

Dear Colleagues,

The development of the KCDB 2.0 is in progress where a “CMC platform” is planned to be accessible in 2019. This facility is aimed to support the CMC review, from the created CMC until its publication. We are presently preparing CMC data migration and thank you for the useful feedback that some of you have provided on this issue.

*Please notice the following modifications linked to the new database:*

- Search facilities on numerical data will be developed. For this reason, only numerical data will be allowed in the cells for **Measurand Level or Range**; signs such as “<” and “>” (smaller than and larger than) will be stripped (VNIOFO concerned, no revision needed). Expression such as “infinite” will be replaced by empty space (PTB). It will be interpreted as infinite value in the numerical search/sort.
- The contents of **Expanded Uncertainty / Value** will be distributed into four different cells:
  - The numerical data will be split into two separate cells for minimum and maximum uncertainty, respectively. The contents will here only be numerical.
    - If the present value is a single numerical value, it will appear in both cells – there is no need for revision by the NMI.
    - If the range is indicated in the format “x to y” it will be automatically split into minimum and maximum – there is no need for revision by the NMI.
  - Equations will be placed in a third cell aimed for equations.
  - There will be a fourth cell available for a comment on the equation.
- It will be possible to create an uncertainty matrix associated with the CMC. It can be edited on the platform using an editor adapted for tables. The format will be rectangular. The first row and column are aimed to label the contents, the global contents may be free text (numerical or text including a selection of special characters, sub- and super-scripts etc.). The possibility to import larger matrices already edited in Excel is presently being explored.
- The CCPR WG CMC met in July 2018 and gave the following guidelines:
  - No detailed review will be made before the transfer of the entries to KCDB 2.0. In case of obvious errors or inconsistencies, the concerned NMI shall be informed and invited to revise the entry as part of the usual review procedure.
  - Statements like "varies with measurand" or "varies with wavelength" shall be included in the comment field ("uncertainty varies with measurand",...).<sup>1</sup>
  - For some colour related quantities (5.4.0, 5.4.1, 5.4.2, 5.4.3, 5.6.0, 6.1.0, 6.1.1, 6.1.2, 6.2.0, 6.2.1, 6.2.2, 6.3.0, 6.4.0) no range value shall be stated because the range is basically given by the definition of the quantity).<sup>1</sup>

---

<sup>1</sup> This will be automatically programmed for the migration process and does not need revision by the NMI.

- Multidimensional quantities (5.4.0, 5.4.1, 5.4.2, 5.4.3, 6.1.0, 6.1.1, 6.1.2, 6.2.0, 6.2.1, 6.2.2, 6.3.0, 6.4.0) no uncertainty value is given but the matrix format should be used for report the uncertainty of each component.<sup>2</sup> In some case (i.e. GB 6.1.0, GB 6.1.2) the measurement uncertainty of only one component is stated. In this case the NMI should be informed to update the CMC at the next revision.
- All formula found in the measurement uncertainty statements can be easily transferred to a range statement and formula, the limit values of the range can be directly calculated using the range limits of the measurand.<sup>3</sup>
- Multiple units in CMC used in responsivity of detector statements like A/W, V/W, Reading/W, etc will be uniformly spread over all relevant NMI CMC entries (i.e. always three statements: “A/...”, “V/...”, “reading/...”).<sup>1</sup>
- For the CMC entries 4.13.0<sup>4</sup> and 6.1.0 of CMS (TW) the range of the uncertainty shall be stated and additional details (for all colours) shall be stated in the comment field.

*Please notice the possibility to revise data in advance (before 1<sup>st</sup> December 2018):*

- NMIs having equations may add the minimum and maximum uncertainty values in the cell **Expanded Uncertainty / Value** in form of “x to y”, above the equation, and may hence be included for numerical search (BFKH, LNE, METAS, MSL, NMIA, NMISA, NPL, PTB, RISE and VSL presently concerned). The CMCs of those who have equations only and choose not to indicate minimum and maximum uncertainties will not be searchable using numerical search. This revision may of course also be made in the new KCDB support.

*Please notice future needs for revision:*

- In line with the decision taken at the Consultative President meeting in June 2018 and supported by the CIPM at their 107th meeting equations will no longer be presented as numerical-value equations as present but represented instead by **quantity equations**, frequently used by accreditation bodies. The NMIs having equations will be invited to revise their uncertainty expression once the CMC platform has been launched, not immediately. Information on how to convert to the quantity equation format will be provided subsequently. In the case of the Photometry and Radiometry this concerns presently only 26 CMCs of 1346.

---

<sup>2</sup> The contents will temporarily be placed as comment.

<sup>3</sup> Please see instruction in the end of this document.

<sup>4</sup> And 4.12.0

For questions on the revision of the KCDB please contact [BIPM.KCDB@bipm.org](mailto:BIPM.KCDB@bipm.org) .

Best regards,

Susanne Picard  
 KCDB Coordinator, BIPM  
 25 October 2018

[Guide on revision in advance:

- Download the Excel file on “GET PUBLISHED CMCs” on the JCRB restricted web <https://www.bipm.org/JCRBCMCs/>
- Make the revision as indicated in the figure below.
- Send by e-mail the revision to the
  - KCDB Office [BIPM.KCDB@bipm.org](mailto:BIPM.KCDB@bipm.org)
  - Copy to the CCPR WG CMC Chair, Dr Šmíd [msmid@cmi.cz](mailto:msmid@cmi.cz)
  - Copy to your TC Chair ]

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty					Ref
Class	Instrument or Artifact: Measurand	Instrument Type or Method	Minimum value	Maximum value	Units	Parameter	Specifications	Value	Units	Coverage Factor	Level of Confidence	Is the expanded uncertainty a relative one?	
Free-field sensitivity level	Measurement microphone type LS1F, LS2F. Measurand unit	Sequential comparison			dB (reference: 1 V/Pa)	Frequency <i>f</i>	31.5 Hz to 20000 Hz	0.1 to 0.5, (0.1 + 0.02 <i>f</i> ), <i>f</i> in kHz	dB	2	95 %	No	

↑  
 Indicate revised data in RED and separate fields with a comma

*Example of revision for addition of the uncertainty range. Please indicate the revised data in red and separate the fields within the same cell with a comma.*