SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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ELECTRICAL

Valid To: June 30, 2025 Certificate Number: 3310.06

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[4] requirements) accreditation is granted to this laboratory ***as well as the satellite laboratory location listed below,*** 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, 3]:**
Emissions	
Conducted and Radiated (*3m semi-anechoic chamber*) U.S. / Canada	CFR 47, FCC Part 15, Subpart B (using ANSI C63.4-2014); 47 CFR FCC Part 18 (using FCC MP-5:1986); ICES-001 (Issue 5, July 2020); ICES-002 (Issue 7, September 2020); ICES-003 (Issue 7, October 2020); ICES-004 (Issue 5, October, 2022); ICES-005 (Issue 5, December 2018); ICES-006 (Issue 3, July 2018)
International	IEC/CISPR 11 Ed. 6.0 (2015) +A1 (2016); CISPR 11 Ed. 6.2 (2019); CISPR 11: 2015 A1:2016 A2:2019; 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; IEC/CISPR 15 (2018); CISPR 15 (2009); IEC 55015:2020; IEC/CISPR 22 Ed. 5 (2005) +A1(2005) +A2 (2006); IEC/CISPR 22 Ed. 6.0 (2008-09);

Test Technology:	**Test Method(s)** [1, 2, 3]**:**
Emissions Europe	CISPR 32 Ed. 2.1 (2015) + A1(2019); CISPR 32 Ed. 1 (2012-01); CISPR 16-2-3:2016; CISPR 16-2-3:2019; CISPR 16-2-1:2014; CISPR 16-2-1:2014+A1:2017; CISPR 16-2-2:2010; CISPR 36:2020; EN 55011 (2009) +A1(2010); EN 55011:2016 +A1:2017 +A2:2021; EN 55011:2016 +A1:2017 +A11:2020 +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 55015:2020; EN 55103-1 (2009) + A1(2012); 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 55011:2016 +A1:2017 +A2:2021; EN/IEC 55014-1:2021; EN/IEC 55015:2020
Australia / New Zealand	AS/NZS CISPR 32 (2013) +(2015); AS/NZS CISPR 32:2015 AMD 1:2020; AS/NZS CISPR 22 (2009) +A1(2010) +(2006); AS CISPR 11 (2017); AS/NZS CISPR 11 (2011)
Israel	SI 961 Part 32 (2016); SI 961 Part 24; SI 961 Part 6.2
Japan	VCCI-CISPR 32 (2016); VCCI V-3 (2015.4); VCCI V-3:2016
Korea	KS C 9811; KS C 9814-1; KN 22; KS C 9832; KS C 9816-2-1; KS C 9816-2-2; KS C 9816-2-3
South Africa	SANS 211 Ed. 4.1 (2010); SANS 213 Ed. 4 (2011); SANS 214-1 Ed. 3.1 + CISPR-A2 (2009); SANS 215 Ed. 4.2 (2009); SANS 222 Ed. 6 (2009); SANS 2332 Ed. 1 (2017)
Vietnam	QCVN 118:2018/BTTTT; TCVN 7189:2009 (CISPR 22:2006)
Taiwan	CNS 13439 (2004); CNS 13439 (2006); CNS 15936:2016

Test Technology:	Test Method(s) [1, 2, 3]:
Emissions	
Harmonic Current Emissions	IEC 61000-3-2; EN 61000-3-2; KS C 9610-3-2; SANS 61000-3-2 Ed. 3.2 (2009); IEC 61000-3-11 (2017)
Voltage Fluctuations and Flicker	IEC 61000-3-3; EN 61000-3-3; KS C 9610-3-3; SANS 61000-3-3 Ed. 2 (2009); IEC 61000-3-12 Ed. 2.0 (2011); EN 61000-3-12 (2011)
Immunity	
Electrostatic Discharge (ESD)	IEC 61000-4-2; EN 61000-4-2; IEC 61000-4-2 Ed. 2.0 (2008-12); KS C 9610-4-2; SANS 61000-4-2 Ed. 2 (2009)
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 61000-4-8Ed. 2 (2009)
Damped Oscillatory Magnetic Field	IEC 61000-4-10; EN 61000-4-10; IEC 61000-4-10 (2016); SANS 61000-4-10 Ed. 1.1 (2003)
Voltage Dips, Short Interruptions, and Voltage Variations	IEC 61000-4-11; EN 61000-4-11; IEC 61000-4-11 Ed. 2.1 (2017); EN 61000-4-11 (2004) +A1 (2017); IEC 61000-4-11 Ed. 2 (2004-03); SANS 61000-4-11 Ed. 1 (2005); KS C 9610-4-11
Mains Harmonics and Interharmonics	IEC 61000-4-13; EN 61000-4-13; SANS 61000-4-13 Ed. 1.1 (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)

