



भारतीय मानक ब्यूरो

(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)

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**DRAFT IN  
WIDE CIRCULATION**

Reference	Date
LITD 07(14844)	03-01-2020

**TECHNICAL COMMITTEE : Audio, Video And Multimedia Systems And Equipments Sectional Committee, LTD 7**

To,  
All members of

- Audio, Video And Multimedia Systems And Equipments Sectional Committee, LTD 7
- Electronics, Telecommunication and Information Technology Division Council, LTDC
- Others Interested

Dear Sir(s)/Madam(s),

Please find enclosed the following document prepared by the Audio, Video And Multimedia Systems And Equipments Sectional Committee, LTD 7

Sl No.	Doc No.	Title
1	LTD 7 (14844) WC	AudioVideo Information and Communication Technology Equipment Part 1: Safety Requirements First Revision

Kindly examine this draft Indian standard/amendment and forward your views stating any difficulties which you are likely to experience in your business or profession, if this is finally adopted as National Standard/Amendment.

Last date for Comments : 03 March 2020

Comments, if any, may please be made in the commenting template and mailed

(ltd@bis.gov.in) to the undersigned at Bureau of Indian Standard, Manak Bhawan, 9, Bahadur Shah Zafar Marg, New Delhi. This draft has also been uploaded on BIS website <http://www.bis.gov.in> .

In case no comments are received, we would presume your approval of the documents. However, in case we receive any comments on the document, the same shall be put up to the Sectional Committee for necessary action.

Thanking You,

Yours faithfully,

**(Reena Garg)**  
**Head (Electronics and Information Technology Department)**  
Email: [ltd@bis.gov.in](mailto:ltd@bis.gov.in)

Encl: As above.

**ऑडियो/वीडियो, सूचना एवं संचार  
प्रौद्योगिकी उपकरण—  
भाग 1 सुरक्षा अपेक्षायें  
(पहला पुनरीक्षण)**

*Draft Indian Standard*

**Audio/Video, Information and  
Communication Technology Equipment**

Part 1 Safety Requirements  
(First revision)

ICS 33.160.01; 35.020

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BUREAU OF INDIAN STANDARDS  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

**BUREAU OF INDIAN STANDARDS**  
**DRAFT FOR COMMENTS ONLY**

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AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT –  
 PART 1: SAFETY REQUIREMENTS  
 (First Revision)

ICS 33.160.01; 35.020

Last date of receipt of comments: 06 Mar 2020

Audio, video and multimedia systems and equipment Sectional Committee, LITD 07

**NATIONAL FOREWORD**

(Formal clauses to be added later)

This Indian Standard which is identical with IEC 62368-1:2018 'Audio/video, information and communication technology equipment –Part 1: Safety requirements' issued by the International Electrotechnical Commission (IEC) will be adopted by the Bureau of Indian Standards on the recommendation of the Audio, Video and Multimedia Systems and Equipments Sectional Committee and approval of the Electronics and Information Technology Division Council.

This standard was originally published in 2018 and was identical with IEC 62368-1:2014. First revision of this standard has been undertaken to align with latest version of IEC 62368-1:2018.

The text of IEC Standard may be approved as suitable for publication as an Indian Standard without deviations. Certain conventions 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'"
- b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as decimal marker.

In this adopted 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:

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
IEC 60027-1 Letter symbols to be used in electrical technology – Part 1: General	IS 3722 (Parts 1 and 2):1983 Letter symbols and signs used in electrical technology	Technically Equivalent

