



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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ELECTRICAL

Valid To: November 30, 2023

Certificate Number: 2829.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on automotive sub-components, information technology equipment (ITE), medical electrical equipment, electric motors, and various electronic and electrical components/systems:

Test Technology:

Test Method(s) ¹:

Automotive EMC

RF Emissions
(Radiated and Conducted)

CISPR 25 (2008); CISPR 25;
EN 55025 (2008); EN 55025;
AS/NZS CISPR 25 (2004);
AS/NZS CISPR 25

Electrostatic Discharge (ESD)
Immunity

ISO 10605 (2008); ISO 10605

Absorber Lined Shielded Enclosure
(ALSE) RF Immunity

ISO 11452-2 (2004); ISO 11452-2

TEM Cell RF Immunity

ISO 11452-3 (2001); ISO 11452-3

Bulk Current Injection RF Immunity

ISO 11452-4 (2005); ISO 11452-4

Stripline Immunity

ISO 11452-5 (2002); ISO 11452-5

Portable Transmitter RF Immunity

ISO 11452-9 (2012); ISO 11452-9

Automotive Transient Immunity

ISO 7637-2 (2004); ISO 7637-2;
ISO 7637-3 (2007) (CCC only);
ISO 7637-3 (CCC only)

Electrical Load

ISO 16750-2

Test Technology:

Test Method(s) ¹:

Unintentional Emissions Radiated & Conducted

U.S. (FCC)

*(3m semi-anechoic chamber,
up to 40 GHz)*

47 CFR, FCC Part 15, Subpart B
(using ANSI C63.4-2014);
ANSI C63.4-2014; ANSI C63.4a-2017

**Industrial, Scientific, and Medical
(Consumer ISM)**

47 CFR, FCC Part 18 (using MP-5:1986);
MP-5:1986

**Canada (ISED)
Unintentional Radiators**

ICES-003

**Industrial, Scientific, and Medical
(ISM) Radio Frequency Generators**

ICES-001

**International
Unintentional Radiators**

Information Technology

AS/NZS CISPR 22; CISPR 22; EN 55022

Multimedia Equipment

AS/NZS CISPR 22; CISPR 22; EN 55022

**Intentional Emissions
Unlicensed Transmitters**

U.S. (FCC)

Intentional Radiators

47 CFR, FCC Part 15 C Unlicensed Transmitters
(using ANSI C63.10-2013);
ANSI C63.10-2013

U-NII without DFS Intentional Radiators

47 CFR FCC Part 15 E, U-NII without DFS
(using ANSI C63.10-2013)

**Canada (ISED)
Intentional Radiators**

RSS-GEN; RSS-102 (RF Exposure); RSS-102 (NS);
SPR-002 (Nerve Stimulation); IEEE C95.3;
RSS-210; RSS-247 (without DFS); RSS-310

Generic Standards (Residential)

AS/NZS 61000.6.3; IEC 61000-6-3; EN 61000-6-3

Generic Standards (Industrial)

