



Australian Government

ICTRFN603 Monitor the capacity of and recommend changes to cellular mobile networks

Release: 1

ICTRFN603 Monitor the capacity of and recommend changes to cellular mobile networks

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 evaluate, analyse and make recommendations at the system design level on antenna installation specifications.

It applies to individuals working as technical officers and network engineers who undertake mobile network performance measurements and report on mobile capacity enhancement to senior management.

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. Plan to monitor capacity of cellular mobile networks	1.1 Obtain required equipment to monitor capacity of cellular mobile networks from relevant personnel 1.2 Measure traffic levels from network management system 1.3 Obtain approved enterprise plans and identify planned network growth 1.4 Obtain client forecast data from relevant personnel 1.5 Apply identified data against capacity trigger criteria 1.6 Determine coverage and cell parameters of cellular mobile network
2. Make recommendations	2.1 Identify requirements for additional capacity

ELEMENT	PERFORMANCE CRITERIA
relating to capacity changes	2.2 Recommend changes to frequency parameters and submit to relevant personnel 2.3 Assess capacity of transmission path, switch resources and recommend improvements, noting transmission medium 2.4 Manipulate traffic through switch parameter settings and relieve traffic congestion 2.5 Determine cost of proposed changes and calculate return on investment (ROI)
3. Assess monitor capacity changes of cellular mobile networks	3.1 Organise tests and studies and ensure that increased capacity adequately caters for traffic flow 3.2 Make recommendations for further change to network if increased capacity does not meet required needs

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	- Conducts mathematical calculations to project costs and calculate returns on investments - Uses advanced mathematics methods and manipulates complex numerical data
Oral communication	- Liaises with internal and external personnel about technical and operational matters using required language and listening - Uses questioning techniques
Reading	Recognises and interprets technical information from required sources and determines all specifications and frameworks
Writing	Uses clear, specific and industry related terminology when updating workplace documentation and when presenting recommendations
Planning and organising	- Determines job priorities and works according to defined tasks - Takes responsibility for decision-making in routine situations by identifying and taking some situational factors into account - Implements actions according to a predetermined plan, making adjustments if necessary and addressing unexpected issues
Problem solving	Diagnoses faults in different situations, adapts procedures and modifies activities depending on operational contingencies, risk situations and environments

SKILL	DESCRIPTION
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 ICTRFN601 Monitor the capacity of and recommend changes to the cellular mobile network.

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 ICTRFN603 Monitor the capacity of and recommend changes to cellular mobile networks

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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:

- monitor the capacity of at least two cellular mobile networks and recommend at least two changes.

In the course of the above, the candidate must:

- source and analyse data to prepare a plan indicating growth potential and recommendations for meeting growth goals
- use tools and software packages for forecasting and measurement
- identify site and channel capacity, required network growth and forecasting growth
- adhere to legislative and organisational procedures and requirements.

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:

- characteristics of traffic levels from network management systems
- features of enterprise plans
- functions and features of capacity trigger criteria
- coverage and cell parameters of cellular mobile networks
- types and features of transmission mediums and paths
- methods to calculate return on investment (ROI)
- blocking, non-blocking and grade of service
- features of Erlang B measurements
- features and operating requirements of required monitoring equipment
- methods to measure cell traffic capacity
- methods to:
 - analyse and interpret statistical data as applied to teletraffic measurement

- prepare and conduct a capacity measurement
- required legislation, codes of practice and other formal agreements that directly impact radio communications site transmission
- functions and features of:
 - transmission lines
 - transmitter and receiver architecture and their impact on radio communications traffic
- switching architecture with specific reference to space and time switching
- types of adjustments required to meet the standards of particular sites and environmental conditions
- typical challenges that occur in telecommunications cellular capacity design and how they are addressed.

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:

- sites with cellular mobile network
- capacity monitoring data and equipment.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

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