



Accessibility requirements for ICT products and services

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REN/HF-00301561

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Foreword

This final draft Harmonised European Standard (EN) has been produced by ETSI Technical Committee Human Factors (HF), and is now submitted for the Vote phase of the ETSI Standardisation Request deliverable Approval Procedure (SRdAP).

EN 301 549 was originally produced under Mandate M 376 [i.4] and specified accessibility requirements applicable to ICT products and services, together with a description of the test procedures and evaluation methodology for each accessibility requirement in a form that is suitable for use in procurement.

EN 301 549 (V3.2.1) was prepared under the Commission's standardisation request C(2017)2585 final [i.26] to provide, in additions to its other uses, one voluntary means of conforming to the essential requirements of Directive (EU) 2016/2102 on the accessibility of the websites and mobile applications of public sector bodies [i.27]. The minimum requirements of the European Web Accessibility Directive (Directive (EU) 2016/2102) are explicitly detailed in Annex ZA of the present document.

The present document has been prepared under the Commission's standardisation request C(2022) 6456 final [i.28] to provide one voluntary means of conforming to the essential requirements of Directive (EU) 2019/882 on the accessibility requirements for products and services [i.29]. The minimum requirements of Directive (EU) 2019/882 are explicitly detailed in Annex ZB.

Once the present document is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of the present document given in the tables in clause A.2 confers, within the limits of the scope of the present document, a presumption of conformity with the corresponding essential requirements of that Directive and associated EFTA regulations.

The present document has been developed from EN 301 549 (V3.2.1) (03-2021) [i.30].

The significant changes since EN 301 549 (V3.2.1) [i.30] are:

- the requirements related to Real-Time Text (RTT) in clause 6.2 have been significantly revised and extended to include total conversation;

- the requirements of clauses 9, 10 and 11 have all been updated to align with the WCAG 2.2 recommendation [4];
- a new Annex ZA showing the relationship between the present document and the essential requirements of Directive (EU) 2016/2102 has been added (this is an update of Annex A from the previous version of EN 301 549 [i.30]);
- a new Annex ZB showing the relationship between the present document and the essential requirements of Directive (EU) 2019/882 has been added;
- a new clause A.2 has been added that enables conformance of specific ICT products and services with the essential requirements of Directive (EU) 2019/882 to be evaluated.

Proposed national transposition dates	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	18 months after doa

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).

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Introduction

The present document is developed in response to standardisation request M 587 [i.28] from the European Commission to CEN, CENELEC and ETSI. It is a revision of the EN 301 549 [i.30] (V3.2.1) that was initially prepared in response to Mandate M 554 [i.26].

The present document covers a wide range of requirements for a variety of ICT products and services. Information and Communication Technology (ICT) covers but is not limited to web pages, non-web and hybrid documents, electronic content, hardware, communication products, computers and ancillary equipment, software including mobile applications, information kiosks and transaction machines, audiovisual technologies, videos, intelligent user agents.

The present document is relevant for all organizations who buy, sell, import, distribute, develop or manufacture ICT products or services. It consists of fourteen clauses and eight annexes:

- Clauses 0 to 3 include background information, the scope of the standard, and links to other standards, definitions and explanations of abbreviations.
- Clause 4 contains functional performance criteria that explain the functionality that is required to enable users with different abilities to locate, identify and operate functions in technology. The user needs underlying the functional performance criteria are the basis for the technical requirements in subsequent clauses.
- Clauses 5 to 13 provide specific testable criteria for accessible ICT, related to technical requirements for different kinds of ICT, starting with generic requirements in clause 5.
- Clause 14 is about conformance. All clauses containing requirements are self-scoping. This means they are introduced with the phrase 'Where ICT <precondition>'. Conformance is required when the preconditions for a requirement are true. A sufficient test for conformance for each requirement is provided in Annex C.

