Service Specific Terms

Ethernet VPN and Ethernet Wireline Service

Vodafone Business Customers

1. The Service – Overview

1.1 The Vodafone Ethernet VPN and Vodafone Ethernet Wireline services ("**EVPN**" and "**EWS**" respectively) are independent solutions that provide high-speed connectivity between Customer Sites via the Vodafone MPLS Core Network, combining the benefits of Ethernet and MPLS. The term "**Service**" or "**Services**" in these Service Specific Term means either or both of EVPN and EWS as selected by/for the Customer in the Commercial Terms and/or Order.

2. Service Term Structure

2.1 These Service Specific Terms include:

(a) the service specification, which sets out a description of the Service, including optional Service Elements, complementary Services (where applicable), and which may be updated from time to time (the "**Service Specification**"). The specific Service Elements selected by Customer will be set out in the Commercial Terms and/or Order;

(b) the service levels, which set out the standards that will be applied to the provision of the Service (in addition to the standards set out in the Tiered Support Service Specific Terms) (the "**Service Levels**"); and

(c) the Coverage Bands and Frame Delay service degradation information, which sets out a non-binding description of available Coverage Bands and target Frame Delay service levels.

2.2 The following documents further govern Vodafone's supply of the Service and form part of the Agreement, applying in the order of precedence set out in the General Terms:

(a) the Commercial Terms;

(b) the General Terms;

(c) the Fixed Service Terms set out at www.vodafone.co.uk/terms;

(d) the Order, which confirms the Service Elements selected by/for Customer;

(e) the Tiered Support Service Specific Terms set out at www.vodafone.co.uk/terms; and

(f) any applicable policies and guidelines, as provided from time to time by Vodafone.

3. The Service and Equipment

3.1 EVPN is a Virtual Private LAN Service (VPLS) and EWS is a Virtual Private Wire Service (VPWS). Each Service provides high-speed connectivity between two or more Customer Sites in a point-to-point or point to multipoint fashion and enables network sites (which could be in geographically diverse locations) to communicate with each other as if they were directly attached to each other.

3.2 The Service comprises required core Service Elements and may also include optional Service Elements selected by Customer both of which shall be set out in the Commercial Terms and/or Order.

3.3 Fixed Equipment relevant to this Service may include Network Termination Equipment. The Commercial Terms and/or Order will identify which Fixed Equipment, if any, Vodafone will supply to the Customer and which of such Equipment will be purchased by Customer. Associated Charges shall be set out in the Commercial Terms and/or Order.

3.4 **Coverage Bands:** Vodafone may, on a case by case basis, determine if the Service is available in any of the locations in the Coverage Bands. If Vodafone is able and willing to provide the Service in any of the locations in the Coverage Bands, then prior to relevant Order being placed, it must be confirmed in writing between the Parties.

4. Service Specific Conditions of Use

4.1 **Ethernet access**

(a) The following limitations apply to any Customer Sites connected to the Vodafone MPLS Core Network by a third party Ethernet access circuit using Ethernet technology:

(i) Vodafone will use reasonable endeavours to procure Access Circuits which offer similar performance to the targets set out in the Service Levels section]; however, due to the wide range of technology solutions used in the market to offer Ethernet Access Circuits, Vodafone does not guarantee a minimum specification of third party Access Circuit.

(ii) Any minimum requirements for Access Circuits (for example, a minimum MTU) shall be set out in the Order and/or a statement of work.

(b) 100Mbps Ethernet access circuit bandwidths may be reduced by 3Mbps in some circumstances, due to the underlying technology used to deliver the Service.

(c) As is standard practice for data services, the experienced throughput of the EVPN/EWL may vary from the stated CIR, PIR, EIR or Access Circuit speed due to packet overheads.

4.2 **FTTC:** In the case of FTTC Access Circuits in the UK:

(a) The following terms apply to UK, FTTC Access Circuits:

(i) The Access Circuit bandwidth available in both the downstream and upstream directions is subject to the length and quality of the copper circuit employed between the Customer's premises and the BT Openreach street cabinet.

(ii) The Access Circuit bandwidth available is subject to the Prioritisation Rate applied by BT Openreach.

(iii) If the EVC bandwidth is greater than the available Access Circuit bandwidth then Ethernet frames may be dropped.

4.3 **FTTP:** In the case of FTTP Access Circuits in the UK:

(a) The following terms apply to UK, FTTP Access Circuits:

(i) The Access Circuit bandwidth available in both the downstream and upstream directions is subject to the restrictions imposed by BT Openreach on FTTP which may include (but is not limited to) the Prioritisation Rate applied by BT Openreach.

(ii) If the EVC bandwidth is greater than the available Access Circuit bandwidth then Ethernet frames may be dropped.

4.4 **Data throughput:** The experienced throughput of the Service may vary from the stated CIR, PIR, EIR or Access Circuit speed due to the packet overheads.

4.5 **Secondary EVC:** If the Customer orders a secondary EVC, and such EVC is used other than set out in the Service Specification, Customer shall pay Vodafone the undiscounted Charges for such secondary EVC from the date of misuse.

4.6 **PSTN Connection:** Customer shall not (and shall ensure that Users shall not) connect or seek to connect the Services to the PSTN otherwise than in accordance with Applicable Law.

4.7 **Regulated Items:** The export and/or import of certain Equipment (including, without limitation, Equipment where Ethernet access is provided) (**"Regulated Items"**) are subject to domestic and/or foreign government export and/or import laws, rules, policies, procedures, restrictions and regulations (**"Export/Import Controls"**). Customer represents and warrants the following for Regulated Items: (i) Customer will export, import and/or disclose them only in strict compliance with applicable Export/Import Controls; and (ii) Customer will not try in any manner to evade US or any other jurisdiction's export controls on encryption. Customer acknowledges that the Export/Import Controls may include a complete prohibition on the export, re-export, import and/or use of a Regulated Item in certain jurisdictions thereby precluding the use of the Service in these jurisdictions.

4.8 **Third Party Provider:** Where required by Applicable Law, the Services may be provided in a given country by a Third Party Provider which has the necessary authority to provide the Services. Customer shall be aware that in certain geographic locations, Vodafone will provide the Services through the use of a local Third Party Provider.

5. Service Change Request Procedure

5.1 Any Configuration Change to the Service shall be subject to the following service change request procedure (**"Service Change Request Procedure"**):

(a) If either Party wishes to propose a change, it shall notify the other Party of that fact by sending a written request to the other Party's account manager/representative or via the Vodafone customer portal (if applicable), specifying in as much detail as is reasonably practicable the nature of the requested change.

(b) As soon as reasonably practicable after sending or receiving a written request for a change, Vodafone shall provide the Customer with a brief written proposal in relation to the relevant change (a "**Change Control Proposal**") including, where applicable, the following information: (i) details of the proposed change and its impact on the Service including, without limitation, any changes to the Service, Service Levels and any other variations to the Service Specific Terms; (ii) a statement of the cost and expense of implementation and on-going operation of the relevant change, including any alteration of the Charges or additional Charges relating to the proposed change; (iii) a timetable for the implementation of the change; and (iv) details of the impact, if any, of the proposed change on any existing Services.

(c) The Customer shall review Vodafone's Change Control Proposal as soon as reasonably practicable and will either accept or reject the proposed Change Control Proposal. If the Parties agree with the proposed Change Control Proposal, they shall issue an amendment to the Service Specific Terms authorising the change in the form of a change Order.

(d) If it is necessary to use additional resources or to incur any other additional costs in making a change, they shall be calculated as a change to the Charges. Vodafone shall have no obligation to commence work in connection with any change until a relevant change Order authorising a change is executed by the Parties in writing.

