



FCC PART 15, SUBPART C ISED C RSS-247, ISSUE 4, JULY 2025

TEST REPORT

For

Tesla, Inc.

3500 Deer Creek Road
Palo Alto, CA 94304, USA

FCC ID: 2AEIM-2007839
IC: 20098-2007839

Report Type: Original Report	Product Type: Lighthouse Top Module
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Report Number: R2512172-247	
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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 "*"

TABLE OF CONTENTS

1	GENERAL DESCRIPTION	5
1.1	PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	5
1.2	MECHANICAL DESCRIPTION OF EUT	5
1.3	OBJECTIVE	5
1.4	RELATED SUBMITTAL(S)/GRANT(S).....	6
1.5	TEST METHODOLOGY	6
1.6	MEASUREMENT UNCERTAINTY	6
1.7	TEST FACILITY REGISTRATIONS.....	6
1.8	TEST FACILITY ACCREDITATIONS	7
2	SYSTEM TEST CONFIGURATION	11
2.1	JUSTIFICATION	11
2.2	EUT EXERCISE SOFTWARE	11
2.3	DUTY CYCLE CORRECTION FACTOR	11
2.4	EQUIPMENT MODIFICATION	13
2.5	LOCAL SUPPORT EQUIPMENT	13
2.6	REMOTE SUPPORT EQUIPMENT	13
2.7	POWER SUPPLY AND LINE FILTERS	13
2.8	INTERFACE PORTS AND CABLING.....	13
3	SUMMARY OF TEST RESULTS.....	14
4	FCC §15.203 & ISEDC RSS-GEN §6.8 – ANTENNA REQUIREMENTS.....	15
4.1	APPLICABLE STANDARDS	15
4.2	ANTENNA DESCRIPTION.....	16
5	FCC §2.1091, §15.247(I) & ISEDC RSS-102 - RF EXPOSURE	17
5.1	APPLICABLE STANDARDS	17
5.2	MPE PREDICTION	18
5.3	MPE RESULT FOR FCC.....	18
5.4	RF EXPOSURE EVALUATION FOR IC	18
6	FCC §15.35(B), §15.205, §15.209, §15.247(D) & ISEDC RSS-247 §6.6, RSS-GEN §8.9, §8.10 – SPURIOUS RADIATED EMISSIONS	19
6.1	APPLICABLE STANDARDS	19
6.2	TEST SETUP.....	22
6.3	TEST PROCEDURE	22
6.4	CORRECTED AMPLITUDE AND MARGIN CALCULATION	23
6.5	TEST SETUP BLOCK DIAGRAM	24
6.6	TEST EQUIPMENT LIST AND DETAILS.....	26
6.7	TEST ENVIRONMENTAL CONDITIONS	27
6.8	SUMMARY OF TEST RESULTS	27
6.9	RADIATED EMISSIONS TEST RESULTS.....	28
7	FCC §15.247(A) (2) & ISEDC RSS-247 §5.2, RSS-GEN §6.3.1 – EMISSION BANDWIDTH	64
7.1	APPLICABLE STANDARDS	64
7.2	MEASUREMENT PROCEDURE.....	64
7.3	TEST SETUP BLOCK DIAGRAM	65
7.4	TEST EQUIPMENT LIST AND DETAILS.....	65
7.5	TEST ENVIRONMENTAL CONDITIONS	65
7.6	TEST RESULTS	66
8	FCC §15.247(B)(3) & ISEDC RSS-247 §6.3.2 – MAXIMUM OUTPUT POWER.....	67
8.1	APPLICABLE STANDARDS	67
8.2	MEASUREMENT PROCEDURE.....	67
8.3	TEST SETUP BLOCK DIAGRAM	68
8.4	TEST EQUIPMENT LIST AND DETAILS.....	68

8.5	TEST ENVIRONMENTAL CONDITIONS	68
8.6	TEST RESULTS	69
9	FCC §15.247(E) & ISEDC RSS-247 §6.3.1(2) – PEAK POWER SPECTRAL DENSITY	70
9.1	APPLICABLE STANDARDS	70
9.2	MEASUREMENT PROCEDURE.....	70
9.3	TEST SETUP BLOCK DIAGRAM	71
9.4	TEST EQUIPMENT LIST AND DETAILS.....	71
9.5	TEST ENVIRONMENTAL CONDITIONS	71
9.6	TEST RESULTS	72
10	FCC §15.247(D) & ISEDC RSS-247 §6.6 – 100 KHZ SPURIOUS EMISSIONS AND BAND EDGES AT ANTENNA TERMINAL (DBC)	73
10.1	APPLICABLE STANDARDS	73
10.2	MEASUREMENT PROCEDURE.....	73
10.3	TEST SETUP BLOCK DIAGRAM	73
10.4	TEST EQUIPMENT LIST AND DETAILS.....	74
10.5	TEST ENVIRONMENTAL CONDITIONS	74
10.6	TEST RESULTS	74
11	ANNEX A – EMISSION BANDWIDTH	75
12	ANNEX B – MAXIMUM OUTPUT POWER.....	81
13	ANNEX C – PEAK POWER SPECTRAL DENSITY	84
14	ANNEX D – 100 KHZ SPURIOUS EMISSIONS AT ANTENNA TERMINAL (DBC).....	87
15	ANNEX E – FCC §15.209 BAND EDGES MEASUREMENT	95
16	APPENDIX A (NORMATIVE) – EUT TEST SETUP PHOTOGRAPHS.....	99
17	APPENDIX B (NORMATIVE) – EUT EXTERNAL PHOTOGRAPHS.....	100
18	APPENDIX C (NORMATIVE) – EUT INTERNAL PHOTOGRAPHS	101
19	APPENDIX D (NORMATIVE) – A2LA ELECTRICAL TESTING CERTIFICATE.....	102

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R2512172-247	Original Report	2026-01-27

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: 2007839, FCC ID: 2AEIM-2007839, IC: 20098-2007839, the “EUT” as referred to in this report. The EUT is an Lighthouse Top Module (Lighthouse Top Board) 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 21.0 cm (L) x 7.0 cm (W) x 2.0 cm (H) and weights approximately < 0.1 kg.

The data gathered is from production samples provided by Tesla, Inc. with S/N: SEYU25326004267 (Radiated) and SEYU25326004323 (Conducted).

1.3 Objective

This report is prepared on behalf of *Tesla, Inc.* in accordance with Part 2, Subpart J, and Part 15, Subpart C of the Federal Communication Commission’s rules and ISED RSS-247 Issue 4, July 2025.

The objective is to determine compliance with FCC Part 15.247 and ISED RSS-247 for Antenna Requirement, RF Exposure, Radiated & Conducted Spurious Emissions, Emission Bandwidth, Maximum Output Power, Peak Power Spectral Density, and 100 kHz Band Edges.

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 F, Equipment Class: UWB with FCC ID: 2AEIM-2007839, IC: 20098-2007839

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 558074 D01 DTS Meas Guidance v05r02: Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247.

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 558074 D01 DTS Meas Guidance v05r02.

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 “*ethernet_tool.py*” provided by *Tesla, Inc.* The software is compliant with the standard requirements being tested against.

Radio	Channel	Frequency (MHz)	Power Setting
BLE 1M	Low	2402	18
	Middle	2440	18
	High	2480	18
BLE 2M	Low	2402	18
	Middle	2440	18
	High	2480	14

2.3 Duty Cycle Correction Factor

According to KDB 558074 D01 DTS Meas Guidance v05r02 section 6.0:

All measurements are to be performed with the EUT transmitting at 100% duty cycle at its maximum power control level; however, if 100% duty cycle cannot be achieved, measurements of duty cycle, x , and maximum-power transmission duration, T , are required for each tested mode of operation.

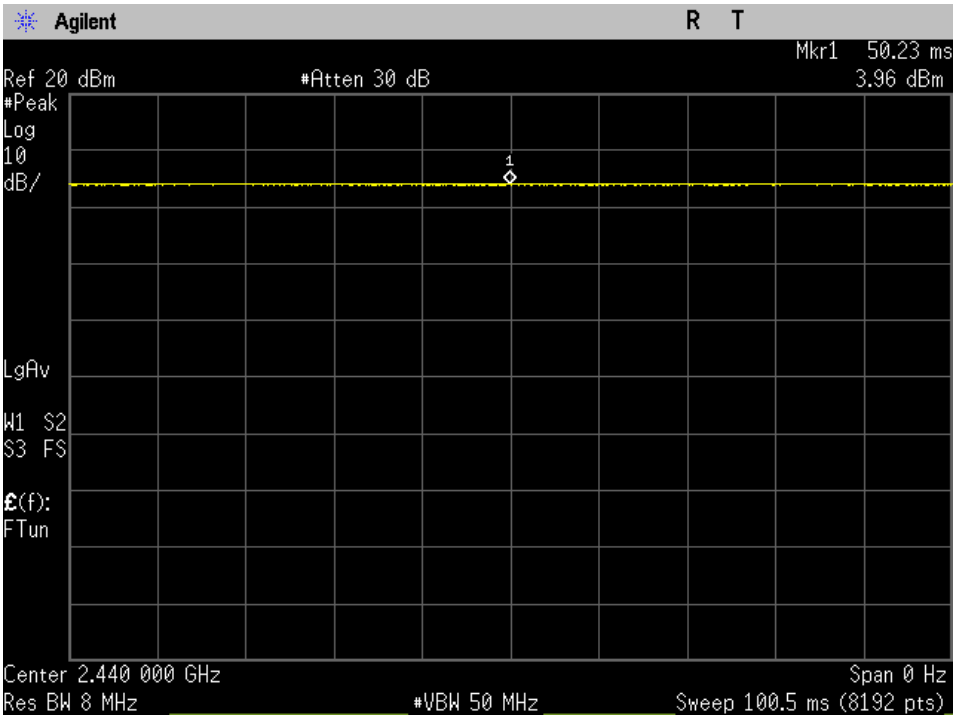
Radio Mode	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
BLE 1M	-	-	100	0
BLE 2M	-	-	100	0

Note 1: Duty Cycle = On Time (ms) / Period (ms) * 100%

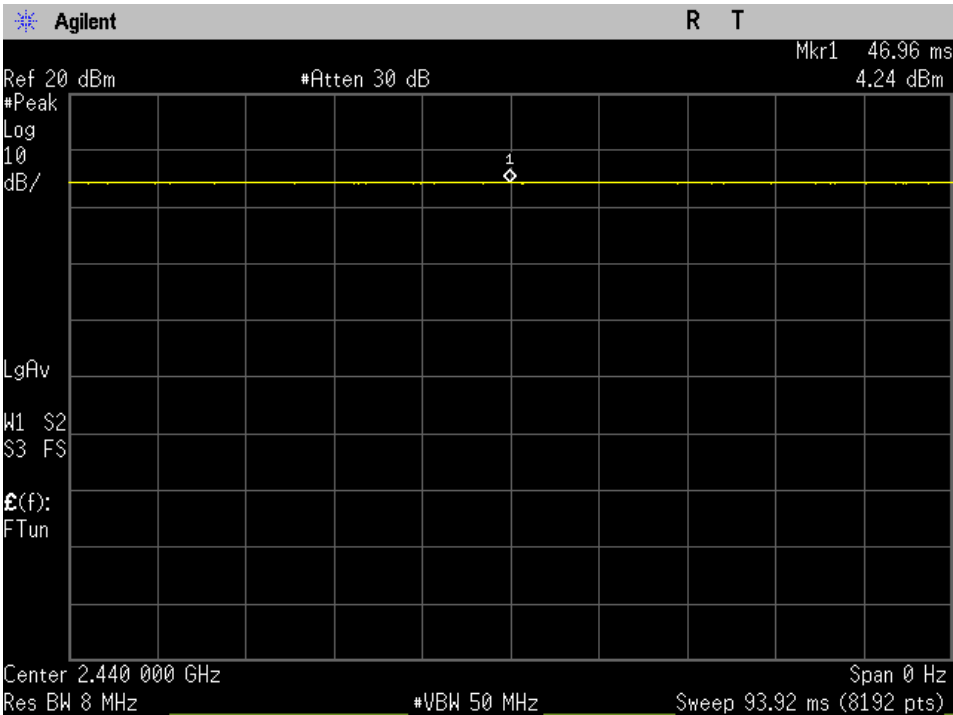
Note 2: Duty Cycle Correction Factor (dB) = $10 \cdot \log(1/\text{duty cycle})$

Please refer to plots below for detailed Duty Cycle measurement.

BLE 1M, Middle Channel, 2440 MHz



BLE 2M, Middle Channel, 2440 MHz



2.4 Equipment Modification

No modifications were made to the EUT during testing.

2.5 Local Support Equipment

None

2.6 Remote Support Equipment

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

2.7 Power Supply and Line Filters

None.

2.8 Interface Ports and Cabling

Cable Description	Length (m)	From	To
USB Cable	< 1	Debug Board	Laptop

3 Summary of Test Results

FCC & ISEDC Rules	Description of Test	Results
FCC §15.203 ISEDC RSS-Gen §6.8	Antenna Requirements	Compliant
FCC §2.1091, §15.247(i), §1.1310(d)(3) ISEDC RSS-102	RF Exposure	Compliant
FCC §15.207 ISEDC RSS-Gen §8.8	AC Line Conducted Emissions	N/A ¹
FCC §2.1053, §15.35(b), §15.205, §15.209, §15.247(d) ISEDC RSS-247 §6.6 ISEDC RSS-Gen §8.9, §8.10	Radiated Spurious Emissions	Compliant
FCC §15.247(a)(2) ISEDC RSS-247 §6.3.1(a) RSS-Gen §6.7	6 dB & 99% Emission Bandwidth	Compliant
FCC §15.247(b)(3) ISEDC RSS-247 §6.3.2	Maximum Output Power	Compliant
FCC §15.247(e) ISEDC RSS-247 §6.3.1(b)	Peak Power Spectral Density	Compliant
FCC §2.1051, §15.247 (d) ISEDC RSS-247 §5.5	Spurious Emissions at Antenna Terminal (dBc)	Compliant
FCC §2.1051, §15.247(d) ISEDC RSS-247 §6.6	100 kHz Bandwidth of Frequency Band Edges	Compliant

Note¹: The EUT is DC 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-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.

And according to FCC §15.247 (b) (4), if transmitting antennas of directional gain greater than 6 dBi are used the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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	2007839	Stamped Metal	2400-2483.5	3.19

Note: Antenna information is provided by customer.

5 FCC §2.1091, §15.247(i) & ISED RSS-102 - RF Exposure

5.1 Applicable Standards

According to FCC §15.247(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
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
300-1500	/	/	f/1500	30
1500-100,000	/	/	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

BLE Standalone

Maximum peak output power at antenna input terminal (dBm): 18.54

Maximum peak output power at antenna input terminal (mW): 71.45

Prediction distance (cm): 20

Prediction frequency (MHz): 2440

Maximum Antenna Gain, typical (dBi): 3.19

Maximum Antenna Gain (numeric): 2.08

Power density of prediction frequency at 20.0 cm (mW/cm²): 0.03

FCC MPE limit for uncontrolled exposure at prediction frequency: 1.0

The device is compliant with the requirement MPE limit for uncontrolled exposure. The maximum power density at the distance of 20 cm is 0.03 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	21.73	20	0.03	1.0	0.03	0.03003	1.0
UWB	-8.16	20	0.00003	1.0	0.00003		

Note: UWB Max. EIRP is referenced from BACL report R2512172-519

5.4 RF Exposure Evaluation for IC

BLE Standalone

Maximum EIRP power = 18.54 dBm + 3.19 dBi = 21.73 dBm (0.149 W) which is less than $1.31 \times 10^{-2} f^{0.6834} = 2.6764$ W

Therefore, the RF Exposure is exempt for IC.

6 FCC §15.35(b), §15.205, §15.209, §15.247(d) & ISEDC RSS-247 §6.6, 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 §15.247 (d),

in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

As per ISERC RSS-247 §6.6,

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum device, digitally modulated device, or hybrid system is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power – based on either an RF conducted or a radiated measurement – provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 6.3.2, the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

As per ISERC 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 §15.247 and ISEDC RSS-247 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 1000 MHz:

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

Above 1000MHz:

- (1) Peak: RBW = 1MHz / VBW = 1MHz (Detector: Peak) / Sweep = Auto
- (2) Average: RBW = 1MHz / VBW = 3MHz (Detector: Average) / Sweep = Auto

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:

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

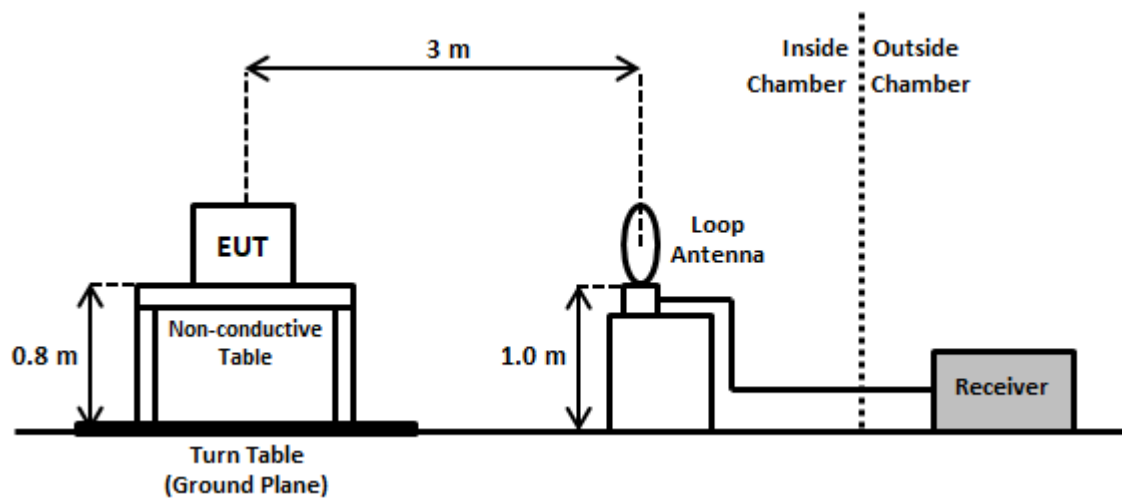
For example, a corrected amplitude of 40.3 dBuV/m = Indicated Reading (32.5 dBuV) + Antenna Factor (+23.5dB) + Cable Loss (3.7 dB) + Attenuator (10 dB) - Amplifier Gain (29.4 dB)

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:

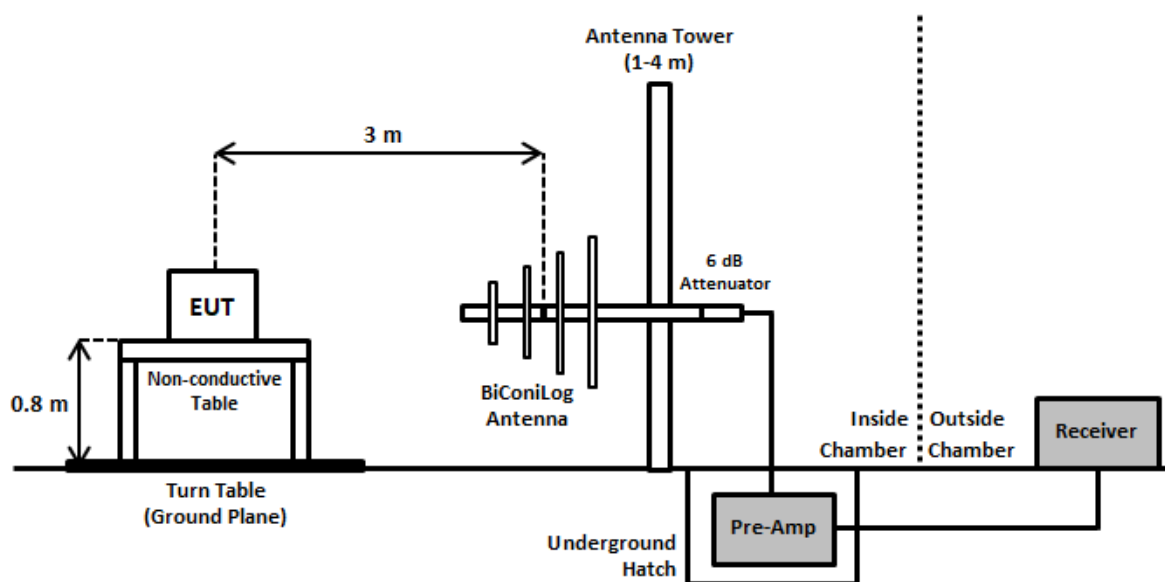
$$\text{Margin} = \text{Corrected Amplitude} - \text{Limit}$$

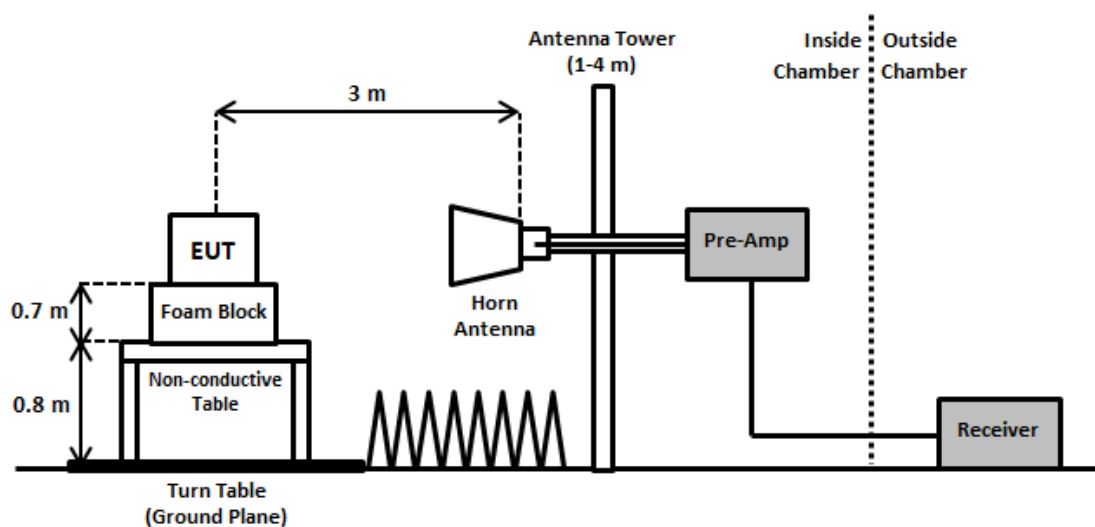
6.5 Test Setup Block Diagram

9 kHz to 30 MHz



30 MHz to 1 GHz



Above 1 GHz

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	13 months
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	2025-12-16	2 years
1245	Pasternack	6dB Attenuator	PE7390-6	01182018A	2025-12-16	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
1210	Pasternack	N-type Coax Cable, 50ft RG213	PE3496-0600	2103161	2025-11-12	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
1334	Micro-Tronics	2.4 GHz Notch Filter	BRM50702	G361	2025-12-17	1 year
90	Wisewave	Horn Antenna 18-26.5GHz	ARH-4223-02	10555-01	2025-05-06	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

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:	17 to 21 °C
Relative Humidity:	45 to 52 %
ATM Pressure:	102.1 kPa

The testing was performed by Michael Papa from 2026-01-05 to 2026-01-12 in 5m chamber 3.

6.8 Summary of Test Results

According to the data hereinafter, the EUT complied with the FCC Part 15.209, 15.247 and ISEDC RSS-247 standards' radiated emissions limits, and had the worst margin of:

Worst Case – Mode: Transmitting			
Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)	Configuration
-1.54	3847.5	Vertical	BLE 1M, 2402 MHz

Please refer to the tables and plots in the next section for detailed test results.

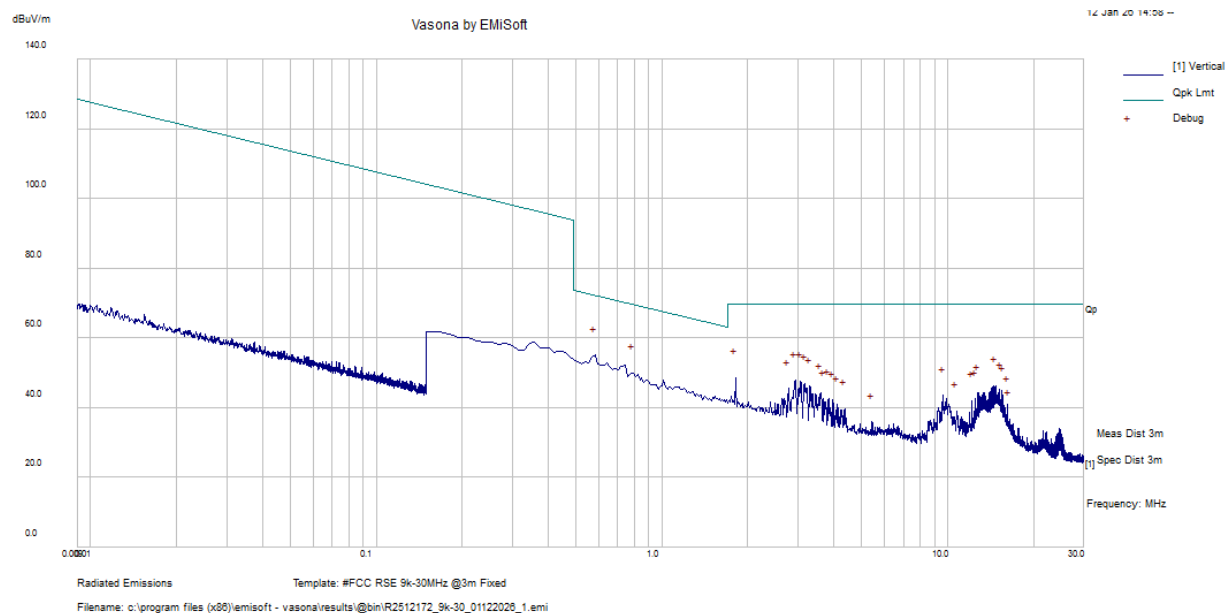
6.9 Radiated Emissions Test Results

Note 1: The test data presented below are for radiated spurious emissions. For radiated band-edges test data, please refer to Annex E.

