

STN	Káblové siete pre televízne signály, rozhlasové signály a interaktívne služby Časť 113: Optické systémy na prenos vysielaného signálu pri zaťažení digitálnych kanálov	STN EN IEC 60728-113 36 7211
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Cable networks for television signals, sound signals and interactive services - Part 113: Optical systems for broadcast signal transmissions 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. 02/19

Obsahuje: EN IEC 60728-113:2018, IEC 60728-113:2018

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EUROPEAN STANDARD

EN IEC 60728-113

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2018

ICS 33.060.40

English Version

**Cable networks for television signals, sound signals and
interactive services - Part 113: Optical systems for broadcast
signal transmissions loaded with digital channels only
(IEC 60728-113:2018)**

Réseaux de distribution par câbles pour signaux de télévision,
signaux de radiodiffusion sonore et services interactifs - Partie
113 : Systèmes optiques pour transmissions de signaux
radiodiffusés soumis à une charge de porteuses exclusivement
numériques
(IEC 60728-113:2018)

Kabelnetze für Fernsehsignale, Tonsignale und interaktive
Dienste - Teil 113: Optische Systeme zur
Rundfunksignalübertragung bei Vollbelegung mit digitalen
Kanälen
(IEC 60728-113:2018)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 60728-113:2018 (E)**European foreword**

The text of document 100/3103/FDIS, future edition 1 of IEC 60728-113, 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 60728-113:2018.

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) 2019-05-14
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-08-14

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

IEC 60068 (series)	NOTE	Harmonized as EN 60068 (series)
IEC 60728-1-2	NOTE	Harmonized as EN 60728-1-2
IEC 60728-3:2017	NOTE	Harmonized as EN IEC 60728-3:2018 (not modified)
IEC 60728-5	NOTE	Harmonized as EN 60728-5
IEC 60728-10	NOTE	Harmonized as EN 60728-10
IEC 60728-11	NOTE	Harmonized as EN 60728-11
IEC 60728-13-1	NOTE	Harmonized as EN 60728-13-1
IEC 60728-2	NOTE	In Europe, EN 50083-2 applies
IEC 60875-1	NOTE	Harmonized as EN 60875-1
IEC 61280-1-1	NOTE	Harmonized as EN 61280-1-1
IEC 61280-1-3	NOTE	Harmonized as EN 61280-1-3
IEC 61280-2-2	NOTE	Harmonized as EN 61280-2-2:2012 (not modified)
IEC 61280-2-9	NOTE	Harmonized as EN 61280-2-9
IEC 61281-1	NOTE	Harmonized as EN IEC 61281-1
IEC 61290-1-2	NOTE	Harmonized as EN 61290-1-2
IEC 61290-1-3	NOTE	Harmonized as EN 61290-1-3
IEC 61754-13	NOTE	Harmonized as EN 61754-13

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.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-1	2013	Environmental testing - Part 1: General and guidance	EN 60068-1	2014
IEC 60728-1	2014	Cable networks for television signals, sound signals and interactive services - Part 1: System performance of forward paths	EN 60728-1	2014
IEC 60728-6	2011	Cable networks for television signals, sound signals and interactive services - Part 6: Optical equipment	EN 60728-6	2011
IEC/TR 60728-6-1	2006	Cable networks for television signals, sound signals and interactive services - Part 6-1: System guidelines for analogue optical transmission systems	-	-
IEC 60728-101	2016	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	2017
IEC 60825-1	-	Safety of laser products - Part 1: Equipment classification and requirements	EN 60825-1	-
IEC 60825-2	-	Safety of laser products - Part 2: Safety of optical fibre communication systems (OFCS)	EN 60825-2	-
IEC 60825-12	-	Safety of laser products - Part 12: Safety of free space optical communication systems used for transmission of information	EN 60825-12	-
IEC 61755-1	2005	Fibre optic connector optical interfaces - Part 1: Optical interfaces for single mode non-dispersion shifted fibres - General and guidance	EN 61755-1	2006
ITU-T Recommendation G.692	-	Optical interfaces for multichannel systems with optical amplifiers	-	-
ITU-T Recommendation G.694.2	-	Spectral grids for WDM applications: CWDM wavelength grid	-	-

EN IEC 60728-113:2018 (E)

ITU-T Recommendation J.382	-	Advanced digital downstream transmission systems for television, sound and data services for cable distribution	-	-
ITU-T Recommendation J.83	-	Digital multi-programme systems for television, sound and data services for cable distribution	-	-



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INTERNATIONAL STANDARD



**Cable networks for television signals, sound signals and interactive services –
Part 113: Optical systems for broadcast signal transmissions loaded with digital
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**Cable networks for television signals, sound signals and interactive services –
Part 113: Optical systems for broadcast signal transmissions loaded with digital
channels only**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**CABLE NETWORKS FOR TELEVISION SIGNALS,
SOUND SIGNALS AND INTERACTIVE SERVICES –****Part 113: Optical systems for broadcast signal
transmissions loaded with digital channels only**

FOREWORD

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International Standard IEC 60728-13 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.

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

FDIS	Report on voting
100/3103/FDIS	100/3125/RVD

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

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

The list of all the parts of 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 "<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.

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

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 113: Optical systems for broadcast signal transmissions loaded with digital channels only

1 Scope

This part of IEC 60728 is applicable to optical transmission systems for broadcast signal transmission that consist of headend equipment, optical transmission lines, in-house wirings and system outlets. These systems are primarily intended for television and sound signals using digital transmission technology. This document specifies the basic system parameters and methods of measurement for optical distribution systems between headend equipment and system outlets in order to assess the system performance and its performance limits.

In this document, the upper signal frequency is limited at about 1 000 MHz. For systems requiring more bandwidth, refer to IEC 60728-13-1.

The purpose of this part of IEC 60728 is to describe the system specifications of FTTH (fibre to the home) networks for digitally modulated broadcast signal transmission. This document is also applicable to broadcast signal transmission using a telecommunication network if it satisfies the optical portion of this document. This document describes RF transmission for fully digitalized broadcast and narrowcast (limited area distribution of broadcast) signals over FTTH, and introduces xPON system as a physical layer media. The detailed description of the physical layer is out of the scope of this document. The scope is limited to RF signal transmission over FTTH, thus, it does not include IP transport technologies, such as IP Multicast and associate protocols.

Some interference descriptions between the telecommunication system and the broadcast system are addressed in Clause 7.

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 60068-1:2013, *Environmental testing – Part 1: General and guidance*

IEC 60728-1:2014, *Cable networks for television signals, sound signals and interactive services – Part 1: System performance of forward paths*

IEC 60728-6:2011, *Cable networks for television signals, sound signals and interactive services – Part 6: Optical equipment*

IEC TR 60728-6-1:2006, *Cable networks for television signals, sound signals and interactive services – Part 6-1: System guidelines for analogue optical transmission systems*

IEC 60728-101:2016, *Cable networks for television signals, sound signals and interactive services – Part 101: System performance of forward paths loaded with digital channels only*

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 60825-12, *Safety of laser products – Part 12: Safety of free space optical communication systems used for transmission of information*

IEC 61755-1:2005, *Fibre optic connector optical interfaces – Part 1: Optical interfaces for single mode non-dispersion shifted fibres – General and guidance*

ITU-T Recommendation G.692, *Optical interfaces for multichannel systems with optical amplifiers*

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koniec náhľadu – text ďalej pokračuje v platenej verzii STN