



Australian Government

ICTRFN401 Conduct radio frequency measurements

Release: 1

ICTRFN401 Conduct radio frequency measurements

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 to plan and undertake testing, including measuring, recording and interpreting results within all legislative and regulatory frameworks.

It applies to individuals who work in the field to install, maintain, upgrade and commission radio frequency (RF) telecommunications systems. These systems may include satellite and microwave, radio or television broadcasting, pay television, free to air television, radio frequency identification (RFID), mobile radio, cellular and Worldwide Interoperability for Microwave Access (WiMAX) networks.

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

Unit Sector

Telecommunications – radio frequency 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. Plan to conduct RF measurements	1.1 Arrange access to site according to required procedure 1.2 Determine type of measurements required based on industry environment 1.3 Assess impact of conducting measurements on network and advise clients and appropriate person accordingly 1.4 Assess previous measurement data if available

2. Conduct RF measurements	2.1 Check that prescribed safety arrangements associated with RF radiation are in place; otherwise, take corrective action 2.2 Monitor work activity to ensure it meets site specifications, and relevant legislation, codes, regulations and standards 2.3 Configure test equipment according to manufacturer's specifications 2.4 Conduct measurements according to planned requirements 2.5 Assess RF levels at occupational and non-occupational distances 2.6 Record all measurements and test configurations
3. Analyse measurement outcomes	3.1 Verify measurements against relevant standards and vendor specifications 3.2 Assess problems and variance for corrective action, and notify appropriate person according to enterprise procedures 3.3 Record processes and recommendations
4. Document measurement results	4.1 Complete client documentations 4.2 Notify client to obtain sign off

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	2.3, 3.1	Recognises and interprets information from relevant sources to determine technical specifications and regulatory and legislative requirements
Writing	1.3, 2.6, 3.2, 3.3, 4.1, 4.2	Uses clear, specific and industry related terminology to complete and update workplace documentation and in written communications with clients
Oral Communication	1.3, 3.2, 4.2	- Uses specific and relevant language and appropriate tone to provide and ask for technical, operational and legal advice - Uses listening techniques to determine understanding
Numeracy	1.4, 2.4, 2.5, 3.1	Evaluates and reviews numerical information when undertaking test measurements,

		interpreting results, calibrating equipment and evaluating performance
Navigate the world of work	2.1, 2.2, 3.2	• Takes personal responsibility for adherence to legal and regulatory requirements, with specific reference to safety • Understands the nature and purpose of own role and associated responsibilities
Get the work done	1.1-1.3, 2.3, 3.2, 3.3	• Determines job priorities and works logically and systematically to undertake clearly defined and familiar tasks • Identifies and assembles the instruments, equipment and access required to competently undertake the job • Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking situational factors into account • Diagnoses and implements standard solutions to minimise measurement errors

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTRFN401 Conduct radio frequency measurements	ICTRFN4095A Conduct radio frequency measurements	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 ICTRFN401 Conduct radio frequency measurements

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Performance Evidence

Evidence of the ability to:

- plan and conduct radio frequency (RF) testing using appropriate equipment and instruments
- measure, record and interpret test results
- monitor work to meet related work health and safety (WHS) requirements and work practices.

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:

- discuss the principles and operation of the following
 - analog and digital modulation methods
 - logarithmic units
 - standard test procedures and test setups
 - transmitter and receiver architectures
- discuss the principles of radio frequency (RF) operation including:
 - instrument and features and types
 - radiation hazards
 - safety practices.

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 should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- sites for RF measurements
- a range of test equipment and items to test
- 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.

Links

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