

Quality manual		
Intercomparisons on calibration objects in car inspection (retardation)	Issue 1	
Approved by Håkan Källgren	Date 2025-08-30	Page 1 (4)

Content

Planning of a calibration intercomparison with the calibration object in the car inspection area.....	2
Proficiency testing provider (PT).....	2
Participants in the intercomparison.....	2
Description of the values included in the intercomparison.....	2
General.....	2
Time schedule and detailed documented instructions.....	3
Calibration points.....	3
Statistical analyses that will be used.....	4
Reporting	4
Damaged PT item	4
Price for participation	4

Quality manual		
Intercomparisons on calibration objects in car inspection (retardation)	Issue 1	
Approved by Håkan Källgren	Date 2025-08-30	Page 2 (4)

Planning of a calibration intercomparison with the calibration object in the car inspection area.

Proficiency testing provider (PT)

Swedish Metrology and Quality AB (SMQ) is organising this intercomparison on calibrations of:

- 1- Analog retardation meter (Bowmonk):
- 2- Digital retardation meter (Bowmonk):

Participants may choose which of the objects they want to calibrate.

This concept of the intercomparison on calibration has been decided by the advisory group related to previous intercomparisons in the same calibration areas.

No subcontractors are involved in the intercomparison.

Participants in the intercomparison

There are three categories of laboratories that may participate in this comparison:

- Accredited laboratories
- Laboratories that will apply for accreditation.
- Laboratories that want to evaluate their calibration quality.

The result of the intercomparison will establish a base for the CMC values in calibrations for the laboratories.

The number of participants is minimum 5 and maximum 20.

Description of the values included in the intercomparison.

The following objects will be calibrated by a reference laboratory and will have a CMC level of:

- Analog retardation meter (Bowmonk): $\leq \pm 1,0 \%$ g
- Digital retardation meter (Bowmonk): $\pm 0,01$ g

The objects calibrated by a reference laboratory will get their intercomparison reference value and its belonging uncertainty based on the calibration in the reference laboratory with a calibration performed before and after the calibration of the objects.

General

The instruments will be calibrated by the participants in the usual way.

Quality manual		
Intercomparisons on calibration objects in car inspection (retardation)	Issue 1	
Approved by Håkan Källgren	Date 2025-08-30	Page 3 (4)

Time schedule and detailed documented instructions

A detailed time schedule and technical instructions together with the reporting protocol in form of an excel document will be sent to the participants who have registered with the ILC.

The retardation instruments will be sent in a box to each participant for calibration at their place. Details about the sites and models of the instruments will be given latest 2 weeks in advance of the calibrations

You shall inform the organiser (SMQ) immediately when the calibration objects arrive and inform by e-mail about their status. In case you detect a problem, you should send a photograph to the organizer by mail to decide what to do.

Each participant will have access to the retardation meters for maximum 5 days and use its own method for calibration.

After finishing the calibration, the objects should be sent or transported to the next participant on the transportation list using the original parcel.

Preliminary data from the calibration at home shall be sent to the organiser by e-mail directly after finishing the measurements. Preferably you can use the prepared excel protocol form directly or send it in pdf-format. The final calibration certificate should exactly have the form you are used to and shall be sent as pdf-file one week after finalizing the work.

Calibration points

The participants shall calibrate according to their own method and use their normal reference equipment. This implies that they are limited in the number of calibration points. More details will be given when the intercomparison starts.

Retardation meters – minimum number

- Analog instrument - Minimum 3, but optionally as many angles as available 10 measurement angles
- Digital instrument - Minimum 3, but optionally as many angles as available 10 measurements angles.

The participant may record other points as described in their method and issue calibration certificates according to their method.

Quality manual		
Intercomparisons on calibration objects in car inspection (retardation)	Issue 1	
Approved by Håkan Källgren	Date 2025-08-30	Page 4 (4)

Statistical analyses that will be used

The organiser is arranging to have a reference value that will be used in the calculations as described in ISO/IEC 17043:2023 annex B4 formula B6 which gives En-values.

Reporting

Participants shall send the calibration certificate to the organiser within one week after the calibrations are finished.

A draft report will be given to the participants within 4 weeks from the time when the last participant has reported the results in a calibrate certificate.

The participant shall comment on the draft report within two weeks after receiving the draft report.

A participant not following the described reporting rules without giving reasons will be excluded from the report.

A participant may decide to leave the work before the draft report is distributed to the participants.

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

The report will be anonymously, and the participants will get an identification code related to the results in a separate e-mail.

Damaged PT item

The participant shall immediately inform the organiser about any damages on the PT item and the organiser will take appropriate actions.

Price for participation

Price for laboratories:

- Basic price 980 EUR on laboratories having more than 3 technicians and 750 for other laboratories EUR
- In addition, 350 EUR on calibration of the digital equipment
- In addition, 350 EUR on calibration of analog equipment

If the laboratory decides not to fulfil their part of the agreement the basic price shall be paid.