



Northpower Fibre UFB Services Agreement
Service Description for Direct Fibre Access Service

1 Interpretation

- 1.1 The Direct Fibre Access Service described in this Service Description will be available from the date it is launched by the LFC. The LFC will notify the Service Provider of the launch date for the Direct Fibre Access 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 the General Terms and the Operations Manual apply to this Service Description unless expressly provided otherwise.
- 1.3 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's Premises or, in the case of an MDU the End User's Tenancy, 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 LCA¹ 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 below (in each case to the extent that the relevant provisioning works are not already complete for the relevant Service Order).² The LFC will provide Non-Standard Installs for Direct Fibre Access Service to Single Dwelling Units and Non-Standard Installs for the Fibre Lead-in to MDUs as ancillary services.

Provisioning at Single Dwelling Unit End User's Premises

- 3.2 A Standard Install for the Direct Fibre Access Service to a Single Dwelling Unit includes:
- 3.2.1 a Fibre Lead-in from the Fibre Access Point to an ETP at the closest convenient point on the End User Premises, as agreed with End User, where the Fibre Lead-in utilises no more than:
 - (a) 100m of approved conduit or open trench (already in place at the time of installation); or
 - (b) a double span of aerial drop lead on existing poles from the Fibre Access Point (this will include road crossings) (available only in areas where there is overhead deployment); or
 - (c) 30m of buried lead-in (available only in areas where there is underground deployment); and

¹ LCA – Little Angled Connector to IEC 61754-20.

² Standard Install parameters may differ between LFCs.

- 3.2.2 an extension of the Fibre Lead-in up to a 10m radius from the ETP (there will not necessarily be a break in the Fibre Lead-in at the ETP) to:
- (a) a suitable mounted SC/APC³ connector at a secure location inside the End User's Premises; or
 - (b) if there is an OFDF beyond the ETP, a splice or LCA connector on the OFDF.

Provisioning at MDU End User's Premises

- 3.3 A Standard Install for the Direct Fibre Access Service to an End User that is within a MDU where there is no LFC network fibre within the Premises, includes a Fibre Lead-in from the Fibre Access Point to the OFDF or equivalent at the closest convenient point within the MDU, as agreed with the MDU owner or their agent, where the Fibre Lead-in utilises no more than:
- 3.3.1 100m of approved conduit or open trench (already in place at the time of installation); or
 - 3.3.2 a double span of aerial drop lead on existing poles from the Fibre Access Point (this will include road crossings) (available only in areas where there is overhead deployment); or
 - 3.3.3 30m of buried lead-in (available only in areas where there is underground deployment).
- 3.4 Where the fibre cabling in a MDU to the End User Tenancy is not already in place at the time of installation of the Direct Fibre Access Service, the LFC will work with the building owners, their agents and the Service Provider using the MDU On-Boarding Process described in the Operations Manual to provide fibre cabling within the MDU to extend the Fibre-Lead-in to the End User Tenancy.
- 3.5 Once LFC Network fibre is installed to a MDU and a Fibre Lead-in to the required End User Tenancies, a Standard Install for the Direct Fibre Access Service includes further extension of the Fibre Lead-in up to a 10m radius from the ETP at the End User Tenancy (there will not necessarily be a break in the Fibre Lead-in at the ETP) to:
- 3.5.1 a suitable mounted SC/APC connector at a secure location; or
 - 3.5.2 if there is an OFDF beyond the ETP, a splice or LCA connector on the OFDF, within the End User Tenancy.
- 3.6 If there is not an ETP at the End User Tenancy as contemplated by clause 3.5, a Standard Install for the Direct Fibre Access Service includes a further extension of the Fibre Lead-in up to a 10m radius from the boundary of the End User Tenancy to:
- 3.6.1 a suitable mounted SC/APC connector at a secure location; or
 - 3.6.2 if there is an OFDF beyond the boundary, a splice or LCA connector on the OFDF, within the End User Tenancy.
- 3.7 The extended LFC Network fibre within the MDU is the Fibre Lead-in to an End User Tenancy, whether currently in use or not. The Fibre Lead-in is only available for use by the LFC.
- 3.8 Where the Service Provider requests provision of the Direct Fibre Access Service to an End User Tenancy prior to the installation of fibre cabling in the MDU (as described in 3.4) then any Fibre Lead-in beyond the limits in clause 3.3 will be a Non-Standard Install.