(e) Where a new Customer Site is added via the Service Change Request Procedure or where a Configuration Change to an existing Customer Site has been approved via the Service Change Request Procedure, Vodafone will notify the Customer of specific requirements at the Customer Sites.

Ethernet VPN and Ethernet Wireline Service

Service Specification

Vodafone Business Customers

Note: Service specification is available on request.

Ethernet VPN and Ethernet Wireline Service

Service Levels

Vodafone Business Customers

1. Incident Management

1.1 An Incident shall be deemed to: (i) commence when Acknowledged by Vodafone; and (ii) end when Vodafone advises Incident resolution. The Customer will be deemed to have been advised if Vodafone has made reasonable attempts to contact the Customer.

1.2 It may be necessary for a temporary interruption to the Service from time to time for Vodafone to carry out essential maintenance or network upgrades to the Service and/or equipment (an "**Outage**" or "**Outages**"). Vodafone will use reasonable endeavours to minimise the number of Outages and any subsequent disruption to the Customer. The Customer is responsible for notifying its Users, customers or third party providers of any Outage. Any planned downtime shall not be included in Incident or circuit availability measurements.

1.3 Incidents may be reported at any time. Once the Incident Severity Level is agreed between the Parties, Incident resolution will take place on a 24/7 basis for Severity Levels 0, 1 and 2. However for Severity Levels 3 and 4, Incident resolution will only occur during Working Hours.

2. Severity Levels

A description of the different Severity Levels is set out below:

Severity Level	Severity Level Definition
0	Vodafone MPLS Core Network node or route failure affecting multiple Vodafone customers.
1	A total loss of the Service at one Customer Site or multiple Customer Sites.
2	Partial loss of the Service (at one Customer Site or multiple Customer Sites) which has a significant detrimental effect on the Customer's ability to perform normal communications but which does not represent a total loss of the Service.
3	Degradation of the Service performance (for example, a low number of Users affected with minimum impact) or a Severity Level 0, 1, or 2 Incident downgraded in accordance with clause 5.3 of these Service Levels.
4	A non-Service affecting Incident or Incidents not classed as a Severity Level 0, 1, 2, or 3 Incident, including Incidents with performance reporting.

3. Service Levels

3.1 **Availability**

(a) Service Level Measure:

(i) The availability of the Service will be measured as the percentage of time the Ethernet Virtual Circuit between Customer Sites is available in an Annual Measurement Period. The measurement of Unavailability only applies where the Service is unavailable due to a Severity Level 0, Severity Level 1 or Severity Level 2 Incident.

(ii) The Service Levels set out in this clause 3 shall only apply to those Customer Sites located in a Coverage Band and directly connected to the Vodafone MPLS Core Network, and shall apply from the most recent Service Commencement Date for the relevant EVC.

(b) **Calculation:** The percentage (**"P"**) Service availability will be calculated as follows: P = (A – B x 100%) / A. Where:

(i) **"A"** equals the number of whole minutes in the relevant Annual Measurement Period;

(ii) **"B"** equals the number of whole minutes during which the Service is Unavailable in the Annual Measurement Period, excluding time where the Service is Unavailable due to an Excluded Event; an EVC or Access Circuit Regrade or Severity Level 3 or Severity Level 4 Incident; and

(iii) **"Unavailable" or "Unavailability"** means the Ethernet Virtual Circuit cannot transmit data in one or both directions as a result of an Incident.

(c) **Availability Target:** The availability targets shall vary depending on the specific Coverage Band unless an EVC is provided in the UK using an EFM, FTTC/FTTP or Fibre, then the availability target for that access type shall apply as set out below:

UK access type			Coverage Band			
EFM	FTTC/FTTP	Fibre	A	B	C	D
99.8%	99.8%	99.87%	99.85%	99.6%	99.4%	99.0%

3.2 **Incident Resolution Times**

(a) This Service Level and associated Service Credits only apply to those Customer Sites located in a Coverage Band.

(b) **Calculation:** The Incident resolution time (for each Coverage Band or access type) shall be calculated as the number of whole hours between the time Vodafone Acknowledges a Severity Level 0, 1 or 2 Incident and the time Vodafone confirms to the Customer that the Incident is resolved. The Customer will be deemed to have been advised if Vodafone has made reasonable attempts to contact the Customer. The Incident resolution times do not apply to Incidents caused by or associated with an Excluded Event. The percentage calculation of Target Incident Resolution Time is based on the Incidents logged by Vodafone within the Annual Measurement Period.

(c) The target Incident resolution times set out in the table below shall apply to the Coverage Bands and access types (for the UK only), and are applicable to each Access Circuit at a Customer Site:

Access Type		Coverage Band			
UK Fibre Access	UK EFM or UK FTTC/FTTP	A	B	C	D
5 hours	7 hours	4 hours	6 hours	12 hours	24 hours

3.3 **Service Degradation**

(a) Service degradation service levels set out an expectation of the average performance between the MPLS switches located within the Vodafone MPLS Core Network nodes under normal working conditions.

(b) The Service degradation Service Levels: (a) only apply to traffic within CIR and not to any traffic bursting beyond the CIR; and (b) apply from the most recent Service Commencement Date for the relevant Customer Site.

(c) The Service degradation Service Levels do not apply: (a) to Severity Level 1 or 2 Incidents; and/or (b) where the Incident is due to an Excluded Event;

(d) The Service degradation Service Level is measured between the MPLS switches located within the Vodafone MPLS Core Network nodes.

(e) **Service degradation Service Levels:** The Service degradation Service Level will be measured by determining whether the relevant Service degradation targets set out below have been met:

(i) Frame Delay (latency performance)

(A) **"Frame Delay"** is the time taken by an Ethernet frame to be transmitted across the Vodafone MPLS Core Network, and is measured as an average round trip value for an Ethernet frame between the ingress and egress MPLS switches located with the Vodafone MPLS Core Network nodes.

(B) Frame Delay performance may vary from time to time as a result of resilience mechanisms aimed at maximising end-to-end service availability which are present on the global meshed Vodafone MPLS Core Network.

(C) The target Service degradation Service Levels for Frame Delay are set out in the section "Coverage Bands and Frame Delay Service Degradation" to these Service Specific Terms.

(ii) Frame Delay Variation

(A) **"Frame Delay Variation"** is the variation of the inter-Frame Delay and will be measured as the absolute variance between the Frame Delay seen on individual Ethernet frames and the average Frame Delay between the ingress and egress MPLS switches located within the Vodafone MPLS Core Network.

(B) The Frame Delay Variation target Service Level for circuits routes across the Vodafone MPLS Core Network is:

CoS	Target
Premium CoS	5 milliseconds

(C) There is no Frame Delay Variation Service Level target for Enhanced CoS or Standard CoS.

(iii) Frame Loss

(A) **"Frame Loss"** is the percentage of Ethernet frames lost between MPLS switches located within the Vodafone MPLS Core Network.

(B) The Service degradation Frame Loss target Service Levels for circuits routed across the Vodafone MPLS Core Network are:

CoS	Target
Premium CoS	0.04%
Enhanced CoS and Standard CoS	0.06%

4. Service Credits

4.1 General

(a) Service Credits will only be payable in respect of the Annual Measurement Period if the Services fall below the applicable target for that period.

(b) The Customer must claim all Service Credits via the Vodafone account manager within 30 days of the end of the applicable Annual Measurement Period or one month review period. Any Service Credits will be applied to the Customer's next bill after agreement that such Service Credits are due.

(c) Service Credits as set out in these Service Specific Terms shall be the Customer's sole and exclusive remedy against Vodafone in respect of any failure in Service performance even where Vodafone is made aware of the likely loss incurred by the Customer for such failure; provided, however, that the Customer may have the right to terminate for material breach under the terms of the Agreement.

