Why Customers prefer UL?

- Trusted partner
- Competitive advantage
- Technical strength
- Standard development expertise
- Global reach
- Research and development experience
- Industry thought-leader
- Strong stakeholder relationships
- Brand recognition

UL provides Safety, Performance and Quality Conformity

- State-of-the-art laboratory and equipment
- Superior speed, accuracy, and repeatability
- Highly trained laboratory staff and engineering project managers that make testing run smoothly
- Industry leaders on staff who actively participate in standards-development worldwide
- Staff with decades of testing and mitigation experience in the product areas needed to meet international regulatory requirements
- Global reach and local presence in more than 60 countries

UL is a global independent safety science company offering expertise across five key strategic businesses: Product Safety, Environment, Life & Health, Knowledge Services and Verification Services. At UL, safety is the mission, and product safety testing and certification is one way the company delivers its mission every day. The thoroughness, precision and technical expertise that UL brings to its product safety business are just a few of the reasons for it to be seen as a trusted, valued partner in solving global compliance challenges and helping to bring safer products to market.

UL’s global established reputation for integrity, experience and innovation has enabled us to develop a unique product Safety offering, providing science and technology-based risk mitigation and holistic safety offerings across many industries such as Appliances and HVAC/R, Building Materials, Chemicals, Energy, Food, Health Sciences, High Tech, Life Safety and Security, Lighting, Power and Controls, Drinking Water and Wire and Cable.

UL represents quality and trust to millions of customers worldwide. An ideal partner, UL adds value to your products and enables entry in the most demanding markets of Europe, North and South America, Asia and the Middle East. UL offers a full range of testing, certification and registration services that help you meet both national and international safety requirements.
UL has set up a comprehensive testing laboratory at Bangalore, India. UL’s comprehensive facility is approved under the Laboratory Recognition Scheme with OSL (6120526) by the BIS (Bureau of India Standards). This 40,000-sq.ft. advanced testing facility is accredited by NABL (National Accreditation Board for Testing and Calibration Laboratories), ANSI, Standards Council of Canada (SCC) and also has to its credit nine other local, regional and global accreditations. The facilities have been completely designed on the award winning ‘Lean’ concept with a sophisticated FM 200 based fire protection system for safety of building and personnel. Customers have the option of remotely witnessing all scheduled testing through online media as the laboratory is fitted out with integrated data acquisition and archival systems.

Amid the wide range of testing services offered are the Product Performance, Developmental, Pre-Compliance and Compliance testing catering to different categories such as Electrical Power & Controls, Appliances, Industrial Control Equipment, Lighting, Information Technology, Medical Equipment, Motors & Pumps, Mechanical, Metallurgical, NDT, Biological and other related categories. UL testing services enables them to attain mandatory, voluntary, regional and international certification marks as per geographical requirements.
UL’s Manesar, Energy Efficiency Testing Laboratory is one of the largest Lighting, Household Appliances (HVAC/R) performance testing facilities in India. This independent Lighting Testing Laboratory which is only of its kind in India with state-of-the-art equipment such as Type C Ccono photometer, Thermostatic Integrating Sphere, Precision Power Analyzers, High Bandwidth Digital Storage Oscilloscope and Data Acquisition Systems. The UL Energy Efficiency Laboratory is the first service provider in the country to provide LED & CFL/TFL Photometry and Energy Efficiency Test Reports specific to the Lighting Industry and also assists customers in obtaining Global Product Certification such as cULus, CE, ENEC, ENERGY STAR®, IEC CB Scheme etc. UL Energy Efficiency Testing Laboratory is now NABL Accredited, assessed under the standard ISO/IEC 17025:2005 for general requirements for the competence of Testing and Calibration Laboratories.

From appliances to HVAC/R, lighting to roofing, televisions to servers, UL has the technical expertise to deliver outstanding service to help you meet the market’s demand for proven energy efficient products. Our cutting-edge testing facilities are strategically located around the globe and our people are only a phone call or email away, ready to help you reach your energy efficiency certification goals.

