

Chorus UFB Services Agreement

Direct Fibre Access Services: Service Description for Direct  
Fibre Access Service

Reference Offer

April 2021

## 1 Interpretation

- 1.1 References to clauses or sections are references to clauses or sections in this Service Description unless expressly provided otherwise. The definitions set out in the General Terms and the Operations Manual apply to this Service Description unless expressly provided otherwise.
- 1.2 References to the Operations Manual are references to the operations manual for the Direct Fibre Access Services.

## 2 The Direct Fibre Access Service

- 2.1 The Direct Fibre Access Service is a dark fibre service suitable for the delivery of complex business grade applications requiring point-to-point fibre access. It enables access to, and interconnection with the LFC Network.
- 2.2 A diagram of the configuration for the Direct Fibre Access Service is set out in Appendix A. The Direct Fibre Access Service consists of the provision of a single fibre from the connector or OFDF at the End User Premises, Service Provider Premises or NBAP (as applicable) to either:
- 2.2.1 the MOFDF at the LFC Central Office; or
  - 2.2.2 where the Service Provider is taking the Central Office and POI Co-location Service, an LCA Connector on an OFDF on the Service Provider's Footprint at the LFC's relevant Central Office, via the MOFDF at the relevant Central Office.
- 2.3 The Direct Fibre Access Service is an input service which a Service Provider can use as a building block to combine with other UFB Services (or with the Service Provider's own network or wholesale services provided by other service providers) to provide fibre based telecommunications services to End Users.

## 3 Direct Fibre Access Service and Implementation Activities

### *Installation services*

- 3.1 The Direct Fibre Access Service includes a Standard Install as set out in the Operations Manual.<sup>1</sup> The LFC will provide Non-Standard Installs for Direct Fibre Access Service as an ancillary service.

### *Termination Point*

- 3.2 The Direct Fibre Access Service termination points are set out in the Operations Manual.

### *Testing*

- 3.3 The LFC will test the Direct Fibre Access Service from the termination point at the End User Premises, as referred to in the Operations Manual, to the MOFDF or Service Provider's Footprint OFDF or LCA connector (as applicable) at the LFC Central Office to ensure the fibre is within the technical specification for fibre set out in Appendix B.
- 3.4 On request at time of order, the LFC will provide the Service Provider detailed fibre performance measurements from the MOFDF in the originating LFC Central Office to nominated termination points at Premises or NBAP (as applicable) in the form of a certificate generated from an Optical Time Domain Reflectometer (OTDR) trace. The LFC can also provide the Service Provider, at an additional charge in accordance with Price List item 1.12, Manual line testing and site investigation, route maps for circuits and OTDR trace certificates after Connection.

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<sup>1</sup> Standard Install parameters may differ between LFCs.

*Additional Services*

- 3.5 If the Service Provider requires additional services such as:
- 3.5.1 a Non-Standard Install which includes (where required):
    - (a) an extension of the Fibre Lead-in where there is no existing fibre cabling and the installation is outside the parameters set out in the Operations Manual; or
    - (b) installation of specialised termination equipment in an NBAP; or
    - (c) installation of Fibre-Lead-in diversity at an End User Premises, Service Provider Premises or NBAP (as applicable) (from the FAP to the ETP or OFDF as applicable);
  - 3.5.2 provision of diversity to End User Premises, Service Provider Premises or NBAP (as applicable) other than those listed in clause 8.2 (when the second or subsequent instance of the Direct Fibre Access Service is purchased);
  - 3.5.3 any premises wiring services; or
  - 3.5.4 installation and testing of Service Provider equipment (as defined in the Central Office and POI Co-location Service Description) and services,
- then the LFC may elect to provide the services in clauses 3.5.3 and 3.5.4 on request subject to terms to be agreed between the LFC and the Service Provider. The services in clauses 3.5.1 and 3.5.2 are available on terms as set out in this Agreement.

