



Networks Limited

**Service Description for
Fibre Interconnection Services**

1. Interpretation

- 1.1 The Inter CO Fibre Service and Fibre Patching Service described in this Service Description (**Fibre Interconnection Services**) will be available from the date they are launched by the LFC. The LFC will notify the Service Provider of the launch date for the Fibre Interconnection Service.
- 1.2 References to clauses or sections are references to clauses or sections in this Service Description unless expressly provided otherwise. The definitions set out in section 1 of the General Terms apply to this Service Description unless expressly provided otherwise. **Group A Central Offices** and **Group B Central Offices** mean, respectively, the Central Offices listed in Appendix C as "Group A" Central Offices and "Group B" Central Offices.
- 1.3 References to Operations Manual are references to the operations manual for Direct Fibre Access Service and references to the Service Level Terms are references to the Service Level Terms for Fibre Interconnection Services. Except as varied by this Service Description any references to Direct Fibre Access Service in the Operations Manual shall include the Fibre Interconnection Service.
- 1.4 This Service Description covers the provision of the Fibre Interconnection Service in the LFC's candidate area.

2. The Fibre Patching Service

- 2.1 The Fibre Patching Service is a fibre connectivity service suitable for the interconnection of:
- 2.1.1 one Direct Fibre Access Service to another Direct Fibre Access Service terminating in the same CO; or
 - 2.1.2 one Direct Fibre Access Service to an Inter CO Fibre Service at the same CO.
- 2.2 A diagram of the configuration for the Fibre Patching Service is set out in Appendix A. The Fibre Patching Service consists of the provision of interconnection of two fibres that are the termination points of either a Direct Fibre Access Service or the Inter CO Fibre Service on the MOFDF at the LFC Central Office.
- 2.3 The Fibre Patching Service is an input service which the Service Provider can use as a building block to combine with other LFC services (or with the Service Provider's own network or wholesale services provided by other providers) to provide fibre based telecommunications services to End Users.

3. The Inter CO Fibre Service

- 3.1 The Inter CO Fibre Service is a dark fibre service that provides access to a single optical fibre between two LFC Central Offices as specified in the Central Office list in Appendix C.
- 3.2 The Service will be connected to a Service Provider's Footprint in the LFC Central Office, or to a Fibre Patching Service where the Service Provider does not have Co-Location. If the Service Provider requires a dual dark fibre service they must take two single fibres (two instances of the Inter CO Fibre Service).
- 3.3 A diagram of the configuration for the Inter CO Fibre Service is set out in Appendix A.
- 3.4 The Inter CO Fibre Service is available as a dark fibre option only.
- 3.4.1 The service provides a dark fibre connecting to:

- (a) an LCA¹ connector on the OFDF at the Service Provider's Footprint in the LFC Central Office; or
- (b) the Fibre Patching Service on the MOFDF at the LFC Central Office connected to the termination point of an associated Direct Fibre Access Service on that MOFDF

3.5 The Inter CO Fibre Service is an input service which the Service Provider can use as a building block to combine with other LFC services to provide fibre based telecommunications services to End Users.

4. Fibre Patching Service implementation activities

Installation services

4.1 The Fibre Patching Service includes a Standard Install comprising the interconnection of two fibres that are the termination points of either a Inter CO Fibre Service or a Direct Fibre Access Service.

The LFC Central Office Termination Point

4.2 At the LFC Central Office, the termination point for the purposes of the Connection, and the network demarcation point between the LFC Network or backhaul service and the Fibre Patching Service, is usually, a splice or LCA plug on the MOFDF.

Testing

4.3 LFC will test the Fibre Patching Service as part of the test of the resultant end to end access service to ensure it is within the technical specification for fibre set out in Appendix B.

4.4 LFC testing is performed at 1625nm in accordance with ITU standards G.650 and T L.41, hence the Service Provider must not use that wavelength for any services.

Interconnection Requirements

4.5 To use the Fibre Patching Service the Service Provider must have the capability to access and interconnect with it, either by:

- 4.5.1 taking a Direct Fibre Access Service; or
- 4.5.2 by taking a Inter CO Fibre service from the relevant LFC Central Office MOFDF.

Additional Service Characteristics

4.6 The technical specification of the Fibre Patching Service is set out in Appendix B.

5. Inter CO Fibre Service implementation activities

Installation services

5.1 The Inter CO Service includes a Standard Install as set out below.

Connection to Co-location Space

5.1.1 If the Service Provider elects to take delivery of the Inter CO Fibre Service at the Service Provider's Footprint provided by the LFC under the Central Office and POI Co-location Service, a Standard Install includes connection of the Inter CO

¹ LCA – Little Angled Connector to IEC 61754-20

Fibre Service to a LCA connector, or OFDF installed in the Service Provider's Footprint.

