KCDB REPORT TO THE JCRB

March to September 2019

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 according to previous JCRB decisions.

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 page[1].

The status of the database concerning **Calibration and Measurement Capabilities** are given in Section 1. In Section 2, recent information concerning **comparisons** carried out within the frame of the CIPM MRA is summarized. Section 3 highlights the status of **Associates** of the BIPM, and a short summary on progress made on the **revision of the KCDB**, in the context of the Review in the CIPM MRA, is presented in Section 4.

This report reflects the status as of 28 August 2019.

1. CIPM MRA Appendix C : Calibration and Measurement Capabilities

1.1. Status of the KCDB CMC database

End of August 2019, the KCDB included a total of 25 241 CMCs:

- 18 831 in Physics,
- 6 410 in Chemistry.

Additional CMCs are continuously published but the number of CMCs is now quasi stationary as other CMCs are deleted or greyed out. During the last period 577 CMCs were revised. The evolution of the number of CMCs since 2008 is depicted in Figure 1. The number of CMCs presently published in the KCDB by state/economy and metrology area is continuously 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.

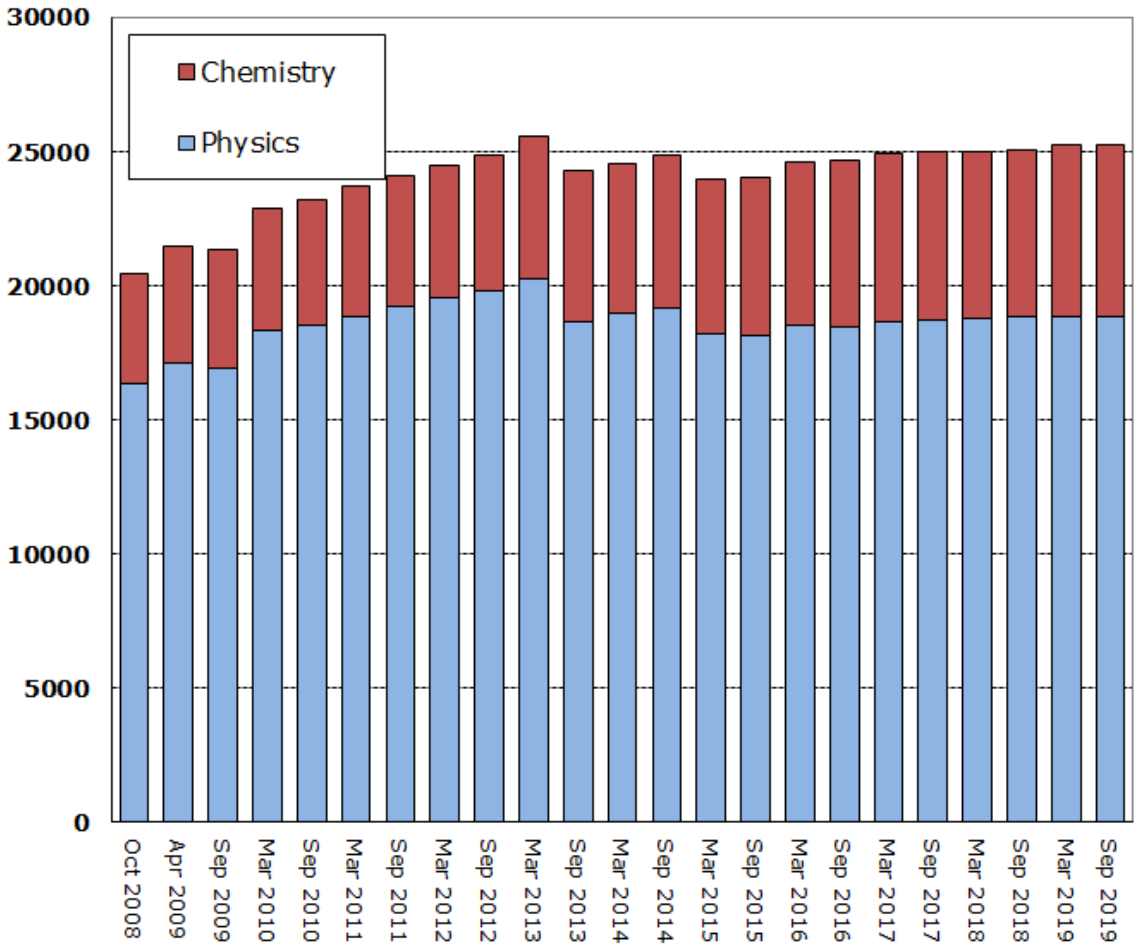

Figure 1. *Number of CMCs registered in the KCDB since October 2008.*

1.2. CMC publications (excluding revisions)

During the last 6 months Botswana declared their very first CMCs. Indonesia declared their first CMCs in Time and Frequency, Zimbabwe in Mass and related quantities, and Georgia in Ionizing Radiation.

CMCs treated by the BIPM KCDB Office from 1 March to 28 August 2019 are listed in Table 1[2] .

Table 1. *Published CMCs from 1 March to 28 August 2019 (revised CMCs not included)*

	RMO or state or economy	Field	CMCs
March 2019	NZ	EM	-1
	KR	TF	5
	KR	L	-1
	EURAMET: BA, NM, SE	T	-1
	IE	T	-3
	IT	M	1
	BG	L	-1
	MX	RI	4
April 2019	DE	M	-10
	CN	M	2
	CA	RI	7
	BW	T	3
	DE	AUV	-24
	RU	PR	5
May 2019	BR	RI	19
	TH	AUV	9
	CH	PR	2
	AL	M	7
	IT	RI	-98
	EURAMET: AT, BE, BG, CH, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, NL, PL, RS, SE, TR	EM	26
	JP	TF	-2
June 2019	SI	QM	-2
	SI	EM	3
	LT	M	-5
	IT	M	1
	DE	EM	1
	ZW	M	6
	BA	TF	3
	DE	EM	-2
July 2019	JP	M	4
	GE	RI	2
	ME	T	-18
	ME	L	-1
	ME	M	-4
	ID	TF	9
	SG	M	23
	FR	TF	8

[2] Published CMCs are announced in **"**CMCs News**".**

August 2019	GB	M	-1
	AT	L	-2
	PT	RI	-1

The revision of CMCs notably covered the implementation of a new nomenclature for High Voltage and Other DC and low frequency measurements. The classification for Fluid Flow (Mass and related quantities was also updated where 44 countries were concerned. Uncertainty tables are already employed in Electricity and Magnetism, and in Time and Frequency. The group of Acoustics, Ultrasound and Vibration published the first CMCs using uncertainty tables during the reported time period.

