



CERTIFICATE OF ACCREDITATION

This is to attest that

UL LLC

1285 WALT WHITMAN ROAD
MELVILLE, NEW YORK 11747, U.S.A.

Testing Laboratory TL-325

has met the requirements of AC89, *IAS Accreditation Criteria for Testing Laboratories* as well as the *FDA ASCA specifications* and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories*. This organization is accredited to provide the services specified in the scope of accreditation.

Effective Date December 20, 2023



A handwritten signature in black ink, reading "Raj Nathan".

President

Visit www.iasonline.org for current accreditation information.

SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

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UL LLC

www.ul.com

Contact Name Arthur Mastromarino

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Accredited to ISO/IEC 17025:2017

Effective Date December 20, 2023

FDA ASCA Program

FDA ASCA Program Scope

Basic Safety and Essential Performance of Medical Electrical Equipment, Medical Electrical Systems and Laboratory Medical Equipment	
ANSI AAMI ES60601-1:2005/(R)2012 & A1:2012, C1:2009/(R)2012 & A2:2010/(R)2012 (Cons. Text) [Incl. AMD2:2021] [19-46]	Medical electrical equipment - Part 1: General requirements for basic safety and essential performance (IEC 60601-1:2005, MOD) [Including Amendment 2 (2021)]
ANSI AAMI HA60601-1-11:2015 [Including AMD1:2021] [19-47]	Medical Electrical Equipment -- Part 1-11: General requirements for basic safety and essential performance -- Collateral Standard: Requirements for medical electrical equipment and medical electrical equipment and medical electrical systems used in the home healthcare environment (IEC 60601-1-11:2015 MOD) [Including Amendment1 (2021)]
ANSI AAMI IEC 60601-2-2:2017 [6-389]	Medical electrical equipment - Part 2-2: Particular requirements for the basic safety and essential performance of high frequency surgical equipment and high frequency surgical accessories
ANSI AAMI IEC 60601-2-16:2018 [9-121]	Medical electrical equipment - Part 2-16: Particular requirements for basic safety and essential performance of haemodialysis, haemodiafiltration and haemofiltration equipment
ANSI AAMI IEC 60601-2-27:2011(R)2016 [3-126]	Medical electrical equipment - Part 2-27: Particular requirements for the basic safety and essential performance of electrocardiographic monitoring equipment [Including: Corrigendum 1 (2012)]
ANSI AAMI IEC 60601-2-47:2012/(R)2016 [3-155]	Medical electrical equipment -- Part 2-47: Particular requirements for the basic safety and essential performance of ambulatory electrocardiographic systems
ANSI AAMI IEC 80601-2-30:2018 [3-123]	Medical electrical equipment - Part 2-30: Particular requirements for basic safety and essential performance of automated type non-invasive sphygmomanometers
IEC 60601-1-6 Edition 3.2 2020-07 CONSOLIDATED VERSION [5-132]	Medical electrical equipment - Part 1-6: General requirements for basic safety and essential performance - Collateral standard: Usability

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IEC 60601-1-11 Edition 2.1 2020-07 CONSOLIDATED VERSION [19-38]	Medical electrical equipment - Part 1-11: General requirements for basic safety and essential performance - Collateral Standard: Requirements for medical electrical equipment and medical electrical systems used in the home healthcare environment
IEC 60601-2-2 Edition 6.0 2017-03 [6-389]	Medical electrical equipment - Part 2-2: Particular requirements for the basic safety and essential performance of high frequency surgical equipment and high frequency surgical accessories
IEC 60601-2-5: Edition 3.0 2009-07 [12-205]	Medical electrical equipment - Part 2-5: Particular requirements for the basic safety and essential performance of ultrasonic physiotherapy equipment
IEC 60601-2-6 Edition 2.1 2016-04 CONSOLIDATED VERSION [6-423]	Medical electrical equipment - Part 2-6: Particular requirements for the basic safety and essential performance of microwave therapy equipment
IEC 60601-2-8 Edition 2.1 b:2015 [12-301]	Medical electrical equipment - Part 2-8: Particular requirements for the safety of therapeutic X-ray equipment operating in the range 10 kV to 1 MV
IEC 60601-2-10 Edition 2.1 2016-04 [17-16]	Medical electrical equipment - Part 2-10: Particular requirements for the basic safety and essential performance of nerve and muscle stimulators
IEC 60601-2-11 Edition 3.0 2013-01 [12-255]	Medical electrical equipment - Part 2-11: Particular requirements for the basic safety and essential performance of gamma beam therapy equipment
IEC 60601-2-16 Edition 5.0 2018-4 [9-121]	Medical electrical equipment - Part 2-16: Particular requirements for the basic safety and essential performance of haemodialysis, haemodiafiltration and haemonfiltration equipment
IEC 60601-2-17 Edition 3.0 2013-11 [12-272]	Medical electrical equipment - Part 2-17: Particular requirements for the safety of automatically-controlled brachytherapy after loading equipment
IEC 60601-2-18: Edition 3.0 2009-08 [9-114]	Medical electrical equipment - Part 2-18: Particular requirements for the basic safety and essential performance of endoscopic equipment
IEC 60601-2-22 Edition 3.1 2012-10 [12-268]	Medical electrical equipment - Part 2-22: Particular requirements for basic safety and essential performance of surgical cosmetic therapeutic and diagnostic laser equipment
IEC 60601-2-23 Edition 3.0 2011-02 [1-87]	Medical electrical equipment - Part 2-23: Particular requirements for the basic safety and essential performance of transcutaneous partial pressure monitoring equipment
IEC 60601-2-27 Edition 3.0 2011-03 [3-126]	Medical electrical equipment - Part 2-27: Particular requirements for the basic safety and essential performance of electrocardiographic monitoring equipment [Including: Corrigendum 1 (2012)]
IEC 60601-2-28 Edition 3.0 2017-06 [12-309]	Medical electrical equipment - Part 2-28: Particular requirements for the basic safety and essential performance of X-ray tube assemblies for medical diagnosis
IEC 60601-2-29 Edition 3.0 2008-06 [12-211]	Medical electrical equipment - Part 2-29: Particular requirements for the basic safety and essential performance of radiotherapy simulators
IEC 60601-2-31 Edition 2.1 2011-09 [3-102]	Medical electrical equipment, Part 2-31: Particular requirements for the basic safety and essential performance of external cardiac pacemakers with internal power source

