INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

E.801

(10/96)

SERIES E: TELEPHONE NETWORK AND ISDN

Quality of service, network management and traffic engineering – Quality of telecommunication services: concepts, models, objectives and dependability planning – Terms and definitions related to the quality of telecommunication services

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Framework for service quality agreement

ITU-T Recommendation E.801

(Previously CCITT Recommendation)

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ITU-T RECOMMENDATION E.801

FRAMEWORK FOR SERVICE QUALITY AGREEMENT

Summary

The Service Quality Agreement (SQA) is a bi or multilateral agreement between interconnecting ROAs, network providers and/or service providers to initiate a formalized programme to monitor, measure and set targets that are intended to satisfy the end user and other customers. When appropriate, mutually agreed action plans will be developed to improve a target that is below the expected level of performance.

This Recommendation outlines a framework for a service quality agreement that network/service providers can mutually use to provide an agreed level of network and service performance. The SQA shall provide an agreed understanding between ROAs for measurements and targets that satisfy the end user.

Source

ITU-T Recommendation E.801 was prepared by ITU-T Study Group 2 (1993-1996) and was approved under the WTSC Resolution No. 1 procedure on the 8th of October 1996.

FOREWORD

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1 (Helsinki, March 1-12, 1993).

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.

CONTENTS

Recommendation E.801

FRAMEWORK FOR SERVICE QUALITY AGREEMENT

(Geneva, 1996)

This Recommendation focuses on developing a Service Quality Agreement (SQA) between Recognized Operating Agencies (ROAs), network providers and/or service providers.

1 Introduction

In the current telecommunication's environment, the network/service providers face increasing competitive pressure and customer driven requirements for reliable trouble free communications. A method to satisfy these requirements is for ROAs (Recognized Operating Agencies) to have joint service quality agreements.

ROAs are strongly encouraged to develop SQAs with diverse ROAs so that service quality can be improved worldwide.

2 Purpose

The SQA is a bi or multilateral agreement between interconnecting ROAs, network providers and/or service providers to initiate a formalized programme to monitor, measure and set targets that are intended to satisfy the end user and other customers. When appropriate, mutually agreed action plans will be developed to improve a target that is below the expected level of performance.

This Recommendation outlines a framework for a service quality agreement that network/service providers can mutually use to provide an agreed level of network and service performance. The SQA shall provide an agreed understanding between ROAs for measurements and targets that satisfy the end user.

This framework (Annex A) can be used for any switched or dedicated service and incorporate any relevant ITU-T Recommendations.

An optimum SQA would include customer surveys and relevant network measurements that can correlate to the customer surveys. But it is not necessary for the network/service providers to utilize customer survey results to have a satisfactory SQA. A SQA that is solely based on technical network measurements can provide an acceptable service quality management process.

3 Framework

The format and contents can, of course, be mutually developed by the network/service providers, but an outline example is shown below:

3.1 Typical list of contents

– Introduction.
– Scope.
– Confidentiality.
– Legal status.
– Measurements and targets.
– Management review process.
– Signatories.

– Annex description:
  a) Contact point(s);
  b) List of measures;
  c) List of terms and definitions.

3.2 Description of contents by item

3.2.1 Introduction

It describes the purpose of the service quality agreement, namely:

a) to assist the network/service providers to exchange appropriate service quality and network performance data to a mutually agreed understanding;

b) to provide the base information of measurements and targets to prioritize and develop joint action plans for quality improvement initiatives;

c) to define performance levels provided to each party within the scope of the agreement.

3.2.2 Scope

a) A broad outline of the services covered within the SQA.

b) A statement on the types of measurements supporting the objective and/or subjective criteria and parameters that are within the capabilities of each contributor.

3.2.3 Confidentiality

A statement of confidentiality that details the treatment of the agreement and the sharing of information between the concerned parties.

3.2.4 Legal status

A statement of commitment to improve service quality within mutually agreed targets and treatment of failure to meet an agreed target whether or not contractual conditions are chosen to apply.

3.2.5 Measurements and targets

A list of services, measurements and targets agreed upon by the parties (refer to Annex B).

NOTE – An example of a measurement page is shown in Annex C.

