

1. General Aspects – Heading Arial 12 bold

Markus Zeier, the TC-EM chairperson, will be reappointed in his position for another two years starting this year.

The 5 year terms of all 4 SC conveners, Damir Ilic, Antti Mattinen, Andrew Smith and Paul Wright come to end this year. Recruitment of successors is underway.

Oleg Popov of the Israeli National Physical Laboratory (INPL) has been appointed as a permanent observer within the TC-EM.

2. Projects

Detailed information about the EURAMET projects in the EM field is available from the EURAMET website. An overview of the number of ongoing projects is given in the table below.

Comparisons	Traceability	Research
10	7	1

3. Comparisons

During 2020/2021, 5 EURAMET comparisons have been completed in the EM field. Besides this, EURAMET is or has been active in a number of CCEM comparisons.

4. CMCs

The new CMC run EURAMET.EM.16.2019 was initiated on July 3, 2019 and is still ongoing. 17 NMIs submitted 114 new entries with 49 matrices and 166 significant improvements of existing entries with 100 matrices. In addition, minor changes for 99 entries with 25 matrices and the deletion of 57 entries with 11 matrices were requested.

The members of the TC-EM working group on the review of CMCs reviewed all the submissions within EURAMET. The CMC set was then uploaded to the new KCDB for the JCRB review. This review is still ongoing but it will be completed soon. A review time of two years is unusual long for a CMC set. A large part of the delay was caused by the transfer to the new web-based platform during the review process and related difficulties due to lack of understanding and routine with the new system.

It is expected that for future CMC sets it will be possible to reduce the total review time significantly with the new KCDB. It should be possible to maintain an annual submission cycle.

5. Activities of the Subcommittees

There are 4 SCs: DC and Quantum Metrology (SC-DC&QM), Low Frequency (SC-LF), Radiofrequency and Microwave (SC-RF&MW), Power and Energy (SC-P&E). All SCs have a strong focus on organizing comparisons as part of the MRA. Furthermore they are dealing with R&D activities related to EMPIR.

SC-DC&QM and SC-P&E have a strong involvement with the newly established EMNs for Quantum Technologies and Smart Electricity Grid. In particular the SC-P&E is practically identical to the members of the EMN for Smart Electrical Grids. This could lead to a reorganization of the sub-committee structure in the future. It was decided to keep the current SC structure until the role and structure of the new EMNs has become more defined and mature.

The SC-RF&MW is in the process of upgrading two EURAMET calibration guides (oscilloscope and VNA guide) falling in its domain of technical expertise.

6. Participation in EMPIR

In the 2020 EMPIR call new projects with EM involvement were funded in the Networks (1 out of 2 submitted proposals), Normative (1 out of 3), Industry (5 out of 9) and Fundamental (3 out of 5) calls.

Two workshops were held to prepare for the upcoming EPM call 2021. Both meetings were online meetings, one organized by EMN-SEG in December and a follow-up in January organized by the TC-EM. The outcome was a number of project ideas, which were further addressed in the PRT submission phase.

7. Capacity Building: Activities of the last year and future needs

There were no specific TC-EM activities in capacity building besides the regular EURAMET initiatives.

8. Meetings

All committee meetings in 2020/2021 took place online. The upcoming SC meetings will take place online as well. The contact persons meeting in October/November might take place at BIM in Sofia, Bulgaria, if the pandemic situation permits.

Meetings held:

2020-10-20: TC-EM WG on Strategical Planning (7 participants)

2020-10-21/22: Contact person meeting (40 to 50 participants including 1 BoD member, one person from BIPM and a few guests from other RMOs)

2021-04-20/21: TC-EM SC RF&MW meeting

Meetings planned:

2021-06-02/03: TC-EM SC-DC&QM

June 2021: TC-EM SC-LF

2021-05-26/27: TC-EM SC-P&E

9. Issues

The COVID-19 situation limits physical meetings. All satellite meetings of the SCs that were planned as part of CPEM 2020 (biannual conference on precision electromagnetic measurements) were cancelled.

10. Strategic Planning

Strategic planning of comparisons is done in the SCs. The SC-P&E is most advanced in that respect. It has a plan in operation. The other SCs have only partly addressed the topic so far. It was discussed at the last contact person meeting and the SC conveners are aware that further action is required.

11. Outlook for 2021/2022

Major Topics:

- The next CMC submission round will make full use of the new KCDB 2.0 platform. Careful planning and preparation to avoid confusion and frustration of the users with the new tool.
- Further evaluation of the relationship between SCs and EMNs.
- Complete strategic planning.

- Planning and coordinating proposals within EPM calls.