IEC 60065 Audio, video and similar electronic apparatus – Safety requirements	IS 616 : 2017 Audio, Video and Similar Electronic Apparatus - Safety Requirements	Identical with IEC 60065 : 2014
IEC 60068-2-6 Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)	IS 9001 (Part 13) : 1981 Guidance for environmental testing - Part 13 : Vibration (sinusoidal) test	Technically Equivalent
IEC 60068-2-11 Basic environmental testing procedures – Part 2-11: Tests – Test Ka: Salt mist test	IS 9000 ( Part 11) : 1983 Basic environmental testing procedures for electronic and electrical items Part 11 Salt mist test	-do-
IEC 60068-2-78 Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state	IS 9000 (Part 4) : 2008 Basic environmental testing procedures for electronic and electrical items: Part 4 Damp heat (steady state)(first revision)	Identical with IEC 60068-2-78 : 2001
IEC 60073 Basic and safety principles for man-machine interface, marking and identification – Coding principles for indicators and actuators	ETD 1(14400) Basic and safety principles for man-machine interface, marking and identification – Coding principles for indicators and actuators	Identical
IEC 60076-14 Power transformers – Part 14: Liquid-immersed power transformers using high-temperature insulation materials	IS 2026 (Part 14) : 2018 Power Transformers Part 14 Liquid-Immersed Power Transformers Using High-Temperature Insulation Materials	Identical with IEC 60076-14 : 2013
IEC 60085 Electrical insulation – Thermal evaluation and designation	IS 1271 : 2012 Electrical Insulation-thermal evaluation and designation (second revision)	Identical with IEC 60085 : 2007
IEC 60086-4 Primary batteries – Part 4: Safety of lithium batteries	IS 6303 (Part 4) : 2013 Primary batteries — Part 4: Safety of lithium batteries (second revision)	Identical with IEC 60086-4 : 2007
IEC 60107-1 : 1997 Methods of measurement on receivers for television broadcast transmissions – Part 1 : General considerations – Measurements at radio and video frequencies	IS 4545(Part1) : 2008 Methods of measurement on receivers for television broadcast transmissions – Part 1 : General considerations (second revision)	Technically Equivalent
IEC 60112 Method for the determination of the proof and the comparative tracking indices of solid insulating materials	IS 2824:2007 Method for determination of the proof and the comparative tracking indices of solid insulating materials(second revision)	Identical with IEC 60112 : 2003
IEC 60127 (all parts) Miniature	IS/IEC 60127 (Part 1) : 2006	Identical with

fuses	Miniature fuses Part 1 Definitions for miniature fuses and general requirements for miniature fuse-links (first revision)	IEC 60127-1: 2006
	IS/IEC 60127 (Part 2) : 2003 Miniature fuses Part 2 Cartridge fuse-links (first revision)	Identical with IEC 60127-2:2003
	IS/IEC 60127 (Part 4) : 2005 Miniature fuses Part 4 Universal modular fuse-links (UMFL) through-hole and surface mount types	Identical with IEC 60127-4 : 2005
IEC 60227-1 Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 1: General requirements	IS 694 : 2010 Polyvinyl Chloride insulated unsheathed and sheathed cables/cords with rigid and flexible conductor for rated voltages up to and including 450/750 V	Technically Equivalent
IEC 60227-2:1997 Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 2: Test methods IEC 60227-2:1997/AMD 1:2003	-do-	-do-
IEC 60245-1 Rubber insulated cables – Rated voltages up to and including 450/750 V – Part 1: General requirements	IS 9968 (Part 1) : 1998 Elastomer insulated cables : Part 1 For working voltages upto and including 1100 V (first revision) and	Technically Equivalent
IEC 60309 (all parts) Plugs, socket-outlets and couplers for industrial purposes	IS/IEC 60309-1:2002 Plugs, socketoutlets and couplers for industrial purposes — Part 1 : General requirements	Technically Equivalent
-do-	IS/IEC 60309-2:2002 Plugs, socketoutlets and couplers for industrial purposes — Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories	-do-
IEC 60317 (all parts) Specifications for particular types of winding wires	IS 13730( various parts) Specifications for particular types of winding wires	Technically Equivalent
IEC 60317-43 Specifications for particular types of winding wires – Part 43: Aromatic polyimide type wrapped round copper wire, class 240	IS 13730(Part 43) : 2013 Specifications for particular types of winding wires – Part 43: Aromatic polyimide tape wrapped round copper wire, class 240 (first revision) (first revision)	Identical with IEC 60317-43 : 2010

