



Australian Government

ICTCBL316 Install ribbon fibre cable in the FTTX distribution network

Release: 2

ICTCBL316 Install ribbon fibre cable in the FTTX distribution network

Modification History

Release	Comments
Release 2	This version released with ICT Information and Communications Technology Training Package Version 5.0.
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 2.0.

Application

This unit describes the performance outcomes, skills and knowledge required to install ribbon cable in the fibre access node (FAN) site and distribution, local and access underground enclosure joints. Cables may range from 12 fibre to 576 fibre cables.

It applies to individuals who are optical fibre cable installers and splicers deploying broadband access networks using optical technologies. They combine technical skills with specific work health and safety (WHS) skills to work safely on ribbon fibre.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

ICTCBL330	Splice and terminate optical fibre cable for carriers and service providers
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Unit Sector

Telecommunications – cabling

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the</i>	<i>Performance criteria describe the performance needed to demonstrate</i>

<i>essential outcomes.</i>	<i>achievement of the element.</i>
1. Prepare for installation of ribbon fibre	1.1 Select safety equipment to protect self, co-workers and public in line with WHS and environmental requirements 1.2 Identify and obtain tools and appropriate equipment required for installation 1.3 Check physical conditions relevant to installation and confirm layout of equipment to be installed 1.4 Inform appropriate personnel of identified hazards on worksite 1.5 Locate other services from relevant authorities 1.6 Secure worksite with tests for dangerous gases and guards around open manholes 1.7 Obtain approval for alterations to design within organisational guidelines
2. Check and secure existing optical fibre cable	2.1 Following WHS practices, verify that cable was installed according to installation plan and inspect cable for signs of sheath damage 2.2 Maintain minimum bend ratios of cable according to manufacturer specifications while manoeuvring into position 2.3 Secure cable according to safe industry practice, avoiding damage to cable and sheath
3. Install ribbon fibres into high density drawers and/or pivot sub-racks in internal cabinets	3.1 Introduce cable into cabinet rack through appropriate route 3.2 Remove cable sheath and lay up ribbon loose tubes into sub-racks without damage to fibre 3.3 Remove loose tubes, clean ribbon fibres and prepare for splicing using organisational techniques 3.4 Splice ribbon fibres and secure into splice holders 3.5 Confirm that fibres are accurately spliced according to organisational specifications
4. Install and splice ribbon cable in underground enclosures	4.1 Select appropriate enclosure for function and cable type 4.2 Prepare cables for mid-span and butt splicing following vendor guidelines 4.3 Feed cable accurately into enclosure according to network owner guidelines 4.4 Lay up ribbon fibre in enclosure splice tray to allow accurate and efficient splicing 4.5 Cross-reference fibre numbering to match fibres accurately 4.6 Strip ribbon fibres to specifications

	4.7 Splice ribbon fibres accurately 4.8 Apply heat-shrink sleeves to ensure protection of spliced ribbon fibres 4.9 Secure spliced ribbon fibres in splice holders
5. Close and seal enclosure	5.1 Check cable and ribbon fibre placement in splice trays conform to vendor and network owner specifications and adjust if necessary 5.2 Close and secure splice trays and fit enclosure cap 5.3 Heat shrink seals around cable entry ports when using heat shrinking techniques, according to vendor and network owner guidelines 5.4 Close and tighten seals around ribbon fibre cables when using mechanical sealing techniques, according to vendor and network owner guidelines 5.5 Check for signs of effective seal and re-seal if necessary
6. Complete site reinstatement, reporting and sign off requirements	6.1 Place sealed enclosure in pit and secure to vendor and network owner specifications 6.2 Identify signs of damage or potential damage to pit and cable and take steps to mitigate 6.3 Reinstall site to network owner specifications 6.4 Prepare and finalise reports, including test results and alterations to plans, according to network owner requirements 6.5 Advise client 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	Reads and interprets plans, specifications and other documentation from a variety of sources and consolidates information to determine requirements
Writing	Accurately records and completes organisational documents and correspondence using clear language and correct spelling, grammar and terminology
Oral Communication	Uses clear language and concepts, and tone and pace appropriate for the audience and purpose

Navigate the world of work	• Complies with explicit policies and procedures • Explores and implements where identified the implicit expectations of policies, procedures and standards
Get the work done	• Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes • Makes routine decisions and implements standard procedures for routine tasks, using formal decision making processes for more complex and non-routine situations

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTCBL316 Install ribbon fibre cable in the FTTX distribution network (Release 2)	ICTCBL316 Install ribbon fibre cable in the FTTX distribution network (Release 1)	Updates to pre-requisite code. Updates to template to apply consistent format between units.	Equivalent 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 ICTCBL316 Install ribbon fibre cable in the FTTX distribution network

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Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- prepare cable for mid-span splicing – strip and coil
- prepare cable for butt end splicing – strip and coil
- install ribbon fibre cable into:
 - one heat shrink seal enclosure
 - one mechanical seal enclosure
 - one high density ribbon fibre termination drawer
- splice ribbon fibre according to specifications
- observe all network owner requirements and product practices to ensure optimal performance of cable systems
- adapt techniques to a range of technical and environmental conditions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- applicable network owner standards, specifications and procedures for cable installation
- cable installation requirements, including:
 - causes of signal strength loss in optical fibre
 - colour coding and numerical coding of fibres

- application of relevant safe operation of laser instruments
- installation equipment
- industry and organisational policies and procedures when splicing optical fibre cable
- manufacturer requirements for safe operation of optical fibre equipment
- common hazards associated with the construction site
- work health and safety (WHS) and environmental control processes and responsibilities on worksites
- safe handling of optical fibres and related equipment including:
 - hazards relating to handling of optical fibre and laser light source in the workplace
 - injuries:
 - damage to retina from lasers
 - damage to lungs from inhalation of fibre offcuts and particles
 - needle stick injury from fibres and offcuts
 - laser warning signs and labels relating to optical fibre components and equipment
 - safety requirements when handling and working with:
 - active equipment
 - laser light sources
 - optical fibre connectors
 - optical fibres
 - patch cords
- major feature and use of ribbon fibre, including:
 - bend ratios for ribbon fibre
 - procedures for handling and placing ribbon fibre in enclosures
 - procedures for physical handling of ribbon fibre cables
 - structure of ribbon fibre cables
 - splicing techniques for ribbon fibre
 - types and functions of ribbon fibre enclosures
- risks associated with confined spaces and determine the appropriate responses.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- optic fibre cabling and equipment
- a range of cabinet types and other housings requiring cable-handling techniques
- personal protective equipment
- first aid and fire safety equipment
- ribbon fibre cleaners, stripper and splicer
- joint pressure testing equipment.

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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