Final draft ES 202 975 V2.1.0 (2015-07)

Human Factors (HF);
Requirements for relay services

Reference
RES/HF-00155

Keywords
accessibility, HF, ICT, procurement, relay, service

CEN	*CENELEC*	*ETSI*
Avenue Marnix 17 B-1000 Brussels - BELGIUM	Avenue Marnix 17 B-1000 Brussels - BELGIUM	650 Route des Lucioles F-06921 Sophia Antipolis Cedex - FRANCE
Tel: + 32 2 550 08 11 Fax: + 32 2 550 08 19	Tel.: +32 2 519 68 71 Fax: +32 2 519 69 19	Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

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Contents

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Foreword

This final draft ETSI Standard (ES) has been produced by ETSI Technical Committee Human Factors (HF), and is now submitted for the ETSI standards Membership Approval Procedure.

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Introduction

The present document is an update of previously published versions and is based on ETSI TR 101 806 [i.4].

Further significant background and research information about relay services and the development of the original version of the present document can be found in ETSI TR 102 974 [i.1].

Recent development in the area has been taken into careful consideration.

The present document is intended to support the procurement and provision of accessible and usable relay services.

1 Scope

The present document specifies requirements for relay services provided over ICT networks. It is intended to give information suitable for incorporation into contracts between commissioning agents and relay service providers.

The present document is applicable to all kinds of relay services which enable a user with functional limitations related to hearing, vision, speech or cognitive functions, or combinations thereof, to converse with other users. The present document applies to text relay services, speech-to-speech relay services, video relay services, and captioned telephony services.

Requirements are specified for services provided on a 24/7 basis, as well as for limited-hour services.

The present document does not place requirements on network operators.

2 References

2.1 Normative 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 reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

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

[1] ETSI EN 301 549 (V1.1.2): "Accessibility requirements suitable for public procurement of ICT products and services in Europe".

[2] Recommendation ITU-T F.700: "Framework Recommendation for multimedia services".

[3] Recommendation ITU-T H.Sup1: "Application profile - Sign language and lip-reading real-time conversation using low bit-rate video communication".

2.2 Informative 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 reference document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

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 TR 102 974: "Human Factors (HF); Telecommunications relay services".

[i.2] ETSI EG 201 013: "Human Factors (HF); Definitions, abbreviations and symbols".

[i.3] ETSI EG 202 320 (V1.2.1): "Human Factors (HF); Duplex Universal Speech and Text (DUST) communications".

[i.4] ETSI TR 101 806 (V1.1.1): "Human Factors (HF); Guidelines for Telecommunication Relay Services for Text Telephones".

[i.5] ETSI TR 102 202 (V1.1.2): "Human Factors (HF); Human Factors of work in call centres".

[i.6] ETSI TS 101 470 (V1.1.1): "Emergency Communications (EMTEL); Total Conversation Access to Emergency Services".

[i.7] ETSI TS 102 657 (V1.16.1): "Lawful Interception (LI); Retained data handling; Handover interface for the request and delivery of retained data".

[i.8] ETSI ES 201 158 (V1.2.1): "Telecommunications security; Lawful Interception (LI); Requirements for network functions".

[i.9] ETSI EG 202 116 (V1.1.1): "Human Factors (HF); Guidelines for ICT products and services; "Design for All"".

[i.10] Recommendation ITU-T F.703: "Multimedia conversational services".

[i.11] BT SIN 359: "Text Relay Service description".

NOTE: Available at http://www.sinet.bt.com/sinet/SINs/pdf/359v1p4.pdf.

[i.12] Void.

[i.13] United Nations: "Convention on the rights of persons with disabilities and optional protocol".

NOTE: Available at http://www.un.org/disabilities/default.asp?id=150.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI EG 201 013 [i.2] and the following apply:

captioned telephony: service that assists a deaf or hard of hearing user in a spoken dialogue by providing text captions translating the incoming voice part of the conversation to text

NOTE: The service is usually provided through a device with Internet connection capability.

commissioning agent: person or body that procures a relay service from a service provider by means of a purchasing contract

Communications Assistant (CA): person working in a relay service with media conversion, as a human intermediary (including sign language interpreters for video relay services)

NOTE: Also known as and sometimes called interpreter, operator, call handler, telephone operator, etc.

ICT network: technology and resources supporting the connection and operation of interconnected ICT

Information and Communication Technology (ICT): technology, equipment, or interconnected system or subsystem of equipment for which the principal function is the creation, conversion, duplication, automatic acquisition, storage, analysis, evaluation, manipulation, management, movement, control, display, switching, interchange, transmission, reception, or broadcast of data or information

NOTE: Examples of ICT are electronic content, telecommunications products, computers and ancillary equipment, software, information kiosks and transaction machines, videos, IT services, and multifunction office machines which copy, scan, and fax documents.

interacting relay services: relay services connected through a common voice path, in order to provide connectivity and modality translation between two (or several) primary relay service users

lost call: call that cannot be serviced as expected by the users, for reasons internal to the service and outside of control of the users

national numbering plan: scheme that structures the numbers used and the number space available in a country

primary (relay service) user: intended (target) user of a relay service who needs some communication modality conversion support in order to communicate with voice users

NOTE: A primary user can initiate and receive calls.

real-time text: form of text conversation in point-to-point situations or in multipoint conferencing where the text being entered is displayed in such a way that the communication is perceived by the user as being continuous

relay service: electronic communications service that enables users of different modes of communication (e.g. text, sign or speech) to interact by providing conversion between different modes of communication, usually through a communications assistant

relay service user: primary or secondary user of a relay service

secondary (relay service) user: persons other than primary users, using the relay service for communication with primary users

NOTE: A secondary user can initiate and receive a relayed call.

signing: See "video relay service".

sign language interpreter: person working in a video relay service with sign language interpretation

NOTE: Also called "interpreter".

