



# SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

Report No.: SZCR240100035203  
Page: 1 of 86

## TEST REPORT

**Application No.:** SZCR2401000352WM  
**Applicant:** Xiaomi Communications Co., Ltd.  
**Address of Applicant:** #019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China  
**Manufacturer:** Xiaomi Communications Co., Ltd.  
**Address of Manufacturer:** #019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China  
**EUT Description:** Mobile Phone  
**Model No.:** 24049RN28L  
**Trade Mark:** Redmi  
**FCC ID:** 2AFZZN28L  
**Standards:** FCC 47 CFR Part 2, Subpart J  
 FCC 47 CFR Part 15, Subpart C  
**Date of Receipt:** 2024/03/01  
**Date of Test:** 2024/03/06 to 2024/03/18  
**Date of Issue:** 2024/03/22

<b>Test Result :</b>	<b>PASS *</b>
----------------------	---------------

\* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Authorized Signature:

Keny Xu  
Laboratory Manager



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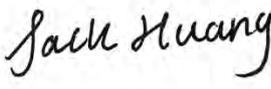
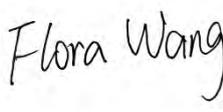


# SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

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## 1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2024/03/22		Original

Prepared By	 _____ (Jack Huang) / Test Engineer
Checked By	 _____ (Flora Wang) / Reviewer



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Shenzhen Branch, Inspection & Testing Services

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## 2 Test Summary

Test Item	FCC Rule No.	Test Method	Test Result	Result
Antenna Requirement	15.203/15.247(b)	--	Clause 4.1	PASS
AC Power Line Conducted Emission	15.207	ANSI C63.10 2013 Section 6.2	Clause 4.2	PASS
Duty cycle	--	ANSI C63.10 2013 Section 11.6	Clause 4.3	For Report Purpose
Conducted Output Power	15.247 (b)(3)	ANSI C63.10 2013 Section 11.9.1.3	Clause 4.4	PASS
DTS (6 dB) Bandwidth & 99% Occupied Bandwidth	15.247 (a)(2)	ANSI C63.10 2013 Section 11.8 Option 2 / 6.9.3	Clause 4.5	PASS
Power Spectral Density	15.247 (e)	ANSI C63.10 2013 Section 11.10.2	Clause 4.6	PASS
Band-edge for RF Conducted Emissions	15.247(d)	ANSI C63.10 2013 Section 11.11	Clause 4.7	PASS
RF Conducted Spurious Emissions	15.247(d)	ANSI C63.10 2013 Section 11.11	Clause 4.8	PASS
Radiated Spurious Emissions	15.205/15.209	ANSI C63.10 2013 Section 11.12	Clause 4.9	PASS
Restricted bands around fundamental frequency (Radiated Emission)	15.205/15.209	ANSI C63.10 2013 Section 11.12	Clause 4.10	PASS



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### 3 General Information

#### 3.1 Details of Client

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Manufacturer:	Xiaomi Communications Co., Ltd.
Address of Manufacturer:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China

#### 3.2 Test Location

Company:	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
Address:	No. 1 Workshop, M-10, Middle section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China
Post code:	518057
Test engineer:	Jinhua Wei, Xing Guo

#### 3.3 Test Facility

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

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

- **FCC –Designation Number: CN1336**

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch has been recognized as an accredited testing laboratory.

Designation Number: CN1336.

Test Firm Registration Number: 787754



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## 3.4 General Description of EUT

EUT Description:	Mobile Phone	
Model No.:	24049RN28L	
Trade Mark:	Redmi	
Hardware Version:	1351N19A	
Software Version:	Xiaomi HyperOS 1.0	
Power Supply:	DC 3.84V from internal rechargeable battery which can be charged by AC/DC adapter.	
IMEI:	RF Conducted	IMEI1:867585070034121 IMEI2:867585070034139
	RSE & AC power line	IMEI1:867585070033800 IMEI2:867585070033818
Operation Frequency:	2400MHz~2483.5MHz fc = 2402 MHz + N * 2 MHz, where: -fc = "Operating Frequency" in MHz, -N = "Channel Number" with the range from 0 to 39.	
Bluetooth version:	Bluetooth V5.3	
Modulation Type:	GFSK	
Number of Channel:	40	
Rates Type*:	<input checked="" type="checkbox"/> Provided by client	
	1M PHY	2M PHY
Antenna Type:	PIFA Antenna	
Antenna Gain:	-0.8dBi(Ant7)	
	Note: The antenna gain are derived from the gain information report provided by the manufacturer.	
RF Cable:	2000MHz ~ 3000MHz (1.1dB)	
Remark:	As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.	



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Operation Frequency of each channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	10	2422MHz	20	2442MHz	30	2462MHz
1	2404MHz	11	2424MHz	21	2444MHz	31	2464MHz
2	2406MHz	12	2426MHz	22	2446MHz	32	2466MHz
3	2408MHz	13	2428MHz	23	2448MHz	33	2468MHz
4	2410MHz	14	2430MHz	24	2450MHz	34	2470MHz
5	2412MHz	15	2432MHz	25	2452MHz	35	2472MHz
6	2414MHz	16	2434MHz	26	2454MHz	36	2474MHz
7	2416MHz	17	2436MHz	27	2456MHz	37	2476MHz
8	2418MHz	18	2438MHz	28	2458MHz	38	2478MHz
9	2420MHz	19	2440MHz	29	2460MHz	39	2480MHz

**Remark:**

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The Lowest channel(CH0)	2402MHz
The Middle channel(CH19)	2440MHz
The Highest channel(CH39)	2480MHz

Channel	Frequency
<b>BLE 1M:</b>	
The Lowest channel(CH0)	2402MHz
The Middle channel(CH19)	2440MHz
The Highest channel(CH39)	2480MHz
<b>BLE 2M:</b>	
The Lowest channel(CH1)	2404MHz
The Middle channel(CH19)	2440MHz
The Highest channel(CH38)	2478MHz



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### 3.5 Test Environment

Environment Parameter	101 kPa Selected Values During Tests	
Relative Humidity	44-46 % RH Ambient	
Value	Temperature(°C)	Voltage(V)
NTNV	22~23	3.84
Remark: NV: Normal Voltage NT: Normal Temperature		

### 3.6 Description of Support Units

The EUT has been tested as an independent unit.



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## 4 Test results and Measurement Data

### 4.1 Antenna Requirement

<b>Standard requirement:</b>	47 CFR Part 15C Section 15.203 /247(b)
<p>15.203 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.</p> <p>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.</p>	
<p>The antenna is PIFA Antenna and no consideration of replacement. The best case gain of the antenna is -0.8dBi(Ant7)*.</p> <p><i>*Note:</i>  <i>The antenna gain are derived from the gain information report provided by the manufacturer.</i></p> <p><i>Remark:</i>  <i>As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.</i></p>	



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## 4.2 AC Power Line Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207		
Test Method:	ANSI C63.10: 2013 Section 6.2		
Test Frequency Range:	150kHz to 30MHz		
Receiver Setup:	RBW = 9kHz, VBW = 30kHz		
Limit:	Frequency range(MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test Procedure:	<ol style="list-style-type: none"> <li>1) The mains terminal disturbance voltage test was conducted in a shielded room.</li> <li>2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.</li> <li>3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.</li> <li>4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.</li> <li>5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.</li> </ol>		



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Test Setup:	
Test Mode:	Transmitting with GFSK modulation. Charge + Transmitting mode.
Instruments Used:	Refer to section 6 for details.
Test Results:	Pass



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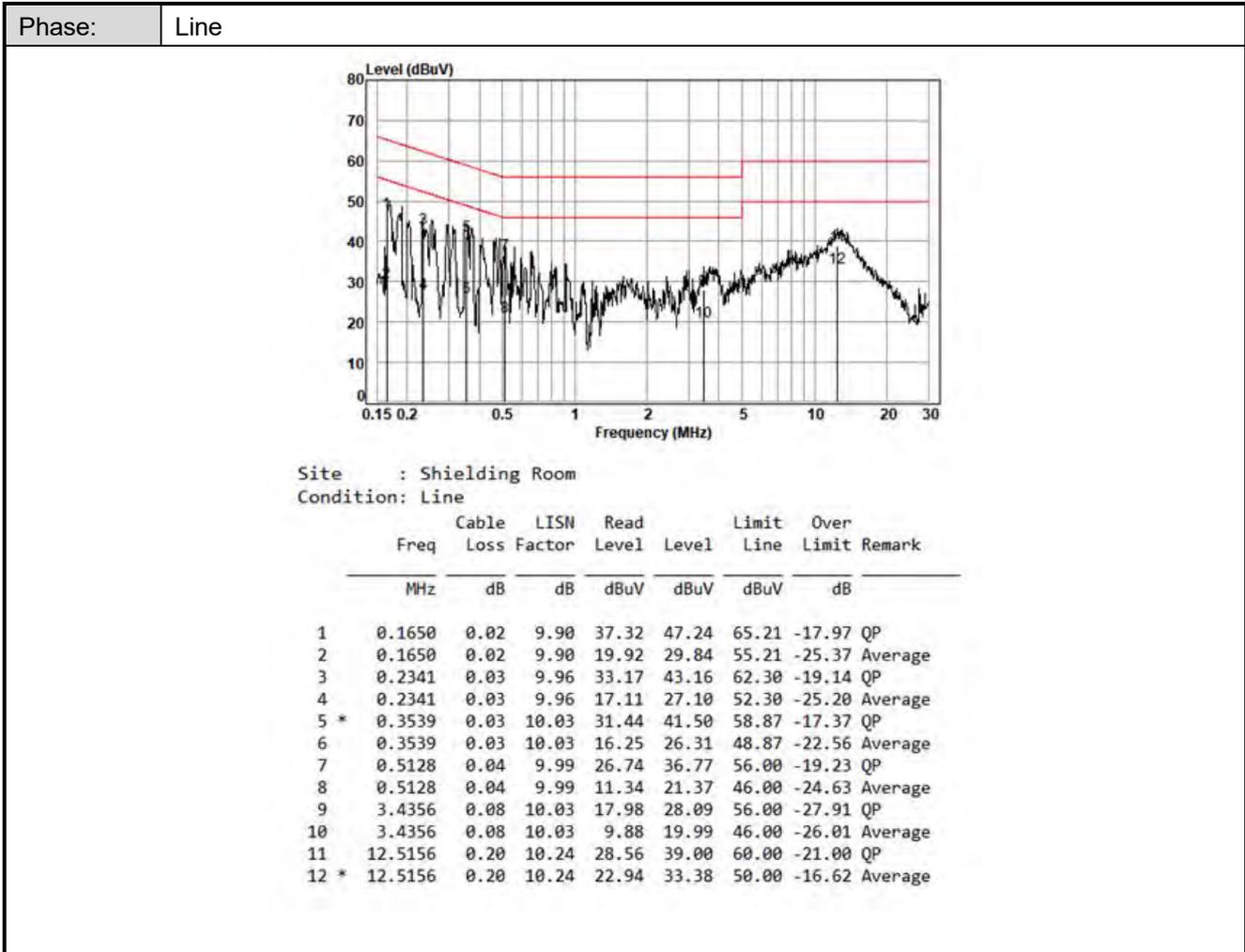
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Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.



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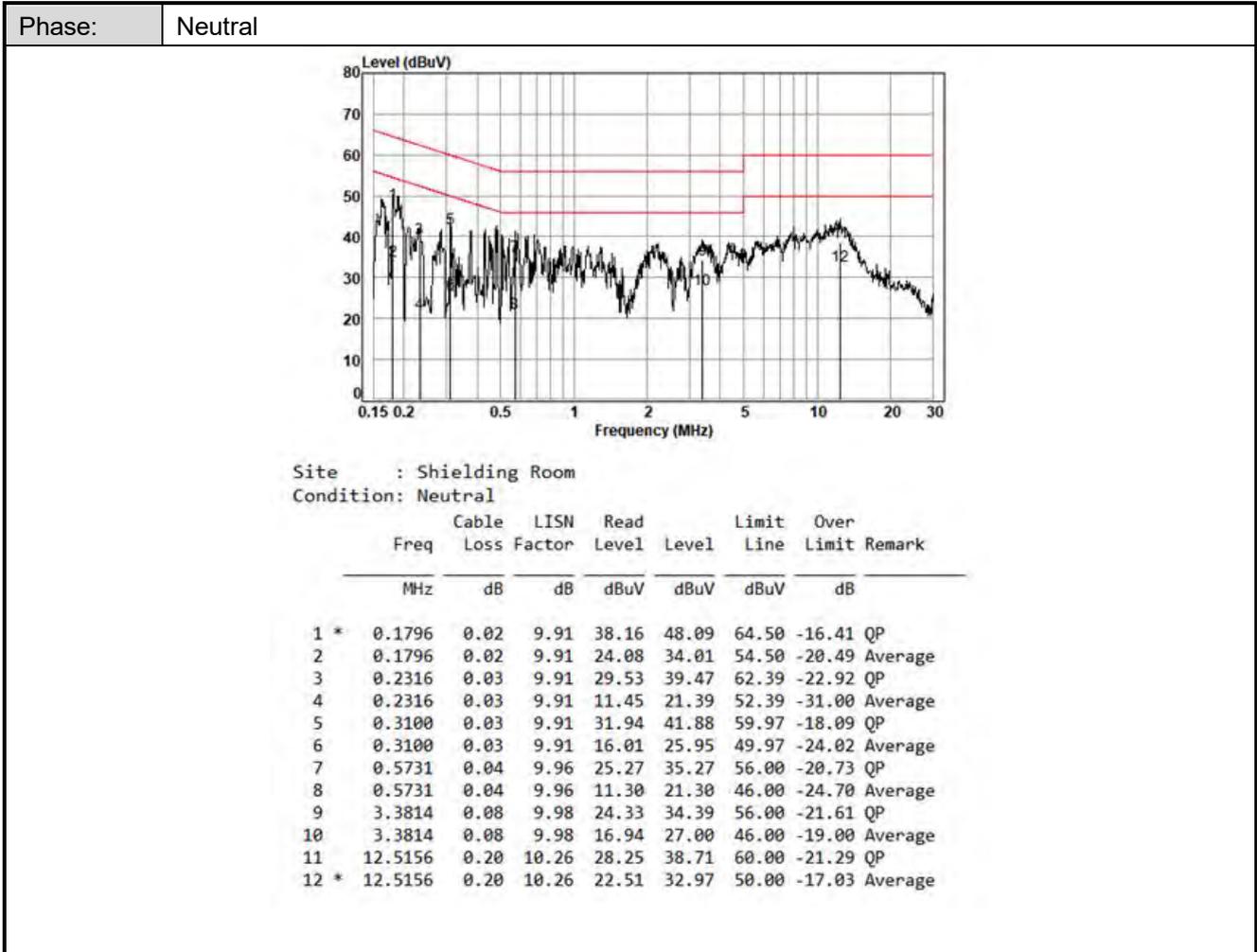
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## 4.3 Duty Cycle

Test Requirement:	ANSI C63.10 :2013 Section 11.6
Test Method:	ANSI C63.10 :2013 Section 11.6
Test Setup:	
Instruments Used:	Refer to section 6 for details
Test Mode:	Transmitting with GFSK modulation.
Limit:	No restriction limits
Test Results:	For Report Purpose
The detailed test data see: <b>Appendix</b>	



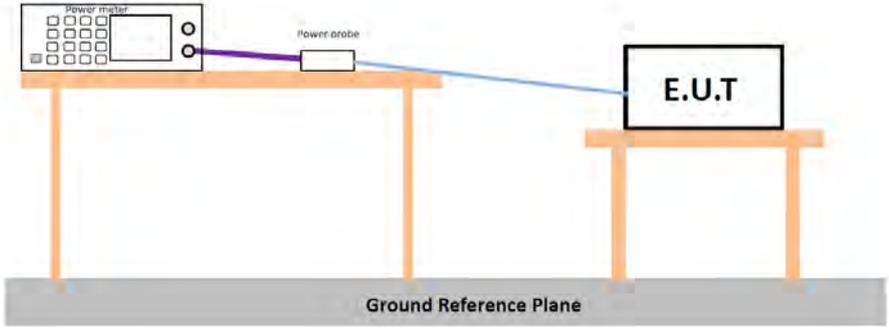
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#### 4.4 Conducted Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(3)
Test Method:	ANSI C63.10 :2013 Section 11.9.1.3
Test Setup:	 <p>* Test with power meter (Detector function: Peak)</p>
Test Instruments:	Refer to section 6 for details
Test Mode:	Transmitting with GFSK modulation.
Limit:	30dBm
Test Results:	Pass
The detailed test data see: <b>Appendix</b>	





#### 4.5 DTS (6 dB) Bandwidth & 99% Occupied Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(2)
Test Method:	ANSI C63.10: 2013 Section 11.8 Option 2 / 6.9.3
Test Setup:	
Instruments Used:	Refer to section 6 for details
Test Mode:	Transmitting with GFSK modulation.
Limit:	≥ 500 kHz for DTS Bandwidth
Test Results:	Pass
The detailed test data see: <b>Appendix</b>	





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## 4.6 Power Spectral Density

Test Requirement:	47 CFR Part 15C Section 15.247 (e)
Test Method:	ANSI C63.10 :2013 Section 11.10.2
Test Setup:	
Test Instruments:	Refer to section 6 for details
Test Mode:	Transmitting with GFSK modulation.
Limit:	≤8.00dBm/3kHz
Test Results:	Pass
The detailed test data see: <b>Appendix</b>	



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#### 4.7 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013 Section 11.11
Test Setup:	
Instruments Used:	Refer to section 6 for details
Test Mode:	Transmitting with GFSK modulation.
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test Results:	Pass
The detailed test data see: <b>Appendix</b>	





#### 4.8 RF Conducted Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013 Section 11.11
Test Setup:	
Instruments Used:	Refer to section 6 for details
Test Mode:	Transmitting with GFSK modulation.
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test Results:	Pass
The detailed test data see: <b>Appendix</b>	





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**4.9 Radiated Spurious Emissions**

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205				
Test Method:	ANSI C63.10 :2013 Section 11.12				
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Test Frequency:	9kHz ~ 25GHz				
Limit:	Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz-88MHz	100	40.0	Quasi-peak	3
	88MHz-216MHz	150	43.5	Quasi-peak	3
	216MHz-960MHz	200	46.0	Quasi-peak	3
	960MHz-1GHz	500	54.0	Quasi-peak	3
	Above 1GHz	500	54.0	Average	3
Remark: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.					

Test Setup:

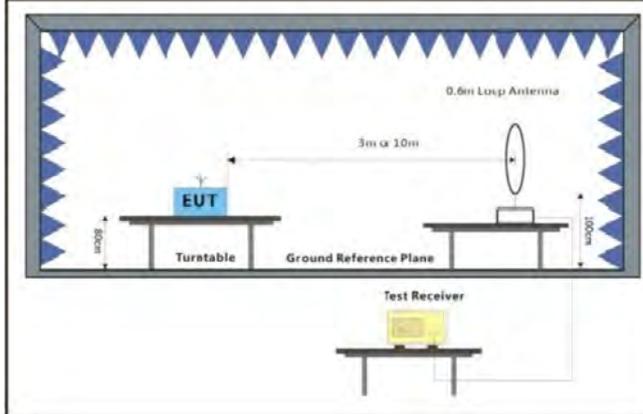


Figure 1. Below 30MHz

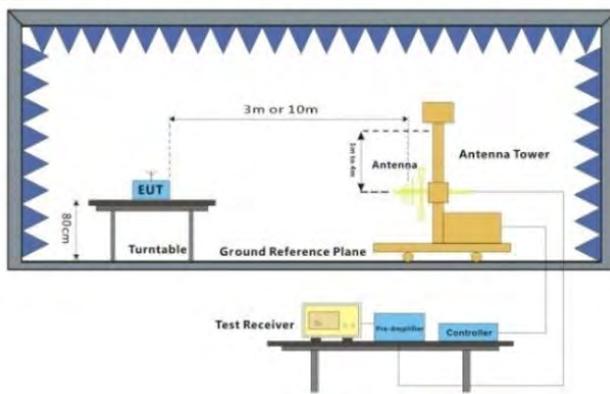


Figure 2. 30MHz to 1GHz



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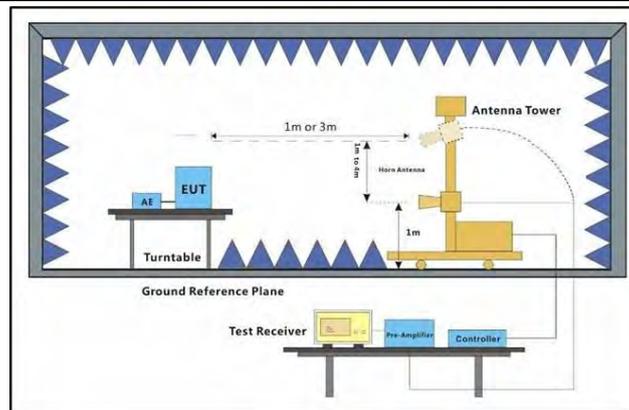


Figure 3. Above 1 GHz

<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>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.</li> <li>For above 1GHz, the EUT was placed on the top of a rotating table 1.5 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 (Distance from antenna to EUT is 1m for measurements &gt;18GHz).</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>Test the EUT in the lowest channel, the middle channel, the Highest channel.</li> <li>The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the Z axis positioning which it is worse case.</li> <li>Repeat above procedures until all frequencies measured was complete.</li> <li>The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported</li> <li>The disturbance above 18GHz was very low, and the harmonics were the highest point could be found when testing, so only the harmonics had been displayed.</li> <li>At a measurement distance of 1 meter the limit line was increased by <math>20 \cdot \text{LOG}(3/1) = 9.54 \text{ dB}</math>.</li> </ol>
<b>Test Configuration:</b>	<b>Measurements below 30MHz</b> <ul style="list-style-type: none"> <li>• RBW = 10 kHz</li> <li>• VBW = 30 kHz</li> <li>• Detector = Peak &amp; Average &amp; Quasi-peak</li> </ul>





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	<ul style="list-style-type: none"> <li>• Trace mode = max hold</li> </ul> <p>Measurements Below 1000MHz</p> <ul style="list-style-type: none"> <li>• RBW = 120 kHz</li> <li>• VBW = 300 kHz</li> <li>• Detector = Quasi-peak</li> <li>• Trace mode = max hold</li> </ul> <p>Peak Measurements Above 1000 MHz</p> <ul style="list-style-type: none"> <li>• RBW = 1 MHz</li> <li>• VBW ≥ 3 MHz</li> <li>• Detector = Peak</li> <li>• Sweep time = auto</li> <li>• Trace mode = max hold</li> </ul> <p>Average Measurements Above 1000MHz</p> <ul style="list-style-type: none"> <li>• RBW = 1 MHz</li> <li>• VBW = 10 Hz, when duty cycle is no less than 98 percent.</li> <li>• VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.</li> </ul>
Exploratory Test Mode:	Transmitting with GFSK modulation. Charge + Transmitting mode.
Final Test Mode:	Transmitting with GFSK modulation. Pretest the EUT at Charge + Transmitting mode, For below 1GHz part, through pre-scan all channels, but only the worst case is recorded in the report.
Instruments Used:	Refer to section 6 for details
Test Results:	Pass
The detailed test data see: <b>Appendix</b>	



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#### 4.10 Restricted bands around fundamental frequency

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205		
Test Method:	ANSI C63.10: 2013 Section 11.12		
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)		
Limit:	Frequency	Limit (dBuV/m)	Remark
	30MHz-88MHz	40.0	Quasi-peak
	88MHz-216MHz	43.5	Quasi-peak
	216MHz-960MHz	46.0	Quasi-peak
	960MHz-1GHz	54.0	Quasi-peak
	Above 1GHz	54.0	Average Value
		74.0	Peak Value

#### Test Setup:

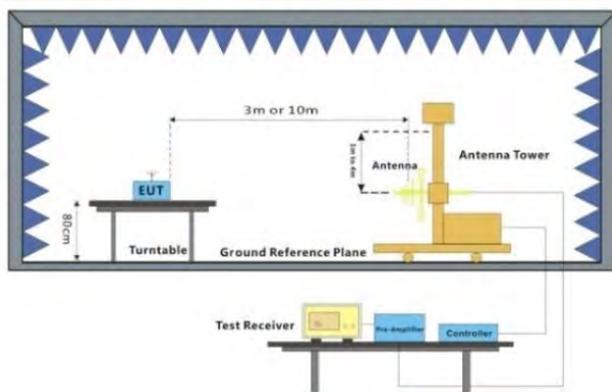


Figure 1. 30MHz to 1GHz

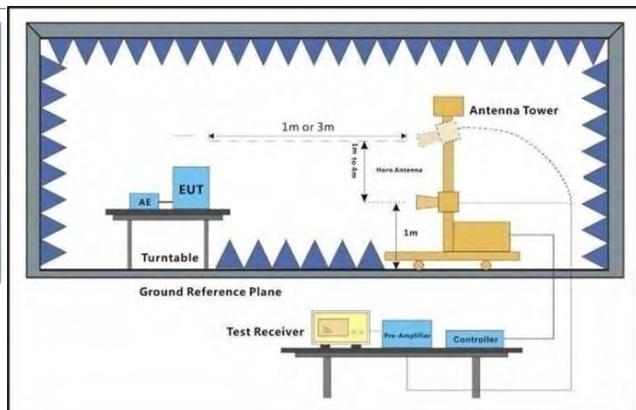


Figure 2. Above 1 GHz

#### Test Procedure:

- 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.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 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 or 10 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 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.





