Key comparisons CCEM-K5, EUROMET.EM-K5, EUROMET.EM-K5.1 and SIM.EM-K5

Key comparison CCEM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 1.0, 53 Hz
NOMINAL VALUE : 600 VA, 600 W

x_i : **deviation from nominal measured by laboratory *i***
u_i : **standard combined uncertainty of x_i**

Lab *i*	x_i / (μW/VA)	u_i / (μW/VA)	Date of measurement
NRC	29	6	Jun 96
NIST	26	7	Jul 96
PTB	23	7	Aug 96
SP	-10	15	Sep 96
NIST	27	7	Oct 96
NMIA	31	7	Nov 96
MSL	66	34	Dec 96
NIST	22	7	Feb 97
NPL	38	16	Mar 97
INRIM	23	15	Apr 97
NIST	21	7	May 97
INTI	42	10	Aug 97
NIST	22	7	Sep 97
NIST	20	7	Nov 97
NIM	37	6	Mar 98
NIST	14	7	Apr 98
VNIIM	30	9	Jun 98
NRC	14	6	Sep 98
NIST	9	7	Nov 98
SPRING Singapore	38	31	Dec 98
CSIR-NML	-21	30	Feb 99
NIST	8	7	Mar 99

Lab *i*	x_i / (μW/VA)	u_i / (μW/VA)	Date of measurement
PTB	15	5	May 99
NIST	8	7	Jun 99
INMETRO	6	30	Aug 99
CENAM	19	17	Aug 99
NIST	10	7	Sep 99
NIST	9	7	Jun 00
NIM	20	6	Jul 00
MSL	20	14	Aug 00
NIST	17	7	Aug 00
CSIR-NML	13	40	Sep 00
SP	27	15	Oct 00
NIST	21	7	Nov 00

Key comparisons CCEM-K5, EUROMET.EM-K5, EUROMET.EM-K5.1 and SIM.EM-K5

Key comparison EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 1.0, 53 Hz
NOMINAL VALUE : 600 VA, 600 W

$x_{i\text{-EUR}}$: **deviation from nominal measured by laboratory *i***
$u_{i\text{-EUR}}$: **combined standard uncertainty of $x_{i\text{-EUR}}$**

Lab *i*	$x_{i\text{-EUR}}$ / (μW/VA)	$u_{i\text{-EUR}}$ / (μW/VA)	Date of measurement
PTB	-61	11	Nov 96
PTB	-57	11	Feb 97
NPL	-51	16	Mar 97
PTB	-42	11	Apr 97
INRIM	-47	15	Apr 97
PTB	-59	11	May 97
SP	-79	15	Jun 97
AREPA	-49	47	Jun 97
PTB	-53	11	Jul 97
NMi-VSL*	84	-	Aug 97
INETI	-49	36	Oct 97
SMD	9	19	Dec 97
PTB	-49	11	Dec 97
BEV	-104	35	Feb 98
PTB	-47	11	Feb 98
METAS	-59	27	Mar 98
PTB	-41	11	Mar 98
MIKES*	-	-	Apr 98
PTB	-35	11	May 98
CMI	-40	35	Jun 98
OMH	0	85	Jun 98
PTB	-47	11	Jul 98

Lab *i*	$x_{i\text{-EUR}}$ / (μW/VA)	$u_{i\text{-EUR}}$ / (μW/VA)	Date of measurement
JV	-18	35	Aug 98
PTB	-54	11	Sep 98
UME*	-	-	Oct 98
PTB	-50	11	Nov 98
CEM	-50	33	Dec 98
PTB	-59	11	Jan 99
GUM	-26	38	Feb 99
PTB	-61	11	Feb 99
PTB	-44	11	Oct 99
MIKES	-9	17	Dec 99
PTB	-48	11	Dec 99
NMi-VSL	-30	5	Apr 00
UME	-24	36	Nov 00
PTB	-32	11	Mar 01
PTB	-28	11	Apr 01

Key comparison EUROMET.EM-K5.1
The results of mesurements obtained by the participants in EUROMET.EM-K5.1 are given in Table 2 on page 7 of the Final Report.

Key comparison SIM.EM-K5
The results of mesurements obtained by the participants in SIM.EM-K5 are given in Tables B.1 to B.8 on pages 29 to 36 of the Final Report.

*Laboratories having discovered errors in their measurement systems and having therefore asked for repetition of their measurements.
The first measurement results made by these laboratories have not been used in the final results.

Key comparisons CCEM-K5, EUROMET.EM-K5, EUROMET.EM-K5.1 and SIM.EM-K5

Key comparison CCEM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.5 Lead, 53 Hz
NOMINAL VALUE : 600 VA, 300 W

x_i : **deviation from nominal measured by laboratory *i***
u_i : **standard combined uncertainty of x_i**

Lab *i*	x_i / (μW/VA)	u_i / (μW/VA)	Date of measurement
NRC	26	6	Jun 96
NIST	17	7	Jul 96
PTB	9	7	Aug 96
SP	-5	11	Sep 96
NIST	20	7	Oct 96
NMIA	15	8	Nov 96
MSL	27	24	Dec 96
NIST	17	7	Feb 97
NPL	2	13	Mar 97
INRIM	4	15	Apr 97
NIST	12	7	May 97
INTI	20	17	Aug 97
NIST	15	7	Sep 97
NIST	12	7	Nov 97
NIM	-2	4	Mar 98
NIST	5	7	Apr 98
VNIIM	-8	14	Jun 98
NRC	11	6	Sep 98
NIST	5	7	Nov 98
SPRING Singapore	3	31	Dec 98
CSIR-NML	-6	30	Feb 99
NIST	6	7	Mar 99

Lab *i*	x_i / (μW/VA)	u_i / (μW/VA)	Date of measurement
PTB	-1	5	May 99
NIST	8	7	Jun 99
INMETRO	21	30	Aug 99
CENAM	4	17	Aug 99
NIST	4	7	Sep 99
NIST	11	7	Jun 00
NIM	23	6	Jul 00
MSL	16	15	Aug 00
NIST	12	7	Aug 00
CSIR-NML	-1	40	Sep 00
SP	6	11	Oct 00
NIST	11	7	Nov 00

Key comparisons CCEM-K5, EUROMET.EM-K5, EUROMET.EM-K5.1 and SIM.EM-K5

Key comparison EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.5 Lead, 53 Hz
NOMINAL VALUE : 600 VA, 300 W

$x_{i\text{-EUR}}$: **deviation from nominal measured by laboratory *i***
$u_{i\text{-EUR}}$: **combined standard uncertainty of $x_{i\text{-EUR}}$**

Lab *i*	$x_{i\text{-EUR}}$ / (μW/VA)	$u_{i\text{-EUR}}$ / (μW/VA)	Date of measurement
PTB	-23	10	Nov 96
PTB	-21	10	Feb 97
NPL	-22	14	Mar 97
PTB	-12	10	Apr 97
INRIM	-11	15	Apr 97
PTB	-24	10	May 97
SP	-30	10	Jun 97
AREPA	-38	50	Jun 97
PTB	-21	10	Jul 97
NMi-VSL*	15	-	Aug 97
INETI	-26	76	Oct 97
SMD	4	19	Dec 97
PTB	-17	10	Dec 97
BEV	-34	35	Feb 98
PTB	-16	10	Feb 98
METAS	-3	24	Mar 98
PTB	-15	10	Mar 98
MIKES*	-	-	Apr 98
PTB	-10	10	May 98
CMI	-35	30	Jun 98
OMH	-35	85	Jun 98
PTB	-14	10	Jul 98

Lab *i*	$x_{i\text{-EUR}}$ / (μW/VA)	$u_{i\text{-EUR}}$ / (μW/VA)	Date of measurement
JV	-2	35	Aug 98
PTB	-15	10	Sep 98
UME*	-	-	Oct 98
PTB	-18	10	Nov 98
CEM	-68	33	Dec 98
PTB	-20	10	Jan 99
GUM	-9	37	Feb 99
PTB	-20	10	Feb 99
PTB	-17	10	Oct 99
MIKES	-8	10	Dec 99
PTB	-17	10	Dec 99
NMi-VSL	-30	25	Apr 00
UME	29	36	Nov 00
PTB	-9	10	Mar 01
PTB	4	10	Apr 01

Key comparison EUROMET.EM-K5.1
The results of mesurements obtained by the participants in EUROMET.EM-K5.1 are given in Table 2 on page 7 of the Final Report.

Key comparison SIM.EM-K5
The results of mesurements obtained by the participants in SIM.EM-K5 are given in Tables B.1 to B.8 on pages 29 to 36 of the Final Report.

*Laboratories having discovered errors in their measurement systems and having therefore asked for repetition of their measurements.
The first measurement results made by these laboratories have not been used in the final results.

Key comparisons CCEM-K5, EUROMET.EM-K5, EUROMET.EM-K5.1 and SIM.EM-K5

Key comparison CCEM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.5 Lag, 53 Hz
NOMINAL VALUE : 600 VA, 300 W

x_i : **deviation from nominal measured by laboratory *i***
u_i : **standard combined uncertainty of x_i**

Lab *i*	x_i / (μW/VA)	u_i / (μW/VA)	Date of measurement
NRC	-27	6	Jun 96
NIST	-24	7	Jul 96
PTB	-18	7	Aug 96
SP	-43	11	Sep 96
NIST	-22	7	Oct 96
NMIA	-20	8	Nov 96
MSL	-4	24	Dec 96
NIST	-25	7	Feb 97
NPL	-4	13	Mar 97
INRIM	-21	15	Apr 97
NIST	-20	7	May 97
INTI	-20	17	Aug 97
NIST	-21	7	Sep 97
NIST	-26	7	Nov 97
NIM	1	4	Mar 98
NIST	-27	7	Apr 98
VNIIM	-53	14	Jun 98
NRC	-37	6	Sep 98
NIST	-30	7	Nov 98
SPRING Singapore	-17	31	Dec 98
CSIR-NML	-45	30	Feb 99
NIST	-32	7	Mar 99

Lab *i*	x_i / (μW/VA)	u_i / (μW/VA)	Date of measurement
PTB	-18	5	May 99
NIST	-34	7	Jun 99
INMETRO	-56	30	Aug 99
CENAM	-28	17	Aug 99
NIST	-30	7	Sep 99
NIST	-28	7	Jun 00
NIM	-36	6	Jul 00
MSL	-37	15	Aug 00
NIST	-21	7	Aug 00
CSIR-NML	-14	40	Sep 00
SP	-14	11	Oct 00
NIST	-22	7	Nov 00

Key comparisons CCEM-K5, EUROMET.EM-K5, EUROMET.EM-K5.1 and SIM.EM-K5

Key comparison EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.5 Lag, 53 Hz
NOMINAL VALUE : 600 VA, 300 W

$x_{i\text{-EUR}}$: **deviation from nominal measured by laboratory *i***
$u_{i\text{-EUR}}$: **combined standard uncertainty of $x_{i\text{-EUR}}$**

Lab *i*	$x_{i\text{-EUR}}$ / (μW/VA)	$u_{i\text{-EUR}}$ / (μW/VA)	Date of measurement
PTB	-40	10	Nov 96
PTB	-42	10	Feb 97
NPL	-30	14	Mar 97
PTB	-33	10	Apr 97
INRIM	-37	15	Apr 97
PTB	-43	10	May 97
SP	-54	10	Jun 97
AREPA	-35	50	Jun 97
PTB	-43	10	Jul 97
NMi-VSL*	-5	-	Aug 97
INETI	-30	97	Oct 97
SMD	1	19	Dec 97
PTB	-39	10	Dec 97
BEV	-45	35	Feb 98
PTB	-38	10	Feb 98
METAS	-52	24	Mar 98
PTB	-35	10	Mar 98
MIKES*	-	-	Apr 98
PTB	-33	10	May 98
CMI	-50	30	Jun 98
OMH	28	85	Jun 98
PTB	-37	10	Jul 98

Lab *i*	$x_{i\text{-EUR}}$ / (μW/VA)	$u_{i\text{-EUR}}$ / (μW/VA)	Date of measurement
JV	-12	35	Aug 98
PTB	-39	10	Sep 98
UME*	-	-	Oct 98
PTB	-35	10	Nov 98
CEM	36	33	Dec 98
PTB	-41	10	Jan 99
GUM	-23	37	Feb 99
PTB	-45	10	Feb 99
PTB	-28	10	Oct 99
MIKES	-7	10	Dec 99
PTB	-28	10	Dec 99
NMi-VSL	-5	25	Apr 00
UME	-55	36	Nov 00
PTB	-18	10	Mar 01
PTB	-12	10	Apr 01

Key comparison EUROMET.EM-K5.1
The results of mesurements obtained by the participants in EUROMET.EM-K5.1 are given in Table 2 on page 7 of the Final Report.

Key comparison SIM.EM-K5
The results of mesurements obtained by the participants in SIM.EM-K5 are given in Tables B.1 to B.8 on pages 29 to 36 of the Final Report.

*Laboratories having discovered errors in their measurement systems and having therefore asked for repetition of their measurements.
The first measurement results made by these laboratories have not been used in the final results.

Key comparisons CCEM-K5, EUROMET.EM-K5, EUROMET.EM-K5.1 and SIM.EM-K5

Key comparison CCEM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.0 Lead, 53 Hz
NOMINAL VALUE : 600 VA, 0 W

x_i : **deviation from nominal measured by laboratory *i***
u_i : **standard combined uncertainty of x_i**

Lab *i*	x_i / (μW/VA)	u_i / (μW/VA)	Date of measurement
NRC	-7	5	Jun 96
NIST	-13	6	Jul 96
PTB	-20	6	Aug 96
SP	-18	9	Sep 96
NIST	-7	6	Oct 96
NMIA	-3	7	Nov 96
MSL	-12	18	Dec 96
NIST	-14	6	Feb 97
NPL	-41	14	Mar 97
INRIM	-27	15	Apr 97
NIST	-16	6	May 97
INTI	-9	19	Aug 97
NIST	-13	6	Sep 97
NIST	-13	6	Nov 97
NIM	-40	5	Mar 98
NIST	-20	6	Apr 98
VNIIM	-8	12	Jun 98
NRC	-15	5	Sep 98
NIST	-17	6	Nov 98
SPRING Singapore	-36	31	Dec 98
CSIR-NML	-32	30	Feb 99
NIST	-18	6	Mar 99

Lab *i*	x_i / (μW/VA)	u_i / (μW/VA)	Date of measurement
PTB	-22	5	May 99
NIST	-18	6	Jun 99
INMETRO	-14	30	Aug 99
CENAM	-34	27	Aug 99
NIST	-23	6	Sep 99
NIST	-15	6	Jun 00
NIM	-14	6	Jul 00
MSL	-18	16	Aug 00
NIST	-12	6	Aug 00
CSIR-NML	-43	40	Sep 00
SP	-25	9	Oct 00
NIST	-21	6	Nov 00

Key comparisons CCEM-K5, EUROMET.EM-K5, EUROMET.EM-K5.1 and SIM.EM-K5

Key comparison EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.0 Lead, 53 Hz
NOMINAL VALUE : 600 VA, 0 W

$x_{i\text{-EUR}}$: **deviation from nominal measured by laboratory *i***
$u_{i\text{-EUR}}$: **combined standard uncertainty of $x_{i\text{-EUR}}$**

Lab *i*	$x_{i\text{-EUR}}$ / (μW/VA)	$u_{i\text{-EUR}}$ / (μW/VA)	Date of measurement
PTB	13	10	Nov 96
PTB	12	10	Feb 97
NPL	5	14	Mar 97
PTB	13	10	Apr 97
INRIM	21	15	Apr 97
PTB	9	10	May 97
SP	18	8	Jun 97
AREPA	-13	70	Jun 97
PTB	5	10	Jul 97
NMi-VSL*	-120	-	Aug 97
INETI	-208	241	Oct 97
SMD	17	14	Dec 97
PTB	10	10	Dec 97
BEV	11	110	Feb 98
PTB	9	10	Feb 98
METAS	31	23	Mar 98
PTB	7	10	Mar 98
MIKES*	-	-	Apr 98
PTB	8	10	May 98
CMI	-50	25	Jun 98
OMH	45	85	Jun 98
PTB	14	10	Jul 98

Lab *i*	$x_{i\text{-EUR}}$ / (μW/VA)	$u_{i\text{-EUR}}$ / (μW/VA)	Date of measurement
JV	6	35	Aug 98
PTB	13	10	Sep 98
UME*	-	-	Oct 98
PTB	10	10	Nov 98
CEM	-	-	Dec 98
PTB	12	10	Jan 99
GUM	16	37	Feb 99
PTB	12	10	Feb 99
PTB	8	10	Oct 99
MIKES	-3	6	Dec 99
PTB	8	10	Dec 99
NMi-VSL	-10	85	Apr 00
UME	10	36	Nov 00
PTB	16	10	Mar 01
PTB	20	10	Apr 01

Key comparison EUROMET.EM-K5.1
The results of mesurements obtained by the participants in EUROMET.EM-K5.1 are given in Table 2 on page 7 of the Final Report.

