



Specific Accreditation Criteria

ISO/IEC 17025 Application Document Manufactured Goods - Annex

Physical performance testing - General

July 2018

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Table of Contents

5	Structural requirements.....	4
6	Resource requirements.....	5
6.2	Personnel	5
6.3	Facilities and environmental conditions	5
6.4	Equipment	6
7	Process requirements.....	6
7.6	Evaluation of measurement uncertainty	6
7.7	Ensuring the validity of results.....	6
7.8	Reporting of results	7
7.8.1	Reporting opinions and interpretations	7
	References.....	8
	Amendment table	8

Physical performance testing - General

This document provides interpretative criteria and recommendations for the application of ISO/IEC 17025 for both applicant and accredited facilities conducting physical performance testing.

Applicant and accredited facilities must comply with all relevant documents in the NATA Accreditation Criteria (NAC) package for Manufactured Goods (refer to NATA Procedures for Accreditation).

The clause numbers in this document follow those of ISO/IEC 17025 but since not all clauses require interpretation the numbering may not be consecutive.

5 Structural requirements

5.4 Where testing is carried out in the field, the facility must have controls in place to ensure the technical validity of the testing is not compromised and must demonstrate the adequacy of the supervisory arrangements in place for such activities.

5.5 The individual within the organisation defined as having overall technical responsibility for testing operations must demonstrate the following:

- sufficient depth of technical knowledge in relation to the type of testing and its performance to approve the operational practices under their responsibility including:
 - understanding relevant national legislation and regulations;
 - ability to develop and apply testing and verification procedures;
 - understanding of the properties of applicable materials and/or design principles and configurations for applicable products.
- ability to manage staff training and the formal assessment of staff technical competencies;
- ability to manage the authorisation of the facility's staff to sign test reports;
- ability to establish and implement ongoing quality assurance activities, including proficiency testing and the analysis of the results and actions taken;
- ability to establish and maintain the equipment assurance program;
- ability to technically review contract specifications and to select appropriate test methods and/or develop inspection and test plans, as appropriate.

Personnel providing local technical supervision of testing staff must be able to:

- effectively supervise the technical operations under their control, including field testing if applicable;
- effectively review incoming work requests in order to provide appropriate instruction to testing staff as well as identifying the need to seek technical advice where warranted;
- critically review the content of reports and associated test data in order to ensure appropriate reporting standards are maintained.

6 Resource requirements

6.2 Personnel

6.2.5 Facilities must have available a procedure for the approval of staff to release test results for work covered by the scope of accreditation.

It must be clear for which tests an individual staff member holds approval and who has authorised the approval.

Note: Authorising personnel are considered to be key technical personnel and are expected to be present during NATA assessments.

Approved staff are responsible for exercising technical oversight over those results they release. Accordingly, staff must be able to demonstrate sufficient familiarity with the testing standards to ensure that the results and accompanying reports satisfy requirements of the particular method and/or specification.

Note: For specific methods, staff academic qualifications and/or duration of practical experience, commensurate with the complexity of the testing, may provide adequate understanding of the science involved.

Approval for individuals to release results must be based on competency assessments including, but not limited to, the following elements:

- the principles of the relevant methods, standards and/or specifications;
- requirements for performance checking and/or calibration of equipment;
- characteristics and peculiarities that may pertain to any relevant instrumentation or equipment used by the facility including, where applicable, instrument base line (or zero) settings;
- the principles and application of measurement uncertainty where applicable;
- the ability to precisely define and report any deviations from standard test methods;
- the accreditation requirements pertaining to reporting results and the use of the NATA endorsement.

Records of staff approvals for individual tests, including competency assessments, must be maintained.

6.3 Facilities and environmental conditions

6.6.2 The competence of external providers producing machined test pieces must be confirmed. This involves checking that the provider complies with the rules defined in individual standards for the sectioning of test pieces from bulk samples and not only the visual and dimensional checking of machined test pieces.

Review of the external provider arrangements by the facility would normally include a field assessment of the provider's work.

6.4 Equipment

6.4.4

Classification of testing machines

Published standards for calibration of force-measuring systems for testing machines classify machines into various levels. This classification is based on the readability, accuracy and repeatability of the testing machine.

ASTM standards require calibration of force measuring systems to ASTM E4. This standard differs slightly from AS 2193. Other standards may also vary from these classifications.

Test on	Class of machine required
Metals; metal powders and products; springs; threaded fasteners; timber; fibre building boards; plywood; seat belts (assembly tests).	A 1.0% Repeatability, $\pm 1.0\%$ Accuracy
Fibre ropes and cordage; gypsum and gypsum products; glass; textiles; paper and paperboard; rubber; plastics; leather; gaskets; seals and packing; adhesives and sealers; adhesive tapes, moisture barrier materials;.	B 2.0% Repeatability, $\pm 2.0\%$ Accuracy

7 Process requirements

7.6 Evaluation of measurement uncertainty

7.6.1 Estimation of measurement uncertainty only applies, at present, to quantitative tests.

Where results of tests are not numerically derived (i.e. qualitative), estimates of uncertainty are not required. This should not however preclude the facility from developing an understanding of the components that contribute significantly to the variability of results of such tests.

7.7 Ensuring the validity of results

7.7.2 Refer to NATA's *General Accreditation Criteria: Proficiency Testing*.

Comparison of performance with other facilities can be achieved by:

- participating in a PT program provided by a commercial provider;
- participating in international (e.g. APLAC) PT programs where available; or
- arranging inter-laboratory comparisons with other accredited facilities.

Facilities are responsible for checking the availability of appropriate PT programs and the selection of programs.

Facilities should consult the *NATA Proficiency Testing Directory* available on the NATA website.

It may be difficult to produce a transportable test artefact for certain *in-situ* testing activities, such as controlled environment testing, thus proficiency testing may not be feasible in such cases. In the areas where PT programs are not available or relevant, facilities are expected to demonstrate how they assure the quality of their test results by other means.

Note: Proficiency testing may be of limited value for tests for which there is no numerical result reported (such as for proof load testing) and alternative forms of assurance may be preferable in such cases.

7.8 Reporting of results

7.8.1 Reporting opinions and interpretations

7.8.7.1 Facilities must define the circumstances and limitations for the inclusion of opinions in reports.

References

This section lists publications referenced in this document. The year of publication is not included as it is expected that only current versions of the references shall be used.

Standards

AS 2193	Calibration and classification of force-measuring systems
ASTM E4	Standard practices for force verification of testing machines
ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories

NATA publications

NATA Accreditation Criteria (NAC) package for Manufactured Goods
General Accreditation Criteria Proficiency Testing

Amendment Table

The table below provides a summary of changes made to the document with this issue.

Section or Clause	Amendment
Whole document	<p>Clauses have been aligned with ISO/IEC 17025:2017.</p> <p>Any criteria included in the previous issue that are now covered by ISO/IEC 17025:2017 have been removed.</p> <p>Annex A in the previous issue has now been included under clause 6.4.4.</p> <p>No new interpretative criteria or recommendations have been included other than editorial changes.</p> <p>Removal of information relating to 'type' testing which has been relocated to the <i>Specific Accreditation Guidance: Manufactured Goods, Product Compliance Evaluation</i>.</p>