



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELEMENT MATERIALS TECHNOLOGY MINNEAPOLIS – BROOKLYN PARK

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ELECTRICAL

Valid To: September 30, 2023

Certificate Number: 3310.05

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<sup>3</sup> requirements) accreditation is granted to this laboratory to perform the following EMC, Product Safety, Radio, and Telecommunication tests on IT/Multimedia Equipment, Audio Equipment, Industrial Equipment, Radio Equipment, and Cellular Devices:

**Test Technology:**

**Test Method(s) <sup>1,4</sup>:**

**Emissions**

Conducted and Radiated  
*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 4, June 2013);  
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);  
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);  
IEC/CISPR 14-1, Ed. 5.0 (2005) +A1 (2008) +A2 (2011) +(2016);  
IEC/CISPR 15 (2018); CISPR 15 (2009);  
IEC/CISPR 22 Ed. 5 (2005) +A1(2005) +A2 (2006);  
IEC/CISPR 22 Ed. 6.0 (2008-09);  
CISPR 32, Ed. 2.1 (2015) + A1(2019);  
CISPR 32, Ed. 1 (2012-01);  
CISPR 16-2-1:2014; CISPR 16-2-2:2010;  
CISPR 16-2-3:2016; CISPR 16-2-3:2019  
CISPR 36:2020

**Test Technology:****Test Method(s) <sup>1,4</sup>:***Europe*

EN 55011 (2009) + A1(2010);  
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/IEC 55014-1:2021;  
EN 55015 (2006) + A2(2009) + (2013); EN/IEC 55015:2020;  
EN 55103-1 (2009) + A1(2012);  
EN 55022 (1998) +A1(2000) +A2(2003) +(2006) +A1(2007) +  
(2010);  
EN 6060 (2012);  
EN 55032:2015+AC:2016-07+A11:2020+A1:2020;  
EN 55032:2015 +A1:2019

*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);  
AS CISPR 11 (2017);  
AS/NZS CISPR 11 (2011)

*Israel*

SI 961 Part 32 (2016); 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;  
KS C 9832; KS C 9816-2-1;  
KS C 9816-2-2; KS C 9816-2-3; KS C 9995

*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

**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)

**Test Technology:****Test Method(s) <sup>1,4</sup>:****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 61000-4-8, 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 61000-4-10; 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)
Mains Voltage Fluctuations	IEC 61000-4-14; EN 61000-4-14; IEC 61000-4-14:1999 + AMD1:2001 + AMD2:2009; SANS 61000-4-14, Ed. 1.2 (2009)

**Test Technology:****Test Method(s) <sup>1,4</sup>:**

Conducted Common Mode Disturbances	IEC 61000-4-16; EN 61000-4-16; IEC 61000-4-16 Ed. 2.0 (2015); BS EN 61000-4-16 (2016); SANS 61000-4-16, Ed. 1.2 (2011)
DC Ripple Input Power	IEC 61000-4-17; EN 61000-4-17; EN 61000-4-17:1999+A2:2009; IEC 61000-4-17 Ed. 1.2 (2009)
Variation of Power Frequency	IEC 61000-4-28; EN 61000-4-28; IEC 61000-4-28 (1999) + A1 (2001) + A2 (2009); SANS 61000-4-28, Ed. 2.1 (2009)
Voltage Dips, Short Interruptions and Voltage Variations on DC 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)
<b>Generic / Product Family / Product Specific Standards</b>	IEC 61000-6-1 (2016); IEC 61000-6-1, Ed. 2 (2005-03); EN 61000-6-1 (2007); KS C 9610-6-1; 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); KS C 9610-6-2; KS C 9610-6-3; KS C 9610-6-4 KS C 9990; IEC 61326-2-6 Ed. 2.0 (2012); IEC 61326-3-1 (2008) + (2017); EN IEC 61326-2-6:2021; TCVN 7317:2003 (CISPR 24:1997); AIM 7351731 (2017); AIM 7351731-2021; IEC CISPR 14-2:2020; IEC/CISPR 14-2 Ed. 2. (2015); IEC/CISPR 14-2 Ed. 1.2 (2008); 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. 4, (2014-02); 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) + A1 (2020); KS C IEC 60601-1-2; EN 60601-1-2 (2002); EN 60601-1-2 (2007); EN 60601-1-2:2015 +A1:2021; EN 60945 (2002); IEC 60945 (2002); GR-1089-CORE, Issue 7; IEC 61000-6-7 (2014); EN 50293:2012; EN 50270:2015 IEC 61131-2 (2017) Sec. 7.3; EN 61326-1 (2013); IEC 61326-1 (2020);

