

## QoS Sub-group Indicators – EGTI 2020

### Background:

The EGTI 2019 working program initiated the Quality of Service (QoS) indicators sub-group which reviewed three indicators collected by ITU, including: mobile successful call ratio, mobile drop ratio, FBB service activation time. The EGTI-2019 meeting concluded and recommended that the QoS sub-group will extend its work for the 2020 working program as per the requirement of the EGTI participants to include more QoS indicators for fixed- and mobile-broadband.

### Introduction:

The current international pandemic of Covid-19 resulted in higher demand for fixed and mobile broadband services as one of the most important necessities that connects people to their daily social life, education, work, and business, which in return created a higher demand on broadband services. Accordingly, the high demand and use of these services require adequate focus on the QoS experienced by the user.

Accordingly, the QoS sub-group has proposed and agreed to add three indicators for measuring broadband quality of service for both mobile and fixed domains, in terms of both network performance and customer service performance. Upon the remote meeting the group conducted on 27<sup>th</sup> of July 2020 including representatives of Oman, Morocco, Ghana, LIRNEasia, and the ITU Secretariat, the team discussed the definitions and methodologies based on the comparison of the country and international institution experiences that are listed below.

### The list of the countries and international institutions incorporated in the study:

1. ETSI
2. GSMA
3. LIRNEasia
4. Oman
5. Morocco
6. Ghana



7. Bahrain
8. KSA
9. UAE
10. Seychelles

### **List of the new indicators:**

1. Average Download/Upload Throughput for Fixed broadband and Mobile broadband
2. Packet Latency
3. Fault Resolution Period for FBB service

### **1. Average Download/Upload Throughput**

**Definition:** The volume of data (in bits) uploaded/downloaded in one second.

### **Method of Collection:**

The data upload / download rate is calculated by dividing the size of the test file by the time required for a complete and error-free transmission.

The transmission time is the time period starting when the access network has received the necessary information to start the transmission and ending when the last bit of the test file has been received.

- The upload or download speed should be taken frequently in regular basis at different location and time, and then it will be averaged out to obtain the overall average percentage. In addition, the size of the downloaded file shall be big enough to give the peak performance of the network.

### **Equation:**

1. Upload/Download throughput =  
 $\sum$  transferred data volume (bits) /  $\sum$  timeframe (s).

2. Average (download/upload) speed:  
 $\sum$  of Upload/Download throughput /  $\sum$  of total number of tests



### **For mobile services:**

The download/upload throughput for mobile should be measured for all mobile network technologies used to deliver broadband service using a mobile telecommunications network i.e. GSM, UMTS, LTE, 5G etc.

It is recommended to carry out the test in stationary and mobile mode to stimulate the user experience.

### **For fixed service:**

The download/upload throughput for fixed should be measurable for all fixed network technologies, whether wired or wireless, used to deliver broadband service using a fixed telecommunications network i.e. xDSL, WFBB, GPON, 5G, DTH Satellite etc.

It is recommended to test the fixed broadband download speed from the customer premises equipment (CPE).

## **3. Packet Latency**

### **Definition:**

The round trip time taken for a packet to reach its destination and return to the source.

### **Method of Calculation:**

1. The sample values taken at a any location will be averaged out to obtain the Network Latency for that location
2. Then the Network Latencies at every user locations will be averaged out to obtain the overall Mean Packet Delay

It can be measured for both local latency and international latency.

However, for international standard reporting for ITU it is recommended to report the local latency only because measurement results for international latency can be influenced by other parameters beyond the control of operators (i.e., which international routes are used)”



**Equation:**

1. Average Packet Latency (ms) =  $\sum$ packet latency / Number of tests

**4. Customer Fault Resolution Period for FBB service**

**Definition:**

The average time in hours taken to clear customer fault reports.

**- Method of Collection:**

Measuring the duration from the instant a fault report has been notified by the End User (to the published point of contact of the Licensed Operator) to the instant when the service element or service has been restored to normal working order.

**Calculation:**

$\sum$ number of working hours taken for all faults cleared/  $\sum$ number of faults