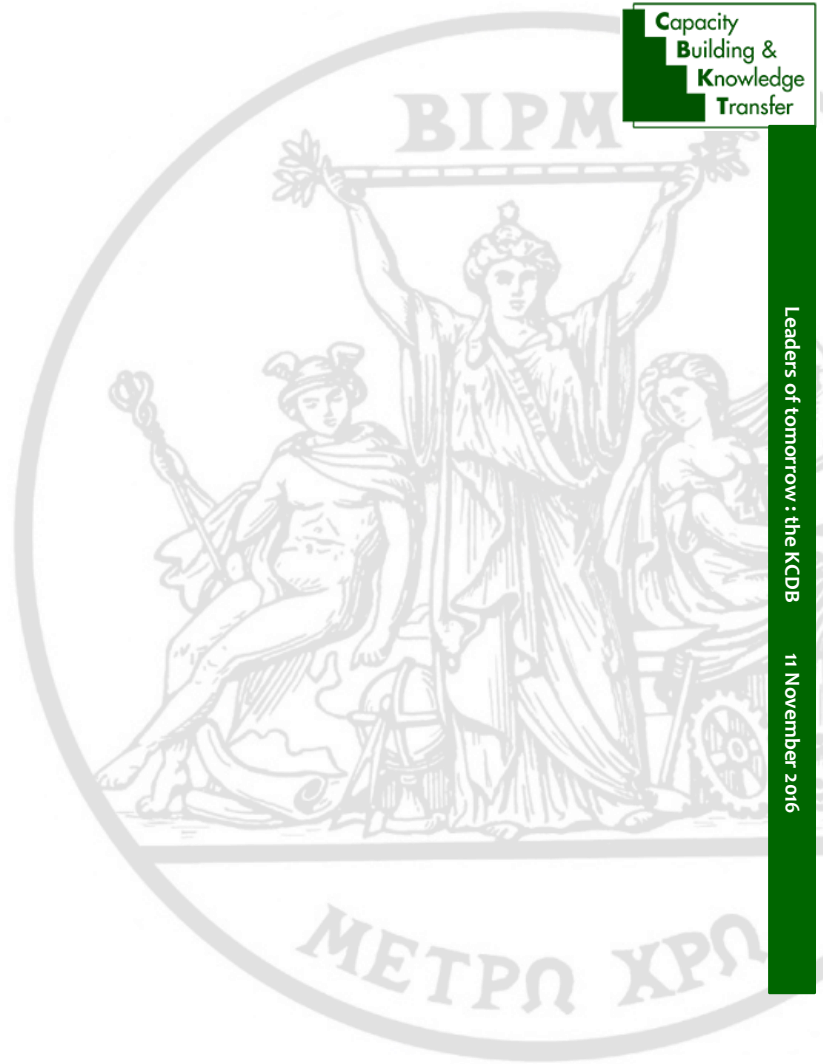


the Key Comparison DataBase

Susanne Picard
Stéphanie Maniguet
Nikita Zviagin

KCDB Office
JCRB Office

Bureau
♦ **I**nternational des
♦ **P**oids et
♦ **M**esures



What is the
Key Comparison DataBase ?



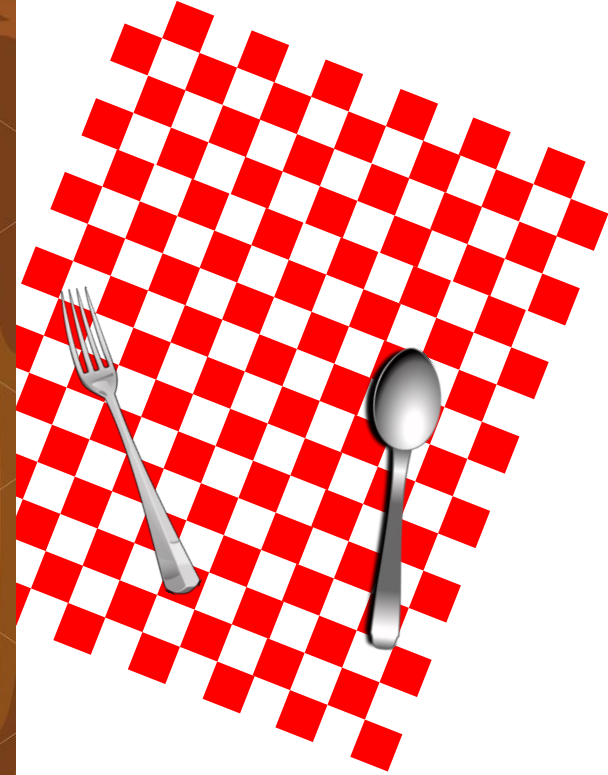
TODAY'S SPECIALS:

1. *Introduction*
2. *KCDB and comparisons*
3. *KCDB and CMCs*
4. *Statistics on the KCDB*
5. *Recall ...*
6. *Towards the future*



TODAY'S SPECIALS:

1. *Introduction*
2. *KCDB and comparisons*
3. *KCDB and CMCs*
4. *Statistics on the KCDB*
5. *Recall ...*
6. *Towards the future*



1. Introduction

the CIPM MRA

Objectives

- to establish the degree of equivalence of national measurement standards maintained by NMIs;
- to provide for the mutual recognition of calibration and measurement certificates issued by NMIs;
- thereby to provide governments and other parties with a secure technical foundation for wider agreements related to international trade, commerce and regulatory affairs.

Process

- international comparisons of measurements, to be known as key comparisons;
- supplementary international comparisons of measurements;
- quality systems and demonstrations of competence by NMIs.

Outcome

- statements of the measurement capabilities of each NMI in a database maintained by the BIPM and publicly available on the Web.

Engagement

NMI directors sign the MRA with the approval of the appropriate authorities in their own country and thereby:

- accept the process specified in the MRA for establishing the database;
- recognize the results of key and supplementary comparisons as stated in the database;
- recognize the calibration and measurement capabilities of other participating NMIs as stated in the database.

i.e. data freely available from the KCDB guarantee that
1) a process according to the CIPM MRA has been followed
2) that the results have been reviewed and approved for mutual recognition

1. Introduction towards the KCDB

Mutual recognition of national measurement standards... • 33

2 Scope of the arrangement

- 2.1 Participating national metrology institutes, listed in Appendix A, recognize the degree of equivalence of national measurement standards, derived from the results of key comparisons, for the quantities and values specified in Appendix B. This constitutes part one of the arrangement.
- 2.2 Participating institutes recognize the validity of calibration and measurement certificates issued by other participating institutes for the quantities and ranges specified in Appendix C. This constitutes part two of the arrangement.

calibration and measurement certificates (see paragraph 9.3).

4 Responsibilities of the Consultative Committees of the CIPM

The Consultative Committees have the responsibility for choosing the key comparisons listed in Appendix D and affirming the validity of the results. The particular responsibilities of the Consultative Committees are detailed in the Technical Supplement.

5 Responsibilities of the regional metrology organizations

The national metrology institutes that are signatories to this arrangement undertake to put in place appropriate structures within their RMOs so that the RMOs may:

Appendix A List of national metrology institutes that are signatories to the arrangement, together with their logos.

Appendix B **B 1:** Results of CIPM key comparisons.
B 2: Results of RMO key comparisons.
B 3: Results of supplementary comparisons.

For each key comparison the following are included:

- individual values for each institute together with their declared uncertainties;
- the key comparison reference value with its associated uncertainty;
- for each institute, the deviation from the key comparison reference value and the uncertainty in that deviation (at a 95 % level of confidence), i.e. its degree of equivalence;
- the degrees of equivalence between the standards of each of the participating institutes.

