



NSAI
Standards

Irish Standard
I.S. EN IEC 60728-3:2018

Cable networks for television signals, sound signals and interactive services - Part 3: Active wideband equipment for cable networks (TA 5)

I.S. EN IEC 60728-3:2018

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

I.S. EN IEC 60728-3:2018 is the adopted Irish version of the European Document EN IEC 60728-3:2018, Cable networks for television signals, sound signals and interactive services - Part 3: Active wideband equipment for cable networks (TA 5)

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EUROPEAN STANDARD

EN IEC 60728-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2018

ICS 33.060.40; 33.170

Supersedes EN 60728-3:2011

English Version

**Cable networks for television signals, sound signals and
interactive services - Part 3: Active wideband equipment for
cable networks (TA 5)
(IEC 60728-3:2017)**

Réseaux de distribution par câbles pour signaux de
télévision, signaux de radiodiffusion sonore et services
interactifs - Partie 3: Matériel actif à large bande pour
réseaux de distribution par câbles
(IEC 60728-3:2017)

Kabelnetze für Fernsehsignale, Tonsignale und interaktive
Dienste - Teil 3: Aktive Breitbandgeräte für Kabelnetze
(IEC 60728-3:2017)

This European Standard was approved by CENELEC on 2018-01-01. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

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

EN IEC 60728-3:2018 (E)**European foreword**

The text of document 100/2975/FDIS, future edition 5 of IEC 60728-3, prepared by technical area 5 "Cable networks for television signals, sound signals and interactive services" of 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 60728-3:2018.

The following dates are fixed:

- latest date by which the document has to be (dop) 2018-10-01
implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2021-01-01
standards conflicting with the
document have to be withdrawn

This document supersedes EN 60728-3:2011, EN 60728-3-1:2012 and CLC/TS 50083-3-3:2014.

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

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The text of the International Standard IEC 60728-3:2017 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 60728-1	NOTE	Harmonized as EN 60728-1.
IEC 60728-6:2011	NOTE	Harmonized as EN 60728-6:2011 (not modified)
IEC 60728-10	NOTE	Harmonized as EN 60728-10
IEC 61169-2	NOTE	Harmonized as EN 61169-2
IEC 61169-24	NOTE	Harmonized as EN 61169-24
ISO 80416 series	NOTE	Harmonized in EN 80416 series

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	-	Environmental testing -- Part 1: General and guidance	EN 60068-1	-
IEC 60068-2-1	-	Environmental testing -- Part 2-1: Tests - Test A: Cold	EN 60068-2-1	-
IEC 60068-2-2	-	Environmental testing -- Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	-
IEC 60068-2-6	-	Environmental testing -- Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-14	-	Environmental testing -- Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	-
IEC 60068-2-27	-	Environmental testing -- Part 2-27: Tests - Test Ea and guidance: Shock	EN 60068-2-27	-
IEC 60068-2-30	-	Environmental testing -- Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)	EN 60068-2-30	-
IEC 60068-2-31	-	Environmental testing -- Part 2-31: Tests - Test Ec: Rough handling shocks, primarily for equipment-type specimens	EN 60068-2-31	-
IEC 60068-2-40	-	Basic environmental testing procedures - Part 2: Tests. Test Z/AM: Combined cold/low air pressure tests	EN 60068-2-40	-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	-	-
IEC 60728-2	-	Cable networks for television signals, sound signals and interactive services - Part 2: Electromagnetic compatibility for equipment	EN 50083-2	-
IEC 60728-4	-	Cable networks for television signals, sound signals and interactive services -- Part 4: Passive wideband equipment for coaxial cable networks	EN 60728-4	-
IEC 60728-5	-	Cable networks for television signals, sound signals and interactive services - Part 5: Headend equipment	EN 60728-5	-
IEC 60728-11	-	Cable networks for television signals, sound signals and interactive services -- Part 11: Safety	EN 60728-11	-
IEC 61000-4-5	-	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	-
IEC 61319-1	-	Interconnections of satellite receiving equipment -- Part 1: Europe	EN 61319-1	-

I.S. EN IEC 60728-3:2018

EN IEC 60728-3:2018 (E)

IEC 61319-2	-	Interconnections of satellite receiving equipment -- Part 2: Japan	-	-
IEC 62368-1	-	Audio/video, information and communication technology equipment -- Part 1: Safety requirements	EN 62368-1	-



IEC 60728-3

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INTERNATIONAL STANDARD

**Cable networks for television signals, sound signals and interactive services
Part 3: Active wideband equipment for cable networks**



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IEC 60728-3

Edition 5.0 2017-11

INTERNATIONAL STANDARD

**Cable networks for television signals, sound signals and interactive services
Part 3: Active wideband equipment for cable networks**

INTERNATIONAL
ELECTROTECHNICAL
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 3: Active wideband equipment for cable networks

FOREWORD

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International Standard IEC 60728-3 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 2010. This edition constitutes a technical revision.

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

- a) extension of upper frequency range limit for cable network equipment in the forward path from 1 000 MHz to 1 218 MHz (optional up to 1 794 MHz);
- b) extension of upper frequency range limit for cable network equipment in the return path from 85 MHz to 204 MHz;
- c) integration and update of IEC 60728-3-1 content;

- d) integration and update of the Technical Specification CLC/TS 50083-3-3 content;
- e) deletion of specifications and test methods for obsolete analogue parameters;
- f) additional normative references;
- g) additional terms and definitions and abbreviations.

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

FDIS	Report on voting
100/2975/FDIS	100/2990/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, 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.

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 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 3: Active wideband equipment for cable networks

1 Scope

This part of IEC 60728 specifies the measuring methods, performance requirements and data publication requirements for active wideband equipment of cable networks for television signals, sound signals and interactive services.

This document

- applies to all amplifiers used in cable networks;
- covers the frequency range 5 MHz to 3 000 MHz;

NOTE The upper limit of 3 000 MHz is an example, but not a strict value.

- applies to one-way and two-way equipment;
- specifies the basic methods of measurement of the operational characteristics of the active equipment in order to assess the performance of this equipment;
- identifies the performance specifications to be published by the manufacturers;
- states the minimum performance requirements of certain parameters.

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, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-1, *Environmental testing – Part 2-1: Tests – Tests A: Cold*

IEC 60068-2-2, *Environmental testing – Part 2-2: Tests – Tests B: Dry heat*

IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-14, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-27, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60068-2-30, *Environmental testing – Part 2-30: Tests – Test dB: Damp heat, cyclic (12 h + 12 h cycle)*

IEC 60068-2-31, *Environmental testing – Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens*

IEC 60068-2-40, *Basic environmental testing procedures – Part 2-40: Tests – Test Z/AM: Combined cold/low air pressure tests*

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