



Wholesale Catalogue

Relating to the 2020 Regulatory Financial Statements

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Introduction

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: Physical Infrastructure Access

Following their review of the physical infrastructure and business connectivity¹ markets in June 2019, Ofcom directed us to report physical infrastructure access to our duct and poles in a single national market². This market is considered to be upstream of the active markets and a transfer charge has been created for the Physical Infrastructure Access (PIA) markets to charge active markets for the use of duct and poles assets.

Duct and pole assets were previously attributed directly to the active markets, all active markets make use of the physical infrastructure but the greatest use, by value, is made by the WLA and WFAEL markets.

The PIA market includes all of our duct and pole assets and their associated costs. Services offered by this market are used internally as well as purchased directly by Communication Providers (CPs).

We publish the following services within the PIA market:

Service code		Service name
Internal	External	
M450S01	N/A	Physical Infrastructure for Active Services
N/A	M450S02	PIA Rentals
N/A	M450S03	PIA Ancillary Charges
M450S04	M450S05	Network Adjustments above the financial limit

Service name and offering

Physical Infrastructure for Active Services

This service relates to the use of physical infrastructure by downstream wholesale markets. Ofcom have directed us to impute the costs and revenues of this service. The costs being the physical infrastructure consumed by active services based on current attributions methods, the revenue being the FAC plus the Openreach WACC. Average prices and volumes are not applicable³.

We have attributed the costs in the PIA market to PIA rentals and ancillaries using methodologies consistent with approach used in Ofcom's pricing model and described and published in our Accounting Methodology Document. The residual PIA costs are attributed to this service and then transfer charged to downstream markets using the attribution methodologies previously used for duct and poles.

Service offering

This service does not correspond to any product currently provided by Openreach.

¹ [Review of the physical infrastructure and business connectivity markets](#), published 28 June 2019

² [BT Regulatory Financial Reporting](#), published 12 July 2019

³ Ofcom's paper: [BT Regulatory Reporting](#), published 12 July 2019, footnote 113, page 44

Service name and offering

PIA Rentals

Under this service, Communication Providers are able to install multiple cables, Blown Fibre Tubing (BFT) and/or sub duct in Openreach duct and joint chambers and to attach equipment and cables on Openreach poles.

Service offering

The service published in the RFS is an aggregation of various rental products offered under Openreach's PIA portfolio.

Facility in Spine duct per metre – allows CPs to install up to 25mm of cables, blown fibre or sub-duct in our duct. The service is charged per metre of spine duct and there are different prices for single bore duct, two bore duct and three and greater bore duct.

Facility in Lead-in duct per metre – allows CPs to install a single cable in our lead-in duct. This is the final section of duct that leads from our distribution point to the end-user's home or business. This service is currently charged per metre but Ofcom are consulting with the industry on whether to allow us to charge on a simplified per premise basis.

Facility hosting in Manholes – allows CPs to install cables and equipment in our manholes. There are separate prices for hosting cables, cable coils and distribution joint/cable splices.

Facility hosting on poles – allows CPs to attach cables and equipment to our poles. There are separate prices for attaching single-user cables, multiple-user cables, cables that run up the pole and for attaching equipment to the top of the pole.

PIA Ancillary Charges

Various charges raised by Openreach for providing ancillary services to CPs using PIA. These charges do not include alterations to our physical infrastructure which are classified as network adjustments.

Service offering

Some of the key services provided under this product are:

- Verification of network adjustment work
- Lead assessor accreditation
- Openreach assistance
- Survey work

Network Adjustments above the financial limit

Network adjustments are where Openreach need to make permanent adjustments to the physical infrastructure to enable CPs to use the network for building their own communication networks. Examples include clearing duct blockages, repairing joint boxes and replacing defective poles. Communication providers are given a network adjustment allowance of £4,750 of duct related network adjustments per kilometre of spine duct. A charge is only raised on the costs incurred that fall above this limit. There is no financial limit for pole work so network adjustments charges are never raised on poles.

