



Joint Committee for Guides in Metrology

27th Meeting

(23 January 2025)



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1. Opening of the meeting

The Joint Committee for Guides in Metrology (JCGM) held its 27th meeting on-line on 23 January 2025.

The following attended:

Dr Walter Bich (WG1 Convenor)
Dr Charles Ehrlich (WG2 Convenor, OIML)
Dr Stephen Ellison (IUPAC)
Ms Mercè Ferrés Hernández (ISO)
Mr Hans Arne Frøystein (CIPM)
Prof. Brynn Hibbert (IUPAC)
Mr Svetozar Kapusta (IEC)
Prof. Luca Mari (IEC)
Dr Martin Milton (JCGM Chair, BIPM)
Dr Gunnar Nordin (IFCC)
Mr Erik Oehlenschlaeger (ILAC)
Mr Steve Sidney (ILAC)
Mr Robert Sitton (JCGM Executive Secretary, BIPM)
Prof. Daniel Varela Magalhães (IUPAP)
Prof. Graham H. White (IFCC)
Dr Kazuaki Yamazawa (representative of ILAC affiliated to IAJapan, NITE)

The Director of the BIPM, Dr Martin Milton, welcomed the participants.

2. Approval of the agenda

The provisional agenda dated 25 November 2024 (JCGM/2025-00-Agenda) was approved.

3. Approval of the minutes of the 26th meeting

The minutes of the 26th JCGM meeting (JCGM/2024-06) held on 24 January 2024, which had been approved by correspondence, were confirmed.

4. Review of the decisions taken at the January 2024 meeting

Decision 1 The VIM4 3CD will be circulated for comments in the third quarter of 2024 following efforts to build consensus between the WG1 and WG2 communities on “measurement uncertainty” and associated definitions.

Decision 1 was discussed as part of the report on WG2 (Section 6).

Decision 2 The JCGM Charter will be circulated to the MOs with a commenting template to bring forward comments on text in the Charter that should be considered for revision.

Two comments were received following the circulation and these were discussed under item 7.

5. Report from Working Group 1 (GUM)

W. Bich, Convenor of WG1, reported on its activities in 2024. For full details see document JCGM/2025-04.

The report highlighted that WG1 is concerned about an apparent inconsistency in the text of document *JCGM 100:2008 Guide to the expression of uncertainty in measurement* (the legacy GUM 1995), which had previously gone unnoticed. The inconsistency relates to the treatment of nonlinear measurement models, where higher-order corrections affect both the measurand estimate, introducing a bias that could be significant for strong nonlinearity, and the associated uncertainty. This situation is dealt with correctly in an example (the cosine error) and incorrectly in the main text. WG1 will draft and circulate a corrigendum as a matter of urgency. W. Bich said that the metrology community would benefit from the future re-publication of JCGM 100:2008 as JCGM GUM-3. In addition to the amendment of this inconsistency, other parts of the GUM could receive technical updates at the same time. He asked the JCGM to discuss whether the Member Organizations (MOs) and the NMIs would be favourable to further technical updates to the GUM.

W. Bich said that both WG1 and WG2 are trying to measure the world-wide impact of their documents. Statistics from Google analytics are available for downloads from the JCGM webpage on the BIPM website. Similar data from the MOs would be useful, as well as data about the number of printed or PDF versions purchased from the ISO and IEC websites and from their national members. The JCGM Chair said that the MOs will be asked to comment on the availability of this information while giving their activity reports.

The JCGM Chair invited questions and comments. E. Oehlenschlaeger expressed concerns that the proposed correction may lead to 10 000 calibration laboratories having to recalculate their uncertainties. M. Ferrés Hernández added that the document concerned has been in use since 2008 and questioned the urgency to correct the inconsistency, particularly now that a more in-depth revision is planned. She added that if there is an urgent need to go ahead with the proposed correction, it represents a technical change, rather than a corrigendum, and would require formal approval by the JCGM MOs. W. Bich replied that he will use the ISO template for technical amendments and will then seek approval from the MOs. He added that the change will have minimal impact on calibration laboratories as it is only relevant to higher-order terms, which are typically not considered in routine calibrations. M. Ferrés Hernández commented that within ISO the correction will be handled as a committee draft with technical content. It will be circulated first for comments and then for approval. She suggested that the corrigendum should be restricted to the individual clauses to be modified in order to avoid receiving comments on the entire text. The changes can then be integrated into the full text, which may undergo a comprehensive revision in the future.