(d) Vodafone shall not be liable for any failure of the Services to meet the specified Service Levels to the extent that such failure is due to the Customer Site access not being granted, or any other act or omission by the Customer which prevents Vodafone from performing the Services, or is a direct result of any interruptions or maintenance activities agreed with the Customer.

(e) If one Incident causes a failure of two or more Service Levels, only the greater Service Credit amount of the two Service Levels shall be payable.

(f) The maximum cumulative Service Credits applicable in any one calendar month shall not exceed 100% of the total monthly Recurring Charges payable by the Customer for the affected EVC or Access Circuit.

(g) Vodafone shall not be liable for any Service Credits for any failure or delay in performing any of Vodafone's obligations under the Agreement that arise out of, or in connection with: (a) intermittent Incidents which do not prevent the use of the Services; (b) performance reporting; or (c) an Excluded Event.

4.2 **Service Credit for Delay**

(a) The Customer shall be entitled to a Service Credit if the Service Commencement Date in respect of a Customer Site is delayed past the Agreed Delivery Date, or a Configuration Change to a circuit at an existing Customer Site, due to an act or omission of Vodafone, calculated in accordance with the following table:

Number of Working Days	Service Credit (% of the Installation Charge / Regrade Charge)
1 to 5	5%
6 to 10	10%
11 to 15	15%
16 to 20	20%
>20	25%

(b) For each EVC, where there are at least two Service Demarcation Points, the Service credit shall be calculated based on the Working Days past the Agreed Delivery Date for the last Customer Site of the two Service Demarcation Points to be installed.

(c) Vodafone's total liability for Service Credits for delay shall not exceed:

(i) for delay of the Service Commencement Date, past the Agreed Delivery Date, for a new Customer Site: 25% Installation Charge for the Customer Site; and

(ii) for delay of the Service Commencement Date, past the Agreed Delivery Date, for a Configuration to a Customer Site: 25% of the Regrade Charge for the affected circuit.

(d) For the purposes of this clause 4.2, the Installation Charge excludes any additional Charges due to specific Customer Site requirements (for example, additional construction Charges).

4.3 **Service Credit for Incident Resolution Times**

(a) Customer may claim a Service Credit for a Severity Level 0, 1 or 2 Incident which has not been resolved within the mean target Incident Resolution Time set out in clause 3.2 above. The maximum Service Credits payable in any monthly review period are listed below:

Number of Incidents in a one month review period not resolved in the mean target Incident Resolution Time	Reduction of Monthly Recurring Charge for the affected EVC per one month review period
1	10%
2	25%
3	35%
4 or more	50%

(b) Vodafone's total liability for Service Credits for Incident resolution in an Annual Measurement Period shall not exceed 25% of the annual Recurring Charge for the relevant affected EVC.

4.4 **Service Credit for Service degradation**

Where an Incident arises because the average Frame Delay, Frame Delay Variation or Frame Loss has not met the Service degradation Service Levels set out in clause 3.3(e) above, Customer may claim a Service Credit calculated as 20% of the pro-rata Monthly Recurring Charge for the affected EVC for the period that the applicable Service degradation Service Level has not been met for that EVC. The period during which the targets are not met shall be measured from the date Vodafone Acknowledges an Incident for a Service degradation Service Level failure to the date that the Service falls within the affected Service degradation Service Level.

(a) Vodafone's total liability for Service Credits for a failure to meet Service degradation Service Levels for Frame Delay, Frame Delay Variation and Frame Loss in a single calendar month shall not exceed 20% of the Recurring Charges for the affected EVC.

4.5 **Service Credit for availability**

(a) Customer may claim a Service Credit for an individual EVC where the availability of the Service falls below the targets set out in in clause 3 above at the end of each Annual Measurement Period as follows:

% of Availability below target	Service Credit (percentage of 12 x Monthly Recurring Charge for the affected EVC)
>0%-0.1%	3%
>0.1-0.2%	5%
>0.2-0.35%	10%
>0.35%	15%

Ethernet VPN and Ethernet Wireline Service

Coverage Bands and Frame Delay Service Degradation

Vodafone Business Customers

1. General

1.1 The Frame Delay Service Level guidance set out in clause 3 of this section is subject to change by Vodafone from time to time. The Frame Delay target Service Levels do not constitute a formal offer for Services within a geography.

1.2 The Customer shall request from Vodafone current availability prior to submitting any Order for Services to Vodafone.

1.3 The Frame Delay target Service Levels and guidance set out in this Annex are expressed as an average round-trip delay.

2. Coverage Bands

2.1 The Coverage Bands shall include the locations in the table below. Vodafone may on a case by case basis determine if the Service is available in any of the locations. If Vodafone is able and willing to provide the Service in any of these locations, then prior to the relevant Order being placed, it must be confirmed in writing by Vodafone to Customer.

UK	A	B	C	D	Reasonable Endeavours
All UK & NI locations with the exclusion of: The Isle of Man Guernsey Jersey & the Channel Islands	Australia (Melbourne, Sydney, Perth, Adelaide, Brisbane) Belgium Czech Republic Denmark France Hong Kong Hungary Japan Luxembourg Netherlands Poland Singapore South Korea (Seoul & Busan) Spain Switzerland Taiwan	Albania Austria Belarus Bosnia Bulgaria China (Beijing, Shanghai, Guangzhou, Shen Zhen) Croatia Cyprus Finland Georgia Germany Greece India Indonesia (Jakarta) Ireland Italy Lithuania Lithuania Macedonia Malaysia (KL) Moldova Montenegro New Zealand (Auckland)	Australia (other) Bahrain Bermuda Canada Channel Isles China (other) Estonia Malaysia (other) Norway Thailand (other) Vietnam (other)	Azerbaijan Bangladesh Belarus Brunei Cambodia Indonesia (other) Isle of Man Kazakhstan Laos Latvia Mongolia Myanmar New Caledonia New Zealand (other) Pakistan Papua New Guinea Russia (other) South Africa South Korea (other) Sri Lanka UAE Ukraine Uzbekistan	Angola Cameroon Côte d'Ivoire Egypt Ghana Iran Jordan Kenya Kuwait Kyrgyzstan Madagascar Mauritius Mozambique Nigeria Oman Qatar Saudi Arabia Senegal Tanzania Turks & Caicos

		Philippines Portugal Romania Russia Russia (Moscow) Serbia Slovakia Slovenia Sweden Thailand (Bangkok) Turkey Ukraine USA Vietnam (Ho Chi Minh & Hanoi)			