Service offering

The financial limit applies to both external CPs using PIA and where Openreach are laying new fibre and copper cables.

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 Non Service Level 1
M29S84	M29S85	MPF Rentals Service Level 1
N/A	M29S1	MPF New Provide Services
N/A	M29S2	MPF Single Migrations
M29S27	M29S3	MPF Bulk Migrations
M29S34	M29S11	SMPF Bulk Migrations
M29S44	M29S45	Cancellation of MPF orders
M29S46	M29S47	Amend orders Allowable change to MPF order
M29S48	M29S49	MPF Standard Line Test
M29S50	M29S51	GEA Cablelink 1 Gbit/s Connections
M29S52	M29S53	GEA Cablelink 10 Gbit/s Connections
M29S54	M29S55	GEA Bandwidth Modify to 40/10
M29S56	M29S57	GEA VLAN Moves Applied to Cablelink
M29S62	M29S63	GEA FTTC 40/10 Rentals
M29S68	M29S69	GEA Other 40/10 Rentals
M29S58	M29S59	GEA Other Bandwidth Rentals
M29S64	M29S65	GEA FTTC 40/10 PCP Only Install
M29S66	M29S67	GEA FTTC 40/10 Start of Stopped Line
M29S71	M29S72	GEA FTTP 40/10 Connections Voice and Data
M29S74	M29S75	GEA FTTP 40/10 Connections Transition
M29S76	M29S77	GEA 40/10 Cancel/Amend/Modify - CRD
M29S78	M29S79	GEA 40/10 Cancel/Amend/Modify - Regrades
M29S82	M29S83	GEA Superfast Visit Assure
M29S86	M29S87	GEA CP to CP Migrations
M29S80	M29S81	Abortive Visits
N/A	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
M29S38	M29S18	Other WLA
M29S90	M29S91	WLA IFRS 15 Deferred Revenue
M29S92	M29S93	WLA IFRS 15 SLG

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. (On Some instances when Point of No Return late cancellation are included, Avg. Price might be slightly higher than the actual pricelist).

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. (On Some instances when Point of No Return late cancellation are included, Avg. Price might be slightly higher than the actual pricelist).

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. (On Some instances when Point of No Return late cancellation are included, Avg. Price might be slightly higher than the actual pricelist)

Cancellation of MPF orders - The cancellation of the provision of an MPF new provide.

Amend orders Allowable change to MPF order - A change made to an existing MPF new provide.

MPF Standard Line Test - Test on the Metal Path Facility (MPF) line without special provisions on Openreach lines (not the Non Served Premises (NSP), ships in Dock and Short Duration lines).

These services are provided internally and externally.

Service name and offering

Generic Ethernet Access (GEA)

Generic Ethernet Access Cablelink enables connection from servers or backhaul circuits to the Next Generation Access Optical Line Termination (OLT) point in that exchange.

Service offering

GEA Cablelink 1 Gbit/s Connections - Cablelink that allows a connection from servers or backhaul circuits to the Next Generation Access Optical Line Termination (OLT) point in that exchange at 1 Gbit/s per second.

GEA Cablelink 10 Gbit/s Connections - Cablelink that allows a connection from servers or backhaul circuits to the Next Generation Access OLT point in that exchange at 10 Gbit/s per second.

GEA 40/10 Bandwidth Change - Change in the amount of data that can be transmitted to a 40/10 rental.

VLAN moves applied to GEA Cablelink Modify - VLAN (Virtual Local Area Network) moves functionality will allow CPs consuming FTTC/FTTP/FVA to raise a Modify order to move the customer's CVLAN to an SVLAN if they weren't already allocated to an SVLAN or between SVLANs if they were in an existing SVLAN. This may be carried out as long as the CVLAN is being moved within or between GEA Cablelinks on the same Layer 2 Switch. This allows the GEA Cablelink to be configured to suit how the network is managed.

GEA 40/10 FTTC Rentals - Rental of the Generic Ethernet Access Fibre to the Cabinet (GEA FTTC) cablelink with a speed of 40/10 speed.

