SCHEDULE 6.3 - SERVICE DESCRIPTION
MOBILE DATA SERVICE (MDS)

THE SERVICE

1. SERVICE DESCRIPTION

1.1. The Mobile Data Service (the '**MDS**') represents an input into the operations of the mobile telecommunications networks within the Kingdom of Bahrain and provides the Access Seeker with a choice between Managed or Unmanaged Connections, whereas

1.1.1. **Managed MDS** (the '**MDS-M**'): involves uncontended, symmetrical, dedicated point-to-point private leased circuit/ Connection, with a CPE for service management provided by the Access Provider, between (i) an Access Seeker's Core Mobile Site and (ii) an Access Seeker's Wireless Radio Site.

1.1.2. **Unmanaged MDS** (the '**MDS-U**'): involves a point-to-point link using for each MDS-U Connection a single Fiber Pair, to establish Connection(s) between:

a) an Access Seeker's Core Mobile Site and an Access Seeker's Wireless Radio Site, or

b) two different Access Seeker's Wireless Radio Sites, or

c) a Baseband Unit (BBU) and the corresponding Remote Radio Head (RRH) which are forming part of the Access Seeker's Mobile Network.

1.2. The technical characteristics of both Managed and Unmanaged MDS are specified in Annex 1 of this Service Description.

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

1.4. The Managed MDS Service provides the following service characteristics, and these parameters are tested in the acceptance criteria during the testing validation of a new Managed MDS Connection:

1.4.1. Round Trip Delay (Frame Transfer Delay): 2ms

1.4.2. Jitter (Frame Delay Variations): < 1ms

1.4.3. Frame Loss Ratio: 0%

1.5. The parties agree that these service characteristics of the Managed MDS are not continuously or repeatedly monitored and/or tested once the Managed MDS has been commissioned and in service.

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.

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

Baseband Unit (BBU) means the unit 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 to the RRH through CPRI (Common Public Radio Interface) fibre cables.

Connection means an individual point-to-point link forming part of the Mobile Data Service as described in paragraph 1.

Core Mobile Site means a location in the Kingdom of Bahrain owned or controlled by an Access Seeker which hosts equipment for mobile network control functionality (i.e. aggregate sites into platforms such as MSC, RNS, BSC or EPC, etc.) on its Mobile Network.

Customer Premises Equipment or **CPE** means:

a) in case of Managed MDS, the Equipment forming part of the Managed MDS provided by the Access Provider only (which is the Access Provider's Equipment throughout the Service Period and shall be collected by the Access Provider when no longer required) and located at the Wireless Radio Site more particularly specified under Annex 2 (Technical Characteristics), and

b) in case of Unmanaged MDS, end point transport equipment connected to the Access Seeker's mobile telecommunications network, which the party procuring such equipment and providing it to the Access Provider to use it for Unmanaged MDS shall be obliged to ensure, fully complies with all relevant standards and approvals as may be required by the Telecommunications Law and any regulations forming part of the telecommunication's regulatory framework in the Kingdom.

Fiber Pair means, for Unmanaged MDS, a single fiber optic pair forming part of the Access Provider's licensed fixed fibre network that is provided by the Access Provider and is connected to the CPE, which is provided either by the Access Provider or by the Access Seeker (at the Access Seeker's choice), to establish the MDS-U Connection(s) as further described in Clause 1.1.2.

MDS Amended Service means a Managed MDS Service that is amended by a Change Request, or Unmanaged MDS following a request for External or Internal Relocation of one of its end points.

MDS Operations Manual means Annex 5 (Part (A) for Managed MDS Service and Part (B) for Unmanaged MDS Service) of this Schedule 6.3.

Minimum Service Period means an applicable minimum period of twenty-four (24) calendar months for which the MDS Service shall be provided, such period commencing from the Service Commencement Date except for the cases set out in clause 3.11 below for Temporary Managed MDS.

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 MDS Service shall continue being provided following the completion of the Minimum Service Period, such period commencing after the expiry of the Minimum Service Period and being renewed automatically (and repeatedly), unless the Access Seeker decides to terminate it.

Service Period means the Minimum Service Period or any Renewed Minimum Service Period, and the Temporary Service Period for Managed MDS, where applicable.

Temporary Service Period means a period of a minimum of one (1) month and a maximum of (3) months under which an Access Seeker may request a new Managed MDS Connection or Upgrade of an existing Managed MDS Connection. Due to the nature of the Unmanaged MDS, this possibility does not apply to Unmanaged MDS.

