



Report No.: SUCR251000100001

Page: 1 of 137

TEST REPORT

Application No.: SUCR2510001000MO
Applicant: Quectel Wireless Solutions Co., Ltd.
Address of Applicant: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233
Manufacturer: Quectel Wireless Solutions Co., Ltd.
Address of Manufacturer: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233
Equipment Under Test (EUT):
EUT Name: Bluetooth Low Energy and 802.15.4 wireless radio module
Model No.: KGM133S
Trade Mark: QUECTEL
FCC ID: XMR2025KGM133S
Standard(s) : 47 CFR Part 15, Subpart C 15.247
Date of Receipt: 2025-10-16
Date of Test: 2025-11-04 to 2025-11-07
Date of Issue: 2025-11-12

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
01	Original	2025-11-12	/

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



3 Contents

	Page
1 COVER PAGE	1
2 Test Summary	3
3 Contents.....	4
4 General Information.....	5
4.1 Details of E.U.T.	5
4.2 Environment Parameter	5
4.3 Description of Support Units	5
4.4 Measurement Uncertainty & Decision Rule	6
4.5 Test Location	7
4.6 Test Facility	7
4.7 Deviation from Standards.....	7
4.8 Abnormalities from Standard Conditions.....	7
5 Equipment List	8
6 Radio Spectrum Technical Requirement.....	10
6.1 Antenna Requirement	10
7 Radio Spectrum Matter Test Results	11
7.1 Radiated Emissions which fall in the restricted bands	11
7.2 Radiated Spurious Emissions Below 1GHz	46
7.3 Radiated Spurious Emissions Above 1GHz.....	56
7.4 Conducted Peak Output Power.....	82
7.5 Minimum 6dB Bandwidth.....	84
7.6 Power Spectrum Density	85
7.7 Conducted Band Edges Measurement	86
7.8 Conducted Spurious Emissions	88
8 Test Setup Photo	90
9 EUT Constructional Details (EUT Photos).....	90
10 Appendix.....	91



4 General Information

4.1 Details of E.U.T.

Power supply:	3.3V
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V6.0 LE
Modulation Type:	GFSK
Number of Channels:	40
Channel Spacing:	2MHz
Antenna Type:	External Antenna
Antenna Gain:	0.2 dBi
Antenna Number:	1

4.2 Environment Parameter

Environment Parameter	Selected Values During Tests	
Relative Humidity	Ambient	
Value	Temperature(°C)	Voltage(V)
NTNV	25	3.3
NTLV	25	1.71
NTHV	25	3.8
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
Mouse	Lenovo	3D optical Mouse	N/A
Motherboard	QUECTEL	N/A	N/A



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**

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 6336.01.

- **FCC**

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd. has been recognized as an accredited testing laboratory. Designation Number: CN1312.

- **ISED**

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



Report No.: SUCR251000100001

Page: 8 of 137

5 Equipment List

Item	Equipment	Manufacturer	Model	Inventory No	Cal Date	Cal. Due Date
RF Conducted Test						
1	Shielding Room	Brilliant-emc	N/A	SUWI-04-08-01	11/9/2022	11/8/2025
2	Signal Analyzer	ROHDE&SCHWARZ	FSW43	SUWI-01-02-04	1/20/2025	1/19/2026
3	Signal Analyzer	KEYSIGHT	N9020A	SUWI-01-02-15	11/21/2024	11/20/2025
4	MXG Vector signal genitor	KEYSIGHT	N5182B	SUWI-01-38-01	1/15/2025	1/14/2026
5	Signal Generator	ROHDE&SCHWARZ	SMW200A	SUWI-01-07-08	3/27/2025	3/26/2026
6	Signal Generator	ROHDE&SCHWARZ	SMW100A	SUWI-01-8-01	1/16/2025	1/15/2026
7	MXG Vector Signal Generator	ROHDE&SCHWARZ	SMR20	SUWI-01-33-01	3/17/2025	3/16/2026
8	Wideband Radio Communication Tester	ROHDE&SCHWARZ	CMW500	SUWI-01-16-13	5/8/2025	5/7/2026
9	Wideband Radio Communication Test Ststion	Anritsu	MT8000A	SUWI-01-34-02	8/25/2025	8/24/2026
10	Wideband Radio Communication Tester	Anritsu	MT8821C	SUWI-01-26-03	8/25/2025	8/24/2026
11	Power meter	Anritsu	ML2495A	SUWI-01-31-01	8/25/2025	8/24/2026
12	Pulse power sensor	Anritsu	MA2411B	SUWI-01-32-01	8/25/2025	8/24/2026
13	DC Power Supply	HYELEC	HY3005B	SUWI-01-18-01	1/15/2025	1/14/2026
14	Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-07	2/13/2025	2/12/2026
15	Temperature Chamber	GIANT FORCE	ICT-017-40-SP-SD	SUWI-01-13-02	5/7/2025	5/6/2026
16	Measurement Software	TST	TST 272 V2.0	SUWI-03-55-03	NCR	NCR
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	11/21/2024	11/20/2025
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



Report No.: SUCR251000100001

Page: 9 of 137

13	Wideband Radio Communication Tester	Anritsu	MT8820C	SUWI-01-26-01	8/25/2025	8/24/2026
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	11/19/2024	11/18/2025
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



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 External antenna, and all 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

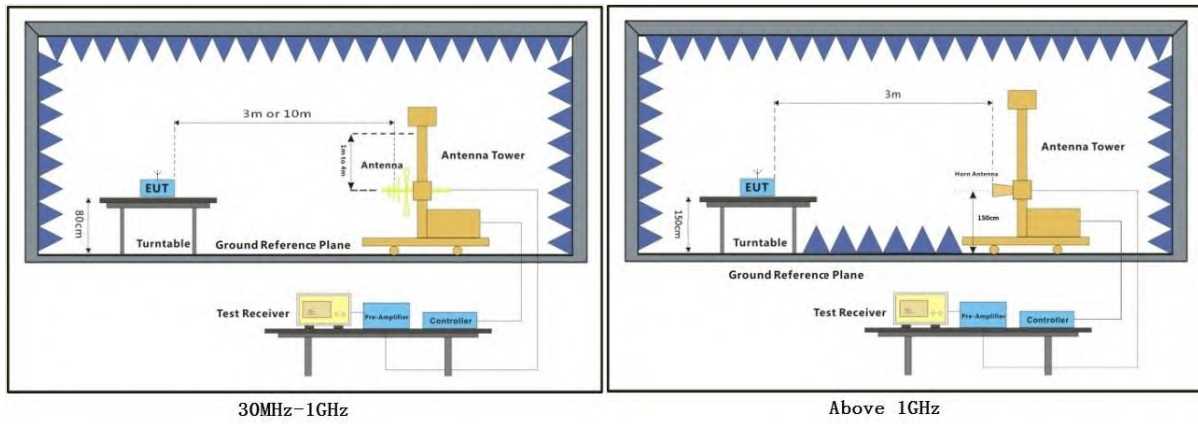
Operating Environment:

Temperature: 23 °C Humidity: 45 % RH Atmospheric Pressure: 1024 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	01	TX mode(2Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	02	TX mode(125K)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	03	TX mode(500K)_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.

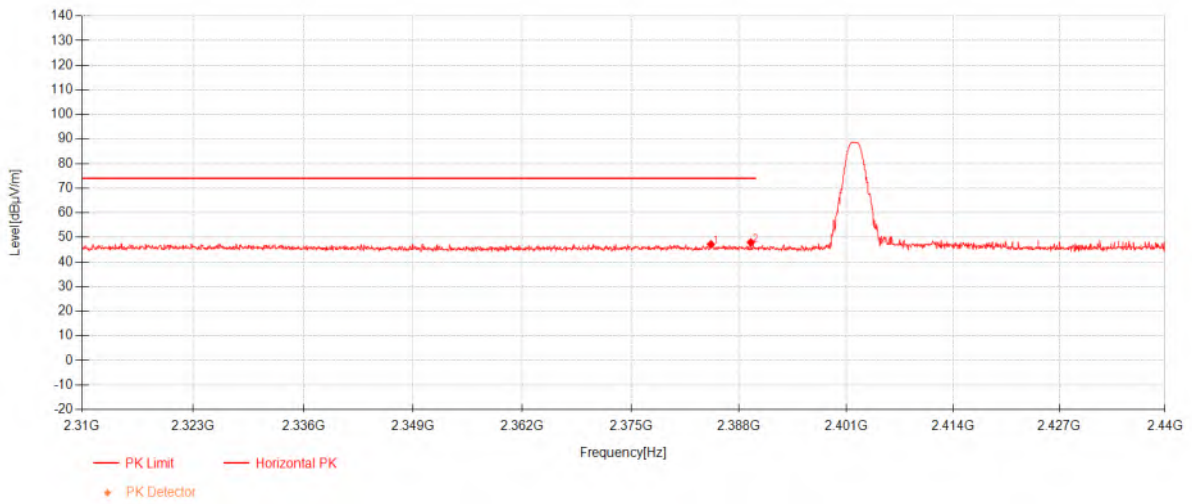
Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

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.

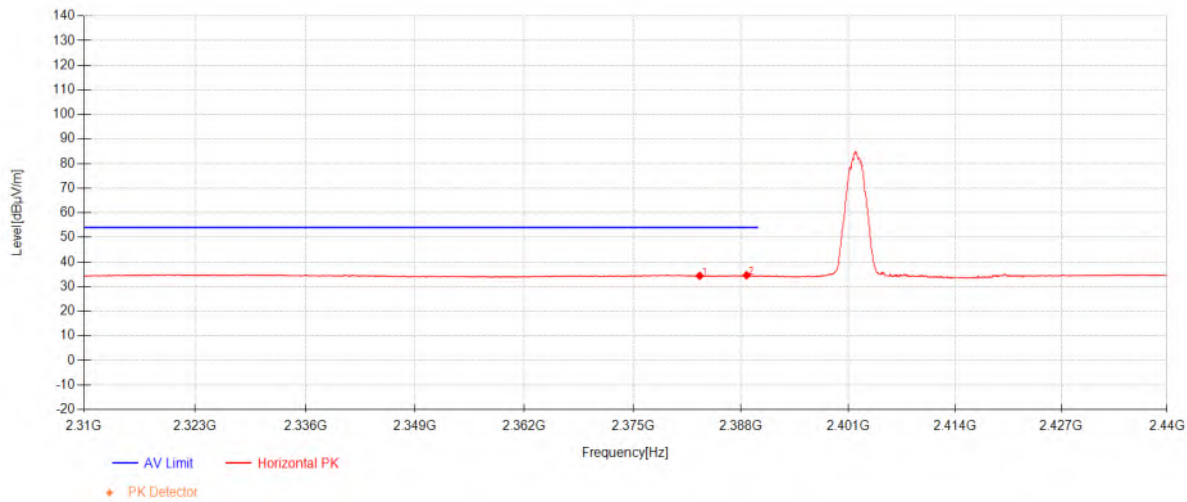
BLE_1M_TX_CH_00_Horizontal_Peak



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2384.62	43.65	26.99	-23.51	47.13	74.00	26.87	Horizontal
2	2389.43	44.45	27.00	-23.52	47.93	74.00	26.07	Horizontal

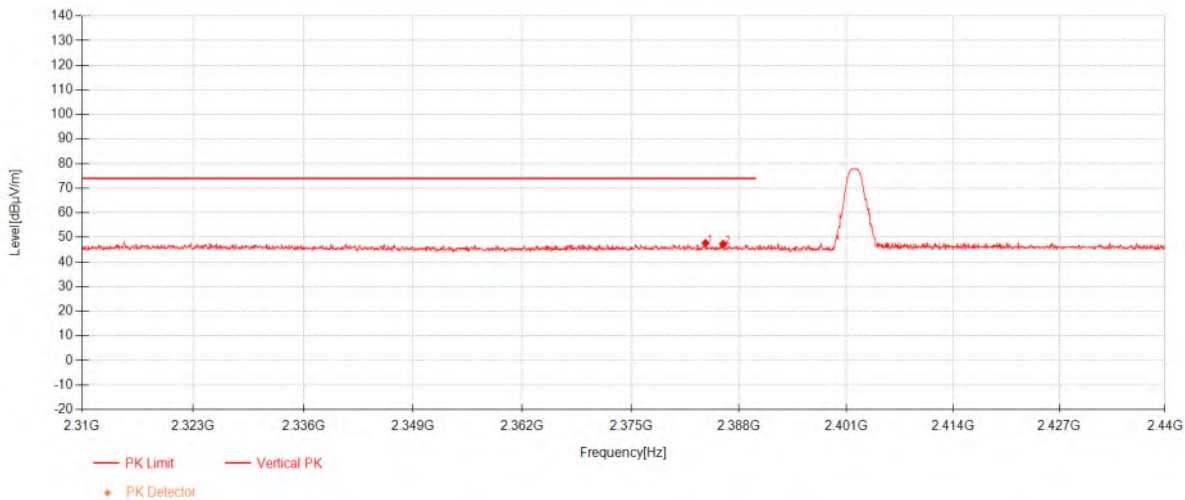


BLE_1M_TX_CH_00_Horizontal_Average



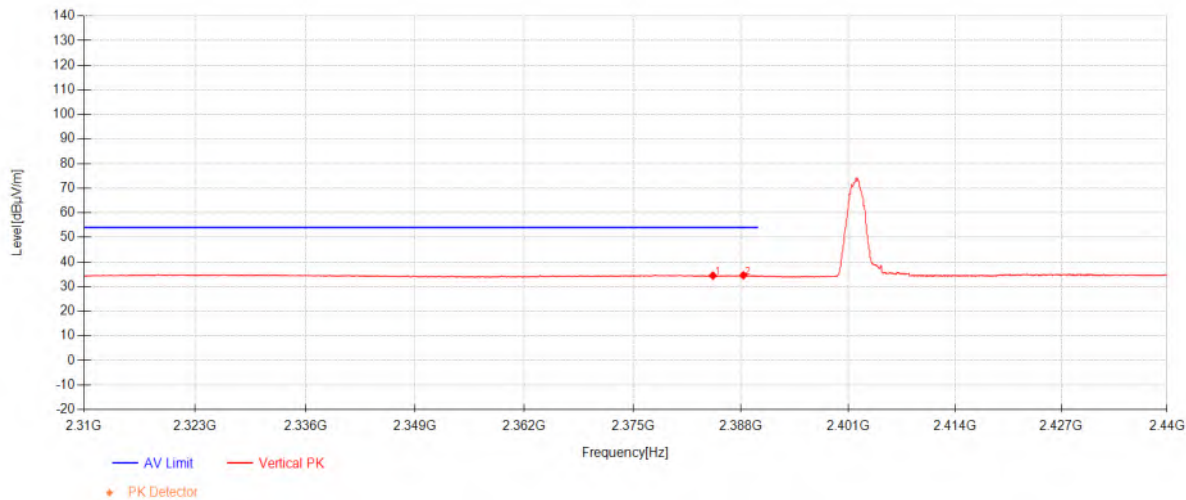
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2383.0275	30.88	26.99	-23.51	34.36	54.00	19.64	Horizontal
2	2388.6825	31.12	27.00	-23.52	34.60	54.00	19.40	Horizontal

BLE_1M_TX_CH_00_Vertical_Peak



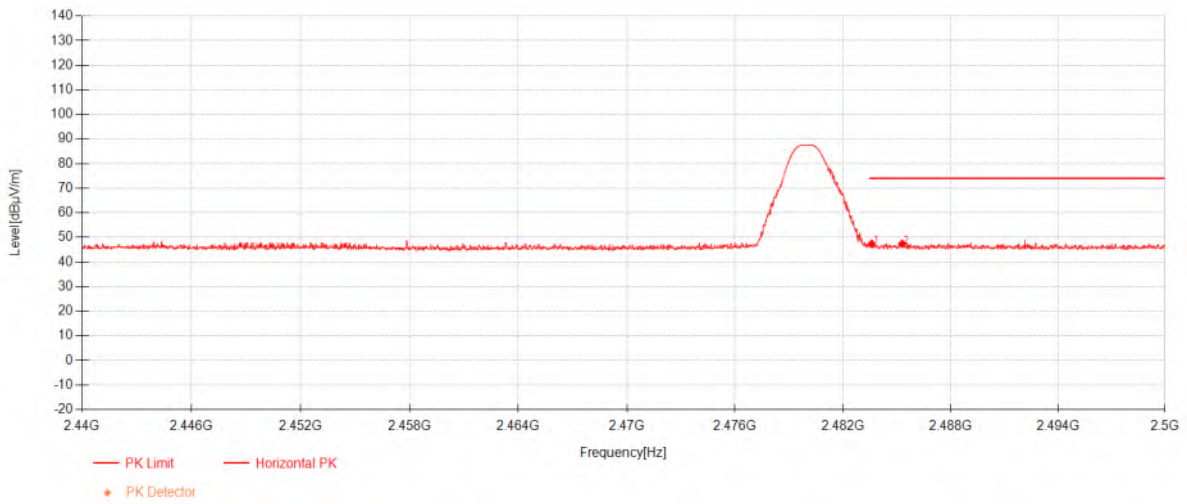
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2383.97	44.19	26.99	-23.51	47.67	74.00	26.33	Vertical
2	2386.0933	43.81	26.99	-23.51	47.29	74.00	26.71	Vertical

BLE_1M_TX_CH_00_Vertical_Average



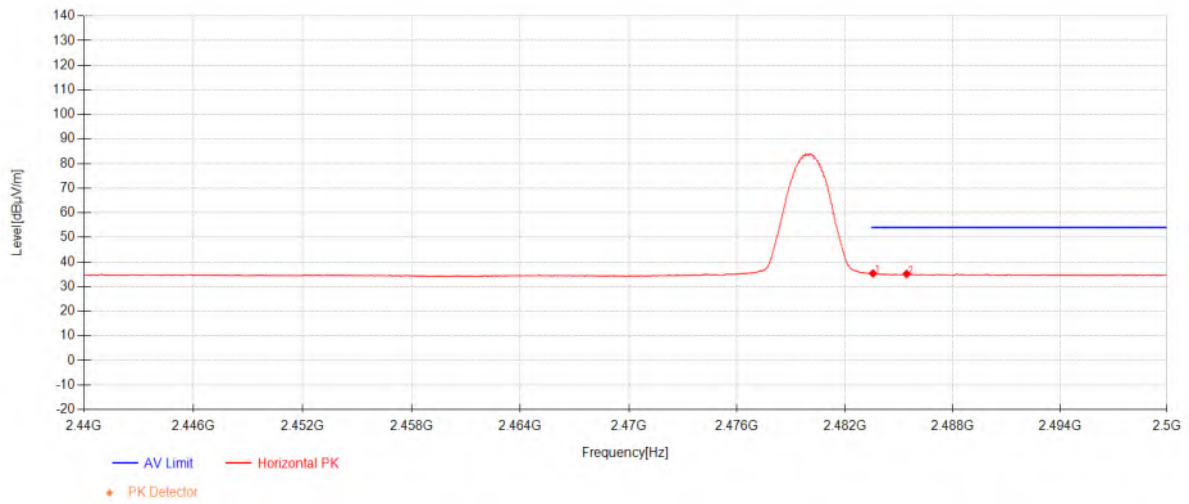
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2384.62	30.94	26.99	-23.51	34.42	54.00	19.58	Vertical
2	2388.2925	31.07	27.00	-23.51	34.55	54.00	19.45	Vertical

BLE_1M_TX_CH_39_Horizontal_Peak



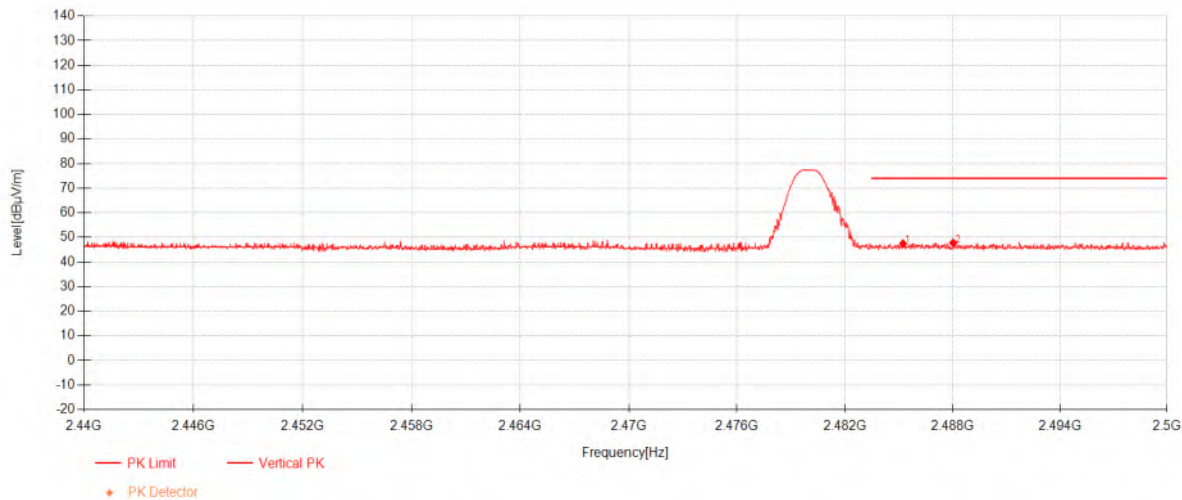
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2483.605	43.39	27.17	-23.18	47.38	74.00	26.62	Horizontal
2	2485.3	43.37	27.17	-23.17	47.37	74.00	26.63	Horizontal

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	2483.56	31.36	27.17	-23.18	35.35	54.00	18.65	Horizontal
2	2485.435	31.09	27.17	-23.17	35.09	54.00	18.91	Horizontal

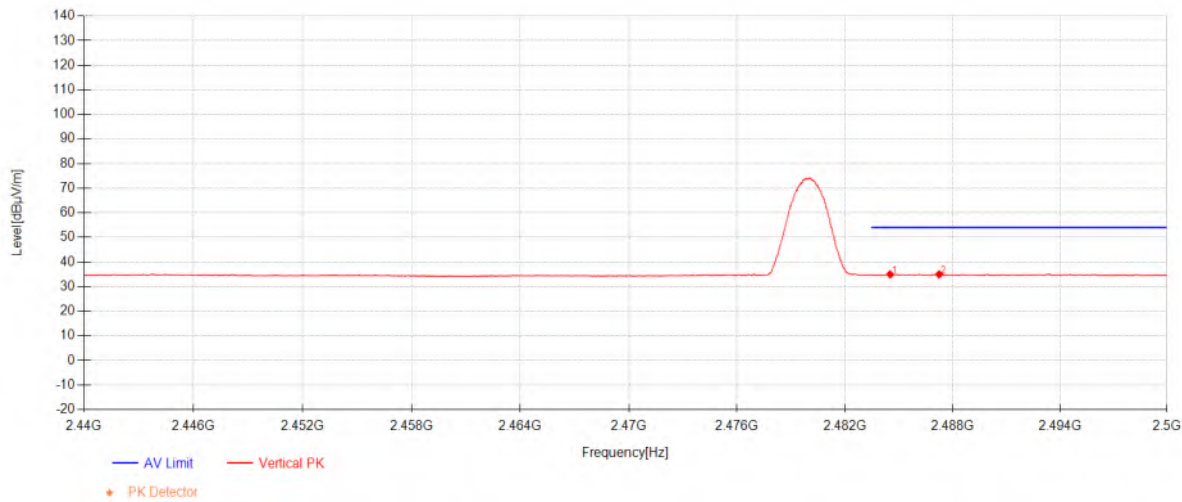
BLE_1M_TX_CH_39_Vertical_Peak



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2485.24	43.45	27.17	-23.17	47.45	74.00	26.55	Vertical
2	2488.03	43.72	27.18	-23.16	47.74	74.00	26.26	Vertical

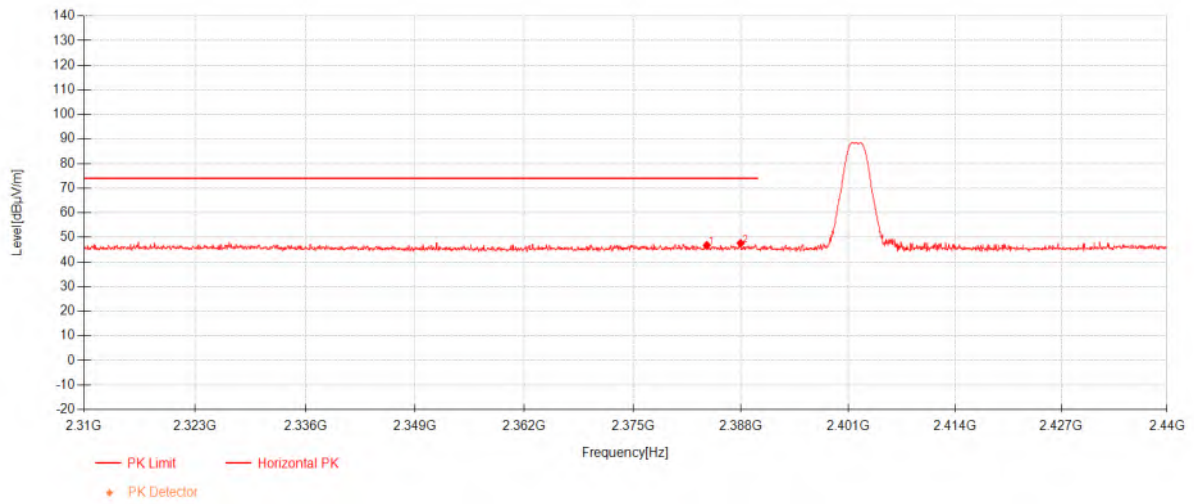


BLE_1M_TX_CH_39_Vertical_Average



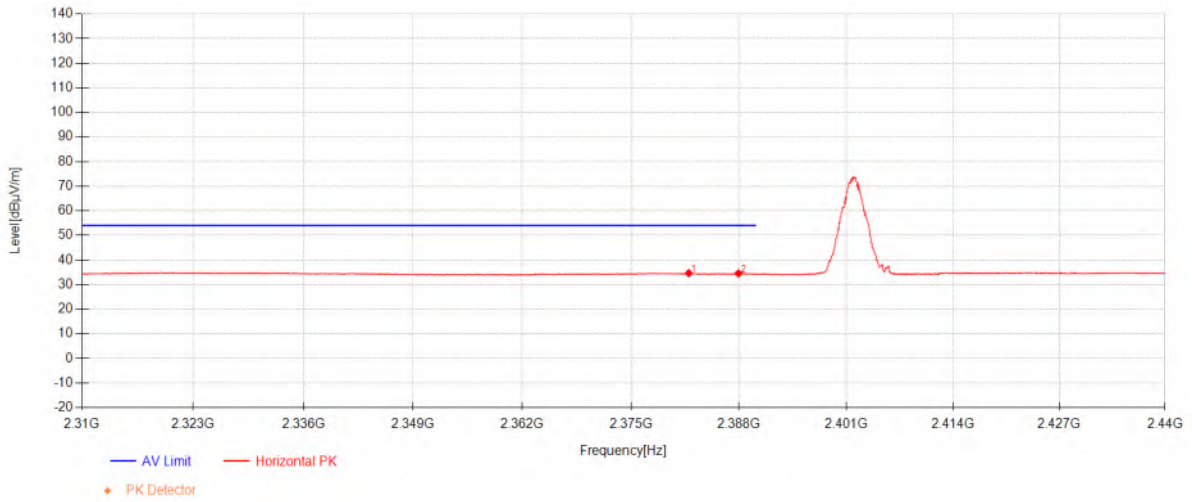
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2484.52	30.93	27.17	-23.18	34.93	54.00	19.07	Vertical
2	2487.25	30.92	27.18	-23.16	34.93	54.00	19.07	Vertical

BLE_2M_TX_CH_00_Horizontal_Peak



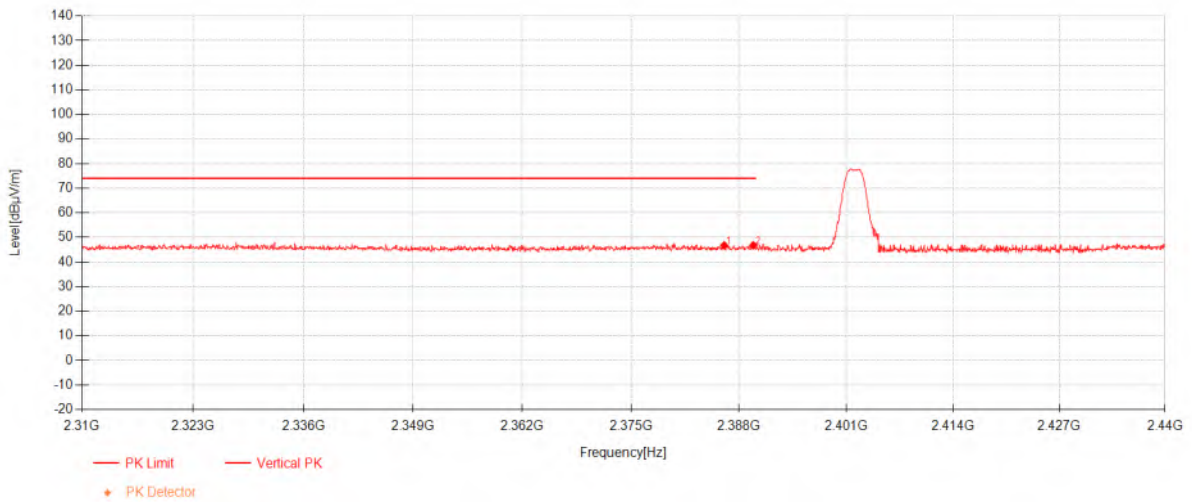
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2383.8833	43.34	26.99	-23.51	46.82	74.00	27.18	Horizontal
2	2387.9567	44.11	27.00	-23.51	47.59	74.00	26.41	Horizontal

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	2381.955	31.12	26.99	-23.51	34.60	54.00	19.40	Horizontal
2	2387.935	31.02	27.00	-23.51	34.50	54.00	19.50	Horizontal

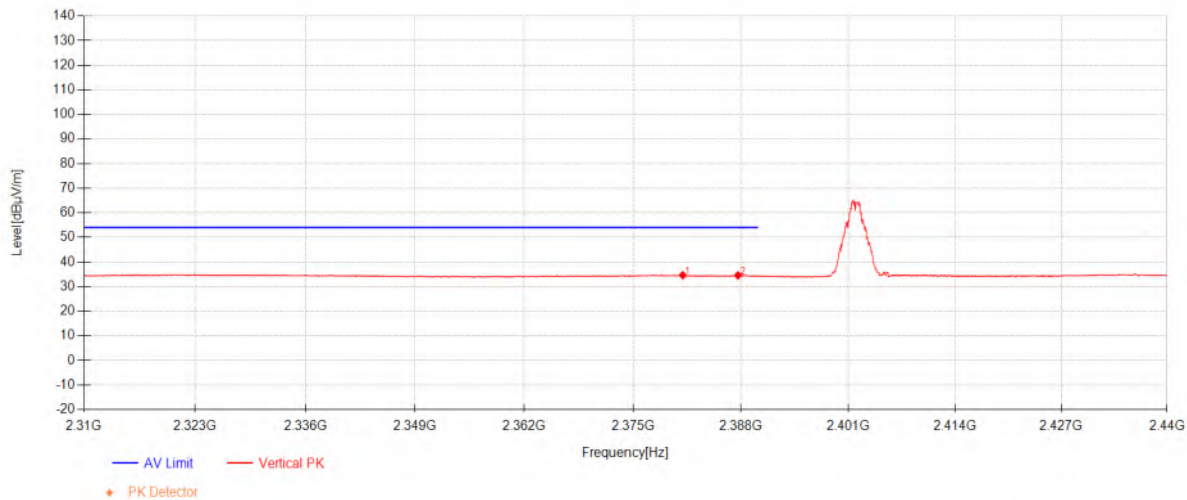
BLE_2M_TX_CH_00_Vertical_Peak



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2386.2233	43.27	27.00	-23.51	46.75	74.00	27.25	Vertical
2	2389.7333	43.31	27.00	-23.52	46.79	74.00	27.21	Vertical

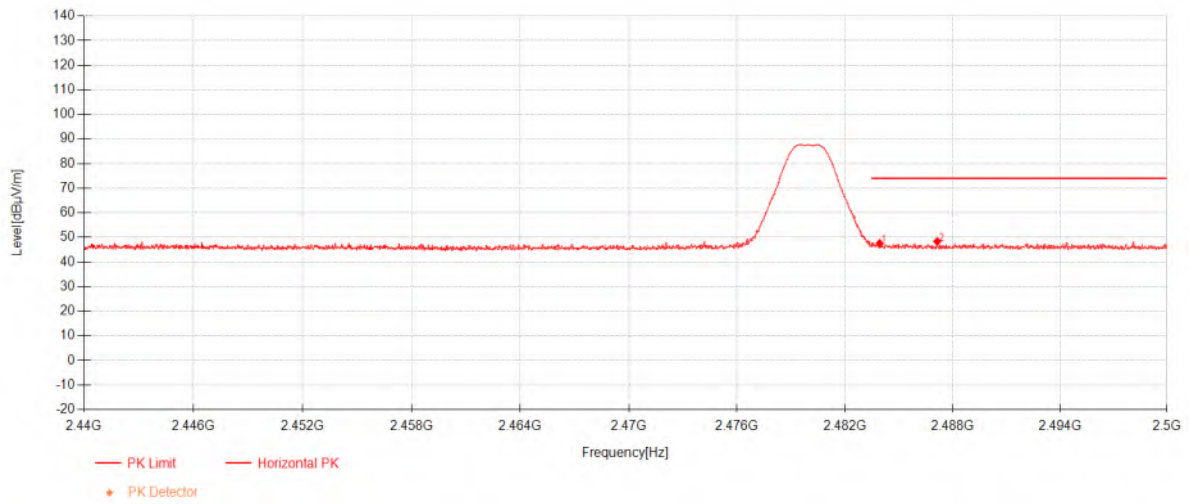


BLE_2M_TX_CH_00_Vertical_Average



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2380.98	31.11	26.99	-23.51	34.59	54.00	19.41	Vertical
2	2387.6425	31.05	27.00	-23.51	34.53	54.00	19.47	Vertical

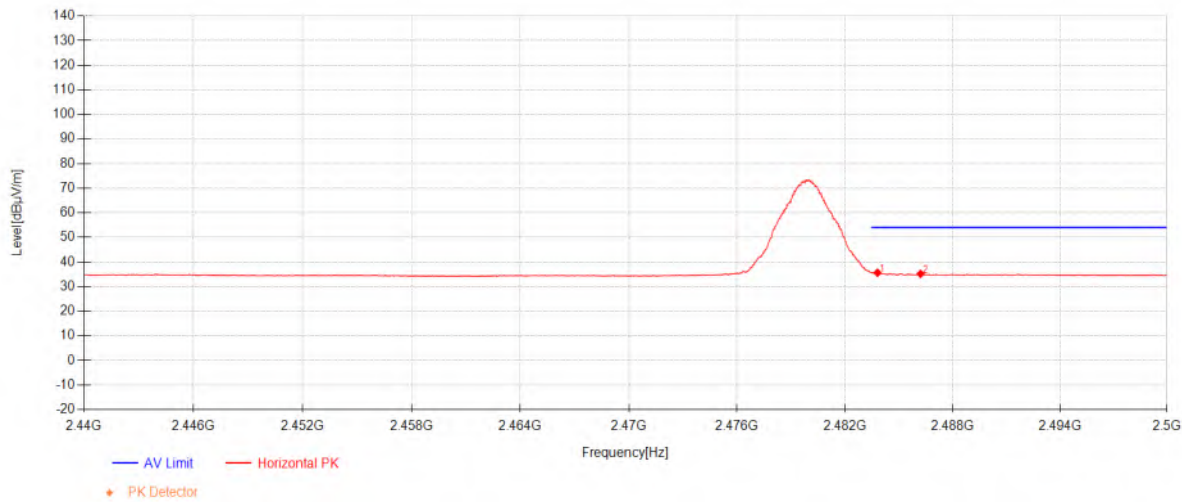
BLE_2M_TX_CH_39_Horizontal_Peak



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2483.935	43.57	27.17	-23.18	47.56	74.00	26.44	Horizontal
2	2487.145	44.31	27.18	-23.16	48.32	74.00	25.68	Horizontal



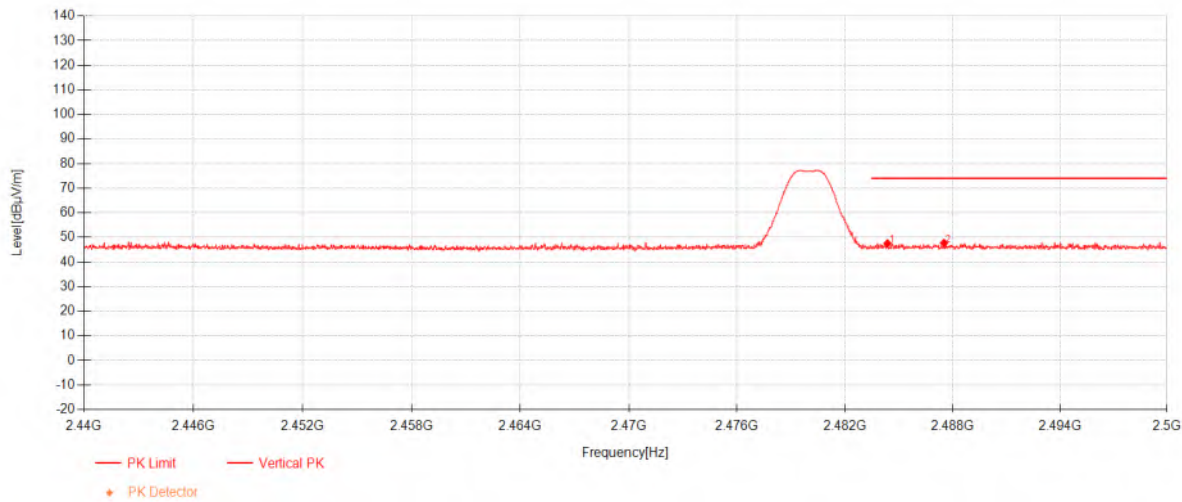
BLE_2M_TX_CH_39_Horizontal_Average



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2483.815	31.61	27.17	-23.18	35.60	54.00	18.40	Horizontal
2	2486.215	31.14	27.18	-23.17	35.15	54.00	18.85	Horizontal



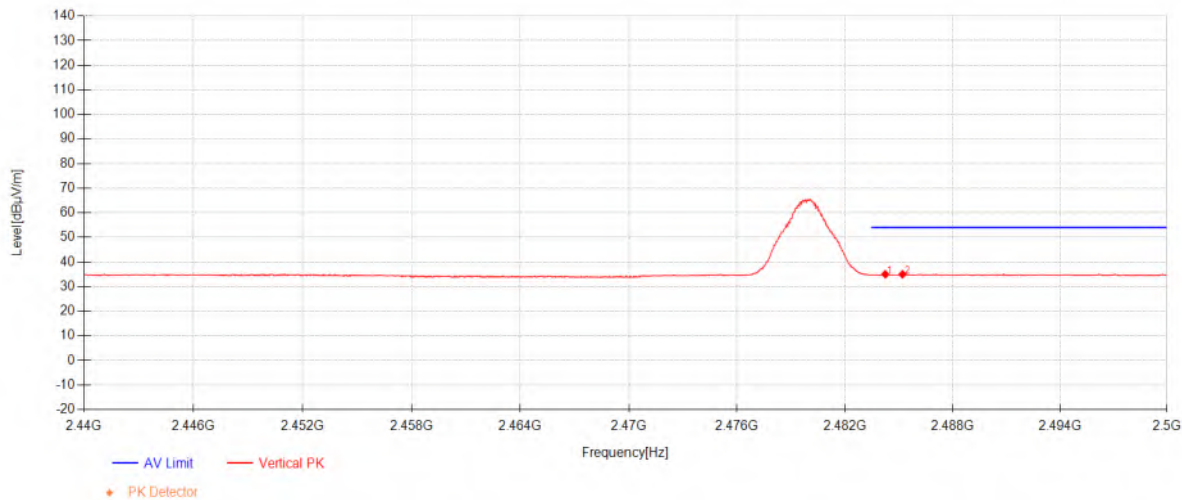
BLE_2M_TX_CH_39_Vertical_Peak



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2484.37	43.53	27.17	-23.18	47.53	74.00	26.47	Vertical
2	2487.52	43.70	27.18	-23.16	47.72	74.00	26.28	Vertical

