KCDB REPORT TO THE JCRB

September 2020 to March 2021

Executive Summary

The KCDB 2.0 was implemented in October 2019, providing search facilities of CMCs and comparisons, a user platform supporting intra- and intra-RMO reviews, a frame for comparison registration and publication, and a tool for user-generated statistics.

The CMCs published since the achievement of KCDB 2.0 are still provided via two different paths:

- i) CMCs approved on the former JCRB support and imported by the KCDB Office;
- ii) CMCs drafted, reviewed, approved and published on the KCDB web platform.

Access to the KCDB 2.0 has been accompanied by making available a variety of guidance material and demonstrations to users within the frame of the CBKT.

An Application Programming Interface for CMCs registered in the KCDB has been developed and is presently under beta-testing.

Introduction

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

The KCDB 2.0 was made available on 29 October 2019. The platform is now being used for CMC submissions, review and publication, as well as for comparison registration and updates, on a daily basis.

Nevertheless, the Chemistry and Biology community did not use the tool for CMCs at start. The first CMCs in Chemistry and Biology were drafted on the platform in November 2020 for their review Cycle XXII. They have been subject to intra-RMO review and were recently submitted for JCRB review which will take place at two sessions of the CCQM Key Comparison Working Group meetings in April 2021.

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, a short view on the status of **the KCDB 2.0** is presented in Section 4, and the recent development of an **Application Programming Interface** is presented in Section 5.

This report reflects the status as of 1 March 2021.

1. CIPM MRA Appendix C: Calibration and Measurement Capabilities

1.1. CMC status

The new database became accessible in October 2019. The CMCs that presently get published on the KCDB have two sources:

- i) CMCs approved on the former JCRB support and imported by the KCDB Office;
- ii) CMCs drafted, reviewed, approved and published on the KCDB web platform.

The delay in publishing CMC data posted on the previous JCRB site has been absorbed, and only a small number of batches not yet approved remain to publish.

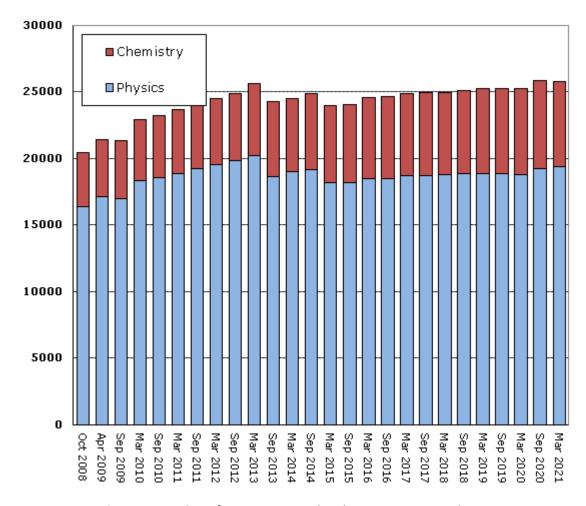


Figure 1. Number of CMCs registered in the KCDB since October 2008.

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There are presently¹ 25 733 (25 801) CMCs published in the KCDB on 1 March 2021 of which 19 387 (19 238) are in Physics and 6 346 (6 563) in Chemistry and Biology. The total number of published CMCs have increased by 2.1 % over a one-year period. Estonia, previously Associate, became Member State in 2021, explaining a part of this increase. The decrease by 3 % of CMCs in Chemistry and Biology is linked to the successive implementation of broad-scope CMCs.

The repartition of CMCs is available in real-time from the KCDB home page in "CMC statistics" https://www.bipm.org/kcdb/cmc/statistics/public. The Excel files previously used as a basis for the CMC statistics are available on the access-restricted JCRB CMC website until 30 June 2021 (cf. JCRB Report of the 43rd JCRB Meeting).

The status of not yet published CMCs that are placed on the platform is listed in Table 1-a. 2029 (872) CMCs are presently in an "intermediate" state. The numbers show a neat increase of the activity on the KCDB web platform over the last 6 months.

