



# BT Wholesale Catalogue 2017

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## Introduction

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The Wholesale Catalogue identifies and describes the Wholesale services included in the markets for which BT has a regulatory financial reporting obligation. The Wholesale Catalogue contains descriptions of our service offering, identifies whether services are internally or externally supplied and highlights, if relevant, if there are equivalence of input charges for the Wholesale Broadband Access market.

## Market: Wholesale Fixed Analogue Exchange Lines

This market includes copper lines connected to a line in a BT telephony switch. Used by CPs to provide end-users with voice services. Is a prerequisite for WLA SMPF services.

We publish the following services within Wholesale fixed analogue exchange lines (WFAEL):

Service code		Service name
Internal	External	
M11S1	M11S2	WLR Rentals
M11S5	M11S6	WLR Connections
M11S23	M11S24	WLR Simultaneously Provided Connections
M11S25	M11S26	WLR Transfers
M11S27	M11S28	WLR Simultaneously Provided Conversions
M11S29	M11S30	WLR Conversions
M11S35	M11S36	WLR Premium Rentals
M11S37	M11S38	WLR Premium Connections
M11S39	M11S40	WLR Premium Transfers
M11S31	M11S32	Caller Display
M11S10	M11S11	Time Related Charges
M11S33	M11S34	Other WLR

### Service name and offering

#### WLR Basic

A copper line connecting the end user premises to a line card in the local concentrator within BT's exchange. The line is used for providing voice and is provided with Service Maintenance Level 1.

#### Service offering

*WLR Rentals* – the annual rental charge raised on the line.

*WLR Connections* – the published service in our RFS includes:

- the supply of a new Basic line
- cancellation charges, where a Communication Provider (CP) cancels an order before the Customer Confirmed Date
- supply of a new line using a previously stopped MPF line.

*WLR Simultaneously Provided Connections* – simultaneous provision of a WLR Basic Service and an SMPF line.

*WLR Transfers* – the Line Transfer of a WLR basic line, including the transfer from one CP to another and the starting of a previously stopped line. The published service in our RFS also includes charges raised for the cancellation of a transfer order.

*WLR Simultaneously Provided Conversions* - simultaneous provision of a WLR Basic Service and a SMPF line converted from an MPF line.

*WLR Conversions* - the conversion of another service, such as a MPF line, to a WLR Basic line.

These services are provided internally and externally.

## Service name and offering

### WLR Premium

A copper line connecting the end user premises to a line card in the local concentrator within BT's exchange. The line is used for providing voice and is provided with Service Maintenance Level 2.

### Service offering

*WLR Premium Rentals* – the annual rental charge raised on the line.

*WLR Premium Connections* – connection of narrowband premium and Featureline exchange line(s) within defined service parameters.

*WLR Premium Transfers* – the transfer of a WLR premium line from one CP to another. Instances where internal CPs request a new provision but Openreach can use a working line or start a previously stopped line. The published service in our RFS includes:

- Working Line Takeover/Transfer or a takeover of previously stopped exchange lines
- Conversions from ISDN2
- Number changes
- Cancellation of a transfer.

These services are provided internally and externally.

### Caller Display

### Service offering

An optional network feature for WLR lines that present the caller's number to the called party on their telephony equipment.

This service is provided internally and externally.

### Time Related Charges

### Service offering

Time Related Charges (TRCs) are raised to recover the cost incurred when our engineers repair faults, provide or rearrange services, where this work is not covered under the terms of the WLR service. For example, where the work needs to be carried out outside of our normal working hours or where an engineer is called to repair a fault that is not with our service or equipment.

These services are provided internally and externally.

### Other WLR

### Service offering

Includes services within the scope of the WFAEL market but not separately reported, including other Network Features and amendments to an order.

These services are provided internally and externally.

## Market: Wholesale Local Access

This market includes copper lines and fibre lines used by CPs to connect end-users to voice or broadband nodes located in BT exchanges.

We publish the following services within Wholesale local access (WLA):

Service code		Service name
Internal	External	
M29S29	M29S5	MPF Rentals
M29S25	M29S1	MPF New Provide Services
M29S26	M29S2	MPF Single Migrations
M29S27	M29S03	MPF Bulk Migrations
M29S39	M29S13	SMPF Rentals
M29S32	M29S9	SMPF New Provide Services
M29S33	M29S10	SMPF Single Migrations
M29S34	M29S11	SMPF Bulk Migrations
M29S7	M29S6	Co-mingling New Provide and Rental Services
M29S31	M29S8	Tie Cables
M29S28	M29S41	Hard Cease Services
M29S40	M29S42	Other LLU Ancillary Services
M29S36	M29S16	Special Fault Investigations
M29S20	M29S43	Time Related Charges
M29S37	M29S17	VULA Migrations
M29S38	M29S18	Other WLA

### Service name and offering

#### Metallic Path Facility (MPF)

A copper line connecting the end-user premises to a Communication Provider's (CPs) handover distribution frame within BT's exchange. The key difference between this service and WLR services is that MPF allows CPs to offer both voice and broadband services.

#### Service offering

*MPF Rentals* – the annual rental charge raised on the line.

*MPF New Provide Services* – the provision of new MPF lines. This reported service includes provision of new lines, re-use of existing MPF lines, working line takeovers and cancellations of orders.

*MPF Single Migrations* – a transfer of a single line from WFAEL/SMPF to MPF or from one CP to another. The reported service also includes cancellation of orders.

*MPF Bulk Migrations* – a bulk transfer of many lines from WFAEL/SMPF to MPF or from one CP to another. The reported service also includes cancellation of orders.

These services are provided internally and externally.

## Service name and offering

### Shared Metallic Path Facility (SMPF)

This service allows a Communication Provider to provide a broadband service over a copper line that already has an activated WLR service.

