



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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ELECTRICAL

Valid To: July 31, 2025

Certificate Number: 7054.01

In recognition of the successful completion of the A2LA evaluation process, (including an assessment of the organization's compliance with A2LA's EPA Energy STAR² ® and A2LA's FDA ASCA³ Accreditation Program Requirements), accreditation is granted to this laboratory to perform the following types of tests:

Test(s):

Test Method(s):

Generic / Product Specific Standards

| | |
|---|--|
| Household and Electrical Appliance – Safety – Part 1: General Requirements | IEC 60335-1; EN 60335-1; AS/NZS 60335.1; CAN/CSA-C22.2 No. 60335-1; UL 60335-1 |
| Part 2-2: Particular Requirements for Vacuum Cleaners and Water-Suction Cleaning Appliances | IEC 60335-2-2; EN 60335-2-2; AS/NZS 60335.2.2 |
| Part 2-3: Particular Requirements for Electric Irons | IEC 60335-2-3; EN 60335-2-3; AS/NZS 60335.2.3; UL 60335-2-3; CAN/CSA C22.2 No. 60335-2-3 |
| Part 2-4: Particular Requirements for Spin Extractors | IEC 60335-2-4; EN 60335-2-4; AS/NZS 60335.2.4 |
| Part 2-5: Particular Requirements for Dishwashers | IEC 60335-2-5; EN 60335-2-5 |
| Part 2-6: Particular Requirements for Stationary Cooking Ranges, Hobs, Ovens and Similar Appliances | IEC 60335-2-6; EN 60335-2-6; AS/NZS 60335.2.6 |
| Part 2-7: Particular Requirements for Washing Machines | IEC 60335-2-7; EN 60335-2-7; AS/NZS 60335.2.7 |

Test(s):**Test Method(s):**

Part 2-8: Particular Requirements for Shavers,
Hair Clippers and Similar Appliances

IEC 60335-2-8; EN 60335-2-8;
AS/NZS 60335.2.8; UL 60335-2-8;
CAN/CSA-C22.2 No. 60335-2-8

Part 2-9: Particular Requirements for Grills,
Toasters and Similar Portable Cooking
Appliances

IEC 60335-2-9; EN 60335-2-9;
AS/NZS 60335.2.9;
CAN/CSA C22.2 No. 60335-2-9

Part 2-10: Particular Requirements for Floor
Treatment Machines and Wet Scrubbing
Machines

IEC 60335-2-10; EN 60335-2-10;
AS/NZS 60335.2.10

Part 2-11: Particular Requirements for Tumble
Dryers

IEC 60335-2-11; EN 60335-2-11

Part 2-12: Particular Requirements for Warming
Plates and Similar Appliances

IEC 60335-2-12; EN 60335-2-12;
AS/NZS 60335.2.12

Part 2-13: Particular Requirements for Deep Fat
Fryers, Frying Pans and Similar Appliances

IEC 60335-2-13; EN 60335-2-13;
AS/NZS 60335.2.13

Part 2-14: Particular Requirements for Kitchen
Machines

AS/NZS 60335.2.14; UL 60335-2-14;
CAN/CSA C22.2 No. 60335-2-14;
IEC 60335-2-14; EN 60335-2-14;
EN IEC 60335-2-14

Part 2-15: Particular Requirements for Appliances
for Heating Liquids

IEC 60335-2-15; EN 60335-2-15;
AS/NZS 60335.2.15;
CAN/CSA-C22.2 No. 60335-2-15

Household Cooking and Liquid-Heating
Appliances

CAN/CSA C22.2 No. 64

Part 2-21: Particular Requirements for Storage
Water Heaters

IEC 60335-2-21; EN 60335-2-21

Part 2-23: Particular Requirements for Appliances
for Skin or Hair Care

IEC 60335-2-23;
AS/NZS 60335.2.23;
CAN/CSA C22.2 No. 60335-2-23;
EN 60335-2-23

Part 2-24: Particular Requirements for
Refrigerating Appliances Ice-Cream Appliances
and Ice-Makers

IEC 60335-2-24; EN 60335-2-24;
AS/NZS 60335.2.24;
CAN/CSA C22.2 No. 60335-2-24;
UL 60335-2-24

Part 2-27: Particular Requirements for Appliances
Foreskin Exposure to Ultraviolet and Infrared
Radiation

IEC 60335-2-27; EN 60335-2-27;
AS/NZS 60335.2.27

Test(s):**Test Method(s):**

Part 2-28: Particular Requirements for Sewing Machines

IEC 60335-2-28; EN 60335-2-28

Part 2-29: Particular Requirements for Battery Chargers

IEC 60335-2-29; EN 60335-2-29;
AS/NZS 60335.2.29; UL 60335-2-29;
CAN/CSA C22.2 No. 60335-2-29

Part 2-30: Particular Requirements for Room Heaters

IEC 60335-2-30; EN 60335-2-30;
AS/NZS 60335.2.30

Part 2-31: Particular Requirements for Range Hoods and Other Cooking Fume Extractors

IEC 60335-2-31; EN 60335-2-31;
AS/NZS 60335.2.31

Part 2-32: Particular Requirements for Massage Appliances

AS/NZS 60335.2.32; UL 60335-2-32;
CAN/CSA C22.2 No. 60335-2-32;
IEC 60335-2-32; EN 60335-2-32

Part 2-35: Particular Requirements for Instantaneous Water Heaters

IEC 60335-2-35; EN 60335-2-35;
AS/NZS 60335.2.35

Part 2-36: Particular Requirements for Commercial Electric Cooking Ranges, Ovens, Hobs, and Hob Elements

IEC 60335-2-36; EN 60335-2-36

Part 2-38: Particular Requirements for Commercial Electric Griddles and Griddle Grills

IEC 60335-2-38; EN 60335-2-38

Part 2-41: Particular Requirements for Pumps

IEC 60335-2-41; EN 60335-2-41;
AS/NZS 60335.2.41

Part 2-43: Particular Requirements for Clothes Dryers and Towel Rails

IEC 60335-2-43; EN 60335-2-43;
EN IEC 60335-2-43

Part 2-44: Particular Requirements for Ironers

IEC 60335-2-44; EN 60335-2-44;
AS/NZS 60335.2.44

Part 2-45: Particular Requirements for Portable Heating Tools and Similar Appliances

IEC 60335-2-45; EN 60335-2-45;
AS/NZS 60335.2.45

Part 2-52: Particular Requirements for Oral Hygiene Appliances

IEC 60335-2-52; EN 60335-2-52;
UL 60335-2-52;
CAN/CSA C22.2 NO. 60335-2-52

Part 2-53: Particular Requirements for Sauna Heating Appliances and Infrared Cabins

IEC 60335-2-53; EN 60335-2-53;
AS/NZS 60335.2.53

Part 2-54: Particular Requirements for Surface-Cleaning Appliances for Household Use Employing Liquids or Steam

IEC 60335-2-54; EN 60335-2-54;
AS/NZS 60335.2.54

Test(s):**Test Method(s):**

Part 2- 59: Particular Requirements for Insect Killers

IEC 60335-2-59; EN 60335-2-59;
AS/NZS 60335.2.59

Part 2- 60:
Particular Requirements for Whirlpool Baths and Whirlpool Spas

IEC 60335-2-60; EN 60335-2-60;
AS/NZS 60335.2.60

Part 2-64: Particular Requirements for Commercial Electric Kitchen Machines

IEC 60335-2-64; EN 60335-2-64

Part 2- 65: Particular Requirements for Air-Cleaning Appliances

IEC 60335-2-65; EN 60335-2-65;
AS/NZS 60335.2.65

Part 2-69: Particular Requirements for Wet and Dry Vacuum Cleaners, Including Power Brush, for Commercial Use

IEC 60335-2-69; EN 60335-2-69;
AS/NZS 60335.2.69; UL 60335-2-69;
CAN/CSA C22.2 NO. 60335-2-69

Part 2-75:
Particular Requirements for Commercial Dispensing Appliances and Vending Machines

IEC 60335-2-75; EN 60335-2-75;
AS/NZS 60335.2.75

Part 2- 78:
Particular Requirements for Outdoor Barbecues

IEC 60335-2-78; EN 60335-2-78;
AS/NZS 60335.2.78

Part 2-79: Particular Requirements for High Pressure Cleaners and Steam Cleaners

IEC 60335-2-79; EN 60335-2-79;
AS/NZS 60335.2.79; UL 60335-2-79;
CAN/CSA C22.2 No. 60335-2-79

Part 2- 80: Particular Requirements for Fans

IEC 60335-2-80; EN 60335-2-80;
AS/NZS 60335.2.80

Part 2-82: Particular Requirements for Amusement Machines and Personal Service Machines

IEC 60335-2-82; EN 60335-2-82;
AS/NZS 60335.2.82; UL 60335-2-82;
CAN/CSA C22.2 No. 60335-2-82

Part 2-84: Particular Requirements for Toilet Appliances

IEC 60335-2-84; EN 60335-2-84

Part 2- 85: Particular Requirements for Fabric Steamers

IEC 60335-2-85; EN 60335-2-85;
AS/NZS 60335.2.85

Part 2-89: Particular Requirements for Commercial Refrigerating Appliances and Ice-Makers with an Incorporated or Remote Refrigerant Unit or Motor-Compressor

IEC 60335-2-89; EN 60335-2-89;
UL 60335-2-89;
CAN/CSA C22.2 No. 60335-2-89

Part 2-94:
Particular Requirements for Scissors Type Grass Shears

IEC 60335-2-94; EN 50636-2-94

Test(s):**Test Method(s):**

Part 2-97: Particular Requirements for Drives for Shutters, Awnings, Blinds and Similar Equipment

IEC 60335-2-97; EN 60335-2-97

Part 2-98: Particular Requirements for Humidifiers

IEC 60335-2-98; EN 60335-2-98;
AS/NZS 60335.2.98

Part 2-100: Particular Requirements for Hand-Held Mains Operated Garden Blowers, Vacuums and Blower Vacuums

IEC 60335-2-100; EN 50636-2-100;
AS/NZS 60335.2.100

Part 2-101: Particular Requirements for Vaporizers

IEC 60335-2-101; EN 60335-2-101;
AS/NZS 60335.2.101

Part 2-113: Particular Requirements for Cosmetic and Beauty Care Appliances Incorporating Lasers and Intense Light Sources

