Australian Government

Department of Education, Employment and Workplace Relations

ICTTEN3077A Commission an electronic unit

Release: 1

INDUSTRY
SKILLS
COUNCILS
Creating Australia's Future

ICTTEN3077A Commission an electronic unit

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to commission an electronic unit within a telecommunications environment with applications. Applications include voice over IP (VoIP), radio frequency identification (RFID), security networks, telephony, data, video and multimedia.
	The commissioning may be for a new installation or upgrade of capacity or technology for existing network or subsystem for convergence to Next Generation Networks (NGN).
	No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

Application of the unit	Field officers and technicians from telecommunications carriers, other service providers and contractors apply the skills and knowledge in this unit.
	It involves commissioning an electronic unit at customer's premises or within a carrier network.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	Nil	

Employability Skills Information

Employability skills	This unit contains employability skills.

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.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to commission an electronic unit	1.1. Prepare for work following occupational health and safety (**OHS**) **requirements**
	1.2. Organise resources based on existing and potential site **hazards**
	1.3. Notify customer or **network operations personnel** for site access and network specifications
	1.4. Determine the type and complexity of the **electronic unit** from specifications
	1.5. Verify that the installed electronic unit and associated cabling conform to specifications
	1.6. Establish commissioning dates and confirm with all parties
	1.7. Determine commissioning parameters according to specification and establish **planned outage** if required
	1.8. Obtain **test equipment** and check suitability and calibration status
	1.9. Produce a preliminary commissioning plan according to manufacturer's instructions and enterprise guidelines for discussion with the customer
	1.10. Inform affected customers of impending action and likely timing and impact by the work
2. Organise planned outages	2.1. Negotiate outage times with appropriate groups and **affected customers** to minimise disruptions
	2.2. Refer to **contingency plans** and arrange for emergency communications if required
	2.3. Notify alarm management centre of planned action
	2.4. Obtain authority to proceed from the relevant control centre and notify customers affected by the outage
3. Perform commissioning procedures	3.1. Program equipment or install software according to manufacturer's specifications
	3.2. Set electronic unit parameters according to manufacturer's specifications and customer requirements
	3.3. Set up test equipment and conduct tests according to manufacturer's specifications and industry practice
	3.4. Connect and test network access facilities for correct performance

ELEMENT	PERFORMANCE CRITERIA
	3.5. Conduct the cut over according to project design and industry practice in consultation with *appropriate person*
	3.6. Check that remote alarm and monitoring features are functional, if applicable
4. Finalise commissioning documentation	4.1. Update relevant databases according to enterprise and network guidelines
	4.2. Notify appropriate person of commissioning results and work completion
	4.3. Complete *administrative tasks* according to industry practice and enterprise guidelines

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to interpret test equipment settings and readings
- communication skills to liaise with customers and technical staff to ensure requirements are known and can be met within timeframes
- literacy skills to interpret technical specifications and related documentation
- numeracy skills to make calculations
- planning and organisational skills to arrange site access and organise equipment
- problem solving to account for unexpected faults or equipment configuration anomalies
- safety awareness skills to:
    - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
    - select and use required personal protective equipment conforming to industry and OHS standards
    - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to:
    - correctly test and carry out commissioning procedures
    - install supporting structures
    - terminate cables
    - use hand tools for removing and securing equipment covers

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REQUIRED SKILLS AND KNOWLEDGE

Required knowledge

- electrical and or optical properties to be measured
- extensive range of networking equipment
- legislation and licensing surrounding installation of telecommunications equipment
- network operation procedures
- power requirements and electrical safety
- test equipment types
- transmission type and signals that may be encountered

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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: • commission electronic unit according to specifications • interact with enterprise personnel, customers and other contractors keeping a customer focus and consideration of customer needs • negotiate the arrangements for the commissioning • deal with faults and problems and provide solutions.
Context of and specific resources for assessment	Assessment must ensure: • sites on which installation and commissioning procedures can be conducted • relevant regulatory and equipment documentation that impact on commissioning • use of testing equipment currently used in industry.
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 applying enterprise escalation and outage procedures within service assurance guidelines • review of reports completed by the candidate outlining test plan and test results complete with analysis of faults with solutions • oral or written questioning to assess knowledge of commissioning procedures and types of systems.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example • ICTTEN3104A Maintain an electronic system • ICTTEN3054A Provide infrastructure for telecommunications network equipment • ICTTEN3089A Repair and replace telecommunications network hardware

EVIDENCE GUIDE

	• ICTCBL2068A Install telecommunications service to a building • ICTCBL3049A Install systems and equipment on customer premises.
	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.

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.

OHS requirements may include:	• decommissioning and isolating worksite and lines prior to commencement • identifying other services:

RANGE STATEMENT

	- gas - power - personal protective clothing: - earmuffs - gloves: - leather - plastic - rubber - head protection - kneepads - masks - protective suits - safety boots - safety glasses for laser work - safe working practices, such as the safe use and handling of: - asbestos - chemicals - materials - tools and equipment - work platforms - safety equipment: - flashing lights - gas and other hazard detection equipment - safety barriers - trench guards - warning signs and tapes - witches hats - special access requirements - suitable light and ventilation.
Hazards may include:	- earth potential rise (EPR): - optical fibre cable: - bare fibres - hazardous laser light - radio frequency (RF) equipment emitting radiation - remote power feeding services which operate at above telecommunications network voltage (TNV).

RANGE STATEMENT	
Network operations personnel may include:	• alarm operations • network operations centre staff • network operations manager • project manager.
Electronic unit may relate to:	• biometrics • internet protocol TV (IPTV) • multiplexing • RFID • surveillance • VoIP.

Planned outage may refer to:	• allocation of additional services and support
	• notification to affected customers
	• plan for:
	    • redundant path
	    • standby equipment.

Test equipment may include:	• bit error rate (BER) testers • communication system analysers • digital analysers • laser sources • magnetic error reduction (MER) meters • microwave link analysers • modulation analysers • multimeters • optical attenuators • optical fibre power meters • oscillators • oscilloscopes • optical time domain reflectometer (OTDR) • pattern generators • power meters • RF microwave test sets • RF sweep testers • signal level meters (SLM) • spectrum analysers • transmission measuring sets • voltage standing wave ratio (VSWR) meters.
Affected customers may include:	• building owner • communications consultant • contractor to a major supplier

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RANGE STATEMENT

	• end users • equipment owner • householder • operations staff.

Contingency plans may include:	• additional notification to affected customers
	• additional technical support
	• provision of:
	    • additional services
	    • redundant path
	    • standby equipment.

Appropriate person may include:	• customer • design engineer • network operations manager • project manager • supervisor.
Administrative tasks may refer to:	• checking correct labelling of all equipment and amending where required • completing job orders and submitting to appropriate enterprise organisational unit • completing test sheets according to specification and logging test instrument usage • following quality control procedures • handing over installation briefs, documents and equipment manuals to operational staff • providing customers with a telecommunications cabling advice (TCA) form, such as TCA1 or equivalent form • recording test results and updating appropriate data bases • updating design specifications and returning to design area as required by enterprise requirements.

Unit Sector(s)

Unit sector	Telecommunications

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Co-requisite units

Co-requisite units		

Competency field

Competency field	Telecommunications networks engineering