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Digital terrestrial television receivers for the DVB-T system

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NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 62216:2011 sisaldab Euroopa standardi EN 62216:2011 ingliskeelset teksti.	This Estonian standard EVS-EN 62216:2011 consists of the English text of the European standard EN 62216:2011.
Standard on kinnitatud Eesti Standardikeskuse 29.07.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 29.07.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 22.07.2011.	Date of Availability of the European standard text 22.07.2011.
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ICS 33.160.25

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62216

July 2011

ICS 33.160.25

Supersedes EN 62216-1:2002

English version

Digital terrestrial television receivers for the DVB-T system
(IEC 62216:2009)

Récepteur de télévision numérique terrestre pour le système DVB-T
(CEI 62216:2009)

Fernsehempfänger für das digitale terrestrische DVB-T-System
(IEC 62216:2009)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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Ref. No. EN 62216:2011 E

Foreword

The text of document 100/1449/CDV, future edition 1 of IEC 62216, prepared by technical area 1, Terminals for audio, video and data services and contents of IEC TC 100, Audio, video and multimedia systems and equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62216 on 2011-01-02.

This European Standard supersedes EN 62216-1:2002.

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The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2011-10-02
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2014-01-02

Annex ZA has been added by CENELEC.

_____

Endorsement notice

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
-	-	Domestic and similar electronic equipment interconnection requirements: Peritelevision connector	EN 50049-1	-
-	-	Common interface specification for conditional access and other digital video broadcasting decoder applications	EN 50221	-
IEC 60958-1	-	Digital audio interface - Part 1: General	EN 60958-1	-
IEC 61169-2	-	Radio-frequency connectors - Part 2: Sectional specification - Radio frequency coaxial connectors of type 9,52	EN 61169-2	-
IEC 61937	Series	Digital audio - Interface for non-linear PCM encoded audio bitstreams applying IEC 60958	EN 61937	Series
ISO/IEC 6937	-	Information technology - Coded graphic character set for text communication - Latin alphabet	-	-
ISO/IEC 8859-9	-	Information technology - 8-bit single-byte coded graphic character sets - Part 9: Latin alphabet No. 5	-	-
ISO/IEC 11172-2	-	Information technology - Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s - Part 2: Video	-	-
ISO/IEC 13818-1	-	Information technology - Generic coding of moving pictures and associated audio information: Systems	-	-
ISO/IEC 13818-2	-	Information technology - Generic coding of moving pictures and associated audio information - Part 2: Video	-	-
ISO/IEC 13818-3	-	Information technology - Generic coding of moving pictures and associated audio information - Part 3: Audio	-	-
ISO/IEC 14496-3	-	Information technology - Coding of audio-visual objects - Part 3: Audio	-	-
ISO/IEC 14496-10	-	Information technology - Coding of audio-visual objects - Part 10: Advanced Video Coding	-	-