3.2.6 Review process

a) A statement on the transfer of information, i.e. frequency and format. It may also include bilateral meetings on an annual or semi-annual basis.

b) A statement on the frequency of review of the SQA contents; this is to keep it up to date as new services or measurement techniques are developed. This will also allow review to take place as the end user/customer expectations change and the SQA can be updated to these new levels of performance.

3.2.7 Signatories

The appropriate level of management from each party should sign the agreement to ensure the proper resources can be made available and the necessary actions can take place.

3.2.8 Annex description

Annexes to the SQA that allow modifications to the agreement without disturbing the main body of the document, (namely 3.2.1 to 3.2.7 above). Annexes would typically include contact points, service descriptions, measurement details and supporting technologies.

Annex A to Appendix I – Contact point(s)

Contact point(s) who has the authority for administering the SQA and/or information exchange.

Annex B to Appendix I – Supporting services and measures

Description of the service and measurements namely:

– service type;

– title of measurement;

– target value (see Note);

– definition of measure and/or service;

– basis of measurement (see Note);

– presentation of information;

– conditions and issues.

NOTE – This could be different for each party.

Annex C to Appendix I – Terms and definitions

A list of terms and definitions used within the agreement, including a statement of origin, e.g. Recommendations E.800, E.600, etc.

4 Example of SQA between ROAs

Appendix I illustrates a typical SQA. This appendix is not an integral part of Recommendation E.801 and is only meant as a guide for the reader.

Annex A

Framework schematic for SQA development

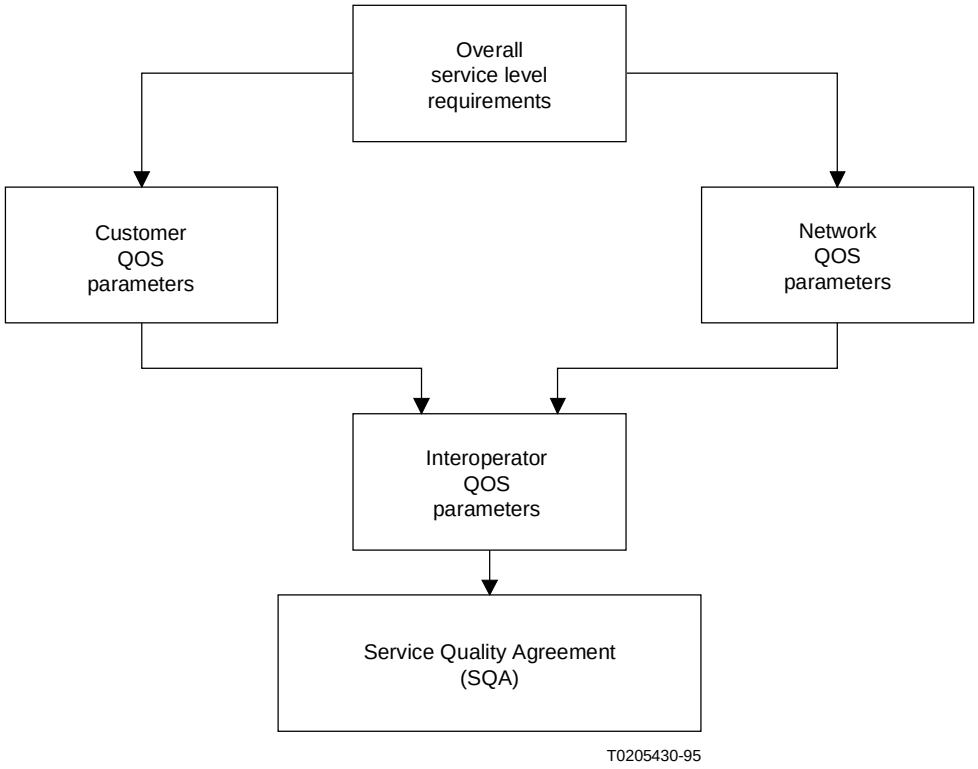

FIGURE A.1/E.801

Annex B

Example of services and measurements

B.1 Services

Any switched or dedicated service that is mutually agreeable for inclusion by either party. It can be switched traffic, multimedia (ISDN) or any leased/dedicated service.

B.2 Measurements

B.2.1 Objective (technical and/or network)

The measurements should be applicable to the service and any current or proposed ITU-T Recommendations can be used. It may be of interest to the parties to use measurements not covered by current ITU-T Recommendations when these may be better suited to measure the service.