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IEC 60601-2-33 Ed. 3.2 b:2015 [12-295]	Medical electrical equipment - Part 2-33: Particular requirements for the basic safety and essential performance of magnetic resonance equipment for medical diagnosis
IEC 60601-2-36 Edition 2.0 2014-04 [9-119]	Medical electrical equipment - Part 2-36: Particular requirements for the safety of equipment for extracorporeally induced lithotripsy
IEC 60601-2-43 Edition 2.2 2019-10 CONSOLIDATED VERSION [12-329]	Medical electrical equipment - Part 2-43: Particular requirements for the safety and essential performance of X-ray equipment for interventional procedures
IEC 60601-2-44 Edition 3.2: 2016 [12-302]	Medical electrical equipment - Part 2-44: Particular requirements for the basic safety and essential performance of x-ray equipment for computed tomography
IEC 60601-2-45 Edition 3.1 2015 [12-294]	Medical electrical equipment - Part 2-45: Particular requirements for the basic safety and essential performance of mammographic X-ray equipment and mammographic stereotactic devices
IEC 60601-2-47 Edition 2.0 2012-02 [3-155]	Medical electrical equipment - Part 2-47: Particular requirements for the basic safety and essential performance of ambulatory electrocardiographic systems
IEC 60601-2-52 Edition 1.0 2009-12 [6-321]	Medical electrical equipment - Part 2-52: Particular requirements for basic safety and essential performance of medical beds [Including: Technical Corrigendum 1 (2010)]
IEC 60601-2-57 Edition 1.0 2011-01 [12-242]	Medical Electrical Equipment - Part 2-57: Particular requirements for the basic safety and essential performance of non-laser light source equipment intended for therapeutic, diagnostic, monitoring and cosmetic/aesthetic use
IEC 61010-1 Edition 3.1 2017-01 CONSOLIDATED VERSION [19-34]	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements [Including: Corrigendum 1 (2019)]
IEC 80601-2-30: Edition 2.0 2018-03 [3-123]	Medical electrical equipment - Part 2-30: Particular requirements for the basic safety and essential performance of automated non-invasive sphygmomanometers
IEC 80601-2-60 Edition 2.0 2019-06 [4-262]	Medical electrical equipment - Part 2-60: Particular requirements for the basic safety and essential performance of dental equipment

Regular Scope

Electrical	
ANSI/AAMI ES60601-1	Medical electrical equipment - part 1: general requirements for basic safety and essential performance
ANSI/AAMI HA60601-1-11	Medical electrical equipment - part 1-11: general requirements for basic safety and essential performance - collateral standard: requirements for medical electrical equipment and medical electrical systems used in the home healthcare environment

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ANSI/AAMI/IEC 60601-2-2	Medical electrical equipment - part 2-2: particular requirements for the basic safety and essential performance of high frequency surgical equipment and high frequency surgical accessories
ANSI/AAMI/IEC 60601-2-16	Medical electrical equipment - part 2-16: particular requirements for basic safety and essential performance of haemodialysis, haemodiafiltration and haemofiltration equipment
ANSI/AAMI/IEC 60601-2-27	Medical electrical equipment - part 2-27: particular requirements for the basic safety and essential performance of electrocardiographic monitoring equipment
ANSI/AAMI/IEC 60601-2-30	Medical electrical equipment - part 2-30: particular requirements for the safety, including essential performance, of automatic cycling non-invasive blood pressure monitoring equipment
ANSI/AAMI/IEC 60601-2-47	Medical electrical equipment - part 2-47: particular requirements for the basic safety and essential performance of ambulatory electrocardiographic systems
ANSI AAMI IEC 80601-2-30:2009 & A1:2013 (R2016)	Medical electrical equipment - Part 2-30: Particular requirements for the basic safety and essential performance of automated non-invasive sphygmomanometers
ANSI/TIA-568-C.2	Balanced twisted-pair telecommunications cabling and components standard
ASTM D149	Standard Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies
ASTM D257	Standard Test Methods for DC Resistance or Conductance of Insulating Materials
ASTM D1830	Standard Test Method for Thermal Endurance of Flexible Sheet Materials Used for Electrical Insulation by the Curved Electrode Method
ASTM D2303	Standard test methods for liquid-contaminant, inclined-plane tracking and erosion of insulating materials
ASTM D3638	Standard test method for comparative tracking index of electrical insulating materials
CSA C22.2 NO. 35	Extra-low-voltage control circuit cable, low-energy control cable, and extra-low-voltage control cable
CSA C22.2 NO. 208	Fire alarm and signal cable
CSA C22.2 NO. 214	Communications cables (bi-national standard, with UL 444)
CSA C22.2 NO. 232	Optical fiber cables
EN 50618	Electric cables for photovoltaic systems
EN 60335-1	Household and similar electrical appliances - safety - part 1: general requirements (excluding Cl. 19.11.4.7 EMC)
EN 60335-2-21	Household and similar electrical appliances - safety - part 2-21: particular requirements for storage water heaters