GULFMET published their first CMCs, 4 CMCs in Time and Frequency (TF) in October 2020. GULFMET may hence now participate in future JCRB reviews in TF. The distribution of published CMCs along the RMOs is listed in Table 1-b.

Table 1-a Status of not yet published CMCs in KCDB on 1 March 2021.

C4-4	number of CMCs	number of CMCs
Status	2020-08-26	2021-03-01
Draft	74	276
RMO: Submitted	118	208
RMO: Under Review	21	23
RMO: Review Completed	22	31
RMO: Accepted	0	120
RMO: Revision Requested	8	148
Submitted to the JCRB	0	29
JCRB: Under Review	104	605
JCRB: Revision Requested	34	71
JCRB: Revision Completed	9	5
JCRB: Approved	0	0
JCRB: Waiting for VOTE	2	0
Greyed out	4 <i>7</i> 5	513
Submitted to the KCDB	5	0
TOTAL	872	2029

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¹ The numbers given within parenthesis represents the number of CMC reported in end of August 2020.

Table 1-b Number of published CMCs in KCDB per RMO on 1 March 2021 (follow-up of Action 17/1 of JCRB 2006).

RMO	Number of CMCs	Number of CMCs
KWO	2020-08-26	2021-03-01
AFRIMETS	620	624
APMP	6409	6477
COOMET	2654	2668
EURAMET	11383	11331
GULFMET	0	4
SIM	4735	4629
TOTAL	25801	25733

1.2. CMC evolution

The total number of published CMCs during the last 6 months for each metrology area is listed in Table 1-c. These numbers include revised CMCs and upload of greyed out CMCs, not necessarily needing a JCRB review. The total number gives the impression that the number of submitted CMCs have suddenly decreased. However, a larger number of CMCs were published during the previous 6-month period while still compensating for the previous delay (liked to the implementation of the new software).

The first CMCs for United Arab Emirates were published on 8 October 2020 in Time and Frequency. Those CMCs were reviewed informally by GULFMET (as GULFMET have Provisional RMO status) with APMP carrying out the formal intra-regional review on behalf of GULFMET.

The first CMC for CARICOM, involving the Designated Institute of Trinidad and Tobago, was published in Mass on 12 January 2021, submitted via SIM.

Table 1-c Number of published CMCs per metrology area on 1 March 2021 since 26 August 2020.

Metrology area	Published CMCs	Published CMCs
ичестогоду атеа	2020-08-26	2021-03-01
AUV	179	149
EM	134	469
L	751	112
Μ	148	179
PR	168	0
Т	497	26
TF	26	66
QM	75 0	1280
RI	371	0
TOTAL	3024	2281

1.3. Greyed out CMCs and reinstatements

There are presently 513 (475) greyed out CMCs. Table 1-f displays all greyed out CMCs where the most recent events are highlighted in yellow and green for increased and decreased number of greyed-out CMCs, respectively.

RMO	Country	AUV	М	PR	EM	Т	RI	L	QM	TF	Total
AFRIMETS	ZA		4				11				15
APMP	CN							1			1
APMP	IN							3			3
APMP	JP							3			3
APMP	KR								6		6
APMP	NZ				1					2	3
APMP	TH						3	1			4
EURAMET	BG								5		5
EURAMET	DE					1	3		12		16
EURAMET	ES						2				2
EURAMET	FI							1			1
EURAMET	FR								1		1
EURAMET	IT		31		19		98	1	3		152
EURAMET	JRC						110		82		192
EURAMET	LT		5								5
EURAMET	LV				30						30
EURAMET	NO		4					1			5
EURAMET	PT						1	1			2
EURAMET	SE				2						2
EURAMET	SK	6						2			8
SIM	MX							1	35		36
SIM	US		3		5						8
SIM	BR		3						10		13
	TOTAL:	6	50	0	57	1	228	15	154	2	513

Table 1-e Status of greyed out CMCs on 1 March 2021.

