CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL

Key comparison CCEM.RF-K10.CL

MEASURAND : Calibration factor

TRANSFER STANDARDS : Power sensors PTB 1-3, PTB 1-3-1, PTB 2-6 and PTB 2-6-1

FREQUENCY : from 50 MHz to 26 GHz

x_i : **result of measurement carried out by laboratory *i***

u_i : **combined standard uncertainty of x_i**

Power sensor PTB 1-3, relabelled as PTB 1-3-1 after repair at PTB in November 2001 (see on page 10 of the Final Report)

Lab *i* ⇩ / Frequency ⇨	50 MHz		1 GHz		10 GHz		18 GHz		20 GHz		23 GHz		26 GHz	
	x_i	u_i	x_i	u_i	x_i	u_i	x_i	u_i	x_i	u_i	x_i	u_i	x_i	u_i
NMIJ	0.9828	0.0014	0.9720	0.0017	0.9438	0.0020	0.9352	0.0058	0.9328	0.0039	0.9262	0.0044	0.9020	0.0069
NRC	0.9837	0.0040	0.9763	0.0040	0.9404	0.0040	0.9378	0.0048	0.9301	0.0048	0.9284	0.0048	0.9258	0.0048
NIST	0.9887	0.0086	0.9741	0.0087	0.9417	0.0088	0.9290	0.0088	0.9259	0.0090	0.9225	0.0092	0.9145	0.0094
METAS	0.9810	0.0060	0.9720	0.0070	0.9410	0.0100	0.9280	0.0100	0.9290	0.0110	0.9280	0.0110	0.9090	0.0120
CSIR-NML	0.9920	0.0070	0.9780	0.0080	0.9460	0.0110	0.9280	0.0130	0.9320	0.0150	0.9310	0.0160	0.9250	0.0190
PTB	0.9877	0.0020	0.9741	0.0025	0.9428	0.0040	0.9304	0.0050	0.9263	0.0055	0.9251	0.0065	0.9227	0.0085
NMIA	0.9880	0.0020	0.9760	0.0025	0.9420	0.0047	0.9330	0.0063	0.9320	0.0093	0.9270	0.0092	0.9200	0.0091
NPL	0.9857	0.0015	0.9740	0.0030	0.9390	0.0044	0.9290	0.0055	0.9310	0.0055	0.9310	0.0066	0.9270	0.0077
MIRS/SIQ	0.9890	0.0030	0.9750	0.0030	0.9380	0.0070	0.9370	0.0080	0.9300	0.0080	0.9260	0.0080	0.9190	0.0080
INRIM	0.9895	0.0052	0.9817	0.0063	0.9344	0.0135	0.9273	0.0138	0.9192	0.0131	0.9115	0.0190	0.9003	0.0187
VNIIFTRI	-	-	0.9800	0.0030	0.9610	0.0060	0.9110	0.0070	0.9080	0.0110	0.9180	0.0120	0.9240	0.0140
PTB	0.9897	0.0020	0.9821	0.0025	0.9362	0.0040	0.8982	0.0050	0.8814	0.0055	0.8578	0.0065	0.8580	0.0085
SPRING Singapore	0.9936	0.0067	0.9821	0.0067	0.9384	0.0074	0.8933	0.0098	0.8840	0.0099	0.8590	0.0130	0.8583	0.0084

Laboratory having reported results for transfer standard PTB 1-3-1

Key comparison CCEM.RF-K10.CL

Power sensor PTB 2-6, relabelled as PTB 2-6-1 after repair at PTB in November 2001 (see on page 10 of the Final Report)

Lab *i* ⇩ / Frequency ⇨	50 MHz		1 GHz		10 GHz		18 GHz		20 GHz		23 GHz		26 GHz	
	x_i	u_i	x_i	u_i	x_i	u_i	x_i	u_i	x_i	u_i	x_i	u_i	x_i	u_i
NMIJ	0.9845	0.0014	0.9764	0.0017	0.9402	0.0019	0.9092	0.0038	0.8973	0.0047	0.8784	0.0044	0.8686	0.0075
NRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NIST	0.9910	0.0086	0.9784	0.0087	0.9406	0.0088	0.9074	0.0088	0.8952	0.0090	0.8779	0.0092	0.8778	0.0095
METAS	0.9850	0.0060	0.9770	0.0070	0.9390	0.0100	0.9060	0.0100	0.9000	0.0110	0.8820	0.0100	0.8700	0.0120
CSIR-NML	0.9930	0.0070	0.9820	0.0080	0.9430	0.0110	0.9030	0.0130	0.9010	0.0150	0.8820	0.0160	0.8810	0.0190
PTB	0.9889	0.0020	0.9784	0.0025	0.9376	0.0040	0.9048	0.0050	0.8904	0.0055	0.8769	0.0065	0.8805	0.0085
NMIA	0.9900	0.0020	0.9810	0.0025	0.9400	0.0047	0.9110	0.0063	0.9000	0.0093	0.8810	0.0092	0.8830	0.0093
NPL	0.9872	0.0017	0.9780	0.0032	0.9360	0.0045	0.9070	0.0055	0.8970	0.0056	0.8840	0.0067	0.8890	0.0077
MIRS/SIQ	0.9910	0.0030	0.9790	0.0030	0.9310	0.0070	0.9110	0.0080	0.9020	0.0080	0.8800	0.0080	0.8790	0.0080
INRIM	0.9951	0.0058	0.9857	0.0058	0.9335	0.0153	0.9231	0.0146	0.9000	0.0145	0.9013	0.0207	0.9032	0.0206
VNIIFTRI	-	-	0.9850	0.0060	0.9590	0.0100	0.8850	0.0120	0.8710	0.0220	0.8710	0.0290	0.8950	0.0150
PTB	0.9883	0.0020	0.9780	0.0025	0.9402	0.0040	0.9104	0.0050	0.9075	0.0055	0.8857	0.0065	0.8905	0.0085
SPRING Singapore	0.9892	0.0067	0.9775	0.0067	0.9404	0.0071	0.9071	0.0100	0.9044	0.0103	0.8866	0.0134	0.8945	0.0088

Laboratory having reported results for transfer standard PTB 2-6-1

Lab *i* ⇩	Date of measurement
NMIJ	Jul - Aug 2000
NRC	Aug - Sep 2000
NIST	Oct - Nov 2000
METAS	Nov - Dec 2000
CSIR-NML	Dec 2000 - Jan 2001
PTB	Feb 2001
NMIA	Mar - Apr 2001

Lab *i* ⇩	Date of measurement
NPL	Apr - May 2001
MIRS/SIQ	May - Jun 2001
INRIM	Jun - Jul 2001
VNIIFTRI	Sep - Oct 2001
PTB	Nov 2001
SPRING Singapore	Dec 2001 - Jan 2002

Key comparison EUROMET.EM.RF-K10.CL

MEASURAND : Calibration factor
TRANSFER STANDARD : Power sensor PTB 1-03-2

FREQUENCY : from 50 MHz to 26 GHz

$x_{i\text{-EUR}}$: **result of measurement carried out by laboratory *i* participant in EUROMET.EM.RF-K10.CL**
$u_{i\text{-EUR}}$: **combined standard uncertainty of $x_{i\text{-EUR}}$**

Frequency ⇨

Lab *i* ⇩	**50 MHz**		**1 GHz**		**10 GHz**		**18 GHz**		**20 GHz**		**23 GHz**		**26 GHz**	
	$x_{i\text{-EUR}}$	$u_{i\text{-EUR}}$	$x_{i\text{-EUR}}$	$u_{i\text{-EUR}}$	$x_{i\text{-EUR}}$	$u_{i\text{-EUR}}$	$x_{i\text{-EUR}}$	$u_{i\text{-EUR}}$	$x_{i\text{-EUR}}$	$u_{i\text{-EUR}}$	$x_{i\text{-EUR}}$	$u_{i\text{-EUR}}$	$x_{i\text{-EUR}}$	$u_{i\text{-EUR}}$
EIM	0.9880	0.0070	0.9840	0.0080	0.9440	0.0100	0.9440	0.0140	0.9060	0.0130	0.9310	0.0140	0.9140	0.0150
SP	0.9900	0.0029	0.9830	0.0032	0.9560	0.0048	0.9400	0.0066	0.9420	0.0066	0.9370	0.0080	0.9420	0.0104
NPL	0.9912	0.0012	0.9823	0.0030	0.9532	0.0044	0.9426	0.0053	0.9385	0.0053	0.9387	0.0064	0.9386	0.0075
AREPA	0.9990	0.0040	0.9910	0.0040	0.9620	0.0080	0.9520	0.0110	0.9540	0.0140	0.9510	0.0170	0.9440	0.0170
NMi-VSL	0.9764	0.0038	0.9679	0.0051	0.9454	0.0070	0.9340	0.0086	0.9329	0.0086	0.9271	0.0087	0.9268	0.0097
LNE	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UME	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PTB	0.9917	0.0020	0.9832	0.0025	0.9601	0.0040	0.9484	0.0050	0.9418	0.0055	0.9440	0.0065	0.9366	0.0085

Key comparison EUROMET.EM.RF-K10.CL

TRANSFER STANDARD : Power sensor PTB 2-06-2

Lab *i* ⇩ / Frequency ⇨	50 MHz		1 GHz		10 GHz		18 GHz		20 GHz		23 GHz		26 GHz	
	$x_{i\text{-EUR}}$	$u_{i\text{-EUR}}$	$x_{i\text{-EUR}}$	$u_{i\text{-EUR}}$	$x_{i\text{-EUR}}$	$u_{i\text{-EUR}}$	$x_{i\text{-EUR}}$	$u_{i\text{-EUR}}$	$x_{i\text{-EUR}}$	$u_{i\text{-EUR}}$	$x_{i\text{-EUR}}$	$u_{i\text{-EUR}}$	$x_{i\text{-EUR}}$	$u_{i\text{-EUR}}$
EIM	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP	0.9870	0.0029	0.9790	0.0032	0.9370	0.0047	0.9040	0.0066	0.8970	0.0066	0.8740	0.0080	0.8820	0.0105
NPL	0.9880	0.0012	0.9777	0.0030	0.9341	0.0044	0.9053	0.0054	0.8944	0.0055	0.8748	0.0066	0.8783	0.0077
AREPA	0.9940	0.0040	0.9850	0.0040	0.9420	0.0070	0.9180	0.0110	0.9090	0.0130	0.8850	0.0150	0.8800	0.0170
NMi-VSL	0.9807	0.0038	0.9708	0.0051	0.9314	0.0069	0.9091	0.0083	0.8962	0.0083	0.8729	0.0082	0.8696	0.0091
LNE	0.9852	0.0023	0.9761	0.0062	0.9494	0.0085	0.9167	0.0119	0.9022	0.0128	0.8918	0.0107	0.8837	0.0101
UME	0.9922	0.0028	0.9820	0.0027	0.9508	0.0039	0.9233	0.0082	0.9140	0.0083	0.9002	0.0110	0.9037	0.0181
PTB	0.9884	0.0020	0.9782	0.0025	0.9388	0.0080	0.9156	0.0050	0.8998	0.0055	0.8783	0.0065	0.8767	0.0085

Lab *i* ⇩	Date of measurement
EIM	May 2002
SP	Jun 2002
NPL	Jul - Aug 2002
AREPA	Aug - Sep 2002
NMi-VSL	Sep - Oct 2002
LNE	Nov 2002
UME	Feb - Mar 2003
PTB	Mar - Apr 2002 Dec 2002 - Jan 2003 Apr 2003

Key comparison CCEM.RF-K10.CL

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 1-3, PTB 1-3-1, PTB 2-6 and PTB 2-6-1

The computation of the key comparison reference values, x_R, and of their uncertainties, u_R, is explained in Section 6.2 of the Final Report (pages 14 and 15).
For each frequency and each of the transfer standards PTB 1-3 and PTB 2-6, x_R is computed as the unweighted arithmetic mean of the participants' results obtained using independant primary power standards with outliers excluded. Its standard uncertainty, u_R, is the standard deviation of the mean.
For each frequency and each of the repaired transfer standards PTB 1-3-1 and PTB 2-6-1, x_R is computed using the common measurements carried out by PTB (see on page 15 of the Final Report). Its standard uncertainty, u_R, is assumed to be equal to the standard uncertainty obtained with the transfer standard before repair.

Frequency ⇩	Transfer standard PTB 1-3		Transfer standard PTB 2-6		Transfer standard PTB 1-3 -1		Transfer standard PTB 2-6-1	
	x_R	u_R	x_R	u_R	x_R	u_R	x_R	u_R
50 MHz	0.9866	0.0010	0.9895	0.0019	0.9895	0.0010	0.9881	0.0019
1 GHz	0.9760	0.0012	0.9804	0.0015	0.9841	0.0012	0.9800	0.0015
10 GHz	0.9416	0.0007	0.9380	0.0012	0.9358	0.0007	0.9398	0.0012
18 GHz	0.9317	0.0014	0.9079	0.0010	0.9004	0.0014	0.9126	0.0010
20 GHz	0.9276	0.0020	0.8960	0.0016	0.8849	0.0020	0.9110	0.0016
23 GHz	0.9252	0.0019	0.8776	0.0021	0.8582	0.0019	0.8861	0.0021
26 GHz	0.9228	0.0022	0.8857	0.0051	0.8607	0.0022	0.8932	0.0051

The degree of equivalence of laboratory i with respect to the key comparison reference value is given by two terms, both expressed in 10^{-3}: $D_i = x_i - x_R$ and its expanded uncertainty U_i ($k = 2$), $U_i = 2(u_i^2 + u_R^2)^{1/2}$.

The degree of equivalence between two laboratories i and j is given by two terms, both expressed in 10^{-3} :
$D_{ij} = (D_i - D_j)$ and its expanded uncertainty U_{ij} ($k = 2$), $U_{ij} = 2(u_i^2 + u_j^2)^{1/2}$.

Linking EUROMET.EM.RF-K10.CL to CCEM.RF-K10.CL

The laboratories that are participants in both comparisons (PTB and NPL) are used for linking the results obtained in EUROMET.EM.RF-K10.CL to the results obtained in CCEM.RF-K10.CL. The linking process is explained in section 6.2 of the EUROMET.EM.RF-K10.CL Final Report.

For each transfer standard and a given frequency the degree of equivalence of each laboratory participant in EUROMET.EM.RF-K10.CL with respect to the key comparison reference value is given by a pair of terms both express in 10^{-3}:
D_i and its expanded uncertainty ($k = 2$), $U_{i.}$
The degree of equivalence is computed as explained in section 6.3 of the EUROMET.EM.RF-K10.CL Final Report.

For each transfer standard and a given frequency, the degree of equivalence between two laboratories *i* and *j* is given by a pair of terms: D_{ij} and its expanded uncertainty ($k = 2$), $U_{ij,}$ both express in 10^{-3}:
The pair-wise degrees of equivalence are computed only between two laboratories participants in EUROMET.EM.RF-K10.CL.

It follows that the Matrices of equivalence and the Graphs of equivalence obtained for CCEM.RF-K10.CL are extended with results obtained in EUROMET.EM.RF-K10.CL.

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 1-3, PTB 1-3-1 for CCEM.RF-K10.CL and PTB 1-03-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 50 MHz**

Lab *j* ⇨

Lab *i* ⇩

	D_i / 10^{-3}	U_i / 10^{-3}	NMIJ		NRC		NIST		METAS		CSIR-NML		PTB		NMIA		NPL	
			D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**-3.8**	3.4			**-0.9**	8.5	**-5.9**	17.4	**1.8**	12.3	**-9.2**	14.3	**-4.9**	4.9	**-5.2**	4.9	**-2.9**	4.1
NRC	**-2.9**	8.2	**0.9**	8.5			**-5.0**	19.0	**2.7**	14.4	**-8.3**	16.1	**-4.0**	8.9	**-4.3**	8.9	**-2.0**	8.5
NIST	**2.1**	17.3	**5.9**	17.4	**5.0**	19.0			**7.7**	21.0	**-3.3**	22.2	**1.0**	17.7	**0.7**	17.7	**3.0**	17.5
METAS	**-5.6**	12.2	**-1.8**	12.3	**-2.7**	14.4	**-7.7**	21.0			**-11.0**	18.4	**-6.7**	12.6	**-7.0**	12.6	**-4.7**	12.4
CSIR-NML	**5.4**	14.1	**9.2**	14.3	**8.3**	16.1	**3.3**	22.2	**11.0**	18.4			**4.3**	14.6	**4.0**	14.6	**6.3**	14.3
PTB	**1.1**	4.5	**4.9**	4.9	**4.0**	8.9	**-1.0**	17.7	**6.7**	12.6	**-4.3**	14.6			**-0.3**	5.7	**2.0**	5.0
NMIA	**1.4**	4.5	**5.2**	4.9	**4.3**	8.9	**-0.7**	17.7	**7.0**	12.6	**-4.0**	14.6	**0.3**	5.7			**2.3**	5.0
NPL	**-0.9**	3.6	**2.9**	4.1	**2.0**	8.5	**-3.0**	17.5	**4.7**	12.4	**-6.3**	14.3	**-2.0**	5.0	**-2.3**	5.0		
MIRS/SIQ	**2.4**	6.3	**6.2**	6.6	**5.3**	10.0	**0.3**	18.2	**8.0**	13.4	**-3.0**	15.2	**1.3**	7.2	**1.0**	7.2	**3.3**	6.7
INRIM	**2.9**	10.6	**6.7**	10.8	**5.8**	13.1	**0.8**	20.1	**8.5**	15.9	**-2.5**	17.4	**1.8**	11.1	**1.5**	11.1	**3.8**	10.8
SPRING	**4.1**	13.5	**7.9**	13.7	**7.0**	15.6	**2.0**	21.8	**9.7**	18.0	**-1.3**	19.4	**3.0**	14.0	**2.7**	14.0	**5.0**	13.7
EIM	**-4.1**	14.0																
SP	**-2.1**	5.8																
NPL	**-1.0**	2.4						**Not computed**										
AREPA	**6.9**	8.0																
PTB	**-0.4**	4.0																

Laboratory having used the repaired transfer standard PTB 1-3-1

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 1-3, PTB 1-3-1 for CCEM.RF-K10.CL and PTB 1-03-2 for EUROMET.EM.RF-K10.CL

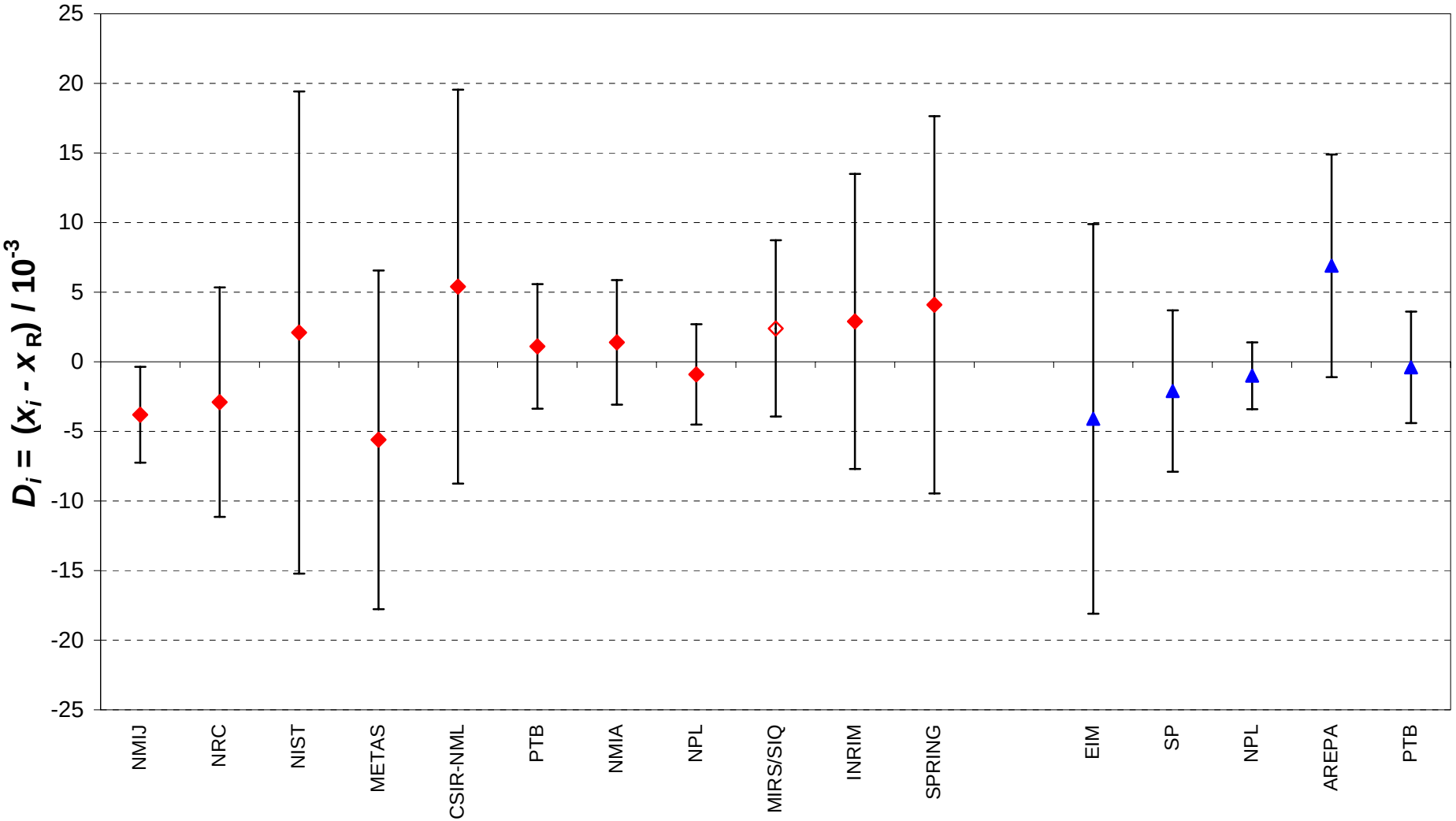
Matrix of equivalence **FREQUENCY : 50 MHz** **(Continued)**