Wireless Radio Site means a Public Radiocommunications Station located in the Kingdom of Bahrain as defined by the Telecommunications Law and the Regulation on Permitting, Installation, Upgrading and Maintenance of Public Radiocommunications Stations, as amended from time to time, owned or controlled by the Access Seeker, which is used to serve End Users with mobile telecommunications services through sectoral antennae.

3. TERMS

Use of Service

3.1. The MDS Service shall only be made available to:

3.1.1. connect the relevant mobile network equipment located at the end point(s) described in Clause 1.1 above for the purpose of conveyance and/or routing of messages, sound, visual images or signals on mobile telecommunications network of the Access Seeker, and

3.1.2. without prejudice to Clause 3.1.1, not to connect any other Point of Presence or provide other connectivity services to residential or non-residential end users or connect any other equipment or for any other purpose.

3.2. For Unmanaged MDS, the Access Provider shall be entitled to verify compliance of the Access Seeker's request with clause 3.1 and that each Unmanaged MDS Connection provisioned to the Access Seeker is provided over an active interface over the CPE at the time of Unmanaged MDS provisioning and before the Commencement Date. In case of any suspected breach of this clause 3.1, the Access Provider shall be entitled to refer the matter for resolution to the Regulator.

3.3. Where the Access Seeker procures its own CPE to be connected to Unmanaged MDS, the Access Seeker shall provide such CPE to the Access Provider for the Access Provider to, in coordination with the Access Seeker, connect it to the respective MDS-U Connection at the time of Unmanaged MDS provisioning and enable the Access Seeker to utilise the Unmanaged MDS Connection as an active service for transmission through the CPE. The Access Seeker shall provide to the Access Provider all cooperation and assistance including for connection to the CPE and final testing reasonably necessary for purposes of delivering the MDS-U for its use by the Access Seker as an active service. The Access Provider shall incur no liability regarding the deployment, use and connection of the CPE provided by the Access Seeker.

3.4. Where the Access Seeker requests the Access Provider to procure and provide the CPE to be connected to Unmanaged MDS, then the Access Provider shall be entitled to apply a Charge covering all the costs of that CPE, its installation and use by the Access Provider for the connection to the Unmanaged MDS, in addition to the other MDS-U Charges as set in Schedule 3.

3.5. The Access Seeker may not resell the MDS Service to another Licensed Operator.

3.6. Where the Access Provider at any time reasonably suspects breach of this clause 3, it may refer the matter as a complaint for investigation by the Regulator.

3.7. Where the Regulator establishes after an investigation under this clause 3.23 that the Access Seeker does not intend to use or is not using the Service in accordance with this Service Description, the Access Provider, without prejudice to any other rights and remedies under Schedule 9 (Supply Terms), may by immediate written notice discontinue the provision of the MDS or suspend or terminate all or part of the MDS and the Access Seeker shall be liable to pay the Access Provider liquidated damages, calculated in accordance with the process set out in the MDS Operations Manual, where applicable.

Supply of Service

3.8. The Access Seeker shall submit a Service Order to the Access Provider to request supply of the Managed or Unmanaged MDS Service in accordance with the terms of this Reference Offer and, in the manner, and in accordance with the process set out in the relevant MDS Operations Manual.

3.9. The Service Level Terms, which are distinct and separate for Managed MDS and Unmanaged MDS, shall apply to:

3.9.1. New MDS Connection – provide a new Connection as requested by the Access Seeker;

3.9.2. For Managed MDS: Upgrade or Downgrade;

3.9.3. For Managed MDS: Cold Migration – change the Wireless Radio Site address of an existing Connection, requiring disconnection and reconnection of the Connection end point;

3.9.4. For Managed MDS: Reconfiguration – reconfigure technical parameters of an existing Managed MDS Connection; and

3.9.5. Cancellation – the Access Seeker requests the cessation of an existing MDS Connection.

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

3.11. The Access Seeker may request the Access Provider to provide Managed MDS, or upgrade an existing Managed MDS, for a Temporary Service Period ("**Temporary Managed MDS**"). The Access Seeker shall provide the Access Provider with sufficient technical detail to allow the Access Provider to review such request.

3.12. The Access Provider may reject a request for a Temporary Managed MDS if the same is not commercially, operationally, or technically feasible. The Access Provider reserves the right to reject the Temporary Managed MDS if its duct network and/or civil infrastructure does not extend to the location where the Temporary Managed MDS is requested.

