



# SLOVENSKI STANDARD

## SIST-V ETSI/EG 202 934:2013

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**Uporabniška skupina - Ocenjevanje celotne kakovosti storitev (QoS), kot jo dojemajo uporabniki - Definicija kazalnikov QoS za vse stopnje odnosov s strankami**

User Group - The assessment of the overall Quality of Services (QoS) as perceived by the users - Definition of QoS indexes for all the customer relationship stages

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# ETSI EG 202 934 V1.1.1 (2012-01)



ETSI Guide

**User Group;**  
**The assessment of the overall Quality of Services (QoS)**  
**as perceived by the users;**  
**Definition of QoS indexes for all the**  
**customer relationship stages**

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# Contents

Intellectual Property Rights .....	4
Foreword.....	4
Introduction .....	4
1 Scope .....	5
2 References .....	5
2.1 Normative references .....	5
2.2 Informative references.....	5
3 Definitions, symbols and abbreviations .....	7
3.1 Definitions .....	7
3.2 Symbols.....	8
3.3 Abbreviations .....	9
4 General context of the information on QoS assessment.....	10
4.1 Overall organization of the QoS information .....	10
4.2 Aspects impacting the QoS of the utilization stage .....	11
4.2.1 Access .....	11
4.2.2 Bearer service .....	11
4.2.3 Service usage .....	11
4.2.4 Presentation and user interface .....	11
4.3 Requirements for the QoS parameter assessment.....	12
4.4 QoS parameter selection .....	12
4.5 Processing of the results .....	12
5 Segmentation of the results .....	13
6 Definition of a reference threshold for each QoS parameter.....	13
7 Aggregation of the results within each CRS .....	14
8 Aggregation of the QoS results of the various CRS of a specific service .....	15
8.1 Qualitative aggregation .....	15
8.2 Quantified aggregation .....	16
8.2.1 QoS value ranges .....	16
8.2.2 Highest QoS limit of the range .....	16
8.2.3 Lowest QoS limit of the range .....	17
8.2.4 Definition of a QoS index .....	17
<b>Annex A: Weighted aggregation of the results of the CRS of a specific service.....</b>	<b>18</b>
<b>Annex B: Graphical representation .....</b>	<b>19</b>
B.1 Representation of the results within a CRS .....	19
B.2 Representation of the QoS results for the various CRS of a specific service.....	21
<b>Annex C: Alternate graphical representation based on the "one-view visualization (OVV) methodology" described in the ITU-T Recommendation P.505 .....</b>	<b>24</b>
C.1 Representation of the results within a CRS .....	25
C.2 Representation of the QoS results for the various CRS of a specific service.....	26
<b>Annex D: Bibliography .....</b>	<b>27</b>
History .....	28

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## Foreword

This ETSI Guide (EG) has been produced by ETSI User Group (USER).

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## Introduction

The proposals contained in the present document are based on actual market realities: state of the art of the service provided and current users' perceptions of the QoS provided. They aim at providing guidance on how consolidating the various QoS assessments provided from various sources in a synthetic view that users can easily understand and use.

The intention is not to define values that providers should absolutely comply with in order to get some kind of label but rather to help the customer to identify which providers are expected to fulfil their requirements. As these requirements might strongly differ from one user to another one, the guidance are given in such a way that the consolidation can be carried out differently to better fit the aim of the study and the kind of users under consideration.

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## 1 Scope

The present document describes a methodology for the aggregation of QoS parameter results in order to obtain a view onto the overall quality of the ICT services provided by Service Providers (SP) from an individual customer's perspective; a suggestion for graphical representations including one following ITU-T Recommendation P.505 [i.28] is proposed in annexes B and C. The purpose is not to identify the best SP but those whose QoS is complying in every aspect with references considered as satisfactory from the users viewpoint.

The aim of this methodology is to be able to take into account preferences and expectations of individual customers as well as the subjective and objective QoS assessments.

The present document does not define parameter value threshold nor specific weighting factors for the QoS parameters but rather suggests possible ways for a weighted aggregation if so wished.