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Publication	Year	Title	EN/HD	Year
ISO 639-2	-	Codes for the representation of names of languages - Part 2: Alpha-3 code	-	-
ETSI EN 300 744	-	Digital Video Broadcasting (DVB): Framing structure, channel coding and modulation for digital terrestrial television	-	-
ETSI EN 300 468	-	Digital Video Broadcasting (DVB): Specification for Service Information (SI) in DVB systems	-	-
ETS EN 300 743	-	Digital Video Broadcasting (DVB) - Subtitling systems	-	-
ETSI EN 300 706	-	Enhanced teletext specification	-	-
ETSI EN 300 472	-	Digital Video Broadcasting (DVB) - Specification for conveying ITU-R system B teletext in DVB bitstreams	-	-
ETSI EN 300 294	-	Television systems - 625 line television Wide Screen Signalling (WSS)	-	-
ETSI EN 301 775	-	Digital Video Broadcasting (DVB) - Specification for the carriage of Vertical Blanking Information (VBI) data in DVB bitstreams	-	-
ETSI EN 300 231	-	Television systems - Specification of the domestic video Programme Delivery Control system (PDC)	-	-
ETSI TS 101 154	-	Digital Video Broadcasting (DVB);Specification for the use of Video and Audio Coding in Broadcasting Applications based on the MPEG-2 Transport Stream	-	-
ETSI TS 102 366	-	Digital Audio Compression (AC-3, Enhanced AC-3)	-	-
ETSI TS 101 699	-	Digital Video Broadcasting (DVB) - Extensions to the common interface specification	-	-
ETSI TR 101 211	-	Digital Video Broadcasting (DVB); Guidelines on implementation and usage of Service Information (SI)	-	-
ETSI TS 102 006	-	Digital Video Broadcasting (DVB);Specification for System Software Update in DVB Systems	-	-
ETR 289	-	Digital Video Broadcasting (DVB) - Support for use of scrambling and Conditional Access (CA) within digital broadcasting systems	-	-
ETR 162	-	Digital broadcasting systems for television sound and data services - Allocation of Service Information (SI) codes for Digital Video Broadcasting (DVB) systems	-	-
ITU-R BS.775-2	-	Multichannel stereophonic sound system with and without accompanying picture	-	-
ITU-R BT.470-7	-	Conventional analogue television systems	-	-

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Publication	Year	Title	EN/HD	Year
ITU-R BT.1119-2	-	Wide-screen signalling for broadcasting (Signalling for wide-screen and other enhanced television parameters)	-	-
ITU-R BT.1359-1	-	Relative timing of sound and vision for broadcasting	-	-
R 206-001	-	Guidelines for implementation and use of the common interface for DVB decoder applications	-	-
CEA 770.3	-	High definition TV analog component video interface	-	-
CEA 861	-	A DTV Profile for Uncompressed High Speed Digital Interfaces	-	-

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CONTENTS

FOREWORD 8
INTRODUCTION 10
1 Scope and object 11
2 Normative references 11
3 Abbreviations and symbols 13
4 Receiver capabilities 15
4.1 Frequency spectrum 15
4.2 Conditional access 15
4.3 Return path 15
4.4 EPG (SI) 15
4.5 Auto installation 16
4.6 Teletext carried in digital streams 16
4.7 Content protection/copy management 16
4.8 Services 16
4.9 API 16
4.10 Over-air software update 16
4.11 Audio and video codecs 16
4.12 Future versions of this standard 17
5 Video system characteristics 17
5.1 General 17
5.2 Essential requirements 17
5.2.1 Standard services 17
5.2.2 Advanced services 17
5.3 Constraints and extensions 17
5.3.1 Support for rapid channel acquisition 17
5.3.2 Picture types 18
5.3.3 Compatibility 18
5.3.4 User data 19
5.3.5 Video alignment 19
5.3.6 Chroma sampling location 20
6 Video display formatting 21
6.1 General 21
6.2 Video format 21
6.2.1 General 21
6.2.2 Requirements for DVB compliance 21
6.3 Recommendations for signalling in the video stream 22
6.3.1 Sequence header 22
6.3.2 Sequence display extension 22
6.3.3 Constraints on the use of the picture display extension 23
6.3.4 Format switching 23
6.4 Video format signalling extensions 24
6.4.1 General 24
6.4.2 MPEG signalling 24
6.4.3 DVB signalling 24
6.4.4 Active format description 24
6.5 Recommendations for ISO/IEC 13818-1 signalling 32

