Bundesamt für
Eich- und Vermessungswesen

International Comparison of AC-DC Current Transfer Standards EURAMET.EM-K12

Final Report

June 2017

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BEV Austria

1. Introduction

The Mutual Recognition Arrangement (MRA) states that its technical basis is a set of results obtained in a course of time through key comparisons carried out by the Consultative Committees of the CIPM, the BIPM and the Regional Metrology Organisations (RMOs). As part of this process, the CIPM Consultative Committee for Electricity and Magnetism (CCEM) carried out the Key International Comparison of AC-DC Current Transfer Standards CCEM-K12, with the National Measurement Institute, Australia (NMIA) as the pilot laboratory and the support group consisting of National Institute of Standards and Technology (NIST) and Justervesenet (JV).

In order to link the National Metrology Institutes organised in EURAMET to the key comparison CCEM-K12, the EURAMET Technical Committee for Electricity and Magnetism decided at its October 2009 meeting to organise the corresponding RMO key comparison EURAMET.EM-K12, with the Federal Office of Metrology and Surveying, Austria (BEV) as the pilot laboratory and the support group consisting of the Technical Research Institute of Sweden (SP), Laboratoire National de Métrologie et d'Essais, France (LNE) and the Norwegian Metrology Service Justervesenet (JV).

The comparison measurements were conducted in the period from June 2012 to December 2014.

2. Participants and organisation of the comparison

2.1. Participants

Table 1: List of Participants

Name	Acronym	Date
Martin Garcocz Bundesamt für Eich- und Vermessungswesen Arltgasse 35 A-1160 Vienna, Austria martin.garcocz@bev.gv.at	BEV	April 2014
Vera Novakova Zachovalova Czech Metrology Institute Okruzni 31, 638 00 Brno, Czech Republic vnovakovazachovalova@cmi.cz	CMI	June 2012
Torsten Funck Physikalisch-Technische Bundesanstalt Bundesallee 100, 38116 Braunschweig, Germany torsten.funck@ptb.de	PTB	July 2012
Alessandro Mortara Federal Office of Metrology Lindenweg 50, CH-3003 Bern-Wabern, Switzerland alessandro.mortara@metas.ch	METAS	September 2012
Kåre Lind Justervesenet P.O.B 170, 2027 Kjeller Fetveien 99, 2007 Kjeller, Norway kli@justervesenet.no	JV	October 2012
Mehedin Arifoviç TÜBİTAK Ulusal Metroloji Enstitüsü P.K. 54 41470 Gebze-Kocaeli, Turkey mehedin.arifovic@ume.tubitak.gov.tr	UME	November 2012

Name	Acronym	Date
Andrzej Kruszyński Central Office of Measures (Główny Urząd Miar), Poland a.kruszynski@gum.gov.pl	GUM	January 2013
Isabel Godinho Instituto Português da Qualidade Rua António Gião, 2; 2829-513 CAPARICA, Portugal igodinho@ipq.pt	IPQ	February 2013
Javier Díaz de Aguilar Centro Español de Metrología c/del Alfar nº 2, 28760 Tres Cantos, Madrid, Spain jdiaz@cem.minetur.es	CEM	March 2013
Bruno Trinchera Istituto Nazionale di Ricerca Metrologica Strada delle Cacce 91, 10135 Torino, Italy b.trinchera@inrim.it	INRIM	November 2014
Karl-Erik Rydler Technical Research Institute of Sweden Box 857, SE-501 15 BORAAS Brinellgatan 4, SE-504 62 BORAAS, Sweden karlerik.rydler@sp.se	SP	March 2014
Torsten Lippert Trescal A/S Mads Clausens Vej 12, DK-8600 Silkeborg, Denmark torsten.lippert@trescal.com	DANIAmet-MI-Trescal	October 2014
Radoslava Hadzhistoykova Bulgarian Institut of Metrology, National Centre of Metrology Department "Electrical measurements" 52-B, G.M. Dimitrov Blvd. 1040 Sofia, Bulgaria r.hadzhistoykova@bim.government.bg	BIM	July 2013
Tibor Németh Hungarian Trade Licensing Office, Section of Thermophysical, Electrical and Optical Measurements H1124 Budapest, Németvölgyi út 37-39, Hungary nemetht@mkeh.hu	MKEH	August 2013
Bostjan Voljc SIQ Ljubljana Trzaska 2, 1000 Ljubljana, Slovenia bostjan.voljc@siq.si	SIQ	December 2014
Poletaeff Andre Laboratoire National de Métrologie et d'Essais 29, avenue Roger Hennequin 78197 TRAPPES Cedex, France andre.poletaeff@lne.fr	LNE	September 2014
Oliver Power NSAI National Metrology Laboratory Griffith Avenue Extension Glasnevin, Dublin 11, Ireland oliver.power@nsai.ie	NSAI NML	November 2013
Helko van den Brom VSL P.O. box 654, 2600 AR Delft Thijsseweg 11, 2629 JA Delft, The Netherlands hvdbrom@vsl.nl	VSL	Dezember 2013

Name	Acronym	Date
Adrian Wheaton National Physical Laboratory Module 2, Hampton Road, Teddington, Middlesex. TW11 0LW, Unitef Kingdom adrian.wheaton@npl.co.uk	NPL	January 2014
Andrei Pokatilov AS Metrosert (Central Office of Metrology) Teaduspargi 8, 12618 Tallinn, Estonia andrei.pokatilov@metrosert.ee	Metrosert	February 2014
Hala Abd El Mageed National Institute for Standards Giza, Al-Ahram, Tersa St., Box: 136, Code: 12211, Egypt halaabdelmegeed@yahoo.com	NIS	June 2014

2.2. Comparison schedule

Table 2: Original Comparison Schedule

	CMI	PTB	BEV	METAS	JV	UME	BEV	GUM	IPQ	CEM	INRIM	SP	Trescal	BIM	MKEH	SIQ	LNE	NSAI NML	VSL	NPL	Metrosert	SP	BEV		NIS		BEV	LNE	Trescal	INRIM	SIQ	BEV	
Jun.12	x																																Jun.12
Jul.12		x																															Jul.12
Aug.12			+																														Aug.12
Sep.12				x																													Sep.12
Okt.12					xx																												Okt.12
Nov.12						x																											Nov.12
Dez.12							+																										Dez.12
Jän.13								x																									Jän.13
Feb.13									x																								Feb.13
Mär.13										x																							Mär.13
Apr.13																																	Apr.13
Mai.13																																	Mai.13
Jun.13																																	Jun.13
Jul.13														x																			Jul.13
Aug.13															x																		Aug.13
Sep.13																																	Sep.13
Okt.13																																	Okt.13
Nov.13																		x															Nov.13
Dez.13																			x														Dez.13
Jän.14																				x													Jän.14
Feb.14																					x												Feb.14
Mär.14																						xx											Mär.14
Apr.14																							+										Apr.14
Mai.14																																	Mai.14
Jun.14																									x								Jun.14
Jul.14																																	Jul.14
Aug.14																											x						Aug.14
Sep.14																												xx					Sep.14
Okt.14																													x				Okt.14
Nov.14																														x			Nov.14
Dez.14																															x		Dez.14
Jän.15																																+	Jän.15

ATA Carnet required   xx **Support Group**   x participated   postponed   + Control measurements of pilot laboratory

2.3. Organisation of the comparison

Prior to the comparison the long term stability of the travelling standards were confirmed at BEV both for the thermal converter and the shunt.

The travelling standards were dispatched from BEV in June 2012 and returned in August and December 2012, April and August 2014 and in January 2015. The pilot laboratory was informed by email of the arrival of the package and again when sending the package to the next participant. The next participant was also informed by e-mail or fax.

Each participating laboratory covered the costs of the measurement, transportation and customs clearance as well as for any damage that may occur within its country. The pilot laboratory covered the overall costs for the organisation of the comparison. The pilot laboratory had no insurance for any loss or damage of the travelling standard.

Due to the time constraints the participants were expected to use a recognised courier service e.g. UPS or DHL for the transport of the travelling standard and not to use a forwarding agent that does not guarantee an adequate delivery time, inclusive of the time for customs procedure
The case was being transported with an ATA Carnet for customs clearance to Switzerland, Norway and Turkey.

2.4. Unexpected incidents

During the comparison, SP Sweden requested to move their participation to a later date due to extraordinary workload during their scheduled month and moved from Mai 2013 to March 2014 then.
The national metrology institute of Egypt, NIS, asked in 2013 to participate into the comparison. It was agreed that NIS will take part in June 2014.
Four institutes reported on measurement problems during their period. After the last participant these NMI's were asked to report about their corrective actions taken to solve these problems. Following a consultation with the support group and the TC chair the decision was made to include these institutes in the running comparison, as all concerned NMI's explained the corrective actions made and stated their technical arguments to justify the repetition of the measurements. They further declared that they are ready for immediate participation after the last regular participant.

The thermal converter of the travelling standard was damaged two times and the following actions have been taken:
In December 2012 the pilot laboratory BEV received the converter on a regular basis and found the heater broken. It turned out that the brass block supporting the chip of the converter, originally glued to the output plate, was loose. The construction was modified then, the ac-dc values measured and found to be equal to the values before the damage.
In February 2013 the thermal converter had to be replaced due to an electrically burnt heater circuit. The converter was interchanged immediately by a spare converter prepared for such an event. This converter, serial number "PTC 19", was taken from a batch of converters fabricated on the same silicon wafer as the initial converter. Various tests before the comparison confirmed the equality of the converters in the frequency range from 10 Hz to 100 kHz in both current and voltage mode with an uncertainty well below the scatter of measurements in the pilot laboratory BEV (see also Fig. 3/4 and Fig. 5/6).

3. Travelling standards and measuring instructions

3.1. Description of the travelling standards for 10 mA

The travelling standard for the current of 10 mA is a Planar Multi-Junction Thermal Converter, Type PTB/IPHT Serial Number "PTC 17" (replaced by "PTC 19" after damage), manufactured by IPHT Jena (Fig. 1). It has the following nominal parameters:

Rated Input Current:	10 mA
Heater Resistance:	90 Ω
Thermocouple Resistance:	7.6 kΩ
Output Voltage at Rated Current: approx.	100 mV

The Thermal Converter has a type N (female) input connector and a type 10SL-4S output connector. An internal capacitance of 2.2 µF is soldered in parallel to the output.

Figure 1: Physical layout of the 10 mA travelling standard.

3.2. Description of the travelling standards for 5 A

The 5 A travelling standard comprises a 147 mΩ coaxial shunt (Serial No B3A, Fig. 2) connected in parallel to the PMJTC (Serial No "PTC 17" as described above, replaced by "PTC 19" after damage, see chapter 2.4). The shunt has been manufactured at BEV. The main parameters are as follows:

Current Shunt, Serial No B3A:

Nominal Resistance	147 mΩ
Input Connector	type N (female)
Output Connector	type N (male)

Figure 2: Physical layout of the 5 A travelling standard.

3.3. Quantities to be measured and measurement conditions

Ac-dc current transfer difference is defined as

$$d = \frac{I_{ac} - I_{dc}}{I_{dc}} \quad (1)$$

Where
I_{ac} is an rms ac current, and
I_{dc} is a dc current which, when reversed, produces the same mean output response as the rms ac current.
Differences are expressed in microamperes per ampere (μA/A) and a positive sign signifies that more ac than dc current was required for the same output response.

3.4. Measurement instructions

The following detailed instructions were given to the participants.

- Upon receiving the package, check input and output resistances of the thermal converter. Check also that there is a high resistance (>100 MΩ) between the input and the output. In making these preliminary measurements, make sure **not to exceed** the nominal current of the thermal converter (for input resistance) and 1 mA (for output resistance). In case of any failure, inform the pilot laboratory immediately.
- The ac-dc transfer difference is to be measured for the “Lo” position of the travelling standard, i.e. with both its input and output earthed. The connection to earth must remain at all times to protect the thermocouple.
- Care should be taken not to apply current above nominal, which may destroy the travelling standards.
- Recommended ambient conditions are temperature (23 ± 1)°C and relative humidity (50 ± 5)%.
- At least 30 minutes should be allowed for stabilisation after the first application of current.
- The measurement frequency should be within 1 % of its nominal value. The frequency and its uncertainty must be reported.
- Sufficient delay time should be used between successive applications of alternating and direct current.
- A datalogger will travel together with the travelling standard. It will be continuously monitoring temperature and relative humidity. The datalogger should be left in the transportation case and it should be kept in the measurement area.

The ac-dc difference of each travelling standard should be measured at its nominal current and the following frequencies:
10 Hz, 55 Hz, 1 kHz, 10 kHz, 20 kHz, 50 kHz, 100 kHz.

4. Methods of measurements

See Appendix 2: “EURAMET.EM-K12: Reports of the institutes”

5. Repeated measurements of the pilot laboratory

Fig. 3 and Fig. 4 show long-term stability measurements by the pilot laboratory over two and a half years. On the basis of these measurements, no corrections due to long term drift of the travelling standards have been applied in the evaluation of the results.

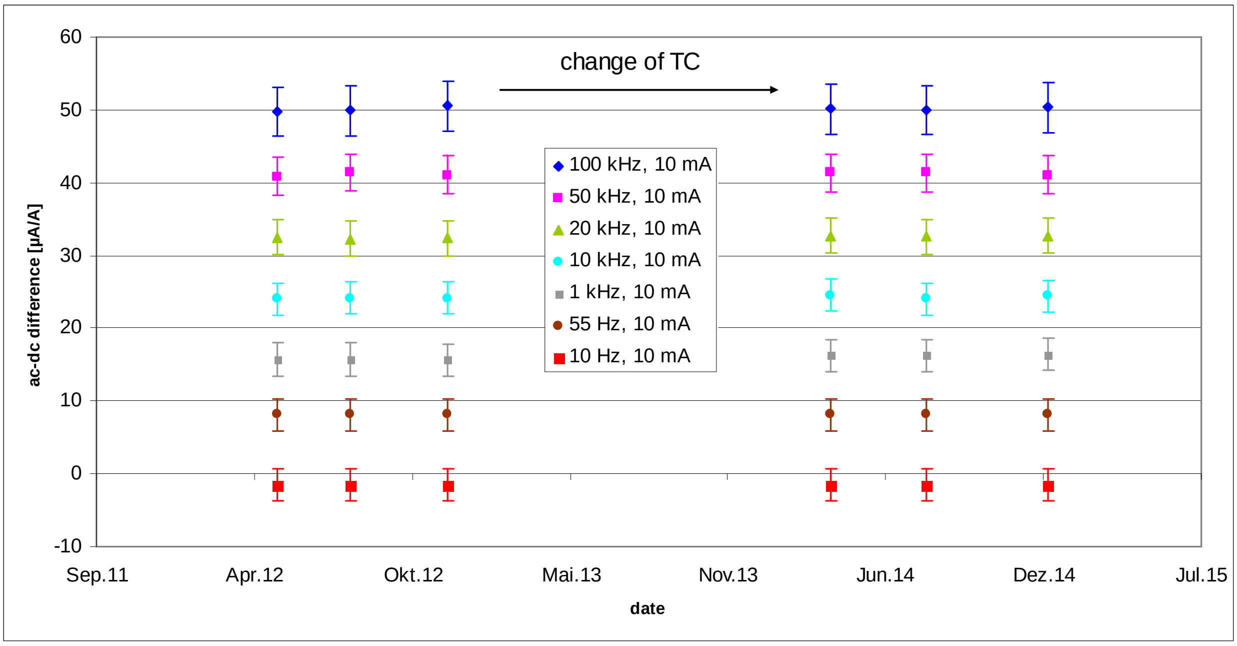

Figure 3: BEV measurements of the 10 mA transfer standards long term stability. The values on the vertical axis have been adjusted for clarity of presentation and are, therefore, not true ac-dc difference values.

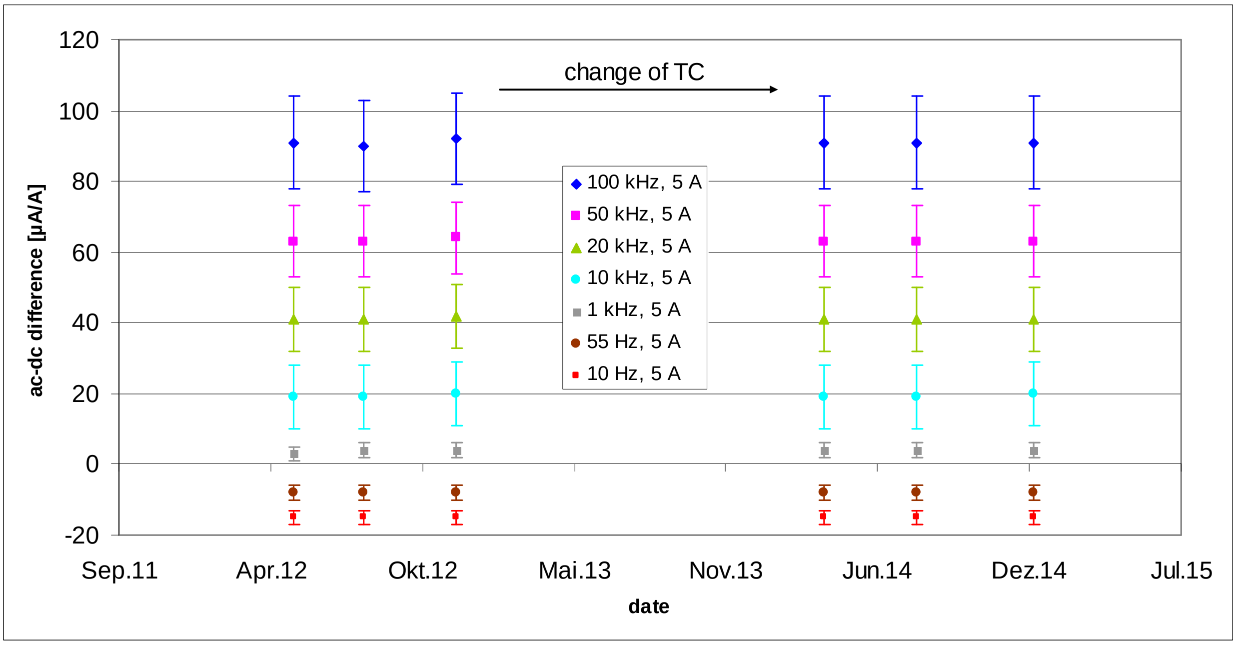

Figure 4: BEV measurements of the 5 A transfer standards long term stability. The values on the vertical axis have been adjusted for clarity of presentation and are, therefore, not true ac-dc difference values.

6. Measurement Results

6.1 Determination of the Reference Value

The EURAMET.EM-K12 reference value is based on the results of participants who took part in the CCEM-K12 comparison and have an independent realisation. Five laboratories satisfy this criterion both for the 10 mA and the 5 A measurements: PTB, JV, NPL, SP and BEV. Their results were treated as not correlated.

For each frequency the reference value d_R and its standard uncertainty u_R have been calculated from the results of the above laboratories as a weighted mean given by:

$$\frac{d_R}{u_R^2} = \sum_i \frac{d_i}{u_i^2} \tag{2}$$

where

$\frac{1}{u_R^2} = \sum_i \frac{1}{u_i^2}$ and d_i are the ac-dc differences and u_i are the standard uncertainties reported by the laboratories.

The reference values were calculated both for the measurement set with the two different thermal converters separately and for the entire set of measurements. The results are shown in Fig. 5 for 10 mA and Fig. 6 for 5 A. The differences in the reference values are much smaller than the measurement uncertainty so for the further evaluation of the laboratory results only the reference values from the entire set of measurements were used.

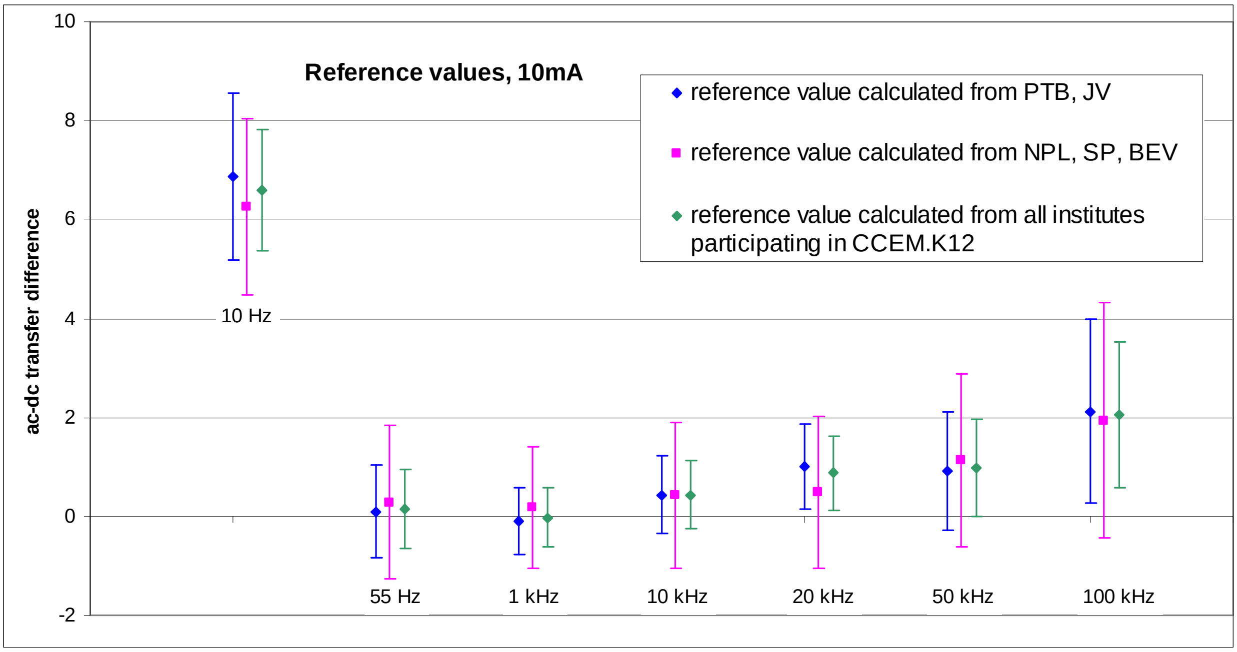

Figure 5: Calculation of the reference value for 10 mA from the laboratory results with the originally used and the replaced thermal converter and the reference value calculated from the whole set of laboratories which have participated also in the CCEM-K12 comparison.

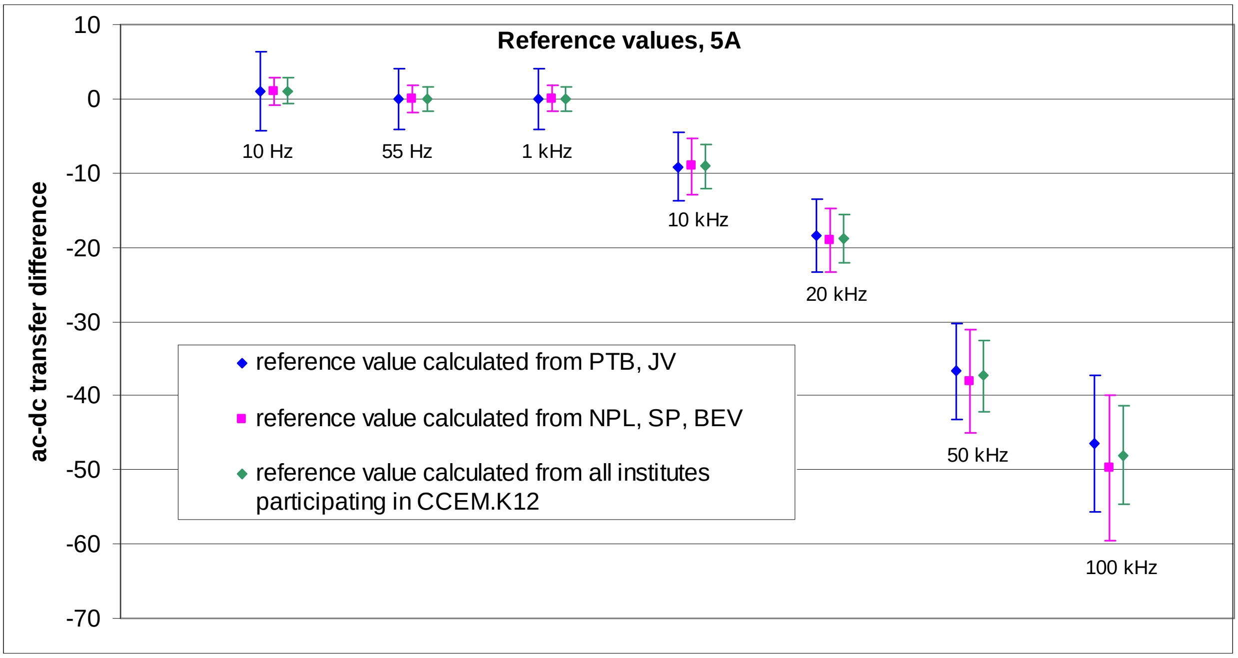

Figure 6: Calculation of the reference value for 5 A from the laboratory results with the originally used and the replaced thermal converter and the reference value calculated from the whole set of laboratories which have participated also in the CCEM-K12 comparison.

