

# **INTERNATIONAL ACCREDITATION SERVICE, INC.**

5360 Workman Mill Road · Whittier, CA 90601 USA  
562-699-0541 *local* · 866-427-4422 *toll free* · 562-699-8031 *fax*  
www.iasonline.org *web site* · info@iasonline.org *e-mail*



## **ACCREDITATION CRITERIA FOR CALIBRATION LABORATORIES**

### **AC204**

**May 2010  
(Effective June 1, 2010)**

**(Previously issued September 2002, May 2004, August 2006, and April 2008)**

### **PREFACE**

The attached accreditation criteria has been issued to provide all interested parties with guidelines on implementing performance features of the applicable standards referenced herein. The criteria was developed and adopted following public hearings conducted by the International Accreditation Service, Inc. (IAS), Accreditation Committee and is effective on the date shown above. All accreditations issued or reissued on or after the effective date must comply with criteria. If the criteria is an updated version from a previous edition, solid vertical lines (█) in the outer margin within the criteria indicate a technical change or addition from the previous edition. Deletion indicators (→) are provided in the outer margins where a paragraph or item has been deleted if the deletion resulted from a technical change. This criteria may be further revised as the need dictates.

IAS may consider alternate criteria provided the proponent submits substantiating data demonstrating that the alternate criteria are at least equivalent to the attached criteria and otherwise meet applicable accreditation requirements.

Copyright 2010

# ACCREDITATION CRITERIA FOR CALIBRATION LABORATORIES

## 1.0 INTRODUCTION

**1.1 Scope:** The purpose of this document is to provide requirements for accreditation of calibration laboratories by International Accreditation Service, Inc. (IAS), and to specify the qualifying data that must be submitted by calibration laboratories seeking accreditation by IAS.

### 1.2 Reference Documents:

**1.2.1** ANS/ISO/IEC (International Organization for Standardization/International Electrotechnical Commission) Standard 17025:2005, General Requirements for the Competence of Calibration and Testing Laboratories.

**1.2.2** JCGM 200:2008, International vocabulary of metrology — Basic and general concepts and associated terms (VIM) Edition 2008 (VIM 2008).

**1.2.3** IAS Rules of Procedure for Laboratory Accreditation.

**1.2.4** ILAC G10:1996, Harmonised Procedures for Surveillance and Reassessment of Accredited Laboratories.

**1.2.5** ISO/IEC Standard 17011, Conformity assessment—General requirements for accreditation bodies accrediting conformity assessment bodies.

**1.2.6** IAS Policy Guide on Calibration, Traceability, and Measurement Uncertainty for Calibration Laboratories.

**1.2.7** IAS Calibration Program Forms.

**1.2.8** IAS Calibration Laboratory Accreditation Program Definitions.

**1.2.9** IAS Accreditation Criteria for Testing Laboratories (AC89).

**1.2.10** ANSI/NCCL Z540.3-2006, American National Standard for Calibration – Requirements for the Calibration of Measuring and Test Equipment Clause 5.3.

**1.2.11** ANSI/NCCL Z540-2-1997 (R2002), U.S. Guide to Expression of Uncertainty in Measurement (GUM).

**1.2.12** ILAC-P9:2005, ILAC Policy for Participation in National and International Proficiency Testing Activities. Document is available at [www.ilac.org](http://www.ilac.org).

**1.2.13** NIST Handbook 150-2006.

## 2.0 BASIC INFORMATION

The following basic information is necessary:

**2.1** Data showing compliance with the IAS Rules of Procedure for Laboratory Accreditation.

**2.2** Data showing compliance with Section 4.0 of this criteria.

## 3.0 DEFINITIONS

Definitions provided in this section are only those necessary to understand the criteria. Definitions are from

VIM: 2008. Any text in the definition beyond what is in VIM is added for clarity.

**3.1 Calibration:** Operation that, under specified conditions, in a first step, establishes a relation between the quantity values with measurement uncertainties provided by measurement standards and corresponding indications with associated measurement uncertainties and, in a second step, uses this information to establish a relation for obtaining a measurement result from an indication.

**3.2 Calibration Programs:** Calibration programs include external calibration providers and internal calibration providers; calibrations performed; and the management and control systems and procedures defining the calibration program.

**3.3 NMI:** National Metrology Institute, considered to be the primary source of standards in a country. In the United States, the National Institute of Standards and Technology (NIST) is considered an NMI.

**3.4 Equivalence:** An acceptance of the competence of NMIs, accreditation bodies, and/or accredited calibration laboratories in other countries as being essentially equal to the NMI, accreditation body, and/or accredited organizations within the United States.