Note 2: 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

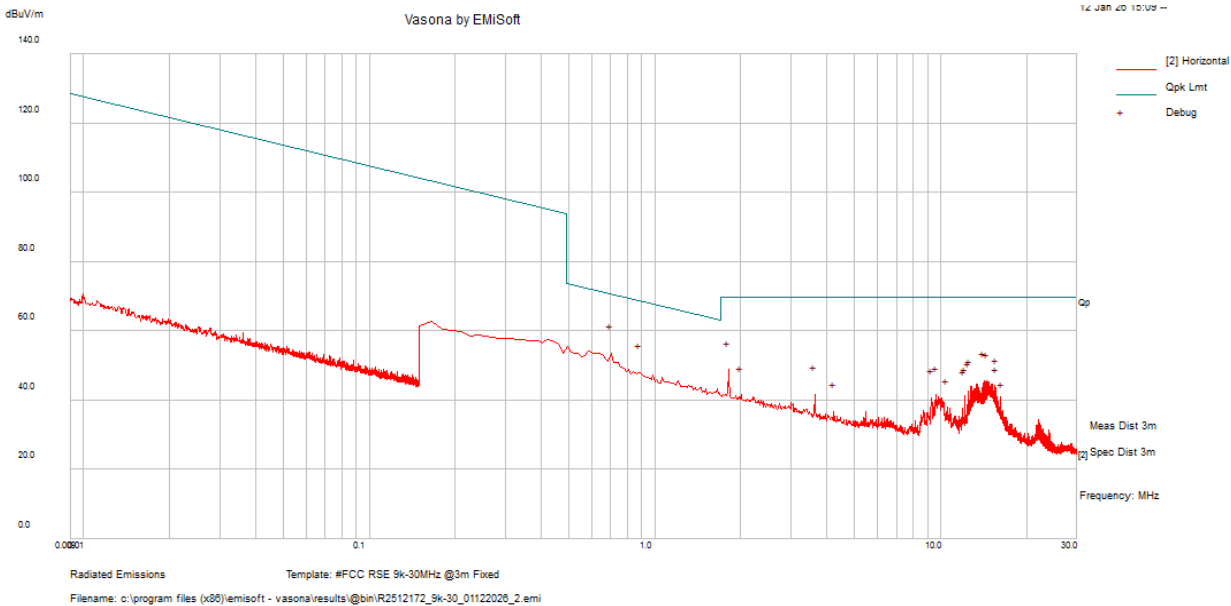
BLE 1M, Low Channel, 2402 MHz, Perpendicular



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
0.582825	44.87	10.16	55.03	72.29	-17.26	Peak
0.791775	39.88	10.1	49.98	69.63	-19.65	Peak
1.806675	38.34	10.32	48.66	69.54	-20.88	Peak
2.92605	37.37	10.45	47.82	69.54	-21.72	Peak
3.060375	37.1	10.45	47.55	69.54	-21.99	Peak
3.16485	36.48	10.45	46.93	69.54	-22.61	Peak

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

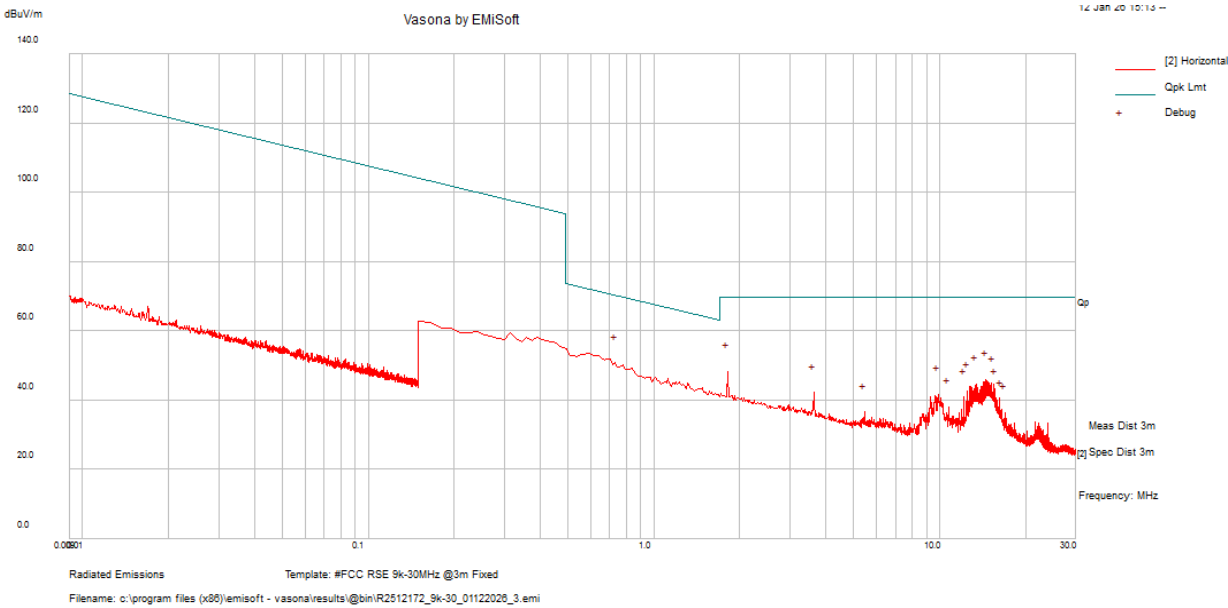
BLE 1M, Low Channel, 2402 MHz, Parallel



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
0.702225	43.36	10.12	53.48	70.68	-17.19	Peak
0.881325	37.87	10.06	47.93	68.7	-20.77	Peak
1.806675	38.4	10.32	48.72	69.54	-20.82	Peak
14.20935	34.97	10.61	45.58	69.54	-23.96	Peak
14.50785	34.88	10.58	45.46	69.54	-24.08	Peak
15.6123	33.11	10.6	43.71	69.54	-25.83	Peak

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

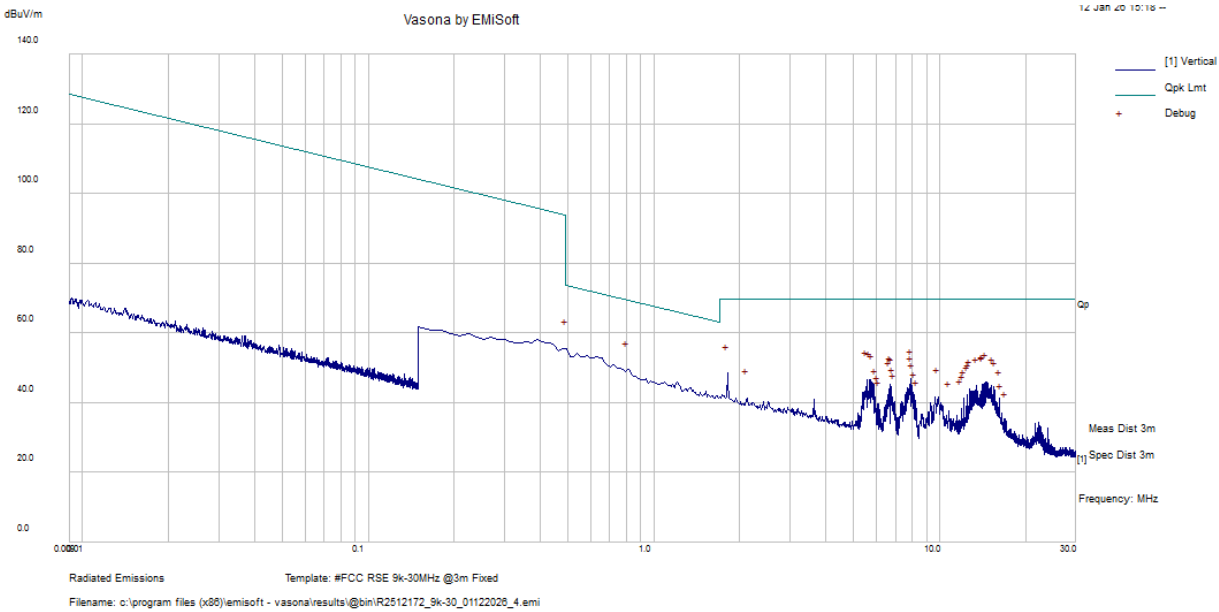
BLE 1M, Low Channel, 2402 MHz, Ground-Parallel



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
0.732075	40.61	10.12	50.73	70.31	-19.59	Peak
1.806675	37.86	10.32	48.18	69.54	-21.36	Peak
14.50785	35.3	10.58	45.88	69.54	-23.66	Peak
13.41833	33.96	10.67	44.63	69.54	-24.91	Peak
15.4332	33.83	10.58	44.41	69.54	-25.13	Peak
12.5079	31.9	10.71	42.61	69.54	-26.93	Peak

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

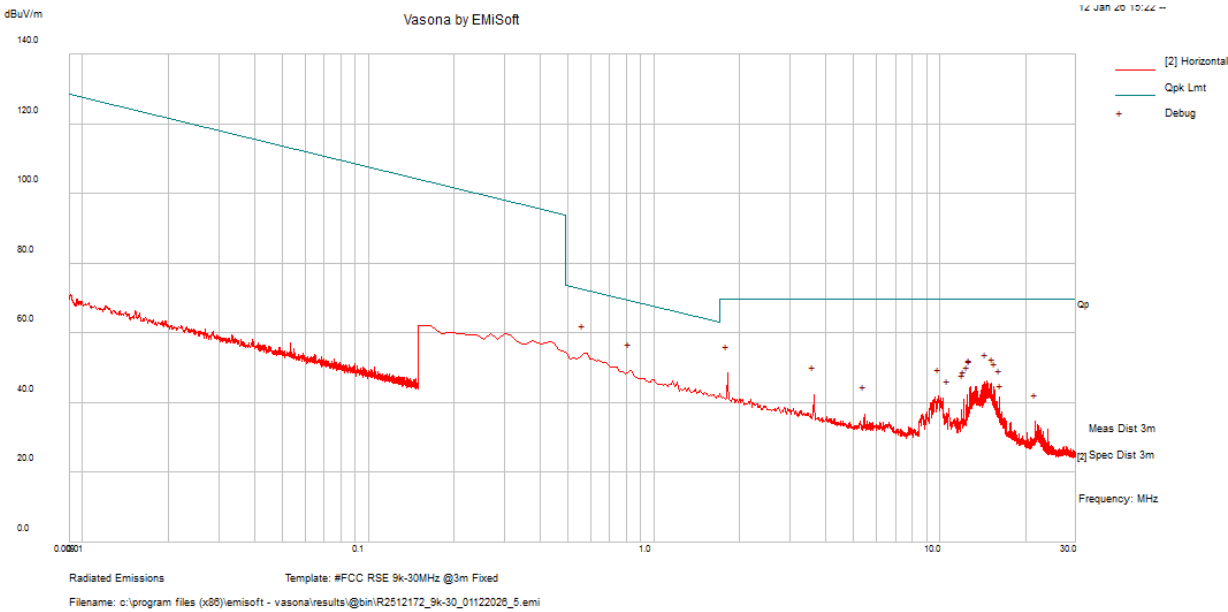
BLE 1M, Middle Channel, 2440 MHz, Perpendicular



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
0.493275	45.3	10.18	55.48	73.74	-18.26	Peak
0.8067	39.37	10.09	49.46	69.47	-20.01	Peak
1.806675	38.12	10.32	48.44	69.54	-21.10	Peak
7.925925	36.27	10.58	46.85	69.54	-22.69	Peak
5.567775	36.1	10.46	46.56	69.54	-22.98	Peak
5.7021	36	10.5	46.5	69.54	-23.04	Peak

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

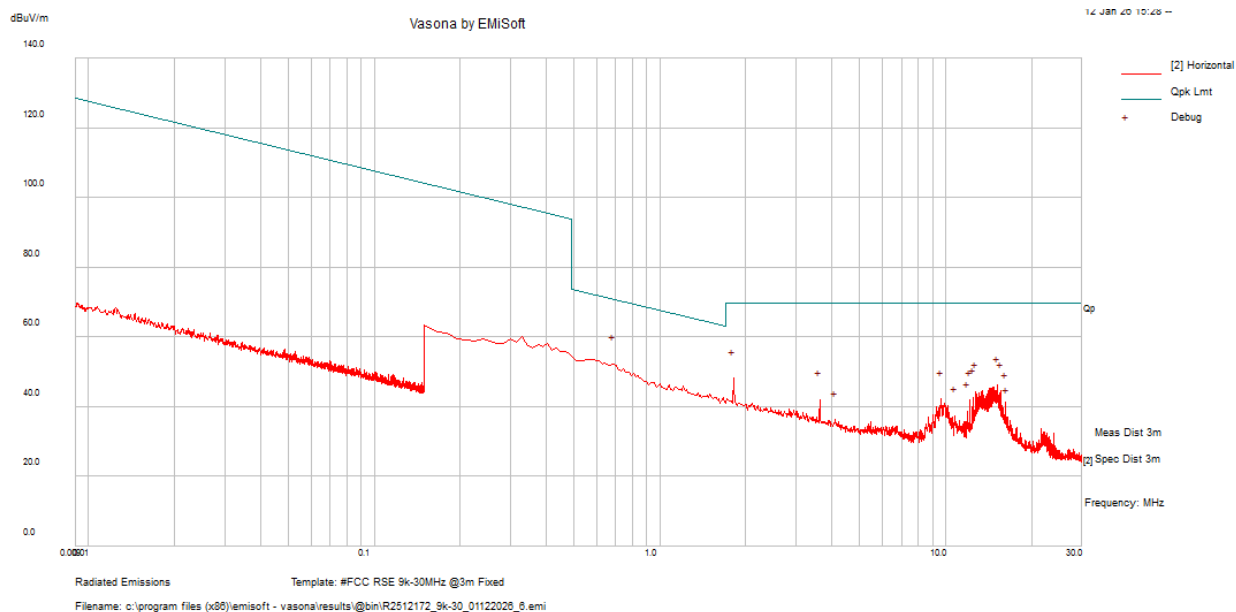
BLE 1M, Middle Channel, 2440 MHz, Parallel



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
0.5679	44.13	10.16	54.29	72.52	-18.23	Peak
0.821625	38.96	10.09	49.05	69.31	-20.26	Peak
1.806675	38.14	10.32	48.46	69.54	-21.08	Peak
14.61233	35.56	10.57	46.13	69.54	-23.41	Peak
15.4332	33.97	10.57	44.54	69.54	-25.00	Peak
12.8064	33.8	10.7	44.5	69.54	-25.04	Peak

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

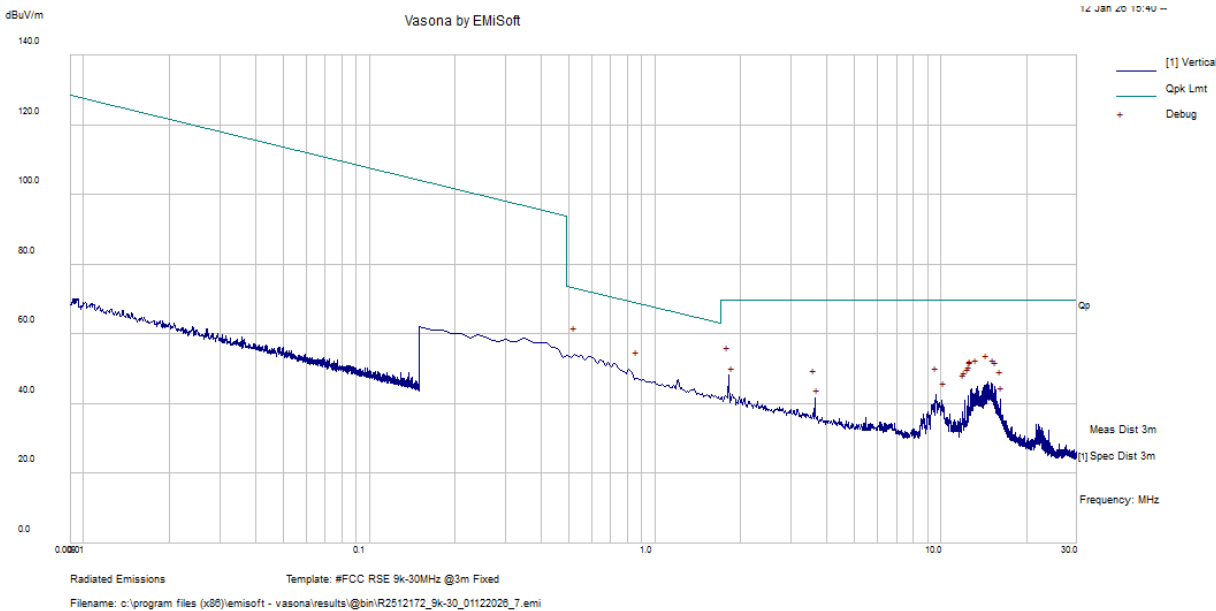
BLE 1M, Middle Channel, 2440 MHz, Ground-Parallel



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
0.6873	42.06	10.13	52.19	70.86	-18.67	Peak
1.806675	37.83	10.31	48.14	69.54	-21.40	Peak
15.2541	35.58	10.56	46.14	69.54	-23.40	Peak
15.6123	33.8	10.6	44.4	69.54	-25.14	Peak
12.7467	33.68	10.71	44.39	69.54	-25.15	Peak
12.5079	31.93	10.7	42.63	69.54	-26.91	Peak

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

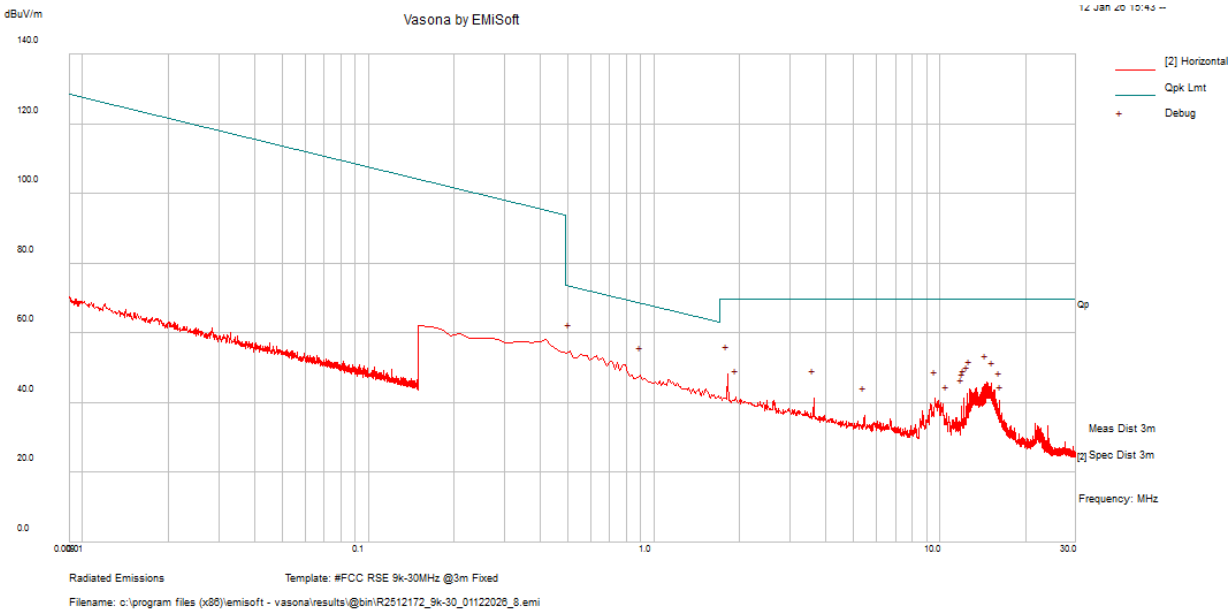
BLE 1M, High Channel, 2480 MHz, Perpendicular



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
0.523125	43.82	10.18	54.00	73.23	-19.24	Peak
1.806675	38.02	10.32	48.34	69.54	-21.20	Peak
0.8664	37.06	10.07	47.13	68.85	-21.72	Peak
14.612325	35.54	10.57	46.11	69.54	-23.43	Peak
13.418325	34.13	10.67	44.8	69.54	-24.74	Peak
15.4332	34.16	10.58	44.74	69.54	-24.80	Peak

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

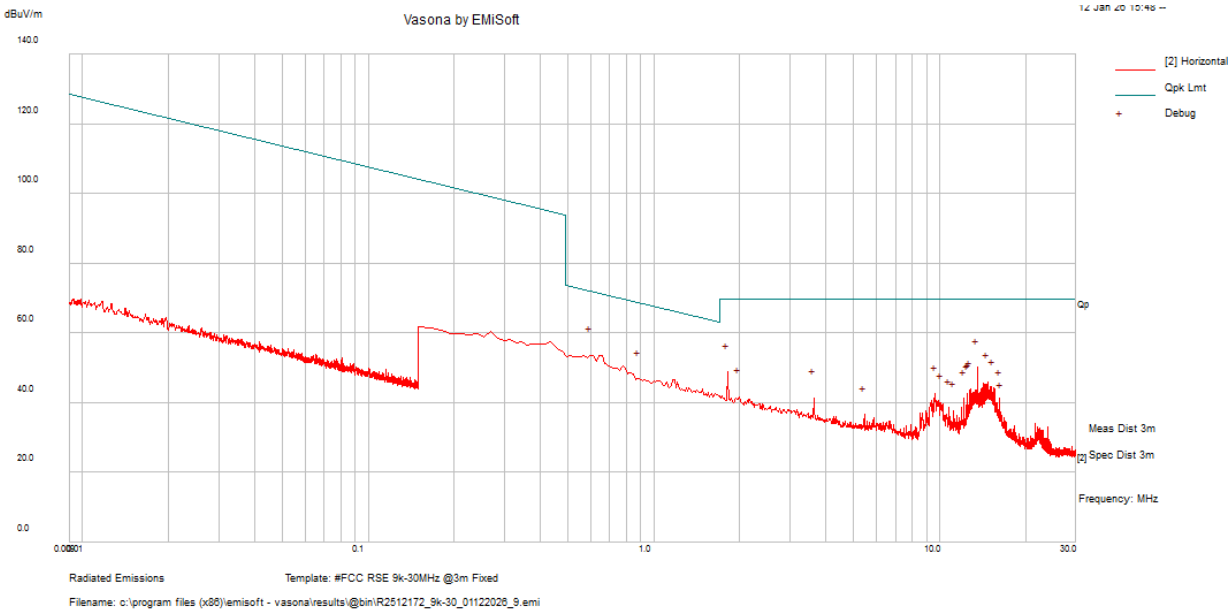
BLE 1M, High Channel, 2480 MHz, Parallel



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
0.5082	44.5	10.17	54.67	73.48	-18.81	Peak
0.89625	37.93	10.06	47.99	68.56	-20.57	Peak
1.806675	38.04	10.32	48.36	69.54	-21.18	Peak
14.612325	35.24	10.57	45.81	69.54	-23.73	Peak
12.7467	33.17	10.71	43.88	69.54	-25.66	Peak
15.4332	33.07	10.58	43.65	69.54	-25.89	Peak

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

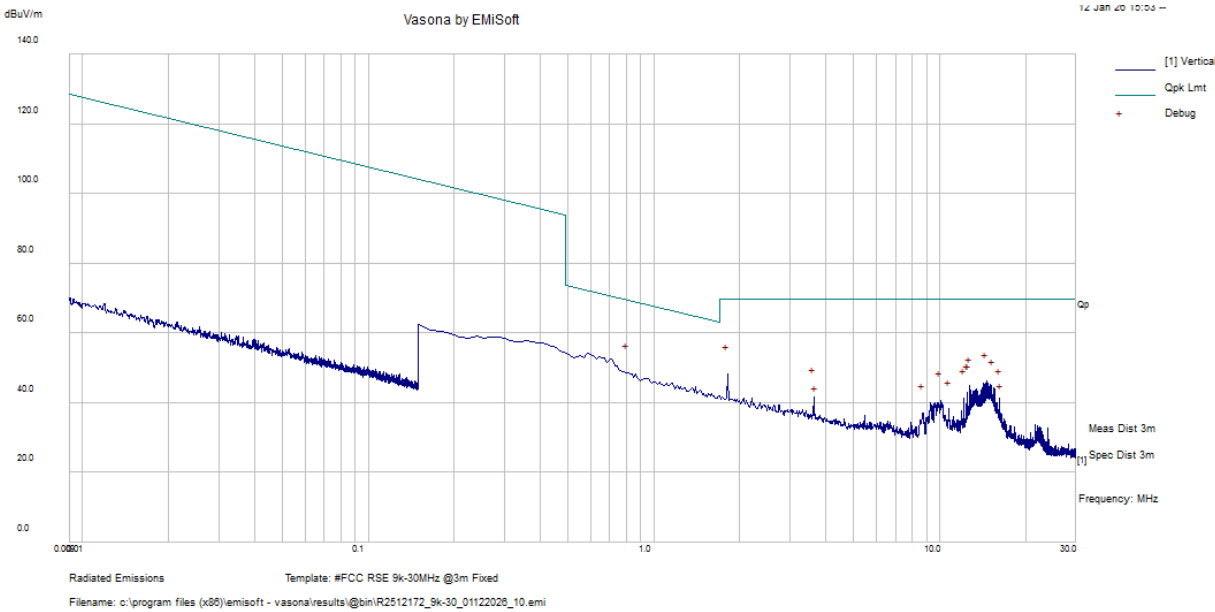
BLE 1M, High Channel, 2480 MHz, Ground-Parallel



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
0.59775	43.32	10.15	53.47	72.08	-18.60	Peak
13.55265	39.36	10.66	50.02	69.54	-19.52	Peak
1.806675	38.47	10.31	48.78	69.54	-20.76	Peak
0.881325	36.67	10.07	46.74	68.7	-21.96	Peak
14.701875	35.39	10.56	45.95	69.54	-23.59	Peak
15.4332	33.55	10.58	44.13	69.54	-25.41	Peak

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

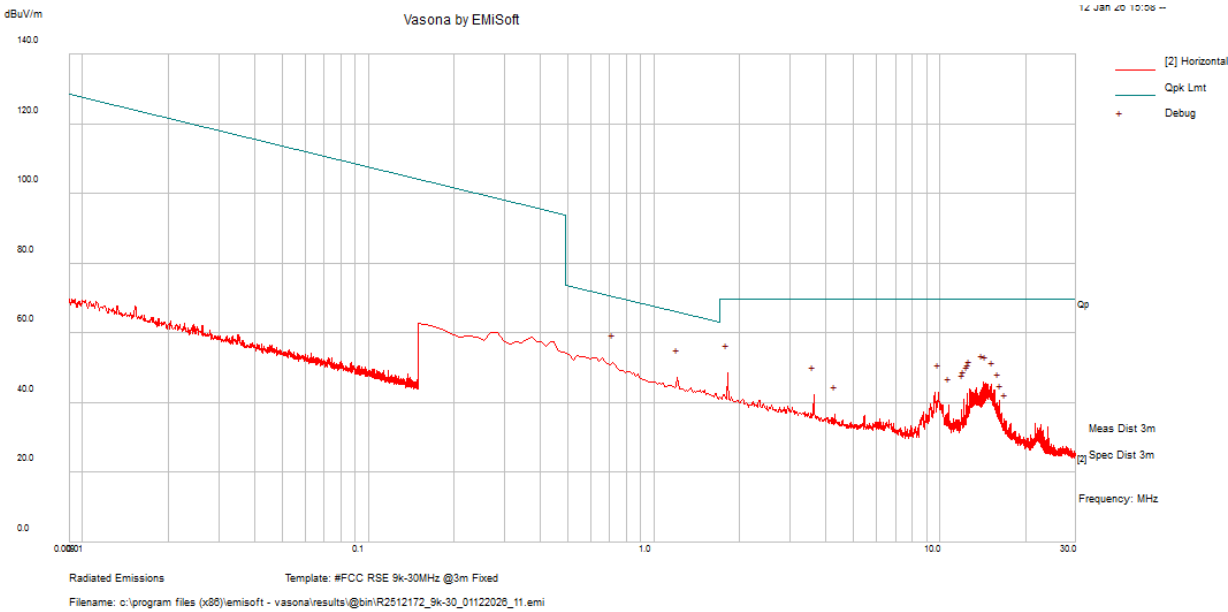
BLE 2M, Low Channel, 2402 MHz, Perpendicular



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
0.8067	38.5	10.09	48.59	69.47	-20.88	Peak
1.806675	38.02	10.32	48.34	69.54	-21.2	Peak
14.61233	35.5	10.57	46.07	69.54	-23.47	Peak
12.7467	34.05	10.71	44.76	69.54	-24.78	Peak
15.4332	33.52	10.57	44.09	69.54	-25.45	Peak
12.5079	32.04	10.71	42.75	69.54	-26.79	Peak

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

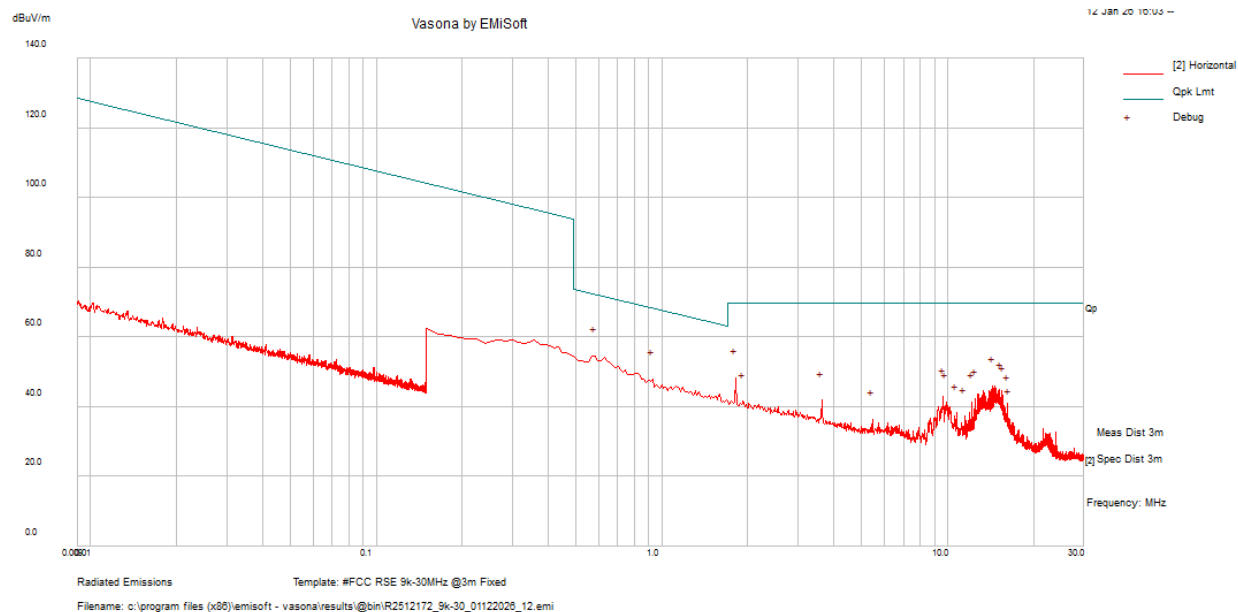
BLE 2M, Low Channel, 2402 MHz, Parallel



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1.209675	37.12	10.13	47.25	65.95	-18.70	Peak
0.71715	41.34	10.13	51.47	70.49	-19.03	Peak
1.806675	38.26	10.32	48.58	69.54	-20.96	Peak
14.20935	35.14	10.61	45.75	69.54	-23.79	Peak
14.50785	34.87	10.58	45.45	69.54	-24.09	Peak
12.7467	33.18	10.71	43.89	69.54	-25.65	Peak

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

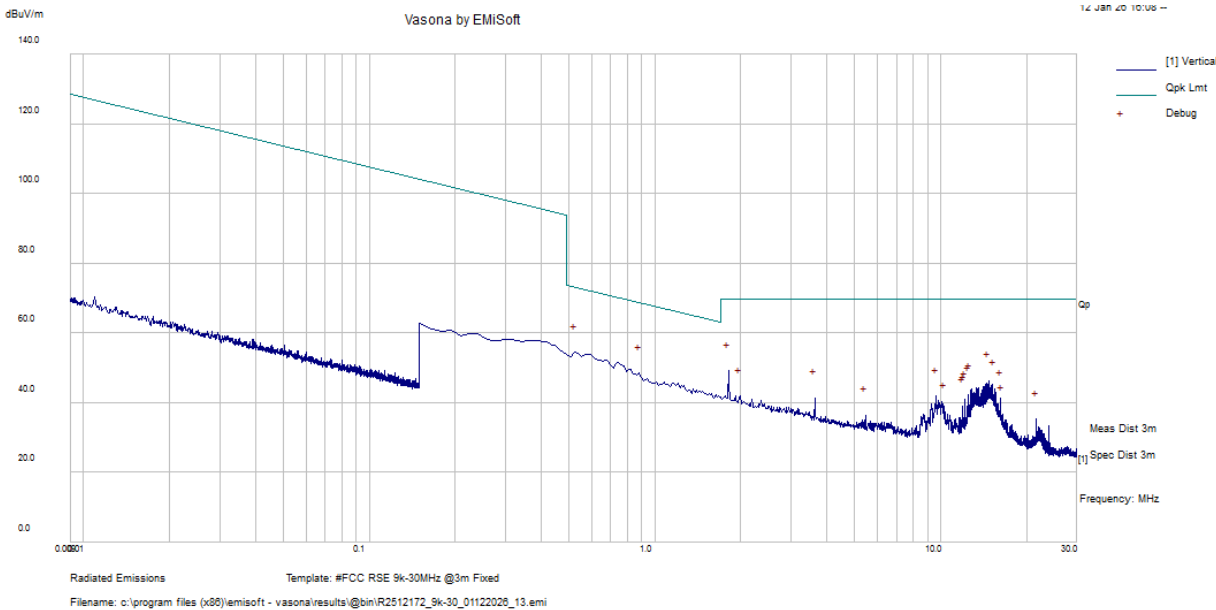
BLE 2M, Low Channel, 2402 MHz, Ground-Parallel



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
0.582825	44.42	10.16	54.58	72.29	-17.72	Peak
0.9261	37.79	10.05	47.84	68.27	-20.43	Peak
1.806675	37.99	10.31	48.3	69.54	-21.24	Peak
14.40338	35.32	10.59	45.91	69.54	-23.63	Peak
15.4332	33.84	10.58	44.42	69.54	-25.12	Peak
15.62723	32.72	10.59	43.31	69.54	-26.23	Peak