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. Table 2 lists the CMCs concerned during the last six months.

The present situation regarding temporary removal ("greying-out") of CMCs is available on-line of the Statistics page of the KCDB at the JCRB restricted web, summarized in Table 3. In total 534 CMCs are presently greyed out. The number of greyed out CMCs increased by 99 during the last 6 months, mainly due to the greying out of all CMCs by Italy in Ionizing Radiation.

The dates of the greying-out of CMCs are listed in the spreadsheet "Dates of CMCs greying-out" of the EXCEL file "CMCsNumber_2019, available from the access-restricted JCRB CMC website (see "KCDB statistics").

Table 2. *Deleted, greyed-out or reinstated CMCs from 1 March to 28 August 2019*

Date	State/ economy	Field	Action
7 March	BE	EM	24 CMC earlier greyed out were deleted
12 March	NZ	EM	1 CMC greyed out
14 May	AL	M	7 CMCs reinstated
20 May	IT	RI	98 CMCs greyed out
3 June	SI	QM	2 CMCs greyed out
21 June	LT	M	5 CMCs greyed out
19 July	ME	T	18 CMCs greyed out
19 July	ME	L	1 CMCs greyed out
19 July	ME	MI	4 CMCs greyed out
26 August	PT	RI	1 CMC greyed out

Table 3. *Number of CMCs temporary removed ("greyed-out") from the KCDB, by country and by metrology area, as at 28 August 2019.The pink fields indicate modifications made during the last 6 months.*

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

	AUV	M	PR	EM	T	RI	L	QM	TF	Total
AFRIMETS										
ZA		4								4
								Total AFRIMETS:		4
APMP										
AU				27						27
CN							1			1
IN							3			3
JP							3			3
KR								6		6
NZ				1						1
TH						3	1			4
								Total APMP:		45
COOMET										
								Total COOMET:		0
EURAMET										
AL		0								0
BE			0							0
DE						3		12		15
DK					1					1
ES						2				2
IT		31		19		98	1	3		152
JRC						110		82		192
LT		5								5
LV				30						30
ME		4			18		1			23
PT						1	1			2
SE				2						2
SI								2		2
SK	6						2			8
								Total EURAMET:		434
SIM										
MX			22					1		23
US		3		8						11
BR		3						14		17
								Total SIM:		51
								TOTAL:		534

1.3. CMC statistics of RMOs

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

Table 4 summarizes the repartition of CMCs on the different RMOs and international signatories of the CIPM MRA.

Table 4. *Information on CMC statistics per RMO*

Entity	Total number of CMCs March 2019
AFRIMETS	643
APMP	6258
COOMET	2777
EURAMET	10781
GULFMET[3]	0
SIM	4753
ESA	0
IAEA	26
JRC[4]	0
WMO	3

2. CIPM MRA Appendix B : Key and supplementary comparisons

2.1. Present status

On the 28 August 2019 the KCDB covered **1612 published comparisons** distributed as listed in Table 5; 1039 key comparisons and 573 supplementary comparisons. In fact, 75 of the 96 BIPM key comparisons are all part of the BIPM.RI(II)-K1 (SIR equivalent activity).On the other side, 21 active continuous BIPM comparisons cover each tens of completed bi-lateral comparisons carried out between the BIPM and different metrology institutes.

[3] The GULFMET was approved as an RMO on a provisional basis by the CIPM in October 2015.
[4] Earlier IRMM (EC Geel)

Table 5. *Key and Supplementary Comparisons on 28 August 2019.*

Entity	KC	SC
BIPM	96	1
CC	507	32
AFRIMETS	6	24
APMP	141	114
COOMET	48	100
EURAMET	168	188
GULFMET[5]	4	16
SIM	69	98

Figure 2 shows the evolution of the total number of key (green) and of supplementary (violet) comparisons registered in the KCDB since September 2003. The annual increase of key comparisons seems to have stabilized to around some +40 taking into account the history since 2004. The annual increase of key- and supplementary comparisons is around 6 %. The ratio of supplementary comparisons, 20 % in 2006, has progressively increased to 35 %. It should be noted that the graph also include repeats of key comparisons.

