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Kabelnät för television, ljudradio och interaktiva tjänster – Del 13: Optiska system för överföring av radio- och tv-signaler

*Cable networks for television signals, sound signals and interactive services –
Part 13: Optical systems for broadcast signal transmissions*

Som svensk standard gäller europastandarden EN 60728-13:2010. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60728-13:2010.

Nationellt förord

Europastandarden EN 60728-13:2010

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60728-13, First edition, 2010 - Cable networks for television signals, sound signals and interactive services - Part 13: Optical systems for broadcast signal transmissions**

utarbetad inom International Electrotechnical Commission, IEC.

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**Cable networks for television signals, sound signals
and interactive services -
Part 13: Optical systems for broadcast signal transmissions
(IEC 60728-13:2010)**

Réseaux de distribution par câbles
destinés aux signaux de télévision,
de radiodiffusion sonore
et aux services interactifs -
Partie 13 : Systèmes optiques
pour transmission de signaux
de radiodiffusions
(CEI 60728-13:2010)

Kabelnetze für Fernsehsignale,
Tonsignale und interaktive Dienste -
Teil 13: Optische Anlagen
zur Übertragung
von Rundfunksignalen
(IEC 60728-13:2010)

This European Standard was approved by CENELEC on 2010-02-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 100/1623/FDIS, future edition 1 of IEC 60728-13, prepared by IEC TC 100, Audio, video and multimedia systems and equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60728-13 on 2010-02-01.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

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) 2010-11-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2013-02-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60728-13:2010 was approved by CENELEC as a European Standard without any modification.

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

IEC 60068	NOTE	Harmonized in EN 60068 series (not modified).
IEC 60728-1-2	NOTE	Harmonized as EN 60728-1-2:2009 (not modified).
IEC 60728-3	NOTE	Harmonized as EN 60728-3.
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 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 61280-2-9	NOTE	Harmonized as EN 61280-2-9.
IEC 61281-1	NOTE	Harmonized as EN 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 61300-3-2 NOTE Harmonized as EN 61300-3-2.

IEC 61754-13 NOTE Harmonized as EN 61754-13.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-1	1988	Environmental testing - Part 1: General and guidance	EN 60068-1 ¹⁾	1994
IEC 60728-1	2007	Cable networks for television signals, sound signals and interactive services - Part 1: System performance of forward paths	EN 60728-1	2008
IEC 60728-6	2003	Cable networks for television signals, sound signals and interactive services - Part 6: Optical equipment	EN 60728-6	2003
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 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 61291-1	2006	Optical amplifiers - Part 1: Generic specification	EN 61291-1	2006
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 + corr. December	2006 2006
IEC/TR 61930	1998	Fibre optic graphical symbology	-	-
IEC/TR 61931	1998	Fibre optic - Terminology	-	-
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	-	-

¹⁾ EN 60068-1 includes A1 to IEC 60068-1
+ corr. October .

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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

- CATV¹-networks;
- MATV-networks and SMATV-networks;
- individual receiving networks;

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

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.

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.

¹ This word encompasses the HFC (Hybrid Fibre Cable) networks used nowadays to provide telecommunications services, voice, data, audio and video both broadcast and narrowcast.

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

Part 13: Optical systems for broadcast signal transmissions

1 Scope

This part of IEC 60728 is applicable to optical transmission system for broadcast signal transmission that consists of a head-end equipment, optical transmission lines, in-house wirings and a system outlet. The system is primarily intended for television and sound signals using analogue and/or digital transmission technology. This standard specifies the basic system parameters and methods of measurement for optical distribution system having a system outlet in order to assess the system performance and its performance limits.

The purpose of this part of IEC 60728 is to describe the system specification of FTTH (fibre to the home) network for broadcast signal transmission. This standard is also applicable to the broadcast signal transmission using telecommunication network if it satisfies the optical portion of this standard. This standard describes RF transmission for broadcast and narrowcast (limited area distribution of broadcast) signals over FTTH, and introduces xPON system as a physical layer media. The detailed description of physical layer is out of the scope of this standard. 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 telecommunication system and broadcast system addressed in Clause 7 and Annex D should be referred to for detailed explanations. Annex A describes actual service systems with design consideration based on this standard. Annex B gives an overview of the optical transmission systems applicable for broadcast signal transmission.

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 60068-1:1988, *Environmental testing – Part 1: General and guidance*

IEC 60728-1:2007, *Cable networks for television signals, sound signals and interactive services – Part 1: System performance of forward paths*

IEC 60728-6:2003, *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 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 61291-1:2006, *Optical amplifiers – Part 1: Generic specification*

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

IEC 61930:1998, *Fibre optic graphical symbology*

IEC 61931:1998, *Fibre optic – Terminology*

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*

