

(PREVIEW)

IS 616 :2010
IEC 60065 : 2005

Indian Standard
**AUDIO, VIDEO AND SIMILAR ELECTRONIC
APPARATUS - SAFETY REQUIREMENTS**
(*Fourth Revision*)

1.1 Scope

1.1.1 This International Safety Standard applies to electronic apparatus designed to be fed from the MAINS, from a SUPPLY APPARATUS, from batteries or from REMOTE POWER FEEDING and intended for reception, generation, recording or reproduction respectively of audio, video and associated signals. It also applies to apparatus designed to be used exclusively in combination with the above-mentioned apparatus.

This standard primarily concerns apparatus intended for household and similar general use but which may also be used in places of public assembly such as schools, theatres, places of worship and the workplace. PROFESSIONAL APPARATUS intended for use as described above is also covered unless falling specifically within the scope of other standards.

This standard concerns only safety aspects of the above apparatus; it does not concern other matters, such as style or performance.

This standard applies to the above-mentioned apparatus, if designed to be connected to the TELECOMMUNICATION NETWORK or similar network, for example by means of an integrated modem.

Some examples of apparatus within the scope of this standard are:

- receiving apparatus and amplifiers for sound and/or vision;
- independent LOAD TRANSDUCERS and SOURCE TRANSDUCERS;
- SUPPLY APPARATUS intended to supply other apparatus covered by the scope of this standard;
- ELECTRONIC MUSICAL INSTRUMENTS, and electronic accessories such as rhythm generators, tone generators, music tuners and the like for use with electronic or non-electronic musical instruments;
- audio and/or video educational apparatus;
- video projectors;

NOTE 1 Film projectors, slide projectors, overhead projectors are covered by IEC 60335-2-56 [5]¹

- video cameras and video monitors;
- video games and flipper games;

NOTE 2 Video and flipper games for commercial use are covered by IEC 60335-2-82 [6]

- juke boxes;
- electronic gaming and scoring machines;

NOTE 3 Electronic gaming and scoring machines for commercial use are covered by IEC 60335-2-82 [6]

- teletext equipment;
- record and optical disc players;

- tape and optical disc recorders;
- antenna signal converters and amplifiers;
- antenna positioners;
- Citizen's Band apparatus;
- apparatus for IMAGERY;
- electronic light effect apparatus;
- apparatus for use in alarm systems;
- intercommunication apparatus, using low voltage MAINS as the transmission medium;
- cable head-end receivers;
- multimedia apparatus;

NOTE 4 The requirements of IEC 60950 may also be used to meet the requirements for safety of multi media apparatus (see also IEC GlJide 112 [16])

- professional general use amplifiers, record or disc players, tape players, recorders, and public address systems;
- professional sound/video systems;
- electronic flash apparatus for photographic purposes (see Annex L).

1.1.2 This standard applies to apparatus with a RATED SUPPLY VOLTAGE not exceeding

- 250 V a.c. single phase or d.c. supply;
- 433 V a.c. in the case of apparatus for connection to a supply other than single-phase.

1.1.3 This standard applies to apparatus for use at altitudes not exceeding 2 000 m above sea level, primarily in dry locations and in regions with moderate or tropical climates.

For apparatus with protection against splashing water, additional requirements are given in annex A.

For apparatus to be connected to TELECOMMUNICATION NETWORKS, additional requirements are given in annex B.

For apparatus intended to be used in vehicles, ships or aircraft, or at altitudes exceeding 2 000 m above sea level, additional requirements may be necessary.

NOTE See Table A.2 of IEC 60664-1.

Requirements, additional to those specified in this standard, may be necessary for apparatus intended for special conditions of use.

1.1.4 For apparatus designed to be fed from the MAINS, this standard applies to apparatus intended to be connected to a MAINS supply with transient overvoltages not exceeding overvoltage category II according to IEC 60664-1.

For apparatus subject to transient overvoltages exceeding those for overvoltage category II, additional protection may be necessary in the MAINS supply of the apparatus.

1.2 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 60027 (all parts), *Letter symbols to be used in electrical technology*

IEC 60038:1983, *IEC standard voltages*

Amendment 1 (1994)

Amendment 2 (1997)

IEC 60068-2-6: 1995, *Environmental testing - Part 2: Tests - Test Fc: Vibration (sinusoidal)*

IEC 60068-2-32:1975, *Environmental testing - Part 2: Tests - Test Ed: Free fall (Procedure 2)*

IEG 60068-2-75:1997, *Environmental testing - Part 2-75: Tests,- Test Eh: Hammer tests*

IEC 60068-2-78:2001, *Environmental testing - Part 2: Tests - Test Gab: Damp heat, steady State*

IEC 60085:2004, *Thermal evaluation and classification of electrical insulation*

IEC 60086-4:2000, *Primary batteries - Part 4: Safety of lithium batteries*

IEC 60112:2003, *Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions*

IEC 60127 (all parts), *Miniature fuses*

IEC 60167: 1964, *Methods of test for the determination of the insulation resistance of solid insulating materials*