#### Service offering

*SMPF Rentals* – the annual rental charge raised on the line.

*SMPF New Provide Services* – the provision of an SMPF line on an existing WLR line.

*SMPF Single Migrations* – Transfer of a single line between one CP to another. The reported service includes cancellation of orders.

*Bulk Migrations* – Transfer of multiple lines between one CP to another. The reported service includes cancellation of orders.

These services are provided internally and externally.

### Co-mingling New Provide and Rental Services

#### Service offering

Building and maintenance of co-mingling bays to enable Local Loop Unbundling (LLU) operators to install their equipment within BT exchanges. These services are a specified list of Co-mingling basket services as defined by Ofcom.

Includes:

- a) Erection of iron work
- b) Provision of power and cooling
- c) Lighting
- d) Rack space
- e) Cable runway
- f) Charges for service and maintenance co-mingling

These services are provided only externally.

### Tie Cables

#### Service offering

Tie cables provide connectivity from the Handover Distribution Frame located in the Local Loop Unbundling (LLU) operator's equipment space to the Main Distribution Frame (MDF). This published service includes both connection and rental services. These services are a specified list of tie cable basket services as defined by Ofcom.

These services are provided internally and externally.

### Hard Cease Services

#### Service offering

The Openreach services reported under Hard Ceases are called MPF and SMPF MDF Remove Jumper Order services.

These services are provided internally and externally.

## Service name and offering

### Other LLU Ancillary Services

#### Service offering

A basket of Wholesale Local Access (WLA) ancillary services as defined by Ofcom. The service is comprised of:

- SMPF Tie Pair Modification (3 working day lead time re-termination)
- SMPF Tie Pair Modification (Multiple re-termination)
- MPF Tie Pair Modification (3 working day lead time)
- MPF Tie Pair Modification (Multiple re-termination)
- Amend orders, allowable change to MPF orders
- Amend orders, allowable change to SMPF orders
- MPF standard line test
- SMPF standard line test
- SMPF Flexi cease fault investigation charges.

These services are provided internally and externally.

### Special Faults Investigations

#### Service offering

SFIs are raised when the copper path is working but the end customer has a problem with their broadband service.

This service is provided internally and externally.

### Time Related Charges

#### Service offering

Time Related Charges (TRCs) are raised to recover the cost incurred when our engineers repair faults, provide or rearrange services, where this work is not covered under the terms of the WLA service. For example, where the work needs to be carried out outside of our normal working hours or where an engineer is called to repair a fault that is not with our service or equipment.

These services are provided internally and externally.

### Virtual Unbundled Local Access (VULA) Migrations

#### Service offering

Migration of VULA lines (also known as Generic Ethernet Access) from one CP to another.

These services are provided internally and externally.

### Other WLA

#### Service offering

Includes services that fall within the scope of the WLA market but are not separately reported. This includes:

- VULA services (except for CP to CP migrations), also known as Generic Ethernet Access (GEA)
- Non-basket Co-mingling, tie cable and tie pair modification services
- Electricity usage by CPs using co-mingling

These services are provided internally and externally.



## Market: Wholesale ISDN2 Exchange Line Services

ISDN 2 services consist of two 64 Kbps channels provided over a single copper line, connected to a line card in a BT telephony switch. This is used by CPs to provide business customers with voice and data services.

We publish the following services within the ISDN2 market:

Service code		Service name
Internal	External	
M31S1	M31S2	ISDN2 Rentals
M31S3	M31S4	ISDN2 Connections
M31S5	M31S6	ISDN2 Takeovers/Transfers

### Service name and offering

#### ISDN2

ISDN2 is a digital service that transforms the existing phone line by splitting its capacity into two channels, allowing dual access.

#### Service offering

*ISDN2 Rentals* – rental, repair and maintenance of Integrated Services Digital Network (ISDN2) exchange line(s) within defined service parameters.

*ISDN2 Connections* – connection of ISDN2 exchange line(s) within defined service parameters. This also includes cancellation of a connection.

*ISDN2 Takeovers/Transfers* – This includes:

- Conversion of SMPF/MPF and WFAEL services to ISDN2
- Number change
- Transfer between Communications Providers of an ISDN2 exchange line(s), including:
  - a) Where an end customer transfers from an external to an internal Communications Provider.
  - b) Where an end customer transfers to an external Communications Provider either from another external Communications Provider or from an internal Communications Provider.

These services are provided internally and externally.

# Market: Wholesale Business ISDN30 Exchange Line Services

The services reported in this market have similar functionality to ISDN2 but provides up to thirty 64 Kbps channels over a single circuit that can be provided over copper, fibre or radio.

We publish the following services within ISDN30 market:

Service code		Service name
Internal	External	
M27S3	M27S4	ISDN30 Rentals
M27S1	M27S2	ISDN30 Connections
M27S5	M27S6	ISDN30 Transfers
M27S7	M27S8	ISDN30 Enhanced Care
M27S9	M27S10	ISDN30 Direct Dialling In – Planning
M27S11	M27S12	ISDN30 Direct Dialling In – Connections

## Service name and offering

### ISDN30

ISDN30 is a digital service, similar to ISDN2, except it provides up to 30 x 64 Kbps channels.

### Service offering

*ISDN30 Rentals* – the service has a minimum threshold of eight channels per end user per single site location. The published service in our RFS shows the total number of channels. The standard service is provided at Service Maintenance Level 1.

*ISDN30 Connections* – the published service in our RFS includes:

- New installation charge, charged when a new 2 Mbps circuit is required at the site location
- Installation charge per channel, with a minimum of eight channels
- Cancellation charges, where a CP cancels an order before the Customer Confirmed Date.

*ISDN30 Transfers* – a transfer charge incurred when an ISDN30 access bearer is transferred between CPs.

