

Schedule

Variations to Northpower Fibre Limited's Reference Offer which apply for UFB2 Services

Notes:

1. References in this schedule to Northpower Fibre's documents are references to the versions of those documents as set out on Northpower Fibre's website at <https://www.northpowerfibre.co.nz/about-us/agreements>.
2. Where Northpower Fibre is providing UFB2 services over Northpower LFC2 Limited's network, the Reference Offer applying to those UFB2 services will be Northpower Fibre's current Reference Offer, varied as set out below (such variations to prevail over any inconsistent provisions in Northpower Fibre's Reference Offer).

Northpower Fibre Reference Offer

Document	UFB2 Services Document
End User Terms	Northpower Fibre's End User Terms
General Terms	Northpower Fibre's General Terms, with the variations set out in attachment 1.
Price List	Northpower Fibre Price List as set out at www.northpowerfibre.co.nz
Operations Manual Bitstream Services	Northpower Fibre's Operations Manual Bitstream Services, with the variations set out in attachment 2.
Operations Manual Direct Fibre Access Services	Northpower Fibre's Operations Manual Direct Fibre Access Services, with the variations set out in attachment 2.
Operations Manual Co-Location	Northpower Fibre's Operations Manual Co-Location, with the variations set out in attachment 2.
Service Description ATA Voice	Northpower Fibre's Service Description ATA Voice, with the variations set out in attachment 3.
Service Description Baseband	Northpower Fibre's Service Description Baseband, with the variations set out in attachment 3.
Service Description Bitstream 2	Northpower Fibre's Service Description Bitstream 2, with the variations set out in attachment 3.
Service Description For Bitstream 2A	Northpower Fibre's Service Description Bitstream 2A, with the variations set out in attachment 3.
Service Description Bitstream 3	Northpower Fibre's Service Description Bitstream 3, with the variations set out in attachment 3.
Service Description Bitstream 3A	Northpower Fibre's Service Description Bitstream 3A, with the variations set out in attachment 3.
Service Description Bitstream 4	Northpower Fibre's Service Description Bitstream 4, with the variations set out in attachment 3.
Service Description Direct Fibre Access	Northpower Fibre's Service Description Direct Fibre Access, with the variations set out in attachment 3.
Service Description Multicast Service	Northpower Fibre's Service Description Multicast Service, with the variations set out in attachment 3.
Service Description for Central Office & POI Co-Location	Northpower Fibre's Service Description for Central Office & POI Co-Location
Service Description for Fibre Interconnection Service	Northpower Fibre's Service Description for Fibre Interconnection Service
Service Description for UFB Handover Connection	Northpower Fibre's Service Description for UFB Handover Connection

Service Level Terms Bitstream Services	Northpower Fibre's Service Level Terms Bitstream Services, with the variations set out in attachment 4.
Service Level Terms for Direct Fibre Access Services	Northpower Fibre's Service Level Terms Direct Fibre Access Services, with the variations set out in attachment 4.

Variations to Reference Offer

Document	UFB2 Services Document
Variations to Reference Offer	<p>The documents referred to below are as set out on Northpower Fibre's website https://www.northpowerfibre.co.nz/about-us/agreements:</p> <ul style="list-style-type: none"> • NFL Glide Path for 1 Gig/500 and Voice Services Feb 2017 • NFL Service Description for Bitstream 2a version 1.2 – Feb 2017 • NFL Out of Service ONTs 23 September 2016 • NFL Premise Network Agreement

Attachment 1 – Variations to Northpower Fibre’s General Terms

Reference	Variation
1.3	Definitions: The below definitions are inserted into the General Terms (replacing existing definitions where relevant).

Candidate Area means Hikurangi, Dargaville East, Dargaville West, Maungaturoto, One Tree Point, Ruakaka, Waipu, Mangawhai Village, Mangawhai Heads South, Mangawhai Heads North, Kaiwaka, Waikaraka, Ruawai and Paparoa and any other geographic area in which the LFC makes available a Wholesale Service under these terms;

Central Office or **CO** means the facilities that house the equipment for terminating the dark fibres, and the equipment needed to provide the Bitstream Services (for example, the OLT and / or an EAS). A Central Office is the point at which a Service Provider will connect to the Dark Fibre Access Services;

Attachment 2 – Variations to Northpower Fibre’s Operations Manuals

The below variations apply each of the Operations Manuals as relevant.