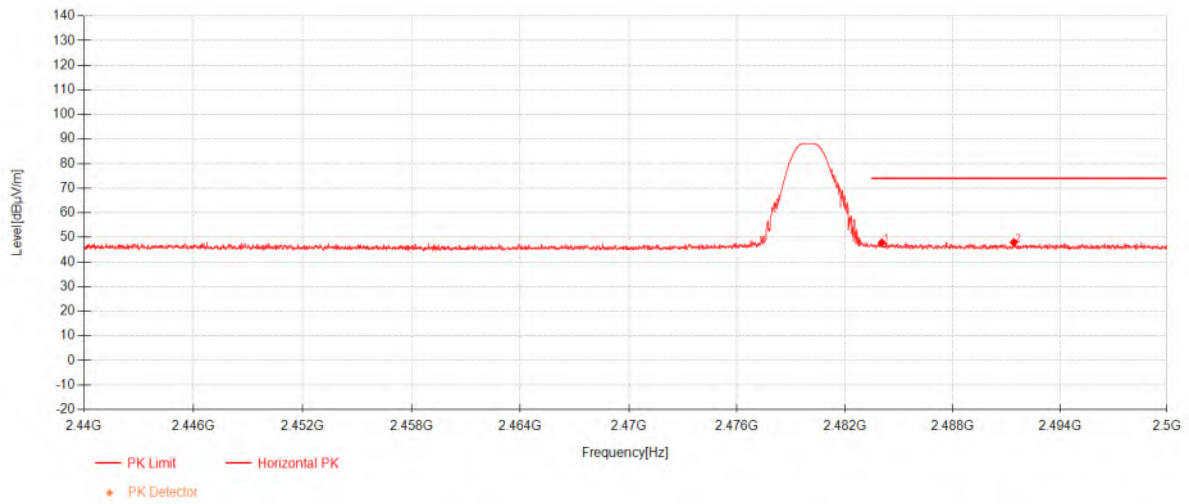


BLE_2M_TX_CH_39_Vertical_Average



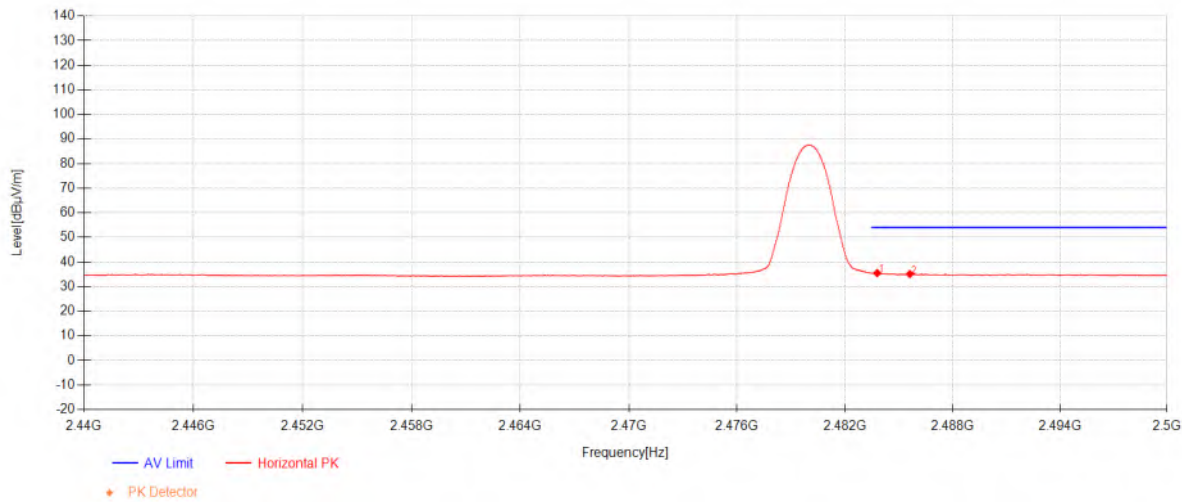
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2484.25	30.98	27.17	-23.18	34.98	54.00	19.02	Vertical
2	2485.21	30.96	27.17	-23.17	34.96	54.00	19.04	Vertical

BLE_125K_TX_CH_39_Horizontal_Peak



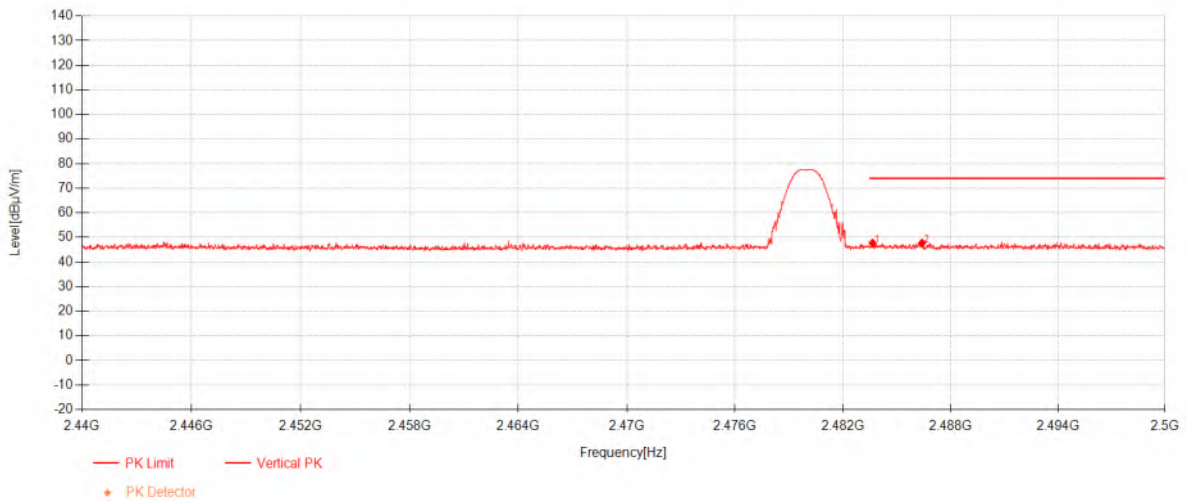
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2484.055	43.87	27.17	-23.18	47.86	74.00	26.14	Horizontal
2	2491.42	43.90	27.18	-23.15	47.94	74.00	26.06	Horizontal

BLE_125K_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	2483.8	31.48	27.17	-23.18	35.47	54.00	18.53	Horizontal
2	2485.615	31.07	27.17	-23.17	35.07	54.00	18.93	Horizontal

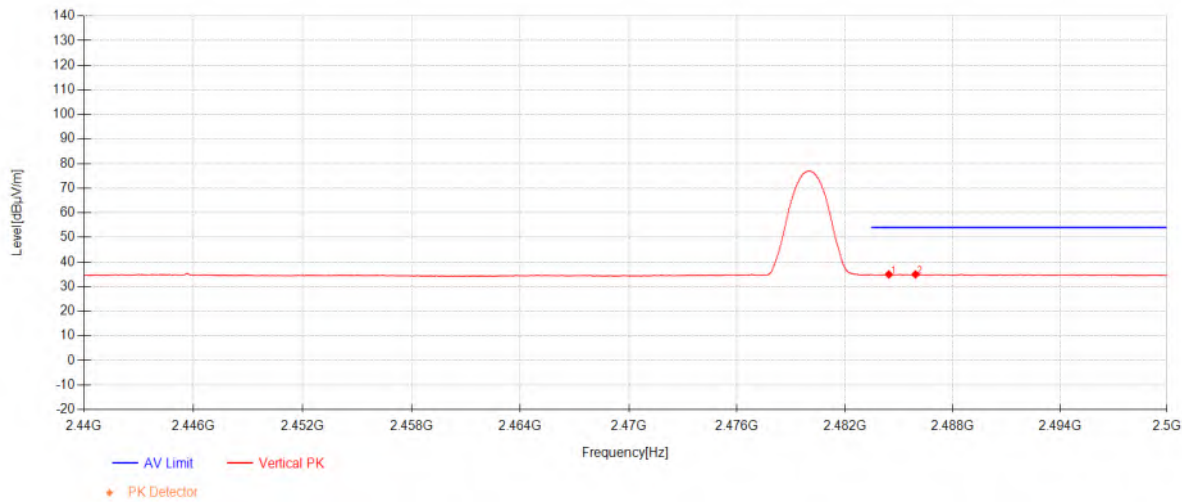
BLE_125K_TX_CH_39_Vetical_Peak



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2483.65	43.71	27.17	-23.18	47.70	74.00	26.30	Vertical
2	2486.41	43.74	27.18	-23.17	47.75	74.00	26.25	Vertical



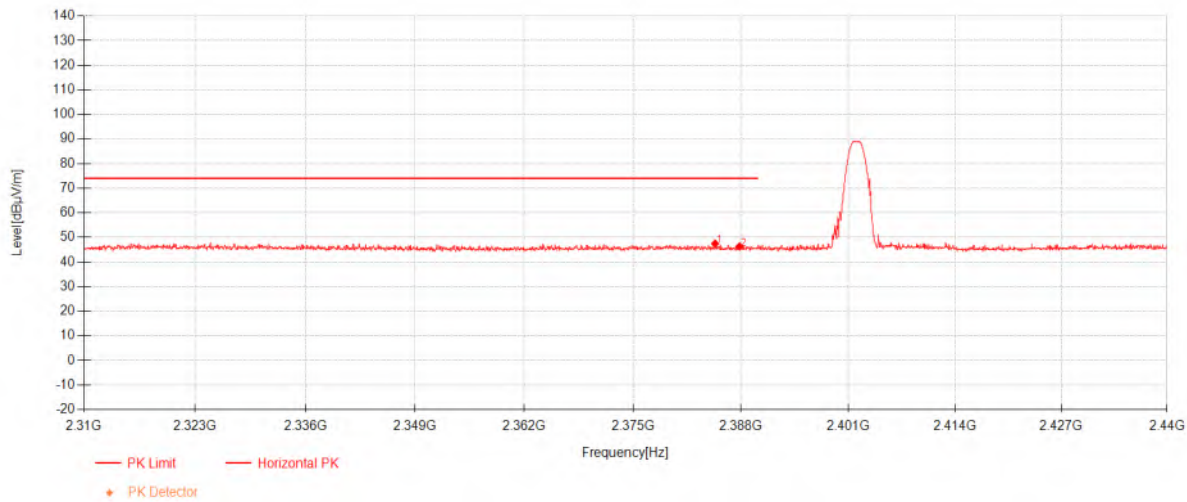
BLE_125K_TX_CH_39_Vetical_Average



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2484.445	30.91	27.17	-23.18	34.91	54.00	19.09	Vertical
2	2485.93	30.91	27.17	-23.17	34.92	54.00	19.08	Vertical

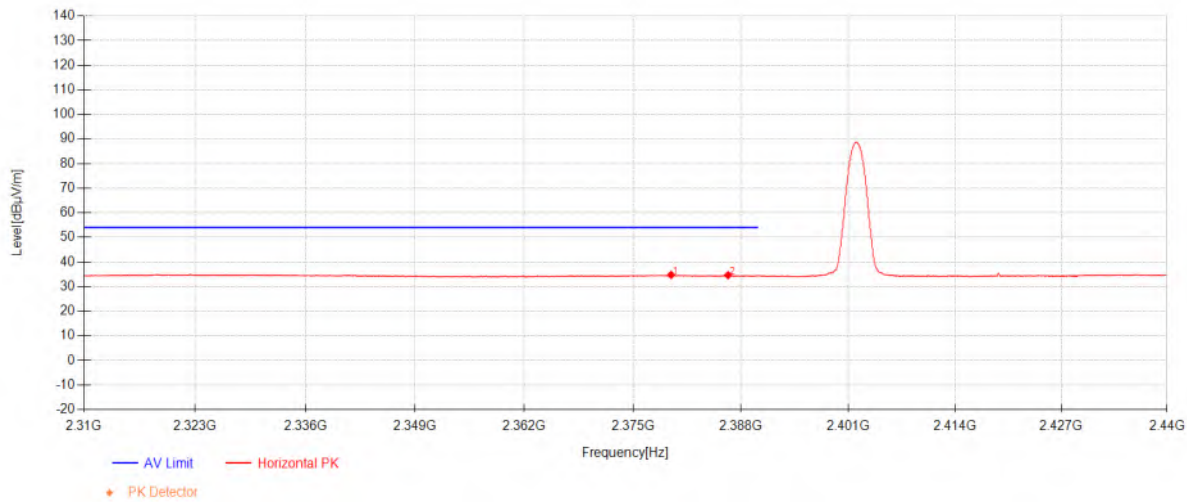


BLE_125K_TX_CH_00_Horizontal_Peak



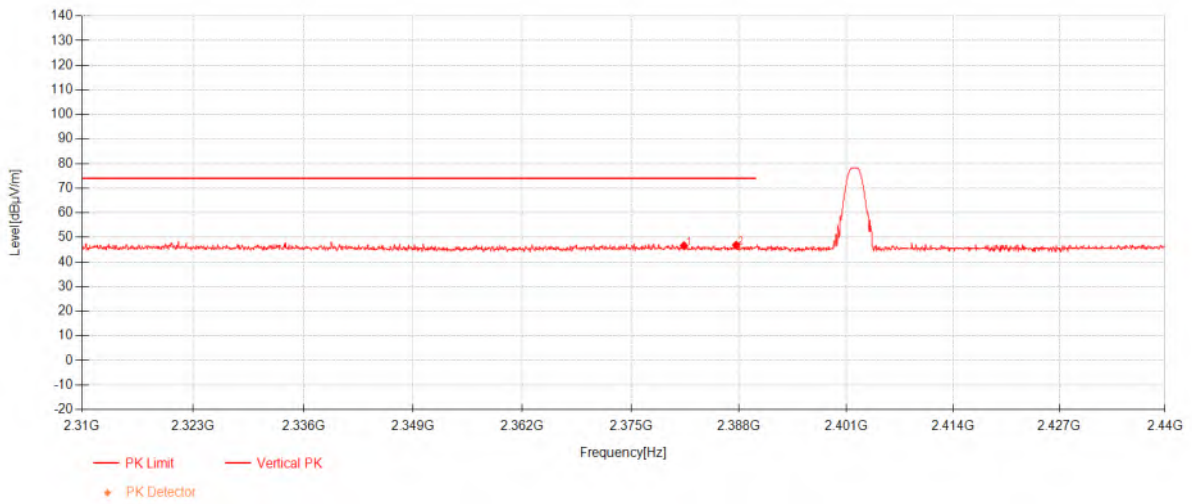
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2384.88	43.94	26.99	-23.51	47.42	74.00	26.58	Horizontal
2	2387.8267	42.78	27.00	-23.51	46.26	74.00	27.74	Horizontal

BLE_125K_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	2379.5825	31.27	26.98	-23.50	34.75	54.00	19.25	Horizontal
2	2386.44	31.11	27.00	-23.51	34.59	54.00	19.41	Horizontal

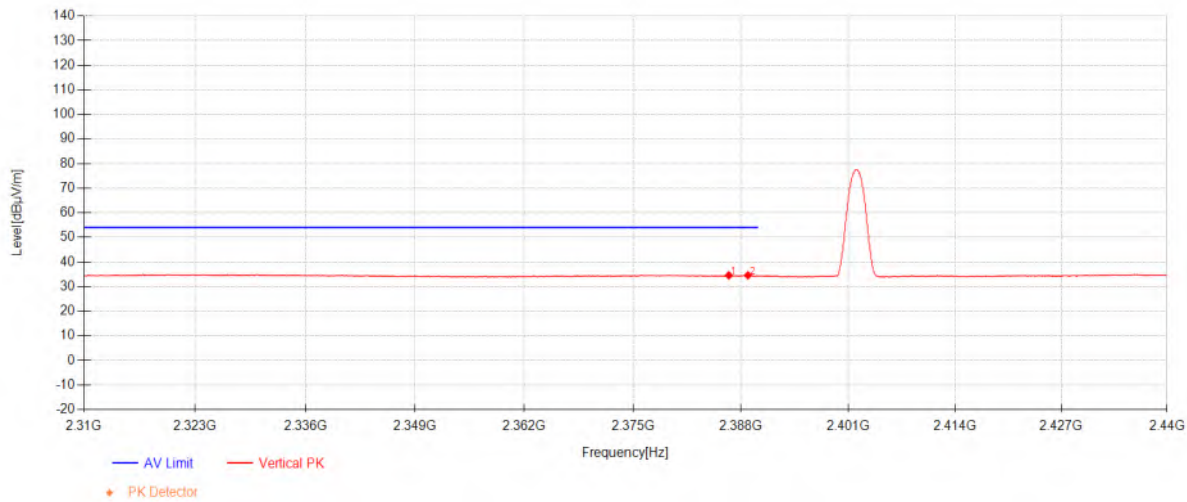
BLE_125K_TX_CH_00_Vertical_Peak



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2381.37	43.21	26.99	-23.51	46.69	74.00	27.31	Vertical
2	2387.6533	43.41	27.00	-23.51	46.89	74.00	27.11	Vertical



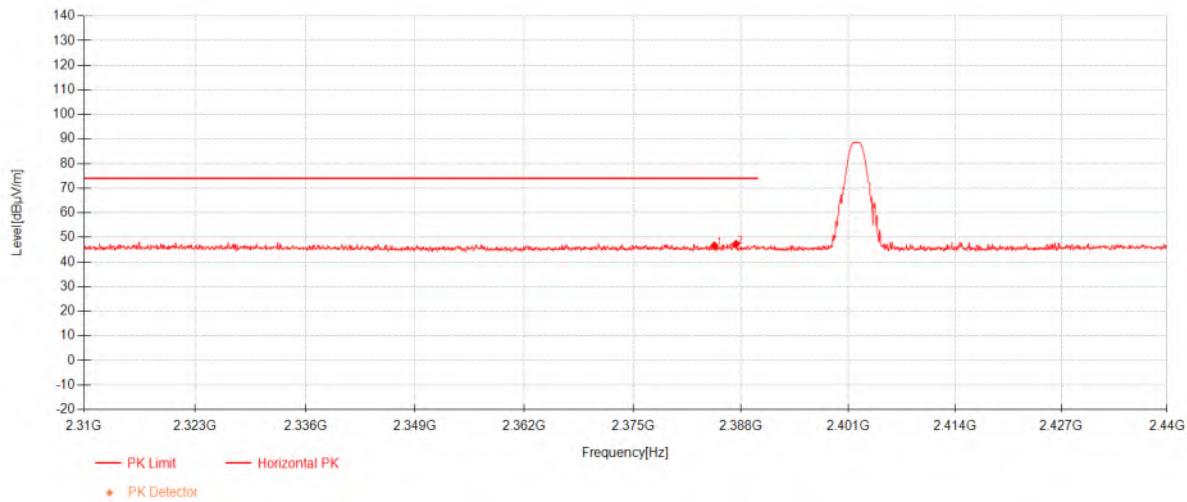
BLE_125K_TX_CH_00_Vertical_Average



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2386.5375	31.06	27.00	-23.51	34.54	54.00	19.46	Vertical
2	2388.845	31.07	27.00	-23.52	34.55	54.00	19.45	Vertical



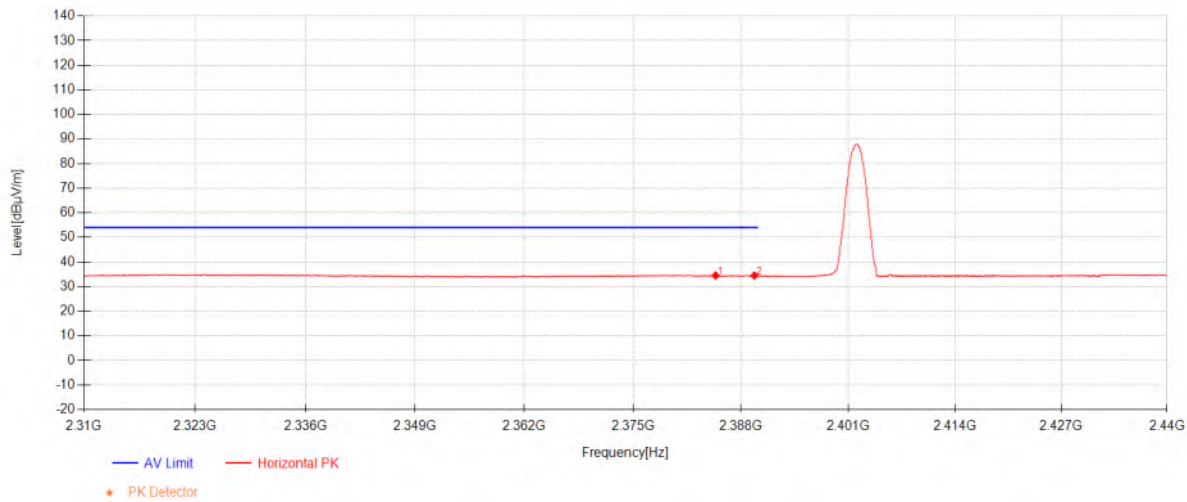
BLE_500K_TX_CH_00_Horizontal_Peak



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2384.7933	43.10	26.99	-23.51	46.58	74.00	27.42	Horizontal
2	2387.3933	43.77	27.00	-23.51	47.25	74.00	26.75	Horizontal

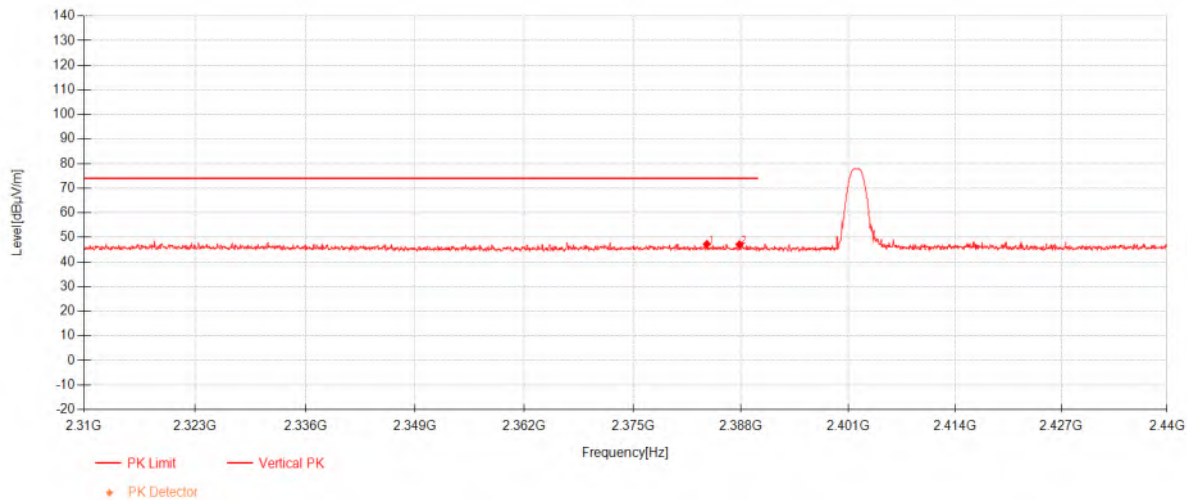


BLE_500K_TX_CH_00_Horizontal_Average



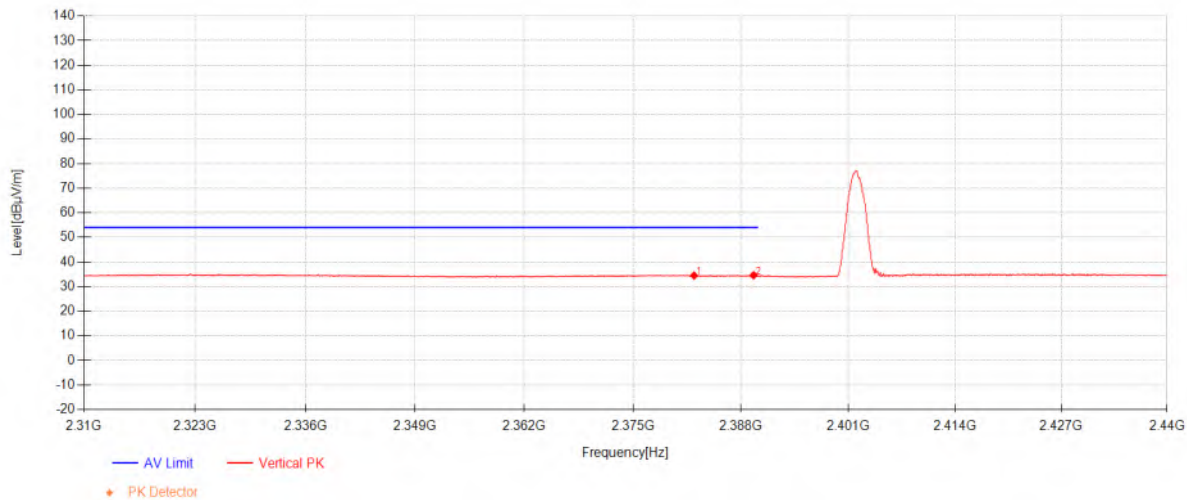
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2384.945	31.00	26.99	-23.51	34.48	54.00	19.52	Horizontal
2	2389.625	30.98	27.00	-23.52	34.46	54.00	19.54	Horizontal

BLE_500K_TX_CH_00_Vertical_Peak



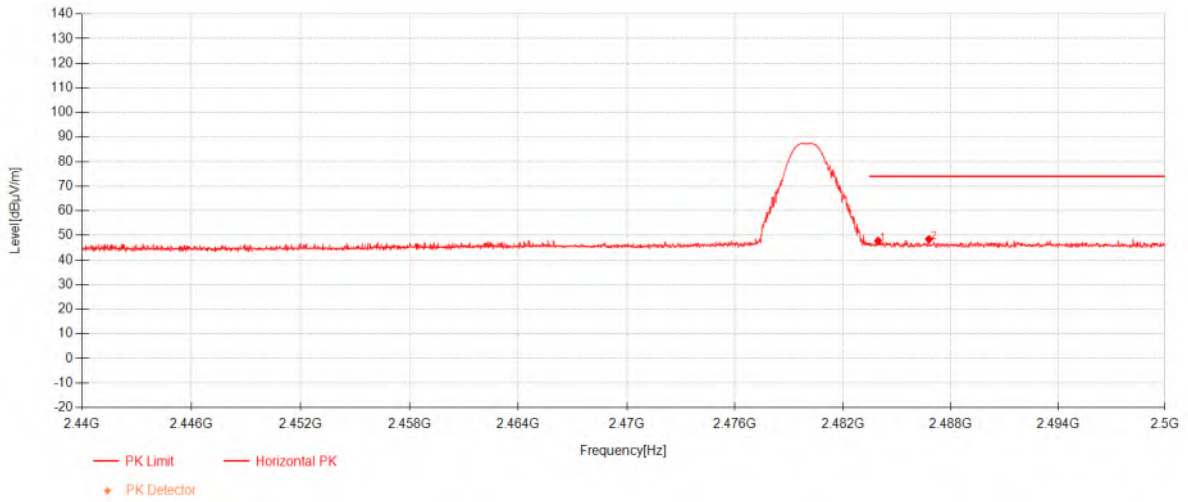
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2383.8833	43.76	26.99	-23.51	47.24	74.00	26.76	Vertical
2	2387.8267	43.61	27.00	-23.51	47.09	74.00	26.91	Vertical

BLE_500K_TX_CH_00_Vetical_Average



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2382.345	30.99	26.99	-23.51	34.47	54.00	19.53	Vertical
2	2389.5275	31.09	27.00	-23.52	34.57	54.00	19.43	Vertical

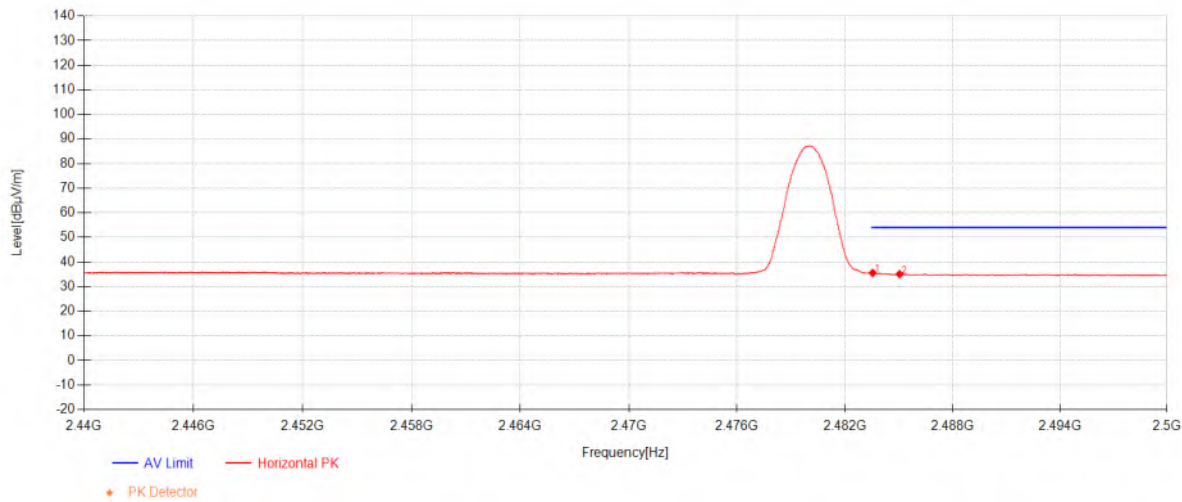
BLE_500K_TX_CH_39_Horizontal_Peak



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2483.965	43.76	27.17	-23.18	47.75	74.00	26.25	Horizontal
2	2486.8	44.40	27.18	-23.17	48.41	74.00	25.59	Horizontal



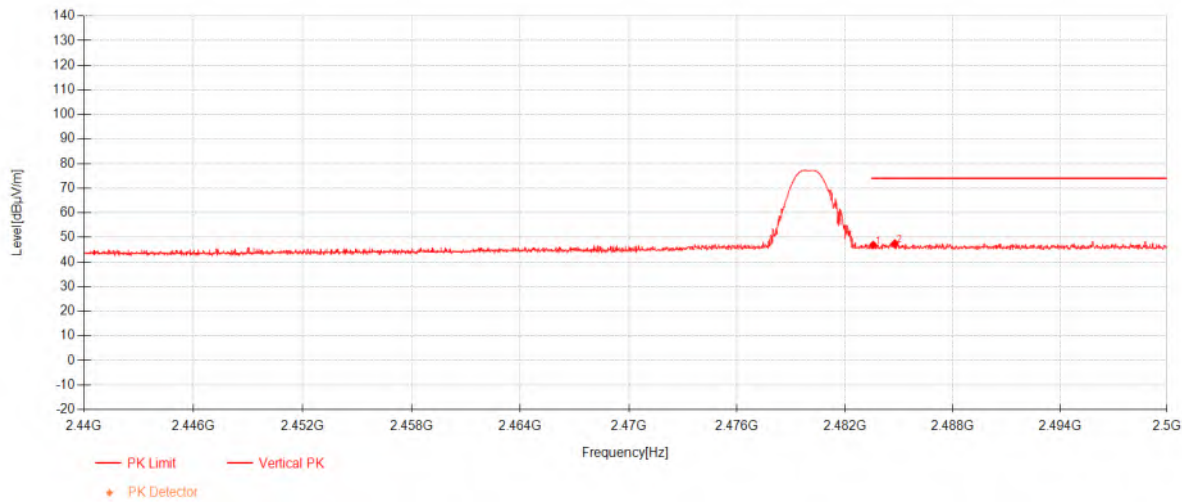
BLE_500K_TX_CH_39_Horizontal_Average



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2483.545	31.54	27.17	-23.18	35.53	54.00	18.47	Horizontal
2	2485.045	31.03	27.17	-23.17	35.03	54.00	18.97	Horizontal



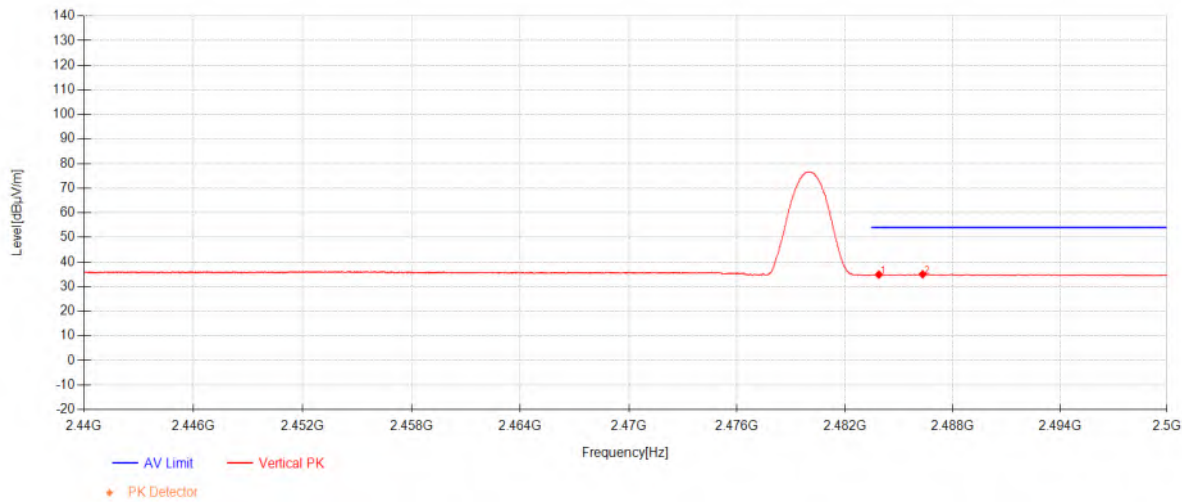
BLE_500K_TX_CH_39_Vetical_Peak



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2483.575	42.91	27.17	-23.18	46.90	74.00	27.10	Vertical
2	2484.775	43.49	27.17	-23.17	47.49	74.00	26.51	Vertical



BLE_500K_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	2483.89	30.86	27.17	-23.18	34.85	54.00	19.15	Vertical
2	2486.335	30.97	27.18	-23.17	34.98	54.00	19.02	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

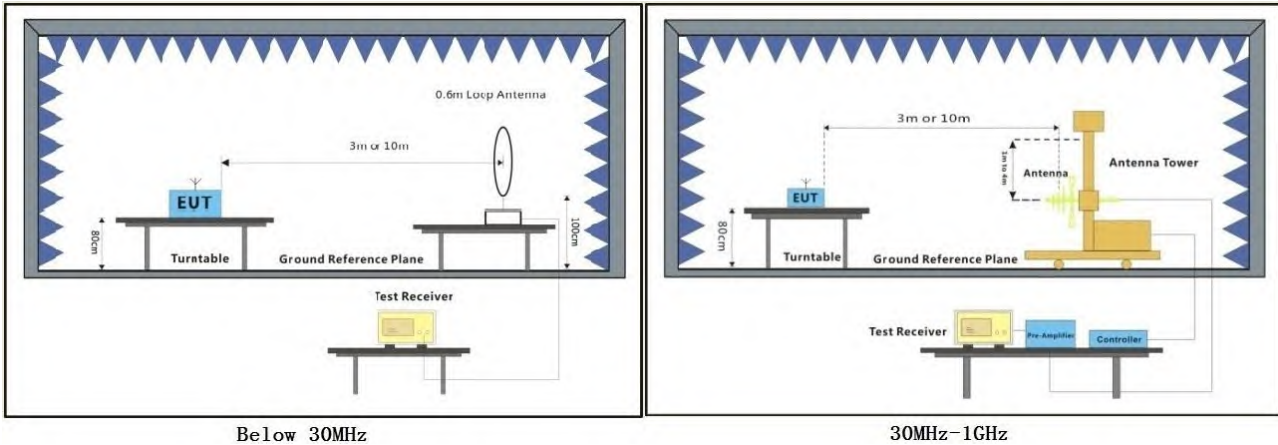
Humidity: 43 % RH

Atmospheric Pressure: 1024 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	01	TX mode(2Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	02	TX mode(125K)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	03	TX mode(500K)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.2.3 Test Setup Diagram



Below 30MHz

30MHz-1GHz

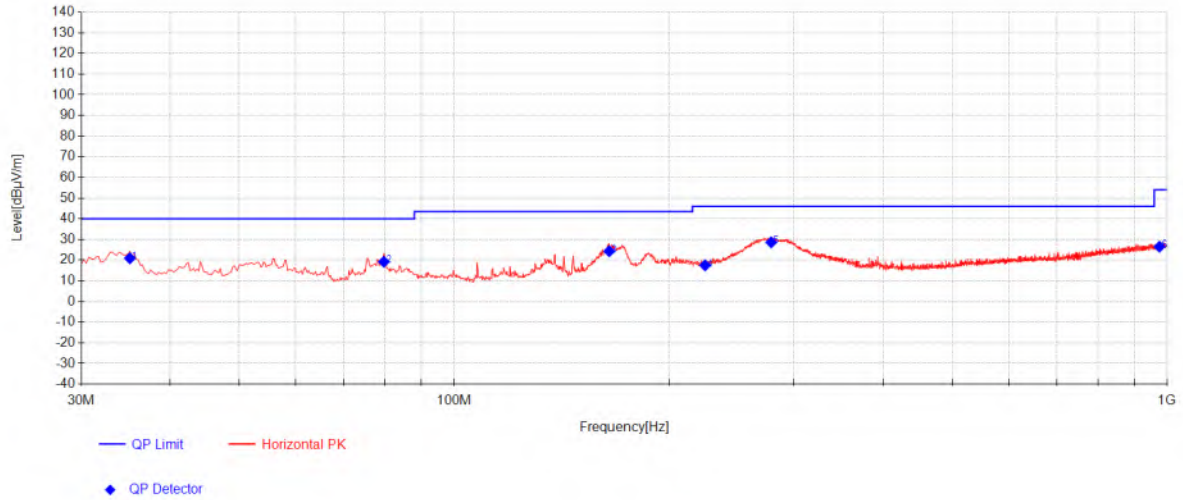
7.2.4 Measurement Procedure and Data

- 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.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 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.
- 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.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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.
- Test the EUT in the lowest channel, the middle channel, the Highest channel.
- 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.
- Repeat above procedures until all frequencies measured was complete.