**Test Technology:****Test Method(s) <sup>1,4</sup>:**

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

IEC 61000-6-8 (2020);  
EN 61131-6 (2013); IEC 61131-6 (2012);  
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

Medical Devices  
(EMC testing only)

ISO 14708-4:2008; IEC 60601-2-2 (2017);  
EN 60601-2-24 (1998);  
IEC 60601-2-25 Ed. 2.0, (2011-10), Clause 202;  
IEC 60601-2-26 (2003); EN 60601-2-26 (2003);  
IEC 60601-2-26 Ed. 2.0 (2002-11);  
IEC 60601-2-26 Ed. 3.0 (2012-05);  
IEC 60601-2-27:2005; EN 60601-2-27:2006;  
IEC 60601-2-27 Ed. 3.0 (2011), Clause 202;  
ISO 9919 Ed. 2.0 (2005), Clause 36;  
EN 4502-2-2 (2008); EN 45502-2-3 (2010);  
ISO 14117 (2012) Sec. 4; ISO 14117 (2019);  
ISO 14708-3 (2008); ISO 14708-3 (2017);  
EN 45502-2-1 (2003)

**Automotive EMC**

Radio Disturbance

CISPR 12; EN 55012; AS/NZS CISPR 12 (2013);  
CISPR 12 (2007) + A1 (2009)

Electrostatic Discharge (ESD)

ISO 10605; SAE J1113-13

Absorber-Lined Shielded  
Enclosure (ALSE)

ISO 11452-2

Bulk Current Injection (BCI)

ISO 11452-4; SAE J1113-4; ISO 11451-2

**Product Safety**

MED  
(excluding Risk Assessment,  
Defibrillation Protection, Cathode  
Ray Tube, Hand-transmitted  
Vibration, Pressure Vessels, X-  
radiation, Ingress of Water or  
Particulate Matter, IP Testing, and  
Protection against Hazards of  
Ignition of Flammable Anesthetic  
Mixtures)

IEC 60601-1:2005 + A1 (2012); IEC 60601-1; EN 60601-1;  
ANSI/AAMI ES60601-1;  
NSI/AAMI ES60601-1 (2005) + A1(2012) + A2:2010);  
CAN/CSA-C22.2 NO. 60601-1:2014;  
CAN/CSA-C22.2 NO. 60601-1;  
IEC 60601-1-6; EN 60601-1-6;  
IEC 60601-2-10; EN 60601-2-10;  
IEC 60601-2-24; EN 60601-2-24;  
EN 60601-2-24; IEC 60601-2-27 Edition 3.0 2011-03;  
IEC 60601-2-27:2005; EN 60601-2-27:2006  
IEC 60601-2-30; EN 60601-2-30;  
EN/IEC 60601-2-34 Edition 3.0 2011-05;  
EN 60601-2-47 (2001); IEC 60601-2-47 Edition 2.0 2012-02;  
IEC 60601-2-50, Ed. 2.1 (2016-04);

**Test Technology:**

**Test Method(s) <sup>1,4</sup>:**

MEAS  
*(excluding Flammability Test,  
Ionizing Radiation, UV Radiation,  
Microwave Radiation, Ultrasonic  
Pressure, and IP Testing)*

ISO 80601-2-61;  
EN/IEC 80601-2-49 (2018)  
IEC 61010-1; EN 61010-1; UL 61010-1;  
CAN/CSA-C22.2 No. 61010-1;  
IEC 61010-2-101; EN 61010-2-101;  
UL 61010-2-101;  
CAN/CSA-C22.2 No. 61010-2-101;  
IEC 61010-2-010; EN 61010-2-010;  
UL 61010-2-010;  
CAN/CSA-C22.2 No. 61010-2-010;  
IEC 61010-2-030; EN 61010-2-030;  
UL 61010-2-030;  
CAN/CSA-C22.2 No. 61010-2-030;  
IEC 61010-2-040; EN 61010-2-040;  
UL 61010-2-040;  
CAN/CSA-C22.2 No. 61010-2-040

HOUS  
*(excluding Transient Over  
Voltages, Resistance to Rusting,  
Radiation and similar Hazards,  
Software Evaluation, UV-C  
Radiation Effect on Non-Metallic  
Materials)*

IEC 60335-1; EN 60335-1; IEC 60335-2-45 Ed. 3.2 (2012);  
UL 60335-1; CAN/CSA-C22.2 No. 60335-1

ITAV  
*(excluding Cathode Ray Tube,  
Flammable Liquids, Ionizing  
Radiation, Effect of UV Radiation  
on Material, Test to Resistance on  
Fire, Flammability Test, Impulse  
Test, Mandrel Test and Operating  
Voltages Test)*