GEA 40/10 Other Rentals - Rental of cables that are not Fibre to the Cabinet (FTTC) with a speed of 40/10 speed.

GEA Other Rentals (all other speeds except 40/10) - Rental of cables that are not the regulated 40/10 speed.

GEA 40/10 FTTC PCP Only Install and Start of Stopped Line - For the GEA connection with 40/10 speed, the PCP Only is a connection variant where the engineer will only do the jumpering activity at the local street cabinet and then close the job, leaving the customer to complete the installation in the premises. The start of a stopped service is quick requiring an existing line plant which is simply reactivated.

GEA 40/10 FTTP Other Connections - Service for Generic Ethernet Access over Fibre to the Premises (GEA-FTTP) with 40/10 connection.

GEA CRD Amend order notes/cancellation Care level - This is related to the amendment of the CRDs. CRD (Customer Required Date) is an agreed date when all planned work will be completed and service provided.

GEA Regrading of existing up/downstream speed - Generic Ethernet Access (GEA) changes in the speed at point of sale and in life. These services are provided internally and externally.

Abortive Visits

An Abortive Visit Charge (AVC) is applied where an appointment is agreed for work at an End User's Site and the engineer arrives within the appointment slot but is unable to carry out the work at, or gain access to, the End User Site.

Service name and offering

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.

Other LLU Ancillary Services

Service offering

Sundry costs associated with the provision of Local Loop Unbundling (LLU) services to Communication Providers (CPs) - this is mainly cancellation products.

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.

Service name and offering

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.

Other WLA

Service offering

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

- GEA ancillaries (e.g. NGA Visit Assure)
- SMPF
- Non-basket Co-mingling, tie cable and tie pair modification services
- Electricity usage by CPs using co-mingling
- Enhanced Care Service Maintenance Levels
- Expedite provisions and repairs
- Copper Broadband Boost

Wholesale Local Access IFRS 15 Deferred Revenue

Revenue recognition is in accordance with a new standard IFRS15, which is based on the customer contract conditions.

Service offering

Impact of IFRS 15 on the Wholesale Local Access market. The service shows the net of the revenue, which has been released or deferred during the period.

These services are provided internally and externally.

Wholesale Local Access IFRS 15 SLG

Impact of IFRS 15 on the presentation of Service Level Guarantees (SLGs). This service adjusts revenue and costs presented in the RFS.

There will be separate internal and external services.

Market: Business Connectivity

The Business Connectivity Market includes leased lines provided using modern technology suitable for the transmission of IP data.

In July 2019 Ofcom published new legal direction as part of the Business Connectivity Markets Review (BCMR), which made key changes to how the Business Connectivity Markets are reported within the RFS. The new direction differentiates services based on two additional criteria, rather than solely geographically as was the case previously, which are product/circuit type (Inter-exchange or Access) and the level of competitiveness at an exchange. The previous markets defined by Ofcom were as follows:

- **Low Bandwidth CISBO Rest of UK** – This market contains services up to and including speeds of 1Gbps and covers the UK except the following areas: Central London Area; London Periphery; Bristol; Manchester; Leeds; Glasgow; Birmingham; and Hull.
- **Low Bandwidth CISBO Combined Geographic** – This market contains services up to and including speeds of 1Gbps and covers the London Periphery, Manchester and Bristol areas.
- **Residual CISBO** – This market contains all other geographical CISBO markets, and includes services with speed greater than 1Gbps from all geographic areas.

