



**FCC PART 15, SUBPART F
ISED C RSS-220, ISSUE 1, JULY 2018**

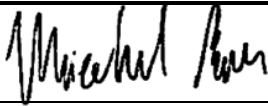
TEST REPORT

For

Tesla, Inc.

3500 Deer Creek Road
Palo Alto, CA 94304, USA

**FCC ID: 2AEIM-2145520
IC: 20098-2145520**

Report Type: Original Report	Product Type: Automotive Part
Prepared By: Michael Papa RF Test Engineer	
Report Number: R2511121-519	
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Reviewed By: Steven Lianto EMC & RF Lead	
Bay Area Compliance Laboratories Corp. 1274 Anvilwood Avenue, Sunnyvale, CA 94089, USA Tel: (408) 732-9162 Fax: (408) 732-9164	



Note: This test report was prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. This test report shall not be used by the customer to claim product certification, approval, or endorsement by A2LA or any agency of the United States Government or any foreign government.

* This test report may contain data and test methods that are not covered by BACL's scope of accreditation as of the test report date shown above. These items are marked within the test report text with an asterisk "*"

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R2511121-519	Original Report	2026-03-26

1 General Description

1.1 Product Description for Equipment Under Test (EUT)

This test report is prepared on behalf of *Tesla, Inc.*, and their product model: 2145520, FCC ID: 2AEIM-2145520, IC: 20098-2145520, the “EUT” as referred to in this report. The EUT is an Automotive Part (Endpoint Device) equipped with an Ultra-Wideband (UWB) radio operating at 7987.2 MHz and a Bluetooth Low Energy (BLE) radio operating in the 2402–2480 MHz band.

1.2 Mechanical Description of EUT

The EUT measures approximately 8.5 cm (L) x 4.0 cm (W) x 1.5 cm (H) and weights approximately < 0.1 kg.

The data gathered is from production samples provided by Tesla, Inc with S/N: 3825601 72 and 3825601 99.

1.3 Objective

This report was prepared on behalf of *Tesla, Inc.*, in accordance with Part 2, Subpart J, and Part 15, Subpart and F of the Federal Communication Commission’s rules and ISERC RSS-220 Issue 1, July 2018.

The objective was to determine compliance with FCC Part 15.519 and ISERC RSS-220 rules for Peak Fundamental Emission, Antenna Requirements, UWB Bandwidth, Average Radiated Emissions, Radiated Spurious Emissions and Ceasing Transmission requirements.

In order to determine compliance, the manufacturer or a contracted laboratory makes measurements and takes the necessary steps to ensure that the equipment complies with the appropriate technical standards.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product maybe which result in lowering the immunity should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different line filter, different power supply, harnessing and/or I/O cable changes, etc.).

1.4 Related Submittal(s)/Grant(s)

FCC Part 15, Subpart C, Equipment Class: DTS with FCC ID: 2AEIM-2145520, IC: 20098-2145520

1.5 Test Methodology

All measurements contained in this report were conducted in accordance with ANSI C63.10-2020 + Cor.1-2023 + Errata to C63.10a-2024, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices and FCC KDB 393764 D01 UWB FAQ v02r01: Ultra-Wideband (UWB) Devices Frequently Asked Questions.

1.6 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.57 dB
Power Spectral Density, conducted	±1.48dB
Unwanted Emissions, conducted	±1.57dB
All emissions, radiated	±4.0 dB
AC power line Conducted Emission	±2.0 dB
Temperature	±2 ° C
Humidity	±5 %
DC and low frequency voltages	±1.0 %
Time	±2 %
Duty Cycle	±3 %

1.7 Test Facility Registrations

BACLs test facilities that are used to perform Radiated and Conducted Emissions tests are currently recognized by the Federal Communications Commission as Accredited with NIST Designation Number US1129.

BACL's test facilities that are used to perform Radiated and Conducted Emissions tests are currently registered with Industry Canada under Registration Numbers: 3062A.

BACL is a Chinese Taipei Bureau of Standards Metrology and Inspection (BSMI) validated Conformity Assessment Body (CAB), under Appendix B, Phase I Procedures of the APEC Mutual Recognition Arrangement (MRA). BACL's BSMI Lab Code Number is: SL2-IN-E-1002R

BACL's test facilities that are used to perform AC Line Conducted Emissions, Telecommunications Line Conducted Emissions, Radiated Emissions from 30 MHz to 1 GHz, and Radiated Emissions from 1 GHz to 6 GHz are currently recognized as Accredited in accordance with the Voluntary Control Council for Interference [VCCI] Article 15 procedures under Registration Number A-0428.

1.8 Test Facility Accreditations

Bay Area Compliance Laboratories Corp. (BACL) is:

A- An independent, 3rd-Party, Commercial Test Laboratory accredited to ISO/IEC 17025:2017 by A2LA (Test Laboratory Accreditation Certificate Number 3297.02), in the fields of: Electromagnetic Compatibility and Telecommunications. Unless noted by an Asterisk (*) in the Compliance Matrix (See Section 3 of this Test Report), BACL's ISO/IEC 17025:2017 Scope of Accreditation includes all of the Test Method Standards and/or the Product Family Standards detailed in this Test Report..

BACL's ISO/IEC 17025:2017 Scope of Accreditation includes a comprehensive suite of EMC Emissions, EMC Immunity, Radio/Wireless, RF Exposure, Safety, and Wireline Telecommunications test methods applicable to a wide range of product categories. These product categories include, but are not limited to: Central Office Telecommunications Equipment [including NEBS – Network Equipment Building Systems], Information Technology Equipment (ITE); Telecommunications Terminal Equipment (TTE); Medical Electrical Equipment; Industrial, Scientific and Medical Test Equipment; Professional Audio and Video Equipment; Industrial Equipment, Scientific Instruments and Laboratory Apparatus; Cable Distribution Systems, Railway Equipment, Marine Equipment, and Energy Efficient Lighting. Additionally, BACL offers comprehensive test capabilities for both Unlicensed and Licensed Wireless and RF Devices, per the requirements of the FCC (USA), ISED Canada (Canada), the EU/EEA/EFTA Nations (per the ETSI Standards applicable under the Radio Equipment Directive), Singapore, MIC (Japan), South Korea, Vietnam, and Taiwan ROC.

B- A Product Certification Body accredited to ISO/IEC 17065:2012 by A2LA (Product Certification Body Accreditation Certificate Number 3297.03) to certify

- For the USA (Federal Communications Commission):

- 1- All Unlicensed radio frequency devices within FCC Scopes A1, A2, A3, and A4;
- 2- All Licensed radio frequency devices within FCC Scopes B1, B2, B3, and B4;
- 3- All Telephone Terminal Equipment within FCC Scope C.

- For the Canada (Innovation, Science and Economic Development Canada):

- 1 All Scope 1-Licence-Exempt Radio Frequency Devices;
- 2 All Scope 2-Licensed Personal Mobile Radio Services;
- 3 All Scope 3-Licensed General Mobile & Fixed Radio Services;
- 4 All Scope 4-Licensed Maritime & Aviation Radio Services;
- 5 All Scope 5-Licensed Fixed Microwave Radio Services
- 6 All Broadcasting Equipment Technical Standards (BETS) in the Category I Equipment Standards List.
7. RSS-HAC Radio Scope 6 Hearing Aid Compatibility and Volume Control

- For Singapore (Info-Comm Media Development Authority (IMDA)):

- 1 All Line Terminal Equipment: All Technical Specifications for Line Terminal Equipment – Table 1 of IDA MRA Recognition Scheme: 2011, Annex 2 IMDA Phase I
2. All Radio-Communication Equipment: All Technical Specifications for Radio-Communication Equipment – Table 2 of IDA MRA Recognition Scheme: 2011, Annex 2 IMDA Phase II

- For the Hong Kong Special Administrative Region & (Office of the Communications Authority-OFCA) – APEC Tel MRA- Phase I and Phase II:

- 1 Radio Equipment, per KHCA 10XX-series Specifications; HKCA 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1010, 1015, 1016, 1019, 1020, 1022, 1026, 1033, 1034, 1035, 1036, 1037, 1039, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1052, 1053, 1054, 1056, 1057, 1061, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1080, 1081

- 2 GMDSS Marine Radio Equipment, per HKCA 12XX-series Specifications; HKCA 1218, 1223, 1224, 1225, 1257, 1258, 1259, 1260, 1261, 1262, 1263, 1264, 1265, 1266, 1277, 1281, 1282, 1283
- 3 Fixed Network Equipment, per HKCA 20XX-series Specifications; HKCA 2001, 2011, 2014, 2015, 2017, 2026, 2027, 2028, 2029, 2030, 2031

- For Japan:

- 1 MIC Telecommunication Business Law (Terminal Equipment):
 - All Scope A1 - Terminal Equipment for the Purpose of Calls;
 - All Scope A2 - Other Terminal Equipment
- 2 Radio Law (Radio Equipment):
 - All Scope B1 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 1 of the Radio Law
 - All Scope B2 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 2 of the Radio Law
 - All Scope B3 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 3 of the Radio Law

C- A Product Certification Body accredited to ISO/IEC 17065:2012 by A2LA (Product Certification Body Accreditation Certificate Number 3297.01) to certify Products to USA's Environmental Protection Agency (EPA) ENERGY STAR Product Specifications for:

- 1 Appliances:
 - for Clothes Washers (ver. 8.1)
 - for Residential Dishwashers (ver. 6.0)
 - for Residential Refrigerators and/or Freezers (ver. 5.0)
- 2 Commercial Food Service Equipment:
 - for Commercial Dishwashers (ver. 3.0)
 - for Commercial Ice Machines (ver. 3.0)
- 3 Data Center Equipment:
 - for Large Network Equipment (ver. 1.1)
- 4 Electronics and Office Equipment:
 - for Audio/Video Equipment (ver. 3.0)
 - for Computers (ver. 8.0)
 - for Data Center Storage (ver. 2.1)
 - for Displays (ver. 8.0)
 - for Enterprise Servers (ver. 4.0)
 - for Imaging Equipment (ver. 3.1)
 - for Set-top Boxes & Cable Boxes (ver. 5.1)
 - for Small Network Equipment (ver. 1.0)
 - for Telephony (ver. 3.0)
 - for Televisions (ver. 9.0), Title 10 Chapter II CFR Part 430 Subpart B –Appendix BB, Title 10 Chapter II CFR Part 430 Subpart B –Appendix DD
- 3 Lighting and Fans
 - for Decorative Light Strings (ver. 1.5)
 - for Downlights (ver. 1.0)
 - for Lamps (Light Bulbs)(ver. 2.1)
 - for Luminaires (including sub-components) (ver. 2.2)
 - for Residential Ceiling Fans (ver. 4.0)
 - for Residential Ventilating Fans (ver. 4.1)

4 Other

- for Residential Ceiling Fans (ver. 4.0)
- for Electric Vehicle Supply Equipment (ver. 1.2)(Electric Vehicle Supply Equipment Final Test Method for DC-output EVSE Rev March 2021)
- for Water Coolers (ver. 3.0)
- for Smart Home Energy Management Systems (ver. 1.1)

D- A NIST Designated Phase-I and Phase-II Conformity Assessment Body (CAB) for the following economies and regulatory authorities under the terms of the stated MRAs/Treaties:

1. For the USA (Federal Communications Commission), as a Telecommunications Certification Body (TCB):
 - All Unlicensed radio frequency devices within FCC Scopes A1, A2, A3, and A4;
 - All Licensed radio frequency devices within FCC Scopes B1, B2, B3, and B4;
 - All Telephone Terminal Equipment within FCC Scope C.
2. Canada (ISED Canada) Foreign Certification Body – FCB – APEC Tel MRA -Phase I & Phase II:
 - Phase I Designation Letter
 - Phase II ISED Canada recognition as a Product Certification Body for unlicensed wireless devices, licensed radios, radars, etc.:
3. For Singapore (InfoComm Media Development Authority (IMDA)) APEC Tel MRA -Phase I & Phase II:
 - All Line Terminal Equipment: All Technical Specifications for Line Terminal Equipment – Table 1 of IDA MRA Recognition Scheme: 2011, Annex 2 IMDA Phase I
 - All Radio-Communication Equipment: All Technical Specifications for Radio-Communication Equipment – Table 2 of IDA MRA Recognition Scheme: 2011, Annex 2 IMDA Phase II
4. For the Hong Kong Special Administrative Region & (Office of the Communications Authority – OFCA) – APEC Tel MRA -Phase I & Phase II:
 - NIST Phase I Scope Recognition Letter from OFCA for BACL –US0057
 - OFCA Phase II Designation Letter
5. For Japan (Ministry of Communications):
 - NIST Japan Recognition
 - MIC Telecommunication Business Law (Terminal Equipment):
 1. All Scope A1 – Terminal Equipment for the Purpose of Calls;
 2. All Scope A2 – Other Terminal Equipment
 - Radio Law (Radio Equipment):
 1. All Scope B1 – Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 1 of the Radio Law
 2. All Scope B2 – Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 2 of the Radio Law
 3. All Scope B3 – Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 3 of the Radio Law
 - Japan VCCI – Voluntary Control Council for Interference US-Japan Telecom Treaty (VCCI Side Letter)
 1. VCCI Certificate
 - Japan Registered Certification Body
 1. RCB Recognition Letter

6. European Union:
 - Radio Equipment Directive [RED] 2014/53/EU US-EU EMC & Telecom MRA CAB (NB)
 - EMC Directive [EMCD] 2014/30/EU US-EU EMC & Telecom MRA CAB (NB):
7. Australia ACMA (Australian Communication and Media Authority) – APEC Tel MRA -Phase I:
 - Phase I Designation Letter
8. Chinese Taipei (Republic of China – Taiwan):
 - NCC (National Communications Commission) APEC Tel MRA -Phase I
9. Republic of Korea (Ministry of Communications – Radio Research Laboratory) APEC Tel MRA -Phase I:
 - NIST Phase I Scope Update Notification Letter from Korea for BACL
10. Vietnam APEC Tel MRA -Phase I (page 13)
 - Vietnam (MIC) NIST Phase I Scope
11. Indonesia SDPPI (page 6)
 - Phase I Listing
12. Israel Phase I
 - NIST Phase I Scope Update Recognition Letter from Israel for BACL –US0057
13. UK Radio and EMC NIST Designation Letters
 - UK website: <https://www.gov.uk/uk-market-conformity-assessment-bodies/bay-area-compliance-laboratories-corp-bacl>
 1. Electromagnetic Compatibility Regulations (SI 2016/1091)
https://assets.publishing.service.gov.uk/media/5fe1e344e90e07452fce4e5a/AB_1313_BACL_UK_EMC_Regs_NIST_Designation_Extended.pdf
 2. Radio Equipment Regulations 2017 (SI 2017/1206)
https://assets.publishing.service.gov.uk/media/5fe1e351e90e074525bf7be6/AB_1313_BACL_UK_Radio_Regs_NIST_Designation_Extended.pdf
14. IFT Mexico Phase I
 - NIST Phase I New Recognition Letter from Mexico for BACL – US0057
15. Taiwan (BSMI) Phase 1 Designation Letter and designation form.
 - NIST Phase I Scope Update Designation Letter to BSMI for BACL – US0057
 - NIST Phase I Scope Update Designation Form to BSMI for BACL – US0057

2 System Test Configuration

2.1 Justification

The EUT was configured for testing according to ANSI C63.10-2020 + Cor.1-2023 + Errata to C63.10a-2024 and FCC KDB 393764 D01 UWB FAQ v02r01.

The EUT was tested in a testing mode to represent worst-case results during the final qualification test.

2.2 EUT Exercise Software

The test software used was *python* script “*uwb_testmode.py*” provided by *Tesla, Inc.* The software is compliant with the standard requirements being tested against.

