



Reference Offer (RO)

Annex I

Quality of Service Measures

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Table Of Contents

1	Quality of Service Measures.....	4
1.1	Service Level Requirements	4
1.2	Delivery Lead Times	5
1.3	Performance	7
1.4	Interconnect Link Fault Repair	10
1.5	Repair Times	10
1.6	Review and Update	11
1.7	Service Level Agreement.....	11

1 Quality of Service Measures

1.1 Service Level Requirements

1.1.1 **stc** will provide interconnection and other wholesale services as set out in Annex G (Service Schedules) to the Other Licensed Operator at the same level of quality as for its own customers.

1.1.2 Both **stc** and the Other Licensed Operator will be responsible for regularly measuring and monitoring the traffic and quality of service on the Interconnect Links between their networks, and will be able to do so in real time or as close to real time as is possible. **stc** and the Other Licensed Operator will work jointly to achieve this goal in accordance with general standards and methods specified by the ITU and the processes outlined below.

1.1.3 This Annex I sets out the target KPIs by which the capacity and traffic characteristics of the Interconnection and other wholesale services provided by **stc** to the Other Licensed Operator will be measured and assessed. It also sets out the quality of service measures to which **stc** commits for the provision and maintenance of Interconnection services under an Interconnection Agreement pursuant to this Reference Interconnection Offer (RIO).

1.1.4 Targets are set for a number of specific service level attributes.

- Delivery Lead Times:
 - Interconnect Links
 - Wholesale Leased Lines
- Performance
 - Interconnect Links
 - Wholesale Leased Lines
 - Network
- Fault repair time for Interconnect Links
 - Service affecting faults
 - Non-service affecting faults

1.1.5 The service level attributes listed in Clause 1.1.4 above will apply except in the circumstances defined in Clause 23 (Force Majeure) of the Primary Document. For the avoidance of doubt, **stc** will make all reasonable efforts to comply with the terms of the service level attributes.

1.1.6 An unreasonable delay caused by the Other Licensed Operator’s non-fulfilment of its obligations arising out of the Interconnection Agreement will result in the non-applicability of all or part of **stc**’s undertakings contained in this Annex I. Such obligations include, but are not limited to, access to sites for survey or provision of information required for service provisioning or fault resolution.

1.1.7 **stc** will provide traffic and quality of service regular reports upon request from CITC, in accordance with its licence obligations.

1.2 Delivery Lead Times

1.2.1 **stc**’s commitment to deliver within the lead times outlined below, will only apply to services ordered in accordance with the procedure for ordering and provisioning as set out in Annex H (Operations and Maintenance Manual), and within the forecast provided by the Other Licensed Operator under the procedure set out in Annex E (Forecasting).

1.2.2 Delivery of Interconnect Links

1.2.2.1 The table below details the delivery lead times applicable to Customer Sited (CS) Interconnect Links ordered within the agreed forecast by the Other Licensed Operator, starting from the end of the order negotiating period:

Order Type	Delivery Lead Time
New CS Interconnect Link to a new Point of Interconnect (POI)	14 weeks
Additional CS Interconnect Link to an existing POI where capacity is available	4 weeks

1.2.3 The delivery lead times as applicable to In Span Interconnect Links will be determined on a case by case basis.

1.2.4 Delivery of Wholesale Leased Lines

1.2.4.1 The table below details the delivery lead times applicable to Wholesale Leased Lines ordered within the agreed forecast by the Other Licensed Operator, starting from the end of the order negotiating period:

Order Type	Delivery Lead Time
New Wholesale Leased Lines where transmission equipment is available at both ends	4 weeks
New Wholesale Leased Lines where transmission equipment is required at one or both ends but not involving civil engineering work	14 weeks

1.2.5 Delivery of Dark Fibre and Duct

1.2.5.1 The table below details the delivery lead times applicable to Customer Sited (CS) Dark Fibre and Duct ordered within the agreed forecast by the Other Licensed Operator, starting from the end of the order negotiating period:

Order Type	Delivery Lead Time
New order on the existing Dark Fibre and Duct	14 weeks

1.2.6 The delivery lead times as applicable to In Span Dark Fibre and Duct will be determined on a case by case basis.

1.2.7 Delivery of other Interconnection and wholesale service

1.2.7.1 The delivery lead times for other Interconnection and wholesale services as stipulated in Annex G will be determined on a case by case basis and reflected in the Order Form.

