

## 1. General Aspects

A new TC-Chairman started his work after General Assembly of EURAMET on June 2021. The close collaboration between the previous and current TCC has been very beneficial for the transition period between the two.

The EURAMET TC-PR held the annual meeting virtually on January 26 to 27, 2022, with a Workshop prior to the meeting on January 25, 2022, where the PRTs to be presented in the 2022 EPM call for proposals were discussed. In addition, another workshop on running EMPIR projects was held after the annual meeting in the afternoon of January 27, 2022.

All activities on projects, comparisons and traceability are updated and can be found on the EURAMET project website <http://www.euramet.org/technical-committees/search-tc-projects/>.

## 2. Projects

Currently, there are 15 active projects within the TC-PR with the status "in progress" (7) or "ongoing" (8). 6 of these are comparisons, 7 are traceability projects, 1 is a consultation project and 1 is a research project.

- The consultancy project PR1101 "Strategic planning in Photometry and Radiometry" is led by the TC chair. The project seeks to explore, which avenues research and development within photometry and radiometry (PR) will be taken in the future. The outcomes of the project will be important for revision of existing roadmaps and strategic agenda for PR as well as point toward future common research projects in PR. This project has been developed continuously since its establishment.
- The research project PR1048 *Cryogenic Solar Absolute Radiometer* (CSAR) aim to develop an instrument that will be able to serve as a future primary standard for the ground-based measurement of Solar Irradiance. The long-term objective is to replace the current artefact-based standard (World Standard Group, WSG) with an instrument that is exclusively based on fundamental physical principles, and that can therefore operate as a true SI standard. A new coordinator has been assigned to this project.
- The traceability projects have the aim to maintain traceability between participating NMIs within the TC-PR. There have been no significant developments in these projects during this period.

For the "Comparison" projects, see next section.

## 3. Comparisons

The following comparisons are currently in progress. Details can be found on the EURAMET project website.

| REG. NO. | TITLE  | PILOT        | STATUS      | KCDB                        |
|----------|--|--------------|-------------|-----------------------------|
| 443      | <u>Comparison of Ultraviolet Power Meters</u>                | LNE          | in progress | <u>EURAMET.PR-S4</u>        |
| 1412     | <u>Key Comparison on spectral regular transmittance</u>      | LNE-LCM/CNAM | in progress | <u>EURAMET.PR-K6.2015</u>   |
| 1456     | <u>Key comparison on spectral regular transmittance 2018</u> | LNE-LCM/CNAM | in progress | <u>EURAMET.PR-K6.2015.1</u> |

| REG. NO. | TITLE   | PILOT | STATUS      | KCDB                               |
|----------|---|-------|-------------|------------------------------------|
| 1468     | <u>Pilot study on the detection efficiency of single-photon detectors - SI-SPAD</u> | PTB   | in progress |                                    |
| 1505     | <u>Key comparison on luminous intensity 2020</u>                                    | METAS | in progress | <a href="#">EURAMET.PR-K3.2020</a> |
| 1509     | <u>Trilateral comparison of spectral diffuse reflectance</u>                        | UME   | in progress | <a href="#">EURAMET.PR-K5.2022</a> |

Proposed, but not yet registered are the following comparisons:

- Supplementary comparison on Fibre optics wavelength (EURAMET.PR-Sx) piloted by IO-CSIC. Protocol to be finished by end of June. Start is planned in Autumn 2022.
- Supplementary comparison on fibre power meters (EURAMET.PR-Sy) piloted by DFM. Protocol under preparation. It probably starts this year
- DFM and RiSE plan a bilateral comparison on spectral responsivity: call issued.

#### 4. CMCs

As part of the digitization process and in collaboration with the CCPR and the other RMOs, a harmonization of the CMCs in the photometry branch is being carried out. This process is aimed at facilitating the reading of CMCs by machines in the near future. The same will be done with the other CMC branches in PR.

During this period, 10 new CMCs have been published and 41 have been modified in the KCDB 2.0.

As of April 25, 2022, the status of CMCs submitted for review by TC-PR members is as shown in the table below.

| Status at April 25, 2022 | Number of submissions |
|--------------------------|-----------------------|
| RMO: Under review        | 1                     |
| RMO: Revision Requested  | 8                     |
| JCRB: Under Review       | 2                     |
| JCRB: Revision Requested | 1                     |
| JCRB: Waiting for VOTE   | 4                     |

#### 5. Activities of the Subcommittees

TC-PR has no Subcommittees.

#### 6. Participation in EMRP/ EMPIR/EPM

In 2021, the projects *Support for the standardisation of luminance distribution measurements for assessing glare and obtrusive light using high-dynamic-range imaging systems* (21NRM08 HiDyn), ranked first in the normative call, and *Metrological framework for passive radiative cooling technologies* (21GRD03, PaRaMetriC), ranked 3<sup>rd</sup> in the Green Deal call, were funded.

In summary, from the 4 PRTs submitted (GRD: 3 / NRM: 1), 3 advanced to SRTs (GRD: 2 / NRM: 1), 3 were submitted as JRPs (GRD: 2 / NRM: 1), from which 2 were granted (GRD: 1 / NRM: 1).