Increased in number
Decreased in number

1.4. Format of uncertainty equations

A request from CCL, supported by CCM, to replace the numerical equation format (presently applied in the KCDB) by quantity based equations, was approved by CIPM members at the Consultative Committee President's meeting in June 2018.

The transition to this new format requests a revision of the uncertainty equations. The JCRB Executive Secretary and the KCDB Office developed instructions how to carry out such revision.

The TC-L of EURAMET made the revision May/July 2020 and the revised CMCs were successfully uploaded by the KCDB Office in July. No other revision has been initiated not completed.

2. CIPM MRA Appendix B: Key and supplementary comparisons

2.1. Comparison status and evolvement

On the 1 March 2021 the KCDB covered 1706 (1672) comparisons online distributed as listed in Table 2; 1080 of these are key comparisons and 626 supplementary comparisons. This represents a total increase of 34 comparisons, all registered by the pilots using the KCDB web platform.

Entity	KC	SC
BIPM	97	1
CC	529	34
AFRIMETS	8	27
APMP	144	119
COOMET	49	117
EURAMET	176	200
GULFMET ²	4	20
SIM	73	108
TOTAL	1080	626

Table 2 Key and Supplementary Comparisons on 1 March 2021.

Figure 2 shows the evolution of the total number of key (dark blue) and of supplementary (peach) comparisons registered in the KCDB since September 2003. The annual increase of key comparisons seems to have stabilized to around some +30. The annual increase of key- and supplementary comparisons is around 6 %. The ratio of supplementary comparisons, 20 % in 2006, keeps progressing and constitutes 37 % of all comparisons. The graph include repeats of key comparisons.

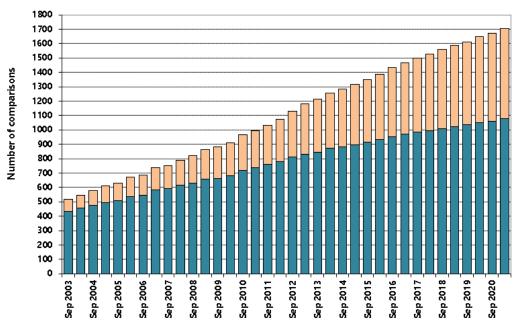


Figure 2. Total number of key comparisons (dark blue) and supplementary comparisons (peach) registered in the KCDB: evolution since September 2003

 $^{^{2}}$ The GULFMET was approved as an RMO on a provisional basis by the CIPM in October 2015.

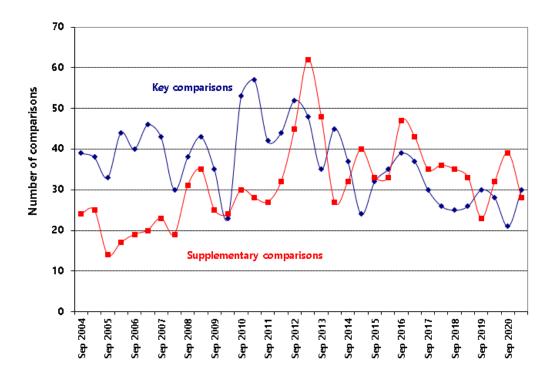


Figure 3. Number of new comparisons registered in the KCDB over the one-year period ending at the date indicated on the abscissa.

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 3.

