0.040**	0.601	**0.123**	0.537	**0.026**	0.537	**-0.082**	0.910	**-0.237**	1.011	**-0.101**	0.435	**-0.097**	0.434
NPL 221481	**-0.034**	0.401	**-0.107**	0.642	**0.056**	0.583	**-0.041**	0.583	**-0.149**	0.938	**-0.304**	1.036	**-0.168**	0.491	**-0.164**	0.490
NPL 221483	**-0.063**	0.401	**-0.135**	0.642	**0.028**	0.583	**-0.069**	0.583	**-0.177**	0.938	**-0.332**	1.036	**-0.196**	0.491	**-0.192**	0.490
NPL 221485	**0.029**	0.401	**-0.043**	0.642	**0.120**	0.583	**0.023**	0.583	**-0.085**	0.938	**-0.240**	1.036	**-0.104**	0.491	**-0.100**	0.490
NRC A138	**0.000**	0.502	**-0.073**	0.710	**0.090**	0.656	**-0.006**	0.656	**-0.114**	0.985	**-0.270**	1.079	**-0.133**	0.576	**-0.129**	0.576
NRC A140	**0.073**	0.502			**0.163**	0.656	**0.067**	0.656	**-0.041**	0.985	**-0.197**	1.079	**-0.061**	0.576	**-0.056**	0.576
PTB 229074	**-0.090**	0.423	**-0.163**	0.656			**-0.096**	0.598	**-0.204**	0.948	**-0.360**	1.045	**-0.224**	0.509	**-0.219**	0.508
PTB 229075	**0.006**	0.423	**-0.067**	0.656	**0.096**	0.598			**-0.108**	0.948	**-0.264**	1.045	**-0.127**	0.509	**-0.123**	0.508
VNIIFTRI 79	**0.114**	0.848	**0.041**	0.985	**0.204**	0.948	**0.108**	0.948			**-0.155**	1.278	**-0.019**	0.894	**-0.015**	0.894
VNIIFTRI 89	**0.270**	0.956	**0.197**	1.079	**0.360**	1.045	**0.264**	1.045	**0.155**	1.278			**0.136**	0.997	**0.140**	0.996
NMIJ B271	**0.134**	0.283	**0.061**	0.576	**0.224**	0.509	**0.127**	0.509	**0.019**	0.894	**-0.136**	0.997			**0.004**	0.400
NMIJ B310	**0.129**	0.282	**0.056**	0.576	**0.219**	0.508	**0.123**	0.508	**0.015**	0.894	**-0.140**	0.996	**-0.004**	0.400		


CCT-K1 : Nominal temperature, T_{90} = 4.225 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89
NMIJ B271
NMIJ B310

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 4.478 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.112 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	4.477545	0.042
NIST A129	4.477546	0.042
NMi-VSL 226246	4.477459	0.206
NPL 221481	4.477410	0.210
NPL 221483	4.477489	0.201
NPL 221485	4.477502	0.201
NRC A138	4.477701	0.550
NRC A140	4.478134	0.550
PTB 229074	4.477475	0.180
PTB 229075	4.477406	0.180
VNIIFTRI 79	4.477674	0.413
VNIIFTRI 89	4.477791	0.468

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 4.477522 K

Matrix of equivalence

Lab, S/N *j* ⟹

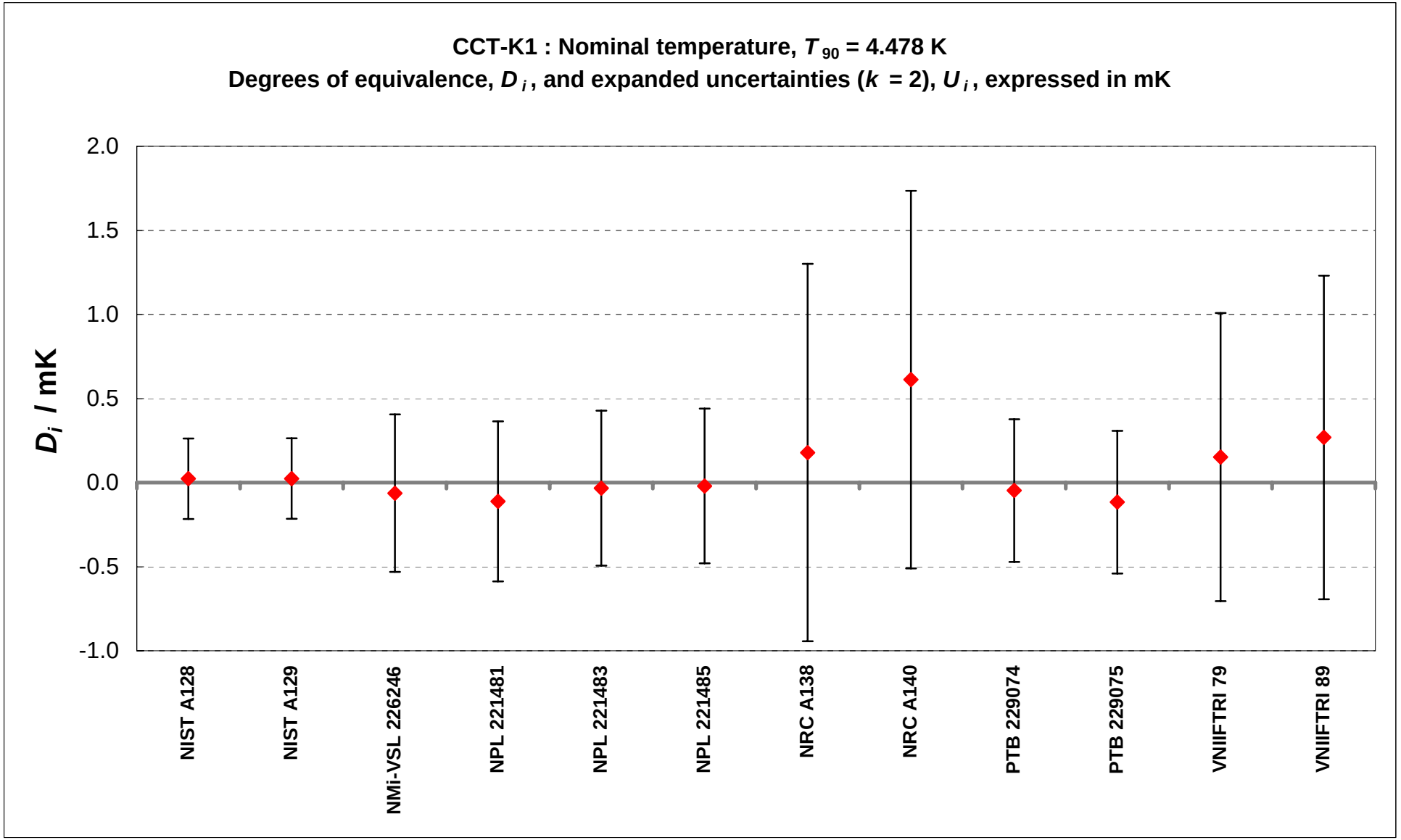
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.023**	0.240			**-0.001**	0.339	**0.086**	0.526	**0.135**	0.533	**0.056**	0.519	**0.043**	0.519
NIST A129	**0.024**	0.240	**0.001**	0.339			**0.087**	0.526	**0.136**	0.533	**0.057**	0.519	**0.044**	0.519
NMi-VSL 226246	**-0.063**	0.468	**-0.086**	0.526	**-0.087**	0.526			**0.049**	0.668	**-0.030**	0.656	**-0.043**	0.656
NPL 221481	**-0.112**	0.476	**-0.135**	0.533	**-0.136**	0.533	**-0.049**	0.668			**-0.078**	0.662	**-0.091**	0.662
NPL 221483	**-0.033**	0.460	**-0.056**	0.519	**-0.057**	0.519	**0.030**	0.656	**0.078**	0.662			**-0.013**	0.651
NPL 221485	**-0.020**	0.460	**-0.043**	0.519	**-0.044**	0.519	**0.043**	0.656	**0.091**	0.662	**0.013**	0.651		
NRC A138	**0.179**	1.123	**0.156**	1.148	**0.155**	1.148	**0.242**	1.216	**0.290**	1.219	**0.212**	1.213	**0.199**	1.213
NRC A140	**0.612**	1.123	**0.589**	1.148	**0.588**	1.148	**0.675**	1.216	**0.724**	1.219	**0.645**	1.213	**0.632**	1.213
PTB 229074	**-0.047**	0.424	**-0.070**	0.487	**-0.071**	0.487	**0.016**	0.632	**0.064**	0.638	**-0.014**	0.626	**-0.027**	0.626
PTB 229075	**-0.116**	0.424	**-0.139**	0.487	**-0.140**	0.487	**-0.053**	0.632	**-0.005**	0.638	**-0.083**	0.626	**-0.096**	0.626
VNIIFTRI 79	**0.152**	0.856	**0.129**	0.889	**0.128**	0.889	**0.215**	0.976	**0.264**	0.980	**0.186**	0.972	**0.172**	0.972
VNIIFTRI 89	**0.269**	0.962	**0.246**	0.991	**0.245**	0.991	**0.332**	1.070	**0.381**	1.073	**0.302**	1.066	**0.289**	1.066

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A138		NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.023**	0.240	**-0.156**	1.148	**-0.589**	1.148	**0.070**	0.487	**0.139**	0.487	**-0.129**	0.889	**-0.246**	0.991
NIST A129	**0.024**	0.240	**-0.155**	1.148	**-0.588**	1.148	**0.071**	0.487	**0.140**	0.487	**-0.128**	0.889	**-0.245**	0.991
NMi-VSL 226246	**-0.063**	0.468	**-0.242**	1.216	**-0.675**	1.216	**-0.016**	0.632	**0.053**	0.632	**-0.215**	0.976	**-0.332**	1.070
NPL 221481	**-0.112**	0.476	**-0.290**	1.219	**-0.724**	1.219	**-0.064**	0.638	**0.005**	0.638	**-0.264**	0.980	**-0.381**	1.073
NPL 221483	**-0.033**	0.460	**-0.212**	1.213	**-0.645**	1.213	**0.014**	0.626	**0.083**	0.626	**-0.186**	0.972	**-0.302**	1.066
NPL 221485	**-0.020**	0.460	**-0.199**	1.213	**-0.632**	1.213	**0.027**	0.626	**0.096**	0.626	**-0.172**	0.972	**-0.289**	1.066
NRC A138	**0.179**	1.123			**-0.433**	1.588	**0.226**	1.200	**0.295**	1.200	**0.026**	1.412	**-0.090**	1.478
NRC A140	**0.612**	1.123	**0.433**	1.588			**0.659**	1.200	**0.728**	1.200	**0.460**	1.412	**0.343**	1.478
PTB 229074	**-0.047**	0.424	**-0.226**	1.200	**-0.659**	1.200			**0.069**	0.600	**-0.200**	0.956	**-0.316**	1.051
PTB 229075	**-0.116**	0.424	**-0.295**	1.200	**-0.728**	1.200	**-0.069**	0.600			**-0.268**	0.956	**-0.385**	1.051
VNIIFTRI 79	**0.152**	0.856	**-0.026**	1.412	**-0.460**	1.412	**0.200**	0.956	**0.268**	0.956			**-0.117**	1.288
VNIIFTRI 89	**0.269**	0.962	**0.090**	1.478	**-0.343**	1.478	**0.316**	1.051	**0.385**	1.051	**0.117**	1.288		


CCT-K1 : Nominal temperature, T_{90} = 4.478 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 5.000 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.114 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	5.000483	0.067
NIST A129	5.000483	0.067
NMi-VSL 226246	5.000468	0.206
NPL 221481	5.000220	0.210
NPL 221483	5.000395	0.201
NPL 221485	5.000332	0.201
NRC A138	5.001124	0.550
NRC A140	5.001270	0.550
PTB 229074	5.000397	0.270
PTB 229075	5.000352	0.250
VNIIFTRI 79	5.000647	0.421
VNIIFTRI 89	5.000713	0.474

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 5.000458 K

Matrix of equivalence

Lab, S/N *j* ⟹

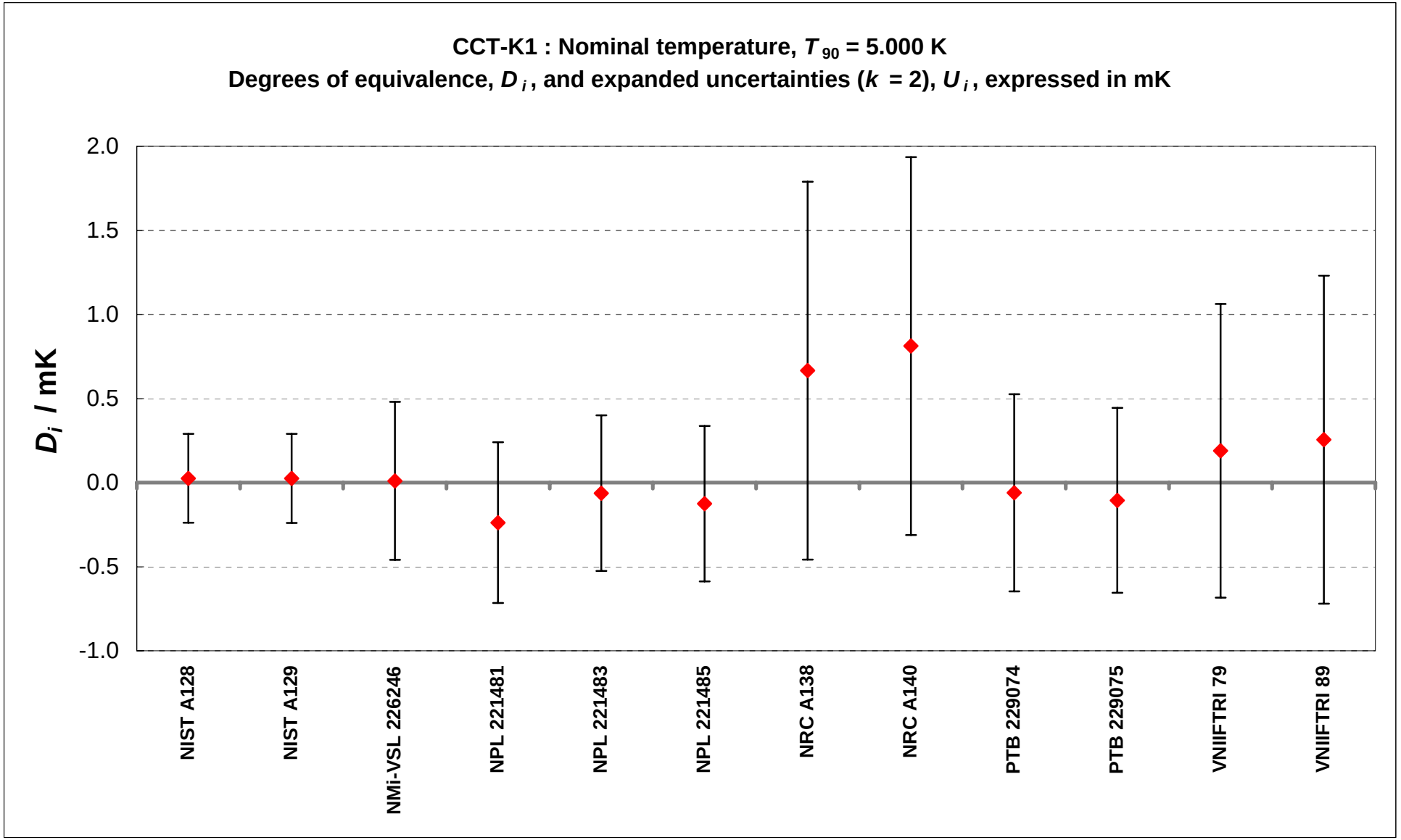
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.025**	0.264			**0.000**	0.374	**0.015**	0.539	**0.264**	0.546	**0.088**	0.532	**0.151**	0.532
NIST A129	**0.025**	0.264	**0.000**	0.374			**0.015**	0.539	**0.263**	0.546	**0.088**	0.532	**0.151**	0.532
NMi-VSL 226246	**0.010**	0.470	**-0.015**	0.539	**-0.015**	0.539			**0.248**	0.670	**0.073**	0.659	**0.136**	0.659
NPL 221481	**-0.238**	0.478	**-0.264**	0.546	**-0.263**	0.546	**-0.248**	0.670			**-0.175**	0.665	**-0.113**	0.665
NPL 221483	**-0.063**	0.462	**-0.088**	0.532	**-0.088**	0.532	**-0.073**	0.659	**0.175**	0.665			**0.063**	0.654
NPL 221485	**-0.126**	0.462	**-0.151**	0.532	**-0.151**	0.532	**-0.136**	0.659	**0.113**	0.665	**-0.063**	0.654		
NRC A138	**0.666**	1.123	**0.640**	1.154	**0.641**	1.154	**0.655**	1.218	**0.904**	1.221	**0.728**	1.215	**0.791**	1.215
NRC A140	**0.812**	1.123	**0.787**	1.154	**0.787**	1.154	**0.802**	1.218	**1.051**	1.221	**0.875**	1.215	**0.938**	1.215
PTB 229074	**-0.061**	0.586	**-0.087**	0.643	**-0.086**	0.643	**-0.071**	0.751	**0.177**	0.756	**0.002**	0.746	**0.065**	0.746
PTB 229075	**-0.106**	0.550	**-0.131**	0.610	**-0.131**	0.610	**-0.116**	0.723	**0.132**	0.728	**-0.043**	0.718	**0.020**	0.718
VNIIFTRI 79	**0.189**	0.873	**0.163**	0.912	**0.164**	0.912	**0.178**	0.992	**0.427**	0.996	**0.251**	0.988	**0.314**	0.988
VNIIFTRI 89	**0.255**	0.975	**0.229**	1.010	**0.230**	1.010	**0.245**	1.083	**0.493**	1.086	**0.318**	1.079	**0.380**	1.079

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A138 D_{ij} / mK	NRC A138 U_{ij} / mK	NRC A140 D_{ij} / mK	NRC A140 U_{ij} / mK	PTB 229074 D_{ij} / mK	PTB 229074 U_{ij} / mK	PTB 229075 D_{ij} / mK	PTB 229075 U_{ij} / mK	VNIIFTRI 79 D_{ij} / mK	VNIIFTRI 79 U_{ij} / mK	VNIIFTRI 89 D_{ij} / mK	VNIIFTRI 89 U_{ij} / mK
NIST A128	**0.025**	0.264	**-0.640**	1.154	**-0.787**	1.154	**0.087**	0.643	**0.131**	0.610	**-0.163**	0.912	**-0.229**	1.010
NIST A129	**0.025**	0.264	**-0.641**	1.154	**-0.787**	1.154	**0.086**	0.643	**0.131**	0.610	**-0.164**	0.912	**-0.230**	1.010
NMi-VSL 226246	**0.010**	0.470	**-0.655**	1.218	**-0.802**	1.218	**0.071**	0.751	**0.116**	0.723	**-0.178**	0.992	**-0.245**	1.083
NPL 221481	**-0.238**	0.478	**-0.904**	1.221	**-1.051**	1.221	**-0.177**	0.756	**-0.132**	0.728	**-0.427**	0.996	**-0.493**	1.086
NPL 221483	**-0.063**	0.462	**-0.728**	1.215	**-0.875**	1.215	**-0.002**	0.746	**0.043**	0.718	**-0.251**	0.988	**-0.318**	1.079
NPL 221485	**-0.126**	0.462	**-0.791**	1.215	**-0.938**	1.215	**-0.065**	0.746	**-0.020**	0.718	**-0.314**	0.988	**-0.380**	1.079
NRC A138	**0.666**	1.123			**-0.147**	1.589	**0.727**	1.267	**0.772**	1.251	**0.477**	1.423	**0.411**	1.488
NRC A140	**0.812**	1.123	**0.147**	1.589			**0.873**	1.267	**0.918**	1.251	**0.624**	1.423	**0.558**	1.488
PTB 229074	**-0.061**	0.586	**-0.727**	1.267	**-0.873**	1.267			**0.045**	0.804	**-0.250**	1.052	**-0.316**	1.138
PTB 229075	**-0.106**	0.550	**-0.772**	1.251	**-0.918**	1.251	**-0.045**	0.804			**-0.294**	1.032	**-0.361**	1.119
VNIIFTRI 79	**0.189**	0.873	**-0.477**	1.423	**-0.624**	1.423	**0.250**	1.052	**0.294**	1.032			**-0.066**	1.309
VNIIFTRI 89	**0.255**	0.975	**-0.411**	1.488	**-0.558**	1.488	**0.316**	1.138	**0.361**	1.119	**0.066**	1.309		


CCT-K1 : Nominal temperature, T_{90} = 5.000 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 5.948 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.118 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	5.947948	0.064
NIST A129	5.948148	0.064
NMi-VSL 226246	5.948420	0.206
NPL 221481	5.948030	0.210
NPL 221483	5.948374	0.201
NPL 221485	5.947935	0.201
NRC A138	5.948869	0.550
NRC A140	5.949112	0.550
PTB 229074	5.948358	0.273
PTB 229075	5.948217	0.252
VNIIFTRI 79	5.948466	0.436
VNIIFTRI 89	5.948584	0.485

