



Australian Government

ICTCBL330 Splice and terminate optical fibre cable for telecommunications projects

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 splice and terminate optical fibre cable within an optical telecommunications transmission environment for new installations or upgrades of an optical backbone or access network, to achieve greater bandwidth and capacity required by emerging technology convergence for next generation networks (NGNs).

It applies to technical staff who splice and terminate optical fibre cable for telecommunications projects for commercial or industrial fibre to the premises (FTTP) non-mechanical splicing installations.

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. Cablers working with live optical fibre must obtain enterprise certification before commencing splicing work.

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 splicing	1.1 Select safety equipment to protect self and public according to industry guidelines and work health and safety (WHS) practices 1.2 Confirm layout of installation according to physical conditions at site and relevant legislation, regulations, codes and standards

ELEMENT	PERFORMANCE CRITERIA
	1.3 Inform appropriate personnel of identified worksite hazards 1.4 Locate other services from relevant authorities according to industry guidelines and safe practices 1.5 Test for dangerous gases and place guards around open manholes according to WHS and environmental requirements 1.6 Obtain approval for alterations to design according to industry guidelines
2. Check existing optical fibre cable	2.1 Verify that cable is installed according to installation plan 2.2 Visually inspect cable for signs of sheath damage and seek instructions from service provider when damage is identified 2.2 Maintain minimum bend ratios according to manufacturer specifications to prevent cable damage and signal degradation 2.3 Secure cable according to safe industry practice to avoid cable and sheath damage
3. Splice optical fibre cable	3.1 Maintain safe work practices when using equipment to identify and verify fibre is not live before commencing splicing 3.2 Seek instructions from service provider where fibre is live and, on receipt of required enterprise certification, follow service provider instructions accordingly 3.3 Prepare cable end to expose optical fibres according to splicing method and manufacturer specifications 3.4 Prepare and splice fibres using safe industry practice according to industry specifications 3.5 Install and clean optical connectors with recommended cleaning material and re-inspect 3.6 Test completed links for proof of performance according to industry standards
4. Terminate optical fibre cable	4.1 Select connector unit to suit terminating frame according to design specifications 4.2 Terminate cable according to design method and manufacturer specifications 4.3 Test termination for transmission loss and light levels, and re-terminate if transmission loss exceeds industry standard 4.4 Install protection devices on connectors to protect from exposure and contaminants 4.5 Label and lay up cables in enclosure according to manufacturer instructions and industry guidelines

ELEMENT	PERFORMANCE CRITERIA
5. Finish job and report	5.1 Remove waste and reinstate site according to industry guidelines 5.2 Prepare reports, including test results and alterations to plans, according to telecommunications industry or enterprise policies 5.3 Notify appropriate personnel 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	- Understands familiar texts of limited complexity that may incorporate graphs, tables and charts - Recognises the structures and distinguishing features of a range of familiar text types
Writing	Interrelates ideas and information and some support material when writing about familiar topics
Oral Communication	Demonstrates an awareness of the need to vary structure, style, tone and vocabulary to meet the requirements of the audience, context and purpose
Numeracy	Interprets and comprehends whole numbers and familiar or routine fractions, decimals and percentages
Navigate the world of work	- Takes responsibility for decisions about when and how to complete tasks and coordinate with 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
Get the work done	- Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues - Initiates standard procedures when responding to familiar problems within immediate context
Interacts with others	Takes responsibility to obtain customer sign-off for work completed

Unit Mapping Information

No equivalent unit. Supersedes and is not equivalent to ICTCBL208 Splice and terminate optical fibre cable for carriers and service providers.

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 ICTCBL330 Splice and terminate optical fibre cable for telecommunications projects

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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:

- splice, terminate and test optical fibre cable, applying safety precautions when working with laser-based systems and ensuring that required enterprise certification is first obtained if working with live fibre
- splice at least 12 fibres and house in industry recognised enclosures and underground closures according to manufacturer instructions
- install a pigtail that is fusion spliced to cable fibre
- inspect and clean optical connectors
- complete relevant documentation according to manufacturer and design requirements
- provide customer report documenting installation and test results, according to industry standards
- comply with all related work health and safety (WHS) requirements and work practices.

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:

- specific WHS and environmental requirements relating to the activity and site conditions, including hazardous gases
- relevant safety standards applicable to the operation of laser products
- safety precautions when working with laser-based systems
- industry and enterprise policies and procedures when splicing optical fibre cable
- causes of signal strength loss in optical fibre
- colour coding of fibres
- features and operating requirements of test equipment for optical fibre cable

- information required to operate equipment according to a test specification
- optical fibre equipment and manufacturer requirement for safe operation
- techniques for types of termination, including:
 - direct termination
 - fusion splicing
 - mechanical splicing
- test methods and performance requirements
- types of optical cable
- relevant authorities that may be involved in optical fibre installations.
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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 splicing 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.

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