- Annex A is divided into two parts, A.1 and A.2 that are intended to be used to enable the conformance of specific ICT products and services with the essential requirements of the Directives to be evaluated:
 - Clause A.1 directs users to the tables in Annex ZA, which contains tables that are suitable for evaluating the conformance of specific websites and mobile applications with Directive (EU) 2016/2102 [i.27].
 - Clause A.2 contains five tables which allow a specific ICT product or service to be evaluated for conformance with Directive (EU) 2019/882 [i.29].
- Annex B contains a table showing which of the requirements set out in clauses 5 to 13 related to different types of ICT support the user needs as expressed in the functional performance criteria of clause 4.
- Annex C is a normative annex that sets out sufficient means to determine conformance with the individual requirements. It does not provide a testing methodology.
- Annex D points to additional resources related to improving accessibility for users with limited cognitive, language and learning abilities.
- Annex E provides an overview and simple explanation of the structure of the present document. It talks in general about how EN 301 549 can be used and identifies additional resources that are of benefit to those intending to apply EN 301 549 in specific technical sectors such as the Web and digital television.
- Annex F provides a change history table.
- Annex ZA has two tables with requirements related to Directive (EU) 2016/2102 on the accessibility of the websites and mobile applications of public sector bodies [i.27]. [Table ZA.1](#) applies to web pages and documents and [Table ZA.2](#) applies to mobile applications. The minimum requirements are collected from clauses 9, 10 and 11 and some requirements from clauses 5, 6, 7 and 12 that are relevant to fulfil the Directive.
- Annex ZB has five tables with requirements related to Directive (EU) 2019/882 on the accessibility requirements for products and services [i.29]. Tables [ZB.1](#) to [ZB.3](#) apply directly to the products within the scope of the Directive. Table [ZB.4](#) applies to all services within the scope of the Directive. Table [ZB.5](#) applies to the specific services within the scope of the Directive.
- Annex ZC has a table showing how requirements from other directives relate to the clauses of the present document according to Directive (EU) 2019/882 Section VI of Annex I [i.29].

When the present document is used for most purposes, including when used in ICT procurement, all of the technical requirements in clauses 5 to 13, as well as the functional performance criteria in clause 4 should be considered. The potential applicability of any requirement can be determined from the self-scoping phrase at the beginning of each requirement.

When the present document is used as the basis to determine conformity with the essential requirements of Directive (EU) 2016/2102 on the accessibility of the websites and mobile applications of public sector bodies [i.27], [Table ZA.1](#) and [Table ZA.2](#) in Annex ZA identify all the [applicable requirements](#).

When the present document is used as the basis to determine conformity with the essential requirements of Directive (EU) 2019/882 on the accessibility requirements for products and services [i.27], [Table A.1](#), [Table A.2](#), [Table A.3](#), [Table A.4](#), and [Table A.5](#) in clause A.2 identify all the [applicable requirements](#).

NOTE 1: The content of the present document has been updated to align with the WCAG 2.2 Recommendation [4].

NOTE 2: Annex E provides an overview and simple explanation of the structure of the present document, including an explanation of how it can be used. Readers who are unfamiliar with the present document are recommended to read Annex E first to give them a better understanding of the present document and how to use it.

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1 Scope

The present document specifies the accessibility requirements applicable to ICT products and services, together with a description of the test procedures and evaluation methodology for each accessibility requirement.

The present document is intended for use by designers, developers, evaluators, manufacturers, market surveillance entities, procurers, researchers, and anyone else interested in the accessibility of ICT products and services.

The present document is not intended to apply to assistive technologies that are designed specifically for use by people with disabilities, except for requirement 11.5.2.4 that requires assistive technologies to use the [documented platform accessibility services](#), although making assistive technologies usable and applicable for people with multiple disabilities is desirable. The requirements do apply to the launch of assistive technologies since that is a function of the platform, not the assistive technology.

The present document supports the implementation of Directive (EU) 2016/2102 on the accessibility of the websites and mobile applications of public sector bodies [i.27], and of Directive (EU) 2019/882 on the accessibility of ICT products and services [i.29]. The coverage of the essential requirements of these Directives is given in Annexes ZA and ZB.

The present document contains the necessary accessibility requirements and provides a reference document such that if procedures are followed by different actors, the results of testing are similar and the interpretation of those results is clear. The test descriptions and evaluation methodology included in the present document are elaborated to a level of detail compliant with ISO/IEC 17007:2009 [i.14], so that conformance testing can give conclusive results.

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 referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found in the [ETSI docbox](#).

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] Void.
- [2] [ETSI ES 200 381-1 \(V1.2.1\) \(October 2012\)](#): "Telephony for hearing impaired people; Inductive coupling of telephone earphones to hearing aids; Part 1: Fixed-line speech terminals".
- [3] [ETSI ES 200 381-2 \(V1.1.1\) \(October 2012\)](#): "Telephony for hearing impaired people; Inductive coupling of telephone earphones to hearing aids; Part 2: Cellular speech terminals".
- [4] W3C® Recommendation (12 December 2024)/ISO/IEC 40500:2025: "[Web Content Accessibility Guidelines \(WCAG\) 2.2](#)".

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 referenced 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 may be useful in implementing an ETSI deliverable or add to the reader's understanding, but are not required for conformance to the present document.

