

1. General Aspects

The EURAMET TC-PR had the annual meeting virtually on January 27 to 28, 2021, with a Workshop prior to the meeting on January 26, 2021 and an EMPIR Workshop after the annual meeting on January 28, 2021.

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 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 take in the future. The outcomes of the project will be important for revision of existing roadmaps for PR as well as point toward future common research projects in PR. Part of this project is also the planning for the next workshop held in collocation with the annual meeting.
- 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.
- The traceability projects have the aim to maintain traceability between participating NMIs within the TC-PR.
- 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	Comparison of Ultraviolet Power Meters	LNE	in progress	EURAMET.PR-S4
1412	Key Comparison on spectral regular transmittance	LNE-LCM/CNAM	in progress	EURAMET.PR-K6.2015
1456	Key comparison on spectral regular transmittance 2018	LNE-LCM/CNAM	in progress	EURAMET.PR-K6.2015.1
1468	Pilot study on the detection efficiency of single-photon detectors - SI-SPAD	PTB	in progress	
1505	Key comparison on luminous intensity 2020	METAS	in progress	EURAMET.PR-K3.2020
1509	Trilateral comparison of spectral diffuse reflectance	UME	in progress	

Completed since the last GA were:

REG. NO.	TITLE	PILOT	STATUS	KCDB
1116	<u>Spectral responsivity in the range from 900 nm to 1600 nm</u>	VSL	completed	<u>EURAMET.PR-K2.a</u>
1226	<u>Comparison of Reference Solar Cells</u>	PTB	completed	<u>EURAMET.PR-S5</u>

Proposed, but not yet registered are the following comparisons:

- Bilateral comparison between UME and SASO on luminous flux. The Technical Protocol was reviewed by TC-PR. At the last TC-PR meeting it was decided to transfer the comparison to GULFMET.
- Supplementary comparison on Fibre optics wavelength (EURAMET.PR-Sx) piloted by IO-CSIC. Protocol to be finished by end of February. Start is planned in May 2021, however, depending on COVID-19 situation.
- Supplementary comparison on fibre power meters (EURAMET.PR-Sy) piloted by DFM. Anders reported that he started to work on the protocol. It probably starts next year
- DFM and RiSE plan to propose a bilateral comparison on spectral responsivity: call issued.

4. CMCs

First CMCs applications were done via KCDB 2.0. To increase the use of KCDB 2.0, it was agreed to organise a workshop on the use of KCDB 2.0 on April 28th.

5. Activities of the Subcommittees

TC-PR has no Subcommittees.

6. Participation in EMRP/ EMPIR

In 2020, the projects 20FUN05 SEQUME (Single- and entangled photon sources for quantum metrology), 20IND05 QADeT (Quantum sensors for metrology based on single-atom-like device technology) 20NRM01 MetTLM (Metrology for temporal light modulation) and SCP-03 SmartPhora (Smart specialization and stakeholder linkage in Photometry and Radiometry) succeeded to be funded within the EMPIR 2020 Calls. In summary, from the 5 PRTs submitted (IND: 1 / FUN: 2 / NRM: 2), 4 advanced to SRTs (IND: 1 / FUN: 1 / NRM: 2), 3 were submitted (IND: 1 / FUN: 1 / NRM: 1), from which all were granted (IND: 1 / FUN: 1 / NRM:1). In addition, 1 small collaborative project was successfully submitted.

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

A list with links to the EURAMET webpages for 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

The TC Chair successfully submitted a Small Collaborative Project (SCP-03, SmartPhora, Smart specialization and stakeholder linkage in Photometry and Radiometry). At a workshop prior to the TC meeting, the outcome of the SCP call and the further procedure were discussed.

8. Meetings

The annual EURAMET TC-PR was held on January 27 to 28, 2021, with a Workshop prior to the meeting on January 27, 2021. Due to the COVID-19 issues, the meeting was held virtually instead of, as planned, taking place at METAS Switzerland. The topics of the workshops were:

- Preparation and discussion on the Call 2021 of the European Partnership on Metrology
- Workshop on the outcomes of the SIQUST project (17FUN06)
- Report on the Small Collaborative Project within TC-PR

In addition, due to strong interest from the side of the participants and the project coordinators, an additional ad-hoc workshop on the current EMPIR projects was held on Thursday afternoon.

Next meeting will be at METAS, Switzerland, January 25th to January 27th, 2022.

9. Issues

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10. Strategic Planning

In the TC-PR meeting 2021, virtually held, on January 26th – 28th, a workshop on the upcoming Call within the European Partnership on Metrology was held, where the proposed PRTs were discussed in detail, whether they should be supported by the TC. Furthermore, a workshop dealt with the results and outcomes of the EMPIR Project “Single-photon sources as new quantum standards” (SIQUST, 17FUN06) and an overview on the newly granted small collaborative project “SmartPhora”, a new capacity building instrument from EURAMET, was given at the TC-meeting, the EMNs connected to the TC were presented by the EMN chairs. Information on the upcoming European Partnership on Metrology program was given and decision on the support of the discussed project proposals were made. It was decided to update the currently existing roadmaps and convenors for specific fields were established. As far as upcoming comparisons are concerned, the next KCs were discussed, pilot labs established and new SC relevant for the TC discussed and decided on. Furthermore, directly after the TC meeting, a workshop on the currently running EMPIR projects was held.

11. Outlook for 2021/2022

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

- A new TC Chair will take over.
- 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.

- Still ongoing and a long-term activity will be, the TC-PR has to deal with the new established European Metrology Networks. 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 of new CMCs from the TC-PR has to be established. Therefore, a workshop on April 28th, 2021, will be held. The aim is that KCDB 2.0 will be commonly used by all members of the TC.
- 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.

