

Joint Committee for Guides in Metrology

Minutes of the meeting held on Monday 7 December 2020
via Webex

Present:

Dr Walter Bich (WG1 Convenor)
Dr Charles Ehrlich (WG2 Convenor, OIML)
Dr Stephen Ellison (IUPAC)
Ms Mercè Ferrés Hernández (ISO)
Prof. Philippe Gillery (IFCC)
Ms Joanna Goodwin (IEC)
Prof. Luca Mari (IEC)
Prof. Zoltan Mester (IUPAC)
Dr Martin Milton (JCGM Chairman, BIPM)
Prof. Pavel Neyezhnikov (CIPM)
Mr Erik Oehlenschlaeger (ILAC)
Mr Robert Sitton (JCGM Executive Secretary, BIPM)

Excused:

Dr Carl Williams (IUPAP)

1. Opening of the meeting and welcome by the Director of the BIPM

The Director of the BIPM, Dr Martin Milton, welcomed the participants. He noted that IUPAP was not represented.

2. Approval of the agenda

The provisional agenda dated 6 October 2020 (JCGM/2020-00-Draft-Agenda) was approved.

3. Approval of the minutes of the meeting of 3 December 2018

The minutes of the previous JCGM meeting (JCGM/2018/07) had been approved by correspondence.

4. Review of the decisions taken at the meeting of 3 December 2018

The decisions of the December 2018 meeting (JCGM/2018-04) were reviewed during the reports from Working Group 1 and Working Group 2.

5. Report from Working Group 1 (GUM)

The report of WG1 activities in the period December 2018 to December 2020 was presented by Dr Bich, Convenor of WG1. For full details see document JCGM/2020-06.

The Chairman thanked Dr Bich and invited questions on the presentation. Ms Ferrés Hernández recalled that, according to the ISO databases, the revision of ISO/IEC Guide 98-1:2009 *Uncertainty of measurement - Part 1: Introduction to the expression of uncertainty in measurement*, is not registered. She asked for clarification as to whether this revision is officially underway and, if so, the ISO databases need to be updated, or if the revision is awaiting an official launch. Dr Bich confirmed that the revision of Part 1 is officially underway but noted that it

is not yet clear if it will proceed simply as a revision of Part 1 or a redraft of the complete document. Ms Ferrés Hernández replied that it will be registered in the database as a revision and noted that anyway it will result in cancellation and replacement of the former document. Ms Ferrés Hernández asked for clarification if the proposal to change the format of the JCGM guidance documents produced by JCGM-WG1 was for the entire series. Dr Bich replied that the entire suite of documents will adopt the new format although there may be exceptions for some of the less technical documents. The aim is for consistency of format throughout the suite of documents. He confirmed that ISO will continue to receive a PDF file of the documents. Prof. Mari asked if updated information concerning the ‘new perspective GUM’ should be provided for external users. Dr Bich said that ‘News from JCGM-WG1’ is available on the website, which could be updated with this information and, in addition, a paper on the ‘new’ GUM is being considered.

The Chairman recalled that a significant achievement by WG1 since the last meeting of the JCGM had been the agreement to publish *JCGM GUM-6:2020* and noted that a draft decision has been drafted. He also recalled that Dr Bich had prepared a note on ‘the misuse of accuracy’ for discussion. Dr Bich introduced the note, which had been produced by WG1 in response to a question from John Greenwood at UKAS (UK) regarding the frequent misuse of accuracy in areas including standards, regulations, and conformity requirements. He referred to the VIM3, which defines accuracy as a non-quantitative term - ‘closeness of agreement between a measured quantity value and a true quantity value of a measurand’. Dr Bich noted that accuracy is often used quantitatively. For example, assessors for calibration laboratories in the field of physical quantities in chemistry or laboratory medicine receive requests for accuracy of $\pm 5\%$; he posed the question of how to understand exactly what is meant by such requests. Dr Bich acknowledged that the draft VIM4 includes the quantitative usage of accuracy but cautioned that there is an existing definition of ‘measurement uncertainty’, which is typically quantitative. He expressed the opinion that accuracy should not be quantitative and suggested that the senior management of the JCGM member organizations should be contacted for suggestions on how to improve the situation regarding these overlapping terms.

