CCQM-K36.a, CCQM-K36.1, and COOMET.QM-K36

Key comparison CCQM-K36.a

MEASURAND : **Electrolytic conductivity of a KCl solution**
NOMINAL VALUE : **0.5 S/m**

x $_i$ **:** **result of measurement carried out by laboratory *i***
u $_i$ **:** **standard uncertainty of *x*** $_i$

Lab *i* ⇩	***x*** $_i$ **/ (S/m)**	***u*** $_i$ **/ (S/m)**	**Date of measurement**
VNIIFTRI	0.50273	0.00010	12/08/2005
INMETRO	0.50420	0.00055	08/08/2005
SP	0.50610	0.00070	24/08/2005
GUM	0.50668	0.00025	01/08/2005
INRIM	0.50677	0.00037	19/07/2005
SMU	0.50684	0.00022	19/07/2005
MKEH	0.50689	0.00010	21/07/2005
SE "Ukrmetrteststandard"	0.50697	0.00011	06/09/2005
INPL	0.50700	0.00021	31/08/2005
DFM	0.50708	0.00011	17/08/2005
NIST	0.50714	0.00011	17/08/2005
PTB	0.50729	0.00028	10/08/2005
CMI	0.51095	0.00365	26/07/2005
CENAM	0.51097	0.00050	04/09/2005

After discussions, INPL and INMETRO submitted revised uncertainty calculations.
The revised values, *u* $_{\mathrm{INPL}}$ **= 0.00034 S/m and *u*** $_{\mathrm{INMETRO}}$ **= 0.0025 S/m, were used in the calculation of the key comparison reference value.**

Key comparison CCQM-K36.1

MEASURAND : **Electrolytic conductivity of a KCl solution**
NOMINAL VALUE : **0.5 S/m**

x_{i-1}: **result of measurement carried out by laboratory *i***
u_{i-1}: **standard uncertainty of x_{i-1}**

Lab *i* ⇩	x_{i-1} / (S/m)	u_{i-1} / (S/m)	Date of measurement
VNIIFTRI	0.513910	0.000098	20/11/2007
DFM	0.51426	0.00015	09/12/2007
NIM	0.51432	0.00016	27/11/2007
PTB	0.51496	0.00026	12/12/2007
CENAM	0.51550	0.00069	06/01/2008
INMETRO	0.51565	0.00062	29/01/2008

Key comparison COOMET.QM-K36

MEASURAND : **Electrolytic conductivity of a KCl solution**
NOMINAL VALUE : **0.5 S/m**

$x_{i\text{-coo}}$: **result of measurement carried out by laboratory *i***
$u_{i\text{-coo}}$: **standard uncertainty of $x_{i\text{-coo}}$**

Lab *i* ⇩	$x_{i\text{-coo}}$ / (S/m)	$u_{i\text{-coo}}$ / (S/m)	Date of measurement
BelGIM	0.49952	0.00036	10/01/2012
VNIIFTRI	0.50002	0.00015	21/03/2012
SMU	0.50032	0.00017	19/01/2012
SE "Ukrmetrteststandard"	0.50039	0.00013	05/01/2012
INDECOPI	0.50074	0.00079	30 - 31/01/2012
VNIIM	0.50100	0.00020	31/05/2012
KazInMetr	0.50380	0.00030	11 - 20/06/2012
GEOSTM	0.50021	0.00040	14 - 17/02/2012

Key comparisons CCQM-K36.a, CCQM-K36.1, and COOMET.QM-K36

MEASURAND : **Electrolytic conductivity of a KCl solution**
NOMINAL VALUE : **0.5 S/m**

Key comparison CCQM-K36.a

The key comparison reference value, x_R, is calculated as the weighted average of the participants' results, with VNIIFTRI, INMETRO, and CENAM excluded (see Section 6 of the CCQM-K36.a Final Report) as being identified as discrepant.
Its standard uncertainty, u_R, is the standard uncertainty of the weighted average.

x_R = 0.506992 S/m and u_R = 0.000072 S/m

The degree of equivalence of each laboratory i with respect to the reference value is given by a pair of terms:
$D_i = (x_i - x_R)$ and U_i, its expanded uncertainty ($k = 2$).

No pair-wise degrees of equivalence are calculated for this key comparison.

Linking key comparison CCQM-K36.1 to CCQM-K36.a

DFM and PTB results are used to establish the link between CCQM-K36.a and CCQM-K36.1.

The linkage process is explained in Section 7 of the CCQM-K36.1 Final Report. It leads to the determination of a linking parameter d_R = 0.00738 S/m with standard uncertainty u_d = 0.00012 S/m, which makes it possible to compute the degrees of equivalence of CCQM-K36.1 participants.