This document is a preview generated by EVS

6.6 Alignment of SD video and graphics 32
6.6.1 Video with graphics 32
6.6.2 Uncertainty of position of graphics over video 32
6.7 Alignment of HD video and graphics 33
7 Audio system characteristics 33
7.1 General 33
7.2 Essential requirements 33
7.2.1 Requirements 34
7.2.2 Synchronisation 34
7.2.3 Audio metadata 34
7.2.4 Decoding requirements 34
7.3 Constraints and extensions 35
7.3.1 Digitally coded 35
7.3.2 Surround sound 35
7.3.3 AC-3 and Enhanced AC-3 audio 35
7.3.4 ISO/IEC 14496-3 audio 36
7.3.5 Receiver downmix 36
7.3.6 Digital audio output 36
7.4 Audio description 36
7.4.1 Background 36
7.4.2 Receiver implementation minima 37
7.4.3 Receiver mix AD signalling 37
7.4.4 Constraints on audio description stream coding 41
7.4.5 Receiver mix AD implementation notes 41
7.4.6 SI/PSI signalling 43
7.5 Audio only services 45
8 Multiplex and transport stream characteristics 45
8.1 Scope 45
8.2 Essential requirements 45
8.2.1 Multiplexing 45
8.2.2 Demultiplexing 46
8.3 Constraints and extensions 46
8.3.1 Multicomponent programs 46
9 Service and program specific information 47
9.1 General 47
9.1.1 General requirements 47
9.1.2 General receiver requirements 47
9.1.3 General broadcaster requirements 48
9.1.4 Notation 49
9.2 SI and PSI specification 49
9.2.1 Summary 49
9.2.2 Program association table 51
9.2.3 Program map table 51
9.2.4 Conditional access table 53
9.2.5 Network information table 54
9.2.6 Bouquet association table 56
9.2.7 Service description table 56
9.2.8 Event information table 59
9.2.9 Time and date table and time offset table 62

This document is a preview generated by EVS

9.2.10 Running status table 62
9.2.11 Private data 62
9.2.12 Overview of service-variation options 68
9.3 Receiver functions 69
9.3.1 Information typically available to the user 69
9.3.2 Service change 69
9.3.3 Parental control 72
9.3.4 Receiver behaviour when a service stops 72
9.4 Establishing and maintaining the network connection 73
9.4.1 Use of SI identifiers 73
9.4.2 Auto installation 74
9.4.3 Network evolution 76
9.4.4 Logical channel numbers (LCN) 78
9.4.5 Recommendation for robust SI acquisition 82
9.5 User interface 84
9.5.1 Presentation of text 84
9.5.2 Information presentation 85
9.5.3 Service navigation 87
9.5.4 Display of time 88
9.6 Recording devices 88
9.6.1 General 88
9.6.2 Programming 88
9.6.3 Execution of recording 88
9.6.4 Control of analogue recorders 89
10 Subtitles 89
10.1 General 89
10.2 Broadcast specifications 89
10.2.1 DVB subtitles 89
10.2.2 Signalling 90
10.2.3 DDS 90
10.2.4 Recommendation 90
10.3 Receiver functions 90
10.3.1 Background 90
10.3.2 User control of receiver behaviour 91
10.3.3 Support for DDS 91
11 VBI based services 91
11.1 General 91
11.2 Broadcast specifications 91
11.3 Receiver functions 92
11.3.1 Processing capabilities 92
11.3.2 Control 92
11.4 Extended VBI format support 92
11.4.1 VPS 93
11.4.2 WSS 93
11.4.3 Teletext and teletext subtitles 93
12 RF-part and channel decoder 93
12.1 General 93
12.2 Frequencies and channel bandwidth 93
12.3 DVB-T modes 93

This document is a preview generated by EVS

12.4 Tuning procedure 94
12.5 Change of modulation parameters 94
12.6 Connector 94
12.7 Performance 94
12.7.1 Failure point criteria 94
12.7.2 C/N performance 94
12.7.3 Minimum receiver signal input levels 95
12.7.4 Maximum input level 95
12.7.5 Immunity to analogue and/or digital signals in other channels 95
12.7.6 Immunity to co-channel interference from analogue TV signals 96
12.7.7 Guard interval utilisation in single frequency networks 97
12.7.8 MFN multipath performance 97
13 Conditional access and the common interface 98
13.1 General 98
13.2 Minimum requirements 98
13.2.1 Analogue Copy Protection Resource 98
14 System software update 99
14.1 General 99
14.2 Minimum requirements 99
14.3 Recommendations for SSU operators 99
15 Application Programming Interface (API) 99
16 Connectors 100
16.1 Standard receivers 100
16.2 Advanced receivers 100
16.2.1 Without display 100
16.2.2 With display 101
Annex A (normative) SI character set 102
Annex B (normative) DVB-SI PDC descriptor 111
Annex C (normative) Subtitling 113
Annex D (informative) An example of frequencies and offsets 130
Annex E (informative) Noise model 131
Annex F (informative) An example of C/N-performance with a practical transmitter 132
Annex G (informative) Practical 6-path channel models for fixed and portable channels 133
Annex H (informative) Interfering analogue signals 134
Bibliography 135

