



Enable Networks UFB Services Agreement
Service Description for Input Passive Optical Network Fibre
Access Service

1 Interpretation

- 1.1 The Input Passive Optical Network Fibre Access Service described in this Service Description will be available from 1 January 2020. This Service is an Input Service that is required to be provided under the LFC's Deed of Open Access Undertakings.
- 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 Input Passive Optical Network Fibre Access Service 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 Input Passive Optical Network Fibre Access Service.
- 1.4 The Input Passive Optical Network Fibre Access Service is not a Base Wholesale Service as defined in the General Terms, and is not subject to a Price Cap.

2 The Input Passive Optical Network Fibre Access Service

- 2.1 The Input Passive Optical Network Fibre Access Service is a point to multi-point dark fibre service suitable for the delivery of applications requiring point-to-multipoint fibre access. It enables access to, and interconnection with the LFC Network.
- 2.2 A diagram of the configuration for the Input Passive Optical Network Fibre Access Service is set out in Appendix A. The Input Passive Optical Network Fibre Access Service consists of the provision of a single fibre from the connector or OFDF at the End User Premises or End User Tenancy in an MDU, via a splitter to the MOFDF at the LFC Central Office.
- 2.3 The Input Passive Optical Network Fibre Access Service is for the sole purpose of providing service to a Premises.
- 2.4 The Input Passive Optical Network Fibre Access Service comprises the following separate components, both of which a Service Provider must purchase in order to consume the Input Passive Optical Network Fibre Access Service:
 - 2.4.1 Input Passive Optical Network Fibre Access Service Feeder – from the demarcation point located in the LFC Central Office MOFDF to the LFC's Fibre Flexibility Point (FFP) where it is connected to a 1:24 optical splitter; and
 - 2.4.2 Input Passive Optical Network Fibre Access Service Distribution – from the port on the splitter allocated to the RSP, to the End User Premises or End User Tenancy service demarcation point.
- 2.5 The Input Passive Optical Network Fibre Access Service is an input service which a Service Provider can use as a building block to combine with other Input Services.

3 Input Passive Optical Network Fibre Access Service and implementation activities

Installation services

- 3.1 The Input Passive Optical Network 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).¹ The LFC will provide Non-Standard Installs for the Input Passive Optical Network Fibre Access Service to Single Dwelling Units and Non-Standard Installs for the Fibre Lead-in to MDUs as Ancillary Services.

¹ Standard Install parameters may differ between LFCs.

Provisioning at Single Dwelling Unit End User's Premises

- 3.2 A Standard Install for the Input Passive Optical Network Fibre Access Service Distribution component 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 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 and is 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
- 3.2.2 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/APC² connector at a secure location inside the End User Premises; or
 - (b) if there is an OFDF beyond the ETP, a splice or LCA connector on the OFDF; and
- 3.2.3 splicing to the next available or requested port on the optical splitter in the FFP.

Provisioning at MDU End User's Premises

- 3.3 A Standard Install for the Input Passive Optical Network Fibre Access Service Distribution component to an End User that is within an MDU (i.e. an End User Tenancy) includes:
- 3.3.1 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:
- (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 and is 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
- 3.3.2 where the fibre cabling in an MDU to the End User Tenancy is not already in place at the time of installation of the Input Passive Optical Network Fibre Access Service, fibre cabling within the MDU to extend the Fibre-Lead-in from the OFDF or equivalent to the End User Tenancy; and
- 3.3.3 either:
- (a) a 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:
 - (i) a suitable mounted SC/APC connector at a secure location; or

²SC/APC – Standard Connector / Angle Polished Connector to IEC 61754-4.

- (ii) if there is an OFDF beyond the ETP, a splice or LCA connector on the OFDF,
within the End User Tenancy; or
 - (b) if there is not an ETP at the End User Tenancy as contemplated by clause 3.3.3(a), a further extension of the Fibre Lead-in up to a 10m radius from the boundary of the End User Tenancy to:
 - (i) a suitable mounted SC/APC connector at a secure location; or
 - (ii) if there is an OFDF beyond the boundary, a splice or LCA connector on the OFDF,
within the End User Tenancy; and
- 3.3.4 splicing to the next available or requested port on the optical splitter in the FFP.
- 3.4 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.

