

EBU

OPERATING EUROVISION AND EURORADIO

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SUBTITLING ON DIGITAL TV AND ONLINE SERVICES

RECOMMENDATION

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Subtitling on Digital TV and Online Services

Background

Subtitling of television programmes is an important service for the deaf and hard-of-hearing. It is also used to provide foreign language translation. Television systems are also used to deliver audio only programmes, which can also be made more accessible by including subtitles.

Subtitling services on digital television use DVB Subtitling or DVB Teletext¹, which are available on almost all modern TV sets. The introduction of digital television and online services, web pages or apps, offers the opportunity for enhanced subtitling services.

The DVB Project has specified three methods of transmitting subtitles for digital TV:

- **DVB Teletext** (EN 300 472) specifies how to encapsulate and deliver Teletext subtitles via DVB transport streams in a form that can be easily transcoded at the receiver and inserted into the Vertical Blanking Interval for display on TV sets capable of displaying Teletext or rendered in a native font by the receiver.
- **DVB Subtitling** (EN 300 743) delivers subtitles via compressed bitmap images, a mechanism that offers a more sophisticated and flexible set of features than Teletext subtitling, whilst also being efficient in terms of required bit rate.
- **DVB TTML subtitling systems** (EN 303 560) specifies how to deliver Timed Text Markup Language (TTML) based subtitling over DVB transport streams, that takes advantage of the text rendering capabilities of modern devices and offers a path to convergence with HbbTV, ATSC and online platforms. The profile of TTML specified is conformant with both EBU-TT-D v1.0.1 (EBU Tech 3380) and the IMSC 1.0.1 Text Profile (W3C Recommendation).

The DVB Project has specified a method for streaming media including subtitles to connected players:

- **DVB DASH** (TS 103 285) describes the available media, including audio, video and subtitles, for use by connected streaming players. It requires that subtitles be delivered as EBU-TT-D (EBU Tech 3380) encapsulated in ISOBMFF as specified by EBU Tech 3381.

Broadcasters and content providers are therefore faced with a decision of which of these to use, particularly when refreshing the technical infrastructure used to deliver services and considering that DVB broadcast streams are but one of the potential delivery mechanisms in use today, alongside internet delivery to web pages and native applications.

Many EBU Members have services using one or both of DVB Subtitling and DVB Teletext, and some are introducing new services using DVB TTML. However, not all receiving equipment available in the market can interpret all three methods. This constrains the choices for what can be delivered.

¹ EN 300 706 Enhanced Teletext specification.

Recommendation

Given the benefits of the available systems, and their portability across platforms:

The EBU recommends that:

1. New national or multi-national profiles of DVB for the provision of digital television services should require support for DVB TTML (EN 303 560).
2. New digital television subtitle services operated by EBU Members and by other broadcasters should use DVB TTML (EN 303 560) where supported in the applicable national or multi-national DVB profile.
3. EBU Members providing online services for television content by streaming or download, of simultaneous distribution of television services or of video on demand services, to web pages or native applications, should supply subtitles using the IMSC Text Profile of TTML, and can make those subtitles additionally conformant to EBU-TT-D (EBU Tech 3380) to ensure compliance with the payload format requirements of DVB TTML (EN 303 560), HbbTV (TS 102 796) and DVB DASH (TS 103 285).
4. Consumer electronics manufacturers are requested to ensure the compliance of DVB set-top boxes and IRDs with the DVB TTML system.
5. Online media player implementers for web pages and native applications are requested to ensure the compliance of their players with the IMSC Text profile of TTML, whether delivered using DVB DASH (TS 103 285) or a different mechanism.