Key comparison SIM.EM-K5
The results of mesurements obtained by the participants in SIM.EM-K5 are given in Tables B.1 to B.8 on pages 29 to 36 of the Final Report.

*Laboratories having discovered errors in their measurement systems and having therefore asked for repetition of their measurements.
The first measurement results made by these laboratories have not been used in the final results.

Key comparisons CCEM-K5, EUROMET.EM-K5, EUROMET.EM-K5.1 and SIM.EM-K5

Key comparison CCEM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.0 Lag, 53 Hz
NOMINAL VALUE : 600 VA, 0 W

x_i : **deviation from nominal measured by laboratory *i***
u_i : **standard combined uncertainty of x_i**

Lab *i*	x_i / (μW/VA)	u_i / (μW/VA)	Date of measurement
NRC	-68	5	Jun 96
NIST	-59	6	Jul 96
PTB	-53	6	Aug 96
SP	-60	9	Sep 96
NIST	-63	6	Oct 96
NMIA	-62	7	Nov 96
MSL	-73	18	Dec 96
NIST	-54	6	Feb 97
NPL	-44	14	Mar 97
INRIM	-58	16	Apr 97
NIST	-52	6	May 97
INTI	-50	19	Aug 97
NIST	-53	6	Sep 97
NIST	-55	6	Nov 97
NIM	-37	4	Mar 98
NIST	-55	6	Apr 98
VNIIM	-70	12	Jun 98
NRC	-73	5	Sep 98
NIST	-57	6	Nov 98
SPRING Singapore	-65	31	Dec 98
CSIR-NML	-54	30	Feb 99
NIST	-58	6	Mar 99

Lab *i*	x_i / (μW/VA)	u_i / (μW/VA)	Date of measurement
PTB	-56	5	May 99
NIST	-59	6	Jun 99
INMETRO	-77	30	Aug 99
CENAM	-55	27	Aug 99
NIST	-60	6	Sep 99
NIST	-54	6	Jun 00
NIM	-72	6	Jul 00
MSL	-69	16	Aug 00
NIST	-52	6	Aug 00
CSIR-NML	-57	40	Sep 00
SP	-47	9	Oct 00
NIST	-57	6	Nov 00

Key comparisons CCEM-K5, EUROMET.EM-K5, EUROMET.EM-K5.1 and SIM.EM-K5

Key comparison EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.0 Lag, 53 Hz
NOMINAL VALUE : 600 VA, 0 W

$x_{i\text{-EUR}}$: **deviation from nominal measured by laboratory *i***
$u_{i\text{-EUR}}$: **combined standard uncertainty of $x_{i\text{-EUR}}$**

Lab *i*	$x_{i\text{-EUR}}$ / (μW/VA)	$u_{i\text{-EUR}}$ / (μW/VA)	Date of measurement
PTB	-8	10	Nov 96
PTB	-12	10	Feb 97
NPL	-3	14	Mar 97
PTB	-10	10	Apr 97
INRIM	-10	15	Apr 97
PTB	-14	10	May 97
SP	-13	8	Jun 97
AREPA	-14	70	Jun 97
PTB	20	10	Jul 97
NMi-VSL*	15	-	Aug 97
INETI	4	148	Oct 97
SMD	9	14	Dec 97
PTB	-17	10	Dec 97
BEV	-3	110	Feb 98
PTB	-19	10	Feb 98
METAS	-24	23	Mar 98
PTB	-16	10	Mar 98
MIKES*	-	-	Apr 98
PTB	-14	10	May 98
CMI	-130	25	Jun 98
OMH	-37	85	Jun 98
PTB	-14	10	Jul 98

Lab *i*	$x_{i\text{-EUR}}$ / (μW/VA)	$u_{i\text{-EUR}}$ / (μW/VA)	Date of measurement
JV	-13	35	Aug 98
PTB	-13	10	Sep 98
UME*	-	-	Oct 98
PTB	-10	10	Nov 98
CEM	-	-	Dec 98
PTB	-8	10	Jan 99
GUM	7	37	Feb 99
PTB	-8	10	Feb 99
PTB	2	10	Oct 99
MIKES	-1	6	Dec 99
PTB	-1	10	Dec 99
NMi-VSL	12	85	Apr 00
UME	-15	36	Nov 00
PTB	12	10	Mar 01
PTB	16	10	Apr 01

Key comparison EUROMET.EM-K5.1
The results of mesurements obtained by the participants in EUROMET.EM-K5.1 are given in Table 2 on page 7 of the Final Report.

Key comparison SIM.EM-K5
The results of mesurements obtained by the participants in SIM.EM-K5 are given in Tables B.1 to B.8 on pages 29 to 36 of the Final Report.

*Laboratories having discovered errors in their measurement systems and having therefore asked for repetition of their measurements.
The first measurement results made by these laboratories have not been used in the final results.

Key comparisons CCEM-K5, EUROMET.EM-K5, EUROMET.EM-K5.1 and SIM.EM-K5

MEASURAND : Electric power at 120 V, 5 A, 53 Hz **POWER FACTOR : 1.0, 0.5 Lead, 0.5 Lag, 0.0 Lead, 0.0 Lag**

Key comparison CCEM-K5

For each power factor, the key comparison reference value, x_R, is calculated as the weighted mean of the difference between laboratory i and the predicted value, based on measurements performed at the pilot laboratory. Its standard uncertainty, u_R, is calculated as the uncertainty of the weighted mean of the differences.

Power factor	x_R / (μW/VA)	u_R / (μW/VA)
1.0	7	5
0.5 Lead	-1	5
0.5 Lag	-1	5
0.0 Lead	0	5
0.0 Lag	-3	5

The degree of equivalence of each laboratory with respect to the key comparison reference value is given by a pair of terms: D_i and U_i, its expanded uncertainty (k = 2), both expressed in μW/VA. The derivation of these terms can be found in the CCEM-K5 Final Report.

The degree of equivalence between two laboratories is given by a pair of terms: D_{ij} and U_{ij}, its expanded uncertainty (k = 2), both expressed in μW/VA. The derivation of these terms can be found in the CCEM-K5 Final Report.

Linking EUROMET.EM-K5 and EUROMET.EM-K5.1 to CCEM-K5

For each power factor the linkage between EUROMET.EM-K5 and CCEM-K5, or EUROMET.EM-K5.1 and CCEM-K5, is computed as explained in the corresponding Linkage Report.

The INRIM, NPL and PTB ensure the linkage between EUROMET.EM-K5 and CCEM-K5, and PTB between EUROMET.EM-K5.1 and CCEM-K5

Linking SIM.EM-K5.1 to CCEM-K5

It was possible to link SIM.EM-K5 results to those of CCEM-K5 for the power factors 1.0, 0.5 Lead and 0.5 Lag as explained in the Addendum to the SIM.EM-K5 Final Report.

NIST, NRC, INTI, INMETRO and CENAM ensure the linkage.

It follows that the tables of degrees of equivalence relative to the key comparison reference values and the graphs of equivalence obtained for CCEM-K5 can be extended to include results from the EUROMET.EM-K5, EUROMET.EM-K5.1 and SIM.EM-K5 participants. The full matrices of equivalence are given here for CCEM-K5 and EUROMET.EM-K5 only.
Pair-wise degrees of equivalence involving EUROMET.EM-K5.1 participants are available in Tables 6.1 to 6.5 of the EUROMET.EM-K5.1 Linkage Report.

Key comparisons CCEM-K5, EUROMET.EM-K5, EUROMET.EM-K5.1 and SIM.EM-K5

MEASURAND : Electric power at 120 V, 5 A, 53 Hz
POWER FACTOR : 1.0

Lab *i*	D_i / (µW/VA)	U_i / (µW/VA)
NIST	-7	12
NMIA	-1	14
NPL	8	32
INRIM	-7	30
INTI	15	20
VNIIM	10	18
NRC	-4	14
NMC, A*STAR	22	62
PTB	0	10
INMETRO	-9	60
CENAM	4	34
NIM	-1	12
MSL	-2	28
NMISA	-12	80
SP	1	30

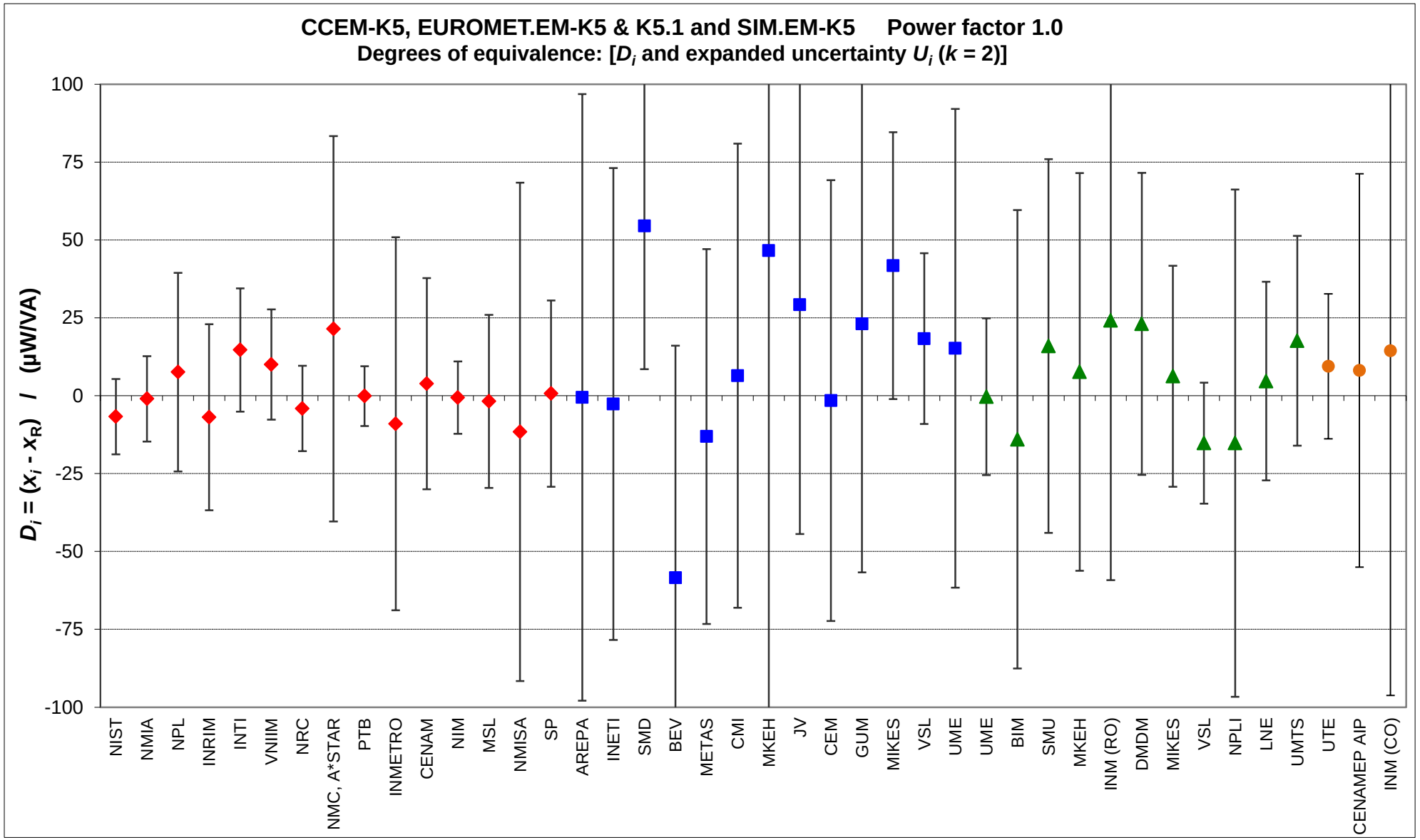
	D_i / (µW/VA)	U_i / (µW/VA)
AREPA	-1	97
INETI	-3	76
SMD	54	46
BEV	-58	75
METAS	-13	60
CMI	6	75
MKEH	47	172
JV	29	74
CEM	-2	71
GUM	23	80
MIKES	42	43
VSL	18	27
UME	15	77

UME	0	25
BIM	-14	74
SMU	16	60
MKEH	8	64
INM (RO)	24	83
DMDM	23	48
MIKES	6	35
VSL	-15	19
NPLI	-15	81
LNE	5	32
UMTS	18	34

UTE	9	23
CENAMEP AIP	8	63
INM (CO)	14	111

Black: participants in CCEM-K5
Blue: participants in EUROMET.EM-K5
Green: participants in EUROMET.EM-K5.1
Red: participants in SIM.EM-K5

The laboratories' acronyms used in this table have been updated in December 2014
The acronym "UMTS" stands for SE "Ukrmetrteststandard"



Red diamonds: participants in CCEM-K5
Blue squares: participants in EUROMET.EM-K5 only
Green triangles: participants in EUROMET.EM-K5.1 only
Orange circles: participants in SIM.EM-K5 only

U_{MKEH} = 172 µW/VA

Key comparisons CCEM-K5, EUROMET.EM-K5, EUROMET.EM-K5.1 and SIM.EM-K5

MEASURAND : Electric power at 120 V, 5 A, 53 Hz
POWER FACTOR : 0.5 Lead

Lab *i*	D_i / (µW/VA)	U_i / (µW/VA)
NIST	1	12
NMIA	-1	16
NPL	-12	26
INRIM	-10	30
INTI	9	34
VNIIM	-15	28
NRC	5	12
NMC, A*STAR	-3	62
PTB	-7	10
INMETRO	15	60
CENAM	-2	34
NIM	13	12
MSL	5	30
NMISA	-14	80
SP	-8	22