Graphs generated in real-time illustrating the participation in key and supplementary comparisons are available under the Statistics menu on the KCDB home page: https://www.bipm.org/kcdb/comparison/statistics/key

https://www.bipm.org/kcdb/comparison/statistics/key

The following 34 comparisons were registered as new during the last 6 months:

AFRIMETS.AUV.V-K5	CCQM-K169	COOMET.L-S31
AFRIMETS.M.FF-S1	CCQM-K170	COOMET.L-S32
APMP.L-K5.2021	CCQM-K171	COOMET.M.FF-S10
APMP.L-K8.2021	CCQM-K172	COOMET.PR-S12
APMP.L-S10	CCQM-K173	COOMET.RI(II)-S3
CCM.P-K16	CCQM-K174	EURAMET.AUV.V-S1
CCM.P-K17	CCRI(III)-K8.2024	EURAMET.L-S31
CCM.P-K18	CCT-K7.2021	EURAMET.PR-K3.2020
CCQM-K152	COOMET.EM-S25	SIM.QM-S10
CCQM-K154.b	COOMET.EM-S26	SIM.T-K6.8
CCQM-K154.c	COOMET.L-K4.2021	SIM.T-S11
CCQM-K154.d		

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The following 50 reports were published during the last 6 months:

AFRIMETS.T-S2	CCQM-K146	EURAMET.M.FF-S10
APMP.QM-K18.2016	CCQM-K151	EURAMET.M.G-K3
APMP.QM-S12	CCQM-K152	EURAMET.M.H-S1.a.b.c
APMP.QM-S7.1	CCQM-K154.a.1	EURAMET.M.M-K4.2015
BIPM.EM-K14.a and b (SASO)	CCQM-K18.2016	EURAMET.M.P-K1.c
BIPM.RI(I)-K1 (BEV)	CCQM-K34.2016.1	EURAMET.M.P-K15.1
BIPM.RI(I)-K3 (VNIIM)	CCQM-K73.2018	EURAMET.PR-K2.a.2011
BIPM.RI(II)-K1.Ag-110m	CCT-K6.2	EURAMET.PR-S5
BIPM.RI(II)-K1.Co-60 (PTB, TAEK)	COOMET.M.FF-S9	EURAMET.QM-S12
BIPM.RI(II)-K1.Ge-68	COOMET.M.H-S5	EURAMET.RI(I)-K1.1
BIPM.RI(II)-K1.Na-22	COOMET.M.P-S4	EURAMET.RI(I)-K4.1
BIPM.RI(II)-K1.Ra-223	EURAMET.EM-S41	GULFMET.EM-S5.1
BIPM.RI(II)-K1.Sr-85	EURAMET.EM-S42	GULFMET.M.F-S1
BIPM/RI(I)-K6 (LNE-LNHB)	EURAMET.L-K4.2005.1	GULFMET.M.F-S2
CCM.FF-K3.2011.1	EURAMET.M.D-K1.1	GULFMET.M.M-K4
CCM.M-K8.2019	EURAMET.M.FF-K4.1.2016	SIM.QM-S10
CCQM-K143	EURAMET.M.FF-K4.2.2015	

On 1 March 2021, 85 abandoned or superseded key and supplementary comparisons were stored in the KCDB archives (included in the presented statistics).

2.2. Comparisons older than 5 years (Follow-up Action 33/3 of JCRB 2015)

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.

Although the number of unfinished comparison older than 5 years shows a slight decrease from previous years, the total number seems to have stabilized to roughly half the number compared before taking any action. The total number is illustrated in Figure 4. A list of the comparisons concerned may be found in Appendix I.

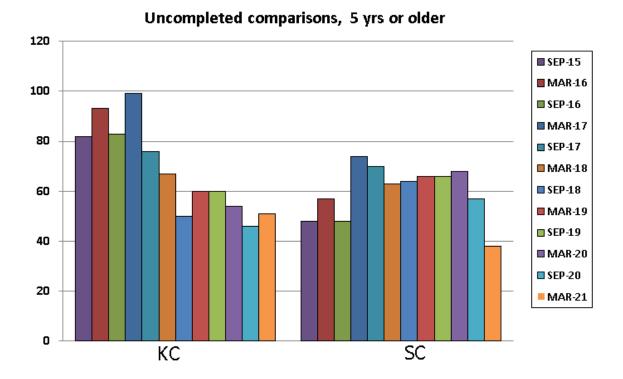


Figure 4. Histogram showing the number of incomplete comparisons that started more than 5 years ago.

