



Australian Government

ICTCBL2005B Install customer cable support systems

Release 1

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Modification History

Release	Comments
Release 2	This version first released with <i>ICT10 Integrated Telecommunications Training Package Version 3.0</i>. References to other units updated. Outcomes deemed equivalent.
Release 1	This version first released with <i>ICT10 Integrated Telecommunications Training Package Version 1.0</i>.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to install support systems for cable infrastructure. It involves planning cable routes and selecting and installing a support structure.

The activity may be for a new cable installation, upgrade of cable capacity for an existing network or subsystem, or cabling infrastructure for convergence to Next Generation Networks (NGN).

Assessment by a TITAB registered assessor is recommended.

The six unit competency set ICTCBL2005B, ICTCBL2006B, ICTCBL2008B, ICTCBL2012B, ICTCBL2017B and ICTCMP2022B, that meets the Australian Communications and Media Authority's (ACMA) requirements for Cabling Provider Registration (CPR), is generally used as part of a more specialised customer cabling qualification. This set is usually regarded as more suitable for new entrants where limited industry experience has been obtained and forms the major part of specialised qualifications, such as ICT203103 Certificate II in Telecommunications Cabling. When these six units are undertaken as a set within state and territory funding approved programs, the two benchmark CPR units (ICTCBL2136B and ICTCBL2137B) are not required.

All customer cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an ACMA-accredited registrar.

Application of the Unit

Technical staff who install and provide cabling infrastructure for customer premises and equipment apply the skills and knowledge in this unit.

They may be required to do new installations, upgrades or maintain existing networks in domestic, commercial and industrial installations. Communications applications include digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN) and multimedia.

This unit applies to indoor and outdoor cable and systems within customer premises.

Licensing/Regulatory Information

Refer to unit descriptor.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>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.</i>

Elements and Performance Criteria

1. Prepare cable support installation	1.1 Arrange access to the site according to required procedure and comply with site security arrangements and relevant legislation, codes, regulations and standards 1.2 Confirm site capacities for storage and location of cable feeders or establish alternative methods 1.3 Determine customer specifications, manufacturer's and enterprise requirements for cable support 1.4 Notify appropriate personnel of identified safety hazards at the cabling worksite 1.5 Plan cable route identifying and avoiding other services and remote power feeding services operating at above telecommunications network voltage (TNV) on site in commercial buildings 1.6 Select tools and materials for installation of support system from work specifications and schedules
2. Determine cable routes	2.1 Review relevant plans and verify cable locations 2.2 Select cable routes appropriate to the location of building services providing access to all outlets and enabling cable to be supported to the outlet point 2.3 Plan safe and efficient installation by accurate identification of structural building requirements and identified site constraints 2.4 Identify cable and services segregation clearances to ensure cable route complies with manufacturers, enterprise, legislative and industry codes of practice
3. Determine support method	3.1 Select an appropriate support system for the planned cable route and identified site constraints 3.2 Prepare the support system for capability to meet the planned concentration of cable in any location to facilitate ready access for maintenance and to allow for future expansion
4. Mark out and install fixings and support structure	4.1 Mark out and install fixings and structures securely in a safe manner to manufacturer's specifications ensuring cable weight can be supported in all operating conditions 4.2 Align support structure correctly to enable cable to be installed evenly, in order and without damage 4.3 Install protective earthing to industry standards 4.4 Conduct work with minimal disruption to ongoing customer activity

5. Complete support installation	5.1 Check and adjust installed supports to ensure cable will not be exposed to damage during installation and operation 5.2 Remove installation waste and debris from worksite and dispose of according to environmental requirements to maintain safe worksite conditions 5.3 Complete <i>documentation</i>
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Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical and operational matters
- literacy skills to interpret technical documentation, equipment manuals and specifications
- numeracy skills to take and analyse measurements
- planning and organisational skills to:
 - arrange site access
 - interpret and apply relevant regulations and standards
 - organise and maintain equipment
- problem solving skills to solve equipment and logistics problems
- 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 occupational health and safety (OHS) standards
 - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment

technical skills to:

- read and interpret drawings related to:
 - cable coding system
 - cable layouts
 - frame locations
 - identifiers
 - outlet locations
- use correct methods of running and fastening cables in commercial buildings
- use hand and power tools.
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Required knowledge

- building construction of commercial buildings
- cable and services segregation clearances to ensure cable route complies with manufacturer's, enterprise, legislative and industry codes of practice
- features and operating requirements of equipment
- information required to operate appropriate equipment according to specifications
- installation methods and performance requirements
- legislation, codes of practice and other formal agreements that impact on the work activity
- manufacturer's requirements for safe operation of equipment
- specific OHS requirements relating to the activity and site conditions
- typical issues and challenges that occur on site.

