



INTERNATIONAL
ACCREDITATION
SERVICE®

CERTIFICATE OF ACCREDITATION

This is to attest that

UL LLC

47173 BENICIA STREET
FREMONT, CALIFORNIA 94538 U.S.A.

Testing Laboratory TL-414

has met the requirements of AC89, *IAS Accreditation Criteria for Testing Laboratories* 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 October 4, 2024



International Accreditation Service
Issued under the authority of IAS management

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 Chris Blazek

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Accredited to ISO/IEC 17025:2017

Effective Date October 4, 2024

Energy Star	
Audio/Video	
Computers	
Enterprise Servers	
Data Center Storage	
Displays and Monitors	
Imaging Equipment	
Telephony	
Televisions	
Uninterruptible Power Supplies (UPSs)	
Electric Vehicle Supply Equipment	
Smart Home Energy Management Systems	
Energy Efficiency	
10 CFR 430, Subpart B, Appendix H	Uniform test method for measuring the power consumption of television sets
10 CFR 430, Subpart B, Appendix Y, Y1	Uniform test method for measuring the energy consumption of battery chargers
10 CFR 430, Subpart B, Appendix Z	Uniform test method for measuring the power consumption of external power supplies
EN 50563	External AC – DC and AC – AC power supplies determination of no-load power and average efficiency of active modes
EN 50564	Electrical and electronic household and office equipment – measurement of low power consumption
IEC 62087-1	Audio, video, and related equipment – Determination of power consumption – Part 1: General
IEC 62087-2	Audio, video, and related equipment – Determination of power consumption – Part 2: Signals and media

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IEC 62087-3	Audio, video, and related equipment – Determination of power consumption – Part 3: Television sets
IEC 62087-4	Audio, video, and related equipment – Determination of power consumption – Part 4: Video recording equipment
IEC 62087-5	Audio, video, and related equipment – Determination of power consumption – Part 5: Set top boxes (STB)
IEC 62087-6	Audio, video, and related equipment – Determination of power consumption – Part 6: Audio equipment
IEC 62087-7	Audio, video, and related equipment – Determination of power consumption – Part 7: Computer monitors
IEC 62301	Household electrical appliances – measurement of standby power
IEC 62623	Desktop and notebook computers – measurement of energy consumption
IEC/EN 62018	Power consumption of information technology equipment – measurement methods
Electrical/Electronic	
16 CFR 1263	Button cell and coin batteries and consumer products containing such batteries
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
ANSI/AAMI/IEC 60601-1-8	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
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 60601-2-19	Medical electrical equipment - part 2-19: particular requirements for the basic safety and essential performance of infant incubators
ANSI/AAMI/IEC 60601-2-20	Medical electrical equipment - part 2-20: particular requirements for the basic safety and essential performance of infant transport incubators
ANSI/AAMI/IEC 60601-2-21	Medical electrical equipment - Part 2-21: Particular requirements for the basic safety and essential performance of infant radiant warmers
ANSI/AAMI/ISO 60601-2-25	Medical electrical equipment - part 2-25: particular requirements for the basic safety and essential performance of electrocardiographs
ANSI/UL 2594	Electric Vehicle Supply Equipment

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ASTM E2072	Standard Spec for Photoluminescent (Phosphorescent) Safety Markings
ASTM E2073	Standard Test Method for Photopic Luminance of Photoluminescent (Phosphorescent) Markings
CSA/ANSI FC 1	Fuel cell technologies — Part 3-100: Stationary fuel cell power systems — Safety (IEC 62282-3-100)
CSA C22.2 No. 62282-3-100	Fuel cell technologies — Part 3-100: Stationary fuel cell power systems — Safety (IEC 62282-3-100)
IEC 60065	Audio, video and similar electronic apparatus - safety requirements
IEC 60335-1	Household and similar electrical appliances - safety - part 1: general requirements
IEC 60335-2-34	Household and similar electrical appliances - safety - part 2-34: particular requirements for motor-compressors
IEC 60335-2-41	Household and similar electrical appliances - safety - part 2-41: particular requirements for pumps
IEC 60335-2-60	Household and similar electrical appliances - safety - part 2-60: particular requirements for whirlpool baths
IEC 60335-2-82	Household and similar electrical appliances - safety - part 2-82: particular requirements for amusement machines and personal service machines
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 60570	Electrical supply track systems for luminaires
IEC 60598-1	Luminaires - part 1: general requirements and tests
IEC 60598-2-1	Particular requirements – Fixed general purpose luminaires
IEC 60598-2-2	Particular requirements – Recessed luminaires
IEC 60598-2-3	Particular requirements – Luminaires for road and street lighting
IEC 60598-2-4	Particular requirements – Portable general purpose luminaires
IEC 60598-2-5	Particular requirements – Floodlights
IEC 60598-2-8	Particular requirements - Handlamps
IEC 60598-2-13	Particular requirements – Ground recessed luminaires
IEC 60598-2-17	Particular requirements – Luminaires for stage lighting, television and film studios (outdoor and indoor)
IEC 60598-2-22	Particular requirements –Luminaires for emergency lighting
IEC 60601-1	Medical electrical equipment - part 1: general requirements for basic safety and essential performance
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



