ETSI EG 202 952 V1.1.1 (2014-09)

Human Factors (HF);
Guidelines to identify "Design for All" aspects in ETSI deliverables

Reference
DEG/HF-00143

Keywords
accessibility, Design for All, HF, interface, user

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Foreword

This ETSI Guide (EG) has been produced by ETSI Technical Committee Human Factors (HF).

The Text taken from ISO/IEC TR 29138-1:2009: "Information technology - Accessibility considerations for people with disabilities - Part 1: User needs summary" is reproduced with the premission of the International Organization for Standardization, ISO. This standard can be obtained from any ISO member and from the Web site of the ISO Central Secretariat at the following address: www.iso.org. Copyright remains with ISO.

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Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**may not**", "**need**", "**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 was prepared in response to Mandate M/473 [i.5] from the European Commission to CEN, CENELEC and ETSI.

Ageing and a better inclusion of people with various kinds of functional limitations represent key challenges in Europe and most other parts of the world. The fundamental objective of Mandate M/473 is to ensure that standardization deliverables are developed in a way that follows "Design for All" principles. Taking account of Design for All principles in the development of standardization deliverables, when appropriate, is intended to ensure that the use of those deliverables enables the development of products, services or systems that are also usable by and accessible to persons with disabilities and older persons.

The present document describes a relatively simple, checklist-based approach that provides ETSI groups with simple, but efficient and understandable tools to assist them to decide whether specific Design for All issues will need to be taken into account when drafting or updating standardization deliverables. The method of deployment has been specifically designed to be incorporated into ETSI's Technical Working Procedures with the minimum amount of change to existing working practices.

1 Scope

The present document contains a Design for All (DfA) checklist to be used by ETSI groups to identify potential Design for All implications to be considered in the context of new ETSI work items.

Annex D contains references to guidelines related to the Design for All issues identified in applying the checklist.

NOTE: The present document can also be used in the context of the revision of already published ETSI deliverables for assessing whether there are any Design for All issues needed to be considered.

2 References

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

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.

2.1 Normative references

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

Not applicable.

2.2 Informative references

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

[i.1] ETSI EG 202 116: "Human Factors (HF); Guidelines for ICT products and services; "Design for All"".

[i.2] ETSI EG 202 670: "Human Factors (HF); User Experience Guidelines for real-time communication services expressed in Quality of Service terms".

[i.3] ETSI EG 202 848: "Human Factors (HF); Inclusive eServices for all: Optimizing the accessibility and the use of upcoming user-interaction technologies".

[i.4] ETSI EN 301 549: "Accessibility requirements suitable for public procurement of ICT products and services in Europe".

[i.5] European Commission: "M/473 Standardization Mandate to CEN, CENELEC and ETSI to include 'Design for All' in relevant standardisation initiatives".

[i.6] ISO/IEC TR 29138-1: "Information technology - Accessibility considerations for people with disabilities - Part 1: User needs summary".

[i.7] ITU-T (2006) Series F: "Non-telephone Telecommunication Services: Audiovisual Services. Technical Paper FSTP-TACL Telecommunications Accessibility Checklist".

[i.8] ISO 26800:2011: "Ergonomics - General approach, principles and concepts".

[i.9] Recommendation ITU-T P.10/G.100 Amendment 2: "New definitions for inclusion in Recommendation ITU-T P.10/G.100", International Telecommunication Union, Geneva, Switzerland, 2008.

3 Definitions and abbreviations

3.1 Definitions

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

accessibility: extent to which products, systems, services, environments and facilities can be used by people from populations with the widest range of characteristics and capabilities, to achieve a specified goal in a specified context of use (from ISO 26800 [i.8])

Design for All: design of products to be accessible and usable by all people, to the greatest extent possible, without the need for specialized adaptation, EG 202 848 [i.3]

ETSI deliverable: document (GS, TS, TR, ES, EG, EN, or SR) produced as the result of an ETSI work item

ETSI group: any group within ETSI that produces or revises ETSI deliverables

haptic: passive perception through the sense of touch, EG 202 848 [i.3]

input modality: sense or channel through which a human can receive the output of an ICT device or service, EG 202 848 [i.3]

modality: See sensory modality.

multimodal: relating to multiple input modalities and/or output modalities, EG 202 848 [i.3]

multimodality: simultaneous support of multiple input modalities and/or output modalities, EG 202 848 [i.3]

output modality: channel through which a sensor, device or service can receive the input from the human, EG 202 848 [i.3]

quality of experience (QoE): overall acceptability of an application or service, as perceived subjectively by the end-user, EG 202 670 [i.2]

NOTE 1: Quality of experience includes the complete end-to-end system effects (client, terminal, network, services infrastructure, etc.).

NOTE 2: Overall acceptability may be influenced by user expectations and context.

NOTE 3: Recommendation ITU-T P.10/G.100 Amendment 2 [i.9] definition.

sensory modality: sense or channel through which a human can send input to or receive output from an ICT device or service, EG 202 848 [i.3]

service: complete capability, including terminal equipment functions, for communication between users, systems and applications, according to agreed protocols, EG 202 848 [i.3]

tactile: perception through the sense of touch while actively moving parts of the body, EG 202 848 [i.3]

user: person who interacts with the product, service or environment ISO/IEC TR 29138-1 [i.6]

user interface: physical and logical interface through which a user communicates with a device or service, EG 202 848 [i.3]

3.2 Abbreviations

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

AT	Assistive Technology
DfA	Design for All
ICT	Information and Communication Technology
TC	Technical Committee

4 Rationale

4.1 The role of standards

When followed, ETSI deliverables containing requirements will influence the characteristics of a product or service to which they are applied. Each ETSI deliverable will be written with the primary intention to influence the characteristics of some clearly defined aspects of a future product or service. The focus of the majority of ETSI deliverables are ICT products or services.

When a standard is being drafted, its authors have in mind the primary purpose of the standard and the primary entities that will be affected by application of the standard. What is more difficult to predict is the full range of secondary effects of applying the standard and sometimes these secondary effects are not correctly identified. Sometimes the application of a standard can have an unintended effect on an entity that was not considered during the drafting of a standard.

