



Australian Government

ICTRFN305 Operate and maintain radio communications technical instruments and field equipment

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 2.0.

Application

This unit describes the skills and knowledge required to take measurements, find faults, undertake minor repairs and commission new instruments and equipment.

It applies to individuals with proficient technical skills including field officers from regulatory authorities or other private and public organisations. In this role, individuals must comply with radio communications transmitter licensing requirements, operator certificates for maritime and aeronautical services, work health and safety (WHS) and electromagnetic radiation (EMR) licensing requirements.

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. Prepare for use of instruments and field equipment	1.1 Plan and prepare work according to site procedures, operating environment and relevant legislation, codes, regulations and standards 1.2 Select measurements required to meet performance outcomes 1.3 Read, interpret and use equipment and system manuals, specifications and relevant organisational policy to determine work requirements

	1.4 Select and ensure equipment for work activities is ready for operation 1.5 Determine, address and report potential risks, hazards and environmental issues 1.6 Adhere to relevant emergency procedures, policy guidelines and WHS procedures to ensure safety of personnel and plant
2. Test instruments and field equipment	2.1 Perform safety checks according to instrument and equipment manual and organisational procedures 2.2 Confirm equipment is calibrated and calibration label is within approved timeframes 2.3 Select appropriate traceable calibrated equipment where measurements are required to be traceable according to national standards 2.4 Label and report damaged or unsafe instruments and field equipment, and send for service 2.5 Update operational log books
3. Operate instruments and field equipment	3.1 Optimise instrument and equipment settings for particular measurement or analysis 3.2 Perform measurements with optimum precision given field and technical constraints 3.3 Assess data for accuracy and precision against quality control information, known standards and references within measurement uncertainty
4. Maintain instruments and field equipment	4.1 Use fault finding techniques to verify and rectify faults 4.2 Perform preventative maintenance within limits of authorisation and report equipment wear and faults 4.3 Replace defective parts and make adjustments according to equipment specifications 4.4 Seek expert help from appropriate colleagues where problems are encountered 4.5 Update maintenance and calibration records according to organisational procedures
5. Commission new instruments and equipment	5.1 Arrange commissioning procedures with manufacturer's agent 5.2 Unpack, check and assemble instruments and equipment according to manufacturer's warranty requirements 5.3 Check instrument and equipment performance against specifications prior to acceptance of item 5.4 Prepare operating instructions and make available to relevant

	personnel
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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, 3.3, 4.3, 5.2, 5.3	Recognises and interprets information from relevant sources to determine technical specifications and regulatory and legislative requirements
Writing	1.5, 2.4, 2.5, 4.2, 4.5, 5.1, 5.4	Uses clear, specific and industry related terminology to complete and update workplace documentation and in written communications with relevant internal and external personnel
Oral Communication	1.5, 4.2, 4.4, 5.1	- Uses specific and relevant language and appropriate tone to clearly articulate technical, operational and legal information to internal and external personnel - Uses listening techniques to determine the understanding of others
Numeracy	3.2, 3.3, 5.3	Analyses numerical information when undertaking test measurements, interpreting results, calibrating equipment and evaluating performance
Navigate the world of work	1.1, 1.6, 2.1, 2.3, 4.5	- Takes personal responsibility for adherence to legal and regulatory requirements, with specific reference to the safety of self, other personnel and the plant - Understands the nature and purpose of own role and associated responsibilities
Get the work done	1.1, 1.2, 1.4, 2.2, 2.4, 3.1, 4.1-4.3, 5.2	- Determines job priorities, sequences the steps involved in clearly defined and familiar tasks, and identifies and assembles the instruments, equipment and other resources required - Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking situational factors into account - Identifies and implements standard solutions for typical equipment and instrument faults - Reflects on outcomes and identifies what worked

		and where things could be done differently in the future
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Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTRFN305 Operate and maintain radio communications technical instruments and field equipment	ICTRFN3175A Operate and maintain radio communications technical instruments and field equipment	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 ICTRFN305 Operate and maintain radio communications technical instruments and field equipment

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Performance Evidence

Evidence of the ability to:

- obtain read and interpret radio communications instrument operating documentation
- prepare, operate and maintain radio communications instruments and field equipment appropriate to a radio communications environment
- comply with site risk control, work health and safety (WHS), environmental, quality and communication requirements.

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:

- summarise the features and operating requirements of calibrated equipment and test equipment including:
 - digital radio communications measuring equipment
 - radio frequency (RF) termination
 - spectrum analyser
 - power meter
 - modulation analyser
- outline features of instrument and equipment test methods and performance requirements
- explain legislation, codes of practice and other formal agreements that directly impact on operation and testing of radio communications instruments and equipment
- outline manufacturer's requirements for operation and testing of radio communications equipment and calibrated equipment
- summarise measurements according to test specifications
- list radio communications instruments and equipment

- list and describe the common WHS requirements that impact on the use and testing of radio communications instruments and equipment
- discuss typical issues and challenges that occur with radio communications instruments and field equipment.

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 on which instruments and field equipment can be operated
- field measurement equipment currently used in industry
- relevant instrument and equipment manuals and other procedural documentation.

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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