The new markets as defined by Ofcom are as follows:

Access Services are defined as those which are the connections to end-user business sites (such as office buildings or mobile base stations). The CI Access Service Markets are:

- **CI Access services – BT Only Areas**
- **CI Access services – BT plus one Areas**
- **High Network Reach (HNR) Areas Outside CLA**
 - The HNR areas include: Birmingham, Bristol, Edinburgh, Glasgow, Leeds, Manchester and HNR areas in the Rest of UK (RoUK).
- **Residual - High Network Reach Areas – CLA**

Inter-exchange Connectivity are defined as those which consists of the connections between BT exchanges in different geographic areas (such as between towns and cities). The Inter-exchange Connectivity Markets are:

- **Technical Area – Inter-exchange Connectivity (Dark Fibre Circuits)**; and,
- **Technical Area – Inter-exchange Connectivity (Non-Dark Fibre Circuits)** – which consists of BT Only and BT plus one exchanges; and,
- **Residual - Inter-exchange Connectivity – BT plus two**

Note that the markets are defined based on Competitiveness, which is the number of Communication Providers (CPs) located at an exchange, giving rise to market definitions of “BT Only” i.e. no competitors at an exchange, “BT plus one” i.e. one competitor at an exchange and so on.

Only low bandwidth, up to and including 1Gbit/s, products were regulated, rather than all bandwidths being reported in single product market. As a part of this change OSS services are also regulated for the first time.

Ofcom determined that BT has significant market power for the regulated CISBO Access and Inter-exchange markets, but not Residual CISBO. This means that we report on the 5 regulated CISBO markets, consistent of 3 Access and 2 Inter-exchange, as separate markets in the RFS. However, the services provided in these markets are identical, with the exception of Dark Fibre, so for the purpose of the Wholesale Catalogue, we show these services together. CISBO Residual markets are however reported within Openreach Residual and Rest of BT.

We publish the following services within the CI Access service – BT Only Areas market:

Service code		Service name
Internal	External	
Ethernet 1 G bit and below		
M400S19	M400S18	Connections
M400S09	M400S08	EAD Rentals
M400S07	M400S06	EAD LA Rentals
M400S02	M400S01	Other Rentals
M400S14	M400S15	EAD Mainlink
M400S41	M400S42	
M400S41	N/A	Other
Ethernet 1 G bit and above		
M400S21	M400S20	Connections
M400S11	M400S10	EAD Rentals
M400S38	M400S37	EAD LA Rentals
M400S04	M400S03	Other Rentals
M400S16	M400S17	EAD Mainlink
M400S24	M400S23	Cablelink
M400S13	M400S12	Other
Other		
M400S28	M400S27	ECC Basket
N/A	M400S31	Accommodation basket
M400S30	M400S29	TRC Basket
M400S26	M400S25	Exempt Ancillary Services
M400S40	M400S39	Other – Project services
M400S33	M400S34	Inter IFRS 15
M400S35	M400S36	Inter SLG

We publish the following services within the CI Access service – BT plus one Areas market:

Service code		Service name
Internal	External	
Ethernet 1 G bit and below		
M401S19	M401S18	Connections
M401S09	M401S08	EAD Rentals
M401S07	M401S06	EAD LA Rentals
M401S02	M401S01	Other Rentals
M401S14	M401S15	EAD Mainlink
M401S41	M401S42	
M401S05	N/A	Other
Ethernet 1 G bit and above		
M401S21	M401S20	Connections
M401S11	M401S10	EAD Rentals
M401S38	M401S37	EAD LA Rentals
M401S04	M401S03	Other Rentals
M401S16	M401S17	EAD Mainlink
M401S24	M401S23	Cablelink
M401S13	M401S12	Other
Other		
M401S28	M401S27	ECC Basket
N/A	M401S31	Accommodation basket
M401S30	M401S29	TRC Basket
M401S26	M401S25	Exempt Ancillary Services
M401S40	M401S39	Other – Project services
M401S33	M401S34	Inter IFRS 15
M401S35	M401S36	Inter SLG

We publish the following services within the CI Access service – High Network Reach (HNR) Areas Outside of CLA:

Service code		Service name
Internal	External	
Ethernet 1 G bit and below		
M402S19	M402S18	Connections
M402S09	M402S08	EAD Rentals
M402S07	M402S06	EAD LA Rentals
M402S02	M402S01	Other Rentals
M402S14	M402S15	EAD Mainlink
M402S41	M402S42	
M402S05	N/A	Other
Ethernet 1 G bit and above		
M402S21	M402S20	Connections
M402S11	M402S10	EAD Rentals
M402S38	M402S37	EAD LA Rentals
M402S04	M402S03	Other Rentals
M402S16	M402S17	EAD Mainlink
M402S24	M402S23	Cablelink
M402S13	M402S12	Other
Other		
M402S28	M402S27	ECC Basket
N/A	M402S31	Accommodation basket
M402S30	M402S29	TRC Basket
M402S26	M402S25	Exempt Ancillary Services
M402S40	M402S39	Other – Project services
M402S33	M402S34	Inter IFRS 15
M402S35	M402S36	Inter SLG

We publish the following services within the Technical Area – Inter-exchange Connectivity (Dark Fibre Circuits):

Service code		Service name
Internal	External	
Ethernet 1 G bit and below		
M405S08	M405S07	Dark Fibre Cessation Charges
N/A	M405S03	Dark Fibre Connection
N/A	M405S05	Dark Fibre Main Link
N/A	M405S01	Dark Fibre Rentals
M405S10	M405S09	Dark Fibre Right when Tested
M405S12	M405S11	Dark Fibre TRCs
Other		
M405S16	M405S15	ECC Basket
	M405S17	Accommodation basket
M405S14	M405S13	Exempt Ancillary Services
M405S18		Other - SLG

We publish the following services within the Technical Area – Inter-exchange Connectivity (Non-Dark Fibre)

Service code		Service name
Internal	External	
Ethernet 1 G bit and below		
M403S13	M403S12	EAD Rentals
M404S13	M404S12	
M403S11	M403S10	Other EAD Rentals
M404S11	M404S10	
M403S07	M403S06	EAD LA Rentals
M403S09	M403S08	
M404S07	M404S06	
M404S09	M404S08	
M403S02	M403S01	Other Rentals
M404S02	M404S01	
M403S18	M403S19	EAD Mainlink
M403S45	M403S46	
M404S18	M404S19	
M404S45	M404S46	
M403S27	M403S26	EAD Connections
M404S27	M404S26	
M403S23	M403S22	Other Connections
M404S23	M404S22	
M403S05	N/A	Other
M404S02	N/A	
Ethernet 1 G bit and above		
M403S15	M403S14	EAD Rentals
M404S15	M404S14	
M403S42	M403S41	EAD LA Rentals
M404S42	M404S41	
M403S04	M403S03	Other Rentals
M404S04	M404S03	
M403S20	M403S21	EAD Mainlink
M404S20	M404S21	
M403S25	M403S24	Connections
M404S25	M404S24	
M403S17	M403S16	Other
M404S17	M404S16	
Other		
M403S32	M403S31	ECC Basket
M404S32	M404S31	
N/A	M403S35	Accommodation basket
N/A	M404S35	
M403S34	M403S33	TRC Basket
M404S34	M404S33	
M403S30	M403S29	Exempt Ancillary Services
M404S30	M404S29	
M403S44	M403S43	Other – Project services
M404S44	M404S43	
M403S37	M403S38	Inter IFRS 15
M404S37	M404S38	
M403S39	M403S40	Inter SLG
M404S39	M404S40	

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.

Further technical specification can be found within Supplier Information Notes (SIN). SIN documents can be found at 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.

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 rented internally and externally.

Further technical specification can be found within Supplier Information Notes (SIN). SIN documents can be found at 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 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 rented internally and externally.

Further technical specification can be found within Supplier Information Notes (SIN). SIN documents can be found at 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 at 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.

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.

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.

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.

Service name and offering

IFRS 15 Deferred Revenue

This service contains IFRS 15 deferred revenue adjustments for the CISBO Markets

There will be separate internal and external services.

IFRS 15 SLG

Impact of IFRS 15 on the presentation of Service Level Guarantees (SLGs). This service adjusts revenue and costs presented in the RFS.

There will be separate internal and external services.