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 5.948165 K

Matrix of equivalence

Lab, S/N *j* ⟹

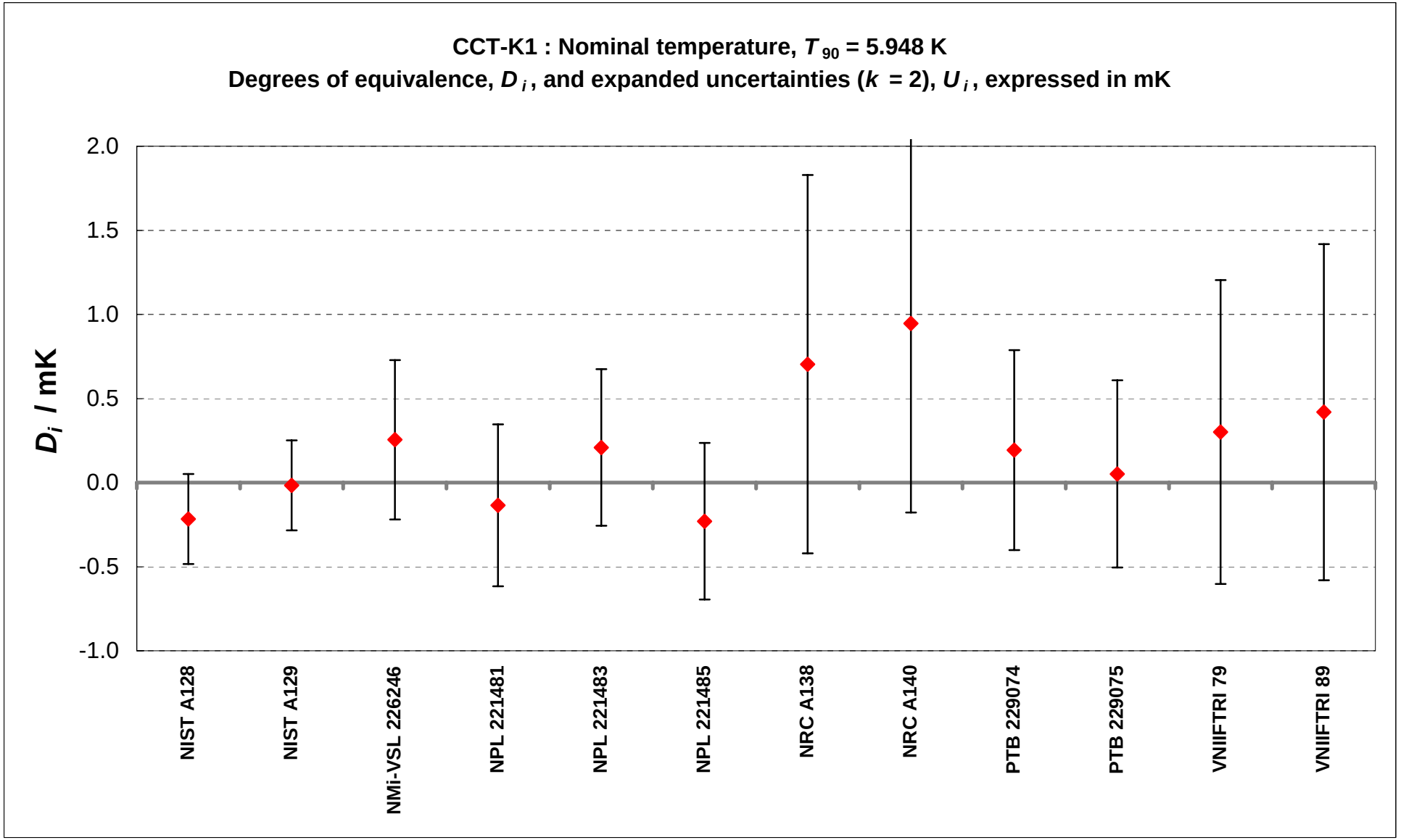
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.217**	0.268			**-0.200**	0.379	**-0.472**	0.544	**-0.082**	0.551	**-0.426**	0.537	**0.013**	0.537
NIST A129	**-0.017**	0.268	**0.200**	0.379			**-0.271**	0.544	**0.118**	0.551	**-0.226**	0.537	**0.213**	0.537
NMi-VSL 226246	**0.255**	0.474	**0.472**	0.544	**0.271**	0.544			**0.389**	0.675	**0.046**	0.664	**0.485**	0.664
NPL 221481	**-0.135**	0.481	**0.082**	0.551	**-0.118**	0.551	**-0.389**	0.675			**-0.344**	0.670	**0.095**	0.670
NPL 221483	**0.209**	0.466	**0.426**	0.537	**0.226**	0.537	**-0.046**	0.664	**0.344**	0.670			**0.439**	0.659
NPL 221485	**-0.230**	0.466	**-0.013**	0.537	**-0.213**	0.537	**-0.485**	0.664	**-0.095**	0.670	**-0.439**	0.659		
NRC A138	**0.704**	1.125	**0.921**	1.156	**0.721**	1.156	**0.449**	1.220	**0.838**	1.224	**0.495**	1.217	**0.934**	1.217
NRC A140	**0.947**	1.125	**1.164**	1.156	**0.963**	1.156	**0.692**	1.220	**1.081**	1.224	**0.738**	1.217	**1.177**	1.217
PTB 229074	**0.193**	0.594	**0.410**	0.652	**0.209**	0.652	**-0.062**	0.760	**0.327**	0.765	**-0.016**	0.755	**0.423**	0.755
PTB 229075	**0.052**	0.557	**0.269**	0.618	**0.068**	0.618	**-0.203**	0.731	**0.186**	0.736	**-0.157**	0.726	**0.282**	0.726
VNIIFTRI 79	**0.301**	0.904	**0.518**	0.943	**0.317**	0.943	**0.046**	1.021	**0.435**	1.024	**0.092**	1.017	**0.531**	1.017
VNIIFTRI 89	**0.419**	0.999	**0.636**	1.034	**0.435**	1.034	**0.164**	1.106	**0.553**	1.109	**0.210**	1.102	**0.649**	1.102

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A138 D_{ij} / mK	NRC A138 U_{ij} / mK	NRC A140 D_{ij} / mK	NRC A140 U_{ij} / mK	PTB 229074 D_{ij} / mK	PTB 229074 U_{ij} / mK	PTB 229075 D_{ij} / mK	PTB 229075 U_{ij} / mK	VNIIFTRI 79 D_{ij} / mK	VNIIFTRI 79 U_{ij} / mK	VNIIFTRI 89 D_{ij} / mK	VNIIFTRI 89 U_{ij} / mK
NIST A128	**-0.217**	0.268	**-0.921**	1.156	**-1.164**	1.156	**-0.410**	0.652	**-0.269**	0.618	**-0.518**	0.943	**-0.636**	1.034
NIST A129	**-0.017**	0.268	**-0.721**	1.156	**-0.963**	1.156	**-0.209**	0.652	**-0.068**	0.618	**-0.317**	0.943	**-0.435**	1.034
NMi-VSL 226246	**0.255**	0.474	**-0.449**	1.220	**-0.692**	1.220	**0.062**	0.760	**0.203**	0.731	**-0.046**	1.021	**-0.164**	1.106
NPL 221481	**-0.135**	0.481	**-0.838**	1.224	**-1.081**	1.224	**-0.327**	0.765	**-0.186**	0.736	**-0.435**	1.024	**-0.553**	1.109
NPL 221483	**0.209**	0.466	**-0.495**	1.217	**-0.738**	1.217	**0.016**	0.755	**0.157**	0.726	**-0.092**	1.017	**-0.210**	1.102
NPL 221485	**-0.230**	0.466	**-0.934**	1.217	**-1.177**	1.217	**-0.423**	0.755	**-0.282**	0.726	**-0.531**	1.017	**-0.649**	1.102
NRC A138	**0.704**	1.125			**-0.243**	1.591	**0.511**	1.272	**0.652**	1.255	**0.403**	1.443	**0.285**	1.504
NRC A140	**0.947**	1.125	**0.243**	1.591			**0.754**	1.272	**0.895**	1.255	**0.646**	1.443	**0.528**	1.504
PTB 229074	**0.193**	0.594	**-0.511**	1.272	**-0.754**	1.272			**0.141**	0.815	**-0.108**	1.082	**-0.226**	1.163
PTB 229075	**0.052**	0.557	**-0.652**	1.255	**-0.895**	1.255	**-0.141**	0.815			**-0.249**	1.062	**-0.367**	1.144
VNIIFTRI 79	**0.301**	0.904	**-0.403**	1.443	**-0.646**	1.443	**0.108**	1.082	**0.249**	1.062			**-0.118**	1.347
VNIIFTRI 89	**0.419**	0.999	**-0.285**	1.504	**-0.528**	1.504	**0.226**	1.163	**0.367**	1.144	**0.118**	1.347		


CCT-K1 : Nominal temperature, T_{90} = 5.948 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 7.202 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.122 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	7.201615	0.070
NIST A129	7.201513	0.070
NMi-VSL 226246	7.201679	0.206
NPL 221481	7.201400	0.210
NPL 221483	7.201415	0.201
NPL 221485	7.201191	0.201
NRC A138	7.202363	0.550
NRC A140	7.202306	0.550
PTB 229074	7.201593	0.277
PTB 229075	7.201538	0.256
VNIIFTRI 79	7.201591	0.456
VNIIFTRI 89	7.201839	0.501

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 7.201544 K

Matrix of equivalence

Lab, S/N *j* ⟹

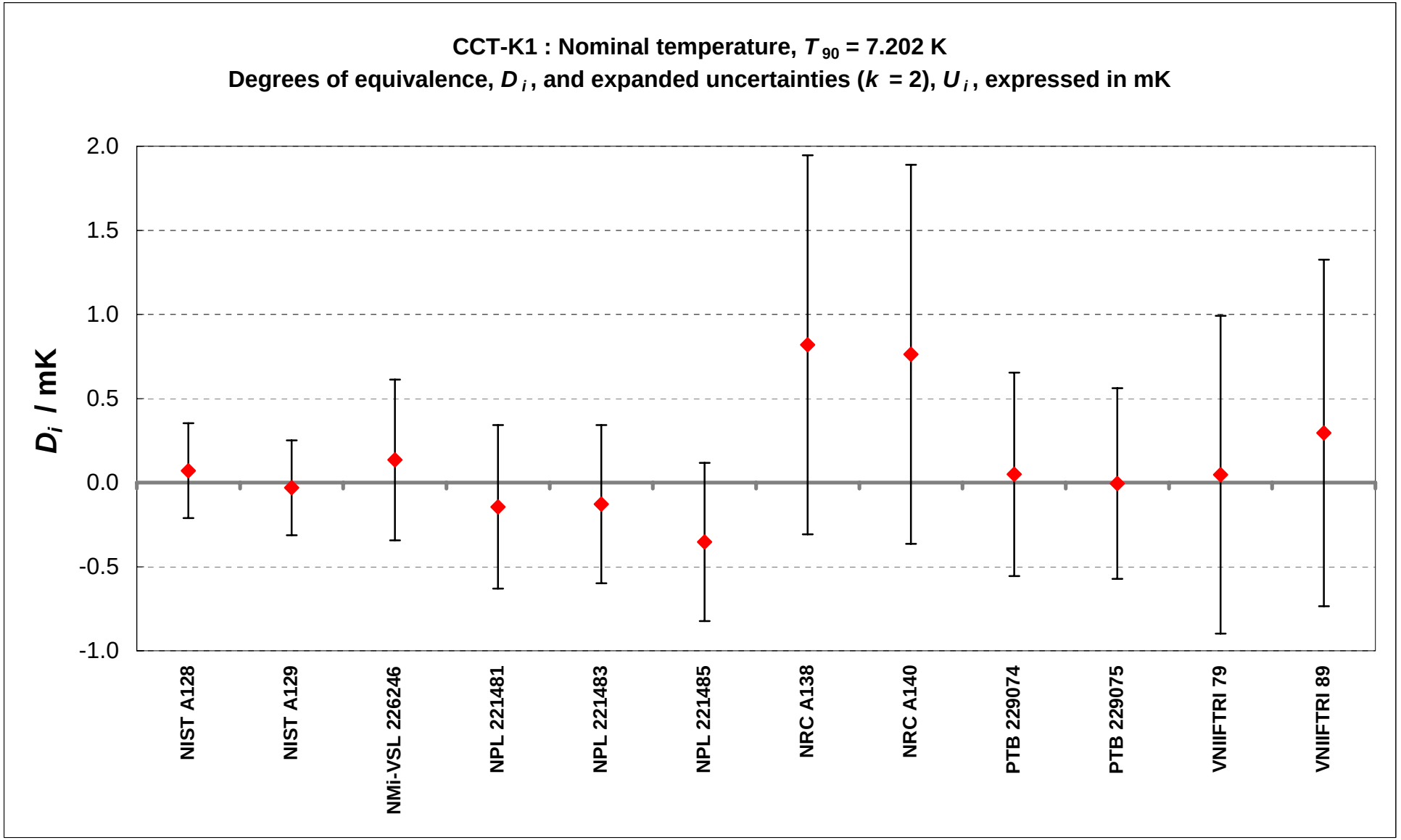
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.071**	0.282			**0.102**	0.399	**-0.064**	0.555	**0.215**	0.562	**0.200**	0.549	**0.424**	0.549
NIST A129	**-0.031**	0.282	**-0.102**	0.399			**-0.166**	0.555	**0.114**	0.562	**0.098**	0.549	**0.322**	0.549
NMi-VSL 226246	**0.135**	0.478	**0.064**	0.555	**0.166**	0.555			**0.279**	0.682	**0.263**	0.671	**0.488**	0.671
NPL 221481	**-0.144**	0.486	**-0.215**	0.562	**-0.114**	0.562	**-0.279**	0.682			**-0.016**	0.677	**0.209**	0.677
NPL 221483	**-0.129**	0.471	**-0.200**	0.549	**-0.098**	0.549	**-0.263**	0.671	**0.016**	0.677			**0.224**	0.666
NPL 221485	**-0.353**	0.471	**-0.424**	0.549	**-0.322**	0.549	**-0.488**	0.671	**-0.209**	0.677	**-0.224**	0.666		
NRC A138	**0.819**	1.127	**0.748**	1.162	**0.849**	1.162	**0.684**	1.224	**0.963**	1.227	**0.947**	1.221	**1.172**	1.221
NRC A140	**0.762**	1.127	**0.691**	1.162	**0.793**	1.162	**0.628**	1.224	**0.907**	1.227	**0.891**	1.221	**1.115**	1.221
PTB 229074	**0.049**	0.605	**-0.022**	0.668	**0.080**	0.668	**-0.086**	0.771	**0.193**	0.776	**0.178**	0.767	**0.402**	0.767
PTB 229075	**-0.006**	0.567	**-0.077**	0.633	**0.025**	0.633	**-0.141**	0.742	**0.139**	0.747	**0.123**	0.737	**0.347**	0.737
VNIIFTRI 79	**0.047**	0.945	**-0.024**	0.986	**0.078**	0.986	**-0.088**	1.059	**0.191**	1.062	**0.175**	1.055	**0.400**	1.055
VNIIFTRI 89	**0.295**	1.031	**0.224**	1.069	**0.326**	1.069	**0.160**	1.136	**0.439**	1.140	**0.424**	1.133	**0.648**	1.133

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A138		NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.071**	0.282	**-0.748**	1.162	**-0.691**	1.162	**0.022**	0.668	**0.077**	0.633	**0.024**	0.986	**-0.224**	1.069
NIST A129	**-0.031**	0.282	**-0.849**	1.162	**-0.793**	1.162	**-0.080**	0.668	**-0.025**	0.633	**-0.078**	0.986	**-0.326**	1.069
NMi-VSL 226246	**0.135**	0.478	**-0.684**	1.224	**-0.628**	1.224	**0.086**	0.771	**0.141**	0.742	**0.088**	1.059	**-0.160**	1.136
NPL 221481	**-0.144**	0.486	**-0.963**	1.227	**-0.907**	1.227	**-0.193**	0.776	**-0.139**	0.747	**-0.191**	1.062	**-0.439**	1.140
NPL 221483	**-0.129**	0.471	**-0.947**	1.221	**-0.891**	1.221	**-0.178**	0.767	**-0.123**	0.737	**-0.175**	1.055	**-0.424**	1.133
NPL 221485	**-0.353**	0.471	**-1.172**	1.221	**-1.115**	1.221	**-0.402**	0.767	**-0.347**	0.737	**-0.400**	1.055	**-0.648**	1.133
NRC A138	**0.819**	1.127			**0.056**	1.594	**0.770**	1.279	**0.824**	1.261	**0.772**	1.470	**0.524**	1.527
NRC A140	**0.762**	1.127	**-0.056**	1.594			**0.713**	1.279	**0.768**	1.261	**0.715**	1.470	**0.467**	1.527
PTB 229074	**0.049**	0.605	**-0.770**	1.279	**-0.713**	1.279			**0.055**	0.829	**0.002**	1.122	**-0.246**	1.195
PTB 229075	**-0.006**	0.567	**-0.824**	1.261	**-0.768**	1.261	**-0.055**	0.829			**-0.053**	1.102	**-0.301**	1.176
VNIIFTRI 79	**0.047**	0.945	**-0.772**	1.470	**-0.715**	1.470	**-0.002**	1.122	**0.053**	1.102			**-0.248**	1.398
VNIIFTRI 89	**0.295**	1.031	**-0.524**	1.527	**-0.467**	1.527	**0.246**	1.195	**0.301**	1.176	**0.248**	1.398		


CCT-K1 : Nominal temperature, T_{90} = 7.202 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 8.296 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.127 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	8.296546	0.076
NIST A129	8.296561	0.076
NMi-VSL 226246	8.296278	0.206
NPL 221481	8.296020	0.210
NPL 221485	8.295779	0.201
NRC A138	8.297318	0.550
NRC A140	8.297308	0.550
PTB 229074	8.296214	0.280
PTB 229075	8.296135	0.258

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 8.296372 K

Matrix of equivalence

Lab, S/N *j* ⟹

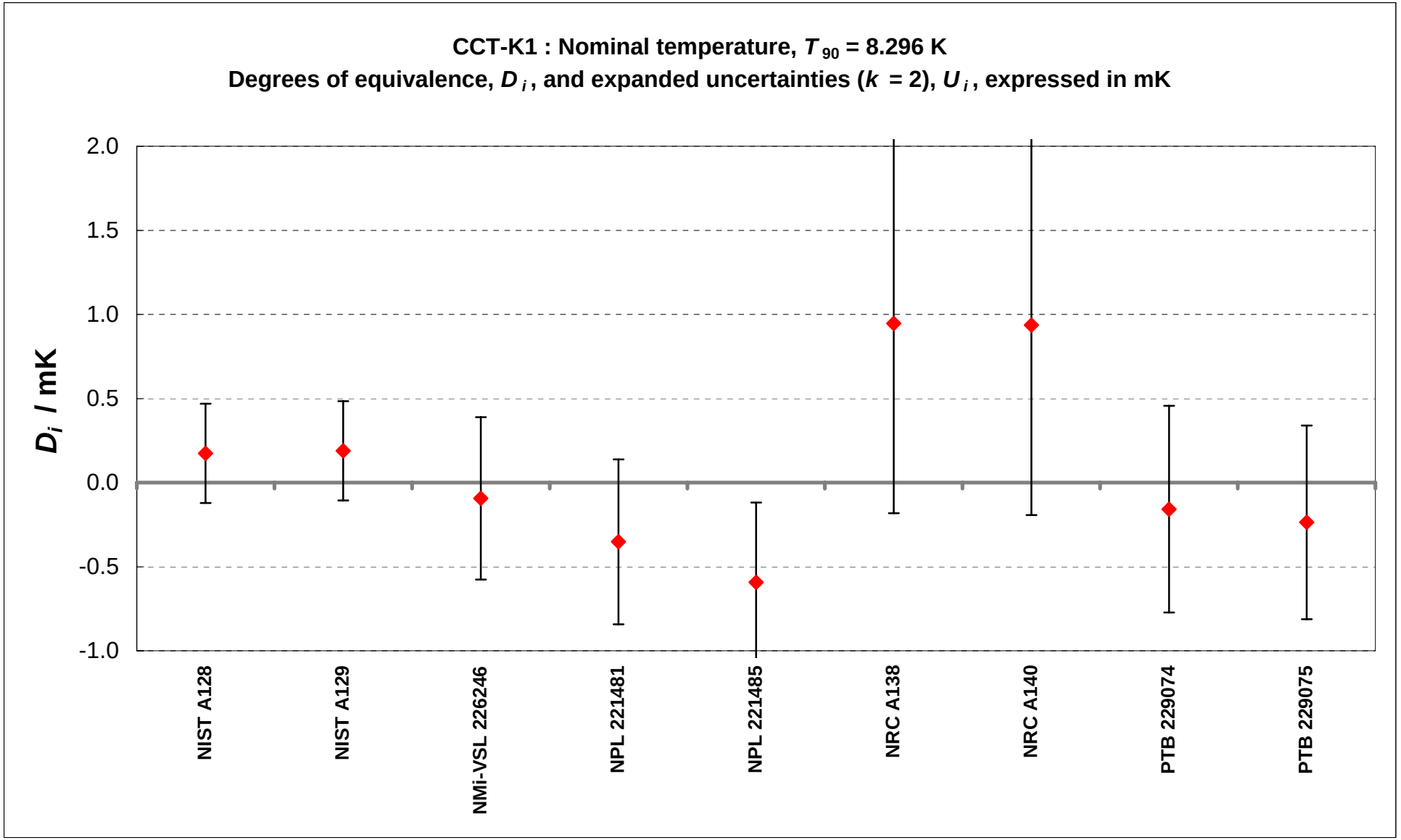
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221485		NRC A138	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.174**	0.296			**-0.015**	0.418	**0.267**	0.566	**0.526**	0.573	**0.767**	0.560	**-0.773**	1.167
NIST A129	**0.189**	0.296	**0.015**	0.418			**0.283**	0.566	**0.541**	0.573	**0.782**	0.560	**-0.757**	1.167
NMi-VSL 226246	**-0.094**	0.483	**-0.267**	0.566	**-0.283**	0.566			**0.259**	0.688	**0.499**	0.677	**-1.040**	1.228
NPL 221481	**-0.352**	0.490	**-0.526**	0.573	**-0.541**	0.573	**-0.259**	0.688			**0.241**	0.683	**-1.299**	1.231
NPL 221485	**-0.593**	0.475	**-0.767**	0.560	**-0.782**	0.560	**-0.499**	0.677	**-0.241**	0.683			**-1.539**	1.225
NRC A138	**0.946**	1.129	**0.773**	1.167	**0.757**	1.167	**1.040**	1.228	**1.299**	1.231	**1.539**	1.225		
NRC A140	**0.936**	1.129	**0.762**	1.167	**0.747**	1.167	**1.030**	1.228	**1.288**	1.231	**1.529**	1.225	**-0.010**	1.596
PTB 229074	**-0.158**	0.615	**-0.332**	0.682	**-0.347**	0.682	**-0.064**	0.782	**0.194**	0.786	**0.435**	0.777	**-1.104**	1.285
PTB 229075	**-0.237**	0.575	**-0.410**	0.647	**-0.426**	0.647	**-0.143**	0.751	**0.116**	0.756	**0.356**	0.746	**-1.183**	1.267

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A140 D_{ij} / mK	NRC A140 U_{ij} / mK	PTB 229074 D_{ij} / mK	PTB 229074 U_{ij} / mK	PTB 229075 D_{ij} / mK	PTB 229075 U_{ij} / mK
NIST A128	**0.174**	0.296	**-0.762**	1.167	**0.332**	0.682	**0.410**	0.647
NIST A129	**0.189**	0.296	**-0.747**	1.167	**0.347**	0.682	**0.426**	0.647
NMi-VSL 226246	**-0.094**	0.483	**-1.030**	1.228	**0.064**	0.782	**0.143**	0.751
NPL 221481	**-0.352**	0.490	**-1.288**	1.231	**-0.194**	0.786	**-0.116**	0.756
NPL 221485	**-0.593**	0.475	**-1.529**	1.225	**-0.435**	0.777	**-0.356**	0.746
NRC A138	**0.946**	1.129	**0.010**	1.596	**1.104**	1.285	**1.183**	1.267
NRC A140	**0.936**	1.129			**1.094**	1.285	**1.173**	1.267
PTB 229074	**-0.158**	0.615	**-1.094**	1.285			**0.078**	0.842
PTB 229075	**-0.237**	0.575	**-1.173**	1.267	**-0.078**	0.842		


CCT-K1 : Nominal temperature, T_{90} = 8.296 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 8.400 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.127 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	8.399816	0.076
NIST A129	8.399757	0.076
NMi-VSL 226246	8.399564	0.206
NPL 221481	8.399350	0.210
NPL 221483	8.399316	0.201
NPL 221485	8.398898	0.201
NRC A138	8.400617	0.550
NRC A140	8.400524	0.550
PTB 229074	8.399608	0.280
PTB 229075	8.399518	0.259
VNIIFTRI 79	8.399714	0.475
VNIIFTRI 89	8.400138	0.515