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EN 60335-2-24	Household and similar electrical appliances - safety - part 2-24: particular requirements for refrigerating appliances, ice-cream appliances and ice makers (excluding Cl. 22.107.3 – Salt Mist, Annex CC – Non-sparking)
EN 60335-2-35	Household and similar electrical appliances - safety - part 2-35: particular requirements for instantaneous water heaters
EN 60335-2-36	Household and similar electrical appliances – safety - part 2-36: particular requirements for commercial electric cooking ranges, ovens, hobs and hob elements
EN 60335-2-37	Household and similar electrical appliances – safety - part 2-37: particular requirements for commercial electric deep fat fryers
EN 60335-2-38	Household and similar electrical appliances - safety - part 2-38: particular requirements for commercial electric griddles and griddle grills incorporating corrigendum
EN 60335-2-39	Household and similar electrical appliances - safety - part 2-39: particular requirements for commercial electric multi-purpose cooking pans
EN 60335-2-40	Household and similar electrical appliances - safety - part 2-40: particular requirements for electrical heat pumps, air-conditioners and dehumidifiers
EN 60335-2-42	Household and similar electrical appliances - safety - part 2-42: particular requirements for commercial electric forced convection ovens, steam cookers and steam-convection ovens
EN 60335-2-47	Household and similar electrical appliances - safety - part 2-47: particular requirements for commercial electric boiling pans
EN 60335-2-48	Household and similar electrical appliances – safety - part 2-48: particular requirements for commercial electric grillers and toasters
EN 60335-2-49	Household and similar electrical appliances – safety - part 2-49: particular requirements for commercial electric appliances for keeping food and crockery warm
EN 60335-2-50	Safety of household and similar electrical appliances - part 2-50: particular requirements for commercial electric basins
EN 60335-2-64	Safety of household and similar electrical appliances - part 2-64: particular requirements for commercial electric kitchen machine
EN 60335-2-75	Household and similar electrical appliances – safety - part 2-75: particular requirements for commercial dispensing appliances and vending machines
EN 60335-2-80	Household and similar electrical appliances – safety - part 2-80: particular requirements for fans
EN 60335-2-89	Household and similar electrical appliances - safety - part 2-89: particular requirements for commercial refrigerating appliances with an incorporated or remote refrigerant condensing unit or compressor
IEC 60065	Audio, video and similar electronic apparatus - safety requirement

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IEC 60093	Methods of test for volume resistivity and surface resistivity of solid electrical insulating materials
IEC 60112	Method for the determination of the proof and the comparative tracking indices of solid insulating materials
IEC 60243-1	Electric strength of insulating materials - Test methods - Part 1: Tests at power frequencies
IEC 60335-1	Household and similar electrical appliances - safety - part 1: general requirements (excluding Cl. 19.11.4.7 EMC)
IEC 60335-2-21	Household and similar electrical appliances - safety - part 2-21: particular requirements for storage water heaters
IEC 60335-2-24	Household and similar electrical appliances - safety - part 2-24: particular requirements for refrigerating appliances, ice-cream appliances and ice makers (excluding Cl. 22.107.3 – Salt Mist, Annex CC – Non-sparking)
IEC 60335-2-35	Household and similar electrical appliances - safety - part 2-35: particular requirements for instantaneous water heaters
IEC 60335-2-36	Household and similar electrical appliances - safety - part 2-36: particular requirements for commercial electric cooking ranges, ovens, hobs and hob elements
IEC 60335-2-37	Household and similar electrical appliances - safety - part 2-37: particular requirements for commercial electric deep fat fryers
IEC 60335-2-38	Household and similar electrical appliances - safety - part 2-38: particular requirements for commercial electric griddles and griddle grills
IEC 60335-2-39	Household and similar electrical appliances - safety - part 2-39: particular requirements for commercial electric multi-purpose cooking pans
IEC 60335-2-40	Household and similar electrical appliances - safety - part 2-40: particular requirements for electrical heat pumps, air-conditioners and dehumidifiers
IEC 60335-2-42	Household and similar electrical appliances - safety - part 2-42: particular requirements for commercial electric forced convection ovens, steam cookers and steam-convection ovens
IEC 60335-2-47	Household and similar electrical appliances - safety - part 2-47: particular requirements for commercial electric boiling pans
IEC 60335-2-48	Household and similar electrical appliances – safety – part 2-48: particular requirements for commercial electric grillers and toasters
IEC 60335-2-49	Household and similar electrical appliances – safety – part 2-49: particular requirements for commercial electric appliances for keeping food and crockery warm
IEC 60335-2-50	Household and similar electrical appliances – safety – part 2-50: particular requirements for commercial electric bains-marie