ENERGY EFFICIENCY CERTIFICATION AND TESTING AT MANESAR, GURGAON

CAPABLE TESTS & STANDARDS
- Natural Resources Canada (NRCan)
- California Energy Commission (CEC)
- ENERGY STAR®
- Department of Energy (DOE)
- Mexican CONUEE
- Europe ErP Directive
- Australian MEPS
- Indian BEE

APPLICABLE PRODUCTS
- Appliances
- HVAC/R (Air Conditioners/Heaters/Heat Pumps)
- High Tech(AV/IT/Telecom)
- Lighting
- Photovoltaic
ELECTROMAGNETIC COMPATIBILITY
TESTING UNIT

UL puts expertise and resources at your disposal and helps streamline the process by combining EMC test program with certification to the International EMC Mark, product safety certification services for the UL Mark, and other international certifications. UL helps enable your product to gain access to markets worldwide whether you are an ITE, telecommunications, automotive, medical or appliances manufacturer.

MAJOR TEST EQUIPMENT
- EMI Receiver
- Line Impedance Stabilization Network (LISN)
- Impedance Stabilization Network (ISN)
- Magnetic Loop Antenna

CAPABLE TESTS
- Electrostatic Discharge Test
- Electrostatic Discharge Test for Automotive
- Electrical Fast Transient/Burst Test
- Surge Test
- Conducted Radio Frequency Field Test
- Power Frequency Magnetic Field Test
- Voltage dips, short interruptions and voltage variations Test
- Ring Wave Test
- Harmonics Current Emission Test
- Flicker Test
- Conducted Emission Test

APPLICABLE TESTING STANDARDS
- CISPR 22, CISPR 11, CISPR 15
- IEC 61000-4-2, IEC 61000-4-4
- IEC 61000-4-3, IEC 61000-4-6
- IEC 61000-4-4, IEC 61000-4-11
- IEC 61000-4-12, IEC 61000-3-2
**PHOTOVOLTAIC TESTING UNIT**

**CAPABLE TESTS**
- Voltage and Current Measurement
- Maximum Power Determination
- Performance at Low Irradiance
- Measurement of Temperature Coefficients
- Initial & Final measurements of PV Modules
- Surge Voltage
- Partial Discharge
- Salt Mist Testing
- Humidity conditioning
- Thermal cycling
- Thermal simulation
- Aging
- Performance at various T & RH
- Humidity freeze
- Hot spot endurance
- Module breakage
- Water Spray Test
- Dielectric Test
- Wet Insulation Resistance and Wet Leakage Test
- Mechanical Load Test
- UV Pre-conditioning
- Temperature Test
- Hot Spot Endurance
- Outdoor Exposure & NOCT Test
- Push Test
- Hail Impact Test

**MAJOR TEST EQUIPMENT**
- Flash Simulator
- Surge Voltage
- Partial Discharge
- Salt Spray Chamber
- Walk-In Chamber (Normal & Mega Size)
- Hot Spot Endurance
- Module Breakage
- Water Spray Test
- IV Curve tracer for outdoor installations
- Dielectric test and Leakage Current test
- Wet Insulation Resistance and Wet Leakage Test
- Mechanical Load Test
- UV Exposure Test Equipment
- Continuous Solar Simulator
- Push Test
- Hail Impact
- Salt Spray Test

**APPLICABLE TESTING STANDARDS**
- UL 1703; IEC 61215/61646; IEC 61730-1
- IEC 61730-2, ASTM B117
- IEC 61701; IEC 61683; IEC 60068

**MAJOR PRODUCT CATEGORIES**
- Photovoltaic Modules and Inverters

UL provides combined services for the entire PV system such as PV Modules, Inverters, Fuses, Connectors, Polymeric Materials, Roofing Materials, Concentrated PV, Mounting Systems, Solar Trackers, Solar Collectors, Building Integrated PV, Wiring, Junction Boxes, Fuse Holders, Combiner Boxes, Grounding Devices & Charge Controllers. Single Test and sequence services program to support distributors and manufacturers in research and development prototype and design, reliability and verification testing.
SWITCHGEAR, MEDIUM AND LOW VOLTAGE PRODUCTS

