

Digital terrestrial television receivers for the DVB-T system - Part 1: Baseline receiver specification

Digital terrestrial television receivers for the DVB-T system - Part 1: Baseline receiver specification

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 62216-1:2003 sisaldab Euroopa standardi EN 62216-1:2002 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 05.02.2003 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on .</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 62216-1:2003 consists of the English text of the European standard EN 62216-1:2002.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 05.02.2003 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text .</p> <p>The standard is available from Estonian standardisation organisation.</p>
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Võtmesõnad: canals, frame structures, modulation, radiocommunications, receiver, receivers, satellite communications, sound transmission, telecommunication, telecommunications, television, television broadcasting, television systems, television transmission, vision signals

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Digital terrestrial television receivers for the DVB-T system
Part 1: Baseline receiver specification
(IEC 62216-1:2001)

Récepteur de télévision numérique
terrestre pour le système DVB-T
Partie 1: Spécification du récepteur
de base
(CEI 62216-1:2001)

Fernsehempfänger für das digitale
terrestrische DVB-T-System
Teil 1: Festlegungen für den Basis-
Empfänger
(IEC 62216-1:2001)

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of the International Standard IEC 62216-1:2001, prepared by IEC TC 100, Audio, video and multimedia systems and equipment, was submitted to the formal vote and was approved by CENELEC as EN 62216-1 on 2002-09-01.

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) 2003-09-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2005-09-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, Annexes A, B, D and ZA are normative and Annexes C, E, F and G are informative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62216-1:2001 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

<u>International Publication</u>	<u>Year</u>	<u>Title</u>	<u>European publication</u>	<u>Year</u>
IEC 60169-2	- ¹⁾	Radio-frequency connectors Part 2: Coaxial unmatched connector	HD 134.2 S2	1984 ²⁾
ISO/IEC 6937	- ¹⁾	Information technology - Coded graphic character set for text communication - Latin alphabet	-	-
ISO/IEC 8859-9	- ¹⁾	Information technology - 8-bit single-byte coded graphic character sets Part 9: Latin alphabet No. 5	-	-
ISO/IEC 11172-2	- ¹⁾	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	- ¹⁾	Information technology - Generic coding of moving pictures and associated audio information: Systems	-	-
ISO/IEC 13818-2	- ¹⁾	Information technology - Generic coding of moving pictures and associated audio information: Video	-	-
ISO/IEC 13818-3	- ¹⁾	Information technology - Generic coding of moving pictures and associated audio information: Audio	-	-
ITU-R BT.470-6	- ¹⁾	Conventional television systems	-	-
ITU-R BS.775-1	- ¹⁾	Multichannel stereophonic sound system with and without accompanying picture	-	-
ITU-R BT.1119-2	- ¹⁾	Wide-screen signalling for broadcasting (Signalling for wide-screen and other enhanced television parameters)	-	-

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

<u>International Publication</u>	<u>Year</u>	<u>Title</u>	<u>European publication</u>	<u>Year</u>
ITU-R BT.1359-1	- ¹⁾	Relative timing of sound and vision for broadcasting	-	-
-	-	Domestic and similar electronic equipment interconnection requirements: Peritelevision connector	EN 50049-1	- ¹⁾
-	-	Common interface specification for conditional access and other digital video broadcasting decoder applications	EN 50221	- ¹⁾
-	-	Digital Video Broadcasting (DVB) - Specification for Service Information (SI) in DVB systems	EN 300 468	- ¹⁾
-	-	Digital Video Broadcasting (DVB) - Framing structure, channel coding and modulation for digital terrestrial television (DVB-T)	EN 300 744	- ¹⁾
-	-	Digital Video Broadcasting (DVB) - Specification for the carriage of Vertical Blanking Information (VBI) data in DVB bitstreams	EN 301 775	- ¹⁾
-	-	Digital Video Broadcasting (DVB) - Support for use of scrambling and Conditional Access (CA) within digital broadcasting systems	ETR 289	- ¹⁾
-	-	Digital Video Broadcasting (DVB) - Implementation guidelines for the use of MPEG-2 systems, video and audio in satellite, cable and terrestrial broadcasting applications	ETR 154	- ¹⁾
-	-	Digital broadcasting systems for television sound and data services - Allocation of Service Information (SI) codes for Digital Video Broadcasting (DVB) systems	ETR 162	- ¹⁾
-	-	Digital Video Broadcasting (DVB) - Guidelines on implementation and usage of Service Information (SI)	ETR 211	- ¹⁾
-	-	Television systems - Specification of the domestic video Programme Delivery Control system (PDC)	ETS 300 231	- ¹⁾
-	-	Television systems - 625 line television Wide Screen Signalling (WSS)	ETS 300 294	- ¹⁾
-	-	Digital Video Broadcasting (DVB) - Specification for conveying ITU-R system B teletext in DVB bitstreams	ETS 300 472	- ¹⁾

