

BUREAU OF INDIAN STANDARDS

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**मसौदा भारतीय मानक
ऑडियो/ वीडियो, सूचना एवं
संचार प्रौद्योगिकी उपकरण
भाग 1 सुरक्षा अपेक्षाये
(दूसरा पुनरीक्षण)**

Draft Indian Standard

***Audio/Video, Information and
Communication Technology Equipment –
Part 1: Safety Requirements
(Second Revision)***

ICS 33.160.01; 35.020

LITD 07 Audio, Video and Multimedia
Systems and Equipment Sectional Committee

Last Date for Comments: 15 Dec 2023.

NATIONAL FOREWORD

(Formal clauses will be added later)

This Draft Indian Standard (Part 1) (Second Revision) which is identical with IEC 62368-1:2023 '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 recommendation of the Audio, Video and Multimedia Systems

and Equipment 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. The First Revision of this standard published in 2020 and was identical with IEC 62368-1: 2018. The Second Revision of this standard aligns this Indian Standard with IEC 62368-1:2023.

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

- a) new table with requirements for external circuits;
- b) revision of requirements for openings in fire enclosures;
- c) revision of requirements for liquid filled components;
- d) revision of battery charging requirements.

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’ appears 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 the decimal marker.

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

International Standard	Corresponding Indian Standard	Degree of Equivalence
IEC 60027-1, Letter symbols to be used in electrical technology – Part 1: General	IS 3722 (Parts 1):2023/ IEC 60027-1: 1992 Letter Symbols and Signs used in Electrical Technology - Part 1: General (Second Revision)	Identical
IEC 60038, IEC standard voltages	IS 12360 : 1988/ IEC 60038:1983 Voltage bands for electrical installations including preferred voltages and frequency	Technically Equivalent
IEC 60068-2-6, Environmental testing – Part	IS/IEC 60068-2-6 : 2007 Environmental Testing Part 2 Tests Section 6 Test Fc: Vibration (sinusoidal)	Identical

2-6: Tests – Test Fc: Vibration (sinusoidal)		
IEC 60068-2-78, Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state	IS 9000 (Part 4) : 2020/ IEC 60068-2-78 : 2012 Environmental Testing Part 4 Tests - Test Cab: Damp Heat, Steady State (Second Revision)	Identical
IEC 60073, Basic and safety principles for man-machine interface, marking and identification – Coding principles for indicators and actuators	IS/IEC 60073 : 2002 Basic and safety principles for man-machine interface marking and identification - Coding principles for indicators and actuators	Identical
IEC 60085, Electrical insulation – Thermal evaluation and designation	IS 1271 : 2012/ IEC 60085 : 2007 Electrical insulation - Thermal evaluation and designation (Second Revision)	Identical
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 (Part 13) : 2023/ IEC 60107-1:1997 Methods of Measurement on Receivers for Television Broadcast Transmissions Part 13 General Considerations — Measurements at Radio and Video Frequencies	Identical
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/AMD1:2003	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 60245-1, Rubber insulated cables – Rated voltages up to and including 450/750 V – Part 1: General requirements	IS 9968 (Part 1) : 1988 Specification for elastomer insulated cables: Part 1 for working voltages up to and including 1100 volts (First Revision)	Technically Equivalent

IEC 60268-1:1985, Sound system equipment – Part 1: General IEC 60268-1:1985/AMD1:1988 IEC602681:1985/ AMD2 :1988	IS 15596 (Part 1) : 2005/ IEC 60268-1:1985 Sound system equipment: Part 1 General	Identical
IEC 60317 (all parts), Specifications for particular types of winding wires	IS 13730 Specification for particular types of winding wires (All Parts)	Identical
IEC 60317-43, Specifications for particular types of winding wires – Part 43: Aromatic polyimide tape wrapped round copper wire, class 240	IS 13730 (Part 43) : 2013/ IEC 60317-43 : 2010 Specification for particular types of winding wires: Part 43 aromatic polyimide tape wrapped round copper wire, class 240 (First Revision)	Identical
IEC 60320-1, Appliance couplers for household and similar general purposes: Part 1 general requirements	IS/IEC 60320-1 : 20211 Appliance couplers for household and similar general purposes: Part 1 general requirements	Identical
IEC 60664-1:2020, Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests	IS 15382 (Part 1) : 2022/ IEC 60664-1:2020 Insulation coordination for equipment within low - Voltage systems: Part 1 principles, requirements and tests (First Revision)	Identical
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/ IEC 60664-3 : 2016 Insulation coordination for equipment within low-voltage systems : Part 3 use of coating potting or moulding for protection against pollution	Identical
IEC 60691:2015 Thermal-links – Requirements and application guide	IS/IEC 60691:2015 Thermal-links – Requirements and application guide	Identical
IEC 60695-2-11, Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glowwire flammability test method for end-products (GWEPT)	IS/IEC 60695-2-11 : 2021 Fire Hazard Testing Part 2-11 Glowing / Hot-Wire Based Test Methods Glow-Wire Flammability Test Method for End-Products (GWEPT)	Identical

