



WHOLESALE REFERENCE OFFER*

PASSIVE INFRASTRUCTURE PRODUCT SPECIFICATION

31st MARCH 2021



*Fibrus offer wholesale access in areas where public funding has been used to build the Network. Fibrus Networks is currently building the Network to achieve optimal performance and to support future Services. Fibrus Networks will inform you of product availability during the onboarding and ordering process.



Fibrus Wholesale Passive Infrastructure Product Specification

Version Control

Version	Date	Description	Author
1.0	03/05/2020		P. Doyle
1.1	30/03/2021	Minor cosmetic edits and updating cross references.	S. Best



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Introduction

Fibrus offers wholesale access in areas where public funding has been used. This is the Product Specification for Fibrus Wholesale Passive Infrastructure products as defined in the table below. The document defines a set of processes that encompasses Network Deployment, Order Handling, Wholesale Billing and Service Management. Fibrus Wholesale provides Communication Providers (CPs) with access to deploy equipment on or in passive infrastructure in the Fibrus network where public funding has been taken¹. Fibrus may also offer or accept commercial requests for other passive infrastructure where capacity and operations allow.

The use of Wholesale Passive Infrastructure products may be required in conjunction with other Fibrus Wholesale products e.g. Dark Fibre or with Third Party physical infrastructure. For the avoidance of doubt, all access to Third Party passive infrastructure and related charges are the responsibility of the Communications Provider (CP) and Fibrus Wholesale will follow CP instruction for the location of equipment on that basis.

This handbook is designed for use by Communications Providers (CPs) as Wholesale customers of Fibrus. For information on how to become a Wholesale customer with Fibrus please see our guide *How to Become a Wholesale Customer* available at www.Hyperfast.com/Wholesale-partners

This document should be read in conjunction with the Fibrus' current *Fibrus Networks Wholesale Access Services Wholesale Provider Agreement*, *Wholesale Price List* and *Service Level Agreement*, which are available on the Hyperfast website at: www.Hyperfast.com/Wholesale-partners

Fibrus' approach is to enable our wholesale customers to self-serve via direct digital access to the systems capability required for high volume transactions alongside dedicated relationship management to assure your needs are met and to deal with specific requirements. The Operator Wholesale Gateway (OWG) is the ordering and fault management system for Fibrus Wholesale products and services.

¹ CPs should note that this product set has been specifically designed to meet the requirements of the 2016 Commission Decision with reference number C(2016) 3208 (as amended by the European Commission modification decision with reference number C(2018) 229) ("the Decision") in the relevant locations required under the Decision. Fibrus will consider requests to provide such products as a commercial offer in other geographic locations where requested by a CP.



Accreditation

When working in Fibrus' network, Communications Providers will need to be accredited to undertake surveys and to install and maintain your own apparatus in accordance with applicable engineering and health and safety standards. Installation will include sub duct, cables, blown fibre tubing and blown fibre, core drilling, civils work, and splicing and testing activity. All CP operatives, agents and contractors working on Fibrus infrastructure must be accredited for Safety and Civils as well as non-Civils work. For ease of accreditation Fibrus will accept Openreach non-Civils accreditation as the standard for working on our network.

CPs will be asked to provide proof of accreditation for relevant work before commencing work on Fibrus infrastructure and CP employees, agents and contractors must carry proof of required accreditation on their person at all times.

Wholesale Passive Infrastructure Product

Overview

Fibrus' network architecture and design relies upon the reuse of physical infrastructure already in situ to deploy our network solution. For example, Openreach PIA infrastructure is used extensively for both overhead and underground network deployment. As such, it is normal that Fibrus does not have Fibrus owned, contiguous, end-to-end network physical infrastructure supporting its FTTP infrastructure.

Fibrus deploys its own physical infrastructure where we determine it is more efficient or effective to serve our customers. Our Passive Infrastructure products allow CPs to share Fibrus' duct and pole infrastructure where feasible and where required under the NBS 2016 Commission Decision. Communication Providers (CPs) will be provided access to passive infrastructure at points in the Fibrus network where public funding has been taken. CPs will be able to rent access to ducts, poles, underground chambers, and purchase ancillary services to help link into their own physical infrastructure.



