

KCDB REPORT TO THE 34th JCRB MEETING 1 March to 1 September 2015

Introduction

This report summarizes the major progress and evolution of the BIPM Key Comparison Database (KCDB) over the last six months.

The EXCEL files used as a basis for the CMC statistics are available on the [access-restricted JCRB CMC website](#) (on “KCDB statistics”). They are updated successively during the year and the CMCs that have been modified are highlighted in pink.

Further information on the KCDB may be found on the BIPM KCDB web pages. Notably, the number of key and supplementary comparisons, as well as the number of CMCs by metrology area and by country, are updated successively during the year and may be consulted on the [KCDB Statistics](#) web page¹.

1. CIPM MRA Appendix C : Calibration and Measurement Capabilities

1.1. Status of the KCDB CMC database

On 1 September 2015, the KCDB included a total of 24 041 CMCs:

- 18 154 in Physics,
- 5 887 in Chemistry.

Over the last six months around 20 countries published CMCs in new areas or sub-domains. The total number of CMCs increased by 72 (0.3 %). However, CMCs in Chemistry increased by 120, while CMCs in Physics were reduced by 48, a figure covering new CMCs but also application of uncertainty matrices by Peru in Electricity and Magnetism (leading to a reduced number), and a number of requests of greying outs dominated by the USA. Nevertheless, the total number of CMCs appear stable since two years back.

The evolution of the number of CMCs since 2008 is depicted in Figure 1. The number of CMCs presently published in the KCDB by economy and metrology area is available on [KCDB Statistics](#).

¹ On request, the KCDB Office may provide an EXCEL file listing information on the present contents of the CIPM MRA Appendix B.

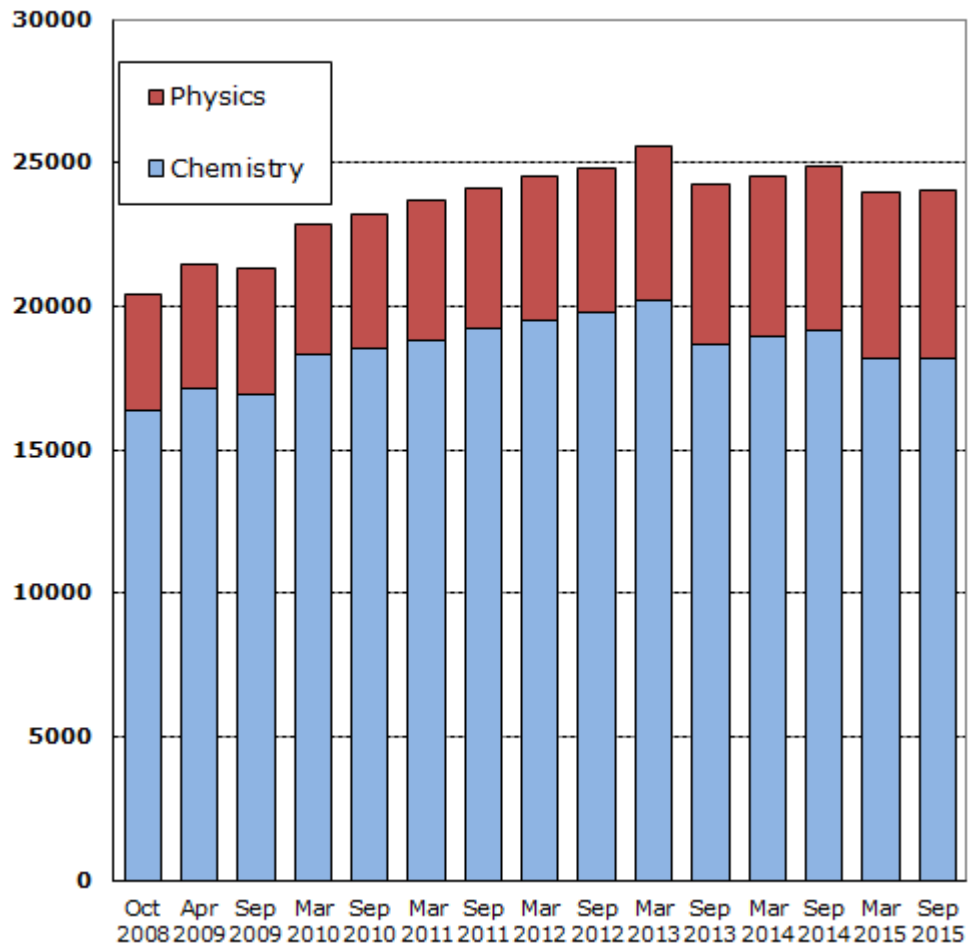


Figure 1. Number of CMCs registered in the KCDB since October 2008.

1.2. CMC publications (excluding revisions)

The CMCs treated by the BIPM KCDB Office between 1 March 2015 and 31 August 2015 are listed in Table 1. This table does not include revisions.²

Table 1. Published CMCs from 1 March until 1 September 2015

	RMO / economy	Field	CMCs
March 2015	Argentina	TF	+ 9
	Chinese Taipei	TF	+ 1
	Kazakhstan	TF	+ 21
	COOMET: CU, GE, RU, UA	EM	+ 26
	COOMET : RU, GE	M	+ 8
April 2015	Ukraine	M	+ 2
	Japan	RI	+ 11
	Denmark	RI	+ 8
May 2015	South Africa	M	+ 5
	Netherlands	M	- 4
	Georgia	EM	+ 10
	Bresil	L	+ 1
June 2015	Perou ^A	EM	- 34
	Belgium ^B	TF	+4
	South Africa ^C	M	- 2
July 2015	United Kingdom	RI	- 14
	SIM : MX, PE	QM	+ 2
	Mexico ^B	EM	+ 42
	United States ^C	M, EM, PR	- 141
August 2015	AFRIMETS : EG, ZA	QM	+ 2
	COOMET : RU, KZ, BY	QM	+ 12
	Denmark	RI	- 1
	EURAMET : AT, BA, CH, CZ, DE, ES, FI, FR, GB, HU, IRMM, IT, NL, PL, PT, SI, SK, TR	QM	+ 104

A : Reduction achieved by applying matrices.

B : result of reinstatement

C : result of greying out

² Published CMCs are announced in "[CMCs News](#)".

The annual April-meeting of CCQM is associated with a larger submission and revision of CMCs in Chemistry. As a consequence, CMCs were published in July and August 2015 and are detailed in Table 2.

Kazakhstan and Bosnia-and-Herzegovina published their first CMCs in Chemistry. Information of on the QS of the APMP lacked on 1 September and the corresponding CMCs have therefore not yet been published.

