



Australian Government

ICTRFN506 Evaluate radio frequency signal coverage plots

Release: 1

ICTRFN506 Evaluate radio frequency signal coverage plots

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 combine technical radio communications, organisational and administrative skills to generate and evaluate coverage maps in 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 are typically responsible for small projects or parts of larger projects, and for the coordination 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

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. Prepare for evaluation of coverage plots	1.1 Arrange access to site according to required procedures, required legislation, work health and safety (WHS), codes, regulations and standards 1.2 Establish type of coverage plots needed by relevant personnel 1.3 Determine specifications and minimum acceptable signal levels and timing signal delays within coverage area 1.4 Use software to predict coverage plot dimensions 1.5 Verify mapping coordinate system to be used 1.6 Create custom antenna pattern files representative of expected antenna type for type of coverage required

ELEMENT	PERFORMANCE CRITERIA
2. Load data into software program and create coverage plot	2.1 Select and load system parameters 2.2 Select and load antenna elements and antenna pattern files 2.3 Select required propagation model settings 2.4 Load required clutter properties 2.5 Generate coverage plot using required plot options settings
3. Analyse coverage plot outcomes	3.1 Evaluate coverage plot against initial specifications 3.2 Adjust system parameters and antenna elements until coverage plot is within required specifications 3.3 Compare measured signal strength at required locations with predicted values 3.4 Use measured data to improve model 3.5 Make recommendations and ensure transmission meets operational requirements
4. Complete documentation	4.1 Tabulate results according to organisational requirements 4.2 Prepare report with final recommendations

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	Evaluates and interprets technical data, converts measurements and comprehends results
Oral communication	- Liaises with internal and external personnel about technical, operational and commercial matters using specific and required language - Uses listening and questioning techniques and confirms knowledge
Reading	Recognises and interprets regulatory and technical information from required sources and determines all specifications and frameworks
Writing	Uses clear, specific and industry-related terminology to complete and update workplace documentation
Planning and organising	- Determines job priorities and works systematically to complete clearly defined and familiar tasks - Implements actions according to a predetermined plan, making necessary adjustments and addressing key issues

SKILL	DESCRIPTION
Problem solving	• Diagnoses faults in specific situations, adapts procedures and modifies activities depending on operational contingencies, risk situations and environments
Self-management	• Takes responsibility for adherence to procedures relevant to legal and regulatory requirements with specific reference to safety • Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking situational factors into account
Technology	• Determines ways in which digital systems and tools are used and recognises all required operational applications

Unit Mapping Information

Supersedes and is equivalent to ICTRFN503 Evaluate and analyse radio frequency signal coverage plots.

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 ICTRFN506 Evaluate radio frequency signal coverage plots

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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:

- evaluate at least three radio frequency signal coverage plots.

In the course of the above, the candidate must:

- plan and coordinate at least three activities to produce coverage plots using required software settings
- determine a path profile for a point-to-point link
- evaluate and make recommendations on antenna installation 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 procedures regarding:
 - accessing third-party sites
 - security arrangements
 - workplace reports and documentation
- antenna and propagation theory
- antenna array theory
- features of mapping coordinate systems and geocentric datums
- propagation models and their limitations in specific environments
- common issues across antenna installations and the creation of radiation patterns
- required legislation, codes, company work practices, regulations and standards, work health and safety (WHS) 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:

- a computer facility on which coverage plots and paths are 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

Companion Volume Implementation Guide is found on VETNet -

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