Radio	Channel	Frequency (MHz)	Mode	Power Setting
UWB	9	7987.2 MHz	SP0_Config6	-0.50
			SP3_Config7	4.25

2.3 Equipment Modification

No modifications were made to the EUT during testing.

2.4 Local Support Equipment

None

2.5 Remote Support Equipment

Manufacturer	Description	Model	Serial Number
HP	Laptop	Zbook Studio G3	CND823074L
Tesla, Inc.	Debug Board	-	-

2.6 Power Supply and Line Filters

Manufacturer	Description	Model	Serial Number
Volteq	DC Power Supply	HY5003D	160402343

2.7 Interface Ports and Cabling

Cable Description	Length (m)	From	To
Communication Cable	< 1	EUT	Debug Board
Power Cables	< 1	Debug Board	DC Power Supply
USB Cable	< 1	Debug Board	Laptop

3 Summary of Test Results

FCC & ISED Rules	Description of Test	Results
FCC §15.203 ISED RSS-220 §5.1(b), ISED RSS-Gen §6.8	Antenna Requirements	Compliant
FCC §2.1091 & §1.1310(d)(3) ISED RSS-102	RF Exposure	Compliant
FCC §15.207 ISED RSS-Gen §8.8	AC Line Conducted Emissions	N/A ¹
FCC §2.1053, §15.205, §15.209, §15.519(c) ISED RSS-220 §3.4, 5.3.1(c) ISED RSS-Gen §8.9 & §8.10	Radiated Emissions	Compliant
FCC §15.503(d), §15.519(b) ISED RSS-220 §5.1(a) ISED RSS-Gen §6.7	Emission Bandwidth	Compliant
FCC §15.519(e) ISED RSS-220 §5.3.1(g)	Peak Fundamental Emission	Compliant
FCC §15.519(c), §15.519(d) ISED RSS-220 §5.3.1(d), §5.3.1(e)	Average Radiated Emissions	Compliant
FCC §15.519(a)(1) ISED RSS-220 §5.3.1(b)	Cease Transmission	Compliant

Note¹: The EUT is battery powered.

BACL is responsible for all the information provided in this report, except when information is provided by the customer as identified in this report. Information provided by the customer, e.g., antenna gain, can affect the validity of results.

4 FCC §15.203, ISEDC RSS-220 §5.1(b) & RSS-Gen §6.8 – Antenna Requirements

4.1 Applicable Standards

According to FCC §15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

According to ISEDC RSS-220 §5.1(b):

The antenna of the UWB device shall be factory-installed and shall not be made modifiable by users.

According to ISEDC RSS-Gen §6.8: Transmitter Antenna

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotopically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer.

The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested.

For license-exempt equipment with detachable antennas, the user manual shall also contain the following notice in a conspicuous location:

This radio transmitter has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types which can be used with the transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna type.

4.2 Antenna Description

External/Internal/ Integral	Part Number	Antenna Type	Frequency Range (MHz)	Maximum Antenna Gain (dBi)
Integral	2145520	Metal Stamped	7987.2	3.6

Note 1: Antenna is factory-installed and is not modifiable by users.

Note 2: Antenna information is provided by customer.

5 FCC §2.1091, §1.1310(d)(3) & ISEDC RSS-102 - RF Exposure

5.1 Applicable Standards

According to 1.1307(d)(3), At operating frequencies above 6 GHz, the MPE limits listed in Table 1 in paragraph (e)(1) of this section shall be used in all cases to evaluate the environmental impact of human exposure to RF radiation as specified in §1.1307(b) of this part.

TABLE 1 TO §1.1310(E)(1)—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*(900/f ²)	<6
30-300	61.4	0.163	1.0	<6
300-1,500			f/300	<6
1,500-100,000			5	<6
(ii) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	<30
1.34-30	824/f	2.19/f	*(180/f ²)	<30
30-300	27.5	0.073	0.2	<30
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

f = frequency in MHz

* = Plane-wave equivalent power density

According to ISED RSS-102 Issue 5 §2.5.2, Exemption Limits for Routine Evaluation- RF Exposure Evaluation,

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

5.2 MPE Prediction

As Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density

P = power input to antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

5.3 MPE Result for FCC

UWB Standalone

Maximum peak EIRP at antenna input terminal (dBm): -7.987

Maximum peak EIRP at antenna input terminal (mW): 0.159

Prediction distance (cm): 20

Prediction frequency (MHz): 7987.2

Power density of prediction frequency at 20.0 cm (mW/cm²): 0.00003

FCC MPE limit for uncontrolled exposure at prediction frequency: 1.0

Maximum peak EIRP was calculated from Section 7.6 of this test report: $87.213 \text{ dBuV/m} - 95.2 = -7.987 \text{ dBm}$

The device is compliant with the requirement MPE limit for uncontrolled exposure. The maximum power density at the distance of 20 cm is 0.00003 mW/cm². Limit is 1.0 mW/cm².

Worst Case Co-location MPE Calculation:

Radio	Max EIRP (dBm)	Evaluated Distance (cm)	Worst-Case Exposure Level (mW/cm ²)	Limit (mW/cm ²)	Worst-Case Ratios	Sum of Ratios	Limit
BLE	11.86	20	0.003	1.0	0.003	0.00303	1.0
UWB	-7.987	20	0.00003	1.0	0.00003		

Note: BLE Max. EIRP is referenced from BACL report R2511121-247

5.4 RF Exposure Evaluation for IC

UWB Standalone

Maximum EIRP power = -7.987 dBm (0.000159 W) which is less than exemption threshold of 5 W.

Therefore, the RF Exposure is exempt for IC.

6 FCC §15.209, §15.519(c), (d) & ISEDC RSS-220 §3.4, §5.3.1(d), (e), RSS-Gen §8.9, §8.10 – Spurious Radiated Emissions

6.1 Applicable Standards

As per FCC §15.35(b): Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1 MHz.

As Per FCC §15.205(a) except as show in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	960 – 1240	4.5 – 5.15
0.495 – 0.505	16.69475 – 16.69525	1300 – 1427	5.35 – 5.46
2.1735 – 2.1905	25.5 – 25.67	1435 – 1626.5	7.25 – 7.75
4.125 – 4.128	37.5 – 38.25	1645.5 – 1646.5	8.025 – 8.5
4.17725 – 4.17775	73 – 74.6	1660 – 1710	9.0 – 9.2
4.20725 – 4.20775	74.8 – 75.2	1718.8 – 1722.2	9.3 – 9.5
6.215 – 6.218	108 – 121.94	2200 – 2300	10.6 – 12.7
6.26775 – 6.26825	123 – 138	2310 – 2390	13.25 – 13.4
6.31175 – 6.31225	149.9 – 150.05	2483.5 – 2500	14.47 – 14.5
8.291 – 8.294	156.52475 – 156.52525	2690 – 2900	15.35 – 16.2
8.362 – 8.366	156.7 – 156.9	3260 – 3267	17.7 – 21.4
8.37625 – 8.38675	162.0125 – 167.17	3.332 – 3.339	22.01 – 23.12
8.41425 – 8.41475	167.72 – 173.2	3.3458 – 3.358	23.6 – 24.0
12.29 – 12.293	240 – 285	3.600 – 4.400	31.2 – 31.8
12.51975 – 12.52025	322 – 335.4		36.43 – 36.5
12.57675 – 12.57725	399.9 – 410		Above 38.6
13.36 – 13.41	608 – 614		

As per FCC §15.209(a): Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table

Frequency (MHz)	Field Strength (micro volts/meter)	Measurement Distance (meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100**	3
88 - 216	150**	3
216 - 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

As per FCC §15.519(c): The radiated emissions at or below 960 MHz from a device operating under the provisions of this section shall not exceed the emission levels in §15.209

As per FCC §15.519(c): (c) The radiated emissions at or below 960 MHz from a device operating under the provisions of this section shall not exceed the emission levels in §15.209. The radiated emissions above 960 MHz from a device operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz:

Frequency in MHz	EIRP in dBm
960-1610	-75.3
1610-1990	-63.3
1990-3100	-61.3
3100-10600	-41.3
Above 10600	-61.3

As per FCC §15.519(d): In addition to the radiated emission limits specified in the table in paragraph (c) of this section, UWB transmitters operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of no less than 1 kHz:

Frequency in MHz	EIRP in dBm
1164-1240	-85.3
1559-1610	-85.3

As per ISEDC RSS-220 §5.3.1(c): Radiated emissions at or below 960 MHz from a device shall not exceed the limits in section 3.4

As per ISEDC RSS-220 §3.4: Radiated emissions at or below 960 MHz for all subclasses of UWB device shall not exceed the following limits. Measurements of radiated emissions at and below 960 MHz are to be made using a CISPR quasi-peak detector. CISPR measurement bandwidth specifications are to be used

Radiated Emissions at or below 960 MHz			
Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)	E.I.R.P (dBmW)
0.009 - 0.490	$2400/F$ (F in kHz)	300	$10\log(17.28/F^2)$ (F in kHz)
0.490 - 1.705	$24000/F$ (F in kHz)	30	$10\log(17.28/F^2)$ (F in kHz)
1.705 - 30.0	30	30	-45.7
30 - 88	100	3	-55.2
88 - 216	150	3	-51.7
216 - 960	200	3	-49.2

As per ISED RSS-220 §5.3.1(d): Radiated emissions above 960 MHz from a device shall not exceed the following average limits when measured using a resolution bandwidth of 1MHz.

Frequency	EIRP in dBm
960-1610 MHz	-75.3 dBm
1.61-4.75 GHz	-70.0 dBm
4.75-10.6 GHz	-41.3 dBm
Above 10.6 GHz	-61.3 dBm

As per ISED RSS-220 §5.3.1(e): In addition to the limits specified in paragraph (d) of this section, radiated emissions shall not exceed the following average limits when measured using a resolution bandwidth greater than or equal to 1 kHz. The measurements shall demonstrate compliance with the stated limits at whatever resolution bandwidth is used.

Frequency in MHz	EIRP in dBm
1164-1240 MHz	-85.3 dBm
1559-1610 MHz	-85.3 dBm

As per ISED RSS-Gen §8.9: Except where otherwise indicated in the applicable RSS, radiated emissions shall comply with the field strength limits shown in table 5 and table 6. Additionally, the level of any transmitter unwanted emission shall not exceed the level of the transmitter's fundamental emission.

Table 5 – General field strength limits at frequencies above 30 MHz

Frequency (MHz)	Field Strength (µV/m at 3 m)
30 – 88	100
88 – 216	150
216 – 960	200
Above 960	500

Table 6 – General field strength limits at frequencies below 30 MHz

Frequency	Field Strength (micro volts/meter)	Measurement Distance (meters)
9 – 490 kHz ^{Note 1}	6.37/F (F in kHz)	300
490 – 1705 kHz	63.7/F (F in kHz)	30
1.705 – 30 MHz	0.08	30

Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

As per ISED RSS-Gen §8.10(c),

Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in table 5 and table 6.

Table 7 – Restricted frequency bands^{Note 1}

MHz	MHz	GHz
0.090 – 0.110	149.9 – 150.05	9.0 – 9.2
0.495 – 0.505	156.52475 – 156.52525	9.3 – 9.5
2.1735 – 2.1905	156.7 – 156.9	10.6 – 12.7
3.020 – 3.026	162.0125 – 167.17	13.25 – 13.4
4.125 – 4.128	167.72 – 173.2	14.47 – 14.5
4.17725 – 4.17775	240 – 285	15.35 – 16.2
4.20725 – 4.20775	322 – 335.4	17.7 – 21.4
5.677 – 5.683	399.9 – 410	22.01 – 23.12
6.215 – 6.218	608 – 614	23.6 – 24.0
6.26775 – 6.26825	960 – 1427	31.2 – 31.8
6.31175 – 6.31225	1435 – 1626.5	36.43 – 36.5
8.291 – 8.294	1645.5 – 1646.5	Above 38.6
8.362 – 8.366	1660 – 1710	
8.37625 – 8.38675	1718.8 – 1722.2	
8.41425 – 8.41475	2200 – 2300	
12.29 – 12.293	2310 – 2390	
12.51975 – 12.52025	2483.5 – 2500	
12.57675 – 12.57725	2655 – 2900	
13.36 – 13.41	3260 – 3267	
16.42 – 16.423	3332 – 3339	
16.69475 – 16.69525	3345.8 – 3358	
16.80425 – 16.80475	3500 – 4400	
25.5 – 25.67	4500 – 5150	
37.5 – 38.25	5350 – 5460	
73 – 74.6	7250 – 7750	
74.8 – 75.2	8025 – 8500	
108 – 138		

Note 1: Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

6.2 Test Setup

The radiated emissions tests were performed in the 5-meter chamber, using the setup in accordance with ANSI C63.10-2020 + Cor.1-2023 + Errata to C63.10a-2024. The specification used was the FCC 15 Subpart F and ISED RSS-220 limits.

The spacing between the peripherals was 10 centimeters.

External I/O cables were draped along the edge of the test table and bundled when necessary.

6.3 Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The EUT was set 3 meter away from the testing antenna, which was varied from 1-4 meters, and the EUT was placed on a turntable, which was 0.8 meters and 1.5 meters above the ground plane for below and above 1000 MHz measurements, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna's polarity should be changed between horizontal and vertical.

The spectrum analyzer or receiver was set as:

9 kHz to 150 kHz:

RBW = 200 Hz / VBW = 1 kHz / Sweep = Auto

150 kHz to 30 MHz:

RBW = 9 kHz / VBW = 30 kHz / Sweep = Auto

30MHz to 960 MHz:

RBW = 100 kHz / VBW = 300 kHz / Sweep = Auto

Above 960 MHz:

The measurements were based on ANSI C63.10-2020 + Cor.1-2023 + Errata to C63.10a-2024, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices section 10.3: Radiated measurement procedure above 960MHz.