3.13. Where the Access Provider agrees to provide a Temporary Managed MDS, the parties agree that such Temporary Managed MDS shall be subject to the charging set out in Schedule 3 (Pricing) for Temporary Managed MDS.

3.14. The Access Seeker may request a renewal of the Temporary Managed MDS Service for one or more Temporary Service Period(s) and agrees that such renewal shall be subject to the same charging mechanism as set out in Schedule 3 (Pricing).

3.15. The Access Provider may reject a renewal of a Temporary Managed MDS if it considers that such renewal is not commercially, operationally, or technically feasible.

3.16. For Managed MDS, the Access Provider shall provide to the Access Seeker a monitoring tool, which shall enable the Access Seeker to monitor the Service against the minimum parameters stipulated below. This monitoring tool shall provide monitoring facilities twenty-four (24) hours a day, seven (7) days a week, three-hundred and sixty-five (365) days a year. The minimum parameters shall include:

3.16.1. Link availability; and

3.16.2. Bandwidth utilisation;

3.17. For Unmanaged MDS, the Access Seeker acknowledges that the Access Provider shall have no means whatsoever for monitoring the Unmanaged MDS and that the Service is provided on an 'as-is' basis. The Access Seeker shall be obliged to report line faults to the Access Provider, and the Access Provider shall respond as noted hereunder.

Amendment to the MDS Service

3.18. The Access Seeker shall be entitled to amend a Managed MDS Service in accordance with the specific process set out for amending the MDS in the MDS Operations Manual (Part A for Managed MDS) for the following scenarios:

3.18.1. Internal Relocation; and

3.18.2. External Relocation.

3.19. The amendments listed in 3.18 above are limited to existing Managed MDS Connections only.

3.20. Due to the nature of Unmanaged MDS, the Access Seeker shall not be entitled to seek amendments to any Unmanaged MDS Connection with the exception of External or Internal relocation of a Wireless Radio Site or another end point of the Connection as described in clause 1.1 above. External relocation shall be made at the request of a competent authority. Provided the Access Seeker submits a request in writing, the Access Provider shall facilitate such a relocation and will provide amended Unmanaged MDS to the new location. The Service Period will remain being counted from the Commencement Date of the original Unmanaged MDS Connection before relocation. Charges for relocation as per Schedule 3 (Pricing) shall apply. Any charges will reflect the new distance of the relocated MDS Unmanaged Connection. For avoidance of doubt, relocation involves a change of location of one end point of an existing Unmanaged MDS Connection only (change to both end points will trigger a need for a new Unmanaged MDS Connection). For Internal Relocation, see the Unmanaged MDS Operational Manual.

Access Seeker Obligations

3.21. The Access Seeker shall make all necessary arrangements, including but not limited to providing any access or other permissions required to provide MDS Connection to its Core Mobile Site and/or Wireless Radio Site or any other location, as may be required, and arrange for the required site surveys to the abovementioned sites. The Access Provider shall not be held responsible or liable for any failure or a delay in the Access Seeker failing to ascertain the abovementioned permissions or access. Any such delays arising due to any act or omission of the Access Seeker shall suspend any SLAs and/or application of any corresponding Service Level Penalties.

3.22. The Access Seeker shall provide the Access Provider with suitable space for, and access during Working Hours (or as may be required to comply with the applicable SLAs, in particular regarding

fault restoration) to any Access Provider's Equipment including fiber cables required to be installed or placed in any location in which the MDS is provided within the control of the Access Seeker (or a third party, if and where applicable). If consent is required from a third party, the Access Seeker shall procure such consent free of cost to the Access Provider. The Access Provider is not required to pay the Access Seeker or any third party for the preparation or use of, or access to, space provided pursuant to this clause.

3.23. 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 (or another 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 another site including an aggregation Point of Presence.

3.24. 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 (or any third party for which the Access Seeker shall be responsible) 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.

3.25. The Access Seeker shall be solely responsible for any loss, theft, destruction of, or damage (reasonable wear and tear excepted) to the Access Provider's Equipment including any fibre cable required to be installed or placed in the location where the MDS Service is provided, which is within the control of the Access Seeker (or any third party, where the Access Seeker requested the Access Provider to place such Equipment in a location under ownership or control of such third party), occurring anytime and howsoever caused (unless caused by the Access Provider or its agents).

