Schedule 6.1 - Wholesale Bitstream Service (WBS) Service Description
SERVICE DESCRIPTION

WHOLESALE BITSTREAM SERVICE (WBS)

1. THE SERVICE

1.1 The Wholesale Bitstream Service (WBS) is a service which enables the Access Seeker to provide high speed products and services to its End Users via Connections over a digital pathway across the Access Provider’s Network.

1.2 The digital pathway consists of one or more Connections, involving one or more Access Links between End User Premises and one or more Aggregation Links.

1.3 The WBS Service is available to Access Seekers holding an ISP Class License.

2. DEFINITIONS

Capitalised terms not defined in this Service Description are defined in Schedule 8 - (Dictionary) of the Reference Offer. Terms defined in this Service Description are specific to it.

Access Link means the digital point-to-point communications between an End User Premises and the OLT nearest to that End User Premises.

Aggregation Link means the logical or physical link between an Aggregation Point and an Access Seeker’s Point of Presence. An Access Seeker shall have the Access Provider establish at least one Aggregation Link before the implementation of a New Connection Request.

Aggregation Point means the point on the Access Provider’s network where the Aggregation Link is connected.

Access Provider Exchange means an exchange which has OLTs installed at the time of the Service Request. The Access Seeker should have either physical or logical access to the Access Provider’s distribution points in order to conduct necessary end-to-end troubleshooting.

Cancellation Request means a Service Request for discontinuing a WBS Service.

Connection means the digital pathway that provides one end-to-end connection between one specific End User Premises and the Access Seeker’s POP.

End User Premises Equipment means a splitter and modem, or other equivalent technology, necessary to support the End User’s ability to use a WBS Service.

GPON means a gigabit passive optical network, an access technology used by the Access Provider to provide a fibre based Connection at a fixed location.

Invalid Transfer means a Service Request:

(i) where the End User (or its/her/his agent) did not request the services that the Access Seeker intended to supply via a WBS Service;

(ii) where in response to a reasonable and justified request from the Access Provider a valid written End User Consent cannot be produced by the Access Seeker to support the Service Request;

(iii) which resulted from a processing error; or

(iv) where a valid address is not provided.

IP means Internet protocol.

Network Boundary means, for a fibre based Access Link, the ONT at the End User Premises.
Non-Access Provider Equipment means any End User Premises Equipment which is not supplied, supported, and maintained by the Access Provider.

Non-residential means an End User with a commercial registration.

OLT means optical line terminal, network equipment in the Access Provider Exchange used in the provision of a WBS Connection.

ONT means optical network terminal, network equipment in the End User Premises used in the provision of a WBS Connection. The ONT is supplied, supported and maintained by the Access Provider and the Access Provider reserves the right to change or replace the ONT at any given time.

3. SERVICE TERMS

3.1 The WBS Service shall be made available to any End User on the basis of a Service Request of an Access Seeker.

3.2 The Access Seeker shall ensure the WBS Service is not subdivided or split between multiple End User Premises. Subject to providing reasonable notice to the Access Seeker to access the End User Premises, the Access Provider reserves the right to inspect the End User Premises to ensure the Connection is being provisioned in accordance with the terms of this paragraph.

3.3 There is no Minimum Service Period per Connection for the WBS Service.

3.4 Where the Access Provider has reasonable objective grounds to consider that the Access Seeker is in material breach of an obligation under paragraph 3.2 and after giving twenty (20) Working Days' notice to the Access Seeker to remedy such breaches, if left unremedied, the Access Provider may:

(a) suspend implementation by the Access Seeker of the WBS Service and/or

(b) take any other step contemplated by the Supply Terms to protect the Access Provider's Network or other interests.

3.5 In the event of material breach by the Access Seeker of paragraph 3.2, the Access Provider reserves the right to after giving twenty (20) Working Days' notice to the Access Seeker to remedy such breaches, if left unremedied, terminate those WBS Services that are the subject of the material breach.

3.6 If the Access Provider terminates the WBS Service in its entirety, then each WBS Service will terminate.

3.7 The Access Provider should ensure that all communications with the Access Seeker should be confidential and shall not be disclosed to other Licensed Operators.

4. END USER ACCESS

4.1 The Access Seeker acknowledges that where GPON fibre is available, the Access Provider will only supply a fibre-based WBS Service.

4.2 GPON fibre will be considered available where a fibre access cable has been dropped to the fibre distribution point nearest to that End User Premises and that End User Premises can be connected to the Network upon request within the timeframes provided for in Schedule 7 - (Service Levels) of the Reference Offer.
Installation or Transfer of End User Access

4.3 For each Service Request the Access Seeker shall inform the End User that the installation and operation of the WBS Service may require changes to the placement of existing telecommunications devices or changes of equipment.

4.4 Data transport using the WBS Service between an OLT and an Access Provider Aggregation Point, or between DSLAM equipment or MSAN equipment and an Access Provider Aggregation Point are available for the range of WBS products identified in Annex 2.

4.5 Maximum attainable WBS speed shall be subject to the physical distribution of the bandwidth of the splitter and the contention ratio set out at Annex 1 may be applied.

4.6 The Access Provider shall provide access to an online tool that identifies up-to-date digital coverage maps for the areas in Bahrain covered by the WBS Service and the maximum speed supported for each address (i.e., block or building) and the Connection type (i.e., copper or fibre) to ensure that the right service is offered by the Access Seeker to the End User. This online tool should be updated at least on a monthly basis.

4.7 The Access Provider is responsible to ensure that its Network has the required number of ports and Network elements to fulfill the Access Seekers' requests in a timely manner.

4.8 On the completion of a Service Request, the Access Provider will ensure that the WBS Service is tested in accordance with ITU Y.1564 standard.

5. MAINTENANCE

5.1 The Access Provider shall provide Network maintenance and support services in accordance with the Service Levels set out in Schedule 7 - (Service Levels) of the Reference Offer.

5.2 The Access Provider shall ensure that all of the Network elements used to provide the WBS Service are provided to the Access Seeker at the same level of quality of service and availability as provided for the equivalent WBS Service elements supplied to all Access Seekers.

6. EQUIPMENT

6.1 The provision of a WBS Service or the implementation or transfer of the WBS Service does not include the provision of any cabling or any End User Premises Equipment. The Access Provider shall clearly define the demarcation point of its access network and therefore of the WBS Service.

6.2 The Access Seeker shall ensure that Non-Access Provider Equipment this is supplied by the Access Seeker for the purposes of a WBS Connection:

(a) meets the specifications and requirements defined by relevant international telecommunications and engineering standards; and

(b) is equipment approved under Article 38 of the Law.

7. CONNECTION

7.1 The Access Provider shall connect the WBS Service by the relevant RFS Date. The Access Provider shall notify the Access Seeker when the Connection has been effected in accordance with the Service Request procedures set out in this Service Description.
7.2 Except for any Service Level Penalties specified in Schedule 7 - (Service Levels) of the Reference Offer, the Access Provider shall not be liable for any inconvenience, loss or damage suffered by the Access Seeker, or by an End User, if the Access Provider does not connect the WBS Service by the RFS Date.

8. SERVICE REQUEST PROCESS

8.1 The Access Provider and the Access Seeker shall comply with this paragraph 8 of the Service Description when processing and/or fulfilling any Service Request.

8.2 The Access Seeker shall establish robust procedures to ensure an appropriate End User Consent is received and properly recorded before any Service Request is notified to the Access Provider.

8.3 The Access Seeker shall, upon a reasonable and justified request, provide the Access Provider with a copy of the End User Consent. The Access Provider shall treat the copy of the End User Consent as confidential and shall not disclose a copy of the End User Consent to other Licensed Operators under any circumstances.

Service Request

8.4 The Access Provider shall send the Access Seeker an acknowledgement of the Service Request within fifteen (15) minutes of receipt of the Service Request. If the Service Request is submitted outside Working Hours, the Access Provider shall acknowledge the Service Request within fifteen (15) minutes following the start of the first Working Hour after receipt of the Service Request.

8.5 A Service Request must be in the format notified by the Access Provider from time to time, and be submitted by electronic mail (or other electronic format, which may include via an online digital interface) to the address notified to the Access Seeker by the Access Provider, from time to time.

8.6 The Access Provider shall, within one (1) Working Day of receipt of any Service Request, notify the Access Seeker whether the Service Request is:
(a) accepted; or
(b) rejected.

8.7 The Access Provider may reject a Service Request if it:
(a) is incomplete or incorrect or illegible or cannot reasonably be understood;
(b) does not properly identify the End User Premises (including such identification in line with paragraph 1.3); and/or
(c) it is an Invalid Transfer.

8.8 At the time of rejection, the Access Provider shall provide sufficiently detailed written reasons for rejection to the Access Seeker.

8.9 The Access Provider may in its sole discretion elect to accept any Service Request notwithstanding that there is any defect in that Service Request if the Access Provider considers that such defect does not have a material effect on the Access Provider's ability to process the Service Request and provide the WBS Service.

8.10 The Access Provider shall within one (1) Working Day from the acceptance of the Service Request provide the Access Seeker with Notification of the Expected RFT and RFS Dates.
WBS Change Request

8.11 To initiate a WBS Change to an existing WBS Service used by the Access Seeker to supply a service to an End User, the Access Seeker shall provide the Access Provider with a properly completed WBS Change Request, in the format notified by the Access Provider from time to time, submitted by electronic mail (or other electronic format, which may include an online digital interface) to the address notified to the Access Seeker by the Access Provider, from time to time.

8.12 The Access Provider shall respond to the WBS Change Request in accordance with the process detailed for Service Requests at paragraphs 8.6 to 8.8 inclusive.

8.13 In addition to the rejection reasons set out at paragraph 8.7, the Access Provider may also reject a WBS Change Request if it is not submitted in accordance with paragraph 8.11.

8.14 The Access Provider may in its sole discretion elect to accept any WBS Change Request notwithstanding that there is any defect in that WBS Change Request, if the Access Provider considers that such defect does not have a material effect on the Access Provider’s ability to process the WBS Change and provide the WBS Service.

Batches

8.15 The Access Seeker must submit Service Requests to the Access Provider in batches of no more than ten (10) Service Requests. Batches must be:

(a) submitted to the address notified by the Access Provider from time to time;
(b) submitted by authorised personnel of the Access Seeker;
(c) comprise only Service Requests that comply with the requirements of this Service Description;
(d) identified by a unique batch number generated by the Access Seeker.

8.16 The Access Provider shall only accept batches of Service Requests that:

(a) comply with the requirements set out in paragraph 8.15;
(b) do not exceed the maximum number of ten (10) batches per day.

8.17 If any batch of Service Requests contains one or more Requests that contains one or more defects, the Access Provider shall:

(a) reject the defective Service Requests by returning them to Access Seeker; and
(b) continue to process the valid Service Requests within the same batch.

Completion of Request

8.18 If the Access Provider notifies the Access Seeker that the Service Request is accepted, then the Access Provider shall, subject to the exceptions, limitations and conditions specified in this Service Description and/or Supply Terms, provision and deliver the WBS Service on or before the RFS Date and in accordance with Schedule 7 – (Service Levels) of the Reference Offer.

8.19 The Parties acknowledge and accept that exceptional circumstances, such as those set out below, may give rise to delays in any stage of the acceptance, provisioning and delivery of a Service Request. If the occurrence of any of the events below takes place, the Access Provider shall communicate the Exceptional Delivery Date to the Access Seeker and shall not be held liable for the Service Level Penalties. The exceptional circumstances shall only comprise:

(a) a Force Majeure Event or a Regulatory Event;
(b) Emergency Maintenance, or
(c) any material breach of the Access Seeker’s obligations.

8.20 The Access Provider shall, in notifying the Access Seeker of the Exceptional Delivery Date, provide sufficient evidence so as to justify the reasons for the delay of the delivery.

8.21 The Access Provider shall not be obliged to further process a Service Request where:
(a) the relevant WBS Service cannot meet Service Qualification, or
(b) following the provision of reasonable notice by the Access Provider, an authorised person from the End User or the Access Seeker is not available to provide further information when requested.

Notification of Completion of Request

8.22 The Access Provider shall, on the same Working Day of completion of a Service Request or a Change Request, notify the Access Seeker of completion.

8.23 In the case of a Service Request, the Access Provider is entitled to rely on a Request as evidence that the relevant End User:
(a) has given a valid End User Consent in relation to the requested Service Request; and
(b) in the case of a Change Request understands and has requested the Change.

Reversal of a Service Request

8.24 At any time following the successful completion of a WBS Service Request, the previous Access Seeker may make a request to the Access Provider to reverse the WBS Service Request where there has been no consent provided by the End User for the Service Request to the new Access Seeker.

8.25 The Access Provider shall, on the same Working Day of completion of a Reversal Request notify the Access Seeker that the Reversal Request has been processed.

9. CHARGES

9.1 The Access Seeker shall pay to the Access Provider the relevant Charges set out in Schedule 3 - (Pricing) of the Reference Offer.

9.2 All Charges and sums due from one party to the other under this Agreement are exclusive of VAT. Any VAT shall be charged in accordance with the relevant regulation in force at the time of making the taxable supply and shall be paid by the paying party following receipt from the billing party of a valid VAT invoice.

10. RESPONSIBILITIES

10.1 From the time of the completion of a WBS Transfer Request, the relevant End User will no longer be a customer of the Licensed Operator who was previously the Access Seeker supplying services to them using the WBS Service, but will instead (in respect of the relevant services) become a customer of the Access Seeker to whom the WBS Service has been transferred.

10.2 From the time of completion of a WBS Transfer Request, the Access Seeker shall provide End User Management to support the WBS Services. However, if requested by the Access Seeker, the Access Provider shall provide technical support in relation to problems End Users may report with services supplied to the End Users using the WBS Service, including
fault management and support and maintenance for which the Access Seeker shall pay the charges set out in Schedule 3 - (Pricing) of the Reference Offer.

10.3 Following completion of its own Fault diagnosis the Access Seeker shall contact the Access Provider for all maintenance, replacement or repair of the WBS Service and the Network on the Access Provider's side of the Network Boundary and will pay the Access Provider the Charges at the rate specified (or if not specified, on a time and materials basis) for all such work.

10.4 The Access Seeker is responsible for billing the customer for the services supplied to End Users using the WBS Services provided since the date of the completion of the Service Request.

