

Comité Consultatif de Photométrie et Radiométrie (CCPR)
WORKING GROUP ON CALIBRATION AND MEASUREMENT CAPABILITIES (WG-CMC)

28 April 2022, 12:00 –14:30 CET, online WebEx

Minutes (Draft 4.1)

1. Opening of the meeting, introductions, apologies.

The following persons were present at this meeting:

- Marek Smid, CMI (WG-CMC Chair)
- Catherine Cooksey, NIST (WG-CMC TG2 Chair)
- Teresa Goodman, NPL (WG-CMC TG3 Chair)
- Annette Koo, MSL (WG-CMC TG1 Chair APMP TC Chair)
- Maria Luisa Rastello, INRIM (CCPR President)
- Maria Nadal, NIST (WG-SP Chair)
- Dong-Hoon Lee, KRISS (WG-KC Chair)
- Joële Viallon, BIPM (CCPR Executive Secretary)
- Rheinhardt Sieberhagen, NMISA (AFRIMETS TC Chair)
- Anatolii Bescupschii, INM-MD (COOMET TC Chair)
- Stefan Kück, PTB (EURAMET Invited Expert)
- Thiago Menegotto, INMETRO (SIM TC Chair)
- Peter Blattner, METAS (TG2 Invited Expert)
- John Lehman, NIST (SIM Invited Expert)
- Olav Werhahn, BIPM (JCRB Executive Secretary)
- Joaquin Campos, IO-CSIC (EURAMET TC Chair)
- Julian Gröbner, WRC-PMOD (Invited Expert for agenda item xxx)
- Hayong Gan (APMP Invited Expert)

Apologies:

- Susanne Picard, BIPM (BIPM KCDB Coordinator)

2. Appointment of the rapporteur and approval of the Agenda ([CCPR-WG-CMC/22-01](#))

Stefan Kück was appointed rapporteur.

Marek proposed to put agenda item 13 right after item 9.

3. Approval of the minutes of the last meeting ([CCPR-WG-CMC/22-02](#))

Marek Smid thanked Thiago Menegotto for preparing the minutes from the last CCPR WG-CMC meeting and thanked those in the Working Group who provided comments and feedback. The minutes were approved with no additional changes.

4. Matters arising from the Report of WG CMC meeting 2021

4.1 Review of the decisions ([CCPR WG-CMC22-03](#))

The following decision points from the last CCPR WG-CMC meeting were reviewed.

DP-2021-01: CCPR WG CMC approves the implementation of TG4 proposal for CCPR CMC structure for fibre optics to both TG2 CMC related documents (i.e., 'CMC Services classification' pdf and 'Supporting evidence' Excel documents)

Status: in progress

DP-2021-02: WG-CMC is generally positive about the submission of new CMC SC from EURAMET/PMOD provided that more information is delivered.

Status: in progress

DP-2021-03: TG1 is reopened and will be chaired by Annette.

Status: Completed

DP-2021-04: To implement an aspect of the CMC consistency check after completed RMO KC on the board of WG CMC, RMO TC chairs will report during regular WG CMC meeting, (starting with the WG CMC meeting 2022) a status of consistency check of all participating RMO NMIs. Level of details includes only answer of question on whether or not the consistency checks were performed, and necessary actions taken. To start with, the next report will include last 2 years period, following one will include a regular annual update. Same update concerning CCPR KCs will be brought to WG CMC meetings by WG KC Chair.

Status: in progress. To be discussed within agenda item 11.

4.2 Review of the action points ([CCPR WG-CMC22-04](#))

The following action points from the last CCPR WG-CMC meeting were reviewed.

AP-2021-01: Marek to take care of the implementation of a clear guidance on the reporting of consistency check of comparisons with CMCs published considering preceding discussion. Deadline: End of January 2022.

Status: in progress, this point will be discussed during Agenda item 11.

AP-2021-02: Marek to clarify with Susanne Picard the best way to facilitate the editorial changes of published CMC raising from MR harmonization process. Information to be sent to RMO TCCs. Deadline: End of October 2021 (Completed in 2nd part of the meeting).

Status: Completed.

