CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

Retlif Testing Laboratories

3131 Detwiler Road
Harleysville, PA 19438

Fulfills the requirements of

ISO/IEC 17025:2017

and

U.S. Federal Communication Commission (FCC) EMC and Telecommunications (EC&T) Testing Designation Program

Recognition of Telecommunications Testing - Innovation, Science, and Economic Development (ISED) Canada

FDA Accreditation Scheme for Conformity Assessment (ASCA) Pilot Program - Basic Safety and Essential Performance of Medical Electrical Equipment, Medical Electrical Systems, and Laboratory Medical Equipment

In the field of

TESTING

This certificate is valid only when accompanied by a current scope of accreditation document.
The current scope of accreditation can be verified at www.anab.org.

Jason Stine, Vice President

Expiry Date: 02 September 2026

Certificate Number: L2320.02

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. 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).

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Retlif Testing Laboratories

3131 Detwiler Road
Harleysville, PA 19438

Richard Reitz rreitz@retlif.com

TESTING

Valid to: **September 02, 2026** Certificate Number: **L2320.02**

Electromagnetic

Military EMC Methods			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Frequency / Range of Test**	**Key Equipment or Technology**
General	MIL-STD-464A,B,C MIL-STD-704A,B,C,D,E,F	-	-
Bonding and Grounding	MIL-STD-1310G,H	-	-
Conducted Emissions, Current	MIL-STD-462, CE01 MIL-STD-462, CE02 MIL-STD-462, CE03 MIL-STD-462, CE04 MIL-STD-462D, CE101 MIL-STD-461E, CE101 MIL-STD-461F, CE101 MIL-STD-461G, CE101	DC to 400 MHz	-
Conducted Emissions, RF Port	MIL-STD-462, CE06 MIL-STD-462D, CE106 MIL-STD-461E, CE106 MIL-STD-461F, CE106 MIL-STD-461G, CE106	10 kHz to 100 GHz	-
Conducted Emissions, Transient	MIL-STD-462, CE07	Time Domain	-
Conducted Emissions, Voltage	MIL-STD-462D, CE102 MIL-STD-461E, CE102 MIL-STD-461F, CE102 MIL-STD-461G, CE102	10 kHz to 1 GHz	-

Electromagnetic

Military EMC Methods			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Frequency / Range of Test**	**Key Equipment or Technology**
Conducted Susceptibility, AF	MIL-STD-462, CS01 MIL-STD-462, CS09 MIL-STD-462D, CS101 MIL-STD-462D, CS109 MIL-STD-461E, CS101 MIL-STD-461E, CS109 MIL-STD-461F, CS101 MIL-STD-461F, CS109 MIL-STD-461G, CS101 MIL-STD-461G, CS109	DC to 250 kHz	-
Conducted Susceptibility, RF	MIL-STD-462, CS02 MIL-STD-462D, CS114 MIL-STD-461E, CS114 MIL-STD-461F, CS114 MIL-STD-461G, CS114	4 kHz to 400 MHz	-
Conducted Susceptibility, RF Port	MIL-STD-462, CS03 MIL-STD-462, CS04 MIL-STD-462, CS05 MIL-STD-462, CS07 MIL-STD-462D, CS103 MIL-STD-462D, CS104 MIL-STD-462D, CS105 MIL-STD-461E, CS103 MIL-STD-461E, CS104 MIL-STD-461E, CS105 MIL-STD-461F, CS103 MIL-STD-461F, CS104 MIL-STD-461F, CS105 MIL-STD-461G, CS103 MIL-STD-461G, CS104 MIL-STD-461G, CS105	30 Hz to 40 GHz	-
Conducted Susceptibility, Transient	MIL-STD-462, CS06, CS10, CS11, CS12, CS13 MIL-STD-462D, CS115, CS116 MIL-STD-461E, CS115, CS116, CS106, CS115, CS116 MIL-STD-461G, CS115, CS116	CS115: 5 Amperes CS116: 10 Amperes	-
EMP	MIL-STD-462, RS05 MIL-STD-462D, RS105 MIL-STD-461E, RS105 MIL-STD-461F, RS105 MIL-STD-461G, RS105	50,000 V/M	-

Electromagnetic

Military EMC Methods			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Frequency / Range of Test**	**Key Equipment or Technology**
ESD	MIL-STD-1686C MIL-STD-461G, CS118	25 kV	-
Lightning	MIL-STD-461G, CS117	Single Stroke, Multiple Stroke and Multiple Burst Waveforms 1, 2, 3, 4, 5A, 6	-
Power Input	MIL-STD-1275A,B,C,D,E MIL-STD-1399, Section 300A MIL-STD-1399, Section 300B MIL-STD-1399 Section 300, Part 1 MIL-STD-704A-F Utilizing: MIL-HDBK-704-2, SAC101, SAC102, SAC103, SAC104, SAC105, SAC106, SAC107, SAC108, SAC109, SAC110, SAC201, SAC301, SAC302, SAC303, SAC401, SAC601, SAC603	-	-
Power Input	MIL-HDBK-704-3, TAC101, TAC102, TAC103, TAC104, TAC105, TAC106, TAC107, TAC108, TAC109, TAC110, TAC201, TAC301, TAC302, TAC303, TAC401, TAC601, TAC602, TAC603 MIL-HDBK-704-4, SVF101, SVF102, SVF104, SVF105, SVF106, SVF107, SVF108, SVF109, SVF110, SVF201, SVF301, SVF302, SVF303, SVF401, SVF601, SVF603 MIL-HDBK-704-5, TVF101, TVF102, TVF103, TVF104, TVF105, TVF106, TVF107, TVF108, TVF109, TVF110, TVF201, TVF301, TVF302, TVF303, TVF401, TVF601, TVF602, TVF603 MIL-HDBK-704-6, SXF101, SXF102, SXF104, SXF105, SXF106, SXF107, SXF108, SXF109, SXF110, SXF201, SXF301, SXF302, SXF303, SXF401, SXF601, SXF603 MIL-HDBK-704-7, HDC101, HDC102, HDC103, HDC104, HDC105, HDC201, HDC301, HDC302, HDC303, HDC401, HDC501, HDC601, HDC602 MIL-HDBK-704-8, LDC101, LDC102, LDC103, LDC104, LDC105, LDC201, LDC301, LDC302, LDC401, LDC501, LDC601, LDC602	-	-