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 8.399612 K

Matrix of equivalence

Lab, S/N *j* ⟹

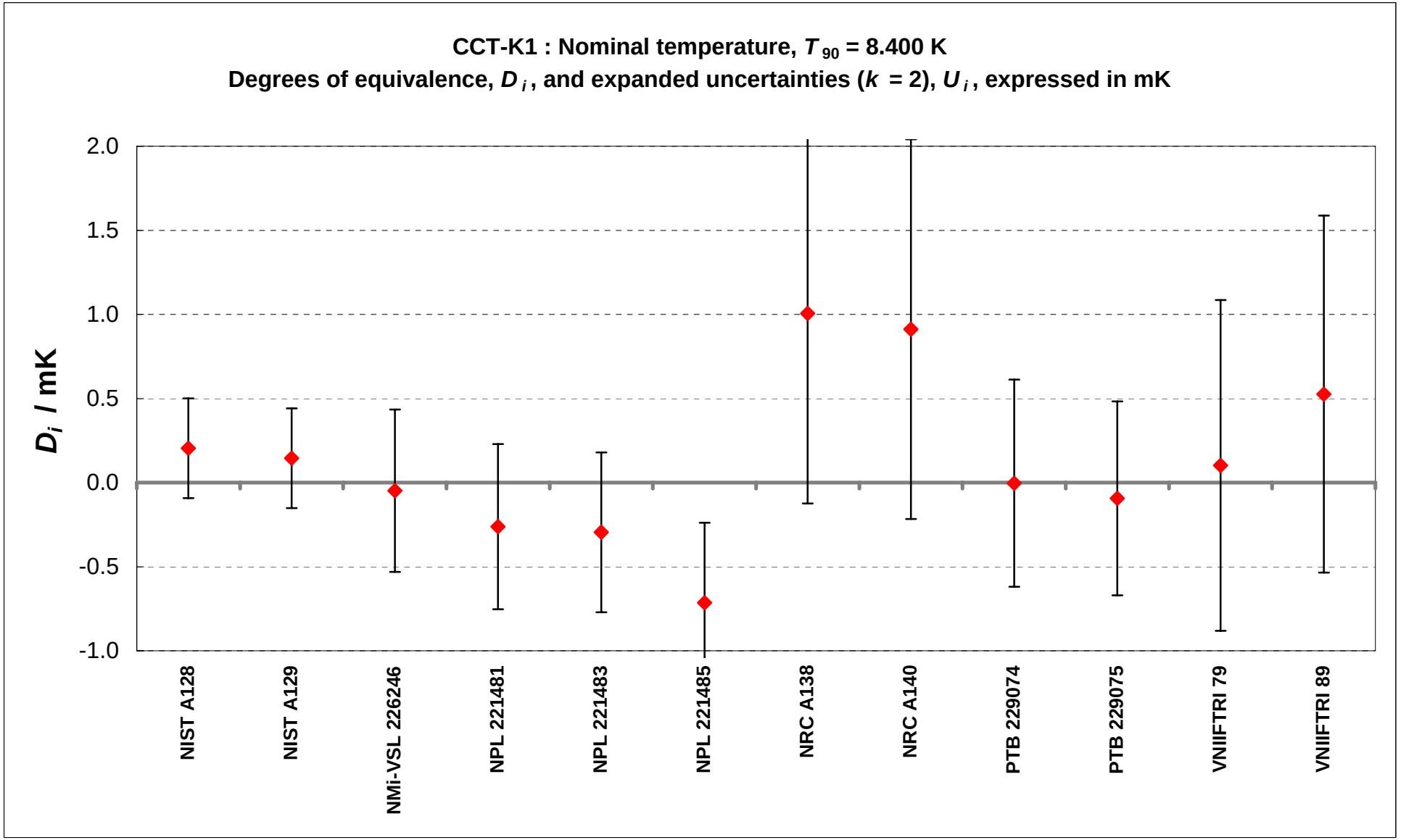
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.204**	0.296			**0.060**	0.419	**0.253**	0.567	**0.467**	0.573	**0.500**	0.560	**0.918**	0.560
NIST A129	**0.145**	0.296	**-0.060**	0.419			**0.193**	0.567	**0.407**	0.573	**0.441**	0.560	**0.859**	0.560
NMi-VSL 226246	**-0.048**	0.483	**-0.253**	0.567	**-0.193**	0.567			**0.214**	0.689	**0.248**	0.678	**0.666**	0.678
NPL 221481	**-0.262**	0.491	**-0.467**	0.573	**-0.407**	0.573	**-0.214**	0.689			**0.034**	0.683	**0.452**	0.683
NPL 221483	**-0.296**	0.475	**-0.500**	0.560	**-0.441**	0.560	**-0.248**	0.678	**-0.034**	0.683			**0.418**	0.672
NPL 221485	**-0.714**	0.475	**-0.918**	0.560	**-0.859**	0.560	**-0.666**	0.678	**-0.452**	0.683	**-0.418**	0.672		
NRC A138	**1.005**	1.129	**0.800**	1.167	**0.860**	1.167	**1.053**	1.228	**1.267**	1.231	**1.301**	1.225	**1.719**	1.225
NRC A140	**0.912**	1.129	**0.708**	1.167	**0.767**	1.167	**0.960**	1.228	**1.174**	1.231	**1.208**	1.225	**1.626**	1.225
PTB 229074	**-0.004**	0.616	**-0.208**	0.683	**-0.149**	0.683	**0.044**	0.783	**0.258**	0.787	**0.292**	0.778	**0.710**	0.778
PTB 229075	**-0.094**	0.576	**-0.299**	0.648	**-0.239**	0.648	**-0.046**	0.752	**0.168**	0.757	**0.202**	0.747	**0.620**	0.747
VNIIFTRI 79	**0.102**	0.983	**-0.103**	1.027	**-0.043**	1.027	**0.150**	1.096	**0.364**	1.099	**0.397**	1.092	**0.815**	1.092
VNIIFTRI 89	**0.526**	1.061	**0.322**	1.101	**0.381**	1.101	**0.574**	1.166	**0.788**	1.169	**0.822**	1.162	**1.240**	1.162

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A138 D_{ij} / mK	NRC A138 U_{ij} / mK	NRC A140 D_{ij} / mK	NRC A140 U_{ij} / mK	PTB 229074 D_{ij} / mK	PTB 229074 U_{ij} / mK	PTB 229075 D_{ij} / mK	PTB 229075 U_{ij} / mK	VNIIFTRI 79 D_{ij} / mK	VNIIFTRI 79 U_{ij} / mK	VNIIFTRI 89 D_{ij} / mK	VNIIFTRI 89 U_{ij} / mK
NIST A128	**0.204**	0.296	**-0.800**	1.167	**-0.708**	1.167	**0.208**	0.683	**0.299**	0.648	**0.103**	1.027	**-0.322**	1.101
NIST A129	**0.145**	0.296	**-0.860**	1.167	**-0.767**	1.167	**0.149**	0.683	**0.239**	0.648	**0.043**	1.027	**-0.381**	1.101
NMi-VSL 226246	**-0.048**	0.483	**-1.053**	1.228	**-0.960**	1.228	**-0.044**	0.783	**0.046**	0.752	**-0.150**	1.096	**-0.574**	1.166
NPL 221481	**-0.262**	0.491	**-1.267**	1.231	**-1.174**	1.231	**-0.258**	0.787	**-0.168**	0.757	**-0.364**	1.099	**-0.788**	1.169
NPL 221483	**-0.296**	0.475	**-1.301**	1.225	**-1.208**	1.225	**-0.292**	0.778	**-0.202**	0.747	**-0.397**	1.092	**-0.822**	1.162
NPL 221485	**-0.714**	0.475	**-1.719**	1.225	**-1.626**	1.225	**-0.710**	0.778	**-0.620**	0.747	**-0.815**	1.092	**-1.240**	1.162
NRC A138	**1.005**	1.129			**0.093**	1.597	**1.009**	1.286	**1.099**	1.268	**0.903**	1.497	**0.479**	1.549
NRC A140	**0.912**	1.129	**-0.093**	1.597			**0.916**	1.286	**1.006**	1.268	**0.810**	1.497	**0.386**	1.549
PTB 229074	**-0.004**	0.616	**-1.009**	1.286	**-0.916**	1.286			**0.090**	0.843	**-0.105**	1.160	**-0.530**	1.227
PTB 229075	**-0.094**	0.576	**-1.099**	1.268	**-1.006**	1.268	**-0.090**	0.843			**-0.196**	1.140	**-0.620**	1.207
VNIIFTRI 79	**0.102**	0.983	**-0.903**	1.497	**-0.810**	1.497	**0.105**	1.160	**0.196**	1.140			**-0.425**	1.446
VNIIFTRI 89	**0.526**	1.061	**-0.479**	1.549	**-0.386**	1.549	**0.530**	1.227	**0.620**	1.207	**0.425**	1.446		


CCT-K1 : Nominal temperature, T_{90} = 8.400 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 9.508 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.131 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	9.508227	0.086
NIST A129	9.508237	0.086
NMi-VSL 226246	9.508099	0.206
NPL 221481	9.507680	0.210
NPL 221483	9.507531	0.201
NPL 221485	9.507387	0.201
NRC A138	9.509019	0.550
NRC A140	9.508971	0.550
PTB 229074	9.507997	0.284
PTB 229075	9.507851	0.262
VNIIFTRI 79	9.508226	0.492
VNIIFTRI 89	9.508531	0.528

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 9.50802 K

Matrix of equivalence

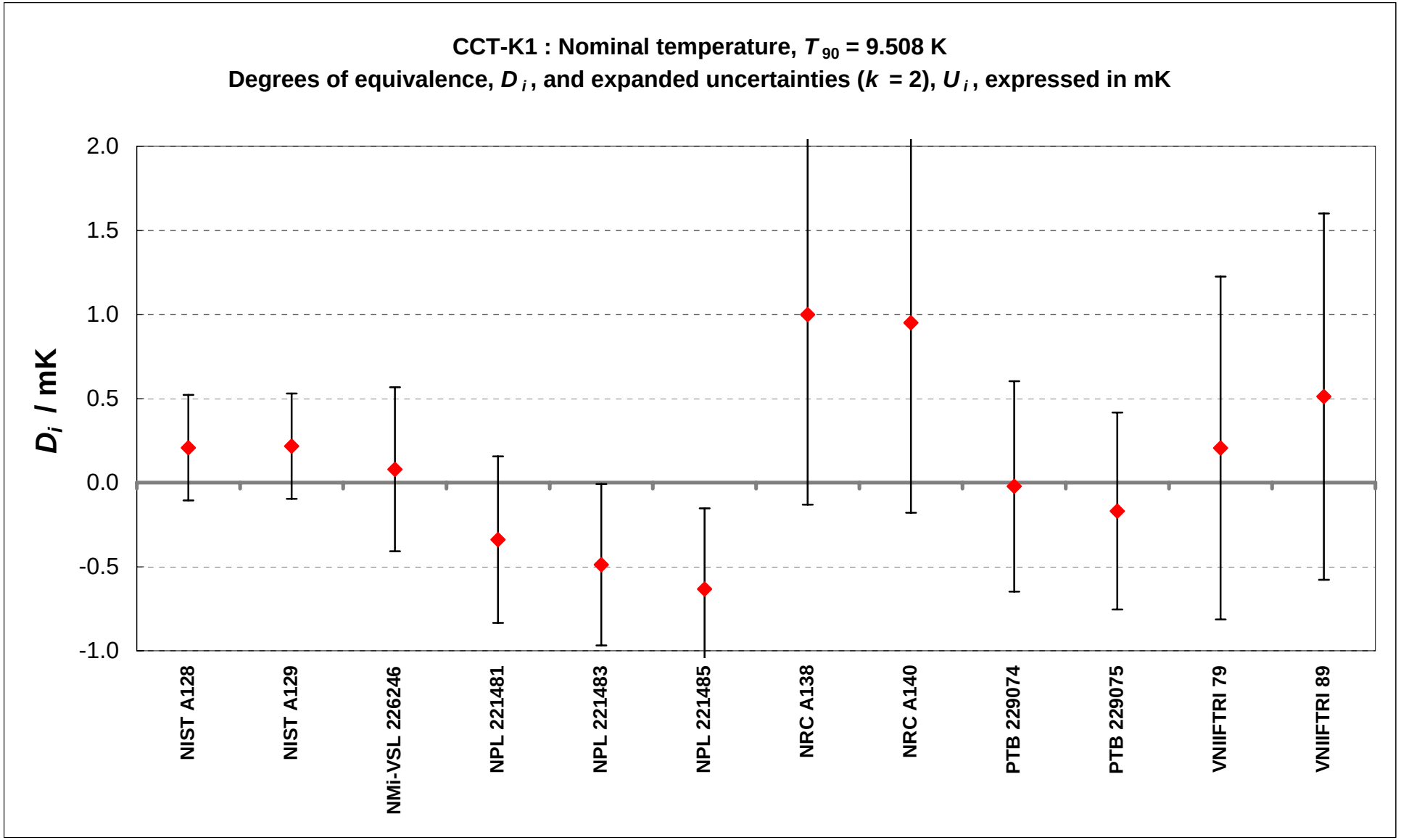
Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.207**	0.313			**-0.010**	0.443	**0.128**	0.580	**0.547**	0.586	**0.696**	0.573	**0.841**	0.573
NIST A129	**0.217**	0.313	**0.010**	0.443			**0.138**	0.580	**0.557**	0.586	**0.706**	0.573	**0.850**	0.573
NMi-VSL 226246	**0.079**	0.488	**-0.128**	0.580	**-0.138**	0.580			**0.419**	0.695	**0.568**	0.684	**0.712**	0.684
NPL 221481	**-0.340**	0.495	**-0.547**	0.586	**-0.557**	0.586	**-0.419**	0.695			**0.149**	0.690	**0.293**	0.690
NPL 221483	**-0.489**	0.480	**-0.696**	0.573	**-0.706**	0.573	**-0.568**	0.684	**-0.149**	0.690			**0.145**	0.679
NPL 221485	**-0.633**	0.480	**-0.841**	0.573	**-0.850**	0.573	**-0.712**	0.684	**-0.293**	0.690	**-0.145**	0.679		
NRC A138	**0.999**	1.131	**0.792**	1.173	**0.782**	1.173	**0.920**	1.231	**1.339**	1.234	**1.488**	1.228	**1.633**	1.228
NRC A140	**0.951**	1.131	**0.744**	1.173	**0.734**	1.173	**0.872**	1.231	**1.291**	1.234	**1.440**	1.228	**1.584**	1.228
PTB 229074	**-0.023**	0.625	**-0.230**	0.699	**-0.240**	0.699	**-0.102**	0.793	**0.317**	0.798	**0.466**	0.788	**0.611**	0.788
PTB 229075	**-0.169**	0.585	**-0.376**	0.664	**-0.386**	0.664	**-0.248**	0.762	**0.171**	0.767	**0.320**	0.757	**0.464**	0.757
VNIIFTRI 79	**0.206**	1.019	**-0.002**	1.066	**-0.011**	1.066	**0.127**	1.130	**0.546**	1.133	**0.694**	1.127	**0.839**	1.127
VNIIFTRI 89	**0.511**	1.089	**0.304**	1.133	**0.294**	1.133	**0.432**	1.193	**0.851**	1.196	**1.000**	1.190	**1.145**	1.190

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NRC A138		NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.207**	0.313	**-0.792**	1.173	**-0.744**	1.173	**0.230**	0.699	**0.376**	0.664	**0.002**	1.066	**-0.304**	1.133
NIST A129	**0.217**	0.313	**-0.782**	1.173	**-0.734**	1.173	**0.240**	0.699	**0.386**	0.664	**0.011**	1.066	**-0.294**	1.133
NMi-VSL 226246	**0.079**	0.488	**-0.920**	1.231	**-0.872**	1.231	**0.102**	0.793	**0.248**	0.762	**-0.127**	1.130	**-0.432**	1.193
NPL 221481	**-0.340**	0.495	**-1.339**	1.234	**-1.291**	1.234	**-0.317**	0.798	**-0.171**	0.767	**-0.546**	1.133	**-0.851**	1.196
NPL 221483	**-0.489**	0.480	**-1.488**	1.228	**-1.440**	1.228	**-0.466**	0.788	**-0.320**	0.757	**-0.694**	1.127	**-1.000**	1.190
NPL 221485	**-0.633**	0.480	**-1.633**	1.228	**-1.584**	1.228	**-0.611**	0.788	**-0.464**	0.757	**-0.839**	1.127	**-1.145**	1.190
NRC A138	**0.999**	1.131			**0.048**	1.599	**1.022**	1.292	**1.168**	1.273	**0.793**	1.522	**0.488**	1.570
NRC A140	**0.951**	1.131	**-0.048**	1.599			**0.974**	1.292	**1.120**	1.273	**0.745**	1.522	**0.440**	1.570
PTB 229074	**-0.023**	0.625	**-1.022**	1.292	**-0.974**	1.292			**0.146**	0.856	**-0.229**	1.196	**-0.534**	1.256
PTB 229075	**-0.169**	0.585	**-1.168**	1.273	**-1.120**	1.273	**-0.146**	0.856			**-0.375**	1.175	**-0.680**	1.236
VNIIFTRI 79	**0.206**	1.019	**-0.793**	1.522	**-0.745**	1.522	**0.229**	1.196	**0.375**	1.175			**-0.306**	1.491
VNIIFTRI 89	**0.511**	1.089	**-0.488**	1.570	**-0.440**	1.570	**0.534**	1.256	**0.680**	1.236	**0.306**	1.491		


CCT-K1 : Nominal temperature, T_{90} = 9.508 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 10.803 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.137 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	10.803560	0.096
NIST A129	10.803616	0.096
NMi-VSL 226246	10.803584	0.227
NPL 221481	10.803070	0.206
NPL 221483	10.803011	0.200
NPL 221485	10.802842	0.200
NRC A138	10.804196	0.550
NRC A140	10.804185	0.550
PTB 229074	10.803248	0.288
PTB 229075	10.803221	0.265
VNIIFTRI 79	10.803595	0.513
VNIIFTRI 89	10.803927	0.544

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 10.803390 K

Matrix of equivalence

Lab, S/N *j* ⟹

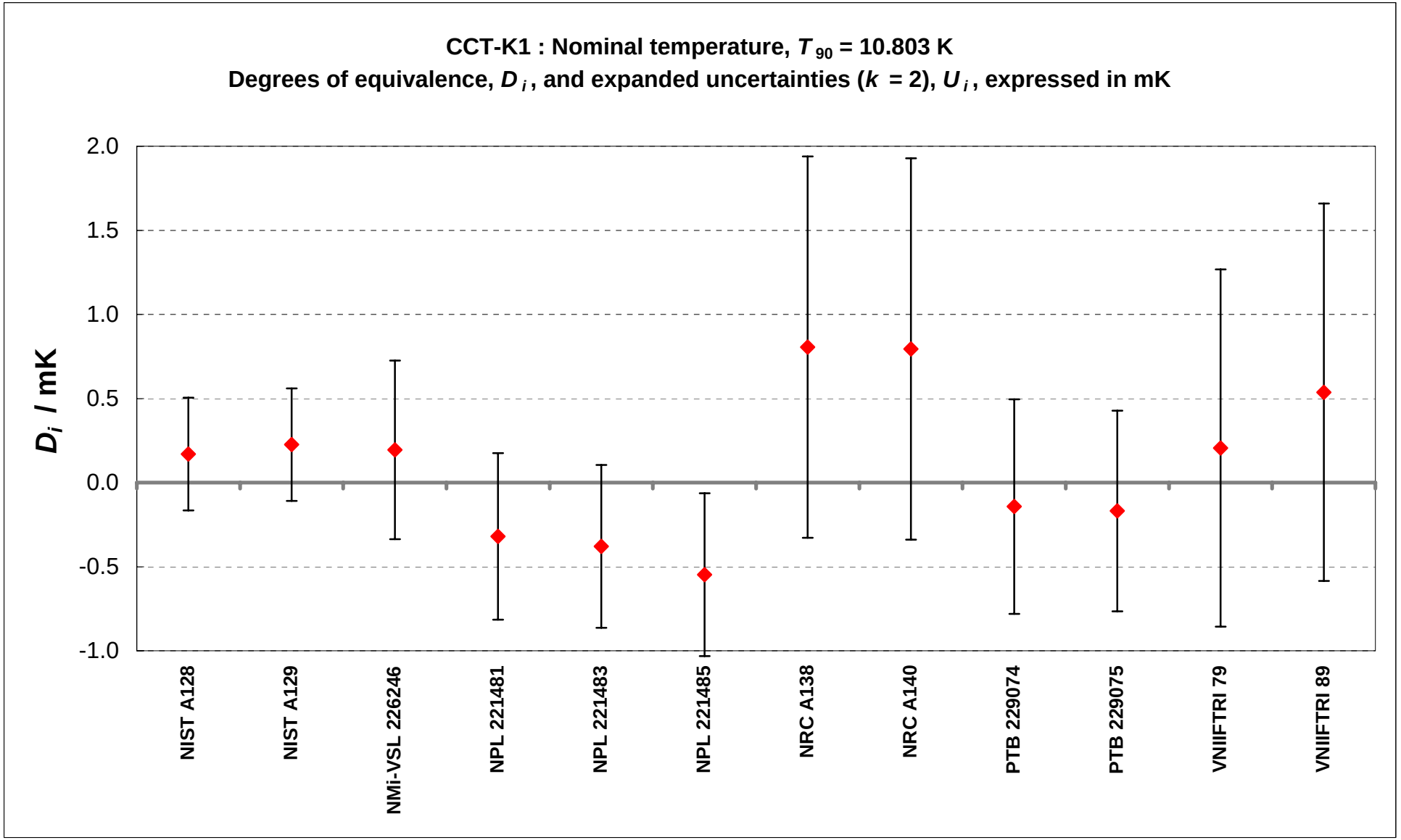
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.170**	0.335			**-0.056**	0.473	**-0.025**	0.627	**0.489**	0.598	**0.549**	0.589	**0.718**	0.589
NIST A129	**0.226**	0.335	**0.056**	0.473			**0.032**	0.627	**0.546**	0.598	**0.605**	0.589	**0.774**	0.589
NMi-VSL 226246	**0.194**	0.531	**0.025**	0.627	**-0.032**	0.627			**0.514**	0.726	**0.574**	0.719	**0.742**	0.719
NPL 221481	**-0.320**	0.495	**-0.489**	0.598	**-0.546**	0.598	**-0.514**	0.726			**0.060**	0.693	**0.228**	0.693
NPL 221483	**-0.379**	0.484	**-0.549**	0.589	**-0.605**	0.589	**-0.574**	0.719	**-0.060**	0.693			**0.169**	0.685
NPL 221485	**-0.548**	0.484	**-0.718**	0.589	**-0.774**	0.589	**-0.742**	0.719	**-0.228**	0.693	**-0.169**	0.685		
NRC A138	**0.806**	1.134	**0.636**	1.182	**0.580**	1.182	**0.612**	1.252	**1.126**	1.237	**1.185**	1.233	**1.354**	1.233
NRC A140	**0.795**	1.134	**0.625**	1.182	**0.569**	1.182	**0.600**	1.252	**1.114**	1.237	**1.174**	1.233	**1.342**	1.233
PTB 229074	**-0.142**	0.638	**-0.312**	0.720	**-0.368**	0.720	**-0.337**	0.830	**0.177**	0.807	**0.237**	0.801	**0.405**	0.801
PTB 229075	**-0.169**	0.597	**-0.338**	0.684	**-0.395**	0.684	**-0.363**	0.798	**0.151**	0.775	**0.211**	0.768	**0.379**	0.768
VNIIFTRI 79	**0.205**	1.062	**0.036**	1.113	**-0.021**	1.113	**0.011**	1.187	**0.525**	1.171	**0.585**	1.167	**0.753**	1.167
VNIIFTRI 89	**0.537**	1.122	**0.367**	1.171	**0.311**	1.171	**0.342**	1.241	**0.856**	1.226	**0.916**	1.222	**1.085**	1.222