- [i.1] ANSI/IEEE C63.19 (2019): "American National Standard Methods of Measurement of Compatibility between Wireless Communication Devices and Hearing Aids".
- [i.2] ANSI/TIA-4965: "Telecommunications telephone terminal equipment receive volume control requirements for digital and analogue wireline handset terminals".
- [i.3] ANSI/TIA-5050: "Telecommunications Communications Products Receive Volume Control Requirements for Wireless (Mobile) Devices".
- [i.4] [European Commission M 376 - EN](#): "Standardisation Mandate to CEN, CENELEC and ETSI in support of European accessibility requirements for public procurement of products and services in the ICT domain".
- [i.5] ETSI EG 201 013: "Human Factors (HF); Definitions, abbreviations and symbols".
- [i.6] ETSI ES 202 975: "Human Factors (HF); Requirements for relay services".
- [i.7] ETSI ETS 300 767: "Human Factors (HF); Telephone Prepayment Cards; Tactile Identifier".
- [i.8] Void.
- [i.9] Void.
- [i.10] Void.
- [i.11] ETSI TS 126 114: "Universal Mobile Telecommunications System (UMTS); LTE; 5G; IP Multimedia Subsystem (IMS); Multimedia Telephony; Media handling and interaction (3GPP TS 26.114)".
- [i.12] ETSI TS 122 173: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia Core Network Subsystem (IMS) Multimedia Telephony Service and supplementary services; Stage 1 (3GPP TS 22.173)".
- [i.13] IETF RFC 4103 (2005): "RTP Payload for Text Conversation".
- [i.14] ISO/IEC 17007:2009: "Conformity assessment — Guidance for drafting normative documents suitable for use for conformity assessment".
- [i.15] ISO 9241-11:2018: "Ergonomics of human-system interaction — Part 11: Usability: Definitions and concepts".
- [i.16] ISO 9241-110:2020: "Ergonomics of human-system interaction — Part 110: Interaction principles".
- [i.17] ISO 9241-171:2008: "Ergonomics of human-system interaction — Part 171: Guidance on software accessibility".
- [i.18] ISO/IEC 13066-1:2011: "Information technology — Interoperability with assistive technology (AT) — Part 1: Requirements and recommendations for interoperability".
- [i.19] Recommendation ITU-T E.161 (2001): "Arrangement of digits, letters and symbols on telephones and other devices that can be used for gaining access to a telephone network".
- [i.20] Recommendation ITU-T G.722 (1988): "7 kHz audio-coding within 64 kbit/s".
- [i.21] Recommendation ITU-T G.722.2 (2003): "Wideband coding of speech at around 16 kbit/s using Adaptive Multi-Rate Wideband (AMR-WB)".
- [i.22] Recommendation ITU-T V.18 (2000): "Operational and interworking requirements for DCEs operating in the text telephone mode".
- [i.23] TIA-1083-B (2015): "Telecommunications Communications Product; Handset Magnetic Measurement Procedures and Performance Requirements".

- [i.24] Void.
- [i.25] W3C® Group Note (11 December 2025): "[Guidance on Applying WCAG 2 to Non-Web Information and Communications Technologies \(WCAG2ICT\)](#)".
- [i.26] [C\(2017\)2585 - Standardisation request M/554](#): "Commission Implementing Decision of 27.4.2017 on a standardisation request to the European standardisation organisations in support of Directive (EU) 2016/2102 of the European Parliament and of the Council on the accessibility of the websites and mobile applications of public sector bodies".
- [i.27] [Directive \(EU\) 2016/2102](#) of the European Parliament and of the Council of 26 October 2016 on the accessibility of the websites and mobile applications of public sector bodies.
- [i.28] [C\(2022\)6456 - Standardisation request M/587](#): " Commission Implementing Decision of 14.9.2022 on a standardisation request to the European standardisation organisations as regards the accessibility requirements of products and services in support of Directive (EU) 2019/882 of the European Parliament and of the Council".
- [i.29] [Directive \(EU\) 2019/882](#) of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services.
- [i.30] EN 301 549 (V3.2.1) (March 2021): "Accessibility requirements for ICT products and services" (jointly produced by ETSI/CEN/CENELEC).
- [i.31] Void.
- [i.32] ISO/IEC TS 20071-25:2017: "Information technology — User interface component accessibility — Part 25: Guidance on the audio presentation of text in videos, including captions, subtitles and other on-screen text".
- [i.33] W3C Recommendation (24 September 2015): "[Authoring Tool Accessibility Guidelines \(ATAG\) 2.0](#)".
- [i.34] W3C Working Group Note (15 December 2015): "[User Agent Accessibility Guidelines \(UAAG\) 2.0](#)".
- [i.35] ISO 21542:2021: "Building construction — Accessibility and usability of the built environment".
- [i.36] Void.
- [i.37] Recommendation ITU-T T.140 (1998): "Protocol for multimedia application text conversation".
- [i.38] Recommendation ITU-T F.703 (2000): "Multimedia conversational services".
- [i.39] W3C Final Community Group Report (26 March 2026): "[Schema.org Accessibility Properties for Discoverability Vocabulary](#)".
- [i.40] [Directive 2014/24/EU](#) of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC.
- [i.41] W3C Recommendation (11 December 2008)/ISO/IEC 40500:2012: "[Web Content Accessibility Guidelines \(WCAG\) 2.0](#)".
- [i.42] W3C Recommendation (5 June 2018): "[Web Content Accessibility Guidelines \(WCAG\) 2.1](#)".
- [i.43] ETSI TR 126 982: "5G; Implementation guidelines for Multiparty RTT (3GPP TR 26.982)".
- [i.44] GSMA PRD IR.92: "IMS Profile for Voice and SMS".
- [i.45] GSMA PRD IR.94 "IMS Profile for Conversational Video Service".
- [i.46] GSMA NG.114: "IMS Profile for Voice, Video and Messaging over 5GS".
- [i.47] ETSI TS 103 478: "Emergency Communications (EMTEL); Pan-European Mobile Emergency Application".

