



CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

Rhein Tech Laboratories, Inc.
360 Herndon Parkway, Suite 1400
Herndon, VA 20170

Fulfills the requirements of

ISO/IEC 17025:2017

and

**US Federal Communication Commission (FCC) EMC and
Telecommunications (EC&T) Testing Designation Program**

and

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

while demonstrating technical competence 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.

R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 30 June 2023

Certificate Number: AT-1445



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

U.S. Federal Communication Commission (FCC) EMC and Telecommunications (EC&T) Testing Designation Program ⁴

Recognition of Telecommunications Testing - Innovation, Science, and Economic Development (ISED) Canada ⁵

Rhein Tech Laboratories, Inc.

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TESTING

Valid to: **June 30, 2023**

Certificate Number: **AT-1445**

Testing performed in support of FCC approval procedures for certification ⁴

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	-	40 000 MHz
Industrial, Scientific, and Medical Equipment (FCC Part 18) Consumer ISM equipment	FCC MP-5, (February 1986)	-	220 000 MHz
Intentional Radiators (FCC Part 15, Subpart C)	ANSI C63.10-2013	-	220 000 MHz
U-NII without DFS Intentional Radiators (FCC Part 15, Subpart E) Unlicensed National Information Infrastructure Devices (U-NII without DFS)	ANSI C63.10-2013	KDB Publication 789033	40 000 MHz
UWB Intentional Radiators (FCC Part 15, Subpart F) Ultra-wideband Operation	ANSI C63.10-2013	-	200 000 MHz
BPL Intentional Radiators (FCC Part 15, Subpart G) Access Broadband Over Power Line (Access BPL)	ANSI C63.10-2013	-	40 000 MHz



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Type of Device Examples	Scope of Accreditation	Supporting FCC Guidance	Comments/Maximum Frequency Tested
White Space Device Intentional Radiators (FCC Part 15, Subpart H) White Space Devices	ANSI C63.10-2013	-	40 000 MHz
Commercial Mobile Services (FCC Licensed Radio Service Equipment) Part 22 (cellular) Part 24 Part 25 (below 3 GHz) Part 27	ANSI/TIA-603-E or TIA-102.CAAA-E-2016 or ANSI C63.26-2015	KDB Publication 971168	220 000 MHz
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	-	220 000 MHz
Citizens Broadband Radio Services (FCC Licensed Radio Service Equipment) Part 96	ANSI/TIA-603-E or TIA-102.CAAA-E-2016 or ANSI C63.26-2015	KDB Publication 971168 KDB Publication 940660	220 000 MHz
Maritime and Aviation Radio Services (FCC Licensed Radio Service Equipment) Part 80 Part 87	ANSI/TIA-603-E or ANSI C63-26-2015	-	220 000 MHz
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	220 000 MHz
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	-	220 000 MHz



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Testing performed in support of FCC approval procedures for certification ⁴

Type of Device Examples	Scope of Accreditation	Supporting FCC Guidance	Comments/Maximum Frequency Tested
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]	220 000 MHz

Testing to Meet the Requirements for Recognition of Telecommunications Testing – Innovation, Science, and Economic Development (ISED) Canada ⁵

Test Method (Standard)	Test Specification(s)	Range	Comments
RSS-Gen Issue 5 Apr 2018, Amd 1 (Mar 2019), Amd 2 (Feb 2021) RSS-102 Issue 5 Mar 2015, Amd 1 (Feb 2, 2021) (RF Exposure) RSS-111 Issue 5 Sep 2014, RSS-112 Issue 1 Feb 2008 RSS-117 Issue 3 Jan 2016, RSS-119 Issue 12 May 2015 RSS-123 Issue 4 Aug 2019, RSS-125 Issue 3 Jun 2020 RSS-127 Issue 1 Aug 2009, RSS-130 Issue 2 Feb 2019 RSS-131 Issue 3 Published: Jan 2017 Updated: May 2017 RSS-132 Issue 3 Jan 2013 RSS-133 Issue 6 Jan 2013 Amendment Jan 2018 RSS-134 Issue 2 Feb 2016, RSS-135 Issue 2 Jun 2009 RSS-137 Issue 2 Feb 2009, RSS-139 Issue 3 Jul 2015 RSS-140 Issue 1 Apr 2018, RSS-141 Issue 2 Jun 2010 RSS-142 Issue 5 Apr 2013 RSS-170 Issue 3 Jul 2015, Amendment (Nov 2020) RSS-181 Issue 2 Aug 2019 Amendment Feb 2020 RSS-182 Issue 5 Jan 2012 RSS-191 Issue 3 Apr 2008 Note Jan 21, 2020 RSS-192 Issue 4 May 2020, RSS-194 Issue 1 Oct 2007 RSS-195 Issue 2 Apr 2014, RSS-196 Issue 2 Feb 2019 RSS-197 Issue 1 Feb 2010, RSS-199 Issue 3 Dec 2016 RSS-210 Issue 10 Dec 2019 Amendment Apr 2020 RSS-211 Issue 1 Mar 2015, RSS-215 Issue 2 Jun 2009 RSS-216 Issue 2 Jan 2016, Amendment 1 (Sep 2020) RSS-220 Issue 1 Mar 2009 Amendment Jul 2018 RSS-222 Issue 2 Jan 2020, RSS-236 Issue 1 Sep 2012 RSS-238 Issue 1 Jul 2013, RSS-243 Issue 3 Feb 2010 RSS-247 Issue 2 Feb 2017 (without DFS) RSS-251 Issue 2 Jul 2018, RSS-252 Issue 1 Sep 2017 RSS-287 Issue 2 Mar 2014, RSS-310 Issue 5 Jan 2020	Output Power Power Spectral Density Conducted Spurious Emissions Radiated Spurious Emissions Occupied Bandwidth Duty Cycle Frequency Stability ERP/EIRP Audio Frequency Response Modulation Limiting Transient Frequency Behavior Intermodulation Dwell time, Minimum Frequency Occupation & Hopping Sequence MPE – RF Exposure	220 MHz	-