Provisioning of the Input Passive Optical Network Fibre Access Service Feeder

- 3.5 The installation of an Input Passive Optical Network Fibre Access Service Feeder must precede installation of the first Input Passive Optical Network Fibre Access Service Distribution and will include:
 - 3.5.1 supply and installation of a 1:24 optical splitter in the FFP;
 - 3.5.2 a single fibre from the MOFDF in the Central Office to the FFP;
 - 3.5.3 splicing of the Feeder Fibre to the splitter; and
 - 3.5.4 terminating the Feeder Fibre on the MOFDF of the Central Office.

Provisioning at LFC Central Office - Tie Cable

- 3.6 The LFC will connect the Input Passive Optical Network Fibre Access Service Feeder component 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 Input Central Office and POI Co-location Service.

Single Dwelling Unit Termination Point

- 3.7 For a Single Dwelling Unit, the termination point for the purposes of the Connection at the End User Premises, and the network demarcation point between the LFC Network and the Premises wiring, is, as applicable, either:
 - 3.7.1 the SC/APC connector at the ITP; or
 - 3.7.2 the SC/APC connector on the end of the Fibre Lead-in from the ETP (which is the connector); or
 - 3.7.3 if there is an OFDF beyond the ETP, a splice or LCA connector on the OFDF,
within the End User Premises.

MDU Termination Point

- 3.8 For MDUs, the termination point for the purposes of the Connection at the End User Tenancy, and the network demarcation point, is, as applicable, either:
 - 3.8.1 the SC/APC connector at the ITP; or
 - 3.8.2 the SC/APC connector on the end of the Fibre Lead-in from the ETP (which is the connector); or

- 3.8.3 if there is an OFDF beyond the ETP or End User Tenancy boundary, a splice or LCA connector on the OFDF,
within the End User Tenancy.

LFC Central Office Termination Point – Termination on Service Provider Footprint

- 3.9 The Service Provider will establish a Footprint pursuant to the Input Central Office and POI Co-location Service in the LFC's relevant Central Office and connect (via the Tie Cable described in clauses 3.6 from the MOFDF) the single fibre provided pursuant to the Input Direct Fibre Access Service to the Service Provider's Footprint.

Alternative Termination Points

- 3.10 The LFC and the Service Provider may agree on a different termination point as part of a Non-Standard Install. A Non Standard Install for the Input Passive Optical Network Fibre Access Service within an MDU will not include termination in a building common area or other facility made available by the owner to service the MDU, where a Fibre Lead-in has not been extended from the OFDF to the inside of an End User Tenancy.

Testing

- 3.11 The LFC will test the Input Passive Optical Network Fibre Access Service from the FFP, as referred to in the Operations Manual, to the termination point at the LFC Central Office to ensure the Input Passive Optical Network Fibre Access Service Feeder component is within the technical specification for fibre set out in Appendix B.

Additional Services

- 3.12 If the Service Provider requires additional services such as:
- 3.12.1 A Non-Standard Install which includes (where required) an extension of the Fibre Lead-in over the maximum distances specified in clauses 3.2 (in relation to Single Dwelling Units) or clause 3.3 (in relation to End User Tenancies within MDUs);
 - 3.12.2 Premises wiring services including installation and testing of the Service Provider ONT and other CPE in the Premises; or
 - 3.12.3 installation and testing of Service Provider equipment (as defined in the Input 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.

Interconnection Requirements

- 3.13 To use Input Passive Optical Network Fibre Access Service the Service Provider must access and interconnect to Input Passive Optical Network Fibre Access Service by co-locating Service Provider OLT equipment at the LFC's relevant Central Office using a Footprint provided under the Input Central Office and POI Co-location Service.

Additional Service Characteristics

- 3.14 The technical specification of the Input Passive Optical Network Fibre Access Service is set out in Appendix B.
- 3.15 The LFC will provide certain support and other assistance as part of the Input Passive Optical Network Fibre Access Service including:
- 3.15.1 an automated facility for Service Requests;
 - 3.15.2 an automated facility for fault notifications; and
 - 3.15.3 a tool to assist the Service Provider in determining the location and availability of the Input Passive Optical Network Fibre Access Service (pre-qualification).

