



Australian Government

ICTCBL322 Install, test and terminate optical fibre cable on customer premises

Release: 2

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Modification History

Release	Comments
Release 2	This version released with ICT Information and Communications Technology Training Package Version 6.0. Release 2 created for editorial corrections.
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, test and terminate optical fibre cable on customer premises for communications applications using a range of terminations that may include direct termination, fusion splicing and mechanical splicing.

It applies to technical staff who place, secure and terminate optical fibre cable in new installations and upgrades or maintain existing networks in domestic, commercial and industrial installations. Communications applications include digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LANs), wide area networks (WANs) 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.

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 for installation	1.1 Access site according to enterprise procedures

ELEMENT	PERFORMANCE CRITERIA
of optical fibre cable	1.2 Inform appropriate personnel of identified worksite hazards 1.3 Organise tools, cabling products, equipment and materials for given work 1.4 Match optical fibre cable type and connectors to installation environment and customer requirements 1.5 Check proposed route and bend ratios according to manufacturer specifications and industry standards 1.6 Test fibres in the cable on the drum for optical continuity as required 1.7 Use personal protective equipment, including safety glasses, when working with bare fibre stripping/cleaving and utilise sharps disposal containers for bare fibre off cuts 1.8 Place fibre patch leads in support pathway, avoiding pressure, crushing and bending
2 Clean and inspect connectors	2.1 Test patch leads, before use, for continuity with a visible light source and inspect and clean connector end faces 2.2 Test fibre connectors ensuring the circuit has no infra-red transmission (dark fibre) 2.3 Ensure that associated equipment is labelled to inform others not to switch the equipment on or reconnect patch leads 2.4 Remove connector dust cover and inspect for dust and damage using an optical microscope or video microscope 2.5 Clean connectors with recommended cleaning tools, using wet and dry methods as required and re-inspect 2.6 Replace connectors or patch cords when inspection reveals irreparable damage or contamination cannot be cleaned off 2.7 Place fibre patch leads in support pathway avoiding pressure, crushing and bending
3. Install indoor/outdoor cables and pigtails to an indoor enclosure	3.1 Undertake work in a controlled environment 3.2 Strip loose tube fibre cable and fit cable and fibres to an indoor enclosure 3.3 Prepare pigtails on workstation in an orderly manner matching cable fibre colour codes to pigtail colour codes as required
4. Terminate or fusion-splice cable	4.1 Prepare fibre for splicing, cleaning and cleaving 4.2 Splice prepared fibres 4.3 Shrink splice protective sleeve to spliced fibres and allow to cool

ELEMENT	PERFORMANCE CRITERIA
5. Terminate fibre using direct connectorisation	5.1 Prepare fibre (250 um and/or 900 um fibres) for mechanical splicing, cleaning and cleaving 5.2 Connect mechanical splice connector
6. Test circuit joints	6.1 Use visible light sources safely to determine continuity of patch cords and fusion/mechanical splices 6.2 Test each fibre circuit joint for transmission loss with a light source and power meter, and re-terminate joint or connector when transmission loss exceeds industry standards and manufacturer specifications 6.3 Record all measurements in dBm for customer handover
7. Remove fibre hazards from work area	7.1 Clean work area thoroughly to minimise risk of injury from glass fibre off-cuts 7.2 Dispose of waste safely according to relevant environmental requirements 7.3 Restore worksite to customer satisfaction
8. Document installation	8.1 Update plans and records with details of installation and test results 8.2 Notify customer of work completion 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	Recognises the structures and distinguishing features of a range of familiar text types
Writing	Chooses appropriate text type to communicate relevant information and/or ideas effectively
Oral Communication	Demonstrates awareness of choices in register, especially in situations that are familiar
Numeracy	Interprets and comprehends whole numbers and familiar or routine fractions, decimals and percentages
Navigate the world of work	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, making slight adjustments if necessary, and addressing some unexpected issues • Automatically implements standard procedures for routine decisions in response to familiar problems • Understands when to take responsibility and when to notify others

Unit Mapping Information

No equivalent unit. Supersedes and is not equivalent to ICTCBL302 Install and terminate optical fibre cable 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 ICTCBL322 Install, test and terminate optical fibre cable 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:

- install, terminate and test optical fibre cable, applying safety precautions when working with laser-based systems
- prepare workstation to provide for fibre preparation, cleaving, fusion splicing, enclosure fit out, cleaning pads and tools, sharps and waste disposal
- ensure workstation is located in a dust free environment with adequate ventilation, lighting and power
- install and test single mode and multimode cable
- perform direct field termination
- provide customer report documenting installation and test results
- comply with all related work health and safety (WHS) and environmental requirements and work practices
- install a mechanical splice connector and fusion splice a pigtail to cable fibre
- complete relevant documentation to manufacturer and design 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:

- legislation, codes and standards for optical fibre

- specific WHS requirements and enterprise procedures relating to the activity and site conditions
- various types of optical fibre cable and associated connectors, enclosures and required equipment
- features and operating requirements of optical fibre cable test equipment
- information required to operate equipment according to a test specification
- manufacturer requirements for safe operation of optical fibre equipment
- safety precautions when working with laser-based systems
- hazards associated with working with optical cable including:
 - bare fibres
 - hazardous laser light
- test methods and performance requirements
- issues relating to environmental work practices and the disposal of waste
- techniques for types of termination, including:
 - direct termination
 - fusion splicing.

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 installation and termination of optical fibre cable can be conducted
- special purpose tools, equipment and materials currently used in industry such as optical fibre testing equipment
- relevant regulatory and equipment documentation that impacts on optical fibre cable installation activities.

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.

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