



Standards and Guidelines for the Development of Reference Interconnection Offers

Version 1.0

These **Draft Standards and Guidelines for the Development of Reference Interconnection Offers** are intended to serve as the standards and guidelines pursuant to Section 25 (2) (a) of the Telecommunications Act 2001, chap 47:31.

Maintenance History

Date	Change Details	Version
August 2013	Publication of First Consultative Draft	0.1
February 2014	Amendments pursuant to first round of Consultation	0.2
August 2014	Amendments pursuant to second round of Consultation	0.3
September 2014	Approved Version	1.0

1 LEGAL FRAMEWORK FOR THE INTERCONNECTION AGREEMENT

The Concessionaire intending to prepare a Reference Interconnection Offer (RIO) shall ensure that the content of same is in conformance with all provisions in any future Interconnection Agreements made subsequent to an acceptance of an Interconnection request.

All other general terms and conditions shall be included in the Legal Framework of any future Interconnection Agreements and shall consist of but may not be limited to:

- Identification of contact person responsible for interconnection services;
- Provisions for review, duration and termination of Interconnection Agreements;
 - *includes provisions for due notification of the Authority;*
- Provisions for responsibilities of the parties;
 - *includes non-use of commercially sensitive information for any purpose other than facilitating interconnection.*
- Provisions for amendments to Interconnection Agreements
 - *includes provisions for prior notification of the Authority;*
- Provisions for Dispute Resolution;
 - *reflects the jurisdiction of the Authority in Dispute Resolution;*
- Provisions ensuring that all terms and conditions are non-discriminatory.

2 MINIMUM INTERCONNECTION SERVICES REQUIREMENTS

2.1 Interconnection Services Overview

Characteristics and basic principles for each *Type of service* to be offered for Interconnection shall be described in the RIO and must include as a minimum, details outlining;

1. General Service Information including but not limited to;
 - (a) Name and Type of Interconnection Service
 1. **Type 1** - *Joining, Data and/or Voice Traffic Interconnection Service*
 2. **Type 2** – *Support Services*
 3. **Type 3** – *Enhanced Services**
 - (b) Description of the service;
2. Type of network (Fixed, mobile or international) that the Interconnection service is to be provided on;
3. Functional schematic representing an overview of how the Interconnection will be achieved, including in said schematic the geographical location of all:
 - (a) Interconnect Switch Locations (ISLs);
 - (b) Points of Interconnection (POIs);
 - (c) Specifications of all essential equipment, signaling protocols and standards supported which are to be used for interconnection of the service in question.
 - (d) Network Link Capacity.
5. Assignment of responsibilities of both Interconnection provider and Interconnecting concessionaire with respect to the
 - a) planning,
 - b) providing,
 - c) operating,
 - d) optimizing; and
 - e) maintenanceof the main joining service;

6. Assignment of responsibility of BOTH Interconnection provider and Interconnecting concessionaire for the
 - a. metering,
 - b. billing,
 - c. QoS monitoring,
 - d. maintainability and
 - e. managementof the service described in (1).

***On Type 3 Services.**

As part of its obligations to be compliant to the Act and the Interconnection Regulation, the Interconnection Service Provider's network shall be appropriately engineered to facilitate the following services:

- Carrier Selection and Pre-Selection; and
- Number Portability services.

Further, the Interconnection Service Provider's RIO shall provide the following information on its own network to facilitate third party ready implementation of Type 3 Interconnection Services.

1. A description of the configuration of the switches and routers to enable Carrier Pre selection;
2. A description of how the relevant Interconnection Links shall be configured to facilitate the Number Portability Service;
3. A description of the Extranet Requirements, if any, to facilitate OSS interaction to support administrative implementation of Number Portability;
4. Customer Service Support Systems for Number Portability and appropriate protocols to efficiently operate same;

Adherence to Regulations 8 and 9 of the *Interconnection) Regulations, 2006* which treats with Facilitating Indirect Access and Number Portability, respectively, shall be clearly stipulated in the Legal Framework.

