



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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ELECTRICAL

Valid to: August 31, 2020

Certificate Number: 3331.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following energy efficiency, product safety, and electromagnetic compatibility (EMC) tests:

Test Description:

Test Method(s) ¹:

Emissions

| | |
|--|---|
| Radiated and Conducted (up to 40 GHz) | 47 CFR, FCC Part 15 B (using ANSI C63.4:2014); 47 CFR, FCC Part 18 (using FCC MP-5:1986); ICES-003, Issue 6; ICES-001, Issue 4; ICES-002, Issue 6; IEC/CISPR 11; EN 55011; AS/NZS CISPR 11; AS/NZS CISPR 11:2004; IEC/CISPR 14-1; AS/NZS CISPR 14.1; EN 55014-1; EN 55022; IEC/CISPR 22; AS/NZS CISPR 22; CISPR 22; CAN/CSA-CEI/IEC CISPR 22; EN 55032; CISPR 32; KN 32; CNS 13438 (up to 6 GHz); CNS 13783-1; VCCI 32-1 (up to 6 GHz); TCVN 7189:2009 (CISPR 22:2006); KN 11; KN 14-1; KN 14-2; KN 22; EN 12015 |
|--|---|

| | |
|-------------------|-----------------------------|
| Current Harmonics | IEC 61000-3-2; EN 61000-3-2 |
|-------------------|-----------------------------|

| | |
|--------------------------|-----------------------------|
| Flicker and Fluctuations | IEC 61000-3-3; EN 61000-3-3 |
|--------------------------|-----------------------------|

Immunity

| | |
|-------------------------|-----------------------------|
| Electrostatic Discharge | IEC 61000-4-2; EN 61000-4-2 |
|-------------------------|-----------------------------|

| | |
|---------------------------|-----------------------------|
| Radiated (up to 6 GHz) | IEC 61000-4-3; EN 61000-4-3 |
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| | |
|--------------------------------------|-----------------------------|
| Electrical Fast Transient / Burst | IEC 61000-4-4; EN 61000-4-4 |
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Test Description:**Test Method(s) ¹:*****Immunity (cont.)***

| | |
|--|-------------------------------|
| Surge | IEC 61000-4-5; EN 61000-4-5 |
| Conducted | IEC 61000-4-6; EN 61000-4-6 |
| Power Frequency Magnetic Field | IEC 61000-4-8; EN 61000-4-8 |
| Voltage Dips, Short Interrupts, and Voltage Variations | IEC 61000-4-11; EN 61000-4-11 |

***Generic / Product Specific
EMC Standards ²***

KN 24; KN 35; EN 55035; CISPR 35;
EN ISO 14982;
EN 50121-3-1; EN 50121-3-2;
EN 50121-1; EN 50121-2; EN 50121-4;
EN 50270; EN 50370-1;
EN 55103-1; EN 55103-2;
EN/IEC 60601-1-2; KN 60601-1-2; EN 60669-2-1;
EN 61000-6-4; KN 61000-6-4; EN 61000-6-3; KN 61000-6-3;
EN 61000-6-2; KN 61000-6-2; EN 61000-6-1; KN 61000-6-1;
EN 61326-2-2; EN 61326-2-1; EN 61326-1; EN 61326-2-4;
EN 61326-2-5; EN/IEC 61326-2-3; EN/IEC 61326-2-6;
EN 62040-2;
CISPR 12;
EN 55013; EN 12016; EN 50130-4;
EN 60945; KN 60945;
IEC 60533; KN 60533;
EN 50428; EN 60947-2;
EN 61547;
EN 55014-2; EN 55020; EN 55024;
EN 12895;
ISO 13766;
EN 61204-3;
ETSI EN 301 489-1; ETSI EN 301 489-3; ETSI EN 301 489-17;
EN 1155; EN 62233;
IMDA TS EMC (Singapore);
EN 61800-3, KN 61800-3 (only clauses 5.3, 6.1);
EN 50293;
EN 16361 (only clauses 4.13 & 5.13)

Testing for the above Generic / Product Specific EMC standards is via the Emissions and Immunity test methods.



Test Description:

Test Method(s) ²:

Product Safety

Household

EN/IEC/CSA/UL 60335-1: General Requirements;
EN/IEC/CSA 60335-2-2: Vacuum Cleaners and Water Suction Cleaning;
EN/IEC/CSA/UL 60335-2-8: Shavers, Hair Clippers;
EN/IEC/CSA 60335-2-9: Grills, Toasters and Similar;
EN/IEC/CSA 60335-2-10: Floor Treatment and Wet Scrubbing Machines;
EN/IEC/CSA 60335-2-14: Kitchen Appliances;
EN/IEC/CSA 60335-2-15: Appliances for Heating Liquids;
EN/IEC/CSA 60335-2-23: Appliances for Skin or Hair Care;
EN/IEC/CSA 60335-2-28: Sewing Machines;
EN/IEC/CSA 60335-2-29: Battery Chargers;
EN/IEC/CSA 60335-2-30: Room Heaters;
EN/IEC/CSA 60335-2-32: Massage Appliances;
EN/IEC/CSA 60335-2-41: Pumps;
EN/IEC/CSA 60335-2-42: Commercial Forced Convection Ovens,
Steam Cookers and Steam-Convection Ovens;
EN/IEC/CSA 60335-2-43: Clothes Dryers and Towel Rails;
EN/IEC/CSA 60335-2-44: Ironers;
EN/IEC/CSA 60335-2-45: Portable Heating Tools and Similar Equipment;
EN/IEC/CSA 60335-2-52: Oral Hygiene Appliances;
EN/IEC/CSA 60335-2-60: Whirlpool Baths;
EN/IEC/CSA 60335-2-64: Commercial Electric Kitchen Machines;
EN/IEC/CSA 60335-2-65: Air Cleaning Appliances;
EN/IEC/CSA 60335-2-75: Commercial Dispensing Appliances and
Vending;
EN/IEC/CSA 60335-2-78: Outdoor Barbecues;
EN/IEC/CSA 60335-2-80: Fans;
EN/IEC/CSA 60335-2-81: Foot Warmers and Heating Mats;
EN/IEC/CSA 60335-2-82: Amusement Machines and
Personal Service Machines;
EN/IEC/CSA 60335-2-84: Toilets;
EN/IEC/CSA 60335-2-95: Drives for Vertically Moving Garage Doors;
EN/IEC/CSA 60335-2-97: Drives for Rolling Shutters, Awnings, and Blinds

Information Technology

EN/IEC/CSA/UL 60950-1;
EN/IEC/CSA/UL 60950-21;
EN/IEC/CSA/UL 60950-22;
EN/IEC/CSA/UL 60950-23;
EN/IEC 62040;
IEC/UL 62368

Audio / Video

EN/IEC/CSA/UL 60065

Lab, Test & Measurement

IEC/EN/CSA/UL 61010-1;
IEC/EN/CSA/UL 61010-2-10;
IEC/EN 61010-2-081;
IEC/EN 61010-2-101



The below tests are performed using the above Product Safety standards

- Input Current
- Durability of Markings
- Access to Live Parts
- Energy Hazards
- Capacitance Discharge
- TNV Circuits, Limits, Connections, Voltages Generated Externally
- SELV Circuits
- Telecommunication Network Separation and Protection
- Limited Current Circuits, Values
- Limited Power Sources
- Resistances of Earthing Conductors
- Component Failure and Abnormal Operation
- Creepage Distances, Clearances
- Working Voltage
- Thermal Cycling and Thermal Aging
- Mechanical Strength
- Enclosed and Sealed Parts
- Ionizing Radiation
- Torque
- Power Supply Output / Transformer / Accessible Connector Overload
- Steady Force Test
- Drop Test
- Stress Relief
- Wall or Ceiling Mounted Equipment
- Handles and Manual Controls
- Battery Overcharge / Discharge and Reverse Current Measurements
- Spillage Tests
- Protection Against Hazardous Moving Parts
- Thermal Requirements
- Temperature Rise
- Resistance to Abnormal Heat
- Touch Current and Protective Conductor Current
- Electric Strength
- Humidity Conditioning
- Fluid Pressure and Leakage
- Voltage Surge / Impulse
- Stability
- Sound Pressure Level
- Resistance to Fire
- Specially Protected Equipment (IP rated)

Excluded Measurements:

- Laser
- Vibration
- Photobiological
- Oxygen Bomb
- Cord Reel
- Resistance to Rusting

¹ When the date, revision or edition of a test method standard is not identified on the scope of accreditation, the laboratory is expected to be using the current version within one year of the date of publication, per part C., Section 1 of A2LA R101 - *General Requirements - Accreditation of ISO-IEC 17025 Laboratories*.

² For Product Family Standards listed on this scope of accreditation, the laboratory is found to be compliant with all test methods referenced within the Product Family Standard. As such, if outdated versions of the specific test methods are identified by the Product Family Standards listed on this scope of accreditation, it is not necessary to explicitly list the outdated versions of the specific test methods on the scope. In addition, the laboratory is capable of issuing accredited test reports to the outdated versions of the specific test methods although the outdated versions are not listed on this scope of accreditation.



Testing Activities Performed in Support of FCC Declaration of Conformity and Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1 ³:

| Rule Subpart/Technology | Test Method | Maximum Frequency |
|--|--------------------------|--------------------------|
| Unintentional Radiators Part 15B | ANSI C63.4:2014 | 40000 MHz |
| Industrial, Scientific, and Medical Equipment Part 18 | FCC MP-5 (February 1986) | 40000 MHz |

³ 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.





Accredited Laboratory

A2LA has accredited

TUV RHEINLAND OF NORTH AMERICA, INC.

Newtown, CT

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *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 28th day of November 2018.

A handwritten signature in black ink, written over a horizontal line.

President and CEO
For the Accreditation Council
Certificate Number 3331.01
Valid to August 31, 2020

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