

GUIDELINES

Quality of Service Reporting

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Applicable to Quarter 4, 2008

16 October 2008

Purpose: These guidelines provide complementary information to the Quality of Service Report and Measurement Methods for Licensed Operators



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Quality of Service Reporting

Introduction

These guidelines support the first collection of Quality of Service measurements, in accordance with the Quality service Regulation, (the “Regulation”) published 11 September 2008, in the Kingdom of Bahrain. They are intended to provide additional information for all licensed operators and complement the Measurement Methods described in Schedule 1 of the Regulation.

Reporting Procedure

To facilitate data input and subsequent treatment of the measurements TRA has provided on its web site an Excel Reporting Form. This form which can be downloaded at <http://www.tra.org.bh/en/consultations.asp#Quality> must be used by all Operators to capture and report their Quality of Service measurements. The form is valid only for the reporting period of Q4 2008.

Completed Reporting Forms should be submitted via email to TRA at QoS@tra.org.bh not later than 30 January 2009.

TRA only requires Operators to submit the final product numbers and not the details concerning the observations or calculations. However TRA reserves the right to request, from time-to-time, any or all of the supporting details concerning the observations and calculations. As such Operators are required to store all supporting documents

Reporting Enquiries

Any query regarding Quality of Service parameter or measurement method that is not covered in the published Quality of Service Regulation or in this specific document can be directed to TRA by using the same email address QoS@tra.org.bh.

For each question please provide “Parameter Name” and “Reference Number” as indicated in the Excel Reporting Form.

Published Measurements

TRA is planning to publish by 1 March 2009 a selection of key indicators in the Quality of Service Report; target measurements for publishing, which TRA consider the priority ones, are highlighted in yellow in the Excel Report Form.

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To avoid any doubts those priority measurements includes the following parameters:

Account Complaint rate, parameters B1 to B4

Account Complaint resolution time, parameters B19 to B22

Call Statistics for National Manual Operator Services, parameter C2

Call Statistics for International Manual Operator Services, parameter C9

Disconnection Complaint rate, parameters D1 to D4

Disconnection Complaint resolution time (mean), parameters D17 to D20

Miscellaneous Complaint rate, parameter E1

Fault Report rate, parameters F11, F12 and F19

Fault Repair time, parameters F21, F22 and F19

Service Supply time (mean), parameters SD11, SD12 and SD19

Network – Internal Automatic Observations, parameters N2 and N3

Notwithstanding the priorities above, in order to comply with the Quality of Service Regulation, operators are requested to submit a full report.

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Calculations:

TRA recommends the use of standard Excel Formulas to perform the required calculations. If the Licensed Operator is providing Data from another software source i.e. Data Base, the Method of Calculation, if different from Excel, shall be described in the note field.

Mean	The mean is a measure to report a central tendency as shown in example below.
Standard deviation	The standard deviation is the square root of the variance, and is a measure of the spread of the data as shown in example below.
95 percentile	The 95 percentile is helping filtering spikes, and is calculated taking into account n observations, then the 95 percentile is equal to the observation with defined rank number as shown in example below.

Example of calculating Mean, Standard deviation and 95th percentile with Microsoft Excel formulas:

		B
		Data
	3	23
	4	17
	5	34
	6	25
Formula of 95 Percentile is =PERCENTILE(B3:B6,0.95)		32.65
Formula of Mean is =AVERAGE(B3:B6)		24.75
Formula of Standard deviation is =STDEV(B3:B6)		7.04

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Measurement Method

The method of measuring parameters is prescribed in part A of Schedule 1 annexed to the Quality of Service Regulation. Table next page is a complement to this annex.

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Parameter Name	Measurement Method	Published Measurement
Fault Report Rate	<p>A Fault Report is an End User's report of the inability to perform a required function resulting in lost or degraded service. Fault Report Rate indicates the level of End User perceived reliability of a Service and associated Features.</p> <p>Fault Report Rate is calculated as follow: $100 * A / B$, where, A = Total number of faults reported B = Average number of subscribers</p>	Percentage of service subscribers making a fault report in the reporting period rounded up to the nearest percentage point
Number of Fault reported	Total number of faults reported over the reporting period as reported by End User whether or not it can be proved that the fault occurred outside of communication service provider network and / or control	Number of faults reported by subscribers in the reporting period
Fault Repair Time	<p>The time to resolve a fault is the elapse time (not the working time) from when the fault is received by a Licensed Operator to when the Service has been restored for the End User.</p> <p>The measurement should include all Fault Report Closed during the Reporting Period, regardless of the root cause for the Service Disruption.</p>	Mean time in day taken to repair a fault in the Reporting Period rounded up to two numerical significant figures
Service Supply Number	The number of Service Supplied over the Reporting Period defined as a commitment made to an End User to provide a product or service or to effect a change to an existing product or service. Order completion is defined as the time / date when all items of an order are available for use by the End User.	Number of Services Supplied over the Reporting Period
Service Supply Time	The time to Supply a Service is the elapsed time (not the working time) from when a complete order is received from an End User to when the order is completed by the License Operator and Service, including all items, is available for use by the End User.	Mean time in day taken to Supply a Service in the Reporting Period rounded up to two numerical significant figures