TESTING UNIT

APPLICABLE TESTING STANDARDS

IS Standards
- IS/IEC 60898(Pt-1): Circuit-breakers for over current protection for household and similar installations (MCB)
- IS 12640(Pt-1): Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs)
- IS 12640(Pt-2): Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs)
- IS/IEC 60947(Pt-4/Sec-1): upto 315Amp - Contactors and Motor Starter
- IS/IEC 60947(Pt-5/Sec-1): Control Circuit Devices and Switching elements - Electromechanical control circuit devices
- IS 2086: Carriers and bases used in rewirable type electric fuses for voltages up to 650 v

IEC and UL Standards
- UL 508, UL 1469, UL 514A
- UL 548E, UL 548D
- UL 486E, UL 486C, UL 486E
- IEC 60947-1, IEC 60947-3
- IEC 60947-1-1
- IEC 60947-1-1, IEC 60947-7-2
- IEC 60947-7-3, IEC 60988
- IEC 61439-1, IEC 61439-2
- IEC 61439-1, IEC 61439-6
- IEC 60908, IEC 60909
- IEC 61241-1, IEC 60929
- UL/ IEC 60947-1
- UL/ IEC 60947-4-1

MAJOR TEST EQUIPMENT
- 10kA Short Circuit Facility
- Temperature Rise Test Bench
- Dielectric Test
- Leakage Current Test
- Residual Current Characteristics Test Bench
- Tripping Characteristic Bench
- AC Pilot Duty Overload & Endurance
- DC Pilot Duty Overload & Endurance
- Impulse Generator
- Glow-Wire Testing
- Low Voltage and High Current Source
- MCB Endurance Test Setup
- Overload Endurance Test Setup
- Mechanical Shock Testing - MCB
- 28 Days Cycling Test Benches - MCB & RCCB/RCBO
- Secureness Test Bench
- Pullout Testing Bench
- Adherence of Coating
- Torque Test
- Bending Test
- Rain Test
- Ingress Protection Chambers

MAJOR PRODUCT CATEGORIES
- Contactors, Relays, Circuit Breakers, Push Buttons, Pilot Lights, Terminal Blocks, Fuses, Industrial Control Panels, Wire Connectors, Grounding and Bonding Equipment and Conduit Fittings

CAPABLE TESTS
- Short Circuit Test
- Temperature Rise
- 28 days test
- over current
- Tripping test
- RCCB/RCBO Type Testing
- Tripping Characteristics
- Calibration Test
- Pilot Duty Endurance
- Normal Endurance
- Impulse Voltage Test
- Glow-Wire Test
- Heat cycling
- Short time Current
- Endurance Test
- Conductor secureness
- Static heating sequence
- Conductor Abnormal pullout
- Static Heating Sequence

UL engineers work diligently to follow time tested, established procedures at our state-of-the-art testing facilities. UL provides certification services to assist manufacturers in gaining access to both domestic and global markets. Our team is constantly developing new tests and procedures to stay at the front of the safety industry.
Over 120 years of proven history and expertise in product safety testing and certification, UL offers relevant testing programs to manufacturers to meet challenges of ever emerging innovative high-tech products that are constantly faced with manufacturers time-to-market pressure, shorter life-cycle while complying with all safety product testing and safety requirements.
UL offers a portfolio of performance/efficiency services and safety conformity assessment solutions and certification services for manufacturers of all household appliance, HVAC and refrigeration equipment. UL identifies the critical standards and requirements of a manufacturer’s product and seamlessly delivers multiple International Marks or the specific Mark a manufacturer requires to enable him access target markets.

CONSUMER GOODS
(ELECTRICAL AND ELECTRONICS HOUSEHOLD APPLIANCES - HVAC/R)

TESTING UNIT

CAPABLE TESTS
Household Refrigerator
- Energy consumption test
- Pull down test
- Dimension
- Air tightness of door lid seal(s)
- Mechanical strength of shelves and similar components
- Storage temperatures
- Water vapour condensation
- Ice making
- Insulation resistance and Electric Strength
- No load Adjustment
- Tropical Climate

Television
- Dimension
- Luminance
- Standby Power consumption
- On mode Power consumption

Water Heater
- Volume
- Input Power
- Standing losses
- Insulation resistance and Electric Strength

