

24 May 2013

1. General Aspects

EURAMET TC-PR has currently representative from 23 EURAMET members and 1 associate (a designated institute). Many members are participating in currently running joint research projects EMRP; particularly in project ENV03: "Traceability for Surface Spectral Solar Ultraviolet Radiation (SolarUV)", project ENV04: "Metrology for Earth Observation and Climate (MetEOC)" and JRP IND06: "Metrology for Industrial Quantum Communication Technologies (MICQ)".

2. Projects

There are currently 27 active projects running in TC-PR.

Along with 15 active Traceability and 10 Comparison types of projects there is presently one active Cooperation (research) project 1048: "Cryogenic Solar Absolute Radiometer – Replacing World Radiation Reference by SI" and one active Consultation project, PR1101: "Future Trends in Radiometry and Photometry" dealing with EURAMET strategic planning in the area.

Since the last GA meeting it has been decided to close cooperation/research project 896: "Laser-based radiometry for large-area detectors, luminance standards and spectroradiometers", since this activity has been currently covered by the EMRP project JRP ENV03: "Traceability for Surface Spectral Solar Ultraviolet Radiation". In last 10 years the number of traceability projects has increased demonstrating stronger links between individual NMIs in the field. Increasing number of Comparison projects is linked to dealing with CMC supporting evidence.

Beside it, TC-PR last year activities were clearly focused on EMRP (either on running accepted projects or on preparing the proposal for new projects).

Number of agreed or proposed TC-PR projects	2003	2013
Traceability	7	15
Comparison	6	10
Cooperation	3	1
Consultation	3	1

Shortly before the last GA one new projects has been registered.
PR 1226 Comparison of reference Solar Cells

Multilateral cross-RMO supplementary comparison of reference Solar Cells, piloted by PTB, (participants VNIIOFI (RU), KRISS (KR), NMC (SG), ITRI (TW), NIM (CN))

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.

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. The current situation of all running comparisons is summarised in the table below. This table demonstrates clearly very positive trend that the large progress in completing the 1st round of EURAMET Key Comparison was achieved in last year period

Shortly before last GA meeting one new bilateral comparison was registered: Comparison of reference Solar Cells - multilateral cross-RMO supplementary comparison of reference Solar Cells, piloted by PTB, (5participants from COOMET and APMP: VNIIOFI (RU), KRISS (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.

BIPM - Identifier	Euramet Nr	Quantity	status as of 2013-02-25	action, comments
EUROMET.PR- K1.a	1103	spectral irradiance (250-2500nm)	Draft-A of Final Protocol distributed on 1 March 2013	Draf-B of Final Protocol to be sent to CCPR for approval on 15 June 2013
EUROMET.PR-K2.a	1116	spectral resp. (900-1600nm)	2 Groups out of 3 completed the measurements	Measurements planned to be completed by June 2013
EUROMET.PR-K2.b	587	spect. resp. (300-1000nm)	Draf-B of Final Protocol sent to CCPR for approval	Responds to WG KC CCPR to be sent by 1 June 2013
EUROMET.PR-K2.b.1	1023	spect. resp. (300-1000nm) bilateral	In progress, no news	
EUROMET.PR-K3.a	569	luminous intensity	Draft-A of Final Protocol circulated on 20 Feb 2013	Draf-B of Final Protocol to be sent to CCPR for approval on 15 June 2013
EUROMET.PR-K4	569	luminous flux	Pre- draft A of Final Protocol in progress	Draft A to be distributed by 30 June 2013
EUROMET.PR-K4.1	823	luminous flux, bilateral	draft B sent to CCPR	Report in discussion with CCPR WG KC
EUROMET.PR-K5	619	spectr. diffus. reflectance	Draft A-3 including KCRV in progress	Draft A-3 including KCRV to be approved by participants,
EUROMET.PR-K6.2	1073	spectr. diffus. transmittance, bilaterl	In progress	
EUROMET.PR-S2	156	high laser power	Part 1 (power up to 10W) completed, 2009	Comparison completed
EURAMET.PR-S4	443	Comparison of Ultraviolet Power Meters.	In progress	4 participants out of 7 completed the measurement
EURAMET.PR-S3	1216	Chromatic Dispersion Reference Fibres bilateral	Final protocol was sent to KCDB for publication in 15 May 2013	Project to close by 1 June 2013
EURAMET.PR-S5	1226	Comparison of Reference Solar Cells	Measurements in progress	Measurements to be completed in December 2013

4. CMCs

An overview of the past and present CMC submissions is given in the table below.