IEC 60320 (all parts) Appliance couplers for household and similar general purposes	IS/IEC 60320-2-2 : 1998 Appliance couplers for household and similar general purposes Part 2-2 Interconnection couplers for household and similar equipment	Identical with IEC 60320-2-2 : 1998
-do-	IS/IEC 60320-2-3 : 1998 Appliance couplers for household and similar general purposes Part 2-3 Appliance couplers with a degree of protection higher than IPX0	Identical with IEC 60320-2-3 : 1998
IEC 60320-1 Appliance couplers for household and similar general purposes – Part 1: General requirements	IS/IEC 60320 (Part 1) : 2001 Appliance couplers for household and similar general purposes — Part 1: General requirements	Identical with IEC 60320-1 : 2001
IEC 60384-14 Fixed capacitors for use in electronic equipment – Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	IS QC 302400 : 1994 Fixed capacitors for use in electronic equipment Part 14 : Sectional specification : Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	Identical with IEC Pub 384-14/ QC 302400 (1993)
IEC 60417 Graphical symbols for use on equipment, available from: < <a href="http://www.graphicalsymbols.info/equipment">http://www.graphicalsymbols.info/equipment</a> >	IS 2032 (all parts) Graphical symbols used in electrotechnology	Technically Equivalent
IEC 60529 Degrees of protection provided by enclosures (IP Code)	IS/IEC 60529:2001 Degrees of protection provided by enclosures (IP Code)	Identical with IEC 60529 : 2001
IEC 60664-1:2007 Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests	IS 15382 (Part 1) : 2014 Insulation coordination for equipment within low-voltage systems : Part 1 Principles, requirements and tests (first revision)	Identical with IEC 60664-1:2007
IEC 60664-3 Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution	IS 15382(Part 3) : 2019 Insulation coordination for equipment within low-voltage systems Part 3 Use of coating, potting or moulding for protection against pollution (first revision)	Identical with IEC 60664-3 : 2016
IEC 60691:2015 Thermal-links – Requirements and application guide	IS/IEC Pub 691 : 1993 Thermal links - Requirements and application guide	Identical with IEC Pub 691 : 1993
IEC 60695-2-11 Fire hazard testing	IS/IEC 60695-2-11 : 2014 Fire hazard	Identical with

– Part 2-11: Glowing/hot-wire based test methods– Glow-wire flammability test method for end-products (GWEPT)	testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)	IEC 60695-2-11: 2014
IEC 60695-10-2 Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test method	IS/IEC 60695-10-2 Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test method	Identical with IEC 60695-10-2: 2014
IEC 60695-11-5:2016 Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance	IS 11000 (Part 2/Sec 2) : 2008 Fire hazard testing Part 2 Test methods–Section 2 Needle-flame test method – Apparatus, confirmatory test arrangement and guidance(first revision)	Identical with IEC 60695-11-5: 2004
IEC 60695-11-10Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods	IS/IEC 60695-11-10Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods	Identical with IEC 60695-11-10: 2013
IEC 60730 (all parts) Automatic electrical controls for household and similar use	IS 13886:1993 Specification for bimetallic thermostats and thermal cutouts for use with electric irons	Technically equivalent with IEC 60730: 1982
IEC 60730-1:2013 Automatic electrical controls – Part 1: General requirements	IS/IEC 60730-1 : 1999 Automatic electric controls for household and similar use Part 1 General requirements	Identical with IEC 60730-1: 1999
IEC 60738-1:2006 Thermistors – Directly heated positive temperature coefficient – Part 1: Generic specification	IS 11534(Part 1):1985Specification for directly heated positive step function temperature co-efficient thermistors: Part 1 General requirements and methods of tests	Technically equivalent
IEC 60747-5-5:2007 Semiconductor devices – Discrete devices – Part 5-5 Optoelectronic devices – Photocouplers IEC 60747-5-5:2007/AMD 1:2015	IS 14901 (Part 5): 2004 Semiconductor devices – Discrete devices and integrated circuits Part 5 Optoelectronic devices	Technically equivalent with IEC 60747-5 : 1992
IEC 60825-2 Safety of laser products – Part 2: Safety of optical fibre communication systems (OFCS)	IS 14624 (Part 2) : 2012 Safety of laser products — Part 2: Safety of optical fibre communication systems (OFCS) (first revision)	Identical with IEC 60825-2: 2005
IEC 60836 Specifications for unused silicone insulating liquids for electrotechnical purposes	IS 16838 : 2018 Specifications for unused silicone insulating liquids for electrotechnical purposes	Identical with IEC 60836: 2015



