

STN	Digitálne televízne vysielanie (DVB) Systémy titulkovania TTML	STN EN 303 560 V1.1.1 87 3560
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Digital Video Broadcasting (DVB); TTML subtitling systems

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This standard includes the English version of the European Standard.

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Foreword

This European Standard (EN) has been produced by Joint Technical Committee (JTC) Broadcast of the European Broadcasting Union (EBU), Comité Européen de Normalisation ELECtrotechnique (CENELEC) and the European Telecommunications Standards Institute (ETSI).

NOTE: The EBU/ETSI JTC Broadcast was established in 1990 to co-ordinate the drafting of standards in the specific field of broadcasting and related fields. Since 1995 the JTC Broadcast became a tripartite body by including in the Memorandum of Understanding also CENELEC, which is responsible for the standardization of radio and television receivers. The EBU is a professional association of broadcasting organizations whose work includes the co-ordination of its members' activities in the technical, legal, programme-making and programme-exchange domains. The EBU has active members in about 60 countries in the European broadcasting area; its headquarters is in Geneva.

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The Digital Video Broadcasting Project (DVB) is an industry-led consortium of broadcasters, manufacturers, network operators, software developers, regulatory bodies, content owners and others committed to designing global standards for the delivery of digital television and data services. DVB fosters market driven solutions that meet the needs and economic circumstances of broadcast industry stakeholders and consumers. DVB standards cover all aspects of digital television from transmission through interfacing, conditional access and interactivity for digital video, audio and data. The consortium came together in 1993 to provide global standardization, interoperability and future proof specifications.

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Modal verbs terminology

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Introduction

Today's broadcast content can be distributed in many forms and via many different paths. Whilst broadcast services traditionally relied on bitmap-based subtitles because of processing simplicity, advanced processing and text rendering have made text-based approaches feasible. These offer more flexibility and better options to improve the user experience. TTML (Timed Text Markup Language) is established as a common solution for IP-based platforms, but multiple profiles exist.

In Europe, the EBU Group 'Subtitles in XML' published the EBU-TT-D TTML profile [20] which was adopted by the DVB DASH specification as defined in ETSI TS 103 285 [6] and by HbbTV[®] as defined in ETSI TS 102 79 [5]. The W3C later published the IMSC1 TTML profiles [4], which were adopted by ATSC.

There are only minor differences between EBU-TT-D [3], [20] and IMSC1 Text Profile.

The present specification builds on the existing widespread device support for EBU-TT-D [20], in particular through support for HbbTV[®], to enable the distribution of TTML subtitles together with audio/video content via broadcast.

Clause 4 specifies TTML subtitle constraints for a default conformance point, to be supported by both EBU-TT-D [3], [20] and IMSC1 Text Profile compatible processors.

Clause 5 specifies subtitle delivery, including PSI/SI signalling, TS packetisation, TTML segmentation and synchronization requirements.

Finally clause 6 specifies IRD requirements.

1 Scope

The present document specifies the transport of TTML [2] **subtitle streams** in DVB MPEG-2 **transport streams**, based on the MPEG-2 system described in ISO/IEC 13818-1 [1]. TTML is an XML-based representation. The present document provides syntax for delivery of TTML **subtitle streams** over MPEG-2 **transport stream**, and is based on EBU-TT-D [3] compatible with the IMSC1 [4] Text Profile of W3C TTML [2].

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 at <https://docbox.etsi.org/Reference/>.

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

[1] ISO/IEC 13818-1: "Information technology -- Generic coding of moving pictures and associated audio information -- Part 1: Systems".

[2] W3C Recommendation (TTML): "Timed Text Markup Language 1 (TTML1) (Second Edition)".

NOTE: Available at <http://www.w3.org/TR/2013/REC-ttml1-20130924/>.

[3] EBU Tech 3380 "EBU-TT-D Subtitling Distribution Format", version 1.0.1.

NOTE: Available at <https://tech.ebu.ch/publications/tech3380>.

[4] W3C Recommendation (IMSC1): "TTML Profiles for Internet Media Subtitles and Captions 1.0.1 (IMSC1)".

NOTE: Available at <http://www.w3.org/TR/ttml-imsc1.0.1/>.

[5] ETSI TS 102 796: "Hybrid Broadcast Broadband TV".

[6] ETSI TS 103 285: "Digital Video Broadcasting (DVB); MPEG-DASH Profile for Transport of ISO BMFF Based DVB Services over IP Based Networks".

[7] DVB BlueBook A038: "Digital Video Broadcasting (DVB); Specification for Service Information (SI) in DVB systems".

NOTE: Available at http://www.dvb.org/resources/public/standards/a038_dvb_spec_december_2017.pdf.

[8] ISO 639-2: "Codes for the representation of names of languages -- Part 2: Alpha-3 code".

[9] ISO/IEC 8859-1: "Information technology -- 8-bit single-byte coded graphic character sets -- Part 1: Latin alphabet No. 1".

[10] W3C Working Group Note: "TTML Media Type Definition and Profile Registry".

NOTE: Available at <http://www.w3.org/TR/ttml-profile-registry/>.

[11] ETSI EN 301 192: "Digital Video Broadcasting (DVB); DVB specification for data broadcasting".

[12] ETSI TS 102 809: "Digital Video Broadcasting (DVB); Signalling and carriage of interactive applications and services in hybrid broadcast/broadband environments".

- [13] ETSI TS 102 851: "Digital Video Broadcasting (DVB); Uniform Resource Identifiers (URI) for DVB Systems".
- [14] IETF RFC 1952: "GZIP file format specification version 4.3".
- [15] DVB BlueBook A126: "Digital Video Broadcasting (DVB); Allocation of identifiers and codes for Digital Video Broadcasting (DVB) systems".
- NOTE: Available at https://www.dvb.org/resources/public/standards/a126_allocation_identifiers.pdf.
- [16] W3C Recommendation (XML): "Extensible Markup Language (XML) 1.0 (Fifth Edition)".
- NOTE: Available at <https://www.w3.org/TR/2008/REC-xml-20081126/>.
- [17] EBU Tech 3381: "Carriage of EBU-TT-D in ISOBMFF", version 1.0.
- NOTE: Available at <https://tech.ebu.ch/publications/tech3381>.
- [18] W3C Recommendation 13 December 2012 (WOFF): "Web Open Font Format (WOFF) 1.0".
- NOTE: Available at <http://www.w3.org/TR/2012/REC-WOFF-20121213/>.
- [19] ISO/IEC 14496-22:2015: "Information technology -- Coding of audio-visual objects -- Part 22: Open Font Format".
- [20] EBU Tech 3380: "EBU-TT-D Subtitling Distribution Format", version 1.0.
- NOTE: Available at <https://tech.ebu.ch/publications/tech3380>.
- [21] IETF RFC 3986: "Uniform Resource Identifier (URI): Generic Syntax".

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.

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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] W3C Recommendation (WCAG): "Web Content Accessibility Guidelines (WCAG) 2.0".
- NOTE: Available at <https://www.w3.org/TR/2008/REC-WCAG20-20081211/>.
- [i.2] W3C Candidate Recommendation (CSS): "CSS Fonts Module Level 3: Font matching algorithm".
- NOTE: Available at <https://www.w3.org/TR/css-fonts-3/#font-matching-algorithm>.
- [i.3] IEC 61966-2-1:1999: "Multimedia systems and equipment - Colour measurement and management - Part 2-1: Colour management - Default RGB colour space - sRGB".

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