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IEC 60335-2-64	Household and similar electrical appliances - safety - part 2-64: particular requirements for commercial electric kitchen machines
IEC 60335-2-75	Household and similar electrical appliances - safety - part 2-75: particular requirements for commercial dispensing appliances and vending machines
IEC 60335-2-80	Household and similar electrical appliances - safety - part 2-80: particular requirements for fans
IEC 60335-2-89	Household and similar electrical appliances - safety - part 2-89: particular requirements for commercial refrigerating appliances with an incorporated or remote refrigerant unit or compressor
IEC 60529	Degrees of protection provided by enclosures (IP code) except IP X9 - high pressure and temperature water jet
IEC 60587	Electrical insulating materials used under severe ambient conditions - test methods for evaluating resistance to tracking and erosion
IEC 60601-1	Medical electrical equipment - part 1: general requirements for basic safety and essential performance
IEC 60601-1-1	Medical electrical equipment—part 1-1: general requirements for safety – collateral standard: safety requirements for medical electrical systems
IEC 60601-1-3	Medical electrical equipment - part 1-3: general requirements for basic safety and essential performance - collateral standard: radiation protection in diagnostic x-ray equipment
IEC 60601-1-6	Medical electrical equipment - part 1-6: general requirements for basic safety and essential performance - collateral standard: usability
IEC 60601-1-11	Medical electrical equipment - part 1-11: general requirements for basic safety and essential performance - collateral standard: requirements for medical electrical equipment and medical electrical systems used in the home healthcare environment
IEC 60601-2-1	Medical electrical equipment - part 2-1: particular requirements for the basic safety and essential performance of electron accelerators in the range 1 MeV to 50 MeV
IEC 60601-2-4	Medical electrical equipment - part 2-4: particular requirements for the basic safety and essential performance of cardiac defibrillators
IEC 60601-2-5	Medical electrical equipment - part 2-5: particular requirements for the basic safety and essential performance of ultrasonic physiotherapy equipment
IEC 60601-2-6	Medical electrical equipment - Part 2-6: Particular requirements for the basic safety and essential performance of microwave therapy equipment
IEC 60601-2-7	Medical electrical equipment - part 2-7: particular requirements for the safety of high-voltage generators of diagnostic x-ray generators

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IEC 60601-2-8	Medical electrical equipment - part 2-8: particular requirements for basic safety and essential performance of therapeutic x-ray equipment operating in the range 10 kV to 1 MV
IEC 60601-2-10	Medical electrical equipment - part 2-10: particular requirements for the basic safety and essential performance of nerve and muscle stimulators
IEC 60601-2-11	Medical electrical equipment - part 2-11: particular requirements for the basic safety and essential performance of gamma beam therapy equipment
IEC 60601-2-17	Medical electrical equipment - part 2-17: particular requirements for the basic safety and essential performance of automatically-controlled brachytherapy after-loading equipment
IEC 60601-2-18	Medical electrical equipment - part 2-18: particular requirements for the basic safety and essential performance of endoscopic equipment
IEC 60601-2-22	Medical electrical equipment - part 2-22: particular requirements for basic safety and essential performance of surgical, cosmetic, therapeutic and diagnostic laser equipment
IEC 60601-2-23	Medical electrical equipment - part 2-23: particular requirements for the basic safety and essential performance of transcutaneous partial pressure monitoring equipment
IEC 60601-2-24	Medical electrical equipment - part 2-24: particular requirements for the basic safety and essential performance of infusion pumps and controllers
IEC 60601-2-28	Medical electrical equipment - part 2-28: particular requirements for the basic safety and essential performance of x-ray tube assemblies for medical diagnosis
IEC 60601-2-28 Edition 2.0 2010-03	Medical electrical equipment - Part 2-28: Particular requirements for the basic safety and essential performance of X-ray tube assemblies for medical diagnosis
IEC 60601-2-29	Medical electrical equipment - part 2-29: particular requirements for the basic safety and essential performance of radiotherapy simulators
IEC 60601-2-31	Medical electrical equipment - part 2-31: particular requirements for the basic safety and essential performance of external cardiac pacemakers with internal power source
IEC 60601-2-32	Medical electrical equipment – part 2-32: particular requirements for the safety of associated equipment of x-ray equipment
IEC 60601-2-33	Medical electrical equipment - part 2-33: particular requirements for the basic safety and essential performance of magnetic resonance equipment for medical diagnosis
IEC 60601-2-35	Medical electrical equipment – part 2-35: particular requirements for the safety of blankets, pads and mattresses intended for heating in medical use