Test Technology:	Test Method(s) [1, 2, 3]:
Immunity 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); EN 61000-6-1 (2007); KS C 9610-6-1; KS C 9610-6-3; KS C 9610-6-4; EN 61000-6-2 (2016); EN 61000-6-2 (2005) +AC (2005); IEC 61000-6-2 (2016); EN IEC 61000-6-2 (2019); IEC 61000-6-2 Ed. 2.0 (2005-01); EN 61000-6-2 (2005); EN 61000-6-3 (2007) + A1 (2011) + AC (2012); EN 61000-6-4 (2007) + A1 (2011); IEC 61000-6-3 (2020); IEC 61000-6-4 (2018); KS C 9610-6-2; IEC 61326-2-6 Ed. 2.0 (2012); EN IEC 61326-2-6:2021; IEC 61326-3-1 (2008) +(2017); EN 61326-2-1 (2013); IEC 61326-2-1 (2020); EN IEC 61326-2-1:2021; TCVN 7317:2003 (CISPR 24:1997); AIM 7351731 (2017); IEC CISPR 14-2:2020; CISPR 14-2 Ed. 2. (2015); IEC/CISPR 14-2 Ed. 1.2 (2008); KS C 9995; CISPR 20 (2006) + A1 (2013); IEC/CISPR 20 (2006); IEC/CISPR 24 (1997); EN 55024 (1998) +A1(2001), A2(2003), (2010); CISPR 35 (2016); EN 55035 (2020); KS C 9814-2; KS C 9835; SANS 60601-1-2 Ed. 4 (2018); IEC 60601-1-2 Ed. 2.1 (2004-11); IEC 60601-1-2 Ed. 3.0 (2007); IEC 60601-1-2 Ed. 4.0 (2014); IEC 60601-1-2 Ed. 4.0 (2014)+A1 (2020); KS C IEC 60601-1-2:2007; EN 60601-1-2 (2002); EN 60601-1-2 (2007); EN 60601-1-2 (2015); EN 60601-1-2:2015 +A1:2021; IEC 60601-2-2 (2018), clause 202, Annex BB; IEC 60601-2-4 Ed. 3.0 (2010), clause 202; IEC 60601-2-25 Ed. 2.0, (2011-10), clause 202; IEC 60601-2-27 Ed. 3.0 (2011), clause 202; IEC 60601-2-30, clause 202; IEC 60601-2-31 (2008) +A1 (2011), clause 202; EN 60601-2-37 (2008) +A1 (2015), clause 202; IEC 60601-2-47 Ed. 2.0 (2012-02), clause 202; IEC 60601-2-49 (2011), clause 202; EN 60601-2-49 (2015), clause 202; IEC 60601-2-50, Ed. 2.1 (2016-04); IEC 80601-2-49 (2018), clause 202; ISO 80601-2-55 (2018), clause 202; ISO 80601-2-56, clause 202; ISO 80601-2-61 (2017), clause 202; ISO 80601-2-61 (2011), clause 202; ISO 9919 Ed. 2.0 (2005), clause 36

Test Technology:	**Test Method(s)** [1, 2, 3]**:**
Generic / Product Family / Product Specific Standards (*cont.*)	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; EN 60945 (2002) [*excluding clauses 8 and 11*]; IEC 60945 (2002) [*excluding clauses 8 and 11*]; GR-1089-CORE, Issue 7; 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); 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); IEC 62040-1-2 (2002); EN 12895:2015 +A1:2019; IEC 61000-6-8:2020
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 E-G (2004-2010) Sections 15, 16, 17, 18, 19, 20, 21, 22, and 25
Automotive EMC	CISPR 25; CISPR 25:2021; CISPR 25:2016; CISPR 25:2008; ISO 10605; ISO 11452-2 (2004) + (2019); ISO 11452-4 (2011); ISO 11452-8; ISO 11452-10; ISO 11452-1; SAE J1113-1 (2018-10); SAE J1113-1 (2006-10); SAE J1113-4 (2014-04); SAE J1113-13 (2015-02); SAE J1113-26 (2014-04); EN 50498 (*excluding clause 7.4*); EN 13309 (*excluding clause 4.9*); ISO 13766-1; ISO 13766-2 (*excluding clause 5.3.3*); UN ECE R10 (*excluding clause 6.9*); EN ISO 14982 (*excluding clause 6.8*)
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))