Some typical examples of measurements that can be included:

– service provision;

– service restoration;

– fault occurrence rate (customer reported and/or network detected);

– availability of interconnection(s);

– customer trouble reports (complaints and/or faults);
– end-to-end testing (either non-intrusive or test calls);
– traffic performance;
– facsimile performance.

B.2.2 Subjective (customer survey measurements)

In order to evaluate service quality from a customer's perspective, customer satisfaction measurements (surveys) are an effective methodology. The results can be obtained through interviews with customers or via statistical analysis of customer reported data. Consideration should be given to both incident driven and non-incident (i.e. stock survey) sampling techniques.

Annex C

Example of measurement page

Service: International Direct Dialled (IDD) switched network measure N (Nm N).

Title of measurement: Answer Seizure Ratio (ASR).

Measurement statement – Purpose: To measure how effectively each network delivers calls. To measure the percentage of calls which seize an international circuit and are answered at the distant end (subscriber, answering machine, fax machine, etc.). Calls which are not answered result from network faults (signalling protocol, switching anomalies, no reply or subscriber busy, etc.).

Target figure:	1995
Total day:	
ROA 1 to ROA 2	65.8%
ROA 2 to ROA 1	73.2%
Busy/Peak period:	
ROA 1 to ROA 2	69.3%
ROA 2 to ROA 1	75.8%

Definitions

$$\text{Answer seizure ratio} = \frac{\text{Answer calls}}{\text{Calls seizing international circuit}} \times 100$$

ROA 1 100% Sample – 52 weeks/year

Total day = 24 hours; Monday to Friday

Busy/Peak period = 1400 to 1559 GMT; Monday to Friday

ROA 2 100% Sample – First week of every month

Total day = 24 hours; Sunday to Saturday

Busy/Peak period = 1600 to 1700 GMT; Sunday to Saturday

Means of measurement:

ROA 1: Call Disposition System (CDS) collecting call completion data via CDR from international exchanges for every incoming and outgoing call. Includes non-completion results.

ROA 2: International exchange traffic records, call detail records.

Presentation of information

– Monthly outputs and year to date (information exchange).

– Quarterly (formal reporting process).

– Tabular and/or graphical.

Conditions and issues

The above information will be supplemented by both parties to include dialled digits and non-completion data to focus attention upon completion performance and reasons for non-completion into certain areas.

Appendix I

Example of Service Quality Agreement (SQA) between ROAs

CONTENTS

STATUS: Agreed January 19XX

IN COMMERCIAL CONFIDENCE TO

XXXX AND YYYY

IN COMMERCIAL CONFIDENCE TO XXXX AND YYYY

I.1 Introduction

I.1.1 This agreement addresses the recommended quality of service objectives for the international Public Switched Telephone Network (PSTN) – traffic between XXXX and YYYY.

I.1.2 In today's marketplace, communication companies face competition which stimulates ever-increasing customer expectations of quality of service. Recognizing this, and the critical importance of the correspondents' joint traffic stream, XXXX and YYYY agree to place increased emphasis on their commitment to quality of service. This agreement sets out the framework on this intent.

I.2 Scope

I.2.1 The purpose of this agreement is to:

– focus on customer perception of the end-to-end service offered jointly by the correspondents and to achieve an acceptable standard;

– support subjective service assessments by measurements of clearly-defined objective network parameters;

– establish a quality of service reporting and review process between the two correspondents, with regular exchange of results;

– stimulate identification of appropriate improvement measures for the formulation of agreed action plans.

I.2.2 While the contents of this Appendix represent a commitment by XXXX and YYYY to improve the quality of service for our customers, it is agreed without reservation that these targets and the supporting contents of this Appendix are not legally binding upon either company.

I.3 Confidentiality

I.3.1 All details contained within the annexes to this Appendix should be treated as commercially sensitive. They are exchanged in good faith and should, under no circumstance, be given to any other party without prior written consent from the other parties.

I.3.2 Furthermore, all information given by either party to the other in the course of implementing this Appendix, whether related to that party, a customer, or any other party, shall be treated by all parties as confidential information. It should not be disclosed to any third party without the prior written consent of the other party, or, be used for any purpose other than implementing this Appendix.