3.26. In cases where the overall costs per a Connection exceed fair and reasonable limits, Excess Construction Charges shall be applied as defined in Schedule 3 (Pricing) of the Reference Offer subject to prior agreement between the Access Provider and the Access Seeker or as further described in Schedule 3 (Pricing).

3.27. 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, deliver, test, commission and maintain the MDS Service (which may include, without limitation, participation in testing procedures as and when reasonably requested by the Access Provider).

3.28. 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.

3.29. For Unmanaged MDS Connections, the Access Seeker shall arrange at its own cost to allow the Access Provider, or its agents, access to each end point of the Unmanaged MDS Connection at the time of the Access Seeker's installation of the relevant mobile network transmission or similar equipment.

Maintenance and Support

3.30. The Access Provider shall provide maintenance and support services in respect of the Managed and Unmanaged MDS Service, respectively, in accordance with Schedule 7 - (Service Levels) of the Reference Offer.

3.31. For both MDS Services, the Access Seeker may report a Fault to the Access Provider's nominated contact point which shall be available twenty-four (24) hours per day every day.

Protection

3.32. The Access Seeker may procure a full geo-redundant link as protection of the principal MDS Connection. The geo-redundant link is considered as a separate MDS Connection and charged at the applicable MRC as set out in Schedule 3 (Pricing) of the Reference Offer.

3.33. The provision of fully geo-redundant link(s) is subject to availability, feasibility study, and subject to the Access Seeker obtaining any relevant approval, including but not limited to access approvals, from the End User, any relevant landlords and/or Government authority.

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.

4.2. All Charges and sums due from one party to the other under this Agreement are exclusive of VAT or any other applicable tax. 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. Subject to any limitation set out in this Schedule, the Access Provider shall provide the Managed and Unmanaged MDS Services, respectively, in accordance with the Service Levels specific in Schedule 7 - (Service Levels) of the Reference Offer.

ANNEX 1 - CIRCUIT SPEEDS, DEFINED INTERFACES, MEDIA AND TOPOLOGY

Managed MDS

Service element	Bandwidth	Interface	Connector	Topology	Access
Connection terminating at Wireless Radio Site or Point of Presence	500 Mbps to 10 Gbps	gigabit Ethernet 1000BASE gigabit Ethernet 10GBASE	SC/LC	Ethernet service point-to-point	Fiber
Aggregation Link terminating at the Point of Presence of the Access Seeker	10 Gbps and 100 Gbps	gigabit Ethernet 10GBASE and gigabit Ethernet 100GBASE	SC/LC	Ethernet service point-to-point	Fiber

Unmanaged MDS

Service Element	Connector	Access
Connection terminating at a Wireless Radio Site, Core Mobile Site or a Remote Radio Head site	SC	Fiber
Connection terminating at the BBU or RRH	SC	Fiber
Connection of the CPE	For CPE provided by the Access Seeker – as per Access Seeker's vendor's specifications For CPE provided by the Access Provider – as per Access Provider's vendor specifications	Fiber

ANNEX 2 - TECHNICAL CHARACTERISTICS

Managed MDS

Service Type	Service Attribute	
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	**Interface**	Optical Access: **1.** GE:1000Base-SX, 1000base –LX. **2.** 10GE:10G base –SR, 10G Base LR, 10G Base –ZR,10GE LAN, 10GE WAN.
	Connector	Fibre Access: Single mode LC
	Speed	Please refer to ANNEX 1
	Mode	Duplex
	MAC Layer Supported	Yes
	MAC Address Learning	Yes
	Frame Size	Min 1518, Max 9600 (Jumbo Frame), default 1700
	Class of Service	100% Real-Time. No Over Utilisation
	Maximum Number of CE-VLANs	4096
	Unicast 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)
		Pause 802.3
		Link Aggregation Protocol (LACP)
		(802.1AG),(802.1Q),(802.1D), (802.1P)
	Quality of Service	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 MDS service but may experience reduced performance.*

Customer Premises Equipment (CPE) type:

The Access Provider offers a default CPE for the provision of the Managed MDS Service. The Access Provider may, upon request, include CPE options which are available from alternative vendors. The Access Provider must apply the same Service Levels and reserves the right to vary the CPE from time to time. Only one interface (based on the requirement as referred to in Annex 1) is dedicated as a demarcation interface at Wireless Radio Site for the Managed MDS Service.