3. Frame Delay Target Service Levels

3.1 The Frame Delay target Service Levels for circuits routed across the Vodafone MPLS Core Network are:

	Region	Asia	Asia	Asia	Asia	Asia	Asia	Asia	Asia	Asia	Asia	Asia	Asia	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	India	Middle East	Middle East	UK & Ireland	UK & Ireland England, Scotland & Wales	North America	North America
Region	Country	Australia	China	Indonesia	Japan	Malaysia	New Zealand	Phillippines	Singapore	South Korea	Taiwan	Thailand	Vietnam	Belgium	Czech Republic	Denmark	France	Germany	Hungary	Italy	Netherlands	Poland	Russia	Spain	Sweden	Switzerland	India	Bahrain	UAE	Republic of Ireland		Bermuda	USA
Asia	Australia	116	206	152	166	159	133	178	143	199	190	175	198	347	358	353	337	351	370	360	341	366	402	343	363	353	232	244	260	353	352	362	337
Asia	China	206	88	124	85	122	208	105	115	97	87	138	133	300	292	306	304	303	304	294	294	300	336	310	316	287	205	207	233	319	314	325	300
Asia	Indonesia	151	124	5	98	61	150	66	20	113	103	77	88	231	247	241	236	239	259	249	229	255	291	242	251	242	111	132	139	249	244	342	317
Asia	Japan	166	85	98	9	102	184	84	90	77	66	123	135	278	286	286	282	283	295	283	282	290	325	291	296	281	181	199	209	288	284	259	234
Asia	Malaysia	159	122	61	102	44	183	61	52	111	101	73	80	236	238	247	241	244	250	240	235	246	282	247	257	233	142	144	170	264	259	344	319
Asia	New Zealand	133	208	150	184	183	8	187	142	202	191	199	210	345	362	354	352	351	371	361	348	367	402	358	364	355	233	262	261	354	355	326	301
Asia	Phillippines	178	105	66	84	61	187	27	56	94	80	83	103	241	252	254	246	251	261	245	250	256	291	252	264	243	146	159	174	271	270	329	304
Asia	Singapore	143	115	20	90	52	142	56	6	104	93	68	79	223	239	233	228	231	251	241	221	247	283	234	243	234	104	124	132	241	236	333	308
Asia	South Korea	199	97	113	77	111	202	94	104	69	76	127	122	289	281	295	293	292	293	283	283	289	325	299	305	276	194	196	222	304	303	317	292
Asia	Taiwan	190	87	102	66	101	191	80	93	76	59	116	111	278	270	284	283	281	282	272	272	278	314	289	294	265	183	185	211	294	293	306	281
Asia	Thailand	175	138	77	120	73	199	81	68	127	116	61	97	253	255	263	258	260	267	257	251	263	299	264	273	250	158	160	186	281	276	361	336
Asia	Vietnam	198	133	88	135	80	210	103	79	122	111	97	69	266	274	277	273	274	286	276	265	282	318	279	287	269	169	184	197	284	283	375	350
EU	Belgium	347	300	231	278	236	345	241	223	289	278	253	266	5	44	35	38	36	56	46	23	52	88	41	45	39	225	184	193	53	48	233	226
EU	Czech Republic	356	292	247	286	238	362	252	239	281	270	255	274	44	33	53	59	51	50	49	44	42	79	65	63	43	243	205	217	73	70	250	243
EU	Denmark	353	306	241	286	247	354	254	233	295	284	263	277	35	53	5	55	42	65	57	25	61	97	61	10	55	231	190	203	63	58	239	232
EU	France	337	304	236	282	241	352	246	228	293	283	258	273	38	59	55	32	52	67	45	49	62	98	51	65	38	232	194	212	72	67	246	237
EU	Germany	350	303	239	283	244	350	251	231	292	281	260	274	36	51	42	52	39	62	54	36	58	94	58	52	52	230	192	204	64	59	237	230
EU	Hungary	373	304	259	295	250	371	261	251	293	282	268	286	56	50	65	67	62	41	58	56	49	84	73	75	55	255	217	229	85	82	262	255
EU	Italy	360	294	249	283	240	362	245	241	283	272	257	276	46	49	57	45	54	58	5	51	53	88	63	67	30	245	207	219	75	72	252	245
EU	Netherlands	341	294	229	282	235	348	250	221	283	272	251	265	23	44	25	49	36	56	51	15	52	88	55	35	44	219	178	194	54	49	227	220
EU	Poland	366	300	255	290	246	366	256	247	289	278	264	282	52	42	61	62	58	49	53	52	36	77	69	71	51	251	213	225	81	78	258	251
EU	Russia	407	336	291	325	282	404	291	283	325	314	299	318	88	79	97	98	94	84	88	88	77	72	105	107	87	287	249	261	117	114	294	287
EU	Spain	343	310	242	291	247	358	252	234	299	289	264	279	41	65	61	51	58	73	63	55	69	105	27	71	56	238	200	214	74	69	252	244
EU	Sweden	363	316	251	296	257	364	264	243	305	294	273	287	45	63	10	65	52	75	67	35	71	107	71	8	65	241	200	213	73	68	249	242
EU	Switzerland	353	287	242	281	233	355	243	234	276	265	250	269	39	43	55	38	52	55	30	44	51	87	56	65	5	238	200	212	72	67	245	238
India	India	213	168	78	148	105	200	109	71	157	146	121	132	213	234	219	223	221	246	236	209	242	278	229	229	229	66	175	186	223	218	358	333
Middle East	Bahrain	244	207	134	199	144	263	159	124	196	185	160	185	184	205	190	194	192	217	207	178	213	249	200	200	200	212	8	36	194	189	367	356
Middle East	UAE	260	233	139	209	170	261	174	132	222	211	186	197	193	217	203	212	204	229	219	194	225	261	214	213	212	219	36	12	203	198	383	372
UK & Ireland	Republic of Ireland	353	319	249	288	264	354	271	241	304	294	281	284	53	73	63	72	64	85	75	54	81	117	74	73	72	235	194	203	22	38	239	232
UK & Ireland	England, Scotland & Wales	352	314	244	284	259	353	270	236	303	293	276	283	48	70	58	67	59	82	72	49	78	114	69	68	67	230	189	198	38	31	238	231
North America	Bermuda	362	325	342	259	344	326	329	333	317	306	363	375	233	250	239	246	237	262	252	227	258	294	252	249	245	376	367	383	239	238	8	184
North America	USA	337	300	317	234	319	301	304	308	292	281	338	350	226	243	232	237	230	255	245	220	251	287	244	242	238	351	356	372	232	231	184	159

3.2 The following tables provide guidance for the expected day-to-day Frame Delay performance between switches on the Vodafone MPLS Core Network:

Ethernet VPN and Ethernet Wireline Service

Coverage Bands and Frame Delay Service Degradation

Vodafone Business Customers

(a) Global to Asia Guidance

Country	PoP	Melbourne	Perth	Sydney	Beijing	Guangzhou	Hong Kong	Shanghai	Jakarta	Osaka	Tokyo	Kuala Lumpur	Manilla	Singapore	Seoul	Taipei	Bangkok	Nonthaburi	Hanoi	Ho Chi Minh
Australia	Melbourne	0	53	19	189	160	158	171	124	160	156	125	155	113	177	173	151	147	177	164
Australia	Perth	53	0	70	148	107	107	141	71	152	148	72	102	60	145	125	98	94	129	112
Australia	Sydney	19	71	8	190	177	155	177	128	146	143	143	173	119	186	170	168	164	185	183
China	Beijing	189	148	190	0	41	55	25	106	71	68	97	77	95	93	74	109	113	77	107
China	Guangzhou	160	107	177	41	0	17	35	64	70	70	55	36	54	52	33	68	71	36	66
China	Hong Kong	158	107	157	55	17	8	48	59	70	74	52	34	50	52	33	64	68	36	66
China	Shanghai	171	141	177	25	35	48	0	99	48	45	90	70	89	80	67	102	106	70	100
Indonesia	Jakarta	124	71	128	106	64	57	99	0	100	98	31	61	21	103	84	55	52	87	70
Japan	Osaka	160	152	143	71	70	70	48	100	0	8	97	85	90	58	53	114	117	92	122
Japan	Tokyo	156	148	139	68	70	74	45	98	8	0	100	82	89	54	49	117	120	95	125
Japan	Yokahama	160	152	143	71	72	75	48	96	11	8	103	82	86	58	46	122	123	99	129
Malaysia	Kuala Lumpur	129	76	146	97	55	52	90	34	100	103	8	59	25	93	74	54	51	77	75
Phillippines	Manilla	158	106	173	77	36	34	70	63	85	82	59	8	53	74	54	84	81	58	87
Singapore	Singapore, TSD	116	63	119	95	54	50	89	21	93	90	22	49	8	92	72	45	41	76	62
South Kore	Seoul	180	145	186	93	52	52	83	104	61	58	93	74	92	8	70	106	109	74	104
Taiwan	Taipei	173	129	173	77	36	36	70	87	53	49	77	58	76	74	8	90	93	58	87
Thailand	Bangkok	151	98	168	109	68	61	102	55	124	125	51	84	45	106	86	0	8	90	97
Thailand	Nonthaburi	147	94	164	113	71	64	106	52	117	120	47	77	41	109	90	8	0	93	93
Vietnam	Hanoi	177	129	184	77	36	36	70	87	92	95	77	58	76	74	54	90	93	0	31
Vietnam	Ho Chi Minh	164	112	182	107	66	66	100	70	122	125	71	94	59	104	84	97	93	31	0
Belgium	Brussells	333	284	324	302	261	236	296	242	278	279	237	246	231	299	279	262	259	272	283
Czech Rep	Prague	351	301	340	290	248	248	283	259	301	298	252	266	248	286	267	263	266	270	280
Denmark	Copenhagen	339	301	334	309	268	251	302	257	289	286	254	254	247	306	286	279	276	287	292
France	Marseille	340	289	343	309	268	240	302	246	285	282	242	252	236	306	286	267	263	276	288
France	Paris	327	274	327	294	253	227	288	231	272	269	227	239	221	291	271	252	248	263	273
Germany	Dusseldorf	336	298	333	306	265	248	299	254	287	284	251	252	244	302	283	276	273	284	289
Germany	Frankfurt	338	286	326	275	233	233	268	244	278	275	239	234	233	271	252	250	253	255	254
Germany	Hamburg	335	297	328	305	263	247	298	253	280	281	250	248	243	301	282	275	271	283	288
Hungary	Budapest	363	315	351	304	262	262	297	273	306	303	264	271	262	300	281	275	278	284	285
Italy	Milan	353	304	341	292	251	251	285	261	293	290	254	249	251	289	269	265	268	273	269
Netherland	Amsterdam	327	288	332	296	254	244	289	245	293	290	240	258	235	292	273	266	262	275	280
Poland	Warsaw	359	311	344	299	258	258	292	268	300	297	260	265	258	296	276	271	274	279	279
Russia	Moscow	395	352	383	340	299	295	334	309	335	332	296	300	299	337	317	307	310	321	314
Spain	Barcelona	344	293	347	314	273	250	307	251	296	293	246	256	240	311	291	271	268	280	292
Spain	Madrid	346	296	343	316	275	248	309	253	294	291	248	258	243	313	293	274	270	282	294
Switzerlan	Zurich	346	296	339	284	243	243	277	253	295	292	247	252	243	281	261	258	261	265	266
India	Bangalore	174	121	180	156	115	112	150	79	153	150	81	110	68	153	133	106	102	133	120
India	Chennai	160	107	177	143	101	101	136	66	146	143	67	97	54	139	120	92	89	123	106
India	Delhi	213	163	213	199	158	147	192	116	186	183	123	153	106	196	176	148	145	167	162
India	Mumbai	207	156	201	192	151	131	185	105	176	173	116	146	96	189	169	141	138	161	155
Bahrain	Manama	225	210	244	201	160	160	194	130	205	201	125	155	120	198	178	151	147	182	184
UAE	Abu Dhabi	232	185	240	221	179	174	214	143	213	210	145	175	132	217	198	170	167	193	184
UAE	Dubai	241	196	235	231	190	165	224	139	210	207	155	184	130	228	208	181	177	195	194
Ireland	Dublin	339	311	335	336	294	263	316	261	288	289	268	284	251	320	308	293	290	295	297
UK	Birmingham	323	292	351	313	271	245	300	241	270	269	245	268	231	308	290	292	267	279	281
UK	Bracknell	317	282	347	302	261	236	296	232	263	265	235	259	222	304	279	283	256	270	272
UK	Bristol	319	284	350	305	263	238	300	234	268	267	237	261	224	308	282	285	259	272	274
UK	Glasgow	338	309	368	330	289	260	314	256	284	284	262	283	246	322	307	307	284	294	296
UK	Leeds	326	296	354	316	275	248	302	244	272	272	248	271	234	310	293	295	270	282	284
UK	Livingstone	334	305	363	325	284	256	316	252	286	283	258	279	242	324	302	303	279	290	292
UK	Manchester	328	298	357	319	277	250	305	246	275	274	251	273	236	313	296	297	273	284	286
UK	London	317	285	344	306	265	239	293	235	265	264	238	262	225	303	283	286	260	273	275
UK	Swindon	322	288	353	308	267	241	301	237	269	270	240	264	227	309	285	288	262	275	277
USA	Atlanta	257	304	243	259	258	258	236	286	194	198	282	273	277	245	240	305	308	279	303
USA	Chicago	268	314	253	270	263	263	247	291	208	205	287	278	282	256	252	310	313	298	308
USA	Dallas	223	273	212	233	213	222	210	243	154	157	244	230	234	220	215	261	264	261	272
USA	Houston	231	281	216	232	216	221	209	244	161	158	240	231	235	219	214	263	266	253	271
USA	Los Angeles	191	242	177	193	192	187	170	206	121	121	207	191	196	179	209	234	226	214	241
USA	Miami	297	360	306	318	302	296	296	324	234	237	319	310	314	305	318	343	338	346	359
USA	New York	255	311	261	270	260	254	247	275	185	188	276	261	265	256	276	301	293	298	310
USA	San Francisco	182	251	192	182	183	180	159	214	124	121	210	201	205	168	199	227	229	209	250

(b) Global to UK Guidance:

Country	PoP	Dublin	Birmingham	Bracknell	Bristol	Glasgow	Leeds	Livingstone	Manchester	London	Swindon
Australia	Melbourne	335	320	314	319	338	326	334	328	317	322
Australia	Perth	302	289	278	284	309	296	305	298	285	288
Australia	Sydney	335	347	344	350	368	354	363	357	344	353
China	Beijing	336	309	299	305	330	316	325	319	306	308
China	Guangzhou	294	268	258	263	289	275	284	277	265	267
China	Hong Kong	263	242	233	238	260	248	256	250	239	241
China	Shanghai	316	300	293	300	314	302	316	304	295	301
Indonesia	Jakarta	261	238	229	234	256	244	252	246	235	237
Japan	Osaka	288	270	260	272	284	272	286	273	265	269
Japan	Tokyo	289	267	263	267	284	272	283	274	264	268
Japan	Yokahama	289	283	274	279	301	289	297	291	280	282
Malaysia	Kuala Lumpur	271	273	264	269	291	279	289	281	270	272
Phillippines	Manilla	269	290	279	285	311	297	306	299	286	289
Singapore	Singapore, TSD	254	231	222	227	249	237	245	239	228	230
South Korea	Seoul	317	308	301	306	322	310	324	312	303	309
Taiwan	Taipei	304	314	305	310	332	320	328	322	311	313
Thailand	Bangkok	293	289	280	285	307	295	303	297	286	288
Thailand	Nonthaburi	290	263	253	259	284	270	279	273	260	262
Vietnam	Hanoi	288	276	267	272	294	282	290	284	273	275
Vietnam	Ho Chi Minh	290	278	269	274	296	284	292	286	275	277
Belgium	Brussells	55	30	26	32	49	36	45	38	27	33
Czech Republic	Prague	73	55	46	52	69	58	72	59	47	55
Denmark	Copenhagen	62	36	33	38	56	43	52	45	33	41
France	Marseille	70	44	34	39	64	51	60	53	40	43
France	Paris	55	30	21	26	49	36	45	38	27	29
Germany	Dusseldorf	59	33	30	35	53	39	48	41	30	38
Germany	Frankfurt	60	41	32	37	56	45	58	45	34	40
Germany	Hamburg	58	32	29	34	52	38	47	40	29	37
Hungary	Budapest	85	67	59	64	82	70	84	71	59	67
Italy	Milan	75	56	48	54	72	60	74	60	49	57
Netherlands	Amsterdam	48	24	21	26	43	30	38	32	21	29
Poland	Warsaw	81	63	55	60	76	66	80	67	55	63
Russia	Moscow	117	99	91	96	112	102	116	103	91	99
Spain	Barcelona	75	48	38	44	69	55	64	58	45	47
Spain	Madrid	77	51	40	46	71	58	67	60	47	49
Switzerland	Zurich	77	51	40	46	71	58	67	60	47	49
India	Bangalore	225	201	191	197	220	208	216	210	198	200
India	Chennai	232	209	203	208	227	215	223	217	206	211
India	Delhi	217	191	181	186	212	198	207	200	187	190
India	Mumbai	189	166	155	161	184	172	180	174	162	164
Bahrain	Manama	205	182	173	178	200	188	196	190	179	182
UAE	Abu Dhabi	201	182	176	184	196	184	198	186	179	181
UAE	Dubai	207	184	181	186	202	190	198	192	181	189
Ireland	Dublin	9	25	28	23	31	24	32	20	32	26
UK	Birmingham	26	8	14	11	24	15	23	11	17	12
UK	Bracknell	29	14	8	10	30	18	28	21	9	10
UK	Bristol	21	11	10	8	28	21	29	17	13	9
UK	Glasgow	31	24	29	28	8	15	9	16	26	31
UK	Leeds	24	13	18	21	15	8	13	9	14	20
UK	Livingstone	32	23	28	29	9	13	8	17	22	30
UK	Manchester	23	10	21	17	19	9	18	8	17	17
UK	London	32	14	7	13	26	14	22	17	8	14
UK	Swindon	25	12	9	9	31	20	30	16	14	8
USA	Atlanta	137	110	107	113	131	117	127	120	107	116
USA	Chicago	150	123	115	123	144	130	139	132	120	129
USA	Dallas	162	139	134	141	157	145	153	147	136	140
USA	Houston	163	137	133	139	158	144	153	146	133	143
USA	Los Angeles	182	168	165	166	186	174	182	176	165	169
USA	Miami	159	138	135	140	159	145	154	147	135	144
USA	New York	104	88	79	87	104	92	104	94	83	87
USA	San Francisco	179	162	158	164	179	167	178	169	158	166

Ethernet VPN and Ethernet Wireline Service

Coverage Bands and Frame Delay Service Degradation

Vodafone Business Customers

(c) Global to India, Middle East and USA

Country	PoP	Bangalore	Chennai	Delhi	Mumbai	Manama	Abu Dhabi	Dubai	Atlanta	Chicago	Dallas	Houston	Los Angeles	Miami	New York	San Francisco
Australia	Melbourne	170	160	213	207	222	232	241	257	268	223	231	191	297	255	182
Australia	Perth	117	107	163	156	169	185	196	304	314	273	281	242	360	309	251
Australia	Sydney	181	158	214	201	239	241	235	245	256	212	216	201	323	275	192
China	Beijing	153	143	199	192	198	221	231	259	270	233	232	193	318	270	182
China	Guangzhou	112	101	158	151	156	179	190	258	263	213	216	192	302	260	183
China	Hong Kong	112	91	147	134	156	174	168	258	263	225	224	189	299	257	180
China	Shanghai	146	136	192	185	191	214	224	236	247	210	209	170	296	247	159
Indonesia	Jakarta	76	62	116	105	127	143	139	286	291	243	244	206	324	273	215
Japan	Osaka	153	133	186	176	201	213	210	194	208	154	161	121	234	185	124
Japan	Tokyo	150	130	183	173	198	210	207	198	205	157	158	121	237	188	121
Japan	Yokahama	153	127	186	170	201	213	204	201	208	160	161	136	261	213	124
Malaysia	Kuala Lumpur	81	70	127	120	125	148	159	291	296	244	249	226	335	293	216
Phillippines	Manilla	110	100	156	150	155	175	184	273	278	230	231	191	310	259	201
Singapore	Singapore, TSD	68	53	109	96	116	136	130	277	282	234	235	199	314	266	205
South Korea	Seoul	150	139	196	189	194	217	228	248	260	223	222	223	332	290	213
Taiwan	Taipei	133	123	179	173	178	201	212	240	252	215	214	209	318	276	199
Thailand	Bangkok	102	92	148	141	147	170	181	305	310	269	268	234	343	301	227
Thailand	Nonthaburi	99	89	145	138	144	167	177	308	313	264	266	226	338	293	229
Vietnam	Hanoi	133	118	167	161	178	193	195	279	298	261	253	214	346	298	209
Vietnam	Ho Chi Minh	116	106	162	155	168	184	194	303	308	272	271	241	359	308	250
Belgium	Brussells	212	222	206	179	195	197	197	125	138	152	152	181	153	100	177
Czech Repub	Prague	231	246	227	201	219	213	221	145	158	169	171	198	173	116	193
Denmark	Copenhagen	218	228	213	185	201	212	203	132	145	164	159	187	160	112	188
France	Marseille	220	235	214	189	206	223	214	140	148	168	167	190	168	119	196
France	Paris	207	220	199	174	191	200	197	125	133	152	152	177	153	101	180
Germany	Dusseldorf	215	225	209	182	198	209	200	129	141	161	155	184	156	108	189
Germany	Frankfurt	218	232	212	186	204	200	208	130	143	156	156	185	158	102	178
Germany	Hamburg	214	224	208	181	197	208	199	128	140	160	154	183	155	107	184
Hungary	Budapest	243	258	240	215	231	225	233	159	171	181	185	210	186	127	204
Italy	Milan	233	248	229	204	221	215	223	147	160	171	174	200	175	117	194
Netherlands	Amsterdam	208	216	199	174	189	205	196	118	131	154	145	178	146	98	185
Poland	Warsaw	239	254	236	210	227	221	229	154	167	177	181	206	182	123	200
Russia	Moscow	275	290	277	247	263	257	265	196	208	213	221	242	223	159	235
Spain	Barcelona	224	239	219	193	210	220	214	145	153	172	171	198	173	123	200
Spain	Madrid	226	241	221	196	213	219	216	147	155	168	174	200	175	119	196
Switzerland	Zurich	226	241	221	196	213	217	216	139	152	169	166	193	167	118	197
India	Bangalore	8	29	64	46	177	186	191	299	309	294	285	259	329	268	258
India	Chennai	26	11	67	53	163	179	190	290	300	297	296	262	343	275	252
India	Delhi	64	63	0	33	220	223	224	288	296	317	314	292	315	267	295
India	Mumbai	46	53	33	0	213	217	209	262	270	281	275	280	290	232	289
Bahrain	Manama	177	167	223	216	9	35	27	279	288	297	290	318	307	248	302
UAE	Abu Dhabi	183	174	223	217	35	0	14	298	311	302	310	311	325	249	318
UAE	Dubai	191	169	224	209	27	14	0	288	300	299	301	320	315	250	309
Ireland	Dublin	222	232	217	189	205	201	207	137	150	162	163	187	160	105	180
UK	Birmingham	202	212	194	169	185	182	187	114	127	142	140	171	141	89	164
UK	Bracknell	194	205	184	159	176	176	184	110	123	139	137	168	138	80	161
UK	Bristol	196	207	186	161	178	184	186	113	123	141	139	170	140	87	163
UK	Glasgow	217	227	212	184	200	196	202	131	144	157	158	186	159	104	179
UK	Leeds	205	215	198	172	188	184	190	117	130	145	144	174	145	92	167
UK	Livingstone	213	223	207	180	196	198	198	127	139	153	153	182	154	101	178
UK	Manchester	207	217	200	174	190	186	192	120	132	147	146	176	147	94	169
UK	London	196	206	187	162	179	179	181	107	120	136	133	165	135	83	159
UK	Swindon	199	210	190	164	182	181	189	116	129	144	143	173	144	85	166
USA	Atlanta	299	290	288	262	279	298	288	0	54	36	28	66	69	23	81
USA	Chicago	309	300	296	270	288	311	300	54	0	37	46	85	82	34	89
USA	Dallas	294	275	317	281	297	302	299	36	37	0	13	48	105	56	52
USA	Houston	285	276	314	275	290	310	301	28	46	13	0	39	95	47	53
USA	Los Angeles	259	237	292	280	318	311	320	66	85	48	39	0	122	0	0
USA	Miami	329	336	315	290	307	325	315	69	82	105	95	122	0	48	135
USA	New York	265	278	267	235	251	249	253	26	34	58	51	0	52	0	0
USA	San Francisco	255	246	295	289	302	318	309	81	89	52	53	0	135	0	0

