SLOVENSKI STANDARD
oSIST prEN IEC 60728-11:2019

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Kabelska omrežja za televizijske in zvokovne signale ter interaktivne storitve - 11. del: Varnost

Cable networks for television signals, sound signals and interactive services - Part 11: Safety (TA 5)

Kabelnetze für Fernsehsignale, Tonsignale und interaktive Dienste - Teil 11: Sicherheitsanforderungen

Réseaux de distribution par câbles pour signaux de télévision, signaux de radiodiffusion sonore et services interactifs - Partie 11: Sécurité

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IEC TA 5 : CABLE NETWORKS FOR TELEVISION SIGNALS, SOUND SIGNALS AND INTERACTIVE SERVICES	
SECRETARIAT: Japan	SECRETARY: Mr Hiroo Tamura
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: ☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☒ SAFETY	
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TITLE:

Cable networks for television signals, sound signals and interactive services - Part 11: Safety (TA 5)

PROPOSED STABILITY DATE: 2024

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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CABLE NETWORKS FOR TELEVISION SIGNALS, SOUND SIGNALS AND INTERACTIVE SERVICES –

Part 11: Safety

FOREWORD

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International Standard IEC 60728-11 has been prepared by technical area 5: Cable networks for television signals, sound signals and interactive services, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

This fifth edition cancels and replaces the fourth edition published in 2016. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition.

- Replacement of IEC 60065 and IEC 609501 with IEC 62368-1:2018
- Re-wording of much of the standard in order to comply with the new low voltage directive
- Revised definition of class I equipment, class II equipment, main earthing terminal

- Addition of definitions for harm, hazard, Ordinary person, Instructed person, Skilled person
- Additional requirement to provide details on the equipment installed
- Additional mechanical, design and construction requirements
- Changes to the accessible part requirements
- The introduction of radiation requirements
- The current carrying capacity and dielectric strength of components is now obligatory
- The assessment of the risk of lightning strike is now obligatory
- Extension of remote feeding voltage on subscriber feeder.
- Consideration of the Electro-Magnetic Field Directive (EMF)
- Consideration of the Construction Product Regulation (CPR)
- Addition of Annex ZZ

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

FDIS	Report on voting
100/XXX/FDIS	100/XXXX/RVD

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

The list of all the parts of the IEC 60728 series, under the general title *Cable networks for television signals, sound signals and interactive services,* can be found on the IEC website.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

Standards and other deliverables of the IEC 60728 series deal with cable networks including equipment and associated methods of measurement for headend reception, processing and distribution of television and sound signals and for processing, interfacing and transmitting all kinds of data signals for interactive services using all applicable transmission media. These signals are typically transmitted in networks by frequency-multiplexing techniques.

This includes for instance

- regional and local broadband cable networks,
- extended satellite and terrestrial television distribution networks and systems
- individual satellite and terrestrial television receiving systems,

and all kinds of equipment, systems and installations used in such cable networks, distribution and receiving systems.

The extent of this standardization work is from the antennas and/or special signal source inputs to the headend or other interface points to the network up to the terminal input of the customer premises equipment.

The standardization work will consider coexistence with users of the RF spectrum in wired and wireless transmission systems.

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

CABLE NETWORKS FOR TELEVISION SIGNALS, SOUND SIGNALS AND INTERACTIVE SERVICES –

Part 11: Safety

1 Scope

This part of IEC 60728 deals with the safety requirements applicable to fixed sited systems and equipment. As far as applicable, it is also valid for mobile and temporarily installed systems, for example, caravans.

Additional requirements may be applied, for example, referring to

- electrical installations of buildings and overhead lines,
- other telecommunication services distribution systems,
- water distribution systems,
- gas distribution systems,
- lightning systems.

This standard is intended to provide requirements specifically for the safety of the system, personnel working on it, subscribers and subscriber equipment. It deals only with safety aspects and is not intended to define a standard for the protection of the equipment used in the system.

