

1. Module details	
Module name	Telecommunications CPR Regulations and Installations - Restricted
Suggested structured learning time	A learner possessing the prerequisite skills and knowledge should achieve the module purpose in 18 to 20 hours.
Module code	NUE/NTE199
Discipline code	0703110
2. Module purpose	This module provides an understanding of the regulations and methods for the installation, maintenance and modification of customer premises communications cabling in domestic and small business premises situation.
3. Learning pathway	
Intended use in the structured learning program	<p>This module is intended to support supervised workplace experience in telecommunication restricted cabling. In particular it focuses on the application of regulation to installation and modification of communication cable within the limits of restricted work.</p> <p>Therefore before undertaking this module a Learner should generic installation skills and an understanding of the need to work safely.</p>
Recommended prerequisites	For the most effective learning this module should be undertaken only after modules NBB002 and NE175 have been completed.
4. Relationship to competency standards	This module provides part of the underpinning knowledge and skills in the 'Evidence Guide' of specific units of competency in the National Electrotechnology Training Package and provides similar support, where mapped, to equivalent units in the Telecommunications Training Package: Cabling Stream Competency Standards. For details refer to the module to unit maps, available from NUEITAB.
5. Content	<ol style="list-style-type: none">1. Telecommunication Industry<ul style="list-style-type: none">• Overview of Telecommunication Network• Overview of Telecommunications Acts 1997• Role of ACA• Role of ACIF• Telecommunications terminology

2. Telecommunication Technical Standards
 - ACA Technical Standards TS008, TS009
 - SAA Communications Cabling Manual (Restricted) (starter kit) as approved by relevant bodies – Standards Australia/ACIF
 - International Standards – ISO, IEC, ITU
 - Building Code of Australia (BCA)
 - AS/NZS 3000 Wiring Rules
 - National Association of Testing Authorities NATA
3. Cabling Provider Rules (CPR)
 - Australian Communications Authority (ACA)
 - Telecommunications Cabling Provider Rules
 - CPR registration
 - Old Telecommunication Licensing structures
 - Inspection of work
 - Documentation – TCA1 form
4. Cable type and identification
 - Cable types – unshielded twisted pair, shielded twisted pair, indoor, underground and aerial.
 - Cable construction
 - Cable identification – codes (colour, banded, numbered, lettered)
5. Cable installation
 - Cable damage
 - Cable packaging
 - Cable dispensing devices
 - Cable insertion and hauling
 - Lead-in conduit requirements (including wall box installation)
 - Wiring diagrams
 - Segregation of cables
 - Aerial cable fittings and additional safety aspects required.

- 6. Termination of Telecommunication Cables
 - Sheath stripping – methods, precautions
 - Pair identification
 - Filled cable termination
 - Termination systems – telephone outlets and sockets, network terminating devices (NTD)
 - Connector jointing eg. external to internal cable where required
- 7. Telecommunication earthing and protection
 - Customer Lightning Protection (CLP) earthing

Requirement (Carrier’s policy)

 - Materials (including surge suppression devices)
 - Practices (including earth bonding arrangements)
- 8. Basic telephony
 - Basic telephone service
 - Telephone
 - Exchange number
 - Connection equipment / lead in cable
 - Dialling signals – pulse dialling, tone dialling, ring equivalence number (REN)

6. Assessment strategy

Assessment methods

Assessment should be progressive reflecting a holistic approach to ensure the module purpose is met. To assist in ensuring validity, reliability and fairness assessment instruments should include practical exercises, assignments and written tests consisting of a number of item types, such as multiple choice, short answer and problem solving.

Conditions of assessment

Learning and assessment will take place in an environment that is conducive to a learner’s development.

7. Learning outcome details

Learning outcome 1

Demonstrate knowledge of the telecommunication network and the role of the ACA and ACIF

Assessment criteria	<ol style="list-style-type: none">1.1 Identify the various components of the telecommunication network.1.2 State the main points of the Telecommunication Acts – 1997.1.3 List the specific roles of the ACA.1.4 State the role of the ACIF.1.5 Identify telecommunications specific terminology
Learning outcome 2	Demonstrate knowledge and use telecommunication technical standards to carry out installation of cables in domestic and small business premises.
Assessment criteria	<ol style="list-style-type: none">2.1 State the purpose of ACA TS008. standards2.2 State the purpose of ACA TS009. standards2.3 Use SAA Communication Cabling Manual (Restricted) (starter kit) as approved by relevant bodies – Standards Australia/ACIF to ensure correct compliance with installation.2.4 State the purpose of international standards ISO, IEC and ITU.2.5 State the purpose of the Building Code of Australian (BCA)2.6 List the relevant clauses for telecommunication cabling segregation using relevant standards including TS 009.2.7 State the purpose of the National Association of Testing Authorities (NATA)
Learning outcome 3	Explain the purpose and the requirement of the Cabling Provider Rules (CPR) set out by the ACA
Assessment criteria	<ol style="list-style-type: none">3.1 State the role of the ACA in reference to the CPR.3.2 List the three CPR's and state the range of work which can be carried out under each rule.3.3 State the CPR registration purpose and arrangements.3.4 Compare the new CPR to the old licensing structures of BCL, RCL and LPC.

