

TEST REPORT

Application No.: SUCR2511001074MO
FCC ID: XMR2025FGMC63N
Applicant: Quectel Wireless Solutions Co., Ltd.
Address of Applicant: No. 8 Waipojing Road, Sijing Town, Songjiang District, Shanghai 201601, China
Manufacturer: Quectel Wireless Solutions Co., Ltd.
Address of Manufacturer: No. 8 Waipojing Road, Sijing Town, Songjiang District, Shanghai 201601, China
Equipment Under Test (EUT):
EUT Name: WiFi & Bluetooth Module
Model No.: FGMC63N
Trade Mark: QUECTEL
Standard(s) : 47 CFR Part 15, Subpart C 15.247
Date of Receipt: 2025-11-04
Date of Test: 2025-12-24 to 2025-12-26
Date of Issue: 2025-12-30

Test Result:
Pass*

* In the configuration tested, the EUT complied with the standards specified above.

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Revision Record			
Version	Description	Date	Remark
00	Original	2025-12-30	/

Authorized for issue by:				
Tested By		Nature Shen		
		Nature Shen/Project Engineer		
Approved By		Cedar cheng		
		Cedar Cheng /Reviewer		

2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2020) Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Below 1GHz		ANSI C63.10 (2020) Section 6.4,6.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Above 1GHz		ANSI C63.10 (2020) Section 6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Conducted Peak Output Power		ANSI C63.10 (2020) Section 11.9.1	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Minimum 6dB Bandwidth		ANSI C63.10 (2020) Section 11.8.1	47 CFR Part 15, Subpart C 15.247a(2)	Pass
Power Spectrum Density		ANSI C63.10 (2020) Section 11.10.2	47 CFR Part 15, Subpart C 15.247(e)	Pass
Conducted Band Edges Measurement		ANSI C63.10 (2020) Section 6.10.4	47 CFR Part 15, Subpart C 15.247(d)	Pass
Conducted Spurious Emissions		ANSI C63.10 (2020) Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass

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4 General Information

4.1 Details of E.U.T.

Power supply:	3.3V
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.4
Modulation Type:	GFSK
Number of Channels:	40
Channel Spacing:	2MHz
Rates Type	1MHz/2MHz/125kHz/500kHz
Antenna Type:	Dipole Antenna
Antenna Gain:	0.2dBi (Provided by the manufacturer)
Antenna Number:	1
Note:Bluetooth LE 125k/500k/1Mbps uses the same modulation, and 1Mbps was found to be the worst case scenario which was performed full test and recorded in this test report.	

4.2 Environment Parameter

Environment Parameter	Selected Values During Tests	
Relative Humidity	Ambient	
Value	Temperature(°C)	Voltage(V)
NTNV	25	3.3
Note:		
NV:Normal Voltage	LV:Low Extreme Test Voltage	HV:High Extreme Test Voltage
NT:Normal Temperature	LT:Low Extreme Test Temperature	HT:High Extreme Test Temperature

4.3 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Computer	Lenovo	T14	2YK6GR

4.4 Measurement Uncertainty & Decision Rule

No.	Item	Measurement Uncertainty
1	Radio Frequency	$\pm 7.25 \times 10^{-8}$
2	Duty cycle	$\pm 0.37\%$
3	Occupied Bandwidth	$\pm 3\%$
4	Conduction emission	$\pm 3.0\text{dB}$ (150kHz to 30MHz)
5	RF conducted power	$\pm 0.75\text{dB}$
6	RF power density	$\pm 2.84\text{dB}$
7	Conducted Spurious emissions	$\pm 0.75\text{dB}$
8	RF Radiated power	$\pm 2.6\text{dB}$ (30MHz-1GHz)
		$\pm 2.7\text{dB}$ (1GHz-18GHz)
9	Temperature test	$\pm 1^\circ\text{C}$
10	Humidity test	$\pm 3\%$
11	Supply voltages	$\pm 1\%$
12	Time	$\pm 3\%$
Remark: The U_{lab} (lab Uncertainty) is less than $U_{\text{CISPR/ETSI}}$ (CISPR/ETSI Uncertainty), so the test results – compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit; – non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.		

4.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.

South of No. 6 Plant, No. 1, Runsheng Road, Suzhou Industrial Park, Suzhou Area, China (Jiangsu)
Pilot Free Trade Zone

No tests were sub-contracted.

Note:

- 1.SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).
- 2.SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).
3. Sample source: sent by customer.

4.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **A2LA (Certificate No. 6336.01)**

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.is accredited by the American Association for Laboratory Accreditation (A2LA).

• **FCC (Designation Number: CN1312)**

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd. has been recognized as an accredited testing laboratory. Test Firm Registration Number:717327

• **ISED (CAB Identifier: CN0120)**

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

Company Number: 27594

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None

5 Equipment List

Item	Equipment	Manufacturer	Model	Inventory No	Cal Date	Cal. Due Date
RF Conducted Test						
1	Signal Analyzer	ROHDE&SCHWARZ	FSW43	SUWI-01-02-04	1/20/2025	1/19/2026
2	Signal Analyzer	KEYSIGHT	N9020A	SUWI-01-02-15	11/21/2025	11/20/2026
3	MXG Vector signal genitor	KEYSIGHT	N5182B	SUWI-01-38-01	1/15/2025	1/14/2026
4	Signal Generator	ROHDE&SCHWARZ	SMW200A	SUWI-01-07-08	3/27/2025	3/26/2026
5	Signal Generator	ROHDE&SCHWARZ	SMW100A	SUWI-01-8-01	1/16/2025	1/15/2026
6	MXG Vector Signal Generator	ROHDE&SCHWARZ	SMR20	SUWI-01-33-01	11/21/2025	11/20/2026
7	Wideband Radio Communication Tester	ROHDE&SCHWARZ	CMW500	SUWI-01-16-13	5/8/2025	5/7/2026
8	Wideband Radio Communication Test Ststion	Anritsu	MT8000A	SUWI-01-34-02	11/21/2025	11/20/2026
9	Wideband Radio Communication Tester	Anritsu	MT8821C	SUWI-01-26-03	11/21/2025	11/20/2026
10	Power meter	Anritsu	ML2495A	SUWI-01-31-01	11/21/2025	11/20/2026
11	Pulse power sensor	Anritsu	MA2411B	SUWI-01-32-01	11/21/2025	11/20/2026
12	DC Power Supply	HYELEC	HY3005B	SUWI-01-18-01	1/15/2025	1/14/2026
13	Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-07	2/13/2025	2/12/2026
14	Temperature Chamber	GIANT FORCE	ICT-017-40-SP-SD	SUWI-01-13-02	5/7/2025	5/6/2026
15	Measurement Software	TST	TST 272 V2.02	SUWI-03-55-03	NCR	NCR
16	RF Control unit	TST	TSCB3023R2	SUWI-02-20-01	NCR	NCR
17	RFCables	Tonscend	NA	SUWI-01-03-01	1/16/2025	1/15/2026
RF Radiated Test						
1	Semi-Anechoic Chamber	Brilliant-emc	N/A	SUWI-04-02-01	6/3/2023	6/2/2026
2	Signal Analyzer	ROHDE&SCHWARZ	FSW43	SUWI-01-02-04	1/20/2025	1/19/2026
3	Signal Analyzer	KEYSIGHT	N9020A	SUWI-01-02-09	11/21/2025	11/20/2026
4	Test receiver	ROHDE&SCHWARZ	ESR7	SUWI-01-10-01	1/15/2025	1/14/2026
5	Signal Generator	ROHDE&SCHWARZ	SMW100A	SUWI-01-18-01	1/16/2025	1/15/2026
6	Receiving antenna	SCHWRZBECK MESS-ELEKTRONIK	VULB 9168	SUWI-01-11-04	9/10/2025	9/9/2027
7	Receiving antenna	SCHWRZBECK MESS-ELEKTRONIK	BBHA 9120D	SUWI-01-11-02	5/7/2025	5/6/2027
8	Receiving antenna	SCHWRZBECK MESS-ELEKTRONIK	BBHA 9170	SUWI-01-11-03	5/7/2025	5/6/2027

9	Active Loop Antenna	SCHWRZBECK MESS- ELEKTRONIK	FMZB 1519B	SUWI-01-21-01	5/7/2025	5/6/2027
10	Amplifier	Tonscend	TAP9K3G40	SUWI-01-14-01	1/16/2025	1/15/2026
11	Amplifier	Tonscend	TAP01018050	SUWI-01-14-02	1/16/2025	1/15/2026
12	Amplifier	Tonscend	TAP18040048	SUWI-01-14-03	1/20/2025	1/19/2026
13	Wideband Radio Communication Tester	Anritsu	MT8820C	SUWI-01-26-01	11/21/2025	11/20/2026
14	Wideband Radio Communication Tester	Anritsu	MT8821C	SUWI-01-26-03	8/25/2025	8/24/2026
15	Wideband Radio Communication Tester	ROHDE&SCHWARZ	CMW500	SUWI-01-16-09	8/26/2025	8/25/2026
16	Radio Communication Analyzer	StarPoint	SP9500E	SUWI-01-28-02	11/21/2025	11/20/2026
17	Signal Generator	ROHDE&SCHWARZ	SMB100A	SUWI-01-08-01	1/16/2025	1/15/2026
18	DC Power Supply	HYELEC	HY3005B	SUWI-01-18-01	1/15/2025	1/14/2026
19	Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-05	2/13/2025	2/12/2026
20	Measurement Software	Tonscend	JS32-RE 4.0.0.0	SUWI-02-09-06	NCR	NCR
21	RF Control unit	Tonscend	JS0806-1	SUWI-02-20-01	NCR	NCR
22	RFCables	Tonscend	NA	SUWI-01-03-02	1/16/2025	1/15/2026

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)

6.1.2 Conclusion

Standard Requirement:

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, 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.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is Dipole Antenna and no consideration of replacement. The best case gain of the antenna is 0.2dBi.

7 Radio Spectrum Matter Test Results

7.1 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2020) Section 6.10.5

Limit:

Frequency(MHz)	Field strength(microvolts/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

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C

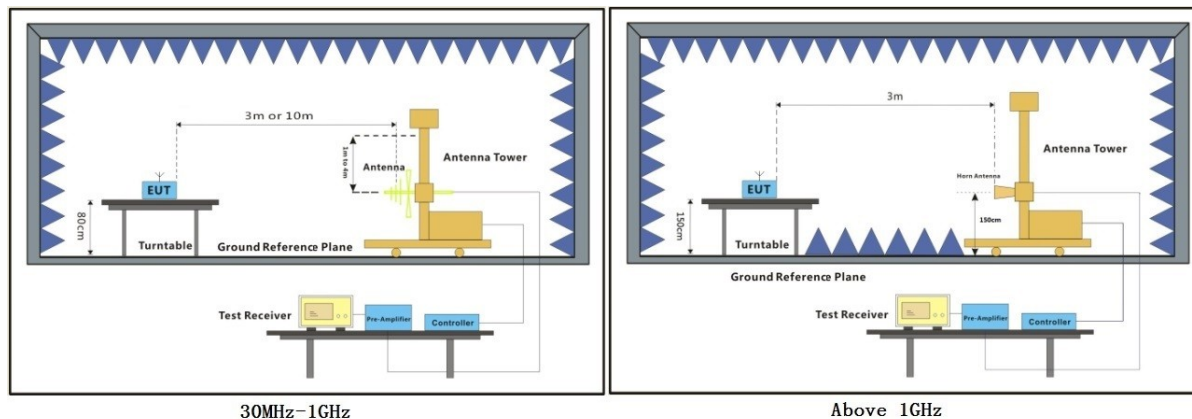
Humidity: 44 % RH

Atmospheric Pressure: 1001 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	05	TX mode(1Mbps)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	06	TX mode(2Mbps)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.1.3 Test Setup Diagram



7.1.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

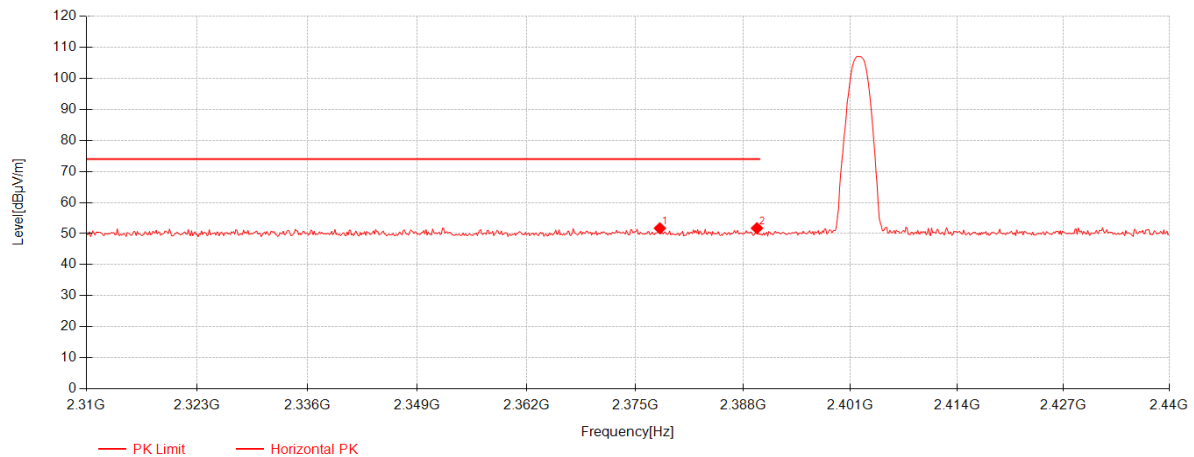
Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

Remark 3: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for Peak detection (PK) and Average detection (AV) at frequency above 1GHz.

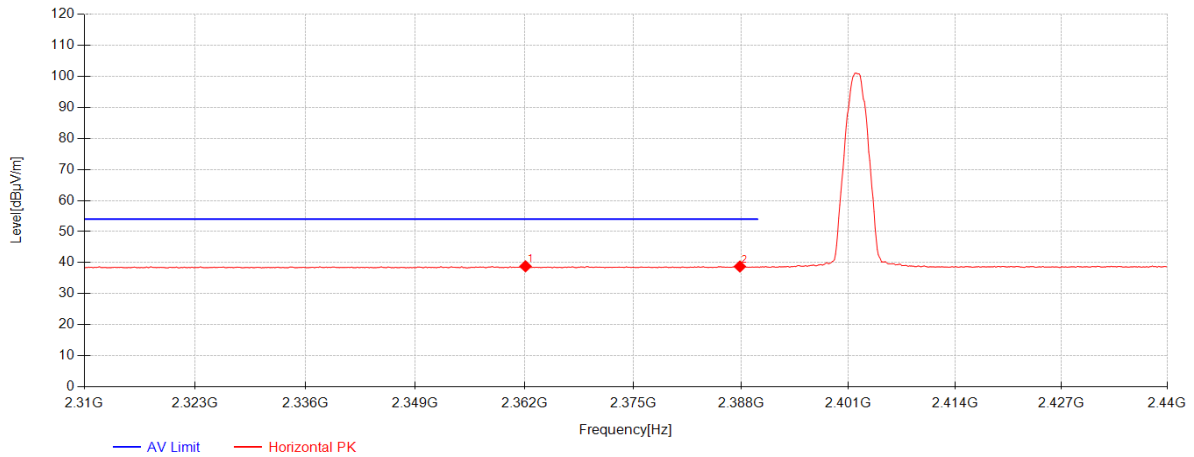
Remark 4: For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.

BLE_1M_TX_CH_00_Horizontal_Peak



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2377.99	42.05	27.24	-17.57	51.72	74.00	22.28	Horizontal
2	2389.69	42.08	27.22	-17.56	51.74	74.00	22.26	Horizontal

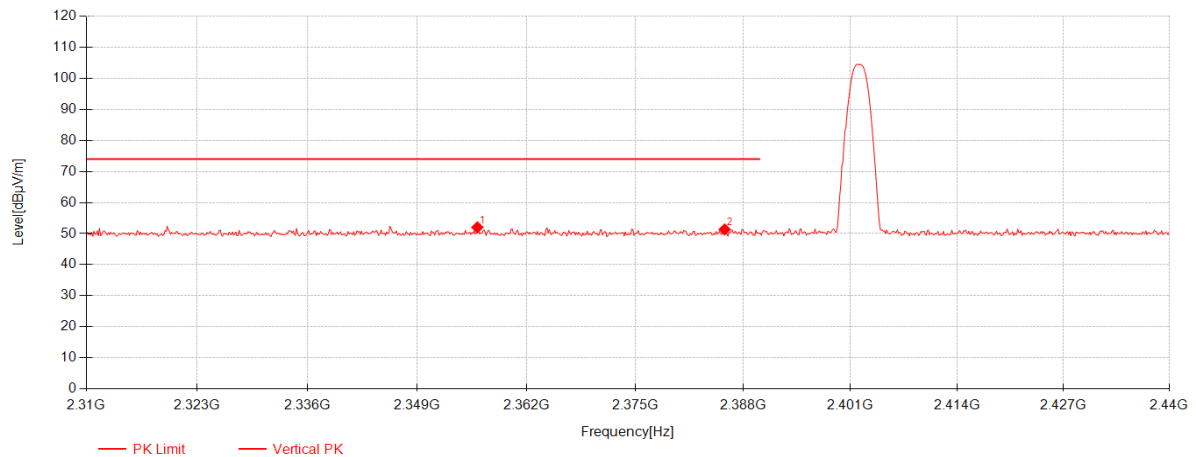
BLE_1M_TX_CH_00_Horizontal_Average



Data List

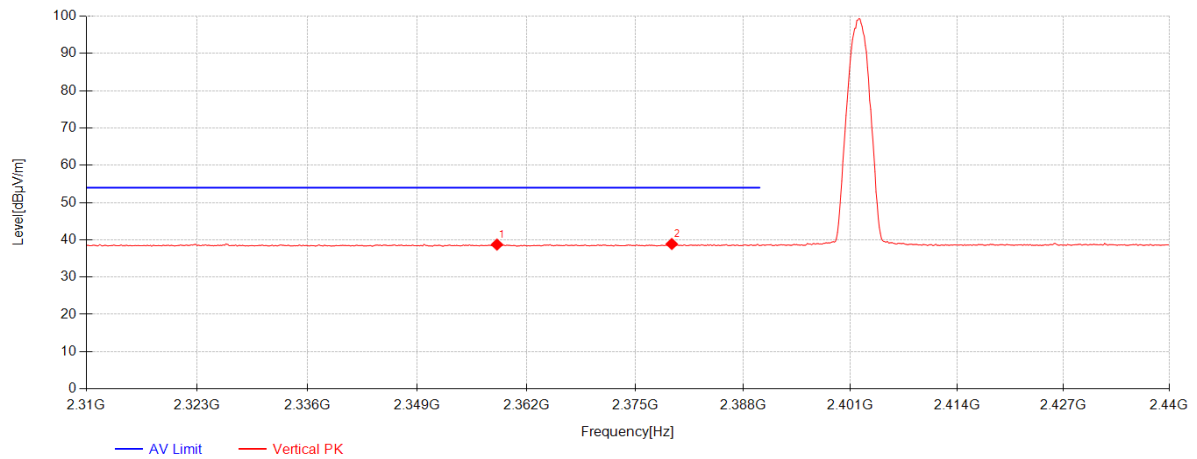
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2362.13	29.14	27.28	-17.59	38.83	54.00	15.17	Horizontal
2	2387.87	29.10	27.22	-17.56	38.76	54.00	15.24	Horizontal