6.2 Degree of Equivalence with the Reference Value

The degree of equivalence of each laboratory with the reference value D_i has been calculated by

$$D_i = d_i - d_R \tag{3}$$

For the laboratories whose results were used in the calculation of the reference value the correlation with the reference value has been taken into account by calculating the standard uncertainty u_{iD} of the deviation from the reference value by

$$u_{iD}^2 = u_i^2 - u_R^2 \tag{4}$$

where u_i are the uncertainties reported by the laboratory. For the remaining laboratories there is no such correlation. Therefore for these laboratories

$$u_{iD}^2 = u_i^2 + u_R^2 \tag{5}$$

The expanded uncertainty of the degree of equivalence has been calculated as

$$U_{iD} = k_{iD}\, u_{iD} \tag{6}$$

where k_{iD} is the coverage factor. The coverage factor k_{iD} = 2 has been used.

The calculated degrees of equivalence D_i with the reference value and the expanded uncertainties (95 %) U_{iD} are shown in Tables 5 and 6. The yellow background in the tables indicates the laboratory whose results have been used for the calculation of the reference value.

The results submitted by the participants are summarised in Table 3 and Table 4 and Fig. 7 to Fig. 20.

6.3 Degree of Equivalence between pairs of NMIs

The degree of equivalence between pairs of NMI results has been calculated as:

$$D_{ij} = d_i - d_j \tag{7}$$

With a standard uncertainty $u_{ij,D}$ calculated as:

$$u_{ij_D}^2 = u_i^2 + u_j^2 \tag{8}$$

The expanded uncertainty U_{ij} has been calculated as:

$$U_{ij} = k_{ij_D}\, u_{ij_D} \tag{9}$$

Where $k_{ij,D}$ is the coverage factor. The coverage factor $k_{ij,D}$ = 2 has been used. The degrees of equivalence D_{ij} between pairs of institutes and the associated expanded uncertainties U_{ij} are given in Appendix 1.

Table 3: Measured AC-DC Difference d_i and Expanded Uncertainty (95%) U_i at 10 mA, in μA/A. The results of the laboratories marked in yellow are used for the calculation of the reference value.

Laboratory	10 Hz, 10 mA		55 Hz, 10 mA		1 kHz, 10 mA		10 kHz, 10 mA		20 kHz, 10 mA		50 kHz, 10 mA		100 kHz, 10 mA	
	d_i	U_i	d_i	U_i	d_i	U_i	d_i	U_i	d_i	U_i	d_i	U_i	d_i	U_i
CMI	5.7	4.0	-0.1	4.0	0.7	4.0	1.0	4.0	1.7	4.4	2.7	5.2	7.5	5.2
PTB	6.6	1.8	0.0	1.0	-0.1	0.7	0.4	0.8	1.0	0.9	0.9	1.3	2.3	2.0
METAS	7.1	8.3	0.6	8.3	0.4	8.3	0.6	8.3	0.7	8.3	1.6	8.3	2.5	9.4
JV	9	5	1	3	0	3	1	3	1	3	1	3	1	5
UME	6.9	4.7	0.1	3.3	0.1	3.3	0.2	3.3	0.3	3.3	1.6	4.0	3.0	6.0
GUM	8.3	4.7	0.5	3.8	0.8	3.9	-3.3	4.5	3.9	4.4				
IPQ	-4	40	-14	18	-12	16	-1	17	29	18				
CEM	7.6	4.2	0.1	3.5	-0.1	3.5	-0.2	3.5	-0.2	3.7	0.9	3.8	2.0	4.4
BIM	7	14	-0.1	5.1	0	4.9	0.6	5	-0.7	4.9	-2.4	7.2	-3	13
MKEH			-4.7	21	-4.9	18	-4.5	23	-0.1	19				
NSAI NML	8	50	4	30	4	30	2	47	0	103	-4	200	-16	410
VSL	6	18.3	0.3	18.2	-0.6	18.1	6.7	19.5	9.8	30.8	15.3	48.2	34.3	98.4
NPL	2	11	2	11	1	11	-1	12	-3	14	-8	15	-7	22
Metrosert	6	28	0	13	-1	12	-17	33						
SP	6.3	3.2	0.4	2.2	0.1	1.5	0.4	2.0	0.4	2.0	1.2	2.4	2.0	3.4
BEV	6.4	2.2	0.1	2.2	0.3	2.2	0.5	2.2	0.7	2.4	1.3	2.6	2.1	3.4
NIS	3.92	7.4	0.39	7.2	1.3	7.2	1.77	7.2						
LNE	9.5	5.4	1.9	3.8	0.1	2.8	-0.2	3.2	0.9	3	2.3	3.2	3.4	3.2
Trescal	3	5	0	5	0	5	0	5	1	7	5	10	10	20
INRIM	5.8	3.3	0.2	2.4	0.0	2.4	0.4	2.4	0.6	2.8	1.1	3.0	1.7	3.4
SIQ	7	8	0	4	0	4	0	4	0	4	1	4	3	5
Reference value	6.6	1.2	0.2	0.8	0.0	0.6	0.4	0.7	0.9	0.8	1.0	1.0	2.1	1.5

Table 4: Measured AC-DC Difference d_i and Expanded Uncertainty (95%) U_i at 5 A, in μA/A. The results of the laboratories marked in yellow are used for the calculation of the reference value.

Laboratory	10 Hz, 5 A		55 Hz, 5 A		1 kHz, 5 A		10 kHz, 5 A		20 kHz, 5 A		50 kHz, 5 A		100 kHz, 5 A	
	d_i	U_i	d_i	U_i	d_i	U_i	d_i	U_i	d_i	U_i	d_i	U_i	d_i	U_i
CMI	2	25	0	17	-2	17	-12	17	-23	19	-46	22	-70	43
PTB	1	6	0	5	0	5	-10	6	-20	7	-40	11	-50	17
METAS	1.5	12.4	0.0	9.9	2.0	9.2	-8.0	10.4	-18.9	12.3	-40.9	21.2	-51.7	31.4
JV	1	11	0	7	0	7	-8	7	-17	7	-35	8	-45	11
UME	-1	12	0	8	0	8	-11	8	-21	9	-43	12	-65	21
GUM	-2.5	12.4	-2.4	12.3	-4.5	12.5	-20.3	12.6						
IPQ	-4	61	-3	31	-26	32	-209	35	-239	31				
CEM	1.9	17	-2.0	9.9	-0.5	9.9	-9.4	11.0	-17.5	13.0	-37.1	18.0	-50.0	24.0
BIM	1	36	-2	26	6	26	-2	24	-11	24	-31	28	-65	40
MKEH			-5.5	28	-9.1	23	-20.5	24						
NSAI NML	1	185	4	73	3	73	-7	120	-16	230				
VSL	-0.7	23.7	0.6	23.7	1.0	23.7	-10.3	28.2	-23.2	50.5				
NPL	-26	55	1	22	-6	21	-15	19	-27	28	-58	42	-44	94
Metrosert	6	36	-9	19	-9	19	-12	55						
SP	1.3	4.8	0.0	4.2	0.3	3.8	-8.4	4.2	-18.3	5.0	-38.0	10.0	-51.0	15.0
BEV	1	2	0	2	0	2	-11	9	-21	9	-37	10	-49	13
NIS			1.07	28.4	5.38	28.2	12.64	28.2						
LNE	-11	19	1	18	-4	14	-8	15	-4	15	-18	16	-23	17
Trescal	-2	18	0	18	0	18	-4	22	-10	27	-24	45	-30	70
INRIM	3.7	6.5	-0.9	5.6	-0.6	4.3	-8.4	5.8	-18.3	7.1	-36.6	10.3	-48.7	16.0
SIQ	-2	14	0	13	1	13	-10	13	-21	13	-46	16	-59	26
Reference value	1.0	1.7	0.0	1.6	0.0	1.6	-9.1	2.9	-18.9	3.3	-37.3	4.7	-48.0	6.7

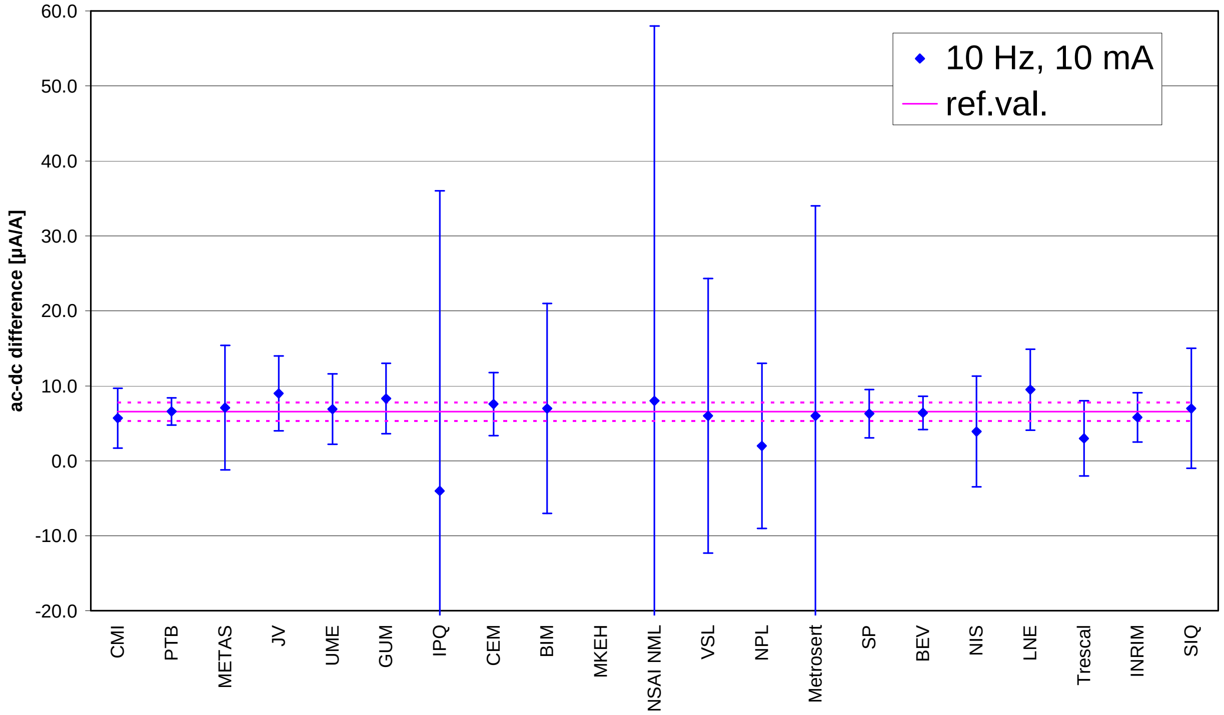

Figure 7: Measured ac-dc difference d_i and expanded uncertainty (95%) U_i at 10 mA, in µA/A. The dotted lines show the combined uncertainty of the reference value.

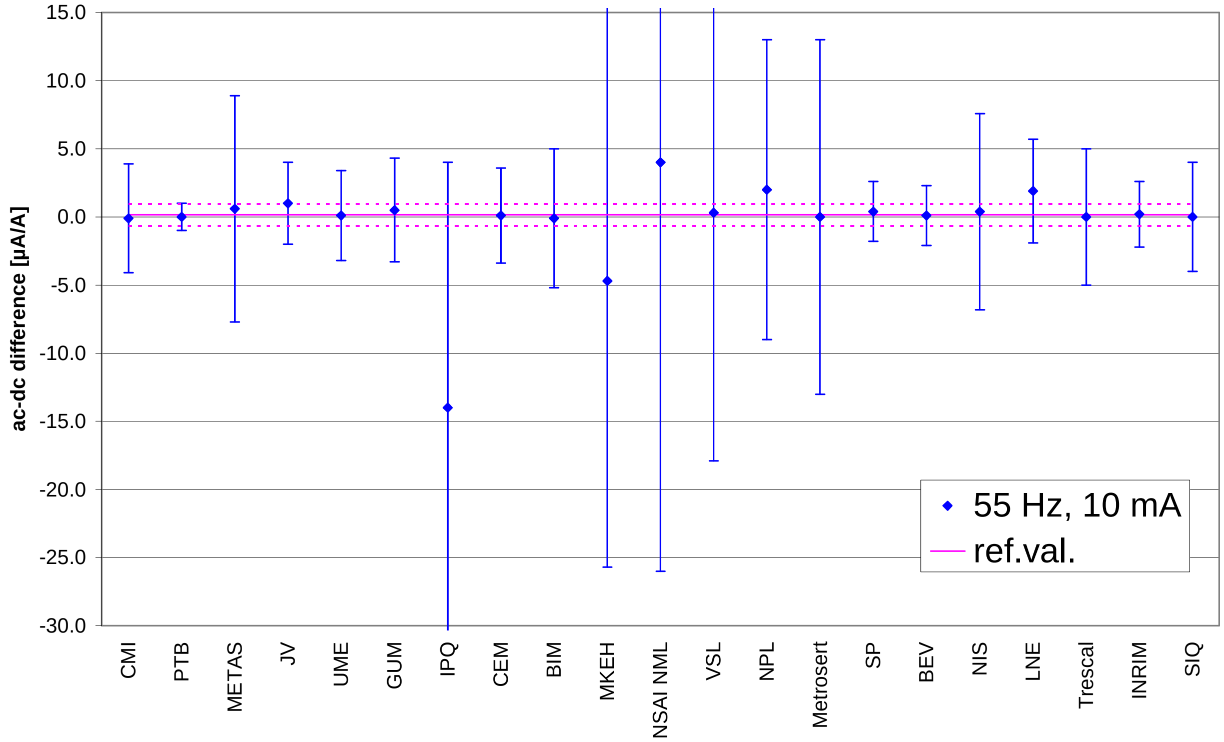

Figure 8: Measured ac-dc difference d_i and expanded uncertainty (95%) U_i at 10 mA, in µA/A.

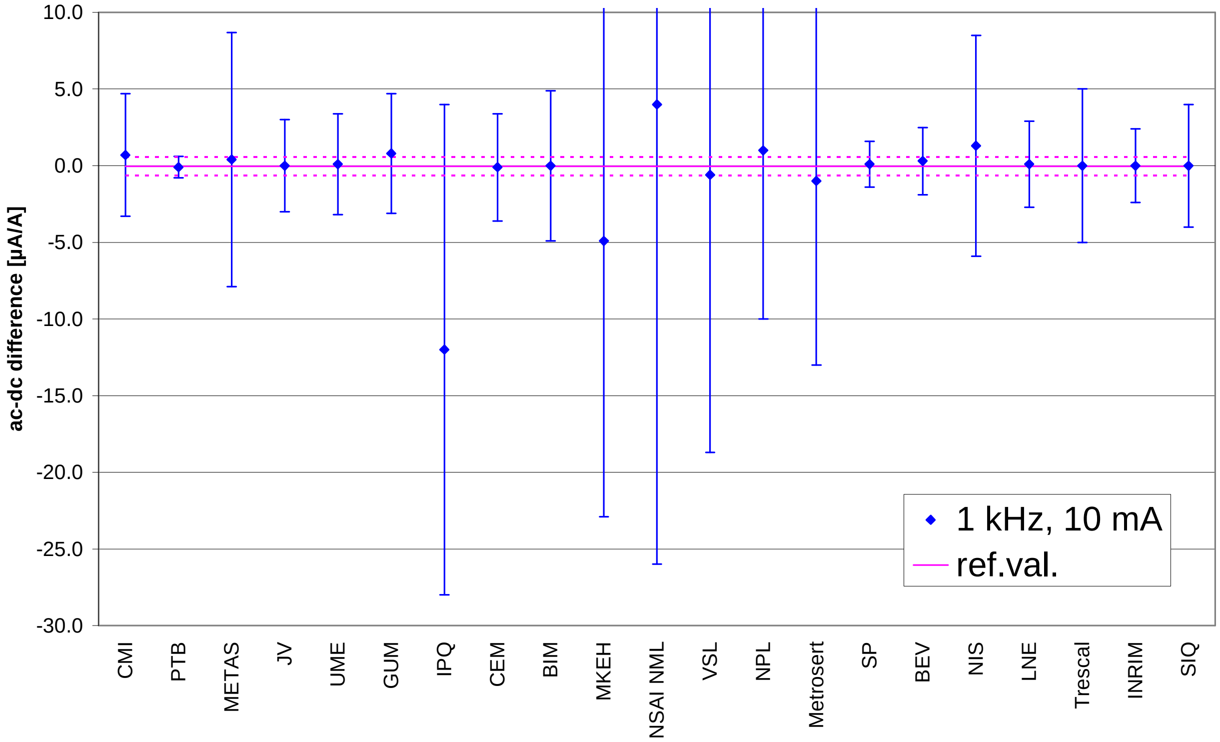

Figure 9: Measured ac-dc difference d_i and expanded uncertainty (95%) U_i at 10 mA, in µA/A.

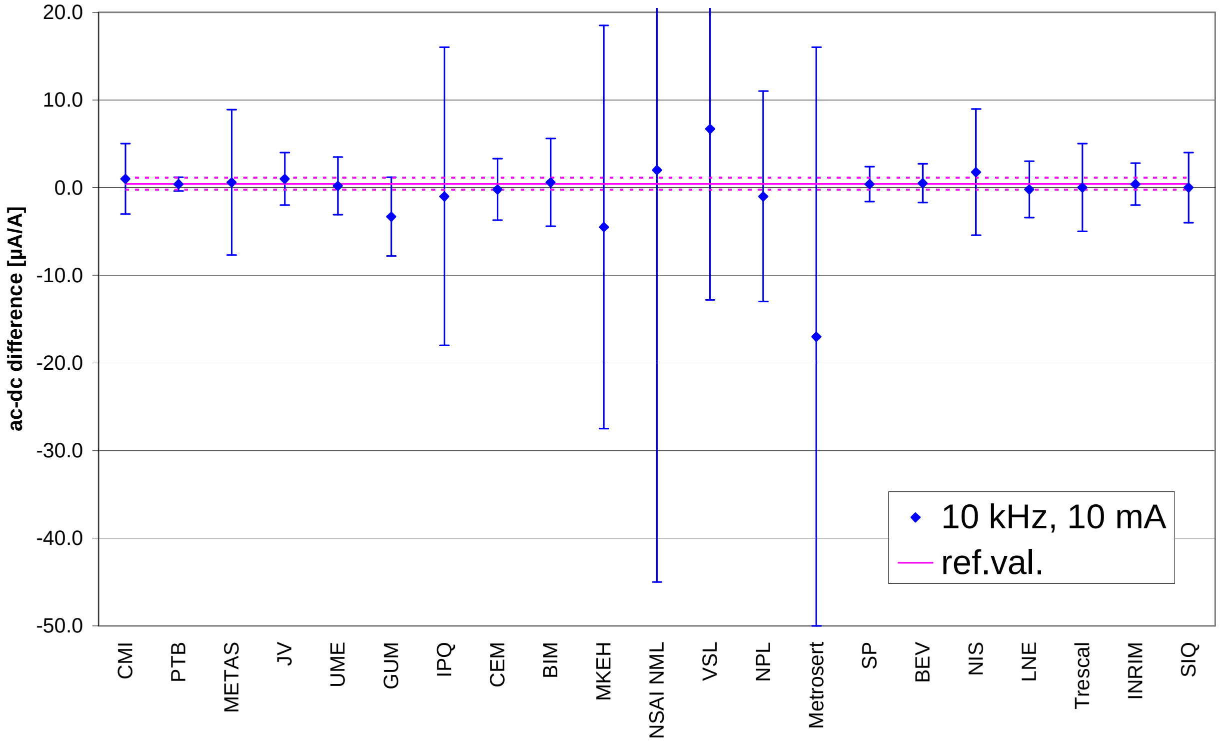

Figure 10: Measured ac-dc difference d_i and expanded uncertainty (95%) U_i at 10 mA, in µA/A.

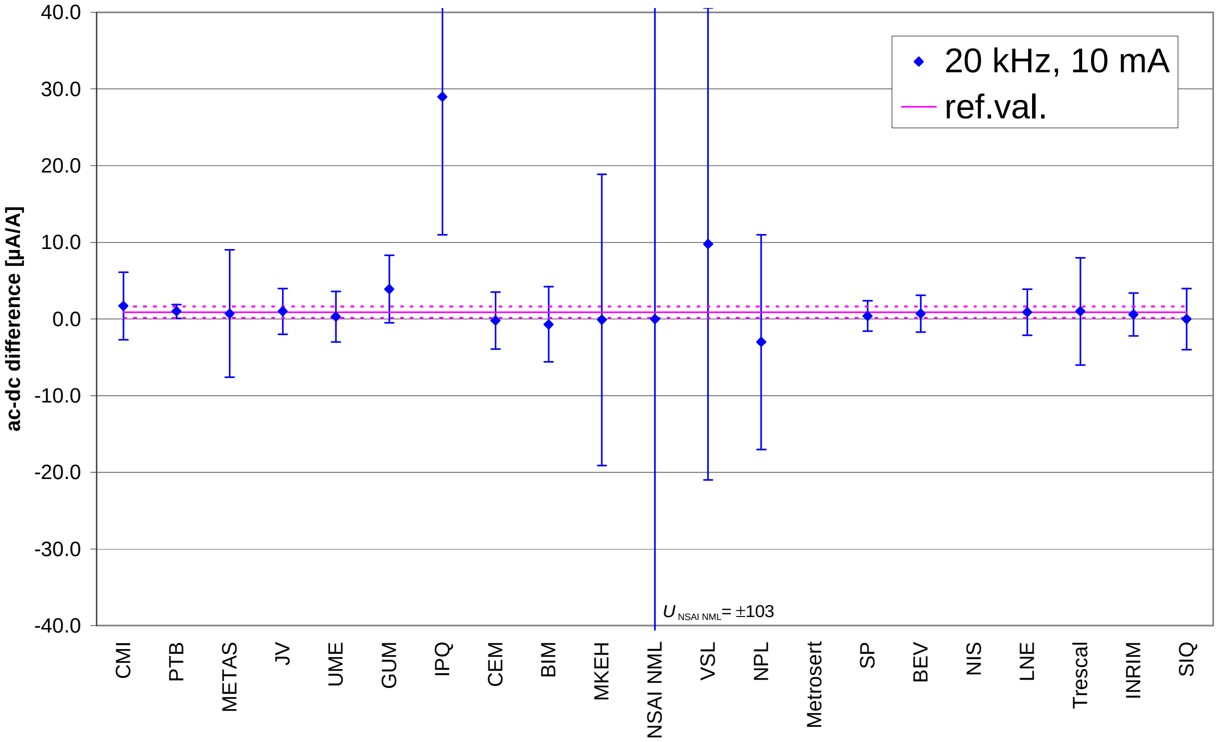

Figure 11: Measured ac-dc difference d_i and expanded uncertainty (95%) U_i at 10 mA, in µA/A.