IEC 62368-1:2014; EN 62368-1:2014; IEC 62368-1:2018;  
IEC 62368-1; EN 62368-1; UL 62368-1;  
EN 13611 (2015) + A1 (2016); EN 298 (2012);  
EN 50156-1 (2015) + A1 (2016);  
CAN/CSA-C22.2 No. 62368-1

**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, Subparts 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, and  
ANSI/TIA-603-E); ANSI C63.10:2020; ANSI C63.27:2017

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;

**Test Technology:**

Europe  
(excluding Protocol Testing)

**Test Method(s) <sup>1,4</sup>:**

RSS-310; RSS-GEN

ETSI EN 300 220-1 V3.1.1 (2017-02);  
ETSI EN 300 220-1 V2.3.1 (2010-02);  
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 300 328 V1.9.1 (2015-02);  
ETSI EN 300 328 V1.7.1 (2006-10);  
ETSI EN 300 328 V1.8.1 (2012-06);  
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 V6.2.1 (2013-04);  
ETSI EN 301 908-1 V15.1.1 (2021-09);  
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 301 908-11 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);  
ETSI EN 301 908-14 V13.1.1 (2019-09);  
ETSI EN 301 908-15 V11.1.2 (2017-01);  
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);



**Test Technology:**

Europe  
(excluding Protocol Testing)  
(cont.)

**Test Method(s) <sup>1,4</sup>:**

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 301 489-5 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 301 489-17 V3.1.1 (2017-02);  
ETSI EN 301 489-17 V3.2.4 (2020-09);  
ETSI EN 301 489-17 V2.2.1 (2012-09);  
ETSI EN 301 489-19 V2.1.1 (2019-04);  
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 301 489-34 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 V1.2.1 (2013-03);  
ETSI EN 301 489-51 V2.1.1 (2019-04)  
ETSI EN 301 489-52 V1.2.1 (2021-11)





**Test Technology:**

Hong Kong

**Test Method(s) <sup>1,4</sup>:**

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 2 (September 2012);  
HKCA 1052, Issue 3 (September 2019);  
HKCA 1053, Issue 1 (June 2008);  
HKCA 1054, Issue 1 (September 2008)

Korea

KS X 3123; KS X 3124; KS X 3125;  
KS X 3126; KS X 3134;  
Technical Requirements for Measurement and Test Procedure of Specific Absorption Rate (RRA Public Notification 2018-18, Dec 7, 2018);  
Equipment to be Subject of Test Procedure for Electromagnetic Field Strength and Specific Absorption Rate (RRA Public Notification 2021-16, Oct 12, 2021)  
Notice on Conformity Assessment of Broadcasting and Communications Equipment (RRA Public Notification 2022-13, Mar 30, 2022  
RRA Public Notification 2019-32, Dec 31, 2019);  
Technical Requirements for Measurement of Electromagnetic Field Strength (RRA Public Notification 2019-3, Mar 4, 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)

**Test Technology:**

**Test Method(s) <sup>1,4</sup>:**

Korea (cont.)

Regulations on Radio Equipment (Ordinance of MSIT No. 86, Jan 4, 2022)  
RRA Announce 2011-32, K 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, K only (Feb. 4, 2014);  
RRA Announce 2014-90 (Dec. 23, 2014);  
RRA Announce 2015-81 (Sep. 30, 2015); Korean only  
RRA Announce 2015-135 (Jan. 5, 2016);  
RRA Notice 2017-7, Korean only (Aug. 4, 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, K only (Jun. 28, 2012);  
RRA 2013-3 and 2013-24, June 17, 2013, Korean only  
RRA 2014-8 and RRA 2014-37 (June 23, 2014);  
RRA Public Notification 2015-27 (Dec. 03 2015);  
RRA Announce 2015-110 (Dec. 3, 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)

Australia / New Zealand

AS/NZS 4268 (2017);  
AS/NZS 4268 (2012) + A1 (2013);  
AS/NZS 4268:2017 + A1:2021  
ACMA (Short Range Devices) Standard 2004 +A1  
+A2 (2013) + (2014)

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 2 (August 2021);  
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) <sup>1,4</sup>:**

Vietnam

QCVN 11 (2010):BTTTT; QCVN 12 (2015):BTTTT;  
QCVN 13 (2010):BTTTT; QCVN 15 (2015):BTTTT;  
QCVN 16 (2018):BTTTT; QCVN 18 (2014):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 (2015); AS/CA S042.4 (2011)

