



Australian Government

ICTBWN308 Work safely on live optical fibre installations

Release: 1

ICTBWN308 Work safely on live optical fibre installations

Modification History

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

Application

This unit describes the skills and knowledge required to work safely on a live optical fibre installation to test and commission a wavelength division multiplexing (WDM) system and to connect a splitter for fibre to the x (FTTx) deployment.

It applies to fibre technicians who engage in safe work practices as members of a team using emerging technologies to deliver very high-speed broadband capacity through the access network for the national broadband network (NBN) initiative.

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

Pre-requisite Unit

ICTBWN307 Use optical measuring instruments

ICTWHS204 Follow work health and safety and environmental policy and procedures

Unit Sector

Telecommunications – Broadband and Wireless Networks

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Set up and prepare to work with live fibre	1.1 Scope work by obtaining project plan from appropriate personnel, and arrange for site access to comply with security arrangements 1.2 Identify hazards, assess work health and safety (WHS) risks, and implement control measures according to workplace procedures

Elements	Performance Criteria
	1.3 Notify appropriate personnel of identified worksite safety hazards 1.4 Determine FTTx equipment, components of optical distribution network (ODN) and WDM components, from project plan, for testing and commissioning 1.5 Obtain required tools, safety equipment and materials to perform tasks safely and efficiently 1.6 Select and use required personal protective equipment, and make site safe and secure for commissioning work
2. Connect splitter input fibre to feeder cable	2.1 Identify and avoid disconnection of other services 2.2 Monitor implementation of control measures and revise as necessary 2.3 Locate feeder fibre port to be connected 2.4 Ensure power is turned off at source 2.5 Connect connectorised splitter input fibres according to manufacturer specifications 2.6 Arrange for power to be turned back on to newly connected feeder port
3. Perform live WDM commission testing of ODN installation used in FTTx network	3.1 Locate appropriate test points in ODN from manufacturer instructions for WDM testing 3.2 Test live wavelengths for WDM tests according to safety precautions 3.3 Test optical signal strengths for operating wavelengths incoming into optical network termination (ONT) and determine if signal strengths are within range of acceptable power levels 3.4 Test losses between WDM outputs and individual line multiplexers (LM) for each wavelength, and determine if within maximum and minimum power losses 3.5 Conduct all manufacturer specified acceptance tests 3.6 Record and tabulate all test results for commissioning requirements
4. Complete installation process	4.1 Seal and secure any enclosures and cabinets 4.2 Remove waste and debris from worksite and dispose of according to environmental requirements 4.3 Notify appropriate personnel of job 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
Oral Communication	Participates in verbal exchanges with key personnel using appropriate, clear and detailed language to exchange information, ideas or solutions
Numeracy	Performs mathematical calculations to check, interpret and confirm results of system tests
Navigate the world of work	Complies with explicit policies and procedures
Interact with others	- Complies with work instructions and contributes to work group discussions using accepted conventions - Supervises other cablers in training
Get the work done	- Plans and implements routine tasks and workload, making limited decisions on sequencing, timing and collaboration, and seeks assistance in setting priorities - Uses the main features and functions of digital tools to complete work tasks and access information

Range of Conditions

Specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. It is restricted to essential operating conditions and any other variables essential to the work environment.

Operating wavelengths must include:	1310 nm 1490 nm 1550 nm.
Range of acceptable power levels must include:	-20 to + 2 dBm @ 1310 nm -26 to -6 dBm @ 1490 nm -11.5 to +5 dBm @ 1550 nm.
Maximum and minimum power losses must include:	23.3 dB to 15.0 dB @1310 nm 21.6 dB to 8.0 dB @1490 nm 20.9 dB to 9.5 dB @1550 nm.
Acceptance tests must include:	- delay - dispersion

	• optical attenuation and loss measurements • optical power levels • phase.
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Unit Mapping Information

No equivalent unit. Supersedes and is not equivalent to ICTBWN304 Work safely with live fibre to test the x installation.

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 ICTBWN308 Work safely on live optical fibre installations

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Performance Evidence

The candidate must demonstrate the ability to perform the tasks outlined in the elements, performance criteria and foundations skills, and to:

- comply with all job requirements and work health and safety (WHS) regulations, standards and work practices, and environmental requirements
- use optical power test equipment
- evaluate test results
- safely connect input and output optical fibres to the splitter
- conduct live tests measuring optical signals at three wavelength division multiplexing (WDM) wavelengths on optical devices
- conduct acceptance tests for commissioning that cover:
 - delay
 - dispersion
 - optical attenuation and loss measurements
 - optical power levels
 - phase
- complete connection recording.

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, regulations, codes and standards for compliance that impact on work activities
- relevant organisational policies and procedures
- personal safety issues
- propagation of light in optical communication systems

- role of transmitters and receivers in optical communication systems
- critical aspects of site engineering
- specific WHS risks and controls relating to the handling of optical fibre and the use of laser light sources
- WDM applications.

Assessment Conditions

This unit of competency falls into the definition of high risk work and should be delivered and assessed in accordance with the national standard.

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:

- a WDM system and relevant optical splitter
- tools, equipment and personal protective equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on work 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* of high risk units in the ICT Information and Communications Technology Training Package Companion Volume Implementation Guide.

Links

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