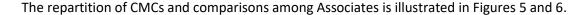
3. Participation of Associates of the CGPM in CIPM MRA activities

Table 3 summarizes the participation of the <u>40 Associates of the CGPM</u> in CIPM MRA activities as at 1 March 2021. In particular, CARICOM, via Trinidad and Tobago Bureau of Standards, submitted their first CMC. Cambodia signed the CIPM MRA and became Associate, while Estonia, former Associate became member

Table 3. CIPM MRA activity of the NMIs of Associates of the CGPM: number of published CMCs and participation in key and supplementary comparisons. ³

Country	Published CMCs	Greyed out CMCs	Key Comparisons	Supplementary Comparisons
Albania	9	0	8	4
Azerbaijan	31	0	1	8
Bangladesh	0	0	2	2
Bolivia	21	0	9	24
Bosnia and Herzegovina	74	0	13	14
Botswana	3	0	1	5
Cambodia	0	0	0	0
CARICOM (Caribbean Community)	1	0	0	10
Chinese Taipei	390	0	101	49
Costa Rica	68	0	19	32
Cuba	113	0	6	22
Ethiopia	0	0	0	3
Georgia	61	0	6	18
Ghana	0	0	2	7
Hong Kong, China	288	0	96	28
Jamaica	22	0	6	11
Kuwait	0	0	2	2
Latvia	29	30	13	9
Luxembourg	0	0	4	1
Malta	0	0	4	3
Mauritius	0	0	2	3
Moldova, Republic of	76	0	4	17
Mongolia	16	0	4	4
Namibia	7	0	0	3
North Macedonia	21	0	9	11
Oman	0	0	0	2
Panama	37	0	8	22
Paraguay	8	0	2	19
Peru	106	0	31	35
Philippines	32	0	13	9
Qatar	0	0	2	1
Seychelles	0	0	0	3
Sri Lanka	0	0	8	2
Sudan	0	0	0	1
Syrian Arab Republic	0	0	12	3
Tanzania	0	0	0	1
Uzbekistan	0	0	0	2
Viet Nam	31	0	35	9
Zambia	11	0	2	8
Zimbabwe	19	0	1	8
TOTAL	1455	30	0	0

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.



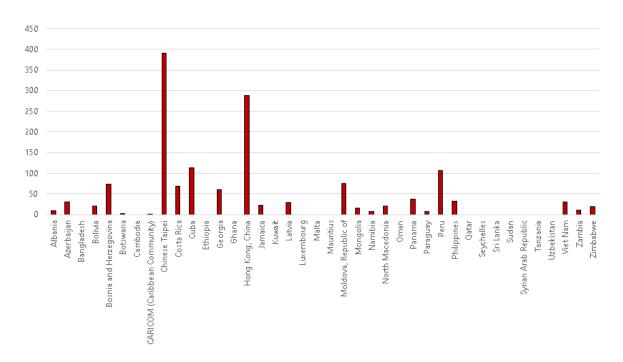


Figure 5. Graph on the number of CMCs declared by Associates of the CGPM

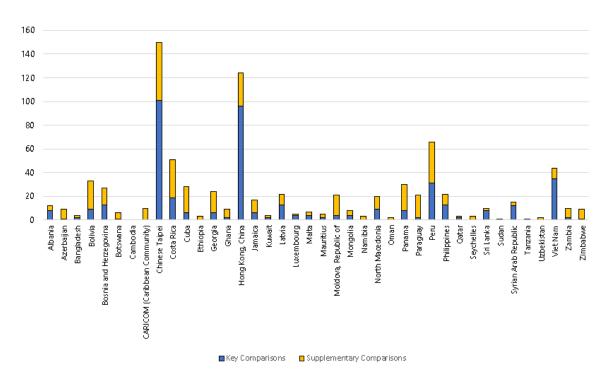


Figure 6. Graph on the participation of Associates of the CGPM in key and supplementary comparisons