IEC 60335-2-113; EN 60335-2-113;
UL 60335-2-113;
CAN/CSA C22.2 No. 60335-2-113

Electric Motor-Operated Appliances

UL 73

Electric Gardening Appliances

UL 82

Electric Heating Pads

UL 130

Household Refrigerators and Freezers

UL 250

Refrigerated Medical Equipment

UL 416

Waste Disposers

UL 430

Commercial Refrigerators and Freezers

UL 471

Electric Heating Appliances

UL 499

Electric Fans

UL 507

Refrigerated Vending Machines

UL 541

Ice Makers

UL 563

Vending Machines

UL 751

Motor-Operated commercial Food Preparing Machines

UL 763

Motor-Operated Water Pumps

UL 778

Electrostatic Air Cleaners

UL 867

Personal Grooming Appliances

UL 859

| <u>Test(s):</u> | <u>Test Method(s):</u> |
|---|--|
| Electric Hobby and Sports Equipment | UL 961 |
| Household and Commercial Furnishings | UL 962 |
| Motor-Operated Household Food Preparing Machines | UL 982 |
| Stationary and Fixed Electric Tools | UL 987 |
| Humidifiers | UL 998 |
| Rotating Electrical Machines | UL 1004-1 |
| Vacuum Cleaning Machines and Blower Cleaners | UL1017 |
| Electric Household Cooking and Food Serving Appliances | UL 1026 |
| Hair Clipping and Shaving Appliances | UL 1028 |
| Swimming Pool Pumps, Filters, and Chlorinators | UL 1081 |
| Household Electric Coffee Makers and Brewing-Type Appliances | UL 1082 |
| Household Electric Skillets and Frying-Type Appliances | UL 1083 |
| Movable and Wall or Ceiling Hung Electric Room Heaters | UL 1278 |
| Personal Hygiene and Health Care Appliances | UL 1431 |
| Motor-Operated Air Compressors, Vacuum Pumps, and Painting Equipment | UL 1450 |
| Motor-Operated Massage and Exercise Machines | UL 1647 |
| High-Pressure Cleaning Machines | UL 1776 |
| Vacuum Cleaners for Household-Use Part 1: Dry Vacuum Cleaner-Method for Measuring the Performance | IEC 60312-1; IEC 62885-2; EN 60312-1; EU 666 |
| Household refrigerating appliances – Characteristics and test methods – Part 1: General requirements | IEC 62552-1 |

| <u>Test(s):</u> | <u>Test Method(s):</u> |
|--|---|
| Part 2: Performance requirements | IEC 62552-2 |
| Part 3: Energy Consumption and Volume | IEC 62552-3 |
| Household Refrigerating Appliances — Characteristics and Test Methods | EN 62552 |
| Performance of Household Electrical Appliances – Refrigerating Appliances – Part 1: Energy Consumption and Performance | AS/NZS 4474.1 |
| Part 2: Energy Labelling and Minimum Energy Performance Standard Requirements | AS/NZS 4474.2 |
| Energy Performance and Capacity and Labeling of Household Refrigerators, Refrigerator Freezers, and Freezers | SASO 2664 |
| Refrigerators, Refrigerator- Freezers and Freezers -Energy Performance, Testing and Labeling Requirements | SASO 2892 |
| Households Refrigerating Appliances- Characteristics and Test Method | SASO IEC 62552; IEC 62552; SANS 1691 |
| EU Eco-Design Regulation for Household Refrigerating Appliances | (EC) No 643/2009 |
| Performance of household electrical appliances - Clothes washing machines - Methods for measuring performance, energy and water consumption | AS/NZS 2040.1 |
| Energy Efficiency Labelling Requirements | AS/NZS 2040.2 |
| Performance Evaluation Procedure for Household Washers | 10 CFR 430 Subpart B Appendix J1 and Appendix J2; AHAM HLW-1 |
| EU Eco-Design Regulation for Household Washing Machines | (EU) No 1015/2010 |
| Clothes Washing Machines for Household Use - Methods for Measuring the Performance | IEC 60456; EN 60456; SANS 1695 |
| Clothes Washing Machines for Household Use – Performance Requirements | SASO 2693 |
| Clothes Washing Machines for Household Use – Methods for Measuring the Performance | SASO 2683 |

Test(s):

Test Method(s):

Electrical Clothes Washing Machines – Energy and Water Performance Requirements and Labeling

SASO 2885

Household Electrical Appliances-Measurement Standby Power

IEC 62301; EN 50564

Test Method for Measuring the Energy Consumption of Refrigerators, Refrigerator-Freezers, and Miscellaneous Refrigeration Products

10 CFR Sections 430.23(a) (2008) and 430.23(b) (2008); 10 CFR 430, Subpart B

Energy and Internal Volume of Refrigerating Appliances

AHAM HRF-1

Energy Performance and Capacity of Household Refrigerators, Refrigerator- Freezers, Freezers and Wine Chillers

CAN/CSA-C300-15

ENERGY STAR ® Program Requirements

Product Specification for Residential Refrigerators and Freezers Eligibility Criteria Version 5.1

Energy Performance, Water Consumption and Capacity of Household Clothes Washers

CAN/CSA-C360-13

ENERGY STAR ® Program Requirements

Product Specification for Clothes Washers Eligibility Criteria Version 8.1

Energy Efficiency Regulations

SOR/2016-311 (Subdivision B, E and F)

Lighting - Electrical Appliance

Energy Efficiency, Functionality and Labelling Requirements for Lighting Products – Part 1

SASO 2870

Energy Efficiency, Functionality and Labelling Requirements for Lighting Products – Part 2

SASO 2902

Energy Efficiency, Functionality and Labeling Requirements for Lighting Products – Part 3

SASO 2927

Uniform Test Method for Measuring the Energy Consumption of Fluorescent Lamp Ballasts

10 CFR 430 Subpart B Appendix Q

Test(s):**Test Method(s):**

Uniform Test Method for Measuring Electrical and Photometric Characteristics of General Service Fluorescent Lamps, Incandescent Reflector Lamps, and General Service Incandescent Lamps

10 CFR 430 Subpart B Appendix R

Uniform Test Method for Measuring the Energy Consumption of Compact Fluorescent Lamps

10 CFR 430 Subpart B Appendix W

Uniform Test Method for Measuring the Input Power, Lumen Output, Lamp Efficacy, Correlated Color Temperature (CCT), Color Rendering Index (CRI), Power Factor, Time to Failure, and Standby Mode Power of Integrated Light-Emitting Diode (LED) Lamps

10 CFR 430 Subpart B Appendix BB

Uniform Test Method for Measuring the Energy Consumption and Energy Efficiency of General Service Lamps that are not General Service Incandescent Lamps, Compact Fluorescent Lamps, or Integrated LED Lamps

10 CFR 430 Subpart B Appendix DD

Self-Ballasted LED Lamps for General Lighting Services with Supply Voltages > 50 V – Performance Requirements

IEC 62612; EN 62612

Self-Ballasted LED Lamps for General Lighting Services by Voltage >50 V – Safety Specification

IEC 62560; GB 24906; EN 62560; AS/NZS 62560; UL 1993; INMETRO No. 144 of 03.13; IS 16102 (PART 2)

Double-capped LED Lamps Designed to Retrofit Linear Fluorescent Lamps – Safety Specifications

IEC 62776; EN 62776

Photobiological Safety of Lamps and Lamp Systems

GB/T 20145; IEC 62471; EN 62471; AS/NZS IEC 62471; IS 16108; IEC 62471-5; EN 62471-5; IEC 62471-7; EN 62471-7

Photobiological Safety of Lamps and Lamp Systems

DIN EN 62471

Method of Measuring and Specifying Colour Rendering Properties of Light Source

CIE 13.3

Colorimetry

CIE 15

The Measurement of Luminous Flux

CIE 84

Test(s):**Test Method(s):**

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|---|----------------------------|
| Guide on the Maintenance of Indoor Electric Lighting Systems | CIE 97 |
| Light and Lighting - Measurement and Presentation of Photometric Data of Lamps and Luminaires - Part 1: Measurement and File Format | EN 13032-1; DIN EN 13032-1 |
| Photometry - Part 1: Methods of Measurement | DIN 5032-1 |
| Operation Of Electric Lamps and Measurement of the Respective Quantities | DIN 5032-2 |
| Part 4: Measurement of Luminaires | DIN 5032- 4 |
| Part 6: Photometers; Concepts, Characteristics and Their Designation | DIN 5032-6 |
| Ballasts for Tubular Fluorescent Lamps – Performance Requirements | IEC 60921; EN 60921 |
| Double-Capped Fluorescent Lamps - Performance Specifications | IEC 60081 |
| Single-Capped Fluorescent Lamps - Performance Specifications | IEC 60901 |
| LED Modules for General Lighting - Performance Requirements | IEC 62717 |
| Standard Method of Measuring the Pinch Temperature of Quartz-Tungsten-Halogen Lamps | IEC 60682; SASO IEC 60682 |
| Tungsten Halogen Lamps (Non-Vehicle) - Performance Specifications | IEC 60357; EN 60357 |
| High-Pressure Sodium Vapour Lamps - Performance Specifications | IEC 60662; EN 60662 |
| Metal Halide Lamps - Performance Specification | IEC 61167; EN 61167 |
| Electrical and Photometric Measurements of Single-Based Fluorescent Lamps | IES LM-66 |
| Projecting Long-Term Luminous Flux Maintenance of LED Lamps and Luminaries | IES TM-28 |

Test(s):**Test Method(s):**

Electric Lamps – Specifications for the Chromaticity of Solid-State Lighting Products

ANSI C78.377

In-SITU Temperature Measurement Testing

ISTMT

Method of Measurement of Centre Beam Intensity and Beam Angle(s) of Reflector Lamps

IEC/TR 61341; EN 61341; SASO IEC/TR 61341

Tungsten Filament Lamps for Domestic and Similar General Lighting Purposes - Performance Requirements

IEC 60064

Photometry - The CIE System of Physical Photometry

CIE S 010; ISO 23539

Discharge Lamps (Excluding Fluorescent Lamps) - Safety Specifications

IEC 62035; EN 62035

The Maintenance of Outdoor Lighting Systems

CIE 154

Energy Performance of Lamp Control Gear - Part 1: Control Gear for Fluorescent Lamps - Method of Measurement to Determine the Total Input Power of Control Gear Circuits and the Efficiency of Control Gear

IEC 62442-1; EN 62442-1

Part 3: Control Gear for Halogen Lamps and LED Modules - Method of Measurement to Determine the Efficiency of the Control Gear

IEC 62442-3; EN 62442-3

Measurement Method of Total Input Power of Ballast-Lamp Circuits

EN 50294

Non-ballasted LED Lamps – Performance Requirements

IEC 62663-1

LED-Binning - Part 1: General Requirements and White Colour Grid Intended for Automotive Applications Intended for Automotive Applications

IEC 62707-1

DC or AC Supplied Electronic Control Gear for LED Modules - Performance Requirements