APPLICABLE TESTING STANDARDS
Household Refrigerator
- BEE schedule
- Energy Star requirement
- IS: 15750
- IS: 1476
- AS/NZ 4474
- IEC 62552
- IEC / EN 60335
- SASO 2664

Television
- BEE schedule
- Energy Star requirement
- IEC 62031
- IEC 62087

Water Heater
- BEE schedule
- IS: 2082
- IS: 302

PRODUCTS
- Household Refrigerator
- Television
- Water Heater

RELIABILITY TESTING UNIT

MAJOR TEST EQUIPMENT
- Environmental Chambers
  - Temperature: -40°C to 180°C, Uniformity: ± 1°C
  - Relative Humidity: 10% to 95%, Uniformity: ± 3%
  - Ramp rate: 10°C per minute
  - Dust Chamber
  - Internal Dimension (3m x 2m x 3m, WxHxD)
  - Rain test apparatus

CAPABLE TESTS
- Test A (Cold); Test B (Dry heat);
- Test N (Change of temp);
- Test C (Damp Heat, Steady State)
- Test Cx. Damp heat (unsaturated pressurized air);
- Part 2: Damp Heat, Cyclic

APPLICABLE TESTING STANDARDS
- IEC 60068-1-1
- IEC 60068-1-2
- IEC 60068-1-14
- IEC 60068-2-78

PRODUCTS
- Electrical Enclosures, Appliance & Lighting products

UL offers a portfolio of performance/efficiency services and safety conformity assessment solutions and certification services for manufacturers of all household appliance, HVAC and refrigeration equipment. UL identifies the critical standards and requirements of a manufacturer’s product and seamlessly delivers multiple International Marks or the specific Mark a manufacturer requires to enable him access target markets.
PHOTOMETRY TESTING UNIT

UL offers a complete set of services for every segment of the Lighting industry. As lighting technology evolves, so does UL, advancing safety in new and necessary ways. UL provides everything your business needs to develop and bring outstanding products to market, including safety certification, performance testing, environmental guidance and comprehensive training programs. The Energy Efficiency Testing laboratory can assist with all kinds of SSL and LED Compact, Fluorescent, Traditional and solar-based lighting.

MAJOR TEST EQUIPMENT
- Type C Mirror Goniophotometer
- Thermostatic Integrating Sphere
- Life Test Racks
- Thermostatic Integrating Sphere for LED Chip
- Precision Power Analyzers
- High Bandwidth Digital Storage Oscilloscope
- Data Acquisition System

PRODUCTS
Lamps
- LED lamps
- Compact Fluorescent lamps
- Tubular Fluorescent lamp
- LED Modules

Luminaires
- Solid State Lighting Products / LED Luminaires
- Portable Luminaire
- Indoor Luminaire (Fixed and General Purpose)
- Outdoor (Road and Street) Luminaire
- Floodlights

Control gear
- Ballast for fluorescent lamps
- Electronic Ballast
- Electronic control gear for LED module

APPLICABLE TESTING STANDARDS
- IEC:61195
- IEC:60081 / IS:2418
- IES LM – 9 – 09
- IES LM – 40 – 10
- ANSI C78.376
- ANSI C78.46
- IEC 60598-1
- IEC 60598-1.7 / IS 10322 (Part 5/Sec3)
- IEC 60598-2-2 / IS 10322 (Part 5/Sec3)
- IEC 60598-2-3 / IS 10322 (Part 5/Sec3)
- IEC 60598-2-4 / IS 16102 (Part 5/Sec3)
- IESNA LM-35-02
- IESNA LM-46-04
- IES LM – 79 – 08
- IS 16002 – Part 1
- IS 16002 – Part 2
- IS 16003 – Part 1
- IS 16004
- IS 16005
- IS 16006
- IS 13021 Part 1
- IS 13021 Part 2 / IEC 60929
- IEC 61347-2-3
- IS 1534 Part 1 / IEC 60921
- IEC 61347-2-11
- IS 1511 (Part 1) / IEC 60968
- IS 1511 (Part 2) / IEC 60969
- IS 16012-11
- ANSI C78.5
- ANSI C78.901
- IS 16013 – Part 1
- IS 16017 (Part 2/Sec1)
- IS 16017 (Part 1)