The TC is currently involved in the following projects:

|   |                          |
|---|--------------------------|
| EMPIR call 2017 Fundamental                 | 17FUN06, SIQUST          |
| EMPIR call 2018 SI Broader Scope            | 18SIB03, BxDiff          |
| EMPIR call 2018 SI Broader Scope            | 18SIB10, chipS-CALe      |
| EMPIR call 2018 Network                     | 18NET04, ForClimateOcean |
| EMPIR call 2019 Energy                      | 19ENG01, Metro-PV        |
| EMPIR call 2019 Environment                 | 19ENV04, MAPP            |
| EMPIR call 2019 Environment                 | 19ENV07, MET4ClimOS      |
| EMPIR call 2019 Normative                   | 19NRM02, RevStdLED       |
| EMPIR call 2019 Normative                   | 19NRM06, MeTISQ          |
| EMPIR call 2019 Network                     | 19NET02, ENM-Quantum     |
| EMPIR call 2020 Industry                    | 20IND05, QADeT           |
| EMPIR call 2020 Fundamental                 | 20FUN05, SEQUME          |
| EMPIR call 2020 Normative                   | 20NRM01, MetTLM          |
| EMPIR call 2020 Small Collaborative Project | SCP-03, SmartPhora       |
| EPM call 2021 Green Deal                    | 21GRD03, PaRaMetriC      |
| EPM call 2021 Normative                     | 21NRM08 HiDyn            |

A list with links to the TC-PR EMRP and EMPIR projects can be found here:

<https://www.euramet.org/technical-committees/tc-pr/emrp-empir/>.

## 7. Capacity Building: Activities of the last year and future needs

A Small Collaborative Project (SCP-03, SmartPhora) under the title *Smart specialization and stakeholder linkage in Photometry and Radiometry* is being developed with several NMIs of this committee.

TC-PR discusses collaboration needs among its members each year at a seminar held in conjunction with its annual meeting early in the year.

## 8. Meetings

The annual EURAMET TC-PR meeting was held on January 26 to 27, 2022, with a Workshop prior to the meeting on January 25, 2022. Due to the COVID-19 issues, the meeting was held virtually instead of, as planned, taking place at METAS Switzerland. The topics of the workshop were:

- Preparation and discussion on proposals for the Call 2022 of the European Partnership on Metrology.
- Report on the Small Collaborative Project within TC-PR.
- Discussion on other collaborative projects.

In addition, as decided at the annual meeting on 2021, an additional ad-hoc workshop on the current EMPIR projects was held on Thursday afternoon.

An informal online meeting on digitization issues related to TC-PR was held on April 12, 2022. This was decided during the annual meeting.

Next meeting will be at METROSERT, Estonia, January 24<sup>th</sup> to January 26<sup>th</sup>, 2023.

## 9. Issues

Nothing to remark.

## 10. Strategic Planning

In the TC-PR meeting 2022, virtually held, on January 26<sup>th</sup> – 27<sup>th</sup>, a workshop on the upcoming call within the European Partnership on Metrology was held (January 25), where the proposed PRTs were discussed in detail. The support from the TC to those PRTs was decided later during the annual meeting. Furthermore, a workshop dealt with the results and outcomes of the EMPIR Projects: 18SIB10 chipS-CALe, 19ENV04 MAPP, 17FUN06 SIQUST, 20FUN05 SEQUEME, 19NRM06 MeTISQ, 19ENG01 Metro-PV, 19NRM02 RevStdLED and 20NRM01 MetTLM.

EMNs connected to the TC (Climate and Ocean, Quantum Technologies and Advanced Manufacturing) were presented by their EMN Chairs during the annual meeting.

Information on the upcoming European Partnership on Metrology calls was given and decision on the support of the discussed project proposals was made.

TC-PR members were informed about the conclusion of the roadmap for Photometry and Radiometry.

As far as upcoming comparisons are concerned, the next KCs were discussed and pilot labs established.

It was decided to hold a specific meeting on issues related to digitization in which the TC-PR could play a role. The TC-PR Chair was tasked to prepare such an online meeting in the second quarter of 2022.

## 11. Outlook for 2022/2023

In the next period, the focus will be mainly on the following topics:

- The collaboration will be more strengthened between the members of the TC-PR, also by using the new funded project on collaboration and smart specialization, SmartPhora. Even more than just the current project partners will be integrated in the collaborative activities.
- TC-PR will continue dealing with the established European Metrology Networks and those that may be created in the future. The activities of the TC have to be aligned with the EMN activities. Furthermore, it has to be assured, that also the other TC-PR-relevant topics will find their place in the new EURAMET structure with respect to progress in research and development.
- The application for new CMCs by TC-PR members and the management of those published seems to be an unfinished issue for some TC members, so it will be necessary to continue to support those members to become familiar with KCDB 2.0.
- A long-term activity is the planning of the second round of the EURAMET Key Comparisons in order to follow-up quickly the currently running CCPR Key Comparisons.
- Continue the discussion on the contribution that the TC-PR can make to digitization in the EURAMET environment and cooperating with the other RMOs.
- Support the use of capacity building tools by TC-PR members.
- TC-PR will issue orientation papers for the call 2023 of the EPM.