Reference	Change
Appendix A	Glossary: The definitions set out below are inserted into Appendix A of the Operations Manual (replacing existing definitions where relevant).
Appendix E	<p>Candidate POI and COs:</p> <p><u>POI</u> Alexander Street, Whangarei</p> <p><u>Central Offices:</u> Hikurangi Waipu One Tree Point (2) Dargaville West Dargaville East Ruakaka Mangawhai Village Mangawhai Heads (South) Mangawhai Heads (North) Kaiwaka Maungaturoto Onerahi (for Waikaraka) Ruawai Paparoa</p>

Definitions

Central Office or **CO** means the facilities that house the equipment for terminating the dark fibres, and the equipment needed to provide the Bitstream Services (for example, the OLT and / or an EAS). A Central Office is the point at which the Service Provider will connect to the Dark Fibre Access Services;

Central Office Termination Point means the SC or LC connector that connects the fibre from the End User Premises (or NBAP) to either:

- (a) the termination of the fibre on the Central Office main distribution frame;
- (b) the OLT or Ethernet switch at a Central Office site;
- (c) the Service Provider’s equipment at the Central Office co-location site; or
- (d) the Backhaul equipment at the Central Office site;

Communal Layer 1 Infrastructure means all passive (i.e. unpowered) infrastructure between (and including) the Central Office and the ENNI (where the ENNI is within the same Candidate Area as the CO) and the Premises Boundary Termination Point, and includes, without limitation, any of the following within the Network Stage:

- (a) POIs;
- (b) Central Offices;

- (c) power supply;
- (d) Fibre Flexibility Points;
- (e) fibre connecting the interconnection points, Central Offices and/or cabinets;
- (f) distribution fibre running along each Road;
- (g) feeder fibre running from Central Offices to cabinets or fibre cross connection points;
- (h) associated ducts and other fixed civil infrastructure required to deploy fibre;
- (i) passive optical equipment installed in the LFC's FFP; and
- (j) for the avoidance of doubt, the fibre link between a POI and a CO, where the POI and the CO are located within the same Candidate Area is Communal Layer 1 Infrastructure and is not Layer 1 Backhaul;

Connection means, in respect of each End User, the connection of that End User's Premises to the Network by way of the End User-Specific Infrastructure and **Connected** and **Connections** will be construed accordingly;

Downtime means the length of time that an End User is without a UFB Service, measured from the time that a fault is detected, either by an End User fault report or by a Network surveillance system, to the time the fault is resolved and the UFB Services is restored and, if an End User's UFB Service does not meet the "Layer 2 Traffic" Service Level for one or more five minute intervals (as defined in the Layer 2 Traffic Service Level) then the End User will be deemed to be without a UFB Service for the relevant five minute interval(s) however, Downtime excludes user-initiated service interruptions and CPE outages due to power failure;

End User-Specific Infrastructure means all passive (i.e. unpowered) and active (i.e. powered) infrastructure between the Premises Boundary Termination Point and the ITP (inclusive) for passive infrastructure, or UNI (inclusive) for active infrastructure, in a Premises, and includes the following:

- (a) fibre from a Premises to the Communal Infrastructure already in place outside the boundary of a Premises;
- (b) any fibre, electronic and/or optical equipment LFC may be required to install on Premises;
- (c) associated ducts and other fixed civil infrastructure required to deploy these End User-specific fibre assets;
- (d) all other infrastructure necessary to enable the provision of Dark Fibre Services and Bitstream Services to the relevant End User, including all infrastructure from the Premises Boundary Termination Point, in the case of an underground connection, or from the Nearest Pole, in the case of an aerial connection, terminates inside the Premises at either:
 - (i) the ITP, in the case of a Dark Fibre Service; or
 - (ii) the ONT, in the case of a Bitstream Services;
- (e) any capitalised investment directly associated with each marginal End User (for example, the value of any software licences that might be supplied to LFC on a "per End User" basis);

(f) any active electronic equipment installed in a Premises required to provide the Bitstream Services; and

(g) includes the elements of a Standard Installation and a Non-Standard Installation,

but excludes all Communal Infrastructure;

Ethernet means Ethernet as defined by IEEE802.3;

Fibre Access Point or **FAP** has the same meaning as Premises Boundary Termination Point;

Internal Termination Point or **ITP** means the SC or LC connector that terminates the Dark Fibre Services inside the End User's Premises, and plugs into the ONU/ONT or the Service Provider's equipment;

Non-Building Access Point or **NBAP** means a location for a Connection that does not have a physical address (e.g. a bus shelter or lamp post) other than a location that is a concentration point for a regulated backhaul service (for example, a fibre to the node cabinet owned or controlled by Spark New Zealand Trading Limited);

Non Standard Installation or **NSI** has the meaning given in the relevant Service Descriptions;

OTDR means optical time domain reflectometer;

Passed means when a Premises has been passed with Communal Infrastructure and is capable of Connection from the Premises Boundary Termination Point without further civil works required on the Communal Infrastructure or outside the Premises Boundary and **Past** shall have a corresponding meaning;

POI means Point of Interconnection that meets the Network Requirements;

Premises means:

- (a) a single building;
- (b) structure; or
- (c) Retirement and Business Complex;

located on a defined geographical site (such as may be evidenced by a certificate of title), which has a unique physical address recognised by NZ Post, and is occupied by or could readily be occupied by a potential End User but, for the avoidance of doubt, does not include:

- (d) a NBAP; or
- (e) any single building or structure that is part of a state school, a state-integrated school, a public hospital, or an integrated family health centre;

and a multi-tenanted building or structure only constitutes a single Premises.

