

<b>ICTCMP2022A</b>	<b>Organise and monitor cabling to ensure compliance with regulatory and industry standards</b>
<b>Unit descriptor</b>	<p>This unit describes the performance outcomes, skills and knowledge required to organise and monitor teams undertaking cabling work on all cable types, and to ensure compliance with regulatory and industry standards.</p> <p>Assessment by a TITAB registered assessor is recommended.</p> <p>The six unit competency set ICTCBL2005A, ICTCBL2006A, ICTCBL2008A, ICTCBL2012A, ICTCBL2017A and ICTCMP2022A, 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 ICT20310 Certificate II in Telecommunications Cabling. When these six units are selected as a set within state and territory funding approved programs, the two benchmark CPR units (ICTCBL2136A and ICTCBL2137A) are not required.</p> <p>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.</p>
<b>Employability skills</b>	This unit contains employability skills.
<b>Prerequisite units</b>	
<b>Co-requisite units</b>	
<b>Application of the unit</b>	Technical staff apply the skills and knowledge in this unit for supervising teams within a customer premises and ensuring compliance with ACMA and industry standards. They may make use of formal documentation, such as accurate completion of a telecommunications cabling advice (TCA) form (TCA1 form), test routines and databases.
<b>Competency field</b>	Compliance
<b>Unit sector</b>	Telecommunications

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
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.
1. Organise cabling work activity	1.1. Arrange access to the site according to required procedure 1.2. Make worksite safe by identifying existing and potential <b>hazards</b> 1.3. Review <b>site plans and documentation</b> 1.4. Organise supply of <b>cable</b> , equipment, tools and materials in line with manufacturer's specifications 1.5. <b>Schedule and allocate work</b> 1.6. Establish communication protocols and processes

ELEMENT	PERFORMANCE CRITERIA
2. Monitor work activity	2.1. <b><i>Manage remote power feed</i></b> following occupational health and safety ( <b><i>OHS</i></b> ) and <b><i>environmental requirements</i></b> 2.2. Monitor work activity to ensure it meets site specifications, and <b><i>enterprise requirements</i></b> , and <b><i>relevant legislation, codes, regulations and standards</i></b> 2.3. Reallocate work as needed
3. Complete records and obtain sign off	3.1. Complete required records 3.2. Ensure installation waste and debris is removed from worksite and disposed of according to environmental requirements to maintain safe worksite conditions 3.3. Ensure site is reinstated according to customer and company requirements 3.4. Notify customer and obtain sign off

### 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, such as:
  - equipment manuals and specifications
  - ACMA Competency Requirements for Telecommunications Cabling Provider Rules 2000
- numeracy skills to take and analyse measurements
- planning and organisational skills to organise and maintain equipment
- problem solving skills to solve equipment and logistics problems
- task management skills to work systematically with required attention to detail and adherence to all safety requirements
- technical skills to:
  - perform fault clearance
  - use diagnostic equipment
  - use hand and power tools

#### Required knowledge

- ACMA Competency Requirements for Telecommunications Cabling Provider Rules 2000, legislation, codes of practice and other formal agreements that impact on the work activity
- basic telephony
- cable installations
- features and operating requirements of test equipment
- information required to operate equipment according to a test specification
- manufacturer's requirements for safe operation of equipment
- specific OHS requirements relating to the activity and site conditions
- test methods and performance requirements
- typical issues and challenges that occur on site

### 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.

***Hazards*** may include:

- building debris
- earth potential rise (EPR):
  - event at a site, such as an electrical distribution substation, may expose telecommunications