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	Lab *j* ⇨ MIRS/SIQ D_{ij} / 10^{-3}	MIRS/SIQ U_{ij} / 10^{-3}	INRIM D_{ij} / 10^{-3}	INRIM U_{ij} / 10^{-3}	SPRING D_{ij} / 10^{-3}	SPRING U_{ij} / 10^{-3}
NMIJ	**-3.8**	3.4	**-6.2**	6.6	**-6.7**	10.8	**-7.9**	13.7
NRC	**-2.9**	8.2	**-5.3**	10.0	**-5.8**	13.1	**-7.0**	15.6
NIST	**2.1**	17.3	**-0.3**	18.2	**-0.8**	20.1	**-2.0**	21.8
METAS	**-5.6**	12.2	**-8.0**	13.4	**-8.5**	15.9	**-9.7**	18.0
CSIR-NML	**5.4**	14.1	**3.0**	15.2	**2.5**	17.4	**1.3**	19.4
PTB	**1.1**	4.5	**-1.3**	7.2	**-1.8**	11.1	**-3.0**	14.0
NMIA	**1.4**	4.5	**-1.0**	7.2	**-1.5**	11.1	**-2.7**	14.0
NPL	**-0.9**	3.6	**-3.3**	6.7	**-3.8**	10.8	**-5.0**	13.7
MIRS/SIQ	**2.4**	6.3			**-0.5**	12.0	**-1.7**	14.7
INRIM	**2.9**	10.6	**0.5**	12.0			**-1.2**	17.0
SPRING	**4.1**	13.5	**1.7**	14.7	**1.2**	17.0		
EIM	**-4.1**	14.0						
SP	**-2.1**	5.8						
NPL	**-1.0**	2.4			**Not computed**			
AREPA	**6.9**	8.0						
PTB	**-0.4**	4.0						

EIM D_{ij} / 10^{-3}	EIM U_{ij} / 10^{-3}	SP D_{ij} / 10^{-3}	SP U_{ij} / 10^{-3}	NPL D_{ij} / 10^{-3}	NPL U_{ij} / 10^{-3}	AREPA D_{ij} / 10^{-3}	AREPA U_{ij} / 10^{-3}	PTB D_{ij} / 10^{-3}	PTB U_{ij} / 10^{-3}
			Not computed						
		-2.0	15.2	**-3.1**	14.2	**-11.0**	16.1	**-3.7**	14.6
2.0	15.2			**-1.1**	6.3	**-9.0**	9.9	**-1.7**	7.0
3.1	14.2	**1.1**	6.3			**-7.9**	8.4	**-0.6**	4.7
11.0	16.1	**9.0**	9.9	**7.9**	8.4			**7.3**	8.9
3.7	14.6	**1.7**	7.0	**0.6**	4.7	**-7.3**	8.9		

Laboratory having used the repaired transfer standard PTB 1-3-1

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL Calibration factor, frequency: 50 MHz,
Transfer standard: PTB 1- 3
Degrees of equivalence [D_i and its expanded uncertainty (k = 2), U_i]



Open symbols represent values from laboratories in Associate States and Economies of the CGPM
Blue triangles: participants in EUROMET.EM.RF-K10.CL

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 1-3, PTB 1-3-1 for CCEM.RF-K10.CL and PTB 1-03-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 1 GHz**

Lab *j* ⇨

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	NMIJ		NRC		NIST		METAS		CSIR-NML		PTB		NMIA		NPL		MIRS/SIQ	
			D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**-4.0**	4.2			**-4.3**	8.7	**-2.1**	17.7	**0.0**	14.4	**-6.0**	16.4	**-2.1**	6.0	**-4.0**	6.0	**-2.0**	6.9	**-3.0**	6.9
NRC	**0.3**	8.4	**4.3**	8.7			**2.2**	19.2	**4.3**	16.1	**-1.7**	17.9	**2.2**	9.4	**0.3**	9.4	**2.3**	10.0	**1.3**	10.0
NIST	**-1.9**	17.6	**2.1**	17.7	**-2.2**	19.2			**2.1**	22.3	**-3.9**	23.6	**0.0**	18.1	**-1.9**	18.1	**0.1**	18.4	**-0.9**	18.4
METAS	**-4.0**	14.2	**0.0**	14.4	**-4.3**	16.1	**-2.1**	22.3			**-6.0**	21.3	**-2.1**	14.9	**-4.0**	14.9	**-2.0**	15.2	**-3.0**	15.2
CSIR-NML	**2.0**	16.2	**6.0**	16.4	**1.7**	17.9	**3.9**	23.6	**6.0**	21.3			**3.9**	16.8	**2.0**	16.8	**4.0**	17.1	**3.0**	17.1
PTB	**-1.9**	5.5	**2.1**	6.0	**-2.2**	9.4	**0.0**	18.1	**2.1**	14.9	**-3.9**	16.8			**-1.9**	7.1	**0.1**	7.8	**-0.9**	7.8
NMIA	**0.0**	5.5	**4.0**	6.0	**-0.3**	9.4	**1.9**	18.1	**4.0**	14.9	**-2.0**	16.8	**1.9**	7.1			**2.0**	7.8	**1.0**	7.8
NPL	**-2.0**	6.5	**2.0**	6.9	**-2.3**	10.0	**-0.1**	18.4	**2.0**	15.2	**-4.0**	17.1	**-0.1**	7.8	**-2.0**	7.8			**-1.0**	8.5
MIRS/SIQ	**-1.0**	6.5	**3.0**	6.9	**-1.3**	10.0	**0.9**	18.4	**3.0**	15.2	**-3.0**	17.1	**0.9**	7.8	**-1.0**	7.8	**1.0**	8.5		
INRIM	**5.7**	12.8	**9.7**	13.1	**5.4**	14.9	**7.6**	21.5	**9.7**	18.8	**3.7**	20.4	**7.6**	13.6	**5.7**	13.6	**7.7**	14.0	**6.7**	14.0
VNIIFTRI	**4.0**	6.5	**8.0**	6.9	**3.7**	10.0	**5.9**	18.4	**8.0**	15.2	**2.0**	17.1	**5.9**	7.8	**4.0**	7.8	**6.0**	8.5	**5.0**	8.5
SPRING	**-2.0**	13.6	**2.0**	13.8	**-2.3**	15.6	**-0.1**	22.0	**2.0**	19.4	**-4.0**	20.9	**-0.1**	14.3	**-2.0**	14.3	**0.0**	14.7	**-1.0**	14.7
EIM	**-0.9**	16.0																		
SP	**-1.9**	6.4																		
NPL	**-2.6**	6.0						**Not computed**												
AREPA	**6.1**	8.0																		
PTB	**-1.7**	5.0																		

Laboratory having used the repaired transfer standard PTB 1-3-1

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 1-3, PTB 1-3-1 for CCEM.RF-K10.CL and PTB 1-03-2 for EUROMET.EM.RF-K10.CL

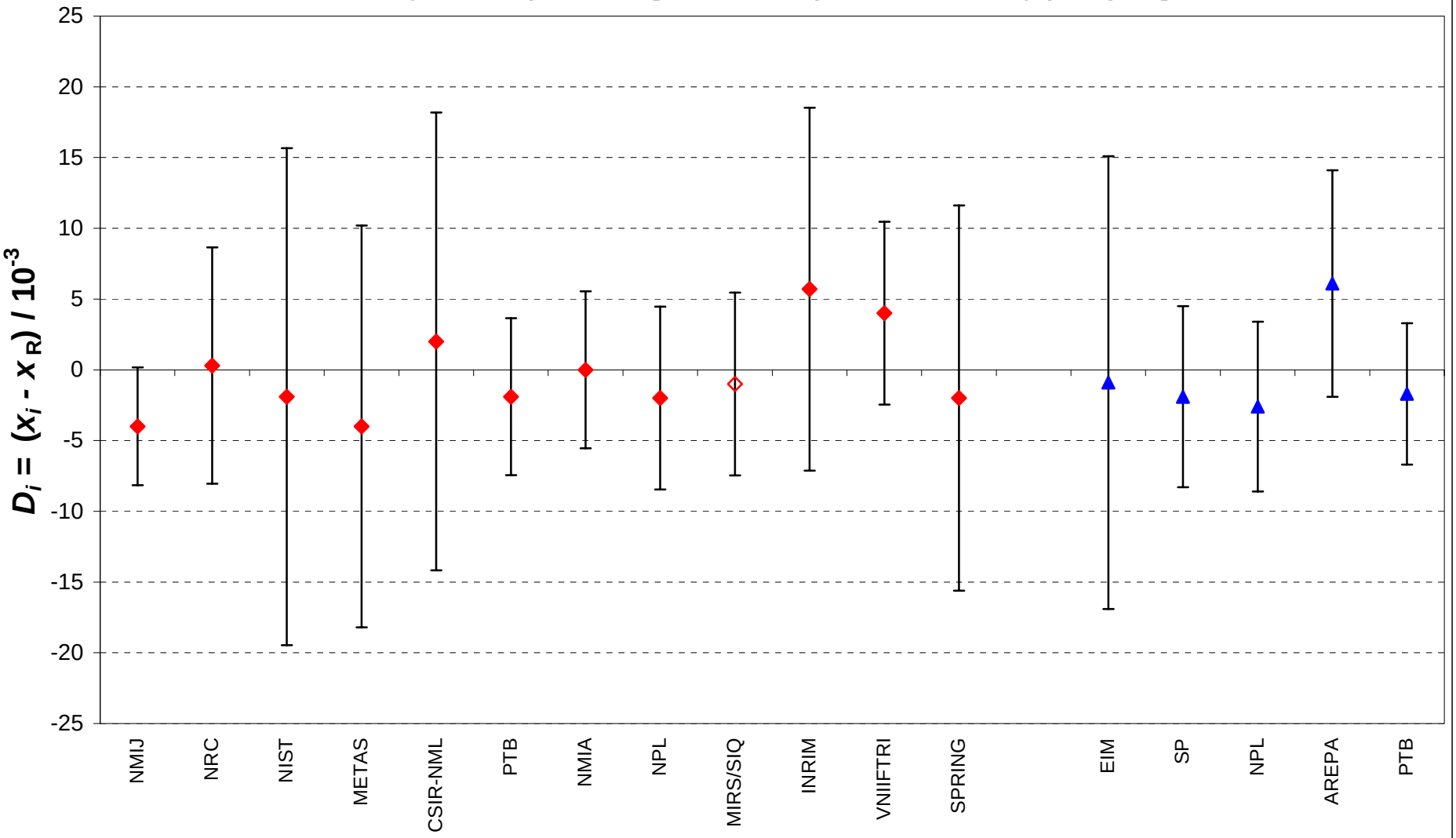
Matrix of equivalence **FREQUENCY : 1 GHz** **(continued)**

Lab *j* ⇨

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	**INRIM** D_{ij} / 10^{-3}	**INRIM** U_{ij} / 10^{-3}	**VNIIFTRI** D_{ij} / 10^{-3}	**VNIIFTRI** U_{ij} / 10^{-3}	**SPRING** D_{ij} / 10^{-3}	**SPRING** U_{ij} / 10^{-3}	**EIM** D_{ij} / 10^{-3}	**EIM** U_{ij} / 10^{-3}	**SP** D_{ij} / 10^{-3}	**SP** U_{ij} / 10^{-3}	**NPL** D_{ij} / 10^{-3}	**NPL** U_{ij} / 10^{-3}	**AREPA** D_{ij} / 10^{-3}	**AREPA** U_{ij} / 10^{-3}	**PTB** D_{ij} / 10^{-3}	**PTB** U_{ij} / 10^{-3}
NMIJ	**-4.0**	4.2	**-9.7**	13.1	**-8.0**	6.9	**-2.0**	13.8										
NRC	**0.3**	8.4	**-5.4**	14.9	**-3.7**	10.0	**2.3**	15.6										
NIST	**-1.9**	17.6	**-7.6**	21.5	**-5.9**	18.4	**0.1**	22.0										
METAS	**-4.0**	14.2	**-9.7**	18.8	**-8.0**	15.2	**-2.0**	19.4										
CSIR-NML	**2.0**	16.2	**-3.7**	20.4	**-2.0**	17.1	**4.0**	20.9										
PTB	**-1.9**	5.5	**-7.6**	13.6	**-5.9**	7.8	**0.1**	14.3					**Not computed**					
NMIA	**0.0**	5.5	**-5.7**	13.6	**-4.0**	7.8	**2.0**	14.3										
NPL	**-2.0**	6.5	**-7.7**	14.0	**-6.0**	8.5	**0.0**	14.7										
MIRS/SIQ	**-1.0**	6.5	**-6.7**	14.0	**-5.0**	8.5	**1.0**	14.7										
INRIM	**5.7**	12.8			**1.7**	14.0	**7.7**	18.4										
VNIIFTRI	**4.0**	6.5	**-1.7**	14.0			**6.0**	14.7										
SPRING	**-2.0**	13.6	**-7.7**	18.4	**-6.0**	14.7												
EIM	**-0.9**	16.0									**1.0**	17.2	**1.7**	17.1	**-7.0**	17.9	**0.8**	16.8
SP	**-1.9**	6.4							**-1.0**	17.2			**0.7**	8.8	**-8.0**	10.2	**-0.2**	8.1
NPL	**-2.6**	6.0	**Not computed**						**-1.7**	17.1	**-0.7**	8.8			**-8.7**	10.0	**-0.9**	7.8
AREPA	**6.1**	8.0							**7.0**	17.9	**8.0**	10.2	**8.7**	10.0			**7.8**	9.4
PTB	**-1.7**	5.0							**-0.8**	16.8	**0.2**	8.1	**0.9**	7.8	**-7.8**	9.4		

Laboratory having used the repaired transfer standard PTB 1-3-1

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL Calibration factor, frequency: 1 GHz,
Transfer standard: PTB 1- 3
Degrees of equivalence [D_i and its expanded uncertainty (k = 2), U_i]



Open symbols represent values from laboratories in Associate States and Economies of the CGPM
Blue triangles: participants in EUROMET.EM.RF-K10.CL

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 1-3, PTB 1-3-1 for CCEM.RF-K10.CL and PTB 1-03-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 10 GHz**

Lab *j* ⇨

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	NMIJ		NRC		NIST		METAS		CSIR-NML		PTB		NMIA		NPL		MIRS/SIQ	
			D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**2.2**	4.2			**3.4**	8.9	**2.1**	18.0	**2.8**	20.4	**-2.2**	22.4	**1.0**	8.9	**1.8**	10.2	**4.8**	9.7	**5.8**	14.6
NRC	**-1.2**	8.1	**-3.4**	8.9			**-1.3**	19.3	**-0.6**	21.5	**-5.6**	23.4	**-2.4**	11.3	**-1.6**	12.3	**1.4**	11.9	**2.4**	16.1
NIST	**0.1**	17.7	**-2.1**	18.0	**1.3**	19.3			**0.7**	26.6	**-4.3**	28.2	**-1.1**	19.3	**-0.3**	20.0	**2.7**	19.7	**3.7**	22.5
METAS	**-0.6**	20.0	**-2.8**	20.4	**0.6**	21.5	**-0.7**	26.6			**-5.0**	29.7	**-1.8**	21.5	**-1.0**	22.1	**2.0**	21.9	**3.0**	24.4
CSIR-NML	**4.4**	22.0	**2.2**	22.4	**5.6**	23.4	**4.3**	28.2	**5.0**	29.7			**3.2**	23.4	**4.0**	23.9	**7.0**	23.7	**8.0**	26.1
PTB	**1.2**	8.1	**-1.0**	8.9	**2.4**	11.3	**1.1**	19.3	**1.8**	21.5	**-3.2**	23.4			**0.8**	12.3	**3.8**	11.9	**4.8**	16.1
NMIA	**0.4**	9.5	**-1.8**	10.2	**1.6**	12.3	**0.3**	20.0	**1.0**	22.1	**-4.0**	23.9	**-0.8**	12.3			**3.0**	12.9	**4.0**	16.9
NPL	**-2.6**	8.9	**-4.8**	9.7	**-1.4**	11.9	**-2.7**	19.7	**-2.0**	21.9	**-7.0**	23.7	**-3.8**	11.9	**-3.0**	12.9			**1.0**	16.5
MIRS/SIQ	**-3.6**	14.1	**-5.8**	14.6	**-2.4**	16.1	**-3.7**	22.5	**-3.0**	24.4	**-8.0**	26.1	**-4.8**	16.1	**-4.0**	16.9	**-1.0**	16.5		
INRIM	**-7.2**	27.0	**-9.4**	27.3	**-6.0**	28.2	**-7.3**	32.2	**-6.6**	33.6	**-11.6**	34.8	**-8.4**	28.2	**-7.6**	28.6	**-4.6**	28.4	**-3.6**	30.4
VNIIFTRI	**19.4**	12.1	**17.2**	12.6	**20.6**	14.4	**19.3**	21.3	**20.0**	23.3	**15.0**	25.1	**18.2**	14.4	**19.0**	15.2	**22.0**	14.9	**23.0**	18.4
SPRING	**2.6**	14.9	**0.4**	15.3	**3.8**	16.8	**2.5**	23.0	**3.2**	24.9	**-1.8**	26.5	**1.4**	16.8	**2.2**	17.5	**5.2**	17.2	**6.2**	20.4

EIM	**-13.6**	20.0																		
SP	**-1.6**	9.6																		
NPL	**-4.3**	8.8						Not computed												
AREPA	**4.4**	16.0																		
PTB	**2.5**	8.0																		

Laboratory having used the repaired transfer standard PTB 1-3-1

MEASURAND : Calibration factor

TRANSFER STANDARDS : Power sensors PTB 1-3, PTB 1-3-1 for CCEM.RF-K10.CL and PTB 1-03-2 for EUROMET.EM.RF-K10.CL