Premises Boundary means:

- (a) in respect of individual Premises located down and accessed by a ROW or a Retirement and Business Complex, the point where the public road adjoins the entrance to the ROW or the Retirement and Business Complex (as applicable); and

- (b) in respect of all other Premises, that part of the Exclusive Boundary of an individual Premises which is adjoining the nearest Road to such Premises;

Premises Boundary Termination Point means the point where the Communal Layer 1 Infrastructure connects to the End User-Specific Infrastructure. This is:

- (a) for underground deployment, the point where the duct or fibre is left at the Premises Boundary; or
- (b) for aerial deployment, the Nearest Pole to the Premises Boundary; or
- (c) in the case of a hybrid deployment (i.e. a mixture of underground and aerial deployment), this includes the fibre or duct between the Nearest Pole and the Premises Boundary;

Property Estate means:

- (a) a residential private gated housing community, estate or subdivision;
- (b) any other form of private property residential or commercial subdivision, complex or community; or
- (c) a private right of way, driveway, laneway, service lane or alleyway, the entrance of which adjoins a public road, and which has more than ten Premises down it which are accessed by such private right of way, driveway, laneway, service lane or alleyway,

but excludes a Retirement and Business Complex;

Residential Gateway or RGW means End User Premises equipment, provided by the Service Provider;

Retirement and Business Complex means:

- (a) a retirement village or complex; or
- (b) a business park or complex which is located wholly on a single certificate of title;

ROW means a private road, right of way, driveway, laneway, service lane or alleyway, the entrance of which adjoins a public road, and which has between two to 10 Premises located down it which are accessed by such private road, right of way, driveway, laneway, service lane or alleyway, but excludes a private road, right of way, driveway, laneway, service lane or alleyway forming part of a Property Estate;

Standard Installation has the meaning given in the relevant Service Descriptions;

Attachment 3 – Variations to Northpower Fibre’s Service Descriptions

The following variations will apply to all Service Descriptions, as relevant.

-	Network Infrastructure: The provisions set out below are inserted.
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1. Network Infrastructure

1.1 Position of End User-Specific Infrastructure

- (a) For a ROW or a Retirement and Business Complex, sufficient Communal Infrastructure and End User-Specific Infrastructure will be positioned:
 - (i) in respect of a ROW, at the Premises Boundary Termination Point at the entrance of the ROW to Connect all End Users whose Premises are accessed by that ROW, including sufficient capacity for growth of Premises down that ROW (if applicable); or
 - (ii) in respect of a Retirement and Business Complex, at the Premises Boundary Termination Point at the entrance of the Retirement and Business Complex to Connect all End Users located within the Retirement and Business Complex including sufficient capacity for growth of End Users in that Retirement and Business Complex (if applicable).
- (b) As End Users are Connected, the End User-Specific Infrastructure will be installed down the ROW or to End Users in the buildings within Retirement and Business Complexes as part of the Connection.

1.2 Standard Installations and Non-Standard Installations

- (a) Subject to clause 2.10(b) of this Schedule, a Standard Installation is a Connection where the distance required to install the End User-Specific Infrastructure is up to 200m from the Premises Boundary Termination Point to the ETP on the outside wall of the Premises (EUSI Distance).
- (b) For:
 - (i) a ROW, all Premises within 200 metres multiplied by the number of Premises accessed by that ROW, measured from the Premises Boundary Termination Point to the ETP on the outside wall of each Premises accessed by that ROW (ROW Extended EUSI Distance), will be Standard Installations. For example, where there are three Premises accessed by a ROW, all such Premises whose ETP on the outside wall are located (or partially located) within 600 metres of the Premises Boundary Termination Point will be Standard Installations;
 - (ii) a Retirement and Business Complex:
 - (A) Connections to all End Users that are located in a retirement village or complex are deemed to be Standard Installations; and

- (B) for a business park or complex, all End Users that are within 200 metres multiplied by the number of End Users located in the business park or complex, measured from the Premises Boundary Termination Point to the ETP on the outside wall of the building in which an End User is located (Business Park Extended EUSI Distance) will be Standard Installations.
- (c) A Standard Installation includes the ETP and the internal Premises wiring (including MDU wiring). Premises and MDU wiring includes, for Dark Fibre Services:
 - (i) installing the ITP at the location specified by the End User;
 - (ii) establishing connectivity between the CO and the ITP;
 - (iii) conducting an insertion loss test and confirming results are within the link loss budget (as set out in the ITU G.984 services specification); and
 - (iv) when requested by an End User, an OTDR test.
- (d) For Bitstream Services, a Standard Installation also includes:
 - (i) installing the ONT inside the Premises at the location specified by the End User and Connecting it to the Network (generally at the point of highest data usage in the Premises, such as behind the TV set);
 - (ii) connecting the RGW inside the Premises (where provided by the Service Provider) and carrying out a speed test; and
 - (iii) conducting an insertion loss test and confirming results are within the insertion loss budget.
- (e) Connections will be made on a like-for-like basis unless otherwise agreed by the End User. This means that where an existing telecommunications service is underground, then the fibre End User-Specific Infrastructure will be underground, and where the existing telecommunications service is aerial, then the fibre End User-Specific Infrastructure will be aerial.
- (f) The fibre End User-Specific Infrastructure can only be a 'fence-line' installation if the LFC first consults with the End User and obtains the End User's prior written consent to a 'fence-line' installation.
- (g) Re-installment for any form of End User-Specific Infrastructure is to be on a like-for-like basis; for example, a concrete surface must be replaced with a concrete surface, an asphalt surface with an asphalt surface, and a grass surface with a grass surface. However, an exact match is not required (for example, a coloured surface may be patched with an uncoloured surface) and full-width replacement is not required.
- (h) Non-Standard Installations are Connections where the distance required to install the End User-Specific Infrastructure to Premises exceed:
 - (i) the EUSI Distance; or
 - (ii) in the case of a ROW, the ROW Extended EUSI Distance; or