10.5 In respect of each Service Request submitted by the Access Seeker to the Access Provider, the Access Seeker shall ensure that:

(a) the Access Seeker has a valid End User Consent;
(b) the Access Seeker retains records of the End User Consent and the retention is in accordance with the reasonable and justified requirements notified to the Access Seeker by Access Provider from time to time;
(c) the Access Seeker has used its reasonable endeavors to ensure that the information in the Service Request is complete and correct;
(d) the processing of each Service Request, at the time it is submitted, does not breach any party's contractual or other rights (however, a valid End User Consent shall be deemed to be a valid notification to the Access Provider to terminate the relevant Access Provider services);
(e) the Access Seeker has used its reasonable endeavors to provide the End User with sufficient information to make an informed choice about transferring their service, including informing the End User that:
   (i) the End User remains liable for the amount of any pre-existing charges and possible termination expenses; and
   (ii) the Access Seeker has complied with any relevant legislation or other industry code of practice.

10.6 The Access Seeker shall in respect of this WBS Service comply in all respects with its obligations under Article 78 of the Law and any regulation or decision issued by the Regulator in relation to lawful access.

10.7 The Access Seeker indemnifies the Access Provider, subject to the Access Provider using all reasonable endeavors to mitigate the effect of the occurrence of the indemnified event, in respect of any loss, liability or cost incurred by the Access Provider (including third party claims or claims by any End User) in connection with a breach by the Access Seeker of the warranties given under this Service Description.

11. BILLING PERIOD

11.1 The Billing Period in respect of the WBS Service shall be thirty (30) days. The Billing Period shall commence on the date of the first billing date of the Access Provider billing cycle after the Service Commencement Date and may include billing on a pro rata time basis for the period between the Service Request to the next billing cycle to ensure compatibility with the Access Provider billing cycle.
12. AGGREGATION LINK

12.1 Following a request from the Access Seeker, the Access Provider shall provide a 10Gbit/s WBS Service Aggregation Link at the Charges set out in Schedule 3 - (Pricing) of the Reference Offer.
ANNEX 1
WBS PRODUCT LIST

WBS Services are defined for both residential End Users and Non-Residential End Users and are defined with packet access contention ratios as shown in the tables below.

<table>
<thead>
<tr>
<th>Residential (Contention Ratio 15:1)</th>
<th>Non-Residential (Contention Ratio 8:1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Download Speed</strong></td>
<td><strong>Upload Speed</strong></td>
</tr>
<tr>
<td>256kbit/s</td>
<td>64kbit/s</td>
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<tr>
<td>512kbit/s</td>
<td>128kbit/s</td>
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<tr>
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<tr>
<td>40Mbit/s</td>
<td>5.048Mbit/s</td>
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<tr>
<td>80Mbit/s</td>
<td>10.048Mbit/s</td>
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<tr>
<td>100Mbit/s</td>
<td>10.048Mbit/s</td>
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</tbody>
</table>

Aggregation Link 1Gbit/s
Aggregation Link 10Gbit/s (on request)
ANNEX 2
WBS SERVICE – TECHNICAL DIAGRAM

DSL Based Network Topology:

GPON Based Network Topology:
1. Example: OLO 1 Service VLAN such as HSI, VoIP or STB from HDO is passed to the OLT. The OLT adds User tag as C VLAN. S+C represents per service per user per OLO per OLT.

2. S+C VLAN is transmitted transparently through MPLS network to OLO BRAS.
Schedule 6.2 - Wholesale Data Connectivity (WDC) Service Description
SERVICE DESCRIPTION

WHOLESALE DATA CONNECTION SERVICE (WDC)

1. THE SERVICE

1.1 The Wholesale Data Connection (WDC) Service provides symmetric, synchronous, dedicated and uncontended data connectivity within the Kingdom of Bahrain between:

(a) two of the Access Seeker's Points of Presence; or
(b) an Access Seeker's Point of Presence and its End User Premises; or
(c) an Access Seeker's Point of Presence and the Point of Presence of another Licensed Operator.

1.2 The WDC Service is provided with a number of options. These are specified in Annex 1 of this Service Description.

1.3 The WDC Service is available to Access Seekers that are Licensed Operators.

1.4 The WDC Service provides the following Quality of Service performance:

(a) Round Trip Delay (Frame Transfer Delay): 2ms
(b) Jitter (Frame Delay Variations): 0ms
(c) Frame Loss Ratio: 0%

2. DEFINITIONS

Capitalised terms not defined in this Service Description are defined in Schedule 8 - (Dictionary) of the Reference Offer. Terms defined in this Service Description are specific to it.

Aggregation Link means the connectivity established between a Point of Presence of the Access Seeker and an Access Provider access node, as further detailed in Annex 2 and Annex 3 of this Service Description.

Connection means an individual WDC Service as described in paragraph 1.1.

Customer Premises Equipment or CPE means the Equipment more particularly specified under Annex 2 (Technical Characteristics) of this Service Description.

Minimum Service Period means an applicable minimum period of twelve (12) calendar months for which the WDC Service shall be provided, such period commencing from the Service Commencement Date.

Renewed Minimum Service Period means an applicable minimum period of one (1) calendar month for which the WDC Service shall be provided, such period commencing from the expiry of a Service Period.

Service Period means the Minimum Service Period or Renewed Minimum Service Period.

WDC Amended Service means a WDC Service that is amended by a Change Request.

3. FORECASTING

3.1 The Access Seeker shall provide the Access Provider with a no1-binding forecast of the number of new Connections. These forecasts shall be provided every quarter (three (3) months) commencing from the Service Commencement Date.
3.2 The period of each forecast shall cover the following information for the subsequent five (5) quarters:
   (a) The number of new Connections per Access Provider exchange area; and
   (b) Capacity required per new Connection.

3.3 The Access Seeker shall use all reasonable endeavours to forecast accurately given that the Access Provider is placing reliance on those forecasts. The forecasting process is set out in Schedule 5 - (Forecasting) of the Reference Offer.

3.4 New Connections can only be guaranteed to be provided up to the numbers forecasted. For actual new Connections in excess of those forecasted, the Access Provider shall take all reasonable endeavours to provide those Connections requested but cannot guarantee that they will be provided within the timescale set out in Schedule 7 – (Service Levels) of the Reference Offer.

3.5 The forecast provided represents a good faith expectation of the Access Seeker of its requirement for new Connections. In the event that the actual number of new Connections is less than forecasted, no penalty will be incurred by the Access Seeker.

Supply of Service

3.6 The Service Level Terms shall apply to:
   (a) New Connection - provide a new WDC Service as requested by the Access Seeker;
   (b) Upgrade or Downgrade;
   (c) Reconfiguration - reconfigure technical parameters of an existing Connection; and
   (d) Cancellation - the Access Seeker requests the cessation of an existing Connection

3.7 The Access Provider shall make available to the Access Seeker an online facility for the purpose of identifying currently available fibre as well as planned fibre deployment.

3.8 The Access Seeker shall submit a Service Request to the Access Provider to request supply of the WDC Service in the manner communicated by the Access Provider.

3.9 The Access Provider shall within two (2) Working Days notify the Access Seeker if the Service Request is accepted or rejected and where applicable state the required corrections.

3.10 In the event a Service Request is rejected then the Access Provider shall provide the Access Seeker with clear reasons for the rejection at the same time of the rejection and identify the changes required to enable the Service Request to be accepted.

3.11 If the Access Seeker submits a Cancellation Request three (3) or more Working Days after the Notification of Expected RFT and RFS Dates and where this is not related to delay in the Actual RFT Date or Actual RFS Date by the Access Provider, the Access Seeker shall (subject to receipt of an appropriate invoice) be liable to pay one (1) MRC to the Access Provider.

3.12 Within five (5) Working Days from the date of the acceptance of the Service Request, the Access Provider shall notify the Expected RFT and RFS Dates to the Access Seeker in writing, as specified in Schedule 7 – (Service Levels) of the Reference Offer. The Access Provider reserves the right to reject the Service Request during this stage if it is found that the WDC Service is not supported or if the Access Provider's point to point fibre network does not extend to the requested area within the Kingdom of Bahrain.
3.13 The Access Provider shall deliver the WDC Service on or before the standard time scales summarised in Schedule 7 – (Service Levels) of this Reference Offer. The Parties acknowledge and accept that exceptional circumstances, such as those set out below, may give rise to delays in any stage of the acceptance, provisioning and delivery of a Service Request. If the occurrence of any of the events below takes place, the Access Provider shall communicate the Exceptional Delivery Date to the Access Seeker and shall not be held liable for the Service Level Penalties. The exceptional circumstances shall only comprise:

(a) a Force Majeure Event or a Regulatory Event;
(b) Emergency Maintenance; or
(c) any material breach of the Access Seeker’s obligations.

The Access Provider shall, in notifying the Access Seeker of the Exceptional Delivery Date, provide sufficient evidence so as to justify the reasons for the delay of the delivery.

3.14 If the Access Provider’s technician shall be present at the End User Premises to install a WDC Service, and if, for any reason, the Access Seeker and/or the End User cannot be available on the Expected RFT Date for such installation, the Access Seeker shall give the Access Provider a minimum written notice of one (1) Working Day. The new dates for RFT and RFS are then set following the below principles:

(a) The Access Provider shall propose the next earliest dates for which an Access Provider technician would be available for the installation which shall be a minimum of one (1) Working Day notice, unless waived by the Access Seeker. The earliest proposed date(s) shall not exceed two (2) Working Days from the RFT and RFS Dates.

(b) The Expected RFS Date is also modified and is set apart from the Expected RFT Date by the Maximum Validation Time of three (3) Working Days (see Schedule 7 – (Service Levels) of the Reference Offer). The Maximum RFS Date is then set equal to the Expected RFS Date.

(c) The Access Provider shall send the Access Seeker a Notification of Expected RFT Date and Expected RFS Date.

3.15 In addition, if at least one of the following two conditions is met (i) the Access Seeker does not provide the Access Provider a minimum written notice of two (2) Working Days to inform of its unavailability; or (ii) the Access Provider sends a technician who is not able to access the site to install the WDC Service, then except for the cases of Force Majeure affecting the Access Seeker, the Access Seeker is liable to pay the installation and configuration charge for the requested WDC Service as specified in Schedule 3 - (Pricing) of the Reference Offer. In such case, the modification and Notification of the Expected RFT Date, the Expected RFS Date, and the Maximum RFS Date follow the same principles as described in paragraph 3.14.

3.16 The Access Provider technician shall attend the Access Seeker site or the End User Premises during Working Hours and at least have called the Access Seeker’s representative if it appears that the Access Seeker’s technician is not present at the relevant time (and where necessary provide evidence of this). The Access Seeker shall, in this case, be liable to pay only the incurred manday costs of the Access Provider technician.

3.17 In addition, if the Access Provider does not provide the Access Seeker with a written notice of a minimum of two (2) Working Days to rearrange a site visit under paragraph 3.16 above, then the Access Provider is liable to waive an amount equal to one installation and configuration charge for the WDC Service.
3.18 Subject to the Access Seeker fulfilling its obligations set out in paragraphs 3.29 to 3.34 below, the Access Provider shall provide and the Access Seeker shall acquire the WDC Service either within the standard timescales or by the Exceptional Delivery Date as appropriate. The Service Levels shall not apply for new Connections exceeding the forecast parameters in paragraph 3.1.

3.19 Where the Access Provider has accepted a Service Request which requires the deployment of fibre access in a particular area, the Access Provider may also seek to recover the costs of such deployment through a NRC when the additional passive infrastructure required would be for the Access Seeker’s exclusive use in the foreseeable future. Such instances shall be determined on an ad-hoc basis and include, but are not limited to, the following examples:

<table>
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<tr>
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<th>Further details</th>
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<tbody>
<tr>
<td>1</td>
<td>Deploying a new fibre access cable (In addition, construction of new ducts and other underground infrastructure may be required in some sections). The Access Provider shall recover the costs incurred in building the portion of fibre access which corresponds to the path from the building (or radio site) to the nearest street/road where an existing duct is available. The costs that are recoverable exclude any additional underground infrastructure (e.g. manhole or manhole) built on the main duct path in the street/road and used to connect to the building (or radio site). The recoverable portion of civil works per fibre access shall be zero, as this is being recovered through the MRC. Payment by the Access Seeker should be made against the Access Provider’s submission of an itemised invoice and a map detailing the work performed.</td>
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<tr>
<td>2</td>
<td>Deploying a redundant fibre path to a location (In addition, construction of a new duct lead-in, new ducts and other underground infrastructure may be required in some sections). The Access Provider shall be able to fully recover the costs incurred in deploying a new fibre protection path by charging the Access Seeker a NRC. Payment by the Access Seeker should be made against the Access Seeker’s submission of an itemised invoice and a map detailing the work performed.</td>
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<tr>
<td>3</td>
<td>Deployment of fibre access within privately owned property (In addition to the fibre access cable, construction of new ducts and other infrastructure may be required e.g. distribution panel and boxes, fibre cables in risers etc.). The Access Provider shall be able to fully recover, on a time and material basis, the costs incurred in deploying a fibre access within a privately owned property by charging the Access Seeker a NRC. Payment by the Access Seeker should be made against the Access Provider’s submission of an itemised invoice (broken down by time and materials) and, if available, a map detailing the work performed.</td>
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3.20 Withdrawal of a speed as a result of any amendments to this Service Description approved by the Regulator will not affect the unexpired portion of any Service Period of a WDC Service unless the Access Provider is willing to Upgrade the product for the same Charge.

3.21 The technical specifications of the WDC Service and protection options available for the WDC Service to Access Seekers are set out in Annex 1 and Annex 2 to this Service Description.

3.22 Upon request from an Access Seeker and where a second ingress port is available on the Customer Premises Equipment, the Access Provider shall allow an Access Seeker to ingress its traffic on a second ingress port of the Customer Premises Equipment (free of charge) provided for a WDC Connection or WDC Aggregation Link.

