

CCEM WGRMO Chair Report

April 2021

Lic. Lucas Di Lillo

Chair, CCEM-WGRMO



Agenda of CCEM WGRMO Meeting 04-06-2021

- | | |
|--|-----------------|
| 1. Introductions and welcome | Lucas Di Lillo |
| 2. CCEM WGRMO Chair's Report | Lucas Di Lillo |
| 3. CIPM MRA Review and update from JCRB | |
| a) Update from JCRB | Sten Bergstrand |
| b) Criteria of acceptance of CMCs in Electricity and Magnetism | Ilya Budovsky |
| c) On the transition towards quantity based equations | Susanne Picard |
| d) Use of the Executive Reports by the TC chairs | Michael Stock |
| e) CCEM Guidelines on CMCs | Lucas Di Lillo |
| 4. Service Categories in Electricity and Magnetism | |
| f) Update on Categories (linearity and DMM and power source) | Ilya Budovsky |
| 5. News from RMOs | TC Chairs |
| 6. Terms of Reference for CCEM WGRMO | Lucas Di Lillo |
| 7. AOB | Lucas Di Lillo |
| 8. Close and Date of Next Meeting | Lucas Di Lillo |

Objectives of the WGRMO

- establish and maintain **lists of service categories**, and where necessary **rules for the preparation of CMC entries**;
- agree on detailed technical **review criteria**;
- develop **“lower limits” of uncertainties** for CMCs in those cases, where these are imposed by the characteristics of the device under test;
- provide **guidance on the range of CMCs** supported by particular KCs and SCs;
- identify areas where **additional KCs and SCs** are needed;
- coordinate the **sharing of the inter-RMO review** of new CMCs between the RMOs;
- coordinate the **review of existing CMCs** in the context of new results of KCs and SCs;
- **harmonize procedures and activities among the RMOs**; and
- strengthen the **cooperation between the RMOs**.

Members of the WGRMO

representatives of the RMOs;

chairpersons of WGLF and GT-RF;

the executive secretaries of the CCEM and the JCRB; and

the KCDB manager.

meeting March 2019 meeting – 26 attendees

meeting April 2021 meeting – 48 attendees

CCEM WGRMO Actions

REPORT OF THE 9TH MEETING OF THE CCEM WORKING GROUP ON THE COORDINATION OF THE REGIONAL METROLOGY ORGANIZATIONS (WGRMO) (26 March 2019) TO THE CONSULTATIVE COMMITTEE FOR ELECTRICITY AND MAGNETISM

Action 1 The Executive Secretary of the CCEM and the new Chair of the CCEM WGRMO update the “Electricity and Magnetism Supplementary Guide for the submission of CMCs” to include examples of matrices

Action 2 Coordinator of the KCDB to approach WGRMO Chair and RMO TC Chairs when CCEM beta review of KCDB 2.0 is required

Action 3 The existing task group to provide draft of CCEM Supplementary Guidelines for the Acceptance of Calibration and Measurement Capabilities, including case studies by the 2020 meeting.

Action 4 RMOs to continue developing strategic plans for EM comparison.

Action 5 JCRB Secretary to request information from other CCs on their guidance on what evidence is required to support CMCs.

Action 6 EURAMET to provide a proposal for a new service sub-category for digital meters and merging units

Action 7 A new task group (Gert Rietveld and Ilya Budovsky) to propose a solution to including linearity in the CMC categories list.

CCEM MRA Review

Action 1 The Executive Secretary of the CCEM and the new Chair of the CCEM WGRMO update the “Electricity and Magnetism Supplementary Guide for the submission of CMCs” to include examples of matrices

https://www.bipm.org/wg/CCEM/CCEM-WGRMO/Restricted/April_2021/WGRMO-21-03_e-Guidelines_submission_CMCs.pdf

Decision: The WGRMO chair and the Executive secretary of the CCEM have to modify the document in order to include references to the CIPM documents and a paragraph in which it is clear how to proceed so there is no ambiguity in the ranges.

CCEM MRA Review

Action 2 Coordinator of the KCDB to approach WGRMO Chair and RMO TC Chairs when CCEM beta review of KCDB 2.0 is required

The WGRMO Chair and RMO TC Chairs were in contact with the KCDB staff in order to review the KCDB 2.0 if necessary

No decision is necessary

CCEM MRA Review

Action 3 The existing task group to provide draft of CCEM Supplementary Guidelines for the Acceptance of Calibration and Measurement Capabilities, including case studies by the 2020 meeting.

https://www.bipm.org/wg/CCEM/CCEM-WGRMO/Restricted/April_2021/WGRMO-21-03_b-Guide_acceptance_CMCs_V2_04.pdf

Decision: The WG existing task group on CCEM Supplementary Guidelines for the Acceptance of Calibration and Measurement Capabilities, will continue with the writing of the document taking into account the receiving comments.

