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| logogreen | ASIA-PACIFIC TELECOMMUNITY | **Document No.:****ASTAP-30/OUT-08** |
| **30th APT Standardization Program Forum(ASTAP-30)** |
| 21–25 May 2018, Bangkok, Thailand | 25 May 2018 |

Working Group on Policy, Strategy and Coordination (PSC WG)

**QUESTIONNAIRE ON THE REGULATORY MATTER AND IMPLEMENTATION PRACTICES OF QUALITY OF EXPERIENCE IN MOBILE COMMUNICATIONS**

**Section 1: Elementary Part**

1. **Introduction:**

According to ITU-T Recommendation P.10, Quality of experience (QoE) is defined as “The degree of delight or annoyance of the user of an application or service”. With regards to mobile communications, QoE has a broader scope than QoS but it is closely associated with QoS and impacted by QoS as well as by user expectations and application context. The assessment of QoE must be performed by subjective tests with metrics such as the mean opinion scored through survey. As the result, the required resources and human effort to perform QoE assessment is too high and the result may differ significantly from different user groups. In order to evaluate QoE, it is possible to measure objective QoE centric parameters/KPI through quality estimations by objective techniques, which can be classified as *intrusive*, which requires signal to be injected into the system, and *non-intrusive*, which can be done whilst live traffic. This document considers following popular mobile services and its widely accepted method used to estimate the QoE:

For voice telephony service: to estimate the user perceived quality of conversation by objectively measured end-to-end speech quality of telephone networks and speech codecs. These methods are described in ITU-T Recommendations P. 862 (as known as PESQ, Perceptual Evaluation of Speech Quality) and its successor, ITU-T Recommendation P. 863 (as known as POLQA, Perceptual Objective Listening Quality Assessment).

For Internet-based services, measuring QoE is mainly related to the streaming video services as perceived by the end user. Popular method is objective algorithmic model for measuring the visual quality of IP-based video services has been described in the ITU-T recommendation J.343.1 and ITU-T J.247.

For Internet access service, measuring QoE can be done through crowdsourcing application, which is intended to perform speed test and measure quality of the connection.

1. **Objective of the Questionnaire:**

At the ASTAP-29 meeting, the new work item on regulatory matter and implementation practices of QoE in mobile communications network (ASTAP-29/INP-32) has been adopted. The object of this questionnaire is to gather information as input for report on regulatory matter and implementation practices on QoE in mobile communications network.

1. **Responsible Group:**

Expert Group on Policies, Regulatory and Strategies (EG PRS)

1. **Rapporteur of the Questionnaire:**

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| Binh Vuong The | Ministry of Information and Communications, Viet Nam | vtbinh@mic.gov.vn  |
| Khoa Nguyen Van | Ministry of Information and Communications, Viet Nam | nvkhoa@mic.gov.vn |

1. **Meeting at which the Questionnaire was approved:**

ASTAP - 30.

1. **Target Responder:**

The APT Member Administration that is responsible for developing/enforcing quality of service policies.

1. **Deadline for Responses: *March, 2019***

**Section 2: Questionnaire Part**

**1.** Which are most popular mobile services in your country? Mark more than one if needed.

[ ]  Voice telephony services on 2G/3G/4G networks

[ ]  Internet access service on 3G/4G networks

[ ]  Streaming video service on 3G/4G networks

[ ]  Other Services (name it):

2. Do you have a regulation for monitoring quality of mobile services?

[ ]  Yes

[ ]  No

2.1 If answer is “Yes”, which services are being monitored? Mark more than one if needed.

[ ]  Voice telephony services on 2G/3G/4G networks

[ ]  Internet access service on 3G/4G networks

[ ]  Streaming video service on 3G/4G networks

[ ]  Other Services (name it):

3. Do you have standards for quality assessments of mobile services? If yes, proceed to 3.1. If the answer is no please skip to question number 3.5.

[ ]  Yes

[ ]  No

**A. If answer is “Yes”**

3.1 Voice telephony services on 2G/3G/4G networks

3.1.1 Essential KPI and assessment method

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  **Method** **KPI** | Customer opinion survey | Objectively measurement | Crowdsourcing application | Others |
| Quality of conversation in term of user perception | [ ]   | [ ]  | [ ]  |  |
| Service Coverage | [ ]   | [ ]  | [ ]  |  |
| Dropped call ratio | [ ]   | [ ]  | [ ]  |  |
| Others |  |  |  |  |

3.1.2. For quality of conversation, which standards are used for quality of conversation metrics?

[ ]  Subjectively evaluation: ITU-T Recs P. 800, P.800.1, P. 831, P. 832 that provide MOS (1 - 5 scores) for voice call quality assessment

[ ]  Objectively evaluation and intrusive method: ITU-T Recs P.862/P.863

[ ]  Objectively evaluation and non-intrusive: ITU-T Recs P.561/P.562

[ ]  Other (specified)

3.2. Streaming video service on 3G/4G networks

3.2.1 Essential KPI and assessment method

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  **Method** **KPI** | Customer opinion survey | Objectively measurement | Crowdsourcing application | Others |
| Quality of video streaming | [ ]   | [ ]  | [ ]  |  |
| Service Coverage | [ ]   | [ ]  | [ ]  |  |
| Others | [ ]   | [ ]  | [ ]  |  |

3.2.2. For quality of streaming video, which standards used for assessment?

[ ]  Subjectively evaluation: ITU-T Recs P. 910 that provide MOS (1 - 5 scores) for video quality assessment

[ ]  Objective perceptual method and full reference: ITU-T Rec J.247

[ ]  Objective perceptual method and hybrid non reference: ITU-T Rec J.343.1

[ ]  Other (specified)

3.3. Internet access service on 3G/4G networks

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  **Method** **KPI** | Customer opinion survey | Objectively measurement | Crowdsourcing application | Others |
| Speed | [ ]   | [ ]  | [ ]  |  |
| Service Coverage | [ ]   | [ ]  | [ ]  |  |
| Others | [ ]   | [ ]  | [ ]  |  |

3.4. Other services:

**B. If the answer is “No”**

3.5 What is your approach to monitor in term of quality for services on the mobile communications network?

4. Do you publish the quality assessment results?

[ ]  Yes

[ ]  No

4.1 If Yes, what kinds of media are being used to publish the quality assessment results of services on the mobile communications network? Mark more than one if needed.

[ ]  Website

[ ]  Newspapers

[ ]  Social media

[ ]  Others (name it):

4.2 If Yes, which periods are being used to publish the quality assessment results of services on the mobile communications network?

[ ]  Monthly

[ ]  Quarterly

[ ]  Half-yearly

[ ]  Yearly

[ ]  Others (name it):