



Northpower Fibre UFB Services Agreement
Service Description for Central Office and POI Co-location
Service

1 Interpretation

- 1.1 The Central Office and POI Co-location 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 Central Office and POI Co-location 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 Central Office and POI Co-location Service.
- 1.4 This Service Description is based on the Telecommunications Carrier Forum (**TCF**) document Ultra-Fast Broadband (**UFB**) Co-Location Service Description.

2 The Central Office and POI Co-location Service

- 2.1 The Central Office and POI Co-location Service is a service (and its associated functions, including the associated functions of the LFC's operational support systems) that provides co-location facilities for a Service Provider's equipment, and access to a handover point, at the LFC's relevant Central Office solely for the purposes of providing access to, and interconnection with, the LFC Network (including any necessary supporting equipment) for the purposes of using the UFB Services.
- 2.2 The Central Office and POI Co-location Service is also available to third party backhaul providers for the purpose of providing backhaul to a Service Provider for UFB Services. References to "Service Provider" in this Service Description shall be read to include backhaul providers as the context requires.
- 2.3 A diagram of the configuration for the Central Office and POI Co-location Service is set out in Appendix A. The Central Office and POI Co-location Service includes access to and the use of, space in, on, or around the LFC's relevant Central Office for the purposes of installing and maintaining Service Provider equipment. The technical specification of the Central Office and POI Co-location Service is set out in Appendix B.
- 2.4 The Central Office and POI Co-location Service is an input service which a Service Provider can use as a building block to combine with interconnection and backhaul for the Direct Fibre Access Service and Bitstream Services offered by the LFC (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 Central Office and POI Co-location Service Provisioning and Implementation Activities

Service Provider's equipment

- 3.1 "Service Provider's equipment", for the purposes of this Service Description, includes:
 - 3.1.1 the Service Provider's equipment used for providing access to, and interconnection with, the Direct Fibre Access Service and Bitstream Services offered by the LFC;
 - 3.1.2 the equipment of any person other than the Service Provider if that equipment is being used to support the provision of backhaul or interconnection for the Service Provider; and
 - 3.1.3 all equipment being used by a Reseller to connect to the LFC Network.
- 3.2 The process for auditing the Service Provider's equipment is set out in the Operations Manual.

Provisioning of Central Office and POI Co-location Service

- 3.3 The Central Office and POI Co-location Service includes a Standard Install. The following installation works, when completed, will constitute a Standard Install of a Footprint:
 - 3.3.1 allocation of space to the Service Provider for a Footprint(s) at the relevant LFC Central Office for the installation of their equipment;

- 3.3.2 provision of power, earthing, air-conditioning and other associated services to support Service Provider equipment; and
- 3.3.3 construction of cable racks and trays, seismic bracing, and other associated infrastructure required to support Service Provider equipment.

Provisioning of Tie Cables

- 3.4 The Tie Cables provided under this Central Office and POI Co-location Service are solely for the purpose of providing UFB Services. The Central Office and POI Co-location Service includes the following provisioning activities for Tie Cables:
 - 3.4.1 identification of the route that Tie Cables will take between the Service Provider's Footprint and the MOFDF or between the Service Provider's Footprints;
 - 3.4.2 identification of the route that third party backhaul cables will take within the LFC Central Office, LFC ducts and the LFC Central Office Entry Points, between the Service Provider's Footprint(s) and the Service Provider's or a third party's fibre network cable outside and adjacent to the LFC's Central Office Entry Point;
 - 3.4.3 installation of any required cable racks and trays, seismic bracing and other associated infrastructure required to support Tie Cables and third party backhaul cables;
 - 3.4.4 provisioning of Tie Cables including SC Connectors or LC Connectors or fibre splices, from the MOFDF to the Service Provider's Footprint (note the cable may be supplied either by the LFC or the Service Provider, but must meet the relevant fibre specification);
 - 3.4.5 installation and termination of Tie Cables between the Service Provider's Footprint and the MOFDF; and
 - 3.4.6 installation of third party backhaul cables between the Service Provider's Footprint and the Central Office Entry Point.