3.23 The Access Provider shall provide to the Access Seeker a monitoring tool, which shall enable the Access Seeker to monitor the WDC Service against the following minimum parameters. This monitoring tool shall provide monitoring facilities 24 hours a day, 7 days a week, 365 days a year. The minimum parameters shall include:

(a) Link availability;
(b) Bandwidth Utilisation;
(c) Latency per circuit;
(d) Jitter per circuit; and
(e) Round trip delay per circuit

Termination

3.24 Where the Minimum Service Period has not expired, the Access Seeker shall be entitled to terminate the WDC Service on at least one (1) month’s written notice to the Access Provider and shall be liable to pay liquidated damages as calculated by the following formula.

Formula for calculating liquidated damages:

\[ LD = \text{MRC} \times (12-\text{M}) \]

where:

LD = liquidated damages to be paid.

MRC = Monthly Recurring Charge for the WDC Service.

M = number of months between the Actual RFS Date and the removal order date rounded-up to the next full month.

3.25 The Access Seeker expressly acknowledges that liquidated damages as calculated above form a reasonable pre-estimate of the loss which the Access Provider would suffer as a result of early termination by the Access Seeker. Such liquidated damages shall be the Access Provider’s sole and exclusive damages or monetary remedy for such early termination.

3.26 Following the expiry of any Minimum Service Period the WDC Service shall be automatically renewed for successive Renewed Minimum Service Periods unless and until terminated by the Access Seeker, provided that the Access Seeker supplies the Access Provider with a termination notice at least one (1) month prior to the expiry of the current Service Period.
Amendment to the WDC Service

3.27 The Access Seeker shall be entitled to amend a WDC Service by requesting a WDC Amended Service where this is an Upgrade by providing an Upgrade Request to the Access Provider. The Access Seeker shall only be entitled to Downgrade the throughput of a Connection when the Minimum Service Period has expired. Where the Access Seeker requests a WDC Amended Service, then the Service Request procedure set out in this Service Description shall apply to that request. Where the Access Seeker requests a WDC Amended Service that requires any new Network resources and/or facilities then a new Minimum Service Period shall commence and the Access Provider shall provide a WDC Amended Service for the new Service Period.

3.28 The Access Seeker shall not be liable for any termination or additional recurring charges in respect of a request for a WDC Amended Service which is for a relocation. The Access Provider shall charge a once off charge in accordance with Schedule 3 - (Pricing) of the Reference Offer for the relocation unless the Access Seeker requires both Connections to be operational in parallel. The Access Provider shall not terminate the Connection which is subject to relocation until the Service Commencement Date of the new Connection.

Access Seeker Obligations

3.29 The Access Seeker shall provide the Access Provider with suitable space for, and access during Working Hours to, any the Access Provider Equipment required to be located in any building in which the WDC Service is located within the control of the Access Seeker. If consent is required from a third party, such as the building owner, the Access Seeker shall procure such consent. The Access Provider is not required to pay the Access Seeker for the preparation or use of, or access to, space provided pursuant to this sub-paragraph.

3.30 Where an End User Premises is a VIP location in the Kingdom of Bahrain which is not subject to the exemption under the Law, the Access Seeker may request use of the Access Provider VIP team (free of any additional charge), if the Access Seeker can provide to the Access Provider a written valid official justification for the need for such services from the Regulator or an equivalent authority. On or before receipt by the Access Provider of the written valid official justification, the Service Request shall be suspended pending receipt of a written confirmation of the approval or if is not received within thirty (30) days of the Service Request, a cancellation.

3.31 If the Access Provider’s Equipment requires electricity supply and electricity connection points, they shall be supplied, in the location specified by the Access Provider, by the Access Seeker at the Access Seeker’s expense according to the equipment specification. Such electricity shall be available at the same level of supply, protection and continuity as that available to the Access Seeker’s or End User’s Equipment, as appropriate.

3.32 The Access Seeker shall be solely responsible for any loss, theft or destruction of, or damage (reasonable wear and tear excepted) to the Access Provider’s Equipment required to be located in the building where the WDC Service is provided and which is within the control of the Access Seeker or End User, occurring any time and howsoever caused (unless caused by the Access Provider or its agents).

3.33 The Access Seeker shall provide the Access Provider and any authorised employee, agent, affiliate or contractor of the Access Provider with all information and assistance that person may reasonably require to design, test, commission and maintain the WDC Service (which may include participation in testing procedures as and when reasonably requested by the Access Provider).
3.34 The Access Seeker may require their agent to be present during the installation, testing or commissioning done by the Access Provider but not so as to affect the Service Commencement Date.

**Variation or Withdrawal**

3.35 The Access Provider may upon providing three (3) months’ written notice to the Access Seeker and subject to the approval of the Regulator, vary the WDC Service or withdraw the WDC Service relating to these terms and Annexes, by issuing a revised Service Description.

3.36 Notwithstanding paragraph 3.35 above, unless the Access Provider and Access Seeker agree otherwise at the time, any withdrawal or variation of the WDC Service, or any amendment to the Charges payable for the WDC Service in accordance with this Service Description and Schedule 3 – (Pricing) of the Reference Offer, shall also apply to existing WDC Services provided under the Supply Terms, which shall continue in force in accordance with its terms and conditions until renewed or terminated in accordance with this Service Description or the Supply Terms.

**Planned and Emergency Maintenance**

3.37 The Access Provider may suspend any WDC Service in order to carry out Planned or Emergency Maintenance.

3.38 In the case of Planned Maintenance, this shall be carried out as far as possible during the night or at weekends or other quiet periods. The Access Provider shall give ten (10) Working Days’ notice of each Planned Maintenance activity affecting a particular WDC Service or group of WDC Services. This shall include the circuits affected, the date and time of the suspension and the likely duration of the suspension. The Access Provider shall use its reasonable endeavours to take into account the reasonable operational concerns of the Access Seeker before implementing any Planned Maintenance.

3.39 In the case of Emergency Maintenance the Access Provider shall give the Access Seeker via email five (5) Working Days’ notice in advance. The notice shall include the affected circuit(s), the date and time of the Emergency Maintenance and the expected duration of the Emergency Maintenance. The Access Provider shall use its best endeavours to carry out maintenance outages as much as possible during the night, at weekends or at a time agreeable with the Access Seeker.

3.40 In cases of Emergency Maintenance the Access Provider shall advise the Access Seeker within five (5) hours after service is restored with a report of the cause of the Fault.

**Maintenance and support**

3.41 The Access Provider shall provide maintenance and support services in respect of the WDC Service in accordance with the Schedule 7 – (Service Levels) of the Reference Offer.

3.42 The Access Seeker shall report a Fault to the Access Provider nominated contact point which shall be available twenty-four (24) hours per day every day. The Access Provider shall record the Fault using a unique reference number which it shall pass to the Access Seeker at the same time as acknowledging the Fault in accordance with Schedule 7 – (Service Levels) of the Reference Offer. The Access Provider shall commence repair of the Fault within:

(a) One (1) hour during Working Hours; or
(b) Two (2) hours outside of Working Hours,
from the time of the Access Seeker reporting the Fault, and shall restore the WDC Service in accordance with the Service Levels. The Access Provider shall advise the Access Seeker's nominated contact point once the Fault is clear and both parties shall record the time of this clearance.

Protection

3.43 The Access Provider shall provide full physical and logical protection only for the WDC Aggregation Link by default.

3.44 The Access Seeker may request an optional level of protection for the access network part of the WDC Connections and WDC Aggregation Links as further detailed in Annex 2 and at Charges set out in Schedule 3 – (Pricing) of the Reference Offer. If the Access Seeker opts for protection of a particular WDC Connection then the Access Provider shall also provide free of charge premium support (Premium Support) services for that Connection, the details of which are set out in the Schedule 7 – (Service Levels) of the Reference Offer.

3.45 Maximum level of protection is available for a WDC Connection (that is, full end-to-end physical path redundancy coupled with logical protection) at a Charge of 30% premium in addition to the applicable MRC.

3.46 During the provisioning of a WDC Connection for which protection is required, the Access Provider shall provide the Access Seeker with the technical details regarding the protection solution, including the following:

(a) the service configuration;
(b) a geographic map of the duct path used by the access fibre cable of the primary and the secondary WDC Connection (from the End User Premises or Point of Presence to the Access Provider's Service Node); and
(c) the relevant acceptance tests for both the primary and secondary end-to-end WDC Connections at RFS (after provisioning). The tests shall include a simulations of the failure of the Primary Connection.

3.47 If the Access Seeker has more than one WDC Aggregation Link and requires a WDC Aggregation Link with protection, the Access Seeker should indicate for such WDC Connection:

(a) the WDC Aggregation Link that will be the primary Aggregation Link;
(b) the WDC Aggregation Link that will be the secondary Aggregation Link (in stand-by mode); and
(c) the capacity that should be reserved on the secondary WDC Aggregation Link. This capacity will be guaranteed in case of failure of the primary WDC Connection.

4. CHARGES

4.1 The Access Seeker shall pay to the Access Provider the relevant Charges determined in accordance with Schedule 3 – (Pricing) of the Reference Offer.
5. SERVICE LEVELS

5.1 The Access Provider shall provide the WDC Service in accordance with the Service Levels specified in Schedule 7 – (Service Levels) of the Reference Offer.
### ANNEX 1

#### CIRCUIT SPEEDS, DEFINED INTERFACES, MEDIA AND TOPOLOGY

<table>
<thead>
<tr>
<th>Service element</th>
<th>Speed</th>
<th>Interface</th>
<th>Connector</th>
<th>Topology</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection terminating at End-User Premises or Point of Presence</td>
<td>64kbit/s to 2Mbit/s</td>
<td>Ethernet 10/100 BASE-TX</td>
<td>RJ45</td>
<td>Ethernet service point-to-point</td>
<td>Copper</td>
</tr>
<tr>
<td></td>
<td></td>
<td>gigabit Ethernet 1000BASE-LX</td>
<td>SC/LC</td>
<td>Ethernet service point-to-point</td>
<td>Fibre</td>
</tr>
<tr>
<td></td>
<td></td>
<td>gigabit Ethernet 1000BASE-SX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection terminating at End-User Premises or Point of Presence</td>
<td>2 Mbit/s to 10 Gbit/s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection terminating at End-User Premises or Point of Presence</td>
<td>2 Mbit/s, 45 Mbit/s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>100 Gbit/s</td>
<td>RJ45/SC/LC</td>
<td>Synchronous Digital Hierarchy (SDH) point-to-point</td>
<td>Fibre</td>
</tr>
<tr>
<td>Aggregation Link terminating at the Point of Presence of the Access Seeker</td>
<td>1 and 10 Gbit/s</td>
<td></td>
<td>SC/LC</td>
<td>Ethernet service point-to-point</td>
<td>Fibre</td>
</tr>
<tr>
<td>Aggregation Link terminating at the Point of Presence of the Access Seeker</td>
<td>100 Gbit/s</td>
<td></td>
<td>RJ45/SC/LC</td>
<td>Synchronous Digital Hierarchy (SDH) point-to-point</td>
<td>Fibre</td>
</tr>
</tbody>
</table>
# ANNEX 2
## TECHNICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Service Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface</td>
<td>Copper Access: Ethernet 10/100 BASE-TX</td>
</tr>
<tr>
<td></td>
<td>Optical Access:</td>
</tr>
<tr>
<td></td>
<td>1. FE1000 BASE-LX</td>
</tr>
<tr>
<td></td>
<td>2. GE:1000BASE-SX, 1000BASE-LX</td>
</tr>
<tr>
<td></td>
<td>3. 10GE:10G BASE -SR, 10G BASE LR, 10G BASE -ZR, 10GE LAN, 10GE WAN.</td>
</tr>
<tr>
<td></td>
<td>5. OTU2/OTU2e.</td>
</tr>
<tr>
<td>Connector</td>
<td>Copper Access: RJ45</td>
</tr>
<tr>
<td></td>
<td>Fibre Access: SC/Single mode _C</td>
</tr>
<tr>
<td>Speed</td>
<td>Please refer to Annex 1</td>
</tr>
<tr>
<td>Mode</td>
<td>Duplex</td>
</tr>
<tr>
<td>MAC Layer Supported</td>
<td>Yes</td>
</tr>
<tr>
<td>MAC Address Learning</td>
<td>Yes</td>
</tr>
<tr>
<td>Frame Size</td>
<td>Copper: 512 (Jumbo Not Supported)*</td>
</tr>
<tr>
<td></td>
<td>Fibre: Min 1518, Max 9600 (Jumbo Frame), default 1522</td>
</tr>
<tr>
<td>Class of Service</td>
<td>100% Real-Time. No Over Utilisation</td>
</tr>
<tr>
<td>Maximum Number of CE-VLANs</td>
<td>4096</td>
</tr>
<tr>
<td>CE-VLAN – PE-VLAN ID Map</td>
<td>Two VLAN per Connection</td>
</tr>
<tr>
<td>CE-VLAN ID Preservation</td>
<td>Yes</td>
</tr>
<tr>
<td>CE-VLAN COS Preservation</td>
<td>Yes</td>
</tr>
<tr>
<td>Unicats Traffic Limit</td>
<td>None (Copper) / Yes (Fibre)</td>
</tr>
<tr>
<td>Multicast Traffic Limit</td>
<td>None (Copper) / Yes (Fibre)</td>
</tr>
<tr>
<td>Broadcast Traffic Limit</td>
<td>None (Copper) / Yes (Fibre)</td>
</tr>
<tr>
<td>Protocol Treatment</td>
<td>Spanning Tree Protocol (STP), Rapid Spanning Tree Protocol (RSTP), Multiple Spanning Tree Protocol (MSP)</td>
</tr>
<tr>
<td></td>
<td>Pause (802.3x)</td>
</tr>
<tr>
<td></td>
<td>Link Aggregation Protocol (LACP)</td>
</tr>
<tr>
<td></td>
<td>(802.1AG),(802.1Q),(802.1D), (802.1P)</td>
</tr>
<tr>
<td></td>
<td>Marker Protocol</td>
</tr>
<tr>
<td></td>
<td>All LAN Bridge Management Group Block of Protocols</td>
</tr>
<tr>
<td></td>
<td>Generic Attribute Registration Protocol (GARP) Block of Protocol</td>
</tr>
<tr>
<td></td>
<td>Cisco Delivery Protocol (CDP)</td>
</tr>
<tr>
<td></td>
<td>Cisco VLAN Trunking Protocol (VTP)</td>
</tr>
<tr>
<td>Quality of Service</td>
<td>OAM CM/Y1731 PDU</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------</td>
</tr>
<tr>
<td></td>
<td>Round Trip Delay (Frame Transfer Delay): 2ms</td>
</tr>
<tr>
<td></td>
<td>Jitter (Frame Delay Variations): 0ms</td>
</tr>
<tr>
<td></td>
<td>Frame Loss Ratio: 0%</td>
</tr>
</tbody>
</table>

