FCC PART 15, SUBPART C

TEST REPORT

For

Faaftech USA Inc.

1381 Stonehenge Way
Palm Harbor, FL, 34683

FCC ID: 2AXLF-SHIFTPPRO
Commercial Name: SHIFTPOWER PRO
Model: SP02P
Similar Model‡: SPP (**: 00 to 99)**

Report Type:	**Product Type:**
Original Report	Automotive Device

Prepared By:	Michael Papa Test Engineer	
Report Number:	R2605183-247	
Report Date:	2026-07-01	
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ACCREDITED
CERTIFICATE #3297.02

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R2605183-247	Original Report	2026-07-01

1 General Description

1.1 Product Description for Equipment Under Test (EUT)

This test report is prepared on behalf of *Faaftech USA Inc.*, and their product model: SP02P, FCC ID: 2AXLF-SHIFTPPRO, the "EUT" as referred to in this report. The EUT is an automotive device with BLE capabilities.

Model Number	SP02P
FCC ID	2AXLF-SHIFTPPRO
Radio Type	BLE
Operating Frequency	2402 MHz – 2480 MHz
Modulation	GFSK
Channel Spacing	1 MHz
Antenna Gain	1.04 dBi

1.2 Mechanical Description of EUT

The EUT measures approximately 4.5 cm (L) x 4.4 cm (W) x 1.8 cm (H) and weighs approximately 0.031 kg.

The data gathered was from a production sample provided by Faaftech USA Inc. with S/N: 41962605130001

1.3 Objective

This report is prepared on behalf of *Faaftech USA Inc.* in accordance with Part 2, Subpart J, and Part 15, Subpart C of the Federal Communication Commission's rules.

The objective is to determine compliance with FCC Part 15.247 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)

None.

1.5 Test Methodology

All measurements contained in this report were conducted in accordance with ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + 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 ^{o} 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+C63.10a-2024 + 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 exercising software used during testing was "SmartSnippets Toolbox v5.0.28.4280", provided by Faaftech USA Inc. The software is compliant with the standard requirements being tested against.

Radio	Mode	Channel	Frequency (MHz)	Power Setting
BLE	1Mbps	Low	2402	255
		Middle	2440	255
		High	2480	255

2.3 Duty Cycle Correction Factor

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

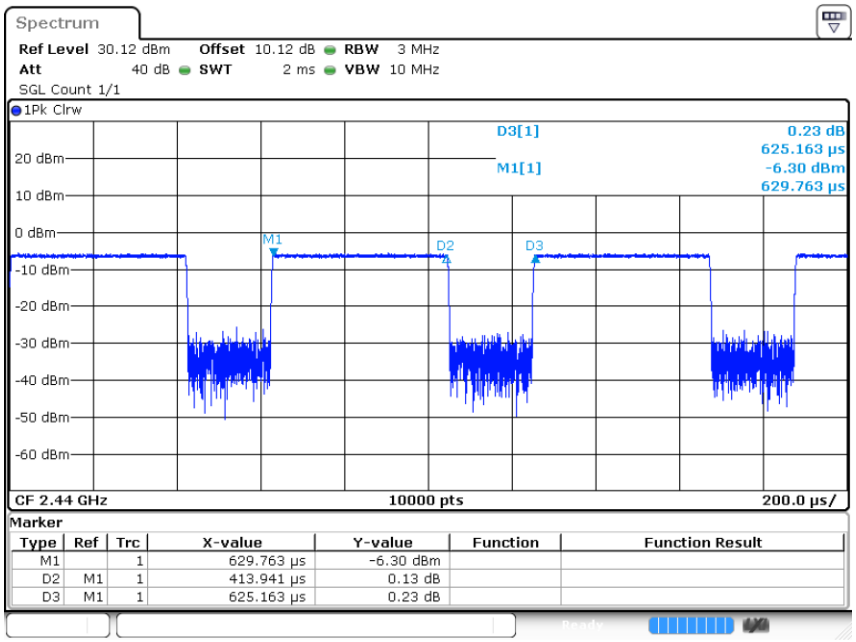
Preferably, all measurements of maximum conducted (average) output power will be performed with the EUT transmitting continuously (i.e., with a duty cycle of greater than or equal to 98%). When continuous operation cannot be realized, then the use of sweep triggering/signal gating techniques can be utilized to ensure that measurements are made only during transmissions at the maximum power control level. Such sweep triggering/signal gating techniques will require knowledge of the minimum transmission duration (T) over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation. Sweep triggering/signal gating techniques can then be used if the measurement/sweep time of the analyzer can be set such that it does not exceed T at any time that data is being acquired (i.e., no transmitter off-time is to be considered).

Radio	Radio Mode	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
BLE	1Mbps	413.941	625.163	66.21	1.79

Note: Duty Cycle = On Time (ms)/ Period (ms)
*Duty Cycle Correction Factor = 10*log (1/duty cycle)*

Please refer to the following plots.

BLE 1Mbps, Duty Cycle



2.4 Equipment Modification

No modifications were made to the EUT during testing.

2.5 Local Support Equipment

Manufacturer	Description	Model	Serial Number
Dell Inc.	Laptop	Latitude 5401	HCJH3Z2

2.6 Remote Support Equipment

Manufacturer	Description	Model	Serial Number
FTDI	USB-UART adapter with +3.3V signal level	TTL-234X-3V3	-

2.7 Power Supply and Line Filters

Manufacturer	Description	Model	Serial Number
VoltEQ	DC Power Supply	HY5003D	180100281

2.8 Interface Ports and Cabling

Cable Description	Length (m)	From	To
USB-UART adapter with +3.3V signal level	1	EUT	Laptop
Test harness banana plug terminals	1	EUT	DC Power Supply

3 Summary of Test Results

FCC Rules	Description of Test	Results
FCC §15.203	Antenna Requirements	Compliant
FCC §2.1091, §15.247(i)	RF Exposure	Compliant
FCC §15.207	AC Line Conducted Emissions	N/A[1]
FCC §2.1053, §15.35(b), §15.205, §15.209, §15.247(d)	Radiated Spurious Emissions	Compliant
FCC §15.247(a)(2)	6 dB & 99% Emission Bandwidth	Compliant
FCC §15.247(b)(3)	Maximum Output Power	Compliant
FCC §15.247(e)	Peak Power Spectral Density	Compliant
FCC §2.1051, §15.247 (d)	Spurious Emissions at Antenna Terminal (dBc)	Compliant
FCC §2.1051, §15.247(d)	100 kHz Bandwidth of Frequency Band Edges	Compliant

Note[1]: 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 – 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.

4.2 Antenna Description

External/Internal/ Integral	Antenna Type	Frequency Range (MHz)	Maximum Antenna Gain (dBi)
Integral	PCB Trace	2400-2483.5	1.04

5 FCC §2.1091, FCC §15.247(i) – RF Exposure

5.1 Applicable Standards

According to FCC §15.247(i), Radio frequency devices operating under the provisions of this part are subject to the radio frequency radiation exposure requirements specified in §§ 1.1307(b), 1.1310, 2.1091, and 2.1093 of this chapter, as appropriate. Applications for equipment authorization of mobile or portable devices operating under this section must contain a statement confirming compliance with these requirements. Technical information showing the basis for this statement must be submitted to the Commission upon request.

According to FCC §2.1091, 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

5.2 MPE Prediction

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

Maximum output power at antenna input terminal (dBm):	-4.66
Maximum output power at antenna input terminal (mW):	0.342
Prediction distance (cm):	20
Prediction frequency (MHz):	2402
Maximum Directional Antenna Gain, typical (dBi):	1.04
Maximum Antenna Gain (numeric):	1.27
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.00009
FCC MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	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 0.00009 mW/cm^2. Limit is 1 mW/cm^2.

6 FCC §15.35(b), §15.205, §15.209, §15.247(d) – 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 0.495 – 0.505 2.1735 – 2.1905 4.125 – 4.128 4.17725 – 4.17775 4.20725 – 4.20775 6.215 – 6.218 6.26775 – 6.26825 6.31175 – 6.31225 8.291 – 8.294 8.362 – 8.366 8.37625 – 8.38675 8.41425 – 8.41475 12.29 – 12.293 12.51975 – 12.52025 12.57675 – 12.57725 13.36 – 13.41	16.42 – 16.423 16.69475 – 16.69525 25.5 – 25.67 37.5 – 38.25 73 – 74.6 74.8 – 75.2 108 – 121.94 123 – 138 149.9 – 150.05 156.52475 – 156.52525 156.7 – 156.9 162.0125 –167.17 167.72 – 173.2 240 – 285 322 – 335.4 399.9 – 410 608 – 614	960 – 1240 1300 – 1427 1435 – 1626.5 1645.5 – 1646.5 1660 – 1710 1718.8 – 1722.2 2200 – 2300 2310 – 2390 2483.5 – 2500 2690 – 2900 3260 – 3267 3.332 – 3.339 3 3458 – 3 358 3.600 – 4.400	4. 5 – 5. 15 5. 35 – 5. 46 7.25 – 7.75 8.025 – 8.5 9.0 – 9.2 9.3 – 9.5 10.6 – 12.7 13.25 – 13.4 14.47 – 14.5 15.35 – 16.2 17.7 – 21.4 22.01 – 23.12 23.6 – 24.0 31.2 – 31.8 36.43 – 36.5 Above 38.6

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).

6.2 Test Setup

The radiated emissions tests were performed in the 5-meter chamber, using the setup in accordance with ANSI C63.10. The specification used was the FCC §15.247.

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 1000 MHz (RSE):

(1) Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto
(2) Average: RBW = 1MHz / VBW = 3MHz / Sweep = Auto / Trace averaging for 100 traces

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 = S.A. Reading + 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:

Correction Factor = AF + CL + 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:

Margin = Corrected Amplitude – 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 + Atten – Ga

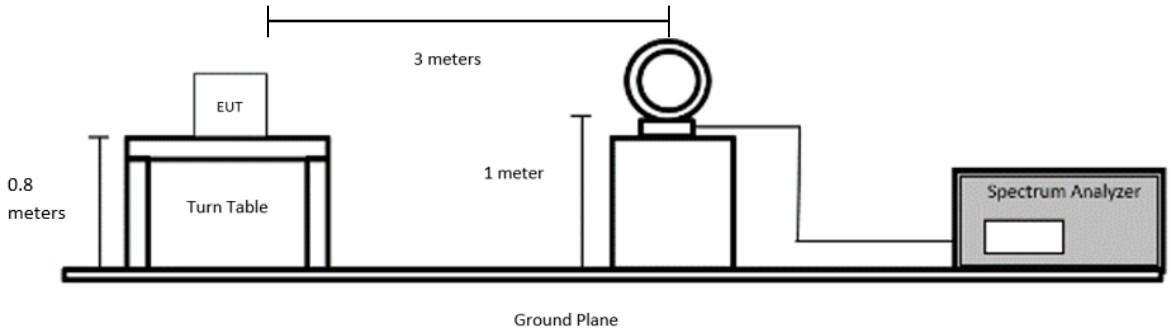
For example, a corrected amplitude of 40.3 dBuV/m = Indicated Reading (32.5 dBuV) + Antenna Factor (+23.5dB) + Cable Loss (3.7 dB) + Attenuator (10 dB) - Amplifier Gain (29.4 dB)

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:

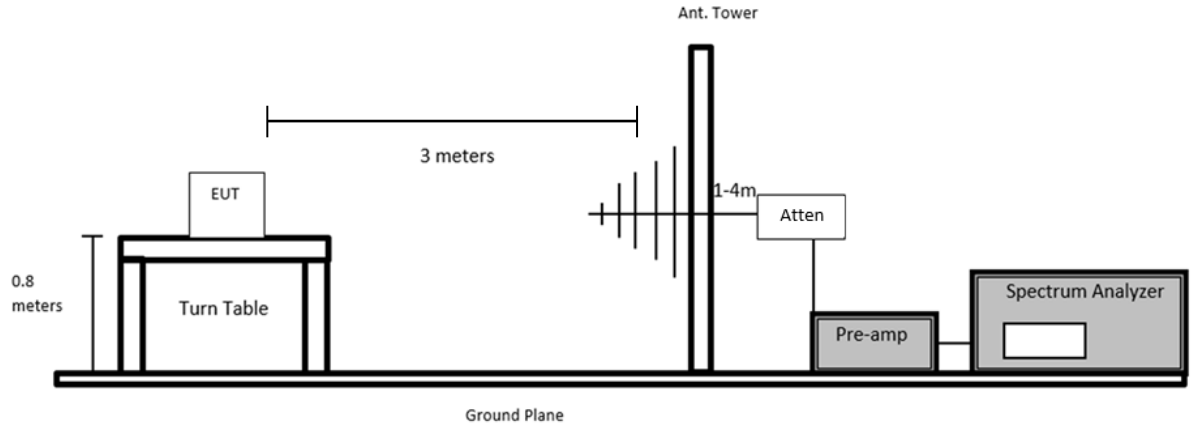
Margin = Corrected Amplitude – Limit

6.5 Test Setup Block Diagram

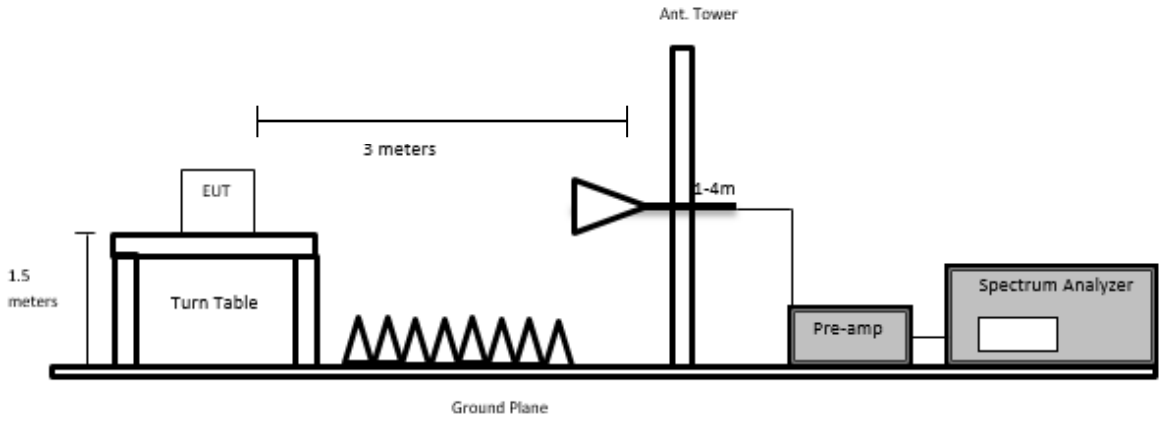
9 kHz to 30 MHz



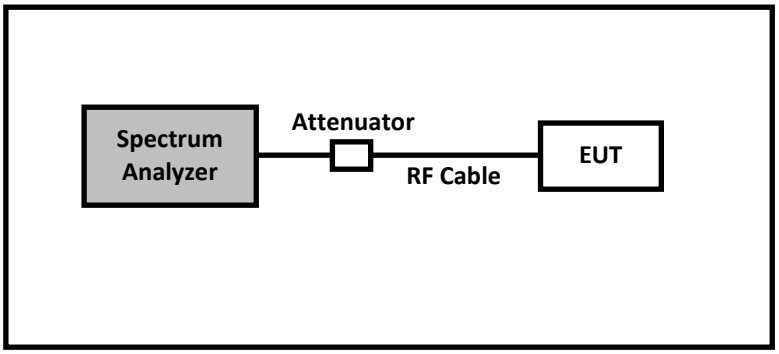
30 MHz to 1 GHz



Above 1 GHz



Conducted Setup



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 Receiver, Multi-touch	N9038B	MY60180008	2026-01-22	1 year
316	Sonoma Instruments	Preamplifier 10 kHz - 2.5 GHz	317	260406	2026-05-13	6 months
321	Sunol Sciences	Biconilog Antenna 30MHz-1GHz	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 9KHz-1GHz	11867A	01734	2026-03-05	6 months
1626	Global Engineering Services Corp	N-type 15m coax cable	XH500A-N/J-N/J-15M-A	BACL01626A	2026-04-24	6 months
1248	Pasternack	RG214 COAX Cable 9 kHz - 1 GHz	PE3062	NA	2026-04-06	6 months
1628	Global Engineering Services Corp	2.92mm 10m coax cable	XH400A-2.92/J-2.92/J-10M-A	BACL01628A	2026-04-24	6 months
1192	ETS Lindgren	Horn Antenna 1-18GHz	3117	00218973	2024-10-23	2 years
1449	BACL	Preamplifier 100MHz-18GHz	BACL1313-A100M18G	4052472	2026-02-17	6 months
90	Wisewave	Horn Antenna 18-26.5GHz	ARH-4223-02	10555-01	2025-05-06	2 years
393	Com-Power	Loop Antenna, Active	AL-130	17043	2025-05-06	2 years
1451	BACL	Preamplifier 18-40GHz	BACL-1313-A1840	4052432	2026-02-17	6 months
1545	Megaphase	K-type coax cable	TM40-K1K3-12	20869601 001	2026-02-17	6 months
1546	Megaphase	SMA coax cable	TM26-S1S3-12	20869602 001	2026-02-27	6 months
1334	Micro-Tronics	Notch Filter 2.4GHz	BRM50702	G361	2025-12-17	1 year
912	Rhode & Schwarz	Signal Analyzer	FSV40	1321.3008k39-101203-UW	2025-08-04	1 year
1590	Hasco Components	K-type 36in RF cable	HULL140A-29P-29P-36	2016/20-1620	2026-04-06	6 months
1541	Pasternack	Attenuator, SMA	PE7395-10	BACL01541A	2026-01-27	1 year

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

6.7 Test Environmental Conditions

Temperature:	21.5 to 21.7 ºC
Relative Humidity:	55 to 58 %
ATM Pressure:	102.9 kPa

The radiated testing was performed by Michael Papa from 2026-06-08 to 2026-06-17 in 5m chamber 3.
The conducted testing was performed by Michael Papa from 2026-06-04 to 2026-06-05 at RF test site.

6.8 Summary of Test Results

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

Worst Case – Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Configuration**
-1.67	16151.25	Vertical	High Channel, 2480MHz

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

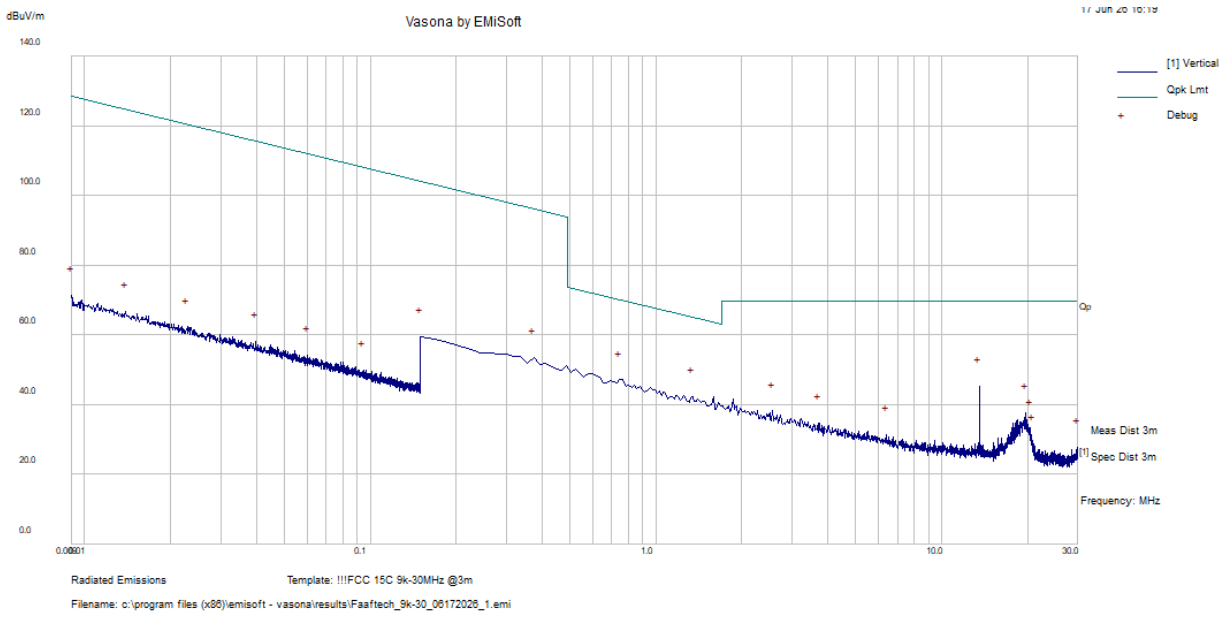
6.9 Radiated Emissions Test Results

Note 1: The test data presented below are the radiated emissions.
For conducted Band Edge measurements performed at the antenna port, 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, Measured at 3 meters

Note: Testing was performed only on the worst-case configuration (low channel, 2402MHz), as determined by conducted power measurements.

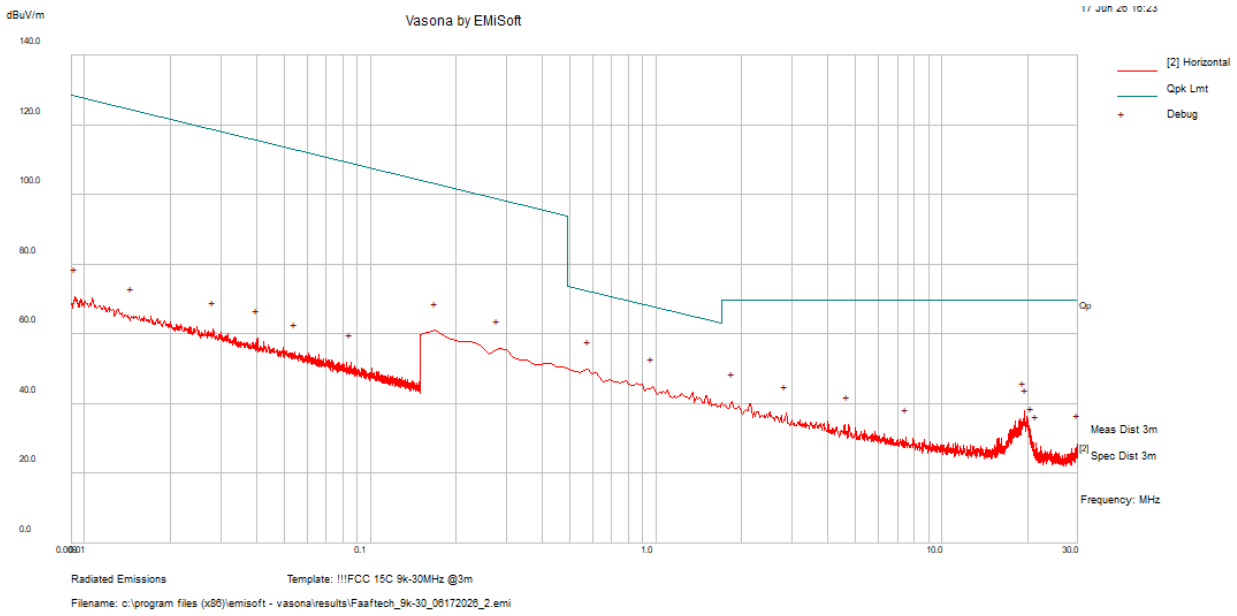
Low Channel, 2402MHz, Perpendicular



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1.344	32.11	10.12	42.23	65.04	-22.81	Peak
0.747	37.05	10.06	47.11	70.14	-23.03	Peak
13.56384	34.92	10.46	45.38	69.54	-24.16	Peak
2.556656	27.82	10.34	38.16	69.54	-31.39	Peak
19.68309	27.99	9.65	37.64	69.54	-31.9	Peak
3.713344	24.34	10.33	34.67	69.54	-34.87	Peak

Note: The plot above shows that all peak emissions below 30 MHz passed the QP limits.

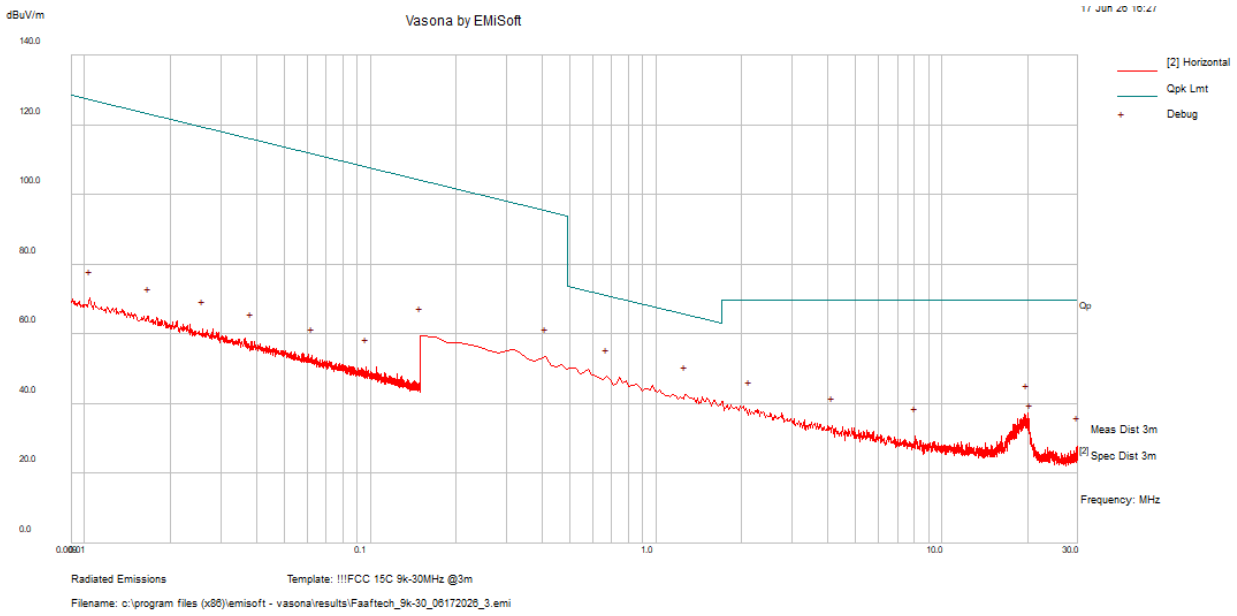
Low Channel, 2402MHz, Parallel



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
0.579094	39.71	10.11	49.82	72.35	-22.53	Peak
0.970875	34.98	9.99	44.97	67.86	-22.89	Peak
1.847719	30.49	10.26	40.75	69.54	-28.79	Peak
19.45922	28.3	9.72	38.02	69.54	-31.52	Peak
2.855156	26.81	10.36	37.17	69.54	-32.38	Peak
19.83234	26.61	9.62	36.23	69.54	-33.31	Peak

Note: The plot above shows that all peak emissions below 30 MHz passed the QP limits.