CAPABLE TESTS
Lamps
- Physical and Mechanical requirements
- Photometric characteristics (Luminous Flux)
- Electrical Characteristics (Input power, Input current, Circuit power factor, Lamp power, Lamp current)
- Correlated Color Temperature
- Color Rendering Index
- CIE Chromaticity Coordinates
- Thermal Testing
- Absolute Calibration
- Lumen maintenance and Lamp Life Testing

Luminaires
- Physical and Mechanical requirements
- Thermal Requirements
- Endurance
- Protection against ingress of water and dust
- Insulation resistance and electric strength
- Resistance to heat, Fire and Tracking
- Electrical requirements (Input power, Input current, Circuit power factor, Lamp power, Lamp current)
- Photometric requirements (Light intensity distribution curve, Polar curves, Insulin plot, etc file)
- Colorimetric requirements (Correlated Color Temperature, Color Rendering Index CIE Chromaticity Coordinates)

Control gear
- Physical and Mechanical requirements
- Thermal Requirements
- Endurance
- Protection against electric shock
- Insulation resistance and electric strength
- Resistance to heat, Fire and Tracking
- Electrical measurements (Input power, Input current, Circuit power factor, Lamp power, Lamp current)
- Current and Voltage Waveforms (Crest Factors, Harmonic Distortion)
- Operating condition (Ballast Factor) and Starting Conditions
MEDICAL DEVICES
TESTING UNIT

MAJOR TEST EQUIPMENT
- Power Analyzers & Multi meters
- Temperature Recorders
- Digital Oscilloscopes and High Voltage Probes
- Humidity and Hot Air Ovens
- Air convection oven
- LCR Meter
- Defibrillation Tester
- Earth Continuity Test
- Dielectric Tester
- Leakage Current Network
- Sound Level Meter
- Spectrometer
- IPX Chambers
- Mechanical Test setups & Accessibility Probes
- Lux Meter
- X-Ray Test Device, & Leakage Meter
- Timers, Stopwatches, Calipers, Gauges etc.

APPLICABLE TESTING STANDARDS
- UL 60601
- IEC 60601-2-XX (Applicable Particular Standards)
- IS 13450(Part 1):2008
- IS 13450 PART2/SEC 7
- IEC 62304
- IEC 62366
- IEC/UL 61010-1
- IEC 61010-2-XX

PRODUCTS
- General Medical Equipment
- Cardio, Vascular, Pulmonary (Air/Fluid Pump) Equipment
- Ultrasound Equipment
- Patient Monitoring Equipment
- Applied Current/Energy Equipment
- Applied EM Radiation Equipment
- Measuring Devices

CAPABLE TESTS
- Power Input
- Humidity Conditioning
- Determination of Accessible Parts
- Legibility & Durability of Markings
- Voltage Mismatch
- Shorting One MOP
- Incorrect Polarity
- Limitation of Voltage, Current or Power
- Voltage or Charge Limitation & Voltage Limitation (Part 2)
- Patient Lead Connection
- Working Voltage Measurements
- Defib-Proof Applied Parts & Energy Reduction
- Impedance and Current Carrying Capability
- Leakage Current Tests
- Dielectric Voltage Withstand
- Ball Pressure
- Oxygen Aging for Rubber Insulation Parts
- Short Circuiting in Lieu of Spacings
- Thermal Cycling for Spaces Filled with Insulating Compound
- Cord Anchorage & Cord Bending
- Arrangement & Fixing of Mains Terminal
- Measurement of Gaps (Trapping Zones)
- Stability and Transportability
- Mobile Equipment Force for Propulsion
- Mobile Equipment Over a Threshold
- Instability from Unwanted Lateral Movement (Including Sliding)
- Instability Excluding Transport
- Handle Loading
- Acoustic Energy Measurement
- Hand Transmitted Vibration
- Hydrostatic Pressure Test
- Mechanical Strength - Patient Support System, Foot Rests/Sitting, Dynamic Forces & Suspension System w/ Safety Devices Loading, Temperature and Change of Resistance Calculations
- Overflow, Spillage & Leakage
- Harmful Ingress (Water and Particulates)
- Cleaning, Disinfection and Sterilization
- Interruption of the Power Supply
- Abnormal Operation Testing
- Power Availability
- Failure of Thermostats
- Impairment of Cooling
- Locking of Moving Parts
- Interruption and Shorting of Motor Cap
- Overload, Heating Elements
- Overload, Motor
- Overload, 3-Phase Motor
- Enclosure Force Impact & Drop Impact
- Rough Handling
- Mold Stress Relief
- Temperature and Overload Control Devices
- Reversed Battery Connection / Overcharging
- Actuating Parts of Controls
- Cord-Connected Foot Operated Control Devices
- Transformer Short Circuit, Overload & Dielectric Voltage Withstand
- ME System Leakage Current
- Software Evaluation
- Usability Evaluation

