

<b>STN</b>	<b>Káblové siete pre televízne signály, rozhlasové signály a interaktívne služby</b> <b>Časť 106: Optické zariadenia pre systémy pri zaťažení digitálnych kanálov</b>	<b>STN</b> <b>EN IEC</b> <b>60728-106</b>  36 7211
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Cable networks for television signals, sound signals and interactive services - Part 106: Optical equipment for systems loaded with digital channels only

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 08/23

Obsahuje: EN IEC 60728-106:2023, IEC 60728-106:2023

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
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**EN IEC 60728-106**

July 2023

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English Version

**Cable networks for television signals, sound signals and  
interactive services - Part 106: Optical equipment for systems  
loaded with digital channels only  
(IEC 60728-106:2023)**

Réseaux de distribution par câbles pour signaux de  
télévision, signaux de radiodiffusion sonore et services  
interactifs - Partie 106: Matériel optique pour systèmes  
soumis à une charge de porteuses exclusivement  
numériques  
(IEC 60728-106:2023)

Kabelnetze für Fernsehsignale, Tonsignale und interaktive  
Dienste - Teil 106: Optische Geräte für Systeme bei  
Vollbelegung mit digitalen Kanälen  
(IEC 60728-106:2023)

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**EN IEC 60728-106:2023 (E)****European foreword**

The text of document 100/3899/FDIS, future edition 1 of IEC 60728-106, prepared by IEC/TC 100 "Audio, video and multimedia systems and equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60728-106:2023.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2024-07-04
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-07-04

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In the official version, for Bibliography, the following notes have to be added for the standard indicated:

- IEC 60068-1 NOTE Approved as EN 60068-1
- IEC 60728-1:2014 NOTE Approved as EN 60728-1:2014 (not modified)
- IEC 60728-113 NOTE Approved as EN IEC 60728-113
- IEC 60728-6:2011 NOTE Approved as EN 60728-6:2011 (not modified)
- IEC 60825-2 NOTE Approved as EN 60825-2
- IEC 61280-4-2 NOTE Approved as EN 61280-4-2
- IEC 61281-1:2017 NOTE Approved as EN IEC 61281-1:2018 (not modified)
- IEC 61291-1:2018 NOTE Approved as EN IEC 61291-1:2018 (not modified)

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cencenelec.eu](http://www.cencenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2	series	Environmental testing	EN 60068-2	series
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	EN 60529	-
IEC 60728-3	2017	Cable networks for television signals, sound signals and interactive services - Part 3: Active wideband equipment for cable networks	EN IEC 60728-3	2018
IEC 60728-11	-	Cable networks for television signals, sound signals and interactive services - Part 11: Safety	EN IEC 60728-11	-
IEC 60728-101	-	Cable networks for television signals, sound signals and interactive services - Part 101: System performance of forward paths loaded with digital channels only	EN 60728-101	-
IEC 60793-2-50	-	Optical fibres - Part 2-50: Product specifications - Sectional specification for class B single-mode fibres	EN IEC 60793-2-50	-
IEC 60825-1	-	Safety of laser products - Part 1: Equipment classification and requirements	EN 60825-1	-
IEC 61280-1-1	-	Fibre optic communication subsystem basic test procedures - Part 1-1: Test procedures for general communication subsystems - Transmitter output optical power measurement for single-mode optical fibre cable	EN 61280-1-1	-
IEC 61280-1-3	-	Fibre optic communication subsystem test procedures - Part 1-3: General communication subsystems - Measurement of central wavelength, spectral width and additional spectral characteristics	EN IEC 61280-1-3	-
IEC 61290-1	series	Optical amplifiers - Test methods - Part 1-1: Power and gain parameters	EN IEC 61290-1	series

**EN IEC 60728-106:2023 (E)**

IEC 61290-3-2	2008	Optical amplifiers - Test methods - Part 3-2: Noise figure parameters - Electrical spectrum analyser method	EN 61290-3-2	2008
IEC 61290-5	series	Optical amplifiers - Test methods - Part 5: Reflectance parameters	EN 61290-5	series
IEC 61290-6-1	-	Optical fibre amplifiers - Basic specification - Part 6-1: Test methods for pump leakage parameters - Optical demultiplexer	EN 61290-6-1	-
IEC 61290-11	series	Optical amplifiers - Test methods - Part 11: Polarization mode dispersion parameter	EN 61290-11	series
IEC 61300-3-6	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-6: Examinations and measurements - Return loss	EN 61300-3-6	-