Optical Services Spectrum

Optical Services provide a highly secure, flexible and cost-effective way of moving very large amounts of data between UK-wide locations via dedicated fibre links. They operate using Dense Wavelength Division Multiplexing (DWDM) technology delivered over an infrastructure provided by Openreach. The combination of high bandwidth, low latency and the ability to aggregate large numbers of network connections, makes them flexible enough for a wide range of customer needs. There are two key products which utilise this technology.

Optical Spectrum Access (OSA) uses the ADVA FSP 3000* to provide a highly flexible and cost-effective way of moving very large amounts of data between two locations. OSA allows range of services from cloud applications and next generation data centres to high speed file transfer and business continuity solutions, such as information storage and retrieval.

Optical Spectrum Extended Access (OSEA) offers secure, high bandwidth connections, with the launch of Ciena 6500 into this portfolio allows support of 10Gbps – 100Gbps interfaces. It also provides a more efficient way to connect multiple sites, has no distance limitations and enables enterprises and datacentre hosting companies to offer a deeper range of services and applications.

Dark Fibre (Inter-exchange) – DFX

Openreach Dark Fibre X service offers an uncontended, unmonitored, unlit optical path over an end to end maximum route distance of 86km between two qualifying BT Exchange sites. This will be a passive service and no equipment will be provided to light the fibre, hence the reference to 'dark fibre' in the product title. DFX is available on routes between qualifying BT Exchanges and the services have two variants; single fibre or fibre pair option.

Service offering

Dark Fibre Specific Rental costs specifically relating to providing Inter-exchange Dark Fibre Rental services. These costs relate to the labour and equipment costs of installing "patch panels" within an exchange for the access seekers to utilise.

Dark Fibre Specific Connections costs specifically relating to providing Inter-exchange Dark Fibre Connection services. These costs relate to the labour associated with the "birth certificate" process, which is provided by Openreach when handing the circuit over to the access seeker and will display the actual performance characteristics of the dark fibre circuit

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

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

These services also include a Resilience option two where a backup fibre path is provided to an alternative local serving exchange

These services are provided only externally.

Service name and offering

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.

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. It 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	Analogue WLR Basic Rentals
M11S3	M11S4	WLR Connections
M11S25	M11S26	WLR Transfers
M11S29	M11S30	WLR Conversions
M11S35	M11S36	Analogue 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
M11S92	M11S93	WFAEL IFRS 15 SLG

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 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 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, Project Services, Enhanced Care, Expedites, Abortive Visits, Amendments to an order and WLR Simultaneously Provided Connections and WLR Simultaneously Provided Conversions which were published separately in 2017.

These services are provided internally and externally.

WFAEL IFRS 15 SLG

Service offering

Impact of IFRS 15 on the presentation of Service Level Guarantees (SLGs). This service adjusts revenue and costs presented in the RFS.

There will be separate internal and external services.

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
M31S5	M31S6	ISDN2 Transfers
M31S7	M31S8	Other ISDN2
M31S11	M31S12	ISDN 2 IFRS 15 SLG

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. Includes services on circuits ordered before 1st December 2018.

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.

Includes services on circuits ordered before 1st December 2018.

Other ISDN2 – This includes:

- a) ISDN2 Network Features and Enhanced Care
- b) ISDN2 Connections
- c) Rentals, Connections and Takeovers/Transfers for circuits ordered from 1st December 2018. Rentals include lines that existed before 1st but were transferred from 1st December 2018.

These services are provided internally and externally.

ISDN 2 IFRS 15 SLG

Impact of IFRS 15 on the presentation of Service Level Guarantees (SLGs). This service adjusts revenue and costs presented in the RFS.

There will be separate internal and external services.

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 Channel Connections
M27S5	M27S6	ISDN30 Transfers
M27S7	M27S8	ISDN30 SML3 and 4
M27S15	M27S16	ISDN30 Direct Dialling - Rentals
M27S13	M27S14	Other ISDN30
M27S22	M27S23	ISDN 30 IFRS 15 SLG

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 8 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. Includes services on circuits ordered before 1st December 2018.

