SLOVENSKI STANDARD
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Characteristics of DVB receivers

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Eingenschaften von DVB-Empfängern

Caractéristiques des récepteurs DVB

Ta slovenski standard je istoveten z: **EN 50256:1998**

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English version

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Eigenschaften von DVB-Empfängern

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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

This European Standard was prepared by the Technical Committee CENELEC TC 206, Broadcast receiving equipment.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50256 on 1997-10-01.

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) 1998-11-01

- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1998-11-01

1 Scope

This standard specifies the characteristics of Digital Video Broadcast (DVB) receivers for satellite, cable and terrestrial reception in Europe.

2 Definition

DVB receivers are intended to receive and decode programs transmitted according to the DVB system standards ETS 300 421, ETS 300 429 and ETS 300 744.

3 References

The following documents include provisions which, through reference in this text, constitute provisions of this standard.

If the reference standard is subject to revision, the latest version, including amendments, will apply.

3.1 Normative references

Digital broadcasting systems for television, sound and data services:

ETS 300 421	Framing structure, channel coding and modulation for 11/12 GHz satellite services
ETS 300 429	Framing structure, channel coding and modulation for cable systems
ETS 300 468	Specification for Service Information (SI) in Digital Video Broadcasting (DVB) systems
ETS 300 472	Specification for conveying ITU-R Teletext in Digital Video Broadcasting (DVB) bitstreams
ETS 300 473	Satellite Master Antenna Television (SMATV) distribution systems
ETS 300 744	Framing structure, channel coding and modulation for digital terrestrial television
ETR 154	Implementation guidelines for the use of MPEG-2 systems, video and audio in satellite and cable broadcasting applications in Europe

Others:

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

EN 50082-1	Electromagnetic compatibility - Generic immunity standard Part 1: Residential, commercial and light industry
EN 50083-7	Cabled distribution systems for television and sound signals Part 7: System performance
EN 50157-1	Domestic and similar electronic equipment interconnection requirements: AV.link - Part 1: General
EN 50201	Interfaces for DVB-IRD
EN 50221	Common interface specification for conditional access and other digital video broadcasting decoder applications
EN 55013	Limits and methods of measurements of radio disturbance characteristics of broadcast receivers and associated equipment (CISPR 13)
EN 55020	Electromagnetic immunity of broadcast receivers and associated equipment
EN 55022	Limits and methods of measurement of radio disturbance characteristics of information technology equipment (CISPR 22)
EN 60958	Digital audio interface (IEC 60958)
EN 61319-1	Interconnections of satellite receiving equipment - Part 1: Europe (IEC 61319-1)
EN 61938	Audio, video and audiovisual systems - Interconnections and matching values - Preferred matching values of analogue signals (IEC 61938)
IEC 60169-2	Radio frequency connectors - Part 2: Coaxial unmatched connector
IEC 60169-24	Part 24: Radio-frequency coaxial connectors with screw coupling, typically for use in 75 ohm cable distribution systems (harmonized as EN 60169-24)
ISO/IEC 13818-1	Coding of moving pictures and associated data

4 Characteristics of the Front End

4.1 Satellite QPSK-receiver

4.1.1 RF-parameters

Input frequency range (The aim of this specification is to cover the 10,7 - 12,75 GHz frequency range in the KU band. If receiver and LNB are handled together as a system, different solutions are possible)	950 - 2150 MHz
Input level range	47 - 77 dB(µV) (-62 to -32 dBm)
RF-bandwidth	Compatible with the satellite system used

NOTE: Examples of transponder bandwidth values foreseen in Europe are 33 and 26 MHz (1dB)

Nominal input impedance	75 Ω (F-type, IEC 60169-24)
IF-loop through	In case of a digital-only receiver, IF-loop through is recommended for the connection of an analogue satellite receiver. The output connector shall be of the same type as the input connector. The signal shall be present at the output connector independently of the operational status of the receiver. The active receiver in the loop has the priority concerning the LNB control signals.

NOTE: A possible problem is oscillator leakage

LNB supply voltage, supply current & control signals	see EN 61319-1

4.1.2 Demodulator parameters

The demodulator shall be compatible with the ETS 300 421.

4.2 Cable QAM-receiver

If EN 50083-7 contains values for cable related parameters mentioned in this section, the values of EN 50083-7 take precedence.

4.2.1 RF-parameters

Input frequency range	47 - 862 MHz Restriction to the range 108 - 862 MHz is recommended due to better receiver performance
Nominal input impedance	75Ω (female, IEC 60169-2)
RF-channel bandwidth	8 MHz (optional 7 MHz)
RF-channel table	It is recommended to use the existing channel rasters used on analogue cable TV networks.
RF-loop through	RF loop-through should be provided for the connection of other equipment such as another receiver or VCR. Frequency range 47-862 MHz. Output connector type IEC 60169-2 male. The signal shall be present at the output connector independently of operational status of the receiver.

The remainder of this section is based on 64 QAM

The level of a PAL or SECAM signal is defined as the power level at the peak of the envelope. The power of a digital signal is defined as the average power level. Both can be expressed as dB(µV) across 75 Ω.

The back-off between the levels of the PAL or SECAM signal and the digital signal directly influences various parameters. A value of 10 dB is often used; however experiments in SECAM environments resulted in an optimum value of 8 dB.

In the following a value of 10 dB is provisionally considered.

Input level range	47 - 67 dB(µV)
Adjacent channel requirements (this specification will be superseded if an appropriate amendment of EN 55020 is accepted)	Adjacent channel reception in PAL or SECAM or digital environment is possible. The level of the adjacent digital channel can be 3dB higher and the level of the adjacent analogue channel can be 13 dB higher than the level of the wanted digital channel

NOTE: In case of a back-off value of 10 dB, the carrier to noise ratio for digital signals in cable systems according to EN 50083-7, is 31 dB minimum (noise in 8 MHz bandwidth).

Noise figure	under consideration
Return loss	under consideration

4.2.2 Demodulator parameters

The demodulator shall be compatible with the ETS 300 429.

4.3 Terrestrial COFDM receiver

This section is under consideration.

5 MPEG-2, systems, video and audio decoding

The functionality of the receiver/decoder shall be compliant with ETR 154.

6 Functions and interfaces

(See also EN 50201)

The application of the interfaces is optional.

6.1 Interaction channel

6.1.1 Internal telephone modem

Standards	V21 (300 bps), V22bis (2400 bps), or V23 (1200/75 bps)
Dialling	DTM or pulse
Connector	RJ-45, 6 pin

6.1.2 Cable modem

Under consideration.

A cable modem interface provides a bi-directional data channel.
The cable modem interface shall be combined with the QAM tuner input.