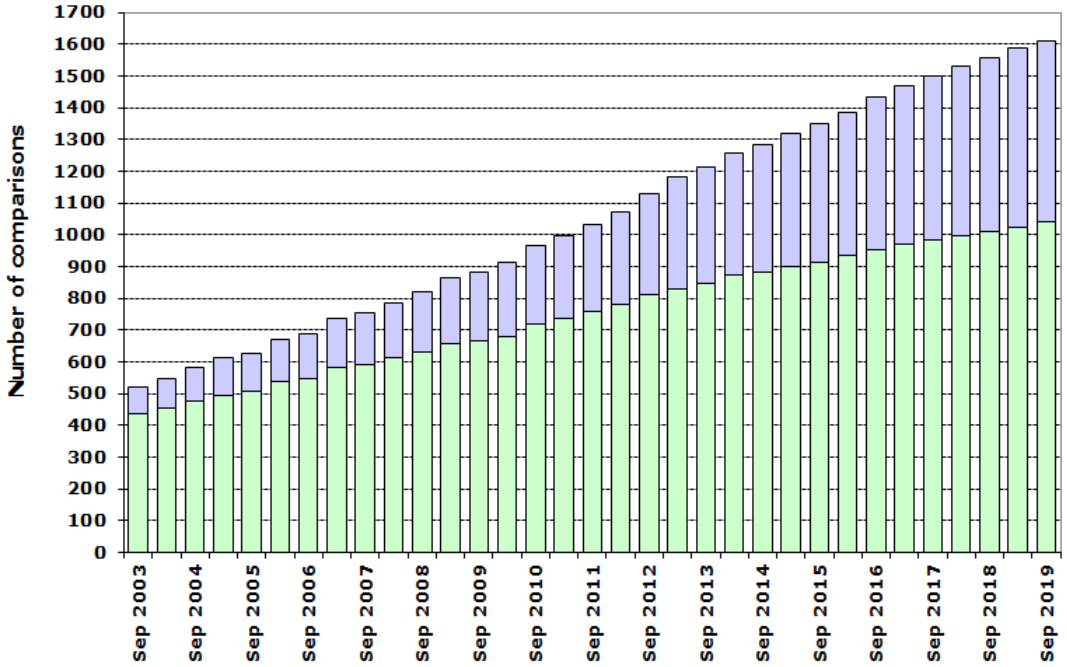

Figure 2. *Total number of key comparisons (green) and supplementary comparisons (blue) registered in the KCDB: evolution since September 2003*

[5] The GULFMET was approved as an RMO on a provisional basis by the CIPM in October 2015.

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 3.

Updated graphs illustrating the participation in key and supplementary comparisons were made available on the Statistics page of the KCDB in August 2019.

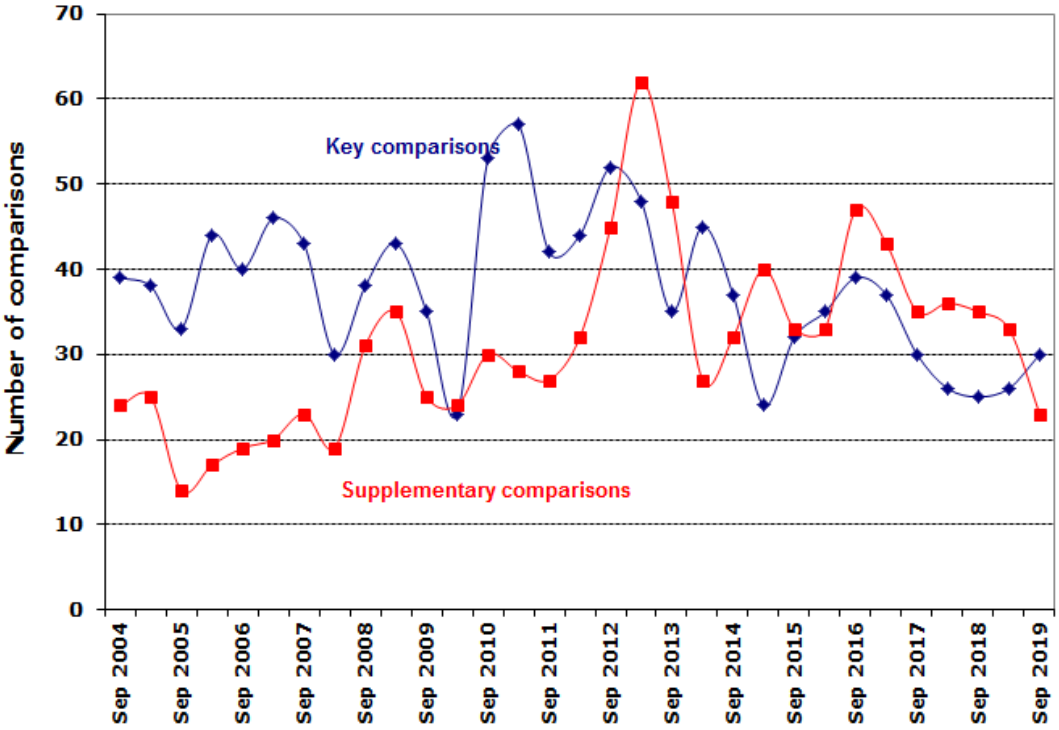

Figure 3. *Number of new comparisons registered in the KCDB over the one-year period ending at the date indicated on the abscissa.*

2.2. Registrations and modifications of comparisons

Since 1 March 2019 the following 30 comparisons were registered as new:

APMP.QM-S16	CCQM-K154.a	COOMET.M.M-S5
BIPM.RI(II)-K1.Ac-225	CCQM-K160	COOMET.PR-S11
CCAUV.A-K6	CCQM-K3.2018	COOMET.QM-120
CCEM.RF-K27.W	CCRI(II)-K2.Fe-55	EURAMET.M.FF-S10

CCM.F-K23	CCRI(II)-K2.Pa-231	EURAMET.M.FF-S11
CCM.M-K8.2019	CCRI(III)-K9.AmBe.2	EURAMET.M.FF-S12
CCM.P-K4.2012.1	CCRI(III)-K9.Cf-252.2016	EURAMET.M.FF-S13
CCQM-K115.2018	COOMET.AUV.A-S3	EURAMET.M.F-S5
CCQM-K115.b	COOMET.L-S21	SIM.RI(I)-K1.2019
CCQM-K115.c	COOMET.L-S22	SIM.RI(I)-K4.2019
CCQM-K153		

End of August, 66 abandoned or superseded key and supplementary comparisons were kept in the KCDB archives (included in the presented statistics).