<b>RANGE STATEMENT</b>	
	<p>personnel, users or plant to hazardous voltages</p> <ul style="list-style-type: none"> <li>• glass fibre</li> <li>• live power lines</li> <li>• manual handling</li> <li>• mud and water</li> <li>• natural gas and other gas build up</li> <li>• needle stick injury</li> <li>• optical fibre cable may contain hazardous light</li> <li>• radio frequency (RF) equipment emitting radiation</li> <li>• remote power feeding services which operate at above telecommunications network voltage (TNV)</li> <li>• vermin.</li> </ul>
<b>Site plans and documentation</b> may include:	<ul style="list-style-type: none"> <li>• information on: <ul style="list-style-type: none"> <li>◦ access location</li> <li>◦ cable coding system and identifiers</li> <li>◦ cable plan.</li> </ul> </li> </ul>
<b>Cable</b> may include:	<ul style="list-style-type: none"> <li>• aerial</li> <li>• Category 5, 6, 6A, 7, or 7A</li> <li>• copper twisted pair including: <ul style="list-style-type: none"> <li>◦ aerial</li> <li>◦ external</li> <li>◦ indoor</li> <li>◦ underground cabling</li> </ul> </li> <li>• underground</li> <li>• unshielded twisted pairs (UTP).</li> </ul>
<b>Schedule and allocate work</b> may refer to:	<ul style="list-style-type: none"> <li>• competency and capacity to complete work determined from: <ul style="list-style-type: none"> <li>◦ observations</li> <li>◦ discussion</li> <li>◦ training records</li> <li>◦ demonstrations</li> </ul> </li> <li>• estimates for time duration of work based on: <ul style="list-style-type: none"> <li>◦ an assessment of condition</li> <li>◦ past experience with similar methods and sites.</li> </ul> </li> </ul>
<b>Manage Remote Power Feed</b> may relate to:	<ul style="list-style-type: none"> <li>• telecommunications services which operate at above TNV</li> <li>• need for identifying: <ul style="list-style-type: none"> <li>◦ risks posed by contact with remote power feeding services</li> <li>◦ remote power feeding services in a range of commonly encountered circumstances inside customer premises.</li> </ul> </li> </ul>
<b>OHS and environmental requirements</b> may relate to:	<ul style="list-style-type: none"> <li>• identifying other services, including power and gas</li> <li>• need for decommissioning and isolating worksite and lines prior to commencement</li> <li>• personal protective clothing: <ul style="list-style-type: none"> <li>◦ earmuffs</li> <li>◦ gloves: <ul style="list-style-type: none"> <li>- plastic</li> <li>- rubber</li> <li>- leather</li> </ul> </li> </ul> </li> </ul>

<b>RANGE STATEMENT</b>	
	<ul style="list-style-type: none"> <li>◦ head protection</li> <li>◦ kneepads</li> <li>◦ masks</li> <li>◦ protective suits</li> <li>◦ safety boots</li> <li>◦ safety glasses</li> <li>◦ safety harness</li> <li>◦ safety line</li> <li>• safe working practices, such as the safe use and handling of:               <ul style="list-style-type: none"> <li>◦ asbestos</li> <li>◦ chemicals</li> <li>◦ materials</li> <li>◦ tools and equipment</li> <li>◦ work platforms</li> </ul> </li> <li>• safety equipment:               <ul style="list-style-type: none"> <li>◦ flashing lights</li> <li>◦ gas and other hazard detection equipment</li> <li>◦ safety barriers</li> <li>◦ trench guards</li> <li>◦ warning signs and tapes</li> <li>◦ witches hats</li> </ul> </li> <li>• special access requirements</li> <li>• suitable light and ventilation</li> <li>• environmental considerations:               <ul style="list-style-type: none"> <li>◦ clean-up protection</li> <li>◦ stormwater protection</li> <li>◦ waste management.</li> </ul> </li> </ul>
<p><b>Enterprise requirements</b> may refer to:</p>	<ul style="list-style-type: none"> <li>• budgets defining discretionary levels in relation to expenditure areas</li> <li>• specifications and other project documentation including:               <ul style="list-style-type: none"> <li>◦ building plans and area charts</li> <li>◦ client correspondence</li> <li>◦ copy of contract documentation</li> <li>◦ derived schedules or checklists.</li> </ul> </li> </ul>