3 MINIMUM TECHNICAL NETWORK REQUIREMENTS

3.1 Interconnection Links

- (a) The RIO shall, for each Interconnect Link, identify the type of connections to be established between the Interconnection Provider's PoI and requesting party's node. Details of how this shall be achieved shall also be provided;
- (b) The RIO shall specify Interconnect Mode and Paths using either Customer Sited Interconnect or In-Span Interconnect.

3.2 Points of Interconnection (POIs)

- (a) All PoIs shall be clearly defined in the RIO and the minimum requirements to be clearly stipulated in such, and shall include but is not limited to;
 - 1. The Interconnection provider shall establish and identify at least two (2) PoIs which will be used for interconnection purposes;
 - 2. The trunk and signaling capacity available at the PoIs specified in (1) to facilitate a new interconnection request including evidence that at least 20% of the total equipped POI capacity is shared between both PoIs at any given time;
 - 3. The party responsible for establishing and maintaining the PoIs - its name and address;
 - 4. The number of all PoIs, whether generally offered or otherwise, available or in use, as well as the number of ISLs of the Interconnection service provider shall be identified;
 - 5. The geographical locations of all PoIs shall be stated;
 - 6. The physical address of every PoI to be used in the interconnection with a requesting parties;
 - 7. A list of any equipment that is necessary for effecting operation at the point of interconnection (PoI)
 - 8. The number of spare, unused ports available and available trunking capacity;
 - 9. The description of the physical interconnection facility employed at each PoI including:

- cable (type, gauge, etc),
 - channel interface equipment (type, make, etc),
 - air interface equipment (type, make, size).
- (b) The complete description of all classes of POIs including transmission definitions, signaling type and direction of traffic across the PoI, Quality of Service and other significant parameters shall also be indicated in the RIO;
- (c) The RIO shall be updated annually as well as when there is a material change and provisions for this shall be included in the Legal Framework;

3.3 Provisioning, Testing and Commissioning of Interconnection Facilities

The following minimum requirements are to be met:

- (a) The RIO shall identify a main contact person who has been established for purposes of overseeing the entire Interconnection process;
- (b) The RIO shall state the basis for which circuit provision shall be made and how long after commencement of the service the traffic measurement testing shall be taken;
- (c) the RIO shall state:
- 1) the transmission links and interface equipment proposed to be deployed,
 - 2) the desired quality of service across the PoI,
 - 3) ancillary services requirements, and
 - 4) technical information such as
 - i. location of the POIs,
 - ii. type of signaling, and
 - iii. any other technical information required to facilitate implementation of interconnection;
- (d) The RIO shall include the provisions to be made for the request and if part or none of the requests can be facilitated, it must be justified by the Interconnection provider in the RIO;

3.4 Responsibility of Parties

The RIO shall contain information regarding:

- (a) Contact details for the party responsible for providing, installing, testing, making operational and maintaining a given interconnection facility;
- (b) Contact details for the party responsible for the operation and maintenance of all the standard PoIs;
- (c) Mechanisms put in place by the responsible party, to ensure that network surveillance and monitoring is utilized to minimise any conditions from adversely affecting the interconnected networks and hence contribute to the integrity of the Interconnection link;
- (d) The ordering periods for new Interconnect Links, Paths and PoIs;
- (e) All *electrical* and *functional* characteristics of the Network Link shall be detailed and in accordance with relevant ITU-T Recommendations (ITU-T G.703);
- (f) All operations and maintenance details of the Network Link shall be stated in the RIO which includes but are not limited to;
 - 1. Operations and maintenance personnel contact details;
 - 2. Indicative results from testing to ensure that the Network Link meets QoS levels as specified in the RIO and meets as a minimum, the ITU-T Recommendations relevant to same;
 - 3. Evidence that mechanisms are put in place to ensure Health and Safety measures with regards to all testing, operations and maintenance are in accordance with the OSH Act 2004.