Remark:

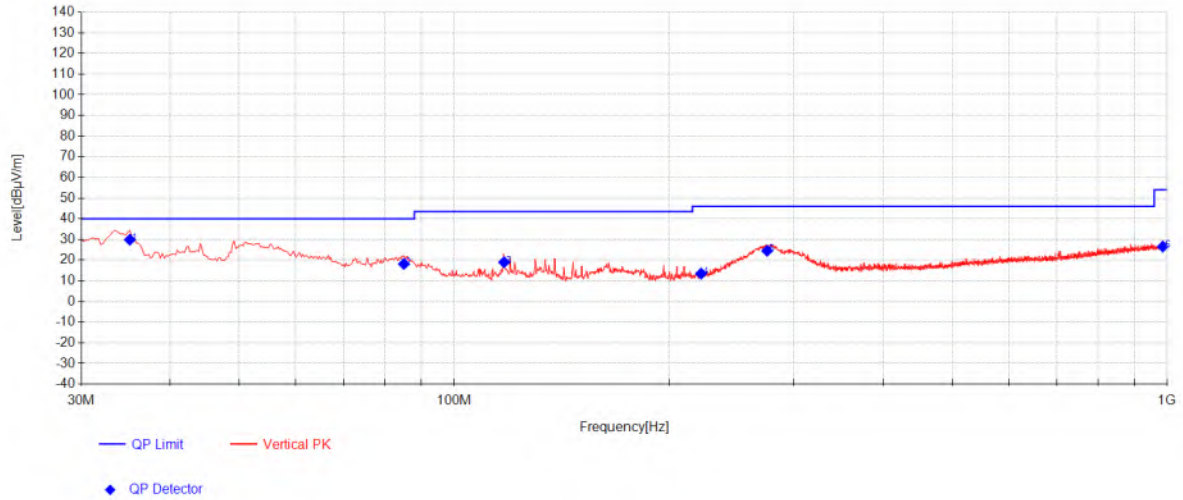
- Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
- Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from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

000_BLE_1M_TX_CH_39_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	35.0925	42.03	12.81	-33.94	20.89	40.00	19.11	125	352	Horizontal
2	79.7125	43.22	9.33	-33.34	19.20	40.00	20.80	153	109	Horizontal
3	165.0725	44.52	12.27	-32.49	24.30	43.50	19.20	157	259	Horizontal
4	224.97	38.82	10.77	-32.12	17.48	46.00	28.52	151	189	Horizontal
5	278.5625	48.01	12.35	-31.75	28.61	46.00	17.39	192	132	Horizontal
6	976.235	30.2	24.31	-28.00	26.51	54.00	27.49	173	285	Horizontal

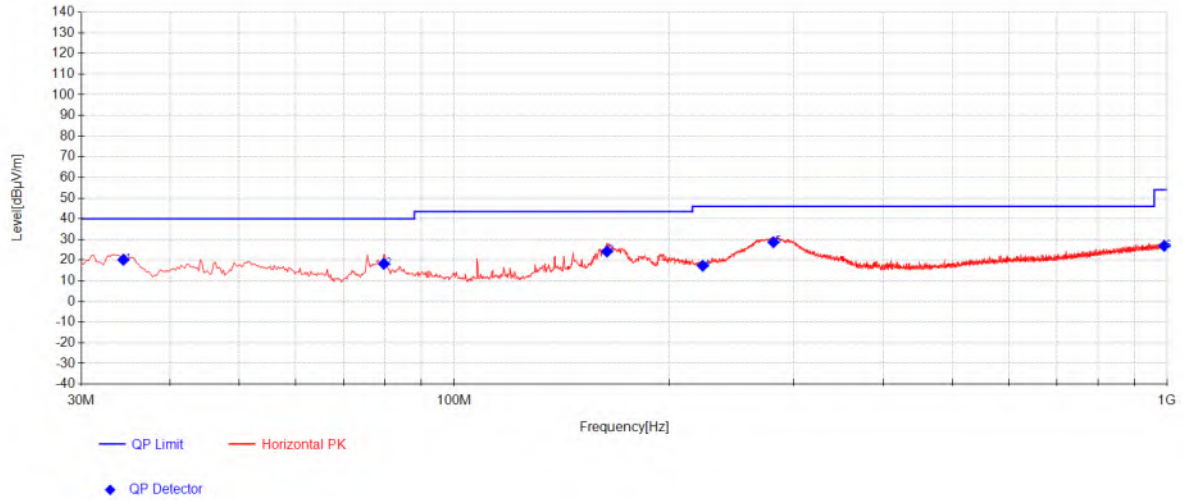
001_BLE_1M_TX_CH_39_Vertical



Final Data List

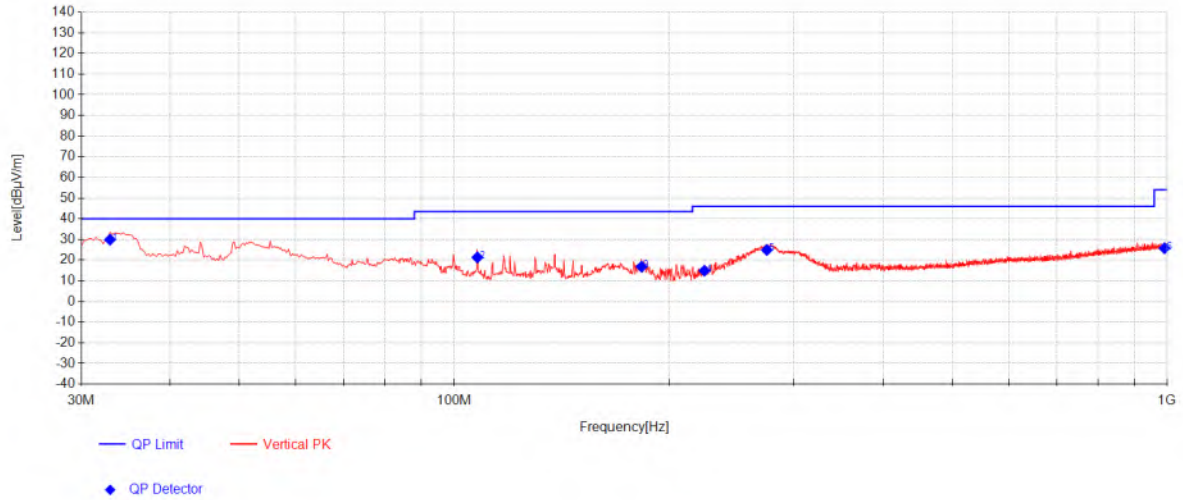
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.0925	51.03	12.81	-33.94	29.89	40.00	10.11	156	132	Vertical
2	85.0475	42.36	9.10	-33.30	18.16	40.00	21.84	194	220	Vertical
3	117.5425	40.69	11.22	-32.93	18.97	43.50	24.53	152	189	Vertical
4	222.06	35.04	10.55	-32.13	13.47	46.00	32.53	132	8	Vertical
5	274.925	44.06	12.22	-31.77	24.51	46.00	21.49	163	244	Vertical
6	986.905	30.08	24.40	-27.93	26.55	54.00	27.45	172	176	Vertical

002_BLE_2M_TX_CH_39_Horizonta



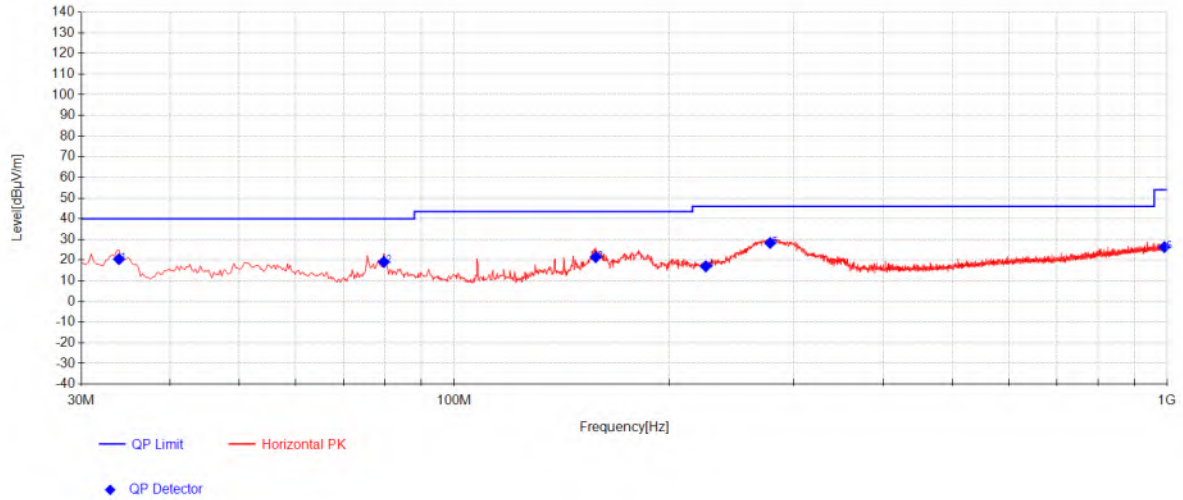
Final Data List										
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	34.365	41.36	12.76	-33.96	20.17	40.00	19.83	184	324	Horizontal
2	79.7125	42.23	9.33	-33.34	18.21	40.00	21.79	167	352	Horizontal
3	163.86	44.28	12.39	-32.50	24.17	43.50	19.33	138	270	Horizontal
4	223.2725	38.76	10.65	-32.12	17.28	46.00	28.72	172	192	Horizontal
5	280.5025	47.99	12.41	-31.74	28.66	46.00	17.34	146	282	Horizontal
6	991.27	30.3	24.43	-27.90	26.83	54.00	27.17	175	92	Horizontal

003_BLE_2M_TX_CH_39_Vertical



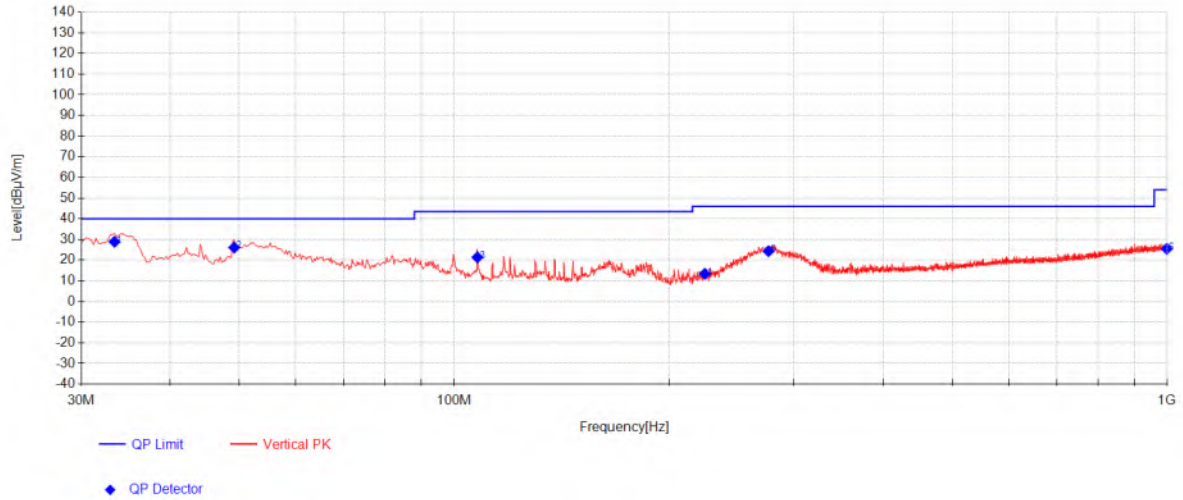
Final Data List										
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	32.91	51.22	12.67	-33.98	29.91	40.00	10.09	125	322	Vertical
2	107.8425	44.23	10.10	-33.02	21.31	43.50	22.19	185	338	Vertical
3	183.26	38.64	10.55	-32.36	16.83	43.50	26.67	125	8	Vertical
4	224.485	36.26	10.74	-32.12	14.88	46.00	31.12	139	8	Vertical
5	274.6825	44.45	12.21	-31.77	24.89	46.00	21.11	176	227	Vertical
6	992.24	29.2	24.44	-27.89	25.75	54.00	28.25	173	72	Vertical

004_BLE_125K_TX_CH_39_Horizontal



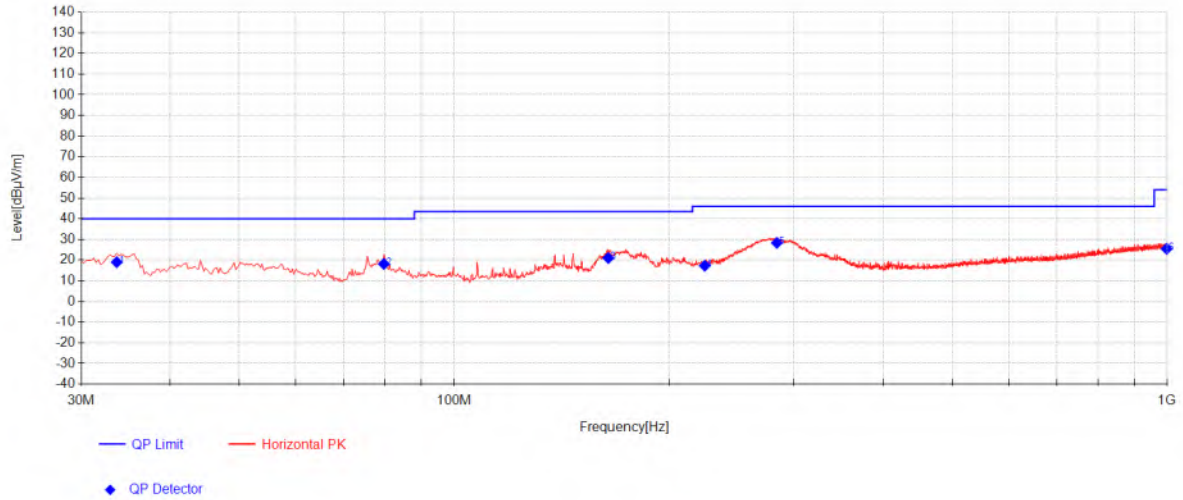
Final Data List										
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	33.88	41.69	12.73	-33.96	20.46	40.00	19.54	126	339	Horizontal
2	79.7125	43.16	9.33	-33.34	19.14	40.00	20.86	127	6	Horizontal
3	158.04	41.23	12.79	-32.58	21.44	43.50	22.06	192	99	Horizontal
4	225.455	38.31	10.81	-32.12	17.00	46.00	29.00	136	203	Horizontal
5	277.5925	47.73	12.32	-31.75	28.29	46.00	17.71	184	120	Horizontal
6	991.755	29.74	24.43	-27.89	26.28	54.00	27.72	152	12	Horizontal

005_BLE_125K_TX_CH_39_Veritical



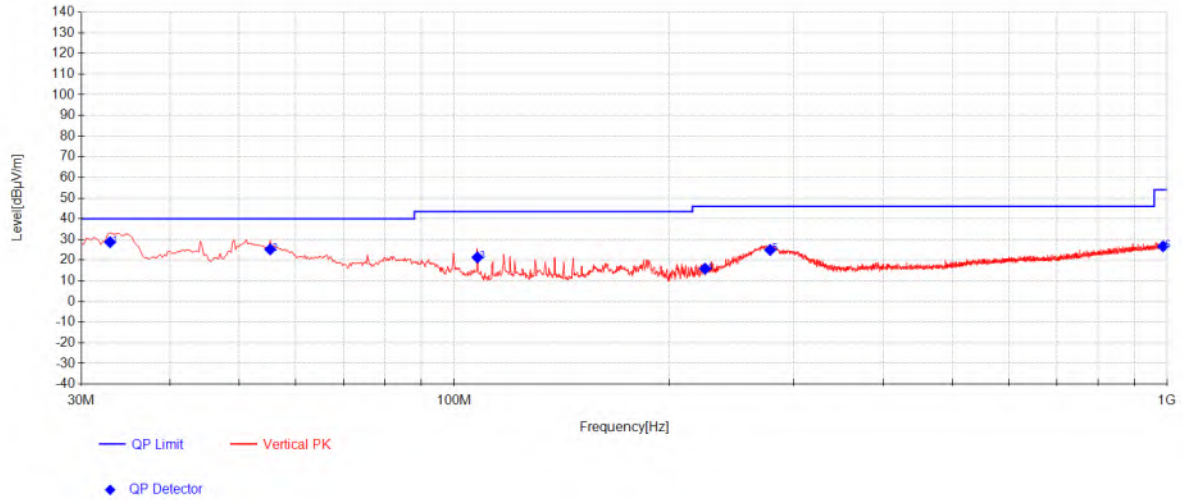
Final Data List										
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1	33.395	50.13	12.70	-33.97	28.86	40.00	11.14	152	115	Vertical
2	49.1575	46.31	13.47	-33.70	26.08	40.00	13.92	137	238	Vertical
3	107.8425	44.29	10.10	-33.02	21.37	43.50	22.13	128	357	Vertical
4	224.7275	34.71	10.75	-32.12	13.35	46.00	32.65	184	22	Vertical
5	276.1375	43.84	12.26	-31.76	24.34	46.00	21.66	162	219	Vertical
6	999.515	28.78	24.50	-27.81	25.47	54.00	28.53	173	115	Vertical

006_BLE_500K_TX_CH_39_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	33.6375	40.25	12.72	-33.97	19.00	40.00	21.00	123	1	Horizontal
2	79.7125	42.15	9.33	-33.34	18.13	40.00	21.87	139	300	Horizontal
3	164.5875	41.20	12.32	-32.49	21.03	43.50	22.47	134	63	Horizontal
4	224.7275	38.65	10.75	-32.12	17.29	46.00	28.71	179	194	Horizontal
5	283.655	47.56	12.47	-31.72	28.32	46.00	17.68	162	300	Horizontal
6	999.2725	28.79	24.49	-27.81	25.48	54.00	28.52	176	352	Horizontal

007_BLE_500K_TX_CH_39_Veritical



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	32.91	50.02	12.67	-33.98	28.71	40.00	11.29	123	187	Vertical
2	55.22	45.93	12.87	-33.62	25.18	40.00	14.82	151	212	Vertical
3	107.8425	44.23	10.10	-33.02	21.31	43.50	22.19	174	340	Vertical
4	224.97	37.2	10.77	-32.12	15.86	46.00	30.14	177	8	Vertical
5	277.5925	44.36	12.32	-31.75	24.92	46.00	21.08	190	228	Vertical
6	987.6325	30.19	24.40	-27.93	26.67	54.00	27.33	183	26	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

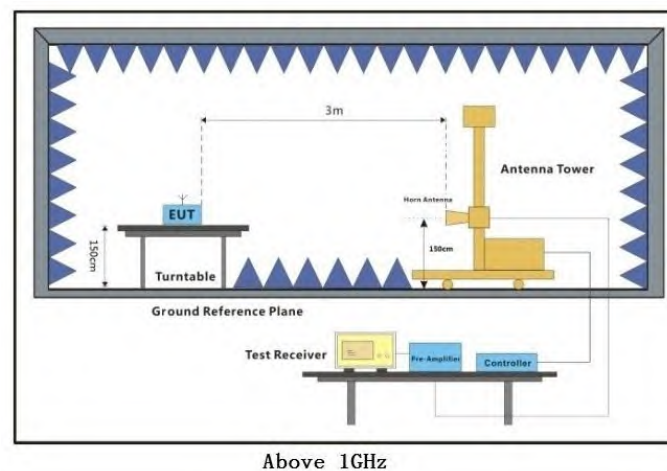
Humidity: 44 % RH

Atmospheric Pressure: 1024 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	01	TX mode(2Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	02	TX mode(125K)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	03	TX mode(500K)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.3.3 Test Setup Diagram



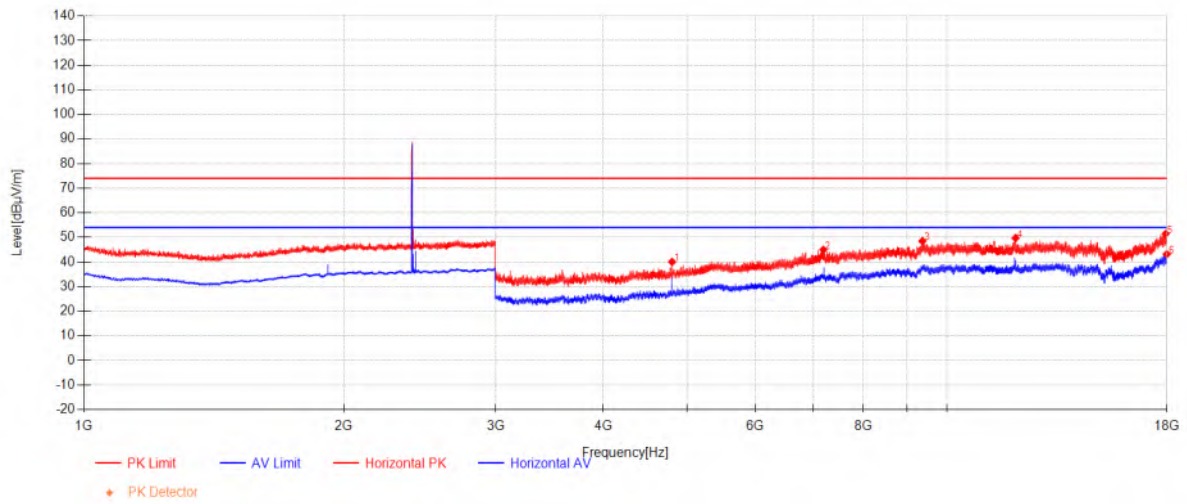
7.3.4 Measurement Procedure and Data

- 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:

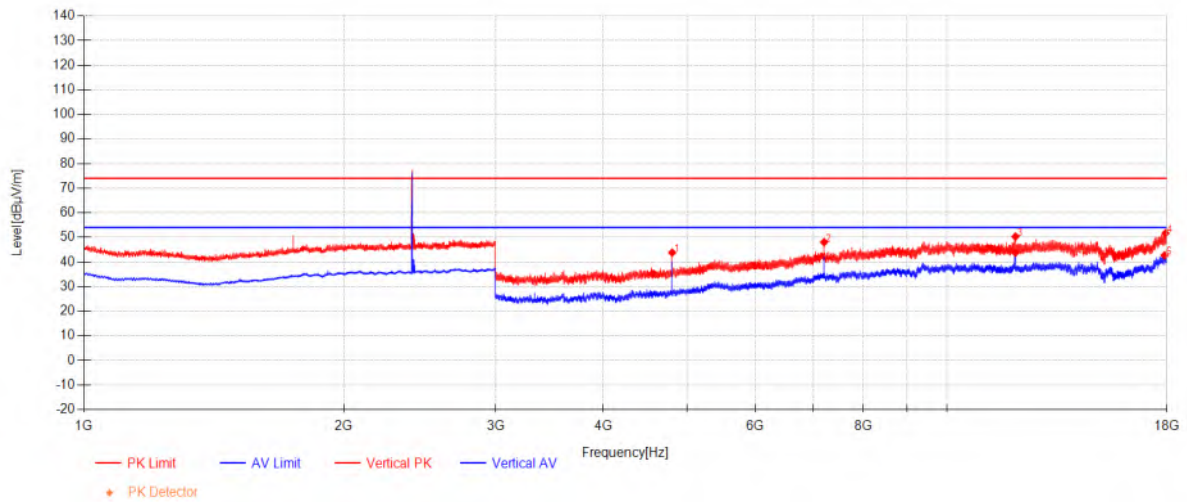
1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 1GHz to 25GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from 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_125K_TX_CH_00_Horizontal



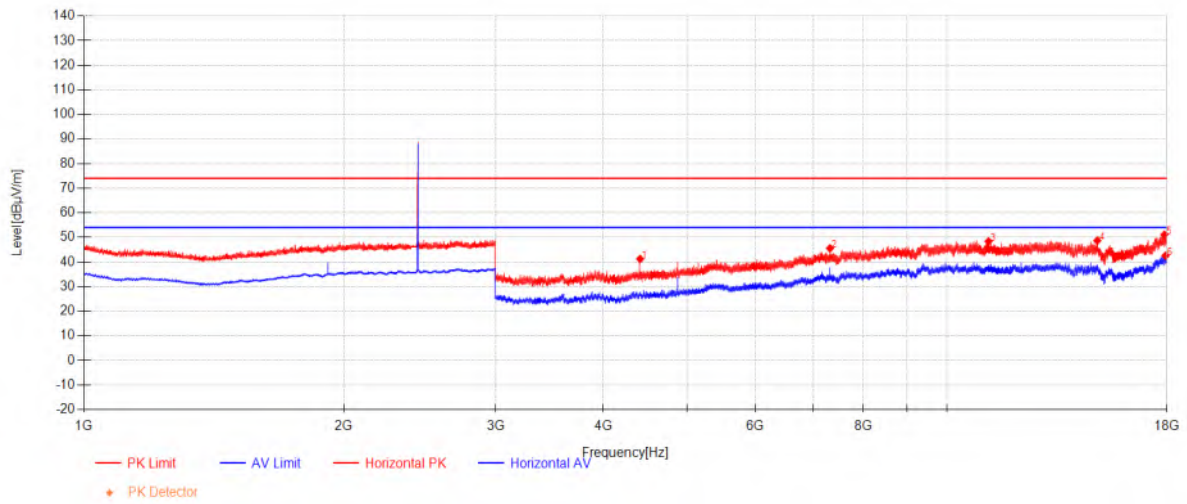
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4803.375	57.27	30.77	-48.01	40.03	74.00	33.97	Horizontal
2	7192.5	55.28	35.85	-46.17	44.95	74.00	29.05	Horizontal
3	9367.875	53.57	37.92	-43.00	48.49	74.00	25.51	Horizontal
4	12011.25	49.75	39.39	-39.44	49.70	74.00	24.30	Horizontal
5	17925	45.39	44.35	-38.34	51.40	74.00	22.60	Horizontal
6	17981.25	37.22	44.69	-38.76	43.15	54.00	10.85	Horizontal

BLE_125K_TX_CH_00_Vertical



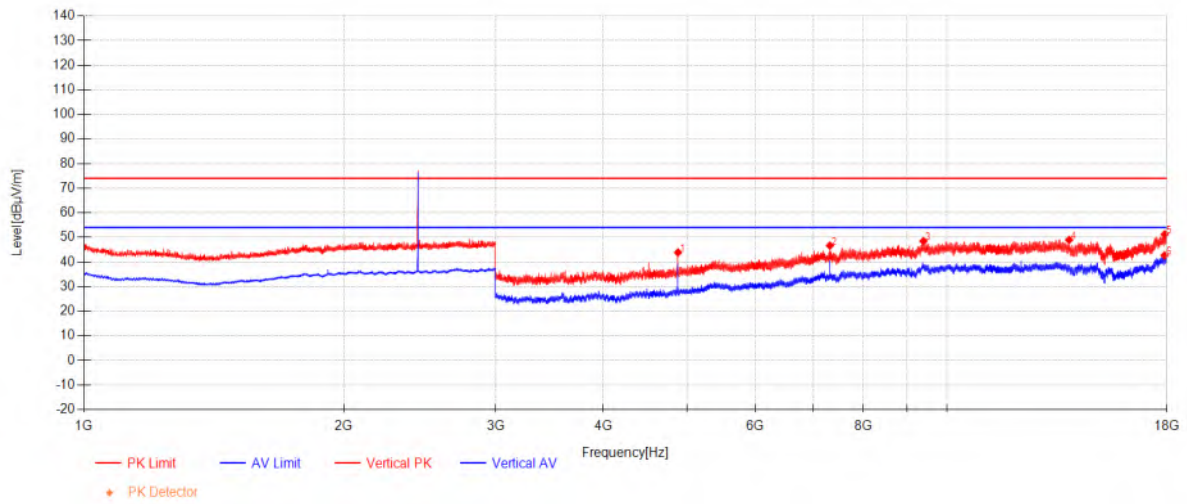
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4804.5	61.05	30.77	-48.01	43.81	74.00	30.19	Vertical
2	7206.75	58.37	35.87	-46.20	48.04	74.00	25.96	Vertical
3	12008.625	50.35	39.39	-39.44	50.31	74.00	23.69	Vertical
4	17927.625	45.66	44.37	-38.36	51.67	74.00	22.33	Vertical
5	12009	43.78	39.39	-39.44	43.74	54.00	10.26	Vertical
6	17879.25	36.75	44.08	-38.16	42.67	54.00	11.33	Vertical

BLE_125K_TX_CH_19_Horizontal



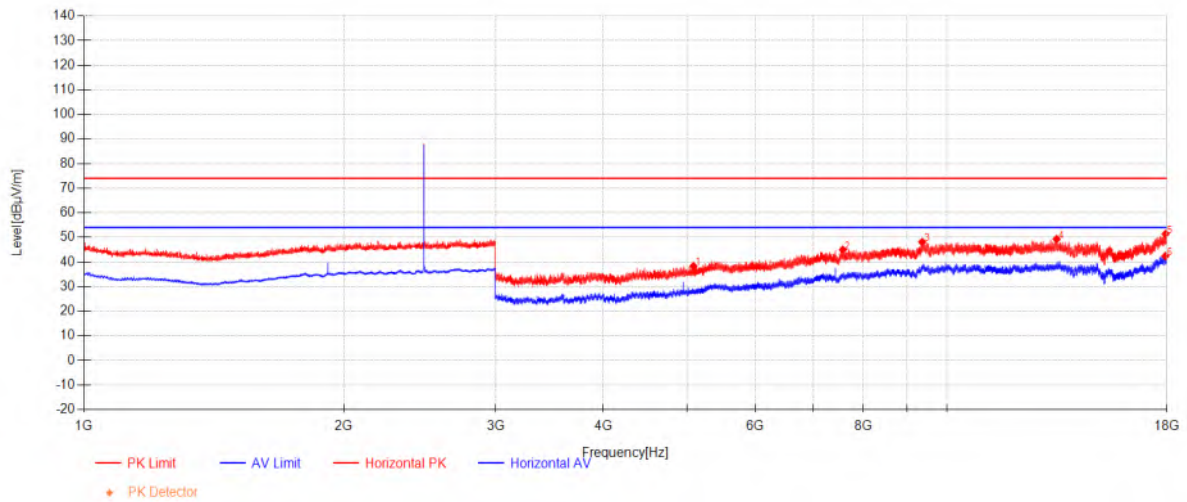
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4411.125	59.37	29.96	-48.10	41.23	74.00	32.77	Horizontal
2	7320.75	55.62	36.08	-46.16	45.54	74.00	28.46	Horizontal
3	11176.125	49.21	39.48	-40.34	48.35	74.00	25.65	Horizontal
4	14942.25	46.10	40.21	-37.64	48.67	74.00	25.33	Horizontal
5	17870.25	45.23	44.02	-38.16	51.09	74.00	22.91	Horizontal
6	17920.5	36.50	44.32	-38.30	42.52	54.00	11.48	Horizontal

BLE_125K_TX_CH_19_Vertical



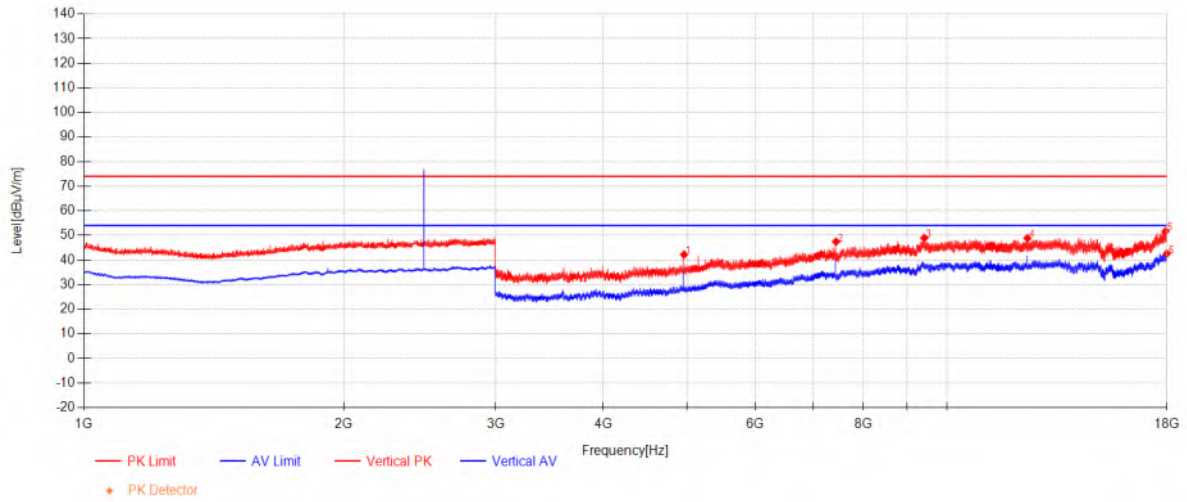
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4880.25	60.95	30.94	-48.03	43.86	74.00	30.14	Vertical
2	7319.25	56.73	36.07	-46.16	46.64	74.00	27.36	Vertical
3	9394.5	53.54	37.95	-43.04	48.45	74.00	25.55	Vertical
4	13858.5	47.72	40.09	-38.85	48.96	74.00	25.04	Vertical
5	17886	45.24	44.12	-38.16	51.20	74.00	22.80	Vertical
6	17876.625	36.75	44.06	-38.16	42.65	54.00	11.35	Vertical

BLE_125K_TX_CH_39_Horizontal



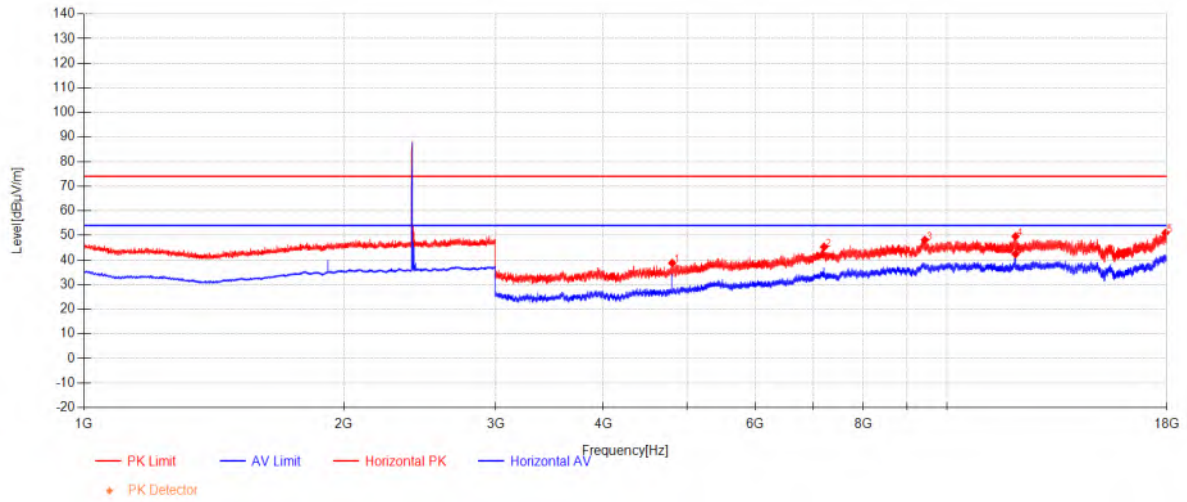
Data List								
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1	5085	54.69	31.44	-47.85	38.28	74.00	35.72	Horizontal
2	7575.75	53.52	36.38	-44.96	44.95	74.00	29.05	Horizontal
3	9361.875	53.19	37.91	-42.99	48.11	74.00	25.89	Horizontal
4	13405.125	49.02	39.41	-39.17	49.26	74.00	24.74	Horizontal
5	17922.75	45.36	44.34	-38.32	51.38	74.00	22.62	Horizontal
6	17915.625	36.33	44.29	-38.27	42.36	54.00	11.64	Horizontal

BLE_125K_TX_CH_39_Vertical



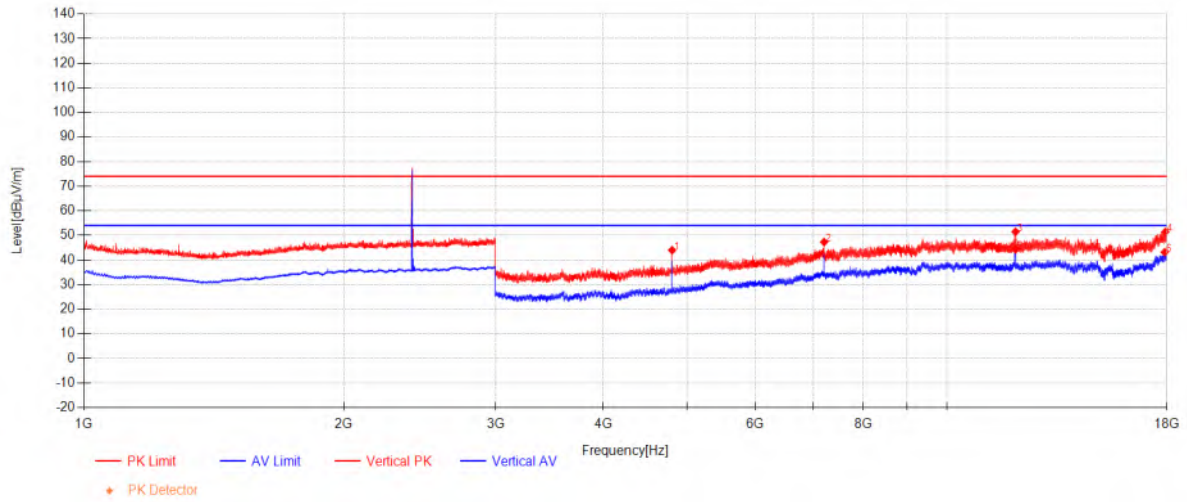
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4959.375	59.09	31.11	-48.02	42.18	74.00	31.82	Vertical
2	7439.25	57.29	36.29	-46.17	47.41	74.00	26.59	Vertical
3	9414	53.90	37.98	-42.95	48.92	74.00	25.08	Vertical
4	12398.625	49.24	39.16	-39.56	48.84	74.00	25.16	Vertical
5	17916.375	45.55	44.30	-38.27	51.58	74.00	22.42	Vertical
6	17983.875	36.63	44.70	-38.78	42.55	54.00	11.45	Vertical

BLE_500K_TX_CH_00_Horizontal



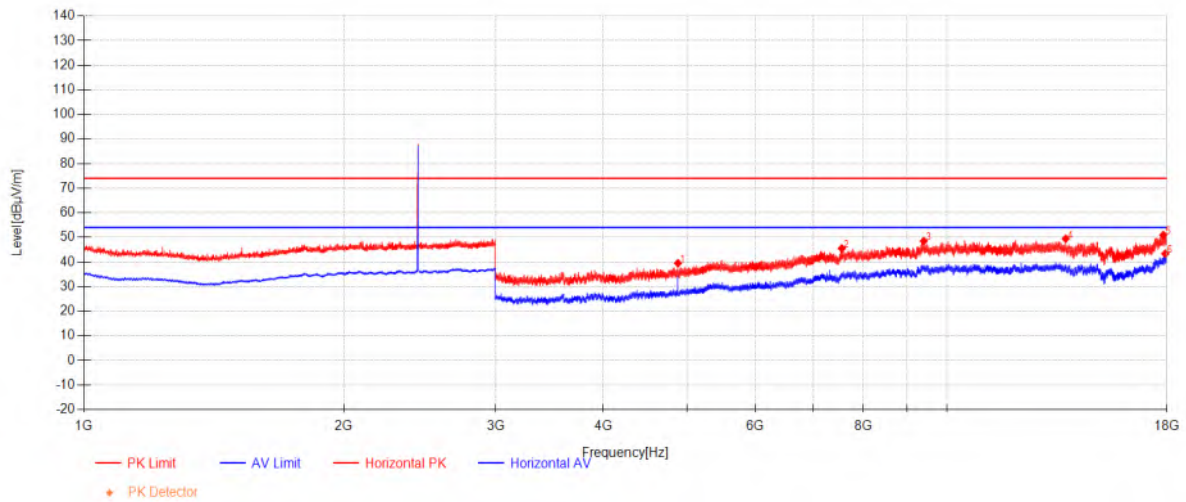
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4804.5	55.95	30.77	-48.01	38.71	74.00	35.29	Horizontal
2	7206	55.63	35.87	-46.20	45.30	74.00	28.70	Horizontal
3	9428.625	52.95	38.00	-42.86	48.09	74.00	25.91	Horizontal
4	12010.875	49.64	39.39	-39.44	49.59	74.00	24.41	Horizontal
5	17917.5	44.94	44.31	-38.28	50.96	74.00	23.04	Horizontal
6	12011.25	42.44	39.39	-39.44	42.39	54.00	11.61	Horizontal

BLE_500K_TX_CH_00_Vertical



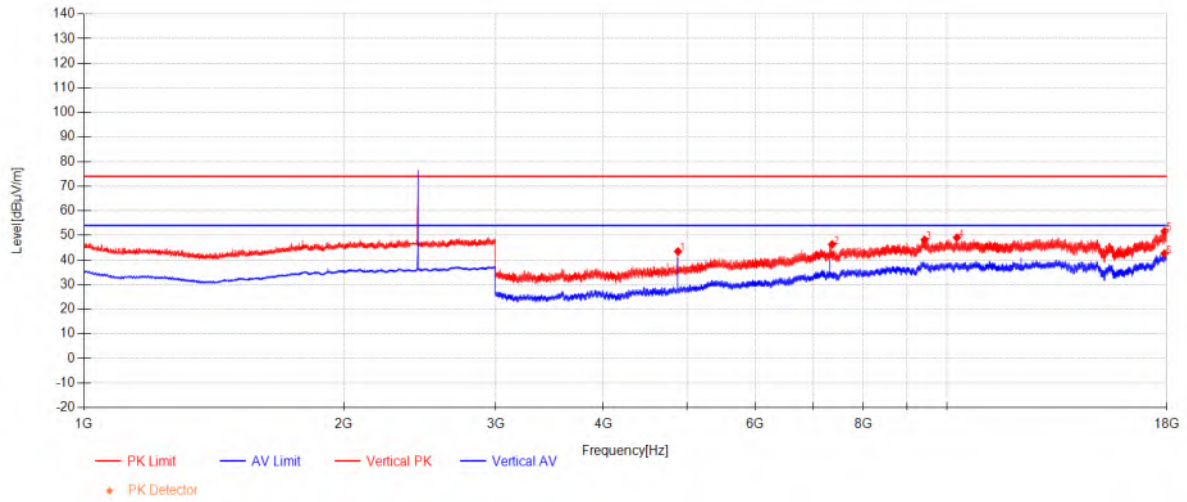
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4803.75	61.21	30.77	-48.01	43.97	74.00	30.03	Vertical
2	7206.75	57.60	35.87	-46.20	47.27	74.00	26.73	Vertical
3	12011.25	51.52	39.39	-39.44	51.47	74.00	22.53	Vertical
4	17920.125	45.42	44.32	-38.30	51.44	74.00	22.56	Vertical
5	12011.625	44.33	39.39	-39.44	44.28	54.00	9.72	Vertical
6	17885.25	37.15	44.11	-38.16	43.11	54.00	10.89	Vertical