6.4 Corrected Amplitude and Margin Calculation

For emissions below 1 GHz,

The Corrected Amplitude (CA) is calculated by adding the Correction Factor to the S.A. Reading. The basic equation is as follows:

$$CA = \text{S.A. Reading} + \text{Correction Factor}$$

For example, a corrected amplitude of 40.3 dBuV/m = S.A. Reading (32.5 dBuV) + Correction Factor (7.8 dB/m)

The Correction Factor is calculated by adding the Antenna Factor (AF), the Cable Loss (CL), the Attenuator Factor (Atten) and subtracting the Amplifier Gain (Ga) together. This calculation is done in the measurement software, and reported in the test result section. The basic equation is as follows:

$$\text{Correction Factor} = AF + CL + \text{Atten} - Ga$$

The “Margin” column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of -7 dB means the emission is 7 dB below the maximum limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corrected Amplitude} - \text{Limit}$$

For emission above 1 GHz,

The Corrected Amplitude (CA) is calculated by adding the Antenna Factor (AF), the Cable Loss (CL), the Attenuator Factor (Atten) and subtracting the Amplifier Gain (Ga) to indicated Amplitude (Ai) reading. The basic equation is as follows:

$$CA = Ai + AF + CL + \text{Atten} - Ga$$

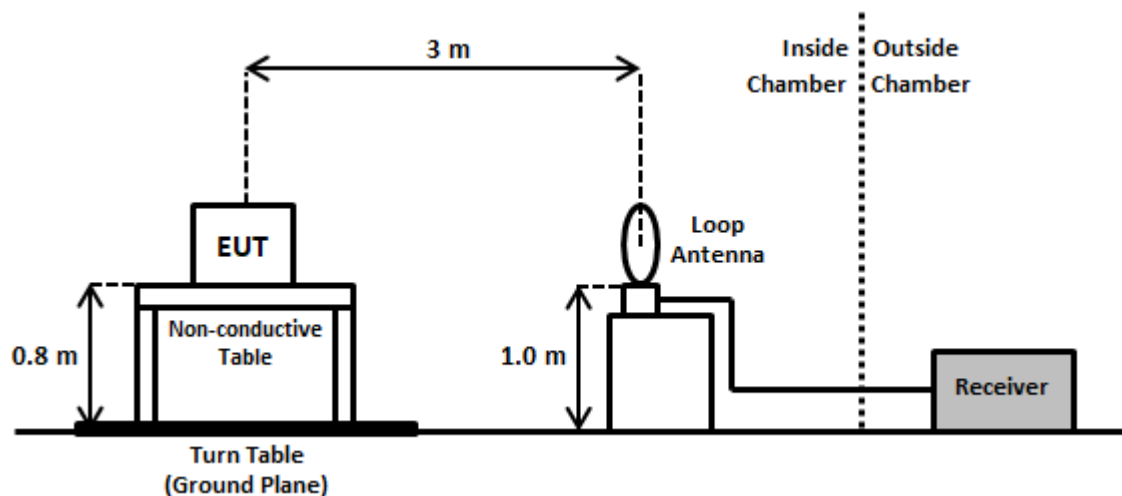
For example, a corrected amplitude of 40.3 dBuV/m = Indicated Reading (32.5 dBuV) + Antenna Factor (+23.5dB) + Cable Loss (3.7 dB) + Attenuator (10 dB) - Amplifier Gain (29.4 dB)

The “Margin” column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of -7 dB means the emission is 7 dB below the maximum limit. The equation for margin calculation is as follows:

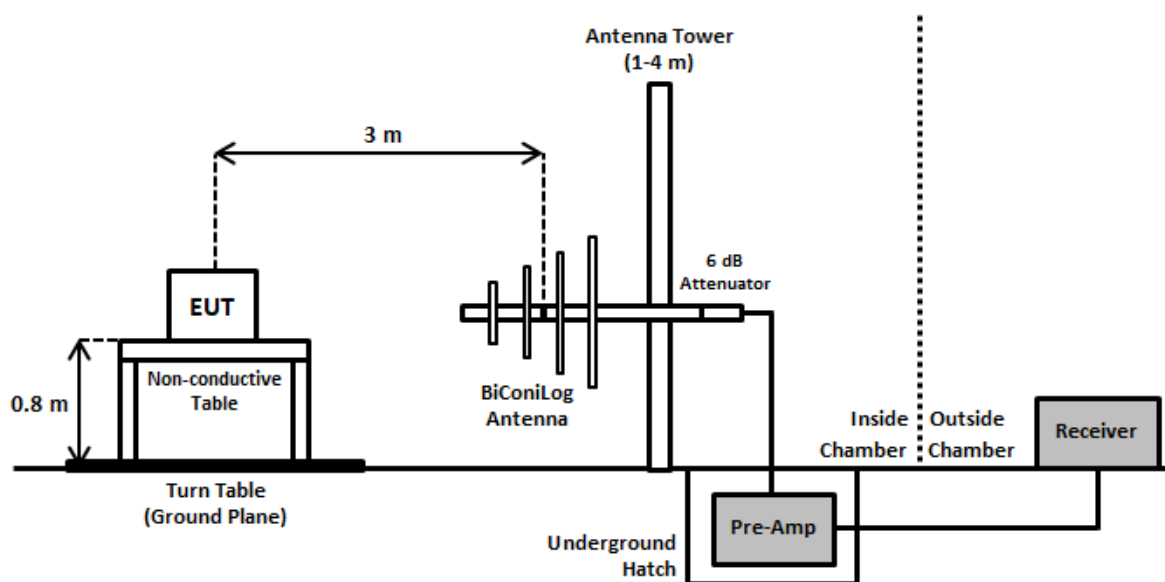
$$\text{Margin} = \text{Corrected Amplitude} - \text{Limit}$$

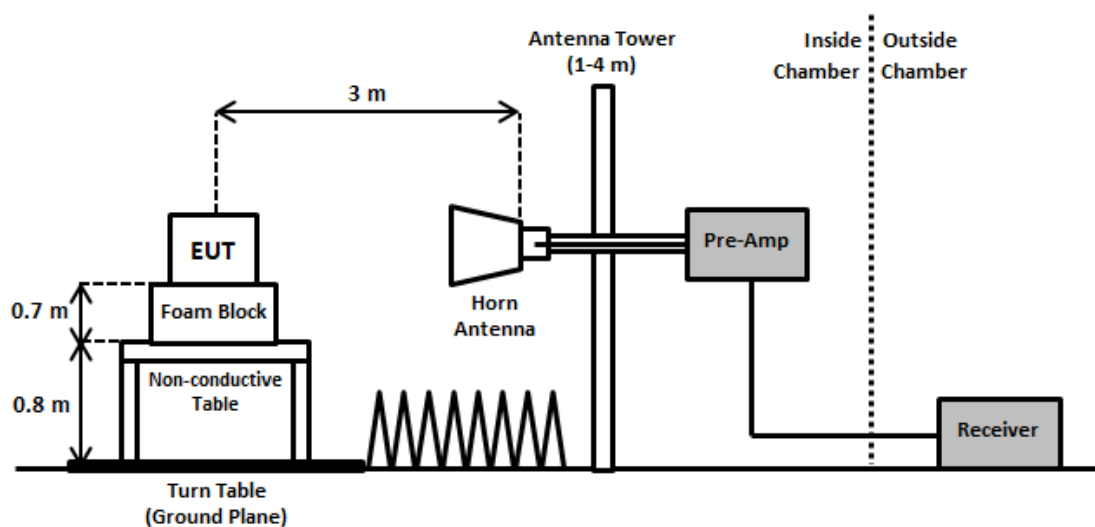
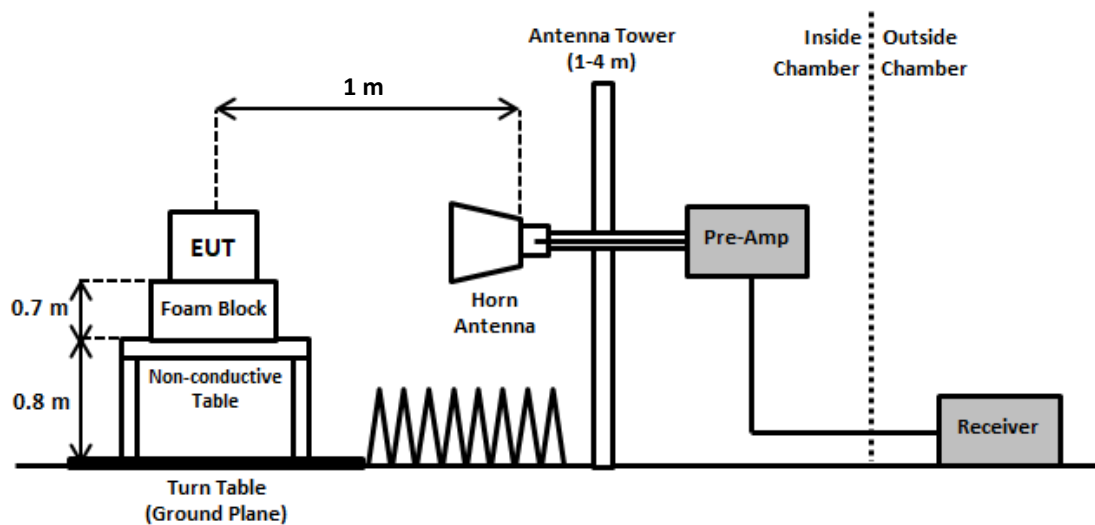
6.5 Test Setup Block Diagram

9 kHz to 30 MHz



30 MHz to 1 GHz



Above 1 GHz at 3 meters**Above 1 GHz at 1 meter**

6.6 Test Equipment List and Details

BACL No	Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
327	Sunol Sciences	System Controller	SC110V	122303-1	N/R	N/R
1075	Sunol Sciences	Boresight Tower	TLT3	050119-7	N/R	N/R
1388	Sunol Sciences	Flush Mount Turntable	FM	112005-2	N/R	N/R
1432	Keysight Technologies	MXE EMI Reciever	N9038B	MY60180008	2025-01-03	1 year
316	Sonoma Instruments	Preamplifier 10 kHz - 2.5 GHz	317	260406	2025-08-18	6 months
321	Sunol Sciences	Biconilog Antenna	JB3	A020106-2; 1504	2023-12-18	2 years
1245	Pasternack	6dB Attenuator	PE7390-6	01182018A	2023-12-18	2 years
1246	Hewlet Packard	RF Limiter	11867A	01734	2025-09-09	6 months
1248	Pasternack	RG214 COAX Cable	PE3062	-	2025-10-03	6 months
1249	Time microwave	LMR-400 Cable Dc-3 GHz	AE13684	2k80612-5 6fts	2025-09-09	6 months
1359	Pasternack	N 600in RF Cable	PE3496LF-600	-	2025-07-02	6 months
1192	ETS Lindgren	Horn Antenna	3117	00218973	2024-10-23	2 years
1295	Carlisle	10m Ultra Low Loss Coaxial Cable	UFB142A-1-3937-200200	64639890912-001	2025-10-16	6 months
90	Wisewave	Horn Antenna 18-26.5GHz	ARH-4223-02	10555-01	2025-05-06	2 years
92	Wisewave	Horn Antenna	ARH-2823-02	10555-01	2024-06-26	2 years
1449	BACL	Preamplifier 100MHz-18GHz	BACL1313-A100M18G	4052472	2025-08-18	6 months
1451	BACL	Preamplifier 18-40GHz	BACL-1313-A1840	4052432	2025-08-18	6 months
1545	Megaphase	K-type coax cable	TM40-K1K3-12	20869601 001	2025-08-18	6 months
1546	Megaphase	SMA coax cable	TM26-S1S3-12	20869602 001	2025-08-18	6 months
393	Com-Power	Loop Antenna, Active	AL-130	17043	2025-05-06	2 years
1461	Rohde & Schwarz	Signal Analyzer	FSQ26	200103	2025-08-08	1 year

Statement of Traceability: **BACL Corp.** attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 "A2LA Policy on Metrological Traceability".

6.7 Test Environmental Conditions

Temperature:	21 to 23 °C
Relative Humidity:	48 to 50 %
ATM Pressure:	101.8 kPa

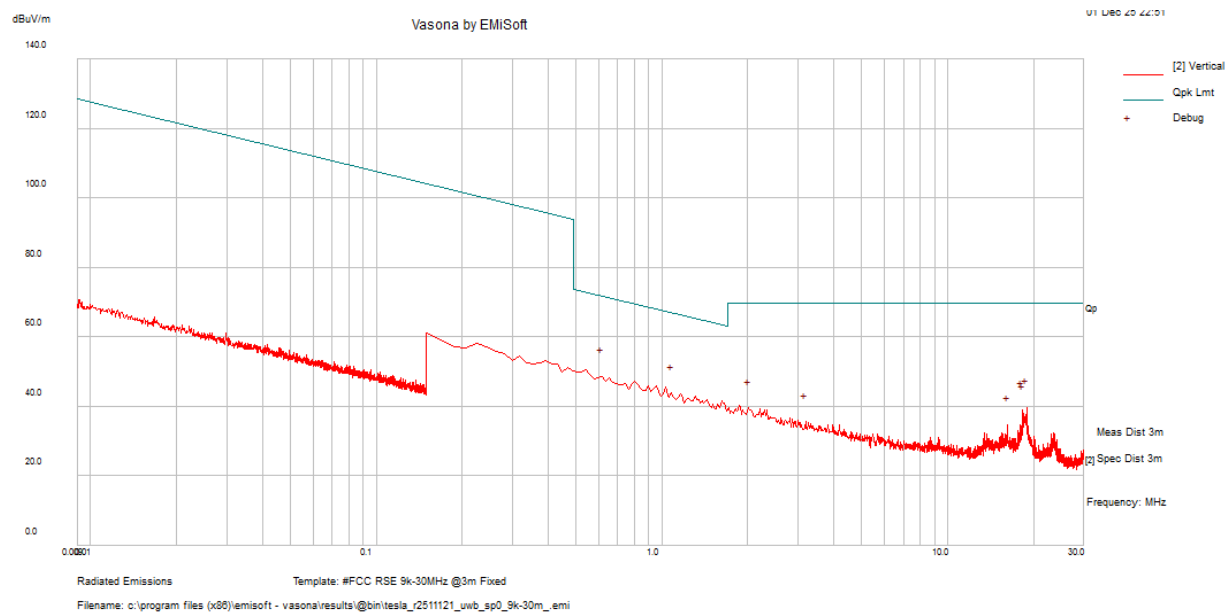
The testing was performed by Arturo Reyes from 2025-11-27 to 2025-12-03 in 5 meter chamber 3.

6.8 Radiated Emissions Test Results below 1 GHz

Note: Pre-scan was performed in order to determine worst-case orientation of device with respect to measurement antenna in the X/Y/Z axis. Plots/data shown represent measurements made in worst-case orientation.

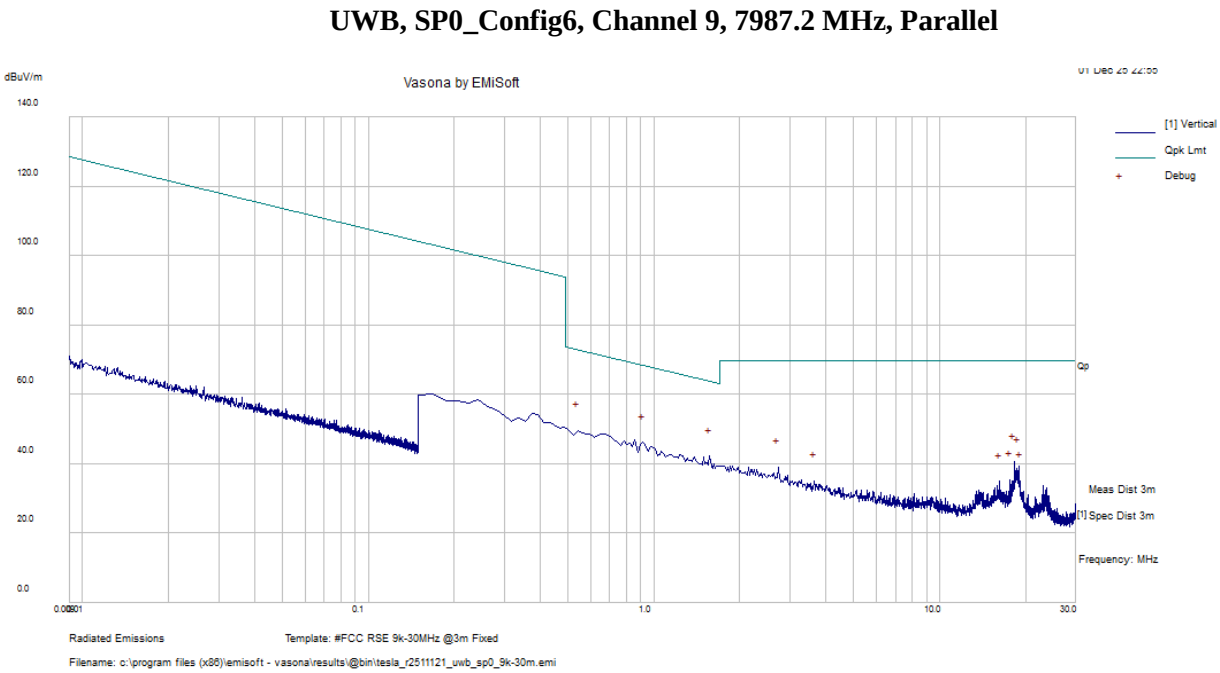
1) 9 kHz – 30 MHz Worst Case, Measured at 3 meters