IEC 62384

Self-Ballasted Compact Fluorescent Lamps for General Lighting Services - Performance Requirements

GB/T 17263; IEC 60969; EN 60969; AS/NZS 60969; SASO IEC 60969; GSO IEC 60969

| <u>Test(s):</u> | <u>Test Method(s):</u> |
|---|--|
| Self-Ballasted Lamps for General Lighting Services - Test Methods - Energy Performance | AS/NZS 4847.1 |
| Minimum Energy Performance Standards (MEPS) Requirements | AS/NZS 4847.2 |
| Luminaire performance - Part 2-1: Particular Requirements for LED Luminaires | GB/T 31897.1; IEC 62722-1; EN 62722-1; GB/T 31897.201; IEC 62722-2-1; EN 62722-2-1 |
| Radiance and Luminance | CIE18.2 |
| Measurement of Colour Quantities | EN 13032-4; SASO EN 13032-4 |
| The Spectroradiometric Measurement of Light Sources | CIE 63 |
| Method of Measurement of Centre Beam Intensity and Beam Angle(s) of Reflector Lamps | IEC/TR 61341 |
| Cone Luminous Flux | L2(AP)005 |
| Electrical and Photometric Measurements of Fluorescent Lamps | IES LM-9 |
| Photometric Testing of Indoor Fluorescent Luminaires | IES LM-41 |
| Photometric Testing of Outdoor Fluorescent Luminaires | IES LM-10 |
| Measuring Luminous Flux and Color Maintenance of LED Lamps, Light Engines, and Luminaires | IES LM-84 |
| Self-Ballasted Lamps for General Lighting Services - Safety Requirements | GB 16844; IEC 60968; EN 60968; AS/NZS 60968 |
| LED Modules for General Lighting – Safety Specification | GB 24819; IEC 62031; EN 62031 |
| Luminaires – Part 1: General Requirements and Tests | IEC 60598- 1; EN 60598-1; EN IEC 60598-1; AS/NZS 60598.1; UL 1598; CSA-C22.2 No. 250.0 |
| Part 2-1: Particular Requirements – Fixed General Purpose Luminaires | IEC 60598-2-1; EN 60598-2-1; AS/NZS 60598.2.1; UL 1598; CSA-C22.2 No. 250.0 |

Test(s):**Test Method(s):**

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| Part 2-2: Particular Requirements – Recessed Luminaires | IEC 60598-2-2; EN 60598-2-2; AS/NZS 60598.2.2 |
| Part 2-3: Particular Requirements – Luminaires for Road and Street Lighting | IEC 60598-2-3; EN 60598-2-3; AS/NZS 60598.2.3; Inmetro No. 020, 02.15 |
| Part 2-4: Particular Requirements – Portable General Purpose Luminaires | IEC 60598-2-4; EN 60598-2-4; AS 60598.2.4; UL 153; CSA C22.2 No. 12 |
| Part 2-5: Particular Requirements – Floodlights | IEC 60598-2-5; EN 60598-2-5; AS/NZS 60598.2.5 |
| Part 2-8: Particular Requirements – Handlamps | IEC 60598-2-8; EN 60598-2-8; AS/NZS 60598.2.8 |
| Part 2-10: Particular Requirements – Portable Luminaires for Children | IEC 60598-2-10; EN 60598-2-10; AS/NZS 60598.2.10 |
| Part 2-12: Particular Requirements – Main Socket Outlet Mounted Nightlights | IEC 60598-2-12; EN 60598-2-12; AS/NZS 60598.2.12; UL 1786; CSA-C22.2 No. 256 |
| Part 2-13: Particular Requirements – Ground Recessed Luminaires | IEC 60598-2-13; EN 60598-2-13 |
| Part 2-17: Particular Requirements – Luminaires for Stage Lighting, Television and Film Studios (Outdoor and Indoor) | IEC 60598-2-17; EN 60598-2-17; AS/NZS 60598.2.17 |
| Part 2-20: Particular Requirements - Lighting Chains | IEC 60598-2-20; EN 60598-2-20; AS/NZS 60598.2.20; UL 588; CSA-C22.2 No. 37 |
| Part 2-21: Particular Requirements – Rope Lights | IEC 60598-2-21; EN 60598-2-21; AS/NZS 60598.2.21; UL 2388; CSA-C22.2 No. 9 |
| Part 2-22: Particular Requirements – Emergency Luminaires | IEC 60598-2-22; EN 60598-2-22; AS/NZS 60598.2.22; UL 924; CSA-C22.2 No. 141 |
| Lamp Control Gear –Part 1: General and Safety Requirements | IEC 61347-1; EN 61347-1; AS/NZS 61347.1 |
| Part 2-2: Particular Requirements for D.C. or A.C. Supplied Electronic Step-Down Convertors for Filament Lamps | IEC 61347-2-2; EN 61347-2-2; AS/NZS 61347.2.2 |

Test(s):**Test Method(s):**

Part 2-3: Particular Requirements for A.C. and/or D.C. Supplied Electronic Control Gear for Fluorescent Lamps

IEC 61347-2-3; EN 61347-2-3;
AS/NZS 61347.2.3; UL 935

Part 2-11:
Particular Requirements for Miscellaneous Electronic Circuits Used with Luminaires

IEC 61347-2-11; EN 61347-2-11;
AS/NZS 61347.2.11

Part 2-13:
Particular Requirements for D.C. or A.C. Supplied Electronic Control Gear for LED Modules

IEC 61347-2-13; EN 61347-2-13;
AS/NZS 61347.2.13; UL 8750

Energy Labelling of Electrical Lamps and Luminaires

(EU) No 874

Eco Design Requirements for Non-Directional Household Lamps

(EC) No 244 2009;
(EU) 2015/1428

Eco Design Requirements for Fluorescent Lamps Without Integrated Ballast, for High Intensity Discharge Lamps, and for Ballasts and Luminaires Able to Operate Such Lamps

(EC) No 245;
(EU) 2015/1428

Eco Design Requirements for Directional Lamps, Light Emitting Diode Lamps and Related Equipment

(EU) No 1194;
(EU) 2015/1428

Application of IEC 62471 for the Assessment of Blue Light Hazard to Light Sources and Luminaires

IEC TR 62778

Energy Labelling of Light Sources and Repealing Commission Delegated Regulation

(EU) 2019/2015

Eco Design Requirements for Light Sources and Separate Control Gears Pursuant to Directive 2009/125/EC of the European Parliament and of the Council and Repealing Commission Regulations

(EU) 2019/2020

Characterization of LED Light Engines and LED Lamps for Electrical and Photometric Properties as a Function of Temperature

IES LM-82

Energy Conservation Program: Test Procedures for Integrated Light-Emitting Diode Lamps

US DOE 81 FR 43403

Test(s):**Test Method(s):**

Harmonic Emission Limits - Related Power
Quality Requirements for Lighting Equipment
Requirements

ANSI C82.77

Optical and Electrical Measurement of Solid-State
Lighting Products

IES LM-79

Photometry of Reflector Type Lamps

IES LM-20

Measuring Luminous Flux and Color
Maintenance of LED Packages, Arrays and
Modules

IES LM-80

Spectroradiometric Measurement Methods for
Lighting Sources

IES LM-58; IES TM-21

The Electrical and Photometric Measurement of
General Service Incandescent Filament Lamps

IES LM-45

Practical Guide to Colorimetry of Light Sources

IES LM-16

Colorimetry

CIE Pub. 15

IEEE Recommended Practice on Characterization
of Surges in Low-Voltage (1000V and Less)
AC Power Circuits

ANSI C62.41.2

Temporal Light Artifacts: Test Methods and
Guidance for Accepted Criteria

NEMA 77

Quality Technical Regulation applicable to
Luminaires for Public Road Illumination

INMETRO-Ordinance No. 20

Technical Quality Regulation for Luminaires for
Public Street Lighting

INMETRO-Ordinance No. 62

Amendment on Technical Regulation for LED
Lamps (Light-Emitting Diode) with Integrated
Device to the Base

INMETRO-Ordinance No.143

Conformity Assessment Requirements for LED
Lamps with Integrated Device to the Base

INMETRO-Ordinance No.144

Technical Regulation of Quality for LED Lamps
with Device Integrated into the Base

INMETRO-Regulation 69

Test(s):

LED Lamps with Integrated Control Device,
Consists of a Single Non-Detachable
Unit, Operating on AC Power Distribution
Network of 60Hz, for Nominal Voltage of
127 V and/or 220 V

Test Method(s):

INMETRO-Regulation 389

Laser Products

Safety of Laser Products - Part 1:
Equipment Classification and Requirements

GB 7247.1; IEC 60825-1; EN 60825-1; EN 50689

Electrical Accessories

Approval and Test Specification -
Plugs and Socket-Outlets

AS/NZS 3112

Flat Non-Wirable Two-Pole Plugs, 2,5 A 250 V,
with Cord for the Connection of Class II-
Equipment for Household and Similar Purposes

EN 50075

13 A Plugs, Socket-Outlets, Adaptors and
Connection Units Part 1: Specification for Re-
Wirable and Non-Re-Wirable 13 A Fused Plugs

BS 1363-1

Tools

Safety of Motor-Operated Hand-Held,
Transportable Electric Tools and Lawn and
Garden Tools-Part 1:General Requirements

IEC 62841-1; EN 62841-1; AS/NZS 62841.1;
UL 62841-1; CSA C22.2 NO 62841-1

Safety of Hand-Held Motor-Operated Electric
Tools -Part 1: General Requirements

IEC 60745-1; EN 60745-1; AS/NZS 60745.1;
UL 60745-1; CSA C22.2 NO 60745-1

Hand-Held Motor-Operated Electric Tools –
Safety –Part 2-1: Particular Requirements for
Drills and Impact Drills

IEC 60745-2-1; AS/NZS 60745.2.1;
UL 60745-2-1; CSA C22.2 NO 60745-2-1

Part 2-2: Particular Requirements for
Screwdrivers and Impact Wrenches

IEC 60745-2-2; UL 60745-2-2;
CSA C22.2 NO 60745-2-2

Part 2-3: Particular Requirements for Grinders,
Polishers and Disk-Type Sanders

IEC 60745-2-3; EN 60745-2-3;
AS/NZS 60745.2.3; UL 60745-2-3;
CSA C22.2 NO 60745-2-3

Part 2-4: Particular Requirements for Sanders and
Polishers other than Disk Type

IEC 60745-2-4; AS/NZS 60745.2.4;
UL 60745-2-4; CSA C22.2 NO 60745-2-4

Part 2-5: Particular Requirements for Circular
Saws

IEC 60745-2-5; AS/NZS 60745.2.5;
UL 60745-2-5; CSA C22.2 NO 60745-2-5

Test(s):