AS/NZS 61000.6.4; IEC 61000-6-4; EN 61000-6-4

Industrial, Scientific, and Medical

AS/NZS CISPR 11; CISPR 11; EN 55011

Vehicles, Boats, and Internal
Combustion Engines

AS/NZS CISPR 12; CISPR 12; EN 55012

Household Appliances, Electric Tools,
and Similar Apparatus

AS/NZS CISPR 14.1; CISPR 14.1; EN 55014-1

Test Technology:**Test Method(s) ¹:**

Electrical Lighting & Similar Equipment	AS/NZS CISPR 15; CISPR 15; EN 55015
Information Technology	AS/NZS CISPR 22; CISPR 22; EN 55022
Multimedia Equipment	AS/NZS CISPR 32; CISPR 32; EN 55032
Vehicles, Boats, and Other Devices Equipped with Internal Combustion Engines, Traction Batteries, or Both	ICES-002
Information Technology Equipment (including digital apparatus)	ICES-003
Lighting Equipment	ICES-005
Medical Electrical Equipment – Part 1-2: General Requirements for Basic Safety & Essential performance – Collateral Standard: Electromagnetic Disturbance – Requirements and Tests	IEC 60601-1-2; EN 60601-1-2
Electrical Equipment for Measurement, Control and Laboratory use – EMC Requirements – Part 2-6: Particular Requirements – in vitro Diagnostic (IVD) Medical Equipment	IEC 61326-2-6; EN 61326-2-6
Electrical Equipment for Measurement, Control & Laboratory use – EMC Requirements – Part 1: General Requirements	IEC 61326-1; EN 61326-1
Railway Applications – EMC Part 3-2: Rolling Stock – Apparatus	EN 50121-3-2
Railway Applications – EMC – Part 4: Emission & Immunity of the Signaling & Telecommunications Apparatus	EN 50121-4
Railway Applications – Rolling Stock Electronic Equipment	EN 50155
Electromagnetic Compatibility – Product Family Standard for Audio, Video, Audio-visual, and Entertainment Lighting Control Apparatus for Professional use – Emissions	EN 55103-1
Road Traffic Signal Systems – EMC	EN 50293

Test Technology:**Test Method(s) ¹:**

Electrical Apparatus for the Detection and Measurement of Combustible Gases, Toxic Gases, or Oxygen

EN 50270

Harmonic Current Emissions

AS/NZS 61000-3-2; IEC 61000-3-2; EN 61000-3-2

Voltage Fluctuation and Flicker Emissions

AS/NZS 61000-3-3; IEC 61000-3-3; EN 61000-3-3

Immunity EMC

Electrostatic Discharge (ESD) Immunity

EN 61000-4-2 (2009); EN 61000-4-2;
IEC 61000-4-2 (2008); IEC 6100-4-2;
AS/NZS 61000.4.2 (2002); AS/NZS 61000.4.2

Radiated RF Immunity

EN 61000-4-3 (2008); EN 61000-4-3;
IEC 61000-4-3 (2008); IEC 61000-4-3;
AS/NZS 61000.4.3 (2006); AS/NZS 61000.4.3

Electric Fast Transient / Burst Immunity

EN 61000-4-4 (2005); EN 61000-4-4;
IEC 61000-4-4 (2004); IEC 61000-4-4;
AS/NZS 61000.4.4 (2006); AS/NZS 61000.4.4

Surge Immunity

EN 61000-4-5 (2006) (*excluding clause 6.2*);
EN 61000-4-5 (*excluding clause 6.2*);
IEC 61000-4-5 (2005) (*excluding clause 6.2*)

Conducted RF Immunity

EN 61000-4-6 (2007); EN 61000-4-6;
IEC 61000-4-6 (2008); IEC 61000-4-6;
AS/NZS 61000.4.6 (2006); AS/NZS 61000.4.6

Power Frequency Magnetic Field Immunity

EN 61000-4-8 (1994); EN 61000-4-8;
IEC 61000-4-8 (2001); IEC 61000-4-8;
AS/NZS 61000.4.8 (2002); AS/NZS 61000.4.8

Pulse Magnetic Field Immunity

EN 61000-4-9 (1993); EN 61000-4-9;
IEC 61000-4-9 (2001); IEC 61000-4-9

Damped Oscillatory Magnetic Field Immunity

EN 61000-4-10 (2017); EN 61000-4-10;
IEC 61000-4-10 (2016); IEC 61000-4-10

Voltage Dips, Short Interruptions, and Voltage Variations Immunity

EN 61000-4-11 (2004); EN 61000-4-11;
IEC 61000-4-11 (2004); IEC 61000-4-11;
AS/NZS 61000.4.11 (2004); AS/NZS 61000.4.11

Ring Wave Immunity

EN 61000-4-12 (2017); EN 61000-4-12;
IEC 61000-4-12 (2017); IEC 61000-4-12;