Signing relay service: See "video relay service".

speech to speech relay service: electronic communications service that enables speech impaired telephone users and other users to interact by providing skilled assistance between them

NOTE: This assistance is provided by a trained communications assistant.

text relay service: electronic communications service that enables text capable terminal users and voice terminal users to interact by providing conversion between the two modes of communication in substantially real time

NOTE: This conversion is normally provided by a communications assistant.

text telephone: terminal offering text telephony functions, either as a stand-alone unit or as an addition to a voice telephone or as an application in a multi-function computer based terminal (ETSI EG 201 013 [i.2])

text telephony: telecommunications facility offering real time text conversation through telecommunication networks

NOTE: Text telephony may be combined with voice telephony (ETSI EG 201 013 [i.2]).

text capable terminal: communication device with the capability to use real-time text and optionally, other media in conversational calls

total conversation: audio-visual conversation service providing bidirectional symmetric real-time transfer of motion video, text and voice between users in two or more locations (Recommendation ITU-T F.703 [i.10])

videophone: device capable of supporting audio-visual conversation providing bidirectional symmetric real-time transfer of voice and motion video between two locations

NOTE: Bidirectional text transfer is an optional videophone feature.

Video Relay Service (VRS): service that enables sign language users and other users to interact by providing conversion between sign language and speech in substantially real time

NOTE: This conversion is normally provided by a sign language interpreter (this service is also known as "sign relay service").

3.2 Abbreviations

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

CA	Communications Assistant
CLI	Calling Line Identity
CLIP	Calling Line Identification Presentation
COLP	Connected Line Identification Presentation

COLR	Connected Line Identification Restriction
DTMF	Dual Tone Multi Frequency
GSM	Global System for Mobile communication
ICT	Information and Communication Technology
IMS	IP Multimedia Sub-system
IP	Internet Protocol
ITU-T	International Telecommunication Union - Telecommunication
IVR	Interactive Voice Response
PBX	Private Branch Exchange
PSTN	Public Switched Telephone Network
SIP	Session Initiation Protocol
UN	United Nations
VRS	Video Relay Service

4 General information on relay services

4.1 A relay service

A relay service is an ICT service, as outlined in figure 1, that enables users of different modes of communication to interact by providing conversion between the modes of communication. The connections in figure 1 represent general call and media connections and do not show the technological routes of the connections or points of media mixing.

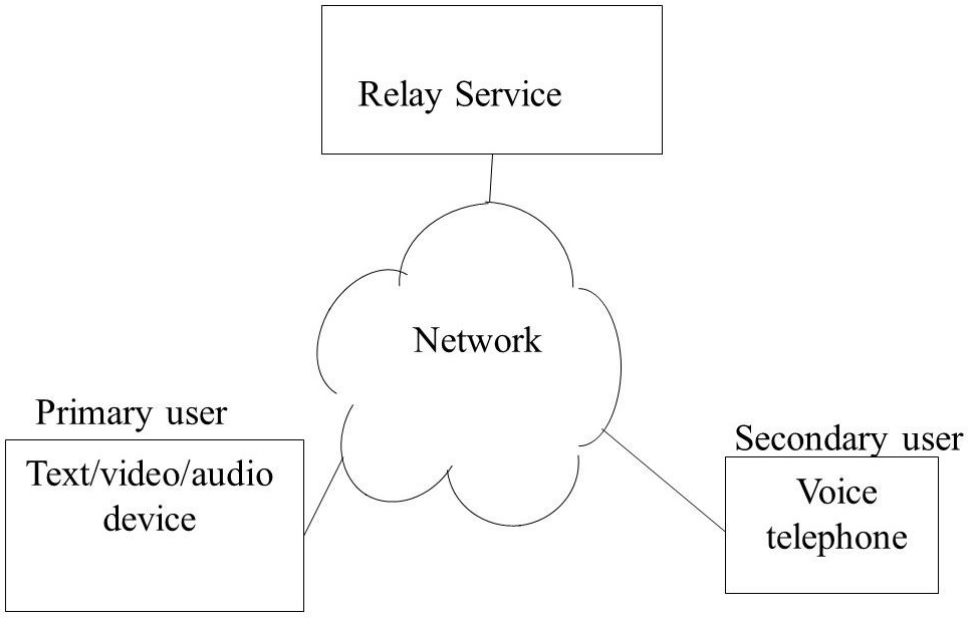

Figure 1: Communication via a relay service over a network

EXAMPLE: In its simplest form, the relay service is outside the network and can be provided using a communications assistant to mediate between a text telephone user and a voice telephone user. The service can be provided by a relay service provider over any form of connection, for example over a mobile network or via an IP connection where the text/video/audio device can be based on mainstream ICT equipment.

The aim of a relay service is to allow any user in any network, using one mode of communication, to communicate with another user using a different mode of communication in the same, or in any other network, via a relay service.

Relay services can interpret between the different modes of communication used by call participants since ideally it is possible to send and receive high-quality real time text, video and voice-over-IP calls to and from any product used for mainstream communication (such as telecommunications terminals, computers (including public ones) and mobile phones with minimal network, firewall or terminal restrictions).

In order to satisfy the requirements of the UN Convention on the rights of persons with disabilities [i.13], it is essential that interoperability is achieved between all services, so as to provide worldwide communication equivalent to that provided for other users.

4.2 Service types

There are a number of different types of relay service offering conversion between differing modes of communication and many are still under development. The present document deals with the following relay services:

- text relay services;
- speech to speech relay services;
- video relay services (for sign language); and
- captioned telephony services.

NOTE: The clauses previously addressing lip reading relay services, as well as text-to-text and fax, have been removed in the present document.

4.3 Relay service provision

The present document provides a set of requirements for relay services that can form the basis of a purchasing contract between some commissioning organization and a relay service provider.