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

- Installation charge per channel, with a minimum of 8 channels. Includes services on circuits ordered before 1st December 2018.

ISDN30 Transfers – a transfer charge incurred when an ISDN30 access bearer is transferred between CPs. Includes services on circuits ordered before 1st December 2018.

ISDN30 SML3 and 4 – enhanced maintenance of ISDN30 lines is available at Service Maintenance Level Business 2 Plus, Level 3 and Level 4. Includes services on circuits ordered before 1st December 2018.

ISDN30 Direct Dialling In (DDI) Rentals – rental of additional numbers that can be associated with the main number of the ISDN circuit. This allows each telephone extension to have an individual number. Includes services on circuits ordered before 1st December 2018.

Other ISDN30 – This includes:

- ISDN30 Network Features.
- ISDN30 Line connections.
- ISDN30 Direct Dial In (DDI) Planning.
- ISDN30 Direct Dial In (DDI) Connections.
- ISDN30 Rentals ordered from 1st December 2018. These rentals include lines that existed before 1st December 2018, but were transferred from 1st December 2018.
- Connections, Takeovers/Transfers, SML and SML4, DDI Rentals, DDI Planning and DDI connections for circuits ordered from 1st December 2018.

These services are provided internally and externally.

ISDN 30 IFRS 15 SLG - Impact of IFRS 15 on the presentation of Service Level Guarantees (SLGs). This service adjusts revenue and costs presented in the RFS.

There will be separate internal and external services.

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 are not required to publish service level information within the Call Origination market.

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 fixed geographical call termination local exchange

Service name and offering

Wholesale call termination local exchange

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). Also includes an additional wholesale charge for a call that originated and terminated on a BT line and therefore does not interconnect with an external voice network.

This service is provided internally and externally.

Market: Technical Areas (DLE Interconnect Circuits)

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

We publish the following services within the Interconnect market:

Service code		Service name
Internal	External	
	M08S04	Wholesale IEC Connections
	M08S05	Wholesale IEC Rentals - fixed
	M08S06	Wholesale IEC Rentals – per km
	M08S07	Wholesale Intra-Building Circuits Connections
	M08S08	Wholesale Intra-Building Circuits Rentals
	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>Wholesale Interconnect Extension Circuit (IEC)</p> <p>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>Service offering</p> <p><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>
<p>Wholesale intra-building circuits (IBC)</p> <p>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.</p> <p>Service offering</p> <p><i>Connections</i> – a charge raised for the connection of a new 2 Mbps IBC circuit.</p> <p><i>Rentals</i> – an annual rental charge raised per 2 Mbps IBC circuit.</p>
<p>Wholesale rearrangements</p> <p>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).</p> <p>Service offering</p> <p>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.</p>

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.

In accordance with the 2018 WBA Market Review, we publish services within Wholesale Broadband Access – Market A where the combined internal and external revenues exceed £5m and the EOI inputs exceed £1m, with any other services included in Other WBA Market.

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 ⁴
M181S13	M181S14	IPstream Connect End User Re-grade ⁴
M18108	M181S20	IPstream Connect End User Migration ⁴
M18109	M181S21	IPstream Connect ADSL Cancellation ⁴
M181S1	M181S2	Other IPstream Connect Market ⁴
M181S16	M181S22	Cease Basket ⁴
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.

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.

⁴ Combined internal and external revenues are below £5m and the EOI inputs are less than £1m, therefore presented within 'Other WBA Market A'.

Service name and offering

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).

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) IPstream Connect Contracted Bandwidth per Mbps per node rental
- b) IPstream Connect End User Re-grade
- c) IPstream Connect End User Migration
- d) IPstream Connect ADSL Cancellation
- e) Other IPstream Connect Market
- f) Cease Basket

This service is provided internally and externally.

Service will include services within Market A where the combined internal and external revenues are below £5m and the EOI inputs are less than £1m.

Published Service to Service mappings including EOI flags

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

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