*Service Requirements*

- 3.6 To use the Direct Fibre Access Service, the Service Provider must have the capability to access and interconnect with the Direct Fibre Access Service, either by:
- 3.6.1 co-locating Service Provider equipment (as defined in the Central Office and POI Co-location Service Description) at the LFC's relevant Central Office using a Footprint provided under the Central Office and POI Co-location Service; or
  - 3.6.2 where the Service Provider does not take the Central Office and POI Co-location Service at the relevant LFC Central Office, by taking the Jumpering Service at the relevant LFC Central Office MOFDF to connect the Direct Fibre Access Service to either:
    - (a) another Direct Fibre Access Service; or
    - (b) the Intra Candidate Area Backhaul Service from the LFC's relevant Central Office MOFDF to connect to another LFC's relevant Central Office MOFDF within the same Candidate Area (as defined in the Intra Candidate Area Backhaul Service Description) elsewhere; or
    - (c) a Chorus or third party backhaul service from the LFC's relevant Central Office MOFDF to connect to Service Provider equipment (as defined in the Central Office and POI Co-location Service Description) elsewhere.

*Additional Service Characteristics*

- 3.7 The technical specification of the Direct Fibre Access Service is set out in Appendix B.
- 3.8 The LFC will provide certain support and other assistance as part of the Direct Fibre Access Service including:
- 3.8.1 an automated facility for Service Requests;
  - 3.8.2 an automated facility for fault notifications; and
  - 3.8.3 a tool to assist the Service Provider in determining the location and availability of the Direct Fibre Access Service (pre-qualification).

- 3.9 The loss of the optic path will be determined by the length of the fibre, the number of slices or connectors and the margin for future changes, the presence of legal intercept devices, ageing, etc. in accordance with the standards specified in Appendix B. The maximum distance will be limited by the physical size of the Central Office coverage area and the route from Central Office to End User Premises or Service Provider Premises; however it will not exceed 10kms for standard paths. This is expected to translate into a maximum loss of 5dB at 1550nm excluding any legal intercept device. Paths for diverse circuits may exceed the 10km limit due to the nature of their diverse route and any additional distance will add a maximum  $\leq 0.5$ dB per km. The LFC will provide the Service Provider with network optical budget design targets at time of order and fibre commissioning power level test results after installation. 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.
- 3.10 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 nominated termination points at End User Premises, Service Provider Premises or NBAP (as applicable). 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 payable for these services.
- 3.11 The Direct Fibre Access Service specifically excludes:
- 3.11.1 provision or maintenance of any cabling or connection or active device beyond the service demarcation points described in clauses 4.1 and 5.1;
  - 3.11.2 configuration, monitoring, operation, on-going support or maintenance of Service Providers' or End Users' applications, equipment or networks; and
  - 3.11.3 the supply of AC mains & UPS power, accommodation space, heating, ventilation, air conditioning and facilities at the LFC's relevant Central Office or End User Premises, Service Provider Premises or NBAP (as applicable).

#### **4 Service Demarcation Point at End User Premises, Service Provider Premises or Service Provider Premises or NBAP (as applicable)**

- 4.1 The Service Demarcation Point for the Direct Fibre Access Service at the End User Premises, Service Provider Premises or NBAP (as applicable) is the termination point as described in the Operations Manual.
- 4.2 The Direct Fibre Access Service excludes the End User Premises, Service Provider Premises or NBAP (as applicable) wiring. If a fault reported by the Service Provider is found to be caused by the End User Premises, Service Provider Premises or NBAP (as applicable) equipment (CPE) or the wiring at the End User Premises, Service Provider Premises or NBAP (as applicable) beyond the service demarcation point, then the Service Provider may be charged the "No fault found" Ancillary Charge in the Price List. Note the wiring should comply with the industry standard Premises wiring requirements which are available at [www.tcf.org.nz](http://www.tcf.org.nz).

#### **5 LFC Service Demarcation Point**

- 5.1 The Service Demarcation Point for the Direct Fibre Access Service at the Central Office is the termination point as described in the Operations Manual.

#### **6 Tie Cable Connection**

- 6.1 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 Central Office and POI Co-location Service Footprint. If the number of fibres requested in the Tie Cable is less than 48, the Tie Cable to the Footprint will consist of a connectorised fibre pigtail rather than an OFDF.

#### **7 Service Provider Responsibilities**

- 7.1 Other Service Provider responsibilities are detailed in the General Terms and Operations Manual.
- 7.2 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 Direct Fibre Access Service.