**3.5 International System of Quantities (ISQ):** System of quantities based on the seven base quantities: length, mass, time, electric current, thermodynamic temperature, amount of substance, and luminous intensity.

**3.6 International System of Units (SI):** System of units, based on the International System of Quantities, their names and symbols, including a series of prefixes and their names and symbols, together with rules for their use, adopted by the General Conference.

**3.7 Measurement Uncertainty:** Non-negative parameter characterizing the dispersion of the quantity values being attributed to a measurand, based on the information used.

**3.8 Metrological Traceability Chain:** Sequence of measurement standards and calibrations that is used to relate a measurement result to a reference.

**3.9 Calibration and Measurement Capability (CMC):** Calibration and measurement capabilities provided by the laboratory, available to customers under normal conditions, and as described in the laboratory's scope of accreditation granted by a signatory to the ILAC Arrangement.

**3.10 ILAC:** International Laboratory Accreditation Cooperation.

**3.11 Test Uncertainty Ratio:** The ratio of the span of the tolerance of a measurement quantity subject to calibration, to twice the 95% expanded uncertainty of the measurement process used for calibration.

## 4.0 REQUIRED DATA

**4.1** The laboratory seeking accreditation must submit data showing compliance with ANS/ISO/IEC Standard 17025:2005, and with IAS policies.

**4.2** The following policy on traceability and calibration is supplemental to the requirements noted in ANS/ISO/IEC Standard 17025: Accredited calibration laboratories, whether external or internal, must ensure traceability to SI units (whenever such traceability is achievable) by obtaining calibration services either directly from an NMI or other calibration laboratories accredited to ANS/ISO/IEC Standard 17025 by an accreditation body formally recognized as complying with ISO/IEC Standard 17011.

In cases where calibration is not available from an accredited laboratory or NMI as described above, laboratories must be able to demonstrate the steps they take to ensure the traceability of their calibration program.

Testing laboratories that are seeking accreditation of their internal calibration functions must be accredited by IAS under ANS/ISO/IEC 17025, or have a current accreditation from an ILAC Signatory body.

**4.3** Calibration certificates and reports must meet requirements of ANS/ISO/IEC Standard 17025. Calibration certificates or reports must state the uncertainty of the measurement(s).

**4.4** Estimation and calculation of measurement uncertainty for disciplines and parameters under the scope or proposed scope of accreditation must be provided in advance or be available during the assessment.

**4.5 Personnel Training:** IAS accredited and applicant laboratories are required to provide training to bench technicians and to their authorized signatories to comply with the requirements described in Sections 4.5.1 and 4.5.2. Laboratory signatories are the personnel responsible for review and approval of calibration certificates.

**4.5.1** Laboratories are required to have at least their principal technicians professionally qualified within five years of achieving accreditation. This qualification may be the Certified Calibration Technician (CCT) certification from the American Society of Quality (ASQ) or a similar certification such as a national technician program, or an appropriate equivalent such as a degree in a technical or scientific discipline and/or appropriate documented experience.

**4.5.2** Laboratories' authorized signatories are required to receive at least an equivalent level of technical training as bench technicians.

**4.5.3** The accredited laboratory must develop a documented training plan to achieve and maintain certification of its technicians within five years of achieving accreditation. The plan must assign or allocate resources, and state target time lines. Management must specifically review the progress made towards compliance, and document the review in the Management Review records.

## 5.0 ASSESSMENT

**5.1** Prior to accreditation, laboratories shall be subject to an on-site assessment by IAS. This assessment is to determine compliance with this criteria (AC204), with IAS policies, and to evaluate expertise and equipment in the discipline(s) of calibration where accreditation is sought. Both permanent laboratory facilities and mobile facilities shall be subject to assessment.

**5.2** After the initial year of accreditation, laboratories are subject to an on-site surveillance assessment. The surveillance assessment shall include review of at least the following: internal audit reports; minutes of management review meetings; results of proficiency testing, if any; any changes in key personnel, facilities and/or major test equipment; and information on any other significant changes in the quality system of the laboratory.

**5.3** IAS will conduct an on-site reassessment assessment of accredited laboratories at a minimum of once every two years, for verification of continued compliance with IAS accreditation requirements.

**5.4** As applicable, assessments may include review of the 4:1 Test Uncertainty Ratio (TUR) requirement for each technical demonstration. Assessment of TUR is not considered necessary if the laboratory reports uncertainty for calibrations.

## 6.0 PROFICIENCY TESTING ACTIVITY

Proficiency testing activity shall be completed in accordance with ILAC-P9:2005. ■