Linking key comparison COOMET.QM-K36 to CCQM-K36.a

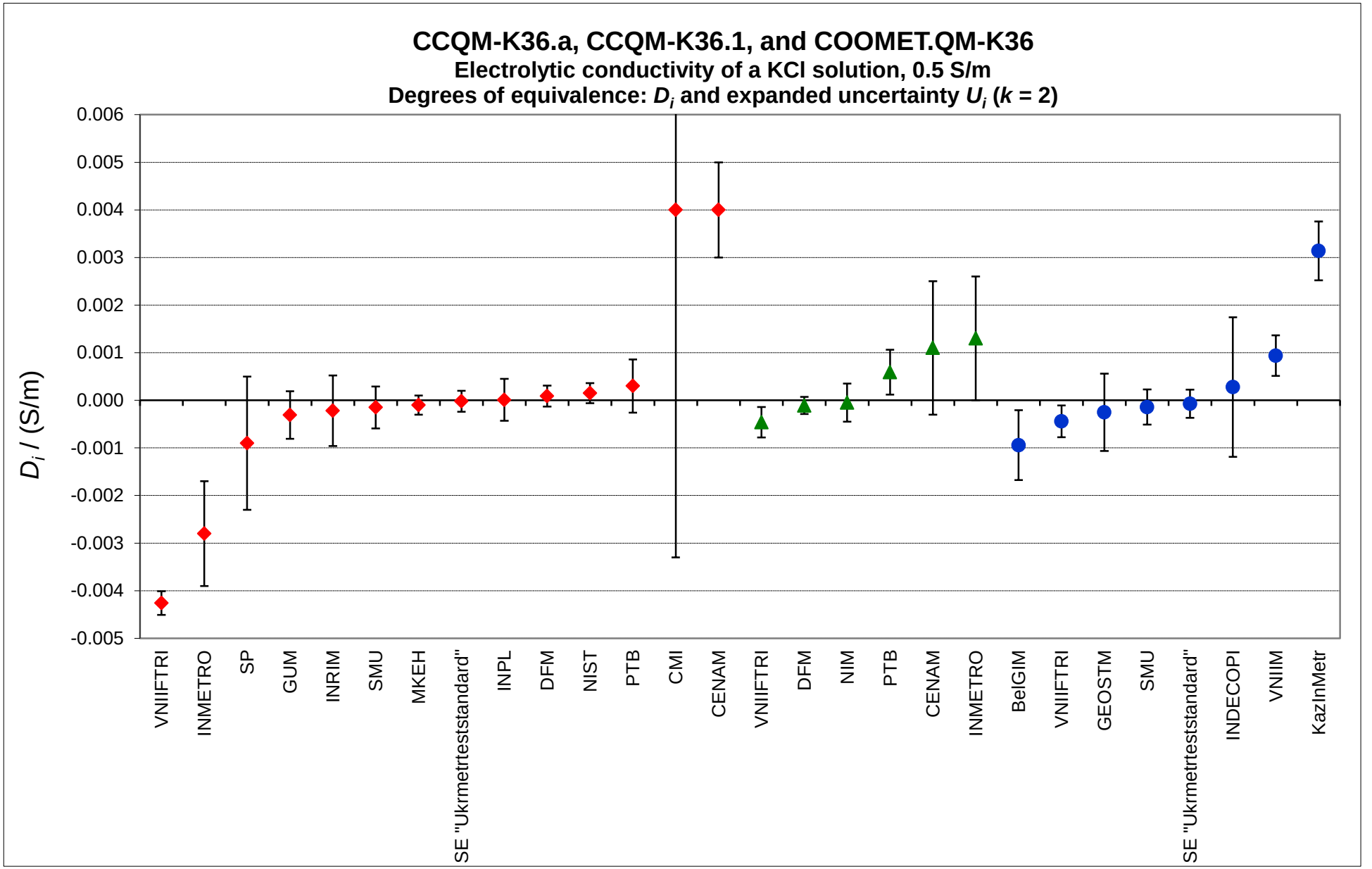
VNIIFTRI, SMU, and SE "Ukrmetrteststandard" results are used to establish the link between CCQM-K36.a and COOMET.QM-K36.
The VNIIFTRI value obtained in CCQM-K36.a has been corrected by d_R.
The linkage process is explained in Section 10 of the COOMET.QM-K36 Final Report.

Key comparisons CCQM-K36.a, CCQM-K36.1, and COOMET.QM-K36

MEASURAND : **Electrolytic conductivity of a KCl solution**
NOMINAL VALUE : **0.5 S/m**

Degree of equivalence D_i and expanded uncertainty U_i (k = 2)
Lab *i*

	D_i / (S/m)	U_i / (S/m)
VNIIFTRI	**-0.00426**	0.00025
INMETRO	**-0.0028**	0.0011
SP	**-0.0009**	0.0014
GUM	**-0.00031**	0.00050
INRIM	**-0.00022**	0.00074
SMU	**-0.00015**	0.00044
MKEH	**-0.00010**	0.00020
SE "Ukrmetrteststandard"	**-0.00002**	0.00022
INPL	**0.00001**	0.00044
DFM	**0.00009**	0.00022
NIST	**0.00015**	0.00021
PTB	**0.00030**	0.00056
CMI	**0.0040**	0.0073
CENAM	**0.0040**	0.0010
VNIIFTRI	**-0.00046**	0.00032
DFM	**-0.00011**	0.00018
NIM	**-0.00005**	0.00040
PTB	**0.00059**	0.00047
CENAM	**0.0011**	0.0014
INMETRO	**0.0013**	0.0013
BelGIM	**-0.000942**	0.000734
VNIIFTRI	**-0.000442**	0.000333
GEOSTM	**-0.000252**	0.000813
SMU	**-0.000142**	0.000369
SE "Ukrmetrteststandard"	**-0.000072**	0.000297
INDECOPI	**0.000278**	0.001467
VNIIM	**0.000938**	0.000425
KazInMetr	**0.003138**	0.000617



Red diamonds: participants in CCQM-K36.a
Green triangles: participants in CCQM-K36.1
Blue circles: participants in COOMET.QM-K36