1.3 Performance

1.3.1 Target Availability of Interconnect Links

1.3.1.1 Each Interconnect Link will have a target availability of 99.8% which is the amount of time over one quarter (that is to say three (3) Calendar Months in

the Gregorian calendar) during which the link is fully functional and available for the conveyance of traffic.

1.3.1.2 A higher level of availability on individual Interconnection routes may be obtained if the Other Licensed Operator and **stc** agree to install additional Interconnection Link capacity and implement alternative routing.

1.3.2 Target Availability of Wholesale Leased Lines

1.3.2.1 Each Wholesale Leased Line will have a target availability of 99.0% which is the amount of time over one quarter (that is to say three (3) Calendar Months in the Gregorian calendar) during which the link is fully available.

1.3.3 Overall Availability

1.3.3.1 For the overall performance of the Interconnect Links and Wholesale Leased Lines the availability should meet the performance target of 99.9% on average yearly.

1.3.4 Quality of Service for switching network

1.3.4.1 Unsuccessful Call Termination Ratio measurements will be carried out in each of the relevant **stc** exchanges as applicable in order to monitor the overall quality of service. The following Unsuccessful Call Termination Ratio parameters will be measured:

- Total number of all attempts
- Total number of Successful Calls (Calls set up successfully), which comprises:
 - o total number of answered Calls
 - o total number of Calls to busy subscribers

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- o total number of unanswered Calls
 - o total number of cancel Calls
 - Total number of unsuccessful Call attempts which comprises:
 - o congestion due to non-availability of common resources
 - o technical faults in the network

1.3.4.2 On the basis of the measurements as set out in Clause 1.3.4.1, stc will calculate the Unsuccessful Call Termination Ratio during the busy hour on any Interconnect Link. The Unsuccessful Call Termination Ratio is the percentage of unsuccessful Calls of the total Call attempts during the network busy hour.

1.3.4.3 Interconnect Links will be dimensioned so that the Unsuccessful Call Termination Ratio for the network busy hour is less than five percent (5%), which constitutes the target Unsuccessful Call Termination Ratio for any route.

1.3.4.4 **stc** and the Other Licensed Operator will cooperate and take joint action to address any issue arising from the result of the above measurements. In particular, in the event of extended breach of the Unsuccessful Call Termination Ratio on a particular Interconnect link, **stc** and the Other Licensed Operator will consider alternative traffic routing away from the congested link or increasing capacity on the Interconnect Path. These changes will be agreed as part of a review of the Network Plan as outlined in Annex D (Management of Interconnection).

1.3.4.5 If an agreement cannot be reached during the review of the Network Plan, either **stc** or the Other Licensed Operator will have the right to follow the Dispute resolution process described in Clause 19 of the Primary Document.

1.4 Interconnect Link Fault Repair

1.4.1 **stc** or the Other Licensed Operator will report to the other Party any fault related to Interconnect Links, in accordance with the procedure described in Annex H (Operations and Maintenance Manual).

1.4.2 In the event of the Other Licensed Operator's failure to report a fault in accordance with the appropriate procedure, **stc** will not be bound by the terms of this Annex I, including the target repair time and any applicable penalties.

1.4.3 Both **stc** and the Other Licensed Operator will co-operate in any investigation and follow up action required for the resolution of the fault.

1.5 Repair Times

1.5.1 Repair times are dependent on the nature of the fault (service affecting or non-service affecting).

1.5.2 When a fault has been reported and both Parties agree that the fault is service affecting in accordance with the terms of Annex H (Operations and Maintenance Manual), **stc** will address service affecting faults as priority.

1.5.3 **stc** will address reported faults within the timescales as detailed in the table below:

Type of fault	Target Repair Time for Interconnect Links	Target Repair Time for Wholesale Leased Lines	Target Repair Time for Dark Fibre and Duct
Service Affecting Fault	95% within 12 hours of receipt of fault report	95% within 24 hours of receipt of fault report	90% within 24 hours of receipt of fault report
Non-Service Affecting Fault	90% within 24 hours of receipt of fault report	90% within 48 hours of receipt of fault report	90% within 48 hours of receipt of fault report

1.5.4 The target repair times for the remaining 10% of the cases on average are five (5) Business Days in case of service affecting faults and twenty (20) Business Days in case of non-service affecting faults.