In order to further demonstrate the impact of the technical change, W. Bich recalled that document *JCGM 101:2008 Supplement 1 to the “Guide to the expression of uncertainty in measurement” — Propagation of distributions using a Monte Carlo method* (<https://doi.org/10.59161/JCGM101-2008>) gives guidance on the propagation of probability distribution. This method is considered to be the ‘gold standard’ in uncertainty evaluation, as it provides correct results for any type of model and distribution. The estimate provided by the legacy GUM, if properly corrected using higher-order terms, coincides with the Supplement 1 estimate. Therefore, the technical amendment has a great conceptual significance but with an associated small practical impact.

The JCGM discussed the inconsistency and agreed that WG1 will draft a technical amendment, highlighting the recommended changes, and send it to the JCGM Secretary during the first half of 2025. The JCGM considered whether to publish an amended complete document or just the amendment. At present, there are no plans to carry out a comprehensive revision of the GUM.

6. Report from Working Group 2 (VIM)

C. Ehrlich, Convenor of WG2, reported on its activities in 2024. For full details see document JCGM/2025-05. He recalled the text of Decision 1 of the 26th meeting of the JCGM (see section 4).

In summary, WG2 had continued development of the VIM4 3CD during the first half of 2024, along with development of responses to the 1500+ comments received on the 2CD. This work took place in numerous meetings of the six Focus Groups covering each of the six VIM4 2CD chapters. In addition, three joint meetings of WG1 and WG2 were held during the period to try to reach consensus on a way forward concerning the new WG1 definition of ‘measurement uncertainty’ as “doubt” and for several related entries.

The two WGs met jointly in July and September 2024, but the progress in reaching consensus on measurement uncertainty definitions has remained slow. Discussions between the two WG Convenors and the JCGM Chair resulted in the proposal to hold a joint WG1/WG2 Webinar to assess the metrology community’s acceptance of the new definition of measurement uncertainty. The Webinar is not likely to take place until further consensus can be reached and may be held in late March 2025.

In the meantime, WG2 has continued its work on other key issues towards completing the VIM4 3CD with approximately one meeting per week. It is now close to being ready to circulate the 3CD, along with responses to comments on the 2CD, once final consensus can be reached with WG1 on the entries related to measurement uncertainty. What is included in the 3CD concerning measurement uncertainty and the related entries is expected to depend on the outcome of the Webinar.

The JCGM Chair thanked C. Ehrlich and invited questions and comments. The JCGM discussed the use of the terms “doubt” and “measurement uncertainty” and C. Ehrlich suggested that

any members with opinions on the subject should attend the proposed webinar to express their views.

In summary, the JCGM agreed to hold a joint WG1/WG2 Webinar to promote acceptance of the new definition of measurement uncertainty. WG2 will then collaborate with WG1 to come to a consensus on the definition. The webinar will help to build a consensus around the VIM4 3CD to avoid receiving negative comments when it is circulated. The VIM could lose credibility if a large number of negative comments were to be received. There is a danger that despite the enormous amount of work that has been put into the development of the VIM4 by WG2, this could potentially be undermined by the measurement uncertainty issue if there is no convergence towards consensus.

The JCGM Chair asked C. Ehrlich when the VIM4 3CD could be circulated, if a webinar is held in the second quarter of 2025. C. Ehrlich said that if a consensus is reached at the webinar, there would need to be a meeting between WG2 and WG1 to finalize the details and the circulation could potentially go ahead in the late second quarter or early third quarter of 2025. He added that the other chapters in the VIM4 are in good shape and the introduction and significant changes document could be finalized in parallel. The proposed structure and content of the webinar was briefly discussed.