Low Channel, 2402MHz, Ground Parallel

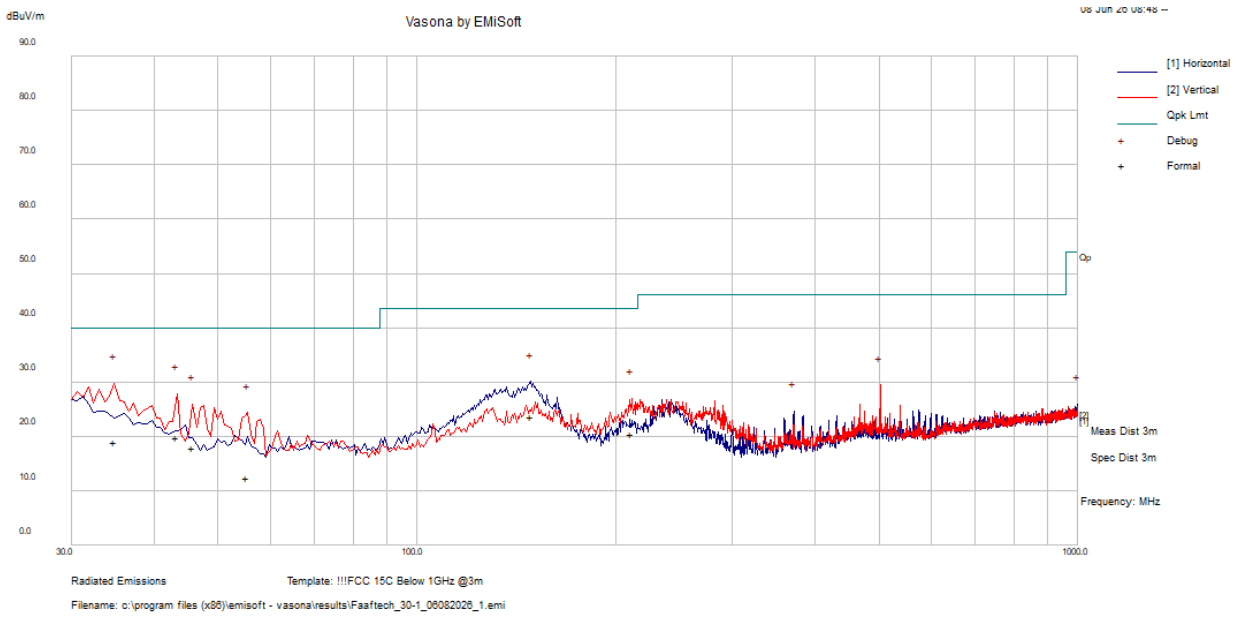


Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1.269375	32.54	10.09	42.63	65.53	-22.9	Peak
0.672375	37.71	10.08	47.79	71.05	-23.26	Peak
2.127563	27.95	10.3	38.25	69.54	-31.29	Peak
20.00025	27.81	9.57	37.38	69.54	-32.16	Peak
4.161094	23.36	10.3	33.66	69.54	-35.88	Peak
20.42934	22.26	9.41	31.67	69.54	-37.87	Peak

Note: The plot above shows that all peak emissions below 30 MHz passed the QP limits.

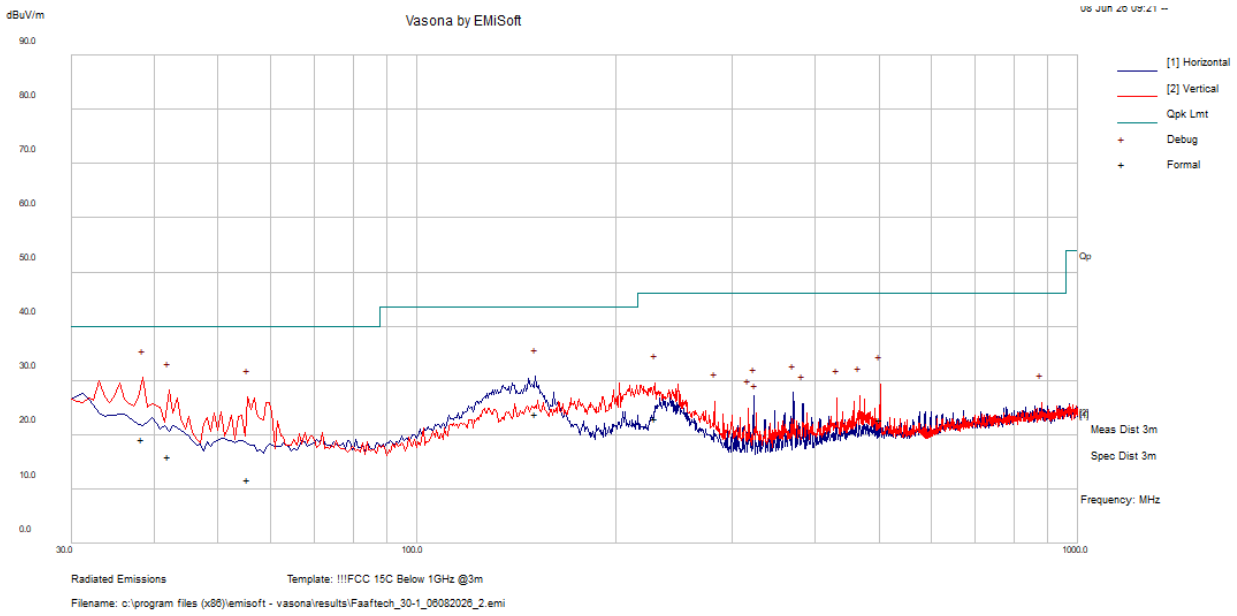
2) 30 MHz – 1 GHz, Measured at 3 meters

Low Channel, 2402MHz



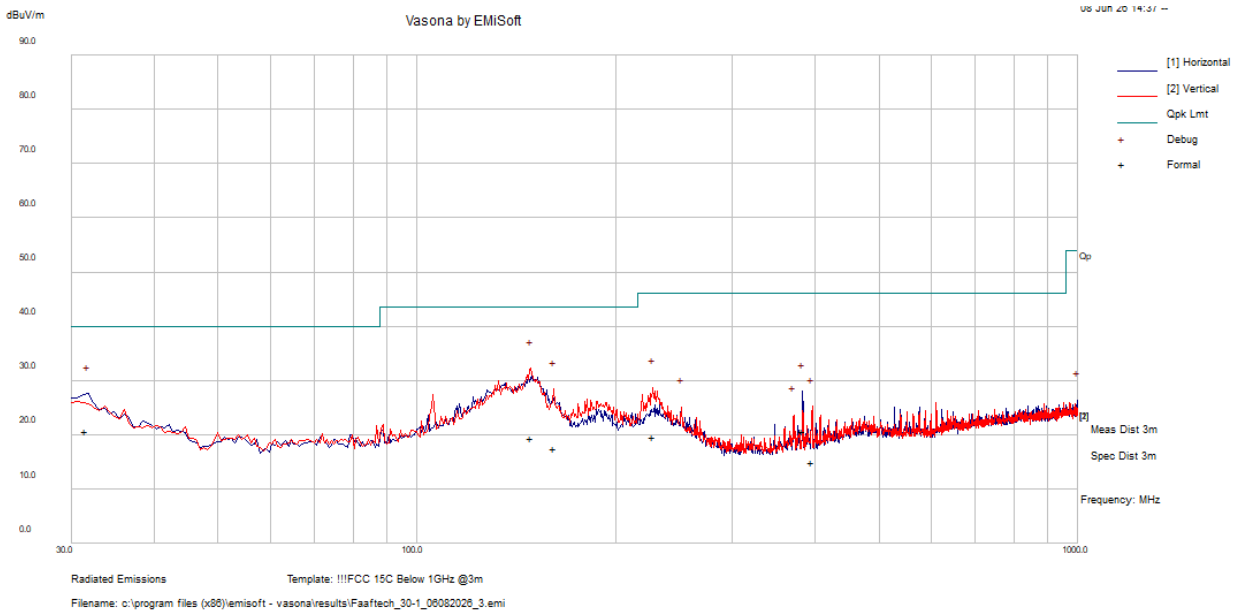
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
34.9025	33.95	-14.96	18.99	245	V	137	40	-21.01	QP
43.2925	41.1	-21.25	19.85	120	V	227	40	-20.15	QP
148.9941	43.71	-20.09	23.62	213	H	278	43.5	-19.88	QP
45.71781	40.72	-22.82	17.9	101	V	198	40	-22.1	QP
55.28438	37.68	-25.3	12.38	155	V	83	40	-27.62	QP
211.0991	42.92	-22.58	20.34	165	V	152	43.5	-23.16	QP

Middle Channel, 2440MHz



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
38.40938	36.67	-17.6	19.07	129	V	225	40	-20.93	QP
42.15656	36.35	-20.43	15.92	110	V	98	40	-24.09	QP
151.3078	44.09	-20.23	23.86	186	H	275	43.5	-19.64	QP
55.57313	36.92	-25.29	11.63	280	V	332	40	-28.37	QP
229.545	45.03	-22.01	23.02	130	V	146	46	-22.98	QP
502.2547	38.5	-15.66	22.84	110	V	169	46	-23.16	QP

High Channel, 2480MHz



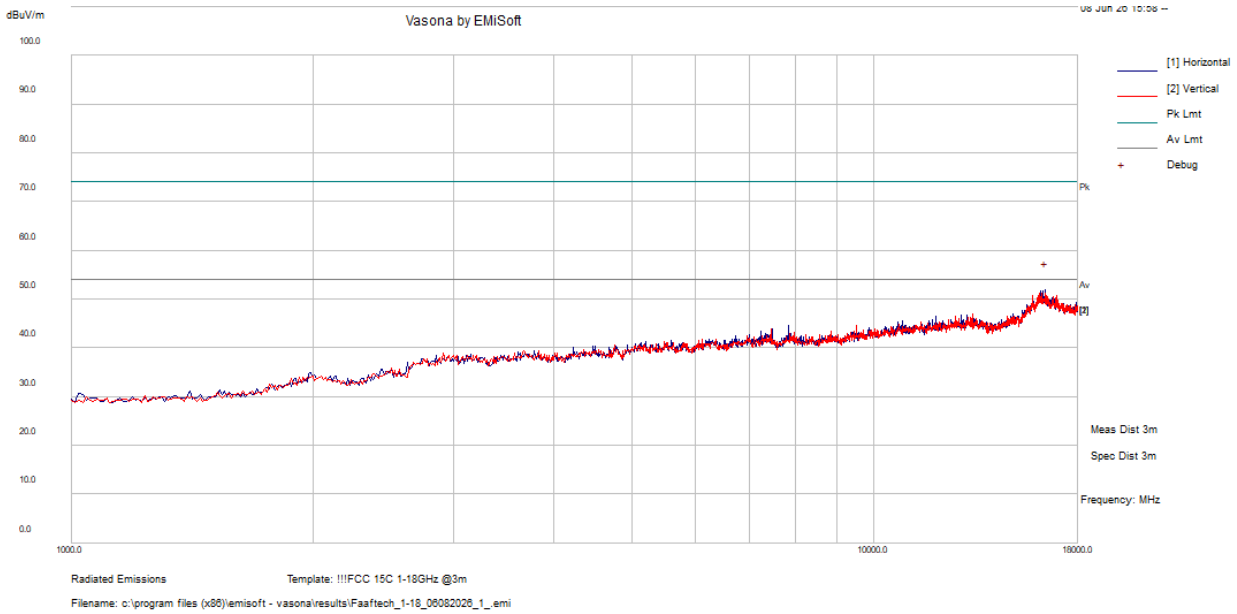
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector
148.7066	39.35	-20.07	19.28	239	V	207	43.5	-24.22	QP
31.57438	32.95	-12.34	20.61	250	H	245	40	-19.39	QP
160.9634	38.04	-20.62	17.42	127	V	317	43.5	-26.08	QP
227.4394	41.63	-22.1	19.53	110	V	230	46	-26.47	QP
383.5531	39.11	-18.38	20.73	100	H	310	46	-25.27	QP
396.2797	33.02	-18.16	14.86	104	V	304	46	-31.14	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
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:
dBuV/m = 20*log(V/m) + 120 = 20*log((500 [uV/m]/1000000)) + 120 = 54 [dBuV/m]

