

In Confidence
WBC FTTC Handbook
BT Wholesale

Wholesale Broadband Connect
Fibre To The Cabinet

Handbook

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WBC FTTC Handbook

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1. Introduction

1.1 About this handbook

This Wholesale Broadband Connect Fibre to the Cabinet (WBC FTTC) Handbook provides assistance and useful information so that you can work with us to provide your End Users with the best possible service.

1.2 Conventions used in this handbook

This handbook is produced for reference by WBC FTTC Customers

Billing Account refers to the means of grouping assets for billing purposes.

Customer Account means to an access control mechanism which restricts Users/systems to visibility of assets on a subset of Billing Accounts.

Customer Premises Equipment (CPE) refers to any equipment provided at the End User's premises which is provided by you to enable the service to work e.g. Hub / Router. The VDSL 2 modem will be provided by Openreach via BT Wholesale.

End Users (EU) means the final recipients of your services.

Network Terminating Equipment (NTE) refers to the termination point of the WBC FTTC service either at your premises, Resellers or at the End User's.

Point of No Return ("PONR") means for the purposes of cancellation, the point at which an order can be cancelled without any cost being incurred. There is a separate PONR for amendments such as the changing of an appointment.

Reseller Customer refers to a legal entity that Contracts with a WBC Customer for a wholesale broadband service. It explicitly does not refer to End Users.

Wholesale Broadband Connect (WBC) means the BT Wholesale product that provides broadband service from the End User to one of 20 WBC interconnect points around the UK.

WBC Customer refers to a legal entity that has entered into a contract with BT for WBC.

WBC FTTC Customer refers to a legal entity that has signed the terms and conditions for using the WBC FTTC service.

WBC FTTC refers to the BT Wholesale product that provides a Fibre Broadband service from the End User to one of 20 WBC interconnect points around the UK. WBC FTTC is where the End User Access utilises VDSL2 technology to provide downstream data rates up to 80Mbit/s from the Cabinet to the End User's premises.

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A more comprehensive glossary of terms and acronyms is detailed in section 19 of this Handbook.

1.3 Version Control

Please ensure that you have the latest version of this Handbook which can always be sourced from <http://www.btwholesale.com/>

1.4 Further Information

This Handbook refers specifically to WBC FTTC which uses a new technology VDSL 2 (Very High Speed Digital Subscriber Loop 2) to deliver Broadband service into the home over the End Users copper pair telephone line.

This handbook contains details and references to the Wholesale Broadband Connect product (WBC) Handbook. The WBC handbook can be found at www.btwholesale.com/wbc

If you are an existing customer of BT, you can find more information about the WBC service at <http://www.btwholesale.com/>

If you are not already a customer of WBC services, you will find more information at <http://www.btwholesale.com/> on how to register as a BT Wholesale Customer

Please note: To access additional Broadband Customer information on this website it is necessary for you to register. Information on how to register can be obtained from your BT Account Manager. Once your registration has been approved (approx. 24hrs), you will be able to view documents within the secure area.

You can find further technical information on the WBC FTTC Product Suppliers Information Notes by referring to SIN 495. Openreach have also published SIN 498 which provides useful information about CPE requirements in the End Users' premises, both of these documents can be found at <http://www.sinet.bt.com/index.htm>

Information on the prices for WBC can be found in the Service Provider Price list at <http://www.btwholesale.com/>

If there is any difference between the WBC FTTC Terms and Conditions and this WBC FTTC Handbook, the WBC FTTC Terms and Conditions take precedence.

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2. General Overview of WBC FTTC product

WBC provides Broadband service from the End User to one of 20 WBC interconnect points around the UK.

The WBC FTTC Product uses the same WBC infrastructure but offers an End User Access based on VDSL 2 technology to deliver to an End User's premises. WBC ADSL 1 and ADSL 2+ both use Copper to deliver the service to an End-User premise. The WBC FTTC End User Access provides line rates of:

- Up to 80Mbit/s downstream and up to 20Mbit/s Upstream.
- Up to 40Mbit/s downstream and up to 10Mbit/s Upstream.
- Up to 40Mbits/downstream and up to 2Mbit/s Upstream.

To use the WBC FTTC service it is assumed that any customers are already customers of the WBC Service.

The main difference between the WBC FTTC service and WBC ADSL Services is that the DSLAM (Digital Subscriber Line Access Module) is situated in an exchange building for WBC ADSL services but for WBC FTTC the DSLAM is situated in a cabinet in the street (the "Street DSLAM"). The Street DSLAM is served with a fibre connection back to the exchange to carry the Broadband signals. The Street DSLAM is connected to the Street Cabinet using tie pair cables. VDSL 2 is used to carry the Broadband over the copper pair from the Street Cabinet to the End Users' premises. See diagram 1 below.

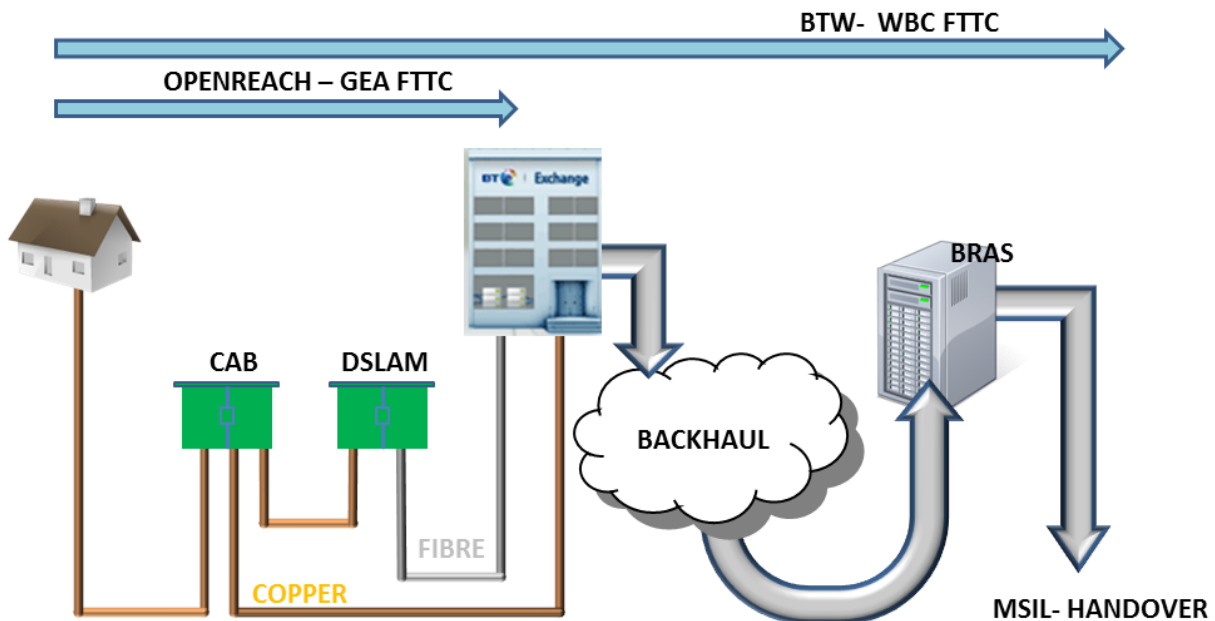


Diagram 1 – General Overview of WBC FTTC

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The WBC FTTC Service cannot support 'Exchange Only Lines' where the copper line is served directly from the exchange rather than via cabinets.

The WBC FTTC Service will permit one CP to buy the access connection on the copper pair. More than one copper pair connection can be provided to the premises if the End User requires multiple WBC FTTC services. Pair bonding on the WBC FTTC Service is not supported.

Baseband voice service can be provided by either the same or different CP(s) using the WLR (Wholesale Line Rental) product over the existing copper network on the same copper pair used by the WBC FTTC Service. WLR is an Openreach product and provided under separate terms and conditions. The voice service will not necessarily be provided from the same exchange as the broadband service.

The Public Switched Telephony Service (PSTN) should be unaffected by this new technology and will continue to be supplied over the copper pair between the exchange and End User's premises.

Wholesale Line Rental Integrated Services Digital Network products (WLR ISDN2 and ISDN 30) are not compatible with the VDSL2 signals used in the WBC FTTC Service.

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3. About Wholesale Broadband Connect Fibre To The Cabinet (WBC FTTC)

3.1 Local Access Network supporting Broadband

In the access network today, copper cabinets (also known as Primary Connection Points (PCPs)) are fed ADSL-based signals by a high-capacity Exchange-side ('E'-side) copper cable. This electrical connection provides individual 'pairs' into the cabinet. To provide service to the customer, smaller cables on the 'Distribution Side' or 'D'-side of the cabinet connect to underground or overhead Distribution Points (DPs) which then radiate copper feeds into the End User premises. This is illustrated by an example copper network architecture diagram below:

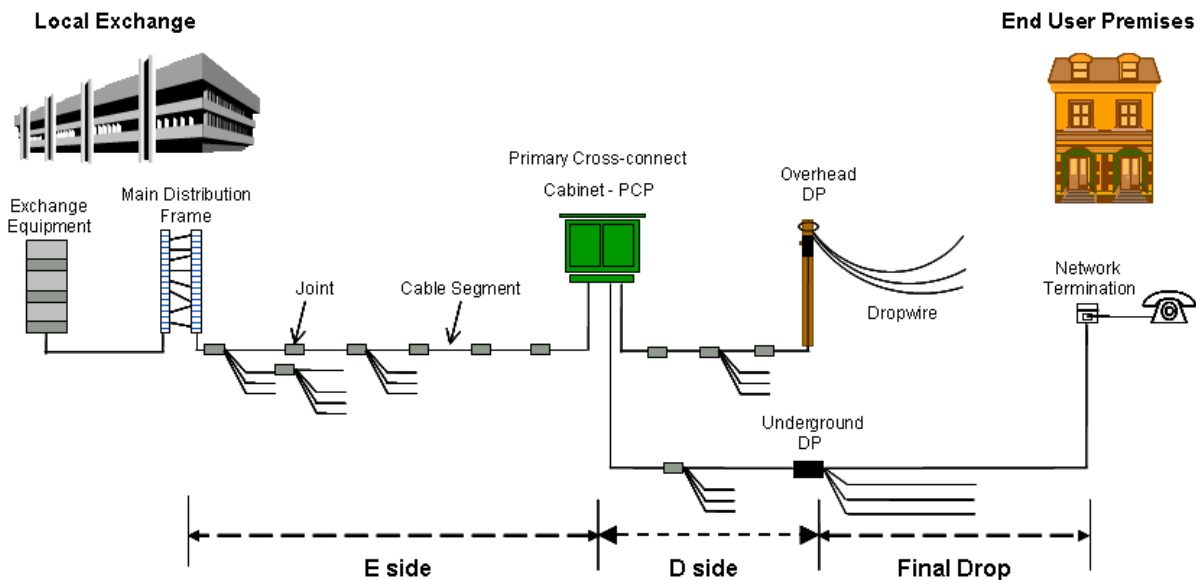


Diagram 2 – Overview of Local Access Copper Network Architecture

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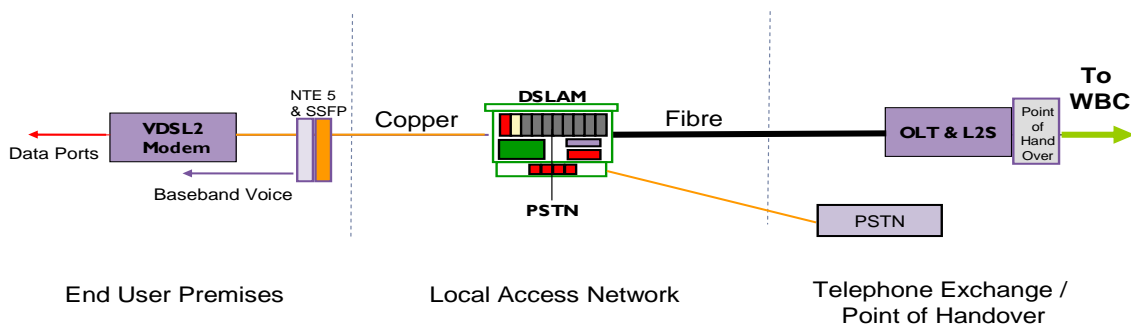
3.2 The WBC FTTC Architecture

An overview of the architecture for WBC FTTC is shown below. The WBC FTTC product uses the Openreach GEA product as an input technology. The principle difference between this and the existing Exchange-supplied copper access network using ADSL2+ is that a separate fibre connection will be provided between the exchange and the cabinet (PCP shown in the diagram below) and then the VDSL2 enabled DSLAM connected to the PCP will deliver the high speed VDSL2 signals to the End User premises over the copper pair that is also supporting the PSTN (narrowband) service.

The VDSL2 technology utilised in WBC FTTC is used as a conveyance technology to deliver faster bandwidth to the End User premises. The provision of broadband service to the End User premises will remain a CP responsibility.

WBC FTTC will permit one CP to buy the WBC FTTC connection on the copper pair. This is necessary to ensure that the available bandwidth over WBC FTTC is allocated for delivery of the best broadband speed technically possible to that premises. More than one copper pair connection can be provided to the premises if the End User requires additional WBC FTTC services. It is intended that the baseband voice service can be provided by either the same CP or a different CP over the existing copper network using WLR on the same copper pair as used by WBC FTTC. This replicates the WLR + SMPF model where WBC FTTC replaces SMPF.

WBC Fibre To The Cabinet in the Local Access Network



DSLAM :- DSL Line Access Module
L2S :- Layer 2 switch
NTE 5 :- Network Termination Equipment no. 5
OLT :- Optical Line Termination
PSTN :- Public Switched Telephone Network
SSFP :- Service Specific Front Plate
WBC :- Wholesale Broadband Connect

Diagram 3 - WBC FTTC service in the Local Access Network

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WBC takes the service from each Point of Handover (POH) and backhaul it to the nearest WBC Aggregation Point of which there are 20.

The standard features of WBC such as QoS, architecture, AP options etc will continue to be offered; the main difference to the other product variants is that the End User Access service will be delivered over WBC FTTC / VDSL2 technology. Please note that at this stage only data services can be run over the WBC Service. Services to support baseband voice over the fibre are not currently offered. Voice over IP is however supported using WBC FTTC at the CP's discretion.

BTW Broadband – WBC FTTC simplified network diagram

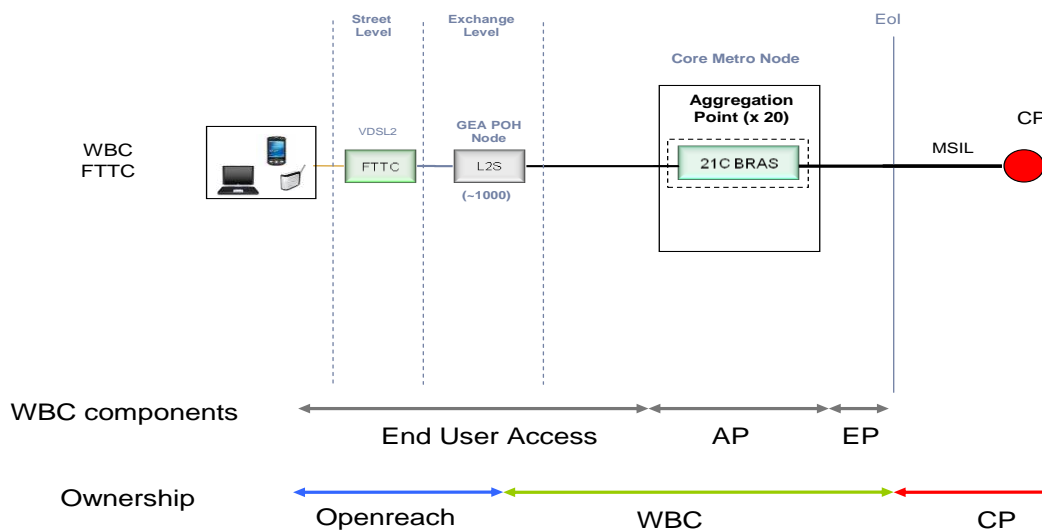


Diagram 4 – WBC FTTC simplified network diagram

3.3 Commercial Considerations

3.3.1 Contract Terms & Charges

The minimum contract terms for WBC FTTC are as follows:

- Provision (a new FTTC Service) = 12 months.
- Migration of an existing FTTC Service = 1 Month.