The focus of the present document is on the potential effect of ETSI deliverables on human users. Even though very many ETSI deliverables do not directly address an ICT product or service that has an obvious human user, and many define ICT that appears to be very remote from the user, the application of that deliverable will most frequently have some indirect impact on human users. Clause 4.2 identifies categories of users of ICT that are wider than those users who directly use an ICT product or service. These multiple categories of users affected by ICT are also the categories of user that need to be considered when drafting ETSI deliverables that define characteristics of ICT products and services.

4.2 Types of users

People affected by a technical infrastructure, product or service can be the providers thereof, the recipients for whom they have been created, or a combination of both:

- Providers are potentially affected by benefits such as jobs, income or influence.
- Recipients are directly or indirectly affected by potential benefits (or detriments) such as receiving support to achieve their goals or being offered entertainment.

EXAMPLE: Examples of people being affected both as providers and as recipients are technicians servicing switching systems or people working for the provider's telephone call centre.

In addition, technical infrastructures, products or services are, in many cases, used not only by the people from inside the intended user group but by other people as well. Therefore, the requirements and capabilities of all potential users have to be taken into account in technical standards and product / service specifications.

The impact of Design for All (DfA) issues on users depends on their involvement in the actual usage of the device or service. This involvement may be more or less direct; hence users can be defined as:

- Direct users: these can be defined as those users who directly interact with a device or service for their own benefit or someone else's.

  EXAMPLE:

  - A traveller buys a train ticket from a ticket vending machine.
  - A woman uses her own mobile phone to call a friend to arrange a meeting.
  - An elderly man draws some money from his current account using a bank teller machine.
  - The son of an elderly woman prepares her new laptop computer for future use by her.

- Indirect users: these can be defined as those users who do not interact directly with a device or service but benefit directly or indirectly by another person using it.

EXAMPLE:

- An elderly woman sits next to her son who prepares her new laptop computer for future use by her, listening to his explanations and demonstrations.
- People in a cinema watch a movie (the projector equipment is operated by someone else).
- The participants of a symposium wear headphones and listen to the voice of an interpreter (who operates the equipment).

- Collateral users: collateral users are only remotely involved in another person using a device or service, and they usually do not benefit from that experience.

EXAMPLE:

- A lorry driver (direct user) engages the reverse gear which starts an acoustic warning, a person standing behind the lorry (indirect user) hears the warning and clears the area, another person in a building nearby is awoken by the noise (collateral user).
- A man sitting in a train talks into his mobile phone with a very loud voice (direct user), the person sitting in the row behind him (collateral user) feels molested by this.

All the user categories mentioned above are relevant for the assessment of the overall impact of a deliverable.

4.3 Design for All

The effect of technology (and technical standards) on individuals is related to the capabilities of those individuals. The capabilities of people using technology (directly or indirectly) or being affected by technology (e.g. the collateral users described in clause 4.2) vary widely in terms of their physical (e.g. seeing and hearing) and mental (e.g. remembering) abilities.

Design for All (DfA) is the design of products to be accessible and usable by all people, to the greatest extent possible, without the need for specialized adaptation. As standards define important characteristics of technical infrastructures, products and services, it is important to ensure that when those standards are developed DfA principles are applied when appropriate.

One of the most important things that needs to be identified when a proposal is made to create a standard or update an existing one, is whether a DfA approach needs to be adopted. It will not always be obvious whether specific actions to address DfA will be required as, in many cases, a standard may not appear to be strongly related to the needs of end users. However, even when a standard relates to some lower-level features of a network or service and the standard does not directly address end-user interaction issues, characteristics of these lower-level features can impact on users and can create conflicts with the users' abilities. It will be necessary to consider all of the categories of user described in clause 4.2 before concluding that a DfA approach is not relevant.

There has been a significant amount of work done, over many years, to develop standards and guidance that assist designers to apply DfA best practice. Annex C describes several sources that have been used in the present document. These documents provide the background information that will enable ETSI groups to:

1) Identify whether DfA issues may be relevant in the proposed standardization activity.
2) Help the ETSI group to identify the nature of the DfA issues and to offer some suggestions for how those issues might be addressed.

Clause 5 describes the process by which ETSI groups can perform the above two steps with the minimum amount of specialized knowledge and with the minimum disruption to existing ETSI working procedures.

5 Assessing the Design for All relevance of an ETSI deliverable

5.1 General

The relevance of Design for All (DfA) issues and user needs affected in the context of an ETSI deliverable to be developed or updated can be assessed by going through the procedure that is described in detail in the following clauses. It consists of the following three steps:

1) DfA checklist: the six topics listed in clause 5.2 are used to assess whether there is any DfA relevance in the proposed deliverable.

2) User needs: table 5.1 in clause 5.3 indicates which user needs are affected by the individual checklist topics.

3) DfA Guidance: annex D gives guidance on user interaction aspects relating to the user needs listed in table 5.1, allowing analysis of ways to address those user needs in the standard.

5.2 DfA checklist

In order to identify any Design for All (DfA) issues related to an ETSI deliverable to be developed or updated, the following six topics should be considered by the authors of the deliverable. The selection of those topics is based on the ITU-T "Telecommunications Accessibility Checklist" ([i.7], see table 5.1 for more details on the meaning of each topic).

EXAMPLE: A technical standard about mobile text messaging specifies some characteristics of the controls and indicators of a terminal supporting that standard. This standard would address topics: 1) Control of devices through a user interface, 2) Control of services, 4) Media entry by the user, and possibly issues 5) Media processing including transport, coding, transposition, etc. and 6) User and device profile management and use.

If the deliverable addresses any or all of the following topics, the steps specified in clause 5.3 should be taken. If the deliverable does not address any of the topics, the procedure should be completed by recording the results of the procedure as specified in clause 6.2.

5.2.1 Control of devices through a user interface

A user interface represents the physical and logical interface through which a user communicates with a device or service. This includes the sum of all controls and indicators for the input and output of commands, including elements such as screens, hardkeys, softkeys, vibrating elements, Braille systems as output of text messages in control protocols and menu structures. Different user interaction technologies can be employed in a user interface, addressing different human sensory modalities (input modalities such as visual and auditory, and output technologies such a tactile/haptic or kinaesthetic).

Assessment question: Does the ETSI deliverable relate to or impact upon a device with a physical or logical user interface?

NOTE 1: The user interface can reside in a terminal device such as a smart phone, in a remote service or in the combination of the two.

NOTE 2: This topic also addresses the physical access to devices and services (e.g. covers, moveable parts, and peripherals).

