

2023 ANNUAL REPORT¹

of the COOMET Joint Committee for Measuring Standards

1 General description of cooperation including information on carrying out the COOMET Strategy and COOMET Development Program

JCMS members are the TC 1.1 – TC 1.12 Chairpersons.

In 2023, under the guidance of the JCMS the following activities were carried out, outlined in the COOMET Development Program for 2023–2025 and the Roadmap for Implementation of the COOMET Strategy for 2020–2025:

Development and approval of the COOMET Comparison Program (COOMET P2)

- **5. (Ind-a.1.5)** Implementation and updating of the approved COOMET Comparison Program.
- **9. (Ind-a.1.9)** Analysis of timeframes of the COOMET comparisons and implementation of corrective measures to reduce them: joint work with the TC 1.1 – TC 1.11 Chairpersons was carried out on official completion of the KCBDB comparisons.
- **12.** Organization and carrying out of COOMET training seminars/webinars on KCBDB 2.0.
- **19. (Ind-a.4.1)** Development and realization of the Roadmap for TC 1.2 – TC 1.11 on implementation of decisions related to the redefinition of the SI basic units: work was carried out on the planned Roadmap events.
- **29. (Ind-c.2.3)** Analysis of COOMET NMIs/DIs in the activities of the CIPM Consultative Committees.
- **62.** Development and implementation of the COOMET Program for assistance to CEEMS for 2023–2025, including issues of conducting comparisons, calibrations, and providing access to training events.
- **69. (Ind-g.2.6)** Implementation of the schedule for updating COOMET publications, including COOMET documents and recommendations within the JCMS scope, TC 1.1 – TC 1.11 R/GM/20:2009, R/GM/21:2011, R/GM/31:2016.
- **78.** Development and realization of the COOMET Recommendations Development Plan containing requirements for calibration of different types of measuring instruments (Calibration Guidelines).

Information on TC 1.1 – TC 1.12 meetings in 2023 is given in Table 1.

Table 1.

TC	Time and place of the meeting
TC 1.1	October 24, 2023, video conference
TC 1.2	May 11, 2023, video conference
TC 1.3	October 18–19, 2023, video conference
TC 1.4	December 27, 2023, video conference
TC 1.5	March 5–6, 2023, St. Petersburg / video conference
TC 1.6	September 27–28, 2023, St. Petersburg / video conference
TC 1.7	November 15–16, 2023, UzNIM, Uzbekistan / video conference

¹ The Report provides a summary of the JCMS activities in 2023. Detailed information on cooperation within the JCMS area of responsibility is given in the reports of the TC 1.1 – TC 1.12 Chairpersons.

TC	Time and place of the meeting
TC 1.8	June 29–30, 2023, St. Petersburg / video conference
TC 1.9	February 7, 2023, video conference
TC 1.10	November 28–29, 2023, video conference
TC 1.11	November 9, 2023, video conference
TC 1.12	October 17, 2023, Yekaterinburg / video conference

2 JCMS Meeting

The 23rd JCMS meeting was held online on February 28, 2023.

The following issues were discussed:

- On implementation of the CIPM MRA regarding the preparation and review of CMCs,
- Discussion of the progress of implementation and updating of COOMET P2/2022, taking into account the activities of the COOMET Development Program for 2020–2022,
- On organization of comparisons for the accuracy levels required for the CEEMS,
- On the completion of preparation of the COOMET Plan on the development of standard calibration techniques of groups of measuring instruments,
- On the updated version of COOMET D5.17 *Regulations on the COOMET Appeal Board on comparisons of national measurement standards and CMC review* (replaces COOMET D5.17/2016),
- On the preparation of the COOMET Comparison Program for 2023,
- On completing the preparation the COOMET Plan on developing standard calibration techniques of groups of measuring instruments,
- On the results of analysis of the COOMET NMIs/DIs in the activities of the CIPM Consultative Committees (CCs),
- On the implementation of the COOMET Publications schedule for 2021–2024,
- On the powers of the Chairpersons of the JCMS, TC 1.1, TC 1.2, TC 1.6, TC 1.9, TC 1.11, SC 1.6.1, SC 1.6.2.