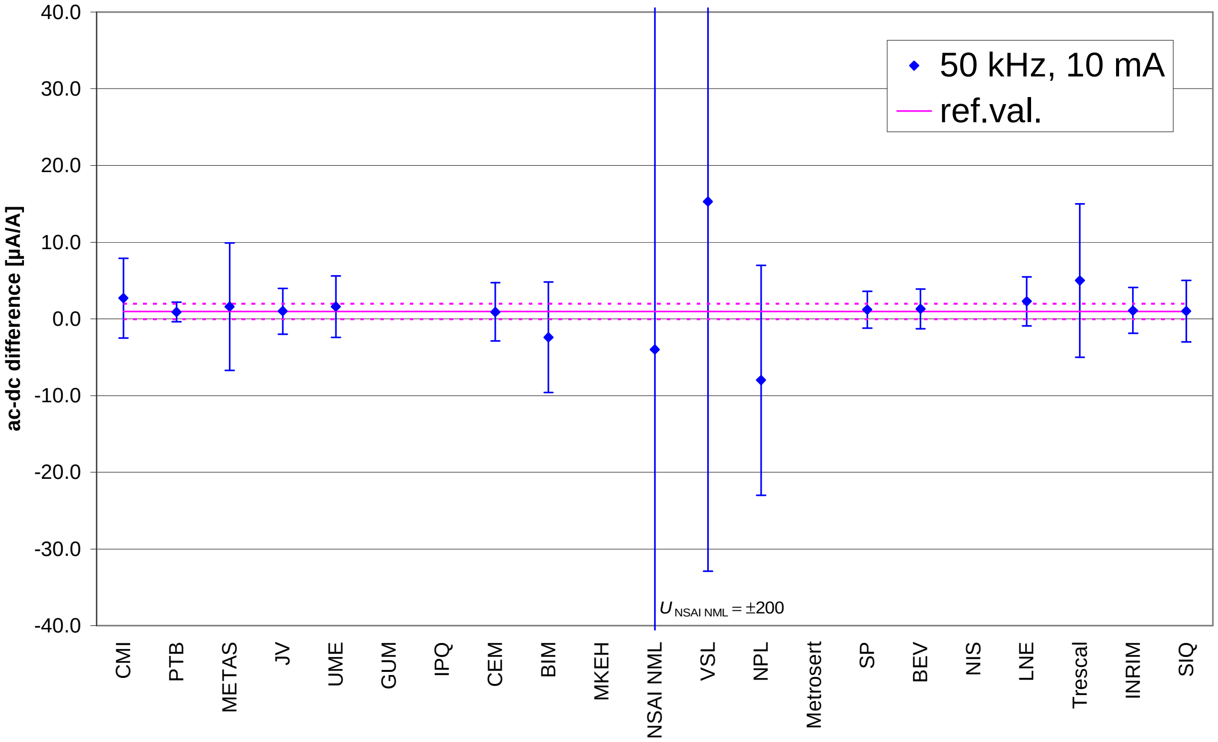

Figure 12: Measured ac-dc difference d_i and expanded uncertainty (95%) U_i at 10 mA, in µA/A.

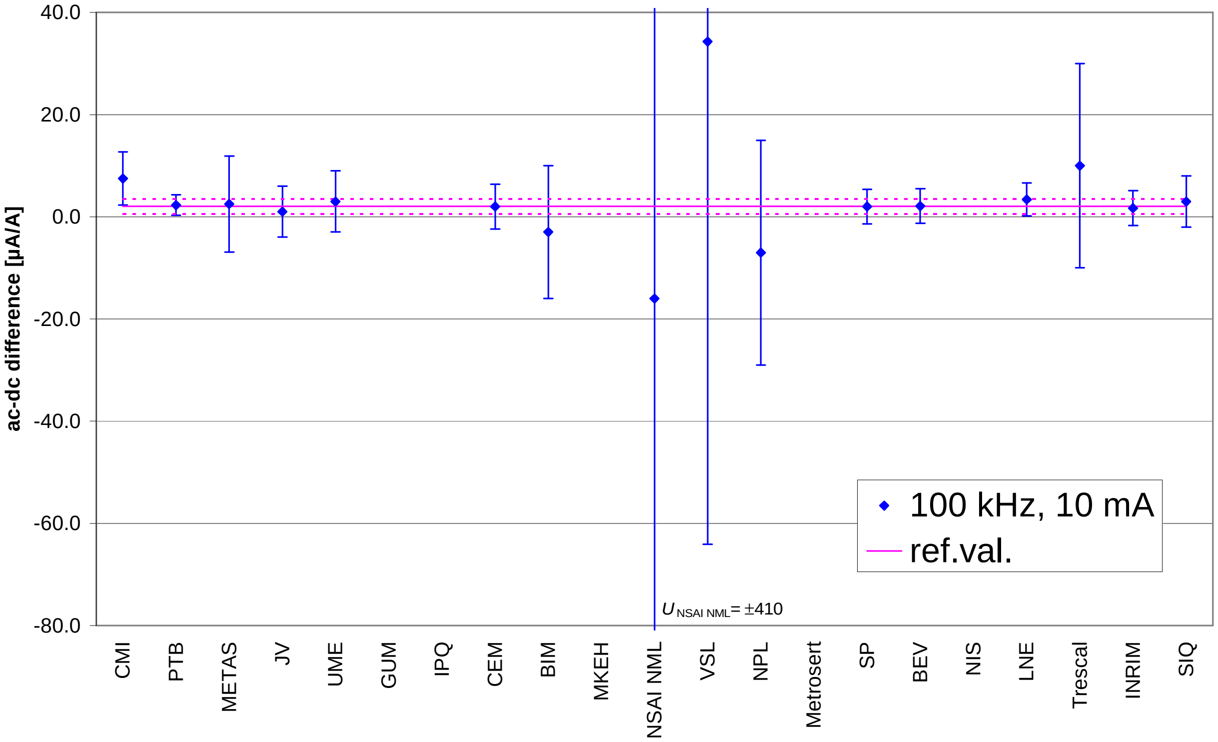

Figure 13: Measured ac-dc difference d_i and expanded uncertainty (95%) U_i at 10 mA, in µA/A.

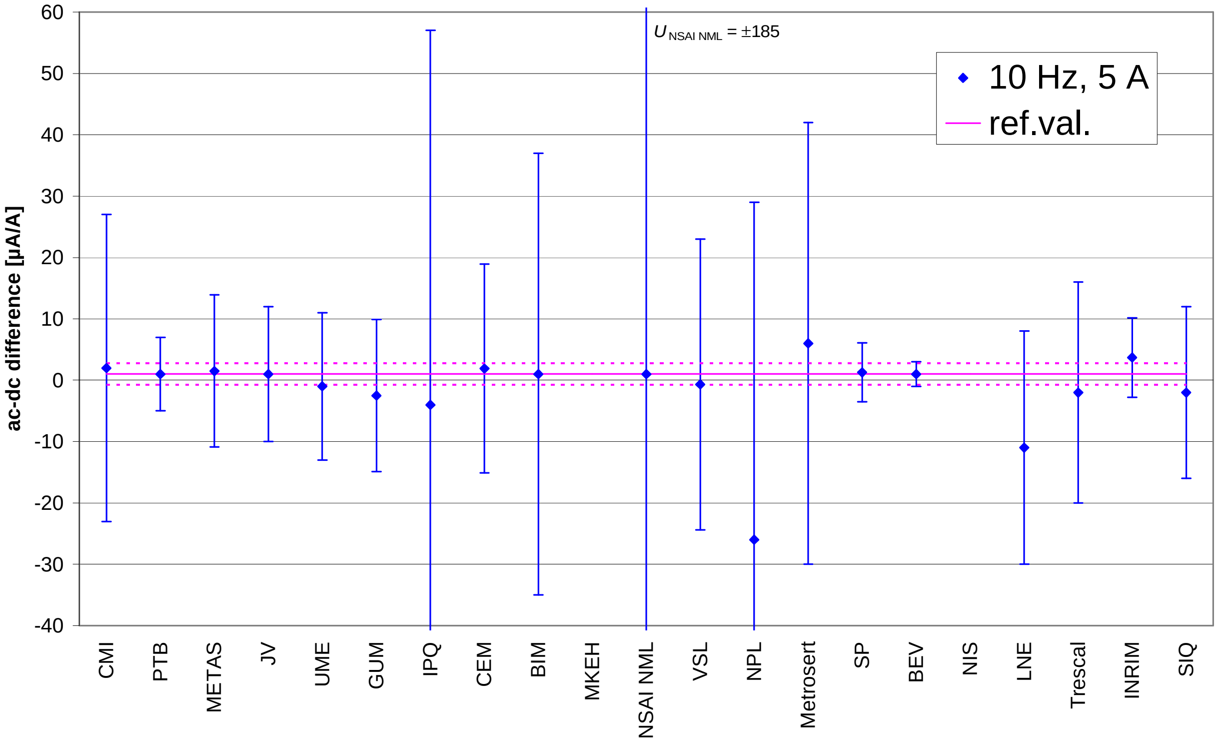

Figure 14: Measured ac-dc difference d_i and expanded uncertainty (95%) U_i at 5 A, in µA/A.

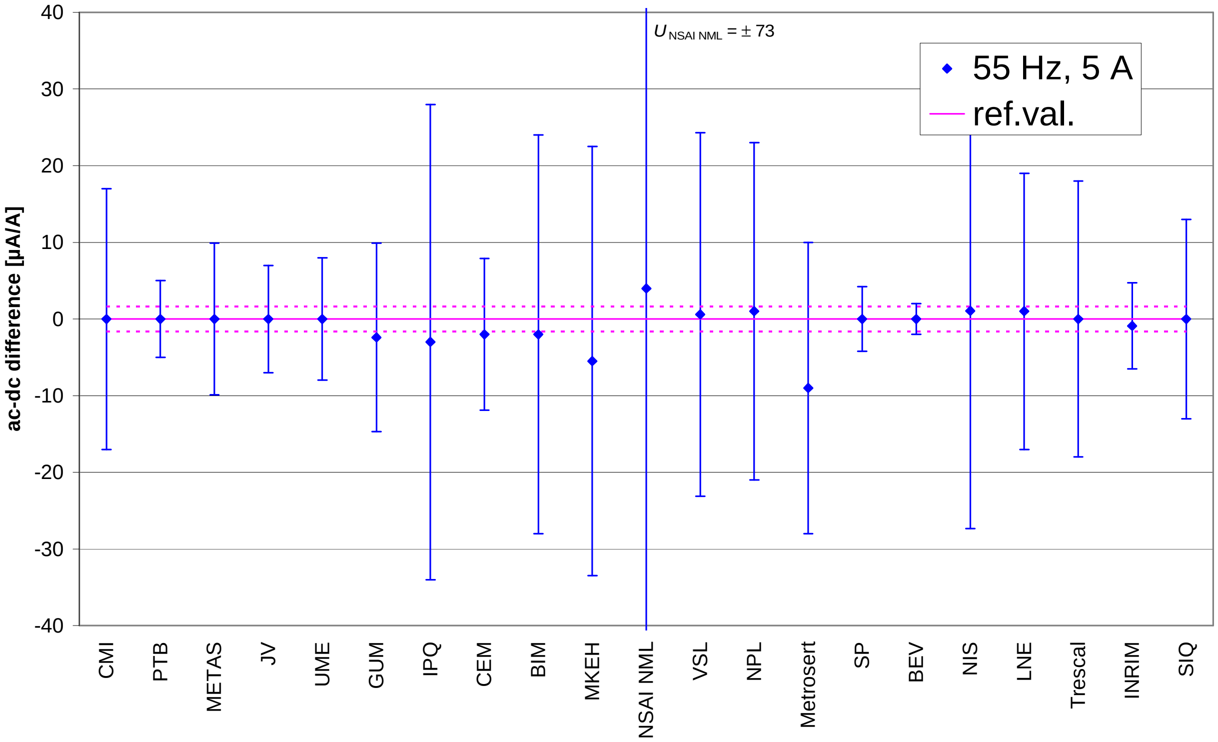

Figure 15: Measured ac-dc difference d_i and expanded uncertainty (95%) U_i at 5 A, in µA/A.

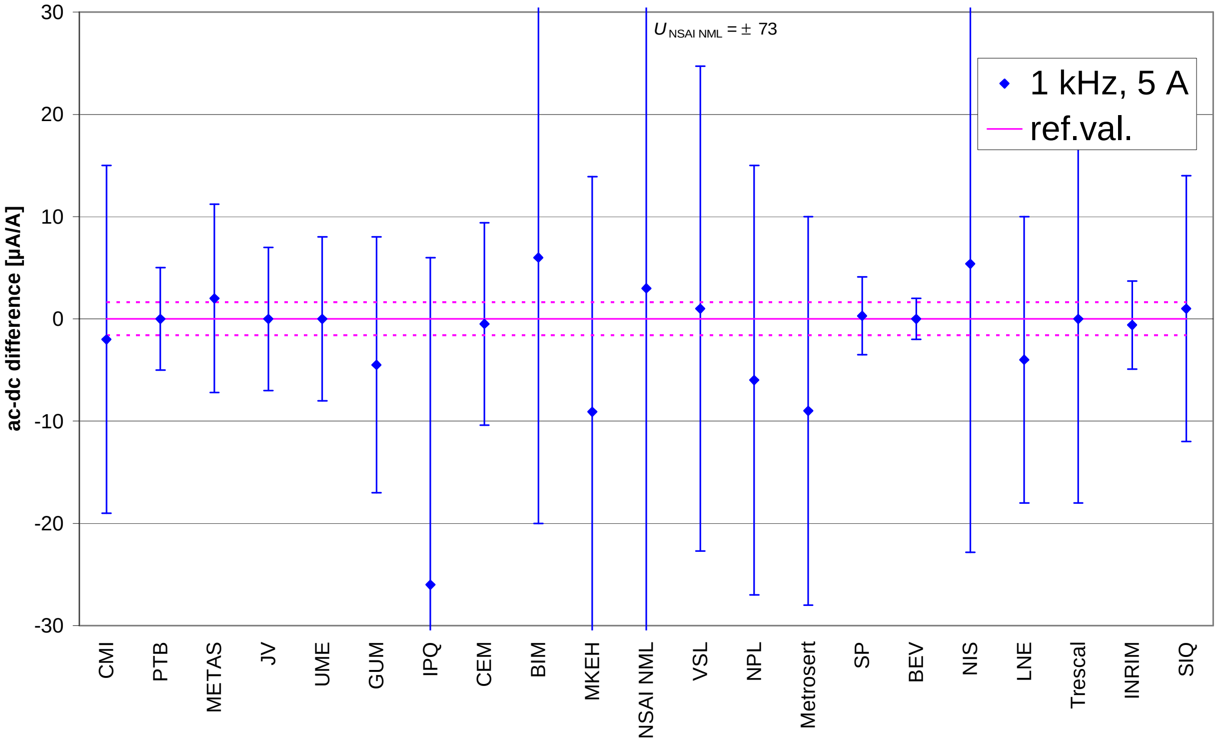

Figure 16: Measured ac-dc difference d_i and expanded uncertainty (95%) U_i at 5 A, in µA/A.

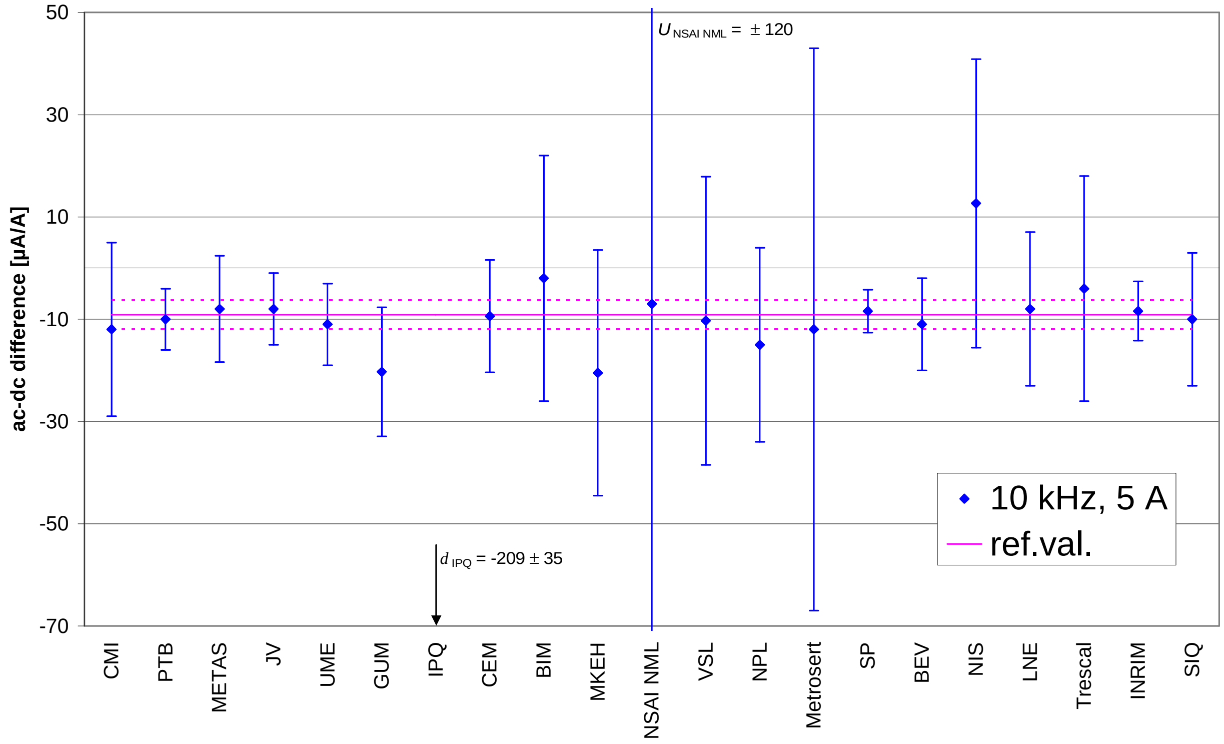

Figure 17: Measured ac-dc difference d_i and expanded uncertainty (95%) U_i at 5 A, in µA/A.

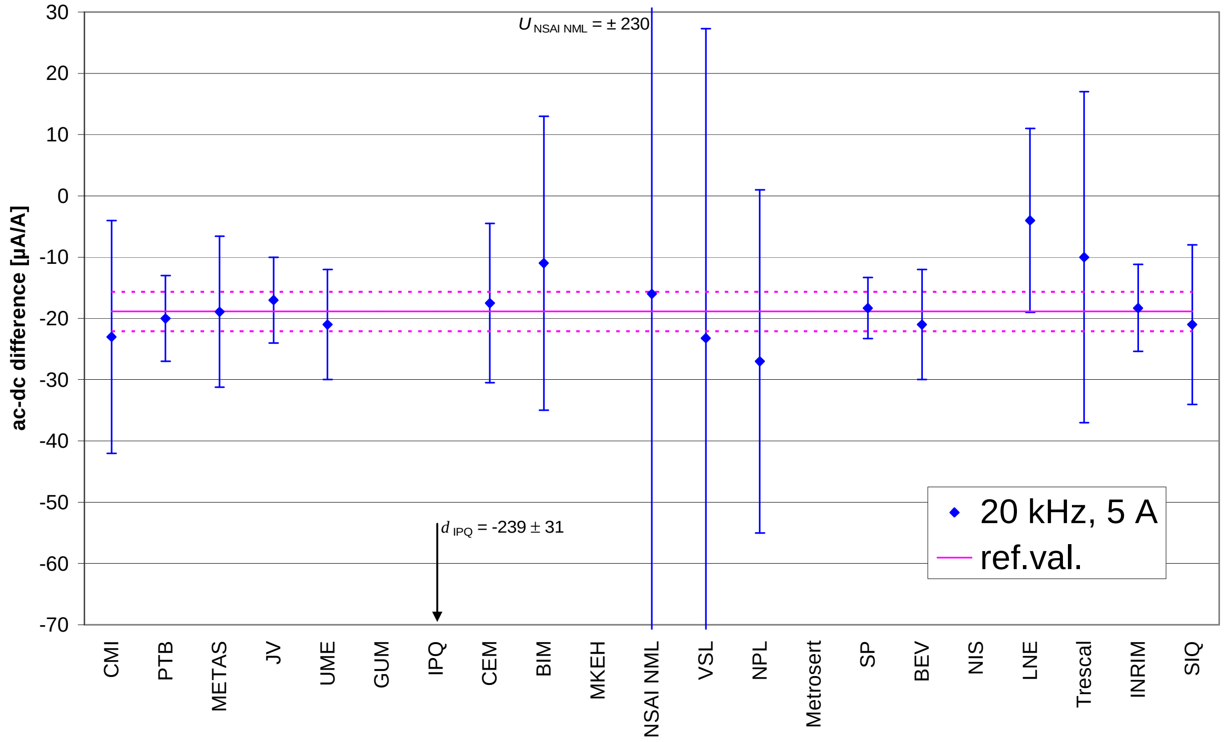

Figure 18: Measured ac-dc difference d_i and expanded uncertainty (95%) U_i at 5 A, in µA/A.

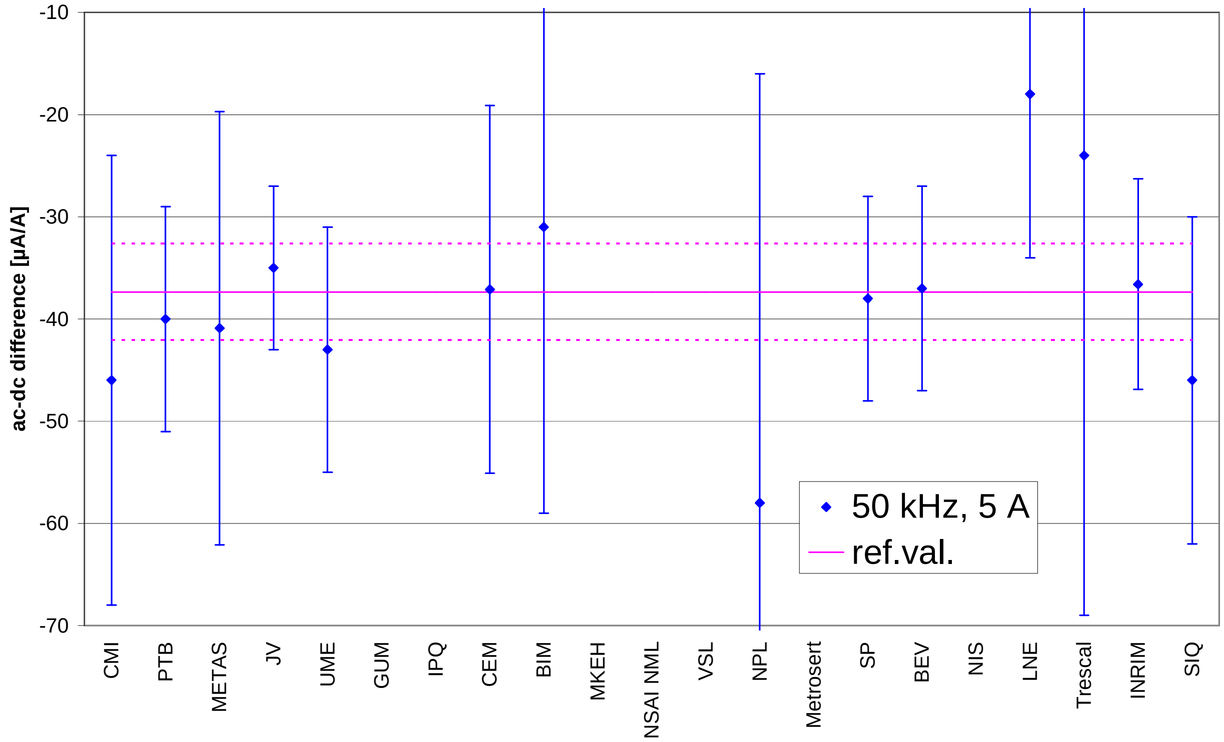

Figure 19: Measured ac-dc difference d_i and expanded uncertainty (95%) U_i at 5 A, in µA/A.