Priority of Build and Space allocation

- 3.5 Space will be built according to the priority process in the Operations Manual.
- 3.6 After 31 December 2019, where there is a shortage of space and unbundling of layer one point to multi-point fibre has occurred, the LFC will give priority for Footprints to Service Providers interconnecting with layer one point-to-multi-point fibre.

Testing

- 3.7 The LFC will test the:
 - 3.7.1 Tie Cables from the MOFDF to the Service Provider Footprint at the LFC's relevant Central Office in each case to ensure the power loss figures are within the technical specification for fibre in Appendix B; and
 - 3.7.2 the co-location build at the LFC Central Office.

Additional Services

- 3.8 If the Service Provider requires additional services beyond those described above, such as installation and testing of Service Provider's equipment and services, then LFC may elect to provide these on request subject to terms to be agreed between the LFC and the Service Provider.

Access Service Requirements

- 3.9 To use the Central Office and POI Co-location Service the Service Provider must be receiving from the LFC at least one instance of the Direct Fibre Access Service or any Bitstream Service where the access fibre or UFB Handover Connection Service (as applicable) terminates at the relevant LFC Central Office. This requirement does not apply to parties that are receiving the Central Office and POI Co-location Service to support the provision to service providers of backhaul out of the Central Office.

Additional Service Characteristics

- 3.10 The Central Office and POI Co-location Service is restricted to the allocated Footprint in the LFC Central Office.

- 3.11 The Central Office and POI Co-location Service includes controlled access for accredited personnel to support Service Provider equipment.
- 3.12 The LFC will provide certain support and other assistance as part of the Central Office and POI Co-location Service including:
 - 3.12.1 an electronic facility for Service Requests; and
 - 3.12.2 an electronic facility for fault notifications.
- 3.13 The Central Office and POI Co-location Service specifically excludes:
 - 3.13.1 access to, and the use of, space in, on, or around any location apart from the allocated Footprint in the LFC's relevant Central Office for any purpose apart from those set out in clause 2.3;
 - 3.13.2 housing Service Provider equipment that is not for the purpose of providing access to, and interconnection with, the Direct Fibre Access Service and the Bitstream Services and approved by the LFC in accordance with the Operations Manual;
 - 3.13.3 unconditional rights of access to any LFC Central Office;
 - 3.13.4 configuration, monitoring, operation, on-going support or maintenance of Service Providers' or End Users' applications, equipment or networks; and
 - 3.13.5 configuration or on-going support of any Service Provider's or End User's applications.

4 Central Office and POI Co-location Configuration

- 4.1 A summary of the co-location configuration is set out below. It is subject to the full configuration details appearing in the Operations Manual.

Definitions

- 4.2 The co-location configurations which may be used to deliver the Central Office and POI Co-location Service in the Service Area at an LFC Central Office can be defined as follows:
 - 4.2.1 co-mingled Footprints (the default configuration): where Footprints are inter-mixed directly with each other within a shared row (the Service Provider's Footprints may also be inter-mixed with the LFC's or other Service Providers' racks or cabinets). Rows will not necessarily be sequentially filled and gaps may be left between Service Provider Footprints and the LFC's or other Service Providers' footprints, racks or cabinets for growth. However, if space restrictions prevent this approach then rows may be filled sequentially; and
 - 4.2.2 co-mingled rows: the Service Provider is allocated an entire row of Footprints. However, the LFC will only offer co-mingled rows where it assesses there is sufficient space at the LFC's relevant Central Office.
- 4.3 The Tie Cable configurations which may be used with the Central Office and POI Co-location Service in the Service Area at an LFC Central Office are as follows:
 - 4.3.1 Footprint to MOFDF;
 - 4.3.2 Footprint to third party backhaul provider's equipment; and
 - 4.3.3 between the Service Provider's Footprints within the Service Area.

5 Service Boundaries

- 5.1 The Central Office and POI Co-location Service is primarily confined to the Service Provider's Footprint.

6 Components of the Central Office and POI Co-location Service and associated charges

- 6.1 For detailed information on the components of the Central Office and POI Co-location Service and associated charges see the Operations Manual and the Price List.

