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INTERNATIONAL STANDARD



**Cable networks for television signals, sound signals and interactive services –
Part 11: Safety**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references.....	8
3 Terms, definitions, symbols and abbreviations	9
3.1 Terms and definitions	9
3.2 Symbols	15
3.3 Abbreviations.....	15
4 Fundamental requirements	16
4.1 General	16
4.2 Mechanical requirements	16
4.3 Accessible parts	16
4.4 Laser radiation.....	16
5 Protection against environmental influences.....	16
6 Equipotential bonding and earthing	17
6.1 General requirements	17
6.2 Equipotential bonding mechanisms	17
6.3 Equipotential bonding in meshed systems	26
6.3.1 References to other standards	26
6.3.2 General on AC mains.....	26
6.3.3 AC power distribution and connection of the protective conductor.....	26
6.3.4 Dangers and malfunction	27
6.3.5 Measures.....	27
7 Mains-supplied equipment	27
8 Remote power feeding in cable networks	28
8.1 Remote power feeding.....	28
8.1.1 Maximum allowed voltages	28
8.1.2 General requirements for equipment	28
8.1.3 Current-carrying capacity and dielectric strength of the components.....	28
8.2 Remote powering from subscriber premises.....	29
9 Protection against contact and proximity to electric power distribution systems.....	29
9.1 General	29
9.2 Overhead lines	29
9.2.1 Overhead lines up to 1 000 V	29
9.2.2 Overhead lines above 1 000 V	30
9.3 House installations up to 1 000 V.....	30
10 System outlets and transfer points	30
10.1 General	30
10.2 System outlet.....	31
10.2.1 Types of system outlets	31
10.2.2 Fully isolated system outlet	31
10.2.3 Semi-isolated system outlet	31
10.2.4 Non-isolated system outlet with protective element.....	31
10.2.5 Non-isolated system outlet without protective element.....	31
10.3 Transfer point.....	32
11 Protection against atmospheric overvoltages and elimination of potential differences.....	32

11.1	General	32
11.2	Protection of the antenna system	33
11.2.1	Selection of appropriate methods for protection of antenna systems	33
11.2.2	Building equipped with a lightning protection system (LPS)	34
11.2.3	Building not equipped with an LPS	40
11.3	Earthing and bonding of the antenna system	44
11.3.1	Internal protection system	44
11.3.2	Earthing conductors	44
11.3.3	Earth termination system	47
11.4	Overvoltage protection	49
12	Mechanical stability	50
12.1	General requirements	50
12.2	Bending moment	50
12.3	Wind-pressure values	52
12.4	Mast construction	52
12.5	Data to be published	53
Annex A (informative)	Earth loop impedance	54
Annex B (informative)	Use of shield wires to protect installations with coaxial cables	57
Annex C (informative)	Examples of calculation of risk due to lightning	60
Annex D (informative)	The following differences exist in some countries	63
Bibliography	74
Figure 1	– Example of equipotential bonding and earthing of a metal enclosure	18
Figure 2	– Example of equipotential bonding	19
Figure 3	– Example of equipotential bonding and indirect earthing of the amplifier and the cables via a voltage-dependent protective device	20
Figure 4	– Example of equipotential bonding and earthing of a building installation (underground connection)	21
Figure 5	– Example of equipotential bonding and earthing of a building installation (above ground connection)	22
Figure 6	– Example of equipotential bonding with a galvanic isolated cable entering a building (underground connection)	23
Figure 7	– Example of maintaining equipotential bonding whilst a unit is removed	25
Figure 8	– Areas of antenna-outdoor-mounting on buildings, where earthing is not mandatory	33
Figure 9	– Flow chart for selection of the appropriate method for protecting the antenna system against atmospheric overvoltages	35
Figure 10	– Example of equipotential bonded headends and antennas in a protected volume of the building LPS	36
Figure 11	– Example of equipotential bonded headends and antennas in a protected volume of the building LPS	37
Figure 12	– Example of equipotential bonded headends and antennas in a protected volume of an external isolated ATS	38
Figure 13	– Example of equipotential bonded antennas (not installed in a protected volume) and headend with direct connection to building LPS	39
Figure 14	– Example of equipotential bonded headend and earthed antennas (building without LPS)	42
Figure 15	– Example of bonding for antennas and headend (building without LPS and lightning risk lower than or equal to the tolerable risk)	43