Test Method(s):

| | |
|---|---|
| Part 2-6: Particular Requirements for Hammers | IEC 60745-2-6; EN 60745-2-6; AS/NZS 60745.2.6; UL 60745-2-6; CSA C22.2 NO 60745-2-6 |
| Part 2-9: Particular Requirements for Tappers | IEC 60745-2-9; AS/NZS 60745.2.9; UL 60745-2-9 |
| Part 2-11: Particular Requirements for Reciprocating Saws (Jig and Sabre Saws) | IEC 60745-2-11; AS/NZS 60745.2.11; UL 60745-2-11; CSA C22.2 NO 60745-2-11 |
| Part 2-14: Particular Requirements for Planers | IEC 60745-2-14; AS/NZS 60745.2.14 |
| Part 2-15: Particular Requirements for Hedge Trimmers | IEC 60745-2-15; AS/NZS 60745.2.15; UL 60745-2-15 |
| Part 2-17: Particular Requirements for Routers and Trimmers | IEC 60745-2-17; AS/NZS 60745.2.17; UL 60745-2-17; CSA C22.2 NO 60745-2-17 |
| Part 2-19: Particular Requirements for Jointers | IEC 60745-2-19; EN 60745-2-19; AS/NZS 60745.2.19; UL 60745-2-19; CSA C22.2 NO 60745-2-19 |
| Part 2-20: Particular Requirements for Band Saws | IEC 60745-2-20; EN 60745-2-20; AS/NZS 60745.2.20; UL 60745-2-20 |
| Part 2-21: Particular Requirements for Drain Cleaners | IEC 60745-2-21; EN 62841-2-21; UL 60745-2-21; CSA C22.2 NO 60745-2-21 |
| Part 2-22: Particular Requirements for Cut-Off Machines | IEC 60745-2-22; AS/NZS 60745.2.22; EN 60745-2-22; UL 60745-2-22; CSA C22.2 NO 60745-2-22 |
| Part 2-23: Particular Requirements for Die Grinders and Small Rotary Tools | IEC 60745-2-23; AS/NZS 60745.2.23; EN 60745-2-23; UL 60745-2-23 |
| Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety –Part 2-1: Particular Requirements for Hand-Held Drills and Impact Drills | IEC 62841-2-1; AS/NZS 62841.2.1; EN 62841-2-1; UL 62841-2-1; CSA C22.2 NO 62841-2-1 |
| Part 2-2: Particular Requirements for Hand-Held Screwdrivers and Impact Wrenches | IEC 62841-2-2; AS/NZS 62841.2.2; EN 62841-2-2; AS/NZS 60745.2.2; UL 62841-2-2; CSA C22.2 NO 62841-2-2 |
| Part 2-3: Particular Requirements for Hand-Held Grinders, Disc-Type Polishers and Disc-Type Sanders | IEC 62841-2-3; EN IEC 62841-2-3; AS/NZS 62841.2.3; UL 62841-2-3; CSA C22.2 NO 62841-2-3 |

Test(s):

Test Method(s):

Part 2-4: Particular Requirements for Hand-Held Sanders and Polishers other than Disc Type

IEC 62841-2-4; AS/NZS 62841.2.4;
EN 62841-2-4; UL 62841-2-4;
CSA C22.2 NO 62841-2-4

Part 2-5: Particular Requirements for Hand-Held Circular Saws

IEC 62841-2-5; AS/NZS 62841.2.5;
EN 62841-2-5; UL 62841-2-5;
CSA C22.2 NO 62841-2-5

Part 2-6: Particular Requirements for Hand-Held Hammers

IEC 62841-2-6; AS/NZS 62841.2.6;
EN IEC 62841-2-6; UL 62841-2-6;
CSA C22.2 NO 62841-2-6

Part 2-8: Particular Requirements for Hand-Held Shears and Nibblers

IEC 62841-2-8; AS/NZS 62841.2.8;
EN 62841-2-8; UL 62841-2-8;
CSA C22.2 NO 62841-2-8

Part 2-9: Particular Requirements for Hand-Held Tappers and Threaders

IEC 62841-2-9; AS/NZS 62841.2.9;
EN 62841-2-9; UL 62841-2-9;
CSA C22.2 NO 62841-2-9

Part 2-10: Particular Requirements for Hand-Held Mixers

IEC 62841-2-10; AS/NZS 62841.2.10;
EN 62841-2-10; UL 62841-2-10;
CSA C22.2 NO 62841-2-10

Part 2-11: Particular Requirements for Hand-Held Reciprocating Saws

IEC 62841-2-11; AS/NZS 62841.2.11;
EN 62841-2-11; UL 62841-2-11;
CSA C22.2 NO 62841-2-11

Part 2-14: Particular Requirements for Hand-Held Planers

IEC 62841-2-14; AS/NZS 62841.2.14;
EN 62841-2-14; UL 62841-2-14;
CSA C22.2 NO 62841-2-14

Part 4-2: Particular Requirements for Hedge Trimmers

IEC 62841-4-2; AS/NZS 62841.4.2;
EN 62841-4-2; UL 62841-4-2;
CSA C22.2 NO 62841-4-2

Part 2-17: Particular Requirements for Hand-Held Routers

IEC 62841-2-17; AS/NZS 62841.2.17;
EN 62841-2-17; UL 62841-2-17;
CSA C22.2 NO 62841-2-17

Part 3-1: Particular Requirements for Transportable Table Saws

IEC 62841-3-1; EN 62841-3-1; UL 62841-3-1;
CSA C22.2 NO 62841-3-1

Part 3-4: Particular Requirements for Transportable Bench Grinders

IEC 62841-3-4; EN 62841-3-4; UL 62841-3-4;
CSA C22.2 NO 62841-3-4

Part 3-9: Particular Requirements for Transportable Mitre Saws

IEC 62841-3-9; EN IEC 62841-3-9;
UL 62841-3-9; CSA C22.2 NO 62841-3-9

Test(s):**Test Method(s):**

Part 3-10: Particular Requirements for Transportable Cut-Off Machines

IEC 62841-3-10; EN 62841-3-10;
UL 62841-3-10; CSA C22.2 NO 62841-3-10

Part 4-1: Particular Requirements for Chain Saws

IEC 62841-4-1; EN IEC 62841-4-1

Part 4-3: Particular Requirements for Pedestrian Controlled Walk-Behind Lawnmowers

IEC 62841-4-3; EN IEC 62841-4-3

Part 4-4: Particular Requirements for Lawn Trimmers, Lawn Edge Trimmers, Grass Trimmers, Brush Cutters and Brush Saws

IEC 62841-4-4; EN IEC 62841-4-4;
UL 62841-4-4; CSA C22.2 NO 62841-4-4

Part 4-5: Particular Requirements for Grass Shears

IEC 62841-4-5; EN IEC 62841-4-5;
UL 62841-4-5

Part 4-6: Particular Requirements for Garden Blowers, Garden Vacuums and Garden Blower/Vacuums

IEC 62841-4-6

Part 4-7: Particular Requirements for Pedestrian Controlled Walk-Behind Lawn Scarifiers and Aerators

IEC 62841-4-7; EN IEC 62841-4-7

Safety of Transportable Motor-Operated Electric Tools – Part 1: General Requirements

IEC 61029-1; EN 61029-1

Part 2-1: Particular Requirements for Circular Saw

IEC 61029-2-1; EN 61029-2-1

Part 2-4: Particular Requirements for Bench Grinders

IEC 61029-2-4; EN 61029-2-4

Part 2-9: Particular Requirements for Mitre Saws

IEC 61029-2-9

Part 2-10: Particular Requirements for Cutting-Off Grinders

IEC 61029-2-10; EN 61029-2-10

Lithium-Ion Batteries and Charging Systems - Safety

IEC 63370

Transformer

Safety of Power Transformers, Power Supplies, Reactors and Similar Products -- Part 1: General Requirements and Tests

IEC 61558-1; EN 61558-1; EN IEC 61558-1;
AS/NZS 61558.1

Test(s):

Test Method(s):

Part 2-1: Particular Requirements and Tests for Separating Transformers and Power Supplies Incorporating Separating Transformers for General Applications

IEC 61558-2-1; EN 61558-2-1;
AS/NZS 61558.2.1

Part 2-7: Particular Requirements and Tests for Transformers and Power Supplies for Toys

IEC 61558-2-7; EN 61558-2-7;
AS/NZS 61558.2.7

Part 2-4:
Particular Requirements and Tests for Isolating Transformers and Power Supply Units Incorporating Isolating Transformers

IEC 61558-2-4; EN 61558-2-4;
AS/NZS 61558.2.4

Part 2-6: Particular Requirements and Tests for Safety Isolating Transformers and Power Supply Units Incorporating Safety Isolating Transformers

IEC 61558-2-6; EN 61558-2-6;
AS/NZS 61558.2.6

Part 2-13: Particular Requirements and Tests for Auto Transformers and Power Supply Units Incorporating Auto Transformers

IEC 61558-2-13; EN 61558-2-13;
AS/NZS 61558.2.13

Part 2-16: Particular Requirements and Tests for Switch Mode Power Supply Units and Transformers for Switch Mode Power Supply Units

IEC 61558-2- 16; EN 61558-2-16;
AZ/NZS 61558.2.16

Safety of Portable Inverters

AS/NZS 4763

Power Supplies

Class 2 Power Units

UL 1310

Eco-Design Requirements for External Power Supplies Pursuant

EU 2019/1782

Performance of External Power Supplies - Test Method and Energy Performance Mark

AS/NZS 4665.1

Minimum Allowable Values of Energy Efficiency and Evaluating Values of Energy Conservation for Single Voltage External AC-DC and AC-AC Power Supplies

GB 20943

California Code of Regulations, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1609: Appliance Efficiency

CEC-400-2017-002

Test(s):

Test Method(s):

Energy Conservation Program for Consumer Products Department of Energy

Department of Energy 10 CFR Part 430

Uniform Test Method for Measuring the Energy Consumption of Battery Chargers

10 CFR Appendix Y to Subpart B of Part 430

Uniform Test Method for Measuring the Energy Consumption of External Power Supplies

10 CFR Appendix Z to Subpart B of Part 430

Test Method for Calculating the Energy Efficiency

CSA C381.1;

Information Technology Equipment and Office Equipment

Electrical and Electronic Household and Office Equipment Measurement of Low Power Consumption

EN 50564

Information Technology Equipment-Energy Performance of Computer Monitors; Part 1: Methods of Measurement of Energy Performance

