



Australian Government

UEEDV0003 Install and connect cabling for direct access to telecommunications service

Release: 1

UEEDV0003 Install and connect cabling for direct access to telecommunications service

Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to install and connect cabling for direct access to telecommunications service.

It includes working safely, preparing cabling routes, laying and connecting cabling for direct access to telecommunication services, terminating cabling, inspecting and testing, and completing cabling documentation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0020 Fix and secure electrotechnology equipment

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications
and

UEEDV0013 Solve problems in voice and data communications circuits
or

UEECD0043 Solve problems in direct current circuits
or

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

Competency Field

Data and Voice

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Prepare to lay and connect cabling for direct access to telecommunication services

- 1.1** Work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures for a given work area are identified, obtained and applied
- 1.2** WHS/OHS risks are identified and risk control measures and workplace procedures are followed in preparation for the work
- 1.3** Remote power feeding is identified and risk control measures prepared
- 1.4** Scope of work is determined from documentation and/or discussions with relevant person/s
- 1.5** Cable routes are planned within the constraints of the building structure, significant and regulations
- 1.6** Earthing requirements are determined with existing earthing arrangements and cable system earth upper and lower resistance limitations
- 1.7** Advice is sought from relevant person/s to ensure work is coordinated effectively with others
- 1.8** Sources of materials required for work are checked in accordance with routines and workplace procedures
- 1.9** Tools, equipment and testing devices required to carry out work are obtained and checked for correct operation and safety

2 Lay and connect cabling for direct access to telecommunication services

- 2.1** WHS/OHS risk control measures and workplace procedures for carrying out the work are followed

- 2.2** Installed support structure is checked to ensure cable is protected against damage during installation and general operation
- 2.3** Sufficient excess is allowed at cable ends to facilitate termination
- 2.4** Telecommunication outlet ends of cable are uniquely labelled to match identifier at originating location in accordance with relevant industry standards
- 2.5** Cable is placed and secured to maintain safety and interference segregation in accordance with relevant industry standards
- 2.6** Cable ties are tightened without damage to cable sheath or transmission impairment and trimmed flush in accordance with workplace procedures
- 2.7** Cables are installed as catenaries or supported by catenaries in internal and external environment to meet above ground clearances and clearances from hazardous electrical services in accordance with relevant industry standards
- 2.8** Cables are installed underground to meet depth of cover and segregation from hazardous electrical and relevant services in accordance with relevant industry standards
- 2.9** Over-voltage protection devices are fitted to all cable pairs, as required, to suppress voltage surges with devices protectively earthed in accordance with relevant industry standards
- 2.10** Telecommunications reference conductor (TRC)/communications earth system (CES)/earth wire insulation is protected and segregated against damage in accordance with relevant industry standards
- 2.11** Workplace procedures for referring unplanned events to immediate supervisor for directions are followed
- 2.12** Cabling is installed without waste of materials, energy, services, damage to apparatus and the surrounding environment
- 2.13** Quality checks are carried out to ensure cabling is in accordance with relevant industry standards

3 Terminate, inspect and test cables and earth wires

- 3.1** WHS/OHS risk control measures and workplace procedures for carrying out the work are followed
- 3.2** Cable sheath is removed to allow for correct termination length without damage to underlying conductors and relevant insulation
- 3.3** Network termination device is installed and cable pairs sequentially fanned for termination in accordance with manufacturer specifications
- 3.4** Conductors are terminated with colour code sequence using relevant termination tools in accordance with manufacturer specifications
- 3.5** Cable shield is earthed in accordance with manufacturer specifications and relevant industry standards
- 3.6** Visual inspection is conducted to confirm termination colour code sequence prior to end-to-end testing of wire and pair termination integrity
- 3.7** Cable pairs are inspected, tested and labelled to provide accurate identification in accordance with relevant industry standards
- 3.8** TRC/CES/earth wires are terminated with connectors in accordance with relevant industry standards and manufacturer specifications
- 3.9** TRC/CES/earth wire continuity is maintained throughout and interface requirements and electrical systems are observed
- 3.10** TRC/CES/earthing installation is inspected and tested for continuity, insulation resistance and conductive resistance in accordance with industry standards
- 3.11** Compatibility of alterations with existing systems and new work is confirmed and tested in isolation and integrated with existing systems
- 3.12** Workplace procedures for referring unplanned events to immediate supervisor for directions are followed
- 3.13** Cabling is terminated without waste of materials, energy and/or damage to apparatus, the surrounding environment and/or services

	3.14	Quality checks are carried out and defects rectified to ensure cabling is in accordance with workplace procedures and relevant industry standards
4 Complete cabling work records and reporting	4.1	WHS/OHS work completion risk control measures and workplace procedures are followed
	4.2	Worksite is cleaned and made safe in accordance with workplace procedures
	4.3	Cabling completion advice is documented and reported in accordance with workplace procedures and relevant industry standards

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package Companion Volume Implementation Guide.