QoS indexes are defined using the QoS parameters provided in EG 202 009-2 [i.2] for all the stages of the customer relationship including service utilization.

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## 2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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### 2.1 Normative references

The following referenced documents are necessary for the application of the present document.

Not applicable.

### 2.2 Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1] ETSI EG 202 009-1: "User Group; Quality of Telecom Services; Part 1: Methodology for identification of parameters relevant to the Users".
- [i.2] ETSI EG 202 009-2: "User Group; Quality of telecom services; Part 2: User related parameters on a service specific basis".
- [i.3] ETSI EG 202 057-1: "Speech Processing, Transmission and Quality Aspects (STQ); User related QoS parameter definitions and measurements; Part 1: General".
- [i.4] ETSI EG 202 057-2: "Speech and multimedia Transmission Quality (STQ); User related QoS parameter definitions and measurements; Part 2: Voice telephony, Group 3 fax, modem data services and SMS".
- [i.5] ETSI EG 202 057-3: "Speech Processing, Transmission and Quality Aspects (STQ); User related QoS parameter definitions and measurements; Part 3: QoS parameters specific to Public Land Mobile Networks (PLMN)".
- [i.6] ETSI EG 202 057-4: "Speech Processing, Transmission and Quality Aspects (STQ); User related QoS parameter definitions and measurements; Part 4: Internet access".

- [i.7] ETSI ES 202 737: "Speech and multimedia Transmission Quality (STQ); Transmission requirements for narrowband VoIP terminals (handset and headset) from a QoS perspective as perceived by the user".
- [i.8] ETSI ES 202 738: "Speech and multimedia Transmission Quality (STQ); Transmission requirements for narrowband VoIP loudspeaking and handsfree terminals from a QoS perspective as perceived by the user".
- [i.9] ETSI ES 202 739: "Speech and multimedia Transmission Quality (STQ); Transmission requirements for wideband VoIP terminals (handset and headset) from a QoS perspective as perceived by the user".
- [i.10] ETSI ES 202 740: "Speech and multimedia Transmission Quality (STQ); Transmission requirements for wideband VoIP loudspeaking and handsfree terminals from a QoS perspective as perceived by the user".
- [i.11] ETSI EG 202 765-1: "Speech and multimedia Transmission Quality (STQ); QoS and network performance metrics and measurement methods; Part 1: General considerations".
- [i.12] ETSI EG 202 765-2: "Speech Processing, Transmission and Quality Aspects (STQ); QoS and network performance metrics and measurement methods Part 2 : Transmission Quality Indicator combining Voice Quality Metrics".
- [i.13] ETSI EG 202 765-3: "Speech and multimedia Transmission Quality (STQ); QoS and network performance metrics and measurement methods; Part 3: Network performance metrics and measurement methods in IP networks".
- [i.14] ETSI EG 202 843: "User Group; Quality of ICT Services; Definitions and Methods for Assessing the QoS parameters of the Customer Relationship Stages other than utilization".
- [i.15] ETSI ES 202 667: "Speech and multimedia Transmission Quality (STQ); Audiovisual QoS for communication over IP networks".
- [i.16] ETSI ES 202 765-4: "Speech and multimedia Transmission Quality (STQ); QoS and network performance metrics and measurement methods; Part 4: Indicators for supervision of Multiplay services".
- [i.17] ETSI TR 102 805-1 (V1.1.1): "User Group; End-to-end QoS management at the Network Interfaces; Part 1: User's E2E QoS - Analysis of the NGN interfaces (user case)".
- [i.18] ETSI TR 102 805-3 (V1.1.1): "User Group; End-to-end QoS management at the Network Interfaces; Part 3: QoS informational structure".
- [i.19] ETSI TR 102 806: "User Group; Analysis of current End-to-End QoS standardization state".
- [i.20] ETSI TR 102 854: "User Group; The assessment of the overall Quality of Services (QoS) as perceived by the users Review of practical examples of services QoS assessments".
- [i.21] ETSI TS 102 250-1: "Speech and multimedia Transmission Quality (STQ); QoS aspects for popular services in mobile networks; Part 1: Assessment of Quality of Service".
- [i.22] ETSI TS 102 250-2: "Speech and multimedia Transmission Quality (STQ); QoS aspects for popular services in mobile networks; Part 2: Definition of Quality of Service parameters and their computation".
- [i.23] ETSI ES 202 746: "Human Factors (HF); Personalization and User Profile Management; User Profile Preferences and Information".
- [i.24] ETSI TS 102 844: "User Group; Quality of Telecom Services; Conformity assessment; Requirements for bodies providing QoS assessments and surveys".
- [i.25] ETSI TS 102 852: "User Group; Quality of ICT Services; Assessment process of the QoS parameters of the customer relationship stages".
- [i.26] ITU-T Recommendation E.802 (02/2007): "Framework and methodologies for the determination and application of QoS parameters".