The service provided to the primary user with functional limitations is often subsidized in some way, e.g. to take account of the cost of interpretation, the costs being partly or wholly funded by a third party, commonly some government agency. There are various ways in which a relay service can be provided and paid for and such arrangements tend to differ from country to country (see BT SIN 359 [i.11]).

4.4 Service hours

Although desirable, it is not always feasible to provide a full 24-hour relay service, particularly in the case of those services with a relatively restricted usage and in the early trial stages of the provision of a new relay service.

The present document therefore provides for two possible options:

a) a full 24-hour relay service; and

b) a limited-hour relay service.

4.5 Supplementary services

Most supplementary services rely on special provisions in the network and cannot normally be provided by relay service providers. Nevertheless supplementary services such as call diversion or message storage that are provided on many networks can usually be made available in conjunction with any form of relay service.

Relay services may need to make special arrangements with network providers when offering such supplementary services. They also imply some special requirements which are dealt with in informative Annex C.

These additional services would normally be provided at the user's option at an additional charge, but may alternatively be provided as part of the basic service offering.

4.6 Development directions

The following is a list of non-exhaustive topics impacting the development, use and provision of relay services and can have an impact on the specific service contracts:

- The ongoing ICT convergence and the advent of IP-based communication channels (e.g. social media and other applications) create a desire to access relay services while using such services, in order to bridge the differences in modality (see also ETSI EG 202 116 [i.9]).
- Access through personal, main-stream devices and applications is a necessity.
- The handling of queue situations at the call destination (optimizing communications assistant resources is an everyday issue that would need workarounds and standardized solutions).
- Relay service integration and invocation with societal services (e.g. video in healthcare information systems, alarm systems, etc.).
- Interoperability and service access throughout Europe.
- Demand for freedom of choice for primary users to have access to and act on the market on equal terms as secondary users (e.g. with regard to the selection of services and devices).
- Integrity, encryption, traffic monitoring and lawful interception.
- Authorization of users and their authentication, where necessary.
- Integration with current and next generation emergency services, including call handling.
- Protection against harmful network attacks.
- Fine-tuning of certain functional requirements, including:
  - the provision of location information (e.g. for validation and in emergency calls);
  - selection of service features and provision by user profile;
  - selection of the gender of the communications assistant;
  - default provider selection and setting in the user profile or the selection of type of relay service based on the user profile.

5 Relay service requirements

5.1 Text relay services

5.1.1 Text/speech conversion

A text relay service shall, as its most basic service, enable the conversion:

- between real-time text from a text capable terminal and speech to a voice terminal; and
- between speech from a voice terminal and real-time text to a text capable terminal.

NOTE: The conversion between the two modes of communication will typically be provided by means of a human intermediary, called "communications assistant" for the purpose of the present document.

5.1.2 Call set up

All connections set up from the relay service to the text capable terminal subscriber shall include the establishment of text mode, and an indication to the call recipient that text capability is required.

5.1.3 Talk through

The relay service shall support a speech path so as to permit a voice connection between the users.

NOTE 1: The intention of this voice connection is to allow primary users, able either to speak or hear, to do so and to let the relay service interpret the appropriate direction of the conversation.

NOTE 2: Some services can offer text and speech paths simultaneously, in others an agreed modus operandi can be necessary to facilitate selection of the appropriate conversation mode.

5.1.4 General

A text relay service shall meet the requirements of clauses 6 to 9.

5.2 Speech to speech relay services

5.2.1 Speech to speech service

A speech to speech relay service shall enable primary relay users with functional limitations in speech or cognition to interact with other speech users by providing skilled assistance between them. The assistance shall be provided by a trained, qualified communications assistant.

The service shall provide a direct speech path between all three parties involved in the conversation.

5.2.2 Call set up

All connections set up from the relay service to the primary users shall be connected in speech-mode, and an indication given to the call recipient that a relay communications assistant is involved in the connection.

5.2.3 General

A speech to speech relay service shall meet the requirements of clauses 6 to 9.

5.3 Video relay services

5.3.1 Sign language/speech conversion

A video relay service shall enable sign language users and voice telephone users to interact by providing conversion between the two modes of communication in substantially real time.

NOTE: This conversion will normally be provided by a sign language interpreter.

The sign language(s) used shall be those publicly announced for the service.

5.3.2 Sign/text conversion

A video relay service shall enable sign language users and text users to interact by providing conversion between the two modes of communication in substantially real time.

NOTE: This conversion will normally be provided by interacting relay services.

5.3.3 Call set up

All connections set up from the relay service to the signing users shall include video mode, and an indication given to the call recipient that that a video capability is requested.

5.3.4 Talk through

The service shall provide a speech path between all three parties, when required and feasible, so as to permit a voice connection.

NOTE: The intention with this voice connection is to enable primary users who are able either to speak or hear to do so and to let the relay service translate the appropriate direction of the conversation.

The relay service should provide the functionality to mute the sound, when speech is not feasible (e.g. due to a noisy background environment).

5.3.5 Text communication

The relay service shall be able to exchange information in text with the signing user during a call. Real-time text shall be supported by the relay service for this exchange. Other types of text communication may also be supported.

The service should offer deaf-blind primary users the possibility to receive real-time text communication.

NOTE 1: When Recommendation ITU-T F.703 [i.10] is met, such a facility is known as Total Conversation.

NOTE 2: Some deaf-blind users prefer to sign but receive responses as real-time text.

5.3.6 General

A video relay service shall meet the requirements of clauses 6 to 9.

5.4 Captioned telephony services

5.4.1 Speech to text conversion

A captioned telephony service shall provide the facility for the conversion of speech from a voice terminal user into text for display to the primary user simultaneously with presentation of the original speech.

NOTE: The intention is that the primary user will use outgoing speech and use any combination of hearing and reading to perceive the communication at normal voice communication speed.

