



SIM REFERENCE DOCUMENT Nº 01

TERMS OF REFERENCE FOR METROLOGY WORKING GROUP CHAIRS

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BACKGROUND

SIM mission is to support the development of the measurement capabilities and quality infrastructure in America; to foster science and innovation; and to enable Members' international recognition to underpin competitiveness, trade, consumer safety and sustainability [1].

One of SIM goals is to advance SIM Members metrological capabilities and to this end improve the scientific and technical capabilities of SIM National Metrology Institutes (NMIs) and Designated Institutes (DIs) to increase their active participation in the Comité International des Poids et Mesures (CIPM) Mutual Recognition Arrangement (MRA) [3] and/or Treaty of the Meter. SIM aims to achieve this by developing closer collaboration among the members on metrological services to optimize the utilization of resources, to share facilities, and to improve measurement services and make efforts toward achieving international recognition as needed and feasible.

SIM structure is presented schematically in **Error! Reference source not found.** SIM Metrology Working Groups (MWGs) represent all areas of metrology as well as related overarching areas such as Quality System, Statistics and Uncertainty and Metrology for Digital Transformation. The SIM Technical Committee (TC) [2] is headed by the TC Chair and Deputy Chair and consists of SIM MWG Chairs.

The SIM TC members work together to enable metrology infrastructure in the region and to achieve SIM strategic objectives as outlined in SIM Strategic Plan [1].

Table 1 lists all SIM Metrology Working Groups. TC Chair and MWG Chairs will make every effort to include members from all National Measurement Institutes (NMIs) and Designated Institutes (DIs) within SIM with activities in the relevant area of measurement. It is the responsibility of NMI/DI to assign a Technical Contact for each MWG in whose activities they are interested in participating. Although an NMI/DI might have more than one person actively participating in a MWG, the assigned contact will be considered the official MWG member. This is important for MWG elections, decisions, or other activities.

SIM secretariat will make all efforts to regularly collect up-to-date membership information from NMI/DI directors, but it is the responsibility of NMI/DI to notify SIM TC and SIM secretariat when their representatives to various SIM groups change.

MWG members work together to support their NMIs and DIs in establishing confidence in each other’s measurements and uncertainty budgets as the basic requirement for the mutual recognition arrangements among national laboratories, such as the CIPM MRA. This requires sufficient knowledge of facilities, techniques, processes etc., and comparisons as appropriate, to establish validity of this confidence [4, 5] achieved through regular MWG meetings, workshops and other activities.

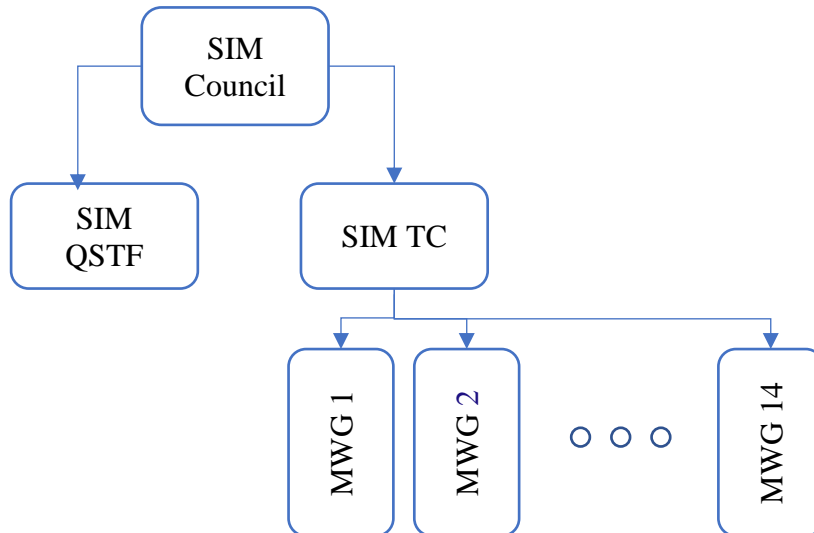


Figure 1: SIM Structure

Table 1: Metrology Working Groups (MWGs)

MWG 1: Electricity and Magnetism	MWG 2: Photometry and Radiometry
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MWG 3: Thermometry	MWG 4: Length
MWG 5: Time and Frequency	MWG 6: Ionizing Radiation and Radioactivity
MWG 7: Mass & Related Quantities	MWG 8: Chemistry (Amount of Substance)
MWG 9: Acoustics, Ultrasound and Vibration	MWG 10: Flow and Volume
MWG 11: Legal Metrology	MWG 12: Quality System
MWG 13: Statistics and uncertainty	MWG 14: Metrology for Digital Transformation

ASSIGNMENTS

The chairs of MWGs will help to develop full cooperation among the SIM countries in their respective metrology areas. Specifically, the chairs will work with the Technical Contacts in their areas at the NMIs or DIs to:

- Maintain up-to-date list of MWG members and Technical Contacts
- Arrange regular (typically annual) MWG meetings, workshops, and training exercises to plan and implement activities that help to promote achievement of SIM objectives;
- Participate in Technical Committee (TC) meetings and in developing TC work plans, and support in the presentation and administration of TC projects;
- Prepare MWG work plans and budget needs for TC approval on a regular basis and as requested by TC Chair or Deputy;
- Report activities of the MWG to TC at least annually (prior to each Technical Committee Meeting) or at the request of the TC Chair or Deputy;
- Provide timely feedback with relevant information to TC Chair and Deputy upon their requests;
- Organize elections for next MWG Chair and Vice Chair
- Manage regional and interregional review of calibration and measurement capabilities (CMCs) following requirements of the Joint Committee of the RMOs and the BIPM (JCRB) [5] and of SIM D-05 [6] by