- 3.16 The Input Passive Optical Network Fibre Access Service specifically excludes:
- 3.16.1 provision or maintenance of any cabling or connection or active device beyond the service demarcation points described in clauses 4.1 and 5.1;
 - 3.16.2 configuration, monitoring, operation, on-going support or maintenance of Service Providers' or End Users' applications, equipment or networks; and
 - 3.16.3 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.

4 Service Demarcation Point at End User Premises

- 4.1 The service demarcation points for the Input Passive Optical Network Fibre Access Service at the End User Premises is the termination and network demarcation point described in (as applicable) clauses 3.7 and 3.8.
- 4.2 The Input Passive Optical Network Fibre Access Service excludes the End User Premises wiring beyond the ITP. 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 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 PONFAS Feeder Service Demarcation Point

- 5.1 The service demarcation point for the Input Passive Optical Network Fibre Access Service at the Central Office is the termination on the LFC's MOFDF which is to be connected to a Co-Location Tie Cable.

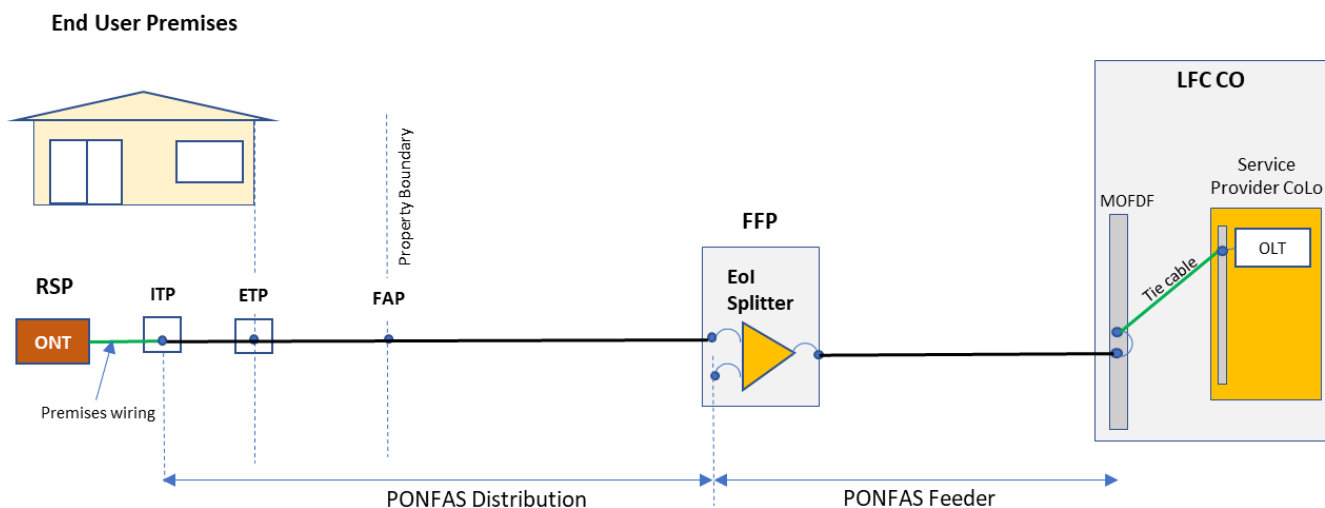
6 Service Provider Responsibilities

- 6.1 Other Service Provider responsibilities are detailed in the General Terms and Operations Manual.
- 6.2 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 Input Passive Optical Network Fibre Access Service.

7 Service Levels

- 7.1 Service Levels for the Input Passive Optical Network Fibre Access Service are set out in the Service Level Terms for the Input Passive Optical Network Fibre Access Service.

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:

- The FFP may be underground, in a cabinet, or in a building common area;
- The Input Passive Optical Network Fibre Access Service Distribution component is connected directly to a port on the splitter, i.e. there is no OFDF within the FFP. FFPs are not accessible by Service Providers; and
- Service Providers may not undertake fibre activity within the exchange, except within their own Service Provider Footprint that they have purchased as part of the Input Central Office and POI Co-location Service.
- Service Providers may not undertake any fibre activity within the FFP.

Appendix B – Technical Specification

Technical Specification

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).
Demarcation 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.