Title	**Explain and action fault diagnosis and repair and restore customer telecommunications copper network**
Level	3	**Credits**	10

Purpose	This unit standard is intended for technicians who require basic knowledge of copper telecommunications networks.
	People credited with this unit standard are able to:
	− explain fault diagnosis in telecommunications customer copper network
	− action fault incident report or service investigation request
	− carry out basic fault location and restoration of telecommunications customer copper network
	− confirm service restoration with customer.

Classification	Telecommunications > Telecommunications - Service Delivery

Available grade	Achieved

Guidance Information

1   Learning and assessment within this unit standard must be carried out in accordance with the following legislation, guidelines, and codes of practice, as relevant to role, and any subsequent amendments:
− New Zealand Telecommunications Forum Inc., *Customer Complaints Code*, available from https://www.tcf.org.nz/industry/resources/publications/industry-standards-guides/
− Health and Safety at Work Act 2015
− Privacy Act 2020
− Resource Management Act 1991
− Telecommunications Act 2001, all available from http://legislation.govt.nz/.

2   Definitions
Basic knowledge refers to some operational and theoretical knowledge of the subject matter to interpret available information.
Enterprise practice refers to practices and procedures that have been promulgated by the company or enterprise for use by their employees.
Industry practice refers to practices that competent practitioners within the industry recognise as current industry best practice, including standard operating procedures.
Telecommunication systems refers to the network supplying the telecommunication service to the end customer.

3   The range for this unit standard is 10 different faults on different telecommunications systems or services.

Outcomes and performance criteria

Outcome 1

Explain fault diagnosis in telecommunications customer copper network.

Performance criteria

1.1   Techniques to diagnose faults in customer copper network are explained in terms of industry practice.

Range   techniques may include but are not limited to – observation, simulation, measurement, identification of function loss, comparison, previous fault data including frequency of occurrence, manufacturers' documentation and diagnostic data, built-in diagnostics.

Outcome 2

Action fault incident report or service investigation request.

Performance criteria

2.1   Job report or request is accepted in accordance with company and client required time frames.

2.2   Cable reticulation details are obtained in terms of the affected circuit/service.

2.3   Items and material required are purchased or obtained from stock as per company requirements.

2.4   Customer contact is made in terms of confirming appointment, receipt of incident report, and requesting any further details that may be of assistance.

Outcome 3

Carry out basic fault location and restoration of telecommunications customer copper network.

Performance criteria

3.1   Test equipment is selected, and tests are completed in terms of confirming the nature of the fault.

Range   testing environment – centralised point, handheld.

3.2   Remote restoration procedures are implemented and explained in terms of the appropriate application method.

3.3   Site arrival procedures are determined and applied in accordance with company requirements.

        Range   may include but is not limited to – log in as on-site, visual inspection of site for damage, visual inspection of alarms, determine appropriate diagnostic procedure, health and safety procedures.

3.4   Diagnostic tools and equipment are selected in accordance with company requirements.

3.5   Faults are located, and causes are found through logical analysis of symptoms, observations, simulation, and measurement.

        Range   may include but is not limited to – common alarms, half split, step by step, flowcharts, manufacturer's diagnostic procedures, resetting of modules.

3.6   Diagnostic tests are completed in terms of ensuring there is no impact on the performance of existing services.

3.7   Faulty system component(s) are identified through the interpretation of test results.

        Range   may include but is not limited to – module(s), cable(s), component(s), configuration.

3.8   Faulty system component(s) are repaired or replaced in accordance with company procedures.

Outcome 4

Confirm service restoration with customer.

Performance criteria

4.1   Service restoration is completed and confirmed with the customer in terms of offering alternative service if further restoration work or permanent repairs are required.

4.2   Records of test results and completed repair work are supplied to the customer in accordance with company requirements.

4.3   Service request is completed and signed off in accordance with industry practice and company requirements.

Planned review date	31 December 2025

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	28 September 2017	N/A
Rollover and Revision	2	27 June 2019	N/A
Rollover and Revision	3	25 January 2024	N/A

Consent and Moderation Requirements (CMR) reference	0101

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.