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

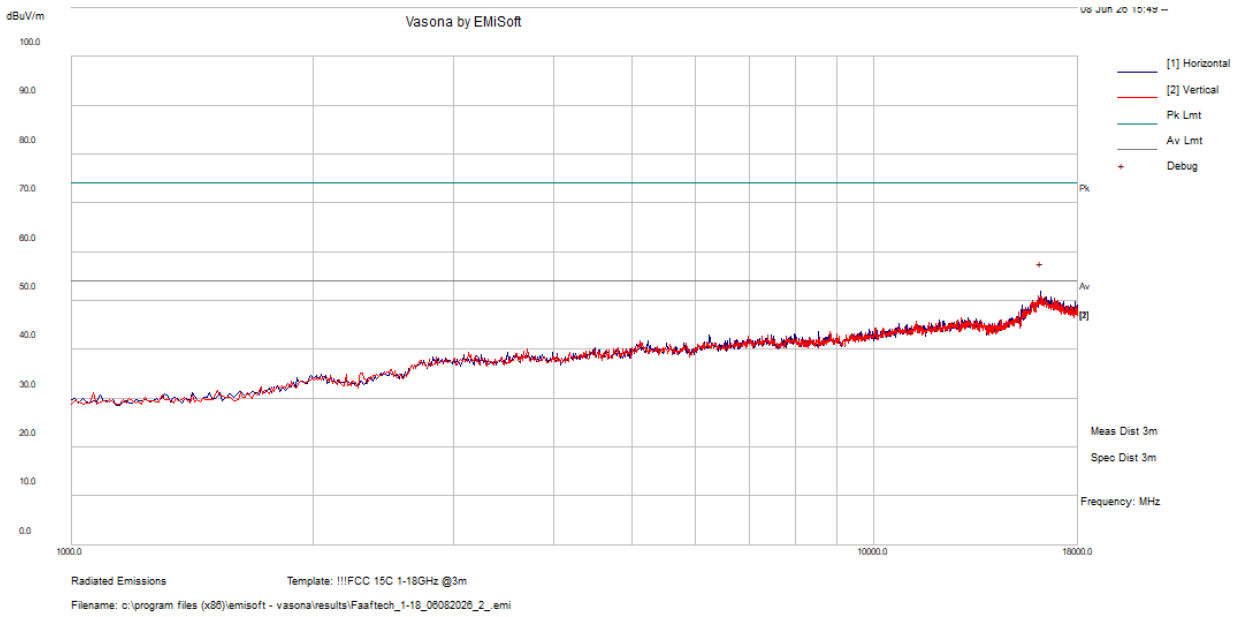
Low Channel, 2402MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Polarity (H/V)	Limit (dBµV/m)	Margin (dB)	Detector
16406.25	31.95	19.84	51.79	H	54	-2.21	Peak

Note: The plot above shows that all peak emissions below 18GHz passed the average limits.

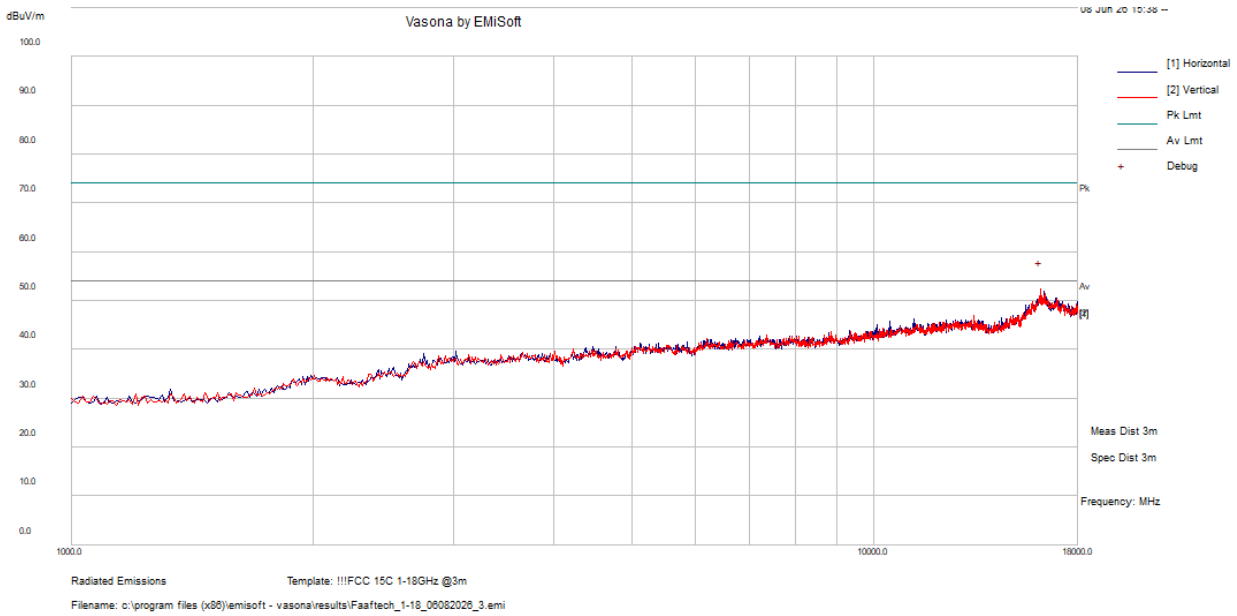
Middle Channel, 2440MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Polarity (H/V)	Limit (dBµV/m)	Margin (dB)	Detector
16193.75	31.75	20.16	51.91	H	54	-2.09	Peak

Note: The plot above shows that all peak emissions below 18GHz passed the average limits.

High Channel, 2480MHz



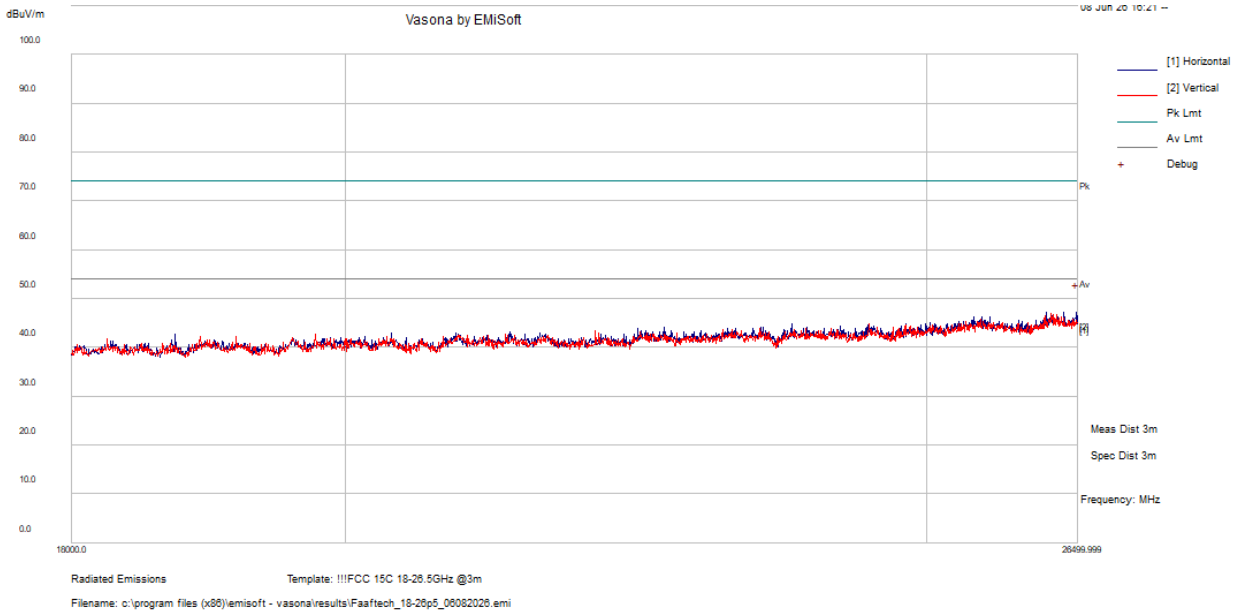
Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Polarity (H/V)	Limit (dBµV/m)	Margin (dB)	Detector
16151.25	32.23	20.10	52.33	V	54	-1.67	Peak

Note: The plot above shows that all peak emissions below 18GHz passed the average limits.

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

Note: Testing was performed only on the worst-case configuration (low channel, 2402MHz), as determined by conducted power measurements.

Low Channel, 2402MHz



Frequency (MHz)	S.A. Reading (dBuV)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Polarity (H/V)	Limit (dBµV/m)	Margin (dB)	Detector
26489.37	38.6	8.68	47.28	H	54	-6.72	Peak

Note: The plot above shows that all peak emissions from 18-26.5GHz passed the average limits.

7 FCC §15.247(a) (2) – Emission Bandwidth

7.1 Applicable Standards

According to FCC §15.247(a) (2): 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:

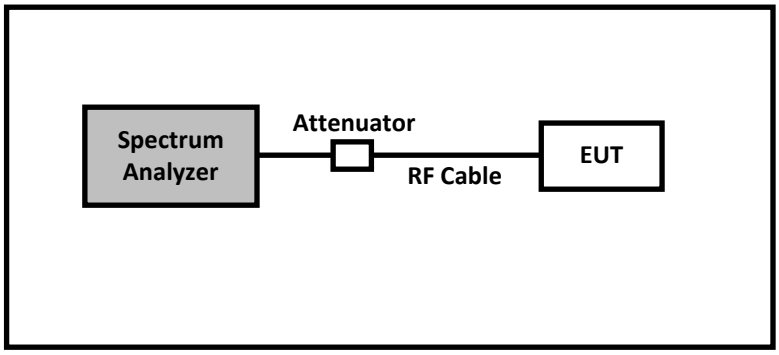
a. The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
b. The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately 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 (OBW/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.

a. Set RBW = 100 kHz.
b. Set the VBW ≥ [3 × RBW].
c. Detector = peak.
d. Trace mode = max hold.
e. Sweep = auto couple.
f. Allow the trace to stabilize.
g. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

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
912	Rhode & Schwarz	Signal Analyzer	FSV40	1321.3008k39-101203-UW	2025-08-04	1 year
1590	Hasco Components	K-type 36in RF cable	HULL140A-29P-29P-36	2016/20-1620	2026-04-06	6 months
1541	Pasternack	Attenuator, SMA	PE7395-10	BACL01541A	2026-01-27	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:	24 ºC
Relative Humidity:	48 %
ATM Pressure:	102.0 kPa

The testing was performed by Michael Papa from 2026-06-04 to 2026-06-05 at RF test site.

7.6 Test Results

Channel	Frequency (MHz)	99% OBW (MHz)	6 dB OBW (kHz)	6 dB OBW Limit (kHz)	Result
Low	2402	1.052	688	≥ 500	Pass
Middle	2440	1.052	672	≥ 500	Pass
High	2480	1.056	676	≥ 500	Pass

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

8 FCC §15.247(b)(3) – 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.

8.2 Measurement Procedure

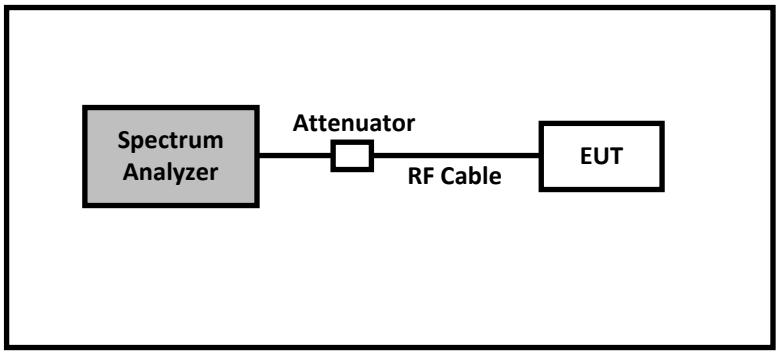
The measurements are based on ANSI C63.10, Section 11.9.2.2.2.

