

# CCEM WGRMO Chair Report

March 2023

**Lic. Lucas Di Lillo**

Chair, CCEM-WGRMO

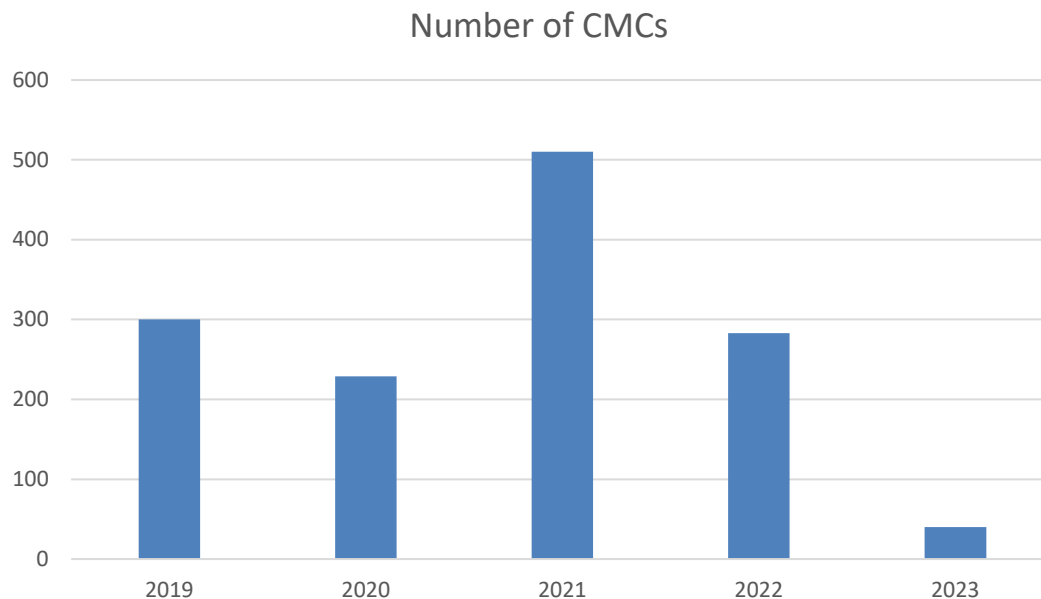
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# Agenda of CCEM WGRMO Meeting

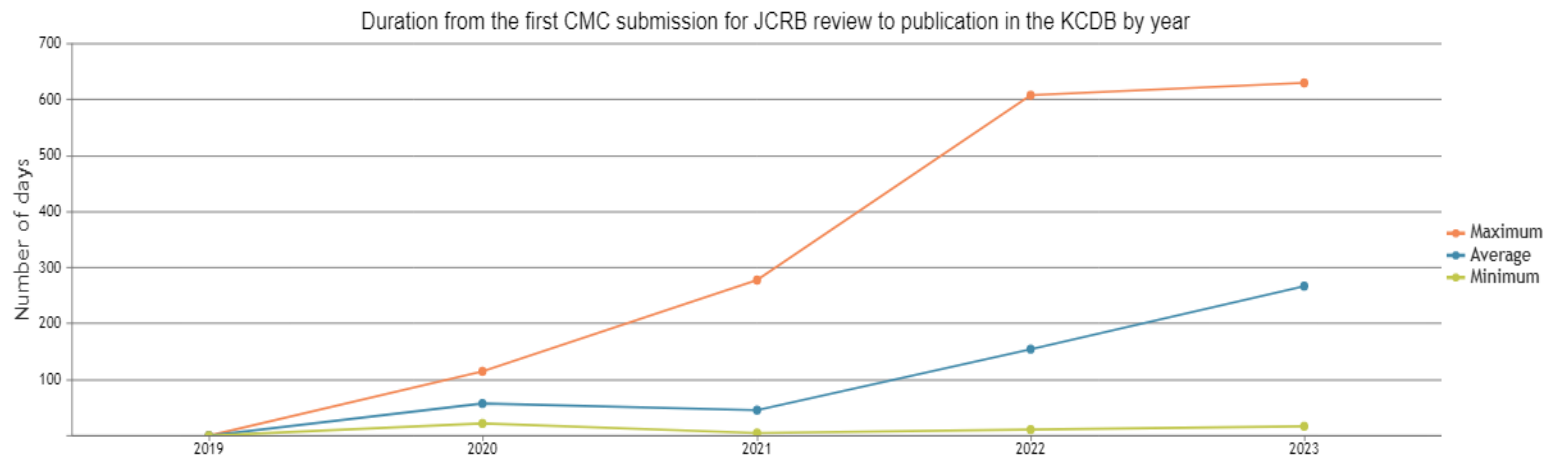
## Tuesday, 7 March 2023, 09:00 h - 13:00 h (UTC+1)