IEC 60851-3:2009 Winding wires – Test methods – Part 3: Mechanical properties IEC 60851-3:2009/AMD 1:2013	IS 13778 (Part 3) : 2012 Winding wires - Test methods Part 3 Mechanical Properties(first revision)	Identical
IEC 60851-5:2008 Winding wires – Test methods – Part 5: Electrical properties IEC 60851-5:2008/AMD 1:2011	IS 13778 (Part 5) : 2012 Winding Wires – Test Methods Part 5 Electrical Properties(first revision)	Identical
IEC 60884-1 Plugs and socket-outlets for household and similar purposes – Part 1 : General requirements	IS 1293 : 2019 Plugs and socket-outlets for household and similar purposes of rated voltage up to and including 250V and rated current up to and including 16 amperes – Specification (fourth revision)	Technically Equivalent With IEC 60884-1:2013
IEC 60906-1 IEC system of plugs and socket-outlets for household and similar purposes –Part 1: Plugs and socket-outlets 16 A 250 V AC	IS 1293 : 2005 Plugs and socket-outlets of rated voltage up to and including 250 volts and rated current up to and including 16 amperes – Specification(third revision)	Technically Equivalent
IEC 60906-2 IEC system of plugs and socket-outlets for household and similar purposes –Part 2: Plugs and socket-outlets 15 A 125 V AC	-do-	-do-
IEC 60947-1 Low-voltage switchgear and controlgear – Part 1: General rules	IS/IEC 60947-1 : 2007 Low-voltage switchgear and controlgear – Part 1: General rules (first revision)	Identical with IEC 60947-1: 2007
IEC 60947-5-5 Low-voltage switchgear and controlgear – Part 5-5: Control circuit devices and switching elements – Electrical emergency stop device with mechanical latching function	IS/IEC 60947-1 : 2007 Low-voltage switchgear and controlgear – Part 5 Control circuit devices and switching elements Section 5 Electrical emergency stop devices with mechanical latching function	Identical with IEC 60947-5-5: 2016
IEC 60950-1:2005 Information technology equipment – Safety – Part 1: General requirements	IS 13252 (Part 1):2010 Information Technology Equipment – Safety Part 1 General Requirements (second revision)	Identical
IEC 60990:2016 Methods of measurement of touch current and protective conductor current	IS/IEC 60990:2016 Methods of measurement of touch current and protective conductor current(first revision)	Identical
IEC 60998-1 Connecting devices	IS/IEC 60998-1: 2002 Connecting	Identical

for low-voltage circuits for household and similar purposes – Part 1: General requirements	devices for low-voltage circuits for household and similar purposes– Part 1: General requirements	
IEC 61039 Classification of insulating liquids	IS 13503: 2013 Classification of insulating liquids(first revision)	Identical with IEC 61039: 2008
IEC 61051-1 Varistors for use in electronic equipment – Part 1: Generic specification	IS QC 420000 : 1994 Varistors for use in Electronic Equipment - Generic Specification	Identical with IEC QC 420000: 1991
IEC 61051-2:1991 Varistors for use in electronic equipment – Part 2: Sectional specification for surge suppression varistors IEC 61051-2:1991/AMD 1:2009	IS QC 420100 : 1994 Varistors for use in electronic equipment – Sectional specification for surge suppression varistors	Identical with IEC QC 420100 : 1991
IEC 61056-1 General purpose lead-acid batteries (valve-regulated types) – Part 1: General requirements, functional characteristics – Methods of test	IS 16220 (Part 1) : 2015 General purpose lead-acid batteries (valve-regulated types)– Part 1: General requirements, functional characteristics – Methods of test	Identical with IEC 61056-1: 2012
IEC 61056-2 General purpose lead-acid batteries (valve-regulated types) – Part 2: Dimensions, terminals and marking	IS 16220 (Part 2) : 2017 General purpose lead-acid batteries (valve-regulated types)– Part 2: Dimensions, terminals and marking	Identical with IEC 61056-2: 2012
IEC 61058-1:2016 Switches for appliances – Part 1: General requirements	IS/IEC 61058-1:2000 Switches for appliances : Part 1 General requirements	Identical with IEC 61058-1:2000
IEC 61099 Insulating liquids – Specifications for unused synthetic organic esters for electrical purposes	IS 16081 : 2013 Insulating liquids – Specifications for unused synthetic organic esters for electrical purposes	Identical with IEC 61099:2010
IEC 61204-7 Low-voltage power supplies – Part 7: Safety requirements	IS/IEC 61204-7 : 2016 Low-voltage power supplies, d.c. output – Part 7: Safety requirements	Identical with IEC 61204-7 : 2016
IEC 61427	Doc ETD 11(14156) Secondary cells and batteries for renewable energy storage General requirements and methods of test Part 1: Photovoltaic off-grid application	Identical with IEC 61427-1 : 2013
IEC 61558-1: 2017 Safety of power transformers, power supplies, reactors and	IS/IEC 61558-1:1997 Safety of power transformers, power supply units and similar : Part 1 General requirements	Identical with IEC 61558-1 : 1997