5.2.2 Control of services

The concept of service refers to the complete capability, including terminal equipment functions, for communication between users, systems and applications, according to agreed protocols. User interaction technologies used for services are similar to those used for controlling devices.

Assessment question: Does the ETSI deliverable relate to or impact upon a service with a physical or logical user interface?

NOTE: The user interface can reside in a terminal device such as a smart phone, in a remote service or in the combination of the two. The user interface of a remote service could be diverse and include a visual web interface and a voice-driven dialogue.

5.2.3 Media presentation to the user

Media presentation to the user covers different human input modalities including auditory (e.g. voice, music or sounds), visual (e.g. text, symbols, images or moving images) and tactile (e.g. vibrating equipment, Braille systems) media. In the future, other human input modalities may be addressed as well. This category does not include the presentation of media that is an integral part of the operation of a user interface, as this presentation is part of the user control addressed in the first two topics.

Assessment question: Does the ETSI deliverable relate to or impact upon media presentation to the user?

NOTE: The presentation of media to a user does not necessarily imply an active interaction of the user with a user interface.

EXAMPLE: Train passengers waiting on a platform for a train hear voice announcements and see a visual display of information on train departure times.

5.2.4 Media entry by the user [media capture]

Media entry by the user covers different human output modalities including auditory (e.g. the user's voice), visual (e.g. the user's image or sign language as captured by a camera or moving pictures uploaded from a local storage device), kinaesthetic or biometric media. In the future, other human output modalities may be addressed as well. This category does not include the capture of voice commands, as this capture is part of the user control addressed in the first two topics.

Assessment question: Does the ETSI deliverable relate to or impact upon media entry by the user (media capture)?

NOTE: The entry of media from a user does not necessarily imply an active interaction of the user with a user interface. This would include a person being monitored by a media capture system.

EXAMPLE: The security system of an airport monitors the movements of people with a set of cameras to identify any suspicious patterns.

5.2.5 Media processing including transport, coding, transposition, etc.

This item covers any transport and/or manipulation of media, which may result in the media stream being altered, e.g. delayed, losing information, or synchronization.

Assessment question: Does the ETSI deliverable relate to or impact upon the transport and/or manipulation of media in a way that could potentially lead to an impoverished user experience?

NOTE: This category excludes lossless media transport where the media stream is not processed nor delayed by more than 100 ms.

EXAMPLE: A coding algorithm intended for reducing the visual data for two-way visual communications at a low bit rate can result in the reduction of the quality of the visual material sufficiently to make it unsuitable for sign language usage.

5.2.6 User and device profile management and use

User profiles can enable the most appropriate modes of a user interface to be matched to the user's abilities, preferences, or context of use. The person benefiting from an individual profile may not be the same person who manages the profile.

Assessment question: Does the ETSI deliverable relate to or impact upon the management or use of user profiles?

EXAMPLE: A blind user can be offered the audio version of the user interface instead the default visually-based version of the user interface.

5.3 User needs related to the Design for All Topics

Table 5.1 identifies the accessibility needs (Functional Performance Statements) from EN 301 549 [i.4] and the Design for All user need categories, taken from ISO/IEC TR 29138-1 [i.6], that are related to each of the Design for All Topics (these are numbered in the same way as they are in ISO/IEC TR 29138-1 [i.6]). Applying the ETSI deliverable should support and not impair each of the user needs.

The Functional Performance Statements from EN 301 549 [i.4] give direct high-level accessibility needs to be satisfied. Invitations to tender for publicly procured ICT in Europe may reference these Functional Performance Statements. These user needs make no assumptions about the type of ICT that is being considered.

The user needs categories from ISO/IEC TR 29138-1 [i.6] provide a more detailed breakdown of what users need. The user needs are written in terms that make more sense for some types of ICT than others. In table 5.1 a note has been added to each user need category to help to clarify the user need in the context of the DfA topic to which it applies.

When users are taking part in real-time communication, they require a certain quality of experience to be delivered by the communication system in order that they are able to have an effective communication. The quality of any audio, video or text and the synchronization between them needs to be such that it does not interfere with the effectiveness of the communication. This user need is not adequately described by those that appear in ISO/IEC TR 29138-1 [i.6]. For this reason, an "understand real-time communication" user need category has been added (which has been assigned an identification number of 0).

Table 5.1: DfA Topics derived from the ITU-T Telecommunications Accessibility Checklist

DfA Topics [i.7]	Accessibility needs to be addressed (from EN 301 549 [i.4])	DfA user need categories that may need to be addressed ISO/IEC TR 29138-1 [i.6]
"Control of devices through a user interface"	4.2.1 Usage without vision 4.2.2 Usage with limited vision 4.2.3 Usage without perception of colour 4.2.4 Usage without hearing 4.2.5 Usage with limited hearing 4.2.6 Usage without vocal capability 4.2.7 Usage with limited manipulation or strength 4.2.8 Usage with limited reach 4.2.9 Minimize photosensitive seizure triggers 4.2.10 Usage with limited cognition 4.2.11 Privacy	1. *"Perceive visual information"* NOTE: Implies the ability to be able to present visual information in an alternative non-visual form. 2. *"Perceive auditory information"* NOTE: Implies the ability to be able to present auditory information in an alternative non-auditory form. 3. *"Perceive existence and location of actionable components"* NOTE: Implies the ability to perceive the existence and location of actionable components using more than one sensory modality. 4. *"Perceive status of controls and indicators"* NOTE: Implies the ability to perceive the status of controls and indicators using more than one sensory modality. 5. *"Perceive feedback from an operation"* NOTE: Implies the ability to perceive the status of controls and indicators using more than one sensory modality. 6. *"Be able to invoke and carry out all actions including maintenance"*