<u>International Publication</u>	<u>Year</u>	<u>Title</u>	<u>European publication</u>	<u>Year</u>
-	-	Enhanced teletext specification	ETS 300 706	- ¹⁾
-	-	Digital Video Broadcasting (DVB) - Subtitling systems	ETS 300 743	- ¹⁾
-	-	Guidelines for implementation and use of the common interface for DVB decoder applications	R206-001	- ¹⁾
-	-	Digital Video Broadcasting (DVB) - Extensions to the common interface specification	TS 101 699	- ¹⁾

INTERNATIONAL STANDARD

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**Digital terrestrial television receivers
for the DVB-T system –**

**Part 1:
Baseline receiver specification**



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As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series. For example, IEC 34-1 is now referred to as IEC 60034-1.

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Digital terrestrial television receivers for the DVB-T system –

Part 1: Baseline receiver specification

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

DIGITAL TERRESTRIAL TELEVISION RECEIVERS FOR THE DVB-T SYSTEM –

Part 1: Baseline receiver specification

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 62216-1 has been prepared by technical area 1, Digital receiving equipment, of IEC technical committee 100: Audio, video and multimedia systems and equipment

The text of this standard is based on the following documents:

CDV	Report on voting
100/211/CDV	100/267/RVC

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

Annexes A, B and D form an integral part of this standard. Annexes C, E, F and G are for information only.

The committee has decided that this publication remains valid until 2003. At this date, in accordance with the committee's decision, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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, not to mention interaction through a return path.

Terrestrial television has to migrate from analogue to digital in order to survive in the new information society.

Without any doubt, all means of information and content dissemination technology will merge over time, provided that sound business models find uptake by consumers at large.

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.

Business models are being developed to promote the uptake of digital receivers, however this activity up to now is mainly led by private enterprises targeting the public sector willing to pay for services in addition to those available from established public broadcasters.

This in itself is fine, but will not enable the migration from analogue to digital of all broadcasts, however funded.

The more so as it has led to 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.

After over two years of requirement capture in DigiTAG (Digital Television Action Group) and other fora, EACEM (European Association of Consumer Electronics Manufacturers) decided to address this situation by developing a basic specification as a minimum platform, providing secure reception of broadcast content and associated services. This includes both free to air as well as pay TV services by means of the DVB common interface.

This is in order to provide a stable base from which new applications and services can be built up, and ensuring backwards compatibility for products in the market based on this specification, thus ensuring that the consumer will continue to receive the services they have grown accustomed to.

EACEM has taken into consideration all other documents and specifications that were freely available from various bodies (NorDig Group, ANIEL, etc.) in order to develop a pan European specification.

DIGITAL TERRESTRIAL TELEVISION RECEIVERS FOR THE DVB-T SYSTEM –

Part 1: Baseline receiver specification

1 Scope

This part of IEC 62216 specifies the baseline receiver 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 important versus those that are optional. The term “shall” is also used to identify mandatory requirements that are inherited from other specifications that have greater force.

This specification does not consider interactive applications and the data broadcasting that would support them. Subtitling and teletext are considered to be components of TV services. Standalone teletext services are not part of this standard.

This specification primarily addresses terrestrial delivery of digital transmissions.

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

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 62216. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 62216 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60169-2, *Radio-frequency connectors - Part 2: Coaxial unmatched connector*

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*

ITU-R BT.470-6, *Conventional television systems*

ITU-R BS.775-1, *Multichannel stereophonic sound system with and without accompanying picture*

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

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

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

ETR 289, *Digital Video Broadcasting (DVB) - Support for Use of Scrambling and Conditional Access (CA) within digital broadcasting systems*

ETR 154, *Digital Video Broadcasting (DVB) - Implementation guidelines for the use of MPEG-2 Systems, Video and Audio in satellite, cable and terrestrial broadcasting applications*

ETR 162, *Digital Broadcasting Systems for Television Sound and Data services; Allocation of Service Information (SI) codes for Digital Video Broadcasting (DVB) systems*

ETR 211, *Digital Video Broadcasting (DVB) - Guidelines on implementation and usage of Service Information (SI)*

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

ETS 300 294, *Television Systems; 625 - Line television Wide Screen Signalling (WSS)*

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

ETS 300 706, *Enhanced Teletext specification*

ETS 300 743, *Digital Video Broadcasting (DVB) - Subtitling systems*

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

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

3 Abbreviations and symbols

BAT	Bouquet Association Table
bslbf	Bit string, left bit first
CA	Conditional Access
DTTV	Digital Terrestrial Television
DVB	Digital Video Broadcast
EIT	Event Information Table