similar products – Part 1: General requirements and tests	and tests	
IEC 61643-11:2011 Low-voltage surge protective devices – Part 11: Surge protective devices connected to low-voltage power systems – Requirements and test methods	IS 16463 (Part 11) : 2016 Low-voltage surge protective devices – Part 11: Surge protective devices connected to low-voltage power systems – Requirements and test methods	Identical with IEC 61643-11:2011
IEC 61810-1:2015 Electromechanical elementary relays – Part 1: General and safety requirements	IS 17064 (Part 1) : 2018 Electromechanical elementary relays – Part 1: General and safety requirements	Identical with IEC 61810-1:2015
IEC 61959 Secondary cells and batteries containing alkaline or other non-acid electrolytes – Mechanical tests for sealed portable secondary cells and batteries	IS 16823 : 2019 Secondary cells and batteries containing alkaline or other non-acid electrolytes – Mechanical tests for sealed portable secondary cells and batteries	Identical with IEC 61959 : 2004
IEC 61965:2003, Mechanical safety of cathode ray tubes	IS/IEC 61965:2003 Mechanical safety of cathode ray tubes	Identical
IEC 62133 (all parts) Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications	IS 16046 (various parts) 2012 Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications	Identical
IEC 62133-1 Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications – Part 1: Nickel systems	IS 16046 (Part 1): 2018 Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for portable sealed secondary cells and for batteries made from them, for use in portable applications Part 1 Nickel systems (second revision)	Identical with IEC 62133-1 : 2017
IEC 62133-2 Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary lithium cells, and for batteries made from them, for use in portable applications – Part 2: Lithium systems	IS 16046 (Part 2): 2018 Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications part 2 Lithium systems (second revision)	Identical with IEC 62133-2 : 2017
IEC 62471:2006 Photobiological safety of lamps and lamp systems	IS 16108:2012 Photobiological Safety of lamps and lamp Systems	Identical

IEC 62485-2 Safety requirements for secondary batteries and battery installations – Part 2: Stationary batteries	IS 16894 (Part 2) : 2018 Safety requirements for secondary batteries and battery installations Part 2 Stationary batteries	Identical with IEC 62485-2 : 2010
IEC 62619 Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for secondary lithium cells and batteries, for use in industrial applications	IS 16805 : 2018 Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for secondary lithium cells and batteries, for use in industrial applications	Identical with IEC 62619 : 2017
ISO 37 Rubber, vulcanized or thermoplastic – Determination of tensile stress-strain properties	IS 3400 (Part 1) : 2012 Method of test for vulcanized rubber Part 1 determination of tensile stress-strain properties	Identical with ISO 37 : 2011
ISO 178 Plastics – Determination of flexural properties	IS 13360 (Part 5/Sec 7) : 2017 Plastics – Methods of testing Part 5 Mechanical properties Section 7 Determination of flexural properties (first revision)	Identical with ISO 178: 2010
ISO 179-1 Plastics – Determination of Charpy impact properties – Part 1: Non-instrumented impact test	IS 13360 (Part 5/Sec 5) : 2017 Plastics – Methods of testing Part 5 Mechanical properties Section 5 Determination of Charpy impact properties – Non-instrumented impact test (first revision)	Identical with ISO 179-1: 2010
ISO 180 Plastics – Determination of Izod impact strength	IS 13360 (Part 5/Sec 4) : 2013 Plastics – Methods of testing Part 5 Mechanical properties Section 4 Determination of Izod impact strength (first revision)	Identical with ISO 180:2000
ISO 306 Plastics – Thermoplastic materials – Determination of Vicat softening temperature (VST)	IS 13360 (Part 6/Sec 1) : 2018 Plastics – Methods of testing Part 6 Thermal Properties Section 1 Determination of vicat softening temperature of thermoplastic materials (second revision)	Identical with ISO 306 : 2013
ISO 527 (all parts) Plastics – Determination of tensile properties	IS 13360 Plastics – Methods of testing Part 5 Mechanical properties (All sections)	Identical with ISO 527
ISO 871 Plastics – Determination of ignition temperature using a hot-air furnace	IS 13360 (Part 6/Sec 21): 2004 Plastics — Methods of testing Part 6 Thermal properties Section 21 Determination of ignition temperature using a hot-air furnace	Identical with ISO 871:1996
ISO 1817:2015 Rubber, vulcanized	IS 3400 (Part 6) : 2018 Methods of	Identical with

