



Australian Government

ICTRFN201 Install a satellite antenna

Release: 1

ICTRFN201 Install a satellite antenna

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 assemble, connect, align and test equipment according to plans, specifications and site specific requirements.

It applies to individuals who work on single and multiple dwellings, commercial buildings, telecommunications structures and at ground level to enable signals from geostationary communications satellites. Installations might be new or existing, stand alone or be a part of a site with multiple antennas.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

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 work on satellite antenna	1.1 Prepare for installation, applying all relevant legislation, codes, regulations and standards, and identify any safety issues 1.2 Organise resources to be available on site 1.3 Contact client to arrange access to site and notify about possible outage 1.4 Organise tools and equipment and ensure they are in safe working

	order and adjusted to manufacturer's specifications 1.5 Obtain details of satellite to be acquired and precise details of satellite antenna location 1.6 Determine azimuth and elevation for satellite receiving antenna 1.7 Determine polarisation angle of satellite receiving antenna feedhorn 1.8 Determine suitable position to mount antenna with agreement from client
2. Assemble and mount satellite antenna and cables	2.1 Assemble satellite antenna on site according to plans, specifications and enterprise guidelines using safe industry practices 2.2 Connect coaxial cable to antenna and install lightning protection devices 2.3 Mount satellite antenna on to installed mounting arrangements and set initial antenna azimuth, elevation and polarisation
3. Test and align antenna system	3.1 Connect installed antenna system to satellite receiver or test equipment and make final adjustments to azimuth, elevation and polarisation to optimise signal level and quality 3.2 Conduct performance tests according to manufacturer's specifications and enterprise guidelines 3.3 Interpret test results, compare with manufacturer's design specifications and make adjustments
4. Complete administrative duties	4.1 Record test results and complete appropriate records 4.2 Secure and clean up site to original condition in environmentally safe manner 4.3 Notify client of work completion and obtain sign off

Foundation Skills

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, 2.1, 3.2, 3.3	Recognises and interprets textual information from relevant sources to determine specifications, enterprise guidelines and plans

Writing	1.3, 1.8, 4.1, 4.3	Uses clear, specific and industry related terminology to complete and update workplace documentation and in written communications with clients
Oral Communication	1.3, 1.8, 4.3	- Uses specific and relevant language to clearly articulate operational and site matters - Uses questioning and listening techniques to determine the views and opinions of others
Numeracy	1.6, 1.7	Analyses numerical information to measure angles, evaluate technical data, interpret results and take measurements
Navigate the world of work	1.1, 1.4, 2.1, 4.2	- Takes personal responsibility for adherence to legal and regulatory requirements, with specific reference to safe industry practices - Understands the main tasks, responsibilities and boundaries of own work
Get the work done	1.2, 1.4, 1.5, 1.8, 2.1-2.3, 3.1-3.3	- Determines job priorities, sequences the steps involved in clearly defined and familiar tasks, and identifies and assembles the resources and access 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 routine problems

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTRFN201 Install a satellite antenna	ICTRFN2163B Install a satellite antenna	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 ICTRFN201 Install a satellite antenna

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Performance Evidence

Evidence of the ability to:

- prepare the site and obtain resources in preparation for installation
- determine satellite type and orientation
- assemble, install, align and test a satellite antenna according to plans and specifications, and site specific safety requirements
- conduct performance tests according to manufacturer's specifications and enterprise guidelines.

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:

- outline the following features of a satellite antenna:
 - directivity
 - operation of parabolic reflector and feedhorn
 - optimum placement
 - pattern
 - polarisation
- discuss bit error ratio (BER)
- summarise coaxial cable types and properties
- discuss electromagnetic waves with reference to:
 - absorption by trees and buildings
 - effect of weather on absorption
 - awareness of exposure to electromagnetic radiation (EMR)
- outline legislation, codes of practice and other formal agreements that directly impact on antenna installation

- explain modulation:
 - bandwidth
 - individual spectrum shape of digital satellite television signals
- discuss modulation error ratio (MER)
- outline radio frequency (RF) spectrum terminology related to bands used for satellite broadcasting (C, S, L, Ku, Ka bands)
- outline satellite antenna product knowledge
- summarise signal level expressed in dBuV units
- explain specific work health and safety (WHS) requirements that impact on the installation of satellite antenna 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:

- a suitable site for satellite antenna installation
- a range of antennas and cables currently used in industry
- a range of general tools and test equipment required for satellite antenna installation and testing.

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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