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Early Termination Charges (ETC) will apply in the following scenarios;

- Cease of FTTC service
- Termination of FTTC service

Early Termination Charges will not apply to bandwidth changes, where the upstream or downstream bandwidth is increased, (e.g. moving from the WBC FTTC 40Mbit/s downstream 10Mbit/s upstream product variant to the WBC FTTC 80Mbit/s downstream 20Mbit/s upstream product variant). However Early Termination Charges will apply where the bandwidth is decreased in either the upstream or downstream.

The minimum contract term will be reset in the following scenarios;

- Placing a modify order to upgrade from WBC FTTC Standard Throughput to WBC FTTC Elevated Throughput
- Placing a modify order to downgrade to a lower upstream or downstream bandwidth.

Availability of the product can be determined using the BTW availability checker;

http://www.btwholesale.com/pages/static/Community/Broadband_Community/Coverage/A_DSL_Availability_Checker.html

3.3.2 Pricing

Pricing consists of

- End User Access connection and rental
- Contracted bandwidth rental for WBC FTTC

Pricing detail is available on the BTW price list

For other WBC prices please see the WBC Customer Handbook and WBC Price List.

3.3.3 Service

The features of the WBC FTTC Service include:

- QoS-based architecture to optimise application performance and cost.
- Dynamic Line management (DLM) to extend coverage and stability, giving more control over the applications WBC FTTC Customers and Reseller Customers can sell with tailored profiles such as Standard, Stable or Superstable

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- Standards-based approach to ease interoperability.
- Standard gateway across all BT 21CN services for transactions.

3.3.4 Customer Experience

Service Level Agreements (SLA) and Service Level Guarantees (SLG) as set out within the WBC terms & conditions.

The WBC FTTC product is currently provided with a standard '40 hour response' (Maintenance Class 5) option as default. BT Maintenance Class 4 and BT Maintenance Class 14 can be purchased at additional cost.

3.3.5 Equivalence of Input (Eoi)

WBC FTTC will consume network components and services from Openreach in the same way as any other operator. Please see diagram 4 which outlines the demarcation points (ownership) of the components of the WBC FTTC service.

3.3.6 Pre requisites for taking WBC FTTC End User Access services.

Before processing WBC FTTC End User access, a CP must be a WBC customer with the entire associated WBC infrastructure in place.

The minimum predicted downstream speed of any line under consideration for FTTC is 2Mb/s. Although this is a minimum, a customer should consider whether a line predicting marginally over 2Mb/s would perform adequately in service.

There are no Upstream or Downstream criteria to be considered when migrating from a 40M/2M product, to either a 40M/10M or an 80M/20M product

Please refer to the WBC Operational Handbook for more detail.

3.3.7 Reseller

A reseller model will be available as part of the WBC FTTC Service. For information on the Reseller model please refer to the WBC Operational Handbook.

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4. Product Bandwidth Rates

The WBC FTTC product will offer the following VDSL2 line rates:

- Up to 80Mbit/s downstream, with up to 20Mbit/s peak upstream.
- Up to 40Mbit/s downstream, with up to 10Mbit/s peak upstream.
- Up to 40Mbit/s downstream, with up to 2Mbit/s peak upstream.

Downstream Considerations

For all services, if the line rate (synch rate) falls below 2 Mbit/s, a fault may be reported to BTW which will be investigated. Additionally, if the line rate has decreased by more than 25% over the previous 14 days, then a fault can be reported to BTW. See also 90 Day Rule below.

The downstream throughput achieved on the service will include a small element of bandwidth used to support traffic management.

The actual rates that can be supported on any individual line will be influenced by three main factors:

- The distance of the copper connection from the End User's premises to the Street Cabinet
- The number of activated End Users using the common cable which will determine cross-talk noise impact
- Any environmental issues within the EU premises (especially for Self Install Installations where no Openreach engineer visit is made to the EU premises)

Any of these factors may result in the End User experiencing a drop in the speed from what was originally expected.

Upstream Bandwidth considerations:

If the upstream speed of the 80/20 or 40/10 products drops below 2Mbit/s, and following investigation by BTW which fails to resolve the problem the CP can choose to:

a) Convert the circuit to the up to 2Mbit/s product free of charge, at any time during the life of the circuit.

Or

b) Cease the circuit free of charge within 90 days of provision: See 90 day Rule below.

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90 day rule

This deals with performance issues relating to a service that has been in service for less than 90 days and cannot be adequately fixed by Openreach.

The service must have been investigated by Openreach for under-performance since its Service Activation date (i.e. the line will not synchronise at a speed above the 10th Percentile point of sale predicted rate, (please see section 16.2), or the line rate has dropped by more than 25% over a 14 day continuous period).

We will send you 1 of the following codes:

9384 – “This line will not support the ordered downstream sync speed”

Action required: This is a warning message advising that the service will be set with a reduced downstream bandwidth. If the reduced bandwidth is not acceptable, you can request to cease the service by submitting a cease order.

9501 – “This line cannot support the requested upstream sync speed”.

Action required: This is a warning message advising that the service will be set with a reduced upstream bandwidth. If the reduced bandwidth is not acceptable, you can request to cease the service by submitting a cease order.

9502 - This line cannot support the requested upstream and downstream sync speeds.

Action required: This is a warning message advising that the service will be set with reduced upstream and downstream bandwidths. If the reduced bandwidths are not acceptable, you can request to cease the service by submitting a cease order.

If you choose to cease the affected service after receiving one of the above codes, you may be entitled to a refund of the following charges (where applicable):

- Connection charges
- Cease charges
- Rental charges
- Early termination charges

To qualify for a refund of charges, you must raise a cease order against the WBC FTTC service to arrive with our supplier within 90 days of the service's activation date.

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4.1 WBC FTTC End User Access Throughput Rates

Customers should be aware that there will be a difference between the line rate (line speed) of the WBC Fibre FTTC End User Access and the throughput experienced end to end by the end user.

Line rate/Line Speed refers to the synchronisation speed negotiated between the VDSL router and the street DSLAM supplying the service.

Throughput refers to the ability to pass data through the network (including the BRAS) at a given rate, which depends on not only the synchronisation speed but also the available bandwidth between the end user and the source of the data through the BT Wholesale and CP networks (and often the internet).

WBC Fibre FTTC customers can select either Standard or Elevated downstream throughput options for End-User Access orders.

BT Wholesale offers a Differentiated set of minimum throughput experiences that reflects the Value of the product itself. Basically the higher value of product, the greater minimum throughput offered by that product.

BT Wholesale dimensions the WBC network between the BRAS and the DSLAM according to the demand seen in the network in the busy periods, defined by the busiest 3 hours of the day. Differentiation is achieved by giving preferential weighting in the BRAS which gives a higher throughput under congestion of the shared VLAN between the BRAS and DSLAM.

The table below sets out the downstream throughput speeds for the WBC FTTC Service.

WBC FTTC End User Downstream throughput rates		
Downstream (Mbit/s)	Service Variant	Minimum 'Best Efforts' Planned Downstream Throughput (Mbit/s)
40	Standard	20
40	Elevated	30
80	Standard	40
80	Elevated	60

Where the Minimum downstream throughput speeds are not achievable due to the characteristics of the line, the Minimum downstream throughput speeds will be:

70% of the BRAS Profile Rate for all Standard Services and

80% of the BRAS Profile rate for all Elevated Services.

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The throughput measures defined above are subject to the end user's service achieving a downstream line speed greater than the throughput speed for the selected downstream traffic option.

BT Wholesale uses network dimensioning rules which are designed to ensure that customers receive a given IP throughput based on the product they have purchased. This is regardless of the activity of other users within the shared part of the network.

The Service Level Agreement (SLA) is that users should achieve the above throughputs for 90% of the busy 3 hour period.

The table below sets out the Upstream throughput speeds for the WBC FTTC Service.

WBC FTTC End User Access details and Upstream throughput rates			
Upstream Minimum Throughput Speeds	40/2 Mbit/s option	128 Kbit/s	128 Kbit/s
	40/10 and 80/20Mbit/s options	2 Mbit/s	2 Mbit/s
QoS Options		Assured** Real Time**	Assured** Real Time**

** Please refer to the WBC Operational Handbook Section 6 for further information

The downstream rate achieved on the service will include a small element of bandwidth used to support traffic management. The bandwidth utilised for traffic management will vary according to the frame size used by the CP for transmitting IP packets. This is illustrated in the table below using 40Mbit/s and 80Mb/s services and varying frame sizes to determine the net bandwidth available for data transmission.

IP Frame Size (Bytes)	64	142	278	512	1024	1522
Available Throughput (Mbit/s) -up to 40Mb	30.48	35.06	37.32	38.5	39.23	39.48
Available Throughput (Mbit/s) -up to 80Mb	60.96	70.12	74.64	77	78.46	78.96

The actual rates that can be supported on any individual line will be influenced by the distance of the premises from the cabinet and the number of End Users taking broadband services and using the same cable which will determine cross-talk noise impact.

Lines are likely to be subjected to an initial 'cabinet activation test' to produce potential individual line capability records. This information would be exposed to CPs via dialogue services to help inform CPs of the line capability to support their own products and services offered to the End User at that premises.

Following installation of service, the line will be allowed to stabilise during the first 10 days after provision. This will allow the Dynamic Line Management time to set the best speed of the line whilst ensuring stability.

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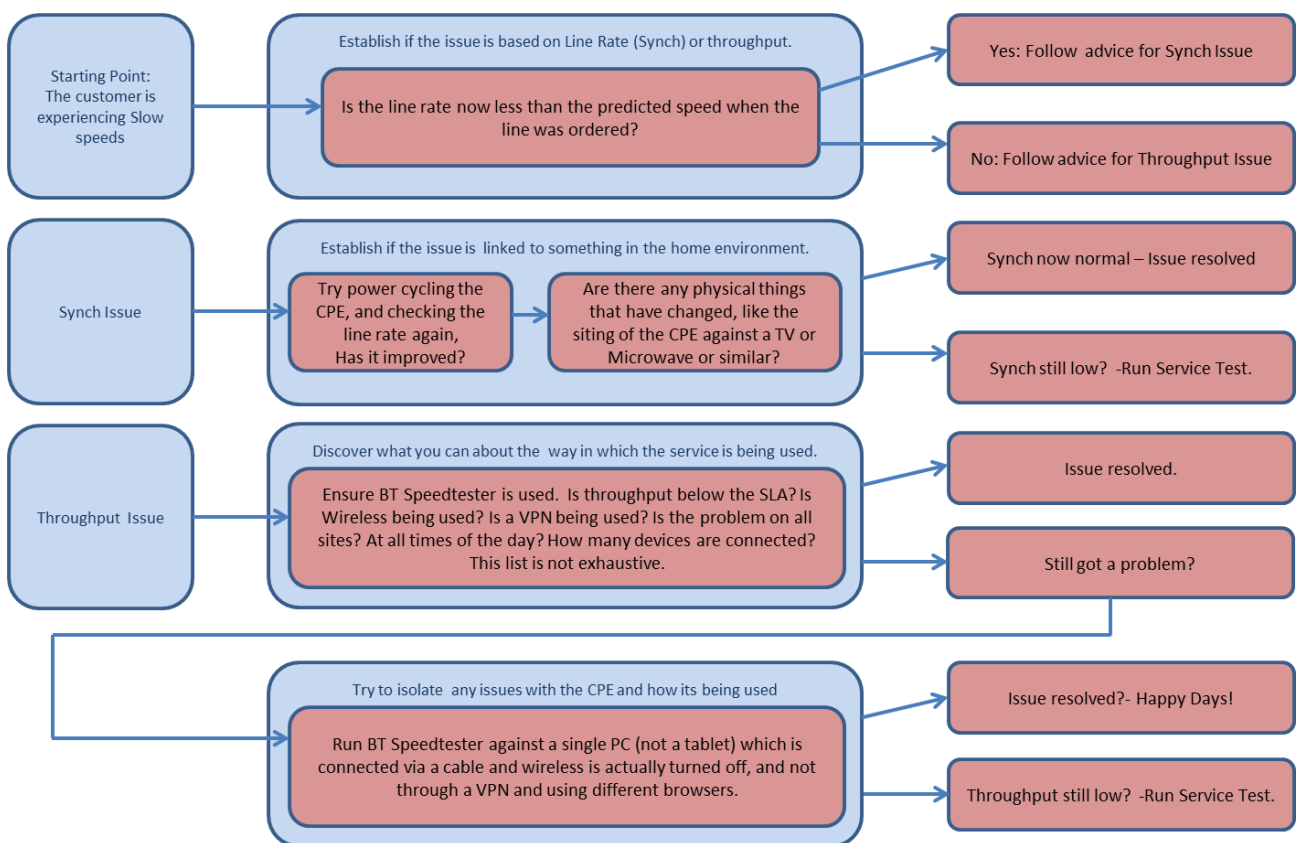
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4.1.1 Use of line rate in faulting

It is viewed that Line rate is a poor indicator of a fault in the copper network because:

- All lines are susceptible to external noise which affects the line rate by decreasing it.
- All lines which are provided when a cable has very little VDSL2 deployed over it are likely to start at a higher rate and then the rate is likely to reduce as VDSL2 volume usage (cable fill) rises, (Crosstalk effect).

When handling Speed Related faults it is essential that Line Rate (Synch) and Throughput are not confused. The table below is provided to help Customers deal with End User reports of slow speed:



To follow the above process, all Customers should be capturing the Point of Sale Speed (Predicted speed when the line was ordered). Following this process will greatly reduce the number of faults that are mishandled and sent to BTW for resolution when the slow speed is a result of an issue within the EU environment. An improvement to diagnostics will lead to faster resolution to EU problems and potential savings in resources within customers' Fault handling processes.

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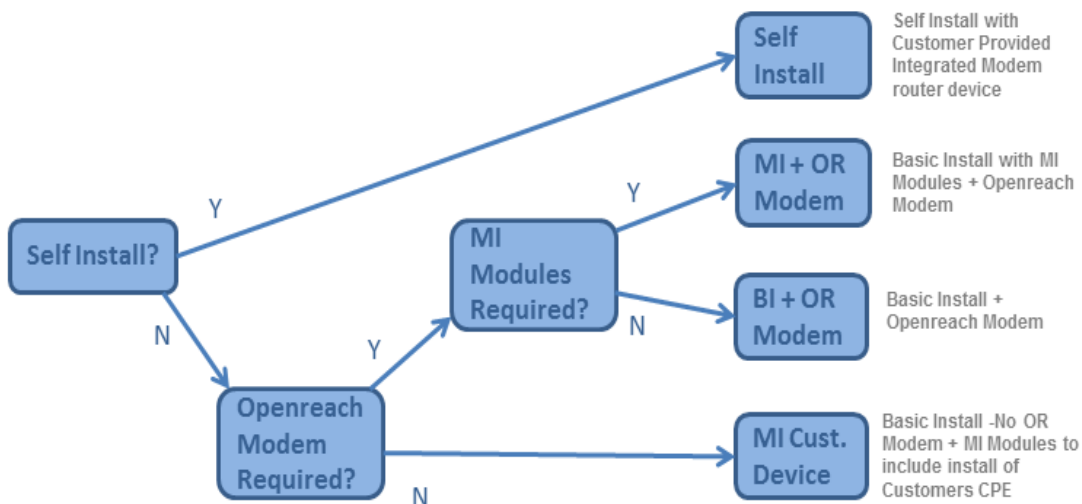
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5. Install Features

BT Wholesale offers a range of installation options, as shown in the diagram below.