Test Technology:	Test Method(s) [1, 2, 3]:
Radio US (FCC) *(cont.)*	47 CFR FCC Part 15, Subpart F/G/H (using ANSI C63.10:2013); 47 CFR FCC Parts 20, 22, 24, 25, 27, 30, 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
Canada (ISED)	RSS-111; RSS-117; RSS-119; RSS-123; RSS-130; RSS-131; RSS-132; RSS-133; RSS-134; RSS-139; RSS-140; RSS-142; RSS-170; RSS-181; RSS-182; RSS-192; RSS-194; RSS-195; RSS-196; RSS-197; RSS-199; RSS-210; RSS-211; RSS-213; RSS-216; RSS-220; RSS-222; RSS-236; RSS-238; RSS-243; RSS-244; RSS-246; RSS-247; RSS-248; RSS-251; RSS-287; RSS-310; RSS-GEN
Europe (*excluding Protocol Testing*)	ETSI EN 300 220-1 V3.1.1 (2017-02); ETSI EN 300 220-1 V2.4.1 (2012-05); 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 V2.1.1 (2016-11); ETSI EN 300 328 V2.2.2 (2019-07); ETSI EN 300 330 V2.1.1 (2017-02); ETSI EN 300 422-1 V2.1.1 (2016-09); ETSI EN 300 422-1 V2.1.2 (2017-01); 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); 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 V11.1.1 (2016-07); 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 V11.1.2 (2017-04)

Test Technology:	**Test Method(s)** [1, 2, 3]**:**
Radio	
Europe (*excluding Protocol Testing*) (*cont.*)	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 V3.1.1 (2016-11); ETSI EN 302 208 V3.3.1 (2020-05); 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 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 V1.6.1 (2013-08); ETSI EN 301 489-3 V2.3.2 (2023-01); ETSI EN 301 489-5 V2.1.1 (2016-11); ETSI EN 301 489-6 V2.1.1 (2016-11); ETSI EN 301 489-6 V2.2.1 (2019-04); ETSI EN 301 489-8 V1.2.1 (2002-08); 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 301 489-23 V1.5.1 (2011-11); ETSI EN 301 489-24 V1.5.1 (2010-10); 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 V2.1 (2016-12); ETSI EN 301 489-50 V2.1.1 (2017-02); ETSI EN 301 489-50 V1.2.1 (2013-03); ETSI EN 301 489-50 V2.3.1 (2021-03); ETSI EN 301 489-51 V2.1.1 (2019-04); ETSI EN 301 489-52 V1.2.1 (2021-11)

Test Technology:	Test Method(s) [1, 2, 3]:
Radio Hong Kong	HKCA 1002, Issue 6 (January 2008); HKCA 1007, Issue 5 (March 2012); HKCA 1008, Issue 4 (November 2013); HKCA 1010, Issue 1 (June 2003); HKCA 1015, Issue 4 (February 2003); HKCA 1020, Issue 7 (November 2011); HKCA 1033, Issue 7 (March 2012); HKCA 1034, Issue 3 (October 2009); HKCA 1035, Issue 7 (May 2016); HKCA 1039, Issue 6 (June 2015); HKCA 1039, Issue 6 (June 2015); HKCA 1039, Issue 5 (June 2013); HKCA 1041, Issue 1 (February 2003); HKCA 1042, Issue 2 (February 2003); HKCA 1043, Issue 4 (June 2008); HKCA 1044, Issue 1 (February 2003); HKCA 1046, Issue 3 (September 2008); HKCA 1048, Issue 2 (June 2008); HKCA 1049, Issue 1 (April 2005); HKCA 1050, Issue 1 (January 2006); HKCA 1052, Issue 4 (June 2022)
Korea	KS X 3123; KS X 3124; KS X 3125; KS X 3126; KS X 3134; RRA Public Notification 2018-18, Dec. 07, 2018; Equipment to be Subject of Test Procedure for Electromagnetic Field Strength and Specific Absorption Rate (RRA Public Notification 2021-16, Oct 12, 2021); RRA Announce 2021-10, Feb. 08, 2021; RRA Public Notification 2019-32, Dec. 31, 2019; Technical Requirements for the Human Protection against Electromagnetic Waves (MSIT Public Notification 2019-4, Jan 16, 2019); Unlicensed Radio Equipment Established Without Notice (MSIT Public Notification 2022-13, March 30, 2022); Regulations on Radio Equipment (Ordinance of MSIT No. 86, Jan 4, 2022); Technical Requirements for Measurement of Electromagnetic Field Strength (RRA Public Notification 2021-22, Nov 29, 2021); Notice on Conformity Assessment of Broadcasting and Communications Equipment (RRA Public Notification 2023-3, Feb 3, 2023); Unlicensed Radio Equipment Established Without Notice (MSIT Public Notification 2022-75, Dec 30, 2022); RRA Announce 2011-32, Korean only (Dec 27, 2011); RRA Public Notification 2012-21 (Nov. 06, 2012); RRA Announce 2013-33, (Jul. 26, 2013), Korean only; RRA Notice 2014-2, Korean only (Feb. 04, 2014); RRA Announce 2014-90 (Dec. 23, 2014)