The conversion from speech to text may be provided by means of a human intermediary using technology for rapid provision of text output, under the following conditions:

- The average time between the end of the user articulating a word and the word appearing on the text display terminal shall be less than 6 seconds, measured over each minute of the calls.
- The service shall be capable of producing at least 900 characters per minute, measured as an average over a minute.
- The rate of lost and inserted and incorrect words shall be less than 5 % on the average, measured over each minute.

5.4.2 Talk through

The service shall provide a speech path in both directions to permit a voice to voice connection.

5.4.3 Call set up

The call setup shall result in a two way voice communication between the two users, a voice path from the secondary user to the communications assistant and a real-time text path from the communications assistant to the captioned telephony user. The call setup procedure for the voice phone user shall be as for any ordinary call.

NOTE: A voice path from the primary user to the communications assistant, for example for verifying that the call flow works well, can also be useful.

5.4.4 General

The captioned telephony service shall meet the requirements of clauses 6 to 9.

6 Relay service provision

6.1 Organization plan

The provider shall have an organization plan that specifies who has the overall responsibility for the various areas of the relay service.

The organization shall include a service manager designated by the provider who, among other things, has the overall responsibility for the relay service.

The service manager shall make use of quality assessment tools to monitor the service and to ensure that it performs in accordance with requirements.

The provider shall designate a person responsible for the quality of the service (if other than the service manager).

6.2 Quality assurance

The provider shall have effective control of the quality of the service. The quality organization shall be documented. The quality control of the service shall be delegated to a manager independent of the manager responsible for the day to day running of the service. The responsibility includes an evaluation of quality and continuous identification of improvements of the service.

The quality organization shall ensure that the service complies with the directions and instructions which are set out in the quality assurance programme.

The quality assurance programme shall contain a description of each service function that is provided and the respective operational responsibilities of the service provider.

6.3 Opening hours

6.3.1 24-hour service

A relay service should be a 24-hour service.

A service claiming to be a 24-hour service shall be open 24 hours a day, every single day of the year.

6.3.2 Limited-hour service

A relay service may have limited opening hours.

A relay service with limited opening hours should at least be available during normal working hours each working day (typically Monday to Friday, e.g. for 7 ½ hours each working day).

The hours of service provision shall be communicated to the users of the service (see also clause 8.3).

6.4 Answering times

The following requirements shall apply, unless other requirements are specified in the contract:

- at least 70 % of all calls shall reach the conversion function within 30 seconds; and
- at least 90 % of all calls shall reach the conversion function within 60 seconds.

The answering times shall be measured over a period of one month.

NOTE: For video relay services, the limited availability of sign language interpreters may lead to increased times to reach the conversion function.

6.5 Queue situations

Where a queue function is provided, verbal messages and text, or signed messages shall be provided (as appropriate) for the selected relay service type. Furthermore, in a queue situation, information should be given to the caller regarding the estimated waiting time and/or queue position.

When the caller is presented the information about the waiting time and/or queue position information, the caller should be offered the option of selecting to be called back, when the queue position has reached the communications assistant.

NOTE: The value of the call-back function increases, if a time estimate for when the call-back is expected can be provided.

6.6 Call restrictions

There shall be no restriction on the length and number of calls from any user, except in exceptional circumstances (e.g. abuse of the service or force majeure).

A limited-hour service may disconnect a call at the end of the opening hours, informing the users in advance.

6.7 Hold

6.7.1 General

No established call shall be put on hold during the operation of the service, except for necessary short periods of time, as needed during normal operation. Exceptions are permitted when a call is modified for the reasons set out in clause 7.5.

6.7.2 Handling of queue situations at the call destination end

Calls put in queue at the call destination end for a long time are resource-consuming with regard to the limited availability of qualified communications assistants.

If an instant re-gain of a communications assistant to attend the call can be arranged, the communications assistant may leave the call unattended (if monitored) while in queue, waiting for a response at the destination end of the call. Otherwise, the communications assistant should not leave the call.

Relay services should enable the use of call-back from the destination to the primary user, including the relay service in the call, as an alternative to staying in queue at the destination.

6.8 Traffic recording

6.8.1 Service performance monitoring

Records shall be kept of the supply time for the original provision of the service, fault rate, fault repair time, unsuccessful call ratio, lost calls, time to answer and call set up time.

6.8.2 Call performance monitoring

Records shall be kept of the number of unique CLI and COLP identifiers, the number of calls handled (split into types of call handled) and the average length of calls (split into types).

6.9 Billing

Procedures for billing to the procuring organization should be specified in the relevant contract.

Information sufficient to justify any billing shall be presented together with the billing.

Information collected for billing purposes shall be stored and being kept available for detailed follow-up for at least one year.

6.10 Lawful interception

Any relay service should not interfere with the requirements from ETSI TS 102 657 [i.7] and ETSI ES 201 158 [i.8].

6.11 System reliability

6.11.1 Availability

The service shall be available at least 99,7 % of the stated service opening hours, expressed on a yearly basis.

6.11.2 Service performance management

The relay service provider should keep records of all detectable call attempts and calls:

1) that are terminated by any user after invocation of the conversion function but before the normal ending of the call;
2) where media do not start flowing as intended;
3) where media cease to flow properly;
4) where the call quality is not sufficient to perform interpreting;
5) disconnected by any other reason than being terminated by any party;
6) not completely set up because of technical reasons;
7) where any of the users reported clear dissatisfaction with the call performance;
8) where language problems of any of the parties in the call severely disturbed proper CA performance; or
9) that are unsuccessful due to technical, environmental or language related problems.

The rate of the calls listed above and call attempts shall be reported to the commissioning agent in terms of a percentage of all detectable call attempts during each month.

The allowable maximum rate shall be 8 %, unless another figure is specified in the contract.

NOTE: Some of the above reasons are outside the direct influence of the relay service when acting alone. That is intentional, to encourage the relay service to work with terminal providers, and other providers that influence the rate of lost and abandoned calls, to improve the service and reduce the rate of these calls.