2 options require Openreach to fit their VDSL Modem and therefore will require an appointment; these are Basic Install and Managed Install.

2 Options require Customers to supply the CPE, this usually an integrated VDSL Modem and Router device, (also referred to as a CP Device). 1 of these options is the Managed Install of the Customer's Device, this option requires an appointment and the other is Self-Install, which does not.



5.1 Basic Install Features

The WBC FTTC service is provided and assured on BTW's eCo Plus service. Orders and faults can be submitted either via the on-line internet based Portal or via XML transactions.

Order and Fault updates are provided to CPs via Keeping Customer Informed (KCI) notifications, additionally KCI Order and Fault message information is available via the order and fault trackers.

Orders will only be accepted in areas where WBC FTTC has been deployed. Availability and estimated line characteristics should be verified by the use of dialogue services. To order the WBC FTTC Service, the End User must have an existing BT copper based services such as a PSTN (Public Switched Telephone Network) service provided via WLR.

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Connection of the WBC FTTC Service will involve an Openreach engineer visiting both the roadside cabinet (Street Cabinet also known as the Primary Connection Point Cabinet (PCP)) and the End User's premises, the End User will be required to be present.

For WBC FTTC and WLR/PSTN, the CPs providing the services can be different or the same.

Simultaneous provision of WLR and the WBC FTTC is available.

Migration scenarios between WLR, MPF (Full Metallic Path Facility as used by LLU Operators) and the WBC FTTC Service are available.

5.2 Self Install Features

BT Wholesale offers this FTTC product variant whereby the VDSL Service is terminated onto the NTE and the End User plugs the Customer's provided CPE into the NTE to complete the installation.

This variant differs from the Basic product in terms of Appointing and Customer Experience and requires the customer to take responsibility for providing the CPE.

Appointments do not actually exist for Self Install, only the Customer Confirmed Date as an all-day timeslot is relevant. Please see Section 16.5 for further details.

For Self Install, the product features will be the same as in section 5.1 with the exception of the connection. The Engineer will make the same connections in the Roadside Cabinet and will confirm that the VDSL service is leaving the cabinet on the correct Copper pair towards the DP, but will not visit the EU. No End User access appointments are required.

When customers order Self Install they should understand that there is a higher risk of the line being impacted with wiring issues and End Users getting lower line and throughput rates. We recommend that CPs use Range B Broadband Availability Checker (BBAC) values when providing estimated speeds to their customers.

5.3 Dialogue Services

Dialogue services offer the following applications for the WBC FTTC Service:

Appointing – enables a CP to check appointment availability and reserve appointments for both provision and assurance activities.

Broadband Availability Checker (BBAC) – enables a CP to identify whether a line can have FTTC, and what the predicted Line rates are. (see Section 16.1)

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Line test and Diagnostics – this service provides the ability to test the WBC FTTC circuit prior to submitting a fault to BTW.

If using the BT Wholesale Portal the activities above can be done during the order placing or fault reporting process and do not need to be done separately in advance.

5.4 End User appointing (Basic and Managed Installations - including fitting of Customer Premises Equipment)

Openreach will contact the End User before the booked appointment to discuss the proposed installation and confirm the appointment slot. If necessary, Openreach will re-appoint the job at the request of the End User.

The engineer will call the End User on the day of appointment prior to starting work at the Street Cabinet but will not commence work unless the End User has confirmed their or their agent's availability. If the End User is not contactable or available, charges will apply as per the BTW price list: The CP will be asked to make a new appointment.

5.4.1 Basic Installations

In the course of a Basic WBC FTTC installation, engineers will only fit the Openreach Active NTE and Openreach VDSL modem. The installation of a CP's Ethernet routers/modems is not part of this installation and can only be done if a CP has selected a chargeable Managed Install module.

It remains the Customer's responsibility to arrange installation of any End User equipment unless an Openreach Managed Installation has been requested.

5.4.2 Managed Installations Requiring the Openreach Modem

Customers wishing to offer a Managed Install module will first need to register the router/modem with BT Openreach in advance of the installation

Registration initiates the process that culminates with the inclusion of a CP's chosen Customer Premises Equipment that can be installed/re-installed at the End User premises. CPs wishing to take up this option should contact their BT Wholesale account or Customer Manager. Further details can be found on the Openreach website.

The Managed Installation is an optional extra that carries additional charges. These charges are listed on the FTTC price list. CPs ordering service through this option should request PCP = No, Openreach Modem = Y and specify which of the agreed Managed Install modules are to be installed.

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5.4.3 Managed Installations Requiring Customers CPE

Additionally, CPs can request Openreach to install the CP's own combined modem/router in place of the Openreach modem. This too is at additional cost, but includes the fitting of an SSFP. When ordering this option, the CP should request PCP = No, Openreach Modem = No and specify the number of Managed Install Modules as 1.

This module will not be charged for, however the option to fit the CP's own modem/router will. Please see the BT Wholesale Price List at www.btwholesale.com

See also Appointment Options in Section 16.5.

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6. Customer Premises Equipment (CPE)

As part of Basic and Managed installations, Openreach will install a Service Specific Front Plate and a VDSL2 modem (Active NTE). For Self Install see section 6.4.

Pictures of the VDSL2 Modem ('Active' NTE) and the SSFP are shown below

6.1 Service Specific Front Plate (SSFP)

During the installation of the WBC FTTC Basic and Managed product variants, the Openreach engineer will fit a Service Specific Front Plate to the existing NTE5. Where no NTE5 exists, Openreach will install an NTE5 within 3 metres of the entrance to the End User premises.

Where an external NTE exists, Openreach will install an NTE5 with Service Specific Front Plate internally immediately adjacent to the external NTE.

A Service Specific Front Plate splits the delivery of telephony and DSL signals at the NTE5, delivering each service to a separate port on the socket. This terminates the DSL signal at this point, meaning the signal is not received on any telephone extension sockets that may exist.



Picture 1:- Service Specific Front Plate

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6.2 Active NTE

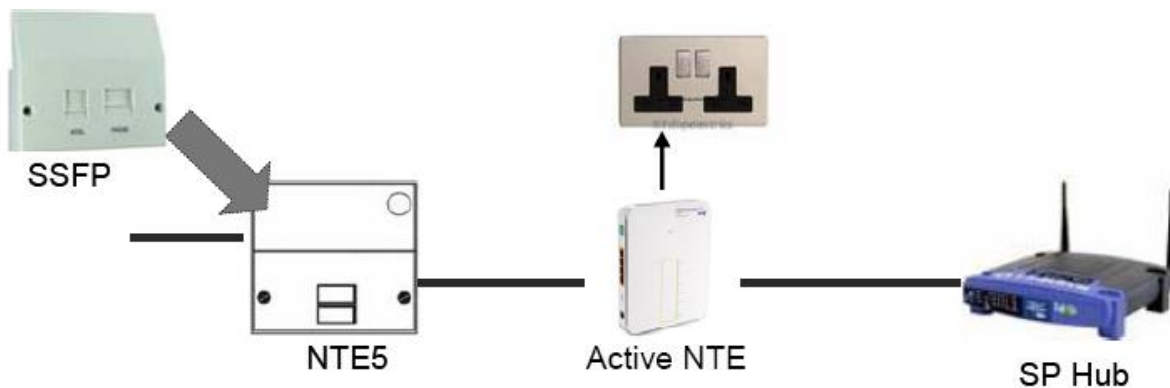
A VDSL2 modem will be supplied for Basic and Managed Installations which will be connected to the data port of the service specific front plate. This is an active NTE which allows BT to monitor and test the service provided. The active NTE must be within reach of a power supply, and must remain connected to the power and data port of the service specific front plate at all times.

Active NTE



Picture 2:- Active NTE / VDSL modem

ADSL filters are not required in the End User's premises as the WBC FTTC service is provided to the NTE5 (and data extension kit (Home Wiring Solution)) if provided), and not through to the telephony extensions. If the filters are not removed there should be no impact on either the telephony or the WBC FTTC Service.



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Picture 3 - Typical End User set up

The Openreach physical network demarcation point within the End User's premises is the NTE5 although Openreach will also install and maintain the active NTE. Any (optional) Openreach installed data extension wiring becomes the property of the End User and has a warranty period of 1 year.

The active Ethernet EU port on the VDSL2 Active NTE will support:

- 10/100Base-Tx with RJ-45 connectivity
- Auto-negotiation and MDI/MDIX auto-sensing.
- Data transfer at wire-speed for all packet sizes.
- Built-in layer-2 switch

The technical specification of the interface connections provided by the NTE device is described in SIN 360, Ethernet Customer Interfaces, and Interface Characteristics.

Power Supply

The power supply to the VDSL2 Active NTE will be a single, low voltage power interface. The PSU will be suitable for use with the standard domestic UK supplied 240V (ac) and conform to the relevant standards. The power consumption is <9 W.

It is the CP's responsibility to make sure that there are enough mains socket outlets to provide a power supply for equipment, which may form part of your service at the End User's premises.

6.3 Data Extension Kit (Home Wiring Solution)

If the active NTE is to be sited more than approximately 1.5 metres from the NTE5, a data extension kit will be required to deliver the Ethernet service to the modem. The data extension kit provides a maximum additional 30 Metres distance from the NTE5 and can be routed internally or externally to an additional data extension point where the active NTE can then be connected. The data extension kit (Home Wiring Solution) is a non-chargeable option which can be requested by the end user from the engineer during the installation visit.

Note: To minimise confusion, Customers are requested to ensure that a 'Data Extension Kit' or 'Home Wiring Solution' is always selected when each WBC FTTC order is placed. This will allow the engineer, following a specific request from the end user, to carry out the request on the day, without issue. The Data Extension/ Home Wiring Solution should be ordered as the Data Extension Kit from BT Wholesale. Our systems will convert Data Extension Kit items in any orders to the Home Wiring Solution submitted to our supplier. The Data Extension Kit / Home Wiring Solution becomes the property of the End-User and carries a 12 month warranty from the date it was fitted by the engineer.

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6.4 CPE for Self Install

For Self Install, the Engineer will not visit the End User, so the completion of the installation and the fitting of the CPE is the responsibility of the Customer.

No Service Specific Front Plate will be provided by Openreach so it becomes the responsibility of the customer to fit Filters. These could be either Centralised, (similar to the SSFP) or Distributed, (similar to that used for ADSL at each extension telephone point, but optimised for VDSL).

Where Customers who wish to order the Self Install product variant, they must supply a device that combines a VDSL Modem with the Router. It is critical that customers understand that such devices must conform to SIN 498 and must have been tested against that standard.

There are two methods of achieving this:

1. Customers can ask their suppliers to ensure the CPE is SIN 498 compliant.

Before supplying CPE to customers, suppliers complete all the tests that are detailed in SIN 498. Openreach has reserved the right to see the Test Reports of any device connected to their network, so it is a requirement to have this information in place before any device can be deployed. BT Wholesale advises its Customers to ensure that their suppliers have completed this testing and have the evidence in place prior to connection to the Network. Additionally suppliers must ensure that their devices remain compliant over time as SIN 498 may change.

2. Customers can ask BT to test their Devices for them.

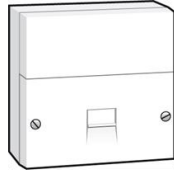
This is referred to as Modem Conformance Testing and can be done upon request. These requests will be considered on a First Come First Served basis.

Any devices provided by the Customer, remains their responsibility and this should be factored in to their Repair processes. If a fault is reported to BT Wholesale, which proves to be as a result of a faulty device provided by the Customer, an Abortive Visit Charge will be made.

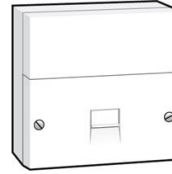
Additionally, it should be noted before ordering Self Install, Openreach continue to develop their Network up to 4 times per year. It is the Customer's responsibility to ensure that their CPE continues to function through this ongoing development. To help with this, BT Wholesale will brief out when these upgrades are taking place and have provided a testing facility within BT's Adastral Park site near Ipswich. The facility can be booked through Account Managers and will consist of a bay within a workshop with 4 Network Presentations as follows:

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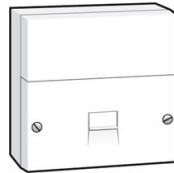
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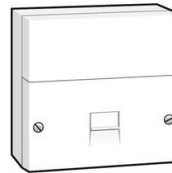
Socket 1.
Huawei Current Network



Socket 2.
Huawei Forthcoming Network
"+1"



Socket 3.
ECI Current Network



Socket 4.
ECI Forthcoming Network
"+1"

Customers who wish to use this facility can do so free of charge, but it would be prudent to ensure that your request is made in good time to avoid delays.

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7. Lead Times

The content of the tables is provided for information purposes only. All of the lead times provided are indicative and may be subject to variation and commercial agreement.

Order Type	Order Sub Type	Scenario Description	Minimum Lead Time
Provide Basic Installation or Managed Installation	New Provide (WLR 2, WLR 3, Retail Classic must exist)	FTTC provided on a line involving a visit to the End Users premises to fit a Service Specific front Plate and Active NTE.	Typically 5 working days. Lead time is dependent on availability of appointments.
Provide Basic Installation or Managed Installation	Migration from SMPF (WLR 2, WLR 3 or Retail Classic must exist)	Migration from SMPF to GEA. The GEA provide order will instigate a managed cease of SMPF	Typically 5 working days Lead time is dependent on availability of appointments.
Sim – Provide (Sim 1 or Sim 2) Basic Installation or Managed Installation	New provide of FTTC simultaneously with the underlying Copper product (WLR3 for example).	New installation of FTTC as per the top scenario in the table, completed at the same time as a new provide of the underlying copper product. Therefore an appointment is required.	Typically FTTC is 5 working days but for sim-provide it will depend on the Standard Lead Time of the underlying copper product.
Provide Self Install	New Provide (WLR 2, WLR 3, Retail Classic must exist)	FTTC provided on a line. Customer completes the install at the EU premises.	No fixed Lead Time, Completion date is given on KCI2, but will normally be between 7 and 13 days.
Provide Self Install	Migration from SMPF (WLR 2, WLR 3 or Retail Classic must exist)	Migration from SMPF to GEA. The GEA provide order will instigate a managed cease of SMPF	No fixed Lead Time, Completion date is given on KCI2, but will normally be between 7 and 13 days.
Sim - Provide Self Install (Sim1 only)	New provide of FTTC simultaneously with the underlying Copper product (WLR3 for example).	New installations of FTTC as per the top scenario in the table, completed at the same time as new provide of the underlying copper product, the copper line must exist.	No fixed Lead Time, Completion date is given on KCI2, but will normally be between 7 and 13 days, but for sim-provide it will depend on the Standard Lead Time of the underlying copper product.
Migration	FTTC migration	Change of CP only, no End User visit required.	3 working days
Modify	Change Care Level	Change the Care Level of repair service	1 working day
Modify	Re-grading of Up-stream Speed	Change the Upstream Speed	1 working day
Modify	Remote Identification	Activation of Remote ID (if not requested at original provision) or modification of existing Remote ID	1 working day
Modify	Change of End User access options not mentioned above	Activation of elevated throughput, DLM, advanced services subscription or Real Time QOS	1 working day
Cancel	Order Cancel or amend	Cancellation or amendment of provide or modify order types	Before 1800hrs on the working day before Order Target Date (1 working day before jumping)
Cease	Cease	CP initiated cessation of the service at the cabinet	3 working days
	Unmatched orders	Time out period for non- progressed orders	10 working days

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All Managed Installation and Basic Installation product lead times are calculated on the basis that the day the order is entered is considered day 0, and all lead time calculations exclude weekends and bank holidays. For example, a 4 day lead time product where the order is submitted and accepted on a Friday will be delivered on the following Thursday.

