

Progress Report to CCM from 2021 to 2023 for the meeting of the Consultative Committee for Mass and Related Quantities (CCM) BEV, Austria

BEV pilot in key Comparisons

1. CCM.D-K5 Density meters. In progress.
2. EURAMET 1440 key comparison that is planned parallel running with the CCM.D-K5.
3. BEV has been chosen as pilot in the EURAMET comparison following CCM.D-K3 Solid density standards -Stainless steel weights. No preparation has been started since the protocol of CCM.D-K3 is not available.
4. EURAMET 1522 (EURAMET.M.D-K2.1) key comparison on density of liquids (hydrostatic weighing method). Draft B.
5. EURAMET 1523 (EURAMET.M.D-K2.2) key comparison on density of liquids (density meter). Draft B.
6. EURAMET 1555 (EURAMET.M.M-S11) supplementary comparison of mass standards 20 kg. The measurements in the first petal (of two) are finished.

BEV participates in other Comparisons

1. EURAMET.M.M-K7, Comparison of Stainless Steel Multiples and Sub-Multiples of the Kilogram, 5 kg, 100 g, 10 g, 5 g, 500 mg. Measurements are being carried out.
2. EURAMET 1556. Pilot study comparison for the realization of the mass scale. Measurements are being carried out.
3. CCM.G-K2.2017: Key Comparison of Absolute Gravimeters
4. EURAMET.M.D-K4.2020 Calibration of high resolution hydrometers. Completed.
5. EURAMET project No. 1262 (EURAMET.M.F-S2): Comparison of deadweight machines. Bilateral, draft B.
6. EURAMET project No. 1507 (EURAMET.M.FF-S17) Comparisons of standards for liquid flow rates under static load changes. In progress.
7. EURAMET project No. 1553 (EURAMET.M.FF-S19): Supplementary comparison liquid volume – 500 mL and 5000 mL volumetric glass flasks. In progress.
8. EURAMET project No. 1479 (EURAMET.M.FF-S14): Inter-comparison of 1000 L proving tank. Completed.
9. EURAMET project No. 1518: Inter-comparison of gas provers in the gas flow range 0,25 m³/h to 25 m³/h. In progress.

Research and development activities in BEV

1. Participation in EMPIR 19RPT02 “Improvement of the realization of the mass scale”
2. Participation in EMPIR 17RPT02 “Establishing traceability for liquid density measurements”. Finished.
3. Participation in EMPIR 18RPT02 “Developing an infrastructure for improved and harmonised metrological checks of blood-pressure measurements in Europe”.
4. Participation in EMPIR 16RPT03 “Developing research capabilities for traceable intraocular pressure measurements”.
5. Participation in EMPIR 19ENG04 MetroHyVe2 “Metrology for hydrogen vehicles 2”
6. Participation in EMPIR 17IND13 Metrowamet “Metrology for real-world domestic water metering”
7. Participation in Met4H2- Metrology for the hydrogen supply chain

8. Participation in TraInD BVK-H-Traceability for indentation measurements in Brinell-Vickers-Knoop hardness.

Publications without project final reports,

1. Z. Zelenka, S. Alisic, B. Stoilkovska, R. Hanrahan, I. Kolozinsky, G. Popa, D. Pantic, V. Dikov, J. Zuda, M. Coenegrachts, A. Malengo, "Improvement of the realisation of the mass scale", Acta IMEKO, vol. 9, no. 5, 2020.
DOI: [10.21014/acta_imeko.v9i5.928](https://doi.org/10.21014/acta_imeko.v9i5.928)
2. Z. Zelenka, S. Alisic, R. Hanrahan, I. Kolozinsky, G. Popa, J. Zúda, A. Malengo, "Why and how to improve the subdivision technique in mass metrology", Measurement: Sensors, vol. 18, December 2021.
3. Z. Zelenka, S. Alisic, A. Malengo, "Modelling Subdivision in Mass Metrology", IMEKO TC3, <https://www.imeko.org/publications/tc3-2022/IMEKO-TC3-2022-016.pdf>

Compiled by Zoltan Zelenka, 15 March 2023