- (iii) in the case of a Retirement and Business Complex which is a business park or complex, the Business Park Extended EUSI Distance,

but for the avoidance of doubt, the LFC will not be entitled to recover any charges for performing the requirements set out in clauses 2.10(a), 2.10(b), 2.10(c) and 2.10(d).

2. MDUs

- (a) The LFC will provide UFB Services to any or all End Users in an MDU on request by a Service Provider.
- (b) The LFC will provide sufficient fibre to each MDU to meet the needs of the entire MDU, consistent with the number of End Users in the MDU.
- (c) The LFC will terminate the lead-in fibre(s) inside an MDU at a location that makes sense to the LFC and the owner(s) of that MDU or their authorised representatives. This will generally be a communications room or an optical fibre distribution frame.
- (d) Clause 1.2 applies to the installation of all End User-Specific Infrastructure for all Connections to End Users in MDUs.
- (e) The LFC will Connect End Users in each MDU in accordance with the Service Levels.
- (f) Under exceptional circumstances where access consents cannot be obtained by the LFC, the LFC may:
 - (i) choose to offer a FTTB solution in an MDU and supply UFB Services to End Users in that MDU that can support, at a minimum, the 100Mbps downstream and 50Mbps upstream products plus a 70Mbps allowance for Multicast services, with CFH's prior agreement, subject to the LFC ensuring that the Network meets these requirements;
 - (ii) deliver Bitstream Services to an MDU using a copper modem (for example, G.fast or DSL Modem) where copper is available in the relevant MDU.

3. Dark Fibre Services

3.1 Dark Fibre Service Termination Points

- (a) The Dark Fibre Services terminate at the ITP within each End User's Premises, and the CO Termination Point within the CO.
- (b) An ETP is not required in an MDU if a communications facility such as a communications room or distribution board exists. For the avoidance of doubt, in a block of flats that meets the definition of an MDU, with no common communications infrastructure between the flats, an ETP should be installed outside each flat.

3.2 Operational Standards

The LFC will meet all operational standards, for example, provisioning and restoration response times, are required to meet the Service Levels and the requirements of the Wholesale Services Agreement. The service levels in the Wholesale Services Agreement do not override the Service Levels and they are to be read together.

4. Bitstream Services

4.1 Point of Delivery of Bitstream Services

- (a) The Service Provider-facing ports on the EAS are the E-NNI. The E-NNI interface in the POI is the point of delivery of Bitstream Services to Service Providers.
- (b) End-User facing ports in the Premises are on the ONT or ONU and these are the Bitstream Services UNI ports.
- (c) Within the Premises, the LFC may initially provide a single Ethernet UNI port and a single voice UNI port, and provide additional UNI ports on demand up to a minimum of four Ethernet UNI ports, two voice ports, and one WiFi port.
- (d) If the LFC chooses to install single UNI ports, it will provide additional ports on demand and will not pass on any costs for installing and configuring these additional ports to any party, including the End User.
- (e) The LFC will provide sufficient OLT and EAS ports to cope with forecast demand to 1 January 2026.
- (f) The LFC will not combine ONT/ONU functions with Residential Gateway functions.
- (g) The LFC will provide network visibility of the performance of ONT ports to the Service Provider that is utilising that ONT port. If the ONT provides UFB Services to the End User (for example, via the ATA port or a WiFi port), then the LFC must provide management access to the Service Provider so the Service Provider can configure End User parameters such as passwords etc.

4.2 Support for Multiple Retail Service Providers

- (a) The End User-Specific Infrastructure and any resulting Connection will be configured so that the Service Provider is able to deliver the relevant UFB Services to an individual End User directly, with each Ethernet UNI able to be allocated to a different Service Provider. The WiFi and voice ports only need to support one Service Provider.
- (b) The LFC will provide suitable terminal equipment that meets the requirements of the Wholesale Services Agreement.

4.3 **Operational Standards**

The LFC will allow for any “overclocking” required to deliver the advertised internet bandwidth to the End User (for example, deliver 100Mbps of internet access to the End User, rather than 100Mbps of Ethernet access).