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A138		NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.170**	0.335	**-0.636**	1.182	**-0.625**	1.182	**0.312**	0.720	**0.338**	0.684	**-0.036**	1.113	**-0.367**	1.171
NIST A129	**0.226**	0.335	**-0.580**	1.182	**-0.569**	1.182	**0.368**	0.720	**0.395**	0.684	**0.021**	1.113	**-0.311**	1.171
NMi-VSL 226246	**0.194**	0.531	**-0.612**	1.252	**-0.600**	1.252	**0.337**	0.830	**0.363**	0.798	**-0.011**	1.187	**-0.342**	1.241
NPL 221481	**-0.320**	0.495	**-1.126**	1.237	**-1.114**	1.237	**-0.177**	0.807	**-0.151**	0.775	**-0.525**	1.171	**-0.856**	1.226
NPL 221483	**-0.379**	0.484	**-1.185**	1.233	**-1.174**	1.233	**-0.237**	0.801	**-0.211**	0.768	**-0.585**	1.167	**-0.916**	1.222
NPL 221485	**-0.548**	0.484	**-1.354**	1.233	**-1.342**	1.233	**-0.405**	0.801	**-0.379**	0.768	**-0.753**	1.167	**-1.085**	1.222
NRC A138	**0.806**	1.134			**0.012**	1.603	**0.948**	1.301	**0.975**	1.281	**0.601**	1.553	**0.269**	1.595
NRC A140	**0.795**	1.134	**-0.012**	1.603			**0.937**	1.301	**0.963**	1.281	**0.589**	1.553	**0.258**	1.595
PTB 229074	**-0.142**	0.638	**-0.948**	1.301	**-0.937**	1.301			**0.026**	0.873	**-0.348**	1.239	**-0.679**	1.291
PTB 229075	**-0.169**	0.597	**-0.975**	1.281	**-0.963**	1.281	**-0.026**	0.873			**-0.374**	1.218	**-0.705**	1.271
VNIIFTRI 79	**0.205**	1.062	**-0.601**	1.553	**-0.589**	1.553	**0.348**	1.239	**0.374**	1.218			**-0.331**	1.545
VNIIFTRI 89	**0.537**	1.122	**-0.269**	1.595	**-0.258**	1.595	**0.679**	1.291	**0.705**	1.271	**0.331**	1.545		


CCT-K1 : Nominal temperature, T_{90} = 10.803 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 12.297 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.145 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	12.297349	0.106
NIST A129	12.297413	0.106
NMi-VSL 226246	12.297900	0.267
NPL 221481	12.297090	0.199
NPL 221483	12.297224	0.197
NPL 221485	12.296905	0.197
NRC A138	12.297793	0.550
NRC A140	12.297778	0.550
PTB 229074	12.297149	0.292
PTB 229075	12.297099	0.269
VNIIFTRI 79	12.297633	0.536
VNIIFTRI 89	12.297547	0.562

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 12.297309 K

Matrix of equivalence

Lab, S/N *j* ⟹

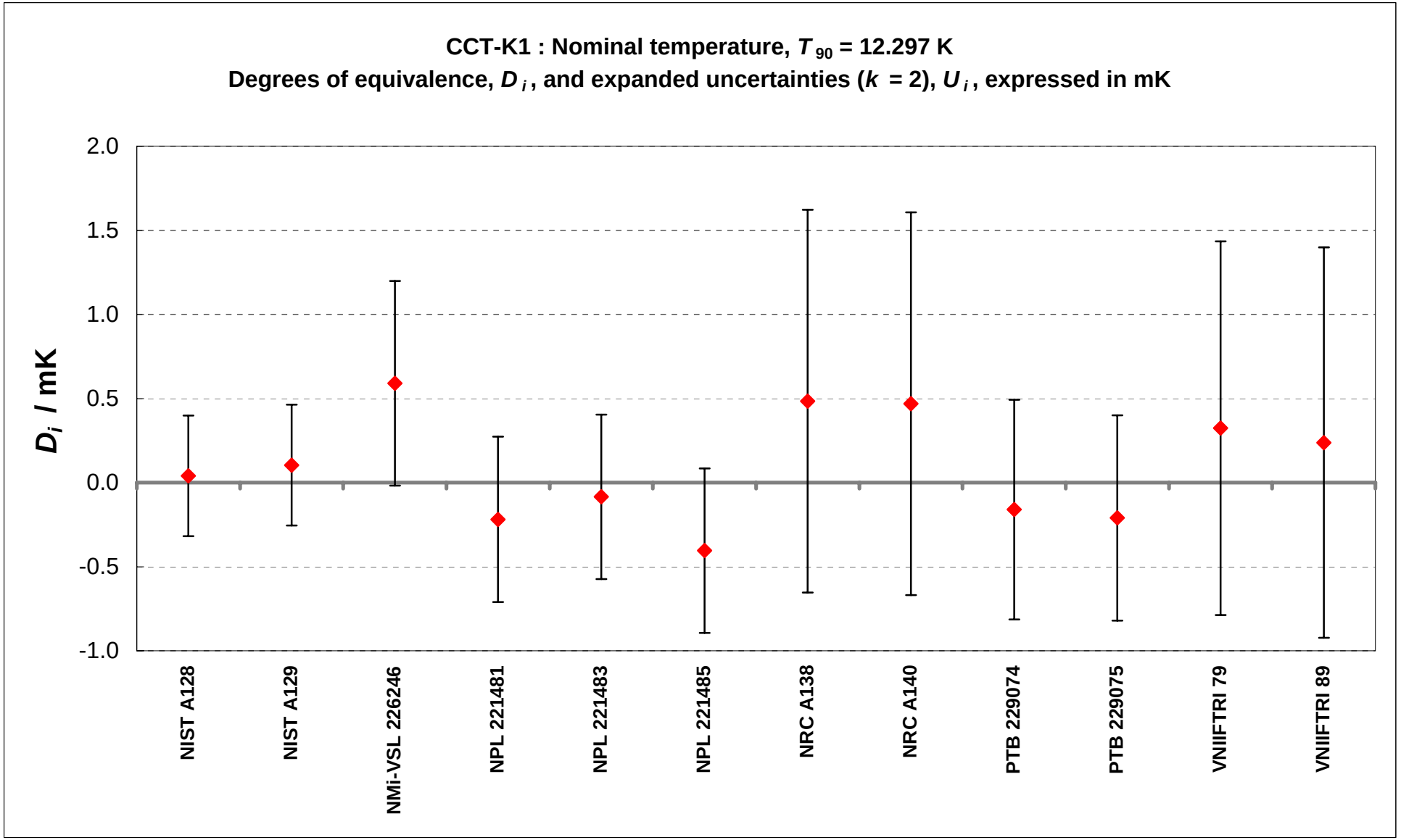
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.040**	0.359			**-0.064**	0.508	**-0.550**	0.706	**0.259**	0.609	**0.125**	0.607	**0.445**	0.607
NIST A129	**0.104**	0.359	**0.064**	0.508			**-0.486**	0.706	**0.323**	0.609	**0.189**	0.607	**0.509**	0.607
NMi-VSL 226246	**0.591**	0.608	**0.550**	0.706	**0.486**	0.706			**0.809**	0.782	**0.675**	0.781	**0.995**	0.781
NPL 221481	**-0.219**	0.492	**-0.259**	0.609	**-0.323**	0.609	**-0.809**	0.782			**-0.134**	0.693	**0.186**	0.693
NPL 221483	**-0.085**	0.489	**-0.125**	0.607	**-0.189**	0.607	**-0.675**	0.781	**0.134**	0.693			**0.320**	0.691
NPL 221485	**-0.404**	0.489	**-0.445**	0.607	**-0.509**	0.607	**-0.995**	0.781	**-0.186**	0.693	**-0.320**	0.691		
NRC A138	**0.484**	1.138	**0.444**	1.193	**0.380**	1.193	**-0.106**	1.290	**0.703**	1.239	**0.569**	1.238	**0.889**	1.238
NRC A140	**0.469**	1.138	**0.429**	1.193	**0.365**	1.193	**-0.122**	1.290	**0.688**	1.239	**0.553**	1.238	**0.873**	1.238
PTB 229074	**-0.160**	0.653	**-0.200**	0.745	**-0.264**	0.745	**-0.751**	0.892	**0.058**	0.817	**-0.076**	0.816	**0.244**	0.816
PTB 229075	**-0.210**	0.611	**-0.250**	0.708	**-0.314**	0.708	**-0.801**	0.862	**0.009**	0.784	**-0.126**	0.782	**0.194**	0.782
VNIIFTRI 79	**0.324**	1.111	**0.284**	1.168	**0.220**	1.168	**-0.267**	1.267	**0.543**	1.215	**0.408**	1.214	**0.728**	1.214
VNIIFTRI 89	**0.238**	1.161	**0.197**	1.215	**0.134**	1.215	**-0.353**	1.311	**0.456**	1.261	**0.322**	1.259	**0.642**	1.259

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A138 D_{ij} / mK	NRC A138 U_{ij} / mK	NRC A140 D_{ij} / mK	NRC A140 U_{ij} / mK	PTB 229074 D_{ij} / mK	PTB 229074 U_{ij} / mK	PTB 229075 D_{ij} / mK	PTB 229075 U_{ij} / mK	VNIIFTRI 79 D_{ij} / mK	VNIIFTRI 79 U_{ij} / mK	VNIIFTRI 89 D_{ij} / mK	VNIIFTRI 89 U_{ij} / mK
NIST A128	**0.040**	0.359	**-0.444**	1.193	**-0.429**	1.193	**0.200**	0.745	**0.250**	0.708	**-0.284**	1.168	**-0.197**	1.215
NIST A129	**0.104**	0.359	**-0.380**	1.193	**-0.365**	1.193	**0.264**	0.745	**0.314**	0.708	**-0.220**	1.168	**-0.134**	1.215
NMi-VSL 226246	**0.591**	0.608	**0.106**	1.290	**0.122**	1.290	**0.751**	0.892	**0.801**	0.862	**0.267**	1.267	**0.353**	1.311
NPL 221481	**-0.219**	0.492	**-0.703**	1.239	**-0.688**	1.239	**-0.058**	0.817	**-0.009**	0.784	**-0.543**	1.215	**-0.456**	1.261
NPL 221483	**-0.085**	0.489	**-0.569**	1.238	**-0.553**	1.238	**0.076**	0.816	**0.126**	0.782	**-0.408**	1.214	**-0.322**	1.259
NPL 221485	**-0.404**	0.489	**-0.889**	1.238	**-0.873**	1.238	**-0.244**	0.816	**-0.194**	0.782	**-0.728**	1.214	**-0.642**	1.259
NRC A138	**0.484**	1.138			**0.015**	1.609	**0.645**	1.312	**0.695**	1.291	**0.160**	1.590	**0.247**	1.625
NRC A140	**0.469**	1.138	**-0.015**	1.609			**0.629**	1.312	**0.679**	1.291	**0.145**	1.590	**0.231**	1.625
PTB 229074	**-0.160**	0.653	**-0.645**	1.312	**-0.629**	1.312			**0.050**	0.894	**-0.484**	1.289	**-0.398**	1.332
PTB 229075	**-0.210**	0.611	**-0.695**	1.291	**-0.679**	1.291	**-0.050**	0.894			**-0.534**	1.268	**-0.448**	1.312
VNIIFTRI 79	**0.324**	1.111	**-0.160**	1.590	**-0.145**	1.590	**0.484**	1.289	**0.534**	1.268			**0.086**	1.607
VNIIFTRI 89	**0.238**	1.161	**-0.247**	1.625	**-0.231**	1.625	**0.398**	1.332	**0.448**	1.312	**-0.086**	1.607		


CCT-K1 : Nominal temperature, T_{90} = 12.297 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 13.798 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

u_{comp} = 0.153 mK

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	13.798156	0.111
NIST A129	13.798122	0.111
NMi-VSL 226246	13.798881	0.308
NPL 221481	13.798130	0.191
NPL 221483	13.798170	0.182
NPL 221485	13.797754	0.182
NRC A138	13.798459	0.550
NRC A140	13.798305	0.550
PTB 229074	13.798317	0.297
PTB 229075	13.798209	0.273
VNIIFTRI 79	13.798638	0.560
VNIIFTRI 89	13.798620	0.580

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 13.798183 K

Matrix of equivalence

Lab, S/N *j* ⟹

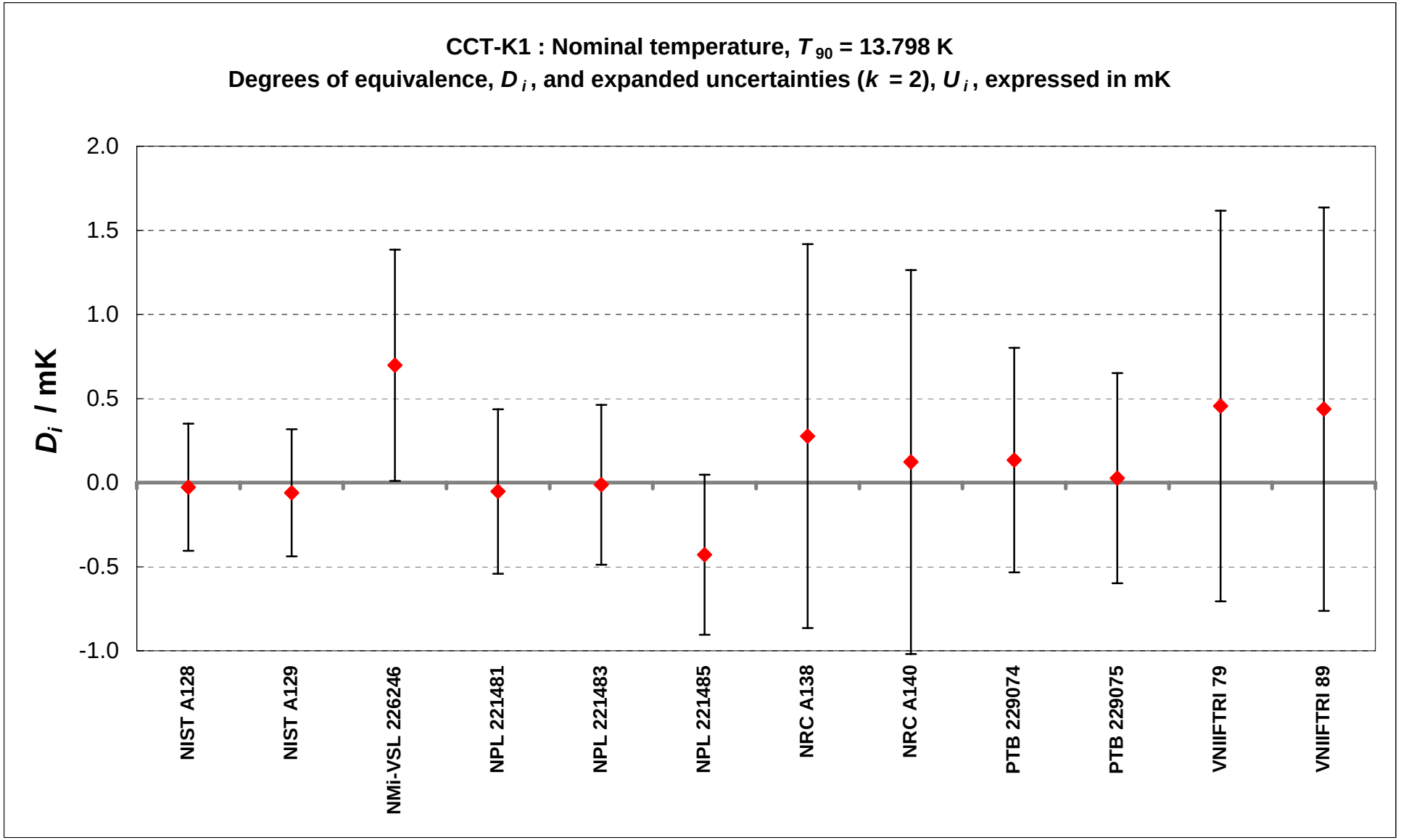
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.027**	0.378			**0.033**	0.534	**-0.725**	0.785	**0.026**	0.618	**-0.014**	0.607	**0.402**	0.607
NIST A129	**-0.061**	0.378	**-0.033**	0.534			**-0.758**	0.785	**-0.008**	0.618	**-0.048**	0.607	**0.368**	0.607
NMi-VSL 226246	**0.698**	0.688	**0.725**	0.785	**0.758**	0.785			**0.751**	0.844	**0.711**	0.836	**1.127**	0.836
NPL 221481	**-0.053**	0.489	**-0.026**	0.618	**0.008**	0.618	**-0.751**	0.844			**-0.040**	0.682	**0.376**	0.682
NPL 221483	**-0.013**	0.476	**0.014**	0.607	**0.048**	0.607	**-0.711**	0.836	**0.040**	0.682			**0.416**	0.673
NPL 221485	**-0.429**	0.476	**-0.402**	0.607	**-0.368**	0.607	**-1.127**	0.836	**-0.376**	0.682	**-0.416**	0.673		
NRC A138	**0.276**	1.142	**0.303**	1.203	**0.337**	1.203	**-0.422**	1.333	**0.329**	1.242	**0.289**	1.237	**0.705**	1.237
NRC A140	**0.122**	1.142	**0.149**	1.203	**0.183**	1.203	**-0.576**	1.333	**0.175**	1.242	**0.135**	1.237	**0.551**	1.237
PTB 229074	**0.134**	0.668	**0.161**	0.768	**0.194**	0.768	**-0.564**	0.959	**0.187**	0.828	**0.147**	0.820	**0.563**	0.820
PTB 229075	**0.026**	0.625	**0.054**	0.730	**0.087**	0.730	**-0.671**	0.929	**0.079**	0.794	**0.039**	0.785	**0.455**	0.785
VNIIFTRI 79	**0.455**	1.161	**0.483**	1.221	**0.516**	1.221	**-0.242**	1.349	**0.508**	1.260	**0.468**	1.255	**0.884**	1.255
VNIIFTRI 89	**0.437**	1.200	**0.464**	1.258	**0.497**	1.258	**-0.261**	1.383	**0.490**	1.296	**0.450**	1.290	**0.866**	1.290

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A138		NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.027**	0.378	**-0.303**	1.203	**-0.149**	1.203	**-0.161**	0.768	**-0.054**	0.730	**-0.483**	1.221	**-0.464**	1.258
NIST A129	**-0.061**	0.378	**-0.337**	1.203	**-0.183**	1.203	**-0.194**	0.768	**-0.087**	0.730	**-0.516**	1.221	**-0.497**	1.258
NMi-VSL 226246	**0.698**	0.688	**0.422**	1.333	**0.576**	1.333	**0.564**	0.959	**0.671**	0.929	**0.242**	1.349	**0.261**	1.383
NPL 221481	**-0.053**	0.489	**-0.329**	1.242	**-0.175**	1.242	**-0.187**	0.828	**-0.079**	0.794	**-0.508**	1.260	**-0.490**	1.296
NPL 221483	**-0.013**	0.476	**-0.289**	1.237	**-0.135**	1.237	**-0.147**	0.820	**-0.039**	0.785	**-0.468**	1.255	**-0.450**	1.290
NPL 221485	**-0.429**	0.476	**-0.705**	1.237	**-0.551**	1.237	**-0.563**	0.820	**-0.455**	0.785	**-0.884**	1.255	**-0.866**	1.290
NRC A138	**0.276**	1.142			**0.154**	1.615	**0.143**	1.323	**0.250**	1.302	**-0.179**	1.628	**-0.160**	1.656
NRC A140	**0.122**	1.142	**-0.154**	1.615			**-0.012**	1.323	**0.096**	1.302	**-0.333**	1.628	**-0.314**	1.656
PTB 229074	**0.134**	0.668	**-0.143**	1.323	**0.012**	1.323			**0.107**	0.915	**-0.322**	1.340	**-0.303**	1.373
PTB 229075	**0.026**	0.625	**-0.250**	1.302	**-0.096**	1.302	**-0.107**	0.915			**-0.429**	1.319	**-0.410**	1.353
VNIIFTRI 79	**0.455**	1.161	**0.179**	1.628	**0.333**	1.628	**0.322**	1.340	**0.429**	1.319			**0.019**	1.669
VNIIFTRI 89	**0.437**	1.200	**0.160**	1.656	**0.314**	1.656	**0.303**	1.373	**0.410**	1.353	**-0.019**	1.669		


CCT-K1 : Nominal temperature, T_{90} = 13.798 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 15.500 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.153 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	15.499479	0.119
NIST A129	15.499474	0.119
NMi-VSL 226246	15.500221	0.354
NPL 221481	15.499523	0.194
NPL 221483	15.499571	0.185
NPL 221485	15.499138	0.185
NRC A138	15.499689	0.550
NRC A140	15.499662	0.550
PTB 229074	15.499940	0.302
PTB 229075	15.499849	0.277
VNIIFTRI 79	15.499890	0.560
VNIIFTRI 89	15.499817	0.585

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 15.499566 K

Matrix of equivalence

Lab, S/N *j* ⟹

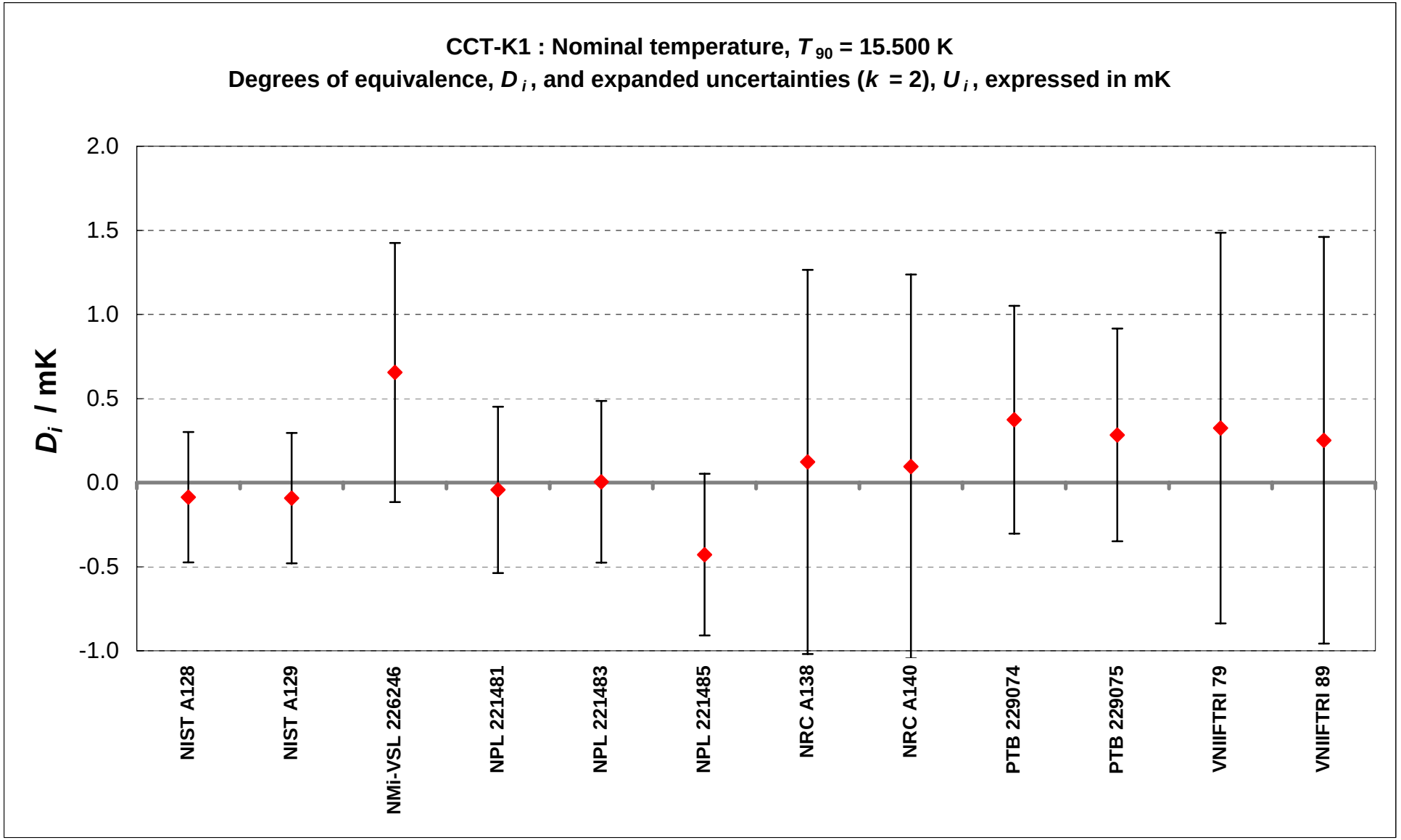
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.087**	0.388			**0.006**	0.548	**-0.741**	0.863	**-0.043**	0.628	**-0.091**	0.617	**0.342**	0.617
NIST A129	**-0.092**	0.388	**-0.006**	0.548			**-0.747**	0.863	**-0.049**	0.628	**-0.097**	0.617	**0.336**	0.617
NMi-VSL 226246	**0.655**	0.771	**0.741**	0.863	**0.747**	0.863			**0.698**	0.916	**0.650**	0.908	**1.083**	0.908
NPL 221481	**-0.043**	0.494	**0.043**	0.628	**0.049**	0.628	**-0.698**	0.916			**-0.048**	0.689	**0.385**	0.689
NPL 221483	**0.005**	0.480	**0.091**	0.617	**0.097**	0.617	**-0.650**	0.908	**0.048**	0.689			**0.433**	0.679
NPL 221485	**-0.428**	0.480	**-0.342**	0.617	**-0.336**	0.617	**-1.083**	0.908	**-0.385**	0.689	**-0.433**	0.679		
NRC A138	**0.123**	1.142	**0.209**	1.206	**0.215**	1.206	**-0.532**	1.378	**0.166**	1.244	**0.118**	1.239	**0.551**	1.239
NRC A140	**0.096**	1.142	**0.182**	1.206	**0.188**	1.206	**-0.559**	1.378	**0.139**	1.244	**0.091**	1.239	**0.524**	1.239
PTB 229074	**0.374**	0.677	**0.460**	0.780	**0.466**	0.780	**-0.281**	1.026	**0.417**	0.839	**0.369**	0.831	**0.802**	0.831
PTB 229075	**0.283**	0.633	**0.370**	0.742	**0.376**	0.742	**-0.371**	0.997	**0.326**	0.803	**0.279**	0.794	**0.712**	0.794
VNIIFTRI 79	**0.324**	1.161	**0.411**	1.224	**0.416**	1.224	**-0.331**	1.394	**0.367**	1.262	**0.319**	1.256	**0.753**	1.256
VNIIFTRI 89	**0.251**	1.209	**0.338**	1.269	**0.344**	1.269	**-0.403**	1.434	**0.294**	1.306	**0.247**	1.301	**0.680**	1.301