1.6 Review and Update

1.6.1 The quality of service measures will be reviewed regularly in consultation with the Other Licensed Operators, based on the technical and operational capabilities and will be updated as appropriate.

1.7 Service Level Agreement

1.7.1 Service Availability SLA is calculated on a quarterly basis as follows:

$$\frac{(A - B) \times 100\%}{A}$$

A

Where: A = Total time for the quarter

B = Total Unavailable Time for the same quarter

1.7.2 SLA details per offered Service

Services as per RIO	Services	Penalties		
Availability		95.00% or greater	94.99% - 94.00%	below 94.00%
B.2.2.1 Wholesale National Terminating Segments of Leased Lines Service	L2 VPN Services	0% of Monthly Recurring Charges Provided as a Credit	2% of Monthly Recurring Charges Provided as a Credit	5% of Monthly Recurring Charges Provided as a Credit
	L3 VPN Services			
Availability		98.9% or greater	98.99 % - 98.00%	below 98.00%
B.2.1.11. Interconnection Link Service	Interconnection Link Service	0% of Monthly Recurring Charges Provided as a Credit	2% of Monthly Recurring Charges Provided as a Credit	5% of Monthly Recurring Charges Provided as a Credit
B.2.2.4. IP Transit Service	IP Transit / Port Only			
B.2.2.5. Private Peering Service	Private Peering Service			
B.2.2.2. Wholesale National Trunk Segments of Leased Lines Service	Wholesale Transmission Link			

** For Duct and Dark Fibre, stc offering OLA only

1.7.3 Exclusions of SLA and Penalty Cap

- (1) The below cases will be excluded from SLA table shown above:
 - a) Any unavailability or delay caused by the OLO equipment or facilities
 - b) Any unavailability due to tickets for non-valid issues or due to tickets for issues caused by the OLO or by 3rd party (other than STC affiliates or contractors) unless otherwise agreed
 - c) Any unavailability due to scheduled maintenance works and transmission problems due to problem of the Access links.
 - d) Any unavailability due to reasons of Force Majeure

- (2) STC is committed to the compensate the OLO for the unavailability to the offered services as per the table above with a credit note that does not exceed 10% of the related service annual charge for the whole cases during 12 consecutive months.

- (3) Any compensation rendered by STC in the form of credit note to the OLO for the unavailability to the offered services shall be based the condition

that the OLOs have settled all due invoices for the related service on its due date.

1.7.4 Data Center KPIs

<p>Definition</p>	<p>Target to achieving less than ninety-five (95) minutes of unavailability over a twelve (12) month period (redundant power threshold) per cabinet.</p> <p>Redundant power service is considered unavailable when a functioning cabinet that includes client provided automatic failover capability is powered by two (2) power circuits from different power buses, and both power circuits experience a simultaneous interruption in electrical power such that the cabinet equipment experiences an interruption in electrical power supply</p>
<p>Calculation</p>	<p>Sum of minutes of unavailability over a 12-month period</p>
<p>Target</p>	<p>power: 99.98% availability (Less than 95 minutes per 12-month period)</p>
<p>Exclusions</p>	<ul style="list-style-type: none"> • Planned Maintenance Downtime • Emergency maintenance downtime: where (Service Provider/Providing Party) identifies an issue in the Network which requires immediate maintenance/change management to avoid disasters, health and safety or security risks, or widespread interruption • Unavailability caused by link cut by a 3rd party, unless otherwise agreed • Unavailability caused by Customer Equipment failure or malfunction and outages in equipment or infrastructure controlled by other operators , unless the location in question is explicitly identified in the Order Form as being an End-to-End location • Unavailability caused by Force Majeure Events in accordance with clause 25 of the General Terms • Unavailability caused by Customer’s breach of this Agreement or any integration between Customer Equipment and the (Service Provider/Providing Party) Network where the Customer Equipment has malfunctioned or does not conform to minimum requirements
<p>Definition</p>	<p>Temperature: Threshold is met by achieving less than fifty-two (52) minutes of unavailability over a twelve (12) month period (temperature threshold) per cabinet. For the purposes of this paragraph, temperature control is considered unavailable when the temperature drops below 18o Celsius or exceeds 27 o Celsius</p>