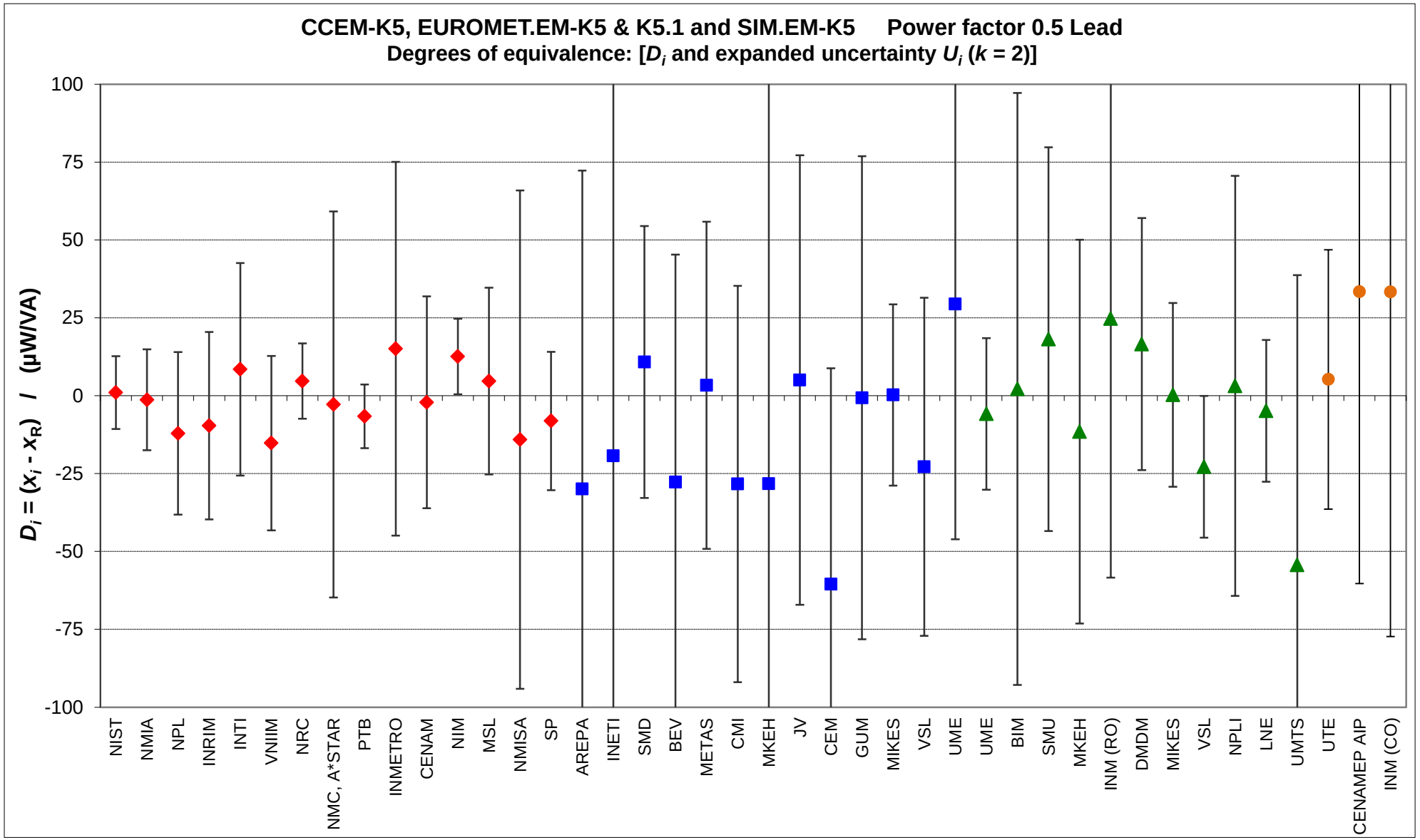
	D_i / (µW/VA)	U_i / (µW/VA)
AREPA	-30	102
INETI	-19	152
SMD	11	44
BEV	-28	73
METAS	3	53
CMI	-28	64
MKEH	-28	171
JV	5	72
CEM	-60	69
GUM	-1	78
MIKES	0	29
VSL	-23	54
UME	29	76

UME	-6	24
BIM	2	95
SMU	18	62
MKEH	-12	62
INM (RO)	25	83
DMDM	17	40
MIKES	0	29
VSL	-23	23
NPLI	3	67
LNE	-5	23
UMTS	-54	93

UTE	5	42
CENAMEP AIP	33	94
INM (CO)	33	111

Black: participants in CCEM-K5
Blue: participants in EUROMET.EM-K5
Green: participants in EUROMET.EM-K5.1
Red: participants in SIM.EM-K5

The laboratories' acronyms used in this table have been updated in December 2014
The acronym "UMTS" stands for SE "Ukrmetrteststandard"



Red diamonds: participants in CCEM-K5
Blue squares: participants in EUROMET.EM-K5 only
Green triangles: participants in EUROMET.EM-K5.1 only
Orange circles: participants in SIM.EM-K5 only

U_{INETI} = 152 µW/VA U_{MKEH} = 171 µW/VA

Key comparisons CCEM-K5, EUROMET.EM-K5, EUROMET.EM-K5.1 and SIM.EM-K5

MEASURAND : Electric power at 120 V, 5 A, 53 Hz
POWER FACTOR : 0.5 Lag

Lab *i*	D_i / (µW/VA)	U_i / (µW/VA)
NIST	1	12
NMIA	3	16
NPL	19	26
INRIM	2	30
INTI	4	34
VNIIM	-25	28
NRC	-3	12
NMC, A*STAR	13	62
PTB	12	10
INMETRO	-26	60
CENAM	2	34
NIM	-14	12
MSL	-16	30
NMISA	3	80
SP	1	22

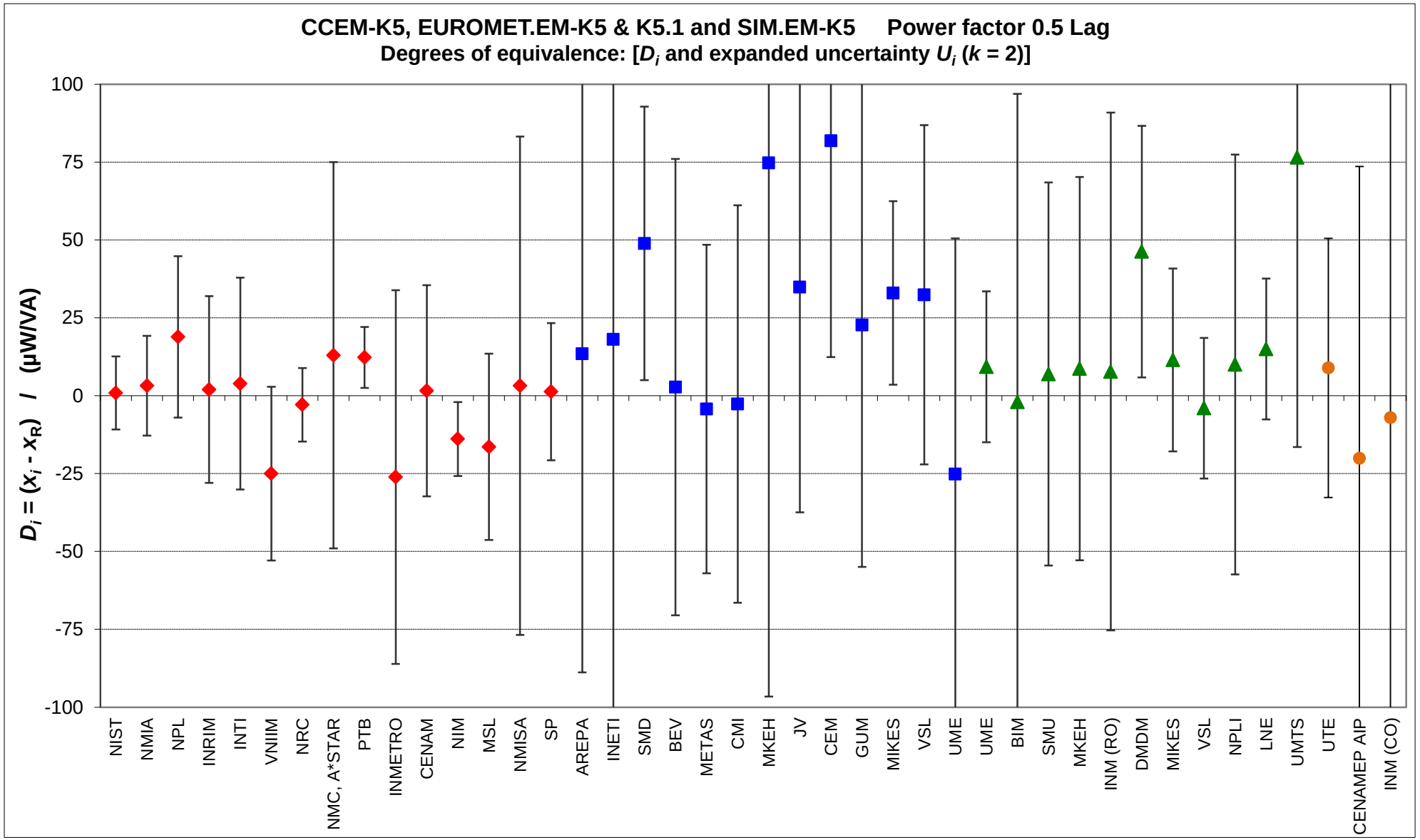
	D_i / (µW/VA)	U_i / (µW/VA)
AREPA	14	102
INETI	18	195
SMD	49	44
BEV	3	73
METAS	-4	53
CMI	-3	64
MKEH	75	171
JV	35	72
CEM	82	69
GUM	23	78
MIKES	33	29
VSL	32	54
UME	-25	76

UME	9	24
BIM	-2	99
SMU	7	62
MKEH	9	62
INM (RO)	8	83
DMDM	46	40
MIKES	11	29
VSL	-4	23
NPLI	10	67
LNE	15	23
UMTS	77	93

UTE	9	42
CENAMEP AIP	-20	94
INM (CO)	-7	132

Black: participants in CCEM-K5
Blue: participants in EUROMET.EM-K5
Green: participants in EUROMET.EM-K5.1
Red: participants in SIM.EM-K5

The laboratories' acronyms used in this table have been updated in December 2014
The acronym "UMTS" stands for SE "Ukrmetrteststandard"



Red diamonds: participants in CCEM-K5
Blue squares: participants in EUROMET.EM-K5 only
Green triangles: participants in EUROMET.EM-K5.1 only
Orange circles: participants in SIM.EM-K5 only

U_{INETI} = 195 µW/VA
$U_{INM\ (CO)}$ = 132 µW/VA

Key comparisons CCEM-K5, EUROMET.EM-K5 and EUROMET.EM-K5.1

MEASURAND : Electric power at 120 V, 5 A, 53 Hz
POWER FACTOR : 0.0 Lead

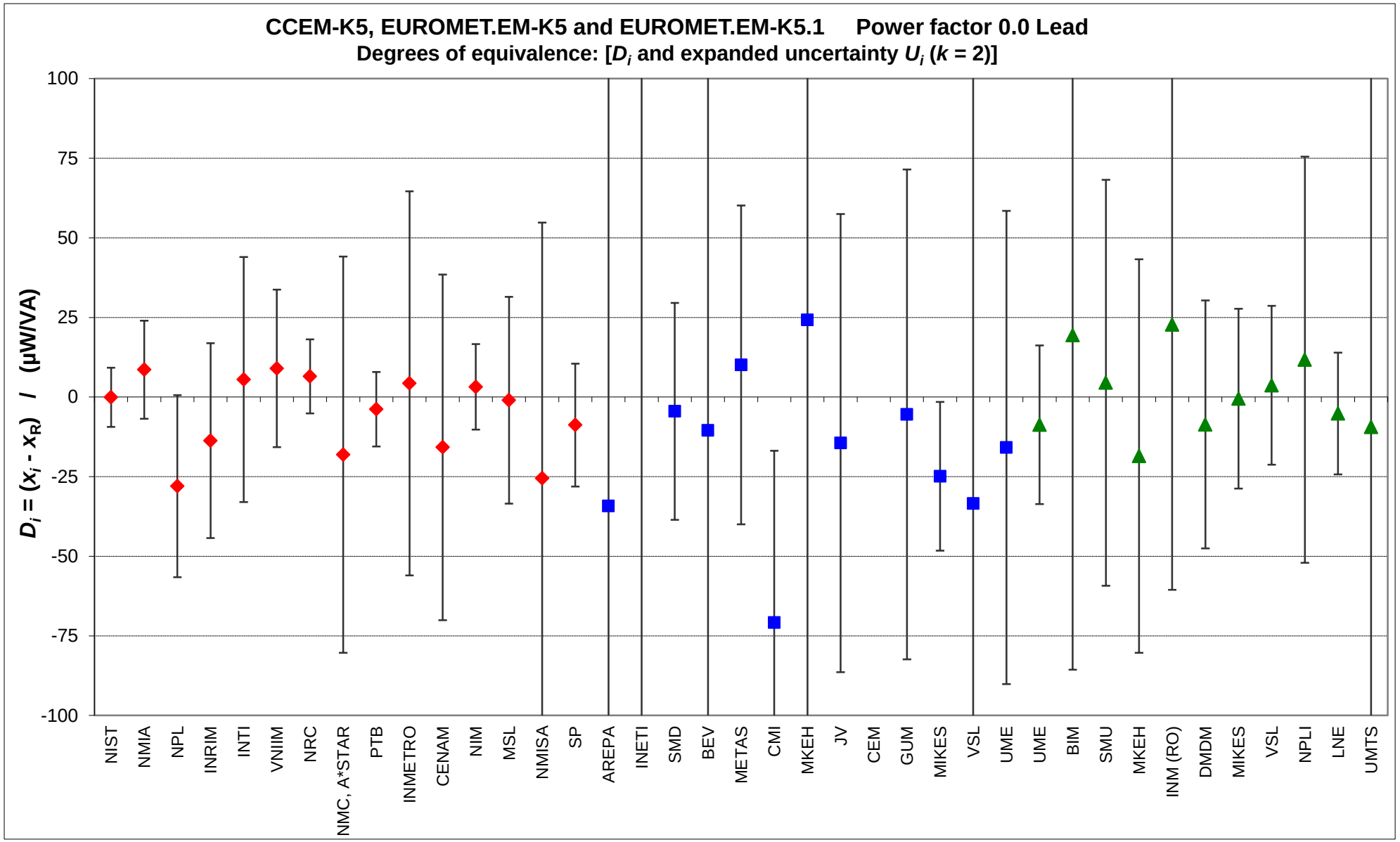
Lab *i*	D_i / (µW/VA)	U_i / (µW/VA)
NIST	0	9
NMIA	9	15
NPL	-28	29
INRIM	-14	31
INTI	6	39
VNIIM	9	25
NRC	7	12
NMC, A*STAR	-18	62
PTB	-4	12
INMETRO	4	60
CENAM	-16	54
NIM	3	13
MSL	-1	33
NMISA	-26	80
SP	-9	19

