

KCDB REPORT TO THE 31st JCRB MEETING

At the occasion of each JCRB meeting the KCDB Office prepares a report on the status of the KCDB. Each report describes the work of the KCDB Office during the previous six-month period, and the compilation of these reports to the JCRB thus provides a complete record of the evolution of the KCDB.

The previous report (JCRB-30/06) was presented at the 30th meeting of the JCRB, held on 19 – 20 March 2013 at the BIPM, Sèvres, and reflected the situation as at 01 March 2013. The present report covers the six-month period from 01 March 2013 to 01 September 2013.

Notes from the KCDB Office to the JCRB members

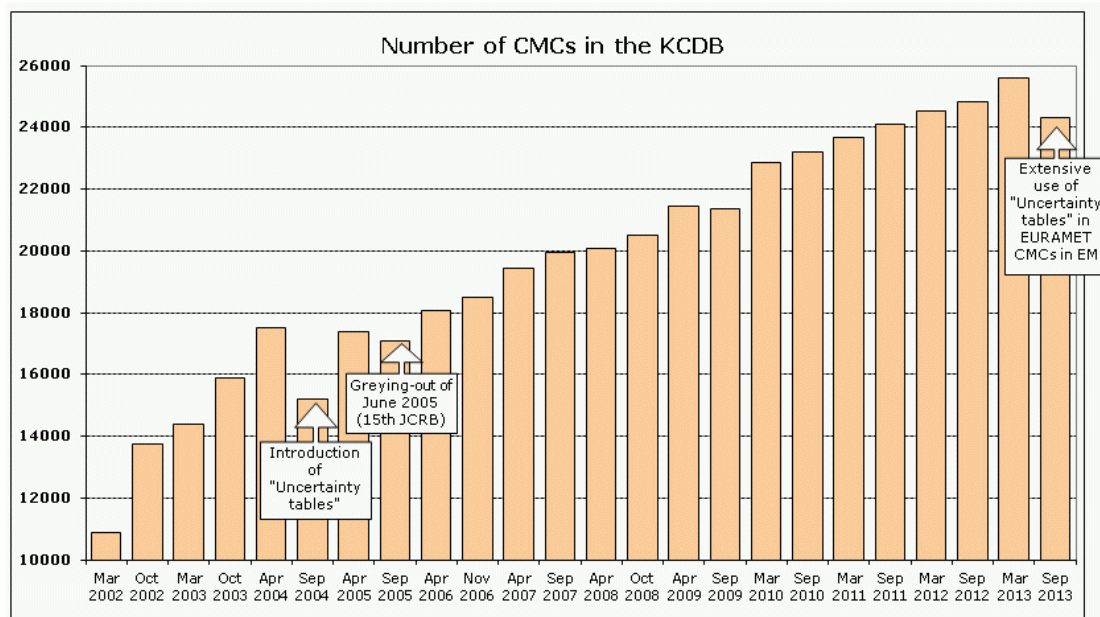
1. Statistics on the content of the KCDB are prepared by the KCDB Office and are available on-line from the [KCDB Statistics page](#). This includes the number of key and supplementary comparisons (updated in real-time), and PDF files showing the participation in key and supplementary comparisons (updated in May and November of each year) and the number of CMCs by metrology area and by country (updated in real-time).
2. The EXCEL files that are used to generate the PDF files displayed in the KCDB Statistics page are available from the [access-restricted JCRB CMC website](#) (link "[KCDB statistics](#)"). Note that these EXCEL files track all the changes (including greying-out and re-instatement of CMCs) and their dates, and thus allow some recollection of the history of the KCDB. In addition, many numbers that are not shown in the PDF files of statistics are given in the EXCEL files.
3. The KCDB Office provides on demand an additional EXCEL file containing the information of Appendix B of the KCDB, as a snapshot of the content of the database valid at a given date. This makes it possible to carry out statistical analysis using EXCEL functions or customized macro-functions. The file is compiled by the BIPM, using an SQL request named "Angela", and the delivery time is about two working days.
4. A box entitled "Related links" is provided on the left of each KCDB web page. It includes, among others, links to the KCDB Statistics page, to the KCDB FAQs page, and to the open-access CIPM MRA and JCRB documents, as well as to the open-access series of biannual KCDB Reports (located on the main BIPM website).

1. The CMC database

1.1. Content of the CMC database

As at 01 September 2013, the KCDB included a total of 24 278 CMCs:

- 14 759 in General Physics,
- 3 903 in Ionizing Radiation, and
- 5 616 in Chemistry.



Number of CMCs registered in the KCDB since March 2002

It is quite interesting to observe that the total number of CMCs has decreased for the first time since eight years. The decrease is important: about 1 300 CMCs have disappeared from the KCDB. This deserves some explanation:

- Over the last six months, the number of CMCs in Ionizing Radiation remained stable at the level of 3 000 CMCs.
- Over the same period, we have published an additional 256 CMCs in Chemistry.
- The number of CMCs in General Physics remained stable at the level of 16 380 CMCs until 13 August 2013, when the CMCs in EM from EURAMET were published in a re-arranged form using in an extensive way the “Uncertainty tables”.

Following the strong encouragement given to the NMIs and the RMOs by the CCEM at its meeting of March 2013, to make their best possible towards concatenating diverse CMCs covering the same quantity over different ranges of the measurand, and/or different methods, and/or different instruments, in a view of creating one (or very few) CMC(s) for each "sub-sub category" of the Classification of Services in EM, EURAMET embarked on this way. On 13 August 2013, we published in the KCDB the CMCs of EURAMET after re-arrangement and re-formatting according to the CCEM guidance.