UWB, SP0_Config6, Channel 9, 7987.2 MHz, Perpendicular



Freq. (MHz)	S.A. Reading (dBμV)	Corr. Factor (dB/m)	Corrected Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Comment
1.082813	33.71	10.08	43.79	66.91	-23.12	Peak
0.616406	38.47	10.15	48.62	71.81	-23.19	Peak
18.91819	29.59	10.11	39.7	69.54	-29.85	Peak
2.015625	29.12	10.37	39.49	69.54	-30.05	Peak
18.24656	28.54	10.41	38.95	69.54	-30.59	Peak
18.30253	27.69	10.38	38.07	69.54	-31.47	Peak

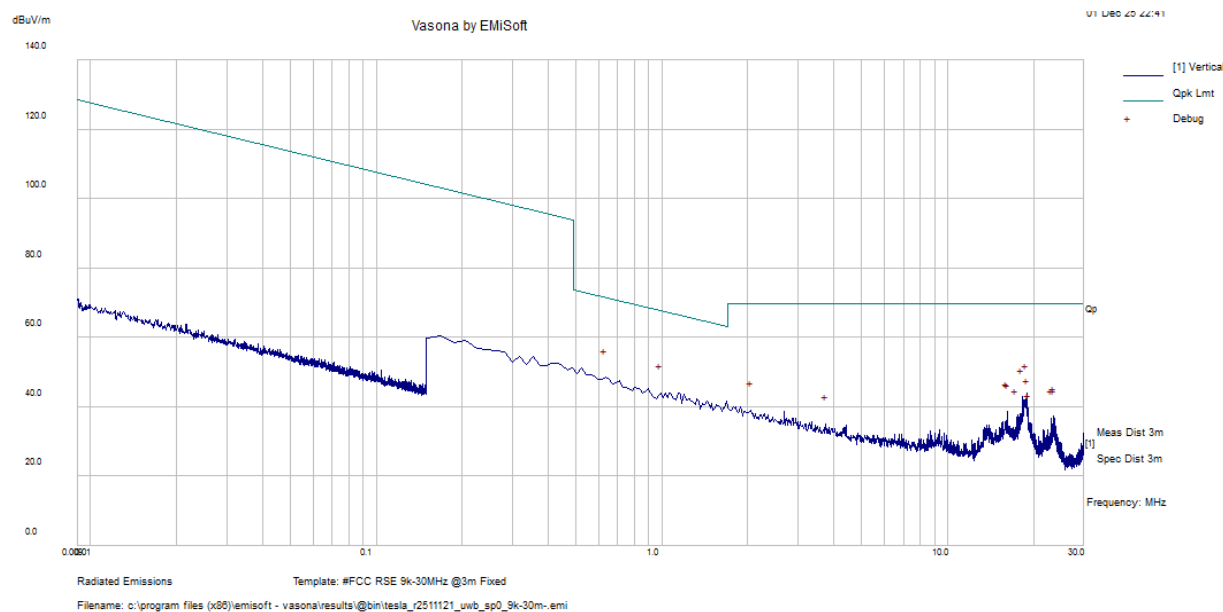
Note: Peak measurement is used to compare to the QP limit to show compliance.



Freq. (MHz)	S.A. Reading (dBμV)	Corr. Factor (dB/m)	Corrected Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Comment
1.567875	31.88	10.25	42.13	63.7	-21.57	Peak
0.914906	36.01	10.05	46.06	68.38	-22.31	Peak
0.541781	39.36	10.17	49.53	72.93	-23.4	Peak
18.24656	30.12	10.41	40.53	69.54	-29.01	Peak
18.91819	29.29	10.11	39.4	69.54	-30.14	Peak
2.724563	28.55	10.43	38.98	69.54	-30.56	Peak

Note: Peak measurement is used to compare to the QP limit to show compliance.

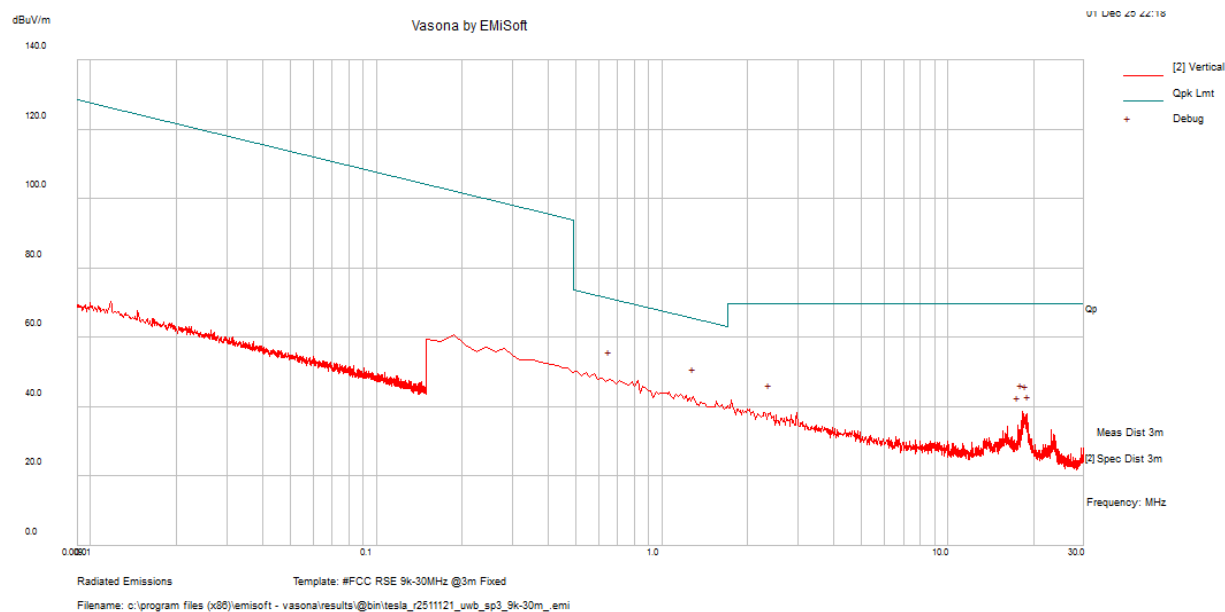
UWB, SP0_Config6, Channel 9, 7987.2 MHz, Ground-Parallel



Freq. (MHz)	S.A. Reading (dBμV)	Corr. Factor (dB/m)	Corrected Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Comment
0.6351	38.27	10.14	48.41	71.55	-23.14	Peak
0.9895	34	10.04	44.04	67.7	-23.65	Peak
18.918	33.88	10.1	43.98	69.54	-25.56	Peak
18.247	32.44	10.41	42.85	69.54	-26.69	Peak
19.105	29.58	10.03	39.61	69.54	-29.93	Peak
2.0529	28.55	10.37	38.92	69.54	-30.63	Peak

Note: Peak measurement is used to compare to the QP limit to show compliance.

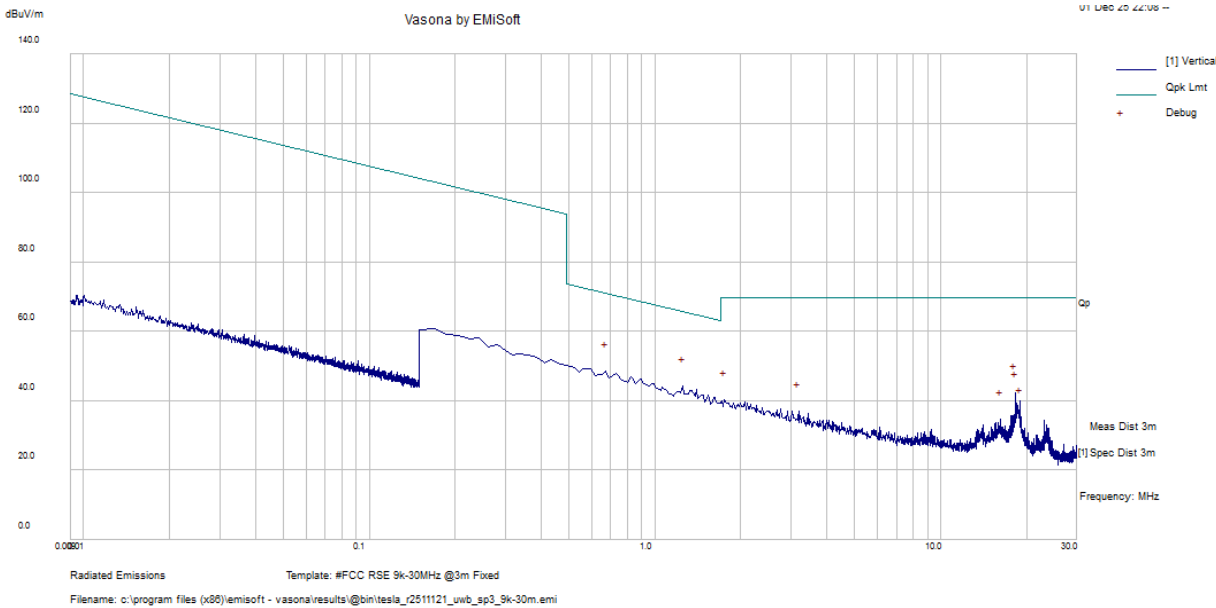
UWB, SP3_Config7, Channel 9, 7987.2 MHz, Perpendicular



Freq. (MHz)	S.A. Reading (dBμV)	Corr. Factor (dB/m)	Corrected Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Comment
1.288031	32.83	10.16	42.99	65.41	-22.42	Peak
0.653719	37.73	10.14	47.87	71.3	-23.42	Peak
18.24656	28.06	10.41	38.47	69.54	-31.07	Peak
2.38875	27.99	10.4	38.39	69.54	-31.15	Peak
18.91819	27.85	10.1	37.95	69.54	-31.59	Peak
19.16072	25.2	10.02	35.22	69.54	-34.32	Peak

Note: Peak measurement is used to compare to the QP limit to show compliance.

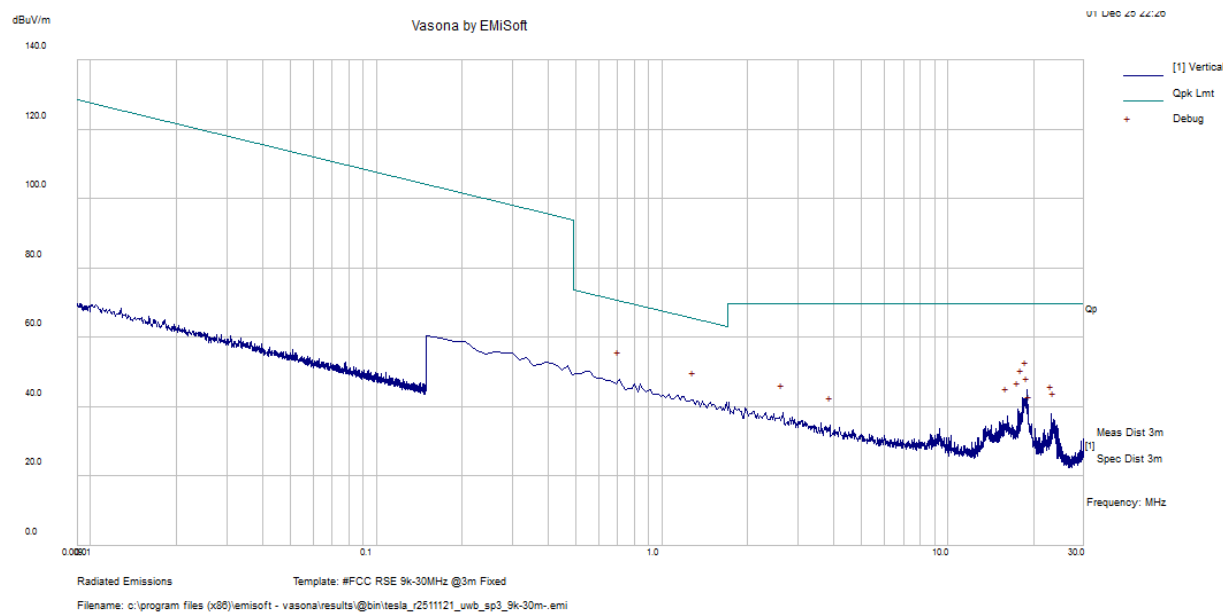
UWB, SP3_Config7, Channel 9, 7987.2 MHz, Parallel



Freq. (MHz)	S.A. Reading (dBμV)	Corr. Factor (dB/m)	Corrected Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Comment
1.250719	34.14	10.15	44.29	65.66	-21.37	Peak
0.672375	38.4	10.14	48.54	71.05	-22.51	Peak
18.24656	31.88	10.41	42.29	69.54	-27.25	Peak
1.754438	30.01	10.3	40.31	69.54	-29.23	Peak
18.30253	29.79	10.38	40.17	69.54	-29.37	Peak
3.190969	26.67	10.45	37.12	69.54	-32.42	Peak

Note: Peak measurement is used to compare to the QP limit to show compliance.

UWB, SP3_Config7, Channel 9, 7987.2 MHz, Ground-Parallel

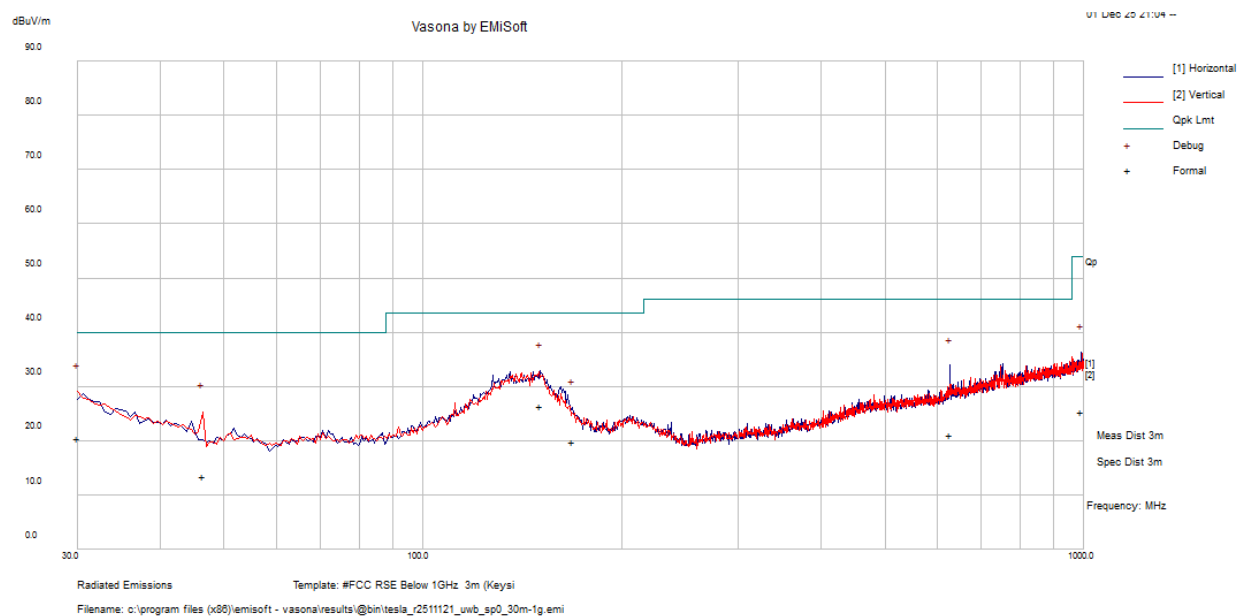


Freq. (MHz)	S.A. Reading (dBμV)	Corr. Factor (dB/m)	Corrected Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Comment
0.709688	37.77	10.13	47.9	70.58	-22.69	Peak
1.288031	31.86	10.16	42.02	65.41	-23.39	Peak
18.91819	34.83	10.1	44.93	69.54	-24.61	Peak
18.24656	32.23	10.41	42.64	69.54	-26.9	Peak
19.10475	30.46	10.04	40.5	69.54	-29.04	Peak
17.68688	28.63	10.53	39.16	69.54	-30.38	Peak

Note: Peak measurement is used to compare to the QP limit to show compliance.

