

**NATIONAL ASSOCIATION OF
TESTING AUTHORITIES, AUSTRALIA**

WORKING WITH NATA ACCREDITED CALIBRATION LABORATORIES

INDUSTRY USER GUIDE NO.2



WHY USE A NATA ACCREDITED LABORATORY?

NATA Accreditation is about confidence – yours and that of your customers – in the data and information on which you must make informed decisions.

NATA Accreditation covers those activities that produce this technical/scientific data and information.

In NATA's vocabulary, accreditation has a very specific meaning.

A procedure by which an **authoritative body** gives formal recognition that a body is **competent** to carry out **specific tasks**.

Hence, NATA Accreditation is a high level process of recognising collective, specific and demonstrated competencies. The core of NATA Accreditation is the third party, objective, peer assessment process at a scientific and technical level that provides assurance of the laboratory's capability to produce reliable data from particular measurements. The NATA Accreditation Criteria include the international standard ISO/IEC 17025 *General requirements for the competence of testing and calibration laboratories* used globally for laboratory accreditation.

In addition to confidence, NATA Accreditation provides you with:

- an ability to outsource to an independent, objective authority the monitoring of laboratory performance;
- international arrangements providing for the mutual recognition of data produced by laboratories accredited by NATA and equivalent accreditation bodies globally;
- a resource to resolve disputes relating to accredited laboratory services.

WHAT CALIBRATION ACTIVITIES ARE ACCREDITED BY NATA?

NATA accredits calibration activities performed in laboratories, mobile facilities and in situ for a broad range of disciplines including:

Dimension metrology (Length)	Speed
Mass & weighing equipment	Electrical low frequency metrology
Volume and Density	Magnetism
Flow	Time and frequency
Pressure	Communications, EMR and EMC
Force	Temperature metrology
Torque	Acoustics
Optics	Vibration
Ionising radiation	Ultrasonics
Chemical metrology	Biological metrology

IS THE LABORATORY ACCREDITED FOR THE SERVICES I NEED?

A laboratory's NATA Accreditation may not cover every service that it provides so it is important to ask the correct question when seeking to have your instruments or equipment appropriately calibrated.

“Do you hold NATA Accreditation for [the specified calibration] of [the specific instrument/artefact type]?”

NATA accredited laboratories are able to add the NATA endorsement to reports covering accredited activities. The endorsement is not allowed to be applied to unaccredited measurements. As such, a more concise specification is to state that

“I require all measurement results reported to be NATA-endorsed”.

The calibrations for which a laboratory has successfully demonstrated practical competence and capability at a NATA assessment are detailed within its Scope of Accreditation. A laboratory's scope of accreditation contains important information such as measurement ranges and the associated calibration capabilities.

Scopes of accreditation are publicly available documents and hence the primary source of information for anyone wanting to have something calibrated. They are accessible from the NATA website at www.nata.com.au

One detail that needs to be noted is that an accredited laboratory is permitted to include measurement results not covered by its scope of accreditation on a NATA-endorsed calibration report provided any such results are appropriately identified. That is why the requirement “all measurement results reported to be NATA-endorsed” is so important.

Measurement capability

Scopes of accreditation describe a laboratory's calibration capability in terms of:

- the parameters that can be measured;
- measurement ranges; and
- the smallest measurement uncertainty (highest accuracy) that the laboratory can achieve.

This information allows you to match the laboratory's capability with your measurement needs. If you have an instrument or device capable of high accuracy/small uncertainty, you need to find a laboratory that can better this capability. Conversely, if you have a low level instrument or device not requiring state of the art measurement, your laboratory options become greater.

Be aware, however, that your instrument or device has its own limitations – e.g. resolution, stability – using calibration laboratory with a very high level capability (small uncertainty) is not going to turn something having a manufacturer's specification of “1% accuracy” into a 0.001% device! The uncertainty that the laboratory will assign in the calibration report will reflect the instrument or device's capability and performance at the time of calibration.



NATA-ENDORSEMENT – WHAT'S THE SIGNIFICANCE?

The NATA-endorsement consists of the NATA emblem, the laboratory's accreditation number and the International Standard with which the facility complies. This will be presented similarly to the following.



Accredited for compliance with ISO/IEC 17025
Accreditation number xxxxx

In addition, either or both of the following statements may be added:

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards [his is actually redundant but some laboratories include it anyway – see “traceability” below]

NATA is a signatory to the ILAC mutual recognition arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports [for those who need international recognition of the reported results]

NATA-endorsed vs unendorsed reports – cost / benefit?

NATA requires that all activities described in the scope of accreditation are performed using exactly the same processes and to the same level of confidence whether reported on a NATA-endorsed report or not.

Some laboratories do, however, apply a surcharge to issue an endorsed report for commercial or marketing reasons.

For you as the customer, the NATA-endorsement is there to provide *prima facie* evidence that the measurement results within the report have been issued under the laboratory's NATA Accreditation. Hence, you can have the confidence that the calibrations have been undertaken by competent staff using sound science/engineering as verified by NATA's peer assessment processes.

Similarly, your own customers and auditors (if your business is subject to some form of external oversight) may share this confidence.

If you require international recognition of your calibration report or it is to be used for the purposes of legal metrology, the NATA-endorsement will be essential.



WHAT DO I NEED TO SPECIFY?

This may be stating the obvious but simply dropping off an instrument at a laboratory and saying “I want it calibrated” is not the best approach – yet it happens. NATA accredited laboratories will happily assist you with defining your needs but they do need some specific information first.

Once you have ascertained that a laboratory is appropriately accredited, the next step is to ensure clarity around:

- Why you need their services – e.g. your QA system, trade measurement, a regulatory requirement
- Where appropriate, what parameters you wish to have calibrated and for what range(s);
- Where appropriate, the standard or specification applicable to the device or instrument;
- Whether or not you want any adjustments performed;
- When you need it calibrated by.

