

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 Program¹ 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:

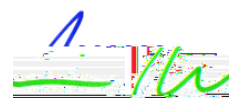
Test Technology:

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; 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 Africa

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

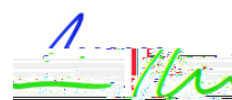
IEC 61000-4-29; EN 61000-4-29;
IEC 61000-4-29 (2000); SANS 61000-4-29 Ed. 1 (2005)

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:

**Generic / Product Family /
Product Specific Standards**
(cont.)

Test Method(s)^{1,2:}

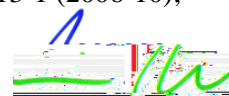
IEC 60601-2-49 (2011), clause 202;
EN 60601-2-49 (2015), clause 202;
IEC 80601-2-49 (2018), clause 202;
IEC 60601-2-50, Ed. 2.1 (2016-04); IEC 60601-2-50:2021;
ISO 80601-2-55 (2018), clause 202;
ISO 80601-2-56, clause 202; ISO 80601-2-61 (2017), clause 202;
IEC 80601-2-58:2024;
IEC 80601-2-30; EN 80601-2-30;
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*)

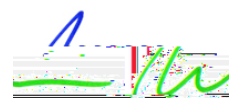
ETSI EN 300 220-1 V3.1.1 (2017-02);
ETSI EN 300 220-2 V3.1.1 (2017-02);
ETSI EN 300 220-2 V3.2.1 (2018-06);
ETSI EN 300 220-3-1 V2.1.1 (2016-12);
ETSI EN 300 220-3-2 V1.1.1 (2017-02);
ETSI EN 300 220-4 V1.1.1 (2017-02);
ETSI EN 300 328 V2.2.2 (2019-07);
ETSI EN 300 330 V2.1.1 (2017-02);
ETSI EN 300 422-1 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:

Europe
(excluding Protocol Testing)
(cont.)

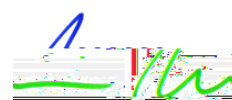
Test Method(s) ^{1,2}:

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:

RF Exposure (*cont.*)
(*excluding SAR and HAC*)

Test Method(s) ^{1,2:}

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

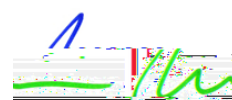
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Testing Activities Performed in Support of FCC Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1 ³:

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

3



For the tests to which this accreditation applies, please refer to the laboratory's Electrical

Scope of Accreditation.