Table 2. CMCs in Chemistry published in the KCDB in July and August 2015

AFRIMETS	Category	Change	Total
ZA	4	1	24
EG	14	1	1

COOMET	Category	Change	Total
RU	4	6	424
BY	6	1	2
KZ	6	1	1
BY	7	1	1
RU	14	3	3

SIM	Category	Change	Total
MX	4	-1	26
PE	6	1	3
PE	7	2	2

EURAMET	Category	Change	Total
GB	1	0	26
IRMM	1	3	33
TR	1	0	22
DE	2	3	34
TR	2	1	2
AT	4	6	7
CH	4	4	14
CZ	4	10	24
DE	4	1	83
ES	4	7	
FI	4	1	6
FR	4	3	42

EURAMET (continued)	Category	Change	Total
GB	4	9	347
HU	4	-1	18
IT	4	0	3
NL	4	0	248
PL	4	4	22
PT	4	0	21
SK	4	0	38
TR	4	0	1
DE	5	4	26
CZ	6	1	3
CZ	7	0	3
BA	8	1	1
DE	8	3	159
GB	8	1	1
TR	8	7	7
FR	10	3	8
GR	10	1	2
SI	10	5	5
TR	10	4	18
FR	11	1	16
GB	11	2	16
GR	11	3	7
IT	11	2	2
SI	11	3	4
DE	12	1	3
FR	13	4	14
DE	14	2	22
SI	14	2	2
TR	14	3	12

1.3. Deleted CMCs, Greying out and Re-instatements

Greying-outs, deletion and reinstatements of CMCs are coordinated by the JCRB Executive Secretary, and carried out by the KCDB Office. The Table 3 lists the CMCs concerned during the last six months.

Table 3. Deleted, greyed-out or reinstated CMCs from 1 March to 1 September 2015

	Economy	Field	Action
15 March 2015	Mexico	RI	Definitive deletion of 1 CMC after greying out period
26 June 2015	South Africa	M	Greying out of 2 CMCs
1 July 2015	Bulgaria	L	Definitive deletion of 1 CMC after greying out period
1 July 2015	Belgium	TF	Reinstatement of 4 CMCs
23 July 2015	Mexico	EM	Reinstatement of 42 CMCs
23 July 2015	United States	M	Greying out of 3 CMCs
23 July 2015	United States	EM	Greying out of 137 CMCs
23 July 2015	United States	PR	Greying out of 1 CMCs
13 August	Denmark	RI	1 CMC deleted on request

The situation regarding temporary removal (“greying-out”) and re-instatement of CMCs is available on-line from page 5 of the [Statistics page of the KCDB](#) , and is illustrated in Figure 2. In total 253 CMCs are greyed out.

The dates of the greying-out of CMCs are listed in the spreadsheet “Dates of CMCs greying-out” of the EXCEL file “CMCsNumber_2015, available from the [access-restricted JCRB CMC website](#) (see “KCDB statistics”).

Distribution of CMCs that are temporarily removed ("greyed-out") from the KCDB

	M	PR	EM	T	RI	L	QM	TF	Total
APMP									
AU			27						27
NZ			5						5
KR							5 Cat 6		5
TH					3				3
ZA	2 Pressure								2
Total APMP:									42
EURAMET									
BE			25					6	31
FI	3 Torque 3 Force								6
FR	3 FI Flow		3						6
IAEA					1 RI(l)				1
Total EURAMET:									44
SIM									
MX		3					1 Cat 2 & 1 Cat 4		5
AR						1 DimMet			1
CL							0		0
CA		4				11 DimMet			15
US	3	1	137		1 RI(l)				142
BR							4 Cat 7		4
Total SIM:									167

Figure 2. Number of CMCs temporary removed ("greyed-out") from the KCDB, by country and by metrology area, as at 01 September 2015.

1.4. CMC statistics according to RMO

(Follow-up of Action 17/1 from the 17th JCRB meeting)

Table 4. information on CMC statistics per RMO

Entity	Total number of CMCs on 1 September 2015
AFRIMETS	451
APMP	5360
COOMET	2343
EURAMET	10833
ESA	0
SIM	4804
IAEA	22
IRMM	228
WHO	0

2. CIPM MRA Appendix B : Key and supplementary comparisons

2.1. Present status

On 1 September, the KCDB covered 1348 comparisons distributed as listed in Table 5. In fact, 67 of the 89 BIPM key comparisons are all part of the BIPM.RI(II)-K1 (SIR equivalent activity). On the other side, 21 of the BIPM ongoing comparisons cover each tens of completed comparisons carried out between the BIPM and different metrology institutes.

Table 5. Key and Supplementary Comparisons on 1 September.

Entity	KC	SC
BIPM	89	1
CC	447	27
AFRIMETS	3	14
APMP	128	85
COOMET	43	69
EURAMET	149	162
SIM	56	75

Figure 3 shows the evolution of the total number of key (green) and of supplementary (violet) comparisons registered in the KCDB since September 2003. The added linear red curve puts in evidence a slight increase in added total comparisons over 2007 to 2012. However, the increase of comparisons seems to have stabilized around $+68 \pm 9$ per year.

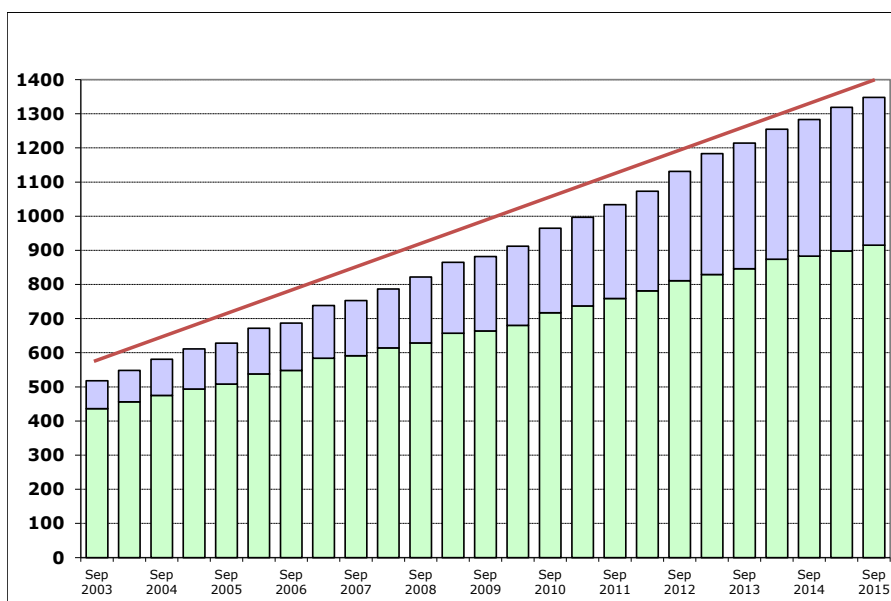


Figure 3. Total number of key comparisons and supplementary comparisons registered in the KCDB: evolution since September 2003