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: - plan a cable route and cable support system - interpret related floor plans, building plans, reflected ceiling plans and schematic drawings - install three different support structures: - catenary wire - ducts and or trays - frame back-mounts - complete support installation applying relevant regulations and standards - comply with all related OHS requirements and work practices.
Context of, and specific resources for assessment	Assessment must ensure: - sites where customer cable support systems may be installed - use of equipment currently used in industry - relevant regulatory and equipment documentation that impact on cable installation activities.
Methods of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: - review of a hands-on project completed by the candidate - review of an oral and written report with completed documentation - direct observation of the candidate installing a cable support system.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: ICTCBL3009B Install, terminate and certify structured

	cabling installation. 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.
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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.

Site security arrangements may include:	• access times and methods • approval to enter site • approved entry requirements • electronic surveillance • security clearance.
Relevant legislation, codes, regulations and standards may include:	• Australian Communications Industry Forum (ACIF) standards and codes • ACMA technical standards • AS Communications Cabling Manual (CCM) Volume 1 • AS/NZS 3000:2007 • AS/NZS 3080:2003 • AS/NZS 3084:2003 • AS/NZS 3085.1:2004 • AS/NZS IEC 61935.1:2006 • AS/NZS IEC 61935.2:2006 • AS/NZS ISO/IEC 14763.3:2007 • AS/NZS ISO/IEC 15018:2005 • AS/NZS ISO/IEC 24702:2007 • Australian building codes and regulations • cabling security codes and regulations • confined spaces regulations • Environmental Protection Acts • fire regulations • mining legislation • noise abatement and heritage legislation • OHS • regulated or industry codes of practice • technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006.
Safety hazards may refer to:	• access points that may contain: • hazardous light (non-visible laser) • radio frequency (RF) emission • contact with remote power feed • electrical supply and areas of earth potential rise (EPR) that

	- require mandatory separation from communications cable - hazardous conduit as according to AS 1345:1995 conduit colours associated with a hazardous service.
Other services may include:	- availability and suitability of existing cabling trays and fixing systems - fire sprinkler systems - gas and water mains - high voltage (HV) power.
Tools may include:	- cutters - drills - explosive power tools - hammers - hand or power (electrical or air) tools - power leads.
Plans may include:	- building plans - floor plans - reflected ceiling plans - schematic drawings.
Cable routes may include:	- ducting systems - false or suspended ceilings - raised floors - subfloor ducting - wall cavities.
Cable may include:	- cable compliant with appropriate ACMA technical standard requirements - structured: - Category 5, 6, 6A, 7 or 7A - shielded twisted pairs (STP) or unshielded twisted pairs (UTP) - underground or aerial.
Support system may refer to:	- back-mount frames for distributors formally main distribution frame (MDF), intermediate distribution frame (IDF), final distribution point (FDP)) - cable trays: - cable ladder - galvanised steel - low or high sided - perforated - PVC - single or multiple channel - catenary wire

	• ducts: • closed • metal • open • PVC • single or multiple channel • line poles • systems: • between buildings or poles • exposed areas • in building risers designed for services installation • installed in ceilings • on external building walls • under floors • suspension.
Safe manner may include:	• safe use and handling of: • chemicals • materials • tools and equipment • work platforms • ladders • scaffold • scissor lifts or cherry pickers • use of protective clothing: • earmuffs • gloves • head protection • kneepads • masks • protective suits • safety boots • safety glasses.
Documentation may include:	• inventory of material used on project • record of installation procedures • update of cable plan and route.

Unit Sector(s)

Telecommunications - Cabling