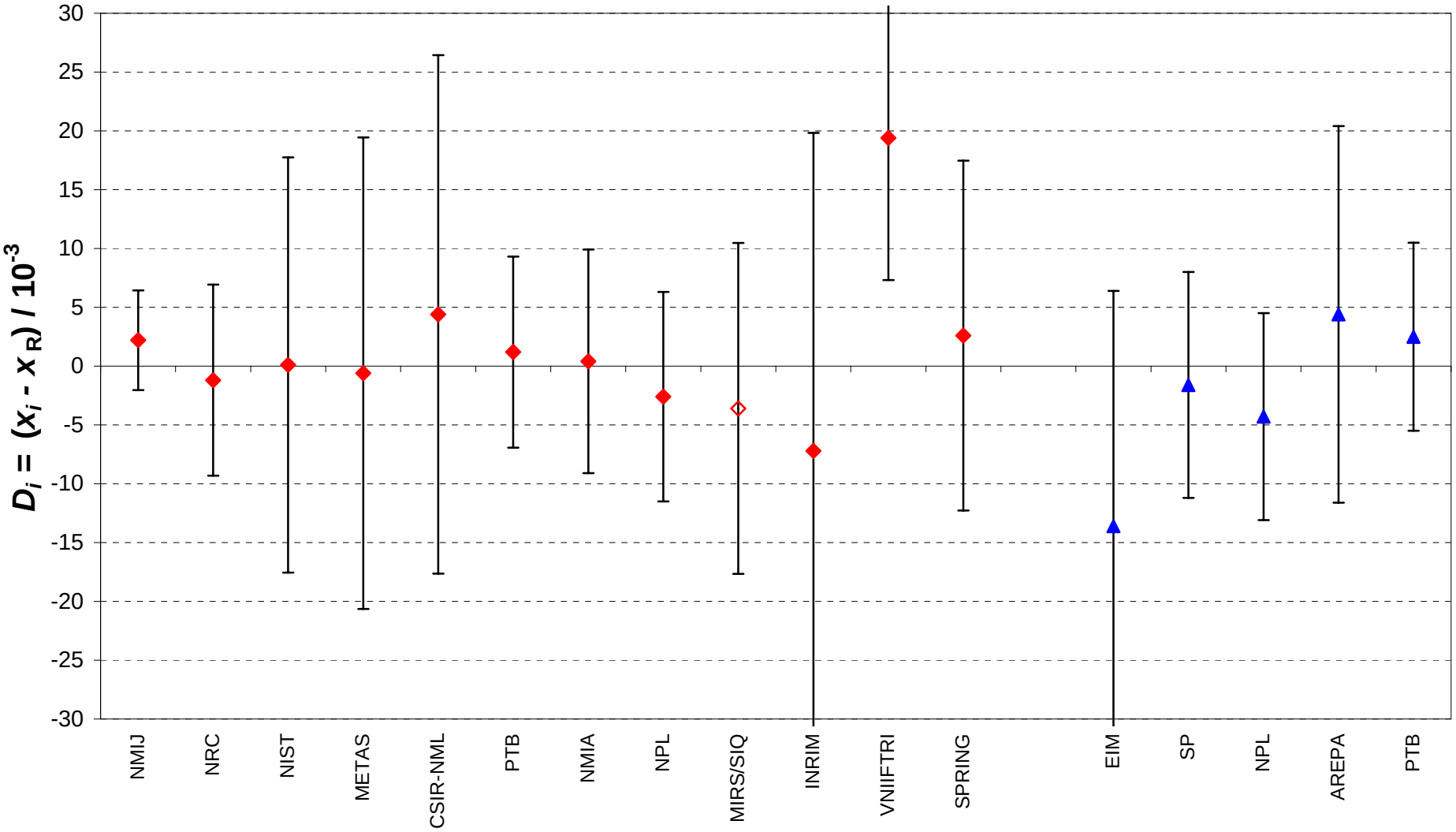
Matrix of equivalence **FREQUENCY : 10 GHz** **(continued)**

Lab *i* ⇩			Lab *j* ⇨ INRIM		VNIIFTRI		SPRING		EIM		SP		NPL		AREPA		PTB	
	D_i / 10^{-3}	U_i / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**2.2**	4.2	**9.4**	27.3	**-17.2**	12.6	**-0.4**	15.3										
NRC	**-1.2**	8.1	**6.0**	28.2	**-20.6**	14.4	**-3.8**	16.8										
NIST	**0.1**	17.7	**7.3**	32.2	**-19.3**	21.3	**-2.5**	23.0										
METAS	**-0.6**	20.0	**6.6**	33.6	**-20.0**	23.3	**-3.2**	24.9										
CSIR-NML	**4.4**	22.0	**11.6**	34.8	**-15.0**	25.1	**1.8**	26.5										
PTB	**1.2**	8.1	**8.4**	28.2	**-18.2**	14.4	**-1.4**	16.8					Not computed					
NMIA	**0.4**	9.5	**7.6**	28.6	**-19.0**	15.2	**-2.2**	17.5										
NPL	**-2.6**	8.9	**4.6**	28.4	**-22.0**	14.9	**-5.2**	17.2										
MIRS/SIQ	**-3.6**	14.1	**3.6**	30.4	**-23.0**	18.4	**-6.2**	20.4										
INRIM	**-7.2**	27.0			**-26.6**	29.5	**-9.8**	30.8										
VNIIFTRI	**19.4**	12.1	**26.6**	29.5			**16.8**	19.1										
SPRING	**2.6**	14.9	**9.8**	30.8	**-16.8**	19.1												
EIM	**-13.6**	20.0									**-12.0**	22.2	**-9.3**	21.9	**-18.0**	25.6	**-16.1**	21.5
SP	**-1.6**	9.6							**12.0**	22.2			**2.7**	13.0	**-6.0**	18.7	**-4.1**	12.5
NPL	**-4.3**	8.8	Not computed						**9.3**	21.9	**-2.7**	13.0			**-8.7**	18.3	**-6.8**	11.9
AREPA	**4.4**	16.0							**18.0**	25.6	**6.0**	18.7	**8.7**	18.3			**1.9**	17.9
PTB	**2.5**	8.0							**16.1**	21.5	**4.1**	12.5	**6.8**	11.9	**-1.9**	17.9		

Laboratory having used the repaired transfer standard PTB 1-3-1

CCEM.RF-K10.CL and EUROMET.EM-RF-K10.CL Calibration factor, frequency: 10 GHz, Transfer standard: PTB 1- 3

Degrees of equivalence [D_i and its expanded uncertainty (k = 2), U_i]



Open symbols represent values from laboratories in Associate States and Economies of the CGPM

Blue triangles: participants in EUROMET.EM.RF-K10.CL

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 1-3, PTB 1-3-1 for CCEM.RF-K10.CL and PTB 1-03-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 18 GHz**

Lab *i* ⇩			Lab *j* ⇨															
			NMIJ		NRC		NIST		METAS		CSIR-NML		PTB		NMIA		NPL		MIRS/SIQ	
	D_i / 10^{-3}	U_i / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**3.5**	11.9			**-2.6**	15.1	**6.2**	21.1	**7.2**	23.1	**7.2**	28.5	**4.8**	15.3	**2.2**	17.1	**6.2**	16.0	**-1.8**	19.8
NRC	**6.1**	10.0	**2.6**	15.1			**8.8**	20.0	**9.8**	22.2	**9.8**	27.7	**7.4**	13.9	**4.8**	15.8	**8.8**	14.6	**0.8**	18.7
NIST	**-2.7**	17.8	**-6.2**	21.1	**-8.8**	20.0			**1.0**	26.6	**1.0**	31.4	**-1.4**	20.2	**-4.0**	21.6	**0.0**	20.8	**-8.0**	23.8
METAS	**-3.7**	20.2	**-7.2**	23.1	**-9.8**	22.2	**-1.0**	26.6			**0.0**	32.8	**-2.4**	22.4	**-5.0**	23.6	**-1.0**	22.8	**-9.0**	25.6
CSIR-NML	**-3.7**	26.2	**-7.2**	28.5	**-9.8**	27.7	**-1.0**	31.4	**0.0**	32.8			**-2.4**	27.9	**-5.0**	28.9	**-1.0**	28.2	**-9.0**	30.5
PTB	**-1.3**	10.4	**-4.8**	15.3	**-7.4**	13.9	**1.4**	20.2	**2.4**	22.4	**2.4**	27.9			**-2.6**	16.1	**1.4**	14.9	**-6.6**	18.9
NMIA	**1.3**	12.9	**-2.2**	17.1	**-4.8**	15.8	**4.0**	21.6	**5.0**	23.6	**5.0**	28.9	**2.6**	16.1			**4.0**	16.7	**-4.0**	20.4
NPL	**-2.7**	11.4	**-6.2**	16.0	**-8.8**	14.6	**0.0**	20.8	**1.0**	22.8	**1.0**	28.2	**-1.4**	14.9	**-4.0**	16.7			**-8.0**	19.4
MIRS/SIQ	**5.3**	16.2	**1.8**	19.8	**-0.8**	18.7	**8.0**	23.8	**9.0**	25.6	**9.0**	30.5	**6.6**	18.9	**4.0**	20.4	**8.0**	19.4		
INRIM	**-4.4**	27.7	**-7.9**	29.9	**-10.5**	29.2	**-1.7**	32.7	**-0.7**	34.1	**-0.7**	37.9	**-3.1**	29.4	**-5.7**	30.3	**-1.7**	29.7	**-9.7**	31.9
VNIIFTRI	**-20.7**	14.3	**-24.2**	18.2	**-26.8**	17.0	**-18.0**	22.5	**-17.0**	24.4	**-17.0**	29.5	**-19.4**	17.2	**-22.0**	18.8	**-18.0**	17.8	**-26.0**	21.3
SPRING	**-7.1**	19.8	**-10.6**	22.8	**-13.2**	21.8	**-4.4**	26.3	**-3.4**	28.0	**-3.4**	32.6	**-5.8**	22.0	**-8.4**	23.3	**-4.4**	22.5	**-12.4**	25.3

EIM	**-3.5**	28.0																		
SP	**-7.5**	13.2																		
NPL	**-4.9**	10.6						**Not computed**												
AREPA	**4.5**	11.0																		
PTB	**0.9**	10.0																		

Laboratory having used the repaired transfer standard PTB 1-3-1

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 1-3, PTB 1-3-1 for CCEM.RF-K10.CL and PTB 1-03-2 for EUROMET.EM.RF-K10.CL

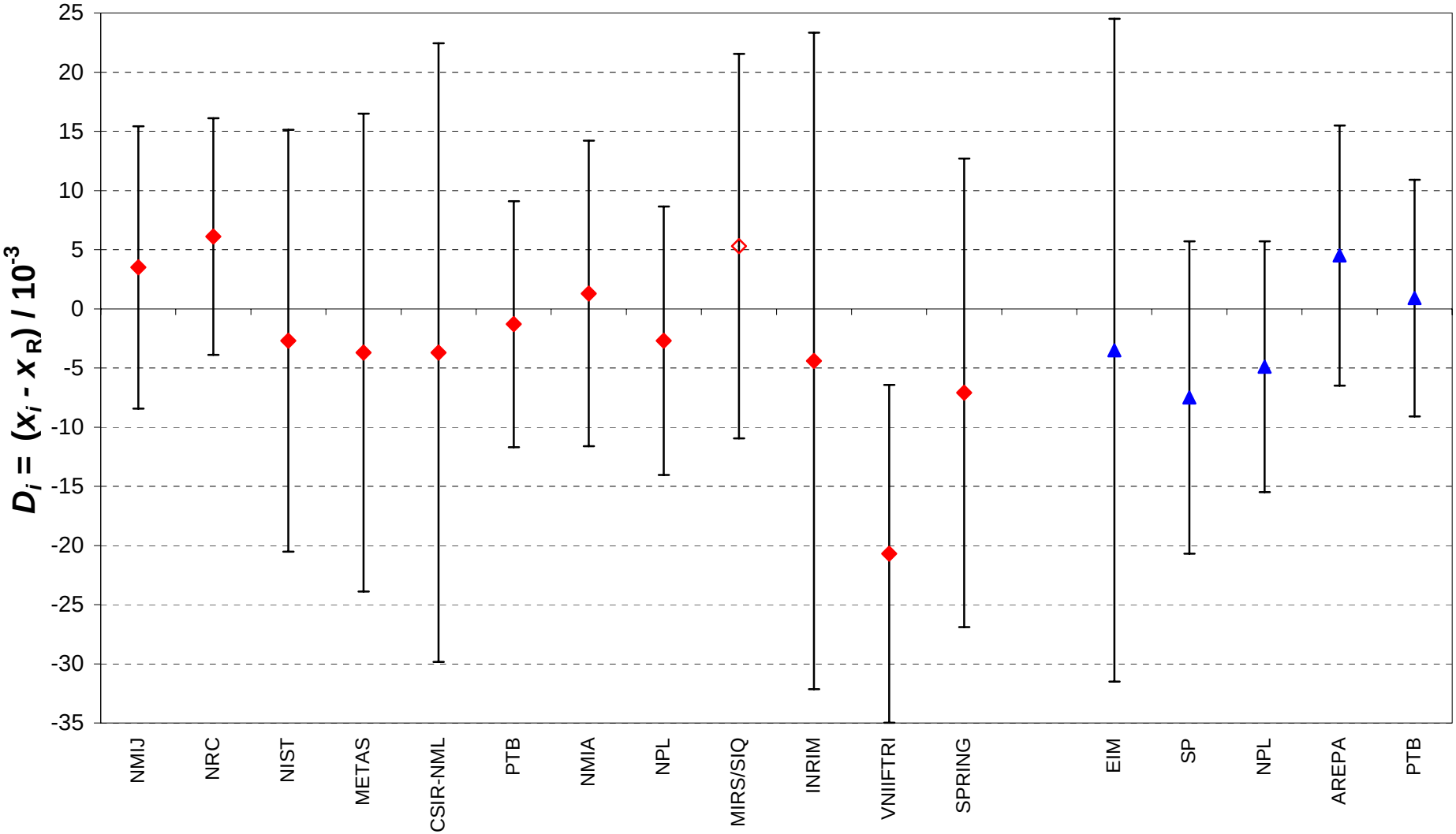
Matrix of equivalence **FREQUENCY : 18 GHz** **(continued)**

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	Lab *j* ⇨ INRIM D_{ij} / 10^{-3}	INRIM U_{ij} / 10^{-3}	VNIIFTRI D_{ij} / 10^{-3}	VNIIFTRI U_{ij} / 10^{-3}	SPRING D_{ij} / 10^{-3}	SPRING U_{ij} / 10^{-3}
NMIJ	**3.5**	11.9	**7.9**	29.9	**24.2**	18.2	**10.6**	22.8
NRC	**6.1**	10.0	**10.5**	29.2	**26.8**	17.0	**13.2**	21.8
NIST	**-2.7**	17.8	**1.7**	32.7	**18.0**	22.5	**4.4**	26.3
METAS	**-3.7**	20.2	**0.7**	34.1	**17.0**	24.4	**3.4**	28.0
CSIR-NML	**-3.7**	26.2	**0.7**	37.9	**17.0**	29.5	**3.4**	32.6
PTB	**-1.3**	10.4	**3.1**	29.4	**19.4**	17.2	**5.8**	22.0
NMIA	**1.3**	12.9	**5.7**	30.3	**22.0**	18.8	**8.4**	23.3
NPL	**-2.7**	11.4	**1.7**	29.7	**18.0**	17.8	**4.4**	22.5
MIRS/SIQ	**5.3**	16.2	**9.7**	31.9	**26.0**	21.3	**12.4**	25.3
INRIM	**-4.4**	27.7			**16.3**	30.9	**2.7**	33.9
VNIIFTRI	**-20.7**	14.3	**-16.3**	30.9			**-13.6**	24.1
SPRING	**-7.1**	19.8	**-2.7**	33.9	**13.6**	24.1		
EIM	**-3.5**	28.0						
SP	**-7.5**	13.2						
NPL	**-4.9**	10.6			Not computed			
AREPA	**4.5**	11.0						
PTB	**0.9**	10.0						

EIM D_{ij} / 10^{-3}	EIM U_{ij} / 10^{-3}	SP D_{ij} / 10^{-3}	SP U_{ij} / 10^{-3}	NPL D_{ij} / 10^{-3}	NPL U_{ij} / 10^{-3}	AREPA D_{ij} / 10^{-3}	AREPA U_{ij} / 10^{-3}	PTB D_{ij} / 10^{-3}	PTB U_{ij} / 10^{-3}
				Not computed					
		4.0	31.0	**1.4**	29.9	**-8.0**	30.1	**-4.4**	29.7
-4.0	31.0			**-2.6**	16.9	**-12.0**	17.2	**-8.4**	16.6
-1.4	29.9	**2.6**	16.9			**-9.4**	15.3	**-5.8**	14.6
8.0	30.1	**12.0**	17.2	**9.4**	15.3			**3.6**	14.9
4.4	29.7	**8.4**	16.6	**5.8**	14.6	**-3.6**	14.9		

Laboratory having used the repaired transfer standard PTB 1-3-1

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL Calibration factor, frequency: 18 GHz,
Transfer standard: PTB 1- 3
Degrees of equivalence [D_i and its expanded uncertainty (k = 2), U_i]



Open symbols represent values from laboratories in Associate States and Economies of the CGPM
Blue triangles: participants in EUROMET.EM.RF-K10.CL

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 1-3, PTB 1-3-1 for CCEM.RF-K10.CL and PTB 1-03-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 20 GHz**

Lab *i* ⇩			Lab *j* ⇨ NMIJ		NRC		NIST		METAS		CSIR-NML		PTB		NMIA		NPL		MIRS/SIQ	
	D_i / 10^{-3}	U_i / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**5.2**	8.8			**2.7**	12.4	**6.9**	19.6	**3.8**	23.3	**0.8**	31.0	**6.5**	13.5	**0.8**	20.2	**1.8**	13.5	**2.8**	17.8
NRC	**2.5**	10.4	**-2.7**	12.4			**4.2**	20.4	**1.1**	24.0	**-1.9**	31.5	**3.8**	14.6	**-1.9**	20.9	**-0.9**	14.6	**0.1**	18.7
NIST	**-1.7**	18.4	**-6.9**	19.6	**-4.2**	20.4			**-3.1**	28.4	**-6.1**	35.0	**-0.4**	21.1	**-6.1**	25.9	**-5.1**	21.1	**-4.1**	24.1
METAS	**1.4**	22.4	**-3.8**	23.3	**-1.1**	24.0	**3.1**	28.4			**-3.0**	37.2	**2.7**	24.6	**-3.0**	28.8	**-2.0**	24.6	**-1.0**	27.2
CSIR-NML	**4.4**	30.3	**-0.8**	31.0	**1.9**	31.5	**6.1**	35.0	**3.0**	37.2			**5.7**	32.0	**0.0**	35.3	**1.0**	32.0	**2.0**	34.0
PTB	**-1.3**	11.7	**-6.5**	13.5	**-3.8**	14.6	**0.4**	21.1	**-2.7**	24.6	**-5.7**	32.0			**-5.7**	21.6	**-4.7**	15.6	**-3.7**	19.4
NMIA	**4.4**	19.0	**-0.8**	20.2	**1.9**	20.9	**6.1**	25.9	**3.0**	28.8	**0.0**	35.3	**5.7**	21.6			**1.0**	21.6	**2.0**	24.5
NPL	**3.4**	11.7	**-1.8**	13.5	**0.9**	14.6	**5.1**	21.1	**2.0**	24.6	**-1.0**	32.0	**4.7**	15.6	**-1.0**	21.6			**1.0**	19.4
MIRS/SIQ	**2.4**	16.5	**-2.8**	17.8	**-0.1**	18.7	**4.1**	24.1	**1.0**	27.2	**-2.0**	34.0	**3.7**	19.4	**-2.0**	24.5	**-1.0**	19.4		
INRIM	**-8.4**	26.5	**-13.6**	27.3	**-10.9**	27.9	**-6.7**	31.8	**-9.8**	34.2	**-12.8**	39.8	**-7.1**	28.4	**-12.8**	32.1	**-11.8**	28.4	**-10.8**	30.7
VNIIFTRI	**-19.6**	22.4	**-24.8**	23.3	**-22.1**	24.0	**-17.9**	28.4	**-21.0**	31.1	**-24.0**	37.2	**-18.3**	24.6	**-24.0**	28.8	**-23.0**	24.6	**-22.0**	27.2
SPRING	**-0.9**	20.2	**-6.1**	21.3	**-3.4**	22.0	**0.8**	26.8	**-2.3**	29.6	**-5.3**	35.9	**0.4**	22.7	**-5.3**	27.2	**-4.3**	22.7	**-3.3**	25.5