Provisioning at LFC Central Offices – Service Provider Footprint

- 5.1.2 A splice or connector on the MOFDF will connect the Tie Cable from the MOFDF to the Service Provider's Footprint at the LFC Central Offices to the Inter CO Fibre Service.
- 5.1.3 The Tie Cables connecting the Service Provider's Footprint to the MOFDF will be supplied pursuant to the terms of the Central Office and POI Co-location Service

LFC Central Office Termination Point

- 5.1.4 The Service Provider may establish a Footprint at the LFC Central Office by taking the Central Office and POI Co-location Service and connecting to the Inter CO Fibre Service using a Tie Cable from the MOFDF. In these cases, at the LFC Central Office, the termination point for the purposes of the Connection and the service demarcation point is a splice or LCA connector on the OFDF within the Service Provider's Footprint.,
- 5.1.5 The Service Provider may also take the Inter CO Fibre Service from the MOFDF at the LFC Central Office to extend a Direct Fibre Access Service from premises within the originating LFC Central Office area to another LFC Central Office. In this case, the single fibre provided pursuant to the Inter CO Fibre Service will connect to the Access Service using the Fibre Patching Service on the MOFDF at the LFC Central Office, and this is the termination point for the purposes of the Connection and the service demarcation point.

Alternative Termination Points

- 5.1.6 The LFC and the Service Provider may agree on a different termination point as part of a Non-Standard Install.

Testing

- 5.2 The LFC will test the Inter CO Fibre Service from end to end to ensure the Backhaul Service is within the technical specification in Appendix B.
- 5.3 The LFC testing is performed at 1625nm in accordance with ITU standard G.650 and T L.41, hence the Service Provider must not use that wavelength for any services.

Additional Services

- 5.4 If the Service Provider requires additional services such as:
 - 5.4.1 installation and testing of the Service Provider's Equipment.
 - 5.4.2 Fibre Diversity between Central Offices.
 - 5.4.3 Enhanced services levels will be the same as those described in the Direct Fibre Operations Manual and Price Book.

the LFC may be able to provide these on request on terms and conditions to be agreed with the Service Provider. The services in clause 5.4.2 and 5.4.3 are available on terms as set out in this Agreement.

Service Characteristics

- 5.5 The technical specification of the Inter CO Fibre Service is set out in Appendix B.

- 5.6 The LFC will provide the Service Provider with network optical budget design calculations, and fibre commissioning test results for the Inter CO Fibre Service. This information will be provided in good faith and the Service Provider will be responsible for the optical budgets used for each of their specific applications.
- 5.7 Where applicable the LFC will provide the Service Provider with facilities to make fibre performance measurements from the MOFDF in the originating LFC Central Office to the nominated terminating LFC Central Office. The LFC will provide staff to access the MOFDF and connect the test equipment to the fibre(s) for such tests by the Service Provider. An additional charge will be made for these services.
- 5.8 The Inter CO Fibre and Fibre Patch Services specifically exclude:
- 5.8.1 provision or maintenance of any cabling or connection or active device beyond the service demarcation points;
 - 5.8.2 configuration, monitoring, operation, on-going support or maintenance of Service Providers' or End Users applications, equipment or networks; and
 - 5.8.3 supply of AC Mains & UPS Power, accommodation space, heating, ventilating, air conditioning and facilities at the Central Office.

6. LFC Service Demarcation Point

- 6.1 The service demarcation point for the Inter CO Fibre Service at the LFC Central Office is the termination and service demarcation point described in (as applicable) clauses 5.2, 5.3 and 5.4.

7. Tie Cable Connection

- 7.1 Where required, the LFC will provide a Tie Cable between the MOFDF and the Service Provider's LCA connector on the Service Provider's OFDF in its Footprint at the LFC Central Office. More detail on the Tie Cable service is in the Central Office and POI Co-Location Service Description and Operations Manual. If the number of fibres requested in the Tie Cable is less than 48, the Tie Cable to the Footprint may consist of a connectorised pigtail to the Service Providers equipment rather than to an OFDF in the Footprint.

8. Service Provider Responsibilities

- 8.1 The Service Provider responsibilities are detailed in the General Terms and Operations Manual.
- 8.2 The Service Provider will be responsible for all of the design, specification and commissioning of their equipment and plant (both active and passive) connected to the Fibre Interconnection Service. This includes additional fibre and connections at either end of the Inter CO Fibre Service.

9. Fibre Diversity

- 9.1 The Inter CO Fibre Service provides a single diverse fibre between the originating and destination LFC Central Offices.
- 9.2 Diversity (a second or subsequent instance of the Inter CO fibre Service between Group A Central Offices in the same Candidate Area) will be available on request. The provision of a diverse fibre (a second instance of the Inter CO Fibre Service) will have unique site specific engineering considerations and may result in optical loss budgets that will fall