4.4 **Bitstream Services in MDUs**

- (a) Subject to clause 2(f), the Bitstream Services may be delivered to an MDU using:
 - (i) an ONT/ONU located in the tenancy; and/or
 - (ii) an ONT/ONU located in a central location with multiple physical ports, where each End User of the Bitstream Service connects to an individual port on the ONU/ONT through existing building cabling where the cabling meets the Cat5e (or better) standard.
 - (b) Regardless of the connectivity option chosen, all UFB Services will be available to End Users in an MDU at the specified Service Levels. If the LFC chooses to make use of existing copper infrastructure for in-building distribution, and the Service Provider orders a UFB Service that the LFC cannot deliver without fibre, then the LFC will use reasonable endeavours to obtain all consents necessary to install the fibre.
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Attachment 4 – Variations to Northpower Fibre’s Service Level Terms

The below variations apply to the Service Level Terms for Direct Fibre Access Services and the Service Level Terms for Bitstream Services.

1.3	Definitions: The definitions set out in Part A below are inserted (replacing existing definitions where relevant).
3 – 8	Service Levels: The provisions set out in Part B below are inserted.
-	Appendices: The following Appendices are inserted: <ul style="list-style-type: none">• Appendix 1 – Service Level Descriptions (replaces the current Appendix 1 – Core Service Levels)• Appendix 2 – Service Default Payments (replaces the current Appendix 2 – Core Service Rebates)

Part A: Definitions

Connection Satisfaction Score means the average of all percentage scores given by End Users who complete a Connection Satisfaction Survey as part of a Quarterly Connection Satisfaction Survey. By way of example, for an individual End User the Connection Satisfaction Survey has a maximum possible score of 70, so if an End User gave LFC a score of 50, the connection satisfaction score for that individual survey would be 71.4% (being 50 divided by 70 multiplied by 100). The Connection Satisfaction Score for the Quarterly Connection Satisfaction Survey would be the average of the percentage of connection satisfaction scores given by each End User;

Connection Satisfaction Survey means the customer satisfaction survey approved by CFH;

Downtime means the length of time that an End User is without a UFB Service, measured from the time that a fault is detected, either by an End User fault report or by a Network surveillance system, to the time the fault is resolved and the UFB Services is restored and, if an End User’s UFB Service does not meet the “Layer 2 Traffic” Service Level (see clause 7 of Appendix 1 to Schedule 4 (Service Levels) for one or more five minute intervals (as defined in the Layer 2 Traffic Service Level) then the End User will be deemed to be without a UFB Service for the relevant five minute interval(s)) however, Downtime excludes user-initiated service interruptions and CPE outages due to power failure;

Service Default Payments means the payments to be made by LFC for Service Level Defaults, in accordance with Appendix 1 (Service Levels Descriptions) and Appendix 2 (Service Default Payments);

Part B: Service Levels

1. Commencement, Measurement and Reporting of Service Levels

- 1.1 Unless otherwise specified in this document, LFC’s performance of each Service Level will be measured and reported monthly by LFC.
- 1.2 The Service Levels measure performance in the Coverage Area as a whole.
- 1.3 The Connection Satisfaction Service Levels (set out in clause 3.1 of Appendix 1) will be measured on a quarterly basis by way of the results of the Connection Satisfaction Survey. With effect from 12 months after the Commissioning of the first Candidate Area, each quarter LFC will procure a Connection Satisfaction Survey is completed by End Users of at least 10% of all Connections made during that quarter in the Coverage Area (the **Quarterly Connection Satisfaction Survey**).

2. **Service Default Payments**

- 2.1 LFC will pay the Service Default Payments for a failure to meet the Service Levels set out in Appendix 1.

Appendix 1: Service Level Descriptions

1. Dark fibre access provisioning Service Levels

- 1.1 The Service Levels set out in this clause 1 do not apply to Premises which are not Passed by Communal Infrastructure.
- 1.2 Subject to clause 1.3, LFC will complete the installation of Connections as follows:
- (a) **Fibre Connection (excluding NBAPs):**
 - (A) Each installation of a Connection (whether Residential or Business) must be completed on the date agreed between LFC and the Service Provider (the **Agreed Connection Date**).
 - (B) 95% or more of all Agreed Connection Dates (whether relating to Residential or Business Connections, but excluding NBAPs) will be scheduled to be completed within 30 Business Days of the receipt by LFC of a properly completed order from an Service Provider to connect an End User.
 - (b) **NBAP – Fibre Connection:** Each installation of an NBAP Connection will be completed within 60 Business Days following receipt of all necessary permissions and consents required by Law (excluding road opening notices) (or such later date as agreed between the Service Provider and the relevant End User), with permissions and consents to be sought by LFC within one Business Day of LFC's receipt of a properly completed order from the Service Provider.
 - (c) **Restore Connection:** Each Connection which is subject to Downtime will be restored within 48 hours of the Downtime first occurring.
- 1.3 Any time period during which:
- (a) any Force Majeure Event prevents installation of a Connection or prevents restoration of Connection which is subject to Downtime; or
 - (e) LFC is, due to a Force Majeure Event, unable to safely access any location or premises where physical access is required to install a Connection or restore a Connection which is subject to Downtime,

will be added to the periods specified in clauses 1.2(a), 1.2(b) and 1.2(c) of this Appendix as applicable.

