



Australian Government

ICTRFN503 Evaluate and analyse radio frequency signal coverage plots

Release: 1

ICTRFN503 Evaluate and analyse radio frequency signal coverage plots

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 combine technical radio communications skills with organisational and administrative skills to generate and evaluate coverage maps in a range of commercial and community contexts for radio and television broadcasting, radio base station coverage, and point-to-point links.

It applies to individuals who are technically proficient and who work for regulatory authorities and private and public organisations. They may be responsible for small projects or parts of larger projects, and for the coordination and direction of small technical groups.

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 and prepare for coverage prediction	1.1 Prepare for given work according to relevant legislation, work health and safety (WHS), codes, regulations and standards 1.2 Arrange access to site according to required procedure 1.3 Establish type of coverage required 1.4 Determine specifications and minimum acceptable signal level or

	timing signal delay within coverage area 1.5 Use prediction software specific to enterprise 1.6 Verify mapping coordinate system to be used 1.7 Create custom antenna pattern files representative of expected antenna type for type of coverage required
2. Load data into software program and create coverage plot	2.1 Select and load system parameters 2.2 Select and load antenna elements or antenna pattern files 2.3 Select suitable propagation model settings applicable to study 2.4 Load appropriate clutter properties 2.5 Create coverage plot using appropriate plot options settings
3. Analyse coverage plot outcomes	3.1 Evaluate initial coverage plot against initial specifications 3.2 Adjust system parameters and antenna elements until coverage plot is within specifications 3.3 Compare measured signal strength at various locations with predicted values 3.4 Use measured data to correct and fine tune model 3.5 Evaluate range of possible solutions and make appropriate recommendations to ensure transmission meets operational requirements
4. Complete documentation	4.1 Tabulate results 4.2 Prepare report with final recommendations

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	1.4	Recognises and interprets regulatory and technical information from relevant sources to determine all specifications and frameworks
Writing	3.5, 4.1, 4.2	Uses clear, specific and industry related terminology to complete and update workplace documentation and when presenting recommendations to relevant personnel

Oral Communication	1.2, 1.6, 3.5	• Liaises with internal and external personnel about technical, operational and commercial matters using specific and relevant language • Uses listening and questioning techniques to confirm understanding
Numeracy	1.4, 3.3, 3.4	• Evaluates and interprets technical data to convert measurements and comprehend results
Navigate the world of work	1.1	• Takes personal responsibility for adherence to legal and regulatory requirements with specific reference to safety
Get the work done	1.2, 1.3, 1.5-1.7, 2.1-2.5, 3.1, 3.2, 3.5	• Determines job priorities and works logically and systematically to undertake clearly defined and familiar tasks • Understands the ways in which digital systems and tools are used and recognises all operational applications • 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 faults in different situations, adapts procedures and modifies activities depending on operational contingencies, risk situations and environments • Implements actions according to a predetermined plan, making slight adjustments if necessary and addressing some unexpected issues

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTRFN503 Evaluate and analyse radio frequency signal coverage plots	ICTRFN5179A Evaluate and analyse radio frequency signal coverage plots	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 ICTRFN503 Evaluate and analyse radio frequency signal coverage plots

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Performance Evidence

Evidence of the ability to:

- plan and coordinate activities to produce coverage plots using appropriate software settings
- generate:
 - a radio frequency (RF) signal coverage plot
 - a path profile for a point-to-point link
- evaluate, analyse and make recommendations on antenna installation specifications.

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:

- explain antenna and propagation theory
- explain antenna array theory
- summarise various mapping coordinate systems and their datums
- outline propagation models and their limitations in various environments
- outline specific issues related to antenna installations and the creation of particular radiation patterns.

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:

- a computer facility on which coverage plots and paths may be generated
- propagation prediction software
- a digital terrain database.

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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