

## **Question 13/12 – Quality of experience (QoE), quality of service (QoS) and performance requirements and assessment methods for multimedia applications**

(Continuation of Question 13/12)

### **1 Motivation**

A major challenge for emerging IP-based networks is to provide adequate Quality of Experience (QoE) and Quality of Service (QoS) for new multimedia services and applications. An example is Extended Reality (XR) applications, including Augmented Reality (AR), Mixed Reality (MR), and Virtual Reality (VR). In such applications, QoE is critical because bad quality may cause people using it have nausea and sickness. Another example is new services emerging in fixed and mobile broadband. All of these services are inherently multi-media, incorporating audio, video, environments, and interactive control functions, and the QoE is affected by many different categories of factors. The performance requirements and associated measurement methodologies for each of these aspects need to be defined.

The following major Recommendations, in force at the time of approval of this Question, fall under its responsibility:

G.1010, G.1011, G.1030, G.1031, G.1032, G.1034, G.1035, G.1040, G.1050, G.1070, G.1071, G.1072, G.1080, G.1081, G.1082, G.1091, P.917, P.919, P.1010, Y.1562

### **2 Question**

Study items to be considered include, but are not limited to:

- development of new Recommendations providing guidance on QoE target evaluation and measurement;
- identify end-user performance expectations and associated metrics for audio, video, text, graphics quality and control functionality;
- define the key performance parameters and values required to satisfy end-user expectations;
- determine how these requirements can be related to the underlying network, server, and terminal;
- identify simple analysis techniques for estimating end-to-end performance for multimedia applications;
- identify QoS/QoE monitoring methodologies for multimedia services;
- identify sets of KPIs and QoS metrics for different services and investigate the relationship with QoE;
- investigate techniques and methods to perform complex data processing and to make consistent and significant decisions for quality management and assurance;
- multimedia performance considerations for IP gateways;
- QoS and QoE considerations for new services in fixed and mobile broadband.

### **3 Tasks**

Tasks include, but are not limited to:

- development of new Recommendations providing guidance on end-user performance expectations for multimedia applications, such as high quality audio and video immersive applications, and gaming;
- development of new Recommendations on planning models for estimating end-to-end multimedia performance;
- development of new Recommendations providing guidance on performance monitoring methods for multimedia applications, such as high quality audio and video immersive applications, and gaming;
- development of new Recommendations (and other documents as needed) on QoS and QoE aspects related to new services in fixed and mobile broadband.
- revision of Recommendations G.1010, G.1011, G.1030, G.1031, G.1032, G.1034, G.1035, G.1040, G.1050, G.1070, G.1071, G.1072, G.1080, G.1081, G.1082, G.1091, Y.1562, P.917, P.919 and P.1010 as necessary.

An up-to-date status of work under this Question is contained in the SG12 work programme: [http://www.itu.int/ITU-T/workprog/wp\\_search.aspx?q=13/12](http://www.itu.int/ITU-T/workprog/wp_search.aspx?q=13/12)

#### **4 Relationships**

##### **WSIS Action Lines**

- C2

##### **Sustainable Development Goals**

- 9

##### **Recommendations**

- G.1000-series, Y.1000-series, P.800.1, P.800.2, P.1201, P.1203, P.1204, Y.1540, Y.1541, Y.1544

##### **Questions**

- 4/12, 6/12, 9/12, 10/12, 11/12, 14/12, 15/12, 16/12, 17/12, 19/12

##### **Study Groups**

- ITU-T SG9, SG16

##### **Other bodies**

- IETF, ETSI TC STQ, 3GPP, TIA TR-41, TIA TR30.3, ATIS IIF, MPEG