	D_i / (µW/VA)	U_i / (µW/VA)
AREPA	-34	141
INETI	-230	482
SMD	-4	34
BEV	-10	221
METAS	10	50
CMI	-71	54
MKEH	24	171
JV	-14	72
CEM	-	-
GUM	-5	77
MIKES	-25	23
VSL	-33	171
UME	-16	74

UME	-9	25
BIM	19	105
SMU	4	64
MKEH	-19	62
INM (RO)	23	83
DMDM	-9	39
MIKES	0	28
VSL	4	25
NPLI	12	64
LNE	-5	19
UMTS	-9	147

Black: participants in CCEM-K5
Blue: participants in EUROMET.EM-K5
Green: participants in EUROMET.EM-K5.1

The laboratories' acronyms used in this table have been updated in December 2014
The acronym "UMTS" stands for SE "Ukrmetrteststandard"



Red diamonds: participants in CCEM-K5
Blue squares: participants in EUROMET.EM-K5 only
Green triangles: participants in EUROMET.EM-K5.1 only

U_{AREPA} = 141 µW/VA U_{VSL} = 171 µW/VA
D_{INETI} = -230 µW/VA and U_{INETI} = 482 µW/VA

U_{BEV} = 221 µW/VA
U_{MKEH} = 171 µW/VA
U_{UMTS} = 147 µW/VA

Key comparisons CCEM-K5, EUROMET.EM-K5 and EUROMET.EM-K5.1

MEASURAND : Electric power at 120 V, 5 A, 53 Hz
POWER FACTOR : 0.0 Lag

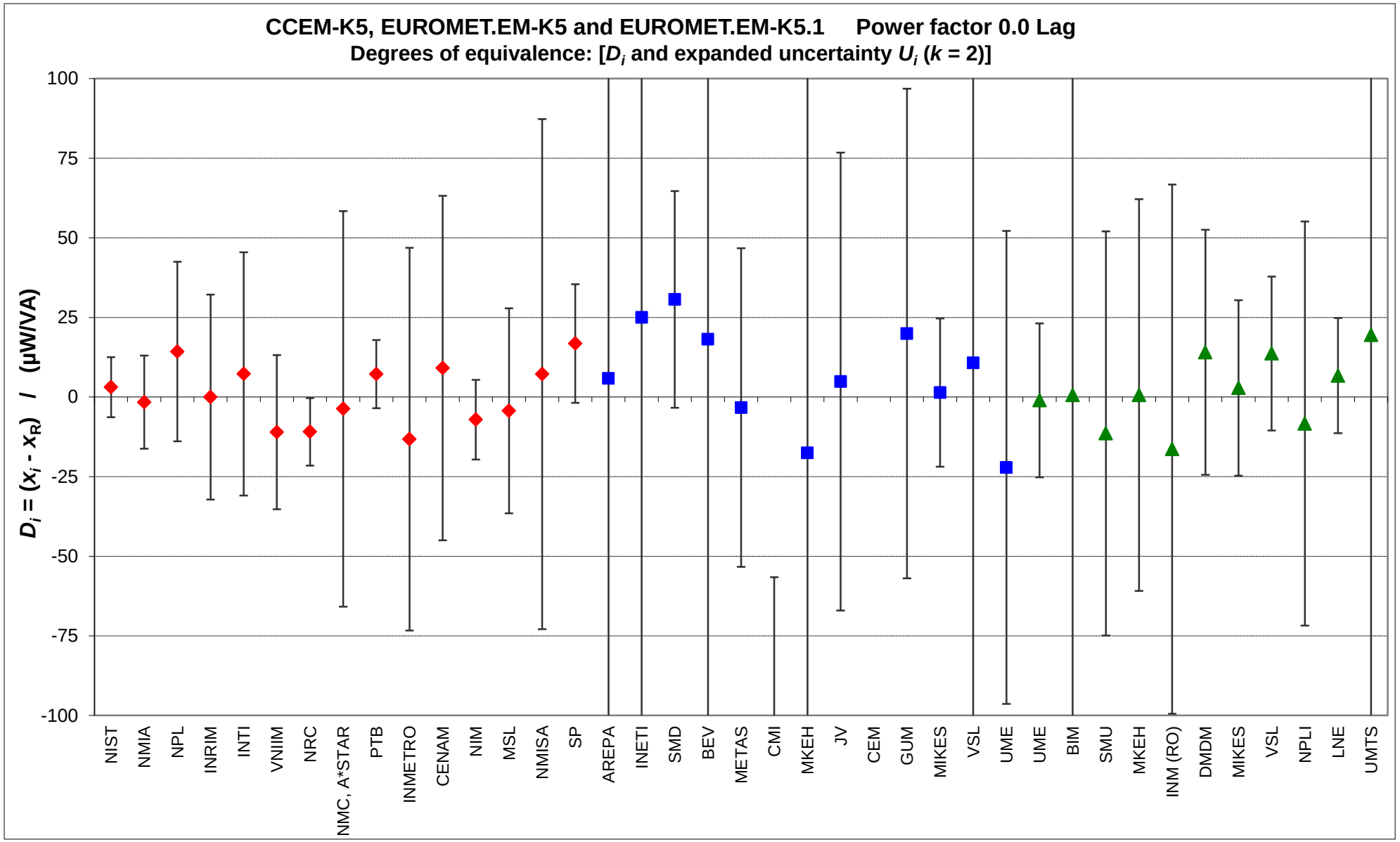
Lab *i*	D_i / (µW/VA)	U_i / (µW/VA)
NIST	3	9
NMIA	-2	15
NPL	14	28
INRIM	0	32
INTI	7	38
VNIIM	-11	24
NRC	-11	11
NMC, A*STAR	-4	62
PTB	7	11
INMETRO	-13	60
CENAM	9	54
NIM	-7	13
MSL	-4	32
NMISA	7	80
SP	17	19

	D_i / (µW/VA)	U_i / (µW/VA)
AREPA	6	141
INETI	25	296
SMD	31	34
BEV	18	221
METAS	-3	50
CMI	-110	54
MKEH	-18	171
JV	5	72
CEM	-	-
GUM	20	77
MIKES	1	23
VSL	11	171
UME	-22	74

UME	-1	24
BIM	1	103
SMU	-11	63
MKEH	1	62
INM (RO)	-16	83
DMDM	14	38
MIKES	3	28
VSL	14	24
NPLI	-8	63
LNE	7	18
UMTS	19	155

Black: participants in CCEM-K5
Blue: participants in EUROMET.EM-K5
Green: participants in EUROMET.EM-K5.1

The laboratories' acronyms used in this table have been updated in December 2014
The acronym "UMTS" stands for SE "Ukrmetrteststandard"



Red diamonds: participants in CCEM-K5
Blue squares: participants in EUROMET.EM-K5 only
Green triangles: participants in EUROMET.EM-K5.1 only

U_{AREPA} = 141 µW/VA
U_{INETI} = 296 µW/VA
U_{MKEH} = 171 µW/VA
U_{BEV} = 221 µW/VA
D_{CMI} = -110 µW/VA and U_{CMI} = 54 µW/VA
U_{VSL} = 171 µW/VA
U_{BIM} = 103 µW/VA
U_{UMTS} = 155 µW/VA

Key comparisons CCEM-K5 and EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 1.0, 53 Hz **NOMINAL VALUE : 600 VA, 600 W**

Matrix of equivalence

Lab *j* ⇨

Lab *i* ⇩	D_i / (μW/VA)	U_i / (μW/VA)	NIST		NMIA		NPL		INRIM		INTI		VNIIM		NRC		SPRING		PTB		INMETRO	
			D_{ij} / (μW/VA)	U_{ij} / (μW/VA)	D_{ij} / (μW/VA)	U_{ij} / (μW/VA)	D_{ij} / (μW/VA)	U_{ij} / (μW/VA)	D_{ij} / (μW/VA)	U_{ij} / (μW/VA)	D_{ij} / (μW/VA)	U_{ij} / (μW/VA)	D_{ij} / (μW/VA)	U_{ij} / (μW/VA)	D_{ij} / (μW/VA)	U_{ij} / (μW/VA)	D_{ij} / (μW/VA)	U_{ij} / (μW/VA)	D_{ij} / (μW/VA)	U_{ij} / (μW/VA)	D_{ij} / (μW/VA)	U_{ij} / (μW/VA)
NIST	-7	12			-6	20	-14	35	0	33	-21	24	-17	23	-3	20	-28	64	-7	17	2	62
NMIA	-1	14	6	20			-9	35	6	34	-16	25	-11	24	3	21	-23	64	-1	18	8	62
NPL	8	32	14	35	9	35			15	44	-7	38	-2	37	12	35	-14	70	8	34	17	68
INRIM	-7	30	0	33	-6	34	-15	44			-22	36	-17	35	-3	34	-28	69	-7	32	2	67
INTI	15	20	21	24	16	25	7	38	22	36			5	27	19	25	-7	65	15	23	24	64
VNIIM	10	18	17	23	11	24	2	37	17	35	-5	27			14	23	-12	65	10	21	19	63
NRC	-4	14	3	20	-3	21	-12	35	3	34	-19	25	-14	23			-26	64	-4	18	5	62
SPRING	22	62	28	64	23	64	14	70	28	69	7	65	12	65	26	64			22	63	30	86
PTB	0	10	7	17	1	18	-8	34	7	32	-15	23	-10	21	4	18	-22	63			9	61
INMETRO	-9	60	-2	62	-8	62	-17	68	-2	67	-24	64	-19	63	-5	62	-30	86	-9	61		
CENAM	4	34	11	37	5	37	-4	47	11	46	-11	40	-6	39	8	37	-18	71	4	36	13	69
NIM	-1	12	6	18	1	19	-8	35	6	33	-15	24	-11	22	4	19	-22	63	-1	17	8	61
MSL	-2	28	5	31	-1	32	-9	43	5	41	-17	35	-12	34	2	32	-23	68	-2	30	7	66
CSIR-NML	-12	80	-5	81	-11	81	-19	86	-5	86	-26	83	-22	82	-8	81	-33	101	-12	81	-3	100
SP	1	30	7	33	2	34	-7	44	8	43	-14	37	-9	36	5	34	-21	69	1	32	10	67
AREPA	-1	97	6	98	0	98	-9	102	6	101	-16	99	-11	99	3	98	-23	115	-1	99	8	114
INETI	-3	76	4	77	-2	77	-11	81	4	81	-18	78	-13	78	1	77	-25	98	-3	77	6	97
SMD	54	46	61	48	55	48	46	55	61	54	39	50	44	49	58	48	32	77	54	48	63	76
BEV	-58	75	-51	76	-57	76	-66	80	-51	80	-73	77	-68	77	-54	76	-80	97	-58	76	-49	96
METAS	-13	60	-6	61	-12	62	-21	67	-6	66	-28	63	-23	63	-9	62	-35	86	-13	62	-4	85
CMI	6	75	13	75	7	76	-2	80	13	80	-9	77	-4	77	10	76	-16	97	6	76	15	96
OMH	47	172	54	172	48	172	39	174	54	174	32	173	37	173	51	172	25	183	47	173	56	182
JV	29	74	36	75	30	75	21	79	36	79	14	76	19	76	33	75	7	96	29	75	38	95
CEM	-2	71	5	72	-1	72	-10	77	5	76	-17	73	-12	73	2	72	-24	94	-2	72	7	93
GUM	23	80	30	81	24	81	15	85	30	85	8	82	13	82	27	81	1	101	23	81	32	100
MIKES	42	43	49	45	43	45	34	52	49	51	27	47	32	47	46	45	20	75	42	46	51	74
NMi-VSL	18	27	25	31	19	32	10	41	25	40	3	35	8	33	22	32	-4	68	18	32	27	66
UME	15	77	22	78	16	78	7	83	22	82	0	80	5	79	19	78	-7	99	15	78	24	98

Key comparisons CCEM-K5 and EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 1.0, 53 Hz **NOMINAL VALUE : 600 VA, 600 W**

Matrix of equivalence - continued

Lab *j* ⇨

Lab *i* ⇩	D_i / (µW/VA)	U_i / (µW/VA)	CENAM D_{ij} / (µW/VA)	CENAM U_{ij} / (µW/VA)	NIM D_{ij} / (µW/VA)	NIM U_{ij} / (µW/VA)	MSL D_{ij} / (µW/VA)	MSL U_{ij} / (µW/VA)	CSIR-NML D_{ij} / (µW/VA)	CSIR-NML U_{ij} / (µW/VA)	SP D_{ij} / (µW/VA)	SP U_{ij} / (µW/VA)	AREPA D_{ij} / (µW/VA)	AREPA U_{ij} / (µW/VA)	INETI D_{ij} / (µW/VA)	INETI U_{ij} / (µW/VA)	SMD D_{ij} / (µW/VA)	SMD U_{ij} / (µW/VA)	BEV D_{ij} / (µW/VA)	BEV U_{ij} / (µW/VA)	METAS D_{ij} / (µW/VA)	METAS U_{ij} / (µW/VA)
NIST	-7	12	-11	37	-6	18	-5	31	5	81	-7	33	-6	98	-4	77	-61	48	51	76	6	61
NMIA	-1	14	-5	37	-1	19	1	32	11	81	-2	34	0	98	2	77	-55	48	57	76	12	62
NPL	8	32	4	47	8	35	9	43	19	86	7	44	9	102	11	81	-46	55	66	80	21	67
INRIM	-7	30	-11	46	-6	33	-5	41	5	86	-8	43	-6	101	-4	81	-61	54	51	80	6	66
INTI	15	20	11	40	15	24	17	35	26	83	14	37	16	99	18	78	-39	50	73	77	28	63
VNIIM	10	18	6	39	11	22	12	34	22	82	9	36	11	99	13	78	-44	49	68	77	23	63
NRC	-4	14	-8	37	-4	19	-2	32	8	81	-5	34	-3	98	-1	77	-58	48	54	76	9	62
SPRING	22	62	18	71	22	63	23	68	33	101	21	69	23	115	25	98	-32	77	80	97	35	86
PTB	0	10	-4	36	1	17	2	30	12	81	-1	32	1	99	3	77	-54	48	58	76	13	62
INMETRO	-9	60	-13	69	-8	61	-7	66	3	100	-10	67	-8	114	-6	97	-63	76	49	96	4	85
CENAM	4	34			5	37	6	44	16	87	3	46	5	103	7	83	-50	57	62	82	17	69
NIM	-1	12	-5	37			1	31	11	81	-1	33	0	98	2	77	-55	48	57	76	12	61
MSL	-2	28	-6	44	-1	31			10	85	-3	41	-1	101	1	81	-56	54	56	80	11	66
CSIR-NML	-12	80	-16	87	-11	81	-10	85			-12	86	-11	126	-9	110	-66	92	46	109	1	100
SP	1	30	-3	46	1	33	3	41	12	86			2	101	4	81	-53	54	59	80	14	66
AREPA	-1	97	-5	103	0	98	1	101	11	126	-2	101			2	120	-55	104	58	119	13	111
INETI	-3	76	-7	83	-2	77	-1	81	9	110	-4	81	-2	120			-57	84	56	103	10	93
SMD	54	46	50	57	55	48	56	54	66	92	53	54	55	104	57	84			113	83	68	70
BEV	-58	75	-62	82	-57	76	-56	80	-46	109	-59	80	-58	119	-56	103	-113	83			-45	92
METAS	-13	60	-17	69	-12	61	-11	66	-1	100	-14	66	-13	111	-10	93	-68	70	45	92		
CMI	6	75	2	82	7	75	8	80	18	109	5	80	7	119	9	103	-48	83	65	102	19	92
OMH	47	172	43	175	48	172	49	174	59	190	46	174	47	196	49	186	-8	176	105	185	60	180
JV	29	74	25	81	30	75	31	79	41	109	28	79	30	119	32	102	-25	82	88	101	42	91
CEM	-2	71	-6	78	-1	72	0	76	10	107	-3	76	-1	117	1	100	-56	80	57	99	12	89
GUM	23	80	19	87	24	81	25	84	35	113	22	84	24	123	26	106	-31	88	82	105	36	96
MIKES	42	43	38	55	43	45	44	51	54	91	41	51	42	103	44	82	-13	56	100	81	55	68
NMi-VSL	18	27	14	44	19	31	20	40	30	85	17	40	19	97	21	76	-36	46	77	75	31	60
UME	15	77	11	84	16	78	17	82	27	111	14	82	16	121	18	104	-39	85	74	103	28	94