Electromagnetic

Military EMC Methods			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Frequency / Range of Test**	**Key Equipment or Technology**
Radiated Emissions, E-Field	MIL-STD-462, RE02, RE04 MIL-STD-462D, RE102 MIL-STD-461E, RE102 MIL-STD-461F, RE102 MIL-STD-461G, RE102	10 kHz to 40 GHz	-
Radiated Emissions, H-Field	MIL-STD-462, RE01 MIL-STD-462D, RE101 MIL-STD-461E, RE101 MIL-STD-461F, RE101 MIL-STD-461G, RE101	30 Hz to 150 kHz	-
Radiated Emissions, RF Spurious	MIL-STD-462, RE03 MIL-STD-461E, RE103 MIL-STD-461F, RE103 MIL-STD-461G, RE103	10 kHz to 40 GHz	-
Radiated Susceptibility, E-Field	MIL-STD-462, RS03 MIL-STD-462D, RS103 MIL-STD-461E, RS103 MIL-STD-461F, RS103 MIL-STD-461G, RS103	10 kHz to 40 GHz	-
Radiated Susceptibility, H-Field	MIL-STD-1399-407 DOD-STD-1399, (NAVY) - Section 070 MIL-STD-1399, Section 070 MIL-STD-461E, RS101 MIL-STD-461F, RS101 MIL-STD-461G, RS101 MIL-STD-462, RS01 MIL-STD-462, RS02 MIL-STD-462, RS06 MIL-STD-462D, RS101	DC to 250 kHz	-

Electromagnetic

Commercial Aviation EMC Methods			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Frequency / Range of Test**	**Key Equipment or Technology**
Magnetic Effects	RTCA/DO-160A,B,C,D,E,F,G, Section 15 ABD0100.1.2 Rev E,F,G Section 3.4.1	DC	-

Electromagnetic

Commercial Aviation EMC Methods			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Frequency / Range of Test**	**Key Equipment or Technology**
Power Input	RTCA/DO-160A,B,C,D,E,F,G, Section 16 D6-16050-4 Rev C,D,F Section 7.5.3	-	-
Conducted Susceptibility, Transient	RTCA/DO-160A,B,C,D,E,F,G, Section 17 D6-16050-4 Rev C,D,F Section 7.5.1 ABD0100.1.2 Rev E,F,G Section 3.4.2	600 Volts	-
Conducted Susceptibility, AF	RTCA/DO-160A,B,C,D,E,F,G, Section 18 D6-16050-4 Rev C,D,F Section 7.2 ABD0100.1.2 Rev E,F,G Section 3.4.3	DC to 250 kHz	-
Radiated Susceptibility, H-Field	RTCA/DO-160A,B,C,D,E,F,G, Section 19 D6-16050-4 Rev C,D,F D6-16050-5 Rev A,B,C Section 7.2, 7.5 ABD0100.1.2 Rev E,F,G Section 3.4.4	DC to 250 kHz	-
Conducted Susceptibility, RF	RTCA/DO-160A,B,C,D,E,F,G, Section 20 D6-16050-4 Rev C,D,F D6-16050-5 Rev A,B,C Section 7.3 ABD0100.1.2 Rev E,F,G Section 3.3.2	10 kHz to 400 MHz	-
Radiated Susceptibility, E-Field	RTCA/DO-160A,B,C,D,E,F,G, Section 20 D6-16050-4 Rev C,D,F D6-16050-5 Rev A,B,C Section 7.3 ABD0100.1.2 Rev E,F,G Section 3.3.3, 3.3.4	150 kHz to 40 GHz	-

Electromagnetic

Commercial Aviation EMC Methods			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Frequency / Range of Test**	**Key Equipment or Technology**
Conducted Emissions, Current	RTCA/DO-160A,B,C,D,E,F,G, Section 21 D6-16050-4 Rev C,D,F Section 8.3.2, 8.4 D6-16050-5 Rev A,B,C Section 8.1,8.2.1 ABD0100.1.2 Rev E,F,G Section 3.4.5	DC to 400 MHz	-
Conducted Emissions, Transient	D6-16050-4 Rev D,F Section 8.1,8.3.1 D6-16050-5 Rev A,B,C Section 8.1	Time Domain	-
Radiated Emissions	RTCA/DO-160A,B,C,D,E,F,G, Section 21 D6-16050-4 Rev C,D,F Section 8.4 D6-16050-5 Rev A,B,C Section 8.2.2 ABD0100.1.2 Rev E,F,G Section 3.4.5	150 kHz to 40 GHz	-
Lightning	RTCA/DO-160A,B,C,D,E,F,G, Section 22 D6-16050-4 Rev C,D,F D6-16050-5 Rev A,B,C Section 7.4 ABD0100.1.2 Rev E,F,G Section 3.2	Single Stroke, Multiple Stroke and Multiple Burst Waveforms: 1,2 ,3 ,4 ,5A ,5B, 6 Levels: 1 through 5	-
ESD	RTCA/DO-160A,B,C,D,E,F,G, Section 25 D6-16050-4 Rev C,D,F D6-16050-5 Rev A,B,C Section 7.1 ABD01001.2 Rev E,F,G Section 3.5	25 kV	-