*ISDN30 Enhanced Care* – enhanced maintenance of ISDN30 lines is available at Service Maintenance Level Business 2 Plus, Level 3 and Level 4.

*ISDN30 Direct Dialling In (DDI) Planning* – DDI is an additional network feature that can be used with ISDN30 and allows callers to connect directly to extensions without going through a switchboard. Planning Charges are raised per site where a new DDI installation is required or where a change to numbers is required at the site.

*ISDN30 Direct Dialling In (DDI) Connections* – a DDI installation fee is raised per DDI Number (new orders can only be ordered in blocks of 10 or as a single DDI number).

These services are provided internally and externally.

## Market: CISBO Rest of UK and CISBO London Periphery

The Contemporary Interface Symmetric Broadband Origination (CISBO) market includes leased lines provided using modern technology suitable for the transmission of IP data. We report two separate markets for services sold in the London Periphery zone (as defined by Ofcom), and the services sold outside of the London Periphery, Central London and Hull area zones as defined by Ofcom.

Ofcom defined three separate geographical markets for CISBO in the Business Connectivity Market Review (BCMR), dated 28 April 2016. They are:

- CISBO Rest of UK (CISBO RoUK)
- CISBO London Periphery
- CISBO Central London Area

Ofcom determined that BT has significant market power for CISBO RoUK and CISBO London Periphery, but not CISBO Central London Area. This means that we report CISBO RoUK and CISBO London Periphery as separate markets in the RFS. However, the services provided in these geographic markets are identical so for the purpose of the Wholesale Catalogue, we show these services together. CISBO Central London Area however is reported within Wholesale Residual.

We publish the following services within the CISBO Rest of UK market:

Service code		Service name
Internal	External	
M324S23	M324S24	EAD 1 Gbps Rentals
M324S17	M324S18	EAD LA 1 Gbps Rentals
M324S35	M324S36	EAD 1 Gbps Connections
M324S29	M324S30	EAD LA 1 Gbps Connections
M324S39	M324S40	Ethernet Main Link Sub-basket up to and including 1 Gbps
M324S77	M324S64	Ethernet Interconnection Sub-basket
M324S19	M324S20	EAD 10 Mbps Rentals
M324S21	M324S22	EAD 100 Mbps Rentals
M324S13	M324S14	EAD LA 10 Mbps Rentals
M324S15	M324S16	EAD LA 100 Mbps Rentals
M324S50	M324S37	EBD 1 Gbps Rentals
M324S1	M324S2	WES 10 Mbps Rentals
M324S3	M324S4	WES 100 Mbps Rentals
M324S5	M324S6	WES 1 Gbps Rentals
M324S71	M324S8	BES 1 Gbps Rentals
M324S31	M324S32	EAD 10 Mbps Connections
M324S33	M324S34	EAD 100 Mbps Connections
M324S73	M324S26	EAD LA 10 Mbps Connections
M324S27	M324S28	EAD LA 100 Mbps Connections
M324S84	M324S38	EBD 1 Gbps Connections
M324S87	M324S88	Other services up to and including 1 Gbps Rentals and Connections
M324S80	M324S46	EBD 10 Gbps Rentals
M324S89	M324S49	WES/BES/EBD MBO Main Link
M324S72	M324S47	BES >1 Gbps Rentals
M324S69	M324S48	WES >1 Gbps Rentals
M324S79	M324S45	EBD >10 Gbps Connections
M324S68	M324S44	WES/BES >1 Gbps Connections
M324S83	M324S86	Other Ethernet Services >1 Gbps
M324S85	M324S75	WDM Services
M324S57	M324S56	Ethernet Time Related Charges
M324S66	M324S67	Exempt Ancillary Services
M324S42	M324S43	Excess Construction Charges
M324S41		Depreciation on ECC Assets

We publish the following services within the CISBO London Periphery market:

Service code		Service name
Internal	External	
M325S21	M325S22	EAD 1 Gbps Rentals
M325S15	M325S16	EAD LA 1 Gbps Rentals
M325S85	M325S86	EAD 1 Gbps Connections
M325S91	M325S92	EAD LA 1 Gbps Connections
M325S29	M325S30	Ethernet Main Link Sub-basket up to and including 1 Gbps
M325S66	M325S57	Ethernet Interconnection Sub-basket
M325S17	M325S18	EAD 10 Mbps Rentals
M325S19	M325S20	EAD 100 Mbps Rentals
M325S11	M325S12	EAD LA 10 Mbps Rentals
M325S13	M325S14	EAD LA 100 Mbps Rentals
M325S36	M325S93	EBD Rentals
M325S1	M325S2	WES 10 Mbps Rentals
M325S3	M325S4	WES 100 Mbps Rentals
M325S5	M325S6	WES 1 Gbps Rentals
M325S81	M325S26	EAD 10 Mbps Connections
M325S83	M325S84	EAD 100 Mbps Connections
M325S87	M325S88	EAD LA 10 Mbps Connections
M325S89	M325S90	EAD LA 100 Mbps Connections
M325S37	M325S28	EBD Connections
M325S79	M325S80	Other Services up to and including 1 Gbps Rentals and Connections
M325S94	M325S41	EBD >1 Gbps Rentals
M325S95	M325S43	Main Links > 1 Gbps
M325S49	M325S50	BES >1 Gbps Rentals
M325S42	M325S62	WES >1 Gbps Rentals
M325S47	M325S48	EBD >1 Gbps Connections
M325S61	M325S40	WES/BES >1 Gbps Connections
M325S76	M325S78	Other Ethernet Services >1 Gbps
M325S77	M325S63	WDM Services
M325S52	M325S51	Ethernet Time Related Charges
M325S59	M325S60	Exempt Ancillary Services
M324S32	M324S33	Excess Construction Charges
M324S31		Depreciation on ECC Assets

## Service name and offering

### Ethernet Access Direct (EAD)

Ethernet Access Direct (EAD) provides point-to-point data connectivity between sites. It can be used to build and extend customer networks, develop new infrastructure, and meet low & high capacity backhaul requirements (i.e. up to 10 Gbps).

