

**Televisiooni-, heli- ja interaktiivse multimeedia
signaalide kaabeljaotussüsteemid. Osa 2:
Seadmete elektrimagnetiline ühilduvus**

Cable networks for television signals, sound signals
and interactive services Part 2: Electromagnetic
compatibility for equipment

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 50083-2:2007 sisaldab Euroopa standardi EN 50083-2:2006 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 22.09.2006 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 30.06.2006.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 50083-2:2007 consists of the English text of the European standard EN 50083-2:2006.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 22.09.2006 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 30.06.2006.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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English version

**Cable networks for television signals, sound signals
and interactive services
Part 2: Electromagnetic compatibility for equipment**

Réseaux de distribution par câbles
pour signaux de télévision, signaux de
radiodiffusion sonore et
services interactifs
Partie 2: Compatibilité électromagnétique
pour les matériels

Kabelnetze für Fernsehsignale,
Tonsignale und interaktive Dienste
Teil 2: Elektromagnetische Verträglichkeit
von Geräten

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CENELEC

European Committee for Electrotechnical Standardization
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Europäisches Komitee für Elektrotechnische Normung

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

Foreword

This European Standard was prepared by CENELEC Technical Committee TC 209, "Cable networks for television signals, sound signals and interactive services" on the basis of EN 50083-2:2001, its amendment A1:2005 and a further amendment to EN 50083-2, resulting from two draft amendments (prA2 and prAA) that were submitted to the Unique Acceptance Procedure and approved by CENELEC on 2006-04-01 to be published as part of a new edition of EN 50083-2.

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) 2007-04-01
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1 Scope

1.1 General

Standards of EN 50083 and EN 60728 series deal with cable networks for television signals, sound signals and interactive services including equipment, systems and installations

- for headend-reception, processing and distribution of television and sound signals and their associated data signals and
- for processing, interfacing and transmitting all kinds of signals for interactive services

using all applicable transmission media.

All kinds of networks like

- CATV-networks
- MATV-networks and SMATV-networks
- individual receiving networks

and all kinds of equipment, systems and installations installed in such networks, are within this scope.

The extent of these standardisation work is from the antennas, special signal source inputs to the headend or other interface points to the network up to the system outlet or the terminal input, where no system outlet exists.

The standardisation of any user terminals (i.e. tuners, receivers, decoders, multimedia terminals etc.) as well as of any coaxial and optical cables and accessories therefor is excluded.

1.2 Specific scope of this part 2

This standard

- applies to the radiation characteristics and immunity to electromagnetic disturbance of EM-active equipment (active and passive equipment) for the reception, processing and distribution of television, sound and interactive multimedia signals as dealt with in the following parts of EN 50083 or EN 60728 series:
 - EN 50083-3 "Active wideband equipment for coaxial cable networks"
 - EN 50083-4 "Passive wideband equipment for coaxial cable networks"
 - EN 50083-5 "Headend equipment"
 - EN 60728-6 "Optical equipment"
- covers the following frequency ranges:

Disturbance voltage injected into the mains	9 kHz to 30 MHz
Radiation from active equipment	5 MHz to 25 GHz
Immunity of active equipment	150 kHz to 25 GHz
Screening effectiveness of passive equipment	5 MHz to 3 GHz (25 GHz) ¹⁾

¹⁾ For "Screening effectiveness of passive equipment" no requirements apply at present for the frequency range 3 GHz to 25 GHz. Methods of measurement and limits are investigated for inclusion in a future amendment or revised edition.

- specifies requirements for maximum allowed radiation, minimum immunity and minimum screening effectiveness;
- describes test methods for conformance testing.

Due to the fact that cable networks, the former cabled distribution systems for television and sound signals, are more and more used for interactive services, these networks may incorporate also equipment which carry besides the cable network equipment ports also one or more telecom signal port(s). This equipment shall be named as "multimedia network equipment".

The EMC behaviour of cable network equipment, telecommunication network equipment and multimedia network equipment may be described by the following port structure (Table 1):

Table 1 - Port structure of different network equipment

Port name	Cable network equipment	Telecommunication network equipment	Multimedia network equipment
Enclosure	X	X	X
Earth	X	X	X
AC/DC Power Supply	X	X	X
Control (e.g. alarm)	X	X	X
Antenna input port	X		X
RF network port	X		X
Telecom signal port		X	X

Table 1 shows that cable network equipment and telecommunication network equipment have four common ports and one respectively two individual port each. Multimedia network equipment carry besides the common ports an antenna input port and/or a RF network port as well as a telecom signal port.

The electromagnetic compatibility requirements for "telecommunication network equipment only" are standardised in EN 300 386 (mainly) and in EN 301 489-4, those for "cable network equipment only" are given in this EN 50083-2.

Equipment for multimedia networks of the above mentioned type has to work under the same EMC conditions as equipment which is falling under the cable network and the telecommunication network EMC-standards. Due to the fact, that this equipment has to work in close proximity, e.g. in the same operating room, the EMC environmental conditions for all three types of equipment are the same.

This means that multimedia network equipment has to fulfil the EMC requirements of one of the above mentioned standards and in addition the EMC requirements, laid down in the other EMC standard, for the additional port, by which it is connected to the other network.

By this procedure it is ensured that multimedia network equipment fulfils the EMC conditions of one of the above mentioned networks and will neither disturb the respective other system nor will be disturbed by the respective other system via the connecting port.