Appendix C Quantities for which calibration and measurement certificates are recognized by institutes participating in part two of the agreement. The quantities, ranges and calibration and measurement capabilities expressed as an uncertainty (normally at a 95 % level of confidence) are listed for each participating institute.

Appendix D List of key comparisons.

Appendix E Terms of reference of the Joint Committee of the Regional Metrology Organizations and the BIPM (JCRB).

Appendix A List of national metrology institutes that are signatories to the arrangement, together with their logos.

Appendix B

B 1: Results of CIPM key comparisons.
B 2: Results of RMO key comparisons.
B 3: Results of supplementary comparisons.

For each key comparison the following are included:

- individual values for each institute together with their declared uncertainties;
- the key comparison reference value with its associated uncertainty;
- for each institute, the deviation from the key comparison reference value and the uncertainty in that deviation (at a 95 % level of confidence), i.e. its degree of equivalence;
- the degrees of equivalence between the standards of each of the participating institutes.

Appendix C Quantities for which calibration and measurement certificates are recognized by institutes participating in part two of the agreement. The quantities, ranges and calibration and measurement capabilities expressed as an uncertainty (normally at a 95 % level of confidence) are listed for each participating institute.

Appendix D List of key comparisons.

Appendix E Terms of reference of the Joint Committee of the Regional Metrology Organizations and the BIPM (JCRB).

KCDB

1. Introduction

towards the KCDB

First record of comparisons was made by the DFM in the 90s

→ NIST (Dr Robert L. Watters)

NIST design & BIPM from 1999 until 2000

Dr Claudine Thomas KCDB Coordinator until 2015



BIPM KCDB web page launched on 30 November 1999 with 350 KCs and SCs

... in year 2000, 10 000 CMCs had been added...



The KCDB Office...

- Prepares comparison data and entry it into the KCDB implying discussion and contacts with all actors
- Prepares CMC data and entry it into the KCDB implying discussion and contacts with all actors
- Assures continuity of the services
- Gives support at the CC and WG meetings
- Reports and gives statistical information
- Implements decisions made by the CIPM and JCRB
- Gives advice to TC-Chairs and other KCDB users ...

1. Introduction

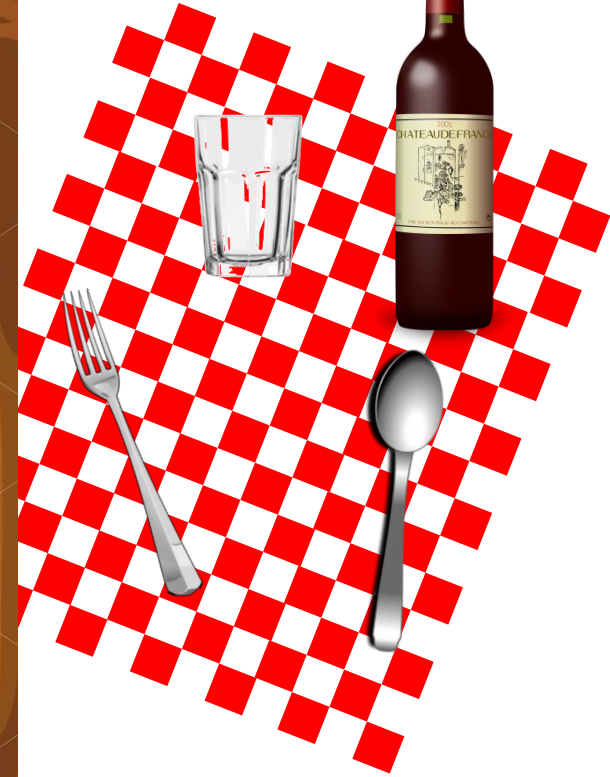
Before going any further,
let's have a look at
the Appendix A of the CIPM MRA !

2. KCDB and Comparisons

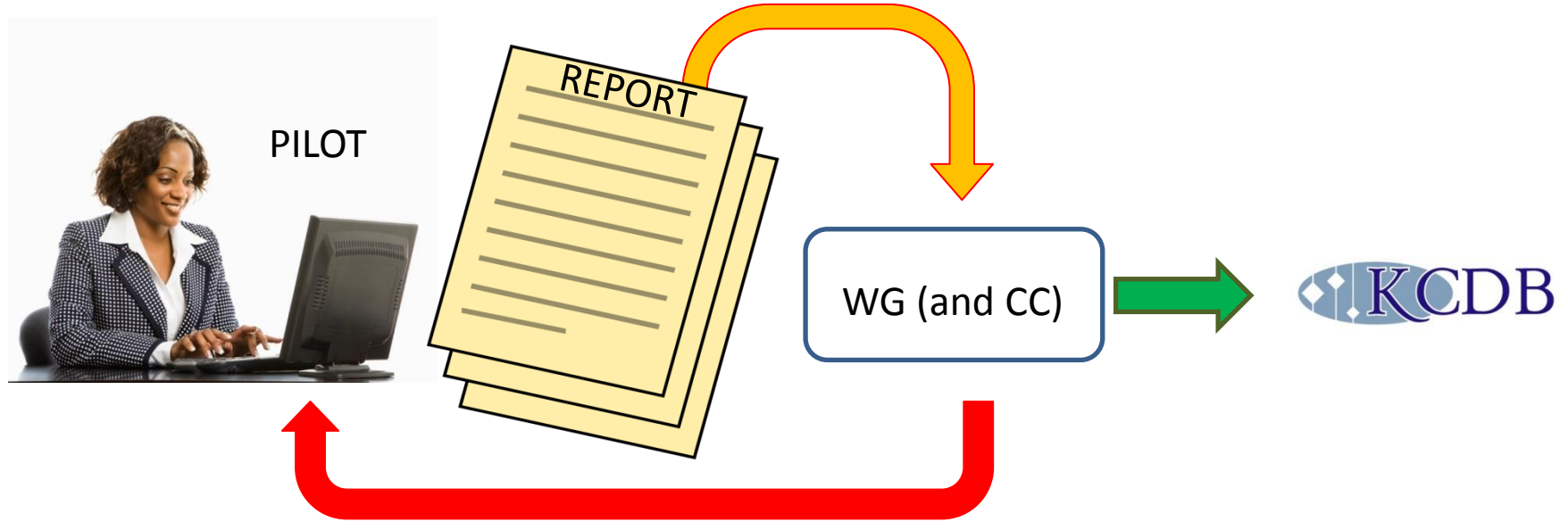


TODAY'S SPECIALS:

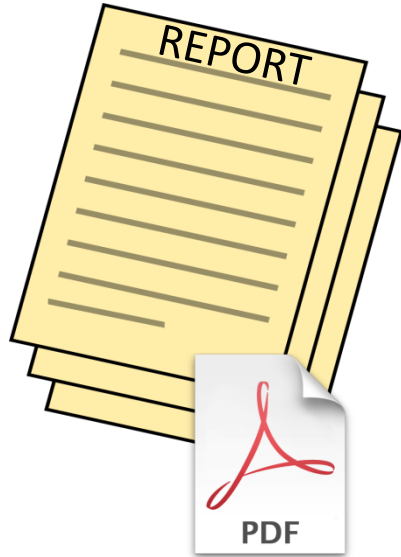
1. Introduction
2. KCDB and comparisons
3. KCDB and CMCs
4. Statistics on the KCDB
5. Getting the most...
6. Towards the future



