

TEST REPORT



Report No.: TW2206135E
File Reference No.: 2022-06-24
Applicant: Shenzhen Chenxi Electronic Technology Co., Ltd.
Product: Game Controller
Model No.: CX-X1, CX-269, CX-9038, CX-9116, CX-9115
Trademark: N/A
Test Standards: FCC Part 15.247

Test Result: It is herewith confirmed and found to comply with the requirements set up by ANSI C63.10, FCC Part 15.247 for the evaluation of electromagnetic compatibility

Approved By
Terry Tang

Terry Tang

Manager

Dated: June 24, 2022

Results appearing herein relate only to the sample tested
The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TESTING LABORATORIES

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China
Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com



Special Statement:

The testing quality ability of our laboratory meet with “Quality Law of People’s Republic of China” Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

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

CNAS-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 744189

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

Industry Canada (IC) —Registration No.:5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

A2LA (Certification Number:5013.01)

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

CAB identifier: CN0033

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1.0 General Details

1.1 Test Lab Details

Name : SHENZHEN TIMEWAY TESTING LABORATORIES.
Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China
Telephone: (755) 83448688
Fax: (755) 83442996

1.2 Applicant Details

Applicant: Shenzhen Chenxi Electronic Technology Co., Ltd.
Address: 401D, Building 3, Jiuyang Industrial Park, Fuhai Street, Bao'an Area, Shenzhen
Telephone: --
Fax: --

1.3 Description of EUT

Product: Game Controller
Manufacturer: Shenzhen Chenxi Electronic Technology Co., Ltd.
Address: 401D, Building 3, Jiuyang Industrial Park, Fuhai Street, Bao'an Area, Shenzhen
Trademark: N/A
Additional Trademark: N/A
Model Number: CX-X1
Additional Model Number: CX-269, CX-9038, CX-9116, CX-9115
Hardware Version: V1.0
Software Version: V100
Serial No.: CX-X1202206000001
Type of Modulation: GFSK (Bluetooth BLE)
Frequency range: 2402-2480MHz
Frequency Selection: By software
Channel Number: 40
Antenna: PCB antenna. The gain of the antennas is 0dBi (Declared by the applicant)
Rating: Input: DC5V, 0.5A
Battery: DC3.7V, 600mAh Li-ion battery

1.4 Submitted Sample: 1 Samples

1.5 Test Duration

2022-06-10 to 2022-06-24

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1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions below 1GHz Uncertainty =4.7dB

Radiated Emissions above 1GHz Uncertainty =6.0dB

Conducted Power Uncertainty =6.0dB

Occupied Channel Bandwidth Uncertainty =5%

Note: The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

1.7 Test Engineer

Andy Xing

The sample tested by _____

Print Name: Andy Xing



2.0 Test Equipment					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2022-06-17	2023-06-16
LISN	R&S	EZH3-Z5	100294	2022-06-17	2023-06-16
LISN	R&S	EZH3-Z5	100253	2022-06-17	2023-06-16
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2022-06-17	2023-06-16
Loop Antenna	EMCO	6507	00078608	2022-06-17	2023-06-16
Spectrum	R&S	FSIQ26	100292	2022-06-17	2023-06-16
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2022-06-17	2023-06-16
Horn Antenna	R&S	BBHA 9120D	9120D-631	2021-07-02	2024-07-01
Power meter	Anritsu	ML2487A	6K00003613	2022-06-17	2023-06-16
Power sensor	Anritsu	MA2491A	32263	2022-06-17	2023-06-16
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2021-07-02	2024-07-01
9*6*6 Anechoic	--	--	N/A	2021-07-02	2022-07-01
EMI Test Receiver	RS	ESVB	826156/011	2022-06-17	2023-06-16
EMI Test Receiver	RS	ESH3	860904/006	2022-06-17	2023-06-16
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2022-06-17	2023-06-16
Spectrum	HP/Agilent	E4407B	MY50441392	2022-06-17	2023-06-16
Spectrum	RS	FSP	1164.4391.38	2022-01-14	2023-01-13
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/F A	--	2022-06-17	2023-06-16
RF Cable	Zhengdi	7m	--	2022-06-17	2023-06-16
RF Switch	EM	EMSW18	060391	2022-06-17	2023-06-16
Pre-Amplifier	Schwarebeck	BBV9743	#218	2022-06-17	2023-06-16
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2022-06-17	2023-06-16
LISN	SCHAFFNER	NNB42	00012	2022-01-14	2023-01-13
2.4G band-pass filter	Micro-Tronics	BRM50701	SN-041	2022-06-17	2023-06-16