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

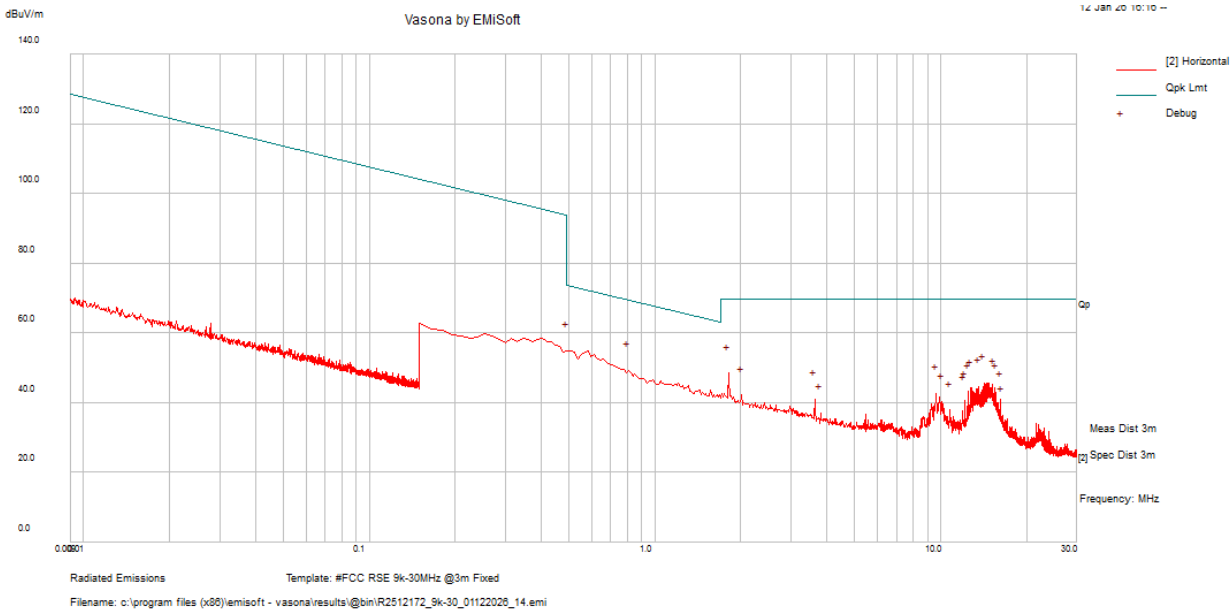
BLE 2M, Middle Channel, 2440 MHz, Perpendicular



Frequency (MHz)	S.A. Reading (dBUV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
0.523125	44.22	10.18	54.4	73.23	-18.84	Peak
0.881325	38.38	10.07	48.45	68.7	-20.25	Peak
1.806675	38.75	10.31	49.06	69.54	-20.48	Peak
14.70188	35.67	10.56	46.23	69.54	-23.31	Peak
15.4332	33.32	10.57	43.89	69.54	-25.65	Peak
12.687	32.16	10.71	42.87	69.54	-26.67	Peak

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

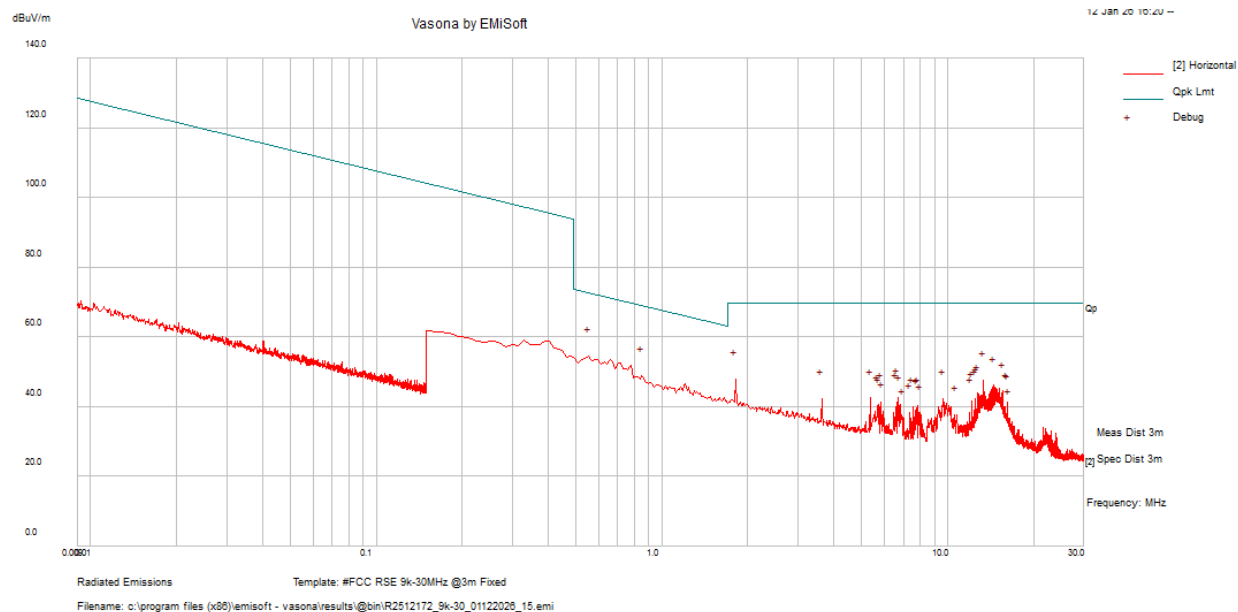
BLE 2M, Middle Channel, 2440 MHz, Parallel



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
0.493275	44.68	10.18	54.86	73.74	-18.89	Peak
0.8067	39.17	10.09	49.26	69.47	-20.21	Peak
1.806675	38.12	10.31	48.43	69.54	-21.11	Peak
14.20935	35.11	10.6	45.71	69.54	-23.83	Peak
13.59743	34.06	10.66	44.72	69.54	-24.82	Peak
15.4332	33.66	10.58	44.24	69.54	-25.30	Peak

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

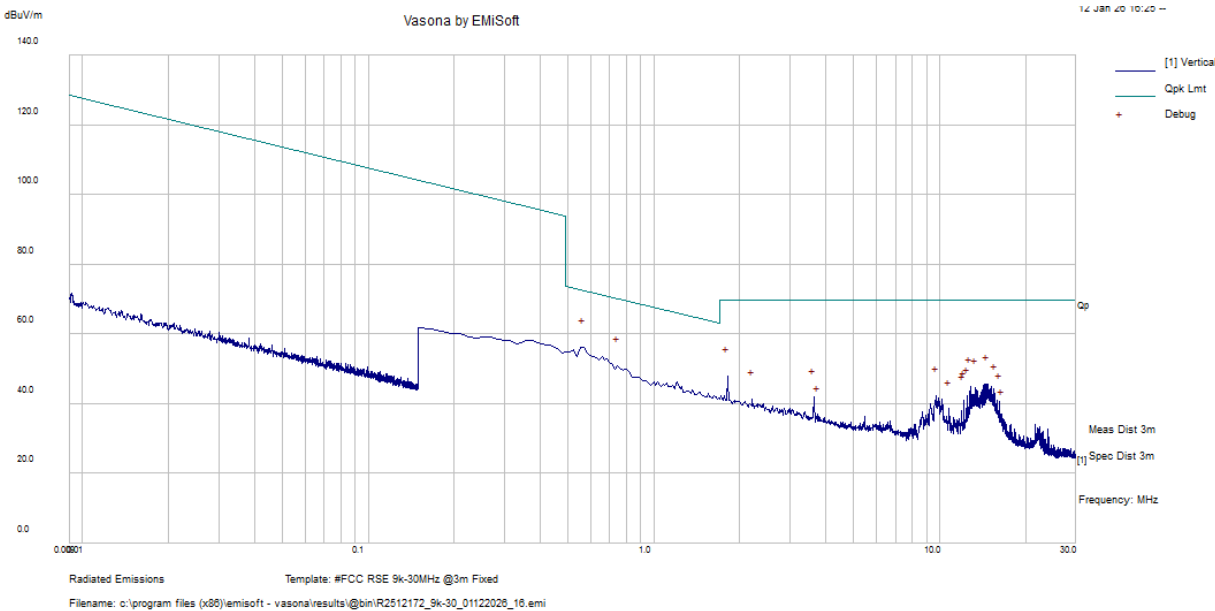
BLE 2M, Middle Channel, 2440 MHz, Ground-Parallel



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
0.552975	44.46	10.17	54.63	72.75	-18.12	Peak
0.851475	38.82	10.08	48.9	69	-20.10	Peak
1.806675	37.58	10.32	47.9	69.54	-21.64	Peak
13.32878	36.85	10.68	47.53	69.54	-22.01	Peak
14.50785	35.57	10.58	46.15	69.54	-23.39	Peak
15.6123	33.85	10.59	44.44	69.54	-25.10	Peak

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

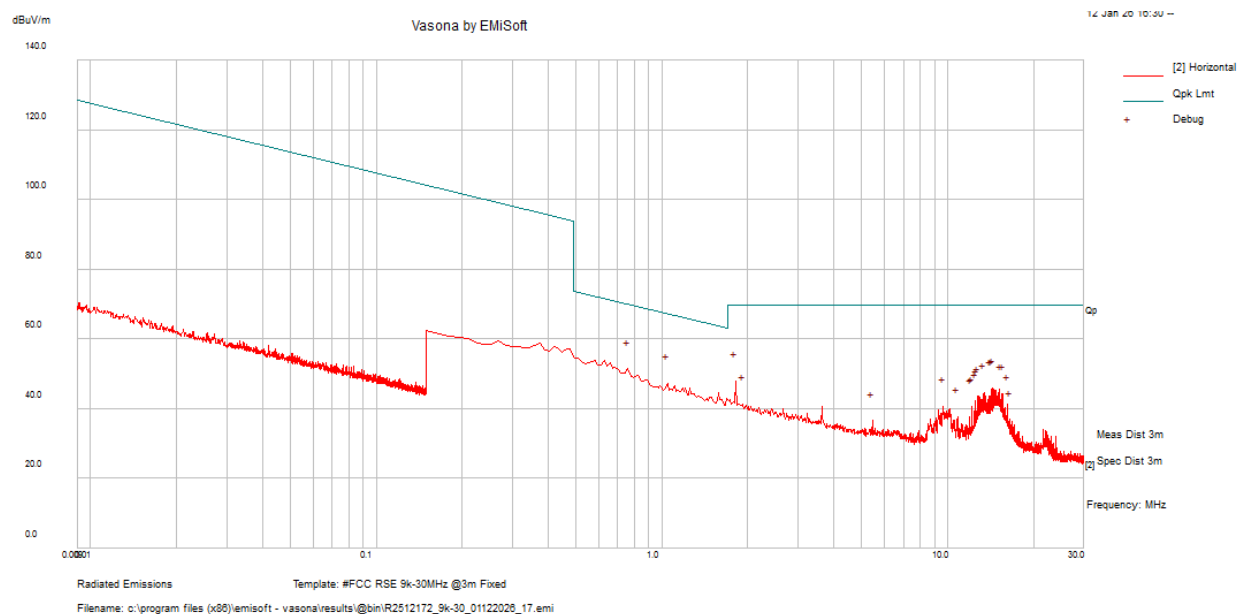
BLE 2M, High Channel, 2480 MHz, Perpendicular



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
0.5679	46	10.17	56.17	72.52	-16.35	Peak
0.747	40.69	10.11	50.8	70.14	-19.34	Peak
1.806675	37.55	10.32	47.87	69.54	-21.67	Peak
14.70188	35.12	10.56	45.68	69.54	-23.86	Peak
12.8064	34.25	10.7	44.95	69.54	-24.59	Peak
13.35863	33.94	10.68	44.62	69.54	-24.92	Peak

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

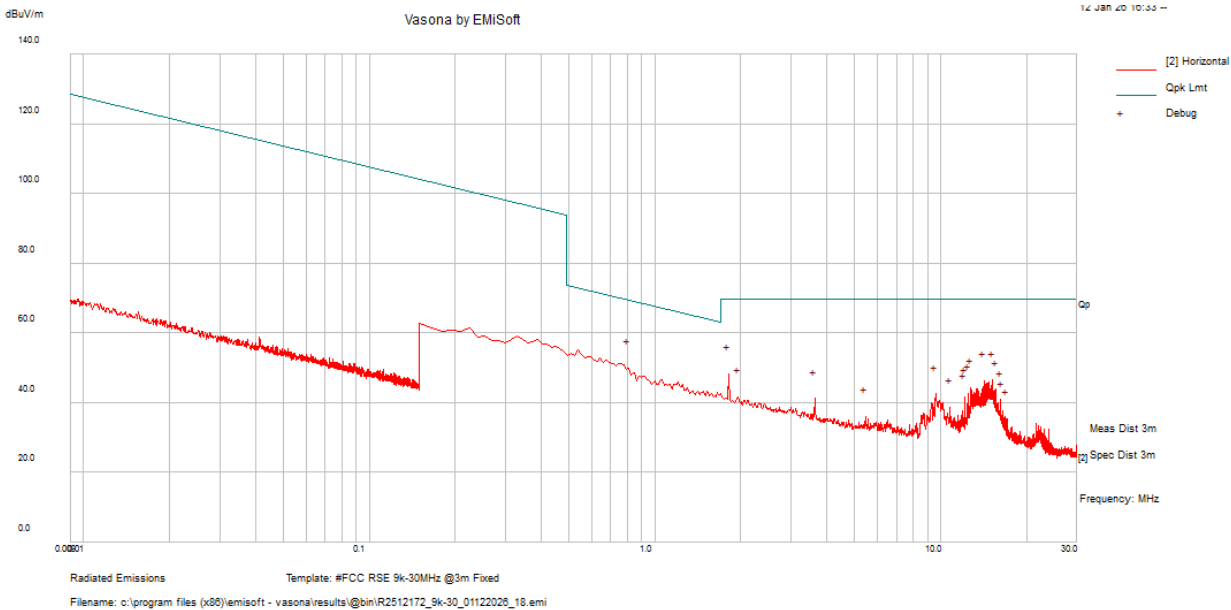
BLE 2M, High Channel, 2480 MHz, Parallel



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
0.761925	41.35	10.1	51.45	69.97	-18.51	Peak
1.0455	37.13	10.06	47.19	67.22	-20.03	Peak
1.806675	37.72	10.31	48.03	69.54	-21.51	Peak
14.40338	35.31	10.59	45.9	69.54	-23.64	Peak
14.20935	35.06	10.6	45.66	69.54	-23.88	Peak
14.31383	34.94	10.6	45.54	69.54	-24.00	Peak

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

BLE 2M, High Channel, 2480 MHz, Ground-Parallel

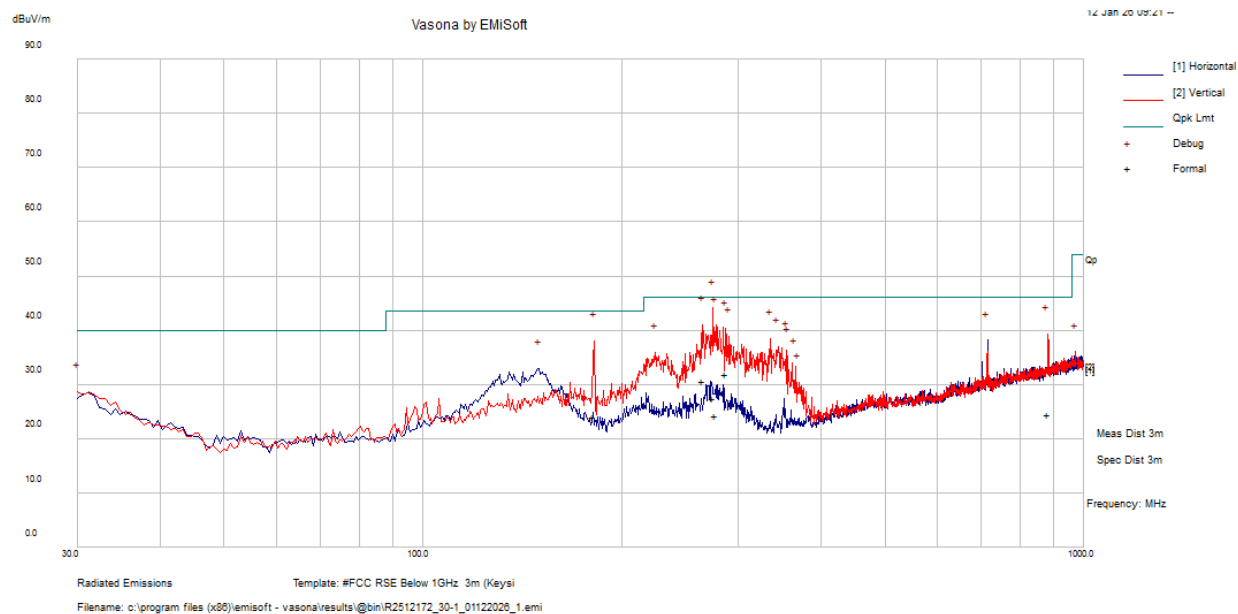


Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
0.8067	39.75	10.1	49.85	69.47	-19.62	Peak
1.806675	37.85	10.31	48.16	69.54	-21.38	Peak
15.2541	35.83	10.56	46.39	69.54	-23.15	Peak
14.20935	35.62	10.61	46.23	69.54	-23.31	Peak
12.7467	33.51	10.71	44.22	69.54	-25.32	Peak
15.6123	33.19	10.59	43.78	69.54	-25.76	Peak

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

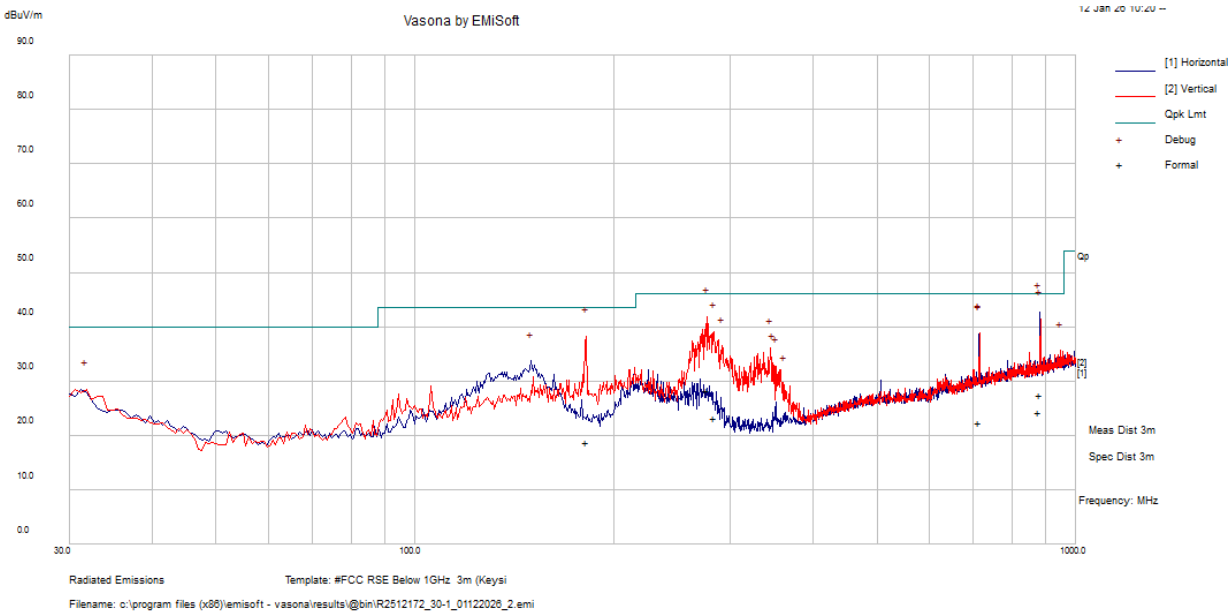
2) 30 MHz – 1 GHz, Measured at 3 meters

BLE 1M, Low Channel, 2402 MHz



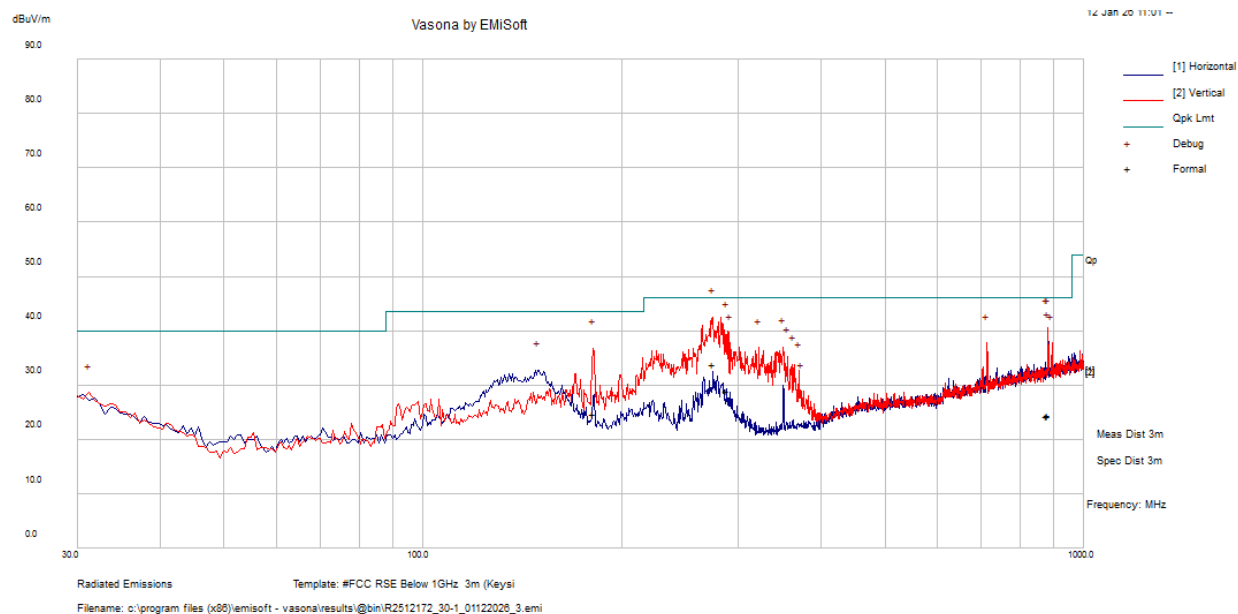
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBμV/m)	Margin (dB)	Detector
274.8338	43.31	-15.93	27.38	158	V	127	46	-18.63	QP
265.1944	47	-16.43	30.57	105	V	173	46	-15.43	QP
277.2328	40.09	-15.9	24.19	166	V	35	46	-21.81	QP
181.3216	42.58	-18.51	24.07	166	V	172	43.5	-19.44	QP
286.9884	47.7	-15.81	31.89	100	V	173	46	-14.11	QP
881.3531	28.78	-4.41	24.37	229	V	234	46	-21.63	QP

BLE 1M, Middle Channel, 2440 MHz



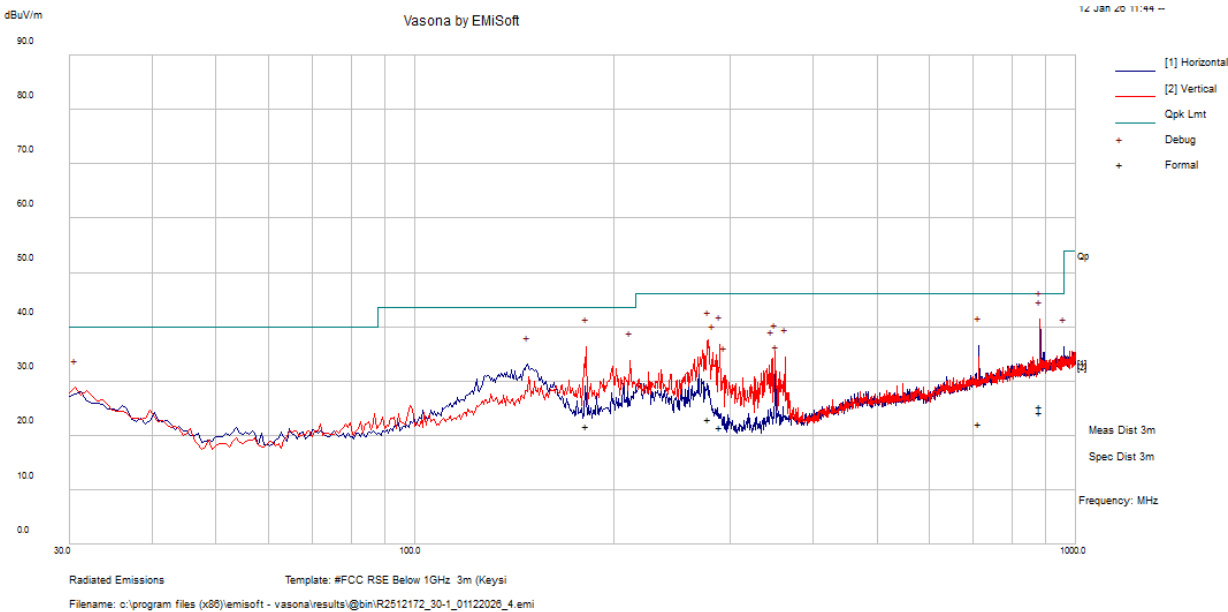
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBuV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBuV/m)	Margin (dB)	Detector
880.9869	28.77	-4.41	24.36	264	H	149	46	-21.64	QP
276.7894	44.17	-15.9	28.27	104	V	119	46	-17.73	QP
884.1209	31.87	-4.41	27.46	116	V	137	46	-18.54	QP
181.56	37.16	-18.52	18.64	281	V	153	43.5	-24.86	QP
283.5981	39.06	-15.84	23.22	177	V	302	46	-22.78	QP
714.8228	29.01	-6.72	22.29	146	V	80	46	-23.71	QP

BLE 1M, High Channel, 2480 MHz

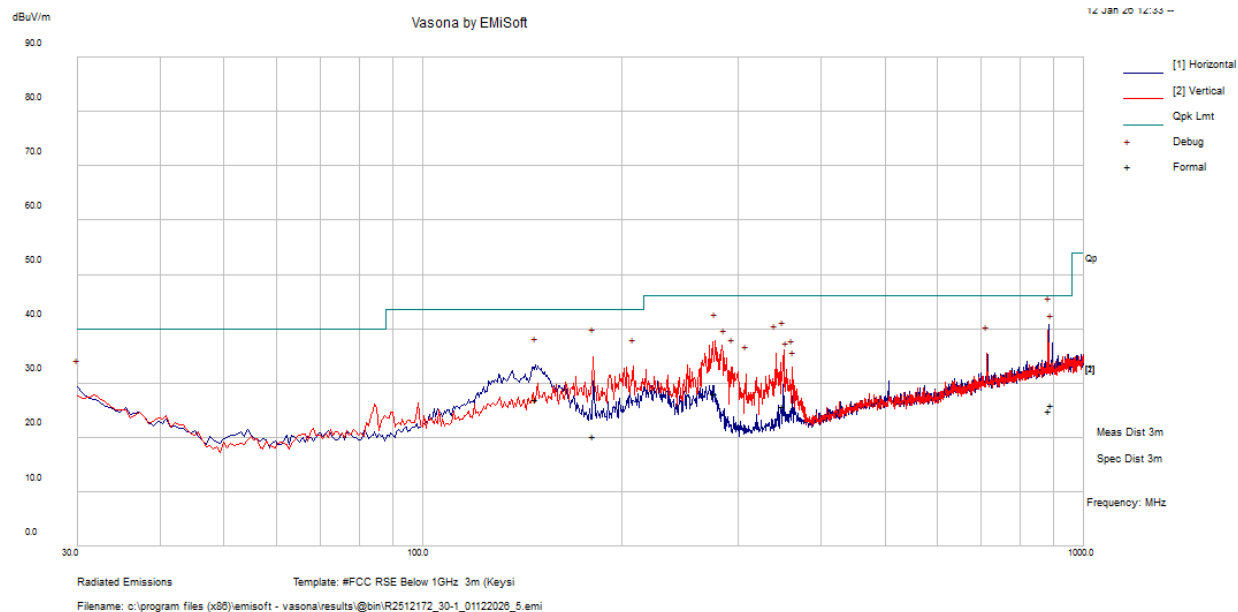


Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBμV/m)	Margin (dB)	Detector
274.8	49.68	-15.93	33.75	100	V	156	46	-12.25	QP
881.1244	28.74	-4.42	24.32	169	H	98	46	-21.68	QP
882.5994	28.75	-4.42	24.33	247	V	139	46	-21.67	QP
288.715	44.64	-15.8	28.84	132	V	166	46	-17.16	QP
181.0597	43.26	-18.5	24.76	157	V	138	43.5	-18.74	QP
884.4278	28.94	-4.41	24.53	102	H	40	46	-21.47	QP

BLE 2M, Low Channel, 2402 MHz

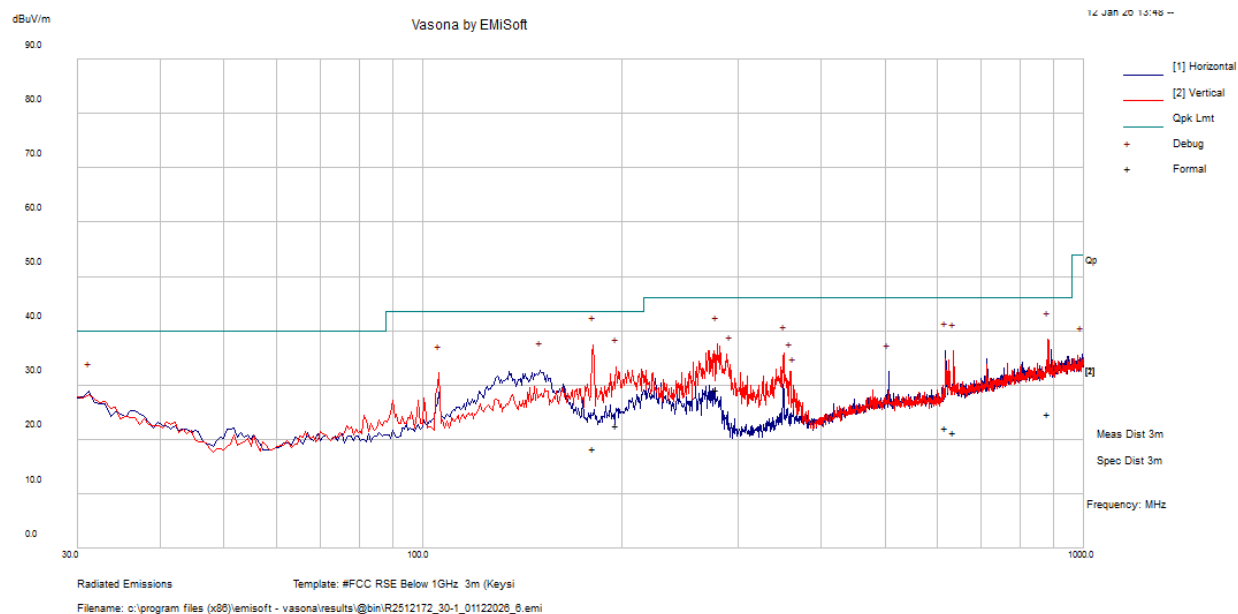


Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBuV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBuV/m)	Margin (dB)	Detector
882.0081	28.73	-4.42	24.31	141	V	31	46	-21.69	QP
883.9903	29.81	-4.41	25.4	104	H	256	46	-20.6	QP
181.51	40.21	-18.52	21.69	182	V	7	43.5	-21.81	QP
278.0478	38.87	-15.89	22.98	111	V	227	46	-23.02	QP
289.3019	37.27	-15.79	21.48	149	V	202	46	-24.52	QP
713.2922	28.88	-6.71	22.17	247	H	55	46	-23.83	QP

BLE 2M, Middle Channel, 2440 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
884.9659	29.23	-4.41	24.82	200	H	137	46	-21.18	QP
276.7938	43.98	-15.9	28.08	112	V	146	46	-17.92	QP
180.8241	38.77	-18.5	20.27	179	V	43	43.5	-23.23	QP
895.0544	30.26	-4.34	25.92	149	H	68	46	-20.08	QP
351.3509	40.06	-14.4	25.66	129	V	180	46	-20.34	QP
148.2338	44.21	-17.28	26.93	219	H	206	43.5	-16.57	QP

BLE 2M, High Channel, 2480 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
180.9119	36.89	-18.5	18.39	291	V	120	43.5	-25.11	QP
881.7947	29.01	-4.41	24.6	191	V	185	46	-21.40	QP
278.5997	44.92	-15.88	29.04	105	V	181	46	-16.96	QP
617.6813	30.43	-8.35	22.08	169	H	27	46	-23.92	QP
635.7391	28.79	-7.57	21.22	163	V	332	46	-24.78	QP
196.3025	39.85	-17.2	22.65	177	V	25	43.5	-20.85	QP

FCC/IC Limits for 1 GHz to 26.5 GHz			
Applicability	(dBm)	(uV/m at 3meters)	(dBuV/m at 3meters)
Restricted Band Average Limit	-	500	54 ²
Restricted Band Peak Limit ¹	-	-	74

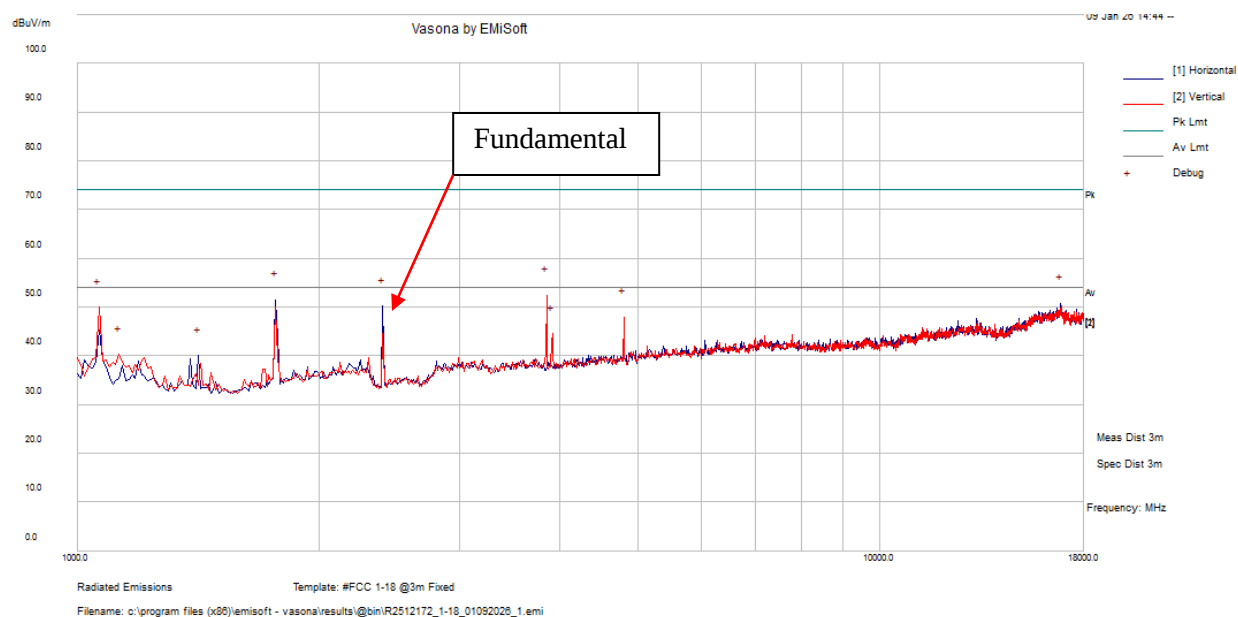
Note 1: Restricted Band Peak Limit is defined to be 20dB higher than Average Limit.