UL offers the most convenient and complete regulatory access solutions for medical device manufacturers. We offer testing facilities and provide the option of having integrated test plans for product testing and integrated quality systems audits, helping enable you to satisfy regulatory requirements for multiple countries.
MAJOR TEST EQUIPMENT
- GCMS-Injector port type
- GCMS-Purge & Trap integrated
- UV Visible Spectrophotometer
- AAS Graphite furnace, flame and FIAS(hydride generator)
- Total organic carbon (TOC) analyser
- Fluorescent microscope
- Cold centrifuge
- Others (for routine analysis)

CAPABLE TESTS
- Volatile organics compounds
- Semi volatile organic compounds
- Organophosphate pesticides
- Free chlorine and other halogens
- Metals-Iron, Manganese
- Halides
- Trace regulated metals (Floride and Arsenic)
- Total organic carbon
- Protozoan oocyst (using FITC and DAPI stain) and microspheres
- Water treatment units/water purifier efficiency studies
- Biological(Bacteria, Virus and cyst)
- Drinking water treatment units/water purifier efficiency studies-chemical(TDS, metals)
- R & D support/ Customer methods
- Routine microbiological and chemical testing
- Mercury content in fluorescent lamps (CFL and TFL)

APPLICABLE TESTING STANDARDS
- ANSI / NSF 60
- ANSI / NSF 61
- ANSI / NSF 372
- IS 10500 - Biological and Chemical (Partial)
- IS 14544 - Biological (Partial) and Chemical (Partial)
- Water Product Verification Services

CHEMISTRY AND MICROBIOLOGY
TESTING UNIT
UL’s water product certification program offers the technical expertise, regulator acceptance and global reach demanded by water product manufacturers. UL’s dedicated team of toxicologists, engineers, chemists and sanitarians have the knowledge and experience to thoroughly and accurately certify your product. This team actively participates in water product standards committees and industry technical task groups.
CONSUMER PRODUCT TESTING UNIT

CAPABLE TESTS
- Development, fabric and production testing
- Chemical management testing
- Restricted substances testing
- Care instruction and labeling verification
- Flammability testing
- Colorfastness and light fastness testing
- Fiber identification and fiber content testing
- Dimensional stability, durability and performance testing
- Children’s apparel risk assessments
- Inspection services
- Top of Production Inspections (TOP)
- During Production Inspections (DUPRO)
- Pre-shipment Inspections (PSI)
- Loading Supervisions (LS)
- Factory capability Audits
- Production Monitoring (Verify production consistency and Production deficiencies)
- Responsible Sourcing services
- Social Accountability Assessment – Code of Conduct, BSCI, SMETA, WRAP and RJC
- Brand protection and Security (C-TPAT) Assessment
- Responsible Sourcing Consulting – SGA – system gap analysis
- Pre-validation C-TPAT consultation
- Training and Education
- Factory Set up and Evaluation

MAJOR TEST EQUIPMENT
- Hounsfield tester
- Tear tester
- Pneumatic bursting
- Washcator
- Dry Cleaning machine
- HPLC
- GCMS
- LCMS
- UV Spectrophotometer
- ICPMS