### Service offering

This service is available at multiple bandwidths and we also report a variant for Local Access (LA) which is the same service as the standard EAD but with only one local end. Our published services also include variants for:

- Resilience option one where a backup fibre path is provided to the same local serving exchange.
- Resilience option two where a backup fibre path is provided to an alternative local serving exchange.

*Rentals* – the ongoing rental charged for the use of the line.

*Connections* – the fee charged for provision of a new circuit.

These services are provided internally and externally.

A fact sheet on this service is available online at [www.ciz-openreach.com/business](http://www.ciz-openreach.com/business).

Further technical specification can be found within Supplier Information Notes (SIN). SIN documents can be found at [www.sinet.bt.com](http://www.sinet.bt.com).

### Ethernet Backhaul Direct

Ethernet Backhaul Direct (EBD) delivers permanently connected, uncontended bandwidth between a Communications Provider's (CP) Point of Presence (PoP) located in a designated Openreach Access Serving Node (ASN) in a BT Exchange (using CoLocation, NetLocate or BT Locate accommodation), and a CP's core network PoP located in either the designated Openreach Handover Point (OHP) or in the CP's own site, accessed using a Bulk Transport Link or alternative transport solution provided by the CP.

### Service offering

This service is available at multiple bandwidths and we also report a variant for Local Access (LA).

*Rentals* – the ongoing rental charged for the use of the line.

*Connections* – the fee charged for provision of a new circuit.

These services are provided internally and externally.

A fact sheet on this service is available online at [www.ciz-openreach.com/business](http://www.ciz-openreach.com/business).

In the RFS, we have also included revenues and costs for Openreach Network Backhaul Service (ONBS). This is a legacy product that performs the same function as EBD. It was withdrawn from offering from 1 April 2013 but we continue to support existing rentals.

## Service name and offering

### Wholesale Extension Services (WES)

Wholesale Extension Services (WES) provides the connection between an end user and a Communication Provider's (CP) network. The CP can connect that circuit to the far end (or just to the far edge of their network), and then use another WES to complete the end-to-end circuit. An end user to end user version called Wholesale End-to-End Services (WEES) is also available.

#### Service offering

This service is available at multiple bandwidths.

*Rentals* – the ongoing rental charged for the use of the line.

We no longer offer to connect new WES services.

These services are provided internally and externally.

A fact sheet on this service is available online at [www.ciz-openreach.com/business](http://www.ciz-openreach.com/business).

Further technical specification can be found within Supplier Information Notes (SIN). SIN documents can be found at [www.sinet.bt.com](http://www.sinet.bt.com).

### Backhaul Extension Services

Backhaul Extension Services (BES) are high speed, permanently connected, point-to-point data circuits that provide a secure link between an exchange and a CP site or between an exchange and another exchange (Daisy Chain). BES enables applications to be transported at high speed such as email, web browsing, video and IP Telephony.

#### Service offering

This service is currently available at 2.5 and 10 Gbps bandwidth but we continue to support lower bandwidths on existing contracts. This service is run over a point to point fibre with electronics at either end.

*Rentals* – the ongoing rental charged for the use of the line.

These services are provided internally and externally.

A fact sheet on this service is available online at [www.ciz-openreach.com/business](http://www.ciz-openreach.com/business).

Further technical specification can be found within Supplier Information Notes (SIN). SIN documents can be found at [www.sinet.bt.com](http://www.sinet.bt.com).

### Main Link Rental Charges

Fibre between BT serving exchanges used to connect the corresponding A-end Customer Site and B-end Customer Site at different serving exchanges.

#### Service offering

Main Link Rentals are available as an element of WES, BES, EAD and Street Access but the pricing is the same for all of these products. There are different prices for up to 1 Gbps and greater than 1 Gbps, both are available as standard or with resilience option 2.

These services are provided internally and externally.

Further technical specification can be found within Supplier Information Notes (SIN). SIN documents can be found at [www.sinet.bt.com](http://www.sinet.bt.com).

## Service name and offering

### Other Ethernet Services

These services include the remaining services falling within the Ethernet basket that Ofcom have not directed us to disclose separately. They include different bandwidths for EAD, EBD, WES and BES. They also include services such as Backhaul Network Services (BNS), Broadcast Access and Street Access.

BNS are high speed UK network services which are available 24 hours, 365 days per year and are run over fibre. The service is available at 1gE and STM4 bandwidths.

These services are provided internally and externally.

Further technical specification can be found within Supplier Information Notes (SIN). SIN documents can be found at [www.sinet.bt.com](http://www.sinet.bt.com).

### Excess Construction Charges

Excess Construction Charges (ECCs) cover the additional costs of either providing additional service or dealing with situations where the actual cost of providing service is in excess of that listed within the Openreach price list.

#### Service offering

There are different aspects of ECCs. They include the fibre itself, ducting, tray work and labour costs. Miscellaneous costs such as road closures, traffic control and recovery of plant are also applied where such works are required.

This service excludes the duct and fibre depreciation relating to ECCs.

These services are provided internally and externally.

Equipment Depreciation holds the service of the duct and fibre depreciation relating to CISBO Excess Construction Charges (ECCs).

### Ethernet Interconnection Sub-basket

#### Service offering

This basket includes cable link and bulk transport link. Cable link is a length of fibre with no network termination equipment at the end. It is used to connect equipment installed in different licensed areas within the same BT operational buildings. Bulk transport link works with EBD to efficiently transport multiple 1 Gbps services from an Openreach Handover Point (OHP) to a CP site.