AP-2021-03: TCCs to send the list of identified CMC inconsistencies to relevant RMO NMIs (meeting document [CCPR-WG-CMC/21-07after](#)). TG2 Chair is in charge of this process. Deadline: 15 October 2021.

Status: Completed.

AP-2021-04: RMO TCCs to facilitate identified issues with consistency for Machine reading in SC1-Photometry with relevant RMO NMIs and report the results back to WG CMC. Deadline: End of January 2021.

Status: in progress. This point will be discussed during Agenda item 6.

AP-2021-05: Marek to facilitate further discussions on APMP G8 amendment proposal in the 2nd part of the WG CMC meeting. Deadline: 15 September 2021 (completed).

Status: Completed.

AP-2021-06: TC Chairs to share the APMP proposal with the community and bring the feedback to the WG CMC, 2nd part of the WG CMC meeting. Deadline: 6 October 2021.

Status: Completed.

AP-2021-07: After the editorial corrections in TG 4 FO CMC structure completed, Catherine with support from Jacques and Marek to implement TG4 proposal for CCPR CMC structure

for fibre optics to both TG2 CMC related documents Deadline: January 2022.

Status: In progress, close to completion. This point will be discussed during Agenda item 6.

AP-2021-08: Rheinhardt will prepare a half-page report regarding APMP activities described.
Deadline: End of February 2021.

Status: not completed (abandoned).

AP-2020-09: GULFMET TC Chair Mohammed AlFohaid will prepare a half-page report regarding APMP activities described. Deadline: End of December 2021.

Status: not completed (abandoned).

AP-2021-10: Olav and Susanne will add their presentations to the meeting documents. Deadline: End of December 2021 (CCPR-WG-CMC/21-18).

Status: completed.

AP-2021-11: Joaquin and Marek to approach PMOD for following more details on new CMC SC submission:

- i. clarification on the option for the traceability chain;
- ii. Information where the expertise lies at CCPR to review possible CMCs submission of this quantity.

Status: in progress. This point will be discussed during Agenda item 10.

AP-2021-12: Marek to collaborate with Susanne on the update of CCPR KCDB sub-field structure according the guide prepared by Dong-Hoon (WG KC Chair) Deadline: December 2021.

Status: in progress.

AP-2021-13. Annette to send new call for members for TG1 within this WG.

Status: completed.

5. Documents presented to the meeting

The following documents were presented at this meeting.

- CCPR-WG-CMC/22-01: Agenda of the 2022 virtual meeting
- CCPR-WG-CMC/220-02: Report of the WG-CMC 2021meeting
- CCPR-WG-CMC/22-03: Review of Decisions = WG meeting 2021
- CCPR-WG-CMC/22-04: Review of Action points from WG meeting 2021
- CCPR-WG-CMC/22-05: Draft of RMO Report to WG CMC on consistency check after competed KC
- CCPR-WG-CMC/22-06: TG2 Activity Report to WG CMC 2022
- CCPR-WG-CMC/22-07: TG1 Activity Report to WG CMC 2022
- CCPR-WG-CMC/22-08: EURAMET-PMOD proposal for new CMC
- CCPR-WG-CMC/22-9: EURAMET report 2022 to WG CMC
- CCPR-WG-CMC/22-10: SIM report 2022 to WG CMC
- CCPR-WG-CMC/22-11: AFRIMET report 2022 to WG CMC
- CCPR-WG-CMC/22-12: APMP report 2022 to WG CMC
- CCPR-WG-CMC/22-13: COOMET report 2022 to WG CMC
- CCPR-WG-CMC/22-14: News from JCRB for WG CMC meeting 2022

6. TG2 – ‘Update and maintain the CCPR “Classification of services in PR” and “Supporting evidence for CMCs in PR” documents

6.1 TG2 Chair – Report on TG2 activities since WG meeting 2021

Catherine Cooksey reported on progress in TG2 since last WG Meeting ([CCPR-WG-CMC/22-06](#)), this presentation provided a brief overview of the objectives and framework of the rules and classifications.

- Almost completed: Revised pdf and spreadsheet based on work of TG4.
- TG2 and WG-CMC approved revisions.
- Need to submit after minor revisions to Joële for publication.