Test Technology:	Test Method(s) [1, 2, 3]:
Radio Korea (*cont*.)	RRA Announce 2015-81 (Sep. 30, 2015), Korean only; RRA Announce 2015-135 (Jan. 05, 2016); RRA Notice 2017-7, Korean only (Aug. 04, 2017); RRA Public Notification 2015-23 (Nov. 18 2015); RRA Public Notification 2017-8 (Aug. 28 2017); RRA Public Notification 2011-24 (Dec. 23, 2011); RRA Announce 2012-21, Korean only (Jun. 28, 2012); RRA 2013-3 and 2013-24, (Jun. 17, 2013), Korean only; RRA 2014-8 and RRA 2014-37 (Jun. 23, 2014); RRA Public Notification 2015-27 (Dec. 03 2015); RRA Announce 2015-110 (Dec. 03, 2015); RRA Public Notification 2016-26 (Dec. 19 2016); RRA Announce 2016-79 (Dec. 19 2016); RRA Public Notification 2017-19 (Dec. 28, 2017); RRA Announce 2017-71 (Dec. 28, 2017); Technical Requirements for Measurement of Electromagnetic Field Strength (RRA Public Notification 2021-22, Nov 29, 2021)
Australia / New Zealand	AS/NZS 4268 (2017); AS/NZS 4268 (2012) +A1 (2013); AS/NZS 4268:2017 + A1:2021; Radiocommunications Equipment (General) Rules 2021 – Schedule 4 EME standard using measurement method AS/NZS 2772.2; Radiocommunications Equipment (General) Rules 2021 – Schedule 5, Part 15, Short Range Equipment Standard using test method AS/NZS 4268; AS/NZS 2772.2:2016/Amdt 1:2018
Taiwan	LP0002 (2020); IS2019 (2020); RTTE01 (2020)
Singapore	IDA TS CMT Issue 1 (June 2011); IDA TS LMR Issue 1 Rev 5 (June 2014); IDA TS LMR Issue 1 Rev 4 (June 2011); IDA TS SRD Issue 1 Rev 6 (May 2011); IDA TS SRD Issue 1 Rev 7 (April 2013); IDA TS UWB Issue 1 Rev 1 (May 2011); IDA TS WBA Issue 1 Rev 1 (May 2011); IDA TS WBA Issue 1 Rev 2 (November 2012); IMDA TS CMT (July 2017); IMDA TS CMT (September 2020); IMDA TS LMR Issue 1 (October 2016); IMDA TS SRD Issue 1 (October 2016); IMDA TS UWB Issue 1 (October 2016); IMDA TS WBA Issue 1 (October 2016); IS 2019-0 (September 1998); IMDA TS CMT Issue 1 Rev 2, Sept 2020