<b>RANGE STATEMENT</b>	
<b><i>Relevant legislation, codes, regulations and standards</i></b> includes:	<ul style="list-style-type: none"><li>• Australian Communications Industry Forum (ACIF) standards and codes</li><li>• ACMA technical standards</li><li>• AS Communications Cabling Manual (CCM) Volume 1</li><li>• AS/NZS 3000:2007</li><li>• AS/NZS 3080:2003</li><li>• AS/NZS 3084:2003</li><li>• AS/NZS 3085.1:2004</li><li>• AS/NZS IEC 61935.1:2006</li><li>• AS/NZS IEC 61935.2:2006</li><li>• AS/NZS ISO/IEC 14763.3:2007</li><li>• AS/NZS ISO/IEC 15018:2005</li><li>• AS/NZS ISO/IEC 24702:2007</li><li>• Australian building codes and regulations</li><li>• cabling security codes and regulations</li><li>• enterprise operating policy and procedures</li><li>• OHS</li><li>• technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006.</li></ul>

<b>EVIDENCE GUIDE</b>	
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.	
<b>Overview of assessment</b>	
<b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b>	<p>Evidence of the ability to:</p> <ul style="list-style-type: none"> <li>organise, schedule and communicate work</li> <li>monitor work activity and reallocate as required to meet specifications, OHS and ensure compliance with relevant regulations and standards.</li> </ul>
<b>Context of, and specific resources for assessment</b>	<p>Assessment must ensure:</p> <ul style="list-style-type: none"> <li>sites where monitoring may be conducted</li> <li>use of tools, materials and equipment currently used in industry</li> <li>relevant regulatory and equipment documentation that impact on work activities.</li> </ul>
<b>Methods of assessment</b>	<p>A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:</p> <ul style="list-style-type: none"> <li>review of a project supervised by the candidate</li> <li>review of an oral and written report with completed documentation, such as TCA1 form</li> <li>direct observation of the candidate organising and monitoring a cabling project.</li> </ul>
<b>Guidance information for assessment</b>	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:</p> <ul style="list-style-type: none"> <li>ICTCBL2005A Install customer cable support systems</li> <li>ICTCBL2006A Place and secure customer cable</li> <li>ICTCBL2008A Terminate metallic conductor customer cable</li> <li>ICTCBL2012A Install functional and protective telecommunications earthing system</li> <li>ICTCBL2017A Alter services to existing cable system.</li> </ul> <p>Aboriginal people and other people from a non-English speaking background may have second language issues.</p> <p>Access must be provided to appropriate learning and assessment support when required.</p> <p>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.</p> <p>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.</p>

<b>EVIDENCE GUIDE</b>	
	Where applicable, physical resources should include equipment modified for people with special needs.

<b>ICTCMP5176A</b>	<b>Undertake radio communications site audit</b>
<b>Unit descriptor</b>	<p>This unit describes the performance outcomes, skills and knowledge required to undertake a radio communications site audit regarding the compliance of radio frequency (RF) transmissions with relevant transmitter licence requirements.</p> <p>Individuals must comply with radio communications transmitter licensing requirements and operator certificates for maritime and aeronautical services and occupational health and safety (OHS) electromagnetic radiation (EMR) licensing requirements as appropriate.</p>
<b>Employability skills</b>	This unit contains employability skills.
<b>Prerequisite units</b>	
<b>Co-requisite units</b>	
<b>Application of the unit</b>	<p>Field officers from regulatory authorities or other private and public organisations apply the skills and knowledge in this unit. They combine technical radio communications skills with broader organisational and administrative skills to conduct audits in a range of commercial and community contexts and environments. They make recommendations for improvement and follow up by monitoring resulting actions.</p> <p>Field officers may be responsible for small projects or parts of larger projects, and for the coordination and direction of small groups working on sites remote from the organisational headquarters.</p>
<b>Competency field</b>	Compliance
<b>Unit sector</b>	Telecommunications

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
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.
1. Prepare for radio communications site audit	<ol style="list-style-type: none"> <li>1.1. Confirm need for site audit through appropriate <b>triggers</b> and arrange formal approval for site access from <b>authorised personnel</b></li> <li>1.2. Clarify audit requirements according to relevant <b>legislation, codes, regulations and standards</b> including safety and security arrangements and action required to comply</li> <li>1.3. Clarify audit requirements with client or project originator, where appropriate, and incorporate <b>broader audit considerations</b></li> <li>1.4. Prepare a hardcopy of <b>site information</b> for use as an audit validation list at site</li> <li>1.5. Specify staff, <b>equipment</b> and material resource requirements for the audit based on particular site requirements ensuring equipment has been correctly calibrated and labelled</li> </ol>