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A138		NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.087**	0.388	**-0.209**	1.206	**-0.182**	1.206	**-0.460**	0.780	**-0.370**	0.742	**-0.411**	1.224	**-0.338**	1.269
NIST A129	**-0.092**	0.388	**-0.215**	1.206	**-0.188**	1.206	**-0.466**	0.780	**-0.376**	0.742	**-0.416**	1.224	**-0.344**	1.269
NMi-VSL 226246	**0.655**	0.771	**0.532**	1.378	**0.559**	1.378	**0.281**	1.026	**0.371**	0.997	**0.331**	1.394	**0.403**	1.434
NPL 221481	**-0.043**	0.494	**-0.166**	1.244	**-0.139**	1.244	**-0.417**	0.839	**-0.326**	0.803	**-0.367**	1.262	**-0.294**	1.306
NPL 221483	**0.005**	0.480	**-0.118**	1.239	**-0.091**	1.239	**-0.369**	0.831	**-0.279**	0.794	**-0.319**	1.256	**-0.247**	1.301
NPL 221485	**-0.428**	0.480	**-0.551**	1.239	**-0.524**	1.239	**-0.802**	0.831	**-0.712**	0.794	**-0.753**	1.256	**-0.680**	1.301
NRC A138	**0.123**	1.142			**0.027**	1.615	**-0.251**	1.328	**-0.160**	1.305	**-0.201**	1.628	**-0.128**	1.663
NRC A140	**0.096**	1.142	**-0.027**	1.615			**-0.278**	1.328	**-0.188**	1.305	**-0.228**	1.628	**-0.156**	1.663
PTB 229074	**0.374**	0.677	**0.251**	1.328	**0.278**	1.328			**0.090**	0.927	**0.050**	1.344	**0.122**	1.386
PTB 229075	**0.283**	0.633	**0.160**	1.305	**0.188**	1.305	**-0.090**	0.927			**-0.041**	1.322	**0.032**	1.364
VNIIFTRI 79	**0.324**	1.161	**0.201**	1.628	**0.228**	1.628	**-0.050**	1.344	**0.041**	1.322			**0.073**	1.676
VNIIFTRI 89	**0.251**	1.209	**0.128**	1.663	**0.156**	1.663	**-0.122**	1.386	**-0.032**	1.364	**-0.073**	1.676		


CCT-K1 : Nominal temperature, T_{90} = 15.500 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 16.999 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.153 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	16.999286	0.124
NIST A129	16.999271	0.124
NMi-VSL 226246	16.999833	0.394
NPL 221481	16.999290	0.197
NPL 221483	16.999280	0.188
NPL 221485	16.998847	0.188
NRC A138	16.999430	0.550
NRC A140	16.999259	0.550
PTB 229074	16.999859	0.307
PTB 229075	16.999701	0.281
VNIIFTRI 79	16.999602	0.560
VNIIFTRI 89	16.999783	0.589

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 16.999335 K

Matrix of equivalence

Lab, S/N *j* ⟹

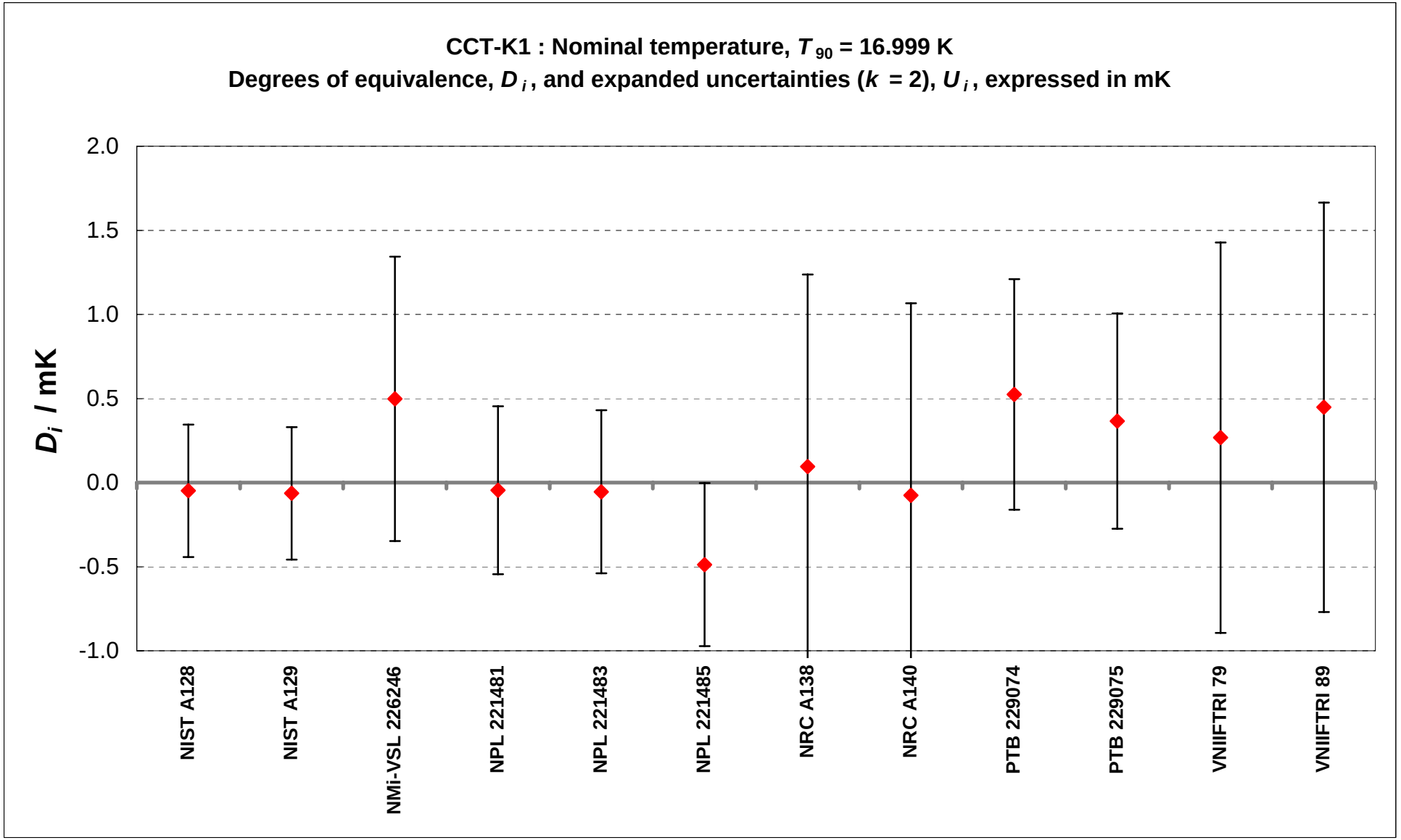
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.049**	0.394			**0.015**	0.557	**-0.546**	0.933	**-0.003**	0.635	**0.006**	0.624	**0.439**	0.624
NIST A129	**-0.064**	0.394	**-0.015**	0.557			**-0.562**	0.933	**-0.019**	0.635	**-0.009**	0.624	**0.424**	0.624
NMi-VSL 226246	**0.498**	0.845	**0.546**	0.933	**0.562**	0.933			**0.543**	0.982	**0.553**	0.975	**0.985**	0.975
NPL 221481	**-0.045**	0.499	**0.003**	0.635	**0.019**	0.635	**-0.543**	0.982			**0.009**	0.695	**0.442**	0.695
NPL 221483	**-0.055**	0.485	**-0.006**	0.624	**0.009**	0.624	**-0.553**	0.975	**-0.009**	0.695			**0.433**	0.685
NPL 221485	**-0.488**	0.485	**-0.439**	0.624	**-0.424**	0.624	**-0.985**	0.975	**-0.442**	0.695	**-0.433**	0.685		
NRC A138	**0.095**	1.142	**0.144**	1.208	**0.160**	1.208	**-0.402**	1.421	**0.141**	1.246	**0.150**	1.240	**0.583**	1.240
NRC A140	**-0.076**	1.142	**-0.027**	1.208	**-0.012**	1.208	**-0.574**	1.421	**-0.031**	1.246	**-0.021**	1.240	**0.412**	1.240
PTB 229074	**0.524**	0.686	**0.573**	0.791	**0.588**	0.791	**0.026**	1.089	**0.569**	0.848	**0.579**	0.840	**1.011**	0.840
PTB 229075	**0.366**	0.639	**0.414**	0.751	**0.430**	0.751	**-0.132**	1.060	**0.411**	0.811	**0.420**	0.802	**0.853**	0.802
VNIIFTRI 79	**0.267**	1.161	**0.316**	1.226	**0.331**	1.226	**-0.231**	1.436	**0.312**	1.264	**0.322**	1.258	**0.755**	1.258
VNIIFTRI 89	**0.448**	1.217	**0.497**	1.279	**0.512**	1.279	**-0.050**	1.482	**0.493**	1.315	**0.503**	1.310	**0.935**	1.310

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A138 D_{ij} / mK	NRC A138 U_{ij} / mK	NRC A140 D_{ij} / mK	NRC A140 U_{ij} / mK	PTB 229074 D_{ij} / mK	PTB 229074 U_{ij} / mK	PTB 229075 D_{ij} / mK	PTB 229075 U_{ij} / mK	VNIIFTRI 79 D_{ij} / mK	VNIIFTRI 79 U_{ij} / mK	VNIIFTRI 89 D_{ij} / mK	VNIIFTRI 89 U_{ij} / mK
NIST A128	**-0.049**	0.394	**-0.144**	1.208	**0.027**	1.208	**-0.573**	0.791	**-0.414**	0.751	**-0.316**	1.226	**-0.497**	1.279
NIST A129	**-0.064**	0.394	**-0.160**	1.208	**0.012**	1.208	**-0.588**	0.791	**-0.430**	0.751	**-0.331**	1.226	**-0.512**	1.279
NMi-VSL 226246	**0.498**	0.845	**0.402**	1.421	**0.574**	1.421	**-0.026**	1.089	**0.132**	1.060	**0.231**	1.436	**0.050**	1.482
NPL 221481	**-0.045**	0.499	**-0.141**	1.246	**0.031**	1.246	**-0.569**	0.848	**-0.411**	0.811	**-0.312**	1.264	**-0.493**	1.315
NPL 221483	**-0.055**	0.485	**-0.150**	1.240	**0.021**	1.240	**-0.579**	0.840	**-0.420**	0.802	**-0.322**	1.258	**-0.503**	1.310
NPL 221485	**-0.488**	0.485	**-0.583**	1.240	**-0.412**	1.240	**-1.011**	0.840	**-0.853**	0.802	**-0.755**	1.258	**-0.935**	1.310
NRC A138	**0.095**	1.142			**0.171**	1.615	**-0.428**	1.332	**-0.270**	1.309	**-0.171**	1.628	**-0.352**	1.669
NRC A140	**-0.076**	1.142	**-0.171**	1.615			**-0.600**	1.332	**-0.441**	1.309	**-0.343**	1.628	**-0.524**	1.669
PTB 229074	**0.524**	0.686	**0.428**	1.332	**0.600**	1.332			**0.158**	0.938	**0.257**	1.348	**0.076**	1.397
PTB 229075	**0.366**	0.639	**0.270**	1.309	**0.441**	1.309	**-0.158**	0.938			**0.099**	1.325	**-0.082**	1.375
VNIIFTRI 79	**0.267**	1.161	**0.171**	1.628	**0.343**	1.628	**-0.257**	1.348	**-0.099**	1.325			**-0.181**	1.682
VNIIFTRI 89	**0.448**	1.217	**0.352**	1.669	**0.524**	1.669	**-0.076**	1.397	**0.082**	1.375	**0.181**	1.682		


CCT-K1 : Nominal temperature, T_{90} = 16.999 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 18.597 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.153 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	18.597374	0.129
NIST A129	18.597342	0.129
NMi-VSL 226246	18.597934	0.437
NPL 221481	18.597330	0.200
NPL 221483	18.597229	0.191
NPL 221485	18.596804	0.191
NRC A138	18.597402	0.550
NRC A140	18.597237	0.550
PTB 229074	18.597946	0.312
PTB 229075	18.597872	0.285
VNIIFTRI 79	18.597658	0.560
VNIIFTRI 89	18.597830	0.593

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 18.597377 K

Matrix of equivalence

Lab, S/N *j* ⟹

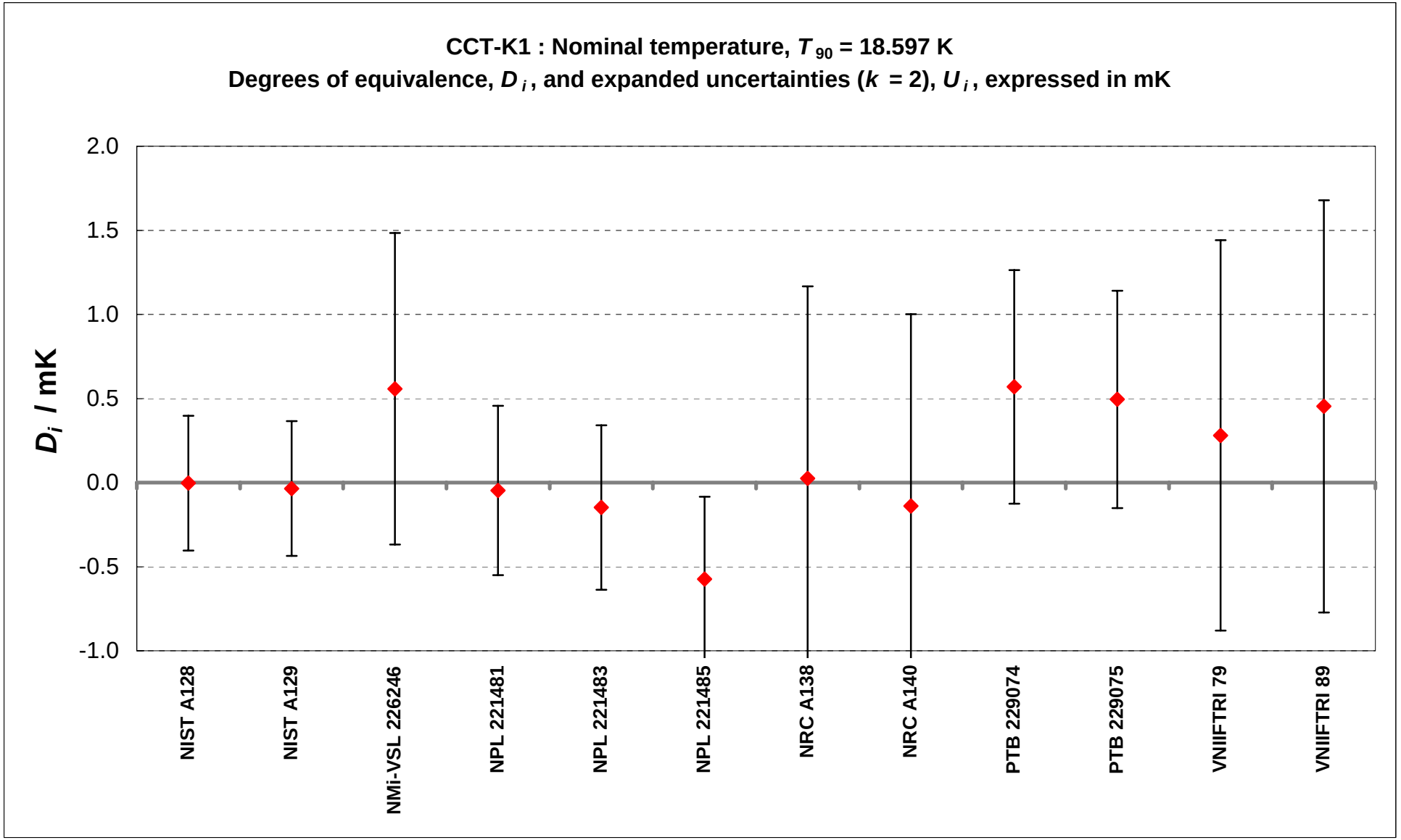
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.003**	0.401			**0.032**	0.567	**-0.560**	1.009	**0.044**	0.643	**0.145**	0.632	**0.570**	0.632
NIST A129	**-0.035**	0.401	**-0.032**	0.567			**-0.593**	1.009	**0.012**	0.643	**0.113**	0.632	**0.538**	0.632
NMi-VSL 226246	**0.557**	0.926	**0.560**	1.009	**0.593**	1.009			**0.604**	1.054	**0.706**	1.048	**1.131**	1.048
NPL 221481	**-0.047**	0.503	**-0.044**	0.643	**-0.012**	0.643	**-0.604**	1.054			**0.101**	0.702	**0.526**	0.702
NPL 221483	**-0.148**	0.489	**-0.145**	0.632	**-0.113**	0.632	**-0.706**	1.048	**-0.101**	0.702			**0.425**	0.692
NPL 221485	**-0.573**	0.489	**-0.570**	0.632	**-0.538**	0.632	**-1.131**	1.048	**-0.526**	0.702	**-0.425**	0.692		
NRC A138	**0.025**	1.142	**0.028**	1.210	**0.060**	1.210	**-0.533**	1.470	**0.072**	1.248	**0.173**	1.242	**0.598**	1.242
NRC A140	**-0.140**	1.142	**-0.137**	1.210	**-0.105**	1.210	**-0.697**	1.470	**-0.093**	1.248	**0.008**	1.242	**0.433**	1.242
PTB 229074	**0.569**	0.695	**0.572**	0.802	**0.605**	0.802	**0.012**	1.158	**0.616**	0.858	**0.718**	0.850	**1.142**	0.850
PTB 229075	**0.495**	0.647	**0.498**	0.761	**0.530**	0.761	**-0.063**	1.130	**0.542**	0.819	**0.643**	0.811	**1.068**	0.811
VNIIFTRI 79	**0.281**	1.161	**0.283**	1.228	**0.316**	1.228	**-0.277**	1.485	**0.327**	1.265	**0.429**	1.260	**0.854**	1.260
VNIIFTRI 89	**0.453**	1.226	**0.456**	1.290	**0.489**	1.290	**-0.104**	1.536	**0.500**	1.325	**0.602**	1.320	**1.026**	1.320

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A138		NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.003**	0.401	**-0.028**	1.210	**0.137**	1.210	**-0.572**	0.802	**-0.498**	0.761	**-0.283**	1.228	**-0.456**	1.290
NIST A129	**-0.035**	0.401	**-0.060**	1.210	**0.105**	1.210	**-0.605**	0.802	**-0.530**	0.761	**-0.316**	1.228	**-0.489**	1.290
NMi-VSL 226246	**0.557**	0.926	**0.533**	1.470	**0.697**	1.470	**-0.012**	1.158	**0.063**	1.130	**0.277**	1.485	**0.104**	1.536
NPL 221481	**-0.047**	0.503	**-0.072**	1.248	**0.093**	1.248	**-0.616**	0.858	**-0.542**	0.819	**-0.327**	1.265	**-0.500**	1.325
NPL 221483	**-0.148**	0.489	**-0.173**	1.242	**-0.008**	1.242	**-0.718**	0.850	**-0.643**	0.811	**-0.429**	1.260	**-0.602**	1.320
NPL 221485	**-0.573**	0.489	**-0.598**	1.242	**-0.433**	1.242	**-1.142**	0.850	**-1.068**	0.811	**-0.854**	1.260	**-1.026**	1.320
NRC A138	**0.025**	1.142			**0.165**	1.615	**-0.544**	1.336	**-0.470**	1.312	**-0.256**	1.628	**-0.428**	1.675
NRC A140	**-0.140**	1.142	**-0.165**	1.615			**-0.709**	1.336	**-0.635**	1.312	**-0.420**	1.628	**-0.593**	1.675
PTB 229074	**0.569**	0.695	**0.544**	1.336	**0.709**	1.336			**0.075**	0.949	**0.289**	1.353	**0.116**	1.409
PTB 229075	**0.495**	0.647	**0.470**	1.312	**0.635**	1.312	**-0.075**	0.949			**0.214**	1.329	**0.041**	1.386
VNIIFTRI 79	**0.281**	1.161	**0.256**	1.628	**0.420**	1.628	**-0.289**	1.353	**-0.214**	1.329			**-0.173**	1.688
VNIIFTRI 89	**0.453**	1.226	**0.428**	1.675	**0.593**	1.675	**-0.116**	1.409	**-0.041**	1.386	**0.173**	1.688		


CCT-K1 : Nominal temperature, T_{90} = 18.597 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 20.299 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

u_{comp} = 0.153 mK

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	20.299107	0.132
NIST A129	20.299108	0.132
NMi-VSL 226246	20.299225	0.475
NPL 221481	20.298690	0.203
NPL 221483	20.298576	0.194
NPL 221485	20.298352	0.194
NRC A138	20.298800	0.550
NRC A140	20.298750	0.550
PTB 229074	20.299355	0.317
PTB 229075	20.299131	0.289
VNIIFTRI 79	20.298975	0.560
VNIIFTRI 89	20.299144	0.598