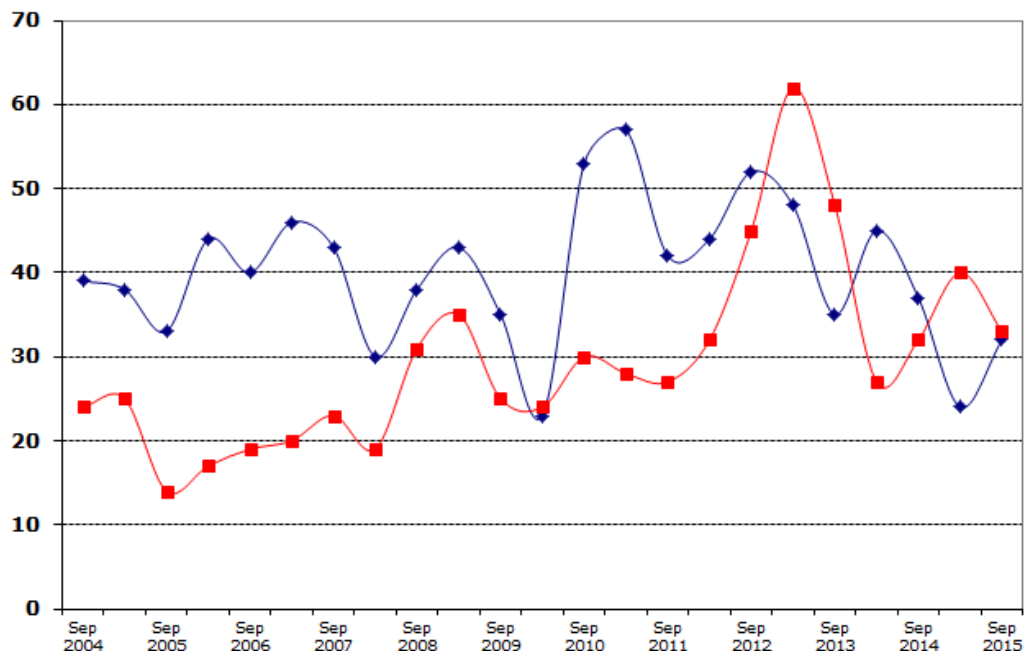


Figure 4. Number of new comparisons registered in the KCDB over the one-year period ending at the date indicated on the abscissa.

The number of new key and supplementary comparisons registered in the KCDB over the one-year period ending at the date indicated on the the abscissa is illustrated in Figure 4.

Graphs illustrating the participation in [key](#) and [supplementary](#) comparisons were made available from the [Statistics page of the KCDB](#) in May 2015; next update is due for November 2015.

2.2. Registrations and modifications of comparisons

From 01 March 2015 were registered:

- CCM.FF-K2.2015
- CCQM-K129
- CCQM-K134
- CCQM-K135
- CCQM-K130
- CCQM-K131
- CCQM-K132
- CCQM-K133
- CCRI(II)-S11
- CCRI(II)-K2.Rn-222
- CCQM-K139
- APMP.QM-K111
- APMP.QM-S9
- COOMET.L-S17
- COOMET.PR-K4.1
- COOMET.M.V-S2
- COOMET.M.H-S3
- EURAMET.PR-K6.3
- EURAMET.M.D-K3
- EURAMET.RI(I)-S13
- EURAMET.M.M-S9
- EURAMET.M.FF-S8
- EURAMET.QM-K111
- EURAMET.QM-K16
- EURAMET.M.P-S15
- EURAMET.M.P-S16
- EURAMET.M.T-S4
- SIM.M.D-S5
- SIM.QM-K111
- SIM.EM-S12

- CCQM-K136
- EURAMET.RI(I)-S4.1

Four comparisons were deleted on request (EURAMET.PR-K6.3, SADCMET.M.M-K5, SADCMET.M.M-S1, COOMET.L-S12), and two comparisons were modified (CCM.FF-K2.1.2011 became CCM.FF-K2.2011; COOMET.M.H-K3 reduced the focus).

2.3. Published results of key and supplementary comparisons

From 1 March 2015, were published:

- APMP.PR-S2
- APMP.QM-K53
- APMP.QM-S7
- APMP.RI(III)-S1
- BIPM.EM-K11.a (NIS)
- BIPM.EM-K11.b (NIS)
- BIPM.EM-K14.a (BIM)
- BIPM.EM-K14.b (BIM)
- BIPM.QM-K1 (ISCII)
- BIPM.QM-K1 (NIM)
- BIPM.QM-K1 (VNIIM)
- BIPM.RI(I)-K5 (INIM)
- BIPM.RI(I)-K5 (NIM)
- BIPM.RI(I)-K6 (NPL)
- BIPM.RI(I)-K8 (NRC)
- BIPM.RI(II)-K1.Bi-207 (LNE-LNHB)
- BIPM.RI(II)-K1.Mn-56
- BIPM-K10.b (INM)
- CCL-K11 (2012 and 2013)
- CCM.FF-K4.1.2011
- CCM.G-K2
- CCM.P-K12.1
- CCM.T-K1.2
- CCM.T-K1.3
- CCQM-K96.1
- CCRI(III)-K8
- CCT-K6
- COOMET.EM-S2
- COOMET.EM-S8
- COOMET.L-S9
- COOMET.QM-K36
- COOMET.T-K5
- EURAMET.EM-S38
- EURAMET.L-K7.2014
- EURAMET.L-S21
- EURAMET.M.M-K2.6
- EURAMET.M.P-K13
- EURAMET.PR-K4
- EURAMET.RI(I)-S12
- EURAMET.RI(II)-S6.I-129
- EURAMET.RI(II)-S7.Sm-151
- SIM.EM-K12
- SIM.L-K4
- SIM.QM-K91
- SIM.RI(I)-K3
- SIM.T-K9.1

Among the 915 key comparisons registered, 88 correspond to exercises prior to the implementation of the CIPM MRA, and will never have results published in the KCDB (being labelled “Approved for provisional equivalence”). These comparisons (10% of all KCs) may now successively be transferred to the KCDB Archives (presently empty) after having controlled that they do not support CMCs or are involved in linking of comparison. This will be made consulting the Consultative Committees.

Another 596 key comparisons are completed, of which 253 are RMO comparisons (see [“Comparisons News”](#) for the list of the most recent publications).

Information on Supplementary Comparisons are given in Section 2.4.

2.4. Follow-up of Action 33/3 from the 33rd JCRB meeting

Action 33/3: *The BIPM KCDB office, as part of the KCDB report to the JCRB, to identify Key and Supplementary Comparisons which were started 5 or more years ago and have not reached a conclusion.*

On 1 September 2015, 915 KCs were registered, of which 82 on-line, being registered 2010 and earlier, remain uncompleted. The identifiers, years in question and status are listed in Appendix 1-A.