Information relating to existing CPEs used for the provision of the WDC Service:

Vendor: Huawei
Model: AR1220E
Technical Specifications
WAN speed with services (IMIX): 400Mbp/s
Fixed Port: 8 x GE (can be configured as WAN interfaces), 2 x GE Combo
Slot: 2 x SIC
Dimensions (H x W x D): 44.5mm x 390mm x 220mm

The Access Provider shall include multiple CPE options, to include CPE options which are available from alternative vendors. The Access Provider reserves the right to vary the CPE from time to time.
Optional Levels of Protection available for the WDC Service:

The Access Provider provides below a summary of the various levels of protection available for the WDC service:

<table>
<thead>
<tr>
<th>Logical protection</th>
<th>Single Connection/Aggregation Link (i.e. no protection)</th>
<th>Primary and secondary Connection/Aggregation Link (i.e. protection)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPE</td>
<td>X</td>
<td>X X X X X X</td>
</tr>
<tr>
<td>Service Node</td>
<td>X</td>
<td>X X X</td>
</tr>
<tr>
<td>Physical protection</td>
<td>X</td>
<td>X X X X X</td>
</tr>
</tbody>
</table>

The Access Provider may also consider a request from an Access Seeker for a full end-to-end physical path redundancy that requires delivery of a secondary Connection/Aggregation Link in a different lead-in duct to the building, where this is reasonable. In such cases, the applicable NRC shall be determined in accordance with the provisions of paragraph 3.19 above.
ANNEX 3
AGGREGATION LINK TECHNICAL DIAGRAM

Where the WDC Service is provided using the Access Provider’s Copper-based Network:

Aggregation Link
(Zoomed)

Aggregation Link (technical specifications): fibre link(s) with optical interface / gig Ethernet / modular / LC connector at the CPE. The Access Seeker will need to provide VLAN tag to Access Provider service team in order to ensure the correct mapping between the Access Seeker CPE and the Access Seeker’s equipment.

Upon request from an Access Seeker, the Access Provider shall provide quotations for higher-grade CPEs that may be used for the WDC.

Where the WDC Service is provided using the Access Provider’s Fibre Based Network:

The WDC Aggregation Link(s) is/are:
(a) provided for a minimum bandwidth of 10 Gbit/s;
(b) delivered over a fully redundant fibre path; and
(c) provided with default protection mechanisms, including MSP 1+1, Sub-Network Connection Protection (SNCP), and Silver auto switching of 50ms.

The regulated MRC applicable to the WDC Aggregation Link is determined in accordance with Schedule 3 – (Pricing) of the Reference Offer.
WDC Aggregation Link
ANNEX 4
PROVISIONING VALIDATION TEST

The following provisioning validation test will only be carried out for the WDC Service where the WDC traffic handed over by the Access Seeker to the Access Provider is Ethernet traffic:

<table>
<thead>
<tr>
<th>Provisioning Validation Test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing Methodology</td>
<td>ITU-T Y.1564</td>
</tr>
<tr>
<td>Testing Mode</td>
<td>Layer 1-2 Loopback test.</td>
</tr>
<tr>
<td></td>
<td>Tester simulates CPE</td>
</tr>
<tr>
<td>Parameters tested</td>
<td>Throughput, Frame loss, Latency &amp; Jitter</td>
</tr>
<tr>
<td>Tester Speed Setting</td>
<td>WDC Service Speed</td>
</tr>
<tr>
<td>Tester Frame Size</td>
<td>Configuration &amp; Performance Test Frame Size = 512*</td>
</tr>
<tr>
<td>Acceptance criteria</td>
<td>Link verification using the ITU-T Y.1564 methodology Minimum test time is 15 minutes.</td>
</tr>
<tr>
<td>Test Results</td>
<td>Copy provided to the Access Seeker upon request at time of testing</td>
</tr>
</tbody>
</table>
ANNEX 5
WDC SERVICE DIAGRAM AND IMPLEMENTATION INFORMATION

Copper-based Service:
CE, PE VLAN Termination

CPE
PE VLAN

--- Wired (Connection – Aggregation Link)---

CPE
PE VLAN

TELECOMMUNICATIONS REGULATORY AUTHORITY
Kingdom of Bahrain - مملكة البحرين
Fibre-based Service:

[Diagram showing fibre-based service connections between customer equipment and network nodes]
Schedule 6.3 - Mobile Backhaul Service (MBS) Service Description
SERVICE DESCRIPTION

MOBILE BACKHAUL SERVICE (MBS)

1. THE SERVICE

1.1 The Mobile Backhaul Service (MBS) provides an uncontended, symmetrical, dedicated point-to-point private leased circuit service within the Kingdom of Bahrain between an Access Seeker’s Point of Presence and a Wireless Radio Site.

1.2 The MBS Service is provided with a number of options. These are specified in Annex 1 of this Service Description.

1.3 The MBS Service is available to Access Seekers holding an Individual Mobile Telecommunications License.

1.4 The MBS Service provides the following Quality of Service performance:
   (a) Round Trip Delay (Frame Transfer Delay): 2ms
   (b) Jitter (Frame Delay Variations): < 1ms
   (c) Frame Loss Ratio: 0%

2. DEFINITIONS

Capitalised terms not defined in this Service Description are defined in Schedule 8 - (Dictionary) of the Reference Offer defined in this Service Description are specific to it.

Access Seeker Core Mobile Site means a location in Bahrain owned or controlled by the Licensed Mobile Operator which hosts equipment for mobile control functionality on its Mobile Network.

Aggregation Link means the connectivity established between a Point of Presence of the Access Seeker and the Access Provider access node, as further detailed in Annex 1 of this Service Description.

Connection means individual MBS Service as described in paragraph 1.1.

Customer Premises Equipment or CPE means the Equipment forming part of the MBS at the Wireless Radio Site more particularly specified under Annex 2 (Technical Characteristics).

MBS Amended Service means an MBS Service that is amended by a Change Request.

Minimum Service Period means an applicable minimum period of twenty four (24) calendar months for which the MBS Service shall be provided, such period commencing from the Service Commencement Date.

Renewed Minimum Service Period means an applicable minimum period of one (1) month for which the MBS Service shall be provided, such period commencing from the expiry of a Service Period.

Service Period means the Minimum Service Period or Renewed Minimum Service Period.

3. TERMS

Forecasting

3.1 The Access Seeker shall provide the Access Provider with a non-binding forecast of the number of new Connections. These forecasts shall be provided every quarter (three (3) months) commencing from the Service Commencement Date.
3.2 The period of each forecast shall cover the following information for the subsequent five (5) quarters:
(a) The number of new Connections per Access Provider exchange area; and
(b) Capacity required per new Connection.

3.3 The Access Seeker shall use all reasonable endeavours to forecast accurately given that the Access Provider is placing reliance on those forecasts. The forecasting process is set out in Schedule 5 – (Forecasting) of the Reference Offer.

3.4 New Connections can only be guaranteed to be provided up to the numbers forecasted. For the number of actual new Connections in excess of those forecasted, the Access Provider shall take all reasonable endeavours to provide the Connections requested but cannot guarantee that they will be provided within the timescale set out in the Schedule 7 – (Service Levels) of the Reference Offer.

3.5 The forecast provided represents a good faith expectation of the Access Seeker of its requirement for new Connections. In the event that the actual number of new Connections is less than forecasted, no penalty will be incurred by the Access Seeker.

Use of Service

3.6 The MBS Service shall only be made available to connect an Access Seekers Point of Presence and Wireless Radio Site, and not any other residential or non-residential entity.

3.7 Where the Access Provider reasonably suspects breach of paragraph 3.6 it may refer the matter as a complaint for investigation by the Regulator.

3.8 Where the Regulator establishes after an investigation under paragraph 3.7 that an Access Seeker is not using the MBS Service in accordance with this Service Description, the Access Provider, without prejudice to any other rights and remedies under the Supply Terms, may by immediate written notice suspend or terminate the specific MBS Connection and the Access Seeker shall be liable to pay the Access Provider liquidated damages, calculated in accordance with paragraph 3.23.

Supply of Service

3.9 The Access Seeker shall submit a Service Request to the Access Provider to request supply of the MBS Service in the manner communicated by the Access Provider.

3.10 The Access Provider shall within two (2) Working Days notify the Access Seeker if the Service Request is accepted or rejected, and where applicable, state the required corrections. The Access Provider does not have the right to reject the Service Request during this stage if the Access Provider’s point to point fibre network does not extend to the requested area within the Kingdom of Bahrain.

3.11 In the event a Service Request is rejected then the Access Provider shall provide the Access Seeker with clear reasons for the rejection at the same time of the rejection and identify the changes required to enable the Service Request to be accepted.

3.12 If the Access Seeker submits a Cancellation Request three (3) or more Working Days after the Notification of the Expected RFT and RFS Dates and where this is not related to delay in the Actual RFT or Actual RFS Date by the Access Provider, the Access Seeker shall, (subject to receipt of an appropriate invoice) be liable to pay three (3) MRCs to the Access Provider.
3.13 Within five (5) Working Days from the date of the acceptance of the Service Request, the Access Provider shall notify the Access Seeker in writing as specified in Schedule 7 – (Service Levels) of the Reference Offer.

3.14 The Access Provider shall deliver the MBS Service on or before the standard time scales set out in Schedule 7 – (Service Levels) of the Reference Offer. The Parties acknowledge and accept that exceptional circumstances, such as those set out below, may give rise to delays in any stage of the acceptance, provisioning and delivery of a Service Request. If the occurrence of any of the events below takes place, the Access Provider shall communicate the Exceptional Delivery Date to the Access Seeker and shall not be held liable for the Service Level Penalties. The exceptional circumstances shall only comprise:

(a) a Force Majeure Event or a Regulatory Event;
(b) Emergency Maintenance; or
(c) any material breach of the Access Seeker’s obligations.

The Access Provider shall, in notifying the Access Seeker of the Exceptional Delivery Date, provide sufficient evidence so as to justify the reasons for the delay in delivery.

3.15 If the Access Provider technician shall be present at the Wireless Radio Site to install a MBS Service, and if, for any reason, the Access Provider cannot be available on the Expected RFT Date for such installation, the Access Seeker shall give the Access Provider a minimum written notice of one (1) Working Day. The new dates for RFT and RFS are then set following the below principles:

(a) the Access Provider shall propose the next earliest dates for which the Access Provider technician would be available for the installation which shall be a minimum of one (1) Working Day notice, unless waived by the Access Seeker. The earliest proposed date(s) should not exceed two (2) Working Days from the RFT and RFS dates.

(b) the Expected RFS Date is also modified and is set apart from the Expected RFT Date by the Maximum Validation Time of three (3) Working Days (see Schedule 7 – (Service Levels) of the Reference Offer). The Maximum RFS Date is then set equal to the Expected RFS Date.

(c) the Access Provider shall send the Access Seeker a notice of the applicable Expected RFT Date and Expected RFS Date.

3.16 In addition, if at least one of the following two conditions is met (i) the Access Seeker does not provide the Access Provider a minimum written notice of two (2) Working Days to inform of its unavailability; or (ii) the Access Provider sends a technician who is not able to access the Wireless Radio Site to install the MBS Service, then except for cases of Force Majeure affecting the Access Seeker, the Access Seeker is liable to pay the installation and configuration charge for the requested MBS Service as specified in Schedule 3 - (Pricing) of the Reference Offer. In such case, the modification and Notification of the Expected RFT Date, the Expected RFS Date, and the Maximum RFS Date follow the same principles as described in the above paragraph 3.15.

3.17 The Access Provider technician must attend the Access Seeker’s site during Working Hours and at least have called the Access Seeker’s representative if it appears that the Access Seeker’s technician is not present at the relevant time and, where requested, provide evidence of this. The Access Seeker shall, in this case, be liable to pay only the incurred man-day costs of the Access Provider technician.

3.18 In addition, if the Access Provider does not provide the Access Seeker a written notice of a minimum of two (2) Working Days to rearrange a site visit under paragraph 3.16 above, then the Access Provider is liable to waive an amount equal to one installation and configuration charge for the MBS Service.
3.19 Subject to the Access Seeker fulfilling its obligations set out in paragraphs 3.28 to 3.33 below, the Access Provider shall provide and the Access Seeker shall acquire the MBS Service either within the standard timescales or by the Exceptional Delivery Date as appropriate. The Service Levels shall not apply for new Connections exceeding the forecast parameters in paragraph 3.1.

3.20 The Service Level Terms shall apply to:

(a) New Connection – provide a new Connection as requested by the Access Seeker;
(b) Upgrade or Downgrade;
(c) Hot and Cold Migration – change the Wireless Radio Site address of an existing Connection, requiring disconnection and reconnection of the Connection end point, including "hot migration" which is when the Connection is not disrupted and "cold migration" which is when the Connection can be disrupted;
(d) Reconfiguration – reconfigure technical parameters of an existing Connection; and
(e) Cancellation – the Access Seeker requests the cessation of an existing Connection.

3.21 Further information relating to the applicable Service Levels Terms and Service Level Penalties for the above is detailed in the Schedule 7 – (Service Levels) of the Reference Offer.

3.22 The Access Provider shall provide to the Access Seeker a monitoring tool, which shall enable the Access Seeker to monitor the MBS Service against the following minimum parameters. This monitoring tool shall provide monitoring facilities 24 hours a day, 7 days a week, 365 days a year. The minimum parameters shall include:

(a) Link availability;
(b) Bandwidth Utilisation;
(c) Latency per circuit;
(d) Jitter per circuit; and
(e) Round trip delay per circuit.

Termination

3.23 Where the Minimum Service Period has not expired, the Access Seeker shall be entitled to terminate the MBS Service on at least one (1) month's written notice to the Access Provider and will be liable to pay Liquidated Damages as calculated by the following formula.

Formula for calculating liquidated damages:

\[ LD = MRC \times (24-M) \]

where:

LD = liquidated damages to be paid.
MRC = Monthly Recurring Charge for the MBS Service.
M = number of months between the Actual RFS Date and the removal order date rounded-up to the next full month.