Details are given in the Annex to this Report, but the result of this action is as follows:

- The number of CMCs in EM from EURAMET is now roughly divided by 2 (3435 to 1821).
- The KCDB thus "lost" more than 1600 CMCs (6.7 % of the total) in EM.
- About one third of the EURAMET CMCs in EM are described using tables of uncertainties. This gives a total of 650 such tables, which include roughly 26 000 individual values of uncertainties.

To conclude, files of CMCs in EM from EURAMET are easier to handle, to review and to publish. Using these files for further update should improve efficiency.

The users of the KCDB should find more individual and detailed information, but concatenated in clearer tables, which are easily comparable: see for example: [AC-DC voltage transfer](#).

The number of declared and approved CMCs has indeed very little significance in EM!

Over the period covered by this Report, 25 newly approved sets of CMCs were published (see Section 1.2 below). There were also some movements related to temporary removal and re-instatement of CMCs (see Section 1.3 below).

Details on the number of CMCs currently published in the KCDB, per country and per metrology area, are openly available in real-time from the [Statistics page of the KCDB](#) (PDF file).

1.2. New CMCs publication – see also “[CMCs News](#)”

Since 01 March 2013, the following sets of CMCs have been published in the KCDB:

- 06 March 2013; 3rd part of *EURAMET.EM.8.2012* (DE), +10 CMCs.
- 04 April 2013; *AFRIMETS.QM.11.2013* (ZA, Cat 4, -2 CMCs); *COOMET.QM.20.2013* (RU, Cat 2, +0 CMCs; RU, Cat 4, -1 CMC; and RU, Cat 5, +8 CMCs); and *SIM.QM.15.2013* (BR, Cat 1, +2 CMCs; AR, Cat 2, +0 CMCs; CA, Cat 2; +1 CMC; CL, Cat 2, +0 CMCs; MX, Cat 2, +4 CMCs; US, Cat 2, +0 CMCs; BR, Cat 4, +6 CMCs; MX, Cat 4, +2 CMCs; US, Cat 4, -2 CMCs; AR, Cat 5, +0 CMCs; CA, Cat 5, +0 CMCs; MX, Cat 5, +1 CMC; US, Cat 5, +0 CMCs; BR, Cat 6, +0 CMCs; BR, Cat 11, +5 CMCs; and US, Cat 12, -2 CMCs).
- 05 April 2013; *EURAMET.M.30.2012* (AL, Mass Standards, +7 CMCs, **first set of CMCs from Albania published in the KCDB**); and *EURAMET.M.31.2013* (DE, FF, +1 CMC).
- 06 April 2013; *EURAMET.RI.13.2012* (BG, Radioactivity, +16 CMCs; and HU, Radioactivity, -6 CMCs).
- 08 April 2013; *EURAMET.QM.22.2013* (TR, Cat 1, +7 CMCs; DE, Cat 2, -2 CMCs; EU, Cat 2, +0 CMCs; FR, Cat 2, -11 CMCs; GB, Cat 2, -14 CMCs; RO, Cat 2, +0 CMCs; SK, Cat 2, +0 CMCs; DE, Cat 4, +0 CMCs; CH, Cat 4, +0 CMCs; ES, Cat 4, +0 CMCs; FI, Cat 4, +0 CMCs; GB, Cat 4, +0 CMCs; FR, Cat 4, +0 CMCs; HU, Cat 4, +0 CMCs; NL, Cat 4, +0 CMCs; PT, Cat 4, +0 CMCs; PL, Cat 4, +0 CMCs; SK, Cat 4, +0 CMCs; DE, Cat 5, +6 CMCs; EU, Cat 5, -11 CMCs; FR, Cat 5, -1 CMC; GB, Cat 5, +0 CMCs; RO, Cat 5, +2 CMCs; SI, Cat 5, +0 CMCs; DE, Cat 10, +1 CMC; TR, Cat 11, +1 CMC; DE, Cat11, +2 CMCs; DE, Cat 12, -1 CMC; EU, Cat 12, -1 CMC; and GB, Cat 12, +0 CMCs).
- 11 April 2013; *APMP.QM.19.2013* (JP, Cat 1, +10 CMCs; CN, Cat 2, +0 CMCs; JP, Cat 2, +2 CMCs; KR, Cat 2, +14 CMCs; CN, Cat 3, +1 CMC; AU, Cat 4, +0 CMCs; CN, Cat 4, +0 CMCs; KR, Cat 4, +0 CMCs; JP, Cat 4, +8 CMCs; TW, Cat 4, +0 CMCs; AU, Cat 5, +2 CMCs; JP, Cat 5, +1 CMC; HK, Cat 5, +4 CMCs; SG, Cat 5, +4 CMCs; TH, Cat 5, +4 CMCs; CN, Cat 9, +1 CMC; AU, Cat 11, +1 CMC; JP, Cat 11, +29 CMCs; and CN, Cat 12, +0 CMCs).
- 14 April 2013; *EURAMET.AUV.11.2012* (ES, +2 CMCs).
- 20 June 2013; *COOMET.PR.7.2013* (RU, +9 CMCs).
- 21 June 2013; *AFRIMETS.QM.12.2013* (EG, Cat 3, +1 CMC; KE, Cat 11, +1 CMC; and ZA, Cat 11, +2 CMCs), *COOMET.QM.21.2013* (RU, Cat 3, -1 CMC; RU, Cat 4, +42 CMCs; RU, Cat 8, +0 CMCs; RU, Cat 10, +1 CMC; and RU, Cat 11, +2 CMCs), *EURAMET.QM.23.2013* (GB, Cat 1, +2 CMCs; DE, Cat 2, +3 CMCs; RO, Cat 2, +6 CMCs; TR, Cat 2, +1 CMC; ES, Cat 4, +1 CMC; GB, Cat 4, +2 CMCs; NL, Cat 4, +4 CMCs; SK, Cat 4, +11 CMCs; TR, Cat 5, +4 CMCs; DK, Cat 7, +1 CMC; IT, Cat 7, +0 CMCs; DE, Cat 10, +2 CMCs; FR, Cat 10, +5 CMCs; GB, Cat 10, +6 CMCs; GR, Cat 10, +1 CMC; TR, Cat 10, +7 CMCs; DE, Cat 11, -4 CMCs; EU, Cat 11, -8 CMCs; FR, Cat 11, -10 CMCs; GB, Cat 11, -3 CMCs; SI, Cat 11, +1 CMC; TR, Cat 11, +2 CMCs; and DE, Cat 15, +1 CMC); and *SIM.QM.16.2013* (BR, Cat 1, +1 CMC; CA, Cat 11, +1 CMC; and MX, Cat 11, +9 CMCs).
- 24 June 2013; *APMP.QM.20.2013* (CN, Cat 1, +21 CMCs; JP, Cat 1, +0 CMCs; SG, Cat 1, +1 CMC; HK, Cat 2, +3 CMCs; JP, Cat 2, +4 CMCs; CN, Cat 4, +12 CMCs; JP, Cat 4, +1 CMC; KR, Cat 4, +0 CMCs; JP, Cat 8, +3 CMCs; KR, Cat 9, +8 CMCs; TH, Cat 9, +3 CMCs; HK, Cat 10, +5 CMCs; TH, Cat 10, +5 CMCs; SG, Cat 10, +1 CMC; AU, Cat 11, -3 CMCs; CN, Cat 11, +0 CMCs; HK, Cat 11, +3 CMCs; JP, Cat 11, +0 CMCs; KR, Cat 11, +19 CMCs; SG, Cat 11, +4 CMCs; TH, Cat 11, +2 CMCs; TH, Cat 12, +1 CMC; and KR, Cat 15, +2 CMCs).
- 02 July 2013; *EURAMET.M.33.2013* (MK, Fluid Flow, +6 CMCs, **first set of CMCs from The FYR of Macedonia published in the KCDB**).
- 10 July 2013; *EURAMET.M.32.2013* (MK, Mass Standards, +7 CMCs).