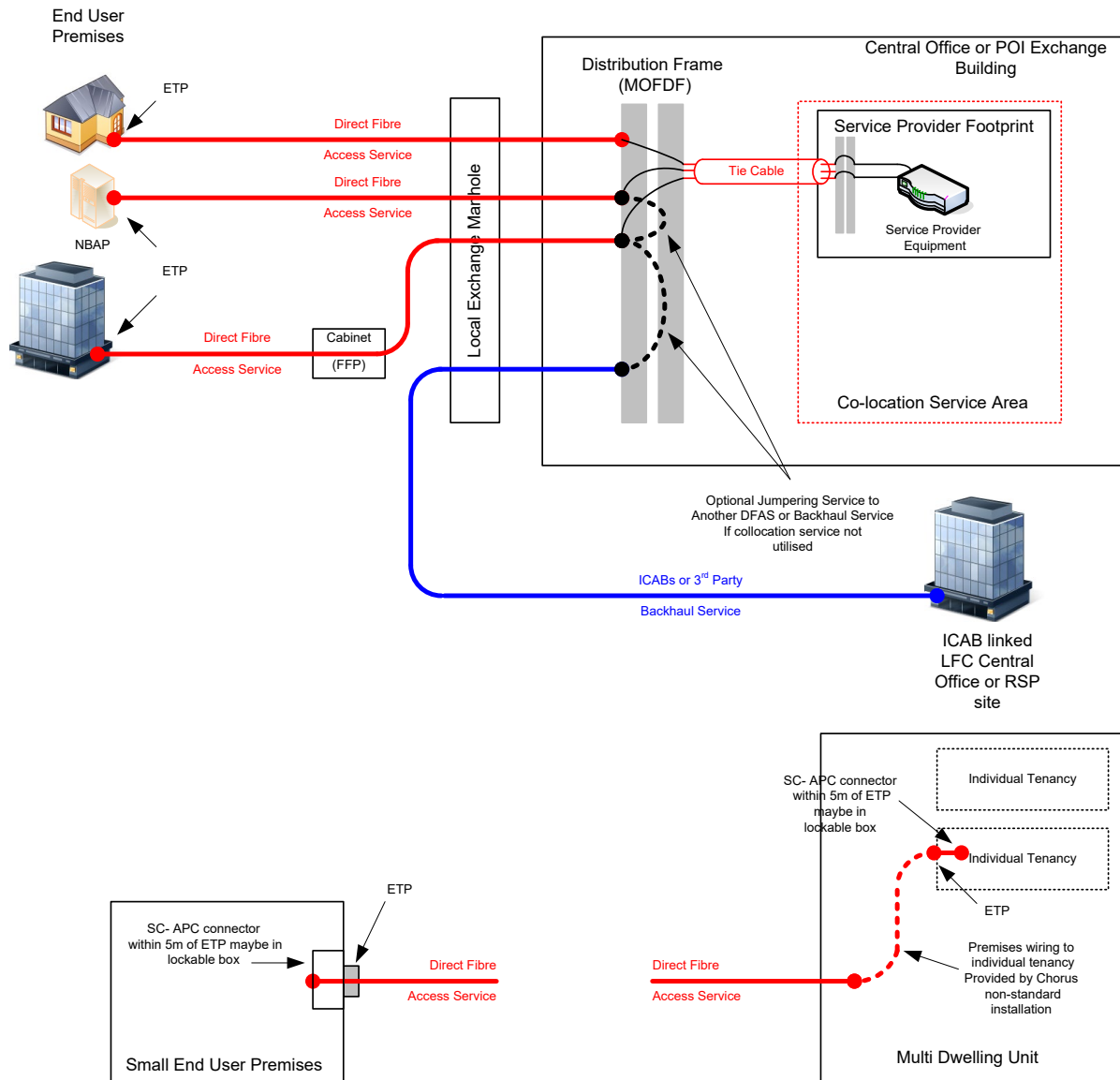
**8 Fibre Diversity**

- 8.1 The Direct Fibre Access Service provides a single fibre between the LFC's relevant Central Office and the End User Premises, Service Provider Premises or NBAP (as applicable).
- 8.2 Diversity (a second or subsequent instance of the Direct Fibre Access Service between the End User Premises, Service Provider Premises or NBAP (as applicable) and the LFC's relevant Central Office) will be available to Priority Users on request for Premises located in major health-care facilities, secondary or tertiary education centres, central business districts, industrial parks, business parks and strip malls. Diversity, as a standard product, may not be available to Premises outside of these areas. Standard Installation Charges and Service Levels do not apply to the provision of diversity products that involve diverse access to the End User Premises, Service Provider Premises or NBAP (as applicable) or access to a Central Office that is not the local Central Office. Each instance of the Direct Fibre Access Service, primary and diverse, will be treated as an individual line for the purpose of availability Service Levels.
- 8.3 Where available, the 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 also be used where available.
- 8.4 The Service Provider can also request diverse access to End User Premises, Service Provider Premises or NBAP (as applicable), or access to diverse Central Offices as part of a Non-Standard Install; however this will not be available in all cases.
- 8.5 Where practicable, the LFC will also provide diversity in situations other than those listed in clause 8.2 on request as an additional service.
- 8.6 There may be practical limitations to providing full physical diversity to some sites. The provision of a separate entry to an LFC Central Office will have unique site specific engineering considerations and may attract additional costs.

**9 Service Levels**

- 9.1 Service Levels for the Direct Fibre Access Service are set out in the Service Level Terms for the Direct Fibre Access Services.

**Appendix A – Diagram**



This is a generic diagram showing the standard configuration and service demarcation points. It is not intended to represent every situation or detailed physical architecture. The following points should be noted:

- not all circuits will pass through a cabinet or FFP;