Harmonic and Inter-harmonic Immunity

IEC 61000-4-13 (2002); IEC 61000-4-13;
EN 61000.4.13 (2009); EN 61000-4-13;
AS/NZS 61000.4.13 (2006); AS/NZS 61000.4.13

Test Technology:

Test Method(s) ¹:

Common Mode Immunity

EN 61000-4-16 (2016); EN 61000-4-16;
IEC 61000-4-16 (2015); IEC 61000-4-16

Damped Oscillatory Immunity

EN 61000-4-18 (2019); EN 61000-4-18;
IEC 61000-4-18 (2019); IEC 61000-4-18

DC Dips and Interrupts

EN 61000-4-29; IEC 61000-4-29;
AS/NZS 61000.4.29

Military EMC

MIL-STD-461D / MIL-STD-462D,
(CE101, CE102, RE101, RE102, CS101, CS114,
CS115, CS116, RS101, RS103);
MIL-STD-461E,
(CE101, CE102, RE101, RE102, CS101, CS114,
CS115, CS116, RS101, RS103);
MIL-STD-461F,
(CE101, CE102, RE101, RE102, CS101, CS106,
CS114, CS115, CS116, RS101, RS103);
MIL-STD-461G (*up to 18 GHz and 200 V/m*),
(RE101, RE102, CE101, CE102, RS101, RS103,
CS101, CS114, CS115, CS116, CS118)

Aircraft

RTCA DO-160 F and G:
Section 20.4: Radio Frequency Susceptibility
(Conducted);
Section 20.5: Radio Frequency Susceptibility
(Radiated – 2 MHz to 18 GHz up to 200 V/m);

RTCA DO-160 F and G:
Section 4: Temperature and Altitude
(*excluding section 4.6*)
Section 5: Temperature Variation Testing
Section 6: Humidity Testing
Section 8: Vibration Testing
Section 15: Magnetic Effect Testing
Section 16: Power Input Testing
Section 18: Audio Frequency Conducted
Susceptibility (Power Input Testing)
Section 20: Radio Frequency Susceptibility
(Radiated and Conducted)
Section 21: Emission of Radio Frequency Energy
Section 24: Icing Testing (Category A only)
Section 25: Electrostatic Discharge Immunity
Section 26: Fire Flammability

RF Shielding Performance

MIL-STD-285; IEEE 299 ²

RADHAZ (Radiation Hazard)

AS 2772 ²; ARPANSA RHS 30; IEC 62233

Electronic Switches

EN 60669-2-1 (Section 26);
IEC 60669-2-1 (Section 26)

Test Technology:

Gaming Machine National Standard (GMNS)

Generic Immunity

Household EMC

Household Safety

Information Technology

Laboratory

Lighting

Maritime

Medical

Alarm Systems

Overhead AC Powerlines and HV Installations

Radio Spectrum Matters (ERM)

Railway

Traffic Signals

Environmental

Surface Resistance Test

Temperature / Humidity

Test Method(s) ¹:

AS/NZS GMNS Version 10.3 (Sections 2.3.51 to 2.3.59, 2.4.27, and 2.4.30a to 2.4.30d)

EN 61000-6-1; IEC 61000-6-1; AS/NZS 61000-6-1; EN 61000-6-2; IEC 61000-6-2; AS/NZS 61000-6-2

AS/NZS CISPR 14-2; CISPR 14-2

IEC 60335-1; AS/NZS 60335-1 (Sections 14, 15, and 19.11.4)

AS/NZS CISPR 24; CISPR 24

EN 61326-1

EN 61547

EN 60945 (Sections 5.2.2, 7, 8, and 10)

EN 60601-1-2

EN 50130-4 (*excluding EN 61000-4-20*)

AS 2344 ²

ETSI EN 301 489-1
(*excluding sections 8.2, 8.3, 8.4, and 8.7*);
ETSI EN 300 328;
AS/NZS 4268

EN 50121-3-1; EN 50121-3-2;
IEC 50155

AS/NZS 2144;
EN 50293

IEC 60079-0 – Explosive Atmospheres –
Section 26.13 – Surface resistance test of part of
enclosures of non-metallic materials;
ASTM D257-14 – DC Resistance or Conductance of
Insulating Materials - Section 12.3 –
Surface Resistance or Conductance.

