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BUREAU OF INDIAN STANDARDS
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मसौदा भारतीय मानक
टेलीविजन और ध्वनि संकेतों के लिए केबलकृत वितरण तंत्र
भाग 10 प्रकाशित उपकरण
(पहला पुनरीक्षण)

Draft Indian Standard
Cable Distribution System for Television and Sound Signals
Part 10: Optical Equipment Consumption
(First Revision)

ICS 33.060.40; 33.160.99

Audio, Video and Multimedia Systems and Equipment Sectional Committee, LITD 07	**Last Date for Comments: 10th February 2024**

NATIONAL FOREWORD

(Formal clauses will be added later)

This draft Indian Standard (Part 10) (First Revision) which is identical with IEC 60728-6 : 2011 Cable distribution system for television and sound signals: Part 10 optical equipment' issued by the International Electrotechnical Commission (IEC) *will be* adopted by the Bureau of Indian Standards on the recommendations of the Audio, Video And Multimedia Systems And Equipment Sectional Committee and approval of the Electronics and Information Technology Division Council.

This Standard was first published in 2003 and was identical with IEC 60728-6:2001. The first revision of this standard has been undertaken to align it with the latest version of IEC 60728-6:2011.

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

• The normative references were updated.
• The methods of measurement for optical power and return loss were substituted by references to other standards.
• The method of measurement for polarization dependent loss was deleted.
• A method of measurement for carrier-to-crosstalk ratio (CCR) was added.
• The methods of measurement for CSO and CTB of optical amplifiers were substituted by a method of measurement for microscopic gain tilt of optical amplifiers. This parameter can be used for calculating the second order distortion of optical amplifiers according to the method described in the new Annex B.
• New classes for optical transmitters and receivers have been defined.

The text of IEC Standard will be approved as suitable for publication as an Indian Standard without deviations. Certain conventions and terminologies are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard', and

b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted draft standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their respective places, are listed below along with their degree of equivalence for the editions indicated. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies:

International Standards	**Corresponding Indian Standard**	**Degree of Equivalence**
IEC 60068-1:1988, Environmental testing – Part 1: General and guidance	IS/IEC 60068-1 : 2013 IEC 60068-1:2013 Environmental Testing Part 1 General and Guidance	Identical
IEC 60068-2-1, Environmental testing – Part 2-1: Tests – Test A: Cold	IS/IEC 60068-2-1 : 2007 IEC 60068-2-1:2007 Environmental Testing Part 2 Tests Section 1 Test A: Cold	Identical

IEC 60068-2-2, Environmental testing – Part 2-2: Tests – Test B: Dry heat	IS/IEC 60068-2-2 : 2007 IEC 60068-2-2:2007 Environmental Testing Part 2: Tests - Test B Section 2: Dry Heat	Identical
IEC 60068-2-6:2007, Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)	IS/IEC 60068-2-6 : 2007 IEC 60068-2-6:2007 Environmental Testing Part 2 Tests Section 6 Test Fc: Vibration sinusoidal	Identical
IEC 60068-2-14, Environmental testing – Part 2-14: Tests – Test N: Change of temperature	IS/IEC 60068-2-14 : 2009 IEC 60068 Part 2/Sec 14:2009 Environmental testing Part 2: Tests Section 14: Test N: Change of temperature	Identical
IEC 60169-24, Radio-frequency connectors – Part 24: Radio-frequency coaxial connectors with screw coupling, typically for use in 75 ohm cable distribution systems (Type F)	IS 5054 (Part 24) : 2007 IEC 60169-24:1991 Radio frequency connectors: Part 24 radio frequency coaxial connectors with screw coupling, typically for use in 75 ohm cable distribution systems (Type F)	Identical
IEC 60529, Degrees of protection provided by enclosures (IP Code)	IS/IEC 60529 : 2001 Degrees of protection provided by enclosures (IP Code)	Identical
IEC 60068-2-27 Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock	IS 9000 (Part 7/Sec 1) : 2018 IEC 60068-2-27 : 2008 Basic environmental testing procedures for electronic and electrical items: Part 7 impact test: Sec 1 shock (Test Ea) (Second Revision)	Identical
IEC 60068-2-30 Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12+12 h cycle)	IS 9000 (Part 5/Sec 12) : 1981 Basic environmental testing procedures for electronic and electrical items: Part 5 damp heat (Cyclic) test	Identical
IEC 60068-2-31 Environmental testing – Part 2-31: Tests – Test Ec: Rough handling shocks,primarily for equipment-type specimens	IS 9000 (Part 7/Sec 3) : 2019 IEC 60068-2-31 : 2008 Environmental testing: Part 7 tests :: Sec 3 test Ec: rough handling shocks, primarily for equipment - Types specimens (First Revision)	Identical
IEC 60728-1 Cable networks for television signals, sound signals and	IS 14231 (Part 1) :2014 IEC 60728-1 Cabled distribution systems for television and sound signals: Part 1	Identical

