



Australian Government

Department of Education, Employment and Workplace Relations

ICTTC013D Perform an accurate customer premises cable and system test

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit applies to all contexts for indoor and outdoor installation within a customer premises and applies to both customer premises cabling and customer premises equipment.

This unit applies to all communications applications whether digital or analogue including telephony, data, video including digital broadcasting, computer networks including LANs and WANs, and multi media.

This unit may be applied to domestic, commercial or industrial installations.

Assessment by a TITAB registered assessor is recommended.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

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Application of the Unit

Not applicable.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Nil

Nil

Employability Skills Information

This unit contains employability skills.

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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where **bold italicised** text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

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Elements and Performance Criteria

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Element	Performance Criteria
1 Confirm site and service access for testing	1.1 Confirm approval for site access with customer prior to site entry
	1.2 Identify and comply with site security arrangements
	1.3 Confirm access times and methods to comply with customers requirements and relevant legislation
	1.4 Confirm service is available for testing
	1.5 Isolate or disconnect service from use and from carriers network/equipment to ensure no equipment damage can occur during testing
	1.6 Make work area and cable system safe for testing
2 Establish what tests are to be performed	2.1 Identify the purpose of the test and the performance to be measured
	2.2 Identify required tests from site conditions, client documentation and manufacturer specifications
	2.3 Tests are relevant to cable and system type installed
3 Obtain and set up test equipment	3.1 Select equipment suitable for the tests to be performed to ensure relevance of test data
	3.2 Set up test equipment in accordance with

- manufacturers specifications
- 3.3 Set test reading error against a known reference where appropriate
- 3.4 NATA calibration certification is current where appropriate to reduce possibility of unreliable test data and ensure traceability
- 4 **Perform tests**
 - 4.1 Use tools and test equipment in accordance with manufacturers specifications
 - 4.2 Perform work safely to remove risk of injury to operator, other users and/or equipment
 - 4.3 Perform checks and adjustments to ensure operating environment will not prejudice test results
- 5 **Interpret test results and determine action**
 - 5.1 Read test results accurately and compare with manufacturer and site specifications for cable performance
 - 5.2 Evaluate test results considering all test requirements and parameters
 - 5.3 Assess test results fairly and accurately using verifiable data
- 6 **Document test results**
 - 6.1 Document results of tests accurately and promptly to ensure test results remain current
 - 6.2 Verify test results and provide to client where required
 - 6.3 Update site and installation files to ensure information on system performance is traceable

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

Select from the following list to suit the learning and assessment context

Codes refer to the Skills and Knowledge Register in Volume 3 of this Training Package that has detailed content guidelines for each code outlined.

CA315 Cabling Techniques for CAN

CA340 Cable Systems and Products

CI310 Communication 3

EL310 AC/DC Theory 3

PR310 Problem Solving 3

TE310 Basic Telephony 3

TF310 Test Equipment 3

TR420 Light/Laser Theory 4

Required knowledge

The relevant required knowledge is articulated in the above guidelines contained in the Skills and Knowledge Register included in this Training Package.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence of the following is essential:

Identification of required test - 100%

Systematic sampling, random sampling and random assessment of continuity.

Use of at least six test devices which may include for example -OTDR (Optical Time Domain Reflectometer), multimeter, proprietary devices, oscillator and probe set, insulation resistance tester, pulse echo, hand held cable testers, signal level meter, spectrum analyser, signal generator - on both metallic and optical fibre.

Identification of at least six different faults to be addressed via the test which may include for example - near end cross talk, attenuation, length, balance, noise levels, pair assignment, reversals, short circuits, open circuits, insulation resistance, reflection, signal loss, response times, speed.

Interpret test results for at least three different tests.

Application of all related OHS requirements and work practices (including protective clothing and personal safety items).

Safe use of general hand and power tools and general equipment normally related to these tasks.

Correct interpretation and application of relevant regulations and standards.

Communicate test procedure and test interpretation effectively with customers, work associates

Context of and specific resources for assessment

Assessment must ensure:

A workplace conducting the operations covered by this competency unit, equipment and resources relevant to the context of the work (See Range Statement) and support from a competent supervisor or mentor.

OR

A simulated environment with similar provisions which conforms to the Assessment Guidelines.

Guidance information for assessment

Access must be provided to appropriate learning and assessment support when required.

Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed.

In all cases where practical assessment is used it will be combined with targeted questioning to assess underpinning knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. **Bold italicised** wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Testing

Can be conducted on: 100% coverage, systematic samples, randomly, as part of fault identification or to assess continuity

Test clients	Can be: end user, supervisor, consultants or building owner
Client specifications, standards and quality assurance requirements may define test and documentation requirements	Tests can be: one or two directional, balanced or unbalanced
Test	May be: within a building, between sites or between a site and other customers equipment
Cable types	May include: copper (all categories), optical fibre, coaxial
Tests	May typically address the following items: near end cross talk, attenuation, length, balance, noise levels, pair assignment, reversals, short circuits, open circuits, insulation resistance, reflection, signal loss, expected response times, speed
Test devices	May include: TDR (Time Domain Reflectometer), OTDR (Optical TDR), multimeter, proprietary devices, oscillator and probe set, insulation resistance tester, pulse echo, hand held cable testers, signal level meter, spectrum analyser, signal generator
These factors	May impact on the operating environment: dirt, humidity, dust, temperature, magnetic radiation, vibration, radio frequency

Test results	May be documented: written on paper forms, record cards, direct to computer disks
Manufacturers specifications	May be found in: printed instruction leaflets or pre printed on materials or on product packaging
'Industry standards'	May include: regulated or industry codes of practice and include appropriate ACMA technical standards
All cable used	Must be compliant with: appropriate ACMA technical standard requirements (eg. for underground, aerial, Category 5 or Category 6, 6A, 7 or 7A, UTP etc)
All cabling products other than cable	Must be ACMA approved
Relevant legislation, codes, regulations and standards include:	Technical Standards AS/ACIF S009:2006 AS Communications Cabling Manual (CCM) Volume 1 ACIF Standards and Codes AS/NZS 3000:2007 AS/NZS 3080:2003 AS/NZS ISO/IEC 15018:2005 AS/NZS ISO/IEC 24702:2007 AS/NZS IEC 61935.1:2006 AS/NZS ISO/IEC 14763.3:2007 Occupational Health and Safety National Association of Testing Authorities requirements Cabling security codes and regulations

Unit Sector(s)

Not applicable.