Note 2: Above 1GHz limit calculation:

$$\text{dBuV/m} = 20 \cdot \log(\text{V/m}) + 120 = 20 \cdot \log((500 \text{ [uV/m]/1000000})) + 120 = 54 \text{ [dBuV/m]}$$

3) 1 GHz – 18 GHz, Measured at 3 meters

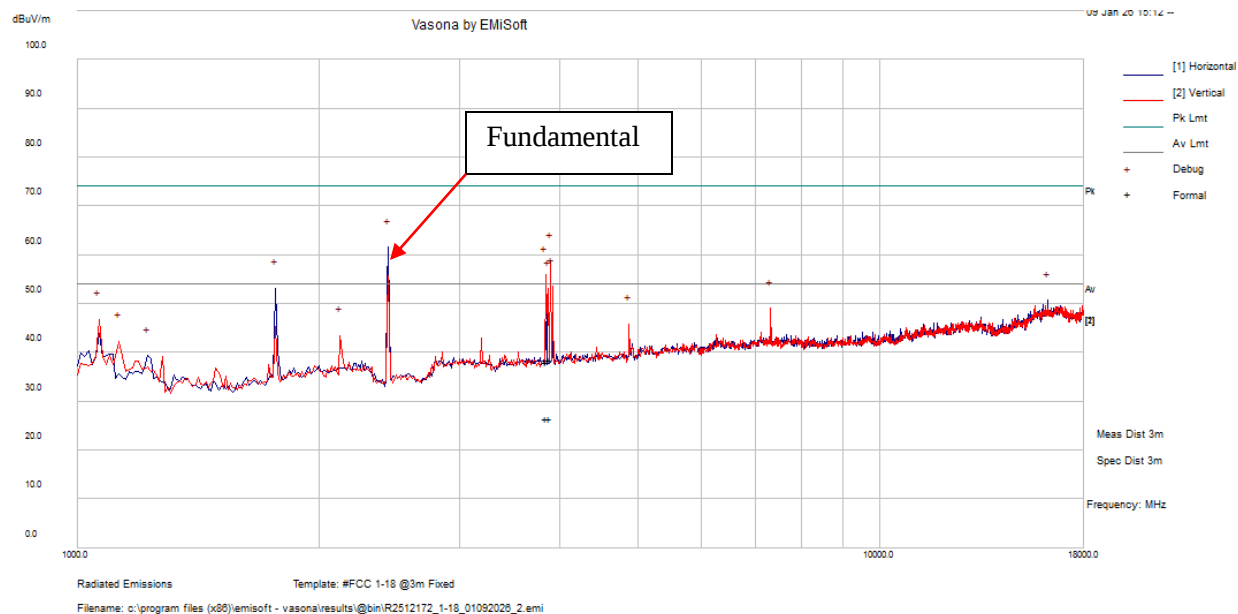
BLE 1M, Low Channel, 2402 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBuV/m)	Antenna Polarity (H/V)	Limit (dBuV/m)	Margin (dB)	Detector
3847.5	52.79	-0.33	52.46	V	54	-1.54	Peak
1765	57.32	-5.89	51.43	H	54	-2.57	Peak
16831.25	32.26	18.55	50.81	H	54	-3.19	Peak
2402.5	53.31	-3.12	50.19	H	54	-3.81	Peak
1063.75	59.52	-9.58	49.94	V	54	-4.06	Peak
4803.75	46.97	0.95	47.92	V	54	-6.08	Peak

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

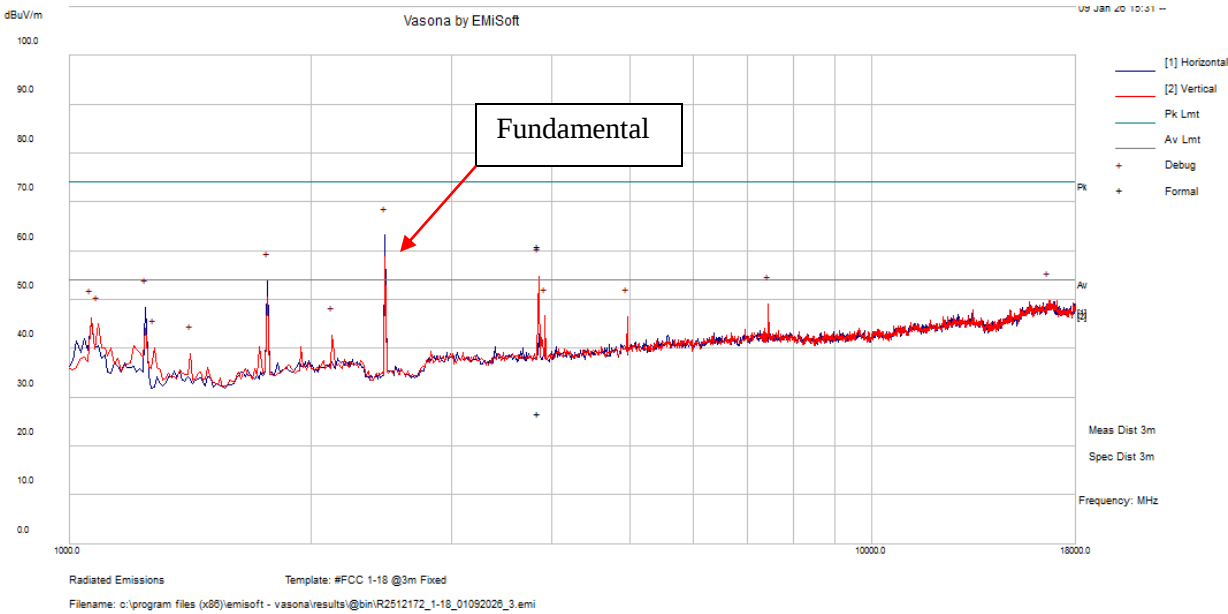
BLE 1M, Middle Channel, 2440 MHz



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
3888.063	38.88	-0.33	38.55	262	V	337	74	-35.45	Peak
3838.548	38.4	-0.33	38.07	113	V	318	74	-35.93	Peak
3888.063	26.86	-0.33	26.53	262	V	337	54	-27.47	Average
3838.548	26.79	-0.33	26.46	113	V	318	54	-27.54	Average
1765	59.02	-5.88	53.14	300	H	0	54	-0.86	Peak*

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

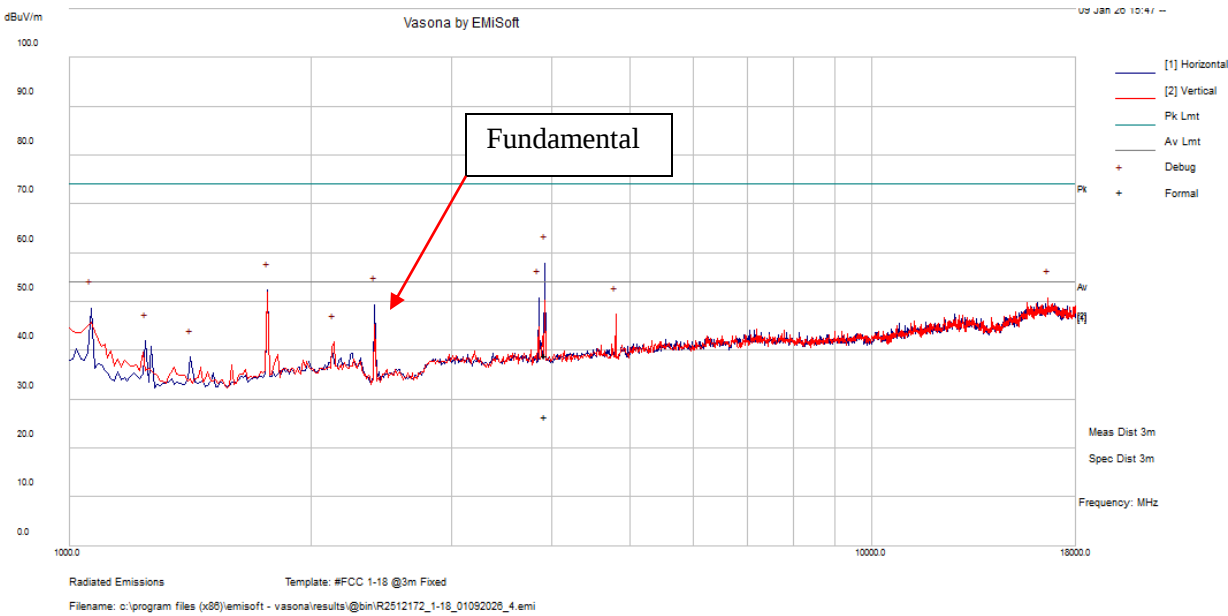
BLE 1M, High Channel, 2480 MHz



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
3845.55	61.34	-0.33	61.01	174	V	352	74	-12.99	Peak
3845.55	26.95	-0.33	26.62	174	V	352	54	-27.38	Average
1765	59.74	-5.88	53.85	100	H	0	54	-0.15	Peak*

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

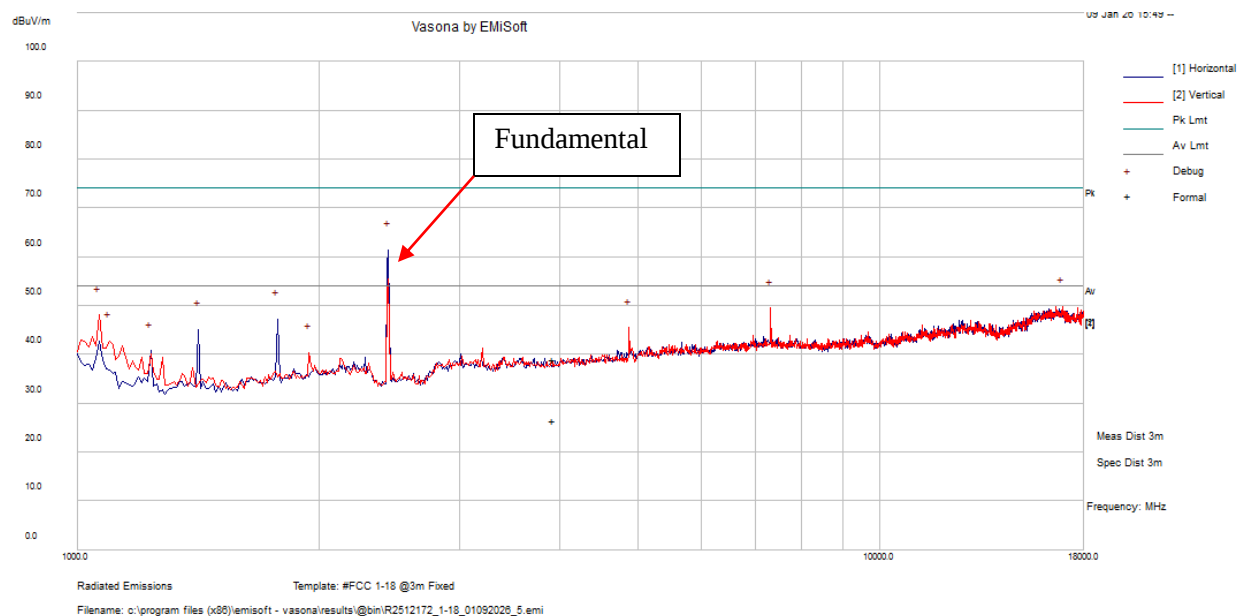
BLE 2M, Low Channel, 2402 MHz



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
3920.473	39.46	-0.37	39.09	241	H	141	74	-34.91	Peak
3920.473	26.9	-0.38	26.52	241	H	141	54	-27.48	Average
1765	58.16	-5.88	52.28	300	H	0	54	-1.72	Peak*

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

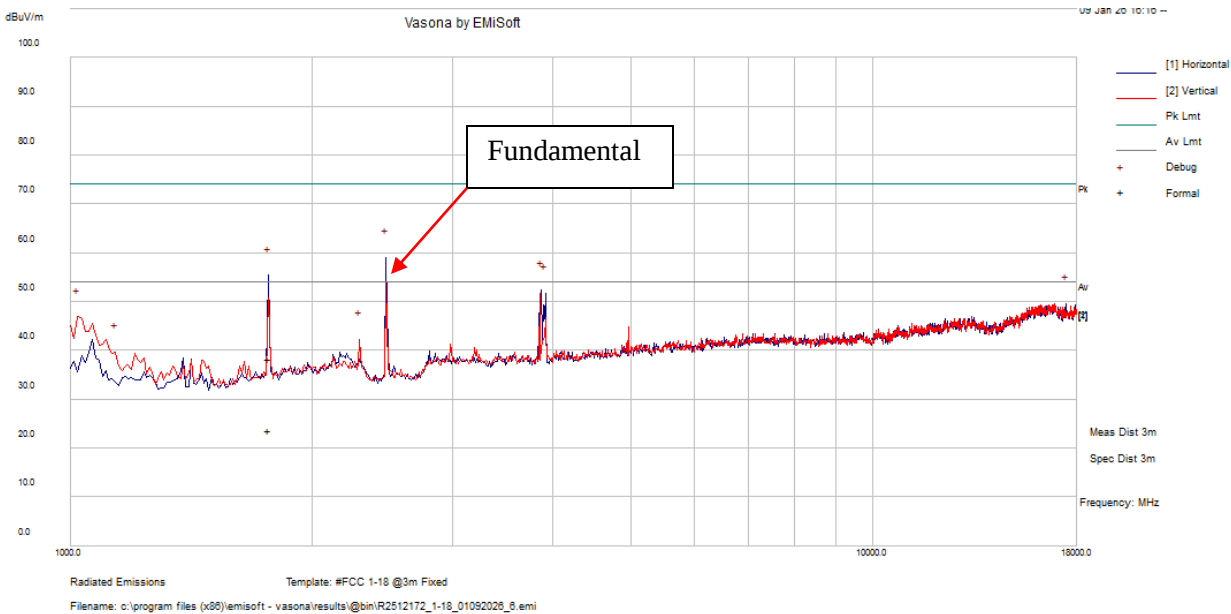
BLE 2M, Middle Channel, 2440 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Antenna Polarity (H/V)	Limit (dBμV/m)	Margin (dB)	Detector
16926.88	31.48	18.35	49.83	V	54	-4.17	Peak
7321.875	44.31	5.2	49.51	V	54	-4.49	Peak
1063.75	57.59	-9.57	48.02	V	54	-5.99	Peak
1775.625	52.97	-5.78	47.19	H	54	-6.81	Peak
4878.125	44.36	1.06	45.42	V	54	-8.58	Peak
1414.375	53.47	-8.32	45.15	H	54	-8.85	Peak

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

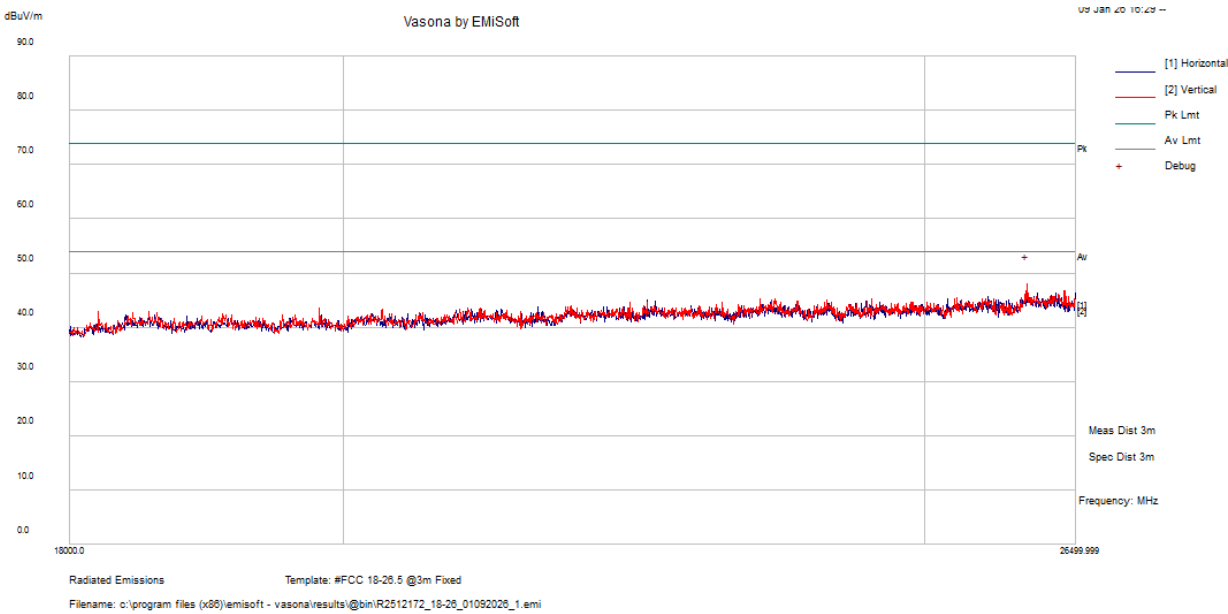
BLE 2M, High Channel, 2480 MHz



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
1765.518	44.22	-5.88	38.34	252	H	352	74	-35.66	Peak
1765.518	29.58	-5.88	23.7	252	H	352	54	-30.3	Average

4) 18 GHz – 26.5 GHz, Measured at 3 meters

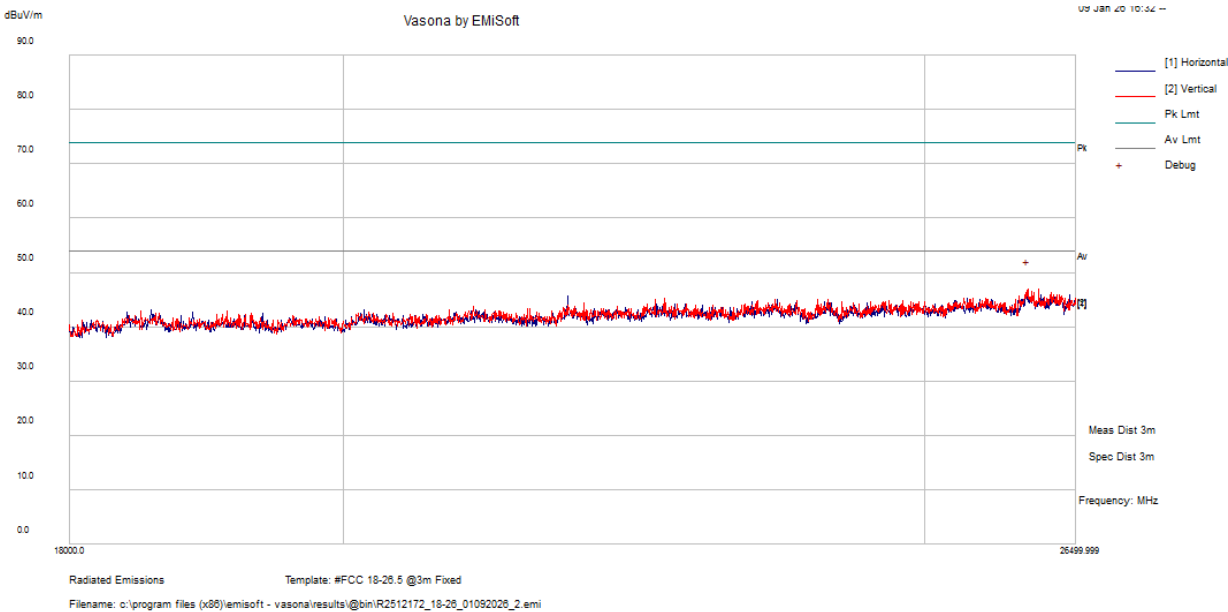
BLE 1M, Low Channel, 2402 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Antenna Polarity (H/V)	Limit (dBμV/m)	Margin (dB)	Detector
26005.94	39.77	8.22	47.99	V	54	-6.01	Peak

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

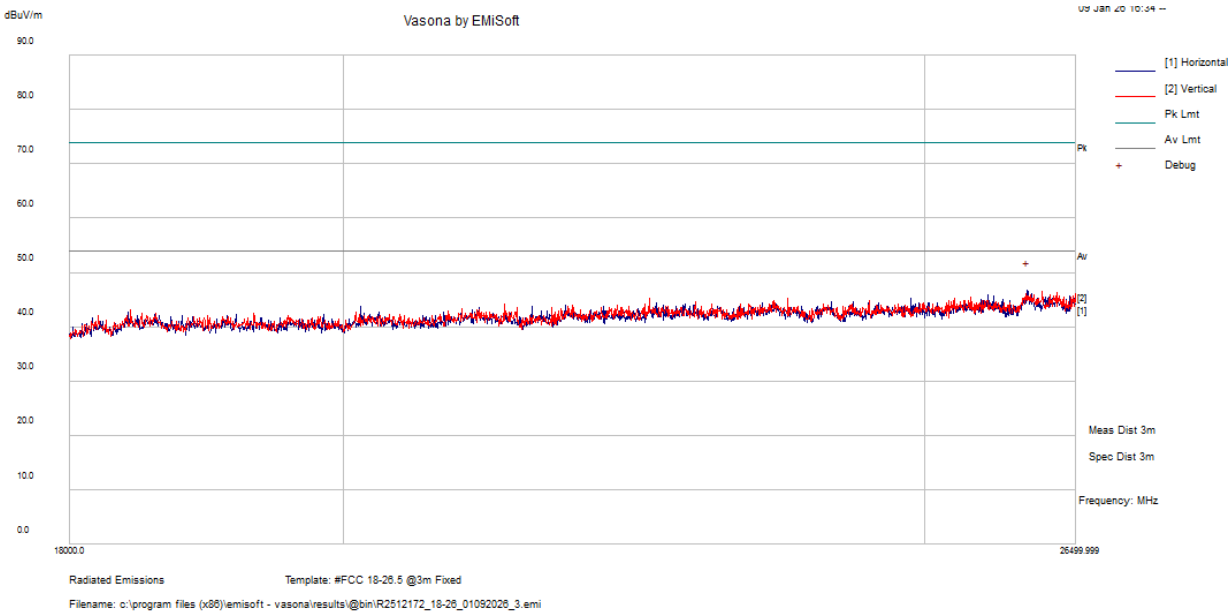
BLE 1M, Middle Channel, 2440 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Polarity (H/V)	Limit (dBµV/m)	Margin (dB)	Detector
26016.56	38.87	8.11	46.98	V	54	-7.02	Peak

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

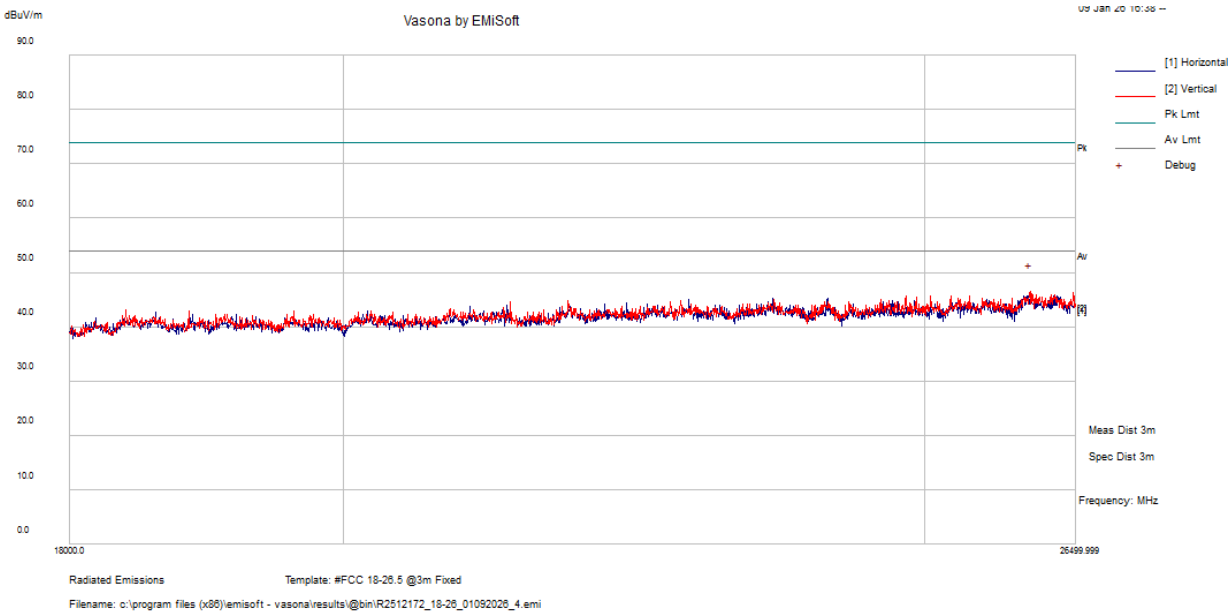
BLE 1M, High Channel, 2480 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Polarity (H/V)	Limit (dBµV/m)	Margin (dB)	Detector
26011.25	38.54	8.17	46.71	H	54	-7.29	Peak

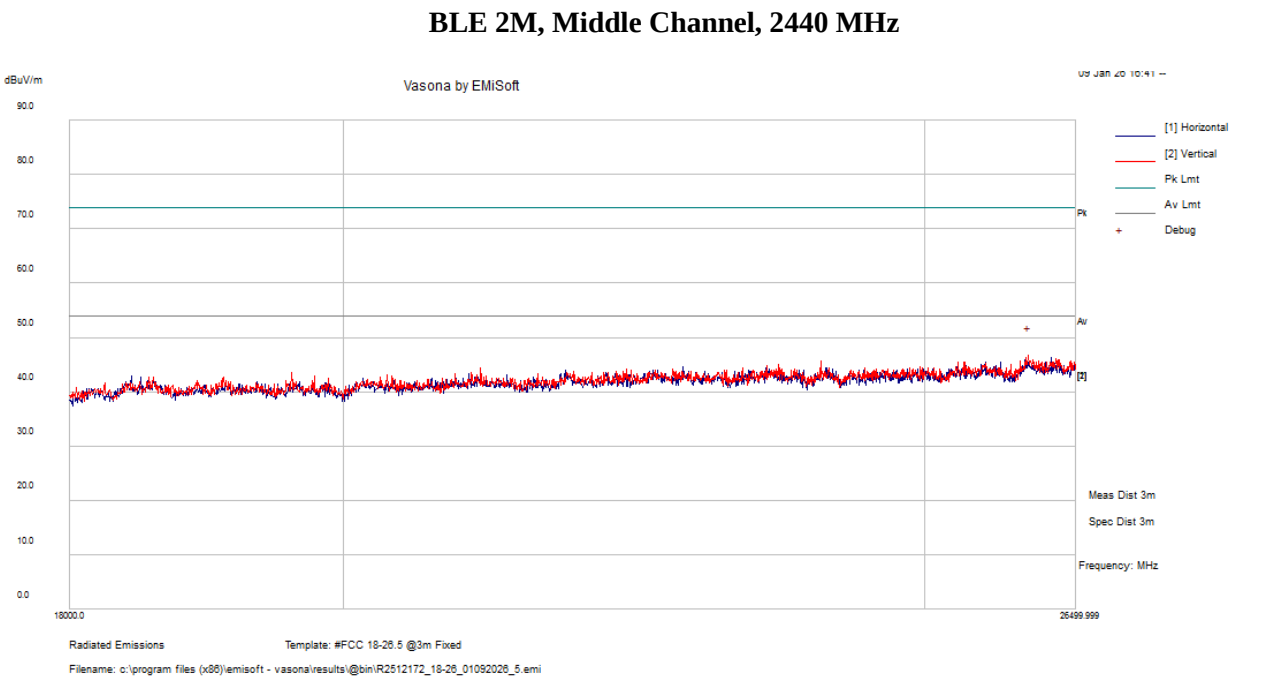
Note: Peak measurement is used to compare to the average limit to show compliance.