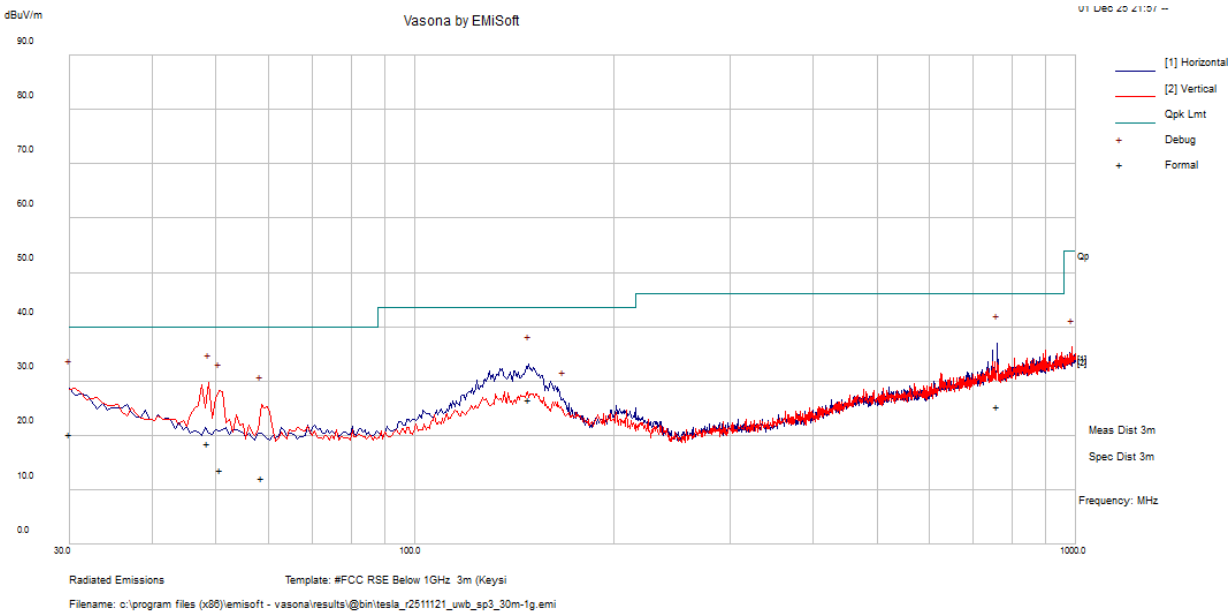
2) 30 MHz – 1 GHz, Measured at 3 meters

UWB, SP0_Config6, Channel 9, 7987.2 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBμV/m)	Margin (dB)	Detector
150.828	43.74	-17.46	26.28	290	H	72	43.5	-17.22	QP
30.0176	30.87	-10.39	20.48	184	V	250	40	-19.52	QP
626.994	28.94	-7.97	20.97	198	H	193	46	-25.03	QP
46.605	35.09	-21.58	13.51	248	V	165	40	-26.49	QP
168.253	37.77	-18.03	19.74	200	H	151	43.5	-23.76	QP
991.700	28.38	-3.03	25.35	144	H	251	54	-28.65	QP

UWB, SP3_Config7, Channel 9, 7987.2 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBuV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBuV/m)	Margin (dB)	Detector
760.449	31.62	-6.29	25.33	132	H	63	46	-20.67	QP
48.5662	41.03	-22.56	18.47	106	V	57	40	-21.53	QP
148.749	43.97	-17.39	26.58	186	H	329	43.5	-16.92	QP
30.0086	30.51	-10.38	20.13	122	H	278	40	-19.87	QP
50.7043	36.89	-23.26	13.63	237	V	215	40	-26.37	QP
58.5971	35.47	-23.42	12.05	265	V	157	40	-27.95	QP

6.9 Radiated Emissions Test Results above 1 GHz**Average Radiated Fundamental Field Strength**

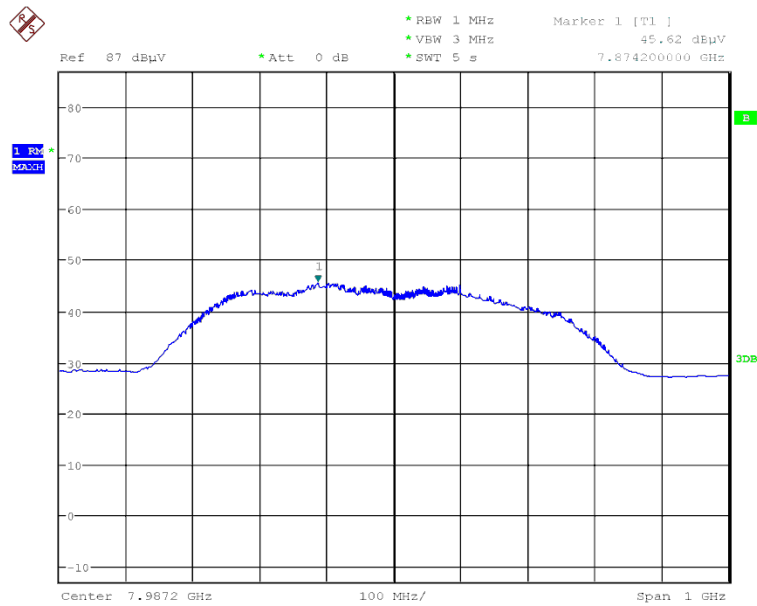
Channel Number	Channel Frequency (MHz)	Mode	PSA Reading (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Pre Amp Gain (dB)	Corrected Field Strength (dBμV/m at 3m)	EIRP (dBm) ¹	Limit (dBm)	Margin (dB)
9	7987.2	SP0_Config6	45.62	36.69	12.097	43.524	50.883	-44.317	-41.3	-3.017
		SP3_Config7	48.54	36.69	12.097	43.524	53.803	-41.397	-41.3	-0.097

Note 1: EIRP [dBm] = Field Strength [dBμV/m at 3 meters] – 95.2.

Note 2: Measurements were performed at 3m distance.

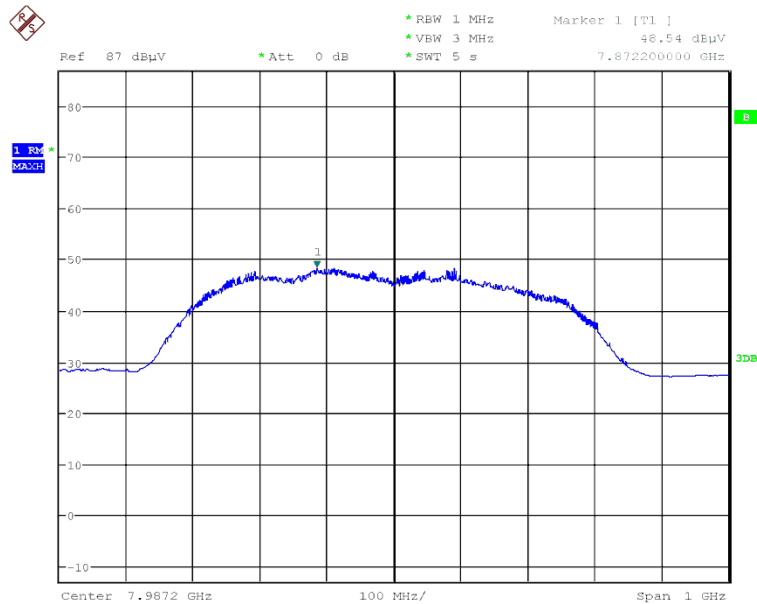
Please refer to the plots below for detailed test results.

Channel 9 (7987.2 MHz), SP0_Config6



Date: 27.NOV.2025 03:52:56

Channel 9 (7987.2 MHz), SP3_Config7



Date: 27.NOV.2025 04:05:37

Average Radiated Spurious Emissions: 1 GHz-26.5 GHz

Note: Measurement was performed at 1m distance for 1-18GHz and at 3m distance for 18-26.5GHz. The stricter IC limit was used to demonstrate compliance.

Note: In radiated measurement screenshots from 1GHz to 26.5GHz, shown emissions account for equipment factors to show corrected values compared to applicable limits.

Note: Worst case polarization was used during testing.

Note: According to ANSI C63.10 Section 10.3.9, measured field strength in dBμV/m was converted to EIRP in dBm to compare with the limit. The equation below was used,

$$\text{EIRP (dBm)} = \text{E (dB}\mu\text{V/m @3m)} - 95.2$$

Note: Distance correction factor was calculated which is added to the field strength at 1 meter to field strength at 3 meters.

$$\text{Distance Correction Factor} = 20 \times \log(1\text{m} / 3\text{m}) = -9.54 \text{ dB}$$

$$\text{Field Strength(@3m)} = \text{Field Strength(@1m)} + \text{Distance Correction Factor}$$

SP0_Config6: Channel 9 (7987.2 MHz)

Measured Emission Frequency (GHz)	Antenna Pol (H/V)	Measured Average Field Strength (dBμV/m at 1m)	Corrected Average Field Strength (dBμV/m at 3m)	EIRP (dBm)	Limit (dBm)	Margin (dB)
26.309	V	36.586	27.046	-68.154	-61.30	-6.854

SP3_Config7: Channel 9 (7987.2 MHz)

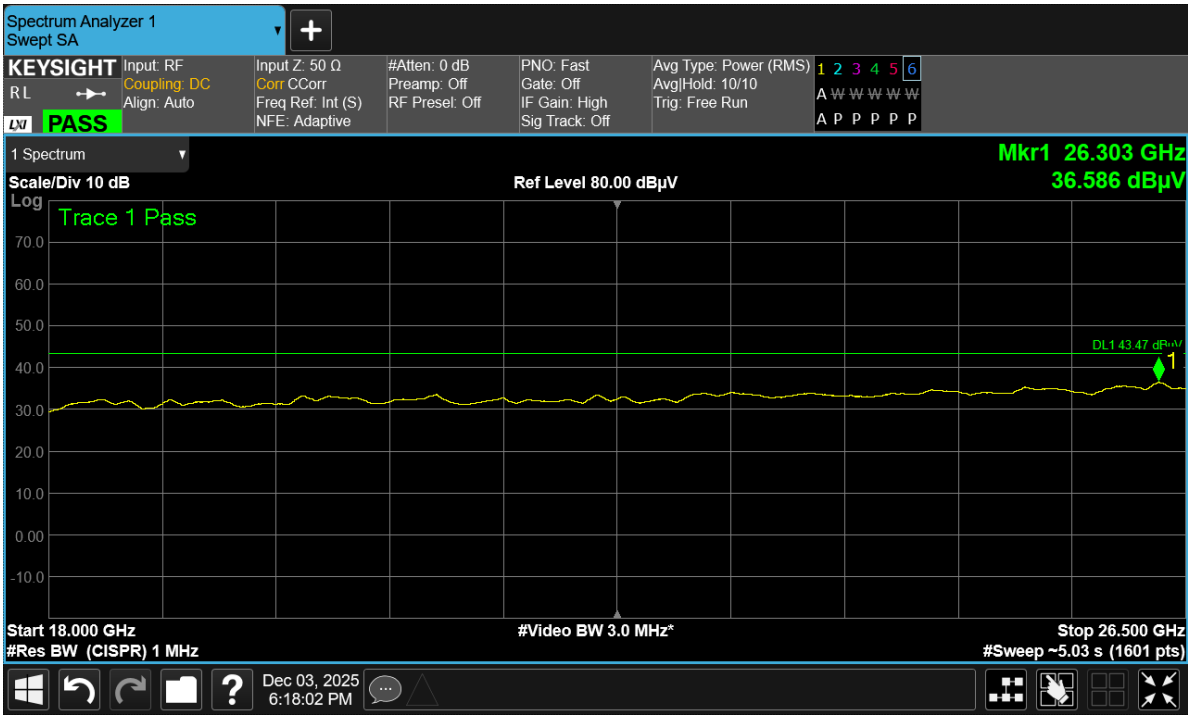
Measured Emission Frequency (GHz)	Antenna Pol (H/V)	Measured Average Field Strength (dBμV/m at 1m)	Corrected Average Field Strength (dBμV/m at 3m)	EIRP (dBm)	Limit (dBm)	Margin (dB)
26.303	V	36.624	27.084	-68.116	-61.30	-6.816

Please refer to the plots below for detailed test results.