These services are provided internally and externally.

### WDM Services

#### Service offering

These services include Optical Spectrum Access (OSA) and Optical Spectrum Extended Access (OSEA). They operate using dense Wavelength Division Multiplexing (WDM) technology delivered over dedicated optical fibre links.

These services are provided internally and externally.

### Ethernet Time Related Charges

#### Service offering

Time Related Charges (TRCs) are raised to recover the cost incurred when our engineers repair faults, provide or rearrange services, where this work is not covered under the terms of the Openreach service.

These services are provided internally and externally.

**Service name and offering**

**Exempt Ancillary Services**

**Service offering**

This grouping includes upgrades, cancellations and additional charges for WES, BES, EAD and EBD. These charges are exempt from the Ethernet basket.

These services are provided internally and externally.



## Market: Low Bandwidth TISBO

Low bandwidth leased lines (up to 8 Mbps) provided using legacy time dimension multiplexing technology. End-users are gradually migrating to more modern technologies but currently still value certain characteristics of these traditional lines.

Traditional Interface Symmetric Broadband Origination (TISBO) is the term used to describe terminating segments of traditional leased lines. The Low Bandwidth TISBO market now includes low bandwidth traditional leased lines Regional Trunk and Technical Areas (Point of Handover), which were previously reported in separate markets.

- Traditional leased lines Regional Trunk refers to trunk or core networks which are used to transfer data over long distance national routes and between the major urban centres where businesses are concentrated. Data transported over trunk (or core) networks is combined with other traffic streams (using multiplexors), which allows CPs to transport traffic on their networks more efficiently.
- Technical Areas (Point of Handover) is associated with the TISBO market, rather than a market in itself. It is a necessary technical function to enable network interconnection in order to allow the provision of wholesale products in the TISBO market.

Service code		Service name
Internal	External	
M10S40	M10S14	Radio Backhaul Services 64 Kbps Connections
M10S41	M10S15	Radio Backhaul Services 64 Kbps Rentals
M10S16	M10S17	Radio Backhaul Services 2 Mbps Connections
M10S18	M10S19	Radio Backhaul Services 2 Mbps Rentals
M10S12		Other Mobile Services
	M10S37	Partial and Private Circuits Point of Handover
		Other Interconnection services
M10S1	M10S2	Partial and Private Circuits 64 Kbps Connections
M10S6	M10S35	Partial and Private Circuits 64 Kbps Local Ends
M10S3	M10S33	Partial and Private Circuits 64 Kbps Links
M10S4	M10S34	Partial and Private Circuits 64 Kbps Terminating segments
M10S7	M10S8	Partial and Private Circuits 2 Mbps Connections
M10S11	M10S31	Partial and Private Circuits 2 Mbps Local Ends
M10S9	M10S36	Partial and Private Circuits 2 Mbps Links
M10S10	M10S30	Partial and Private Circuits 2 Mbps Terminating segments
M10S23	M10S24	Partial and Private Circuits Other
M10S28	M10S29	TI Excess Construction Charges
M10S25		ECC Asset Depreciation

## Service name and offering

### Radio Backhaul Services

Our service provides a backhaul network between a CP's mobile switching centre and a cell site – with copper, fibre or radio options and bandwidths ranging from 64 Kbps to 2 Mbps. This is only available to mobile network operators in the UK who hold a GSM/2G or UMTS/3G licence.

### Service offering

The Radio Base Station Backhaul service comprises three main elements:

- a) Point of Connection (PoC) – a high-capacity connection between a CP's switching centre or network and the serving SDH node in the BT network. It is supplied as a Customer Sited Connection (CSC) and is available at STM-1, STM-4 and STM-16.
- b) Cell site connection – the connection between each CP cell site and the nearest BT exchange via standard G.703 or X.21 interfaces. The cell site can also support multiple circuits if required.
- c) Radio Base Station Backhaul circuit – the connection across the BT network between the PoC and the cell site. Available in bandwidths from 64 Kbps to 960 Kbps and at 2 Mbps.

### Key Features and availability

The product is available at 2 Mbps and all bandwidths between 64 Kbps and 960 Kbps, and is available for circuits used for radio base station backhaul purposes only.

In the RFS, the Radio Backhaul Service connections include the connection charges raised to connect new circuits. The Radio Backhaul Service rentals include all the revenues and costs for Cell site connection circuits and Radio Base Station Backhaul circuits. The PoC circuits are included within Customer Sited Handovers and In Span Handover.

These services are provided only externally.

### Other Mobile Services

This service includes any other revenue and cost not included in the Radio Backhaul Service above.

This service is only provided only internally.

### Partial and Private Circuits Point of Handover

A Partial Private Circuit (PPC) is a set of network components that a CP is able to buy to provide a private circuit to a third party.

The PPC routes from a Point of Handover (PoH) between the CP's network and BT's network, across the BT network to the third party, to supply a transmission path at the appropriate bandwidth.

The PoH is a connection between the CPs network and the serving Synchronous Digital Hierarchy node in the BT network. The high-capacity PoH infrastructure is supplied as either In-span Handover (ISH), In-span Handover Extension (ISH Extn) or Customer Sited Handover (CSH). Multiple circuits can be handed over at a single PoH.

This service is provided only externally.

### Other Interconnection services

This service includes any other interconnect services where costs or revenue are incurred that fall within Ofcom's definition of the Traditional leased lines Interconnect sub-cap.

These services are provided internally and externally.

## Service name and offering

### Partial and Private Circuits

A Partial and Private Circuit is a traditional leased line that connects a Third Party Customer site across our network to a Communication Provider's Point of Handover (PoH). This service is available at multiple bandwidths but we only have SMP reporting conditions on services up to 8 Mbps.