3.5 Network and Transmission Parameter Requirements for Interconnection

The RIO shall include the Service Provider's offered quality of service with regard to the following key performance indicators, at a minimum:

- a) Interconnect Link Availability
- b) Interconnect Link Call Drop Rate;
- c) Interconnect Link Answer Bid Ratio (ABR)- Peak;
- d) Interconnect Grade of Service (GOS);
- e) Interconnect Link Short Message Service (SMS) GOS;
- f) Interconnection Link Restoration Time.

The quality of service offered with respect to the above indicators, or any others proposed by the Service Provider, shall at least meet the requirements for same as outlined in the draft Network Quality of Service Regulations. Where proposed service quality standards are not outlined in the Quality of Service Regulations, the Service Provider shall seek to, at a minimum meet the requirements for equivalent carrier services as recommended by the ITU-T.

Concessionaires should also ensure that their networks are so configured at the Point of Interconnection such that Call Line Identification (CLI) information is properly transmitted along with voice traffic between interconnecting parties.

3.6 Operations and Maintenance

- a) All operations and maintenance activities shall be undertaken by the parties in accordance with an Operations Manual which shall be developed and submitted as part of the RIO;
- b) The parties shall meet as frequently as may be necessary, to update the Operations Manual for the continued provision of services under the Interconnection Agreement;
- c) The parties shall conduct their maintenance activities in respect of services in accordance with those specified in the submitted RIO;
- d) The Operations Manual shall set out, among other issues;
 - Joint Network Planning;
 - Network monitoring and Management;
 - Fault management processes;
 - Maintenance Processes;
 - Equipment, circuit and systems testing procedures;
 - Interconnection traffic management
 - Forecasting;
 - Procedures for staff access to co-location sites and shared sites and facilities; and
 - Forms and other procedures necessary to support efficient operation between parties.

4 INTERCONNECTION CHARGES

- (a) The RIO shall include all relevant charges that will be due from the requesting party including:
- The Initial Access charges for interconnection at the established PoI's; and
 - The Tariff Structure of usage charges for each interconnection service offered.
- (b) The **Initial Access charges** shall include appropriate administrative charges associated with the provision of service, determined in accordance with the Authority's Costing Methodology. These services should include at a minimum

<i>Interconnection Service</i>	<i>Tariff^d Ceiling</i>	<i>Tariff^d Floor</i>
<i>Initial Access Services</i>		
1. Interconnection Links (defined bandwidth/ capacity)		
2. Joining Services		

The Initial Access Charge shall not include the cost of additional equipment to be installed for the interconnection service provider, where the request is within the capacity available at the generally available PoIs.

- (c) The **Tariff structure** shall specify tariff levels for all the services offered and shall be included in the RIO;
- (d) Such a structure as specified in (c) shall be in accordance with current interconnection tariffs. The tariffs identified in the RIO shall relate to the year that the RIO was published.

All **usage charges** shall be provided in the RIO for Type 1 Interconnection Services which include but are not limited to;

<i>Interconnection Service</i>	<i>Tariff¹ Ceiling</i>	<i>Tariff¹ Floor</i>
<i>PSTN Terminating Service</i>		
<i>1. Domestic fixed line termination</i>		
<i>2. International call termination</i>		
<i>3. Transit between domestic operators</i>		
<i>4. Transit from International to domestic</i>		
<i>5. Transit from domestic to International</i>		
<i>6. 900 services</i>	n/a	n/a
<i>7. National Toll-free Access Services</i>		
<i>8. International Toll-free Access services</i>		
<i>PLMN Terminating Access Service</i>		
<i>1. Domestic Mobile call termination</i>		
<i>2. International Mobile termination</i>		
<i>SMS Termination</i>		

¹The Authority shall derive the tariff ceilings and floors above in accordance with its Costing Methodology for the Telecommunications Sector and shall from time to time issue Determinations accordingly.

(e) All **usage charges** shall be provided in the RIO for **Support Services** which include but are not limited to:

- *Directory Enquiry Services, both national and international*
- *Emergency numbers*
- *Operator Assistance Services*

(f) All **usage charges** shall be provided in the RIO for **Enhanced Services** which include:

- *Carrier Selection and Carrier Pre-selection*
- *Number Portability*