4. Status of the BIPM KCDB 2.0

- The KCDB 2.0 was made available in October 2019, and the KCDB web platform was successively made available to the different metrology areas, where now all metrology areas use the KCDB platform.
- The implementation has been accompanied by providing a variety of guidance material, cf. https://www.bipm.org/en/about-us/kcdb-help.html, and demonstrations to users within the frame of the CBKT https://www.bipm.org/en/cbkt/, see also Appendix II and III. The guidance material is successively enlarged.
- The KCDB 2.0 software is supported by an Application Management contract. Revealed anomalies are corrected; the software has been updated at a number of occasions since start. Anomalies and suggestions for improvements may be communicated by the users by completing the form https://www.bipm.org/utils/common/pdf/KCDB 2.0/Form for declaring an anomaly or request.docx.
- The first CMC that has been drafted, reviewed and approved on the KCDB web platform was published on 2 April 2020 there are now 326 such CMCs. The average duration of the JCRB review of 1 CMC is 93 days.

4.1. Quality System

The Quality System underpinning the previous version of the KCDB has been updated and an internal audit was held in September 2020. The set of procedures will be completed by a document describing the database. A new internal audit is foreseen 2021.

5. Application Programming Interface for the KCDB

The BIPM has recently developed an Application and Programming Interface for the KCDB (API KCDB). This interface allows external users to make CMC queries from a support other than the KCDB web and to collect machine readable data.

The API KCDB is presently being beta-tested by members from NMIs that have indicated their interest. Adjustments have been made based on their feedback.

The API KCDB will play an important role for Digital Calibration Certificates.

Acknowledgement

The support on testing and constructive feedback received from members of METAS, PTB, VNIIM, NRC and CENAM is greatly appreciated. We value the collaboration with Sten Bergstrand (JCRB Executive Secretary). Many thanks also to the BIPM IT team for their continued support.

APPENDIX I List of uncompleted comparisons older than 5 years

a) Key Comparisons

KC indentifier	Indicated year	Status Sep-2020	Pilot
AFRIMETS.M.P-K2	2012 - 2013	Measurements 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-K12	2014 - 2015	Waiting for approval	NMC, A*STAR
APMP.EM-K2	2010 - 2011	Waiting for approval	KRISS
APMP.EM-K5.1	2010 - 2013	Waiting for approval	NIM
APMP.M.D-K4	2007 - 2008	Report in progress, draft A	KRISS
APMP.M.F-K3.a	2011 - 2014	Measurements in progress	NIM
APMP.M.F-K3.b	2011 - 2014	Measurements in progress	NIM
APMP.M.P-K1.c.2	2012 -	Submitted to the KCDB	KRISS
APMP.M.P-K15	2013 - 2014	Measurements completed	NMIJ AIST
APMP.M.P-K4	2015 - 2016	Measurements completed	KRISS
APMP.M.P-K7.2	2015 - 2016	Report in progress, draft B	NIMT
APMP.M.T-K1	2015 - 2016	Planned	KRISS
APMP.PR-K2.b	2014 -	Report in progress, Draft A	KRISS
APMP.PR-K3.a	2012 - 2014	Measurements in progress	NMIJ AIST
APMP.PR-K3.a.1	2006 -	Measurements completed	NIM
APMP.RI(I)-K3.2013	2015 - 2016	Planned	INER
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.T-K3.6	2013 - 2014	Planned	NIM
APMP.T-K4.1	2013 - 2014	Planned	NIM
APMP.T-K8	2012 - 2016	Report in progress, Draft B	NMIJ AIST
CCEM.RF-K26	2014 - 2016	Measurements in progress	NMIJ AIST
CCEM.RF-K5.c.CL	2012 - 2015	Measurements in progress	NMIJ AIST
CCL-K1,2011	2011 - 2014	Report in progress, Draft A	CENAM
CCM.D-K3	2016 -	Planned	NMIJ AIST
CCM.FF-K2.2011	2013 - 2015	Report in progress, Draft B	∨SL
CCM.FF-K5.2016	2016 -	Planned	PTB
CCM.H-K3	2016 -	Protocol complete	INRIM
CCPR-K3.2014	2014 -	Report in progress, Draft B	NRC
CCQM-K110	2012 -	Postponed	GL
CCRI(II)-K2.Tc-99	2012 - 2013	Measurements 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-K10	2014 - 2016	Report in progress, Draft A	NPL
CCT-K4.1	2012 - 2014	Report in progress, Draft A	NMIA
CCT-K6.1	2008 - 2010	Report in progress, draft A	MSL