BLE_500K_TX_CH_19_Horizontal



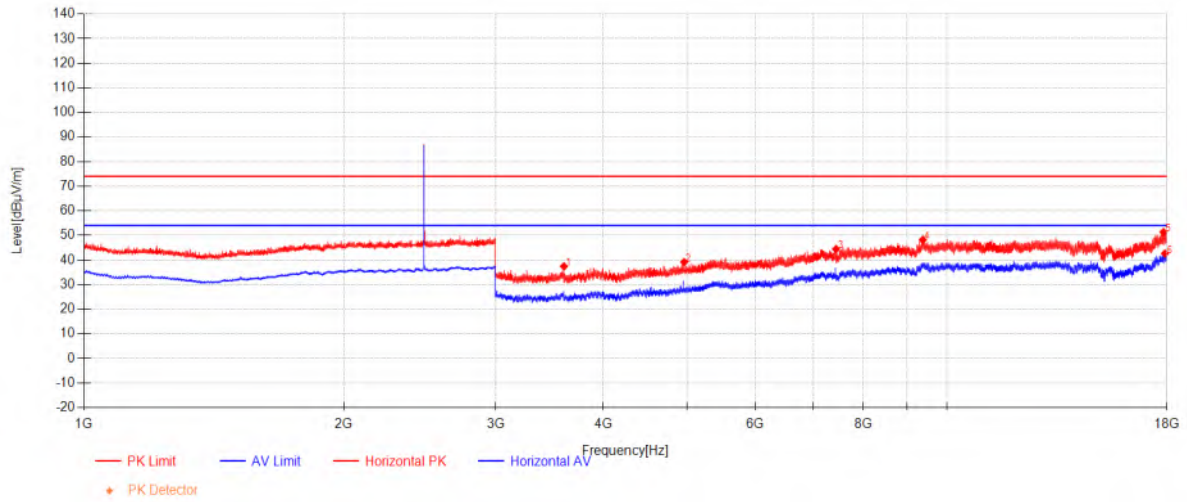
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4879.5	56.57	30.93	-48.03	39.48	74.00	34.52	Horizontal
2	7556.25	54.37	36.39	-45.27	45.49	74.00	28.51	Horizontal
3	9402	53.55	37.96	-43.04	48.48	74.00	25.52	Horizontal
4	13732.125	47.84	39.90	-38.30	49.43	74.00	24.57	Horizontal
5	17821.125	45.37	43.73	-38.18	50.92	74.00	23.08	Horizontal
6	17913	37.34	44.28	-38.25	43.37	54.00	10.63	Horizontal

BLE_500K_TX_CH_19_Vertical



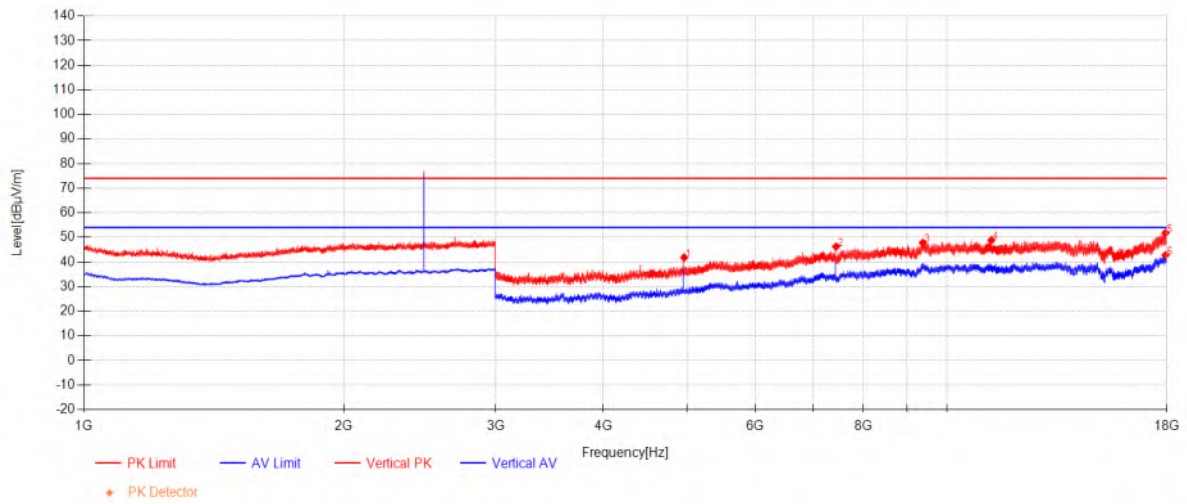
Data List								
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1	4879.875	60.55	30.94	-48.03	43.46	74.00	30.54	Vertical
2	7362	56.32	36.15	-46.17	46.31	74.00	27.69	Vertical
3	9419.625	53.10	37.99	-42.92	48.17	74.00	25.83	Vertical
4	10273.125	51.50	38.99	-41.42	49.08	74.00	24.92	Vertical
5	17880.75	45.69	44.08	-38.16	51.62	74.00	22.38	Vertical
6	17877.375	36.71	44.06	-38.16	42.62	54.00	11.38	Vertical

BLE_500K_TX_CH_39_Horizontal



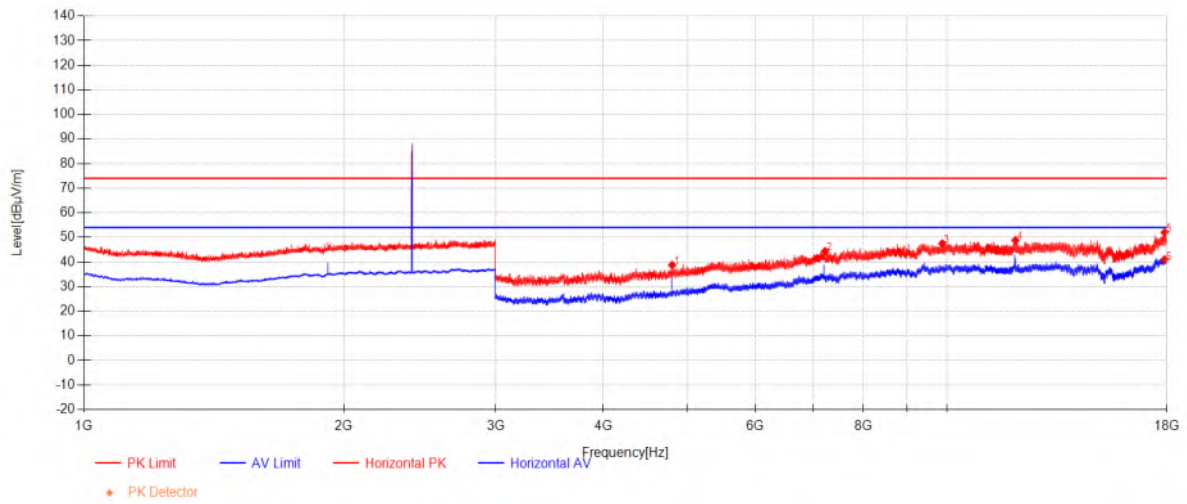
Data List								
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1	3598.875	57.00	28.66	-48.28	37.38	74.00	36.62	Horizontal
2	4960.125	56.02	31.11	-48.02	39.11	74.00	34.89	Horizontal
3	7440.375	54.27	36.29	-46.17	44.39	74.00	29.61	Horizontal
4	9378.375	53.24	37.93	-43.01	48.16	74.00	25.84	Horizontal
5	17827.5	45.73	43.77	-38.18	51.32	74.00	22.68	Horizontal
6	17898.75	36.57	44.19	-38.15	42.61	54.00	11.39	Horizontal

BLE_500K_TX_CH_39_Verical



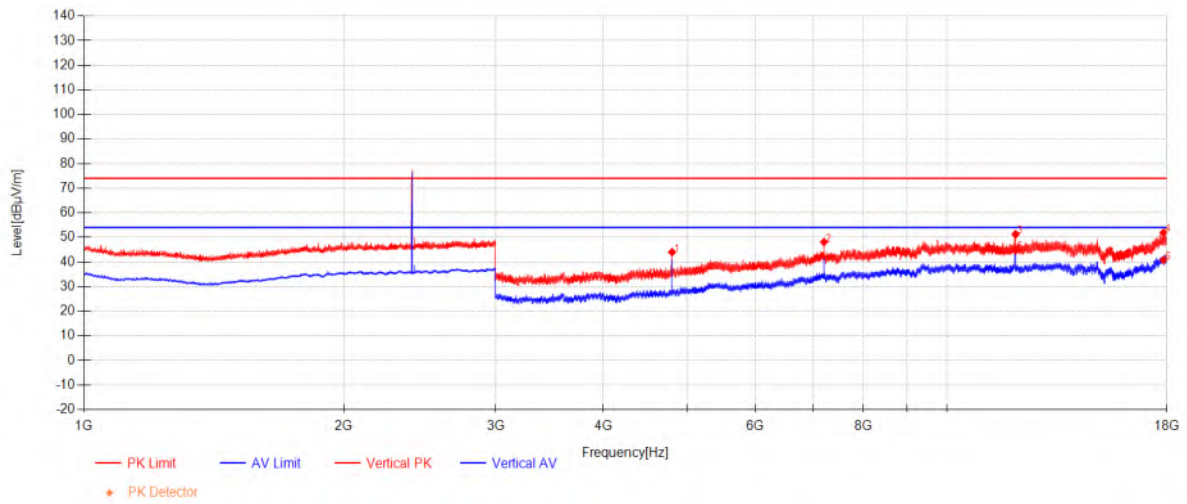
Data List								
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1	4960.5	58.69	31.11	-48.02	41.79	74.00	32.21	Vertical
2	7440	56.10	36.29	-46.17	46.22	74.00	27.78	Vertical
3	9376.875	52.88	37.93	-43.01	47.80	74.00	26.20	Vertical
4	11260.875	49.78	39.47	-40.41	48.84	74.00	25.16	Vertical
5	17920.5	45.77	44.32	-38.30	51.79	74.00	22.21	Vertical
6	17922.75	36.71	44.34	-38.32	42.73	54.00	11.27	Vertical

BLE_1M_TX_CH_00_Horizontal



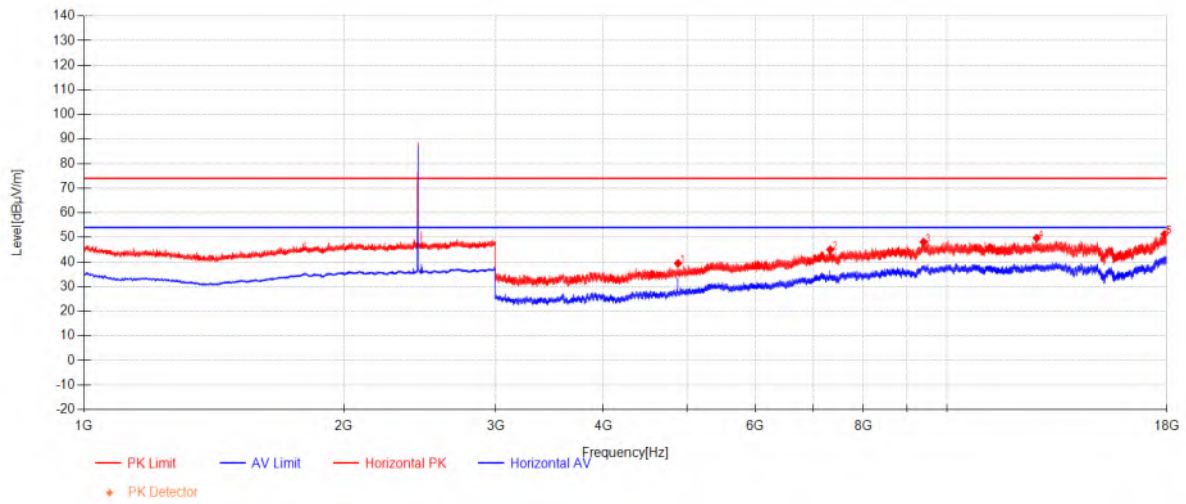
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4804.125	55.98	30.77	-48.01	38.74	74.00	35.26	Horizontal
2	7225.5	54.69	35.91	-46.19	44.41	74.00	29.59	Horizontal
3	9878.25	50.97	38.63	-42.13	47.47	74.00	26.53	Horizontal
4	12009	48.87	39.39	-39.44	48.83	74.00	25.17	Horizontal
5	17881.875	46.07	44.09	-38.16	52.00	74.00	22.00	Horizontal
6	17881.875	34.97	44.09	-38.16	40.90	54.00	13.10	Horizontal

BLE_1M_TX_CH_00_Vertical



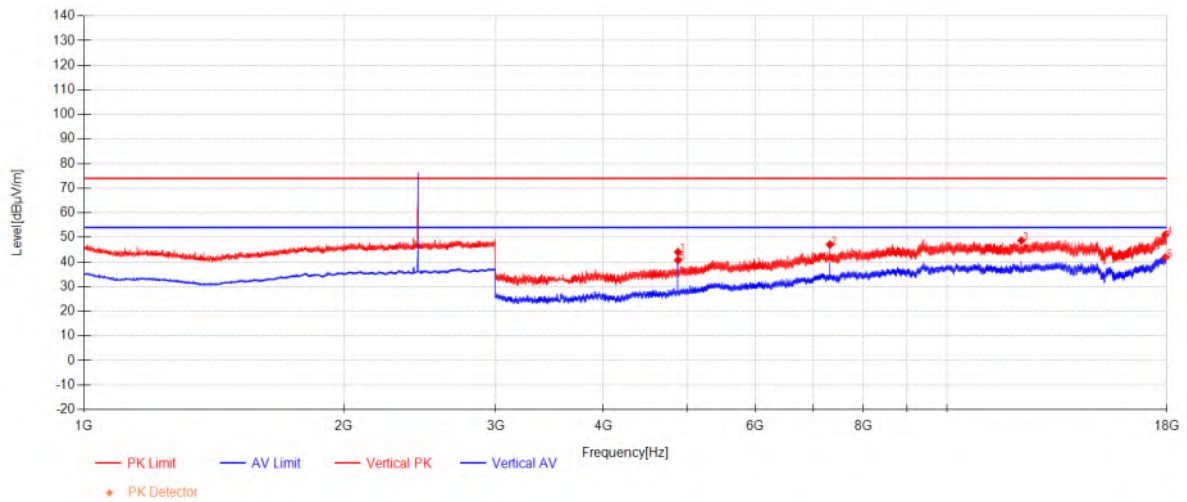
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4803.375	61.23	30.77	-48.01	43.99	74.00	30.01	Vertical
2	7205.25	58.42	35.87	-46.20	48.09	74.00	25.91	Vertical
3	12010.875	51.30	39.39	-39.44	51.25	74.00	22.75	Vertical
4	17829	46.33	43.77	-38.18	51.93	74.00	22.07	Vertical
5	12009.375	44.77	39.39	-39.44	44.72	54.00	9.28	Vertical
6	17829	35.20	43.77	-38.18	40.80	54.00	13.20	Vertical

BLE_1M_TX_CH_19_Horizontal



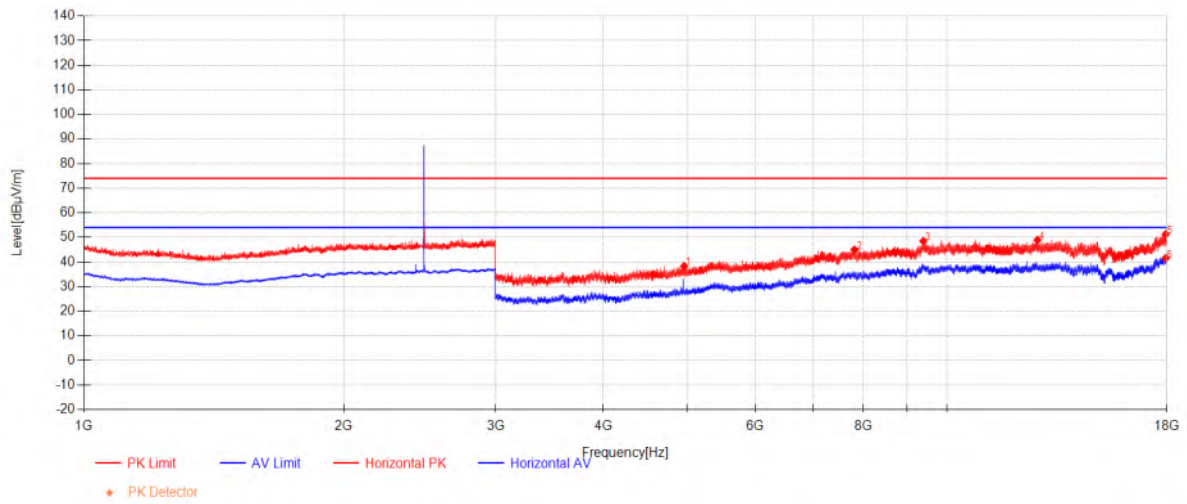
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4880.625	56.53	30.94	-48.03	39.44	74.00	34.56	Horizontal
2	7325.625	55.05	36.09	-46.16	44.97	74.00	29.03	Horizontal
3	9398.25	53.18	37.96	-43.05	48.09	74.00	25.91	Horizontal
4	12710.25	50.00	38.97	-39.27	49.70	74.00	24.30	Horizontal
5	17879.625	45.35	44.08	-38.16	51.27	74.00	22.73	Horizontal
6	17879.625	45.35	44.08	-38.16	51.27	74.00	22.73	Horizontal

BLE_1M_TX_CH_19_Vetical



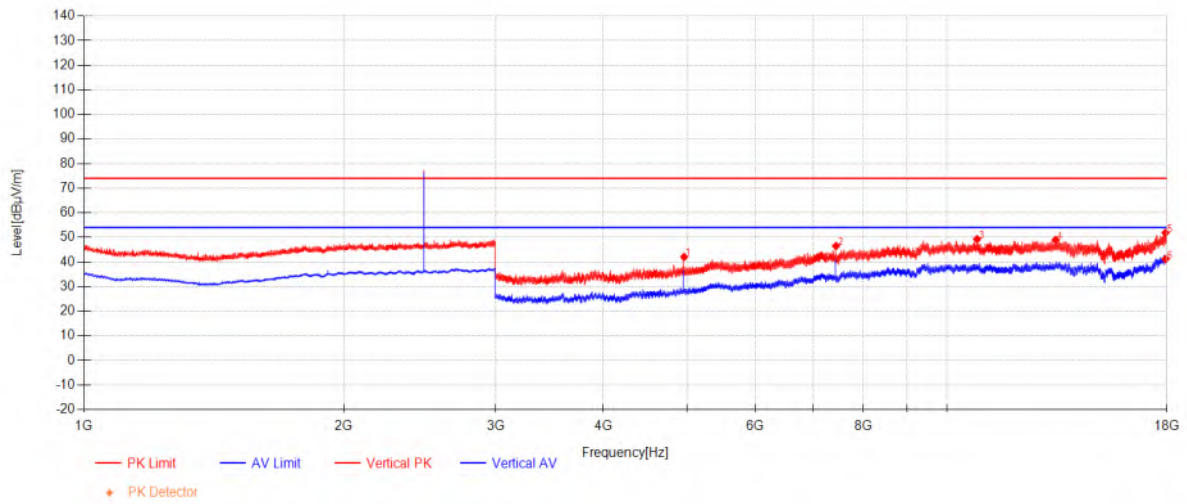
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4880.625	61.09	30.94	-48.03	44.00	74.00	30.00	Vertical
2	7319.625	57.16	36.08	-46.16	47.07	74.00	26.93	Vertical
3	12198.375	49.24	39.28	-39.82	48.70	74.00	25.30	Vertical
4	17920.5	45.04	44.32	-38.30	51.06	74.00	22.94	Vertical
5	4880.25	57.83	30.94	-48.03	40.74	54.00	13.26	Vertical
6	17920.5	35.80	44.32	-38.30	41.82	54.00	12.18	Vertical

BLE_1M_TX_CH_39_Horizontal



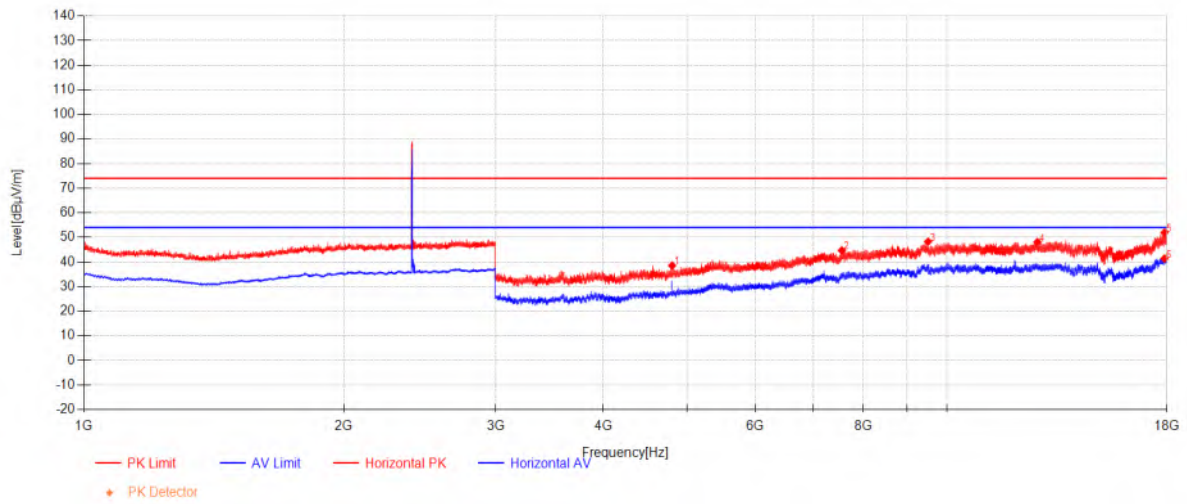
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4959.375	55.18	31.11	-48.02	38.27	74.00	35.73	Horizontal
2	7815.375	53.66	36.34	-44.99	45.00	74.00	29.00	Horizontal
3	9391.125	53.54	37.95	-43.03	48.45	74.00	25.55	Horizontal
4	12737.625	49.25	38.96	-39.28	48.93	74.00	25.07	Horizontal
5	17928.75	45.22	44.37	-38.37	51.23	74.00	22.77	Horizontal
6	17928.75	35.49	44.37	-38.37	41.50	54.00	12.50	Horizontal

BLE_1M_TX_CH_39_Verical



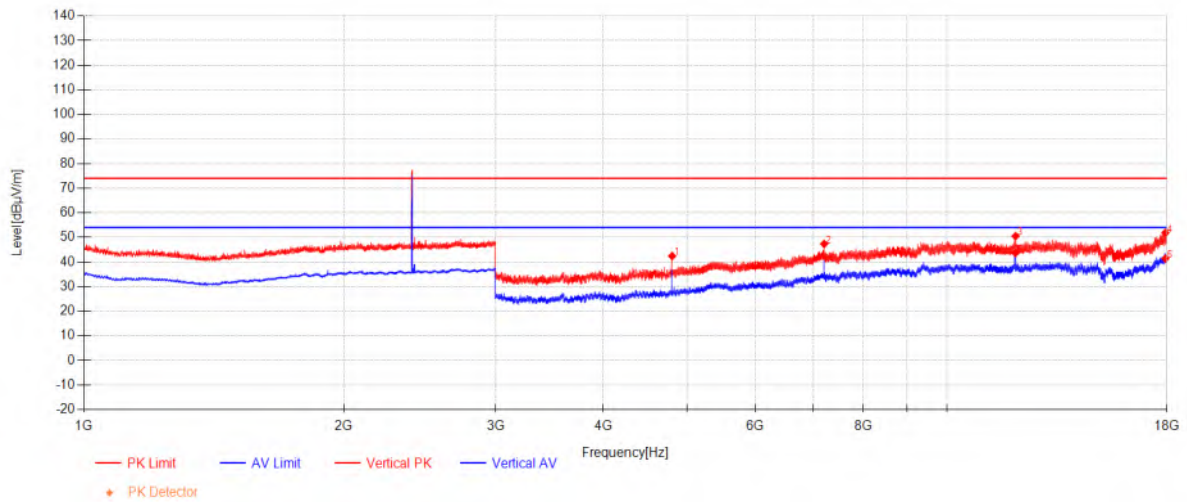
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4959.75	58.97	31.11	-48.02	42.06	74.00	31.94	Vertical
2	7439.25	56.35	36.29	-46.17	46.47	74.00	27.53	Vertical
3	10839	50.30	39.39	-40.44	49.24	74.00	24.76	Vertical
4	13367.625	48.77	39.35	-39.14	48.98	74.00	25.02	Vertical
5	17920.5	45.80	44.32	-38.30	51.82	74.00	22.18	Vertical
6	17920.5	35.09	44.32	-38.30	41.11	54.00	12.89	Vertical

BLE_2M_TX_CH_00_Horizontal



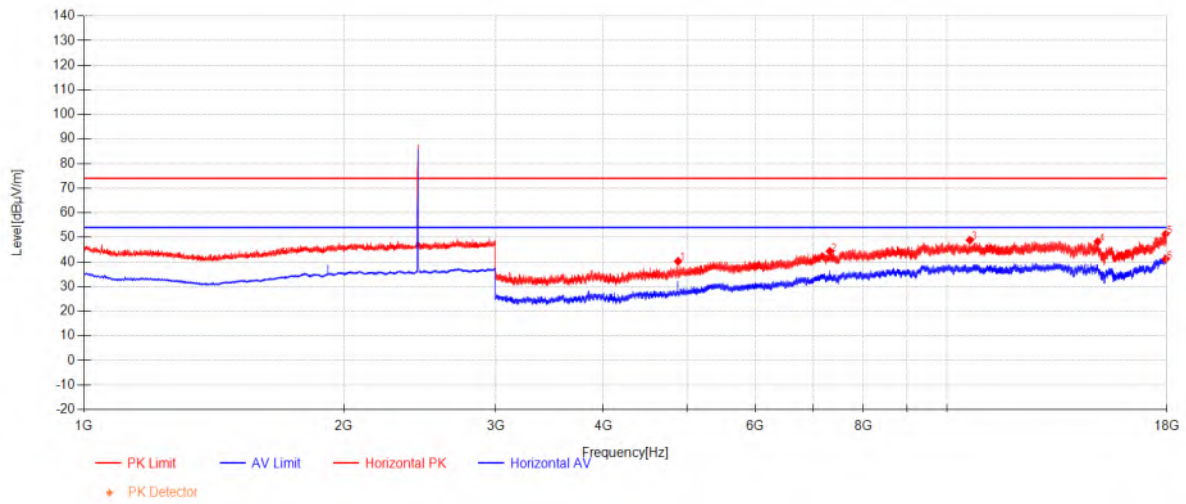
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4804.125	55.77	30.77	-48.01	38.53	74.00	35.47	Horizontal
2	7553.625	53.60	36.39	-45.31	44.68	74.00	29.32	Horizontal
3	9510.375	52.47	38.11	-42.36	48.23	74.00	25.77	Horizontal
4	12732.375	48.38	38.96	-39.28	48.06	74.00	25.94	Horizontal
5	17874.75	46.05	44.05	-38.16	51.94	74.00	22.06	Horizontal
6	17874.75	35.46	44.05	-38.16	41.35	54.00	12.65	Horizontal

BLE_2M_TX_CH_00_Vertical



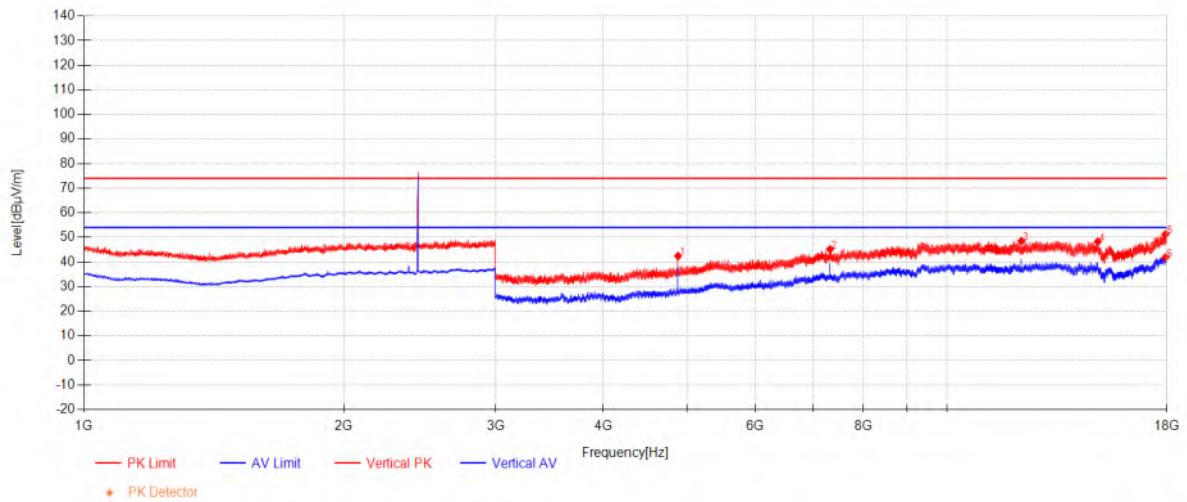
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4803.75	59.64	30.77	-48.01	42.40	74.00	31.60	Vertical
2	7207.5	57.64	35.87	-46.20	47.32	74.00	26.68	Vertical
3	12012	50.55	39.39	-39.45	50.50	74.00	23.50	Vertical
4	17917.875	45.80	44.31	-38.28	51.82	74.00	22.18	Vertical
5	12007.875	43.63	39.40	-39.44	43.59	54.00	10.41	Vertical
6	17917.875	35.31	44.31	-38.28	41.33	54.00	12.67	Vertical

BLE_2M_TX_CH_19_Horizontal



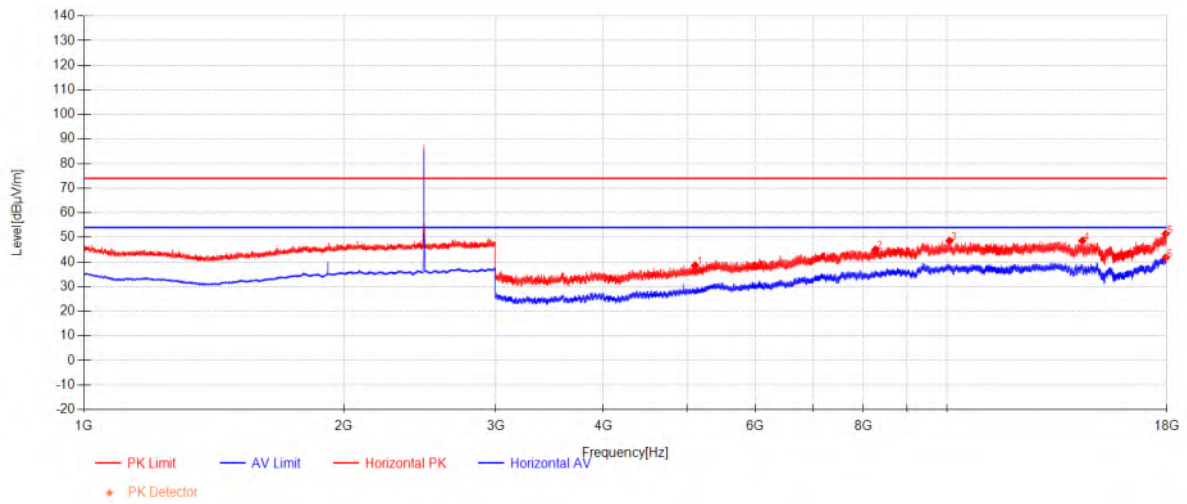
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4881	57.38	30.94	-48.03	40.29	74.00	33.71	Horizontal
2	7317	54.39	36.07	-46.16	44.30	74.00	29.70	Horizontal
3	10634.25	50.76	39.24	-41.17	48.84	74.00	25.16	Horizontal
4	14954.25	45.71	40.20	-37.71	48.20	74.00	25.80	Horizontal
5	17924.25	45.30	44.35	-38.33	51.31	74.00	22.69	Horizontal
6	17924.25	35.10	44.35	-38.33	41.11	54.00	12.89	Horizontal

BLE_2M_TX_CH_19_Verical



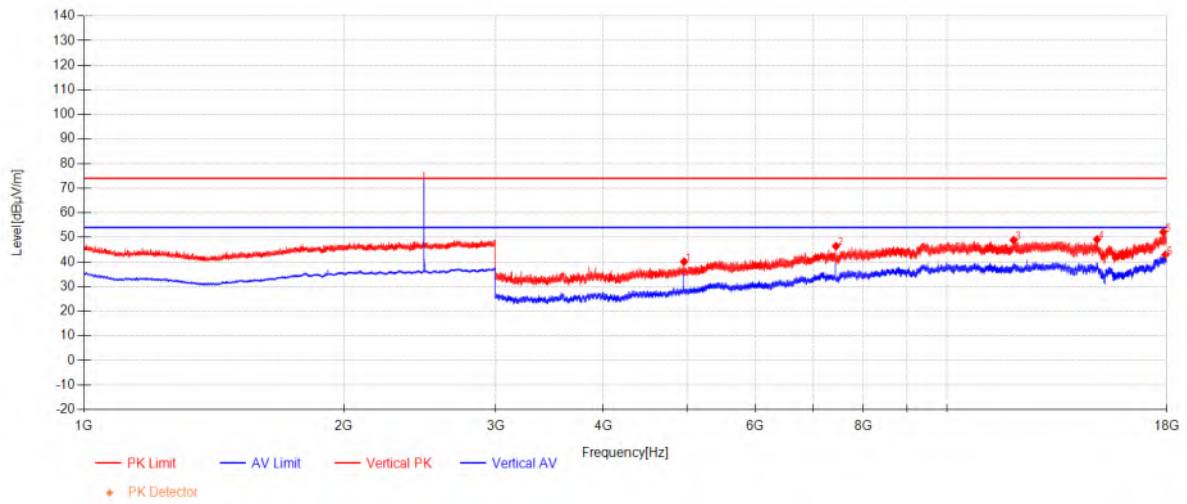
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4880.25	59.51	30.94	-48.03	42.42	74.00	31.58	Vertical
2	7320	55.24	36.08	-46.16	45.15	74.00	28.85	Vertical
3	12199.5	49.02	39.28	-39.82	48.48	74.00	25.52	Vertical
4	14959.875	45.79	40.20	-37.75	48.25	74.00	25.75	Vertical
5	17918.25	45.17	44.31	-38.29	51.19	74.00	22.81	Vertical
6	17918.25	35.83	44.31	-38.29	41.85	74.00	32.15	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	5107.5	54.88	31.50	-47.83	38.56	74.00	35.44	Horizontal
2	8266.125	52.86	36.59	-44.42	45.03	74.00	28.97	Horizontal
3	10072.875	51.53	38.85	-41.82	48.56	74.00	25.44	Horizontal
4	14357.25	46.85	40.26	-38.51	48.60	74.00	25.40	Horizontal
5	17929.125	45.39	44.37	-38.37	51.40	74.00	22.60	Horizontal
6	17929.125	35.67	44.37	-38.37	41.68	54.00	12.32	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	4959.75	57.03	31.11	-48.02	40.12	74.00	33.88	Vertical
2	7438.5	56.28	36.29	-46.17	46.40	74.00	27.60	Vertical
3	11951.25	49.16	39.40	-39.70	48.87	74.00	25.13	Vertical
4	14927.625	46.50	40.21	-37.54	49.16	74.00	24.84	Vertical
5	17820.75	46.58	43.72	-38.18	52.12	74.00	21.88	Vertical
6	17915.25	36.85	44.29	-38.26	42.88	54.00	11.12	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: 23 °C

Humidity: 45 % RH

Atmospheric Pressure: 1024 mbar

7.4.2 Test Mode Description

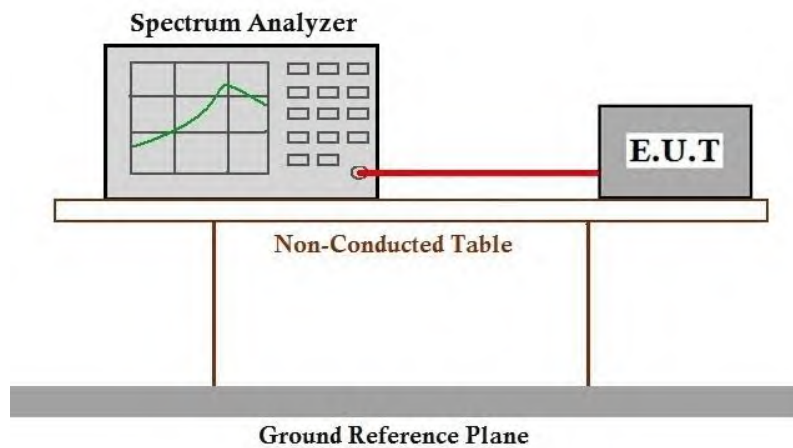
Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	01	TX mode(2Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	02	TX mode(125K)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	03	TX mode(500K)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.4.3 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

7.4.4 Test Setup Diagram



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

Limit:
 ≥ 500 kHz

7.5.1 E.U.T. Operation

Operating Environment:
Temperature: 23 °C Humidity: 45 % RH Atmospheric Pressure: 1024 mbar

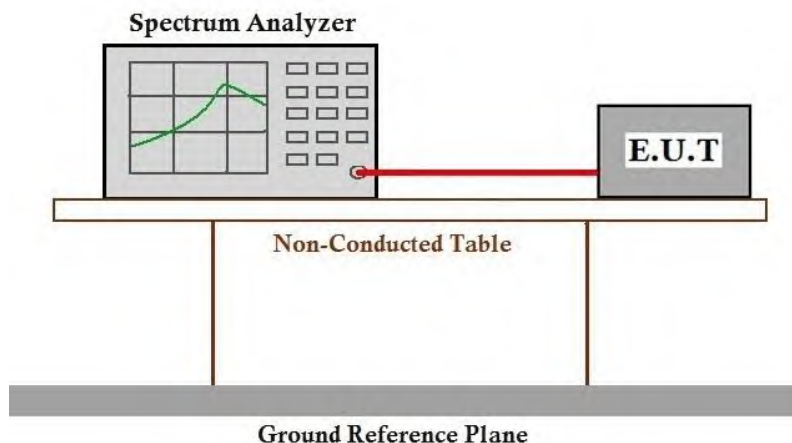
7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	01	TX mode(2Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	02	TX mode(125K)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	03	TX mode(500K)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.5.3 Measurement Procedure and Data

Please Refer to Appendix for Details

7.5.4 Test Setup Diagram



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: 1024 mbar

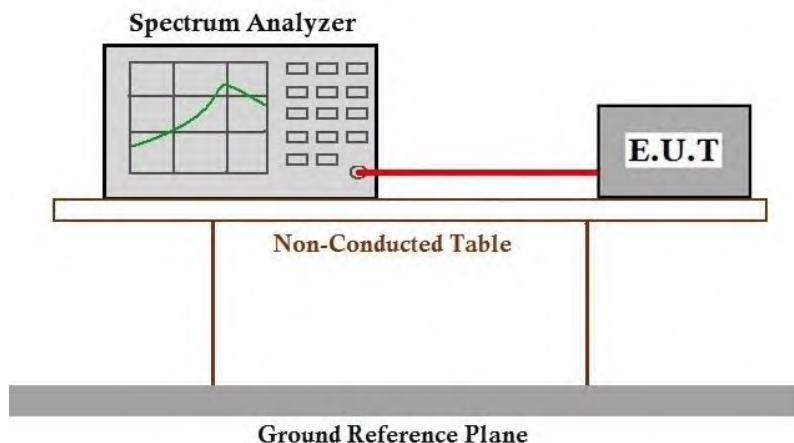
7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	01	TX mode(2Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	02	TX mode(125K)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	03	TX mode(500K)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.6.3 Measurement Procedure and Data