6.11.3 Error messages

Appropriate error messages shall be provided in the event of any system failure. They shall be provided in appropriate form for all users of the service.

6.11.4 Disaster recovery plan

A complete plan shall exist for dealing with all types of natural or manmade problems likely to cause failure of the service. The plan shall detail the level of escalation that shall be employed to deal with the problem and restore service. The plan shall be designed to ensure that no aspect of the relay service is significantly impaired.

Procedures shall exist for informing the commissioning agent, without delay, of any major disruption of the service. The detailed reporting to follow within ten days shall give details of how and when the problem occurred, the steps required to correct it, and the time and date when full operation was resumed.

6.12 Transmission quality

The relay service should not degrade the transmission quality of the service in use.

A video service shall support the "good usability" quality for lip reading and sign language defined in Recommendation ITU-T H.Sup1 [3], clause 5. The test procedures in clause 6 of Recommendation ITU-T H.Sup1 [3] may be followed for verification.

A real-time text service shall support the quality requirements for quality level T2 defined in Recommendation ITU-T F.700 [2], clause A.3.2.1.

The communications assistant shall be permitted to discontinue handling a call if the received transmission quality is for any reason too poor for reliable comprehension. The user shall be informed of the reason for discontinuing the call.

6.13 Call addressing and service invocation

Communication service providers assign addressing identifiers to users of their service. These identifiers are used by callers for directing their calls to the intended users of these communication services.

Relay services shall be invoked when a need for a relay service is deduced from conditions in the call setup request.

The invocation of relay services in one calling step should be supported for calls containing numbers in the national numbering plans in the addressing identifier.

User profile contents and explicit requests for a relay service may be used as a base for decision of relay service invocation.

When relay services are invoked, three interconnected call legs are established with a suitable media mix between them. The interconnection should be established by an entity involved in the call setup between the users.

Some technical methods for providing one-step calling functionality are presented briefly in Annex B.

6.14 Interacting relay services

All relay services shall, at a minimum, support intercommunication using speech telephony.

Relay services shall provide support for interaction with other relay services enabling the required modality conversions (in potentially multiple steps), when two primary users of relay services wish to communicate but cannot communicate directly with each other.

NOTE 1: Even two users of the same kind of relay service can use interacting relay services, e.g. between two captioned telephony relay service users.

NOTE 2: When one-step-calling is applied (as described in Annex B (informative)), then interaction between relay services will be established automatically when a primary user calls another primary user of the same or another relay service. This automatic invocation of the relay service is to be avoided when users can communicate directly.

6.15 Emergency service access

Access to the emergency service shall be provided via an address identifier containing the common emergency number(s).

When the relay service receives information related to the emergency call, e.g. location information, such information shall be made available to the emergency service.

Emergency calls shall be given priority in getting a communications assistant assigned to them.

NOTE: Information about possible interaction between relay services and IP-based emergency services can be found in ETSI TS 101 470 [i.6].

6.16 Answering machine facility called by a primary user using a relay service

Where a called party has activated an answering machine facility, provision shall be made to support a primary user to leave a message in the most appropriate mode. Responding with DTMF tones shall also be a provided feature.

If more time is required for preparations than the voice answering facility allows, the service relay may make preparations in one call and enter the message in a subsequent call.

6.17 Answering machine facility in relayed calls to primary users

Where a primary user has activated an answering machine facility, provision shall be made to support other users to leave a message in modes appropriate for the relay service. Responding with DTMF tones shall also be a provided feature.

If more time is required for preparations than the voice answering facility allows, the service relay may make preparations in one call and enter the message in a subsequent call.

6.18 Directory enquiry

The relay service shall enable primary users to access directory information.

6.19 Remote interpreting

The relay service should support remote interpreting (face-to-face meeting, with the communications assistant connected remotely) in calls lasting up to 30 minutes.

NOTE: Remote interpreting with a limited duration in ad hoc situations has interpreting needs similar to those of relay service usage.

6.20 Provision of CLI information

For cases when the relay service is involved in establishing the call to the destination, CLI of the original caller should be provided to the destination when available in a suitable format and not blocked by the originating caller.

7 Communications assistant (including sign language interpreter) aspects

7.1 Communications assistants and sign language interpreters

"Communications assistant" (CA) is defined for the purpose of the present document as a person working in a relay service with media conversion, as a human intermediary; including sign language interpreters for video relay services.

Consequently, although many of the requirements provided in the present clause 7 apply to sign language interpreters, this is not spelled out specifically in most cases.

7.2 Proficiency requirements

Before being permitted to handle any call, a communications assistant shall possess the following skills and abilities (as appropriate to the service offered):

- for communications assistants working in text relay services: a typing speed of at least 250 characters per minute;
- for sign language interpreters working in video relay services: professional sign language interpreting education/certification and skills;
- proficiency in those language skills that are appropriate for the relay service;
- ability to understand users with limited language skills, as appropriate for the relay service.

7.3 Procedures

7.3.1 Information

The communications assistant shall, in a conversion situation, always inform the user that the call involves a relay service and that the following conversation is performed passing through that relay service.

7.3.2 Freedom from bias

The communications assistant shall exchange messages in an unbiased way.

The communications assistant should try to convey the spirit of all utterances, their flavour is important.

7.3.3 Assistance

The communications assistant shall, where necessary, help the users to use the relay service effectively.

NOTE: Common topics for such guidance include turn-taking, the use of language directed to the other user, positioning and light conditions in video calls and information on quality problems in video calls and how to adapt to them.

7.3.4 Sign language interpreters' code of practice

A sign language interpreter shall, helpfully and cautiously, carry out all assignments according to the applicable interpreting code of practice.

7.3.5 Neutrality

A communications assistant shall stay neutral and unprejudiced during a conversion assignment.