EIM	**-34.8**	26.0																		
SP	**1.2**	13.2																		
NPL	**-2.3**	10.6						Not computed												
AREPA	**13.2**	28.0																		
PTB	**1.0**	11.0																		

Laboratory having used the repaired transfer standard PTB 1-3-1

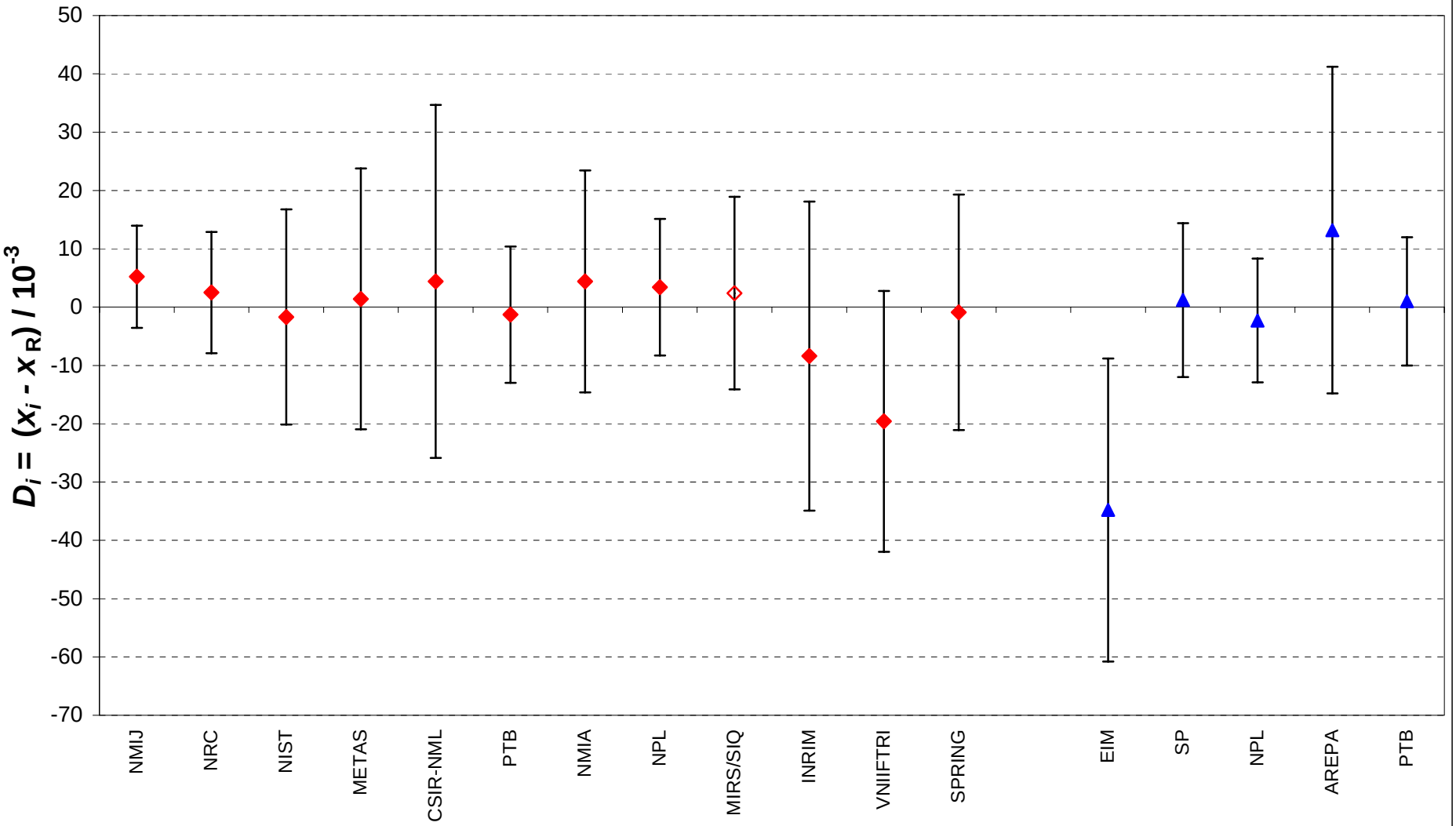
MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 1-3, PTB 1-3-1 for CCEM.RF-K10.CL and PTB 1-03-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 20 GHz** **(continued)**

Lab *i* ⇩			Lab *j* ⇨ INRIM		VNIIFTRI		SPRING		EIM		SP		NPL		AREPA		PTB	
	D_i / 10^{-3}	U_i / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**5.2**	8.8	**13.6**	27.3	**24.8**	23.3	**6.1**	21.3										
NRC	**2.5**	10.4	**10.9**	27.9	**22.1**	24.0	**3.4**	22.0										
NIST	**-1.7**	18.4	**6.7**	31.8	**17.9**	28.4	**-0.8**	26.8										
METAS	**1.4**	22.4	**9.8**	34.2	**21.0**	31.1	**2.3**	29.6										
CSIR-NML	**4.4**	30.3	**12.8**	39.8	**24.0**	37.2	**5.3**	35.9										
PTB	**-1.3**	11.7	**7.1**	28.4	**18.3**	24.6	**-0.4**	22.7					Not computed					
NMIA	**4.4**	19.0	**12.8**	32.1	**24.0**	28.8	**5.3**	27.2										
NPL	**3.4**	11.7	**11.8**	28.4	**23.0**	24.6	**4.3**	22.7										
MIRS/SIQ	**2.4**	16.5	**10.8**	30.7	**22.0**	27.2	**3.3**	25.5										
INRIM	**-8.4**	26.5			**11.2**	34.2	**-7.5**	32.8										
VNIIFTRI	**-19.6**	22.4	**-11.2**	34.2			**-18.7**	29.6										
SPRING	**-0.9**	20.2	**7.5**	32.8	**18.7**	29.6												
EIM	**-34.8**	26.0									**-36.0**	29.2	**-32.5**	28.1	**-48.0**	38.2	**-35.8**	28.2
SP	**1.2**	13.2							**36.0**	29.2			**3.5**	16.9	**-12.0**	31.0	**0.2**	17.2
NPL	**-2.3**	10.6			Not computed				**32.5**	28.1	**-3.5**	16.9			**-15.5**	29.9	**-3.3**	15.3
AREPA	**13.2**	28.0							**48.0**	38.2	**12.0**	31.0	**15.5**	29.9			**12.2**	30.1
PTB	**1.0**	11.0							**35.8**	28.2	**-0.2**	17.2	**3.3**	15.3	**-12.2**	30.1		

Laboratory having used the repaired transfer standard PTB 1-3-1

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL Calibration factor, frequency: 20 GHz,
Transfer standard: PTB 1- 3
Degrees of equivalence [D_i and its expanded uncertainty (k = 2), U_i]



Open symbols represent values from laboratories in Associate States and Economies of the CGPM
Blue triangles: participants in EUROMET.EM.RF-K10.CL

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 1-3, PTB 1-3-1 for CCEM.RF-K10.CL and PTB 1-03-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 23 GHz**

Lab *j* ⇨

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	NMIJ		NRC		NIST		METAS		CSIR-NML		PTB		NMIA		NPL		MIRS/SIQ	
			D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**1.0**	9.6			**-2.2**	13.0	**3.7**	20.4	**-1.8**	23.7	**-4.8**	33.2	**1.1**	15.7	**-0.8**	20.4	**-4.8**	15.9	**0.2**	18.3
NRC	**3.2**	10.3	**2.2**	13.0			**5.9**	20.8	**0.4**	24.0	**-2.6**	33.4	**3.3**	16.2	**1.4**	20.8	**-2.6**	16.3	**2.4**	18.7
NIST	**-2.7**	18.8	**-3.7**	20.4	**-5.9**	20.8			**-5.5**	28.7	**-8.5**	36.9	**-2.6**	22.5	**-4.5**	26.0	**-8.5**	22.6	**-3.5**	24.4
METAS	**2.8**	22.3	**1.8**	23.7	**-0.4**	24.0	**5.5**	28.7			**-3.0**	38.8	**2.9**	25.6	**1.0**	28.7	**-3.0**	25.7	**2.0**	27.2
CSIR-NML	**5.8**	32.2	**4.8**	33.2	**2.6**	33.4	**8.5**	36.9	**3.0**	38.8			**5.9**	34.5	**4.0**	36.9	**0.0**	34.6	**5.0**	35.8
PTB	**-0.1**	13.5	**-1.1**	15.7	**-3.3**	16.2	**2.6**	22.5	**-2.9**	25.6	**-5.9**	34.5			**-1.9**	22.5	**-5.9**	18.5	**-0.9**	20.6
NMIA	**1.8**	18.8	**0.8**	20.4	**-1.4**	20.8	**4.5**	26.0	**-1.0**	28.7	**-4.0**	36.9	**1.9**	22.5			**-4.0**	22.6	**1.0**	24.4
NPL	**5.8**	13.7	**4.8**	15.9	**2.6**	16.3	**8.5**	22.6	**3.0**	25.7	**0.0**	34.6	**5.9**	18.5	**4.0**	22.6			**5.0**	20.7
MIRS/SIQ	**0.8**	16.4	**-0.2**	18.3	**-2.4**	18.7	**3.5**	24.4	**-2.0**	27.2	**-5.0**	35.8	**0.9**	20.6	**-1.0**	24.4	**-5.0**	20.7		
INRIM	**-13.7**	38.2	**-14.7**	39.0	**-16.9**	39.2	**-11.0**	42.2	**-16.5**	43.9	**-19.5**	49.7	**-13.6**	40.2	**-15.5**	42.2	**-19.5**	40.2	**-14.5**	41.2
VNIIFTRI	**-7.2**	24.3	**-8.2**	25.6	**-10.4**	25.8	**-4.5**	30.2	**-10.0**	32.6	**-13.0**	40.0	**-7.1**	27.3	**-9.0**	30.2	**-13.0**	27.4	**-8.0**	28.8
SPRING	**0.8**	26.3	**-0.2**	27.4	**-2.4**	27.7	**3.5**	31.9	**-2.0**	34.1	**-5.0**	41.2	**0.9**	29.1	**-1.0**	31.9	**-5.0**	29.2	**0.0**	30.5

EIM	**-7.5**	28.0																		
SP	**-1.5**	16.0																		
NPL	**0.2**	12.8						**Not computed**												
AREPA	**12.5**	34.0																		
PTB	**5.5**	13.0																		

Laboratory having used the repaired transfer standard PTB 1-3-1

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 1-3, PTB 1-3-1 for CCEM.RF-K10.CL and PTB 1-03-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 23 GHz** **(continued)**

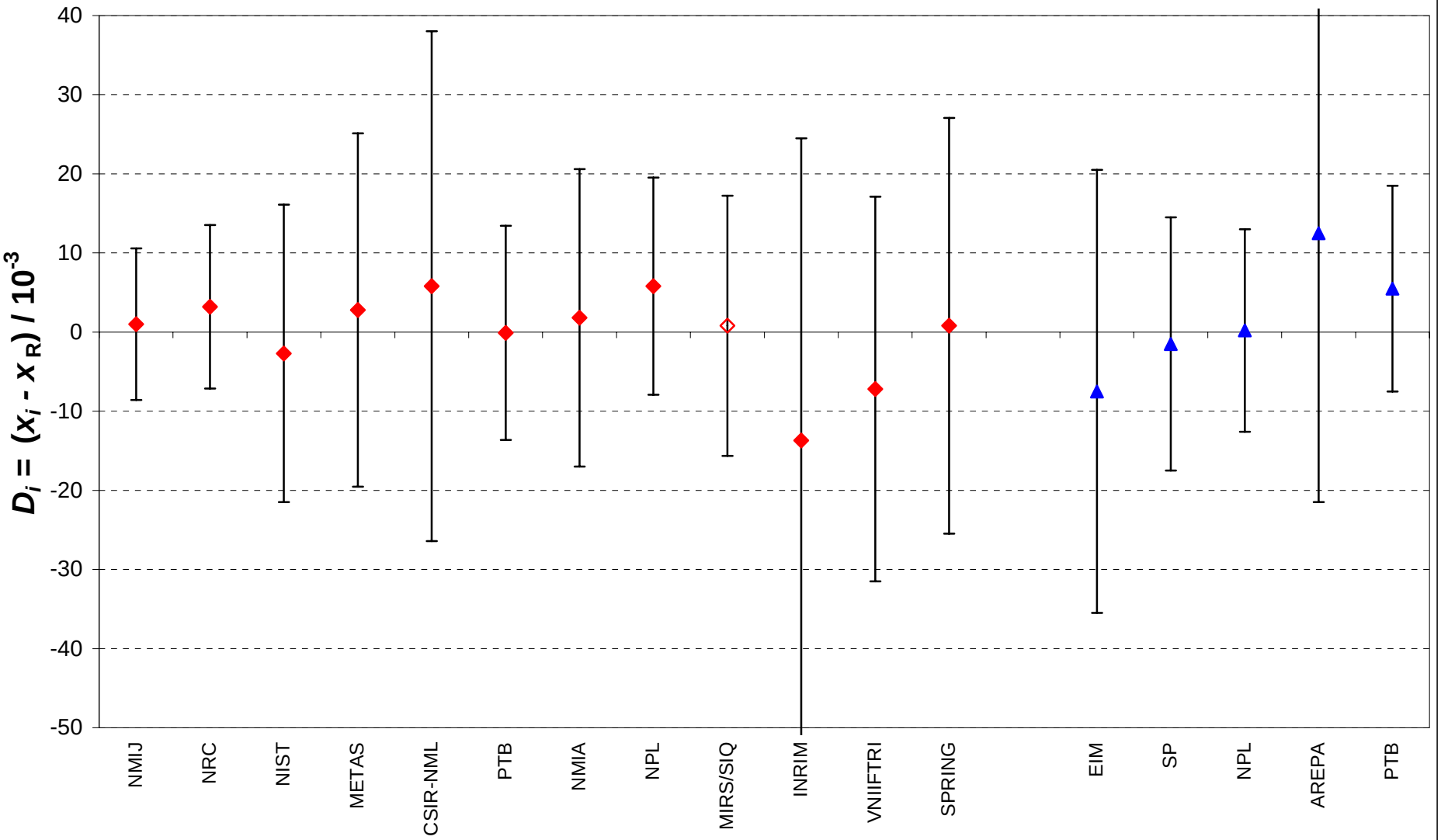
Lab *j* ⇨

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	**INRIM**		**VNIIFTRI**		**SPRING**		**EIM**		**SP**		**NPL**		**AREPA**		**PTB**	
			D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**1.0**	9.6	**14.7**	39.0	**8.2**	25.6	**0.2**	27.4										
NRC	**3.2**	10.3	**16.9**	39.2	**10.4**	25.8	**2.4**	27.7										
NIST	**-2.7**	18.8	**11.0**	42.2	**4.5**	30.2	**-3.5**	31.9										
METAS	**2.8**	22.3	**16.5**	43.9	**10.0**	32.6	**2.0**	34.1										
CSIR-NML	**5.8**	32.2	**19.5**	49.7	**13.0**	40.0	**5.0**	41.2										
PTB	**-0.1**	13.5	**13.6**	40.2	**7.1**	27.3	**-0.9**	29.1					**Not computed**					
NMIA	**1.8**	18.8	**15.5**	42.2	**9.0**	30.2	**1.0**	31.9										
NPL	**5.8**	13.7	**19.5**	40.2	**13.0**	27.4	**5.0**	29.2										
MIRS/SIQ	**0.8**	16.4	**14.5**	41.2	**8.0**	28.8	**0.0**	30.5										
INRIM	**-13.7**	38.2			**-6.5**	44.9	**-14.5**	46.0										
VNIIFTRI	**-7.2**	24.3	**6.5**	44.9			**-8.0**	35.4										
SPRING	**0.8**	26.3	**14.5**	46.0	**8.0**	35.4												
EIM	**-7.5**	28.0									**-6.0**	32.2	**-7.7**	30.8	**-20.0**	44.0	**-13.0**	30.9
SP	**-1.5**	16.0							**6.0**	32.2			**-1.7**	20.5	**-14.0**	37.6	**-7.0**	20.6
NPL	**0.2**	12.8			**Not computed**				**7.7**	30.8	**1.7**	20.5			**-12.3**	36.3	**-5.3**	18.2
AREPA	**12.5**	34.0							**20.0**	44.0	**14.0**	37.6	**12.3**	36.3			**7.0**	36.4
PTB	**5.5**	13.0							**13.0**	30.9	**7.0**	20.6	**5.3**	18.2	**-7.0**	36.4		

Laboratory having used the repaired transfer standard PTB 1-3-1

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL Calibration factor, frequency: 23 GHz, Transfer standard: PTB 1- 3

Degrees of equivalence [D_i and its expanded uncertainty (k = 2), U_i]



Open symbols represent values from laboratories in Associate States and Economies of the CGPM

Blue triangles: participants in EUROMET.EM.RF-K10.CL

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 1-3, PTB 1-3-1 for CCEM.RF-K10.CL and PTB 1-03-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 26 GHz**

Lab *i* ⇩			Lab *j* ⇨															
			NMIJ		NRC		NIST		METAS		CSIR-NML		PTB		NMIA		NPL		MIRS/SIQ	
	D_i / 10^{-3}	U_i / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**-20.8**	14.5			**-23.8**	16.8	**-12.5**	23.3	**-7.0**	27.7	**-23.0**	40.4	**-20.7**	21.9	**-18.0**	22.8	**-25.0**	20.7	**-17.0**	21.1
NRC	**3.0**	10.6	**23.8**	16.8			**11.3**	21.1	**16.8**	25.8	**0.8**	39.2	**3.1**	19.5	**5.8**	20.6	**-1.2**	18.1	**6.8**	18.7
NIST	**-8.3**	19.3	**12.5**	23.3	**-11.3**	21.1			**5.5**	30.5	**-10.5**	42.4	**-8.2**	25.3	**-5.5**	26.2	**-12.5**	24.3	**-4.5**	24.7
METAS	**-13.8**	24.4	**7.0**	27.7	**-16.8**	25.8	**-5.5**	30.5			**-16.0**	44.9	**-13.7**	29.4	**-11.0**	30.1	**-18.0**	28.5	**-10.0**	28.8
CSIR-NML	**2.2**	38.3	**23.0**	40.4	**-0.8**	39.2	**10.5**	42.4	**16.0**	44.9			**2.3**	41.6	**5.0**	42.1	**-2.0**	41.0	**6.0**	41.2
PTB	**-0.1**	17.6	**20.7**	21.9	**-3.1**	19.5	**8.2**	25.3	**13.7**	29.4	**-2.3**	41.6			**2.7**	24.9	**-4.3**	22.9	**3.7**	23.3
NMIA	**-2.8**	18.7	**18.0**	22.8	**-5.8**	20.6	**5.5**	26.2	**11.0**	30.1	**-5.0**	42.1	**-2.7**	24.9			**-7.0**	23.8	**1.0**	24.2
NPL	**4.2**	16.0	**25.0**	20.7	**1.2**	18.1	**12.5**	24.3	**18.0**	28.5	**2.0**	41.0	**4.3**	22.9	**7.0**	23.8			**8.0**	22.2
MIRS/SIQ	**-3.8**	16.6	**17.0**	21.1	**-6.8**	18.7	**4.5**	24.7	**10.0**	28.8	**-6.0**	41.2	**-3.7**	23.3	**-1.0**	24.2	**-8.0**	22.2		
INRIM	**-22.5**	37.7	**-1.7**	39.9	**-25.5**	38.6	**-14.2**	41.9	**-8.7**	44.4	**-24.7**	53.3	**-22.4**	41.1	**-19.7**	41.6	**-26.7**	40.4	**-18.7**	40.7
VNIIFTRI	**1.2**	28.3	**22.0**	31.2	**-1.8**	29.6	**9.5**	33.7	**15.0**	36.9	**-1.0**	47.2	**1.3**	32.8	**4.0**	33.4	**-3.0**	32.0	**5.0**	32.2
SPRING	**-2.4**	17.4	**18.4**	21.7	**-5.4**	19.3	**5.9**	25.2	**11.4**	29.3	**-4.6**	41.5	**-2.3**	23.9	**0.4**	24.8	**-6.6**	22.8	**1.4**	23.2