AP-2022-01: Jacques, Marek, Catherine to check whether existing CMC entries are subject to change.

Harmonization of CMCs for Photometry:

- Status: in progress:
 - EURAMET: 11/17 NMIs submitted, but proposal for some changes.
 - SIM: submitted, some revisions to NIST’s submission.
 - APMP: Submitted.
 - COOMET: Not submitted.
 - GULFMET: N/A.

It followed a discussion on:

- Feedback on process of revising photometry entries:
 - WGC: process went fine but needs some time. If photometry is managed completely, this would be good start.
 - Peter Blattner: The harmonization takes longer than expected. He sees benefits, also with respect to the migration into KCDB 2.0. How to go on? Photometry was the easiest one, others are more complicated. Is it worth to try it? Will there be changes in KCDB in the future?
 - WGC: It indeed took time, but quality improved. There were issues with migrations found and now it is more uniform.
 - Joaquin Campos: process and result is positive, but people are busy, this process has probably not a high priority. Also, there are still problems using KCDB 2.0 for some NMIs.
 - Thiago Menegetto: Process and result positive. But there were errors in migration.
 - WGC: Errors should be easy to deal with, just send info to KCDB.
 - Annette Koo: Process was slow but will probably be quicker next time.
 - Anatolii Bescupscii: Process positive.
 - SK: Suggests going ahead step-by-step.
 - Consensus on going further with the harmonization process.
- What is next?
 - Catherine Cooksey suggests choosing a small category.

DP-2022-01: Next category: Spectral emission properties of sources

AP-2022-02: Peter to extract list of SC and send to Catherine, Catherine to TCCs

AP-2022-03: TCCs to submit harmonization to TCs, list to be checked against existing service categories. Due: next WG-CMC meeting

- Feedback on PTB’s proposal?
 - Proposal: add “distribution temperature” as parameter to five service categories (SC 1.1.1, 1.2.1, 1.3.1, 1.4.1, 1.5.1).
 - WGC: Change is administratively easy.

Peter Blattner: Parameters are mandatory. Therefore change to “correlated colour temperature / distribution temperature” or “correlated colour temperature or distribution temperature” to make clear, what either one has to be given.
Consensus, that new service categories should be avoided.

DP-2022-02: Parameter in SC 1.1.1, 1.2.1, 1.3.1, 1.4.1, 1.5.1 should read as “correlated colour temperature / distribution temperature” or “correlated colour temperature or distribution temperature”, whatever is machine readable.

6.2 WG CMC discussion

See 6.1.

7. TG1 - Use of comparison results in assessment of CMC claims

7.1 TG1 Chair – Report on TG1 activities on amendment of CCPR G8 Guidelines for the evaluation of CMC claims in light of comparison results

Annette Koo provided a brief report summarizing the activities in re-established TG1 since the last WG Meeting ([CCPR-WG-CMC/22-07](#))

An update of guideline G8 concerning the amount of uncertainty required to be added in Case B is necessary.

All RMO chairs agreed.

DP-2022-03: The change to guideline G8 in terms of harmonization the condition in Case B with GUM section F 2.4.5 was approved.

AP-2022-04: Annette Koo to submit updated guideline G8 to Joële.

Discussion on the implications of Mandel-Paule (or other dark uncertainty approaches) on CMC entries. The dark uncertainty component should be added to all participants. In specific on the following points:

- Effect on linked comparisons.
- Artefact instability?
- Mandel-Paule was carried out in different ways in the past.
- What about CMCs already in the database.
- Improve pre-Draft A process with respect to minimizing the dark uncertainty required?
See Annette’s document.

Joële Viallon: Concerning pre-draft A, will anonymity remain?

Stefan Kück: The model for uncertainty budget should be elaborated, already in the technical protocols of comparisons, to avoid issues with, i.e., large amounts of dark uncertainties, which affects all participants.

Olav Werhahn: Pilot lab can address participants in case of “strange” results, see CIPM guidelines

Annette Koo: Should there be a joint task group between WG-CMC and WG-KC?

Stefanm Kück: Not only pre-Draft A process is concerned, but already the way how we prepare, carry out and analyze KCs.

Maria Nadal: Agrees with Stefan Kück.