- assigning reviewers from MWG Technical Contacts;
 - distributing proposed CMCs among the MWG members and other relevant parties for intraregional (within; intraRMO) SIM review and acceptance (following the procedures in SIM D-05);
 - ensuring that the CMCs are supported by a valid QMS scope acceptance (following the procedures in SIM D-05)
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- Follow the progress of comparisons of standards, and assure that all comparisons are registered on the Appendix A of the KCDB (following the procedures as described in SIM D-07), including verifying their current status;
 - Maintain contact with the relevant Consultative Committees (CCs) to be aware of comparison requirements and opportunities in each field;
 - Attend CC and CC MRA working group meetings on behalf of SIM MWG to represent SIM interests;
 - Determine which additional comparisons are needed to support mutual recognition of the essential equivalence (within appropriate uncertainties) of national standards within SIM and with other Regional Metrology Organizations;
 - Make arrangements for performing these comparisons and follow them to completion, including publication;
 - Develop options for expanding measurement services for all SIM members with minimum duplication of effort;
 - Keep abreast of developments in other RMOs, cooperate and participate in their meetings and comparisons as appropriate;

In carrying out these tasks, the chairs will cooperate closely with their MWG members and other colleagues as needed, other MWGs chairs, the TC chair, QSTF chair, other experts, and with the SIM Council as necessary.

NOMINATION, PERIOD FOR PERFORMANCE

The chair of each MWG should be nominated by their members and confirmed by the SIM Council. To be considered as a candidate by the MWG, the nominee must submit his/her candidacy with a CV and a note of support from the director or other authority of the NMI to the current chair of the MWG and the TC

chair. At least once every three years, the chair position shall be put up for consideration to the MWG members, who then may propose a new chair.

If there is more than one candidate, the MWG members (only those registered as members of the MWG) should vote to elect the new chair. The chair will be elected with a simple majority of the voting members. The current chair may run (alone or with other candidates) for a second consecutive period through this same procedure. A record of the election procedure should be sent to the TC chair, who will maintain the records. The election may take place in a meeting of the MWG or by mail/email. In this latter case, the MWG current chair (or another member nominated by the MWG) will collect the votes, keep a record of the election results, and send a copy to the TC chair.

The Vice Chair is elected at the same time as the Chair. The Vice Chair could be elected as a result of the Chair election (second most voted candidate) or can be elected in an independent election. MWG members can select their preferred approach. The nomination requirements for the Vice Chair position are the same as for the Chair. The Vice Chair will chair the MWG in the case on temporal or permanent absences of the chair.

If MWG Chair or Vice Chair positions become vacant before the end of regular term, a regular election process should be held as soon as possible to ensure minimal interruption of the MWG activities.

OTHER RESPONSIBILITIES OF CHAIRS AND TECHNICAL CONTACTS

The MWG chair is responsible for coordinating the development of a work plan and arranging meetings of the technical contacts (MWG members) as required.

MWG work plans may contain some or all of the following elements:

- Calibration services that are offered in common by more than one SIM NMIs/DIs, and plans of extension of these services;
- Regional (SIM) comparisons [5] appropriate to provide further confidence in the CMC uncertainty claims. These should normally include key comparison needs identified by the appropriate Consultative Committee (CC) of the CIPM. A schedule for these comparisons shall be coordinated among potential participants;
- Training activities and workshops as needed, evaluating various ways to achieve objectives;
- Internships and other educational opportunities both at the host laboratory or at the requesting laboratory;

- Technical visits, including to support activities on-site;
- Research projects conducted by SIM members or other entities, having SIM members participation;
- Awareness Seminars planned to enhance the collaboration of different stakeholders; and
- Other activities that the MWG finds relevant to achieve the planned objectives.

RESULTS

The expected results of implementing these terms of reference are:

- Annual work plans for all MWGs developed, presented to the TC and are used to plan SIM activities and projects based on SIM priorities and available resources.
- Strategic plans developed within the TC, with input from MWG plans.
- Participation of all NMIs/DIs with capacities in each field in the corresponding MWGs
- Metrologists of all NMIs/DIs cooperating with each other and being aware of other NMI/DI capabilities in each field.
- TC cooperation with NMIs/DIs in building capacity and is reflected in new and improved CMCs.

REFERENCES

1. SIM Strategic Plan (<https://sim-metrologia.org/wp-content/uploads/2023/12/Strategic-Plan-2023-27.pdf>)
2. SIM Bylaws (https://sim-metrologia.org/wp-content/uploads/2023/12/Estatuto-bilingue-certificado_compressed.pdf)
3. Mutual recognition of national measurement standards and of calibration and measurement certificates issued by national metrology institutes, Comité international des poids et mesures ([Documents on the CIPM MRA - BIPM](#))
4. CIPM MRA-D-04 (“Calibration and Measurement Capabilities in the context of the CIPM MRA”) (http://www.bipm.org/utis/common/CIPM_MRA/CIPM_MRA-D-04.pdf)



5. CIPM MRA-D-05 (“Measurement comparisons in the context of the CIPM MRA”)
(http://www.bipm.org/utils/common/CIPM_MRA/CIPM_MRA-D-05.pdf)
6. SIM D-05 (“SIM Procedure for Review of Calibration and Measurement Capabilities”)
(<https://sim-metrologia.org/wp-content/uploads/2023/02/SIM-05-3.6-21Aug2022.pdf>)