ELEMENT	PERFORMANCE CRITERIA
	1.6. Check industry requirements for site and obtain <b>industry licence</b> where appropriate
2. Undertake radio communications site audit	2.1. Validate specific site location according to database information 2.2. Undertake audit tasks according to OHS, enterprise procedures and site specific safety requirements, and meet client or representative on site as required 2.3. Conduct <b>transmission and RF tests</b> against approved specifications 2.4. Conduct check of transmitters for licensing conditions 2.5. Check transmission radio frequency against database list and obtain permission to check or alter transmission or radio frequency where appropriate 2.6. Confirm site meets specific <b>RF OHS safety requirements</b> and licensing requirements where appropriate 2.7. Confirm defined site equipment labelling comply with Australian Communications and Media Authority (ACMA) technical standards
3. Complete audit administration tasks	3.1. Update or arrange for update of required <b>records</b> regarding audit findings and action required, including liaison with authorised personnel as agreed 3.2. Monitor actions that have been recommended to ensure compliance with findings 3.3. Issue enforcement actions as required 3.4. Finalise audit administration and return equipment and resources according to organisational procedures

### 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, operational and legal site audit matters
- literacy skills to interpret technical documentation and write audit reports in required formats
- numeracy skills to take RF measurements, interpret results and evaluate different types of technical data
- planning and organisational skills to plan, prioritise and monitor own work and coordinate the audit process in liaison with others
- problem solving and contingency management skills to adapt testing procedures to requirements of particular sites and modify activities depending on differing operational contingencies, risk situations and environments
- research skills to interrogate databases and investigate different audit requirements
- task management skills to work systematically with required attention to detail and adherence to all safety requirements
- technical skills to select and use appropriate test equipment and practices to suit different RF applications

#### Required knowledge

- features and operating requirements of test equipment, including:
  - digital radio communications measuring equipment
  - modulation analyser
  - power meter
  - RF termination

## REQUIRED SKILLS AND KNOWLEDGE

- spectrum analyser
- features of licensing database
- information required to prepare and conduct a telecommunications audit
- legislation, licensing requirements for transmitters, codes of practice and other formal agreements that directly impact on radio communications site audits
- overview of transmission lines, transmitter and receiver architecture and their impact on radio communications audit
- required field measurements including:
  - carrier frequency
  - harmonics
  - intermodulation distortion (IMD) products
  - modulation
  - RF power
- specific issues related to antenna installations and their impact on radio communications interference
- specific OHS requirements that impact on the conduct of radio communications audits, including:
  - use of equipment
  - use of RF protective equipment
  - other personal protective equipment
- types of adjustments that need to be made to audit procedures to meet the requirements of particular sites and environmental conditions
- typical issues and challenges that occur in telecommunications site audit and how these may be addressed

## 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.

***Triggers*** may relate to:

- business plan targets
- codes of practice and standards for other services and utilities:
  - electricity
  - gas
  - water
- decisions to target certain clients
- decisions to target certain sites:
  - communal
  - power level
- EMR based on site power
- geographical considerations
- industry status (targeting of a dynamic industry)
- interference complaints
- investigation may be power measurement to ensure correct power
- legislative requirements
- licence conditions regarding the operating frequency of transmitters
- occupancy transmitter still operating
- power company requirements
- radcom data purification