Key comparisons CCEM-K5 and EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 1.0, 53 Hz **NOMINAL VALUE : 600 VA, 600 W**

Matrix of equivalence - continued

Lab *j* ⟹

Lab *i* ⇩	D_i / (µW/VA)	U_i / (µW/VA)	CMI D_{ij} / (µW/VA)	CMI U_{ij} / (µW/VA)	OMH D_{ij} / (µW/VA)	OMH U_{ij} / (µW/VA)	JV D_{ij} / (µW/VA)	JV U_{ij} / (µW/VA)	CEM D_{ij} / (µW/VA)	CEM U_{ij} / (µW/VA)	GUM D_{ij} / (µW/VA)	GUM U_{ij} / (µW/VA)	MIKES D_{ij} / (µW/VA)	MIKES U_{ij} / (µW/VA)	NMi-VSL D_{ij} / (µW/VA)	NMi-VSL U_{ij} / (µW/VA)	UME D_{ij} / (µW/VA)	UME U_{ij} / (µW/VA)
NIST	-7	12	-13	75	-54	172	-36	75	-5	72	-30	81	-49	45	-25	31	-22	78
NMIA	-1	14	-7	76	-48	172	-30	75	1	72	-24	81	-43	45	-19	32	-16	78
NPL	8	32	2	80	-39	174	-21	79	10	77	-15	85	-34	52	-10	41	-7	83
INRIM	-7	30	-13	80	-54	174	-36	79	-5	76	-30	85	-49	51	-25	40	-22	82
INTI	15	20	9	77	-32	173	-14	76	17	73	-8	82	-27	47	-3	35	0	80
VNIIM	10	18	4	77	-37	173	-19	76	12	73	-13	82	-32	47	-8	33	-5	79
NRC	-4	14	-10	76	-51	172	-33	75	-2	72	-27	81	-46	45	-22	32	-19	78
SPRING	22	62	16	97	-25	183	-7	96	24	94	-1	101	-20	75	4	68	7	99
PTB	0	10	-6	76	-47	173	-29	75	2	72	-23	81	-42	46	-18	32	-15	78
INMETRO	-9	60	-15	96	-56	182	-38	95	-7	93	-32	100	-51	74	-27	66	-24	98
CENAM	4	34	-2	82	-43	175	-25	81	6	78	-19	87	-38	55	-14	44	-11	84
NIM	-1	12	-7	75	-48	172	-30	75	1	72	-24	81	-43	45	-19	31	-16	78
MSL	-2	28	-8	80	-49	174	-31	79	0	76	-25	84	-44	51	-20	40	-17	82
CSIR-NML	-12	80	-18	109	-59	190	-41	109	-10	107	-35	113	-54	91	-30	85	-27	111
SP	1	30	-5	80	-46	174	-28	79	3	76	-22	84	-41	51	-17	40	-14	82
AREPA	-1	97	-7	119	-47	196	-30	119	1	117	-24	123	-42	103	-19	97	-16	121
INETI	-3	76	-9	103	-49	186	-32	102	-1	100	-26	106	-44	82	-21	76	-18	104
SMD	54	46	48	83	8	176	25	82	56	80	31	88	13	56	36	46	39	85
BEV	-58	75	-65	102	-105	185	-88	101	-57	99	-82	105	-100	81	-77	75	-74	103
METAS	-13	60	-19	92	-60	180	-42	91	-12	89	-36	96	-55	68	-31	60	-28	94
CMI	6	75			-40	185	-23	101	8	99	-17	105	-35	81	-12	75	-9	103
OMH	47	172	40	185			17	185	48	184	24	187	5	175	28	172	31	186
JV	29	74	23	101	-17	185			31	98	6	105	-13	80	11	74	14	103
CEM	-2	71	-8	99	-48	184	-31	98			-25	103	-43	78	-20	71	-17	101
GUM	23	80	17	105	-24	187	-6	105	25	103			-19	86	5	80	8	107
MIKES	42	43	35	81	-5	175	13	80	43	78	19	86			23	43	27	84
NMi-VSL	18	27	12	75	-28	172	-11	74	20	71	-5	80	-23	43			3	77
UME	15	77	9	103	-31	186	-14	103	17	101	-8	107	-27	84	-3	77		

Key comparisons CCEM-K5 and EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.5 Lead, 53 Hz **NOMINAL VALUE : 600 VA, 300 W**

Matrix of equivalence

Lab *j*

Lab *i*			**NIST**		**NMIA**		**NPL**		**INRIM**		**INTI**		**VNIIM**		**NRC**		**SPRING**		**PTB**		**INMETRO**	
	D_i / (µW/VA)	U_i	D_{ij} / (µW/VA)	U_{ij}	D_{ij} / (µW/VA)	U_{ij}	D_{ij} / (µW/VA)	U_{ij}	D_{ij} / (µW/VA)	U_{ij}	D_{ij} / (µW/VA)	U_{ij}	D_{ij} / (µW/VA)	U_{ij}	D_{ij} / (µW/VA)	U_{ij}	D_{ij} / (µW/VA)	U_{ij}	D_{ij} / (µW/VA)	U_{ij}	D_{ij} / (µW/VA)	U_{ij}
NIST	**1**	12			**2**	21	**13**	30	**11**	33	**-7**	37	**16**	31	**-4**	18	**4**	64	**8**	17	**-14**	62
NMIA	**-1**	16	**-2**	21			**11**	31	**8**	35	**-10**	38	**14**	33	**-6**	22	**2**	65	**5**	21	**-16**	63
NPL	**-12**	26	**-13**	30	**-11**	31			**-3**	40	**-21**	43	**3**	39	**-17**	30	**-9**	68	**-6**	29	**-27**	66
INRIM	**-10**	30	**-11**	33	**-8**	35	**3**	40			**-18**	46	**6**	42	**-14**	33	**-7**	69	**-3**	33	**-25**	68
INTI	**9**	34	**7**	37	**10**	38	**21**	43	**18**	46			**24**	45	**4**	37	**11**	71	**15**	36	**-7**	69
VNIIM	**-15**	28	**-16**	31	**-14**	33	**-3**	39	**-6**	42	**-24**	45			**-20**	31	**-12**	68	**-9**	31	**-30**	67
NRC	**5**	12	**4**	18	**6**	22	**17**	30	**14**	33	**-4**	37	**20**	31			**7**	64	**11**	17	**-11**	62
SPRING	**-3**	62	**-4**	64	**-2**	65	**9**	68	**7**	69	**-11**	71	**12**	68	**-7**	64			**4**	63	**-18**	87
PTB	**-7**	10	**-8**	17	**-5**	21	**6**	29	**3**	33	**-15**	36	**9**	31	**-11**	17	**-4**	63			**-22**	61
INMETRO	**15**	60	**14**	62	**16**	63	**27**	66	**25**	68	**7**	69	**30**	67	**11**	62	**18**	87	**22**	61		
CENAM	**-2**	34	**-3**	37	**-1**	38	**10**	44	**8**	46	**-11**	49	**13**	45	**-7**	37	**1**	71	**5**	36	**-17**	69
NIM	**13**	12	**12**	18	**14**	22	**25**	30	**22**	33	**4**	37	**28**	32	**8**	19	**15**	64	**19**	17	**-3**	62
MSL	**5**	30	**4**	33	**6**	35	**17**	41	**14**	43	**-4**	46	**20**	42	**0**	33	**8**	69	**11**	33	**-10**	68
CSIR-NML	**-14**	80	**-15**	81	**-13**	82	**-2**	85	**-5**	86	**-23**	87	**1**	85	**-19**	81	**-11**	102	**-7**	81	**-29**	100
SP	**-8**	22	**-9**	26	**-7**	28	**4**	35	**2**	38	**-17**	41	**7**	37	**-13**	26	**-5**	66	**-2**	26	**-23**	65
AREPA	**-30**	102	**-31**	102	**-29**	103	**-18**	104	**-20**	105	**-39**	107	**-15**	106	**-35**	102	**-27**	119	**-23**	102	**-45**	118
INETI	**-19**	152	**-20**	153	**-18**	153	**-7**	154	**-9**	154	**-28**	156	**-4**	155	**-24**	153	**-16**	164	**-12**	152	**-34**	164
SMD	**11**	44	**10**	44	**12**	45	**23**	47	**21**	50	**2**	54	**26**	51	**6**	44	**14**	75	**18**	44	**-4**	74
BEV	**-28**	73	**-29**	73	**-27**	74	**-16**	75	**-18**	77	**-37**	80	**-13**	78	**-33**	73	**-25**	95	**-21**	73	**-43**	94
METAS	**3**	53	**2**	53	**4**	54	**15**	56	**13**	58	**-6**	62	**18**	59	**-2**	53	**6**	81	**10**	52	**-12**	79
CMI	**-28**	64	**-29**	64	**-27**	65	**-16**	66	**-18**	68	**-37**	71	**-13**	69	**-33**	64	**-25**	88	**-21**	64	**-43**	87
OMH	**-28**	171	**-29**	171	**-27**	172	**-16**	172	**-18**	173	**-37**	174	**-13**	173	**-33**	171	**-25**	182	**-21**	171	**-43**	181
JV	**5**	72	**4**	72	**6**	73	**17**	74	**15**	76	**-4**	79	**20**	77	**0**	72	**8**	95	**12**	72	**-10**	93
CEM	**-60**	69	**-61**	70	**-59**	70	**-48**	72	**-50**	73	**-69**	77	**-45**	74	**-65**	70	**-57**	92	**-53**	69	**-75**	91
GUM	**-1**	78	**-2**	78	**0**	79	**11**	80	**9**	81	**-10**	84	**14**	82	**-6**	78	**2**	99	**6**	78	**-16**	98
MIKES	**0**	29	**-1**	30	**1**	32	**12**	35	**10**	38	**-9**	44	**15**	39	**-5**	30	**3**	68	**7**	29	**-15**	66
NMi-VSL	**-23**	54	**-24**	55	**-22**	56	**-11**	57	**-13**	59	**-32**	63	**-8**	60	**-28**	55	**-20**	82	**-16**	54	**-38**	80
UME	**29**	76	**28**	76	**30**	77	**41**	78	**39**	79	**20**	82	**44**	80	**24**	76	**32**	97	**36**	76	**14**	96

Key comparisons CCEM-K5 and EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.5 Lead, 53 Hz **NOMINAL VALUE : 600 VA, 300 W**

Matrix of equivalence - continued

Lab *j* ⇨

Lab *i* ⇩	D_i / (µW/VA)	U_i / (µW/VA)	CENAM D_{ij} / (µW/VA)	CENAM U_{ij} / (µW/VA)	NIM D_{ij} / (µW/VA)	NIM U_{ij} / (µW/VA)	MSL D_{ij} / (µW/VA)	MSL U_{ij} / (µW/VA)	CSIR-NML D_{ij} / (µW/VA)	CSIR-NML U_{ij} / (µW/VA)	SP D_{ij} / (µW/VA)	SP U_{ij} / (µW/VA)	AREPA D_{ij} / (µW/VA)	AREPA U_{ij} / (µW/VA)	INETI D_{ij} / (µW/VA)	INETI U_{ij} / (µW/VA)	SMD D_{ij} / (µW/VA)	SMD U_{ij} / (µW/VA)	BEV D_{ij} / (µW/VA)	BEV U_{ij} / (µW/VA)	METAS D_{ij} / (µW/VA)	METAS U_{ij} / (µW/VA)
NIST	1	12	3	37	-12	18	-4	33	15	81	9	26	31	102	20	153	-10	44	29	73	-2	53
NMIA	-1	16	1	38	-14	22	-6	35	13	82	7	28	29	103	18	153	-12	45	27	74	-4	54
NPL	-12	26	-10	44	-25	30	-17	41	2	85	-4	35	18	104	7	154	-23	47	16	75	-15	56
INRIM	-10	30	-8	46	-22	33	-14	43	5	86	-2	38	20	105	9	154	-21	50	18	77	-13	58
INTI	9	34	11	49	-4	37	4	46	23	87	17	41	39	107	28	156	-2	54	37	80	6	62
VNIIM	-15	28	-13	45	-28	32	-20	42	-1	85	-7	37	15	106	4	155	-26	51	13	78	-18	59
NRC	5	12	7	37	-8	19	0	33	19	81	13	26	35	102	24	153	-6	44	33	73	2	53
SPRING	-3	62	-1	71	-15	64	-8	69	11	102	5	66	27	119	16	164	-14	75	25	95	-6	81
PTB	-7	10	-5	36	-19	17	-11	33	7	81	2	26	23	102	12	152	-18	44	21	73	-10	52
INMETRO	15	60	17	69	3	62	10	68	29	100	23	65	45	118	34	164	4	74	43	94	12	79
CENAM	-2	34			-15	37	-7	46	12	87	6	41	28	107	17	156	-13	54	26	80	-5	62
NIM	13	12	15	37			8	33	27	81	21	26	43	102	32	153	2	44	41	73	10	53
MSL	5	30	7	46	-8	33			19	86	13	38	35	106	24	155	-6	52	33	78	2	60
CSIR-NML	-14	80	-12	87	-27	81	-19	86			-6	83	16	129	5	172	-25	91	14	108	-17	95
SP	-8	22	-6	41	-21	26	-13	38	6	83			22	102	11	152	-19	44	20	73	-11	53
AREPA	-30	102	-28	107	-43	102	-35	106	-16	129	-22	102			-11	181	-41	107	-2	122	-33	111
INETI	-19	152	-17	156	-32	153	-24	155	-5	172	-11	152	11	181			-30	156	8	167	-23	159
SMD	11	44	13	54	-2	44	6	52	25	91	19	44	41	107	30	156			39	80	7	62
BEV	-28	73	-26	80	-41	73	-33	78	-14	108	-20	73	2	122	-8	167	-39	80			-31	85
METAS	3	53	5	62	-10	53	-2	60	17	95	11	53	33	111	23	159	-7	62	31	85		
CMI	-28	64	-26	71	-41	64	-33	70	-14	102	-20	64	2	117	-9	163	-39	72	-1	92	-32	77
OMH	-28	171	-26	174	-41	171	-33	174	-14	189	-20	171	2	197	-9	227	-39	174	0	184	-32	177
JV	5	72	7	79	-8	72	0	78	19	107	13	72	35	122	24	166	-6	79	33	99	2	84
CEM	-60	69	-58	77	-73	70	-65	75	-46	105	-52	69	-31	120	-41	165	-71	77	-33	96	-64	82
GUM	-1	78	1	84	-14	78	-6	83	13	111	7	78	29	125	19	169	-11	84	27	103	-4	89
MIKES	0	29	2	44	-13	30	-5	41	14	85	8	29	30	102	20	153	-11	44	28	73	-3	53
NMi-VSL	-23	54	-21	63	-36	55	-28	61	-9	96	-15	54	7	112	-4	159	-34	63	5	86	-26	70
UME	29	76	31	82	16	76	24	81	43	110	37	76	59	124	49	168	19	82	57	101	26	87

