SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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ELECTRICAL

Valid To: November 30, 2021 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

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Test Technology:	Test Method(s) [1]:
Emissions EMC	
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 and Interrupt 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
Ringwave 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
Common Mode Immunity	EN 61000-4-16 (2016); EN 61000-4-16; IEC 61000-4-16 (2015); IEC 61000-4-16

Test Technology:	**Test Method(s) [1]:**
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, *excluding CISPR 14 and CISPR 15 Emissions*); IEC 60669-2-1 (Section 26, *excluding CISPR 14 and CISPR 15 Emissions*)

Test Technology:	**Test Method(s) [1]:**
Gaming Machine National Standard (GMNS)	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)
Generic Immunity	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
Household EMC	AS/NZS CSIPR 14-2; CISPR 14-2
Household Safety	IEC 60335-1; AS/NZS 60335-1 (Sections 14, 15, and 19.11.4)
Information Technology	AS/NZS CISPR 24; CISPR 24
Laboratory	EN 61326-1 (*excluding EN 55011 Emissions*)
Lighting	EN 61547
Maritime	EN 60945 (Sections 5.2.2, 7, 8, and 10)
Medical	EN 60601-1-2 (*excluding CISPR 11, CISPR 14-1, and CISPR 15 Emissions*)
Alarm Systems	EN 50130-4 (*excluding EN 61000-4-20*)
Overhead AC Powerlines and HV Installations	AS 2344 [2]
Radio Spectrum Matters (ERM)	ETSI EN 301 489-1 (*excluding sections 8.2, 8.3, 8.4, and 8.7*); ETSI EN 300 328; AS/NZS 4268
Railway	EN 50121-3-1; EN 50121-3-2 (Immunity requirements only); IEC 50155 (*excluding sections 5.1.1.3, 5.1.1.4, 5.1.2, 5.1.3, 5.1.4, 12.2.8.2, 12.2.9, and 12.2.10*); EN 50155 (*excluding sections 5.1.1.3, 5.1.1.4, 5.1.2, 5.1.3, 5.1.4, 12.2.8.2, 12.2.9, and 12.2.10*)
Traffic Signals	AS/NZS 2144 (*excluding AS 60068.2.5, and sections 5.1, 5.2, and 5.5.6.2*); EN 50293 (*excluding EN 55022 and EN 55014 Emissions*)
Environmental	
Temperature / Humidity	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:	**Test Method(s) [1]:**
Environmental Temperature/Humidity *(cont.)*	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*)
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	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
Ingress Protection	AS 60529; IEC 60529; EN 60529; MIL-STD-810G Method 510.5; NEMA 250; ISO 20653
UV	EN ISO 4892-1:2016; EN ISO 4892-3:2016
Flammability	AS/NZS 60695.2.10:2001; AS/NZS 60695.2.11:2001; RTCA DO-160G, Section 26 - Fire, Flammability
Salt	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
Impact	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 meets A2LA *R104 – General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these tests.

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 14th day of February 2020.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2829.01
Valid to November 30, 2021

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