Electromagnetic

Product Family EMC Standards			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Items, Materials or Product Tested**	**Key Equipment or Technology**
Electromagnetic Compatibility Emissions & Immunity	ETSI EN 300 386 V1.6.1	Electromagnetic Compatibility and Radio Spectrum Matters (ERM): Telecommunication Network Equipment; Electromagnetic Compatibility (EMC) Requirements	-
	ETSI EN 301 489-1 V1.9.2: 2011	Radio Equipment	-
	CISPR 11 ED 4.0: 2003 IEC/CISPR 11 ED 5.0: 2009 + A1: 2010 IEC/CISPR 11 ED 5.1: 2010 IEC/CISPR 11 ED 6.0: 2015 IEC/CISPR 11 ED 6.1: 2016 IEC/CISPR 11 ED 6.2:2019 IEC/CISPR 11 ED 7.0: 2024 EN 55011: 2009 +A1: 2010 EN 55011: 2016 +A1:2017 +A11:2020 ICES-001 Issue 5:2020	Industrial, Scientific and Medical Equipment	-
	EN 55014-2:1997 + A1:2001 + A2:2008 EN 55014-1:2006 + A1:2009 + A2:2011 EN 55014-1:2017+A11:2020 EN 55014-2: 2021 IEC/CISPR 14-1 ED 5.0: 2005 IEC/CISPR 14-1 ED 6.0: 2016 + ISH1: 2017 IEC/CISPR 14-1 ED 7.0 :2020 IEC/CISPR 14-2 ED 2.0: 2015 IEC/CISPR 14-2 ED 3.0: 2020	Household Appliances, Electric Tools and Similar Apparatus	-
	EN 55015: 2013 EN IEC 55015: 2019 +A11 2020 ICES-005 Issue 5, December 2018	Lightning Equipment	-
	IEC/CISPR 22, Edition 5:2005-04 EN 55022:2006 + A1:2007 EN 55022: 2010 + AC: 2011 EN 55024: 2010 ICES-003 Issue 7:2020	Information Technology Equipment	-
	IEC/CISPR 25: 2002 IEC/CISPR 25: 2008 IEC/CISPR 25: 2016 IEC/CISPR 25: 2021 IEC/CISPR 12 ED 6.1:2009	Automotive Components	-

Electromagnetic

Product Family EMC Standards			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Items, Materials or Product Tested**	**Key Equipment or Technology**
Electromagnetic Compatibility Emissions & Immunity	EN 55032: 2012 + AC: 2013 EN 55032:2015 +A11: 2020 IEC/CISPR 32 ED 2.0: 2015 IEC/CISPR 32 ED 2.1: 2019 VCCI-CISPR 32: 2016 AS/NZS CISPR 32: 2015 + A1:2020	Multimedia Equipment	-
	EN 55035: 2017/A11:2020 CISPR 35: 2016	Multimedia Equipment	-
	EN 50083-2: 2012 +A1:2015	Cable Networks for Television Signals, Sound Signals and Interactive Services	-
	EN 50121-1: 2006 + AC:2008 EN 50121-1: 2017 IEC 62236-1: 2018	Railway Applications	-
	EN 50121-2:2006 + AC:2008 EN 50121-2: 2017 IEC 62236-2: 2018	Railway Applications – Whole Railway System	-
	EN 50121-3-1:2006 + AC:2008 EN 50121-3-1: 2017 IEC 62236-3-1: 2018	Railway Applications – Rolling Stock – Train and Complete Vehicle	-
	EN 50121-3-2:2006 + AC:2008 EN 50121-3-2: 2016+A1: 2019 IEC 62236-3-2: 2018	Railway Applications – Rolling Stock - Apparatus	-
	EN 50121-4:2006 + AC:2008 EN 50121-4: 2016 EN 50121-4: 2016/A1:2019 IEC 62236-4: 2018	Railway Applications – Signaling and Telecommunications Apparatus	-
	EN 50121-5:2006 + AC:2008 EN 50121-5: 2017 IEC 62236-5: 2018	Railway Applications – Fixed Power Supply Installations and Apparatus	-
	EN 50130-4: 2011	Fire, Intruder Hold Up, CCTV, Access Control and Social Alarm Systems	-
	EN 50498:2010	Aftermarket Electronic Equipment in Vehicles	-
	EN 55103-1: 2009 + A1: 2012 EN 55103-2: 2009	Audio, video, audio-visual and entertainment lighting control apparatus for professional use	-
	EN 60034-1: 2010/AC: 2010	Rotating Machines	-