DfA Topics [i.7]	Accessibility needs to be addressed (from EN 301 549 [i.4])	DfA user need categories that may need to be addressed ISO/IEC TR 29138-1 [i.6]
		NOTE: Implies the ability to invoke and carry out actions using more than one sensory modality as well as actions that do not involve complex interaction. 7. *"Be able to complete actions and tasks within the time allowed"* NOTE: This relates to quality of experience issues such as the pacing of any user interaction that recognizes wide variability in how quickly users can interact with a system and that allows the pacing to be adapted to user preferences that may be available in user profiles. 8. *"Avoiding unintentional activation of controls"* NOTE: This relates to activation mechanisms that are not over-sensitive to any accessibility aspect such as hand tremor, colour blindness, poor vision, etc. and that does not rely on activation mechanisms that are dependent on a user being able to interact using only one sensory modality. 9. *"Be able to recover from errors*" NOTE: Implies recovery mechanisms that are not dependent on a single sensory modality or a single human ability for either detection or correction of an error. 10. *"Have equivalent security and privacy"* NOTE: Implies that security and privacy for a user that has to rely on an alternative means to enter private information or to receive confidential information returned by the system is no less than for a user who uses the standard means to enter and receive information and that individual preferences regarding security and privacy in any user profile are respected. *11. "Not cause personal risks"* 12. *"Be able to efficiently operate product"* NOTE: Implies that the operation of the product is not so complex that users with some cognitive impairments are unable to efficiently operate it. 13. *"Understand how to use product"* NOTE: Implies that learning how to operate the product does not exclusively rely on a user having certain physical or cognitive abilities. 14. *"Understanding the output of displayed material"* NOTE: Implies that the output of displayed material is available in more than one modality and that it is not over complex. *15. "Ability to use their assistive technology (AT) to control the ICT"* 16. *"Cross cutting issues"* NOTE: These are issues that are potentially applicable in all situations where DfA is relevant.
"Control of services"	4.2.1 Usage without vision 4.2.2 Usage with limited vision 4.2.3 Usage without perception of colour 4.2.4 Usage without hearing 4.2.5 Usage with limited hearing 4.2.6 Usage without vocal capability	1. *"Perceive visual information"* NOTE: Implies the ability to be able to present visual information in an alternative non-visual form. 2. *"Perceive auditory information"*

DfA Topics [i.7]	Accessibility needs to be addressed (from EN 301 549 [i.4])	DfA user need categories that may need to be addressed ISO/IEC TR 29138-1 [i.6]
	4.2.7 Usage with limited manipulation or strength 4.2.8 Usage with limited reach 4.2.9 Minimize photosensitive seizure triggers 4.2.10 Usage with limited cognition 4.2.11 Privacy	NOTE: Implies the ability to be able to present auditory information in an alternative non-auditory form. 3. *"Perceive existence and location of actionable components"* NOTE: Implies the ability to perceive the existence and location of actionable components using more than one sensory modality. 4. *"Perceive status of controls and indicators"* NOTE: Implies the ability to perceive the status of controls and indicators using more than one sensory modality. 5. *"Perceive feedback from an operation"* NOTE: Implies the ability to perceive the status of controls and indicators using more than one sensory modality. 6. *"Be able to invoke and carry out all actions including maintenance"* NOTE: Implies the ability to invoke and carry out actions using more than one sensory modality as well as actions that do not involve complex interaction. 7. *"Be able to complete actions and tasks within the time allowed"* NOTE: This relates to quality of experience issues such as the pacing of any user interaction that recognizes wide variability in how quickly users can interact with a system and that allows the pacing to be adapted to user preferences that may be available in user profiles. 8. *"Avoiding unintentional activation of controls"* NOTE: This relates to activation mechanisms that are not over-sensitive to any accessibility aspect such as hand tremor, colour blindness, poor vision, etc. and that does not rely on activation mechanisms that are dependent on a user being able to interact using only one sensory modality. 9. *"Be able to recover from errors"* NOTE: Implies recovery mechanisms that are not dependent on a single sensory modality or a single human ability for either detection or correction of an error. 10. *"Have equivalent security and privacy"* NOTE: Implies that security and privacy for a user that has to rely on an alternative means to enter private information or to receive confidential information returned by the system is no less than for a user who uses the standard means to enter and receive information and that individual preferences regarding security and privacy in any user profile are respected. *11. "Not cause personal risks"* 12. *"Be able to efficiently operate product"* NOTE: Implies that the operation of the product is not so complex that users with some cognitive impairments are unable to efficiently operate it. 13. *"Understand how to use product"*

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		NOTE: Implies that learning how to operate the product does not exclusively rely on a user having certain physical or cognitive abilities. 14. *"Understanding the output of displayed material"* NOTE: Implies that the output of displayed material is available in more than one modality and that it is not over complex. *15. "Ability to use their assistive technology (AT) to control the ICT"* 16. *"Cross cutting issues"* NOTE: These are issues that are potentially applicable in all situations where DfA is relevant.
"Media presentation to the user"	4.2.1 Usage without vision 4.2.2 Usage with limited vision 4.2.3 Usage without perception of colour 4.2.4 Usage without hearing 4.2.5 Usage with limited hearing 4.2.6 Usage without vocal capability 4.2.7 Usage with limited manipulation or strength 4.2.8 Usage with limited reach 4.2.9 Minimize photosensitive seizure triggers 4.2.10 Usage with limited cognition 4.2.11 Privacy	0. Understand real-time communication NOTE: Implies that the real-time communication is available and understandable in more than one modality. This includes issues such as related media streams like video and its captions being correctly synchronized. 1. *"Perceive visual information"* NOTE: Implies the ability to be able to present visual information in an alternative non-visual form. 2. *"Perceive auditory information"* NOTE: Implies the ability to be able to present auditory information in an alternative non-auditory form. 10. *"Have equivalent security and privacy"* NOTE: Implies that security and privacy for a user that has to rely on an alternative means to receive confidential information returned by the system is no less than for a user who uses the standard means to receive information and that individual preferences regarding security and privacy in any user profile are respected. 14. *"Understanding the output of displayed material"* NOTE: Implies that the output of displayed material is available in more than one modality and that it is not over complex. 16. *"Cross cutting issues"* NOTE: These are issues that are potentially applicable in all situations where DfA is relevant.
"Media entry by the user"	4.2.1 Usage without vision 4.2.2 Usage with limited vision 4.2.3 Usage without perception of colour 4.2.4 Usage without hearing 4.2.5 Usage with limited hearing 4.2.6 Usage without vocal capability 4.2.7 Usage with limited manipulation or strength 4.2.8 Usage with limited reach 4.2.9 Minimize photosensitive seizure triggers 4.2.10 Usage with limited cognition 4.2.11 Privacy	0. Understand real-time communication NOTE: Implies that the real-time communication is available in and understandable in more than one modality. 10. *"Have equivalent security and privacy"* NOTE: Implies that security and privacy for a user that has to rely on an alternative means to enter private information is no less than for a user who uses the standard means to enter information and that individual preferences regarding security and privacy in any user profile are respected. 16. *"Cross cutting issues"* NOTE: These are issues that are potentially applicable in all situations where DfA is relevant.