This information gives the accredited laboratory clarity for determining its ability and availability to undertake the work and, of course, work out the cost.

Mind your language

Calibration is about determining errors in your instrument or device – not about adjusting it. Although a laboratory may undertake action to bring an item undergoing calibration back within a given specification, adjustment is an activity additional to the calibration process and you must specify whether this is to be done.

Traceability

For any calibration described in a laboratory’s scope of accreditation, NATA has ensured that measurement traceability to national/international standards has been demonstrated. It is, therefore, unnecessary to specify that you want the results to be traceable.

If you ask that all calibration results are NATA-endorsed, they will be traceable by definition.

Beware of calibration reports stating “Traceable to NATA”. Since NATA holds no measurement standards whatsoever, it is a totally meaningless statement and provides no assurance of measurement traceability.

Changing calibration requirements

Where there is a standing arrangement or contract for your instruments/equipment to be routinely calibrated, you need to notify the laboratory of any changes to the requirements. For example, a review of your own requirements may necessitate a change in the measurement ranges and/or the number of calibration points.

Any material change to such a standing arrangement needs to be made in writing and acknowledged by the laboratory.



WHAT ABOUT TRANSPORT OF INSTRUMENTS AND DEVICES?

Integrity

The best quality calibration service available is effectively useless if your instrument or device is compromised by inappropriate conditions of transport (e.g. inappropriate control of temperature, humidity, shock, vibration).

Being careful with the transport of valuable instruments or devices will ensure that the exercise will not be a waste of everyone's time and your money, particularly where the damage is not only to the calibration integrity but to the instrument or device itself.

Supplying the correct accessories

For some types of instrument or device, any accessories such as leads, transducers, "calibrators" etc. are an integral part of the calibration. As such, it is important to provide these to the laboratory. It is also essential that they are carefully and unambiguously identified.

Receipt

When your instrument or device is returned, take a few minutes to check that it is undamaged and functioning properly. Also make sure that any accessories mentioned above have been returned.



WHAT SHOULD I DO WITH MY CALIBRATION REPORTS?

Whatever you do, don't file a calibration report without checking it – even a NATA-endorsed one. There can be some very important information that could impact on recent or subsequent measurements or tests you perform.

NATA's Accreditation Criteria detail what needs to be included in a calibration report and accredited laboratories should be meeting these requirements. Nonetheless, you should still check any report received to ensure that:

- it matches your request;
- it contains all of the information you need;
- the results are reported clearly and unambiguously; and
- there is no bad news – e.g. your instrument or device does not meet a specification or it has a fault!

If your instrument or device has been adjusted, you should receive the before and after measurements in your calibration report. Don't ignore this information. Used in conjunction with the previous calibration report, it can provide evidence of the instrument or device's stability and inform any decision on the appropriate calibration interval. If there are significant differences – indicating that there has been drift – you should investigate whether this may have impacted

negatively on previous tests or measurements that you have conducted. It may also indicate a need to shorten the re-calibration interval or even consider its suitability for continued use.

Calibration intervals

Many people expect their calibration report to include a "calibration due date" or "recommended next calibration" statement.

If you request this, the laboratory may oblige but it is actually you who should decide when the next calibration is scheduled. After all, you are in the best position to know what your equipment is used for and what your measurement needs are. Additionally, you have the records of previous calibrations to see if there is any drift (changes in the calibration results as discussed above) which provides evidence that the interval should be shortened, is about right or may even be lengthened.

If you need the calibration performed for legal purposes – such as trade measurement – there may be calibration intervals specified in regulation. If this is the case, discuss this with your laboratory. Similarly, if you are having a calibration performed to meet a standard which specifies a calibration interval, let the laboratory know.

COMMUNICATION IS THE KEY

The key to successfully gaining reliable testing and/or inspection data is effective communication between the laboratory and client.

Mutual understanding doesn't just happen, it must be pursued. Two particular points to remember:

- Initial clarity surrounding the purpose of the testing or inspection services will aid all subsequent discussions and greatly improve the likelihood of obtaining the appropriate services;
- Communication shouldn't be a once-off event – if you have questions received the test report and something seems odd or doesn't make sense, ask.



SUMMARY

Why use a NATA Accredited facility?	<ul style="list-style-type: none">• 3rd party verification of capability and competence• Assurance of measurement (metrological) traceability• Compliance with international standard for laboratories• International recognition of results
Is the laboratory accredited for the services I need?	<ul style="list-style-type: none">• Ask the right question regarding NATA Accreditation• Check the Scope of Accreditation
What do I need to specify?	<ul style="list-style-type: none">• All results to be NATA-endorsed• The purpose of the calibration• Parameters, ranges and applicable standard/specification• If you want adjustments performed;• When you need the calibration
What about transport of instruments and devices?	<ul style="list-style-type: none">• Protection from humidity, shock, vibration etc.• Correct accessories supplied• All items have your ID
What should I do with my calibration reports?	<ul style="list-style-type: none">• Check that report is clear and complete• Make sure report is NATA endorsed• Take note of any comments• Use the results to benefit your business!

HELP IS AVAILABLE

NATA also recognises that despite best intentions and a robust accreditation system, things may go wrong.

If you are experiencing technical difficulties with any NATA accredited calibration laboratory and have not been able to resolve them through direct discussions, it is recommended that you contact NATA to discuss the general nature of any concerns. You should then follow this up with a written account of the issues. NATA has a comprehensive complaints handling process and treats any issues raised very seriously. We will of course respect confidentiality in dealing with any issues raised.

In the calibration sector, please direct enquiries to:

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