BLE_1M_TX_CH_00_Vertical_Peak



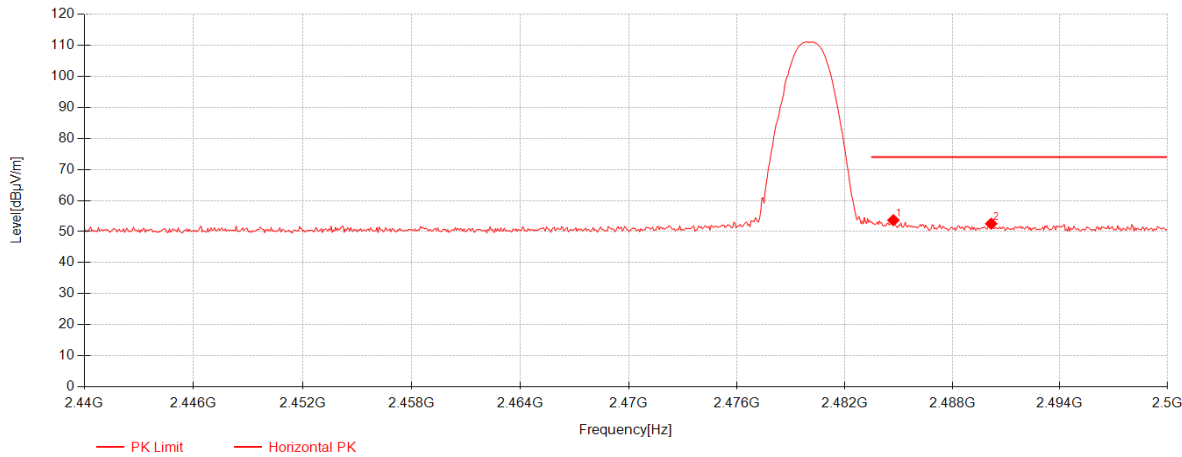
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2356.15	42.34	27.29	-17.60	52.03	74.00	21.97	Vertical
2	2385.79	41.67	27.23	-17.57	51.33	74.00	22.67	Vertical

BLE_1M_TX_CH_00_Vertical_Average



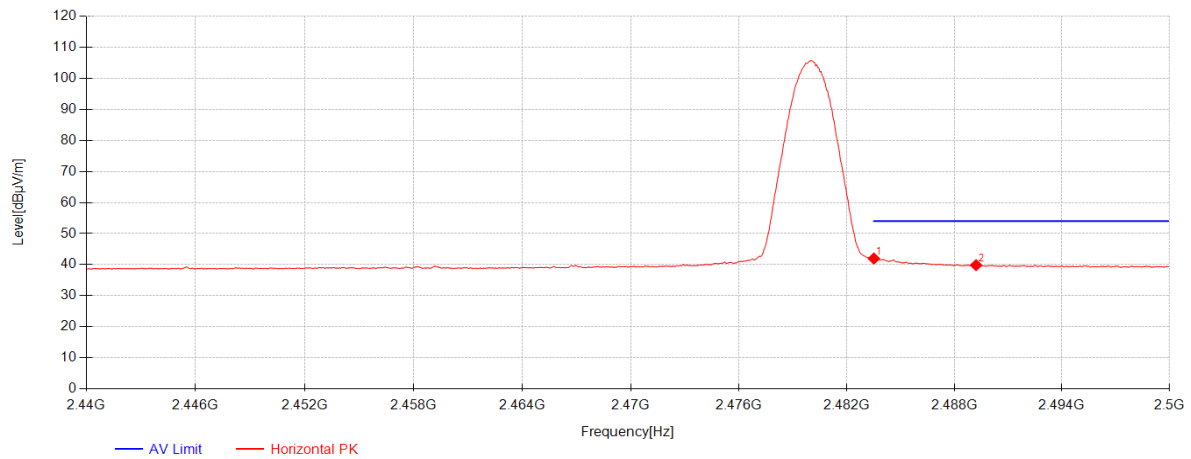
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2358.49	29.04	27.28	-17.60	38.72	54.00	15.28	Vertical
2	2379.42	29.21	27.24	-17.57	38.88	54.00	15.12	Vertical

BLE_1M_TX_CH_39_Horizontal_Peak



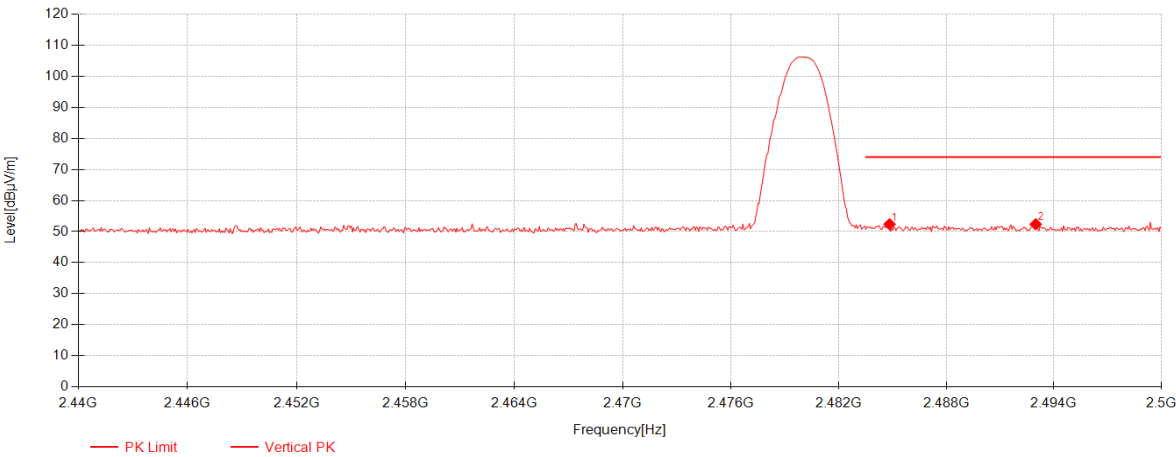
Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2484.7	43.58	27.64	-17.55	53.67	74.00	20.33	Horizontal
2	2490.16	42.43	27.66	-17.55	52.54	74.00	21.46	Horizontal

BLE_1M_TX_CH_39_Horizontal_Average



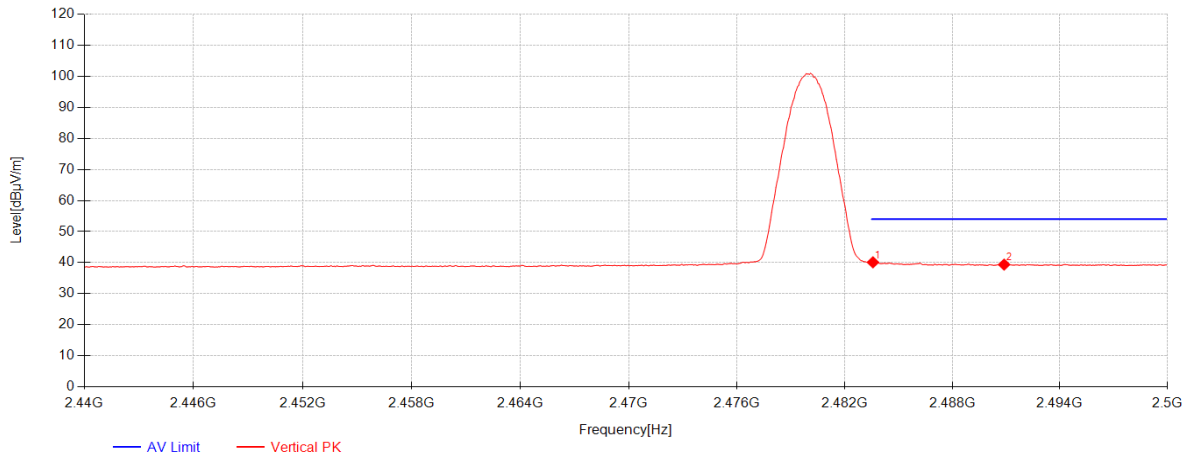
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2483.5	31.90	27.63	-17.55	41.98	54.00	12.02	Horizontal
2	2489.2	29.74	27.66	-17.55	39.85	54.00	14.15	Horizontal

BLE_1M_TX_CH_39_Vertical_Peak



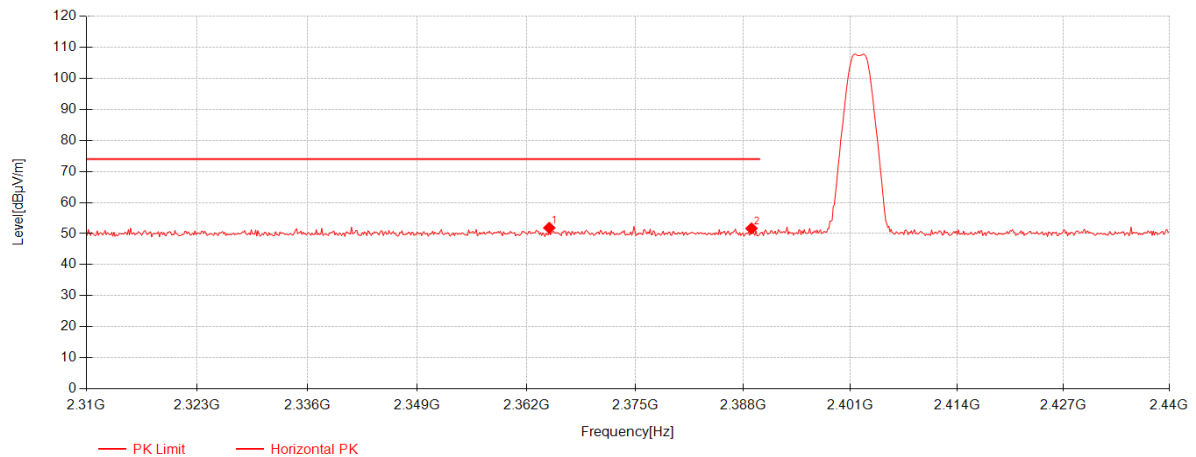
Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2484.82	42.28	27.64	-17.55	52.37	74.00	21.63	Vertical
2	2492.98	42.26	27.67	-17.55	52.38	74.00	21.62	Vertical

BLE_1M_TX_CH_39_Veritical_Average



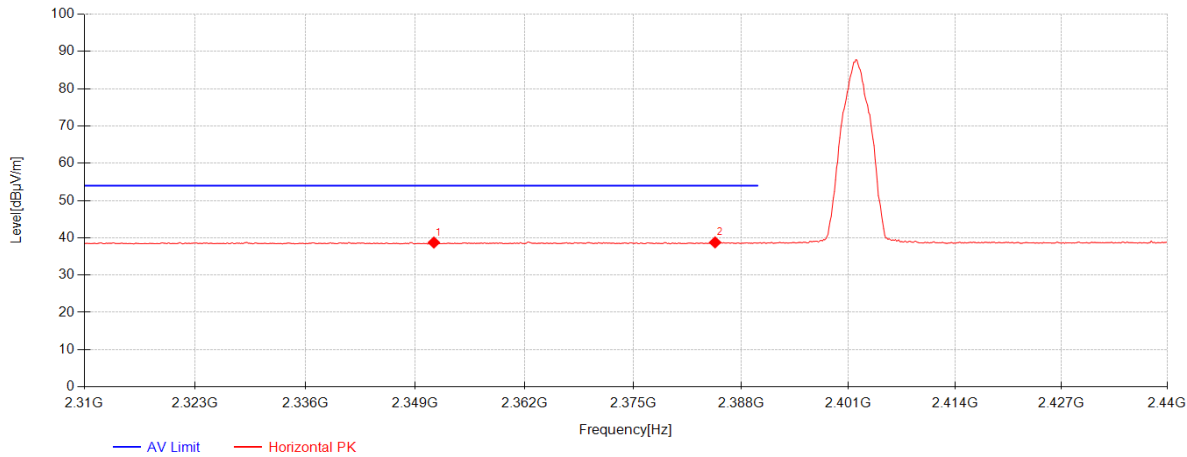
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2483.56	30.04	27.63	-17.55	40.12	54.00	13.88	Vertical
2	2490.88	29.27	27.66	-17.55	39.38	54.00	14.62	Vertical

BLE_2M_TX_CH_00_Horizontal_Peak



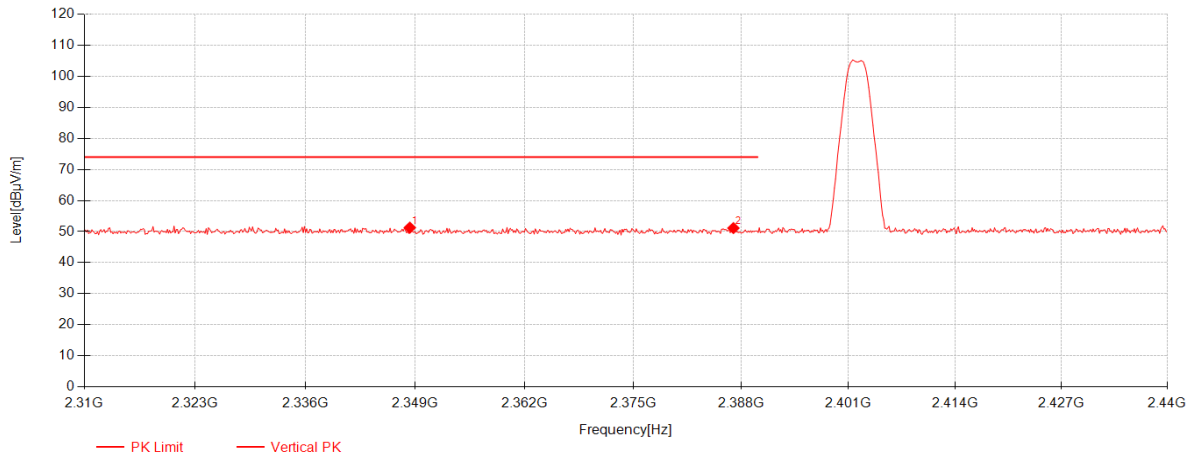
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2364.73	42.18	27.27	-17.59	51.86	74.00	22.14	Horizontal
2	2389.04	42.00	27.22	-17.56	51.66	74.00	22.34	Horizontal

BLE_2M_TX_CH_00_Horizontal_Average



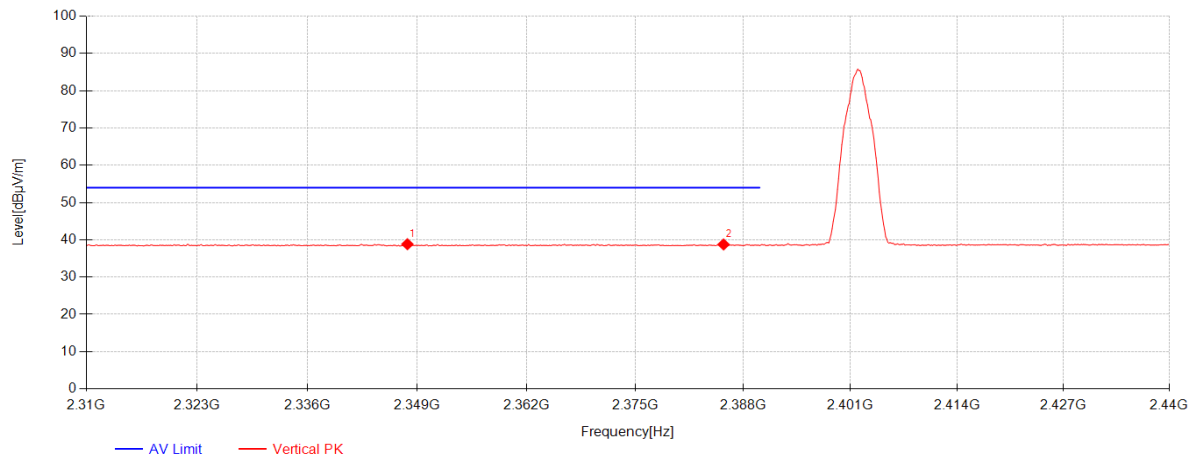
Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2351.21	29.03	27.30	-17.60	38.73	54.00	15.27	Horizontal
2	2384.88	29.11	27.23	-17.57	38.77	54.00	15.23	Horizontal

BLE_2M_TX_CH_00_Vertical_Peak



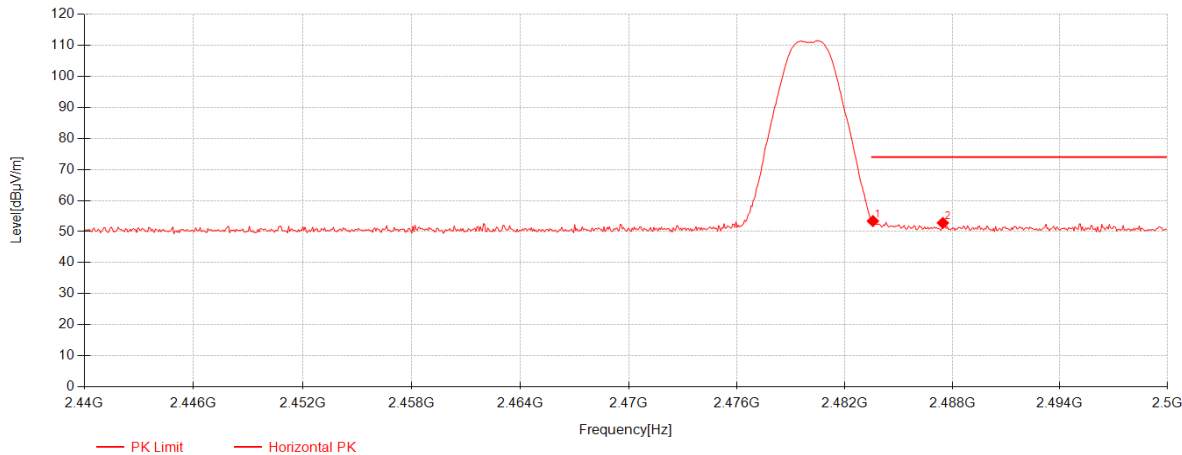
Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2348.35	41.58	27.30	-17.61	51.27	74.00	22.73	Vertical
2	2387.09	41.47	27.23	-17.56	51.14	74.00	22.86	Vertical

BLE_2M_TX_CH_00_Vertical_Average



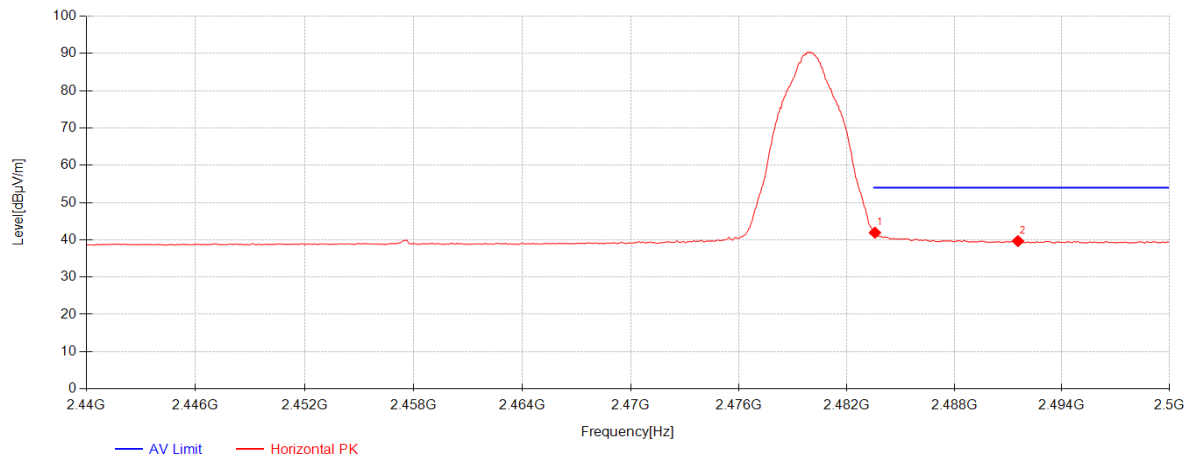
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2347.83	29.13	27.30	-17.61	38.82	54.00	15.18	Vertical
2	2385.66	29.09	27.23	-17.57	38.75	54.00	15.25	Vertical