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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 60601-2-3	Medical electrical equipment - part 2-3: particular requirements for the basic safety and essential performance of short-wave therapy equipment
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 60601-2-8	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 afterloading 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 60601-2-24	Medical electrical equipment - part 2-24: particular requirements for the basic safety and essential performance of infusion pumps and controllers
IEC 60601-2-25	Medical electrical equipment - part 2-25: Particular for electrocardiographs
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



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IEC 60601-2-37	Medical electrical equipment - part 2-37: particular requirements for the basic safety and essential performance of ultrasonic medical diagnostic and monitoring equipment
IEC 60601-2-39	Medical electrical equipment - part 2-39: Particular for 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 60601-2-44	Medical electrical equipment - part 2-44: particular requirements for the basic safety and essential performance of X-ray equipment for computed tomography
IEC 60601-2-46	Medical electrical equipment - part 2-46: particular requirements for basic safety and essential performance of operating tables
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 60825-1	Safety of laser products - part 1: equipment classification and requirements
IEC 60825-2	Safety of laser products – part 2: safety of optical fiber communication systems
IEC 61010-1	Safety requirements for electrical equipment for measurement, control, and laboratory use - part 1: general requirements
IEC 61010-1 edition 3.1 2017-01	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 61010-2-040	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



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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 61010-2-101	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 61215-2	Terrestrial photovoltaic (PV) modules – Design qualification and type approval – Part 2: Test procedures (only clauses MQT 01 and MQT 03)
IEC 61347-1	Lamp controlgear - part 1: general and safety requirements
IEC 61347-2-11	Particular requirements for miscellaneous electronic circuits used with luminaires
IEC 61347-2-13	Particular requirements for d.c. or a.c. supplied electronic controlgear for LED modules
IEC 61730-1	Photovoltaic (PV) module safety qualification – Part 1: Requirements for construction
IEC 62031	LED modules for general lighting - safety specifications
IEC 62282-3-100	Fuel Cell Technologies – Part 3-100: Stationary Fuel Cell Power Systems - Safety
IEC 62384	DC or AC supplied electronic control gear for LED modules – Performance requirements
IEC 62560	Self-ballasted LED-lamps for general lighting services by voltage > 50 V - safety specifications
IEC 62841-1	Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 1: General requirements
IEC 62841-2-2	Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 2-2: Particular requirements for hand-held screwdrivers and impact wrenches
IEC 62841-2-4	Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 2-4: Particular requirements for hand-held sanders and polishers other than disc type
IEC 62841-2-5	Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 2-5: Particular requirements for hand-held circular saws
IEC 62841-2-8	Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 2-8: Particular requirements for hand-held shears and nibblers
IEC 62841-2-9	Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 2-9: Particular requirements for hand-held tappers and threaders
IEC 62841-2-10	Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 2-10: Particular requirements for hand-held mixers



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IEC 62841-2-11	Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 2-11: Particular requirements for hand-held reciprocating saws
IEC 62841-2-14	Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 2-14: Particular requirements for hand-held planers
IEC 62841-3-1	Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 3-1: Particular requirements for transportable table saws
IEC 62841-3-4	Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 3-4: Particular requirements for transportable bench grinders
IEC 62841-3-6	Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 3-6: Particular requirements for transportable diamond drills with liquid system
IEC 62841-3-9	Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 3-9: Particular requirements for transportable mitre saws
IEC 62841-3-10	Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 3-10: Particular requirements for transportable cut-off machines
IEC 62841-3-13	Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 3-13: Particular requirements for transportable drills
IEC 80601-2-60	Medical electrical equipment – Part 2-60: Particular requirements for the basic safety and essential performance of dental equipment
IEC 80601-2-61	Medical electrical equipment – Part 2-61: Particular requirements for the basic safety and essential performance of pulse oximeter equipment
IEC/EN 60335-2-29	Household and similar electrical appliances - safety - part 2-29: Particular requirements for battery chargers
IEC/EN 62368-1	Audio/video, information and communication technology equipment - part 1: safety requirements
IEC/UL 60745-1	Hand-held motor-operated electric tools - safety - part 1: general requirements
IEC/UL 60745-2-2	Hand-held motor-operated electric tools - safety - part 2-2: particular requirements for screwdrivers and impact wrenches
IEC/UL 60745-2-3	Hand-held motor-operated electric tools - safety - part 2-3: particular requirements for grinders, polishers and disk-type sanders
IEC/UL 60745-2-4	Hand-held motor-operated electric tools - safety - part 2-4: particular requirements for sanders and polishers other than disk type
IEC/UL 60745-2-5	Hand-held motor-operated electric tools - safety - part 2-5: particular requirements for circular saws
IEC/UL 60745-2-6	Hand-held motor-operated electric tools - safety - part 2-6: particular requirements for hammers
IEC/UL 60745-2-8	Hand-held motor-operated electric tools safety – part 2-8: particular requirements for shears and nibblers