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	<p>g. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel</p> <p>h. Test the EUT in the lowest channel , the Highest channel</p> <p>i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the Z axis positioning which it is worse case.</p> <p>j. Repeat above procedures until all frequencies measured was complete.</p>
Test Configuration:	<p>Measurements Below 1000MHz</p> <ul style="list-style-type: none"> <li>• RBW = 120 kHz</li> <li>• VBW = 300 kHz</li> <li>• Detector = Quasi-peak</li> <li>• Trace mode = max hold</li> </ul> <p>Peak Measurements Above 1000 MHz</p> <ul style="list-style-type: none"> <li>• RBW = 1 MHz</li> <li>• VBW <math>\geq</math> 3 MHz</li> <li>• Detector = Peak</li> <li>• Sweep time = auto</li> <li>• Trace mode = max hold</li> </ul> <p>Average Measurements Above 1000MHz</p> <ul style="list-style-type: none"> <li>• RBW = 1 MHz</li> <li>• VBW = 10 Hz, when duty cycle is no less than 98 percent.</li> <li>• VBW <math>\geq</math> 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.</li> </ul>
Exploratory Test Mode:	<p>Transmitting with GFSK modulation. Charge + Transmitting mode.</p>
Final Test Mode:	<p>Transmitting with GFSK modulation. Pretest the EUT at Charge + Transmitting mode. Only the worst case is recorded in the report.</p>
Instruments Used:	Refer to section 6 for details
Test Results:	Pass
The detailed test data see: <b>Appendix</b>	



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## 5 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Total RF power, conducted	±0.41dB
2	RF power density, conducted	±1.96dB
3	Spurious emissions, conducted	±0.41dB
4	Radio Frequency	±7.10 x 10 <sup>-8</sup> GHz
5	Duty Cycle	±0.49%
6	Occupied Bandwidth	±0.2%
7	Conducted Emissions at Mains Terminals (150kHz-30MHz)	± 3.0dB
8	Radiated Spurious emission test(UE)	±4.8dB (30MHz-1GHz)
		±4.68dB (1GHz-6GHz)
		±4.52dB (6GHz-18GHz)
		±5.26dB (18GHz-40GHz)
Remark: The U <sub>lab</sub> (lab Uncertainty) is less than U <sub>CISPR/ETSI</sub> (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.		




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## 6 Equipment List

RF Test System					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy/mm/dd)	Cal.Due date (yyyy/mm/dd)
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	HTC-1	SZ-WRG-M-077	2023/05/25	2024/05/24
Spectrum Analyzer	Rohde & Schwarz	FSV	SZ-WRG-M-012	2024/01/30	2025/01/29
DC power supply	HYELEC	HY3005B	SZ-WRG-M-044	2023/09/14	2024/09/13
INSULATION TESTER	FLUKE	1508	SZ-WRG-M-060	2023/12/22	2024/12/21
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	SZ-WRG-M-033	2024/01/30	2025/01/29
Wideband Radio Communication Tester	Anritsu	MT8821C	SZ-WRG-M-042	2023/05/25	2024/05/24
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SZ-WRG-M-017	2023/12/21	2024/12/20

Conducted Emissions at Mains Terminals (150kHz-30MHz)					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy/mm/dd)	Cal.Due date (yyyy/mm/dd)
Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2022/05/14	2025/05/13
EMI Test Receiver	Rohde&Schwarz	ESCI	SEM004-02	2023/03/20	2024/03/19
Measurement Software	AUDIX	e3 V8.2014-6-27a	N/A	NCR	NCR
Coaxial Cable	SGS	N/A	SEM024-01	2023/07/07	2024/07/06
LISN	Rohde&Schwarz	ENV216	SEM007-01	2023/09/19	2024/09/18
LISN	ETS-LINDGREN	Feb-16	SEM007-02	2023/03/20	2024/03/19



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Radiated spurious emissions					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy/mm/dd)	Cal.Due date (yyyy/mm/dd)
EMI TEST RECEIVER	Rohde & Schwarz	ESR	SZ-WRG-M-047	2024/01/30	2025/01/29
Signal & Spectrum Analyzer	Rohde & Schwarz	FSV	SZ-WRG-M-048	2024/01/30	2025/01/29
Low Noise Amplifier 9K-3GHz*	Tonscend	TAP9K3G32	SEM005-23	2024/03/05	2025/03/04
Low Noise Amplifier 30M-8GHz	Tonscend	TAP30M8G30	SZ-WRG-M-050	2024/01/30	2025/01/29
Low Noise Amplifier 1G-18GHz	Tonscend	TAP01018050	SZ-WRG-M-051	2024/01/30	2025/01/29
Low Noise Amplifier 18G-40GHz	Tonscend	TAP18040048	SZ-WRG-M-052	2024/01/30	2025/01/29
Active Loop Antenna 9kHz-30MHz	SCHWARZBECK	FMZB 1519B	SZ-WRG-M-053	2023/12/25	2024/12/24
TRILOG Breitband Antenne 30MHz-1GHz	SCHWARZBECK	VULB 9168	SZ-WRG-M-054	2023/12/25	2024/12/24
Double Ridge Horn Antenna 1GHz-18GHz	SCHWARZBECK	BBHA 9120 D	SZ-WRG-M-055	2023/12/21	2024/12/20
SHF-EHF Horn 15GHz-40GHz	SCHWARZBECK	BBHA 9170	SZ-WRG-M-056	2023/12/25	2024/12/24
RSE Test Software	Tonscend	JS32-RSE V4.0.0	SZ-WRG-S-058	NCR	NCR
RE Test Software	Tonscend	JS36-RSE V5.0.0.1	SZ-WRG-S-059	NCR	NCR
Chamber	CRTSGSSAC966	N/A	SZ-WRG-C-063	2022/01/05	2025/01/04
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	HTC-1	SZ-WRG-M-078	2023/05/25	2024/05/24
Spectrum Analyzer	Keysight	N9020A	SZ-WRG-M-002	2023/09/14	2024/09/13

Remark: NCR=No Calibration Requirement.



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## 7 Photographs - Setup Photos

Refer to Appendix A.2 WLAN Setup Photos.



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# Appendix



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## Duty Cycle

### Ant7

### Test Result

Ant7							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
1M	SISO	2402	2.127	2.499	85.11	0.70	0.03
		2440	2.127	2.499	85.11	0.70	0.03
		2480	2.125	2.497	85.10	0.70	0.01
2M	SISO	2404	1.060	1.854	57.17	2.43	0.03
		2440	1.060	1.854	57.17	2.43	0.03
		2478	1.059	1.854	57.12	2.43	0.03

Note:

Radiated Emission Average VBW = 1 / T

TestMode	T[ms]	Period[ms]	Duty Cycle[%]	1/T[kHz]	VBW Setting
BLE_1M	2.127	2.499	85.11	0.47015	0.5KHz
BLE_2M	1.060	1.854	57.17	0.94340	1KHz



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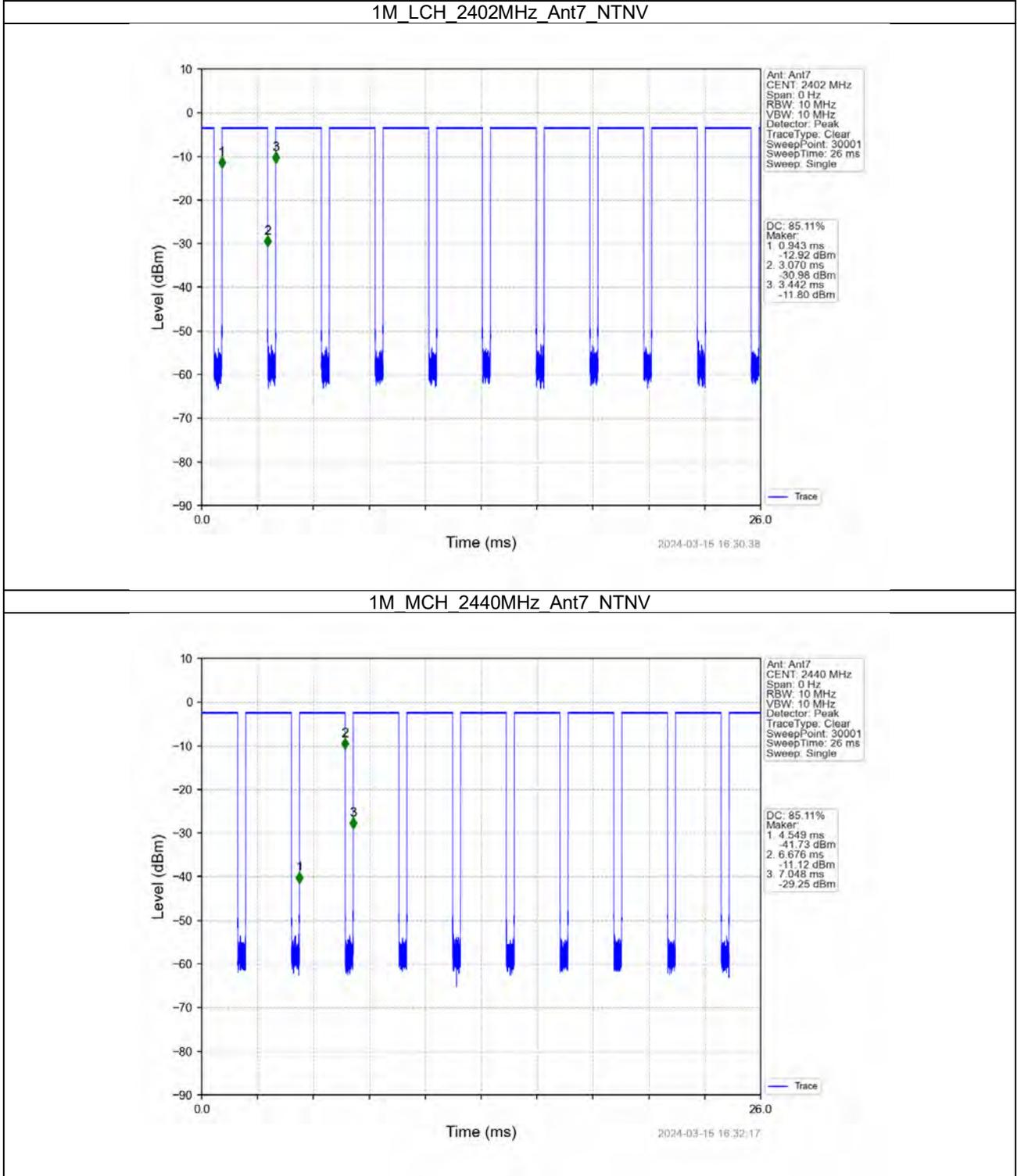
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Test Graph



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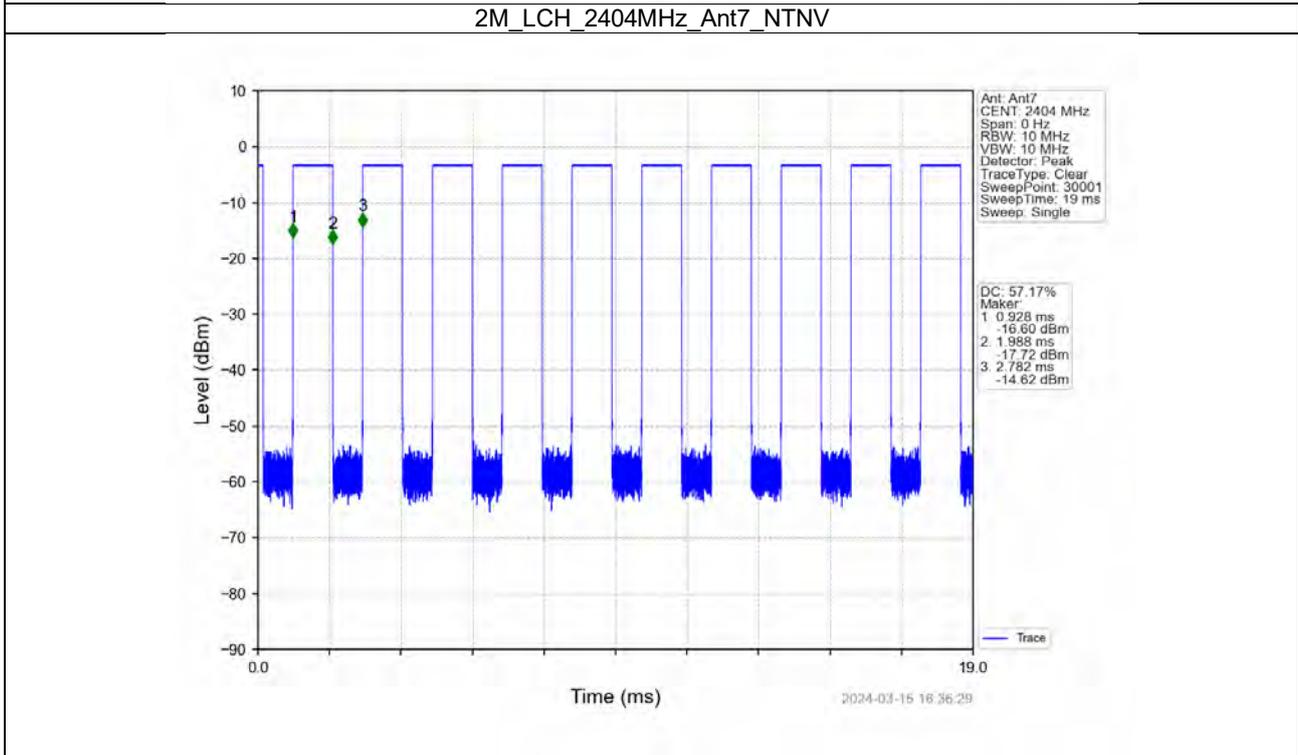
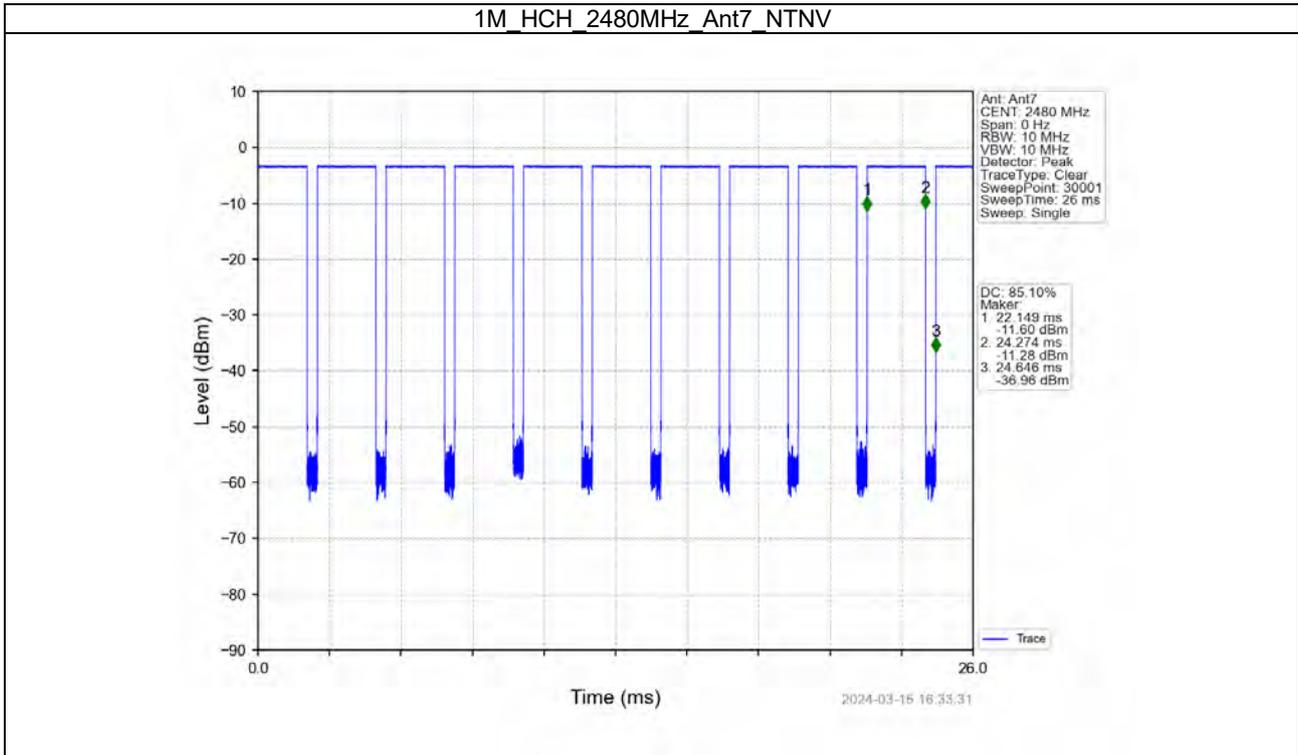
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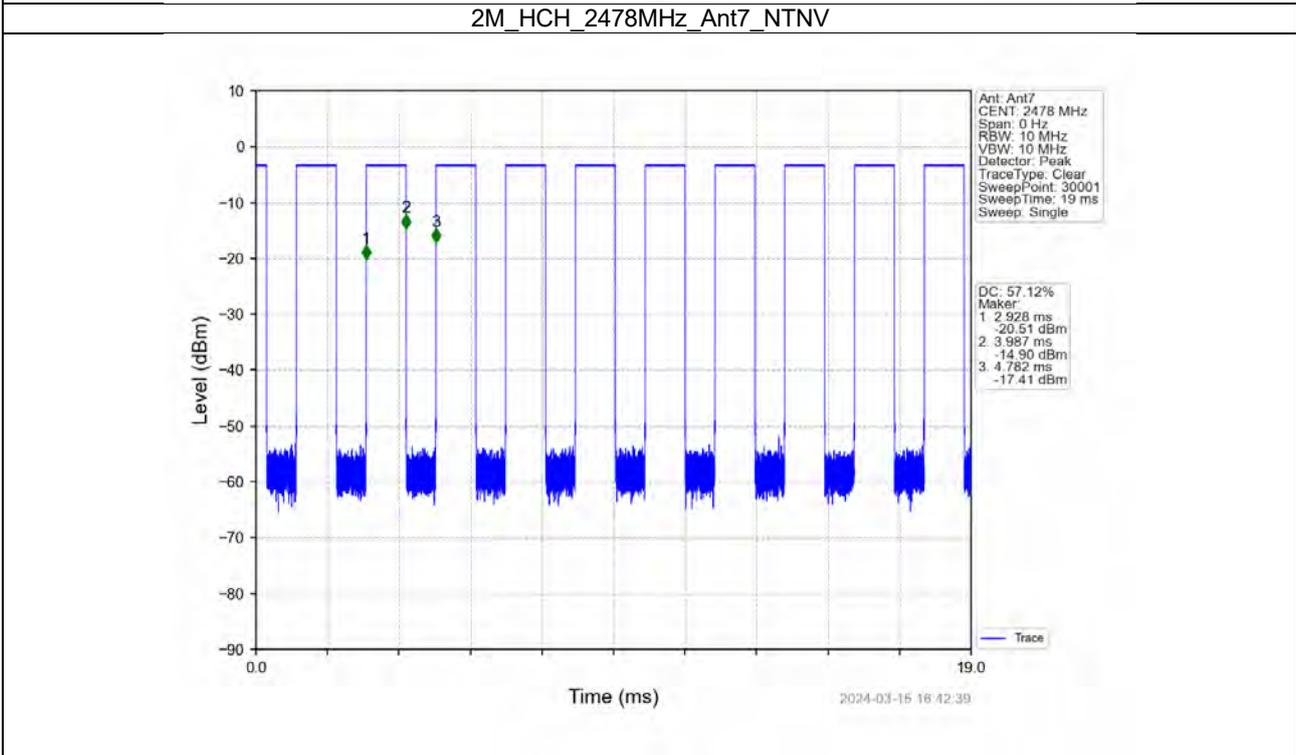
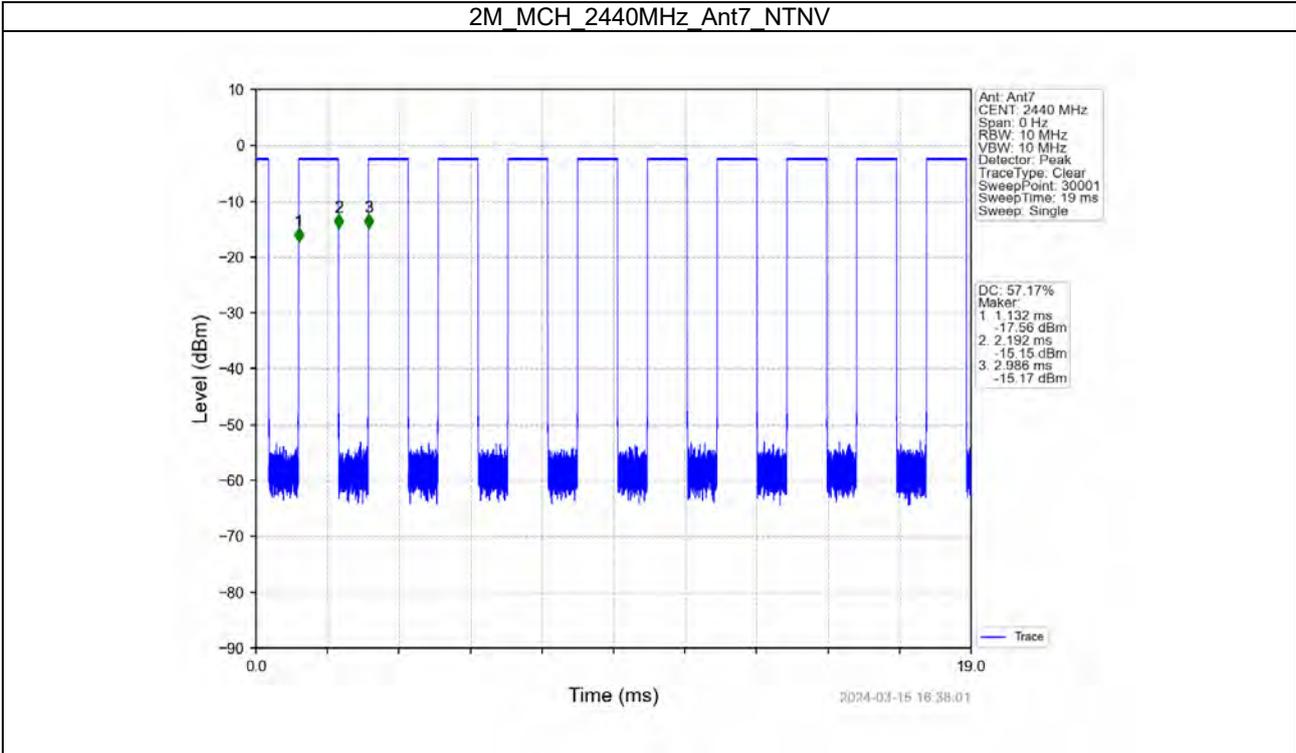
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## Bandwidth

## OBW

## Test Result

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	7	1.032	/	Pass
		2440	7	1.032	/	Pass
		2480	7	1.032	/	Pass
2M	SISO	2404	7	2.065	/	Pass
		2440	7	2.064	/	Pass
		2478	7	2.064	/	Pass



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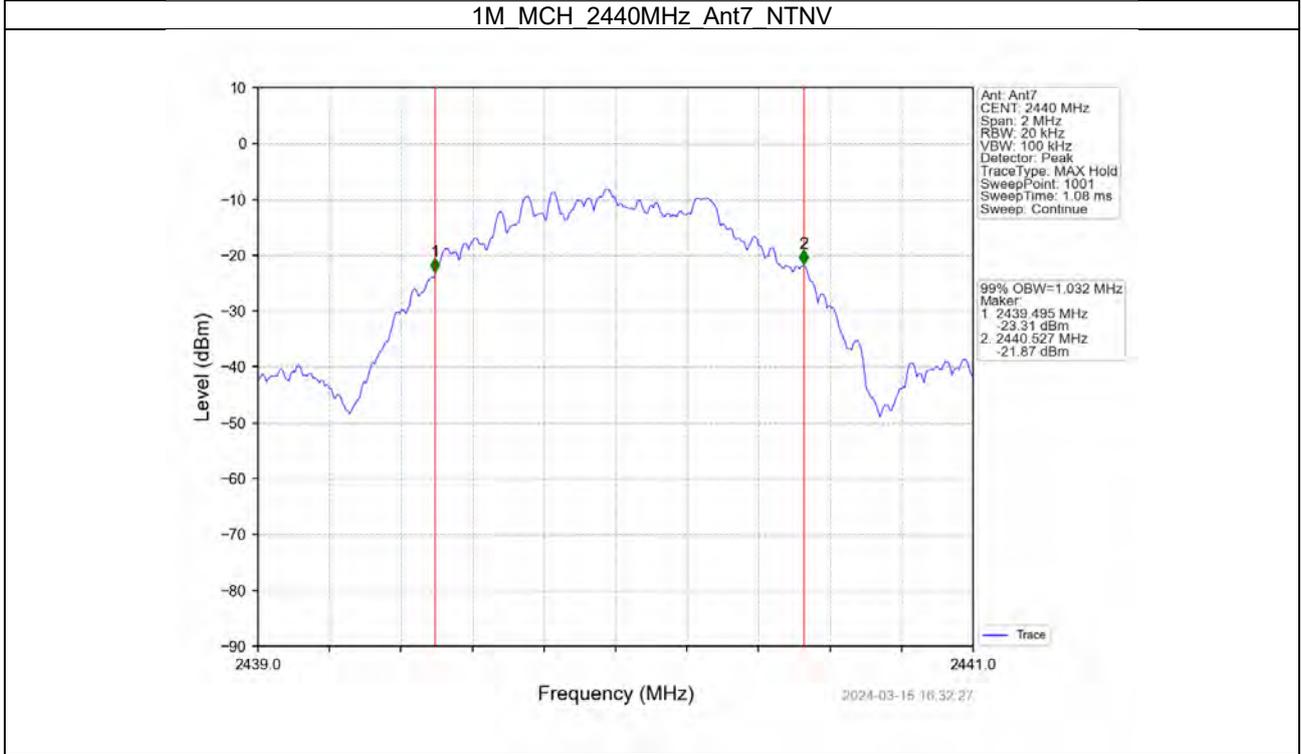
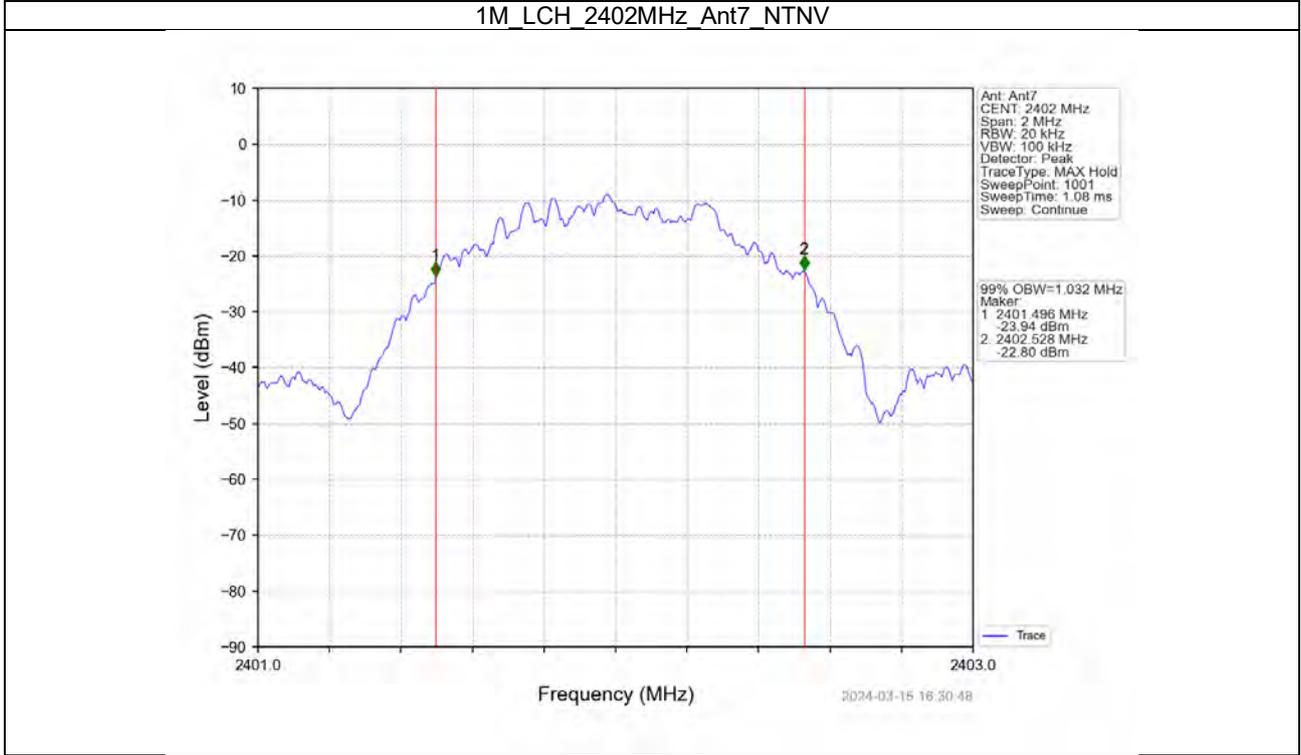
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Test Graph