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 20.298899 K

Matrix of equivalence

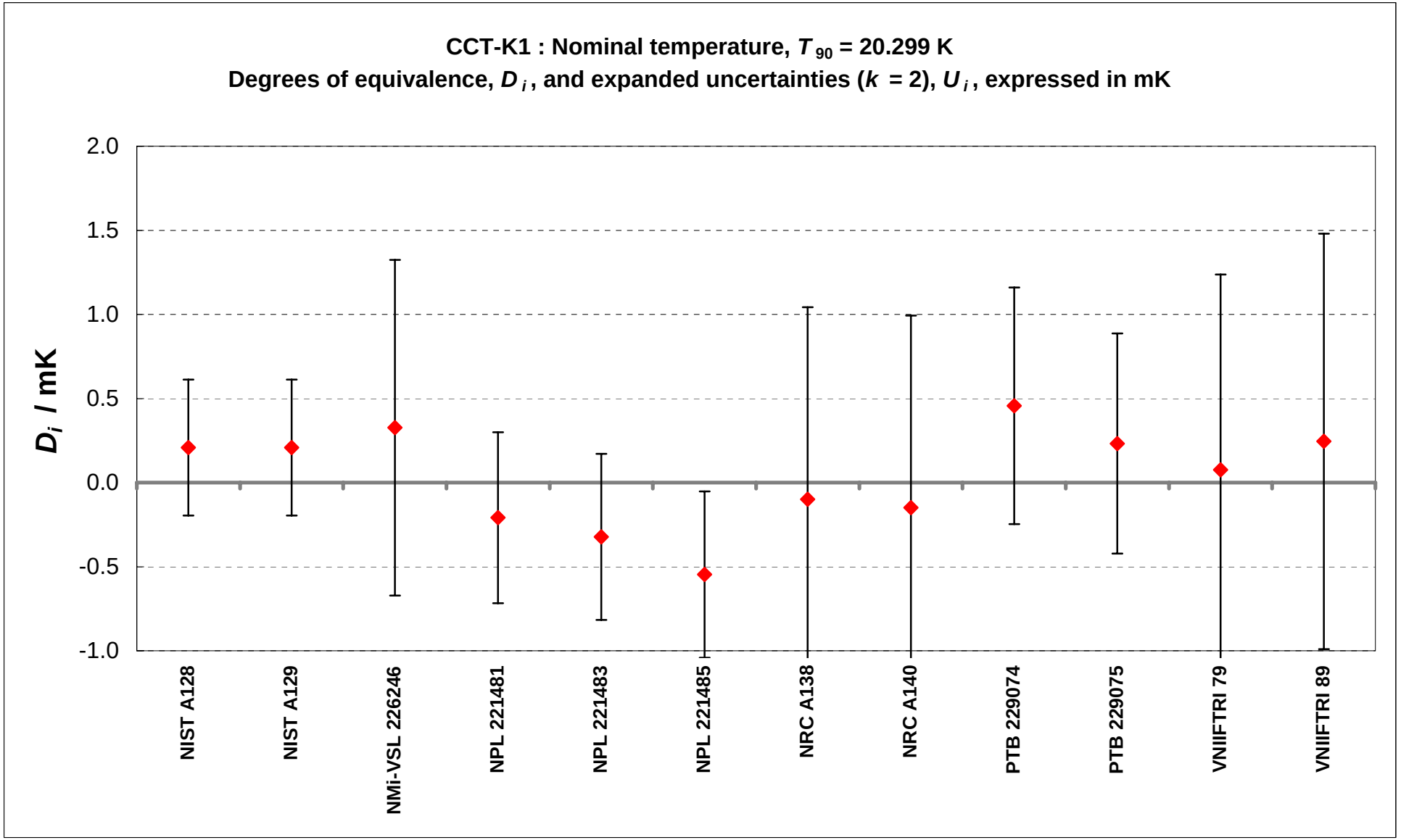
Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.208**	0.404			**-0.001**	0.572	**-0.119**	1.077	**0.417**	0.650	**0.530**	0.638	**0.754**	0.638
NIST A129	**0.209**	0.404	**0.001**	0.572			**-0.118**	1.077	**0.418**	0.650	**0.531**	0.638	**0.755**	0.638
NMi-VSL 226246	**0.326**	0.998	**0.119**	1.077	**0.118**	1.077			**0.535**	1.120	**0.649**	1.114	**0.873**	1.114
NPL 221481	**-0.209**	0.508	**-0.417**	0.650	**-0.418**	0.650	**-0.535**	1.120			**0.114**	0.709	**0.338**	0.709
NPL 221483	**-0.323**	0.494	**-0.530**	0.638	**-0.531**	0.638	**-0.649**	1.114	**-0.114**	0.709			**0.224**	0.699
NPL 221485	**-0.547**	0.494	**-0.754**	0.638	**-0.755**	0.638	**-0.873**	1.114	**-0.338**	0.709	**-0.224**	0.699		
NRC A138	**-0.099**	1.142	**-0.307**	1.211	**-0.308**	1.211	**-0.425**	1.516	**0.110**	1.250	**0.224**	1.244	**0.448**	1.244
NRC A140	**-0.149**	1.142	**-0.356**	1.211	**-0.357**	1.211	**-0.475**	1.516	**0.060**	1.250	**0.174**	1.244	**0.398**	1.244
PTB 229074	**0.456**	0.704	**0.249**	0.812	**0.248**	0.812	**0.130**	1.221	**0.665**	0.868	**0.779**	0.860	**1.003**	0.860
PTB 229075	**0.232**	0.654	**0.024**	0.769	**0.023**	0.769	**-0.094**	1.193	**0.441**	0.829	**0.555**	0.820	**0.779**	0.820
VNIIFTRI 79	**0.076**	1.161	**-0.132**	1.229	**-0.133**	1.229	**-0.251**	1.531	**0.284**	1.268	**0.398**	1.262	**0.622**	1.262
VNIIFTRI 89	**0.245**	1.235	**0.037**	1.299	**0.037**	1.299	**-0.081**	1.588	**0.454**	1.336	**0.568**	1.330	**0.792**	1.330

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NRC A138		NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.208**	0.404	**0.307**	1.211	**0.356**	1.211	**-0.249**	0.812	**-0.024**	0.769	**0.132**	1.229	**-0.037**	1.299
NIST A129	**0.209**	0.404	**0.308**	1.211	**0.357**	1.211	**-0.248**	0.812	**-0.023**	0.769	**0.133**	1.229	**-0.037**	1.299
NMi-VSL 226246	**0.326**	0.998	**0.425**	1.516	**0.475**	1.516	**-0.130**	1.221	**0.094**	1.193	**0.251**	1.531	**0.081**	1.588
NPL 221481	**-0.209**	0.508	**-0.110**	1.250	**-0.060**	1.250	**-0.665**	0.868	**-0.441**	0.829	**-0.284**	1.268	**-0.454**	1.336
NPL 221483	**-0.323**	0.494	**-0.224**	1.244	**-0.174**	1.244	**-0.779**	0.860	**-0.555**	0.820	**-0.398**	1.262	**-0.568**	1.330
NPL 221485	**-0.547**	0.494	**-0.448**	1.244	**-0.398**	1.244	**-1.003**	0.860	**-0.779**	0.820	**-0.622**	1.262	**-0.792**	1.330
NRC A138	**-0.099**	1.142			**0.050**	1.615	**-0.555**	1.341	**-0.331**	1.316	**-0.174**	1.628	**-0.344**	1.682
NRC A140	**-0.149**	1.142	**-0.050**	1.615			**-0.605**	1.341	**-0.381**	1.316	**-0.224**	1.628	**-0.394**	1.682
PTB 229074	**0.456**	0.704	**0.555**	1.341	**0.605**	1.341			**0.224**	0.961	**0.381**	1.358	**0.211**	1.421
PTB 229075	**0.232**	0.654	**0.331**	1.316	**0.381**	1.316	**-0.224**	0.961			**0.156**	1.333	**-0.013**	1.398
VNIIFTRI 79	**0.076**	1.161	**0.174**	1.628	**0.224**	1.628	**-0.381**	1.358	**-0.156**	1.333			**-0.170**	1.695
VNIIFTRI 89	**0.245**	1.235	**0.344**	1.682	**0.394**	1.682	**-0.211**	1.421	**0.013**	1.398	**0.170**	1.695		


CCT-K1 : Nominal temperature, T_{90} = 20.299 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 21.575 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.153 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	21.575775	0.142
NIST A129	21.575754	0.142
NMi-VSL 226246	21.575850	0.514
NPL 221481	21.575120	0.207
NPL 221483	21.574976	0.198
NPL 221485	21.574975	0.198
NRC A138	21.575266	0.550
NRC A140	21.575114	0.550
PTB 229074	21.575934	0.321
PTB 229075	21.575693	0.292
VNIIFTRI 79	21.575227	0.560
VNIIFTRI 89	21.575344	0.602

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 21.575444 K

Matrix of equivalence

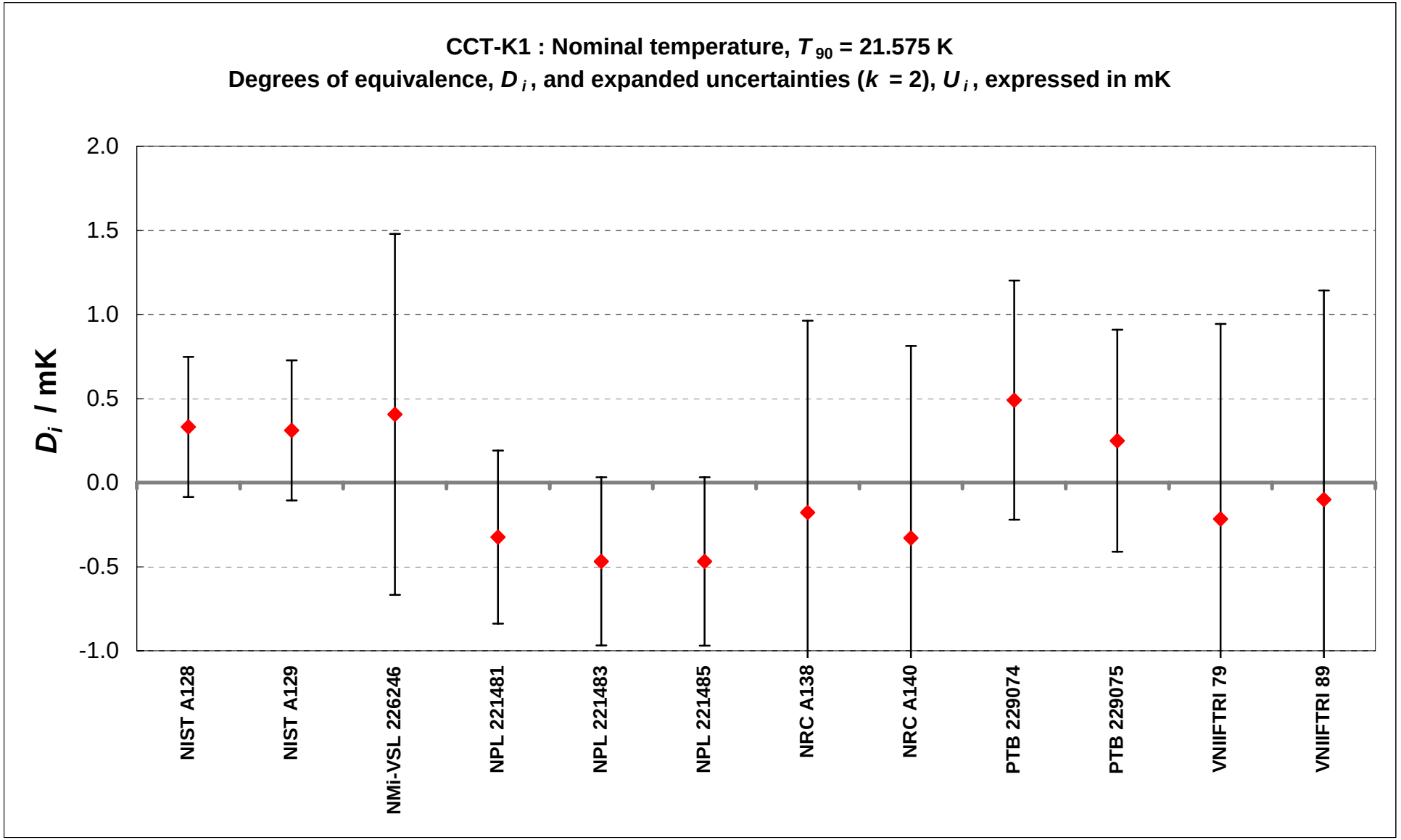
Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.331**	0.417			**0.021**	0.589	**-0.075**	1.152	**0.655**	0.662	**0.799**	0.651	**0.800**	0.651
NIST A129	**0.310**	0.417	**-0.021**	0.589			**-0.096**	1.152	**0.634**	0.662	**0.778**	0.651	**0.779**	0.651
NMi-VSL 226246	**0.406**	1.073	**0.075**	1.152	**0.096**	1.152			**0.730**	1.190	**0.874**	1.184	**0.874**	1.184
NPL 221481	**-0.324**	0.515	**-0.655**	0.662	**-0.634**	0.662	**-0.730**	1.190			**0.144**	0.718	**0.144**	0.718
NPL 221483	**-0.468**	0.500	**-0.799**	0.651	**-0.778**	0.651	**-0.874**	1.184	**-0.144**	0.718			**0.000**	0.708
NPL 221485	**-0.469**	0.500	**-0.800**	0.651	**-0.779**	0.651	**-0.874**	1.184	**-0.144**	0.718	**0.000**	0.708		
NRC A138	**-0.178**	1.142	**-0.509**	1.215	**-0.488**	1.215	**-0.584**	1.567	**0.146**	1.252	**0.290**	1.247	**0.290**	1.247
NRC A140	**-0.330**	1.142	**-0.661**	1.215	**-0.640**	1.215	**-0.736**	1.567	**-0.006**	1.252	**0.138**	1.247	**0.139**	1.247
PTB 229074	**0.490**	0.711	**0.159**	0.824	**0.180**	0.824	**0.085**	1.288	**0.814**	0.878	**0.959**	0.869	**0.959**	0.869
PTB 229075	**0.249**	0.660	**-0.082**	0.781	**-0.061**	0.781	**-0.157**	1.260	**0.573**	0.837	**0.717**	0.828	**0.718**	0.828
VNIIFTRI 79	**-0.217**	1.161	**-0.548**	1.234	**-0.527**	1.234	**-0.623**	1.581	**0.107**	1.270	**0.251**	1.264	**0.251**	1.264
VNIIFTRI 89	**-0.100**	1.242	**-0.431**	1.310	**-0.410**	1.310	**-0.506**	1.642	**0.224**	1.344	**0.368**	1.339	**0.368**	1.339

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NRC A138 D_{ij} / mK	NRC A138 U_{ij} / mK	NRC A140 D_{ij} / mK	NRC A140 U_{ij} / mK	PTB 229074 D_{ij} / mK	PTB 229074 U_{ij} / mK	PTB 229075 D_{ij} / mK	PTB 229075 U_{ij} / mK	VNIIFTRI 79 D_{ij} / mK	VNIIFTRI 79 U_{ij} / mK	VNIIFTRI 89 D_{ij} / mK	VNIIFTRI 89 U_{ij} / mK
NIST A128	**0.331**	0.417	**0.509**	1.215	**0.661**	1.215	**-0.159**	0.824	**0.082**	0.781	**0.548**	1.234	**0.431**	1.310
NIST A129	**0.310**	0.417	**0.488**	1.215	**0.640**	1.215	**-0.180**	0.824	**0.061**	0.781	**0.527**	1.234	**0.410**	1.310
NMi-VSL 226246	**0.406**	1.073	**0.584**	1.567	**0.736**	1.567	**-0.085**	1.288	**0.157**	1.260	**0.623**	1.581	**0.506**	1.642
NPL 221481	**-0.324**	0.515	**-0.146**	1.252	**0.006**	1.252	**-0.814**	0.878	**-0.573**	0.837	**-0.107**	1.270	**-0.224**	1.344
NPL 221483	**-0.468**	0.500	**-0.290**	1.247	**-0.138**	1.247	**-0.959**	0.869	**-0.717**	0.828	**-0.251**	1.264	**-0.368**	1.339
NPL 221485	**-0.469**	0.500	**-0.290**	1.247	**-0.139**	1.247	**-0.959**	0.869	**-0.718**	0.828	**-0.251**	1.264	**-0.368**	1.339
NRC A138	**-0.178**	1.142			**0.152**	1.615	**-0.669**	1.345	**-0.427**	1.319	**0.039**	1.628	**-0.078**	1.687
NRC A140	**-0.330**	1.142	**-0.152**	1.615			**-0.820**	1.345	**-0.579**	1.319	**-0.113**	1.628	**-0.230**	1.687
PTB 229074	**0.490**	0.711	**0.669**	1.345	**0.820**	1.345			**0.241**	0.970	**0.708**	1.361	**0.591**	1.431
PTB 229075	**0.249**	0.660	**0.427**	1.319	**0.579**	1.319	**-0.241**	0.970			**0.466**	1.336	**0.349**	1.406
VNIIFTRI 79	**-0.217**	1.161	**-0.039**	1.628	**0.113**	1.628	**-0.708**	1.361	**-0.466**	1.336			**-0.117**	1.700
VNIIFTRI 89	**-0.100**	1.242	**0.078**	1.687	**0.230**	1.687	**-0.591**	1.431	**-0.349**	1.406	**0.117**	1.700		


CCT-K1 : Nominal temperature, T_{90} = 21.575 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 22.677 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.153 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	22.677193	0.152
NIST A129	22.677155	0.152
NMi-VSL 226246	22.677427	0.542
NPL 221481	22.676930	0.210
NPL 221483	22.676699	0.201
NPL 221485	22.676646	0.201
NRC A138	22.676586	0.550
NRC A140	22.676571	0.550
PTB 229074	22.677453	0.324
PTB 229075	22.677222	0.295
VNIIFTRI 79	22.676869	0.560
VNIIFTRI 89	22.676872	0.605

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 22.676998 K

Matrix of equivalence

Lab, S/N *j* ⟹

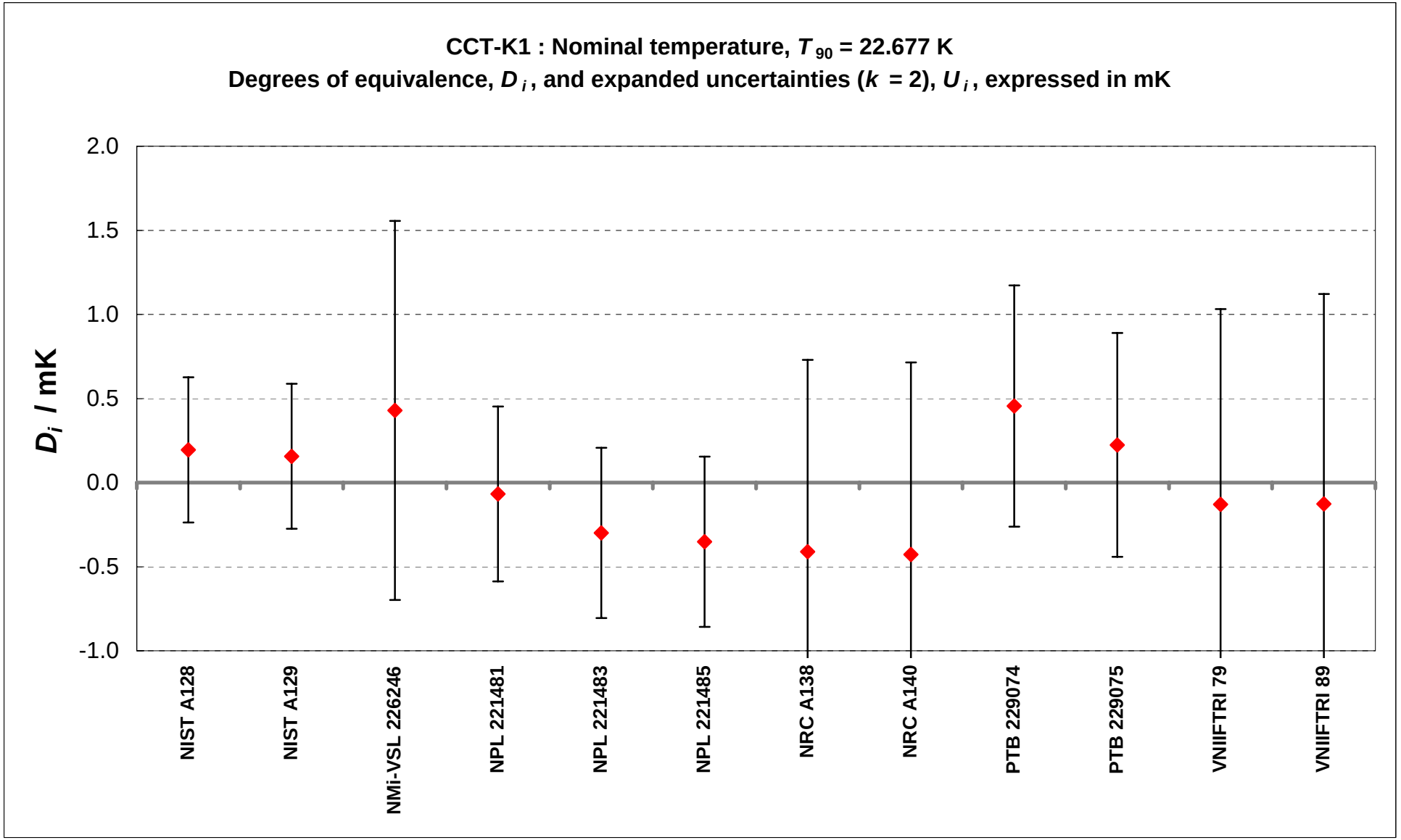
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.195**	0.431			**0.038**	0.610	**-0.234**	1.206	**0.263**	0.676	**0.494**	0.665	**0.546**	0.665
NIST A129	**0.157**	0.431	**-0.038**	0.610			**-0.272**	1.206	**0.225**	0.676	**0.456**	0.665	**0.508**	0.665
NMi-VSL 226246	**0.429**	1.127	**0.234**	1.206	**0.272**	1.206			**0.497**	1.241	**0.728**	1.235	**0.780**	1.235
NPL 221481	**-0.068**	0.520	**-0.263**	0.676	**-0.225**	0.676	**-0.497**	1.241			**0.231**	0.725	**0.284**	0.725
NPL 221483	**-0.299**	0.506	**-0.494**	0.665	**-0.456**	0.665	**-0.728**	1.235	**-0.231**	0.725			**0.052**	0.715
NPL 221485	**-0.352**	0.506	**-0.546**	0.665	**-0.508**	0.665	**-0.780**	1.235	**-0.284**	0.725	**-0.052**	0.715		
NRC A138	**-0.412**	1.142	**-0.606**	1.221	**-0.568**	1.221	**-0.840**	1.604	**-0.344**	1.255	**-0.112**	1.249	**-0.060**	1.249
NRC A140	**-0.427**	1.142	**-0.622**	1.221	**-0.584**	1.221	**-0.856**	1.604	**-0.359**	1.255	**-0.128**	1.249	**-0.075**	1.249
PTB 229074	**0.455**	0.717	**0.261**	0.837	**0.299**	0.837	**0.027**	1.335	**0.523**	0.886	**0.755**	0.877	**0.807**	0.877
PTB 229075	**0.224**	0.665	**0.029**	0.793	**0.068**	0.793	**-0.205**	1.308	**0.292**	0.844	**0.523**	0.835	**0.576**	0.835
VNIIFTRI 79	**-0.129**	1.161	**-0.324**	1.239	**-0.286**	1.239	**-0.558**	1.618	**-0.061**	1.272	**0.170**	1.266	**0.222**	1.266
VNIIFTRI 89	**-0.126**	1.248	**-0.321**	1.320	**-0.283**	1.320	**-0.555**	1.681	**-0.058**	1.352	**0.173**	1.346	**0.225**	1.346