- 02 August 2013; *SIM.M.24.2012* (UY, Density of Liquids, +1 CMC).
- 05 August 2013; *EURAMET.L.14.2013* (BG, +9 CMCs; GB, +1 CMC; and IT, +0 CMCs).
- 08 August 2013; *EURAMET.M.34.2013* (CH, FF, +1 CMC).
- 13 August 2013; *EURAMET.EM.9.2013* (AT, -13 CMCs; BE, -28 CMCs (all greyed-out); BG, -18 CMCs; DE, -113 CMCs; DK, -7 CMCs; HR, -10 CMCs; LT, -17 CMCs; and NO, -46 CMCs); *EURAMET.EM.10.2013* (CZ, -103 CMCs; FI, -108 CMCs; FR, -186 CMCs; GR, -53 CMCs; NL, -69 CMCs; PT, -15 CMCs; RO, -62 CMCs; and RS, -61 CMCs); and *EURAMET.EM.11.2013* (CH, -62 CMCs; ES, -38 CMCs; GB, -144 CMCs; IT, -19 CMCs; PL, -164 CMCs; SE, -82 CMCs; SI, -110 CMCs; SK, -42 CMCs; and TR, -72 CMCs).
- 22 August 2013; *APMP.M.32.2013* (TH, Mass Standards, -11 CMCs).

In addition, the KCDB Office has dealt with numerous corrections:

- Editorial changes.
- Range and/or uncertainty changes subsequent to results of key comparisons.
- Deletion of services that are no longer available [on 05 March 2013, US (RI, Dosimetry), -7 CMCs; and on 24 April 2013, DE (L), -2 CMCs].
- Addition of 2 CMCs from Russia, QM, Cat 4, due to a misunderstanding in the publication of the set COOMET.QM.21.2013 (8 July 2013).
- Change in the full names of Russian laboratories (31 May 2013).

1.3. CMCs: temporary removal and re-instatement

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](#) (PDF file).

Since 01 March 2013, the following actions have been taken:

- 15 May 2013; re-instatement of 1 CMC in EM from Italy.
- 04 April 2013; reduction of the number of CMCs greyed-out in QM (Cat 2) from Mexico, from 6 to 1, following publication of the set of CMCs SIM.QM.15.2013.
- 15 May 2013; greying-out of 16 CMCs in Chemistry from Chile (CMQ closure).
- 13 August 2013; publication of EURAMET.EM.9.2013: the number of greyed-out CMCs for Belgium in EM decreases from 58 to 30 (use of tables of uncertainties).
- 13 August 2013; publication of EURAMET.EM.10.2013: greying-out of 3 CMCs in EM from France.

As at 01 September 2013, 280 CMCs were temporarily removed from the KCDB (see table below) against 295 as at 01 March 2013.

As at 01 September 2013, there remained only 1 CMC greyed-out from the KCDB more than five years ago (Mexico, in RI, Neutron measurements).

This information is kept in the spreadsheet “Dates of CMCs greying-out” of the EXCEL file “CMCsNumber_2012, available from the [access-restricted JCRB CMC website](#) (link “[KCDB statistics](#)”).

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

	M	PR	EM	T	RI	L	QM	TF	Total
APMP									
NZ			5						5
KR							5		5

Total APMP: 10

AFRIMETS

ZA		5							5
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Total AFRIMETS: 5

EURAMET

BG						1			1
BE			30					6	36
FI	6								6
FR	6		3						9

Total EURAMET: 52

SIM

MX		3	63		46		1		113
AR					66	1			67
CL							16		16
CA		6				11			17

Total SIM: 213

Total: 280 greyed-out CMCs

*Number of CMCs temporary removed ("greyed-out") from the KCDB,
by country and by metrology area, as at 01 September 2013*

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

"Future KCDB reports to the JCRB are to include the information on CMC statistics (per RMO) thus avoiding the inclusion of this information in the RMO reports to the JCRB".

