SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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ELECTRICAL

Valid To: June 30, 2025 Certificate Number: 3310.02

In recognition of the successful completion of the A2LA evaluation process (including an assessment of the organization's compliance with A2LA's FDA ASCA Accreditation Program[1] requirements) accreditation is granted to this laboratory to perform the following EMC, Radio, and Telecommunication tests on IT/Multimedia Equipment, Audio Equipment, Industrial Equipment, Radio Equipment, and Cellular Devices, Military/Aerospace, Aircraft Components and Automotive Components:

Test Technology:	**Test Method(s) [1, 2]:**
Emissions	
Conducted and Radiated *U.S. / Canada*	CFR 47, FCC Part 15, Subpart B (using ANSI C63.4-2014; CFR 47, FCC Part 18 (using FCC MP-5:1986); ICES-GEN (Issue 2,February 2024); ICES-001 (Issue 5, July 2020); ICES-002 (Issue 7, September 2020); ICES-003 (Issue 7, OCISPR 11: 2015 A1; 2016 A2; 2019 IEC/CISPR 11: 2024 IEC/CISPR 11 Ed. 4.1 (2004-06) +A2 (2006); IEC/CISPR 11 Ed. 5 (2009-05) +A1 (2010); IEC/CISPR 13 Ed. 5.0 (2009-06); CISPR 14-1:2020; CISPR 14-1 (2005) + A1 (2008) + A2 (2011); CISPR 14-1 (2016); IEC 55014-1:2021; CISPR 14-2 (2020); IEC/CISPR 15 (2018); CISPR 15 (2009); IEC 55015:2020; IEC/CISPR 22 Ed. 5 (2005) +A1(2005)

Test Technology:	**Test Method(s) [1, 2]:**
Europe	EN 55011:2016 +A1:2017 +A2:2021; EN 55013 (2001) +A1(2003) +A2(2006) +(2013); BS EN 55013 (2013) +A1(2016); EN 55014-1 (2006) + A1(2009) +A2(2011); EN 55014-1:2017+A11:2020; EN 55014-1:2021; EN 55015 (2006) + A2(2009) + (2013); EN 55015:2019 +A11:2020; EN 55022 (1998) +A1(2000) +A2(2003) +(2006) +A1(2007) +(2010); EN 55032 (2015) +AC(2016) +(2012-05); EN 55032:2015 +A1:2019; EN 55032:2015 +AC:2016-07+A11:2020+A1:2020; BS EN 55013 (2013) +A1(2016); EN/IEC 55014-1:2021; EN/IEC 55015:2020
Australia / New Zealand	AS/NZS CISPR 32:2015 AMD 1:2020; AS CISPR 11 (2017); AS/NZS CISPR 12 (2013)
Israel	SI 961 Part 32 (2016); SI 961 Part 35
Japan	VCCI-CISPR 32 (2016); VCCI V-3:2016
Korea	KS C 9811; KS C 9814-1; KS C 9610-6-3; KS C 9610-6-4; KS C 9832; KS C 9816-2-1; KS C 9816-2-2; KS C 9816-2-3
South Africaa	

Test Technology:	**Test Method(s) [1, 2]:**
Radiated Immunity	IEC 61004-3; EN 61000-4-3; EN 61000-4-3 (2006) +A1 (2008) +A2 (2010); KS C 9610-4-3; SANS 61000-4-3 Ed. 3.1 (2008)
Electrical Fast Transient/Burst (EFT)	IEC 61000-4-4; EN 61000-4-4; IEC 61000-4-4 (2012-04) + Ed. 2.0 (2004-07)+A1 (2010); KS C 9610-4-4; SANS 61000-4-4 Ed. 2.1 (2011)
Surge	IEC 61000-4-5; EN 61000-4-5; IEC 61000-4-5 Ed. 3.1 (2017); IEC 61000-4-5 Ed. 3.0 (May 2014); IEC 61000-4-5 Ed. 1.1 (2005-11); EN 61000-4-5 (2014) +A1(2017); KS C 9610-4-5; SANS 61000-4-5 Ed. 2 (2006)
Conducted Immunity	IEC 61000-4-6; EN 61000-4-6; IEC 61000-4-6 Ed. 4.0 (2013); IEC 61000-4-6 Ed. 4 (2008); KS C 9610-4-6; SANS 61000-4-6 Ed. 4 (2017)
Magnetic Field	IEC 61000-4-8; EN 61000-4-8; IEC 61000-4-8, Ed. 1.1 (2001); IEC 61000-4-8 (2009); KS C 9610-4-8; SANS 61000-4-8, Ed. 2 (2009)
Pulsed Magnetic Field	IEC 61000-4-9; EN 61000-4-9; BS EN 61000-4-9 (2016); SANS 61000-4-9 Ed. 1.1 (2003); IEC 61000-4-9 (2016); KS C 9610-4-9
Damped Oscillatory Magnetic Field	IEC 61000-4-10; EN 61000

