



Australian Government

ICTCBL323 Test cables and systems on customer premises

Release: 1

ICTCBL323 Test cables and systems on customer premises

Modification History

Release	Comments
Release 1	This version released with ICT Information and Communications Technology Training Package Release 5.0.

Application

This unit describes the skills and knowledge required to test the performance of copper, optical fibre and telecommunications cable on customer premises for the purpose of commissioning, fault identification or routine maintenance. It includes ensuring a safe and secure work environment while work is being undertaken.

It applies to field officers, technicians or technical supervisors working for cablers, technicians, contractors or other service providers who carry out domestic, commercial or industrial installations in indoor and outdoor environments. Communications applications include digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LANs), wide area networks (WANs), power over ethernet (PoE) cable installations and multimedia.

Licensing, legislative, regulatory and certification requirements apply to telecommunications systems. All customer cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media Authority (ACMA) accredited registrar.

Pre-requisite Unit

ICTCBL247 Install, maintain and modify customer premises communications cabling:
ACMA Open Rule

ICTTEN208 Use electrical skills when working with telecommunications networks

ICTWHS204 Follow work health and safety and environmental policy and procedures

Unit Sector

Telecommunications – Cabling

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
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ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare for cable and system test	1.1 Establish purpose of test to be conducted on cables and systems based on customer complaints of faulty or poor system performance operations 1.2 Confirm ACMA (Australian Communications and Media Authority) requirements and methods for compliance with relevant legislation, regulations, codes and standards 1.3 Select required tests according to site conditions, customer complaint documentation and manufacturer specifications 1.4 Arrange access to site and confirm service is available for testing 1.5 Select test equipment, tools and materials according to required industry testing standards
2. Perform tests	2.1 Use tools and test equipment according to manufacturer specifications and undertake tests required after initial analysis of customer complaints 2.2 Perform work safely to remove risk of injury to operator, other users and equipment 2.3 Perform checks and adjustments to ensure operating environmental factors will not prejudice test results 2.4 Perform optical time domain reflectometer testing to determine fibre and event characteristics according to meet customer or enterprise specifications and manufacturer warranties 2.5 Perform structured cabling certification testing to determine cable system characteristics according to customer or enterprise specifications and manufacturers warranties 2.6 Evaluate PoE circuits, cable lengths, copper conductor sizes, resistance versus power losses, environmental temperatures and likely power levels to ensure circuit current, voltage and power to the receiving device
3. Interpret test results and determine action	3.1 Read test results accurately and compare with manufacturer and site specifications for cable performance 3.2 Evaluate test results, taking into account measurement error margins against a known reference as required 3.3 Assess test results fairly and accurately using verifiable data 3.4 Rectify faults or escalate to appropriate person

ELEMENT	PERFORMANCE CRITERIA
4. Complete records and clean up site	4.1 Document test results and ensure test results remain current 4.2 Verify test results and provide to customer as required 4.3 Update site and installation files to ensure information on system performance is traceable including PoE standards 4.4 Reinstate site according to customer and company requirements 4.5 Notify customer and obtain sign-off

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance, but not explicit in the performance criteria.

Skill	Description
Reading	Reads, analyses and interprets plans, specifications and other documentation relevant to cable and systems testing
Writing	- Prepares written technical reports and documentation for test results - Records notes on communications and provides written feedback to customers
Oral Communication	Discuss parameters for the tests and provide oral feedback on results as required, using language appropriate to the understanding of the customer
Numeracy	Carries out calculations and analyses results as appropriate for the tests being performed
Navigate the world of work	Takes personal responsibility for implementing implicit policies, procedures and legislative requirements, particularly as they apply to safety
Interact with others	Selects and uses appropriate conventions and protocols when communicating with customers and co-workers
Get the work done	Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes

Unit Mapping Information

No equivalent unit. Supersedes and is not equivalent to ICTCBL304 Perform cable and system test on customer premises.

Links

Companion Volume Implementation Guides are available from VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2>

Assessment Requirements for ICTCBL323 Test cables and systems on customer premises

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Performance Evidence

The candidate must demonstrate the ability to perform the tasks outlined in the elements, performance criteria, and foundation skills, and to:

- perform certification tests on copper ethernet cables to cover common ethernet cable faults including:
 - crosstalk, attenuation to crosstalk ratio (ACR), delays, wiremaps, attenuation, length
- perform optical time domain reflectometer (OTDR) tests on fibre cables to cover common fibre cable faults and common waveforms for standard fibre cabling events, including:
 - breaks, distance, connectors, Numerical Aperture mismatches, end of fibre, ghosts, splitters
- check capabilities of ethernet cables for power over ethernet (PoE)
- provide power calculations and evaluation of viability and safety of cables providing PoE
- interpret test results
- use appropriate methods to escalate cable faults affecting service delivery
- report on completed cable and system test.

Note: Evidence must be provided at least once when a specific volume or frequency is not stated.

Knowledge Evidence

The candidate must demonstrate the knowledge required to perform the tasks outlined in the elements, performance criteria, and foundation skills, which includes knowledge about:

- legislation, codes, enterprise requirements, and other formal agreements that impact on the work activity
- specific WHS requirements and environmental factors relating to the activity and site conditions
- cabling types, connectors and cabling structures
- single-mode (SM) and/or multi-mode (MM) optical fibre links in point-to-point networks

- connections to carrier infrastructure or equipment, such as main distribution frame (MDF) or customer interface units (CIU) or network termination device (NTD)
- electrical and/or optical properties to be measured
- PoE potential hazards and performance specifications
- remote power feed method and system
- test results derived from test equipment and interpretation of test results against expected cable system performance specifications
- typical performance parameters and faults that may be encountered in customer cabling and related connection and transmission equipment
- types of equipment and manufacturer specifications suitable for tests to be carried out.
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Assessment Conditions

Skills must be assessed in a workplace or simulated environment where conditions are typical of those in a telecommunications work environment or workplace.

Access is required to:

- site/s where cable and system tests can be conducted
- cable and system testing equipment currently used in industry
- relevant regulatory and cable specifications that impact on cable and system testing installation activities, including PoE on new and legacy cabling.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards. Refer also to the *Requirements for assessors* in the ICT Information and Communications Technology Training Package Companion Volume Implementation Guide.

Links

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