3.24 The Access Seeker expressly acknowledges that liquidated damages as calculated above form a reasonable pre-estimate of the loss which the Access Provider would suffer as a result of early termination by the Access Seeker. Such liquidated damages shall be the Access Provider's sole and exclusive damages or monetary remedy for such early termination.
3.25 Following the expiry of any Minimum Service Period the MBS Service shall be automatically renewed for successive Renewed Minimum Service Periods unless and until terminated by the Access Seeker, provided that the Access Seeker supplies the Access Provider with a termination notice at least one (1) month prior to the expiry of the current Service Period.

Amendment to the MBS Service

3.26 The Access Seeker shall be entitled to amend a MBS Service by requesting a MBS Amended Service where this is an Upgrade by providing an Upgrade Request to the Access Provider. The Access Seeker shall only be entitled to Downgrade the throughput of a Connection when the Minimum Service Period has expired. Where the Access Seeker requests an MBS Amended Service, then the Service Request procedure set out in this Service Description shall apply to that request. Where the Access Seeker requests a MBS Amended Service that requires any new network resources and/or facilities then a new Minimum Service Period shall commence and the Access Provider shall provide a MBS Amended Service for the new Service Period.

3.27 The Access Seeker shall not be liable for any termination or additional recurring charges in respect of a request for a MBS Amended Service which is for a relocation. The Access Provider shall charge a once off charge for the relocation in accordance with Schedule 3 – (Pricing) of the Reference Offer unless the Access Seeker requires both Connections to be operational in parallel. The Access Provider shall not terminate the Connection which is subject to relocation until the Service Commencement Date of the new Connection.

Access Seeker Obligations

3.28 The Access Seeker shall provide the Access Provider with suitable space for, and access during Working Hours to, any Access Provider Equipment required to be located in any building in which the MBS Service is located within the control of the Access Seeker. If consent is required from a third party, the Access Seeker shall procure such consent. The Access Provider is not required to pay the Access Seeker for the preparation or use of, or access to, space provided pursuant to this sub-paragraph.

3.29 When provisioning a Service Request requiring new duct build, the Access Provider is responsible for construction of the duct on public land up until the demarcation point being the boundary of the plot where the Wireless Radio Site is located. The Access Seeker is responsible for construction of the lead-in duct or in-building duct or conduit from the demarcation point to the Wireless Radio Site and/or aggregation Point of Presence.

3.30 If the Access Provider’s Equipment requires electricity supply and electricity connection points, they shall be supplied, in the location specified by the Access Provider, by the Access Seeker at the Access Seeker’s expense according to the equipment specification. Such electricity shall be available at the same level of supply, protection and continuity as that available to the Access Seeker’s Equipment.

3.31 The Access Seeker shall be solely responsible for any loss, theft or destruction of, or damage (reasonable wear and tear excepted) to the Access Provider’s Equipment required to be located in the building where the MBS Service is provided and which is within the control of the Access Seeker, occurring at any time and howsoever caused (unless caused by the Access Provider or its agents).

3.32 The Access Seeker shall provide the Access Provider and any authorised employee, agent, affiliate or contractor of the Access Provider with all information and assistance that person may reasonably require to design, test, commission and maintain the MBS Service (which may include participation in testing procedures as and when reasonably requested by the Access Provider).
3.33 The Access Seeker may require their agent to be present during the installation, testing or commissioning done by the Access Provider but not so as to affect the Service Commencement Date.

Planned and Emergency Maintenance

3.34 The Access Provider may suspend any MBS Service in order to carry out Planned or Emergency Maintenance.

3.35 In the case of Planned Maintenance, this shall be carried out as far as possible during the night or at weekends or other quiet periods. The Access Provider shall give ten (10) Working Days’ notice of each Planned Maintenance activity affecting a particular MBS Service or group of MBS Services. This notice shall include the circuits affected, the date and time of the suspension and the likely duration of the suspension. The Access Provider shall use its reasonable endeavours to take into account the reasonable operational concerns of the Access Seeker before implementing any Planned Maintenance.

3.36 In the case of Emergency Maintenance, the Access Provider shall give the Access Seeker notice via email five (5) Working Days in advance. The notice shall include the affected circuit(s), the date and time of the Emergency Maintenance and the expected duration of the Emergency Maintenance. The Access Provider shall use its best endeavours to carry out maintenance outages as much as possible during the night, at weekends or at a time agreeable with the Access Seeker.

3.37 In cases of Emergency Maintenance, the Access Provider shall advise the Access Seeker within five (5) hours after service is restored with a report of the cause of the Fault.

Maintenance and Support

3.38 The Access Provider shall provide maintenance and support services in respect of the MBS Service in accordance with the Schedule 7 – (Service Levels) of the Reference Offer.

3.39 The Access Seeker shall report a Fault to the Access Provider’s nominated contact point which shall be available twenty-four (24) hours per day every day. The Access Provider shall record the Fault using a unique reference number which it shall pass to the Access Seeker at the same time as acknowledging the Fault in accordance with Schedule 7 – (Service Levels) of the Reference Offer. The Access Provider shall commence repair of the Fault within:

(a) One (1) hour during Working Hours; or
(b) Two (2) hours outside of Working Hours.

from the time of the Access Seeker reporting the Fault, and shall restore the MBS Service in accordance with the Service Levels in Schedule 7 – (Service Levels) of the Reference Offer. The Access Provider shall advise the Access Seeker’s nominated contact point once the Fault is clear and both parties shall record the time of this clearance.

Protection

3.40 If requested by the Access Seeker, the Access Provider shall provide logical protection for the MBS Aggregation Link at a fixed monthly Charge as set out in Schedule 3 – (Pricing) of the Reference Offer.

3.41 The Access Provider shall provide, as a minimum, dual 10Gbps interfaces with board level redundancy for the aggregation link.
4. CHARGES

4.1 The Access Seeker shall pay to the Access Provider the relevant Charges determined in accordance with Schedule 3 – (Pricing) of the Reference Offer.

4.2 All Charges and sums due from one party to the other under this Agreement are exclusive of VAT. Any VAT shall be charged in accordance with the relevant regulation in force at the time of making the taxable supply and shall be paid by the paying party following receipt from the billing party of a valid VAT invoice.

5. SERVICE LEVELS

5.1 The Access Provider shall provide the MBS Services in accordance with the Service Levels specified in Schedule 7 – (Service Levels) of the Reference Offer.
# ANNEX 1

## CIRCUIT SPEEDS, DEFINED INTERFACES, MEDIA AND TOPOLOGY

<table>
<thead>
<tr>
<th>Service element</th>
<th>Speed</th>
<th>Interface</th>
<th>Connector</th>
<th>Topology</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection terminating at Wireless Radio Site / Point of Presence</td>
<td>500 Mbit/s to 10 Gbit/s</td>
<td>gigabit Ethernet 1000BASE-LX, gigabit Ethernet 1000BASE-SX</td>
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# ANNEX 2

## TECHNICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Service Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethernet service point-to-point or Ethernet service point-to-multipoint (Pseudowire Ethernet tagged mode with port-based aggregation or virtual aggregation) providing guaranteed symmetrical bandwidth</td>
<td></td>
</tr>
</tbody>
</table>
| Interface | Optical Access:  
1. FE1000 BASE-LX  
2. GE:1000Base-SX, 1000base -LX  
3. 10GE:10G base -SR, 10G Base LR, 10G Base -ZR,10GE LAN, 10GE WAN. |
| Connector | Fibre Access: Single mode LC |
| Speed | Please refer in ANNEX 1 |
| Mode | Duplex |
| MAC Layer Supported | Yes |
| MAC Address Learning | Yes |
| Frame Size | Min 1518 ,Max 9600 (Jumbo Frame),default 1522 |
| Class of Service | 100% Real-Time. No Over Utilisation |
| Maximum Number of CE- VLANs | 4096 |
| Unicats Traffic Limit | Yes |
| Multicast Traffic Limit | Yes |
| Broadcast Traffic Limit | Yes |
| Protocol Treatment | Spanning Tree Protocol (STP), Rapid Spanning Tree Protocol (RSTP), Multiple Spanning Tree Protocol (MSP) |
| Quality of service | Pause 802.3  
Link Aggregation Protocol (LACI)  
(802.1AG),(802.1Q),(802 1D), (802.1P)  
Round Trip Delay (Frame Transfer Delay): 2ms  
Jitter (Frame Delay Variations): < 1ms  
Frame Loss Ratio: 0% |

*Frame sizes 64 bytes and 128 bytes are supported by the MBS service but may experience reduced performance.*
Customer Premises Equipment (CPE) type:
1 Gbit/s and below - Huawei S5300 SW + (3X 1G SFP) + 1 x 1G SFP+
Above 1 Gbit/s - Huawei S5300 SW + (4X 1G SFP) + 1 x 10G SFP+

The Access Provider shall include multiple CPE options, to include CPE options which are available from alternative vendors. The Access Provider reserves the right to vary the CPE from time to time.

Optional Levels of Protection available for the MBS Service:
The Access Provider provides below a summary of the various levels of protection available for the MBS service:

*(NOTE – for the purposes of this table, End User refers to the MNO Wireless Radio Site)*

<table>
<thead>
<tr>
<th>Protection Level</th>
<th>Single Connection/Aggregation Link (i.e. no protection)</th>
<th>Primary and secondary Connection/Aggregation Link (i.e. protection)</th>
<th>Logical protection</th>
<th>Physical protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>No protection</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Very high level of protection</strong></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

The Access Provider may also consider a request from an Access Seekor for a full end to end physical path redundancy that requires delivery of a secondary Connection/Aggregation Link in a different lead-in duct to the building, where this is reasonable. In such cases, the applicable Charges shall be determined in accordance with the provisions of this Service Description.
<table>
<thead>
<tr>
<th>Provisioning Validation Test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Testing Methodology</strong></td>
</tr>
<tr>
<td><strong>Testing Mode</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Parameters tested</strong></td>
</tr>
<tr>
<td><strong>Tester Speed Setting</strong></td>
</tr>
<tr>
<td><strong>Tester Frame Size</strong></td>
</tr>
<tr>
<td><strong>Acceptance criteria</strong></td>
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<tr>
<td></td>
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<tr>
<td><strong>Test Results</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
ANNEX 4
MBS SERVICE DIAGRAMS
Schedule 6.4 - Data Service (DS) Service Description
SERVICE DESCRIPTION
DATA SERVICE (DS)

1. THE SERVICE

Service Description

1.1. The Data Service (‘DS’) provides uncontended, symmetrical, dedicated point-to-point private leased circuit service within the Kingdom of Bahrain between an Access Seeker’s Point of Presence and a Wireless Radio Site.

1.2. The Service is provided with a number of options regarding its technical characteristics. These are specified in Annex 1 of this Service Description.

1.3. The DS Service is available to Access Seekers holding an appropriate Mobile Individual Telecommunications License.

1.4. The DS Service provides the following Quality of Service performance:
   (a) Round Trip Delay (Frame Transfer Delay): 5ms
   (b) Jitter (Frame Delay Variations): < 5ms
   (c) Frame Loss Ratio: 0%

2. DEFINITIONS

Capitalised terms not defined in this Service Description are defined in Schedule 8 - (Dictionary). Terms defined in this Service Description are specific to it.

Access Seeker Core Mobile Site means a location in Bahrain owned or controlled by the Licensed Mobile Operator which hosts equipment for mobile control functionality on its Mobile Network.

Aggregation Link means the connectivity established between a Point of Presence of the Access Seeker and the Access Provider access node.

Connection means an individual DS Service as described in paragraph 1.

Customer Premises Equipment or CPE means the Equipment forming part of the DS at the Wireless Radio Site more particularly specified under Annex 2 (Technical Characteristics).

DS Amended Service means a DS Service that is amended by a Change Request.

Minimum Service Period means an applicable minimum period of twenty four (24) calendar months for which the DS Service shall be provided, such period commencing from the Service Commencement Date.

Renewed Minimum Service Period means an applicable minimum period of one (1) month for which the DS Service shall be provided, such period commencing from the expiry of a Service Period.

Service Period means the Minimum Service Period or Renewed Minimum Service Period.
3. TERMS

Forecasting

3.1 The Access Seeker shall provide the Access Provider with a non-binding forecast of the number of new Connections. These forecasts shall be provided every quarter (three (3) months) commencing from the Service Commencement Date.

3.2 The period of the forecast shall cover the following information for the subsequent five (5) quarters:
   (a) The number of new Connections per Access Provider exchange area; and
   (b) Capacity required per new Connection.

3.3 The Access Seeker shall use all reasonable endeavours to forecast accurately given that the Access Provider is placing reliance on those forecasts. The forecasting process is defined in Schedule 5 - (Forecasting) of this Reference Offer.

3.4 New Connections can only be guaranteed to be provided up to the numbers forecasted. For actual new Connections in excess of those forecasted, the Access Provider shall take all reasonable endeavours to provide the Connections requested but cannot guarantee that they will be provided within the timescale set out in Schedule 7 - (Service Levels) of the Reference Offer.

3.5 The forecast provided represents a good faith expectation of the Access Seeker of their requirement for new Connections. In the event that the actual number of new Connections is less than forecasted, no penalty will be incurred by the Access Seeker.

Use of Service

3.6 The DS Service shall only be made available to connect an Access Seeker’s Point of Presence and Wireless Radio Site, and not any other residential or non-residential entity.

3.7 Where the Access Provider reasonably suspects breach of paragraph 3.6 it may refer the matter as a complaint for investigation by the Regulator.

3.8 Where the Regulator establishes after an investigation under paragraph 3.7 that the Access Seeker is not using the Service in accordance with this Service Description, the Access Provider without prejudice to any other rights and remedies under the Supply Terms may by immediate written notice suspend or terminate all or part of the DS Service and the Access Seeker shall be liable to pay the Access Provider liquidated damages, calculated in accordance with paragraph 3.23.

Supply of Service

3.9 The Access Seeker shall submit a Service Request to the Access Provider to request supply of the DS Service in accordance with the Supply Terms and in the manner communicated by the Access Provider.

3.10 The Access Provider shall within two (2) Working Days notify the Access Seeker if the Service Request is accepted or rejected and where applicable, state the required corrections. The Access Provider does not have the right to reject the Service Request during this stage if the Access Provider’s point to point fibre network does not extend to the requested area within the Kingdom of Bahrain.