Unmanaged MDS Service

Fibre Type	ITU-T Recommendation G.652D
The actual measured attenuation shall be less than or equal to the calculated attenuation for the Unlit Fibre Section under test	"Beginning of Life" (BOL) Calculated Attenuation is {(0.35 x fibre length (Km)) + (0.06 x No. of splices) + (0.5 x No of connectors)} dB @ 1310nm Calculated Attenuation is {(0.25 x fibre length (Km)) + (0.06 x No. of splices) + (0.5 x No of connectors)} dB @ 1550nm
End of Life Attenuation per Section	BOL Attenuation + Yrs since RFS x 0.1dB
Average Splice loss	≤ 0.06dB
Maximum individual splice loss	≤ 0.2dB
Chromatic Dispersion*	≤ 18ps/nm.km @ 1550nm
Maximum individual connector loss	0.5dB
Reflectance of a connector	<-45dB

Unmanaged MDS

Service Type	Service Attribute	
G.652D	**Interface**	N/A
	Connector	Fibre Access: Single mode LC
	Speed	N/A
	Mode	N/A
	MAC Layer Supported	N/A
	MAC Address Learning	N/A
	Frame Size	N/A
	Class of Service	N/A
	Maximum Number of CE- VLANs	N/A
	Unicast Traffic Limit	N/A
	Multicast Traffic Limit	N/A
	Broadcast Traffic Limit	N/A
	Protocol Treatment	N/A

Core Layer (For information purposes only) – ONLY APPLIES TO MANAGED MDS

- BNET's network enhancement now enables Ethernet VPN (EVPN), allowing the deployment of traffic balancing and flexible deployment on Ethernet.
- The EVPN date is transported through Segment Routing over IPv6 (SRV6) technology on SRV6, ensuring that BNET's core network is able to provide the redundancy and protection required on multiple nodes in a single or multiple (GEO) physical sites.
- As such, this allows BNET to mitigate any single point of failure on its core network by allowing the traffic to be dynamically routed in case of any outage.

ANNEX 3 – PROVISIONING VALIDATION TESTS (AS APPLICABLE)

Provisioning Validation Test	
Testing Methodology	ITU-T Y.1564
Testing Mode	Layer 1-2 Loopback test. Tester simulates CPE
Parameters Tested	Throughput, Frame loss
Tester Speed Setting	MDS-M Service Speed
Tester Frame Size	64, 128, 256, 512, 1024, 1280, 1518 and 9,600 bytes
Acceptance Criteria	Achieved throughput of 95% of MDS-M Service Speed with zero frame loss. Five test iterations of approximately 10 minutes each conducted.
Test Results	Copy provided to the Access Seeker upon request at time of testing

Provisioning Validation Test	
Acceptance Criteria	Link Verification using Optical Time Domain Reflectometry (OTDR)
Test Results	Copy provided to the Access Seeker upon request at time of testing