2.2 Automation Test Software

For Conducted Emission Test

Name	Version
EZ-EMC	Ver.EMC-CON 3A1.1

For Radiated Emissions

Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

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3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:			
Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.203	Antenna Requirement	Pass	Complies
FCC Part 15, Paragraph 15.207	Conducted Emission Test	Pass	Complies
FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit	Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth>500kHz	Pass	Complies
FCC Part 15, Paragraph 15.247(b)	Maximum peak output power Limit: max. 30dBm	Pass	Complies
FCC Part 15, Paragraph 15.205 & 15.209	Transmitter Radiated Emission Limit: Table 15.209	Pass	Complies
FCC Part 15, Paragraph 15.247(e)	Power Spectral Density Limit: max. 8dBm/3kHz	Pass	Complies
FCC Part 15, Paragraph 15.247(d)	Out of Band Emission and Restricted Band Radiation Limit: 20dB less than peak value of fundamental frequency Restricted band limit: Table 15.209	Pass	Complies

3.2 Test Standards

FCC Part 15 Subpart & Subpart C, Paragraph 15.247

4.0 EUT Modification

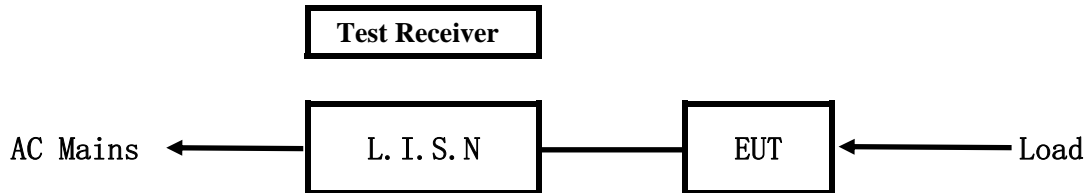
No modification by SHENZHEN TIMEWAY TESTING LABORATORIES.

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5. Power Line Conducted Emission Test

5.1 Schematics of the test



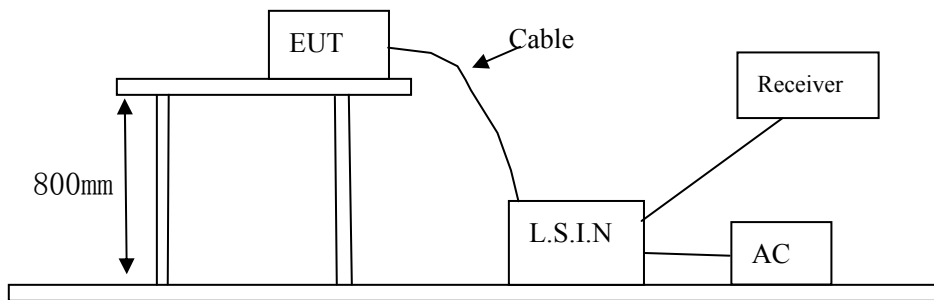
EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10-2013.

Test Voltage: 120V~, 60Hz

Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model	FCC ID
Game Controller	Shenzhen Chenxi Electronic Technology Co., Ltd.	CX-X1, CX-269, CX-9038, CX-9116, CX-9115	2A6BTCX-X1

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B. Internal Device

Device	Manufacturer	Model	Rating

C. Peripherals

Device	Manufacturer	Model	Rating
Power Supply	KEYU	KA23-0502000DEU	Input: 100-240V~, 50/60Hz, 0.35A; Output: DC5V, 2A

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207

Frequency (MHz)	Limits (dB μ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66.0~56.0*	56.0~46.0*
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0

- Notes: 1. *Decreasing linearly with logarithm of frequency.
 2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.