AS/NZS 5815.1

Part 2: Minimum Energy Performance Standards (MEPS) and Energy Rating Labels

AS/NZS 5815.2

Information Technology Equipment-Safety-Part 1:General requirements

IEC 60950-1; EN 60950-1;
AS/NZS 60950.1; UL 60950;
CSA C22.2 NO. 60950

Audio and Video Equipment

Audio, Video and Similar Electronic Apparatus-Safety Requirements

IEC 60065; EN 60065; AS/NZS 60065;
UL 60065; CSA C22.2 No. 60065

Audio/Video, Information and Communication Technology Equipment – Part 1: Safety Requirements

IEC 62368-1; EN 62368-1;
AS/NZS 62368.1; EN IEC 62368-1; UL 62368-1;
CSA C22.2 No. 62368-1

Part 3: Safety Aspects for DC Power Transfer Through Communication Cables and Ports

IEC 62368-3; EN IEC 62368-3

Safety Requirements for Radio Transmitting Equipment – General Requirements and Terminology

IEC 60215

Test(s):

Test Method(s):

Battery

| | |
|--|---------------------------------------|
| Batteries Containing Alkaline or Other Nonacid Electrolytes - Safety Requirements for Portable Sealed Secondary Cells, and for Batteries Made from Them, for Use in Portable Applications | IEC 62133; EN 62133; UL 62133 |
| Secondary Cells and Batteries Containing Alkaline or Other Nonacid Electrolytes - Safety Requirements for Portable Sealed Secondary Cells, and for Batteries Made from Them, for use in Portable Applications Part 1: Nickel Systems | IEC 62133-1; EN 62133-1 |
| Secondary Cells and Batteries Containing Alkaline or Other Nonacid Electrolytes - Safety Requirements for Portable Sealed Secondary Cells, and for Batteries Made from Them, for Use in Portable Applications Part 2: Lithium Systems | IEC 62133-2; EN 62133-2 |
| Recommendations on the Transport of Dangerous Goods Manual of Tests and Criteria Lithium Batteries | ST/SG/AC.10/11/Rev.7/Amend.1 38.3.4.1 |
| Primary Batteries - Part 1: General | IEC 60086-1; EN 60086-1 |
| Primary Batteries - Part 2: Physical and Electrical Specifications | IEC 60086-2; EN 60086-2 |
| Primary Batteries - Part 4: Safety of Lithium Batteries | IEC 60086-4; EN 60086-4 |
| Primary Batteries - Part 5: Safety of Batteries with Aqueous Electrolyte | IEC 60086-5; EN 60086-5 |
| Secondary Cells and Batteries Containing Alkaline or Other Nonacid Electrolytes – Safety Requirements for Secondary Lithium Cells and Batteries, for Use in Industrial Applications | IEC 62619; EN 62619 |
| Secondary Cells and Batteries Containing Alkaline or Other Nonacid Electrolytes - Secondary Lithium Cells and Batteries for Use in | IEC 62620; EN 62620 |

Test(s):

Test Method(s):

Industrial Applications

Standard for General Requirements for Battery-Powered Appliance

UL 2595

Lithium Batteries

UL 1642

Household and Commercial Batteries

UL 2054

ANSI/CAN/UL Batteries for Use in Stationary and Motive Auxiliary Power Applications

UL 1973

Electrical Equipment for Measurement, Control, and Laboratory Use

Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use – Part 1: General Requirements

IEC 61010-1; EN 61010-1; UL 61010-1; CAN/CSA-C22.2 NO. 61010-1-12

Part 2-010: Particular Requirements for Laboratory Equipment for the Heating of Materials

IEC 61010-2-010; EN 61010-2-010; EN IEC 61010-2-010; UL 61010-2-010; CSA C22.2 NO. 61010-2-010

Part 2-011: Particular Requirements for Refrigerating Equipment

IEC 61010-2-011; EN 61010-2-011; EN IEC 61010-2-011; UL 61010-2-011; CSA C22.2 No. 61010-2-011

Part 2-020: Particular Requirements for Laboratory Centrifuges

IEC 61010-2-020; EN 61010-2-020; CSA C22.2 NO. 61010-2-020

Part 2-051: Particular Requirements for Laboratory Equipment for Mixing and Stirring

IEC 61010-2-051; EN 61010-2-051; UL 61010-2-051; CSA C22.2 NO. 61010-2-051

Part 2-081: Particular Requirements for Automatic and Semi-Automatic Laboratory Equipment for Analysis and Other Purposes

IEC 61010-2-081; EN 61010-2-081; EN IEC 61010-2-081; UL 61010-2-081; CSA C22.2 NO. 61010-2-081

Part 2-040: Particular Requirements for Sterilizers and Washer-Disinfectors Used to Treat Medical Materials

IEC 61010-2-040; EN 61010-2-040; UL 61010-2-040; CSA C22.2 NO. 61010-2-040

Part 2-101: Particular Requirements for in Vitro Diagnostic (IVD) Medical Equipment

IEC 61010-2-101; EN 61010-2-101; UL 61010-2-101; CSA C22.2 NO. 61010-2-101

Explosive Equipment

Test(s):

Test Method(s):

Explosive Atmospheres

IEC 60079-0; EN IEC 60079-0;
UL 60079-0; CAN/CSA-C22.2 No. 60079-0
IEC 60079-1; EN 60079-1; UL 60079-1;
CAN/CSA-C22.2 No. 60079-1

Part 1: Equipment Protection by
Flameproof Enclosures "d"

Part 7: Equipment Protection by
Increased Safety "e"

IEC 60079-7; EN IEC 60079-7; UL 60079-7;
CAN/CSA-C22.2 No. 60079-7

Part 11: Equipment Protection by
Intrinsic Safety "i"

IEC 60079-11; EN 60079-11; UL 60079-11;
CAN/CSA-C22.2 No. 60079-11

Part 18: Equipment Protection by
Encapsulation "m"

IEC 60079-18; EN 60079-18; UL 60079-18;
CAN/CSA-C22.2 No. 60079-18

Part 28: Protection of Equipment and
Transmission Systems Using Optical Radiation

IEC 60079-28; EN 60079-28; UL 60079-28;
CAN/CSA-C22.2 No. 60079-28

Part 31: Equipment Dust Ignition
Protection by Enclosure "t"

IEC 60079-31; EN 60079-31; UL 60079-31;
CAN/CSA-C22.2 No. 60079-31

Medical Devices (Excluding EMC)

Part 2-46: Particular Requirements
for the Basic Safety and Essential Performance of
Operating Tables

IEC 60601-2-46; EN IEC 60601-2-46;
CSA-C22.2 No. 60601-2-46

Part 2-52: Particular Requirements
for the Basic Safety and Essential Performance of
Medical Beds

IEC 60601-2-52; EN 60601-2-52;
CAN/CSA-C22.2 No. 60601-2-52

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 60601-2-57; EN 60601-2-57;
CAN/CSA-C22.2 No. 60601-2-57

Part 2-30: Particular Requirements
for the Basic Safety and Essential Performance of
Automated Noninvasive Sphygmomanometers

IEC 80601-2-30; EN IEC 80601-2-30;
ANSI AAMI IEC 80601-2-30;
CAN/CSA C22.2 NO. 80601-2-30

Part 2-56: Particular Requirements
for Basic Safety and Essential Performance of
Clinical Thermometers for Body Temperature
Measurement

ISO 80601-2-56; EN ISO 80601-2-56;
CSA-C22.2 No. 80601-2-56

Part 2-61: Particular Requirements
for Basic Safety and Essential Performance of
Pulse Oximeter Equipment

ISO 80601-2-61; EN ISO 80601-2-61;
CAN/CSA-C22.2 No. 80601-2-61

Test(s):

Test Method(s):

Medical Electrical Equipment –Part 1: General Requirements for Basic Safety and Essential Performance

IEC 60601-1; EN 60601-1;
ANSI/AAMI ES60601-1;
CAN/CSA-C22.2 NO. 60601-1

Medical Electrical Equipment - Part 1-6: General Requirements for Basic Safety and Essential Performance - Collateral Standard: Usability

IEC 60601-1-6; EN 60601-1-6;
CAN/CSA-C22.2 NO. 60601-1-6

Medical Electrical Equipment - Part 1-8: General Requirements for Basic Safety and Essential Performance - Collateral Standard: General Requirements, Tests and Guidance for Alarm Systems in Medical Electrical Equipment and Medical Electrical Systems

IEC 60601-1-8; EN 60601-1-8;
ANSI/AAMI/IEC 60601-1-8;
CAN/CSA-C22.2 NO. 60601-1-8A

Medical Electrical Equipment - Part 1-9: General Requirements for Basic Safety and Essential Performance - Collateral Standard: Requirements for Environmentally Conscious Design

IEC 60601-1-9; EN 60601-1-9;
CAN/CSA-C22.2 NO. 60601-1-9

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 60601-1-11; EN 60601-1-11;
ANSI AAMI HA60601-1-11;
CSA C22.2 No. 60601-1-11

Medical Electrical Equipment –Part 1-12: General Requirements for Basic Safety and Essential Performance – Collateral Standard: Requirements for Medical Electrical Equipment and Medical Electrical Systems Intended for Use in the Emergency Medical Services Environment

IEC 60601-1-12; EN 60601-1-12;
ANSI AAMI IEC 60601-1-12;
CSA-C22.2 No. 60601-1-12

Medical Electrical Equipment –Part 2-10: Particular Requirements for the Basic Safety and Essential Performance of Nerve and Muscle Stimulators

IEC 60601-2-10;
EN 60601-2-10;
CSA-C22.2 NO. 60601-2-10

Medical Electrical Equipment - Part 2-18: Particular Requirements for the Basic Safety and Essential Performance of Endoscopic Equipment

IEC 60601-2-18; EN 60601-2-18;
CSA-C22.2 No. 60601-2-18

Medical electrical equipment – Part 2-19: Particular Requirements for the Basic Safety and Essential Performance of Infant Incubators

IEC 60601-2-19; EN IEC 60601-2-19;
ANSI AAMI IEC 60601-2-19;
CSA C22.2 No. 60601-2-19

Test(s):

Medical Electrical Equipment - Part 2-20:
Requirements for the Basic Safety and Essential
Performance of Infant Transport Incubators

Medical Electrical Equipment - Part 2-21:
Particular Requirements for the Basic Safety and
Essential Performance of Infant Radiant Warmers

Medical electrical equipment –Part 2-22:
Particular Requirements for Basic Safety and
Essential Performance of Surgical, Cosmetic,
Therapeutic and Diagnostic Laser Equipment

Medical Electrical Equipment – Part 2-24:
Particular Requirements for the Basic Safety and
Essential Performance of Infusion Pumps and
Controllers