EIM	**-23.1**	30.0																		
SP	**4.9**	20.8																		
NPL	**1.5**	15.0						Not computed												
AREPA	**6.9**	34.0																		
PTB	**-0.5**	17.0																		

Laboratory having used the repaired transfer standard PTB 1-3-1

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 1-3, PTB 1-3-1 for CCEM.RF-K10.CL and PTB 1-03-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 26 GHz** **(continued)**

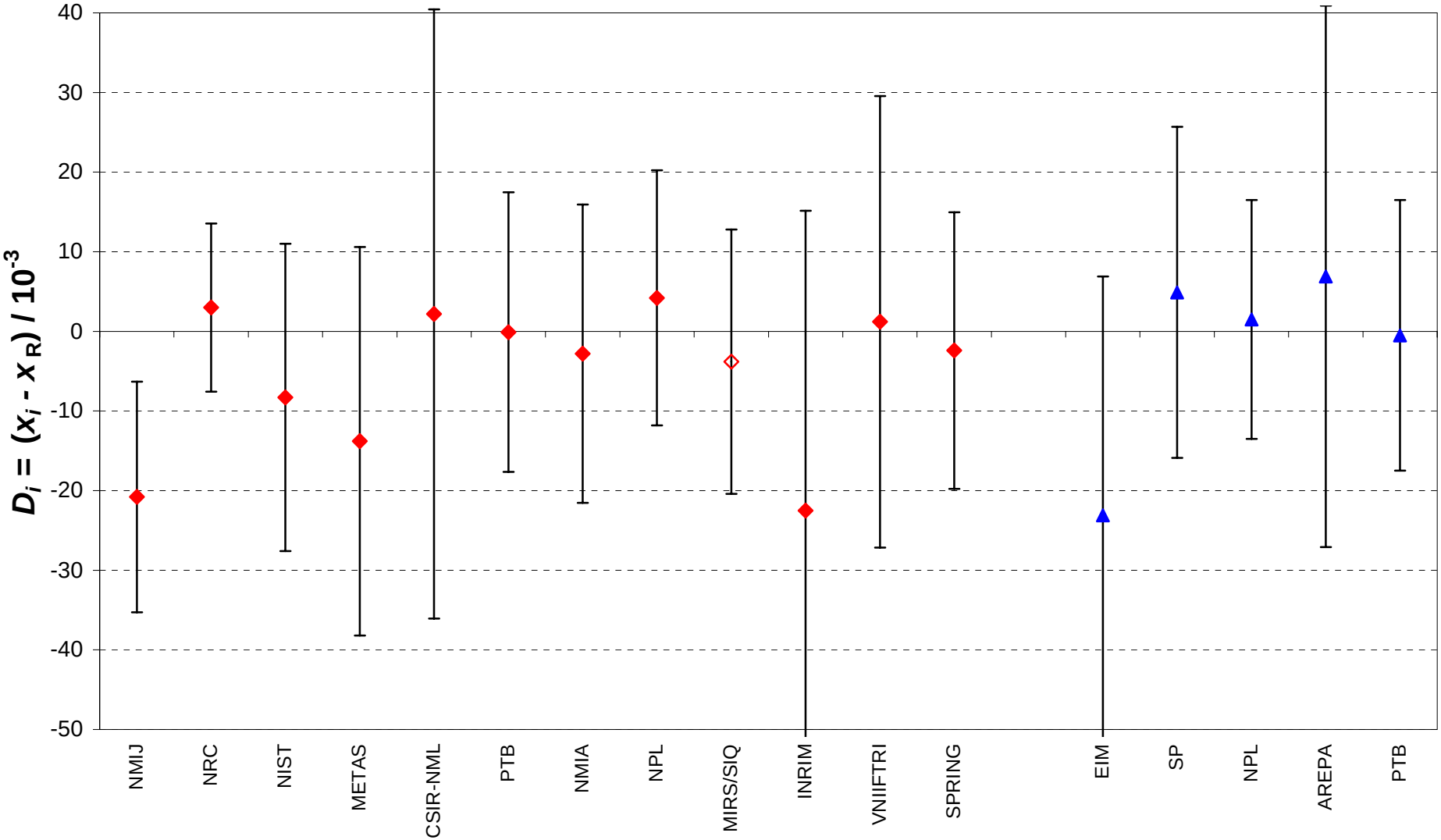
Lab *j* ⇨

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	**INRIM** D_{ij} / 10^{-3}	**INRIM** U_{ij} / 10^{-3}	**VNIIFTRI** D_{ij} / 10^{-3}	**VNIIFTRI** U_{ij} / 10^{-3}	**SPRING** D_{ij} / 10^{-3}	**SPRING** U_{ij} / 10^{-3}	**EIM** D_{ij} / 10^{-3}	**EIM** U_{ij} / 10^{-3}	**SP** D_{ij} / 10^{-3}	**SP** U_{ij} / 10^{-3}	**NPL** D_{ij} / 10^{-3}	**NPL** U_{ij} / 10^{-3}	**AREPA** D_{ij} / 10^{-3}	**AREPA** U_{ij} / 10^{-3}	**PTB** D_{ij} / 10^{-3}	**PTB** U_{ij} / 10^{-3}
NMIJ	**-20.8**	14.5	**1.7**	39.9	**-22.0**	31.2	**-18.4**	21.7										
NRC	**3.0**	10.6	**25.5**	38.6	**1.8**	29.6	**5.4**	19.3										
NIST	**-8.3**	19.3	**14.2**	41.9	**-9.5**	33.7	**-5.9**	25.2										
METAS	**-13.8**	24.4	**8.7**	44.4	**-15.0**	36.9	**-11.4**	29.3										
CSIR-NML	**2.2**	38.3	**24.7**	53.3	**1.0**	47.2	**4.6**	41.5										
PTB	**-0.1**	17.6	**22.4**	41.1	**-1.3**	32.8	**2.3**	23.9					**Not computed**					
NMIA	**-2.8**	18.7	**19.7**	41.6	**-4.0**	33.4	**-0.4**	24.8										
NPL	**4.2**	16.0	**26.7**	40.4	**3.0**	32.0	**6.6**	22.8										
MIRS/SIQ	**-3.8**	16.6	**18.7**	40.7	**-5.0**	32.2	**-1.4**	23.2										
INRIM	**-22.5**	37.7			**-23.7**	46.7	**-20.1**	41.0										
VNIIFTRI	**1.2**	28.3	**23.7**	46.7			**3.6**	32.7										
SPRING	**-2.4**	17.4	**20.1**	41.0	**-3.6**	32.7												
EIM	**-23.1**	30.0									**-28.0**	36.5	**-24.6**	33.5	**-30.0**	45.3	**-22.6**	34.5
SP	**4.9**	20.8							**28.0**	36.5			**3.4**	25.6	**-2.0**	39.9	**5.4**	26.9
NPL	**1.5**	15.0	**Not computed**						**24.6**	33.5	**-3.4**	25.6			**-5.4**	37.2	**2.0**	22.7
AREPA	**6.9**	34.0							**30.0**	45.3	**2.0**	39.9	**5.4**	37.2			**7.4**	38.0
PTB	**-0.5**	17.0							**22.6**	34.5	**-5.4**	26.9	**-2.0**	22.7	**-7.4**	38.0		

Laboratory having used the repaired transfer standard PTB 1-3-1

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL Calibration factor, frequency: 26 GHz, Transfer standard: PTB 1- 3

Degrees of equivalence [D_i and its expanded uncertainty (k = 2), U_i]



Open symbols represent values from laboratories in Associate States and Economies of the CGPM

Blue triangles: participants in EUROMET.EM.RF-K10.CL

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 2-6, PTB 2-6-1 for CCEM.RF-K10.CL and PTB 2-06-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 50 MHz**

Lab *j* ⇨

Lab *i* ⇩

	D_i / 10^{-3}	U_i / 10^{-3}	NMIJ		NIST		METAS		CSIR-NML		PTB		NMIA		NPL		MIRS/SIQ		INRIM		SPRING	
			D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**-5.0**	4.7			**-6.5**	17.4	**-0.5**	12.3	**-8.5**	14.3	**-4.4**	4.9	**-5.5**	4.9	**-2.7**	4.3	**-6.5**	6.6	**-10.6**	11.9	**-6.1**	13.7
NIST	**1.5**	17.6	**6.5**	17.4			**6.0**	21.0	**-2.0**	22.2	**2.1**	17.7	**1.0**	17.7	**3.8**	17.5	**0.0**	18.2	**-4.1**	20.7	**0.4**	21.8
METAS	**-4.5**	12.6	**0.5**	12.3	**-6.0**	21.0			**-8.0**	18.4	**-3.9**	12.6	**-5.0**	12.6	**-2.2**	12.4	**-6.0**	13.4	**-10.1**	16.7	**-5.6**	18.0
CSIR-NML	**3.5**	14.5	**8.5**	14.3	**2.0**	22.2	**8.0**	18.4			**4.1**	14.6	**3.0**	14.6	**5.8**	14.4	**2.0**	15.2	**-2.1**	18.2	**2.4**	19.4
PTB	**-0.6**	5.5	**4.4**	4.9	**-2.1**	17.7	**3.9**	12.6	**-4.1**	14.6			**-1.1**	5.7	**1.7**	5.1	**-2.1**	7.2	**-6.2**	12.3	**-1.7**	14.0
NMIA	**0.5**	5.5	**5.5**	4.9	**-1.0**	17.7	**5.0**	12.6	**-3.0**	14.6	**1.1**	5.7			**2.8**	5.1	**-1.0**	7.2	**-5.1**	12.3	**-0.6**	14.0
NPL	**-2.3**	5.1	**2.7**	4.3	**-3.8**	17.5	**2.2**	12.4	**-5.8**	14.4	**-1.7**	5.1	**-2.8**	5.1			**-3.8**	6.8	**-7.9**	12.0	**-3.4**	13.8
MIRS/SIQ	**1.5**	7.1	**6.5**	6.6	**0.0**	18.2	**6.0**	13.4	**-2.0**	15.2	**2.1**	7.2	**1.0**	7.2	**3.8**	6.8			**-4.1**	13.1	**0.4**	14.7
INRIM	**5.6**	12.2	**10.6**	11.9	**4.1**	20.7	**10.1**	16.7	**2.1**	18.2	**6.2**	12.3	**5.1**	12.3	**7.9**	12.0	**4.1**	13.1			**4.5**	17.7
SPRING	**1.1**	13.9	**6.1**	13.7	**-0.4**	21.8	**5.6**	18.0	**-2.4**	19.4	**1.7**	14.0	**0.6**	14.0	**3.4**	13.8	**-0.4**	14.7	**-4.5**	17.7		

SP	**-1.9**	5.8																				
NPL	**-0.9**	2.4																				
AREPA	**5.1**	8.0							**Not computed**													
NMi-VSL	**-8.2**	7.6																				
LNE	**-3.7**	4.6																				
UME	**3.3**	5.6																				
PTB	**-0.5**	4.0																				

Laboratory having used the repaired transfer standard PTB 2-6-1

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 2-6, PTB 2-6-1 for CCEM.RF-K10.CL and PTB 2-06-2 for EUROMET.EM.RF-K10.CL

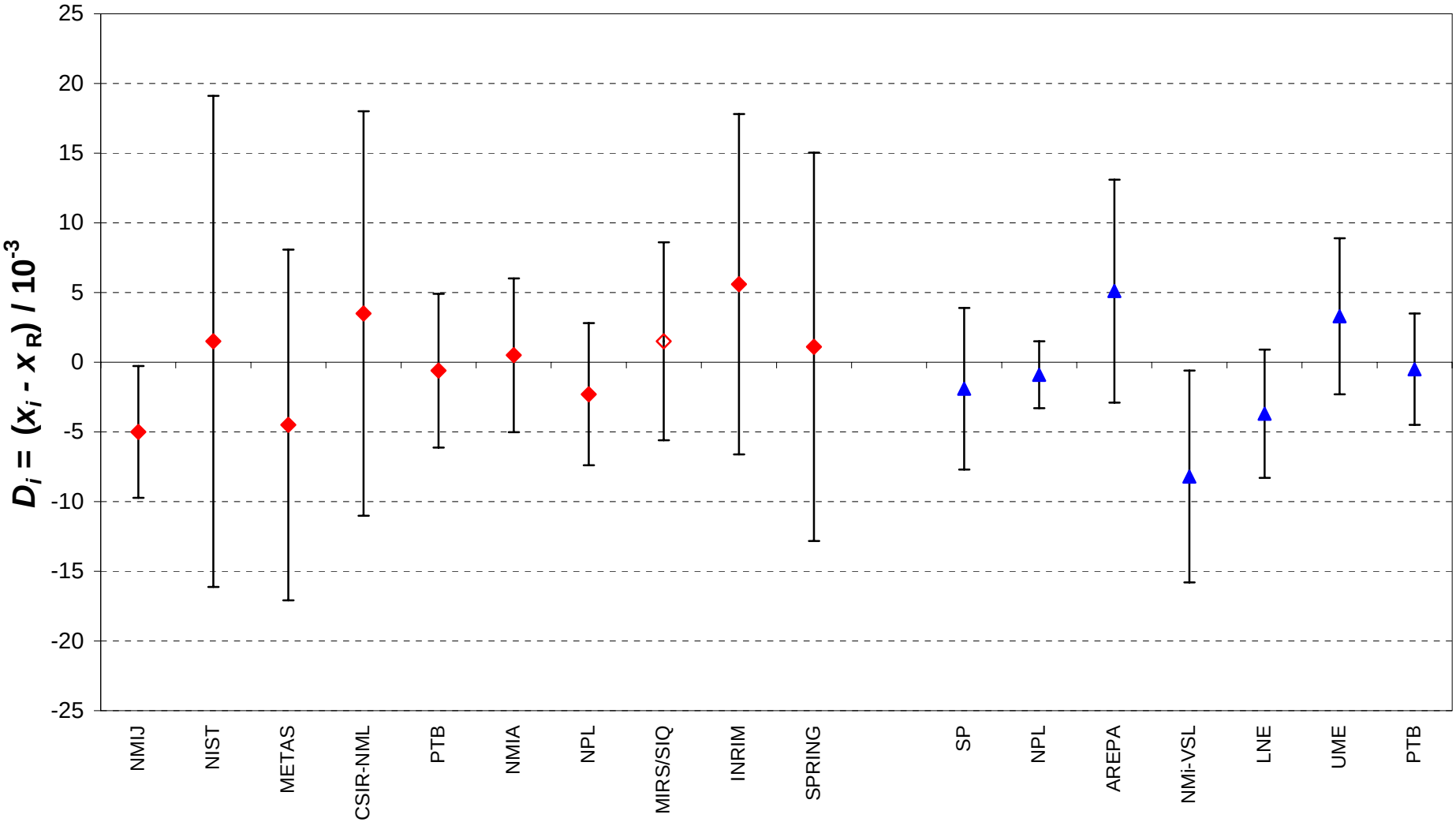
Matrix of equivalence **FREQUENCY : 50 MHz** **(Continued)**

Lab *j* ⇨

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	**SP**		**NPL**		**AREPA**		**NMi-VSL**		**LNE**		**UME**		**PTB**	
			D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**-5.0**	4.7														
NIST	**1.5**	17.6														
METAS	**-4.5**	12.6														
CSIR-NML	**3.5**	14.5														
PTB	**-0.6**	5.5														
NMIA	**0.5**	5.5				**Not computed**										
NPL	**-2.3**	5.1														
MIRS/SIQ	**1.5**	7.1														
INRIM	**5.6**	12.2														
SPRING	**1.1**	13.9														
SP	**-1.9**	5.8			**-1.0**	6.3	**-7.0**	9.9	**6.3**	9.6	**1.8**	7.4	**-5.2**	8.1	**-1.4**	7.0
NPL	**-0.9**	2.4	**1.0**	6.3			**-6.0**	8.4	**7.3**	8.0	**2.8**	5.2	**-4.2**	6.1	**-0.4**	4.7
AREPA	**5.1**	8.0	**7.0**	9.9	**6.0**	8.4			**13.3**	11.0	**8.8**	9.2	**1.8**	9.8	**5.6**	8.9
NMi-VSL	**-8.2**	7.6	**-6.3**	9.6	**-7.3**	8.0	**-13.3**	11.0			**-4.5**	8.9	**-11.5**	9.4	**-7.7**	8.6
LNE	**-3.7**	4.6	**-1.8**	7.4	**-2.8**	5.2	**-8.8**	9.2	**4.5**	8.9			**-7.0**	7.2	**-3.2**	6.1
UME	**3.3**	5.6	**5.2**	8.1	**4.2**	6.1	**-1.8**	9.8	**11.5**	9.4	**7.0**	7.2			**3.8**	6.9
PTB	**-0.5**	4.0	**1.4**	7.0	**0.4**	4.7	**-5.6**	8.9	**7.7**	8.6	**3.2**	6.1	**-3.8**	6.9		

Laboratory having used the repaired transfer standard PTB 2-6-1

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL Calibration factor, frequency: 50 MHz,
Transfer standard: PTB 2- 6
Degrees of equivalence [D_i and its expanded uncertainty (k = 2), U_i]



Open symbols represent values from laboratories in Associate States and Economies of the CGPM
Blue triangles: participants in EUROMET.EM.RF-K10.CL

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 2-6, PTB 2-6-1 for CCEM.RF-K10.CL and PTB 2-06-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 1 GHz**

Lab *i* ⇩ **Lab *j*** ⇨

Lab *i*	D_i / 10^{-3}	U_i / 10^{-3}	NMIJ		NIST		METAS		CSIR-NML		PTB		NMIA		NPL		MIRS/SIQ		INRIM		VNIIFTRI	
			D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**-4.0**	4.5			**-2.0**	17.7	**-0.6**	14.4	**-5.6**	16.4	**-2.0**	6.0	**-4.6**	6.0	**-1.6**	7.2	**-2.6**	6.9	**-9.3**	12.1	**-8.6**	12.5
NIST	**-2.0**	17.7	**2.0**	17.7			**1.4**	22.3	**-3.6**	23.6	**0.0**	18.1	**-2.6**	18.1	**0.4**	18.5	**-0.6**	18.4	**-7.3**	20.9	**-6.6**	21.1
METAS	**-3.4**	14.3	**0.6**	14.4	**-1.4**	22.3			**-5.0**	21.3	**-1.4**	14.9	**-4.0**	14.9	**-1.0**	15.4	**-2.0**	15.2	**-8.7**	18.2	**-8.0**	18.4
CSIR-NML	**1.6**	16.3	**5.6**	16.4	**3.6**	23.6	**5.0**	21.3			**3.6**	16.8	**1.0**	16.8	**4.0**	17.2	**3.0**	17.1	**-3.7**	19.8	**-3.0**	20.0
PTB	**-2.0**	5.8	**2.0**	6.0	**0.0**	18.1	**1.4**	14.9	**-3.6**	16.8			**-2.6**	7.1	**0.4**	8.1	**-0.6**	7.8	**-7.3**	12.6	**-6.6**	13.0
NMIA	**0.6**	5.8	**4.6**	6.0	**2.6**	18.1	**4.0**	14.9	**-1.0**	16.8	**2.6**	7.1			**3.0**	8.1	**2.0**	7.8	**-4.7**	12.6	**-4.0**	13.0
NPL	**-2.4**	7.1	**1.6**	7.2	**-0.4**	18.5	**1.0**	15.4	**-4.0**	17.2	**-0.4**	8.1	**-3.0**	8.1			**-1.0**	8.8	**-7.7**	13.2	**-7.0**	13.6
MIRS/SIQ	**-1.4**	6.7	**2.6**	6.9	**0.6**	18.4	**2.0**	15.2	**-3.0**	17.1	**0.6**	7.8	**-2.0**	7.8	**1.0**	8.8			**-6.7**	13.1	**-6.0**	13.4
INRIM	**5.3**	12.0	**9.3**	12.1	**7.3**	20.9	**8.7**	18.2	**3.7**	19.8	**7.3**	12.6	**4.7**	12.6	**7.7**	13.2	**6.7**	13.1			**0.7**	16.7
VNIIFTRI	**4.6**	12.4	**8.6**	12.5	**6.6**	21.1	**8.0**	18.4	**3.0**	20.0	**6.6**	13.0	**4.0**	13.0	**7.0**	13.6	**6.0**	13.4	**-0.7**	16.7		
SPRING	**-2.5**	13.7	**1.5**	13.8	**-0.5**	22.0	**0.9**	19.4	**-4.1**	20.9	**-0.5**	14.3	**-3.1**	14.3	**-0.1**	14.8	**-1.1**	14.7	**-7.8**	17.7	**-7.1**	18.0
SP	**-1.1**	6.4																				
NPL	**-2.3**	6.0																				
AREPA	**5.0**	8.0							**Not computed**													
NMi-VSL	**-9.2**	10.2																				
LNE	**-4.0**	12.4																				
UME	**2.0**	5.4																				
PTB	**-1.9**	5.0																				