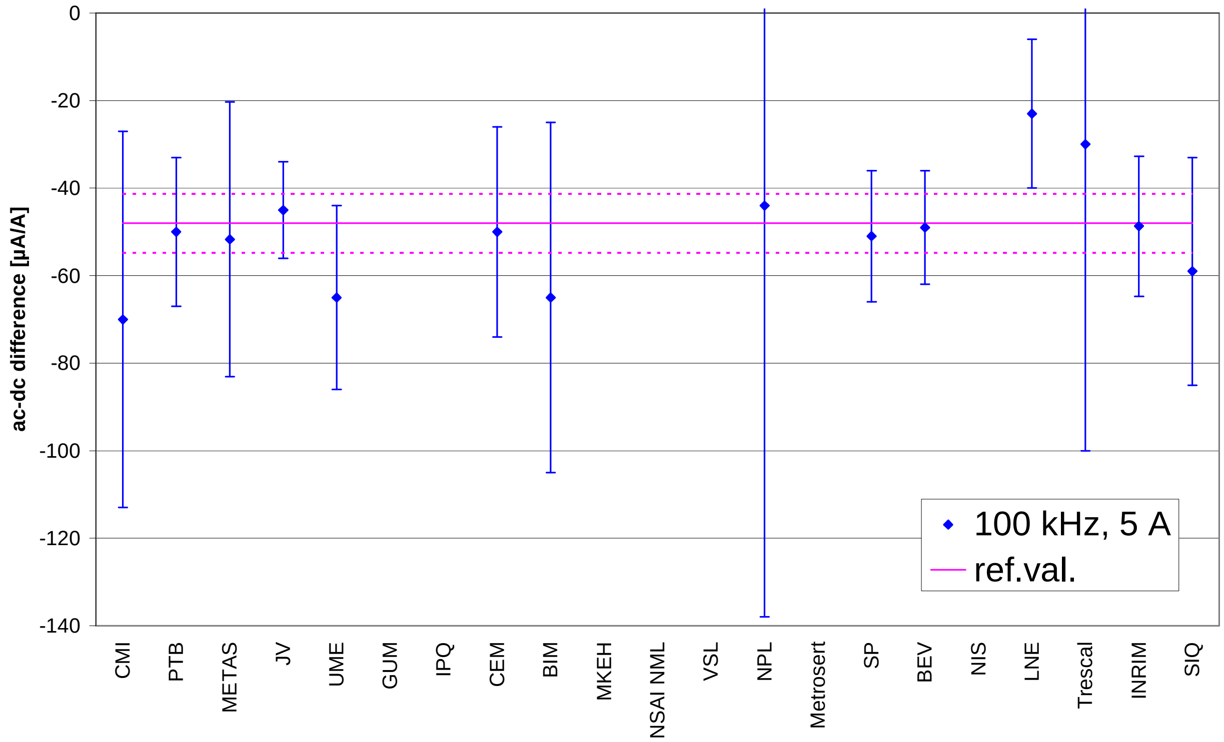

Figure 20: Measured ac-dc difference d_i and expanded uncertainty (95%) U_i at 5 A, in µA/A.

6.4 Tables of Degrees of Equivalence with the EURAMET.EM-K12 Reference Value

Table 5: Degree of Equivalence D_i and Expanded Uncertainty (95%) U_{iD} at 10 mA, in µA/A.

Laboratory	10 Hz, 10 mA		55 Hz, 10 mA		1 kHz, 10 mA		10 kHz, 10 mA		20 kHz, 10 mA		50 kHz, 10 mA		100 kHz, 10 mA	
	D_i	U_{iD}	D_i	U_{iD}	D_i	U_{iD}	D_i	U_{iD}	D_i	U_{iD}	D_i	U_{iD}	D_i	U_{iD}
CMI	-0.9	4.2	-0.3	4.1	0.7	4.0	0.6	4.1	0.8	4.5	1.7	5.3	5.4	5.4
PTB	0.0	1.3	-0.2	0.6	-0.1	0.4	0.0	0.4	0.1	0.5	-0.1	0.8	0.2	1.4
METAS	0.5	8.4	0.4	8.3	0.4	8.3	0.2	8.3	-0.2	8.3	0.6	8.4	0.4	9.5
JV	2.4	4.8	0.8	2.9	0.0	2.9	0.6	2.9	0.1	2.9	0.0	2.8	-1.1	4.8
UME	0.3	4.9	-0.1	3.4	0.1	3.4	-0.2	3.4	-0.6	3.4	0.6	4.1	0.9	6.2
GUM	1.7	4.9	0.3	3.9	0.8	3.9	-3.7	4.6	3.0	4.5				
IPQ	-10.6	40.0	-14.2	18.0	-12.0	16.0	-1.4	17.0	28.1	18.0				
CEM	1.0	4.4	-0.1	3.6	-0.1	3.6	-0.6	3.6	-1.1	3.8	-0.1	3.9	-0.1	4.6
BIM	0.4	14.1	-0.3	5.2	0.0	4.9	0.2	5.0	-1.6	5.0	-3.4	7.3	-5.1	13.1
MKEH			-4.9	21.0	-4.9	18.0	-4.9	23.0	-1.0	19.0				
NSAI NML	1.4	50.0	3.8	30.0	4.0	30.0	1.6	47.0	-0.9	103.0	-5.0	200.0	-18.1	410.0
VSL	-0.6	18.3	0.1	18.2	-0.6	18.1	6.3	19.5	8.9	30.8	14.3	48.2	32.2	98.4
NPL	-4.6	10.9	1.8	11.0	1.0	11.0	-1.4	12.0	-3.9	14.0	-9.0	15.0	-9.1	22.0
Metrosert	-0.6	28.0	-0.2	13.0	-1.0	12.0	-17.4	33.0						
SP	-0.3	3.0	0.2	2.0	0.1	1.4	0.0	1.9	-0.5	1.9	0.2	2.2	-0.1	3.1
BEV	-0.2	1.8	-0.1	2.0	0.3	2.1	0.1	2.1	-0.2	2.3	0.3	2.4	0.0	3.1
NIS	-2.7	7.5	0.2	7.2	1.3	7.2	1.3	7.2						
LNE	2.9	5.5	1.7	3.9	0.1	2.9	-0.6	3.3	0.0	3.1	1.3	3.3	1.3	3.5
Trescal	-3.6	5.1	-0.2	5.1	0.0	5.0	-0.4	5.0	0.1	7.0	4.0	10.0	7.9	20.1
INRIM	-0.8	3.5	0.0	2.5	0.0	2.5	0.0	2.5	-0.3	2.9	0.1	3.2	-0.4	3.7
SIQ	0.4	8.1	-0.2	4.1	0.0	4.0	-0.4	4.1	-0.9	4.1	0.0	4.1	0.9	5.2

Table 6: Degree of Equivalence D_i and Expanded Uncertainty (95%) U_{iD} at 5 A, in µA/A.

Laboratory	10 Hz, 5 A		55 Hz, 5 A		1 kHz, 5 A		10 kHz, 5 A		20 kHz, 5 A		50 kHz, 5 A		100 kHz, 5 A	
	D_i	U_{iD}	D_i	U_{iD}	D_i	U_{iD}	D_i	U_{iD}	D_i	U_{iD}	D_i	U_{iD}	D_i	U_{iD}
CMI	1.0	25.1	0.0	17.1	-2.0	17.1	-2.9	17.2	-4.1	19.3	-8.7	22.5	-22.0	43.5
PTB	0.0	5.7	0.0	4.7	0.0	4.7	-0.9	5.3	-1.1	6.2	-2.7	9.9	-2.0	15.6
METAS	0.5	12.5	0.0	10.0	2.0	9.3	1.1	10.8	0.0	12.7	-3.6	21.7	-3.7	32.1
JV	0.0	10.9	0.0	6.8	0.0	6.8	1.1	6.4	1.9	6.2	2.3	6.4	3.0	8.7
UME	-2.0	12.1	0.0	8.2	0.0	8.2	-1.9	8.5	-2.1	9.6	-5.7	12.9	-17.0	22.0
GUM	-3.5	12.5	-2.4	12.4	-4.5	12.6	-11.2	12.9						
IPQ	-5.0	61.0	-3.0	31.0	-26.0	32.0	-199.9	35.1	-220.1	31.2				
CEM	0.9	17.1	-2.0	10.0	-0.5	10.0	-0.3	11.4	1.4	13.4	0.2	18.6	-2.0	24.9
BIM	0.0	36.0	-2.0	26.1	6.0	26.1	7.1	24.2	7.9	24.2	6.3	28.4	-17.0	40.6
MKEH			-5.5	28.0	-9.1	23.1	-11.4	24.2						
NSAI NML	0.0	185.0	4.0	73.0	3.0	73.0	2.1	120.0	2.9	230.0				
VSL	-1.7	23.8	0.6	23.8	1.0	23.8	-1.2	28.3	-4.3	50.6				
NPL	-27.0	55.0	1.0	21.9	-6.0	20.9	-5.9	18.8	-8.1	27.8	-20.7	41.7	4.0	93.8
Metrosert	5.0	36.0	-9.0	19.1	-9.0	19.1	-2.9	55.1						
SP	0.3	4.5	0.0	3.9	0.3	3.4	0.7	3.1	0.6	3.8	-0.7	8.8	-3.0	13.4
BEV	0.0	1.0	0.0	1.1	0.0	1.2	-1.9	8.5	-2.1	8.4	0.3	8.8	-1.0	11.1
NIS			1.1	28.4	5.4	28.2	21.8	28.3						
LNE	-12.0	19.1	1.0	18.1	-4.0	14.1	1.1	15.3	14.9	15.3	19.3	16.7	25.0	18.3
Trescal	-3.0	18.1	0.0	18.1	0.0	18.1	5.1	22.2	8.9	27.2	13.3	45.2	18.0	70.3
INRIM	2.7	6.7	-0.9	5.8	-0.6	4.6	0.7	6.5	0.6	7.8	0.7	11.3	-0.7	17.4
SIQ	-3.0	14.1	0.0	13.1	1.0	13.1	-0.9	13.3	-2.1	13.4	-8.7	16.7	-11.0	26.9

7. Link between the comparison EURAMET.EM-K12 and CCEM-K12

Five laboratories participated in both comparisons. These five laboratories contributed to the mean value of the EURAMET comparison. Therefore and because the results of these laboratories can be considered as equivalent in both comparisons, these results were used to link the results between the EURAMET.EM-K12 and the CCEM-K12 results.
The linking values and the associated uncertainties are calculated according to

$$d_{LINK} = d_{R,EURAMET.EM-K12} - d_{R,CCEM-K12} \qquad (10)$$

$$U_{LINK} = \sqrt{U^2_{R,EURAMET.EM-K12}(d) + U^2_{R,CCEM-K12}(d)} \qquad (11)$$

where $d_{\text{R,EURAMET.EM-K12}}$ is the reference value of the EURAMET.EM-K12 comparison and $d_{\text{R,CCEM-K12}}$ the reference value of the CCEM-K12 key comparison. $U_{\text{R,EURAMET.EM-K12}}$ and $U_{\text{R,CCEM-K12}}$ are the associated expanded uncertainties, respectively.
The results of this linking procedure and the expanded uncertainties are shown in Table 7 and Table 8.

Table 7: Link d_{LINK} between EURAMET.EM-K12 and CCEM-K12 and expanded uncertainty U_{LINK} (95 %) for 10 mA

10 Hz, 10 mA		55 Hz, 10 mA		1 kHz, 10 mA		10 kHz, 10 mA		20 kHz, 10 mA		50 kHz, 10 mA		100 kHz, 10 mA	
d_{Link}	U_{Link}	d_{Link}	U_{Link}	d_{Link}	U_{Link}	d_{Link}	U_{Link}	d_{Link}	U_{Link}	d_{Link}	U_{Link}	d_{Link}	U_{Link}
4.0	1.5	1.0	1.0	1.0	0.8	1.6	0.9	2.1	1.0	2.3	1.3	3.9	1.7

Table 8: Link d_{LINK} between EURAMET.EM-K12 and CCEM-K12 and expanded uncertainty U_{LINK} (95 %) for 5 A

10 Hz, 5 A		55 Hz, 5 A		1 kHz, 5 A		10 kHz, 5 A		20 kHz, 5 A		50 kHz, 5 A		100 kHz, 5 A	
d_{Link}	U_{Link}	d_{Link}	U_{Link}	d_{Link}	U_{Link}	d_{Link}	U_{Link}	d_{Link}	U_{Link}	d_{Link}	U_{Link}	d_{Link}	U_{Link}
1.1	2.3	0.3	2.2	-0.5	2.1	-8.5	3.4	-10.3	4.2	-2.8	6.2	17.3	8.8

Appendix 1: Degree of equivalence between pairs of institutes

Table 1: Degree of equivalence at 10 mA, 10 Hz

10 mA	CMI		PTB		METAS		JV		UME		GUM		IPQ		CEM		BIM		NSAI NML		VSL		NPL		Metrosert		SP		BEV		NIS		LNE		Trescal		INRIM		SIQ	
10 Hz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	---	---	-0.9	4.4	-1.4	9.2	-3.3	6.4	-1.2	6.2	-2.6	6.2	9.7	40.2	-1.9	5.8	-1.3	14.6	-2.3	50.2	-0.3	18.7	3.7	11.7	-0.3	28.3	-0.6	5.1	-0.7	4.6	1.8	8.4	-3.8	6.7	2.7	6.4	-0.1	5.2	-1.3	8.9
PTB	0.9	4.4	---	---	-0.5	8.5	-2.4	5.3	-0.3	5.0	-1.7	5.0	10.6	40.0	-1.0	4.6	-0.4	14.1	-1.4	50.0	0.6	18.4	4.6	11.1	0.6	28.1	0.3	3.7	0.2	2.8	2.7	7.6	-2.9	5.7	3.6	5.3	0.8	3.8	-0.4	8.2
METAS	1.4	9.2	0.5	8.5	---	---	-1.9	9.7	0.2	9.5	-1.2	9.5	11.1	40.9	-0.5	9.3	0.1	16.3	-0.9	50.7	1.1	20.1	5.1	13.8	1.1	29.2	0.8	8.9	0.7	8.6	3.2	11.1	-2.4	9.9	4.1	9.7	1.3	8.9	0.1	11.5
JV	3.3	6.4	2.4	5.3	1.9	9.7	---	---	2.1	6.9	0.7	6.9	13.0	40.3	1.4	6.5	2.0	14.9	1.0	50.2	3.0	19.0	7.0	12.1	3.0	28.4	2.7	5.9	2.6	5.5	5.1	8.9	-0.5	7.4	6.0	7.1	3.2	6.0	2.0	9.4
UME	1.2	6.2	0.3	5.0	-0.2	9.5	-2.1	6.9	---	---	-1.4	6.6	10.9	40.3	-0.7	6.3	-0.1	14.8	-1.1	50.2	0.9	18.9	4.9	12.0	0.9	28.4	0.6	5.7	0.5	5.2	3.0	8.8	-2.6	7.2	3.9	6.9	1.1	5.7	-0.1	9.3
GUM	2.6	6.2	1.7	5.0	1.2	9.5	-0.7	6.9	1.4	6.6	---	---	12.3	40.3	0.7	6.3	1.3	14.8	0.3	50.2	2.3	18.9	6.3	12.0	2.3	28.4	2.0	5.7	1.9	5.2	4.4	8.8	-1.2	7.2	5.3	6.9	2.5	5.7	1.3	9.3
IPQ	-9.7	40.2	-10.6	40.0	-11.1	40.9	-13.0	40.3	-10.9	40.3	-12.3	40.3	---	---	-11.6	40.2	-11.0	42.4	-12.0	64.0	-10.0	44.0	-6.0	41.5	-10.0	48.8	-10.3	40.1	-10.4	40.1	-7.9	40.7	-13.5	40.4	-7.0	40.3	-9.8	40.1	-11.0	40.8
CEM	1.9	5.8	1.0	4.6	0.5	9.3	-1.4	6.5	0.7	6.3	-0.7	6.3	11.6	40.2	---	---	0.6	14.6	-0.4	50.2	1.6	18.8	5.6	11.8	1.6	28.3	1.3	5.3	1.2	4.7	3.7	8.5	-1.9	6.8	4.6	6.5	1.8	5.3	0.6	9.0
BIM	1.3	14.6	0.4	14.1	-0.1	16.3	-2.0	14.9	0.1	14.8	-1.3	14.8	11.0	42.4	-0.6	14.6	---	---	-1.0	51.9	1.0	23.0	5.0	17.8	1.0	31.3	0.7	14.4	0.6	14.2	3.1	15.8	-2.5	15.0	4.0	14.9	1.2	14.4	0.0	16.1
NSAI NML	2.3	50.2	1.4	50.0	0.9	50.7	-1.0	50.2	1.1	50.2	-0.3	50.2	12.0	64.0	0.4	50.2	1.0	51.9	---	---	2.0	53.2	6.0	51.2	2.0	57.3	1.7	50.1	1.6	50.0	4.1	50.5	-1.5	50.3	5.0	50.2	2.2	50.1	1.0	50.6
VSL	0.3	18.7	-0.6	18.4	-1.1	20.1	-3.0	19.0	-0.9	18.9	-2.3	18.9	10.0	44.0	-1.6	18.8	-1.0	23.0	-2.0	53.2	---	---	4.0	21.4	0.0	33.4	-0.3	18.6	-0.4	18.4	2.1	19.7	-3.5	19.1	3.0	19.0	0.2	18.6	-1.0	20.0
NPL	-3.7	11.7	-4.6	11.1	-5.1	13.8	-7.0	12.1	-4.9	12.0	-6.3	12.0	6.0	41.5	-5.6	11.8	-5.0	17.8	-6.0	51.2	-4.0	21.4	---	---	-4.0	30.1	-4.3	11.5	-4.4	11.2	-1.9	13.3	-7.5	12.3	-1.0	12.1	-3.8	11.5	-5.0	13.6
Metrosert	0.3	28.3	-0.6	28.1	-1.1	29.2	-3.0	28.4	-0.9	28.4	-2.3	28.4	10.0	48.8	-1.6	28.3	-1.0	31.3	-2.0	57.3	0.0	33.4	4.0	30.1	---	---	-0.3	28.2	-0.4	28.1	2.1	29.0	-3.5	28.5	3.0	28.4	0.2	28.2	-1.0	29.1
SP	0.6	5.1	-0.3	3.7	-0.8	8.9	-2.7	5.9	-0.6	5.7	-2.0	5.7	10.3	40.1	-1.3	5.3	-0.7	14.4	-1.7	50.1	0.3	18.6	4.3	11.5	0.3	28.2	---	---	-0.1	3.9	2.4	8.1	-3.2	6.3	3.3	5.9	0.5	4.6	-0.7	8.6
BEV	0.7	4.6	-0.2	2.8	-0.7	8.6	-2.6	5.5	-0.5	5.2	-1.9	5.2	10.4	40.1	-1.2	4.7	-0.6	14.2	-1.6	50.0	0.4	18.4	4.4	11.2	0.4	28.1	0.1	3.9	---	---	2.5	7.7	-3.1	5.8	3.4	5.5	0.6	4.0	-0.6	8.3
NIS	-1.8	8.4	-2.7	7.6	-3.2	11.1	-5.1	8.9	-3.0	8.8	-4.4	8.8	7.9	40.7	-3.7	8.5	-3.1	15.8	-4.1	50.5	-2.1	19.7	1.9	13.3	-2.1	29.0	-2.4	8.1	-2.5	7.7	---	---	-5.6	9.2	0.9	8.9	-1.9	8.1	-3.1	10.9
LNE	3.8	6.7	2.9	5.7	2.4	9.9	0.5	7.4	2.6	7.2	1.2	7.2	13.5	40.4	1.9	6.8	2.5	15.0	1.5	50.3	3.5	19.1	7.5	12.3	3.5	28.5	3.2	6.3	3.1	5.8	5.6	9.2	---	---	6.5	7.4	3.7	6.3	2.5	9.7
Trescal	-2.7	6.4	-3.6	5.3	-4.1	9.7	-6.0	7.1	-3.9	6.9	-5.3	6.9	7.0	40.3	-4.6	6.5	-4.0	14.9	-5.0	50.2	-3.0	19.0	1.0	12.1	-3.0	28.4	-3.3	5.9	-3.4	5.5	-0.9	8.9	-6.5	7.4	---	---	-2.8	6.0	-4.0	9.4
INRIM	0.1	5.2	-0.8	3.8	-1.3	8.9	-3.2	6.0	-1.1	5.7	-2.5	5.7	9.8	40.1	-1.8	5.3	-1.2	14.4	-2.2	50.1	-0.2	18.6	3.8	11.5	-0.2	28.2	-0.5	4.6	-0.6	4.0	1.9	8.1	-3.7	6.3	2.8	6.0	---	---	-1.2	8.7
SIQ	1.3	8.9	0.4	8.2	-0.1	11.5	-2.0	9.4	0.1	9.3	-1.3	9.3	11.0	40.8	-0.6	9.0	0.0	16.1	-1.0	50.6	1.0	20.0	5.0	13.6	1.0	29.1	0.7	8.6	0.6	8.3	3.1	10.9	-2.5	9.7	4.0	9.4	1.2	8.7	---	---