Medical Electrical Equipment - Part 2-37:
Particular Requirements for the Basic Safety and
Essential Performance of Ultrasonic
Medical Diagnostic and Monitoring Equipment

Medical Electrical Equipment –Part 2-41:
Particular Requirements for the Basic Safety and
Essential Performance of Surgical
Luminaires and Luminaires for Diagnosis

Medical Electrical Equipment - Part 2-25:
Particular Requirements for the Basic Safety and
Essential Performance of Electrocardiographs

Medical Electrical Equipment – Part 2-26:
Particular Requirements for the Basic Safety and
Essential Performance of Electroencephalographs
Medical Electrical Equipment - Part 2-27:
Particular Requirements for the Basic Safety and
Essential Performance of Electrocardiographic
Monitoring Equipment

Medical Electrical Equipment – Part 2-28:
Particular Requirements for the Basic Safety and
Essential Performance of X-ray Tube Assemblies
for Medical Diagnosis

Medical Electrical Equipment – Part 2-34:
Particular Requirements for the Basic Safety and
Essential Performance of Invasive Blood Pressure
Monitoring Equipment

Test Method(s):

IEC 60601-2-20; EN IEC 60601-2-20;
AAMI 60601-2-20;
CSA C22.2 NO. 60601-2-20

IEC 60601-2-21; EN IEC 60601-2-21;
ANSI AAMI IEC 60601-2-21;
CSA C22.2 NO. 60601-2-21

IEC 60601-2-22; EN IEC 60601-2-22;
CSA-C22.2 NO. 60601-2-22

IEC 60601-2-24; EN 60601-2-24;
CSA C22.2 NO. 60601-2-24

IEC 60601-2-37; EN 60601-2-37;
CSA-C22.2 No. 60601-2-37

IEC 60601-2-41; EN 60601-2-41;
CSA-C22.2 NO. 60601-2-41

IEC 60601-2-25; EN 60601-2-25;
CSA C22.2 NO. 60601-2-25;
ANSI AAMI IEC 60601-2-25

IEC 60601-2-26; EN 60601-2-26;
ANSI AAMI IEC 60601-2-26;
CSA C22.2 No. 60601-2-26
IEC 60601-2-27; EN 60601-2-27;
ANSI AAMI IEC 60601-2-27

IEC 60601-2-28; EN IEC 60601-2-28;
CSA C22.2 NO. 60601-2-28

IEC 60601-2-34; EN 60601-2-34;
CSA C22.2 NO. 60601-2-34

Test(s):

Medical Electrical Equipment - Part 2-44:
Particular Requirements for the Basic Safety and
Essential Performance of X-Ray Equipment for
Computed Tomography

Medical Electrical Equipment – Part 2-45:
Particular Requirements for the Basic Safety and
Essential Performance of Mammographic X-ray
Equipment and Mammographic Stereotactic
Devices

Medical Electrical Equipment – Part 2-54:
Particular Requirements for the Basic Safety and
Essential Performance of X-ray Equipment for
Radiography and Radioscopy

Medical Electrical Equipment – Part 2-63:
Particular Requirements for the Basic Safety and
Essential Performance of Dental Extra-Oral X-
Ray Equipment

Medical Electrical Equipment – Part 2-65:
Particular Requirements for the Basic Safety and
Essential Performance of Dental Intra-Oral X-Ray
Equipment

Medical Electrical Equipment - Part 2-47:
Particular Requirements for the Basic Safety and
Essential Performance of Ambulatory
Electrocardiographic Systems

Medical Electrical Equipment - Part 2-49:
Particular Requirements for the Basic Safety and
Essential Performance of Multifunction Patient
Monitors

Medical Electrical Equipment - Part 2-50:
Particular Requirements for the Basic Safety and
Essential Performance of Infant Phototherapy
Equipment

Medical Electrical Equipment – Part 2-49:
Particular Requirements for the Basic Safety and
Essential Performance of Multifunction Patient
Monitors

Test Method(s):

IEC 60601-2-44; EN 60601-2-44;
CSA C22.2 NO. 60601-2-44

IEC 60601-2-45; EN 60601-2-45;
CSA C22.2 NO. 60601-2-45

IEC 60601-2-54; EN 60601-2-54;
CSA C22.2 NO. 60601-2-54

IEC 60601-2-63; EN 60601-2-63;
CSA C22.2 NO. 60601-2-63

IEC 60601-2-65; EN 60601-2-65;
CSA C22.2 NO. 60601-2-65

IEC 60601-2-47; EN 60601-2-47;
ANSI AAMI IEC 60601-2-47;
CSA C22.2 NO. 60601-2-47

IEC 60601-2-49; EN 60601-2-49;
CSA C22.2 NO. 60601-2-49

IEC 60601-2-50; EN 60601-2-50;
ANSI AAMI IEC 60601-2-50;
CSA C22.2 NO. 60601-2-50

IEC 80601-2-49;
EN IEC 80601-2-49;
CSA C22.2 NO. 80601-2-49

Test(s):

Medical Electrical Equipment – Part 2-60:
Requirements for the Basic Safety and Essential
Performance of Dental Equipment

Medical Electrical Equipment — Part 2-12:
Particular Requirements for Basic Safety and
Essential Performance of Critical Care Ventilators

Medical Electrical Equipment - Part 2-55:
Particular Requirements for the Basic Safety and
Essential Performance of Respiratory Gas
Monitors

Medical Electrical Equipment — Part 2-74:
Particular Requirements for Basic Safety and
Essential Performance of Respiratory
Humidifying Equipment

Medical Electrical Equipment — Part 2-66:
Particular Requirements for the Basic Safety and
Essential Performance of Hearing Aids and
Hearing Aid Systems

Medical Electrical Equipment — Part 2-69:
Particular Requirements for the Basic Safety and
Essential Performance of Oxygen Concentrator
Equipment

Medical Electrical Equipment – Part 2-83:
Particular Requirements for the Basic Safety and
Essential Performance of Home Light Therapy
Equipment

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

Medical Electrical Equipment - Part 2-26:
Particular Requirements for the Basic Safety and
Essential Performance of Electroencephalographs

Medical Device Software – Software Life Cycle
Processes

Test Method(s):

IEC 80601-2-60; EN IEC 80601-2-60;
CSA C22.2 NO. 80601-2-60

ISO 80601-2-12; EN ISO 80601-2-12;
CSA C22.2 NO. 80601-2-12

ISO 80601-2-55; EN ISO 80601-2-55;
CSA C22.2 NO. 80601-2-55

ISO 80601-2-74; EN ISO 80601-2-74;
CSA C22.2 NO. 80601-2-74

IEC 60601-2-66; EN IEC 60601-2-66;
CSA C22.2 NO. 60601-2-66

ISO 80601-2-69; EN ISO 80601-2-69;
CSA C22.2 NO. 80601-2-69

IEC 60601-2-83; EN IEC 60601-2-83

IEC 60601-2-2; EN IEC 60601-2-2;
ANSI AAMI IEC 60601-2-2;
CSA C22.2 NO. 60601-2-2:19

IEC 80601-2-26; EN IEC 80601-2-26;
CSA C22.2 NO 60601-2-26

IEC 62304; EN 62304; ANSI AAMI IEC 62304;
CSA IEC 62304

Test(s):

Test Method(s):

Electromagnetic Compatibility

Emissions (Conducted Emissions Only)

CFR 47 FCC Part 15B (using ANSI C63.4:2014);
CFR 47 FCC Part 18 (using FCC MP-5:1986);
EN 55011; EN 55014-1; EN IEC 55014;
EN 55032; EN IEC 55015; IEC/EN 61326-1;
CISPR 11; CISPR 15; CISPR 32; CISPR 14-1;
CISPRJ 15; CISPRJ 32; AS/NZS CISPR 14.1;
AS/NZS CISPR 32; AS/NZS CISPR 15;
ICES-001; ICES-003; ICES-005; J55014-1;
IEC/EN 61000-6-3; EN IEC 61000-6-3;
AS/NZS 61000.6.3; IEC/EN 61000-6-4;
EN IEC 61000-6-4; AS/NZS 6100.4;
IEC/EN 60601-1-2; GB/T 18268.1; GB/T 17743;
BM 4343.1; GB/T 9254.1; SANS 2332;
SANS 214-1; SANS 215

Current Harmonics

IEC 61000-3-2; EN 61000-3-2;
EN IEC 61000-3-2

Voltage Fluctuations & Flicker

IEC 61000-3-3; EN 61000-3-3

Immunity

Electrostatic Discharge (ESD)

IEC/EN 61000-4-2; GB/T 17626.2

Electrical Fast Transient/Burst

IEC/EN 61000-4-4; GB/T 17626.4

Surge

IEC/EN 61000-4-5; GB/T 17626.5

Conducted Immunity

IEC/EN 61000-4-6; GB/T 17626.6

Power Frequency Magnetic Field

IEC/EN 61000-4-8; GB/T 17626.8

Voltage Dips, Short Interruptions

IEC/EN 61000-4-11; EN IEC 61000-4-11;
GB/T 17626.11;

Line Voltage Variations

IEC/EN 61000-6-1; EN IEC 61000-6-1;

Generic Standards

IEC/EN 61000-6-2; EN IEC 61000-6-2;

IEC/EN 61000-6-3; EN IEC 61000-6-3;

IEC/EN 61000-6-4; EN IEC 61000-6-4

Product Family Standards and Industry Standards

CISPR 35; EN 55035; GB/T9254.2;

IEC/EN 61547; GB/T 18595;

CISPR 14-2; EN 55014-2; GB/T 4343.2;

IEC EN 55014-2; IEC/EN 60601-1-2;

ANSI/AAMI/IEC 60601-1-2; YY9706.102;

IEC/EN 61326-1; GB/T 18268.1;

IEC/EN 61326-2-2; GB/T 18268.22;

IEC/EN 61326-2-6; GB/T 18268.26;

Test(s):

Test Method(s):

Product Family Standards and Industry Standards
(Cont.)

EN 50130-4; IEC 61204-3; EN IEC 61204-3;
EN 50121-1; EN 50121-3-2; EN 50121-4;
EN 50121-5; SANS 2335;
SANS 214-2; SANS 61547

Induced Current Density

IEC/EN 62493

Telecommunication Standards

ETSI EN 301 489-1;
ETSI EN 301 489-3;
ETSI EN 301 489-17;

Environment and Reliability Tests

Dust Proof Test

IEC 60529; EN 60529

Waterproof Test

IEC 60529; EN 60529

Vibration Test

IEC 60068-2-6; EN 60068-2-6; GB/T 2423.10;
IEC 60068-2-27; EN 60068-2-27; GB/T 2423.5;
IEC 60068-2-64; EN 60068-2-64; GB/T 2423.56

Safety of Machinery — General Principles for
Design — Risk Assessment and Risk Reduction

ISO 12100

Safety of Machinery – Part 1: General
Requirements

IEC 60204-1

On the following product(s)/product types/materials:

¹ When the date, edition, version, etc. is not identified in the scope of accreditation, laboratories may use the version that immediately precedes the current version for a period of one year from the date of publication of the standard measurement method, per part C., Section 1 of A2LA *R101 - General Requirements- Accreditation of ISO-IEC 17025 Laboratories*.