Please Refer to Appendix for Details

7.6.4 Test Setup Diagram





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: 23 °C

Humidity: 45 % RH

Atmospheric Pressure: 1024 mbar

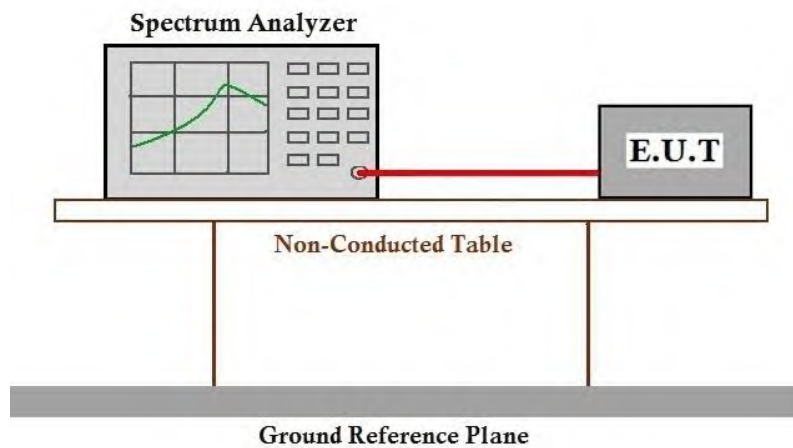
7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	01	TX mode(2Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	02	TX mode(125K)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	03	TX mode(500K)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.7.3 Measurement Procedure and Data

Please Refer to Appendix for Details

7.7.4 Test Setup Diagram





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: 23 °C

Humidity: 45 % RH

Atmospheric Pressure: 1024 mbar

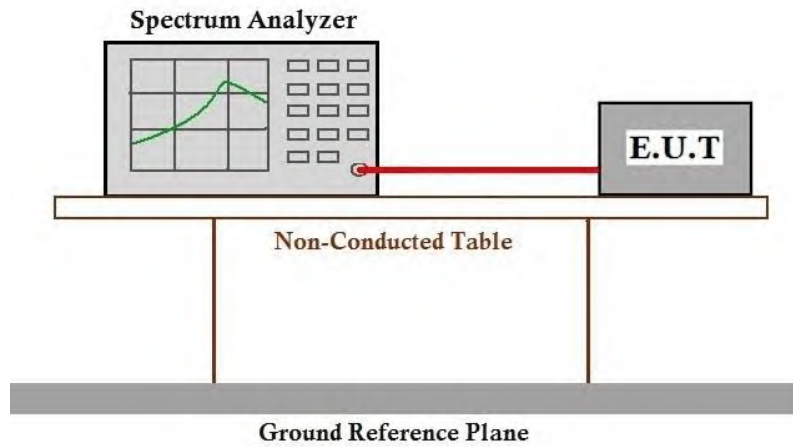
7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	01	TX mode(2Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.
Final test	02	TX mode(125K)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	03	TX mode(500K)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.8.3 Measurement Procedure and Data

Please Refer to Appendix for Details

7.8.4 Test Setup Diagram





Report No.: SUCR251000100001

Page: 90 of 137

8 Test Setup Photo

Refer to Appendix - Test Setup Photo for SUCR2510001000MO

9 EUT Constructional Details (EUT Photos)

Refer to Appendix_Photographs of EUT Constructional Details for SUCR2510001000MO



10 Appendix

1. Duty Cycle

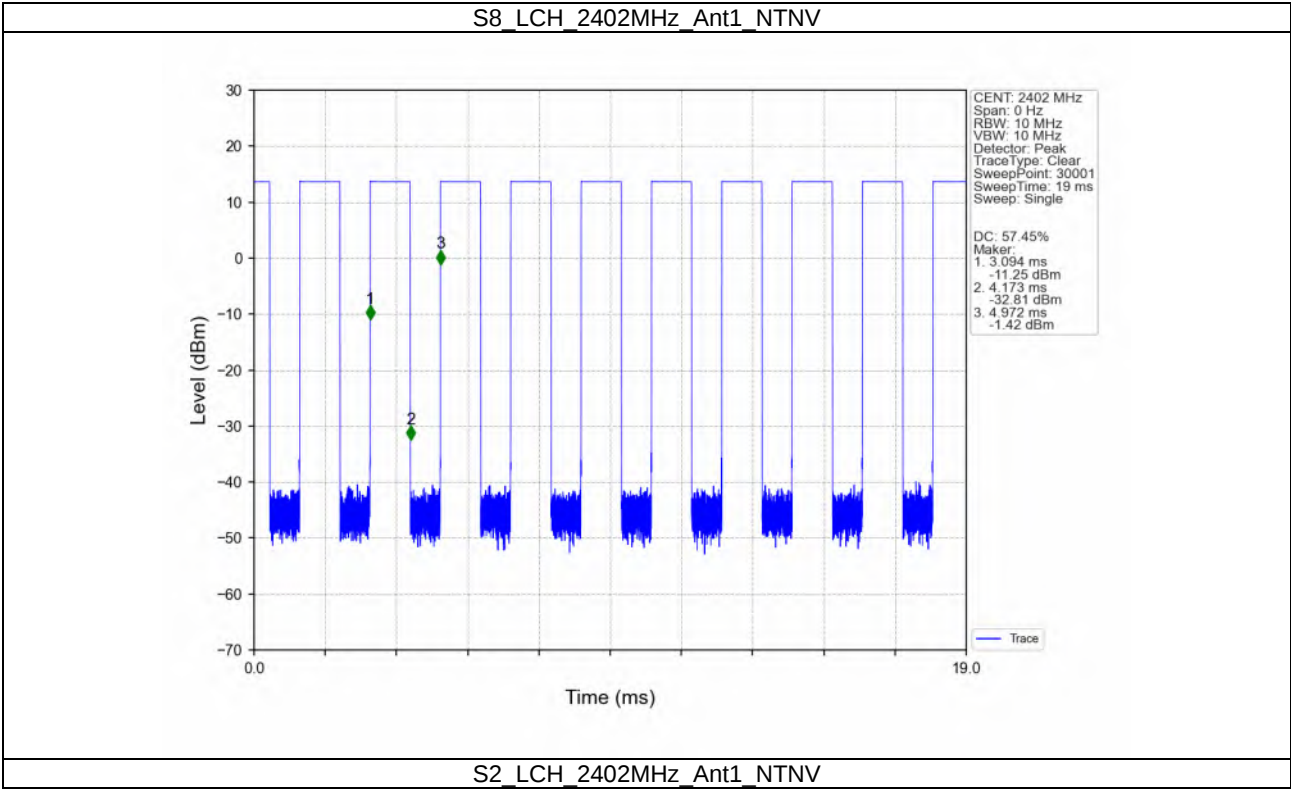
1.1 Test Result

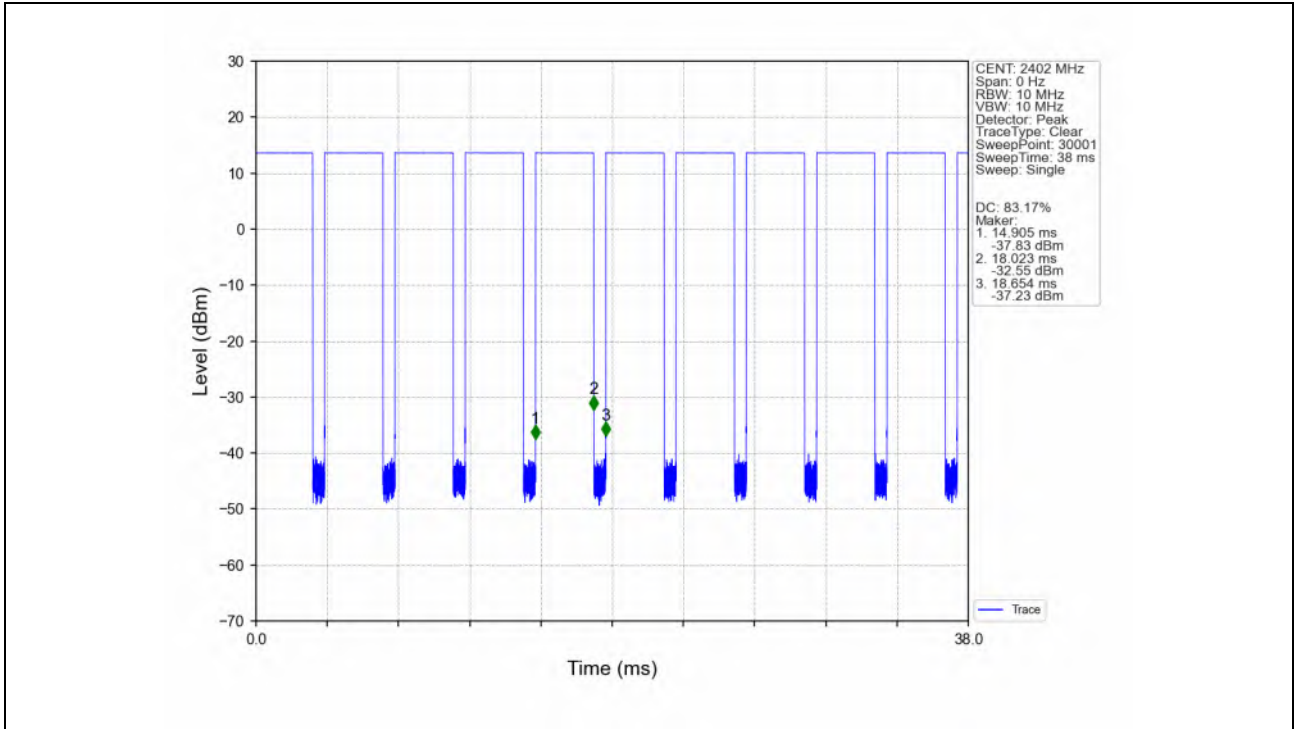
1.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
S8	SISO	2402	1.079	1.878	57.45	2.41	0.04
S2	SISO	2402	3.118	3.749	83.17	0.80	0.03
1M	SISO	2402	0.398	0.624	63.78	1.95	0.09
2M	SISO	2402	0.214	0.625	34.24	4.65	0.08

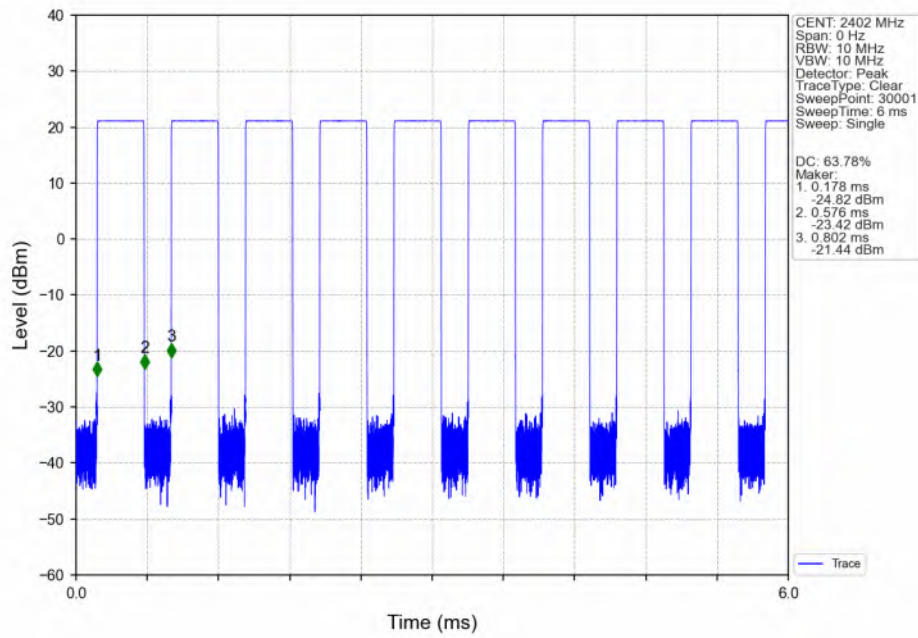
1.2 Test Graph

1.2.1 Ant1

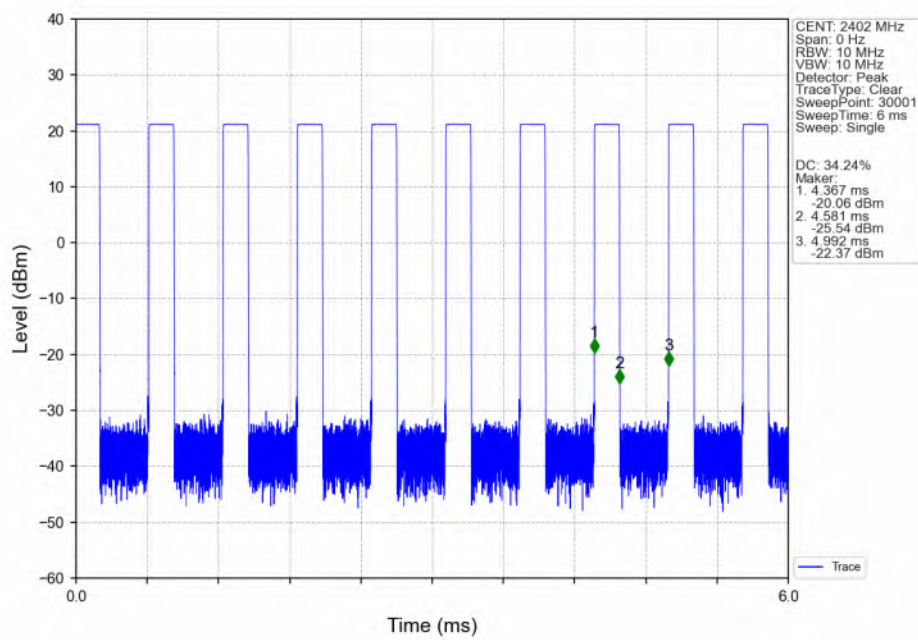




1M LCH 2402MHz Ant1 NTN



2M LCH 2402MHz Ant1 NTN





2. Bandwidth

2.1 Test Result

2.1.1 OBW

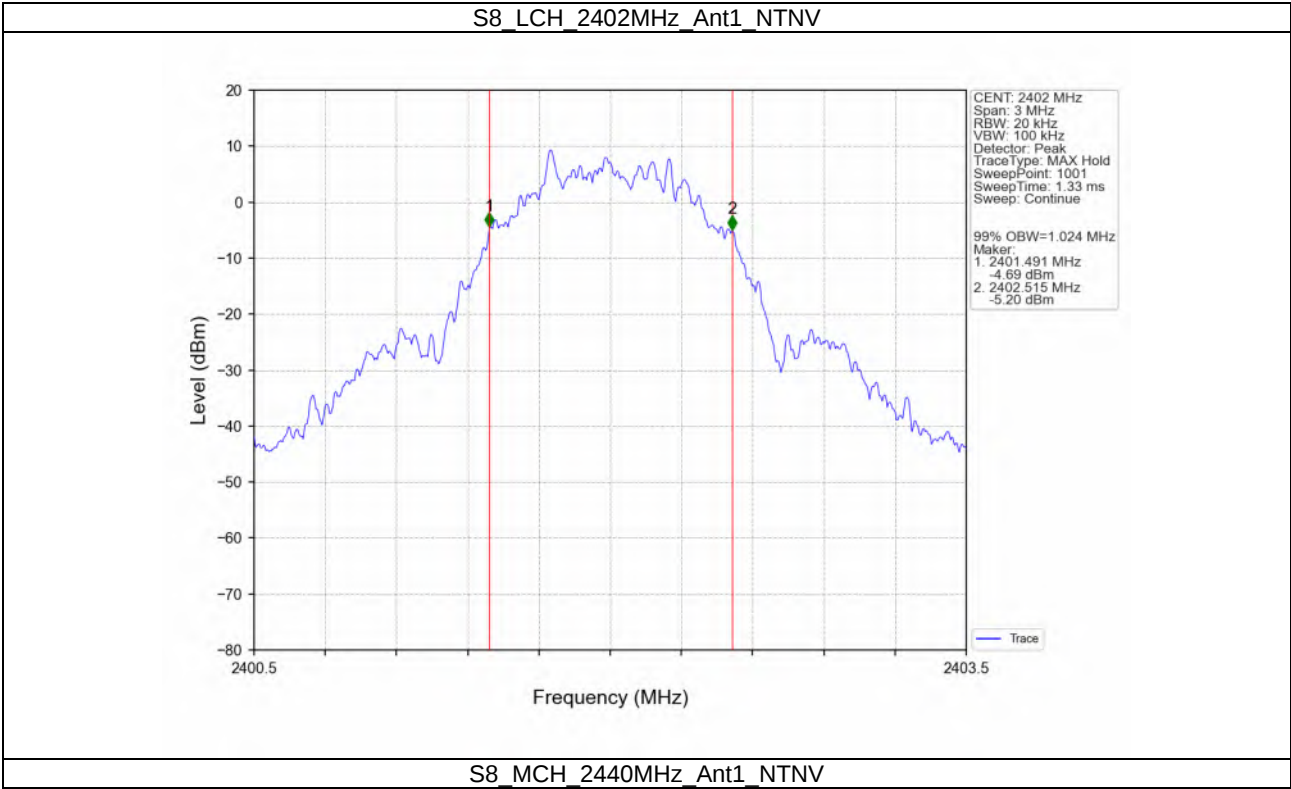
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
S8	SISO	2402	1	1.024	/	Pass
		2440	1	1.025	/	Pass
		2480	1	1.024	/	Pass
S2	SISO	2402	1	1.057	/	Pass
		2440	1	1.066	/	Pass
		2480	1	1.063	/	Pass
1M	SISO	2402	1	1.042	/	Pass
		2440	1	1.046	/	Pass
		2480	1	1.066	/	Pass
2M	SISO	2402	1	2.062	/	Pass
		2440	1	2.068	/	Pass
		2480	1	2.078	/	Pass

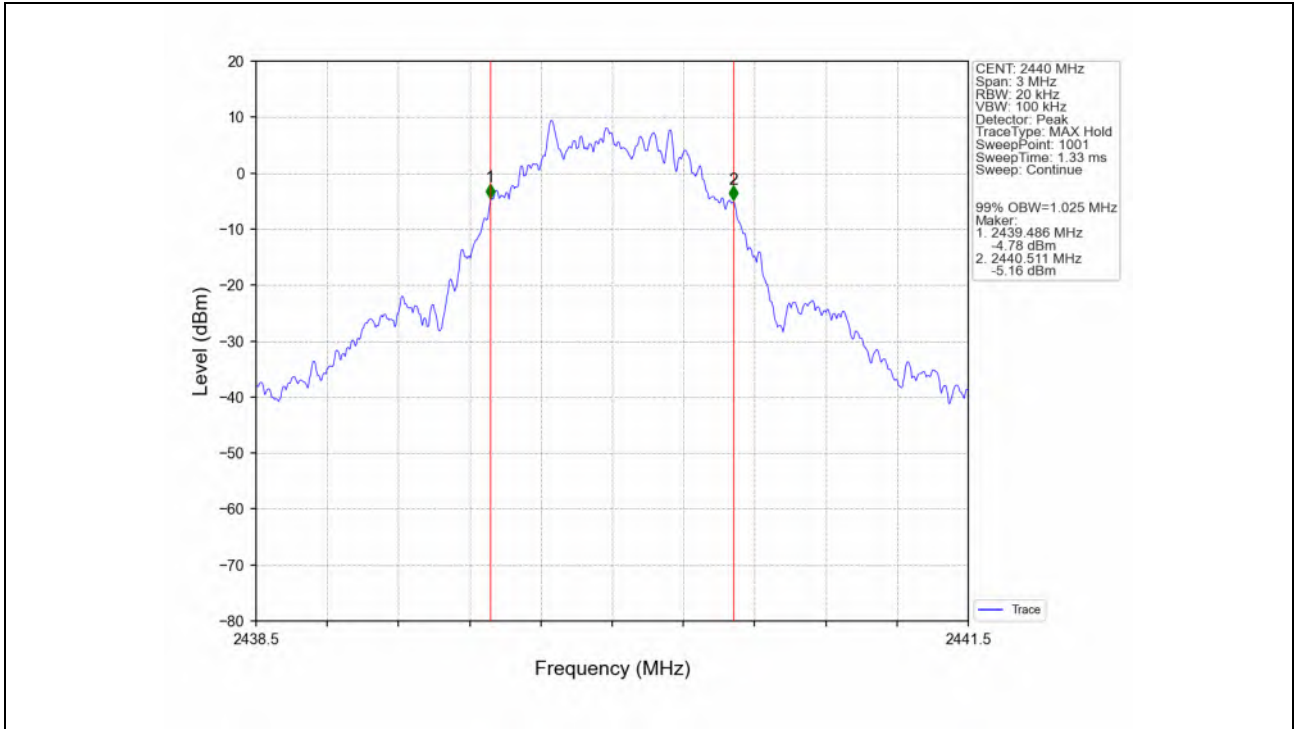
2.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
S8	SISO	2402	1	0.664	≥ 0.5	Pass
		2440	1	0.662	≥ 0.5	Pass
		2480	1	0.661	≥ 0.5	Pass
S2	SISO	2402	1	0.627	≥ 0.5	Pass
		2440	1	0.627	≥ 0.5	Pass
		2480	1	0.628	≥ 0.5	Pass
1M	SISO	2402	1	0.682	≥ 0.5	Pass
		2440	1	0.684	≥ 0.5	Pass
		2480	1	0.683	≥ 0.5	Pass
2M	SISO	2402	1	1.131	≥ 0.5	Pass
		2440	1	1.131	≥ 0.5	Pass
		2480	1	1.135	≥ 0.5	Pass