Ethernet VPN and Ethernet Wireline Service

Coverage Bands and Frame Delay Service Degradation

Vodafone Business Customers

(d) Global to Europe and Russia Guidance

Country	PoP	Brussells	Prague	Copenhagen	Marseille	Paris	Dusseldorf	Frankfurt	Hamburg	Budapest	Milan	Amsterdam	Warsaw	Moscow	Barcelona	Madrid	Zurich
Australia	Melbourne	333	351	339	340	323	333	338	335	363	353	327	359	395	344	346	346
Australia	Perth	284	301	301	289	270	294	286	297	315	304	288	311	352	293	296	296
Australia	Sydney	324	340	334	343	327	330	326	332	347	341	335	347	383	350	346	339
China	Beijing	302	290	309	309	291	302	275	305	304	292	296	299	340	314	316	284
China	Guangzhou	261	248	268	268	250	261	233	263	262	251	254	258	299	273	275	243
China	Hong Kong	236	248	251	240	224	245	233	247	262	251	244	258	295	250	248	243
China	Shanghai	296	283	302	302	284	296	268	298	297	285	289	292	334	307	309	277
Indonesia	Jakarta	242	259	257	246	228	251	244	253	273	261	245	268	309	251	253	253
Japan	Osaka	278	298	289	285	269	287	278	280	303	293	293	299	335	296	294	295
Japan	Tokyo	279	295	286	282	269	284	275	281	300	290	290	296	332	293	291	292
Japan	Yokahama	279	298	289	285	272	287	277	284	303	292	293	298	334	296	294	295
Malaysia	Kuala Lumpur	240	252	258	245	227	251	239	253	264	254	244	260	296	250	252	247
Phillippines	Manilla	246	266	257	252	236	255	237	248	271	252	261	265	300	256	258	255
Singapore	Singapore, TSD	231	248	247	236	217	241	233	243	262	251	235	258	299	240	243	243
South Kore	Seoul	299	286	306	306	288	299	271	301	300	289	292	296	337	311	313	281
Taiwan	Taipei	283	270	290	290	271	283	255	285	284	273	276	279	321	294	297	265
Thailand	Bangkok	262	269	279	267	248	273	250	275	275	265	266	277	313	271	274	264
Thailand	Nonthaburi	259	266	276	263	245	269	253	271	278	268	262	274	310	268	270	261
Vietnam	Hanoi	272	270	287	276	260	281	255	283	284	273	275	279	321	280	282	265
Vietnam	Ho Chi Minh	283	277	292	288	269	286	254	288	282	269	280	276	311	292	294	266
Belgium	Brussells	5	45	30	27	17	17	32	25	57	47	17	53	89	37	33	40
Czech Rep	Prague	45	8	56	56	38	49	18	28	44	33	34	39	77	61	63	26
Denmark	Copenhagen	30	56	5	56	38	18	41	31	68	59	23	64	100	61	63	51
France	Marseille	27	56	56	5	21	49	29	52	70	14	43	64	99	41	37	21
France	Paris	17	41	41	21	8	35	19	37	55	34	29	51	86	28	27	32
Germany	Dusseldorf	20	51	21	53	35	8	38	28	63	55	17	59	98	58	60	47
Germany	Frankfurt	32	18	41	29	19	35	5	37	30	20	29	26	66	46	48	13
Germany	Hamburg	25	25	31	52	34	25	37	5	30	54	13	24	62	56	59	46
Hungary	Budapest	57	44	68	70	52	63	30	33	8	46	41	47	82	75	76	38
Italy	Milan	47	33	59	14	34	52	20	54	46	5	45	41	83	63	66	12
Netherland	Amsterdam	17	43	23	43	26	17	29	19	56	45	11	52	93	47	49	37
Poland	Warsaw	53	39	64	64	47	59	26	27	47	41	35	8	78	70	72	34
Russia	Moscow	89	77	101	102	85	98	66	66	82	83	75	78	8	110	108	75
Spain	Barcelona	37	61	61	41	25	54	46	56	75	63	47	70	110	5	16	55
Spain	Madrid	33	63	63	37	27	56	48	59	76	66	49	72	108	16	5	58
Switzerlanc	Zurich	40	26	51	21	32	44	13	46	38	12	37	34	75	55	58	5
India	Bangalore	215	233	221	222	206	215	220	217	245	235	209	241	277	226	228	228
India	Chennai	222	246	228	235	216	222	232	224	258	248	220	254	290	239	241	241
India	Delhi	206	227	213	214	196	206	212	208	240	229	199	236	277	219	221	221
India	Mumbai	179	201	185	189	170	179	186	181	215	204	174	210	247	193	196	196
Bahrain	Manama	195	219	201	206	187	195	204	197	231	221	189	227	263	210	213	213
UAE	Abu Dhabi	197	213	212	223	200	206	200	208	225	215	205	221	257	220	219	217
UAE	Dubai	197	221	203	214	194	197	208	199	233	223	196	229	265	214	216	216
Ireland	Dublin	55	73	62	70	52	55	60	58	85	75	48	81	117	75	77	77
UK	Birmingham	33	56	39	47	30	33	41	35	67	57	27	63	99	52	54	54
UK	Bracknell	28	49	36	37	21	30	35	32	62	52	24	58	94	41	44	44
UK	Bradford	29	55	35	43	26	29	40	31	69	58	23	64	101	47	49	49
UK	Bristol	32	52	38	39	23	32	37	34	64	54	26	60	96	44	46	46
UK	Glasgow	49	69	56	64	46	49	56	52	81	72	43	77	112	69	71	71
UK	Leeds	36	58	43	51	33	36	45	38	70	60	30	66	102	55	58	58
UK	Livingstone	45	72	52	60	41	45	58	47	84	74	38	80	116	64	67	67
UK	London, Chart S	24	44	30	37	21	24	31	26	56	46	18	52	88	41	44	44
UK	Manchester	38	61	45	53	35	38	47	40	72	63	32	69	103	58	60	60
UK	Surrey Quays, L	27	47	33	40	24	27	34	29	59	49	21	55	91	45	47	47
UK	Swindon	33	55	41	43	26	35	40	37	67	57	29	63	99	47	49	49
UK	Wakefield, Tingl	36	58	43	51	33	36	45	38	70	60	30	66	102	55	58	58
USA	Atlanta	125	145	132	140	122	125	130	128	159	147	118	154	196	145	147	139
USA	Chicago	138	158	145	148	130	138	143	140	171	160	131	167	208	153	155	152
USA	Dallas	152	169	164	168	152	158	156	160	181	171	154	177	213	172	168	169
USA	Houston	152	171	159	167	148	152	156	154	185	174	145	181	221	171	174	166
USA	Los Angeles	181	198	187	194	178	181	185	183	210	200	178	206	242	198	200	193
USA	Miami	153	173	160	168	150	153	158	155	186	175	146	182	223	173	175	167
USA	New York	103	118	114	119	101	108	105	110	127	117	101	126	162	123	122	122
USA	San Francisco	177	192	192	196	180	186	179	184	203	194	185	200	236	200	196	193