Table 2: Degree of equivalence at 10 mA, 55 Hz

10 mA	CMI		PTB		METAS		JV		UME		GUM		IPQ		CEM		BIM		MKEH		NSAI NML		VSL		NPL		Metrosert		SP		BEV		NIS		LNE		Trescal		INRIM		SIQ	
55 Hz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	---	---	-0.1	4.1	-0.7	9.2	-1.1	5.0	-0.2	5.2	-0.6	5.5	13.9	18.4	-0.2	5.3	0.0	6.5	4.6	21.4	-4.1	30.3	-0.4	18.6	-2.1	11.7	-0.1	13.6	-0.5	4.6	-0.2	4.6	-0.5	8.2	-2.0	5.5	-0.1	6.4	-0.3	4.7	-0.1	5.7
PTB	0.1	4.1	---	---	-0.6	8.4	-1.0	3.2	-0.1	3.4	-0.5	3.9	14.0	18.0	-0.1	3.6	0.1	5.2	4.7	21.0	-4.0	30.0	-0.3	18.2	-2.0	11.0	0.0	13.0	-0.4	2.4	-0.1	2.4	-0.4	7.3	-1.9	3.9	0.0	5.1	-0.2	2.6	0.0	4.1
METAS	0.7	9.2	0.6	8.4	---	---	-0.4	8.8	0.5	8.9	0.1	9.1	14.6	19.8	0.5	9.0	0.7	9.7	5.3	22.6	-3.4	31.1	0.3	20.0	-1.4	13.8	0.6	15.4	0.2	8.6	0.5	8.6	0.2	11.0	-1.3	9.1	0.6	9.7	0.4	8.6	0.6	9.2
JV	1.1	5.0	1.0	3.2	0.4	8.8	---	---	0.9	4.5	0.5	4.8	15.0	18.2	0.9	4.6	1.1	5.9	5.7	21.2	-3.0	30.1	0.7	18.4	-1.0	11.4	1.0	13.3	0.6	3.7	0.9	3.7	0.6	7.8	-0.9	4.8	1.0	5.8	0.8	3.8	1.0	5.0
UME	0.2	5.2	0.1	3.4	-0.5	8.9	-0.9	4.5	---	---	-0.4	5.0	14.1	18.3	0.0	4.8	0.2	6.1	4.8	21.3	-3.9	30.2	-0.2	18.5	-1.9	11.5	0.1	13.4	-0.3	4.0	0.0	4.0	-0.3	7.9	-1.8	5.0	0.1	6.0	-0.1	4.1	0.1	5.2
GUM	0.6	5.5	0.5	3.9	-0.1	9.1	-0.5	4.8	0.4	5.0	---	---	14.5	18.4	0.4	5.2	0.6	6.4	5.2	21.3	-3.5	30.2	0.2	18.6	-1.5	11.6	0.5	13.5	0.1	4.4	0.4	4.4	0.1	8.1	-1.4	5.4	0.5	6.3	0.3	4.5	0.5	5.5
IPQ	-13.9	18.4	-14.0	18.0	-14.6	19.8	-15.0	18.2	-14.1	18.3	-14.5	18.4	---	---	-14.1	18.3	-13.9	18.7	-9.3	27.7	-18.0	35.0	-14.3	25.6	-16.0	21.1	-14.0	22.2	-14.4	18.1	-14.1	18.1	-14.4	19.4	-15.9	18.4	-14.0	18.7	-14.2	18.2	-14.0	18.4
CEM	0.2	5.3	0.1	3.6	-0.5	9.0	-0.9	4.6	0.0	4.8	-0.4	5.2	14.1	18.3	---	---	0.2	6.2	4.8	21.3	-3.9	30.2	-0.2	18.5	-1.9	11.5	0.1	13.5	-0.3	4.1	0.0	4.1	-0.3	8.0	-1.8	5.2	0.1	6.1	-0.1	4.2	0.1	5.3
BIM	0.0	6.5	-0.1	5.2	-0.7	9.7	-1.1	5.9	-0.2	6.1	-0.6	6.4	13.9	18.7	-0.2	6.2	---	---	4.6	21.6	-4.1	30.4	-0.4	18.9	-2.1	12.1	-0.1	14.0	-0.5	5.6	-0.2	5.6	-0.5	8.8	-2.0	6.4	-0.1	7.1	-0.3	5.6	-0.1	6.5
MKEH	-4.6	21.4	-4.7	21.0	-5.3	22.6	-5.7	21.2	-4.8	21.3	-5.2	21.3	9.3	27.7	-4.8	21.3	-4.6	21.6	---	---	-8.7	36.6	-5.0	27.8	-6.7	23.7	-4.7	24.7	-5.1	21.1	-4.8	21.1	-5.1	22.2	-6.6	21.3	-4.7	21.6	-4.9	21.1	-4.7	21.4
NSAI NML	4.1	30.3	4.0	30.0	3.4	31.1	3.0	30.1	3.9	30.2	3.5	30.2	18.0	35.0	3.9	30.2	4.1	30.4	8.7	36.6	---	---	3.7	35.1	2.0	32.0	4.0	32.7	3.6	30.1	3.9	30.1	3.6	30.9	2.1	30.2	4.0	30.4	3.8	30.1	4.0	30.3
VSL	0.4	18.6	0.3	18.2	-0.3	20.0	-0.7	18.4	0.2	18.5	-0.2	18.6	14.3	25.6	0.2	18.5	0.4	18.9	5.0	27.8	-3.7	35.1	---	---	-1.7	21.3	0.3	22.4	-0.1	18.3	0.2	18.3	-0.1	19.6	-1.6	18.6	0.3	18.9	0.1	18.4	0.3	18.6
NPL	2.1	11.7	2.0	11.0	1.4	13.8	1.0	11.4	1.9	11.5	1.5	11.6	16.0	21.1	1.9	11.5	2.1	12.1	6.7	23.7	-2.0	32.0	1.7	21.3	---	---	2.0	17.0	1.6	11.2	1.9	11.2	1.6	13.1	0.1	11.6	2.0	12.1	1.8	11.3	2.0	11.7
Metrosert	0.1	13.6	0.0	13.0	-0.6	15.4	-1.0	13.3	-0.1	13.4	-0.5	13.5	14.0	22.2	-0.1	13.5	0.1	14.0	4.7	24.7	-4.0	32.7	-0.3	22.4	-2.0	17.0	---	---	-0.4	13.2	-0.1	13.2	-0.4	14.9	-1.9	13.5	0.0	13.9	-0.2	13.2	0.0	13.6
SP	0.5	4.6	0.4	2.4	-0.2	8.6	-0.6	3.7	0.3	4.0	-0.1	4.4	14.4	18.1	0.3	4.1	0.5	5.6	5.1	21.1	-3.6	30.1	0.1	18.3	-1.6	11.2	0.4	13.2	---	---	0.3	3.1	0.0	7.5	-1.5	4.4	0.4	5.5	0.2	3.3	0.4	4.6
BEV	0.2	4.6	0.1	2.4	-0.5	8.6	-0.9	3.7	0.0	4.0	-0.4	4.4	14.1	18.1	0.0	4.1	0.2	5.6	4.8	21.1	-3.9	30.1	-0.2	18.3	-1.9	11.2	0.1	13.2	-0.3	3.1	---	---	-0.3	7.5	-1.8	4.4	0.1	5.5	-0.1	3.3	0.1	4.6
NIS	0.5	8.2	0.4	7.3	-0.2	11.0	-0.6	7.8	0.3	7.9	-0.1	8.1	14.4	19.4	0.3	8.0	0.5	8.8	5.1	22.2	-3.6	30.9	0.1	19.6	-1.6	13.1	0.4	14.9	0.0	7.5	0.3	7.5	---	---	-1.5	8.1	0.4	8.8	0.2	7.6	0.4	8.2
LNE	2.0	5.5	1.9	3.9	1.3	9.1	0.9	4.8	1.8	5.0	1.4	5.4	15.9	18.4	1.8	5.2	2.0	6.4	6.6	21.3	-2.1	30.2	1.6	18.6	-0.1	11.6	1.9	13.5	1.5	4.4	1.8	4.4	1.5	8.1	---	---	1.9	6.3	1.7	4.5	1.9	5.5
Trescal	0.1	6.4	0.0	5.1	-0.6	9.7	-1.0	5.8	-0.1	6.0	-0.5	6.3	14.0	18.7	-0.1	6.1	0.1	7.1	4.7	21.6	-4.0	30.4	-0.3	18.9	-2.0	12.1	0.0	13.9	-0.4	5.5	-0.1	5.5	-0.4	8.8	-1.9	6.3	---	---	-0.2	5.5	0.0	6.4
INRIM	0.3	4.7	0.2	2.6	-0.4	8.6	-0.8	3.8	0.1	4.1	-0.3	4.5	14.2	18.2	0.1	4.2	0.3	5.6	4.9	21.1	-3.8	30.1	-0.1	18.4	-1.8	11.3	0.2	13.2	-0.2	3.3	0.1	3.3	-0.2	7.6	-1.7	4.5	0.2	5.5	---	---	0.2	4.7
SIQ	0.1	5.7	0.0	4.1	-0.6	9.2	-1.0	5.0	-0.1	5.2	-0.5	5.5	14.0	18.4	-0.1	5.3	0.1	6.5	4.7	21.4	-4.0	30.3	-0.3	18.6	-2.0	11.7	0.0	13.6	-0.4	4.6	-0.1	4.6	-0.4	8.2	-1.9	5.5	0.0	6.4	-0.2	4.7	---	---

Table 3: Degree of equivalence at 10 mA, 1 kHz

10 mA	CMI		PTB		METAS		JV		UME		GUM		IPQ		CEM		BIM		MKEH		NSAI NML		VSL		NPL		Metrosert		SP		BEV		NIS		LNE		Trescal		INRIM		SIQ	
1 kHz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	---	---	0.8	4.1	0.3	9.2	0.7	5.0	0.6	5.2	-0.1	5.6	12.7	16.5	0.8	5.3	0.7	6.3	5.6	18.4	-3.3	30.3	1.3	18.5	-0.3	11.7	1.7	12.6	0.6	4.3	0.4	4.6	-0.6	8.2	0.6	4.9	0.7	6.4	0.7	4.7	0.7	5.7
PTB	-0.8	4.1	---	---	-0.5	8.3	-0.1	3.1	-0.2	3.4	-0.9	4.0	11.9	16.0	0.0	3.6	-0.1	4.9	4.8	18.0	-4.1	30.0	0.5	18.1	-1.1	11.0	0.9	12.0	-0.2	1.7	-0.4	2.3	-1.4	7.2	-0.2	2.9	-0.1	5.0	-0.1	2.5	-0.1	4.1
METAS	-0.3	9.2	0.5	8.3	---	---	0.4	8.8	0.3	8.9	-0.4	9.2	12.4	18.0	0.5	9.0	0.4	9.6	5.3	19.8	-3.6	31.1	1.0	19.9	-0.6	13.8	1.4	14.6	0.3	8.4	0.1	8.6	-0.9	11.0	0.3	8.8	0.4	9.7	0.4	8.6	0.4	9.2
JV	-0.7	5.0	0.1	3.1	-0.4	8.8	---	---	-0.1	4.5	-0.8	4.9	12.0	16.3	0.1	4.6	0.0	5.7	4.9	18.2	-4.0	30.1	0.6	18.3	-1.0	11.4	1.0	12.4	-0.1	3.4	-0.3	3.7	-1.3	7.8	-0.1	4.1	0.0	5.8	0.0	3.8	0.0	5.0
UME	-0.6	5.2	0.2	3.4	-0.3	8.9	0.1	4.5	---	---	-0.7	5.1	12.1	16.3	0.2	4.8	0.1	5.9	5.0	18.3	-3.9	30.2	0.7	18.4	-0.9	11.5	1.1	12.4	0.0	3.6	-0.2	4.0	-1.2	7.9	0.0	4.3	0.1	6.0	0.1	4.1	0.1	5.2
GUM	0.1	5.6	0.9	4.0	0.4	9.2	0.8	4.9	0.7	5.1	---	---	12.8	16.5	0.9	5.2	0.8	6.3	5.7	18.4	-3.2	30.3	1.4	18.5	-0.2	11.7	1.8	12.6	0.7	4.2	0.5	4.5	-0.5	8.2	0.7	4.8	0.8	6.3	0.8	4.6	0.8	5.6
IPQ	-12.7	16.5	-11.9	16.0	-12.4	18.0	-12.0	16.3	-12.1	16.3	-12.8	16.5	---	---	-11.9	16.4	-12.0	16.7	-7.1	24.1	-16.0	34.0	-11.4	24.2	-13.0	19.4	-11.0	20.0	-12.1	16.1	-12.3	16.2	-13.3	17.5	-12.1	16.2	-12.0	16.8	-12.0	16.2	-12.0	16.5
CEM	-0.8	5.3	0.0	3.6	-0.5	9.0	-0.1	4.6	-0.2	4.8	-0.9	5.2	-0.9	16.4	---	---	-0.1	6.0	4.8	18.3	-4.1	30.2	0.5	18.4	-1.1	11.5	0.9	12.5	-0.2	3.8	-0.4	4.1	-1.4	8.0	-0.2	4.5	-0.1	6.1	-0.1	4.2	-0.1	5.3
BIM	-0.7	6.3	0.1	4.9	-0.4	9.6	0.0	5.7	-0.1	5.9	-0.8	6.3	-0.8	16.7	0.1	6.0	---	---	4.9	18.7	-4.0	30.4	0.6	18.8	-1.0	12.0	1.0	13.0	-0.1	5.1	-0.3	5.4	-1.3	8.7	-0.1	5.6	0.0	7.0	0.0	5.5	0.0	6.3
MKEH	-5.6	18.4	-4.8	18.0	-5.3	19.8	-4.9	18.2	-5.0	18.3	-5.7	18.4	-5.7	24.1	-4.8	18.3	-4.9	18.7	---	---	-8.9	35.0	-4.3	25.5	-5.9	21.1	-3.9	21.6	-5.0	18.1	-5.2	18.1	-6.2	19.4	-5.0	18.2	-4.9	18.7	-4.9	18.2	-4.9	18.4
NSAI NML	3.3	30.3	4.1	30.0	3.6	31.1	4.0	30.1	3.9	30.2	3.2	30.3	3.2	34.0	4.1	30.2	4.0	30.4	8.9	35.0	---	---	4.6	35.0	3.0	32.0	5.0	32.3	3.9	30.0	3.7	30.1	2.7	30.9	3.9	30.1	4.0	30.4	4.0	30.1	4.0	30.3
VSL	-1.3	18.5	-0.5	18.1	-1.0	19.9	-0.6	18.3	-0.7	18.4	-1.4	18.5	-1.4	24.2	-0.5	18.4	-0.6	18.8	4.3	25.5	-4.6	35.0	---	---	-1.6	21.2	0.4	21.7	-0.7	18.2	-0.9	18.2	-1.9	19.5	-0.7	18.3	-0.6	18.8	-0.6	18.3	-0.6	18.5
NPL	0.3	11.7	1.1	11.0	0.6	13.8	1.0	11.4	0.9	11.5	0.2	11.7	0.2	19.4	1.1	11.5	1.0	12.0	5.9	21.1	-3.0	32.0	1.6	21.2	---	---	2.0	16.3	0.9	11.1	0.7	11.2	-0.3	13.1	0.9	11.4	1.0	12.1	1.0	11.3	1.0	11.7
Metrosert	-1.7	12.6	-0.9	12.0	-1.4	14.6	-1.0	12.4	-1.1	12.4	-1.8	12.6	-1.8	20.0	-0.9	12.5	-1.0	13.0	3.9	21.6	-5.0	32.3	-0.4	21.7	-2.0	16.3	---	---	-1.1	12.1	-1.3	12.2	-2.3	14.0	-1.1	12.3	-1.0	13.0	-1.0	12.2	-1.0	12.6
SP	-0.6	4.3	0.2	1.7	-0.3	8.4	0.1	3.4	0.0	3.6	-0.7	4.2	-0.7	16.1	0.2	3.8	0.1	5.1	5.0	18.1	-3.9	30.0	0.7	18.2	-0.9	11.1	1.1	12.1	---	---	-0.2	2.7	-1.2	7.4	0.0	3.2	0.1	5.2	0.1	2.8	0.1	4.3
BEV	-0.4	4.6	0.4	2.3	-0.1	8.6	0.3	3.7	0.2	4.0	-0.5	4.5	-0.5	16.2	0.4	4.1	0.3	5.4	5.2	18.1	-3.7	30.1	0.9	18.2	-0.7	11.2	1.3	12.2	0.2	2.7	---	---	-1.0	7.5	0.2	3.6	0.3	5.5	0.3	3.3	0.3	4.6
NIS	0.6	8.2	1.4	7.2	0.9	11.0	1.3	7.8	1.2	7.9	0.5	8.2	0.5	17.5	1.4	8.0	1.3	8.7	6.2	19.4	-2.7	30.9	1.9	19.5	0.3	13.1	2.3	14.0	1.2	7.4	1.0	7.5	---	---	1.2	7.7	1.3	8.8	1.3	7.6	1.3	8.2
LNE	-0.6	4.9	0.2	2.9	-0.3	8.8	0.1	4.1	0.0	4.3	-0.7	4.8	-0.7	16.2	0.2	4.5	0.1	5.6	5.0	18.2	-3.9	30.1	0.7	18.3	-0.9	11.4	1.1	12.3	0.0	3.2	-0.2	3.6	-1.2	7.7	---	---	0.1	5.7	0.1	3.7	0.1	4.9
Trescal	-0.7	6.4	0.1	5.0	-0.4	9.7	0.0	5.8	-0.1	6.0	-0.8	6.3	-0.8	16.8	0.1	6.1	0.0	7.0	4.9	18.7	-4.0	30.4	0.6	18.8	-1.0	12.1	1.0	13.0	-0.1	5.2	-0.3	5.5	-1.3	8.8	-0.1	5.7	---	---	0.0	5.5	0.0	6.4
INRIM	-0.7	4.7	0.1	2.5	-0.4	8.6	0.0	3.8	-0.1	4.1	-0.8	4.6	-0.8	16.2	0.1	4.2	0.0	5.5	4.9	18.2	-4.0	30.1	0.6	18.3	-1.0	11.3	1.0	12.2	-0.1	2.8	-0.3	3.3	-1.3	7.6	-0.1	3.7	0.0	5.5	---	---	0.0	4.7
SIQ	-0.7	5.7	0.1	4.1	-0.4	9.2	0.0	5.0	-0.1	5.2	-0.8	5.6	-0.8	16.5	0.1	5.3	0.0	6.3	4.9	18.4	-4.0	30.3	0.6	18.5	-1.0	11.7	1.0	12.6	-0.1	4.3	-0.3	4.6	-1.3	8.2	-0.1	4.9	0.0	6.4	0.0	4.7	---	---

Table 4: Degree of equivalence at 10 mA, 10 kHz

10 mA	CMI		PTB		METAS		JV		UME		GUM		IPQ		CEM		BIM		MKEH		NSAI NML		VSL		NPL		Metrosert		SP		BEV		NIS		LNE		Trescal		INRIM		SIQ	
10 kHz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	---	---	0.6	4.1	0.4	9.2	0.0	5.0	0.8	5.2	4.3	6.0	2.0	17.5	1.2	5.3	0.4	6.4	5.5	23.3	-1.0	47.2	-5.7	19.9	2.0	12.6	18.0	33.2	0.6	4.5	0.5	4.6	-0.8	8.2	1.2	5.1	1.0	6.4	0.6	4.7	1.0	5.7
PTB	-0.6	4.1	---	---	-0.2	8.3	-0.6	3.1	0.2	3.4	3.7	4.6	1.4	17.0	0.6	3.6	-0.2	5.1	4.9	23.0	-1.6	47.0	-6.3	19.5	1.4	12.0	17.4	33.0	0.0	2.2	-0.1	2.3	-1.4	7.2	0.6	3.3	0.4	5.1	0.0	2.5	0.4	4.1
METAS	-0.4	9.2	0.2	8.3	---	---	-0.4	8.8	0.4	8.9	3.9	9.4	1.6	18.9	0.8	9.0	0.0	9.7	5.1	24.5	-1.4	47.7	-6.1	21.2	1.6	14.6	17.6	34.0	0.2	8.5	0.1	8.6	-1.2	11.0	0.8	8.9	0.6	9.7	0.2	8.6	0.6	9.2
JV	0.0	5.0	0.6	3.1	0.4	8.8	---	---	0.8	4.5	4.3	5.4	2.0	17.3	1.2	4.6	0.4	5.8	5.5	23.2	-1.0	47.1	-5.7	19.7	2.0	12.4	18.0	33.1	0.6	3.6	0.5	3.7	-0.8	7.8	1.2	4.4	1.0	5.8	0.6	3.8	1.0	5.0
UME	-0.8	5.2	-0.2	3.4	-0.4	8.9	-0.8	4.5	---	---	3.5	5.6	1.2	17.3	0.4	4.8	-0.4	6.0	4.7	23.2	-1.8	47.1	-6.5	19.8	1.2	12.4	17.2	33.2	-0.2	3.9	-0.3	4.0	-1.6	7.9	0.4	4.6	0.2	6.0	-0.2	4.1	0.2	5.2
GUM	-4.3	6.0	-3.7	4.6	-3.9	9.4	-4.3	5.4	-3.5	5.6	---	---	-2.3	17.6	-3.1	5.7	-3.9	6.7	1.2	23.4	-5.3	47.2	-10.0	20.0	-2.3	12.8	13.7	33.3	-3.7	4.9	-3.8	5.0	-5.1	8.5	-3.1	5.5	-3.3	6.7	-3.7	5.1	-3.3	6.0
IPQ	-2.0	17.5	-1.4	17.0	-1.6	18.9	-2.0	17.3	-1.2	17.3	2.3	17.6	---	---	-0.8	17.4	-1.6	17.7	3.5	28.6	-3.0	50.0	-7.7	25.9	0.0	20.8	16.0	37.1	-1.4	17.1	-1.5	17.1	-2.8	18.5	-0.8	17.3	-1.0	17.7	-1.4	17.2	-1.0	17.5
CEM	-1.2	5.3	-0.6	3.6	-0.8	9.0	-1.2	4.6	-0.4	4.8	3.1	5.7	0.8	17.4	---	---	-0.8	6.1	4.3	23.3	-2.2	47.1	-6.9	19.8	0.8	12.5	16.8	33.2	-0.6	4.0	-0.7	4.1	-2.0	8.0	0.0	4.7	-0.2	6.1	-0.6	4.2	-0.2	5.3
BIM	-0.4	6.4	0.2	5.1	0.0	9.7	-0.4	5.8	0.4	6.0	3.9	6.7	1.6	17.7	0.8	6.1	---	---	5.1	23.5	-1.4	47.3	-6.1	20.1	1.6	13.0	17.6	33.4	0.2	5.4	0.1	5.5	-1.2	8.8	0.8	5.9	0.6	7.1	0.2	5.5	0.6	6.4
MKEH	-5.5	23.3	-4.9	23.0	-5.1	24.5	-5.5	23.2	-4.7	23.2	-1.2	23.4	-3.5	28.6	-4.3	23.3	-5.1	23.5	---	---	-6.5	52.3	-11.2	30.2	-3.5	25.9	12.5	40.2	-4.9	23.1	-5.0	23.1	-6.3	24.1	-4.3	23.2	-4.5	23.5	-4.9	23.1	-4.5	23.3
NSAI NML	1.0	47.2	1.6	47.0	1.4	47.7	1.0	47.1	1.8	47.1	5.3	47.2	3.0	50.0	2.2	47.1	1.4	47.3	6.5	52.3	---	---	-4.7	50.9	3.0	48.5	19.0	57.4	1.6	47.0	1.5	47.1	0.2	47.5	2.2	47.1	2.0	47.3	1.6	47.1	2.0	47.2
VSL	5.7	19.9	6.3	19.5	6.1	21.2	5.7	19.7	6.5	19.8	10.0	20.0	7.7	25.9	6.9	19.8	6.1	20.1	11.2	30.2	4.7	50.9	---	---	7.7	22.9	23.7	38.3	6.3	19.6	6.2	19.6	4.9	20.8	6.9	19.8	6.7	20.1	6.3	19.6	6.7	19.9
NPL	-2.0	12.6	-1.4	12.0	-1.6	14.6	-2.0	12.4	-1.2	12.4	2.3	12.8	0.0	20.8	-0.8	12.5	-1.6	13.0	3.5	25.9	-3.0	48.5	-7.7	22.9	---	---	16.0	35.1	-1.4	12.2	-1.5	12.2	-2.8	14.0	-0.8	12.4	-1.0	13.0	-1.4	12.2	-1.0	12.6
Metrosert	-18.0	33.2	-17.4	33.0	-17.6	34.0	-18.0	33.1	-17.2	33.2	-13.7	33.3	-16.0	37.1	-16.8	33.2	-17.6	33.4	-12.5	40.2	-19.0	57.4	-23.7	38.3	-16.0	35.1	---	---	-17.4	33.1	-17.5	33.1	-18.8	33.8	-16.8	33.2	-17.0	33.4	-17.4	33.1	-17.0	33.2
SP	-0.6	4.5	0.0	2.2	-0.2	8.5	-0.6	3.6	0.2	3.9	3.7	4.9	1.4	17.1	0.6	4.0	-0.2	5.4	4.9	23.1	-1.6	47.0	-6.3	19.6	1.4	12.2	17.4	33.1	---	---	-0.1	3.0	-1.4	7.5	0.6	3.8	0.4	5.4	0.0	3.1	0.4	4.5
BEV	-0.5	4.6	0.1	2.3	-0.1	8.6	-0.5	3.7	0.3	4.0	3.8	5.0	1.5	17.1	0.7	4.1	-0.1	5.5	5.0	23.1	-1.5	47.1	-6.2	19.6	1.5	12.2	17.5	33.1	0.1	3.0	---	---	-1.3	7.5	0.7	3.9	0.5	5.5	0.1	3.3	0.5	4.6
NIS	0.8	8.2	1.4	7.2	1.2	11.0	0.8	7.8	1.6	7.9	5.1	8.5	2.8	18.5	2.0	8.0	1.2	8.8	6.3	24.1	-0.2	47.5	-4.9	20.8	2.8	14.0	18.8	33.8	1.4	7.5	1.3	7.5	---	---	2.0	7.9	1.8	8.8	1.4	7.6	1.8	8.2
LNE	-1.2	5.1	-0.6	3.3	-0.8	8.9	-1.2	4.4	-0.4	4.6	3.1	5.5	0.8	17.3	0.0	4.7	-0.8	5.9	4.3	23.2	-2.2	47.1	-6.9	19.8	0.8	12.4	16.8	33.2	-0.6	3.8	-0.7	3.9	-2.0	7.9	---	---	-0.2	5.9	-0.6	4.0	-0.2	5.1
Trescal	-1.0	6.4	-0.4	5.1	-0.6	9.7	-1.0	5.8	-0.2	6.0	3.3	6.7	1.0	17.7	0.2	6.1	-0.6	7.1	4.5	23.5	-2.0	47.3	-6.7	20.1	1.0	13.0	17.0	33.4	-0.4	5.4	-0.5	5.5	-1.8	8.8	0.2	5.9	---	---	-0.4	5.5	0.0	6.4
INRIM	-0.6	4.7	0.0	2.5	-0.2	8.6	-0.6	3.8	0.2	4.1	3.7	5.1	1.4	17.2	0.6	4.2	-0.2	5.5	4.9	23.1	-1.6	47.1	-6.3	19.6	1.4	12.2	17.4	33.1	0.0	3.1	-0.1	3.3	-1.4	7.6	0.6	4.0	0.4	5.5	---	---	0.4	4.7
SIQ	-1.0	5.7	-0.4	4.1	-0.6	9.2	-1.0	5.0	-0.2	5.2	3.3	6.0	1.0	17.5	0.2	5.3	-0.6	6.4	4.5	23.3	-2.0	47.2	-6.7	19.9	1.0	12.6	17.0	33.2	-0.4	4.5	-0.5	4.6	-1.8	8.2	0.2	5.1	0.0	6.4	-0.4	4.7	---	---

