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SERIES E: OVERALL NETWORK OPERATION,
TELEPHONE SERVICE, SERVICE OPERATION AND
HUMAN FACTORS

Quality of telecommunication services: concepts, models,
objectives and dependability planning – Terms and
definitions related to the quality of telecommunication
services

**Measurement campaigns, monitoring systems
and sampling methodologies to monitor the
quality of service in mobile networks**

Recommendation ITU-T E.806

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Recommendation ITU-T E.806

Measurement campaigns, monitoring systems and sampling methodologies to monitor the quality of service in mobile networks

Summary

Recommendation ITU-T E.806 describes a baseline framework of best practices for measuring quality of service (QoS) in mobile networks. It provides a high-level overview of measurement campaigns, monitoring systems characteristics and requirements, post-processing general recommendations and sampling methodologies to monitor mobile electronic services.

This Recommendation is technology-neutral, but may state different requirements depending on the services being measured.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
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KPI, measurement campaigns, mobile networks, monitoring systems, QoS, sampling methodologies.

* To access the Recommendation, type the URL <http://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID. For example, <http://handle.itu.int/11.1002/1000/11830-en>.

FOREWORD

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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Recommendation ITU-T E.806

Measurement campaigns, monitoring systems and sampling methodologies to monitor the quality of service in mobile networks

1 Scope

This Recommendation describes a baseline framework of best practices for measuring quality of service (QoS) throughout the industry, and covers mobile network QoS measurement campaigns, characteristics and requirements for monitoring systems, post-processing scenarios, as well as sampling methodologies used by regulators, test equipment vendors, companies that deliver network measurements, data analysts and service providers to monitor QoS on a national level.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- [ITU-T E.802] Recommendation ITU-T E.802 (2007), *Framework and methodologies for the determination and application of QoS parameters*.
- [ITU-T E.804] Recommendation ITU-T E.804 (2014), *Quality of service aspects for popular services in mobile networks*.
- [ITU-T E.807] Recommendation ITU-T E.807 (2014), *Definitions, associated measurement methods and guidance targets of user-centric parameters for call handling in cellular mobile voice service*.
- [ITU-T E.840] Recommendation ITU-T E.840 (2018), *Statistical framework for end-to-end network performance benchmark scoring and ranking*.
- [ITU-T G.1031] Recommendation ITU-T G.1031 (2014), *QoE factors in web-browsing*.
- [ITU-T P.863.1] Recommendation ITU-T P.863.1 (2019), *Application guide for Recommendation ITU-T P.863*.
- [ITU-T P.1401] Recommendation ITU-T P.1401 (2012), *Methods, metrics and procedures for statistical evaluation, qualification and comparison of objective quality prediction models*.
- [ITU-T Y.1540] Recommendation ITU-T Y.1540 (2016), *Internet protocol data communication service – IP packet transfer and availability performance parameters*
- [ITU-T Y.1545.1] Recommendation ITU-T Y.1545.1 (2017), *Framework for monitoring the quality of service of IP network services*.
- [ETSI TR 125 942] ETSI Technical Report 125 942, V15.0.0 (2018), *Universal mobile telecommunications system (UMTS); Radio frequency (RF) system scenarios*.
- [ETSI TR 138 900] ETSI Technical Report 138 900, V15.0.0 (2018), *LTE; 5G; Study on channel model for frequency spectrum above 6 GHz*.

[IETF RFC 7799] IETF RFC 7799 (2016), *Active and passive metrics and methods (with hybrid types in-between)*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 A-party [ITU-T E.804]: Initiating part of a connection (also: Mobile Originating, MO) or in direct transactions, the party initiating the transaction (calling party).

NOTE – In store-and-forward transactions, the party sending the content.

3.1.2 B-party [ITU-T E.804]: In direct transactions, the termination or counterpart of a transaction.

NOTE – In store-and-forward transactions, the party receiving the content.

3.1.3 confidence coefficient; confidence level [b-ITU-T E.800]: The value of the probability associated with a confidence interval or a statistical tolerance interval.

3.1.4 download [ITU-T E.800]: Transfer of data or programs from a server or host computer to one's own computer or device.

3.1.5 end-to-end quality [b-ITU-T E.800]: Quality related to the performance of a communication system, including all terminal equipment.

3.1.6 measure [b-ITU-T E.800]: A unit by which a parameter may be expressed.

3.1.7 network operator [ITU-T E.804]: Organization that provides a network for the provision of a public telecommunication service.

3.1.8 network performance [b-ITU-T E.800]: The ability of a network or network portion to provide the functions related to communications between users.

3.1.9 probe [ITU-T Y.1545.1]: Is an end-point test tool which uses probing packets to collect measurements.

3.1.10 quality of service (QoS) [b-ITU-T E.800]: Totality of characteristics of a telecommunications service that bear on its ability to satisfy stated and implied needs of the user of the service.

3.1.11 streaming (in multimedia services) [ITU-T E.800]: Multimedia data (usually combinations of voice, text, video and audio) transferred in a stream of packets that are interpreted and rendered, by a software application as the packets arrive.

NOTE 1 – Streaming is a technique for transferring multimedia data.

NOTE 2 – Streaming may or may not be in real time.

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

3.2.1 crowdsourced data collection: A method to gather active or passive quality of service measurements from a large number of end user devices.

3.2.2 drive testing: A testing method using vehicles equipped with network device-testing equipment.

3.2.3 monitoring system: A tool or equipment able to perform an evaluation of network performance.

3.2.4 monitoring system user: A user that can be a regulator, test equipment vendor, company that delivers network measurements, data analyst or service provider.