

Schedule 2.1



Interconnection Links Services

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1 Interconnection Links Services

- 1.1. Zain Bahrain shall provide Interconnection Links Services using any reasonably appropriate technology.
- 1.2. Interconnection Links Service capacity will consist of multiples of E1 Paths.
- 1.3. The Interconnection Links Services are ancillary services to the Traffic Termination Services.
- 1.4. Zain Bahrain shall provide the following Interconnection Links Services:
- 1.5. Customer Sited Interconnection (“CSI”) Link services (“CSI Link Services”) (see Clause 2 of this Schedule).
- 1.6. Where an OLO wishes to use services not defined in this RIO, then it should follow the process indicated in Clause 5(ii) of Schedule 2 (Service Descriptions Common Terms).

2 Customer-sited Interconnection (CSI) Link Service

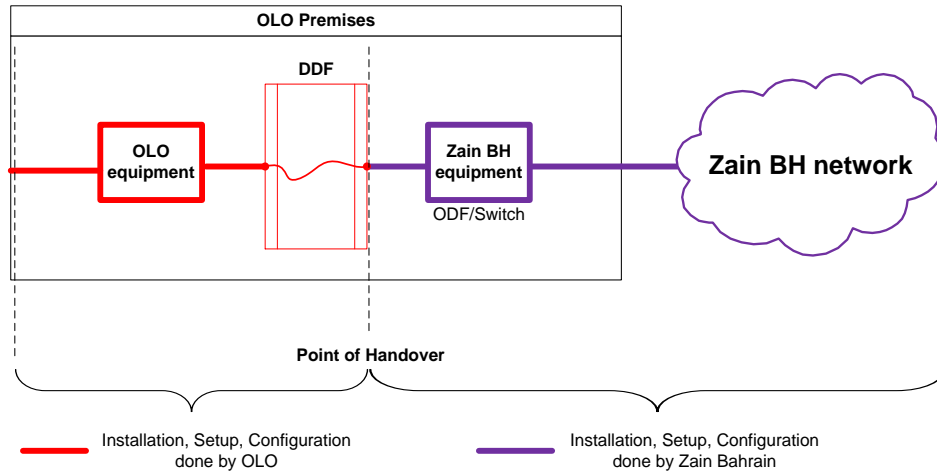
2.1 The CSI Link Service

- i) The CSI Link Service is provided by Zain Bahrain, at an OLO’s request, to establish the link for the delivery of traffic between the Parties’ networks. The CSI Link Service establishes connectivity between the Zain Bahrain POI and the OLO’s POI.
- ii) Zain Bahrain will provide the entire transmission path, up to delivering the connectivity interface to OLO’s DDF. The OLO will install the necessary setup, configuration and transmission equipment at the OLO’s premises.

2.2 CSI and POI Architecture

- i) The CSI Link Service comprises of:
 - a) The intra-building link within Zain Bahrain buildings;
 - b) One or more E1 Paths between the Zain POI and the OLO POI; and
 - c) As appropriate, signalling link(s).
- ii) The POI for CSI Links is located at the OLO’s premises as indicated in the illustrative diagram below:

Figure 1: CSI – Point of Interconnection



- iii) Zain Bahrain will deliver the mutually agreed or requested capacity by the OLO via E1 Paths up to the OLO's DDF. Zain Bahrain's responsibility is up to the point of handover as described in Figure 1. For the avoidance of doubt, the point of handover is the just before the OLO's DDF.
- iv) Zain Bahrain only supports DDF connectivity. Should the OLO's network require a different Interconnection interface (e.g. using Optical Distribution Frame (ODF)), the OLO must provide the necessary conversion equipment to convert from the Zain provided interface to the medium suitable with the OLO's equipment at the OLO's own cost.
- v) At the OLO's request, Zain Bahrain can provide and set up the required conversion equipment. The OLO will be charged for the equipment cost and additional work required to perform this task will be charged in accordance to Schedule 6 (Tariffs).
- vi) The CSI Link Service may be used to convey agreed traffic types of both Parties.

2.3 Signalling

- i) When ordering a CSI Link Service for the first time, the OLO shall also order a signalling link in accordance with the specified routes.
- ii) Zain Bahrain and the OLO reserve the right to enforce additional signalling links expansion if utilization reaches 40%.
- iii) For new E1 Paths, the OLO shall place an Order of minimum of two (2) signalling links. This is a mandatory requirement to assure connectivity redundancy.