Electromagnetic Compatibility

Field of Test	Specific Tests or Properties Measured	Specification, Standard Method, or Technique Used
Emissions Standards	Radiated and Conducted	CISPR 22: 2008 ED 6.0, EN 55022: 2006, A1:2007 and AS/NZS CISPR 22:2009+A1(2010); CAN/CSA-CEI/IEC CISPR 22; CNS 13438-2006 (up to 6 GHz); CISPR 11, EN 55011, AS/NZS CISPR 11:2011; CNS 13803 CISPR 32 Ed 2.0 2015+AMD1:2019 EN 55032:2015+A1:2020
Emissions Standards	Harmonics	IEC 61000-3-2, EN 61000-3-2, AS/NZS 61000.3.2
	Flicker	IEC 61000-3-3, EN 61000-3-3, AS/NZS 61000.3.3
	Generic / Product Specific	IEC 61000-6-3, EN 61000-6-3, AS/NZS 61000.6.3:2012; IEC 61000-6-4, EN 61000-6-4, AS/NZS 61000.6.4:2012
	ESD	IEC 61000-4-2, EN 61000-4-2, MIL-STD-704; DO-160D/E/F: Section 25 MIL-STD-461G: Method CS118
	RF	IEC 61000-4-3, EN 61000-4-3
Immunity Standards	EFT	IEC 61000-4-4, EN 61000-4-4
	Surge	IEC 61000-4-5, EN 61000-4-5
	Conducted	IEC 61000-4-6, EN 61000-4-6
	Low Frequency Magnetic	IEC 61000-4-8, EN 61000-4-8
	Power Drop	IEC 61000-4-11, EN 61000-4-11
Immunity Standards	Generic / Product Specific	CISPR 24, EN 55024 and AS/NZS CISPR 24; EN 61000-6-1; EN 61000-6-2; AS/NZS 4254.1
Emissions and Immunity Standards	Combined Generic / Product Specific	IEC 60601-1-2; EN 60601-1-2; IEC 61326; EN 61326
RF Exposure	MPE	IEEE STD C95.1; IEEE STD C95.3; OET Bulletin 65; EN 50371; RSS-102

Radio

Field of Test	Specific Tests or Properties Measured	Specification, Standard Method, or Technique Used
Radio Testing	Europe	ETSI EN 300 086-2, 300 113-2, 300 219-2, 300 220-1, 300 220-2, 300 328, 300 330-2, 300 390-2, 300 440-2, 301 893, 301 489-1, 301 489-3, 301 489-4, 301 489-5, 301 489-7, 301 489-8, 301 489-15, 301 489-17



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Radio

Field of Test	Specific Tests or Properties Measured	Specification, Standard Method, or Technique Used
Radio Testing	Japan (Items as listed in the US/Japan MRA)	Citizen radio (Item 3 of Article 2 Paragraph 1 of Certification Ordinance) Cordless telephone (Item 7 of Article 2 Paragraph 1 of Certification Ordinance) (From Item 8 of Article 2 Paragraph 1 of Certification Ordinance) -- Radio equipment in the 2.4 GHz band for use in identification of moving objects Detection sensor of moving objects (10.525 GHz and 24.15 GHz band) Radio equipment for millimeter wave visual transmission or data transmission in the (59 to 66) GHz band Millimeter wave radar (60.5 GHz and 76.5 GHz) Radio microphones in the (70 to 300) and 800 MHz band 75 MHz Voice assist radiotelephone 315 MHz Telemeter, telecontrol or data transmission 400 MHz Radiotelephone 400 MHz band Data transmission radio equipment (420 to 450) MHz Medical telemeter Type D and F, plus Type A, B, & C 429 MHz Radio pager 950 MHz Band identification of moving objects 1 200 MHz band Data transmission radio equipment 75 MHz Radio microphone for hearing aid 433 MHz Data transmission used for international transportation (402 to 405) MHz Data transmission for self-contained medical instruments 426 MHz Low-power security radio (Item 13 of Article 2 Paragraph 1 of Certification Ordinance) 2.4 GHz band wide-band low-power data communication system (Item 19 of Article 2 Paragraph 1) (From Item 19-2 of Article 2 Paragraph 1) -- 2.4 GHz band low-power data communication system Low power data communications system in the 2.4GHz band (for radio control model aircraft, [2471 to 2497] MHz) 2.4 GHz band low-power data communication system (From Item 19-3 of Article 2 Paragraph) – 5 GHz band low-power data communication system (1) (5.2 GHz band, plus [5.3 and 5.6] GHz bands) Quasi-millimeter band low-power data communication system (Item 19-4 of Article 2 Paragraph 1 of Certification Ordinance) Land mobile station for 5 GHz band wireless access system (3) (Item 19-11 of Article 2 paragraph 1 of Certification Ordinance)
Radio Testing	Japan (Items as listed in the US/Japan MRA)	1 900 MHz Digital cordless telephone (Item 21 of Article 2 Paragraph 1 of Certification Ordinance) PHS land mobile station (Item 22 of Article 2 Paragraph 1 of Certification Ordinance)