² A2LA provides accreditation to the U.S. EPA’s Conditions and Criteria for Recognition of Laboratories for the ENERGY STAR Program by verifying an organization’s compliance to A2LA document R222 - Specific Requirements - EPA ENERGY STAR Accreditation Program and to the related test methods listed above.

Accreditation by A2LA does not infer Recognition by the EPA for ENERGY STAR® testing. Please verify this organization’s recognition status by using the EPA’s searchable database listed below:

<http://www.energystar.gov/cms/default/index.cfm/news-and-announcements/hidden-articles/eparecognized-bodies-for-lighting-products/epa-recognized-bodies-for-lighting-products>

³ The laboratory is only accredited for testing activities outlined within the test methods listed above. Reference to any other activity within these standards, such as risk management or risk assessment, does not fall within the laboratory’s accredited capabilities.

Testing Activities performed under the scope of the U.S FDA ASCA Pilot Program Specifications: *Basic Safety and Essential Performance of Medical Electrical Equipment, Medical Electrical Systems, and Laboratory Medical Equipment – Standards Specific Information for the Accreditation Scheme for Conformity Assessment (ASCA) Pilot Program* published on September 25th, 2020, and in accordance with all requirements of A2LA R256 *Specific Requirements- FDA ASCA Program*⁴

| Standards | ASCA Doc Number | Exclusions |
|---|------------------------|-------------------|
| IEC 61010-1 Edition 3.1 2017-01 CONSOLIDATED VERSION | 19-34 | * |
| IEC 60601-1 Edition 3.2 2020-08 CONSOLIDATED VERSION | 19-49 | * |
| ANSI UL 61010-1 3rd Ed, dated May 12, 2012 with revision through July 19, 2019 | 19-41 | * |
| ISO 80601-2-61 Second edition 2017-12 (Corrected version 2018-02) | 1-139 | * |
| ISO 80601-2-12 Second edition 2020-02 | 1-146 | * |
| IEC 60601-1-6 Edition 3.2 2020-07 CONSOLIDATED VERSION | 5-132 | |
| IEC 60601-2-20 Edition 3.0 2020-09 | 6-462 | * |
| ANSI AAMI ES60601-1:2005/(R)2012 & A1:2012 C1:2009/(R)2012 & A2:2010/(R)2012 (Cons. Text) [Incl. AMD2:2021] | 19-46 | * |
| IEC 60601-2-54 Edition 2.0 2022-09 | 12-348 | * |
| ANSI AAMI HA60601-1-11:2015 [Including AMD1:2021] | 19-47 | |
| IEC 60601-1-12 Edition 1.1 2020-07 CONSOLIDATED VERSION ANSI AAMI IEC 60601-1-12:2016 [Including AMD 1:2021] | 19-39 | |
| IEC 60601-2-52 Edition 1.0 2009-12 | 6-321 | * |
| IEC 60601-2-52 Edition 1.1 2015-03 CONSOLIDATED VERSION | 6-489 | * |
| IEC 60601-1-11 Edition 2.1 2020-07 CONSOLIDATED VERSION | 19-38 | |
| IEC 60601-1-8 Edition 2.2 2020-07 CONSOLIDATED VERSION ANSI AAMI IEC 60601-1-8:2006 and A1:2012 [Including AMD 2:2021] | 5-131 | |
| IEC 60601-2-2 Edition 6.0 2017-03 | 6-389 | * |
| IEC 60601-2-19 Edition 3.0 2020-09 | 6-461 | * |
| IEC 60601-2-21 Edition 3.0 2020-09 | 6-463 | * |
| ISO 80601-2-69 Second edition 2020-11 | 1-148 | * |
| IEC 60601-2-18: Edition 3.0 2009-08 | 9-114 | * |
| IEC 60601-2-47 Edition 2.0 2012-02 ANSI AAMI IEC 60601-2-47:2012/(R)2016 | 3-155 | * |
| ISO 80601-2-74 First edition 2017-05 | 1-138 | * |
| ISO 80601-2-74 Second edition 2021-07 | 1-177 | * |
| IEC 60601-2-63 Edition 1.2 2021-05 CONSOLIDATED VERSION | 12-339 | * |
| IEC 60601-2-50 Edition 3.0 2020-09 | 6-450 | * |

| | | |
|---|--------|---|
| IEC 60601-2-27 Edition 3.0 2011-03 ANSI AAMI IEC 60601-2-27:2011(R)2016 | 3-126 | * |
| ISO 80601-2-56 Second edition 2017-03 | 6-421 | * |
| IEC 80601-2-30: Edition 2.0 2018-03 ANSI AAMI IEC 80601-2-30:2018 | 3-123 | * |
| IEC 60601-2-28 Edition 3.0 2017-06 | 12-309 | * |
| IEC 80601-2-60 Edition 2.0 2019-06 | 4-262 | * |
| IEC 60601-2-25 Edition 2.0 2011-10 ANSI AAMI IEC 60601-2-25:2011/(R)2016 | 3-105 | * |
| IEC 60601-2-45 Edition 3.1 2015 | 12-294 | * |
| IEC 60601-2-44 Edition 3.2: 2016 | 12-302 | * |
| IEC 60601-2-37 Edition 2.1 2015 | 12-293 | * |
| ISO 80601-2-55 Second edition 2018-02 | 1-140 | * |
| IEC 60601-2-65 Edition 1.2 2021-05 CONSOLIDATED VERSION | 12-340 | * |
| IEC 60601-2-10 Edition 2.1 2016-04 | 17-16 | * |
| IEC 60601-2-57 Edition 1.0 2011-01 | 12-242 | * |
| IEC 60601-2-57 Edition 2.0 2023-07 | 12-355 | * |
| IEC 60601-2-22 Edition 3.1 2012-10 | 12-268 | * |
| IEC 60601-2-22 Edition 4.0 2019-11 | 12-356 | * |
| IEC 60601-2-34 Edition 3.0 2011-05 | 3-115 | * |
| ISO 80601-2-12 Second edition 2020-02 | 1-146 | * |
| ANSI AAMI IEC 80601-2-30:2018 | 3-123 | * |

⁴ These methods have been assessed by A2LA according to A2LA's FDA ASCA Program requirements. Accreditation by A2LA does not imply FDA ASCA-Accreditation. All ASCA-accreditation decisions for testing laboratory applications are made solely by the FDA, a list of approved laboratories can be found at FDA.gov.

* Standards include exclusions on the scope of accreditation from the accrediting body.

| Testing Activities Performed in Support of FCC Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1 ⁵ | | |
|---|-----------------|-------------------------|
| Rule Subpart/Technology | Test Method | Maximum Frequency (MHz) |
| <u>Unintentional Radiators</u> | | |
| Part 15B | ANSI C63.4:2014 | |
| <u>Industrial, Scientific, and Medical Equipment</u> | | |
| Part 18 | FCC MP-5:1986 | |

⁵ Accreditation does not imply acceptance to the FCC equipment authorization program. Please see the FCC website (<https://apps.fcc.gov/oetcf/eas/>) for a listing of FCC approved laboratories.

Exclusions Tables

| Standard | Clause/Description |
|--|---|
| IEC/EN 60335-1 | Clause 7.5 of Annex T/ Flexural strength test and Charpy impact test |
| | Annex F/Capacitor |
| | 19.11.4.2/ Radiated fields test |
| | 19.11.4.7/ Mains signals test |
| IEC/EN 60065 | Cl.6.1/Ionizing radiation |
| IEC/EN 60950 | Cl.4.3.13.2/Ionizing radiation |
| IEC/EN 60065 | Cl.6.2/Laser radiation |
| IEC/EN 60950 | Cl.4.3.13.5/Laser radiation |
| IEC/EN 60065 | Cl.7/Softening temperature |
| IEC/EN 60065 | Cl.8.18/Endurance test for wound components |
| IEC/EN 60065 | Cl.14.2/Resistors |
| IEC/EN 60065 | Cl.14.3/Capacitors and RC-units |
| IEC/EN 60950 | Cl.3.2.5.1/External flexible cord |
| IEC/EN 60065 | Cl.16.3b/External flexible cord |
| IEC/EN 60065 | Cl.18/Mechanical strength of picture tubes and protection against effects of implosion |
| IEC/EN 60950 | Cl.4.2.8/Mechanical strength of picture tubes and protection against effects of implosion |
| IEC/EN 60065 | Cl.21.3/Pre-conditioning of printed circuit boards |
| IEC/EN 60065 | Annex H/Insulating winding wires |
| IEC/EN 60950 | Cl.4.3.13.3/Effect of UV radiation on materials |
| IEC/EN 60950 | Cl.4.3.13.4/Human exposure to UV radiation |
| IEC/EN 60065 | Cl.12.1/Vibration |
| IEC/EN 60335-1& IEC/EN 60335-2-xx | Cl.32/Ozone concentration |
| IEC/EN 60335-2-2 IEC/EN 60335-2-54 IEC/EN 60335-2-69 | Cl.21/test of current carrying hose |

| Standard | Clause/Description |
|---|--|
| IEC/EN 60335-2-75 | Annex AA/Aging test for elastomeric parts |
| IEC/EN 60335-2-7 | Annex BB/Aging test for elastomeric parts |
| IEC/EN 60745-1& IEC/EN 60745-2-xx | Cl.6.1/Noise |
| IEC/EN 60745-1& IEC/EN 60745-2-xx | Cl.6.2/Vibration |
| IEC/EN 60335-1& IEC/EN 60335-2-xx | Annex xx/Emission of acoustical noise |
| IEC/EN 60335-1& IEC/EN 60335-2-xx/ Annex xx | Annex xx/Emission of vibration |
| IEC/EN 60745-2-5 | annex AA and annex BB/Mechanical hazards(harness measurement, ruptures measurement) |
| IEC/EN 62368-1 | 5.4.1.10/Thermoplastic parts on which conductive metallic parts are directly mounted |
| | 10.5/X-radiation |
| | 10.6/Effect of UV radiation on materials |
| | Annex C/UV radiation |
| | Annex G.5.3.4/Transformers using fully insulated winding wire (FIW) |
| | Annex G.7/Mains supply cords |
| | Annex G.9/Integrated circuit (IC) current limiters |
| | Annex G.10/ Test for resistor serving as safeguard Test sequence |
| | Annex G.13.6.2/Test method and compliance criteria |
| | Annex G.15.2.1/Hydrostatic pressure |
| | Annex G.15.2.3/Tubing and fittings compatibility test |
| | Annex J/Insulated winding wires for use without interleaved insulation |
| | Annex M.7/Concentration of hydrogen gas |
| Annex M.8.2/Protection against internal ignition from external spark sources – Spark Test | |