Similarly, of 433 registered SCs on-line, 48 SCs being registered 2010 and earlier remain uncompleted. The identifiers, years in question and status are listed in Appendix 1-B.

The examined group of comparisons correspond to 10% of the total number of registered KCs and SCs.

3. Participation of Associates of the CGPM in CIPM MRA activities

The following table summarizes the participation of 38 of the [40 Associates of the CGPM](#) in CIPM MRA activities as at 01 September 2015.

Table 6. *CIPM MRA activity of the NMIs of Associates of the CGPM: important dates, number of published CMCs and participation in key and supplementary comparisons.*^{3,4}

³ These numbers take into account all comparisons registered in the KCDB, disregarding status, for which at least one laboratory of the Associate is listed in the participants list.

⁴ As the numbers on participation in key and supplementary comparisons change comparatively slowly with time, the corresponding KCDB statistics are updated every six months (in May and November of each year). However, the numbers of CMCs published in the KCDB varies more rapidly and are updated in "real-time". The numbers given here show the situation as at 24 August 2015.

Associates of the CGPM and the KCDB: CMCs and participation in key and supplementary comparisons



Associate of the CGPM	Date of becoming an Associate	Date of signature of the CIPM MRA	Total number of published CMCs	Total number of greyed-out CMCs	Date of publication of the first CMC	Area of the first CMC	Number of key comparisons	Number of supplementary comparisons
Albania	10 September 2007	10 October 2007	7	0	05 April 2013	Mass Standards	7	3
Azerbaijan	01 January 2015	28 January 2015	0	0	-	-	1	4
Bangladesh	29 March 2010	26 March 2011	0	0	-	-	0	2
Belarus	05 May 2003	14 October 2003	225	0	07 April 2004	Acoustics, Ultrasound and Vibration	34	34
Bolivia	04 April 2008	16 May 2008	0	0	-	-	4	14
Bosnia and Herzegovina	24 May 2011	15 June 2011	7	0	08 June 2012	Mass Standards	8	4
Botswana	30 May 2012	26 July 2012	0	0	-	-	1	3
CARICOM	10 October 2005	12 October 2005	0	0	-	-	0	10
Chinese Taipei	26 April 2002	04 June 2002	349	0	21 October 2003	Mass Standards, Force, Hardness, Pressure	86	42
Costa Rica	29 January 2004	06 October 2004	105	0	26 November 2008	Mass Standards	17	23
Cuba	19 December 2000	18 June 2001	113	0	02 May 2005	Ionizing radiation (I and II)	6	16
Ecuador	20 November 2000	15 April 2001	20	0	16 September 2011	Mass Standards	5	17
Estonia	27 January 2005	23 March 2005	4	0	06 May 2014	Humidity	7	10
Georgia	01 January 2008	17 June 2008	30	0	20 March 2014	Thermometry	4	6
Ghana	17 September 2009	24 February 2010	0	0	-	-	2	5
Hong Kong (China)	08 April 2000	31 May 2000	226	0	13 December 2000	Length (Laser, Dimensional)	65	19
Jamaica	15 September 2003	21 July 2004	22	0	24 August 2006	Mass Standards	8	7
Latvia	11 January 2001	13 March 2001	59	0	23 March 2005	Length (Dimensional)	13	7
Lithuania	12 March 2001	12 April 2001	78	0	11 December 2003	Fluid Flow	19	16
Luxembourg	29 January 2014	01 October 2014	0	0	-	-	0	1
Macedonia, the FYR of	10 October 2006	14 November 2007	13	0	02 July 2013	Fluid Flow	6	7
Malta	11 April 2001	20 June 2001	0	0	-	-	4	3
Maurius	06 October 2010	09 March 2011	0	0	-	-	2	2
Moldova, Rep. of	01 January 2007	14 November 2007	40	0	26 September 2013	Thermometry	2	7
Mongolia	07 August 2013	23 October 2013	0	0	-	-	3	2
Montenegro	01 August 2011	19 October 2011	0	0	-	-	4	4
Namibia	10 August 2012	16 October 2012	0	0	-	-	0	2
Oman	08 May 2012	20 November 2014	0	0	-	-	0	0
Panama	03 August 2003	16 September 2003	34	0	11 September 2006	Mass Standards	9	16
Paraguay	06 May 2009	27 October 2009	23	0	31 January 2011	Mass Standards	2	15
Peru	28 May 2009	17 November 2009	96	0	03 August 2010	Mass Standards	15	29
Philippines	01 June 2002	19 December 2002	21	0	18 December 2013	Mass Standards	11	6
Seychelles	10 September 2010	12 November 2010	0	0	-	-	0	2
Slovenia	02 June 2003	23 June 2003	213	0	11 May 2004	Electricity and Magnetism	40	23
Sudan	26 June 2014	26 June 2014	0	0	-	-	0	1
Syrian Arab Republic	31 May 2012	17 September 2012	0	0	-	-	11	3
Ukraine	19 August 2002	14 October 2003	234	0	10 January 2005	Length (Laser, Dimensional)	42	49
Viet Nam	10 October 2003	16 September 2004	31	0	21 July 2010	Time and Frequency	30	8
Yemen	21 July 2014	17 November 2014	0	0	-	-	0	0
Zambia	10 December 2010	3 February 2011	0	0	-	-	1	3
Zimbabwe	14 September 2010	14 January 2011	0	0	-	-	1	3

Of these, at least one of the declared national metrology institutes of each economy participate in a key or supplementary comparison, see Figure 6. However, only 22 economies have CMCs published in the KCDB, as shown in Figure 7. It may be noted that no Associates have greyed-out CMCs.