Cabling installations must include at least the following:

- single telephone line (two-pair) and directly connected to telephone sockets

Unit Mapping Information

This unit replaces and is equivalent to UEENEEF101A Install and connect cabling for direct access to telecommunications service.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>

Assessment Requirements for UEEDV0003 Install and connect cabling for direct access to telecommunications service

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least one occasion and include:

- terminating at both network termination device and at least two different outlet types and locations
- placing of cables on support structures and building faces for both internal and external locations
- securing cables correctly for above locations
- avoiding cable damage such as crushing, burning, kinking, sheath twist, cutting and nicking, and bending radius
- reading and interpreting drawings related to outlet and service entry location
- conducting and interpreting cable test results
- correctly interpreting and applying standards and regulations
- completing the required documentation
- dealing with unplanned events
- applying relevant work health and safety (WHS)/occupational health and safety (WHS/OHS) requirements, including using risk control methods
- completing cabling work records and reporting
- inspecting and testing cables and earth wires
- installing support structure against damage during installation and general operation
- installing cable without waste of materials, energy, services, damage to apparatus and the surrounding environment
- labelling telecommunication outlet ends of cable
- laying and connecting cabling for direct access to telecommunication services
- obtaining and checking tools, equipment and testing devices
- preparing cabling for direct access to telecommunication services
- terminating cables and earth wires
- terminating telecommunications reference conductor (TRC)/communications earth system (CES)/earth wires.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- telecommunications restricted cabling provider rules (CPR) regulations and installations, safe working practices and relevant standards, codes and regulations, including:
 - telecommunication industry overview encompassing:
 - telecommunication industry
 - overview of telecommunications network
 - overview of Telecommunications Act 1997
 - role of Australian Communications Media Authority (ACMA) and ACIF
 - telecommunications terminology
 - telecommunication technical standards encompassing:
 - ACMA Technical Standards TS008 and TS009
 - SAA Communications Cabling Manual (restricted) (starter kit) as approved by relevant bodies – Standards Australia/ACIF
 - international standards – ISO, IEC and ITU
 - Building Code of Australia (BCA)
 - AS/NZS 3000
 - National Association of Testing Authorities (NATA)
 - CPR encompassing:
 - ACMA
 - telecommunications CPR
 - CPR registration
 - old telecommunication licensing structures
 - inspection of work
 - documentation – TCA1 form
 - cable type and identification encompassing:
 - cable types – unshielded twisted pair, shielded twisted pair, indoor, underground and aerial
 - cable construction
 - cable identification – codes (colour, banded, numbered and lettered)
 - cable installation encompassing:
 - 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
- termination of telecommunication cables encompassing:
 - sheath stripping – methods and precautions
 - pair identification
 - end-to-end testing
 - filled cable termination
 - termination systems – telephone outlets and sockets, and network terminating devices (NTD)
 - connector jointing e.g. external to internal cable where required
- telecommunication earthing and protection encompassing:
 - customer lightning protection (CLP)
 - CLP earthing
 - carrier's policy requirement covering materials (including surge suppression devices) and
 - practices (including earth bonding arrangements)
- basic telephony encompassing:
 - basic telephone service
 - telephone
 - exchange number
 - connection equipment/lead-in cable
 - dialling signals – pulse dialling, tone dialling and ring equivalence number (REN)
- problem-solving techniques
- relevant earthing requirements
- relevant industry standards
- relevant manufacturer specifications and operating instruction
- relevant job safety assessments or risk mitigation processes
- relevant tools, equipment and testing devices
- relevant TRC/CES/earth wires
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace quality, policies and procedures.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations where it is appropriate to do

so; where this is not appropriate, assessment must occur in simulated suitable workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or simulations
- relevant and appropriate materials, tools, facilities and equipment currently used in industry
- resources that reflect current industry practices in relation to laying and connecting cabling for direct access to telecommunication services
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

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