APPLICABLE TESTING STANDARDS
- ISO
- BS
- BS EN
- BS EN ISO
- ASTM
- AATCC

UL’s Gurgaon, Consumer Product Testing Laboratory opened in August 2013, specialized in testing and certification of consumer products like textiles, garments, toys, jewelry and leather products. The laboratory is accredited by NABL (National Accreditation Board for Laboratories) as per the ISO-17025 standard, houses best-in-class equipment and provides a testing facility at par with global standards. Various kinds of testing including physical testing, performance testing, ecological testing and enhanced chemical testing can be carried out at this laboratory. The laboratory is also registered with the U.S. Consumer Product Safety Commission (CPSC) as an accredited laboratory for the Consumer Product Safety Improvement Act (CPSIA) third-party testing. Apart from testing, UL’s new laboratory also offers services in the field of Quality inspection and Responsible sourcing. From factory to shelf, UL will help ensure products meet quality, safety and social standards.
SPECIALISED TEST FACILITIES

UL's specialized test facility comprises of Environmental Tests, Short Circuit Tests, EL Imaging and High Current tests. It can cater to different product categories like Switchgear, Medical, IT, Appliance, Automotive, Photovoltaic and Consumer Products, depending upon the intended use and application. This test facility is open to the customers from various Industry streams to subject their products against harsh environmental conditions and assess their performance.

ENVIRONMENTAL TESTING

Salt Spray Chamber
Internal dimensions – 2.0M (L) X 1.0M (D) X 2.0M (W)

Walk in Chamber
Mega size 1.8 m wide Entry
Internal dimensions – 3M (W) X 3.5M (D) X 2.3M (H); -60°C to 150°C; Upto 95% RH: Cyclic type

Small Size
Internal dimensions – 1.8M (W) X 2.0M (D) X 2.0M (H); -60°C to 150°C; Upto 95% RH: Cyclic and Non cyclic type

Small Chambers
Internal dimensions – 1.0M (W) X 1.0M (D) X 1.0M (H); -60°C to 150°C; Upto 95% RH: Cyclic and Non cyclic type

Full draught air circulating chamber
Internal dimensions – 1.0M (W) X 1.0M (D) X 1.0M (H); Upto 250°C

Ingress Protection – Up to IP 68
Dimensions of products which can be tested
1.0M (W) X 1.0M (D) X 1.0M (H) - Bangalore
2.5M (W) X 2.0M (D) X 2.5M (H) - Manesar

ELECTROLUMINESCENCE CAMERA EXPOSURE
Electroluminescence (EL) Camera is used to capture the micro cracks in the products like Photovoltaic Modules.
Electroluminescence is an imaging measurement process that allows looking and analyzing into the cells of a Photovoltaic module and locating potential defects that could lead to degradation of power as well as impact the life span of the product negatively.

CONTINUOUS SOLAR SIMULATOR
Continuous Solar Simulator (simulated sun) is a set up that provides illumination almost like natural sunlight. The purpose of the Solar Simulator is to provide a controllable indoor test facility under laboratory conditions, used for the testing of Photovoltaic Modules, Sun Screens, Plastics, automobile parts and many other outdoor equipment and devices.

SHORT CIRCUIT TEST FACILITY
UL has the Short Circuit Test facility up to 10 kA, and the maximum voltage of 690 V, power factor ranging from 0.1 to 1.
This is first laboratory in India which is equipped with an IP Camera which can be used for remote witnessing of the test.

HIGH CURRENT, LOW VOLTAGE CURRENT SOURCES
These test set up is used to carry out the Temperature tests, Current Cycling Tests and Short Time Current test on products which are rated for High Current. Examples of the products tested are Industrial Control Panels, Switchgear products like Contactors, Circuit Breakers, Wire Connectors, Grounding and Bonding equipment and the like. Maximum ratings are as follows:
Continuous Current : 1800 A, 3 phase ; 5000 A, single phase
Short Time Current of up to 9000 A for maximum 10 seconds, single phase

ULTRAVIOLET RADIATION (UV) CHAMBER
UV radiation chamber is used to simulate the effect of UV radiation on different types of products like Photovoltaic Modules, Plastics, Automobile parts and other Outdoor Equipment, which are intended to be used in outdoor applications and are expected to be subjected to UV radiation of sunlight.