



Australian Government

ICTICT531 Test network using virtual instruments

Release: 1

ICTICT531 Test network using virtual instruments

Modification History

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

Application

This unit describes the skills and knowledge required to apply simulation testing techniques when testing networking systems.

It applies to technical staff who work with optical communication systems.

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

Unit Sector

General ICT

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. Plan to test network	1.1 Obtain work details and scope from relevant personnel and arrange for site access in compliance with organisational security arrangements, legislation, codes, regulations and standards 1.2 Determine required features and applications of virtual instruments across networking systems 1.3 Identify limitations of virtual instruments according to organisational standards 1.4 Select simple and complex virtual instruments to test networking systems
2. Perform network simulation techniques	2.1 Measure networking systems according to organisational policies and procedures 2.2 Simulate and display properties of modulated signals with software-generated instruments according to organisational policies and procedures

ELEMENT	PERFORMANCE CRITERIA
	2.3 Simulate and display data signals transmitted through band-limited channels 2.4 Monitor virtual instruments
3. Process network measurements	3.1 Determine conversion processes used in virtual instruments 3.2 Document effects of a simulation algorithm on recorded readings 3.3 Analyse measurements in consideration of conversion process and simulation algorithm
4. Report network test results	4.1 Prepare report on measurement results according to organisational procedures 4.2 Submit report to relevant personnel 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
Numeracy	Selects and applies mathematical and problem-solving techniques in a broad range of contexts
Reading	- Draws on a range of strategies to research and demonstrate knowledge of complex texts - Analyses and consolidates test results and data from a range of sources against defined criteria and requirements
Writing	Demonstrates sophisticated writing skills and selects required conventions and stylistic devices to express precise meaning
Planning and organising	- Accepts responsibility for planning and sequencing complex tasks, workloads and managing network capabilities, - Negotiates key details with relevant personnel
Problem solving	- Applies systematic and analytical decision-making processes for complex and non-routine situations - Responds to problems requiring immediate resolution, drawing on past experiences
Self-management	Takes responsibility for following policies, procedures and legislative requirements
Technology	Investigates and uses new digital technologies and applications for testing, managing and manipulating data

Unit Mapping Information

Supersedes and is equivalent to ICTICT516 Test telecommunications network using virtual instruments.

Links

Companion Volume Implementation Guide is found on VETNet -

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

Assessment Requirements for ICTICT531 Test network using virtual instruments

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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:

- test at least three different types of networks using at least one complex and at least one simple virtual instrument in each network.

In the course of the above, the candidate must:

- use system manuals and equipment according to manufacturer specifications.

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:

- organisational policies and procedures, including those for:
 - obtaining work details and scope from relevant personnel
 - arranging site access
 - security arrangements
 - report sign-off procedures
 - identifying limitations of virtual instruments
 - measuring networking systems
- features and applications of:
 - simple and complex virtual instruments
 - band-limited channels
 - data buses
 - simulation algorithms
 - virtual instruments
- differences between simple and complex virtual instruments
- sampling and data conversion processes

- instrumentation principles and practices
- mathematical and problem-solving techniques of measuring networking systems using virtual instruments
- technological developments of virtual instruments
- internet support services
- modulation methods, AM, FM and digital formats
- report formats and requirements
- legislation, codes, regulations and standards and workplace health and safety 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:

- internet sites
- electronic workbench or similar software
- virtual instrument applications and media
- a workplace conducting operations involving virtual instruments
- support from a competent supervisor or mentor
- networking equipment that can be used for integrating projects
- industry software packages.

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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