2. KCDB and Comparisons



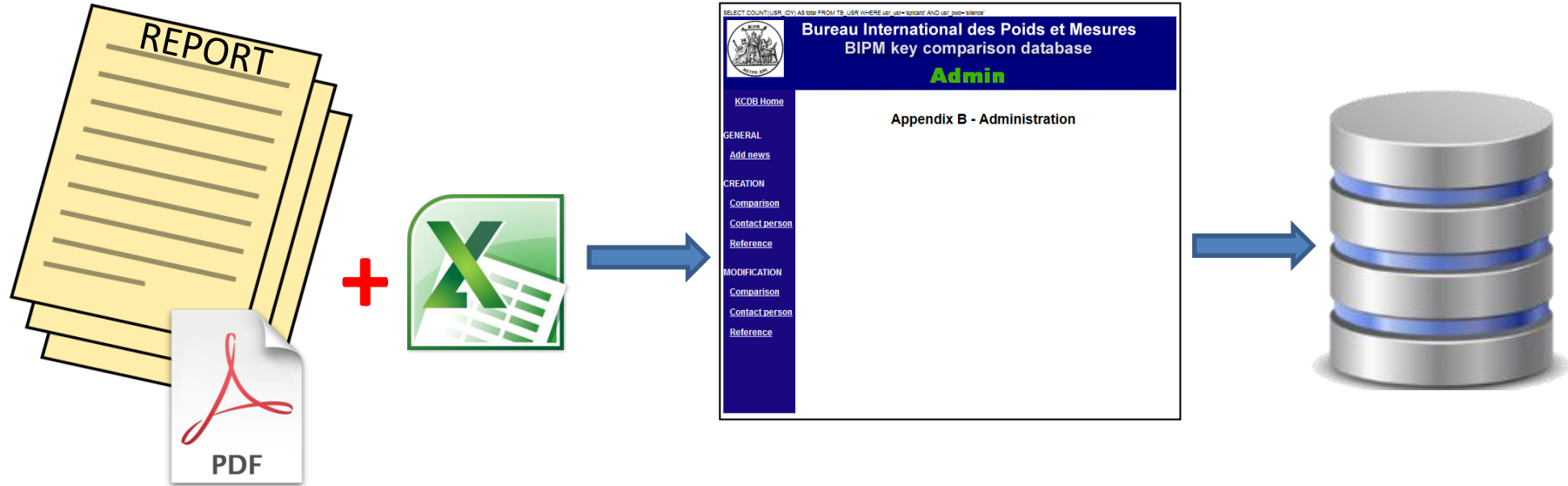
www.bipm.org

[illegible]

www.bipm.org



2. KCDB and Comparisons



2. KCDB and Comparisons

guidelines

CCAUV

**Guidance for carrying out
key comparisons within the CCAUV**

Key Comparison Working Group
for the
Consultative Committee for Acoustics, Ultrasound and Vibration

http://kcdb.bipm.org/appendix C/AUV/AUV_services.pdf

<http://www.bipm.org/utis/common/pdf/CC/CCAUV/CCAUV-KCWG-Rules-of-Procedure.pdf>

**Rules of Procedure
for the
Key Comparison Working Group
of the
Consultative Committee for Acoustics, Ultrasound and Vibration**

http://www.bipm.org/utis/common/pdf/CC/CCEM/ccem_guidelines.pdf

CCEM

CCEM Guidelines

Main Document

CCEM Guidelines for Planning, Organizing, Conducting and Reporting Key, Supplementary and Pilot Comparisons

1. Introduction

The technical basis of the CIPM MRA is the set of results obtained in the course of time through Key Comparisons (KCs) carried out by the Consultative Committees of the CIPM, the BIPM and the Regional Metrology Organizations (RMOs), and Supplementary Comparisons (SCs) carried out by the RMOs. Results are published by the BIPM and reported in the BIPM key comparison database (KCDB). In addition, Pilot Comparisons (PCs) may be organized. These are meant to be a preparatory exercise to gain experience with new subject fields or measurands, to check the travelling behaviour of transfer standards or to test the feasibility of a key or supplementary comparison. They will not be recorded in Appendix B of the KCDB.

2. KCDB and Comparisons

guidelines

<http://www.bipm.org/wg/AllowedDocuments.jsp?wg=CCL-WG>

CCL

CCL/WG-MRA/GD-1

Consultative Committee for Length – CCL

WORKING GROUP ON MRA - WG-MRA

A Lewis, 23 July 2015

Guidance Document GD-1

Version 6.9

**Running of MRA comparisons in length metrology
and monitoring their impact on CMCs**

Consultative Committee for Length – CCL

WORKING GROUP ON MRA - WG-MRA

A Lewis, 29 May 2015

Guidance Document GD-3

**Guide to preparation of Key Comparison Reports in
Dimensional Metrology**

Templates for technical Protocol,
Comparison Report, Executive Report...

2. KCDB and Comparisons

guidelines

http://www.bipm.org/utils/en/pdf/CCM_Guidelines_on_Final_Reports.pdf

CCM



Consultative Committee for Mass and related quantities

CCM-WGS 30 June 2016

CCM Guidelines for approval and publication of the final reports of key and supplementary comparisons

With Appendix on Pilot Studies

CCM

Appendix 2. Impact on CMC claims

The participating laboratories should send a declaration to the pilot laboratory that they checked their results against their CMC claims. This declaration includes a statement of whether or not these claims are supported by their results. If not, they describe the measures to be taken to remove this inconsistency. The declaration is to be included in a separate executive report, and is not part of the comparison report. The pilot laboratory is responsible for the collection of the information and for including a note with the Draft B report saying if there is any impact on the CMCs of any of the participants. The rules are given in [CIPM-MRA-D-05](#) in case there is an impact on the participants' CMCs.

Declaration of the impact of a CCM or RMO comparison on the CMC claims

1. Subfield:	RMO internal identifier
2. KCDB identifier:	
3. Pilot/Coordinating laboratory(ies) (<i>acronyms and countries</i>):	

http://www.bipm.org/utils/common/pdf/CC/CCRI/CCRI_VValidity_of_IR_Comparisons.pdf

CCRI

CCRI/12-05

Validity of Ionizing Radiation Comparisons under the CIPM MRA

P. J. Allisy-Roberts
CCRI Executive Secretary

Executive Summary

The CCRI has followed the spirit of the CIPM MRA recommendations with regard to a 10-year period for which metrology comparisons can be considered as valid support for the measurement capabilities of a laboratory, with some dispensation accorded by the CIPM. This presumes that there have been no significant changes in staff, equipment or measurement methods, each of which would need some form of validation even if the previous comparison falls within the period of validity. It should be noted that the date of the comparison is the date the measurements have been completed by the participating laboratory.

2. KCDB and Comparisons

pitfalls

Protocol not checked before starting the comparison

Unclear reporting, lack of structure, ...

Errors in tables and (no) units that slips through the review process

Correlations neglected

Lack of linking

No abstract – no conclusion

Let your co-workers be co-authors

2. KCDB and Comparisons

... and now over to Stéphanie ...