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8. Additional Services

The following features are available to order to enhance the standard features.

8.1 Simultaneous Provision (Sim Provide and SIM2)

This facility allows End Users to order a new BT line and have the WBC FTTC service provided simultaneously by their chosen Service Provider.

This is achieved by using an 'order matching reference number' (Linked Order Reference Number or LORN) to link the two fulfilment orders.

Orders need to be placed for both the WLR3 (line) and WBC FTTC services to enable a Simultaneous Provision to be requested.

Separate suppliers can be used for both services, but it is the first contact that will be responsible for generating a unique order matching reference.

The order matching reference number will be given to the End User who will be expected to pass this number to either the Line order taker or the WBC FTTC Service Provider (whoever is approached second).

Your generated order matching reference number consists of a three letter prefix (unique to your company), followed by a maximum of seven unique characters of your choice, unique to that order.

The order matching reference number must be included on the WBC FTTC order submitted to BT.

Failure to do so will mean that BT will not be able to match the orders and will result in a subsequent failure to deliver the order simultaneously.

Our order systems carry out the task of matching the two orders, based primarily on the order matching reference. Once the Line and WBC FTTC orders have been matched, the orders will progress as normal. Orders can be matched up to 2 days before CRD, (CRD - 2).

We have also introduced SIM2, an alternative version of the Simultaneous Provision process which 'ties' both orders together once they have been matched.

The LORN for a SIM2 order is limited to a maximum of 10 alpha-numeric characters of which the first four must be "SIM2" in upper case.

The principal differences between SIM2 and its forerunner (SIM) are:

- The WBC FTTC order is the Primary order of the pair

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- Both the voice and broadband orders are tied together – if the date changes for one of the orders, both orders reflect the date change
- SIM2 overcomes potential engineering skill mismatch issues for WBC FTTC simultaneous provision
- Cancelling one order cancels both, so there is no need to cancel each order separately.

In Dialogue Services, a SIM2 Service Type value, 'FTTC Sim2' has been added for making appointments

SIM2 orders cannot be expedited at this time and are not available for Self Install orders.

8.2 Care Level modification

Please see End User Access Modify order section.

8.3 Remote Identification

This facility provides the ability for CPs to select text to be returned within the Remote Id field, for example, to manage verification of their End Users. This text can be ordered as part of the provision process, or later by submitting a modification order.

8.4 Order Amendment and Cancellations

It is possible to amend or cancel an 'in-flight' order up to a specified time known as the Point of No Return (PONR). The PONR for changes made via eCoPlus-portal and B2B interfaces is 14.00 hours on CRD-1.

8.5 Managed Installation

Managed Install modules are additional chargeable options that allow Customers to customise the Service provided to their end users when WBC Fibre Broadband End User access products are installed.

IMPORTANT: To qualify to take the Managed Install Service, Customers must discuss with BT Openreach and BT Wholesale to determine whether the Customer's needs, can be supported.

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Qualifying Communication Providers have to agree with BT Wholesale and our supplier BT Openreach, which CPE items they would like to be supported. If systems developments are required by either BT Wholesale and/or BT Openreach, there may be additional lead times before the services can be provided.

Once a requesting Customer has agreed the CPE to be provided and the required training to allow Openreach to provide the service, Openreach will install the Customer's Modem/Router and End User equipment on behalf of the Customer at the same time as performing the WBC over FTTC installation. This allows Customers to offer their End User a full installation of all equipment as well as reconnection of existing devices within one engineering visit.

A maximum of four modules can be installed or reconnected on the installation visit. Certain devices may constitute more than one module as shown below.

The Customer will be required to supply the CPE to be installed at their End Users' premises to the End User prior to the appointment date.

Once submitted, the Managed Installation element of an order cannot be amended.

For participating Customers, the required Managed Install module(s) should be ordered on a per end-user installation order basis.

Basic Installation (2 Modules)

When the engineer contacts the End User prior to commencing any WBC FTTC connectivity work if the End User has not received the Customer's CPE, the End User will be advised that the work cannot commence until the CPE is made available. Abortive Visit Charges may be raised in these circumstances and a new appointment will be required.

Where the Customer's CPE is present the Openreach engineer will complete the installation, install the Customer's CPE and reconnect the End User's main Personal Computer (PC) if required and available at the time of installation (Basic module).

Please note that the engineer will not install software unrelated to the router onto the End User PC.

In cases where there is a separate Modem and Router, the Customer's router will be sited next to the Openreach Modem. If the End User requires the Customer's router in a different place to the Openreach Modem, the Customer or End User must supply the required length of Ethernet cable to the Openreach engineer in order for him/her to perform the connection.

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Reconnection of End User equipment

The following equipment may be ordered for reconnection by Openreach.

Item	Modules per item
Additional PC/Mac	1
Vision Set top box	2
Hub Phone	1
Connection of new Vision set top box	2

Please Note:

- The devices are specific to a participating Customer and cannot be ordered by other Customers.
- Inactive devices will not be reconnected.
- Devices not previously connected to the End User network will not be connected.

On completion of installation the engineer will:

- Test the VDSL2 service to either the Openreach Modem or the Customer's combined device, and record the results of the test.
- Connect to the Customer's network from the Openreach Modem or the Customer's combined device, (Customer to provide test page/account details).
- If required (separate Modem and Router), connect to the Customer's Network from Customer router (Customer to provide test page/account details).
- Advise the End User how to connect to the Customer's network (e.g. provide URL).

The additional charges for these services can be found on the BTW Price List

8.6 Solution Based Services

Solution Based Services is a feature offered by Openreach to provide additional products and services to CPs. CPs need to agree which services or products they wish provide directly with Openreach. This removes any pre-requirement or dependency to register new Managed Install module requirements with both Openreach and BT Wholesale, removing BT Wholesale development lead times when establishing any new service.

We have developed the capability to be able to place WBC FTTC orders which require a separately ordered SBS from Openreach by use of a Linked Order Reference Number (LORN) in a similar way to Simultaneous provide orders. The difference with the SBS LORN is that the first 3 characters must be "SBS".

SBS orders are ordered directly with Openreach.

There are a number of different order type combinations which can be used with SBS orders and not all require the SBS LORN to be entered.

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The definitive Valid Order Combinations list is an Ms Excel document that is embedded within the single Ms Word document in our latest B2B documentation.

8.7 Super Fast Visit Assure (SFI2)

8.7.1 Overview

Broadband Special Faults Investigation 2 (SFI2) is a service that customers may choose to use to investigate broadband issues that have not been revealed through initial fault testing. SFI2 can also form part of the overall fault journey and must be used to aid a broadband investigation when required.

Customers may choose to make an appointment for a SFI2 if they've chosen not to accept the clear to close the fault during the service assurance process where BT Wholesale has completed the diagnostics and repair activity and passed the fault back to the customer as Right When Tested (RWT), Fault Not Found (FNF) or Customer Mis-Op.

Please Note - SFI2 is provided for the purpose of checking whether a line is working within the parameters of SIN 349. Therefore the SFI2 visit could conclude that there are no faults present as the line is found to be working within those parameters regardless of whether a performance issue is present on the broadband element.

SFI2 is provided on a modular basis. The Base module is mandatory for all SFI2 requests and starts with an engineering visit to the End User's premises to check the BT network from the Network Termination Point (NTP) and the Primary Point of Use by running a series of tests to help locate the area of any problem.

Additional wiring and equipment modules can be included at the Customer's discretion. These will allow the SFI2 engineer to work beyond the NTP in the End User's premises. Charges will apply to some activities carried out as part of the SFI2.

A Co-Op call to enable the Customer to talk directly with the SFI2 engineer can also be arranged (mandatory for SDSL).

All module selection must be made at the time when ordering the SFI2.

Any further work required in the BT Network (including the Exchange) will be carried out as part of BT Wholesale's input into the SFI2.

PLEASE NOTE - Given the intermittent nature of service affecting broadband problems, an SFI2 investigation is completed on a real time per occasion basis which concludes with an issue being identified and resolved or not.. This means that in the event that an SFI2 visit is conducted that concludes that there is 'no fault found' that visit would be chargeable regardless of whether on a subsequent visit a fault is then found.

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8.7.2 Ordering and point of no return

SFI2 is ordered via the BT Wholesale portal or B2B gateway, Customers will have the option to deselect modules not required at the point of ordering however the base module is mandatory.

The request will generate an appointed field engineering visit. This will be resourced by an Engineer with appropriate skills, and the next available appointment will be offered to the Customer.

An appointment is mandatory for all SFI2's. For details of appointments available, please refer to the Care Levels section in this handbook

Point of no return (PONR) applies to all SFI2 appointments and these cannot be cancelled / amended past this point (see section entitled "End User Access Fault Reporting" for further details).

Before the PONR an SFI2 can be cancelled if required without the need to cancel the fault report – a further SFI2 can then be booked after this point if required. Note: - there may be a delay between cancelling the original SFI2 and being able to re-book another SFI2.

SFI2 order allows notes to be entered. You should include as much information about the specific problem/s your Customer is experiencing in order to help the engineer with the investigation. This notes facility must be used for complex or intermittent issues.

8.7.3 Details of the Modules

The mandatory Base SFI Module will either resolve the problem, diagnose where the issue is likely to be or conclude that no fault is present.

Additional chargeable Internal Modules (End User Equipment, End User Wiring) are by default made available when ordering SFI2 and should be chosen or excluded at the Customers discretion.

Caution should be exercised as exclusion of additional modules could prevent a fault being fixed that lies beyond the base module. Modules that are chosen but not used will not be charged for.

Base (mandatory) - This Base module is carried out on every SFI2 appointment. The engineer will start at the Network Termination Point (NTP) and will conduct the activities as detailed below, including a Pair Quality Test and a Broadband Sync Test from the NTP and the Primary Point of Use the results of these checks will determine the initial likely location of a broadband issue and where the engineer may need to carry out work. The engineer will then progress to another module if required, as long as it has not been excluded by the Customer.

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- Fit Bell Wire Network Terminating Equipment (NTE) where the NTE is obsolete or unserviceable for Broadband.
- Perform a visual check of the broadband connection including checking and removing the RF2 filters and replacing with RF3 filters.
- Isolate any 'Star Wiring' on the network side of the NTE.
- Check if the modem / router is connected to the line and powered up.
- Check the modem / router DSL synchronisation indication.
- Check the PC data connection cable (where used).
- Check the modem / router wireless and/or Service Establishment synchronisation indications.
- Perform a Pair Quality Test (PQT) or an appropriate equivalent to confirm the SMPF is working to the correct standard.
- If the PQT or equivalent is positive, the engineer will conduct a generic ADSL / ADSL2+ synchronisation (sync) test on the line and carry out other service layer tests appropriate to the service specified at the time of ordering.
- If the PQT or equivalent fails, the engineer will proceed with the issue as if it was a BT SMPF fault and will resolve it in accordance with standard operating procedures. Upon resolution the engineer will aim to resolve other broadband affecting issues that may be present by completing the remainder of the process steps. The Base module in this scenario is not chargeable but all other completed modules are.

At this point, the result of the sync test coupled with the PQT or equivalent output and the data provided by you will enable the engineer to determine if there is a broadband issue and if so whether it is likely to be in the network, at the exchange, or beyond the NTE in your customer's premises. If no problem is found, the engineer will speak to your customer, test and demonstrate broadband connectivity, and close the job.

If the diagnosis suggests that the engineer should proceed to a module that has not been authorised by you, the job will be closed. In all cases where the job is closed after the Base Module (except where the PQT or equivalent has failed and there was a fault that was BT's), a completed checklist will be passed to you and the charge for Base Module will be raised.

If the engineer has diagnosed the broadband issue to a pre-authorized module, they will then proceed to that module to complete the investigation and attempt to resolve the issue.

PLEASE NOTE - Engineers will normally start by completing the Base Module but in some instances, for reasons of efficiency, an alternative order may be applied. When this happens all work will be chargeable in accordance to the individual Module descriptions as reported in this document. The order in which modules are completed does not invalidate the charge.

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8.7.4 Chargeable additional modules

Internal Wiring - For use if a fault is suspected in the End User's wiring.

If the Base Module diagnoses that the broadband service is working at the NTE but not at the primary point of use (your customer's modem / router extension), the engineer will perform the Internal Wiring Module if you have selected it when you ordered SFI2. The engineer will carry out the following;

- Examine, identify and resolve (including replace wiring) any internal extension wiring issues between the NTP and the primary point of use.
- Investigate any internal Repetitive Electrical Impulse Noise (REIN) issues that have been identified.
- Test and demonstrate broadband connectivity at the primary point of use via the extension wiring, where necessary demonstrating the impact of the reconnection of any other internal telephony wiring that had been disconnected during the investigation.

Internal Equipment - For use if it is suspected that the End User's equipment is at fault.

If the Base Module diagnoses that the broadband service is working at the NTP and the primary point of use, the engineer will perform the End Users Equipment Module if you have selected it when you ordered SFI2. The engineer will carry out the following;

- Router/modem – connection and reset if necessary.
- Perform diagnostic checks and/or configuration activities as directed by you on a co-op call using your customer's equipment. Activities could include;
- Set up WEP key for one PC (main) only.
- Configure PC (one only) for new router.
- Check and resolve wireless settings.
- Your customer will need to provide IDs, passwords and WEP keys.

If the engineer has not been able to resolve the broadband issue, they will explain to your customer why this has not been possible, e.g. the module required to resolve the problem had not been pre-authorised by you.

Pre-ordered co-op call - A call to enable the Customer to talk directly with the SFI2 engineer can also be arranged (mandatory for SDSL). This will allow the engineer to speak to a nominated contact within your organization should he need more information.

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8.7.5 External modules

The following external modules may be added to an SFI2 order. These external modules authorise the SFI2 engineer to resolve issues that exist within the BT network or exchange and as such if they are used they will not be charged to Customers. Please read the section below “In what circumstance will a charge be raised” for more detail.

Network - For use if a network issue is suspected, the engineer will work from the NTP back to the exchange. Work in scope includes - E & D side changes, dropwire renewal and further sync checks.

Frames - For use if an exchange issue is suspected. Work in this module will include - Connectivity tests, Tie pair & port checks and swaps, and further sync & dial tone tests.

8.7.6 How will I know what work has been done?

Once the SFI2 is completed, the Broadband engineer will complete a checklist that will show the details of the work carried out. This checklist will be made available to view very soon after it is received by BT Wholesale. The Customer will be able to view this by using its normal fault reporting route (i.e. eCo or XML) and it will also be available via the Broadband customer reporting tool (BBCR).