Dr Bich concluded by saying that he did not expect this issue to be resolved quickly and that the presentation was intended to initiate a debate.

The Chairman thanked Dr Bich and invited questions. Dr Ehrlich said that he had been involved in the group that had considered the question from John Greenwood. He clarified that from a technical viewpoint, the issue of accuracy is concerned with ‘knowable’ versus ‘unknowable’ rather than quantitative and non-quantitative. He recalled that WG2 has given much consideration to the term ‘accuracy’ and that the entry has been broadened to allow ‘reference value’ as the comparison, rather than ‘true value’. This allows accuracy to be used in a knowable sense, which reflects its usage in many metrological applications. The intention in the VIM4 is to acknowledge the situation and to show users that accuracy is concerned with ‘knowable’ versus ‘unknowable’.

Dr Ehrlich suggested that a joint Focus Group between WG1 and WG2 could be set up to discuss accuracy, which could make a recommendation to the JCGM. He recalled that a similar situation had occurred during the development of the VIM3 over the definition of ‘measurement error’, which is frequently used in a knowable sense. Prof. Mari commented that this issue has been discussed within the IEC and most electronic instrument manufacturers still require accuracy to be expressed quantitatively (knowable) as they claim to know the accuracy of their own instruments. Mr Oehlenschlaeger suggested that the possible establishment of a joint Focus Group should be delayed until after the VIM4 CD has been circulated to consider any comments received. He added that, depending on the feedback, accuracy may not be the only term that will require further discussion by a Focus Group. There was strong support for this suggestion among the Member Organizations.

The JCGM returned to the guidance document *JCGM GUM-6:2020 Guide to the expression of uncertainty in measurement – Part 6: Developing and using measurement models* later in the meeting. It was recalled that the final draft of the document had been approved by unanimity by the JCGM Member Organizations in advance of the meeting with minor editorial comments. These comments are being considered by WG1 and the document will be ready for publication after the JCGM meeting. Following a discussion, the text of Decision 1 was agreed.

Decision 1

The JCGM approved the guidance document *JCGM GUM-6:2020 Guide to the expression of uncertainty in measurement – Part 6: Developing and using measurement models* (previously referred to as JCGM 103 Supplement 3 to the GUM). The final draft of the document had been approved unanimously by the JCGM Member Organizations in advance of the meeting with some minor editorial comments. These comments are being considered by WG1 and the document will be ready for publication after the JCGM meeting.

6. Report from Working Group 2 (VIM)

The report of WG2 activities in the period December 2018 to December 2020 was presented by Dr Ehrlich, Convenor of WG2. For full details see document JCGM/2020-07.

The Chairman thanked Dr Ehrlich for the report and invited questions. Following a discussion, it was agreed that the first Committee Draft of the fourth edition of the International Vocabulary of Metrology (VIM4 CD) should be submitted to the JCGM Member Organizations in January 2021 for a six-month period of comment. Dr Ehrlich said that the only implication for WG2 of having a six-month deadline was that it will convene its next full meeting to occur after deadline. He added that with the increase in the use of online meetings that had occurred during the coronavirus pandemic, and the unlikelihood of the next meeting being held in person, there is much more flexibility with scheduling of meetings, so moving the meeting did not represent a problem. The following decision was agreed.

Decision 2

The JCGM decided to submit the first Committee Draft of the fourth edition of the International Vocabulary of Metrology (VIM4 CD) to its Member Organizations for a six-month period of comment.

The Chairman recalled that there was an open issue regarding whether the VIM needed to be produced jointly in both English and French. No decision had been taken at the previous JCGM meeting in December 2018 and this needed to be decided. Dr Ehrlich added that now that a six-month deadline from January 2021 had been set for commenting on the VIM4 CD and that these comments would require consideration and assimilation into the VIM4 by WG2, it is unlikely that the VIM4 will be published before the next meeting of the JCGM. As a result, a decision was not required during the meeting. The Chairman said that the default position remains for the VIM to be translated into French and that resources are available within the BIPM to draft the translation. Prof. Mari asked for clarification if the French or the English version of the VIM will be the official version; the current position is that the VIM has two official languages. He recalled that there is misalignment between the French and English definitions of some terms in the VIM3, which has caused problems. In response to a question, it was confirmed that the English version of the VIM4 CD will be circulated to the Member Organizations for comment. The consensus was for the VIM to continue to be produced in both English and French, with the French translation being drafted by the BIPM after the English language version of the VIM4 has been finalized.