### Service offering

Each reported service is broken down into a number of elements:

*Connections* – the fee charged for provision of a new circuit.

*Links* – a rental charge to recover the fixed costs of connecting BT sites at the terminating ends into the core network. With the improved identification of the circuit ends, only the bearer between the terminating end and local server exchange is now identified as Link.

*Local end* – the local end service is from a Third Party Customer site across the Local Access Network to the terminating equipment at the serving exchange.

*Terminating segment* – a rental charge to cover the SMP element of the backhaul / core network. In the RFS this includes both of the carrier price list entries for the terminating segment's charge and the regional trunk segment's charge.

These services are provided internally and externally.

Our published services also include variants for:

- Resilience option one where a backup fibre path is provided to the same local serving exchange.
- Resilience option two where a backup fibre path is provided to an alternative local serving exchange.

### Key Features and availability

The delivery, for each individual Partial and Private Circuit at 64 Kbps to the PECN, is via a 2 Mbps Aggregate Interface presented across an STM-1 or STM-4 or STM-16 line transmission system at the PoH.

Further technical specification regarding the bearer and how the service is presented at the PoH can be found within Supplier Information Notes (SIN):

- 223 'BT MegaStream 1, BT MegaStream 2 and BT MegaStream 8'.
- 254 'KiloStream Aggregate Interface Service Description'.

SIN documents can be found at [www.sinet.bt.com](http://www.sinet.bt.com).

Note that PoH electronics are available to other Communications Providers only.

## Service name and offering

### Partial and Private Circuits Other

This service includes Protected Path Variants and Resilience.

#### Protected Path Variants and Resilience

BT employs a complex set of routing rules within its network to ensure Quality of Service levels are maintained and assets are utilised efficiently. Communications Providers have a choice of PPC protection levels to help them meet their end user's requirements. The service includes the option of having a resilient path provided or a monitoring service that enables pairs or groups of circuits to be routed along different paths through the BT network.

#### Key Features and availability

##### Protected Path Variant 1

Provides a resilient path from the Third Party customer site to a single Point of Handover. It features two access paths from the Third Party customer site to two BT serving nodes (i.e. dual path, dual parent). Resilience is then provided across the core Synchronous Digital Hierarchy (SDH) network to the single PoH at the Communications Provider's network.

##### Protected Path Variant 2

Provides a resilient path from the Third Party customer site to a pair of handover points, with no single point of failure. It features a variant of Drop and Continue Interworking + (D and CI) functionality which is configured in the BT Network and should be configured in the Communications Provider's network to deliver the assured Quality of Service to the end user. It also features two access paths from the Third Party customer Site to two BT Serving Nodes (i.e. dual path, dual parent). Resilience is then provided across the core Synchronous Digital Hierarchy (SDH) network to the two PoHs at the Communications Provider's network.

##### PPC Assured Resilience

A monitoring service that enables pairs or groups of circuits to be routed along different paths through the BT network. It ensures that no single event could cause failure to both circuits in a pair or all circuits in a group. The circuit paths are monitored to ensure no compromise occurs due to engineering work on the core BT network. This enables specific circuits to benefit from a level of resilience above BT's standard offering for these circuits. Assured Resilience is not available for Protected Path Variants 1 and 2.

These services are provided internally and externally.

### TI Excess Construction Charges

Excess Construction Charges are raised when the work required to complete a circuit provision order exceeds that of the published price for PPC Circuit provision.

Note: No charges for cable are raised for standard routing.

Where Communications Providers request non-standard access routing for business continuity purposes (e.g. Assured Resilience), full excess construction charges apply for the second route.

A site requiring wideband access is defined as a single point within Third Party customer premises which can be used for the termination of wideband circuits.

#### Key Features and availability

The Excess Construction Charges are identified during the planning stage of all products/services provided over a Wideband infrastructure and are notified at the Firm Offer Confirmation (FOC) stage of the order process. Where Communications Providers do not accept the charge at FOC the order is cancelled.

This service is provided internally and externally.

## Service name and offering

### ECC Asset Depreciation

#### Service offering

The RFS discloses the revenue for support services such as single payments, resilience and third party equipment and infrastructure charges. The support service categories in the RFS comprise many individual services, each with varying cost structures, and each likely to be immaterial. As a result Ofcom has not required BT to report the costs of support services on a service by service basis. The Equipment Depreciation for Support Services in the Third Party Equipment Depreciation TISBO (up to and including 8 Mbps) market has been identified as a separate service in the RFS without revenue.

# Market: Call Origination on Fixed Public Narrowband Networks

This market reports wholesale charges for calls originating on our network between the originating fixed line to the first point in the network at which other CPs can interconnect.

We publish the following services within the Call Origination market:

Service code		Service name
Internal	External	
M04S1	M04S1	Internal and External Wholesale call originating local exchange segment PSTN and ISDN (excl. Operator Assistance)
M04S2	M04S2	Internal and External Wholesale call originating local exchange segment (incl. Operator Assistance)
M04S4		Internal Wholesale call origination local exchange stick

Service name and offering
<p><b>Internal and External Wholesale call originating local exchange segment PSTN and ISDN (excl. Operator Assistance)</b></p> <p><b>Service offering</b> Wholesale charge for a call originating on a BT exchange line, covering the part of the network from the originating line to the Local Exchange switch. Includes call set-up (establishing a network end to end path) and call duration (holding the path open for the time the link is open). This service includes access to 999 calls but not to BT operator assistance, which is provided by the CP.</p> <p>These services are available internally and externally.</p>
<p><b>Internal and External Wholesale call originating local exchange segment (incl. Operator Assistance)</b></p> <p><b>Service offering</b> This service is the same as Wholesale call originating local exchange segments PSTN and ISDN (excl. Operator Assistance), except that it includes access to BT operator assistance.</p> <p>These services are available internally and externally.</p>
<p><b>Internal Wholesale call origination local exchange Stick</b></p> <p><b>Service offering</b> An additional wholesale charge for a call that originates and terminates on a BT line and therefore does not interconnect with an external voice network. This is a regulatory charge which simulates BT interconnecting to the call origination in the same way that an external CP would.</p> <p>This service is provided only internally.</p>

## Market: Fixed Call Termination

This market reports wholesale charges for calls to BT fixed lines. These charges are for carrying the call to the BT terminating line from the nearest point in the network at which other CPs could interconnect.