Laboratory having used the repaired transfer standard PTB 2-6-1

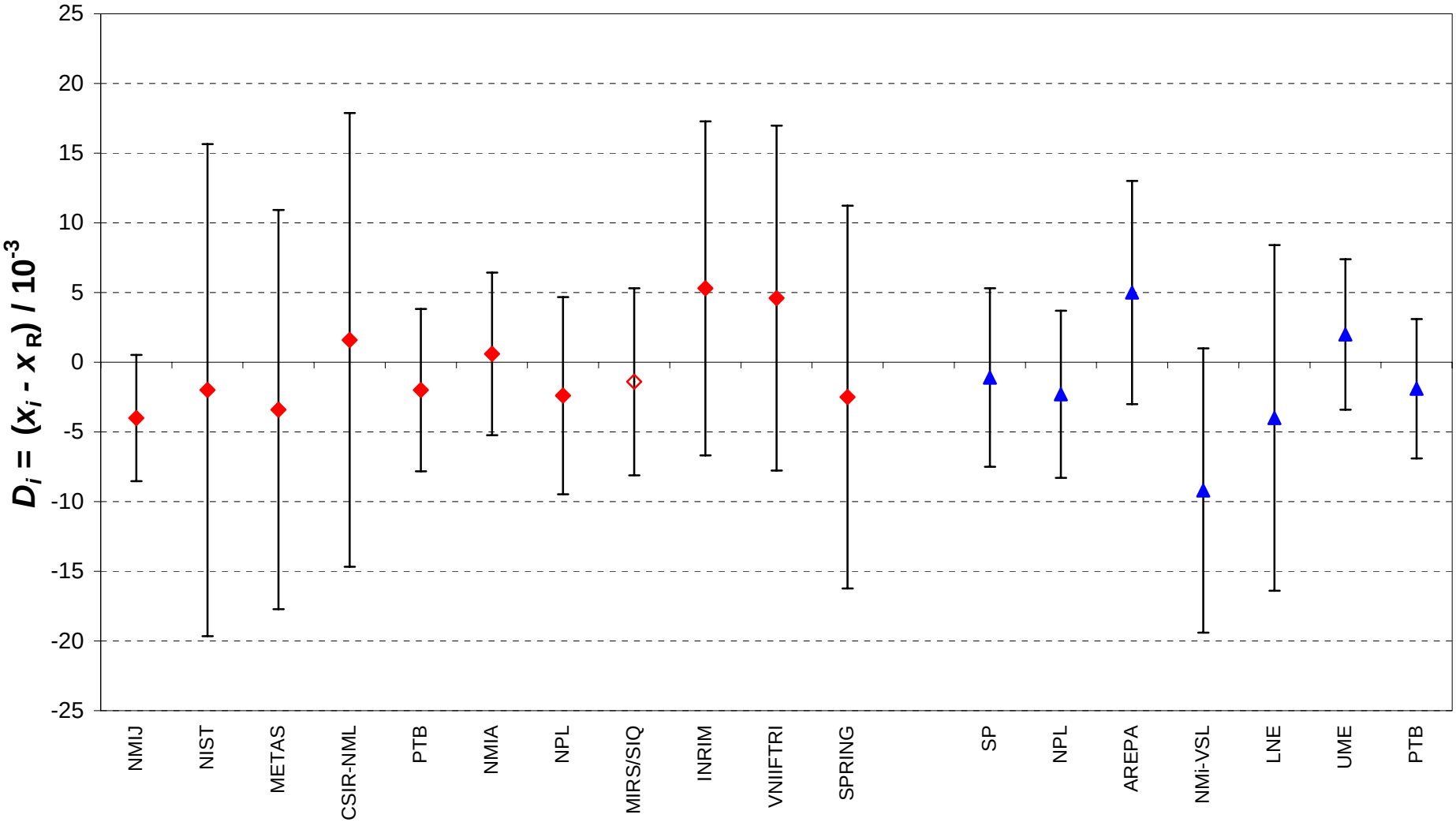
MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 2-6, PTB 2-6-1 for CCEM.RF-K10.CL and PTB 2-06-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 1 GHz** **(Continued)**

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	Lab *j* ⇨ SPRING D_{ij} / 10^{-3}	SPRING U_{ij} / 10^{-3}	SP D_{ij} / 10^{-3}	SP U_{ij} / 10^{-3}	NPL D_{ij} / 10^{-3}	NPL U_{ij} / 10^{-3}	AREPA D_{ij} / 10^{-3}	AREPA U_{ij} / 10^{-3}	NMi-VSL D_{ij} / 10^{-3}	NMi-VSL U_{ij} / 10^{-3}	LNE D_{ij} / 10^{-3}	LNE U_{ij} / 10^{-3}	UME D_{ij} / 10^{-3}	UME U_{ij} / 10^{-3}	PTB D_{ij} / 10^{-3}	PTB U_{ij} / 10^{-3}
NMIJ	-4.0	4.5	-1.5	13.8														
NIST	-2.0	17.7	0.5	22.0														
METAS	-3.4	14.3	-0.9	19.4														
CSIR-NML	1.6	16.3	4.1	20.9														
PTB	-2.0	5.8	0.5	14.3														
NMIA	0.6	5.8	3.1	14.3				Not computed										
NPL	-2.4	7.1	0.1	14.8														
MIRS/SIQ	-1.4	6.7	1.1	14.7														
INRIM	5.3	12.0	7.8	17.7														
VNIIFTRI	4.6	12.4	7.1	18.0														
SPRING	-2.5	13.7																
SP	-1.1	6.4					1.2	8.8	-6.1	10.2	8.1	12.0	2.9	14.0	-3.1	8.4	0.8	8.1
NPL	-2.3	6.0			-1.2	8.8			-7.3	10.0	6.9	11.8	1.7	13.8	-4.3	8.1	-0.4	7.8
AREPA	5.0	8.0			6.1	10.2	7.3	10.0			14.2	13.0	9.0	14.8	3.0	9.7	6.9	9.4
NMi-VSL	-9.2	10.2	Not computed		-8.1	12.0	-6.9	11.8	-14.2	13.0			-5.2	16.1	-11.2	11.5	-7.3	11.4
LNE	-4.0	12.4			-2.9	14.0	-1.7	13.8	-9.0	14.8	5.2	16.1			-6.0	13.5	-2.1	13.4
UME	2.0	5.4			3.1	8.4	4.3	8.1	-3.0	9.7	11.2	11.5	6.0	13.5			3.9	7.4
PTB	-1.9	5.0			-0.8	8.1	0.4	7.8	-6.9	9.4	7.3	11.4	2.1	13.4	-3.9	7.4		

Laboratory having used the repaired transfer standard PTB 2-6-1

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL Calibration factor, frequency: 1 GHz,
Transfer standard: PTB 2- 6
Degrees of equivalence [D_i and its expanded uncertainty (k = 2), U_i]



Open symbols represent values from laboratories in Associate States and Economies of the CGPM
Blue triangles: participants in EUROMET.EM.RF-K10.CL

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 2-6, PTB 2-6-1 for CCEM.RF-K10.CL and PTB 2-06-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 10 GHz**

Lab *j* ⇨

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	**NMIJ**		**NIST**		**METAS**		**CSIR-NML**		**PTB**		**NMIA**		**NPL**		**MIRS/SIQ**		**INRIM**		**VNIIFTRI**	
			D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**2.2**	4.5			**-0.4**	18.0	**1.2**	20.4	**-2.8**	22.3	**2.6**	8.9	**0.2**	10.1	**4.2**	9.8	**9.2**	14.5	**6.7**	30.8	**-18.8**	20.4
NIST	**2.6**	17.8	**0.4**	18.0			**1.6**	26.6	**-2.4**	28.2	**3.0**	19.3	**0.6**	20.0	**4.6**	19.8	**9.6**	22.5	**7.1**	35.3	**-18.4**	26.6
METAS	**1.0**	20.1	**-1.2**	20.4	**-1.6**	26.6			**-4.0**	29.7	**1.4**	21.5	**-1.0**	22.1	**3.0**	21.9	**8.0**	24.4	**5.5**	36.6	**-20.0**	28.3
CSIR-NML	**5.0**	22.1	**2.8**	22.3	**2.4**	28.2	**4.0**	29.7			**5.4**	23.4	**3.0**	23.9	**7.0**	23.8	**12.0**	26.1	**9.5**	37.7	**-16.0**	29.7
PTB	**-0.4**	8.4	**-2.6**	8.9	**-3.0**	19.3	**-1.4**	21.5	**-5.4**	23.4			**-2.4**	12.3	**1.6**	12.0	**6.6**	16.1	**4.1**	31.6	**-21.4**	21.5
NMIA	**2.0**	9.7	**-0.2**	10.1	**-0.6**	20.0	**1.0**	22.1	**-3.0**	23.9	**2.4**	12.3			**4.0**	13.0	**9.0**	16.9	**6.5**	32.0	**-19.0**	22.1
NPL	**-2.0**	9.3	**-4.2**	9.8	**-4.6**	19.8	**-3.0**	21.9	**-7.0**	23.8	**-1.6**	12.0	**-4.0**	13.0			**5.0**	16.6	**2.5**	31.9	**-23.0**	21.9
MIRS/SIQ	**-7.0**	14.2	**-9.2**	14.5	**-9.6**	22.5	**-8.0**	24.4	**-12.0**	26.1	**-6.6**	16.1	**-9.0**	16.9	**-5.0**	16.6			**-2.5**	33.7	**-28.0**	24.4
INRIM	**-4.5**	30.7	**-6.7**	30.8	**-7.1**	35.3	**-5.5**	36.6	**-9.5**	37.7	**-4.1**	31.6	**-6.5**	32.0	**-2.5**	31.9	**2.5**	33.7			**-25.5**	36.6
VNIIFTRI	**21.0**	20.1	**18.8**	20.4	**18.4**	26.6	**20.0**	28.3	**16.0**	29.7	**21.4**	21.5	**19.0**	22.1	**23.0**	21.9	**28.0**	24.4	**25.5**	36.6		
SPRING	**0.6**	14.4	**-1.6**	14.7	**-2.0**	22.6	**-0.4**	24.5	**-4.4**	26.2	**1.0**	16.3	**-1.4**	17.0	**2.6**	16.8	**7.6**	19.9	**5.1**	33.7	**-20.4**	24.5

SP	**-0.3**	9.4																				
NPL	**-3.2**	8.8																				
AREPA	**4.6**	14.0							**Not computed**													
NMi-VSL	**-6.0**	13.8																				
LNE	**12.1**	17.0																				
UME	**13.5**	7.8																				
PTB	**1.4**	16.0																				

Laboratory having used the repaired transfer standard PTB 2-6-1

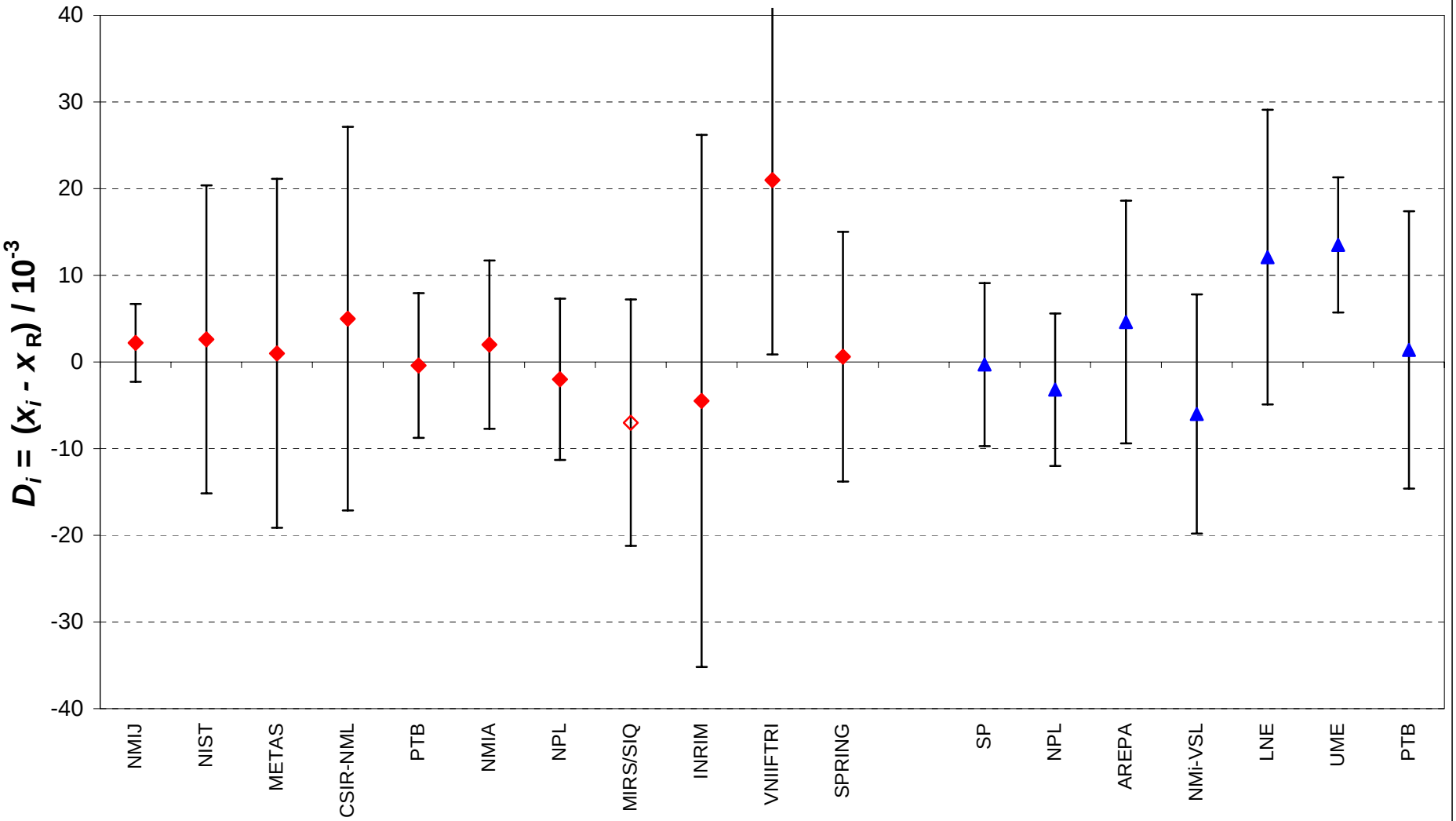
MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 2-6, PTB 2-6-1 for CCEM.RF-K10.CL and PTB 2-06-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 10 GHz** **(Continued)**

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	Lab *j* ⇨ SPRING D_{ij} / 10^{-3}	SPRING U_{ij} / 10^{-3}	SP D_{ij} / 10^{-3}	SP U_{ij} / 10^{-3}	NPL D_{ij} / 10^{-3}	NPL U_{ij} / 10^{-3}	AREPA D_{ij} / 10^{-3}	AREPA U_{ij} / 10^{-3}	NMi-VSL D_{ij} / 10^{-3}	NMi-VSL U_{ij} / 10^{-3}	LNE D_{ij} / 10^{-3}	LNE U_{ij} / 10^{-3}	UME D_{ij} / 10^{-3}	UME U_{ij} / 10^{-3}	PTB D_{ij} / 10^{-3}	PTB U_{ij} / 10^{-3}
NMIJ	**2.2**	4.5	**1.6**	14.7														
NIST	**2.6**	17.8	**2.0**	22.6														
METAS	**1.0**	20.1	**0.4**	24.5														
CSIR-NML	**5.0**	22.1	**4.4**	26.2														
PTB	**-0.4**	8.4	**-1.0**	16.3														
NMIA	**2.0**	9.7	**1.4**	17.0				Not computed										
NPL	**-2.0**	9.3	**-2.6**	16.8														
MIRS/SIQ	**-7.0**	14.2	**-7.6**	19.9														
INRIM	**-4.5**	30.7	**-5.1**	33.7														
VNIIFTRI	**21.0**	20.1	**20.4**	24.5														
SPRING	**0.6**	14.4																
SP	**-0.3**	9.4					**2.9**	12.9	**-4.9**	16.9	**5.7**	16.7	**-12.4**	19.4	**-13.8**	12.2	**-1.7**	18.6
NPL	**-3.2**	8.8			**-2.9**	12.9			**-7.8**	16.5	**2.8**	16.4	**-15.3**	19.1	**-16.7**	11.8	**-4.6**	18.3
AREPA	**4.6**	14.0			**4.9**	16.9	**7.8**	16.5			**10.6**	19.7	**-7.5**	22.0	**-8.9**	16.0	**3.2**	21.3
NMi-VSL	**-6.0**	13.8	Not computed		**-5.7**	16.7	**-2.8**	16.4	**-10.6**	19.7			**-18.1**	21.9	**-19.5**	15.9	**-7.4**	21.1
LNE	**12.1**	17.0			**12.4**	19.4	**15.3**	19.1	**7.5**	22.0	**18.1**	21.9			**-1.4**	18.7	**10.7**	23.3
UME	**13.5**	7.8			**13.8**	12.2	**16.7**	11.8	**8.9**	16.0	**19.5**	15.9	**1.4**	18.7			**12.1**	17.8
PTB	**1.4**	16.0			**1.7**	18.6	**4.6**	18.3	**-3.2**	21.3	**7.4**	21.1	**-10.7**	23.3	**-12.1**	17.8		

Laboratory having used the repaired transfer standard PTB 2-6-1

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL Calibration factor, frequency: 10 GHz,
Transfer standard: PTB 2- 6
Degrees of equivalence [D_i and its expanded uncertainty (k = 2), U_i]



Open symbols represent values from laboratories in Associate States and Economies of the CGPM
Blue triangles: participants in EUROMET.EM.RF-K10.CL

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 2-6, PTB 2-6-1 for CCEM.RF-K10.CL and PTB 2-06-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 18 GHz**

Lab *j* ⇨

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	**NMIJ**		**NIST**		**METAS**		**CSIR-NML**		**PTB**		**NMIA**		**NPL**		**MIRS/SIQ**		**INRIM**		**VNIIFTRI**	
			D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**1.3**	7.9			**1.8**	19.2	**3.2**	21.4	**6.2**	27.1	**4.4**	12.6	**-1.8**	14.7	**2.2**	13.4	**-1.8**	17.7	**-13.9**	30.2	**24.2**	25.2
NIST	**-0.5**	17.7	**-1.8**	19.2			**1.4**	26.6	**4.4**	31.4	**2.6**	20.2	**-3.6**	21.6	**0.4**	20.8	**-3.6**	23.8	**-15.7**	34.1	**22.4**	29.8
METAS	**-1.9**	20.1	**-3.2**	21.4	**-1.4**	26.6			**3.0**	32.8	**1.2**	22.4	**-5.0**	23.6	**-1.0**	22.8	**-5.0**	25.6	**-17.1**	35.4	**21.0**	31.2
CSIR-NML	**-4.9**	26.1	**-6.2**	27.1	**-4.4**	31.4	**-3.0**	32.8			**-1.8**	27.9	**-8.0**	28.9	**-4.0**	28.2	**-8.0**	30.5	**-20.1**	39.1	**18.0**	35.4
PTB	**-3.1**	10.2	**-4.4**	12.6	**-2.6**	20.2	**-1.2**	22.4	**1.8**	27.9			**-6.2**	16.1	**-2.2**	14.9	**-6.2**	18.9	**-18.3**	30.9	**19.8**	26.0
NMIA	**3.1**	12.8	**1.8**	14.7	**3.6**	21.6	**5.0**	23.6	**8.0**	28.9	**6.2**	16.1			**4.0**	16.7	**0.0**	20.4	**-12.1**	31.8	**26.0**	27.1
NPL	**-0.9**	11.2	**-2.2**	13.4	**-0.4**	20.8	**1.0**	22.8	**4.0**	28.2	**2.2**	14.9	**-4.0**	16.7			**-4.0**	19.4	**-16.1**	31.2	**22.0**	26.4
MIRS/SIQ	**3.1**	16.1	**1.8**	17.7	**3.6**	23.8	**5.0**	25.6	**8.0**	30.5	**6.2**	18.9	**0.0**	20.4	**4.0**	19.4			**-12.1**	33.3	**26.0**	28.8
INRIM	**15.2**	29.3	**13.9**	30.2	**15.7**	34.1	**17.1**	35.4	**20.1**	39.1	**18.3**	30.9	**12.1**	31.8	**16.1**	31.2	**12.1**	33.3			**38.1**	37.8
VNIIFTRI	**-22.9**	24.1	**-24.2**	25.2	**-22.4**	29.8	**-21.0**	31.2	**-18.0**	35.4	**-19.8**	26.0	**-26.0**	27.1	**-22.0**	26.4	**-26.0**	28.8	**-38.1**	37.8		
SPRING	**-5.5**	20.1	**-6.8**	21.4	**-5.0**	26.6	**-3.6**	28.3	**-0.6**	32.8	**-2.4**	22.4	**-8.6**	23.6	**-4.6**	22.8	**-8.6**	25.6	**-20.7**	35.4	**17.4**	31.2