IEC 60695-10-2, Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test method	IS/IEC 60695-10-2 : 2014 Fire hazard testing: Part 10 Abnormal heat: Sec 2 ball pressure test method	Identical
IEC 60695-11-5:2016, Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance	IS/IEC 60695-11-5: 2016 Fire Hazard Testing Part 11 Test Flames Section 5 Needle - Flame test method - Apparatus, confirmatory test arrangement and guidance (First Revision)	Identical
IEC 60695-11-10, Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods	IS/IEC 60695-11-10 : 2013 Fire hazard testing: Part 11 test flames :: Sec 10 50 w horizontal and vertical flame test methods	Identical
IEC 60851-3:2009, Winding wires – Test methods – Part 3: Mechanical properties IEC 60851- 3:2009/ AMD1 : 2013 IEC 60851-3:2009/ AMD2: 2019	IS 13778 (Part 3) : 2012/ IEC 60851-3:2009 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/AMD1: 2011 IEC 60851-5:2008/AMD2: 2019	IS 13778 (Part 5) : 2012/ IEC 60851-5 : 2008 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 of rated Voltage up to and including 250 Volts and rated current up to and including 16 amperes-Specification(Fourth Revision)	Technically Equivalent
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 a.c.	IS 1293:2019 Plugs and socket-outlets of rated Voltage up to and including 250 Volts and rated current up to and including 16 amperes-Specification(Fourth Revision)	Technically Equivalent
IEC 60906-2 IEC system of plugs and socket-outlets for household and similar purposes – Part 2: Plugs and	IS 1293:2019 Plugs and socket-outlets of rated Voltage up to and including 250 Volts and rated current up to and including 16	Technically Equivalent

socket-outlets 15 A 125 V a.c. and 20 A 125 V a.c.	amperes-Specification(Fourth Revision)	
IEC 60947-1, Low-voltage switchgear and controlgear – Part 1: General rules	IS/IEC 60947-1 : 2020 Low - Voltage switchgear and controlgear: Part 1 general rules (Second Revision)	Identical
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 60947-5-5 : 2016 Low - Voltage switchgear and controlgear: Part 5 control circuit devices and switching elements: Sec 5 electrical emergency stop devices with mechanical latching function	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 for low-voltage circuits for household and similar purposes – Part 1: General requirements	IS/IEC 60998-1 : 2002 Connecting Devices for Low-Voltage Circuits for Household and Similar Purposes Part 1 General Requirements	Identical
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/ IEC 61056-1 : 2012 General purpose lead - Acid batteries (Valve - Regulated Types): Part 1 general requirements, functional characteristics - Methods of test	Identical
IEC 61056-2, General purpose lead-acid batteries (valve-regulated types) – Part 2: Dimensions, terminals and marking	IS 16220 (Part 2) : 2017/ IEC 61056-2 : 2012 General Purpose Lead-Acid Batteries (Valve-Regulated Types) Part 2 Dimensions, Terminals and Marking	Identical
IEC 61058-1:2016, Switches for appliances – Part 1: General requirements	IS/IEC 61058-1 : 2016 Switches for appliances: Part 1 general requirements	Identical
IEC 61204-7, Low-voltage switch mode power supplies – Part 7: Safety requirements	IS/IEC 61204-7 : 2016 Low-Voltage Power Supplies, d.c. Output Part 7 Safety Requirements	Identical
IEC 61260-1:2014, Electroacoustics – Octave-band and fractional-octave-	IS 6964 : 2018/ IEC 61260-1: 2014 Electroacoustics - Octave - Band and fractional octave band	Identical