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A138 D_{ij} / mK	NRC A138 U_{ij} / mK	NRC A140 D_{ij} / mK	NRC A140 U_{ij} / mK	PTB 229074 D_{ij} / mK	PTB 229074 U_{ij} / mK	PTB 229075 D_{ij} / mK	PTB 229075 U_{ij} / mK	VNIIFTRI 79 D_{ij} / mK	VNIIFTRI 79 U_{ij} / mK	VNIIFTRI 89 D_{ij} / mK	VNIIFTRI 89 U_{ij} / mK
NIST A128	**0.195**	0.431	**0.606**	1.221	**0.622**	1.221	**-0.261**	0.837	**-0.029**	0.793	**0.324**	1.239	**0.321**	1.320
NIST A129	**0.157**	0.431	**0.568**	1.221	**0.584**	1.221	**-0.299**	0.837	**-0.068**	0.793	**0.286**	1.239	**0.283**	1.320
NMi-VSL 226246	**0.429**	1.127	**0.840**	1.604	**0.856**	1.604	**-0.027**	1.335	**0.205**	1.308	**0.558**	1.618	**0.555**	1.681
NPL 221481	**-0.068**	0.520	**0.344**	1.255	**0.359**	1.255	**-0.523**	0.886	**-0.292**	0.844	**0.061**	1.272	**0.058**	1.352
NPL 221483	**-0.299**	0.506	**0.112**	1.249	**0.128**	1.249	**-0.755**	0.877	**-0.523**	0.835	**-0.170**	1.266	**-0.173**	1.346
NPL 221485	**-0.352**	0.506	**0.060**	1.249	**0.075**	1.249	**-0.807**	0.877	**-0.576**	0.835	**-0.222**	1.266	**-0.225**	1.346
NRC A138	**-0.412**	1.142			**0.016**	1.615	**-0.867**	1.348	**-0.636**	1.321	**-0.282**	1.628	**-0.285**	1.691
NRC A140	**-0.427**	1.142	**-0.016**	1.615			**-0.882**	1.348	**-0.651**	1.321	**-0.298**	1.628	**-0.301**	1.691
PTB 229074	**0.455**	0.717	**0.867**	1.348	**0.882**	1.348			**0.231**	0.978	**0.585**	1.365	**0.582**	1.439
PTB 229075	**0.224**	0.665	**0.636**	1.321	**0.651**	1.321	**-0.231**	0.978			**0.353**	1.338	**0.351**	1.414
VNIIFTRI 79	**-0.129**	1.161	**0.282**	1.628	**0.298**	1.628	**-0.585**	1.365	**-0.353**	1.338			**-0.003**	1.704
VNIIFTRI 89	**-0.126**	1.248	**0.285**	1.691	**0.301**	1.691	**-0.582**	1.439	**-0.351**	1.414	**0.003**	1.704		


CCT-K1 : Nominal temperature, T_{90} = 22.677 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 23.496 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

u_{comp} = 0.153 mK

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	23.496504	0.162
NIST A129	23.496495	0.162
NMi-VSL 226246	23.496942	0.563
NPL 221481	23.496400	0.213
NPL 221483	23.496171	0.204
NPL 221485	23.496328	0.204
NRC A138	23.496000	0.550
NRC A140	23.496009	0.550
PTB 229074	23.496996	0.327
PTB 229075	23.496714	0.297
VNIIFTRI 79	23.496311	0.560
VNIIFTRI 89	23.496381	0.607

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 23.496448 K

Matrix of equivalence

Lab, S/N *j* ⟹

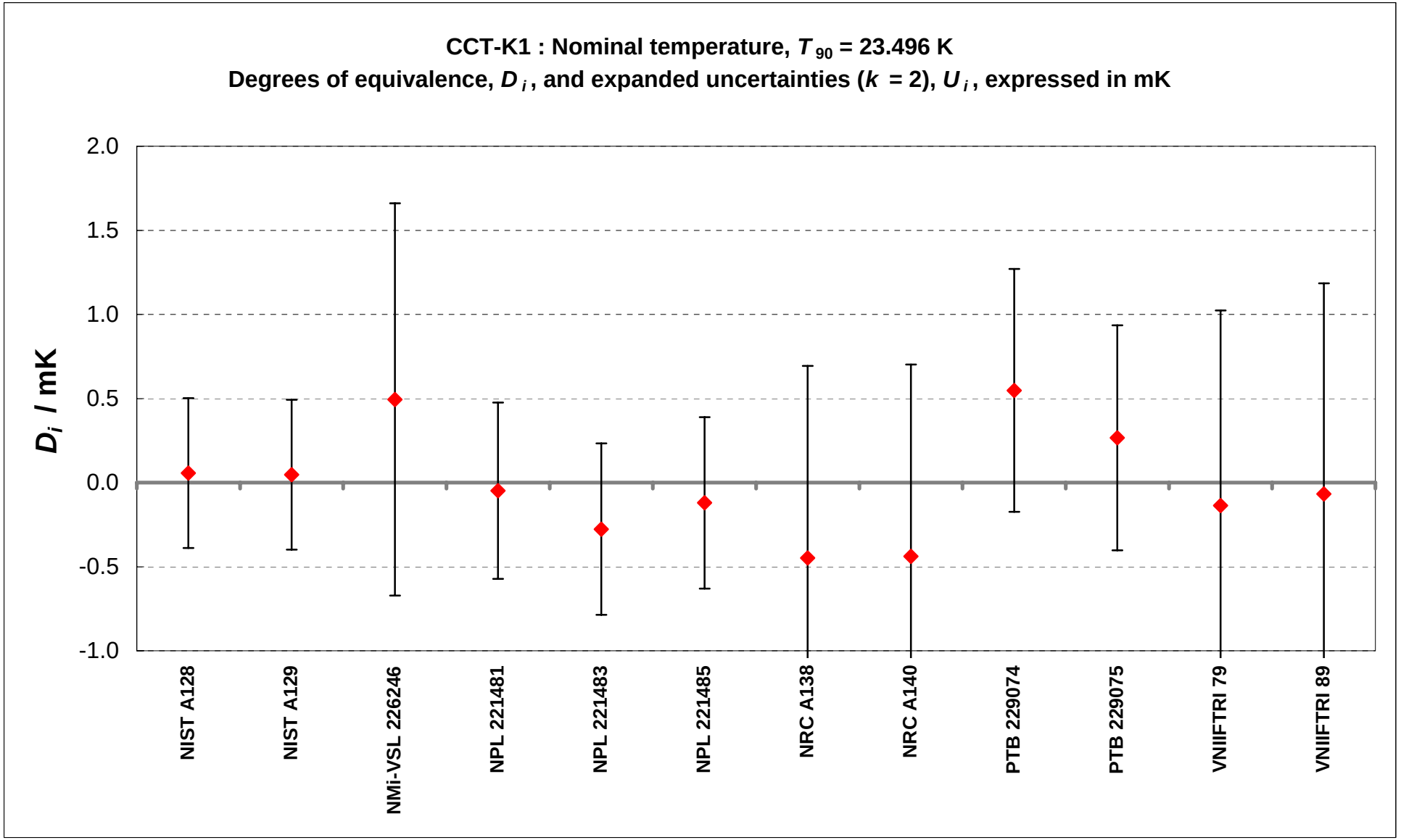
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.056**	0.446			**0.010**	0.630	**-0.438**	1.249	**0.104**	0.688	**0.333**	0.677	**0.176**	0.677
NIST A129	**0.047**	0.446	**-0.010**	0.630			**-0.448**	1.249	**0.094**	0.688	**0.324**	0.677	**0.167**	0.677
NMi-VSL 226246	**0.494**	1.166	**0.438**	1.249	**0.448**	1.249			**0.542**	1.279	**0.771**	1.273	**0.614**	1.273
NPL 221481	**-0.048**	0.524	**-0.104**	0.688	**-0.094**	0.688	**-0.542**	1.279			**0.229**	0.731	**0.073**	0.731
NPL 221483	**-0.277**	0.510	**-0.333**	0.677	**-0.324**	0.677	**-0.771**	1.273	**-0.229**	0.731			**-0.157**	0.721
NPL 221485	**-0.120**	0.510	**-0.176**	0.677	**-0.167**	0.677	**-0.614**	1.273	**-0.073**	0.731	**0.157**	0.721		
NRC A138	**-0.448**	1.142	**-0.504**	1.226	**-0.495**	1.226	**-0.942**	1.632	**-0.401**	1.256	**-0.171**	1.250	**-0.328**	1.250
NRC A140	**-0.439**	1.142	**-0.495**	1.226	**-0.486**	1.226	**-0.934**	1.632	**-0.392**	1.256	**-0.162**	1.250	**-0.319**	1.250
PTB 229074	**0.548**	0.722	**0.492**	0.848	**0.501**	0.848	**0.054**	1.371	**0.596**	0.892	**0.825**	0.883	**0.668**	0.883
PTB 229075	**0.266**	0.669	**0.210**	0.804	**0.219**	0.804	**-0.228**	1.344	**0.314**	0.850	**0.543**	0.841	**0.386**	0.841
VNIIFTRI 79	**-0.137**	1.161	**-0.193**	1.244	**-0.184**	1.244	**-0.631**	1.646	**-0.090**	1.274	**0.140**	1.268	**-0.017**	1.268
VNIIFTRI 89	**-0.067**	1.252	**-0.124**	1.329	**-0.114**	1.329	**-0.562**	1.711	**-0.020**	1.358	**0.210**	1.352	**0.053**	1.352

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A138		NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**0.056**	0.446	**0.504**	1.226	**0.495**	1.226	**-0.492**	0.848	**-0.210**	0.804	**0.193**	1.244	**0.124**	1.329
NIST A129	**0.047**	0.446	**0.495**	1.226	**0.486**	1.226	**-0.501**	0.848	**-0.219**	0.804	**0.184**	1.244	**0.114**	1.329
NMi-VSL 226246	**0.494**	1.166	**0.942**	1.632	**0.934**	1.632	**-0.054**	1.371	**0.228**	1.344	**0.631**	1.646	**0.562**	1.711
NPL 221481	**-0.048**	0.524	**0.401**	1.256	**0.392**	1.256	**-0.596**	0.892	**-0.314**	0.850	**0.090**	1.274	**0.020**	1.358
NPL 221483	**-0.277**	0.510	**0.171**	1.250	**0.162**	1.250	**-0.825**	0.883	**-0.543**	0.841	**-0.140**	1.268	**-0.210**	1.352
NPL 221485	**-0.120**	0.510	**0.328**	1.250	**0.319**	1.250	**-0.668**	0.883	**-0.386**	0.841	**0.017**	1.268	**-0.053**	1.352
NRC A138	**-0.448**	1.142			**-0.009**	1.615	**-0.996**	1.351	**-0.714**	1.323	**-0.311**	1.628	**-0.381**	1.695
NRC A140	**-0.439**	1.142	**0.009**	1.615			**-0.987**	1.351	**-0.705**	1.323	**-0.302**	1.628	**-0.372**	1.695
PTB 229074	**0.548**	0.722	**0.996**	1.351	**0.987**	1.351			**0.282**	0.984	**0.685**	1.367	**0.615**	1.445
PTB 229075	**0.266**	0.669	**0.714**	1.323	**0.705**	1.323	**-0.282**	0.984			**0.403**	1.340	**0.333**	1.420
VNIIFTRI 79	**-0.137**	1.161	**0.311**	1.628	**0.302**	1.628	**-0.685**	1.367	**-0.403**	1.340			**-0.070**	1.708
VNIIFTRI 89	**-0.067**	1.252	**0.381**	1.695	**0.372**	1.695	**-0.615**	1.445	**-0.333**	1.420	**0.070**	1.708		


CCT-K1 : Nominal temperature, T_{90} = 23.496 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 24.102 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.153 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	24.101929	0.168
NIST A129	24.102011	0.168
NMi-VSL 226246	24.102501	0.578
NPL 221481	24.101920	0.215
NPL 221483	24.101771	0.206
NPL 221485	24.101752	0.206
NRC A138	24.101887	0.550
NRC A140	24.101930	0.550
PTB 229074	24.102615	0.329
PTB 229075	24.102251	0.299
VNIIFTRI 79	24.101651	0.560
VNIIFTRI 89	24.101785	0.609

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 24.101970 K

Matrix of equivalence

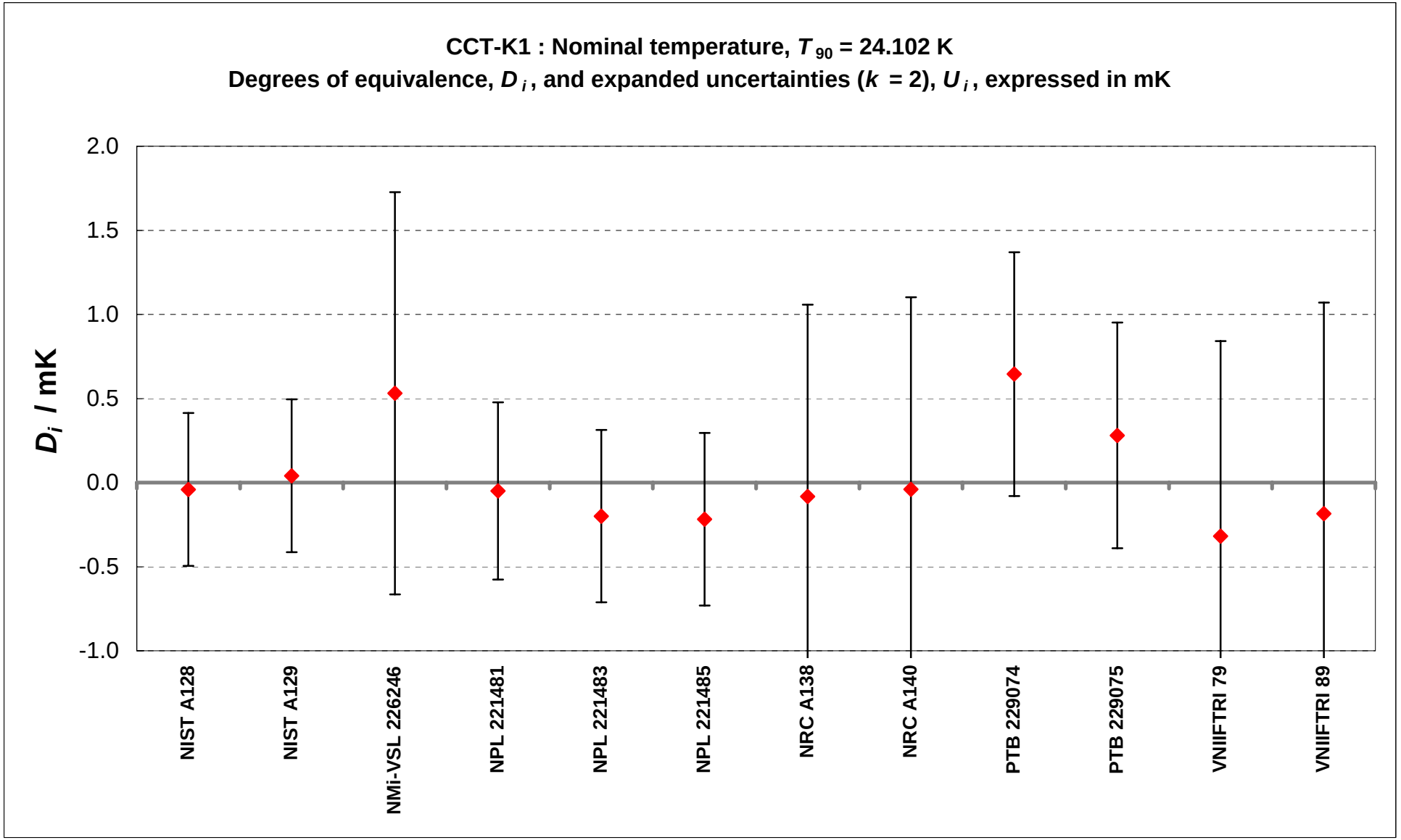
Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.041**	0.454			**-0.082**	0.643	**-0.573**	1.279	**0.009**	0.696	**0.158**	0.685	**0.177**	0.685
NIST A129	**0.041**	0.454	**0.082**	0.643			**-0.491**	1.279	**0.091**	0.696	**0.240**	0.685	**0.259**	0.685
NMi-VSL 226246	**0.531**	1.196	**0.573**	1.279	**0.491**	1.279			**0.581**	1.307	**0.731**	1.301	**0.749**	1.301
NPL 221481	**-0.050**	0.527	**-0.009**	0.696	**-0.091**	0.696	**-0.581**	1.307			**0.149**	0.735	**0.168**	0.735
NPL 221483	**-0.199**	0.513	**-0.158**	0.685	**-0.240**	0.685	**-0.731**	1.301	**-0.149**	0.735			**0.019**	0.725
NPL 221485	**-0.218**	0.513	**-0.177**	0.685	**-0.259**	0.685	**-0.749**	1.301	**-0.168**	0.735	**-0.019**	0.725		
NRC A138	**-0.083**	1.142	**-0.042**	1.229	**-0.124**	1.229	**-0.614**	1.653	**-0.033**	1.258	**0.116**	1.252	**0.135**	1.252
NRC A140	**-0.040**	1.142	**0.001**	1.229	**-0.081**	1.229	**-0.571**	1.653	**0.010**	1.258	**0.159**	1.252	**0.178**	1.252
PTB 229074	**0.645**	0.725	**0.686**	0.856	**0.604**	0.856	**0.114**	1.398	**0.695**	0.896	**0.845**	0.888	**0.863**	0.888
PTB 229075	**0.281**	0.671	**0.322**	0.811	**0.240**	0.811	**-0.251**	1.371	**0.331**	0.854	**0.480**	0.845	**0.499**	0.845
VNIIFTRI 79	**-0.319**	1.161	**-0.278**	1.247	**-0.360**	1.247	**-0.850**	1.667	**-0.269**	1.275	**-0.120**	1.269	**-0.101**	1.269
VNIIFTRI 89	**-0.185**	1.256	**-0.144**	1.335	**-0.226**	1.335	**-0.717**	1.734	**-0.135**	1.362	**0.014**	1.356	**0.033**	1.356

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NRC A138		NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.041**	0.454	**0.042**	1.229	**-0.001**	1.229	**-0.686**	0.856	**-0.322**	0.811	**0.278**	1.247	**0.144**	1.335
NIST A129	**0.041**	0.454	**0.124**	1.229	**0.081**	1.229	**-0.604**	0.856	**-0.240**	0.811	**0.360**	1.247	**0.226**	1.335
NMi-VSL 226246	**0.531**	1.196	**0.614**	1.653	**0.571**	1.653	**-0.114**	1.398	**0.251**	1.371	**0.850**	1.667	**0.717**	1.734
NPL 221481	**-0.050**	0.527	**0.033**	1.258	**-0.010**	1.258	**-0.695**	0.896	**-0.331**	0.854	**0.269**	1.275	**0.135**	1.362
NPL 221483	**-0.199**	0.513	**-0.116**	1.252	**-0.159**	1.252	**-0.845**	0.888	**-0.480**	0.845	**0.120**	1.269	**-0.014**	1.356
NPL 221485	**-0.218**	0.513	**-0.135**	1.252	**-0.178**	1.252	**-0.863**	0.888	**-0.499**	0.845	**0.101**	1.269	**-0.033**	1.356
NRC A138	**-0.083**	1.142			**-0.043**	1.615	**-0.728**	1.352	**-0.364**	1.325	**0.236**	1.628	**0.102**	1.697
NRC A140	**-0.040**	1.142	**0.043**	1.615			**-0.685**	1.352	**-0.321**	1.325	**0.279**	1.628	**0.145**	1.697
PTB 229074	**0.645**	0.725	**0.728**	1.352	**0.685**	1.352			**0.364**	0.988	**0.964**	1.369	**0.830**	1.450
PTB 229075	**0.281**	0.671	**0.364**	1.325	**0.321**	1.325	**-0.364**	0.988			**0.600**	1.341	**0.466**	1.424
VNIIFTRI 79	**-0.319**	1.161	**-0.236**	1.628	**-0.279**	1.628	**-0.964**	1.369	**-0.600**	1.341			**-0.134**	1.710
VNIIFTRI 89	**-0.185**	1.256	**-0.102**	1.697	**-0.145**	1.697	**-0.830**	1.450	**-0.466**	1.424	**0.134**	1.710		


CCT-K1 : Nominal temperature, T_{90} = 24.102 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 24.340 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.153 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	24.340191	0.174
NIST A129	24.340214	0.174
NMi-VSL 226246	24.340765	0.584
NPL 221481	24.340270	0.215
NPL 221485	24.340219	0.206
NRC A138	24.340051	0.550
NRC A140	24.339870	0.550
PTB 229074	24.340847	0.329
PTB 229075	24.340698	0.299

