



Australian Government

MSL904003 Perform standard calibrations

Release: 1

MSL904003 Perform standard calibrations

Modification History

Release 1. Supersedes and equivalent to MSL904002 Perform standard calibrations. Minor changes to Performance Criteria and Knowledge Evidence. Performance Evidence changed for improved flexibility and use across multiple industry sectors.

Application

This unit of competency describes the skills and knowledge to calibrate test and measurement equipment in accordance with standard calibration procedures and documented test methods. These procedures/methods specify all associated reference standards, materials, equipment and methods to be used and the required parameters or quantities and ranges to be tested, including the criteria for rejection or approval.

This unit applies to laboratory and calibration technicians who carry out tests and/or calibrations using standard calibration methods in first, second and third-party laboratories, and generate calibration reports. Personnel are not permitted to deviate from explicit instructions in any manner, modify the procedure, nor substitute alternative equipment. They work under limited supervision and results of their work are interpreted and checked by the laboratory supervisor, quality inspector or designated signatory.

No licensing or certification requirements exist at the time of publication. However, regulations and/or external accreditation requirements for laboratory operations exist, so local requirements should be checked. Relevant legislation, industry standards and codes of practice within Australia must also be applied.

Pre-requisite Unit

Nil.

Competency Field

Calibration

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.

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1. Prepare items for calibration	1.1 Select the appropriate calibration procedure for the test in accordance with workplace procedures 1.2 Identify hazards and use appropriate personal protective equipment (PPE), safety equipment and procedures 1.3 Confirm all measuring equipment complies with laboratory's specification requirements and calibration procedure 1.4 Prepare reference standards and equipment for testing 1.5 Verify performance of reference standards and measuring equipment before use and quarantine out-of-calibration items in accordance with workplace procedures 1.6 Identify and minimise potential sources of measurement error
2. Perform calibration	2.1 Perform individual tests without variance in accordance with the documented procedure to ensure repeatability of measurement 2.2 Confirm readings are the result of a valid measurement and record data (as-found or before adjustment) 2.3 Adjust device under test to bring readings within specification of calibration and record data (as-left or after adjustment) 2.4 Analyse test data for trends or inconsistencies that would significantly affect the accuracy or validity of test results 2.5 Repeat calibration if measurement has been compromised 2.6 Seek appropriate advice when interpretation of results is outside authorised scope of approval
3. Document results	3.1 Estimate and document uncertainty of measurement in accordance with workplace procedures 3.2 Document compliance or non-compliance with test requirements and/or specifications 3.3 Record the results of each test or calibration accurately, unambiguously and objectively 3.4 Ensure confidentiality of workplace information in accordance with workplace procedures

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4. Finalise calibration	4.1 Prepare and issue a final report detailing testing carried out, traceability, statement of compliance and relevant information 4.2 Report any non-compliance and verify next course of action 4.3 Attach calibration labels, equipment stickers, quality control tags and tamper-resistant seals in accordance with workplace procedures 4.4 Store test equipment, measurement standards and results in accordance with workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

- Numeracy skills to:
 - perform calculations to give results in appropriate accuracy, precision and units
 - use statistical analysis (means, ranges and standard deviations) and estimation of uncertainty of measurement.

Other foundation skills essential to performance are explicit in the performance criteria of this unit.

Unit Mapping Information

Supersedes and is equivalent to MSL904002 Perform standard calibrations.

Links

MSL Laboratory Operations Companion Volume Implementation Guide is available from VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>

Assessment Requirements for MSL904003 Perform standard calibrations

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- safely and accurately calibrated 3 different types of test and/or measurement equipment chosen from the following fields of testing and/or calibration:
 - temperature
 - light intensity
 - physical measurement
 - electrical testing
 - mechanical testing
 - other situation where the instrument is used as an industry reference or standard.

Calibrations must be carried out in accordance with standard calibration procedures and documented test methods.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- basic purpose of metrology and calibration relevant to job role, including common terminology, concepts, principles, procedures and applications
- National Association of Testing Authority's (NATA) and National Measurement Institute's (NMI) role in the measurement and testing system in Australia
- requirements for the competence of testing and calibration laboratories as they affect job role and responsibilities
- statistical analysis of quality control data, mean, median, mode, ranges and standard deviations
- hierarchy and appropriate selection of reference materials and instruments
- test equipment, reference materials and working standards relevant to job role
- workplace procedures for:
 - non-conformance/non-compliance
 - equipment operation
 - calibration
 - troubleshooting for equipment and test methods

- recording and reporting
- handling, transport, storage and operation of reference and working standards relevant to the job role
- test methods and calibration (validated and authorised)
- metrological traceability
- different fields in which calibration work is conducted
- legal, ethical and work health and safety (WHS) requirements specific to the work task.
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Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - specialised calibration/test equipment, reference standards and laboratory facilities
 - calibration methods, procedures and equipment specifications
 - workplace quality manual and procedures.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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