BLE 2M, Low Channel, 2402 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Polarity (H/V)	Limit (dBµV/m)	Margin (dB)	Detector
26037.81	38.55	7.89	46.44	V	54	-7.56	Peak

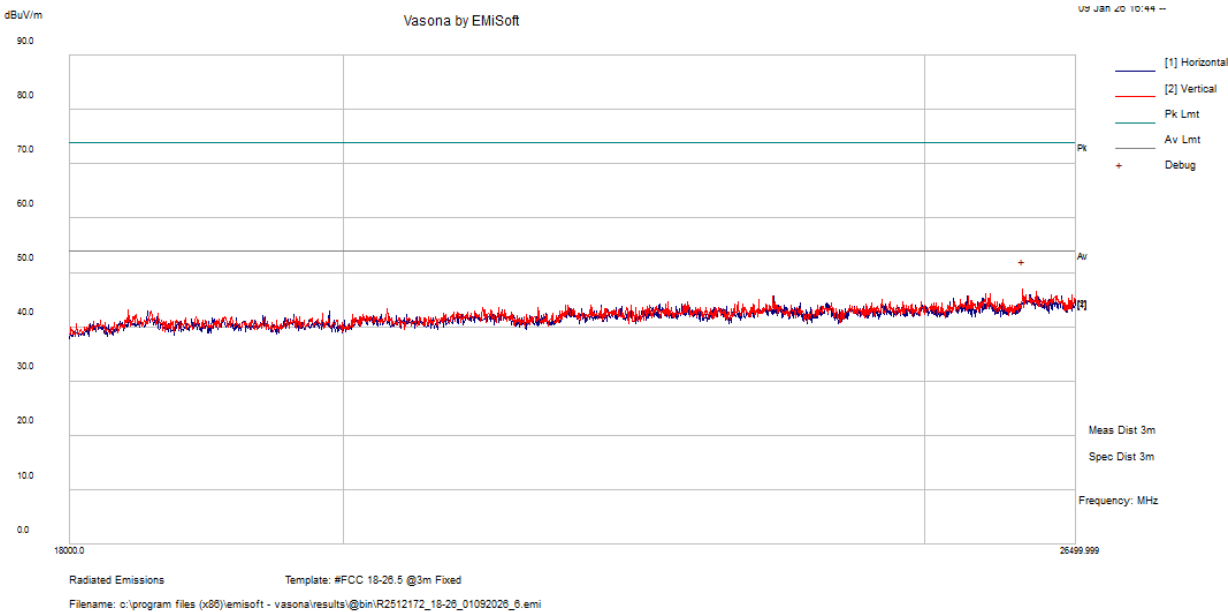
Note: Peak measurement is used to compare to the average limit to show compliance.



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Antenna Polarity (H/V)	Limit (dBμV/m)	Margin (dB)	Detector
26021.87	38.67	8.06	46.73	V	54	-7.28	Peak

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

BLE 2M, High Channel, 2480 MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBμV/m)	Antenna Polarity (H/V)	Limit (dBμV/m)	Margin (dB)	Detector
25963.44	39.48	7.43	46.91	V	54	-7.09	Peak

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

7 FCC §15.247(a) (2) & ISEDC RSS-247 §5.2, RSS-Gen §6.3.1 – Emission Bandwidth

7.1 Applicable Standards

According to FCC §15.247(a) (2) and ISEDC RSS-247 §6.3.1: the minimum 6 dB bandwidth shall be 500 kHz.

7.2 Measurement Procedure

The measurements are based on FCC KDB 558074 D01 DTS Meas Guidance v05r02: Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 8: DTS bandwidth.

As per ANSI C63.10 Clause 6.9.3: Occupied bandwidth—power bandwidth (99%) measurement procedure

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission.

The following procedure shall be used for measuring 99% power bandwidth:

- a. The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
- b. The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
- c. Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (\text{OBW}/\text{RBW})]$ below the reference level. Specific guidance is given in 4.1.5.2.
- d. Step a) through step c) might require iteration to adjust within the specified range.
- e. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- f. Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
- g. If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
- h. The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

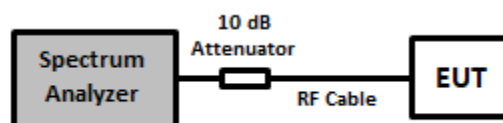
As per ANSI C63.10 Clause 11.8: DTS bandwidth

One of the following procedures may be used to determine the modulated DTS bandwidth.

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described in 11.8.1 (i.e., $\text{RBW} = 100 \text{ kHz}$, $\text{VBW} \geq 3 \times \text{RBW}$, and peak detector with maximum hold) is implemented by the instrumentation function.

When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be $\geq 6 \text{ dB}$.

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
624	Agilent	PSA Series Spectrum Analyzer	E4446A	MY48250238	2025-06-09	1 year
1393	Mini-Circuits	CBL ASSY 2.92MM PLUG TO PLUG 12"	FL086-12KM+	QN2318110-2318	2025-08-27	6 months
1603	NA	Attenuator, SMA	MCL BW-S10W5+	NA	2025-12-18	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".

7.5 Test Environmental Conditions

Temperature:	16 °C
Relative Humidity:	52 %
ATM Pressure:	102.6 kPa

The testing was performed by Michael Papa on 2026-01-14 at RF Site.

7.6 Test Results

Radio	Channel	Frequency (MHz)	99% OBW (MHz)	6 dB OBW (MHz)	6 dB OBW Limit (MHz)	Result
BLE 1M	Low	2402	1.069	0.703	≥ 0.500	Pass
	Middle	2440	1.054	0.702	≥ 0.500	Pass
	High	2480	1.057	0.698	≥ 0.500	Pass
BLE 2M	Low	2402	2.119	1.379	≥ 0.500	Pass
	Middle	2440	2.126	1.383	≥ 0.500	Pass
	High	2480	2.143	1.414	≥ 0.500	Pass

Please refer to Annex A for detailed Emissions Bandwidth test results.

8 FCC §15.247(b)(3) & ISEDC RSS-247 §6.3.2 – Maximum Output Power

8.1 Applicable Standards

According to FCC §15.247(b)(3): For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

According to RSS-247 §6.3.2:

For DTS operating in the band 902-928 MHz, the maximum peak conducted output power shall not exceed 1W, and the e.i.r.p. shall not exceed 4 W.

For DTS operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W, and the e.i.r.p. shall not exceed 4 W, except as provided in section 6.5 a) and b).

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power.

8.2 Measurement Procedure

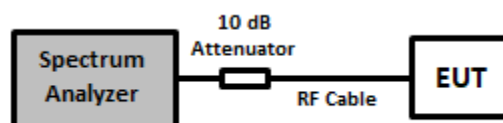
The measurements are based on ANSI C63.10, Section 11.9.2.2.2.

11.9.1.1 RBW $\geq$ DTS bandwidth

The procedure for this method is as follows:

- a. Set the RBW $\geq$ DTS bandwidth.
- b. Set VBW $\geq [3 \times \text{RBW}]$.
- c. Set span $\geq [3 \times \text{RBW}]$.
- d. Sweep time = No faster than coupled (auto) time.
- e. Detector = peak.
- f. Trace mode = max-hold.
- g. Allow trace to fully stabilize.
- h. Use peak marker function to determine the peak amplitude level.

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
624	Agilent	PSA Series Spectrum Analyzer	E4446A	MY48250238	2025-06-09	1 year
1393	Mini-Circuits	CBL ASSY 2.92MM PLUG TO PLUG 12"	FL086-12KM+	QN2318110-2318	2025-08-27	6 months
1603	NA	Attenuator, SMA	MCL BW-S10W5+	NA	2025-12-18	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".

8.5 Test Environmental Conditions

Temperature:	16 °C
Relative Humidity:	52 %
ATM Pressure:	102.6 kPa

The testing was performed by Michael Papa on 2026-01-14 at RF Site.

8.6 Test Results

Radio	Channel	Frequency (MHz)	Antenna Gain (dBi)	Conducted Output Power (dBm)	Conducted Output Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
BLE 1M	Low	2402	3.19	18.27	≤ 30	21.46	≤ 36	Pass
	Middle	2440	3.19	18.35	≤ 30	21.54	≤ 36	Pass
	High	2480	3.19	18.09	≤ 30	21.28	≤ 36	Pass
BLE 2M	Low	2402	3.19	18.39	≤ 30	21.58	≤ 36	Pass
	Middle	2440	3.19	18.54	≤ 30	21.73	≤ 36	Pass
	High	2480	3.19	13.98	≤ 30	17.17	≤ 36	Pass

Note 1: EIRP [dBm] = Conducted Output Power [dBm] + Antenna Gain [dBi].

Note 2: Conducted Output Power Limit [dBm] = $10 \cdot \log(\text{Power}[\text{mW}]/1\text{mW}) = 10 \cdot \log(1000\text{mW}/1\text{mW}) = 30 \text{ dBm}$

Note 2: EIRP Limit [dBm] = $10 \cdot \log(\text{Power}[\text{mW}]/1\text{mW}) = 10 \cdot \log(4000\text{mW}/1\text{mW}) = 36 \text{ dBm}$

Please refer to Annex B for detailed Maximum Output Power test results.

9 FCC §15.247(e) & ISEDC RSS-247 §6.3.1(2) – Peak Power Spectral Density

9.1 Applicable Standards

According to ECFR §15.247(e) and RSS-247 §6.3.1 (b) , for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

9.2 Measurement Procedure

The measurements are based on FCC KDB 558074 D01 DTS Meas Guidance v05r02: Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 8.4: Maximum power spectral density level in the fundamental emission.

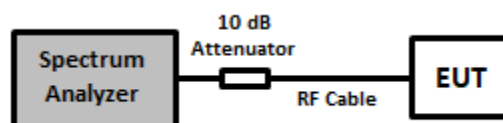
As per ANSI C63.10 Clause 11.10: Maximum power spectral density level in the fundamental emission

Some regulatory requirements specify a conducted PSD limit within the DTS bandwidth during any time interval of continuous transmission.⁸⁸ Such specifications require that the same method as used to determine the conducted output power shall be used to determine the power spectral density. If maximum peak conducted output power was measured, then the peak PSD procedure 11.10.2 (method PKPSD) shall be used. If maximum conducted output power was measured, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option):

Method PKPSD (peak PSD): The following procedure shall be used if maximum peak conducted output power was used to determine compliance, and it is optional if the maximum conducted (average) output power was used to determine compliance:

- a. Set analyzer center frequency to DTS channel center frequency.
- b. Set the span to 1.5 times the DTS bandwidth.
- c. Set the RBW to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- d. Set the VBW $\geq [3 \times \text{RBW}]$.
- e. Detector = peak.
- f. Sweep time = auto couple.
- g. Trace mode = max hold.
- h. Allow trace to fully stabilize.
- i. Use the peak marker function to determine the maximum amplitude level within the RBW.
- j. If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.

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
624	Agilent	PSA Series Spectrum Analyzer	E4446A	MY48250238	2025-06-09	1 year
1393	Mini-Circuits	CBL ASSY 2.92MM PLUG TO PLUG 12"	FL086-12KM+	QN2318110-2318	2025-08-27	6 months
1603	NA	Attenuator, SMA	MCL BW-S10W5+	NA	2025-12-18	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".

9.5 Test Environmental Conditions

Temperature:	16 °C
Relative Humidity:	52 %
ATM Pressure:	102.6 kPa

The testing was performed by Michael Papa on 2026-01-14 at RF Site.

9.6 Test Results

Radio	Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
BLE 1M	Low	2402	7.52	≤ 8	Pass
	Middle	2440	7.47	≤ 8	Pass
	High	2480	7.90	≤ 8	Pass
BLE 2M	Low	2402	5.71	≤ 8	Pass
	Middle	2440	5.29	≤ 8	Pass
	High	2480	1.34	≤ 8	Pass

Please refer to Annex C for detailed Peak Power Spectral Density test results.

10 FCC §15.247(d) & ISEDC RSS-247 §6.6 – 100 kHz Spurious Emissions and Band Edges at Antenna Terminal (dBc)

10.1 Applicable Standards

According to FCC §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emissions limits specified in §15.209(a) see §15.205(c).

According to ISEDC RSS-247 §6.6. In any 100 kHz bandwidth outside the frequency band in which the spread spectrum device, digitally modulated device, or hybrid system is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power – based on either an RF conducted or a radiated measurement – provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 6.3.2, the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

10.2 Measurement Procedure

Span = wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation

RBW = 100 kHz

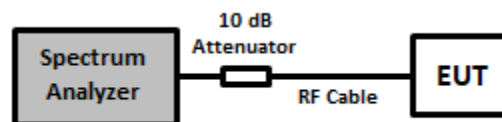
VBW = 300 kHz

Sweep = coupled

Detector function = peak

Trace = max hold

10.3 Test Setup Block Diagram



10.4 Test Equipment List and Details

BACL No	Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
624	Agilent	PSA Series Spectrum Analyzer	E4446A	MY48250238	2025-06-09	1 year
1393	Mini-Circuits	CBL ASSY 2.92MM PLUG TO PLUG 12"	FL086-12KM+	QN2318110-2318	2025-08-27	6 months
1603	NA	Attenuator, SMA	MCL BW-S10W5+	NA	2025-12-18	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".

10.5 Test Environmental Conditions

Temperature:	16 °C
Relative Humidity:	52 %
ATM Pressure:	102.6 kPa

The testing was performed by Michael Papa on 2026-01-14 at RF Site.

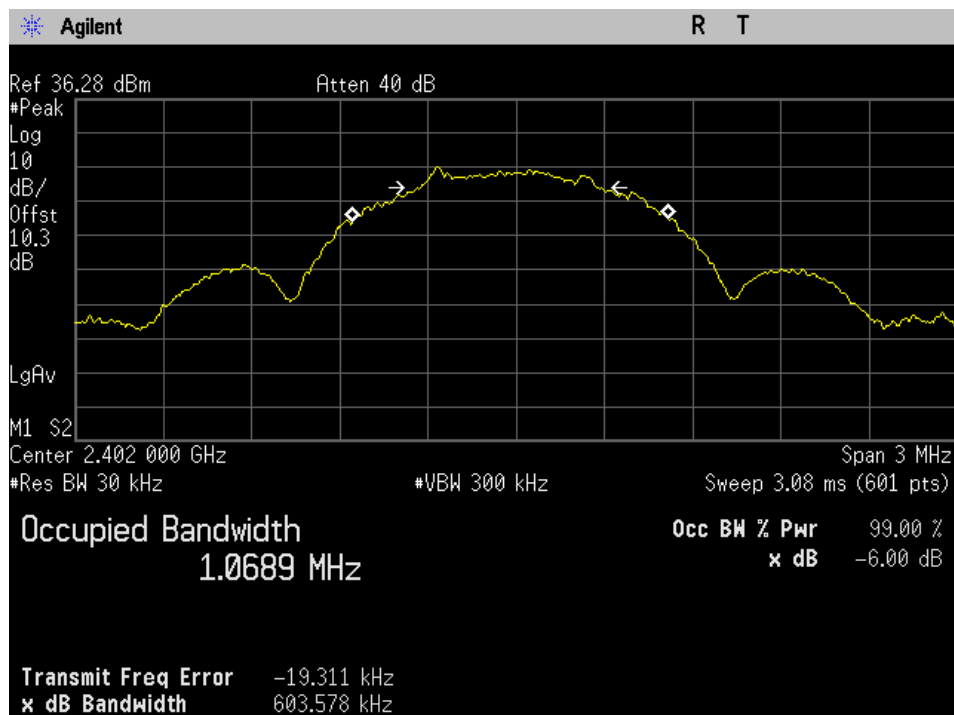
10.6 Test Results

Test Result: Pass

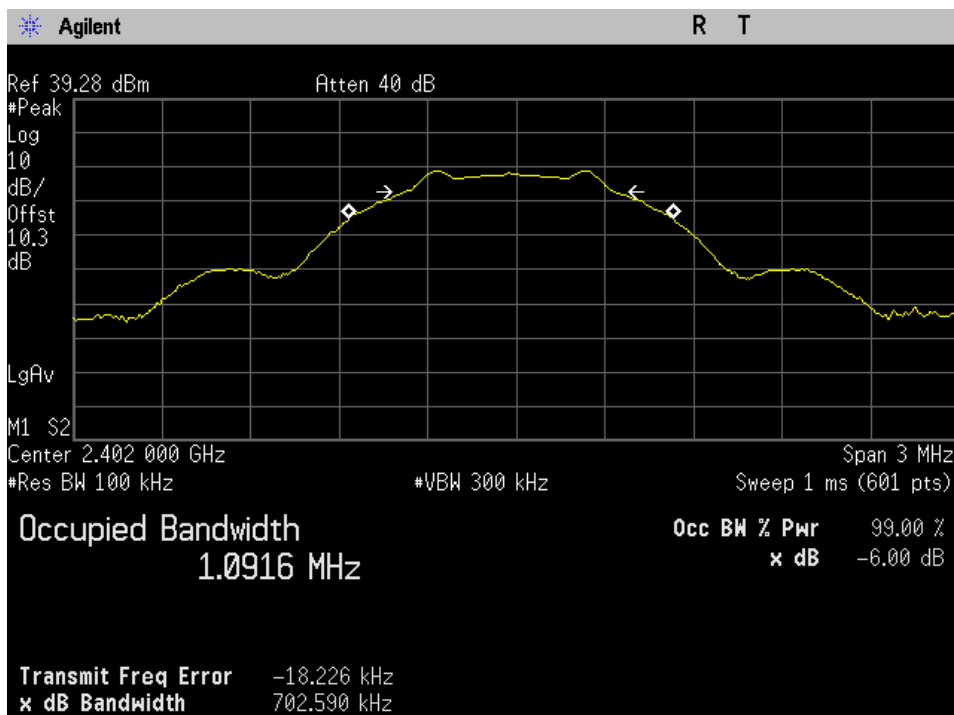
Please refer to Annex D for detailed 100 kHz Spurious Emissions at Antenna Terminal (dBc) test results.

11 Annex A – Emission Bandwidth

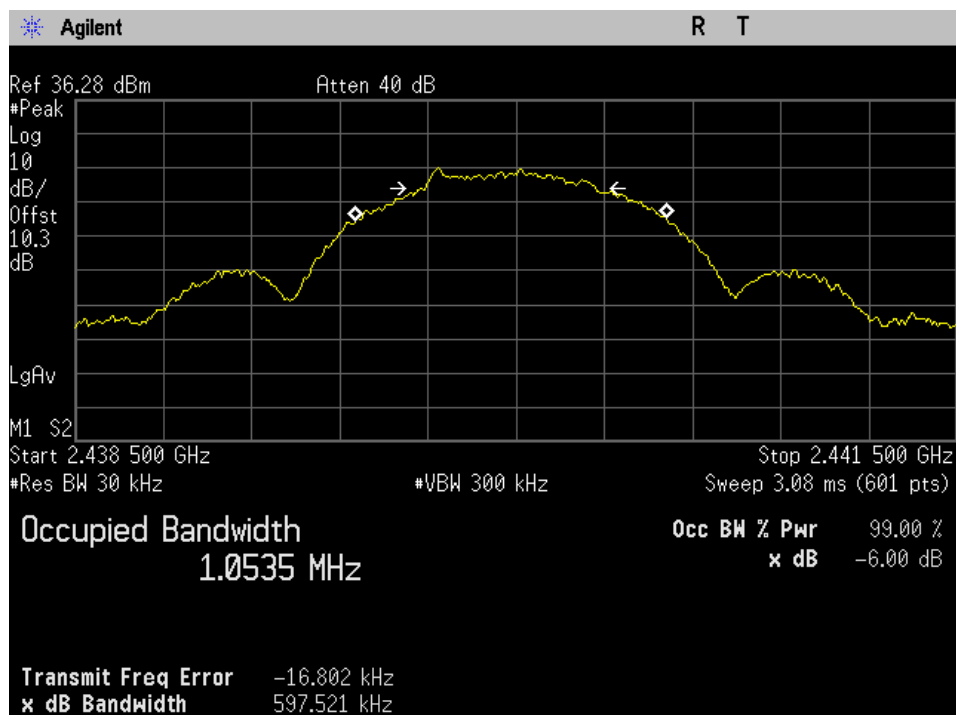
BLE 1M, Low Channel, 2402 MHz, 99% OBW



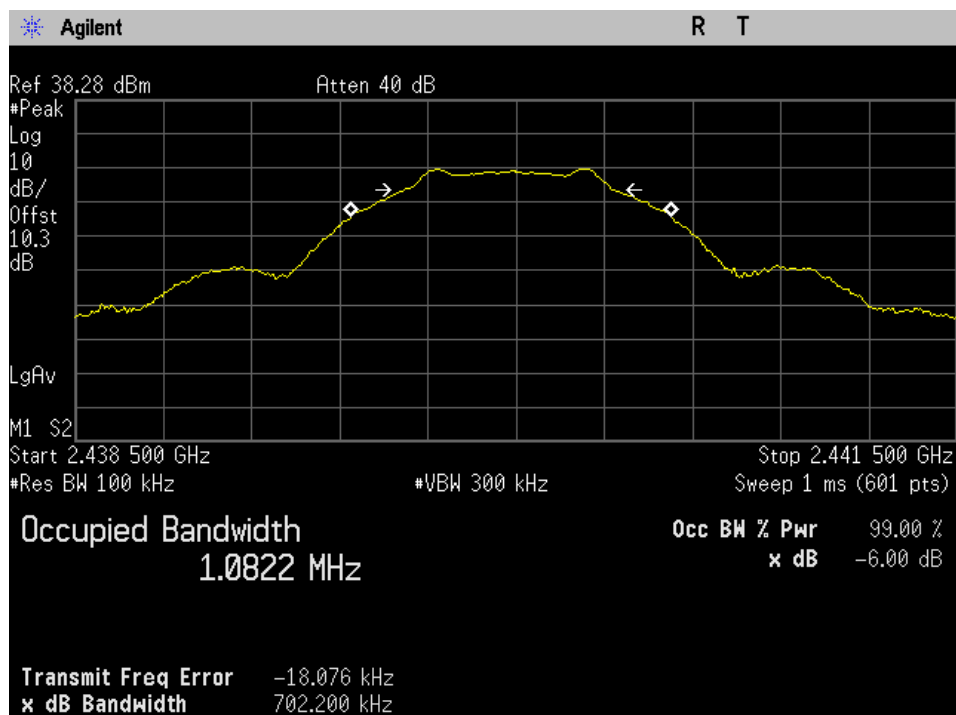
BLE 1M, Low Channel, 2402 MHz, 6dB OBW



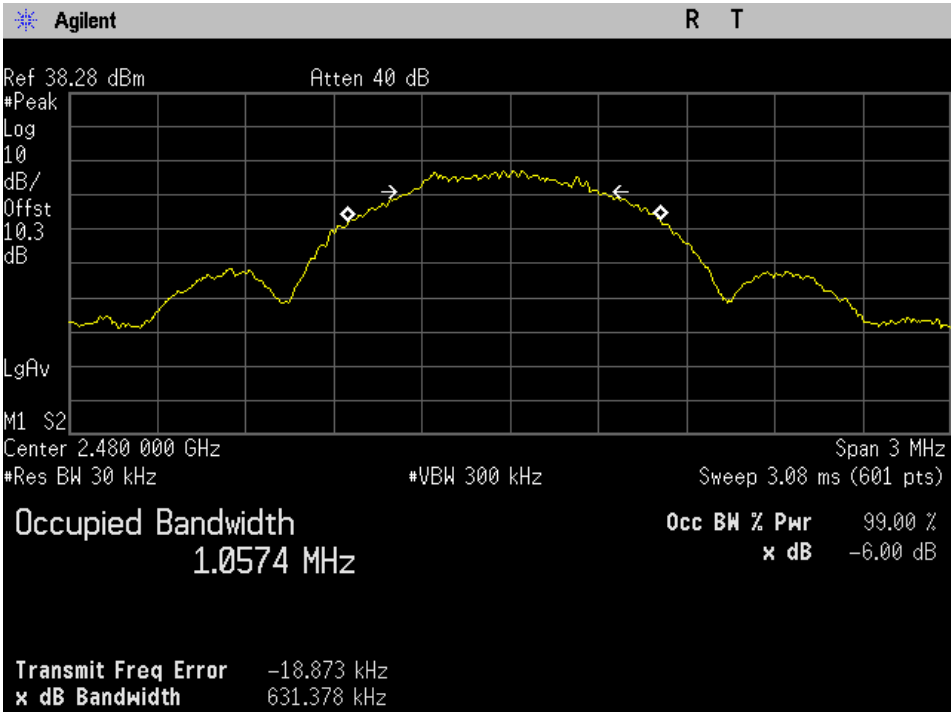
BLE 1M, Middle Channel, 2440 MHz, 99% OBW



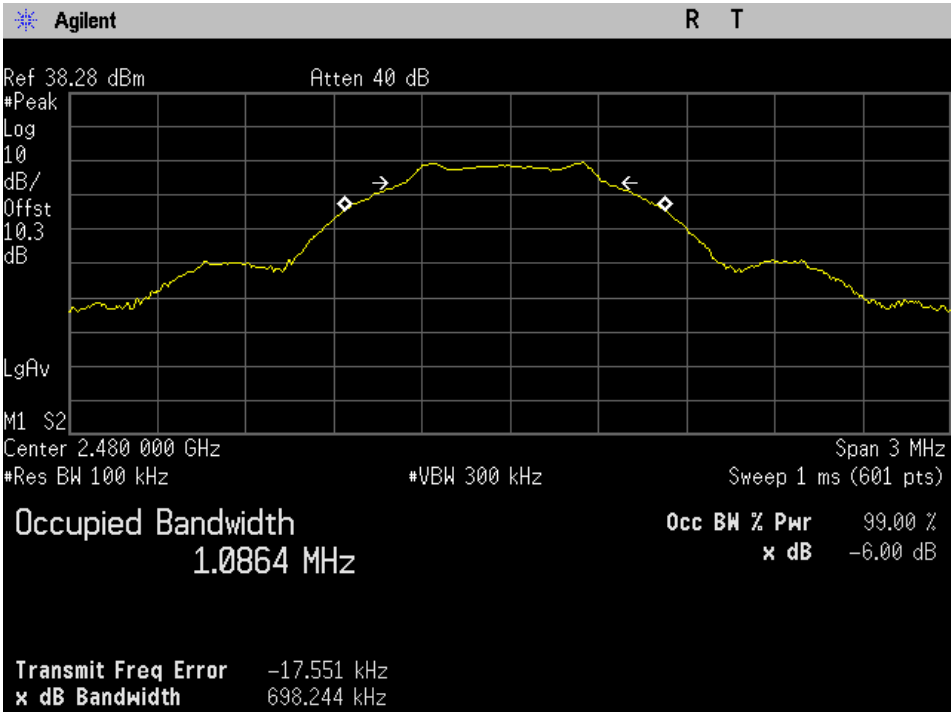
BLE 1M, Middle Channel, 2440 MHz, 6dB OBW