Test Technology:	**Test Method(s) [1, 2]:**
Variation of Power Frequency *(continued)*	SANS 61000-4-28 Ed. 2.1 (2009)
Voltage Dips, Short Interruptions, and Voltage Variations on D.C. Input Power Port	IEC 61000-4-29; EN 61000-4-29; IEC 61000-4-29 (2000); SANS 61000-4-29 Ed. 1 (2005)
Radiated Fields in Close Proximity	IEC 61000-4-39; EN 61000-4-39; IEC 61000-4-39 (2017)
Generic / Product Family / Product Specific Standards	IEC 61000-6-1 (2016); IEC 61000-6-1, Ed. 2 (2005-03);

Test Technology:	**Test Method(s) [1, 2]:**
Generic / Product Family / Product Specific Standards *(cont.)*	IEC 60601-2-49 (2011), clause 202; EN 60601-2-49 (2015), clause 202; IEC 80601-2-49 (2018), clause 202; IEC 60601-2-50, Ed. 2.1 (2016-04); IEC 60601-2-50:2021; ISO 80601-2-55 (2018), clause 202; ISO 80601-2-56, clause 202; ISO 80601-2-61 (2017), clause 202; IEC 80601-2-58:2024; IEC 80601-2-30; EN 80601-2-30; ANSI/AAMI/IEC 80601-2-30, clause 202; ISO 80601-2-61 (2011), clause 202; IEC 60601-2-62:2013, clause 202 ISO 9919 Ed. 2.0 (2005), clause 36; ISO 14117 (2012) sections 4 and 5; ISO 14708-1 (2014) clause 27; ISO 14708-3 (2017-04) clause 27; ISO 14708-4 (2008-11-15) clause 27; ISO 14708-4:2022 Clause 27; EN 60945 (2002) [*excluding clauses 8 and 11*]; IEC 60945 (2002) [*excluding clauses 8 and 11*]; IEC 61000-6-7 (2014); IEC 61000-6-8 (2020); EN 50293:2012; EN 50270:2015; EN 61131-2 (2008); IEC 61131-2 (2017) Sec. 7.3; IEC 61131-6 (2012); EN 61131-6 (2013); IEC 61326-1 (2020); EN 61326-1 (2013); EN IEC 61326-1 (2021); Lloyd's Register - LR Type; Approval System Test Specification 1 (2013, 2015); EN 50130-4 (2011) +A1 (2014); EN 55014-2 (1997); EN 55014-2 (1997) +A1 (2001) +A2 (2008); IEC 60730-1 Ed. 4.0 (2010) +(2013); EN 60730-1 (2011); EN 60730-1:2016 +A2:2022; EN 60730-2-14:2019; IEC 62040-1-2 (2002); EN 12895:2015 +A1:2019
Military and Airborne Equipment	MIL-STD-461D, CE101; MIL-STD-461E-G, CE101; MIL-STD-461D, CE102; MIL-STD-461E-G, CE102; MIL-STD-461D, CS101; MIL-STD-461E-G, CS101; MIL-STD-461D, CS114; MIL-STD-461E-G, CS114; MIL-STD-461D, CS115; MIL-STD-461E-G, CS115; MIL-STD-461D, CS116; MIL-STD-461E-G, CS116; MIL-STD-461G, CS117; MIL-STD-461G, CS118; MIL-STD-461D, RE101; MIL-STD-461E-G, RE101; MIL-STD-461D, RE102; MIL-STD-461E-G, RE102; MIL-STD-461D, RS101; MIL-STD-461E-G, RS101; MIL-STD-461D, RS103; MIL-STD-461E-G, RS103; MIL-STD-461F, CS106; RTCA/DO-160 A-G (1980-2010) Sections 15, 16, 17, 18, 19, 20, 21, 22, and 25
Automotive EMC	CISPR 25; CISPR 25:2021; ISO 10605; ISO 7637-1; ISO 7637-2; ISO 7637-3; ISO 11451-1:2015; ISO 11452-2 (2004) + (2019); ISO 11452-4 (2011); ISO 11452-4:2020 ISO 11452-8; ISO 11452-10; ISO 11452-1; SAE J1113-1 (2018-10); SAE J1113-1 (2006-10);