7.3.6 Accuracy

Everything in the communication shall be appropriately interpreted and all information relevant for the interpreting situation shall be given, e.g. presence of dial tone, busy signal, significant background auditive and visual input, etc. in accordance with the code of practice. The conversion shall be as accurate as possible and shall not modify any language usage.

7.4 Confidentiality

7.4.1 Content disclosure

Communications assistants shall not disclose the content of any relayed communication. Communications assistants shall consider all transactions confidential, in compliance with the national law.

7.4.2 Secrecy

The communications assistant shall not disclose what has been learned about the individuals, trade secrets, business relations or issues concerning national security, in compliance with the national law.

7.4.3 Privacy

The communications assistants' work station and environment shall be so arranged as to provide the privacy necessary to prevent any call participants from overhearing any words spoken on another call.

NOTE: Advice on call centre layout can be found in ETSI TR 102 202 [i.5].

7.4.4 Emergencies

If a caller is in an emergency or life threatening situation or causes an emergency situation to exist by threatening the relay centre, necessary information may be disclosed by the communications assistant to an emergency response centre or to a supervisor.

7.5 Calls to stored voice services

7.5.1 Interactive services

The communications assistant shall assist users to leave and retrieve messages on interactive voice response (IVR) systems.

A relay service user shall be able to receive assistance when using any IVR service which requires the input of additional information such as DTMF number or voice input. The communications assistant translates the spoken message into the appropriate format. The communications assistant shall, in agreement with the relay service user, complete assignments corresponding with the user's wishes.

NOTE: There can be a security risk if the interactive service carries out financial transactions. There can also be practical problems due to time-outs in the interactive service.

7.5.2 Access to on-line information, data and services through a voice call

The communications assistant shall have means to provide assistance required to access information, data or on-line services such as voting and search for news or buy train tickets.

7.6 Profanity, obscenity and illegality

7.6.1 Profanity and obscenity in conversations

Communications assistants shall not make any judgements on the profanity or obscenity of a conversation.

Communications assistants shall be permitted to transfer any call to another communications assistant or to a supervisor, if they are offended by its content. If necessary (e.g. no supervisor or other communications assistant is available), the call may be terminated.

Such events shall, in all cases, be reported to and processed by a supervisor, following applicable practice.

7.6.2 Obscenity directed to the communications assistant

Communications assistants shall not be required to tolerate obscenity directed at them. Such calls may be transferred to a supervisor, or terminated.

Such events shall, in all cases, be reported to and processed by a supervisor, following applicable practice.

7.6.3 Illegality

Communications assistants shall act in compliance with applicable law with regard to any illegality in the content of a conversation. Communications assistants shall be permitted to terminate or transfer to a supervisor any call containing potentially illegal content.

Possible events shall be reported to and processed by a supervisor, following applicable practice and law.

7.7 Language

A relay service shall support conversation in a specific set of languages. Conversion shall be provided between specific modes of specified languages. The supported set of language and mode combinations shall be published.

7.8 Training requirements

The provider of the relay service has the responsibility for educating all staff so that they can meet the requirements placed upon them.

The provider of the relay service shall train their staff, on a regular basis, to meet the specialized communication needs of all individuals with the need the relay service addresses, using the relay service. They should be taught to meet the emotional stress arising from their work.

Deaf awareness training shall keep up with new developments in the field.

A communications assistant's manual shall be provided to the relay service staff.

7.9 Counselling

Counselling facilities shall be provided to assist communications assistants to deal with emotional aspects of relaying calls. The counselling support shall be confidential between the communications assistant and the counsellor.

7.10 Working conditions

Relay service interpreting services should follow the established code of practice for face-to-face interpreting, unless otherwise required by the contract.

Where no recommendations or requirements exist or apply to consecutive interpreting time, communications assistants should, in general, not work with interpretation for more than 30 consecutive minutes per hour (observed over each working hour), or for more than 50 % of the total of their scheduled work time (per work day).

NOTE: Recommendations can differ for the various types of interpreting.

8 User aspects

8.1 Accessibility of the means of access to the service

Where the relay service provides to the primary users any means to access the service, such means shall meet the relevant accessibility requirements of ETSI EN 301 549 [1].

NOTE: ETSI EN 301 549 [1] contains accessibility requirements applicable to ICT procurement.

8.2 Complaints handling

The relay service provider shall establish procedures to deal with complaints, enquiries and comments about the relay service and its personnel. All such complaints, enquiries and comments shall be recorded and dealt with by a supervisor or customer service representative. The procedure shall be described in appropriate publicity material and shall provide accessible options, formats and procedures (as specified in ETSI EN 301 549 [1]).

8.3 User information

The relay service provider shall inform the user about the service using accessible formats. This includes information about the service, the extent of the service, a user guide and all information about changes.

Information shall be published, both on the communication formats that are supported and the call setup mechanisms required.

The relay service provider shall make available suitable outreach material to educate the public on the existence and use of relay services. Such information shall be published in a form making it available to all telephone users.

8.4 Technical information

The relay service provider shall make available sufficient technical information to permit a terminal to make use of the service.

That information may be used for two purposes, to:

1) Setup of the connection between the terminal and the service; and

2) To provide developers and service people with applicable connectivity attributes.

If the information is to be made available to human users, the information should be presented using accessible formats, as specified in ETSI EN 301 549 [1].

This information shall include details of the call set up protocols, the compatible media codec specifications, the required transmission parameters and the necessary addressing information, specifying in each case the options required and supported.

8.5 Testing facilities

The provider should make a test environment for validation and testing purposes available to vendors and other parties to test technical access to and compatibility with the offered services.

9 Interoperability with end user products and services

Relay services should provide interoperability with commonly used end user products and services by adhering to well specified and published, publicly available specifications of external interfaces, including those listed in clause 6 in ETSI EN 301 549 [1] that are applicable to the call control protocols supported by the relay service.

