

GUIDELINES FOR TESTING LABORATORIES ON REQUESTING INFORMATION FROM CALIBRATION SERVICE PROVIDERS

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SCOPE

This document is a guideline for testing laboratories on the information they need to request from calibration service providers. The terms “calibration laboratory” and “calibration service provider,” as used in this document, refer to both internal calibration operations and external calibration providers.

REFERENCES

ANS/ISO/IEC Standard 17025:2005, *General requirements for the competence of testing and calibration laboratories.*

ANSI/NCSL Z540.1-1994 (R2002), *Calibration Laboratories and Measuring and Test Equipment - General Requirements*

Purchasing Calibration Services

The products of calibration providers are (1) the services they provide and (2) the calibration reports or certificates which document the results of the calibration. When you purchase calibration services, you should expect to receive a calibration certificate for each piece of equipment that you submit for calibration. The certificate needs to meet your needs and, indirectly, the needs of your customers.

Content of Calibration Certificates

For IAS-accredited testing laboratories, at a minimum, the calibration certificate must meet the requirements of ANS/ISO/IEC Standard 17025:2005, Sections 5.10.2 and 5.10.4. It is extremely important that you inform your calibration service provider of these requirements *before* you contract for his services. These requirements apply to calibration certificates received from external calibration providers as well as for internal calibration providers.

Traceability of Measurements

Your testing laboratory’s measuring and test equipment must be calibrated so as to be traceable by means of an unbroken chain of calibrations or comparisons to primary standards linked to the international system of measurements. These measurements are known as SI units. Traceability of the measurements that you make in your testing laboratory can be accomplished by having calibrations performed by:

- The National Institute of Standards and Technology (NIST).
- The National Metrology Institute (NMI) of another country which is a signatory to the CIPM Convention or regularly participates in BIPM's interlaboratory comparisons.
- A calibration laboratory accredited by an accrediting body that is a signatory to the Mutual Recognition Arrangement (MRA) of the Asia Pacific Laboratory Accreditation Cooperation (APLAC), the National Cooperation for Laboratory Accreditation (NACLA), or the International Laboratory Accreditation Cooperation (ILAC).
- Direct reference to a primary standard or to a natural constant, the value of which in terms of the relevant SI unit is known and recommended by the General Conference of Weights and Measures (CGPM) and the International Committee on Weights and Measures (CIPM).

If it is not possible or appropriate to achieve traceable calibration as explained above, IAS accredited laboratories may demonstrate comparison to a widely used standard which is clearly specified and mutually agreeable to all parties concerned. For example, there are several widely used commercial standards available for hardness, but these standards may not all give equivalent measurement results. Therefore, it is important to specify which standard is to be used and to obtain agreement among all the parties involved that the choice of standards is acceptable.

Statements of Measurement Uncertainty

It is essential that your calibration certificate always include appropriate statements of measurement uncertainty. It is prudent that you specify this need to your calibration provider when you contract for the service. In some cases, it is acceptable if your calibration certificate includes a statement of compliance to an accepted metrological specification in lieu of a statement of uncertainty. In this case, your calibration certificate must identify which clause(s) of the specification are met. However, statements of compliance must also take into account the uncertainty of the measurement. Typically, this is done by including the coverage factor and confidence level.

Calibration Certificates and Equipment Identification

Calibration certificates must identify the equipment or instrument to which the calibration applies. Since testing laboratories are required by Section 5.5 of ANS/ISO/IEC Standard 17025:2005 to uniquely identify each item of test or measuring equipment that is used to conduct tests, it is highly recommended that you provide to your calibration provider the identification mark, number, etc., for each piece of equipment or instrument to be calibrated, and request that this information be included on the calibration certificate. This will facilitate your laboratory's ability to establish traceability of your measurements to the specific piece of equipment used to conduct the test.

Repair or Adjustment of Items to be Calibrated

If you submit an instrument for calibration that needs to be adjusted or repaired, you should ask for a report of the calibration results before and after such adjustments or repairs (if possible or available).

Note: These guidelines will be updated periodically as the need arises. Additional guidance will be developed based on laboratories' needs and feedback from laboratories. In this regard, your comments and suggestions are encouraged. You may provide your comments by mail to: International Accreditation Service, Inc., 5360 Workman Mill Road, Whittier, California 90601; by fax to (562) 699-8031; or by e-mail to info@iasonline.org.