Coaxial cables for cable networks do not fall under the scope of this standard. Reference is made to the European Standard series EN 50117 "Coaxial cables used in cabled distribution networks".

This standard also covers active indoor antennas for which the requirements and the applicable methods of measurement are limited to the radiation and the electrostatic discharge phenomena.

Standardisation in the field of "Electromagnetic compatibility" for any broadcast terminals (e.g. tuners, receivers, decoders, etc.) is covered by the European Standards EN 55013 and EN 55020 and for multimedia terminals by EN 55022 and EN 55024.

Requirements for the electromagnetic compatibility of receiver leads are laid down in EN 60966-2-4, EN 60966-2-5 and EN 60966-2-6.

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.

EN 50083/ EN 60728	series	Cable networks for television signals, sound signals and interactive services
EN 50083-3	2002	Part 3: Active wideband equipment for coaxial cable networks
EN 50083-4	1998	Part 4: Passive wideband equipment for coaxial cable networks
EN 50083-5	2001	Part 5: Headend equipment
EN 60728-6	2003	Part 6: Optical equipment
EN 50083-8	2002	Part 8: Electromagnetic compatibility for networks
EN 50117	series	Coaxial cables used in cabled distribution networks
EN 55013 + A1	2001 2003	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment (CISPR 13:2001, mod. + A1:2003)
EN 55016-1-1 + A1	2004 2005	Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-1: Radio disturbance and immunity measuring apparatus – Measuring apparatus (CISPR 16-1-1:2003)
EN 55020 + A1	2002 2003	Electromagnetic immunity of broadcast receivers and associated equipment (CISPR 20:2002 + A1:2002)
EN 55022 + A1 + A2	1998 2000 2003	Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement (CISPR 22:1997 + A1:2000 + A2:2002, mod.)
EN 55024 + A1 + A2	1998 2001 2003	Information technology equipment – Immunity characteristics – Limits and methods of measurement (CISPR 24:1997 + A1:2001 + A2:2002, mod.)
EN 60966-2-4	2003	Radio frequency and coaxial cable assemblies; Part 2-4: Detail specification for cable assemblies for radio and TV receivers (Frequency range 0 to 3000 MHz, IEC 61169-2 connectors) (IEC 60966-2-4:2003)
EN 60966-2-5	2003	Radio frequency and coaxial cable assemblies; Part 2-5: Detail specification for cable assemblies for radio and TV receivers (Frequency range 0 to 1000 MHz, IEC 61169-2 connectors) (IEC 60966-2-5:2003)
EN 60966-2-6	2003	Radio frequency and coaxial cable assemblies; Part 2-6: Detail specification for cable assemblies for radio and TV receivers (Frequency range 0 to 3000 MHz, IEC 61169-24 connectors) (IEC 60966-2-6:2003)
EN 61000-3-2	2000	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase) (IEC 61000-3-2:2000, mod.)
EN 61000-4-2 + A1 + A2	1995 1998 2001	Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test (IEC 61000-4-2:1995 + A1:1998 + A2:2000)
EN 61000-4-3 + A1 + IS1	2002 2002 2004	Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test (IEC 61000-4-3:2002 + A1:2002)

EN 61000-4-4 + A1 + A2	1995 2001 2001	Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test (IEC 61000-4-4:1995 + A1:2000 + A2:2001)
EN 61000-4-6 + A1 + IS1	1996 2001 2004	Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields (IEC 61000-4-6:1996 + A1:2000)
EN 61000-6-1	2001	Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity for residential, commercial and light-industrial environments (IEC 61000-6-1:1997, mod.)
EN 61079-1	1993	Methods of measurement on receivers for satellite broadcast transmissions in the 12 GHz band - Part 1: Radio- frequency measurements on outdoor units (IEC 61079-1:1992)
EN 300 386 V1.3.3	2005	Electromagnetic compatibility and Radio spectrum Matters (ERM) – Telecommunication network equipment – ElectroMagnetic Compatibility (EMC) requirements
EN 301 489-4 V1.3.1	2002	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 4: Specific conditions for fixed radio links and ancillary equipment and services
IEC 60050-161	1990	International Electrotechnical Vocabulary (IEV) Chapter 161: Electromagnetic compatibility
CISPR 16-1	1999	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1: Radio disturbance and immunity measuring apparatus

3 Terms, definitions, symbols and abbreviations

3.1 Terms and definitions

For the purposes of this standard, the definitions contained in IEC 60050(161) "Electromagnetic compatibility" apply. The most important definitions of IEC 60050(161) are repeated hereafter with the IEC-numbering given in brackets. In addition some more specific definitions, used in this standard, are listed.

3.1.1

radiation (electromagnetic) [IEV 161-01-10]

1. the phenomenon by which energy in the form of electromagnetic waves emanates from a source into space
2. energy transferred through space in the form of electromagnetic waves

NOTE By extension, the term "electromagnetic radiation" sometimes also covers induction phenomena.

3.1.2

immunity (to a disturbance) [IEV 161-01-20]

ability of a device, equipment or system to perform without degradation in the presence of an electromagnetic disturbance

3.1.3

internal immunity [IEV 161-03-06]

ability of a device, equipment or system to perform without degradation in the presence of electromagnetic disturbances appearing at its normal input terminals or antenna

3.1.4

external immunity [IEV 161-03-07]

ability of a device, equipment or system to perform without degradation in the presence of electromagnetic disturbances entering other than via its normal input terminals or antenna