Main decisions

- In cases when it is not possible to conduct an interregional CMC review, to ask the TC Chairpersons to notify the KCDB Office in advance of the impossibility of conducting the review on behalf of the COOMET.
- To ask the TC Chairpersons to update the lists of Technical Experts (TEs) on CMC review and, if necessary, identify candidates for TEs, and send this information to the COOMET Committee for summarizing no later than March 6, 2023, as well as to organize registration of TE accounts in the KCDB.
- To ask the TC 1.2 – TC 1.11 Chairpersons to complete the comparisons that can be completed as soon as possible. If in order to complete a comparison it is necessary to change the pilot or exclude the results of participants who do not communicate, then to ask the TC 1.2 – TC 1.11 Chairpersons to discuss the situation at meetings of their TCs or through correspondence in the usual course of business and take appropriate measures.

- To take into account that in challenging situations it is appropriate to seek help from the COOMET Secretariat and the Executive Secretary of the corresponding CC to ensure contact with the pilot or comparison participants.
- To recommend increasing the number of COOMET key comparisons. To take into account that any COOMET NMI/DI can be the pilot, provided that there is a linking institute that participated in the corresponding key comparison of the CIPM CC.
- To ask the TC Chairpersons to respond as much as possible to requests and proposals of the CEEMS NMIs to conduct comparisons, to support their commitment to act as pilots.

The 24th JCMS meeting was held online on April 13, 2023.

The following issues were discussed:

- On the Draft COOMET Concept on issues of digitalization in metrology and Roadmap on its implementation,
- On the COOMET Comparison program for 2023 (COOMET P2/2023),
- On the implementation of the decision of the President's Council to complete the "stuck" COOMET comparisons,
- On the national measurement standards of the Republic of Belarus and the Russian Federation, which have not participated in COOMET comparisons,
- On the monitoring and corrective actions regarding long-term comparisons not completed in the KCDB,
- On the approaches to organizing comparisons for the CEEMS (taking into account the survey results regarding the needs of CEEMS and proposals from other COOMET member countries),
- On the election of the JCMS Chairperson for 2023–2027.

Main decisions

- To ask the TC 1.2 – 1.11 Chairpersons to organize a review of the lists at the next TC meetings and discuss the possibilities to carry out COOMET comparisons with the measurement standards from the lists under clause 1,
- To ask the TC Chairpersons to discuss issues of monitoring the status of the "stuck" comparisons annually at the TC meetings,
- To ask the TC Chairpersons to discuss the CEEMS proposals on comparisons at the next TC meetings.
- Elections for the new Chairperson took place; the majority of votes supported the candidacy of Nikita Zvyagin.

The 25th JCMS meeting was held online on October 26, 2023.

The following issues were discussed:

- On the BIPM initiative "Young Metrologist 2050+",
- On BIPM digital services,

- On the progress of implementation of the COOMET Concept on issues of digitalization in metrology and Roadmap on its implementation (COOMET P7/2023),
- On the national measurement standards of the Republic of Belarus and the Russian Federation, which have not participated in COOMET comparisons and on the need to organize COOMET comparisons (as support of existing or potential CMCs),
- On the monitoring and corrective actions regarding long-term comparisons not completed in the KCDB,
- On the CMC review and submission of new CMCs,
- On the feasibility of developing primary reference measurement techniques and reference measuring techniques and on the translation of the JCTLM documents regarding reference measurement techniques.

Main decisions

- To ask the TC Chairpersons to inform interested parties from their TCs about the possibility of participating in the "Young Metrologist 2050+" initiative,
- To ask the TC 1.2 – 1.11 Chairpersons to discuss this issue within their TCs and to submit the final opinion on the possibility of organizing comparisons of the measuring standards from the JCMS list no later than February 1, 2024,
- To ask the TC Chairpersons to discuss issues of monitoring the status of the "stuck" comparisons annually at the TC meetings,
- To ask the JCMS Chairperson to raise the issue of monitoring and initiating corrective actions by the COOMET in relation to long-lasting comparisons at the next JCMS meeting,
- To ask the TC Chairpersons to discuss the CEEMS proposals on comparisons at the next TC meetings.