STATUS: Agreed January 19XX

IN COMMERCIAL CONFIDENCE TO

XXXX AND YYYY

I.4 Measurements and targets

I.4.1 The subjective and objective measures for establishing the quality of service provided by the international public switched telephone network are contained in the annexes to this agreement.

I.4.2

a) In the beginning **only network performance** measurements are exchanged, as long as we do not measure end-to-end quality, i.e. quality of service, seen from the customers'/users' point of view. When available in future, also measurements concerning customer perception of quality of facsimile transmission quality can be exchanged. Each measure is defined, the target objective stated and the means of data acquisition outlined.

b) In line with the M.3400-Series Recommendations, the following performance measuring mechanism can be used depending on existing "management tools", i.e. equipment, dedicated staff, etc.:

   1) routine or periodic testing;

   2) continuous checking;

   3) checking of behaviour in live traffic;

   4) use of test generated traffic, e.g. traffic route testing system.

c) Annex I.C list those measures which will be exchanged from the outset and others that are planned for the future.

I.4.3 The purpose of the targets is to enable performance tracking against achievable goals.

This agreement does not commit either Administration to achieving any particular target within a given period of time but aims to encourage continuous improvements.

I.4.4 Targets will be regularly reviewed to confirm that they remain valid and realistic, taking into account operational constraints.

I.4.5 A number of targets are newly developed and the understanding is that in these instances performance data will be collected and reviewed prior to establishment of formally agreed targets.

I.4.6 The services carried over the international network will be covered by this agreement as deemed appropriate by the parties.

I.5 Management review process

I.5.1 XXXX and YYYY will regularly exchange network performance information as specified in the relevant annexes to this agreement. When targets are not reached, the reason for this will be included in the information exchange. In case of irregular network access that concerns the routes between the parties, they will inform each other immediately. This is not specified in the annexes.

I.5.2 Information exchange relating to network performance parameters will take place in a format that is most suitable for all parties.

STATUS: Agreed January 19XX

I.5.3 XXXX and the YYYY will regularly review that network performance data, identify appropriate action and formulate agreed action plans to achieve the performance targets contained in this agreement. Reviews will be scheduled at least twice a year.

I.5.4 The principal points of contact for effecting this agreement at the working level are contained in Annex I.A.

I.5.5 The text within the annexes to this agreement may be updated as deemed appropriate from time to time with all parties being kept fully informed.

I.6 Signatories

_____

Mr. xxxxxxx

Head of International Relations Department

XXXX

_____

Mr. yyyyyyy

Director Operations

YYYY

STATUS: Agreed January 19XX

Annex I.A

(to Appendix I of Recommendation E.801)

Contact point(s)

Performance by the companies will be monitored by exchange of all information relevant to this agreement, via one contact point within the companies.

Within XXXX the principal contact for exchange is:

xxxxxxxxxxxxxxxx	Tel.: + xxxxxxxxxxxxx
Network Quality Manager	Fax: + xxxxxxxxxxx
P.O. Box xxxxx	
xxxxxxxxxxxxxxxx	

Within YYYY, the principal contact for exchange is:

yyyyyyyyyyyyyyyy	Tel.: + xxxxxxxxxxxxx
Technical Expert	Fax: + xxxxxxxxxxx
P.O. Box yyyyy	
yyyyyyyyyyyyyyyy	

STATUS: Agreed January 19XX

Annex I.B

(to Appendix I of Recommendation E.801)

List of measures

An example of a typical measurement page is contained in Annex C.

STATUS: Agreed January 19XX

IN COMMERCIAL CONFIDENCE TO

XXXX AND YYYY

Annex I.C

(to Appendix I of Recommendation E.801)

Summary of typical measurements

Possible measurements for inclusion are:

– engineering busy hour grade of service;
– technical faults;
– Answer Bid Ratio (ABR);
– Answer Seizure Ratio (ASR);
– busy period circuit availability;
– restoration time for circuits;
– delivery times for (international) telephone circuits and groups.

Other measurements that can be considered:

– percentage of calls connected first time (see Note);
– customer satisfaction with call clarity (see Note);
– ASR between exchanges;
– objective measures of end-to-end call clarity and transmission quality;
– facsimile completion rate, image quality and transmission speed,

or any measurements of a similar nature.

NOTE – From customer survey.

STATUS: Agreed January 19XX

IN COMMERCIAL CONFIDENCE TO

XXXX AND YYYY

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