



MWG7 Workshop on Hydrometers
Querétaro (México) 2006-11-21 / 23

General requirements and paperwork for the performance of a SIM comparison

Claude JACQUES
NRC, Canada
Chair of SIM MWG7
2006-11-21



Introduction

Any SIM NMI, or group of NMIs, wishing to have a comparison or pilot study (past, current or planned) registered in SIM, whether it was organized by the MWG or not, may present it for consideration to the appropriate MWG. This includes subregional comparisons or pilot studies, with the participation of laboratories from other RMOs.



Definitions

Definitions:

1. Comparison

Measurement by two or more NMIs of an artifact, reference material or quantity generated according to a previously established and agreed upon protocol, whose main purpose is to assess the comparability or proficiency of the participants. In this procedure, a “comparison” may refer to a **key** or **supplementary** comparison or a **pilot study**.



Definitions

Definitions:

2. Key Comparison

One of the set of comparisons selected by a Consultative Committee to test the principal techniques and methods in the field (note that key comparisons may include comparisons of representations of multiples and sub-multiples of SI base and derived units and comparisons of artifacts). Key comparisons may be organized by the Consultative Committees (CIPM KC) or by the Regional Metrology Organizations (RMO KC).



Definitions

Definitions:

3. Supplementary Comparison

Comparison carried out by the Consultative Committees, the RMOs or the BIPM to meet specific needs not covered by key comparisons, including comparisons to support confidence in calibration and measurement certificates.

Note: According to the BIPM KC rules, after the comparison (Key or Supplementary) was initiated, the participants may change or withdraw their data only with the agreement of all the participants and on the basis of a clear failure of the traveling standard or some other phenomenon that renders the comparison or part of it invalid.



Definitions

Definitions:

4. Pilot study

Measurement by two or more NMIs of an artifact, common sample or quantity generated according to a previously established and agreed upon protocol, whose main purpose is to provide information to help the participants improve their proficiency and plan future comparisons.

- Notes:
- The actual names of the participants may or may not appear in the final report.
 - Any participant may withdraw its data from the final report.



Procedure

Registration of a past comparison or pilot study

1. Registration of a past comparison or pilot study

The decision to register a past comparison or pilot study shall be taken by the corresponding MWG, when the following conditions are met:



Procedure

Registration of a past comparison or pilot study

- a) The results are useful as supporting evidence to assess the participants current calibration and measurement capabilities.
- b) A formal report is available and agreed upon by all participants.
- c) If the comparison or pilot study was not conducted according to the Technical Supplement to the CIPM MRA, the corresponding MWG will report any relevant deviations from current procedures, assuring that transparency and objectivity were not compromised.



Procedure

Registration of a past comparison or pilot study

If these conditions are met, the Chair of the corresponding MWG shall send the final report, preferably in electronic form, to the Chair of the DBWG and the Chair of the TC, for registration in the SIM ICDB (International Comparison DataBase).



Procedure

Registration of a current or planned comparison or pilot study in the SIM ICDB

2. Registration of a current or planned comparison or pilot study in the SIM ICDB

All current and planned SIM comparisons and pilot studies shall be registered by the MWGs in the SIM ICDB

All current or planned SIM key or supplementary comparisons shall be carried out in accordance with the Technical Supplement to the CIPM MRA.



Procedure

Registration of a current or planned comparison or pilot study in the SIM ICDB

In order to register a comparison or pilot study in the SIM ICDB, the Chair of the corresponding MWG shall send a protocol to the Chairs of the DBWG and the TC, that includes, at least, the following information:



Procedure

Registration of a current or planned comparison or pilot study in the SIM ICDB

- a) Metrology area (quantity)
- b) Artifacts or samples to be circulated or standards involved
- c) Measurement points or interval
- d) Type of comparison (key, supplementary or pilot study)
- e) Intended Participants (name of NMI and country)
- f) Directory of contact points for participants
- g) Starting and ending dates
- h) Contact information (name, email address, etc.)
within the relevant CC, if it is intended to be a key comparison





Procedure

Registration of a current or planned comparison or pilot study in the SIM ICDB

The Chair of the TC shall verify that the information is complete and that the **protocol meets the requirements** of this procedure. In such a case, the Chair of the TC will authorize the Chair of the DBWG to include it in the SIM ICDB.

