



# VIVA Bahrain

## Reference Interconnection Offer (RIO)

### Annex G - Quality of Service

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## TABLE OF CONTENTS

| <b>Clause</b>                               | <b>Page number</b> |
|---|--------------------|
| 1 Quality of Service.....                   | 3                  |
| 1.1 Service Level Requirements.....         | 3                  |
| 1.2 Quality of Service Measurements .....   | 3                  |
| 1.3 SMS Messages .....                      | 4                  |
| 1.4 MMS Messages .....                      | 5                  |
| 1.5 Interconnection Link Fault Repair ..... | 5                  |



## **1 QUALITY OF SERVICE**

### **1.1 Service Level Requirements**

1.1.1 VIVA will provide Interconnection Services as set out in Annex B (*Service Schedules*) to the Other Licensed Operator at the same level of quality as for its own Subscribers.

1.1.2 Both VIVA and the Other Licensed Operator will be responsible for regularly measuring and monitoring the traffic and quality of service on the Interconnection Links between their Networks, and will be able to do so in real time or as close to real time as is possible.

### **1.2 Quality of Service Measurements**

1.2.1 Grade of Service (GoS) measurements will be carried out in each of the relevant VIVA switches as applicable in order to monitor the overall quality of service. The following Grade of Service parameters will be measured:

- Total number of call attempts
- Total number of Successful Calls (calls set up successfully), which comprises of:
  - o total number of answered calls
  - o total number of calls to busy Subscribers
  - o total number of unanswered calls
- Total number of unsuccessful call attempts which comprises of:
  - o congestion due to non-availability of common resources
  - o technical faults in the network

On the basis of the measurements as set out above, VIVA will calculate the Grade of Service during the busy hour on any Interconnection Link. The Grade of Service



during busy hours is the percentage of calls blocked during the network busy hour where:

Blocking probability = Unsuccessful call attempts/Total call attempts

1.2.2 VIVA and the Other Licensed Operator will co-operate in any investigation and follow up action required for the resolution of any service degradation (i.e. Availability, ASR, CSSR & congestion Ratio).

- ✓ Availability = Available circuits / Installed circuits = 99.95%
- ✓ Congestion Ratio = Congestion Times / Seizer Times = 0.8%
- ✓ ASR (Answer Seizure Ratio) = Answer Times / Seizer Times ( Completely dependent on customer Behaviour/End User)
- ✓ CSSR (Call Setup Success Rate) = Alert Times / Seizer Times = Greater than 95% (Including EXTERNAL factors).

1.2.3 VIVA and the Other Licensed Operator will cooperate and take joint action to address any issue arising from the result of the Grade of Service measurements. In particular, in the event of extended breach of the Grade of Service i.e. Availability, Unsuccessful calls ratio & congestion on a particular Interconnection Link, VIVA and the Other Licensed Operator will consider alternative traffic routing away from the congested Interconnection Link. These changes will be agreed as part of a review of the Network Plan as outlined in Annex E (*Management of Interconnection*).

### **1.3 SMS Messages**

1.3.1 VIVA shall deliver SMS Messages at the same quality as for its own Subscribers.

1.3.2 SMS Messages will be delivered on a best efforts basis depending on the availability of suitable resources within the VIVA Network.



1.3.3 The redelivery of SMS Messages is carried out by the Other Licensed Operator. Any redelivery process will depend on the configuration of the Other Licensed Operator's Network.

#### **1.4 MMS Messages**

1.4.1 VIVA shall retain the MMS Message in its MMSC for a period of at least two (2) Days from its receipt and if the MMS Message has not been accessed/retrieved by the Subscriber receiving the MMS Message during that time it shall be removed from the MMSC.

#### **1.5 Interconnection Link**

1.5.1 Service delivery and QoS are mentioned in Annex B - Schedule 4 - Service Level Agreement for Interconnection Link. VIVA or the Other Licensed Operator will report to the other Party any fault related to the Interconnection Links, in accordance with the procedure described in Annex I (*Fault Management*).

1.5.2 Both VIVA and the Other Licensed Operator will co-operate in any investigation and follow up action required for the resolution of the fault related to the Interconnection Links shall be based on Annex B - Schedule 4 - Service Level Agreement for Interconnection Link.



### Document History and Version Control

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