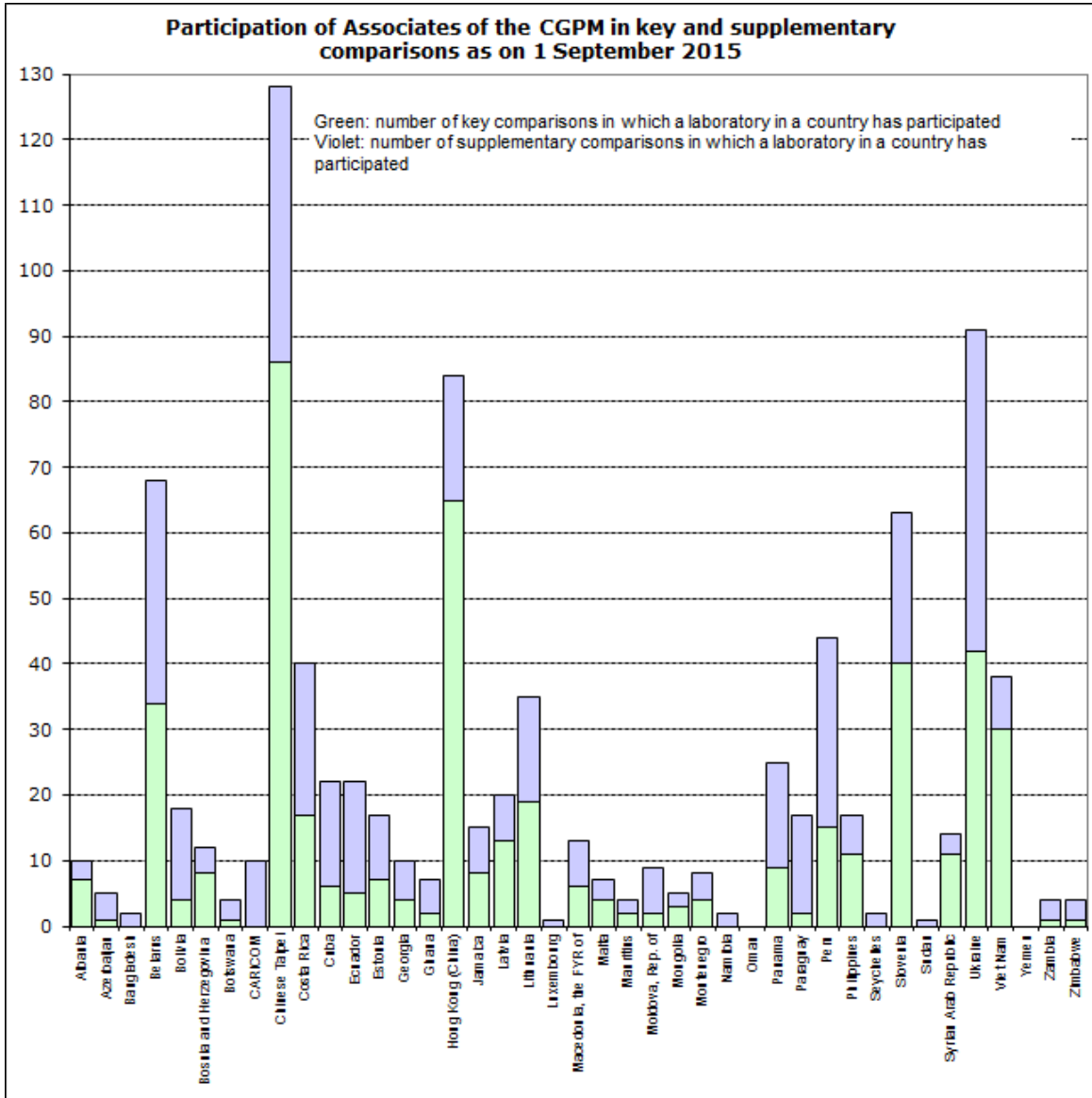


Figure 6. Graph on the participation of Associates of the CGPM in key and supplementary comparisons

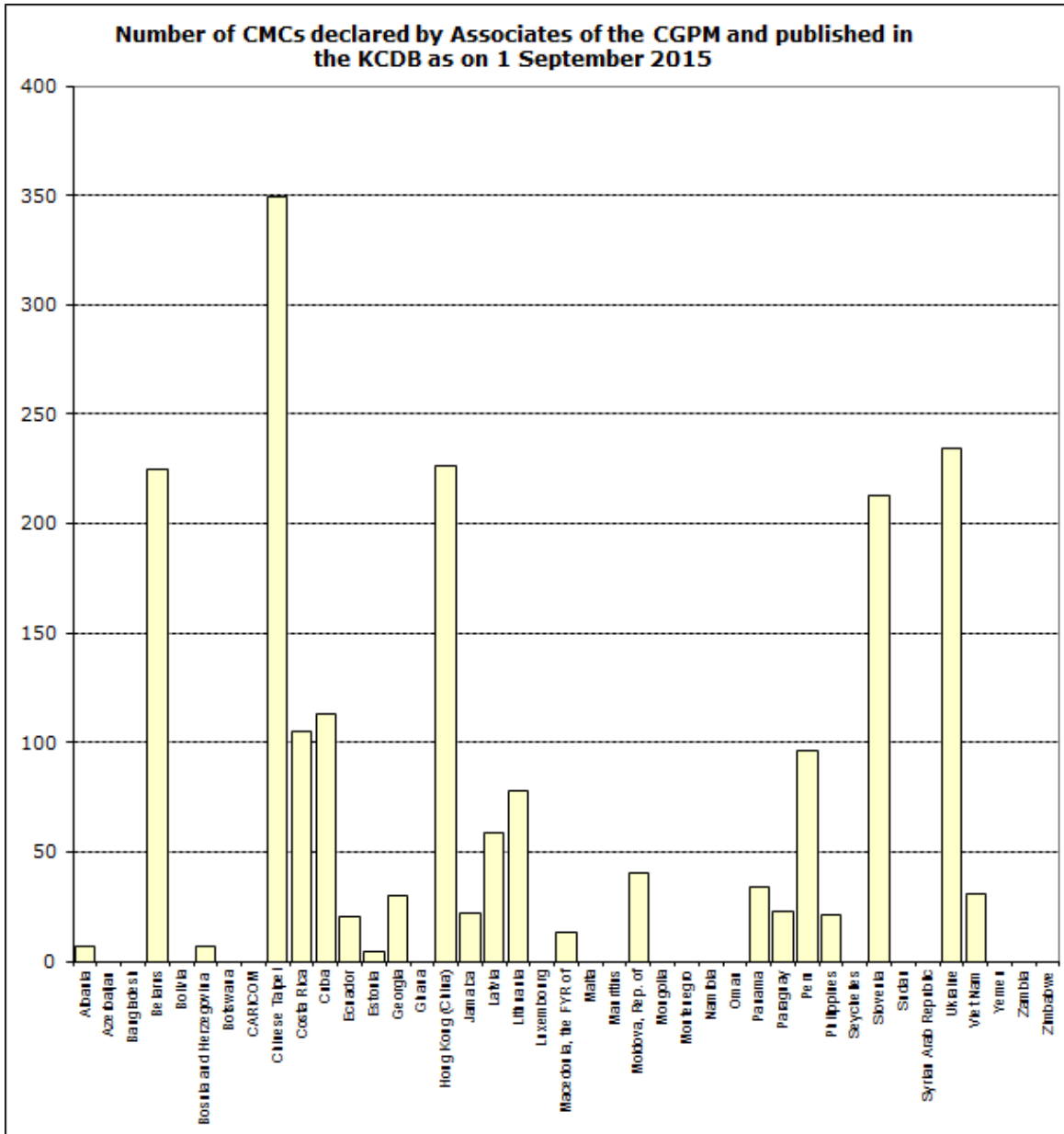


Figure 7. Graph on the number of CMCs declared by Associates of the CGPM

4. BIPM KCDB Quality Management System

BIPM KCDB Office
S. Picard and S. Maniguet

The set of written QMS procedures and its quality were particularly helpful for the knowledge transfer to the KCDB Coordinator Designate from March to June 2015. Eleven QMS Procedures were reviewed and revised in July, in view of the annual internal audit to take place on 10 September 2015. One withdrawn procedure was revised and re-instated, covering the ongoing key comparison CCT-K001.UTC. An additional procedure was drafted, describing the general purpose of the KCDB Office, responsibilities and staff authorization.