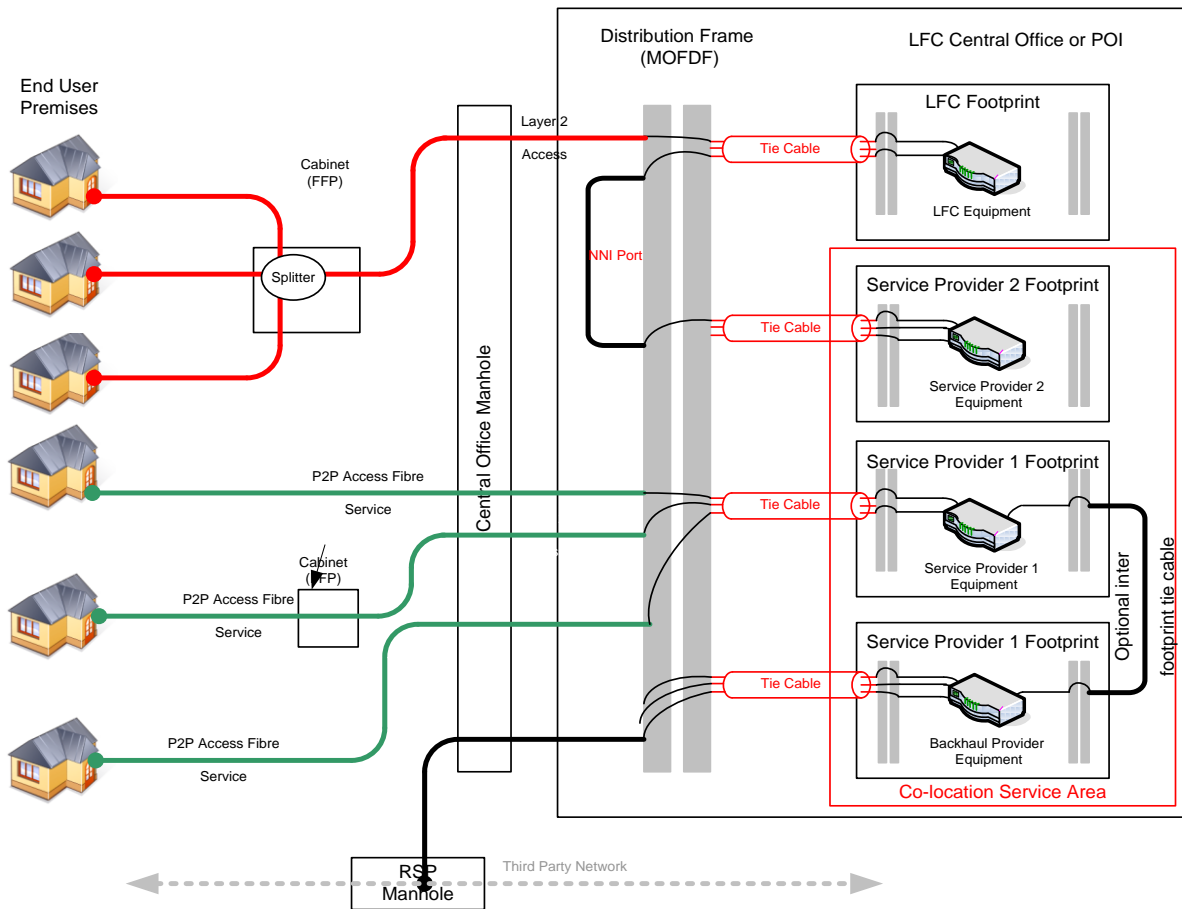
7 Tie Cable Connection

- 7.1 All Direct Fibre Access Service and third party backhaul provider service circuits, and all Bitstream Services together with the requisite UFB Handover Connection Services, will terminate at the MOFDF and will be extended by a Tie Cable to an SC Connector or LC Connector or fibre splice at the Service Provider's Footprint. Details of these services can be found in their respective Service Descriptions.
- 7.2 Installation of Tie Cables between third party backhaul provider equipment and the Service Provider's Footprint is detailed in the Operations Manual and will be as follows:
- 7.2.1 for LFC supplied cable, the cable will be delivered to the Service Provider outside and adjacent to the relevant Central Office Entry Point; and
 - 7.2.2 for Service Provider supplied cable, the cable, of length advised by the LFC, will be received at the relevant Central Office Entry Point.
- 7.3 Tie Cables are also available between Service Providers' Footprints within the Service Area. The Service Provider may only run its own Tie Cables between its own Footprints when the two Footprints are adjacent.