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IEC 60601-2-36	Medical electrical equipment - part 2-36: particular requirements for the basic safety and essential performance of equipment for extra corporeally induced lithotripsy
IEC 60601-2-38	Medical electrical equipment – part 2: particular requirements for the safety of electrically operated hospital beds
IEC 60601-2-39	Medical electrical equipment - part 2-39: particular requirements for basic safety and essential performance of peritoneal dialysis equipment
IEC 60601-2-40	Medical electrical equipment - part 2-40: particular requirements for the safety of electromyographs and evoked response equipment
IEC 60601-2-41	Medical electrical equipment - part 2-41: particular requirements for the basic safety and essential performance of surgical luminaires and luminaires for diagnosis
IEC 60601-2-43	Medical electrical equipment - part 2-43: particular requirements for the basic safety and essential performance of x-ray equipment for interventional procedures
IEC 60601-2-43 Edition 2.1 2017-05 CONSOLIDATED VERSION	Medical electrical equipment - Part 2-43: Particular requirements for the safety and essential performance of X-ray equipment for interventional procedures
IEC 60601-2-44	Medical electrical equipment - part 2-44: particular requirements for the basic safety and essential performance of x-ray equipment for computed tomography
IEC 60601-2-45	Medical electrical equipment - part 2-45: particular requirements for basic safety and essential performance of mammographic x-ray equipment and mammographic stereotactic devices
IEC 60601-2-46	Medical electrical equipment - part 2-46: particular requirements for the basic safety and essential performance of operating tables
IEC 60601-2-49	Medical electrical equipment - part 2-49: particular requirements for the basic safety and essential performance of multifunction patient monitoring equipment
IEC 60601-2-52	Medical electrical equipment -- part 2-52: particular requirements for the basic safety and essential performance of medical beds
IEC 60601-2-54	Medical electrical equipment - part 2-54: particular requirements for the basic safety and essential performance of x-ray equipment for radiography and radioscopy
IEC 60601-2-57	Medical electrical equipment - part 2-57: particular requirements for the basic safety and essential performance of non-laser light source equipment intended for therapeutic, diagnostic, monitoring and cosmetic/aesthetic use
IEC 60601-2-63	Medical electrical equipment - part 2-63: particular requirements for the basic safety and essential performance of dental extra-oral x-ray equipment

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IEC 60601-2-65	Medical electrical equipment - part 2-65: particular requirements for the basic safety and essential performance of dental intra-oral x-ray equipment
IEC 60601-2-66	Medical electrical equipment - part 2-66: particular requirements for the basic safety and essential performance of hearing instruments and hearing instrument systems
IEC 60730-1	Automatic electrical controls - part 1: general requirements (excluding Cl. 23, 26, H.23, H.26,4, H26.13 EMC)
IEC 60950-1	Information technology equipment - safety - part 1: general requirements (exclusions – 4.2.8, 4.3.12, 4.3.13.3, 4.3.13.4, 4.3.13.5, 4.6.2 and annex U)
IEC 61010-031	Safety requirements for electrical equipment for measurement, control, and laboratory use - part 031: particular requirements for hand-held probe assemblies for electrical measurement and test
IEC 61010-1	Safety requirements for electrical equipment for measurement, control, and laboratory use - part 1: general requirements
IEC 61010-2-010	Safety requirements for electrical equipment for measurement, control and laboratory use - part 2-010: particular requirements for laboratory equipment for the heating of materials
IEC 61010-2-020	Safety requirements for electrical equipment for measurement, control, and laboratory use - part 2-020: particular requirements for laboratory centrifuges
IEC 61010-2-030	Safety requirements for electrical equipment for measurement, control, and laboratory use - part 2-030: particular requirements for testing and measuring circuits
IEC 61010-2-032	Safety requirements for electrical equipment for measurement, control and laboratory use - part 2-032: particular requirements for hand-held and hand-manipulated current sensors for electrical test and measurement
IEC 61010-2-033	Safety requirements for electrical equipment for measurement, control and laboratory use – Part 2-033: Particular requirements for hand-held multimeters for domestic and professional use, capable of measuring MAINS voltage
IEC 61010-2-040	Safety requirements for electrical equipment for measurement, control, and laboratory use - part 2-040: particular requirements for sterilizers and washer-disinfectors used to treat medical materials
IEC 61010-2-051	Safety requirements for electrical equipment for measurement, control and laboratory use - part 2-051: particular requirements for laboratory equipment for mixing and stirring
IEC 61010-2-081	Safety requirements for electrical equipment for measurement, control and laboratory use - part 2-081: particular requirements for automatic and semi-automatic laboratory equipment for analysis and other purposes
IEC 61010-2-091	Safety requirements for electrical equipment for measurement, control and laboratory use - part 2-091: particular requirements for cabinet X-ray systems