SP	**-8.4**	13.2																				
NPL	**-7.1**	10.8																				
AREPA	**5.6**	22.0							**Not computed**													
NMi-VSL	**-3.3**	16.6																				
LNE	**4.2**	23.8																				
UME	**10.9**	16.4																				
PTB	**3.1**	10.0																				

Laboratory having used the repaired transfer standard PTB 2-6-1

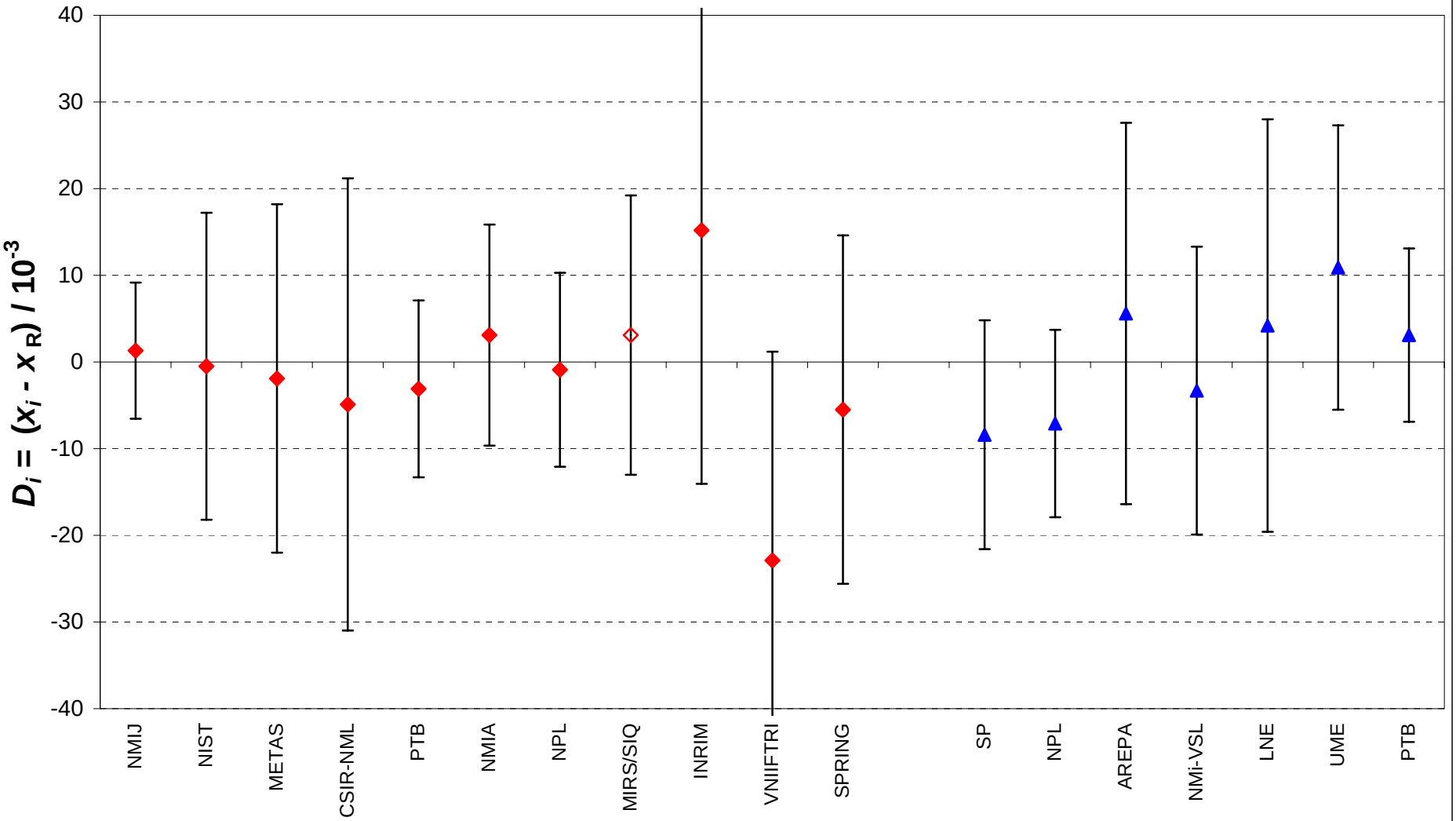
MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 2-6, PTB 2-6-1 for CCEM.RF-K10.CL and PTB 2-06-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 18 GHz** **(Continued)**

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	Lab *j* ⇨ SPRING D_{ij} / 10^{-3}	SPRING U_{ij} / 10^{-3}	SP D_{ij} / 10^{-3}	SP U_{ij} / 10^{-3}	NPL D_{ij} / 10^{-3}	NPL U_{ij} / 10^{-3}	AREPA D_{ij} / 10^{-3}	AREPA U_{ij} / 10^{-3}	NMi-VSL D_{ij} / 10^{-3}	NMi-VSL U_{ij} / 10^{-3}	LNE D_{ij} / 10^{-3}	LNE U_{ij} / 10^{-3}	UME D_{ij} / 10^{-3}	UME U_{ij} / 10^{-3}	PTB D_{ij} / 10^{-3}	PTB U_{ij} / 10^{-3}
NMIJ	**1.3**	7.9	**6.8**	21.4														
NIST	**-0.5**	17.7	**5.0**	26.6														
METAS	**-1.9**	20.1	**3.6**	28.3														
CSIR-NML	**-4.9**	26.1	**0.6**	32.8														
PTB	**-3.1**	10.2	**2.4**	22.4														
NMIA	**3.1**	12.8	**8.6**	23.6				Not computed										
NPL	**-0.9**	11.2	**4.6**	22.8														
MIRS/SIQ	**3.1**	16.1	**8.6**	25.6														
INRIM	**15.2**	29.3	**20.7**	35.4														
VNIIFTRI	**-22.9**	24.1	**-17.4**	31.2														
SPRING	**-5.5**	20.1																
SP	**-8.4**	13.2					**-1.3**	17.1	**-14.0**	25.7	**-5.1**	21.2	**-12.6**	27.2	**-19.3**	21.1	**-11.5**	16.6
NPL	**-7.1**	10.8			**1.3**	17.1			**-12.7**	24.5	**-3.8**	19.8	**-11.3**	26.1	**-18.0**	19.6	**-10.2**	14.7
AREPA	**5.6**	22.0			**14.0**	25.7	**12.7**	24.5			**8.9**	27.6	**1.4**	32.4	**-5.3**	27.4	**2.5**	24.2
NMi-VSL	**-3.3**	16.6	**Not computed**		**5.1**	21.2	**3.8**	19.8	**-8.9**	27.6			**-7.5**	29.0	**-14.2**	23.3	**-6.4**	19.4
LNE	**4.2**	23.8			**12.6**	27.2	**11.3**	26.1	**-1.4**	32.4	**7.5**	29.0			**-6.7**	28.9	**1.1**	25.8
UME	**10.9**	16.4			**19.3**	21.1	**18.0**	19.6	**5.3**	27.4	**14.2**	23.3	**6.7**	28.9			**7.8**	19.2
PTB	**3.1**	10.0			**11.5**	16.6	**10.2**	14.7	**-2.5**	24.2	**6.4**	19.4	**-1.1**	25.8	**-7.8**	19.2		

Laboratory having used the repaired transfer standard PTB 2-6-1

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL Calibration factor, frequency: 18 GHz,
Transfer standard: PTB 2- 6
Degrees of equivalence [D_i and its expanded uncertainty (k = 2), U_i]



Open symbols represent values from laboratories in Associate States and Economies of the CGPM
Blue triangles: participants in EUROMET.EM.RF-K10.CL

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 2-6, PTB 2-6-1 for CCEM.RF-K10.CL and PTB 2-06-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 20 GHz**

Lab *i* ⇩ **Lab *j*** ⇨

	D_i / 10^{-3}	U_i / 10^{-3}	NMIJ		NIST		METAS		CSIR-NML		PTB		NMIA		NPL		MIRS/SIQ		INRIM		VNIIFTRI	
			D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**1.3**	9.9			**2.1**	20.3	**-2.7**	23.9	**-3.7**	31.4	**6.9**	14.5	**-2.7**	20.8	**0.3**	14.6	**-4.7**	18.6	**-2.7**	30.5	**26.3**	45.0
NIST	**-0.8**	18.3	**-2.1**	20.3			**-4.8**	28.4	**-5.8**	35.0	**4.8**	21.1	**-4.8**	25.9	**-1.8**	21.2	**-6.8**	24.1	**-4.8**	34.1	**24.2**	47.5
METAS	**4.0**	22.2	**2.7**	23.9	**4.8**	28.4			**-1.0**	37.2	**9.6**	24.6	**0.0**	28.8	**3.0**	24.7	**-2.0**	27.2	**0.0**	36.4	**29.0**	49.2
CSIR-NML	**5.0**	30.2	**3.7**	31.4	**5.8**	35.0	**1.0**	37.2			**10.6**	32.0	**1.0**	35.3	**4.0**	32.0	**-1.0**	34.0	**1.0**	41.7	**30.0**	53.3
PTB	**-5.6**	11.5	**-6.9**	14.5	**-4.8**	21.1	**-9.6**	24.6	**-10.6**	32.0			**-9.6**	21.6	**-6.6**	15.7	**-11.6**	19.4	**-9.6**	31.0	**19.4**	45.4
NMIA	**4.0**	18.9	**2.7**	20.8	**4.8**	25.9	**0.0**	28.8	**-1.0**	35.3	**9.6**	21.6			**3.0**	21.7	**-2.0**	24.5	**0.0**	34.5	**29.0**	47.8
NPL	**1.0**	11.6	**-0.3**	14.6	**1.8**	21.2	**-3.0**	24.7	**-4.0**	32.0	**6.6**	15.7	**-3.0**	21.7			**-5.0**	19.5	**-3.0**	31.1	**26.0**	45.4
MIRS/SIQ	**6.0**	16.3	**4.7**	18.6	**6.8**	24.1	**2.0**	27.2	**1.0**	34.0	**11.6**	19.4	**2.0**	24.5	**5.0**	19.5			**2.0**	33.1	**31.0**	46.8
INRIM	**4.0**	29.2	**2.7**	30.5	**4.8**	34.1	**0.0**	36.4	**-1.0**	41.7	**9.6**	31.0	**0.0**	34.5	**3.0**	31.1	**-2.0**	33.1			**29.0**	52.7
VNIIFTRI	**-25.0**	44.1	**-26.3**	45.0	**-24.2**	47.5	**-29.0**	49.2	**-30.0**	53.3	**-19.4**	45.4	**-29.0**	47.8	**-26.0**	45.4	**-31.0**	46.8	**-29.0**	52.7		
SPRING	**-6.6**	20.8	**-7.9**	22.6	**-5.8**	27.4	**-10.6**	30.1	**-11.6**	36.4	**-1.0**	23.4	**-10.6**	27.8	**-7.6**	23.4	**-12.6**	26.1	**-10.6**	35.6	**18.4**	48.6

SP	**-0.7**	13.2																				
NPL	**-3.3**	11.0																				
AREPA	**11.3**	26.0							**Not computed**													
NMi-VSL	**-1.5**	16.6																				
LNE	**4.5**	25.6																				
UME	**16.3**	16.6																				
PTB	**2.1**	11.0																				

Laboratory having used the repaired transfer standard PTB 2-6-1

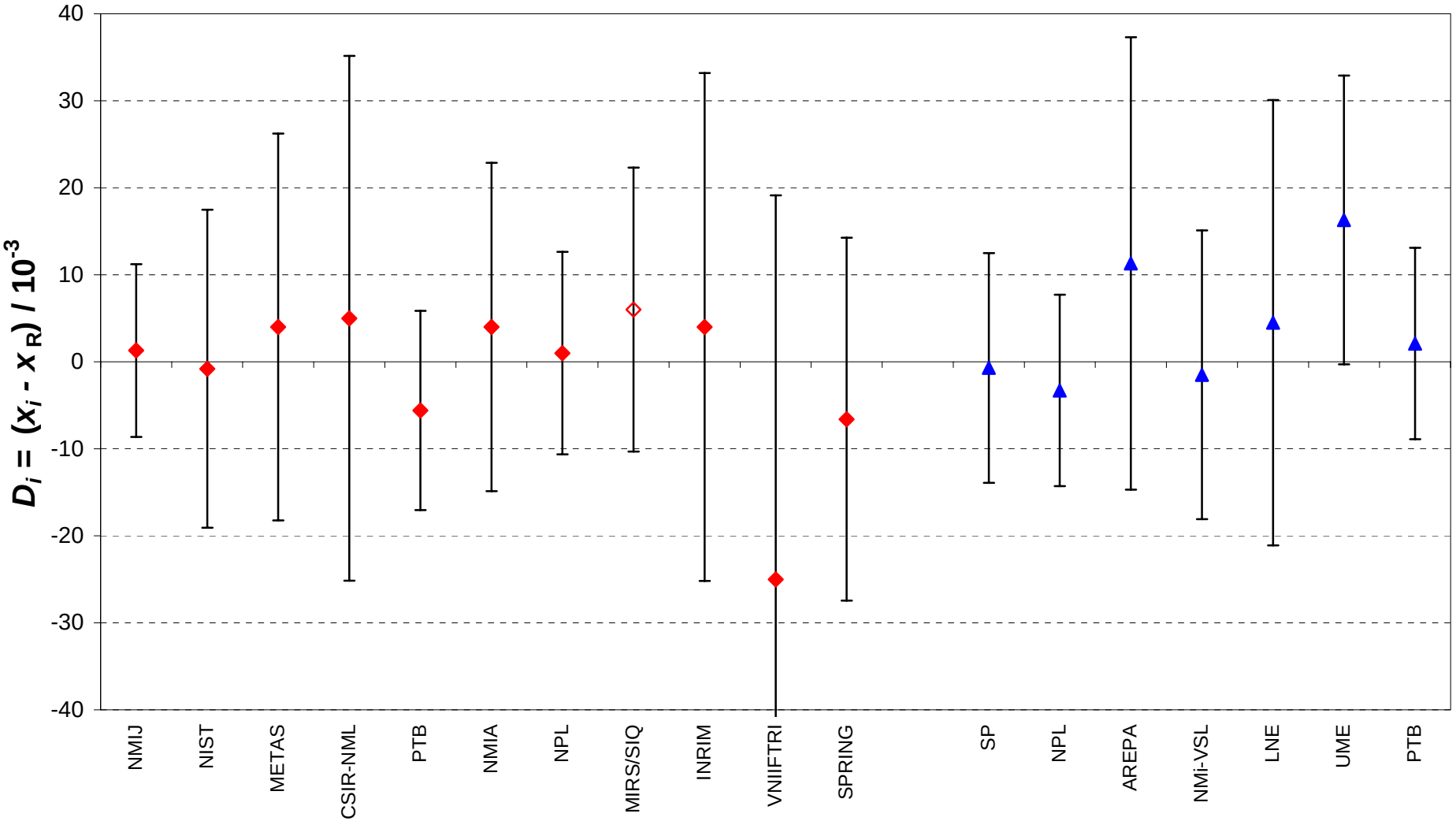
MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 2-6, PTB 2-6-1 for CCEM.RF-K10.CL and PTB 2-06-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 20 GHz** **(Continued)**

Lab *i* ⇩ / Lab *j* ⇨	D_i / 10^{-3}	U_i / 10^{-3}	SPRING		SP		NPL		AREPA		NMi-VSL		LNE		UME		PTB	
			D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	1.3	9.9	7.9	22.6														
NIST	-0.8	18.3	5.8	27.4														
METAS	4.0	22.2	10.6	30.1														
CSIR-NML	5.0	30.2	11.6	36.4														
PTB	-5.6	11.5	1.0	23.4														
NMIA	4.0	18.9	10.6	27.8				Not computed										
NPL	1.0	11.6	7.6	23.4														
MIRS/SIQ	6.0	16.3	12.6	26.1														
INRIM	4.0	29.2	10.6	35.6														
VNIIFTRI	-25.0	44.1	-18.4	48.6														
SPRING	-6.6	20.8																
SP	-0.7	13.2					2.6	17.2	-12.0	29.2	0.8	21.2	-5.2	28.8	-17.0	21.2	-2.8	17.2
NPL	-3.3	11.0			-2.6	17.2			-14.6	28.2	-1.8	19.9	-7.8	27.9	-19.6	19.9	-5.4	15.6
AREPA	11.3	26.0			12.0	29.2	14.6	28.2			12.8	30.8	6.8	36.5	-5.0	30.8	9.2	28.2
NMi-VSL	-1.5	16.6	Not computed		-0.8	21.2	1.8	19.9	-12.8	30.8			-6.0	30.5	-17.8	23.5	-3.6	19.9
LNE	4.5	25.6			5.2	28.8	7.8	27.9	-6.8	36.5	6.0	30.5			-11.8	30.5	2.4	27.9
UME	16.3	16.6			17.0	21.2	19.6	19.9	5.0	30.8	17.8	23.5	11.8	30.5			14.2	19.9
PTB	2.1	11.0			2.8	17.2	5.4	15.6	-9.2	28.2	3.6	19.9	-2.4	27.9	-14.2	19.9		

Laboratory having used the repaired transfer standard PTB 2-6-1

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL Calibration factor, frequency: 20 GHz,
Transfer standard: PTB 2- 6
Degrees of equivalence [D_i and its expanded uncertainty (k = 2), U_i]



Open symbols represent values from laboratories in Associate States and Economies of the CGPM
Blue triangles: participants in EUROMET.EM.RF-K10.CL

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 2-6, PTB 2-6-1 for CCEM.RF-K10.CL and PTB 2-06-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 23 GHz**