or thermoplastic – Determination of the effect of liquids	test for vulcanized rubbers part 6 Determination of the effect of liquids (Fourth revision)	ISO 1817:2015
ISO 2719 Determination of flash point – Pensky-Martens closed cup method	IS 1448 [P : 21] : 2019 Methods of test for petroleum and its products [P : 21] Determination of flash point – Pensky-Martens closed cup method (Fourth revision)	Identical with ISO 2719:2016
ISO 3864 (all parts) Graphical symbols – Safety colours and safety signs	IS 16449 (Part 1, 2 and 3) Graphical symbols – Safety colours and safety signs Part 2	Identical with ISO 3864-1, ISO 3864-2 and ISO 3864-3
	IS 9457:2005 Safety colours and safety signs — code of practice (first revision)	Technically equivalent
ISO 3864-2 Graphical symbols – Safety colours and safety signs – Part 2: Design principles for product safety labels	IS 16449 (Part 2) : 2015 Graphical symbols – Safety colours and safety signs Part 2 Design principles for product safety labels	Identical with ISO 3864-2:2004
ISO 7000 Graphical symbols for use on equipment – Registered symbols, available from: < <a href="http://www.graphical-symbols.info/equipment">http://www.graphical-symbols.info/equipment</a> >	IS 16450 : 2017 Graphical symbols for use on equipment – Registered symbols	Identical with ISO 7000 :2014
ISO 7010 Graphical symbols – Safety colours and safety signs – Safety signs used in workplaces and public areas	IS 16451 : 2018 Graphical symbols – Safety colours and safety signs – Registered safety signs	Identical with ISO 7010 : 2011
ISO 9772 Cellular plastics – Determination of horizontal burning characteristics of small specimens subjected to a small flame	IS 13360 (Part 6/Sec 24) : 2018 Plastics – Methods of testing Part 6 Thermal properties Section 24 Cellular plastics –Determination of horizontal burning characteristics of small specimens subjected to a small flame of cellular plastic	Identical with ISO 9772 : 2012
ISO 9773 Plastics – Determination of burning behaviour of thin flexible vertical specimens in contact with a small-flame ignition source	IS 13360(Part 6/Sec 23):2006 Plastics – Methods of Testing Part 6 Thermal Properties Section 23 Determination of burning behaviour of thin flexible vertical specimens in contact with small-flame ignition source	Identical with ISO 9773 : 1998

The technical committee has reviewed the provisions of following International Standards referred in this adopted standard and has decided that they are acceptable for use in conjunction with this standard.

<i>International Standard</i>	<i>Title</i>
IEC/TR 60083	Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC
IEC 60086-5	Primary batteries – Part 5: Safety of batteries with aqueous electrolyte
IEC 60296	Fluids for electrotechnical applications – Unused mineral insulating oils for transformers and switchgear
IEC 60317-0-7:2017	Specification for particular types of winding wires – Part 0-7: General requirements – Fully insulated (FIW) zero-defect enamelled round copper wire
IEC 60317-56	Specifications for particular types of winding wires – Part 56: Solderable fully insulated (FIW) zero-defect polyurethane enamelled round copper wire, class 180
IEC 60332-1-2	Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW premixed flame
IEC 60332-1-3	Tests on electric and optical fibre cables under fire conditions – Part 1-3: Test for vertical flame propagation for a single insulated wire or cable – Procedure for determination of flaming droplets/particles
IEC 60332-2-2	Tests on electric and optical fibre cables under fire conditions – Part 2-2: Test for vertical flame propagation for a single small insulated wire or cable – Procedure for diffusion flame
IEC 60695-10-3	Fire hazard testing – Part 10-3: Abnormal heat – Mould stress relief distortion test
IEC 60695-11-20:2015	Fire hazard testing – Part 11-20: Test flames – 500 W flame test methods
IECTS 60695-11-21	Fire hazard testing – Part 11-21: Test flames – 500 W vertical flame test method for tubular polymeric materials
IEC 60728-11:2016	Cable networks for television signals, sound signals and interactive services – Part 11: Safety
IEC 60825-1:2007	Safety of laser products – Part 1: Equipment classification and requirements
IEC 60825-12	Safety of laser products – Part 12: Safety of free space optical communication systems used for transmission of information
IEC 60896-11	Stationary lead-acid batteries – Part 11: Vented types – General requirements and methods of tests
IEC 60896-21:2004	Stationary lead-acid batteries – Part 21: Valve regulated types – Methods of test
IEC 60896-22	Stationary lead-acid batteries – Part 22: Valve regulated types – Requirements
IEC 60999-1	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 mm <sup>2</sup> up to 35 mm <sup>2</sup> (included)
IEC 60999-2	Connecting devices – Electrical copper conductors – Safety requirements for