The passive infrastructure facilities provided are:

- **Duct Access** - facility in Fibrus duct
- **Chamber Access** - facility in Fibrus underground chamber
- **Pole Access** - facility on Fibrus pole

Duct Access and Chamber Access products are subject to a minimum term of 5 years and Pole Access products have a minimum term of 12 months. Figure 1 shows a schematic of Fibrus physical network:

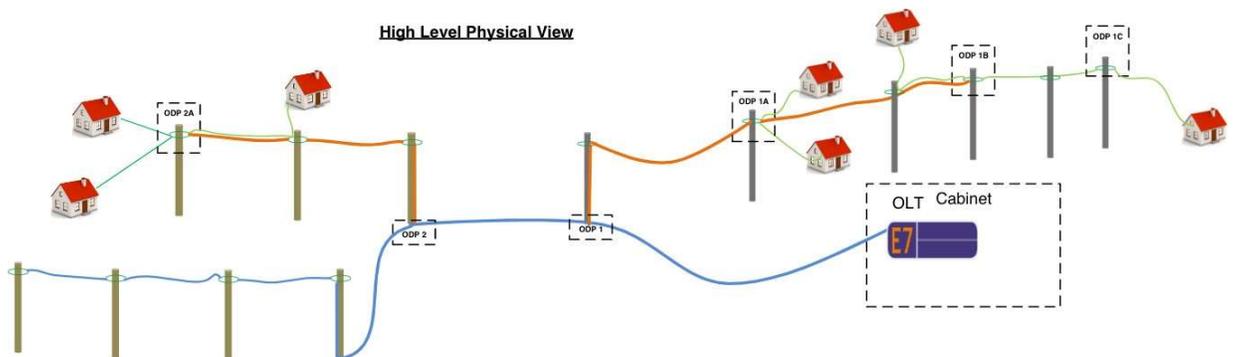


Figure 1 – Physical Infrastructure Overview

Passive Infrastructure Product Features

Passive Infrastructure products utilise physical assets deployed to support Fibrus' own FTTP network deployment. The products available to support the use of these facilities are described below. Fibrus Passive Infrastructure products may only be used to provide Public Electronic Communications Services and / or Public Electronic Communications Network (both of which are defined in the Communications Act 2003) and as set out in Ofcom's statement in June 2019.



Duct Access

Typically, Fibrus will under normal circumstances only deploy duct in all or part of its Spine network, defined as infrastructure from the Fibrus Active Cabinet Splice Chamber to the Fibre Aggregation joint located at the first Optical Distribution Point (ODP) or other aggregation point in the network.

Duct Access products are subject to a minimum term of 5 years, early cease charges will be applied as 1 full year's rental. Fibrus Wholesale has defined two product variants for duct access to facilitate CPs investment decisions, an annual rental model and a 20-year Indefeasible Right to Use model (IRU). Please refer to Fibrus' current *Wholesale Price List* and *Service Level Agreement document*, available on the Hyperfast website at: www.Hyperfast.com/Wholesale-partners

Specification

Duct access will have the following specifications:

- Rental in Spine duct **per linear metre** as measured on Fibrus inventory systems
- Direct cable, Blown Fibre Tubing (BFT) or subduct up to **maximum** 25mm diameter

Chamber Access

Fibrus will build chambers in varying sizes to support its FTTP network deployment. Such chambers may be part of Fibrus' own physical duct and pole network or to support Fibrus access to third party duct and pole network e.g. Openreach PIA. Fibrus will offer products to facilitate CPs entering the Fibrus duct infrastructure via Fibrus chambers and for the hosting of facilities within Fibrus chambers. Chamber Access products are subject to a minimum term of 5 years, early cease charges will be applied as 1 full year's rental.