Figure 16 – Example of protecting an antenna system (not installed in a protected volume) by additional discharge conductors ($R > R_T$)	46
Figure 17 – Examples of earthing mechanisms (minimum dimensions)	48
Figure 18 – Example of an overvoltage protective device for single dwelling unit	49
Figure 19 – Example of application of a coaxial overvoltage protective device for multiple dwelling unit	50
Figure 20 – Example of bending moment of an antenna mast	51
Figure A.1 – Systematic of earth loop resistance	55
Figure B.1 – Principle of single shield wire	59
Figure B.2 – Principle of two shield wires	59
Figure C.1 – Template for calculation of the risk due to lightning (Example No. 1)	60
Figure C.2 – Template for calculation of the risk due to lightning (Example No. 2)	62
Figure D.1 – IT power distribution system in Norway	64
Figure D.2 – Example of installations located farther than 20 m away from a transforming station	65
Figure D.3 – Example of installations located closer than 20m from a transforming station	65
Figure D.4 – Example of cabinets for cable network with locally fed equipment and mains placed less than 2 m apart	66
Figure D.5 – Example of cabinets for cable network with remotely fed equipment and mains placed less than 2 m apart	66
Figure D.6 – Example of cabinets for cable network with locally fed equipment and mains placed more than 2 m apart	67
Figure D.7 – Example of cabinets for cable network with remotely fed equipment and mains placed more than 2m apart	67
Figure D.8 – Example of an installation placing the amplifier in front of the galvanic isolator	68
Figure D.9 – Example of protection using a voltage depending device on network installations on poles	69
Figure D.10 – Example of the installation of a safety terminal in Japan	71
Figure D.11 – Examples of installation of a lightning protection system in Japan	72
Table 1 – Maximum allowed operation voltages and maximum allowed currents for coaxial cables in different cable network applications	29
Table 2 – Solutions for protection of antenna systems against atmospheric overvoltages	34
Table B.1 – Conductivity of different types of soil	57
Table B.2 – Protection factors (K_p) of protection measures against direct lightning strokes for buried cables	58

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**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 third edition cancels and replaces the second edition published in 2005. This edition constitutes a technical revision.

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

- The list of "differences in some countries" was transferred from the "Foreword" to informative Annex D.
- Some new terms and definitions were added.
- All Figures were reworked among other things concerning equipotential bonding and earthing details and were incorporated in the text at the appropriate places.

- Clause 11 "Protection against atmospheric overvoltages and elimination of potential differences" was completely reworked and re-structured taking into account among other things the provisions and requirements of the IEC 62305 series on "Lightning protection".
- New informative Annex A on "Earth loop impedance" was added.
- New informative Annex C on "Examples of calculation of risk due to lightning" was added.
- Former Annex B on "Special conditions using IT power line networks" was re-worded and incorporated in Annex D as "Difference in Norway".

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

FDIS	Report on voting
100/1679/FDIS	100/1708/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.

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

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.

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.

A bilingual version of this publication may be issued at a later date.

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 of the IEC 60728 series deal with cable networks including equipment and associated methods of measurement for headend reception, processing and distribution of television signals, 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.

This includes

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

and all kinds of equipment, systems and installations installed in such networks.

NOTE CATV encompasses the Hybrid Fibre Coaxial (HFC) networks used nowadays to provide telecommunications services, voice, data, audio and video both broadcast and narrowcast.

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

The standardization of any user terminals (i.e. tuners, receivers, decoders, terminals, etc.) as well as of any coaxial 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 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 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 60065:2001, *Audio, video and similar electronic apparatus – Safety requirements*

IEC 60364 (all parts), *Low-voltage electrical installations*

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

IEC 60364-5-52, *Electrical installations of buildings – Part 5-52: Selection and erection of electrical equipment – Wiring systems*

IEC 60364-5-54, *Electrical installations of buildings – Part 5-54: Selection and erection of electrical equipment – Earthing arrangements, protective conductors and protective bonding conductors*

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

IEC 60617, *Graphical symbols for diagrams*

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

IEC 60825-2, *Safety of laser products – Part 2: Safety of optical fibre communication systems (OFCS)*

IEC 60950-1:2005, *Information technology equipment – Safety – Part 1: General requirements*

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

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

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

IEC 62305-2:2006 *Protection against lightning – Part 2: Risk management*

IEC 62305-3:2006, *Protection against lightning – Part 3: Physical damage to structures and life hazard*

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

ISO 3864-1:2002, *Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs in workplaces and public areas*

EN 50117 (all parts), *Coaxial cables*

EN 50164-1, *Lightning Protection Components (LPC) – Part 1: Requirements for connection components*

EN 50164-2, *Lightning Protection Components (LPC) – Part 2: Requirements for conductors and earth electrodes*

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

EN 50310, *Application of equipotential bonding and earthing in buildings with information technology equipment*

CENELEC R 064-004, *Electrical installations of buildings – Protection against electromagnetic interference (EMI) in installations of buildings*