An important phase took place from March to May 2015 when the KCDB contents, until then placed on physical servers at the BIPM, were transferred towards virtualized servers. This demanded particular attention from the KCDB Office, and care from the BIPM IT-team. The transfer was completed end of May with the new server system behaving as expected.

As for many other institutions, data integrity is an important matter also for the BIPM. Most of the KCDB QMS procedures are kept confidential for reasons of security. The security for access to KCDB data treatment software was improved in July 2015.

Acknowledgements

One of the authors (Susanne Picard) thanks Claudine Thomas for efficient training and information while SP being the KCDB Coordinator designate, and for the indispensable help and support offered by Stéphanie Maniguet, Assistant KCDB Coordinator.

Assistance from Douglas Olson, JCRB Executive Secretary is acknowledged. Many thanks also to the BIPM IT team - Laurent Le Mee and Thierry N'Guyen - for their support, in particular for the successful virtualization of the KCDB servers.

APPENDIX 1-A

Key Comparison identifiers, status and year of uncompleted comparisons older than 5 years in consecutive order

KC identifier	Status	Indicated year
APMP.M.M-K5	Planned	
CCEM-K3.1	Protocol complete	2007
SIM.M.P-K1	Protocol complete	2008 - 2010
EURAMET.M.FF-K5.a	Protocol complete	2009
EUROMET.M.F-K3	In progress	2005 -
CCT-K1.1	In progress	2006 - 2014
SIM.M.P-K6	In progress	2008 - 2011
EUROMET.T-K8	In progress	2008 - 2012
EURAMET.PR-K1.a	In progress	2009
APMP.EM.BIPM-K11.3	In progress	2009 - 2011
COOMET.PR-K3.a	In progress	2009 - 2011
EURAMET.L-K3.2009	In progress	2009 - 2015
APMP.M.M-K2.2	In progress	2010
APMP.EM-K2	In progress	2010 - 2011
CCM.F-K2.a.1	In progress	2010 - 2011
APMP.PR-K2.b.1	In progress	2010 - 2012
EURAMET.PR-K2.a	In progress	2010 - 2012
APMP.EM-K5.1	In progress	2010 - 2013
APMP.PR-K3.a.1	Measurement completed	2006
APMP.PR-K4	Measurement completed	2006 - 2007
EURAMET.PR-K5	Measurement completed	2007 -
CCEM.RF-K23.F	Measurement completed	2009 -
APMP.PR-K2.a.1	Measurement completed	2010 - 2012
APMP.M.P-K7.TRI	Report in progress	2001
CCRI(II)-K2.Sr-90	Report in progress, Draft A	1997 - 1998
CCRI(II)-K2.Mn-54	Report in progress, Draft A	2003
CCM.H-K2	Report in progress, Draft A	2003 - 2004
APMP.M.H-K1.b	Report in progress, Draft A	2003 - 2005
APMP.M.H-K1.c	Report in progress, Draft A	2003 - 2005
CCRI(II)-K2.I-125(2)	Report in progress, Draft A	2004 - 2005
CCRI(II)-K2.P-32.2	Report in progress, Draft A	2005
CCM.F-K3.b	Report in progress, Draft A	2005 -
CCM.F-K3.a	Report in progress, Draft A	2005 - 2007
APMP.RI(I)-K2.B	Report in progress, Draft A	2007

.../...

(Continued...)

KC identifier	Status	Indicated year
APMP.M.D-K4	Report in progress, Draft A	2007 - 2008
CCEM.RF-K22.W	Report in progress, Draft A	2007 - 2008
APMP.T-K7	Report in progress, Draft A	2007 - 2009
APMP.M.F-K2	Report in progress, Draft A	2007 - 2013
CCRI(II)-K2.Kr-85	Report in progress, Draft A	2008
EURAMET.PR-K6.2	Report in progress, Draft A	2008 - 2009
CCT-K6.1	Report in progress, Draft A	2008 - 2010
EURAMET.M.D-K1.1	Report in progress, Draft A	2008 - 2012
EURAMET.T-K1	Report in progress, Draft A	2008 - 2012
APMP.M.P-K9	Report in progress, Draft A	2009 -
APMP.RI(I)-K4	Report in progress, Draft A	2009 - 2010
APMP.AUV.V-K1.1	Report in progress, Draft A	2010
APMP.M.FF-K2.a	Report in progress, Draft A	2010
APMP.M.M-K1.2	Report in progress, Draft A	2010
CCT-K3.2	Report in progress, Draft A	2010
CCM.P-K14	Report in progress, Draft A	2010 - 2011
EURAMET.T-K3.4	Report in progress, Draft A	2010 - 2011
CCRI(II)-K2.Sr-89	Report in progress, Draft B	2000 - 2001
CCRI(II)-K2.Pu-238	Report in progress, Draft B	2001
EUROMET.M.D-K2	Report in progress, Draft B	2001
SIM.M.P-K7	Report in progress, Draft B	2001
CCRI(II)-K2.P-32	Report in progress, Draft B	2002 - 2003
CCRI(II)-K2.TI-204	Report in progress, Draft B	2002 - 2003
EUROMET.M.F-K1	Report in progress, Draft B	2002 - 2004
APMP.EM.BIPM-K11.2	Report in progress, Draft B	2004
EURAMET.PR-K3.a.1	Report in progress, Draft B	2004 - 2005
EURAMET.PR-K4.1	Report in progress, Draft B	2004 - 2005
SIM.AUV.V-K1.1	Report in progress, Draft B	2005
SIM.PR-K4	Report in progress, Draft B	2005
CCRI(II)-K2.Fe-55	Report in progress, Draft B	2005 - 2006
APMP.L-K3	Report in progress, Draft B	2005 - 2007
EURAMET.M.P-K7	Report in progress, Draft B	2005 - 2007
CCM.T-K2	Report in progress, Draft B	2005 - 2010
COOMET.EM-K4	Report in progress, Draft B	2006 - 2009
APMP.EM.RF-K3.F	Report in progress, Draft B	2007

.../...

(Continued...)