- the circuit will terminate within 5m of ETP (unless otherwise arranged by Non Standard Install);
- in MDUs where the LFC has provided Premises fibre cabling the termination point is described in the Operations Manual.
- in an NBAP the termination point will be agreed between the LFC and the Service Provider as described in the Operations Manual.

The diagram also shows the optional interconnection of Direct Access Fibre Service and either a second Direct Access Fibre Service or Intra Candidate Area Backhaul Service or a third party backhaul using the Jumpering Service.

**Appendix B – Technical Specification****Technical Specification**

Fibre	External fibre must comply with ITU-T specification G.652D or 657A. Internal building fibre cables must meet appropriate fire regulations i.e. be Flame-Retardant, Non Corrosive, Low Smoke, Zero Halogen (FRNC/LSZH)
Connector Type	Fibre terminations must be SC/APC type connectors (complying with the IEC 61754-4 standard) or alternatively LC/APC also known as LCA 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 is contained in either IEEE 802.3 Section 5 or ITU-T G.984 standards.
Fibre Testing Layer 1	<p>All commissioning Layer 1 network testing (LFC site OFDF to end of Communal Network) is by OTDR at two wavelengths, 1310nm and 1550nm using Bi-Directional method in accordance with Chorus standard described in ND0556.</p> <p>Network test results are provided by agreement verifying performance features. Refer to the Direct Fibre Services Operations Manual for details.</p> <p>All Layer 1 network restoration testing will be LFC site OFDF to Premises termination point to the standard in Optical Performance table below.</p> <p>Testing for power loss will be at either 1310 or 1550 nm</p> <p>The wavelengths of 1625nm and 1650nm are reserved for network maintenance testing purposes (live GPON network), compliant with ITU-T L.41</p>
Optical Path performance	<p>Communal Network performance</p> <p>Network Return Loss = <math>\geq 32\text{db}</math></p> <p>Optical Fibre Attenuation Co-Efficient (L) (ITU-T G.652. &amp; G657.A) = <math>\leq 0.4\text{db/km}</math></p> <p>Splice Loss (S) (average of all splices in link) = <math>\leq 0.15\text{db}</math></p> <p>Mated Connector loss (C) = <math>\leq 0.3\text{db}</math></p> <p>Mated Connector Reflection = <math>\geq 55\text{db}</math></p> <p>Total Insertion Loss of network (IL) is calculated from <math>IL = 0.4L + 0.15S + 0.3C</math></p>