

Title	Install, maintain and repair telecommunications transmission systems and services		
Level	3	Credits	25

Purpose	<p>This unit standard is intended for people who require basic knowledge of telecommunications transmission networks.</p> <p>People credited with this unit standard are able to:</p> <ul style="list-style-type: none"> – prepare for installation of transmission access systems and services – provision telecommunications transmission equipment and services – apply transmission control protocol/internet protocol (TCP/IP) and Ethernet addressing to telecommunications transmission equipment and services – test and commission telecommunications transmission access technology and services – carry out fault location, restoration and routine maintenance tasks associated with transmission systems and services – complete customer handover for transmission systems and services.
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Classification	Telecommunications > Telecommunications - Service Delivery
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Available grade	Achieved
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Guidance Information

- Learning and assessment within this unit standard must be carried out in accordance with the following:
 - Electricity Act 1992
 - Health and Safety at Work Act 2015
 - Privacy Act 2020
 - Resource Management Act 1991
 - Telecommunications Act 2001
 - Building Regulations 1992, all available from <http://legislation.govt.nz/>
 - New Zealand Telecommunications Forum Inc., Customer Complaints Code, available from <https://www.tcf.org.nz/industry/resources/publications/industry-standards-guides/>
 - New Zealand Electrical Codes of Practice, available from www.worksafe.govt.nz and all subsequent amendments and replacements.

2 Definitions

Basic knowledge refers to some operational and theoretical knowledge of the subject matter to interpret available information.

Company requirements refer to the policy, procedures, and methodologies of the company. They include legislative and regulatory requirements that may apply across the company or to a specific site. Requirements are documented in the company health and safety plans, contract work programmes, quality plans, policies, and procedural documents.

Industry practice refers to those practices that competent practitioners within the industry recognise as current industry best practice.

Specifications refer to detailed job specifications, drawings, and instructions; manufacturers' specifications and instructions; and industry codes of practice relating to the type of cabling system being installed.

3 Range

Evidence is required for five different worksites.

Outcomes and performance criteria

Outcome 1

Prepare for installation of transmission access systems and services.

Performance criteria

- 1.1 The scope and timing of the provisioning of the equipment is established for the site.

Range contract, job specification, drawings, time lines, customer requirements, company policies and procedures.

- 1.2 Requirements for the installation and plans for the site are confirmed in accordance with company requirements.

Range required resources, required materials, site access requirements, work plan, installation plan, specifications and drawings.

- 1.3 Permits and consents for the work site are arranged in accordance with regulatory and company requirements.

Range Permit to Work, brown outs, road opening notice, consents, site access, security consents.

- 1.4 Safety plans are developed in accordance with company and customer requirements.

Outcome 2

Provision telecommunications transmission equipment and services.

Performance criteria

- 2.1 Hardware and cabling are installed, and equipment is terminated in accordance with specifications.

Range hardware may include but is not limited to – seismic resilience, weather-proofing, appropriate work practice, enclosures, cable trays and ducting, equipment sub racks, copper and/or fibre terminating blocks, connectors, structured cabling, fastenings; cabling may include but is not limited to – copper, fibre, coaxial.

- 2.2 Equipment is labelled, as-built documentation is completed, and installation progress is recorded in accordance with company requirements.

Outcome 3

Apply transmission control protocol/internet protocol (TCP/IP) and Ethernet addressing to telecommunications transmission equipment and services.

Performance criteria

- 3.1 Software is selected and appropriate for the hardware to be configured.
- 3.2 IP addressing is performed to enable communication between the hardware and the software.
- 3.3 Hardware equipment is configured to specifications in accordance with industry practice.

Outcome 4

Test and commission telecommunications transmission access technology and services.

Performance criteria

- 4.1 Test equipment required for commissioning of transmission technology and services is selected in accordance with specifications and commissioning requirements.
- 4.2 Commissioning tests are completed with no impact on the performance of existing services.
- 4.3 Test results are evaluated and recorded in accordance with specifications.
- 4.4 Documentation is collated, and the handover is completed in accordance with customer and company requirements.
- Range requirements include – equipment labelling, agreed format, as-built documentation, test and commissioning results and recording in electronic records systems.

Outcome 5

Carry out fault location, restoration and routine maintenance tasks associated with transmission systems and services.

Performance criteria

- 5.1 Equipment and other tests for the site are completed to confirm the nature of the fault.
- Range testing environment – centralised point, handheld.
- 5.2 Remote restoration methods and procedures are applied as appropriate in accordance with specifications.
- Range log in as on-site, visual inspection of site for damage, visual inspection of alarms, determine appropriate diagnostic procedure, health and safety procedures.
- 5.3 Diagnostic tools and equipment are selected, appropriate for the site in accordance with industry practice.
- 5.4 Logical fault-finding methods and procedures are applied in accordance with industry practice.
- Range may include but is not limited to – common alarms, half split, step by step, flowcharts, manufacturer's diagnostic procedures, resetting of modules; three methods and three procedures.
- 5.5 Test results are used to identify faulty system component(s), identify components for repair or replacement in accordance with company requirements.
- Range module(s), cable(s), component(s), configuration, cooling systems, power and backup systems.
- 5.6 Repair or replace faulty system components in accordance with company requirements.

Outcome 6

Complete customer handover for transmission systems and services.

Performance criteria

- 6.1 Restore site to customer expectations following completion of provisioning or restoration.

- 6.2 Handover or hand-back support materials, as required, are supplied to customer in accordance with contract and company requirements.

Range support materials may include but are not limited to – as-built drawings, performance certification, test results, maintenance materials, product leaflets and instructions, testing instructions, troubleshooting guides.

- 6.3 Complete and collate hand-back documentation in the agreed format and in accordance with customer and company requirements.

Range equipment labelling, as-built documentation, test and diagnostic results and recording in electronic records systems.

Planned review date	31 December 2025
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	24 October 2019	N/A
Rollover and Revision	2	25 January 2024	N/A

Consent and Moderation Requirements (CMR) reference	0101
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact Waihanga Ara Rau Construction and Infrastructure Workforce Development Council qualifications@waihangaararau.nz if you wish to suggest changes to the content of this unit standard.