3. KCDB and CMCs



TODAY'S SPECIALS:

1. Introduction
2. KCDB and comparisons
3. KCDB and CMCs
4. Statistics on the KCDB
5. Recall ...
6. Towards the future



CLASSIFICATION OF SERVICES IN LENGTH

Version 9 dated 2013

[DimVIM: Multilingual CMC classification scheme](#)

METROLOGY AREA: LENGTH

BRANCH: LASER

1. Radiations of the mise en pratique

1.1 Laser radiations

- 1.1.1 Stabilized laser of the mise en pratique¹: *vacuum wavelength, optical frequency*
- 1.1.2 Other stabilized lasers: *vacuum wavelength, optical frequency*

1.2 Lamp radiations

- 1.2.1 Spectral lamp: *vacuum wavelength, optical frequency*

BRANCH: DIMENSIONAL METROLOGY

CLASSIFICATION OF SERVICES IN ELECTRICITY AND MAGNETISM

Version No 7.6 (dated 17 March 2011)

METROLOGY AREA: ELECTRICITY AND MAGNETISM

BRANCH: DC VOLTAGE, CURRENT, AND RESISTANCE

1. **DC voltage** (up to 1100 V, for higher voltages see 8.1)
 - 1.1 **DC voltage sources**
 - 1.1.1 Single values¹: *standard cell, solid state voltage standard*
 - 1.1.2 Low value ranges (below or equal to 10 V): *DC voltage source, multifunction calibrator*
 - 1.1.3 Intermediate values (above 10 V to 1100 V): *DC voltage source, multifunction calibrator*
 - 1.1.4 Noise voltages (for noise currents see 3.1.5, for RF noise see 11.4): *DC voltage source, DC amplifier*
 - 1.2 **DC voltage meters**
 - 1.2.1 Very low values (below or equal to 1 mV): *nanovoltmeter, microvoltmeter*
 - 1.2.2 Intermediate values (above 1 mV to 1100 V): *DC voltmeter, multimeter, multifunction transfer standard*
 - 1.3 **DC voltage ratios** (for input voltages up to 1100 V)
 - 1.3.1 Up to 1100 V: *resistive divider, ratio meter*
 - 1.3.2 Attenuation: *attenuators*

LIST OF AMOUNT OF SUBSTANCE CATEGORIES

April 2009

1. High purity chemicals

- 1.1 Inorganic compounds
- 1.2 Organic compounds
- 1.3 Metals
- 1.4 Isotopics
- 1.5 Other

2. Inorganic solutions

- 2.1 Elemental
- 2.2 Anionic
- 2.3 Other

3. Organic solutions

- 3.1 PAHs

10. Biological fluids and materials

- 10.1 Blood serum
- 10.2 Renal fluids
- 10.3 Hair
- 10.4 Tissues
- 10.5 Bone
- 10.6 Botanical materials
- 10.7 Other

11. Food

- 11.1 Nutritional constituents
- 11.2 Contaminants
- 11.3 GMOs
- 11.4 Other

3. KCDB and CMCs

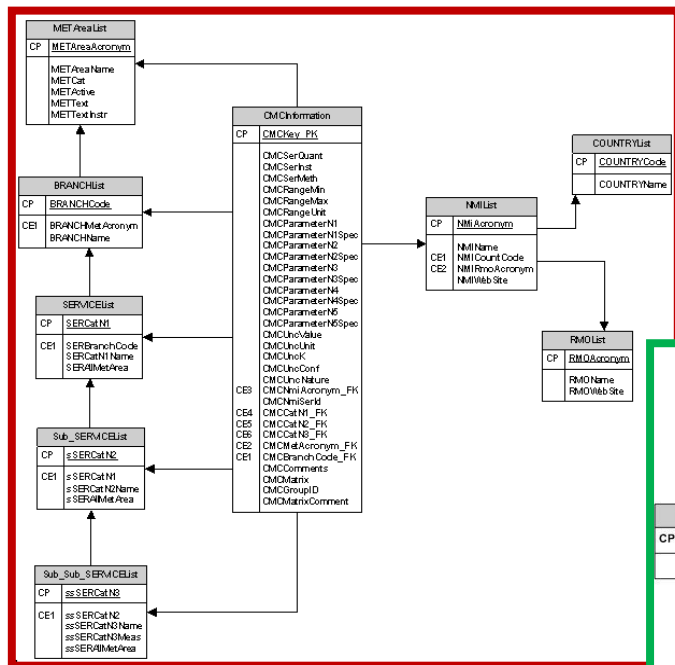
classification of services

Classification of services for RI CMCs

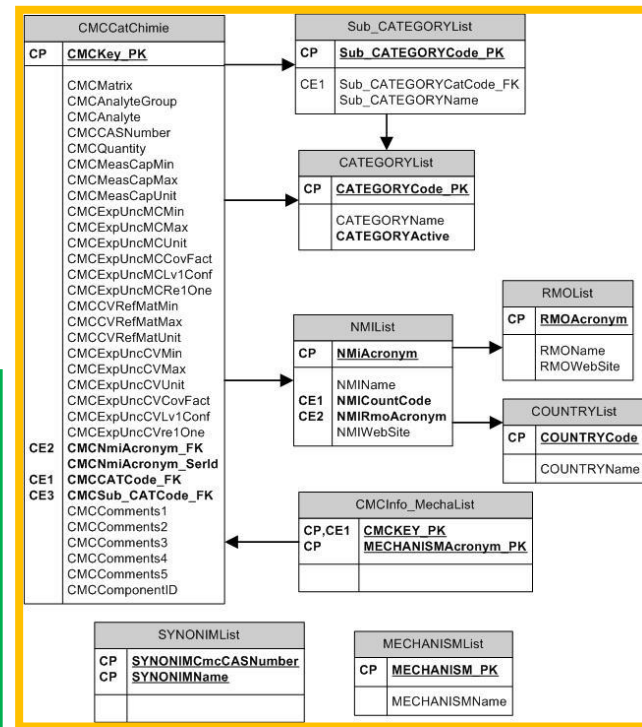
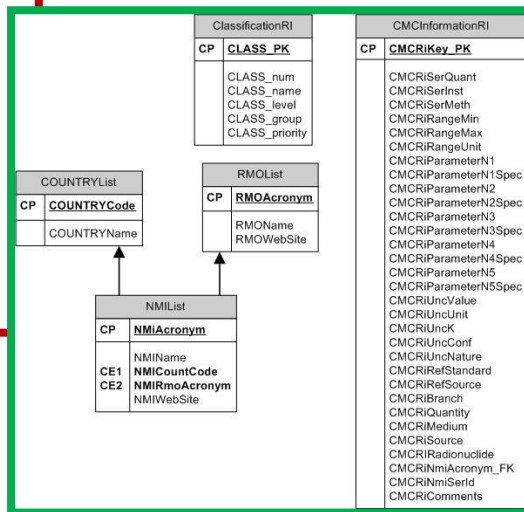
Branch	Quantity	Medium	Source	Radionuclide
1 Dosimetry	1 Absorbed dose/rate to air 2 Absorbed dose/rate to water 3 Absorbed dose/rate to graphite 4 Absorbed dose/rate to tissue 5 Absorbed dose/rate to other material 6 Air kerma/rate 7 Reference air kerma rate 8 Ambient dose equivalent/rate 9 Directional dose equivalent/rate 10 Personal dose equivalent/rate, penetrating 11 Personal dose equivalent/rate, superficial 12 Air kerma length product 13 Air kerma area product 14 X-ray tube voltage		1 Other 2 Electrons 3 Beta radiation 4 X-ray, 10 kV to 50 kV 5 X-ray, 50 kV to 420 kV 6 Photons, high energy 7 Co-60 8 Cs-137 9 Ir-192 10 Am-241 11 Co-57 12 I-125 13 Pd-103	
2 Radioactivity	1 Activity 2 Activity per unit mass 3 Activity per unit area 4 Activity per unit volume 5 Surface emission rate 6 Surface emission rate per unit area 7 Emission rate per unit solid angle 8 Emission rate 9 Efficiency of γ -ray spectrometers (versus energy) 10 Efficiency of ionization chambers 11 Efficiency of contamination monitors	1 Other 2 Gas 3 Liquid 4 Solid 5 Aerosol 6 Reference material: other 7 Reference material: foods 8 Reference material: water 9 Reference material: biological materials 10 Reference material: soils/sediments 11 Reference material: flora 12 Reference material: building materials	1 Single-radionuclide source 2 Multi-radionuclide source 3 Kx-rays	Xx-00
3 Neutron Measurements	1 Emission rate 2 Emission anisotropy 3 Fluence 4 Fluence rate 5 Ambient dose equivalent 6 Ambient dose equivalent rate 7 Personal dose equivalent 8 Personal dose equivalent rate 9 Absorbed dose to water 10 Absorbed dose rate to water 11 Absorbed dose to graphite 12 Absorbed dose rate to graphite 13 Absorbed dose to tissue 14 Absorbed dose rate to tissue 15 Absorbed dose to other material 16 Absorbed dose rate to other material		1 Other 2 Monoenergetic neutrons 3 Thermal neutron distribution 4 Wide energy range neutrons 5 Cf-252 source 6 Cf-252 source, D ₂ O moderated 7 Am-241/Be-9 source 8 Am-241/B source 9 Am-241/Li-7 source 10 Am-241/F-19 source	