1. Introductions and welcome	Lucas Di Lillo
2. Update from the last meeting (meeting on 6 April 2021)	Lucas Di Lillo
3. CCEM WGRMO Chair's Report	Lucas Di Lillo
a) CMC review process	
4. Update from the JCRB	Olav Werhahn
5. CCEM Guidance documents on CMCs	Ilya Budovsky
b) CCEM Guidelines on CMC submission	
c) CCEM Guidelines on acceptance of CMCs	
6. Service Categories in Electricity and Magnetism	Ilya Budovsky Gert Rietveld
a) Proposals on enabling linearity CMCs in EM	
b) New proposal on how to deal with CMCs for power calibrators	
c) Proposals for new and updated service categories	
7. Status of cross-RMO participation in RMOs supplementary comparisons	Lucas Di Lillo
8. News from RMOs	Lucas Di Lillo
9. Election of a new WGRMO Chair	Lucas Di Lillo
10. AOB	Lucas Di Lillo
11. Close and Date of Next Meeting	Lucas Di Lillo

# CMC review process



# CMC review process



# CCEM MRA Review

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**Action 1:** 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.

There is a new version, with updated references to the CIPM documents and information on how to create CMC matrices without ambiguities in the ranges. A new version 6.2 is already available from the web site

# CCEM MRA Review

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**Action 2** The existing task group to provide draft of CCEM Supplementary Guidelines for the Acceptance of Calibration and Measurement Capabilities

[Electricity and Magnetism Guidelines on Technical Evidence for the Acceptance of Calibration and Measurement Capabilities in the context of the CIPM MRA](#)

**Decision:** The WGRMO approved the document

# CCEM MRA Review

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**Action 3** A new task group to propose a solution to including linearity in the CMC categories list

[new service category list](#)

**Decision:** The task group will continue working on this document and will include some examples on linearity

# CCEM MRA Review

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**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.

**SIM** submitted the report some days ago with the strategy for comparisons



# Web-based KCDB 2.0

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The CCEM 2011 and subsequent meetings strongly recommended to transform the present KCDB

Nov. 2016 – Detailed description of CCEM and APMP TCEM review process provided to KCDB Administrator

Mar 2017 – Requested s that KCDB 2.0 provides support for the affective nd efficient (risk-based) sampling strategy of inter-RMO reviews of CMCs employed by the CCEM WGRMO

2017-2019 - WGRMO Chair working with KCDB Administrator to solve issues as they arise.

# 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:

100% review (based on sampling. The WGRMO chair still reviews all 100 % of submitted CMCs.)

# Improving the efficiency of CMC review

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## 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

		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-s
	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

The screenshot displays the 'JCRB CMC Space' dashboard. The main content is a table of CMC entries. On the left, there are filter sections for 'Metrology area', 'Branch', 'Country', and 'RMO'. The table has columns for CMC STATE, CMC IDENTIFIER, BRANCH, SUBMITTING RMO, COUNTRY, SUBMITTED TO JCRB, JCRB STATUS, REVIEW LIMIT, and AFRIM. The table shows 10 entries, all submitted by AFRIMETS. The JCRB STATUS for most entries is 'Under Review', while the last three are 'Submitted to the JCRB'. A cookie notice is visible at the bottom of the page.

CMC STATE	CMC IDENTIFIER	BRANCH	SUBMITTING RMO	COUNTRY	SUBMITTED TO JCRB	JCRB STATUS	REVIEW LIMIT	AFRIM
N	AFRIMETS-EM-EG-00000NX1-1	DC voltage, current, and resistance	AFRIMETS	Egypt	2022-10-21	JCRB: Under Review	2023-05-05	
N	AFRIMETS-EM-EG-00000NXU-1	DC voltage, current, and resistance	AFRIMETS	Egypt	2022-10-21	JCRB: Under Review	2023-05-05	
N	AFRIMETS-EM-ET-00000O3G-1	DC voltage, current, and resistance	AFRIMETS	Ethiopia	2022-11-15	JCRB: Under Review	2023-11-30	
N	AFRIMETS-EM-ET-00000O3H-1	DC voltage, current, and resistance	AFRIMETS	Ethiopia	2022-11-15	JCRB: Under Review	2023-11-30	
N	AFRIMETS-EM-TN-00000O01-1	DC voltage, current, and resistance	AFRIMETS	Tunisia	2022-10-21	JCRB: Under Review	2023-05-05	
N	AFRIMETS-EM-TN-00000O0W-1	DC voltage, current, and resistance	AFRIMETS	Tunisia	2022-11-15	JCRB: Under Review	2023-11-30	
N	AFRIMETS-EM-TN-00000O13-1	DC voltage, current, and resistance	AFRIMETS	Tunisia	2023-02-15	Submitted to the JCRB		
N	AFRIMETS-EM-TN-00000O14-1	DC voltage, current, and resistance	AFRIMETS	Tunisia	2023-02-15	Submitted to the JCRB		
N	AFRIMETS-EM-TN-00000O18-1	DC voltage, current, and resistance	AFRIMETS	Tunisia	2023-02-15	Submitted to the JCRB		

