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Human Factors (HF); Harmonized relay services

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Foreword

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

Introduction

The present document is based on an ETSI Technical Report (TR 101 806 [i.3]: Guidelines for Telecommunications relay services) which in its turn was based on the Nordic Guidelines.

The present document responds to the policy objectives set by the European Parliament and Council, aiming at an improved access for people with disabilities to the information society and can increase social cohesion and improve *e*business by permitting Small and Medium-sized Enterprises (SMEs) to communicate with disabled customers and will assist regulatory authorities in their task to ensure the harmonized application of the regulatory framework throughout the Community as called for in Article 1 of Directive 2002/21/EC [1].

It will provide a tool to enable regulators to ensure that all citizens have access to a universal service specified in Directive 2002/22/EC [2] and will also permit them to promote the interests of the citizens of the European Union by addressing the needs of disabled users as called for in Article 8. It will also assist the implementation of Directive 2002/22/EC [2] which, in Article 7, requires member states to take specific measures for disabled users to ensure access to publicly available telephone services including access to emergency services, directory enquiry services and directories, equivalent to that enjoyed by other end-users.

The present document will promote innovation by providing a standard that can be used in public procurement processes. Therefore, it also assists the implementation of the Public Procurement Directive (2004/18/EC) [3] by providing a harmonized technical specification for the provision of relay services which can be used to fulfil the requirements of Article 23 of the Directive which requires that "technical specifications - shall be set out in contract documentation" and states that "…whenever possible these technical specifications should be defined so as to take into account accessibility criteria for people with disabilities or design for all users".

1 Scope

The present document specifies requirements for the provision of relay services in all telecommunications networks. It is intended to provide information suitable for incorporation into contracts between commissioning agents and service providers.

The present document is applicable to all kinds of relay services which enable a user with communication related disabilities to converse with another user. It applies to text relay services, speech to speech relay services, sign relay services, lipreading relay services, captioned telephony services, text to text services and facsimile relay services.

It specifies requirements for services provided on a full 24 hour basis and also for limited hour services.

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
  - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;
  - for informative references.

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

2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

[1] Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive) (OJ L 108/33).

[2] Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive) (OJ L 108/51).

[3] Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts (OJ L 134/114).

[4] ISO 9000: "Quality management and quality assurance standards".

[5] ITU-T Recommendation T.30: "Procedures for document facsimile transmission in the general switched telephone network".

[6] ITU-T Recommendation V.18: "Operational and interworking requirements for modems operating in the text telephone mode".

[7] ITU-T H-series Recommendation - Supplement 1: "Application profile - Sign language and lip-reading real-time conversation using low bit-rate video communication".

[8] UN: "Convention on the rights of persons with disabilities and optional protocol" - United-Nations.

[9] W3C: "Web content accessibility guidelines 1.0".

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

[11] ITU-T Recommendation H.263: "Video coding for low bit rate communication".

[12] ITU-T Recommendation H.264: "Advanced video coding for generic audiovisual services".

2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

[i.1] ETSI EG 201 013: "Human Factors (HF); Definitions, abbreviations and symbols".

[i.2] ETSI EG 202 320: "Human Factors (HF); Duplex Universal Speech and Text (DUST) communications".

[i.3] ETSI TR 101 806 (2000): "Human Factors (HF); Guidelines for Telecommunication Relay Services for Text Telephones".

[i.4] ETSI TR 102 202 (2003): "Human Factors (HF); Human Factors of work in call centres".

[i.5] IETF RFC 4103: "RTP payload for text conversation".

[i.6] ITU-T Recommendation V.23: "600/1200-baud modem standardized for use in the general switched telephone network".

[i.7] ITU-T Recommendation G.711: "Pulse code modulation (PCM) of voice frequencies".

[i.8] ITU-T Recommendation H.323: "Packet-based multimedia communications systems".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in EG 201 013 [i.1] and the following apply:

automatic relay service: service that enables a conversation between two terminals using different communication modes by providing the facility of automatic conversion between the two modes in substantially real time

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

NOTE: The service is usually provided via the Internet on a computer terminal associated with the telephone being used.

lipreading relay service: service that enables lipreaders and voice telephone users to interact by providing conversion between the two modes of communication in substantially real time

NOTE: This conversion is normally provided by a human operator who is a lipspeaker.

operator: person whose prime task is to provide assistance and support to users.(also known as an "attendant")

real-time text: alpha numeric characters perceived as being transmitted in real time over a communications network

relay service: telecommunications service that enables users of different modes of communication e.g. text, sign, speech, to interact by providing conversion between the modes of communication, normally by a human operator

Sign relay service: service that enables sign language users and other users to interact by providing conversion between the two modes of communication in substantially real time

NOTE: This conversion is normally provided by a human operator (this service is often known as a video relay service).

speech to speech relay service: telecommunications 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 specially trained operator.

text relay service: telecommunications service that enables text 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 human operator.

text to text service: telecommunications service that enables two text terminal users to interact by providing any necessary protocol conversion between the two text terminals in substantially real time

NOTE: This conversion is normally provided automatically.

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

NOTE: See EG 201 013 [i.1].