Table 5: Degree of equivalence at 10 mA, 20 kHz

10 mA	CMI		PTB		METAS		JV		UME		GUM		IPQ		CEM		BIM	
20 kHz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	---	---	0.7	4.5	1.0	9.4	0.7	5.3	1.4	5.5	-2.2	6.2	-27.3	18.5	1.9	5.7	2.4	6.6
PTB	-0.7	4.5	---	---	0.3	8.3	0.0	3.1	0.7	3.4	-2.9	4.5	-28.0	18.0	1.2	3.8	1.7	5.0
METAS	-1.0	9.4	-0.3	8.3	---	---	-0.3	8.8	0.4	8.9	-3.2	9.4	-28.3	19.8	0.9	9.1	1.4	9.6
JV	-0.7	5.3	0.0	3.1	0.3	8.8	---	---	0.7	4.5	-2.9	5.3	-28.0	18.2	1.2	4.8	1.7	5.7
UME	-1.4	5.5	-0.7	3.4	-0.4	8.9	-0.7	4.5	---	---	-3.6	5.5	-28.7	18.3	0.5	5.0	1.0	5.9
GUM	2.2	6.2	2.9	4.5	3.2	9.4	2.9	5.3	3.6	5.5	---	---	-25.1	18.5	4.1	5.7	4.6	6.6
IPQ	27.3	18.5	28.0	18.0	28.3	19.8	28.0	18.2	28.7	18.3	25.1	18.5	---	---	29.2	18.4	29.7	18.7
CEM	-1.9	5.7	-1.2	3.8	-0.9	9.1	-1.2	4.8	-0.5	5.0	-4.1	5.7	-29.2	18.4	---	---	0.5	6.1
BIM	-2.4	6.6	-1.7	5.0	-1.4	9.6	-1.7	5.7	-1.0	5.9	-4.6	6.6	-29.7	18.7	-0.5	6.1	---	---
MKEH	-1.8	19.5	-1.1	19.0	-0.8	20.7	-1.1	19.2	-0.4	19.3	-4.0	19.5	-29.1	26.2	0.1	19.4	0.6	19.6
NSAI NML	-1.7	103.1	-1.0	103.0	-0.7	103.3	-1.0	103.0	-0.3	103.1	-3.9	103.1	-29.0	104.6	0.2	103.1	0.7	103.1
VSL	8.1	31.1	8.8	30.8	9.1	31.9	8.8	30.9	9.5	31.0	5.9	31.1	-19.2	35.7	10.0	31.0	10.5	31.2
NPL	-4.7	14.7	-4.0	14.0	-3.7	16.3	-4.0	14.3	-3.3	14.4	-6.9	14.7	-32.0	22.8	-2.8	14.5	-2.3	14.8
SP	-1.3	4.8	-0.6	2.2	-0.3	8.5	-0.6	3.6	0.1	3.9	-3.5	4.8	-28.6	18.1	0.6	4.2	1.1	5.3
BEV	-1.0	5.0	-0.3	2.6	0.0	8.6	-0.3	3.8	0.4	4.1	-3.2	5.0	-28.3	18.2	0.9	4.4	1.4	5.5
LNE	-0.8	5.3	-0.1	3.1	0.2	8.8	-0.1	4.2	0.6	4.5	-3.0	5.3	-28.1	18.2	1.1	4.8	1.6	5.7
Trescal	-0.7	8.3	0.0	7.1	0.3	10.9	0.0	7.6	0.7	7.7	-2.9	8.3	-28.0	19.3	1.2	7.9	1.7	8.5
INRIM	-1.1	5.2	-0.4	2.9	-0.1	8.8	-0.4	4.1	0.3	4.3	-3.3	5.2	-28.4	18.2	0.8	4.6	1.3	5.6
SIQ	-1.7	5.9	-1.0	4.1	-0.7	9.2	-1.0	5.0	-0.3	5.2	-3.9	5.9	-29.0	18.4	0.2	5.4	0.7	6.3

10 mA	MKEH		NSAI NML		VSL		NPL		SP		BEV		LNE		Trescal		INRIM		SIQ	
20 kHz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	1.8	19.5	1.7	103.1	-8.1	31.1	4.7	14.7	1.3	4.8	1.0	5.0	0.8	5.3	0.7	8.3	1.1	5.2	1.7	5.9
PTB	1.1	0.9	1.0	103.0	-8.8	30.8	4.0	14.0	0.6	2.2	0.3	2.6	0.1	3.1	0.0	7.1	0.4	2.9	1.0	4.1
METAS	0.8	8.3	0.7	103.3	-9.1	31.9	3.7	16.3	0.3	8.5	0.0	8.6	-0.2	8.8	-0.3	10.9	0.1	8.8	0.7	9.2
JV	1.1	3.0	1.0	103.0	-8.8	30.9	4.0	14.3	0.6	3.6	0.3	3.8	0.1	4.2	0.0	7.6	0.4	4.1	1.0	5.0
UME	0.4	3.3	0.3	103.1	-9.5	31.0	3.3	14.4	-0.1	3.9	-0.4	4.1	-0.6	4.5	-0.7	7.7	-0.3	4.3	0.3	5.2
GUM	4.0	4.4	3.9	103.1	-5.9	31.1	6.9	14.7	3.5	4.8	3.2	5.0	3.0	5.3	2.9	8.3	3.3	5.2	3.9	5.9
IPQ	29.1	18.0	29.0	104.6	19.2	35.7	32.0	22.8	28.6	18.1	28.3	18.2	28.1	18.2	28.0	19.3	28.4	18.2	29.0	18.4
CEM	-0.1	3.7	-0.2	103.1	-10.0	31.0	2.8	14.5	-0.6	4.2	-0.9	4.4	-1.1	4.8	-1.2	7.9	-0.8	4.6	-0.2	5.4
BIM	-0.6	4.9	-0.7	103.1	-10.5	31.2	2.3	14.8	-1.1	5.3	-1.4	5.5	-1.6	5.7	-1.7	8.5	-1.3	5.6	-0.7	6.3
MKEH	---	---	-0.1	104.7	-9.9	36.2	2.9	23.6	-0.5	19.1	-0.8	19.2	-1.0	19.2	-1.1	20.2	-0.7	19.2	-0.1	19.4
NSAI NML	0.1	104.7	---	---	-9.8	107.5	3.0	103.9	-0.4	103.0	-0.7	103.0	-0.9	103.0	-1.0	103.2	-0.6	103.0	0.0	103.1
VSL	9.9	36.2	9.8	107.5	---	---	12.8	33.8	9.4	30.9	9.1	30.9	8.9	30.9	8.8	31.6	9.2	30.9	9.8	31.1
NPL	-2.9	23.6	-3.0	103.9	-12.8	33.8	---	---	-3.4	14.1	-3.7	14.2	-3.9	14.3	-4.0	15.7	-3.6	14.3	-3.0	14.6
SP	0.5	19.1	0.4	103.0	-9.4	30.9	3.4	14.1	---	---	-0.3	3.1	-0.5	3.6	-0.6	7.3	-0.2	3.4	0.4	4.5
BEV	0.8	19.2	0.7	103.0	-9.1	30.9	3.7	14.2	0.3	3.1	---	---	-0.2	3.8	-0.3	7.4	0.1	3.7	0.7	4.7
LNE	1.0	19.2	0.9	103.0	-8.9	30.9	3.9	14.3	0.5	3.6	0.2	3.8	---	---	-0.1	7.6	0.3	4.1	0.9	5.0
Trescal	1.1	20.2	1.0	103.2	-8.8	31.6	4.0	15.7	0.6	7.3	0.3	7.4	0.1	7.6	---	---	0.4	7.5	1.0	8.1
INRIM	0.7	19.2	0.6	103.0	-9.2	30.9	3.6	14.3	0.2	3.4	-0.1	3.7	-0.3	4.1	-0.4	7.5	---	---	0.6	4.9
SIQ	0.1	19.4	0.0	103.1	-9.8	31.1	3.0	14.6	-0.4	4.5	-0.7	4.7	-0.9	5.0	-1.0	8.1	-0.6	4.9	---	---

Table 6: Degree of equivalence at 10 mA, 50 kHz

10 mA	CMI		PTB		METAS		JV		UME		CEM		BIM		NSAI NML	
50 kHz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	---	---	1.8	5.4	1.1	9.8	1.7	6.0	1.1	6.6	1.8	6.4	5.1	8.9	6.7	200.1
PTB	-1.8	5.4	---	---	-0.7	8.4	-0.1	3.3	-0.7	4.2	0.0	4.0	3.3	7.3	4.9	200.0
METAS	-1.1	9.8	0.7	8.4	---	---	0.6	8.8	0.0	9.2	0.7	9.1	4.0	11.0	5.6	200.2
JV	-1.7	6.0	0.1	3.3	-0.6	8.8	---	---	-0.6	5.0	0.1	4.8	3.4	7.8	5.0	200.0
UME	-1.1	6.6	0.7	4.2	0.0	9.2	0.6	5.0	---	---	0.7	5.5	4.0	8.2	5.6	200.0
CEM	-1.8	6.4	0.0	4.0	-0.7	9.1	-0.1	4.8	-0.7	5.5	---	---	3.3	8.1	4.9	200.0
BIM	-5.1	8.9	-3.3	7.3	-4.0	11.0	-3.4	7.8	-4.0	8.2	-3.3	8.1	---	---	1.6	200.1
NSAI NML	-6.7	200.1	-4.9	200.0	-5.6	200.2	-5.0	200.0	-5.6	200.0	-4.9	200.0	-1.6	200.1	---	---
VSL	12.6	48.5	14.4	48.2	13.7	48.9	14.3	48.3	13.7	48.4	14.4	48.3	17.7	48.7	19.3	205.7
NPL	-10.7	15.9	-8.9	15.1	-9.6	17.1	-9.0	15.3	-9.6	15.5	-8.9	15.5	-5.6	16.6	-4.0	200.6
SP	-1.5	5.7	0.3	2.7	-0.4	8.6	0.2	3.8	-0.4	4.7	0.3	4.5	3.6	7.6	5.2	200.0
BEV	-1.4	5.8	0.4	2.9	-0.3	8.7	0.3	4.0	-0.3	4.8	0.4	4.6	3.7	7.7	5.3	200.0
LNE	-0.4	6.1	1.4	3.5	0.7	8.9	1.3	4.4	0.7	5.1	1.4	5.0	4.7	7.9	6.3	200.0
Trescal	2.3	11.3	4.1	10.1	3.4	13.0	4.0	10.4	3.4	10.8	4.1	10.7	7.4	12.3	9.0	200.2
INRIM	-1.6	6.0	0.2	3.3	-0.5	8.8	0.1	4.2	-0.5	5.0	0.2	4.8	3.5	7.8	5.1	200.0
SIQ	-1.7	6.6	0.1	4.2	-0.6	9.2	0.0	5.0	-0.6	5.7	0.1	5.5	3.4	8.2	5.0	200.0

10 mA	VSL		NPL		SP		BEV		LNE		Trescal		INRIM		SIQ	
50 kHz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	-12.6	48.5	10.7	15.9	1.5	5.7	1.4	5.8	0.4	6.1	-2.3	11.3	1.6	6.0	1.7	6.6
PTB	-14.4	48.2	8.9	15.1	-0.3	2.7	-0.4	2.9	-1.4	3.5	-4.1	10.1	-0.2	3.3	-0.1	4.2
METAS	-13.7	48.9	9.6	17.1	0.4	8.6	0.3	8.7	-0.7	8.9	-3.4	13.0	0.5	8.8	0.6	9.2
JV	-14.3	48.3	9.0	15.3	-0.2	3.8	-0.3	4.0	-1.3	4.4	-4.0	10.4	-0.1	4.2	0.0	5.0
UME	-13.7	48.4	9.6	15.5	0.4	4.7	0.3	4.8	-0.7	5.1	-3.4	10.8	0.5	5.0	0.6	5.7
CEM	-14.4	48.3	8.9	15.5	-0.3	4.5	-0.4	4.6	-1.4	5.0	-4.1	10.7	-0.2	4.8	-0.1	5.5
BIM	-17.7	48.7	5.6	16.6	-3.6	7.6	-3.7	7.7	-4.7	7.9	-7.4	12.3	-3.5	7.8	-3.4	8.2
NSAI NML	-19.3	205.7	4.0	200.6	-5.2	200.0	-5.3	200.0	-6.3	200.0	-9.0	200.2	-5.1	200.0	-5.0	200.0
VSL	---	---	23.3	50.5	14.1	48.3	14.0	48.3	13.0	48.3	10.3	49.2	14.2	48.3	14.3	48.4
NPL	-23.3	50.5	---	---	-9.2	15.2	-9.3	15.2	-10.3	15.3	-13.0	18.0	-9.1	15.3	-9.0	15.5
SP	-14.1	48.3	9.2	15.2	---	---	-0.1	3.5	-1.1	4.0	-3.8	10.3	0.1	3.8	0.2	4.7
BEV	-14.0	48.3	9.3	15.2	0.1	3.5	---	---	-1.0	4.1	-3.7	10.3	0.2	4.0	0.3	4.8
LNE	-13.0	48.3	10.3	15.3	1.1	4.0	1.0	4.1	---	---	-2.7	10.5	1.2	4.4	1.3	5.1
Trescal	-10.3	49.2	13.0	18.0	3.8	10.3	3.7	10.3	2.7	10.5	---	---	3.9	10.4	4.0	10.8
INRIM	-14.2	48.3	9.1	15.3	-0.1	3.8	-0.2	4.0	-1.2	4.4	-3.9	10.4	---	---	0.1	5.0
SIQ	-14.3	48.4	9.0	15.5	-0.2	4.7	-0.3	4.8	-1.3	5.1	-4.0	10.8	-0.1	5.0	---	---

Table 7: Degree of equivalence at 10 mA, 100 kHz

10 mA	CMI		PTB		METAS		JV		UME		CEM		BIM		NSAI NML		VSL		NPL		SP		BEV		LNE		Trescal		INRIM		SIQ	
100 kHz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	---	---	5.2	5.6	5.0	10.7	6.5	7.2	4.5	7.9	5.5	6.8	10.5	14.0	23.5	410.0	-26.8	98.5	14.5	22.6	5.5	6.2	5.4	6.2	4.1	6.1	-2.5	20.7	5.8	6.2	4.5	7.2
PTB	-5.2	5.6	---	---	-0.2	9.6	1.3	5.4	-0.7	6.3	0.3	4.8	5.3	13.2	18.3	410.0	-32.0	98.4	9.3	22.1	0.3	3.9	0.2	3.9	-1.1	3.8	-7.7	20.1	0.6	3.9	-0.7	5.4
METAS	-5.0	10.7	0.2	9.6	---	---	1.5	10.6	-0.5	11.2	0.5	10.4	5.5	16.0	18.5	410.1	-31.8	98.8	9.5	23.9	0.5	10.0	0.4	10.0	-0.9	9.9	-7.5	22.1	0.8	10.0	-0.5	10.6
JV	-6.5	7.2	-1.3	5.4	-2.0	10.6	---	---	-2.0	7.8	-1.0	6.7	4.0	13.9	17.0	410.0	-33.3	98.5	8.0	22.6	-1.0	6.0	-1.1	6.0	-2.4	5.9	-9.0	20.6	-0.7	6.0	-2.0	7.1
UME	-4.5	7.9	0.7	6.3	0.0	11.2	2.0	7.8	---	---	1.0	7.4	6.0	14.3	19.0	410.0	-31.3	98.6	10.0	22.8	1.0	6.9	0.9	6.9	-0.4	6.8	-7.0	20.9	1.3	6.9	0.0	7.8
CEM	-5.5	6.8	-0.3	4.8	-1.0	10.4	1.0	6.7	-1.0	7.4	---	---	5.0	13.7	18.0	410.0	-32.3	98.5	9.0	22.4	0.0	5.6	-0.1	5.6	-1.4	5.4	-8.0	20.5	0.3	5.6	-1.0	6.7
BIM	-10.5	14.0	-5.3	13.2	-6.0	16.0	-4.0	13.9	-6.0	14.3	-5.0	13.7	---	---	13.0	410.2	-37.3	99.3	4.0	25.6	-5.0	13.4	-5.1	13.4	-6.4	13.4	-13.0	23.9	-4.7	13.4	-6.0	13.9
NSAI NML	-23.5	410.0	-18.3	410.0	-19.0	410.1	-17.0	410.0	-19.0	410.0	-18.0	410.0	-13.0	410.2	---	---	-50.3	421.6	-9.0	410.6	-18.0	410.0	-18.1	410.0	-19.4	410.0	-26.0	410.5	-17.7	410.0	-19.0	410.0
VSL	26.8	98.5	32.0	98.4	31.3	98.8	33.3	98.5	31.3	98.6	32.3	98.5	37.3	99.3	50.3	421.6	---	---	41.3	100.8	32.3	98.5	32.2	98.5	30.9	98.5	24.3	100.4	32.6	98.5	31.3	98.5
NPL	-14.5	22.6	-9.3	22.1	-10.0	23.9	-8.0	22.6	-10.0	22.8	-9.0	22.4	-4.0	25.6	9.0	410.6	-41.3	100.8	---	---	-9.0	22.3	-9.1	22.3	-10.4	22.2	-17.0	29.7	-8.7	22.3	-10.0	22.6
SP	-5.5	6.2	-0.3	3.9	-1.0	10.0	1.0	6.0	-1.0	6.9	0.0	5.6	5.0	13.4	18.0	410.0	-32.3	98.5	9.0	22.3	---	---	-0.1	4.8	-1.4	4.7	-8.0	20.3	0.3	4.8	-1.0	6.0
BEV	-5.4	6.2	-0.2	3.9	-0.9	10.0	1.1	6.0	-0.9	6.9	0.1	5.6	5.1	13.4	18.1	410.0	-32.2	98.5	9.1	22.3	0.1	4.8	---	---	-1.3	4.7	-7.9	20.3	0.4	4.8	-0.9	6.0
LNE	-4.1	6.1	1.1	3.8	0.4	9.9	2.4	5.9	0.4	6.8	1.4	5.4	6.4	13.4	19.4	410.0	-30.9	98.5	10.4	22.2	1.4	4.7	1.3	4.7	---	---	-6.6	20.3	1.7	4.7	0.4	5.9
Trescal	2.5	20.7	7.7	20.1	7.0	22.1	9.0	20.6	7.0	20.9	8.0	20.5	13.0	23.9	26.0	410.5	-24.3	100.4	17.0	29.7	8.0	20.3	7.9	20.3	6.6	20.3	---	---	8.3	20.3	7.0	20.6
INRIM	-5.8	6.2	-0.6	3.9	-1.3	10.0	0.7	6.0	-1.3	6.9	-0.3	5.6	4.7	13.4	17.7	410.0	-32.6	98.5	8.7	22.3	-0.3	4.8	-0.4	4.8	-1.7	4.7	-8.3	20.3	---	---	-1.3	6.0
SIQ	-4.5	7.2	0.7	5.4	0.0	10.6	2.0	7.1	0.0	7.8	1.0	6.7	6.0	13.9	19.0	410.0	-31.3	98.5	10.0	22.6	1.0	6.0	0.9	6.0	-0.4	5.9	-7.0	20.6	1.3	6.0	---	---

