

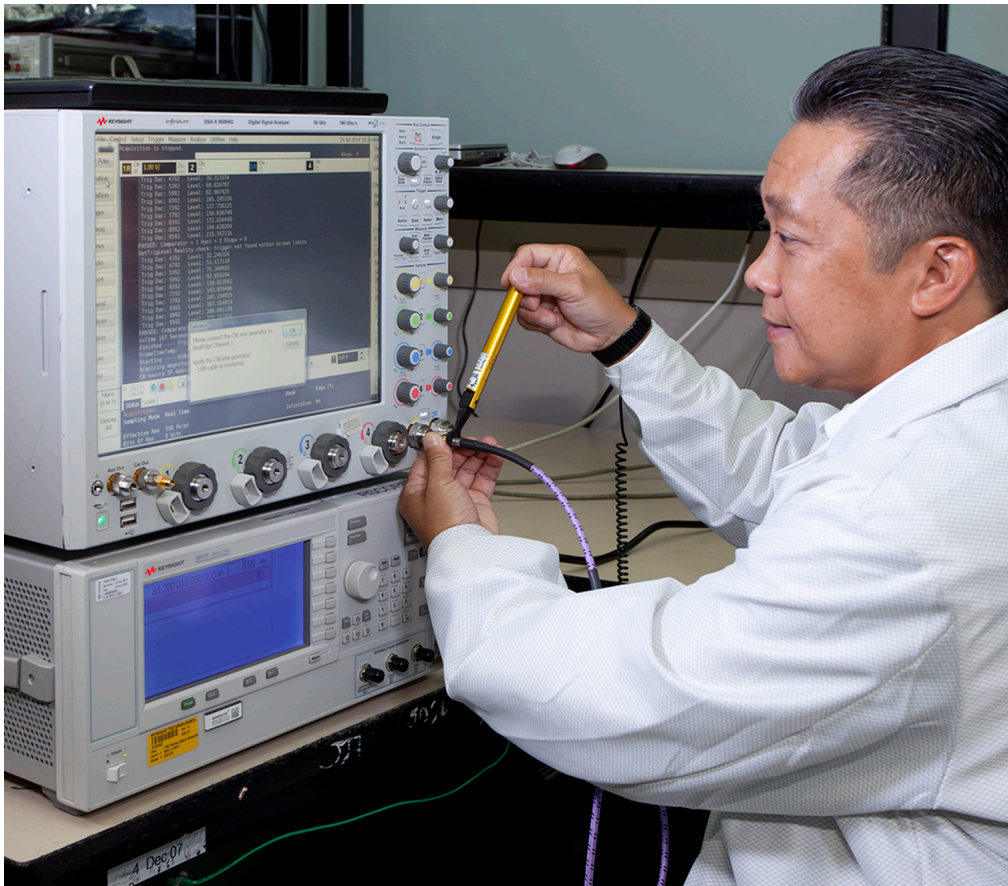
Keysight Laboratory Accreditation and Accreditation Body Symbols on Calibration Certificates

The Accreditation process and the special significance of receiving an Accreditation Body symbol on calibration certificates can be confusing. This document addresses your questions.

What does it mean for a calibration lab to be accredited to ISO 17025?

ISO/IEC 17025:2017, "General requirements for the competence of testing and calibration laboratories"¹ is the primary quality standard that most calibration laboratories strive to meet. A nice overview is available on Wikipedia²: *"The ISO/IEC 17025 standard itself comprises five elements that are Scope, Normative References, Terms and Definitions, Management Requirements and Technical Requirements. The two main sections in ISO/IEC 17025 are Management Requirements and Technical Requirements. Management requirements are primarily related to the operation and effectiveness of the quality management system within the laboratory. Technical requirements include factors which determine the correctness and reliability of the tests and calibrations performed in the laboratory."*

Accreditation refers to an audit/assessment by a third party, generally known as an Accreditation Body (AB), attesting to technical competence within a laboratory specific to a Scope-of-Accreditation (in addition to adherence and operation under a documented quality system).



How important is the Scope-of-Accreditation when I am considering using that calibration laboratory?

In short, very important. The accreditation body assessors review technical competence for only those measurement parameters in the Scope-of-Accreditation. If a lab Scope includes only DC volts, ohms, and DC current, then that is all the audit covers. Unfortunately, some labs offer calibration services outside of their Scope. When they do this, it means that an independent assessor has not verified the technician competence, the best measurement capability, and the associated measurement uncertainties for any parameters not covered in the audit. When you send your instrument to an Americas Keysight Technologies, Inc. service center, you can be certain that ALL measurements performed on your instrument have been covered in the Scope of that lab. The Keysight Roseville, CA service center Scope-of-Accreditation covers > 55 measurement parameters covering measurements from DC to above 50 GHz, as well as optical. A list of all Keysight service centers Scopes-of-Accreditation is available at: www.keysight.com/find/accreditation.

Can a calibration lab also be accredited to ANSI Z540.3?

Yes, absolutely. Most Accreditation Bodies audit first to ISO/IEC 17025:2017, then as requested to the incremental requirements of ANSI Z540-1-1994, or ANSI/NCSLI Z540.3-2006. Keysight Americas service centers are accredited to ISO/IEC 17025:2017, ANSI Z540-1-1994, and ANSI/NCSLI Z540.3-2006.

For more information on ANSI Z540.3, please visit: www.keysight.com/find/Z540.3.

Is there a special significance if an AB symbol appears on my calibration certificate?