Electromagnetic

Product Family EMC Standards			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Items, Materials or Product Tested**	**Key Equipment or Technology**
Electromagnetic Compatibility Emissions & Immunity	EN 60255-26: 2013 + AC:2013 IEC 60255-26: 2013-05 IEC 60255-26: 2023	Measuring Relays and Protection Equipment	-
	IEC 60601-1-2: ED 3.0: 2007 IEC 60601-1-2: ED 4.0: 2014 IEC 60601-1-2: ED 4.1: 2020 EN 60601-1-2: ED 3.0: 2007 EN 60601-1-2: 2015/A1: 2021	Medical Electrical Equipment	-
	EN 60945: 2002	Maritime Navigation and Radio communication Equipment and Systems	-
	EN 60974-10:2014/A1: 2015 IEC 60974-10: 2020	Arc Welding Equipment	-
	EN 61000-6-1: 2007 EN 61000-6-3: 2007+ A1: 2011+AC: 2012 AS/NZS 61000.6.3: 2021	Generic Standard for Residential, Commercial and Light Industrial Environments	-
	EN 61000-6-2: 2005 + AC: 2005 EN 61000-6-4: 2007 + A1: 2011 AS/NZS 61000.6.4:2012	Generic Standard for Industrial Environments	-
	EN 61000-6-5:2015 + AC: 2018	Electromagnetic Compatibility (EMC) Part 6-5: Generic Standards – Immunity for Equipment Used in Power Station and Substation Environment	-
	IEC 61326-1:2005-12 IEC 61326-1, Ed. 2.0:2012 IEC 61326-1 Ed. 3.0: 2020 EN 61326-1:2013	Electrical Equipment for Measurement, Control and Laboratory Use	-
	EN 62040-2: 2006 +AC: 2006	Uninterruptible Power Systems (UPS)	-
	MTA-NYCT EMC Standard for non- third rail powered work cars, Rev. 1.0	Railway Applications	-
	MTA-NYCT AC Train EMC Standards, Rev. 2.0	Railway Applications	-
	NYCT Specification Section 16ES	Railway Applications	-
	NYCT Specification Section 1N	Railway Applications	-

Electromagnetic

Product Family EMC Standards			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Items, Materials or Product Tested**	**Key Equipment or Technology**
	OIML R-76-1: 2006	Non-Automatic Weighing Systems	-
Electromagnetic Compatibility Emissions & Immunity	ABS Rules for Building and Classing Marine Vessels: 2024	Maritime Equipment	-
	Lloyd's Register LR Type Approval Test Specification #1: December 2021	Maritime Equipment	-
	IEC 60092-504, Edition 4.0, 2016-~~19~~09 Test No. 3, 4a, 4b, 5, 13, 14, 15, 16, 17, 18, 19 & 20	Maritime Equipment	-
	International Association of Classification Societies, Test Specifications for Type Approval E10, Rev 8, Feb 2021, Corr. 1 Aug 2023	Maritime Equipment	-
	ISO 7176-21: 2009 ANSI/RESNA WC-2:2019	Electrically Powered Wheelchairs, Scooters and Battery Chargers	-
	ISO 7637-1: 2015 ISO 7637-2: 2011 ISO 7637-3: 2016 ISO 11451-1:2015 ISO 11452-1:2015 ISO 16750-1:2018 ISO 16750-2:2012 SAE J1113-1: 2006 SAE J1113-1: 2013 SAE J1113-1:2018 SAE J1113-1:2023	Road Vehicles	-
	ISO 13766: 2006 ISO 13766-1: 2018 ISO 13766-2:2018	Earth-Moving and Building and Construction Machinery	-

Electromagnetic

Commercial EMC Methods			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Frequency / Range of Test**	**Key Equipment or Technology**
Conducted Emissions, Transient	IEC/CISPR 16-2-1: 2014+A1: IEC/CISPR 25:2016, IEC/CISPR 25:2021 IEC/CISPR 22, Edition 5:2005-04 SAE J1113-42: 2010	Time Domain	-
Conducted Emissions, Current	IEC/CISPR 16-2-1: 2014+A1: 2017 IEC/CISPR 25:2016 IEC/CISPR 25:2021 IEC/CISPR 22, Edition 5:2005-04 EN 55022:2006 IEC/CISPR 22, Ed. 6.0:2008-09, EN 61000-3-2: 2014 IEC 61000-3-2, Ed. 4.0:2014-05 IEC 61000-3-2, Ed. 3.0:2005-11 IEC 61000-3-2, Ed. 3.0:2005 +A1:2008 + A2:2009 IEC 61000-3-2, Ed. 3.2:2009 IEC 61000-3-2 2018 +A1: 2020+A2: 2024 EN 61000-3-3: 2013 IEC 61000-3-3:2013 +A1:2017+A2: 2021 IEC 61000-3-11: 2017 IEC 61000-3-11: 2000-08 EN 61000-3-11: 2000 IEC 61000-3-12: 2004 EN 61000-3-12: 2011 IEC 61000-3-12: 2011-05+A1: 2021 UMTA-MA-06-0153-87-2 UMTA-MA-06-0153-85-8	9 kHz to 30 MHz	-

Electromagnetic

Commercial EMC Methods			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Frequency / Range of Test**	**Key Equipment or Technology**
Conducted Emissions, Voltage	IEC/CISPR 16-2-1: 2014+A1: 2017 EN 55011:2009 + A1:2010 EN 55011:2016 +A1: 2017 +A11: 2020 EN 55014-1:2006 + A1:2009 + A2:2011 EN 55014-1 2017 +A11: 2020 EN IEC 55014-1: 2021 EN 55022:2006 + A1:2007 EN 55022:2010 + AC:2011 EN 55032:2012 + AC:2013 EN 55032:2012-05 EN 55032: 2015 +A11: 2020 ANSI C63.4:2014 ANSI C63.4:2003 IEC/CISPR 25:2016 IEC/CISPR 25:2021 IEC 61000-3-3 Ed.2.0:2008 IEC 61000-3-3 Ed.3.0:2013-05+A1: 2017 +A2; 2021 UMTA-MA-06-0153-87-2 UMTA-MA-06-0153-85-8	9 kHz to 30 MHz	-
Conducted Immunity, AF	ISO 11452-10:2009 SAE J1113-2: 1996 SAE J1113-2: 2004 SAE J1113-2: 2010 IEC 61000-4-16: Ed. 2.0: 2015 EN 61000-4-16: 2016 IEC 61000-4-17 Ed. 1.2: 2009 EN 61000-4-17: 1999+A1:2004+A2:2008	DC to 250 kHz	-

