ANNUAL REPORT
OF TC 1.7 "PHOTOMETRY AND RADIOMETRY"
for 2022

1. GENERAL CHARACTERISTIS OF COOPERATION IN THE SUBJECT FIELD

The main activity of TC 1.7 is the organization and conduct of comparisons of COOMET in the field of photometry and radiometry for the implementation of the CIPM MRA. Another goal of TC 1.7 is to create and maintain relationships among experts and specialists from the region in the field of photometry and radiometry.

COOMET TC 1.7 members

19 NMIs/DIs from 16 COOMET member countries are currently represented in TC 1.7. But at the moment only 11 of them are active members according to the list: **AzMI** (Azerbaijan), **BelGIM** (Belarus), **NIM** (China), **INIMET** (Cuba), **PTB** (Germany), **KazStandard** (Kazakhstan), **INM-MD** (Moldova), **VNIIOFI** (Russia), **SMU** (Slovakia), **TUBITAK UME** (Turkey), **NSC "IM"** (Ukraine), and **UzNIM** (Uzbekistan).

Moreover, specialists from **VNIIM** (Russia) take an active part in the activities of TC 1.7.

Note – in October 2022 a notification was received from the Ministry of Economy of Ukraine of the suspension of participation in CSBs; in December 2022 a notification was received from the Ministry of the Economy and Innovation of the Republic of Lithuania of the termination of participation of Lithuanian institutes in COOMET.

In 2022 the work of COOMET TC 1.7 was carried out in the following fields:

- Organization and carrying out of regional comparisons;
- Support of member countries of TC 1.7 in intraregional and interregional CMC review;
- Organization of a workshop in the field of photometry and radiometry and collaboration of TC 1.7 members in field of knowledge transfer;
- Involvement of the TC experts in photometry and radiometry from other RMOs.

2. TC 1.7 PROJECTS

Within the framework of TC 1.7 during the reporting period work was carried out on 16 projects, namely:

1. COOMET.PR-S5 (COOMET project: 429/RU-a/08), Spectral regular transmittance – pilot **INIMET**. At present, Draft B report was approved by KC-WG, waiting for publishing;
2. COOMET.PR-S10 (COOMET project: 640/BY-a/14), Colour transmitted. – pilot **BelGIM**. at present, Draft A report is in progress – no changes since last year;
3. COOMET project: 735/RU-a/17 (Pilot), Diffuse absorbance of reflecting samples - pilot **VNIIOFI**. At present, Draft A report is in progress;
4. COOMET.PR-K1.a.2018 (COOMET project: 741/RU-a/18), Spectral Irradiance 250 nm to 2500 nm Technical Protocol – pilot **VNIIOFI**. at present, Draft B report is in progress;

5. COOMET project: 781/UZ-a/19, Pilot comparison of spectral regular transmittance from 400 to 1000 nm, - pilot **UzNIM.** At present, Draft A report is in progress;
6. COOMET.PR-S12 (COOMET project: 785/RU-a/19), Supplementary comparison of Laser Power Responsivity at wavelengths of 0,532; 1,064 and 10,6 μm – pilot **VNIIOFI**, at present, the measurements are in progress;
7. COOMET project: 801/BY/20, Supplementary comparisons of measurement standards for polarization mode dispersion in optical fiber, - pilot **BelGIM**, at present, it's a proposed project: the technical protocol is under discussion;
8. COOMET project: 804/UZ-a/20, Pilot comparisons of measurement standards of attenuation and average power of a signal in optical fiber, - pilot **UzNIM**, at present, the measurements have been completed, the results are being processed;

In 2022-2023 the following projects have been completed:

1. COOMET project 366/RU-a/06 (COOMET.PR-S1) "Comparison of whiteness samples using the secondary standard of the units of colour coordinates and the coloration coordinates", pilot – VNIIOFI, Russia: the draft B report has been approved by WG-KC und published on the KCDB platform;
2. COOMET project 688/RU/16 (COOMET.PR-S9) "Supplementary comparison on polarization mode dispersion in optical fiber", pilot – VNIIFTRI, Russia: the draft B report has been approved by WG-KC und published on the KCDB platform;
3. COOMET project 689/RU-a/16 (COOMET.PR-S8) "Supplementary Comparison on Wavelength for Fiber Optics", pilot – VNIIFTRI, Russia: the draft B report has been approved by WG-KC und published on the KCDB platform;
4. COOMET project 743/UA-a/18 (COOMET.PR-S11), Organization and conduct of supplementary comparisons by the color of reflection – pilot NSC "IM", Ukraine: the draft B report was approved by WG-KC und published on the KCDB platform;
5. COOMET project 730/UA-a/17 "Comparison of spectral regular transmittance in UV range from 200 nm to 380 nm", pilot – Ukrmetrteststandart, Ukraine: the draft B report was published in the DB of COOMET projects.