11.9.1.1 RBW ≥ DTS bandwidth

The following procedure shall be used when an instrument with a resolution bandwidth that is greater than the DTS bandwidth is available to perform the measurement:

a. Set the RBW ≥ DTS bandwidth.
b. Set VBW ≥ [3 × RBW].
c. Set span ≥ [3 × 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
912	Rhode & Schwarz	Signal Analyzer	FSV40	1321.3008k39-101203-UW	2025-08-04	1 year
1590	Hasco Components	K-type 36in RF cable	HULL140A-29P-29P-36	2016/20-1620	2026-04-06	6 months
1541	Pasternack	Attenuator, SMA	PE7395-10	BACL01541A	2026-01-27	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:	24 ºC
Relative Humidity:	48 %
ATM Pressure:	102.0 kPa

The testing was performed by Michael Papa from 2026-06-04 at RF test site.

8.6 Test Results

Channel	Frequency (MHz)	Antenna Gain (dBi)	Conducted Output Power (dBm)	Conducted Output Power Limit (dBm)	Result
Low	2402	1.04	-4.66	< 30	Pass
Middle	2440	1.04	-5.52	< 30	Pass
High	2480	1.04	-6.35	< 30	Pass

*Note: Conducted Output Power Limit [dBm] = 10*log(Power[mW]/1mW) = 10*log(1000mW/1mW) = 30 dBm*

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

9 FCC §15.247(e) – Peak Power Spectral Density

9.1 Applicable Standards

According to ECFR §15.247(e): the transmitter power spectral density conducted from the transmitter to the antenna(s) shall not be greater than 8 dBm/3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of section 6.3.2 The power spectral density shall be determined using the same method as is used to determine the maximum conducted output power.

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.

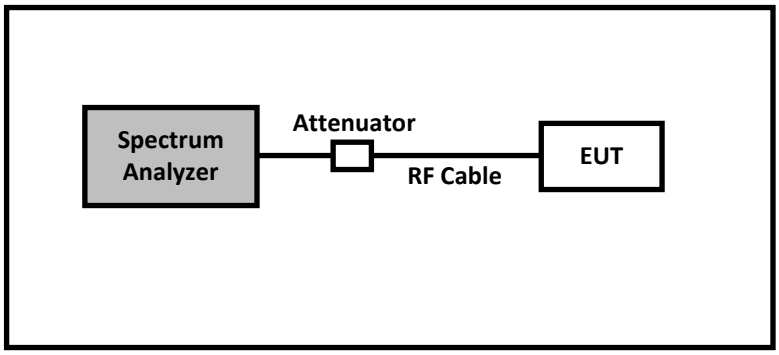
As per ANSI C63.10 Clause 11.10: Maximum power spectral density level in the fundamental emission

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 kHz ≤ RBW ≤ 100 kHz.
d. Set the VBW ≥ [3 × 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
912	Rhode & Schwarz	Signal Analyzer	FSV40	1321.3008k39-101203-UW	2025-08-04	1 year
1590	Hasco Components	K-type 36in RF cable	HULL140A-29P-29P-36	2016/20-1620	2026-04-06	6 months
1541	Pasternack	Attenuator, SMA	PE7395-10	BACL01541A	2026-01-27	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:	24 ºC
Relative Humidity:	48 %
ATM Pressure:	102.0 kPa

The testing was performed by Michael Papa from 2026-06-04 at RF test site.

9.6 Test Results

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
Low	2402	-20.98	< 8	Pass
Middle	2440	-21.35	< 8	Pass
High	2480	-22.32	< 8	Pass

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

10 FCC §15.247(d) – 100 kHz Spurious Emissions and Band Edges at Antenna Terminal (dBc)

10.1 Applicable Standards

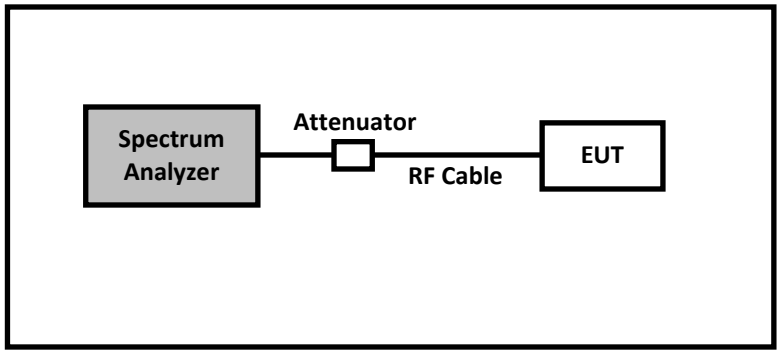
According to FCC §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains 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).

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
912	Rhode & Schwarz	Signal Analyzer	FSV40	1321.3008k39-101203-UW	2025-08-04	1 year
1590	Hasco Components	K-type 36in RF cable	HULL140A-29P-29P-36	2016/20-1620	2026-04-06	6 months
1541	Pasternack	Attenuator, SMA	PE7395-10	BACL01541A	2026-01-27	1 year

Note[1]: cables, attenuators and notch filters included in the test set-up were checked each time before testing.

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:	24 ºC
Relative Humidity:	48 %
ATM Pressure:	102.0 kPa

The testing was performed by Michael Papa from 2026-06-04 at RF test site.

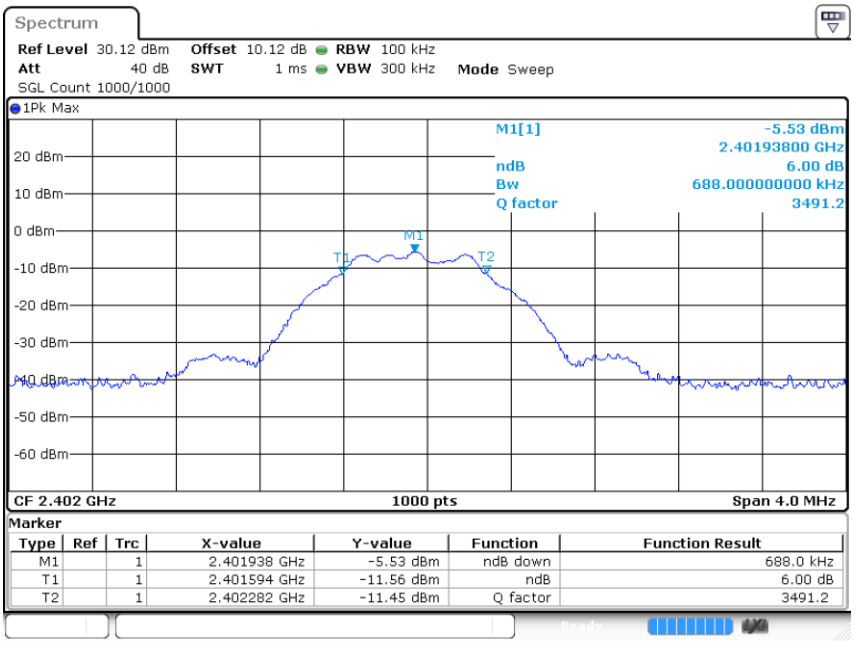
10.6 Test Results

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

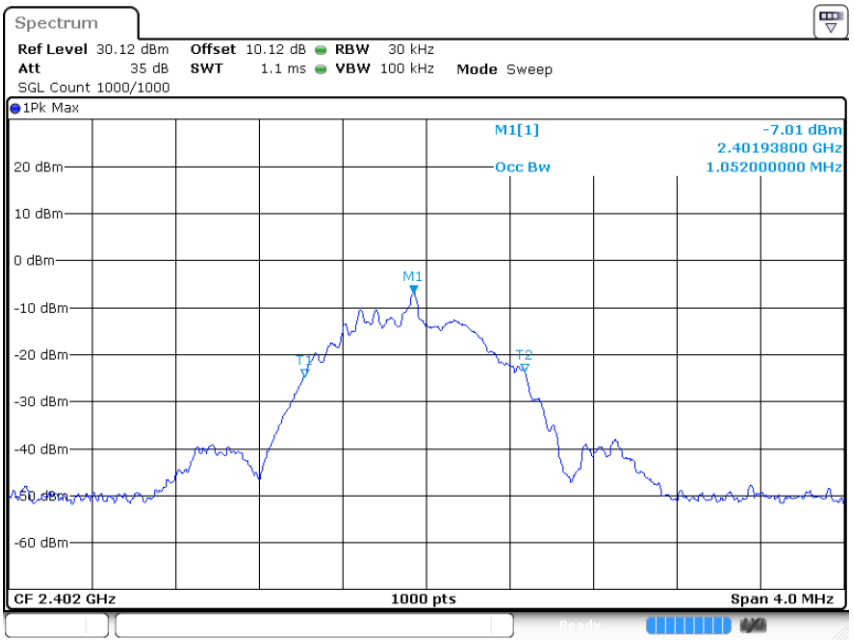
Low Channel, 2402MHz, 6dB OBW



Project Number: R2605183; Tester Name: Michael Papa

Date: 4.JUN.2026 15:45:25

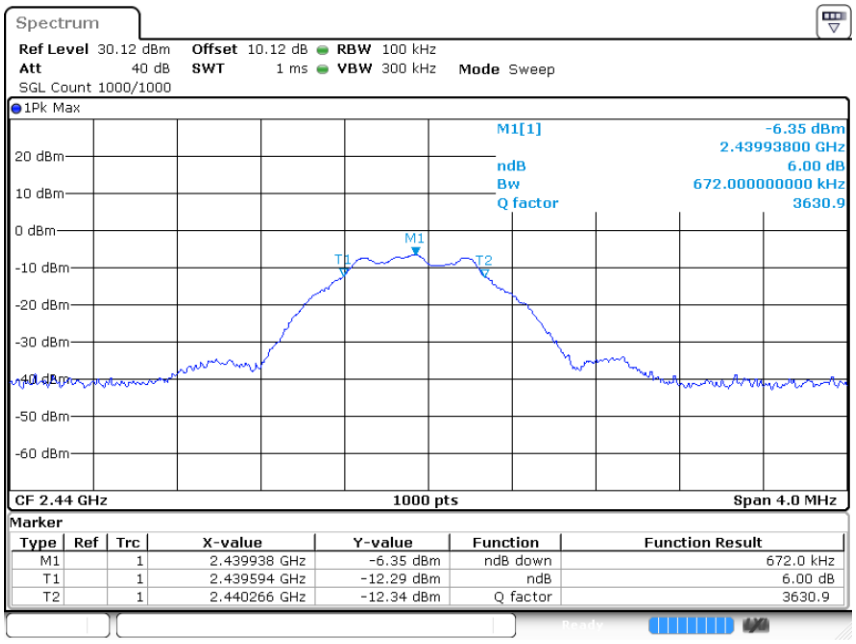
Low Channel, 2402MHz, 99% OBW



Project Number: R2605183; Tester Name: Michael Papa

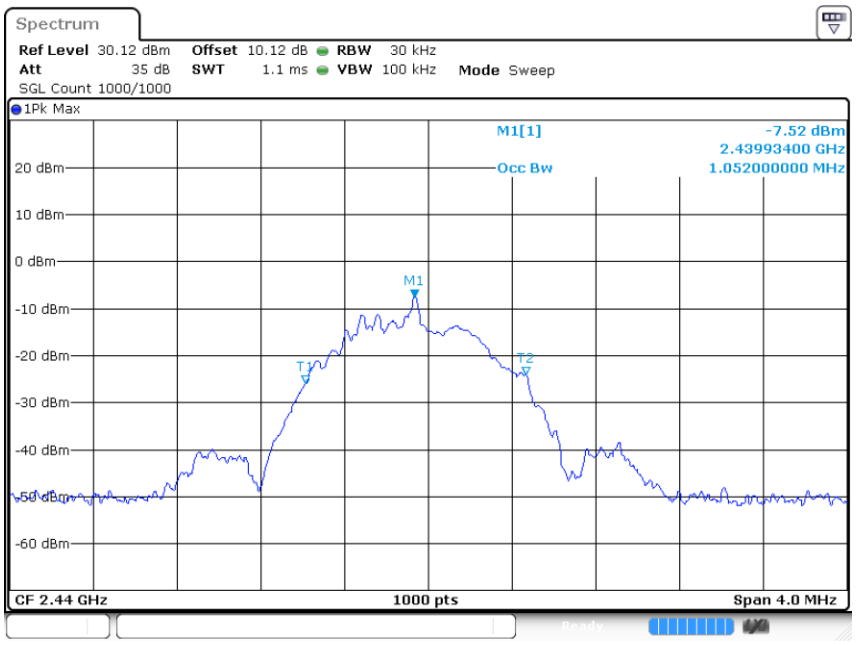
Date: 4.JUN.2026 15:45:57

Middle Channel, 2440MHz, 6dB OBW



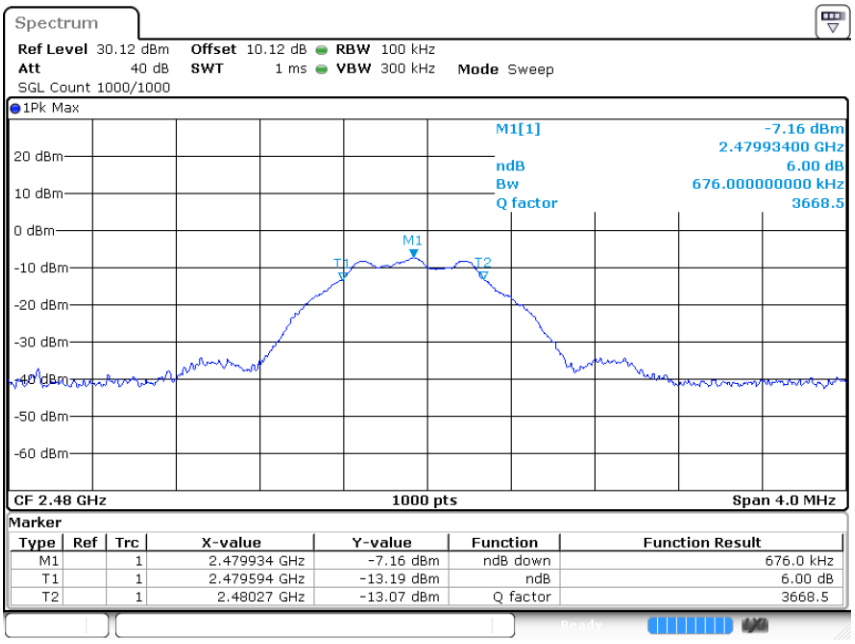
Project Number: R2605183; Tester Name: Michael Papa
Date: 4.JUN.2026 15:39:30

