

Your point of view on how the Quality of Service should be measured would be very useful to help us in developing the standards you need. Hereafter are some definitions, references and questions to get your feeling on this issue.

1. **Detailed definition of the topic:**

quality of service: collective effect of service performance which determines the degree of satisfaction of a user of the service. (Taken from ITU-T Recommendation E.800).

Therefore the QoS is an upper layer above the network performance and the quality of the communication.

2. **Other references/standards:**

Directive 98.10. CE 1998 February 26 (article 12 & annex III).

ITU-T Recommendation E.800: "Telephone network and ISDN quality of service, network management and traffic engineering: Terms and definitions related to quality of service and network performance including dependability".

ISO/IEC 9646-3 (1998): "Information technology - Open Systems Interconnection – Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN)".

ETR 076: Integrated Services Digital Network (ISDN); Standards Guide

ETR 301: Users' Expectations; Virtual Private networks

ETSI EG 201 050: Speech Processing, Transmission and Quality Aspect (STQ); Overall Transmission Plan Aspects for Telephony in a Private Network

ETSI EG 201 377-1: "Specification and measurement of speech transmission quality; Part 1: Introduction to objective comparison measurement methods for one-way speech quality across networks".

ETSI EG 201 474: Speech Processing, Transmission and Quality Aspect (STQ); Future approaches to speech transmission quality across multiple interconnected networks

ETSI EG 201 769-1: Speech Processing, Transmission & Quality Aspects (STQ); QoS parameter definitions and measurements; Part 1: Parameters for the voice telephony service required under the ONP Voice Telephony Directive 98/10/EC

ETSI EG 201 050 (V1.2): "Speech Processing and Quality Aspects (STQ); Overall Transmission Plan Aspects for Telephony in a Private Network".

ETSI ES 201 168: Speech processing, Transmission and Quality Aspects (STQ); Transmission characteristics of digital Private Branch eXchanges (PBXs) for Interconnection to Private Networks, to the public switched network or to IP Gateways

EG 202 103: Methods for Testing and Specification (MTS); Guide for the use of the second edition of TTCN

3. **Background of the Topic:**

In the current telecommunication environment, competition impacts the prices but new technologies might also have an influence on the QoS. Therefore, not only the prices but also the level of QoS have to be taken into account to get the whole benefits of the competition from the user side. From this viewpoint, there is a clear need to get availability of information on the QoS but it is expected that different categories of users have different requirements. A first issue is how the users expect to get such information and the answers are probably very different between the business users and the residential users. The first ones might like to perform their own measurements with appropriate tools made available or to subscribe to a service provider carrying out these measurements for them while other ones would like to have some third party dealing with these measurements and making the results publicly available.

Another issue is to define the key QoS parameters.

5. The ETSI User Group intends to recommend the following general principles

5.1. QoS parameters to be measured:

QoS is not only the quality of communication.

- Hook up delay
- Customer care (available communication means, response time, appropriateness of the answer)
- Mean time to repair
- Billing quality (error ratio)
- Quality of communication « on the line » and in real time.

Q10 Do you agree the above parameters are the best suited to evaluate the QoS

Q10.1 Would you like other ones

Q10.2 Describe which one you would like:

5.2. The indicators of the quality of communication:

The following indicators have been selected as the most relevant to monitor the quality of communication:

➤ Network performance

- ✓ Network efficiency ratio
- ✓ Call set up time
- ✓ Echo
- ✓ Signal to noise ratio
- ✓ Attenuation
- ✓ Speech quality
- ✓ Fax speed
- ✓ Data speed
- ✓ End to end availability
- ✓ Call completion rate
- ✓ Bit Error Rate Test (BERT)
- ✓ Number of Service Interruptions

➤ Web

- ✓ First page access time
- ✓ Download time
- ✓ Net Performance
- ✓ Transaction failure

Q11 Do you agree these parameters are the best suited to evaluate the quality of communication

Q11.1 Would you like other ones

Q11.2 Describe which one you would like:

5.3. The method of measurement of the quality of communication:

Different methods of measurement may be needed according to the size and the business of the user/company:

- **Objective measurement**

- ✓ Non Intrusive: real traffic
- ✓ Intrusive: On generated traffic, with end to end measurements