BLE_2M_TX_CH_39_Horizontal_Peak



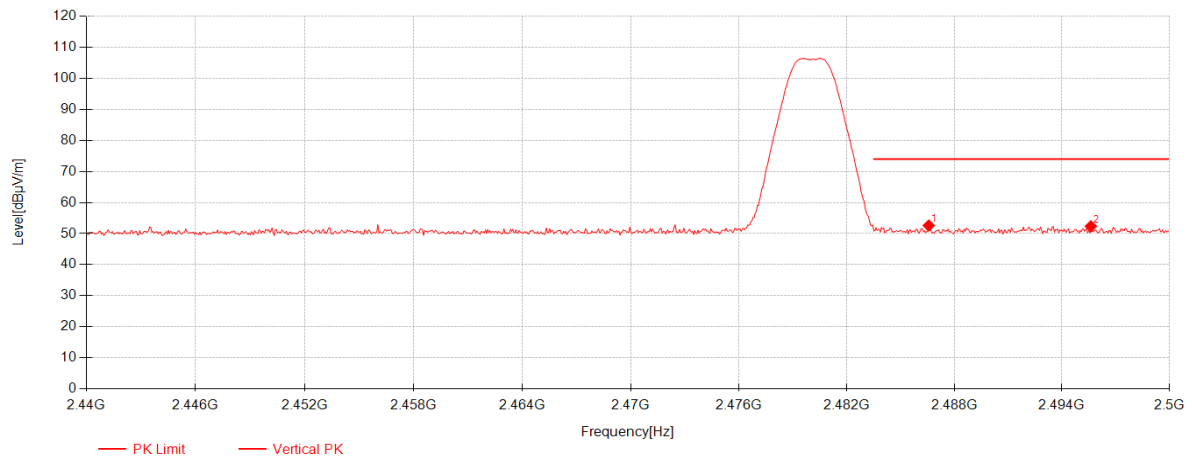
Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2483.56	43.32	27.63	-17.55	53.40	74.00	20.60	Horizontal
2	2487.46	42.70	27.65	-17.55	52.80	74.00	21.20	Horizontal

BLE_2M_TX_CH_39_Horizontal_Average



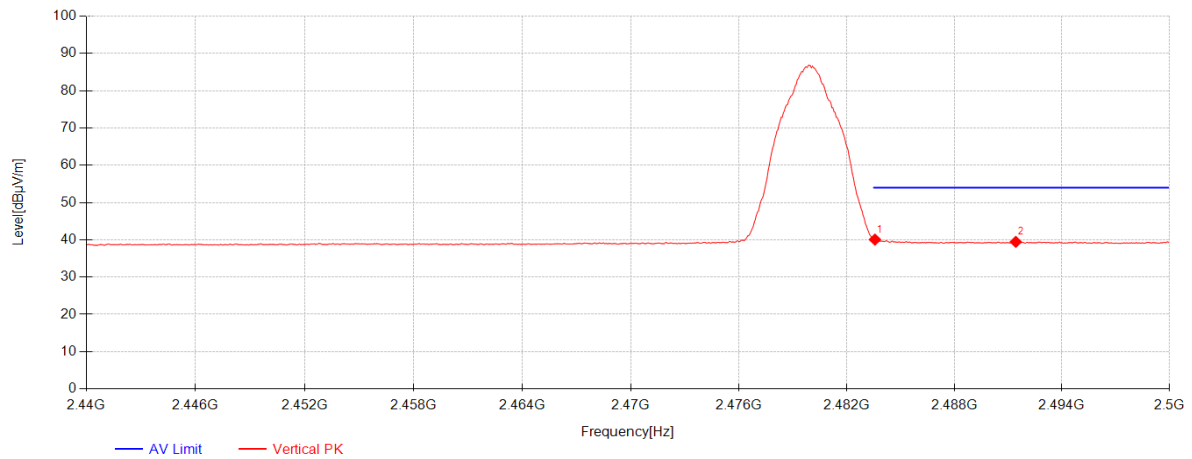
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2483.56	31.84	27.63	-17.55	41.92	54.00	12.08	Horizontal
2	2491.54	29.54	27.67	-17.55	39.66	54.00	14.34	Horizontal

BLE_2M_TX_CH_39_Veritical_Peak



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2486.56	42.52	27.65	-17.55	52.62	74.00	21.38	Vertical
2	2495.62	42.24	27.68	-17.55	52.37	74.00	21.63	Vertical

BLE_2M_TX_CH_39_Vetical_Average



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2483.56	29.98	27.63	-17.55	40.06	54.00	13.94	Vertical
2	2491.42	29.33	27.67	-17.55	39.45	54.00	14.55	Vertical

7.2 Radiated Spurious Emissions Below 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2020) Section 6.4,6.5

Limit:

Frequency(MHz)	Field strength(microvolts/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
960-1000	500	3

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C

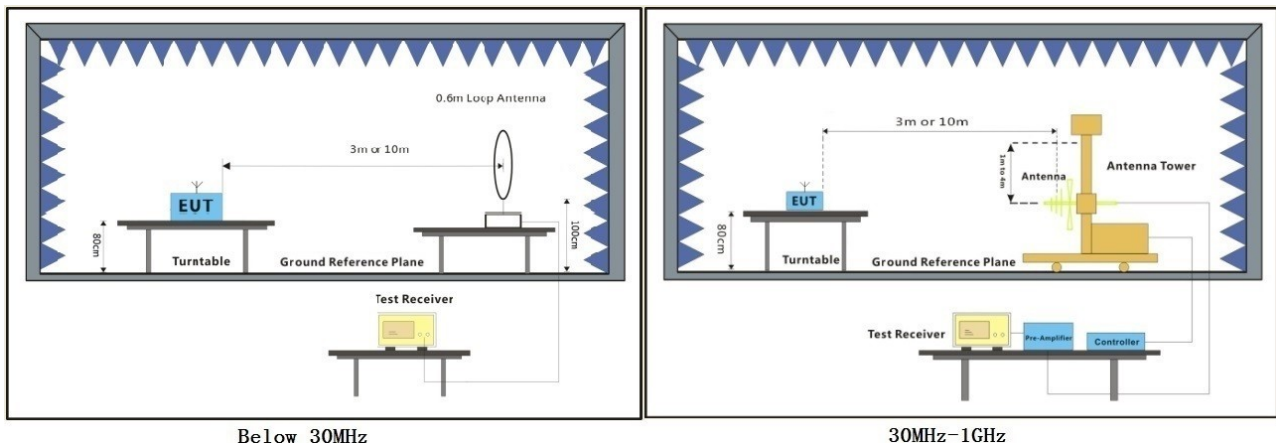
Humidity: 44 % RH

Atmospheric Pressure: 1001 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	05	TX mode(1Mbps)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	06	TX mode(2Mbps)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.2.3 Test Setup Diagram



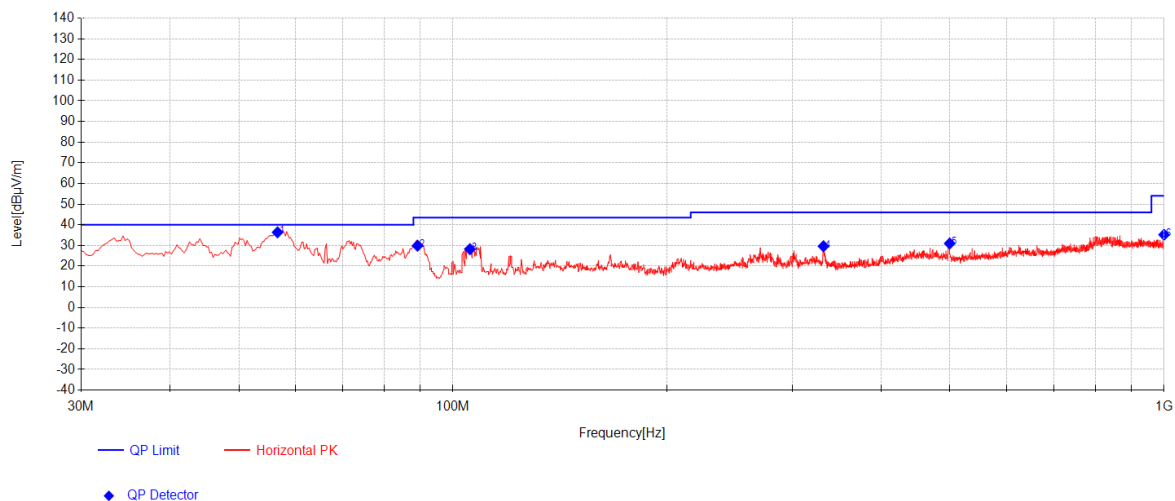
7.2.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

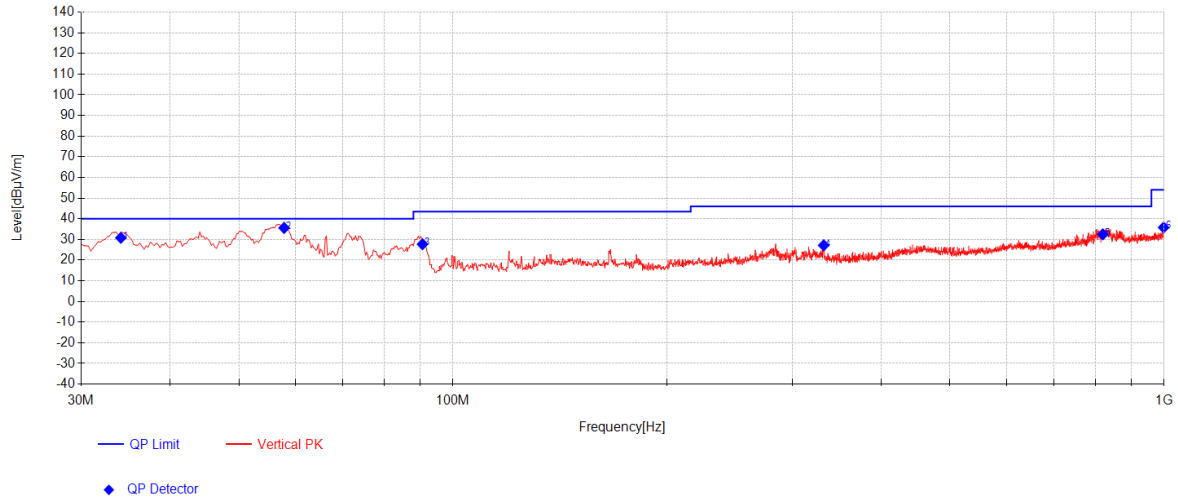
Test Mode: 06; Polarity: Horizontal



Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	56.675	50.52	19.44	-33.60	36.36	40.00	3.64	152	22	Horizontal
2	89.17	49.67	13.48	-33.27	29.89	43.50	13.61	158	176	Horizontal
3	105.66	45.51	15.76	-33.05	28.22	43.50	15.28	193	238	Horizontal
4	331.9125	41.23	19.89	-31.49	29.63	46.00	16.37	157	238	Horizontal
5	499.48	38.35	23.15	-30.54	30.96	46.00	15.04	174	248	Horizontal
6	1000	33.59	29.40	-27.80	35.19	54.00	18.81	166	176	Horizontal

Test Mode: 06; Polarity: Vertical



Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	34.1225	46.1	18.65	-33.96	30.79	40.00	9.21	148	307	Vertical
2	57.8875	49.65	19.52	-33.58	35.59	40.00	4.41	166	266	Vertical
3	90.625	47.44	13.53	-33.25	27.71	43.50	15.79	132	100	Vertical
4	332.155	38.72	19.94	-31.49	27.17	46.00	18.83	161	173	Vertical
5	820.065	33.52	27.90	-28.94	32.48	46.00	13.52	182	1	Vertical
6	998.545	34.07	29.55	-27.82	35.80	54.00	18.20	199	112	Vertical

7.3 Radiated Spurious Emissions Above 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2020) Section 6.6

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
Above 1000	500	3

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C

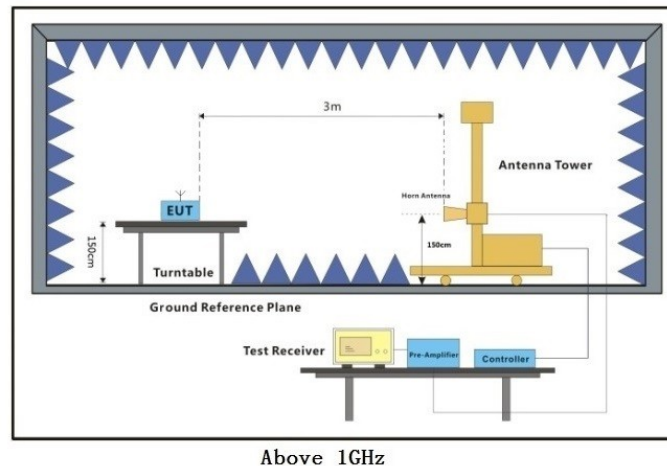
Humidity: 44 % RH

Atmospheric Pressure: 1001 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	05	TX mode(1Mbps)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	06	TX mode(2Mbps)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.3.3 Test Setup Diagram



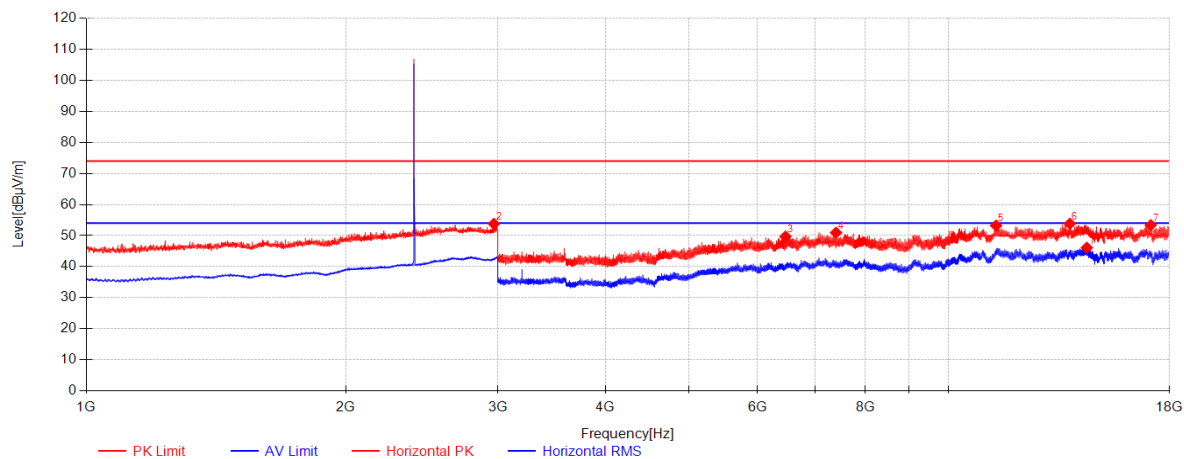
7.3.4 Measurement Procedure and Data

- a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark:

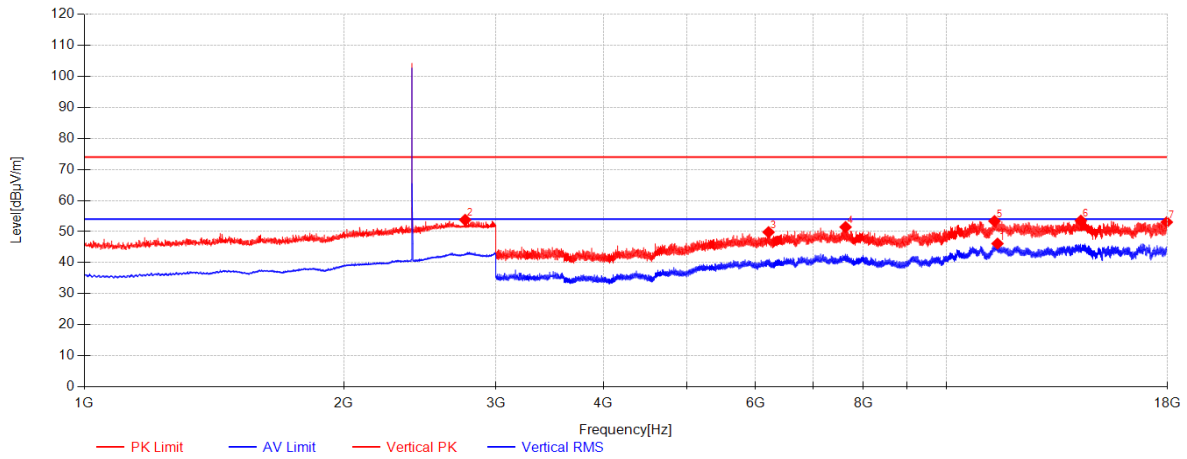
1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 1GHz to 25GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.
- 4: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for Peak detection (PK) and Average detection (AV) at frequency above 1GHz.
- 5:For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle<98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.