As part of the engineer’s checklist, a test and demonstration will need to be carried out to the End User. The name of that End User will also be shown on the checklist.

Following an SFI2 the fault report will remain open for a period of 5 days before being closed on BT’s fault reporting system. If the Customer believes that the fault has still not been rectified a further appointment can be requested during the 5 day period for another SFI2.

Note: Additional SFIs ordered will be charged. If on a subsequent visit a fault is found, previous SFI charges will be maintained.

8.7.7 In what circumstance will a charge be raised?

The SFI2 base module and the Customer-authorized internal modules are all chargeable. The charges are listed in the BT Price List.

The charges raised for an SFI2 report will be based on the work the engineer actually completed indicated as a clear / fault code on the SFI2 checklist on job closure. Charging will be applied in the following way:

- Where only a customer Wiring and / or Equipment fault is found - the Customer will be billed for the Base module and Wiring and / or Equipment modules;

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- Where a combination of a network fault and a customer wiring and/or Equipment fault is found the Customer will not be charged for the Base module but the Customer will be charged for the Wiring and / or Equipment charges;
- Where SFI2 shows Right When Tested the Customer will be billed for the Base SFI2 charge and any other modules that have been used. Customers will not be charged for SFI2 external modules (Network and Frames), as the costs of these modules will be covered by BT Wholesale;
- Generally any applicable charge for each SFI2 visit will be raised on the Customers next appropriate bill after the closure of the fault.

PLEASE NOTE – there may be some occasions where the clear text in the engineering notes conflict with the results of the checklist. An example of this could be where ‘no fault is found’ according to the checklist but the engineer has decided to replace the drop wire as he may believe that doing so may improve the performance.

In any and every instances where a conflict occurs the checklist should be used as the definitive source of information and NOT the engineering notes, likewise it will be the checklist results that will be used to determine the charge NOT the engineering notes.

8.7.8 SFI2 Charging Disputes Process

BT Wholesale supports a Charging Dispute Process for any disputes relating to SFI2 charges. The Customer should submit a charging dispute via e-query by logging on to: <https://www.btwholesale.com/ViewBillBTW>

Customers have 28 days from the date of the relevant BT Wholesale WBC/WBMC invoice where the charges appear to raise a dispute. Disputes raised after the 28 days have elapsed will not be considered.

8.7.9 The Bill

Charges will be raised under Ancillary Charges as shown in the following example.

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Other Charges

Access Number	Customer Order Ref.	Charge Type	Charge Description	Charge Date	Record Count	Network Id	CLI	MAC Code	Charge(£)
BBIPxxxxxxxx	Xxxxx123 - C2	IPADSLSF12-Base- Wiring-Coop	BB SF12 Charge	14/05/2009		CBUKxxxxxxxx	02073851004		xxx.xx
Total Other Charges									XXX.XX

8.8 Cease of WBC FTTC

A CP can submit an order for the disconnection and total cease of the WBC FTTC Service. This will involve work at the Street Cabinet only. A prepaid and pre-addressed bag will be sent to the End User to return the active NTE to Openreach. The SSFP and any data extension kit will not be removed and are compatible with ADSL services.

Please note that while the SSFP is in place that will be the only point of connection for any ADSL services and customers will not be able to use any micro-filters on any other telephone connection points.

Where the WBC FTTC Service is ceased within the agreed contract period, charges will be raised for the remainder of the term. This will be in addition to any standard WBC cease charges.

8.9 Access Visit Charges

Abortive Visit Charges will apply on orders for any of the following reasons: No Access, Customer Absent or Customer Non Readiness. If the order is subsequently cancelled following a No Access charge, the charge will still apply.

8.10 Managed Cease of WBC FTTC

As the WBC FTTC Service is only available where a WLR or MPF service exists, this facility allows Openreach to ensure that a WBC FTTC cease takes place at the same time as a WLR stop or cease.

The cease notification will be sent following receipt of the order which triggered the managed cease, and the cease will be performed on the CRD of the original order.

Where the WBC FTTC service is ceased within the agreed contract period, charges will be raised for the remainder of the term. This will be in addition to any standard WBC EUA cease charges.

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A managed cease of WBC FTTC due to a migration may also be undertaken and will not be charged.

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9. BT & Customer Relationships

This section tells you about your relationship with BT, our responsibilities to each other and the responsibilities we both have to your End Users.

9.1 BT's Responsibilities to You

We are responsible for providing:

- The delivery platform of the WBC FTTC service.
- A Support Team who will be responsible for co-ordinating your service and your contacts with us.
- A Customer's Issues Management Process which allows you to log any concerns, issues and additional requirements that cannot be resolved immediately.
- Timely and detailed invoicing.
- Notification of up-grades and enhancements to the service either directly via email or via our website notification tool.

BT supports the following orders on the WBC FTTC service:

- Provide
- Cease
- Amend
- Cancel
- Modify
- CP Migration
- • Product migration and re-grades Simultaneous Provide

9.2 Your Responsibilities

You are responsible for the sales, marketing and recruitment of End Users and for your contractual and billing relationship with them.

You have responsibilities to BT, your End Users, and your Reseller Customers.

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9.3 Your Responsibilities to BT

Your responsibilities to BT are to:

- Ensure that the forecasts from all your Customers are included in all forecasts submitted to BT.
- Request and manage all user and system access requests, outage notifications, interface change notifications, and system problem resolution, on behalf of your Customers
- As the contracting party with BT for the supply of WBC FTTC Service, the WBC Customer will have full legal responsibility for its own actions/omissions and those of any of its Reseller Customer. This would include but not be limited to such areas as payment of bills, and use of the Broadband Availability Checker.
- You will be contractually liable for all the actions and omissions of your Reseller Customers who you have authorised to have access to the WBC ordering and applicable management systems.
- The WBC Customer must comply and must procure that its Reseller Customers comply will all applicable statutory, legal and regulatory requirements including those of relating to Data Protection.
- Provide a quarterly roll-out plan detailing exchange areas where you will need service to be provided to your End Users.
- Provide any information required by WBC and ensure that it takes into account the WBC FTTC service.
- Work with us to detail on-going areas of service and capacity requirements.
- Ensure we have up-to-date details of your billing address.
- Nominate a 24 hour contact number and details.
- Tell us of any change to your details or circumstances.
- Remit payment of outstanding invoices as per contractual terms.
- Notify us of any changes in service to an End User.
- Work with us to co-ordinate visits to End Users.
- Advise BT when powering down or working on your network and equipment.
- Ensure you have adequate product knowledge and technical capability to be able to support the services supplied.
- Work with us to ensure a timely and accurate flow of information to your End Users and employees to ensure that the market does not receive misinformation or speculation regarding the WBC FTTC service. This is especially important around the difference between throughput and line rate. Please refer to the WBC Handbook for more details.
- Ensure that your End Users are aware that any CPE data throughput issues are your responsibility, and not that of BT's.

9.4 Your Nominated Contacts

We will need the names and contact details of the people who will be responsible for running the WBC FTTC Service. They will be our main contacts and they will report any faults and problems to us.

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9.5 BT's Responsibility to the End User

If we receive any direct enquiries or complaints from your End Users, BT will inform the End User that they must contact the Supplier of their Broadband Service.

If necessary, we will write to or call End Users directly about any changes to the order fulfilment or repair of their WBC EUA service. We will comply with the Data Protection Act (in our capacity as a 'data processor') with regards to any End User data we hold.

Openreach may contact your End User directly to confirm the time of their arrival for appointments.

During any order fulfilment or WBC FTTC repair visits and liaison with the End User, we will not try to sell our products or discuss competing Broadband products.

9.6 Your Responsibility to the End User

It is your responsibility, as the WBC FTTC Customer to, and to procure that your Reseller Customer, ensures that the End Users:

- Have CPE that supports WBC FTTC
- Have an operating system that works with the CPE
- Have a computer with a suitable interface for the CPE
- Have the correct drivers for the CPE (where applicable)

Your responsibilities to your End Users are to:

- Provide Service Support for Order Fulfilment, Repair and Invoicing.
- Ensure that the End User understands who is likely to visit their premises for any engineering reasons e.g. for maintenance of the WBC FTTC Service, installation of your own service which connects to the WBC service, be it BT or your engineers or a Third party.
- Clarify and confirm arrangements for order fulfilment, of service and support Arrangements for Communications Provider migration.
- Clarify and confirm arrangements for fault reporting and repair of service. Make it clear to the End User that you, as the WBC FTTC Customer, are the initial point of contact for all WBC FTTC problem/fault reports.
- Ensure that your End Users have adequate information to prepare for service.
- Invoice End Users for services provided by you.
- Make sure that End User understands that in order to support the WBC FTTC service it is necessary for the End User to be provided with a BT Public Switched telephone Network (PSTN) line, and so if PSTN service is ceased then the WBC FTTC service is also ceased.
- Notify your End Users of any planned service disruption.

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- Notify your End Users that after installation of a WBC FTTC service they may notice a slight change to how the phone sounds. This is quite normal for Broadband products and is not a fault.
- Notify your End Users that after installation of a WBC FTTC Service that it is rate adaptive and as such the speed of service may change. Please refer to the Terms and Conditions for what will be classed as a fault in these incidents.
- Provide any device(s) as required to deliver your service at their premises and make sure that it is fully compatible with the WBC FTTC Service.
- Make sure your End Users have any other equipment they will need for delivery of your service. Please refer to the WBC FTTC SIN495 at <http://www.sinet.bt.com/index.htm>
- Make sure they have an understanding of what will happen when our service is enabled.
- Handle any payment follow-up / debt collection of End Users.
- Clearly manage End User expectation and relationships such that all enquiries and communications are directed to you and not BT.
- Provide an appropriately trained support helpdesk, particularly for the End User installations and for WBC FTTC Service support for CPE, and micro-filters.
- For WBC FTTC service particular attention should be paid to the configuration of modems connected
- It is important that you check that you have appropriate drivers/firmware for any CPE (e.g. router or hub) supplied to your End Users to ensure it works at the optimum level with the modem supplied by Openreach and the rate adaptive services.

It is your responsibility to ensure the correct firmware and/or driver are supplied to the End User before faults are reported to BT. Therefore it is highly recommended that you contact your supplier to ensure that any CPE that you are to use has the correct drivers and / or firmware to give the best possible throughput and to support the WBC FTTC service. BT reserves the right to raise charges on incorrectly reported faults where it is proven these are due to the above and BT have incurred costs in handling such faults.

9.7 Your Responsibility to your Reseller Customers

It is your responsibility to ensure that your Reseller Customers:

- Have suitable Customer Accounts set up
- Have a means of having their Operators and Systems added to the Customer Account with the correct rights
- Are informed of Planned Engineering Works which affect assets bought via the Customer Account set up for them.
- Are informed of Incidents which affect assets bought via the Customer Account set up for them.
- Can raise Escalations via you, as the WBC FTTC Customer.
- Can raise Complaints via you, as the WBC FTTC Customer.

Please note that as the Customer for WBC you will be contractually responsible for the Reseller Customers.

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10. Incompatible products / services with WBC FTTC

The WBC FTTC service is not compatible with certain Products and Services. This incompatibility is the same as for WBC. Please see the WBC Operational Handbook for further details and also refer to sin 346 at www.sinet.bt.com for the latest information.

In addition WBC FTTC EUA is incompatible with SMPF and the data path element of MPF products and the downstream broadband services that use these products will **not** be compatible with the VDSL2 signals of GEA / FTTC.

This means that WBC FTTC EUA cannot be provided at the same time as IPstream or any other WBC End User Access service. Any downstream broadband services already being provided will be filtered out at the DSLAM cabinet on provision of the WBC FTTC EUA.

BTW can only provide a single WBC FTTC EUA service over a single exchange line.

Exchange Only Lines - Copper running directly from Exchanges rather than via cabinets serves around 11% of End User premises. The WBC FTTC service is not available on 'Exchange Only Lines' due to technical restrictions on the deployment of VDSL2.

10.1 Other Service Constraints

Transmission performance of some metallic local loops will mean that it is technically impractical to deliver the WBC FTTC service to all End Users within the Serving Area of an exchange (ignoring Exchange Only lines).

The WBC service may also affect the performance of some PSTN customer premise equipment. Voice band modems used by fax machines and by personal computers may operate at a lower speed.

Some technical limitations within the BT network may not become apparent until after the WBC service has been installed and working for some time. In such circumstances the WBC service for some individual End Users may need to be withdrawn.

Downstream and upstream burst rates may be reduced by overbooking within the BT Network (a feature of the shared network). Please refer to the QoS section 6 of the WBC Operational Handbook.

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11. Migrations

The following migrations are available for WBC FTTC End-User accesses:

- CP to CP within BT Wholesale
- BT Openreach CPs and BT Wholesale CPs (MAC migrations, Advice of Transfer + Sim Provide)
- IPstream/Datastream to WBC FTTC (product family migration)
- WBC ADSL 1/2+ to WBC FTTC (product family migration)
- WBC FTTC to WBC ADSL 1/2 (product family migration)
- Provide with MAC (when moving from an LLU copper-based service to WBC FTTC)

Service migration and activation will require engineer 'jumper' activity in the cabinet to apply (and remove) the appropriate connections (with the exception of End Users with FTTC moving CPs that both buy their FTTC service from BT Wholesale). This activity is likely to rule out truly 'seamless' migrations for the foreseeable future.

Customers should be aware that not all maintenance levels are available on all products. The appropriate required maintenance level must be defined on the gaining product.

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12. Maintaining Line Stability

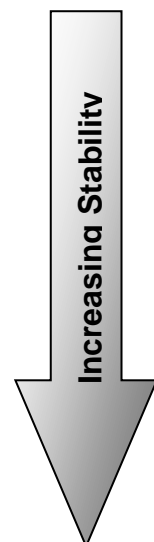
Line stability is crucial to service quality and to the End User experience and WBC Service provides WBC Customers with more flexibility and more control. WBC Customers can increase or decrease line stability by sacrificing or gaining speed.

WBC Customers and Reseller Customers can choose appropriate line stability profiles that are related to the different needs of End User applications.

WBC Customers and Reseller Customers can change the stability option online as necessary to meet their End Users' changing requirements.

The table below provides the comparison between the BT Wholesale Stability Options.

BT Wholesale Broadband Connect FTTC Stability Options		
Stability Option	Description	Application
Standard	Allows a CP to offer a higher line rate, by allowing the line to have a lower stability target than the Stable Option provides.	This is the default level of stability, which would be more suitable for best efforts type applications.
Stable	This setting - aims to keep the line working with only a few errored seconds and retrains each day.	Offers a higher level of stability and error performance.
Super Stable	This option allows CPs to offer a higher level of stability by using increased error protection. The line will work at a lower speed than the Stable option and at times it may give rise to increased latency.	Offers the maximum level of stability and is more suitable for applications which require very good error performance and a higher level of line stability (e.g. video).



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13. Session Control

If the Point to Point Protocol (PPP) pass through option is taken, traffic will be presented to the WBC Customers encapsulated as follows, in order:

- PPP over
- Layer 2 Tunnelling Protocol (L2TP) over
- Internet protocol (IP) over Ethernet

If the PPP session is terminated on the Broadband Remote Access Server (BRAS) (PTA mode) traffic will be presented to the WBC Customers and Reseller Customers as IP over Ethernet.

