

STN	Digitálne televízne vysielanie (DVB) Štruktúra rámcovania, kanálové kódovanie a modulácia pre systémy druhej generácie určené na vysielanie, interaktívne služby, zber správ a iné širokopásmové družicové aplikácie Časť 2: DVB-S2 rozšírenie (DVB-S2X)	STN EN 302 307-2 V1.4.1 87 2307
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Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications; Part 2: DVB-S2 Extensions (DVB-S2X)

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**Digital Video Broadcasting (DVB);
Second generation framing structure, channel coding and
modulation systems for Broadcasting,
Interactive Services, News Gathering and
other broadband satellite applications;
Part 2: DVB-S2 Extensions (DVB-S2X)**

EBU DVB®

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Foreword

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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 standardisation, interoperability and future proof specifications.

The present document is part 2 of a multi-part deliverable covering the optional extensions of the DVB-S2 system, denoted "DVB-S2X", as identified below:

Part 1: "DVB-S2";

Part 2: "DVB-S2 Extensions (DVB-S2X)".

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Modal verbs terminology

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Introduction

The optional extensions of the S2 system have been approved in 2014 and are identified by the S2X denomination. Such extensions are non-backwards-compatible with ETSI EN 302 307 [4], are optional for the implementation of new receivers under ETSI EN 302 307-1 [3], but are normative for the implementation of receivers under the present document: mapping of specific S2X building blocks to application areas is specified in Table 1. For every S2X application area, as defined in Table 1, the configurations for the corresponding S2 application area, as defined in ETSI EN 302 307-1 [3], Table 1, will be implemented. In case of conflicts the definition of the S2X application area applies.

The present document targets the core application areas of S2 (Digital Video Broadcasting, forward link for interactive services using ACM, Digital Satellite News Gathering and professional digital links such as video point-to-point or Internet trunking links), and new application areas requiring very-low carrier-to-noise and carrier-to-interference operation (VL-SNR).

In particular for DTH, a possible use case is the launch of UHDTV-1 (e.g. 4k) television services in Ku-/Ka-band that will adopt HEVC encoding. In this context it may be desirable to eventually use fragments of smaller blocks of capacity on two or three DTH transponders and bond them into one logical stream. This permits to maximize capacity exploitation by avoiding the presence of spare capacity in individual transponders and/or to take maximum advantage of statistical multiplexing.

The S2X system offers the ability to operate with very-low carrier-to-noise and carrier-to-interference ratios (SNR down to -10 dB), to serve markets such as airborne (business jets), maritime, civil aviation internet access, VSAT terminals at higher frequency ranges or in tropical zones, small portable terminals for journalists and other professionals. Furthermore, the S2X system provides transmission modes offering significantly higher capacity and efficiency to serve professional links characterized by very-high carrier-to-noise and carrier-to-interference ratios conditions.

The present document reuses the S2 system architecture, while adding finer MODCOD steps, sharper roll-off filtering, technical means for bonding of multiple transponders and additional signalling capacity by means of an optional periodic super-frame structure, extended PLHEADER signalling schemes and the support of GSE-Lite signals.

The present document maintains the same clause numbering as ETSI EN 302 307-1 [3], in order to facilitate cross-reference.

1 Scope

The present document specifies the optional extensions of the S2 system, identified by the S2X denomination. The present document also includes amendments to the standard to enable beam hopping operation.

2 References

2.1 Normative references

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

- [1] [ETSI TS 101 545-1 \(V1.1.1\)](#): "Digital Video Broadcasting (DVB); Second Generation DVB Interactive Satellite System (DVB-RCS2); Part 1: Overview and System Level specification".
- [2] [ETSI TS 102 606-1 \(V1.2.1\)](#): "Digital Video Broadcasting (DVB); Generic Stream Encapsulation (GSE); Part 1: Protocol".
- [3] [ETSI EN 302 307-1](#): "Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications; Part 1: DVB-S2".
- [4] [ETSI EN 302 307 \(V1.1.1\)](#): "Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications".
- [5] [ETSI EN 300 468](#): "Digital Video Broadcasting (DVB); Specification for Service Information (SI) in DVB systems".
- [6] [ETSI TS 102 606-2](#): "Digital Video Broadcasting (DVB); Generic Stream Encapsulation (GSE); Part 2: Logical Link Control (LLC)".
- [7] [ETSI ETS 300 801](#): "Digital Video Broadcasting (DVB); Interaction channel through Public Switched Telecommunications Network (PSTN)/Integrated Services Digital Networks (ISDN)".
- [8] [ETSI EN 301 195](#): "Digital Video Broadcasting (DVB); Interaction channel through the Global System for Mobile communications (GSM)".
- [9] [ETSI ES 200 800](#): "Digital Video Broadcasting (DVB); DVB interaction channel for Cable TV distribution systems (CATV)".
- [10] [ETSI ETS 300 802](#): "Digital Video Broadcasting (DVB); Network-independent protocols for DVB interactive services".
- [11] [ETSI EN 301 790](#): "Digital Video Broadcasting (DVB); Interaction channel for satellite distribution systems".

2.2 Informative references

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Not applicable.

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