3. KCDB and CMCs

classification of services

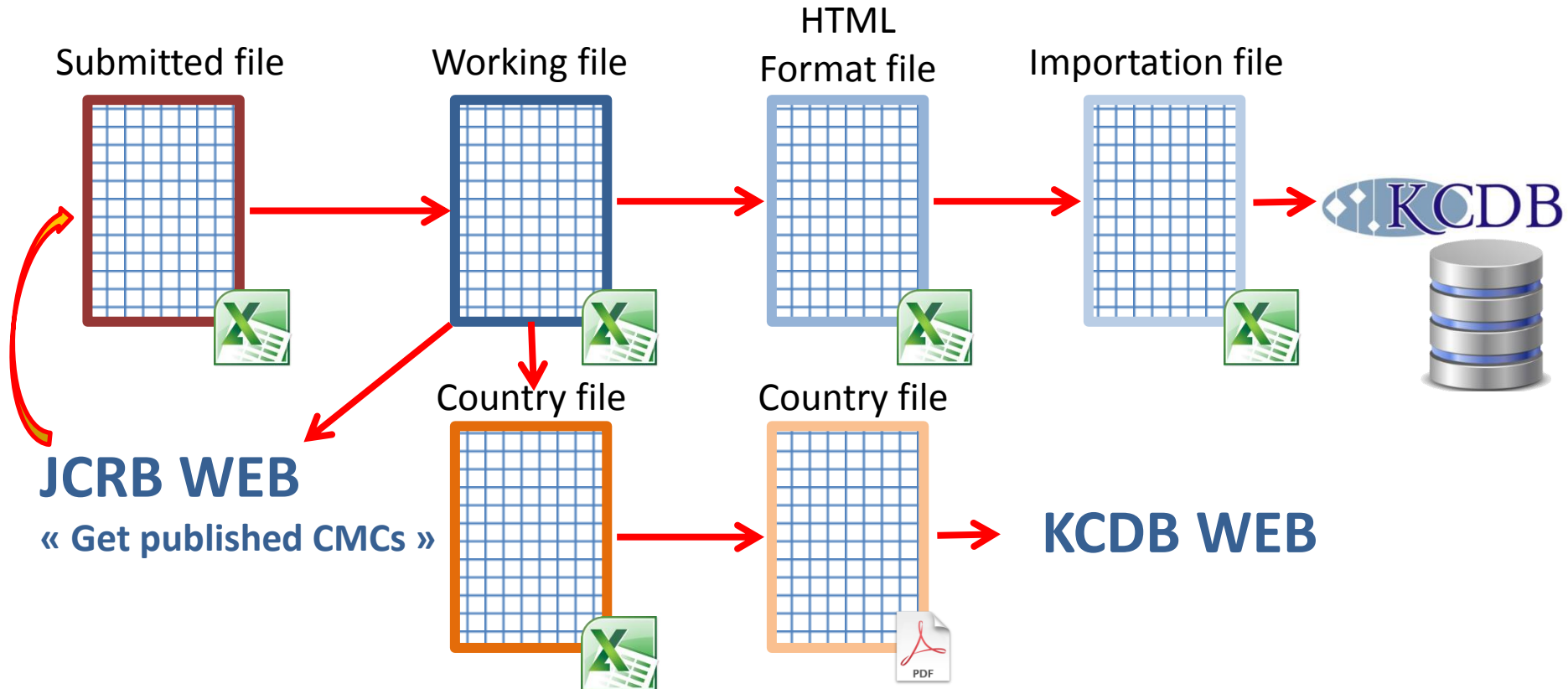


General Physics
Ionizing radiation
Chemistry



3. KCDB and CMCs

KCDB Office



3. KCDB and CMCs

pitfalls

A	B	C	D	E	F	G	H	I	J	K	L	M	
Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/ Independent Variable		Expanded Uncertainty					Ref
Quantity	Instrument or Artifact	Instrument Type or Method	Minimum Value	Maximum Value	Units	Parameter	Specifications	Value	Units	Coverag e Factor	Level of Confidence	Is the expanded uncertainty a relative one?	St
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12	Column 13	Co
Time scale difference	Local clock vs. UTC(NICT)	Time interval measurement	0.5	0.5	s	Pulse amplitude	0.5 V to 5 V (50 Ω)	4	ns	2	95%	No	UT
						Slew rate	>0.5 V/ns						
						Number of measurements	100						
Frequency	Local frequency standard	Direct frequency measurement	1E+00	1E+08	MHz	Gate time	500 s	9E- 08/+1E- 13	Hz/Hz	2	95%	Yes	UT
						Number of measurements	173						
						Amplitude	0.4 V to 1.8 V (50 Ω)						
Frequency	Local frequency standards	Direct frequency measurement	5	5	MHz	Gate time	10s	2.5E-12	Hz/Hz	2	95%	Yes	hy f the st
						Number of measurements	8640						

Did not read the instructions

Did not use the « Get published CMCs » SHEET

No color codes

No NMI service code

Unusual units such as « counts / s »

Too many digits – not 1000000 but 1.00E+06

If many similar CMCs, avoid one CMC for each frequency

- use matrices instead

Be rational on uncertainties

(there is an uncertainty of the uncertainty ...)

3. KCDB and CMCs Reducing the number of CMCs

	A	B	C	D	E	F	G	H	I	J	K	L	M	
	Calibration or Measurement Services			Measurand Level or Range			Test Conditions/Independent Variables		Expanded Uncertainty					
1	Quantity	Instrument or artifact	Instrument Type or Method	Minimum Value	Maximum value	Units	Parameter	Specification	Value	Unit	Coverage Factor	Level of confidence	Is the expanded uncertainty a relative one?	
2	DC voltage	Solid-state standards	Direct comparison	1	1	V			0.43	µV/V	2	95%	Yes	
3	DC voltage	Solid-state standards	Direct comparison	10	10	V			0.27	µV/V	2	95%	Yes	
4	DC voltage	Calibrators, dividers	Comparison with reference divider	10	100	V			0.51	µV/V	2	95%	Yes	
5	DC voltage	Calibrators, dividers	Comparison with reference divider	100	1000	V			0.76	µV/V	2	95%	Yes	
6	DC resistance	Resistor	DCC + range extender	10	10	µΩ	Oil and air baths	25 °C and 23 °C	70	µΩ/Ω	2	95%	Yes	T
7	DC resistance	Resistor	DCC + range extender	100	100	µΩ	Oil and air baths	25 °C and 23 °C	1.8	µΩ/Ω	2	95%	Yes	T
8	DC resistance	Resistor	DCC + range extender	1	1	mΩ	Oil and air baths	25 °C and 23 °C	1.8	µΩ/Ω	2	95%	Yes	T
9	DC resistance	Resistor	DCC + range extender	10	10	mΩ	Oil and air baths	25 °C and 23 °C	0.64	µΩ/Ω	2	95%	Yes	T
0	DC resistance	Resistor	DCC + range extender	0.1	0.1	Ω	Oil and air baths	25 °C and 23 °C	0.34	µΩ/Ω	2	95%	Yes	T
1	DC resistance	Resistor	Direct current comparator	1	1	Ω	Oil and air baths	25 °C and 23 °C	0.55	µΩ/Ω	2	95%	Yes	T
2	DC resistance	Resistor	Direct current comparator	10	10	Ω	Oil and air baths	25 °C and 23 °C	0.41	µΩ/Ω	2	95%	Yes	G
3	DC resistance	Resistor	Direct current comparator	100	100	Ω	Oil and air baths	25 °C and 23 °C	0.41	µΩ/Ω	2	95%	Yes	G
4	DC resistance	Resistor	Direct current comparator	1	1	kΩ	Oil and air baths	25 °C and 23 °C	0.28	µΩ/Ω	2	95%	Yes	G
5	DC resistance	Resistor	Direct current comparator	10	10	kΩ	Oil and air baths	25 °C and 23 °C	0.23	µΩ/Ω	2	95%	Yes	G
6			Wheatstone											