The Chair of the DBWG shall verify that the information is complete, assign an identification number and enter it in the SIM ICDB



Procedure

Registration of a current or planned comparison or pilot study in the SIM ICDB

Once the final report is ready, the Chair of the MWG shall send an electronic copy to the Chairs of the TC and the DBWG, requesting its inclusion in the SIM ICDB.

MWGs may decide not to include the results of pilot studies in the SIM ICDB. However, registration of all SIM pilot studies shall always be done for recording purposes.



Procedure

Registration of a current or planned comparison or pilot study in the SIM ICDB

Comparisons or pilot studies organized at a subregional level, without the participation of the MWG, may be included in the SIM ICDB if the participants wish to do so, as long as they meet the requirements of this procedure.

For this purpose, the organizing NMI shall present the protocol for consideration to the corresponding MWG. The Chair will then follow the normal submission procedure, described above.



Procedure

Once a comparison is completed

3. Once a comparison is completed

Once a comparison is completed a **report** is generated by the **pilot laboratory** and agreed upon by all participants, according to the Technical Supplement to the CIPM MRA, and then submitted to the MWG for examination and approval.



Procedure

Once a comparison is completed

The MWG produces an executive summary with recommendations it deems appropriate, including a comment as to whether the participants should modify their CMC claims to remain consistent with the comparison results. The MWG must judge if an outlier outcome is overall significant or whether there is other evidence that could support an existing claim.



Procedure

Once a comparison is completed

This information is submitted by the Chair of the MWG to the Chair of the DBWG (with a copy to the Chair of the TC) for registration in the SIM ICDB. The Chair of the DBWG shall send this information to the BIPM for inclusion in the KCDB.



Responsibilities

Members of the MWG

4. Responsibilities

Members of the MWG (everybody, almost !...):

- Analyze the results of past comparisons, approve its final reports and decide on their suitability for inclusion in the SIM ICDB and/or BIPM KCDB
- Approve future comparisons and/or pilot studies



Responsibilities

Chairs of the MWGs

Chairs of MWGs (MWG7: Claude Jacques)

- Notify the Chair of the TC the decision of the MWG to register the results of a past comparison or pilot study in the SIM ICDB
- Submit reports of past comparisons to the Chair of the TC and the Chair of the DBWG
- Notify the Chair of the TC the information specified for all current and planned comparisons and pilot studies - coming from the filled form.



Responsibilities

Chairs of the MWGs

- Submit such information to the Chair of the TC and the Chair of the DBWG
- Request from the Chair of the TC acceptance of the results of comparisons organized by its MWG in the SIM ICDB
- Submit annually a program of planned comparisons to the Chair of the TC, in order to be presented to the Council for possible SIM funding.



Supplemental responsibilities

Chair of the TC

Supplemental responsibilities:

Chair of the TC (Luis Mussio):

- Verify that the protocols of current and planned comparisons comply with the Technical Supplement of the CIPM MRA
- Verify that the reports sent by the Chairs of MWGs for inclusion in the SIM ICDB comply with applicable points in this procedure



Supplemental responsibilities

Chair of the TC

- Assure that all MWG proposals for registration of comparisons or pilot studies comply with this procedure
- Inform the Chairs of the MWG, at the latest one month after receiving a proposal for inclusion of a comparison or pilot study in the SIM ICDB, any non-compliance with this procedure and recommended corrective actions, if applicable
- Authorize the Chair of the DBWG to include comparison information in the SIM ICDB, at the latest one month after receiving it from the Chair of the relevant MWG



Supplemental responsibilities

Chair of the DBWG

Supplemental responsibilities:

Chair of the DBWG (Robert L. Watters):

- Enter in the SIM ICDB the information sent by the Chairs of the relevant MWGs and approved by the Chair of the TC, concerning SIM comparisons
- Request from the corresponding CC acceptance of the results of appropriate past comparisons in the BIPM KCDB, copying the Chairs of the TC and the relevant MWG on all pertinent communications



Supplemental responsibilities

Chair of the DBWG

- Request from the corresponding CC acceptance of current and planned comparisons in the BIPM KCDB, copying the Chairs of the TC and the relevant MWG on all pertinent communications



Supplemental responsibilities

Technical Committee

Supplemental responsibilities:

Technical Committee:

Consider the acceptance or rejection of a SIM comparison or pilot study, if requested to do so by the Chair of a MWG



Conclusion

Conclusion:

Don't panic ! The first time is the most difficult!

But the second is much more easier!