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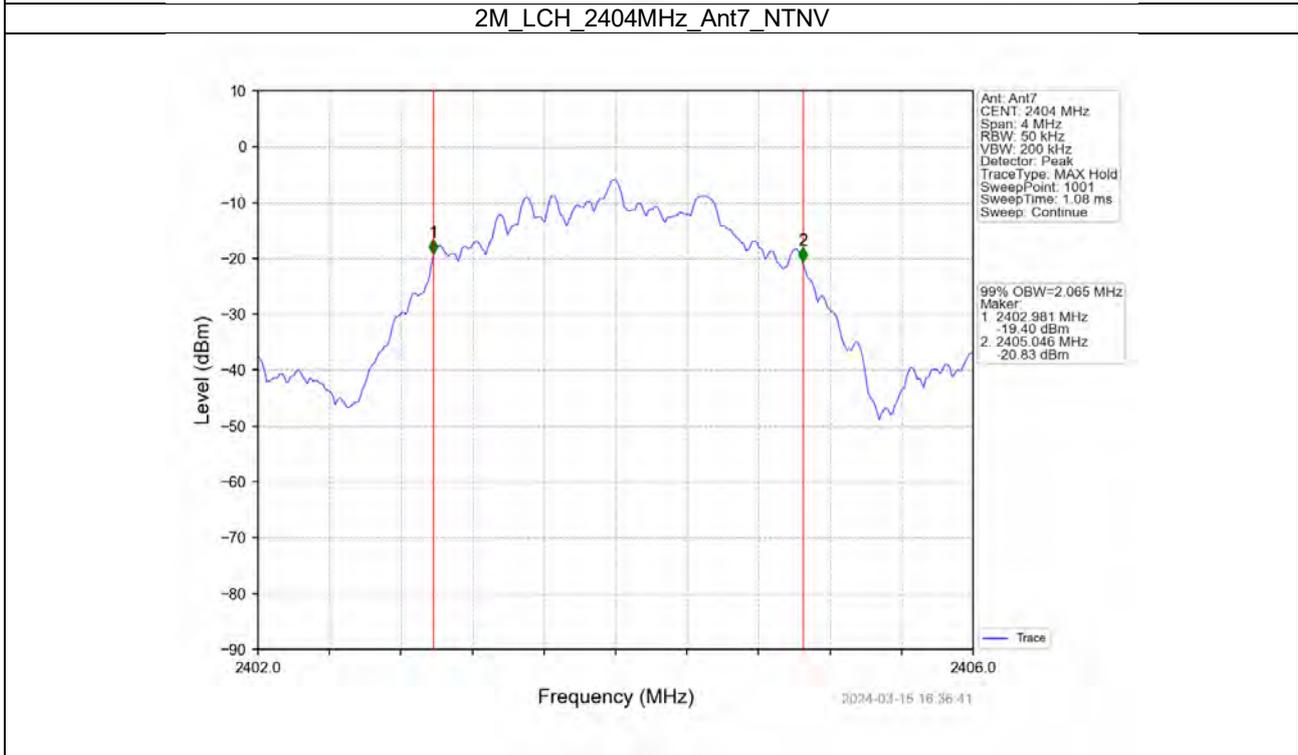
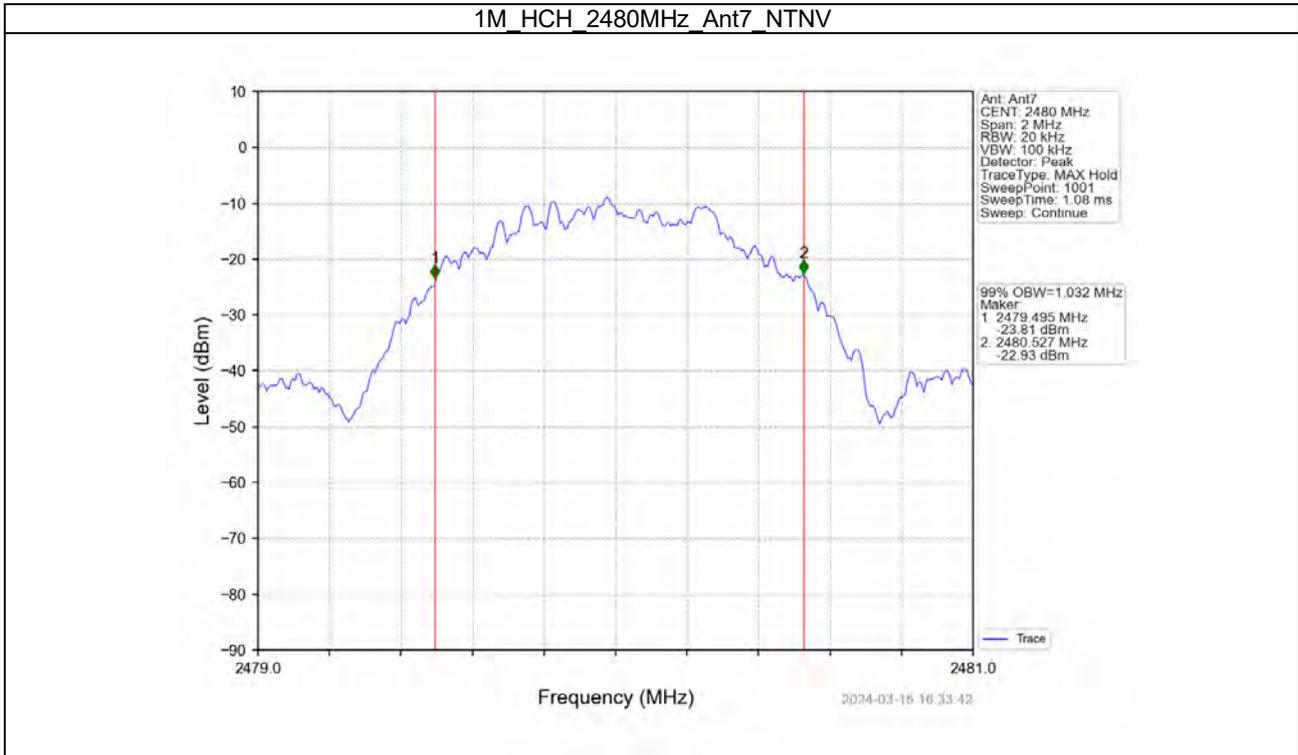
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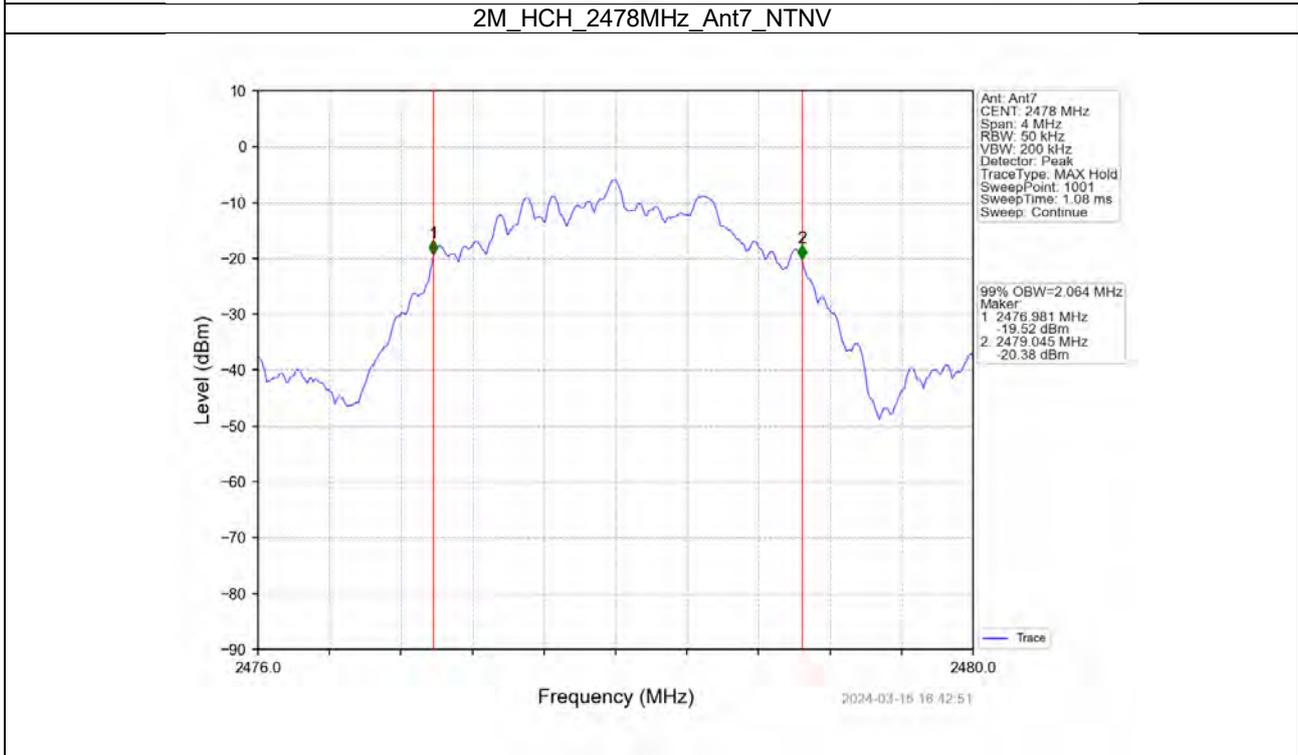
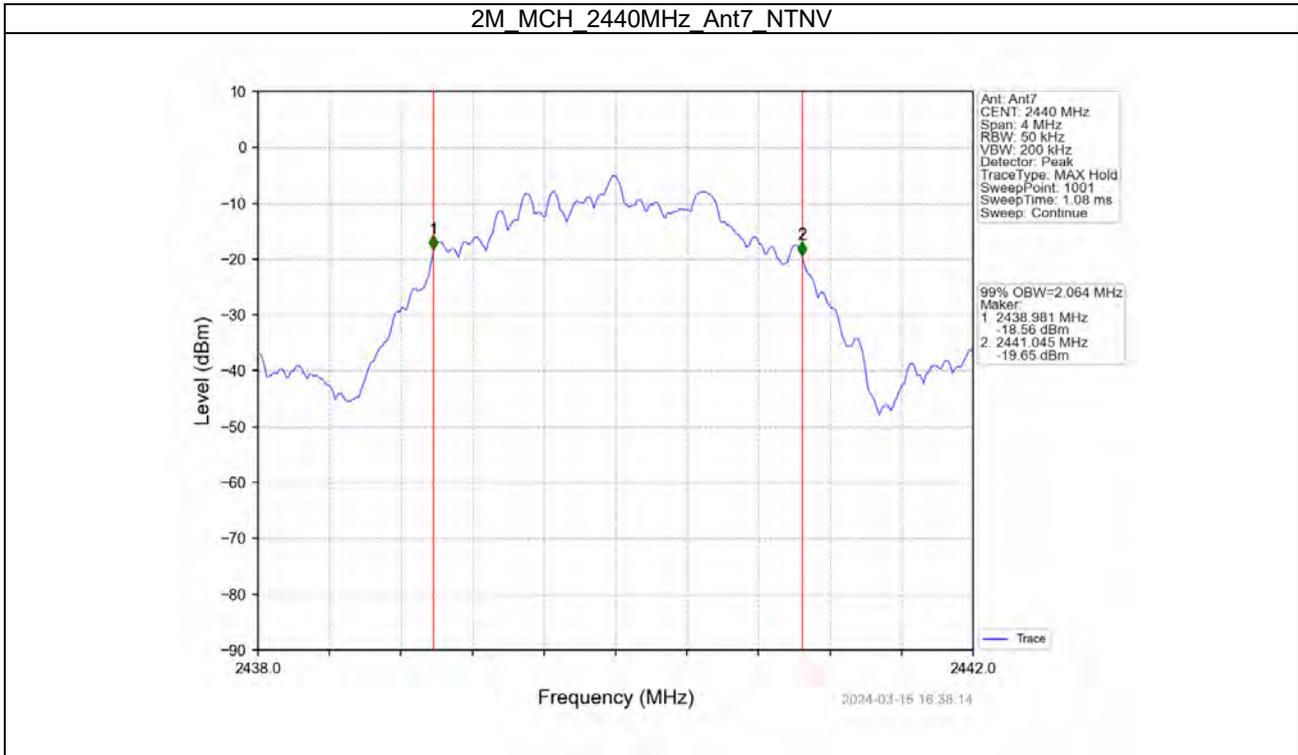
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6dB BW

Test Result

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	7	0.669	$\geq 0.5$	Pass
		2440	7	0.669	$\geq 0.5$	Pass
		2480	7	0.667	$\geq 0.5$	Pass
2M	SISO	2404	7	1.182	$\geq 0.5$	Pass
		2440	7	1.184	$\geq 0.5$	Pass
		2478	7	1.173	$\geq 0.5$	Pass



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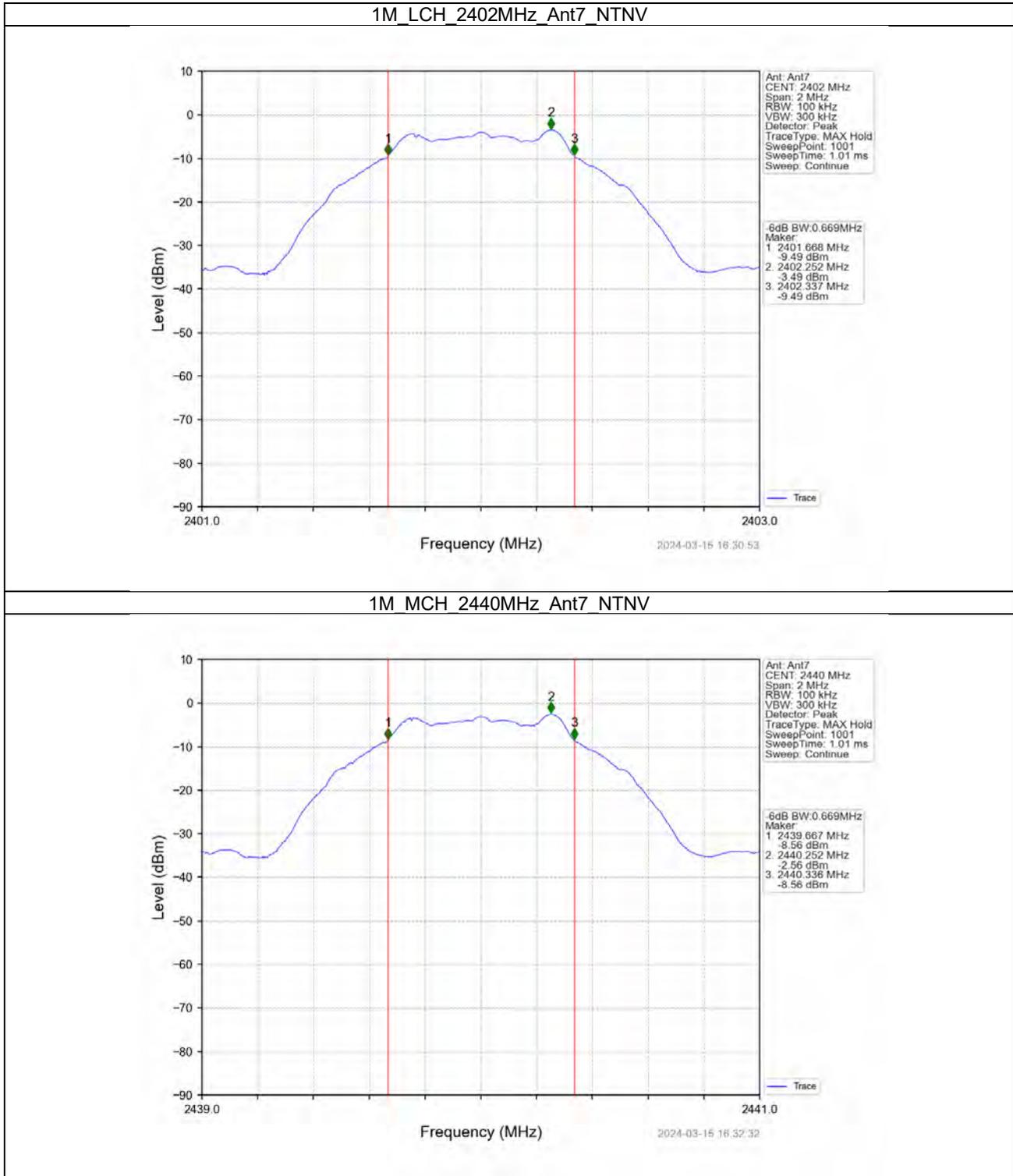
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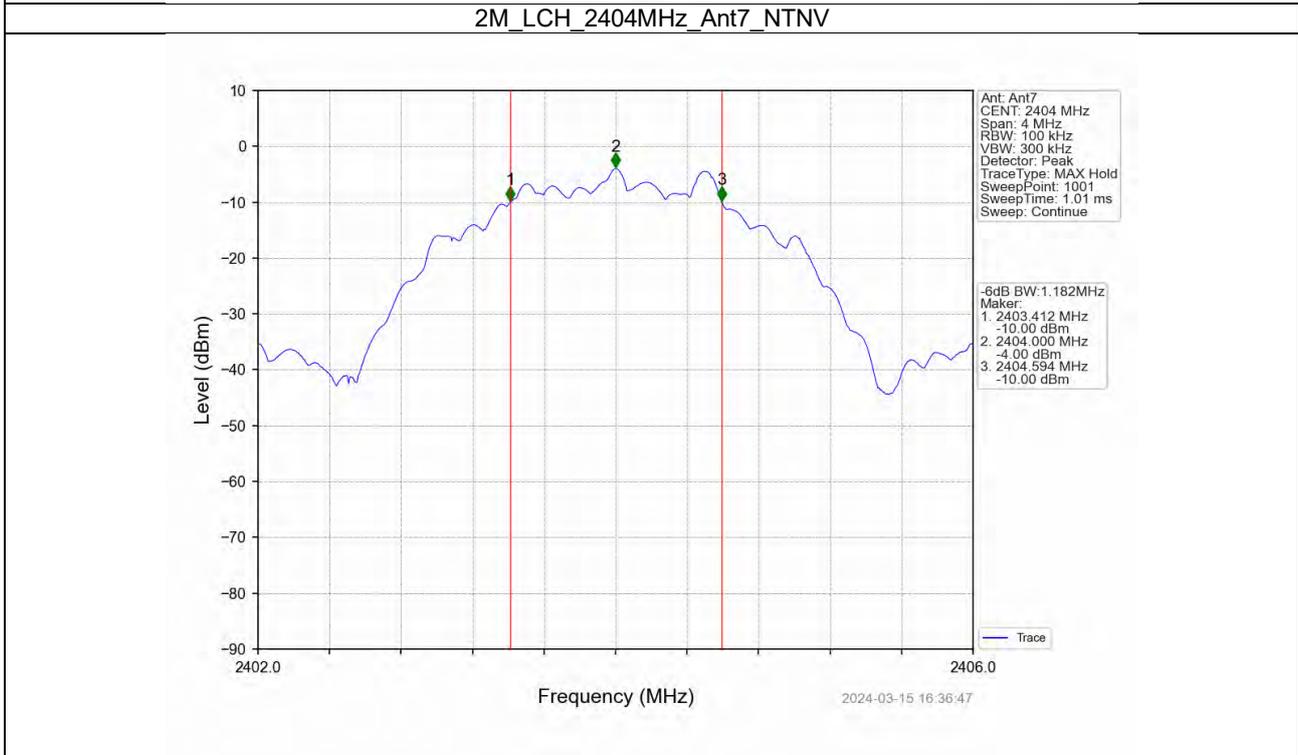
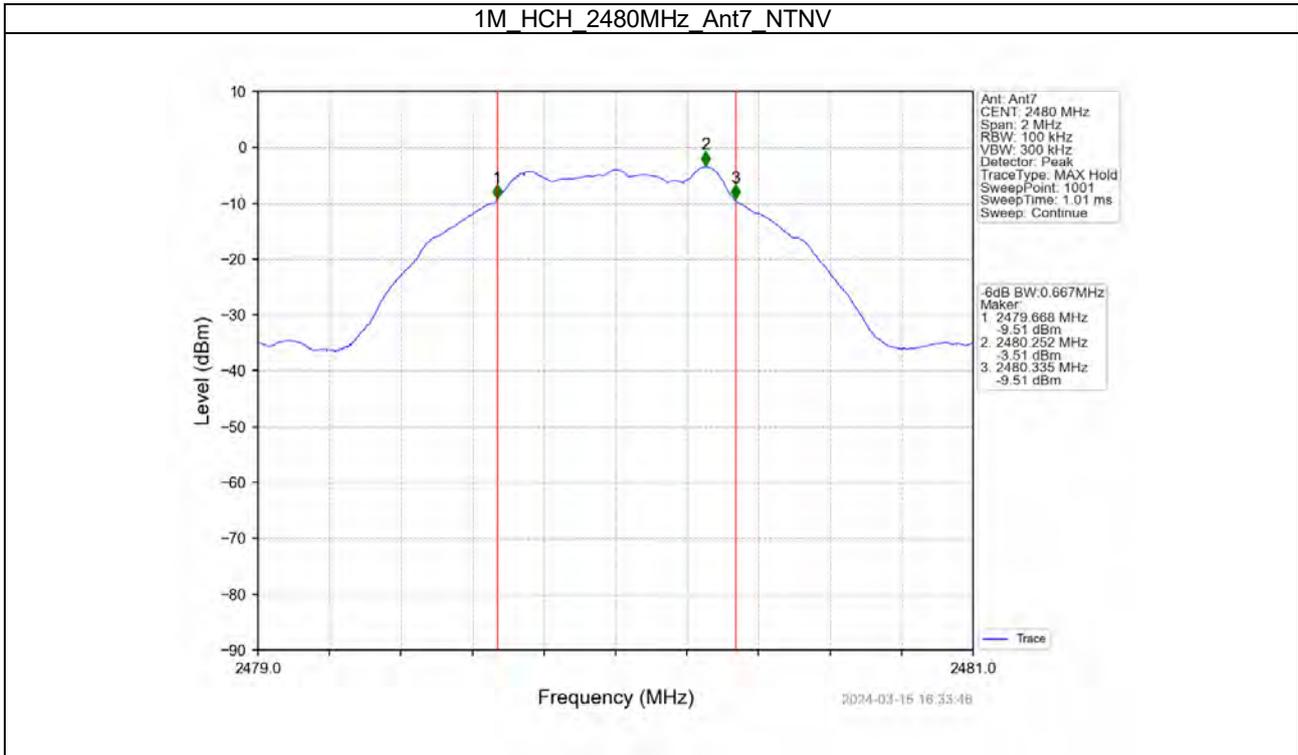
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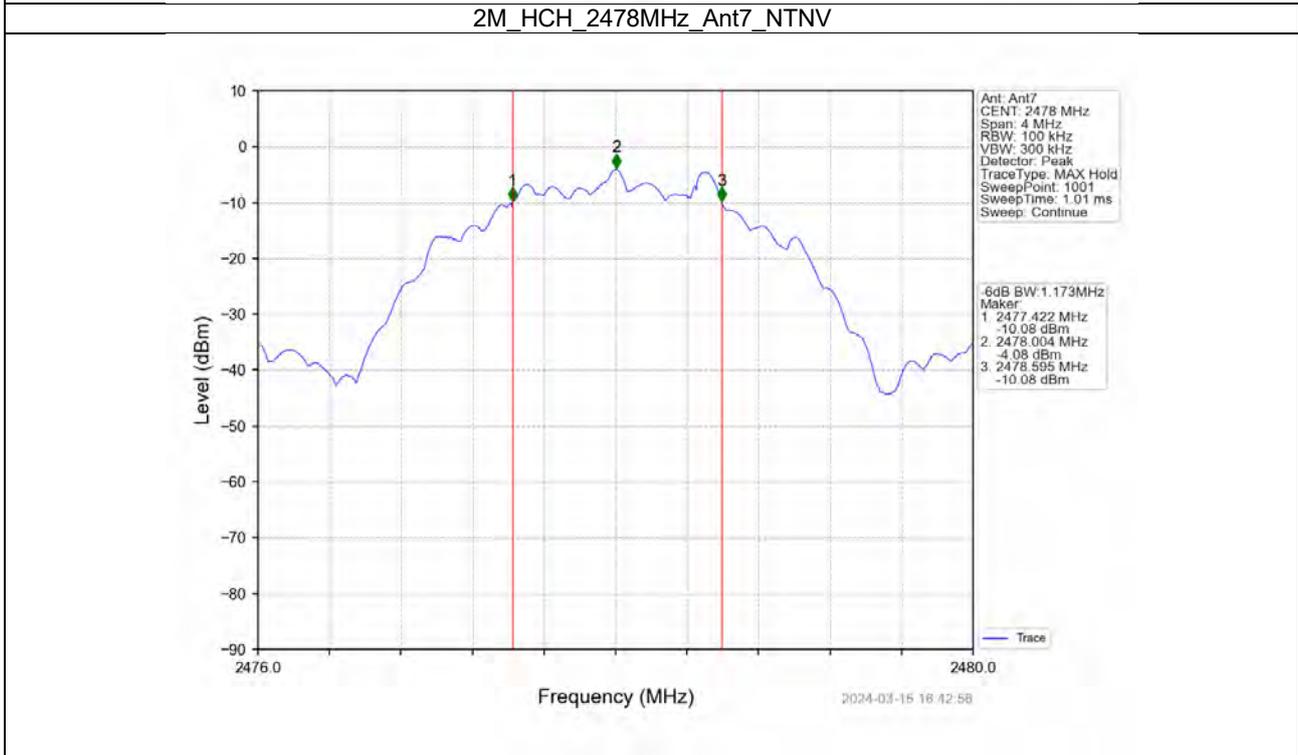
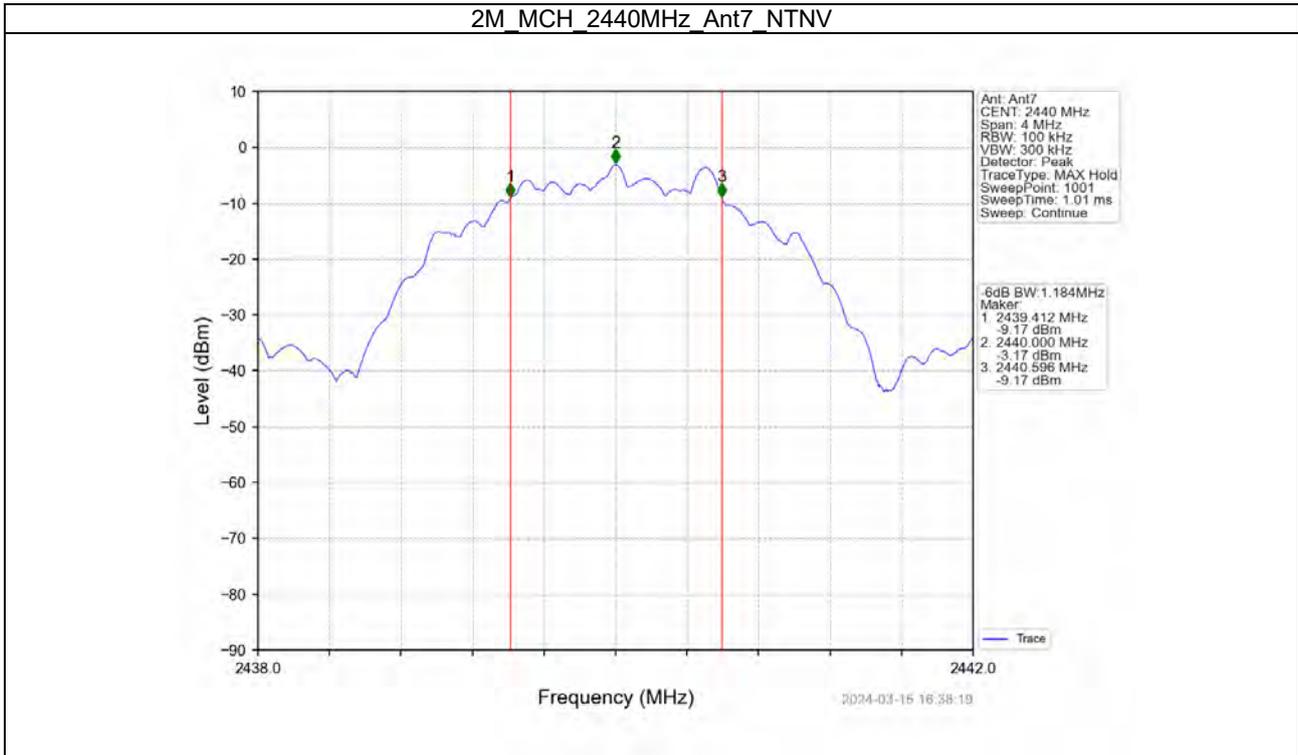
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## Maximum Conducted Output Power