2. Layer 2 Service provisioning Service Levels

- 2.1 Subject to clause 2.2 of this Appendix, LFC will provision the Layer 2 Services as follows:
- (a) **Layer 2 Services (excluding NBAP):** Layer 2 Services ordered in relation to a Connection (whether Residential, Business excluding NBAPs):
 - (A) at the same time as an installation of a Connection are to be provisioned concurrently with the completion of the Connection; or
 - (B) if independently from an order for an installation of a Connection (provided that the relevant Premises has previously been Connected (even if a UFB

Service is not currently being provided)) will be provisioned within 5 Business Days of a properly completed order being received by LFC (or such later date as agreed between the Service Provider and the relevant End User).

- (b) **NBAP - Layer 2 Services:** Layer 2 Services ordered in relation to an NBAP Connection:
 - (A) at the same time as an installation of an NBAP Connection are to be provisioned concurrently with the completion of the Connection; or
 - (B) if independently from an order for an installation of an NBAP Connection (provided that the relevant Premises is already Connected) will be provisioned within 5 Business Days of a properly completed order being received by LFC (or such later date as agreed between the Service Provider and the relevant End User).
- (c) **Bandwidth upgrade of Layer 2 Services:** A Bandwidth upgrade of Layer 2 Services will be provisioned within one Business Day following LFC's receipt of a properly completed order from the Service Provider (or such later date as agreed between the Service Provider and the relevant End User).
- (d) **Multicast – Service Provider:** A multicast service must be provisioned for the Service Provider within 30 Business Days following LFC's receipt of a properly completed order from the Service Provider (or such later date as agreed between the Service Provider and LFC).
- (e) **Multicast - End User:** Provided that the necessary multicast service has previously been provisioned for the Service Provider, a multicast service must be provisioned for an End User within one Business Day following LFC's receipt of a properly completed order from the Service Provider (or such later date as agreed between the Service Provider and the relevant End User).

2.2 Any time period during which:

- (a) any Force Majeure Event prevents provisioning of a Layer 2 Service, Bandwidth upgrade or multicast service; or
- (f) LFC is, due to a Force Majeure Event, unable to safely access any location or premises where physical access is required to provision a Layer 2 Service, Bandwidth upgrade or multicast service,

will be added to the periods specified in 2.1(a), 2.1(b), 2.1(c), 2.1(d) and 2.1(e) of this Appendix as applicable.

3. Customer Installation Experience Service Levels

- 3.1 In provisioning the Connections, including Layer 1 Services and Layer 2 Services, the LFC will achieve a Connection Satisfaction Score of 85% or more in a Quarterly Connection Satisfaction Survey.

4. Layer 1 Service Availability

4.1 Layer 1 Service Availability – Maximum Downtime

The Layer 1 dark fibre service between the Premises or NBAP terminations in a Candidate Area and the CO Fibre Distribution Frame will meet the following minimum Service Level (excluding Downtime directly caused by Force Majeure Events):

Service Level: Maximum Downtime for each End User in the previous 12 month period that is caused by a fault in the Layer 1 dark fibre service must be:

- (a) ≤ 48 hours (the **Layer 1 Service Default Service Level**); or
- (b) ≤ 24 hours (the **Layer 1 Service Enhanced Service Level 1**); or
- (c) ≤ 12 hours (the **Layer 1 Service Enhanced Service Level 2**); or
- (d) ≤ 8 hours (the **Layer 1 Service Enhanced Service Level 3**).

The Layer 1 Service Enhanced Service Level 1, the Layer 1 Service Enhanced Service Level 2 and the Layer 1 Service Enhanced Service Level 3 are collectively referred to as **the Layer 1 Service Enhanced Service Levels**.

Definition:

Maximum Downtime for each End User in each 12 month period that is caused by a fault in the Layer 1 dark fibre service = the sum of the Downtime experienced by the End User in the previous 12 month period that is caused by a fault in the Layer 1 dark fibre service.

4.2 Default and Enhanced Layer 1 Service Availability – Maximum Downtime Service Levels

- (a) The Layer 1 Service Default Service Level is the default Service Level provided to each End User unless the End User elects to purchase a Layer 1 Service Enhanced Service Level.
- (b) The Layer 1 Service Enhanced Service Levels:
 - (i) will be offered by LFC to the Service Provider to offer to End Users in relation to Business Connections and NBAP Connections and will be provided to each such End User that elects to purchase a Layer 1 Service Enhanced Service Level; and
 - (ii) may, at LFC's discretion, be offered to a Service Provider to offer to End Users in relation to Residential Connections and where offered, will be provided to each such End User that elects to purchase a Layer 1 Service Enhanced Service Level.