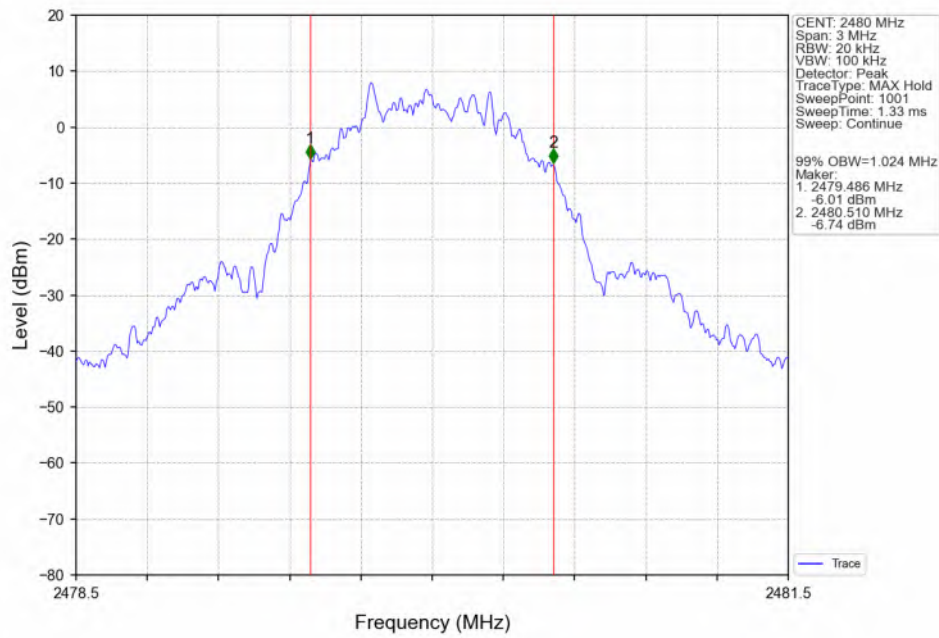
2.2 Test Graph

2.2.1 OBW

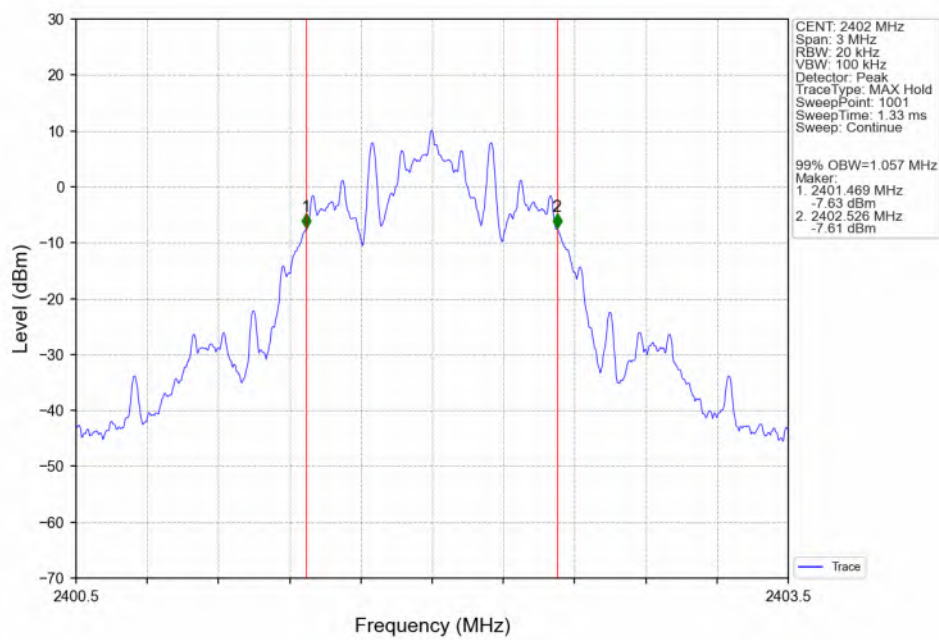




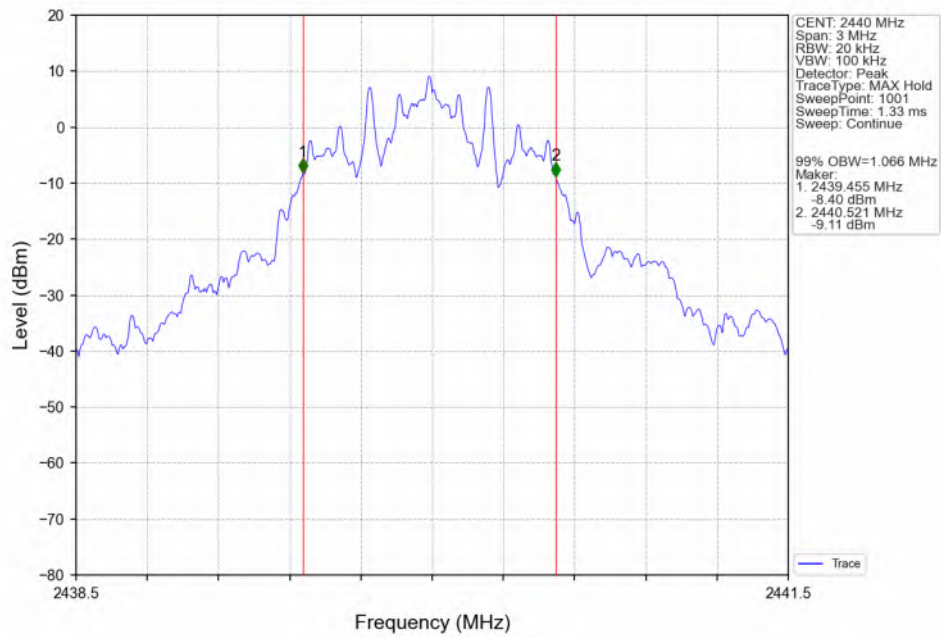
S8_HCH_2480MHz_Ant1_NTNV



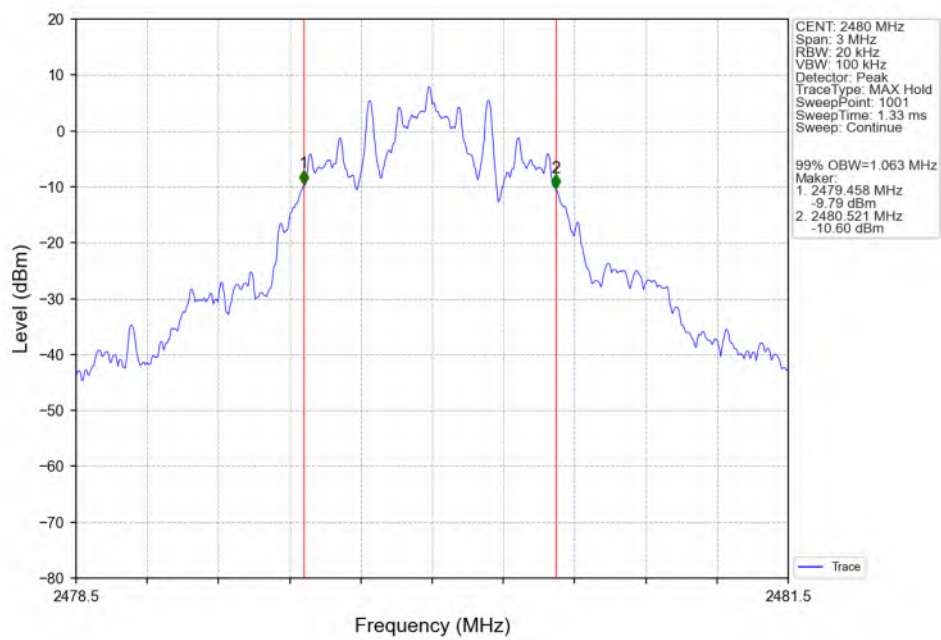
S2_LCH_2402MHz_Ant1_NTNV



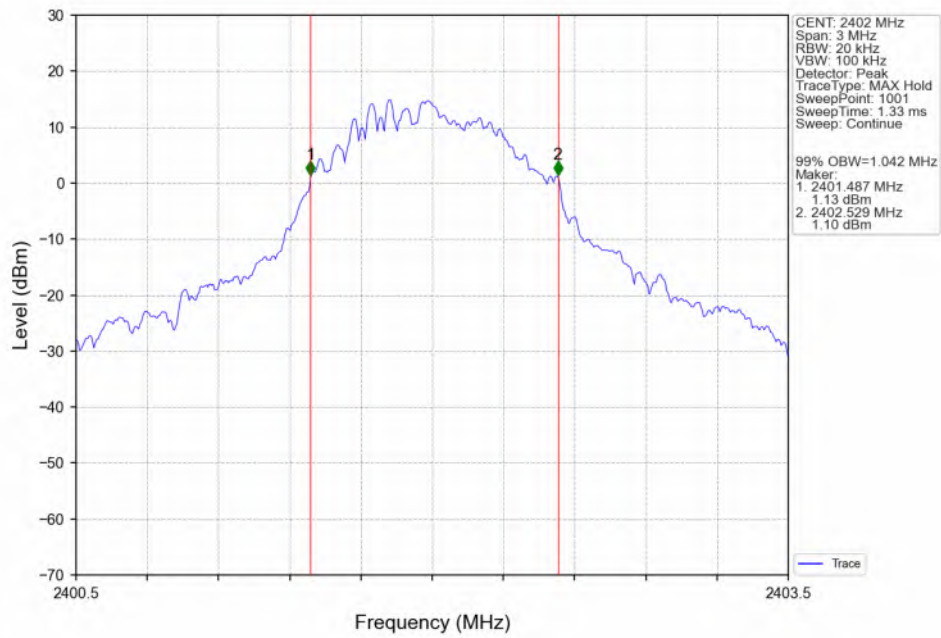
S2_MCH_2440MHz_Ant1_NTNV



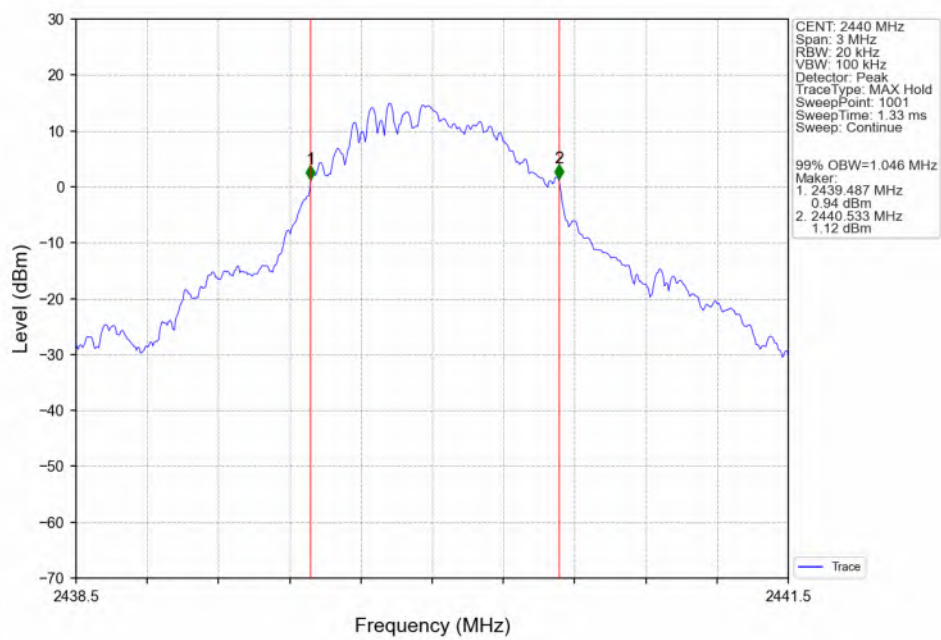
S2_HCH_2480MHz_Ant1_NTNV



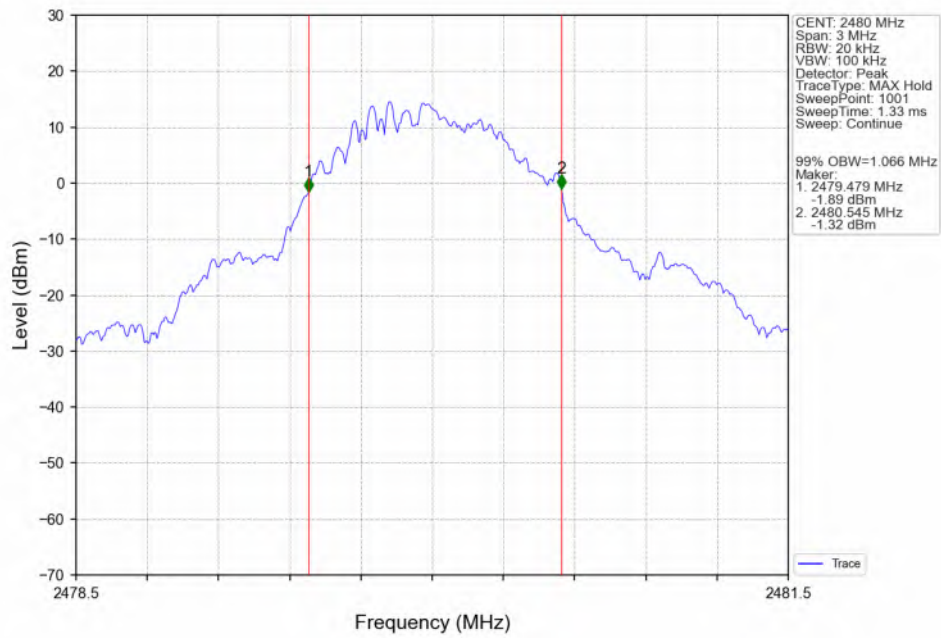
1M LCH 2402MHz Ant1 NTVN



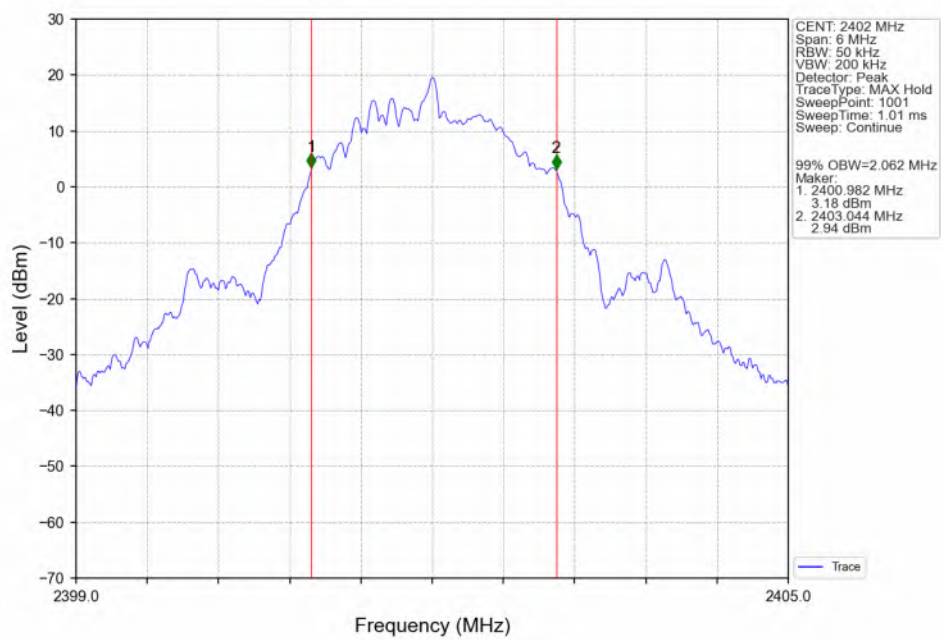
1M MCH 2440MHz Ant1 NTVN



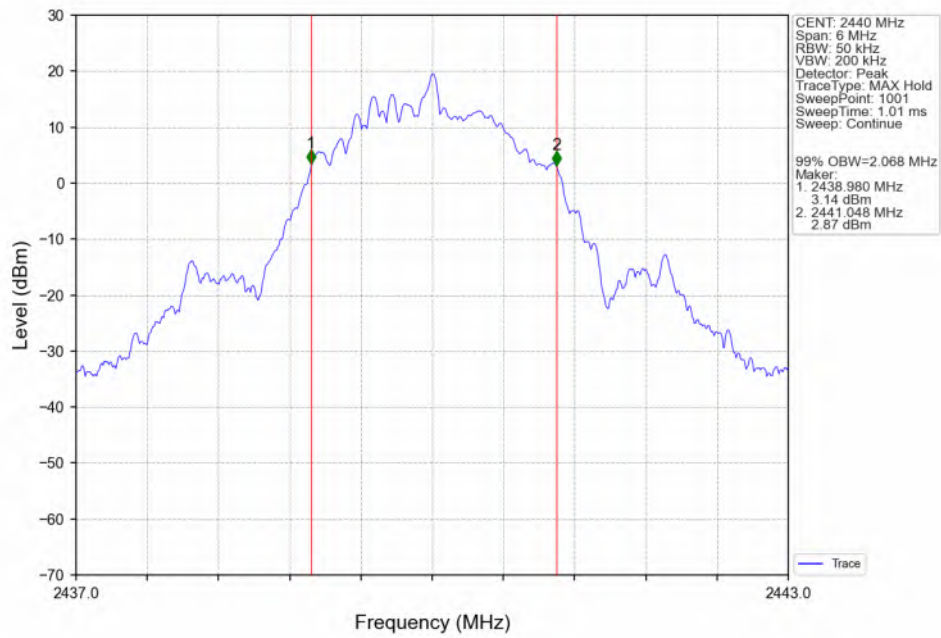
1M HCH 2480MHz Ant1 NTN



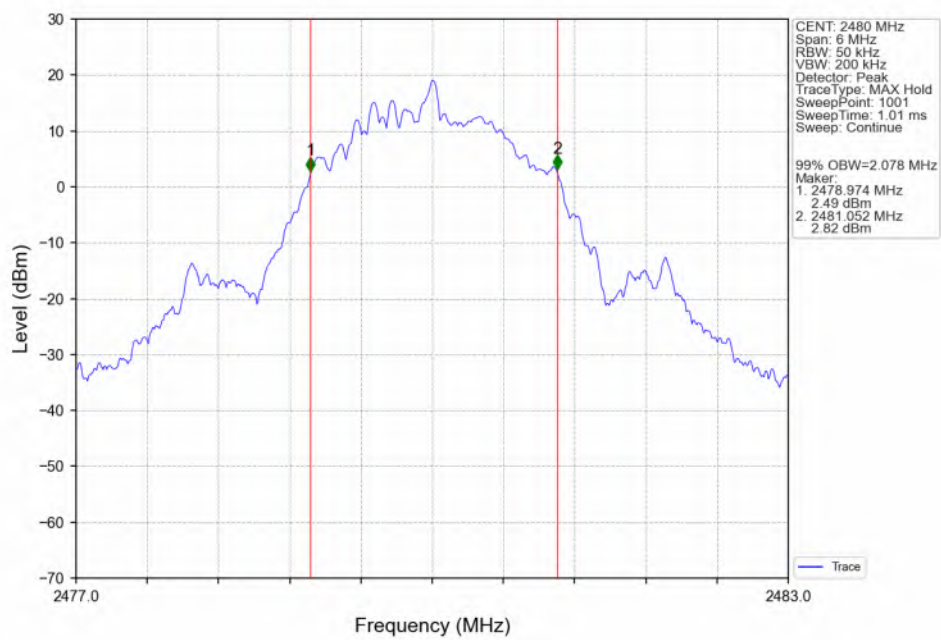
2M LCH 2402MHz Ant1 NTN



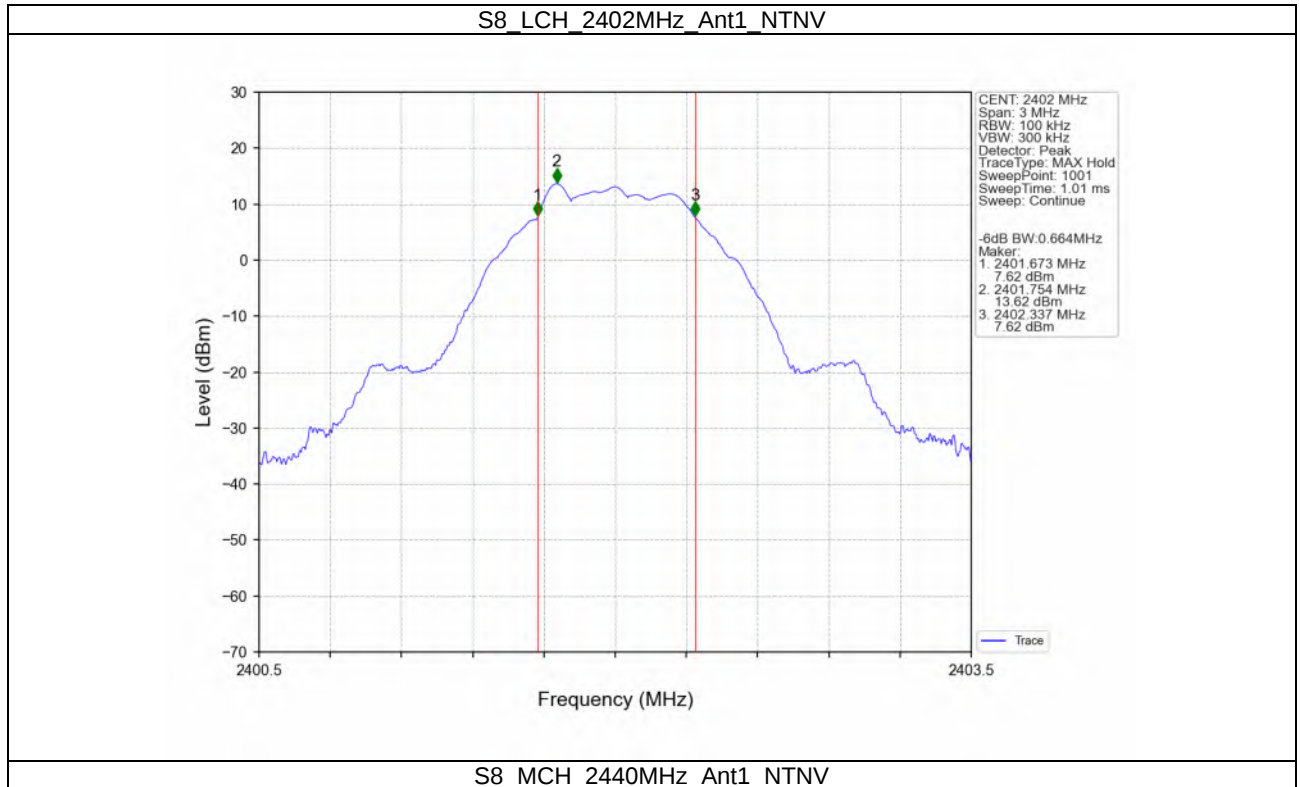
2M_MCH_2440MHz_Ant1_NTNV

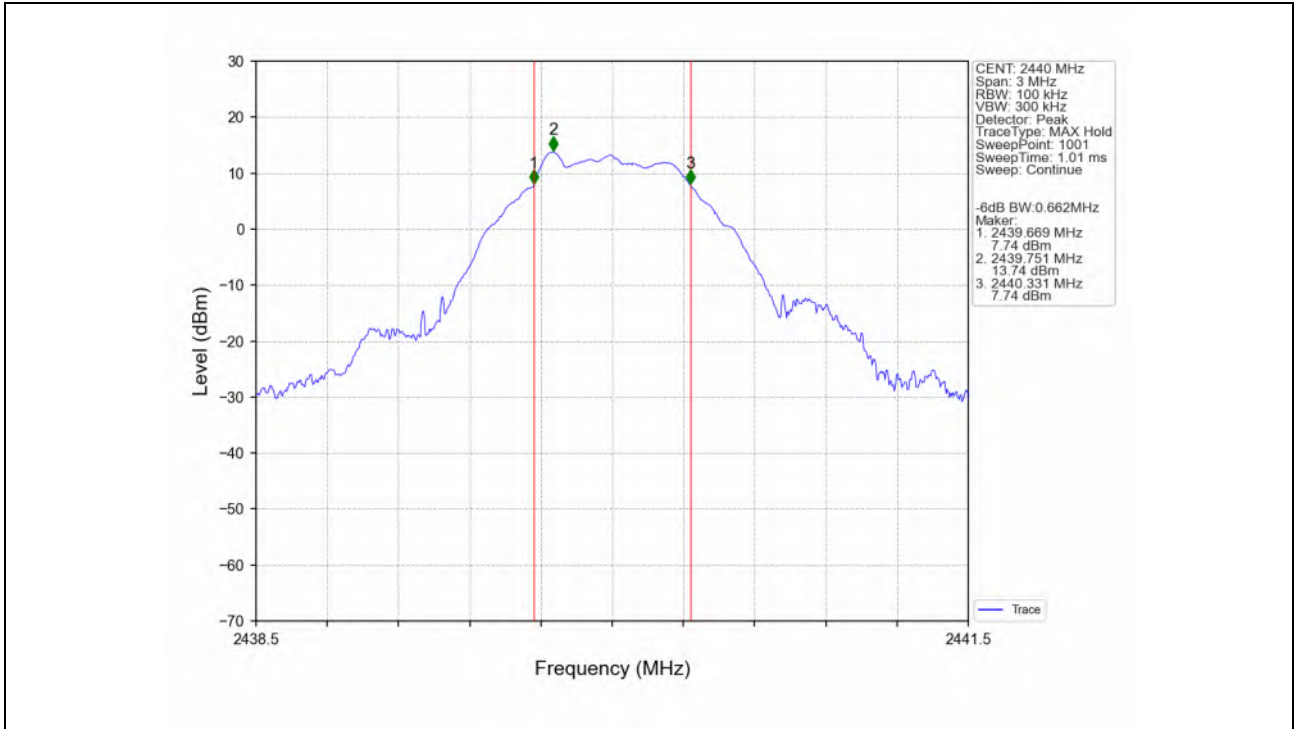


2M_HCH_2480MHz_Ant1_NTNV

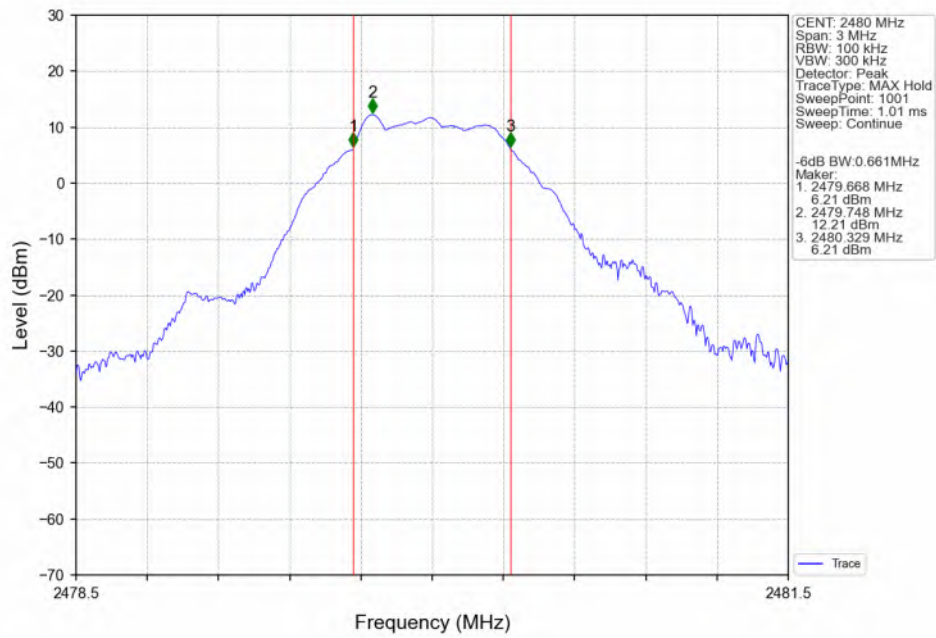


2.2.2 6dB BW

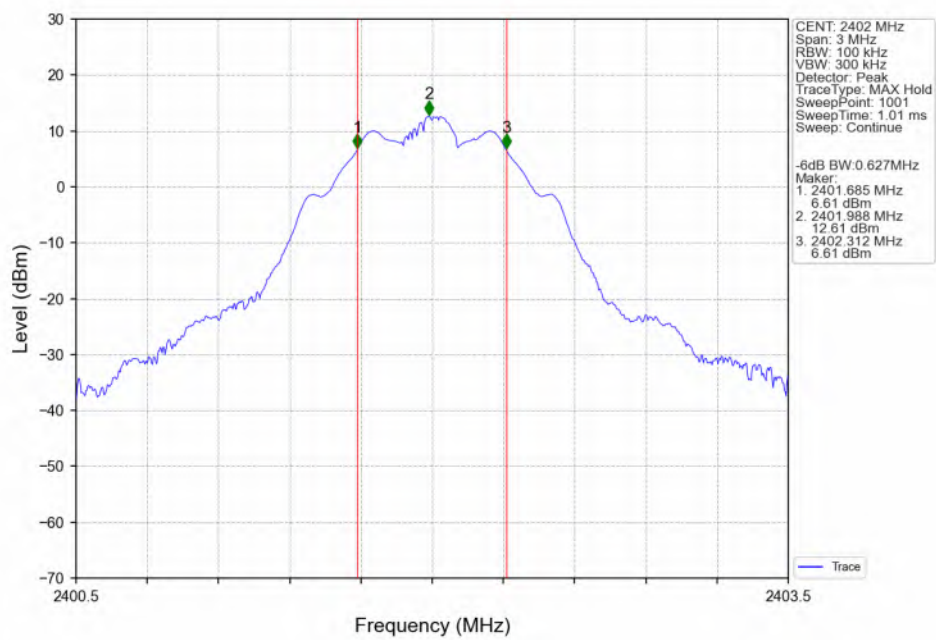




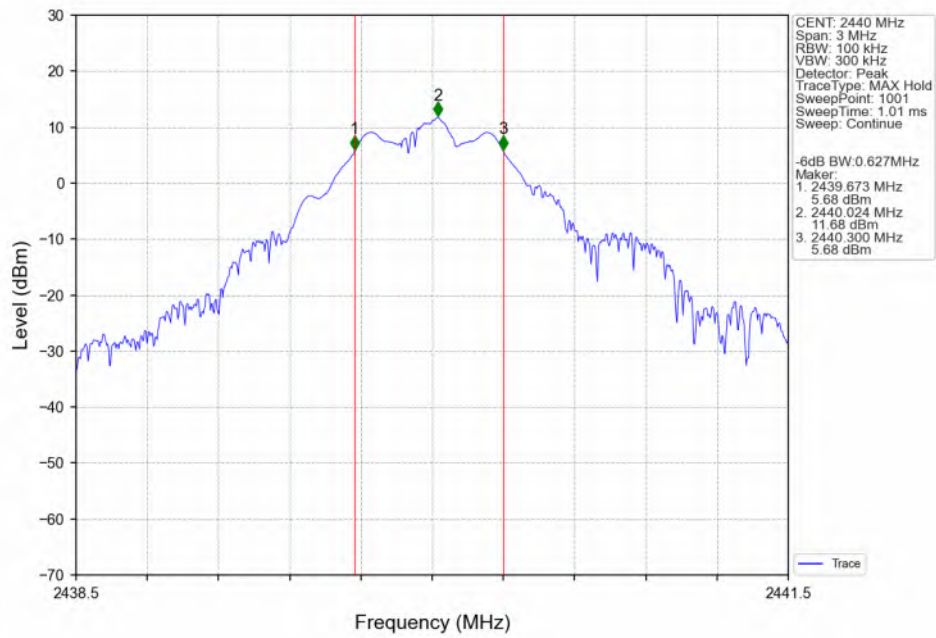
S8_HCH_2480MHz_Ant1_NTNV



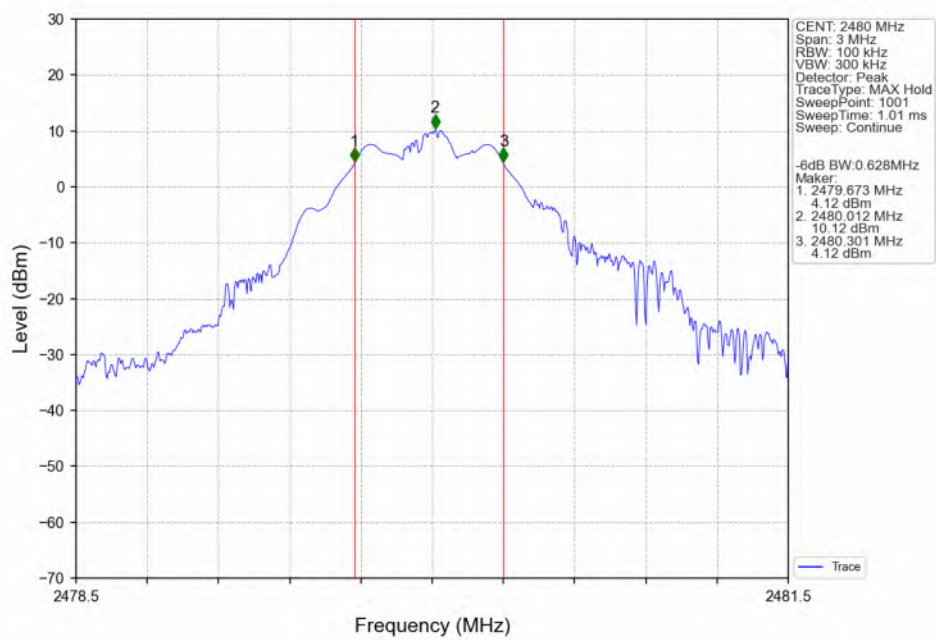
S2_LCH_2402MHz_Ant1_NTNV



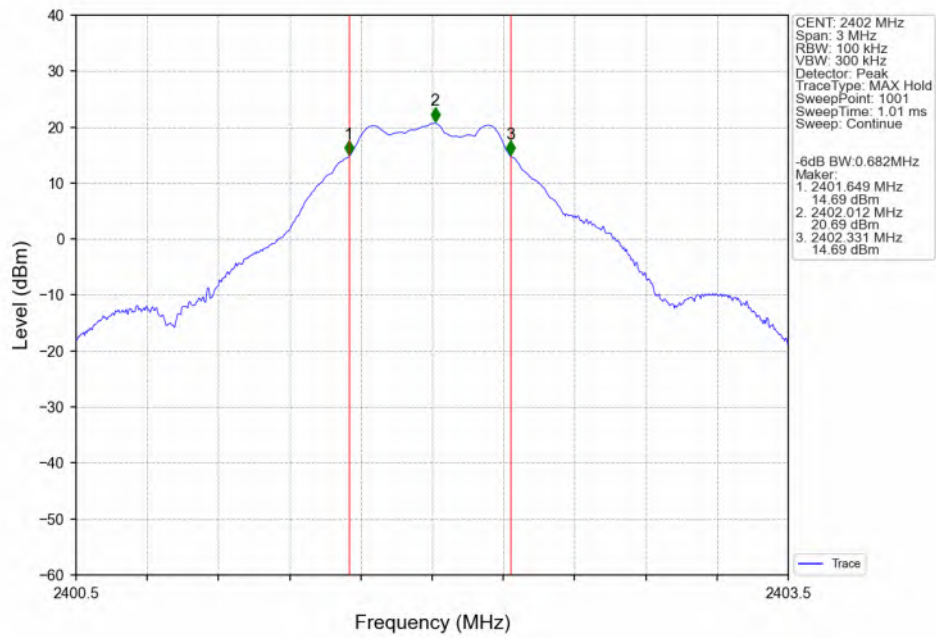
S2_MCH_2440MHz_Ant1_NTNV



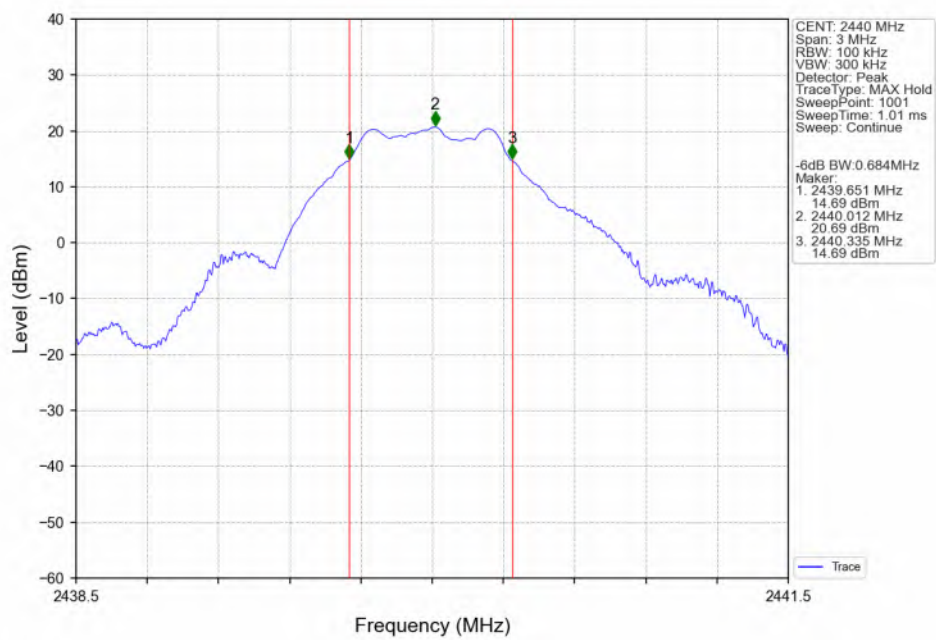
S2_HCH_2480MHz_Ant1_NTNV



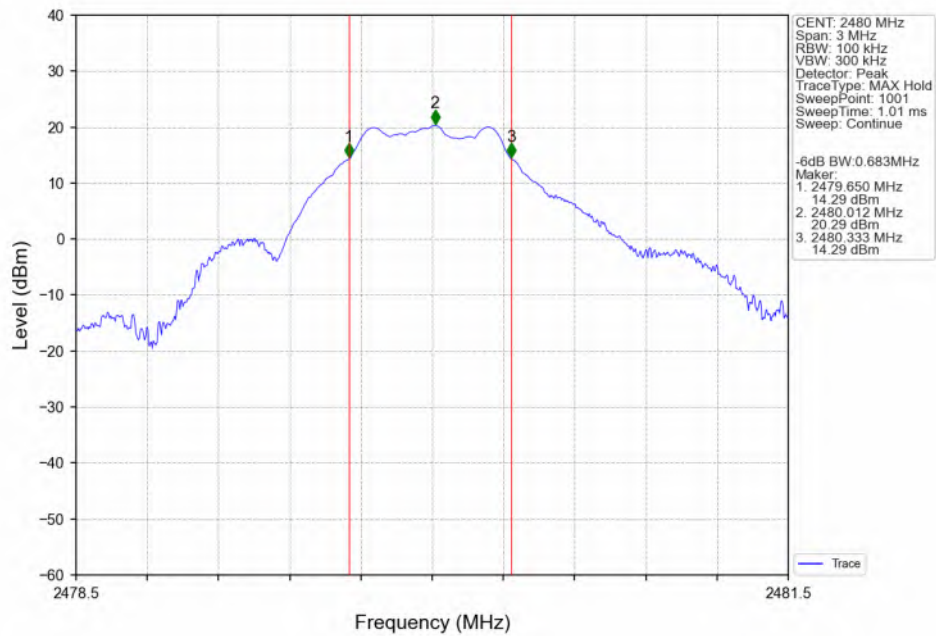
1M LCH 2402MHz Ant1 NTN



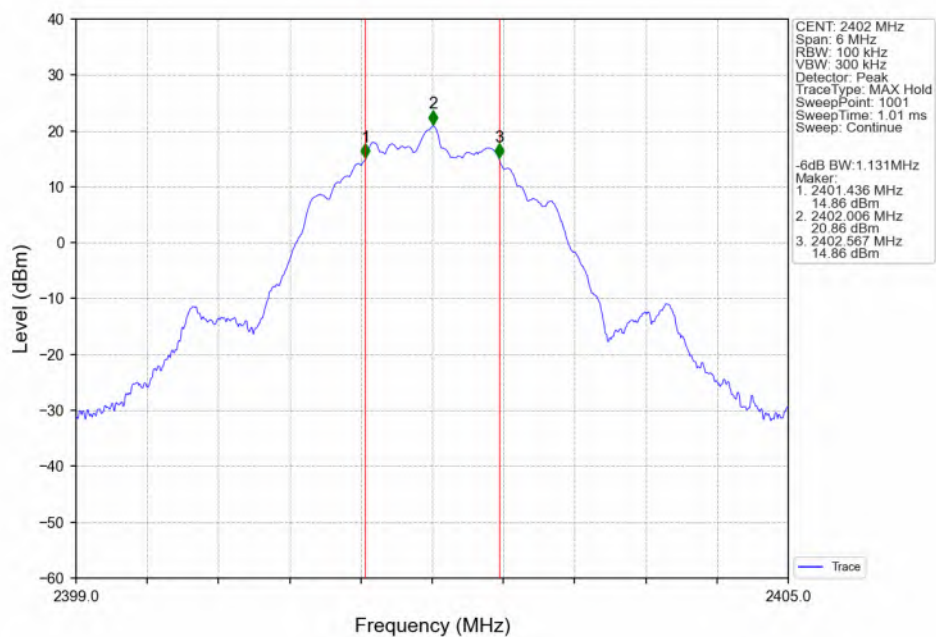
1M MCH 2440MHz Ant1 NTN



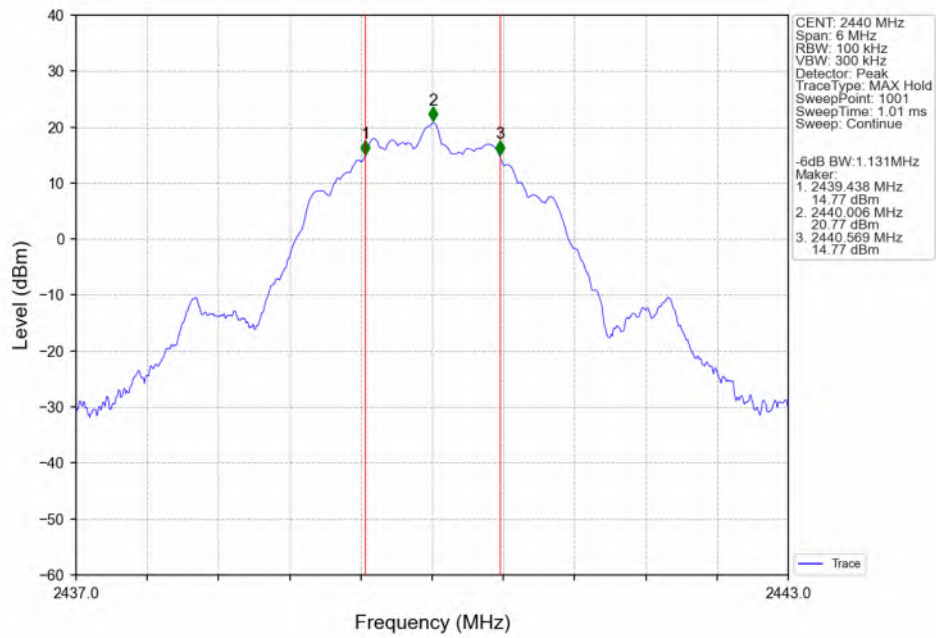
1M HCH 2480MHz Ant1 NTN



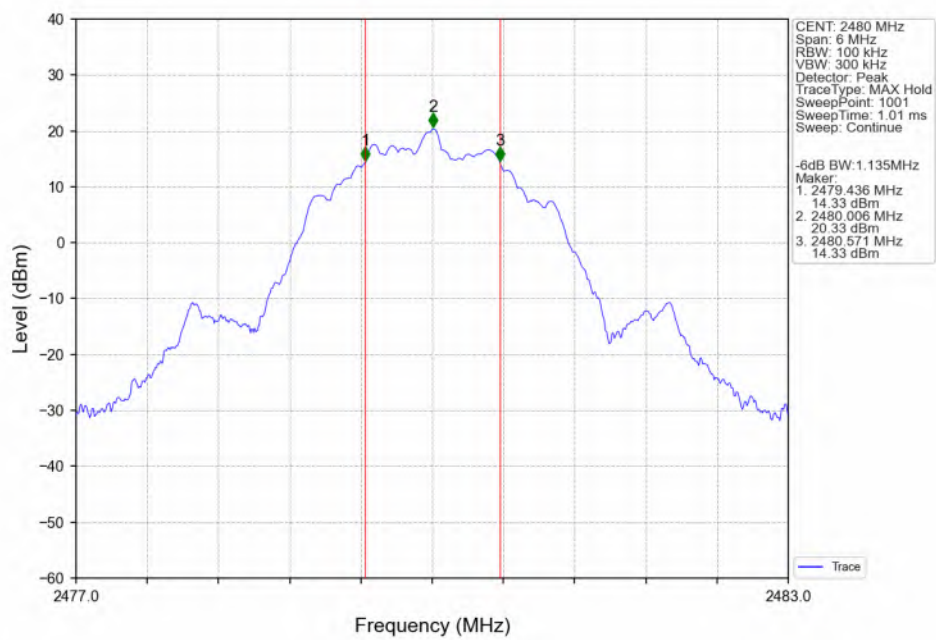
2M LCH 2402MHz Ant1 NTN



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	13.71	<=30	Pass
		2440	13.84	<=30	Pass
		2480	12.28	<=30	Pass
S2	SISO	2402	12.88	<=30	Pass
		2440	12.50	<=30	Pass
		2480	11.33	<=30	Pass
1M	SISO	2402	21.17	<=30	Pass
		2440	21.16	<=30	Pass
		2480	20.79	<=30	Pass
2M	SISO	2402	21.24	<=30	Pass
		2440	21.23	<=30	Pass
		2480	20.87	<=30	Pass
Note1: Antenna Gain: Ant1: 0.20dBi;					



Report No.: SUCR251000100001

Page: 111 of 137

4. Maximum Power Spectral Density

4.1 Test Result

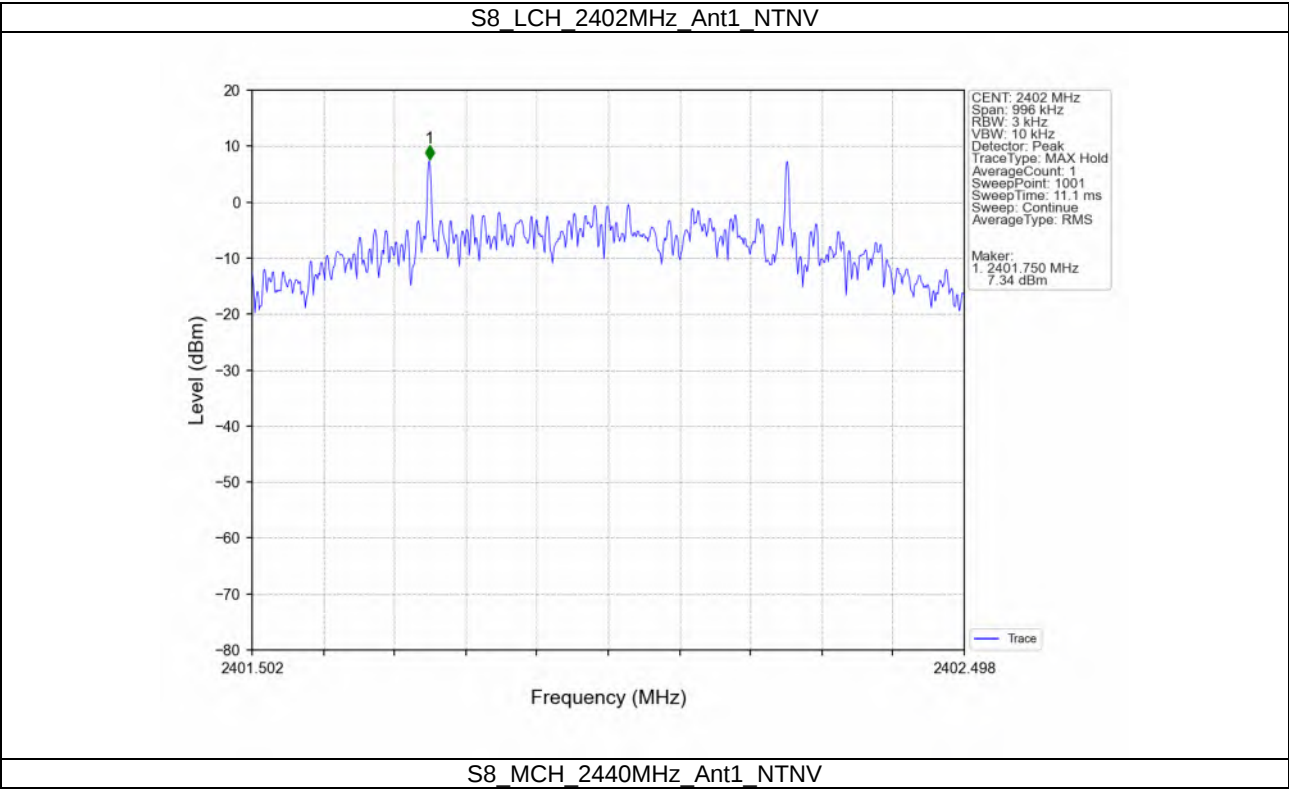
4.1.1 PSD

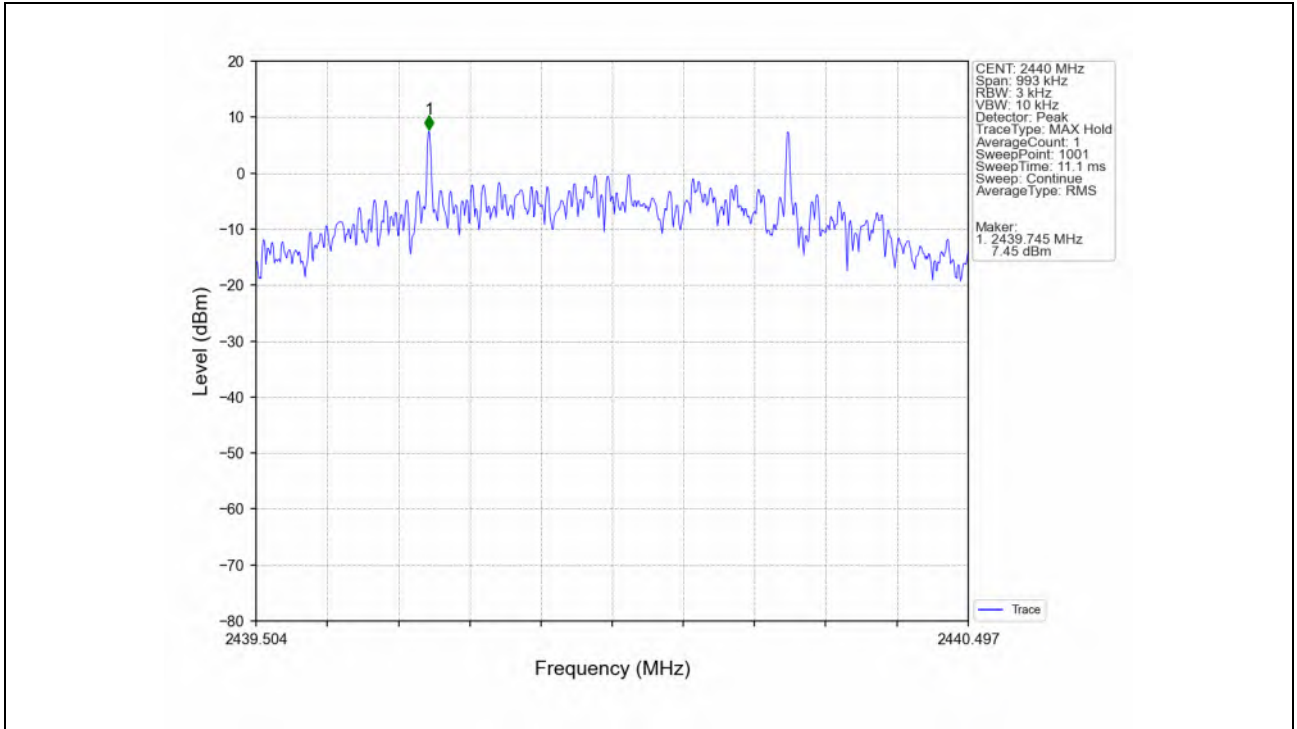
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm)		Verdict
			ANT1	Limit	
S8	SISO	2402	7.34	<=8	Pass
		2440	7.45	<=8	Pass
		2480	5.78	<=8	Pass
S2	SISO	2402	7.18	<=8	Pass
		2440	6.28	<=8	Pass
		2480	4.53	<=8	Pass
1M	SISO	2402	6.23	<=8	Pass
		2440	6.14	<=8	Pass
		2480	5.72	<=8	Pass
2M	SISO	2402	4.71	<=8	Pass
		2440	4.70	<=8	Pass
		2480	4.31	<=8	Pass

Note1: Antenna Gain: Ant1: 0.20dBi;