band filters – Part 1: Specifications	filters - Specifications (Second Revision)	
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/ IEC 61643-11:2011 Low - Voltage surge protective devices: Part 11 surge protective devices connected to low - Voltage power systems - Requirements and test methods	Identical
IEC 61810-1:2015, Electromechanical elementary relays – Part 1: General and safety requirements IEC 61810-1:2015/AMD1: 2019	IS 17064 (Part 1) : 2018 / IEC 61810-1:2015 Electromechanical elementary relays: Part 1 general and safety requirements	Identical
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/ IEC 61959 : 2004 Secondary cells and batteries containing alkaline or other non - acid electrolytes - Mechanical tests for sealed portable secondary cells and batteries	Identical
IEC 61965:2003, Mechanical safety of cathode ray tubes	IS/IEC 61965 : 2003 Mechanical safety of cathode ray tubes	Identical
IEC 62061, Safety of machinery – Functional safety of safety-related control systems	IS 16501 : 2023/IEC 62061 : 2021 Safety of Machinery — Functional Safety of Safety-Related Control Systems (First Revision)	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/ IEC 62133-1 : 2017 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
IEC 62133-2:2017, Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable	IS 16046 (Part 2) : 2018/ IEC 62133-2:2017 Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes Safety Requirements	Identical

sealed secondary cells, and for batteries made from them, for use in portable applications – Part 2: Lithium systems IEC 62133-2:2017/AMD1: 2021	for Portable Sealed Secondary Cells and for Batteries Made from Them for Use in Portable Applications Part 2 Lithium Systems (Second Revision)	
IEC 62471:2006 Photobiological safety of lamps and lamp systems	IS 16108 : 2012/IEC 62471:2006 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/ IEC 62485-2:2010 Safety requirements for secondary batteries and battery installations: Part 2 stationary batteries	Identical
ISO 37, Rubber, vulcanized or thermoplastic – Determination of tensile stress-strain properties	IS 3400 : 2021/ ISO 37 : 2017 Methods of Test for Vulcanized Rubber Part 1 Tensile Stress-Strain Properties	Identical
ISO 178, Plastics – Determination of flexural properties	IS 13360 (Part 5/Sec 7) : 2022/ ISO 178 : 2019 Plastics - Methods of testing: Part 5 mechanical properties section 7 determination of flexural properties (Second Revision)	Identical
ISO 527 (all parts), Plastics – Determination of tensile properties	IS 13360 (Part 5/Sec 1) : 2021 ISO 527-1: 2019 Plastics - Methods of testing: Part 5 Mechanical properties Section 1 Determination of tensile properties - General requirements Second Revision	Identical
ISO 527 (all parts), Plastics – Determination of tensile properties	IS 13360 (Part 5/Sec 2) : 2017 ISO 527-2 : 2012 Plastics - Methods of testing: Part 5 mechanical properties section 2 determination of tensile properties - Test conditions for moulding and extrusion plastics (First Revision)	Identical
ISO 871, Plastics – Determination of ignition temperature using a hot-air furnace	IS 13360 (Part 6/Sec 21) : 2023/ ISO 871 : 2022 Plastics — Methods of Test Part 6 Thermal Properties Section 21 Determination of Ignition	Identical

	Temperature Using a Hot-Air Furnace (First Revision)	
ISO 2719, Determination of flash point – Pensky-Martens closed cup method	IS 1448 (Part 21) : 2019/ ISO 2719 : 2016 Methods of test for petroleum and its products [p : 21] determination of flash point - Pensky - Martens closed cup method (Fourth Revision)	Identical
ISO 3864 (all parts), Graphical symbols – Safety colours and safety signs	IS 16449 (Part 1) : 2018 / ISO 3864:2011 Graphical symbols - Safety colours and safety signs: Part 1 design principles for safety signs and safety markings	Identical
ISO 3864-2, Graphical symbols – Safety colours and safety signs – Part 2: Design principles for product safety labels	IS 16449 (Part 2) : 2021/ ISO 3864-2 : 2016 Graphical Symbols - Safety Colours and Safety Signs Part 2 Design Principles for Product Safety Labels	Identical
ISO 3864 (all parts), Graphical symbols – Safety colours and safety signs	IS 16449 (Part 3) : 2018/ ISO 3864-3 : 2012 Graphical Symbols- Safety Colours and Safety Signs Part 3 Design Principles for Graphical Symbols for Use in Safety Signs	Identical
ISO 3864 (all parts), Graphical symbols – Safety colours and safety signs	IS 16449 (Part 4) : 2017/ ISO 3684-4:2011 Graphical symbols - Safety colours and safety signs: Part 4 colorimetric and photometric properties of safety sign materials	Identical
ISO 4892-1, Plastics – Methods of exposure to laboratory light sources – Part 1: General guidance	IS 17863 (Part 1) : 2022 ISO 4892-1: 2016 Plastics Methods of Exposure to Laboratory Light Sources: Part 1 General Guidance	Identical
ISO 4892-2:2013, Plastics – Methods of exposure to laboratory light sources – Part 2: Xenonarc lamps	IS 17863 (Part 2) : 2022 ISO 4892-2:2013 Plastics Methods of Exposure to Laboratory Light Sources: Part 2 Xenon-Arc Lamps	Identical