2.4 Supply of CSI Link Service

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- i) The OLO must complete the ISF found at <http://www.bh.zain.com/en/zainbahraintree/rio/Documents/ISF.xlsx> and send the ISF to interconnection@bh.zain.com.
- ii) Zain Bahrain will provide a response to the OLO within three (3) Business Days with its acceptance or rejection of the Order, indicating the reason(s). If necessary, Zain Bahrain shall assist the OLO in completing the ISF.
- iii) For the avoidance of doubt the acceptance process indicated in 2.4(ii) above only concerns the completion of the details in the ISF.
- iv) Zain Bahrain shall inform the OLO with the date of the site survey not later than three (3) Business Days from the date on which the Order was accepted. This is subject to the OLO acquiring all required consents and permissions.
- v) Zain Bahrain shall inform the OLO with any site preparation requirements no later than three (3) Business Days after conducting the site visit. This is subject to OLO acquiring all required consents and permissions.
- vi) Once the OLO has confirmed that the site is ready, Zain Bahrain shall commence installation of the equipment to provide the CSI Link Service. Both Parties shall complete pre-commissioning testing requirements as set out in Clauses 6.2 and 6.3 of Schedule 3 ("Operations and Maintenance Manual").
- vii) Both Parties agree that the delivery lead time and associated Service Rebates are as indicated in Clause 2.7 of this Schedule.

2.5 Rearrangement and relocation of E1 Paths

- i) Capacity re-arrangements and relocation may involve moves and changes within a particular building or between different buildings. A change which necessitates a connection being moved from one location to another shall be planned in coordination with the OLO under one of the following forms:
 - a) Preparation and test of the new E1 Paths before Services are migrated; or
 - b) Migration of the existing CSI equipment with Interconnection Links Service downtime.

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- ii) A relocation of a capacity from one physical location to another can be completed by termination of the E1 Paths at the location which the OLO wants it to be moved from and requesting an E1 Paths at the location the OLO wishes to move the E1 Paths to.
- iii) The re-arrangement and relocation of E1 Paths from one physical location to another does not constitute a termination of this Schedule and the OLO will not be subject to any penalties relating to termination.
- iv) For the purpose of business continuity, the OLO may require Zain Bahrain to maintain the existing E1 Paths until the new E1 Paths are operational and have been tested by both Parties.
- v) All costs associated with removing the equipment of the existing E1 Paths and installation of equipment of the new E1 Paths will be charged to the OLO at the Cost of Work as set out in Schedule 6 (Tariffs).

2.6 Charges

- i) The OLO shall pay Zain Bahrain the relevant charges as indicated in Schedule 6 (Tariffs) of this RIO.

2.7 CSI Link Service Levels

Interconnection Links Service Delivery Lead Time

- i) The Parties agree that the following Delivery Lead Times will apply to the installation of E1 Paths for Orders placed by the OLO and accepted by Zain Bahrain:

Table 1: Delivery Lead Time

Order Type	Delivery Lead Time
New CSI Link	22 weeks

- ii) The applicable Service Rebates for a failure to meet Delivery Lead Times set out in the preceding paragraph are as follows:

Table 2: new CSI Service Rebate

Actual provisioning time (number of weeks after expiration of the applicable Delivery Lead Time)	Service Rebate for New CSI Link
0-2 weeks	5 Service Credits
2-4 weeks	10 Service Credits
> 4 weeks	15 Service Credits for every additional 2 weeks subject to the Total Service Rebate Cap

Interconnection Links Service response and repair

- i) Each party will, as soon as practicable after becoming aware of a Fault with the CSI Link, notify the other party of that Fault in accordance with the procedures set out in Schedule 3 (“Operation and Maintenance Manual”).
- ii) The parties acknowledge that the applicable Response Times and Restoration Times depend on the nature of the Fault, and that Service Affecting Faults shall be prioritised over Non-Service Affecting Faults. Both Parties agrees to observe the following Response Times and Restoration Times with respect to a Fault on the CSI Link:

Table 3: Time Threshold

Fault Type	Response Time Threshold	Restoration Time Threshold
Major	30 minutes	6 hours
Critical	15 minutes	3 hours

