



Australian Government

ICTCBL2066B Joint and terminate coaxial cable

Release 1

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Modification History

Release	Comments
Release 2	<p>This version first released with <i>ICT10 Integrated Telecommunications Training Package Version 3.0</i>.</p> <p>Minor change to element 5.</p> <p>Outcomes deemed equivalent.</p>
Release 1	<p>This version first released with <i>ICT10 Integrated Telecommunications Training Package Version 1.0</i>.</p>

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to install, joint and terminate coaxial cable on customer premises.

Coaxial cables are used in all telecommunications applications, including convergence technologies of telephony, data, video and multimedia as part of Next Generation Networks (NGN).

Application of the Unit

Technical staff whose work involves jointing and terminating coaxial cable apply the skills and knowledge in this unit.

They install and terminate coaxial cable in the customer access network (CAN) environment for emerging technologies using high speed broadband and the delivery of cable television services.

This unit applies to domestic, commercial or industrial installations.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Nil

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements	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 to install and joint coaxial cable	<p>1.1 Confirm approval for site access with customer prior to site entry and comply with <i>site security arrangements</i> and requirements of <i>relevant legislation, codes, regulations and standards</i></p> <p>1.2 Read and interpret <i>customer's installation specifications</i> and physical conditions at site to determine layout of job</p> <p>1.3 Locate and identify adjoining <i>other services</i> according to enterprise guidelines and occupational health and safety (<i>OHS</i>) practices</p> <p>1.4 Test for presence of dangerous gases in underground enclosures according to enterprise guidelines</p> <p>1.5 Undertake approved alterations to the design according to enterprise guidelines</p>
2. Verify placement and secure coaxial cable	<p>2.1 Use safety equipment to protect self and public according to enterprise guidelines and OHS requirements</p> <p>2.2 Maintain <i>coaxial cable</i> segregation to industry standard requirements</p> <p>2.3 Protect integrity of the coaxial shield cable to ensure no loss of performance</p> <p>2.4 Place cable in position with sufficient slack to allow termination and to maintain minimum bend radius according to <i>manufacturer specifications</i></p> <p>2.5 Follow installation designs to install cable safely without damage to cable or customer's premises</p> <p>2.6 Maintain radio frequency (RF) signal strength by installing cable lengths within manufacturer and design specifications</p> <p>2.7 Locate securing hardware to reduce the cumulative effect on cable wave shape properties and attach cable ties to minimise cable damage</p>
3. Joint coaxial cable	<p>3.1 Strip coaxial cable according to specifications to required length using appropriate <i>tools</i></p> <p>3.2 Select appropriate kit to match the type of coaxial cable in use and the jointing method according to manufacturer recommendations</p> <p>3.3 Joint cable and ensure jointing fitting retains the segregation of conductor and shield</p> <p>3.4 Seal all joints according to manufacturer specifications</p>
4. Terminate coaxial	4.1 Prepare coaxial cable for termination according to

cable	<p>specifications using appropriate tool</p> <p>4.2 Select connectors to match the type of coaxial cable in use and use terminating method recommended by manufacturer</p> <p>4.3 Verify that connector fitting retains the segregation of conductor and shield</p> <p>4.4 Terminate connectors to torque as recommended by manufacturer to prevent RF leakage</p> <p>4.5 Test connectors to mating specifications using gauge tester</p> <p>4.6 Maintain a continuous ground on the terminations and waterproof seal to preserve cable integrity</p>
5. Complete installation operation	<p>5.1 Place cables in enclosure and lay up according to manufacturer's instructions and enterprise guidelines, and check that no safety hazards are evident</p> <p>5.2 Place other services according to enterprise guidelines</p> <p>5.3 Reinststate site and remove waste and debris for disposal according to environmental requirements and to maintain safe work site conditions</p>
6. Complete installation administration	<p>6.1 Complete reports according to enterprise policy</p> <p>6.2 Note alterations to plans using appropriate symbols</p>

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 organising 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
 - use diagnostic equipment.
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Required knowledge

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

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	<p>Evidence of the ability to:</p> <ul style="list-style-type: none"> • joint and terminate coaxial cable using specialised hand or power tools and equipment • apply related OHS requirements and work practices • conduct signal strength tests and interpret results.
Context of, and specific resources for assessment	<p>Assessment must ensure:</p> <ul style="list-style-type: none"> • sites where jointing metallic conductor cable may be conducted • use of joint testing equipment currently used in industry • relevant regulatory and equipment documentation that impacts on cable jointing and testing activities.
Methods of assessment	<p>A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:</p> <ul style="list-style-type: none"> • review of hands-on project completed by the candidate • review of oral and written report with test results • direct observation of the candidate jointing and terminating cables and testing joints.
Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:</p> <ul style="list-style-type: none"> • ICTCBL2005B Install customer cable support systems • ICTCBL2006B Place and secure customer cable. <p>Aboriginal people and other people from a non-English speaking background may have second language issues.</p> <p>Access must be provided to appropriate learning and assessment</p>

	<p>support when required.</p> <p>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.</p> <p>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.</p> <p>Where applicable, physical resources should include equipment modified for people with special needs.</p>
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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.

<p><i>Site security arrangements</i> may include:</p>	<ul style="list-style-type: none"> • access times and methods • approval to enter site • approved entry requirements • electronic surveillance • security clearance.
<p><i>Relevant legislation, codes, regulations and standards</i> may include:</p>	<ul style="list-style-type: none"> • Australian Communications Industry Forum (ACIF) standards and codes • Australian Communications and Media Authority (ACMA) technical standards • ARPANSA electromagnetic radiation (EMR) standard • 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 • Australian building codes and regulations • cabling security codes and regulations • confined spaces regulations • enterprise standards • Environment Protection Acts • equipment standards • fire regulations • heritage legislation • international standards • intrinsically safe lightning protection • local government • mining legislation • noise abatement and heritage legislation • OHS Acts and relevant codes and standards

	<ul style="list-style-type: none"> • Radiocommunications Act • regulated or industry codes of practice • site engineering standard • technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006 • Telecommunications Act • WIs, CIs, business operating procedures (BOP), Radiocommunications Assignment and Licensing Instruction (RALI), assignment guidelines, spectrum planning reports.
Customer's installation specifications may include:	<ul style="list-style-type: none"> • cable plans and designs • contract documents • specification schedules.
Other services may include:	<ul style="list-style-type: none"> • availability and suitability of existing cabling trays and fixing systems • fire sprinkler systems • gas and water mains • high voltage (HV) power.
OHS may include:	<ul style="list-style-type: none"> • safe use and handling of: <ul style="list-style-type: none"> • chemicals • materials • tools and equipment • work platforms.
Coaxial cable may be:	<ul style="list-style-type: none"> • aerial or underground • flexible: <ul style="list-style-type: none"> • external • internal • flooded coaxial for underground use • hard line: <ul style="list-style-type: none"> • external • internal • powered or unpowered • RG6 and RG11 quad shield.
Manufacturer specifications may include:	<ul style="list-style-type: none"> • electrical characteristics: <ul style="list-style-type: none"> • isolation voltage • voltage requirements • handling instructions • installation instructions • performance characteristics: <ul style="list-style-type: none"> • frequency response

	<ul style="list-style-type: none">• impedance• loss• testing details.
<i>Tools</i> may include:	<ul style="list-style-type: none">• hand or power tools:<ul style="list-style-type: none">• connector gauges• coring• crimping• stripping and preparation tool• torque spanner.
<i>Connectors</i> may include:	<ul style="list-style-type: none">• integral pin• internal or external• pin type• separate pin.

Unit Sector(s)

Telecommunications - Cabling