Dr Ehrlich asked for confirmation that there should be no delay in circulating the VIM4 CD while WG1 completes its consultation exercise on measurement uncertainty. It was agreed that WG2 should not delay the circulation.

Prof. Mari continued the WG2 presentation by presenting the Annex ‘Strategies for electronic/digital formats in which to provide the VIM4’ (see document JCGM/2020-07). He concluded by noting that if the JCGM were to agree to proceed with producing the VIM4 by either improving the user experience (Development Line 1) or adding machine readability (Development Line 2), consideration needs to be given to the copyright policy. The current copyright policy, which is adapted to the production of a PDF or paper copy of the VIM, may not be appropriate for an electronic/digital product. The Chairman thanked Prof. Mari and invited questions.

Ms Ferrés Hernández asked if a decision would need to be taken by each Member Organization on how to disseminate the VIM4 when they receive the finished document from WG2. She recalled that ISO already produces an HTML version of the VIM from the PDF and uses its online browsing platform (OBP) to extract terms and definitions for each standard and to display different languages. She questioned whether a decision on the electronic format of the VIM4 should therefore be taken by the JCGM or if each Member Organization should take its own decision on dissemination. She added that ISO is already working on the development of machine-readable standards and suggested that the other Member Organizations are possibly exploring options in this field; the decision on the format for dissemination could therefore be left to the Member Organizations rather than the JCGM. She recalled that each Member Organization may operate a different copyright policy, which may influence how individual organizations choose to disseminate the VIM4. She was of the opinion that a collegiate decision by the JCGM on such a matter may have an influence on the JCGM charter. Mr Oehlenschlaeger commented that if a decision is required from the Member Organizations regarding the electronic platform for the VIM4, which would require a change to the charter, more time will be needed to come to a decision.

Prof. Mester said that IUPAC publishes the Gold Book, which uses terms extracted from the PDF file supplied by WG2. He supported WG2 in exploring the different electronic/digital formats in which to provide the VIM4 but cautioned that it will be a major undertaking. Prof. Mester suggested that digitalization of the VIM should allow individual terms to be updated to avoid having to update the entire document each time a change is made; this parallels a debate that is ongoing within IUPAC.

Ms Ferrés Hernández suggested that any web-based format for the VIM4 should be acceptable to all the Member Organizations and asked for clarification on what is meant in the Annex to JCGM/2020-07 that using a web-based format would facilitate the introduction of supplementary material. She commented that the content of the VIM is agreed by the JCGM Member Organizations (MOs) and recalled that the annotated VIM3 had not been agreed by consensus among the MOs and is maintained as a separate document. Dr Ehrlich replied that the supplementary material referred to in the Annex was the “Significant Changes from the VIM3 to the VIM4” document, which would be separate to the VIM4; he did not envisage making regular changes to the VIM4.

The Chairman asked Prof. Mari to clarify which electronic VIM4 document is to be approved by the JCGM. Prof. Mari said that the JCGM should agree on a read-only document that can be made available on the internet. He said that the intention is to continue to produce an official PDF version of the VIM for all MOs as specified in the JCGM Charter. The option of producing the file in HTML, XML or JSON format for example, remains for the future. Dr Ellison commented that his understanding was that the JCGM is being asked to approve the text of the VIM4 and not the format in which it is presented. Ms Ferrés Hernández agreed that the JCGM should decide on the content of the VIM4 and if the MOs choose to disseminate the file using their own method, this should be allowed, providing they maintain equivalence of the content.

The Chairman summarized the discussion by saying that MOs are satisfied with the text in the JCGM Charter that refers to JCGM official documents being distributed in PDF format for publication. The MOs are free to pursue their own policy for publication and copyright.

7. Actions taken by Member Organizations since the last meeting

IUPAC

Prof. Mester recalled that the decade-long project within IUPAC to update terms in its series of core books associated with chemical measurement science has been completed. He recalled that IUPAC has been active in the area of digitalization over the last five years and there has been interaction regarding the digital SI at the committee level. Prof. Mester noted that although IUPAC has provided expertise to the development of JCGM documents over many years, the updating of IUPAC guidance documents with information from the JCGM Working Groups has been limited. There is an ongoing project to improve this situation.