Lab *j* ⇨

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	**NMIJ**		**NIST**		**METAS**		**CSIR-NML**		**PTB**		**NMIA**		**NPL**		**MIRS/SIQ**		**INRIM**		**VNIIFTRI**	
			D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**0.8**	9.8			**0.5**	20.4	**-3.6**	21.9	**-3.6**	33.2	**1.5**	15.7	**-2.6**	20.4	**-5.6**	16.0	**-1.6**	18.3	**-22.9**	42.3	**7.4**	58.7
NIST	**0.3**	18.9	**-0.5**	20.4			**-4.1**	27.2	**-4.1**	36.9	**1.0**	22.5	**-3.1**	26.0	**-6.1**	22.8	**-2.1**	24.4	**-23.4**	45.3	**6.9**	60.8
METAS	**4.4**	20.4	**3.6**	21.9	**4.1**	27.2			**0.0**	37.7	**5.1**	23.9	**1.0**	27.2	**-2.0**	24.1	**2.0**	25.6	**-19.3**	46.0	**11.0**	61.4
CSIR-NML	**4.4**	32.3	**3.6**	33.2	**4.1**	36.9	**0.0**	37.7			**5.1**	34.5	**1.0**	36.9	**-2.0**	34.7	**2.0**	35.8	**-19.3**	52.3	**11.0**	66.2
PTB	**-0.7**	13.7	**-1.5**	15.7	**-1.0**	22.5	**-5.1**	23.9	**-5.1**	34.5			**-4.1**	22.5	**-7.1**	18.7	**-3.1**	20.6	**-24.4**	43.4	**5.9**	59.4
NMIA	**3.4**	18.9	**2.6**	20.4	**3.1**	26.0	**-1.0**	27.2	**-1.0**	36.9	**4.1**	22.5			**-3.0**	22.8	**1.0**	24.4	**-20.3**	45.3	**10.0**	60.8
NPL	**6.4**	14.0	**5.6**	16.0	**6.1**	22.8	**2.0**	24.1	**2.0**	34.7	**7.1**	18.7	**3.0**	22.8			**4.0**	20.9	**-17.3**	43.5	**13.0**	59.5
MIRS/SIQ	**2.4**	16.5	**1.6**	18.3	**2.1**	24.4	**-2.0**	25.6	**-2.0**	35.8	**3.1**	20.6	**-1.0**	24.4	**-4.0**	20.9			**-21.3**	44.4	**9.0**	60.2
INRIM	**23.7**	41.6	**22.9**	42.3	**23.4**	45.3	**19.3**	46.0	**19.3**	52.3	**24.4**	43.4	**20.3**	45.3	**17.3**	43.5	**21.3**	44.4			**30.3**	71.3
VNIIFTRI	**-6.6**	58.2	**-7.4**	58.7	**-6.9**	60.8	**-11.0**	61.4	**-11.0**	66.2	**-5.9**	59.4	**-10.0**	60.8	**-13.0**	59.5	**-9.0**	60.2	**-30.3**	71.3		
SPRING	**0.5**	27.1	**-0.3**	28.2	**0.2**	32.5	**-3.9**	33.4	**-3.9**	41.7	**1.2**	29.8	**-2.9**	32.5	**-5.9**	30.0	**-1.9**	31.2	**-23.2**	49.3	**7.1**	63.9

SP	**0.3**	16.0																				
NPL	**1.1**	13.2																				
AREPA	**11.3**	30.0							**Not computed**													
NMi-VSL	**-0.8**	16.4																				
LNE	**18.1**	21.4																				
UME	**26.5**	22.0																				
PTB	**4.6**	13.0																				

Laboratory having used the repaired transfer standard PTB 2-6-1

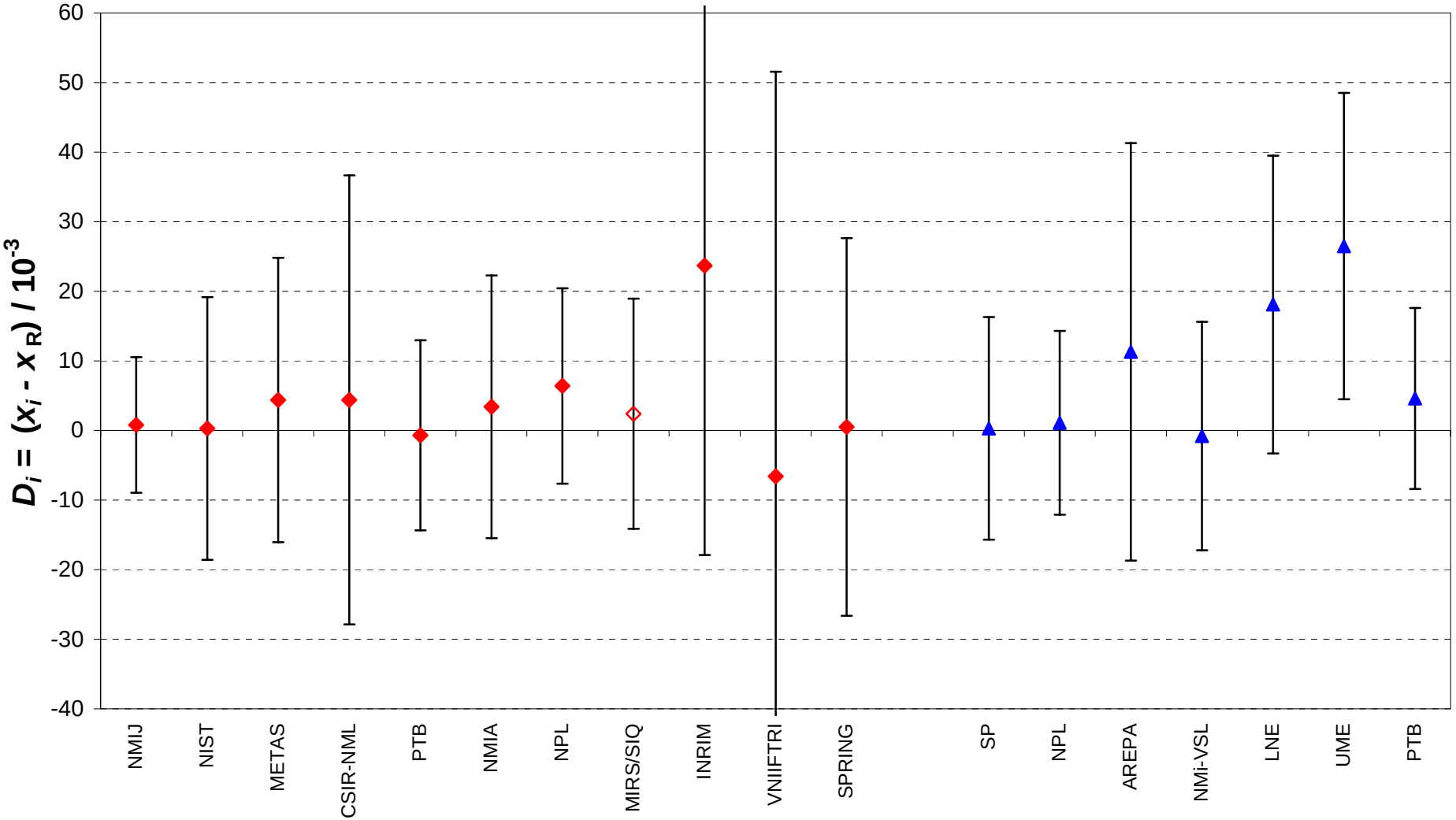
MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 2-6, PTB 2-6-1 for CCEM.RF-K10.CL and PTB 2-06-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 23 GHz** **(Continued)**

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	Lab *j* ⇨ SPRING D_{ij} / 10^{-3}	SPRING U_{ij} / 10^{-3}	SP D_{ij} / 10^{-3}	SP U_{ij} / 10^{-3}	NPL D_{ij} / 10^{-3}	NPL U_{ij} / 10^{-3}	AREPA D_{ij} / 10^{-3}	AREPA U_{ij} / 10^{-3}	NMi-VSL D_{ij} / 10^{-3}	NMi-VSL U_{ij} / 10^{-3}	LNE D_{ij} / 10^{-3}	LNE U_{ij} / 10^{-3}	UME D_{ij} / 10^{-3}	UME U_{ij} / 10^{-3}	PTB D_{ij} / 10^{-3}	PTB U_{ij} / 10^{-3}
NMIJ	0.8	9.8	0.3	28.2														
NIST	0.3	18.9	-0.2	32.5														
METAS	4.4	20.4	3.9	33.4														
CSIR-NML	4.4	32.3	3.9	41.7														
PTB	-0.7	13.7	-1.2	29.8														
NMIA	3.4	18.9	2.9	32.5			Not computed											
NPL	6.4	14.0	5.9	30.0														
MIRS/SIQ	2.4	16.5	1.9	31.2														
INRIM	23.7	41.6	23.2	49.3														
VNIIFTRI	-6.6	58.2	-7.1	63.9														
SPRING	0.5	27.1																
SP	0.3	16.0					-0.8	20.7	-11.0	34.0	1.1	22.9	-17.8	26.7	-26.2	27.2	-4.3	20.6
NPL	1.1	13.2			0.8	20.7			-10.2	32.8	1.9	21.1	-17.0	25.1	-25.4	25.7	-3.5	18.5
AREPA	11.3	30.0			11.0	34.0	10.2	32.8			12.1	34.2	-6.8	36.9	-15.2	37.2	6.7	32.7
NMi-VSL	-0.8	16.4	Not computed		-1.1	22.9	-1.9	21.1	-12.1	34.2			-18.9	27.0	-27.3	27.4	-5.4	20.9
LNE	18.1	21.4			17.8	26.7	17.0	25.1	6.8	36.9	18.9	27.0			-8.4	30.7	13.5	25.0
UME	26.5	22.0			26.2	27.2	25.4	25.7	15.2	37.2	27.3	27.4	8.4	30.7			21.9	25.6
PTB	4.6	13.0			4.3	20.6	3.5	18.5	-6.7	32.7	5.4	20.9	-13.5	25.0	-21.9	25.6		

Laboratory having used the repaired transfer standard PTB 2-6-1

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL Calibration factor, frequency: 23 GHz,
Transfer standard: PTB 2- 6
Degrees of equivalence [D_i and its expanded uncertainty (k = 2), U_i]



Open symbols represent values from laboratories in Associate States and Economies of the CGPM
Blue triangles: participants in EUROMET.EM.RF-K10.CL

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL

MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 2-6, PTB 2-6-1 for CCEM.RF-K10.CL and PTB 2-06-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 26 GHz**

Lab *j* ⇨

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	**NMIJ**		**NIST**		**METAS**		**CSIR-NML**		**PTB**		**NMIA**		**NPL**		**MIRS/SIQ**		**INRIM**		**VNIIFTRI**	
			D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}	D_{ij} / 10^{-3}	U_{ij} / 10^{-3}
NMIJ	**-17.1**	18.1			**-9.2**	24.2	**-1.4**	28.3	**-12.4**	40.9	**-11.9**	22.7	**-14.4**	23.9	**-20.4**	21.5	**-10.4**	21.9	**-34.6**	43.8	**-26.4**	33.5
NIST	**-7.9**	21.6	**9.2**	24.2			**7.8**	30.6	**-3.2**	42.5	**-2.7**	25.5	**-5.2**	26.6	**-11.2**	24.5	**-1.2**	24.8	**-25.4**	45.4	**-17.2**	35.5
METAS	**-15.7**	26.1	**1.4**	28.3	**-7.8**	30.6			**-11.0**	44.9	**-10.5**	29.4	**-13.0**	30.4	**-19.0**	28.5	**-9.0**	28.8	**-33.2**	47.7	**-25.0**	38.4
CSIR-NML	**-4.7**	39.3	**12.4**	40.9	**3.2**	42.5	**11.0**	44.9			**0.5**	41.6	**-2.0**	42.3	**-8.0**	41.0	**2.0**	41.2	**-22.2**	56.0	**-14.0**	48.4
PTB	**-5.2**	19.8	**11.9**	22.7	**2.7**	25.5	**10.5**	29.4	**-0.5**	41.6			**-2.5**	25.2	**-8.5**	22.9	**1.5**	23.3	**-22.7**	44.6	**-14.5**	34.5
NMIA	**-2.7**	21.2	**14.4**	23.9	**5.2**	26.6	**13.0**	30.4	**2.0**	42.3	**2.5**	25.2			**-6.0**	24.1	**4.0**	24.5	**-20.2**	45.2	**-12.0**	35.3
NPL	**3.3**	18.5	**20.4**	21.5	**11.2**	24.5	**19.0**	28.5	**8.0**	41.0	**8.5**	22.9	**6.0**	24.1			**10.0**	22.2	**-14.2**	44.0	**-6.0**	33.7
MIRS/SIQ	**-6.7**	19.0	**10.4**	21.9	**1.2**	24.8	**9.0**	28.8	**-2.0**	41.2	**-1.5**	23.3	**-4.0**	24.5	**-10.0**	22.2			**-24.2**	44.2	**-16.0**	34.0
INRIM	**17.5**	42.4	**34.6**	43.8	**25.4**	45.4	**33.2**	47.7	**22.2**	56.0	**22.7**	44.6	**20.2**	45.2	**14.2**	44.0	**24.2**	44.2			**8.2**	51.0
VNIIFTRI	**9.3**	31.7	**26.4**	33.5	**17.2**	35.5	**25.0**	38.4	**14.0**	48.4	**14.5**	34.5	**12.0**	35.3	**6.0**	33.7	**16.0**	34.0	**-8.2**	51.0		
SPRING	**1.3**	20.3	**18.4**	23.1	**9.2**	25.9	**17.0**	29.8	**6.0**	41.9	**6.5**	24.5	**4.0**	25.6	**-2.0**	23.4	**8.0**	23.8	**-16.2**	44.8	**-8.0**	34.8

SP	**5.0**	21.0																				
NPL	**1.3**	15.4																				
AREPA	**3.0**	34.0							**Not computed**													
NMi-VSL	**-7.4**	18.2																				
LNE	**6.7**	20.2																				
UME	**26.7**	36.2																				
PTB	**-0.3**	17.0																				

Laboratory having used the repaired transfer standard PTB 2-6-1

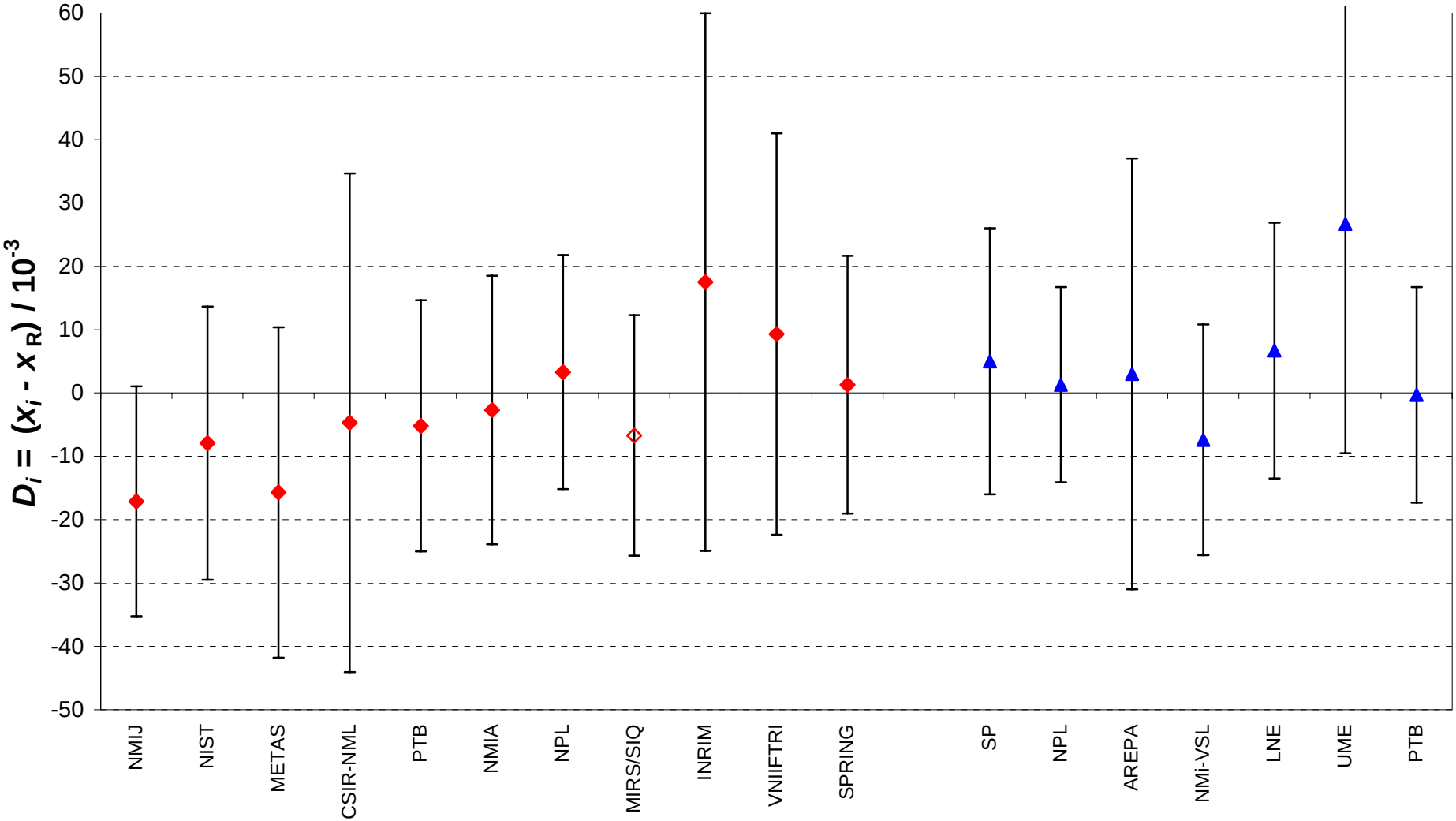
MEASURAND : Calibration factor
TRANSFER STANDARDS : Power sensors PTB 2-6, PTB 2-6-1 for CCEM.RF-K10.CL and PTB 2-06-2 for EUROMET.EM.RF-K10.CL

Matrix of equivalence **FREQUENCY : 26 GHz** **(Continued)**

Lab *i* ⇩	D_i / 10^{-3}	U_i / 10^{-3}	Lab *j* ⇨ SPRING D_{ij} / 10^{-3}	SPRING U_{ij} / 10^{-3}	SP D_{ij} / 10^{-3}	SP U_{ij} / 10^{-3}	NPL D_{ij} / 10^{-3}	NPL U_{ij} / 10^{-3}	AREPA D_{ij} / 10^{-3}	AREPA U_{ij} / 10^{-3}	NMi-VSL D_{ij} / 10^{-3}	NMi-VSL U_{ij} / 10^{-3}	LNE D_{ij} / 10^{-3}	LNE U_{ij} / 10^{-3}	UME D_{ij} / 10^{-3}	UME U_{ij} / 10^{-3}	PTB D_{ij} / 10^{-3}	PTB U_{ij} / 10^{-3}
NMIJ	-17.1	18.1	-18.4	23.1														
NIST	-7.9	21.6	-9.2	25.9														
METAS	-15.7	26.1	-17.0	29.8														
CSIR-NML	-4.7	39.3	-6.0	41.9														
PTB	-5.2	19.8	-6.5	24.5														
NMIA	-2.7	21.2	-4.0	25.6				Not computed										
NPL	3.3	18.5	2.0	23.4														
MIRS/SIQ	-6.7	19.0	-8.0	23.8														
INRIM	17.5	42.4	16.2	44.8														
VNIIFTRI	9.3	31.7	8.0	34.8														
SPRING	1.3	20.3																
SP	5.0	21.0					3.7	26.0	2.0	40.0	12.4	27.8	-1.7	29.1	-21.7	41.9	5.3	27.0
NPL	1.3	15.4			-3.7	26.0			-1.7	37.3	8.7	23.8	-5.4	25.4	-25.4	39.3	1.6	22.9
AREPA	3.0	34.0			-2.0	40.0	1.7	37.3			10.4	38.6	-3.7	39.5	-23.7	49.7	3.3	38.0
NMi-VSL	-7.4	18.2	Not computed		-12.4	27.8	-8.7	23.8	-10.4	38.6			-14.1	27.2	-34.1	40.5	-7.1	24.9
LNE	6.7	20.2			1.7	29.1	5.4	25.4	3.7	39.5	14.1	27.2			-20.0	41.5	7.0	26.4
UME	26.7	36.2			21.7	41.9	25.4	39.3	23.7	49.7	34.1	40.5	20.0	41.5			27.0	40.0
PTB	-0.3	17.0			-5.3	27.0	-1.6	22.9	-3.3	38.0	7.1	24.9	-7.0	26.4	-27.0	40.0		

Laboratory having used the repaired transfer standard PTB 2-6-1

CCEM.RF-K10.CL and EUROMET.EM.RF-K10.CL Calibration factor, frequency: 26 GHz,
Transfer standard: PTB 2- 6
Degrees of equivalence [D_i and its expanded uncertainty (k = 2), U_i]



Open symbols represent values from laboratories in Associate States and Economies of the CGPM
Blue triangles: participants in EUROMET.EM.RF-K10.CL