	A	B	C	D	E	F	G	H	I	J	K	L	M	
	Calibration or Measurement Services			Measurand Level or Range			Test Conditions/Independent Variables		Expanded Uncertainty					
	Quantity	Instrument or artifact	Instrument Type or Method	Minimum Value	Maximum value	Units	Parameter	Specification	Value	Unit	Coverage Factor	Level of confidence	Is the expanded uncertainty a relative one?	
1	DC voltage	Solid-state standards	Direct comparison	1	10	V			0.27 to 0.43	µV/V	2	95%	Yes	
2														
3	DC voltage	Calibrators, dividers	Comparison with reference divider	10	1000	V			0.51 to 0.76	µV/V	2	95%	Yes	
4														
5	DC resistance	Resistor	DCC + range extender	1.00E-05	0.1	Ω	Oil and air baths	25 °C and 23 °C	0.34 to 70	µΩ/Ω	2	95%	Yes	
6														
7														
8														
9														
0														
1														
2	DC resistance	Resistor	Direct current comparator	1	1	Ω	Oil and air baths	25 °C and 23 °C	0.55	µΩ/Ω	2	95%	Yes	
3	DC resistance	Resistor	Direct current comparator	10	10	Ω	Oil and air baths	25 °C and 23 °C	0.41	µΩ/Ω	2	95%	Yes	



3. KCDB and CMCs Reducing the number of CMCs

	A	B	C	D	E
1		Expanded uncertainty			
2	1 V	0.43			
3	10 V	0.27			
4					
5	The expanded uncertainties given in this table are expressed in $\mu\text{V/V}$				
6					
7					

	A	B	C	D	E	F	G	H	I	J	K	L	M
	Calibration or Measurement Services			Measurand Level or Range			Test Conditions/Independent Variables		Expanded Uncertainty				
	Quantity	Instrument or artifact	Instrument Type or Method	Minimum Value	Maximum value	Units	Parameter	Specification	Value	Unit	Coverage Factor	Level of confidence	Is the expanded uncertainty a relative one?
1	DC voltage	Solid-state standards	Direct comparison	1	10	V			0.27 to 0.43	$\mu\text{V/V}$	2	95%	Yes
2													
3	DC voltage	Calibrators, dividers	Comparison with reference divider	10	100	V			0.51 to 0.76	$\mu\text{V/V}$	2	95%	Yes
4													
5	DC resistance	Resistor	DCC + range extender	1.00E-05	0.1	Ω	Oil and air baths	25 °C and 23 °C	0.34 to 70	$\mu\Omega/\Omega$	2	95%	Yes
6													
7													
8													
9													
10													
11													
12	DC resistance	Resistor	Direct current comparator	1	1	Ω	Oil and air baths	25 °C and 23 °C	0.55	$\mu\Omega/\Omega$	2	95%	Yes
13	DC resistance	Resistor	Direct current comparator	10	10	Ω	Oil and air baths	25 °C and 23 °C	0.41	$\mu\Omega/\Omega$	2	95%	Yes

3. KCDB and CMCs

... and now over to Stéphanie ...

4. Statistics on the KCDB



TODAY'S SPECIALS:

1. Introduction
2. KCDB and comparisons
3. KCDB and CMCs
4. Statistics on the KCDB
5. Recall ...
6. Towards the future



4. Statistics on the KCDB

... and now over to Níkíta ...

5. Recall...



TODAY'S SPECIALS:

1. *Introduction*
2. *KCDB and comparisons*
3. *KCDB and CMCs*
4. *Statistics on the KCDB*
5. *Recall ...*
6. *Towards the future*



5. Recall...

How may I see progress on comparisons?

How may I get statistics on comparisons?

How may I get statistics on CMCs?

Where may I find the original Excel file for CMCs?

I wish to grey out and delete CMCs – how do I preceed?



5. Recall...

Where may I find other information ?



5. Recall...

Where may I find other information ?

READ THE DOCUMENTS:

CIPM MRA D-04

CIPM MRA D-05

BIPM web

Ask the JCRB Executive Secretary

Ask the KCDB Office



6. Towards the future



TODAY'S SPECIALS:

1. Introduction
2. KCDB and comparisons
3. KCDB and CMCs
4. Statistics on the KCDB
5. Recall ...
6. Towards the future



CIPM MRA UP TO NOW : CGPM RESOLUTION

CGPM 2014

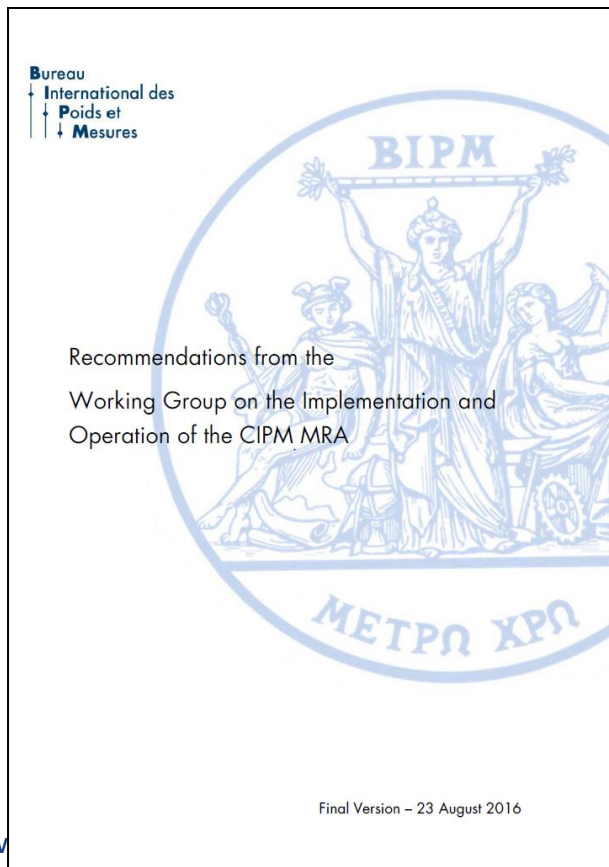
Resolution 5 On the revision of the CIPM MRA

invites

- the Consultative Committees and the JCRB to continue their ongoing efforts to streamline operations within the existing framework, and to prepare for and contribute to the wider review in 2015,
- the CIPM to establish a working group under the chairmanship of its President, with membership to be determined at the 2015 workshop, to conduct a review of the implementation and operation of the CIPM MRA,