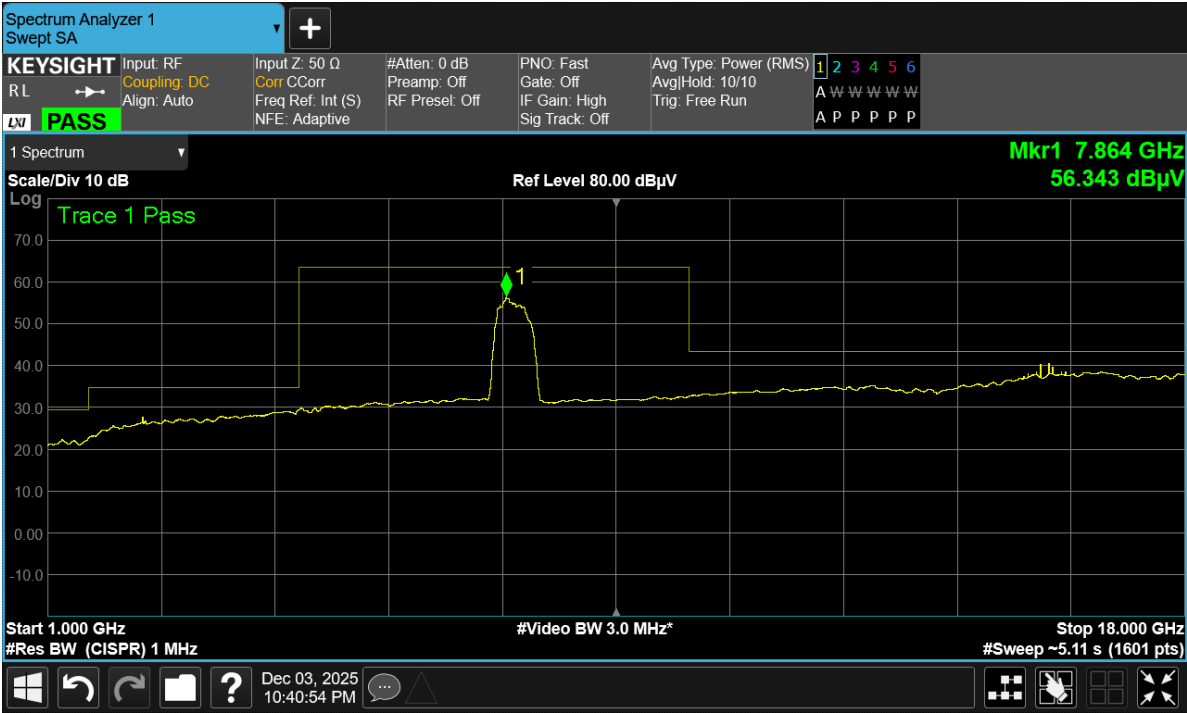
SP0_Config6, 1 GHz-18 GHz at 1 meter



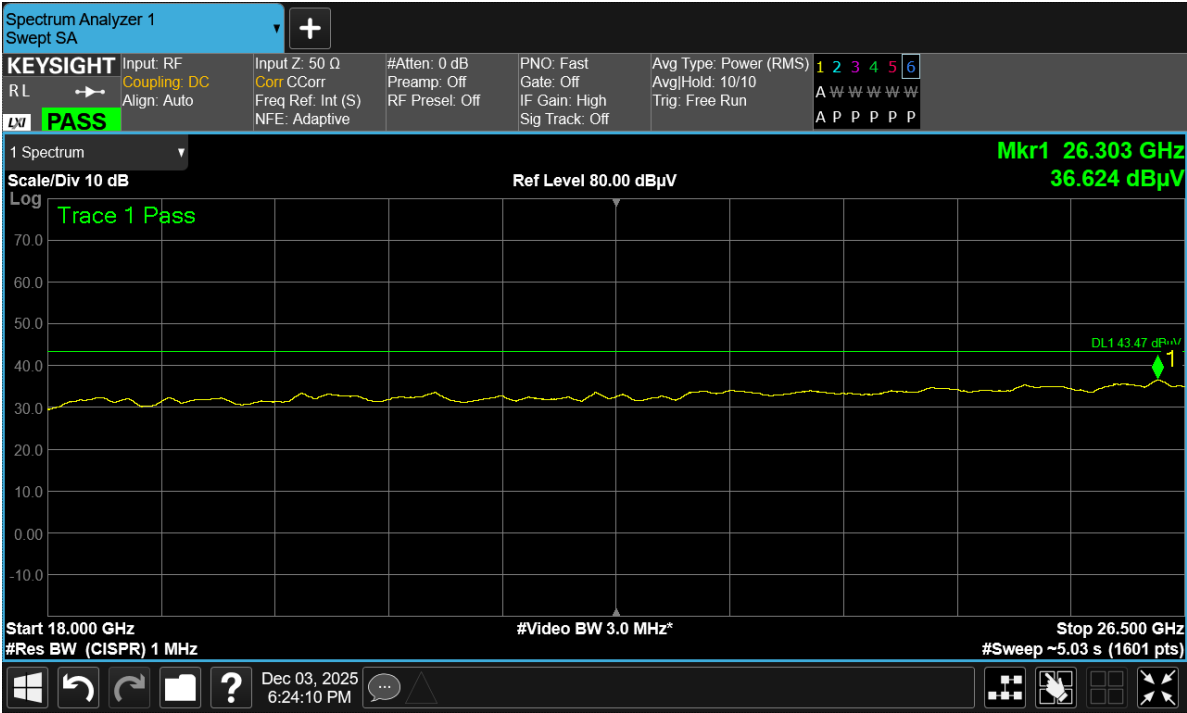
SP0_Config6, 18 GHz-26.5 GHz at 1 meter



SP3_Config7, 1 GHz-18 GHz at 1 meter



SP3_Config7, 18 GHz-26.5 GHz at 1 meter



Average Radiated Spurious Emissions: 26.5-40 GHz

Note: Measurement was performed at 1m distance. The stricter IC limit was used to demonstrate compliance.

Note: Worst case polarization was used during testing.

Note: In radiated measurement screenshots from 26.5GHz to 40GHz, shown emissions account for equipment factors to show corrected values compared to applicable limits.

Note: According to ANSI C63.10 Section 10.3.9, measured field strength in dBμV/m was converted to EIRP in dBm to compare with the limit. The equation below was used,

$$\text{EIRP (dBm)} = \text{E (dB}\mu\text{V/m @3m)} - 95.2$$

Note: Distance correction factor was calculated which is added to the field strength at 1 meter to field strength at 3 meters.

$$\text{Distance Correction Factor} = 20 \times \log(1\text{m} / 3\text{m}) = -9.54 \text{ dB}$$

$$\text{Field Strength (@3m)} = \text{Field Strength (@1m)} + \text{Distance Correction Factor}$$

SP0_Config6: Channel 9 (7987.2 MHz)

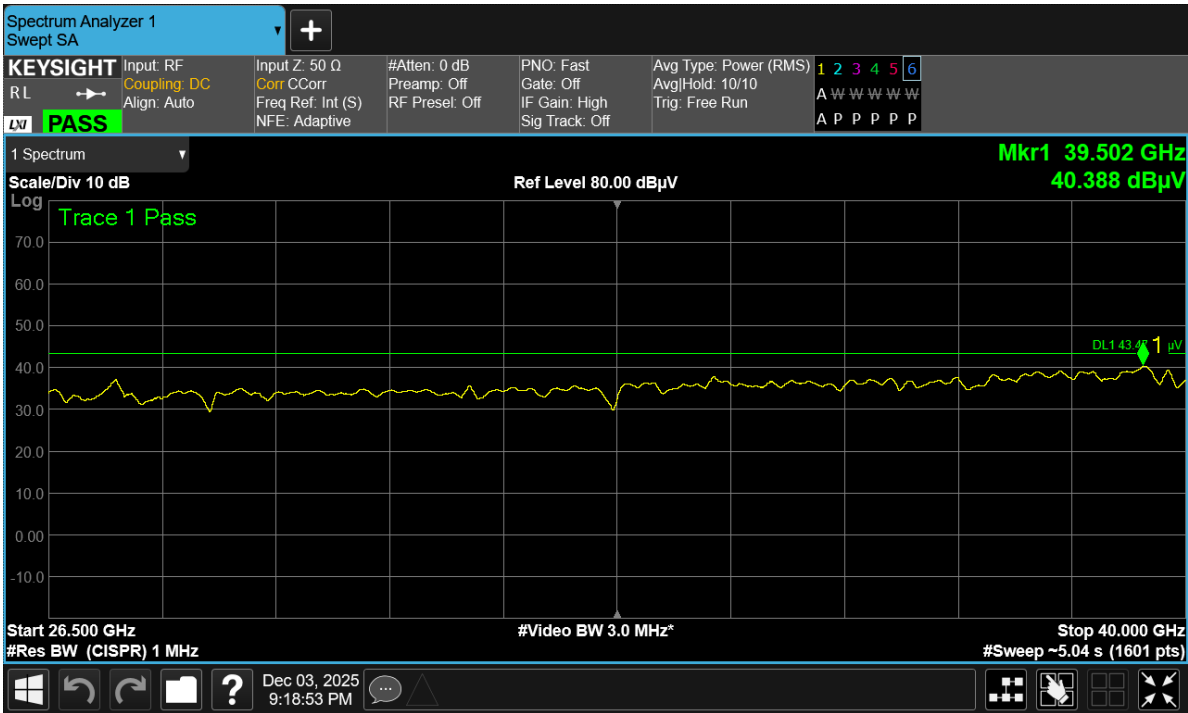
Measured Emission Frequency (GHz)	Antenna Pol (H/V)	Measured Average Field Strength (dBμV/m at 1m)	Corrected Average Field Strength (dBμV/m at 3m)	EIRP (dBm)	Limit (dBm)	Margin (dB)
39.502	V	40.388	30.848	-64.352	-61.30	-3.052

SP3_Config7: Channel 9 (7987.2 MHz)

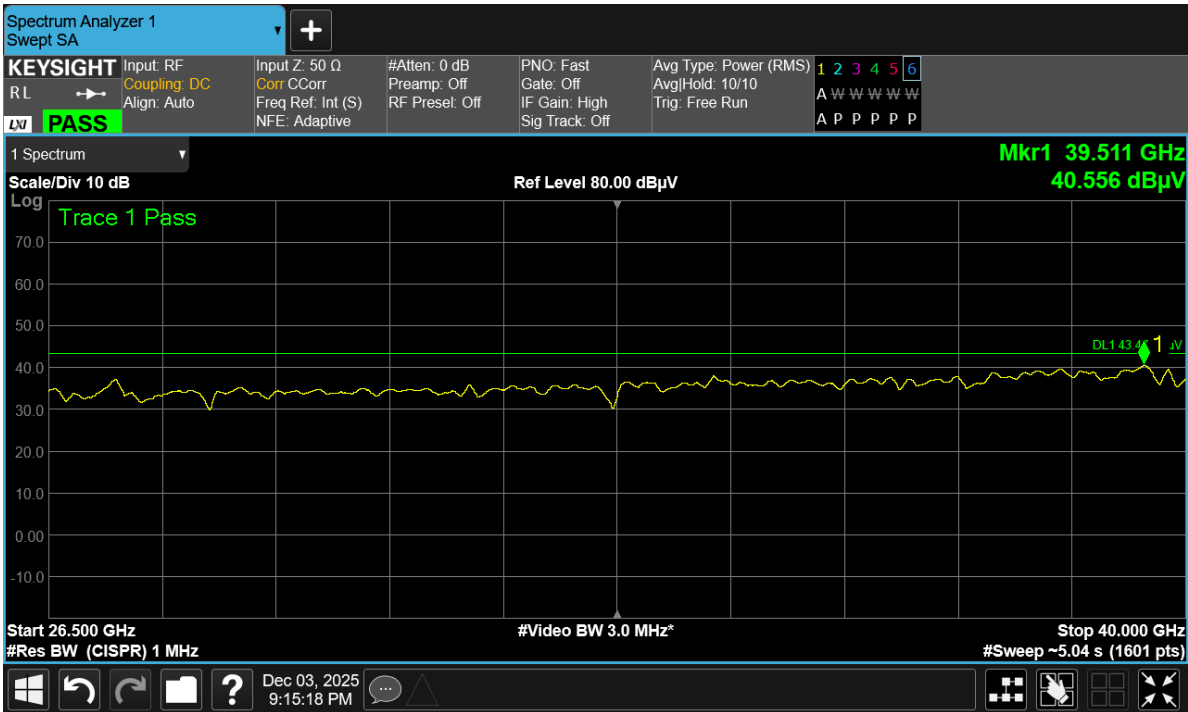
Measured Emission Frequency (GHz)	Antenna Pol (H/V)	Measured Average Field Strength (dBμV/m at 1m)	Corrected Average Field Strength (dBμV/m at 3m)	EIRP (dBm)	Limit (dBm)	Margin (dB)
39.511	V	40.556	31.016	-64.184	-61.30	-2.884

Please refer to the plots below for detailed test results.

SP0_Config6, 26.5 GHz-40 GHz at 1 meter



SP3_Config7, 26.5 GHz-40 GHz at 1 meter



Additional Radiated Average Spurious Emissions with RBW of 1 kHz

Note: In radiated measurement screenshots from 1164 MHz to 1240 MHz and 1559 MHz to 1610 MHz, shown emissions account for equipment factors to show corrected values compared to applicable limits.

Note: Worst case polarization was used during testing.

Note: According to ANSI C63.10 Section 10.3.9, measured field strength in dB μ V/m was converted to EIRP in dBm to compare with the limit. The equation below was used,

$$\text{EIRP (dBm)} = E (\text{dB}\mu\text{V/m @3m}) - 95.2$$

Note: Distance correction factor was calculated which is added to the field strength at 1 meter to field strength at 3 meters.

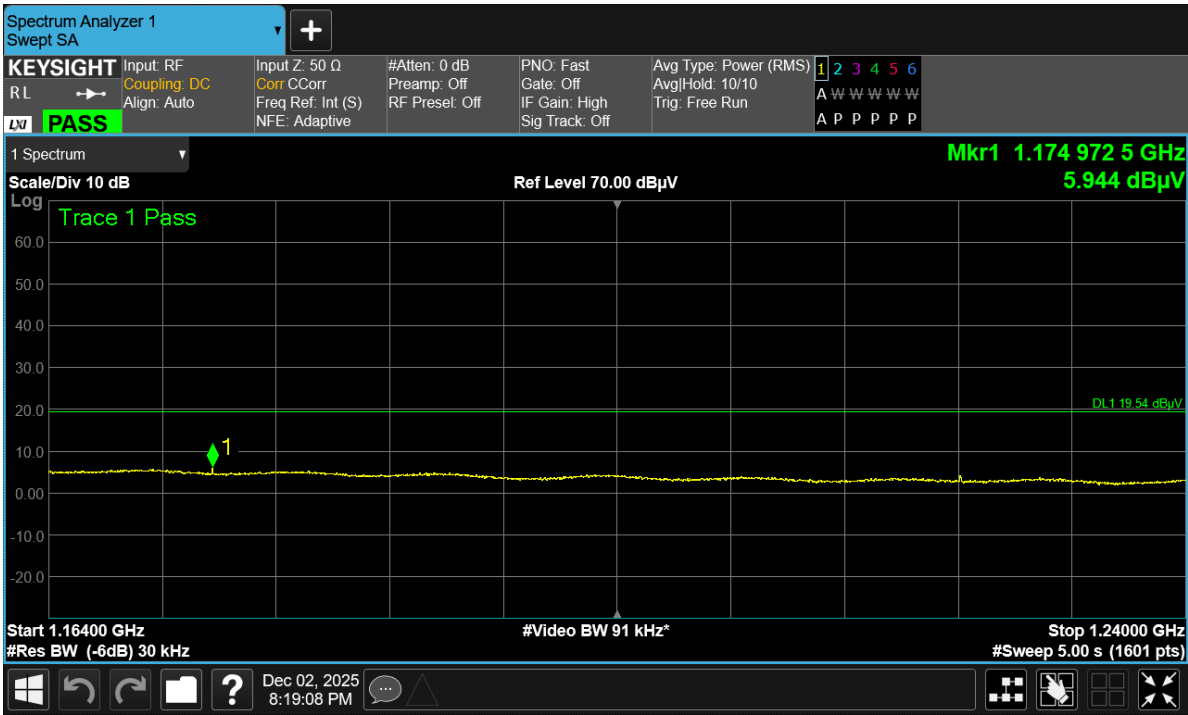
$$\text{Distance Correction Factor} = 20 \times \log(1\text{m} / 3\text{m}) = -9.54 \text{ dB}$$

$$\text{Field Strength (@3m)} = \text{Field Strength (@1m)} + \text{Distance Correction Factor}$$

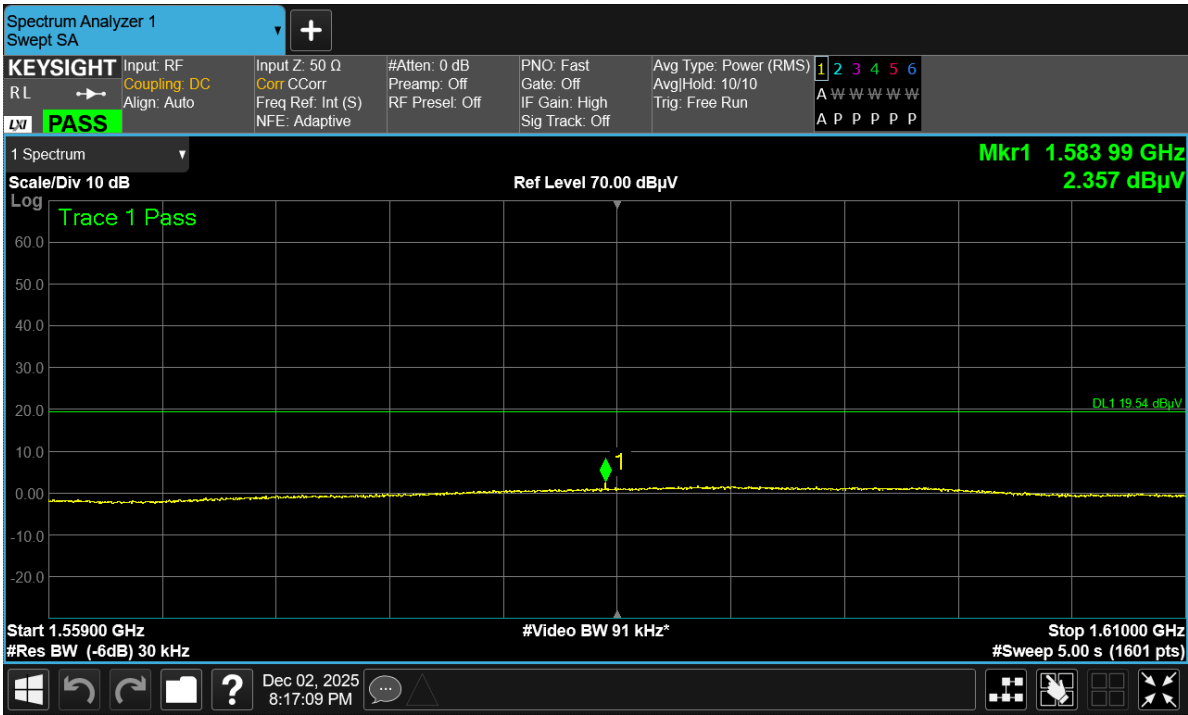
Channel	Frequency Range (MHz)	Antenna Pol. (H/V)	Highest Emission Frequency (MHz)	Highest Emission (dB μ V/m at 1 meter)	Corrected Value (dB μ V/m at 3 meters)	EIRP (dBm)	Limit (dBm)	Margin (dB)
SP0_Config 6								
9	1164-1240	V	1174.97	5.944	-3.596	-98.796	-85.3	-13.496
	1559-1610	V	1583.99	2.357	-7.183	-102.383	-85.3	-17.083
SP3_Config 7								
9	1164-1240	V	1174.9725	5.681	-3.859	-99.059	-85.3	-13.759
	1559-1610	V	1583.99	2.671	-6.869	-102.069	-85.3	-16.769

Please refer to the plots below for detailed test results.