2.3. Published results of key and supplementary comparisons

The following 24 reports were published during the last 6 months:

APMP.EM.BIPM-K11.5	BIPM.RI(I)-K2	COOMET.EM-K5
BIPM.EM-K13.a and b (NIM)	BIPM.RI(I)-K3	COOMET.PR-K1.b.1
BIPM.EM-K13.a and b	CCM.P-K4.2012	COOMET-QM-S4
BIPM.EM-K14.a (SMD)	CCQM-K142	COOMET-S14
BIPM.EM-K14.b (SMD)	CCQM-K142	COOMET-S22
BIPM.EM-K14.a	CCQM-K149	EURAMET.M.P-K7
BIPM.EM-K14.b	CCQM-K153	EURAMET.PR-K4.3
BIPM.EM-K143a and b	CCQM-K78.a	GULFMET.EM-S4
BIPM.RI(I)-K2		

2.4. Follow-up on JCRB Action 33/3

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.*

The number of unfinished comparison older than 5 years seems to have reached a rather constant value, keeping in mind that the history of the data is short. The total number is decreased illustrated in Figure 4. A list of the comparisons concerned may be found in Appendix.

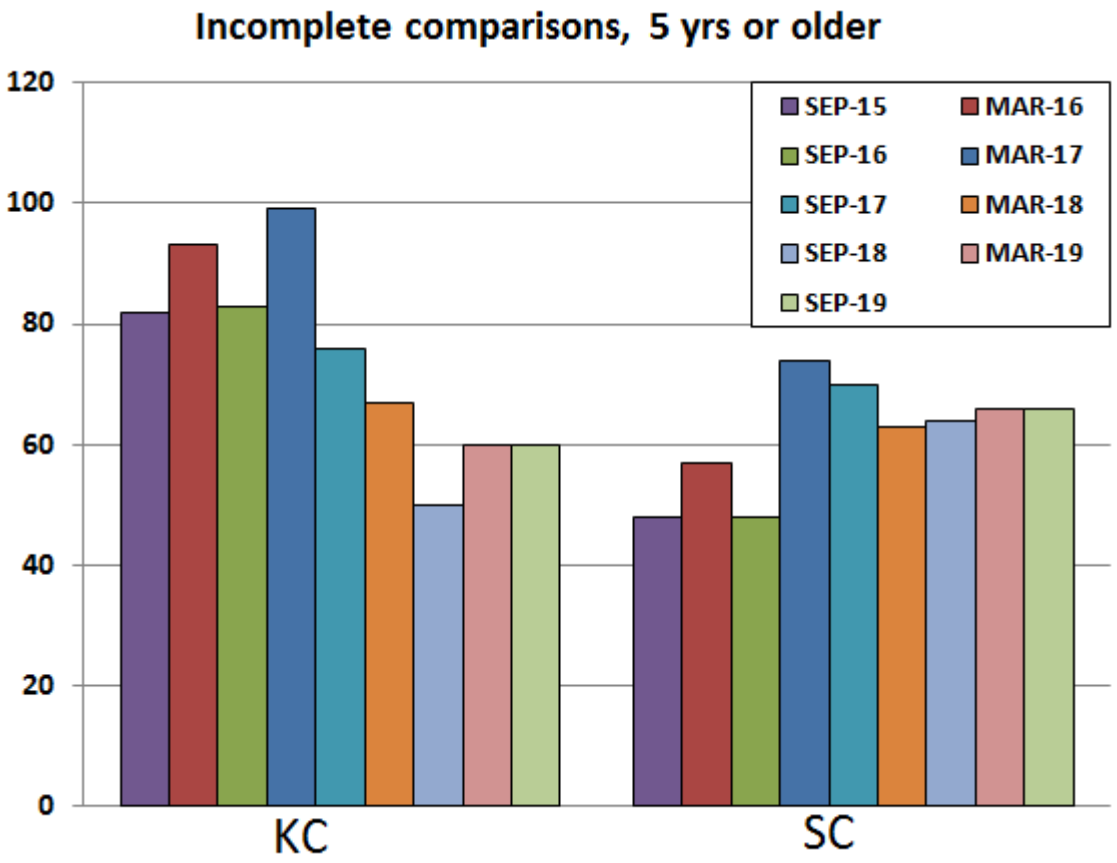

Figure 4. *Histogram showing the number of incomplete comparisons that started more than 5 years ago.*

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

Table 6 summarizes the participation of the 41 Associates of the CGPM in CIPM MRA activities as at 28 August 2019

Botswana published their first CMCs. The number of CMCs for associates is steady. The repartition of CMCs and comparisons among Associates is illustrated in Figures 5 and 6.

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.* [6]

#	Associate of the CGPM	Published CMCs	Greyed-out CMCs	Key comparisons	Supplementary comparisons
1	Albania	7	0	8	3
2	Bolivia	19	0	7	20
3	Bosnia and Herzegovina	67	0	13	10
4	Georgia	30	0	6	16
5	Jamaica	22	0	6	9
6	North Macedonia	23	0	8	9
7	Moldova, Republic of	43	0	4	14
8	Paraguay	24	0	2	17
1	CARICOM	0	0	0	12
2	Chinese Taipei	390	0	97	48
3	Hong Kong, China	259	0	88	25
1	Belarus	248	0	38	47
2	Costa Rica	67	0	20	30
3	Cuba	113	0	5	20
4	Latvia	29	30	13	9
5	Panama	37	0	8	18
6	Viet Nam	31	0	35	9
1	Estonia	34	0	8	12
2	Peru	113	0	29	31
3	Philippines	31	0	13	8
1	Namibia	7	0	0	3
2	Zambia	11	0	2	7
3	Zimbabwe	19	0	1	7
4	Bangladesh	0	0	1	2
5	Botswana	3	0	1	4
6	Ethiopia	0	0	0	2
7	Ghana	0	0	2	6
8	Malta	0	0	4	3
9	Mauritius	0	0	2	2
10	Mongolia	0	0	4	4
11	Seychelles	0	0	0	3
12	Sudan	0	0	0	1
13	Syrian Arab Republic	0	0	12	3
14	Tanzania	0	0	0	0
1	Azerbaijan	1	0	1	9
2	Kuwait (State of)	0	0	2	3
3	Luxembourg	0	0	3	1
4	Oman	0	0	1	2
5	Qatar	0	0	3	1
6	Sri Lanka	0	0	6	2
7	Uzbekistan	0	0	0	2
		1628	30	453	434

[6] 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.