IEC 60068-2-1 (2007); IEC 60068-2-1;
AS 60068.2.1 (2003); AS 60068-2-1;
EN 60068-2-1 (2007); EN 60068-2-1;
IEC 60068-2-2 (2007); IEC 60068-2-2;
EN 60068-2-2 (2007); EN 60068-2-2;
AS 60068.2.2 (2003); AS 60068.2.2;

Test Technology:

Environmental

Temperature/Humidity
(cont.)

Vibration / Shock:
1,000 kgf Sine (PK)
1,000 kgf Random (RMS)
2,000 kgf Shock (PK)
(5 to 2,800) Hz
(1 to 2,800) Hz in Manual Mode
Max. Velocity: 1.7 m/sec
Max. Acceleration: up to 90 g (bare table)
Max Rated Displacement:
51mm P-P standard

Ingress Protection

UV

Flammability

Salt

Impact

Test Method(s) ¹:

IEC 60068-2-14 (2009) - Part N;
IEC 60068-2-14 - Part N;
EN 60068-2-14 (2009) - Part N;
EN 60068-2-14 - Part N;
AS 60068-2-14 (2003) - Part N;
AS 60068-2-14 - Part N;
IEC 60068-2-30 (2005); IEC 60068-2-30;
EN 60068-2-30 (2005); EN 60068-2-30;
AS 60068.2.30 (2003); AS 60068-2.30;
MIL-STD-810G
Methods 501.5, 502.5, 503.5, and 507.5;
RTCA DO-160G:
Section 4: Temperature & Altitude
(excluding section 4.6),
Section 5: Temperature Variation Testing,
Section 6: Humidity Testing;
ISO 16750-4 (excluding ice water shock test and
gas corrosion test)

IEC 61373; EN 61373;
IEC 60068-2-6; EN 60068-2-6; AS 60068-2-6;
IEC 60068-2-27; EN 60068-2-27; AS 60068-2-27;
MIL-STD-810G;
RTCA DO-160G;
ISO 16750-3

AS 60529; IEC 60529; EN 60529;
MIL-STD-810G Method 510.5;
NEMA 250; ISO 20653

EN ISO 4892-2:2016; EN ISO 4892-3:2016;
AS 60068.2.5 Environmental Testing - Tests –
Test Sa- Simulated Solar Radiation at Ground Level;
MIL-STD-810G – Method 505.6
(Solar Radiation Sunshine)

AS/NZS 60695.2.10:2001; AS/NZS 60695.2.11:2001;
RTCA DO-160G, Section 26 - Fire, Flammability;
EN 60695-2-12 Glowing Hot-wire;
IEC 60512-20-1 Needle Flame;
IEC 60695-11-5 Needle Flame

MIL-STD-810G, Method 509.5 - Salt Fog;
AS 60068.2.11:2003; AS 60068.2.52:2003;
RTCA DO-160G, Section 14 - Salt Fog

AS 60068.2.75

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 This laboratory performs field testing activities for these tests.

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 ³:

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
<u>Unintentional Radiators</u> Part 15B	ANSI C63.4:2014	40000
<u>Intentional Radiators</u> Part 15C	ANSI C63.10:2013	40000
<u>U-NII without DFS Intentional Radiators</u> Part 15E	ANSI C63.10:2013	40000

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

COMPLIANCE ENGINEERING PTY LTD

Keysborough, Victoria, Australia

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 9th day of December 2021.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2829.01
Valid to November 30, 2023

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