BLE 1M, High Channel, 2480 MHz, 99% OBW



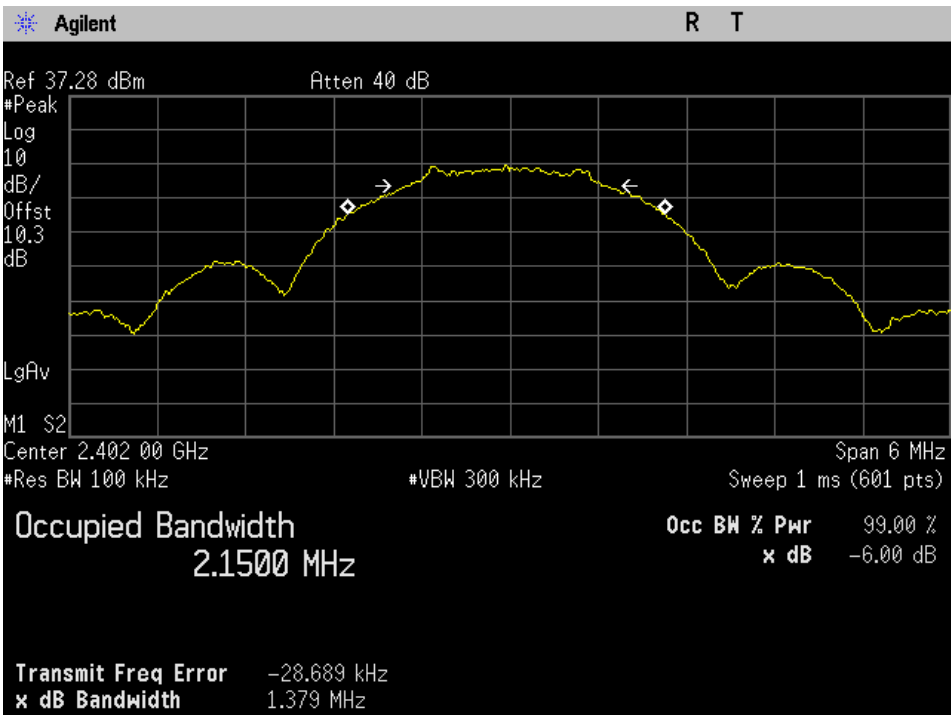
BLE 1M, High Channel, 2480 MHz, 6dB OBW



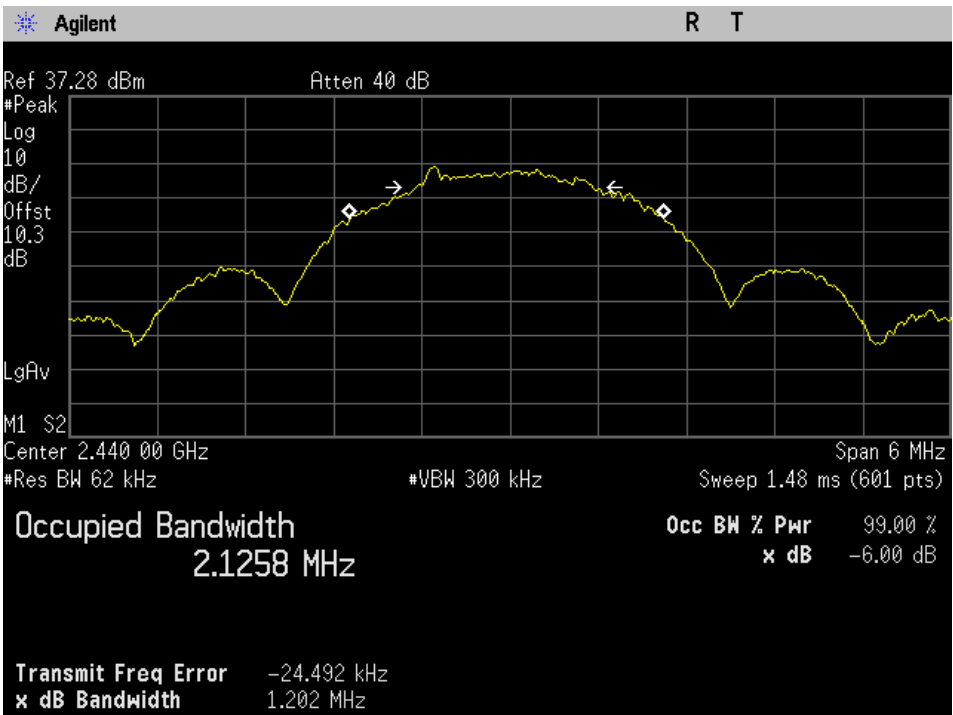
BLE 2M, Low Channel, 2402 MHz, 99% OBW



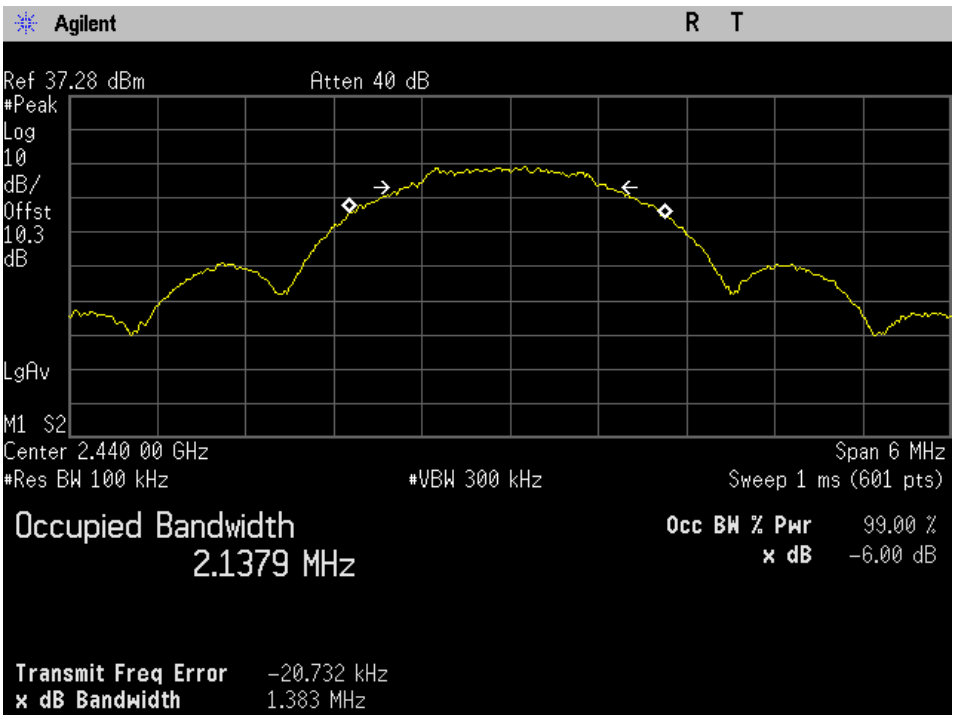
BLE 2M, Low Channel, 2402 MHz, 6dB OBW



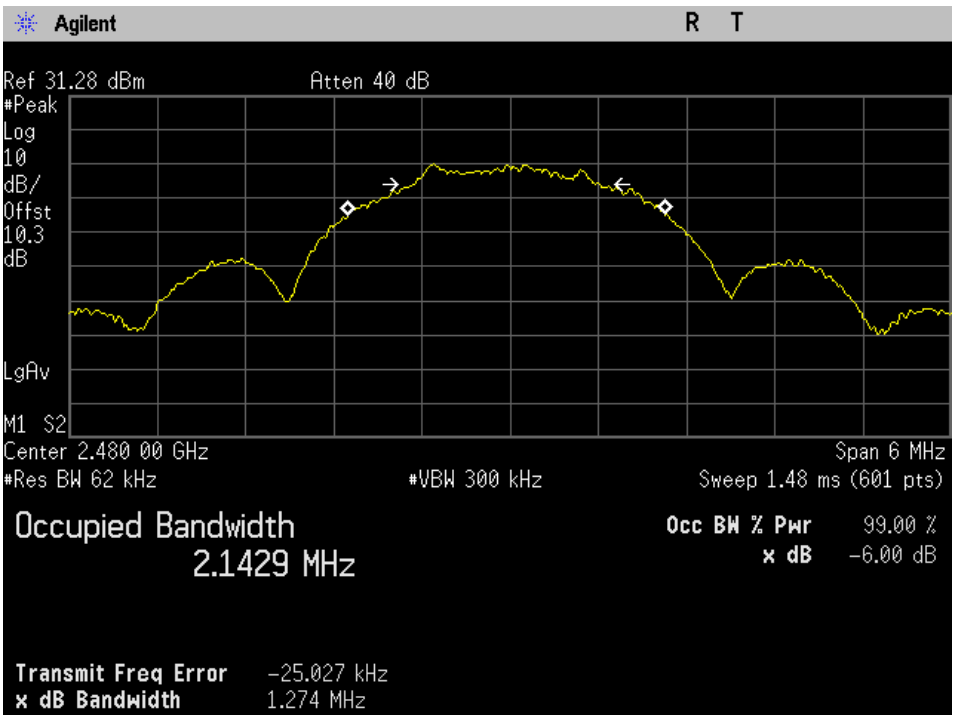
BLE 2M, Middle Channel, 2440 MHz, 99% OBW



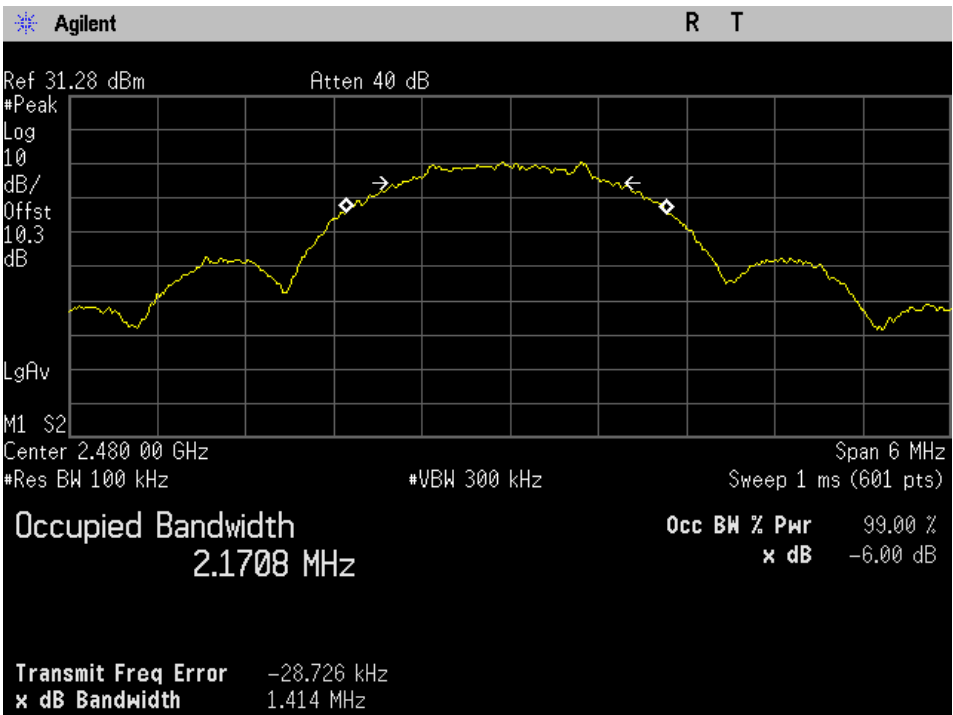
BLE 2M, Middle Channel, 2440 MHz, 6dB OBW