Figure 1 – Relationship between digital video and analogue video 19
Figure 2 – Receiver and display format processing reference model 26
Figure 3 – HD Receiver and display format processing reference model 27
Figure 4 – Uncertainty of positioning graphics over video 33
Figure 5 – Illustration of control of audio level 38
Figure 6 – Mapping of pan byte onto sound presentation 41
Figure 7 – Example of PMT extract for main programme audio 44
Figure 8 – Example of PMT extract for audio description 44
Figure 9 – Service regionalisation 79
Figure C.1 – High level bitstream organisation 114

This document is a preview generated by EVS

Figure C.2 – Region depth selection 116
Figure C.3 – Mapping code strings to pixels in “requested” depth region 117
Figure C.4 – Mapping code strings to pixels 118
Figure C.5 – Subtitle reference decoder model 120
Figure C.6 – The two modelled decoding phases 121
Figure C.7 – Detail of data decoding phase 122
Figure C.8 – Disruption to display at start of new epoch 122
Figure E.1 – Tuner noise model 131
Figure H.1 – PAL interfering signals 134
Figure H.2 – SECAM L interfering signal 134

Table 1 – Broadcast overscan flags 20
Table 2 – Receiver overscan behaviour 20
Table 3 – Overscan signalling on HDMI 20
Table 4 – Horizontal scaling where format is signalled by the sequence header alone 22
Table 5 – Pan scan window 23
Table 6 – Non “full screen” 23
Table 7 – Formats described by the active_format description 25
Table 8 – Processing by STB connected to 4:3 TV 28
Table 9 – User options for displaying 16:9 on 4:3 29
Table 10 – User options for displaying >16:9 on 4:3 29
Table 11 – Processing by STB connected to 16:9 TV 30
Table 12 – WSS codes for aspect ratio 31
Table 13 – Values for other WSS bits 31
Table 14 – Audio description descriptor 38
Table 15 – Illustration of PES packet header 40
Table 16 – Key to symbols 49
Table 17 – Summary of required tables 50
Table 18 – Program descriptors 51
Table 19 – Elementary stream descriptors 51
Table 20 – Network descriptors (first loop) 54
Table 21 – Transport stream descriptors (second loop) 55
Table 22 – Service descriptors 57
Table 23 – Event information descriptors 60
Table 24 – Time offset table descriptors 62
Table 25 – Private SI recognised by this standard 63
Table 26 – Syntax of the eacem stream identifier descriptor 63
Table 27 – Syntax of the logical channel descriptor 64
Table 28 – Logical channel number 65
Table 29 – Syntax of the preferred name list descriptor 65
Table 30 – Syntax of the preferred name identifier descriptor 66
Table 31 – HD simulcast logical channel descriptor 67
Table 32 – Subtitle preference modes defined 70

This document is a preview generated by EVS

Table 33 – Receiver response to missing SI tables 83
Table 34 – Text field lengths 85
Table 35 – Delta values between picture failure point and reference BER 94
Table 36 – C/N (dB) for reference BER 95
Table 37 – Immunity to analogue signals on other channels 96
Table 38 – Immunity to digital signals on other channels 96
Table 39 – Immunity to co-channel interference from analogue signals 96
Table 40 – Long echo test profile 97
Table 41 – Short echo test profile 97
Table A.1 – Allowed character codes in SI text fields 103
Table B.1 – Syntax of the PDC descriptor 111
Table C.1 – Additional display update budget for page/region operations 123
Table C.2 – Example subtitle system performance 126
Table F.1 – *C/N* (dB) for reference BER 132
Table G.1 – Approximate 6-tap channel for fixed reception (Ricean channel). 133
Table G.2 – Approximate 6-tap channel for portable reception (Rayleigh channel). 133

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INTRODUCTION

Television has evolved over the last half century from an up-market entertainment medium to becoming the major information tool around the world. Television is available to virtually all people around the globe, be it individually or in a community setting.