BLE_1M_TX_CH_00_Horizontal



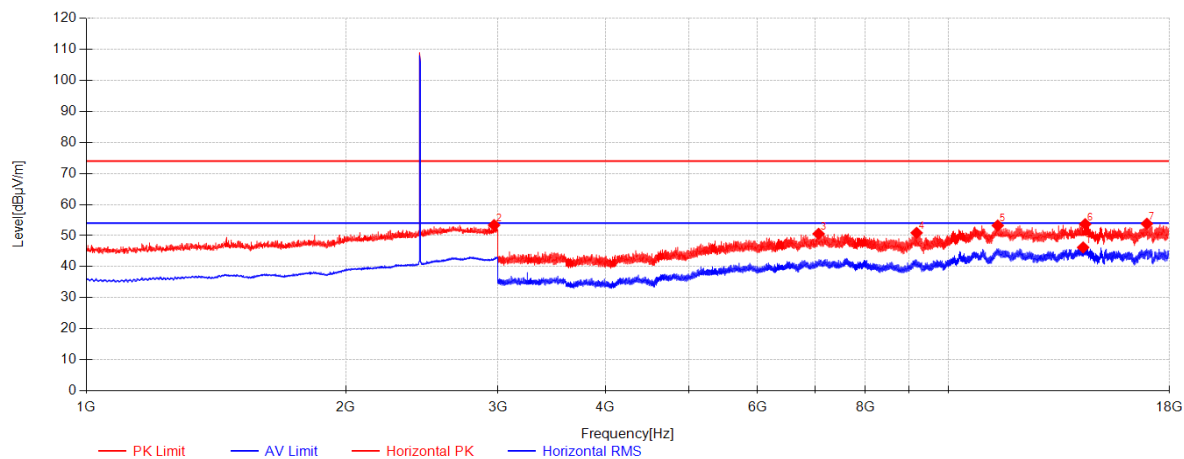
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	14453.25	45.09	41.74	-40.72	46.11	54.00	7.89	Horizontal
2	2969.5	41.78	28.60	-16.58	53.80	74.00	20.20	Horizontal
3	6466.5	55.88	34.27	-40.44	49.71	74.00	24.29	Horizontal
4	7401	55.12	36.40	-40.57	50.95	74.00	23.05	Horizontal
5	11343.375	53.55	40.49	-40.83	53.21	74.00	20.79	Horizontal
6	13810.5	53.74	40.15	-40.05	53.84	74.00	20.16	Horizontal
7	17142.75	51.88	41.97	-40.47	53.38	74.00	20.62	Horizontal

BLE_1M_TX_CH_00_Verical



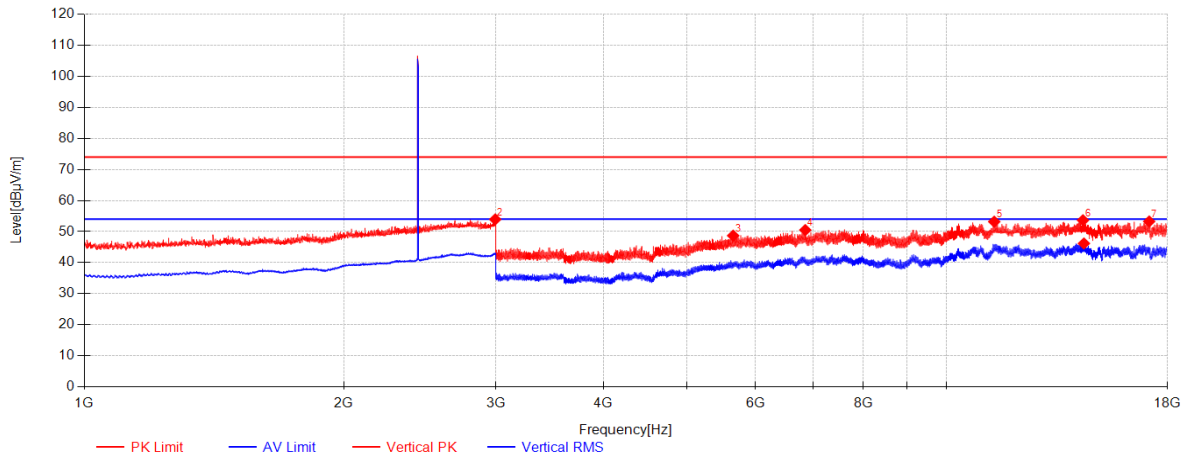
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	11448.375	46.14	40.55	-40.55	46.14	54.00	7.86	Vertical
2	2765	42.13	28.43	-16.79	53.77	74.00	20.23	Vertical
3	6214.5	56.50	33.71	-40.39	49.82	74.00	24.18	Vertical
4	7632.375	55.07	36.84	-40.45	51.46	74.00	22.54	Vertical
5	11356.5	53.58	40.51	-40.69	53.40	74.00	20.60	Vertical
6	14301.75	52.43	41.90	-40.81	53.52	74.00	20.48	Vertical
7	17987.625	51.34	47.68	-45.97	53.05	74.00	20.95	Vertical

BLE_1M_TX_CH_19_Horizontal



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	14311.875	45.08	41.90	-40.78	46.20	54.00	7.80	Horizontal
2	2971	41.36	28.61	-16.58	53.39	74.00	20.61	Horizontal
3	7064.25	55.25	35.99	-40.67	50.57	74.00	23.43	Horizontal
4	9176.25	54.38	37.30	-40.79	50.89	74.00	23.11	Horizontal
5	11394.375	52.95	40.59	-40.28	53.26	74.00	20.74	Horizontal
6	14389.875	52.35	41.90	-40.55	53.70	74.00	20.30	Horizontal
7	16964.625	52.17	40.82	-39.17	53.82	74.00	20.18	Horizontal

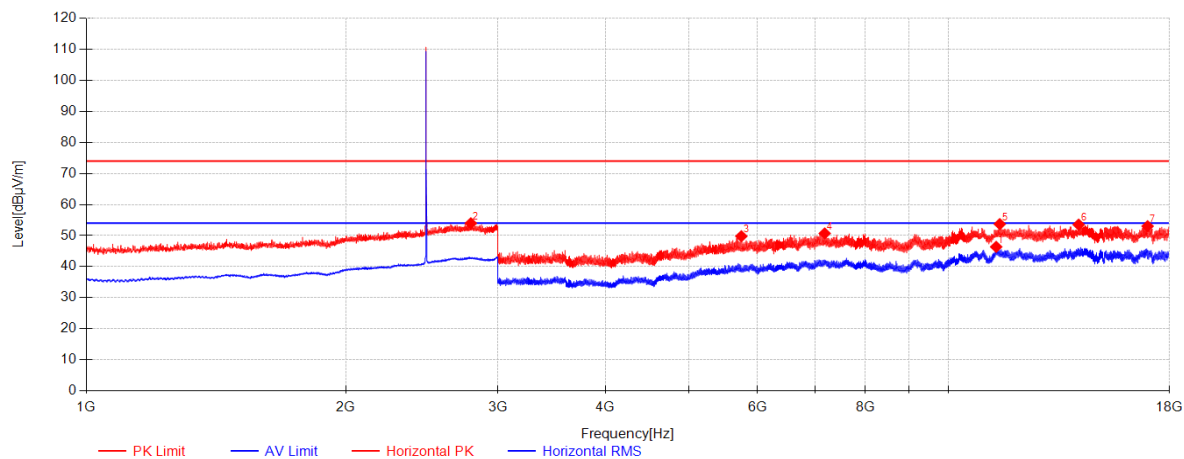
BLE_1M_TX_CH_19_Verical



Data List

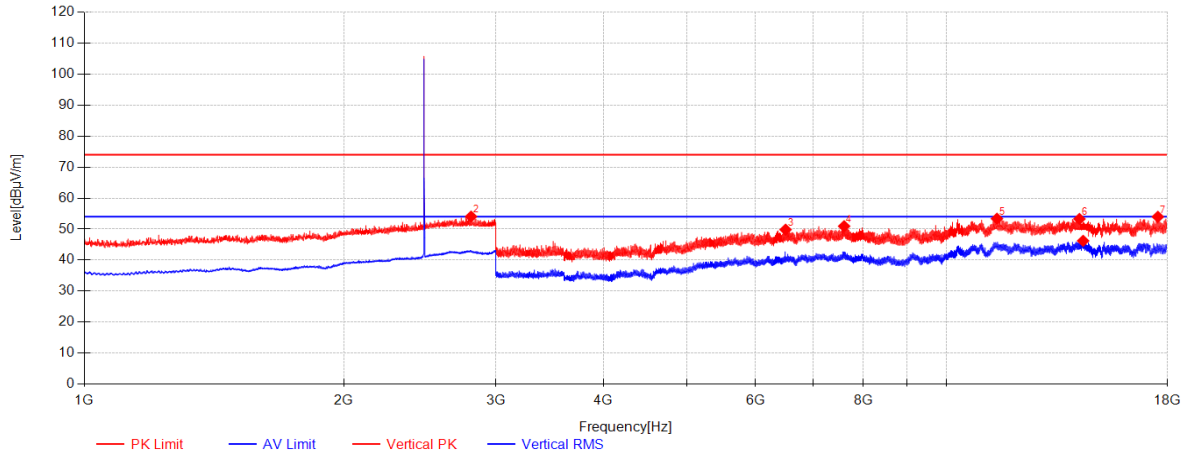
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	14417.25	44.91	41.85	-40.58	46.18	54.00	7.82	Vertical
2	2996	41.62	28.86	-16.55	53.93	74.00	20.07	Vertical
3	5653.5	56.34	32.80	-40.44	48.70	74.00	25.30	Vertical
4	6853.875	55.11	35.88	-40.49	50.50	74.00	23.50	Vertical
5	11348.25	53.48	40.50	-40.78	53.20	74.00	20.80	Vertical
6	14382	52.34	41.90	-40.57	53.67	74.00	20.33	Vertical
7	17160.75	51.78	42.04	-40.55	53.27	74.00	20.73	Vertical

BLE_1M_TX_CH_39_Horizontal



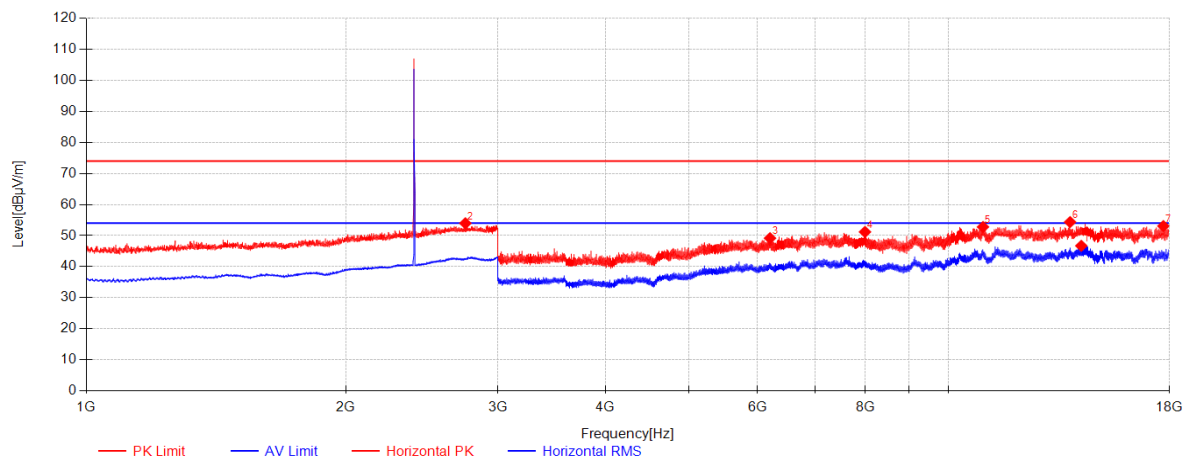
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	11346.375	46.68	40.49	-40.80	46.37	54.00	7.63	Horizontal
2	2792.5	42.10	28.49	-16.62	53.97	74.00	20.03	Horizontal
3	5747.625	57.88	32.23	-40.31	49.80	74.00	24.20	Horizontal
4	7179.75	54.79	36.22	-40.30	50.71	74.00	23.29	Horizontal
5	11456.625	53.78	40.54	-40.61	53.71	74.00	20.29	Horizontal
6	14141.25	52.54	41.54	-40.55	53.53	74.00	20.47	Horizontal
7	16996.5	51.39	40.98	-39.34	53.03	74.00	20.97	Horizontal

BLE_1M_TX_CH_39_Verical



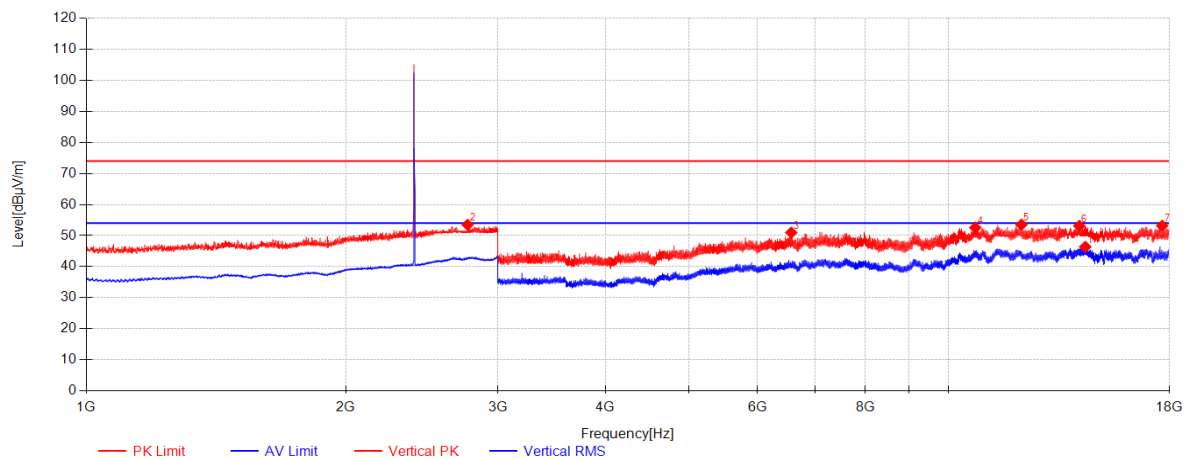
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	14386.5	44.88	41.90	-40.56	46.22	54.00	7.78	Vertical
2	2809	42.12	28.52	-16.58	54.06	74.00	19.94	Vertical
3	6502.5	55.73	34.61	-40.50	49.84	74.00	24.16	Vertical
4	7602	54.61	36.90	-40.56	50.95	74.00	23.05	Vertical
5	11430.75	53.24	40.57	-40.43	53.38	74.00	20.62	Vertical
6	14247.75	52.26	41.74	-40.71	53.29	74.00	20.71	Vertical
7	17564.625	52.61	44.76	-43.39	53.98	74.00	20.02	Vertical

BLE_2M_TX_CH_00_Horizontal



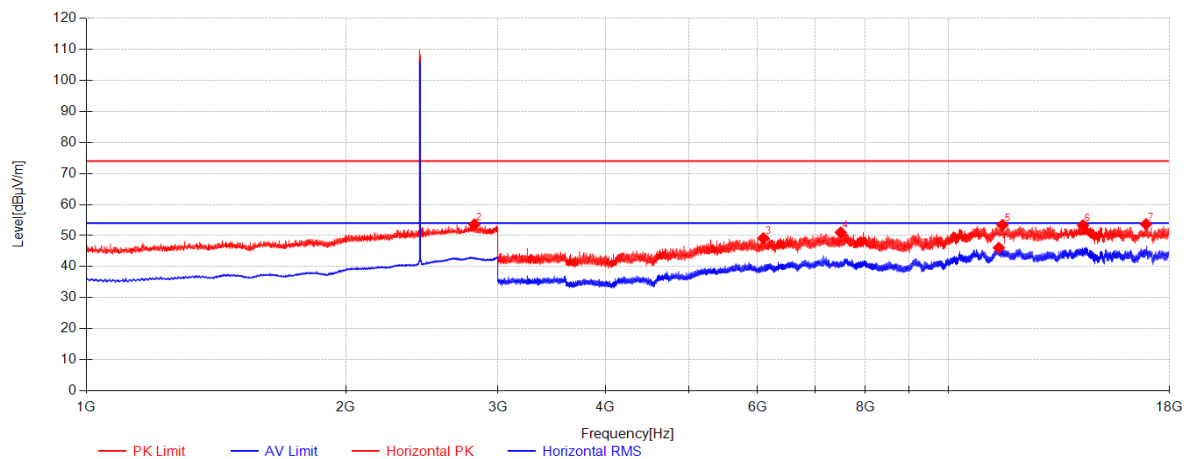
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	14240.625	45.70	41.72	-40.70	46.72	54.00	7.28	Horizontal
2	2751.5	42.44	28.40	-16.88	53.96	74.00	20.04	Horizontal
3	6204.375	55.75	33.77	-40.35	49.17	74.00	24.83	Horizontal
4	7995	54.71	36.70	-40.23	51.18	74.00	22.82	Horizontal
5	10954.5	53.11	40.17	-40.49	52.79	74.00	21.21	Horizontal
6	13820.625	54.24	40.20	-40.08	54.36	74.00	19.64	Horizontal
7	17730	51.96	45.08	-43.97	53.07	74.00	20.93	Horizontal

BLE_2M_TX_CH_00_Vetical



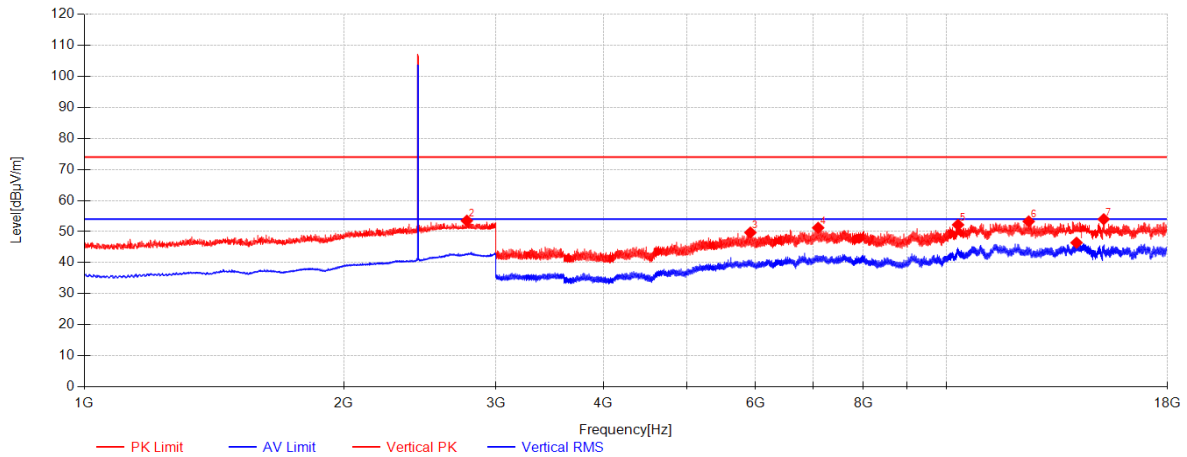
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	14392.875	45.01	41.90	-40.54	46.37	54.00	7.63	Vertical
2	2768	41.83	28.44	-16.77	53.50	74.00	20.50	Vertical
3	6566.625	56.47	34.80	-40.31	50.96	74.00	23.04	Vertical
4	10731.375	53.62	39.23	-40.29	52.56	74.00	21.44	Vertical
5	12138	54.11	39.84	-40.42	53.53	74.00	20.47	Vertical
6	14166	52.15	41.57	-40.58	53.14	74.00	20.86	Vertical
7	17672.625	52.00	44.90	-43.71	53.19	74.00	20.81	Vertical

BLE_2M_TX_CH_19_Horizontal



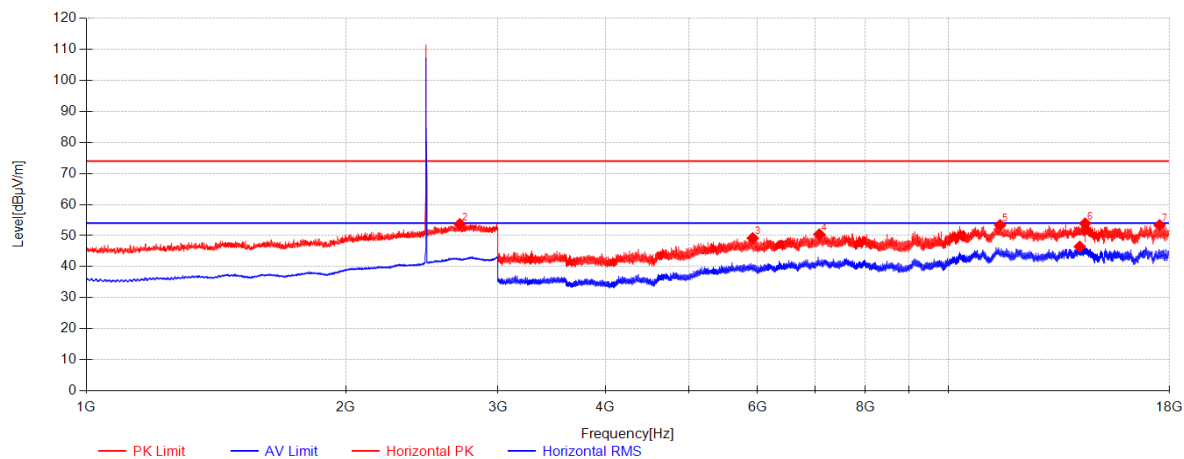
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	11427.75	45.92	40.57	-40.41	46.08	54.00	7.92	Horizontal
2	2819	41.66	28.54	-16.59	53.61	74.00	20.39	Horizontal
3	6095.625	56.11	33.66	-40.61	49.16	74.00	24.84	Horizontal
4	7494.75	54.97	36.86	-40.80	51.03	74.00	22.97	Horizontal
5	11537.625	53.81	40.54	-40.93	53.42	74.00	20.58	Horizontal
6	14304.75	52.22	41.90	-40.81	53.31	74.00	20.69	Horizontal
7	16924.875	52.03	40.62	-38.95	53.70	74.00	20.30	Horizontal