BLE 2M, High Channel, 2480 MHz, 99% OBW

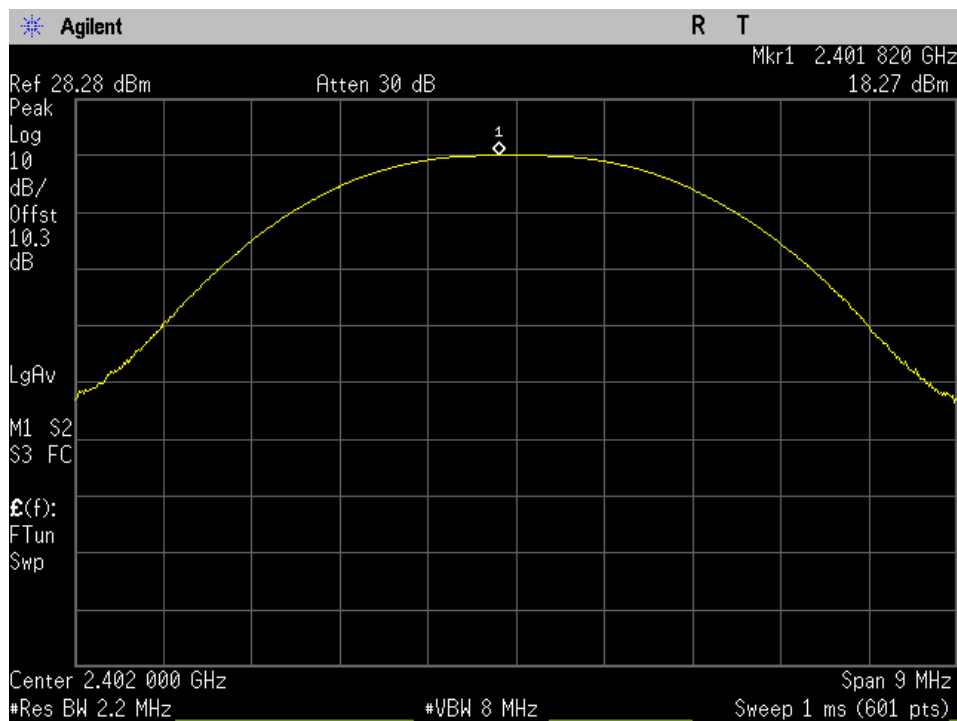


BLE 2M, High Channel, 2480 MHz, 6dB OBW

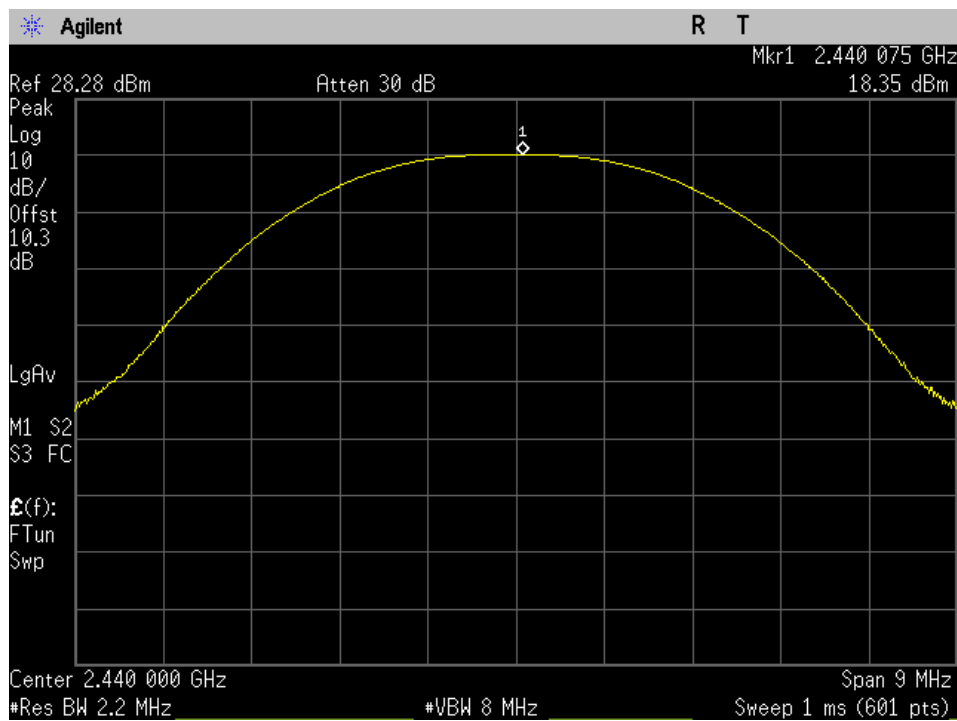


12 Annex B – Maximum Output Power

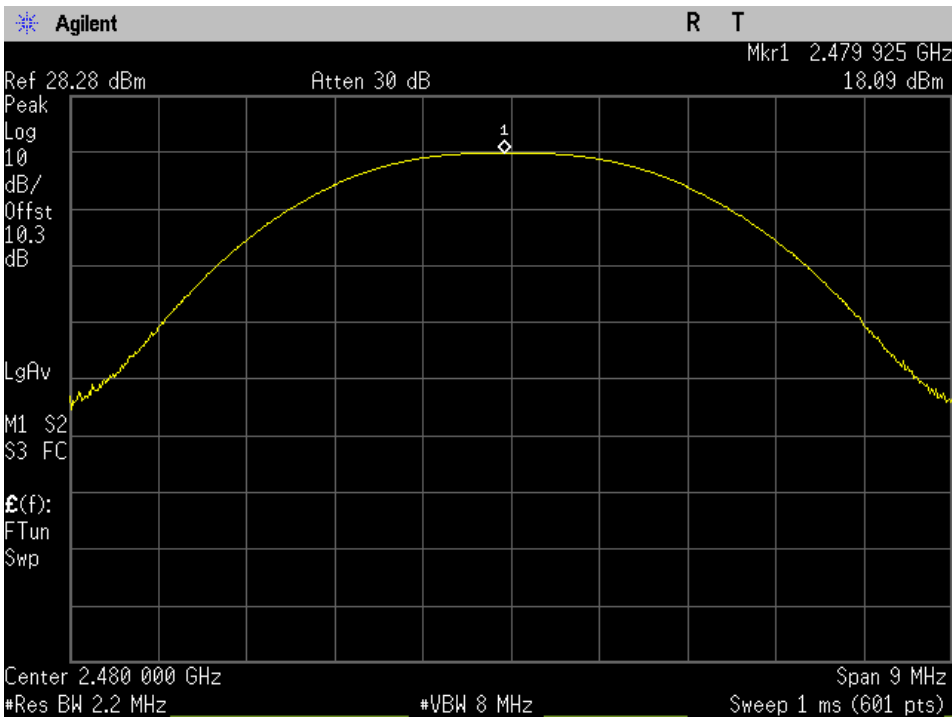
BLE 1M, Low Channel, 2402 MHz



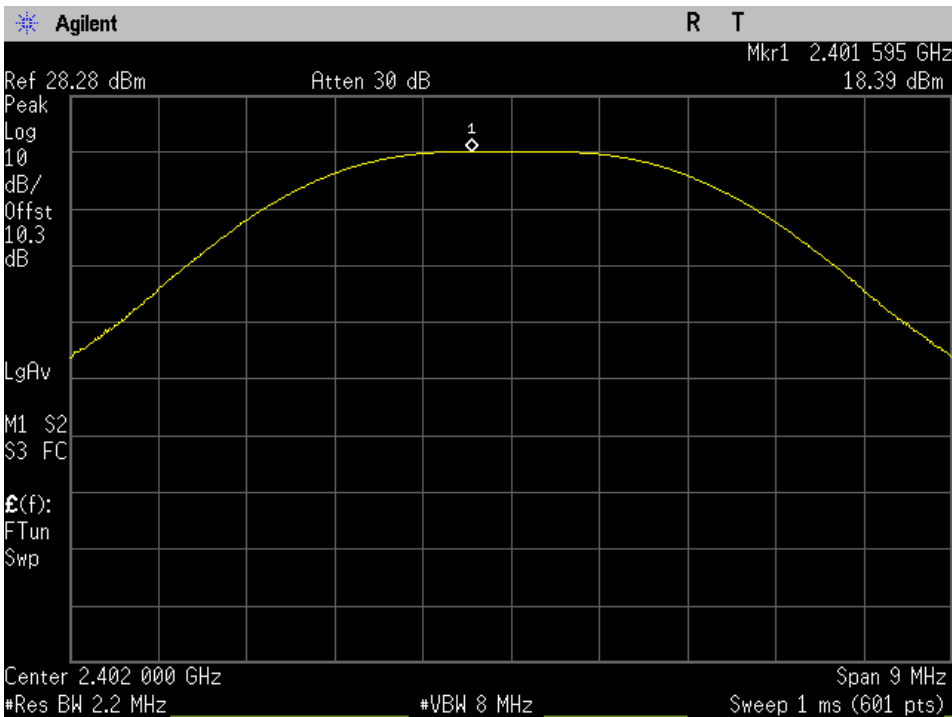
BLE 1M, Middle Channel, 2440 MHz



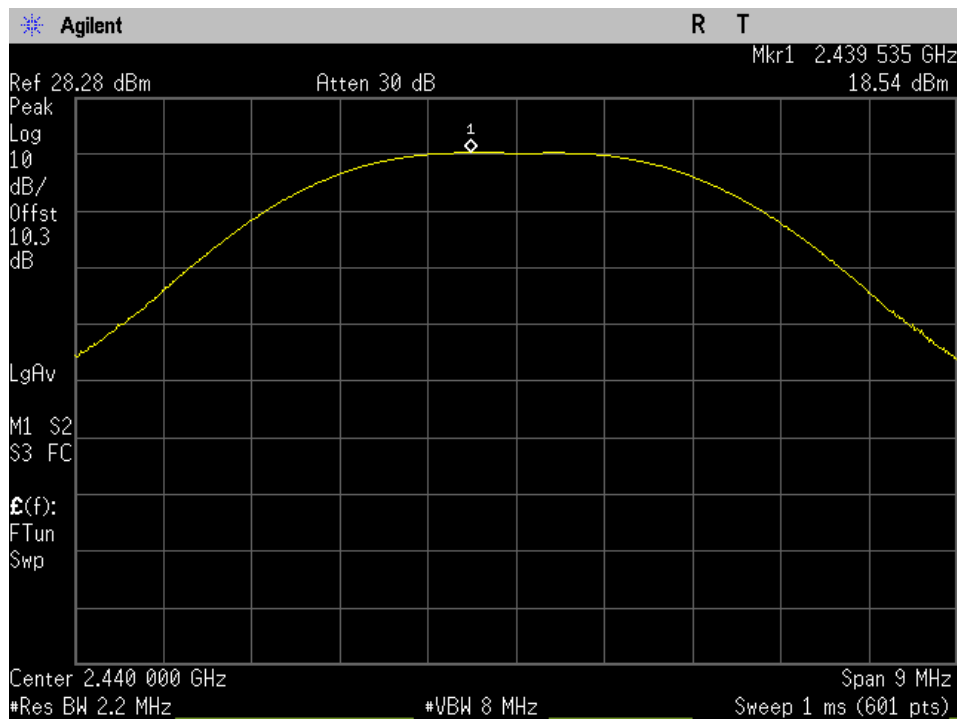
BLE 1M, High Channel, 2480 MHz



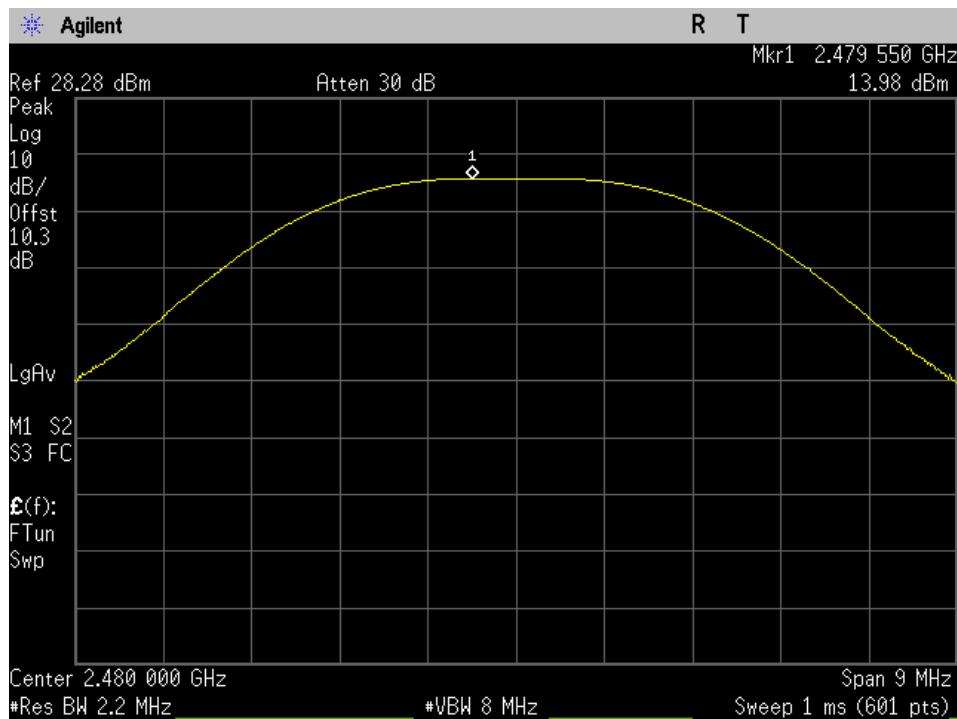
BLE 2M, Low Channel, 2402 MHz



BLE 2M, Middle Channel, 2440 MHz

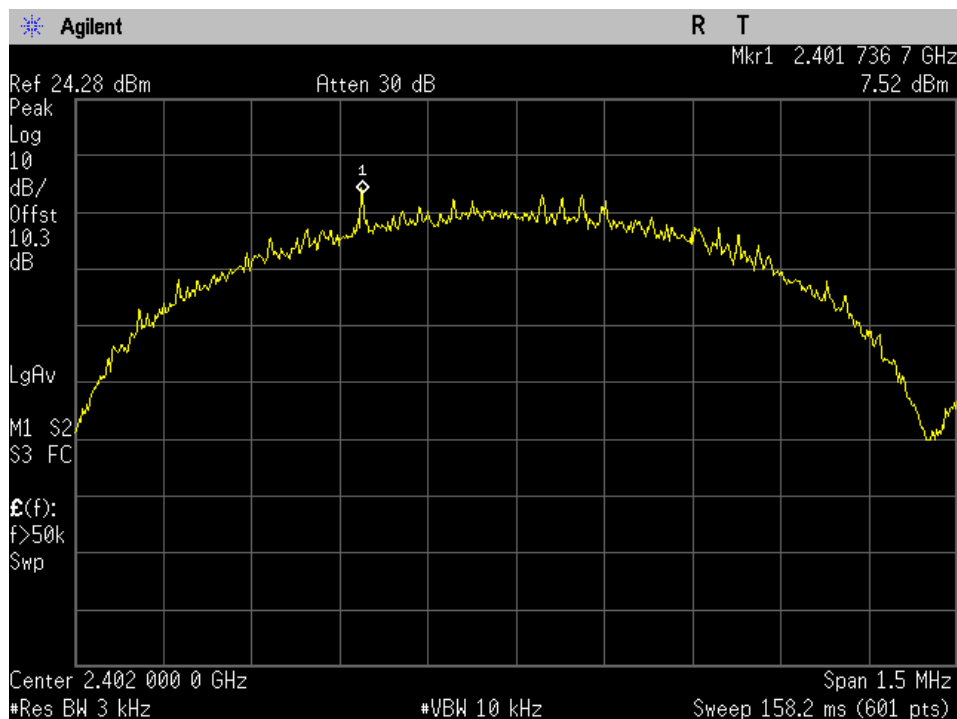


BLE 2M, High Channel, 2480 MHz

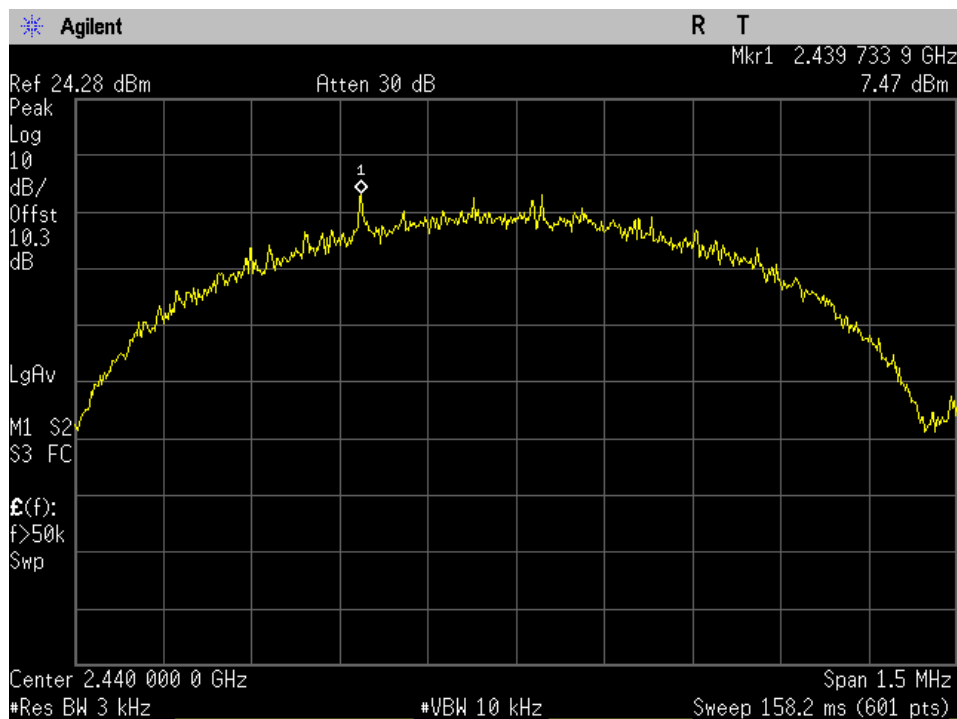


13 Annex C – Peak Power Spectral Density

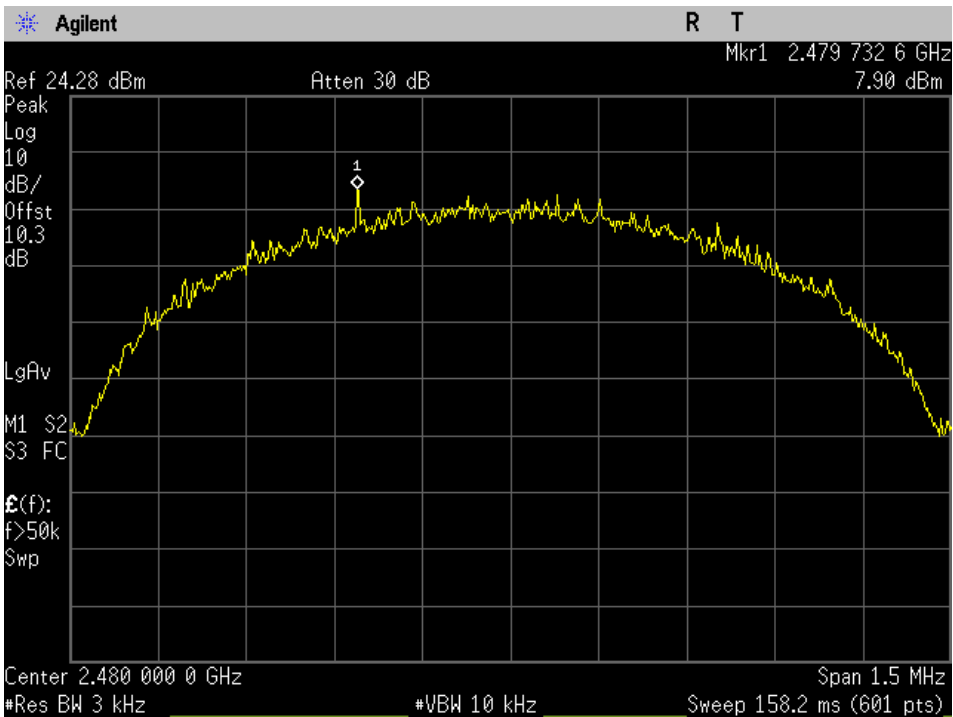
BLE 1M, Low Channel, 2402 MHz



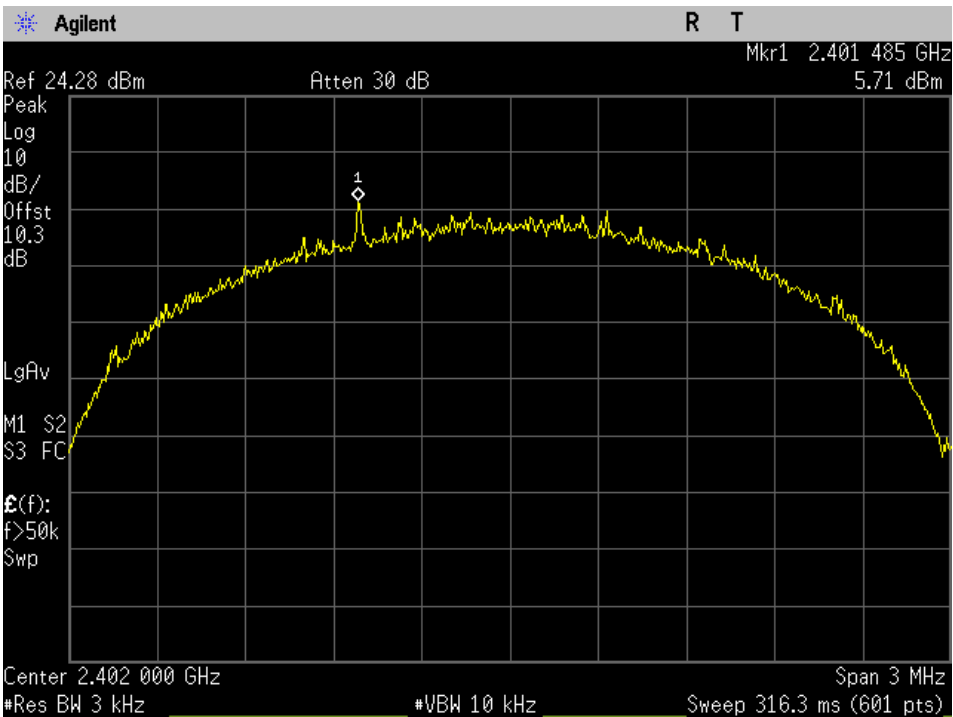
BLE 1M, Middle Channel, 2440 MHz



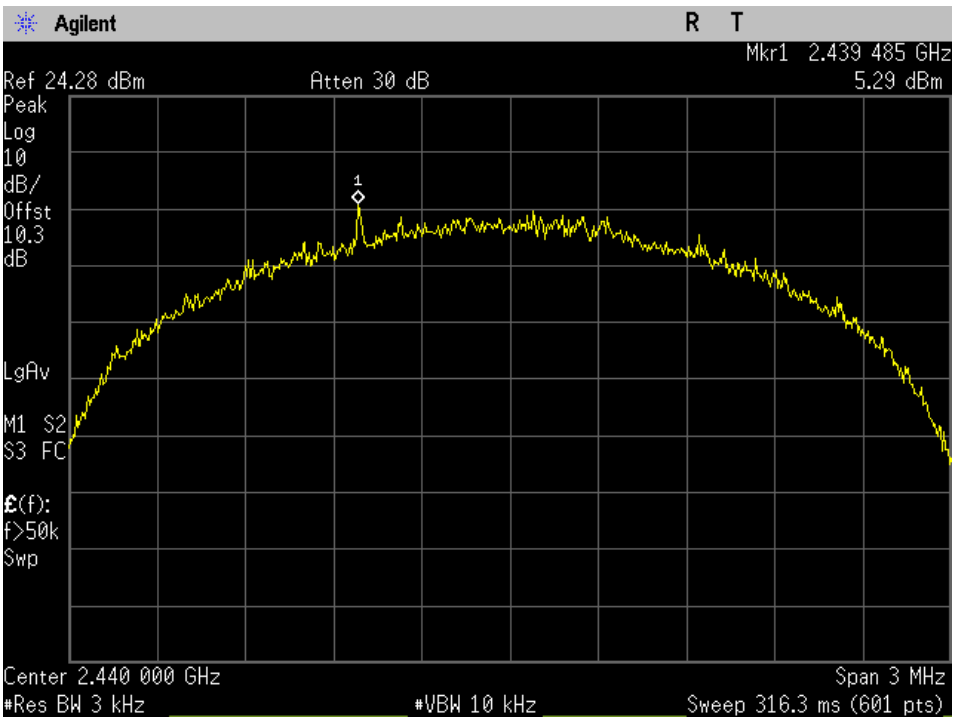
BLE 1M, High Channel, 2480 MHz



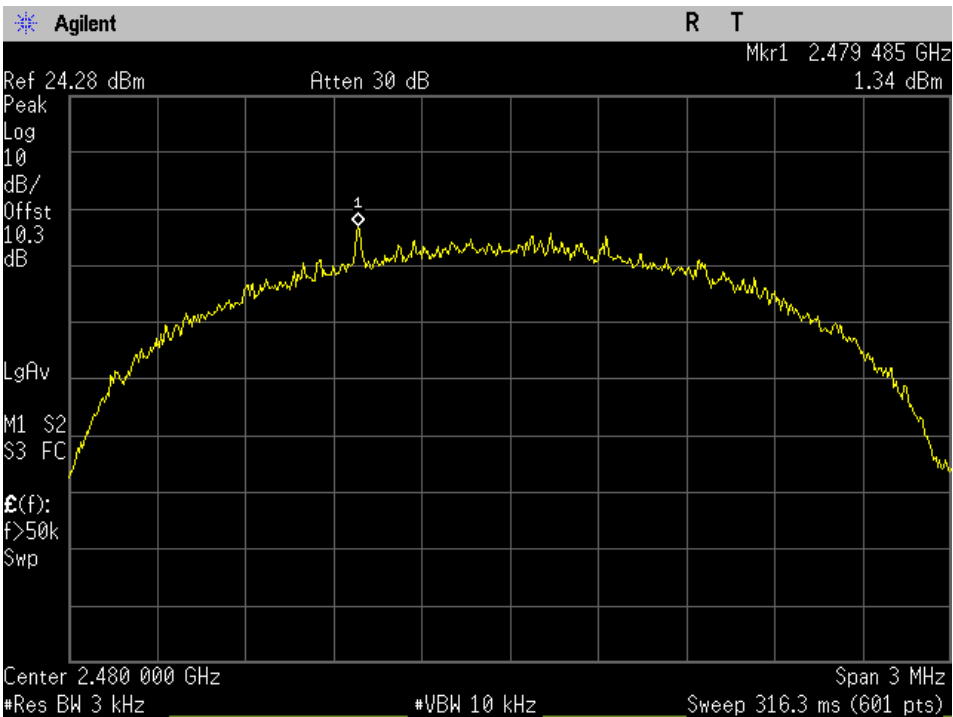
BLE 2M, Low Channel, 2402 MHz



BLE 2M, Middle Channel, 2440 MHz



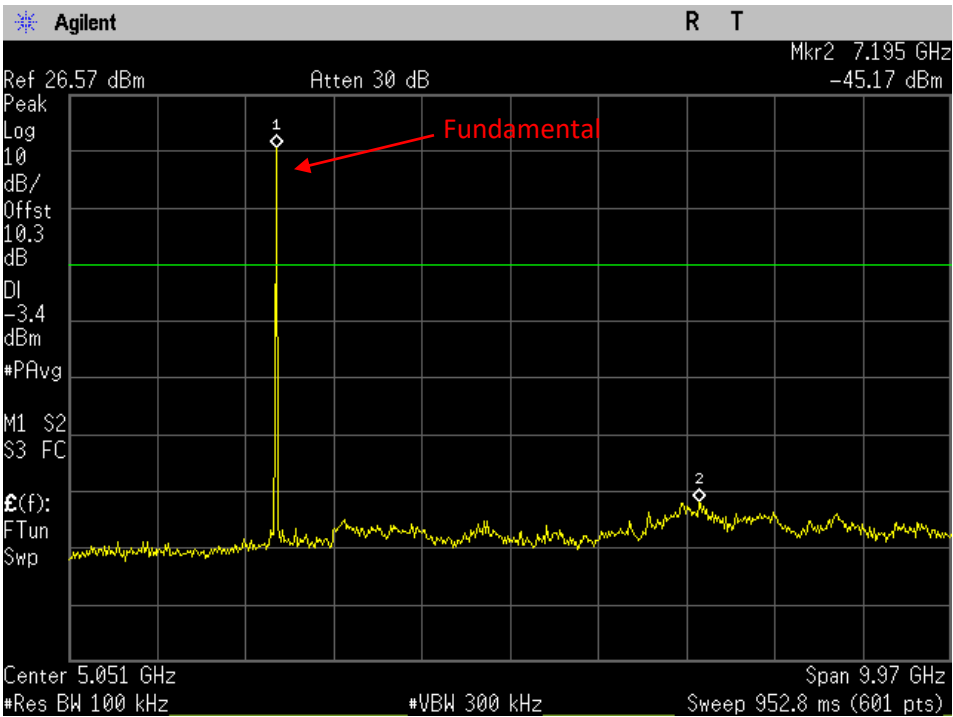
BLE 2M, High Channel, 2480 MHz



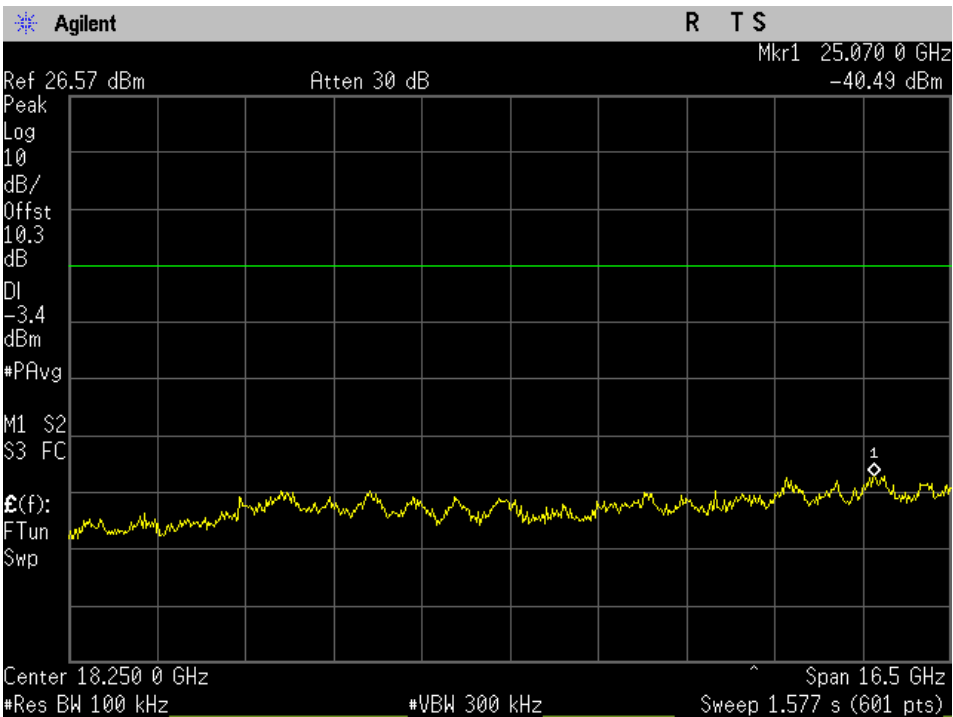
14

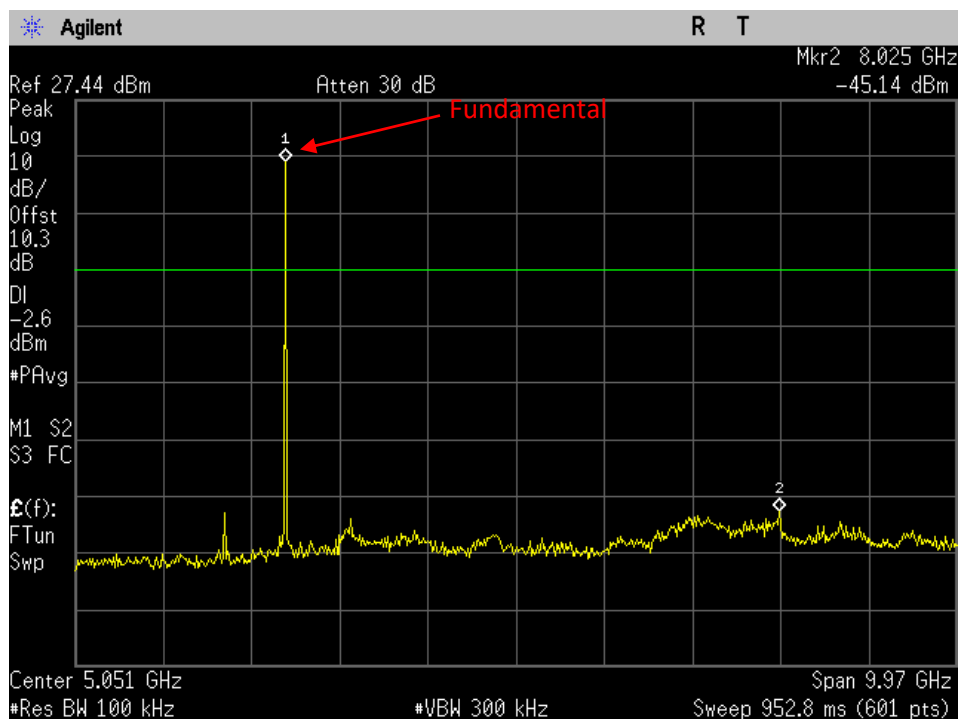
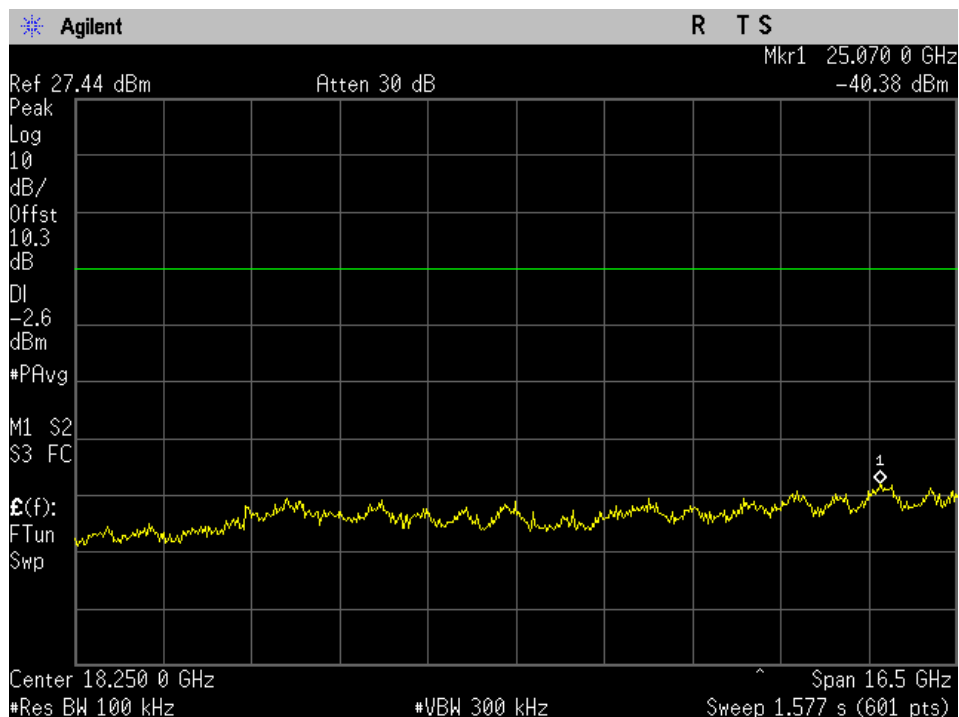
Annex D – 100 kHz Spurious Emissions at Antenna Terminal (dBc)

BLE 1M, Low Channel (2402 MHz), 30 MHz to 10 GHz

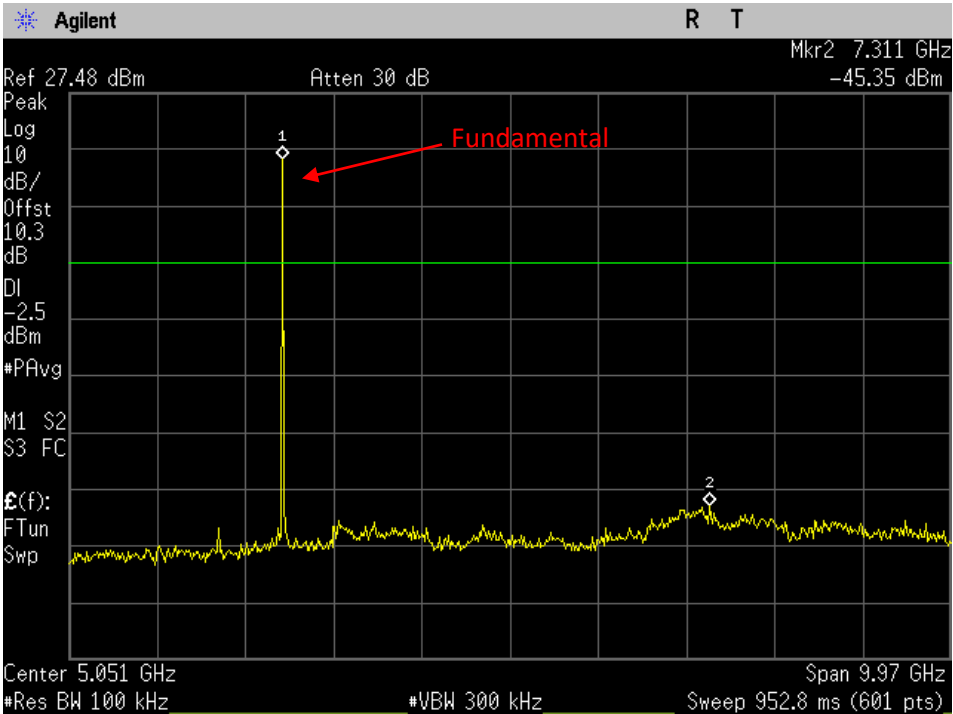


BLE 1M, Low Channel (2402 MHz), 10 GHz to 26 GHz

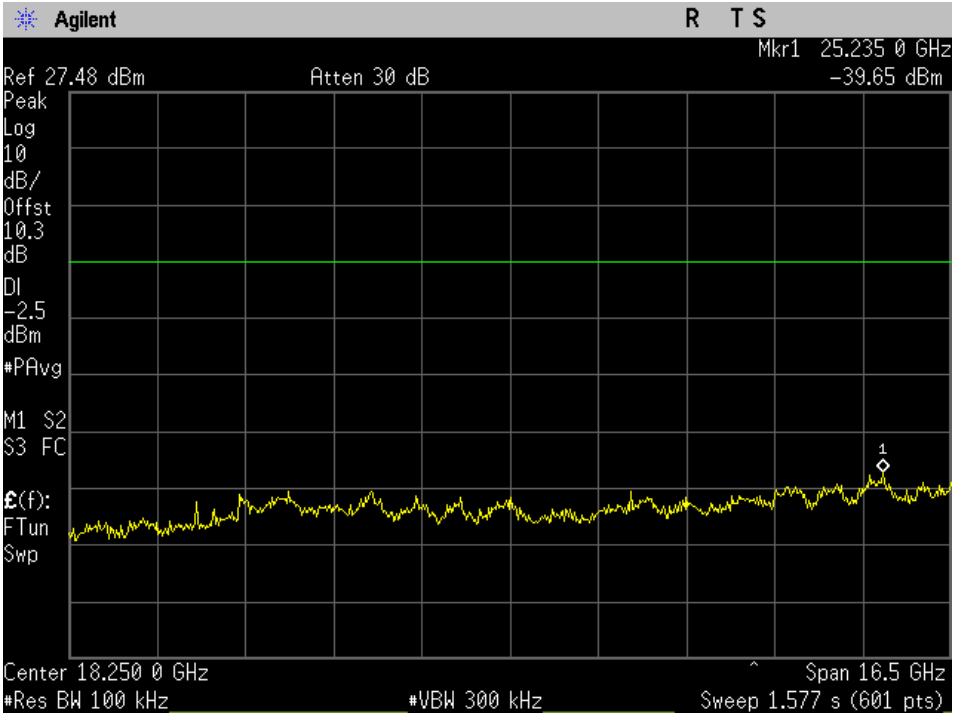


BLE 1M, Middle Channel (2440 MHz), 30 MHz to 10 GHz**BLE 1M, Middle Channel (2440 MHz), 10 GHz to 26 GHz**

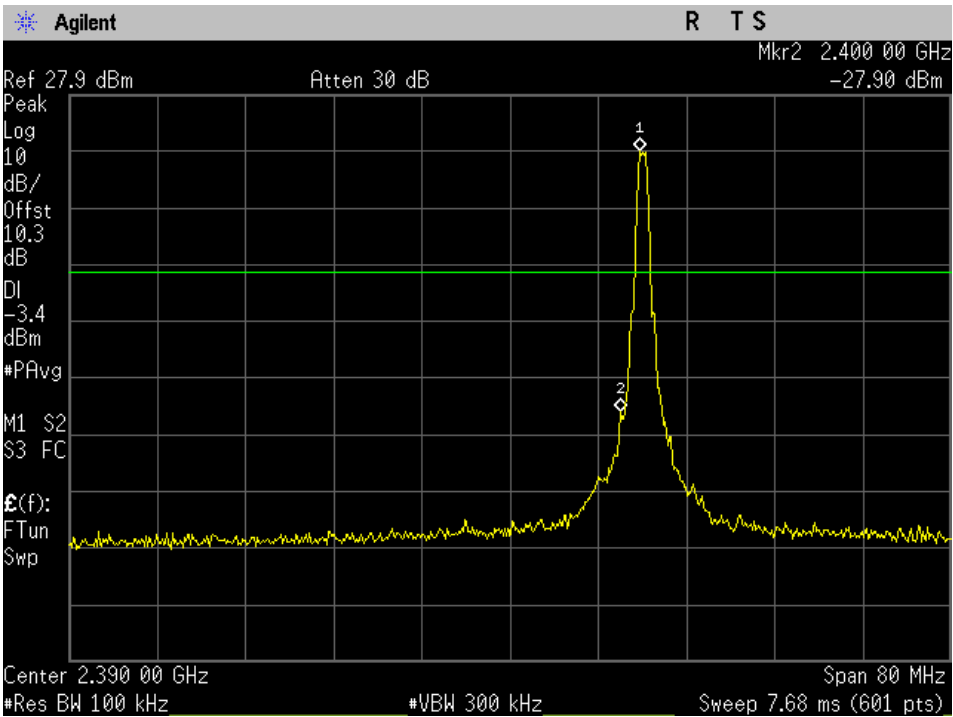
BLE 1M, High Channel (2480 MHz), 30 MHz to 10 GHz



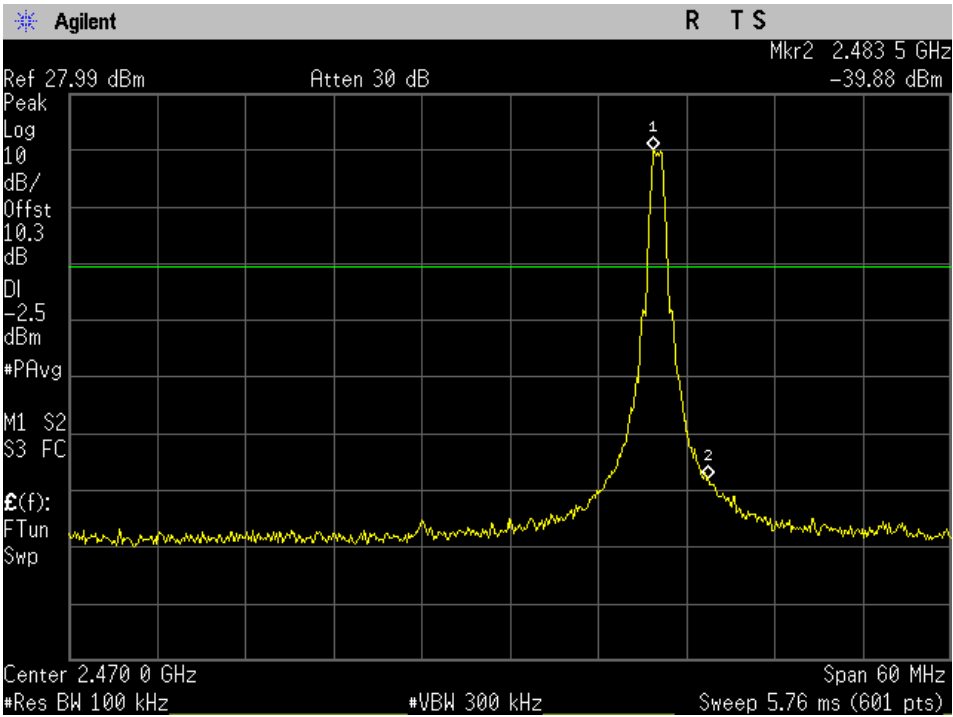
BLE 1M, High Channel (2480 MHz), 10 GHz to 26 GHz



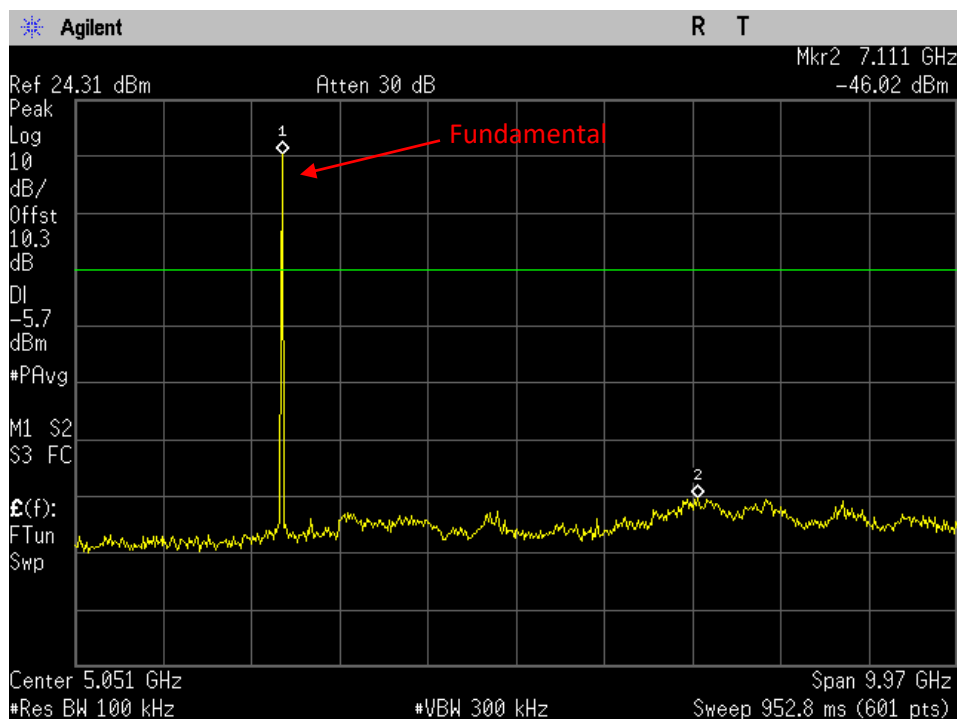
BLE 1M, Low Channel (2402 MHz), Lower Band Edge



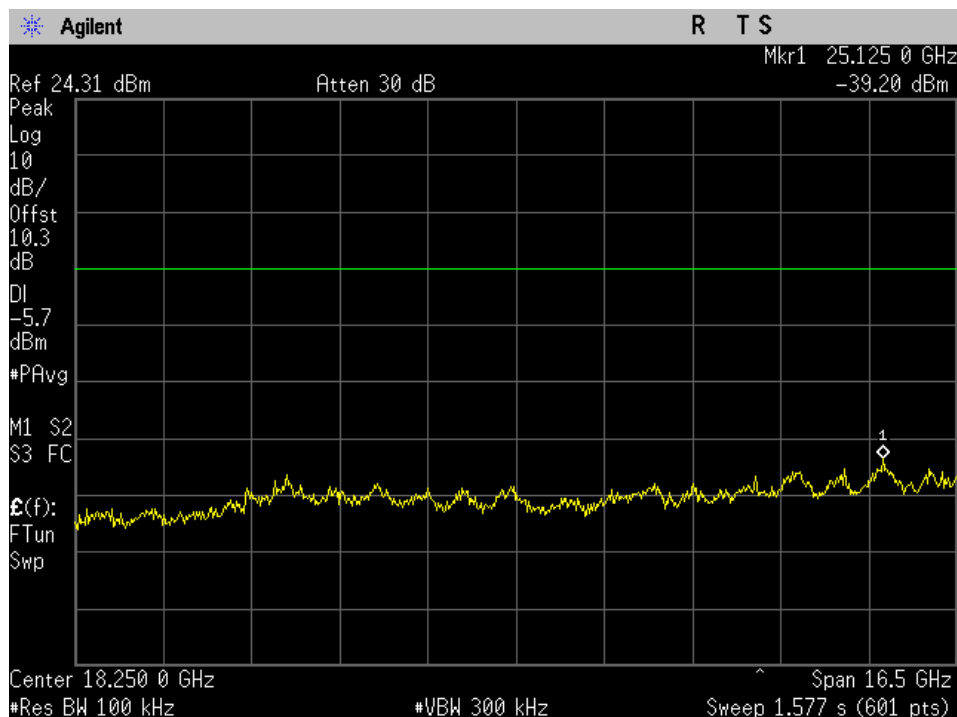
BLE 1M, High Channel (2480 MHz), Upper Band Edge



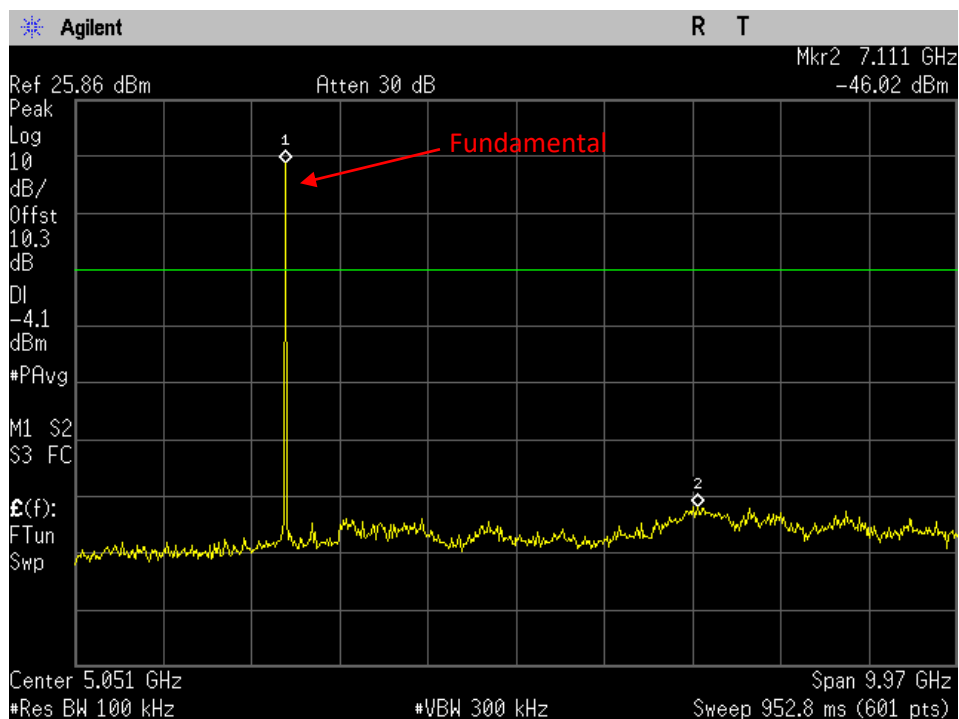
BLE 2M, Low Channel (2402 MHz), 30 MHz to 10 GHz



