Plan of the intercomparison of distributed calibration objects in weights		
Approved by Håkan Källgren	Date 2025-08-01	Page 1 (5)

Content

ILC weights 2025:4 Intercomparison of weights of class E2 to F1

Proficiency testing provider (PT)

Swedish Metrology and Quality AB (SMQ) is organizing this intercomparison on of different weights all contained and circulated in the parcel shown below.

Participants can choose to calibrate one or several weights that the laboratory is capable of.

The above concept for the intercomparison was decided by an advisory group related to the calibration area of weighing instruments and weights. No subcontractors are involved in the intercomparison.

Participants welcome to this intercomparison.

Participation is open for three categories of laboratories:

- Accredited laboratories
- Laboratories that will apply for accreditation.
- Laboratories that want to evaluate their Calibration and Measurement Capability (CMC).

Due to practical reasons the number of participants is limited to minimum 8 and maximum 20

Description of weights included in the intercomparison.

The intercomparison will start and end with all objects calibrated at the reference laboratory NMI in Sweden, RISE. Its CMC levels for (uncertainty U) and density are given in the table below.

Weight	CMC	Density, value or possible range
mg	mg	kg/m^3
1	0,002	>3000
2	0,002	>3000
5	0,002	>3000
10	0,002	>3000
20	0,003	>3000
50	0,004	>3000
100	0,005	>3000
200	0,006	>3000
500	0,008	>4400
g		
1	0,010	5300--16 000
2	0,012	6000--12 000
5	0,016	6900—9600
10	0,020	7270—8890
20	0,025	7500--8570
50	0,030	7740–8280
100	0,05	7810--8210
200	0,10	7810--8210
500	0,25	7810--8210
kg		
1	0,5	7810--8210

Table 1: CMC levels from the reference laboratory

The weights are fulfilling the requirements on susceptibility and magnetization in OIML R 111

The values above correspond to weights on E2 level. However, participation in this ILC is still open for laboratories to calibrate on a lower level.

The report will clearly document to which accuracy level you have acceptable results on.

The essential values in calibration certificates shall be the conventional mass values including uncertainty and not the class determination.

The reference values and respective uncertainties concerning these intercomparison objects will be based on the calibration in the reference laboratory before and after the distribution.

Traceability will be to the NMI in Sweden, RISE.

Detailed documented instructions

Detailed technical instructions will be sent to the participants who have registered with the ILC together with the reporting form as an excel document.

The reporting of mass values shall be according to conventional value of the result of weighing in air, in accordance with OIML D 28 Conventional value of the result

Time schedule and quality check

After registration of interested laboratories a plan for circulating of the calibration objects and a time schedule will be worked out and sent to all of them.

The calibration objects will eventually be transported by different means in participating countries.

Immediately at receiving and sending the objects each participant shall inform the organizer (SMQ) by e-mail about the status of the objects. If there are any signs of impact (for example marks or scratches) a photograph shall be send to the organizer to decide how to proceed and to inform the next participant.

Each participant will have access to the object for maximum one week and should use its own method for calibration.

Laboratories freely decide which uncertainty they want to state in the protocol. Accredited laboratories can declare their CMC-values, or a value estimated for the actual measurement condition.

After finishing calibration, the objects shall be sent to the following participant on the transportation list using the same parcel they arrived in. The organizer shall be informed when and by which means the transport to next participant will be organised.

Original data from the calibration shall be sent to the organizer immediately after finishing the calibrations. This is preferably done by e-mailing the filled excel-reporting file. By a fast delivery, the organizer gets control that everything is as expected. It also helps to detect eventual arising problems in time.

Statistical analyses that will be used

The organiser will calculate reference values that will be used in the calculations as described in ISO/IEC 17043:2023 annex B 4 presenting En-values (formula B6)

Reporting

Participants shall send their final calibration certificate to the organiser within 1 week after the calibrations are finished in form of a pdf-file in a mail message.

At the end of the intercomparison a draft report will be returned to the participants within 2 weeks from the time when the last participant has reported results in a calibration certificate.

The participants are encouraged to comment on the draft report within 1 weeks after receiving.

The final report will be published within 2 weeks after receiving comments from all participants on the draft report.

If a participant does not follow the described reporting rules without giving reasonable explanations the organizer tries to extract the relevant content for the comparison. If this is not possible the results will be excluded from the report.

A participant may decide to withdraw from the exercise. This might be caused by problems detected during or after having performed the measurements. However, the withdrawal in this case must be announced to the organizer before the draft report is distributed to all participants.

The participant may appeal to the full report if there should be major faults in the report.

The intercomparison report will list up all participating laboratories. However, each will be treated anonymously, and its result will only be identified by a code that is send to each participant in a separate e-mail.

Damaged PT/ILC item

The participant shall immediately inform the organizer in case of any anomalies or other detected problem to allow him to take appropriate actions.

Price for participation

Prise for laboratories:

- Laboratories having maximum 3 calibration technicians –basic price 750 EUR.
- Laboratories having more than 3 calibration technicians –basic price 980 EUR.
- In addition, 65 EUR on each calibrated weight as defined in list of objects above.

Each laboratory will cover the transport cost to next laboratory.

If the laboratory decides not to fulfil its part of the agreement after they have applied, they shall still pay the basic price.