BLE_2M_TX_CH_19_Verical



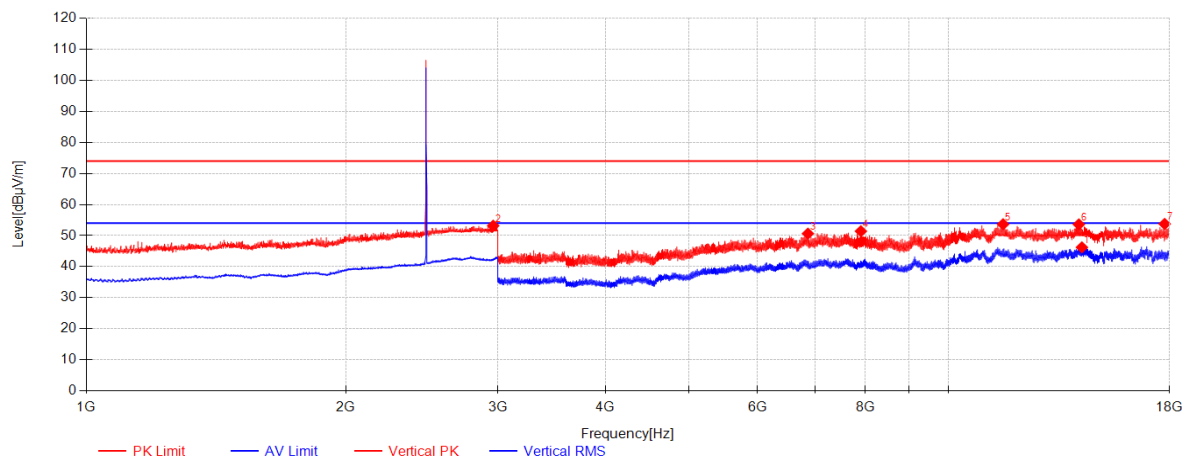
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	14135.25	45.44	41.54	-40.55	46.43	54.00	7.57	Vertical
2	2777.5	41.78	28.46	-16.71	53.53	74.00	20.47	Vertical
3	5920.125	56.73	33.14	-40.17	49.70	74.00	24.30	Vertical
4	7093.875	55.73	36.16	-40.67	51.22	74.00	22.78	Vertical
5	10303.875	53.05	39.40	-40.27	52.18	74.00	21.82	Vertical
6	12442.125	54.03	39.42	-40.16	53.29	74.00	20.71	Vertical
7	15199.875	52.67	40.00	-38.68	53.99	74.00	20.01	Vertical

BLE_2M_TX_CH_39_Horizontal



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	14184	45.45	41.58	-40.59	46.44	54.00	7.56	Horizontal
2	2711.5	42.53	28.32	-17.14	53.71	74.00	20.29	Horizontal
3	5925	56.22	33.15	-40.19	49.18	74.00	24.82	Horizontal
4	7077.75	55.01	36.07	-40.67	50.41	74.00	23.59	Horizontal
5	11467.5	53.54	40.53	-40.68	53.39	74.00	20.61	Horizontal
6	14386.875	52.59	41.90	-40.56	53.93	74.00	20.07	Horizontal
7	17551.125	52.14	44.70	-43.48	53.36	74.00	20.64	Horizontal

BLE_2M_TX_CH_39_Verical



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	14264.25	45.17	41.79	-40.74	46.22	54.00	7.78	Vertical
2	2964	41.23	28.54	-16.59	53.18	74.00	20.82	Vertical
3	6865.5	55.39	35.84	-40.59	50.64	74.00	23.36	Vertical
4	7908	54.98	36.78	-40.35	51.41	74.00	22.59	Vertical
5	11558.25	54.03	40.56	-40.94	53.65	74.00	20.35	Vertical
6	14148	52.62	41.55	-40.56	53.61	74.00	20.39	Vertical
7	17788.125	52.42	45.43	-44.09	53.76	74.00	20.24	Vertical

7.4 Conducted Peak Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3)

Test Method: ANSI C63.10 (2020) Section 11.9.1

Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥ 50 hopping channels
	0.25 for $25 \leq$ hopping channels < 50
	1 for digital modulation
2400-2483.5	1 for ≥ 75 non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 21 °C

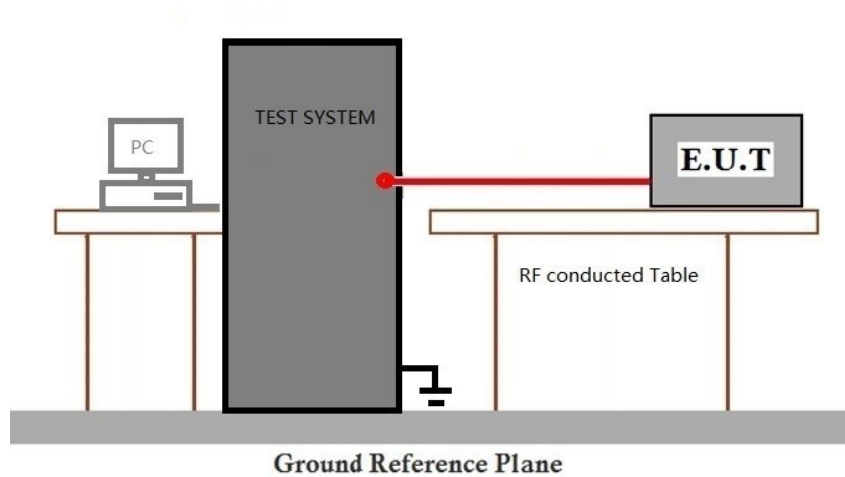
Humidity: 43 % RH

Atmospheric Pressure: 1001 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	03	TX mode(125K)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	04	TX mode(500K)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	05	TX mode(1Mbps)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	06	TX mode(2Mbps)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

Note: Since the verify power the same operating range bandwidth and smaller power can be covered by the higher power.

Please Refer to Appendix for Details

7.5 Minimum 6dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.247a(2)

Test Method: ANSI C63.10 (2020) Section 11.8.1

Measurement Distance: 3m

Limit:

≥500 kHz

7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C

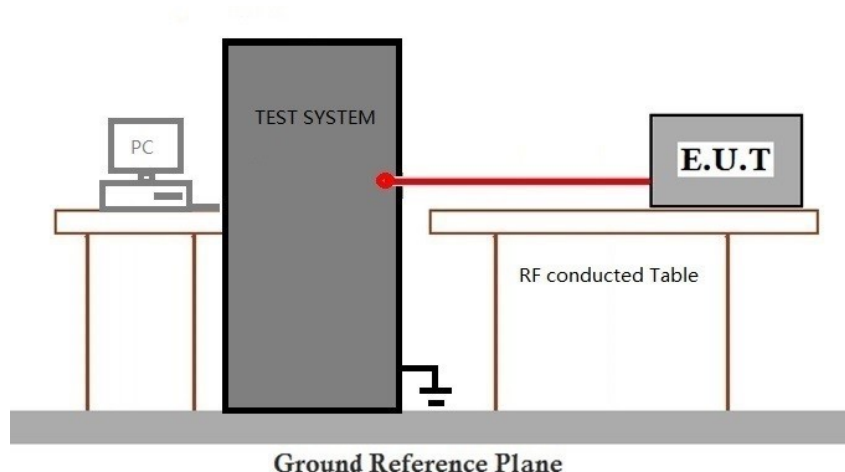
Humidity: 44 % RH

Atmospheric Pressure: 1001 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	05	TX mode(1Mbps)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	06	TX mode(2Mbps)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.6 Power Spectrum Density

Test Requirement 47 CFR Part 15, Subpart C 15.247(e)

Test Method: ANSI C63.10 (2020) Section 11.10.2

Limit:

≤8dBm in any 3 kHz band during any time interval of continuous transmission

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C

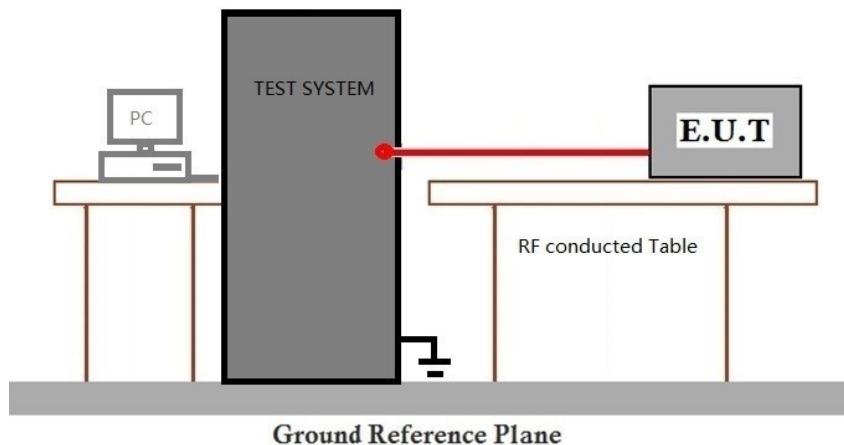
Humidity: 45 % RH

Atmospheric Pressure: 1001 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	05	TX mode(1Mbps)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	06	TX mode(2Mbps)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.6.3 Test Setup Diagram



7.6.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.7 Conducted Band Edges Measurement

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)

Test Method: ANSI C63.10 (2020) Section 6.10.4

Limit:

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)).

7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C

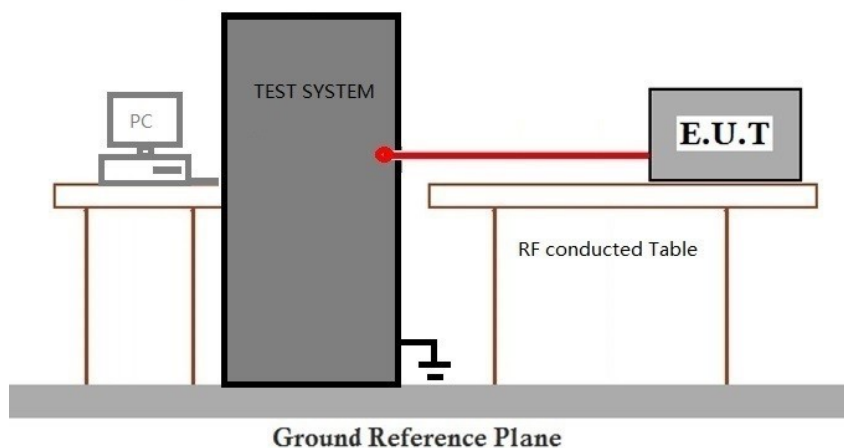
Humidity: 45 % RH

Atmospheric Pressure: 1001 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	05	TX mode(1Mbps)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	06	TX mode(2Mbps)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.7.3 Test Setup Diagram





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7.7.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.8 Conducted Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)

Test Method: ANSI C63.10 (2020) Section 11.11

Limit:

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)).

7.8.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C

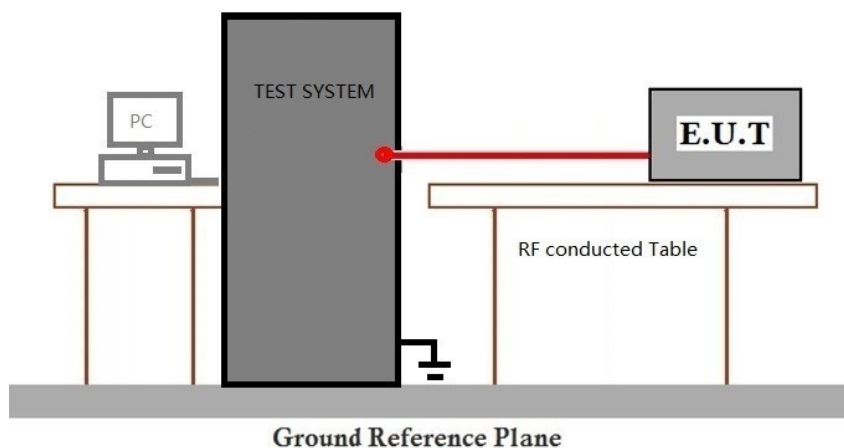
Humidity: 43 % RH

Atmospheric Pressure: 1001 mbar

7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	05	TX mode(1Mbps)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	06	TX mode(2Mbps)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.8.3 Test Setup Diagram



7.8.4 Measurement Procedure and Data

Please Refer to Appendix for Details

8 Test Setup Photo

Refer to Appendix - Test Setup Photo for SUCR2511001074MO

9 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for SUCR2511001074MO

10 Appendix

1. Duty Cycle

1.1 Test Result

1.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
S8	SISO	2402	17.057	17.500	97.47	0.11	0.00
		2440	17.056	17.500	97.46	0.11	0.00
		2480	17.056	17.500	97.46	0.11	0.00
S2	SISO	2402	4.553	5.001	91.04	0.41	0.04
		2440	4.552	5.001	91.02	0.41	0.04
		2480	4.552	5.000	91.04	0.41	0.04
1M	SISO	2402	2.142	2.501	85.65	0.67	0.03
		2440	2.142	2.501	85.65	0.67	0.03
		2480	2.142	2.501	85.65	0.67	0.03
2M	SISO	2402	1.074	1.874	57.31	2.42	0.03
		2440	1.074	1.875	57.28	2.42	0.03
		2480	1.074	1.875	57.28	2.42	0.01

2. Bandwidth

2.1 Test Result

2.1.1 OBW

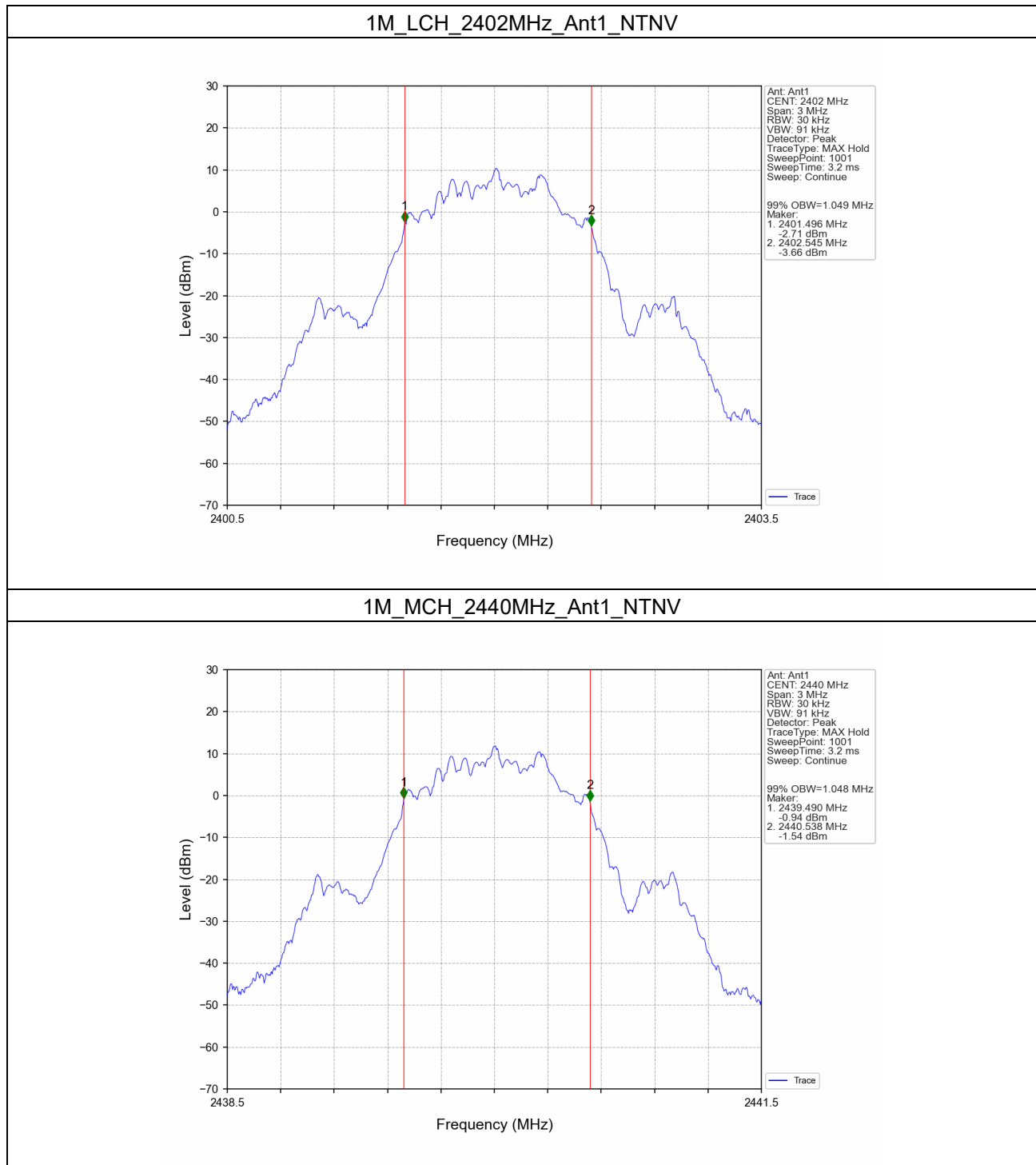
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	1.049	/	Pass
		2440	1	1.048	/	Pass
		2480	1	1.049	/	Pass
2M	SISO	2402	1	2.056	/	Pass
		2440	1	2.055	/	Pass
		2480	1	2.049	/	Pass

2.1.2 6dB BW

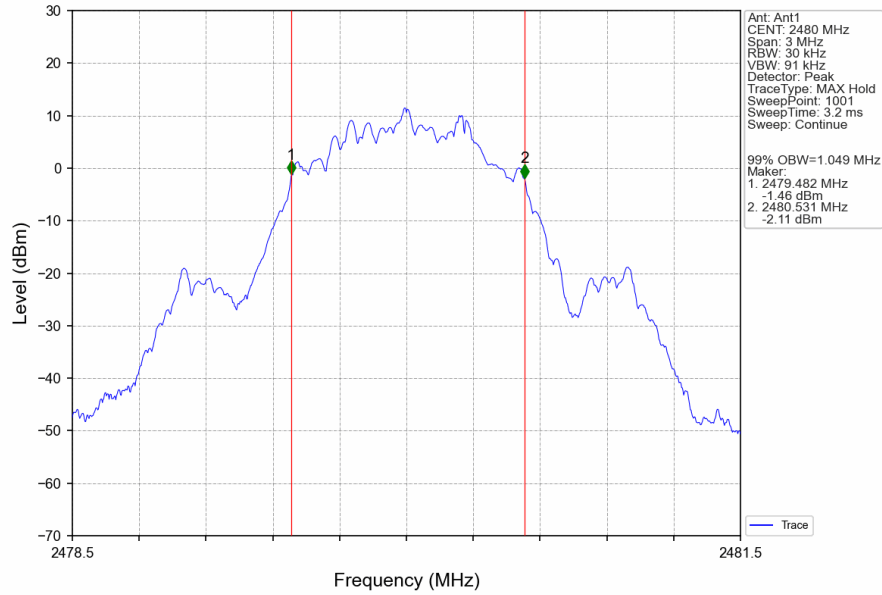
Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	0.668	≥ 0.5	Pass
		2440	1	0.668	≥ 0.5	Pass
		2480	1	0.672	≥ 0.5	Pass
2M	SISO	2402	1	1.198	≥ 0.5	Pass
		2440	1	1.187	≥ 0.5	Pass
		2480	1	1.210	≥ 0.5	Pass