<b>RANGE STATEMENT</b>	
	<ul style="list-style-type: none"> <li>• statutory authority requirements ACMA.</li> </ul>
<b>Authorised personnel</b> may include:	<ul style="list-style-type: none"> <li>• customers</li> <li>• major users</li> <li>• site managers</li> <li>• site owners.</li> </ul>
<b>Legislation, codes, regulations and standards</b> may include:	<ul style="list-style-type: none"> <li>• Australian Communications Industry Forum (ACIF) standards and codes</li> <li>• ACMA technical standards</li> <li>• ARPANSA EMR standard</li> <li>• assignment guidelines</li> <li>• Australian building codes and regulations</li> <li>• Australian standards</li> <li>• enterprise standards</li> <li>• environmental protection</li> <li>• equipment standards</li> <li>• fire regulations</li> <li>• heritage legislation</li> <li>• international standards</li> <li>• intrinsically safe lightning protection,</li> <li>• local government</li> <li>• OHS</li> <li>• Privacy Act</li> <li>• Radcoms Act</li> <li>• site engineering standard</li> <li>• spectrum planning reports</li> <li>• Telecoms Act</li> <li>• Trade Practices Act</li> <li>• WIs, CIs, business operating procedures (BOPs), radiocommunications assignment and licensing instruction (RALI).</li> </ul>
<b>Broader audit considerations</b> may relate to:	<ul style="list-style-type: none"> <li>• commercial</li> <li>• cultural: <ul style="list-style-type: none"> <li>◦ liaising with traditional land owners</li> </ul> </li> <li>• environmental: <ul style="list-style-type: none"> <li>◦ accessing protected areas</li> <li>◦ broken ground</li> <li>◦ location involving working over old underground workings and voids</li> <li>◦ on natural landscapes</li> <li>◦ wet conditions</li> <li>◦ working at heights or on rooftops.</li> </ul> </li> </ul>
<b>Site information</b> may include:	<ul style="list-style-type: none"> <li>• address of physical location</li> <li>• frequency output</li> <li>• power of transmitters</li> <li>• site coordinates</li> <li>• technical details of site</li> <li>• user bandwidth.</li> </ul>
<b>Equipment</b> may include:	<ul style="list-style-type: none"> <li>• deviation meter</li> <li>• power meter</li> <li>• spectrum analyser.</li> </ul>
<b>Industry licence</b> may include:	<ul style="list-style-type: none"> <li>• industry training for particular sites</li> </ul>

<b>RANGE STATEMENT</b>	
	<ul style="list-style-type: none"> <li>• basic OHS induction training.</li> </ul>
<b>Transmission and RF tests</b> may include:	<ul style="list-style-type: none"> <li>• assessment of EMR levels</li> <li>• power measurement</li> <li>• RF technical measurements.</li> </ul>
<b>RF OHS safety requirements</b> may relate to:	<ul style="list-style-type: none"> <li>• EMR levels</li> <li>• RF measurements</li> <li>• visual checks of towers.</li> </ul>
<b>Records</b> may include:	<ul style="list-style-type: none"> <li>• completion of enterprise manual lists</li> <li>• computer-based documentation</li> <li>• electronic communication.</li> </ul>

<b>EVIDENCE GUIDE</b>	
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.	
<b>Overview of assessment</b>	
<b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b>	<p>Evidence of the ability to:</p> <ul style="list-style-type: none"> <li>• conduct radio communications site audit for at least three sites with differing licensing requirements</li> <li>• conduct transmission and RF tests</li> <li>• monitor non compliances to ensure actions completed.</li> </ul>
<b>Context of and specific resources for assessment</b>	<p>Assessment must ensure:</p> <ul style="list-style-type: none"> <li>• sites on which audits may be conducted</li> <li>• use of field measurement equipment currently used in industry</li> <li>• relevant databases, licensing requirements and other site related documentation.</li> </ul>
<b>Method of assessment</b>	<p>A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:</p> <ul style="list-style-type: none"> <li>• direct observation of the candidate undertaking an audit</li> <li>• review of audit reports completed by the candidate for differing site types and licence requirements</li> <li>• oral or written questioning to assess knowledge of licensing requirement and specific technical procedures.</li> </ul>
<b>Guidance information for assessment</b>	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:</p> <ul style="list-style-type: none"> <li>• ICTRFN3175A Operate and maintain radio communications technical instruments and field equipment</li> <li>• ICTRFN4095A Conduct radio frequency measurements</li> <li>• ICTRFN4174A Undertake radio communications signals monitoring.</li> </ul> <p>Aboriginal people and other people from a non-English speaking background may have second language issues.</p> <p>Access must be provided to appropriate learning and assessment support when required.</p> <p>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.</p> <p>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</p>

<b>EVIDENCE GUIDE</b>	
	<p>those required in this unit of competency.</p> <p>Where applicable, physical resources should include equipment modified for people with special needs.</p>