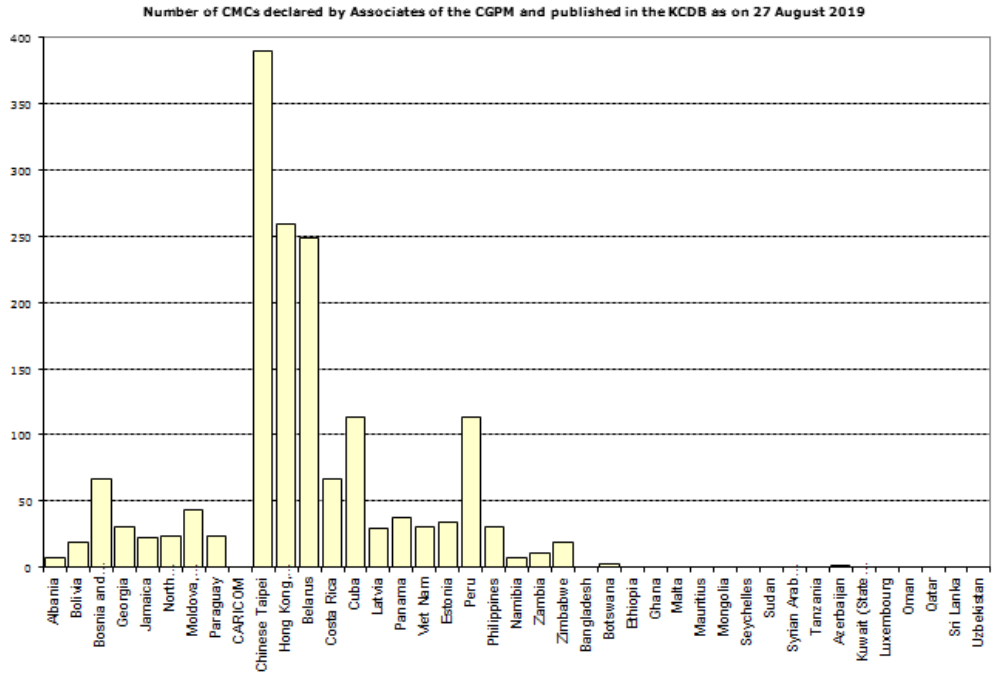

Figure 5. *Graph on the number of CMCs declared by Associates of the CGPM*

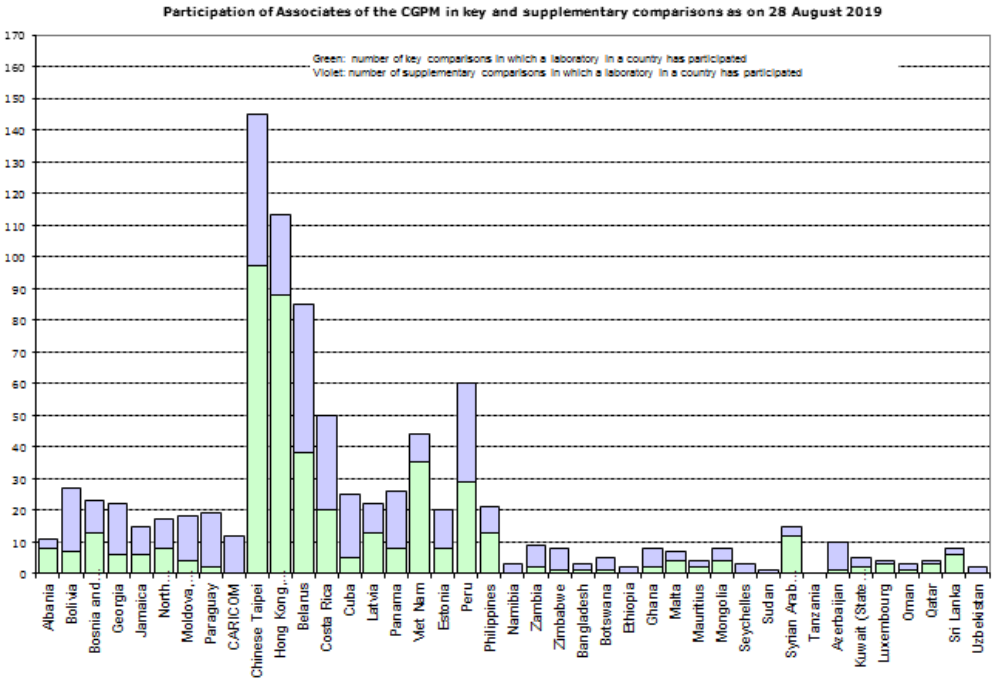

Figure 6. *Graph on the participation of Associates of the CGPM in key and supplementary comparisons*

4. Revision of the BIPM KCDB

The development of the KCDB 2.0 is divided into 3 main batches: CMCs, Comparisons and Statistics. The project also includes the implementation of a new search engine (Elasticsearch) and to carry out the migration of legacy data from the old to the new database.

The CMC platform, comparison support and search facilities have been tested and accepted. Adjustments of these are presently tested prior to validation. The CMC data are ready for a final migration. The migration of comparison data is in progress. The numerical search/filter facility for CMCs is treated separately and remains to be tested. The statistical part is presently being developed but will not be implemented for the “go live”.

An important part of the implementation is to inform the stakeholders on the new support.

Small groups representing each metrology area have been invited to try the software together with the KCDB Office before the go-live: first via a webex demonstration, then by interacting with each other during a limited time period.

A set of shorter instructive video clips is presently being recorded, and a “Getting started” document is presently being drafted.

An implementation plan for the KCDB 2.0 has been established, communicated by the JCRB Executive Secretary to the JCRB members and TC Chairs on 23 August. The communication is listed in Appendix 2.

The launch of KCDB 2.0 is planned for around the end of October 2019. A transition towards quantity based equations (instead of numerical equations presently used) will be made after that the KCDB 2.0 has been launched. Support and guidance on this is being prepared in collaboration with the JCRB Executive Secretary.