2.2 Test Graph

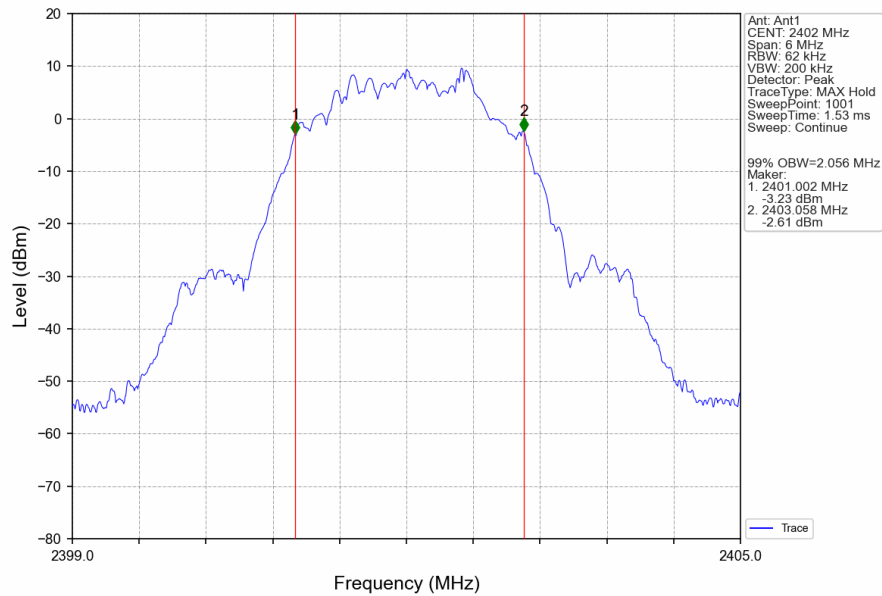
2.2.1 OBW



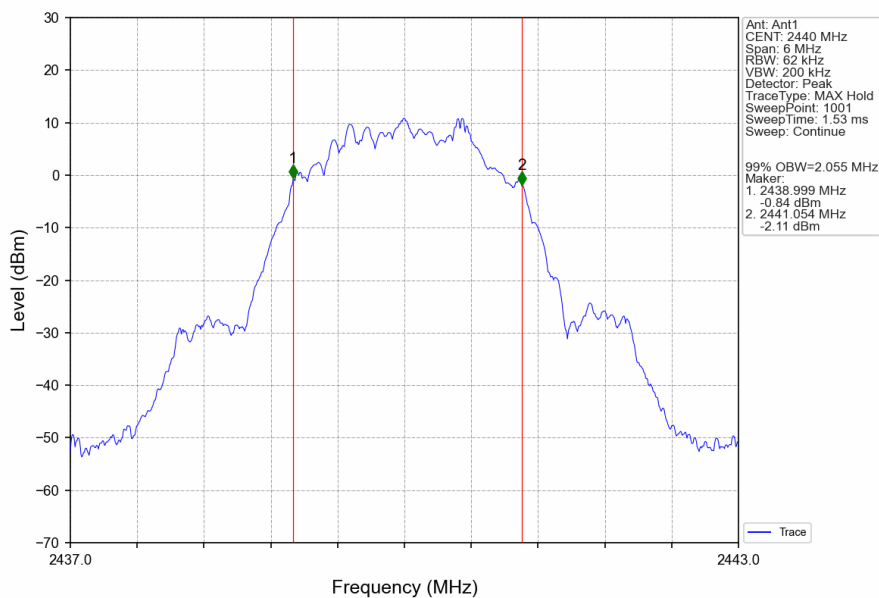
1M_HCH_2480MHz_Ant1_NTNV



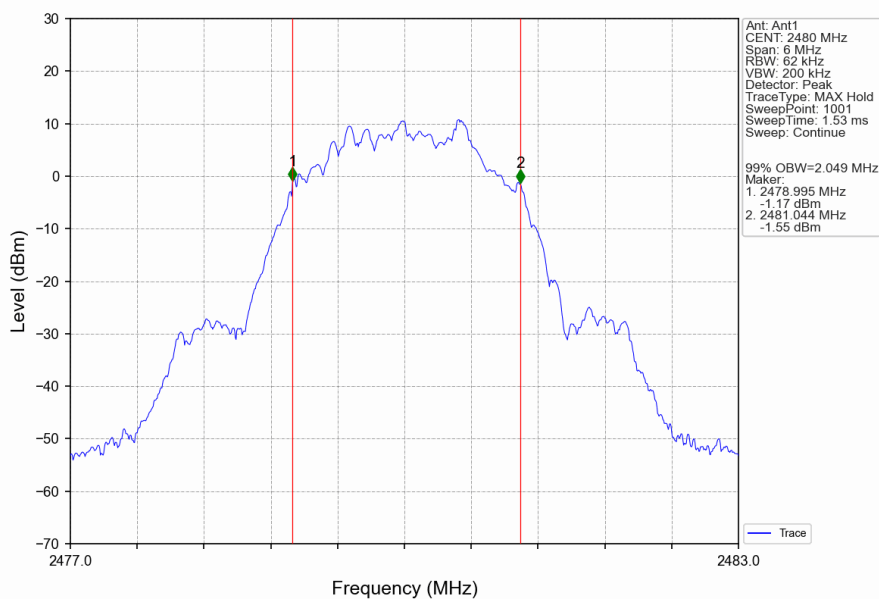
2M_LCH_2402MHz_Ant1_NTNV



2M_MCH_2440MHz_Ant1_NTNV

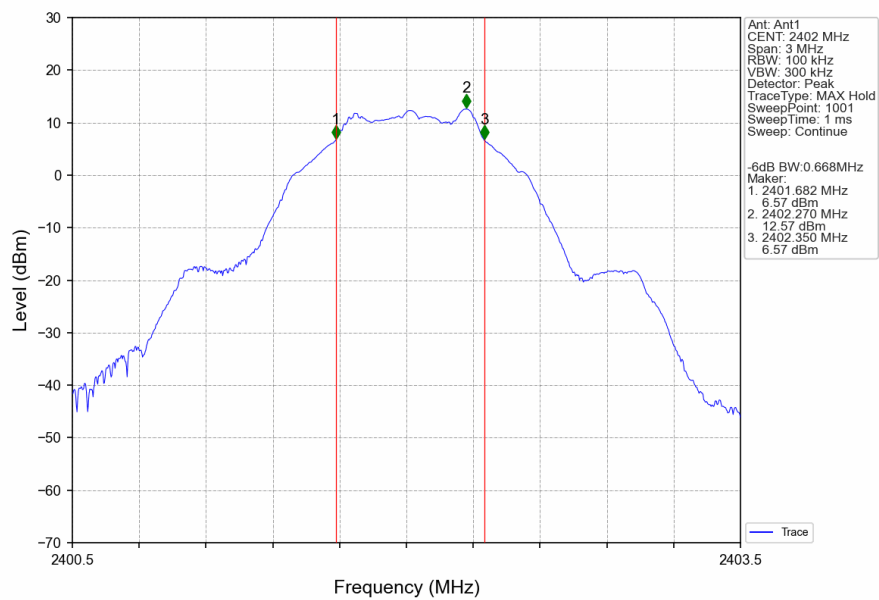


2M_HCH_2480MHz_Ant1_NTNV

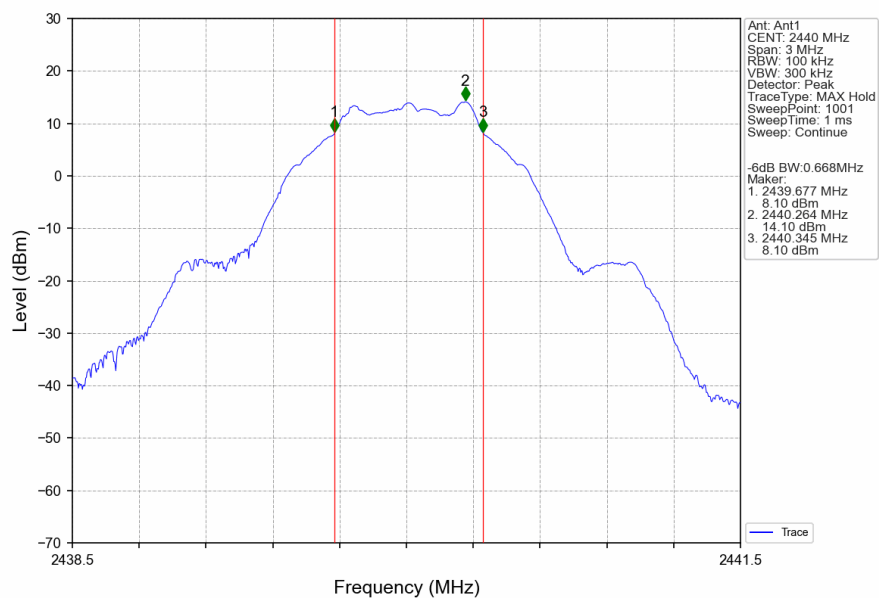


2.2.2 6dB BW

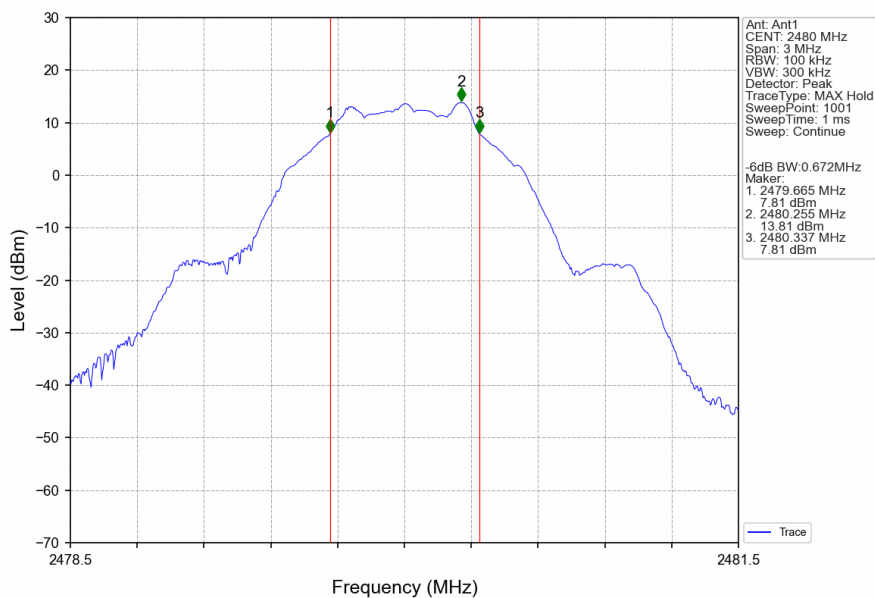
1M_LCH_2402MHz_Ant1_NTNV



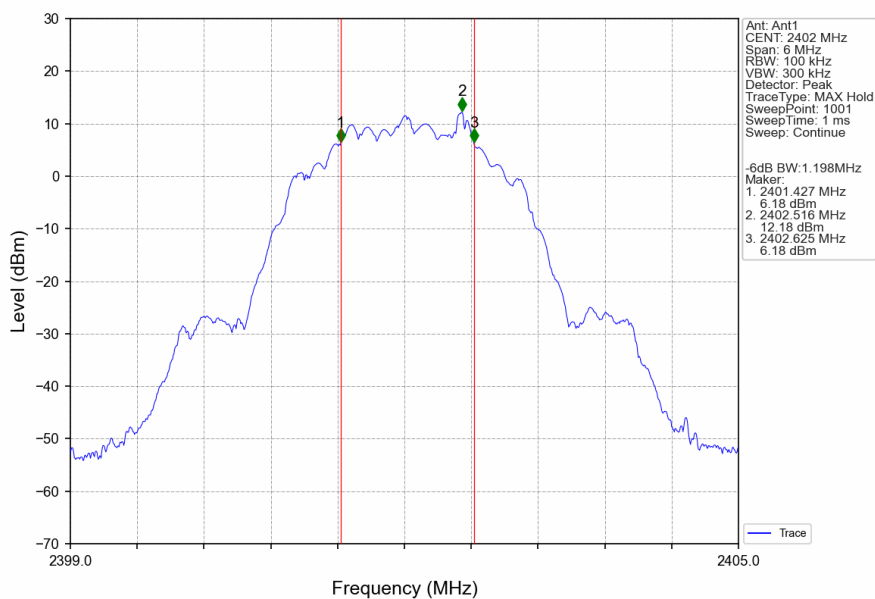
1M_MCH_2440MHz_Ant1_NTNV



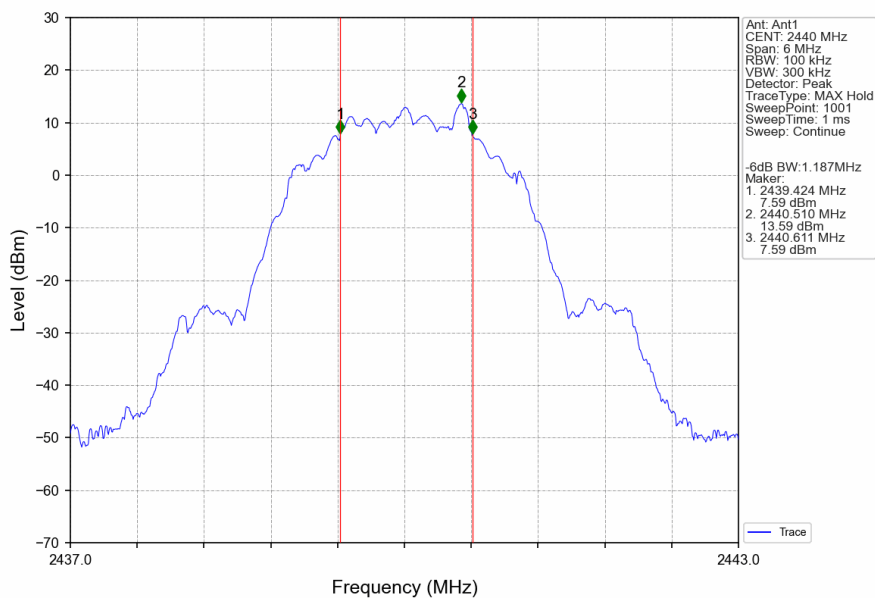
1M_HCH_2480MHz_Ant1_NTNV



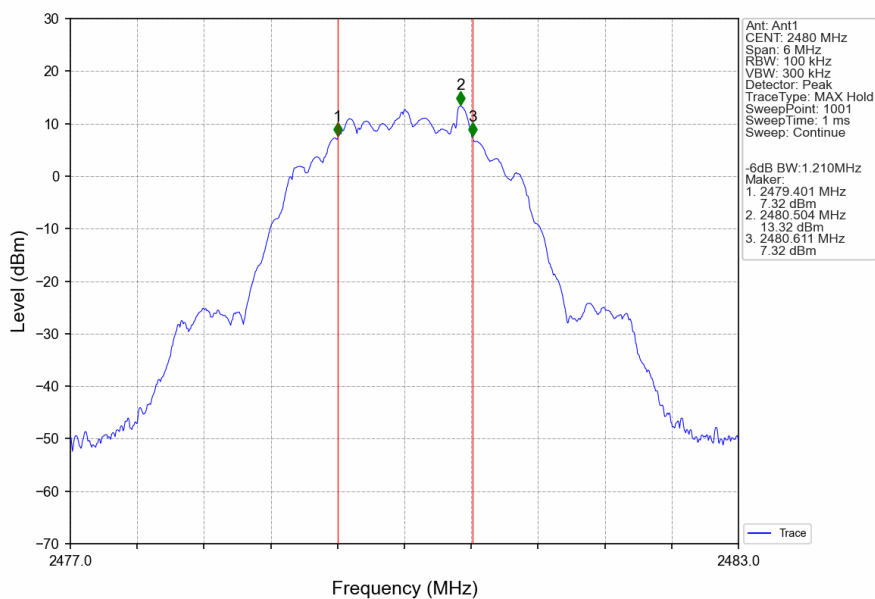
2M_LCH_2402MHz_Ant1_NTNV



2M_MCH_2440MHz_Ant1_NTNV



2M_HCH_2480MHz_Ant1_NTNV



3. Maximum Conducted Output Power

3.1 Test Result

3.1.1 Power

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
S8	SISO	2402	12.60	<=30	Pass
		2440	14.07	<=30	Pass
		2480	14.01	<=30	Pass
S2	SISO	2402	13.00	<=30	Pass
		2440	14.47	<=30	Pass
		2480	14.15	<=30	Pass
1M	SISO	2402	13.15	<=30	Pass
		2440	14.58	<=30	Pass
		2480	14.31	<=30	Pass
2M	SISO	2402	13.58	<=30	Pass
		2440	14.91	<=30	Pass
		2480	14.75	<=30	Pass
Note1: Antenna Gain: Ant1: 0.20dBi;					