The advent of the “personal computer”, enabling global reach and instant interaction has escalated the demand for more and more information and the ability to respond to it instantly. It is thus that the broadcasters and content providers set out to seek new means of delivering higher levels of content, be it in volume or quality using existing or new transport mechanisms available.

Digitalisation, taken from the world of information technology was the obvious choice. It further brought the added benefits of efficient use of spectrum and energy. Terrestrial television has to migrate from analogue to digital in order to survive in the new information society.

Governments are keen to switch off the inefficient analogue broadcasts for a number of obvious reasons, but only will be able to do so when consumers are confident that the new proposition is attractive and affordable.

Due to the multitude of communities, sometimes single operators, often on a country by country basis dealing with the parameters and standards options of launching Digital Terrestrial services based on DVB, there is a natural tendency to create a variety of incompatible platforms tied to particular TV operators, and this in turn does not allow for economy of scale for all parties concerned, be it content providers, broadcasters, network providers or equipment manufacturers.

In 2000, after over two years of requirement capture in DigiTAG (Digital Television Action Group) EACEM (European Association of Consumer Electronics Manufacturers), which has evolved into EICTA (European Information, Communications and Consumer Electronics Technology Industry Associations), decided to address this situation by developing a basic specification as a minimum platform, providing secure reception of broadcast content and associated services. This resulted in the first revision of this standard. It has been used as a basis in many countries to deploy Digital Terrestrial TV (DTT) with great success.

In 2007, with a new wave of High Definition services being considered to be launched due to the availability of MPEG4 components, EICTA and the French “Forum HD” decided to collaborate to create an update for High Definition, and make some minor adjustments that were due after 7 years of practice with Standard Definition terrestrial TV in the market. The new standard improvements are taking into account contributions and comments from a.o. UK DTG (draft HD D-Book), Nordig and DGTVi. This standard does not yet address new generations of channel coding (DVB-T2) now being considered by DVB. Extensions of this standard in this domain may be foreseen in the future.

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DIGITAL TERRESTRIAL TELEVISION RECEIVERS FOR THE DVB-T SYSTEM

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1 Scope and object

This International Standard specifies both Standard Definition and High Definition receivers for the DVB-T system.

It concerns:

- broadcasters, and
- receiver manufacturers.

The objective is to define:

- how to provide broadcasts that are understood by all receivers and enable receivers to provide good facilities to their users;
- the behaviour required from receivers to work well with these broadcasts and to be attractive to consumers.

To avoid doubt, the words “shall”, “should”, etc. are used in the traditional way to distinguish issues that are mandatory versus those that are optional A baseline receiver will support the mandatory features but not all the optional features in this standard. Inclusion of optional features is part of the marketing strategy of the manufacturer.

Subtitling and teletext are considered to be components of TV services. Standalone teletext services (without associated video content) are not part of this standard.

This standard primarily addresses terrestrial delivery of digital transmissions.

This standard primarily addresses deployment in countries that use European Latin script based languages.

Two types of systems are considered:

- standard systems where services are all SD and use well-established codecs. Standard receivers which can decode standard services are suitable for these systems;
- advanced systems where some services may use advanced codecs, for example to provide HD video. Advanced receivers which can decode advanced services are suitable for these systems.