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 24.340317 K

Matrix of equivalence

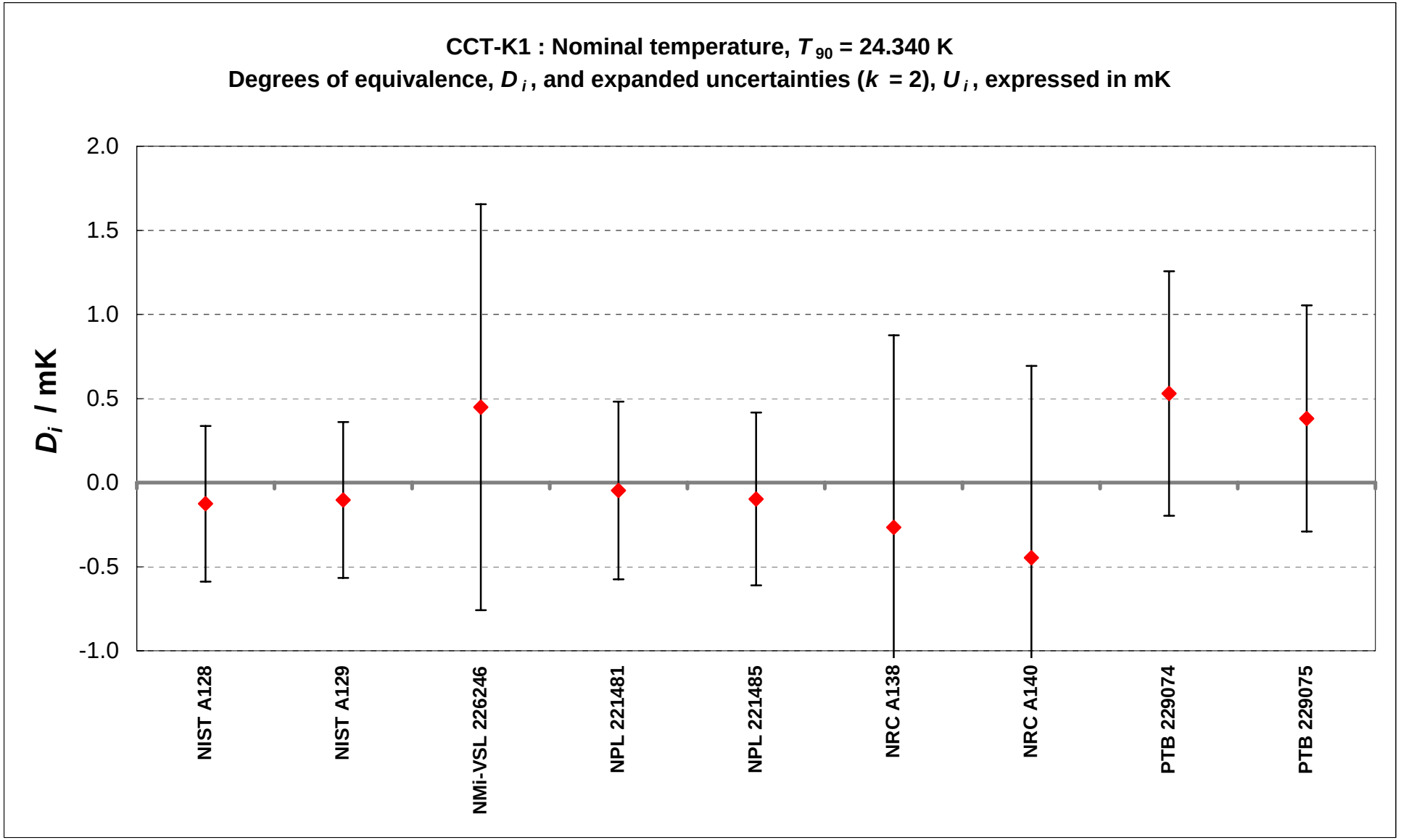
Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128 D_{ij} / mK	NIST A128 U_{ij} / mK	NIST A129 D_{ij} / mK	NIST A129 U_{ij} / mK	NMi-VSL 226246 D_{ij} / mK	NMi-VSL 226246 U_{ij} / mK	NPL 221481 D_{ij} / mK	NPL 221481 U_{ij} / mK	NPL 221485 D_{ij} / mK	NPL 221485 U_{ij} / mK	NRC A138 D_{ij} / mK	NRC A138 U_{ij} / mK
NIST A128	**-0.126**	0.463			**-0.023**	0.655	**-0.574**	1.293	**-0.079**	0.703	**-0.028**	0.692	**0.140**	1.232
NIST A129	**-0.103**	0.463	**0.023**	0.655			**-0.552**	1.293	**-0.056**	0.703	**-0.006**	0.692	**0.163**	1.232
NMi-VSL 226246	**0.448**	1.207	**0.574**	1.293	**0.552**	1.293			**0.495**	1.318	**0.546**	1.312	**0.715**	1.662
NPL 221481	**-0.047**	0.528	**0.079**	0.703	**0.056**	0.703	**-0.495**	1.318			**0.051**	0.737	**0.219**	1.258
NPL 221485	**-0.098**	0.514	**0.028**	0.692	**0.006**	0.692	**-0.546**	1.312	**-0.051**	0.737			**0.169**	1.252
NRC A138	**-0.266**	1.142	**-0.140**	1.232	**-0.163**	1.232	**-0.715**	1.662	**-0.219**	1.258	**-0.169**	1.252		
NRC A140	**-0.447**	1.142	**-0.321**	1.232	**-0.344**	1.232	**-0.896**	1.662	**-0.400**	1.258	**-0.350**	1.252	**-0.181**	1.615
PTB 229074	**0.530**	0.726	**0.656**	0.861	**0.633**	0.861	**0.081**	1.409	**0.577**	0.898	**0.627**	0.890	**0.796**	1.353
PTB 229075	**0.381**	0.673	**0.507**	0.817	**0.484**	0.817	**-0.067**	1.382	**0.428**	0.855	**0.479**	0.846	**0.647**	1.325

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NRC A140 D_{ij} / mK	NRC A140 U_{ij} / mK	PTB 229074 D_{ij} / mK	PTB 229074 U_{ij} / mK	PTB 229075 D_{ij} / mK	PTB 229075 U_{ij} / mK
NIST A128	**-0.126**	0.463	**0.321**	1.232	**-0.656**	0.861	**-0.507**	0.817
NIST A129	**-0.103**	0.463	**0.344**	1.232	**-0.633**	0.861	**-0.484**	0.817
NMi-VSL 226246	**0.448**	1.207	**0.896**	1.662	**-0.081**	1.409	**0.067**	1.382
NPL 221481	**-0.047**	0.528	**0.400**	1.258	**-0.577**	0.898	**-0.428**	0.855
NPL 221485	**-0.098**	0.514	**0.350**	1.252	**-0.627**	0.890	**-0.479**	0.846
NRC A138	**-0.266**	1.142	**0.181**	1.615	**-0.796**	1.353	**-0.647**	1.325
NRC A140	**-0.447**	1.142			**-0.977**	1.353	**-0.828**	1.325
PTB 229074	**0.530**	0.726	**0.977**	1.353			**0.149**	0.990
PTB 229075	**0.381**	0.673	**0.828**	1.325	**-0.149**	0.990		


CCT-K1 : Nominal temperature, T_{90} = 24.340 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 24.446 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

$$u_{comp} = 0.153 \text{ mK}$$

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	24.446295	0.174
NIST A129	24.446429	0.174
NMi-VSL 226246	24.446981	0.587
NPL 221481	24.446370	0.216
NPL 221483	24.446221	0.207
NPL 221485	24.446209	0.207
NRC A138	24.446435	0.550
NRC A140	24.446466	0.550
PTB 229074	24.447000	0.330
PTB 229075	24.446767	0.300
VNIIFTRI 79	24.446009	0.560
VNIIFTRI 89	24.446107	0.610

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 24.446403 K

Matrix of equivalence

Lab, S/N *j* ⟹

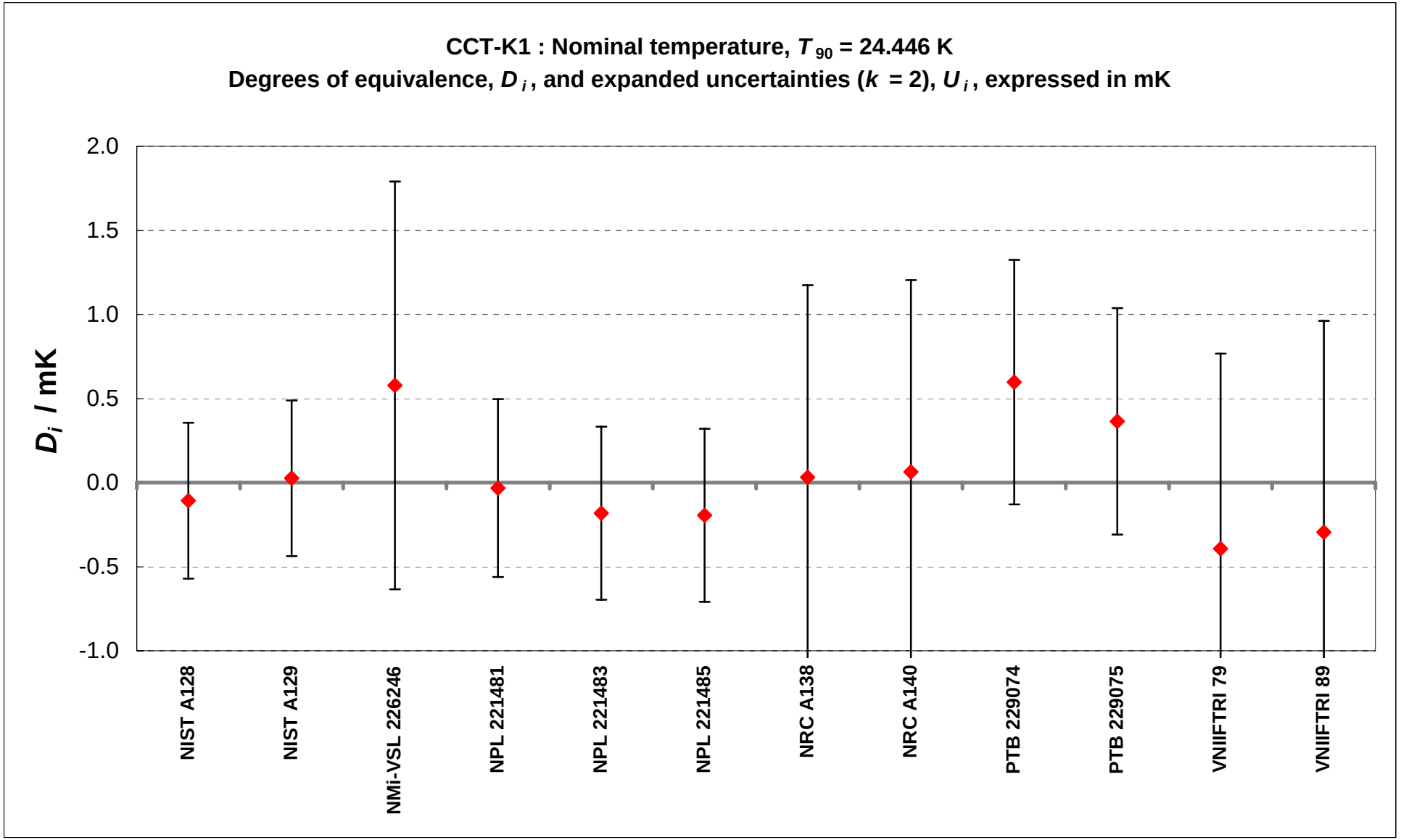
Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.108**	0.463			**-0.134**	0.655	**-0.686**	1.298	**-0.075**	0.703	**0.074**	0.692	**0.086**	0.692
NIST A129	**0.026**	0.463	**0.134**	0.655			**-0.553**	1.298	**0.058**	0.703	**0.207**	0.692	**0.220**	0.692
NMi-VSL 226246	**0.578**	1.212	**0.686**	1.298	**0.553**	1.298			**0.611**	1.323	**0.760**	1.317	**0.772**	1.317
NPL 221481	**-0.033**	0.529	**0.075**	0.703	**-0.058**	0.703	**-0.611**	1.323			**0.149**	0.738	**0.161**	0.738
NPL 221483	**-0.182**	0.514	**-0.074**	0.692	**-0.207**	0.692	**-0.760**	1.317	**-0.149**	0.738			**0.012**	0.727
NPL 221485	**-0.194**	0.514	**-0.086**	0.692	**-0.220**	0.692	**-0.772**	1.317	**-0.161**	0.738	**-0.012**	0.727		
NRC A138	**0.032**	1.142	**0.140**	1.232	**0.007**	1.232	**-0.546**	1.665	**0.065**	1.258	**0.214**	1.252	**0.227**	1.252
NRC A140	**0.063**	1.142	**0.171**	1.232	**0.037**	1.232	**-0.515**	1.665	**0.096**	1.258	**0.245**	1.252	**0.257**	1.252
PTB 229074	**0.597**	0.727	**0.705**	0.862	**0.572**	0.862	**0.019**	1.414	**0.630**	0.899	**0.779**	0.890	**0.791**	0.890
PTB 229075	**0.364**	0.673	**0.472**	0.817	**0.339**	0.817	**-0.214**	1.387	**0.397**	0.856	**0.546**	0.847	**0.559**	0.847
VNIIFTRI 79	**-0.394**	1.161	**-0.286**	1.250	**-0.419**	1.250	**-0.972**	1.679	**-0.361**	1.276	**-0.212**	1.270	**-0.199**	1.270
VNIIFTRI 89	**-0.296**	1.257	**-0.188**	1.340	**-0.321**	1.340	**-0.874**	1.747	**-0.263**	1.364	**-0.114**	1.359	**-0.102**	1.359

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩

	D_i / mK	U_i / mK	NRC A138		NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.108**	0.463	**-0.140**	1.232	**-0.171**	1.232	**-0.705**	0.862	**-0.472**	0.817	**0.286**	1.250	**0.188**	1.340
NIST A129	**0.026**	0.463	**-0.007**	1.232	**-0.037**	1.232	**-0.572**	0.862	**-0.339**	0.817	**0.419**	1.250	**0.321**	1.340
NMi-VSL 226246	**0.578**	1.212	**0.546**	1.665	**0.515**	1.665	**-0.019**	1.414	**0.214**	1.387	**0.972**	1.679	**0.874**	1.747
NPL 221481	**-0.033**	0.529	**-0.065**	1.258	**-0.096**	1.258	**-0.630**	0.899	**-0.397**	0.856	**0.361**	1.276	**0.263**	1.364
NPL 221483	**-0.182**	0.514	**-0.214**	1.252	**-0.245**	1.252	**-0.779**	0.890	**-0.546**	0.847	**0.212**	1.270	**0.114**	1.359
NPL 221485	**-0.194**	0.514	**-0.227**	1.252	**-0.257**	1.252	**-0.791**	0.890	**-0.559**	0.847	**0.199**	1.270	**0.102**	1.359
NRC A138	**0.032**	1.142			**-0.030**	1.615	**-0.565**	1.354	**-0.332**	1.325	**0.426**	1.628	**0.328**	1.699
NRC A140	**0.063**	1.142	**0.030**	1.615			**-0.535**	1.354	**-0.302**	1.325	**0.456**	1.628	**0.358**	1.699
PTB 229074	**0.597**	0.727	**0.565**	1.354	**0.535**	1.354			**0.233**	0.991	**0.991**	1.370	**0.893**	1.452
PTB 229075	**0.364**	0.673	**0.332**	1.325	**0.302**	1.325	**-0.233**	0.991			**0.758**	1.342	**0.660**	1.426
VNIIFTRI 79	**-0.394**	1.161	**-0.426**	1.628	**-0.456**	1.628	**-0.991**	1.370	**-0.758**	1.342			**-0.098**	1.712
VNIIFTRI 89	**-0.296**	1.257	**-0.328**	1.699	**-0.358**	1.699	**-0.893**	1.452	**-0.660**	1.426	**0.098**	1.712		


CCT-K1 : Nominal temperature, T_{90} = 24.446 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
NOMINAL TEMPERATURE : T_{90} = 24.551 K

Laboratory individual measurements

Lab: Laboratory
S/N *i* : serial number of Thermometer *i*
T_i : temperature value for Thermometer *i*
u_i : standard uncertainty in the calibration of Thermometer *i*
u_{comp}: standard uncertainty in the comparison measurements

u_{comp} = 0.153 mK

Lab, S/N *i*	T_i / mK	u_i / mK
NIST A128	24.551286	0.174
NIST A129	24.551288	0.174
NMi-VSL 226246	24.551814	0.588
NPL 221481	24.551375	0.216
NPL 221483	24.551221	0.207
NPL 221485	24.551122	0.207
NRC A138	24.551544	0.550
NRC A140	24.551501	0.550
PTB 229074	24.551980	0.330
PTB 229075	24.551635	0.300
VNIIFTRI 79	24.550982	0.560
VNIIFTRI 89	24.551080	0.610

Key comparison CCT-K1

MEASURAND : Temperature T_{90} / K
KEY COMPARISON REFERENCE VALUE: T_R = 24.551354 K

Matrix of equivalence

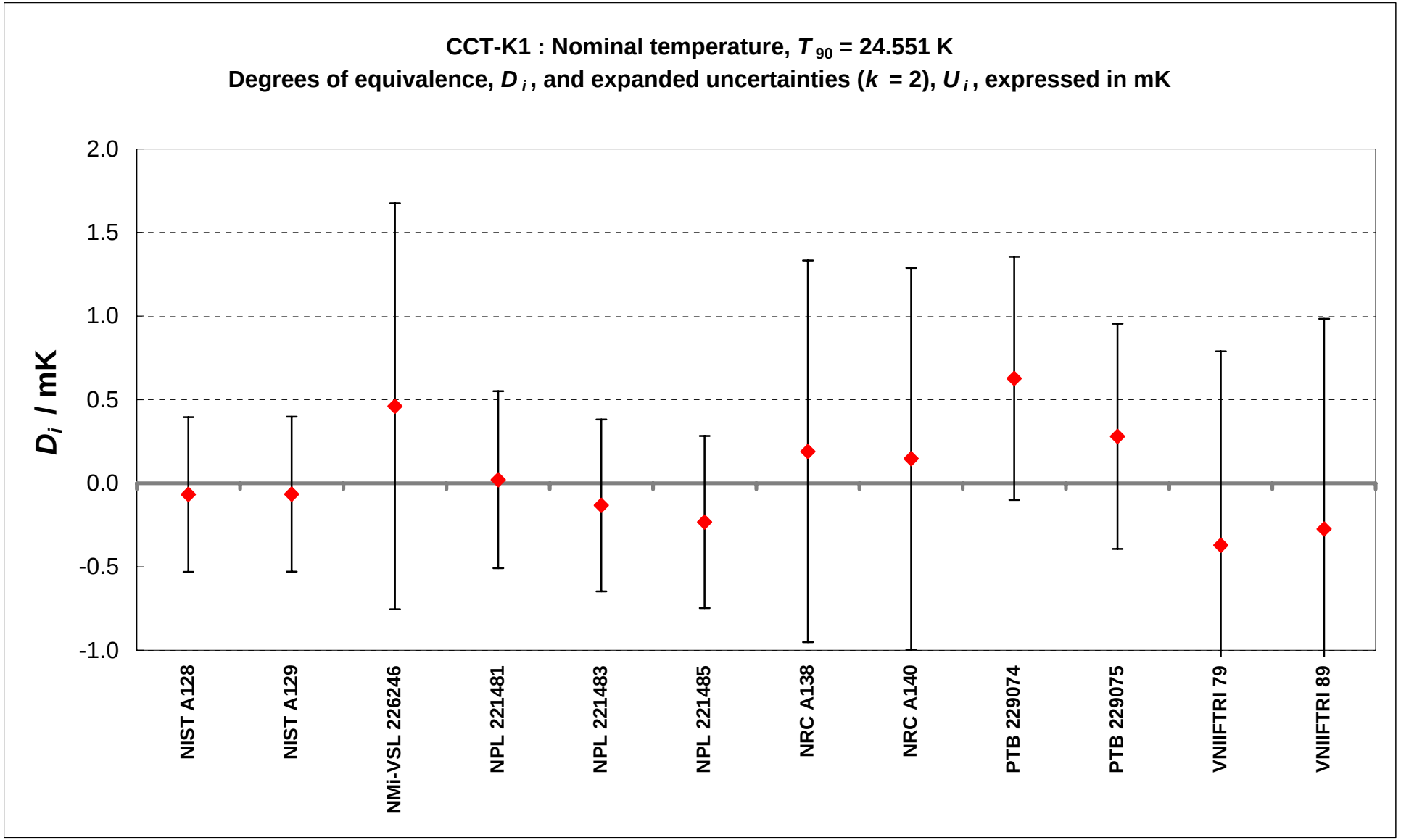
Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NIST A128		NIST A129		NMi-VSL 226246		NPL 221481		NPL 221483		NPL 221485	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.068**	0.463			**-0.002**	0.655	**-0.528**	1.300	**-0.088**	0.703	**0.065**	0.693	**0.164**	0.693
NIST A129	**-0.066**	0.463	**0.002**	0.655			**-0.526**	1.300	**-0.086**	0.703	**0.067**	0.693	**0.166**	0.693
NMi-VSL 226246	**0.460**	1.215	**0.528**	1.300	**0.526**	1.300			**0.440**	1.325	**0.593**	1.319	**0.692**	1.319
NPL 221481	**0.021**	0.529	**0.088**	0.703	**0.086**	0.703	**-0.440**	1.325			**0.154**	0.738	**0.253**	0.738
NPL 221483	**-0.133**	0.515	**-0.065**	0.693	**-0.067**	0.693	**-0.593**	1.319	**-0.154**	0.738			**0.099**	0.728
NPL 221485	**-0.232**	0.515	**-0.164**	0.693	**-0.166**	0.693	**-0.692**	1.319	**-0.253**	0.738	**-0.099**	0.728		
NRC A138	**0.190**	1.142	**0.258**	1.232	**0.256**	1.232	**-0.270**	1.667	**0.169**	1.259	**0.323**	1.252	**0.422**	1.252
NRC A140	**0.147**	1.142	**0.214**	1.232	**0.212**	1.232	**-0.314**	1.667	**0.126**	1.259	**0.279**	1.252	**0.378**	1.252
PTB 229074	**0.626**	0.727	**0.694**	0.862	**0.692**	0.862	**0.166**	1.416	**0.606**	0.900	**0.759**	0.891	**0.858**	0.891
PTB 229075	**0.281**	0.674	**0.348**	0.817	**0.346**	0.817	**-0.180**	1.389	**0.260**	0.857	**0.413**	0.848	**0.512**	0.848
VNIIFTRI 79	**-0.372**	1.161	**-0.304**	1.250	**-0.306**	1.250	**-0.832**	1.680	**-0.392**	1.276	**-0.239**	1.270	**-0.140**	1.270
VNIIFTRI 89	**-0.274**	1.258	**-0.207**	1.341	**-0.209**	1.341	**-0.735**	1.749	**-0.295**	1.365	**-0.142**	1.359	**-0.043**	1.359

Matrix of equivalence (Continued)

Lab, S/N *j* ⟹

Lab, S/N *i* ⇩	D_i / mK	U_i / mK	NRC A138		NRC A140		PTB 229074		PTB 229075		VNIIFTRI 79		VNIIFTRI 89	
			D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK	D_{ij} / mK	U_{ij} / mK
NIST A128	**-0.068**	0.463	**-0.258**	1.232	**-0.214**	1.232	**-0.694**	0.862	**-0.348**	0.817	**0.304**	1.250	**0.207**	1.341
NIST A129	**-0.066**	0.463	**-0.256**	1.232	**-0.212**	1.232	**-0.692**	0.862	**-0.346**	0.817	**0.306**	1.250	**0.209**	1.341
NMi-VSL 226246	**0.460**	1.215	**0.270**	1.667	**0.314**	1.667	**-0.166**	1.416	**0.180**	1.389	**0.832**	1.680	**0.735**	1.749
NPL 221481	**0.021**	0.529	**-0.169**	1.259	**-0.126**	1.259	**-0.606**	0.900	**-0.260**	0.857	**0.392**	1.276	**0.295**	1.365
NPL 221483	**-0.133**	0.515	**-0.323**	1.252	**-0.279**	1.252	**-0.759**	0.891	**-0.413**	0.848	**0.239**	1.270	**0.142**	1.359
NPL 221485	**-0.232**	0.515	**-0.422**	1.252	**-0.378**	1.252	**-0.858**	0.891	**-0.512**	0.848	**0.140**	1.270	**0.043**	1.359
NRC A138	**0.190**	1.142			**0.043**	1.615	**-0.437**	1.354	**-0.091**	1.326	**0.562**	1.628	**0.464**	1.699
NRC A140	**0.147**	1.142	**-0.043**	1.615			**-0.480**	1.354	**-0.134**	1.326	**0.518**	1.628	**0.421**	1.699
PTB 229074	**0.626**	0.727	**0.437**	1.354	**0.480**	1.354			**0.346**	0.991	**0.998**	1.370	**0.901**	1.453
PTB 229075	**0.281**	0.674	**0.091**	1.326	**0.134**	1.326	**-0.346**	0.991			**0.652**	1.342	**0.555**	1.427
VNIIFTRI 79	**-0.372**	1.161	**-0.562**	1.628	**-0.518**	1.628	**-0.998**	1.370	**-0.652**	1.342			**-0.097**	1.712
VNIIFTRI 89	**-0.274**	1.258	**-0.464**	1.699	**-0.421**	1.699	**-0.901**	1.453	**-0.555**	1.427	**0.097**	1.712		


CCT-K1 : Nominal temperature, T_{90} = 24.551 K
Degrees of equivalence, D_i, and expanded uncertainties (k = 2), U_i, expressed in mK
D_i / mK
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
NIST A128
NIST A129
NMi-VSL 226246
NPL 221481
NPL 221483
NPL 221485
NRC A138
NRC A140
PTB 229074
PTB 229075
VNIIFTRI 79
VNIIFTRI 89