interactive services –Part 1: System performance of forward paths	methods of measurement and system performance (Second Revision)(Under Development Document No. LITD 07(22738))	
IEC/TR 61931:1998 Fiber optic – Terminology	IS 16283 : 2014 IEC 61931 : 1998 Fibre Optic Terminology	Identical
IEC 80416 (all parts) Basic principles for graphical symbols for use on equipment	IS 16898 (Part 1) : 2023 IEC 80416-1 : 2008 Basic Principles for Graphical Symbols for Use on Equipment Part 1 Creation of Graphical Symbols for Registration IS 16898 (Part 2) : 2018 ISO 80416-2 : 2001 Basic Principles for Graphical Symbols for Use on Equipment Part 2 Form and Use of Arrows IS 16898 (Part 3) : 2023 IEC 80416-3 : 2002 Basic Principles for Graphical Symbols for Use on Equipment Part 3 Guidelines for the Application of Graphical Symbols IS 16898 (Part 4) : 2018 ISO 80416-4 : 2005 Basic Principles for Graphical Symbols for Use on Equipment Part 4 Guidelines for the Adaptation of Graphical Symbols for Use on Screens and Displays (Icons)	Identical

The technical committee has reviewed the provisions of the following International Standard referred in this adopted draft standard and has decided that it is acceptable for use in conjunction with this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies:-

International Standard	Title
IEC 60068-2-40	Environmental testing – Part 2-40: Tests – Test Z/AM: Combined cold/low air pressure tests (Withdrawn)
IEC 60417	Graphical symbols for use on equipment
IEC 60617	Graphical symbols for diagrams
IEC 60728-2	Cable networks for television signals, sound signals and interactive services –Part 2: Electromagnetic compatibility for equipment
IEC 60728-11	Cable networks for television signals, sound signals and interactive services –Part 11: Safety
IEC 60728-13:2010	Cable networks for television signals, sound signals and interactive services – Part 13: Optical systems for broadcast signal transmissions
IEC 60793-2-50:2008	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 basic test procedures – Part 1-3: General communication subsystems – Central wavelength and spectral width measurement
IEC 61282-4	Fibre optic communication system design guides – Part 4: Accommodation and utilization of non-linear effects
IEC 61290-1 (all parts)	Optical amplifiers – Test methods – Part 1: Power and gain parameters
IEC 61290-1-3	Optical amplifiers – Test methods – Part 1-3: Power and gain parameters – Optical power meter method
IEC 61290-3-2:2003	Optical amplifiers – Part 3-2: Test methods for noise figure parameters – Electrical spectrum analyzer method
IEC 61290-5 (all parts)	Optical amplifiers – Test methods – Part 5: Reflectance parameters
IEC 61290-6 (all parts)	Optical fibre amplifiers – Basic specification – Part 6: Test methods for pump leakage parameters
IEC 61290-11 (all parts)	Optical amplifiers – Test methods – Part 11: Polarization mode dispersion parameter
IEC 61291-1	Optical amplifiers – Part 1: Generic specification
IEC 61291-5-2	Optical amplifiers – Part 5-2: Qualification specifications – Reliability qualification for optical fibre amplifiers
IEC 61300-3-6	Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-6: Examinations and measurements – Return loss
IEC 61754-4	Fibre optic connector interfaces – Part 4: Type SC connector family
IEC 60728-3:2010	Cable networks for television signals, sound signals and interactive services – Part 3: Active wideband equipment for coaxial cable networks

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (Second Revision)'. The number of significant places retained in the rounded off value should be same as that of the specified value in this standard.

Scope of IEC 60728-6: 2011 is as follows:

"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.

This standard

- 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 3 000 MHz;
  NOTE The upper limit of 3 000 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."

Note: - The Technical content of this document has not been enclosed as these are identical with the corresponding IEC Standard. For details please refer to IEC 60728-6:2011 or kindly contact

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