5. Layer 2 Service Availability

5.1 Layer 2 Service Availability – Maximum Downtime

The Layer 2 Service, between the ONT port and the POI (including the ENNI, but excluding any Layer 1 Service) will meet the following minimum Service Level (excluding Downtime directly caused by Force Majeure Events):

Maximum Downtime for each End User in each 12 month period that is caused by a fault in the Layer 2 Service must be:

- (a) ≤ 12 hours (excluding Downtime caused by an ONT failure) (**the Layer 2 Service Default Service Level**); or
- (b) ≤ 12 hours (including Downtime caused by an ONT failure) (**the Layer 2 Service Enhanced Service Level 1**); or
- (c) ≤ 8 hours (including Downtime caused by an ONT failure) (**the Layer 2 Service Enhanced Service Level 2**).

The Layer 2 Service Enhanced Service Level 1 and the Layer 2 Service Enhanced Service Level 2 are collectively referred to as the **Layer 2 Service Enhanced Service Levels**.

Definition:

Maximum Downtime for each End User in each 12 month period that is caused by a fault in the Layer 2 Service = the sum of the Downtime experienced by the End User in the previous 12 month period that is caused by a fault in the Layer 2 service.

5.2 Default and Enhanced Layer 2 Service Availability Service Levels

- (a) The Layer 2 Service Default Service Level is the default Service Level provided to each End User unless the End User elects to purchase a Layer 2 Service Enhanced Service Level.
- (b) The Layer 2 Service Enhanced Service Levels:
 - (i) must be offered by LFC to the Service Provider to offer to End Users in relation to Business Connections and NBAP Connections and will be provided to each such End User that elects to purchase a Layer 2 Service Enhanced Service Level; and
 - (ii) may, at LFC's discretion, be offered to the Service Provider to offer to End Users in relation to Residential Connections and if offered, will be provided to each such End User that elects to purchase a Layer 2 Service Enhanced Service Level.

5.3 The Layer 2 Service Availability Service Levels set out in clause 5.1 (Maximum Downtime) measure Layer 2 Service availability only. Downtime caused directly by the failure of an underlying Layer 1 Service will not be included in the measurement of the Layer 2 Service Availability Service Levels, but will be included in Layer 1 Service Availability Service Levels.

6. Layer 2 – Disconnections

6.1 Disconnections

Each disconnection of a Connection will be completed within one Business Day following LFC's receipt of a properly completed order from Service Provider (or such later date as agreed between the Service Provider and the relevant End User).

7. Layer 2 Traffic

7.1 End User traffic – point to point services

Each End User's traffic for point to point services must be delivered to the POI within the following Service Levels, measured over each five minute interval (24 hours per day):

	Frame Delay must be:	Frame Delay Variation must be:	Frame Loss must be:
CIR Primary	≤ 5 mS	≤ 1 mS	≤ 0.1%
CIR Secondary	≤ 10 mS	≤ 1 mS	≤ 0.170%
EIR	n/a	n/a	≤ 2%

Note: CIR Primary applies unless a backhaul link has failed and the traffic has been transferred to a secondary link, in which case CIR Secondary applies. CIR Secondary may then only apply for a maximum of 72 hours in any 12 month period; otherwise the SLA is not met.

The traffic should be within these Service Levels for at least 99% of the time within the five minute measurement interval, otherwise the service is to be considered unavailable for that five minute interval.

7.2 End User traffic – GPON services

Each End User's traffic for GPON services must be delivered to the POI within the following Service Levels, measured over each five minute interval (24 hours per day):

	Frame Delay must be:	Frame Delay Variation must be:	Frame Loss must be:
CIR Primary	≤ 5 mS	≤ 3 mS	≤ 0.1%
CIR Secondary	≤ 10 mS	≤ 3 mS	≤ 0.170%
EIR	n/a	n/a	≤ 2%

Note: CIR Primary applies unless a backhaul link has failed and the traffic has been transferred to a secondary link, in which case CIR Secondary applies. CIR Secondary may then only apply for a maximum of 72 hours in any 12 month period; otherwise the SLA is not met.

At least 99% of the frames within the five minute measurement interval must be within the above Service Levels, otherwise the GPON service is to be considered unavailable for that five minute interval.

7.3 Measurement of Layer 2 Traffic Service Level

The LFC must comply with the Layer 2 Traffic Service Level and measurement regime as published at: <https://www.crowninfrastructure.govt.nz/wp-content/uploads/2011/12/UFB-Performance-Management-and-Reporting-17-Nov.pdf>

Appendix 2: Service Default Payments

Service Default Payments

The following table specifies the Service Default Payments payable by LFC to the Service Provider in accordance with the Wholesale Services Agreement.