Acknowledgement

Many thanks to the BIPM IT team Laurent Le Mée and Thierry Nguyen for their support.

APPENDIX 1 List of uncompleted comparisons older than 5 years

a) Key Comparisons[7]

KC indentifier	Status Sep-2018	Indicated year	Pilot
AFRIMETS.M.P-K2	2012 - 2013	In progress	NMISA
APMP.EM.BIPM-K11.2	2004	Report in progress, Draft B	Puslit KIM-LIPI
APMP.EM.RF-K8.CL	2012 - 2013	Measurements completed	NMIJ AIST
APMP.EM-K2	2010 - 2011	In progress	KRISS
APMP.EM-K5.1	2010 - 2013	Report in progress, Draft A	NIM
APMP.M.D-K4	2007 - 2008	Report in progress, Draft A	KRISS
APMP.M.F-K3.a	2011 -	In progress	NIM
APMP.M.F-K3.b	2011 -	In progress	NIM
APMP.M.H-K1.b	2003 - 2005	Report in progress, Draft A	NMIJ AIST
APMP.M.H-K1.c	2003 - 2005	Report in progress, Draft A	NMIJ AIST
APMP.M.P-K1.c.2	2012	Report in progress, Draft B	KRISS
APMP.M.P-K15	2013 - 2014	Measurements completed	NMIJ AIST
APMP.M.P-K9	2009 -	Report in progress, Draft A	KRISS
APMP.M.P-K9	2009 -	Report in progress, Draft A	NMIA
APMP.PR-K2.a.1	2010 - 2012	Measurements completed	NMIA
APMP.PR-K2.b	2014	In progress	KRISS
APMP.PR-K2.b.1	2010 - 2012	In progress	NMIA
APMP.PR-K3.a	2012 - 2014	In progress	NMIJ AIST
APMP.PR-K3.a.1	2006	Measurements completed	NIM
APMP.RI(I)-K4	2009 - 2010	Report in progress, Draft A	INER
APMP.RI(I)-K5	2013 - 2014	Report in progress, Draft A	KRISS
APMP.RI(II)-K2.Fe-59	2014	Report in progress, Draft B	NMIJ AIST
APMP.T-K3.6	2013 - 2014	Planned	NIM
APMP.T-K4.1	2013 - 2014	Planned	NIM
APMP.T-K6.2013	2013 - 2014	Planned	NMC, A*STAR
APMP.T-K8	2011 - 2013	In progress	NMIJ AIST
CCEM.RF-K5.c.CL	2012 - 2015	In progress	NMIJ AIST
CCL-K1.2011	2011 - 2014	In progress	CENAM
CCL-K1.2011	2011 - 2014	In progress	NRC
CCM.FF-K2.2011	2013 -	Report in progress, Draft B	VSL
CCPR-K3.2014	2014	Protocol complete	NRC
CCQM-K112	2014	Report in progress, Draft A	VSL
CCQM-K114	2014	Report in progress, Draft B	NIM
CCQM-K122	2014	Report in progress, Draft A	PTB
CCRI(II)-K2.Tc-99	2012 - 2013	In progress	NPL
CCRI(III)-K9.AmBe.1	2012 - 2013	Report in progress, Draft A	NPL
CCT-K1.1	2006 - 2014	Report in progress, Draft A	NIST
CCT-K2.2	2014	In progress	INRIM

[7] It may happen that the same comparison is listed several times with different pilots indicated. These are comparisons having several pilots.

(continued…)

KC indentifier	Status Sep-2018	Indicated year	Pilot
CCT-K4.1	2012 - 2014	In progress	NMIA
CCT-K6.1	2008 - 2010	Report in progress, Draft A	NPL
CCT-K9	2011 - 2012	Measurements completed	NIST
COOMET.AUV.V-K1	2007 - 2008	Report in progress, Draft B	VNIIM
COOMET.L-K3	2011 - 2012	Report in progress, Draft A	VNIIM
COOMET.PR-K3.a	2009 - 2011	Report in progress, Draft A	BelGIM
EURAMET.L-K4.2005.1	2013 - 2014	In progress	VSL
EURAMET.L-K4.2005.1	2013 - 2014	In progress	SMD
EURAMET.M.D-K1.1	2008 - 2012	Report in progress, Draft B	PTB
EURAMET.M.P-K1.c	2011 - 2014	In progress	FORCE
EURAMET.PR-K2.a	2010 - 2012	Measurements completed	VSL
EURAMET.RI(I)-K1.1	2013 - 2014	In progress	METAS
EURAMET.RI(I)-K4.1	2013 - 2014	In progress	METAS
EURAMET.T-K3.4	2010 - 2011	Report in progress, Draft A	MIRS/UL-FE/LMK
EURAMET.T-K8	2008 - 2012	Report in progress, Draft A	PTB
EUROMET.M.F-K1	2002 - 2004	Report in progress, Draft B	MIKES
EUROMET.M.F-K3	2005 -	In progress	PTB
SIM.M.P-K1	2008 - 2010	Protocol complete	CENAM
SIM.M.P-K6	2008 - 2011	Report in progress, Draft A	CENAM
SIM.M.P-K6.1	2011 - 2013	Report in progress, Draft B	LACOMET
SIM.M.P-K7	2001	Report in progress, Draft B	CENAM
SIM.QM-K1	2009	Report in progress, Draft B	INMETRO

b) Supplementary Comparisons[8]

