

28 May 2014

1. General Aspects

EURAMET TC-PR has currently representatives from 19 EURAMET members NMIs and 4 associates (designated institutes).

Many members are participating in 6 currently running joint research projects of EMRP; particularly in the Scope Environment, but also in Scopes Open excellence, SI-Broader Scope and the Scopes Industry and Energy. Another 5 TCPR-related SRTs were selected in EMRP Call 2013, 2 of them with horizontal subjects with significant contribution from TCPR.

2. Projects

There are currently 30 active projects running in TC-PR.

Along with 16 active Traceability and 12 Comparison types of projects there is presently one active Consultation project - PR1101: "Future Trends in Radiometry and Photometry" dealing with EURAMET strategic planning in the area and one Cooperation (research) project 1048: "Cryogenic Solar Absolute Radiometer – Replacing World Radiation Reference by SI".

The number of running projects, as well as their structure, have remained stable or with very few changes over last two years period, although in the long term perspective - over last ten years period - it has shown a clear trend of increasing number of traceability projects and comparison projects. It demonstrates stronger links between individual NMIs in EURAMET in the field of photometry and radiometry and reflects the need of CMC supporting evidence.

The latest progress reports of all TC-PR projects can be found at the TC-PR webpages. The previous reports are stored in the restricted part of the TC-PR webpages.

Number of agreed or proposed TC-PR projects	2003	2014
Traceability	7	16
Comparison	6	12
Cooperation	3	1
Consultation	3	1

3. Comparisons

Thanks to focussed effort of all members of Technical committee for Photometry and Radiometry and thanks to measures approved by TCPR in last 3 years period the status of EURAMET key comparisons has been significantly consolidated. Currently all of 7 key comparisons of the 1st round of EURAMET Key Comparison campaign are either completed or in the stage of Draft-B of Final protocol (i.e. already publically available document). The only exception is EURAMET key comparison on spectral responsivity of optical detectors in near infrared spectral range 900 nm – 1600 nm, EURAMET.PR-K2.a, where the late start of our RMO loop was caused mostly due to significant delay in progress of relevant CCPR key comparison.

One new bilateral comparison was registered during the last year period: Comparison of reference Solar Cells - multilateral cross-RMO supplementary comparison of reference Solar Cells, piloted by PTB, (5 participants from COOMET and APMP: VNIIOFI (RU), KRIS (KR), NMC (SG), ITRI (TW), NIM (CN)). This project is a good example of EURAMET-initiated cross-ocean activity in optical radiation metrology with fully global impact.

4. CMCs

During the year 2013 many EURAMET NMIs submitted changes in their CMC files mostly reflecting current developments of their calibrations services and the results of already completed CCPR and EURAMET key comparisons. These files are presently going through the of intra-EURAMET review process. Beside it several EURAMET NMIs submitted new CMCs files with minor changes and editorial corrections only, which didn't need to go through intra-EURAMET neither inter-RMO review process. They had been being published in KCDB as they were submitted during the whole year's period.

EURAMET TC-PR further reviewed CMC batches, COOMET.PR.8.2013, COOMET.PR.9.2013 and SIM.PR.7.2013 in inter-RMO review process since last EURAMET TCC/BoD meeting.

5. Activities of the Sub-Committees

TC-PR has presently no Sub-Committee.

6. EMRP

TCPR has been achieving growing success in EMRP program since the year 2010.

At the EMRP call 2010 3 projects related to TC-PR were successful and are going through the third year of their progress:

- ENV03 Traceability for Surface Spectral Solar Ultraviolet Radiation (SolarUV)
- ENV05 Metrology for Earth Observation and Climate (MetEOC)
- IND06 Metrology for Industrial Quantum Communication Technologies (MIQC)

TC-PR has achieved remarkable success in the EMRP call 2012 where again three JRP projects of our metrology area were approved for financing. They are currently running through their second year of progress:

- JRP EXL02 Single Photon Sources for Quantum Technologies (SIQUTE) in scope Open Excellence
- JRP IND52 Multidimensional Reflectometry for Industry (XDReflect) in scope Industry
- JRP SIB57 New Primary Standards and Traceability for Radiometry (NEWSTAR) in SI-Broader scope.

Even more significant success was reached in EMRP call 2013 where, both in Scopes Environment II and Energy II, 5 SRTs were selected for financing.

- SRT v18 Metrology for earth observation and climate 2
- SRT v09 Traceability for atmospheric total column ozone
- SRT g10 Metrology for efficient and safe innovative

Plus another 2 horizontal projects with significant contribution from TCPR

- SRT g14 Towards an energy-based parameter for photovoltaic classification
- SRT g15 Metrology for III-V materials based high efficiency multi-junction solar cells

These projects are currently going now through the negotiation stage with the outlook of starting in July 2014.

7. Meetings

The last meeting of the EURAMET TC-PR was held in 2-3 April, 2014 in Trappes, France hosted by LNE. It was attended by 19 participants and 7 guests. As it become tradition, in the previous day 1 April 2014 TC-PR organised the "Workshop on New trends in absolute radiometry", organised by the partners of JRP SIB57 "New Primary Standards and Traceability for Radiometry (NEWSTAR)" summarising recent developments in this core subfield of optical radiometry and disseminating knowledge on first project's achievements. The Workshop was attended by most of TC-PR participants.

Significant part of the meetings has always been dedicated to presentations and thorough discussion on all currently available Drafts of TCPR oriented PRTs of relevant EMRP calls aiming to evaluate their relevance and refine their impact for our stakeholder's community. The same policy is going to apply to EMPIR pro-

gram too. To facilitate the exchange of opinions and ideas about drafts of PRTs for EMPIR Call 2014 TCPR has opened the web-based discussion platform on <http://tc-pr-euramet-forum-empir.cmi.cz>

The next TC-PR meeting will be held from 2 February to 3 February 2015 in VSL Delft, the Netherlands.

8. Issues

The main emphasis is current being put on the topic of building stronger links between EURAMET TCPR and main European stakeholders. Thus TCPR wants to increase the impact of our activities to European community.

As well, strong importance will be given to strengthen our pre-normative oriented research. This is aimed to be achieved mostly via closer cooperation with CIE Division 2 and through it directly with CEN and ISO.

9. Strategic planning

All EURAMET TC-PR Strategic planning activities are provided within the project: PR1101 "Future Trends in Radiometry and Photometry" having aimed to explore which avenues will take the research and development within photometry and radiometry (PR) in the future

Strategic planning is currently focussed in preparing supporting documents for EURAMET Strategic research Agenda.

For that purpose 5 different Working Groups were established during last TC-PR meeting :

- **Climate/Environment:** putting the major focus on Earth observation and Climate monitoring activities,
- **Fundamental Science/ Quantum Optics** taking up new fields of Quantum bio-photonics and Quantum enhanced measurements
- **Energy:** including the research towards better Energy production and conservation. It includes mainly strengthening metrology for technology areas of Photovoltaic and Metrology for Solid state lighting (LEDs and OLEDs)
- **Innovation:** including mostly areas of physical measurements for visual perceptions and latest requirements in the areas of Fiber Optics and Optical micro-sensors and integrated optics.
- **Pre-normative** foreseeing the future needs for pre-normative research in our field of metrology

Based on this structure TC-PR is currently going through thorough discussion on the SRA

9. Outlook for 2013/2014

The major focus will be put on building stronger links between TCPR and main European stakeholders. Beside it the necessary effort will be devoted to preparing JRP proposals for the EMPIR call 2014 and to strategic planning towards the finalisation of EURAMET Strategic Research Agenda.

Marek Smid,
Chair of EURAMET TC-PR
2014-05-28