	screw-type and screwless-type clamping units – Part 2: Particular requirements for clamping units for conductors above 35 mm <sup>2</sup> up to 300 mm <sup>2</sup> (included)
IEC 61293	Marking of electrical equipment with ratings related to electrical supply – Safety requirements
IEC 61427(all parts)	Secondary cells and batteries for renewable energy storage – General requirements and methods of test
IEC/TS 61430	Secondary cells and batteries – Test methods for checking the performance of devices designed for reducing explosion hazards – Lead-acid starter batteries
IEC 61434	Secondary cells and batteries containing alkaline or other non-acid electrolytes – Guide to designation of current in alkaline secondary cell and battery standards
IEC 61558-2-16	Safety of transformers, reactors, power supply units and similar products for voltages up to 1100 V – Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units
IEC 61643-331:2017	Components for low-voltage surge protective devices – Part 331: Performance requirements and test methods for metal oxide varistors (MOV)
IEC 61984	Connectors – Safety requirements and tests
IEC 62281	Safety of primary and secondary lithium cells and batteries during transport
IEC 62332-1	Electrical insulation systems (EIS) – Thermal evaluation of combined liquid and solid components – Part 1: General requirements
IEC 62440:2008	Electric cables with a rated voltage no exceeding 450/750 V – Guide to use
IEC 62471-5:2015	Photobiological safety of lamps and lamp systems – Part 5: Image projectors
ISO 1798	Flexible cellular polymeric materials – Determination of tensile strength and elongation at break
ISO 3231	Paints and varnishes - Determination of resistance to humid atmospheres containing sulfur dioxide
ISO 3679	Determination of flash no-flash and flash point – Rapid equilibrium closed cup method
ISO 4892-1	Plastics – Methods of exposure to laboratory light sources – Part 1: General guidance
ISO 4892-2	Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps
ISO 4892-4	Plastics – Methods of exposure to laboratory light sources – Part 4: Open-flame carbon-arc lamps
ISO 8256	Plastics – Determination of tensile-impact strength
ISO 14993	Corrosion of metals and alloys – Accelerated testing involving cyclic exposure to salt mist, “dry” and “wet” conditions
ISO 21207	Corrosion tests in artificial atmospheres – Accelerated corrosion tests involving alternate exposure to corrosion - promoting gases, neutral salt-spray and drying
ASTM D412	Standards Test Methods for Vulcanized Rubber and Thermoplastic

	Elastomers – Tension
ASTM D471-98	Standard Test Method for Rubber Property – Effect of Liquids
ASTM D3574	Standard Test Method for Flexible Cellular Materials – Slab, Bonded, and Molded Urethane Foams
EN 50332-1:2013	Sound system equipment: Headphones and earphones associated with portable audio equipment – Maximum sound pressure level measurement methodology and limit considerations – Part 1: General method for "one package equipment"
EN 50332-2	Sound system equipment: Headphones and earphones associated with portable audio equipment – Maximum sound pressure level measurement methodology and limit considerations – Part 2: Matching of sets with headphones if either or both are offered separately
EN 50332-3	Sound system equipment: Headphones and earphones associated with personal music players – maximum sound pressure level measurement methodology – Part 3: Measurement method for sound does management
IEC 60068-2-11	Basic environmental testing procedures – Part 2-11: Tests – Test Ka: Salt mist
IEC 60076-14	Power transformers – Part 14: Liquid-immersed power transformers using high-temperature insulation materials
IEC 60825-12	Safety of laser products – Part 12: Safety of free space optical communication systems used for transmission of information
IEC 60836	
IEC 60884-1	Plugs and socket-outlets for household and similar purposes - Part 1: General requirements
IEC 61643-331:2017	Components for low-voltage surge protective devices –Part 331: Performance requirements and test methods for metal oxide varistors (MOV)