- [i.27] ITU-T Recommendation G.1010 (11/2001): "End-user multimedia QoS categories".
- [i.28] ITU-T Recommendation P.505 (11/2005): "One-view visualization of speech quality measurement results".

## 3 Definitions, symbols and abbreviations

### 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

**cessation:** activities associated with the cessation of a telecommunication service from the time it is requested by a customer, to the time it is completed to the satisfaction of the customer

**commercial support:** activities associated with the commercial support of a telecommunication service

**complaint management:** activities associated with the management of customer's complaints to the provider about the service provided

**documentation:** activities associated with the provision of documentation to install, set-up and use the various features of the service as well as to identify and fix possible troubles

NOTE: These activities include: Documentation for service activation and set-up and documentation for service use.

**establishment of the contract (Terms and conditions):** activities from the customer decision to contract with the provider to the time of effective contract

NOTE: Establishment of the contract is meant here for agreeing to the contractual conditions, conditions of use, customer and provider commitments whether or not there is a formal signature of the contract.

**metering/charging/billing:** activities associated with the metering, charging and billing of a telecommunication service to a customer

NOTE: This could be for one call, for a specified period or for a given billing amount, depending whether it is about a bill or any other type of expense information, e.g. ebill, expense signal, real time expense information on the provider website, AoC-S supplementary service, etc.

**preliminary information/advertisement:** activities related to information on the service provided on request of the prospect or in newspapers, magazines, booklets, etc., to help him choosing the service and provider most appropriate to his needs

**repair-troubleshooting:** activities associated with the restoration of a telecommunication service to the customer after a fault resulting in partial or complete loss of service or service features

**service alteration:** activities associated with the alteration of a telecommunication service, from the time alteration to a service is requested by the customer to the time this alteration is carried to the satisfaction of the customer

**service provisioning:** activities associated with the provision of a telecommunication service, from the time of effective contract to the time the customer is able to use the service

**technical support:** activities associated with the technical support of a telecommunication service to help users experiencing problems in the use of the service

**technical upgrade:** activities associated with the technical evolution of any component of the service at the provider initiative

## 3.2 Symbols

For the purposes of the present document, the following symbols apply:

NOTE: This list of symbols covers only the parameters Pnnnn used in the present document using the EG 202 843 [i.14] definitions. Additional ones PTnnnn have been added to cover QoS parameters concerning the use of telephony service.

