

OIML: Revision of “D 31: General Requirements for Software-Controlled Measuring Instruments

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In December 2019, the International Committee on Legal Metrology (CML) approved a new revision of the International Organization of Legal Metrology (OIML) document, *D 31: General Requirements for Software-Controlled Measuring Instruments*. This document is the culmination of three years of meetings of the project group, and the first such revision since 2008.

Software is increasingly essential to the operation of numerous metrological instruments, and typically, type approval or inspection guidelines have not taken into account considerations for this evolution in instrumentation. Additionally, those responsible for testing and evaluating measuring instruments often do not have the expertise to delve deeply into software analysis. The guidelines provided in D 31 attempt to reconcile some of these gaps, while also providing manufacturers guidelines as to how instruments should be configured so that the appropriate testing can be carried out. The document covers such things as risk assessments, software identification, protection from alteration, requirements for configurations, protection of data, examination of software traceability, and the means for updates.

At this time, a new project group is forming to carry on further revision of D 31. The conveners and members of the previous project agreed that there are still numerous issues related to the rapidly developing landscape in software-controlled instruments, most of which were not addressed in this most recent revision. Areas being considered for inclusion in the next revision are formal verification of software; the impact machine learning and statistical analysis tools; data storage and processing, such as cloud-based systems; options for new display technologies, such as smartphone apps; a more explicit consideration of risk levels and vulnerabilities of software; operating systems and the degree of legal control to be considered in verification; and finally, formal verification requirements.

Representation to the OIML project group on the D 31 revision is being coordinated by Katya Delak of the NIST Office of Weights and Measures.

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