### Power

### Test Result

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			ANT7	Limit	
1M	SISO	2402	-3.40	<=30	Pass
		2440	-2.46	<=30	Pass
		2480	-3.41	<=30	Pass
2M	SISO	2404	-3.25	<=30	Pass
		2440	-2.41	<=30	Pass
		2478	-3.33	<=30	Pass

Note 1: Antenna Gain: Ant7: -0.80dBi;



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## Maximum Power Spectral Density

### PSD

### Test Result

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT7	Limit	
1M	SISO	2402	-19.95	<=8	Pass
		2440	-19.04	<=8	Pass
		2480	-19.99	<=8	Pass
2M	SISO	2404	-21.93	<=8	Pass
		2440	-21.12	<=8	Pass
		2478	-22.01	<=8	Pass

Note 1: Antenna Gain: Ant7: -0.80dBi;



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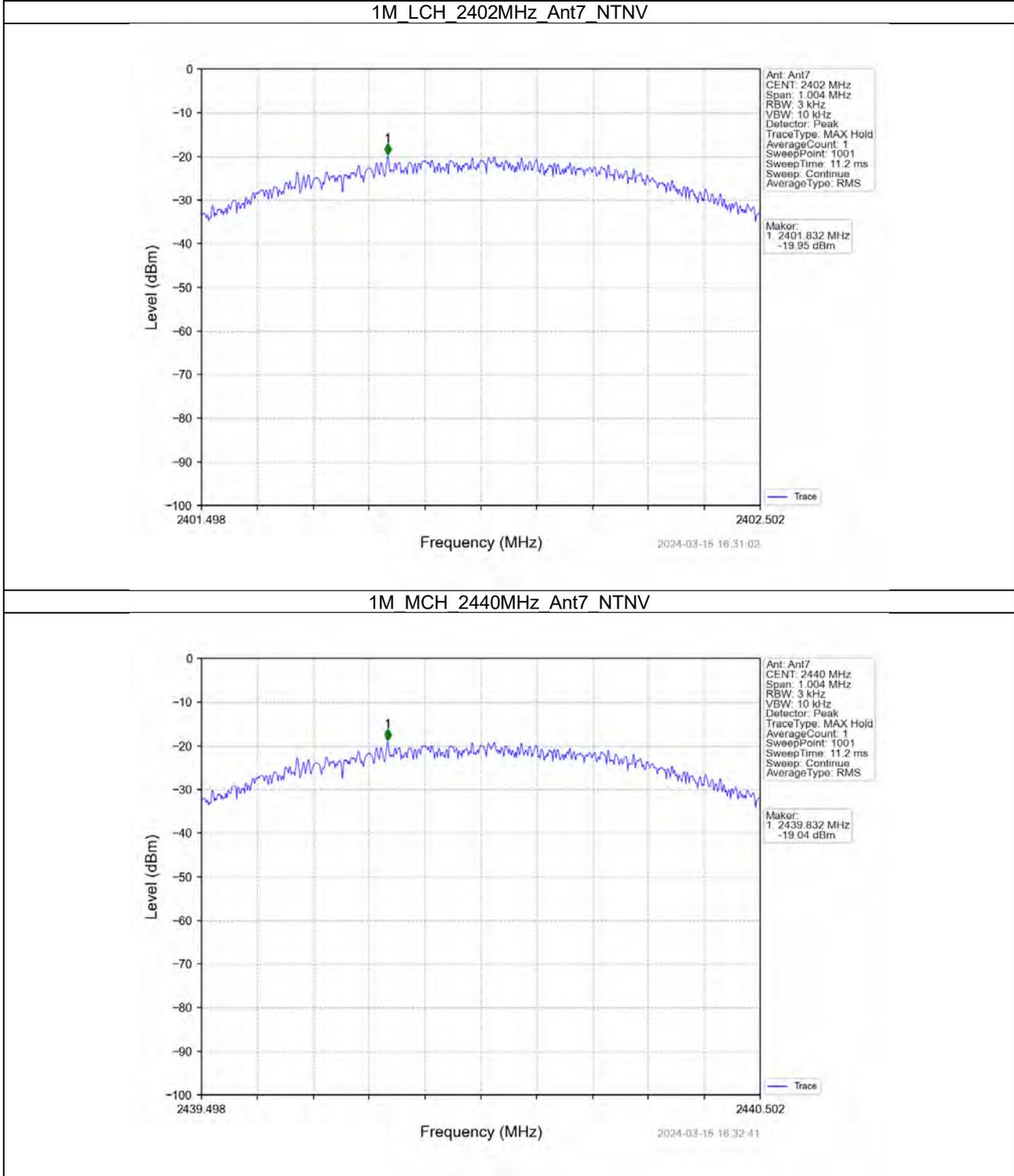
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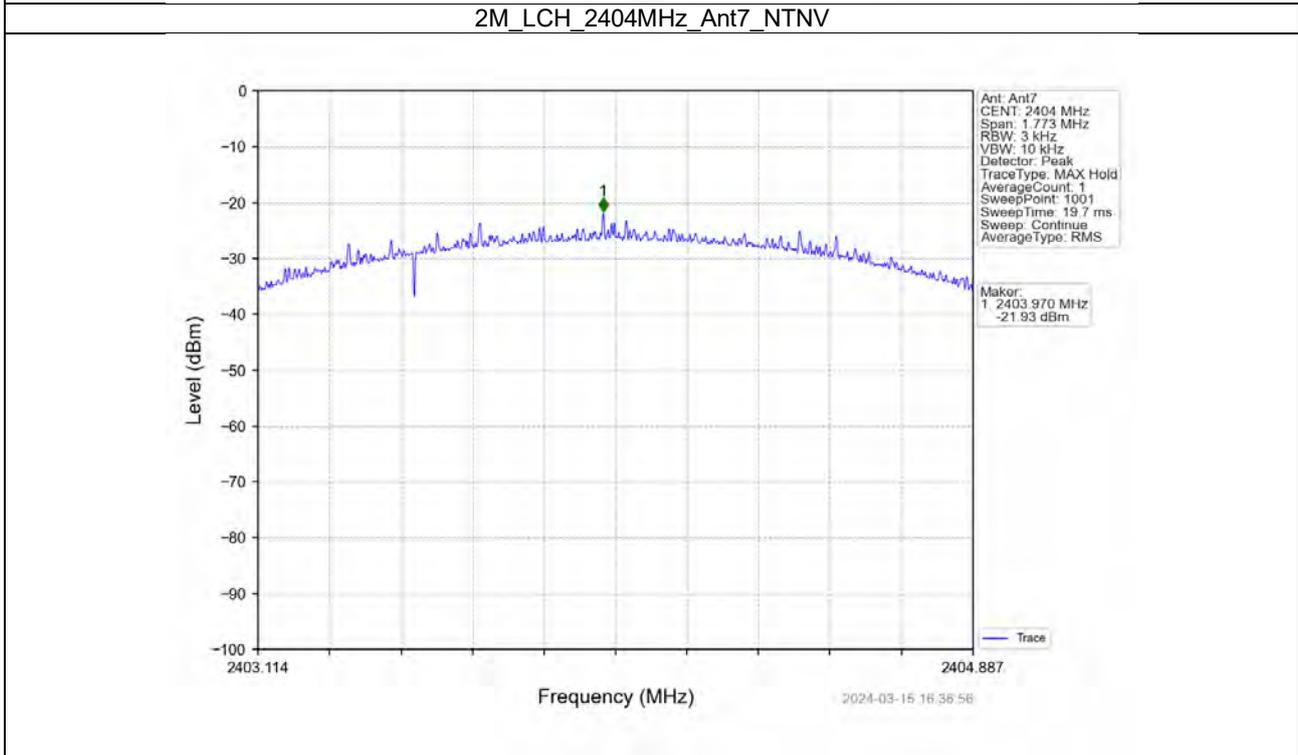
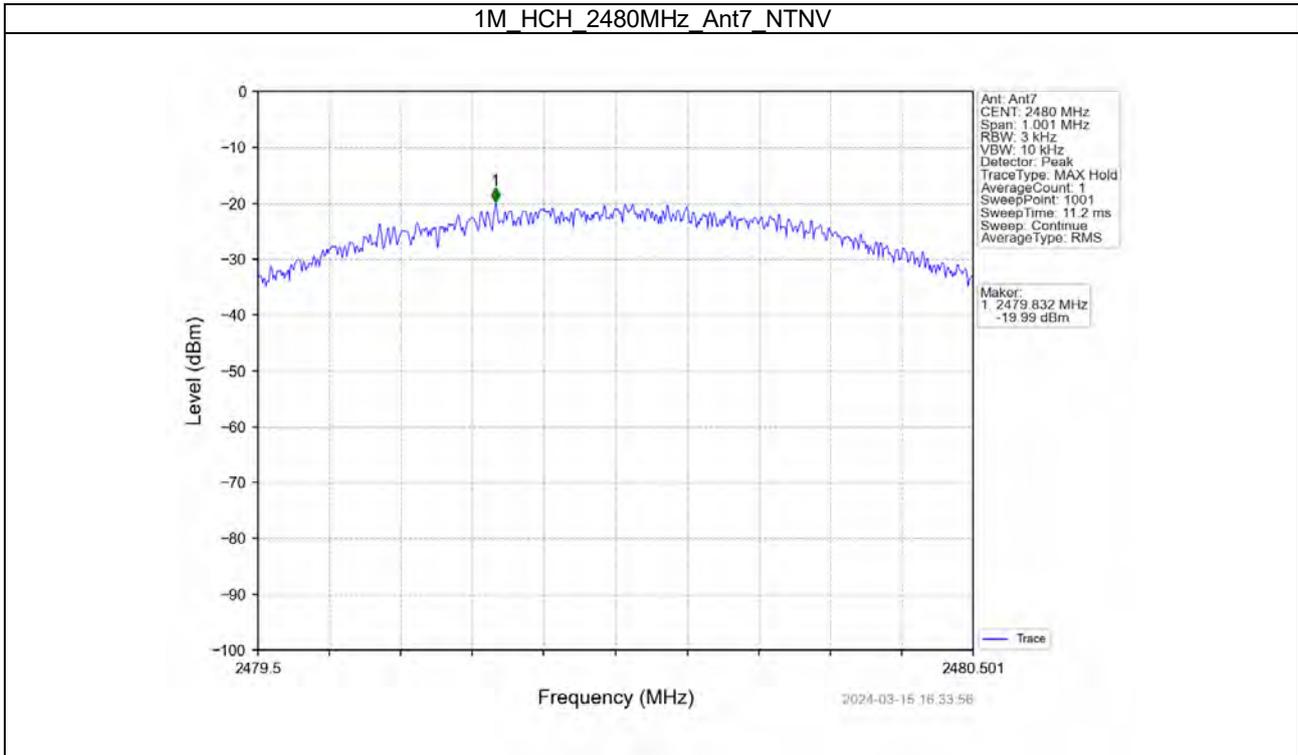
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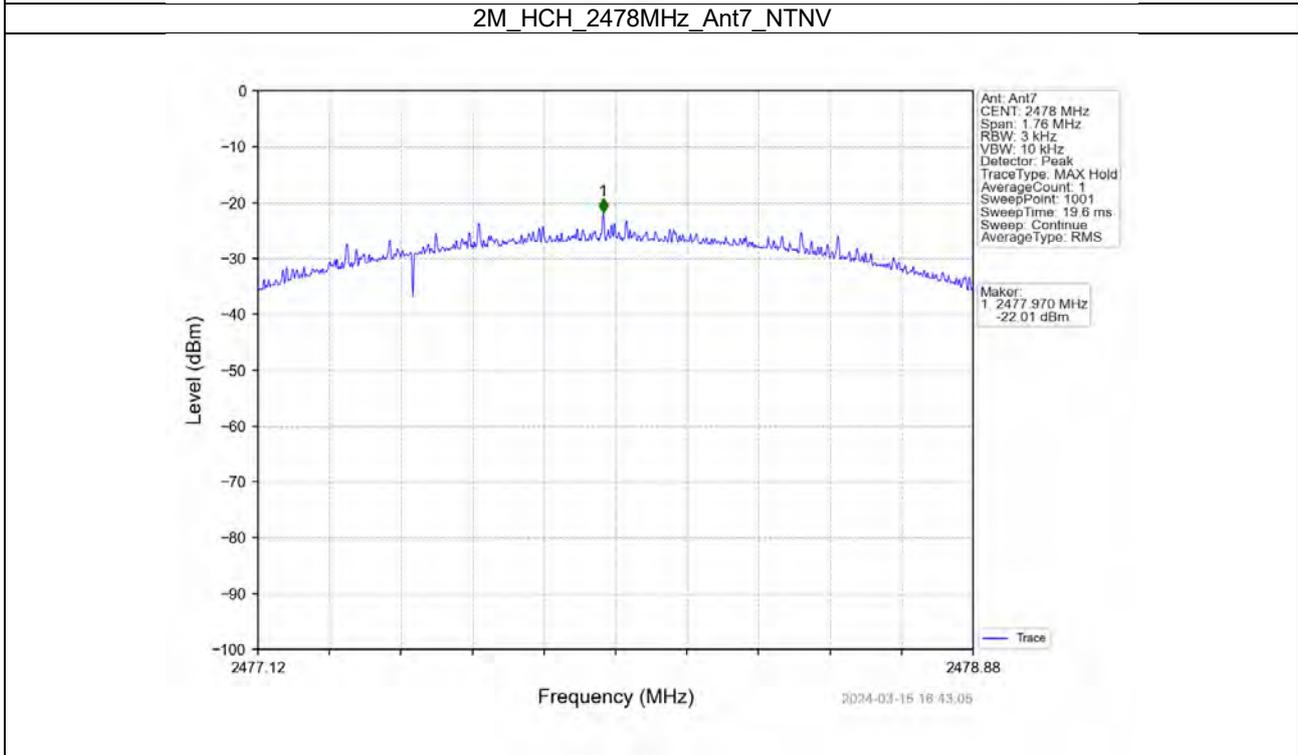
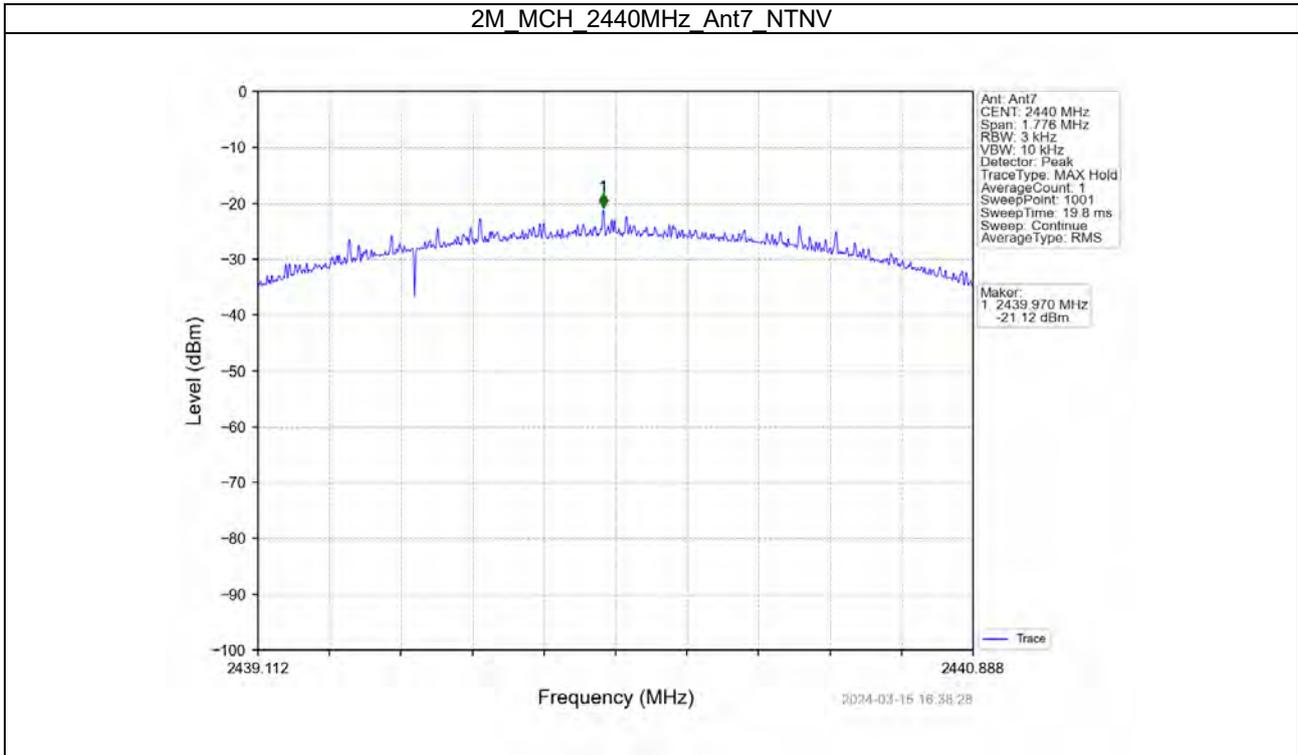
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## Unwanted Emissions In Non-restricted Frequency Bands

Ref

### Test Result

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
1M	SISO	2402	7	-3.48
		2440	7	-2.55
		2480	7	-3.50
2M	SISO	2404	7	-4.01
		2440	7	-3.15
		2478	7	-4.07

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.