Electromagnetic

Commercial EMC Methods			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Frequency / Range of Test**	**Key Equipment or Technology**
Conducted Immunity, RF	IEC 61000-4-6, Ed. 2.0:2003-05 IEC 61000-4-6, Ed. 2.1:2004 IEC 61000-4-6, Ed. 2.2:2006 IEC 61000-4-6, Ed. 3.0:2008 IEC 61000-4-6, Ed. 4.0:2013 IEC 61000-4-6 Ed. 5.0:2023 IEC 61000-4-6:1996 EN 61000-4-6:2009 ISO 11452-4: 2011 ISO 11452-4:2020 ISO 11452-7:2003 + A1:2013 SAE J1113-3: 2006 SAE J1113-3: 2010 SAE J1113-4: 2004 SAE J1113-4: 2014 SAE J1113-4:2020	9 kHz to 400 MHz	-
EFT/Chattering Relay	IEC 61000-4-4, Ed. 2.0:2004-07 EN 61000-4-4:2004 + A1:2010 EN 61000-4-4: 2012 IEC 61000-4-4:1995 IEC 61000-4-4, Ed. 2.1:2011 IEC 61000-4-4:2012-04 SAE J1113-12: 2006 SAE J1113-12: 2017 SAE J1113-12: 2022	4 kV	-
ESD	IEC 61000-4-2, Ed. 2.0:2008-12 EN 61000-4-2:2009-05 ISO 10605:2008 + A1:2014 ISO 10605: 2023 SAE J1113-13: 2004 SAE J1113-13: 2015	25 kV	-
Power Input	IEC 61000-4-11:2004 + A1:2017 EN 61000-4-11:2004 EN 61000-4-11:2020 IEC 61000-4-11:2004 IEC 61000-4-11:1994 IEC 61000-4-11:2020 IEC 61000-4-29: 2000 IEC 61000-4-34: 2005 + A1: 2009	-	-

Electromagnetic

Commercial EMC Methods			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Frequency / Range of Test**	**Key Equipment or Technology**
Radiated Emissions, E-Field	IEC/CISPR 16-2-3: 2016+A1: 2019+A2:2021 EN 55011:2009 + A1:2010 EN 55011:2016 +A1: 2017 +A11: 2020 EN 55012:2007 + A1:2009 EN 55014-1:2006 + A1:2009 + A2:2011 EN 55014-1: 2017 +A11: 2020 EN 55022:2006 + A1:2007 EN 55022:2010 + AC:2011 EN 55032:2012 + AC:2013 EN 55032:2012-05 EN 55032:2015 +A11: 2020 SAE J1113-41: 2006 UMTA-MA-06-0153-85-11	10 kHz to 40 GHz	-
Radiated Immunity, E-Field	IEC 61000-4-3:1995 IEC 61000-4-3:2020 IEC 61000-4-3, Ed. 3.0:2006-02 EN 61000-4-3:2006 + A1:2008 + A2:2010 IEC 61000-4-3, Ed. 3.1:2008-04 IEC 61000-4-3, Ed. 3.2:2010 ISO 11451-2: 2015 ISO 11451-3: 2015 ISO 11451-3: 2024 ISO 11452-2: 2004 ISO 11452-2:2019 ISO 11452-3: 2016 ISO 11452-3: 2024 ISO 11452-5:2002 ISO 11452-9:2012 ISO 11452-9:2021 SAE J1113-21: 2005 SAE J1113-21: 2013 SAE J1113-23: 2002 SAE J1113-24: 2010 SAE J1113-26: 2006 SAE J1113-26: 2014 SAE J1113-26: 2021	10 kHz to 18 GHz	-

Electromagnetic

Commercial EMC Methods			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Frequency / Range of Test**	**Key Equipment or Technology**
Radiated Immunity, H-Field	IEC 61000-4-8:1993 IEC 61000-4-8:2009, EN 61000-4-8: 2010 IEC 61000-4-9: 2016, EN 61000-4-9: 2016 IEC 61000-4-10: 2016 EN 61000-4-10: 2017 IEC 61000-4-39: 2017 EN 61000-4-39: 2017 ISO 11452-8:2015 SAE J1113-22: 2003 SAE J1113-22: 2010	DC to 250 kHz	-
Surge/Transients	IEC 61000-4-5, Ed. 3.0: 2014 + A1:2017 IEC 61000-4-5, Ed. 2.0:2005-11 IEC 61000-4-5, Ed. 1.1:2005-11 EN 61000-4-5, Ed. 3.0: 2014 + A1:2017 EN 61000-4-5: 2006 IEC 61000-4-5:1995 IEC 61000-4-12: 2017 SAE J1113-11: 2006 SAE J1113-11: 2011 SAE J1113-11: 2012 SAE J1113-11: 2017 SAE J1113-11:2018 SAE J1113-11:2023	6 kV	-
Effectiveness of Electromagnetic Shielding Enclosures	IEEE-STD-299-2006	50 Hz to 40 GHz	-

Electromagnetic

Product Family Radio Standards			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Items, Materials or Product Tested**	**Key Equipment or Technology**
Radio Parameters	ETSI EN 300 220-1 V3.1.1: 2017 ETSI EN 300 220-2 V3.1.1: 2017 AS/NZS 4268:2017/AMD1: 2021	Short Range Devices, 25 to 1 000 MHz	-
	ETSI EN 302 208 V3.3.1: 2020	RFID	-
	ETSI EN 300 328 V2.2.2: 2019	Wide Band Transmission Systems, 2.4 GHz ISM Band	-
	ETSI EN 300 330 V2.1.1: 2017 AS/NZS 4268:2017/AMD1: 2021	Short Range Devices, 9 kHz to 30 MHz	-