13.1 EUA Authentication

BTW will support Intermediate Agent (IA) capability for use by CPs to manage the verification of an End User on the service by allowing the CP to set, and change, the remote Id. We will also utilise IA to advise CPs on line speeds using the following settings:

0x81 Actual data rate for Upstream

0x82 Actual data rate for Downstream

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14. Quality of Service (QoS)

The QoS options are intended to assist CP's make cost effective use of their bandwidth budget and ensure End User levels of service for new and leading edge applications.

The introduction of classes of Quality of Service (QoS) is a key benefit of WBC, and allows CP's to offer service level agreements to different groups of End Users using a wide range of time-critical and data intensive applications.

14.1 WBC's QoS Portfolio

WBC FTTC EUA will have the following QoS services available

- Best Efforts
- Real Time.

Please refer to the WBC Operational Handbook for further information.

14.2 Upstream QoS

If the packets come from the Eth port with a tag value of X, where X is something other than 0 (zero), they will be scheduled according to their .1p markings. Openreach will transport the tag value through the Openreach network and will add the single or double tagging at the Cablelink as requested by the CP in the order.

If the packets come from the Eth port with a tag value of X, where X=0 (zero), that is a VLAN ID of 0 (zero), they will be scheduled according to the .1p markings. Openreach will remove the tag 0 value and will not transport it through the Openreach network and will add the single or double tagging at the Cablelink as requested by the CP in the order.

If untagged packets come from the Eth port, they will be scheduled as low priority. Openreach will add the single or double tagging at the Cablelink as requested by the CP in the order.

14.3 Deploying WBC's QoS Solutions

Please refer to the WBC Operational Handbook.

14.4 Packet marking of traffic

Downstream Traffic Prioritisation:

CPs will have the opportunity to mark relevant traffic as having priority relative to other traffic to the same End User. This marking will ensure delivery of the higher priority traffic

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(e.g. Voice or TV data packets) over lower priority traffic that can be dropped if the network becomes congested.

The same scheme also allows CPs to prioritise the order in which traffic is sent to the user from the DSLAM.

Upstream (base):

Every WBC FTTC variant will deliver up to 10Mbit/s of upstream capability (optionally).

Traffic submitted up to the line's upstream capability can be prioritised accordingly by the CPE using Ethernet QOS markings. Please refer to SIN 498.

14.5 Dynamic Line Management

Dynamic Line Management (DLM) will be employed to manage line performance to maintain a target balance of speed and stability and is based on amending key variables of a line, specifically:

- Impulse Noise Protection
- Capping
- Interleaving (Please note - there is no order option to remove this)

By altering these individual characteristics the line performance is adjusted to meet target stability. The Stability Options offered by BT Wholesale have been mapped to align to the DLM policy options that BT Openreach provides. (Please see section 11, Maintaining Line Stability)

Note – Signal to Noise ratio will be set at 6dB for all DLM 'policies'

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15. Supporting your needs

Your BT Account Manager will be able to discuss all your BT WBC FTTC requirements with you.

15.1 Account Management Support

The Account Management Team will ask you for:

- A specification of your planned geographic rollout for EUA installations in accordance with the available exchanges and reach limitations of the WBC FTTC Service:
- An estimate of potential WBC FTTC EUA volumes.
- The address from which you will deliver applications.
- Your proposed rollout plan for WBC FTTC EUA installations.
- An estimate of potential bandwidth and service category.
- An estimate of future aggregation point bandwidth requirements.
- Forecast of number of Reseller Customers expected to be supported.

15.2 The Issue Management Process

The Account Management Team will ensure that the Issue Management Process is in place and will maintain an Issues Register where you can log any concerns, issues or additional requirements that cannot be resolved immediately so that they can be tracked and responded to.

Any issues around the WBC FTTC EUA service that cannot be resolved through normal processes should be raised to your BT Account Manager, who will ensure that not only is your issue logged but also that a severity is agreed. You will then be provided with regular updates on the progress of your issue, until it has been mutually agreed that it can be closed.

15.3 Your Customer Service Plan

Please refer to the WBC Operational Handbook and the latest CSP FTTC and FTTP Customer Service Plan available from: www.btwholesale.com.

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16. Ordering End User Access

Please refer to the WBC ordering process set out in Diagram 9

16.1 Broadband Availability Checker

The Broadband Availability Checker is provided **ONLY** for use where the End User visits your website to ascertain if they can receive Broadband or whether the End User can be provided with a different End User Access option and its estimated Line Rate. **(Please note the term End User is referring to an existing End User or a potential End User).**

Any other use of the Broadband Availability Checker is NOT permitted. Set out below is a non-exhaustive list of example uses that are not permitted when using the Broadband Availability Checker or Tags on the Line checker (TOTL):

- No bulk checking;
- Information provided by the Broadband Availability Checker will NOT to be used for
 - for any marketing purposes;
 - for data mining;
 - for slamming;
 - used to discriminate against another supplier

Any use of the Broadband Availability Checker which is not permitted will be advised to the CP or SP via their Account Manager. Should the CP or SP not immediately refrain from such non permitted use of the Broadband Availability Checker, BT will remove the CPs or SPs access within 15 minutes of BT's notification to the CP or SP of the non-permitted use.

FTTC uses the same Availability Checker as for ADSL, and it is found on the BTW Website at:

https://www.btwholesale.com/pages/static/Community/Broadband_Community/Coverage/ADSL_Availability_Checker.html.

Bulk Line Check information will be made available to CPs on a CD-ROM or via SDEDs as required providing confirmation of lines owned by the CP that are connected to FTTC-enabled cabinets. In order to receive this information, the CP will need to provide a list of numbers for Openreach via BTW to check.

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16.2 Use of the BBAC for FTTC

The BBAC will look for availability of FTTC (in addition to other services) when checked against the search criteria. BTW advise that the use of the Directory Number (DN) will produce the most accurate information, however this can be replicated with detailed Address information. It is not recommended to use a postcode only search, as the results do not consider the individual cabinet that a premises is served by.

The BBAC allows Customers to provide their potential end-user customers with Line Speed predictions based on known data and whether the line is considered to be 'clean' or 'impacted'. This is in accordance with the Ofcom Code of Practice for providing speed information at the point of sale. (Please see note on 10th Percentile Below).

For the web-based version of BBAC, speeds are displayed by showing a total of 8 values, 4 each for Upstream and Downstream speeds on 'Clean' and 'Impacted' lines.

Below is an extract of the web-based version showing how WBC FTTC upstream and downstream speeds will appear:

Featured Products	Downstream Line Rate (Mbps)		Upstream Line Rate (Mbps)	
	High	Low	High	Low
FTTC Range A (Clean)	79	65	20	12
FTTC Range B (Impacted)	53	35	15	10

Range A provides predicted line speed ranges for lines that are described as 'clean', in that they have no copper faults or internal wiring issues.

Range B provides predicted line speed ranges for lines that are described as 'impacted', in that they may have copper faults or/and internal wiring issues.

For Range A, the 'High' Values for Downstream and Upstream should be read as a pair, as should the Range A 'Low' Upstream and Downstream values. The same principles apply for Range B (Impacted) values.

10th Percentile.

When ordering GEA-FTTC, you may cancel within 90 calendar days of installation if the line speed degrades to the point of being significantly lower than the speed estimate provided at the point of sale and, having raised a request for investigation, we are unable to resolve the issue. In this case, you can request reimbursement for the connection, rental and cease charges and you won't have to pay any early termination charges. We will not reimburse any event charges you may have incurred as part of the provision or investigation process. This is the 90 day rule as in section 4.

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We define “significantly lower” as not meeting the 10th percentile speed for lines with the same line characteristics (dB loss when calculated at 300kHz) when the line is operating on the Dynamic Line Management (DLM) “Speed” policy. The 10th percentile speeds for each line are published on the [Range of Values file](#) on the BT Wholesale.com website.

16.3 Before placing an End User Access order

Before you place an order, please make sure that:

- You tell the End User the details of connection.
- The End User is within the WBC FTTC Service availability area.
- You have checked with the End User that there are no incompatible services on the End User’s PSTN line.
- Some incompatibilities will be detected as part of the BT survey however; early detection prevents potential abortive effort and unnecessary costs to both you and us.
- The End User has a valid contract for the use of a BT PSTN direct exchange line forming part of the BT Network over which the WBC service will be provided.
- If the End User rents their premises, they must have a valid contract for a BT provided PSTN line. It is your responsibility to be able to confirm this with the End User. The contract for the BT provided PSTN must be with the End User and not their landlord.
- You have agreed a proposed connection date with the End User which is no earlier than the minimum standard lead-time.
- You have advised the End User that the service is not universally available within the WBC FTTC Service availability area due to the physical characteristics of the End User’s telephone line.

Before we connect the BT WBC FTTC service, please advise your customers that:

- The End User is aware that the VDSL modem will need to be directly connected to the SSFP on the main socket.
- Connection of the Service may cause fax machines and modems used on the PSTN line to operate at a reduced speed.
- Connection may affect security or burglar alarm systems that use the PSTN service. End Users should check the compatibility of such systems with suppliers before arranging for connection.

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- Sufficient mains power sockets must be available for any other mains powered equipment that may be associated with your service.
- Non-standard house wiring may affect the quality of the WBC service delivered to telephone extension sockets in the End User premises.
- Customers must ensure that their End Users understand that a BT Openreach engineer will visit their premises to “install” the service.

16.4 Ordering an End User Access

- Each time you want to connect a new WBC End User Access, the order must be placed via the automated ordering eCoPlus Portal or Business to Business (B2B) Interface.
- The standard minimum lead-time for connecting End Users (Basic and Managed Installations) is five working days from our acceptance of the End User order submitted either via using the automated ordering system. This is assuming that our line tests confirm that the service can be installed.
- If you are placing an order using the eCoPlus Portal you will be required to select an appointment date and slot that you must agree with your customer. In addition we will require contact details for the customer to assist in gaining access as part of the engineering visit. If you are placing an order using the eCoPlus B2B then an appointment must first be made by using the Appointing dialogue service. The appointment reference and contact details needed to be submitted as part of the order. It should be noted that in the case of the B2B interface it is your responsibility to check that the appointment date is after the products standard lead time and that it corresponds with your customers requested service date.
- Please note that once an End User’s service completion date is agreed with you, it can only be changed by an amend order before the Point of No Return. Please refer to the amendment section for more details. Cancellations beyond this time may be subject to Cancellation charges,
- Customer Required by Date (CRD); Means the date agreed between BT and the Customer when the End User Access will be activated by BT.

16.5 Appointment Options (Lead to Cash)

16.5.1 Basic and Managed Installations

BT offers a range of appointments to suit your customers’ needs.

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Our standard, in tariff weekday appointment times are: a.m. (08:00 – 13:00), and p.m. (13:00 – 18:00) Mon – Fri excluding Bank and Regional Public Holidays.

We also offer a range of chargeable Flexible appointments which are:

- Early Morning (EM) and Evening (EV) slots are available between 07:00 and 08:00 and 18:00 and 21:00 respectively.
- Saturday, Sunday and Public/Bank Holiday appointments are offered as either a.m. or p.m. slots, (08:00 to 13:00 and 13:00 to 18:00 respectively).

Appointment Type	Appointment Timeslot	Timings
In tariff (Standard)	AM	8.00am – 1.00pm Monday to Friday
In tariff (Standard)	PM	1.00pm – 6.00pm Monday to Friday
Flexible	EM	7.00am – 8.00am Monday to Friday, Saturday, Sunday, Bank Holidays
Flexible	EV	6.00pm – 9.00pm Monday to Friday, Saturday, Sunday, Bank Holidays
Flexible	AM	8.00am – 1.00pm Saturday, Sunday, Bank Holidays
Flexible	PM	1.00pm – 6.00pm Saturday, Sunday, Bank Holidays

All slots are subject to availability of the products in the area you wish to serve and availability of resource to fulfil appointments.

When booking Flexible Appointments, working days are considered as Monday to Friday excluding Bank/Public holidays and weekends. Lead time calculations are made on this basis and are dependent on the product being ordered.

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For example, on Monday in week one, a CP wants to book a Saturday a.m. appointment for a customer. Using the standard lead time for WBC FTTC order, the earliest this could be achieved is for the Saturday of week 2.

Flexible Appointments are subject to additional charges in addition to normal WBC FTTC installation charges.

The order types that are supported are:

- Provide with DN, NAD Key
- Product Family Migration
- CP Migration (within 21C WBC)
- Amends of the above order types

Standard or Flexible appointments can be booked from the Flexible appointment book. CPs will still be able to select Standard appointments from the Standard appointment book. When requesting a Flexible Appointment, you will be informed at KCI 0 by a warning code 532 that “Appointment selected will be chargeable”. No action is required.

Orders will default to a Standard appointment if:

- There is a delay in response to an order, when tentative appointment has been booked, even though the earlier appointment was booked as a Flexible Appointment.
- No Appointment Reference is provided while placing the order, but CRD is requested as a non-working day, a Standard Appointment will be applied.
- No Appointment Reference is provided while placing the order, but, the CP requests Preferred Slot as EM or EV, a Standard Appointment will be applied.

These new appointment options will be shown on your bill as:

- Flexible Appointment Charge Early AM
- Flexible Appointment Charge Late PM
- Flexible Appointment Charge Saturday
- Flexible Appointment Charge Sunday
- Flexible Appointment Charge Bank H

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16.5.2 Self Install

The 'In- Tariff' option for WBC FTTC Self Installations is 'all-day'. Openreach engineers will not visit the End User premises, but complete the required work in the Primary Cross-connection Point (PCP). The service will be activated at any point in the appointed day until 23.59 hours.

CPs should submit a Self Install order for a required date without an appointment reference for an 'ALLDAY' appointment.

Additional chargeable options are available as detailed below and subject to geographic and resource availability.

Appointment Type	Appointment Timeslot	Timings
In tariff		
Standard	AM	8.00am – 1.00pm Monday to Friday
Standard	PM	1.00pm – 6.00pm Monday to Friday
Flexible	EM	7.00am – 8.00am Monday to Friday, Saturday, Sunday, Bank Holidays
Flexible	EV	6.00pm – 9.00pm Monday to Friday, Saturday, Sunday, Bank Holidays
Flexible	AM	8.00am – 1.00pm Saturday, Sunday, Bank Holidays
Flexible	PM	1.00pm – 6.00pm Saturday, Sunday, Bank Holidays

Please see the BT Wholesale Price List for details of these charges at www.btwholesale.com

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16.6 EUA Order Rejection

We will have to reject orders if the information is inaccurate or incomplete. Please use your BT account team to assist you.

We will reject the order for completion without progressing the order if any of the following are true:

- The End User does not have a BT provided PSTN line.
- The line length test shows that the End User's premises are outside the transmission limitation of WBC FTTC service.
- The line is not in the WBC FTTC Service availability area.

We will normally tell you if this is the case within two working days where additional tests are required this will normally be within four working days

16.7 Cancelling an End User Access

Before we can cancel an End User order, you must give us the cancellation date in writing, email, online interface or web based tool. BT reserves the right to recover costs incurred as a result of acting on Orders that you have submitted as detailed in the BT Price list

16.8 End User Access Order Suspension

BT reserves the right to suspend orders if the Customer has not paid their bill.

16.9 Direct End User contact with us

This section gives details of our relationship with your End Users.

We will refer any WBC End User enquiries or complaints from your End Users to you. We will liaise with you in the first instance to resolve the problem.

If necessary, we will contact the WBC End Users directly about any changes to the fulfilment or repair of the WBC Service.

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We will comply with our responsibilities as a Data Processor according to the Data Protection Act with regards to any End User data we hold.