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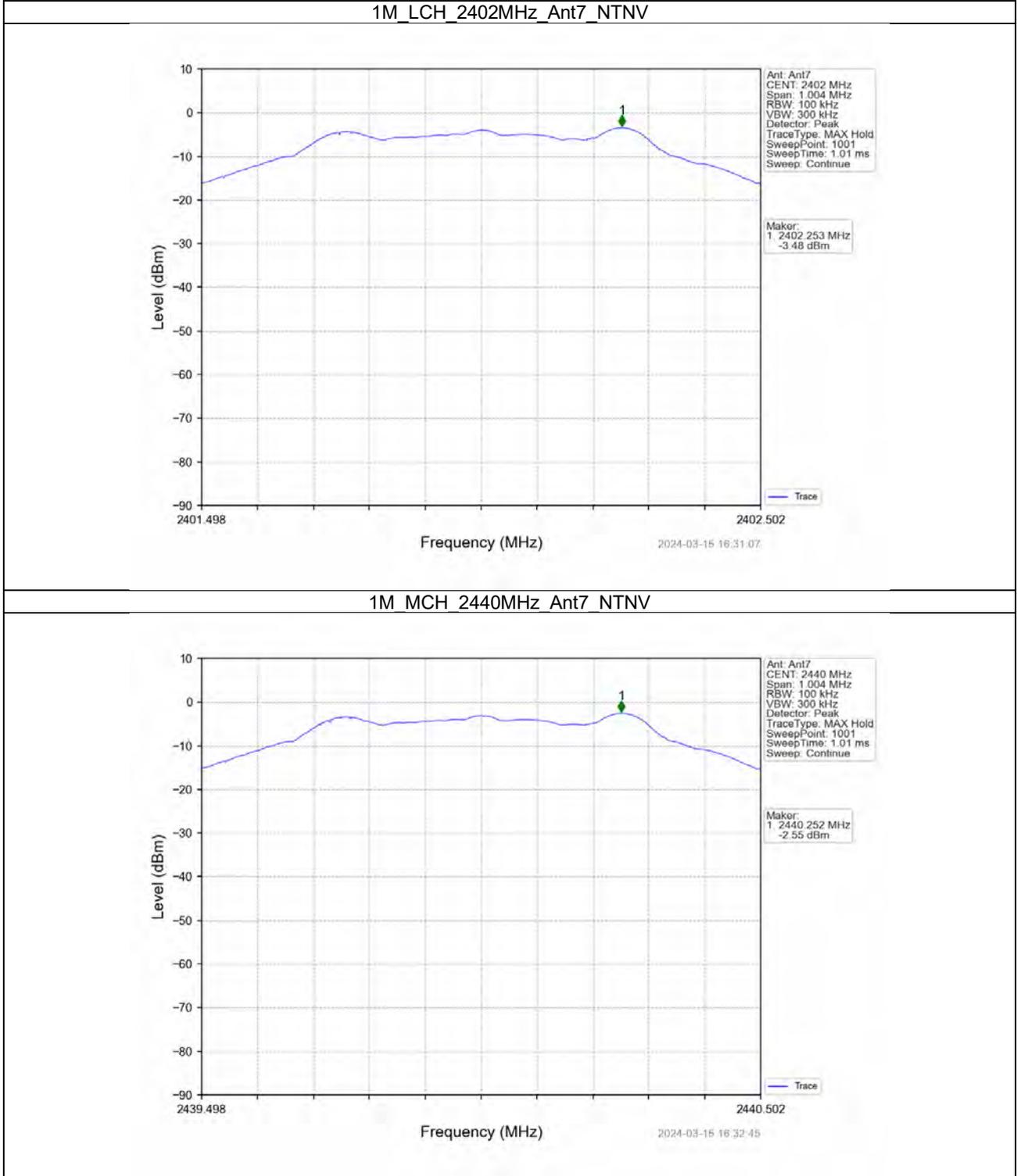
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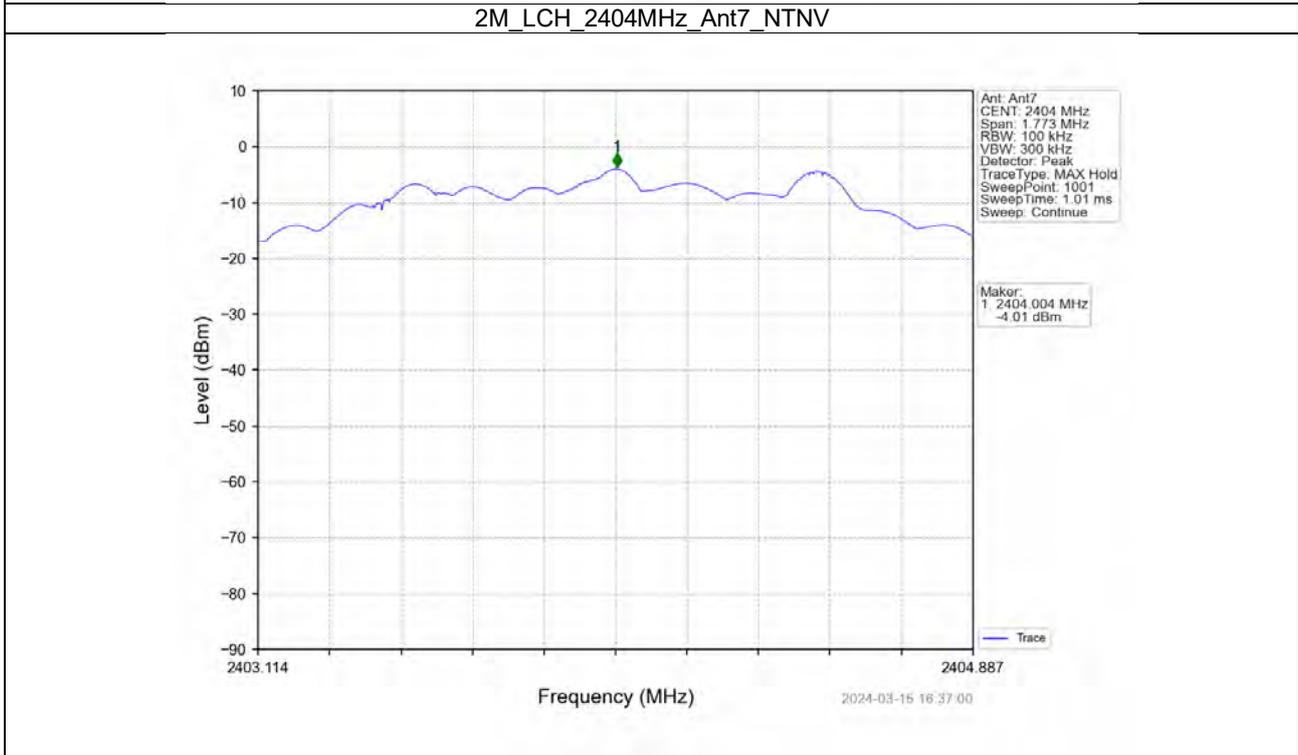
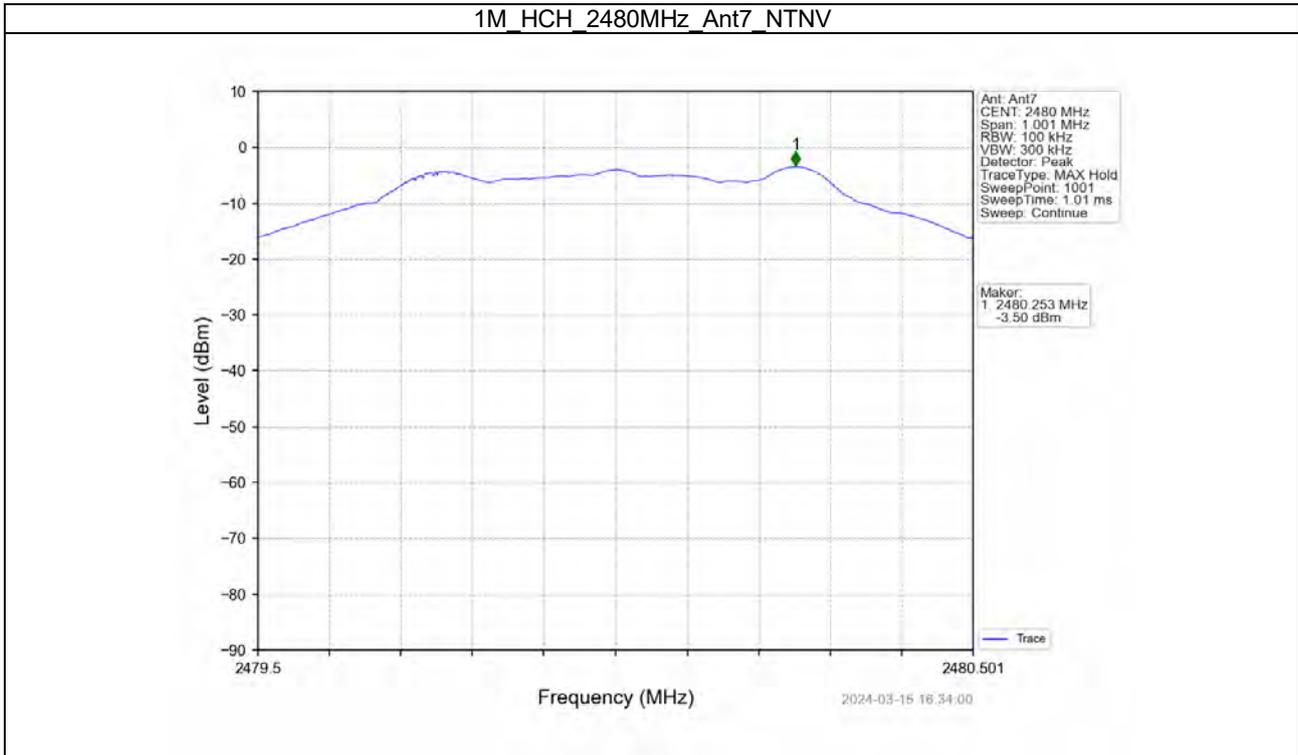
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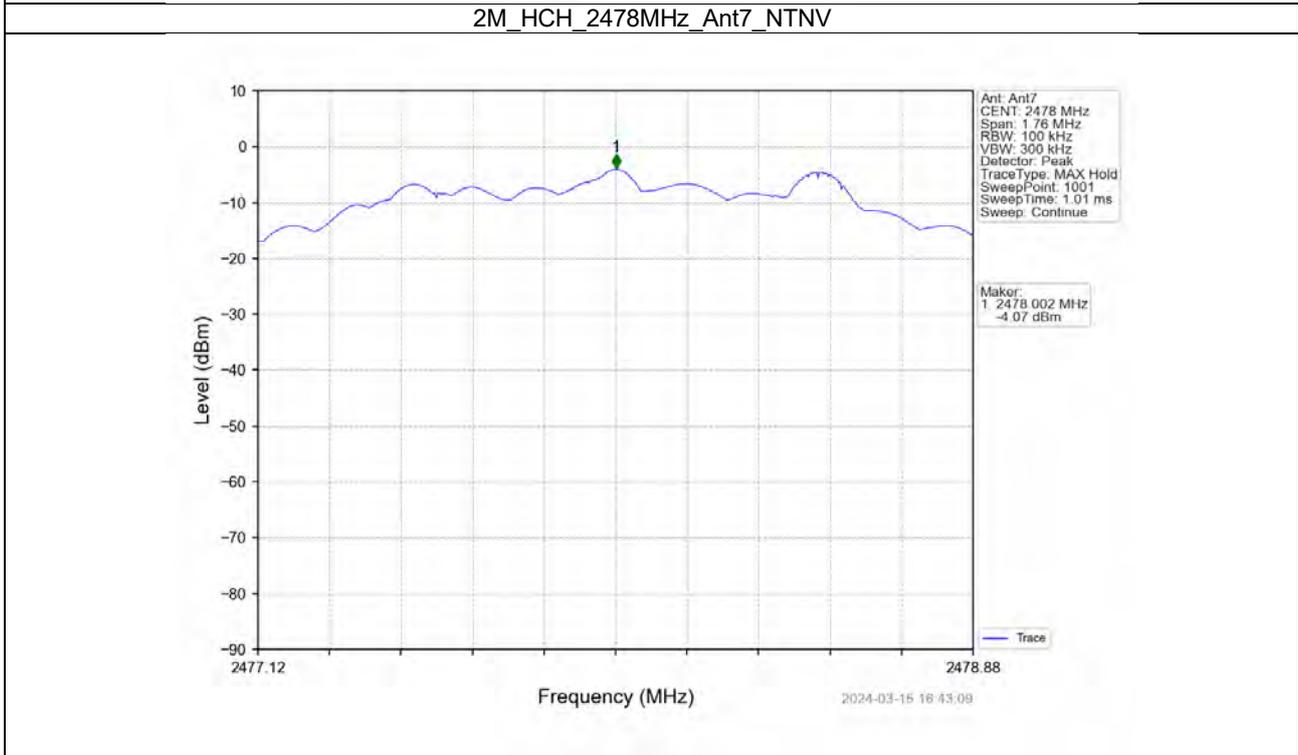
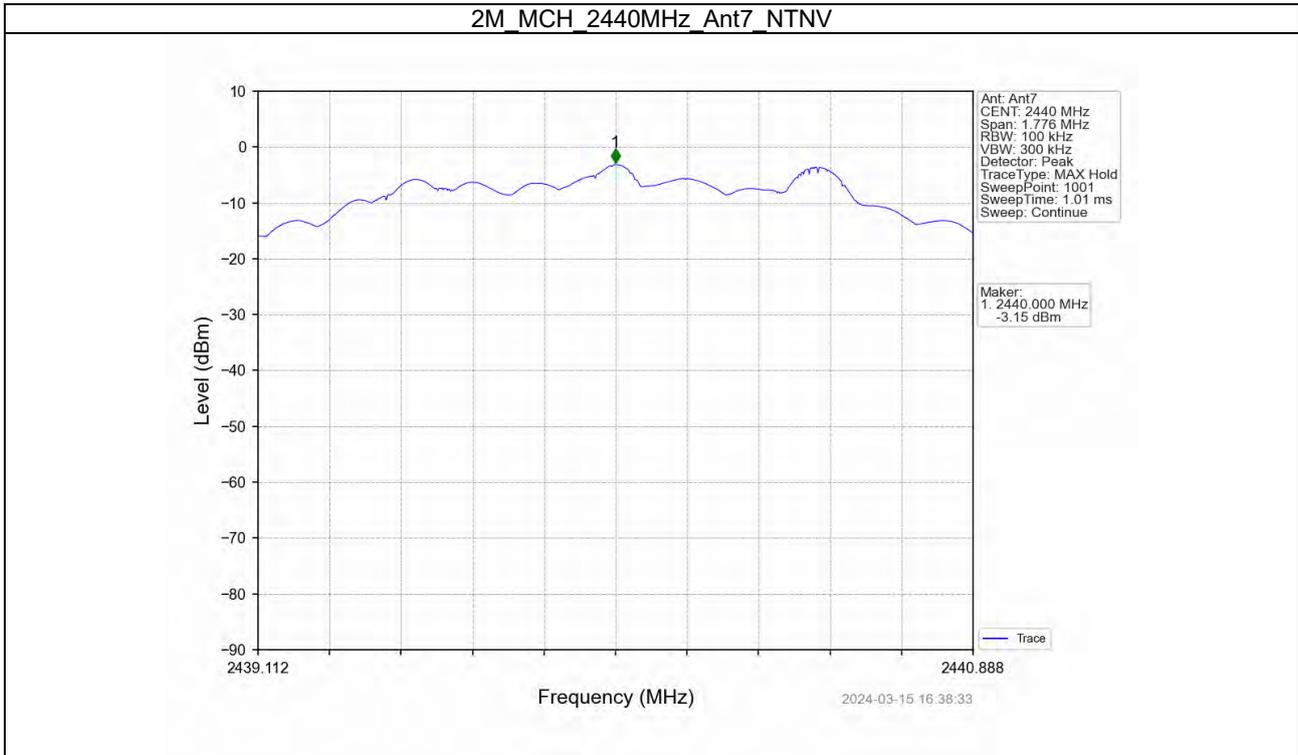
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CSE

## Test Result

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
1M	SISO	2402	7	-2.55	-22.55	Pass
		2440	7	-2.55	-22.55	Pass
		2480	7	-2.55	-22.55	Pass
2M	SISO	2404	7	-3.15	-23.15	Pass
		2440	7	-3.15	-23.15	Pass
		2478	7	-3.15	-23.15	Pass

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.



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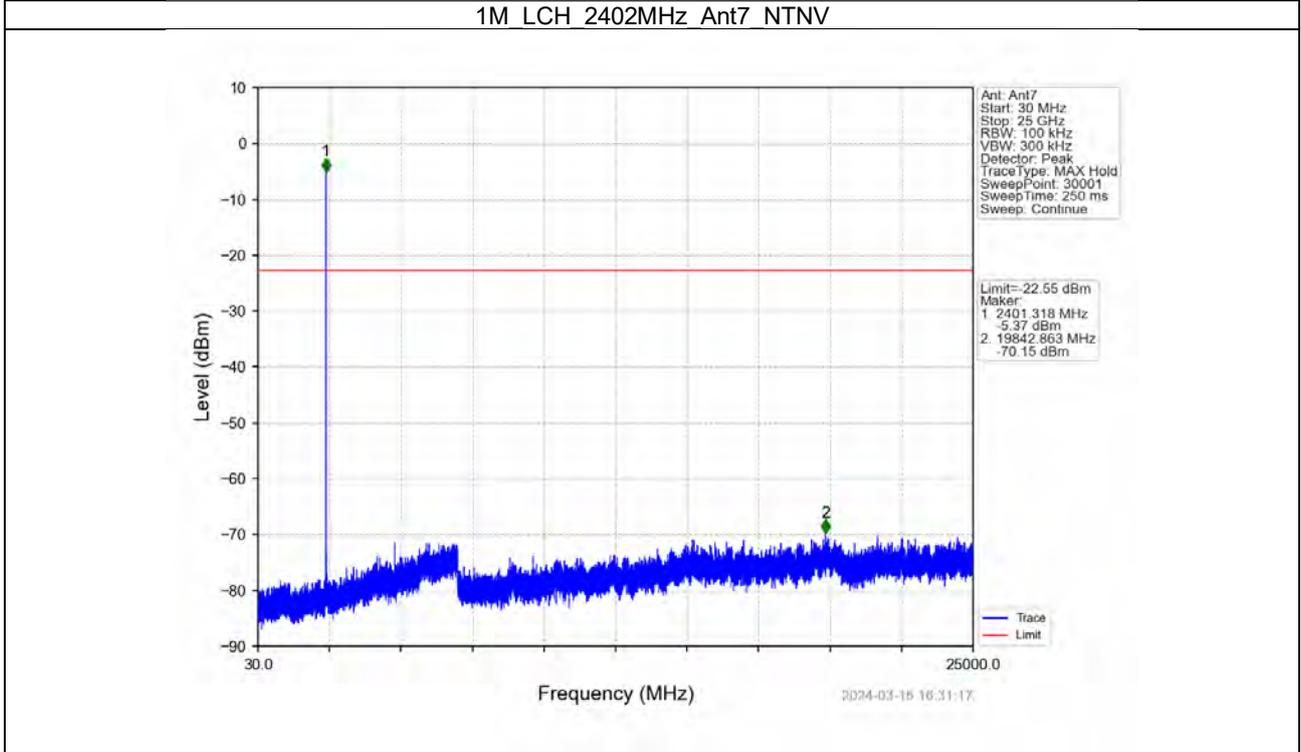
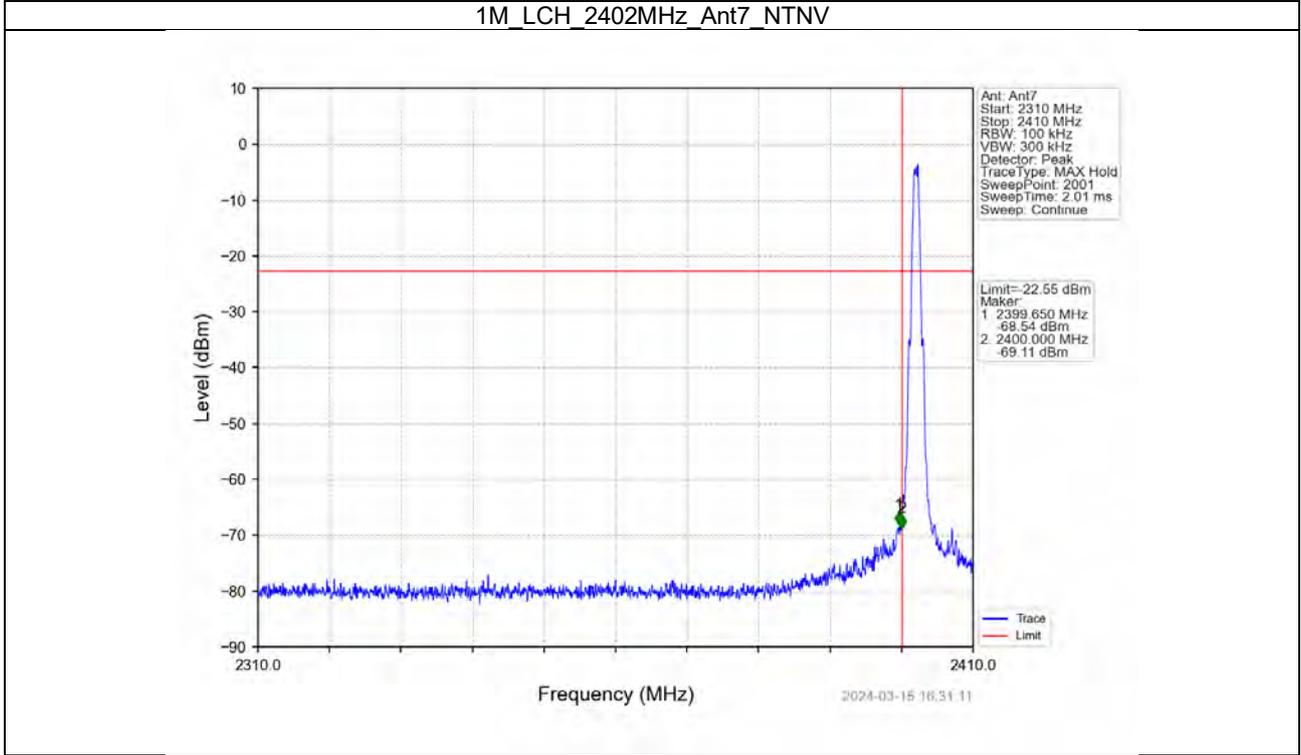
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Test Graph