CIPM MRA UP TO NOW : NMI DIRECTOR WORKSHOP OCT 2015





Plus: *Voice of the people*

- ◆ Use of outdated EXCEL versions and non-validated CMC files produces errors and delays in CMC submissions/revisions
- ◆ Requirements for supporting evidence (QMS, technical) can not be enforced currently: many submissions occur without QMS evidence
- ◆ Batching and debatching (for review purposes) using EXCEL is cumbersome and leads to errors
- ◆ Batched CMC submissions can delay publications if there are problematic entries
 - *CMC review takes too long*
- ◆ Web searching of published CMCs is difficult
- ◆ Comparing published CMCs with similar parameters (ranges, etc.) is difficult

At current rates of CMC submissions, legacy CMCs will still outnumber new submissions for the next 10 to 20 years

**BETTER SEARCH
FACILITIES**

**USERFRIENDLY
WEB SUPPORT**

**WEB BASED CMC
SUBMISSION
AND REVIEW**

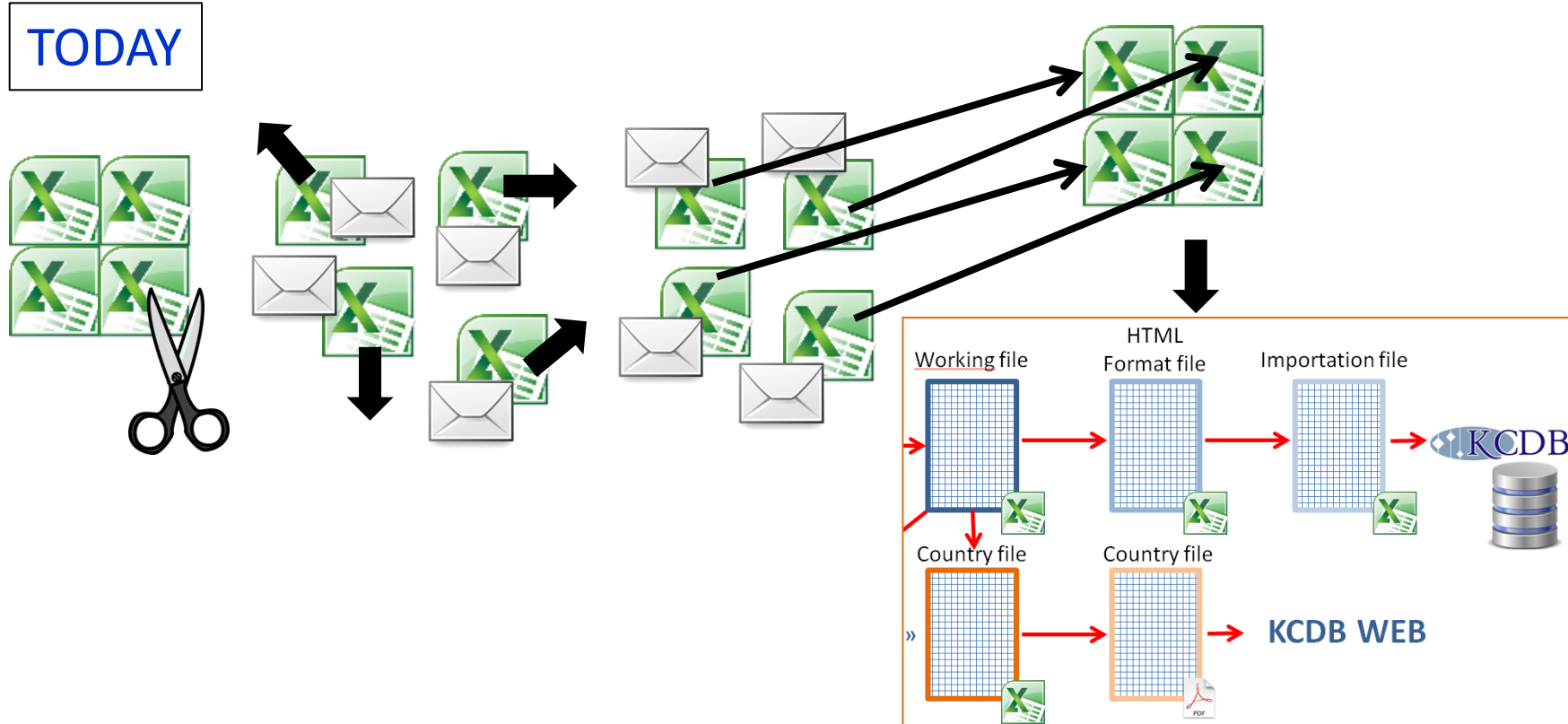
**TRACK
COMPARISONS IN
REAL TIME**

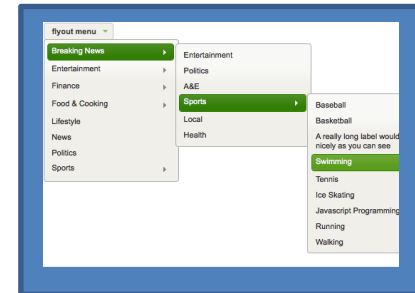
BETTER SEARCH
FACILITIES

USERFRIENDLY
WEB SUPPORT

**WEB BASED CMC
SUBMISSION
AND REVIEW**

TRACK
COMPARISONS IN
REAL TIME



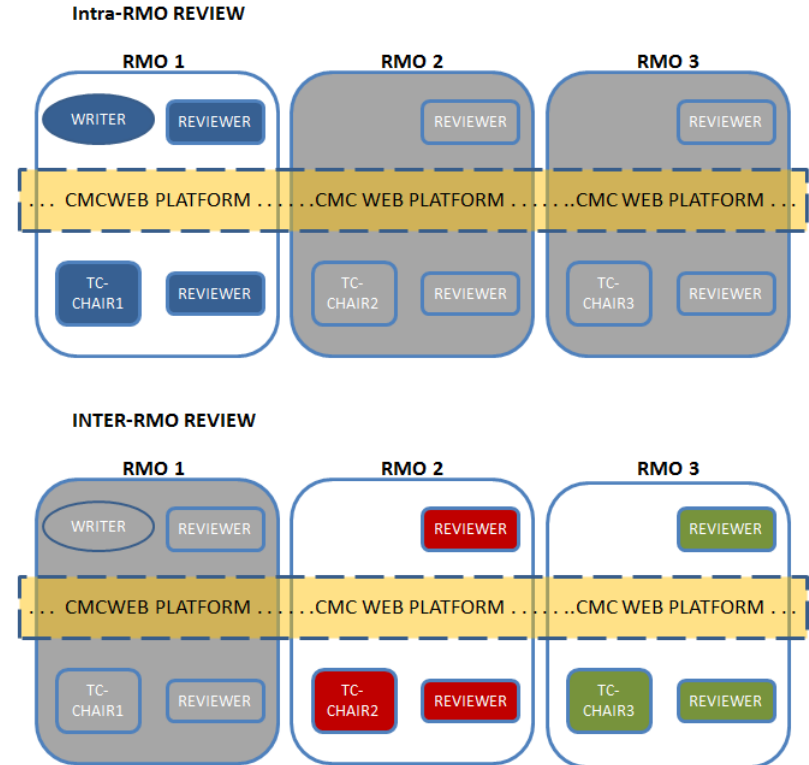


TOMORROW

Review platform was
accessed by 54, now to be
accessed by 1000

WRITER – REVIEWER – FINDER concept

- Sequential access
- Accessible via a user account
- Risk based evaluation included
- Support for both intra and inter RMO review
- No batches but one-by-one



**BETTER SEARCH
FACILITIES**

**USERFRIENDLY
WEB SUPPORT**

**WEB BASED CMC
SUBMISSION
AND REVIEW**

**TRACK
COMPARISONS IN
REAL TIME**

Key and supplementary comparisons (and pilot studies) - registration and progress form