3.11 In the event a Service Request is rejected then the Access Provider shall provide the Access Seeker with clear reasons for the rejection at the same time of the rejection and identify the changes required to enable the Service Request to be accepted.
3.12 If the Access Seeker submits a Cancellation Request three (3) or more Working Days after the Notification of the Expected RFT and RFS Dates and where this is not related to delay in the Actual RFT and Actual RFS Date by the Access Provider, the Access Seeker shall, subject to receipt of an invoice, be liable to pay a penalty to the value of three (3) MRCs to the Access Provider.

3.13 Within five (5) Working Days from the date of the acceptance of the Service Request, the Access Provider shall notify the Expected RFT and RFS Dates to the Access Seeker in writing as specified in Schedule 7 - (Service Levels) of the Reference Offer.

3.14 The Access Provider shall deliver the DS Service on or before the standard time scales set out in Schedule 7 - (Service Levels) of the Reference Offer. However, the parties acknowledge and accept that exceptional circumstances, such as those set out below, may give rise to delays in any stage of the acceptance, provisioning and delivery of a Service Request. If the occurrence of any of the events below takes place, the Access Provider shall communicate the Exceptional Delivery Date to the Access Seeker and shall not be held liable for the Service Level Penalties. The exceptional circumstances shall only comprise:

(a) a Force Majeure Event or a Regulatory Event;
(b) Emergency Maintenance, or
(c) any material breach of the Access Seeker’s obligations.

The Access Provider shall in notifying the Access Seeker of the Exceptional Delivery Date provide sufficient evidence so as to justify the reasons for the delay in delivery.

3.15 If the Access Provider technician must be present at the Wireless Radio Site to install a DS Service, and if, for any reason, the Access Seeker cannot be available on the Expected RFT Date for such installation, the Access Seeker shall give the Access Provider a minimum written notice of one (1) Working Day. The new dates for RFT and RFS are then set following the below principles:

(a) The Access Provider shall propose the next earliest dates for which the Access Provider technician would be available for the installation which shall be a minimum of one (1) Working Day’s notice unless waived by the Access Seeker. The earliest proposed date(s) should not exceed two (2) Working Days from the RFT and RFS Dates.

(b) The Expected RFS Date is also modified and is set apart from the Expected RFT Date by the Maximum Validation Time of three (3) Working Days (see Schedule 7 - (Service Levels) of the Reference Offer). The Maximum RFS Date is then set equal to the Expected RFS Date.

(c) The Access Provider shall send the Access Seeker a Notification of the Expected RFT Date and Expected RFS Date.

3.16 In addition, if at least one of the following two conditions is met (i) the Access Seeker does not provide the Access Provider with a minimum written notice of one (1) Working Day to inform of its unavailability; or (ii) the Access Provider sends a technician who is not able to access the Wireless Radio Site to install the service, then except for cases of Force Majeure affecting the Access Seeker, the Access Seeker is liable to pay the installation and configuration charge for the DS Service as specified in Schedule 3 (Pricing) of this Reference Offer. In such case, the modification and Notification of the Expected RFT Date, Expected RFS Date, and the Maximum RFS Date follow the same principles as described in the above paragraph 3.15.

3.17 The Access Provider technician must attend the Access Seeker site during Working Hours and at least have called the Access Seeker’s representative if it appears that the Access Seeker’s technician is not present at the relevant time and, where requested, provide evidence of this. The
3.18 In addition, if the Access Provider does not provide the Access Seeker with a written notice of a minimum two (2) Working Days to rearrange a site visit under paragraph 3.15 (a) above, then the Access Provider is liable to waive an amount equal to one installation and configuration charge for the DS Service.

3.19 Subject to the Access Seeker fulfilling its obligations as set out in paragraphs 3.28 to 3.33 below, the Access Provider shall provide and the Access Seeker shall acquire the DS Service either within the standard time scales or by the Exceptional Delivery Date as appropriate. For the avoidance of doubt, the Service Level Terms and Service Level Penalties shall not apply for actual orders exceeding the forecast information provided in paragraph 3.2.

3.20 The Service Level Terms shall apply to:
(a) New Connection – provide a new Connection as requested by the Access Seeker;
(b) Upgrade or Downgrade;
(c) Hot and Cold Migration – change the Wireless Radio Site address of an existing Connection, requiring disconnection and reconnection of the Connection end point, including "hot migration" which is when the Connection is not disrupted and "cold migration" which is when the Connection can be disrupted;
(d) Reconfiguration – reconfigure technical parameters of an existing Connection; and
(e) Cancellation – the Access Seeker requests the cessation of an existing Connection.

3.21 Further information relating to the applicable Service Levels Terms and Service Level Penalties for the above is detailed in Schedule 7 - (Service Levels) of the Reference Offer.

3.22 The Access Provider shall provide to the Access Seeker a monitoring tool, which shall enable the Access Seeker to monitor the Service against the following minimum parameters. This monitoring tool shall provide monitoring facilities 24 hours a day, 7 days a week, 365 days a year. The minimum parameters shall include:
(a) Link availability;
(b) Bandwidth Utilisation;
(c) Latency per circuit;
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Termination

3.23 Where the Minimum Service Period has not expired, the Access Seeker shall be entitled to terminate such DS Service on at least one (1) month's written notice to the Access Provider and will be liable to pay liquidated damages as calculated by the following formula.

Formula for calculating liquidated damages:

\[ LD = MRC \times (24-M) \]

where:
LD = liquidated damages to be paid.

MRC = Monthly Recurring Charge for the DS Service.

M = number of months between the Actual RFS Date and the removal order date rounded-up to the next full month.

3.24 The Access Seeker expressly acknowledges that liquidated damages as calculated above form a reasonable pre-estimate of the loss which the Access Provider would suffer as a result of early termination by the Access Seeker. Such liquidated damages shall be the Access Provider’s sole and exclusive damages or monetary remedy for such early termination.

3.25 Following the expiry of any Minimum Service Period a DS Service shall be automatically renewed for a successive Renewed Minimum Service Period unless and until terminated by the Access Seeker, provided that the Access Seeker supplies the Access Provider with a termination notification at least one (1) month prior to the expiry of the current Service Period.

Amendment to the DS Service

3.26 The Access Seeker shall be entitled to amend a DS Service by requesting a DS Amended Service where this is an Upgrade the throughput by providing notification to the Access Provider. The Access Seeker shall only be entitled to Downgrade the throughput of a Connection when the Minimum Service Period has expired. Where the Access Seeker requests a DS Amended Service, then the Service Request procedure set out in this Service Description shall apply to that request. Where the Access Seeker requests a DS Amended Service that requires any new network resources and/or facilities then a new Minimum Service Period shall commence and the Access Provider shall provide a DS Amended Service for the new Service Period.

3.27 The Access Seeker shall not be liable for any termination or additional recurring charges in respect of a request for a DS Amended Service which is for a relocation. The Access Provider shall charge a once off charge for the relocation, in accordance with Schedule 3 - (Pricing) of this Reference Offer unless the Access Seeker requires both Connections to be operational in parallel. For the avoidance of doubt, the Access Provider shall not terminate the Connection which is subject to relocation until the Service Commencement Date of the new Connection.

Access Seeker Obligations

3.28 The Access Seeker shall provide the Access Provider with suitable space for, and access during Working Hours to, any Access Provider Equipment required to be located in any building in which the DS Service is located within the control of the Access Seeker. If consent is required from a third party, the Access Seeker shall procure such consent. The Access Provider is not required to pay the Access Seeker for the preparation or use of, or access to, space provided pursuant to this subparagraph.

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3.31 The Access Seeker shall be solely responsible for any loss, theft or destruction of, or damage (reasonable wear and tear excepted) to the Access Provider’s Equipment required to be located in the building where the DS Service is provided, which is within the control of the Access Seeker, occurring anytime and howsoever caused (unless caused by the Access Provider or its agents).

3.32 The Access Seeker shall provide the Access Provider and any authorised employee, agent, affiliate or contractor of the Access Provider with all information and assistance that person may reasonably require to design, test, commission and maintain the DS Service (which may include, without limitation, participation in testing procedures as and when reasonably requested by the Access Provider).

3.33 The Access Seeker may require their agent to be present during the installation, testing or commissioning done by the Access Provider but not so as to affect the Service Commencement Date.

Planned and Emergency Maintenance

3.34 The Access Provider may suspend any DS Service in order to carry out planned or Emergency Maintenance.

3.35 In the case of Planned Maintenance, this will be carried out as far as possible during the night or at weekends or other quiet periods. The Access Provider shall give ten (10) Working Days’ notice of each Planned Maintenance activity affecting a particular DS Service or group of DS Services. This shall include the circuits affected, the date and time of the suspension and the likely duration of the suspension. The Access Provider shall use its reasonable endeavours to take into account the reasonable operational concerns of the Access Seeker before implementing any Planned Maintenance.

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3.37 In cases of Emergency Maintenance, the Access Provider shall advise the Access Seeker within five (5) hours after service is restored with a report of the cause of the Fault.

Maintenance and Support

3.38 The Access Provider shall provide maintenance and support services in respect of the DS Service in accordance with Schedule 7 - (Service Levels) of the Reference Offer.

3.39 The Access Seeker shall report a Fault to the Access Provider nominated contact point which shall be available twenty-four (24) hours per day every day. The Access Provider shall record the Fault using a unique reference number which it shall pass to the Access Seeker at the same time as acknowledging the Fault (see Schedule 7 - (Service Levels) of the Reference Offer) and both parties shall agree the time of the report. The Access Provider shall commence repair of the Fault within:

(a) One (1) hour during Working Hours; or
(b) Two (2) hours outside of Working Hours,
from the time of the Access Seeker reporting the Fault and shall restore the Service in accordance with the Service Levels. The Access Provider shall advise the Access Seeker nominated contact point once the Fault is clear and both parties shall record the time of this clearance.

Protection

3.40 If requested by the Access Seeker, the Access Provider shall provide logical protection for the DS Aggregation Link at a fixed monthly Charge as set out in Schedule 3 - (Pricing) of this Reference Offer.

4. CHARGES

4.1 The Access Seeker shall pay to the Access Provider the relevant Charges determined in accordance with Schedule 3 - (Pricing) of this Reference Offer.

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<thead>
<tr>
<th>Service Type</th>
<th>Service Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethernet service point-to-point or Ethernet service point-to-multipoint (Pseudowire Ethernet tagged mode with port-based aggregation or virtual aggregation) providing guaranteed symmetrical bandwidth</td>
<td><strong>Interface</strong></td>
</tr>
<tr>
<td><strong>Connector</strong></td>
<td>Fibre Access: Single mode LC</td>
</tr>
<tr>
<td><strong>Speed</strong></td>
<td>Please refer to ANNEX 1</td>
</tr>
<tr>
<td><strong>Mode</strong></td>
<td>Duplex</td>
</tr>
<tr>
<td><strong>MAC Layer Supported</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>MAC Address Learning</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Frame Size</strong></td>
<td>Min 1518, Max 9600 (Jumbo frame), default 1522</td>
</tr>
<tr>
<td><strong>Class of Service</strong></td>
<td>100% Real-Time. No Over Utilisation</td>
</tr>
<tr>
<td><strong>Maximum Number of CE-VLANs</strong></td>
<td>4096</td>
</tr>
<tr>
<td><strong>Unicats Traffic Limit</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Multicast Traffic Limit</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Broadcast Traffic Limit</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Protocol Treatment</strong></td>
<td>Spanning Tree Protocol (STP), Rapid Spanning Tree Protocol (RSTP), Multiple Spanning Tree Protocol (MSP)</td>
</tr>
<tr>
<td><strong>Quality of Service</strong></td>
<td>Round Trip Delay (Frame Transfer Delay): 5ms Jitter (Frame Delay Variations): &lt; 5ms Frame Loss Ratio: 0%</td>
</tr>
<tr>
<td></td>
<td>Pause 802.3 Link Aggregation Protocol (LACP) (802.1AG), (802.1Q), (802.1D), (802.1P)</td>
</tr>
</tbody>
</table>
* Frame sizes 64 bytes and 128 bytes are supported by the MBS service but may experience reduced performance.

Customer Premises Equipment (CPE) type:
1 Gbits/s and below - Huawei S5300 SW + (3X 1G SFP) + 1 x 1G SFP+
Above 1 Gbits/s - Huawei S5300 SW + (4X 1G SFP) + 1 x 10G SFP+

The Access Provider shall include multiple CPE options, to include CPE options which are available from alternative vendors. The Access Provider reserves the right to vary the CPE from time to time.

Optional Levels of Protection available for the DS Service:
The Access Provider provides below a summary of the various levels of protection available for the DS service:

(NOTE – for the purposes of this table, End User refers to the MNO Wireless Radio Site)

The Access Provider may also consider a request from an Access Seeker for a full end-to-end physical path redundancy that requires delivery of a secondary Connection/Aggregation Link in a different lead-in duct to the building, where this is reasonable. In such cases, the applicable Charges shall be determined in accordance with the provisions of this Service Description.
# ANNEX 3

PROVISIONING VALIDATION TEST

<table>
<thead>
<tr>
<th>Provisioning Validation Test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing Methodology</td>
<td>ITU-T Y.1564</td>
</tr>
<tr>
<td>Testing Mode</td>
<td>Layer 1-2 Loopback test. Tester simulates CPE</td>
</tr>
<tr>
<td>Parameters tested</td>
<td>Throughput, Frame loss</td>
</tr>
<tr>
<td>Tester Speed Setting</td>
<td>DS Service Speed</td>
</tr>
<tr>
<td>Tester Frame Size</td>
<td>64, 128, 256, 512, 1024, 1280 and 1518 bytes</td>
</tr>
<tr>
<td>Acceptance criteria</td>
<td>Achieved throughput of 95% of DS Service Speed with zero frame loss. Five test iterations of approximately 10 minutes each conducted.</td>
</tr>
<tr>
<td>Test Results</td>
<td>Copy provided to the Access Seeker upon request at time of testing</td>
</tr>
</tbody>
</table>
Schedule 6.5 - Optical Wavelength Service (OWS) Service Description
SERVICE DESCRIPTION
OPTICAL WAVELENGTH SERVICE (OWS)

1. THE SERVICE

Service Description

1.1 The Optical Wavelength Service (OWS) is a high-speed circuit that uses Dense Wavelength Division Multiplexing (DWDM) on the Access Provider’s dedicated fibre within the Kingdom of Bahrain between:
   (a) two Access Seeker’s Points of Presence; or
   (b) an Access Seeker’s Point of Presence and a Wireless Radio Site.