Dong-Hoon Lee: There is a task group in WG-KC to discuss this issue. There is no need for joint group.

Joële Viallon: Technical protocol is written by a small group, they should keep this already in mind.

Discussion on how to handle this.

Dong Hoon Lee: WG-KC needs decision from WG-CMC, on how the dark uncertainty is handled with respect to CMC entries.

Annette Koo: WG-CMC TG 1 cannot implement a policy which before the issues are addressed by the WG-KC, in order to anticipate the impact on CMCs.

AP-2022-05: WG-CMC TG 1 will propose that the responsible TG in WG-KC will invite TG1. Due: within the next 6 months.

7.2 WG CMC discussion

See 7.1.

8. News from JCRB since October 2021 (O. Werhahn - JCRB executive secretary)

Olav Werhahn gave presentation about news from JCRB, see presentation ([CCPR-WG-CMC/22-14](#)).

Amongst others, he reported on:

- There are new CIPM-MRA documents, CIPM MRA-G-11, CIPM MRA-G-13
- 45th JCRB meeting: March 16 -17, 2022:
 - Discussions on handling of QS approval when submitting CMC claims; feedback from CC consultations regarding CIPM MRA-G11; revision of CIPM MRA-G13 concerning “greying out practice” within KCDB 2.0.
- CIPM MRA in view of digital transformation. Surveys to be conducted, also within CCPR.
- Statistics on status of comparisons. Within CCPR, there are 2 KCs older than 5 years.
- CMCs: within CCPR, currently in total 1547 CMCs (EURAMET: > 700, APMP: > 350, SIM: > 200, COOMET: > 180, AFRIMETS: > 50).
- About 100 new CMC approvals within CCPR in 2022, in 2021 there was a dip, probably due to the new KCBD.
- 770 CMCs within CCPR are older than 5 years.
- 3 CCPR CMCs are currently greyed out.
- Review duration within JCRB is decreasing throughout all CCs (from about 140 to 60 days). In CCPR, intra-RMO review is about 50 days, JCRB review about 60 days.

Discussion:

John Lehman: How do other CCs act with respect to dark uncertainties? Is there a general rule?

Olav Werhahn: CCs can do what is best for their purposes. Handling will only go generically into the JCRB document CIPM MRA-G-11. CIPM MRA-G-11 is a generic document, it will not forbid anything.

9. TG3 - Clarify and harmonize the CMC review process

9.1 RMO TCCs, TG3 Chair – NMIs feedbacks on application of CCPR G9 for CMC submission/review process v2

Teresa opens the discussion briefly reporting on TG3. CCPR G9 is in operation. She has not received any questions or comments from RMOs so far. G9 seems to be applied so far without any TG3 assistance necessary.

9.2 WG CMC discussion

No discussion.

10. RMO TCC reports on CMC activities since previous meeting

10.1 AFRIMET ([CCPR-WG-CMC/22-11](#))

Rheinhardt Sieberhagen gives brief report:

- CMCs in fibre optics submitted. No reviewer available within AFRIMETS. Review within APMP?
- More CMCs in preparation of being submitted.

10.2 APMP ([CCPR-WG-CMC/22-12](#))

Annette Koo gives brief report:

- APMP was very active in submitting CMCs.

- Annette appreciates the reviewing work from APMP and other RMOs.
- > 100 CMCs published.
- There will be a workshop on the WG-CMC documents on 11.05.2022.

10.3 COOMET ([CCPR-WG-CMC/22-13](#))

Anatolii Bescupschii submitted report, probably landed in SPAM. Report was delivered after meeting. It has been added to working documents.

AP-2022-06: Anatolii to re-submit COOMET report to WGC (done).

10.4 EURAMET ([CCPR-WG-CMC/22-09](#))

Joaquin Campos gives presentation.

- CMCs are fixed agenda item at TC meetings.
- 10 new CMCs, 41 modified.
- Currently at RMO level: 1 under review, 8 revisions requested. At JCRB level: 2 under review, 1 revision requested, 4 waiting for vote.
- Inter-RMO review: For 10 CMCs, the revisions are completed, for 17 CMCs, revisions are requested.