Accreditation bodies provide specific guidance on requirements to place their accreditation symbol on the calibration certificate for a particular instrument. While these may vary a little by country, or AB, the critical requirements do not. These are:

- All measurement results must be included in the lab scope-of-accreditation, or if not, must be clearly denoted as non-accredited measurements in the report.
- Measurement uncertainty per the ISO GUM³ must be included in the measurement report along with all measurements. Please see paragraph 6.1 of ILAC-P14:01/2013, “ILAC Policy for Uncertainty in Calibration⁴”.

Note: The Jan 2013 version of ILAC-P14 does allow, by exception, the calibration lab to omit the measured quantity value and measurement uncertainty, by specific contract agreement if the instrument is “not intended to be used in support of the further dissemination of metrological traceability (i.e. to calibrate another device)”. However, the lab is still required to meet” ISO/IEC 17025 clause 5.10.4.2 and determine the uncertainty and take that uncertainty into account when issuing statement of compliance: and the laboratory shall retain documentary evidence of the measured quantity value and the uncertainty of measurement, as specified in ISO/IEC 17025 clauses 5.10.4.2 and 4.13, and shall provide such evidence upon request.”

Keysight chooses to always show the work performed so that there is no question of what has been measured, the corresponding measurement uncertainty, or how measurement uncertainty is taken into account in the assessment of Pass or Fail.

1. <https://www.iso.org/standard/66912.html>
2. http://en.wikipedia.org/wiki/ISO/IEC_17025
3. “Guide for Expression of Uncertainty of Measurements”, the international standard for expressing measurement uncertainty as referenced in IEC/ISO 17025:2005, ANSI/NCSL Z540.3-2006, ILAC-G8, and ILAC-P14.
4. <https://ilac.org/publications-and-resources/ilac-policy-series/>

Who/what is ANAB?

ANAB is the ANSI National Accreditation Board (www.anab.org). Like all accreditation bodies, their auditors perform independent assessments of candidate laboratories compliance to ISO 17025, Z540-1, and Z540.3. ANAB is a signatory to the ILAC MRA (International Laboratory Accreditation Cooperation Mutual Recognition Arrangement⁵). They also belong to APAC (Asia Pacific Accreditation Cooperation⁶) and to IAAC (the Inter American Accreditation Cooperation⁷). This mutual recognition means that they and other members (like A2LA from the United States and SAMM of Malaysia) recognize the accredited calibration results of laboratories accredited by each other.



Figure 1. Example Accreditation Body symbol, Keysight Technologies service center, Roseville, CA.

What is the difference between ANAB and A2LA?

They are both internationally recognized accreditation bodies. Since both these accreditation bodies belong to the ILAC Mutual Recognition Arrangement, they recognize the laboratory accreditation as performed by the other accreditation body. The accreditation body symbol, whether from A2LA, ANAB, etc. means that an independent assessor assures that the measurements in that calibration are traceable to the international system of units (SI Units).



Figure 2. Example Accreditation Body symbol, Keysight Technologies service center, Santa Rosa, California.

5. <https://ilac.org/>
6. <https://www.apac-accreditation.org/>
7. <http://www.iaac.org.mx/English/Index.php>

How many accreditation bodies does Keysight use worldwide? 15 – See list in table.

Country	Accreditation body	Accreditation body defined
US	ANAB and A2LA	ANSI National Accreditation Board and American Association for Laboratory Accreditation
Brazil, Canada, Mexico	A2LA	American Association for Laboratory Accreditation
Australia	NATA	National Association of Testing Authorities
China	CNAS	China National Accreditation Service for Conformity Assessment
France	COFRAC	Comité Français d'Accréditation
Germany and UK	UKAS	United Kingdom Accreditation Service
India	NABL	National Accreditation Board for Testing and Calibration Laboratories
Israel	ISRAC	Israel Laboratory Accreditation Authority
Japan	JCSS and ANAB	Japan Calibration Service System of International Accreditation and ANSI National Accreditation Board
Korea	KOLAS	Korea Laboratory Accreditation Scheme
Malaysia	SAMM and ANAB	Malaysian Department of Standards laboratory accreditation program, Skim Akreditasi Makmal Malaysia and ANSI National Accreditation Board
Singapore	SAC	Singapore Accreditation Council
South Africa	SANAS	South African National Accreditation Service
Spain	ENAC	Entidad Nacional de Acreditacion
Taiwan	TAF and ANAB	Taiwan Accreditation Foundation and ANSI National Accreditation Board

Refer to www.keysight.com/find/accreditation for more information on scopes-of-accreditation at Keysight Technologies service centers in each country.



When I order a new instrument, how do I get an ISO 17025 calibration with an Accreditation Body symbol?

With rare exceptions the test line limits that Keysight factories use in final test for new instruments are sufficient to easily comply with ISO 17025, ANSI Z540-1, or even ANSI Z540.3. However, if you need documentary proof, for example to ISO/IEC 17025 along with an Accreditation Body symbol, then please:

1. Consider Option AMG

Important note: Only those instruments with Option AMG descriptions “Keysight Cal + Uncertainties + Guardbanding (Accredited Cal)” include the SAMM accreditation body symbol along with the ILAC-MRA symbol.

All other instruments with option 1A7 include a cal certificate that states compliance to ISO/IEC 17025, but will NOT include the SAMM symbol.

2. R1295 special calibration order process

For any instruments not listed in the link above please work with your Field Engineer to use the R1295 special process to divert your instrument shipment to a local calibration service center which can perform an “Keysight Cal + Uncertainties + Guardbanding” calibration that includes the Accreditation Body symbol. *(Generally the Roseville, CA service center, see Figure 1).*

Learn more at: www.keysight.com

For more information on Keysight Technologies’ products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