We publish the following services within the Fixed Call Termination market:

Service code		Service name
Internal	External	
M09S1	M09S1	Wholesale call termination local exchange segment
M09S3		Wholesale call termination local exchange stick (PSTN & ISDN)

### Service name and offering

#### Wholesale call termination local exchange segment

##### Service offering

Wholesale charge for a call terminating on a BT exchange line, covering the part of the network from the Local Exchange switch to the terminating line. Includes call set-up (establishing a network end to end path) and call duration (holding the path open for the time the link is open).

This service is provided internally and externally.

#### Wholesale call termination local exchange stick (PSTN & ISDN)

##### Service offering

An additional wholesale charge for a call that originates and terminates on a BT line and therefore does not interconnect with an external voice network. This is a regulatory charge which simulates BT interconnecting to the call termination in the same way that an external CP would.

This service is provided only internally.

## Market: Technical Areas (Interconnect Circuits)

This market reports the provision of the physical infrastructure that allows a CP to interconnect with our network. This enables calls to travel between the two networks.

We publish the following services within the Interconnect market:

Service code		Service name
Internal	External	
	M08S01	Wholesale Standard CSI Connections – External
	M08S02	Wholesale Standard CSI Rentals – Fixed
	M08S03	Wholesale Standard CSI Rentals – per km
	M08S04	Wholesale IEC Connections
	M08S05	Wholesale IEC Rentals
	M08S06	Wholesale IEC Rentals – per km
	M08S07	Wholesale Intra-Building Circuits Connections
	M08S08	Wholesale Intra-Building Circuits Rentals
	M08S09	Wholesale ISI Rentals
	M08S10	Nominated ISI – per 100m
	M08S11	Wholesale arrangements

All Interconnect circuits are reported as external because they are set up between BT and other operators regardless of where the traffic originated. External circuit volumes therefore include: circuits that carry 100% CP originated traffic; circuits shared between BT and external CPs; and circuits that carry 100% BT originated traffic.

Service name and offering
<p><b>Wholesale standard Customer Site Interconnect (CSI)</b>            These 2 Mbps circuits interconnect between the BT local exchange directly to a node in the CPs network located on their own premises.</p> <p><b>Service offering</b>  <i>Connections</i> – a charge raised for the connection of a new 2 Mbps CSI circuit.</p> <p><i>Rentals – fixed</i> – an annual rental charge raised per 2 Mbps CSI circuit.</p> <p><i>Rentals – per km</i> – an annual rental charge incurred on the length of the circuit and charged per radial kilometre per 2 Mbps CSI circuit.</p>
<p><b>Wholesale Interconnect Extension Circuit (IEC)</b>            These 2 Mbps circuits are used to extend the reach of an In-Span Interconnect (ISI) circuit so that a CP can interconnect to a non-adjacent BT local exchange.</p> <p><b>Service offering</b>  <i>Connections</i> – a charge raised for the connection of a new 2 Mbps IEC circuit.</p> <p><i>Rentals</i> – an annual rental charge raised per 2 Mbps IEC circuit.</p> <p><i>Rentals – per km</i> – an annual rental charge incurred on the length of the circuit and charged per radial kilometre per 2 Mbps IEC circuit.</p>



### Service name and offering

#### Wholesale intra-building circuits (IBC)

These 2 Mbps circuits are intermediate circuits that are required to connect the CP's interconnect circuit to the BT switch. IBCs are used to connect CSI, IEC and ISI interconnect circuits.

#### Service offering

*Connections* – a charge raised for the connection of a new 2 Mbps IBC circuit.

*Rentals* – an annual rental charge raised per 2 Mbps IBC circuit.

#### Wholesale In-Span Interconnect (ISI)

These 2 Mbps circuits interconnect between the BT local exchange directly to a node located in-between BT's network and the CP's network. This node is located in a junction box typically within 100m of a BT local exchange. The CP is able to self-provide the remaining circuit back to its network.

#### Service offering

*Rentals per 100m* – the share of ISI annual rental charges not paid for by BT.

*Nominated ISI per 100m* – an annual rental charge raised per 100 metres of the 2 Mbps ISI circuit.

#### Wholesale rearrangements

Rearrangement of Intra Building Circuits is necessary when an operator wishes to alter the actual routing of the circuit within the exchange (physical rearrangement) or the type of service offered over the circuit (software rearrangement).

#### Service offering

A change necessitating a 2 Mbps path being moved from one building to another building is not covered by rearrangement charges and requires cessation of the circuit and the provision of a new 2 Mbps Customer Sited Interconnect (CSI) Link.

## Market: Wholesale Broadband Access - Market A

Wholesale Broadband Access (WBA) is asymmetric broadband access and backhaul as necessary to allow interconnection with other communication providers, which provides an always on capability, allows both voice and data services to be used simultaneously and provides data at speeds greater than a dial-up connection. This market includes both business and residential customers.

Market A covers exchange areas where no more than two principal operators (e.g. BT, Sky, TalkTalk and Virgin) are, or are forecast to be, present. Market B covers all other exchange areas which Ofcom found to be competitive and therefore not subject to SMP reporting conditions.