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IEC/UL 60745-2-9	Hand-held motor-operated electric tools – safety – part 2-9: particular requirements for tappers
IEC/UL 60745-2-11	Hand-held motor-operated electric tools – safety – part 2-11: particular requirements for reciprocating saws
IEC/UL 60745-2-12	Hand-held motor-operated electric tools – safety – part 2-12: particular requirements for concrete vibrators
IEC/UL 60745-2-14	Hand-held motor-operated electric tools – safety – part 2-14: particular requirements for planers
IEC/UL 60745-2-16	Hand-held motor-operated electric tools – safety – part 2-16: particular requirements for tackers
IEC/UL 60745-2-17	Hand-held motor-operated electric tools – safety – part 2-17: particular requirements for routers and trimmers
IEC/UL 60745-2-18	Hand-held motor-operated electric tools – safety – part 2-18: Particular requirements for strapping tools
IEC/UL 60745-2-19	Hand-held motor-operated electric tools – safety – part 2-19: Particular requirements for jointers
IEC/UL 60745-2-20	Hand-held motor-operated electric tools – safety – part 2-20: Particular requirements for band saws
IEC/UL 60745-2-21	Hand-held motor-operated electric tools – safety – part 2-21: Particular requirements for drain cleaners
IEC/UL 60950-1	Information technology equipment – safety – part 1: general requirements
IEC/UL 60950-21	Information technology equipment - safety - part 21: remote power feeding
IEC/UL 60950-22	Information technology equipment - safety - part 22: equipment to be installed outdoors
IEC/UL 60950-23	Information technology equipment - safety - part 23: large data storage equipment
UL 50	Enclosures for electrical equipment, non-environmental considerations
UL 50E	Enclosures for electrical equipment, environmental considerations
UL 73	Standard for motor-operated appliances
UL 122	Standard for photographic equipment
UL 153	Standard for portable electric luminaires
UL 197	Standard for commercial electric cooking appliances
UL 471	Standard for commercial refrigerators and freezers
UL 496	Lampholders
UL 542	Standard for fluorescent lamp starters
UL 763	Standard for motor-operated commercial food preparing machines
UL 796	Standard for printed-wiring boards
UL 796F	Standard for flexible materials interconnect constructions

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UL 879	Standard for electric sign components
UL 879A	Standard for LED sign and sign retrofit kits
UL 924	Standard for emergency lighting and power equipment
UL 935	Standard for fluorescent-lamp ballasts
UL 982	Standard for motor-operated household food preparing machines
UL 991	Safety-Related Controls Employing Solid-State Devices
UL 1012	Standard for power units other than class 2
UL 1026	Standard for household electric cooking and food serving appliances
UL 1029	Standard for high-intensity-discharge lamp ballasts
UL 1082	Standard for household electric coffee makers and brewing-type appliances
UL 1236	Standard for battery chargers for charging engine-starter batteries
UL 1310	Standard for class 2 power units
UL 1411	Standard for transformers and motor transformers for use in audio-, radio-, and television-type appliances
UL 1419	Standard for professional video and audio equipment
UL 1564	Industrial Battery Chargers
UL 1598	Luminaires
UL 1598B	Standard for supplemental requirements for luminaire reflector kits for installation on previously installed fluorescent luminaires
UL 1598C	Standard for light-emitting diode (LED) retrofit luminaire conversion kits
UL 1703	Flat-plate photovoltaic modules and panels (only clauses 21, 22, 25, 26, 30, 33)
UL 1741	Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
UL 1838	Low voltage landscape lighting systems
UL 1993	Self-ballasted lamps and lamp adapters
UL 1994	Standard for luminous egress path marking systems
UL 2108	Standard for low voltage lighting systems
UL 2202	Electric Vehicle (EV) Charging System Equipment
UL 2231-1	Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits; Part 1: General Requirements
UL 2231-2	Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits; Part 2: Particular Requirements for Protection Devices for Use in Charging Systems
UL 2703	Mounting systems, mounting devices, clamping/retention devices, and ground lugs for use with flat-rate photovoltaic modules and panels (only clauses 13, 14, 22)
UL 3703	Solar trackers (only clauses 40, 42, 43, 44.2, 45, 49.2, 49.3, 60)

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UL 3730	Photovoltaic junction boxes (except clauses 34, 35)
UL 4200A	Products incorporating button batteries or coin cell batteries
UL 6703	Connectors for use in photovoltaic systems
UL 8750	Standard for light emitting diode (LED) equipment for use in lighting products
UL 9703	Outline of investigation for distributed generation wiring harnesses (except clauses 29, 31, 32, 37)
UL 60601-1	Medical electrical equipment - part 1: general requirements for safety
UL 61010-1	Safety requirements for electrical equipment for measurement, control, and laboratory use - part 1: general requirements
Physical	
UL 94	Standard for tests for flammability of plastic materials for parts in devices and appliances
UL 746A	Standard for polymeric materials - short term property evaluations
UL 746C	Standard for polymeric materials - use in electrical equipment evaluations
UL 746E	Standard for polymeric materials - industrial laminates, filament wound tubing, vulcanized fibre, and materials used in printed-wiring boards

IEC: International Electrotechnical Commission

EN: European Norms

UL: Underwriters Lab