In order to facilitate interoperability with end user products and services, the relay service shall publish details of how to establish and handle calls with the relay service and additionally, any specifications applicable to its external access interfaces for call control and media transmission.

It shall be possible to make and receive calls through these external interfaces and use the media required for the type of relay service provided. The interface shall support the required quality and performance criteria for the calls and media required for the service.

NOTE: Information on how to achieve interoperability is also set out in Annex A (informative), and calling methods in Annex B (informative).

Annex A (informative): Interoperability

A.1 General

Clause 9 specifies the interoperability requirements. This annex provides brief information on where information can be found about how to achieve the required interoperability.

Interoperability can be achieved between a relay service and the following items:

- terminals of primary users
- terminals of secondary users
- emergency services
- other relay services to enable relay services to interact
- other relay services to enable primary users to select their preferred relay service
- service providers managing terminals of primary users
- service providers managing terminals of secondary users
- any other types of access, as agreed with the commissioning authority

Interoperability can be achieved by using an applicable, common access interface specification, which can be established by agreement between a number of providers of the items above and commissioning agents.

A common access specification for relay services would contain details on call control protocols, call control procedures, user authentication and common specifications for the media supported by the relay service in question (e.g. real-time text, audio and video).

Clause 5 of the present document specifies which media are required to be supported by each type of relay service.

The access specifications are specific to the call control protocol(s) used, making use of applicable requirements found in ETSI EN 301 549 [1]. Complementary information can be found in ETSI EG 202 320 [i.3].

The published access specification of a relay service can be a single access specification or a combination of several access specifications.

A.2 Media specifications

A.2.1 Audio

Audio performance and protocol aspects are described in ETSI EN 301 549 [1], clause 6.1.

A.2.2 Real-time text

Real-time text performance, protocols, and interoperability aspects are described in ETSI EN 301 549 [1], clause 6.2, which gives specific protocols for PSTN, SIP and IMS, as well as a mechanism for establishing interoperability by using other published and publicly available protocols.

A.2.3 Video

Video performance aspects are described in clause 6.5 of ETSI EN 301 549 [1] and clause 6.12 of the present document.

Video interoperability can be achieved by including the most commonly used video coding standards for each call control environment in the access specification of the relay service, including transport specifications and specifications used for media control.

A.3 Web access

Web access and user interface accessibility requirements are described in ETSI EN 301 549 [1] in general and ETSI EN 301 549 [1], clause 9 in particular.

A.4 Relay service provision and access

Requirements for provision of and access to relay services are briefly described in ETSI EN 301 549 [1] clause 13, by references to the present document, which specifies characteristics of various relay services.

Clause 13 in ETSI EN 301 549 [1] gives information about the requirements to provide such relay services and requirements for the access to them.

A.5 Access for ICT unsupported by the relay service

It is possible for a third party to provide the necessary conversion functions to allow otherwise unsupported ICT to interoperate with a relay service.

A.6 General principles for selecting between protocols and calling mechanisms

When a relay service intends to make an outgoing call, the selection of call control protocol can be based on information found in an address or number database, a user database, a predefined agreement with a service provider, or by information from a user.

When any party intends to make a call involving a relay service, the selection of the call control protocol and invocation mechanism to be used can be made based on the published access specification of the relay service.

Annex B (informative) below contains some details of alternative call setup procedures for calls involving relay services.

Annex B (informative): Call setup

B.1 General

B.1.1 Main methods and their attributes

The present annex describes a number of different methods of calling another party in a manner which invokes the appropriate relay service. It describes the advantages and disadvantages of each method.

B.1.2 Three-step calling

This method of calling through a relay service involves three steps:

1) The calling user calls the relay service using the relevant relay service number and get in touch with a relay service communications assistant.

2) The calling user conveys the final destination number or address to the relay service communications assistant.

3) The relay service communications assistant makes the call to the final destination.

This method is inconvenient, cannot be automated, is not compatible with electronic address book, does not permit the implementation of many supplementary services and makes it difficult to give priority to emergency service call. It also makes difficult the provision of useful CLI information.

B.1.3 One-step calling

B.1.3.1 Mechanisms of one-step calling options

It is desirable to be able to make a call by dialling the called party's address with a number that automatically invokes the relay service in the call. The mechanisms can be different for calls from a voice phone user compared to calls from a primary user. This can be achieved in several ways, including the six options listed below, with their respective advantages and disadvantages being addressed through the remained of the present annex:

1) The called party can be allocated a second number from the national numbering plan that directs the call through the relay service.

2) An International or European service selection prefix can be dialled before the called party's number. This can be a supplementary service prefix.

3) A national or regional service selection prefix can be dialled before the called party's number. This can be a national supplementary service prefix.

4) In an IP environment the relay service can be invoked by calling the number@relay-service-domain and the relay is invoked and the call is connected to the destination number.

5) A user profile stored by the service provider automatically invokes the desired relay service when a call is made or received.

6) The primary user terminal can combine:

    a. the call between the primary user and a second user; and

    b. the call between the primary user and the relay service used.

B.1.3.2 Advantages and disadvantages of one-step calling options

B.1.3.2.1 Option 1: One number for relay calls and another number for calls without relay service invoked

Advantages:

- Only one number needs to be published which does not disclose the primary user's disability.
- There are no number analysis problem, no number length limitation, no call routing functionality to cause malfunction because the number is taken directly from the national numbering plan.
- Where an international prefix is used to call the number, the correct relay service will be invoked.
- Such facility is easily implemented in the IP environment, by e.g. resolving the number to a SIP-address or to an H.323 address via an Enum resolution.
- Any CLI that follows a call can be made to display this number, so that calls back will be routed through the relay service.

Disadvantages:

- The primary user needs to publish two address identifiers: one voice access number (including the relay service) and one address identifier for non-relay calls.