Provisioning at LFC Central Office - Tie Cable

- 3.9 Where required, the LFC will connect the single fibre from the LCA connector where it is terminated at the LFC's relevant Central Office MOFDF via a Tie Cable from the MOFDF to the Service Provider's Footprint within the LFC's relevant Central Office which has been installed as part of the Central Office & POI Co-location Service.

³ SC/APC – Standard Connector / Angle Polished Connector to IEC 61754-4.

Single Dwelling Unit Termination Point

- 3.10 For a Single Dwelling Unit, the termination point for the purposes of the Connection at the End User's Premises, and the network demarcation point between the LFC Network and the Premises wiring, is, as applicable, either:
- 3.10.1 the SC/APC connector on the end of the Fibre Lead-in from the ETP (which is the connector); or
 - 3.10.2 a splice or LCA connector on the OFDF,
within the End User Premises.

MDU Termination Point

- 3.11 For MDUs, the termination point for the purposes of the Connection at the End User's Tenancy, and the network demarcation point, is, as applicable, either:
- 3.11.1 the SC/APC connector on the end of the Fibre Lead-in (which is the connector); or
 - 3.11.2 a splice or LCA connector on the OFDF,
within the End User Tenancy.

LFC Central Office Termination Point – Termination on Service Provider Footprint or Interconnection with a commercial backhaul service

- 3.12 The Service Provider will usually establish a Footprint pursuant to the Central Office and POI Co-location Service in the LFC's relevant Central Office and connect (via the Tie Cable described in clauses 3.9 and 6 from the MOFDF) the single fibre provided pursuant to the Direct Fibre Access Service to the Service Provider's Footprint. Accordingly, at the LFC's relevant Central Office, the termination point for the purposes of the Connection, and the network demarcation point between the LFC Network and the Service Provider's equipment (as defined in the Central Office and POI Co-location Service Description), is usually the LCA connector or splice on the end of the Tie Cable that terminates on the OFDF on the Service Provider's Footprint.
- 3.13 Where the Service Provider has no Central Office and POI Co-location Service at the LFC's relevant Central Office, in order to take the Direct Fibre Access Service at that Central Office the Service Provider must also take a commercial backhaul service from the MOFDF at that Central Office to a Service Provider's equipment (as defined in the Central Office and POI Co-location Service Description) at another location. In this case, the single fibre provided pursuant to Direct Fibre Access Service will terminate on a splice or the LCA connector on the MOFDF at the LFC's relevant Central Office, which will be the service demarcation point.

Alternative Termination Points

- 3.14 The LFC and the Service Provider may agree on a different termination point as part of a Non-Standard Install. This may be necessary where, for example, there is installation to a NBAP. A Non Standard Install for a Direct Fibre Access Service within a Multi Dwelling Unit will not include termination in a building common area or other facility made available by the owner to service the Multi Dwelling Unit, where a Fibre Lead-in has not been extended from the OFDF to the inside of an End User Tenancy.

Testing

- 3.15 The LFC will test the Direct Fibre Access Service from the termination point at the End User's Premises referred to in clause 3.10 and 3.11 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.

Additional Services

- 3.16 If the Service Provider requires additional services such as:
- 3.16.1 a Non-Standard Install which includes (where required):
 - (a) an extension in a MDU of the Fibre Lead-in from the OFDF to an ONT inside the End User's Tenancy where there is no existing fibre cabling at the MDU and the installation is outside the parameters set out in clause 3.2.1; or

- (b) installation to a NBAP utilising specialised termination equipment; or
 - (c) installation of Fibre-Lead-in diversity at an End User's Premises (from the FAP to the ETP or OFDF as applicable);
- 3.16.2 provision of diversity to End User's Premises other than those listed in clause 8.2 (when the second or subsequent instance of the Direct Fibre Access Service is purchased);
- 3.16.3 Premises wiring services; or
- 3.16.4 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 such additional services on request subject to terms to be agreed between the LFC and the Service Provider. The services in clause 3.16.1 are available on terms as set out in this Agreement.

