

Comparison of 500 kg mass standard

Technical protocol - Draft

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1. Objectives

The technical protocol specifies the conditions of a comparison of a 500 kg mass standard between BEV (Austria), CMI (Czech Republic), MKEH (Hungary) and MIRS (Slovenia). The objectives of the comparison are to facilitate the demonstration of metrological equivalence between the participating national laboratories and to check or improve the capabilities of quoted calibration measurement capabilities (CMC) at 500 kg. BEV, CMI and MIRS have participated in EUROMET 461 project (500 kg supplementary comparison EUROMET.M.M-S1).

2. Participants

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3. Transfer standard

The transfer standard for the comparison is stainless steel cylindrical weight with nominal mass 500 kg provided by CMI. The density of the standard is 7950 kg/m^3 , associated uncertainty ($k=2$) is 140 kg/m^3 .

4. Time schedule

Preliminary time schedule:

Measurements at CMI:	January 2014
Transport to BEV	
Measurements at BEV:	February 2014
Transport to MIRS	
Measurements at MIRS:	March 2014
Transport to MKEH	
Measurements at MKEH:	April 2014
Transport to CMI	
Measurements at CMI:	May 2014
Draft report expected:	August 2014

5. Transportation

The travelling standard should be transported personally or by courier between the participating laboratories. The transfer standard is housed in a metal container on a wooden pallet. It is the responsibility of the participating laboratories to organize the transport to the next participant. No special custom procedures are required between participating countries.

6. Unpacking, handling and care of the standard

When the standard arrives at the participating laboratory, the transportation container and its contents should be checked for damage. A visual inspection of the surfaces of the standard should be made and the results noted on the measurement report. The pilot laboratory

should be informed about the arrival and departure time and about the result of the visual inspection as soon as possible by email.

Every incident during handling of the transfer standard, where the standard may have been polluted or damaged, should be documented and communicated to the pilot laboratory as soon as possible. Also, the pilot laboratory should be informed about any delay or required change of the time schedule.

The standard should be stored at a place where it is protected from dust, aerosols and vapours all the time they are not in the balance, for example in their travelling containers or in a suitable clean environment protected from dust, drafts and vapour. If the weight is placed on a table, the table surface should be clean and covered by acid free tissue paper.

The transfer standard should be handled carefully and only ever with the appropriate tools. When being manipulated the weight should be handled by the lifting ring. The standard should never be touched with bare hands.

7. Measurements

The participating laboratories shall determine the conventional mass of the standard according their normal calibration procedure. An appropriate time should be allowed for the stabilisation of the weight following transportation. For the buoyancy correction, the air density should be determined using the laboratory's standard procedure.

8. Reporting

A completed measurement report (the form "Measurement report.doc") for the measurement results, data of the ambient conditions, instruments used and traceability of the participant's reference standards must be submitted to the pilot laboratory within two weeks after the completion of the measurements. The pilot laboratory will make the data analysis. CMI will provide the link to EURAMET.M.M-S1. First draft of the comparison report will be provided within six weeks after the receipt of the results for the data analysis.

9. Financial aspects and insurance

Each participating laboratories is responsible for its own costs of measurements, transportation and travel insurance as well as any damage that may occur within its country. The transfer standard shall be insured when courier company is used for transportation to the next participating laboratory.