CCEM MRA Review

Action 4 RMOs to continue developing strategic plans for EM comparison.

EURAMET has been delegated to the 4 subcommittees (DC/Quantum, LF, RF&MW, Power & Energy). All 4 SCs have been working on it and P&E has a fully established plan, whereas DC/Quantum and LF are still in progress of setting it up. For RF&MW most comparisons take place at CCEM level.

GULFMET send a report I will share with all participants

SIM did not make the WG meeting during 2020 and is going to analyze a new document during the next WG meeting.

Decision: The WGRMO recommends to the WGs continue developing strategic plans for EM comparison.

CCEM MRA Review – Contributions from WGRMO

Action 5 JCRB Secretary to request information from other CCs on their guidance on what evidence is required to support CMCs.

This action is relating with Action 4 “CCEM Supplementary Guidelines for the Acceptance of Calibration and Measurement Capabilities”. More information will be show in the next item of the agenda.

Managing key comparisons

Action 6 EURAMET to provide a proposal for a new service sub-category for digital meters and merging units

The topic was discussed at the EURAMET SC-P&E meeting in Ljubljana in 2019 and it was suggested to avoid making new sub-categories. Instead it was attempted to fit the meters with digital output into the existing categories. Subsequently this was successfully done. Therefore no new sub-categories needed.

No decision is necessary

Managing key comparisons

Action 7 A new task group to propose a solution to including linearity in the CMC categories list.

https://www.bipm.org/wg/CCEM/CCEM-WGRMO/Restricted/April_2021/WGRMO-21-04_a-Enabling_Linearity_CMCs_in_EM.pdf

Decision: wait for a second round of proposals and try to find an agreement before the next meeting

Managing key comparisons

“Extending the Action 4 of CCEM WGRMO by finding a process to inform each other on an early stage of a comparison.”

Decision: the WGRMO chair will consult other TC chair about the possibility to share the reports of the minutes within other RMO in order to know in an early stage the situation of the comparison. Also, and in the case the first option is not accepted, when a WGRMO chair received an email in which the KCDB office was asked to register a comparison, he/her will inform about that to the CCEM executive secretary in order the secretary ask the other RMOs to know if there are any NMI interesting in participate in this comparison

Improving the efficiency of CMC review

Sampling Strategy for Inter-RMO Review of CMCs:

- CCEM 2015 recommended to further reduce the volume of Inter-RMO reviews based on sampling

Prior to CCEM 2011:

Up to 400% review (Four RMOs each reviewing the entire set)



Since CCEM 2011:

100% review (2-4 RMOs collectively reviewing the entire set)



After CCEM 2015:

0 - 100% review (based on sampling)

Improving the efficiency of CMC review

Sampling Strategy (continued):

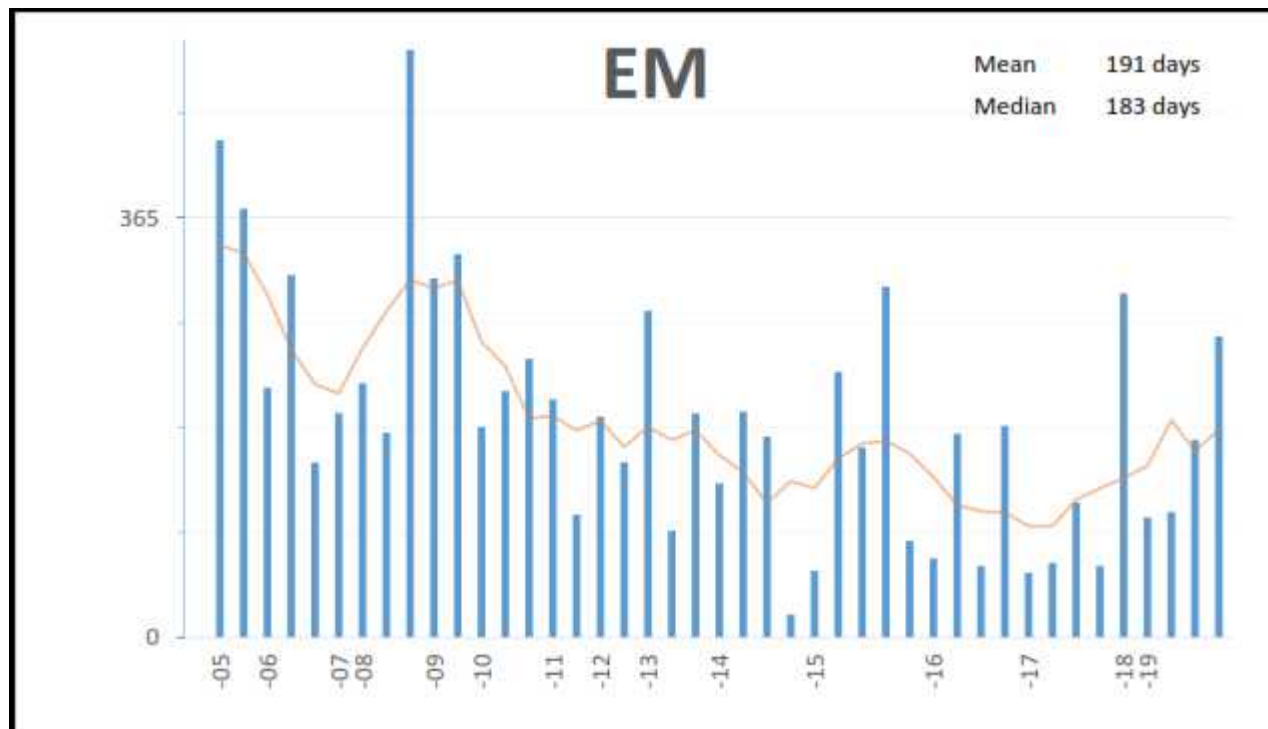
CCEM 2015 Decision:

Upon submission of a CMC set, a proposal for the scope of Inter-RMO review is made by the Chair of WG-RMO or designate, based on agreed criteria such as:

- Magnitude of change
- History of previous reviews
- Coverage by on-site technical reviews
- Rotation
- High-level technical judgement

The final decision on the scope of review lies with RMOs.

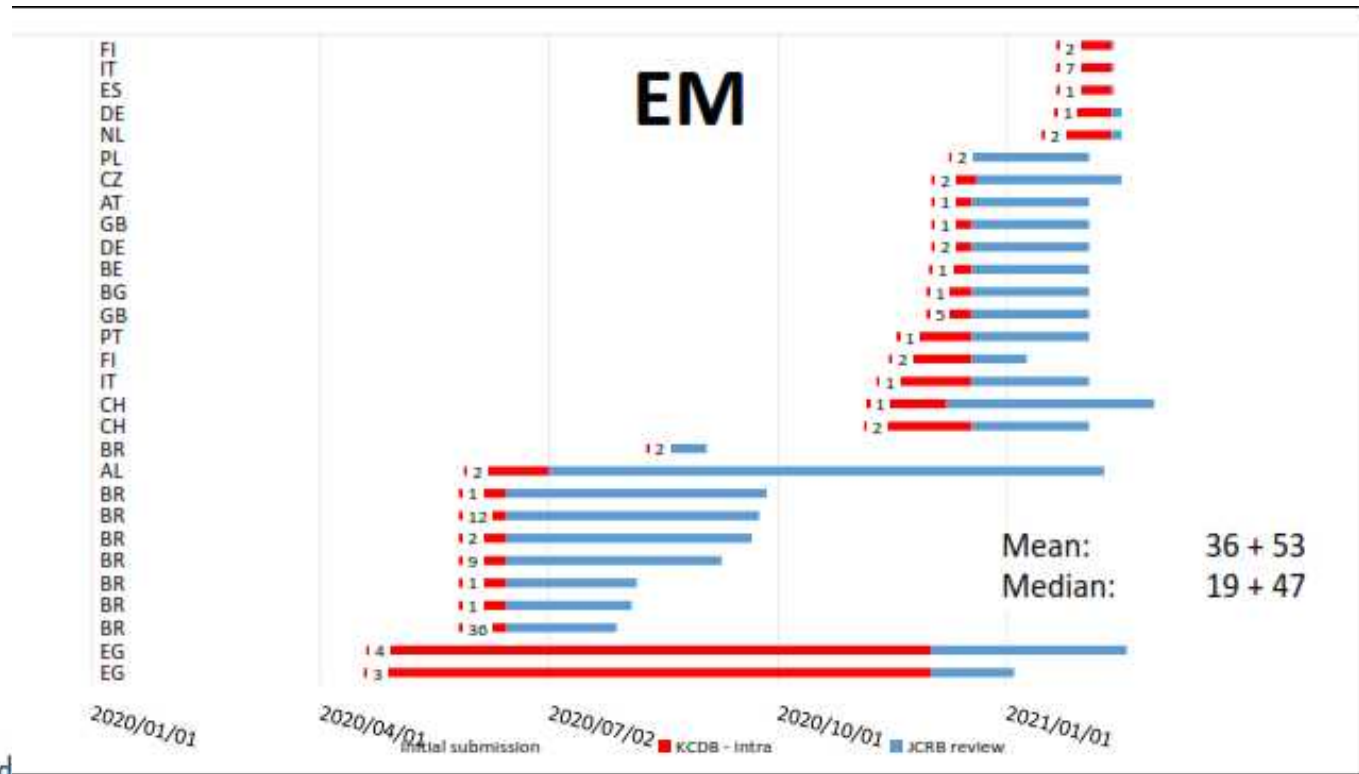
Improving the efficiency of CMC review



Bureau
International des
Poids et
Mesures

Courtesy Sten Bergstrand

Improving the efficiency of CMC review



Bureau
International d
Poids et
Mesures

Courtesy Sten Bergstrand

Improving the efficiency of CMC review

		AFRIMETS	APMP	COOMET	EURAMET	SIM	GULFMET	Notes	Start Date	End Date
Sharing	AFRIMETS.EM.1.2013		No	Yes	Yes	No		1 lab only (NIS - Egypt)		
	APMP.EM.7.2011	Yes		No	Yes	Yes		CMCs from 9 NMIs		
	APMP.EM.8.2013	Yes		Yes	Yes	Yes		CMCs from 5 NMIs		
	COOMET.EM.6.2013	Yes	Yes		No	No		1 NMI (Belarus - BelGim)		
	COOMET.EM.7.2014	Yes	No		Yes	No		CMCs from 5 NMIs,		
	EURAMET.EM.8.2012	No	Yes	Yes !		Yes		CMCs from 15 NMIs		
	EURAMET.EM.12.2014	Yes	Yes	No		Yes		CMCs from 18 NMIs,		
	SIM.EM.7.2014	Yes	No	Yes	No			1 NMI (INTI - Argentina)		
Sampling and Sharing	COOMET.EM.8.2015		Yes			Yes		2015-03-16 - 2015-05-21	16/3/2015	21/5/2015
	EURAMET.EM.13.2015	Yes	Yes			Yes		2015-08-31 - 2016-04-21	31/8/2015	21/4/2016
	SIM.EM.8.2015			Yes	Yes			2015-10-23 - 2016-04-29	23/10/2015	29/4/2016
	APMP.EM.9.2015			Yes		Yes		2015-12-21 - 2016-12-05	21/12/2015	5/12/2016
	COOMET.EM.8.2015		Yes			Yes		2015-03-16 - 2015-05-21	16/3/2015	21/5/2015