Interconnection Requirements

- 3.17 To use the Direct Fibre Access Service the Service Provider can access and interconnect to the Direct Fibre Access Service, either by:
- 3.17.1 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;
 - 3.17.2 where the Service Provider does not take the Central Office and POI Co-location Service at the relevant LFC Central Office, by taking a third party backhaul service from the LFCs' relevant Central Office MOFDF to connect to a Service Provider equipment (as defined in the Central Office and POI Co-location Service Description) elsewhere;
 - 3.17.3 requesting a fibre patch between two Direct Fibre Access Services off the same Central Office; or
 - 3.17.4 requesting an inter-Central Office fibre service, where this service is available from the LFC.

Additional Service Characteristics

- 3.18 The technical specification of the Direct Fibre Access Service is set out in Appendix B.
- 3.19 The LFC will provide certain support and other assistance as part of the Direct Fibre Access Service including:
- 3.19.1 an automated facility for Service Requests;
 - 3.19.2 an automated facility for fault notifications; and
 - 3.19.3 a tool to assist the Service Provider in determining the location and availability of the Direct Fibre Access Service (pre-qualification).
- 3.20 The LFC will provide the Service Provider with network optical budget design targets and fibre commissioning power level test results. 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.
- 3.21 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. 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.
- 3.22 The Direct Fibre Access Service specifically excludes:
- 3.22.1 provision or maintenance of any cabling or connection or active device beyond the service demarcation points described in clauses 4.1 and 5.1;
 - 3.22.2 configuration, monitoring, operation, on-going support or maintenance of Service Providers' or End Users' applications, equipment or networks; and

- 3.22.3 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.

Provisioning at an NBAP

- 3.23 A Standard Install for the Direct Fibre Access Service to an NBAP includes:
- 3.23.1 a Fibre Lead-in from the Fibre Access Point to an ETP at the closest convenient point on the NBAP, as agreed with the End User, where the Fibre Lead-in utilises no more than:
- (a) 100m of approved conduit or open trench (already in place at the time of installation); or
 - (b) a double span of aerial drop lead on existing poles from the Fibre Access Point (this will include road crossings) (available only in areas where there is overhead deployment); or
 - (c) 30m of buried lead-in (available only in areas where there is underground deployment); and
- 3.23.2 an extension of the Fibre Lead-in up to a 10m radius from the ETP (there will not necessarily be a break in the Fibre Lead-in at the ETP) to:
- (a) a suitable mounted SC/APC⁴ connector at a secure location inside the NBAP; or
 - (b) if there is an OFDF beyond the ETP, a splice or LCA connector on the OFDF.

4 Service Demarcation Point at End User Premises

- 4.1 The service demarcation points for the Direct Fibre Access Service at the End User's Premises is the termination and network demarcation point described in (as applicable) clauses 3.2 and 3.5 and 3.6.
- 4.2 The Direct Fibre Access Service excludes the End User Premises wiring. If a fault reported by the Service Provider is found to be caused by the End User Premises equipment (CPE) or the wiring at the End User's Premises beyond the service demarcation point, then the Service Provider may be charged the no fault found fee in the Price List. Note the wiring should comply with the industry standard Premises wiring requirements which are available at 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 and service demarcation point described in (as applicable) clauses 3.11 and 3.12.

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 its equipment and plant (both active and passive) connected to the Direct Fibre Access Service.