Test Technology:	**Test Method(s) [1, 2]:**
Automotive EMC *(cont.)*	SAE J1113-4 (2014-04); SAE J1113-11 (2017-06); SAE J1113-12 (2017-11); SAE J1113-13 (2015-02); SAE J1113-26 (2014-04); ISO 16750-1; ISO 16750-2 (*excluding clauses 4.11, 4.12*); EN 50498; EN 13309; ISO 13766-1; ISO 13766-2; UN ECE R10; EN ISO 14982
Radio	
US (FCC)	47 CFR FCC Part 15, Subpart C (using ANSI C63.10:2013); 47 CFR FCC Part 15, Subpart D (using ANSI C63.17:2013); 47 CFR FCC Part 15, Subpart E (using ANSI C63.10:2013 and FCC KDB Publication 905462 D02 (v02)); 47 CFR FCC Part 15, Subpart F/G/H (using ANSI C63.10:2013); 47 CFR FCC Parts 20, 22, 24, 25, 27, 73, 74, 80, 87, 90, 95, 96, 97, and 101 (using ANSI C63.26:2015 and TIA-102.CAAA-E, ANSI/TIA-603-E); ANSI C63.10:2020: ANSI C63.27:2017; ANSI C63.27:2021; ANSI C63.30-2021
Canada (ISED) *(up to 220 GHz)*	RSS-111; RSS-112; RSS-117; RSS-119; RSS-123; RSS-125; RSS-127; RSS-130; RSS-131; RSS-132; RSS-133; RSS-134; RSS-135; RSS-137; RSS-139; RSS-140; RSS-141; RSS-142; RSS-170; RSS-181; RSS-182; RSS-191; RSS-192; RSS-194; RSS-195; RSS-196; RSS-197; RSS-198; RSS-199; RSS-210; RSS-211; RSS-213; RSS-215; RSS-216; RSS-220; RSS-222; RSS-236; RSS-238; RSS-243; RSS-244; RSS-246; RSS-247; RSS-248; RSS-251; RSS-252; RSS-287; RSS-288; RSS-310; RSS-GEN
Europe (*excluding Protocol Testing*)	ETSI EN 300 220-1 V3.1.1 (2017-02); ETSI EN 300 220-2 V3.1.1 (2017-02); ETSI EN 300 220-2 V3.2.1 (2018-06); ETSI EN 300 220-3-1 V2.1.1 (2016-12); ETSI EN 300 220-3-2 V1.1.1 (2017-02); ETSI EN 300 220-4 V1.1.1 (2017-02); ETSI EN 300 328 V2.2.2 (2019-07); ETSI EN 300 330 V2.1.1 (2017-02); ETSI EN 300 422-1 V2.1.2 (2017-01); ETSI EN 300 422-1 V2.2.2 (2021-11); ETSI EN 300 422-2 V2.1.1 (2017-02); ETSI EN 300 422-3 V2.1.1 (2017-02); ETSI EN 300 422-4 V2.1.1 (2017-05); ETSI EN 300 440 V2.1.1 (2017-03); ETSI EN 300 440 V2.2.1 (2018-07); ETSI EN 301 166 V2.1.1 (2016-11); ETSI EN 301 357 V2.1.1 (2017-06); ETSI EN 301 502 V12.5.2 (2017-03); ETSI EN 301 511 V12.5.1 (2017-03); ETSI EN 301 511 V12.1.1 (2015-06); ETSI EN 301 839 V2.1.1 (2016-04)