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# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Cable networks for television signals, sound signals and interactive services –  
Part 106: Optical equipment for systems loaded with digital channels only**

**Réseaux de distribution par câbles pour signaux de télévision, signaux de  
radiodiffusion sonore et services interactifs –  
Partie 106: Matériel optique pour systèmes soumis à une charge de porteuses  
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Edition 1.0 2023-05

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Cable networks for television signals, sound signals and interactive services –  
Part 106: Optical equipment for systems loaded with digital channels only**

**Réseaux de distribution par câbles pour signaux de télévision, signaux de  
radiodiffusion sonore et services interactifs –  
Partie 106: Matériel optique pour systèmes soumis à une charge de porteuses  
exclusivement numériques**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**CABLE NETWORKS FOR TELEVISION SIGNALS,  
SOUND SIGNALS AND INTERACTIVE SERVICES –**
**Part 106: Optical equipment for systems loaded with digital channels only****FOREWORD**

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IEC 60728-106 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. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
100/3899/FDIS	100/3923/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

A list of all parts in the IEC 60728 series, published 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 document will remain unchanged until the stability date indicated on the IEC website under [webstore.iec.ch](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

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

## INTRODUCTION

International 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 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 ranges from antennas and/or special interfaces to headends, or other interface points on the network up to any terminal interface of the equipment on the customer's premises.

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) 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 106: Optical equipment for systems loaded with digital channels only

### 1 Scope

This part of IEC 60728 lays down the measuring methods, performance requirements and data publication requirements of optical equipment of cable networks for television signals, sound signals and interactive services loaded with digital channels only.

This document

- applies to all optical transmitters, receivers, amplifiers, directional couplers, isolators, multiplexing devices, connectors and splices used in cable networks;
- covers the frequency range 5 MHz to 3 300 MHz;

NOTE The upper limit of 3 300 MHz is an example, but not a strict value.

- identifies guaranteed performance requirements for certain parameters;
- lays down data publication requirements with guaranteed performance;
- describes methods of measurement for compliance testing.

All requirements and published data relate to minimum performance levels within the specified frequency range and in well-matched conditions as might be applicable to cable networks for television signals, sound signals and interactive services.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60068-2 (all parts), *Environmental testing*

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

IEC 60728-101, *Cable networks for television signals, sound signals and interactive services – Part 101: System performance of forward paths loaded with digital channels only*

IEC 60728-3:2017, *Cable networks for television signals, sound signals and interactive services – Part 3: Active wideband equipment for cable networks*

IEC 60728-11, *Cable networks for television signals, sound signals and interactive services – Part 11: Safety*

IEC 60793-2-50, *Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibres*

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



IEC 61280-1-1, *Fibre optic communication subsystem basic test procedures – Part 1-1: Test procedures for general communication subsystems – Transmitter output optical power measurement for single-mode optical fibre cable*

IEC 61280-1-3, *Fibre optic communication subsystem test procedures – Part 1-3: General communication subsystems – Measurement of central wavelength, spectral width and additional spectral characteristics*

IEC 61290-1 (all parts), *Optical amplifiers – Test methods – Part 1: Power and gain parameters*

IEC 61290-3-2:2008, *Optical amplifiers – Test methods – Part 3-2: Noise figure parameters – Electrical spectrum analyser method*

IEC 61290-5 (all parts), *Optical amplifiers – Test methods – Part 5: Reflectance parameters*

IEC 61290-6-1, *Optical fibre amplifiers – Basic specification – Part 6-1: Test methods for pump leakage parameters – Optical demultiplexer*

IEC 61290-11 (all parts), *Optical amplifiers – Test methods – Part 11: Polarization mode dispersion parameter*

IEC 61300-3-6, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-6: Examinations and measurements – Return loss*

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