10.5 SIM ([CCPR-WG-CMC/22-10](#))

Thiago Menegotto gives presentation.

- Currently 5 SIM NMIs have published CMCs: CENAM, INMETRO, INTI, NIST, NRC.
- 5 new claims from Lametro/Costa Rica approved, waiting for QS certificate review.
- Reviewing of claims from other RMOs.
- Recommendations for writers of CMCs were given to the RMO.
- Harmonization of CMCs: 19 of 21 entries harmonized for INMETRO, INTI, NIST.
- SIM-PR.K6 consistency check carried out, already using form provided by WGC.

10.6 GULFMET

No report.

11. RMO proposals for new CMC Service Categories 2022

Julian presents proposal for new CMC category, see presentation ([CCPR-WG-CMC/22-08](#)).

- CMC for atmospheric longwave radiation:
 - Julian explains the need, coming merely from WMO, a signatory of CIPM MRA concerning ECVs (essential climate variables). WMO has not any own laboratory.
 - The suggestion for a new service category is:
 - 2.12: Responsivity, terrestrial irradiance
 - 2.12.1 Broadband detector: irradiance level, bandwidth
 - CMC claim is underpinned by
 - Traceability to SI (ISO 17025).
 - Peer-reviewed publications.
 - Comparison campaigns.
 - Bi-lateral comparison with PTB.
 - There were some clarifications needed from last CMC meeting. Julian presented these clarifications concerning traceability chain and expertise within CCPR to review this quantity.

All WG-CMCs members agreed to introduce this new service category.

DP-2022-04: The service categories 2.12. and 2.12.1 are approved by WG CMC.

2.12: Responsivity, terrestrial irradiance

2.12.1 Broadband detector: irradiance level, bandwidth

AP-2022-07: To update the CCPR “[Classification of services in PR](#)” and “[Supporting evidence for CMCs in PR](#)” documents - WGC, TG2 Chair and Julian

CMC for Essential Climate Variable Aerosol Optical Depth (AOD)

- AOD is the spectral aerosol extinction coefficient integrated over the geometrical path length, i.e., the spectrally dependent absorption of radiation (solar or lunar) through the atmosphere.
- Carried out with narrowband filter radiometers measuring solar or lunar irradiance.
- Claim is underpinned by well-established calibration procedure, traceability, peer-reviewed publication, comparison campaigns.
- CMC claim is planned, needs new service category.
- New branches for ECVs: “Optical remote sensing of ECVs” and “Environment/climate parameters”.

WGC: The WG-CMC is aware of this topic and considers it as very important.

Joaquin Campos: Proposal was discussed within EURAMET. WG-CMC should discuss, how branches are set up.

Teresa Goodman: Should be discussed within CMC-WG TG 3. She herself is reluctant to introduce two new branches.

Joële Viallon: It is very good that PMOD proposes new CMCs. It should also be discussed with CCQM, might be overlap.

John Lehman: In the branch of “Fibre Optics”, there are customers. What about this proposal? To whom this is sold to?

Julian Gröbner: A CMC entry is a proof that you are able to carry out measurements.

Thiago: Are we drifting away from the intention of the MRA, that CMCs are representative rather than comprehensive?

DP-2022-05: The further procedure in considering the implementation of new ‘Branch ECV’ is to be discussed within the WG-CMC TG 3 Clarify and harmonize the CMC review process

12. Guidance on the reporting of consistency check by RMO TCCs following a completion of comparisons

WGC sent Excel sheet concerning the consistency check following the completion of a key comparison prior to meeting and presented it. See working document [CCPR-WG-CMC/22-05](#).

AP-2022-08: TCCs to send back opinion on this excel sheet on the consistency check following the completion of a key comparison within one month.

13. KCDB v2.0 matters

Change of CCPR structure of comparison within KCDB 2.0 has been prepared and sent to KCDB executive secretary/ Latest details yet need to be clarified.

AP-2022-09: Marek with help from Joële to continue in communication with Susanne and complete the change of the KCDB CCPR comparison structure.

14. Any other business

-

15. Next meeting

Not decided. Eventually in collocation with NEWRAD 2023

16. Closing the meeting

14:30 CEST.