Table 8: Degree of equivalence at 5 A, 10 Hz

5 A	CMI		PTB		METAS		JV		UME		GUM		IPQ		CEM		BIM		NSAI NML		VSL		NPL		Metrosert		SP		BEV		LNE		Trescal		INRIM		SIQ	
10 Hz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	---	---	1.0	25.7	0.5	27.9	1.0	27.3	3.0	27.7	4.5	27.9	6.0	65.9	0.1	30.2	1.0	43.8	1.0	186.7	2.7	34.4	28.0	60.4	-4.0	43.8	0.7	25.5	1.0	25.1	13.0	31.4	4.0	30.8	-1.7	25.8	4.0	28.7
PTB	-1.0	25.7	---	---	-0.5	13.8	0.0	12.5	2.0	13.4	3.5	13.8	5.0	61.3	-0.9	18.0	0.0	36.5	0.0	185.1	1.7	24.4	27.0	55.3	-5.0	36.5	-0.3	7.7	0.0	6.3	12.0	19.9	3.0	19.0	-2.7	8.8	3.0	15.2
METAS	-0.5	27.9	0.5	13.8	---	---	0.5	16.6	2.5	17.3	4.0	17.5	5.5	62.2	-0.4	21.0	0.5	38.1	0.5	185.4	2.2	26.7	27.5	56.4	-4.5	38.1	0.2	13.3	0.5	12.6	12.5	22.7	3.5	21.9	-2.2	14.0	3.5	18.7
JV	-1.0	27.3	0.0	12.5	-0.5	16.6	---	---	2.0	16.3	3.5	16.6	5.0	62.0	-0.9	20.2	0.0	37.6	0.0	185.3	1.7	26.1	27.0	56.1	-5.0	37.6	-0.3	12.0	0.0	11.2	12.0	22.0	3.0	21.1	-2.7	12.8	3.0	17.8
UME	-3.0	27.7	-2.0	13.4	-2.5	17.3	-2.0	16.3	---	---	1.5	17.3	3.0	62.2	-2.9	20.8	-2.0	37.9	-2.0	185.4	-0.3	26.6	25.0	56.3	-7.0	37.9	-2.3	12.9	-2.0	12.2	10.0	22.5	1.0	21.6	-4.7	13.6	1.0	18.4
GUM	-4.5	27.9	-3.5	13.8	-4.0	17.5	-3.5	16.6	-1.5	17.3	---	---	1.5	62.2	-4.4	21.0	-3.5	38.1	-3.5	185.4	-1.8	26.7	23.5	56.4	-8.5	38.1	-3.8	13.3	-3.5	12.6	8.5	22.7	-0.5	21.9	-6.2	14.0	-0.5	18.7
IPQ	-6.0	65.9	-5.0	61.3	-5.5	62.2	-5.0	62.0	-3.0	62.2	-1.5	62.2	---	---	-5.9	63.3	-5.0	70.8	-5.0	194.8	-3.3	65.4	22.0	82.1	-10.0	70.8	-5.3	61.2	-5.0	61.0	7.0	63.9	-2.0	63.6	-7.7	61.3	-2.0	62.6
CEM	-0.1	30.2	0.9	18.0	0.4	21.0	0.9	20.2	2.9	20.8	4.4	21.0	5.9	63.3	---	---	0.9	39.8	0.9	185.8	2.6	29.2	27.9	57.6	-4.1	39.8	0.6	17.7	0.9	17.1	12.9	25.5	3.9	24.8	-1.8	18.2	3.9	22.0
BIM	-1.0	43.8	0.0	36.5	-0.5	38.1	0.0	37.6	2.0	37.9	3.5	38.1	5.0	70.8	-0.9	39.8	---	---	0.0	188.5	1.7	43.1	27.0	65.7	-5.0	50.9	-0.3	36.3	0.0	36.1	12.0	40.7	3.0	40.2	-2.7	36.6	3.0	38.6
NSAI NML	-1.0	186.7	0.0	185.1	-0.5	185.4	0.0	185.3	2.0	185.4	3.5	185.4	5.0	194.8	-0.9	185.8	0.0	188.5	---	---	1.7	186.5	27.0	193.0	-5.0	188.5	-0.3	185.1	0.0	185.0	12.0	186.0	3.0	185.9	-2.7	185.1	3.0	185.5
VSL	-2.7	34.4	-1.7	24.4	-2.2	26.7	-1.7	26.1	0.3	26.6	1.8	26.7	3.3	65.4	-2.6	29.2	-1.7	43.1	-1.7	186.5	---	---	25.3	59.9	-6.7	43.1	-2.0	24.2	-1.7	23.8	10.3	30.4	1.3	29.8	-4.4	24.6	1.3	27.5
NPL	-28.0	60.4	-27.0	55.3	-27.5	56.4	-27.0	56.1	-25.0	56.3	-23.5	56.4	-22.0	82.1	-27.9	57.6	-27.0	65.7	-27.0	193.0	-25.3	59.9	---	---	-32.0	65.7	-27.3	55.2	-27.0	55.0	-15.0	58.2	-24.0	57.9	-29.7	55.4	-24.0	56.8
Metrosert	4.0	43.8	5.0	36.5	4.5	38.1	5.0	37.6	7.0	37.9	8.5	38.1	10.0	70.8	4.1	39.8	5.0	50.9	5.0	188.5	6.7	43.1	32.0	65.7	---	---	4.7	36.3	5.0	36.1	17.0	40.7	8.0	40.2	2.3	36.6	8.0	38.6
SP	-0.7	25.5	0.3	7.7	-0.2	13.3	0.3	12.0	2.3	12.9	3.8	13.3	5.3	61.2	-0.6	17.7	0.3	36.3	0.3	185.1	2.0	24.2	27.3	55.2	-4.7	36.3	---	---	0.3	5.2	12.3	19.6	3.3	18.6	-2.4	8.1	3.3	14.8
BEV	-1.0	25.1	0.0	6.3	-0.5	12.6	0.0	11.2	2.0	12.2	3.5	12.6	5.0	61.0	-0.9	17.1	0.0	36.1	0.0	185.0	1.7	23.8	27.0	55.0	-5.0	36.1	-0.3	5.2	---	---	12.0	19.1	3.0	18.1	-2.7	6.8	3.0	14.1
LNE	-13.0	31.4	-12.0	19.9	-12.5	22.7	-12.0	22.0	-10.0	22.5	-8.5	22.7	-7.0	63.9	-12.9	25.5	-12.0	40.7	-12.0	186.0	-10.3	30.4	15.0	58.2	-17.0	40.7	-12.3	19.6	-12.0	19.1	---	---	-9.0	26.2	-14.7	20.1	-9.0	23.6
Trescal	-4.0	30.8	-3.0	19.0	-3.5	21.9	-3.0	21.1	-1.0	21.6	0.5	21.9	2.0	63.6	-3.9	24.8	-3.0	40.2	-3.0	185.9	-1.3	29.8	24.0	57.9	-8.0	40.2	-3.3	18.6	-3.0	18.1	9.0	26.2	---	---	-5.7	19.1	0.0	22.8
INRIM	1.7	25.8	2.7	8.8	2.2	14.0	2.7	12.8	4.7	13.6	6.2	14.0	7.7	61.3	1.8	18.2	2.7	36.6	2.7	185.1	4.4	24.6	29.7	55.4	-2.3	36.6	2.4	8.1	2.7	6.8	14.7	20.1	5.7	19.1	---	---	5.7	15.4
SIQ	-4.0	28.7	-3.0	15.2	-3.5	18.7	-3.0	17.8	-1.0	18.4	0.5	18.7	2.0	62.6	-3.9	22.0	-3.0	38.6	-3.0	185.5	-1.3	27.5	24.0	56.8	-8.0	38.6	-3.3	14.8	-3.0	14.1	9.0	23.6	0.0	22.8	-5.7	15.4	---	---

Table 9: Degree of equivalence at 5 A, 55 Hz

5 A	CMI		PTB		METAS		JV		UME		GUM		IPQ		CEM		BIM		MKEH	
55 Hz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	---	---	0.0	17.7	0.0	19.7	0.0	18.4	0.0	18.8	2.4	21.0	3.0	35.4	2.0	19.7	2.0	31.1	5.5	32.8
PTB	0.0	17.7	---	---	0.0	11.1	0.0	8.6	0.0	9.4	2.4	13.3	3.0	31.4	2.0	11.1	2.0	26.5	5.5	28.4
METAS	0.0	19.7	0.0	11.1	---	---	0.0	12.1	0.0	12.7	2.4	15.8	3.0	32.5	2.0	14.0	2.0	27.8	5.5	29.7
JV	0.0	18.4	0.0	8.6	0.0	12.1	---	---	0.0	10.6	2.4	14.2	3.0	31.8	2.0	12.1	2.0	26.9	5.5	28.9
UME	0.0	18.8	0.0	9.4	0.0	12.7	0.0	10.6	---	---	2.4	14.7	3.0	32.0	2.0	12.7	2.0	27.2	5.5	29.1
GUM	-2.4	21.0	-2.4	13.3	-2.4	15.8	-2.4	14.2	-2.4	14.7	---	---	0.6	33.4	-0.4	15.8	-0.4	28.8	3.1	30.6
IPQ	-3.0	35.4	-3.0	31.4	-3.0	32.5	-3.0	31.8	-3.0	32.0	-0.6	33.4	---	---	-1.0	32.5	-1.0	40.5	2.5	41.8
CEM	-2.0	19.7	-2.0	11.1	-2.0	14.0	-2.0	12.1	-2.0	12.7	0.4	15.8	1.0	32.5	---	---	0.0	27.8	3.5	29.7
BIM	-2.0	31.1	-2.0	26.5	-2.0	27.8	-2.0	26.9	-2.0	27.2	0.4	28.8	1.0	40.5	0.0	27.8	---	---	3.5	38.2
MKEH	-5.5	32.8	-5.5	28.4	-5.5	29.7	-5.5	28.9	-5.5	29.1	-3.1	30.6	-2.5	41.8	-3.5	29.7	-3.5	38.2	---	---
NSAI NML	4.0	75.0	4.0	73.2	4.0	73.7	4.0	73.3	4.0	73.4	6.4	74.0	7.0	79.3	6.0	73.7	6.0	77.5	9.5	78.2
VSL	0.6	29.2	0.6	24.2	0.6	25.7	0.6	24.7	0.6	25.0	3.0	26.7	3.6	39.0	2.6	25.7	2.6	35.2	6.1	36.7
NPL	1.0	27.8	1.0	22.6	1.0	24.1	1.0	23.1	1.0	23.4	3.4	25.2	4.0	38.0	3.0	24.1	3.0	34.1	6.5	35.6
Metrosert	-9.0	25.5	-9.0	19.6	-9.0	21.4	-9.0	20.2	-9.0	20.6	-6.6	22.6	-6.0	36.4	-7.0	21.4	-7.0	32.2	-3.5	33.8
SP	0.0	17.5	0.0	6.5	0.0	10.8	0.0	8.2	0.0	9.0	2.4	13.0	3.0	31.3	2.0	10.8	2.0	26.3	5.5	28.3
BEV	0.0	17.1	0.0	5.4	0.0	10.1	0.0	7.3	0.0	8.2	2.4	12.5	3.0	31.1	2.0	10.1	2.0	26.1	5.5	28.1
NIS	1.1	33.1	1.1	28.8	1.1	30.1	1.1	29.2	1.1	29.5	3.5	30.9	4.1	42.0	3.1	30.1	3.1	38.5	6.6	39.9
LNE	1.0	24.8	1.0	18.7	1.0	20.5	1.0	19.3	1.0	19.7	3.4	21.8	4.0	35.8	3.0	20.5	3.0	31.6	6.5	33.3
Trescal	0.0	24.8	0.0	18.7	0.0	20.5	0.0	19.3	0.0	19.7	2.4	21.8	3.0	35.8	2.0	20.5	2.0	31.6	5.5	33.3
INRIM	-0.9	17.9	-0.9	7.5	-0.9	11.4	-0.9	9.0	-0.9	9.8	1.5	13.5	2.1	31.5	1.1	11.4	1.1	26.6	4.6	28.6
SIQ	0.0	21.4	0.0	13.9	0.0	16.3	0.0	14.8	0.0	15.3	2.4	17.9	3.0	33.6	2.0	16.3	2.0	29.1	5.5	30.9

5 A	NSAI NML		VSL		NPL		Metrosert		SP		BEV		NIS		LNE		Trescal		INRIM		SIQ	
55 Hz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	-4.0	75.0	-0.6	29.2	-1.0	27.8	9.0	25.5	0.0	17.5	0.0	17.1	-1.1	33.1	-1.0	24.8	0.0	24.8	0.9	17.9	0.0	21.4
PTB	-4.0	73.2	-0.6	24.2	-1.0	22.6	9.0	19.6	0.0	6.5	0.0	5.4	-1.1	28.8	-1.0	18.7	0.0	18.7	0.9	7.5	0.0	13.9
METAS	-4.0	73.7	-0.6	25.7	-1.0	24.1	9.0	21.4	0.0	10.8	0.0	10.1	-1.1	30.1	-1.0	20.5	0.0	20.5	0.9	11.4	0.0	16.3
JV	-4.0	73.3	-0.6	24.7	-1.0	23.1	9.0	20.2	0.0	8.2	0.0	7.3	-1.1	29.2	-1.0	19.3	0.0	19.3	0.9	9.0	0.0	14.8
UME	-4.0	73.4	-0.6	25.0	-1.0	23.4	9.0	20.6	0.0	9.0	0.0	8.2	-1.1	29.5	-1.0	19.7	0.0	19.7	0.9	9.8	0.0	15.3
GUM	-6.4	74.0	-3.0	26.7	-3.4	25.2	6.6	22.6	-2.4	13.0	-2.4	12.5	-3.5	30.9	-3.4	21.8	-2.4	21.8	-1.5	13.5	-2.4	17.9
IPQ	-7.0	79.3	-3.6	39.0	-4.0	38.0	6.0	36.4	-3.0	31.3	-3.0	31.1	-4.1	42.0	-4.0	35.8	-3.0	35.8	-2.1	31.5	-3.0	33.6
CEM	-6.0	73.7	-2.6	25.7	-3.0	24.1	7.0	21.4	-2.0	10.8	-2.0	10.1	-3.1	30.1	-3.0	20.5	-2.0	20.5	-1.1	11.4	-2.0	16.3
BIM	-6.0	77.5	-2.6	35.2	-3.0	34.1	7.0	32.2	-2.0	26.3	-2.0	26.1	-3.1	38.5	-3.0	31.6	-2.0	31.6	-1.1	26.6	-2.0	29.1
MKEH	-9.5	78.2	-6.1	36.7	-6.5	35.6	3.5	33.8	-5.5	28.3	-5.5	28.1	-6.6	39.9	-6.5	33.3	-5.5	33.3	-4.6	28.6	-5.5	30.9
NSAI NML	---	---	3.4	76.8	3.0	76.2	13.0	75.4	4.0	73.1	4.0	73.0	2.9	78.3	3.0	75.2	4.0	75.2	4.9	73.2	4.0	74.1
VSL	-3.4	76.8	---	---	-0.4	32.3	9.6	30.4	0.6	24.1	0.6	23.8	-0.5	37.0	-0.4	29.8	0.6	29.8	1.5	24.4	0.6	27.0
NPL	-3.0	76.2	0.4	32.3	---	---	10.0	29.1	1.0	22.4	1.0	22.1	-0.1	35.9	0.0	28.4	1.0	28.4	1.9	22.7	1.0	25.6
Metrosert	-13.0	75.4	-9.6	30.4	-10.0	29.1	---	---	-9.0	19.5	-9.0	19.1	-10.1	34.2	-10.0	26.2	-9.0	26.2	-8.1	19.8	-9.0	23.0
SP	-4.0	73.1	-0.6	24.1	-1.0	22.4	9.0	19.5	---	---	0.0	4.7	-1.1	28.7	-1.0	18.5	0.0	18.5	0.9	7.0	0.0	13.7
BEV	-4.0	73.0	-0.6	23.8	-1.0	22.1	9.0	19.1	0.0	4.7	---	---	-1.1	28.5	-1.0	18.1	0.0	18.1	0.9	5.9	0.0	13.2
NIS	-2.9	78.3	0.5	37.0	0.1	35.9	10.1	34.2	1.1	28.7	1.1	28.5	---	---	0.1	33.6	1.1	33.6	2.0	28.9	1.1	31.2
LNE	-3.0	75.2	0.4	29.8	0.0	28.4	10.0	26.2	1.0	18.5	1.0	18.1	-0.1	33.6	---	---	1.0	25.5	1.9	18.9	1.0	22.2
Trescal	-4.0	75.2	-0.6	29.8	-1.0	28.4	9.0	26.2	0.0	18.5	0.0	18.1	-1.1	33.6	-1.0	25.5	---	---	0.9	18.9	0.0	22.2
INRIM	-4.9	73.2	-1.5	24.4	-1.9	22.7	8.1	19.8	-0.9	7.0	-0.9	5.9	-2.0	28.9	-1.9	18.9	-0.9	18.9	---	---	-0.9	14.2
SIQ	-4.0	74.1	-0.6	27.0	-1.0	25.6	9.0	23.0	0.0	13.7	0.0	13.2	-1.1	31.2	-1.0	22.2	0.0	22.2	0.9	14.2	---	---

Table 10: Degree of equivalence at 5 A, 1 kHz

5 A	CMI		PTB		METAS		JV		UME		GUM		IPQ		CEM		BIM		MKEH	
1 kHz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	---	---	-2.0	17.7	-4.0	19.3	-2.0	18.4	-2.0	18.8	2.5	21.1	24.0	36.2	-1.5	19.7	-8.0	31.1	7.1	28.6
PTB	2.0	17.7	---	---	-2.0	10.5	0.0	8.6	0.0	9.4	4.5	13.5	26.0	32.4	0.5	11.1	-6.0	26.5	9.1	23.5
METAS	4.0	19.3	2.0	10.5	---	---	2.0	11.6	2.0	12.2	6.5	15.5	28.0	33.3	2.5	13.5	-4.0	27.6	11.1	24.8
JV	2.0	18.4	0.0	8.6	-2.0	11.6	---	---	0.0	10.6	4.5	14.3	26.0	32.8	0.5	12.1	-6.0	26.9	9.1	24.0
UME	2.0	18.8	0.0	9.4	-2.0	12.2	0.0	10.6	---	---	4.5	14.8	26.0	33.0	0.5	12.7	-6.0	27.2	9.1	24.4
GUM	-2.5	21.1	-4.5	13.5	-6.5	15.5	-4.5	14.3	-4.5	14.8	---	---	21.5	34.4	-4.0	15.9	-10.5	28.8	4.6	26.2
IPQ	-24.0	36.2	-26.0	32.4	-28.0	33.3	-26.0	32.8	-26.0	33.0	-21.5	34.4	---	---	-25.5	33.5	-32.0	41.2	-16.9	39.4
CEM	1.5	19.7	-0.5	11.1	-2.5	13.5	-0.5	12.1	-0.5	12.7	4.0	15.9	4.0	33.5	---	---	-6.5	27.8	8.6	25.0
BIM	8.0	31.1	6.0	26.5	4.0	27.6	6.0	26.9	6.0	27.2	10.5	28.8	10.5	41.2	6.5	27.8	---	---	15.1	34.7
MKEH	-7.1	28.6	-9.1	23.5	-11.1	24.8	-9.1	24.0	-9.1	24.4	-4.6	26.2	-4.6	39.4	-8.6	25.0	-15.1	34.7	---	---
NSAI NML	5.0	75.0	3.0	73.2	1.0	73.6	3.0	73.3	3.0	73.4	7.5	74.1	7.5	79.7	3.5	73.7	-3.0	77.5	12.1	76.5
VSL	3.0	29.2	1.0	24.2	-1.0	25.4	1.0	24.7	1.0	25.0	5.5	26.8	5.5	39.8	1.5	25.7	-5.0	35.2	10.1	33.0
NPL	-4.0	27.0	-6.0	21.6	-8.0	22.9	-6.0	22.1	-6.0	22.5	-1.5	24.4	-1.5	38.3	-5.5	23.2	-12.0	33.4	3.1	31.1
Metrosert	-7.0	25.5	-9.0	19.6	-11.0	21.1	-9.0	20.2	-9.0	20.6	-4.5	22.7	-4.5	37.2	-8.5	21.4	-15.0	32.2	0.1	29.8
SP	2.3	17.4	0.3	6.3	-1.7	10.0	0.3	8.0	0.3	8.9	4.8	13.1	4.8	32.2	0.8	10.6	-5.7	26.3	9.4	23.3
BEV	2.0	17.1	0.0	5.4	-2.0	9.4	0.0	7.3	0.0	8.2	4.5	12.7	4.5	32.1	0.5	10.1	-6.0	26.1	9.1	23.1
NIS	7.4	32.9	5.4	28.6	3.4	29.7	5.4	29.1	5.4	29.3	9.9	30.8	9.9	42.7	5.9	29.9	-0.6	38.4	14.5	36.4
LNE	-2.0	22.0	-4.0	14.9	-6.0	16.8	-4.0	15.7	-4.0	16.1	0.5	18.8	0.5	34.9	-3.5	17.1	-10.0	29.5	5.1	26.9
Trescal	2.0	24.8	0.0	18.7	-2.0	20.2	0.0	19.3	0.0	19.7	4.5	21.9	4.5	36.7	0.5	20.5	-6.0	31.6	9.1	29.2
INRIM	1.4	17.5	-0.6	6.6	-2.6	10.2	-0.6	8.2	-0.6	9.1	3.9	13.2	3.9	32.3	-0.1	10.8	-6.6	26.4	8.5	23.4
SIQ	3.0	21.4	1.0	13.9	-1.0	15.9	1.0	14.8	1.0	15.3	5.5	18.0	5.5	34.5	1.5	16.3	-5.0	29.1	10.1	26.4

5 A	NSAI NML		VSL		NPL		Metrosert		SP		BEV		NIS		LNE		Trescal		INRIM		SIQ	
1 kHz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	-5.0	75.0	-3.0	29.2	4.0	27.0	7.0	25.5	-2.3	17.4	-2.0	17.1	-7.4	32.9	2.0	22.0	-2.0	24.8	-1.4	17.5	-3.0	21.4
PTB	-3.0	73.2	-1.0	24.2	6.0	21.6	9.0	19.6	-0.3	6.3	0.0	5.4	-5.4	28.6	4.0	14.9	0.0	18.7	0.6	6.6	-1.0	13.9
METAS	-1.0	73.6	1.0	25.4	8.0	22.9	11.0	21.1	1.7	10.0	2.0	9.4	-3.4	29.7	6.0	16.8	2.0	20.2	2.6	10.2	1.0	15.9
JV	-3.0	73.3	-1.0	24.7	6.0	22.1	9.0	20.2	-0.3	8.0	0.0	7.3	-5.4	29.1	4.0	15.7	0.0	19.3	0.6	8.2	-1.0	14.8
UME	-3.0	73.4	-1.0	25.0	6.0	22.5	9.0	20.6	-0.3	8.9	0.0	8.2	-5.4	29.3	4.0	16.1	0.0	19.7	0.6	9.1	-1.0	15.3
GUM	-7.5	74.1	-5.5	26.8	1.5	24.4	4.5	22.7	-4.8	13.1	-4.5	12.7	-9.9	30.8	-0.5	18.8	-4.5	21.9	-3.9	13.2	-5.5	18.0
IPQ	-29.0	79.7	-27.0	39.8	-20.0	38.3	-17.0	37.2	-26.3	32.2	-26.0	32.1	-31.4	42.7	-22.0	34.9	-26.0	36.7	-25.4	32.3	-27.0	34.5
CEM	-3.5	73.7	-1.5	25.7	5.5	23.2	8.5	21.4	-0.8	10.6	-0.5	10.1	-5.9	29.9	3.5	17.1	-0.5	20.5	0.1	10.8	-1.5	16.3
BIM	3.0	77.5	5.0	35.2	12.0	33.4	15.0	32.2	5.7	26.3	6.0	26.1	0.6	38.4	10.0	29.5	6.0	31.6	6.6	26.4	5.0	29.1
MKEH	-12.1	76.5	-10.1	33.0	-3.1	31.1	-0.1	29.8	-9.4	23.3	-9.1	23.1	-14.5	36.4	-5.1	26.9	-9.1	29.2	-8.5	23.4	-10.1	26.4
NSAI NML	---	---	2.0	76.8	9.0	76.0	12.0	75.4	2.7	73.1	3.0	73.0	-2.4	78.3	7.0	74.3	3.0	75.2	3.6	73.1	2.0	74.1
VSL	-2.0	76.8	---	---	7.0	31.7	10.0	30.4	0.7	24.0	1.0	23.8	-4.4	36.8	5.0	27.5	1.0	29.8	1.6	24.1	0.0	27.0
NPL	-9.0	76.0	-7.0	31.7	---	---	3.0	28.3	-6.3	21.3	-6.0	21.1	-11.4	35.2	-2.0	25.2	-6.0	27.7	-5.4	21.4	-7.0	24.7
Metrosert	-12.0	75.4	-10.0	30.4	-3.0	28.3	---	---	-9.3	19.4	-9.0	19.1	-14.4	34.0	-5.0	23.6	-9.0	26.2	-8.4	19.5	-10.0	23.0
SP	-2.7	73.1	-0.7	24.0	6.3	21.3	9.3	19.4	---	---	0.3	4.3	-5.1	28.5	4.3	14.5	0.3	18.4	0.9	5.7	-0.7	13.5
BEV	-3.0	73.0	-1.0	23.8	6.0	21.1	9.0	19.1	-0.3	4.3	---	---	-5.4	28.3	4.0	14.1	0.0	18.1	0.6	4.7	-1.0	13.2
NIS	2.4	78.3	4.4	36.8	11.4	35.2	14.4	34.0	5.1	28.5	5.4	28.3	---	---	9.4	31.5	5.4	33.5	6.0	28.5	4.4	31.1
LNE	-7.0	74.3	-5.0	27.5	2.0	25.2	5.0	23.6	-4.3	14.5	-4.0	14.1	-9.4	31.5	---	---	-4.0	22.8	-3.4	14.6	-5.0	19.1
Trescal	-3.0	75.2	-1.0	29.8	6.0	27.7	9.0	26.2	-0.3	18.4	0.0	18.1	-5.4	33.5	4.0	22.8	---	---	0.6	18.5	-1.0	22.2
INRIM	-3.6	73.1	-1.6	24.1	5.4	21.4	8.4	19.5	-0.9	5.7	-0.6	4.7	-6.0	28.5	3.4	14.6	-0.6	18.5	---	---	-1.6	13.7
SIQ	-2.0	74.1	0.0	27.0	7.0	24.7	10.0	23.0	0.7	13.5	1.0	13.2	-4.4	31.1	5.0	19.1	1.0	22.2	1.6	13.7	---	---