A: Conducted Emission on Live Terminal (150kHz to 30MHz)

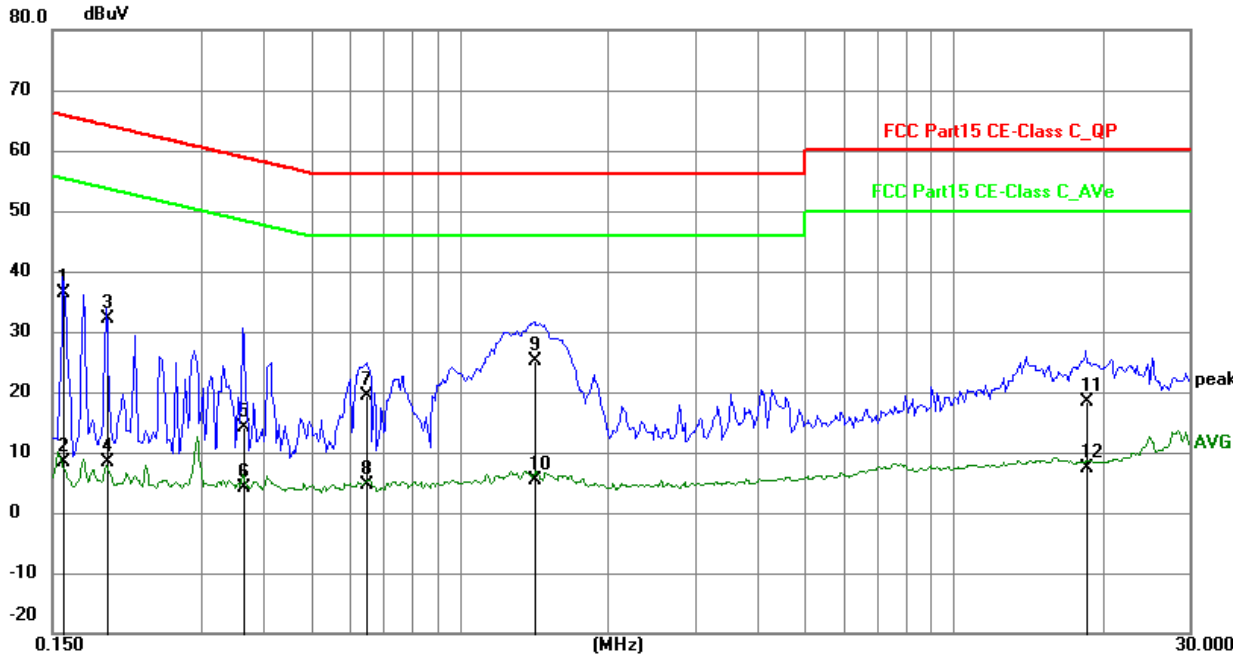
EUT Operating Environment

Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Keep Bluetooth Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1578	26.58	9.78	36.36	65.58	-29.22	QP	P
2	0.1578	-1.43	9.78	8.35	55.58	-47.23	AVG	P
3	0.1929	22.30	9.75	32.05	63.91	-31.86	QP	P
4	0.1929	-1.33	9.75	8.42	53.91	-45.49	AVG	P
5	0.3645	4.39	9.76	14.15	58.63	-44.48	QP	P
6	0.3645	-5.52	9.76	4.24	48.63	-44.39	AVG	P
7	0.6492	9.62	9.78	19.40	56.00	-36.60	QP	P
8	0.6492	-5.09	9.78	4.69	46.00	-41.31	AVG	P
9	1.4175	15.24	9.79	25.03	56.00	-30.97	QP	P
10	1.4175	-4.39	9.79	5.40	46.00	-40.60	AVG	P
11	18.6117	7.71	10.60	18.31	60.00	-41.69	QP	P
12	18.6117	-3.34	10.60	7.26	50.00	-42.74	AVG	P