SC indentifier	Status Sep-2018	Indicated year	Pilot
AFRIMETS.T-S3	2012	In progress	NMISA
APMP.EM-S8	2011 - 2013	Protocol complete	NPLI
APMP.M.G-S1	2012	Report in progress, Draft A	NIM
APMP.M.H-S4	2011	Report in progress, Draft A	KRISS
APMP.M.MM-S1	2012 - 2013	In progress	KRISS
APMP.M.P-S1	2003 - 2005	Measurements completed	CMS/ITRI
APMP.M.P-S1	2003 - 2005	Measurements completed	SPRING Singapore
APMP.PR-S1.2	2008	Protocol complete	NMC, A*STAR
APMP.PR-S5	2008 - 2009	Measurements completed	NMIJ AIST
APMP.PR-S6	2012 - 2013	In progress	KRISS
APMP.RI(I)-S1	2010 - 2011	Report in progress, Draft B	OAP
APMP.RI(I)-S3	2013 - 2014	In progress	ARPANSA
APMP.RI(II)-S3.Cs-134.Cs-137	2013	Report in progress, Draft B	NMIJ AIST
APMP.T-S10	2013	Planned	KRISS
APMP.T-S8	2011 - 2015	In progress	NMLPHIL
APMP.T-S9	2013	Planned	NMIJ AIST
CCRI(II)-S10	2011 - 2012	Report in progress, Draft A	ENEA-INMRI
CCRI(II)-S6.Co-57	2008	Report in progress, Draft B	IAEA
CCRI(II)-S6.I-131	2006	Report in progress, Draft B	IAEA
CCRI(II)-S9	2011	Report in progress, Draft A	KRISS
CCT-S2	2007 - 2010	Report in progress, Draft B	LNE
CCT-S3	2007 - 2008	Report in progress, Draft A	NMIJ AIST
COOMET.EM.RF-S1	2009	Report under review	VNIIFTRI
COOMET.EM-S10	2010 - 2012	Report in progress, Draft B	VNIIMS
COOMET.EM-S15	2013	Planned	SNIIM
COOMET.EM-S6	2007 - 2010	Report in progress, Draft B	VNIIMS
COOMET.EM-S7	2009 - 2011	Report in progress, Draft B	VNIIMS
COOMET.EM-S9	2009	In progress	VNIIFTRI
COOMET.L-S21	2011 - 2018	Report in progress, Draft B	VNIIM
COOMET.M.FF-S2	2008 - 2009	Report in progress, Draft B	PTB
COOMET.M.FF-S4	2009 - 2010	Report in progress, Draft B	SMU
COOMET.M.F-S1	2008 - 2010	Report in progress, Draft B	VNIIM
COOMET.M.H-S4	2007 - 2010	Report in progress, Draft B	VNIIFTRI
COOMET.PR-S1	2012 - 2013	Measurements completed	VNIIOFI
COOMET.PR-S5	2008 - 2011	Measurements completed	INIMET
COOMET.PR-S7	2013 - 2014	Measurements completed	VNIIOFI
EURAMET.AUV.A-S2	2013 - 2014	In progress	LNE
EURAMET.EM-S33	2010 - 2011	In progress	LCOE

[8] It may happen that the same comparison is listed several times with different pilots indicated. These are comparisons having several pilots.

(continued…)

SC indentifier	Status Sep-2018	Indicated year	Pilot
EURAMET.EM-S34	2010 - 2011	Protocol complete	LCOE
EURAMET.EM-S35	2012 - 2013	Protocol complete	INRIM
EURAMET.EM-S36	2012 - 2014	Planned	SP
EURAMET.EM-S37	2011 - 2013	In progress	CMI
EURAMET.EM-S40	2014	Measurements completed	LNE
EURAMET.EM-S41	2014	Protocol complete	LNE
EURAMET.M.F-S2	2012 - 2013	In progress	BEV
EURAMET.PR-S4	2012 - 2013	Measurements completed	LNE
EURAMET.PR-S5	2012 - 2013	Measurements completed	PTB
SIM.EM-S8	2013 - 2014	In progress	UTE
SIM.M.FF-S4	2006	Report in progress, Draft B	INIMET
SIM.M.FF-S8	2014	Report in progress, Draft A	CENAMEP AIP
SIM.M.F-S2	2012	Report in progress, Draft A	IDIC
SIM.M.F-S3	2012 - 2013	Report in progress, Draft B	NIST
SIM.M.F-S4	2012 - 2013	In progress	IDIC
SIM.M.M-S6	2009	Report in progress, Draft B	CESMEC Ltda.
SIM.M.P-S2	2009 - 2011	In progress	INMETRO
SIM.M.P-S3	2010	Protocol complete	LCPN-P
SIM.M.P-S4	2010	Protocol complete	LCPN-P
SIM.M.P-S8	2012	Planned	ENAER
SIM.M.P-S9	2012	Planned	ENAER
SIM.QM-S3	2012	Report in progress, Draft A	NIST
SIM.QM-S4	2012	Report in progress, Draft A	NIST
SIM.T-S3	2007 - 2008	Report in progress, Draft B	CESMEC Ltda.
SIM.T-S3	2007 - 2008	Report in progress, Draft B	INEN
SIM.T-S4	2008	Report in progress, Draft B	PTB
SIM.T-S6	2012 - 2014	Report in progress, Draft A	NIST
SIM.T-S8	2014	In progress	CESMEC Ltda.

APPENDIX 2 Information communicated to the JCRB members and TC Chairs

23 August 2019

Draft document for JCRB and TC Chairs
Author: BIPM
Version 1.0, 23 August 2019

Information on the new key comparison database

What and when?

BIPM plans to launch the new database for CMCs and comparisons within the framework of the CIPM MRA around the end of October 2019. It will use the web address www.bipm.org/kcdb.

We here refer to the new database and web facility as KCDB 2.0 to be distinguished from the present key comparison database, the KCDB, which we will refer to as KCDB 1.0. KCDB 2.0 marries together onto a single platform both the display of CMCs and comparisons etc. (the capabilities of KCDB 1.0), and the review process for CMCs currently managed through the JCRB review area.

Operation

The facility associated with the KCDB 2.0 will provide extended search facilities on CMCs and comparisons, and the possibility to generate customised statistics. It will provide a web portal for CMC submission and review, and support for registration and tracking of comparisons and associated approved final reports. CMCs will no longer be submitted in groups (batches), each CMC entry has its own identity. This brings the advantage that a review problem with a particular CMC will no longer delay other CMCs.