	3.5	State the auditing / inspection procedures to ensure quality work by registered cabling.
	3.6	Complete TCA1 form for domestic premise installation.
Learning outcome 4		State the common types of telecommunication cables and identify the cables used in domestic and small business installations
Assessment criteria	4.1	List the five types of cables used.
	4.2	Describe the construction of each type of cable.
	4.3	Identify cables by either colour codes, banded codes, numbering or lettering codes.
Learning outcome 5		Demonstrate knowledge of methods for the installation of telecommunication cables
Assessment criteria	5.1	List the six most common types of cable damage to cables.
	5.2	List the four types of cable packaging used to supply telecommunication cables.
	5.3	State the procedure used for installing cables in cable duct or conduit.
	5.4	State the requirements for the separation of telecommunications cables from other services (power, gas, oil, plumbing, etc.) according to relevant standards including TS 009.
Learning outcome 6		Demonstrate the knowledge and skills in terminating unshielded, shielded twisted pair cables, indoor, underground and aerial cables used for telecommunications
Assessment criteria	6.1	Strip sheathing and insulation on external quad cable, on external telephone type cable, internal telephone type cable and multipair STP cable (internal).
	6.2	Separate cable pairs according to the colour code of a cable and terminate on sockets.
	6.3	Join a 10, 2/5 pair underground filled telecommunication cable using approved tools, equipment, and appropriate kit.

Learning outcome 7	Demonstrate knowledge of the purpose of the telecommunications earthing systems, their function and the relevant standards requirements
Assessment criteria	<ul style="list-style-type: none">7.1 Identify the requirement for providing Customer Lightning Protection (CLP)7.2 State the purpose and the requirements for surge suppression protection devices on telecommunications systems.7.3 Identify the main components of the telecommunications CLP/earthing system7.4 Identify the practices required to safely install an effective CLP system (Housing, protector installation, and earth bonding arrangements).

Learning outcome 8 Demonstrate knowledge of basic telephony used for domestic and small business premises

Assessment criteria	<ul style="list-style-type: none">8.1 List the four main components of a basic telephone service.8.2 Describe the basic telephone set in terms of a transmitter and receiver.8.3 Define the term exchange number and the ring equivalence number (REN).8.4 Connect a basic telephone set using a lead-in cable.8.5 Describe the two types of dialling signals used on basic telephone systems.
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8. Delivery of the module

Delivery strategy Delivery strategies must be suitable for learning both theoretical and practical aspects described in the module purpose. It is considered that the most effective method to achieve this is by integration of theory and practice where students learn by experimentation, research and reports. It is recommended that learning and assessment be facilitated in a holistic manner that may require learning outcome sequence other than that indicated in the module.

Resource requirements Resources should be sufficient for students to carry out learning activities on an individual basis.

Suggested Learning Resource:

Students will require access to the following reference material or their replacements:

TS008

TS009

AS/NZS 1668

AS 1670

AS1851

AS 2220

AS/NZS 3000 series and related sub-standards

Telecommunications Act 1997 - overview

The Building Code of Australia Volumes 1-3

Australian Communications Authority Cabling Provider Rules – Benchmark Cabler Competency Requirements - 2000

Communication Cabling Manual RCL Package

Certified Components List (CCL) or replacement

Labelling notice

Specialised facilities and equipment required by the training provider include:

- Access to a range of industrial, commercial and domestic sites
- Exam facilitation of a capstone assessment based on a one hour 50 question multi-choice exam, of which an 80% pass mark is to be achieved, related to TS009 requirements.

In addition learners will require access to:

Standard workshops and equipment should be available for practical exercises:

- Approved telecommunication tools
- Approved safety equipment

Comment: Completion of this module would equate to Pre-provisioning activities, as entry to a Carrier's Network requires the Carrier's accreditation to carry out the activities.

Comment: Where the lead-in cabling is connected to the network and pre-jumpered at the exchange to provide dial tone, then the service can be completed by the experienced cabler. If the lead-in cabling is not connected to the network then the experienced cabler would need the relevant carrier accreditation to enter the network and make the relevant connections (minimum of a basic cable joiner).

Where this module is used in an approved Traineeship or Apprenticeship program learners should be advised to obtain, where available, respective EEQSBA¹ **User Guides** (*these outline in detail what training and work performance the Learner is required to undertake for the program*).

Occupational health and safety requirements

A safe and healthy environment will be provided for learners and teachers. Safety procedures for the particular learning facilities shall be followed as part of the learning / teaching activity and assessment.

¹ EEQSBA – ElectroComms and EnergyUtilities Qualifications Standards Body of Australia Ltd.