

Description of the process how to convert equations to quantity-based format using the KCDB web platform

Representatives of the CIPM approved a transition towards quantity equation format at the Consultative Committee President's meeting, held at the BIPM in June 2018.

This document lists the *recommended* steps to carry out the transformation from numerical value format to a quantity equation format of uncertainty equations associated to CMCs already published in the KCDB. Information on how to format a quantity equation is given in *Guide to converting numerical equations into quantity equations for KCDB applications* [URL].

All institutes that have published CMCs using uncertainty equations edited in a numerical format, and not in the quantity based format, should export the CMCs concerned from the logged-in writer area "INSTITUTE CMCs" to an Excel file. Hence, each institute is in charge to export the data within the specific metrology area¹.

The transformation to quantity equation format should be separate from other technical reviews. Consequently, all CMCs concerned by this document should not need an inter-RMO review.

The transformation to quantity equation format follows the following steps:

1. The **TC representative(s)** (or the persons assigned to be Writer in the metrological field) register as CMC Writers for ALL categories their NMI covers in the field (e.g. for L: Laser AND Dim Metrology) and the **TC Chair** approves the competences following standard KCDB procedures.
2. **TC representative** log-in to the KCDB, enter "Institute CMCs", press "Select All" and EXPORT all CMCs in the metrological field to an Excel file. Exported CMCs should not be under revision or review, i.e. **the highest version number of the CMC should be a published version.**
3. **TC representative** updates the excel files according to instructions issued in the field and highlight the transformed columns in yellow. NB! Other changes than the transformation to equations are not allowed.

The following modifications are expected:

¹ It should be noted that Excel-files exported from the open KCDB web (not logged-in area) are formatted differently and will not be accepted as input to the KCDB.

- a. The smallest and largest uncertainties in the CMC's range, U_{\min} and U_{\max} , must be indicated explicitly in the dedicated columns for all CMCs, including those where the uncertainty is represented by an equation or a table (*mandatory information*).
 - b. A column should be added next to the column containing the initial equation. The added column should contain the equation in its revised quantity equation format.
 - c. The comment to the equation, contained in a specially dedicated column, could also need revision.
4. To simplify the subsequent control, the modified fields should be highlighted in yellow.
 5. **TC representative** deletes CMC rows that have not been modified.
 6. Contents are verified according to instructions accepted within the RMO (**TC Chair** responsible).
 7. When the correctness of the transformation has been verified, the **TC representative** sends the Excel file to the TC Chair by e-mail.
 8. When applicable, the **TC representative** asks the TC Chair to deregister expertise in their user account where they are not competent to Write or Review.
 9. **TC Chair** collects the Excel sheets and sends these to the KCDB Office for import.
 10. **KCDB Office** publishes CMCs on the web.
 11. When all updates have been submitted, the **TC Chair** informs the other RMOs' TC Chairs in the field, the appropriate CCWG Chair, the CC Executive Secretary, the KCDB Office and the JCRB Executive Secretary that the transformation in the RMO TC has been completed.
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