Middle Channel, 2440MHz, 99% OBW



Project Number: R2605183; Tester Name: Michael Papa
Date: 4.JUN.2026 15:40:03

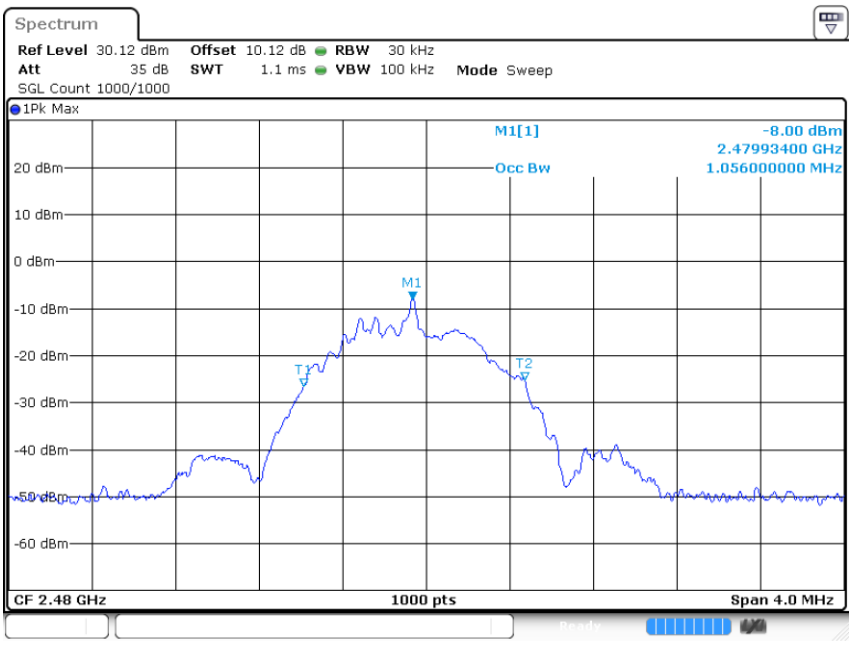
High Channel, 2480MHz, 6dB OBW



Project Number: R2605183; Tester Name: Michael Papa

Date: 5.JUN.2026 15:18:18

High Channel, 2480MHz, 99% OBW

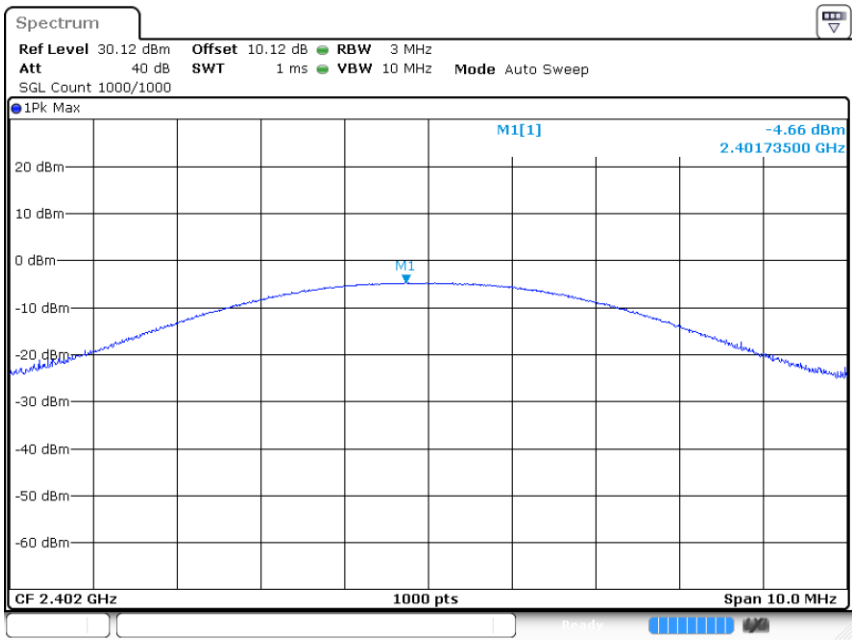


Project Number: R2605183; Tester Name: Michael Papa

Date: 5.JUN.2026 15:18:51

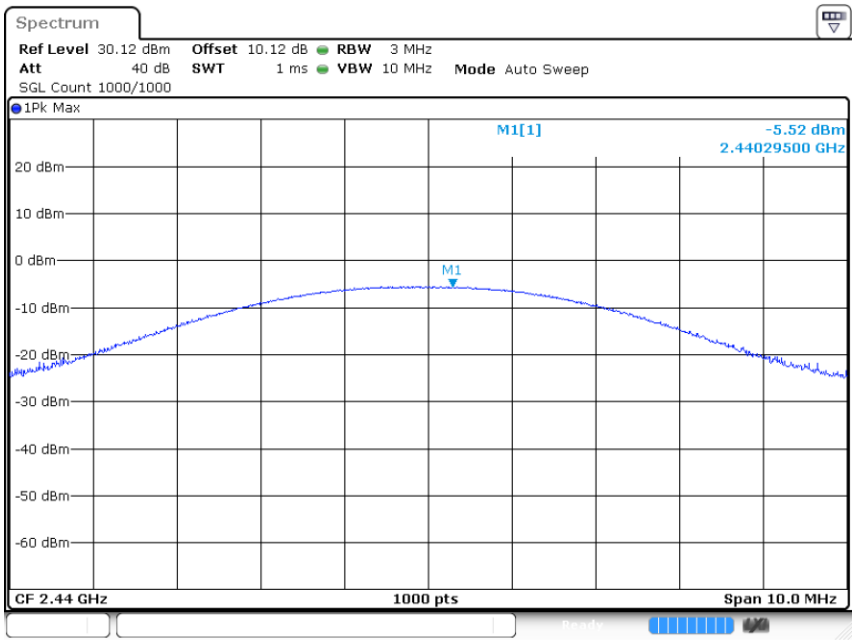
12 Annex B – Maximum Output Power

Low Channel, 2402MHz



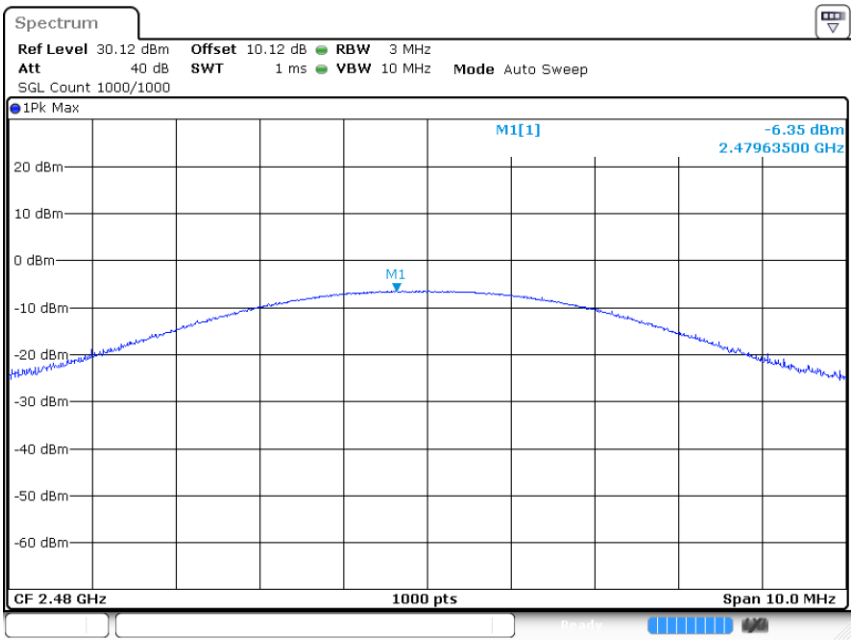
Project Number: R2605183; Tester Name: Michael Papa
Date: 4.JUN.2026 15:46:30