Three products are defined as:

- Splice Chamber Breakthrough – once-off cost to enter a Fibrus chamber
- Splice Chamber Facility – rental per cable, BFT or sub duct
- Splice Chamber Apparatus Facility – rental per closure, joint or similar where space exists in line with current engineering principles.

Specification

Chamber access will have the following specifications:

- Chamber breakthrough per entry to a maximum of 110mm
- Cable Facility will be per direct cable, Blown Fibre Tubing (BFT) or subduct up to **maximum** 25mm diameter
- In Chamber **per hosted apparatus** where space exists in line with current engineering principles.
- Apparatus and supporting brackets specifications to be submitted for approval



Pole Access

Fibrus will erect poles in varying locations to support its FTTP network deployment. Such poles may be part of Fibrus' own physical pole network or to support Fibrus access to third party duct and pole network e.g. Openreach PIA. Fibrus will offer products to facilitate CPs utilise the Fibrus pole infrastructure for the hosting of facilities to deploy cable and service customers from termination points, where space exists in line with current engineering principles. Pole Access products are subject to a minimum term of 12 months early cease charges will be applied as the remainder of 1 full year's rental. Three products are defined as:

- Cable on a Pole – rental to hang a cable on one pole
- Single end user attachment – rental per closure, joint or similar
- Multi-user attachment – rental per closure, joint or similar

Specification

Pole access will have the following specifications:

- Cable will be installed to appropriate specifications
- Cable Facility will be per cable, Blown Fibre Tubing (BFT) or subduct where space exists in line with current engineering principles.
- Single end user attachment **per hosted apparatus** where space exists in line with current engineering principles.
- Multi end user attachment **per hosted apparatus** where space exists in line with current engineering principles.

Non-standard Installations

There will be additional charge for non-standard installations. Our standard installation service covers only those installations defined above. CPs should provide Fibrus Wholesale with specifications for all items including but not limited to cable, sub duct, BFT, apparatus, termination points, joints and supporting brackets to be deployed in advance of deployment. It is the responsibility of the CP to inform Fibrus of changes in the provided specifications as they occur from time to time.



It is the CP responsibility to assure connections meet these criteria; a charge will be levied for deployments where any of these conditions occur. It is the CP’s responsibility to ensure deployment by its operatives, agents or contractors causes no damage to Fibrus or third party infrastructure. The CP will be fully liable for all costs of repair or reinstatement where such damage occurs. Non-standard Installations will require a survey to define the work required and additional charges.

Wholesale Passive Infrastructure Ordering

Overview

This product set has been designed to meet the requirements of the 2016 Commission Decision with reference number C(2016) 3208 (as amended by the European Commission modification decision with reference number C(2018) 229 (“the Decision”) in relevant locations required under the Decision.

Ordering and delivering Passive Infrastructure products is a complex process requiring interaction between the ordering Communications Provider and Fibrus Wholesale for enquiry, definition, pricing offer, acceptance before product design and build. Small or single requests will be managed via email; larger requests will require an agreed project plan. Fibrus has defined a standard approach summarised below:

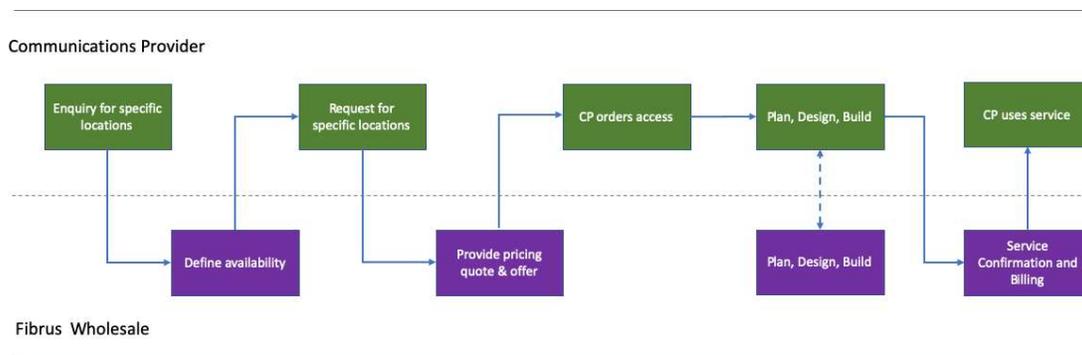


Figure 2 – Ordering Process Flow



Enquiry and Availability

CP contacts Fibrus Wholesale to register interest in Passive Infrastructure products in specific location(s). Fibrus review enquiry and subject to clarification will confirm a list of available products to the CP in the area of interest which is eligible.