IEC 60216 (all parts), *Guide for the determination of thermal endurance properties of electrical insulating materials*

IEC 60227 (all parts), *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 60245 (all parts), *Rubber insulated cables - Rated voltages up to and including 450/750 V*

IEC 60249-2 (all specifications), *Base materials for printed circuits - Part 2: Specifications*

IEC 60268-1: 1985, *Sound system equipment - Part 1: General*

IEC 60317 (all parts), *Specifications for particular types of winding wires*

IEC 60320 (all parts), *Appliance couplers for household and similar general purposes*

IEC 60335-1:2001, *Household and similar electrical appliances - Safety - Part 1: General Requirements*

Amendment 1 (2004)

IEC 60384-1:1999, *Fixed capacitors for use in electronic equipment - Part 1: Generic Specification*

IEC 60384-14:1993, *Fixed capacitors for use in electronic equipment - Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains*

Amendment 1 (1995)

IEC 60417 (all parts), *Graphical symbols for use on equipment*

IEC 60454 (all parts). *Specifications for pressure-sensitive adhesive tapes for electrical Purposes*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*
Amendment 1 (1999)

IEC 60664-1:1992, *Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests*
Amendment 1 (2000)
Amendment 2 (2002)

IEC 60664-3:2003, *Insulation coordination for equipment within low-voltage systems - Part 3: Use of coatings to achieve insulation coordination of printed board assemblies*

IEC 60691 :2002, *Thermal links - Requirements and application guide*

IEC 60695-2-2: 1991, *Fire hazard testing - Part 2: Test methods - Section 2: Needle-flame test*

IEC 60695-11-10:1999, *Fire hazard testing - Part 11-10: Test flames - 50 W horizontal and vertical flame test methods*
Amendment 1 (2003)

IEC 60707: 1999, *Flammability of solid non-metallic materials when exposed to flame sources List of test methods*

IEC 60730 (all parts), *Automatic electrical controls for household and similar use*

IEC 60825-1 :1993, *Safety of laser products - Part 1: Equipment classification, requirements and user's guide 2*
Amendment 1 (1997)
Amendment 2 (2001)

IEC 60851-3: 1996, *Methods of test for winding wires - Part 3: Mechanical properties*
Amendment 1 (1997)

IEC 60851-5: 1996, *Methods of test for winding wires - Part 5: Electrical properties*
Amendment 1 (1997)
Amendment 2 (2004)

IEC 60851-6:1996, *Methods of test for winding wires - Part 6: Thermal properties*

IEC 60884 (all parts), *Plugs and socket-outlets for household and similar purposes*

IEC 60885-1: 1987, *Electrical test methods for electric cables - Part 1: Electrical tests for cables, cords and wires for voltages up to and including 450/750 V*

IEC 60906 (all parts), *IEC system of plugs and socket-outlets for household and similar Purposes*

IEC 60950: 1999, *Safety of information technology equipment*

IEC 60990: 1999, *Methods of measurement of touch current and protective conductor current*

IEC 60998-2-2:2002, *Connecting devices for low-voltage circuits for household and similar purposes - Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units*

IEC 60999-1:1999, *Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units - Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm² up to 35 mm² (included)*

IEC 61032: 1997, *Protection of persons and equipment by enclosures - Probes for verification*

IEC 61051-2:1991, *Varistors for use in electronic equipment - Part 2: Sectional specification for surge suppression varistors*

IEC 61058-1 :2000, *Switches for appliances - Part 1: General requirements*

IEC/TR 61149:1995, *Guide for safe handling and operation of mobile radio equipment*

IEC 61260:1995, *Electroacoustics - Octave-band and fractional-octave-band filters*

IEC 61293:1994, *Marking of electrical equipment with ratings related to electrical supply Safety requirements*

IEC 61558-1:1997, *Safety of power transformers, power supply units and similar - Part 1: General requirements and tests 3*

Amendment 1 (1998)

IEC 61558-2-17:1997, *Safety of power transformers, power supply units and similar - Part 2-17: Particular requirements for transformers for switch mode power supplies*

IEC 61965:2003, *Mechanical safety of cathode ray tubes*

IEC 62151 :2000, *Safety of equipment electrically connected to a telecommunication network*

IEC Guide 104:1997, *The preparation of safety publications and the use of basic safety publications and group safety publications*

ISO 261 :1973, *ISO general purpose metric screw threads - General plan*

ISO 262:1973, *ISO general-purpose metric screw threads - Selected sizes for screws, bolts and nuts*

ISO 306:1994, *Plastics - Thermoplastic materials - Determination of Vicat softening temperature (VST) .*

ISO 7000: 1989, *Graphical symbols for use on equipment - Index and synopsis*

ITU-T Recommendation K17:1988, *Tests on power-fed repeaters using solid-state devices in order to check the arrangements for protection from external interference*

ITU-T Recommendation K21:1996, *Resistibility of telecommunication equipment installed in customer's premises to overvoltage and overcurrents*