3 Review of the completed topics and information on the use of obtained results

Information on the COOMET projects completed in 2022 is given in the Table 2.

Table 2

NN	Project ID	Name	Pilot	Participants
1	862/RU/22	Pilot comparisons of reference instruments measuring AC high voltage of power frequency	VNIIMS	VNIIMS BelGIM Interested COOMET NMIs
2	824/RU/21	Pilot comparisons "Determination of sulfur in isooctane"	VNIIM	VNIIM NIM other COOMET NMIs
3	744/RU-a/18	Comparisons in the field of measurements of combustion energy of coals with different sulphur content	VNIIM	VNIIM BelGIM INM NIM PTB UME

NN	Project ID	Name	Pilot	Participants
4	798/BY-a/19	Pilot comparison of the volumes of digital information transmitted via the Internet and telephony channels	BelGIM	BelGIM VNIIFTRI
5	786/RU-a/19	Comparisons of the results of hydrophones amplitude-phase calibrations in the frequency range from 10 kHz to 500 kHz	VNIIFTRI	VNIIFTRI HAARI
6	770/RU-a/18	Supplementary comparisons of NMI measurement standards in the field of measurements of magnetic flux density of a permanent magnetic field and magnetic flux using sensing coils	VNIIM	VNIIM CMI NIM NPL PTB
7	743/UA-a/18	Supplementary comparisons by the color of reflection	NSC IM	NSC IM BelGIM GUM INM NIM NIMT UME UzNIM VNIIOFI
8	708/RU-a/16	Pilot comparisons «Purity determination of organic compounds by mass balance approach. Anthracene»	VNIIM	VNIIM Ukmetrstandart UNIIM other COOMET NMIs
9	638/UA-a/14	Comparison of the national hardness standards of Super-Rockwell scales	NSC IM	NSC IM BelGIM CMI KazStandard PTB

4 Participation in implementation of the CIPM MRA

From January 1, 2023 to December 31, 2023 **115 CMCs** were published in the BIPM KCDB

Area	Country	NMI	Number of CMCs
EM	KZ	KazStandard	4
M	KZ	KazStandard	3
	RU	VNIIM	2
PR	RU	VNIIOFI	7
QM	RU	VNIIM	56
	BY	BelGIM	5

Area	Country	NMI	Number of CMCs
EM	KZ	KazStandard	4
	KZ	KazStandard	2
T	KZ	KazStandard	18
TF	KZ	KazStandard	21
TOTAL			115

For implementation of the CIPM MRA in 2023, COOMET Structural Bodies formed the COOMET Comparisons Program (P2/2024).

In 2023, works were performed (in different stages) on 75 comparisons.

On a regular basis, the following analysis is carried out: number of key and supplementary COOMET comparisons; number of completed and published COOMET comparisons; number (and percentage) of piloted COOMET comparisons of NMIs/DIs within the framework of the report on implementation of the COOMET Comparisons Program to the COOMET President's Council.

On October 25, 2023, with the support of the TC 1.1, was held a COOMET webinar "Assessing uncertainty in calibration" in a hybrid format. The following topics were discussed: stages of calculating measurement uncertainties; examples of estimating measurement uncertainties during calibration; validation of calibration procedures.

5 Cooperation with international and regional organizations in this field of cooperation

JCMS representatives participated in the 46th (March, online) and 47th (September, Costa Rica) JCRB meetings as part of the official COOMET delegation.

Within the JCMS, Action Plan for cooperation between the COOMET and MGS was discussed, in particular, regarding exchange of information on interstate standards governing calibration techniques for measuring standards and measuring instruments, as well as availability of reference measuring techniques (methods).

6 Time and place of the next meeting

The next JCMS meetings is scheduled for June 2024 in Tashkent.

Nikita D. Zvyagin
JCMS Chairperson