Middle Channel, 2440MHz



Project Number: R2605183; Tester Name: Michael Papa
Date: 4.JUN.2026 15:40:36

High Channel, 2480MHz

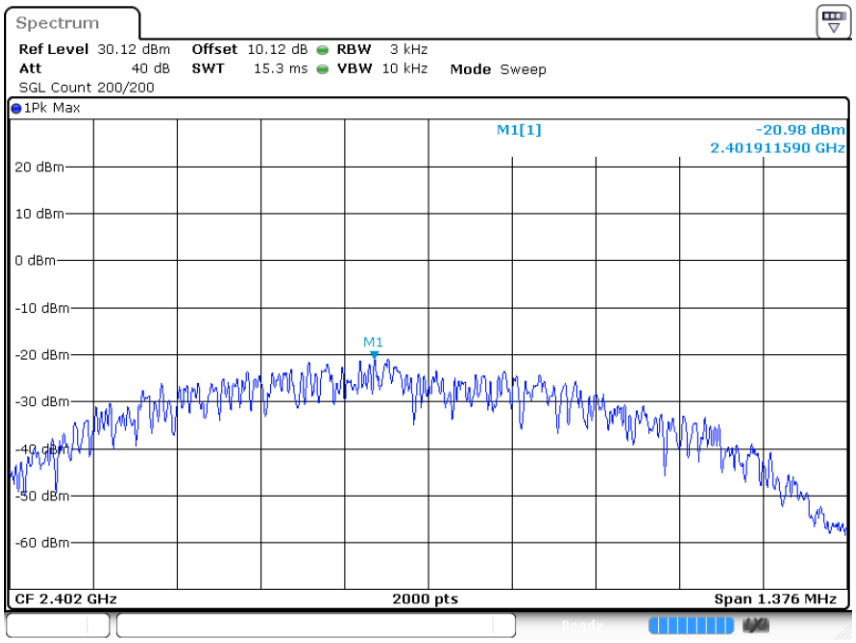


Project Number: R2605183; Tester Name: Michael Papa

Date: 4.JUN.2026 15:54:53

13 Annex C – Peak Power Spectral Density

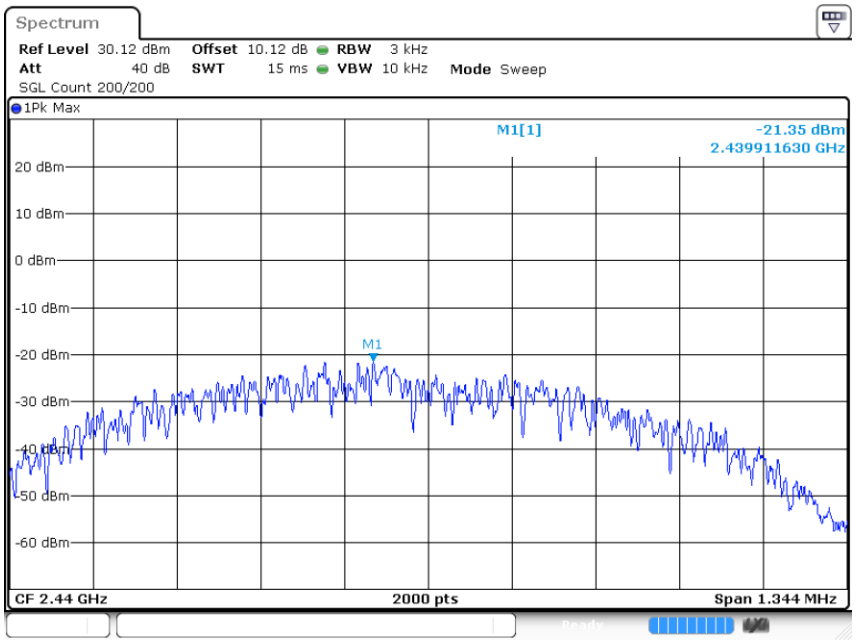
Low Channel, 2402MHz



Project Number: R2605183; Tester Name: Michael Papa

Date: 4.JUN.2026 15:47:09

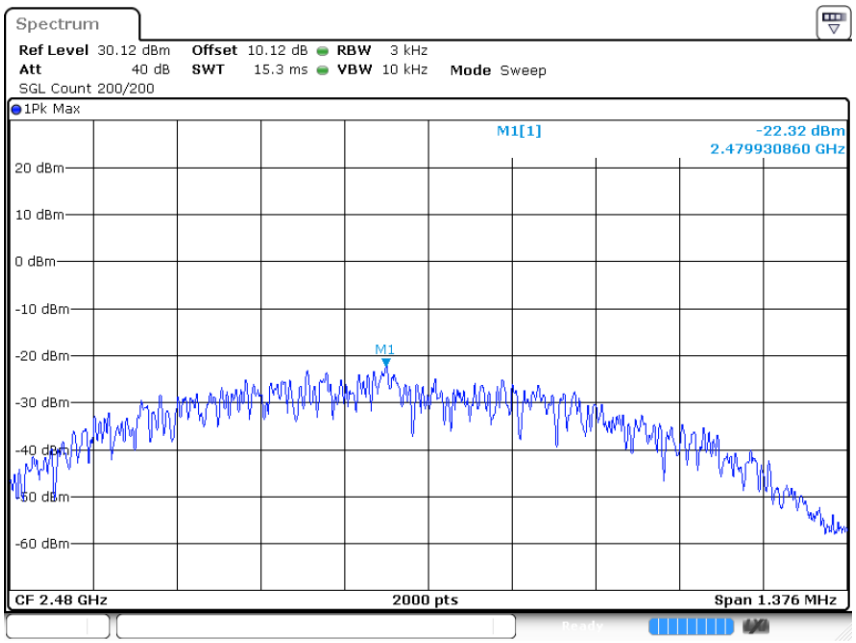
Middle Channel, 2440MHz



Project Number: R2605183; Tester Name: Michael Papa

Date: 4.JUN.2026 15:41:15

High Channel, 2480MHz

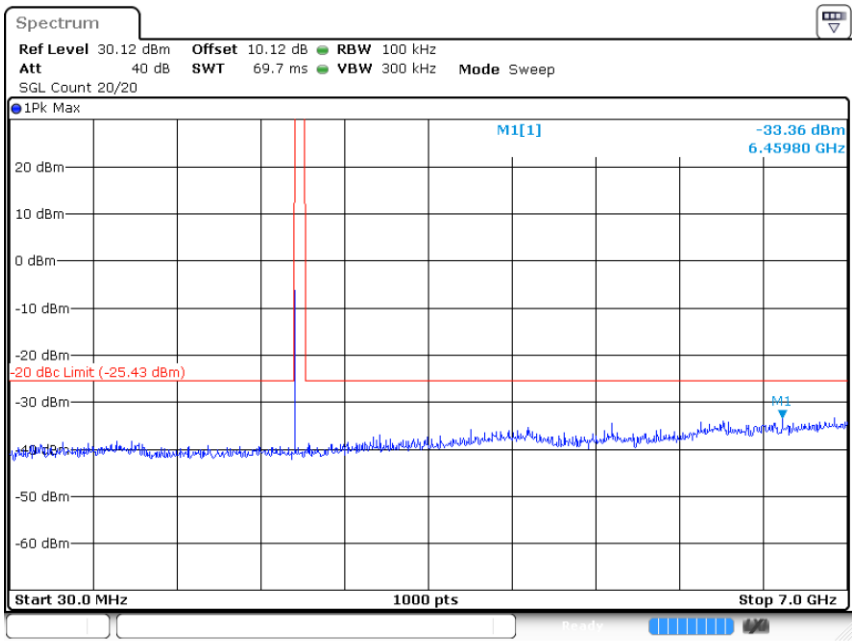


Project Number: R2605183; Tester Name: Michael Papa

Date: 4.JUN.2026 15:55:32

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

Low Channel, 2402MHz, 30MHz-7GHz



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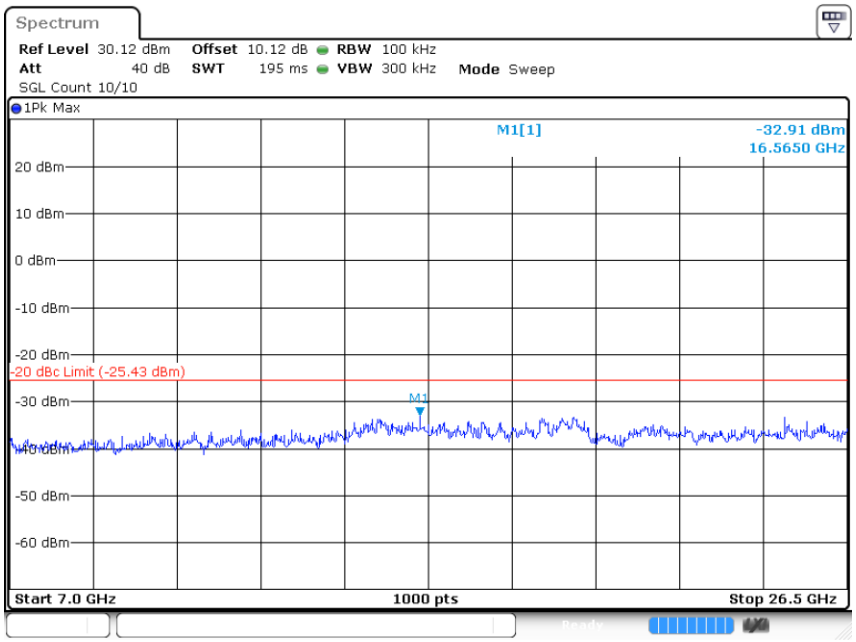
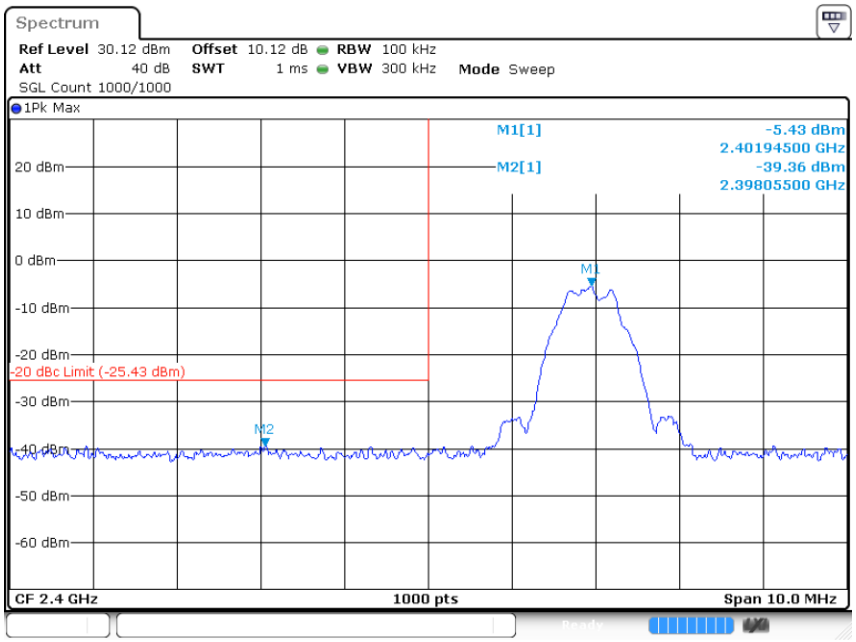
Low Channel, 2402MHz, 7GHz-26.5GHz



Project Number: R2605183; Tester Name: Michael Papa
Date: 4.JUN.2026 15:49:03

Low Channel, 2402MHz, Lower Band Edge



Project Number: R2605183; Tester Name: Michael Papa
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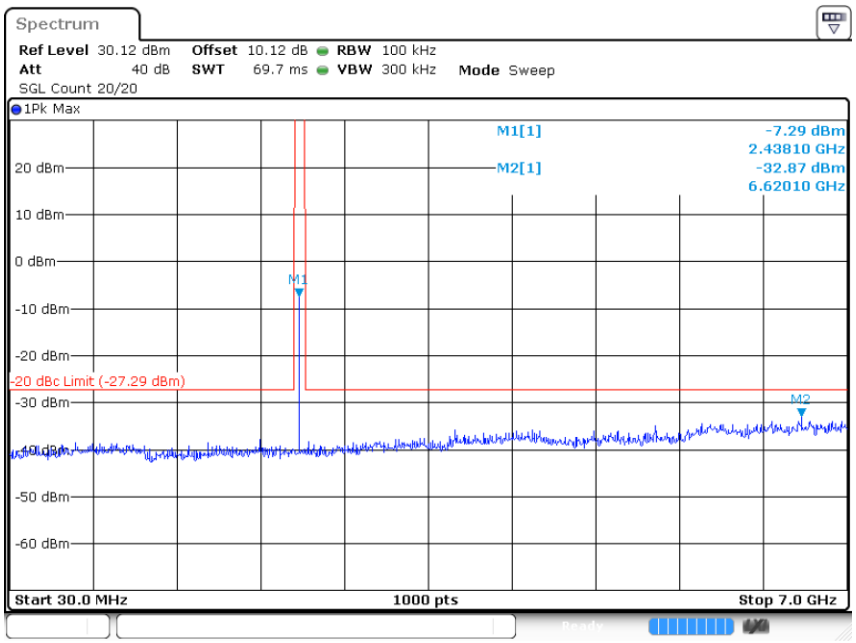
Middle Channel, 2440MHz, 30MHz-7GHz



Project Number: R2605183; Tester Name: Michael Papa
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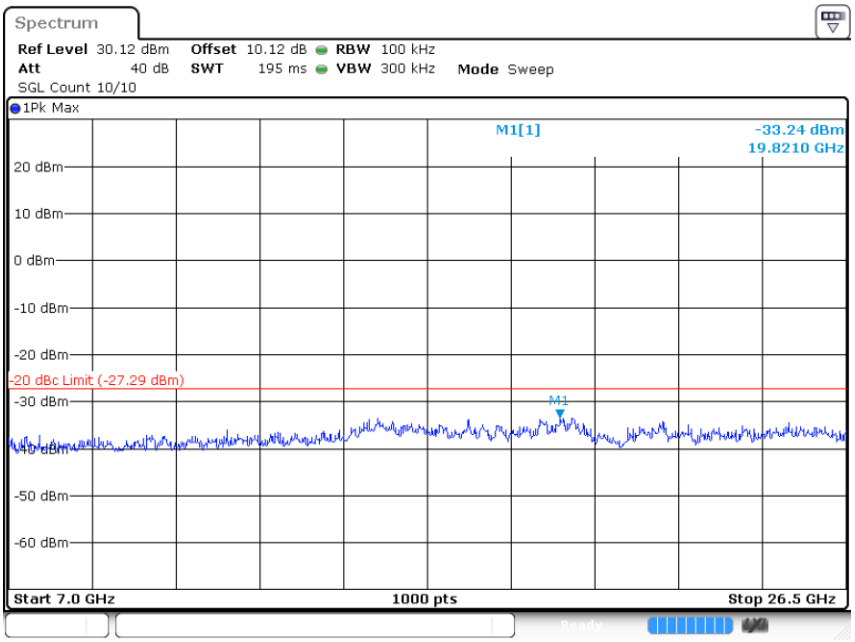
Middle Channel, 2440MHz, 7GHz-26.5GHz



Project Number: R2605183; Tester Name: Michael Papa
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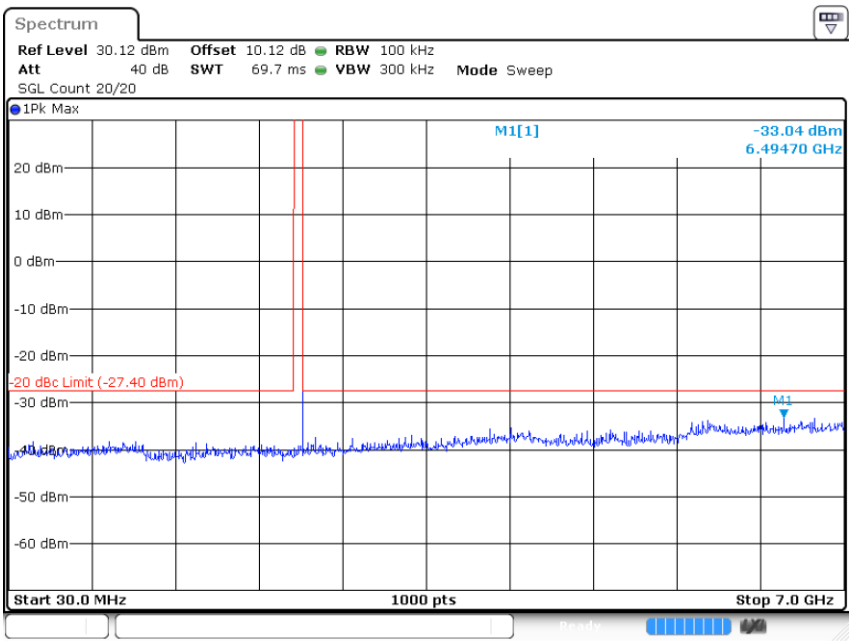
High Channel, 2480MHz, 30MHz-7GHz