16.10 Moving FTTC EUAs between Customer Accounts

A WBC FTTC Customer or Reseller Customer can move EUAs between Customer Accounts using the standard Communications Provider to Communications Provider process outlined in the WBC - Migrations Capability Customer Handbook.

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17. System Interfaces

17.1 eCoPlus B2B (Order Fulfilment)

This facility allows you to order End User Accesses online. We provide an electronic gateway to BT Systems (eCoPlus) for the entering of orders and the reporting of faults. This system has been designed to provide and support a 'simple and straightforward' customer journey.

Because WBC FTTC is a member of the Wholesale Broadband Connect family, the ordering options for WBC FTTC End User accesses appear in the same eCoPlus portal drop-down menus and radio button groups as many WBC ADSL product options.

Where an End User access option is not available to WBC FTTC accesses (for example 24 Mbit/s downstream line rate) the option is shown in red in the downstream line rate drop-down menu.

This is designed to make your ordering choices as easy for WBC FTTC services as it is for WBC ADSL End User accesses.

The following diagram shows the WBC FTTC Ordering process:

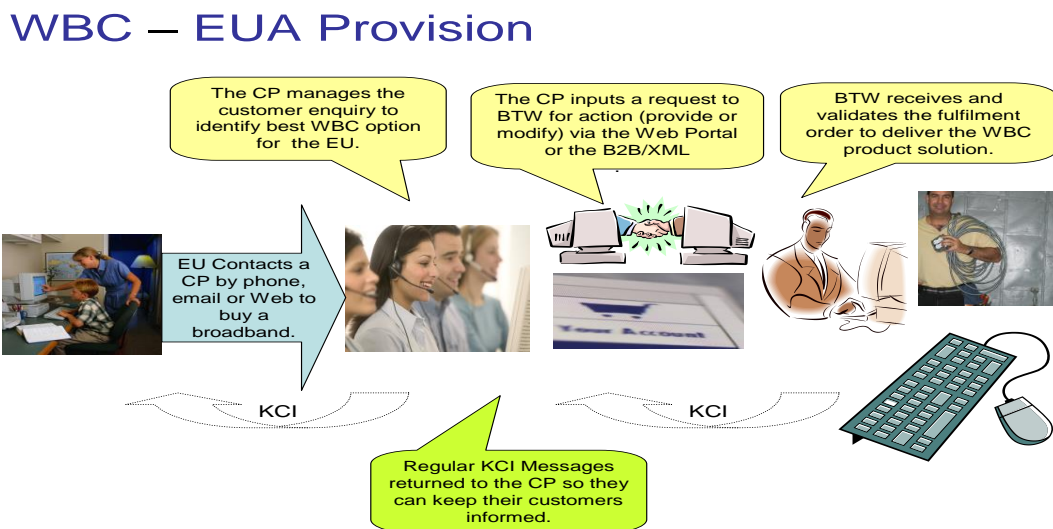


Diagram 5 – WBC Ordering process

eCoPlus supports the following Order types:

- Provide (including Sim Provide and Sim2 Provide)
- Cease

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- Amend
- Modify
- CP Migrations
- Product family migration (please refer to the Migrations Handbook at www.btwholesale.com/).

eCoPlus User guide is available via the BT Wholesale website at:
www.btwholesale.com/

eCoPlus technical helpdesk contact details are 0800 085 1287

17.2 eCoPlus Web Portal (Order Fulfilment)

For further details please refer to the eCo Plus WBC FTTx Ordering Training Guide.

17.3 Manual Ordering EUA (Order Fulfilment)

Manual ordering for WBC FTTC EUA will not be supported by fax, email, phone, letter or any other form of communication other than those stated below. The only interfaces that are accepted are:

- the eCoPlus B2B; and
- The eCoPlus Portal.

17.4 End User access Modify orders

The “Modify” order type is aimed at allowing you to easily and quickly change a current WBC FTTC service in one or many ways in a single order (while staying within the Broadband Product portfolio).

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18. Reporting EUA Fault

The following diagram shows the WBC Repair process:

WBC – EUA Repair

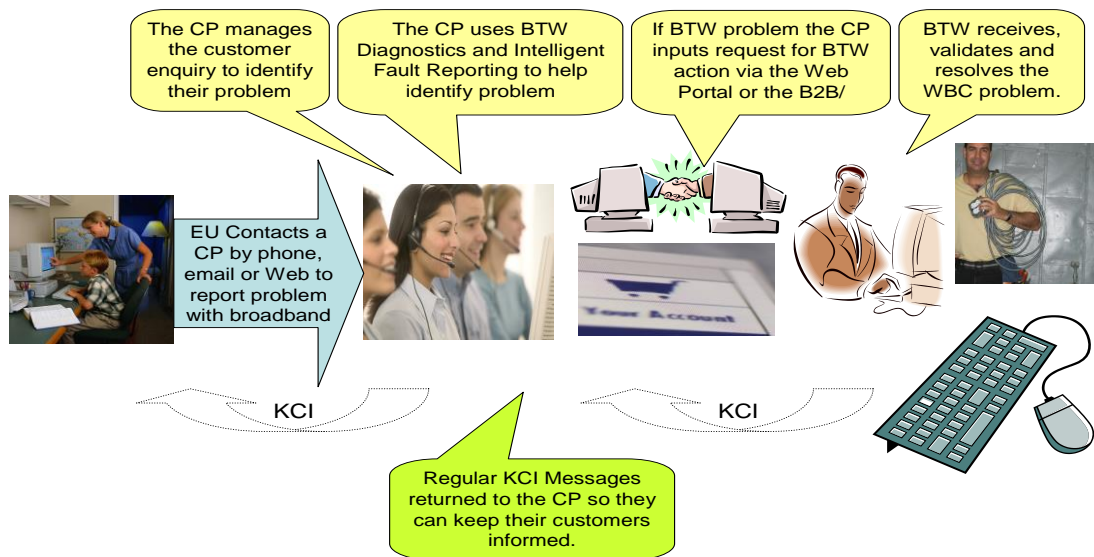


Diagram 6 – WBC EUA Repair process

We cannot accept WBC faults reported directly from End Users. If End Users mistakenly contact us, we will ask them to contact you.

End Users will continue to report any PSTN related faults directly to their PSTN Communications Provider.

18.1 Reporting faults using B2B Repair and Diagnostic electronic Gateway

For Further information please refer to the WBC Operational Handbook.

Tests are available that can assist in identifying whether an End User access fault exists and where it may be. This should assist in giving you greater control over your End User experience, allowing real-time diagnosis of suspected faults before reporting them to BT Wholesale for investigation.

18.2 Reporting faults via eCoPlus Portal

For further information please refer to the eCo Plus Fault Reporting Training Guide

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18.3 Planned Engineering works to the Gateway

BT will aim to notify you 14 days in advance of any planned outages scheduled to take place. We will inform you of the impact, together with the start and finish times. During this time you will normally be provided with an alternative means of fault reporting (e.g. by phone).

18.4 System Issues with eCoPlus Portal or B2B

CPs can register issues with the eCoPlus Portal or eCoPlus B2B systems by contacting 0800 7835639 option 1 or by email at broadband.eco.admin@bt.com .

18.5 How to report WBC faults due to no access to the eCoPlus Portal or eCoPlus B2B

WBC Customers who cannot access the eCoPlus Portal or eCoPlus B2B can report faults to the Broadband Repair helpdesk by phone on 0800 6781107.

Please quote the relevant Service Identifier (SID) to the helpdesk, depending on where you believe the fault to be.

The Broadband Repair helpdesk will give you a fault reference number, which you should quote if you contact us about the fault again.

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19. How we keep you informed

19.1 Keeping Customers Informed (KCI) – Fulfilment

The eCoPlus system used for both the Web Portal and B2B gateway generates automatic 'Keep Customer Informed' (KCI) updates. Responses are also generated specifically to confirm transfer when the B2B gateway is used.

Please note the email option for receiving KCIs for WBC EUA should not be used and therefore should not be selected from the dropdown menu. The KCI options that should be used to receive WBC EUA KCIs by the B2B gateway, or, alternatively, view the status of an individual order on eCoPlus.

19.2 eCoPlus B2B responses overview – Fulfilment

- Pending – a WBC order has been received and all contained information is valid but not qualified.
- Rejected – a WBC order has been received, but an input line failed validation or failed qualification.

19.3 KCI overview – Fulfilment

KCIs indicate key milestones during the progression of a WBC order. The following KCIs are supported:

- KCI1 = Acknowledged - an order line is being progressed.
- KCI2 = Committed - a CPD has been calculated
- KCI3 = Completed - an order line has been fulfilled.
-

19.4 Key KCI Data – Fulfilment

- The 'Rejected' response will contain the CPs Order Reference and error details.
- The 'Pending' response will contain the customer's Order Reference and Order ID.

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- All KCIs will contain Order ID, Order Line ID, and customer's Order Reference and customer's Order Line Reference to identify order and order line.
- The 'Acknowledged' KCI will also contain Service ID and Customer Delivery Date (CDD).
- The 'Committed' KCI will also contain Customer Promised Date (CPD).
- The 'Completed' KCI will also contain Service Completion Date (SCD).
- WBC FTTC specific data will be included in KCIs as required. This includes the addition of appointment related information in the Committed KCI.

19.5 End User Access Customer Reporting – Fulfilment

EUA order reports will be available from BroadBand CustomerR Reports.

The BBCR user guide and access criteria are available via the BT Wholesale website at:

http://www.btwholesale.com/pages/static/Applications/Orders/Broadband_Customer_Reporting.html

Additional information is available from Wholesale Customer Reporting (WCR). Apply for access at www.btwholesale.com.

19.6 Keeping Customers Informed (KCI) Repair

The eCoPlus system used for both the Web Portal and B2B gateway generates automatic 'Keep Customer Informed' (KCI) updates. Responses are also generated specifically to confirm transfer when the B2B gateway is used.

Please note the email option for receiving KCIs for WBC EUA should not be used and therefore should not be selected from the dropdown menu. The KCI options that should be used to receive WBC EUA KCIs is by the B2B gateway, or alternatively, view the status of an individual order on eCoPlus.

19.7 eCoPlus B2B responses overview Repair

- Pending – a WBC problem report has been received and all contained information is valid but not qualified.

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- Rejected – a WBC problem report has been received, but an input line failed validation or failed qualification.

19.8 KCI overview – Repair

KCIs indicate key milestones during the progression of a WBC problem report and also indicate if further customer action is required. The following KCIs are will be supported:

- Repair in progress – When root cause has been identified and course of action defined in BT Wholesale.
- Clear – BT Wholesale believes that the fault has been rectified.
- CP Action Request – BT Wholesale requests WBC Customer to take appropriate actions.
- Engineer Dispatched – Engineer is allocated against appointment.
- Auto Closure Imminent – Informs WBC Customer that fault will be closed by default if WBC Customer does not confirm the resolution of fault.
- Closed – Closure of fault on BT Wholesale systems.

19.9 End User Access Customer Reporting – Repair

EUA Repair reports will be available from Broadband Customer Reporting (BBCR).

Additionally, information is also available from Wholesale Customer Reporting (WCR).

20. Faults

20.1 End User fault Structured Questions

This section provides an outline of questions to assist you with End User fault diagnostics.

The Structured questions are available at www.btwholesale.com/

It is essential that you follow the structured questions during the initial fault investigation with your End User. They will help to quickly resolve obvious problems with equipment or applications at the End User's premises, and minimise the time you may spend incorrectly routing faults to us.

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We provide structured questions to reduce the possibility of an abortive visit as we may charge you if we make a site visit and find that the fault is not our responsibility. Please ensure these are fully and accurately completed as subsequent administration charges could be incurred.

Please refer to at the BTW Price List www.btwholesale.com/.

20.2 Scope of the questions

Our responsibility extends to the End User NTE at End User sites. The maintenance of any devices or networks attached to the BT End User NTE is outside the scope of the structured questions. It is your responsibility to satisfy yourself that any application or equipment attached to the BT WBC service operated by yourselves is working correctly.

Please note that during fault investigations you may occasionally need to ask End Users to 'power cycle' the Router, by means of the switch on the rear of the unit. As with all electrical units, rapidly switching the item on and off quickly may cause damage. Can you please ensure that during your fault investigations, if you require the End User to carry out this task, the action is performed with a 30 second break between powering down the unit and turning it back on.

20.3 eCoPlus Portal and Web Services Diagnostic Tool

The eCoPlus Portal contains tools for you to test various aspects of the WBC service from the IP layer down to the physical (copper) layer. These tests will help identify if there is a fault and where it may be. The eCoPlus Portal will help Customers to reduce significantly the number of faults reported to BT Wholesale and this will help to increase customer satisfaction with how quickly reported faults are handled.

Web Services is a B2B-based offering allowing the Customer to access the Broadband diagnostic functions. Unlike the traditional web browser based access to the service diagnostic tools, web services do not provide the user with a visible web interface but instead share the underlying business logic, data and processes through the use of B2B. The diagnostics tests are below:

- Radius Log = this provides account information specific to an EU. It is used to identify invalid logon attempts, working sessions etc.
- xDSL IP Test = in case of WBC it checks the connectivity between BRAS to BEA and BRAS to LNS (server in WBC Customer premises).
- PTTR Analysis = the performance tester tool provides a comprehensive appraisal of the performance of a circuit for speed related faults. This test queries the PT database for test results and performs an interpretation of returned values.

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- GEA Service Test – Tests the Openreach network end to end – From the Openreach modem to Openreach Layer 2 Switch. It shows the sync status and Line rate and includes some basic RRT information.
- Network Incident Check - used to show if a circuit is affected by any MSO's or network incidents

20.4 The GEA Service Test

Note: Within eCoPlus, the GEA Service Test is referred to as the E2E Access Test.

The GEA Service Test will provide an overall “Pass” or “Fail”, driven by the results of the conditions it detects on the various elements in the Network.

The GEA Service Test presents additional test results that are relevant to the End User environment and apply to all WBC FTTC services. These are:

- Bridge Tap (Internal Wiring Issue) – Present/ Not Present
- Radio Frequency – Present/ Not Present
- REIN (Repetitive Electrical Impulse Noise) – Present/ Not Present
- NTE Power Status – Power On /Power Off
- Cross Talk = Detected, Not Detected

If the test results indicate to Openreach that the fault is within the EU Environment:

- The systems will return a “Test Pass” condition.
- The test result will include which of the above issues has been detected.
- It is the Customer's responsibility to resolve the issue either using their own Engineer or by requesting an Openreach engineer to visit (Chargeable).

For services where an Openreach engineer performed the installation at the End User premises or lines that have had a subsequent Engineering Visit such as SFI, Openreach will warranty their work for a period of 12 months.

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20.5 The information we will need when you report a WBC fault

For AP, EP and other WBC EUA (non FTTC) faults, please refer to the WBC Operational Handbook.

We will need the unique service reference number which identifies the component of your WBC service. This is the BBEU number for End Users. To help us identify where the fault lies, you should also give us details of:

- The results of the structured questions used to determine the nature of the problem or any other diagnostics you have carried out
- The nature of the fault.
- Your fault reference number.

20.6 Line Problem Resolution Using Broadband Special Faults Investigation

At the point in the Service Repair process when BT Wholesale have completed the diagnostics and repair activity and passed the fault back to the Customer as Right When Tested (RWT), Fault Not Found (FNF) or Customer Mis-Operation the Communication Provider has the option to make an appointment for a Broadband Special Faults Investigation.

The request will generate an appointed field engineering visit. This will be resourced by an engineer with appropriate skills, and the next available appointment will be offered to the Communication Provider.

