



Australian Government

ICTCBL4057B Test cable bearers

Release 1

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Modification History

Release	Comments
Release 2	This version first released with <i>ICT10 Integrated Telecommunications Training Package Version 3.0</i>. References to other units updated. Outcomes deemed equivalent.
Release 1	This version first released with <i>ICT10 Integrated Telecommunications Training Package Version 1.0</i>.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to test cable bearers. It involves setting up, testing, interpreting test results and determining appropriate action.

This unit applies to the testing of all cable types (metallic, optical fibre and coaxial).

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.

Application of the Unit

Technicians and line installers whose work involves testing cable bearers apply the skills and knowledge in this unit for customer cable and service provider networks.

They may use cable test routines for testing connections, signal strength or loss of cable links to manufacturer's and design specifications.

Licensing/Regulatory Information

Licensing, legislative, regulatory and certification requirements apply to working at heights. If an elevated work platform (EWP) is required, verify state or territory law requirements for a licence to operate an EWP. Users should confirm requirements with the relevant federal, state or territory authority.

If working at heights, achievement of the unit 'CPCPCM2015A Work safely on roofs' from the CPC08 Construction and Plumbing Services Integrated framework training package fulfils this requirement.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>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.</i>

Elements and Performance Criteria

1. Prepare and set up for cable test	1.1 Obtain relevant legislation, codes, regulations and standards 1.2 Scope the work by obtaining project plan from appropriate personnel and arrange for site access to comply with security arrangements 1.3 Notify appropriate personnel of identified safety hazards at the worksite 1.4 Determine type of cable bearer and cable route from project plan and identify test requirements using work instructions 1.5 Obtain tools and safety equipment and material to perform tasks safely and efficiently 1.6 Select and use required protective equipment and make site safe and secure for testing work 1.7 Determine need for outage, extent, location and timing, if required. and negotiate with appropriate personnel 1.8 Select and set up suitable test equipment according to manufacturer's specifications for the cable tests to be performed to ensure relevance of test data 1.9 Ensure equipment calibration certification is current to reduce possibility of unreliable test data and ensure traceability where appropriate
2. Perform cable tests	2.1 Follow occupational health and safety (OHS) and environmental requirements for the given work and identify and avoid other services 2.2 Determine and record cable parameters for consideration in assessment of performance 2.3 Conduct performance tests as required by both equipment and enterprise specification for the specific cable type and purpose
3. Interpret test results and determine action	3.1 Record test results for evaluation and compare against manufacturer's and site specifications 3.2 Analyse test results and evaluate cable performance with consideration of recorded cable parameters 3.3 Diagnose problems to determine cable faults and make arrangements for repairs or modifications 3.4 Retest faulty cable after the faults have been rectified
4. Document test results	4.1 Produce evaluated test results according to enterprise guidelines and without delay to ensure test results remain

and clean up site	current 4.2 Update site and installation files to ensure traceability of information on system performance is maintained 4.3 Archive test records details for the life of the cable according to enterprise guidelines 4.4 Remove waste and debris from worksite and dispose of according to environmental requirements 4.5 Notify appropriate personnel of job completion and obtain sign off
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Required Skills and Knowledge

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

Required skills

- communication skills to liaise with internal and external personnel on technical and operational matters
- literacy skills to interpret technical documentation, such as equipment manuals and specifications
- numeracy skills to take and analyse measurements
- planning and organisational skills to organise and maintain equipment
- problem solving skills to solve equipment and logistics problems
- task management skills to work systematically with required attention to detail and adherence to all safety requirements
- technical skills to use hand and power tools, diagnostic equipment and perform fault clearance.
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Required knowledge

- features and operating requirements of test equipment
- information required to operate equipment according to a test specification
- legislation, codes of practice and other formal agreements that impact on the work activity
- manufacturer's requirements for safe operation of equipment
- specific OHS requirements relating to the activity and site conditions
- test methods and performance requirements
- typical issues and challenges that occur on site.

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.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • perform tests on cable bearers • use a range of tests • interpret test results • rectify a range of faults • report on the completed tests • comply with all related OHS requirements and work practices.
Context of, and specific resources for assessment	Assessment must ensure: • sites where testing may be conducted • use of cabling and equipment currently used in industry • relevant regulatory and equipment documentation that impact on testing cable bearers.
Methods of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate performing cable test on customer premises • review of reports completed by the candidate for different test examples and situations • oral or written questioning to assess knowledge of cable bearer tests.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTCBL4023B Supervise cabling project. Aboriginal people and other people from a non-English

	speaking background may have second language issues. 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 required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.
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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.

Relevant legislation, codes, regulations and standards may include:	• appropriate licences: • crane • EWP • forklift • winch • Australian Communications Industry Forum (ACIF) standards and codes • AS Communications Cabling Manual (CCM) Volume 1 • AS/NZS 3000:2007 • AS/NZS 3080:2003 • AS/NZS 3084:2003 • AS/NZS 3085.1:2004 • AS/NZS IEC 61935.1:2006 • AS/NZS IEC 61935.2:2006 • AS/NZS ISO/IEC 14763.3:2007 • AS/NZS ISO/IEC 15018:2005 • AS/NZS ISO/IEC 24702:2007 • cabling security codes and regulations • Environmental Protection Acts • OHS • road and traffic control legislation and codes • technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006.
Appropriate personnel may be:	• asset manager • network operations centre (NOC) • project supervisor • site supervisor.
Safety hazards may refer to:	• access points that may contain: • hazardous light (non-visible laser) • radio frequency (RF) emission • active lasers with no safety labels • active optical fibres • contact with remote power feed

	• electrical supply that require mandatory separation from communications cable • exposed fibres • unsafe support structures • unsafe weather: • heavy rains • high winds • severe heat or cold • thunderstorms.
Cable bearer may include:	• aerial • coaxial cable • metallic • optical fibre • underground.
Tools and safety equipment may include:	• personal protective equipment • safety equipment • test equipment: • cable tester • continuity tester • local area network (LAN) Cat tester • optical time domain reflectometer (OTDR) • passive optical network (PON) meter • RF meter • tools: • crimping tool • fibre cleaning kit • fibre splicer • labeller • screw drivers • spanners • tagging tool • terminating tool.
Cable tests may include:	• for coaxial cable: • insulation • loss • for optical cable: • dispersion • frequency response • loss • polarisation

	• spectrum test • for metallic cable: • continuity • cross talk • insertion loss • return loss.
<i>OHS and environmental requirements</i> may include:	• environmental considerations: • clean-up protection • stormwater protection • waste management • identifying other services, including power and gas • personal protective equipment: • earmuffs • gloves: • leather • plastic • rubber • head protection • masks • protective suits • safety boots • safety glasses • safety equipment: • flashing lights • safety barriers • warning signs and tapes • witches hats • safe working practices, such as the safe use and handling of: • chemicals • materials • tools and equipment • special access requirements.
<i>Other services</i> may include:	• availability and suitability of existing cabling trays and fixing systems • electricity supply • fire sprinkler systems • gas and water mains • high voltage (HV) cables.
<i>Cable parameters</i> may	• age of cable

include:	• cable length • cable type • number of joints • splices • coax joints • terminations • performance characteristics.
Performance tests may include:	• insertion loss (total end-to-end loss with cable and connectors) • link loss (cable loss without connectors) • return loss which measures signal reflected of an incident or point end-to-end.

Unit Sector(s)

Telecommunications - Cabling