Status as at 01 September 2013

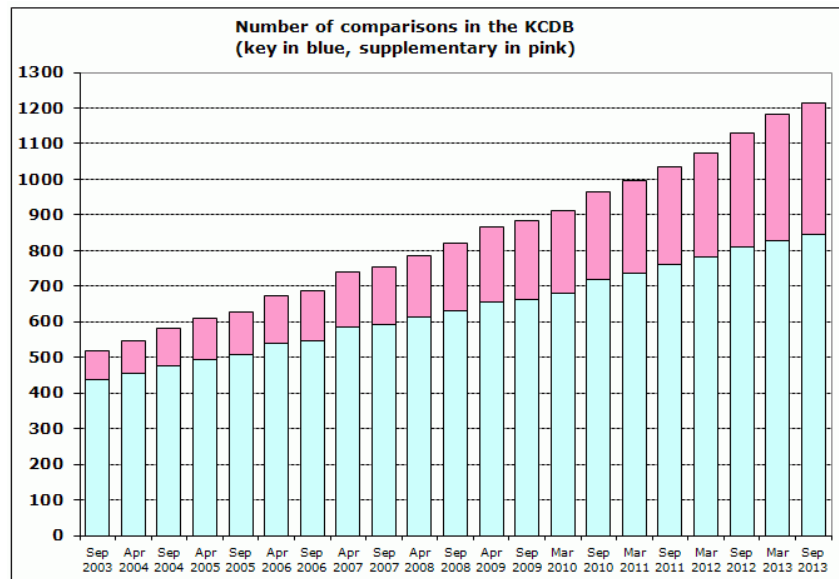
APMP: 6 099 CMCs
COOMET: 2 033 CMCs
EURAMET: 10 643 CMCs
AFRIMETS: 410 CMCs
SIM: 4 853 CMCs
IAEA: 13 CMCs
IRMM: 227 CMCs
WMO: 0 CMCs

2. Key and supplementary comparisons database

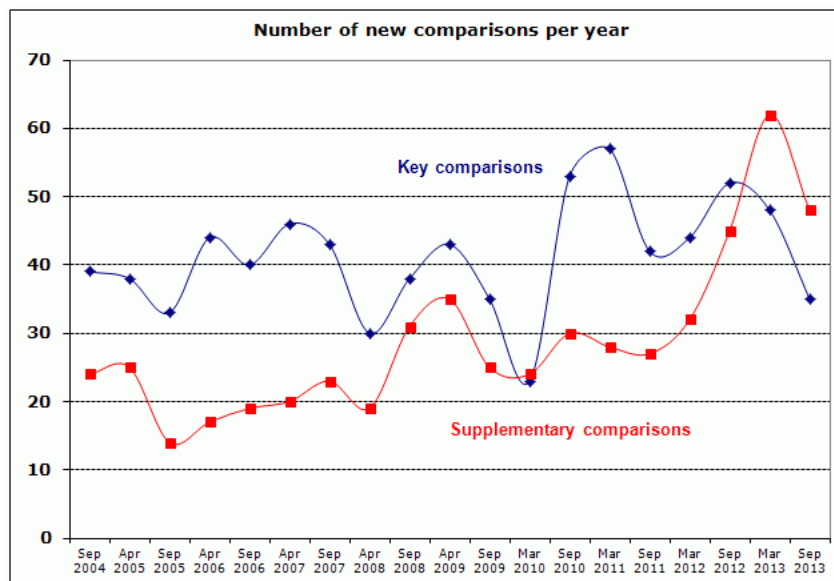
2.1. Content of the database

As at 01 September 2013, the database covered 846 key comparisons (86 from the BIPM, 412 from the CCs, 3 from AFRIMETS, 122 from APMP, 36 from COOMET, 137 from EURAMET, and 50 from SIM), and 368 supplementary comparisons.

Graphs showing the evolution since September 2003 of the total number of key comparisons and of supplementary comparisons registered in the KCDB, and the number of new key and supplementary comparisons registered in the KCDB over the one-year period ending at the date indicated on the x-axis are given below.



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



Number of new comparisons registered in the KCDB over the one-year period ending at the date indicated on the x-axis

The average rate of registration of new key comparisons is roughly constant in time, but we observe a significant increase in the number of new supplementary comparisons registered each year in the KCDB. This may be due to the need of organizing regional exercises involving the NMLs of new Associates of the CGPM.

Updated graphs (PDF files) illustrating the participation in [key](#) and [supplementary](#) comparisons were made available from the [Statistics page of the KCDB](#) on 21 May 2013.

2.2. Key and supplementary comparisons: registration, suppression and modification

Since 01 March 2013, the following actions were taken:

- 01 March 2013; registration of [COOMET.M.FF-S5](#).
- 04 March 2013; registration of [APMP.PR-K3.a](#).
- 05 March 2013; deletion of COOMET.L-S5, COOMET.L-S2, and COOMET.L-K4.b.
- 14 March 2013; registration of [APMP.T-K6.2013](#).
- 27 March 2013; registration of [EURAMET.L-S23](#).
- 28 March 2013; registration of [EURAMET.QM-S7](#).
- 15 April 2013; registration of [COOMET.M.FF-S6](#).
- 17 April 2013; registration of [EUROMET.T-K8](#).
- 02 May 2013; registration of [APMP.RI\(I\)-K5](#).
- 07 May 2013; registration of [APMP.T-K3.7](#).
- 08 May 2013; deletion of EURAMET.T-S1.
- 15 May 2013; registration of [EURAMET.QM-S8](#), and [SIM.EM-S8](#).
- 17 May 2013; registration of [APMP.EM.BIPM-K11.5](#), and [APMP.EM.RF-S5.CL](#).
- 27 May 2013; SIM.EM-S11 renamed as [SIM.EM-S4.1](#).
- 01 June 2013; registration of [EURAMET.T-S3](#).
- 07 June 2013; deletion of COOMET.RI(II)-S2.Sr/Y-90.
- 18 June 2013; registration of [APMP.RI\(II\)-S3.Cs-134.Cs-137](#), [EURAMET.RI\(II\)-K2.Ho-166m](#), [EURAMET.RI\(II\)-S6.I-129](#), and [COOMET.RI\(I\)-S2](#).
- 21 June 2013; registration of [APMP.L-S6](#).
- 01 July 2013; registration of [APMP.T-S11](#), and APMP.T-K5.2013 (which was then deleted on 23 July 2013).
- 02 July 2013; registration of [EURAMET.RI\(I\)-K1.1](#) and [EURAMET.RI\(I\)-K4.1](#).
- 04 July 2013; registration of [COOMET.QM-S3](#).
- 16 July 2013; registration of [SIM.QM-K92](#), [CCQM-K96.1](#), [CCQM-K111](#), [CCQM-K112](#), [CCQM-K113](#), [CCQM-K114](#), [CCQM-K115](#), and [APMP.QM-S6](#).
- 18 July 2013; registration of [APMP.QM-S7](#).
- 23 July 2013; registration of [APMP.T-S12](#), and [COOMET.PR-S7](#).
- 29 July 2013; deletion of COOMET.L-S4.
- 09 August 2013; registration of [SIM.EM-K3](#).
- 14 August 2013; registration of [EURAMET.AUV.A-K5](#).
- 19 August 2013; registration of [EURAMET.L-S24](#).

This resulted in an additional 17 key comparisons (18 new key comparison and one deleted) and 14 supplementary comparisons (19 new supplementary comparisons and 5 deleted) registered in the KCDB over the six-month period covered by this report.

2.3. Published results of key and supplementary comparisons

As at 01 September 2013, among the 846 key comparisons that were registered:

- 88 corresponded to exercises prior to the implementation of the CIPM MRA, and will never have results published in the KCDB; they have been “Approved for provisional equivalence”;
- 76 of the 88 on-going BIPM key comparisons had results published in the KCDB; these are regularly extended as new data become available (19 new results were published since 01 March 2013); and

- another 422 CC and RMO key comparisons had their final reports approved and posted in the KCDB website, and corresponding tables of numbers and graphs entered in the database.

All together, the KCDB currently displays a total of about 2 010 graphs of equivalence, including more than 60 new graphs of equivalence published over the last six months.

The results of 180 RMO key comparisons (compared with 172 at the time of the 30th JCRB meeting) - 63 conducted by APMP, 24 by COOMET, 77 by EURAMET, and 16 by SIM - are published in the KCDB: see "[Comparisons News](#)" for the list of the most recent publications.

Linkage has also been carried out for 57 bilateral key comparisons subsequent to full-scale CC key comparisons; their results are included in the appropriate graphs of equivalence.

The final reports of 199 of the 368 supplementary comparisons registered in the KCDB were also posted in the KCDB as at 01 September 2013.

All together 64.5 % of the comparisons registered in the KCDB are ended and have their final reports posted in the KCDB, and also generally published in the [Metrologia Technical Supplement](#). This percentage has now been stable since several years.

3. Visits to the KCDB website

As reported previously, the log-on statistics recorded for the period January – December 2011 indicated that the average number of monthly visits stood at the level of 7 800, and the average number of KCDB web pages opened each month, at the level of 110 000. These numbers have climbed up to 9 200 and 124 000¹ over 2012, and further to 10 300 for the average number of monthly visits over the first seven months of 2013, with a slight decrease to 100 000 for the number of KCDB web pages.

As already observed, all pages are equally visited, including the News page and the Statistics page, and PDF files of comparison reports and of CMC lists are regularly downloaded. Visitors come from all over the world, and reach the KCDB website from links proposed in other websites (especially NMI websites), through Internet search engines, but mainly via personal bookmarking, direct URL address typing or using links given in e-mails.

4. The KCDB system and publicity

The KCDB web system was not modified over the last six-month period, but some renovation became urgent for the KCDB Back-Office. This concerned the realization of the html pages of results of key comparisons through a facility built up in 2003 and which became obsolete with new versions of web browsers. The renovation is now under way with the outside company which maintains the programming of the whole KCDB web system. This has absolutely no incidence for the outside user of the KCDB web site.

The [tutorial presentation on the KCDB](#) posted in the page "[Reports on the KCDB](#)" of the BIPM web site was last updated on 04 April 2013.

The series of the *KCDB Newsletters* ceased with [Issue 16](#) dated 15 December 2011. News on the KCDB and the JCRB are now published in the series of the [BIPM-eNews](#). This e-letter from the BIPM is issued twice a year, in June and December.

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

The following table summarizes the participation of NMIs of Associates of the CGPM in CIPM MRA activities as at 01 September 2013.

¹ These numbers do not include the movements generated by robots.

