

Traceability in the CIPM MRA

A National Metrology Institute (NMI) or other Designated Institute (DI) publishing Calibration and Measurement Capabilities (CMCs) in the BIPM Key Comparison Database (KCDB) has two choices for establishing its traceability route to the SI:

1. via a primary realization or representation of the unit of measurement concerned, in which case traceability must be declared to its own demonstrable realization of the SI;
2. via another NMI or DI having relevant CMCs with appropriate uncertainty published in the KCDB or through calibration and measurement services offered by the BIPM, in which case traceability must be declared through the laboratory providing the service.

In exceptional cases, where neither of these two routes can be strictly applied, alternative paths for establishing the traceability to recognized standards may be proposed to the CIPM through the corresponding Consultative Committee. The list of these exceptions is maintained by the BIPM and is available in the CIPM MRA documents part of the BIPM website. The list of exceptions for each field should be periodically reviewed by the corresponding Consultative Committee.

Note 1: In order for a primary realization or representation of the unit of measurement to be considered valid, it requires the approval of the relevant Consultative Committee.

Note 2: The NMI or DI must make available a full assessment of the uncertainty budget and the traceability route for its measurement activity when submitting CMCs for intra- and inter-Regional review.

Note 3: For auxiliary influence quantities, not part of the main traceability path to the SI for a particular measurand and with uncertainties that can be shown to make only a minor contribution to the total combined uncertainty of the CMC, an NMI or other DI is free to use measurement services provided by laboratories accredited by a signatory to the ILAC Arrangement.

Note 4: Traceability route 1 includes the case of NMIs or DIs using certified reference materials (CRMs) or high-purity primary chemical reference materials that have been value-assigned by applying their own measurement capabilities as described and recognized within published CMCs.