7. Discussion of comments received on the text of the Charter

The JCGM Chair recalled Decision 2 of the 26th meeting (see section 4). The JCGM Charter and a commenting template had been circulated prior to the meeting and comments were received from ILAC and ISO. The comments are summarized in document JCGM/2025-07.

E. Oehlenschlaeger presented the ILAC comments. He said that they relate to section 7.2.1 of the JCGM Charter on how to set up a permanent committee.

The JCGM discussed the proposal by ILAC, particularly the need for any new work item proposal to give a clear description of the scope of the work including a proposed timescale, completion date and Terms of Reference. The JCGM agreed that M. Milton and E. Oehlenschlaeger will draft text for a note or one or more additional sentences to be added to Section 7.2.1 of the JCGM Charter, as outlined in Decision 1. E. Oehlenschlaeger highlighted that it is important to have clear Terms of Reference and a mandate from the JCGM for any work to be undertaken in order to obtain the necessary funding from ILAC to participate in the work.

The JCGM considered the possibility of increasing the number of participants in the Working Groups, although it was noted that the JCGM Charter already allows a maximum of three participants from each Member Organization.

Decision 1 Following the proposal received from ILAC, M. Milton and E. Oehlenschlaeger will draft text for a note or one or more additional sentences to be added to Section 7.2.1 of the JCGM Charter to specify what is required for proposals for new work. This will be circulated among the Member Organizations to achieve consensus before being sent for a vote.

M. Ferrés Hernández presented the proposed change to the second sentence of Annex A (2.2) of the Charter suggested by ISO. The change recognizes that as distribution media continue to evolve, the identification of specific formats should be avoided. The JCGM discussed the proposal and, following a show of hands, it was adopted. The JCGM Executive Secretary was charged with making the change and republishing the Charter.

Decision 2 The JCGM agreed to adopt the text proposed by ISO to the second sentence of Annex A (A.2.2) of the JCGM Charter. The Executive Secretary will make the change and republish the Charter.

8. Reports from the Member Organizations

IEC

S. Kapusta said that O. Pellegrino has agreed to become an IEC representative to both WG1 and WG2. He added that IEC can provide statistics on downloads and purchases of ISO/IEC Guide 98. Statistics are also available that give a breakdown of terms and definitions from the VIM that are accessed from Electropedia. The level of detail includes a breakdown of downloads by region.

ISO

M. Ferrés Hernández confirmed that ISO can provide statistics on the use of JCGM documents.

IUPAC

S. Ellison said that IUPAC does not republish any JCGM documents, so no statistics are available. B. Hibbert added that IUPAC publishes a compendium of terminology in analytical chemistry, which reproduces VIM terms with a reference before they are tailored to the appropriate chemical usage. He asked if statistics on access to these terms is needed. The Chair replied that this is an interesting point which showed that the impact of the VIM and GUM is not as simple as reporting on the number of downloads. The outputs of WG1 and WG2 can be embedded in other documents that are used very widely.

The JCGM agreed that the Member Organizations should send statistics on the use of JCGM documents to the Executive Secretary.

Decision 3 The JCGM Member Organizations are requested to submit information about statistics on the use of JCGM documents to the Executive Secretary (rsitton@bipm.org).

9. Any other business

The JCGM Chair said that J. Miles, the Executive Secretary of WG2, is leaving the BIPM to take up a position at the OIML. A new Executive Secretary is being sought.

L. Mari asked for clarification if the VIM4 3CD is to be circulated for comment or voting. The JCGM Chair said that Decision 1 of the 26th meeting of the JCGM is still valid and that the intention is to circulate the VIM4 3CD for comment. The JCGM will decide on whether to progress to a vote based on the outcomes of the circulation of the 3CD.

10. Date and venue of next meeting

The next meeting of the JCGM will be held on Friday 23 January 2026.



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