



Australian Government

Department of Education, Employment and Workplace Relations

ICTCMP5176A Undertake radio communications site audit

Release: 1

ICTCMP5176A Undertake radio communications site audit

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to undertake a radio communications site audit regarding the compliance of radio frequency (RF) transmissions with relevant transmitter licence requirements. Individuals must comply with radio communications transmitter licensing requirements and operator certificates for maritime and aeronautical services and occupational health and safety (OHS) electromagnetic radiation (EMR) licensing requirements as appropriate.
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Application of the Unit

Application of the unit	Field officers from regulatory authorities or other private and public organisations apply the skills and knowledge in this unit. They combine technical radio communications skills with broader organisational and administrative skills to conduct audits in a range of commercial and community contexts and environments. They make recommendations for improvement and follow up by monitoring resulting actions. Field officers may be responsible for small projects or parts of larger projects, and for the coordination and direction of small groups working on sites remote from the organisational headquarters.
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Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for radio communications site audit	1.1. Confirm need for site audit through appropriate triggers and arrange formal approval for site access from authorised personnel 1.2. Clarify audit requirements according to relevant legislation, codes, regulations and standards including safety and security arrangements and action required to comply 1.3. Clarify audit requirements with client or project originator, where appropriate, and incorporate broader audit considerations 1.4. Prepare a hardcopy of site information for use as an audit validation list at site 1.5. Specify staff, equipment and material resource requirements for the audit based on particular site requirements ensuring equipment has been correctly calibrated and labelled 1.6. Check industry requirements for site and obtain industry licence where appropriate
2. Undertake radio communications site audit	2.1. Validate specific site location according to database information 2.2. Undertake audit tasks according to OHS, enterprise procedures and site specific safety requirements, and meet client or representative on site as required 2.3. Conduct transmission and RF tests against approved specifications 2.4. Conduct check of transmitters for licensing conditions 2.5. Check transmission radio frequency against database list and obtain permission to check or alter transmission or radio frequency where appropriate 2.6. Confirm site meets specific RF OHS safety requirements and licensing requirements where appropriate 2.7. Confirm defined site equipment labelling comply with Australian Communications and Media Authority (ACMA) technical standards
3. Complete audit administration tasks	3.1. Update or arrange for update of required records regarding audit findings and action required, including liaison with authorised personnel as agreed 3.2. Monitor actions that have been recommended to

ELEMENT	PERFORMANCE CRITERIA
	ensure compliance with findings 3.3. Issue enforcement actions as required 3.4. Finalise audit administration and return equipment and resources according to organisational procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and legal site audit matters
- literacy skills to interpret technical documentation and write audit reports in required formats
- numeracy skills to take RF measurements, interpret results and evaluate different types of technical data
- planning and organisational skills to plan, prioritise and monitor own work and coordinate the audit process in liaison with others
- problem solving and contingency management skills to adapt testing procedures to requirements of particular sites and modify activities depending on differing operational contingencies, risk situations and environments
- research skills to interrogate databases and investigate different audit requirements
- task management skills to work systematically with required attention to detail and adherence to all safety requirements
- technical skills to select and use appropriate test equipment and practices to suit different RF applications

Required knowledge

- features and operating requirements of test equipment, including:
 - digital radio communications measuring equipment
 - modulation analyser
 - power meter
 - RF termination
 - spectrum analyser
- features of licensing database
- information required to prepare and conduct a telecommunications audit
- legislation, licensing requirements for transmitters, codes of practice and other

REQUIRED SKILLS AND KNOWLEDGE

- formal agreements that directly impact on radio communications site audits
- overview of transmission lines, transmitter and receiver architecture and their impact on radio communications audit
- required field measurements including:
 - carrier frequency
 - harmonics
 - intermodulation distortion (IMD) products
 - modulation
 - RF power
- specific issues related to antenna installations and their impact on radio communications interference
- specific OHS requirements that impact on the conduct of radio communications audits, including:
 - use of equipment
 - use of RF protective equipment
 - other personal protective equipment
- types of adjustments that need to be made to audit procedures to meet the requirements of particular sites and environmental conditions
- typical issues and challenges that occur in telecommunications site audit and how these may be addressed

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence of the ability to:

- conduct radio communications site audit for at least three sites with differing licensing requirements
- conduct transmission and RF tests
- monitor non compliances to ensure actions completed.

Context of and specific resources for assessment

Assessment must ensure:

- sites on which audits may be conducted
- use of field measurement equipment currently used in industry
- relevant databases, licensing requirements and other site related documentation.

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- direct observation of the candidate undertaking an audit
- review of audit reports completed by the candidate for differing site types and licence requirements
- oral or written questioning to assess knowledge of licensing requirement and specific technical procedures.

Guidance information for assessment

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- ICTRFN3175A Operate and maintain radio communications technical instruments and field equipment
- ICTRFN4095A Conduct radio frequency measurements
- ICTRFN4174A Undertake radio communications signals monitoring.

EVIDENCE GUIDE

	Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.
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Range Statement**RANGE STATEMENT**

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Triggers may relate to:

- business plan targets
- codes of practice and standards for other services and utilities:
 - electricity
 - gas
 - water
- decisions to target certain clients
- decisions to target certain sites:

RANGE STATEMENT	
	• communal • power level • EMR based on site power • geographical considerations • industry status (targeting of a dynamic industry) • interference complaints • investigation may be power measurement to ensure correct power • legislative requirements • licence conditions regarding the operating frequency of transmitters • occupancy transmitter still operating • power company requirements • radcom data purification • statutory authority requirements ACMA.
Authorised personnel may include:	• customers • major users • site managers • site owners.
Legislation, codes, regulations and standards may include:	• Australian Communications Industry Forum (ACIF) standards and codes • ACMA technical standards • ARPANSA EMR standard • assignment guidelines • Australian building codes and regulations • Australian standards • enterprise standards • environmental protection • equipment standards • fire regulations • heritage legislation • international standards • intrinsically safe lightning protection, • local government • OHS • Privacy Act • Radcoms Act • site engineering standard • spectrum planning reports

RANGE STATEMENT	
	• Telecoms Act • Trade Practices Act • WIs, CIs, business operating procedures (BOPs), radiocommunications assignment and licensing instruction (RALI).
Broader audit considerations may relate to:	• commercial • cultural: • liaising with traditional land owners • environmental: • accessing protected areas • broken ground • location involving working over old underground workings and voids • on natural landscapes • wet conditions • working at heights or on rooftops.
Site information may include:	• address of physical location • frequency output • power of transmitters • site coordinates • technical details of site • user bandwidth.
Equipment may include:	• deviation meter • power meter • spectrum analyser.
Industry licence may include:	• industry training for particular sites • basic OHS induction training.
Transmission and RF tests may include:	• assessment of EMR levels • power measurement • RF technical measurements.
RF OHS safety requirements may relate to:	• EMR levels • RF measurements • visual checks of towers.
Records may include:	• completion of enterprise manual lists • computer-based documentation • electronic communication.

Unit Sector(s)

Unit sector	Telecommunications
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Co-requisite units

Co-requisite units		

Competency field

Competency field	Compliance
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