| Standard | Clause/Description |
|---|---|
| IEC/EN 62368-1 | Annex P.4/Metallized coatings and adhesives securing parts |
| | Annex S.3.2/Tests for resistance to heat and fire |
| IEC/EN 62841-1 | Cl.21.12/ Rubber aging test |
| | Cl.26.2/ Quick-connect terminals |
| | Cl.26.4/ Measure the thickness of the coating |
| | Cl.18.5.2/ Armature open-circuits test |
| IEC/EN 62841-3-1 | Cl.19.103/ Riving knife |
| IEC/EN 62841-2-5 | AA.19.104/ Flanges |
| IEC/EN 61558-1 | Cl.19.9/19.9 Insulating material separating input and output windings |
| IEC/EN 60335-2-75 | Annex AA/ Aging test for elastomeric parts |
| IEC/EN 60335-2-79 | Cl.11/ Carbon monoxide detector |
| IEC 60335-2-79 | Annex DD/ Vibration test |
| IEC 60335-2-79 | Annex CC/ Noise test |
| IEC/EN 60335-1&IEC/EN 60335-2-XX | Annex R/ Software evaluation |
| IEC/EN 60335-1 | cl.7.3.9/Design evaluation – Forced internal short circuit (cells) |
| IEC 60601-1 EN 60601-1 ANSI/AAMI ES60601-1 CAN/CSA-C22.2 NO. 60601-1 | 9.6.2.1 / Audible acoustic energy |
| | 8.8.4.2 Resistance to environmental stress |
| | 10.1.1 ME EQUIPMENT not intended to produce diagnostic or therapeutic X-radiation |
| | 10.3 / Microwave radiation |
| | 11.2.2.1 RISK of fire in an OXYGEN RICH ENVIRONMENT |
| | 11.6.7 / Sterilization |

| Standard | Clause/Description |
|--|--|
| | 12.4.5.2 Diagnostic X-ray equipment |
| | 15.4.2 / Temperature and overload control devices |
| | Annex G Protection against HAZARDS of ignition of flammable anaesthetic mixtures |
| | Annex L / Insulated winding wires for use without interleaved insulation |
| IEC 60601-2-46 EN 60601-2-46 CSA-C22.2 No. 60601-2-46 | 203 / Radiation protection in diagnostic X-ray equipment |
| IEC 60601-2-52 EN 60601-2-52 CAN/CSA-C22.2 No. 60601-2-52 | 201.11.6.6.101 / Machine washable medical bed |
| IEC 60601-2-24 EN 60601-2-24 AAMI 60601-2-24 CSA C22.2 NO. 60601-2-24 | 201.12.1 / Accuracy of controls and instruments |
| | 201.12.4.4.104 / Protection against UNINTENDED BOLUS volumes and by occlusion |
| IEC 60601-2-28 EN 60601-2-28 CSA C22.2 NO. 60601-2-28 | 201.8.8.3 / Dielectric strength |
| | 201.12.4.5.2 / Diagnostic X-RAY EQUIPMENT |
| | 203 / RADIATION protection in diagnostic X-RAY EQUIPMENT |
| IEC 60601-2-34 EN 60601-2-34 CSA C22.2 NO. 60601-2-34 | 201.12.1.101 / Accuracy of pressure measurements |
| | 208.6.6.2.101 / Physiological ALARM CONDITIONS, ALARM LIMITS and delay time of physiological ALARM SIGNALS |
| IEC 60601-2-44 EN 60601-2-44 CSA C22.2 NO. 60601-2-44 | 201.8.8.3 / Dielectric strength |
| | 203 / General requirements for RADIATION protection in diagnostic X-ray equipment |
| IEC 60601-2-45 EN 60601-2-45 CSA C22.2 NO. 60601-2-45 | 201.8.5.4.101 / Stator and stator circuit dielectric strength testing |
| | 201.8.8.3 / Dielectric strength |
| | 201.9.2.101 / Three dimensional localization and interventional mammographic guidance |

| Standard | Clause/Description |
|---|--|
| IEC 60601-2-45 EN 60601-2-45 CSA C22.2 NO. 60601-2-45 | 203 / Radiation protection in diagnostic X-ray equipment |
| IEC 60601-2-54 EN 60601-2-54 CSA C22.2 NO. 60601-2-54 | 201.8.5.4.101 / Stator and stator circuit dielectric strength testing |
| | 201.8.8.3 / Dielectric strength |
| | 203 / Radiation protection in diagnostic X-ray equipment |
| IEC 60601-2-63 EN 60601-2-63 CSA C22.2 NO. 60601-2-63 | 201.8.5.4.101 / Stator and stator circuit dielectric strength testing |
| | 201.8.8.3 / Dielectric strength |
| | 203 / Radiation protection in diagnostic X-ray equipment |
| IEC 60601-2-65 EN 60601-2-65 CSA C22.2 NO. 60601-2-65 | 201.8.8.3 * Dielectric strength |
| | 203 Radiation protection in diagnostic X-ray equipment |
| ISO 80601-2-74 EN ISO 80601-2-74 CSA C22.2 NO. 80601-2-74 | 201.12.1.101 / Humidification output |
| | 201.12.1.105 / Dynamic temperature stability |
| ISO 80601-2-55 EN ISO 80601-2-55 CSA C22.2 NO. 80601-2-55 | 201.12 / Accuracy of controls and instruments and protection against hazardous outputs |
| ISO 80601-2-12 EN ISO 80601-2-12 CSA C22.2 NO. 80601-2-12 | 201.9.101 / Additional requirements for suction procedures |
| | 201.12.1.101 / Volume-control inflation-type |
| | 201.12.1.102 / Pressure-control inflation-type |
| | 201.12.1.105 / Response of the ventilator to an increase in set O2 concentration |
| IEC 61010-1 EN 61010-1 UL 61010-1 CAN/CSA-C22.2 NO. 61010-1-12 | 9.5 / flammable liquid |
| | 10.5.3(2) / Vi cat softening test |
| | 12.2./ Ionizing radiation test |
| | 12.4 / Microwave radiation test |

| Standard | Clause/Description |
|--|---|
| IEC 61010-1 EN 61010-1 UL 61010-1 CAN/CSA-C22.2 NO. 61010-1-12 | 12.5 / Sonic and ultrasonic pressure 13.2.3 / Implosion of cathode ray tubes |
| IEC 60079-0, IEC60079-0, EN IEC 60079-0, UL 60079-0, CAN/CSA-C22.2 No. 60079-0 | 26.5.3 Small component ignition test 26.10 Resistance to UV light 26.11 Resistance to chemical agents for Group I equipment 26.17 Transferred charge test |
| IEC 60079-1, EN 60079-1, UL 60079-1, CAN/CSA-C22.2 No. 60079-1 | 15.2.2 Determination of explosion pressure (reference pressure) 15.3 Test for non-transmission of an internal ignition 15.4 Tests of flameproof enclosures with breathing and draining devices Annex B Additional requirements for elements, with non-measurable paths of breathing and draining devices |
| IEC 60079-7:2015+A1:2017, EN IEC 60079-7:2015+A1:2018 UL 60079-7, CAN/CSA-C22.2 No. 60079-7 | 6.2 rotating electric machines 6.3.3 Mechanical tests for screw lampholders other than E10 6.3.4 Abnormal operation of luminaires 6.3.5 Sulphur dioxide test for level of protection "eb" for the connection of bi-pin lamp caps to lampholders 6.6.4 Test for Level of Protection "eb" ventilation of battery container 6.7.4 Test for ventilation of Level of Protection "ec" battery container Annex B.1 resistance heating devices subjected to mechanical stresses |
| IEC 60079-11,EN 60079-11, UL 60079-11, CAN/CSA-C22.2 No. 60079-11 | 10.1 Spark ignition test. |
| IEC 60079-15, EN 60079-15, EN 60079-15, UL 60079-15; CAN/CSA-C22.2 No. 60079-15 | 11.1 Test for incendive components. |
| IEC 60079-28:2015; EN 60079-28:2015 UL 60079-28, CAN/CSA-C22.2 No. 60079-28 | 5.2.4 ignition test 5.3 Requirements for protected optical radiation "op pr" 5.4 Optical system with interlock "op sh" |

| Standard | Clause/Description |
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| EC/EN 61000-6-1; EN IEC 61000-6-1; IEC/EN 61000-6-2; EN IEC 61000-6-2 | Radiated, radio-frequency electromagnetic field immunity test |
| CISPR 35; EN 55035; GB/T 9254.2; SANS 2335 | Radiated, radio-frequency electromagnetic field immunity test |
| IEC/EN 61547; GB/T 18595; SANS 61547 | Radiated, radio-frequency electromagnetic field immunity test |
| CISPR 14-2; EN 55014-2; IEC EN 55014-2; GB/T 4343.2; SANS 214-2 | Radiated, radio-frequency electromagnetic field immunity test |
| IEC/EN 61326-1; GB/T 18268.1; IEC/EN 61326-2-2; GB/T 18268.22; IEC/EN 61326-2-6; GB/T 18268.26 | Radiated, radio-frequency electromagnetic field immunity test |
| EN 50130-4 | Radiated, radio-frequency electromagnetic field immunity test |
| IEC 61204-3; EN IEC 61204-3 | Radiated, radio-frequency electromagnetic field immunity test |
| ETSI EN 301 489-1; □ETSI EN 301 489-3; ETSI EN 301 489-17 | Radiated, radio-frequency electromagnetic field immunity test; 9.6 Vehicular transients and surges |
| IEC/EN 60601-1-2; YY0505; YY9706.102 | Radiated RF EM fields test; 8.10 Proximity fields from RF wireless communications equipment 8.11 Proximity magnetic fields |



Accredited Laboratory

A2LA has accredited

EUROFINS ELECTRICAL TESTING SERVICE (SHANGHAI) CO., LTD.

Shanghai, People's Republic of China

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 8th day of August 2023.

A blue ink signature of Mr. Trace McInturff, written over a horizontal line.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 7054.01
Valid to July 31, 2025
Revised July 25, 2024

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.