



Australian Government

Assessment Requirements for ICTOPN608 Analyse optical transmission systems

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 7.0.

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:

- analyse at least two types of optical transmission systems.

In the course of the above, the candidate must:

- conduct optical transmission measurements
- analyse complex optical measurement results
- liaise with the customer as required
- report on measured network performance and recommendations for future upgrades.

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:

- principles and techniques for documenting measured performance
- conduct characterisation tests on optical networks
- attenuation characteristics of optical fibres
- the chromatic dispersion (CD) test
- principles of operation of dense wavelength division multiplexing (DWDM)
- dispersion and outline dispersion characteristics of various fibres and devices used for compensation
- precautions required to minimise electrostatic discharge
- features and operating requirements of the following test equipment:
 - a hand-held optical power meter
 - an optical spectrum analyser
 - a transmission test set

- functions of an optical add-drop multiplexer (OADM) and reconfigurable optical add-drop multiplexer (ROADM)
- functions and features of gain equalisation techniques
- insertion loss test requirements and procedures
- International Telecommunications Union (ITU) wavelength grid for DWDM
- measurement of dispersion theory
- methods to reduce dispersion
- optical amplifier operation methods
- optical fibre connector types and characteristics
- optical fibre types and characteristics
- the optical return loss (ORL) test procedures
- the optical signal-to-noise ratio (OSNR) test procedures
- the optical time domain reflectometer (OTDR) test procedures
- path protection and protection switching requirements
- performance qualification of 40 Gbit/s and 100 Gbit/s transceivers
- the polarisation mode dispersion (PMD) test procedures
- protocols used on optical DWDM systems
- reflectance in fibre optic systems
- ring topologies and linear network topologies
- required report formats to make recommendations
- work health and safety (WHS) requirements and environmental constraints that impact safe inspection of optical connectors and safe measurement of optical power from laser transmission systems
- required legislation, codes, company work practices, regulations and standards and environmental requirements for scoped work.

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:

- test equipment used in industry
- test equipment and manufacturer technical documentation.

Assessors of this unit must satisfy the requirements for assessors in required vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -

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