Where Zain Bahrain cannot meet the times as identified in Table 3 above, the following Service Rebates, assessed on a monthly basis, shall apply:

Table 4: Service Rebate

Fault Type	Time by which Response Time exceeds Threshold Response Time	Service Rebate	Time by which Restoration Time exceeds Threshold Restoration Time	Service Rebate
Major	45 minutes	2 Service Credits	8 hours	2 Service Credits
	2 hours	3 Service Credits	10 hours	3 Service Credits

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Fault Type	Time by which Response Time exceeds Threshold Response Time	Service Rebate	Time by which Restoration Time exceeds Threshold Restoration Time	Service Rebate
	> 2 hours	4 Service Credits	> 10 hours	4 Service Credits for every additional hour subject to the Total Service Rebate Cap
Critical	20 minutes	3 Service Credits	5 hours	3 Service Credits
	1 hour	4 Service Credits	8 hours	4 Service Credits
	> 1 hour	5 Service Credits	> 8 hours	5 Service Credits for every additional hour subject to the Total Service Rebate Cap

- iii) Service Rebates amount shall not exceed the Total Service Rebate Cap during a single Calendar month.
- iv) Service Rebates shall only be calculated where the default in delivery is caused by Zain Bahrain. Where such a default is clearly due to delays from the OLO, then Rebates shall not be applicable.

2.8 CSI Link Technical Specifications and Characteristics

		Element	Specification
Configurations	1	Interconnect Interface (E1 links)	Zain Bahrain network supports Interconnection links with the specifications of: 2Mbps E1 Links (TDM) Ericsson MGW E1s are standard 2Mbps E1s and support 2Mbps Signalling Links.
	2	Transmission (e.g. 2Mbps, complying with ITU-T Rec. G703)	2Mbps (TDM, Ethernet) and
			STM-1 (SFP, Ethernet), no DS-3 no T1. Ericsson MGW STM-1 have channelized E1s.
			1.65.6 RA male for BT 302, PCM Cable single core BT3002 75 Ohms, BNC Canon ITT straight (male) 75 ohms For BT 3002 crimp type.
Switching	3	Switch Vendor and Model	Ericsson MSS – AXE Blade Cluster Release 16A Ericsson MGW – CPP GMPV4 Release 16A
	4	Network Indicator (NI)	Internal NI is NATO, National NI is NAT1, International is INATO.
	5	SP Signalling Point Code (SPC) for SP-SP Relationship	MSS11: NATO – 102, NAT1 – 255, INATO – 8615 & 8897 MSS21: NATO – 103, NAT1 – 257, INATO – 8614 & 8898 MGW11: NATO – 104, NAT1 – 256, INATO – 8617 MGW21: NATO – 105, NAT1 – 258, INATO – 8899
	6	ISUP version (ITU-T, ANSI, TTC)	ITU-T White book 1997
	7	Time slot(s) for Signalling Link	Based on agreement with the Interconnection partner.
	8	Signalling Link Code (SLC)	Based on agreement with the Interconnection partner.

	Element	Specification
9	Circuit Identification Codes (C I Cs)	Default sequencing and (Based on agreement with the Interconnection partner).
10	Error Correction Method (PCR, Basic)	Basic
11	Bearer Capability (BC) C Transmission Medium Requirements (TMR) (Speech, 3.1KHz Audio, 64K un-restricted)	Speech, 3.1KHz Audio
12	PCM Coding Law (A-law, mu-law)	A-law
13	Pulse Line Coding technique (HDB3 for E1; AMI / B8ZS for T1)	HDB3
14	Line Length	G703 (75 ohm)
15	Cyclic Redundancy Check C CRC usage (On/Off)	Off (Based on agreement with the Interconnection partner).
16	E1 direction	Both ways
17	Dialling Format	For National Traffic, Number Portability RN + MSISDN. For International Traffic, CC+MSISDN.

3 Reporting

- i) Zain Bahrain shall provide the OLO with appropriate reports, upon request by the OLO, in relation to traffic and Quality of Service for the CSI Links.
- ii) The report will contain at least information detailing the conduct and results of the links utilization.

4 Document Control

Version	Amendment	Effective Date
1.0	Approved Version	07/09/2014
1.1	Updated Table 2.8: CSI Link Technical Specifications and Characteristics	19/11/2018