DfA Topics [i.7]	Accessibility needs to be addressed (from EN 301 549 [i.4])	DfA user need categories that may need to be addressed ISO/IEC TR 29138-1 [i.6]
Media processing including transport, coding, transposition NOTE: This category excludes lossless media transport where the media stream: – is not processed; – is not delayed by more than 100 ms.	4.2.1 Usage without vision 4.2.2 Usage with limited vision 4.2.3 Usage without perception of colour 4.2.4 Usage without hearing 4.2.5 Usage with limited hearing 4.2.6 Usage without vocal capability 4.2.7 Usage with limited manipulation or strength 4.2.8 Usage with limited reach 4.2.9 Minimize photosensitive seizure triggers 4.2.10 Usage with limited cognition 4.2.11 Privacy	0. Understand real-time communication NOTE: Implies that any media processing does not adversely affect (e.g. delay or distort) alternative forms of media provided for accessibility purposes e.g. captions or audio description. 1. *"Perceive visual information"* NOTE: Implies the quality of experience of visual media is not adversely impacted by the media processing e.g. media is of a quality to support accessibility needs such as the understanding of deaf signing over a video connection. 2. *"Perceive auditory information"* NOTE: Implies the quality of experience of auditory media is not adversely impacted by the media processing e.g. media is of a quality to support accessibility needs such as auditory information that is correctly synchronized to the video information it is describing or is associated with. 16. *"Cross cutting issues"* NOTE: These are issues that are potentially applicable in all situations where DfA. is relevant.
User and device profile management and usage	4.2.1 Usage without vision 4.2.2 Usage with limited vision 4.2.3 Usage without perception of colour 4.2.4 Usage without hearing 4.2.5 Usage with limited hearing 4.2.6 Usage without vocal capability 4.2.7 Usage with limited manipulation or strength 4.2.8 Usage with limited reach 4.2.9 Minimize photosensitive seizure triggers 4.2.10 Usage with limited cognition 4.2.11 Privacy	0. Understand real-time communication NOTE: Implies that the real-time communication is available and understandable in more than one modality. 1. *"Perceive visual information"* NOTE: Implies the ability to be able to present visual information in an alternative non-visual form. 2. *"Perceive auditory information"* NOTE: Implies the ability to be able to present auditory information in an alternative non-auditory form. 12. *"Be able to efficiently operate product"* NOTE: Implies that the efficiency of operation of a product for a user that has to rely on an alternative means to enter information or to receive information returned by the system is no less than for a user who uses the standard means to enter and receive information and that individual preferences regarding the operation of the product contained in any user profile are respected. *15. "Ability to use their assistive technology (AT) to control the ICT"* 16. *"Cross cutting issues"* NOTE: These are issues that are potentially applicable in all situations where DfA is relevant.

Annex D gives guidance on user interaction aspects relating to the specific user needs listed in table 5.1, allowing the ways to address those user needs in the standard to be analysed. The number at the beginning of each of the user needs in column three of table 5.1 is the "User Need ID" that appears in the first column of the table D.1 and allows the appropriate user items from that table to be easily found.

6 Process

6.1 Awareness raising

Many members of ETSI groups deal only rarely with accessibility issues related to elderly people or those with disabilities. Consequently, they may not be aware that many standards have direct or indirect consequences for the design of products and services implemented according to those standards.

The present document and the accompanying presentation (see annex E) can assist chairmen of ETSI groups in raising the group members' awareness of the Design for All requirements that are potentially associated with an ETSI deliverable to be developed or revised. In addition, TC HF can give presentations to ETSI groups on the assessment method and its rationale.

6.2 Process integration

The DfA assessment as outlined in clause 5 of the present document should be performed whenever a new work item is to be proposed or an existing ETSI deliverable is to be revised.

The DfA assessment should be used in order to address the "Accessibility and Usability" tick-box on the New Work Item Form. The assessment can be performed using the procedure described in clause 5.

In addition, it would be good practice to assess substantive drafts of new deliverables at a later stage where such drafts are not available when the work item is being proposed.

Going through step 1 of the procedure (DfA topics) with negative results (i.e. none of the topics listed in clause 5.2 is relevant) can justify not ticking the "Accessibility and Usability" box on the New Work Item Form, as long as there are no potential usability issues - usability is a separate issue outside the scope of the present document. If, on the other hand, one or more issues are identified as relevant, the remaining procedure (steps 2 and 3) should be carried out and appropriate measures should be taken. In those cases, the box should be ticked.

6.3 Process support

If relevant DfA issues are identified in the assessment, further information and advice on how to address these issues in the standard can be found going through steps 2 and 3. In addition, support may be requested from TC HF on any DfA issue arising from the assessment.

Annex A:
ITU-T Telecommunications Accessibility Checklist

The following list contains all topics in the order as published in the ITU-T Telecommunications Accessibility Checklist [i.7].

- *"Control of devices through a user interface*
- *Control of services*
- *Media transport*
- *Media entry by the user*
- *Media presentation to the user*
- *Invocation of media translating services*
- *User and device profile management*
- *User and device profile usage"*

Annex B:
User needs according to ISO/IEC TR 29138-1

The following list contains all user needs in the order as published in ISO/IEC TR 29138-1 [i.6].

- *"Perceive visual information*
- *Perceive auditory information*
- *Perceive existence and location of actionable components*
- *Perceive status of controls and indicators*
- *Perceive feedback from an operation*
- *Be able to invoke and carry out all actions including maintenance and setup*
- *Be able to complete actions and tasks within the time allowed*
- *Avoiding unintentional activation of controls*
- *Be able to recover from errors*
- *Have equivalent security and privacy*
- *Not cause personal risk (e.g. seizure)*
- *Be able to efficiently operate product*
- *Understand how to use product (including discovery and activation of any access feature needed)*
- *Understand the output or displayed material (even after they perceive it accurately)*
- *Ability to use their assistive technology (AT) to control the ICT"*

Annex C:
Documents supporting the Design for All assessment

C.1 General

A number of standards and guides address various aspects of Design for All (DfA). Any one of these standards or guides can provide valuable assistance to those wishing to address DfA when developing an ETSI deliverable. However, non-specialists cannot be expected to be familiar with these sources or to understand how to appropriately apply the guidance or requirements that they contain.