Electromagnetic

Product Family Radio Standards			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Items, Materials or Product Tested**	**Key Equipment or Technology**
	ETSI EN 300 440 V2.1.1: 2017 AS/NZS 4268:2017/AMD1: 2021	Short Range Devices, 1 to 40 GHz	-

Electromagnetic

Radio Test Methods			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Frequency / Range of Test**	**Key Equipment or Technology**
Audio Tests	TIA-603-E, 2.1.10 Audio Frequency Response TIA-603-E, 2.1.11 Hum and Noise TIA-603-E, 2.1.12 Audio Distortion TIA-603-E, 2.1.13 Audio Squelch TIA-603-E, 2.1.14 Squelch Blocking TIA-603-E, 2.1.20 Acoustic Audio Output TIA-603-E, 2.2.3 Modulation Limiting TIA-603-E, 2.2.5 Audio Sensitivity TIA-603-E, 2.2.6 Audio Frequency Response TIA-603-E, 2.2.7 Audio Distortion TIA-603-E, 2.2.8 FM Hum and Noise TIA-603-E, 2.2.9 AM Hum and Noise TIA-603-E, 2.2.10 Acoustic Microphone TIA-603-E, 2.2.15 Audio Low Pass Filter Response TIA-603-E, 2.2.16 Intermodulation Attenuation	-	-
Conducted Emissions, Voltage	ANSI C63.10, 6.2:2013 AC Line Conducted TIA-603-E, 2.1.3 Power Line Conducted	9 kHz to 30 MHz	-
Timing	TIA-603-E, 2.1.15 Receiver Attack Time TIA-603-E, 2.1.16 Receiver Closing Time TIA-603-E, 2.1.22 Receiver Opening Time TIA-603-E, 2.2.4 Carrier attack Time	-	-
Receiver, Adjacent Channel Sensitivity	TIA-603-E, 2.1.6 Adjacent Channel Rejection	10 kHz to 40 GHz	-
Receiver, Blocking	TIA-603-E, 2.1.8 Spurious Response Rejection TIA-603-E, 2.1.9 Intermodulation Rejection TIA-603-E, 2.1.18 Impulse Blanking ETSI EN 300 220 V3.1.1, 4.4.2 Receiver Blocking TIA-603-E, 2.1.21 Blocking Rejection	10 kHz to 40 GHz	-
Receiver, Sensitivity	TIA-603-E, 2.1.5 Signal Bandwidth TIA-603-E, 2.1.17 Audio Sensitivity ETSI EN 300 220 V3.1.1, 4.4.1 Receiver Sensitivity TIA-603-E, 2.1.19 Average Radiation Sensitivity	10 kHz to 40 GHz	-

Electromagnetic

Radio Test Methods			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Frequency / Range of Test**	**Key Equipment or Technology**
Receiver, Spurious Radiation	TIA-603-E, 2.1.1 Radiated Spurious Output Power TIA-603-E, 2.1.2 Conducted Spurious Output Power	10 kHz to 40 GHz	-
Specialized	TIA-603-E, 2.1.4 Reference Sensitivity ETSI EN 300 220 V3.1.1, 4.3.9 Adaptive Power Control ETSI EN 300 220 V3.1.1, 4.3.6 TX Transient ETSI EN 300 220 V3.1.1, 4.3.11 TX Short Term ETSI EN 300 220 V3.1.1, 4.5.2 Clear Channel ETSI EN 300 220 V3.1.1, 4.5.3 Polite Spectrum ETSI EN 300 220 V3.1.1, 4.5.4 Adaptive Freq TIA-603-E, 2.2.18 Transmitter Stability in VSWR	-	-
Transmitter, Adjacent Channel Power	ANSI C63.10, 6.10:2013 Band Edge TIA-603-E, 2.1.7 Offset Channel Selectivity ETSI EN 300 220 V3.1.1, 4.3.7 Adjacent Channel Power TIA-603-E, 2.2.14 Adjacent Channel Power TIA-603-E, 2.2.19 Transient Frequency Behavior	10 kHz to 40 GHz	-
Transmitter, DSS, Spectral Density	ETSI EN 300 220 V3.1.1, 4.3.2 ERP Spectral Dens ANSI C63.10, 11.10 PSD	10 kHz to 40 GHz	-
Transmitter, Duty Cycle	ETSI EN 300 220 V3.1.1, 4.3.3 Duty Cycle ANSI C63.10, 11.6:2013 DTS Duty Cycle	-	-
FHSS	ETSI EN 300 220 V3.1.1, 4.3.10 FHSS	-	-
Operating Frequency	ETSI EN 300 220 V3.1.1, 4.2.1 Operating Frequency	10 kHz to 40 GHz	-
Transmitter, Frequency Stability, Temperature	ANSI C63.10, 6.8:2013 Frequency Stability, Tempe TIA-603-E, 2.2.2 Carrier Frequency Stability, Temp	10 kHz to 40 GHz	-
Transmitter, Frequency Stability, Voltage	ANSI C63.10, 6.9:2013 Frequency Stability, Voltage ETSI EN 300 220 V3.1.1, 4.3.8 Low Voltage TIA-603-E, 2.2.2 Carrier Frequency Stability, Voltage	10 kHz to 40 GHz	-
Transmitter, Modulation Bandwidth	ANSI C63.10, 11.8:2013 DTS Bandwidth ANSI C63.10, 11.13:2013 Band Edge ETSI EN 300 220 V3.1.1, 4.3.4 OBW TIA-603-E, 2.2.11 Sideband Spectrum	-	-
Transmitter, RF Power Output, Conducted	ANSI C63.10, 11.9:2013 Fundamental Output Power TIA-603-E, 2.2 .1 Conducted Carrier Power	10 kHz to 40 GHz	-
Transmitter, RF Power output, EIRP	ETSI EN 300 220 V3.1.1, 4.3.1 Operating Freq TIA-603-E, 2.2.17 Radiated Output Power	10 kHz to 40 GHz	-