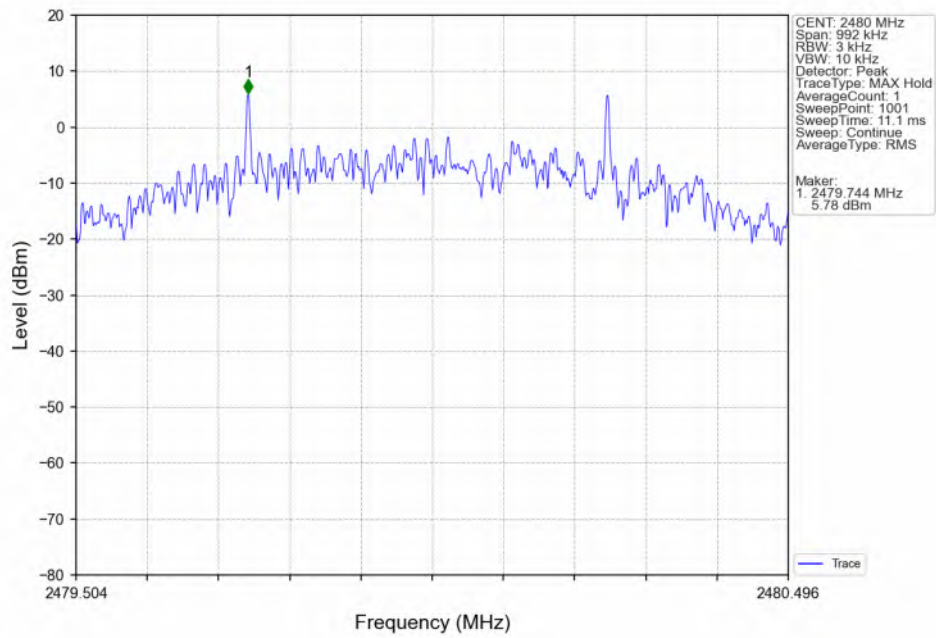
4.2 Test Graph

4.2.1 PSD

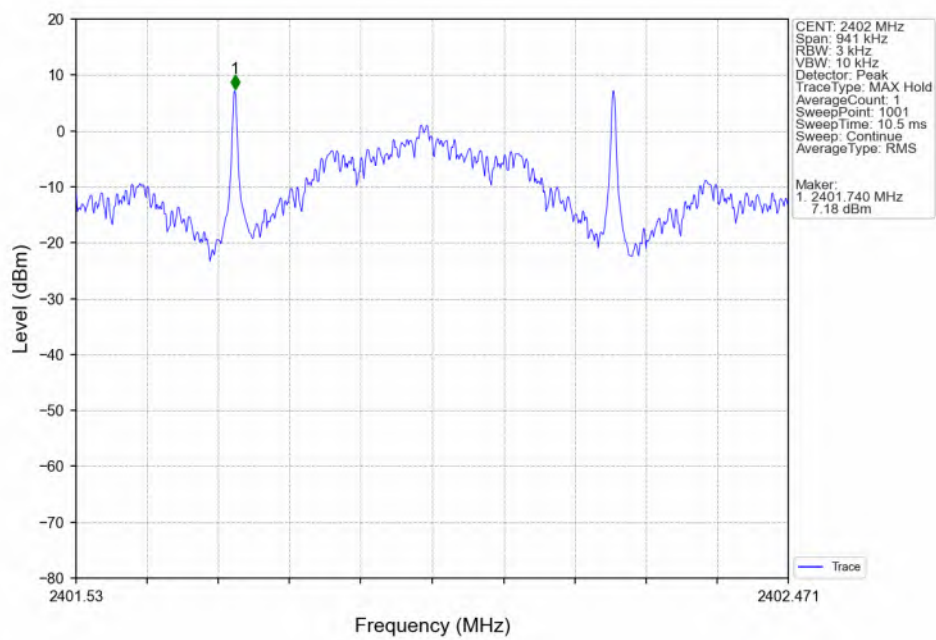


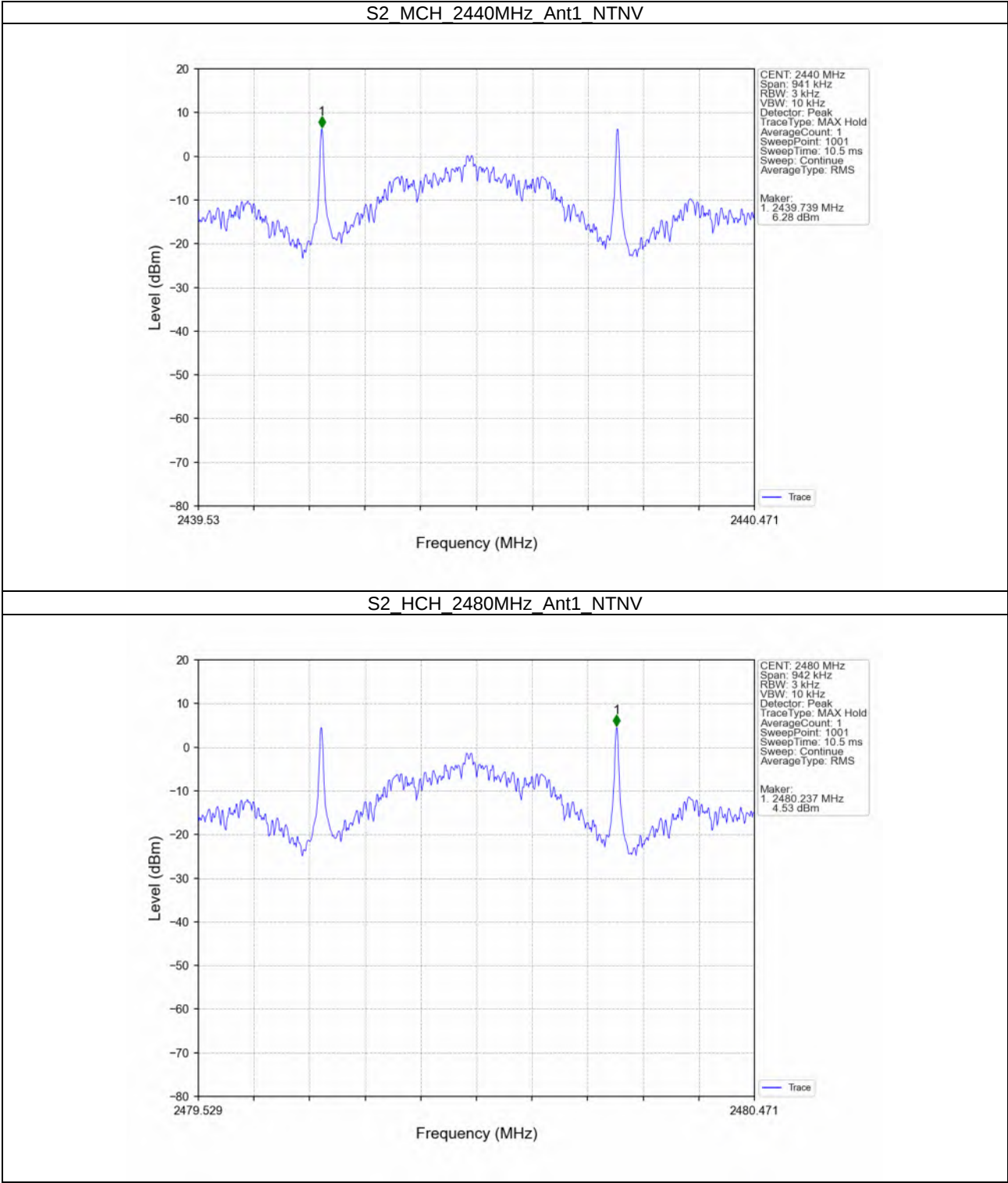


S8_HCH_2480MHz_Ant1_NTNV

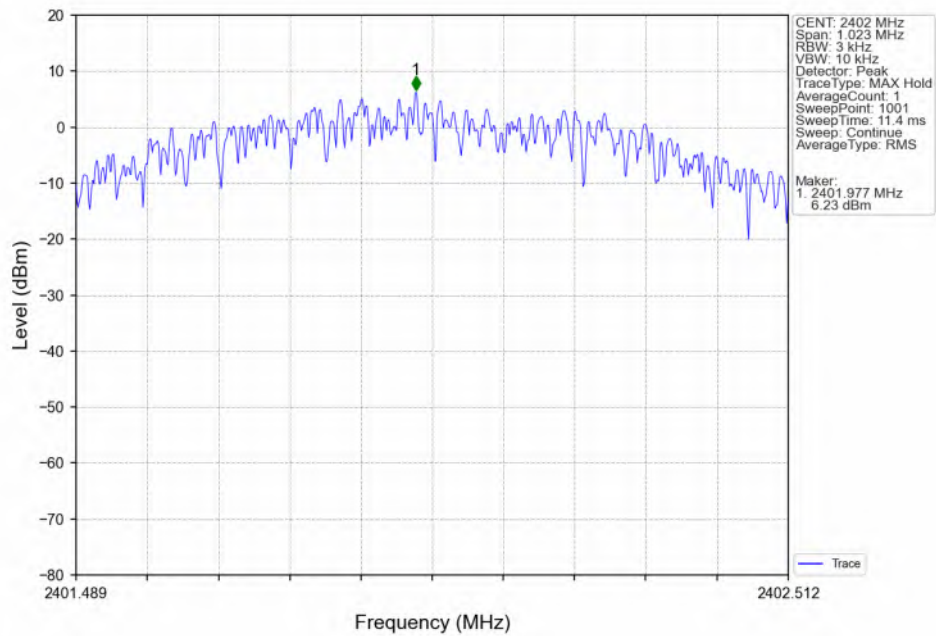


S2_LCH_2402MHz_Ant1_NTNV

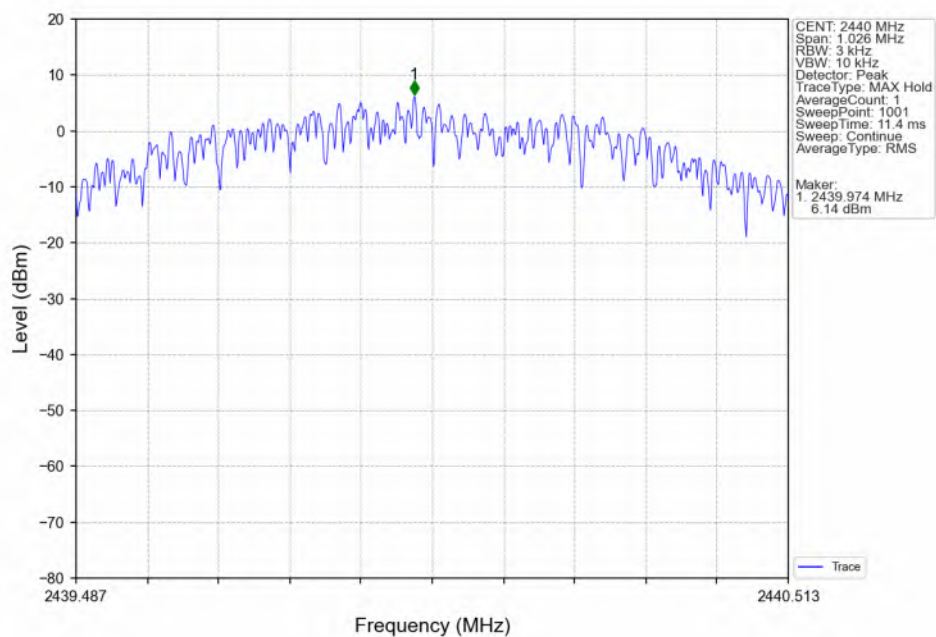




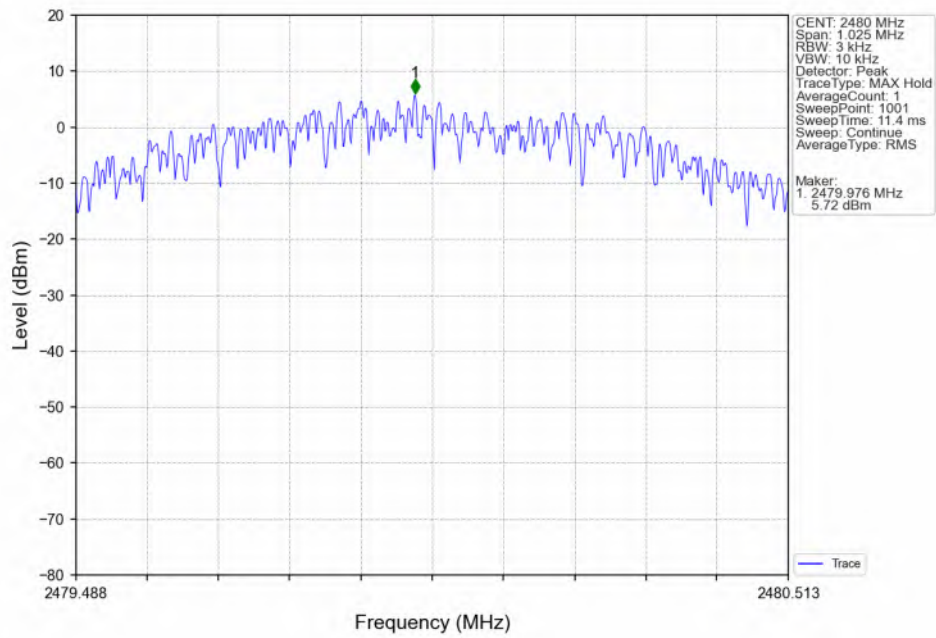
1M LCH 2402MHz Ant1 NTN



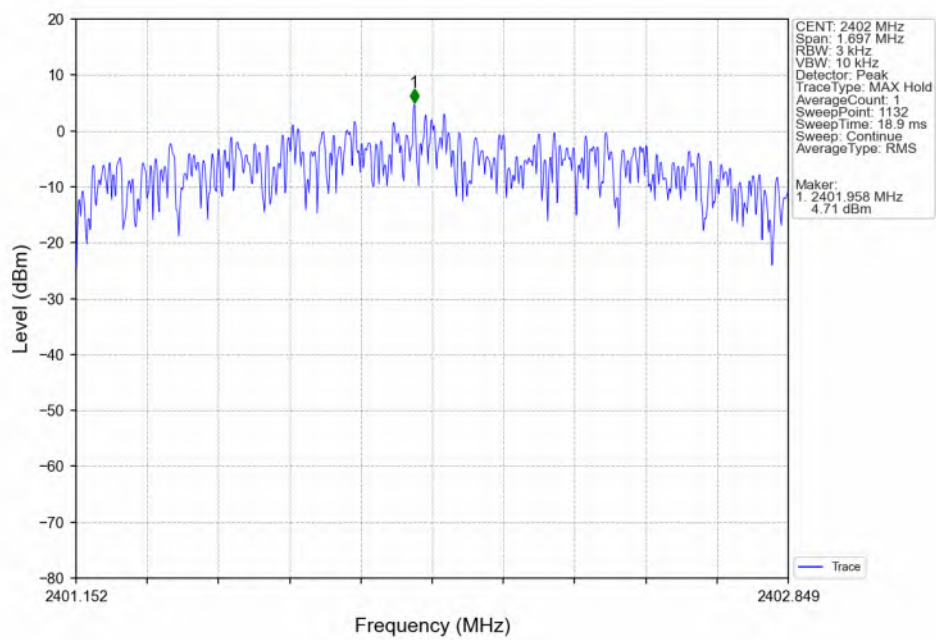
1M MCH 2440MHz Ant1 NTN



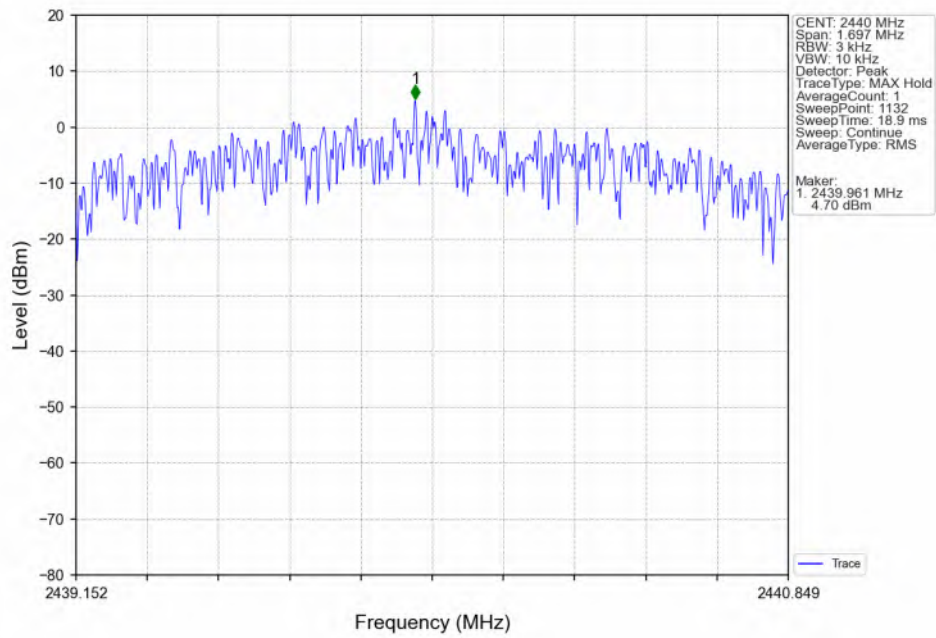
1M HCH 2480MHz Ant1 NTN



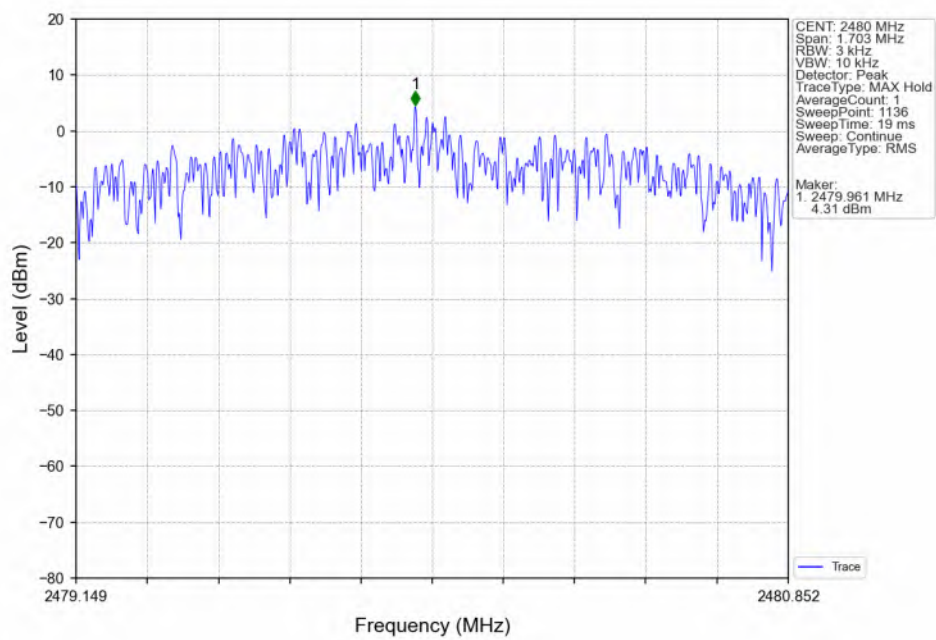
2M LCH 2402MHz Ant1 NTN



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)
S8	SISO	2402	1	12.71
		2440	1	13.76
		2480	1	11.92
S2	SISO	2402	1	9.97
		2440	1	11.20
		2480	1	10.23
1M	SISO	2402	1	20.67
		2440	1	20.71
		2480	1	20.26
2M	SISO	2402	1	20.76
		2440	1	20.72
		2480	1	20.32

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.

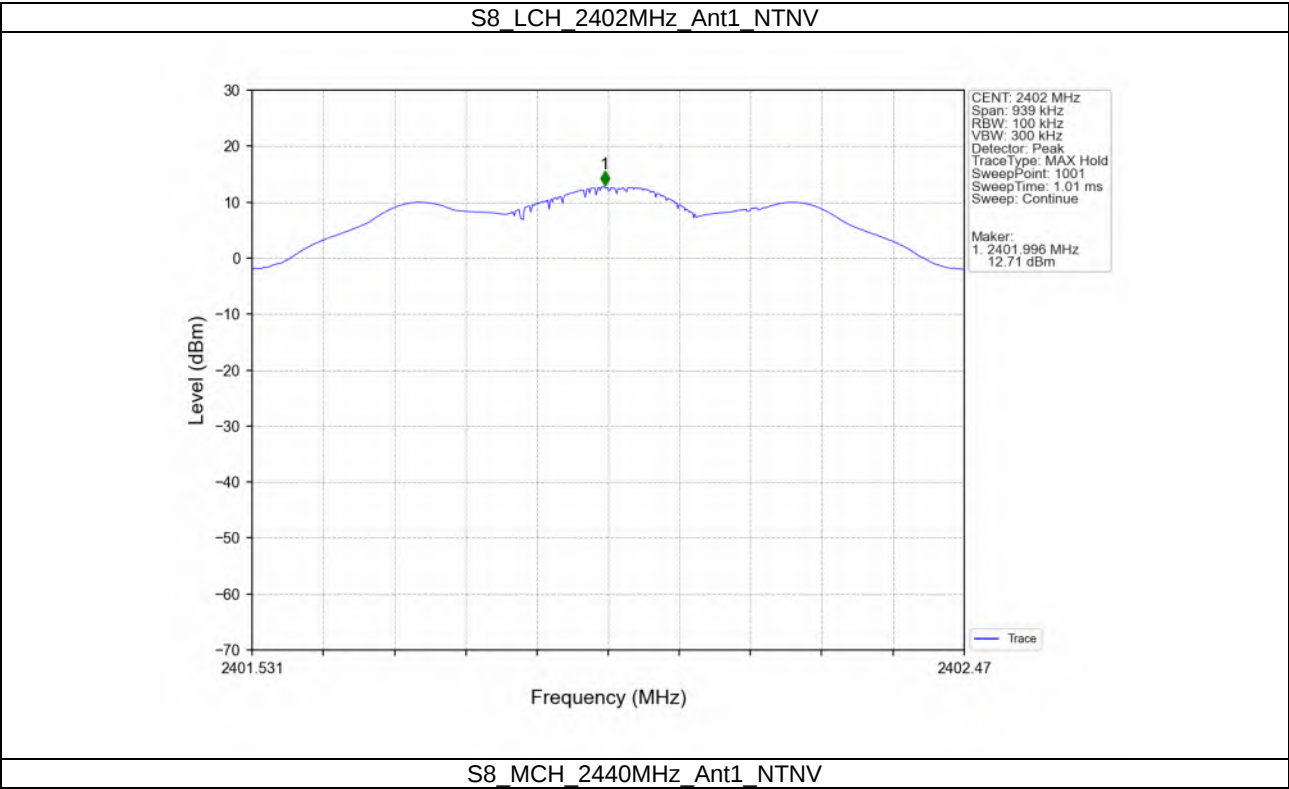
5.1.2 CSE

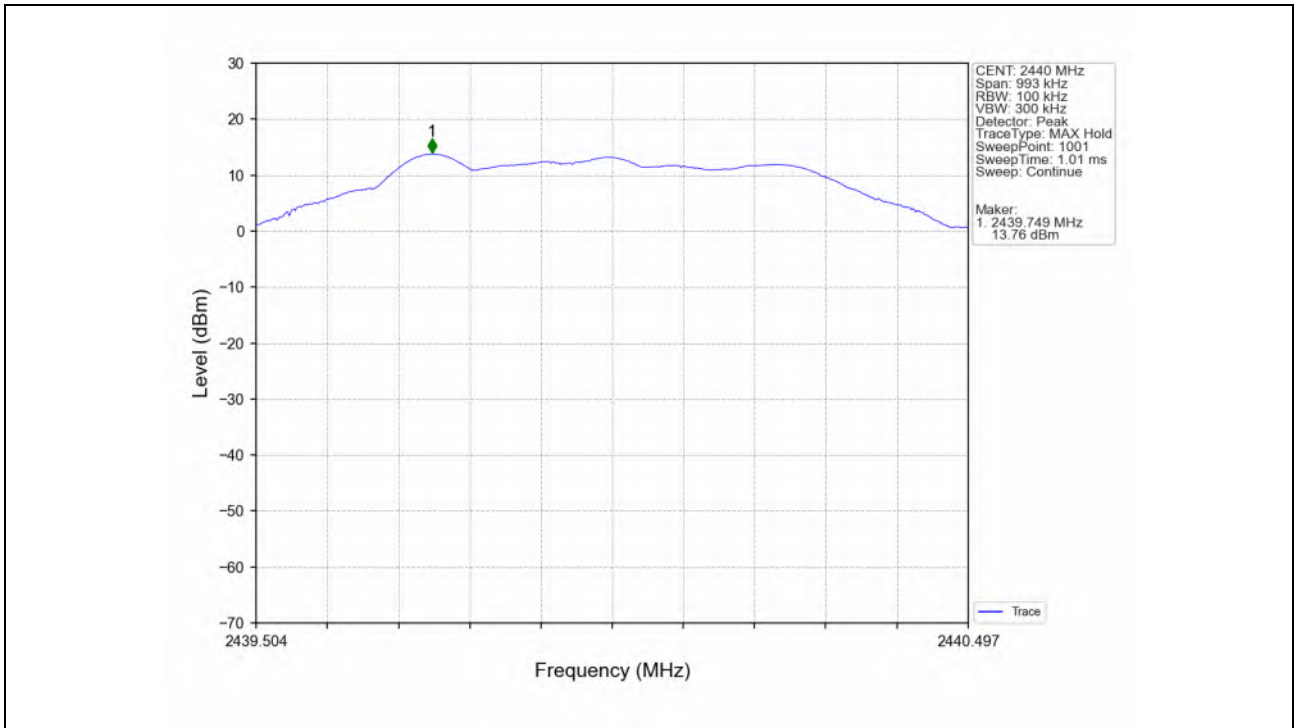
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
S8	SISO	2402	1	13.76	-6.24	Pass
		2440	1	13.76	-6.24	Pass
		2480	1	13.76	-6.24	Pass
S2	SISO	2402	1	11.20	-8.80	Pass
		2440	1	11.20	-8.80	Pass
		2480	1	11.20	-8.80	Pass
1M	SISO	2402	1	20.71	0.71	Pass
		2440	1	20.71	0.71	Pass
		2480	1	20.71	0.71	Pass
2M	SISO	2402	1	20.76	0.76	Pass
		2440	1	20.76	0.76	Pass
		2480	1	20.76	0.76	Pass

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.