The web portal extends from drafting a CMC using a web form, via the intra-regional and inter-RMO (JCRB) reviews, to publication in the database, giving open access to the data on the web. The search facilities will continue as an open access service; for those operating and inputting to the system, the new web portal will be accessible via user accounts. A series of video clips explaining the basic features will be available on YouTube and a document "getting started" will also be prepared.

Review rules are applied as established by the JCRB and the TC Chair maintains the key role being the coordinator within the RMO and field, liaising with the other TC Chairs in the same field. The TC Chair authorises, or declines, the requests for user accounts within the RMO and specific field. The CMC submitter, reviewer and TC Chair will each have access to the submitted and reviewed CMCs on the KCDB web in a dedicated space. TC Chair accounts will be created by the BIPM.

The following log in:
Username: tcguest
Password: tcontact

will allow our community to consult the pending actions on CMCs, status of voting and some internal statistics. This is similar to the process today with the JCRB review area. It will also allow those wishing to be writers, reviewers and/or comparison pilots to request a user account.

If TC Chairs wish to avoid treating CMCs continuously as they arrive, they are free to agree and manage local rules (e.g. a date limit for submission, or defined periods for intraregional reviews). The limits for intraregional reviews are not programmed, as each RMO works rather differently. For the interregional review, where the JCRB rules apply, the time limits are programmed into the process.

Special arrangements will apply during the transition period.

Transition period for consulting KCDB 2.0

The KCDB 2.0 will replace the KCDB 1.0 as an evidence based database, offering improved search facilities on CMCs and comparisons. All the data in KCDB 1.0 will be imported into KCDB 2.0 shortly before its launch. The KCDB 1.0 can be consulted until the KCDB 2.0 has been launched. After launch of KCDB 2.0, KCDB 1.0 will no longer be accessible on the web.

Four weeks prior to the "go live" for KCDB 2.0, no more data will be uploaded on KCDB 1.0. Any CMC sets approved in that period will be held and then uploaded by the KCDB Office onto KCDB 2.0. *Due to the workload of the KCDB Office it may also be necessary to restrict the uploading onto the KCDB 1.0 of very large submissions that have achieved approval even earlier than this date. RMO TC Chairs will be informed on a case by case basis where this proves necessary.*

KCDB 1.0 available for consultation until 'go live', when web address leads to KCDB 2.0 and all the imported data. Thus there will be continuous access to published data.

	week -7	week -6	week -5	week -4	week -3	week -2	week -1	go live	week +1	week +2
Consulting KCDB 1.0										
Consulting KCDB2.0										
Publishing CMCs on KCDB 1.0										
Publishing CMCs on KCDB 2.0										

CMC sets reviewed and approved through the existing JCRB review area published on KCDB 2.0. They will be imported by the KCDB Office as soon as possible after 'go live' for those queued, and when they become available from those in train.

Approved CMCs sets continue to be published on the existing KCDB 1.0 until 4 weeks before 'go live'. CMC sets approved after week minus 4 are held and imported onto KCDB 2.0 by the KCDB Office as soon as possible after 'go live'.

Transition period for submitting CMCs for review using KCDB 2.0

The KCDB 2.0 will also successively replace the JCRB CMC review area, such that the transition perioc for submission of CMCs will be done individually by metrology areas (or by groups of metrology area). CMC sets may be submitted onto the old JCRB review area until submission onto the KCDB 2.(is possible. Communication of the transition date will be made to the TC Chairs and RMO Secretariat by e-mail as soon as the dates can be fixed.

The JCRB CMC review area presently hosts a number of CMCs sets that are currently under review. These CMCs may continue to follow their usual circuit on that platform. When they have been approved they will be uploaded on the KCDB 2.0 by the KCDB Office. That is to say the review of already 'in train' CMCs will be completed under the old system, with the approved CMCs published i the new system. The intention is to maintain the current JCRB CMC review area for a period of months to allow those CMC sets in train to complete their review. However, at some point it will be necessary to close the old platform and the JCRB will decide on the fate of any sets that have not completed their review at the date of closure.

We will open the review platform of KCDB 2.0 in phases to ensure as smooth a transition as possible the anticipated period to accommodate all areas being one month.

- The metrological areas will have different start dates for submitting directly onto KCDB 2.0.
- The 'spread' will depend on how smoothly the transition runs.
- TC Chairs will be able to continue to submit onto the old JCRB review area until the KCDB 2.0 review platform opens for their area.
- If submitted on the JCRB review area, the entire review and approval will be completed on the JCRB review area (though eventually at some point we will look to see about closing out the old platform. This will be the subject of a new action.)
- CMC sets approved through the JCRB review area will be imported to KCDB 2.0 by the KCDB Office.

	week -2	week -1	First submission date TBD per area or group of areas	week +1	week +2
Submission of CMCs for interregional review on the present JCRB area					
Review of in-train CMCs on the present JCRB area					
Submission of CMCs on KCDB 2.0					
CMC review on KCDB 2.0					

To ensure the smoothest transition, first date for submissions will be staggered by metrological area.

Quality checks

The KCDB Office has run a number of trial importations of data from KCDB 1.0 into the prototype KCDB 2.0 and undertaken quality assurance checks on samples of the uploaded data. Whilst some problems have been found (and solved), in the main, the data has been reproduced faithfully. The problems encountered have largely been limited to formatting. A number of checks will also be done on sample sets by our NMI/DI Beta testers before we go live.

The testing so far carried out has given us confidence that the process of importation of the CMC data is sound. Nevertheless, the testing has been on samples of data, and ultimately NMIs are responsible for the quality of their CMC data. Each NMI and DI is asked to plan to check their CMCs as soon as they become live on KCDB 2.0. Already published CMC excel files are and will continue to be available from the CMC review part of the JCRB review area https://www.bipm.org/JCRBCMCs/ using the same Username and Password as above.