4. Maximum Power Spectral Density

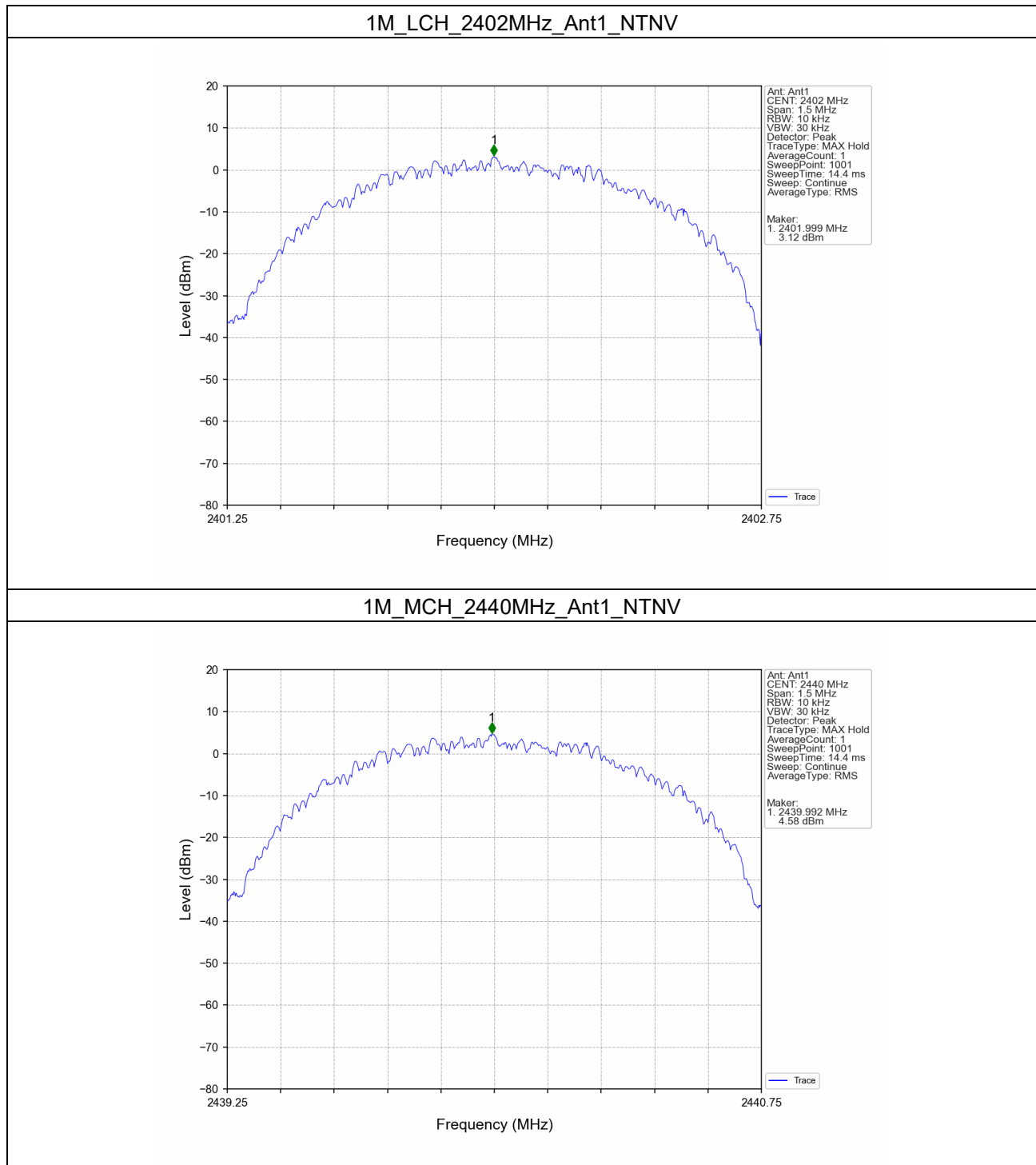
4.1 Test Result

4.1.1 PSD

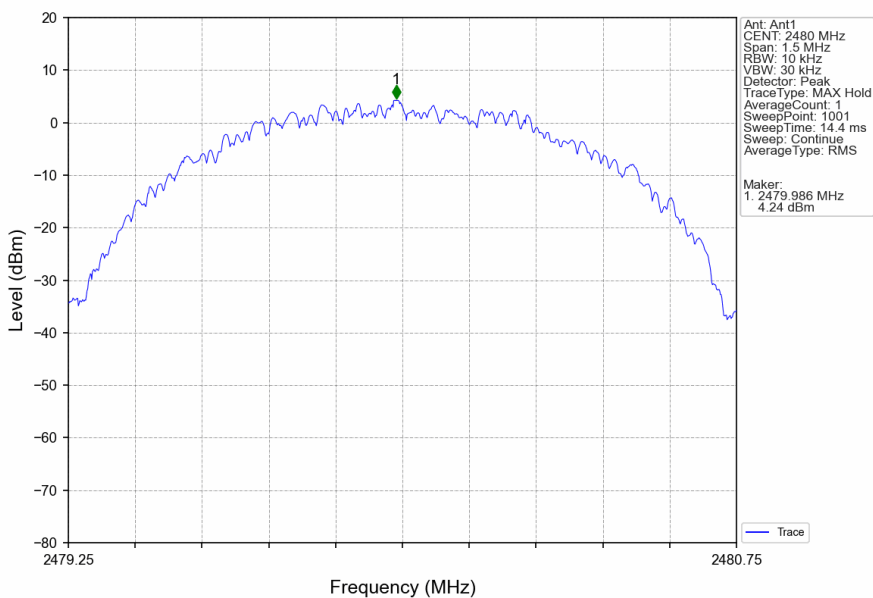
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm)		Verdict
			ANT1	Limit	
1M	SISO	2402	3.12	<=8	Pass
		2440	4.58	<=8	Pass
		2480	4.24	<=8	Pass
2M	SISO	2402	5.63	<=8	Pass
		2440	6.91	<=8	Pass
		2480	6.57	<=8	Pass
Note1: Antenna Gain: Ant1: 0.20dBi;					

4.2 Test Graph

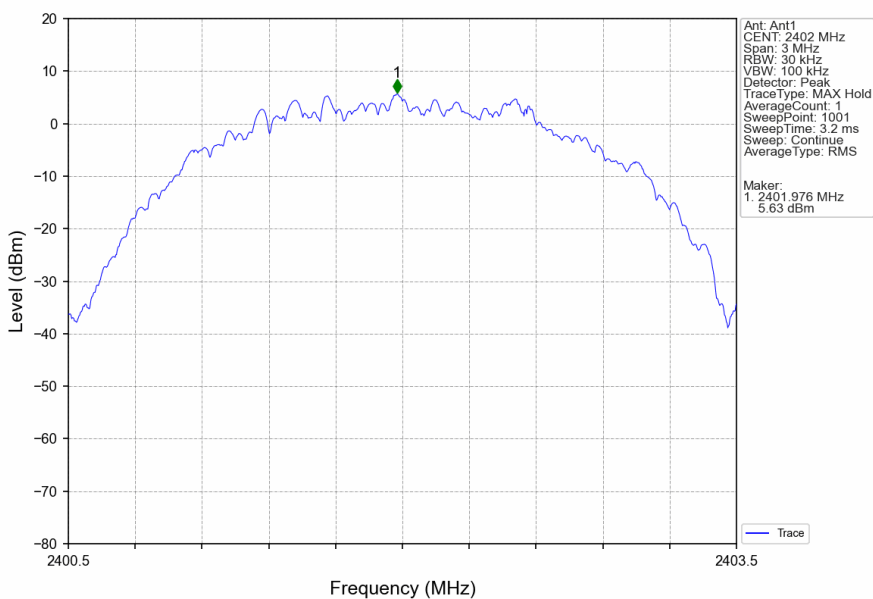
4.2.1 PSD



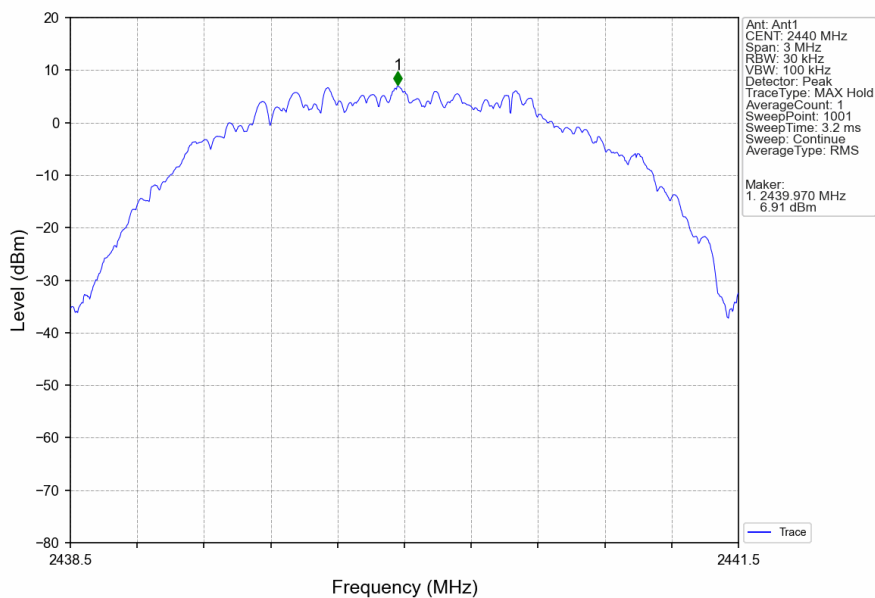
1M_HCH_2480MHz_Ant1_NTNV



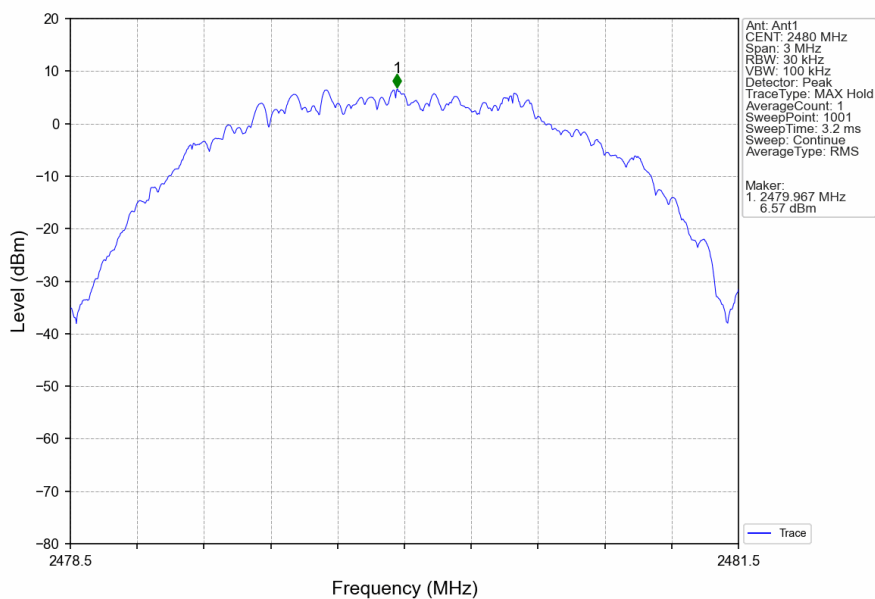
2M_LCH_2402MHz_Ant1_NTNV



2M_MCH_2440MHz_Ant1_NTNV



2M_HCH_2480MHz_Ant1_NTNV



5. Unwanted Emissions In Non-restricted Frequency Bands

5.1 Test Result

5.1.1 Ref

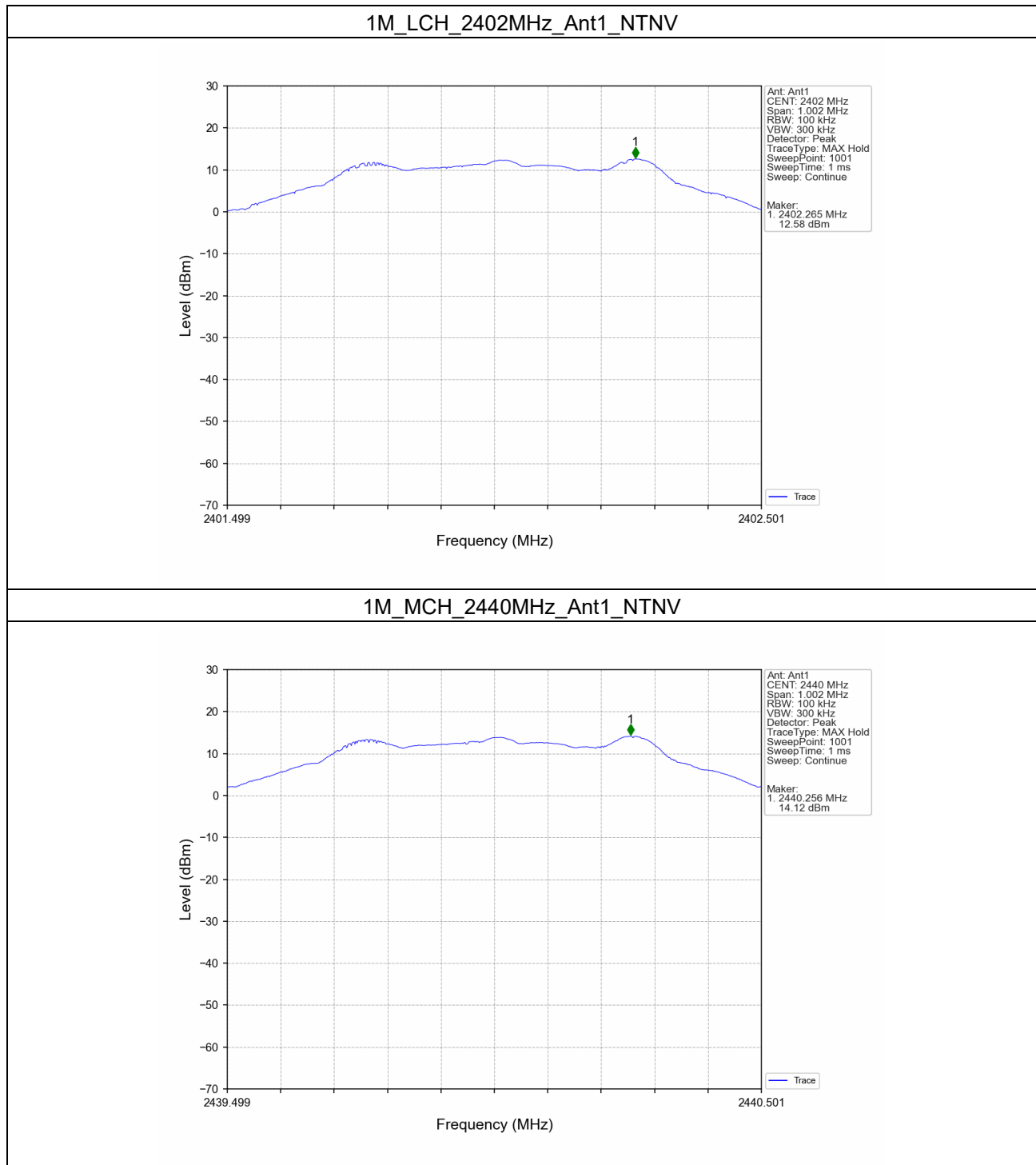
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
1M	SISO	2402	1	12.58
		2440	1	14.12
		2480	1	13.82
2M	SISO	2402	1	12.04
		2440	1	13.45
		2480	1	13.21

5.1.2 CSE

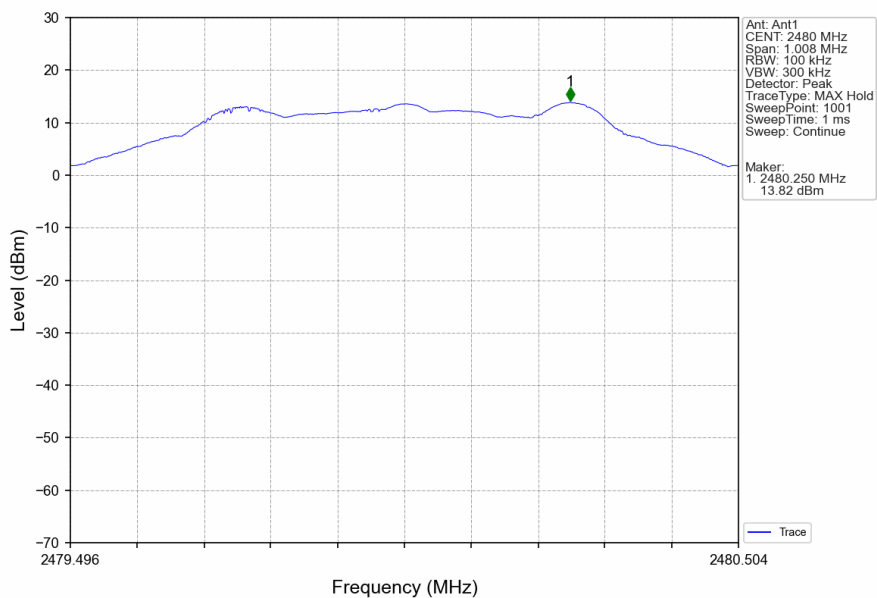
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
1M	SISO	2402	1	14.12	-5.88	Pass
		2440	1	14.12	-5.88	Pass
		2480	1	14.12	-5.88	Pass
2M	SISO	2402	1	13.45	-6.55	Pass
		2440	1	13.45	-6.55	Pass
		2480	1	13.45	-6.55	Pass