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IEC 61010-2-101	Safety requirements for electrical equipment for measurement, control and laboratory use - part 2-101: particular requirements for in vitro diagnostic (IVD) medical equipment
IEC 61010-2-201	Safety requirements for electrical equipment for measurement, control and laboratory use - part 2-201: particular requirements for control equipment
IEC 61851-1	Electric vehicle conductive charging system – Part 1: General requirements
IEC 62930	Electric cables for photovoltaic systems with a voltage rating of 1,5 kV DC
IEC 80601-2-30	Medical electrical equipment - part 2-30: particular requirements for the basic safety and essential performance of automated non-invasive sphygmomanometers
IEC 80601-2-30 Edition 1.1 2013-07	Medical electrical equipment - Part 2-30: Particular requirements for the basic safety and essential performance of automated non-invasive sphygmomanometers
IEC 80601-2-35	Medical electrical equipment - part 2-35: particular requirements for the basic safety and essential performance of heating devices using blankets, pads and mattresses and intended for heating in medical use
IEC 80601-2-35 Edition 2.1 2016-04 CONSOLIDATED VERSION	Medical electrical equipment-Part - 2-35: Particular requirements for the basic safety and essential performance of heating devices using blankets, pads or mattresses and intended for heating in medical use [Including: Amendment 1 (2016)]
IEC 80601-2-58	Medical electrical equipment - part 2-58: particular requirements for the basic safety and essential performance of lens removal devices and vitrectomy devices for ophthalmic surgery
IEC 80601-2-60	Medical electrical equipment - part 2-60: particular requirements for the basic safety and essential performance of dental equipment
UL 13	Standard for power-limited circuit cables
UL 83	Standard for Safety Thermoplastic-Insulated Wires and Cables
UL 444	Communications cables
UL 746A	Standard for polymeric materials - short term property evaluations (Clauses 21, 22, 24, and 26)
UL 1424	Standard for cables for power-limited fire-alarm circuits
UL 1425	Standard for cables for non-power-limited fire-alarm circuits
UL 1651	Standard for optical fiber cable
UL 1655	Standard for community-antenna television cables
UL 1690	Standard for data-processing cable
UL 2250	Standard for instrumentation tray cable

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UL 2556	Wire and cable test methods
UL Subject 1493	Outline for investigation of underground low-energy circuit cable
UL Subject 2250	Instrumentation tray cable
Automotive	
FMVSS 302	Federal Motor Vehicle Safety Standards - Flammability of interior materials
ISO 6722-1	Road vehicles — 60 V and 600 V single core cables — Part 1: Dimensions, test methods and requirements for copper conductor cables
ISO 6722-2	Road vehicles — 60 V and 600 V single-core cables — Part 2: Dimensions, test methods and requirements for aluminium conductor cables
ISO 14572	Road vehicles — Round, sheathed, 60 V and 600 V screened and unscreened single- or multi-core cables — Test methods and requirements for basic- and high-performance cables
ISO 19642-2	Road vehicles — Automotive cables — Part 2: Test methods
ISO 19642-3	Road vehicles — Automotive cables — Part 3: Dimensions and requirements for 30 V a.c. or 60 V d.c. single core copper conductor cables
ISO 19642-4	Road vehicles — Automotive cables — Part 4: Dimensions and requirements for 30 V a.c. and 60 V d.c. single core aluminium conductor cables
ISO 19642-5	Road vehicles — Automotive cables — Part 5: Dimensions and requirements for 600 V a.c. or 900 V d.c. and 1 000 V a.c. or 1 500 V d.c. single core copper conductor cables
ISO 19642-6	Road vehicles — Automotive cables — Part 6: Dimensions and requirements for 600 V a.c. or 900 V d.c. and 1 000 V a.c. or 1 500 V d.c. single core aluminium conductor cables
ISO 19642-7	Road vehicles — Automotive cables — Part 7: Dimensions and requirements for 30 V a.c. or 60 V d.c. round, sheathed, screened or unscreened multi or single core copper conductor cables
ISO 19642-8	Road vehicles — Automotive cables — Part 8: Dimensions and requirements for 30 V a.c. or 60 V d.c. round, sheathed, screened or unscreened multi or single core aluminium conductor cables
ISO 19642-9	Road vehicles — Automotive cables — Part 9: Dimensions and requirements for 600 V a.c. or 900 V d.c. and 1 000 V a.c. or 1 500 V d.c. round, sheathed, screened or unscreened multi or single core copper conductor cables
ISO 19642-10	Road vehicles — Automotive cables — Part 10: Dimensions and requirements for 600 V a.c. or 900 V d.c. and 1 000 V a.c. or 1 500 V d.c. round, sheathed, screened or unscreened multi or single core aluminium conductor cables
SAE J1127	Low Voltage Battery Cable
SAE J1128	Low Voltage Primary Cable