Pricing

Based on the information required the CP may request pricing for specific products at specific locations. In this case the CP should specify the products to be priced by Fibrus Wholesale. Fibrus will then calculate pricing against the CP requirements and return it to the CP as an offer letter with relevant standard business terms.

(Note: there is a cost to Providers for survey where applicable, which is defined in Fibrus Wholesale Pricing document at www.Hyperfast.com/Wholesale-partners

Acceptance and Order

If the CP accepts the offer, terms and conditions, the CP places an order and agreements are signed. Fibrus Wholesale will process the request as an order for the individual CP requirements.

Plan to Build

The CP, on confirmation of the order, will commence planning and design activity, leading to network build and inventory recording. The CP will provide Fibrus Wholesale with planned dates for installation. In some cases, the CP and Fibrus may have to work together to deploy infrastructure and specifically at all times for Splice Chamber Breakthrough and it is the responsibility of the CP to co-ordinate such activity. Once the build process has concluded the CP will confirm to Fibrus Wholesale, including inventory records as applicable.

Confirmation and Billing

Fibrus Wholesale will confirm the service to the CP as it is recorded and commence the generation of billing for the service.



Escalation Process

Where an RSP requires to escalate an order or part thereof it must contact the Relationship Manager. Orders may only be escalated where they are beyond SLA parameters.

Passive Infrastructure Service Management

Fibrus Wholesale operates to a principle of enabling CPs to manage their network and customers directly. As such, it is a fundamental principle that a CP must prove any service issues or faults are outside its own network and equipment before raising a trouble ticket.

Where an RSP cannot identify and remediate the issue, a trouble ticket can be raised within OWG for the attention of Fibrus Wholesale. Each trouble ticket should contain the following information:

- Infrastructure affected as defined in inventory
- Geographic location inventory
- Nature of trouble
- Time of first alarm or notification

Trouble Ticket Resolution Process

Trouble tickets should only be raised when the CP has identified the trouble as being within the Fibrus network or cannot localise the source of the trouble. The five key steps in trouble ticket resolution are:

- Trouble ticket reported – CP
- Trouble diagnosis and isolation – Fibrus
- Trouble repair - Fibrus
- Trouble ticket updated and closed – Fibrus
- Customer updated - CP



To complete diagnosis and repair Fibrus Wholesale may be required to work in conjunction with CP personnel. CP will be responsible for the availability and capability of such personnel and any resultant impact on fault duration.

Escalation Process

Where a CP requires to escalate a trouble ticket for resolution it must contact the Wholesale Relationship Manager. Trouble tickets may only be escalated where they are beyond SLA parameters.

Outages

Planned Outages

It is recognised that Planned Outages are a necessary, normal and regular occurrence. Where a Planned Outage will impact on the Passive Infrastructure services provided to a CP, the CP will be notified by email, including a description of the outage, customer impact, date, time and expected duration. Fibrus will endeavour at all times to carry out Planned Outages during the preferred hours of 00:00 to 06:00.

Unplanned Outages

Where an outage occurs that impact on multiple end-customers, Fibrus Wholesale will inform CPs to enable them manage operations and customer expectations effectively.

Billing

All connection, usage and recurring charges associated with the provision of the Passive Infrastructure product are charged on the next billing cycle following completion of an order. All charges are as defined in the contractual agreement with the CP and/or as published where appropriate.

Queries regarding billing and charges must be raised with the Wholesale Relationship Manager for resolution.