ISO 4892-4, Plastics – Methods of exposure to laboratory light sources – Part 4: Open-flame carbon-arc lamps	IS 17863 (Part 4) : 2022 ISO 4892-4:2013 Plastics Methods of Exposure to Laboratory Light Sources: Part 4 Open-Flame Carbon-Arc Lamps	Identical
ISO 7000, Graphical symbols for use on equipment – Registered symbols	IS 16450 : 2023/ISO 7000 : 2019 Graphical Symbols for Use on Equipment Registered Symbols (First Revision)	Identical
ISO 7010 Graphical symbols – Safety colours and safety signs –Registered safety signs	IS 16451 : 2023/ ISO/IEC 7010 : 2019 Graphical Symbols Safety Colours and Safety Signs Registered Safety Signs (First Revision)	Identical
ISO 8256 Plastics – Determination of tensile-impact strength	IS 13360 (Part 5/Sec 27) : 2022 ISO 8256: 2004 Plastics — Methods of Testing Part 5 Mechanical Properties Section 27 Determination of tensile-impact strength	Identical
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/ ISO 9773:1998 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

The technical committee has reviewed the provisions of the following International Standards referred in this adopted standard and has decided that they are 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 60068-2-11	Basic environmental testing procedures – Part 2-11: Tests – Test Ka: Salt mist
IEC TR 60083	Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC
IEC 60086-4	Primary batteries – Part 4: Safety of lithium batteries

IEC 60086-5	Primary batteries – Part 5: Safety of batteries with aqueous electrolyte
IEC 60112	Method for the determination of the proof and the comparative tracking indices of solid insulating materials
IEC 60127 (all parts),	Miniature fuses
IEC 60127-8	Miniature fuses - Part 8: Fuse resistors with particular overcurrent protection
IEC 60243-1	Electric strength of insulating materials – Test methods – Part 1: Tests at power frequencies
IEC 60309 (all parts)	Plugs, socket-outlets and couplers for industrial purposes
IEC 60317 (all parts),	Specifications for particular types of winding wires
IEC 60317-0-7:2017	Specifications 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 60320 (all parts),	Appliance couplers for household and similar general purposes
IEC 60320-2-4	Appliance couplers for household and similar general purposes - Part 2-4: Couplers dependent on appliance weight for engagement
IEC 60320-3	Appliance couplers for household and similar general purposes - Part 3: Standard sheets and gauges
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 60384-14:2013	Fixed capacitors for use in electronic equipment – Part 14: Sectional specification – Fixed capacitors for electromagnetic interference suppression and connection to the supply mains IEC 60384-4:2013/AMD1 :2016
IEC 60417	Graphical symbols for use on equipment
IEC 60529:1989 IEC 60529:1989/AMD1:1999	Degrees of protection provided by enclosures (IP Code)

IEC 60529:1989/ AMD2:2013	
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
IEC TS 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 60730 (all parts)	Automatic electrical controls for household and similar use
IEC 60730-1:2022	Automatic electrical controls – Part 1: General requirements
IEC 60738-1:2022	Thermistors – Directly heated positive temperature coefficient – Part 1: Generic specification
IEC 60747-5-5:2020	Semiconductor devices – Part 5-5: Optoelectronic devices – Photocouplers
IEC 60825-1:2014	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 (OFCSs)
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 ² up to 35 mm ² (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 ² up to 300 mm ² (included)
IEC 61051-1	Varistors for use in electronic equipment – Part 1: Generic specification
IEC 61051-2:2021	Varistors for use in electronic equipment – Part 2: Sectional specification for surge suppression varistors