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 2:1960 ‘Rules for rounding off numerical values (*revised*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

### **Scope of IEC 62368-1**

This part of IEC 62368 is applicable to the safety of electrical and electronic equipment within the field of audio, video, information and communication technology, and business and office machines with a rated voltage not exceeding 600 V. This document does not include requirements for performance or functional characteristics of equipment.

NOTE 1 Examples of equipment within the scope of this document are given in Annex A.

NOTE 2 A rated voltage of 600 V is considered to include equipment rated 400/690 V.

This document is also applicable to:

- components and subassemblies intended for incorporation in this equipment. Such components and subassemblies need not comply with every requirement of this document, provided that the complete equipment, incorporating such components and subassemblies, does comply;
- external power supply units intended to supply other equipment within the scope of this document;



- accessories intended to be used with equipment within the scope of this document;
- large equipment installed in restricted access areas. For equipment having large machinery aspects, additional requirements may apply; and
- equipment to be used in tropical regions.

This document also includes requirements for audio/video, information and communication technology equipment intended to be installed in an outdoor location. The requirements for outdoor equipment also apply, where relevant, to outdoor enclosures suitable for direct installation in the field and supplied for housing audio/video, information and communication technology equipment to be installed in an outdoor location. See Annex Y for specific construction requirements not covered elsewhere in this document.

Each installation may have particular requirements. In addition, requirements for protection of the outdoor equipment against the effects of direct lightning strikes are not covered by this document.

NOTE 3 For information on this subject, see IEC 62305-1.

This document assumes a maximum altitude of 2 000 m unless otherwise specified by the manufacturer.

Additional requirements for equipment having the capability to supply DC power over commonly used communication cables, such as USB or Ethernet (PoE), are given in IEC 62368-3. IEC 62368-3 does not apply to:

- equipment supplying power using proprietary connectors; or
- equipment using a proprietary protocol for power selection. This document specifies safeguards for ordinary persons, instructed persons, and skilled persons. Additional requirements may apply for equipment that is clearly designed or intended for use by children or specifically attractive to children.

NOTE 4 In Australia, the work conducted by an instructed person or a skilled person may require formal licensing from regulatory authorities.

NOTE 5 In Germany, in many cases a person may only be regarded as an instructed person or a skilled person if certain legal requirements are fulfilled.

This document does not apply to:

- equipment with non-self-contained hazardous moving parts, such as robotic equipment; and

NOTE 6 For requirements related to robotic equipment in an industrial environment, see IEC 60204-1, IEC 60204-11, ISO 10218-1 and ISO 10218-2.

- personal care robots, including mobile servant robots, physical assistant robots, and person carrier robots; and

NOTE 7 For requirements related to personal care robots, see ISO 13482.

- power supply systems that are not an integral part of the equipment, such as motor-generator sets, battery backup systems and distribution transformers.

This document does not address:

- manufacturing processes except for routine tests;
- injurious effects of gases released by thermal decomposition or combustion;
- disposal processes;
- effects of transport (other than as specified in this document);

- effects of storage of materials, components, or the equipment itself;
- the likelihood of injury from particulate radiation such as alpha particles and beta particles;
- the likelihood of thermal injury due to radiated or convected thermal energy;
- the likelihood of injury due to flammable liquids;
- the use of the equipment in oxygen-enriched or explosive atmospheres;
- exposure to chemicals other than as specified in Clause 7;
- electrostatic discharge events;
- exposure to electromagnetic fields;
- environmental aspects; or
- requirements for functional safety, except for those related to work cells.

NOTE 8 For specific functional and software safety requirements of electronic safety-related systems (for example, protective electronic circuits), see IEC 61508-1.

*NOTE – The technical content of this document has not been enclosed as these are identical with the corresponding IEC Standard. For details please refer IEC 62368-1:2018 or may kindly contact :*

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