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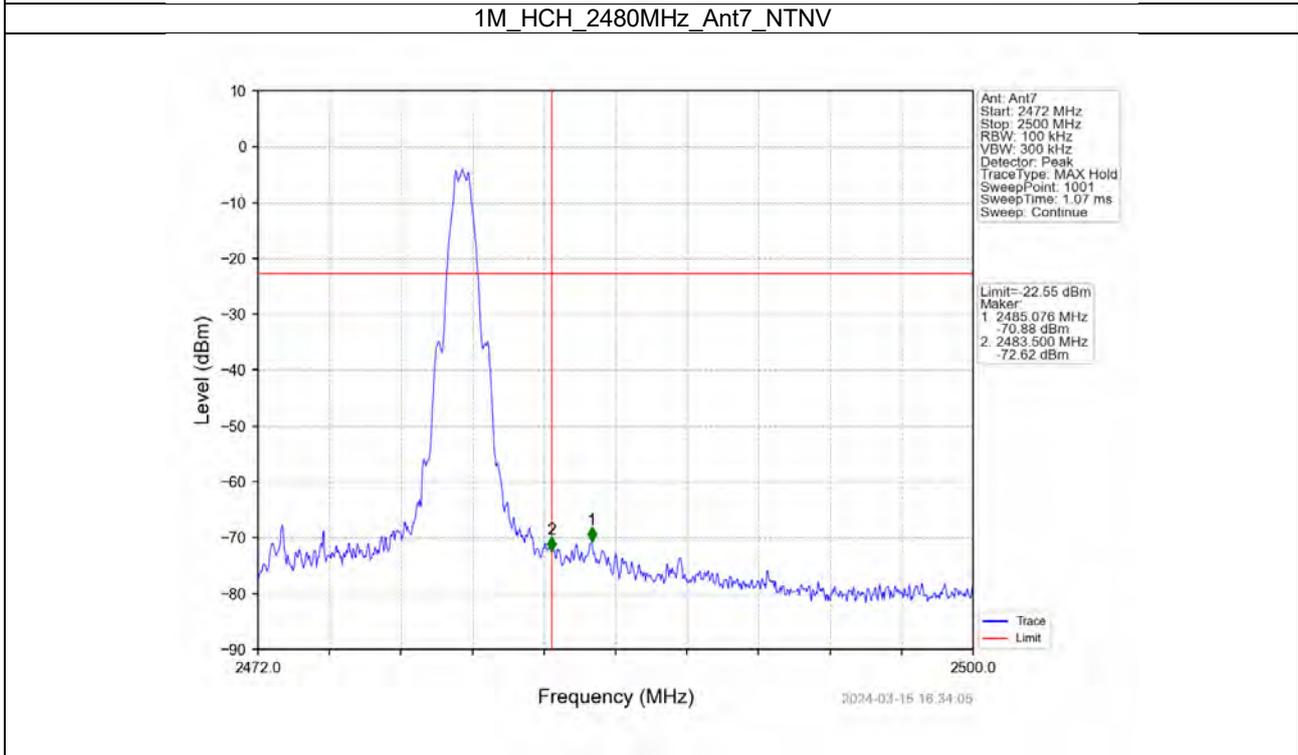
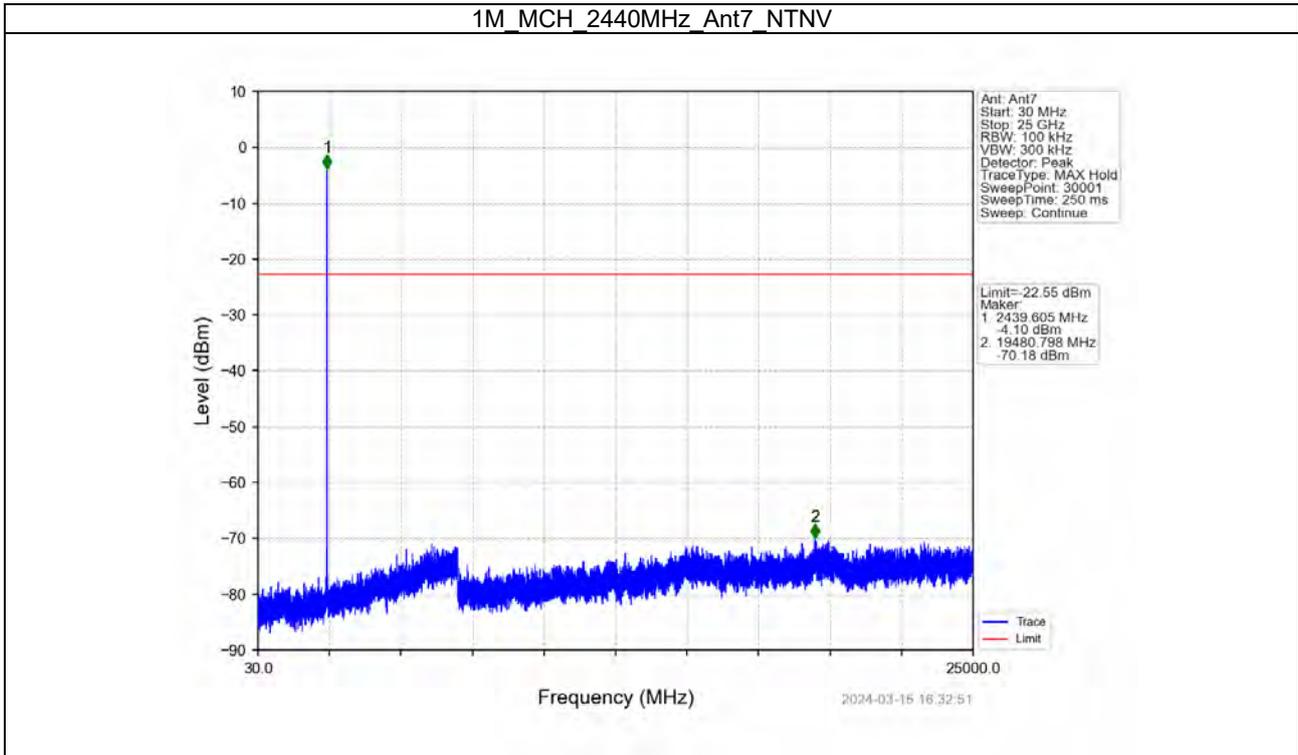
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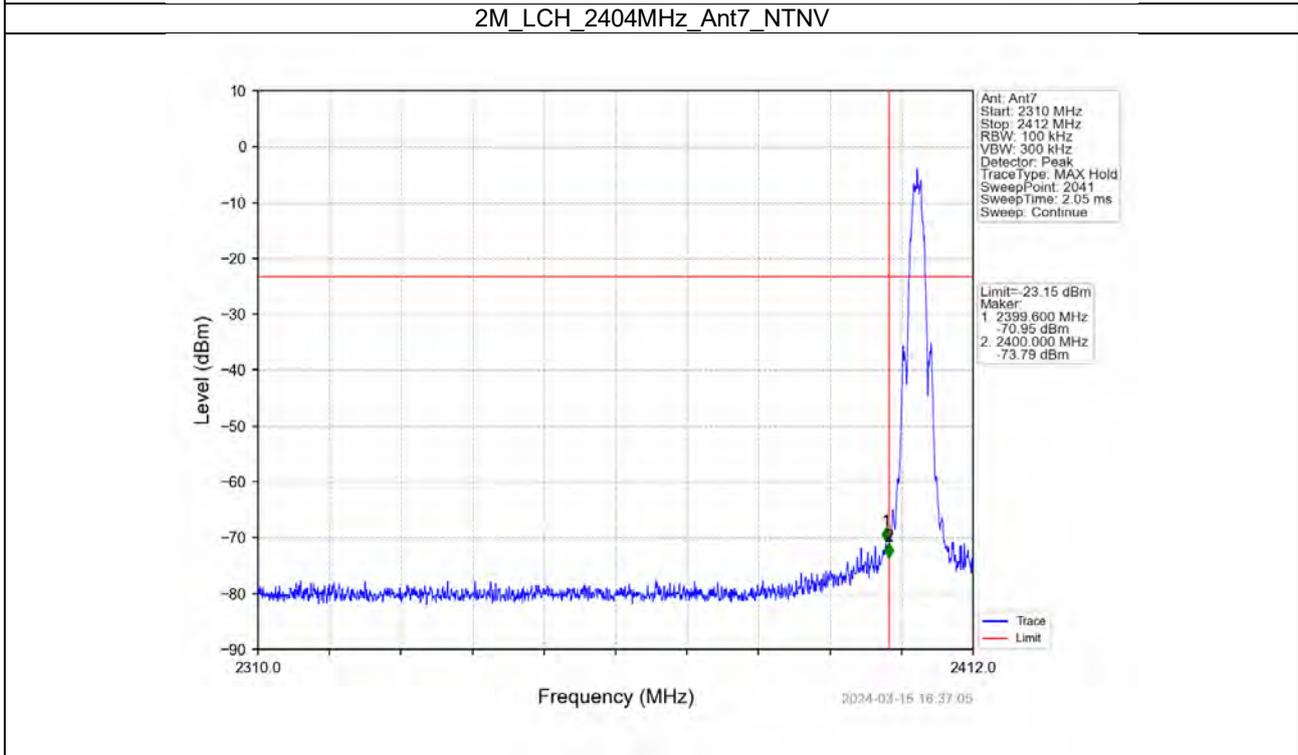
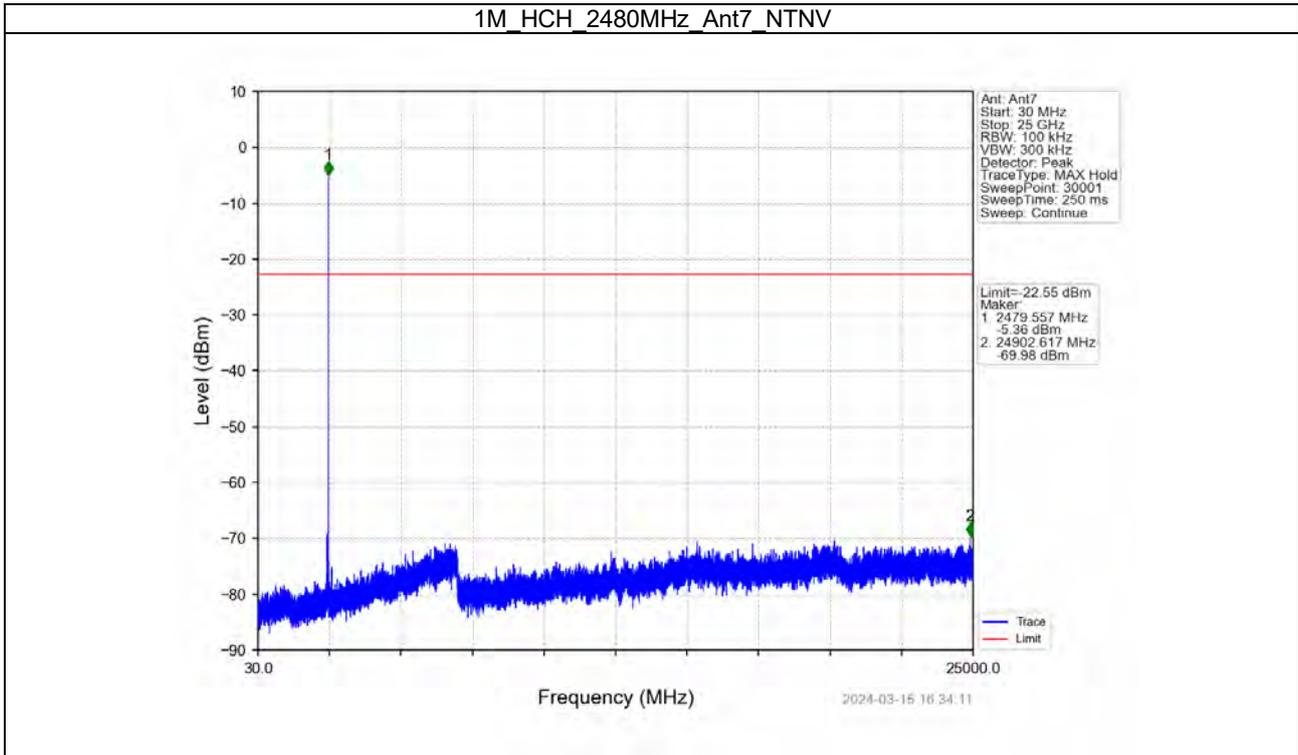
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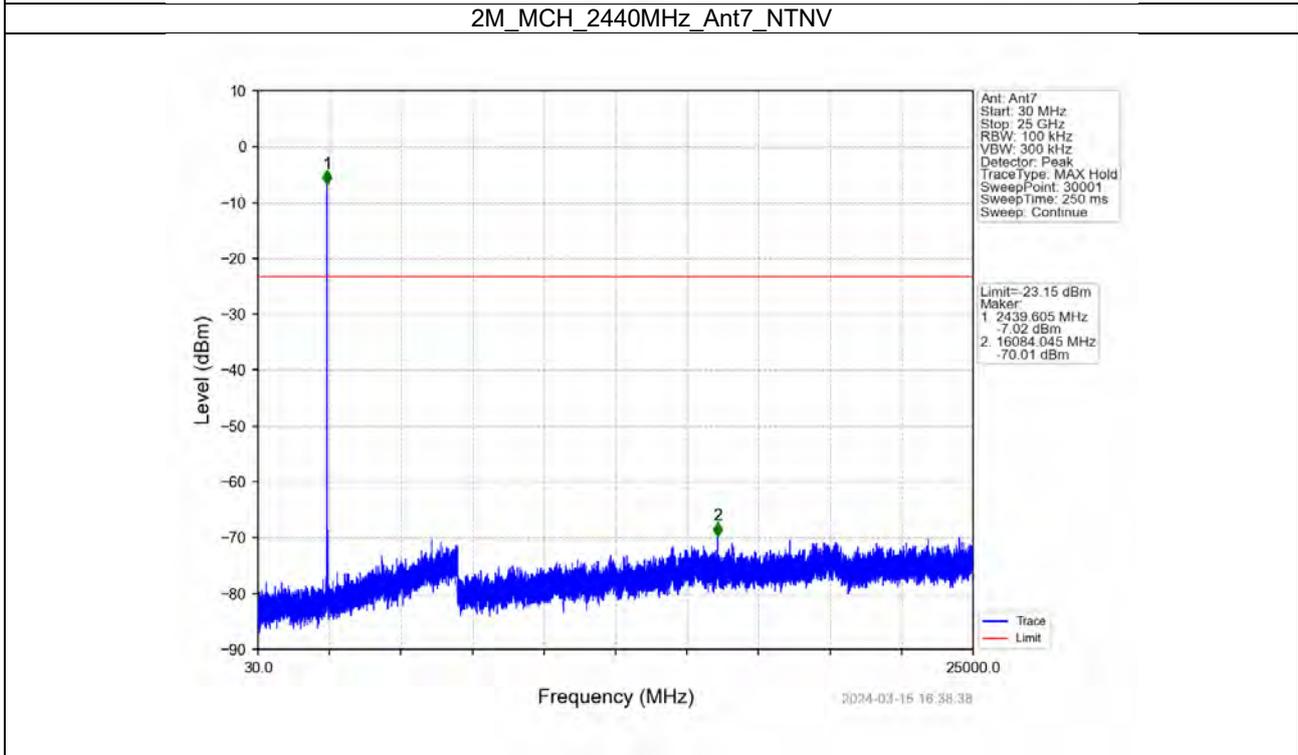
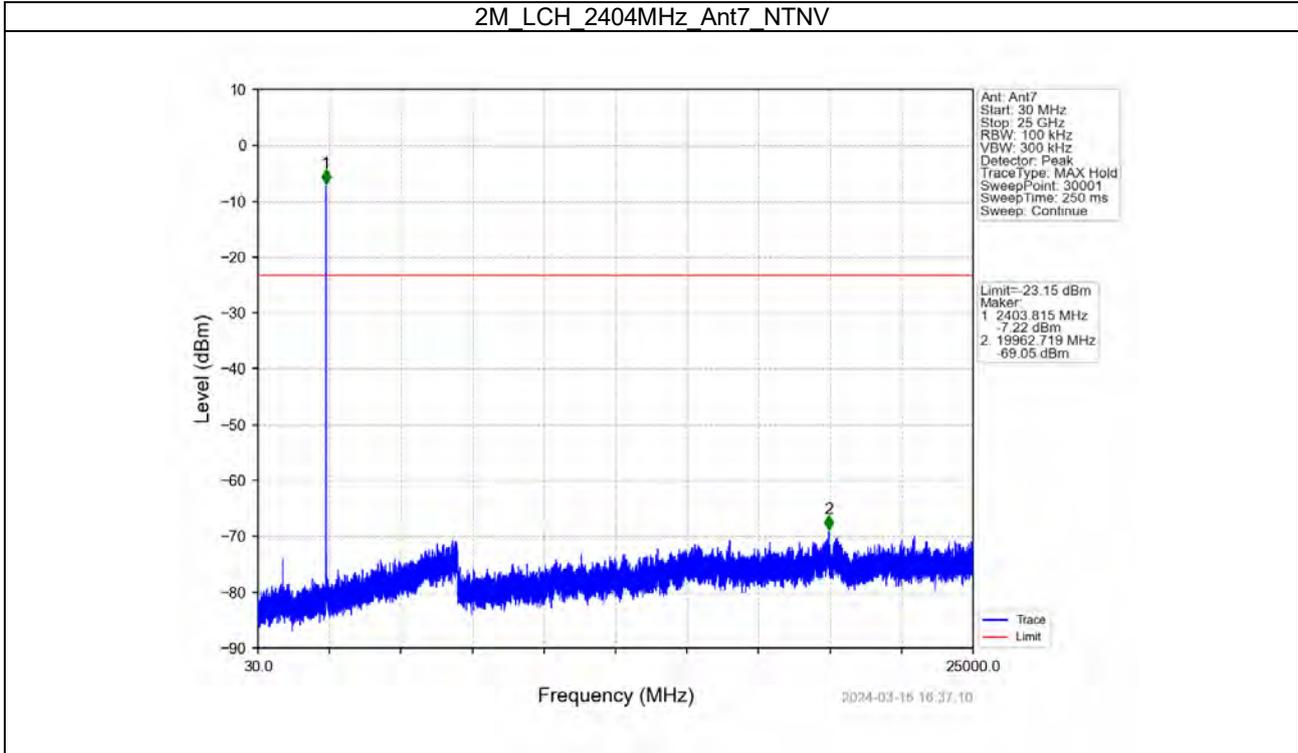
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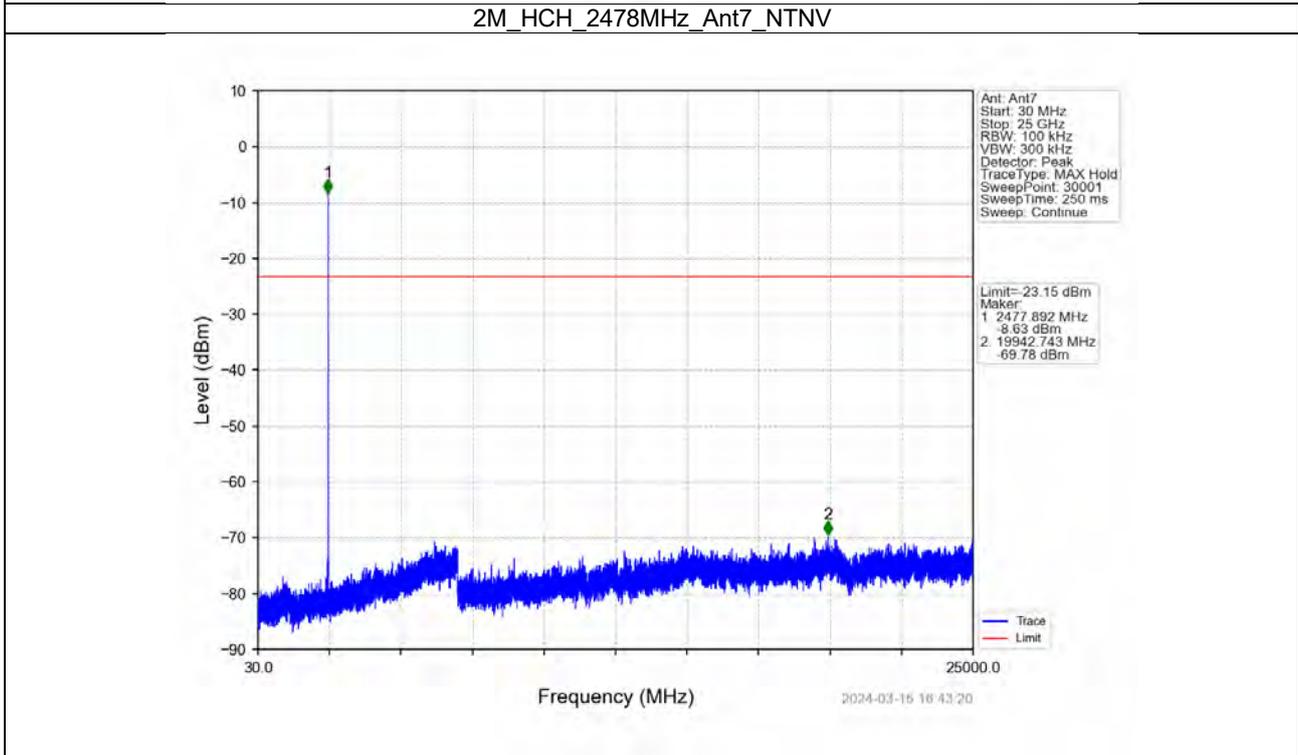
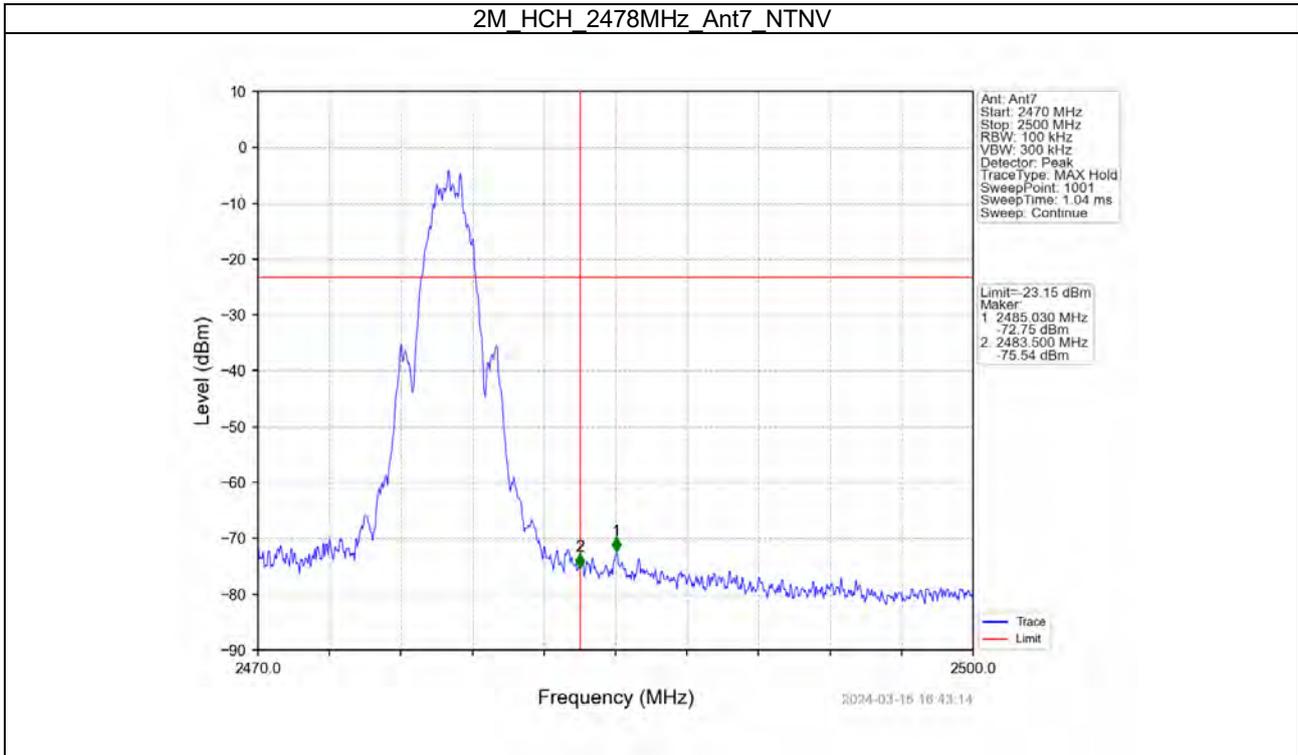
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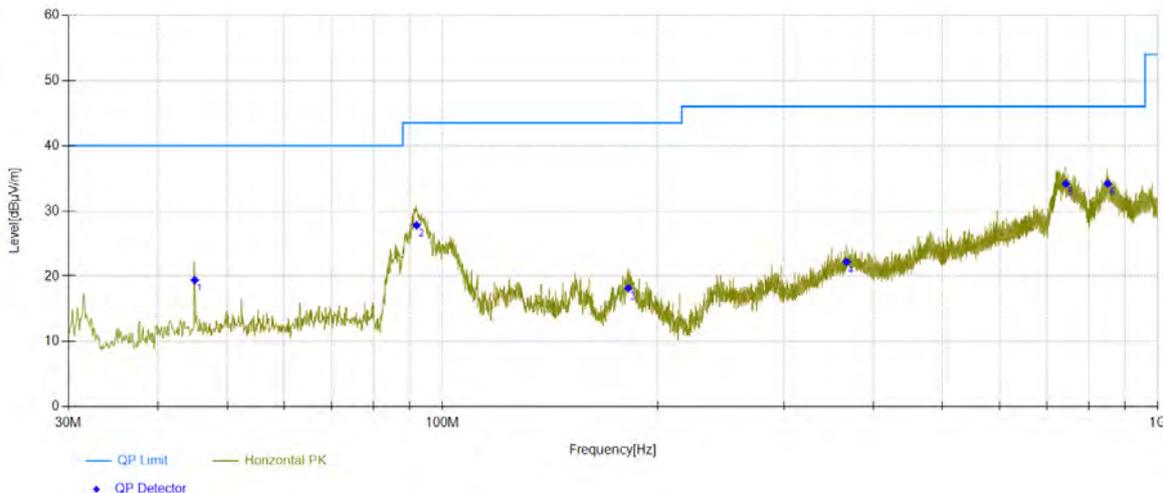
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**Radiated Spurious Emissions**

**Radiated emission below 1GHz**

**Worst case Mode: BLE\_1M\_Channel 39**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	Factor [dB]	AF [dB/m]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Polarity
1	45.0365	33.53	-25.18	11.06	19.41	40.00	20.59	Horizontal
2	91.9892	37.9	-24.47	14.37	27.80	43.50	15.70	Horizontal
3	181.9172	28.87	-23.71	13.02	18.18	43.50	25.32	Horizontal
4	367.2057	26.13	-22.65	18.72	22.20	46.00	23.80	Horizontal
5	743.5064	26.26	-20.69	28.58	34.15	46.00	11.85	Horizontal
6	851.1871	27.32	-20.87	27.74	34.19	46.00	11.81	Horizontal

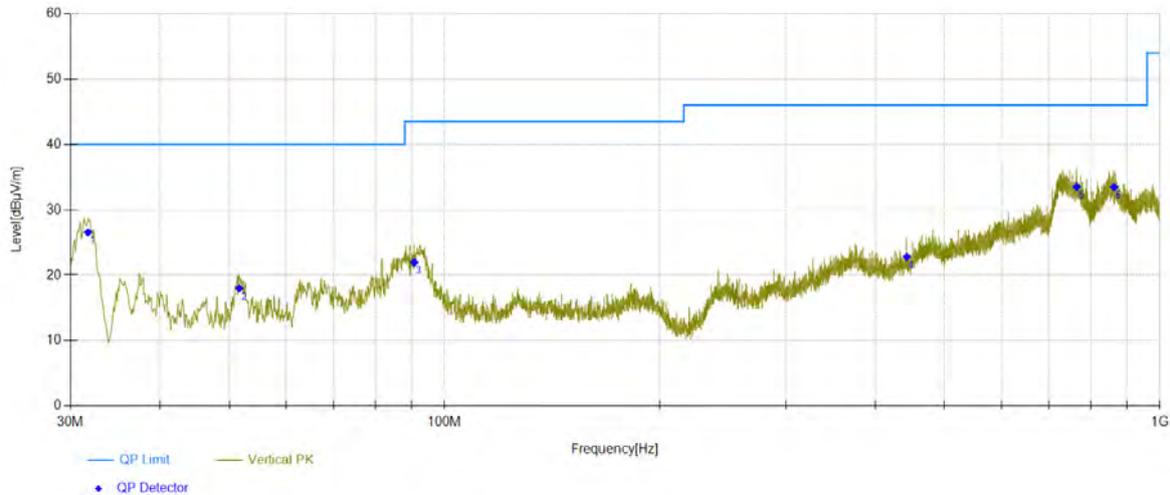


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Data List								
NO.	Frequency [MHz]	Reading [dBµV]	Factor [dB]	AF [dB/m]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Polarity
1	31.7462	43.02	-25.36	8.88	26.54	40.00	13.46	Vertical
2	51.6332	31.98	-25.05	11.06	17.99	40.00	22.01	Vertical
3	90.7281	32.04	-24.46	14.36	21.94	43.50	21.56	Vertical
4	442.7763	26.81	-21.77	17.76	22.80	46.00	23.20	Vertical
5	765.2365	26.64	-20.93	27.79	33.50	46.00	12.50	Vertical
6	863.0223	27.23	-20.76	26.99	33.46	46.00	12.54	Vertical

### Remark:

- The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier gain. The basic equation with a sample calculation is as follows:  

$$\text{Value} = \text{Reading}(\text{dB}\mu\text{V}) + \text{AF}(\text{dB}/\text{m}) + \text{Factor}(\text{dB})$$

$$\text{AF} = \text{Antenna Factor}(\text{dB}/\text{m})$$

$$\text{Factor} = \text{Cable Factor}(\text{dB}) - \text{Preamplifier gain}(\text{dB})$$

$$\text{Margin} = \text{Limit}(\text{dB}\mu\text{V}/\text{m}) - \text{Value}(\text{dB}\mu\text{V}/\text{m})$$
- All channels have been tested, but only the worst case data displayed in this report.



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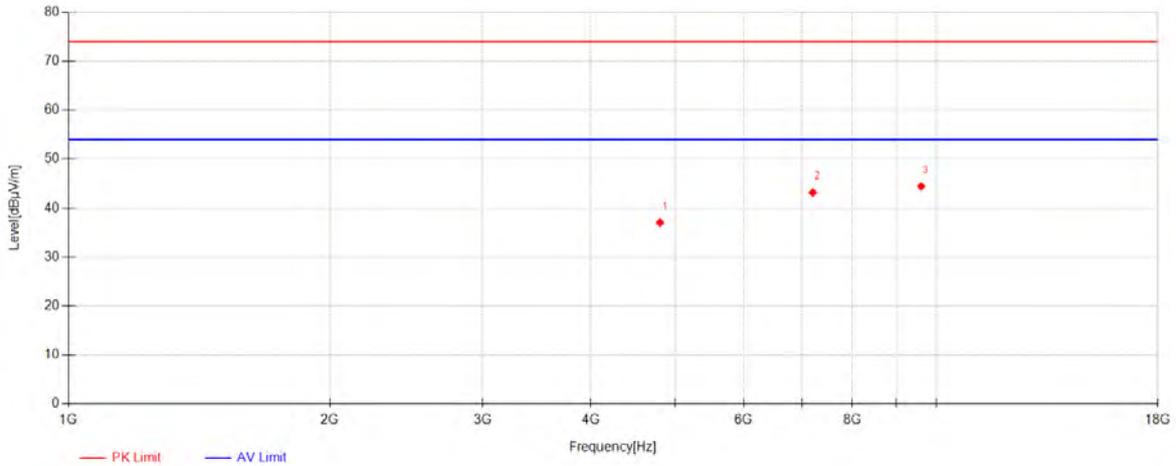
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**Transmitter emission Above 1GHz**

**802.BLE\_1M\_Channel 00**



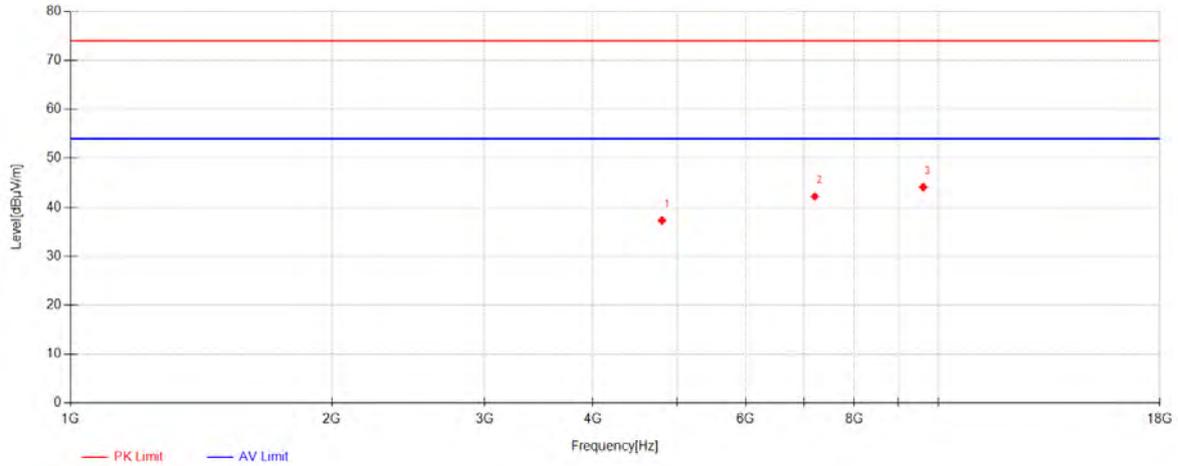
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	4804.0000	53.23	30.93	-47.10	37.06	74.00	36.94	Horizontal
2	7206.0000	52.51	36.05	-45.37	43.19	74.00	30.81	Horizontal
3	9608.0000	48.90	37.50	-41.97	44.43	74.00	29.57	Horizontal



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**802.BLE\_1M\_Channel 00**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	4804.0000	53.49	30.93	-47.10	37.32	74.00	36.68	Vertical
2	7206.0000	51.51	36.05	-45.37	42.19	74.00	31.81	Vertical
3	9608.0000	48.56	37.50	-41.97	44.09	74.00	29.91	Vertical

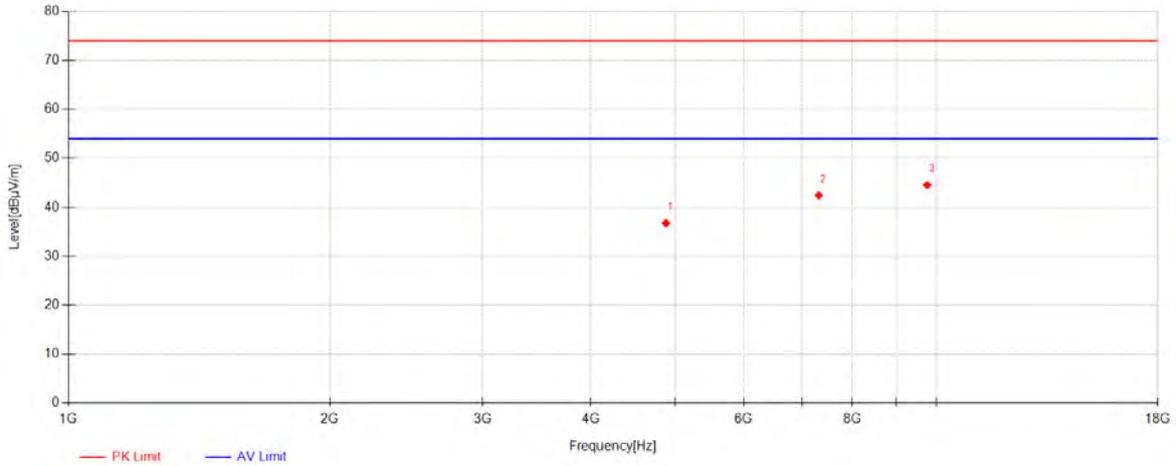


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**802.BLE\_1M\_Channel 19**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	4880.0000	52.67	31.11	-47.01	36.77	74.00	37.23	Horizontal
2	7320.0000	51.65	36.18	-45.41	42.42	74.00	31.58	Horizontal
3	9760.0000	48.04	37.85	-41.36	44.53	74.00	29.47	Horizontal