Test Technology:	**Test Method(s) [1, 2]:**
Europe (*excluding Protocol Testing*) *(cont.)*	ETSI EN 301 893 V2.1.1 (2017-05); ETSI EN 301 908-1 V13.1.1 (2019-11); ETSI EN 301 908-1 V15.1.1 (2021-09); ETSI EN 301 908-1 V15.2.1:2023-01; ETSI EN 301 908-2 V11.1.2 (2017-08); ETSI EN 301 908-2 V13.1.1 (2020-06); ETSI EN 301 908-3 V11.1.3 (2017-04); ETSI EN 301 908-3 V13.1.1 (2019-09); ETSI EN 301 908-11 V11.1.2 (2017-01); ETSI EN 301 908-13 V11.1.1 (2016-07); ETSI EN 301 908-13 V11.1.2 (2017-07); ETSI EN 301 908-13 V13.2.1 (2022-02) ETSI EN 301 908-14 V13.1.1 (2019-09); ETSI EN 301 908-14 V15.1.1 (2021-09); ETSI EN 301 908-15 V11.1.2 (2017-01); ETSI EN 301 908-15 V15.1.1 (2020-01); ETSI EN 302 195 V2.1.1 (2016-06); ETSI EN 302 208 V3.3.1 (2020-05); ETSI EN 302 208 V3.4.1 (2023-12); ETSI EN 302 537 V2.1.1 (2016-10); ETSI EN 303 413 V1.1.1 (2017-06); ETSI EN 303 413 V1.2.1 (2021-04); ETSI EN 303 417 V1.1.1 (2017-09); ETSI EN 303 687 V1.1.1 (2023-06); ETSI EN 301 489-1 V2.1.1 (2017-02); ETSI EN 301 489-1 V2.2.3 (2019-11); ETSI EN 301 489-3 V2.1.1 (2019-03); ETSI EN 301 489-3 V2.3.2 (2023-01); ETSI EN 301 489-5 V2.1.1 (2016-11); ETSI EN 301 489-5 V2.2.1 (2019-04); ETSI EN 301 489-6 V2.1.1 (2016-11); ETSI EN 301 489-6 V2.2.1 (2019-04); ETSI EN 301 489-9 V1.4.1 (2007-11); ETSI EN 301 489-9 V2.1.1 (2019-04); ETSI EN 301 489-17 V3.1.1 (2017-02); ETSI EN 301 489-17 V3.2.4 (2020-09); ETSI EN 301 489-19 V2.1.1 (2019-04); ETSI EN 301 489-19 v2.2.1 (2022-09); ETSI EN 301 489-27 V2.1.1 (2016-12); ETSI EN 301 489-27 V2.2.1 (2019-04); ETSI EN 301 489-29 V2.1.1 (2016-12); ETSI EN 301 489-29 V2.2.1 (2019-04); ETSI EN 301 489-31 V2.1.1 (2016-11); ETSI EN 301 489-31 V2.2.1 (2019-04); ETSI EN 301 489-33 V2.1.1 (2016-11); ETSI EN 301 489-34 V2.1.1 (2019-04); ETSI EN 301 489-35 V.2.1 (2016-12); ETSI EN 301 489-50 V2.1.1 (2017-02); ETSI EN 301 489-50 V2.3.1 (2021-03)

Test Technology:	**Test Method(s) [1, 2]:**

Test Technology:	**Test Method(s) [1, 2]:**
RF Exposure *(cont.)* *(excluding SAR and HAC)*	EN 50663 (2017); EN 62233 (2008); EN IEC 62311 (2020); EN 62311 (2008); OET Bulletin 65, Edition 97-01; ARPANSA RPS S-1 Rev 1; AS/NZS 2772.2:2016 +A1:2018

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(s):**	**Maximum Frequency (MHz):**
White Space Device Intentional Radiators Part 15H	ANSI C63.10:2013 ANSI C63.10:2020	220000
Commercial Mobile Services (FCC Licensed Radio Service Equipment) Parts 22 (cellular), 24, 25 (below 3 GHz), and 27	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	220000
General Mobile Radio Services (FCC Licensed Radio Service Equipment) Parts 22 (non-cellular), 90 (below 3 GHz), 95 (below 3 GHz), 97 (below 3 GHz), and 101 (below 3 GHz)	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	220000
Citizens Broadband Radio Services (FCC Licensed Radio Service Equipment) Part 96	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	220000
Maritime and Aviation Radio Services Parts 80 and 87	ANSI/TIA-603-E; ANSI C63.26:2015	220000
Broadcast Radio Services Parts 73 and 74 (below 3 GHz)	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	220000
Signal Boosters Part 20 (Wideband Consumer Signal Boosters, Provider-specific Signal Boosters, and Industrial Signal Boosters), Section 90.219	ANSI C63.26:2015	220000

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