	COOMET.EM.9.2015							2015-12-21 - Re-submitted using matrices	21/12/2015	2015-12-21 - Re-su
	COOMET.EM.10.2015	Yes	Yes					2016-01-04 - 2016-03-25	4/1/2016	25/3/2016
	COOMET.EM.11.2016							2016-06-07 - 2016-09-07	7/6/2016	7/9/2016
	SIM.EM.9.2016		Yes	Yes	Yes		Yes	2016-10-04 - 2017-05-04	4/10/2016	4/5/2017
	AFRIMETS.EM.2.2016					Yes	Yes	2016-10-05 - 2016-12-05	5/10/2016	5/12/2016
	SIM.EM.10.2017				Yes			2017-02-03 - 2017-05-31	3/2/2017	31/5/2017
	COOMET.EM.12.2017					Yes	Yes	2017-04-05 - 2017-06-20	5/4/2017	20/6/2017
	AFRIMETS.EM.3.2017		Yes	Yes		Yes		2017-05-26 - 2017-10-12	26/5/2017	12/10/2017
	COOMET.EM.12.2017	No	No		Yes	No	No	2017-11-21 - 2018-02-04	21/11/2017	4/2/2018
	EURAMET.EM.15.2018	Yes	Yes	Yes		Yes	Yes	2018-04-20 - presented for approval 2019-02-13	20/4/2018	13/2/2019
	COOMET.EM.14.2019	No	Yes		no	no	Yes	11/6/2019	11/6/2019	16/9/2019
	SIM.EM.11.2019	no	no	no	Yes				12/7/2019	15/10/2019
	COOMET.EM.16.2019	Yes	no		Yes	Yes	Yes		16/10/2019	
	APMP.EM.11.2019	Yes		Yes	no	Yes	Yes		17/10/2019	
	SIM-BRAZIL							Problems with the excel template	17/10/2019	1/7/2020
EURAMET 2020	Yes	Yes	Yes				Chair Rmo mistake using the KCDB 2.0	10/3/2020		
APEM 2020							Starting in a few weeks	12/4/2021		

Improving the efficiency of CMC review

Sampling and Sharing	SIM-BRAZIL	Problems with the excel template	17/10/2019	1/7/2020
	EURAMET 2020	RMO Chair made a mistake using the KCDB 2.0	10/3/2020	
	APMP 2020	Starting in a few weeks	12/4/2021	
	AFRIMETS	recently started	11/4/2021	

Questions ?

Thank you