Designation	Contents	Status	Comments
EUROMET.PR.1.2001	Initial submission from most of EUROMET NMIs	published, 2001-10-10	
EUROMET.PR.2.2002	submission from most of EUROMET NMIs	published, 2002-10-31	
EUROMET.PR.3.2005	CMCs from FI, SK, ES, and CH	published, 2006-04-26	
EUROMET.PR.4.2006	CMCs from CH, DE, FI, GB and TR	published, 2007-05-11	Some CMC from DE(PTB), FI(MIKES), and CH(PMOD) got lost
EUROMET.PR.5.2007	Some of the lost CMCs from FI	published, 2007-06-22	fast track process, initiated during CCPR WG CMC meeting
EUROMET.PR.6.2007	Some of the lost CMCs from FI and DE	published, 2008-02-08	FI cancelled the submitted quantities on fibre optics
EUROMET.PR.7.2007	The lost CMC's from CH(PMOD)	published, 2008-09-09	
EUROMET.PR.8.2008	CMCs from DE, FR, FI, (RO), (TR), NL	published, 2009-03-24	CMC's of RO were not proceed to the interRMO review because results of corresponding key comparison were not yet approved, no review was necessary for TR
EURAMET.PR.9.2009	CMCs form AT, CH, CZ, DE, ES, FR, HU, RO, RS	published 2010-10-15	only APMP promised to do a review by 2010-03-31, 2010-04-13 comments received from APMP, reply from EURAMET 2010-05-31, notification to be done by APMP by 2010-06-21

EURAMET.PR.10.2011	CMCs from CH, DE, ES, PL, RO	approved for publication 2012-01-31	only APMP and SIM promised to do a review by 2010-03-31, comments received from APMP and SIM by 2011-07-04, reply from EURAMET posted 2012-01-20, approved by APMP and SIM on 2012-01-31
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During the last year (the year 2012) only the CMCs with minor changes and editorial corrections were submitted by several EURAMET NMIs, 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 APMP.PR.9.2012, COOMET.PR.5.2011 and COOMET.PR.6.2012 in inter-RMO review process since last EURAMET GA meeting.

5. Activities of the Sub-Committees

TC-PR has presently no Sub-Committee.

6. EMRP

Most members are participating at the joint research project ENG09 Metrology for Solid State Lighting. At the EMRP call 2010 3 projects related to TC-PR were successful and are going through the second 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 when three new JRP projects of our metrology area were approved for financing. They were:

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

They all are going now through the negotiation stage with the outlook of starting date in 1 July 2013. Additionally some radiometry laboratories are contributing some smaller part to other projects.

7. Meetings

The last meeting of the EUROMET TC-PR was held from February 27 to 28, 2013 in Lyngby, Denmark, hosted by DFM. It was attended by 20 participants and 7 guests. Linked with this meeting the Focussed workshop of JRP ENG505 "SSL lighting" took place on February 26, where the recent achievements and results of the project were presented and future outlooks for TC-PR activities in towards "Energy conservation" were discussed having been assisted by most of TC-PR participants.

The next TC-PR meeting will be held from 2 April to 3 April 2014 in Paris, France.

8. Issues

After successful dealing with slow progress of key comparison the main emphasis is going to be put on the topic of building stronger links between TCPR and main European stakeholders. Thus TCPR wants to increase the impact of our activities into European community. As a good example could be close cooperation between EMRP JRP ENV04 and WMO dealing with issues linked to absolute terrestrial monitoring of UV spectral solar irradiance. As well, strong accent will be put to strengthening the cooperation with CIE Division 2 and, through it, to ISO with the joint effort of positively influence currently running process of standardization of new LED- and OLED- based luminaires

9. Strategic planning

All EURAMET TC-PR Strategic planning activities 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.

During the TC-PR meeting 2012 had been decided to update the iMERA-Roadmaps (2006) to reflect the impacts of research activities within PR community in last 5 years. After a debate summarising the experiences gained and the visions foreseen the conclusion was to evolve the number of road maps from three to four.

Following particular topics were agreed upon:

- **Climate/Environment:** evolving the RM from “Quality of Life(2006)” putting the major focus on Earth observation and Climate monitoring activities,
- **Basic Science/ Quantum Optics:** evolving them from Quantum based Standards(2006) via taking up new fields of Quantum bio-photonics and Quantum enhanced measurements
- **Industry:** being evolved from RM Physical measurements for visual perceptions (2006) having added latest requirements in the areas of Fiber Optics and Optical micro-sensors and Integrated optics.
- **Energy:** new Energy RM was decided to work out reflecting the TCPR plans to contribute into the research towards better Energy production and conservation. It includes mainly strengthening metrology for technology areas of Photovoltaic and Solid state lighting (LEDs and OLEDs).

Two successive drafts of each updated RMs were prepared by Strategic planning project PR1101 members and commented amongst all TC-PR KCs. The final approved version was published in July 2012 on <https://www.euramet.org/index.php?id=roadmaps>

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 EMRP call 2013 and to strategic planning towards the upcoming EMPIR program.

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Chair EURAMET TC-PR 2013-05-24