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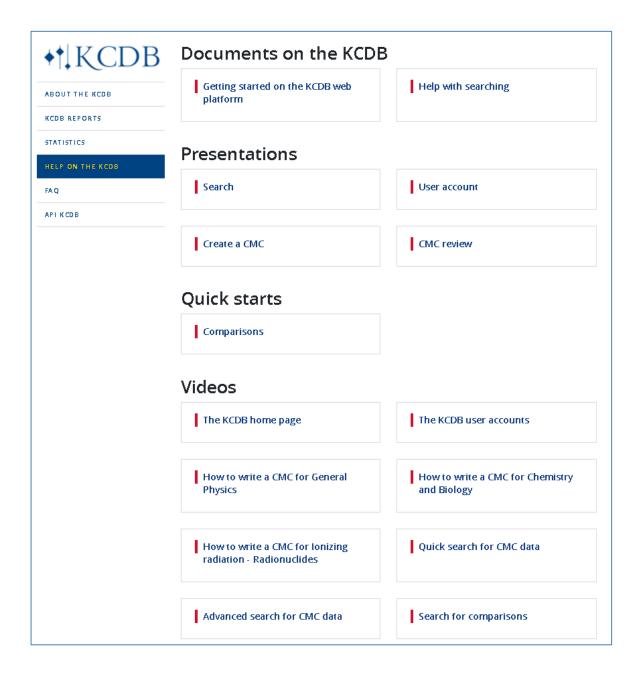
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KC indentifier	Indicated year	Status Sep-2020	Pilot
CCT-K9	2011 - 2012	Measurements completed	NIST
COOMET.AUV.V-K1	2007 - 2008	Report in progress, draft B	VNIIM
COOMET.L-K3	2011 - 2012	Report in progress, draft A	VNIIM
COOMET.M.H-S5	2013 - 2016	Submitted to the KCDB	NSC "Institute of
EURAMET.T-K8	2008 - 2012	Report in progress, draft A	PTB
EURAMET.T-K9	2014 - 2016	Protocol complete	LNE-LCM/Cnam
EUROMET.M.F-K1	2002 - 2004	Report in progress, draft B	MIKES
EUROMET.M.F-K3	2005 - 2008	Measurements 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

