

# Accredited Calibration Certificates – Sorting *Fact* from *Myth*

By Pam Wright, A2LA Accreditation Manager, Calibration

It is fairly common for laboratory professionals to struggle with managing all of the various requirements that must be met for reporting accredited calibration results. Some of the difficulty occurs because there are many requirements from various bodies, such as ISO, which publishes ISO/IEC 17025, 17020, 15189 and other standards, and ILAC, which publishes the P-series standards (e.g. P14). Even the test standards used by laboratories include calibration reporting requirements that must be met. There are often additional elements required in the contract for service that also need to be included in the certificate or report. Finally, there are issues that arise because of assumptions or expectations regarding accredited calibrations that aren't based on the actual requirements or the customer contract but rather on what is generally considered to be common sense.

In this article, I present the eleven most common myths regarding accredited calibration certificates encountered by A2LA in working with our customers. It is my sincere hope that this article will help accredited organizations sort the facts from the myths when evaluating an accredited calibration certificate.

***Myth #1:* If a calibration laboratory is accredited then you will automatically receive an accredited calibration certificate.**

***False.*** The fact is that calibration providers often offer several levels of service including non-accredited and accredited calibrations. It's best not to assume that, simply because a laboratory is accredited, you will automatically receive accredited results. When asking for service, be sure to specifically request inclusion of the accredited symbol and certificate number in your report.

***Myth #2:* A generic statement such as “The laboratory is accredited to ISO/IEC 17025 by XYZ” means that the results on the calibration certificate are accredited.**

***False.*** The fact is that this generic statement simply advertises that the laboratory is accredited but does not reference their exact Accrediting Body's certificate number for traceability to their Scope of Accreditation and, therefore, the calibration is not considered to be accredited. A phrase such as “The results are accredited in accordance with ISO/IEC 17025 by XYZ, Certificate Number 0000.00” would be deemed equal to using the accredited symbol with certificate number.

***Myth #3:* An accredited laboratory always takes the measurement uncertainty into account when making a statement of compliance.**

***False.*** The fact is that, although ISO/IEC 17025 does require the measurement uncertainty to be taken into account when issuing a statement of compliance (such as in/out of tolerance or pass/fail), it is possible that the calibration laboratory included a clause in the contract for service that states that they don't take measurement uncertainty into account when making a statement of compliance. In these cases and upon agreement with the contract language, both parties agree to share the risk that the instrument might be out of tolerance when uncertainty is taken into consideration. It then becomes the responsibility of the owner of the equipment to review the data against the tolerance or specification, taking into account the reported uncertainty, and to decide for themselves whether the instrument meets the specification and, if not, what type of impact this may have on their measurement.

***Myth #4:* If a calibration laboratory is accredited then you will automatically receive measurement uncertainty on the calibration certificate.**

***False.*** The fact is that Accrediting Bodies have various rules when it comes to reporting measurement uncertainty. Some require it to be reported in all cases where the accredited symbol with certificate number is used (A2LA requires this), while others allow the accredited laboratory to decide when to report the uncertainty. It is always best to specify in your request for service the inclusion of measurement uncertainty as a safeguard to ensure you always receive it.

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**Myth #5: Measurement uncertainty can be listed in three or more significant figures.**

**False.** The fact is that ILAC P14:01/2013 requires measurement uncertainty to be rounded to, at most, two significant figures.

**Myth #6: When a calibration laboratory includes a “standard method” such as an ASTM or ASME method on their scope of accreditation, you will automatically receive an accredited calibration using this “standard method” when you purchase calibration from this provider.**

**False.** The fact is that calibrations can be performed many different ways. If you conduct a search for caliper calibration in GIDEP, for example, you’ll receive over a hundred different procedures for this same calibration. When an accredited laboratory advertises on their scope that they can provide service in accordance with an ASTM or ASME document this does not mean that you will automatically receive a calibration in accordance with those processes. It is possible that the laboratory could propose a different calibration process when contracting for service. If you need an ASTM- or ASME-compliant calibration, it is best to specify this in your request for service.

**Myth #7: Inclusion of NIST test numbers in the calibration certificate is sufficient to demonstrate traceability to the SI through NIST.**

**False.** The fact is that NIST test numbers are for NIST administrative purposes only and do not confer traceability. The International Vocabulary of Metrology (VIM) defines metrological traceability as the “property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty”. Therefore the certificate, in order to be deemed traceable, must contain the measurement result and the measurement uncertainty. The calibration provider must use reference standards whose certificates also contain a measurement result and measurement uncertainty so that an unbroken chain of calibrations back to the SI through the National Metrology Institute (NMI) (such as NIST) is established where each link in the chain adds to the overall measurement uncertainty. Be sure that all of your accredited results contain data and measurement uncertainty and not just NIST test numbers.

**Myth #8: An accredited calibration laboratory can decide the calibration interval for my instrument.**

**False.** The fact is that the owner of the equipment decides the calibration interval and should inform the calibration provider what interval is needed when contracting for service. In some cases a calibration provider will include a “default” calibration interval in the contract unless they are informed of a specific interval desired by the customer.

**Myth #9: All the items noted in section 5.10.2 and 5.10.4 of ISO/IEC 17025 must be included in accredited calibration certificates.**

**False.** The fact is that there are caveats found in 5.10 that allow for cases where information may be excluded from the calibration certificate. Section 5.10.2 itself says, “Each test report or calibration certificate shall include at least the following information, **unless the laboratory has valid reasons for not doing so.**” If there are elements of 5.10.2 or 5.10.4 that you need on the resulting calibration certificate, it is best to specify this in writing when contracting for service.

**Myth #10: Before and after data is always included in accredited calibration certificates.**

**False.** The fact is that ISO/IEC 17025 only requires reporting of before and after data in cases where the instrument has been adjusted or repaired. If you need this information, regardless of adjustment or repair, it is best to specify this in writing when contracting for services.

**Myth #11: The name and signature of the calibration technician is required to be included on the calibration certificate.**

**False.** The fact is that the name, function and signature **or an equivalent identification of the person authorizing the calibration certificate** (such as a code or personnel ID) is required. The name, function, signature (or equivalent identification) of the technician who performed the calibration is not required unless they are also the authorizing authority.

For questions about this article, please contact Pam Wright at [pwright@A2LA.org](mailto:pwright@A2LA.org). 