B.1.3.2.2 Option 2: An international or European service prefix

This option is most relevant in the PSTN environment.

Two variants can occur: A number prefix followed by the called number or a supplementary service prefix followed by the called number followed by a suffix typically of the form **service code**number#.

Advantages:

- The number prefix can be seen as an operator selection prefix, that is a normal part of the numbering plan. It is a normal function of the phone network to route these calls to a specific call handling organization.
- The number prefix can be used embedded in an international dialling string starting with a country number, leading to invocation of the relay service in the intended country.
- The number prefix can be the first part of the dialled number, followed by the international dialling prefix, a country code and a number, to invoke the relay service in the own country and then a destination in another country.

Disadvantages:

- All national operators need implementing routing to the relay-invocation-function based on the prefix found in the number analysis. This is a heavy coordination task.
- It will be complicated to arrange for competing relay services. The solution to allocate one prefix per relay service provider is not feasible for the supplementary service system.
- Using the supplementary service form when visiting another country will route the call to the relay service of that country, which may not have the correct language competence for the intended call.

B.1.3.2.3 Option 3: A national or regional service selection prefix

This option is most relevant in the PSTN environment.

Two variants can be used:

- A national number prefix; or
- A national supplementary service by the use of a supplementary service using a prefix of the form **service code**number#.

Advantages:

- Using a national or regional prefix facilitates the use of local subsidies.
- The prefix can be placed after a country code. The relay service of that country will then be invoked.
- The supplementary service code can be analysed by a local PBX and permit the call to be diverted to the relay service without the need to get all operators to implement the routing.
- This solution is one of the few solutions possible for cases when both the voice phone user and the primary user are in the PSTN.

Disadvantages:

- Using the supplementary service format when visiting another country will route the call to the relay service of that country, which may not have the correct language competence for the intended call.

B.1.3.2.4 Option 4: number@relay-service-domain

In the IP environment it is possible to set aside a domain name to handle the relay-invocation-function. Calls to a number through the relay service can then be addressed to number@relay-service-domain. This addressing form can be simplified to a single number for the user if so wanted, by one of many possible IP calling mechanisms.

Advantages:

- It provides a simple addressing form often used in the IP field.
- The address can be simplified to a single number only (by automatic addition of the domain part).
- The address can be simplified to a number and a call type indicator that the called terminal can resolve.
- It can address any number in the international numbering plan and is therefore especially valuable for calling any voice phone user and get the relay service invoked.

Disadvantages:

- When designing the calling to the voice user, it needs to be done in a way that can be authorized by or on behalf of the primary user.

B.1.3.2.5 Option 5: A user profile stored by the service provider

When mode and language preferences can be stored in a user profile, the user profiles of two users to be engaged in a call can be compared. If a mismatch between preferred mode and language of communication is found, a relay service with capabilities matching the preferred mode and languages can be invoked in the call.

Advantages:

- Dialling can be made to the same number for all calls to the same person. The situation for the two parties will decide if a relay service is invoked or not.
- Detailed preferences can be arranged.

Disadvantages:

- Support for this feature is not yet fully standardized.
- It requires careful setting of the user profiles.
- Borrowing a phone would require logging in to one's stored user profile. It may be difficult to get the right services by only setting terminal characteristics.

B.1.3.2.6 Option 6: User terminal combining two call legs

This alternative allows the primary user to have a regular subscription for voice calls. The calls are combined by the terminal with a call leg to the relay service, and media conveyed by a mixer function in the terminal. The terminal includes means of automatically establishing connections at the right moment and for supplying information about the call progress to the involved users.

Advantages:

- The primary user is responsible for the voice call subscription and charges for the voice calls.
- Any type of voice service can be supported by relay service, not only traditional voice telephony.
- The relay service itself can offer just one or a few external interface types, while users can have many ways to participate in voice calls.
- The primary user can select which calls need relay service support.
- The relay service system can be simplified to be a regular multimedia call centre solution, with mainly incoming calls, with the interpreting taking place within the media paths of these calls.

Disadvantages:

- No mainstream terminal can be expected to contain the combined terminal functions. Terminals will need to be specially developed for relay service usage.

Annex C (informative): Provision of supplementary services

C.1 Supplementary services of relevance to relay services

C.1.1 General

Provision of accessible supplementary services is outside the scope of the present document, unless provided by a relay service. For other implementations, the present annex can still provide useful information.

The traditional supplementary services usually have an audio-based user interface that makes them inaccessible for primary relay service users who depend on other media. These supplementary services can be made accessible to primary relay service users by providing the supplementary services with user interfaces in the media that the primary users are able to use.

Some supplementary services can produce undesired effects if invoked during a call with a relay service (e.g. the invocation of the relay service made the Calling Line Identity (CLI) show the relay service as the source of the call instead of the initial caller). Recommendations provided in this annex can be used to prevent such undesired effects by a careful design of the relay service access interface.

C.1.2 Calling Line Identification Presentation (CLI/CLIP)

When a call is made using the relay service, the CLI that is forwarded to the called party should be the CLI of the originating caller, not that of the relay service.

C.1.3 Connected Line Identification Presentation (COLP)

When a user with the COLP service activated makes a call using the relay service, provision should be made to forward the connected line identity of the destination to the calling party.

When the called party has activated Connected Line Identification Restriction (COLR), the connected line identity should be withheld.

C.1.4 Message waiting indication

Where a primary user has activated an answering service, and an audible message waiting indication is normally provided, means should be available to provide such a message waiting indication in an alternative perceivable mode.

C.1.5 Call progress information

Where a relay service provides text communication, call progress information should be provided in the form of appropriate text messages.

Where a relay service provides sign language communication, call progress information should be provided in the form of appropriate video-based sign language messages.

History

Document history		
V1.2.1	October 2009	Publication
V2.1.0	July 2015	Membership Approval Procedure MV 20150919: 2015-07-21 to 2015-09-21