2 Normative references

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

EN 50117-2-2:2004+A2:2013, *Coaxial cables. Sectional specification for cables used in cabled distribution networks. Outdoor drop cables for systems operating at 5 MHz-1000 MHz*

EN 50117-2-5:2004+A2:2013, *Coaxial cables. Sectional specification for cables used in cabled distribution networks. Outdoor drop cables for systems operating at 5 MHz-3000 MHz*

EN 50117-2-3:2004+A2:2013, *Coaxial cables. Sectional specification for cables used in cabled distribution networks. Distribution and trunk cables for systems operating at 5 MHz - 1000 MHz*

EN 50117-3:1996, *Coaxial cables used in cabled distribution networks. Sectional specification for outdoor drop cables*

EN 50117-4-1:2008+A1:2013, *Coaxial cables. Sectional specification for cables for BCT cabling in accordance with EN 50173. Indoor drop cables for systems operating at 5 MHz – 3 000 MHz*

EN 50117-4-2:2015, *Coaxial cables. Sectional specification for CATV cables up to 6 GHz used in cabled distribution networks*

EN 50117-5:1997, *Coaxial cables used in cabled distribution networks. Sectional specification for indoor drop cables for use in networks operating at frequencies between 5 MHz and 2150 MHz*

EN 50117-6:1997, *Coaxial cables used in cabled distribution networks. Sectional specification for outdoor drop cables for use in networks operating at frequencies between 5 MHz and 2150 MHz*

EN 50174-2:2018, *Information technology – Cabling installation – Part 2: Installation planning and practices inside buildings*

EN 50310:2016, *Telecommunications bonding networks for buildings and other structures*

EN 50575:2014, *Power, control and communication cables - Cables for general applications in construction works subject to reaction to fire requirements*

IEC 62368-1- *Audio/video, information and communication technology equipment - Part 1: Safety requirements*

IEC 60364-1:2005, *Low-voltage electrical installations – Part 1: Fundamental principles, assessment of general characteristics, definitions*

IEC 60364-4-44:2007, *Low-voltage electrical installations – Part 4-44: Protection for safety – Protection against voltage disturbances and electromagnetic disturbances*

IEC 60364-4-44:2007/AMD1:2015, *Low-voltage electrical installations – Part 4-44: Protection for safety – Protection against voltage disturbances and electromagnetic disturbances*

IEC 60364-5-52:2009, *Low-voltage electrical installations – Part 5-52: Selection and erection of electrical equipment – Wiring systems*

IEC 60364-5-54:2011, *Low-voltage electrical installations – Part 5-54: Selection and erection of electrical equipment – Earthing arrangements and protective conductors*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*

IEC 60529:1989/AMD1:1999, *Degrees of protection provided by enclosures (IP Code)*

IEC 60529:1989/AMD2:2013, *Degrees of protection provided by enclosures (IP Code)*

IEC 60728-2:2014, *Cable networks for television signals, sound signals and interactive services – Part 2: Electromagnetic compatibility for equipment*

IEC 60825-1:2014, *Safety of laser products – Part 1: Equipment classification and requirements*

IEC 60825-2:2004+AMD1:2006+AMD2:2010, *Safety of laser products – Part 2: Safety of optical fibre communication systems (OFCS)*

IEC 60990:2016, *Methods of measurement of touch current and protective conductor current*

IEC 61140:2001, *Protection against electric shock – Common aspects for installation and equipment*

IEC 61140:2001/AMD1:2004

IEC 62305:2013 (all parts), *Protection against lightning*

IEC 62305-2:2010, *Protection against lightning – Part 2: Risk management*

IEC 62305-3:2010, *Protection against lightning – Part 3: Physical damage to structures and life hazard*

IEC 62305-4:2010, *Protection against lightning – Part 4: Electrical and electronic systems within structures*

IEC 62561-1:2017, *Lightning Protection System Components (LPSC) – Part 1: Requirements for connection components*

IEC 62561-2:2018, *Lightning Protection System Components (LPSC) – Part 2: Requirements for conductors and earth electrodes*

ISO 3864-1:2011, *Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs in workplaces and public areas*

3 Terms, definitions, symbols and abbreviations

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

NOTE Some terms have been taken from IEC 60050-195, IEC 60050-826 and IEC 60050-851, with the reference number in square brackets, and from other IEC standards, also referenced to in square brackets.

3.1.1

air-termination system

part of an external LPS using metallic elements such as rods, mesh conductors or catenary wires intended to intercept lightning flashes

[SOURCE: IEC 62305-3:2010, 3.6]

3.1.2

amplifier

device to compensate for attenuation

3.1.3

attenuation

ratio of the input power to the output power

Note 1 to entry: The ratio is expressed in decibel.