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	Number of key comparisons	Number of supplementary comparisons
Albania	10 September 2007	10 October 2007	7	0	05 April 2013	4	1
Bangladesh	29 March 2010	25 March 2011	0	0	-	0	2
Belarus	05 May 2003	14 October 2003	158	0	07 April 2004	29	26
Bolivia	04 April 2008	16 May 2008	0	0	-	4	12
Bosnia and Herzegovina	24 May 2011	15 June 2011	7	0	08 June 2012	5	1
Botswana	30 May 2012	26 July 2012	0	0	-	1	3
CARICOM	10 October 2005	12 October 2005	0	0	-	0	9
Chinese Taipei	26 April 2002	04 June 2002	433	0	21 October 2003	78	36
Costa Rica	29 January 2004	06 October 2004	86	0	26 November 2008	16	16
Cuba	19 December 2000	18 June 2001	88	0	02 May 2005	6	14
Ecuador	20 November 2000	15 April 2001	20	0	16 September 2011	4	14
Estonia	27 January 2005	23 March 2005	0	0	-	6	9
Georgia	01 January 2008	17 June 2008	0	0	-	3	2
Ghana	17 September 2009	24 February 2010	0	0	-	1	4
Hong Kong (China)	08 April 2000	31 May 2000	350	0	13 December 2000	59	16
Jamaica	15 September 2003	21 July 2004	22	0	24 August 2006	8	6
Latvia	11 January 2001	13 March 2001	59	0	23 March 2005	12	6
Lithuania	12 March 2001	12 April 2001	78	0	11 December 2003	16	12
Macedonia, the FYR of	10 October 2006	14 November 2007	13	0	02 July 2013	4	3
Malta	11 April 2001	20 June 2001	0	0	-	2	2
Mauritius	05 October 2010	09 March 2011	0	0	-	3	3
Moldova, Rep. of	01 January 2007	14 November 2007	0	0	-	2	4
Montenegro	01 August 2011	19 October 2011	0	0	-	3	1
Namibia	10 August 2012	16 October 2012	0	0	-	1	2
Panama	03 August 2003	16 September 2003	34	0	11 September 2006	9	12
Paraguay	06 May 2009	27 October 2009	23	0	31 January 2011	2	12
Peru	28 May 2009	17 November 2009	110	0	03 August 2010	11	24
Philippines	01 June 2002	19 December 2002	0	0	-	11	5
Seychelles	10 September 2010	12 November 2010	0	0	-	1	1
Slovenia	02 June 2003	23 June 2003	199	0	11 May 2004	34	18
Sri Lanka	03 August 2007	14 November 2007	0	0	-	4	2
Syrian Arab Republic	31 May 2012	17 September 2012	0	0	-	9	4
Ukraine	19 August 2002	14 October 2003	181	0	10 January 2005	34	41
Viet Nam	10 October 2003	16 September 2004	31	0	21 July 2010	27	7
Zambia	10 December 2010	3 February 2011	0	0	-	1	4
Zimbabwe	14 September 2010	14 January 2011	0	0	-	1	5

CIPM MRA activity of the NMIs of Associates of the CGPM: important dates, number of published CMCs and participation in key and supplementary comparisons

These numbers take into account all comparisons registered in the KCDB, whatever their statuses are, for which at least one laboratory of the Associate is listed in the participants list.

Note:

As the numbers on participation in key and supplementary comparisons change only slowly with time, the corresponding KCDB statistics are updated every six months. The numbers given here show the situation as at 21 May 2013. However, as the numbers of CMCs published in the KCDB can vary quickly, they are updated in real-time in all KCDB Statistics files. The numbers of CMCs given here show the situation as at 13 August 2013.

There currently exist [38 Associates of the CGPM](#), but only 36 of them participate in the CIPM MRA (Oman and Mongolia have not yet signed).