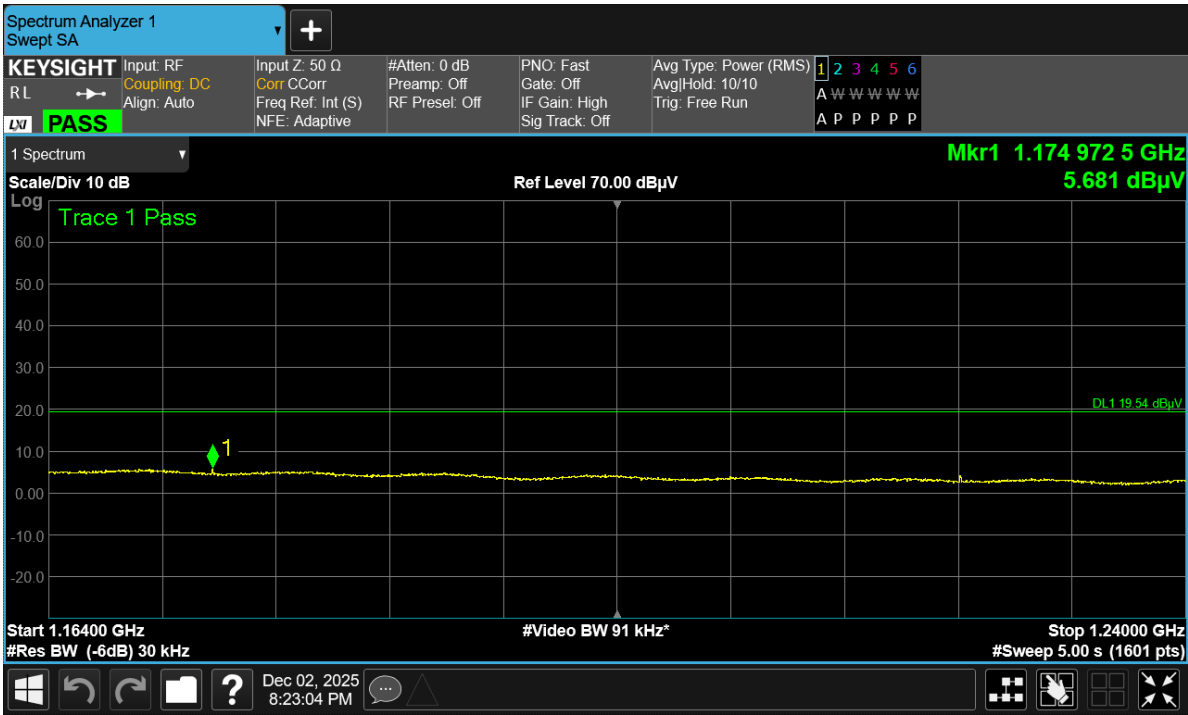
SP0_Config6, 1164 MHz-1240 MHz



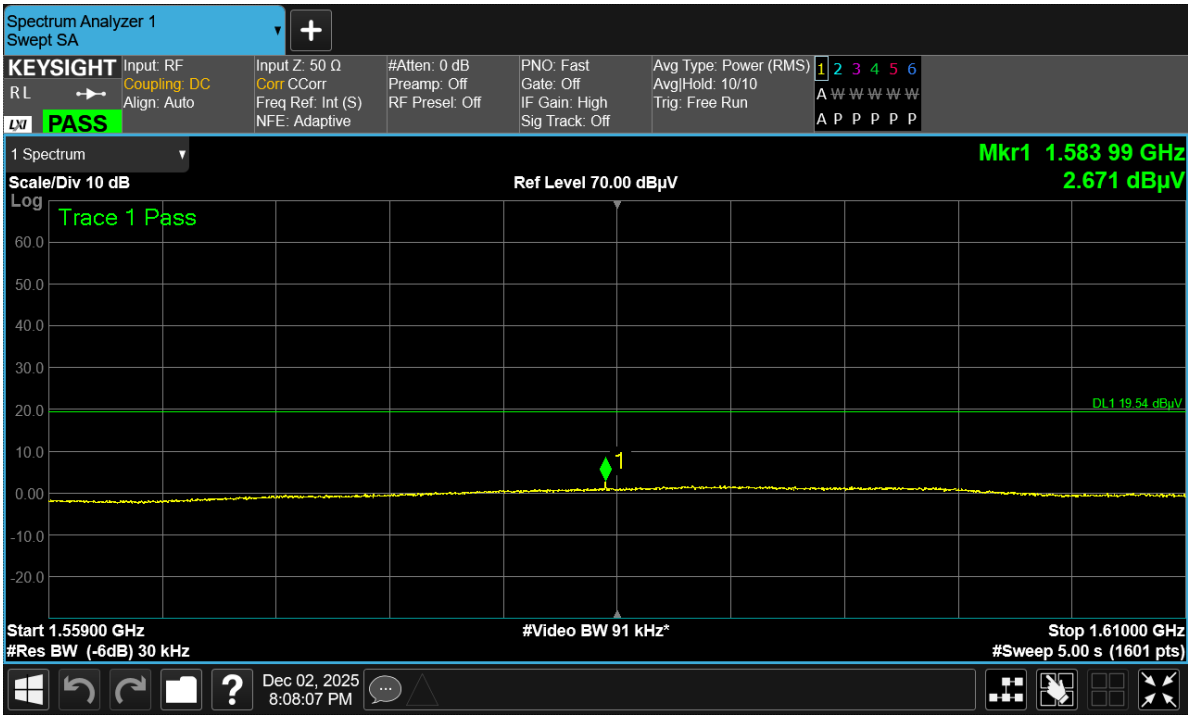
SP0_Config6, 1559 MHz-1610 MHz



SP3_Config7, 1164 MHz-1240 MHz



SP3_Config7, 1559 MHz-1610 MHz



7 FCC §15.519(e), §15.521(e) & ISEDC RSS-220 §5.3.1(g) – Peak Fundamental Emission

7.1 Applicable Standards

According to FCC §15.519(e): There is a limit on the peak level of the emissions contained within a 50 MHz bandwidth centered on the frequency at which the highest radiated emission occurs, f_M . That limit is 0 dBm EIRP. It is acceptable to employ a different resolution bandwidth, and a correspondingly different peak emission limit, following the procedures described in §15.521.

According to FCC §15.521(e): The frequency at which the highest radiated emission occurs, f_M , must be contained within the UWB bandwidth.

According to FCC §15.521(g): When a peak measurement is required, it is acceptable to use a resolution bandwidth other than the 50 MHz specified in this subpart. This resolution bandwidth shall not be lower than 1 MHz or greater than 50 MHz, and the measurement shall be centered on the frequency at which the highest radiated emission occurs, f_M . If a resolution bandwidth other than 50 MHz is employed, the peak EIRP limit shall be $20 \log (RBW/50)$ dBm where RBW is the resolution bandwidth in megahertz that is employed. This may be converted to a peak field strength level at 3 meters using $E(\text{dBuV/m}) = P(\text{dBm EIRP}) + 95.2$. If RBW is greater than 3 MHz, the application for certification filed with the Commission must contain a detailed description of the test procedure, calibration of the test setup, and the instrumentation employed in the testing.

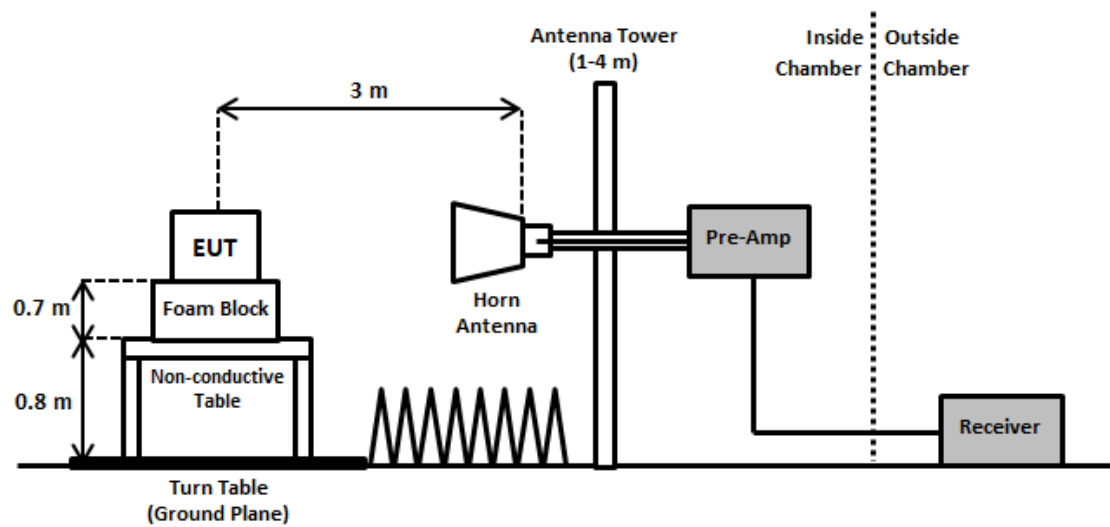
According to ISEDC RSS-220 §5.3.1(g): The peak level of the transmissions shall not exceed the peak equivalent of the average limit contained within any 50 MHz bandwidth, as defined in section 4 of the Annex

According to ISEDC RSS-220 Annex 4(c): Peak measurements shall be made in addition to average measurements. Transmissions shall not exceed 0 dBm e.i.r.p. in any 50 MHz bandwidth when the average limit is -41.3 dBm/MHz.

7.2 Measurement Procedure

The measurements are based on ANSI C63.10-2020 + Cor.1-2023 + Errata to C63.10a-2024, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices section 10.3: Radiated measurement procedure above 960 MHz.

7.3 Test Setup Block Diagram



7.4 Test Equipment List and Details

BACL No	Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
1546	Megaphase	SMA coax cable	TM26-S1S3-12	20869602 001	2025-08-18	6 months
1449	BACL	Preamplifier	BACL1313-A100M18G	4052472	2025-08-18	6 months
1192	ETS Lindgren	Horn Antenna	3117	00218973	2024-10-23	2 years
1461	Rohde & Schwarz	Signal Analyzer	FSQ26	200103	2025-08-08	1 year
1295	Carlisle	10m Ultra Low Loss Coaxial Cable	UFB142A-1-3937-200200	64639890912-001	2025-10-16	6 months
327	Sunol Sciences	System Controller	SC110V	122303-1	NR	NR
1075	Sunol Sciences	Boresight Tower	TLT3	050119-7	NR	NR
1388	Sunol Sciences	Flush Mount Turntable	FM	112005-2	NR	NR

Statement of Traceability: *BACL Corp.* attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 “A2LA Policy on Metrological Traceability”.

7.5 Test Environmental Conditions

Temperature:	21° C
Relative Humidity:	48 %
ATM Pressure:	101.8 kPa

The testing was performed by Arturo Reyes from 2025-11-27 in 5 meter chamber 3.

7.6 Test Results

Channel Number	Channel Frequency (MHz)	Mode	PSA Reading (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Pre Amp Gain (dB)	Corrected Field Strength (dBμV/m at 3m)	Limit ¹ (dBμV/m at 3m)	Margin (dB)
9	7987.2	SP0_Config6	81.95	36.69	12.097	43.524	87.213	87.34	-0.127
		SP3_Config7	77.39	36.69	12.097	43.524	82.653	87.34	-4.687

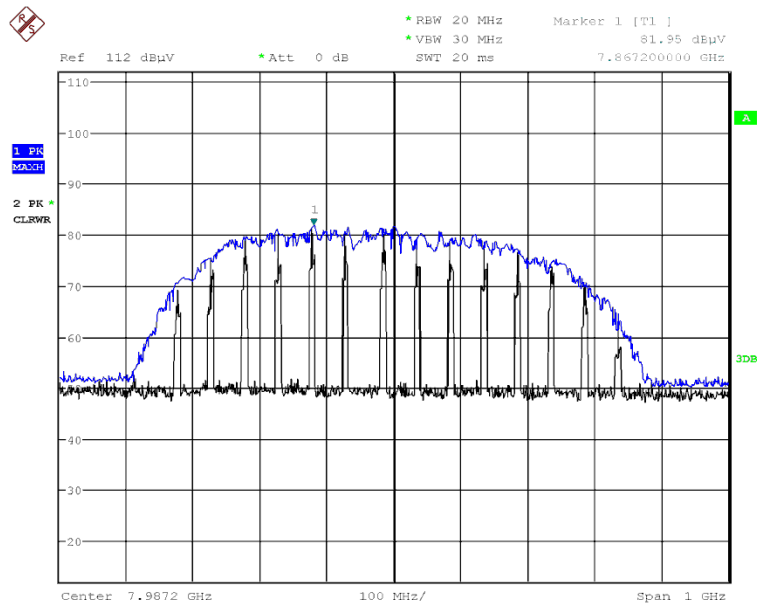
Channel Number	Channel Frequency (MHz)	Mode	f _M (MHz)	Range of UWB BW ² (MHz)	Result
9	7987.2	SP0_Config6	7867.2	7682.2 – 8256.2	Pass
		SP3_Config7	7862.2	7679.2 – 8252.2	Pass

Note 1: Radiated Peak limit determined using a 20 MHz measurement BW. (i.e. $20 \cdot \log(20/50) = -7.96$ dB), then adding 95.2 dB for field strength at 3 meters as instructed to in FCC §15.521(g)

Note 2: Please refer to Section 8.6 of this report for the UWB bandwidth measurement result.

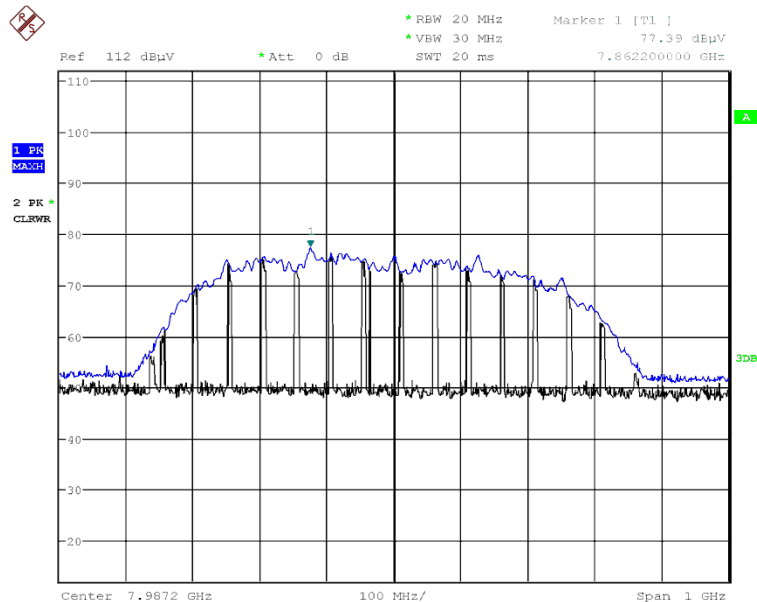
Please refer to the plots below for detailed Peak Fundamental measurements test results.