Test Technology:	**Test Method(s)** [1, 2, 3]**:**
Radio Vietnam	QCVN 11:2010/BTTTT; QCVN 12:2015/BTTTT; QCVN 13:2010/BTTTT; QCVN 15:2015/BTTTT; QCVN 16:2018/BTTTT; QCVN 18 (2022):BTTTT; QCVN 41:2011/BTTTT; QCVN 41:2016/BTTTT; QCVN 42:2011/BTTTT; QCVN 54:2020/BTTTT; QCVN 55:2011/BTTTT; QCVN 65:2013/BTTTT; QCVN 73:2013/BTTTT; QCVN 74:2020/BTTTT; QCVN 75:2013/BTTTT; QCVN 76:2013/BTTTT; QCVN 88:2015/BTTTT; QCVN 91:2015/BTTTT; QCVN 94:2015/BTTTT; QCVN 95:2015/BTTTT; QCVN 96:2015/BTTTT; QCVN 99:2015/BTTTT; QCVN 103:2016/BTTTT; QCVN 110:2017/BTTTT; QCVN 111:2017/BTTTT; QCVN 112:2017/BTTTT; QCVN 117:2020/BTTTT; QCVN 118:2018/BTTTT
Telecommunication	EN 300 386 V1.6.1:2016; EN 300 386 V2.2.0:2020; AS/CA S042.4:2022; AS/CA S042.5:2022
RF Exposure *(excluding SAR and HAC)*	RSS-102 measurement (RF Exposure); IEEE Std C95.3 (2002); IEEE Std C95.3:2021; EN 50364 (2018) + (2010); EN 50383 (2010); EN 50566 (2017); 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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Test Technology:	**Test Method(s) [1, 2]:**
Emissions	
Conducted and Radiated (*3m semi-anechoic chamber*) U.S. / Canada	CFR 47, FCC Part 15, Subpart B (using ANSI C63.4-2014); 47 CFR FCC Part 18 (using FCC MP-5:1986); ICES-001 (Issue 5, July 2020); ICES-003 (Issue 7, October 2020)
International	CISPR 11 ED. 6.2 (2019); CISPR 32, Ed. 2.1 (2015) + A1 (2019)
Europe	EN 55032 (2015) + AC (2016); EN 55032:2015 + AC (2016) + A1:2019; EN 55032:2015 + AC:2016-07 + A11:2020 +A1:2020
Harmonic Current Emissions	IEC 61000-3-2; EN 61000-3-2
Voltage Fluctuations and Flicker	IEC 61000-3-3; EN 61000-3-3
Immunity	
Electrostatic Discharge (ESD)	IEC 61000-4-2; EN 61000-4-2; IEC 61000-4-2 Ed. 2.0 (2008-12)
Radiated Immunity (*Tabletop equipment only*)	IEC 61000-4-3; EN 61000-4-3; EN 61000-4-3 (2006) +A1 (2008) +A2 (2010)
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)
Surge	IEC 61000-4-5; EN 61000-4-5; IEC 61000-4-5 Ed. 3.1 (2017); EN 61000-4-5 (2014) +A1(2017)
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)
Magnetic Field	IEC 61000-4-8; EN 61000-4-8; IEC 61000-4-8 (2009)
Voltage Dips, Short Interruptions, and Voltage Variations	IEC 61000-4-11; EN 61000-4-11; IEC 61000-4-11, Ed. 2.1 (2017); EN 61000-4-11 (2004) +A1 (2017)
Generic / Product Family / Product Specific Standards	CISPR 35 (2016); EN 55035 (2020); 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 301 489-17 V3.2.4 (2020-09); ETSI EN 301 489-19 V2.2.1 (2022-09)

Test Technology:	**Test Method(s)** [1, 2]**:**
Generic / Product Family / Product Specific Standards *(cont.)*	ETSI EN 301 489-33 V2.2.1 (2019-04); ETSI EN 301 489-52 V1.1.2 (2020-12)
Radio	
US (FCC)	47 CFR FCC Part 15, Subpart C (using ANSI C63.10;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); ANSI C63.10:2020
Canada (ISED)	RSS-210; RSS-216; RSS-220; RSS-247; RSS-248; RSS-GEN
Europe	ETSI EN 300 328 V2.2.2 (2019-07); ETSI EN 300 330 V2.1.1 (2017-02); ETSI EN 301 893 V1.8.1 (2015-03); ETSI EN 301 893 V2.1.1 (2017-05); ETSI EN 300 330-2 V1.6.1 (2015-03); ETSI EN 300 440 V2.2.1 (2018-07); ETSI EN 303 413 V1.1.1 (2017-06); ETSI EN 303 417 V1.1.1 (2017-09)

[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] ANSI C63.4a:2017 is used to perform NSA in support of ANSI C63.4:2014 and should not be considered its own test method.