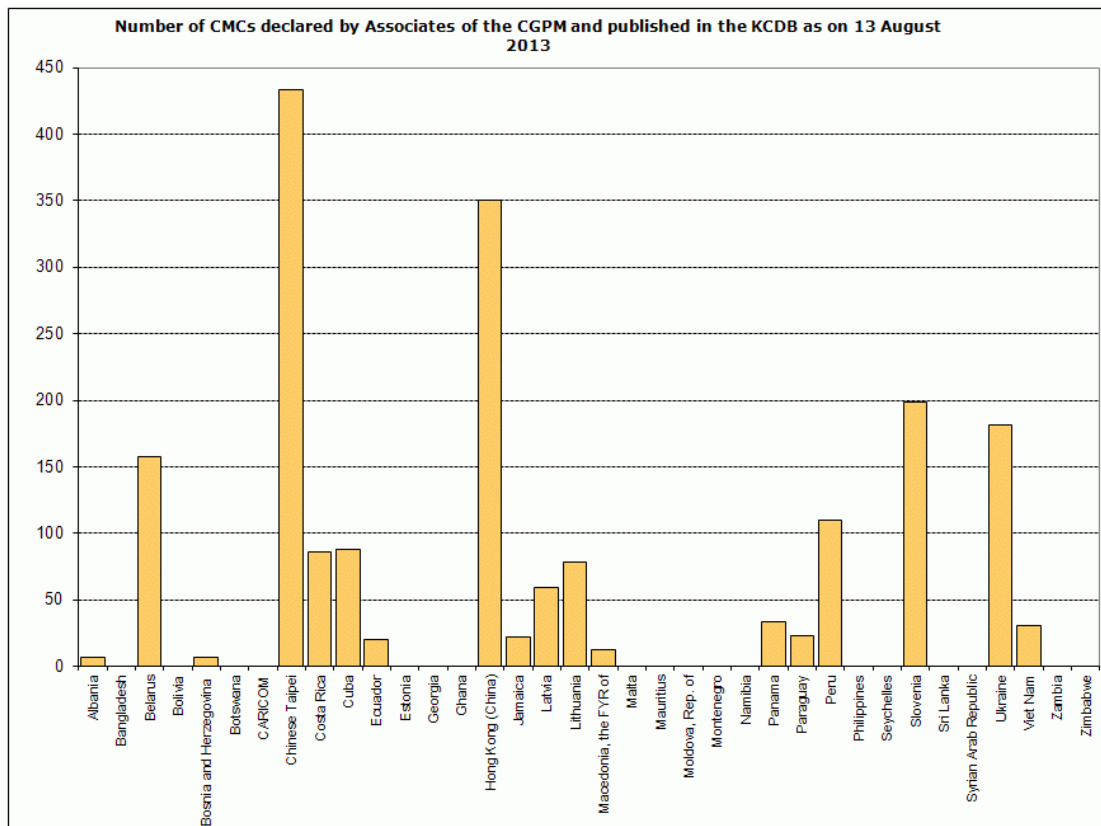
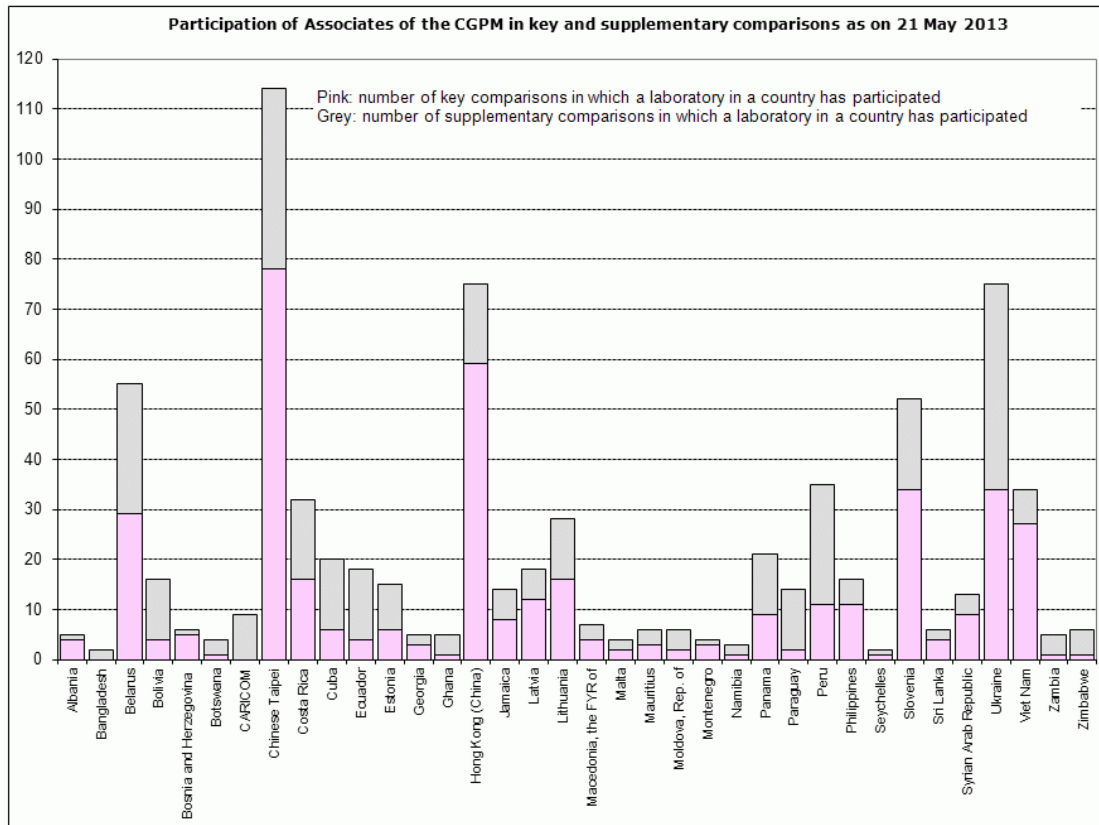
One observes that all of these 36 Associates have at least one of their metrology institutes listed as participant in a key or a supplementary comparison, whereas only 18 of the 36 currently have CMCs published in the KCDB, as shown on the graphs below.

Since last meeting of the JCRB, two Associates have had their first CMCs approved and published: Albania (7 CMCs in Mass Standards, published on 05 April 2013), and the FYR of Macedonia (6 CMCs in Fluid Flow, published on 02 July 2013, and 7 CMCs in Mass Standards, published on 10 July 2013).

Lithuania and Slovenia have "lost" 17 CMCs and 110 CMCs, respectively, on 13 August 2013 when the reformatted EURAMET CMCs in EM were published (See Section 1.1 of the Report).

It is remarkable that no Associates have CMCs that are currently greyed-out.

Globally, the situation has only slowly evolved over the last six months ago, which reveals how long and difficult the effort is to complete the whole CIPM MRA scheme.



6. The KCDB and the BIPM QMS

A total number of 11 QMS Procedures cover all the KCDB work: registration of comparisons, publication of comparison results and of CMCs, creation of news, etc. These are always kept up-to-date according to the requirements of the BIPM Quality Manual, and were submitted to an internal audit 23 July 2013. No non-conformities were found and the audit Report contains two positive observations.

Most of the KCDB QMS procedures are kept confidential.

The BIPM key comparison database, August 2013

Publication of the EURAMET CMCs in EM following reformatting using as much as possible tables of uncertainties (August 2013)

Country	ISO Code	Greyed-out before the publication of August 2013	Greyed-out after the publication of August 2013	Number of CMCs before the publication of August 2013	Decrease in the number of CMCs in August 2013	Number of CMCs after the publication of August 2013	Number of tables of uncertainties ("Matrices") after the publication of August 2013
Austria	AT	None	None	49	13	36	10
Belgium	BE	58	30	0	0	0	0
Bulgaria	BG	None	None	76	18	58	33
Croatia	HR	None	None	31	10	21	12
Czech Republic	CZ	None	None	178	103	75	47
Denmark	DK	None	None	62	7	55	8
Finland	FI	None	None	192	108	84	38
France	FR	None	3	301	186	115	51
Germany	DE	None	None	273	113	160	54
Greece	GR	None	None	91	53	38	12
Hungary	HU	None	None	85	0	85	a few
Italy	IT	None	None	127	19	108	31
Ireland	IE	None	None	170	0	170	a few
Latvia	LV	None	None	46	0	46	a few
Lithuania	LT	None	None	33	17	16	6
Netherlands	NL	None	None	238	69	169	20
Norway	NO	None	None	74	46	28	16
Poland	PL	None	None	212	164	48	29
Portugal	PT	None	None	27	15	12	6
Romania	RO	None	None	98	62	36	20
Serbia	RS	None	None	99	61	38	21
Slovakia	SK	None	None	83	42	41	13
Slovenia	SI	None	None	197	110	87	30
Spain	ES	None	None	100	38	62	23
Sweden	SE	None	None	224	82	142	26
Switzerland	CH	None	None	144	62	82	37
Turkey	TR	None	None	188	72	116	49
United Kingdom	GB	None	None	338	144	194	58