Key comparisons CCEM-K5 and EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.5 Lead, 53 Hz **NOMINAL VALUE : 600 VA, 300 W**

Matrix of equivalence - continued

Lab *j* ⟹

Lab *i* ⇩	D_i / (µW/VA)	U_i / (µW/VA)	CMI D_{ij} / (µW/VA)	CMI U_{ij} / (µW/VA)	OMH D_{ij} / (µW/VA)	OMH U_{ij} / (µW/VA)	JV D_{ij} / (µW/VA)	JV U_{ij} / (µW/VA)	CEM D_{ij} / (µW/VA)	CEM U_{ij} / (µW/VA)	GUM D_{ij} / (µW/VA)	GUM U_{ij} / (µW/VA)	MIKES D_{ij} / (µW/VA)	MIKES U_{ij} / (µW/VA)	NMi-VSL D_{ij} / (µW/VA)	NMi-VSL U_{ij} / (µW/VA)	UME D_{ij} / (µW/VA)	UME U_{ij} / (µW/VA)
NIST	1	12	29	64	29	171	-4	72	61	70	2	78	1	30	24	55	-28	76
NMIA	-1	16	27	65	27	172	-6	73	59	70	0	79	-1	32	22	56	-30	77
NPL	-12	26	16	66	16	172	-17	74	48	72	-11	80	-12	35	11	57	-41	78
INRIM	-10	30	18	68	18	173	-15	76	50	73	-9	81	-10	38	13	59	-39	79
INTI	9	34	37	71	37	174	4	79	69	77	10	84	9	44	32	63	-20	82
VNIIM	-15	28	13	69	13	173	-20	77	45	74	-14	82	-15	39	8	60	-44	80
NRC	5	12	33	64	33	171	0	72	65	70	6	78	5	30	28	55	-24	76
SPRING	-3	62	25	88	25	182	-8	95	57	92	-2	99	-3	68	20	82	-32	97
PTB	-7	10	21	64	21	171	-12	72	53	69	-6	78	-7	29	16	54	-36	76
INMETRO	15	60	43	87	43	181	10	93	75	91	16	98	15	66	38	80	-14	96
CENAM	-2	34	26	71	26	174	-7	79	58	77	-1	84	-2	44	21	63	-31	82
NIM	13	12	41	64	41	171	8	72	73	70	14	78	13	30	36	55	-16	76
MSL	5	30	33	70	33	174	0	78	65	75	6	83	5	41	28	61	-24	81
CSIR-NML	-14	80	14	102	14	189	-19	107	46	105	-13	111	-14	85	9	96	-43	110
SP	-8	22	20	64	20	171	-13	72	52	69	-7	78	-8	29	15	54	-37	76
AREPA	-30	102	-2	117	-2	197	-35	122	31	120	-29	125	-30	102	-7	112	-59	124
INETI	-19	152	9	163	9	227	-24	166	41	165	-19	169	-20	153	4	159	-49	168
SMD	11	44	39	72	39	174	6	79	71	77	11	84	11	44	34	63	-19	82
BEV	-28	73	1	92	0	184	-33	99	33	96	-27	103	-28	73	-5	86	-57	101
METAS	3	53	32	77	32	177	-2	84	64	82	4	89	3	53	26	70	-26	87
CMI	-28	64			0	180	-33	92	32	89	-28	96	-29	64	-6	79	-58	94
OMH	-28	171	0	180			-33	184	32	183	-28	186	-29	171	-5	177	-58	185
JV	5	72	33	92	33	184			65	96	6	102	5	72	28	86	-24	100
CEM	-60	69	-32	89	-32	183	-65	96			-60	100	-61	69	-38	83	-90	98
GUM	-1	78	28	96	28	186	-6	102	60	100			-1	78	22	90	-30	104
MIKES	0	29	29	64	29	171	-5	72	61	69	1	78			23	55	-29	76
NMi-VSL	-23	54	6	79	5	177	-28	86	38	83	-22	90	-23	55			-52	89
UME	29	76	58	94	58	185	24	100	90	98	30	104	29	76	52	89		

Key comparisons CCEM-K5 and EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.5 Lag, 53 Hz **NOMINAL VALUE : 600 VA, 300 W**

Matrix of equivalence

Lab *j* ⇨

Lab *i* ⇩			**NIST**		**NMIA**		**NPL**		**INRIM**		**INTI**		**VNIIM**		**NRC**		**SPRING**		**PTB**		**INMETRO**	
	D_i / (µW/VA)	U_i / (µW/VA)	D_{ij} / (µW/VA)	U_{ij} / (µW/VA)	D_{ij} / (µW/VA)	U_{ij} / (µW/VA)	D_{ij} / (µW/VA)	U_{ij} / (µW/VA)	D_{ij} / (µW/VA)	U_{ij} / (µW/VA)	D_{ij} / (µW/VA)	U_{ij} / (µW/VA)	D_{ij} / (µW/VA)	U_{ij} / (µW/VA)	D_{ij} / (µW/VA)	U_{ij} / (µW/VA)	D_{ij} / (µW/VA)	U_{ij} / (µW/VA)	D_{ij} / (µW/VA)	U_{ij} / (µW/VA)	D_{ij} / (µW/VA)	U_{ij} / (µW/VA)
NIST	1	12			-2	21	-18	29	-1	33	-3	37	26	31	4	18	-12	64	-11	17	27	62
NMIA	3	16	2	21			-16	31	1	35	-1	38	28	33	6	21	-10	64	-9	20	29	63
NPL	19	26	18	29	16	31			17	40	15	43	44	39	22	29	6	68	7	29	45	66
INRIM	2	30	1	33	-1	35	-17	40			-2	46	27	42	5	33	-11	69	-10	32	28	67
INTI	4	34	3	37	1	38	-15	43	2	46			29	45	7	37	-9	71	-8	36	30	69
VNIIM	-25	28	-26	31	-28	33	-44	39	-27	42	-29	45			-22	31	-38	68	-37	30	1	67
NRC	-3	12	-4	18	-6	21	-22	29	-5	33	-7	37	22	31			-16	64	-15	17	23	62
SPRING	13	62	12	64	10	64	-6	68	11	69	9	71	38	68	16	64			1	63	39	87
PTB	12	10	11	17	9	20	-7	29	10	32	8	36	37	30	15	17	-1	63			38	61
INMETRO	-26	60	-27	62	-29	63	-45	66	-28	67	-30	69	-1	67	-23	62	-39	87	-38	61		
CENAM	2	34	1	37	-2	38	-17	43	0	46	-2	49	27	45	5	37	-11	71	-11	36	28	69
NIM	-14	12	-15	18	-17	21	-33	30	-16	33	-18	37	11	31	-11	18	-27	64	-26	17	12	62
MSL	-16	30	-17	33	-20	35	-35	40	-18	43	-20	46	9	42	-14	33	-29	69	-29	32	10	67
CSIR-NML	3	80	2	81	0	82	-16	84	1	86	-1	87	28	85	6	81	-10	102	-9	81	29	100
SP	1	22	0	26	-2	28	-18	35	-1	38	-3	41	26	36	4	26	-12	66	-11	25	27	64
AREPA	14	102	13	103	11	103	-5	104	12	105	10	107	39	106	17	103	1	119	2	102	40	118
INETI	18	195	17	195	15	196	-1	196	16	197	14	198	43	197	21	195	5	205	6	195	44	204
SMD	49	44	48	45	46	46	30	48	47	50	45	55	74	51	52	45	36	75	37	44	75	74
BEV	3	73	2	74	0	74	-16	76	1	77	-1	80	28	78	6	74	-10	96	-9	73	29	94
METAS	-4	53	-5	53	-7	54	-23	56	-6	58	-8	62	21	59	-1	53	-17	81	-16	53	22	79
CMI	-3	64	-4	64	-6	65	-22	67	-5	68	-7	72	22	69	0	64	-16	88	-15	64	23	87
OMH	75	171	74	172	72	172	56	172	73	173	71	174	100	173	78	172	62	182	63	171	101	181
JV	35	72	34	73	32	73	16	75	33	76	31	79	60	77	38	73	22	95	23	72	61	93
CEM	82	69	81	70	79	71	63	72	80	74	78	77	107	74	85	70	69	93	70	70	108	91
GUM	23	78	22	78	20	79	4	80	21	81	19	84	48	82	26	78	10	99	11	78	49	98
MIKES	33	29	32	31	30	32	14	35	31	38	29	44	58	40	36	31	20	68	21	30	59	66
NMi-VSL	32	54	31	55	29	56	13	58	30	60	28	64	57	61	35	55	19	82	20	55	58	81
UME	-25	76	-26	76	-28	77	-44	78	-27	80	-29	83	0	80	-22	76	-38	97	-37	76	1	96

Key comparisons CCEM-K5 and EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.5 Lag, 53 Hz **NOMINAL VALUE : 600 VA, 300 W**

Matrix of equivalence - continued

Lab *j* ⇨

Lab *i* ⇩	D_i / (µW/VA)	U_i / (µW/VA)	CENAM D_{ij} / (µW/VA)	CENAM U_{ij} / (µW/VA)	NIM D_{ij} / (µW/VA)	NIM U_{ij} / (µW/VA)	MSL D_{ij} / (µW/VA)	MSL U_{ij} / (µW/VA)	CSIR-NML D_{ij} / (µW/VA)	CSIR-NML U_{ij} / (µW/VA)	SP D_{ij} / (µW/VA)	SP U_{ij} / (µW/VA)	AREPA D_{ij} / (µW/VA)	AREPA U_{ij} / (µW/VA)	INETI D_{ij} / (µW/VA)	INETI U_{ij} / (µW/VA)	SMD D_{ij} / (µW/VA)	SMD U_{ij} / (µW/VA)	BEV D_{ij} / (µW/VA)	BEV U_{ij} / (µW/VA)	METAS D_{ij} / (µW/VA)	METAS U_{ij} / (µW/VA)
NIST	1	12	-1	37	15	18	17	33	-2	81	0	26	-13	103	-17	195	-48	45	-2	74	5	53
NMIA	3	16	2	38	17	21	20	35	0	82	2	28	-11	103	-15	196	-46	46	0	74	7	54
NPL	19	26	17	43	33	30	35	40	16	84	18	35	5	104	1	196	-30	48	16	76	23	56
INRIM	2	30	0	46	16	33	18	43	-1	86	1	38	-12	105	-16	197	-47	50	-1	77	6	58
INTI	4	34	2	49	18	37	20	46	1	87	3	41	-10	107	-14	198	-45	55	1	80	8	62
VNIIM	-25	28	-27	45	-11	31	-9	42	-28	85	-26	36	-39	106	-43	197	-74	51	-28	78	-21	59
NRC	-3	12	-5	37	11	18	14	33	-6	81	-4	26	-17	103	-21	195	-52	45	-6	74	1	53
SPRING	13	62	11	71	27	64	29	69	10	102	12	66	-1	119	-5	205	-36	75	10	96	17	81
PTB	12	10	11	36	26	17	29	32	9	81	11	25	-2	102	-6	195	-37	44	9	73	16	53
INMETRO	-26	60	-28	69	-12	62	-10	67	-29	100	-27	64	-40	118	-44	204	-75	74	-29	94	-22	79
CENAM	2	34			16	37	18	46	-2	87	0	41	-12	107	-16	198	-47	55	-1	80	6	62
NIM	-14	12	-16	37			3	33	-17	81	-15	26	-28	103	-32	195	-63	45	-17	74	-10	53
MSL	-16	30	-18	46	-3	33			-20	86	-18	38	-30	106	-34	197	-65	52	-19	79	-12	60
CSIR-NML	3	80	2	87	17	81	20	86			2	83	-11	130	-15	211	-46	91	0	108	7	95
SP	1	22	0	41	15	26	18	38	-2	83			-13	102	-17	195	-48	44	-2	74	5	53
AREPA	14	102	12	107	28	103	30	106	11	130	13	102			-5	218	-35	108	11	122	18	111
INETI	18	195	16	198	32	195	34	197	15	211	17	195	5	218			-31	198	15	206	22	200
SMD	49	44	47	55	63	45	65	52	46	91	48	44	35	108	31	198			46	80	53	62
BEV	3	73	1	80	17	74	19	79	0	108	2	74	-11	122	-15	206	-46	80			7	86
METAS	-4	53	-6	62	10	53	12	60	-7	95	-5	53	-18	111	-22	200	-53	62	-7	86		
CMI	-3	64	-5	72	11	64	13	70	-6	102	-4	64	-16	117	-21	203	-52	72	-5	93	2	78
OMH	75	171	73	174	89	172	91	174	72	189	74	171	61	197	57	258	26	175	72	184	79	177
JV	35	72	33	79	49	73	51	78	32	107	34	73	21	122	17	206	-14	80	32	99	39	85
CEM	82	69	80	77	96	70	98	75	79	106	81	70	68	120	64	205	33	77	79	97	86	82
GUM	23	78	21	84	37	78	39	83	20	111	22	78	9	125	5	208	-26	84	20	103	27	89
MIKES	33	29	31	44	47	31	49	41	30	85	32	30	19	103	15	195	-16	45	30	74	37	53
NMi-VSL	32	54	30	64	46	55	48	62	29	96	31	55	19	112	14	201	-16	64	30	87	37	70
UME	-25	76	-27	83	-11	76	-9	81	-28	110	-26	76	-39	124	-43	207	-74	83	-28	101	-21	88

Key comparisons CCEM-K5 and EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.5 Lag, 53 Hz **NOMINAL VALUE : 600 VA, 300 W**