[3] The laboratory is only accredited for testing activities outlined within the test methods listed above. Reference to any other activity within these standards, such as risk management or risk assessment, does not fall within the laboratory's accredited capabilities.

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 [4]:

Rule Subpart/Technology:	**Test Method(s):**	**Maximum Frequency (MHz):**
Unintentional Radiators Part 15B	ANSI C63.4:2014	220000 MHz
Industrial, Scientific, and Medical Equipment Part 18	FCC MP-5:1986	220000 MHz
Intentional Radiators Part 15	ANSI C63.10:2013	220000 MHz

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 [4]:

Rule Subpart/Technology:	**Test Method(s):**	**Maximum Frequency (MHz):**
Unlicensed Personal Communication Systems Devices Part 15D	ANSI C63.17:2013	220000 MHz
U-NII without DFS Intentional Radiators Part 15E	ANSI C63.10:2013	220000 MHz
U-NII with DFS Intentional Radiators Part 15E	FCC KDB 905462 D02 (v02)	220000 MHz
UWB Intentional Radiators Part 15F	ANSI C63.10:2013	220000 MHz
BPL Intentional Radiators Part 15G	ANSI C63.10:2013	220000 MHz
White Space Device Intentional Radiators Part 15H	ANSI C63.10:2013	220000 MHz
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 MHz
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 MHz
Citizens Broadband Radio Services (FCC Licensed Radio Service Equipment) Part 96	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	220000 MHz
Maritime and Aviation Radio Services Parts 80 and 87	ANSI/TIA-603-E; ANSI C63.26:2015	220000 MHz
Microwave and Millimeter Bands Radio Services Parts 25, 30, 74, 90 (above 3 GHz), 95 (above 3 GHz), 97 (above 3 GHz), and 101	ANSI/TIA-603-E; TIA-102.CAAA-E; or ANSI C63.26:2015	220000 MHz

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 [4]:

Rule Subpart/Technology:	**Test Method(s):**	**Maximum Frequency (MHz):**
Broadcast Radio Services Parts 73 and 74 (below 3 GHz)	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	220000 MHz
Signal Boosters Part 20 (Wideband Consumer Signal Boosters, Provider-specific Signal Boosters, and Industrial Signal Boosters), Section 90.219	ANSI C63.26:2015	220000 MHz

[4]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.

Testing Activities performed under the scope of the U.S FDA ASCA Pilot Program Specifications: *Basic Safety and Essential Performance of Medical Electrical Equipment, Medical Electrical Systems, and Laboratory Medical Equipment – Standards Specific Information for the Accreditation Scheme for Conformity Assessment (ASCA) Pilot Program* published on September 25th, 2020, and in accordance with all requirements of A2LA *R256 Specific Requirements- FDA ASCA Program* [5]:

Standards:	**Document Number:**
IEC 60601-1-2 Edition 4, 2014-02	19-8
IEC 60601-2-2 Edition 6.0 2017-03 (*EMC testing only*)	6-389
IEC 60601-2-25 Edition 2.0, 2011-10 (*EMC testing only*)	3-105
IEC 60601-2-27 Edition 3.0, 2011 (*EMC testing only*)	3-126
IEC 60601-2-31 2008 + A1 2011 (*EMC testing only*)	3-102
IEC 60601-2-34, 2011 (*EMC testing only*)	3-115
IEC 60601-2-47 Edition 2.0 2012-02 (*EMC testing only*)	3-155
IEC 60601-2-50, Edition 2.1, 2016 (*EMC testing only*)	6-387
IEC 80601-2-30, 2018 (*EMC testing only*)	3-123
ISO 80601-2-55, 2018 (*EMC testing only*)	1-140
ISO 80601-2-61 Second Edition 2017-12 (Corrected version 2018-02) (*EMC testing only*)	1-139

[5] These methods have been assessed by A2LA according to A2LA's FDA ASCA Program requirements. Accreditation by A2LA does not imply FDA ASCA-Accreditation. All ASCA-accreditation decisions for testing laboratory applications are made solely by the FDA, a list of approved laboratories can be found at FDA.gov.

Accredited Laboratory

A2LA has accredited

ELEMENT MATERIALS TECHNOLOGY SEATTLE – BOTHELL 120TH

Bothell, WA

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 laboratory also meets the A2LA – R256 – Specific Requirements – FDA ASCA Program. 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 September 2023.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3310.06
Valid to June 30, 2025

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