**RF Exposure***(excluding HAC)*

RSS-102 Measurement (SAR);  
RSS-102 Measurement (RF Exposure);  
RSS-102 Measurement (NS); SPR-002;  
IEEE Std. 1528 (2013); IEEE Std. C95.1 (2005) +A1 (2010);  
IEEE Std. C95.3 (2002); IEEE Std C95.3:2021  
IEC IEEE 6209-1528 (2020);  
EN 50364 (2018) + (2010); EN 50383 (2010); EN 50566 (2017);  
EN 50663 (2017); EN 62233 (2008); EN IEC 62311 (2020);  
EN 62311 (2008); EN 62369-1 (2009); EN 62479 (2010-12);  
EN 62209-2 (2010); IEC 62209-1 Ed. 2.0 (2016-07);  
IEC 62209-2 Ed. 1.1 (2010); EN/IEC 62209-2:2010+A1:2019;  
KCC Public Notification 2012-1; OET Bulletin 65, Edition 97-01  
ACA Standard 2007 + A1 (2011); ACA Standard (2013, 2014);  
ACMA Radiocommunications (Electromagnetic Radiation – Human  
Exposure) Standard 2014:2019;  
AS/NZS 2772.2:2016/Amdt 1:2018

**RF Performance Measurements**

Over-the-Air Performance (OTA)

CTIA Test Plan for Wireless Device Over-the-Air

<sup>1</sup> When the date, revision or edition of a test method standard is not identified on the scope of accreditation, the laboratory is expected to be using the current version within one year of the date of publication, per part C., Section 1 of A2LA R101 - General Requirements - Accreditation of ISO-IEC 17025 Laboratories.

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<sup>1</sup>:

<b>Rule Subpart/Technology</b>	<b>Test Method(s)</b>	<b>Maximum Frequency</b>
<u>Unintentional Radiators</u> Part 15B	ANSI C63.4:2014	220000 MHz
<u>Industrial, Scientific, and Medical Equipment</u> Part 18	FCC MP-5:1986	220000 MHz
<u>Intentional Radiators</u> Part 15C	ANSI C63.10:2013	220000 MHz
<u>Unlicensed Personal Communication Systems Devices</u> Part 15D	ANSI C63.17:2013	220000 MHz
<u>U-NII without DFS Intentional Radiators</u> Part 15E	ANSI C63.10:2013	220000 MHz
<u>U-NII with DFS Intentional Radiators</u> Part 15E	FCC KDB 905462 D02 (v02)	220000 MHz
<u>UWB Intentional Radiators</u> Part 15F	ANSI C63.10:2013	220000 MHz
<u>BPL Intentional Radiators</u> Part 15G	ANSI C63.10:2013	220000 MHz
<u>White Space Device Intentional Radiators</u> Part 15H	ANSI C63.10:2013	220000 MHz
<u>Commercial Mobile Services (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 MHz
<u>General Mobile Radio Services (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 MHz
<u>Citizens Broadband Radio Services (FCC Licensed Radio Service Equipment)</u> Part 96	ANSI/TIA-603-E; TIA-102.CAAA-E; 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<sup>1</sup>:

<b>Rule Subpart/Technology</b>	<b>Test Method(s)</b>	<b>Maximum Frequency</b>
<u>Maritime and Aviation Radio Services</u> Parts 80 and 87	ANSI/TIA-603-E; ANSI C63.26:2015	220000 MHz
<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 MHz
<u>RF Exposure</u> Devices Subject to SAR Requirements	IEEE Std 1528:2013	6000 MHz
<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 MHz

<sup>2</sup>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<sup>3</sup>*

**Standards**

IEC 60601-2-50, Edition 2.1, 2016  
 ISO 80601-2-55, 2018  
 IEC 60601-1-2 Edition 4, 2014-02  
 IEC 60601-2-25 Edition 2.0, 2011-10  
 IEC 60601-2-27 Edition 3.0, 2011  
 IEC 80601-2-30, 2018  
 IEC 60601-2-34, 2011  
 IEC 60601-2-47 Edition 2.0, 2012-02  
 ISO 80601-2-61, 2017

<sup>3</sup> 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.

<sup>4</sup> 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.



## Accredited Laboratory

A2LA has accredited

# ELEMENT MATERIALS TECHNOLOGY MINNEAPOLIS – BROOKLYN PARK

*Brooklyn Park, MN*

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 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 4<sup>th</sup> day of October 2021.

A blue ink signature of Trace McInturff.

Trace McInturff, Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 3310.05  
Valid to September 30, 2023  
Revised June 22, 2023

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