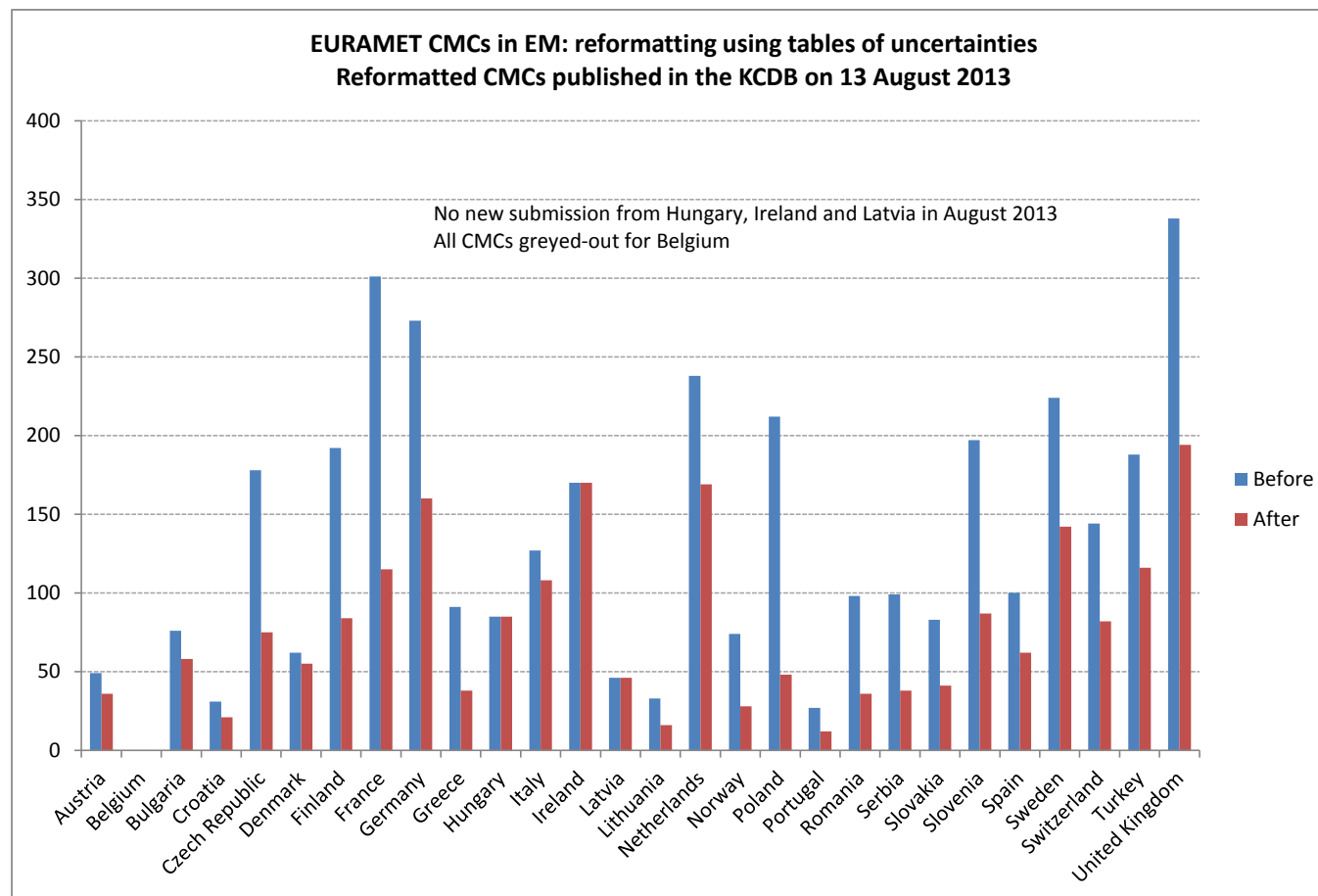
Belgium: all greyed-out

in green: no submission in August 2013

Total	3435	1614	1821	650
	Number of CMCs published before (HU, IE, LV excluded)	Decrease with the publication of August 2013	Number of CMCs published after (HU, IE, LV excluded)	Total number of matrices of uncertainties

With an average of 40 values of uncertainties in one matrix, we get ~ 26 000 values of uncertainties within ~ 1800 claims

The BIPM key comparison database, August 2013



EURAMET has 28 countries with CMCs in EM in the KCDB.

All CMCs from Belgium are greyed-out.

Over the remaining 27 countries (a total of 3736 CMCs before August 2013), 3 countries (Hungary, Ireland and Latvia, respectively 170, 85 and 46 CMCs) did not submit revised files in August 2013.

So the files of 24 countries (3435 CMCs before August 2013) were effectively treated in August 2013: their old CMCs were deleted from the KCDB on 13 August 2013 and replaced by the new ones (a total of 1821 CMCs) including many more tables of uncertainties (a total of 650), which roughly contain ~ 26 000 uncertainty numbers.

The total number of CMCs recorded in the KCDB decreases by 1614 (3435 - 1821) on 13 August 2013.

Conclusions: gain in clarity for the KCDB users, gain in efficacy for the NMIs, the RMOs and the KCDB Office as files are easier to handle and review, and more detailed information on the uncertainties that are claimed