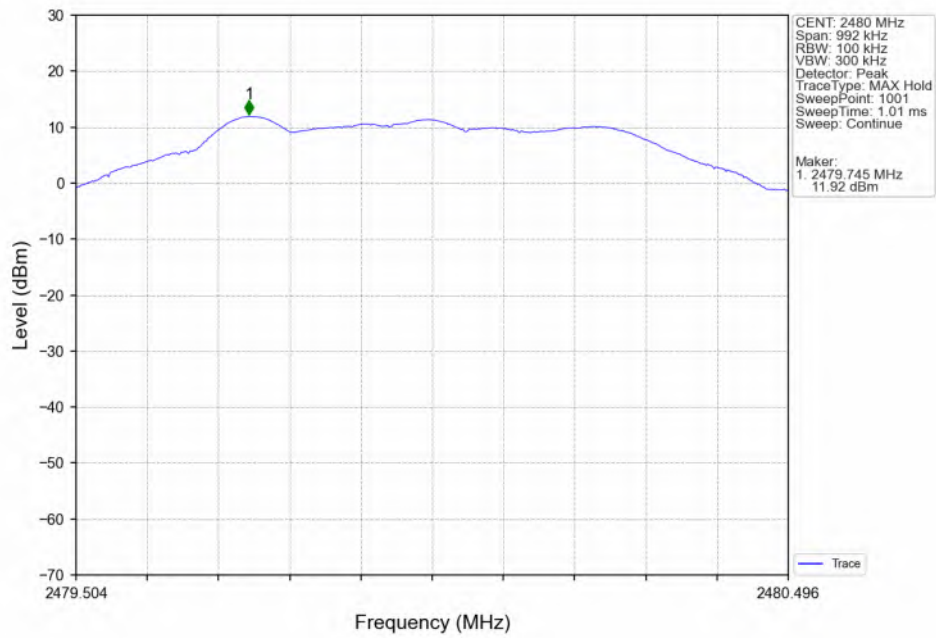
5.2 Test Graph

5.2.1 Ref

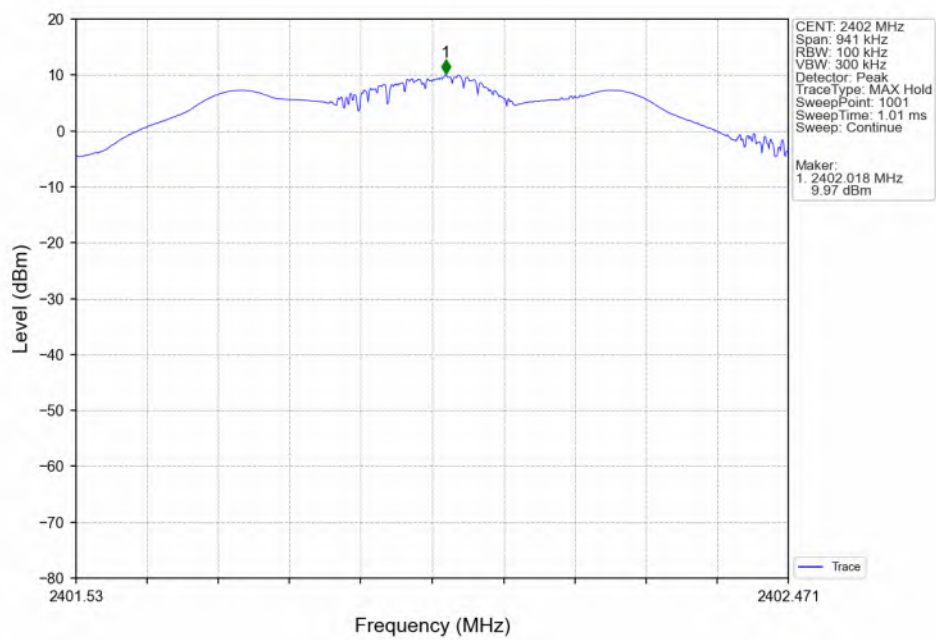




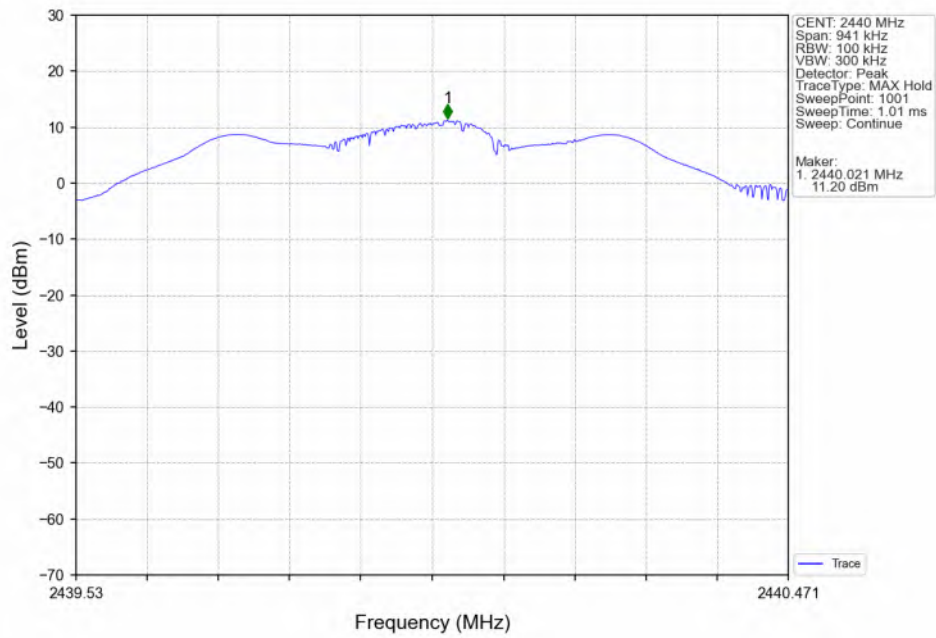
S8_HCH_2480MHz_Ant1_NTNV



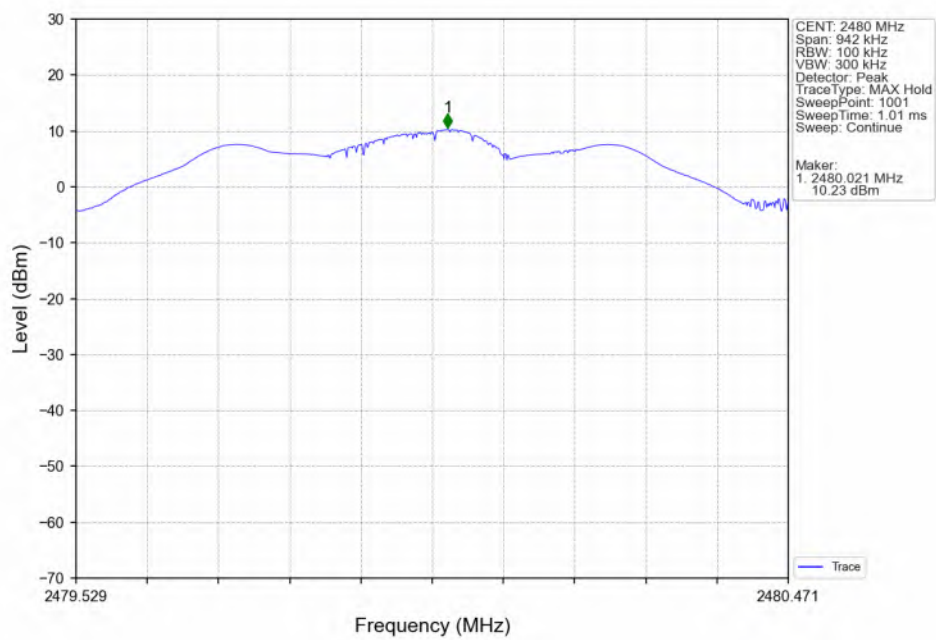
S2_LCH_2402MHz_Ant1_NTNV

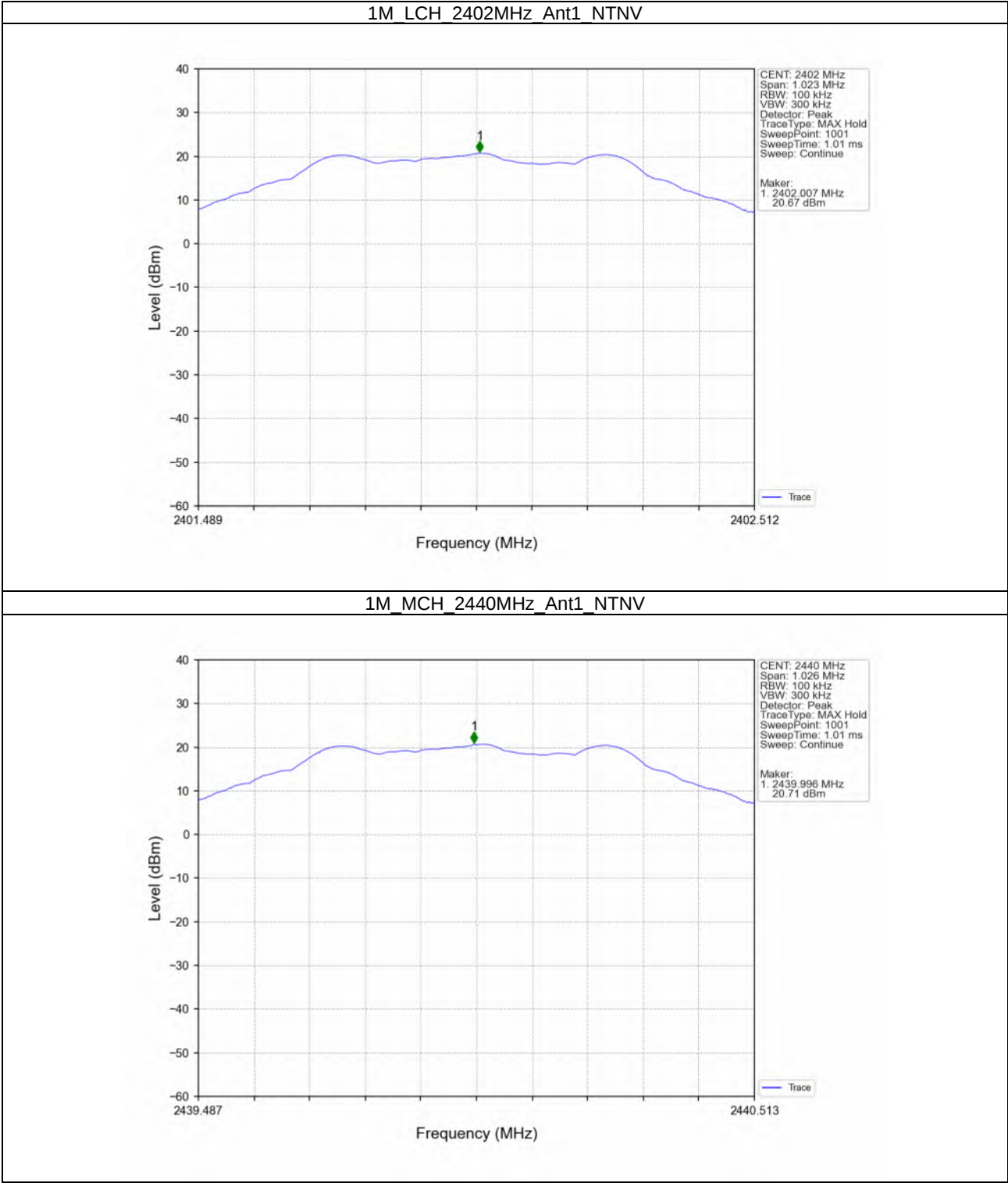


S2_MCH_2440MHz_Ant1_NTNV

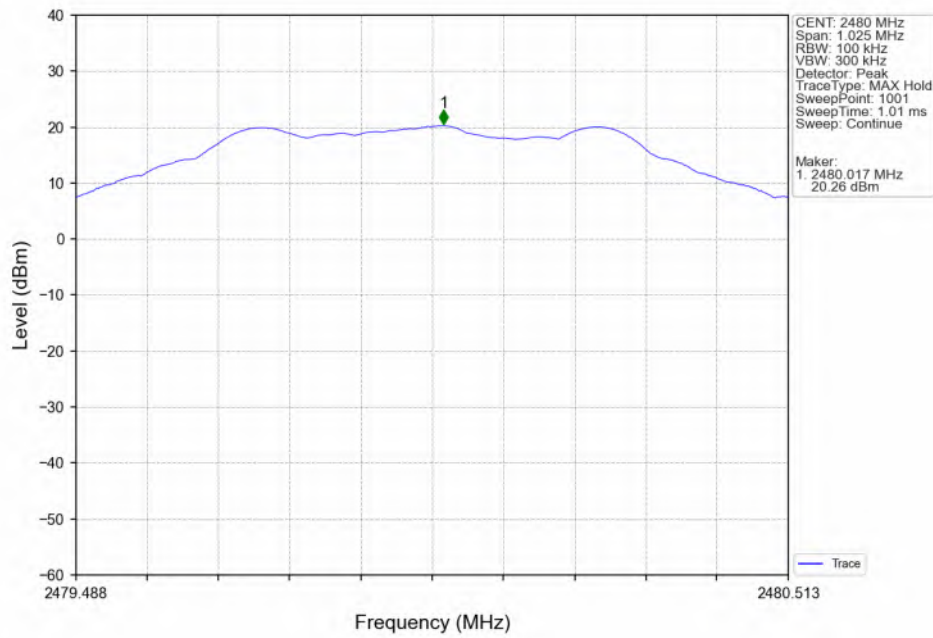


S2_HCH_2480MHz_Ant1_NTNV

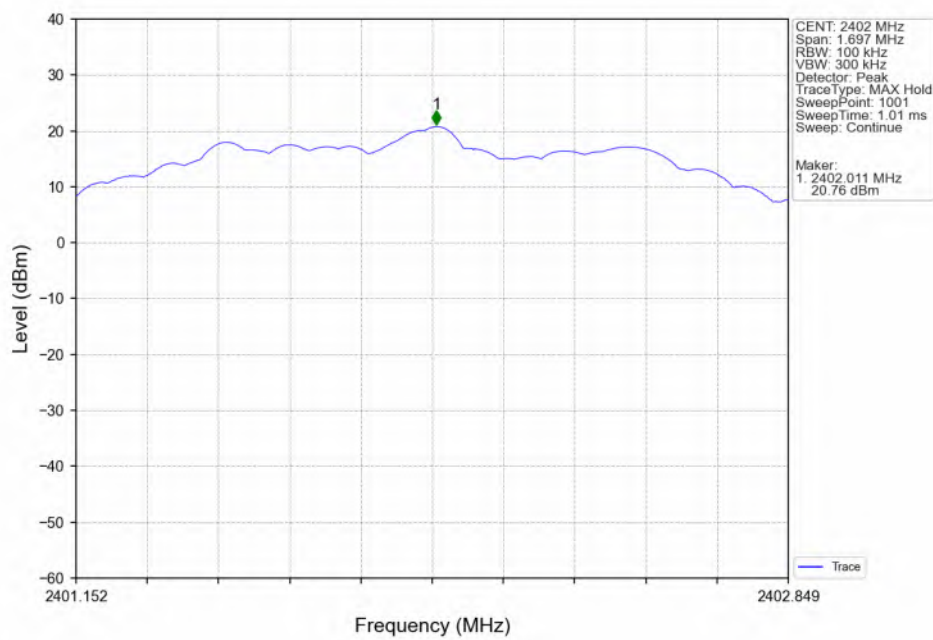




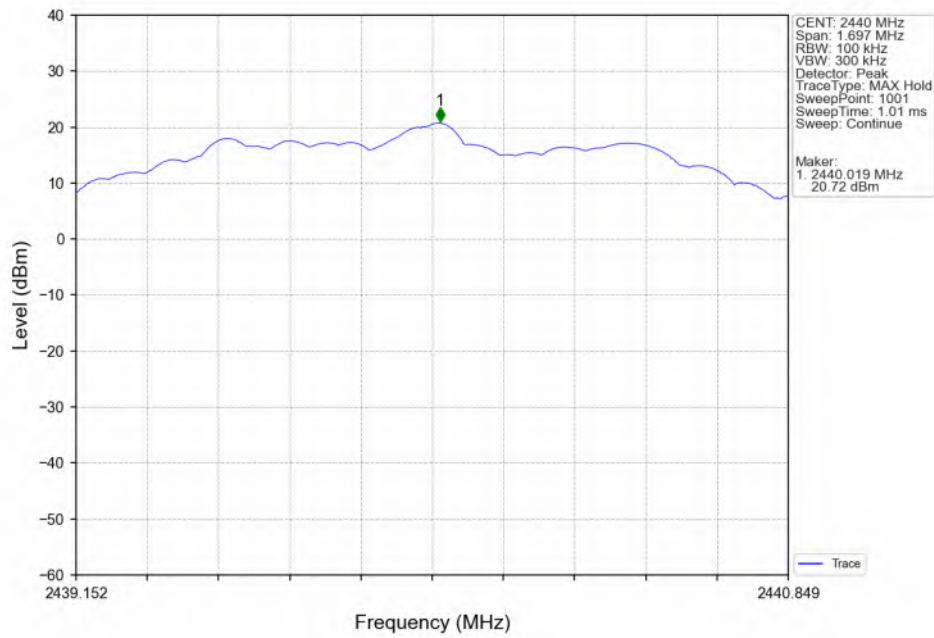
1M HCH 2480MHz Ant1 NTN



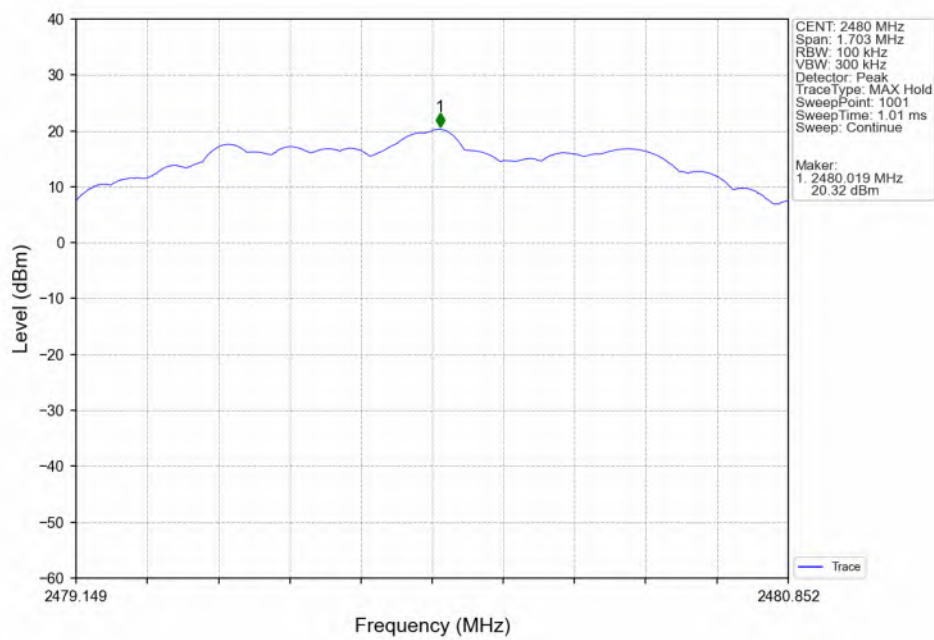
2M LCH 2402MHz Ant1 NTN



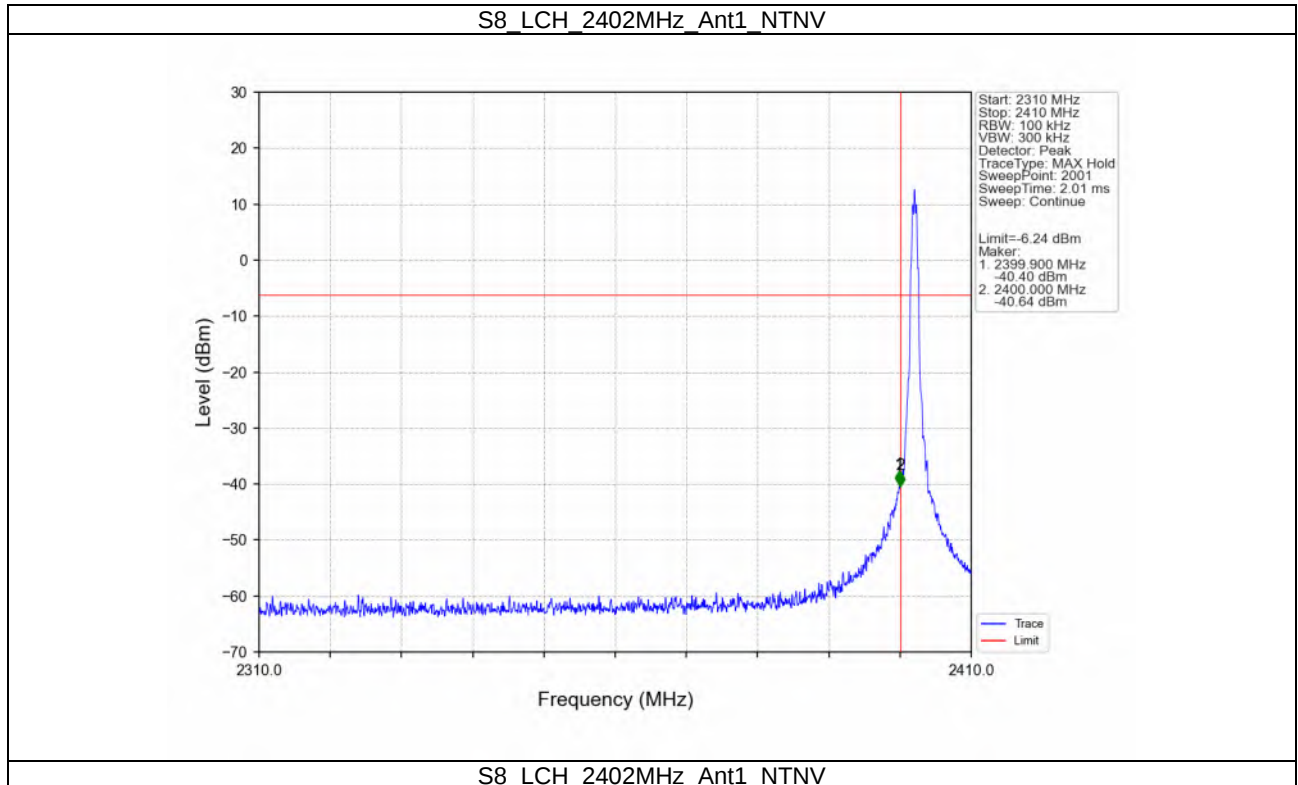
2M_MCH_2440MHz_Ant1_NTNV

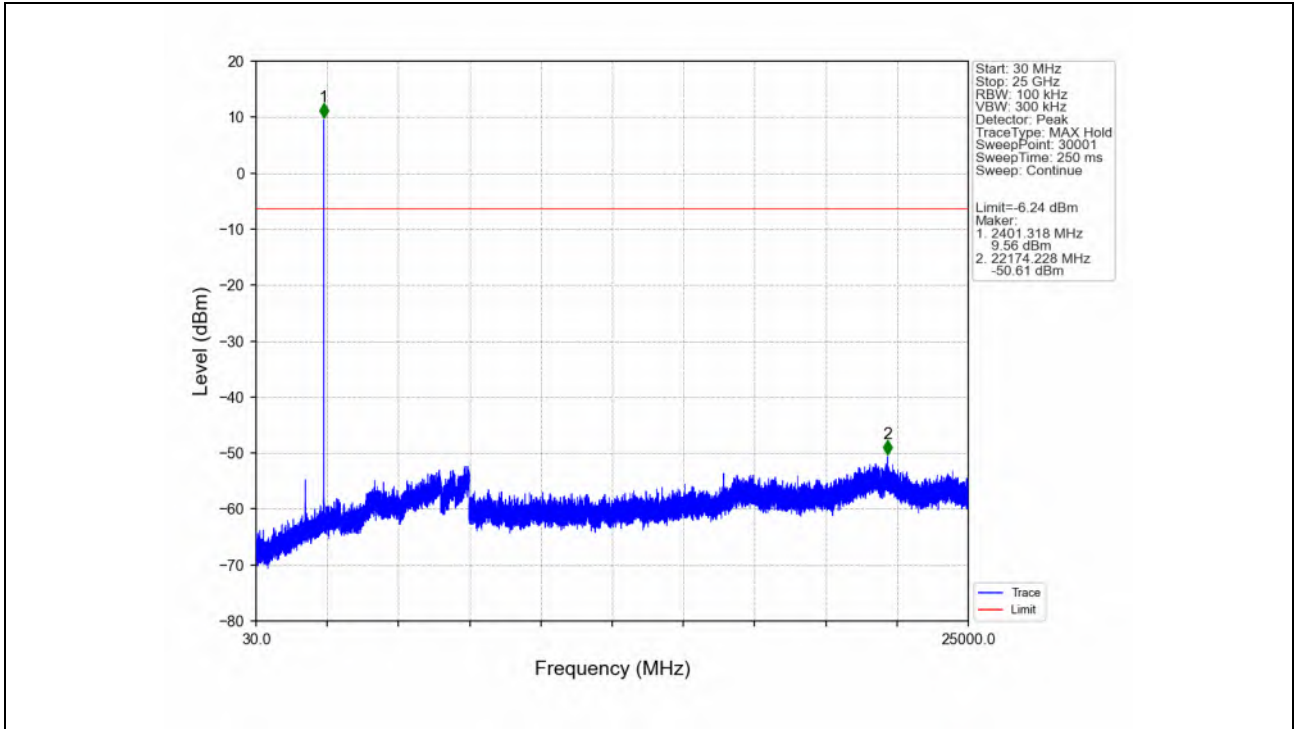


2M_HCH_2480MHz_Ant1_NTNV

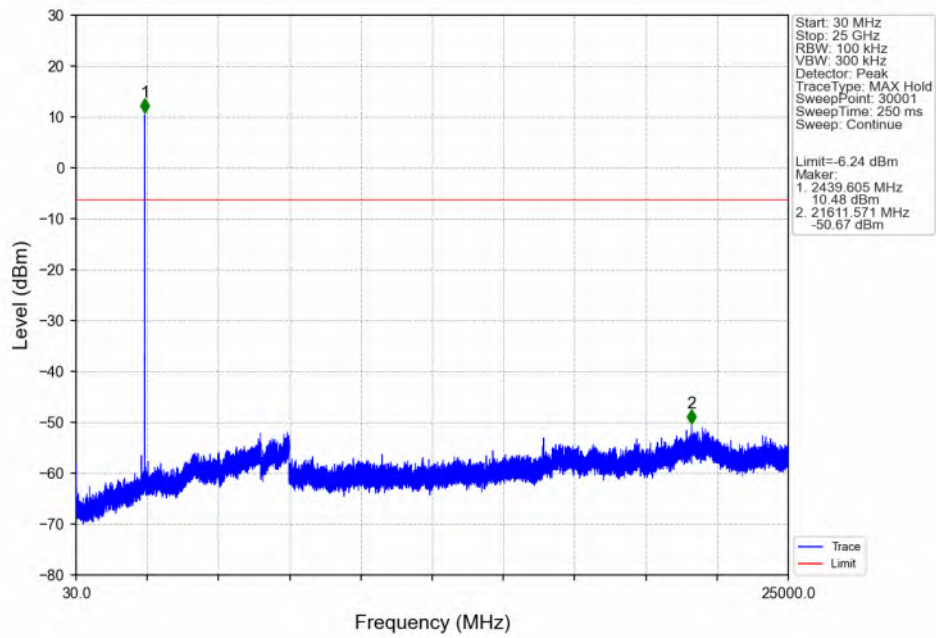


5.2.2 CSE

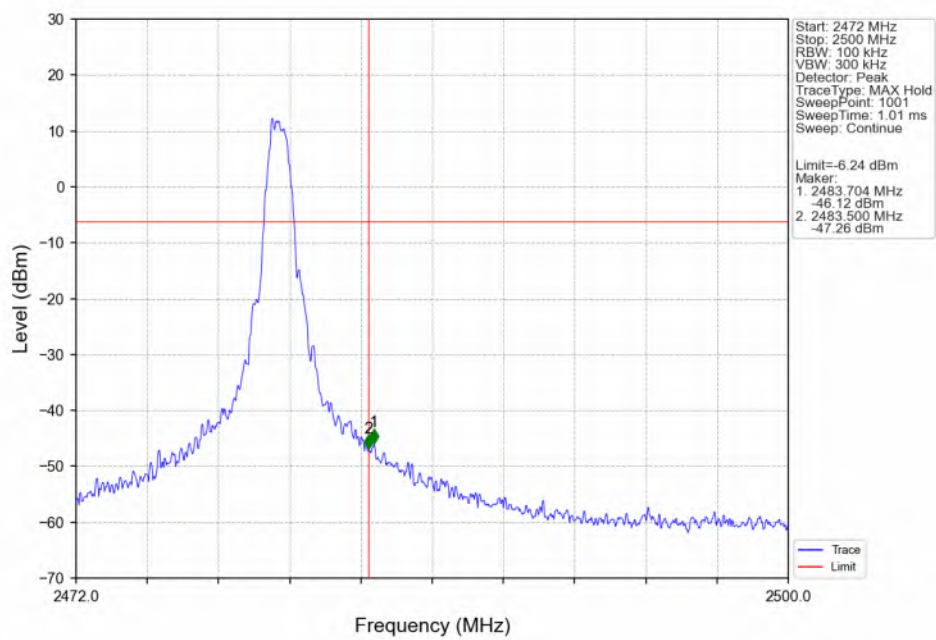




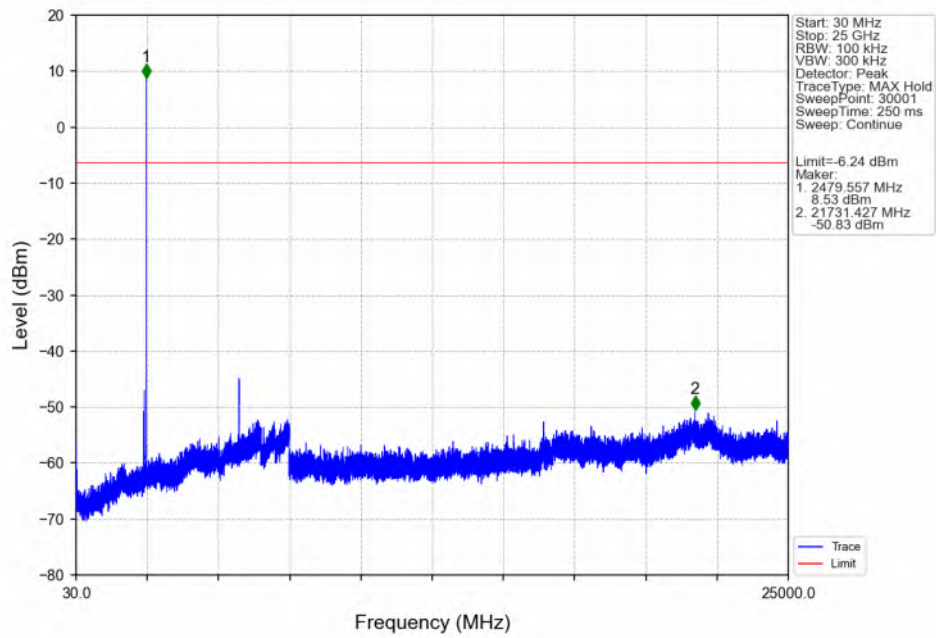
S8_MCH_2440MHz_Ant1_NTNV



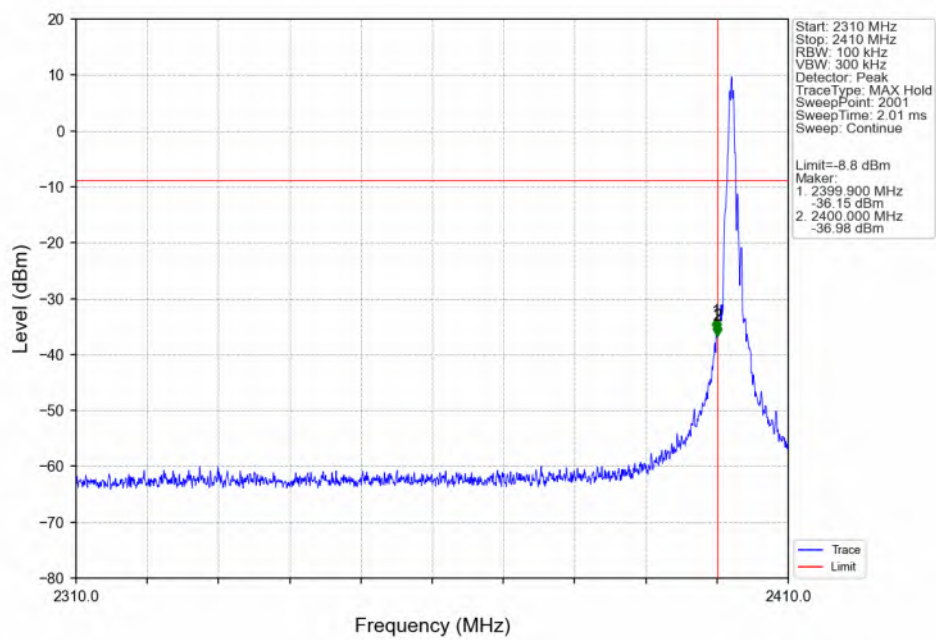
S8_HCH_2480MHz_Ant1_NTNV



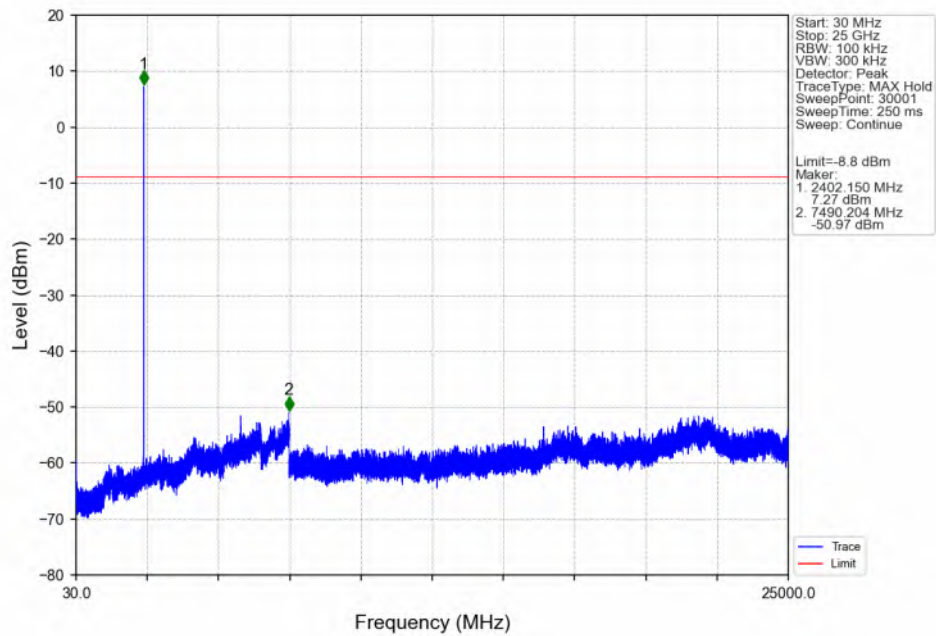
S8_HCH_2480MHz_Ant1_NTNV



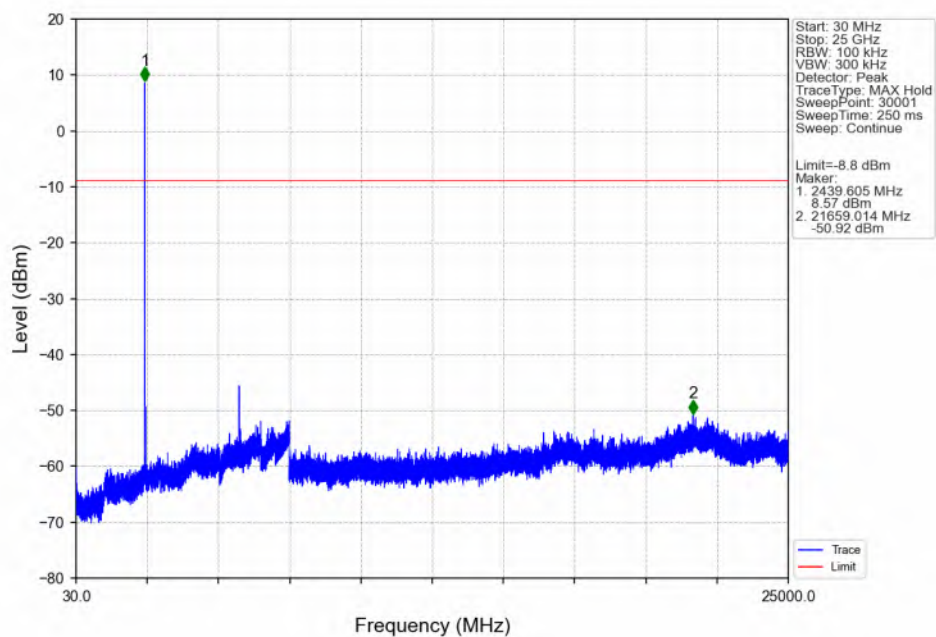
S2_LCH_2402MHz_Ant1_NTNV

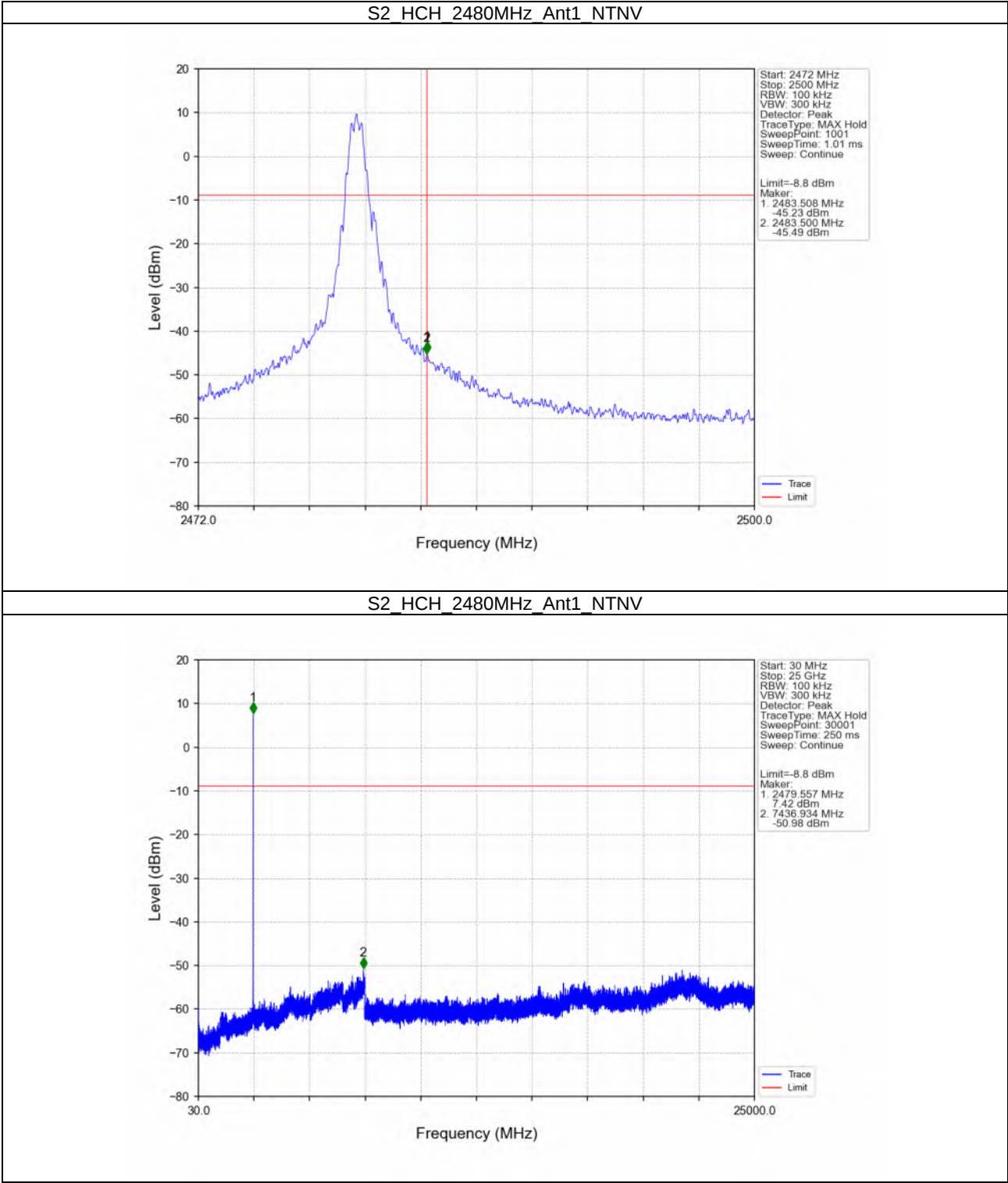


S2_LCH_2402MHz_Ant1_NTNV

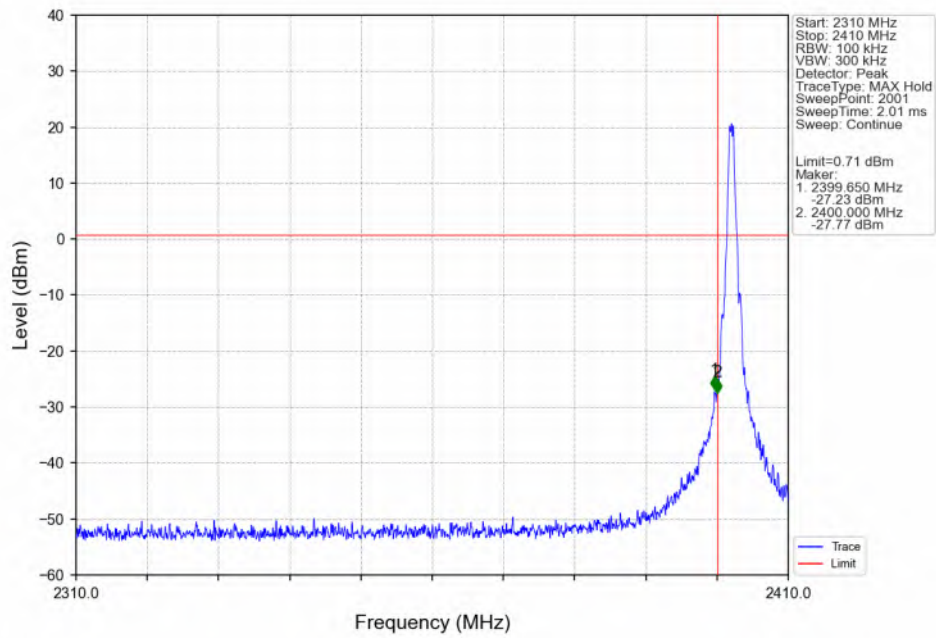


S2_MCH_2440MHz_Ant1_NTNV

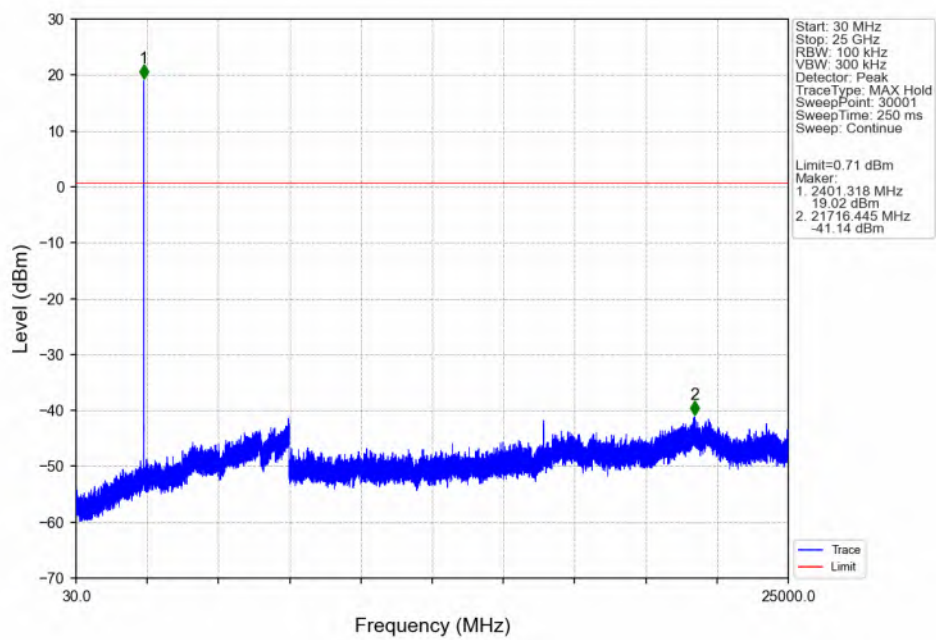




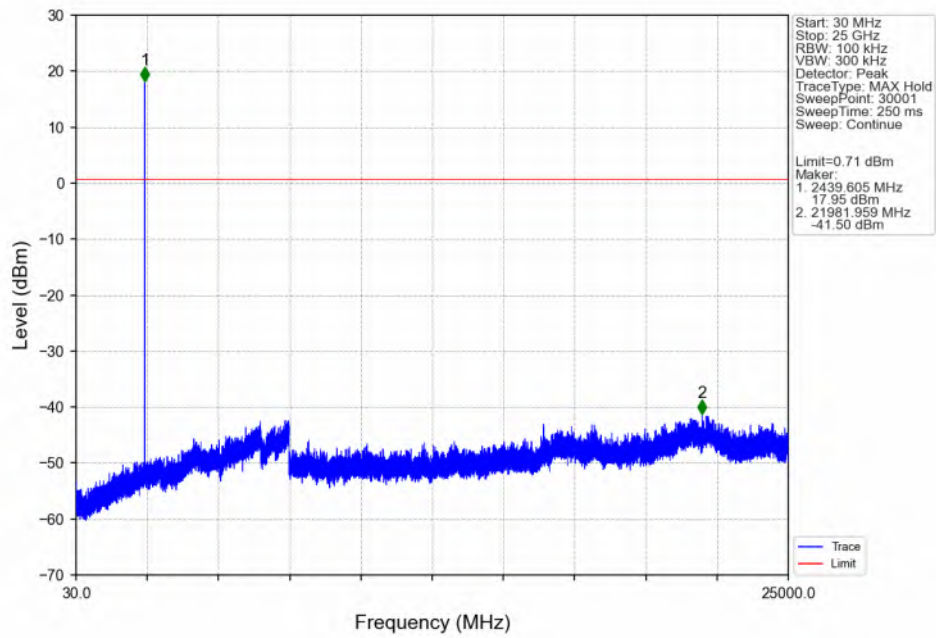
1M LCH 2402MHz Ant1 NTV



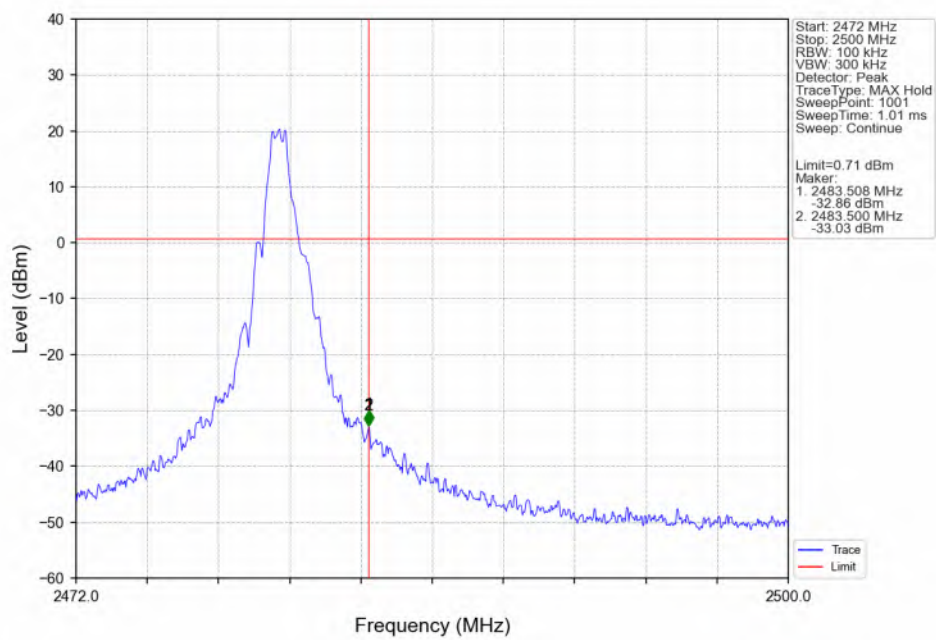
1M LCH 2402MHz Ant1 NTV



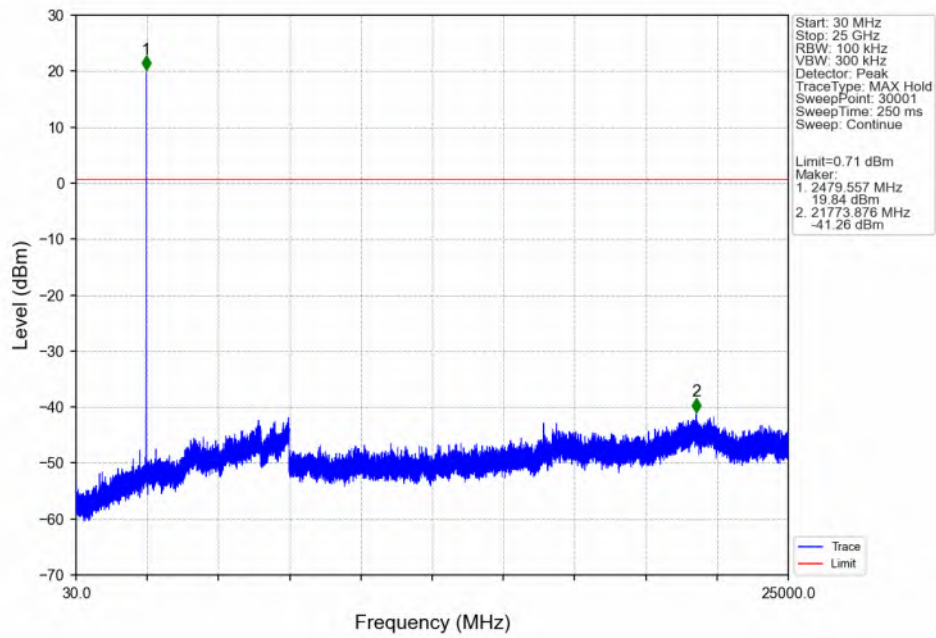
1M_MCH_2440MHz_Ant1_NTNV



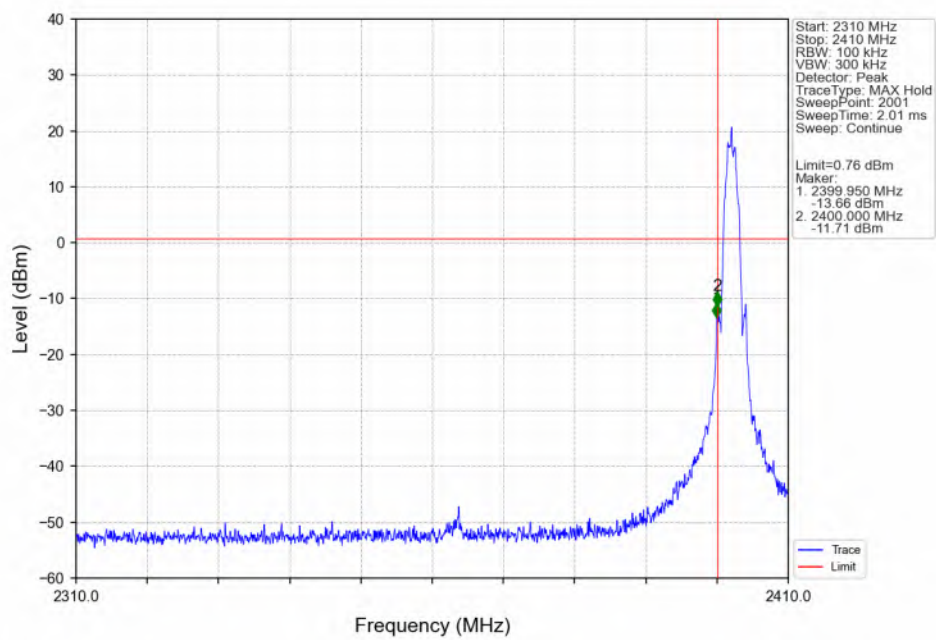
1M_HCH_2480MHz_Ant1_NTNV



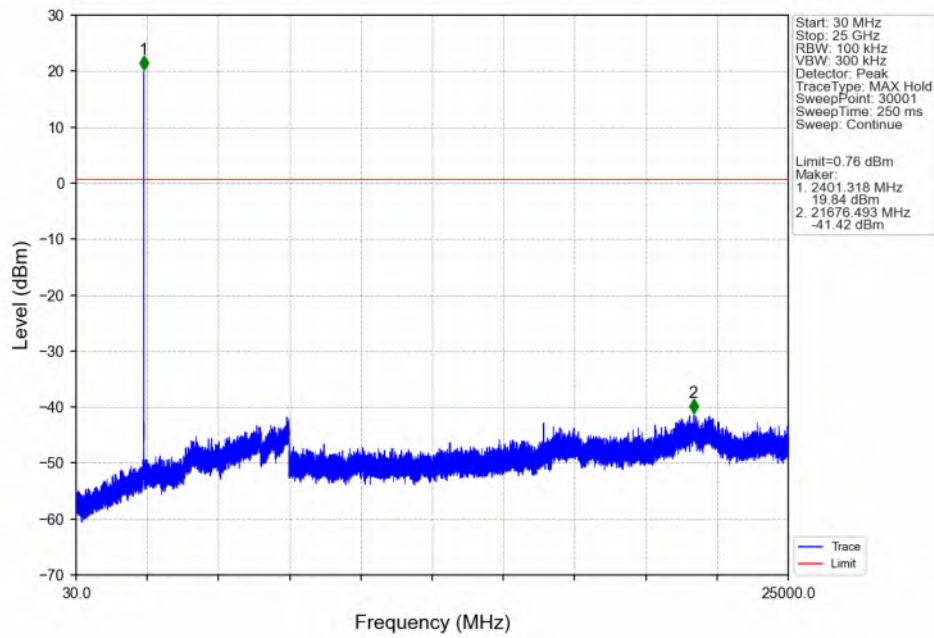
1M HCH 2480MHz Ant1 NTN



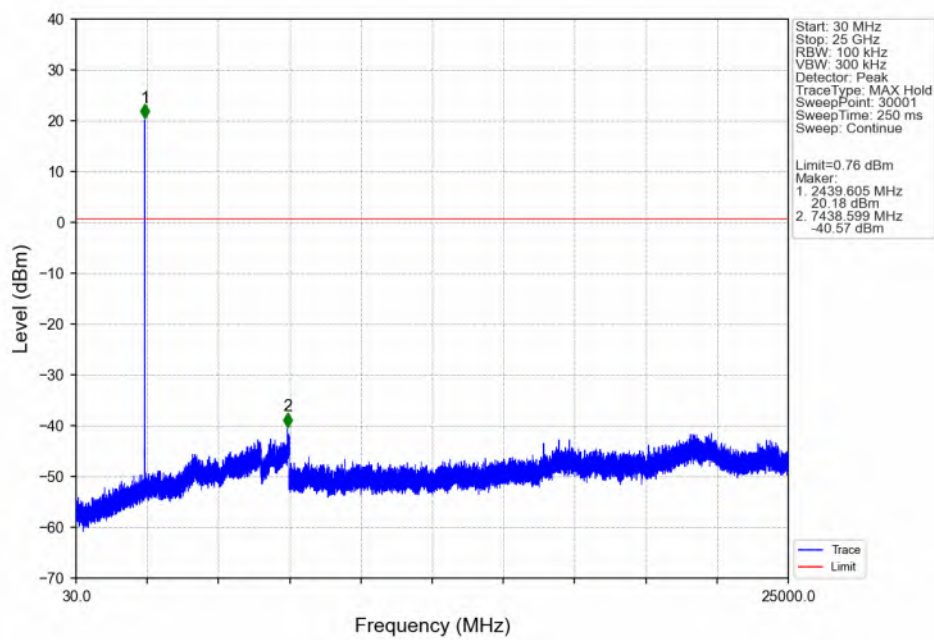
2M LCH 2402MHz Ant1 NTN



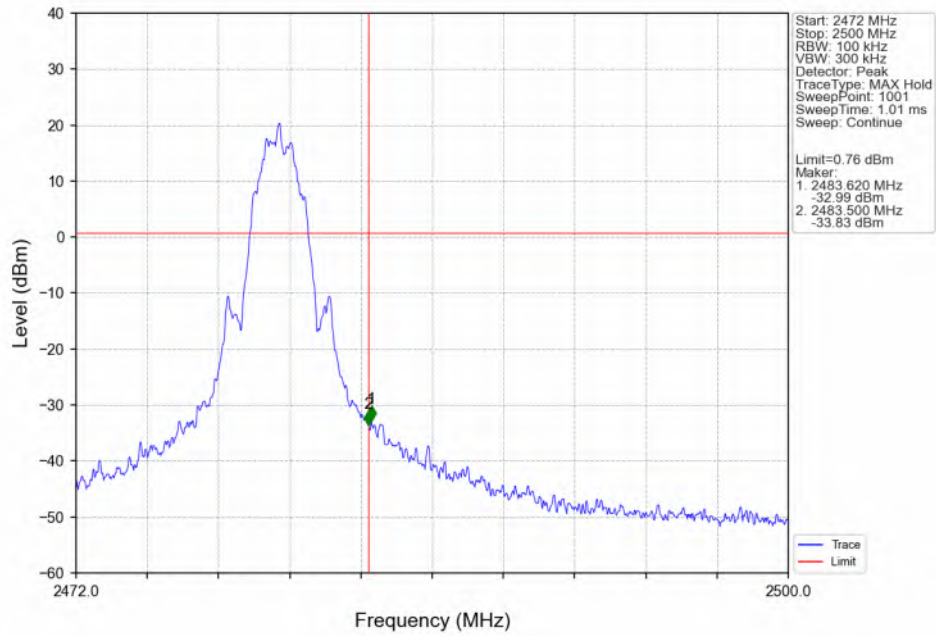
2M LCH 2402MHz_Ant1_NTNV



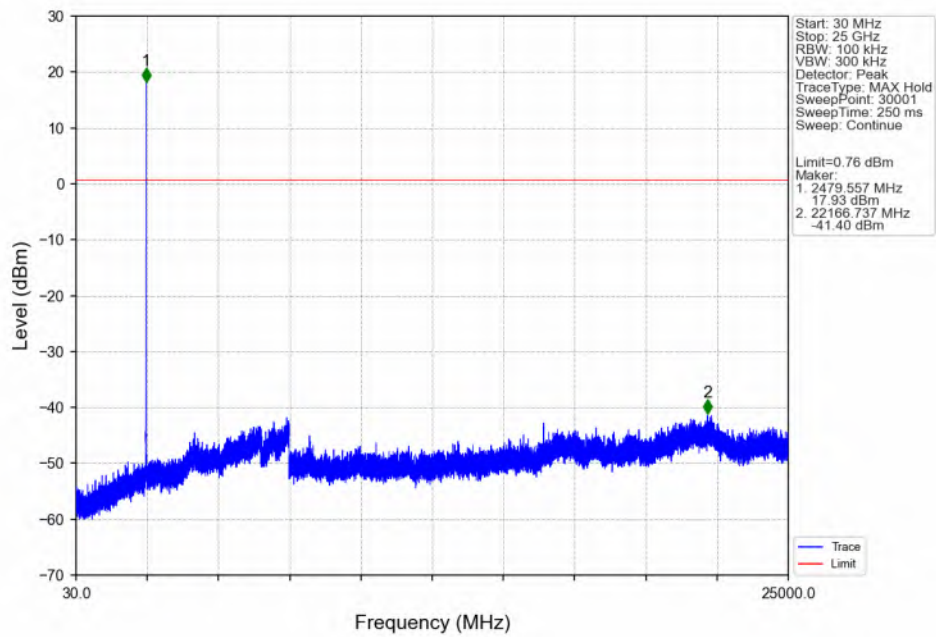
2M MCH 2440MHz_Ant1_NTNV



2M_HCH_2480MHz_Ant1_NTNV



2M_HCH_2480MHz_Ant1_NTNV



- End of the Report -