8 Service Provider Responsibilities

- 8.1 The Service Provider will be responsible for all of the design, specification and commissioning of their equipment and plant (both active and passive).
- 8.2 Other Service Provider responsibilities are detailed in the General Terms and the Operations Manual.

Appendix A – Diagram



Access Fibre Service Tie Cable options

The following Tie Cable options are available for the Central Office and POI Co-location Service:

- A. the Tie Cable from the Central Office MOFDF to the Service Provider's Footprint (note these cables are supplied by the LFC and remain the responsibility of the LFC as part of the Direct Fibre Access Service);
- B. the Tie Cable from the Service Provider's Footprint via the relevant Central Office MOFDF and relevant Central Office Manhole to third party backhaul provider network (note these cables may be supplied either by the LFC or the Service Provider but remain the responsibility of the backhaul provider as part of their backhaul service); and
- C. the Tie Cable between two of the Service Provider's Footprints (note these cables may be supplied either by the LFC or the Service Provider but remain the responsibility of the Service Provider).

Appendix B – Technical Specification

- 1.1 The parameters of the Central Office and POI Co-location Service are defined for the space and associated services at the LFC's relevant Central Office. Service Areas will provide a working environment broadly equivalent to that provided for telecommunications equipment, not data centre equipment, and will include the parameters listed for all types of Central Office and POI Co-location Services (unless otherwise provided):
- 1.1.1 Space: Footprints in a Central Office will have a minimum size of 1200 x 800 mm and have a minimum height that will accommodate a 2,200 mm ETSI rack (availability of larger Footprints will be dependent on site).
 - 1.1.2 Power: The default power source supplied to the Service Provider will be -48V DC power with additional back-up capability provided by the LFC; however there may still be single points of failure i.e. single rectifiers or single engine alternators. The Service Provider's may request as a commercial service additional back-up capability for the DC power provided by the LFC at sites where it is available. As an option, 230 volt 50Hz Ac power may be provided. Power may be charged in specified current steps as a fixed fee or the LFC may wish to offer metered¹ 48V DC or 230 V AC power as an option.
 - 1.1.3 Thermal Management: Service Areas will be designed to keep the air temperature within a range from 15 to 35°C. The normal operating standard is 22 to 26°C. Humidity will not necessarily be controlled in Service Areas. Humidity alarms, where installed, are set at 35% (low) and 70% (high). The maximum thermal load per 1200 x 800 mm Footprint will be 6 kw.
 - 1.1.4 Light: Target operating standard is approximately 500 lux measured at a height of 600 mm off the floor with a minimum level of 200 lux by way of suspended or ceiling-mounted light fittings.
 - 1.1.5 Access: Controlled 24 x 7 access with centralised monitoring and logging. Individual identification cards are required with imbedded photo ID.
 - 1.1.6 Fire Protection: The Central Office will have fire detection systems installed and may have a fire suppression system also installed. The fire suppression method will vary between locations. Further details of the fire rating are in the operations manual but design of all sites must comply with AS/NZ 1905 and meet AS 1530 on completion.
 - 1.1.7 Flooring: The floor shall have anti static properties in accordance with IEC 61000-4-2.
 - 1.1.8 Floor Loading: The floor loading within the Footprint shall not exceed those specified in the operational manual and comply with NZS 1170.
 - 1.1.9 Tie Cable Specification: Tie Cables will conform to ITU-T G.652 D, internal access cables may conform to ITU-T G657.A which is resilient to bending. The use of the latter will not be mandatory, but cable must meet appropriate fire regulations. A wavelength of 1625 nm will be reserved for test purposes.
 - 1.1.10 Seismic Design: The design of the Central Office, its infrastructure and the Service Provider's racks shall comply with NZS 4203 seismic standard and its successors.

¹ If metered, it may be necessary for LFC to get clearance from the Commerce Commission under EIRA.