



Australian Government

ICTCBL248 Install and terminate hard-line coaxial cable

Release: 1

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Modification History

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

Application

This unit describes the skills and knowledge required to install, splice and terminate hard-line coaxial cable in the customer access network (CAN) environment for emerging technologies.

It applies to technical staff who splice and terminate hard-line coaxial cable used in all telecommunications applications including convergence technologies of telephony, data, video and multimedia as part of next generation networks (NGNs).

Licensing, legislative, regulatory and certification requirements apply to telecommunications earthing systems. Refer to the ICT Information and Communications Technology Companion Volume Implementation Guide or the relevant regulator for details of licensing, legislative or certification requirements.

Unit Sector

Telecommunications – Cabling

Elements and Performance Criteria

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 to install and splice hard-line coaxial cable	1.1 Confirm site access approval prior to site entry and comply with site security arrangements 1.2 Read and interpret installation specifications and physical conditions at site to determine job layout 1.3 Locate and identify adjoining other services according to industry guidelines, and work health and safety (WHS) practices 1.4 Test for and respond to presence of dangerous gases in underground enclosures according to industry guidelines 1.5 Test relevant aerial metallic fittings for live voltage and respond

ELEMENT	PERFORMANCE CRITERIA
	according to industry guidelines 1.6 Install equipotential bonding according to design 1.7 Undertake approved alterations to design, as required, according to industry guidelines 1.8 Select appropriate hard-line coaxial cable type according to installation requirements 1.9 Select and obtain all materials required for cable termination including passive and active devices and connectors
2. Verify placement and secure coaxial cable	2.1 Use safety equipment to protect self and public according to industry guidelines and WHS requirements 2.2 Protect integrity of coaxial cable (sheath, shield and centre conductor) to ensure no loss of performance 2.3 Form cable into position with sufficient lengths by using approved forming tools that allow termination and maintain minimum bend radius according to manufacturer specifications 2.4 Follow installation design to install cable safely without damage to cable and ensure cable flow in pits and manholes is according to carrier standards and work instructions 2.5 Maintain radio frequency (RF) signal strength by installing cable lengths within manufacturer or design specifications 2.6 Locate securing hardware to reduce cumulative effect on cable wave shape properties 2.7 Use correct lashing machine and techniques to attach aerial cable to catenary wire
3. Splice coaxial cable	3.1 Strip and core hard-line coaxial cable, according to specifications, to required length using appropriate tools 3.2 Select appropriate kit to match type of hard-line coaxial cable in use and splice according to manufacturer recommendations 3.3 Seal all splices according to industry specifications
4. Terminate coaxial cable	4.1 Prepare coaxial cable for termination, according to specifications, using appropriate tools 4.2 Select connectors to match type of coaxial cable in use and terminate according to industry standards 4.3 Install network device chassis/housing in correct orientation according to design 4.4 Prepare centre pins of cable and connector, and cut according to vendor specifications

ELEMENT	PERFORMANCE CRITERIA
	4.5 Terminate connectors to torque according to manufacturer recommendations to prevent RF leakage, and ensure seizure screws are tightened 4.6 Seal all terminations according to industry specifications
5. Complete installation operation	5.1 Place cables in pit and/or mount on aerial strand according to manufacturer instructions and industry guidelines, and check that no safety hazards are evident 5.2 Attach fitted off device aurally or underground according to manufacturer specifications or work instructions 5.3 Reinstate site, and remove waste and debris for disposal according to environmental requirements and maintain safe worksite conditions
6. Complete installation administration	6.1 Complete reports according to telecommunications carrier network policy 6.2 Update plans and records using appropriate symbols with details of installation

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 familiar texts fluently, automatically recognising most everyday words and some specialised vocabulary
Writing	Sequences writing to produce cohesive text and uses layout consistent with text type
Oral Communication	Demonstrates awareness of choices for register, especially in situations that are familiar
Numeracy	- Interprets and comprehends whole numbers and familiar or routine fractions, decimals and percentages - Selects and uses appropriate tools, hand-held devices, computers and technological processes
Navigate the world of work	- Takes responsibility for decisions regarding when and how to complete tasks, and coordinate with or delegate to others - Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context, and draws attention to any issues that may affect self or others

Skill	Description
Get the work done	• Implements actions as per plan, makes slight adjustments if necessary, and addresses unexpected issues • Automatically implements standard procedures for routine decisions

Unit Mapping Information

No equivalent unit. New unit.

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 ICTCBL248 Install and terminate hard-line coaxial cable

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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:

- determine installation requirements
- prepare site for hard-line coaxial cable installation
- identify hard-line coaxial cable types
- perform an in-line splice
- terminate hard-line coaxial cable using specialised hand or power tools and equipment
- terminate hard-line coaxial cable to network devices using:
 - a pin connector
 - 90- or 180-degree adaptors
 - housing to housing adaptor
- determine and achieve pin connector centre pin lengths on a device per device basis
- heat shrink hard-line splice or termination using the clean, abrade, flame-brush method
- waterproof jointed cable using heat shrinkage
- apply related work health and safety (WHS) requirements and work practices
- conduct continuity tests
- fit spliced coaxial cable in suitable housing (underground/aerial strand) and attach fitted off devices to:
 - pit or manhole wall, according to manufacturer specifications or carrier work instructions, taking care not to cause damage to co-located cables or joints
 - catenary according to manufacturer specifications or carrier work instructions, ensuring all clearances, separations and segregations from other cables or pole hardware is maintained
- confirm installation complies with industry and manufacturer specifications and warranties while:
 - maintaining all clearances separations and segregations from other cables or pole hardware
 - taking care not to cause damage to co-located cables or joints

- mark-up as-built plans and document work according to industry requirements.

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:

- RF common and RF design symbols
- RF design and other associated plans
- coaxial cables and connectors, and their application
- equipment and processes to perform a continuity test
- manufacturer requirements for safe operation of equipment and tools relevant to working with coaxial cable
- typical issues and challenges that occur on site including:
 - recycling of old connectors for use with existing devices resulting in incompatibility issues due to incorrect centre pin length leading to intermittent or ongoing faults
- WHS requirements relating to the activity and site conditions, including site security
- relevant legislation, codes and other formal agreements that impact on the work activity
- updating of records to report on completed works.

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 splicing and terminating of coaxial broadband cable can be conducted
- testing equipment currently used in industry
- relevant legislation, work instructions and equipment documentation that impacts on cable splicing, terminating and testing activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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