Where the term “receiver” or “broadcast” is used without a qualifier, the statement is applicable equally to both types of systems.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61169-2, *Radio-frequency connectors – Part 2: Sectional specification – Radio frequency coaxial connectors of type 9,52*

IEC 60958-1, *Digital audio interface – Part 1: General*

IEC 61937 (all parts), *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958*

ISO/IEC 6937, *Information technology – Coded graphic character set for text communication – Latin alphabet*

ISO/IEC 8859-9, *Information technology – 8-bit single-byte coded graphic character sets – Part 9: Latin alphabet No. 5*

ISO/IEC 11172-2, *Information technology – Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s – Part 2: Video*

ISO/IEC 13818-1, *Information technology – Generic coding of moving pictures and associated audio information: Systems*

ISO/IEC 13818-2, *Information technology – Generic coding of moving pictures and associated audio information: Video*

ISO/IEC 13818-3, *Information technology – Generic coding of moving pictures and associated audio information: Audio*

ISO/IEC 14496-3, *Information Technology – Coding of audio-visual objects –Part 3: Audio*

ISO/IEC 14496-10, *Information technology – Coding of audio-visual objects – Part 10: Advanced Video Coding*

ISO 639-2, Codes *for the representation of names of languages – Part 2: Alpha-3 code*

ITU-R BS.775-2, *Multichannel stereophonic sound system with and without accompanying picture*

ITU-R BT.470-7 *Conventional television systems*

ITU-R BT.1119-2, *Wide-screen signalling for broadcasting (Signalling for wide-screen and other enhanced television parameters)*

ITU-R BT.1359-1, *Relative timing of sound and vision for broadcasting*

EN 50049-1, *Domestic and similar electronic equipment interconnection requirements: Peritelevision connector*

EN 50221, *Common Interface Specification for Conditional Access and Other Digital Video Broadcasting Decoder Applications*

EN 300 294, *Television Systems – 625-line television Wide Screen Signalling (WSS)*

EN 300 468, *Digital Video Broadcasting (DVB) – Specification for Service Information (SI) in DVB systems*

EN 300 472, *Digital Video Broadcasting (DVB) – Specification for conveying ITU-R System B Teletext in DVB bitstreams*

EN 300 743, *Digital Video Broadcasting (DVB) – Subtitling systems*

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EN 300 744, *Digital Video Broadcasting (DVB) – Framing structure, channel coding and modulation for digital terrestrial television*

EN 301 775, *Digital Video Broadcasting (DVB) – Specification for the carriage of Vertical Blanking Information (VBI) data in DVB bitstreams*

ETR 162, *Digital broadcasting systems for television sound and data services; Allocation of Service Information (SI) codes for Digital Video Broadcasting (DVB) systems*

Note that the allocation of identifiers is handled by DVB; up-to-date information on DVB identifiers can be obtained from <www.dvb.org>.

ETR 289, *Digital Video Broadcasting (DVB) – Support for use of scrambling and Conditional Access (CA) within digital broadcasting systems*

ETS 300 231, *Television systems; Specification of the domestic video Programme Delivery Control system (PDC)*

ETS 300 706, *Enhanced Teletext specification*

R206-001, *Guidelines for Implementation and Use of the Common Interface for DVB Decoder Applications*

TS 101 154, *Digital Video Broadcasting (DVB); Implementation guidelines for the use of Video and Audio Coding in Broadcasting Applications based on the MPEG-2 Transport Stream*

TR 101 211, *Digital Video Broadcasting (DVB); Guidelines on implementation and usage of Service Information (SI)*

TS 101 699, *Digital Video Broadcasting (DVB); Extensions to the Common Interface Specification*

TS 102 006, *Digital Video Broadcast (DVB); Specification for System Software Update in DVB systems*

TS 102 366, *Digital Audio Compression (AC-3, Enhanced AC-3) Standard*

CEA 770.3, *High Definition TV Analog Component Video Interface*

CEA 861, *A DTV Profile for Uncompressed High Speed Digital Interfaces*

3 Abbreviations and symbols

AD	Audio Description
AFD	Active Format Description
API	Application Programming Interface
AU	Access Unit
BAT	Bouquet Association Table
bslbf	Bit string, left bit first
CA	Conditional Access
CCO	Centre Cut-Out
DDS	Display Definition Segment

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