Electromagnetic

Radio Test Methods			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Frequency / Range of Test**	**Key Equipment or Technology**
Transmitter, Unwanted Emissions	ANSI C63.10, 6.4:2013, < 30 MHz ANSI C63.10, 6.5:2013 Radiated Emissions, 30 to 1000 MHz ANSI C63.10, 6.6:2013 Radiated Emissions, > 1 GHz ANSI C63.10, 6.7:2013 Antenna Conducted ANSI C63.10, 11.11:2013 Non- Restricted Bands ANSI C63.10, 11.12:2013 Restricted Bands TIA-603-E, 2.2.12 Radiated Spurious TIA-603-E, 2.2.13 Conducted Spurious ETSI EN 300 220, V3.1.1, 4.2.2 Spurious ETSI EN 300 220, V3.1.1, 4.3.5 OOB	10 kHz to 40 GHz	-

Electromagnetic

Product Safety Standards			
Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Items, Materials or Product Tested**	**Key Equipment or Technology**
Electrical Safety Parameters	EN 61010-1:2010/ A1:2019	Measurement, Control and Laboratory Equipment	-
	EN 62368-1: 2014/AC: 2015	Audio/Video, Information and Communication Technology Equipment	-
	EN 60204-1: 2018	Machinery	-

Mechanical

Specific Tests and/or Properties Measured	**Specification, Standard, Method, or Test Technique**	**Items, Materials or Product Tested**	**Key Equipment or Technology**
Solar Radiation (Sunshine)	MIL-STD-810, Method 505 MIL-STD-810B, Method 505	0-1120 W/m^2 Procedure 1 & 2	Atlas Solar Radiation Simulator

Testing performed in support of FCC approval procedures for certification [2]

Type of Device Examples	**Scope of Accreditation**	**Supporting FCC Guidance**	**Comments/Maximum Frequency Tested**
Unintentional Radiators (FCC Part 15, Subpart B)	ANSI C63.4-2014 ANSI C63.4a-2017	-	40 GHz

Testing performed in support of FCC approval procedures for certification [2]

Type of Device Examples	Scope of Accreditation	Supporting FCC Guidance	Comments/Maximum Frequency Tested
Industrial, Scientific, and Medical Equipment (FCC Part 18) Consumer ISM equipment	FCC MP-5, (February 1986)	-	120 GHz
Intentional Radiators (FCC Part 15, Subpart C)	ANSI C63.10-2013 ANSI C63.10-2020	-	120 GHz
U-NII without DFS Intentional Radiators (FCC Part 15, Subpart E) Unlicensed National Information Infrastructure Devices (U-NII without DFS)	ANSI C63.10-2013 ANSI C63.10-2020	KDB Publication 789033	40 GHz
General Mobile Radio Services (FCC Licensed Radio Service Equipment) [1] Part 22 (non-cellular) Part 90 (below 3 GHz) Part 95 (below 3 GHz) Part 97 (below 3 GHz) Part 101 (below 3 GHz)	ANSI/TIA-603-E or TIA-102.CAAA-E-2016 or ANSI C63.26-2015	-	59.250 GHz
Maritime and Aviation Radio Services (FCC Licensed Radio Service Equipment) Part 80; Part 87	ANSI/TIA-603-E or ANSI C63-26-2015	-	40 GHz
Microwave and Millimeter Bands Radio Services (FCC Licensed Radio Service Equipment) Part 25; Part 30; Part 74 Part 90 (above 3 GHz) Part 95 (above 3 GHz) Part 97 (above 3 GHz); Part 101	ANSI/TIA-603-E or TIA-102.CAAA-E-2016 or ANSI C63.26-2015	KDB Publication 653005	71.25 GHz
Broadcast Radio Services (FCC Licensed Radio Service Equipment) Part 73; Part 74 (below 3 GHz)	ANSI/TIA-603-E or TIA-102.CAAA-E-2016 or ANSI C63.26-2015	-	71.25 GHz
Signal Boosters (Part 20) Wideband Consumer signal boosters Provider-specific signal boosters Industrial signal boosters Signal Boosters (Section 90.219)	ANSI C63.26-2015	KDB Publication 935210 D03, D04, and D05 [1]	40 GHz

Testing to Meet the Requirements for Recognition of Telecommunications Testing – Innovation, Science, and Economic Development (ISED) Canada [1]

Test Method (Standard)	Issue, Date, Amendment	Test Specification(s)	Comments
RSS-GEN	Issue 5, April 2018 Amendment 1, March 2019 Amendment 2, February 2021	General Requirements for Compliance of Radio Apparatus	-
RSS-102	Issue 6, December 2023	Radio Frequency (RF) Exposure compliance of Radiocommunications Apparatus (All Frequency Bands)	RF Exposure (RF Exp) - Measurement
RSS-102.NS.MEAS	Issue 1, December 2023	Measurement Procedure for Assessing Nerve Stimulation (NS) Compliance in Accordance with RSS-102	-
RSS-119	Issue 12, May 2015 Amendment 2022	Land Mobile and Fixed Equipment Operating in the Frequency Range (27.41 to 960) MHz	-
RSS-131	Issue 4 December 2022	Zone Enhancers	-
RSS-210	Issue 11, June 2024	License-Exempt Radio Apparatus: Category I Equipment	-
RSS-247	Issue 3, August 2023	Digital Transmission Systems (DTS), Frequency Hopping Systems (FHSs) and License-Exempt Local Area Networks (LE-LAN) Devices	Without DFS
RSS-248	Issue 2 December 2022	Radio Local Area Network (RLAN) Devices Operating in the (5 925 to 7 125) MHz Band	-
RSS-310	Issue 5, January 2020	License-Exempt Radio Apparatus: Category II Equipment	-
SPR-002	Issue 2, October 2022	Supplementary Procedure for Assessing compliance with RSS-102 Nerve Stimulation Exposure Limits	-