	Humidity: Threshold is met by achieving less than fifty-two (52) minutes of unavailability over a twelve (12) month period (humidity threshold) per cabinet. For the purposes of this paragraph, humidity control is considered unavailable when the humidity drops below twenty-five percent (25%) or exceeds sixty-five percent (65%)
Calculation	Sum of minutes of unavailability over a 12-month period
Target	Temperature: 99.99% availability (Less than 95 minutes per 12-month period) Humidity: 99.99% availability (Less than 95 minutes per 12-month period)
Exclusions	<ul style="list-style-type: none"> Planned Maintenance Downtime Emergency maintenance downtime: where the (Service Provider/Providing Party) identifies an issue in the Network which requires immediate maintenance/change management to avoid disasters, health and safety or security risks, or widespread interruption Unavailability caused by link cut by a 3rd party, unless otherwise agreed Unavailability caused by Customer Equipment failure or malfunction and outages in equipment or infrastructure controlled by other operators , unless the location in question is explicitly identified in the Order Form as being an End-to-End location Unavailability caused by Force Majeure Events in accordance with clause 25 of the General Terms Unavailability caused by Customer's breach of this Agreement or any integration between Customer Equipment and the (Service Provider/Providing Party) Network where the Customer Equipment has malfunctioned or does not conform to minimum requirements

1.7.5 Dark Fibre KPIs

KPI Name	Definition	Measurement Method Ticket Clear Time-Ticket Create Time	Targeted Value
Critical	Service is completely down (Protected/Unprotected)	Ticket Clear Time-Ticket Create Time	6 hours MTTR & 15 Mins Response Time
High	Service is Degraded/Errors	Ticket Clear Time-Ticket Create Time	8 hours MTTR & 15 Mins Response Time
Medium	Service is Up but Protection is Down.	Ticket Clear Time-Ticket Create Time	16 Hours MTTR & 30 Mins Response Time
Low	For Investigations	Ticket Clear Time-Ticket Create Time	72 Hours MTTR & 30 Mins Response Time

1.7.6 FTTH (Fibre to the Home) KPIs

KPI Name	Definition	Measurement Method	Targeted Value
Critical	Service is completely down (Protected/Unprotected)	Ticket Clear Time-Ticket Create Time = MTTR	24 hours MTTR & 15 Mins Response Time (Open Acces + single links) 16 hours MTTR & 15 Mins Response Time (IP-MPLS+CBLs Platinum)
High	Service is Degraded/Errors	Ticket Clear Time-Ticket Create Time = MTTR	48 hours MTTR & 15 Mins Response Time (Open Acces + single links) 24 hours MTTR & 15 Mins Response Time (IP-MPLS+CBLs Gold)
Medium	Service is Up but Protection is Down.	Ticket Clear Time-Ticket Create Time = MTTR	72 Hours MTTR & 30 Mins Response Time (Open Acces + single links) 24 Hours MTTR & 30 Mins Response Time (IP-MPLS)
Memo	For Information and Investigations	Ticket Clear Time-Ticket Create Time = MTTR	96 Hours MTTR & 30 Mins Response Time (Open Acces) 72 Hours MTTR & 30 Mins Response Time (IP-MPLS)

1.7.7 FTTB (Fibre to the Building) KPIs

KPI Name	Definition	Measurement Method	Targeted Value
Critical	Service is completely down (Protected/Unprotected)	Ticket Clear Time-Ticket Create Time = MTTR	24 hours MTTR & 15 Mins Response Time (Open Acces + single links) 16 hours MTTR & 15 Mins Response Time (IP-MPLS+CBLs Platinum)
High	Service is Degraded/Errors	Ticket Clear Time-Ticket Create Time = MTTR	48 hours MTTR & 15 Mins Response Time (Open Acces + single links) 24 hours MTTR & 15 Mins Response Time (IP-MPLS+CBLs Gold)
Medium	Service is Up but Protection is Down.	Ticket Clear Time-Ticket Create Time = MTTR	72 Hours MTTR & 30 Mins Response Time (Open Acces + single links) 24 Hours MTTR & 30 Mins Response Time (IP-MPLS)
Memo	For Information and Investigations	Ticket Clear Time-Ticket Create Time = MTTR	96 Hours MTTR & 30 Mins Response Time (Open Acces) 72 Hours MTTR & 30 Mins Response Time (IP-MPLS)