A subset of the many DfA sources was identified as an appropriate set of sources to be used to develop the procedure described in clause 5. In the following clauses the chosen sources are introduced and the way in which they contribute to the overall DfA assessment procedure is explained.

C.2 Use case categories

The ITU-T developed a Telecommunications Accessibility Checklist [i.7] as part of a systematic approach to ensuring that "*the specified services and features are usable by as many as possible including people with disabilities*". It is the ITU-T's approach to the same issues addressed by the present document. There is an obligation on all ITU-T Study Groups to apply the Telecommunications Accessibility Checklist and to report on the results obtained.

The ITU-T document [i.7] suggests that the checklist be "*used early on as part of the standards development process*". Unlike many other Design for All (DfA) documents, the scope of the ITU-T document [i.7] is limited to standardization and specification activities for features in the Information and Communication Technology (ICT) domain. As this domain is the main focus of most of ETSI's activities, the ITU-T Telecommunications Accessibility Checklist is seen as a very relevant and important source to be considered when developing ETSI's approach to DfA.

The ITU-T Telecommunications Accessibility Checklist lists eight "topics" representing features of an ICT system that have potential DfA aspects that need to be addressed (see annex A for a list of those eight topics). These topics can be seen as a set of ICT use cases where DfA is known to be a potential issue. The ITU-T document lists a number of examples of the DfA aspects that are related to each checklist topic.

Where none of the topics apply to the standardization deliverable being considered, the implication is that it would be safe to assume that no DfA issues will exist. In practice, it can be quite rare to find a standardization deliverable to which none of these topics apply.

As it was not possible to clearly differentiate between the eight ITU-T topics, only a subset of them was adopted, with some of them merged (see clause 5.2).

C.3 User needs categories

The use of technology poses a number of requirements on the users which can be matched with user needs.

EXAMPLE: The use of a fixed-network telephone poses the requirements on the user of being able to speak, to hear, to push buttons, to hold a receiver, and various other abilities. Examples of the corresponding user needs are to perceive auditory information (e.g. ringtones and the called/calling party's voice) and to perceive the existence and location of actionable components (e.g. the keypad).

ISO/IEC TR 29138-1 [i.6] identifies a systematic collection of user needs to take into consideration when developing or revising technical standards.

The user needs listed in ISO/IEC TR 29138-1 [i.6] (see also annex B) can help standards writers and the providers of technology to crosscheck whether the application of the standard and/or the use of the product poses user needs that cannot (easily or at all) be met by people with limited capabilities. If a standard to be published or revised addresses one or several of those user needs, appropriate Design for All provisions will be described in that standard.

The principles behind ISO/IEC TR 29138-1 [i.6] have been widely accepted by a broad spectrum of accessibility experts. Its content appears to be appropriate for use in developing standards and it has been used as a source in the development of other ETSI Design for All (DfA) standardization deliverables (e.g. ISO/IEC TR 29138-1 is the source of the user needs categories used in EG 202 848 [i.3]). However, user needs defined in ISO/IEC TR 29138-1 [i.6] are those that are impacted when a user tries to use ICT via a user interface (many of the user needs described in ISO/IEC TR 29138-1 refer to activities that can only really be conducted via direct interaction (active or passive) with a user interface). Examples are:

- perceive visual information;
- perceive auditory information;
- user needs in perceiving existence and location of actionable components;
- user needs in perceiving status of controls and indicators;
- be able to invoke and carry out all actions including maintenance and setup.

There appear to be no user needs related to the way that media or other content is experienced by users. Categories related to being able to visually or audibly perceive information do not adequately capture the more complex user needs related to being able to make sense of and enjoy real-time media. When complex media streams are processed by or passed through ICT systems some aspects of those media streams can be changed.

At a simple level, the fidelity of a visual or auditory stream can be distorted in some way and that can impede the way that a user is able to experience that media stream. This has an accessibility aspect as such distortions can just be experienced as annoying degradation to most users but can prove to be totally unintelligible to users with certain limitations of their sight or hearing.

The modification of media streams when they are processed by or passed through an ICT systems can much more directly impact users with disabilities if this modification adversely affects elements of the media stream that are provided to improve accessibility. If an ICT system delays or corrupts a feature of the media stream such as captions or audio descriptions, then any delays or corruptions of those features will have a direct negative effect on those users who rely on those features.

All of the above examples can be categorized as aspects of ICT systems that cause degradation in the "user experience" of the relevant media streams. As much ETSI standardization relates to ICT networks and systems that have the potential to modify media streams that they process or transport, it is essential that DfA issues related to Quality of Experience are not overlooked. To ensure that Quality of Experience issues related to real-time media are addressed in the procedure described in clause 5, a new user need called "Understand real-time communication" has been added to those that were directly taken from ISO/IEC TR 29138-1 [i.6].

C.4 Design for All guidance and standards

A number of sources of Design for All (DfA) guidance and requirements have been referred to in the development of the process described in clause 5.

EG 202 116 [i.1] contains guidelines that cover communications-related aspects of ICT. Such guidelines are absent from many other DfA documents. The guidelines are presented in a way that was intended to be useful to ICT designers. Selective guidelines from EG 202 116 [i.1] are referred to in the third column of table D.1.

As well as the guidance resources referred to in the present clause, ETSI has produced a set of accessibility requirements that are concrete requirements suitable for use in public procurement. These requirements are included in EN 301 549 [i.4]. The requirements in EN 301 549 [i.4] potentially cover all types of ICT. However, as in all of the documents referred to above in the present clause, most of the requirements in EN 301 549 [i.4] are related to the hardware or software aspects of a user interface that supports direct or indirect user interaction. However, unlike almost all of the other sources listed, EN 301 549 [i.4] includes some requirements that directly relate to "understand real-time communication". Those additional "understand real-time communication" requirements are also included in the second column of table D.1.

Finally, EG 202 848 [i.3] identified DfA provisions that need to be made to ensure that user interaction technologies that might be introduced in the near future do not create barriers to accessibility.