Comparison conducted by <input type="text"/>		in <input type="text"/>	Date: <input type="text"/>
1. Subfield: <input type="text"/>		RMO internal identifier <input type="text"/>	
2. KCDB Identifier: <input type="text"/> <small>(for KCIs and SCs) (to be attributed by the BIPM)</small>			
3. Type of comparison: Key <input type="checkbox"/> Supplementary <input type="checkbox"/> Pilot study <input type="checkbox"/>		4. Short description: <input type="text"/>	
5. Measurand and nominal value(s): <input type="text"/>		Special characters for copying <small>(if required)</small> <input type="text" value="α β γ Δ δ ε ζ η θ ι κ λ μ"/>	
6. Parameter(s): <input type="text"/>			
7. Transfer device(s)/sample(s): <input type="text"/>			
8. Pilot/Coordinating laboratory(ies) <small>(acronyms and countries)</small> : <input type="text"/>			
9. Participating institutes <small>(acronyms and countries)</small> : <input type="text"/>			
10. Progress: <small>(please note date and tick appropriate box to indicate current status)</small>			
Date	Status	Pilot	Supplementary
	Planned	<input type="checkbox"/>	<input type="checkbox"/>
	Protocol complete/approved	<input type="checkbox"/>	<input type="checkbox"/>
	In progress	<input type="checkbox"/>	<input type="checkbox"/>
	Measurement completed	<input type="checkbox"/>	<input type="checkbox"/>
	Report in progress	<input type="checkbox"/>	Draft A <input type="checkbox"/> Draft B <input type="checkbox"/>
	Report submitted to <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Results approved	<input type="checkbox"/>	<input type="checkbox"/>
	Approved for equivalence	<input type="checkbox"/>	<input type="checkbox"/>
	Abandoned	<input type="checkbox"/>	<input type="checkbox"/>
V Comments: <input type="text"/>		Publication reference: <input type="text"/>	



Information into database to allow search on progress.

Alerts to pilots with request for update.

**BETTER SEARCH
FACILITIES**

**USERFRIENDLY
WEB SUPPORT**

**WEB BASED CMC
SUBMISSION
AND REVIEW**

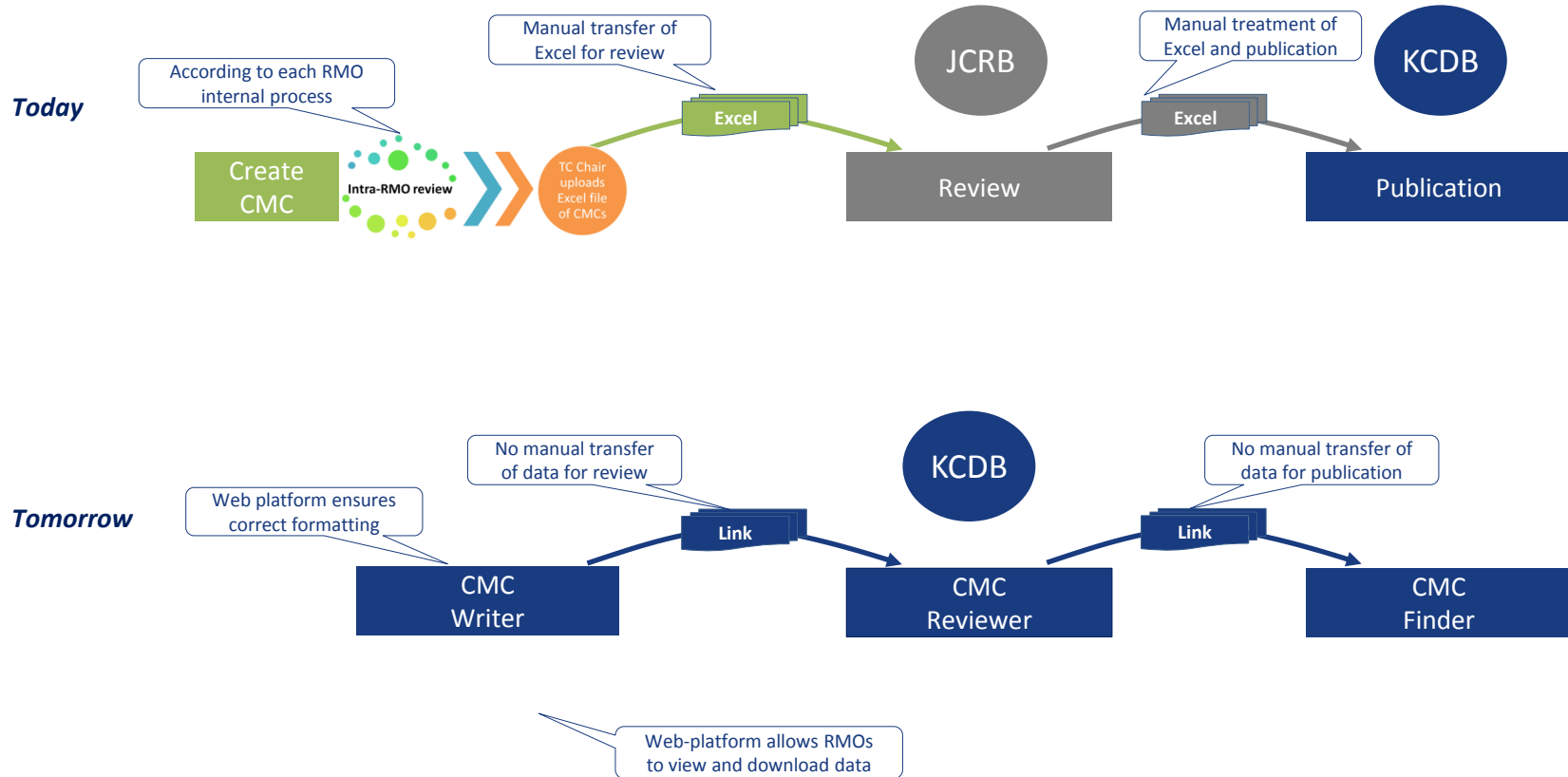
**TRACK
COMPARISONS IN
REAL TIME**

Possibility to search on **value of measurand and uncertainty within a range**

Improved Thesaurus

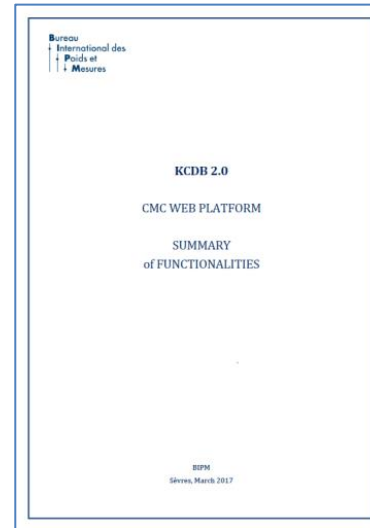
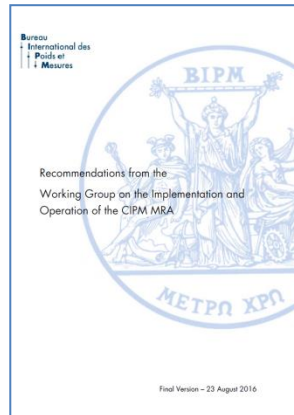
1. Minor revision on equations and units will be requested, not all concerned
2. Support for thesaurus requested
3. Find slot without CMC publication to go from KCDB 1.0 to 2.0

KCDB 2.0 – *General concept*



2) Where are we now ?

Alpha version CGPM 2018



Thank you.

Susanne.Picard@bipm.org

SManiguet@bipm.org

Nikita.Zviagin@bipm.org

Bureau
♦ **I**nternational des
♦ **P**oids et
♦ **M**esures