Table 11: Degree of equivalence at 5 A, 10 kHz

5 A	CMI		PTB		METAS		JV		UME		GUM		IPQ		CEM		BIM		MKEH	
10 kHz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	---	---	-2.0	18.0	-4.0	19.9	-4.0	18.4	-1.0	18.8	8.3	21.2	197.0	38.9	-2.6	20.2	-10.0	29.4	8.5	29.4
PTB	2.0	18.0	---	---	-2.0	12.0	-2.0	9.2	1.0	10.0	10.3	14.0	199.0	35.5	-0.6	12.5	-8.0	24.7	10.5	24.7
METAS	4.0	19.9	2.0	12.0	---	---	0.0	12.5	3.0	13.1	12.3	16.3	201.0	36.5	1.4	15.1	-6.0	26.2	12.5	26.2
JV	4.0	18.4	2.0	9.2	0.0	12.5	---	---	3.0	10.6	12.3	14.4	201.0	35.7	1.4	13.0	-6.0	25.0	12.5	25.0
UME	1.0	18.8	-1.0	10.0	-3.0	13.1	-3.0	10.6	---	---	9.3	14.9	198.0	35.9	-1.6	13.6	-9.0	25.3	9.5	25.3
GUM	-8.3	21.2	-10.3	14.0	-12.3	16.3	-12.3	14.4	-9.3	14.9	---	---	188.7	37.2	-10.9	16.7	-18.3	27.1	0.2	27.1
IPQ	-197.0	38.9	-199.0	35.5	-201.0	36.5	-201.0	35.7	-198.0	35.9	-188.7	37.2	---	---	-199.6	36.7	-207.0	42.4	-188.5	42.4
CEM	2.6	20.2	0.6	12.5	-1.4	15.1	-1.4	13.0	1.6	13.6	10.9	16.7	199.6	36.7	---	---	-7.4	26.4	11.1	26.4
BIM	10.0	29.4	8.0	24.7	6.0	26.2	6.0	25.0	9.0	25.3	18.3	27.1	207.0	42.4	7.4	26.4	---	---	18.5	33.9
MKEH	-8.5	29.4	-10.5	24.7	-12.5	26.2	-12.5	25.0	-9.5	25.3	-0.2	27.1	188.5	42.4	-11.1	26.4	-18.5	33.9	---	---
NSAI NML	5.0	121.2	3.0	120.1	1.0	120.4	1.0	120.2	4.0	120.3	13.3	120.7	202.0	125.0	2.4	120.5	-5.0	122.4	13.5	122.4
VSL	1.7	32.9	-0.3	28.8	-2.3	30.1	-2.3	29.1	0.7	29.3	10.0	30.9	198.7	44.9	-0.9	30.3	-8.3	37.0	10.2	37.0
NPL	-3.0	25.5	-5.0	19.9	-7.0	21.7	-7.0	20.2	-4.0	20.6	5.3	22.8	194.0	39.8	-5.6	22.0	-13.0	30.6	5.5	30.6
Metrosert	0.0	57.6	-2.0	55.3	-4.0	56.0	-4.0	55.4	-1.0	55.6	8.3	56.4	197.0	65.2	-2.6	56.1	-10.0	60.0	8.5	60.0
SP	3.6	17.5	1.6	7.3	-0.4	11.2	-0.4	8.2	2.6	9.0	11.9	13.3	200.6	35.3	1.0	11.8	-6.4	24.4	12.1	24.4
BEV	1.0	19.2	-1.0	10.8	-3.0	13.8	-3.0	11.4	0.0	12.0	9.3	15.5	198.0	36.1	-1.6	14.2	-9.0	25.6	9.5	25.6
NIS	24.6	32.9	22.6	28.8	20.6	30.1	20.6	29.1	23.6	29.3	32.9	30.9	221.6	44.9	22.0	30.3	14.6	37.0	33.1	37.0
LNE	4.0	22.7	2.0	16.2	0.0	18.3	0.0	16.6	3.0	17.0	12.3	19.6	201.0	38.1	1.4	18.6	-6.0	28.3	12.5	28.3
Trescal	8.0	27.8	6.0	22.8	4.0	24.3	4.0	23.1	7.0	23.4	16.3	25.4	205.0	41.3	5.4	24.6	-2.0	32.6	16.5	32.6
INRIM	3.6	18.0	1.6	8.3	-0.4	11.9	-0.4	9.1	2.6	9.9	11.9	13.9	200.6	35.5	1.0	12.4	-6.4	24.7	12.1	24.7
SIQ	2.0	21.4	0.0	14.3	-2.0	16.6	-2.0	14.8	1.0	15.3	10.3	18.1	199.0	37.3	-0.6	17.0	-8.0	27.3	10.5	27.3

5 A	NSAI NML		VSL		NPL		Metrosert		SP		BEV		NIS		LNE		Trescal		INRIM		SIQ	
10 kHz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	-5.0	121.2	-1.7	32.9	3.0	25.5	0.0	57.6	-3.6	17.5	-1.0	19.2	-24.6	32.9	-4.0	22.7	-8.0	27.8	-3.6	18.0	-2.0	21.4
PTB	-3.0	120.1	0.3	28.8	5.0	19.9	2.0	55.3	-1.6	7.3	1.0	10.8	-22.6	28.8	-2.0	16.2	-6.0	22.8	-1.6	8.3	0.0	14.3
METAS	-1.0	120.4	2.3	30.1	7.0	21.7	4.0	56.0	0.4	11.2	3.0	13.8	-20.6	30.1	0.0	18.3	-4.0	24.3	0.4	11.9	2.0	16.6
JV	-1.0	120.2	2.3	29.1	7.0	20.2	4.0	55.4	0.4	8.2	3.0	11.4	-20.6	29.1	0.0	16.6	-4.0	23.1	0.4	9.1	2.0	14.8
UME	-4.0	120.3	-0.7	29.3	4.0	20.6	1.0	55.6	-2.6	9.0	0.0	12.0	-23.6	29.3	-3.0	17.0	-7.0	23.4	-2.6	9.9	-1.0	15.3
GUM	-13.3	120.7	-10.0	30.9	-5.3	22.8	-8.3	56.4	-11.9	13.3	-9.3	15.5	-32.9	30.9	-12.3	19.6	-16.3	25.4	-11.9	13.9	-10.3	18.1
IPQ	-202.0	125.0	-198.7	44.9	-194.0	39.8	-197.0	65.2	-200.6	35.3	-198.0	36.1	-221.6	44.9	-201.0	38.1	-205.0	41.3	-200.6	35.5	-199.0	37.3
CEM	-2.4	120.5	0.9	30.3	5.6	22.0	2.6	56.1	-1.0	11.8	1.6	14.2	-22.0	30.3	-1.4	18.6	-5.4	24.6	-1.0	12.4	0.6	17.0
BIM	5.0	122.4	8.3	37.0	13.0	30.6	10.0	60.0	6.4	24.4	9.0	25.6	-14.6	37.0	6.0	28.3	2.0	32.6	6.4	24.7	8.0	27.3
MKEH	-13.5	122.4	-10.2	37.0	-5.5	30.6	-8.5	60.0	-12.1	24.4	-9.5	25.6	-33.1	37.0	-12.5	28.3	-16.5	32.6	-12.1	24.7	-10.5	27.3
NSAI NML	---	---	3.3	123.3	8.0	121.5	5.0	132.0	1.4	120.1	4.0	120.3	-19.6	123.3	1.0	120.9	-3.0	122.0	1.4	120.1	3.0	120.7
VSL	-3.3	123.3	---	---	4.7	34.0	1.7	61.8	-1.9	28.5	0.7	29.6	-22.9	39.9	-2.3	31.9	-6.3	35.8	-1.9	28.8	-0.3	31.1
NPL	-8.0	121.5	-4.7	34.0	---	---	-3.0	58.2	-6.6	19.5	-4.0	21.0	-27.6	34.0	-7.0	24.2	-11.0	29.1	-6.6	19.9	-5.0	23.0
Metrosert	-5.0	132.0	-1.7	61.8	3.0	58.2	---	---	-3.6	55.2	-1.0	55.7	-24.6	61.8	-4.0	57.0	-8.0	59.2	-3.6	55.3	-2.0	56.5
SP	-1.4	120.1	1.9	28.5	6.6	19.5	3.6	55.2	---	---	2.6	9.9	-21.0	28.5	-0.4	15.6	-4.4	22.4	0.0	7.2	1.6	13.7
BEV	-4.0	120.3	-0.7	29.6	4.0	21.0	1.0	55.7	-2.6	9.9	---	---	-23.6	29.6	-3.0	17.5	-7.0	23.8	-2.6	10.7	-1.0	15.8
NIS	19.6	123.3	22.9	39.9	27.6	34.0	24.6	61.8	21.0	28.5	23.6	29.6	---	---	20.6	31.9	16.6	35.8	21.0	28.8	22.6	31.1
LNE	-1.0	120.9	2.3	31.9	7.0	24.2	4.0	57.0	0.4	15.6	3.0	17.5	-20.6	31.9	---	---	-4.0	26.6	0.4	16.1	2.0	19.8
Trescal	3.0	122.0	6.3	35.8	11.0	29.1	8.0	59.2	4.4	22.4	7.0	23.8	-16.6	35.8	4.0	26.6	---	---	4.4	22.8	6.0	25.6
INRIM	-1.4	120.1	1.9	28.8	6.6	19.9	3.6	55.3	0.0	7.2	2.6	10.7	-21.0	28.8	-0.4	16.1	-4.4	22.8	---	---	1.6	14.2
SIQ	-3.0	120.7	0.3	31.1	5.0	23.0	2.0	56.5	-1.6	13.7	1.0	15.8	-22.6	31.1	-2.0	19.8	-6.0	25.6	-1.6	14.2	---	---

Table 12: Degree of equivalence at 5 A, 20 kHz

5 A	CMI		PTB		METAS		JV		UME		IPQ		CEM		BIM	
20 kHz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	---	---	-3.0	20.2	-4.1	22.6	-6.0	20.2	-2.0	21.0	216.0	36.4	-5.5	23.0	-12.0	30.6
PTB	3.0	20.2	---	---	-1.1	14.2	-3.0	9.9	1.0	11.4	219.0	31.8	-2.5	14.8	-9.0	25.0
METAS	4.1	22.6	1.1	14.2	---	---	-1.9	14.2	2.1	15.2	220.1	33.4	-1.4	17.9	-7.9	27.0
JV	6.0	20.2	3.0	9.9	1.9	14.2	---	---	4.0	11.4	222.0	31.8	0.5	14.8	-6.0	25.0
UME	2.0	21.0	-1.0	11.4	-2.1	15.2	-4.0	11.4	---	---	218.0	32.3	-3.5	15.8	-10.0	25.6
IPQ	-216.0	36.4	-219.0	31.8	-220.1	33.4	-222.0	31.8	-218.0	32.3	---	---	-221.5	33.6	-228.0	39.2
CEM	5.5	23.0	2.5	14.8	1.4	17.9	-0.5	14.8	3.5	15.8	221.5	33.6	---	---	-6.5	27.3
BIM	12.0	30.6	9.0	25.0	7.9	27.0	6.0	25.0	10.0	25.6	228.0	39.2	6.5	27.3	---	---
NSAI NML	7.0	230.8	4.0	230.1	2.9	230.3	1.0	230.1	5.0	230.2	223.0	232.1	1.5	230.4	-5.0	231.2
VSL	-0.2	54.0	-3.2	51.0	-4.3	52.0	-6.2	51.0	-2.2	51.3	215.8	59.3	-5.7	52.1	-12.2	55.9
NPL	-4.0	33.8	-7.0	28.9	-8.1	30.6	-10.0	28.9	-6.0	29.4	212.0	41.8	-9.5	30.9	-16.0	36.9
SP	4.7	19.6	1.7	8.6	0.6	13.3	-1.3	8.6	2.7	10.3	220.7	31.4	-0.8	13.9	-7.3	24.5
BEV	2.0	21.0	-1.0	11.4	-2.1	15.2	-4.0	11.4	0.0	12.7	218.0	32.3	-3.5	15.8	-10.0	25.6
LNE	19.0	24.2	16.0	16.6	14.9	19.4	13.0	16.6	17.0	17.5	235.0	34.4	13.5	19.8	7.0	28.3
Trescal	13.0	33.0	10.0	27.9	8.9	29.7	7.0	27.9	11.0	28.5	229.0	41.1	7.5	30.0	1.0	36.1
INRIM	4.7	20.3	1.7	10.0	0.6	14.2	-1.3	10.0	2.7	11.5	220.7	31.8	-0.8	14.8	-7.3	25.0
SIQ	2.0	23.0	-1.0	14.8	-2.1	17.9	-4.0	14.8	0.0	15.8	218.0	33.6	-3.5	18.4	-10.0	27.3

5 A	NSAI NML		VSL		NPL		SP		BEV		LNE		Trescal		INRIM		SIQ	
20 kHz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	-7.0	230.8	0.2	54.0	4.0	33.8	-4.7	19.6	-2.0	21.0	-19.0	24.2	-13.0	33.0	-4.7	20.3	-2.0	23.0
PTB	-4.0	230.1	3.2	51.0	7.0	28.9	-1.7	8.6	1.0	11.4	-16.0	16.6	-10.0	27.9	-1.7	10.0	1.0	14.8
METAS	-2.9	230.3	4.3	52.0	8.1	30.6	-0.6	13.3	2.1	15.2	-14.9	19.4	-8.9	29.7	-0.6	14.2	2.1	17.9
JV	-1.0	230.1	6.2	51.0	10.0	28.9	1.3	8.6	4.0	11.4	-13.0	16.6	-7.0	27.9	1.3	10.0	4.0	14.8
UME	-5.0	230.2	2.2	51.3	6.0	29.4	-2.7	10.3	0.0	12.7	-17.0	17.5	-11.0	28.5	-2.7	11.5	0.0	15.8
IPQ	-223.0	232.1	-215.8	59.3	-212.0	41.8	-220.7	31.4	-218.0	32.3	-235.0	34.4	-229.0	41.1	-220.7	31.8	-218.0	33.6
CEM	-1.5	230.4	5.7	52.1	9.5	30.9	0.8	13.9	3.5	15.8	-13.5	19.8	-7.5	30.0	0.8	14.8	3.5	18.4
BIM	5.0	231.2	12.2	55.9	16.0	36.9	7.3	24.5	10.0	25.6	-7.0	28.3	-1.0	36.1	7.3	25.0	10.0	27.3
NSAI NML	---	---	7.2	235.5	11.0	231.7	2.3	230.1	5.0	230.2	-12.0	230.5	-6.0	231.6	2.3	230.1	5.0	230.4
VSL	-7.2	235.5	---	---	3.8	57.7	-4.9	50.7	-2.2	51.3	-19.2	52.7	-13.2	57.3	-4.9	51.0	-2.2	52.1
NPL	-11.0	231.7	-3.8	57.7	---	---	-8.7	28.4	-6.0	29.4	-23.0	31.8	-17.0	38.9	-8.7	28.9	-6.0	30.9
SP	-2.3	230.1	4.9	50.7	8.7	28.4	---	---	2.7	10.3	-14.3	15.8	-8.3	27.5	0.0	8.7	2.7	13.9
BEV	-5.0	230.2	2.2	51.3	6.0	29.4	-2.7	10.3	---	---	-17.0	17.5	-11.0	28.5	-2.7	11.5	0.0	15.8
LNE	12.0	230.5	19.2	52.7	23.0	31.8	14.3	15.8	17.0	17.5	---	---	6.0	30.9	14.3	16.6	17.0	19.8
Trescal	6.0	231.6	13.2	57.3	17.0	38.9	8.3	27.5	11.0	28.5	-6.0	30.9	---	---	8.3	27.9	11.0	30.0
INRIM	-2.3	230.1	4.9	51.0	8.7	28.9	0.0	8.7	2.7	11.5	-14.3	16.6	-8.3	27.9	---	---	2.7	14.8
SIQ	-5.0	230.4	2.2	52.1	6.0	30.9	-2.7	13.9	0.0	15.8	-17.0	19.8	-11.0	30.0	-2.7	14.8	---	---

Table 13: Degree of equivalence at 5 A, 50 kHz

5 A	CMI		PTB		METAS		JV		UME		CEM		BIM		NPL		SP		BEV		LNE		Trescal		INRIM		SIQ	
50 kHz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	---	---	-6.0	24.6	-5.1	30.6	-11.0	23.4	-3.0	25.1	-8.9	28.4	-15.0	35.6	12.0	47.4	-8.0	24.2	-9.0	24.2	-28.0	27.2	-22.0	50.1	-9.4	24.3	0.0	27.2
PTB	6.0	24.6	---	---	0.9	23.9	-5.0	13.6	3.0	16.3	-2.9	21.1	-9.0	30.1	18.0	43.4	-2.0	14.9	-3.0	14.9	-22.0	19.4	-16.0	46.3	-3.4	15.1	6.0	19.4
METAS	5.1	30.6	-0.9	23.9	---	---	-5.9	22.7	2.1	24.4	-3.8	27.8	-9.9	35.1	17.1	47.0	-2.9	23.4	-3.9	23.4	-22.9	26.6	-16.9	49.7	-4.3	23.6	5.1	26.6
JV	11.0	23.4	5.0	13.6	5.9	22.7	---	---	8.0	14.4	2.1	19.7	-4.0	29.1	23.0	42.8	3.0	12.8	2.0	12.8	-17.0	17.9	-11.0	45.7	1.6	13.0	11.0	17.9
UME	3.0	25.1	-3.0	16.3	-2.1	24.4	-8.0	14.4	---	---	-5.9	21.6	-12.0	30.5	15.0	43.7	-5.0	15.6	-6.0	15.6	-25.0	20.0	-19.0	46.6	-6.4	15.8	3.0	20.0
CEM	8.9	28.4	2.9	21.1	3.8	27.8	-2.1	19.7	5.9	21.6	---	---	-6.1	33.3	20.9	45.7	0.9	20.6	-0.1	20.6	-19.1	24.1	-13.1	48.5	-0.5	20.7	8.9	24.1
BIM	15.0	35.6	9.0	30.1	9.9	35.1	4.0	29.1	12.0	30.5	6.1	33.3	---	---	27.0	50.5	7.0	29.7	6.0	29.7	-13.0	32.2	-7.0	53.0	5.6	29.8	15.0	32.2
NPL	-12.0	47.4	-18.0	43.4	-17.1	47.0	-23.0	42.8	-15.0	43.7	-20.9	45.7	-27.0	50.5	---	---	-20.0	43.2	-21.0	43.2	-40.0	44.9	-34.0	61.6	-21.4	43.2	-12.0	44.9
SP	8.0	24.2	2.0	14.9	2.9	23.4	-3.0	12.8	5.0	15.6	-0.9	20.6	-7.0	29.7	20.0	43.2	---	---	-1.0	14.1	-20.0	18.9	-14.0	46.1	-1.4	14.4	8.0	18.9
BEV	9.0	24.2	3.0	14.9	3.9	23.4	-2.0	12.8	6.0	15.6	0.1	20.6	-6.0	29.7	21.0	43.2	1.0	14.1	---	---	-19.0	18.9	-13.0	46.1	-0.4	14.4	9.0	18.9
LNE	28.0	27.2	22.0	19.4	22.9	26.6	17.0	17.9	25.0	20.0	19.1	24.1	13.0	32.2	40.0	44.9	20.0	18.9	19.0	18.9	---	---	6.0	47.8	18.6	19.0	28.0	22.6
Trescal	22.0	50.1	16.0	46.3	16.9	49.7	11.0	45.7	19.0	46.6	13.1	48.5	7.0	53.0	34.0	61.6	14.0	46.1	13.0	46.1	-6.0	47.8	---	---	12.6	46.2	22.0	47.8
INRIM	9.4	24.3	3.4	15.1	4.3	23.6	-1.6	13.0	6.4	15.8	0.5	20.7	-5.6	29.8	21.4	43.2	1.4	14.4	0.4	14.4	-18.6	19.0	-12.6	46.2	---	---	9.4	19.0
SIQ	0.0	27.2	-6.0	19.4	-5.1	26.6	-11.0	17.9	-3.0	20.0	-8.9	24.1	-15.0	32.2	12.0	44.9	-8.0	18.9	-9.0	18.9	-28.0	22.6	-22.0	47.8	-9.4	19.0	---	---

Table 14: Degree of equivalence at 5 A, 100 kHz

5 A	CMI		PTB		METAS		JV		UME		CEM		BIM		NPL		SP		BEV		LNE		Trescal		INRIM		SIQ	
100 kHz	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}	d_{ij}	U_{ij}
CMI	---	---	-20.0	46.2	-18.3	53.2	-25.0	44.4	-5.0	47.9	-20.0	49.2	-5.0	58.7	-26.0	103.4	-19.0	45.5	-21.0	44.9	-47.0	46.2	-40.0	82.2	-21.3	45.9	-11.0	50.2
PTB	20.0	46.2	---	---	1.7	35.7	-5.0	20.2	15.0	27.0	0.0	29.4	15.0	43.5	-6.0	95.5	1.0	22.7	-1.0	21.4	-27.0	24.0	-20.0	72.0	-1.3	23.3	9.0	31.1
METAS	18.3	53.2	-1.7	35.7	---	---	-6.7	33.3	13.3	37.8	-1.7	39.5	13.3	50.9	-7.7	99.1	-0.7	34.8	-2.7	34.0	-28.7	35.7	-21.7	76.7	-3.0	35.2	7.3	40.8
JV	25.0	44.4	5.0	20.2	-43.0	33.3	---	---	20.0	23.7	5.0	26.4	20.0	41.5	-1.0	94.6	6.0	18.6	4.0	17.0	-22.0	20.2	-15.0	70.9	3.7	19.4	14.0	28.2
UME	5.0	47.9	-15.0	27.0	-63.0	37.8	-20.0	23.7	---	---	-15.0	31.9	0.0	45.2	-21.0	96.3	-14.0	25.8	-16.0	24.7	-42.0	27.0	-35.0	73.1	-16.3	26.4	-6.0	33.4
CEM	20.0	49.2	0.0	29.4	-48.0	39.5	-5.0	26.4	15.0	31.9	---	---	15.0	46.6	-6.0	97.0	1.0	28.3	-1.0	27.3	-27.0	29.4	-20.0	74.0	-1.3	28.8	9.0	35.4
BIM	5.0	58.7	-15.0	43.5	-63.0	50.9	-20.0	41.5	0.0	45.2	-15.0	46.6	---	---	-21.0	102.2	-14.0	42.7	-16.0	42.1	-42.0	43.5	-35.0	80.6	-16.3	43.1	-6.0	47.7
NPL	26.0	103.4	6.0	95.5	-42.0	99.1	1.0	94.6	21.0	96.3	6.0	97.0	21.0	102.2	---	---	7.0	95.2	5.0	94.9	-21.0	95.5	-14.0	117.2	4.7	95.4	15.0	97.5
SP	19.0	45.5	-1.0	22.7	-49.0	34.8	-6.0	18.6	14.0	25.8	-1.0	28.3	14.0	42.7	-7.0	95.2	---	---	-2.0	19.8	-28.0	22.7	-21.0	71.6	-2.3	21.9	8.0	30.0
BEV	21.0	44.9	1.0	21.4	-47.0	34.0	-4.0	17.0	16.0	24.7	1.0	27.3	16.0	42.1	-5.0	94.9	2.0	19.8	---	---	-26.0	21.4	-19.0	71.2	-0.3	20.6	10.0	29.1
LNE	47.0	46.2	27.0	24.0	-21.0	35.7	22.0	20.2	42.0	27.0	27.0	29.4	42.0	43.5	21.0	95.5	28.0	22.7	26.0	21.4	---	---	7.0	72.0	25.7	23.3	36.0	31.1
Trescal	40.0	82.2	20.0	72.0	-28.0	76.7	15.0	70.9	35.0	73.1	20.0	74.0	35.0	80.6	14.0	117.2	21.0	71.6	19.0	71.2	-7.0	72.0	---	---	18.7	71.8	29.0	74.7
INRIM	21.3	45.9	1.3	23.3	-46.7	35.2	-3.7	19.4	16.3	26.4	1.3	28.8	16.3	43.1	-4.7	95.4	2.3	21.9	0.3	20.6	-25.7	23.3	-18.7	71.8	---	---	10.3	30.5
SIQ	11.0	50.2	-9.0	31.1	-57.0	40.8	-14.0	28.2	6.0	33.4	-9.0	35.4	6.0	47.7	-15.0	97.5	-8.0	30.0	-10.0	29.1	-36.0	31.1	-29.0	74.7	-10.3	30.5	---	---

Appendix 2: “EURAMET.EM-K12: Reports of the institutes”
(Delivered separately as pdf- file)