|  |  |  |
| --- | --- | --- |
|  | ASIA-PACIFIC TELECOMMUNITY | **Document No:** |
| **The Meeting of the SATRC Working Group on Policy, Regulation and Services** | **SAPVII-PRS1/ OUT-03** |
| 11 – 12 July 2019, Colombo, Sri Lanka | 12 July 2019 |

Working Group on Policy, Regulation and Services

**QUESTIONNAIRE ON WORK ITEM**

**“REGULATORY APPROACHES TO ENHANCE MOBILE QUALITY OF SERVICE”**

**1. BACKGROUND AND PURPOSE**

In general terms, Quality of Service (QoS) refers to the ability of a network or service to satisfy the end user. QoS is defined in ITU-T Recommendation E.800 as ***"the collective effect of service performances, which determine the degree of satisfaction of a user of the service"***. QoS therefore concerns aspects of services that users experience directly.

Growing concerns on various QoS parameters specially Call Drop, Call Quality and Data Throughput have been observed recently. With the increase of the subscriber base, customer's dissatisfaction is increasing and complaints against the network are also increasing.

To ensure a level playing field along with a competitive environment and subscriber satisfaction, performance measurement with a common standard in regards to the QoS is a must. QoS parameters can be measured both from network monitoring terminals and field survey through Drive Test and Customers' opinion should also be taken into consideration in this regard.

Most of the SATRC member countries adopted 3G and 4G technology. So, it is now time to set some benchmarks/ thresholds for mobile phone operators that they comply and ensure customer’s satisfaction.

**2. SCOPE**

Scope of the work item include following:

1. Create conditions for customer satisfaction by making known the quality of service which the Cellular Mobile Telecom Operator is required to provide and the user has a right to expect;
2. Measure the Quality of Service provided by the Cellular Mobile Telecom Operators from time to time and to compare them with the benchmarks so as to assess the level of performance;
3. Protect the interests of local consumers of Cellular Mobile Telecommunication Services; and
4. Promote competition among the Cellular Mobile Telecom Operators in order to ensure high-quality telecommunication services.

**3. METHODOLOGY FOR CARRYING OUT THE STUDY**

The study will be carried out by the Lead Expert in consultation with the other Experts from Member countries on the subject. Therefore, in order to pursue the study, the following questions are prepared to obtain input (information) on the subject. Based on the inputs, the lead expert will compile and generate report based on the best practices for the SATRC regions.

**4. QUESTIONS:**

ITU-T Rec. E. 800 defines Quality of Service (QoS) as “collective effect of service performance which determines the degree of satisfaction of a user of the service”.

To provide QoS support for a given service, QoS criteria and parameters are required. ITU-T Rec. G.1000 defines the terms, which provide the general QoS framework.

Seven QoS criteria are specified:

• Speed (refers to all service functions);

• Accuracy *(e.g. speech quality, call success ratio, bill correctness, etc.);*

• Availability *(e.g. coverage, service availability, etc.);*

• Reliability *(e.g. dropped call ratio, number of billing complaints, etc.);*

• Security *(e.g. fraud prevention);*

• Simplicity *(e.g. ease of software updates, ease of contract termination, etc.);* and

• Flexibility *(e.g. ease of change in contract, availability of different billing methods such as online billing, etc.).*

According to ITU-T Recommendation P.10/G.100, Quality of Experience (QoE) is defined as “the overall acceptability of an application or service, as perceived subjectively by the end-user.”

QoE is different from QoS as it is based on customer perception of the given service. QoE includes the complete end-to-end system elements (client, terminal, network, services infrastructure, etc.) and may be influenced by user expectations and context.

QoE is measured subjectively by the end-user and may differ from one user to another. The most used measure for QoE is the mean opinion score (MOS).

Q1. Please provide the details of the existing regulatory framework for Quality of Service (QoS) in your country? In addition, also share the relevant documents and their web addresses.

Q2. Keeping in view these Seven (7) QoS criteria mentioned above, what Key Performance Indicators (KPIs) are measured in your country related to specific services i.e. Voice, SMS and Data?

Q3. Describe the methodologies for measuring QoS KPIs. What tools are being used for measurement of QoS KPIs?

Q4. Who are the responsible stakeholders for QoS data measurements (e.g., Operator, Regulator, Consumer, Third Party, joint arrangement among multiple stakeholders, etc.)?

Q5. What is the QoS enforcement mechanism and how is it implemented in your country?

Q6. Is Quality of Experience (QoE) measured in your country? If yes, explain the procedure of measuring the QoE along with its parameters?

Q7. Do you have any specific requirements for indoor coverage testing? Is there any requirement to provide mandatory emergency service connectivity indoor or outdoor?

Q8. Has any work been initiated in defining QoS criteria for 5G?

Q9. How is the QoS testing result being published or communicated to Operators / Consumers?

Q10. Do you have any regulations for OTT applications? If so, is OTT to licensed network call permitted and its QoS monitored?

Q11. What is the mechanism for revision of QoS KPIs? Is it through Regulation, Revised License Conditions, any other?

Q12. Are there any new techniques or methodologies for QoS monitoring such as, Autonomous Benchmarking Solutions, Active Probes, Mobile Apps, Reconciliation of Regulator and Operator collected data, being tested in your country?

Q13. Is there any provision available to monitor real-time QoS KPIs? If so, how it is managed between Regulator and the Operator.

Q14. Are there any plans for introducing new QoS parameters? Please specify, if any? *(e.g.,* *KPIs for* *App based user experience; KPIs for VoLTE, etc.)*

Q15. What are the key quality problem being faced in your country? In your opinion, what measures should be taken to address that problem? *(e.g., releasing more spectrum, increasing mandatory Data DL speeds for 3G / 4G, etc.)*

\_\_\_\_\_\_\_\_\_\_\_