ILAC

Mr Oehlenschlaeger said that ILAC has revised many of its guides and policies in response to the revision of ISO/IEC 17025, particularly those that relate to metrological traceability and measurement uncertainty in calibrations. The outcome of the ballot on the guidance document ILAC G17:2002 *Introducing the Concept of Uncertainty of Measurement in Testing in Association with the Application of the Standard ISO/IEC 17025* is awaited. ILAC has held elections and Mr Oehlenschlaeger said that he will continue as the ILAC Accreditation Committee (AIC) Chair for a three-year term. The process to create a single organization from ILAC and the International Accreditation Forum (IAF) is ongoing. A contractor will be appointed to analyse and manage the merger process, with completion expected in two years.

ISO

Ms Ferrés Hernández said that ISO/TC 12 – Quantities and units has completed the revision of the ISO 80000 series apart from Part 1: General; a CD ballot for Part 1 is due to be launched soon. ISO/TC 12 will replace the terms and definitions and the excerpts that were quoting the SI and CODATA with direct references to these documents and to the VIM. This will ensure that Part 1 remains up to date as these documents evolve. ISO/REMCO, which is not currently a regular Technical Committee in ISO, will be transformed into a regular Technical Committee. It was noted that this will not impact ISO/REMCO's participation in WG1 and WG2.

OIML

Dr Ehrlich recalled that the CIML meeting had been held virtually in October 2020. A joint Task Group has been set up to explore a further strengthening of the cooperation between the BIPM and the OIML.

IEC

Prof. Mari commented that a joint working group has been set up between IEC and ISO to maintain the IEC sections of the ISO 80000 series. The IEC has recognized the importance of measurement science to its activities by establishing an informal coordination group. This group will create connections with stakeholders within the IEC. ISO, particularly ISO/TC 12, has been invited to attend the meetings of this group.

CIPM

Prof. Neyezhnikov recalled that the CIPM had held three sessions since the last meeting of the JCGM: in March and October 2019 and October 2020. During these sessions, a new President, Secretary and Vice-Presidents had been elected and several new CIPM Consultative Committee Presidents were appointed. In addition, a CIPM

Working Group on Data and a CIPM Task Group on the Digital SI have been established. The CIPM endorsed the “Grand Vision” prepared by the Task Group on the Digital SI and the Expert Group, recognizing that it will continue to evolve. He informed the JCGM that the CIPM Task Group on the Digital SI is organizing a virtual workshop on “The International System of Units (SI) in FAIR digital data”, which will be held on 22-26 February 2021. Prof. Neyezhnikov recalled that the CCU has sent a position paper on a possible extension to the SI prefixes to its members for comment. In addition, the CIPM approved the establishment of the CCU Working Group on Core Metrological Terms (CMT) since the last meeting of the JCGM.

8. Any other business

Dr Bich presented a proposed logo for the JCGM, which was based on the logo used by the Joint Committee for Traceability in Laboratory Medicine (JCTLM). Following a discussion, which touched on the need for a corporate identity for the JCGM, it was agreed that development of a logo should be pursued, and the MOs will be consulted for their opinions. A short joint statement in support of the development of a logo will be developed by WG1 and WG2 that can be sent to the MOs. The situation regarding usage and copyright will be checked with the JCTLM and guidelines on how to use the logo will be required.

The Chairman addressed the issue of ‘letters of support’ in response to a question raised by Dr Bich. He recalled that the BIPM has no power to provide letters of support on behalf of Member States, neither does it have power to do so on behalf of the Member Organizations of the JCGM. Letters of support are only rarely provided because the policy followed by the BIPM Director is that a letter of support is only provided by the BIPM for something that is ‘doubly essential’. He explained that this meant that the activity that is the subject of the letter of support must be essential for the success of the BIPM Work Programme, which is agreed by the CGPM; and, in turn, the involvement of the BIPM must be essential for the success of the proposed activity.

9. Date and venue of the next meeting

The next meeting will be held on 6 December 2021.