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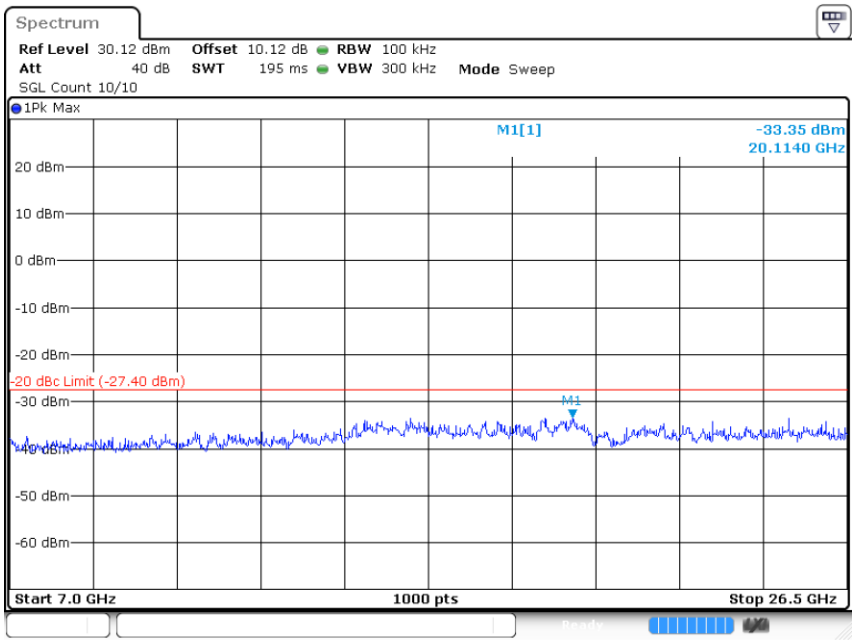
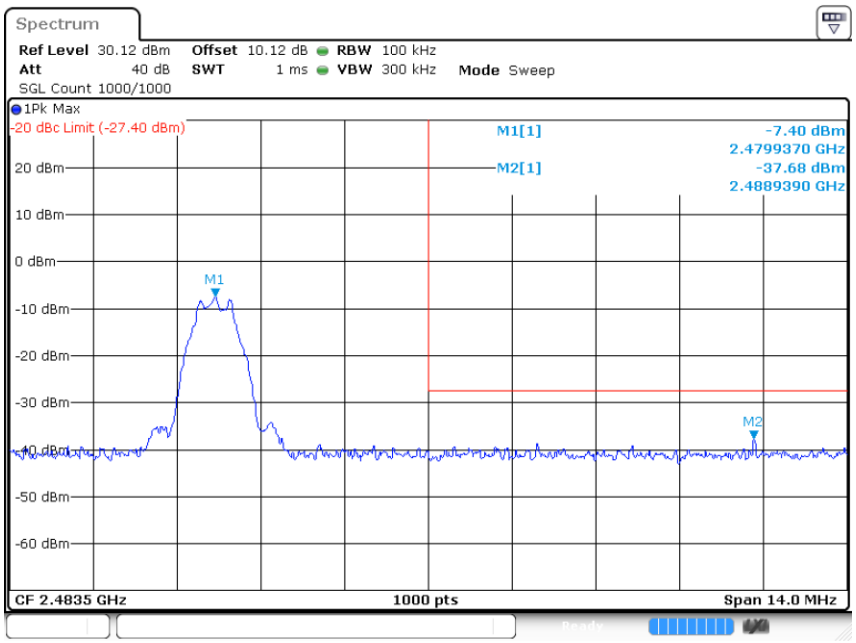
Date: 4.JUN.2026 15:56:46

High Channel, 2480MHz, 7GHz-26.5GHz



Project Number: R2605183; Tester Name: Michael Papa
Date: 4.JUN.2026 15:57:25

High Channel, 2480MHz, Upper Band Edge



Project Number: R2605183; Tester Name: Michael Papa
Date: 4.JUN.2026 15:56:10

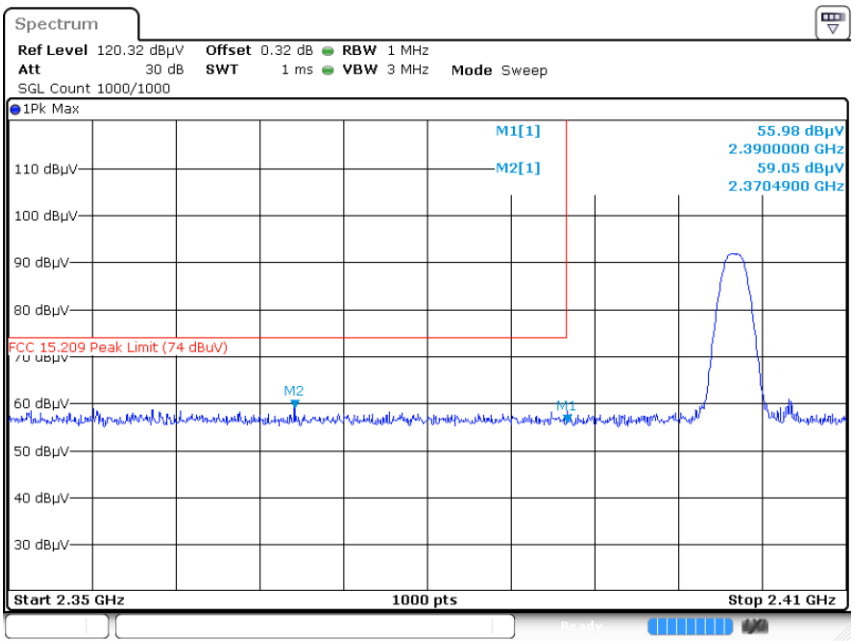
15 Annex E – FCC §15.209 Band Edges Measurement

Note: below measurements are in units of dBuV/m at 3meters. These measurements are performed conducted in lieu of radiated as permitted by ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024. The following formula was used in making such conversions:

> Above 1GHz: E[dBµV/m] = EIRP[dBm] - 20 log (d[m]) + 104.77, where E is field strength and d is distance at which the field strength limit is specified in the applicable requirements. E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 m. Straight conversion between E[dBuV] and EIRP[dBm] = 107. Thus offset for dBuV/m at 3meters is 95.2-107+antenna gain.

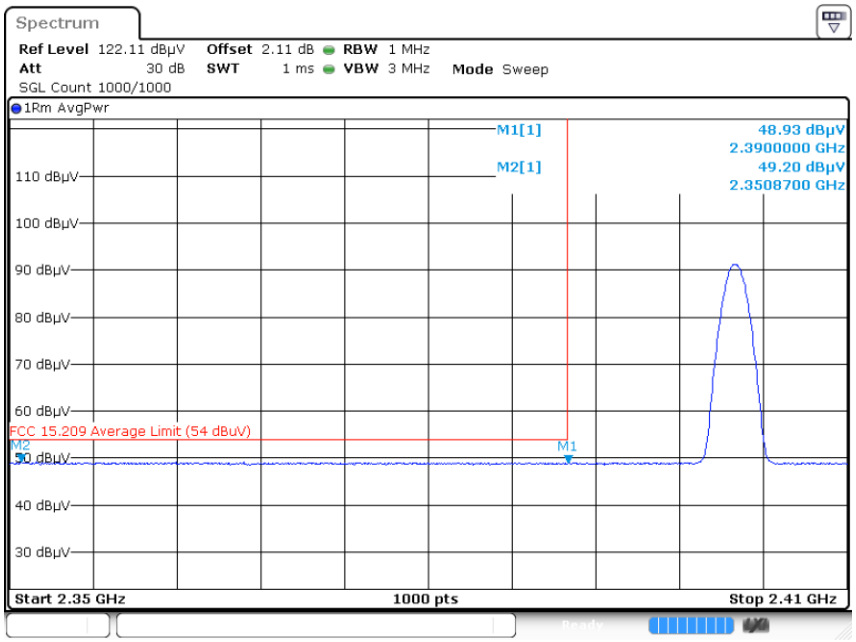
Note: additional factors added to offset to consider attenuator + cable loss.
Note: Duty Cycle Correction Factor is added to offset for average measurements.
Note: As per ANSI C63.10 Clause 11.12.2.6, a 2dBi antenna gain was used for the following measurements.

Low Channel, 2402MHz, Peak Lower Band Edge



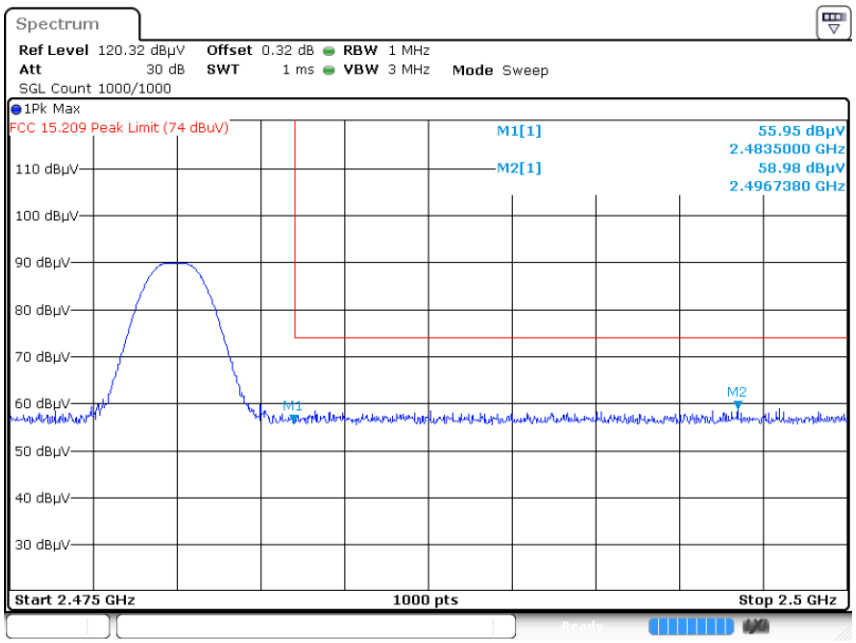
Project Number: R2605183; Tester Name: Michael Papa
Date: 5.JUN.2026 11:33:44

Low Channel, 2402MHz, Average Lower Band Edge



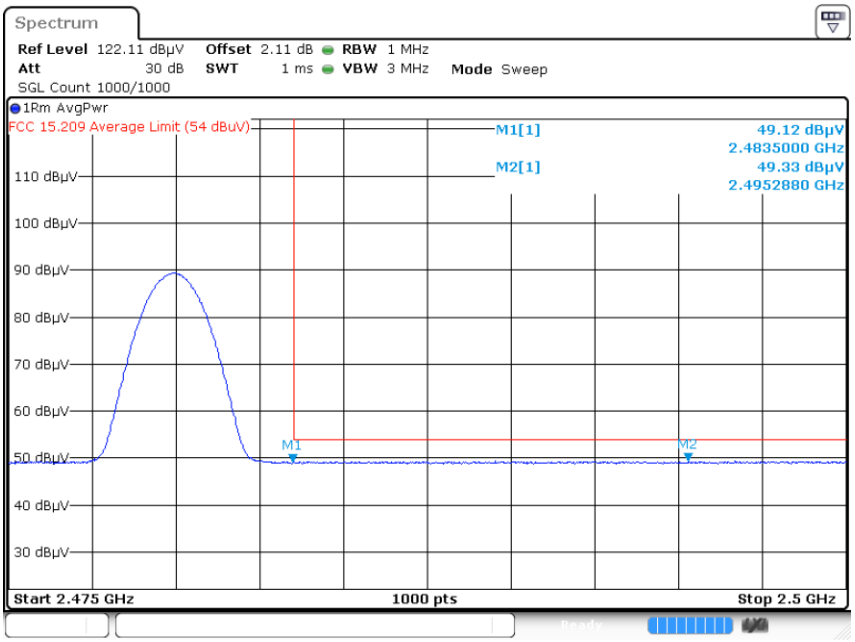
Project Number: R2605183; Tester Name: Michael Papa
Date: 5.JUN.2026 11:34:17

High Channel, 2480MHz, Peak Upper Band Edge



Project Number: R2605183; Tester Name: Michael Papa
Date: 5.JUN.2026 11:30:29

High Channel, 2480MHz, Average Upper Band Edge



Project Number: R2605183; Tester Name: Michael Papa

Date: 5.JUN.2026 11:31:02

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.

Mr. Trace McInturff, 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 ---