Ethernet VPN and Ethernet Wireline Service

Definitions

Vodafone Business Customers

The following definitions are applicable to the Services:

Access Circuit	the network connection provided between the Service Demarcation Point at the Customer Site and the ingress/egress port of the Vodafone MPLS Core Network.
Acknowledge(s)(d)	a confirmation given to the Customer that a particular service request or Incident being raised is valid and the provision to the Customer of a unique reference for it.
Annual Measurement Period	the period of twelve months from the Service Commencement Date or each anniversary of the Service Commencement Date thereafter (or a period of twelve months as otherwise agreed between the Parties).
Committed Information Rate or **CIR**	the guaranteed amount of bandwidth that can be transmitted across an Ethernet Virtual Circuit.
Configuration Change(s)	a Project, Hard Configuration Change or a Soft Configuration Change(s).
Coverage Band(s)	one or more (as applicable) of the groups of coverage set out in the ("Coverage Bands and Frame Delay Service Degradation" section of these Service Specific Terms.
Enhanced CoS	has the meaning set out in the Service Specification.
Ethernet First Mile or **EFM**	the Ethernet access circuit is delivered using bonded copper pairs.
Ethernet Virtual Circuit or **EVC**	a point to point logical connection provided by Vodafone across the Vodafone MPLS Core Network which associates two Service Demarcation Points with each other.
Excluded Event	any of the following: (a) a fault or incident with any Vodafone service other than the Service purchased under these Service Specific Terms; (b) a fault or incident in, or any other problem associated with, non-Vodafone-supplied power, any Customer Equipment, equipment connected Customer's side of the Service Demarcation Point, non-maintained structured cabling or other telecommunications systems not operated or provided by Vodafone; (c) the fault or incident caused by Customer's negligence, act or omission or that of any third-party not within Vodafone's direct control; (d) Customer not performing or a delay in performing any of the Customer obligations or conditions of use set out in the Agreement; (e) Customer requesting Vodafone to modify a Customer Site, or test one although no Incident has been detected or reported in accordance with the Service Specific Terms; (f) Service suspension or a Force Majeure event in accordance with the General Terms; (g) the inability or refusal by a third-party supplier to provide or maintain the access circuit at a Customer Site; (h) a Configuration Change in the process of implementation; (i) an Outage;

	(j) Customer's failure to provide or delay in providing the necessary rack space and power required for the installation and operation of the CPE; (k) Customer's failure to supply all reasonable information required by Vodafone, including complete details of the Customer Site; (l) any degradation of performance that is caused by, or for any fault in, the access circuit that occurs as a result of, or in connection with, technical limitations beyond Vodafone's control (including, by way of example and without limitation, breaks in fibre that are (i) caused by a third party who is not controlled by Vodafone; or (ii) in fibre that is not owned or operated by Vodafone) or (iii) submarine cable breaks; (m) where a Service Credit is claimed for late repair, the Unavailability period relevant to this claim, will be excluded from the cumulative annual Service Availability calculation; (n) a fault or incident caused by failure at any other Customer Site; (o) Vodafone being unable to access or being delayed in accessing any equipment or the Customer Site (where a Customer Site visit is required) due to reasons outside its control, including, inclement weather or Customer's refusal to admit Vodafone; (p) any delay attributable to a Freeze Period; or (q) any other circumstances caused by events for which Vodafone is not liable in accordance with the terms of the Agreement, including delays attributable to excavation permissions or other local or national laws or regulations.
Extended Information Rate or **EIR**	the non-guaranteed amount of bandwidth that can be transmitted across the Customer-facing port on the CPE.
Frame Delay	the time taken by an Ethernet frame to be transmitted across the Vodafone MPLS Core Network, and is measured as an average round trip value for an Ethernet frame between the ingress and egress MPLS switches located with the Vodafone MPLS Core Network nodes.
Frame Delay Variation	the variation of the inter-Frame Delay and will be measured as the absolute variance between the Frame Delay seen on the individual Ethernet frames and the average Frame Delay between the ingress and the egress MPLS switches located within the Vodafone MPLS Core Network.
Frame Loss	the percentage of Ethernet frames lost between the MPLS switches located within the Vodafone MPLS Core Network.
FTTC	Fibre to the Cabinet and is an access circuit supplied by BT Openreach in the UK, and comprises the fibre circuit between the BT Local Exchange and the BT Street Cabinet and a circuit between the Street Cabinet and the Customer Site.
FTTP	Fibre to the Premises and is an access circuit supplied by Vodafone and other third parties in the UK, and comprises the fibre circuit between the local exchange or other point of presence ("**PoP**") and the Customer Site.
Hard Configuration Change	a change to the Service that requires Vodafone (or a Third Party Provider) to access a Customer Site and may include re-grading an Ethernet Virtual Circuit requiring an upgrade of the Access Circuit.

Incident	any fault, incident or problem which affects the Service provided to the Customer, excluding any fault, incident or problem with any other Vodafone service purchased under separate Service Specific Terms.
MPLS	multi-protocol label switching.
MTU	the maximum transmission unit and is the maximum transmittable packet size that can be used.
Network Termination Equipment (CPE)	the hardware and software used to terminate access to the Vodafone MPLS Core Network at a Customer Site.
Normal Change	a change that is not an emergency change or a standard change, and is listed as a "Normal Change" in the Service Request Catalogue. Normal changes follow the defined steps of the change management process implemented by Vodafone from time to time.
Outage	has the meaning set out in clause 1.2 of the Service Levels.
Peak Information Rate (PIR)	the maximum traffic rate available for a particular EVC.
Physical Port	an Ethernet interface on the CPE.
Premium CoS	has the meaning set out in the Service Specification.
Prioritisation Rate	the parameter controlled by BT Openreach in the Openreach network for FTTC and FTTP in which packets will be discarded above the prioritisation rate.
Project	work that it outside of the scope of a Hard Configuration Change and a Soft Configuration Change and may include: (a) proposal development; (b) project management; or (c) more than 20 changes grouped together for a Customer Site.
PSTN	the public switched telecommunications network.
Regrade	the increase of the Committed Information Rate of an EVC or Access Circuit.
Regrade Charge	the one off Charge to administer each Regrade request for an EVC made by the Customer.
Service Credits	the service credits payable by Vodafone to Customer in accordance with the provisions of these Service Specific Terms.
Service Degradation Targets	the targets set out in clause 3.3 of the Service Levels and/or Annex A to the Coverage Bands and Frame Delay Service Degradation.
Service Demarcation Point	the handoff between the Customer and Vodafone at the Customer Site and is the Customer-facing port on the CPE.
Service Level(s)	the service levels which apply to the provision of the Service as set out in the Service Levels.

Service Request Catalogue	the service request catalogue for the Services, as made available to Customer and updated by Vodafone from time to time.
Severity Level	a categorisation of the severity of an Incident as determined by Vodafone in Vodafone's discretion as set out in clause 2 of the Service Levels.
Soft Configuration Change	a single logical change to the Service, (that is not a Hard Configuration Change nor a Normal Change), and that Vodafone or a Third Party Provider can carry out remotely and may include maintaining or modifying the then current configuration of the Service, for example re-grading Ethernet Virtual Circuits within the maximum Access Circuit speed.
Standard CoS	has the meaning set out in the Service Specification.
Vodafone MPLS Core Network	the MPLS network operated by Vodafone.