



Equipment Calibration Intervals and Verification Requirements

Revision 6.0 – Clarifications as follows:

- Updated internal UL document approvers and titles
- Name changed to include Equipment Verification Requirements
- When should you provide this information – Before the visit – updated to include verification of non-calibrated equipment.
- Certificates, Approval Forms, and other Documentation – For WTDP – Added documentation requirement for non-calibrated equipment validation.
- Appendix A, Section 3 - Removed timepieces from initial calibration only (ICO) in line with NIST recommendation.
- Appendix A, Section 7 – Added requirement to verify non-calibrated equipment.

What information you are looking for (minimum requirements):

- Equipment calibration intervals and equipment verification information. The setting of calibration intervals is described in Appendix A

When should you provide this information?

- Before the visit - Test instruments are to be calibrated at intervals which maintain required tolerances specified in the test standard, manufacturer’s stated tolerances or tolerances defined by the equipment owner. Non-calibrated equipment shall be verified against documented specifications and/or procedures prior to testing.
- During the visit – A review of historical calibration records will provide details to confirm whether the calibration interval is appropriate. See Appendix A for details. A review of verification records for non-calibrated equipment will confirm compliance with the requirements.

Why this requirement is important?

- Equipment accuracy has a direct impact on test data. Reliance on stated instrument tolerances is based on stability of the instrument during the defined calibration interval.
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Equipment Calibration Intervals and Verification Requirements

Certificates, Approval Forms, and Other Documentation

- Certificates and other related documentation associated with testing are to be processed in the following manner:

For WTDP -

- Calibrated Equipment - Historical records for calibration intervals are to be retained by the client for proof of appropriate calibration cycles. UL staff is to request copies of calibration certificates, and related documentation for the equipment used in testing under the *present project*.
- Non-Calibrated Equipment –records must be retained by the client to demonstrate that non-calibrated equipment has been properly verified. UL staff is to request copies of verification data for the applicable non-calibrated equipment used in testing under the *present project*.

For other DAP programs (CTDP, TCP, TPTDP, PPP)

- Clients are to index and retain copies of certificates and related documentation for the equipment used in testing.
- In lieu of storage of paper copies of the documentation, these may be stored electronically.
- ***Retention time for the records is to be retained for 5 years from the date of the signature of the authorized signatory on the data package in which the last time the test equipment was used.***

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APPENDIX A

- 1 All test equipment requiring calibration shall undergo an initial calibration before being put into service. Thereafter, the maximum nominal calibration interval is indicated below. A calibration vendor that is accredited by a Signatory of APLAC, ILAC or EU must provide the calibration whenever possible. Calibration cycles shall be:
 - 1A As recommended by the manufacturer of the instrument;
 - 1B One year for electrical, electronic and mechanical test equipment; or
 - 1C Three years for mechanical test equipment made of solid materials not subject to deterioration.

- 2 Calibration intervals may be extended based on the following conditions and the reasons must be documented:
 - 2A Passive electrical test equipment, such as current shunts, current transformers, potential transformers, may be extended to 3 years with good results for the initial calibration period and if not subject to severe use conditions.
 - 2B Weights may be extended to 5 years if there is a laboratory procedure that takes into account usage and has provisions for physical examination and / or intermediate checks of the weights.
 - 2C Where there is sufficient calibration data to statistically establish a trend of the test equipment to assure good measurement results for a longer period.

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3. Calibration of the following types of equipment can be put on an initial calibration only (ICO) calibration cycle:
 - steel rules,
 - tape measures,
 - weights 4.5 kg or greater calibrated to $\pm 1\%$ tolerance,
 - single piece steel probes greater than or equal to 3 mm diameter with blunt ends,
 - graduate cylinders, thermometers,
 - steel impact balls,
 - steel or plastic probes with no moving parts and sufficient structural integrity so as to not deform

With ICO, the equipment undergoes calibration and is then subjected to intermediate checks to ensure that the equipment continues to meet calibration requirements. These checks shall be conducted per a defined procedure and interval. Equipment records shall include the details on the original calibration, including certificates and the like. The last and next inspection dates shall be indicated on the equipment and in equipment records.

4. Weights do not need to be calibrated if verified with a calibrated scale before each use. The verification must be documented in the datasheets with the weighing device included in the equipment list.
5. Test equipment that is delicate, subject to frequent usage or severe conditions (i.e., shock and vibration, excessive heat or humidity, or transported) shall be assigned shortened calibration intervals.
6. Infrequently used test equipment (e.g., once or twice between calibration cycles) may be assigned the status of “Calibrate Before Use” instead of a periodic calibration.
7. Equipment that does not need to be calibrated must be verified against documented specifications and/or procedures.

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