KC identifier	Status	Indicated year
COOMET.AUV.V-K1	Report in progress, Draft B	2007 - 2008
COOMET.M.H-K2	Report in progress, Draft B	2007 - 2010
CCRI(II)-K2.H-3	Report in progress, Draft B	2008 - 2009
EURAMET.M.D-K2	Report in progress, Draft B	2008 - 2009
SIM.L-K3.2008	Report in progress, Draft B	2008 - 2009
SIM.QM-K1	Report in progress, Draft B	2009
EURAMET.L-K8	Report in progress, Draft B	2009 - 2010
EURAMET.M.P-K8	Report in progress, Draft B	2009 - 2010
EURAMET.T-K3.2	Report in progress, Draft B	2009 - 2010
SIM.M.D-K3	Report in progress, Draft B	2009 - 2012
SIM.M.M-K1	Report in progress, Draft B	2009 - 2013
SIM.M.M-K5	Report in progress, Draft B	2009 - 2013
APMP.RI(I)-K1.1	Report in progress, Draft B	2010

Key Comparison identifiers, status and year of uncompleted comparisons older than 5 years in alphabetical order.

KC identifier	Status	Indicated year
APMP.AUV.V-K1.1	Report in progress, Draft A	2010
APMP.EM.BIPM-K11.2	Report in progress, Draft B	2004
APMP.EM.BIPM-K11.3	In progress	2009 - 2011
APMP.EM.RF-K3.F	Report in progress, Draft B	2007
APMP.EM-K2	In progress	2010 - 2011
APMP.EM-K5.1	In progress	2010 - 2013
APMP.L-K3	Report in progress, Draft B	2005 - 2007
APMP.M.D-K4	Report in progress, Draft A	2007 - 2008
APMP.M.FF-K2.a	Report in progress, Draft A	2010
APMP.M.F-K2	Report in progress, Draft A	2007 - 2013
APMP.M.H-K1.b	Report in progress, Draft A	2003 - 2005
APMP.M.H-K1.c	Report in progress, Draft A	2003 - 2005
APMP.M.M-K1.2	Report in progress, Draft A	2010
APMP.M.M-K2.2	In progress	2010

.../...

(Continued...)

KC identifier	Status	Indicated year
APMP.M.M-K5	Planned	
APMP.M.P-K7.TRI	Report in progress	2001
APMP.M.P-K9	Report in progress, Draft A	2009 -
APMP.PR-K2.a.1	Measurement completed	2010 - 2012
APMP.PR-K2.b.1	In progress	2010 - 2012
APMP.PR-K3.a.1	Measurement completed	2006
APMP.PR-K4	Measurement completed	2006 - 2007
APMP.RI(I)-K1.1	Report in progress, Draft B	2010
APMP.RI(I)-K2.B	Report in progress, Draft A	2007
APMP.RI(I)-K4	Report in progress, Draft A	2009 - 2010
APMP.T-K7	Report in progress, Draft A	2007 - 2009
CCEM.RF-K22.W	Report in progress, Draft A	2007 - 2008
CCEM.RF-K23.F	Measurement completed	2009 -
CCEM-K3.1	Protocol complete	2007
CCM.F-K2.a.1	In progress	2010 - 2011
CCM.F-K3.a	Report in progress, Draft A	2005 - 2007
CCM.F-K3.b	Report in progress, Draft A	2005 -
CCM.H-K2	Report in progress, Draft A	2003 - 2004
CCM.P-K14	Report in progress, Draft A	2010 - 2011
CCM.T-K2	Report in progress, Draft B	2005 - 2010
CCRI(II)-K2.Fe-55	Report in progress, Draft B	2005 - 2006
CCRI(II)-K2.H-3	Report in progress, Draft B	2008 - 2009
CCRI(II)-K2.I-125(2)	Report in progress, Draft A	2004 - 2005
CCRI(II)-K2.Kr-85	Report in progress, Draft A	2008
CCRI(II)-K2.Mn-54	Report in progress, Draft A	2003
CCRI(II)-K2.P-32	Report in progress, Draft B	2002 - 2003
CCRI(II)-K2.P-32.2	Report in progress, Draft A	2005
CCRI(II)-K2.Pu-238	Report in progress, Draft B	2001
CCRI(II)-K2.Sr-89	Report in progress, Draft B	2000 - 2001
CCRI(II)-K2.Sr-90	Report in progress, Draft A	1997 - 1998
CCRI(II)-K2.Tl-204	Report in progress, Draft B	2002 - 2003
CCT-K1.1	In progress	2006 - 2014
CCT-K3.2	Report in progress, Draft A	2010
		.../...

(Continued...)

KC identifier	Status	Indicated year
CCT-K6.1	Report in progress, Draft A	2008 - 2010
COOMET.AUV.V-K1	Report in progress, Draft B	2007 - 2008
COOMET.EM-K4	Report in progress, Draft B	2006 - 2009
COOMET.M.H-K2	Report in progress, Draft B	2007 - 2010
COOMET.PR-K3.a	In progress	2009 - 2011
EURAMET.L-K3.2009	In progress	2009 - 2015
EURAMET.L-K8	Report in progress, Draft B	2009 - 2010
EURAMET.M.D-K1.1	Report in progress, Draft A	2008 - 2012
EURAMET.M.D-K2	Report in progress, Draft B	2008 - 2009
EURAMET.M.FF-K5.a	Protocol complete	2009
EURAMET.M.P-K7	Report in progress, Draft B	2005 - 2007
EURAMET.M.P-K8	Report in progress, Draft B	2009 - 2010
EURAMET.PR-K1.a	In progress	2009
EURAMET.PR-K2.a	In progress	2010 - 2012
EURAMET.PR-K3.a.1	Report in progress, Draft B	2004 - 2005
EURAMET.PR-K4.1	Report in progress, Draft B	2004 - 2005
EURAMET.PR-K5	Measurement completed	2007 -
EURAMET.PR-K6.2	Report in progress, Draft A	2008 - 2009
EURAMET.T-K1	Report in progress, Draft A	2008 - 2012
EURAMET.T-K3.2	Report in progress, Draft B	2009 - 2010
EURAMET.T-K3.4	Report in progress, Draft A	2010 - 2011
EUROMET.M.D-K2	Report in progress, Draft B	2001
EUROMET.M.F-K1	Report in progress, Draft B	2002 - 2004
EUROMET.M.F-K3	In progress	2005 -
EUROMET.T-K8	In progress	2008 - 2012
SIM.AUV.V-K1.1	Report in progress, Draft B	2005
SIM.L-K3.2008	Report in progress, Draft B	2008 - 2009
SIM.M.D-K3	Report in progress, Draft B	2009 - 2012
SIM.M.M-K1	Report in progress, Draft B	2009 - 2013
SIM.M.M-K5	Report in progress, Draft B	2009 - 2013
SIM.M.P-K1	Protocol complete	2008 - 2010
SIM.M.P-K6	In progress	2008 - 2011
SIM.M.P-K7	Report in progress, Draft B	2001
SIM.PR-K4	Report in progress, Draft B	2005
SIM.QM-K1	Report in progress, Draft B	2009

