



Australian Government

ICTOPN401 Install and test a dense wavelength division multiplexing system

Release: 1

ICTOPN401 Install and test a dense wavelength division multiplexing system

Modification History

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

Application

This unit describes the skills and knowledge required to install dense wavelength division multiplexing (DWDM) equipment in optical networks.

It applies to individuals who interpret installation manuals and use technical skills to prepare for and conduct system tests and commissioning.

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

Unit Sector

Telecommunications – Optical Networks

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 to install DWDM units	1.1 Determine number of racks and DWDM units at each site by referring to installation documents 1.2 Determine DWDM unit and equipment positions within the individual racks 1.3 Assemble equipment racks according to safe industry practice and manufacturer's instructions 1.4 Select tools and equipment 1.5 Prepare patch panels with connectors according to installation plan
2. Install DWDM	2.1 Install DWDM unit in the designated rack position to maintain the

units and associated cabling	planned link budget margin 2.2 Install patch panels and ancillary equipment and connections into equipment rack in preparation for commissioning procedures 2.3 Insert circuit cards into specified slot locations in readiness for commissioning procedures, but do not seat cards into backplane nor lock into position at this stage 2.4 Connect optical fibre cables between circuit cards, optical multiplexers, adjoining DWDM units and patch panels according to manufacturer's specifications
3. Test power connections and complete installation report	3.1 Measure main and redundant power supplies to verify correct polarity of ground and power connections 3.2 Rectify any identified power wiring fault if applicable 3.3 Confirm cooling fans, panel lights, indicator lights and alarms behave according to manufacturer's prescribed specifications when power is applied 3.4 Complete installation report and reinstate site

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	1.1, 1.3, 1.5, 2.4, 3.3	Interprets textual information from relevant sources to identify and adhere to procedures and standards
Writing	3.4	Uses clear, specific and industry related terminology to complete and update workplace documentation
Numeracy	1.1, 2.1, 3.1	Uses mathematical formulae to calculate measurements and determine equipment requirements
Navigate the world of work	1.3, 3.4	- Recognises and follows explicit and implicit protocols and meets expectations associated with own role - Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context with specific reference to workplace safety

Get the work done	1.1, 1.2, 1.4, 1.5, 2.1-2.4, 3.1-3.4	• Implements actions according to a pre-determined plan, making slight adjustments if necessary and addressing some unexpected issues • Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account • Initiates standard procedures when responding to familiar problems within immediate context • Reflects on the ways digital systems and tools are used, or could be used to achieve work goals and begins to recognise strategic and operational applications
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Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTOPN401 Install and test a dense wavelength division multiplexing system	ICTOPN4115A Install and test a dense wavelength division multiplexing system	Updated to meet standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2>

Assessment Requirements for ICTOPN401 Install and test a dense wavelength division multiplexing system

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Performance Evidence

Evidence of ability to:

- determine the dense wavelength division multiplexing (DWDM) requirements for a site
- install a DWDM system and associated cabling according to plans and specifications
- test installation for operation, power and ground connections
- analyse test results and rectify faults
- complete and submit an installation report.

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

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain DWDM principles of operation
- outline managing risk of electrostatic discharge
- outline optical fibre connector types and characteristics
- summarise optical fibre types and characteristics
- outline specific workplace health and safety requirements that impact the safe measurement and inspection of optical connectors and optical power from laser transmission systems.

Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Optical Networks field of work and include access to:

- tools and equipment requirement for installation

- a range of optical fibres to suit the installation.

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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