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SAE J1654	Unshielded High Voltage Primary Cable
SAE J1678	Low Voltage Ultra-Thin Wall Primary Cable
SAE J2840	High Voltage Shielded and Jacketed Cable
SAE J3117/1	100BASE-T1 Un-Shielded Balanced Single Twisted Pair Ethernet Cable
SAE J3117/2	1000BASE-T1 Un-Shielded and Shielded Balanced Single Twisted Pair Ethernet Cable
Chemical	
ASTM D3418	Standard test method for transition temperatures and enthalpies of fusion and crystallization of polymers by differential scanning calorimetry
ASTM D3850	Standard test method for rapid thermal degradation of solid electrical insulating materials by thermogravimetric method (TGA)
ASTM E131	Standard terminology relating to molecular spectroscopy
ASTM E1252	Standard practice for general techniques for obtaining infrared spectra for qualitative analysis
ASTM E1421	Standard practice for describing and measuring performance of Fourier transform mid-infrared (FT-MIR) spectrometers: level zero and level one tests
IEC 62321-3-1	Determination of certain substances in electro-technical products - part 3-1: screening - lead, mercury, cadmium, total chromium and total bromine using x-ray fluorescence spectrometry
IEC 62321-3-2	Determination of certain substances in electrotechnical products - Part 3-2: Screening - Fluorine, bromine and chlorine in polymer and electronics by combustion-ion chromatography (C-IC)
IEC 62321-8	Determination of certain substances in electrotechnical products – Part 8: Phthalates in polymers by gas chromatography-mass spectrometry (GC-MS), gas chromatography-mass spectrometry using a pyrolyzer/thermal desorption accessory (Py/TD-GC-MS).
UL 746A	Standard for polymeric materials - short term property evaluations (Clauses 43, 46, 47, and 48A)
UL 746H	Outline of Investigation for Non-Halogenated Materials
UL 746R	Restricted use substances in polymeric materials
Fire	
ASTM D3874	Standard test method for ignition of materials by hot wire sources
ASTM D4986	Standard test method for horizontal burning characteristics of cellular polymeric materials

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ASTM D7309	Standard test method for determining flammability characteristics of plastics and other solid materials using microscale combustion calorimetry
EN 13501-6	Fire classification of construction products and building elements – Part 6: Classification using data from reaction to fire tests on power, control and communication cables
IEC 60695-2-10	Fire hazard testing - part 2-10: glowing/hot-wire based test methods - glow-wire apparatus and common test procedure
IEC 60695-2-11	Fire hazard testing - part 2-11: glowing/hot-wire based test methods - glow-wire flammability test method for end-products (GWEPT)
IEC 60695-2-12	Fire hazard testing - part 2-12: glowing/hot-wire based test methods - glow-wire flammability test method for materials
IEC 60695-2-13	Fire hazard testing - part 2-13: glowing/hot-wire based test methods - glow-wire ignitability test method for materials
IEC 60695-2-20	Fire hazard testing - part 2-20: glowing/hot wire based test methods - hot-wire coil ignitability - apparatus, test method and guidance
IEC 60695-11-5	Fire hazard testing - part 11-5: test flames - needle-flame test method - apparatus, confirmatory test arrangement and guidance
IEC 60695-11-10	Fire hazard testing - part 11-10: test flames - 50 W horizontal and vertical flame test methods
IEC 60695-11-20	Fire hazard testing - part 11-20: test flames - 500 W flame test method
ISO 9772	Cellular plastics -- determination of horizontal burning characteristics of small specimens subjected to a small flame
ISO 9773	Plastics - determination of burning behaviour of thin flexible vertical specimens in contact with a small-flame ignition source
UL 94	Standard for tests for flammability of plastic materials for parts in devices and appliances (excluding clause 10)
UL 746A	Standard for polymeric materials - short term property evaluations (Clauses 32 and 35)
Physical	
ASTM D256	Standard test methods for determining the izod pendulum impact resistance of plastics
ASTM D412	Standard test methods for vulcanized rubber and thermoplastic elastomers—tension
ASTM D638	Standard test method for tensile properties of plastics
ASTM D790	Standard test methods for flexural properties of unreinforced and reinforced plastics and electrical insulating materials

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ASTM D882	Standard test method for tensile properties of thin plastic sheeting
ASTM D1042	Standard test method for linear dimensional changes of plastics caused by exposure to heat and moisture
ASTM D1822	Standard test method for tensile-impact energy to break plastics and electrical insulating materials
ASTM D6110	Standard test method for determining the Charpy impact resistance of notched specimens of plastics
ASTM G151	Standard practice for exposing nonmetallic materials in accelerated test devices that use laboratory light sources
ASTM G155	Standard practice for operating xenon arc light apparatus for exposure of non-metallic materials
EN/IEC 60754-2	Test on gases evolved during combustion of materials from cables - part 2: determination of acidity (by ph measurement) and conductivity
EN/IEC 61034-2	Measurement of smoke density of cables burning under defined conditions - part 2: test procedure and requirements
IEC 60684-2 (cl. 45.2 only)	Flexible insulating sleeving - part 2: methods of test
IEC 60754-1	Test on gases evolved during combustion of materials from cables - part 1: determination of the halogen acid gas content
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
ISO 178	Plastics - determination of flexural properties
ISO 179-1	Plastics - determination of Charpy impact properties - part 1: non-instrumented impact test
ISO 180	Plastics - determination of Izod impact strength
ISO 527-1	Plastics - determination of tensile properties - part 1: general principles
ISO 527-2	Plastics - determination of tensile properties - part 2: test conditions for molding and extrusion plastics
ISO 527-3	Plastics - determination of tensile properties - part 3: test conditions for films and sheets
ISO 8256	Plastics - determination of tensile-impact strength
UL 746A	Standard for polymeric materials - short term property evaluations (Clauses 10, 11, 12, 13, 14, 15, 16, and 37)
UL 746C	Standard for polymeric materials - use in electrical equipment evaluations (only clauses 25, 26, 57 and 58)