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

NOTE: Text telephony may be combined with voice telephony (see EG 201 013 [i.1]).

V.18 protocols: protocols for modems and character handling in accordance with ITU-T Recommendation V.18 [6]

NOTE: V.18 supports EDT, 5-bit (or Baudot), DTMF, V.21, V.23, Bell 103 and V.18 based devices.

3.2 Abbreviations

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

CLI	Calling Line Identity
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identity Restriction
COLP	COnnected Line identification Presentation
COLR	COnnected Line identification Restriction
DTMF	Dual Tone Multi Frequency
EDT	European Deaf Telephone
IETF	Internet Engineering Task Force
SIP	Session Initiation Protocol
WCAG	Web Content Accessibility Guidelines

4 General

4.1 Relay service

A relay service is a telecommunications service as outlined in figure 1 that enables users of different modes of communication to interact by providing conversion between the modes of communication.

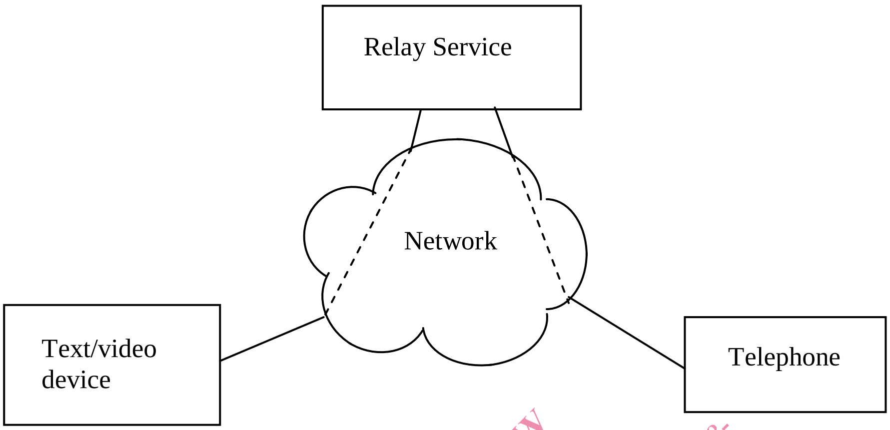

Figure 1: Communication via a relay service over a network

In its simplest form the service can be provided over the normal dial up telephone network using an operator to mediate between a textphone user and a telephone user. Alternatively it can be provided by a service provider over any form of connection, for example over a mobile network or via an IP connection where the text/video device might be PC based. Such a service can be an automatic service using, for example, V.18 modems in a gateway [6], to enable interworking between two text terminals operating in different communication modes.

Thus any user in any network using one mode of communication should be able to communicate with another user using a different mode of communication in the same or in any other network via a relay service. The manner in which calls are set up would be as appropriate to the communications medium used and it should be possible to set up calls to and from disabled users in the same manner as calls to and from other users.

It is important that it should be possible to send/receive high quality real time text, video and voice over IP to and from any products used for mainstream communication, such as computers (including those in Internet cafés) and mobile phones, without network, firewall or terminal restrictions.

In order to satisfy the requirements of the UN Convention on the rights of persons with disabilities [8] it is also essential that interoperability should be achieved between all services so as to provide world wide 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;
- sign relay services;
- lipreading relay services;
- captioned telephony services;
- text to text services;
- facsimile relay services.

4.3 Service provision

There are various ways in which a relay service might be provided and paid for and such arrangements tend to differ from country to country.

For ease of understanding the present document assumes that a regulator requires the service to be provided by some organization responsible for commissioning the service. This commissioning organization in its turn procures the service from a service provider be means of a purchasing contract that sets out the required characteristics of the service being purchased. In some cases the these three functions may be combined regulator might also commission the service and the service provider might also be a network provider, but the three functions, regulating, commissioning and service provision can all be identified.

The service provided to the disabled user is usually subsidized in some way, the costs being partly or wholly funded by some third party, commonly some government agency.

A few relay services are provided by independent suppliers on a purely commercial basis but in general the end user cannot afford to pay the full cost of such a service. Some of these independent suppliers provide their service to an employer who wishes to purchase the service for a disabled employee. His costs may then be reimbursed through a government labour authority in some scheme intended to encourage the employment of disabled people.

4.4 Grade of service

It has been found that it is not always feasible to provide the full time service that users need, 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 service;

b) a limited hour service.

4.5 Supplementary services

The supplementary services such as call diversion or message storage that are provided on most telephone networks can be made available in conjunction with any form of relay service. 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.

Most such services must be provided by the network and are not normally dependant on relay services. Nevertheless there are implications for such services when provided in calls where relay services are involved. These are dealt with in annex A.

5 Service requirements

5.1 Text Relay Service

5.1.1 Text/speech conversion

A Text Relay Service shall, as its basic service, enable the conversion between real-time text from a text terminal and speech to a voice terminal and vice versa in substantially real time.

The conversion between the two modes of communication may typically be provided by means of a human intermediary.

5.1.2 Call set up

All connections set up from the relay service to the text terminal subscriber shall be connected in text-mode, and an indication given to the call recipient that a text capability is required.