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 61558-1:2017	Safety of transformers, reactors, power supply units and combinations thereof – Part 1: General requirements and tests
IEC 61558-2-16	Safety of transformers, reactors, power supply units and combinations thereof – Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units for general applications
IEC 61587-1:2022	Mechanical structures for electrical and electronic equipment – Tests for IEC 60917 and IEC 60297 series – Part 1: Environmental requirements, test setups and safety aspects
IEC 61643-331:2020	Components for low-voltage surge protection – Part 331: Performance requirements and test methods for metal oxide varistors (MOV)
IEC 61984	Connectors – Safety requirements and tests
IEC 62230	Electric cables – Spark-test method
IEC 62281	Safety of primary and secondary lithium cells and batteries during transport
IEC 62440:2008	Electric cables with a rated voltage not exceeding 450/750 V – Guide to use
IEC 62471-5:2015	Photobiological safety of lamps and lamp systems – Part 5: Image projectors
IEC 62619:2022	Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for secondary lithium cells and batteries, for use in industrial applications
IEC 62821-1	Electric cables - Halogen-free, low smoke, thermoplastic insulated and sheathed cables of rated voltages up to and including 450/750 V – Part 1: General requirements
IEC 62821-2	Electric cables - Halogen-free, low smoke, thermoplastic insulated and sheathed cables of rated voltages up to and including 450/750 V – Part 2: Test methods
IEC 62821-3	Electric cables - Halogen-free, low smoke, thermoplastic insulated and sheathed cables of rated voltages up to and including 450/750 V – Part 3: Flexible cables (cords)

IEC 63010-1	Halogen-free thermoplastic insulated and sheathed flexible cables of rated voltages up to and including 300/300 V – Part 1: General requirements and cables
IEC 63010-2	Halogen-free thermoplastic insulated and sheathed flexible cables of rated voltages up to and including 300/300 V – Part 2: Test methods
IEC 63294:2021	Test methods for electric cables with rated voltages up to and including 450/750 V
ISO 179-1	Plastics – Determination of Charpy impact properties – Part 1: Non-instrumented impact test
ISO 180	Plastics – Determination of Izod impact strength
ISO 306	Plastics – Thermoplastic materials – Determination of Vicat softening temperature (VST)
ISO 1798	Flexible cellular polymeric materials – Determination of tensile strength and elongation at break
ISO 1817:2022	Rubber, vulcanized or thermoplastic – Determination of the effect of liquids
ISO 3679	Determination of flash point – Method for flash no-flash and flash point by small scale closed cup tester
ISO 9772	Cellular plastics – Determination of horizontal burning characteristics of small specimens subjected to a small flame
ISO 13849-1	Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design
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
ISO 22479	Corrosion of metals and alloys – Sulfur dioxide test in a humid atmosphere (fixed gas method)
ASTM D412	Standard 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 Methods for Flexible Cellular Materials – Slab, Bonded, and Molded Urethane Foams
EN 50332-1:2013	Sound system equipment: Headphones and earphones associated with personal music players – Maximum sound pressure level measurement methodology – Part 1: General method for "one package equipment"
EN 50332-2	Sound system equipment: Headphones and earphones associated with personal music players – Maximum sound pressure level

	measurement methodology – Part 2: Matching of sets with headphones if either or both are offered separately, or are offered as one package equipment but with standardized connectors between the two allowing to combine components of different manufacturers or different design
EN 50332-3:2017	Sound system equipment: Headphones and earphones associated with personal music players – Maximum sound pressure level measurement methodology – Part 3: Measurement method for sound dose management

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 62368-1:2023

“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.

Explanatory information related to this document is contained in IEC TR 62368-2. It provides rationale together with explanatory information that can be helpful to apply to this document.

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 primarily supply 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 can 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.

This document harmonizes with IEC 61140 and gives consideration to the electrical installation by properly interfacing with the common safety aspects of the installation. Each installation can 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 or receive 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 or receiving power using proprietary connectors; or
- equipment using a proprietary protocol to enable the power transfer. This document specifies safeguards for ordinary persons, instructed persons, and skilled persons.

Additional requirements can 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 can require formal licensing from regulatory authorities.

NOTE 5 In Germany, in many cases a person can 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;

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;

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;
- equipment to be used in wet areas indoors.

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 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 to IEC 62368-1:2023 or kindly contact.

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