All of the above sources provide guidance and requirements that apply in all cases where a standard directly addresses user interface or user interaction functionality. When it is clear that the standard does address user interface or user interaction functionality any or all of the guidance and requirements in any or all of the sources described in annex C might be applicable. It would generally take someone with experience of these sources to start to identify which material from which standardization deliverable will produce the best possible outcome.

There is one ETSI source, EG 202 670 [i.2], together with an accompanying online tool (http://portal.etsi.org/stfs/STF_HomePages/STF354/), that directly relates to the "understand real-time communication" user need. Although this source does not directly identify itself as being a DfA guide, it refers to several issues that are crucially important from a DfA approach, such as the system performance required to support sign-language and lip-reading during video communication in various contexts. EG 202 670 [i.2] is referred to in its entirety when real-time quality of service appears as an item in table D.1.

Annex D:
User needs references

Table D.1

User Need ID	User needs (according to ISO/IEC TR 29138-1 [i.6], except user need 0)	EN 301 549 [i.4]	EG 202 116 [i.1] References
0	Understand real-time communication	6 ICT with two-way voice communication 7 ICT with video capabilities 13.1 Relay services requirements 13.2 Access to relay services 13.3 Access to emergency services	EG 202 670 [i.2] and the accompanying online tool at http://portal.etsi.org/stfs/STF_HomePages/STF354/ provide guidance on the appropriate aspects of a real-time communication system necessary to support a range of real-time communication tasks e.g. the quality of the real-time communication required to support multi-party conferences will be higher than that required to support casual conversation with a family member.
1	*"Perceive visual information"*	4.2.2 Usage with limited vision and associated requirements identified in Table B.2 4.2.3 Usage without perception of colour and associated requirements identified in Table B.2 4.2.8 Usage with limited reach and associated requirements identified in Table B.2 5.1.3 Non-visual access 5.1.3.3 Auditory output correlation 5.6.1 Tactile or auditory status 7.1.2 Captioning synchronization 7.2.2 Audio description synchronization 8.1.3 Colour 9.2.10 Use of colour (for Web) 9.2.12 Contrast (minimum) (for Web) 9.2.18 Pause, stop, hide (for Web) 10.2.10 Use of colour (document) 10.2.12 Contrast (minimum) (for documents) 10.2.18 Pause, stop, hide (for documents) 11.2.1.10 Use of colour (software) 11.2.1.12 Contrast (minimum) (for software) 11.2.1.18 Pause, stop, hide (for software)	7.1.2 Adaptability 7.1.4 Colour 7.2.7 Direct manipulation 7.2.8 Control key dialogues 7.4.2 Multimodality 7.5 Labels and abbreviations 7.8.2.6 Help Mechanisms - Text 8.2.4 Keys 8.6 Tactile input: Software controls and indications 9.2.2 Visual displays types/characteristics 9.2.2.2 Television sets (TV sets) 9.2.2.3Projection displays 9.3 Quality requirements for different Visual media contents 10.3 Casework Colour 10.4 Surface Finish 10.11 Payment Facilities (coins and paper money)
2	*"Perceive auditory information"*	5.1.3.10 Non-interfering audio output 5.1.3.12 Speaker volume 5.1.3.13 Volume reset 5.1.5 Visual output for auditory information and associated requirements identified in Table B.2 5.6.1 Tactile or auditory status 8.2.1.1 Speech volume range 8.2.1.2 Incremental volume control	7.1.2 Adaptability 7.4.2 Multimodality 7.8.2.2 Help Mechanisms - Auditory 8.7.2 Microphones 8.7.3 Speech Recognition 9.5.2.1 Acoustic Signals 10.7 Handset

User Need ID	User needs (according to ISO/IEC TR 29138-1 [i.6], except user need 0)	EN 301 549 [i.4]	EG 202 116 [i.1] References
3	*"Perceive existence and location of actionable components"*	4.2.2 Usage with limited vision and associated requirements identified in Table B.2 4.2.8 Usage with limited reach and associated requirements identified in Table B.2 5.5.2 Operable parts discernibility 9.2.1 Non-text content 9.2.12 Contrast (minimum) (for Web) 9.2.31 Consistent navigation 9.2.32 Consistent identification 10.2.1 Non-text content 10.2.12 Contrast (minimum) (for documents) 11.2.1.1 Non-text content 11.2.1.12 Contrast (minimum) (for software) 11.2.1.25 Headings and labels 11.3.2 Accessibility services	7.1.4 Colour 7.1.5 Consistency and Standardization 7.2.8 Control key dialogues 7.5 Labels and abbreviations 8.2.4 Keys 8.6 Tactile input: Software controls and indications 9.2.2 Visual displays types/characteristics 10.11 Payment Facilities (coins and paper money)
4	*"Perceive status of controls and indicators"*	4.2.1 Usage without vision and associated requirements identified in Table B.2 4.2.2 Usage with limited vision and associated requirements identified in Table B.2 4.2.3 Usage without perception of colour and associated requirements identified in Table B.2 4.2.4 Usage without hearing and associated requirements identified in Table B.2 4.2.8 Usage with limited reach and associated requirements identified in Table B.2 5.1.3 Non-visual access 5.6.1 Tactile or auditory status 8.4.1 Numeric keys 8.4.3 Keys, tickets and fare cards 8.5 Tactile indication of speech mode	7.2.13 User Prompting 7.4.2 Multimodality 9.4.1 Optical signals 9.5.2.1 Acoustic Signals 10.11 Payment Facilities (coins and paper money)
5	*"Perceive feedback from an operation"*	4.2.1 Usage without vision and associated requirements identified in Table B.2 4.2.2 Usage with limited vision and associated requirements identified in Table B.2 4.2.3 Usage without perception of colour and associated requirements identified in Table B.2 4.2.4 Usage without hearing and associated requirements identified in Table B.2 5.1.3 Non-visual access 9.2.12 Contrast (minimum) 10.2.12 Contrast (minimum) 11.2.1.12 Contrast (minimum)	7.1.2 Adaptability 7.1.5 Consistency and Standardization 7.4.2 Multimodality 9.5.2.1 Acoustic Signals