- [i.48] ETSI TS 103 479: "Emergency Communications (EMTEL); Core elements for network independent access to emergency services".
- [i.49] ETSI TS 103 871: "Emergency Communications (EMTEL); PEMEA Real-Time Text Extension".
- [i.50] IETF RFC 3261: "SIP: Session Initiation Protocol", J. Rosenberg et al., 2005.
- [i.51] IETF RFC 3550: "RTP: A Transport Protocol for Real-Time Applications", H. Schulzrinne et al., 2003.
- [i.52] IETF RFC 9071 (2021): "RTP-Mixer Formatting of Multiparty Real-Time Text".
- [i.53] ISO/IEC 10646:2020: "Information technology — Universal coded character set (UCS)".
- [i.54] ISO/IEC 17549-1:2022: "Information technology — User interface requirements and recommendations on menu navigation: Part 1: Framework".
- [i.55] ETSI TS 126 226: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Cellular text telephone modem; General description (3GPP TS 26.226)".
- [i.56] ETSI EN 303 919: "Emergency Communications (EMTEL); Accessibility and Interoperability of Emergency Communications
- [i.57] IETF RFC 8831: "WebRTC Data Channels".
- [i.58] W3C® Recommendation (8 October 2024): "WebRTC: Real-Time Communication in Browsers".
- [i.59] ETSI TR 103 708: "Human Factors (HF); Real-Time Text (RTT) in Multiparty Conference Calling".
- [i.60] ISO/IEC 23859:2023: "Information technology — User interfaces — Requirements and recommendations on making written text easy to read and understand".
- [i.61] Recommendation ITU-T P.1305 (2016): "Effect of delays on telemeeting quality".
- [i.62] IETF RFC 5194 (2008): "Framework for Real-Time Text over IP Using the Session Initiation Protocol (SIP)".
- [i.63] Center for Inclusive Design and Environmental Access (2010): "[Anthropometry of Wheeled Mobility Project - Final Report](#)".
- [i.64] CEN/CENELEC EN 17210: "Accessibility and usability of the built environment - Functional requirements".
- [i.65] [Recommendation ITU-T H.Sup1 \(1999\)](#): "Application profile - Sign language and lip-reading real-time conversation using low bit rate video communication".
- [i.66] ETSI TR 104 060: "Human Factors (HF); Guidance on how to apply the EN 301 549 to digital television products".
- [i.67] Void.
- [i.68] Void.
- [i.69] ISO/TR 22411:2021: "Ergonomics data for use in the application of ISO/IEC Guide 71:2014".
- [i.70] W3C® Recommendation (7 June 2011): "[Cascading Style Sheets Level 2 Revision 1 \(CSS 2.1\) Specification](#)", 2011 / 2016 / 2021.
- [i.71] ISO 14289-1:2014: Document management applications — Electronic document file format enhancement for accessibility: Part 1: Use of ISO 32000-1 (PDF/UA-1).
- [i.72] ISO 14289-2:2024: Document management applications — Electronic document file format enhancement for accessibility: Part 2: Use of ISO 32000-2 (PDF/UA-2).