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UL 2885	Outline of investigation for acid gas, acidity and conductivity of combusted materials
Thermal	
ASTM D648	Standard test method for deflection temperature of plastics under flexural load in the edgewise position
IEC 60695-10-2	Fire hazard testing - part 10-2: abnormal heat - ball pressure test method
ISO 75-1	Plastics - determination of temperature of deflection under load - part 1: general test method
ISO 75-2	Plastics - determination of temperature of deflection under load - part 2: plastics and ebonite
ISO 306	Plastics - thermoplastic materials -- determination of Vicat softening temperature (VST)
UL 746A	Standard for polymeric materials - short term property evaluations (Clauses 27, 28, and 30)
UL 746B	Standard for polymeric materials - long term property evaluations (excluding clause 21.3)
Power Cables	
AEIC CS1	Specification for Impregnated Paper-Insulated Metallic-Sheathed cable, solid-type rated 1kV through 69kV
AEIC CS8	Specification for Extruded Dielectric, Shielded Power Cables rated 5 through 46 kV
AEIC CS9	Specification for Extruded Insulation Power Cables and Their Accessories rated Above 46 kV through 345 kV.
HD 605	Electric cables - Additional test methods
HD 620	Distribution Cables with extruded insulation for rated voltages from 3,6/6 (7,2) kV up to and including 20, 8/36 (42) kV
HD 632	Power cables with extruded insulation and their accessories for rated voltages above 36 kV ($U_m = 42$ kV) up to 150 kV ($U_m = 170$ kV)
ICEA S-94-649	Concentric Neutral Cables, Rated 5 Through 46 KV
ICEA S-108-720	Standard for Extruded Insulation Power Cables Rated Above 46 Through 500 KV AC
ICEA S-93-639/ NEMA WC 74	5-46 kV Shielded Power Cable for Use in the Transmission and Distribution of Electric Energy
ICEA S-95-658/ NEMA WC 70	Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy

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IEC 60502-1	Power cables with extruded insulation and their accessories for rated voltages from 1 kV ($U_m = 1,2$ kV) up to 30 kV ($U_m = 36$ kV) – Part 1: Cables for rated voltages of 1 kV ($U_m = 1,2$ kV) and 3 kV ($U_m = 3,6$ kV)
IEC 60502-2	Power cables with extruded insulation and their accessories for rated voltages from 1 kV ($U_m = 1,2$ kV) up to 30 kV ($U_m = 36$ kV) – Part 2: Cables for rated voltages from 6 kV ($U_m = 7,2$ kV) up to 30 kV ($U_m = 36$ kV)
IEC 60502-4	Power cables with extruded insulation and their accessories for rated voltages from 1 kV ($U_m = 1,2$ kV) up to 30 kV ($U_m = 36$ kV) – Part 4: Test requirements on accessories for cables with rated voltages from 6 kV ($U_m = 7,2$ kV) up to 30 kV ($U_m = 36$ kV)
IEC 60840	Power cables with extruded insulation and their accessories for rated voltages above 30 kV ($U_m = 36$ kV) up to 150 kV ($U_m = 170$ kV) – Test methods and requirements
IEC 61442	Test methods for accessories for power cables with rated voltages from 6 kV ($U_m = 7,2$ kV) up to 30 kV ($U_m = 36$ kV)
IEC 62067	Power cables with extruded insulation and their accessories for rated voltages above 150 kV ($U_m = 170$ kV) up to 500 kV ($U_m = 550$ kV) – Test methods and requirements
IEC 62895	High voltage direct current (HVDC) power transmission – Cables with extruded insulation and their accessories for rated voltages up to 320 kV for land applications – Test methods and requirements
IEC 63026	Submarine power cables with extruded insulation and their accessories for rated voltages from 6 kV ($U_m = 7,2$ kV) up to 60 kV ($U_m = 72,5$ kV) – Test methods and requirements
IEEE 48	IEEE Standard for Test Procedures and Requirements for Alternating-Current Cable Terminations used on Shielded Cables having Laminated Insulation Rated 2.5 kV through 765 kV or Extruded Insulation Rated 2.5 kV through 500 kV
IEEE 386	IEEE Standard for Separable Insulated Connector Systems for Power Distribution Systems Rated 2.5 kV through 35 kV
IEEE 404	IEEE Standard for Extruded and Laminated Dielectric Shielded Cable Joints 2.5 kV to 500 kV
IEEE 693	IEEE Recommended Practice for Seismic Design of Substations (Annex N only)

ASCA: Accreditation Scheme for Conformity Assessment

CENELEC: European Committee for Electrotechnical Standardization

CSA: Canadian Standards Association

FDA: U.S. Food & Drug Administration

FMVSS: Federal Motor Vehicle Safety Standards

IEC: International Electrotechnical Commission

TIA: Telecommunications Industry Association

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