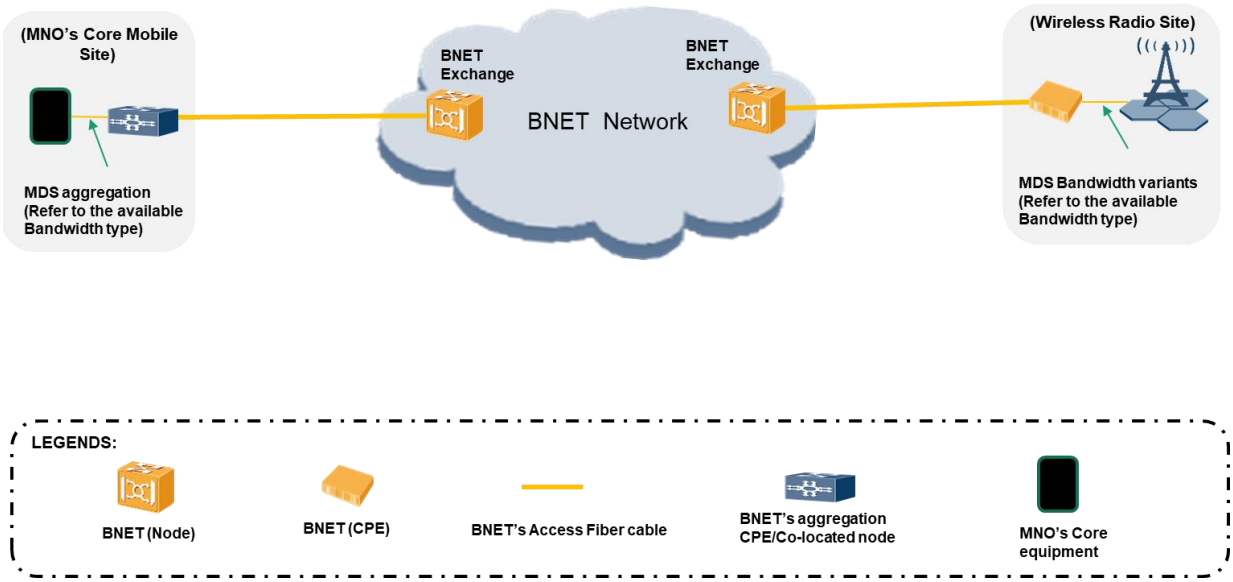
1. ACCEPTANCE PROCEDURE

1.1. Access Provider will prepare the Access Seeker's requirements along the agreed route and perform tests to determine optical performance of the Unmanaged MDS Connection.

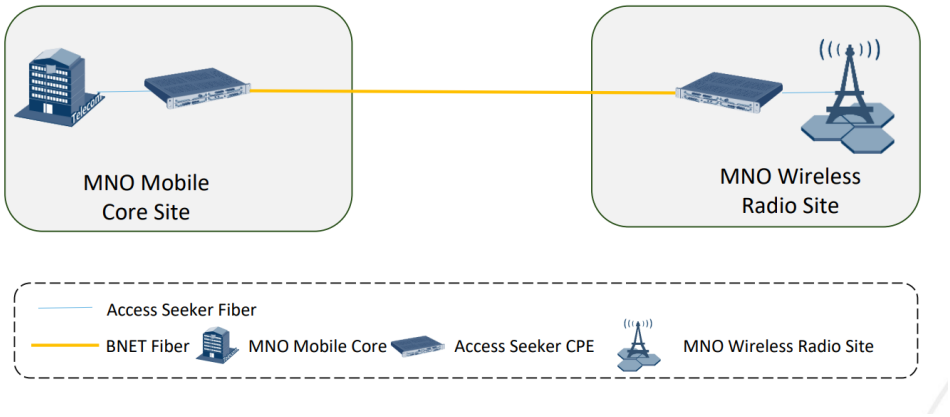
1.2. The test results will be recorded with the handover form and forwarded to Access Seeker

ANNEX 4 - MDS SERVICE DIAGRAMS

Managed MDS Service between Access Seeker's Core Mobile Site and a Wireless Radio Site

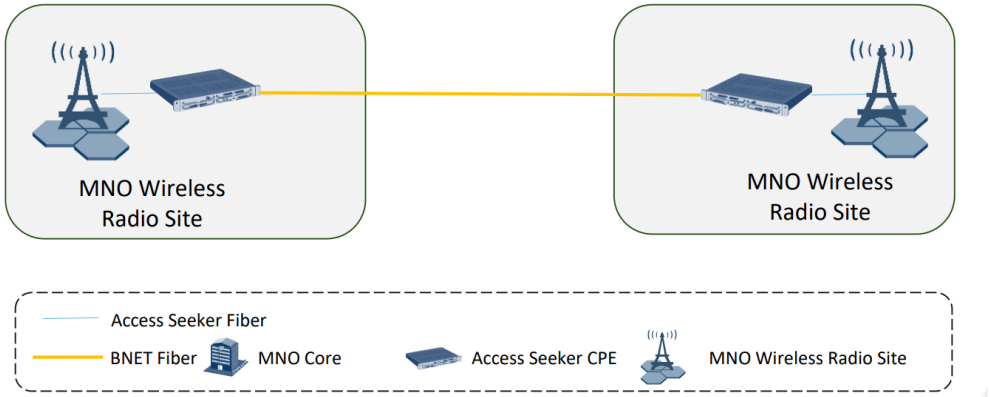


Unmanaged MDS Service between Access Seeker's Core Mobile Site and a Wireless Radio Site to provide end-to-end active service



The CPE (Access Seeker CPE) can be provided either by the Access Provider or by the Access Seeker (at the Access Seeker's choice)

Unmanaged MDS Service between Access Seeker's Wireless Radio Site and another Wireless Radio Site to provide end-to-end active service



The CPE (Access Seeker CPE) can be provided either by the Access Provider or by the Access Seeker (at the Access Seeker's choice)

Unmanaged MDS Service between a Baseband Unit (BBU) and the corresponding Remote Radio Head (RRH)