1.2 The Service is provided with a number of options regarding its technical characteristics. These are specified in Annex 1 of this Service Description.

1.3 The Service is available to Access Seekers holding an Individual Mobile Telecommunications License.

2. DEFINITIONS

Capitalised terms not defined in this Service Description are defined in Schedule 8 - (Dictionary) of the Reference Offer. Terms defined in this Service Description are specific to it.

Access Seeker Core Mobile Site means a location in Bahrain owned or controlled by the Access Seeker which hosts equipment for mobile control functionality on its Mobile Network.

Connection means an individual OWS Service.

Customer Premises Equipment or CPE means that Equipment forming part of the OWS at the Wireless Radio Site / Point of Presence.

Minimum Service Period means an applicable minimum period of twenty-four (24) calendar months for which the OWS Service shall be provided, such period commencing from the Service Commencement Date.

OWS Amended Service means an OWS Service that is amended by a Change Request.

OWS Service means the service defined at paragraph 1 above.

Renewed Minimum Service Period means an applicable minimum period of one (1) month for which the OWS Service shall be provided, such period commencing from the expiry of a Service Period.

Service Period means the Minimum Service Period or Renewed Minimum Service Period.

3. TERMS

Forecasting

3.1 The Access Seeker shall provide the Access Provider with a binding forecast of the number of new Connections. These forecasts shall be provided every quarter (three (3) months) commencing from the Service Commencement Date.

3.2 The period of each forecast shall cover the following information for the subsequent five (5) quarters:
(a) Wireless Radio Site address or another identifier in a form that is accepted by the Access Provider acting reasonably;
(b) Point of Presence address or another identifier in a form that is accepted by the Access Provider activity reasonably; and
(c) Capacity required to connect the Wireless Radio Site to the Point of Presence or to connect a Point of Presence to another Point of Presence.

3.3 The Access Seeker shall use all reasonable endeavours to forecast accurately given that the Access Provider is placing reliance on those forecasts. The forecasting process is set out in Schedule 5 - (Forecasting) of the Reference Offer.

3.4 New Connections can only be guaranteed to be met up to the numbers forecasted. For the actual new Connections in excess of those forecasted, the Access Provider shall take all reasonable endeavours to provide those Connections but cannot guarantee that they will be provided within the Schedule 7 – (Service Levels) of the Reference Offer.

3.5 The forecast provided represents a good faith expectation of the Access Seeker of its requirement for new Connections. In the event that the actual number of new Connections is less than that forecasted, a penalty will be incurred by the Access Seeker, as set out in the Schedule 5 - (Forecasting) of the Reference Offer.

Use of Service

3.6 The OWS Service shall only be made available to connect an Access Seeker’s Points of Presence and Wireless Radio Site and not any other residential or non-residential entity or End User.

3.7 Where the Access Provider reasonably suspects breach of paragraph 3.6 it may refer the matter as a complaint for investigation by the Regulator.

3.8 Where the Regulator establishes after an investigation under paragraph 3.7 that an Access Seeker is not using the OWS Service in accordance with this Service Description, the Access Provider without prejudice to any other rights and remedies under the Supply Terms may by immediate written notice suspend or terminate the specific OWS Connection and the Access Seeker shall be liable to pay the Access Provider liquidated damages calculated in accordance with paragraph 3.21.

Supply of Service

3.9 The Access Seeker shall submit a Service Request to the Access Provider to request supply of the OWS Service in the manner communicated by the Access Provider.

3.10 The Access Provider shall within two (2) Working Days notify the Access Seeker if the Service Request is accepted or rejected and where applicable, state the required corrections. The Access Provider reserves the right to reject the Service Request during this stage if the Access Provider’s point to point fibre network does not extend to the requested area within the Kingdom of Bahrain because the Point of Presence or the Wireless Radio Site is anywhere not on the main island of Bahrain unless connected by a permanent physical connection above sea level and accessible by the Access Provider.

3.11 In the event a Service Request is rejected then the Access Provider shall provide the Access Seeker with clear reasons for the rejection at the same time of the rejection and identify the changes required to enable the Service Request to be accepted.

3.12 If the Access Seeker submits a Cancellation Request three (3) or more Working Days after the Notification of the Expected RFT and RFS Dates and where this is not related to delay in the Actual
RFT and Actual RFS Date by the Access Provider, the Access Seeker shall (subject to receipt of an appropriate invoice) be liable to pay three (3) MRCs to the Access Provider.

3.13 Within five (5) Working Days from the date of the acceptance of the Service Request, the Access Provider shall notify the Expected RFT and RFS Dates to the Access Seeker in writing, as specified in Schedule 7 – (Service Levels) of the Reference Offer.

3.14 The Access Provider shall deliver the OWS Service on or before the standard time scales set out in Schedule 7 – (Service Levels) of the Reference Offer. The parties acknowledge and accept that exceptional circumstances, such as those set out below, may give rise to delays in any stage of the acceptance, provisioning and delivery of a Service Request. If the occurrence of any of the events below takes place, the Access Provider shall communicate the Exceptional Delivery Date to the Access Seeker and shall not be held liable for the Service Level Penalties. The exceptional circumstances shall only comprise:

(a) a Force Majeure Event or a Regulatory Event;

(b) Emergency Maintenance; or

(c) any material breach of the Access Seeker’s obligations.

The Access Provider shall, in notifying the Access Seeker of the Exceptional Delivery Date, provide sufficient evidence so as to justify the reasons for the delay in delivery.

3.15 If the Access Provider technician must be present at the Wireless Radio Site to install an OWS Service, and if, for any reason, the Access Provider cannot be available on the Expected RFT Date for such installation, the Access Seeker shall give the Access Provider a minimum written notice of one (1) Working Day. The new dates for RFT and RFS are then set following the below principles:

(a) The Access Provider shall propose the next earliest dates for which the Access Provider technician would be available for the installation which shall be a minimum of one (1) Working Day notice unless waived by the Access Seeker. The earliest proposed date(s) should not exceed two (2) Working Days from the RFT and RFS Dates.

(b) The Expected RFS Date is also modified and is set apart from the Expected RFT Date by the Maximum Validation Time of three (3) Working Days (see Schedule 7 – (Service Levels) of the Reference Offer). The Maximum RFS Date is then set equal to the Expected RFS Date.

(c) The Access Provider shall send the Access Seeker a notice of the applicable Expected RFT Date and Expected RFS Date.

3.16 In addition, if at least one of the following two conditions is met (i) the Access Seeker does not provide the Access Provider a minimum written notice of one (1) Working Day to inform of its unavailability; or (ii) the Access Provider sends a technician who is not able to access the Wireless Radio Site to install the service, then except for cases of Force Majeure affecting the Access Seeker, the Access Seeker is liable to pay the installation and configuration charge for the requested service as specified in Schedule 3 - (Pricing) of the Reference Offer. In such case, the modification and Notification of Expected RFS Date, and the Maximum RFS Date follow the same principles as described in the above paragraph 3.16.

3.17 Subject to the Access Seeker fulfilling all of its obligations set out in paragraphs 3.26 to 3.31 below, the Access Provider shall provide and the Access Seeker shall acquire the OWS Service either within the standard timescales or by the Exceptional Delivery Date as appropriate. The Service Levels shall not apply for new Connections exceeding the forecast parameters in paragraph 3.1.

3.18 The Service Level Terms shall apply to:

(a) New Connection – provide a new OWS Service as requested by the Access Seeker;
(b) Upgrade or Downgrade;
(c) Hot and Cold Migration – changing the End User address of an existing Connection, requiring disconnection and reconnection of the Connection end point, including "hot migration" which is when the Connection is not disrupted and "cold migration" which is when the Connection can be disrupted;
(d) Reconfiguration – reconfigure technical parameters of an existing Connection; or
(e) Cancellation – the Access Seeker requests the cessation of an existing Connection.

3.19 Further information relating to the applicable Service Level Terms and Service Level Penalties for the above is detailed in the Schedule 7 – (Service Levels) of the Reference Offer.

3.20 The Access Provider shall provide to the Access Seeker a monitoring tool, which shall enable the Access Seeker to monitor the Service against the following minimum parameters. This monitoring tool shall provide monitoring facilities 24 hours a day, 7 days a week, 365 days a year. The minimum parameters shall include:
(a) Link availability; and
(b) Latency per circuit.

Termination

3.21 Where the Minimum Service Period has not expired, the Access Seeker shall be entitled to terminate the OWS Service on at least one (1) month’s written notice to the Access Provider and shall be liable to pay liquidated damages as calculated by the following formula.
Formula for calculating liquidated damages:
LD = MRC x (24-M)

where:
LD = liquidated damages to be paid.
MRC = Monthly Recurring Charge for the OWS Service.
M = number of months between the Actual RFS Date and the removal order date rounded-up to the next full month.

3.22 The Access Seeker expressly acknowledges that liquidated damages as calculated above form a reasonable pre-estimate of the loss which the Access Provider would suffer as a result of early termination by the Access Seeker. Such liquidated damages shall be the Access Provider's sole and exclusive damages or monetary remedy for such early termination.

3.23 Following the expiry of any Minimum Service Period the OWS Service shall be automatically renewed for successive Renewed Minimum Service Periods unless and until terminated by the Access Seeker, provided that the Access Seeker supplies the Access Provider with a termination notice at least one (1) month prior to the expiry of the current Service Period.

Amendment to the OWS Service

3.24 The Access Seeker shall be entitled to amend an OWS Service by requesting an OWS Amended Service where this is an Upgrade by providing an Upgrade Request to the Access Provider. The Access Seeker shall only be entitled to Downgrade the throughput of a Connection when the Minimum Service Period has expired. Where the Access Seeker requests an OWS Amended Service, then the Service Request procedure set out in the Service Description shall apply to that
request. Where the Access Seeker requests an OWS Amended Service that requires any new Network resources and/or facilities then a new Minimum Service Period shall commence and the Access Provider shall provide an OWS Amended Service for the new Service Period.

3.25 The Access Seeker shall not be liable for any termination or additional recurring charges in respect of a request for an OWS Amended Service which is for a relocation. The Access Provider shall charge a once off charge for the relocation unless the Access Seeker requires both Connections to be operational in parallel. The Access Provider shall not terminate the Connection which is subject to relocation until the Service Commencement Date of the new Connection.

Access Seeker Obligations

3.26 The Access Seeker shall provide the Access Provider with suitable space for, and access during Working Hours to, any Access Provider Equipment required to be located in any building in which the OWS Service is located within the control of the Access Seeker. If consent is required from a third party, the Access Seeker shall procure such consent. The Access Provider is not required to pay the Access Seeker for the preparation or use of, or access to, space provided pursuant to this sub-paragraph.

3.27 When provisioning a Service Request requiring new duct build, the Access Provider is responsible for construction of the duct on public land up until the demarcation point being the boundary of the plot where the Wireless Radio Site is located. The Access Seeker is responsible for construction of the lead-in duct or in-building duct or conduit from the demarcation point to the Wireless Radio Site and/or aggregation Point of Presence.

3.28 If the Access Provider’s Equipment requires electricity supply and electricity connection points, they shall be supplied, in the location specified by the Access Provider, to the Access Seeker at the Access Seeker’s expense according to the equipment specification. Such electricity shall be available at the same level of supply, protection and continuity as that available to the Access Seeker’s Equipment, as appropriate.

3.29 The Access Seeker shall be solely responsible for any loss, theft or destruction of, or damage (reasonable wear and tear excepted) to the Access Provider’s Equipment required to be located in the building where the OWS Service is provided and which is within the control of the Access Seeker, occurring any time and howsoever caused (unless caused by the Access Provider or its agents).

3.30 The Access Seeker shall provide the Access Provider and any authorised employee, agent, affiliate or contractor of the Access Provider with all information and assistance that person may reasonably require to design, test, commission and maintain the OWS Service (which may include participation in testing procedures as and when reasonably requested by the Access Provider).

3.31 The Access Seeker may require their agent to be present during the installation, testing or commissioning done by the Access Provider but not so as to affect the Service Commencement Date.

Planned and Emergency Maintenance

3.32 The Access Provider may suspend any OWS Service in order to carry out Planned or Emergency Maintenance.

3.33 In the case of Planned Maintenance, this shall be carried out as far as possible during the night or at weekends or other quiet periods. The Access Provider shall give ten (10) Working Days’ notice of each Planned Maintenance activity affecting a particular OWS Service or group of OWS Services. This shall include the circuits affected, the date and time of the suspension and the likely duration of the suspension. The Access Provider shall use its reasonable endeavours to take into
account the reasonable operational concerns of the Access Seeker before implementing any Planned Maintenance.

3.34 In the case of Emergency Maintenance, the Access Provider shall give the Access Seeker notice via email five (5) Working Days in advance. This notice shall include the affected circuit(s), the date and time of the Emergency Maintenance and the expected duration of the Emergency Maintenance. The Access Provider shall use its best endeavours to seek to carry out maintenance outages as much as possible during the night, at weekends or at a time agreeable with the Access Seeker.

3.35 In cases of Emergency Maintenance, the Access Provider shall advise the Access Seeker within five (5) hours after service is restored with a report of the cause of the Fault.

**Maintenance and Support**

3.36 The Access Provider shall provide maintenance and support services in respect of the OWS Service in accordance with the Schedule 7 – (Service Levels) of the Reference Offer.

3.37 The Access Seeker shall report a Fault to the Access Provider’s nominated contact point which shall be available twenty-four (24) hours per day every day. The Access Provider shall record the Fault using a unique reference number which it shall pass to the Access Seeker at the same time as acknowledging the Fault in accordance with Schedule 7 – (Service Levels) of the Reference Offer. The Access Provider shall commence repair of the Fault within:

(a) Two (2) hours during Working Hours; or
(b) Four (4) hours outside of Working Hours.

from the time of the Access Seeker reporting the Fault and shall restore the Service in accordance with the Service Levels. The Access Provider shall advise the Access Seeker’s nominated contact point once the Fault is clear and both parties shall record the time of this clearance.