Meets the Requirements of: ANAB Supplemental Requirements SR 2437 - FDA Accreditation Scheme for Conformity Assessment (ASCA) Pilot Program - Basic Safety and Essential Performance of Medical Electrical Equipment, Medical Electrical Systems, and Laboratory Medical Equipment [4]

Product Type	Specific Tests or Properties Measured	Specification, Standard Method, or Technique Used	Accredited to Perform the Following Clauses
Medical Electrical Equipment	Electromagnetic Compatibility	19-8, IEC 60601-1-2, Ed. 4.0, 2014-02	To the extent of the FDA ASCA partial recognition

Meets the Requirements of: ANAB Supplemental Requirements SR 2437 - FDA Accreditation Scheme for Conformity Assessment (ASCA) Pilot Program - Basic Safety and Essential Performance of Medical Electrical Equipment, Medical Electrical Systems, and Laboratory Medical Equipment [4]

Product Type	Specific Tests or Properties Measured	Specification, Standard Method, or Technique Used	Accredited to Perform the Following Clauses
Medical Electrical Equipment	Electromagnetic Compatibility	19-38 IEC 60601-1-11, Ed 2.1, 2020-07 Consolidated Version	Clause 12
Medical Electrical Equipment	Electromagnetic Compatibility	19-39, IEC 60601-1-12, Ed. 1.1, 2020-07 Consolidated Version	Clause 11
Electrocardiographs	Electromagnetic Compatibility	3-105, IEC 60601-2-25, Ed. 2.0, 2011-10	Clauses 201.17 & 202
Endoscopic Equipment	Electromagnetic Compatibility	9-114, IEC 60601-2-18, Ed. 3.0, 2009-08	Clauses 201.17 & 202
Infant Radiant Warmers	Electromagnetic Compatibility	6-463, IEC 60601-2-21, Ed. 3.0, 2020-09	Clauses 201.17 & 202
Infant Transport Incubators	Electromagnetic Compatibility	6-462, IEC 60601-2-20, Ed. 3.0, 2020-09	Clauses 201.17 & 202
Infant Incubators	Electromagnetic Compatibility	6-461, IEC 60601-2-19, Ed. 3.0, 2020-09	Clauses 201.17 & 202
Ultrasonic Medical Diagnostic and Monitoring Equipment	Electromagnetic Compatibility	12-293, IEC 60601-2-37, Ed. 2.1, 2015	Clauses 201.17 & 202
X-Ray Equipment for Computed Tomography	Electromagnetic Compatibility	12-302, IEC 60601-2-44, Ed. 3.2, 2016	Clause 201.17
Ambulatory Electrocardiographic Systems	Electromagnetic Compatibility	3-155, IEC 60601-2-47, Ed. 2.0, 2012-02	Clauses 201.17 & 202
Medical Beds	Electromagnetic Compatibility	6-321, IEC 60601-2-52, Ed. 1.0, 2009-12	Clause 201.17

Meets the Requirements of: ANAB Supplemental Requirements SR 2437 - FDA Accreditation Scheme for Conformity Assessment (ASCA) Pilot Program - Basic Safety and Essential Performance of Medical Electrical Equipment, Medical Electrical Systems, and Laboratory Medical Equipment [4]

Product Type	Specific Tests or Properties Measured	Specification, Standard Method, or Technique Used	Accredited to Perform the Following Clauses
Nerve and Muscle Stimulators	Electromagnetic Compatibility	17-16, IEC 60601-2-10, Ed. 2.1, 2016-04	Clauses 201.17 & 202
Dental Intra-Oral X-Ray Equipment	Electromagnetic Compatibility	12-340, IEC 60601-2-65, Ed. 1.2, 2021-05 Consolidated Version	Clauses 201.17 & 202
General II (ES/EMC)	Electromagnetic Compatibility	19-50, IEC TS 60601-4-2 Edition 1.0 2024-03	To the extent of the FDA ASCA partial recognition

Notes:

1. For Signal Boosters (Part 20) accreditation is required for Commercial Mobile Services (FCC Licensed Radio Services Equipment) and for Signal Booster (Section 90.219) accreditation is required for General Mobile Radio Services (FCC Licensed Radio Service Equipment).
2. Meets the requirements of the FCC equipment authorization program as detailed in 47 CFR Part 2 Subpart J as defined in the ANAB SR 2412 U.S. Federal Communication Commission (FCC) EMC and Telecommunications (EC&T) Testing Designation Accreditation Program. Recognition by the FCC can be confirmed by visiting their website https://apps.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm.
3. Testing performed to meet the Requirements for Recognition of Telecommunications Testing – Innovation, Science, and Economic Development (ISED) Canada. Recognition by ISED can be confirmed by visiting their website https://www.ic.gc.ca/eic/site/mra-arm.nsf/eng/h_nj00091.html.
4. Testing to meet the requirements of ANAB Supplemental Requirements SR 2437, FDA Accreditation Scheme for Conformity Assessment (ASCA) Pilot Program – Basic Safety and Essential Performance of Medical Electrical Equipment, Medical Electrical Systems, and Laboratory Medical Equipment. Recognition by the FDA can be confirmed by visiting their website https://www.fda.gov/medical-devices/standards-and-conformity-assessment-program/asca-accredited-testing-laboratories.
5. This scope is formatted as part of a single document including Certificate of Accreditation No. L2320.02.

Jason Stine, Vice President