Matrix of equivalence - continued

Lab *j* ⟹

Lab *i* ⇩	D_i / (µW/VA)	U_i / (µW/VA)	CMI D_{ij} / (µW/VA)	CMI U_{ij} / (µW/VA)	OMH D_{ij} / (µW/VA)	OMH U_{ij} / (µW/VA)	JV D_{ij} / (µW/VA)	JV U_{ij} / (µW/VA)	CEM D_{ij} / (µW/VA)	CEM U_{ij} / (µW/VA)	GUM D_{ij} / (µW/VA)	GUM U_{ij} / (µW/VA)	MIKES D_{ij} / (µW/VA)	MIKES U_{ij} / (µW/VA)	NMi-VSL D_{ij} / (µW/VA)	NMi-VSL U_{ij} / (µW/VA)	UME D_{ij} / (µW/VA)	UME U_{ij} / (µW/VA)
NIST	1	12	4	64	-74	172	-34	73	-81	70	-22	78	-32	31	-31	55	26	76
NMIA	3	16	6	65	-72	172	-32	73	-79	71	-20	79	-30	32	-29	56	28	77
NPL	19	26	22	67	-56	172	-16	75	-63	72	-4	80	-14	35	-13	58	44	78
INRIM	2	30	5	68	-73	173	-33	76	-80	74	-21	81	-31	38	-30	60	27	80
INTI	4	34	7	72	-71	174	-31	79	-78	77	-19	84	-29	44	-28	64	29	83
VNIIM	-25	28	-22	69	-100	173	-60	77	-107	74	-48	82	-58	40	-57	61	0	80
NRC	-3	12	0	64	-78	172	-38	73	-85	70	-26	78	-36	31	-35	55	22	76
SPRING	13	62	16	88	-62	182	-22	95	-69	93	-10	99	-20	68	-19	82	38	97
PTB	12	10	15	64	-63	171	-23	72	-70	70	-11	78	-21	30	-20	55	37	76
INMETRO	-26	60	-23	87	-101	181	-61	93	-108	91	-49	98	-59	66	-58	81	-1	96
CENAM	2	34	5	72	-73	174	-33	79	-80	77	-21	84	-31	44	-30	64	27	83
NIM	-14	12	-11	64	-89	172	-49	73	-96	70	-37	78	-47	31	-46	55	11	76
MSL	-16	30	-13	70	-91	174	-51	78	-98	75	-39	83	-49	41	-48	62	9	81
CSIR-NML	3	80	6	102	-72	189	-32	107	-79	106	-20	111	-30	85	-29	96	28	110
SP	1	22	4	64	-74	171	-34	73	-81	70	-22	78	-32	30	-31	55	26	76
AREPA	14	102	16	117	-61	197	-21	122	-68	120	-9	125	-19	103	-19	112	39	124
INETI	18	195	21	203	-57	258	-17	206	-64	205	-5	208	-15	195	-14	201	43	207
SMD	49	44	52	72	-26	175	14	80	-33	77	26	84	16	45	16	64	74	83
BEV	3	73	5	93	-72	184	-32	99	-79	97	-20	103	-30	74	-30	87	28	101
METAS	-4	53	-2	78	-79	177	-39	85	-86	82	-27	89	-37	53	-37	70	21	88
CMI	-3	64			-77	181	-38	92	-85	90	-25	96	-36	64	-35	79	23	95
OMH	75	171	77	181			40	184	-7	183	52	186	42	172	42	178	100	185
JV	35	72	38	92	-40	184			-47	96	12	102	2	73	2	86	60	101
CEM	82	69	85	90	7	183	47	96			59	100	49	70	49	83	107	99
GUM	23	78	25	96	-52	186	-12	102	-59	100			-10	78	-10	90	48	105
MIKES	33	29	36	64	-42	172	-2	73	-49	70	10	78			1	55	58	76
NMi-VSL	32	54	35	79	-42	178	-2	86	-49	83	10	90	-1	55			58	89
UME	-25	76	-23	95	-100	185	-60	101	-107	99	-48	105	-58	76	-58	89		

Key comparisons CCEM-K5 and EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.0 Lead, 53 Hz **NOMINAL VALUE : 600 VA, 0 W**

Matrix of equivalence

Lab *j* ⇨

Lab *i* ⇩	D_i / (µW/VA)	U_i / (µW/VA)	NIST D_{ij} / (µW/VA)	NIST U_{ij} / (µW/VA)	NMIA D_{ij} / (µW/VA)	NMIA U_{ij} / (µW/VA)	NPL D_{ij} / (µW/VA)	NPL U_{ij} / (µW/VA)	INRIM D_{ij} / (µW/VA)	INRIM U_{ij} / (µW/VA)	INTI D_{ij} / (µW/VA)	INTI U_{ij} / (µW/VA)	VNIIM D_{ij} / (µW/VA)	VNIIM U_{ij} / (µW/VA)	NRC D_{ij} / (µW/VA)	NRC U_{ij} / (µW/VA)	SPRING D_{ij} / (µW/VA)	SPRING U_{ij} / (µW/VA)	PTB D_{ij} / (µW/VA)	PTB U_{ij} / (µW/VA)	INMETRO D_{ij} / (µW/VA)	INMETRO U_{ij} / (µW/VA)
NIST	0	9			-9	19	28	31	14	33	-6	40	-9	27	-7	17	18	63	4	17	-4	62
NMIA	9	15	9	19			37	33	22	35	3	42	0	30	2	21	27	65	12	21	4	63
NPL	-28	29	-28	31	-37	33			-14	42	-34	48	-37	38	-35	32	-10	69	-24	32	-32	67
INRIM	-14	31	-14	33	-22	35	14	42			-19	50	-23	40	-20	34	4	70	-10	34	-18	68
INTI	6	39	6	40	-3	42	34	48	19	50			-3	46	-1	41	24	74	9	41	1	72
VNIIM	9	25	9	27	0	30	37	38	23	40	3	46			3	28	27	67	13	28	5	66
NRC	7	12	7	17	-2	21	35	32	20	34	1	41	-3	28			25	64	10	18	2	62
SPRING	-18	62	-18	63	-27	65	10	69	-4	70	-24	74	-27	67	-25	64			-14	64	-22	87
PTB	-4	12	-4	17	-12	21	24	32	10	34	-9	41	-13	28	-10	18	14	64			-8	62
INMETRO	4	60	4	62	-4	63	32	67	18	68	-1	72	-5	66	-2	62	22	87	8	62		
CENAM	-16	54	-16	56	-24	57	12	62	-2	63	-21	67	-25	60	-22	56	2	83	-12	56	-20	81
NIM	3	13	3	18	-5	22	31	33	17	34	-2	42	-6	29	-3	19	21	64	7	19	-1	62
MSL	-1	33	-1	35	-10	37	27	44	13	45	-7	51	-10	42	-8	35	17	71	3	35	-5	69
CSIR-NML	-26	80	-25	81	-34	82	3	86	-12	86	-31	89	-35	84	-32	82	-7	102	-22	82	-30	101
SP	-9	19	-9	23	-17	26	19	35	5	37	-14	44	-18	32	-15	24	9	66	-5	24	-13	64
AREPA	-34	141	-34	142	-43	142	-6	143	-20	143	-40	147	-43	144	-41	142	-16	154	-30	141	-38	154
INETI	-230	482	-230	482	-239	483	-202	483	-216	483	-236	484	-239	483	-237	483	-212	486	-226	482	-234	486
SMD	-4	34	-4	35	-13	37	24	39	10	41	-10	51	-13	42	-11	36	14	70	0	34	-8	69
BEV	-10	221	-10	221	-19	221	18	222	4	222	-16	224	-19	222	-17	221	8	229	-6	221	-14	229
METAS	10	50	10	51	1	52	38	53	24	55	4	63	1	56	3	51	28	79	14	50	6	78
CMI	-71	54	-71	54	-80	56	-43	57	-57	59	-77	66	-80	59	-78	55	-53	82	-67	54	-75	80
OMH	24	171	24	171	15	172	52	172	38	173	18	175	15	173	17	172	42	182	28	171	20	181
JV	-14	72	-14	72	-23	73	14	74	0	76	-20	82	-23	76	-21	73	4	95	-10	72	-18	93
CEM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GUM	-5	77	-5	77	-14	78	23	79	9	80	-11	86	-14	81	-12	78	13	99	-1	77	-9	97
MIKES	-25	23	-25	24	-34	27	3	30	-11	33	-31	45	-34	34	-32	26	-7	66	-21	23	-29	64
NMi-VSL	-33	171	-33	171	-42	172	-5	172	-19	173	-39	175	-42	173	-40	172	-15	182	-29	171	-37	181
UME	-16	74	-16	75	-25	76	12	76	-2	78	-22	84	-25	78	-23	75	2	97	-12	74	-20	95

Key comparisons CCEM-K5 and EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.0 Lead, 53 Hz **NOMINAL VALUE : 600 VA, 0 W**

Matrix of equivalence - continued

Lab *j* ⇨

Lab *i* ⇩	D_i / (µW/VA)	U_i / (µW/VA)	CENAM D_{ij} / (µW/VA)	CENAM U_{ij} / (µW/VA)	NIM D_{ij} / (µW/VA)	NIM U_{ij} / (µW/VA)	MSL D_{ij} / (µW/VA)	MSL U_{ij} / (µW/VA)	CSIR-NML D_{ij} / (µW/VA)	CSIR-NML U_{ij} / (µW/VA)	SP D_{ij} / (µW/VA)	SP U_{ij} / (µW/VA)	AREPA D_{ij} / (µW/VA)	AREPA U_{ij} / (µW/VA)	INETI D_{ij} / (µW/VA)	INETI U_{ij} / (µW/VA)	SMD D_{ij} / (µW/VA)	SMD U_{ij} / (µW/VA)	BEV D_{ij} / (µW/VA)	BEV U_{ij} / (µW/VA)	METAS D_{ij} / (µW/VA)	METAS U_{ij} / (µW/VA)
NIST	0	9	16	56	-3	18	1	35	25	81	9	23	34	142	230	482	4	35	10	221	-10	51
NMIA	9	15	24	57	5	22	10	37	34	82	17	26	43	142	239	483	13	37	19	221	-1	52
NPL	-28	29	-12	62	-31	33	-27	44	-3	86	-19	35	6	143	202	483	-24	39	-18	222	-38	53
INRIM	-14	31	2	63	-17	34	-13	45	12	86	-5	37	20	143	216	483	-10	41	-4	222	-24	55
INTI	6	39	21	67	2	42	7	51	31	89	14	44	40	147	236	484	10	51	16	224	-4	63
VNIIM	9	25	25	60	6	29	10	42	35	84	18	32	43	144	239	483	13	42	19	222	-1	56
NRC	7	12	22	56	3	19	8	35	32	82	15	24	41	142	237	483	11	36	17	221	-3	51
SPRING	-18	62	-2	83	-21	64	-17	71	7	102	-9	66	16	154	212	486	-14	70	-8	229	-28	79
PTB	-4	12	12	56	-7	19	-3	35	22	82	5	24	30	141	226	482	0	34	6	221	-14	50
INMETRO	4	60	20	81	1	62	5	69	30	101	13	64	38	154	234	486	8	69	14	229	-6	78
CENAM	-16	54			-19	56	-15	64	10	97	-7	58	18	151	214	485	-12	64	-6	227	-26	73
NIM	3	13	19	56			4	36	29	82	12	24	37	142	233	483	7	36	13	221	-7	51
MSL	-1	33	15	64	-4	36			25	87	8	38	33	145	229	484	3	47	9	223	-11	60
CSIR-NML	-26	80	-10	97	-29	82	-25	87			-17	83	8	162	204	489	-22	87	-16	235	-36	94
SP	-9	19	7	58	-12	24	-8	38	17	83			25	141	221	482	-5	32	1	221	-19	49
AREPA	-34	141	-18	151	-37	142	-33	145	-8	162	-25	141			195	502	-30	143	-24	261	-44	147
INETI	-230	482	-214	485	-233	483	-229	484	-204	489	-221	482	-195	502			-225	483	-219	530	-240	484
SMD	-4	34	12	64	-7	36	-3	47	22	87	5	32	30	143	225	483			6	222	-15	53
BEV	-10	221	6	227	-13	221	-9	223	16	235	-1	221	24	261	219	530	-6	222			-21	225
METAS	10	50	26	73	7	51	11	60	36	94	19	49	44	147	240	484	15	53	21	225		
CMI	-71	54	-55	76	-74	55	-70	63	-45	96	-62	53	-37	149	159	485	-66	57	-60	226	-81	68
OMH	24	171	40	179	21	172	25	174	50	189	33	171	58	220	254	511	29	172	35	278	14	176
JV	-14	72	2	90	-17	73	-13	79	12	107	-5	71	20	156	215	487	-10	74	-4	231	-25	83
CEM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GUM	-5	77	11	94	-8	78	-4	83	21	111	4	76	29	158	224	488	-1	79	5	232	-16	87
MIKES	-25	23	-9	59	-28	26	-24	40	1	83	-16	20	9	141	205	482	-20	30	-14	220	-35	47
NMi-VSL	-33	171	-17	179	-36	172	-32	174	-7	189	-24	171	1	220	196	511	-29	172	-23	278	-44	176
UME	-16	74	0	92	-19	75	-15	81	10	109	-7	73	18	157	214	487	-11	77	-5	231	-26	85

Key comparisons CCEM-K5 and EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.0 Lead, 53 Hz **NOMINAL VALUE : 600 VA, 0 W**

Matrix of equivalence - continued

Lab *j* ⟹

Lab *i* ⇩	D_i / (µW/VA)	U_i / (µW/VA)	CMI D_{ij} / (µW/VA)	CMI U_{ij} / (µW/VA)	OMH D_{ij} / (µW/VA)	OMH U_{ij} / (µW/VA)	JV D_{ij} / (µW/VA)	JV U_{ij} / (µW/VA)	CEM D_{ij} / (µW/VA)	CEM U_{ij} / (µW/VA)	GUM D_{ij} / (µW/VA)	GUM U_{ij} / (µW/VA)	MIKES D_{ij} / (µW/VA)	MIKES U_{ij} / (µW/VA)	NMi-VSL D_{ij} / (µW/VA)	NMi-VSL U_{ij} / (µW/VA)	UME D_{ij} / (µW/VA)	UME U_{ij} / (µW/VA)
NIST	0	9	71	54	-24	171	14	72	-	-	5	77	25	24	33	171	16	75
NMIA	9	15	80	56	-15	172	23	73	-	-	14	78	34	27	42	172	25	76
NPL	-28	29	43	57	-52	172	-14	74	-	-	-23	79	-3	30	5	172	-12	76
INRIM	-14	31	57	59	-38	173	0	76	-	-	-9	80	11	33	19	173	2	78
INTI	6	39	77	66	-18	175	20	82	-	-	11	86	31	45	39	175	22	84
VNIIM	9	25	80	59	-15	173	23	76	-	-	14	81	34	34	42	173	25	78
NRC	7	12	78	55	-17	172	21	73	-	-	12	78	32	26	40	172	23	75
SPRING	-18	62	53	82	-42	182	-4	95	-	-	-13	99	7	66	15	182	-2	97
PTB	-4	12	67	54	-28	171	10	72	-	-	1	77	21	23	29	171	12	74
INMETRO	4	60	75	80	-20	181	18	93	-	-	9	97	29	64	37	181	20	95
CENAM	-16	54	55	76	-40	179	-2	90	-	-	-11	94	9	59	17	179	0	92
NIM	3	13	74	55	-21	172	17	73	-	-	8	78	28	26	36	172	19	75
MSL	-1	33	70	63	-25	174	13	79	-	-	4	83	24	40	32	174	15	81
CSIR-NML	-26	80	45	96	-50	189	-12	107	-	-	-21	111	-1	83	7	189	-10	109
SP	-9	19	62	53	-33	171	5	71	-	-	-4	76	16	20	24	171	7	73
AREPA	-34	141	37	149	-58	220	-20	156	-	-	-29	158	-9	141	-1	220	-18	157
INETI	-230	482	-159	485	-254	511	-215	487	-	-	-224	488	-205	482	-196	511	-214	487
SMD	-4	34	66	57	-29	172	10	74	-	-	1	79	20	30	29	172	11	77
BEV	-10	221	60	226	-35	278	4	231	-	-	-5	232	14	220	23	278	5	231
METAS	10	50	81	68	-14	176	25	83	-	-	16	87	35	47	44	176	26	85
CMI	-71	54			-95	177	-56	85	-	-	-65	89	-46	51	-37	177	-55	87
OMH	24	171	95	177			39	183	-	-	30	185	49	170	58	240	40	184
JV	-14	72	56	85	-39	183			-	-	-9	101	10	70	19	183	1	99
CEM	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-
GUM	-5	77	65	89	-30	185	9	101	-	-			19	75	28	186	10	103
MIKES	-25	23	46	51	-49	170	-10	70	-	-	-19	75			9	170	-9	73
NMi-VSL	-33	171	37	177	-58	240	-19	183	-	-	-28	186	-9	170			-18	184
UME	-16	74	55	87	-40	184	-1	99	-	-	-10	103	9	73	18	184		