Radio

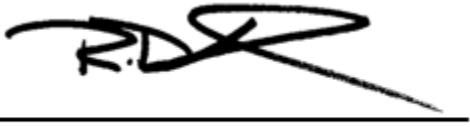
Field of Test	Specific Tests or Properties Measured	Specification, Standard Method, or Technique Used
		<p>Mobile station for dedicated short-range communications system (Item 32 of Article 2 paragraph 1 of Certification Ordinance)</p> <p>Station for testing radio equipment for dedicated short-range communications system (Item 33-2 of Article 2 Paragraph 1 of Certification Ordinance)</p> <p>Ultra Wideband Wireless System (Item 47 of Article 2 Paragraph 1)</p>
Military/Aviation	Conducted Emissions	<p>MIL-STD-461G: Methods CE101, CE102, CE106; MIL-STD -461F: Methods CE101, CE102, CE106; MIL-STD -461E: Methods CE101, CE102, CE106; MIL-STD -461D/462D: Methods CE101, CE102, CE106; MIL-STD -461C/462: Methods CE01, CE03; DO-160D/E/F/G: Section 21</p>
	Radiated Emissions	<p>MIL-STD-461G: Methods RE101, RE102; MIL-STD -461F: Methods RE101, RE102; MIL-STD -461E: Methods RE101, RE102; MIL-STD -461D/462D: Methods RE101, RE102; MIL-STD -461C/462: Methods RE01, RE02; DO-160D/E/F/G: Section 21</p>
	Conducted Susceptibility	<p>MIL-STD-461G: Methods CS101, CS114, CS115, CS116; MIL-STD -461F: Methods CS101, CS106, CS114, CS115, CS116; MIL-STD -461E: Methods CS101, CS114, CS115, CS116; MIL-STD -461D/462D: Methods CS101, CS114, CS115, CS116; MIL-STD-704 LDC103, LDC 104; DO-160D/E/F/G: Section 18, 19, 20</p>
	Radiated Susceptibility	<p>MIL-STD-461G: Methods RS101, RS103; MIL-STD -461F: Methods RS101, RS103; MIL-STD -461E: Methods RS101, RS103; MIL-STD -461D/462D: Methods RS101, RS103; MIL-STD -461C/462: Methods RS01, RS02, RS03; DO-160D/E/F/G: Section 19, 20</p>
	Magnetic Effect	DO-160D/E/F/G: Section 15
Military/Aviation	Power Input	<p>MIL-STD-704 LDC101, LDC102, LDC105, LDC201, LDC301, LDC302, LDC401, LDC501, LDC601; DO-160D/E/F/G: Section 16</p>
	Voltage Spike	DO-160D/E/F/G: Section 17

Radio

Field of Test	Specific Tests or Properties Measured	Specification, Standard Method, or Technique Used
	Phase Reversal	MIL-STD-704 LDC 602

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. For standards or methods listed on the scope of accreditation without a revision number or issue date or with a superseded issue date or revision number, laboratories are expected to be competent in the use of the current version within one year of standard or method publication update (or by the authorized use date of a recognition body or regulatory agency). When an older standard or method is required for an accredited test, the scope will include the superseded date/version if lab demonstrated proficiency for the procedures to be enveloped by and within the limits of the listed tests and the general controls enveloped in ISO/IEC 17025 Accreditation.
3. For the CISPR standards, the test laboratory is using the regional test requirement documents as opposed to the base reference documents as defined by the regional regulatory agencies (e.g. AS/NZ representing Australia and New Zealand, EN for the European community).
4. Testing performed in support of FCC approval procedures for certification.
5. Testing performed to meet the Requirements for Recognition of Telecommunications Testing – Innovation, Science, and Economic Development (ISED) Canada.
6. This scope is formatted as part of a single document including Certificate of Accreditation No. AT-1445.



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