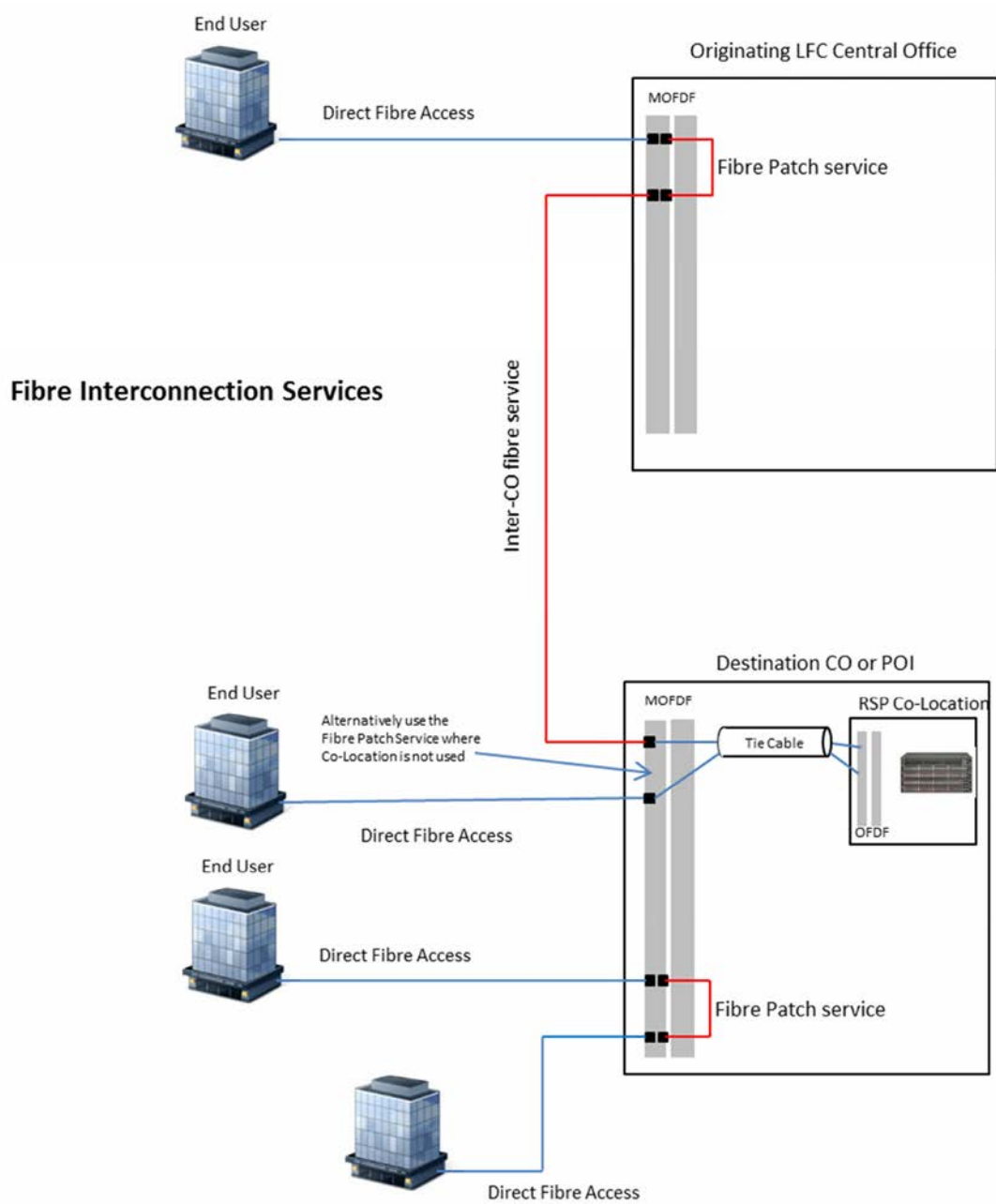
outside standard distance and power levels on one of the fibres. Standard installation Service Levels do not apply to the provision of diverse products and each instance will be treated as an individual line for the purpose of availability of Service Levels.

- 9.3 Diverse optical paths will be in separate fibre cable sheaths, and if requested in separate cable routes. The diverse cable routes will be a minimum of the width of a street apart, and should not share any manholes or access points. Separate entries into the Central Office will be used where requested.

10. Service Levels

- 10.1 The Service Level Terms for the Fibre Patching Service and the Inter CO Fibre Service are described in the Service Level Terms for Fibre Interconnection Services.

Appendix A – Diagram



This is a generic diagram showing the standard configuration of the Fibre Patching Service, and the Inter CO Fibre service with and without an RSP Co Location footprint. It is not intended to represent every situation.

Appendix B – Technical Specification

Technical Specification

Single Mode Fibre	External fibre must comply with ITU-T specification G.652D. Internal building fibres may comply with ITU-T G.657A but cable must meet appropriate fire regulations i.e. be Flame-Retardant, Non Corrosive, Low Smoke, No Halogen (FRNC/LSNH).
Connector Type	Fibre terminations must be SC/APC type connectors (complying with the IEC 61754-4 standard) or alternatively LC/APC type connectors (complying with the IEC 61754-20 standard) as appropriate.
Optic Path	Laser types and path characteristics expected to be designed to a minimum standard which are contained in the documents IEEE 802.3 Section 5 standard.

APPENDIX C – SERVICE AVAILABILITY LOCATIONS

The Inter CO Fibre Service is available between the following Central Office locations only:

(1) The following Central Offices are "Group A" Central Offices:

Group A Central Offices
Riccarton
Cashmere
Hornby
Papanui
St Albans
Mt Pleasant
Halswell
Redwood
Burwood

(2) The following Central Offices are "Group B" Central Offices:

B Step Central Offices
Rangiora
Rolleston
Kaiapoi