1.7.8 Ducts KPIs

KPI Name	Definition	Measurement Method Ticket Clear Time-Ticket Create Time	Targeted Value
Critical	Service is completely down (Protected/Unprotected)	Ticket Clear Time-Ticket Create Time	6 hours MTTR & 15 Mins Response Time
High	Service is Degraded/Errors	Ticket Clear Time-Ticket Create Time	8 hours MTTR & 15 Mins Response Time
Medium	Service is Up but Protection is Down.	Ticket Clear Time-Ticket Create Time	16 Hours MTTR & 30 Mins Response Time
Low	For Investigations	Ticket Clear Time-Ticket Create Time	72 Hours MTTR & 30 Mins Response Time

1.7.9 IBS KPIs

System	PO KPI's	AO KPI's
WCDMA 2100	≥ -85 dBm at 95% of coverage commitment area <i>Remaining 5% should not be decreased more than 5dB</i>	≥ -85 dBm at 95% of coverage commitment area <i>Remaining 5% should not be decreased more than 5dB</i>
WCDMA 2100	≥ -8 dB at 95% of coverage commitment area	≥ -8 dB at 95% of coverage commitment area
GSM900	≥ -75 dBm at 95% of coverage commitment area <i>Remaining 5% should not be decreased more than 5dBm</i>	≥ -75 dBm at 95% of coverage commitment area <i>Remaining 5% should not be decreased more than 5dBm</i>
GSM900	≤ 3 at 95% of coverage commitment area	≤ 3 at 95% of coverage commitment area
GSM1800	≥ -80 dBm at 95% of coverage commitment area <i>Remaining 5% should not be decreased more than 5dBm</i>	≥ -80 dBm at 95% of coverage commitment area <i>Remaining 5% should not be decreased more than 5dBm</i>
GSM1800	≤ 3 at 95% of coverage commitment area	≤ 3 at 95% of coverage commitment area
LTE1800	RSRP ≥ -90 dBmat 95% of coverage commitment area	RSRP ≥ -90 dBmat 95% of coverage commitment area
LTE1800	RSRQ ≥ -10 dBmat 95% of coverage commitment area	RSRQ ≥ -10 dBmat 95% of coverage commitment area
LTE2100	RSRP ≥ -90 dBmat 95% of coverage commitment area	RSRP ≥ -90 dBmat 95% of coverage commitment area
LTE2100	RSRQ ≥ -10 dBmat 95% of coverage commitment area	RSRQ ≥ -10 dBmat 95% of coverage commitment area

Response to Failures		
Category	Target	Hurdle
Critical/VIP Complain	95% < 30 minutes	93% < 30 minutes
Major	95% < 1 h	93% < 1 h
Minor	95% < 1 h	93% < 1 h

Access Sites Operational KPIs - IBS Active/Passive MTTR		
Description	Target	Hurdle
Mean Time to Repair DAS 2G/3G/LTE-CRITICAL	2 h	3 h
Mean Time to Repair DAS 2G/3G/LTE-MAJOR	4 h	5 h
Mean Time to Repair DAS 2G/3G/LTE-MINOR	6 h	7 h

Sites Acceptance		
Description	Target	Hurdle
Sites Acceptance Notification	24 prior to the acceptance	48 prior to the acceptance
New installation under MOBILY DAS system	24 prior to the installation/integration	48 prior to the installation/integration

Availability ACTIVE/PASSIVE IBS		
Description	Target	Hurdle
ACTIVE/PASSIVE DAS System	99.99%	99.95%

Planned Outages	
Outages	SLA (Notification)
Planned Outage Notification	48 Hours prior to MDT change

PMR (Notification)	
Outages	SLA (Notification)
PMR/Site Visit	48 Hours prior to MDT change

CRITICAL: To Be For Site Level Impact
 MAJOR: To Be For Sector Impact
 MINOR: To Be For QoS Degradation or KPI Degradation