8 Fibre Diversity

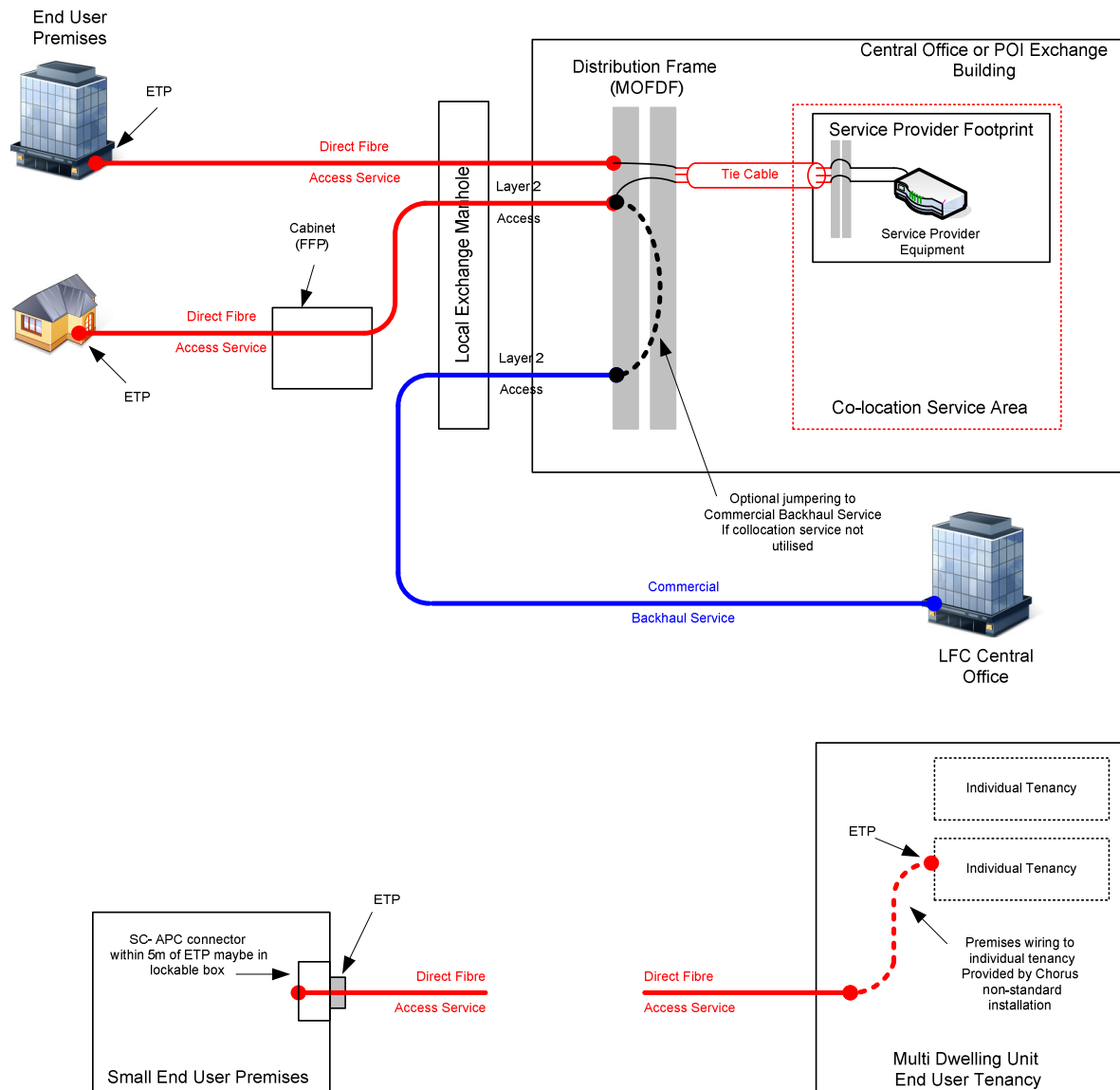
⁴ SC/APC – Standard Connector / Angle Polished Connector to IEC 61754-4

- 8.1 The Direct Fibre Access Service provides a single fibre between the LFC's relevant Central Office and the End User's Premises.
- 8.2 Diversity (a second or subsequent instance of the Direct Fibre Access Service between the End User's Premises 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 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.
- 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 LFC's relevant Central Office will be used where available.
- 8.4 The Service Provider can also request diverse access to End User Premises, or access to diverse Central Offices as part of a Non-Standard Install; however this may 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 a 10m radius of ETP (unless otherwise arranged by Non Standard Install); and
- In MDUs where the LFC has provided Premises fibre cabling, the demarcation point is the ETP in an End User Tenancy.

The diagram also shows the interconnection of Direct Access Fibre Service and a third party backhaul service (which is a separate third party backhaul service described elsewhere).

Appendix B – Technical Specification

Technical Specification

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|----------------|--|
| 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 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 are contained in the documents in LFC document ND0473 based on IEEE 802.3 Section 5 standard or ITU-T G.984. |
| Fibre Testing | Testing for power loss will be at either 1310 or 1550 nm. The wavelengths of 1625 nm and 1650nm are reserved for testing purposes, compliant with ITU-T L.41. |