P100	Frequency of customer complaints about PI [N/t]: Number of customers' complaints about PI per million subscribers
P101a	Integrity of PI [OR]: Content - Was the relevant information provided as you expected?
P101b	Integrity of PI [OR]: Language - Was the information provided clear and understandable without any ambiguity?
P101c	Integrity of PI [OR]: Style - How would you rate the overall style, presentation and professionalism of the preliminary information provided?
P102	Pricing transparency [OR]: Did you find the pricing information comprehensible?
P103	Availability of PI [%]: Could you retrieve the preliminary information easily?
P200	Frequency of customer complaints about contract establishment [N/t]: Number of customers' complaints about contract establishment per million subscribers
P201	Integrity of contract information [OR]: How would you rate the integrity of the contractual document?
P202	Compliance of contractual terms with PI [%]: Was the contract document compliant to the previously provided preliminary information?
P203	Flexibility for customisation before contract [OR]: How would you rate the flexibility of your service provider to customise the contract before signature e.g. by applying options?
P204	Ease and flexibility to amend terms after formal contract [OR]: How would you rate the flexibility of your service provider to further adapt the contract after signature e.g. by applying options?
P300	Frequency of customer complaints about provisioning [N/t]: Number of customers' complaints about provisioning per million subscribers
P303a	Successful provisioning within a specified period [%] - existing subscriber line
P303b	Successful provisioning within a specified period [%] - new subscriber line
P309a	Provisioning time [Time & %] - existing subscriber line
P309b	Provisioning time [Time & %] - new subscriber line
P600	Frequency of customer complaints about service support [N/t]: Number of customers' complaints about service support per million subscribers
P628a	Response time of the technical support [Time & %]
P628b	Response time of the technical support [Time & %]
P661	Accessibility of the complaint management desk [%]: Concerning your latest attempt to access the complaint management desk of your service provider: Did you succeed in accessing it?
P662	Recognition of the customer complaints [%]: Concerning your latest attempt to access the complaint management desk of your service provider: Was your complaint accepted?
P663	Complaint solutions not complete and correct first time [%]: Was the complaint solved to your satisfaction at the first attempt by the service provider?
P664	Complaint solutions achieved within a specified period [%]: Concerning your latest accepted complaint: Was the complaint finally solved to your satisfaction by the service provider?
P665	Integrity of complaint resolution [%]: Concerning your latest accepted complaint: Was your complaint resolved correctly?
P666a	Customer perception of the complaint management [OR]: Customer perception of complaint management (Assurance): How would you rate the service provider's complaint management related to assurance at all?
P666b	Customer perception of the complaint management [OR]: Customer perception of complaint management (Empathy): How would you rate the service provider's complaint management related to empathy at all?
P666c	Customer perception of the complaint management [OR]: Customer perception of complaint management (Responsiveness): How would you rate the service provider's complaint management related to responsiveness at all?
P667	Overall quality of the complaint management process [OR]: How would you rate the overall handling of the complaint management process?
P706a	Fault repair time [Time & %] - Time for 95 % fault repair
P706b	Fault repair time [Time & %] - % faults repaired within a 48 hours delay
P707	Frequency of customer complaints related to repair services [N/t]: Number of customers' complaints related to repair services per million subscribers

P800	Frequency of customer complaints about billing [N/t]: Number of customers complaints about billing per million subscribers
P801	Accessibility of the tariff information [%]: Concerning your latest attempt to access your provider's tariff information: Were you able to access the tariff information?
P802	Successful notification of exceeding billing budget [%]: If you are using a notification service when you reach a predefined budget level: Concerning your latest exceeding of budget: Were you notified accordingly when you exceeded your budget?
P804	Accessibility of the account management [%]: Concerning your latest attempt to access the account status at your service provider: Did you succeed in accessing it?
P806	Timeliness of bill delivery [%]: Did you receive all the expected bills throughout the last 6 months?
P807	Bill delivery delay [Time]: If you experienced a delay in bill delivery: How many days was the bill delayed?
P808	Late notification of amount due [%]: Has the bill been received before the direct debit was executed?
P809	Modes of billing information transfer [Number]: How many ways do you have to access your accounting information?
P810	Bill correctness complaints [%]: Percentage of bills resulting in a customer complaint per point of billing per year
P1004a	Contractual cessation achieved [%] within 10 days
P1004b	Contractual cessation achieved [%]: time needed (days) to achieved 95 % of cessations requested
P1004c	Contractual cessation achieved [%]: time needed (days) to achieved 99 % of cessations requested
P1008	Frequency of customer complaints related to cessation [N/t]: Number of customers' complaints related to cessation per million subscribers
PT000	Frequency of customer complaints related to use of service [N/t]: Number of customers complaints related to use of service per million subscribers
PT001a	Fault report rate per fixed access lines
PT001b	Fault report rate per fixed access lines within 30 days after the delivery
PT002a	Unsuccessful call ratio - domestic calls
PT002b	Unsuccessful call ratio - international calls
PT003a	Call set up time - domestic calls
PT003b	Call set up time - international calls
PT004	Speech Quality (MOS)