In 2023 project 805/UA/20 "Supplementary comparison on spectrally-selective transmitting material" was excluded from the COOMET Work Program.

3. RESULTS OF THE LATEST TC MEETING

The 19th TC 1.7 meeting took place on 30 March 2021 in on-line format. Representatives of 10 COOMET member countries took part in the meeting.

The following issues were discussed during the meeting:

- TC 1.7 activities in 2021-2022;

- implementation of the current projects of the COOMET Program of comparisons, carried out within the TC;
- implementation of the CIPM MRA, including actions to complete the COOMET comparisons, lasting over 5 years;
- the possibilities of the BIPM e-learning platform and creation of COOMET courses;
- discussion of CEEMS proposals in terms of organizing and conducting comparisons of standards and calibrations of standards, as well as conducting training events;
- about the list of technical experts on CMC review and on peer review of COOMET NMIs/DIs QMS

Main adopted decisions:

- to continue work on comparisons within the TC and to start 1 new project;
- to support pilot laboratories for the fastest completion of comparisons that last more than 5 years;
- to propose theme and to provide support in development of on-line COOMET courses in field of photometry and radiometry;
- to ensure all needed support for CEEMS regarding comparisons, training and exchange of experience;
- to update the list of TC 1.7 technical experts on CMC review and QMS in the field of photometry and radiometry.

4. RESULTS OF THE IMPLEMENTATION OF THE COOMET STRATEGY AND COOMET DEVELOPMENT PROGRAM (concerning the activities of TC 1.7)

TC 1.7 members took part in the implementation of a number of activities provided for in the COOMET Development Program for 2020-2022 and Roadmap for the implementation of the COOMET Strategy for 2020-2025, namely:

• 9. (Ind-a.1.9) Carrying out of an analysis of the timeframe for conducting COOMET comparisons and taking corrective actions for its reduction: work was carried out on the official completion of comparisons in the KCDB performed under the auspices of TC 1.7;

• 78. Drawing up and implementation of a Plan for the preparation of COOMET Recommendations, having requirements for calibration of various groups of measuring instruments (Guide on calibration): based on the discussion at the meeting of TC 1.7 in 2021 it was decided that there was no need in preparing standard procedures in the field of photometry and radiometry.

5. PARTICIPATION IN THE IMPLEMENTATION OF THE ARRANGEMENT ON MUTUAL RECOGNITION OF NATIONAL MEASUREMENT STANDARDS AND OF CALIBRATION AND MEASUREMENT CERTIFICATES ISSUED BY NMIs

During the reporting period TC 1.7 members proposed for publishing 13 CMC entries. 8 CMC entries from VNIIOFI (Russia) in photometry and 5 CMC entries from NSC "Institute of Metrology" in photometry underwent intra-regional RMO review.

The lists of COOMET technical experts of TC 1.7 on CMC review and COOMET technical experts on peer review of the QMS of NMIs/DIs have been updated.

6. COOPERATION WITH INTERNATIONAL AND REGIONAL ORGANIZATIONS

CCPR

A representatives of TC 1.7 participated in the CCPR WG meeting which took place remotely. TC 1.7 Chair prepared a report on COOMET activities in the field of comparisons for the working group WG-KC, and activities in the field of CMC review were presented to the working group WG-CMC.

EURAMET

The Memorandum of Understanding between EURAMET and COOMET enabled participation of the TC 1.7 Chair at a EURAMET annual meeting, which was held remotely from 24 to 26 January 2022. At this meeting the TC 1.7 Chair presented information about COOMET activities in the field of photometry and radiometry.

7. TIME AND VENUE OF THE NEXT TC MEETING

The next TC meeting is scheduled for October 2023. The decision on the format of the meeting will be made prior to the organization of the meeting.

8. PROPOSALS TO RESOLUTIONS OF THE COOMET COMMITTEE

- N/A

COOMET TC 1.7 “Photometry and Radiometry” Chair Anatolii BESCUPCSHI