User Need ID	User needs (according to ISO/IEC TR 29138-1 [i.6], except user need 0)	EN 301 549 [i.4]	EG 202 116 [i.1] References
6	*"Be able to invoke and carry out all actions"*	4.2.1 Usage without vision and associated requirements identified in Table B.2 4.2.2 Usage with limited vision and associated requirements identified in Table B.2 4.2.6 Usage without vocal capability and associated requirements identified in Table B.2 4.2.7 Usage with limited manipulation or strength and associated requirements identified in Table B.2 4.2.8 Usage with limited reach and associated requirements identified in Table B.2 5.1.3 Non-visual access5.9 Simultaneous user actions 5.1.6 Operation without keyboard interface 5.3 Biometrics 8.4.2.1 Means of Operation of mechanical parts 8.4.2.2 Force of operation of mechanical parts 9.2.15 Keyboard 9.2.16 No keyboard trap 9.2.31 Consistent navigation 10.2.15 Keyboard 10.2.16 No keyboard trap 10.2.31 Consistent navigation 11.2.1.15 Keyboard 11.2.1.16 No keyboard trap 11.2.1.31 Consistent navigation	5.2.7.2 Dexterity 5.2.7.3 Manipulation 5.2.7.5 Strength and endurance 7.1.2 Adaptability 7.1.5 Consistency and Standardization 7.1.7 Feedback 7.4.2 Multimodality 8 Input components - Design Guidelines 8.9 Biometric input 9.6 Tactile Output 9.6.1 Tactile indication
7	*"Be able to complete actions and tasks within the time allowed"*	9.2.17 Timing adjustable 9.2.18 Pause, stop, hide 10.2.17 Timing adjustable 10.2.18 Pause, stop, hide 11.2.1.17 Timing adjustable 11.2.1.18 Pause, stop, hide	7.1.2 Adaptability 9.3.4 Animations 9.4.1 Optical signals
8	*"Avoiding unintentional activation of controls"*	4.2.7 Usage with limited manipulation or strength 5.1.3.13 Volume reset 5.1.3.15 Non-visual error identification 5.5.2 Operable parts discernibility 9.2.29 On focus 10.2.29 On focus 11.2.1.29 On focus	7.1.6 Error Management 7.7 Security 7.8.2 Help
9	*"Be able to recover from errors"*	9.2.33 Error identification 9.2.35 Error suggestion 9.2.36 Error prevention (legal, financial, data) 10.2.33 Error identification 10.2.35 Error suggestion 10.2.36 Error prevention (legal, financial, data) 11.2.1.33 Error identification 11.2.1.35 Error suggestion 11.2.1.36 Error prevention (legal, financial, data)	---
10	*"Have equivalent security and privacy"*	4.2.11 Privacy 5.1.3.8 Masked entry 5.1.3.9 Private access to personal data 5.1.3.11 Private listening	7.7 Security

User Need ID	User needs (according to ISO/IEC TR 29138-1 [i.6], except user need 0)	EN 301 549 [i.4]	EG 202 116 [i.1] References
11	*"Not cause personal risks"*	4.2.1 Usage without vision and associated requirements identified in Table B.2 4.2.2 Usage with limited vision and associated requirements identified in Table B.2 4.2.4 Usage without hearing and associated requirements identified in Table B.2 4.2.5 Usage with limited hearing and associated requirements identified in Table B.2 5.1.3 Non-visual access 9.2.19 Three flashes or below threshold 10.2.19 Three flashes or below threshold 11.2.1.19 Three flashes or below threshold	---
12	*"Be able to efficiently operate product"*	5.4 Preservation of accessibility information during conversion 9.2.7 Info and relationships 9.2.8 Meaningful sequence 9.2.31 Consistent navigation 9.2.32 Consistent identification 10.2.7 Info and relationships 10.2.8 Meaningful sequence 11.2.1.7 Info and relationships 11.2.1.8 Meaningful sequence 11.3.2 Accessibility services 11.3.2.3 Use of accessibility services 11.4.2 No disruption of accessibility features 11.6.3 Preservation of accessibility information in transformations	7.1.2 Adaptability 7.1.5 Consistency and Standardization
13	*"Understand how to use product"*	4.2.1 Usage without vision and associated requirements identified in Table B.2 4.2.2 Usage with limited vision and associated requirements identified in Table B.2 4.2.10 Usage with limited cognition and associated requirements identified in Table B.2 5.1.3 Non-visual access 7.3 User controls for captions and audio description 9.2.34 Labels or instructions 10.2.34 Labels or instructions 11.2.1.34 Labels or instructions 11.4.1 User control of accessibility features 12 Documentation and support services	7.8.2 Help

User Need ID	User needs (according to ISO/IEC TR 29138-1 [i.6], except user need 0)	EN 301 549 [i.4]	EG 202 116 [i.1] References
14	*"Understanding the output of displayed material"*	4.2.1 Usage without vision and associated requirements identified in Table B.2 4.2.2 Usage with limited vision and associated requirements identified in Table B.2 4.2.10 Usage with limited cognition 5.1.3 Non-visual access 5.1.3.4 Speech output user control 5.1.3.5 Speech output automatic interruption 6.5.2 Resolution 6.5.3 Frame rate 7.3 User controls for captions and audio description 9.2.1 Non-text content 9.2.11 Audio control 9.2.21 Page titled 9.2.25 Headings and labels 9.2.34 Labels or instructions 10.2.1 Non-text content 10.2.11 Audio control 10.2.21 Page titled 10.2.25 Headings and labels 10.2.34 Labels or instructions 10.2.39 Caption positioning 11.2.1.1 Non-text content 11.2.1.11 Audio control 11.2.1.25 Headings and labels 11.2.1.34 Labels or instructions	7.8.2 Help
15	*"Ability to use their assistive technology (AT) to control the ICT"*	8.1.2 Standard connections 11.3 Interoperability with assistive technology	---
16	*"Cross cutting issues"*	4.2.8 Usage with limited reach and associated requirements identified in Table B.2 5.2 Activation of accessibility features 11.4.1 User control of accessibility features 12 Documentation and support services 12.2 Support services 12.1.2 Accessible documentation 12.2.4 Accessible documentation	7.1.2 Adaptability

Annex E:
Design for All awareness raising presentation

A presentation that can serve to raise the awareness of TB members on Design for All issues can be downloaded from http://portal.etsi.org/TBSiteMap/HF/DesignforAll.aspx.

That presentation also provides details on the assessment procedure described in the present document.

History

Document history		
V1.0.0	July 2014	Membership Approval Procedure MV 20140831: 2014-07-02 to 2014-09-01
V1.1.1	September 2014	Publication