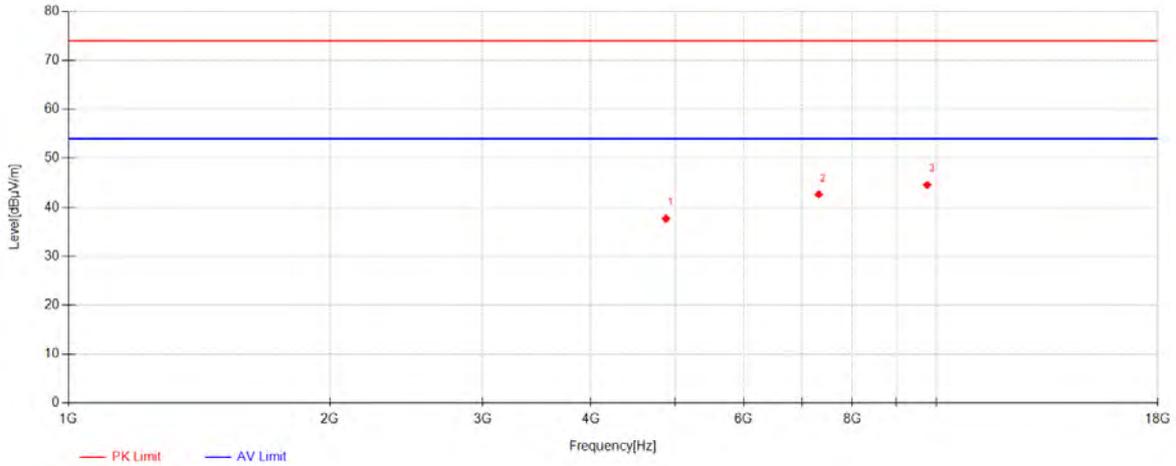


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**802.BLE\_1M\_Channel 19**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	4880.0000	53.56	31.11	-47.01	37.66	74.00	36.34	Vertical
2	7320.0000	51.86	36.18	-45.41	42.63	74.00	31.37	Vertical
3	9760.0000	48.05	37.85	-41.36	44.54	74.00	29.46	Vertical

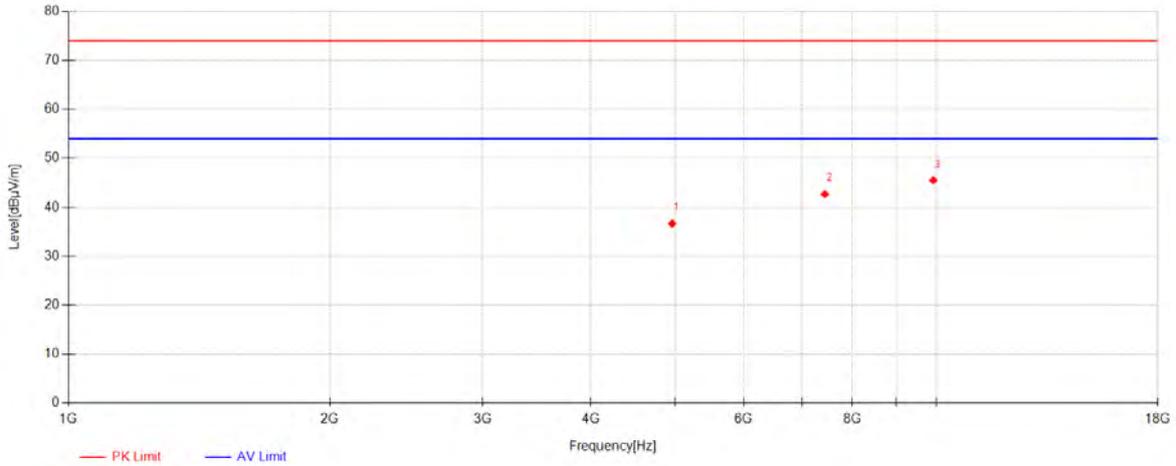


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**802.BLE\_1M\_Channel 39**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	4960.0000	52.47	31.31	-47.11	36.67	74.00	37.33	Horizontal
2	7440.0000	51.44	36.33	-45.08	42.69	74.00	31.31	Horizontal
3	9920.0000	48.07	38.22	-40.79	45.50	74.00	28.50	Horizontal



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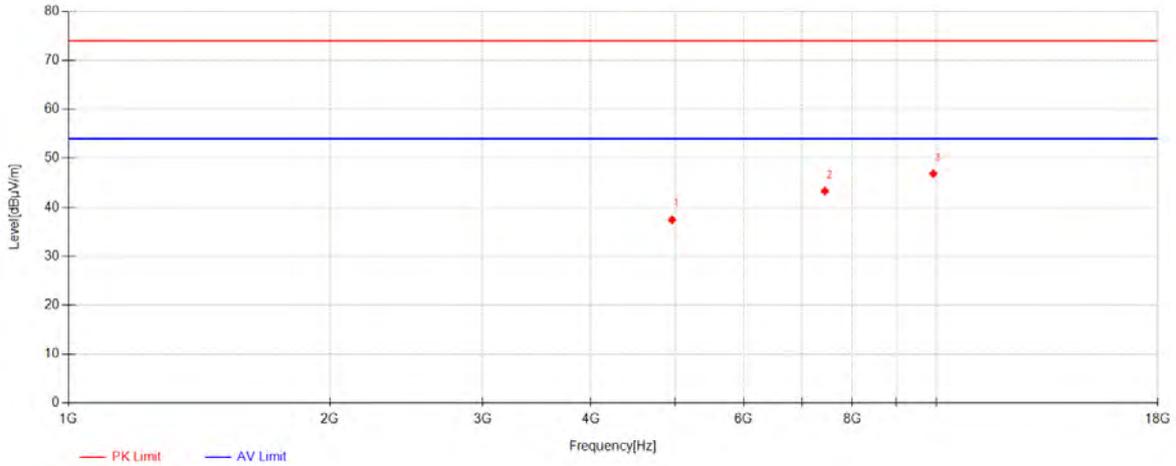
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**802.BLE\_1M\_Channel 39**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	4960.0000	53.23	31.31	-47.11	37.43	74.00	36.57	Vertical
2	7440.0000	52.06	36.33	-45.08	43.31	74.00	30.69	Vertical
3	9920.0000	49.40	38.22	-40.79	46.83	74.00	27.17	Vertical

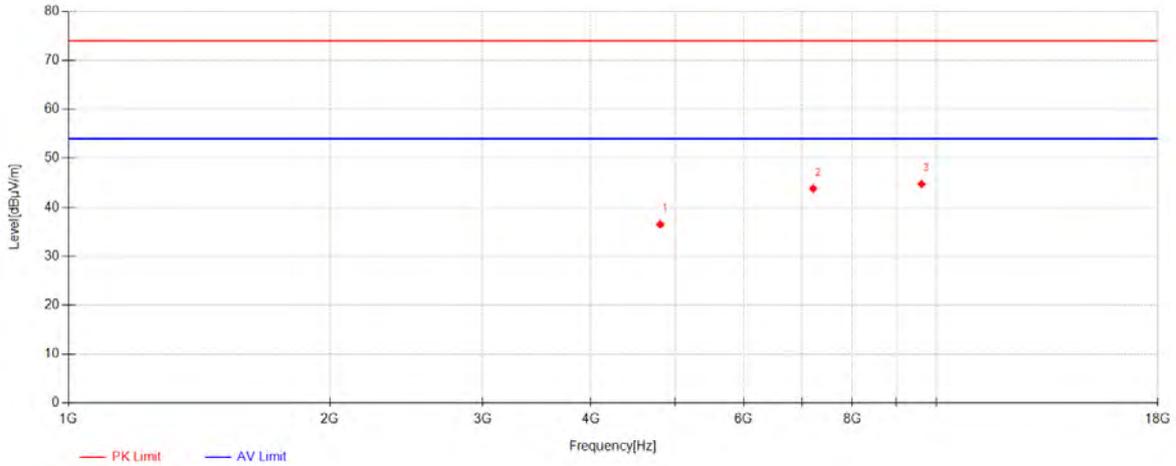


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**802.BLE\_2M\_Channel 01**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	4808.0000	52.68	30.94	-47.10	36.52	74.00	37.48	Horizontal
2	7212.0000	53.15	36.05	-45.38	43.82	74.00	30.18	Horizontal
3	9616.0000	49.16	37.52	-41.94	44.74	74.00	29.26	Horizontal



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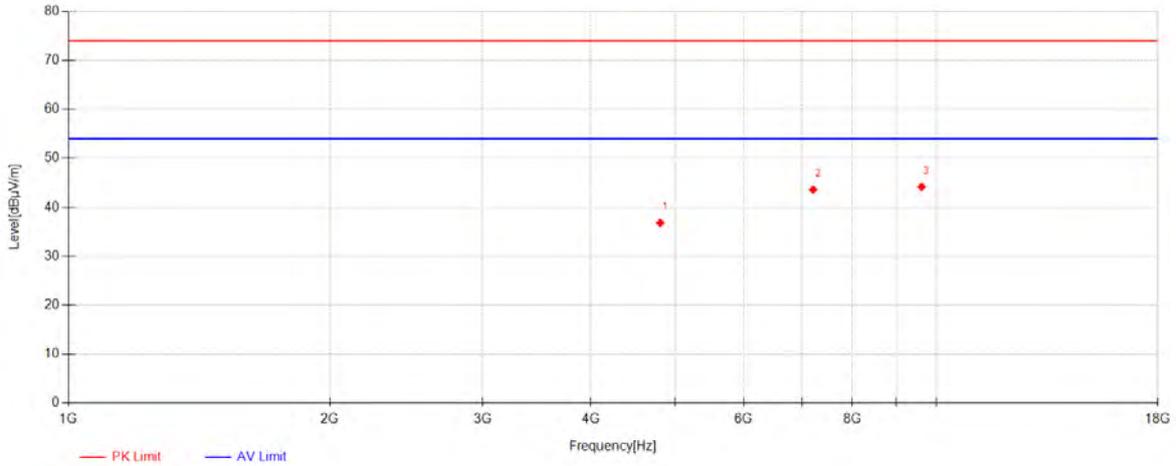
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**802.BLE\_2M\_Channel 01**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	4808.0000	52.99	30.94	-47.10	36.83	74.00	37.17	Vertical
2	7212.0000	52.91	36.05	-45.38	43.58	74.00	30.42	Vertical
3	9616.0000	48.58	37.52	-41.94	44.16	74.00	29.84	Vertical



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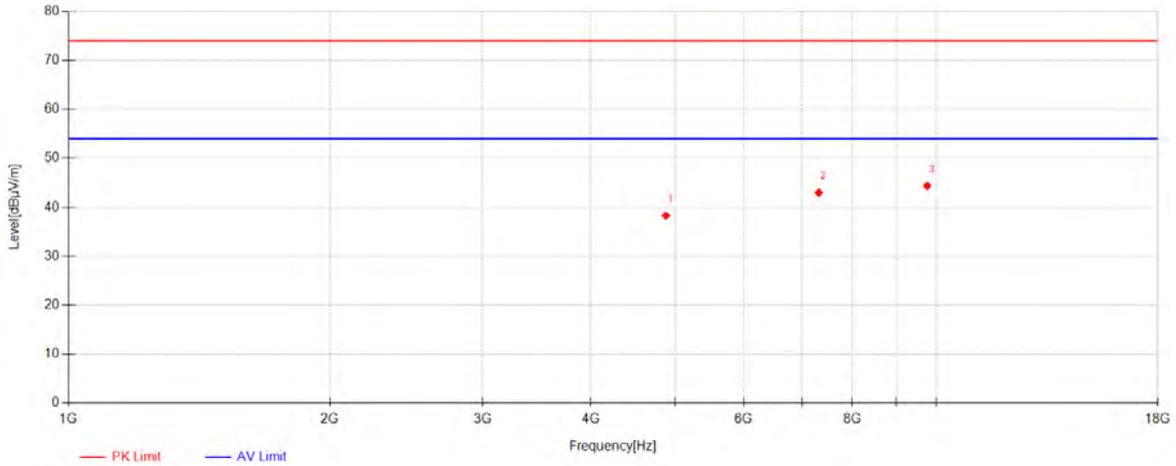
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**802.BLE\_2M\_Channel 19**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	4880.0000	54.19	31.11	-47.01	38.29	74.00	35.71	Horizontal
2	7320.0000	52.22	36.18	-45.41	42.99	74.00	31.01	Horizontal
3	9760.0000	47.86	37.85	-41.36	44.35	74.00	29.65	Horizontal



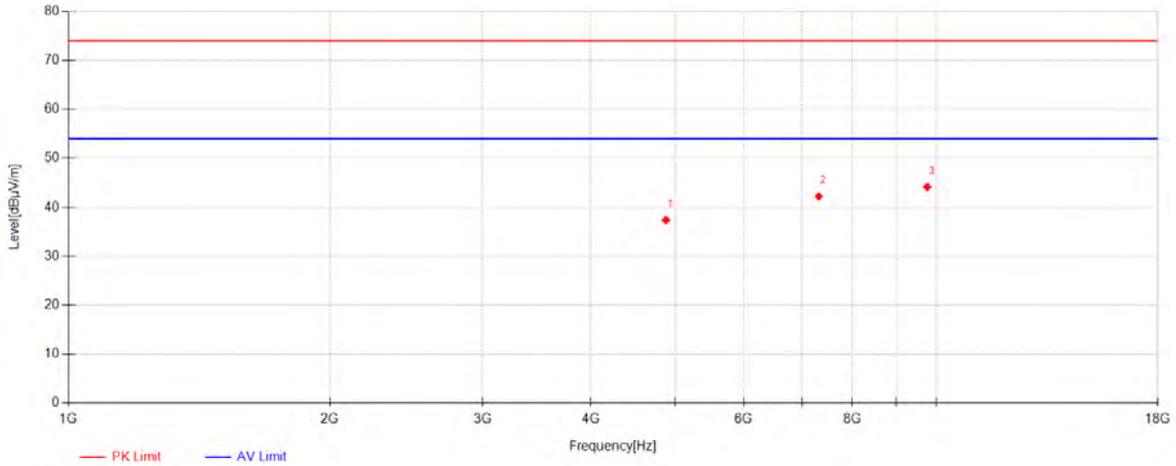
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**802.BLE\_2M\_Channel 19**

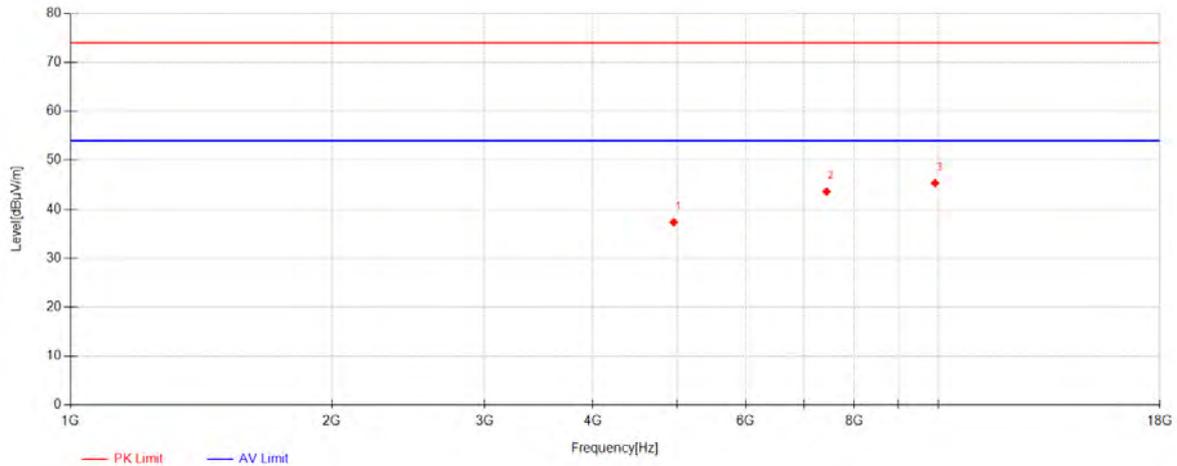


Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	4880.0000	53.31	31.11	-47.01	37.41	74.00	36.59	Vertical
2	7320.0000	51.44	36.18	-45.41	42.21	74.00	31.79	Vertical
3	9760.0000	47.64	37.85	-41.36	44.13	74.00	29.87	Vertical



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**802.BLE\_2M\_Channel 38**


Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	4956.0000	53.17	31.29	-47.10	37.36	74.00	36.64	Horizontal
2	7434.0000	52.35	36.32	-45.08	43.59	74.00	30.41	Horizontal
3	9912.0000	47.86	38.20	-40.73	45.33	74.00	28.67	Horizontal

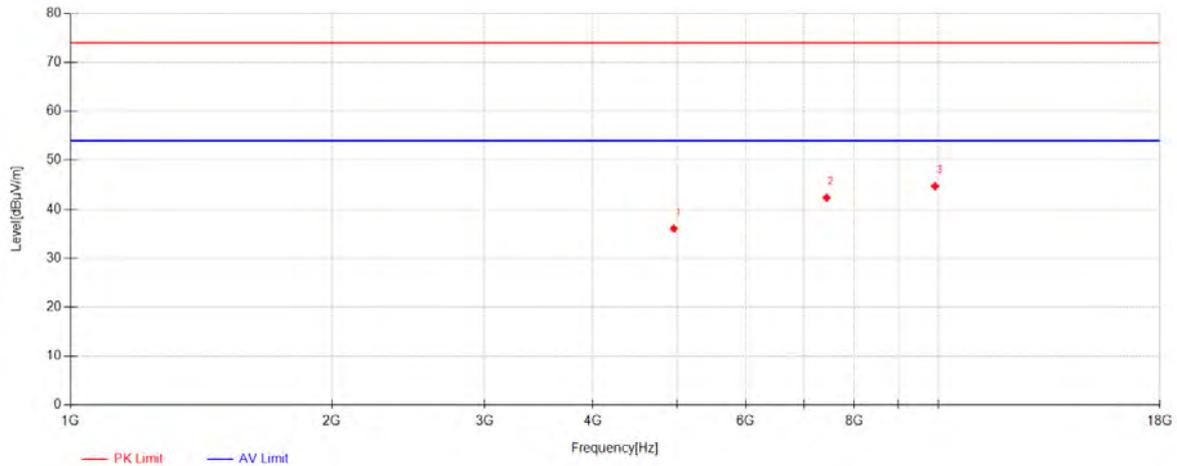


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**802.BLE\_2M\_Channel 38**


Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	4956.0000	51.85	31.29	-47.10	36.04	74.00	37.96	Vertical
2	7434.0000	51.10	36.32	-45.08	42.34	74.00	31.66	Vertical
3	9912.0000	47.24	38.20	-40.73	44.71	74.00	29.29	Vertical

**Remark:**

- The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier gain. The basic equation with a sample calculation is as follows:  
 Level = Reading(dBµV) + AF(dB/m) + Factor(dB):  
 AF = Antenna Factor(dB/m)  
 Factor = Cable Factor(dB) - Preamplifier gain(dB)  
 Margin = Limit(dBµV/m) – Level(dBµV/m)
- All channels have been tested, but only the worst case data displayed in this report.
- Both peak and average measured complies with the limit line, so test result is "PASS"



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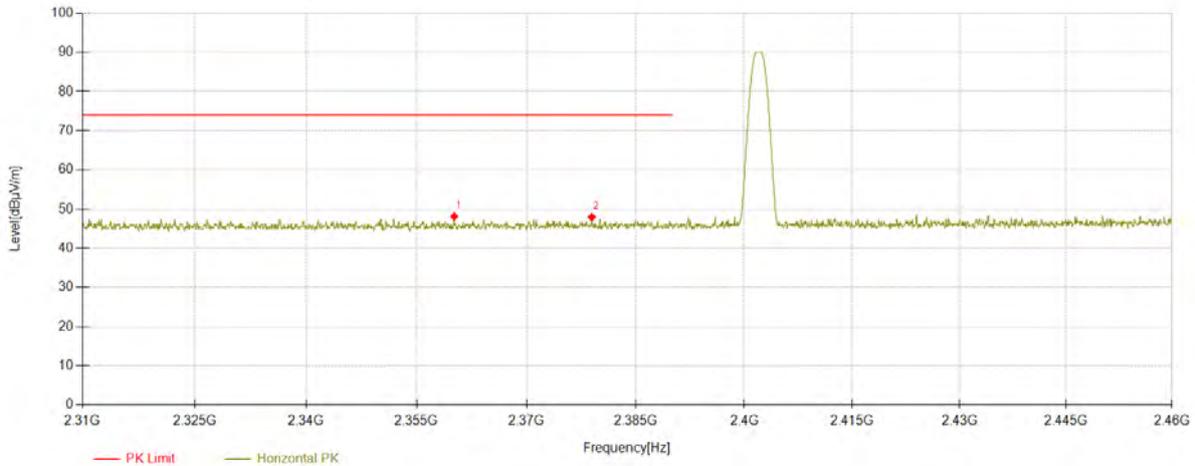
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**Restricted bands around fundamental frequency**

**802.BLE\_1M\_Channel 00**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2360.1251	46.85	27.06	-25.76	48.15	74.00	25.85	Horizontal
2	2378.9595	46.59	27.11	-25.72	47.98	74.00	26.02	Horizontal



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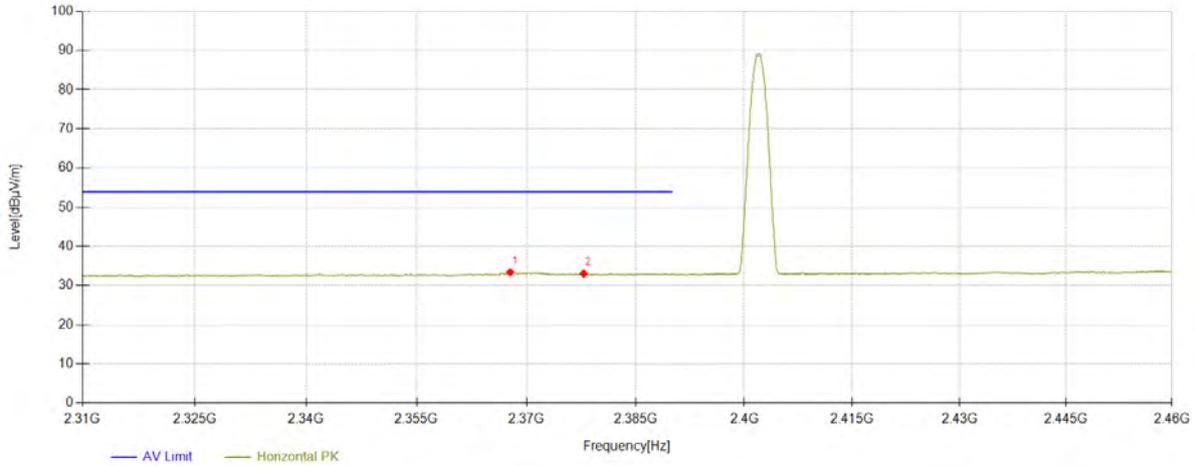
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**802.BLE\_1M\_Channel 00**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2367.7789	32.05	27.08	-25.75	33.38	54.00	20.62	Horizontal
2	2377.8339	31.65	27.11	-25.73	33.03	54.00	20.97	Horizontal



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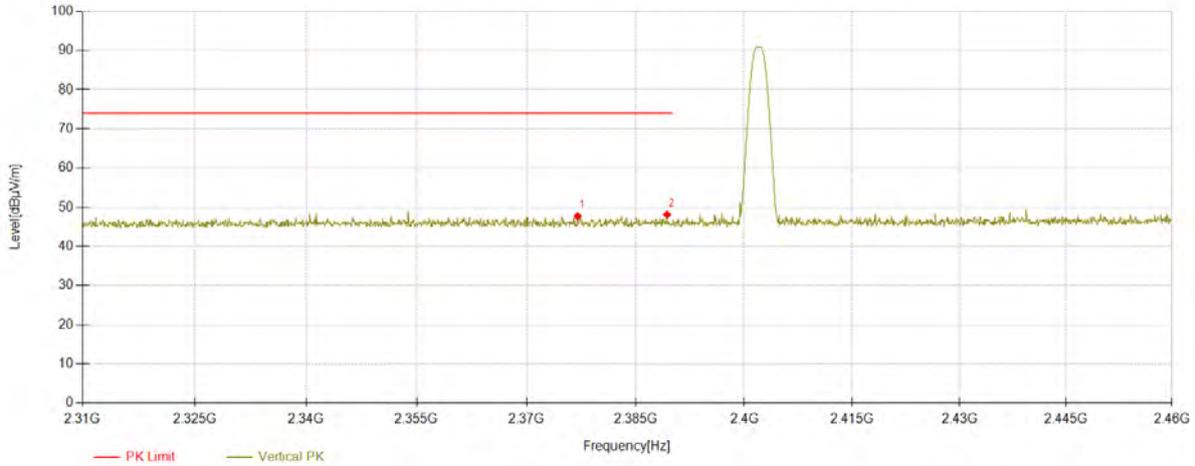
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**802.BLE\_1M\_Channel 00**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2377.0085	46.31	27.10	-25.73	47.68	74.00	26.32	Vertical
2	2389.3147	46.71	27.13	-25.70	48.14	74.00	25.86	Vertical