# Improving the efficiency of CMC review

The screenshot displays the JCRB CMC Space dashboard. The main content is a table of CMC entries with columns: CMC STATE, CMC IDENTIFIER, BRANCH, SUBMITTING RMO, COUNTRY, SUBMITTED TO JCRB, JCRB STATUS, REVIEW LIMIT, and AFRIM. A modal window titled "COMMENTS ON AFRIMETS-EM-ET-000003H-1" is open, showing two comments:

- PILOT, REVIEWER, TC\_CHAIR, WRITER**  
FELIPE L. HERNANDEZ-MARQUEZ (SIM, CENAM) commented on 20 December 2022  
COMMENT (Editorial)  
" This CMC has been approved.
- REVIEWER, WRITER**  
Abdullah Alrobaish (GULFMET, SASO-NMCC) commented on 5 December 2022  
COMMENT (Editorial)  
" "

Buttons for "PRINT" and "QUIT" are visible at the bottom of the modal. The dashboard also features filters for Metrology area, Branch, and Country, and a table with a cookie consent banner at the bottom.

CMC STATE	CMC IDENTIFIER	BRANCH	SUBMITTING RMO	COUNTRY	SUBMITTED TO JCRB	JCRB STATUS	REVIEW LIMIT	AFRIM
N	AFRIMETS-EM-EG-00000NKT-1	DC voltage, current, and resistance	AFRIMETS	Egypt	2022-10-21	JCRB: Under Review	2023-05-05	
N	AFRIMETS-EM-ET-000003H-1	DC voltage, current, and resistance	AFRIMETS	Egypt	2022-10-21	JCRB: Under Review	2023-05-05	
N	AFRIMETS-EM-EG-00000NKT-1	DC voltage, current, and resistance	AFRIMETS	Egypt	2022-10-21	JCRB: Under Review	2023-11-30	
N	AFRIMETS-EM-EG-00000NKT-1	DC voltage, current, and resistance	AFRIMETS	Egypt	2022-10-21	JCRB: Under Review	2023-11-30	
N	AFRIMETS-EM-ET-000003H-1	DC voltage, current, and resistance	AFRIMETS	Egypt	2022-10-21	JCRB: Under Review	2023-05-05	
N	AFRIMETS-EM-ET-000003H-1	DC voltage, current, and resistance	AFRIMETS	Egypt	2022-10-21	JCRB: Under Review	2023-11-30	
N	AFRIMETS-EM-ET-000003H-1	DC voltage, current, and resistance	AFRIMETS	Egypt	2022-10-21	Submitted to the JCRB		
N	AFRIMETS-EM-ET-000003H-1	DC voltage, current, and resistance	AFRIMETS	Egypt	2022-10-21	Submitted to the JCRB		
N	AFRIMETS-EM-TN-00000O14-1	current, and resistance	AFRIMETS	Tunisia	2023-02-15	Submitted to the JCRB		
N	AFRIMETS-EM-TN-00000O15-1	DC voltage, current, and resistance	AFRIMETS	Tunisia	2023-02-15	Submitted to the JCRB		

# Improving the efficiency of CMC review

The screenshot shows a web browser window with the URL `bipm.org/kcdb/cmc/detail-view/33019`. The page title is "Detail View". A modal window titled "COMMENTS ON EURAMET-EM-IE-00000MEY-2" is open, displaying a comment from Oliver Power (EURAMET, NSAI NML) dated 15 January 2021. The comment text is: "Improved uncertainties based on improved CMCs for DC current source&nbsp;calibrations. (included in present submission)". The comment type is set to "EDITORIAL". Below the comment is a text input field for a new comment. At the bottom of the modal are three buttons: "PRINT", "SAVE", and "QUIT". The background page shows a navigation menu with links: "KCDB", "What is the KCDB", "Help on the KCDB", "FAQ", "API KCDB", and "Contact". A cookie notice at the bottom of the page reads: "We use cookies to optimize our website. View privacy policy" with an "ACCEPT" button. The Windows taskbar at the bottom shows the time as 11:27 on 19/2/2023.