APPENDIX 1-B

Supplementary Comparison identifiers, status and year of uncompleted comparisons older than 5 years in consecutive order

SC identifier	Status	Indicated year
EURAMET.M.P-S15	Planned	
EURAMET.M.P-S16	Planned	
APMP.M.M-S1	Planned	2007
APMP.T-S6	Planned	2009
APMP.PR-S1.2	Protocol complete	2008
SIM.M.P-S3	Protocol complete	2010
SIM.M.P-S4	Protocol complete	2010
EURAMET.EM-S34	Protocol complete	2010 - 2011
COOMET.PR-S5	In progress	2008 - 2011
COOMET.EM.RF-S1	In progress	2009
COOMET.EM-S9	In progress	2009
SIM.M.P-S2	In progress	2009 - 2011
COOMET.PR-S3	In progress	2010 - 2011
EURAMET.EM-S33	In progress	2010 - 2011
APMP.T-S7	In progress	2010 - 2013
APMP.RI(II)-S2.Ho-166m	Measurement completed	2003 - 2004
APMP.M.P-S1	Measurement completed	2003 - 2005
APMP.PR-S5	Measurement completed	2008 - 2009
EURAMET.EM-S31	Measurement completed	2009 - 2010
CCT-S1	Report in progress, Draft A	2006 - 2009
CCT-S3	Report in progress, Draft A	2007 - 2008
SIM.M.P-S1	Report in progress, Draft A	2007 - 2008
CCT-S2	Report in progress, Draft A	2007 - 2010
EURAMET.M.T-S2	Report in progress, Draft A	2008
SIM.EM-S7	Report in progress, Draft A	2010 - 2011
APMP.M.H-S4	Report in progress, Draft A	2011
EURAMET.T-S4	Report in progress, Draft B	20007 - 2009
SIM.AUV.A-S1	Report in progress, Draft B	2001 - 2002
EUROMET.RI(III)-S1	Report in progress, Draft B	2003 - 2007
COOMET.EM-S1	Report in progress, Draft B	2004 - 2007
CCRI(II)-S6.I-131	Report in progress, Draft B	2006
SIM.M.FF-S4	Report in progress, Draft B	2006
COOMET.EM-S4	Report in progress, Draft B	2006 - 2009
EURAMET.M.P-S5	Report in progress, Draft B	2007

.../...

(Continued...)

SC identifier	Status	Indicated year
SIM.T-S3	Report in progress, Draft B	2007 - 2008
COOMET.EM-S6	Report in progress, Draft B	2007 - 2010
CCRI(II)-S6.Co-57	Report in progress, Draft B	2008
SIM.T-S4	Report in progress, Draft B	2008
COOMET.M.FF-S2	Report in progress, Draft B	2008 - 2009
COOMET.M.F-S1	Report in progress, Draft B	2008 - 2010
EURAMET.M.P-S7	Report in progress, Draft B	2008 - 2010
SIM.L-S6	Report in progress, Draft B	2008 - 2011
SIM.M.M-S6	Report in progress, Draft B	2009
AFRIMETS.T-S1	Report in progress, Draft B	2009 - 2010
COOMET.M.FF-S4	Report in progress, Draft B	2009 - 2010
COOMET.EM-S7	Report in progress, Draft B	2009 - 2011
APMP.RI(I)-S1	Report in progress, Draft B	2010 - 2011
COOMET.EM-S10	Report in progress, Draft B	2010 - 2012

Supplementary identifiers, status and year of uncompleted comparisons older than 5 years in alphabetical order.

SC identifier	Status	Indicated year
AFRIMETS.T-S1	Report in progress, Draft B	2009 - 2010
APMP.M.H-S4	Report in progress, Draft A	2011
APMP.M.M-S1	Planned	2007
APMP.M.P-S1	Measurement completed	2003 - 2005
APMP.PR-S1.2	Protocol complete	2008
APMP.PR-S5	Measurement completed	2008 - 2009
APMP.RI(I)-S1	Report in progress, Draft B	2010 - 2011
APMP.RI(II)-S2.Ho-166m	Measurement completed	2003 - 2004
APMP.T-S6	Planned	2009
APMP.T-S7	In progress	2010 - 2013
CCRI(II)-S6.Co-57	Report in progress, Draft B	2008
CCRI(II)-S6.I-131	Report in progress, Draft B	2006
CCT-S1	Report in progress, Draft A	2006 - 2009
CCT-S2	Report in progress, Draft A	2007 - 2010

.../...

(Continued...)

SC identifier	Status	Indicated year
CCT-S3	Report in progress, Draft A	2007 - 2008
COOMET.EM.RF-S1	In progress	2009
COOMET.EM-S1	Report in progress, Draft B	2004 - 2007
COOMET.EM-S10	Report in progress, Draft B	2010 - 2012
COOMET.EM-S4	Report in progress, Draft B	2006 - 2009
COOMET.EM-S6	Report in progress, Draft B	2007 - 2010
COOMET.EM-S7	Report in progress, Draft B	2009 - 2011
COOMET.EM-S9	In progress	2009
COOMET.M.FF-S2	Report in progress, Draft B	2008 - 2009
COOMET.M.FF-S4	Report in progress, Draft B	2009 - 2010
COOMET.M.F-S1	Report in progress, Draft B	2008 - 2010
COOMET.PR-S3	In progress	2010 - 2011
COOMET.PR-S5	In progress	2008 - 2011
EURAMET.EM-S31	Measurement completed	2009 - 2010
EURAMET.EM-S33	In progress	2010 - 2011
EURAMET.EM-S34	Protocol complete	2010 - 2011
EURAMET.M.P-S15	Planned	
EURAMET.M.P-S16	Planned	
EURAMET.M.P-S5	Report in progress, Draft B	2007
EURAMET.M.P-S7	Report in progress, Draft B	2008 - 2010
EURAMET.M.T-S2	Report in progress, Draft A	2008
EURAMET.T-S4	Report in progress, Draft B	20007 - 2009
EUROMET.RI(III)-S1	Report in progress, Draft B	2003 - 2007
SIM.AUV.A-S1	Report in progress, Draft B	2001 - 2002
SIM.EM-S7	Report in progress, Draft A	2010 - 2011
SIM.L-S6	Report in progress, Draft B	2008 - 2011
SIM.M.FF-S4	Report in progress, Draft B	2006
SIM.M.M-S6	Report in progress, Draft B	2009
SIM.M.P-S1	Report in progress, Draft A	2007 - 2008
SIM.M.P-S2	In progress	2009 - 2011
SIM.M.P-S3	Protocol complete	2010
SIM.M.P-S4	Protocol complete	2010
SIM.T-S3	Report in progress, Draft B	2007 - 2008
SIM.T-S4	Report in progress, Draft B	2008