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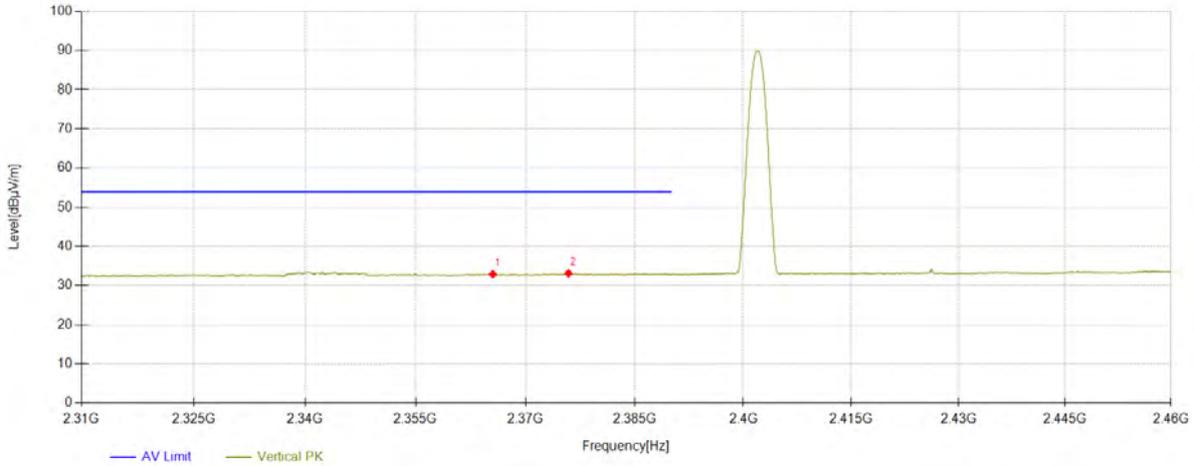
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**802.BLE\_1M\_Channel 00**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2365.5278	31.56	27.08	-25.75	32.89	54.00	21.11	Vertical
2	2375.8829	31.75	27.10	-25.73	33.12	54.00	20.88	Vertical



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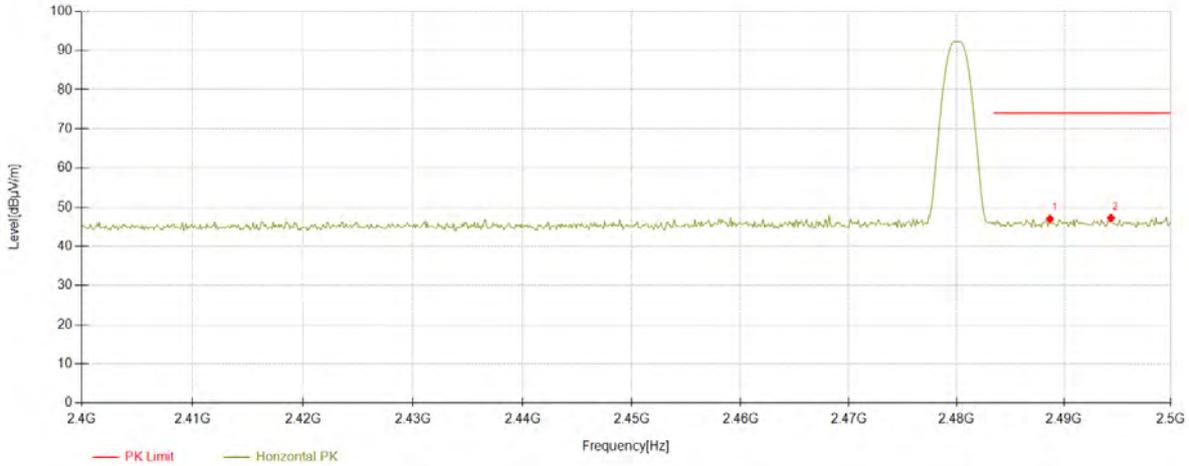
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**802.BLE\_1M\_Channel 39**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2488.7	44.75	27.37	-25.11	47.01	74.00	26.99	Horizontal
2	2494.4	44.95	27.39	-25.08	47.26	74.00	26.74	Horizontal



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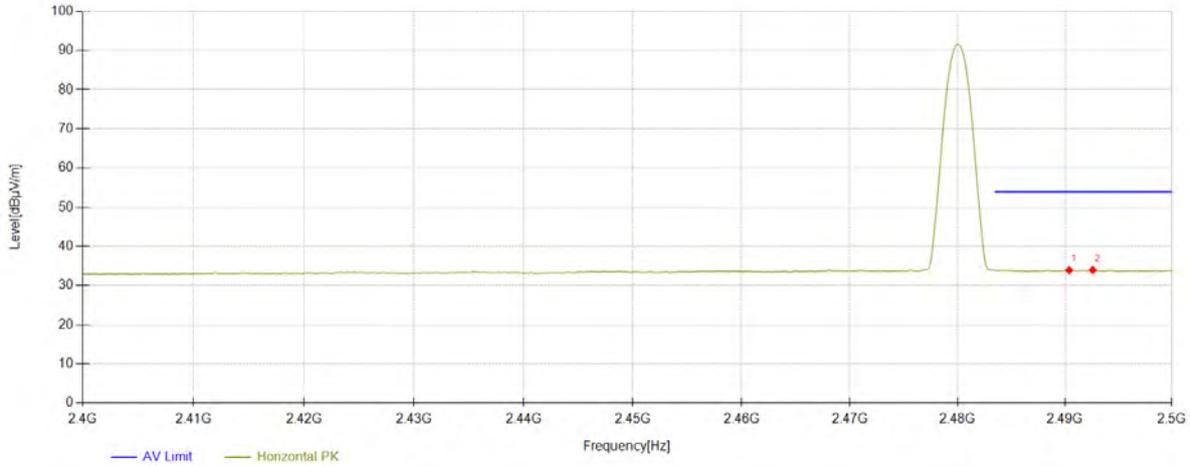
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**802.BLE\_1M\_Channel 39**

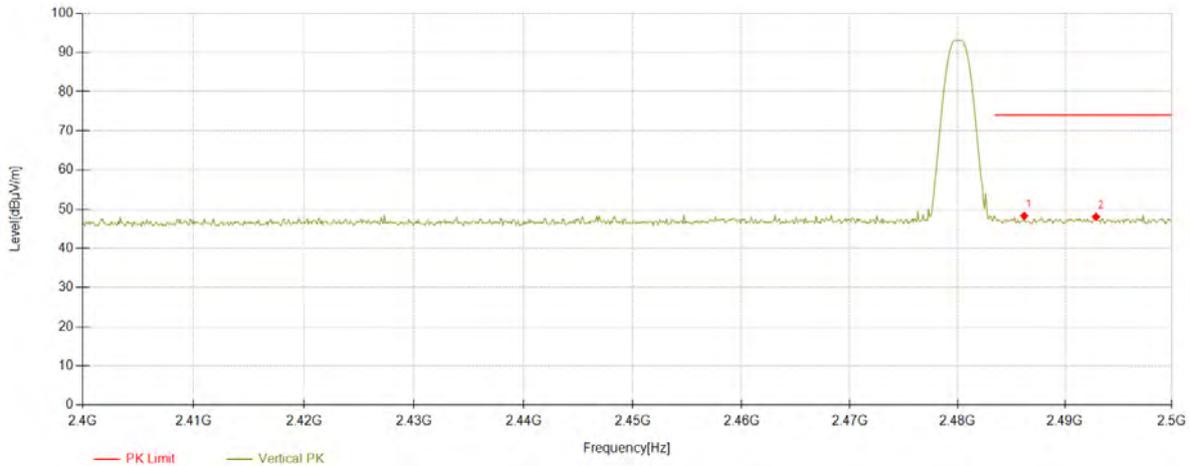


Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2490.4	31.67	27.38	-25.10	33.95	54.00	20.05	Horizontal
2	2492.6	31.70	27.38	-25.09	33.99	54.00	20.01	Horizontal



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**802.BLE\_1M\_Channel 39**


Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2486.2	46.09	27.37	-25.13	48.33	74.00	25.67	Vertical
2	2492.9	45.79	27.38	-25.09	48.08	74.00	25.92	Vertical



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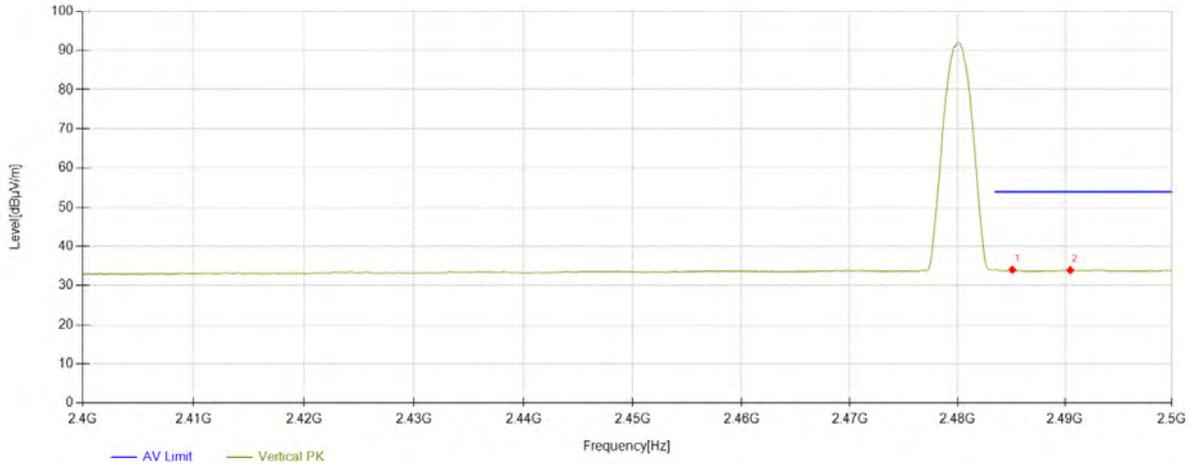
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**802.BLE\_1M\_Channel 39**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2485.1	31.83	27.36	-25.14	34.05	54.00	19.95	Vertical
2	2490.5	31.65	27.38	-25.10	33.93	54.00	20.07	Vertical



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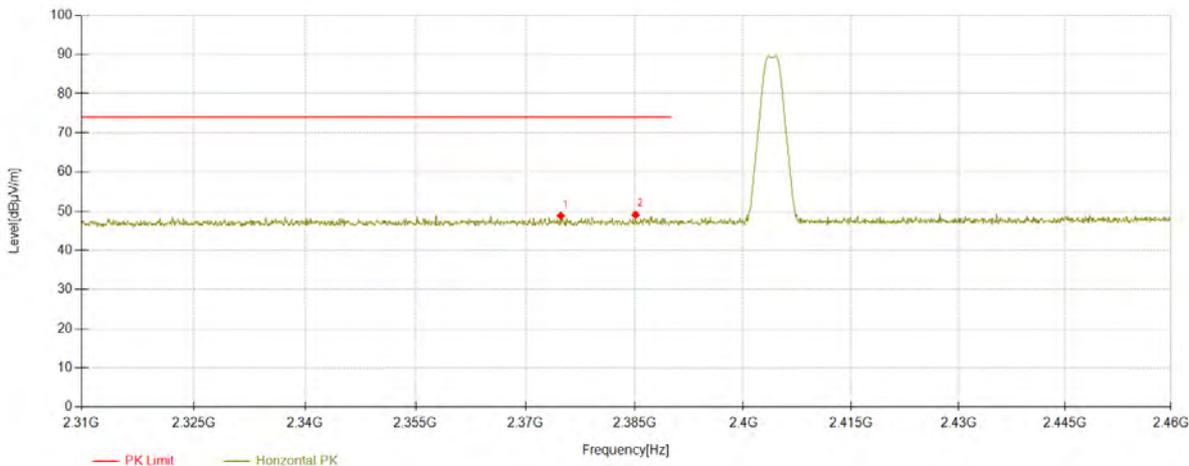
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**802.BLE\_2M\_Channel 01**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2374.8324	47.48	27.10	-25.73	48.85	74.00	25.15	Horizontal
2	2385.1126	47.71	27.12	-25.71	49.12	74.00	24.88	Horizontal



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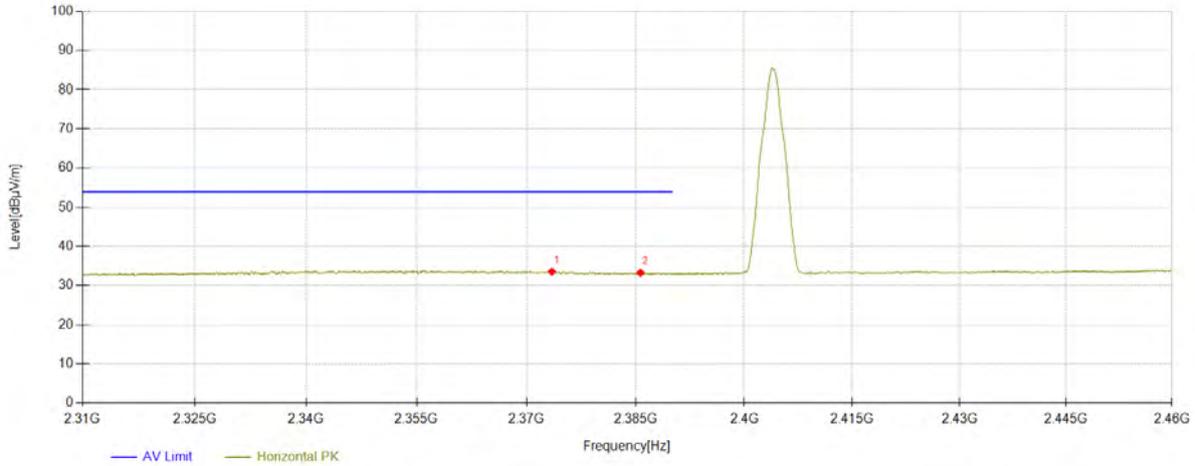
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**802.BLE\_2M\_Channel 01**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2373.4817	32.21	27.10	-25.74	33.57	54.00	20.43	Horizontal
2	2385.6378	31.85	27.13	-25.71	33.27	54.00	20.73	Horizontal



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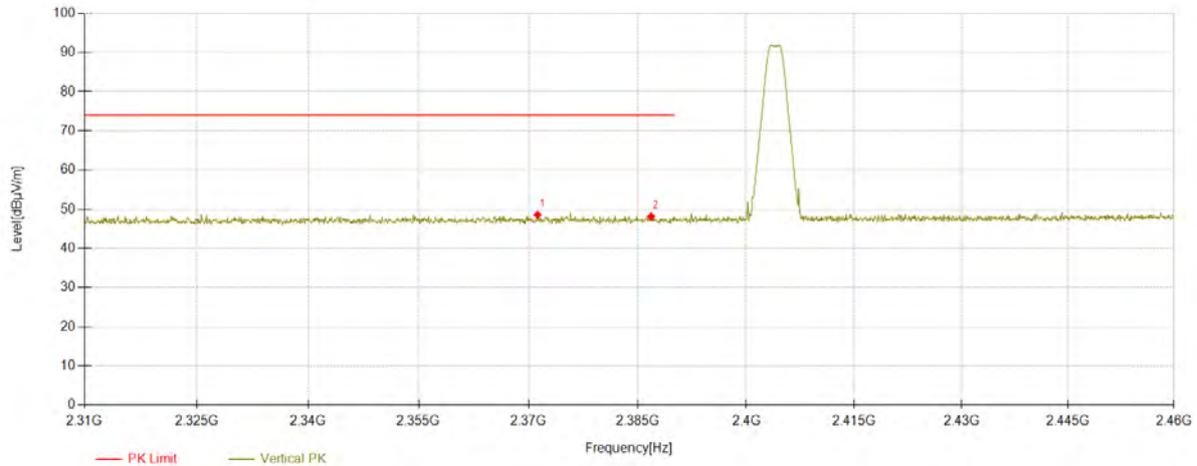
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## 802.BLE\_2M\_Channel 01



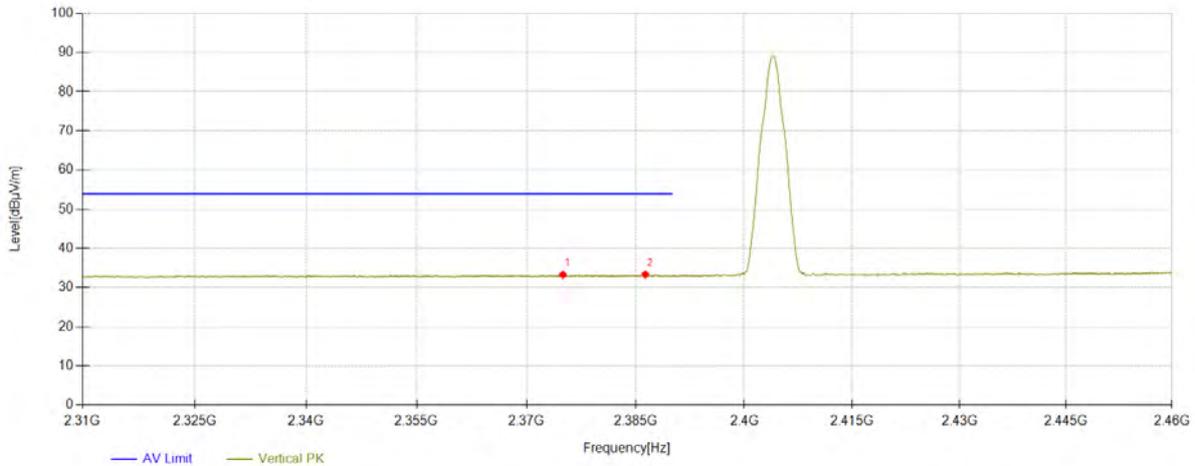
Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2371.2306	47.24	27.09	-25.74	48.59	74.00	25.41	Vertical
2	2386.8384	46.74	27.13	-25.71	48.16	74.00	25.84	Vertical



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**802.BLE\_2M\_Channel 01**


Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2374.9825	31.91	27.10	-25.73	33.28	54.00	20.72	Vertical
2	2386.3132	31.92	27.13	-25.71	33.34	54.00	20.66	Vertical

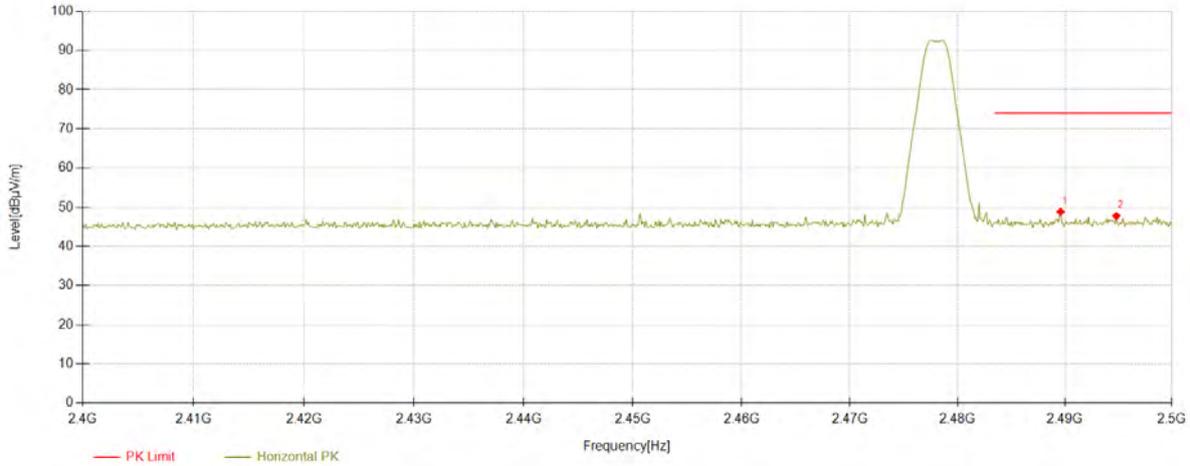




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**802.BLE\_2M\_Channel 38**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2489.6	46.58	27.38	-25.11	48.85	74.00	25.15	Horizontal
2	2494.8	45.45	27.39	-25.07	47.77	74.00	26.23	Horizontal



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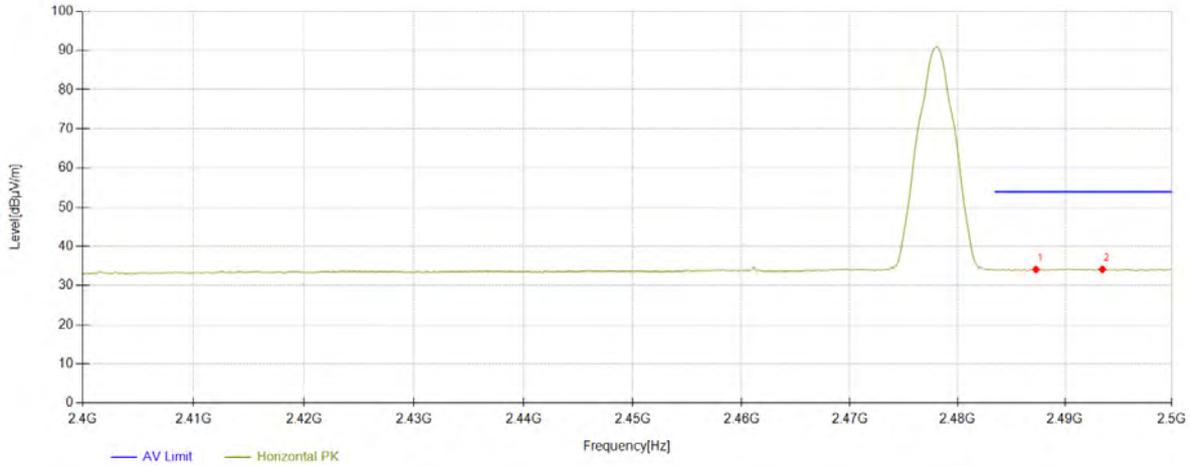
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**802.BLE\_2M\_Channel 38**



Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2487.3	31.87	27.37	-25.12	34.12	54.00	19.88	Horizontal
2	2493.5	31.84	27.38	-25.08	34.14	54.00	19.86	Horizontal

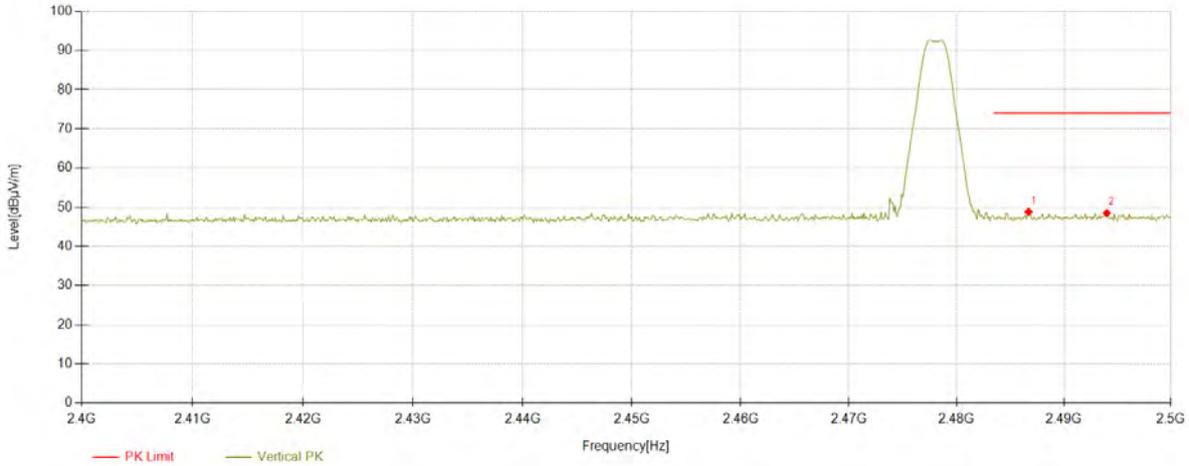


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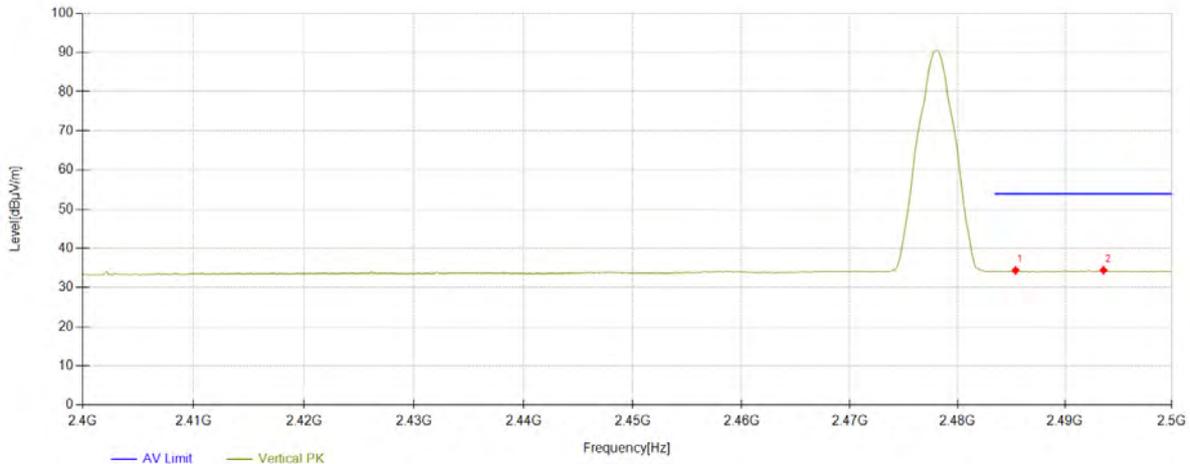


Data List								
NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2486.7	46.60	27.37	-25.13	48.84	74.00	25.16	Vertical
2	2494	46.20	27.39	-25.08	48.51	74.00	25.49	Vertical



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NO.	Frequency [MHz]	Reading [dBµV]	AF [dB/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity
1	2485.4	32.16	27.36	-25.13	34.39	54.00	19.61	Vertical
2	2493.6	32.12	27.38	-25.08	34.42	54.00	19.58	Vertical

**Remark:**

- The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier gain. The basic equation with a sample calculation is as follows:  

$$\text{Level} = \text{Reading}(\text{dB}\mu\text{V}) + \text{AF}(\text{dB}/\text{m}) + \text{Factor}(\text{dB})$$

$$\text{AF} = \text{Antenna Factor}(\text{dB}/\text{m})$$

$$\text{Factor} = \text{Cable Factor}(\text{dB}) - \text{Preamplifier gain}(\text{dB})$$

$$\text{Margin} = \text{Limit}(\text{dB}\mu\text{V}/\text{m}) - \text{Level}(\text{dB}\mu\text{V}/\text{m})$$
- Both peak and average measured complies with the limit line, so test result is "PASS"

---End of Report---



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