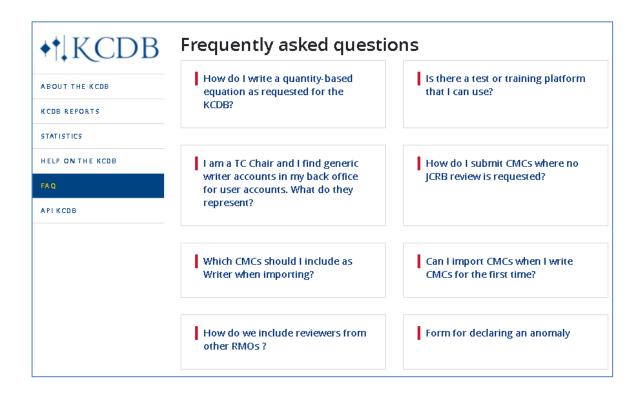
b) Supplementary Comparisons

SC indentifier	Indicated year	Status Sep-2020	Pilot
APMP.EM.RF-S5.CL	2013 - 2015	Protocol complete	NMIJ AIST
APMP.EM-S8	2011 - 2013	Protocol complete	NPLI
APMP.L-S7	2014 - 2015	Report in progress, Draft B	NPLI
APMP.M.MM-S1	2012 - 2013	Measurements in progress	KRISS
APMP.M.P-S1	2003 - 2005	Measurements completed	CMS/ITRI
APMP.PR-S5	2008 - 2009	Measurements in progress	NMIJ AIST
APMP.PR-S7	2015 - 2016	Protocol complete	NIM
APMP.RI(I)-S1	2010 - 2011	Report in progress, draft B	OAP
APMP.T-S11	2013 - 2016	Report in progress, Draft A	NMIJ AIST
APMP.T-S13	2014 - 2016	Measurements in progress	NMC, A*STAR
APMP.T-S8	2011 - 2015	Measurements in progress	NMLPHIL
CCRI(II)-S10	2011 - 2012	Report in progress, Draft B	ENEA-INMRI
CCT-S3	2007 - 2008	Report in progress, Draft B	NMIJ AIST
COOMET.EM-S10	2010 - 2012	Report in progress, draft B	VNIIMS
COOMET.EM-S16	2013 - 2015	Planned	VNIIOFI
COOMET.EM-S18	2013 - 2016	Report in progress, draft A	VNIIMS
COOMET.EM-S6	2007 - 2010	Report in progress, draft B	VNIIMS
COOMET.EM-S7	2009 - 2011	Report in progress, draft B	VNIIMS
COOMET.M.D-S1	2012 - 2015	Protocol complete	VNIIM
COOMET.M.FF-S4	2009 - 2010	Report in progress, draft B	NSC "Institute of Metrology"
COOMET.M.F-S1	2008 - 2010	Report in progress, Draft B	VNIIM
COOMET.M.H-S2	2014 - 2016	Report in progress, Draft A	VNIIFTRI
COOMET.M.H-S3	2014 - 2016	Measurements completed	NSC "Institute of Metrology"
COOMET.M.P-S1	2014 - 2015	Measurements completed	NSC "Institute of Metrology"
COOMET.PR-S1	2012 - 2013	Measurements completed	VNIIOFI
COOMET.PR-S5	2008 - 2011	Measurements completed	INIMET
COOMET.PR-S7	2013 - 2014	Report in progress, Draft B	VNIIOFI
EURAMET.M.F-S2	2012 - 2013	Measurements in progress	BE∨
EURAMET.PR-S4	2012 - 2013	Measurements completed	LNE
EURAMET.T-S4	2007 - 2009	Submitted to the KCDB Office	NPL
EURAMET.T-S6	2015 - 2016	Measurements in progress	NPL
SIM.M.F-S3	2012 - 2013	Report in progress, draft B	NIST
SIM.M.M-S12	2012 - 2015	Report in progress, draft A	CESMEC
SIM.M.P-S2	2009 - 2011	Measurements in progress	INMETRO
SIM.T-S3	2007 - 2008	Report in progress, draft B	INEN
SIM.T-S6	2012 - 2014	Report in progress, draft A	NIST

APPENDIX II Available support on the KCDB web platform on 1 March 2021



(continued...)



APPENDIX III Demonstrations given on the KCDB web platform within the frame of Capacity Building and Knowledge Transfer from 27 August 2020 to 1 March 2021

- Demonstration of the KCDB CMC facilities and Q&A to TC Chairs in General Physics: 3
 September 2020
- Demonstration of the KCDB CMC facilities and Q&A to TC Chairs in Ionizing Radiation: 10
 September 2020
- Demonstration of the KCDB CMC facilities and Q&A to Writers Chem-Bio: 15 October
- Demonstration of the KCDB 2.0 to ILAC: 21 January 2021
- Demonstration of KCDB Comparison tools (All Metrology areas): 3 Feb 2021
- Demonstration and support at numerous CC WG and RMO TC meetings