# Improving the efficiency of CMC review

The screenshot displays the 'JCRB CMC Space' dashboard. The main content is a table of CMC entries, with filters on the left. The filters are: Metrology area (Electricity and Magnetism), Branch (Electric and magnetic fields, Other DC and low frequency measurements, DC voltage, current, and resistance), Country (dropdown menu), and RMO (AFRIMETS, APMP). The table has columns for CMC STATE, CMC IDENTIFIER, BRANCH, SUBMITTING RMO, COUNTRY, SUBMITTED TO JCRB, JCRB STATUS, REVIEW LIMIT, and AFRIM. The table shows 10 entries, all submitted by AFRIMETS. The status of the entries varies, with some being 'Under Review' and others 'Submitted to the JCRB'. A 'Show 10 entries' dropdown is visible above the table. At the bottom of the dashboard, there is a cookie consent banner and an 'ACCEPT' button.

CMC STATE	CMC IDENTIFIER	BRANCH	SUBMITTING RMO	COUNTRY	SUBMITTED TO JCRB	JCRB STATUS	REVIEW LIMIT	AFRIM
N	AFRIMETS-EM-EG-00000NX1-1	DC voltage, current, and resistance	AFRIMETS	Egypt	2022-10-21	JCRB: Under Review	2023-05-05	
N	AFRIMETS-EM-EG-00000NXU-1	DC voltage, current, and resistance	AFRIMETS	Egypt	2022-10-21	JCRB: Under Review	2023-05-05	
N	AFRIMETS-EM-ET-00000O3G-1	DC voltage, current, and resistance	AFRIMETS	Ethiopia	2022-11-15	JCRB: Under Review	2023-11-30	
N	AFRIMETS-EM-ET-00000O3H-1	DC voltage, current, and resistance	AFRIMETS	Ethiopia	2022-11-15	JCRB: Under Review	2023-11-30	
N	AFRIMETS-EM-TN-00000O01-1	DC voltage, current, and resistance	AFRIMETS	Tunisia	2022-10-21	JCRB: Under Review	2023-05-05	
N	AFRIMETS-EM-TN-00000O0W-1	DC voltage, current, and resistance	AFRIMETS	Tunisia	2022-11-15	JCRB: Under Review	2023-11-30	
N	AFRIMETS-EM-TN-00000O13-1	DC voltage, current, and resistance	AFRIMETS	Tunisia	2023-02-15	Submitted to the JCRB		
N	AFRIMETS-EM-TN-00000O14-1	DC voltage, current, and resistance	AFRIMETS	Tunisia	2023-02-15	Submitted to the JCRB		
N	AFRIMETS-EM-TN-00000O18-1	DC voltage, current, and resistance	AFRIMETS	Tunisia	2023-02-15	Submitted to the JCRB		



# Improving the efficiency of CMC review

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2021-11-08 You are invited for **JCRB review** on CMC APMP-EM-SG-00000CZL-4 (DC voltage, current, and resistance). This is a repeated invitation to that made 3 weeks ago. Please notice that, if none of the RMOs register to review again, this CMC will be considered as approved.

2021-08-12 CMC APMP-EM-JP-00000D1E-2 (Impedance up to the MHz range) is now published in the KCDB.

2021-08-12 CMC APMP-EM-JP-00000D1D-2 (Impedance up to the MHz range) is now published in the KCDB.

2021-08-12 CMC APMP-EM-JP-00000D0K-2 (Impedance up to the MHz range) is now published in the KCDB

2021-05-11 Reviewed CMC APMP-EM-TW-00000CXH-2 (Other DC and low frequency measurements) was returned to TC Chair.

2021-05-11 Reviewed CMC APMP-EM-TW-00000CXI-2 (Other DC and low frequency measurements) was returned to TC Chair.

# WG new chair

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Past WGRMO chair Lic. Lucas Di Lillo 2019-2023

EURAMET – APMP – SIM - **AFRIMET**

Alexander Matlejoane was elected as a new WGRMO chair

# Questions ?

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Thank you