5.2 Test Graph

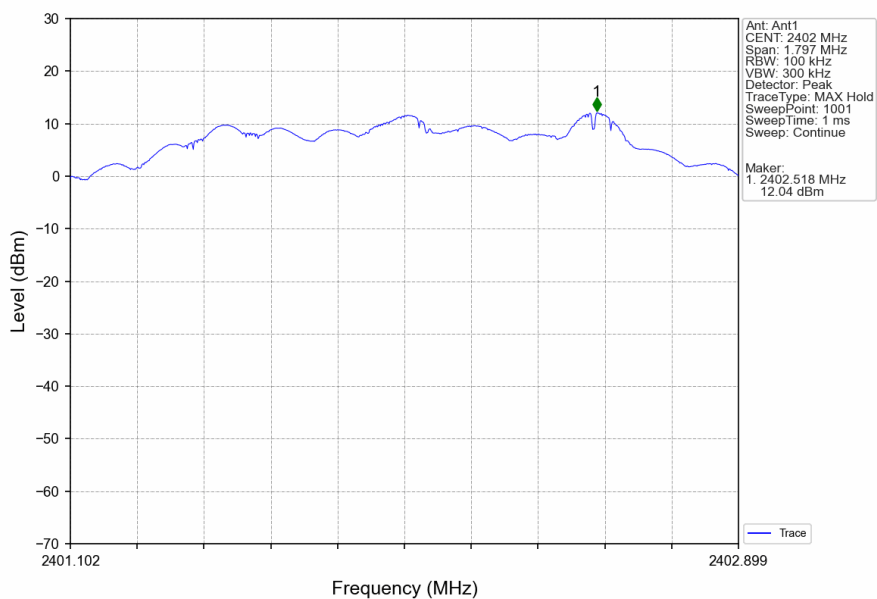
5.2.1 Ref



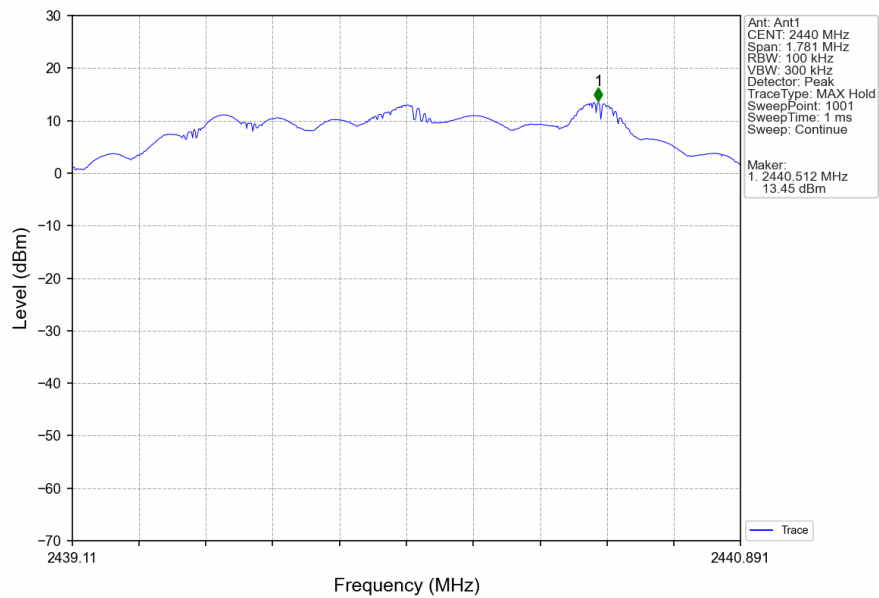
1M_HCH_2480MHz_Ant1_NTNV



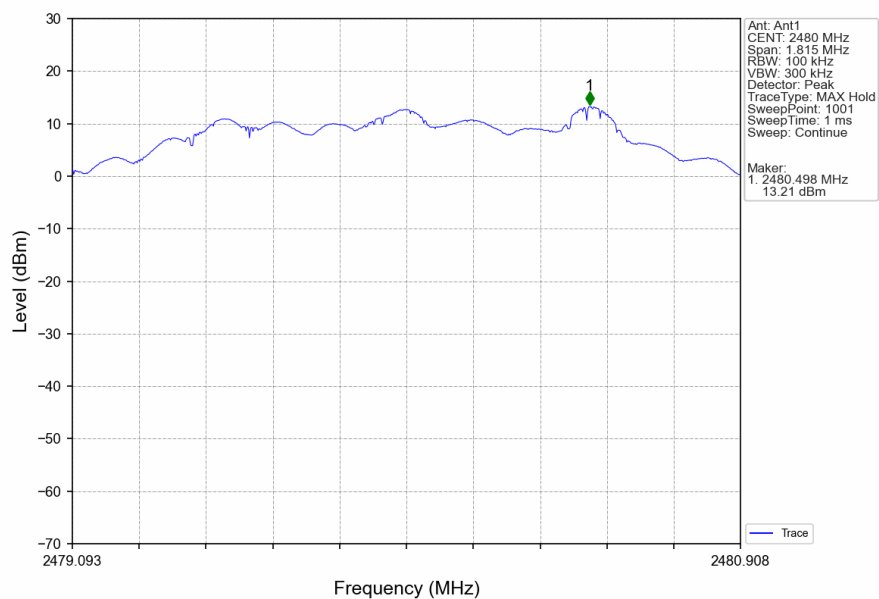
2M_LCH_2402MHz_Ant1_NTNV



2M_MCH_2440MHz_Ant1_NTNV

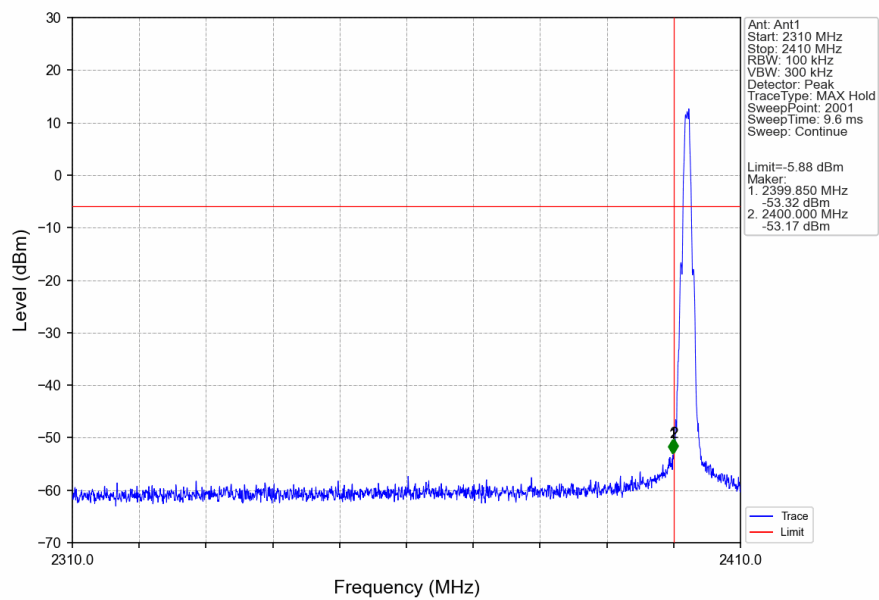


2M_HCH_2480MHz_Ant1_NTNV

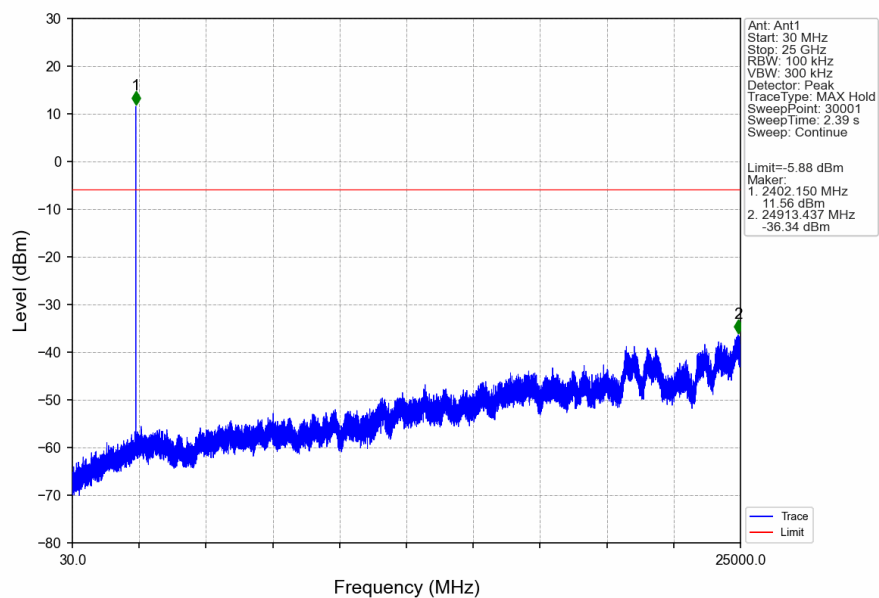


5.2.2 CSE

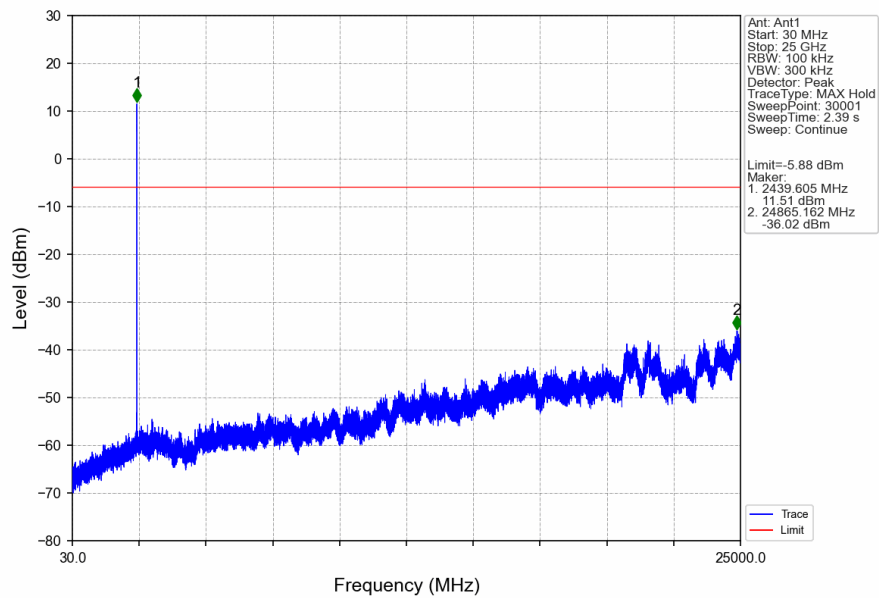
1M_LCH_2402MHz_Ant1_NTNV



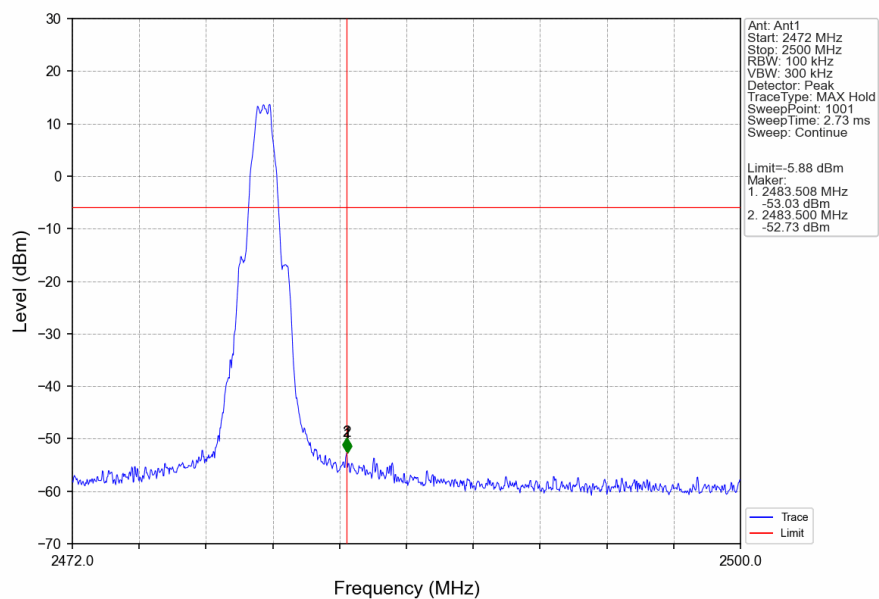
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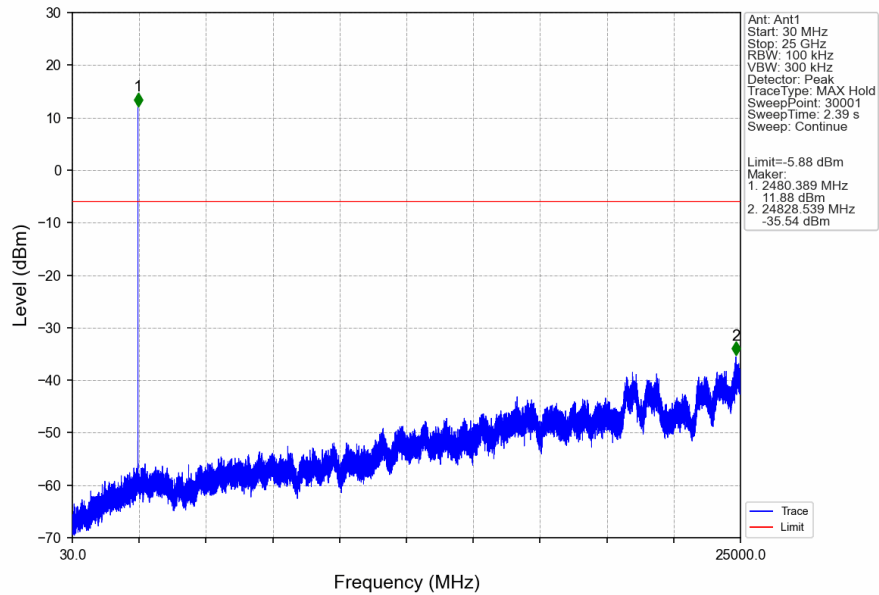
1M_MCH_2440MHz_Ant1_NTNV



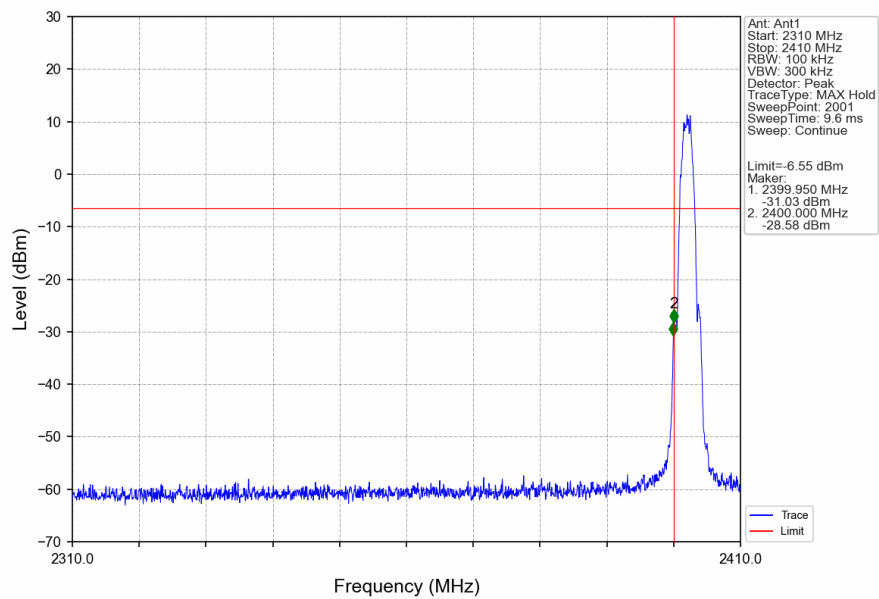
1M_HCH_2480MHz_Ant1_NTNV



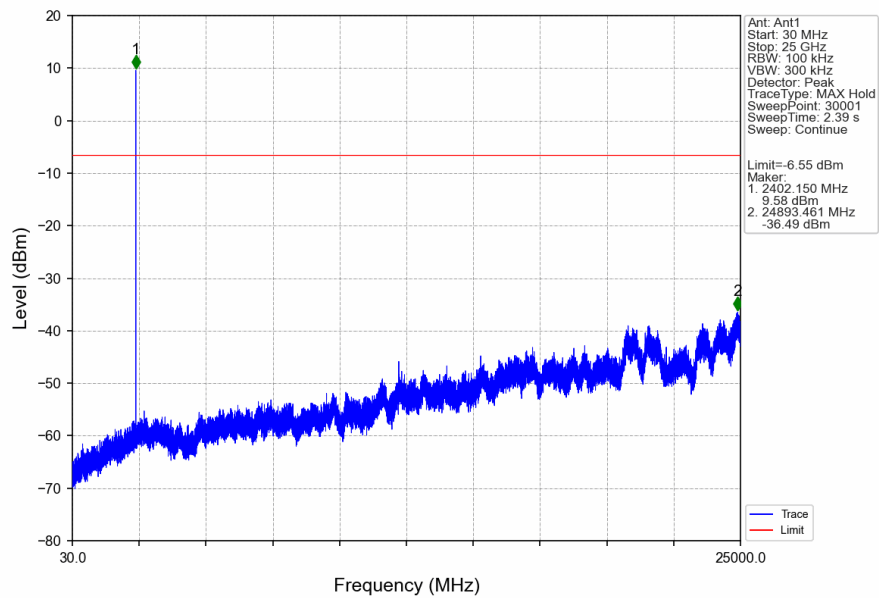
1M_HCH_2480MHz_Ant1_NTNV



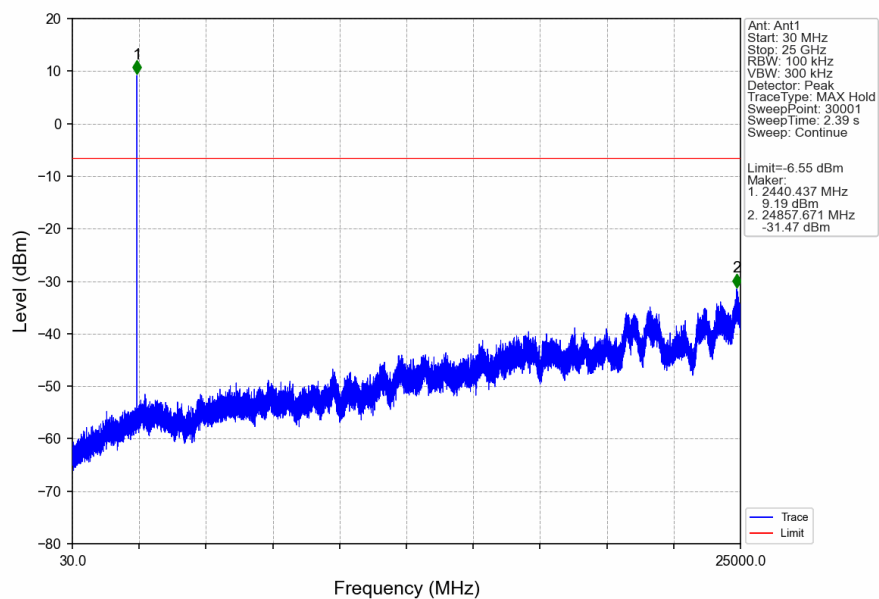
2M_LCH_2402MHz_Ant1_NTNV



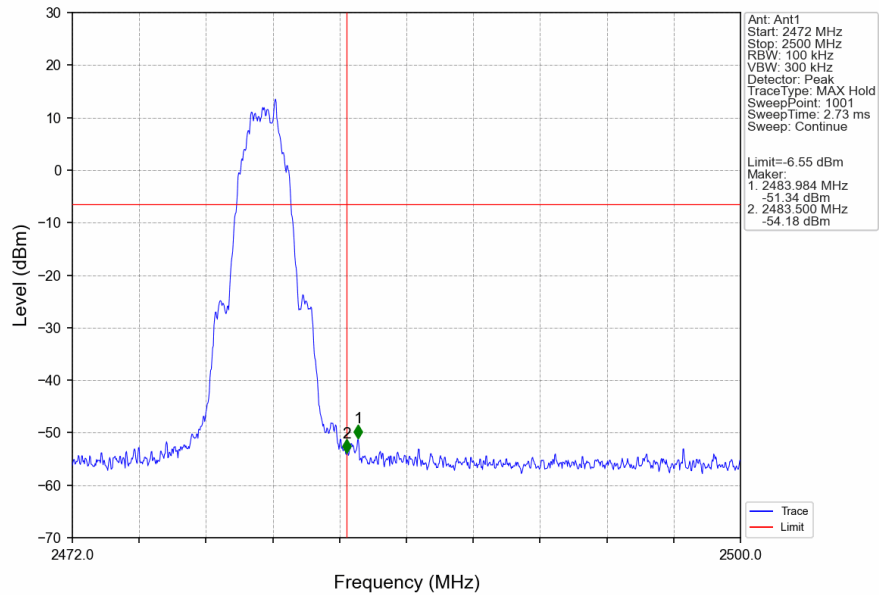
2M_LCH_2402MHz_Ant1_NTNV



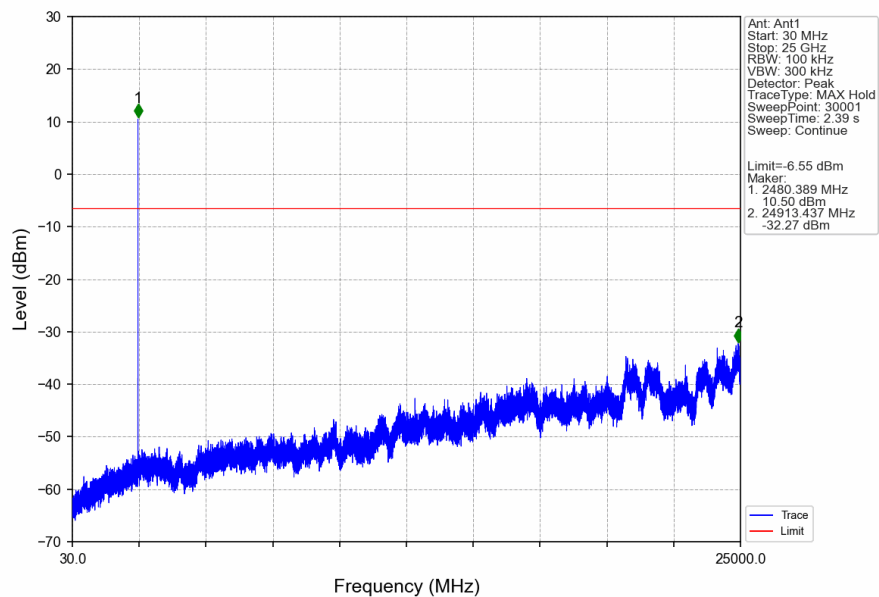
2M_MCH_2440MHz_Ant1_NTNV



2M_HCH_2480MHz_Ant1_NTNV



2M_HCH_2480MHz_Ant1_NTNV



- End of the Report -