Service Level (references are to clauses in Appendix 1 of Part A)	Service Default Payments
Dark fibre access provisioning Service Levels	
1.2(a)(i)(A) – Fibre Connection (excluding NBAPs)	ARPU multiplied by the number of Connections not installed within the timeframe specified in clause 1.2(a)(i)(A). The Service Default Payment will be payable on a monthly basis for a Connection which has not been installed within the required timeframe, until such time as the provisioning is complete.
1.2(a)(i)(B) – Fibre Connection (excluding NBAPs)	ARPU multiplied by the number of Connections not scheduled within the timeframe specified in clause 1.2(a)(i)(B).
1.2(b)(i) – NBAP – Fibre Connection -	ARPU multiplied by the number of Connections not installed within the timeframe specified in clause 1.2(b)(i). The Service Default Payment will be payable on a monthly basis for a Connection which has not been installed within the required timeframe, until such time as the provisioning is complete.
1.2(c) – Restore Connection	10% of ARPU multiplied by each Connection per complete hour that the restoration is late (capped at a total of ARPU per Connection).
Layer 2 Service provisioning Service Levels	
2.1(a)(i)(A) – Layer 2 Services (excluding NBAP)	ARPU multiplied by the number of Connections not installed within the timeframe specified in clause 2.1(a)(i)(A). The Service Default Payment will be payable on a monthly basis for a Connection which has not been installed within the required timeframe, until such time as the provisioning is complete.
2.1(a)(i)(B) – Layer 2 Services (excluding NBAP)	ARPU multiplied by the number of Connections not installed within the timeframe specified in clause 2.1(a)(i)(B).
2.1(b)(A) – NBAP – Layer 2 Services	ARPU multiplied by the number of Connections not installed within the timeframe specified in clause 2.1(b)(A). The Service Default Payment will be payable on a monthly basis for a Connection which has not been installed within the required timeframe, until such time as the provisioning is complete.
2.1(b)(B) – NBAP – Layer 2 Services -	ARPU multiplied by the number of Connections not installed within the timeframe specified in clause 2.1(b)(B).
2.1(c) - Bandwidth upgrade of Layer 2 Services	ARPU multiplied by the number of Connections not installed within the timeframe specified in clause 2.1(c). The Service Default Payment will be payable on a monthly basis for a Connection which has not been installed within the required timeframe, until such time as the provisioning is complete.
2.1(d) - Multicast - RSP	10% of ARPU multiplied by the number of Connections not installed within the timeframe specified in clause 2.1(d). The Service Default Payment will be payable on a monthly basis for a Connection which has not been installed within the required timeframe, until such time as the provisioning is complete.

Service Level (references are to clauses in Appendix 1 of Part A)	Service Default Payments
2.1(e) - Multicast - End User	<p>ARPU multiplied by the number of Connections not installed within the timeframe specified in clause 2.1(e).</p> <p>The Service Default Payment will be payable on a monthly basis for a Connection which has not been installed within the required timeframe, until such time as the provisioning is complete.</p>
Customer Installation Experience Service Levels	
3.1 – Fibre Connections – Customer Satisfaction	<p>The number of Customers whose Customer Satisfaction Score falls below 85%, multiplied by ARPU.</p> <p>By way of example, if 20 Customers had a Customer Satisfaction Score of less than 85%, and ARPU was \$50, the amount payable would be \$1,000. The above amount is then to be shared amongst the Service Providers on a pro-rated basis based on the number of Connections completed for each Service Provider during the relevant quarter surveyed as a proportion of total Connections completed during the relevant quarter surveyed.</p>
Layer 1 Service Availability Service Levels	
4.1 - Layer 1 Service Availability – Maximum Downtime	<p>Percentage of ARPU for the Connection and any service(s) provided over the Connection per complete hour of Downtime over the Maximum Downtime:</p> <ul style="list-style-type: none"> (a) Default Service Level: 10% (capped at one month's rental fee for Layer 1 and Layer 2 service(s)). (b) Enhanced Service Level 1: 15% (capped at two months' rental fee for Layer 1 and Layer 2 service(s)). (c) Enhanced Service Level 2: 15% (capped at two months' rental fee for Layer 1 and Layer 2 service(s)). (d) Enhanced Service Level 3: 15% (capped at two months' rental fee for Layer 1 and Layer 2 service(s)).
Layer 2 Service Availability Service Levels	
5.1 - Layer 2 Service Availability – Maximum Downtime	<p>Percentage of ARPU for the Connection and any service(s) provided over the Connection per complete hour of Downtime over the Maximum Downtime:</p> <ul style="list-style-type: none"> (a) Default Service Level: 10% (capped at one month's rental fee for Layer 1 and Layer 2 service(s)). (b) Enhanced Service Level 1: 15% (capped at two months' rental fee for Layer 1 and Layer 2 service(s)). (c) Enhanced Service Level 2: 15% (capped at two months' rental fee for Layer 1 and Layer 2 service(s)).
Layer 2 - Disconnections Service Levels	
6.1 – Layer 2 Disconnections	<p>10% of ARPU multiplied by the number of Disconnections not actioned within the timeframe specified in clause 6.1.</p> <p>The Service Default Payment will be payable on a monthly basis for a Connection which has not been installed within the required timeframe, until such time as the provisioning is complete.</p>