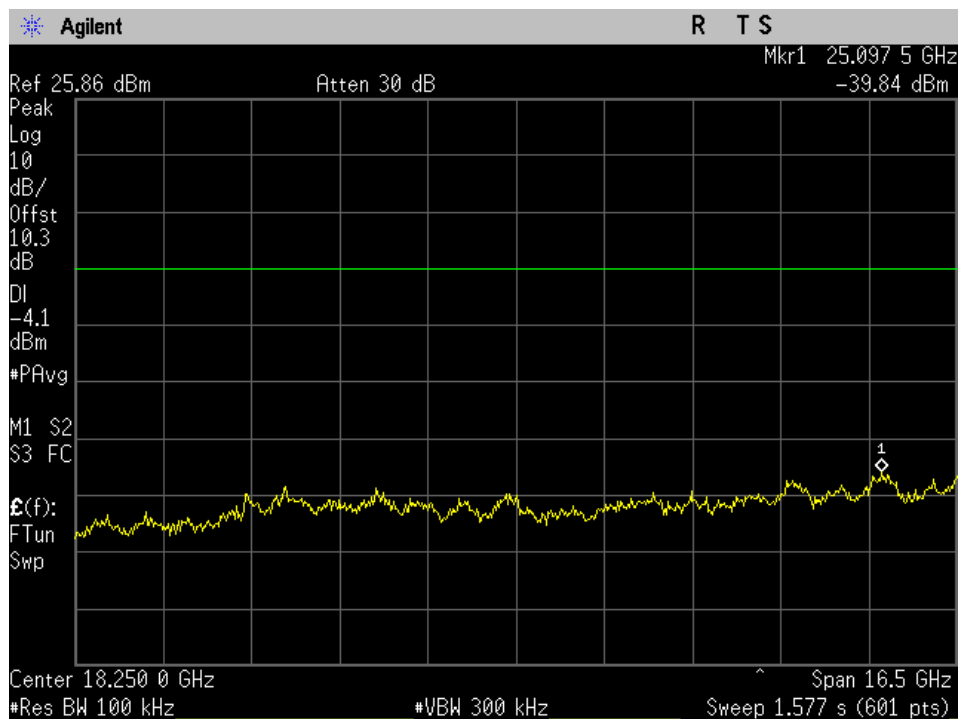
BLE 2M, Low Channel (2402 MHz), 10 GHz to 26 GHz



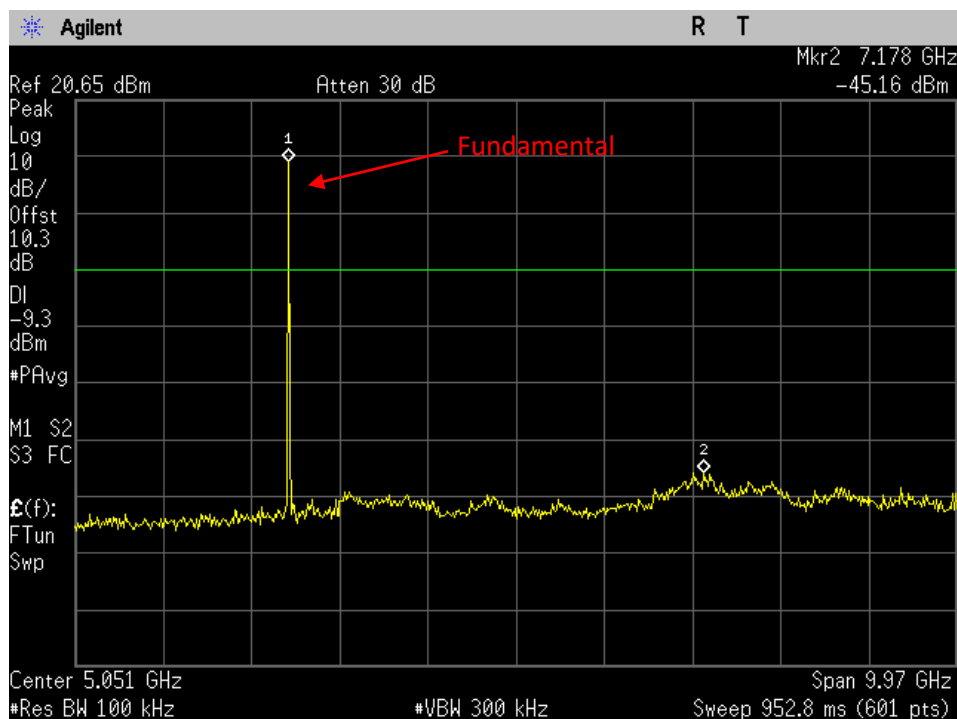
BLE 2M, Middle Channel (2440 MHz), 30 MHz to 10 GHz



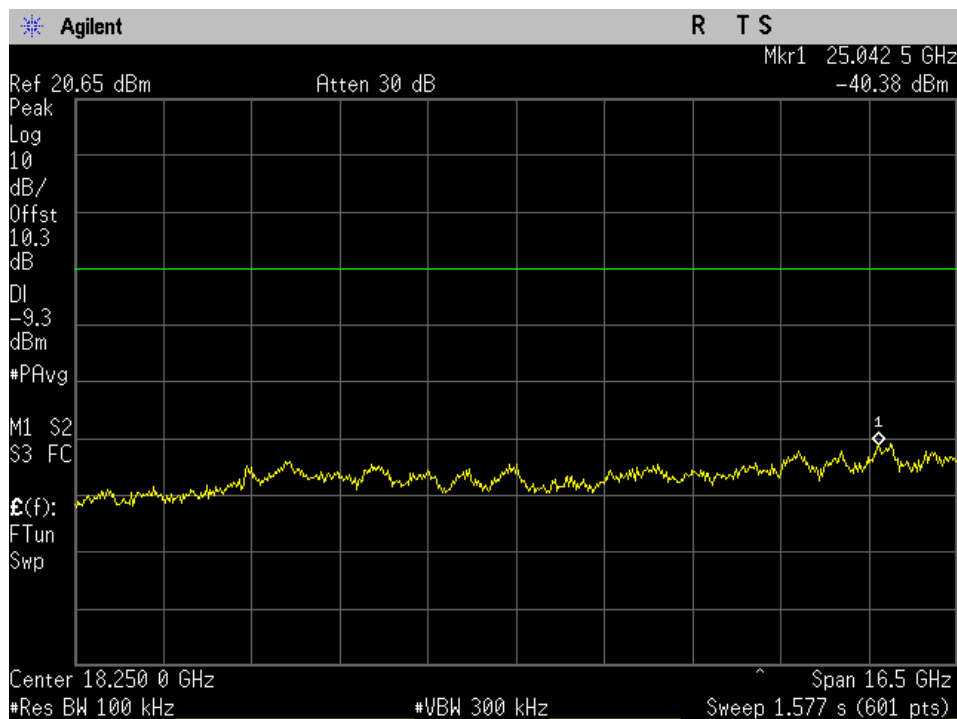
BLE 2M, Middle Channel (2440 MHz), 10 GHz to 26 GHz

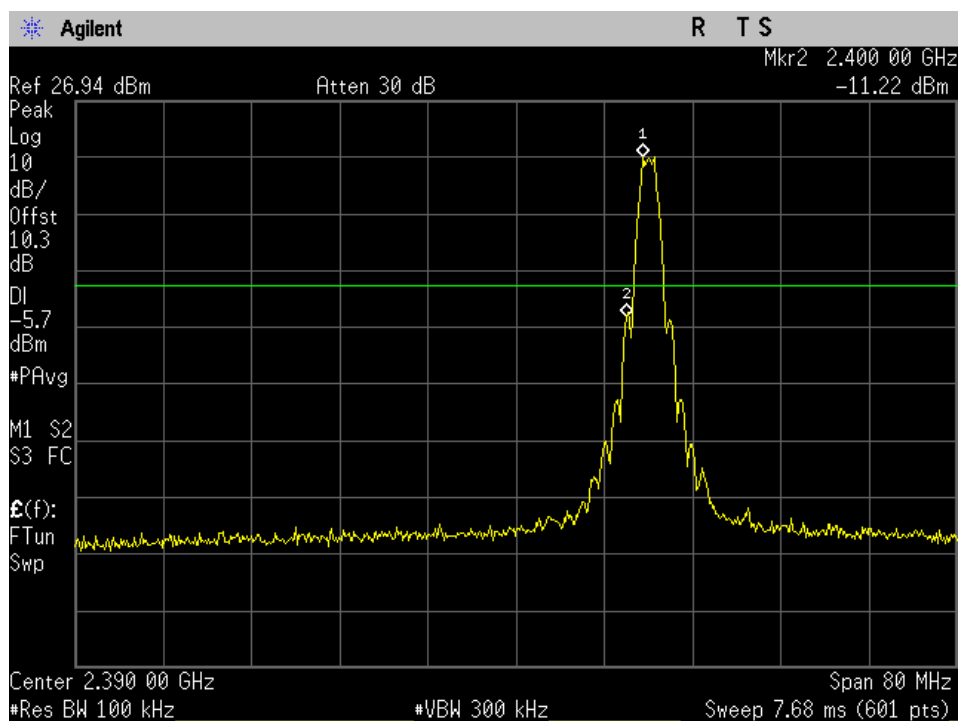
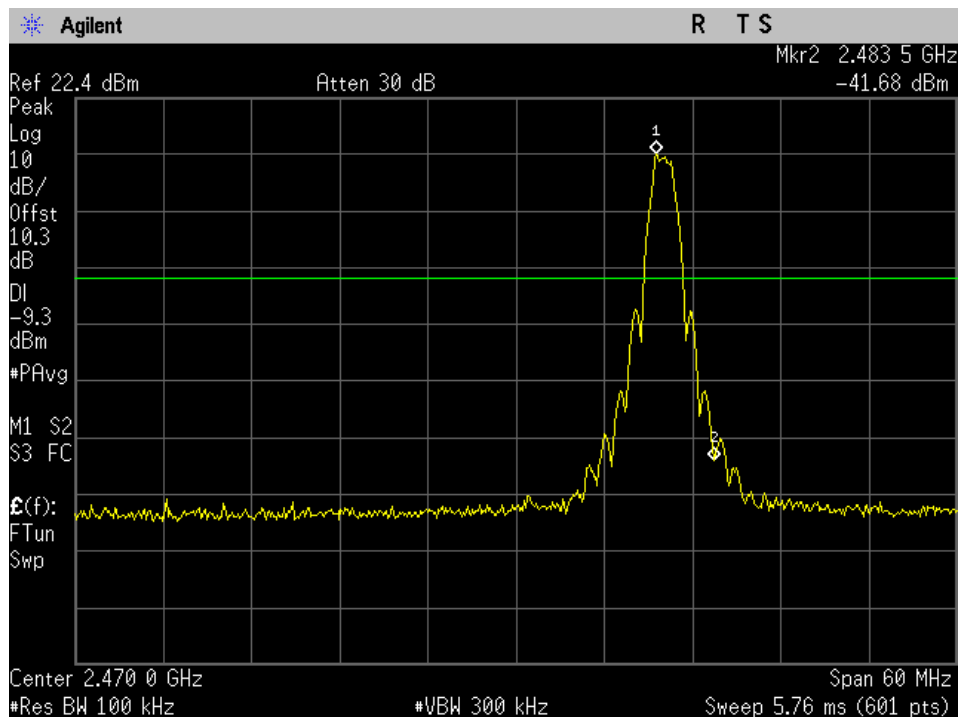


BLE 2M, High Channel (2480 MHz), 30 MHz to 10 GHz



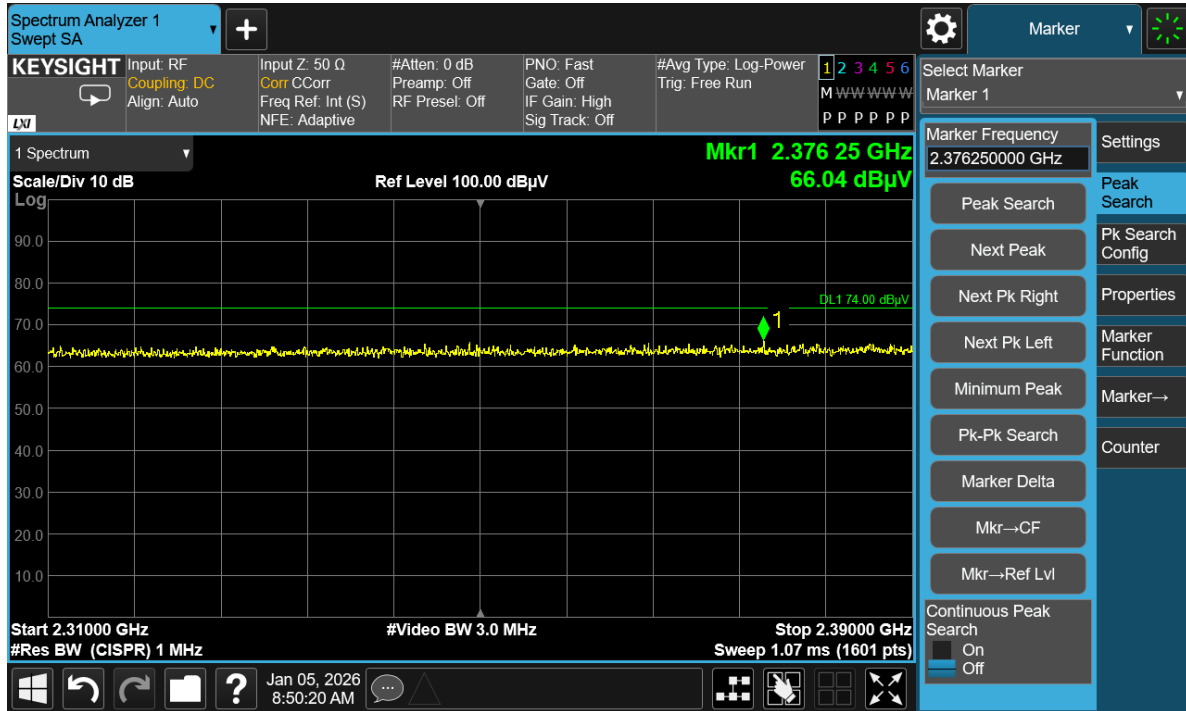
BLE 2M, High Channel (2480 MHz), 10 GHz to 26 GHz



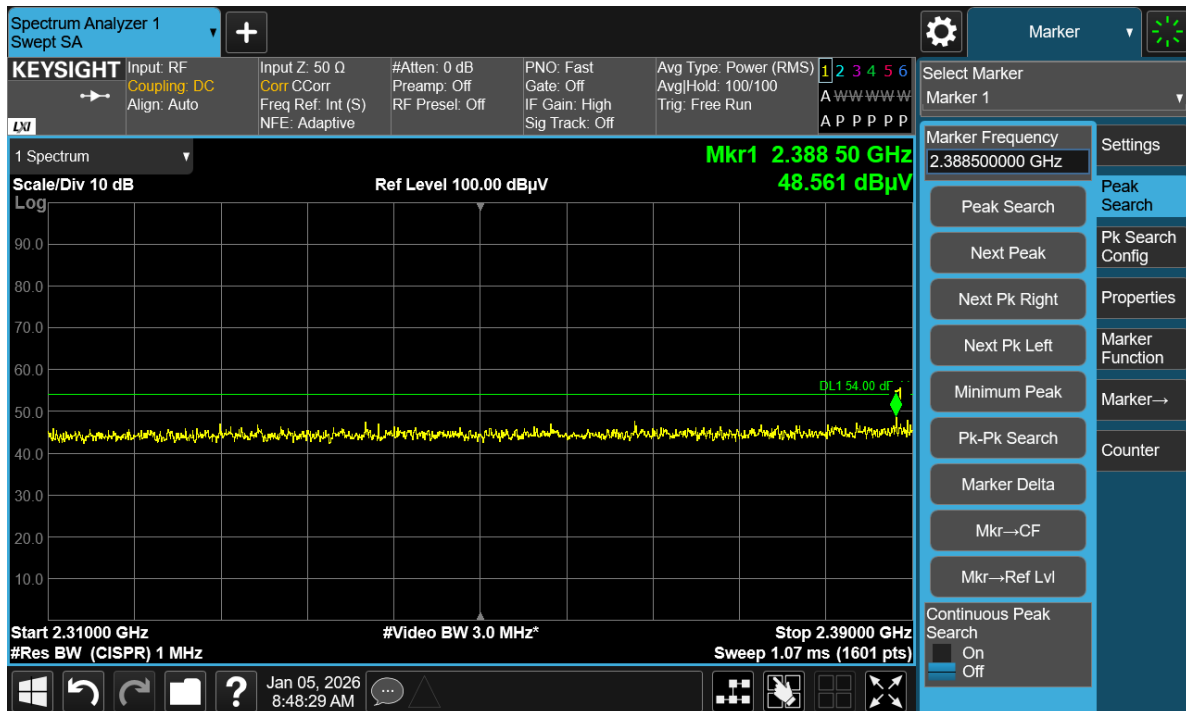
BLE 2M, Low Channel (2402 MHz), Lower Band Edge**BLE 2M, High Channel (2480 MHz), Upper Band Edge**

15 Annex E – FCC §15.209 Band Edges Measurement

BLE 1M, Low Channel (2402 MHz), Lower Band Edge, Peak Measurement



BLE 1M, Low Channel (2402 MHz), Lower Band Edge, Average Measurement



[illegible]

Spectrum Analyzer 1
Swept SA

Input: RF
Coupling: DC
Align: Auto

Input Z: 50 Ω
Corr: CCorr
Freq Ref: Int (S)
NFE: Adaptive

#Atten: 0 dB
Preamp: Off
RF Presel: Off

PNO: Fast
Gate: Off
IF Gain: High
Sig Track: Off

#Avg Type: Power (RMS)
Avg/Hold: 100/100
Trig: Free Run

1 2 3 4 5 6
A W W W W W
A P P P P P

Select Marker
Marker 1

Marker Frequency
2.483788750 GHz

Settings

Peak Search

Next Peak

Next Pk Right

Next Pk Left

Minimum Peak

Pk-Pk Search

Marker Delta

Mkr→CF

Mkr→Ref Lvl

Continuous Peak Search
☐ On
☒ Off

1 Spectrum

Scale/Div 10 dB

Ref Level 100.00 dB μ V

Mkr1 2.483 789 GHz
47.921 dB μ V

DL1 54.00 dB μ V

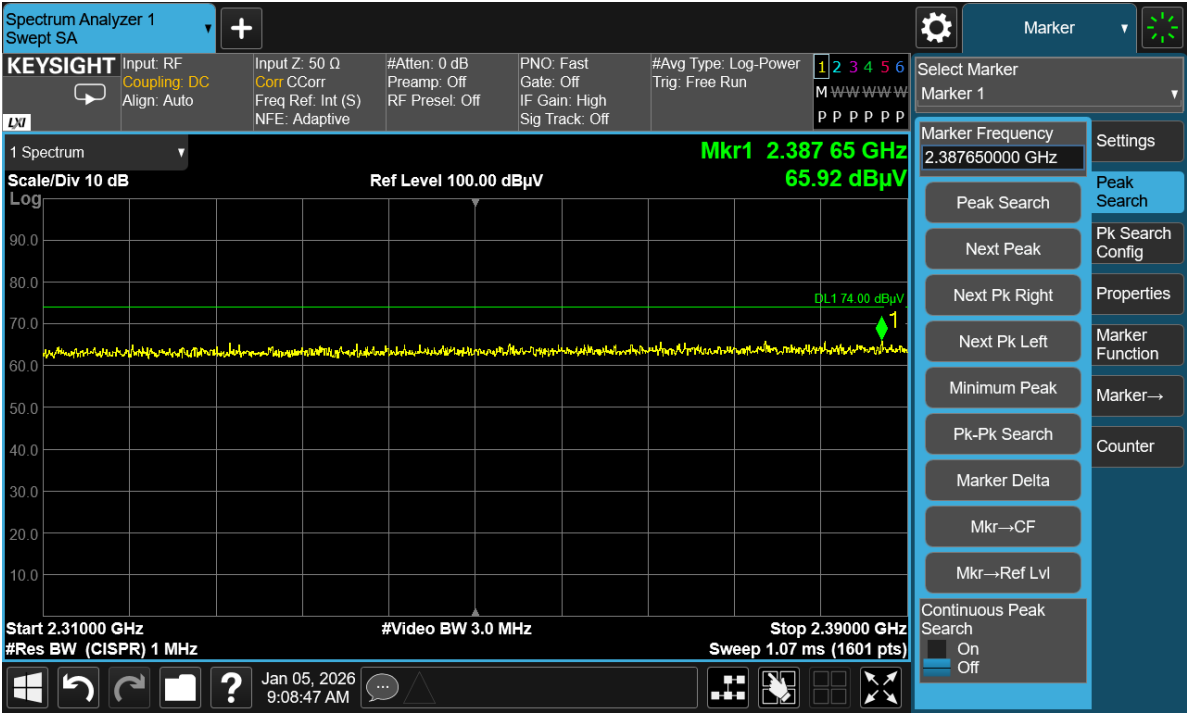
Start 2.483500 GHz
#Res BW (CISPR) 1 MHz

#Video BW 3.0 MHz*

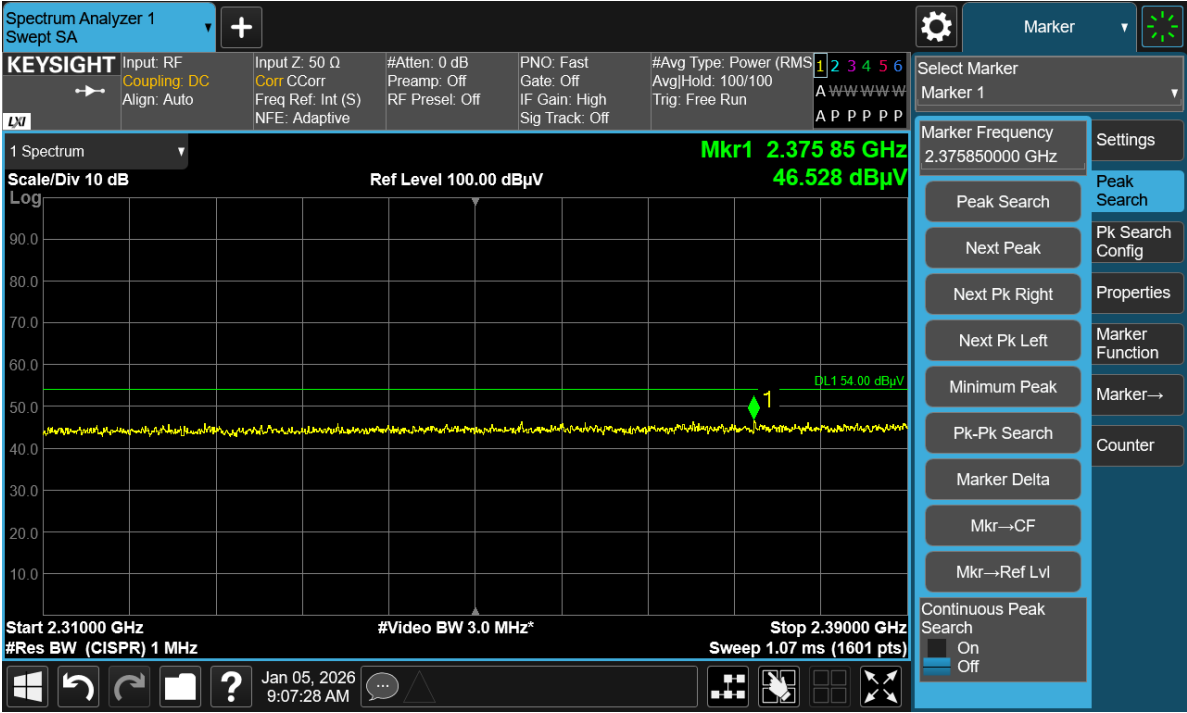
Stop 2.500000 GHz
Sweep 1.07 ms (1601 pts)

Jan 05, 2026
8:59:30 AM

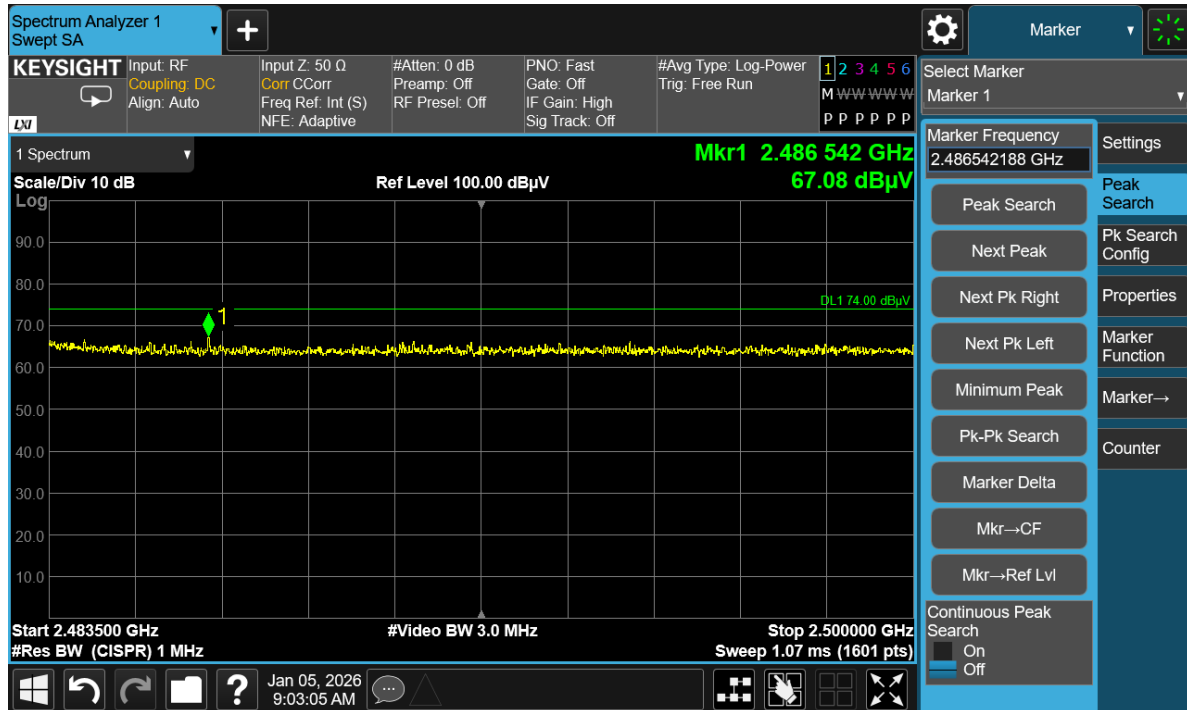
BLE 2M, Low Channel (2402 MHz), Lower Band Edge, Peak Measurement



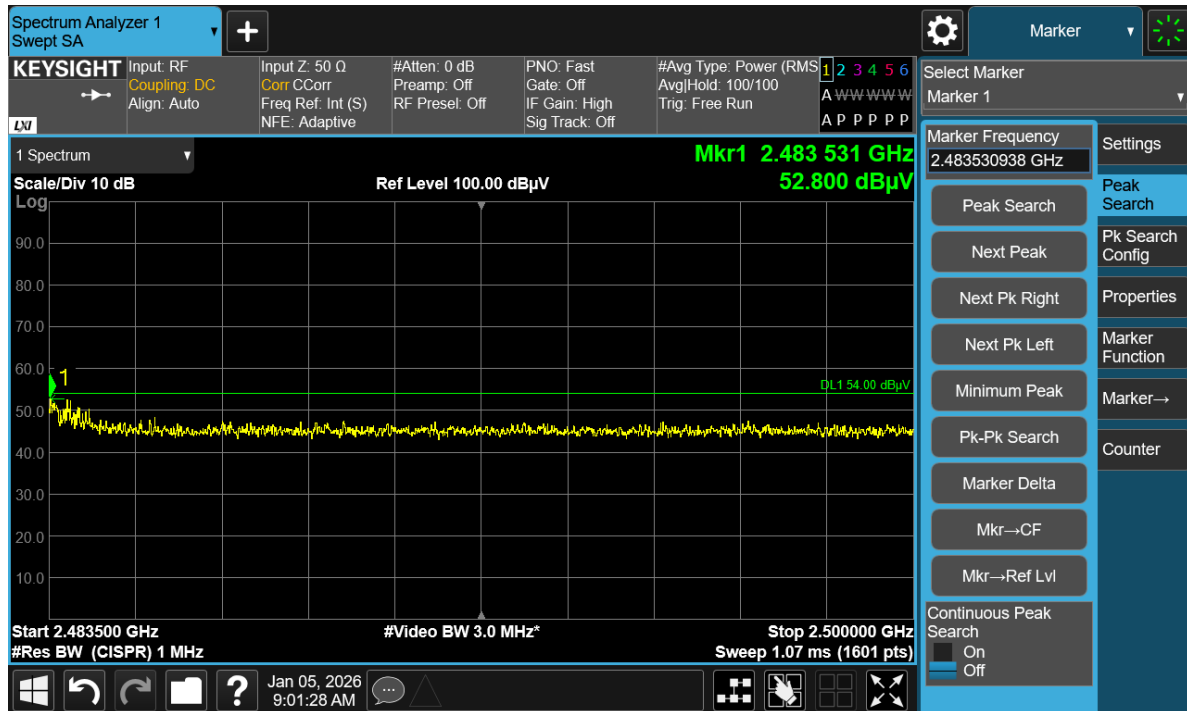
BLE 2M, Low Channel (2402 MHz), Lower Band Edge, Average Measurement



BLE 2M, High Channel (2480 MHz), Upper Band Edge, Peak Measurement



BLE 2M, High Channel (2480 MHz), Upper Band Edge, Average Measurement



16 Appendix A (Normative) – EUT Test Setup Photographs

Please refer to the attachment.

17 Appendix B (Normative) – EUT External Photographs

Please refer to the attachment.

18 Appendix C (Normative) – EUT Internal Photographs

Please refer to the attachment.

19 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.

A blue ink signature of Mr. Trace McInturf.

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 ---