We publish the following services within Wholesale Broadband Access – Market A:

Service code		Service name
Internal	External	
M181S3	M181S5	IPstream Connect Max and Max Premium End User Access – Rental
M181S4	M181S6	IPstream Connect Contracted Bandwidth per Mbps per node rental
M181S13	M181S14	IPstream Connect End User Re-grade
M18108	M181S20	IPstream Connect End User Migration
M18109	M181S21	IPstream Connect ADSL Cancellation
M181S1	M181S2	Other IPstream Connect Market
M181S16	M181S22	Cease Basket
M181S15	M181S18	WBC Connections
M181S7	M181S9	WBC End User Access – Rental
M181S8	M181S10	WBC Bandwidth
M181S17	M181S19	WBC Ancillary Charges & other
M181S11	M181S12	Other WBA Market A

### Service name and offering

#### IPstream services

The BT IPstream Connect products enable connectivity between End Users and BT's Data Network. Customers are provided with IP connections to End Users' premises using ADSL technology. The End Users connections are provided using the same copper access network as existing PSTN services. The ADSL technology over the copper pairs feeding each End User ensures that BT IPstream Connect products and the PSTN service can co-exist.

This service is only available on BT provided PSTN (or BT provided Wholesale Access) lines. IPstream is being replaced by Wholesale Broadband Connect (WBC) and is therefore only available in BT exchanges which have not been enabled for WBC.

Further technical specification regarding the service can be found within Supplier Information Notes (SIN) 485 'BT IPstream Connect Office, BT IPstream Connect Home, BT IPstream Connect Max & BT IPstream Connect Max Premium Products'. SIN documents can be found at [www.sinet.bt.com](http://www.sinet.bt.com).

#### Service offering

*IPstream Connect Max and Max Premium End User Access – Rental* – this is the annual rental charge raised per end user. The published service in the RFS includes all IPstream Connect Max and IPstream Connect Max Premium services.

*IPstream Connect Contracted Bandwidth per Mbps per node rental* – this service provides connectivity from the DSLAM to the Broadband Remote Access Server (BRAS). The service is charged on the amount of bandwidth used by the customer.

*IPstream Connect End User Re-grade* - Re-grade charges for IPstream Connect are applicable when end users move from IPstream Connect Max to IPstream Connect Max Premium service (and vice versa).

## Service name and offering

*IPstream Connect End User Migration* – Migrations are one of the following scenarios:

- End user migrates from one customer to another without change of product and speed. Available to all BT IPstream ADSL end users.
- End user migrates from one customer to another with change of product and speed. Available to all BT IPstream product family end users. A single charge is raised (re-grade and migration).
- When an end user requests a change of product this will be subject to a re-grade order, subsequent and separate to the migration order.

*IPstream Connect ADSL Cancellation* – where a customer requests cancellation of an End User Access order, as defined within the Conditions of Service, a one-off Single Payment Charge will be levied. The charge will be calculated on the number of Working Days between the date the customer requests the cancellation and the Original Delivery Date (ODD). ODD is the initial agreed installation date.

*Other IPstream Connect Market* - Our reported service includes the following services:

- Communication Provider (CP) Handover - Charges for any services related to the connection by the communication provider to IPstream, such service currently being known as IPstream Connect Communications Provider (CP) Handover.
- 20C Interconnection Links 1Gbits and 10Gbits - Charges for any service provided by BT to connect between any of the handover points for IPstream and the communication provider's network, such service currently being known as IPstream Connect Interconnect Links.
- IPstream Connections – Connection charge per end-user for new lines of all variants of IPstream Connect.
- IPstream Home and Office Rentals – A variant of IPstream.
- IPstream Bandwidth per end user charge – charge based on number of access rentals, charged monthly.

These services are provided internally and externally.

These services use Openreach input products and these equivalent of input (EOI) services can be seen in the Wholesale Catalogue Annex, which is published as an annex to this document.

## Cease Basket

### Service offering

End User Cease Services: Any service required to disconnect any wholesale broadband access product provided in Market A.

This service is provided internally and externally.

## Service name and offering

### WBC Services

Wholesale Broadband Connect (WBC) is a suite of high speed, high performance broadband services ranging from ADSL2+ services (up to 24 Mbps) to Fibre-to-the Premises (up to 330 Mbps).

Further technical specification regarding the service can be found within Supplier Information Notes (SIN) 472 'BT Wholesale Broadband Connect (WBC) Products'.

### Service offering

*Connections* – connection charge raised on each new WBC access line provided.

*End User Access – Rental* – annual rental charge per end user WBC access line.

*Bandwidth* – this provides connectivity from the end user access to the Broadband Remote Access Server (BRAS). The service is charged on amount of bandwidth used by the customer. This service is provided downstream of Openreach WLA services.

*Ancillary charges & other* – this published service includes services such as WBC Aggregation Point national coverage (combined with IPsc CP Handover option).

These services are provided internally and externally.

These services use Openreach input products and these equivalent of input (EOI) services can be seen in the Wholesale Annex, which is published as an annex to this document.

### Other WBA Market A

This published service includes other charges relating to IPstream and WBC including:

- a) Chargeable SFIs
- b) Other Ancillaries
- c) SMPF Enhanced Care
- d) SMPF Expedite
- e) Broadband Boost

This service is provided internally and externally.

## Published Service to Service mappings including EOI flags

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The mapping of all of Published Services (listed in the above section) to the underlying Services which they encompass and the identification of where a service is supplied under our Equivalence of Input (EOI) obligations as part of the undertakings has been separately published on our website in the Wholesale Catalogue Annex.

## Glossary

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Throughout the Wholesale Catalogue, the following terms are used and defined as:

Rentals	The ongoing rental of a line
Connections	Supply of a new line
External	Sales to external communication providers
Internal	Sales to internal communication providers, i.e. downstream BT