3.1.4

cable networks

television signals, sound signals and interactive services> regional and local broadband cable networks, extended satellite and terrestrial television distribution networks or systems and individual satellite and terrestrial television receiving systems

Note 1 to entry: These networks and systems can be used in downstream and upstream directions.

399 **3.1.5**

400 **CATV network**
401 regional and local broadband cable networks designed to provide sound and television signals
402 as well as signals for interactive services to a regional or local area

403 Note 1 to entry: Originally defined as Community Antenna Television network.

404 **3.1.6**

405 **class I equipment**
406 equipment in which protection against electric shock does not rely on basic insulation only,
407 but that includes a supplementary safeguard in such a way that means are provided for the
408 connection of accessible conductive parts to the protective earthing conductor in the fixed
409 wiring of the installation

410 Note 1 to entry: For equipment intended for use with a flexible cord or cable, this provision includes a protective
411 conductor as part of the flexible cord or cable.

412 Note 2 to entry: Class I equipment may be provided with class II construction.

413 [SOURCE: IEC 62368-1]

414 **3.1.7**

415 **class II construction**
416 part of an equipment for which protection against electric shock relies upon double
417 insulation or reinforced insulation

418 **3.1.8**

419 **class II equipment**
420 equipment in which protection against electric shock does not rely on basic insulation only,
421 but in which a supplementary safeguard is provided, there being no provision for protective
422 earthing or reliance upon installation conditions

423 [SOURCE: IEC 62368-1]

424 **3.1.9**

425 **earthing arrangement**
426 all the electric connections and devices involved in the earthing of a system, an installation
427 and equipment

428 [SOURCE: IEC 60050-195:1998, 195-02-20, modified – The preferred term "grounding
429 arrangement (US), and the deprecated term "earthing system" have been deleted.]

430 **3.1.10**

431 **earthing conductor**
432 conductor which provides a conductive path, or part of the conductive path, between a given
433 point in a system or in an installation or in equipment and an earth electrode or an earth-
434 electrode network

435 Note 1 to entry: In the electrical installation of a building, the given point is usually the main earthing terminal,
436 and the earthing conductor connects this point to the earth electrode or the earth-electrode network.

437 [SOURCE: IEC 60050-826:2004, 826-13-12, modified – The preferred term "grounding
438 conductor (US)", and the deprecated term "earth conductor" have been deleted.]

439 **3.1.11**

440 **earth electrode**
441 conductive part, which may be embedded in the soil or in a specific conductive medium, e.g.
442 concrete or coke, in electric contact with the Earth

[SOURCE: IEC 60050-826:2004, 826-13-05, modified – The preferred term "ground electrode (US)" has been deleted.]

3.1.12

earthing terminal
terminal provided on equipment or on a device and intended for the electric connection with the earthing arrangement

[SOURCE: IEC 60050-195:1998, 195-02-31, modified – The preferred term "grounding terminal (US), and the deprecated term "earth terminal" have been deleted.]

3.1.13

electric shock
physiological effect resulting from an electric current through a human or animal body

[SOURCE: IEC 60050-826:2004, 826-12-01]

3.1.14

equipotential bonding
provision of electric connections between conductive parts, intended to achieve equipotentiality

[SOURCE: IEC 60050-826:2004, 826-13-19]

3.1.15

equipotential bonding bar
bar which is part of an equipotential bonding system and enables the electric connection of a number of conductors for equipotential bonding purposes

[SOURCE: IEC 60050-826:2004, 826-13-35]

3.1.16

protective bonding conductor
protective conductor provided for protective-equipotential-bonding

[SOURCE: IEC 60050-826:2004, 826-13-24, modified – The deprecated term "equipotential bonding conductor" has been deleted.]

3.1.17

exposed conductive part
conductive part of equipment which can be touched and which is not normally live, but which can become live when basic insulation fails

[SOURCE: IEC 60050-195:1998, 195-06-10]

3.1.18

extended terrestrial television distribution network or system
distribution network or system designed to provide sound and television signals received by terrestrial receiving antenna to households in one or more buildings

Note 1 to entry: This kind of network or system can possibly be combined with a satellite antenna for the additional reception of TV and/or radio signals via satellite networks.

Note 2 to entry: This kind of network or system can also carry other signals for special transmission systems (e.g. MoCA or WiFi) in the return path direction.