Appointments are available Monday to Friday 08:00 to 18:00, with limited availability on Saturdays. Where repetitive electrical impulse noise (REIN) is identified, resolution outside of normal hours working may be required in some instances.

Engineering visits cover WBC EUA options.

For repair activity within the BT Wholesale domain up to the NTE, operational clear text will be applied as appropriate by the Broadband Special Faults Investigation service and no charge will apply.

For repair activity within the End User domain beyond the NTE, operational clear text will be applied as appropriate by the Broadband Special Faults Investigation service and a charge will apply.

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20.7 Line Problem Resolution using an alternative Front Plate.

Therefore any CPE or PCs will be connected to the main socket (NTE 5) and household wiring will not be used. The Service Specific Front Plate has been designed to filter out any noise from the Bell wire and isolate any existing internal extension wiring.

For Self Install instances where internal wiring is found to be the cause of difficulties or a fault, an SSFP can be fitted to an existing installation by an Openreach engineer as part of the corrective action. Where wiring and/ or a Service Specific Front Plate is fitted as part of a remedy, this work warranted for 12 months by Openreach.

Please see the Price List for details.

21. BT Maintenance

For Maintenance Classes of the WBC service please refer to the WBC Operational Handbook.

We will provide End User service at Maintenance Class 5 as default and, BT Maintenance Class 4 and BT Maintenance Class 14 can be purchased at additional cost.

	Maintenance Class 4	Maintenance Class 5	Maintenance Class 14
End User Access	Optional	Yes	Optional

21.1 BT Maintenance Classes

- Maintenance Class 5 - Operates during BT Normal Working Hours as defined below. BT will clear the fault within 40 clock hours of receipt of the fault report, excluding any allowable parked time.
- BT Normal Working Hours - For the reporting of faults, 24 hours a day, seven days a week (including UK Public and Bank holidays). For engineering visits
- By BT to a Site (customer or End User premises or BT exchange), 0800-1800 Monday to Saturday (excluding Regional Public and Bank Holidays).
- Where an engineering visit as defined above is required, Sundays and regional Public and Bank Holidays will not be included as part of any on-time repair measurement.

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- Maintenance Class 4 - Operates 24 hours a day, 7 days a week including UK Bank and Public Holidays. BT will respond to a fault report within 3 hours of receipt of the fault report and BT will clear the fault within 20 hours of receipt of the fault report, excluding any allowable parked time.
- Maintenance Class 4 Working Hours – For the reporting of faults, 24 hours a day, seven days a week (including UK Public and Bank holidays). For engineering visits by BT to a Site (customer or End User premises or BT exchange), 0800-1800 Monday to Sunday (including Regional Public and Bank Holidays). Out of hours engineering visits to site may be used to complete a repair if unrestricted access is available.
- Maintenance Class 14 – Operates 24 hours a day, 7 days a week including UK Bank and Public Holidays. BT will clear the fault within 7 hours of receipt of the fault report, excluding any allowable parked time.
- Maintenance Class 14 Working Hours – For the reporting of faults, 24 hours a day, seven days a week (including UK Public and Bank holidays). Out of hours engineering visits to a site may be used to complete a repair if unrestricted access is available. If Diagnostics indicate a fault and an appointment is required then BT will aim to fix any fault seven (7) hours from the start time of the agreed appointment slot.
- Where diagnostics have not indicated any fault and a Visit Assure or equivalent appointment is required, these will be provided to MC4 SLAs. If a fault is subsequently found in the BT domain, then this time, excluding any allowable parked time, will be included in the SLA time.
- For all End User maintenance categories, where a customer has opted for an SFI or an equivalent product and this is chargeable, all SFI time from the point the appointment was booked will be excluded from the on-time repair measure.
- Maintenance Category 14 SLAs will not be applicable in the Highlands and Islands of Scotland.
- You can report End User faults via the eCoPlus Portal or B2B. Remember all your End Users must report any faults to you in the first instance.
- End Users will continue to report any PSTN related faults direct to their PSTN Service Provider

21.2 Escalating issues relating to End User (Order Fulfilment)

If a WBC FTTC Customer needs to escalate an issue relating to WBC FTTC order fulfilment, they can contact 0800 6781107 option 1 or email to wholesale.fttc@bt.com

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21.3 Escalating issues relating to End User Repair (Repair)

If a WBC FTTC Customer needs to escalate an issue relating to WBC FTTC service, they can contact 0800 6781107 option 1 or email to wholesale.fttc@bt.com

21.4 Complaints

Any issues or complaints with the ordinary WBC service should be taken through the normal channels as outlined in the WBC Operational Handbook.

Any fault or issue with the WBC FTTC EUA product should go through the normal WBC fault reporting route.

If a WBC Customer wishes to make a complaint, they can contact their BT Account Manager or Service Management Centre. In accordance with our Customer Complaint Policy, the BT Account Manager or Service Management Centre will track all WBC Customer contact and liaise with us to resolve the complaint.

21.5 Issues

The BT Account Management Team will ensure that they follow the Broadband process as briefed on the Broadband Marketing website. Each Channel has the responsibility to manage their own Customer Issues Register via this Process assigning the issues to the relevant Operational Owners for a response and feedback to the BT Account Teams/Customers.

Before raising an issue a WBC Customer should check to see if the query can be answered by any of the information already held in the public domain (e.g. BT Wholesale Broadband website / Q&As / Channel or Marketing Briefings / Operational Handbook).

The issues process is not intended to cover issues relating to faulting or repair. The stated fault or order fulfilment process / escalation should be followed to manage the enquiry through.

BT will categorise each issue into one of the below categories, this will form the basis of analysis (trends / repeat issues /etc):

- Products
- Roll Out
- Customer Service
- Marketing
- Processes (inc. order handling / service delivery / after sales)
- Systems

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- QoS
- Supply Management
- Terms & Conditions / Legal
- Pricing
- Development Requests
- Invoicing

21.6 Incidents

See the WBC Operational Handbook

21.7 Customer Contact Database (CCDB)

To enable accurate communications to our WBC Customers it is paramount that your contact details are kept up to date. To this end you must update the Customer Contact Database directly with your current details and ensure that any changes are reflected as soon as they occur. You will only be able to access your own data. Please update your entry in the CCDB.

21.8 Planned Engineering Works

For information on WBC Planned Engineering Works please refer to the WBC Operational Handbook.

In addition BT has planned engineering works 'windows' where you may experience disruption to your BT WBC FTTC Service.

When a platform or system upgrade is planned that will result in a system outage affecting any WBC FTTC EUA Customers, BT will endeavour to give 14 days prior notice. This is to allow you time to limit any impact on your own operations and to provide time for you to advise your End Users and your Reseller Customers.

All Planned Engineering Works (PEW's), which are likely to have an impact on Customer Service, will aim to complete between midnight and 07:30. We will give WBC Customers at least 14 days' notice of PEWs, and where possible will provide you with a list of affected End Users with associated Service IDs, the approximate times that the End User will lose service and the duration. We will give WBC Customers at least 14 days notification, informing them of the date, time and outage duration. On occasions, we do have to perform emergency work and in such cases will give you as much notice as possible.

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Please note, while WBC Customers and Reseller Customers can develop new features and applications that can utilise the Service without conflict, nothing shall prevent BT from making any changes to the BT Network that are necessary for BT to adhere to its obligations under the relevant Conditions for Service, whether or not any changes affects a WBC Customer's, or Reseller Customer's, feature or application.

21.9 Safety

This section gives you information on aspects of our responsibilities regarding safety.

BT has a duty of care under health and safety law to protect its employees. Please can you therefore make sure that you indicate whether any potential hazards might be found at your End User's premises.

21.10 Terms and Conditions

A copy of the Terms and Conditions for the WBC FTTC services are available to CPs. If there is any difference between the Terms and Conditions and this handbook, the Terms and Conditions take precedence.

21.11 Supplier Information Notes

Supplier Information Notes (SINs) gives you technical information about BT's network and services. The SIN for WBC FTTC is SIN 498 but SIN 472 WBC, STIN 495 (Fibre to the Cabinet (FTTC) Generic Ethernet Access, Service & Interface Description) and SIN 346 Incompatible services with WBC are all relevant.

A list of SINs relevant to WBC can be obtained from www.sinet.bt.com

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22. Glossary of Acronyms and Abbreviations

Acronym	Expansions
21CN	21st Century Network [BT]
ADSL	Asymmetric Digital Subscriber Line
ADSL2+	Asymmetric Digital Subscriber Line 2 Plus [ITU-T]
AP	Aggregation Point [BT]
B2B	Business To Business
BB	Broadband
BBCR	BroadBand Customer Reporting [BT]
BBEU	WBC EUA Service ID
BEA	Broadband Edge Aggregator [BT]
BI	Basic Install
BRAS	Broadband Remote Access Server
BT	British Telecommunications plc
BTW	BT Wholesale [BT]
CCDB	Customer Contact Database [BT]
CD-ROM	Compact Disc Read Only Memory
CRD	Customer Required by Date
CP	Communications Provider [BT]
CPD	Customer Promised Date [BT]
CPE	Customer Premises Equipment
DLM	Dynamic Line Management
DP	Distribution Point
DSL	Digital Subscriber Line
DSLAM	Digital Subscriber Line Access Multiplexer
Eol	Equivalence of Input [BT]
EP	Extension Path [BT]
EU	End User [BT]
FNF	Fault Not Found [BT]
FTTC	Fibre To The Cabinet
GEA	Generic Ethernet Access
ID	Identifier
IP	Internet Protocol [IETF]
ISP	Internet Service Provider
KCI	Keeping Customers Informed
L2TP	Layer 2 Tunnelling Protocol [IETF]
LLU	Local Loop Unbundling
MI	Managed Install
MPF	Metallic Path Facility
NTE	Network Termination Equipment
NTE5	Network Terminating Equipment No. 5
OHP	Openreach Handover Point
OR	Openreach
PC	Personal Computer

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PCP	Primary Cross-connect Point
PEW	Planned Engineering Works
POH	Point of Handover
PPP	Point-to-Point Protocol [IETF]
PSTN	Public Switched Telephone Network
PSU	Power Supply Unit
PTA	PPP Termination and Aggregation
QOS	Quality Of Service
RA	Rate Adaptive
REIN	Repetitive Electrical Impulse Noise
RWT	Right When Tested [BT]
SI	Self Install
SID	Service Id
SIN	Supplier Information Note [BT]
SLA	Service Level Agreement
SLG	Service Level Guarantee [BT]
SMPF	Shared Metallic Path Facility
SP	Service Provider
SSFP	Service Specific Front Plate [BT]
UK	United Kingdom
VDSL	Very high speed Digital Subscriber Line
VLAN	Virtual Local Area Network
WBC	Wholesale Broadband Connect [BT]
WLR	Wholesale Line Rental
XML	eXtensible Markup Language

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23. Document History

This section provides a brief description of the changes between this issue of the WBC Handbook and the previous issue. Please refer to the main body of the document for full descriptions of each topic.

Version	Date	Description of change
Issue 1 draft a	20.1.10	Issue 1
Issue 2	20.5.10	Maintenance Category changes
Issue 3	13.9.10	<p>Additions, corrections and changes to Sections:</p> <p>1.2 Convention Used In this Handbook –clarification.</p> <p>2 – General Overview of the WBC FTTC Product – clarifications and distinctions between WBC FTTC and WBC ADSL services.</p> <p>3.3.4 Customer Experience - Care level reference added.</p> <p>4 Product Bandwidth Rates - clarification on line rates.</p> <p>6.3 Data Extension Kit - Addition of external routing option and clarification on the order options.</p> <p>7.1 Care Level Modification - referred out to new section.</p> <p>7.4 Openreach Managed Installation - increased detail about Managed Installation options.</p> <p>8.1 BTV Sponsored to Use to You - supported product order types updated.</p> <p>10 Migrations - updated migration order types and advice on maintenance care s.</p> <p>11 Maintaining Line Stability - table renamed, a description column added and column headings changed.</p> <p>13.5 Dynamic Line Management - section updated and references made to section 11.</p> <p>16.1 eCoPlus B2B Order Fulfilment - additional introductory information added.</p> <p>19.3 eCoPlus Portal and Web Services Diagnostic Tool -</p>

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		<p>removed in applicable tests and added E2E Access Test.</p> <p>20.BT Maintenance - updated to reflect the available maintenance category options.</p> <p>20.1 BT Maintenance Classes - increased detail and definition.</p>
Issue 4		<p>4. Product Bandwidth Rates – changes recognise extension of downstream service availability to below 15 Mbit/s.</p> <p>4.1 Wholesale Broadband Connect FTTC End User Access Bandwidth Rates - Original table replaced with new one; changes to accommodate sub 15M downstream inclusion; explanation of throughput and Line Speed terminology: definition of throughput statements for 5 – 15 and 15 – 40 Mbit/s downstream services.</p> <p>Section 4.1.2 Fault Threshold Rate: Changes to include sub 15 M, addition of an FTR table and worked examples of Upstream FTR.</p> <p>Section 5.1 – clarification of where BTW CPs get estimates of line speeds and availability.</p> <p>Section 6.1 Data Extension Kit - change to title and advice on the ordering of Data Extension Kit (Home Wiring Solution)</p> <p>Section 7.3 Order Amendments and Cancellations – Correction of the PONR times and processes/system applicable.</p> <p>Section 7.4 Openreach Managed Installations – clarification on qualification for Managed Installations and composition of Base Module.</p>
Issue 5	June 2011	<p>Section 4.1 FTTC End User Access Bandwidth Rates – updated to show that the Sub15Mbit/s can be provided against the '40Mbit/s downstream/2Mbit/s upstream' or '40Mbit/s downstream/10 Mbit/s upstream' product options.</p> <p>Section 4.1.2 Fault Threshold Rate – updated to show the FTR for a Sub15Mbit/s circuit ordered against the '40Mbit/s downstream/10Mbit/s upstream' product option.</p>
Issue 6	March	Sections 2, 3.3.1, 4, 4.1, and 4.1.2 Updated to reflect the

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	2012	introduction of the 80/20 product variant.
Issue 7	July 2012	Sections 4, 4.1, 7.1, 13.1 and 15.4 Updated. 4.1 and 13.1 to introduce Real time QoS 7.1 to introduce the new 90 day rule for termination of unsatisfactory lines. Sections 4 and 15.4 to introduce Flexible appointing.
Issue 8	1 st March 2013	Amendments to sections 2, 3.3.1, 4, 5.1,7.1 and 7.6 The purpose of this refresh is to remove some contradictory data within the document and to reword sections to provide clearer information. A new FTTC Diagram has been added and a better description of throughput values.
Issue 8A	22 nd October 2013	Amendment to section 6.4 Lead times. A change to the Lead Time of FTTC where it is provided simultaneously with a new copper line.
Issue 9	10 th December 2013	Section 4.1 Introduction of differentiated Services (Different Minimum Download Throughput Speeds for each product variant). Section 4.1.1 Inclusion of advice on how to handle Speed related Faults.
Issue 10	30 th January 2014	Addition of SIM2 (simultaneous provide) details. Inclusion of Self Install elements in various sections including definition and differences for Basic and Managed Installations. Addition of ' Auto Expedite' Amend orders. Removal of Home Mover order functionality
Issue 11	25 th June 2014	Changes to minimum Term as a result of the Market Review.
Issue 12	16 th Sept 2014	Changes to Section 8.7 to explain SFI more clearly. Changes to section 16.2 to explain the change to the 90

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		day rule and the 10 percentile report.
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