Channel 9 (7987.2 MHz), SP0_Config6



Date: 27.NOV.2025 03:48:34

Channel 9 (7987.2 MHz), SP3_Config7



Date: 27.NOV.2025 04:08:24

8 FCC §15.503(d), §15.519(b) & ISEDC RSS-220 §5.1(a), RSS-Gen §6.7 – Emission Bandwidth

8.1 Applicable Standards

According to ECFR §15.503(a), For the purpose of this subpart, the UWB bandwidth is the frequency band bounded by the points that are 10 dB below the highest radiated emission, as based on the complete transmission system including the antenna.

According to ECFR §15.519(b) and ISEDC RSS-220 §5.1(a), the UWB bandwidth of a device operating under the provisions of this section must be contained between 3100 MHz and 10,600 MHz.

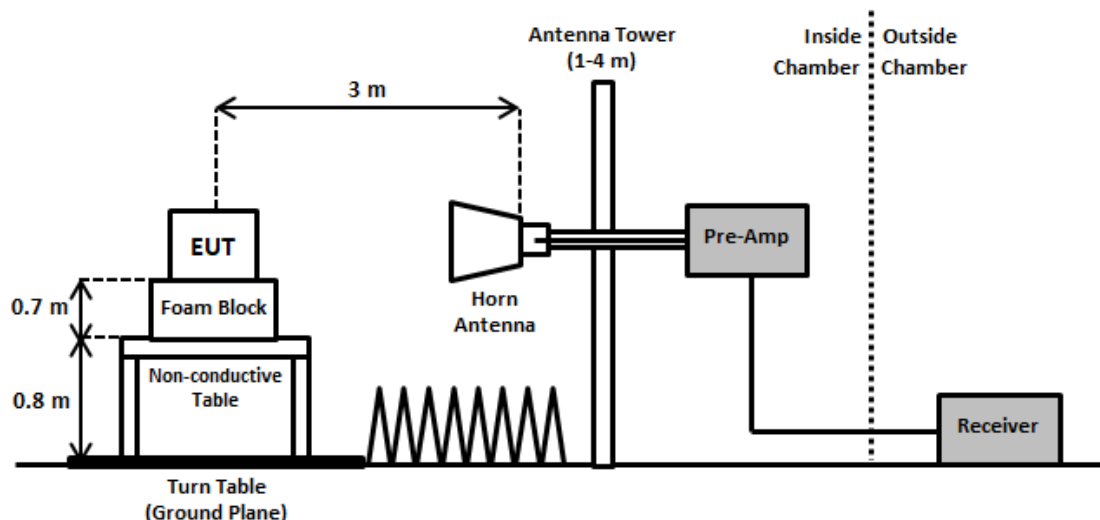
According to ECFR §15.503(b) and ISEDC RSS-220 §5.1(a), An intentional radiator that, at any point in time, has a fractional bandwidth equal to or greater than 0.20 or has a UWB bandwidth equal to or greater than 500 MHz, regardless of the fractional bandwidth.

According to ISEDC RSS-Gen§6.7, The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

8.2 Measurement Procedure

The UWB bandwidth measurements were based on ANSI C63.10-2020 + Cor.1-2023 + Errata to C63.10a-2024, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices section 10.1: Evaluation of -10dB bandwidth.

8.3 Test Setup Block Diagram



8.4 Test Equipment List and Details

BACL No	Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
1546	Megaphase	SMA coax cable	TM26-S1S3-12	20869602 001	2026-02-17	6 months
1449	BACL	Preamplifier	BACL1313-A100M18G	4052472	2026-02-17	6 months
1192	ETS Lindgren	Horn Antenna	3117	00218973	2024-10-23	2 years
1461	Rohde & Schwarz	Signal Analyzer	FSQ26	200103	2025-08-08	1 year
1295	Carlisle	10m Ultra Low Loss Coaxial Cable	UFB142A-1-3937-200200	64639890912-001	2025-10-16	6 months
327	Sunol Sciences	System Controller	SC110V	122303-1	NR	NR
1075	Sunol Sciences	Boresight Tower	TLT3	050119-7	NR	NR
1388	Sunol Sciences	Flush Mount Turntable	FM	112005-2	NR	NR

Statement of Traceability: **BACL Corp.** attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 "A2LA Policy on Metrological Traceability".

8.5 Test Environmental Conditions

Temperature:	23° C
Relative Humidity:	44 %
ATM Pressure:	102.1 kPa

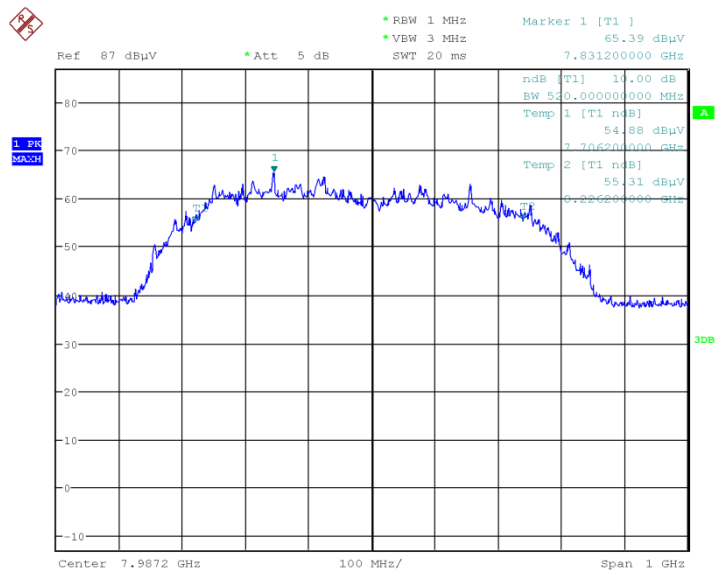
The testing was performed by Arturo Reyes on 2026-03-26 in 5 meter chamber 3.

8.6 Test Results

Channel	Frequency (MHz)	Mode	10 dB BW (MHz)	10 dB BW limit (MHz)	10 dB BW within 3100MHz-10600MHz
9	7987.2	SP0_Config6	520	> 500	Pass
		SP3_Config7	536	> 500	Pass

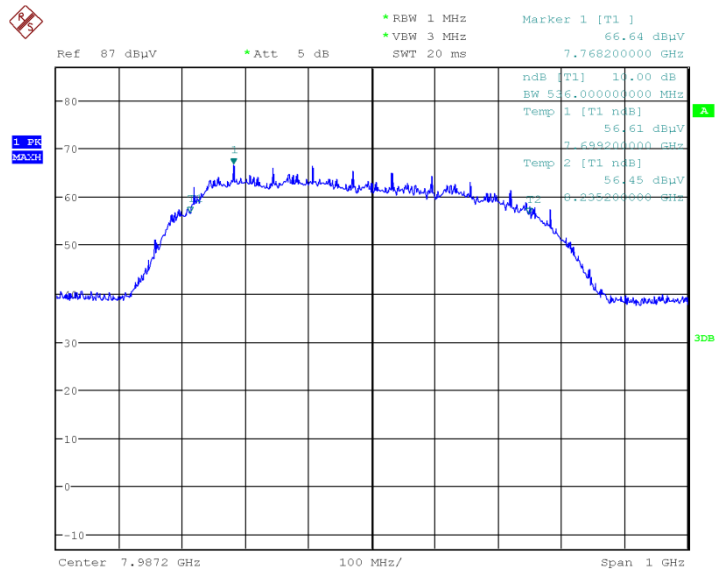
Please refer to the plots below for detailed Emission Bandwidth test results.

Channel 9 (7987.2 MHz), SP0_Config6



Project Number: R2511121; Tester Name: Arturo R.
Date: 26.MAR.2026 03:06:05

Channel 9 (7987.2 MHz), SP3_Config7



Project Number: R2511121; Tester Name: Arturo R.
Date: 26.MAR.2026 03:02:52

9 FCC §15.519(a) (1) & ISERC RSS-220 §5.3.1(b) – Cease Transmission

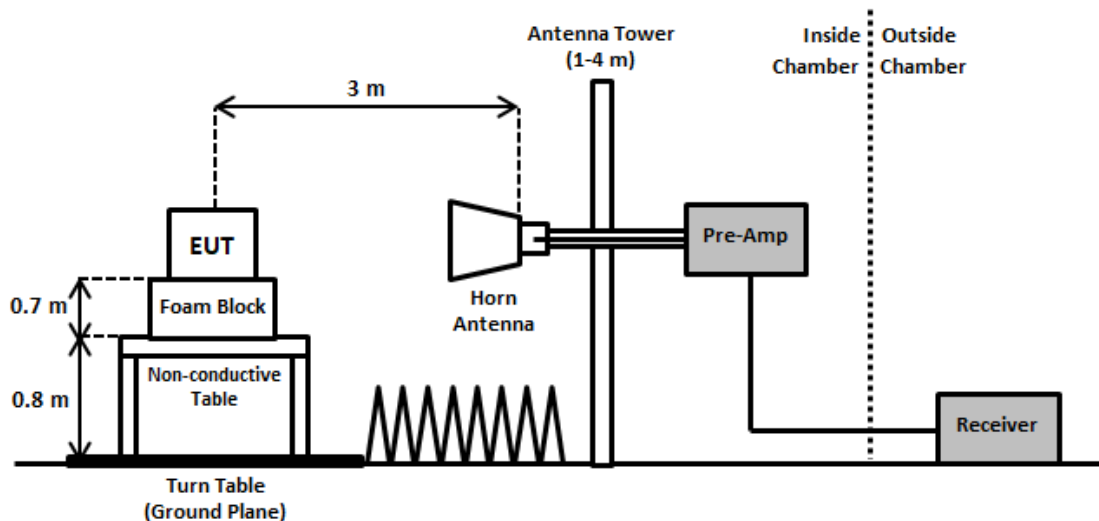
9.1 Applicable Standards

According to FCC §15.519(a)(1) and RSS-220 §5.3.1(b): A UWB device operating under the provisions of this section shall transmit only when it is sending information to an associated receiver. The UWB intentional radiator shall cease transmission within 10 seconds unless it receives an acknowledgement from the associated receiver that its transmission is being received. An acknowledgment of reception must continue to be received by the UWB intentional radiator at least every 10 seconds or the UWB device must cease transmitting.

9.2 Measurement Procedure

A support UWB radio device was paired with the EUT for this testing. Transmission was monitored over a 20 second period. Both EUT and support equipment were switched on and paired for UWB ranging from the transmission off state. The support equipment was then powered off, and the transmission time from EUT was monitored and recorded. The first marker marks the time the support equipment was switched off, and the second marker marks the time the EUT stopped transmission.

9.3 Test Setup Block Diagram



9.4 Test Equipment List and Details

BACL No	Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
1546	Megaphase	SMA coax cable	TM26-S1S3-12	20869602 001	2025-08-18	6 months
1192	ETS Lindgren	Horn Antenna	3117	00218973	2024-10-23	2 years
1432	Keysight Technologies	MXE EMI Receiver, Multi-touch	N9038B	MY60180008	2025-01-03	1 year
1295	Carlisle	10m Ultra Low Loss Coaxial Cable	UFB142A-1-3937-200200	64639890912-001	2025-10-16	6 months
327	Sunol Sciences	System Controller	SC110V	122303-1	NR	NR
1075	Sunol Sciences	Boresight Tower	TLT3	050119-7	NR	NR
1388	Sunol Sciences	Flush Mount Turntable	FM	112005-2	NR	NR

Statement of Traceability: *BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 "A2LA Policy on Metrological Traceability".*

9.5 Test Environmental Conditions

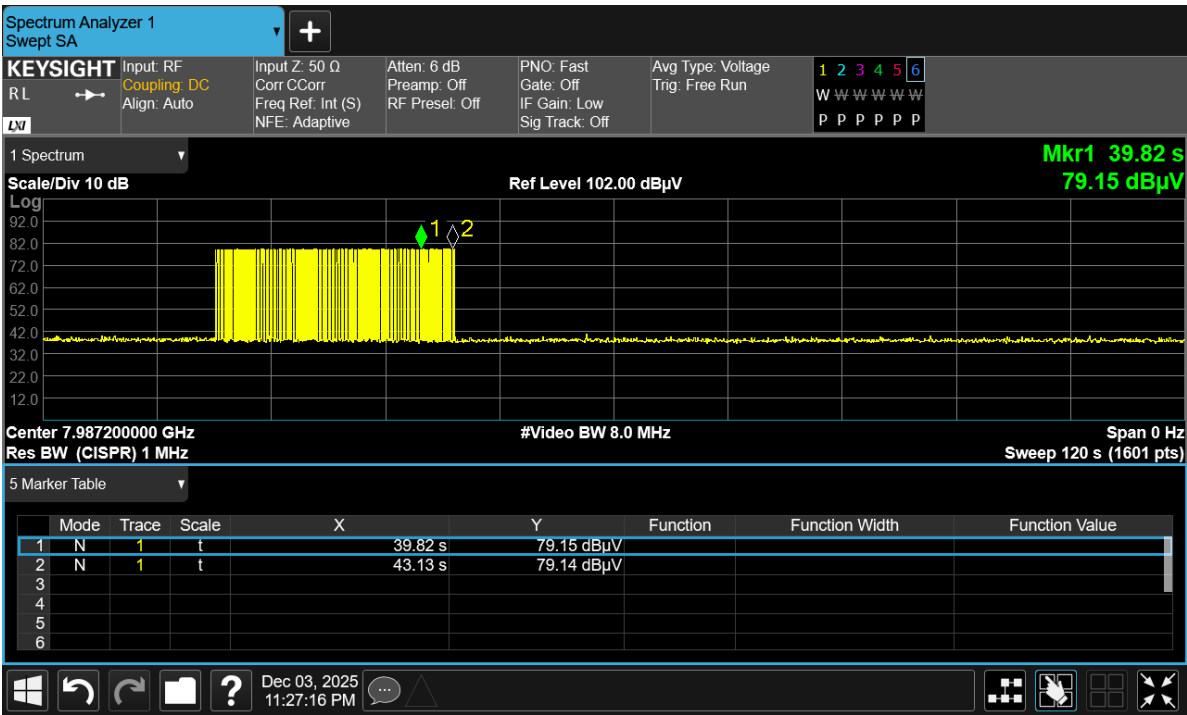
Temperature:	23° C
Relative Humidity:	50 %
ATM Pressure:	101.8 kPa

The testing was performed by Michael Papa on 2025-12-03 in 5 meter chamber 3.

9.6 Test Results

Transmission Time (Seconds)	Limit (Seconds)
3.31	< 10

Please refer to the plots below for detailed Cease Transmissions test results.



10 Appendix A (Normative) – EUT Test Setup Photographs

Please refer to the attachment.

11 Appendix B (Normative) – EUT External Photographs

Please refer to the attachment.

12 Appendix C (Normative) – EUT Internal Photographs

Please refer to the attachment.

13 Appendix D (Normative) – A2LA Electrical Testing Certificate



Accredited Laboratory

A2LA has accredited

BAY AREA COMPLIANCE LABORATORIES CORP.

Sunnyvale, CA

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 R222 - Specific Requirements EPA ENERGY STAR Accreditation 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 13th day of September 2024.

Mr. Trace McInturf, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3297.02
Valid to September 30, 2026

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

Please follow the web link below for a full ISO 17025 scope

<https://www.a2la.org/scopepdf/3297-02.pdf>

--- END OF REPORT ---