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### 3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

CRS	Customer Relationship Stage
ICT	Information and Communication Technology
IP-TV	Internet Protocol Television
MOS	Mean Opinion Score
OR	Opinion Rating
OVV	One-View Visualization
QoE	Quality of Experience
QoS	Quality of Service
SLA	Service Level Agreement
SP	Service Provider
ToIP	Telephony over IP
VoD	Video on Demand

## 4 General context of the information on QoS assessment

A vast array of documentation is today available on the QoS assessment from the user viewpoint e.g. among others, ITU-T Recommendation E.802 [i.26], EG 202 009-2 [i.2], EG 202 843 [i.14] or TS 102 852 [i.25]. The use of such standards should take into account the features of each service and even the specific QoS requirements of each component of this service as detailed in TR 102 805-1 [i.17], TR 102 805-3 [i.18] and TR 102 806 [i.19]. Some generic principles to tackle the specificities of services like voice, IP-TV web surfing or emails, are given in ES 202 765-2 [i.12] and ES 202 765-4 [i.16], TS 102 250-2 [i.22] as well as in ITU-T Recommendation G.1010 [i.27]. Each document provides only a part of the overall QoS as perceived by the user, but there are a lack of documents to define the overall quality for the whole CRS.

Current studies are also developing the concept of Quality of Experience (QoE) that takes into account in addition to QoS, the context of use, the user's expectations. In particular QoE takes into account value for money as well as the psychological aspects that may influence user satisfaction. In particular, users could get from fora or social networks such as "Facebook", "YouTube" or alike feedback from other users that might influence their expectations and perception of the quality.

Whatever assessment is carried out, it results in a collection of various and multiple pieces of information: measured data (number of calls, response time, Opinion Rating (OR), etc.) and also purely subjective information gathered in carrying out user surveys.

As the purpose of the present document is to provide a mode of presentation of the information expected to show the users' overall satisfaction for a category of service, if the assessment of this users' satisfaction is not carried out on all the SP's customers, particular care should be given to the choice of the customer panel to be assessed to ensure the obtained results represent both the complexity of the customer environment and his expectations.

Moreover, since the experience has shown that in many cases, the results of the QoS parameters assessment for a service from a single SP and different users are spread over a wide scale, it is crucial to provide the spreading of these results.

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### 4.1 Overall organization of the QoS information

The QoS information includes many aspects, a large number of them being listed in EG 202 009 [i.1] and defined in detail in EG 202 843 [i.14]. Even if not all these parameters are relevant at a given time and therefore if a realistic description of the service quality from a SP is not expected to use all of them, end-users would hardly understand how to use them to select the provider most suited to meet their expectations. If QoS is extended to user satisfaction, then an even larger number of pieces of information is expected. There is therefore a need to make this information more synthetic.

In fact, to make the QoS information more easily understandable by common end-users the available pieces of information should be aggregated so that it is summarized in a small number of indicators.

Annex A of EG 202 843 [i.14] provides some indications and warnings about the aggregate ratings. The EG 202 843 [i.14] is related to the QoS parameters of the Customer Relationship Stages (CRS) other than utilization but these considerations can easily be extended to the utilization stage.

A first means of making the QoS information more synthetic is to gather it with respect to the Customer Relationship Stages. A crucial point to notice is that the QoS in utilization stage is largely dependent on the service considered while, in most cases, the QoS in the other stages is independent of the service. As a consequence, to catch a clear picture of the utilization stage QoS provided by an SP, it is necessary to assess the QoS separately for each service proposed. Moreover, as detailed in annex A of TR 102 805-1 [i.17], the QoS requirements might be quite different for each component of a service. As a consequence, the QoS assessment of a given service needs to take into account its components and this might result in increasing again the number of indicators to consider.