**Protection**

3.38 If requested by the Access Seeker, the Access Provider shall provide logical protection for the OWS Service at a fixed monthly Charge as set out in Schedule 3 – (Pricing) of the Reference Offer.

**4. CHARGES**

4.1 The Access Seeker shall pay to the Access Provider the relevant Charges determined in accordance with Schedule 3 – (Pricing) of the Reference Offer.

4.2 All Charges and sums due from one party to the other under this Agreement are exclusive of VAT. Any VAT shall be charged in accordance with the relevant regulation in force at the time of making the taxable supply and shall be paid by the paying party following receipt from the billing party of a valid VAT invoice.

**5. SERVICE LEVELS**

5.1 The Access Provider shall provide the OWS Services in accordance with the Service Levels specified in Schedule 7 – (Service Levels) of the Reference Offer.
### ANNEX 1
CIRCUIT SPEEDS, DEFINED INTERFACES, MEDIA AND TOPOLOGY

<table>
<thead>
<tr>
<th>Service element</th>
<th>Interface</th>
<th>Connector</th>
<th>Topology</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection terminating at Wireless Radio Site or Point of Presence</td>
<td>OTU1/OTU2/OTU3/OTU4 FICON</td>
<td>SFP/XFP, LC/PC</td>
<td>Point-to-point</td>
<td>Fibre</td>
</tr>
</tbody>
</table>
ANNEX 2

TECHNICAL CHARACTERISTICS
## ANNEX 3
### PROVISIONING VALIDATION TEST

<table>
<thead>
<tr>
<th>Provisioning Validation Test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing Methodology</td>
<td>ITU-T Y.1564</td>
</tr>
<tr>
<td>Testing Mode</td>
<td></td>
</tr>
<tr>
<td>Parameters tested</td>
<td></td>
</tr>
<tr>
<td>Tester Speed Setting</td>
<td></td>
</tr>
<tr>
<td>Tester Frame Size</td>
<td></td>
</tr>
<tr>
<td>Acceptance criteria</td>
<td></td>
</tr>
<tr>
<td><strong>Test Results</strong></td>
<td><strong>Copy provided to the Access Seeker upon request at time of testing</strong></td>
</tr>
</tbody>
</table>
ANNEX 4

OWS SERVICE DIAGRAMS

The diagram is a simple representation of a DWDM system used to deliver the OWS Service. It shows a single and multiple service interfaces per wavelength. The Access Seeker would connect their equipment to a service interface.
Schedule 6.6 - Fronthaul Access Service (FAS) Service Description
SERVICE DESCRIPTION
FRONTHAUL ACCESS SERVICE (FAS)

1. THE SERVICE

Service Description

1.1 The Fronthaul Access Service (FAS) is the point-to-point provision of dark fibre between the Baseband Unit (BBU) and the Remote Radio Head (RRH) of the network of an Access Seeker.

1.2 The Service will provide point-to-point dedicated connectivity, between the BBU and the RRH, as required.

1.3 The Service may include provision of duct to support the fibre as well as the fibre connection.

1.4 The Service is available to Access Seekers holding an Individual Mobile Telecommunications License.

2. DEFINITIONS

Capitalised terms not defined in this Service Description are defined in Schedule 8 - (Dictionary) of the Reference Offer. Terms defined in this Service Description are specific to it.

Baseband Unit (BBU) means responsible for processing the baseband signals, where baseband signal refers to the signal from a Remote Radio Head that is unmodulated, via an optical interface. The BBU is connected with the RRH through CPRI (Common Public Radio Interface) fibre cables.

Connection means an individual FAS Service as described in paragraph 1.

Minimum Service Period means an applicable minimum period of twenty four (24) calendar months for which the FAS Service will be provided, such period commencing from the Service Commencement Date.

Remote Radio Head (RRH) means a remote radio transceiver that connects to the BBU via an optical interface.

Renewed Minimum Service Period means an applicable minimum period of one (1) month for which the FAS Service shall be provided, such period commencing from the expiry of a Service Period.

Service Period means the Minimum Service Period or Renewed Minimum Service Period.

3. TERMS

Forecasting

3.1 The Access Seeker shall provide the Access Provider with a binding forecast of the number of new Connections. These forecasts shall be provided every quarter (three (3) months) commencing from the Service Commencement Date.

3.2 The period of each forecast shall cover the following information for the subsequent five (5) quarters:

(a) Wireless Radio Site address or another identifier in a form that is accepted by the Access Provider acting reasonably;

(b) Point of Presence address or another identifier in a form that is accepted by the Access Provider acting reasonably; and
(c) Capacity required to connect the BBU to the RRH.

3.3 The Access Seeker shall use all reasonable endeavours to forecast accurately given that the Access Provider is placing reliance on those forecasts. The forecasting process is set out in Schedule 5 - (Forecasting) of the Reference Offer.

3.4 New Connections can only be guaranteed to be provided up to the numbers forecasted. For actual new Connections in excess of those forecasted, the Access Provider shall take all reasonable endeavours to provide those Connections requested but cannot guarantee that they will be provided within the timescale set out in the Schedule 7 - (Service Levels) of the Reference Offer.

3.5 The forecast provided represents a good faith expectation of the Access Seeker of its requirement for new Connections. In the event that the actual number of new Connections is less than that forecasted, a penalty will be incurred by the Access Seeker, as set out in Schedule 5 - (Forecasting) of the Reference Offer.

Use of Service

3.6 The FAS Service shall only be made available to connect the BBU to the RRH.

3.7 Where the Access Provider reasonably suspects a breach of paragraph 3.6, it may refer the matter as a complaint for investigation by the Regulator.

3.8 Where the Regulator establishes after an investigation under paragraph 3.7 that an Access Seeker is not using the FAS in accordance with this Service Description, the Access Provider without prejudice to any other rights and remedies under the Supply Terms may by immediate written notice suspend or terminate the specific FAS Connection and the Access Seeker shall be liable to pay the Access Provider liquidated damages, equal to the difference in Charges for the remaining Service Period between the actual Charges paid for the non-compliant FAS and the Charges that would have been paid for a compliant service (if they are higher).

Supply of Service

3.9 The Access Seeker shall submit a Service Request to the Access Provider to request supply of the FAS Service in the manner communicated by the Access Provider.

3.10 The Access Provider shall within three (3) Working Days notify the Access Seeker if the Service Request is accepted or rejected and where applicable, state the required corrections.

3.11 In the event a Service Request is rejected then the Access Provider shall provide the Access Seeker with sufficiently detailed reasons for the rejection at the same time of the rejection and identify the changes required to enable the Service Request to be accepted.

3.12 If the Access Seeker submits a Cancellation Request three (3) or more Working Days after the Notification of the Expected RFS Date and where this is not related to delay in the actual RFS Date by the Access Provider, the Access Seeker shall (subject to receipt of an appropriate invoice) be liable to pay three (3) MRCs to the Access Provider.

3.13 Within five (5) Working Days from the date of the acceptance of the Service Request, the Access Provider shall notify the Expected RFS Date to the Access Seeker in writing as specified in Schedule 7 - (Service Levels) of the Reference Offer.

3.14 The Access Provider shall deliver the FAS Service on or before the standard time scales summarised in the Schedule 7 - (Service Levels) of the Reference Offer. The Parties acknowledge and accept that exceptional circumstances, such as those set out below, may give rise to delays in any stage of the acceptance, provisioning and delivery of a Service Request. If the occurrence of
any of the events below takes place, the Access Provider shall communicate the Exceptional Delivery Date to the Access Seeker and shall not be held liable for the Service Level Penalties. The exceptional circumstances shall only comprise:

(a) a Force Majeure Event or a Regulatory Event;
(b) Emergency Maintenance; or
(c) any material breach of the Access Seeker's obligations.

3.15 The Access Provider shall, in notifying the Access Seeker of the Exceptional Delivery Date, provide sufficient evidence so as to justify the reasons for the delay in delivery.

3.16 If the Access Provider technician must be present at the Access Seeker’s site, as specified in the Service Request, to install a FAS Connection, and if, for any reason, the Access Seeker cannot be available on the Expected RFS Date for such installation, the Access Seeker shall give the Access Provider a minimum written notice of one (1) Working Day. The new dates for RFS are then set following the below principles:

(a) the Access Provider shall propose the next earliest dates for which the Access Provider technician would be available for the installation, which shall be a minimum of one (1) Working Day notice unless waived by the Access Seeker. The earliest proposed date(s) shall not exceed two (2) Working Days from the RFT and RFS Dates.

(b) the Access Provider shall send the Access Seeker a notice of the applicable Expected RFS Date, and Maximum RFS Date.

3.17 In addition, if at least one of the following two conditions is met (i) the Access Seeker does not provide the Access Provider a minimum written notice of two (2) Working Days to inform of its unavailability; or (ii) the Access Provider sends a technician who is not able to access the BBU or RRH to install the service, then except for cases of Force Majeure affecting the Access Seeker, the Access Seeker is liable to pay the installation and configuration charge for the requested service as specified in Schedule 3 - (Pricing) of the Reference Offer. In such case, the modification and Notification of the Expected RFS Date, and the Maximum RFS Date follow the same principles as described in paragraph 3.16.

3.18 The Access Seeker shall, in this case, be liable to pay only the incurred man-day costs of the Access Provider technician.

3.19 In addition, if the Access Provider does not provide the Access Seeker a minimum written notice of (2) two Working Days to rearrange a site visit under paragraph 3.17 above, then the Access Provider is liable to waive an amount equal to one installation and configuration charge for the FAS Service.

3.20 Subject to the Access Seeker fulfilling all of its obligations set out in paragraphs 3.27 to 3.31 below, the Access Provider shall provide and the Access Seeker shall acquire the FAS Service either within the standard time scales or by the Exceptional Delivery Date as appropriate. The Service Levels shall not apply for new Connections exceeding the forecast parameters in paragraph 3.1.

3.21 Where the Access Provider has accepted a Service Request, which requires the deployment of fibre access to the BBU or RRH, the Access Provider may seek to recover the costs of such deployment.

3.22 The Service Level Terms shall apply to:

(a) New Connection — provide a new FAS Service as requested by the Access Seeker;
(b) Reconfiguration — reconfigure technical parameters of an existing Connection; and
(c) Cancellation – the Access Seeker requests the cessation of an existing Connection.

3.23 Further information relating to the applicable Service Levels Terms and Service Level Penalties for the above is detailed in Schedule 7 - (Service Levels) of the Reference Offer.

Termination

3.24 Where the Minimum Service Period has not expired, the Access Seeker shall be entitled to terminate such FAS Service on at least one (1) month’s written notice to the Access Provider and shall be liable to pay liquidated damages as calculated by the following formula.

Formula for calculating liquidated damages:

\[ LD = MRC \times (24-M) \]

where:

- \( LD \) = liquidated damages to be paid.
- \( MRC \) = Monthly Recurring Charge for the FAS Service.
- \( M \) = number of months between the Actual RFS Date and the removal order date rounded-up to the next full month.

3.25 The Access Seeker expressly acknowledges that liquidated damages as calculated above form a reasonable pre-estimate of the loss which the Access Provider would suffer as a result of early termination by the Access Seeker. Such liquidated damages shall be the Access Provider’s sole and exclusive damages or monetary remedy for such early termination.

3.26 Following the expiry of any Minimum Service Period the FAS Service shall be automatically renewed for successive Renewed Minimum Service Periods unless and until terminated by the Access Seeker, provided that the Access Seeker supplies the Access Provider with a termination notice at least one (1) month prior to the expiry of the current Service Period.

Access Seeker Obligations

3.27 The Access Seeker shall provide the Access Provider with suitable space for, and access during Working Hours to any Access Provider Equipment required to be located in any building in which the FAS Service is located within the control of the Access Seeker. If consent is required from a third party, the Access Seeker shall procure such consent. The Access Provider is not required to pay the Access Seeker for the preparation or use of, or access to, space provided pursuant to this sub-paragraph.

3.28 When provisioning a Service Request requiring new duct build, the Access Provider is responsible for construction of the duct on public land up until the demarcation point being the boundary of the plot where the BBU and RRH is located.

3.29 The Access Seeker shall be solely responsible for any loss, theft or destruction of, or damage (reasonable wear and tear excepted) to the Access Provider’s Equipment required to be located in the building in which the FAS Service is provided and which is located within the control of the Access Seeker, occurring any time and howsoever caused (unless caused by the Access Provider or its agents).

3.30 The Access Seeker shall provide the Access Provider and any authorised employee, agent, affiliate or contractor of the Access Provider with all information and assistance that person may reasonably require to design, commission and maintain the FAS Service.
3.31 The Access Seeker may require their agent to be present during the installation, testing or commissioning done by the Access Provider but not so as to affect the Service Commencement Date.

**Maintenance and Support**

3.32 The Access Provider shall provide maintenance and support services in respect of the FAS Service in accordance with the Schedule 7 - (Service Levels) of the Reference Offer.

3.33 The Access Seeker shall report a Fault to the Access Provider nominated contact point which shall be available twenty-four (24) hours per day every day. The Access Provider shall record the Fault using a unique reference which it shall pass to the Access Seeker at the same time as acknowledging the Fault (see Schedule 7 - (Service Levels) of the Reference Offer) and both parties shall agree the time of the report. The Access Provider shall commence repair of the Fault within:

(a) Five (5) hours during Working Hours; or
(b) Twelve (12) hours outside of Working Hours,

from the time of the Access Seeker reporting the Fault and shall restore the Service in accordance with the Service Levels. The Access Provider shall advise the Access Seeker’s nominated contact point once the Fault is clear and both parties shall record the time of this clearance.

**4. CHARGES**

4.1 The Access Seeker shall pay to the Access Provider the relevant Charges determined in accordance with Schedule 3 - (Pricing) of the Reference Offer.

4.2 All Charges and sums due from one party to the other under this Agreement are exclusive of VAT. Any VAT shall be charged in accordance with the relevant regulation in force at the time of making the taxable supply and shall be paid by the paying party following receipt from the billing party of a valid VAT invoice.

**5. SERVICE LEVELS**

5.1 The Access Provider shall provide the FAS Services in accordance with the Service Levels specified in Schedule 7 – (Service Levels) of the Reference Offer.