Key comparisons CCEM-K5 and EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.0 Lag, 53 Hz **NOMINAL VALUE : 600 VA, 0 W**

Matrix of equivalence

Lab *j* ⇨

			NIST		NMIA		NPL		INRIM		INTI		VNIIM		NRC		SPRING		PTB		INMETRO	
Lab *i* ⇩	D_i / (μW/VA)	U_i	D_{ij} / (μW/VA)	U_{ij}	D_{ij} / (μW/VA)	U_{ij}	D_{ij} / (μW/VA)	U_{ij}	D_{ij} / (μW/VA)	U_{ij}	D_{ij} / (μW/VA)	U_{ij}	D_{ij} / (μW/VA)	U_{ij}	D_{ij} / (μW/VA)	U_{ij}	D_{ij} / (μW/VA)	U_{ij}	D_{ij} / (μW/VA)	U_{ij}	D_{ij} / (μW/VA)	U_{ij}
NIST	**3**	9			**5**	19	**-11**	31	**3**	34	**-4**	40	**14**	27	**14**	16	**7**	63	**-4**	16	**16**	61
NMIA	**-2**	15	**-5**	19			**-16**	32	**-2**	36	**-9**	41	**9**	29	**9**	19	**2**	64	**-9**	19	**12**	62
NPL	**14**	28	**11**	31	**16**	32			**14**	43	**7**	48	**25**	38	**25**	31	**18**	69	**7**	31	**28**	67
INRIM	**0**	32	**-3**	34	**2**	36	**-14**	43			**-7**	50	**11**	41	**11**	35	**4**	70	**-7**	35	**13**	69
INTI	**7**	38	**4**	40	**9**	41	**-7**	48	**7**	50			**18**	46	**18**	40	**11**	73	**0**	40	**21**	72
VNIIM	**-11**	24	**-14**	27	**-9**	29	**-25**	38	**-11**	41	**-18**	46			**0**	27	**-7**	67	**-18**	27	**2**	65
NRC	**-11**	11	**-14**	16	**-9**	19	**-25**	31	**-11**	35	**-18**	40	**0**	27			**-7**	63	**-18**	16	**2**	61
SPRING	**-4**	62	**-7**	63	**-2**	64	**-18**	69	**-4**	70	**-11**	73	**7**	67	**7**	63			**-11**	63	**10**	87
PTB	**7**	11	**4**	16	**9**	19	**-7**	31	**7**	35	**0**	40	**18**	27	**18**	16	**11**	63			**20**	61
INMETRO	**-13**	60	**-16**	61	**-12**	62	**-28**	67	**-13**	69	**-21**	72	**-2**	65	**-2**	61	**-10**	87	**-20**	61		
CENAM	**9**	54	**6**	55	**11**	57	**-5**	62	**9**	63	**2**	67	**20**	60	**20**	56	**13**	83	**2**	56	**22**	81
NIM	**-7**	13	**-10**	17	**-6**	20	**-21**	32	**-7**	35	**-14**	41	**4**	28	**4**	18	**-3**	64	**-14**	18	**6**	62
MSL	**-4**	32	**-7**	34	**-3**	36	**-19**	43	**-4**	46	**-12**	51	**7**	41	**7**	35	**-1**	70	**-12**	35	**9**	69
CSIR-NML	**7**	80	**4**	81	**9**	82	**-7**	85	**7**	87	**0**	89	**18**	84	**18**	81	**11**	102	**0**	81	**20**	100
SP	**17**	19	**14**	22	**18**	25	**3**	35	**17**	38	**10**	43	**28**	31	**28**	23	**21**	65	**10**	23	**30**	63
AREPA	**6**	141	**3**	142	**8**	142	**-8**	142	**6**	143	**-1**	146	**17**	143	**17**	142	**10**	154	**-1**	141	**19**	153
INETI	**25**	296	**22**	296	**27**	296	**11**	296	**25**	297	**18**	298	**36**	297	**36**	296	**29**	302	**18**	296	**38**	302
SMD	**31**	34	**28**	34	**33**	36	**17**	38	**31**	41	**24**	50	**42**	41	**42**	35	**35**	70	**24**	34	**44**	69
BEV	**18**	221	**15**	221	**20**	221	**4**	222	**18**	222	**11**	224	**29**	222	**29**	221	**22**	229	**11**	221	**31**	229
METAS	**-3**	50	**-6**	50	**-1**	52	**-17**	53	**-3**	55	**-10**	62	**8**	55	**8**	51	**1**	79	**-10**	50	**10**	78
CMI	**-110**	54	**-113**	54	**-108**	55	**-124**	56	**-110**	58	**-117**	65	**-99**	58	**-99**	54	**-106**	82	**-117**	54	**-97**	80
OMH	**-18**	171	**-21**	171	**-16**	172	**-32**	172	**-18**	173	**-25**	175	**-7**	173	**-7**	171	**-14**	182	**-25**	171	**-5**	181
JV	**5**	72	**2**	72	**7**	73	**-9**	74	**5**	75	**-2**	81	**16**	75	**16**	72	**9**	95	**-2**	72	**18**	93
CEM	**-**	-	**-**	-	**-**	-	**-**	-	**-**	-	**-**	-	**-**	-	**-**	-	**-**	-	**-**	-	**-**	-
GUM	**20**	77	**17**	77	**22**	78	**6**	79	**20**	80	**13**	85	**31**	80	**31**	77	**24**	98	**13**	77	**33**	97
MIKES	**1**	23	**-2**	24	**3**	27	**-13**	29	**1**	32	**-6**	44	**12**	33	**12**	25	**5**	66	**-6**	23	**14**	64
NMi-VSL	**11**	171	**8**	171	**13**	172	**-3**	172	**11**	173	**4**	175	**22**	173	**22**	171	**15**	182	**4**	171	**24**	181
UME	**-22**	74	**-25**	74	**-20**	75	**-36**	76	**-22**	78	**-29**	83	**-11**	78	**-11**	75	**-18**	96	**-29**	74	**-9**	95

Key comparisons CCEM-K5 and EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.0 Lag, 53 Hz **NOMINAL VALUE : 600 VA, 0 W**

Matrix of equivalence - continued

Lab *j* ⇨

Lab *i* ⇩	D_i / (µW/VA)	U_i / (µW/VA)	CENAM D_{ij} / (µW/VA)	CENAM U_{ij} / (µW/VA)	NIM D_{ij} / (µW/VA)	NIM U_{ij} / (µW/VA)	MSL D_{ij} / (µW/VA)	MSL U_{ij} / (µW/VA)	CSIR-NML D_{ij} / (µW/VA)	CSIR-NML U_{ij} / (µW/VA)	SP D_{ij} / (µW/VA)	SP U_{ij} / (µW/VA)	AREPA D_{ij} / (µW/VA)	AREPA U_{ij} / (µW/VA)	INETI D_{ij} / (µW/VA)	INETI U_{ij} / (µW/VA)	SMD D_{ij} / (µW/VA)	SMD U_{ij} / (µW/VA)	BEV D_{ij} / (µW/VA)	BEV U_{ij} / (µW/VA)	METAS D_{ij} / (µW/VA)	METAS U_{ij} / (µW/VA)
NIST	3	9	-6	55	10	17	7	34	-4	81	-14	22	-3	142	-22	296	-28	34	-15	221	6	50
NMIA	-2	15	-11	57	6	20	3	36	-9	82	-18	25	-8	142	-27	296	-33	36	-20	221	1	52
NPL	14	28	5	62	21	32	19	43	7	85	-3	35	8	142	-11	296	-17	38	-4	222	17	53
INRIM	0	32	-9	63	7	35	4	46	-7	87	-17	38	-6	143	-25	297	-31	41	-18	222	3	55
INTI	7	38	-2	67	14	41	12	51	0	89	-10	43	1	146	-18	298	-24	50	-11	224	10	62
VNIIM	-11	24	-20	60	-4	28	-7	41	-18	84	-28	31	-17	143	-36	297	-42	41	-29	222	-8	55
NRC	-11	11	-20	56	-4	18	-7	35	-18	81	-28	23	-17	142	-36	296	-42	35	-29	221	-8	51
SPRING	-4	62	-13	83	3	64	1	70	-11	102	-21	65	-10	154	-29	302	-35	70	-22	229	-1	79
PTB	7	11	-2	56	14	18	12	35	0	81	-10	23	1	141	-18	296	-24	34	-11	221	10	50
INMETRO	-13	60	-22	81	-6	62	-9	69	-20	100	-30	63	-19	153	-38	302	-44	69	-31	229	-10	78
CENAM	9	54			16	56	13	63	2	97	-8	58	3	151	-16	300	-22	63	-9	227	12	73
NIM	-7	13	-16	56			-3	35	-14	81	-24	23	-13	142	-32	296	-38	36	-25	221	-4	51
MSL	-4	32	-13	63	3	35			-11	87	-21	38	-10	145	-29	297	-35	46	-22	223	-1	59
CSIR-NML	7	80	-2	97	14	81	11	87			-10	82	1	162	-18	306	-24	87	-11	235	10	94
SP	17	19	8	58	24	23	21	38	10	82			11	141	-8	295	-14	31	-1	220	20	48
AREPA	6	141	-3	151	13	142	10	145	-1	162	-11	141			-19	326	-25	143	-12	261	9	147
INETI	25	296	16	300	32	296	29	297	18	306	8	295	19	326			-6	296	7	368	28	298
SMD	31	34	22	63	38	36	35	46	24	87	14	31	25	143	6	296			12	222	34	53
BEV	18	221	9	227	25	221	22	223	11	235	1	220	12	261	-7	368	-12	222			21	225
METAS	-3	50	-12	73	4	51	1	59	-10	94	-20	48	-9	147	-28	298	-34	53	-21	225		
CMI	-110	54	-119	76	-103	55	-106	62	-117	96	-127	52	-116	149	-136	299	-141	57	-129	226	-107	68
OMH	-18	171	-27	179	-11	171	-14	174	-25	189	-35	171	-23	220	-43	340	-48	172	-36	278	-14	176
JV	5	72	-4	90	12	73	9	78	-2	107	-12	71	-1	156	-20	303	-26	74	-13	230	8	83
CEM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GUM	20	77	11	94	27	78	24	83	13	111	3	76	14	158	-5	304	-11	79	2	232	23	87
MIKES	1	23	-8	58	8	26	5	39	-6	83	-16	19	-4	140	-24	295	-29	29	-17	220	5	47
NMi-VSL	11	171	2	179	18	172	15	174	4	189	-6	171	5	220	-14	340	-20	172	-7	278	14	176
UME	-22	74	-31	92	-15	75	-18	81	-29	109	-39	73	-28	157	-47	303	-53	76	-40	231	-19	85

Key comparisons CCEM-K5 and EUROMET.EM-K5

MEASURAND : Electric power at 120 V, 5 A, power factor 0.0 Lag, 53 Hz **NOMINAL VALUE : 600 VA, 0 W**

Matrix of equivalence - continued

Lab *j* ⇒

Lab *i* ⇓	D_i / (µW/VA)	U_i / (µW/VA)	CMI D_{ij} / (µW/VA)	CMI U_{ij} / (µW/VA)	OMH D_{ij} / (µW/VA)	OMH U_{ij} / (µW/VA)	JV D_{ij} / (µW/VA)	JV U_{ij} / (µW/VA)	CEM D_{ij} / (µW/VA)	CEM U_{ij} / (µW/VA)	GUM D_{ij} / (µW/VA)	GUM U_{ij} / (µW/VA)	MIKES D_{ij} / (µW/VA)	MIKES U_{ij} / (µW/VA)	NMi-VSL D_{ij} / (µW/VA)	NMi-VSL U_{ij} / (µW/VA)	UME D_{ij} / (µW/VA)	UME U_{ij} / (µW/VA)
NIST	3	9	113	54	21	171	-2	72	-	-	-17	77	2	24	-8	171	25	74
NMIA	-2	15	108	55	16	172	-7	73	-	-	-22	78	-3	27	-13	172	20	75
NPL	14	28	124	56	32	172	9	74	-	-	-6	79	13	29	3	172	36	76
INRIM	0	32	110	58	18	173	-5	75	-	-	-20	80	-1	32	-11	173	22	78
INTI	7	38	117	65	25	175	2	81	-	-	-13	85	6	44	-4	175	29	83
VNIIM	-11	24	99	58	7	173	-16	75	-	-	-31	80	-12	33	-22	173	11	78
NRC	-11	11	99	54	7	171	-16	72	-	-	-31	77	-12	25	-22	171	11	75
SPRING	-4	62	106	82	14	182	-9	95	-	-	-24	98	-5	66	-15	182	18	96
PTB	7	11	117	54	25	171	2	72	-	-	-13	77	6	23	-4	171	29	74
INMETRO	-13	60	97	80	5	181	-18	93	-	-	-33	97	-14	64	-24	181	9	95
CENAM	9	54	119	76	27	179	4	90	-	-	-11	94	8	58	-2	179	31	92
NIM	-7	13	103	55	11	171	-12	73	-	-	-27	78	-8	26	-18	172	15	75
MSL	-4	32	106	62	14	174	-9	78	-	-	-24	83	-5	39	-15	174	18	81
CSIR-NML	7	80	117	96	25	189	2	107	-	-	-13	111	6	83	-4	189	29	109
SP	17	19	127	52	35	171	12	71	-	-	-3	76	16	19	6	171	39	73
AREPA	6	141	116	149	23	220	1	156	-	-	-14	158	4	140	-5	220	28	157
INETI	25	296	136	299	43	340	20	303	-	-	5	304	24	295	14	340	47	303
SMD	31	34	141	57	48	172	26	74	-	-	11	79	29	29	20	172	53	76
BEV	18	221	129	226	36	278	13	230	-	-	-2	232	17	220	7	278	40	231
METAS	-3	50	107	68	14	176	-8	83	-	-	-23	87	-5	47	-14	176	19	85
CMI	-110	54			-93	177	-115	85	-	-	-130	89	-112	51	-121	177	-88	87
OMH	-18	171	93	177			-22	183	-	-	-37	185	-19	170	-28	240	5	184
JV	5	72	115	85	22	183			-	-	-15	101	3	70	-6	183	27	99
CEM	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-
GUM	20	77	130	89	37	185	15	101	-	-			19	75	9	185	42	103
MIKES	1	23	112	51	19	170	-3	70	-	-	-19	75			-9	170	23	72
NMi-VSL	11	171	121	177	28	240	6	183	-	-	-9	185	9	170			33	184
UME	-22	74	88	87	-5	184	-27	99	-	-	-42	103	-23	72	-33	184		