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B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

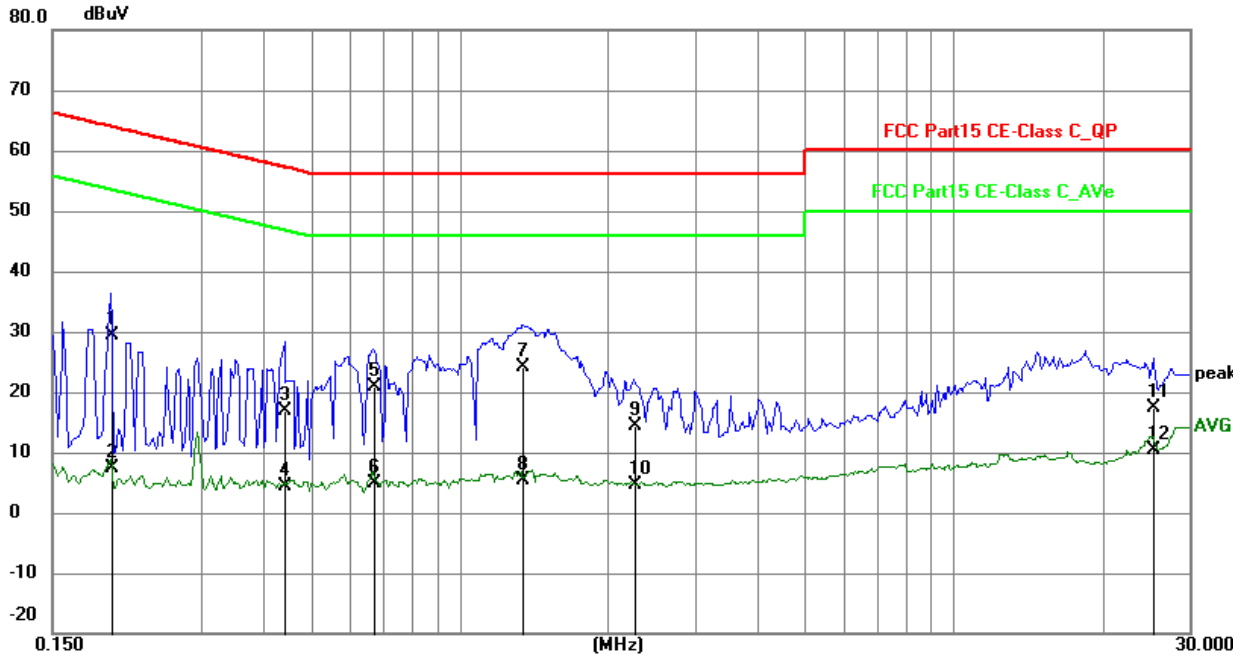
EUT Operating Environment

Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Keep Bluetooth Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1968	19.67	9.75	29.42	63.74	-34.32	QP	P
2	0.1968	-2.39	9.75	7.36	53.74	-46.38	AVG	P
3	0.4425	7.06	9.77	16.83	57.01	-40.18	QP	P
4	0.4425	-5.29	9.77	4.48	47.01	-42.53	AVG	P
5	0.6687	11.21	9.78	20.99	56.00	-35.01	QP	P
6	0.6687	-4.94	9.78	4.84	46.00	-41.16	AVG	P
7	1.3433	14.45	9.79	24.24	56.00	-31.76	QP	P
8	1.3433	-4.44	9.79	5.35	46.00	-40.65	AVG	P
9	2.2559	4.45	9.81	14.26	56.00	-41.74	QP	P
10	2.2559	-5.29	9.81	4.52	46.00	-41.48	AVG	P
11	25.3509	6.39	11.01	17.40	60.00	-42.60	QP	P
12	25.3509	-0.55	11.01	10.46	50.00	-39.54	AVG	P

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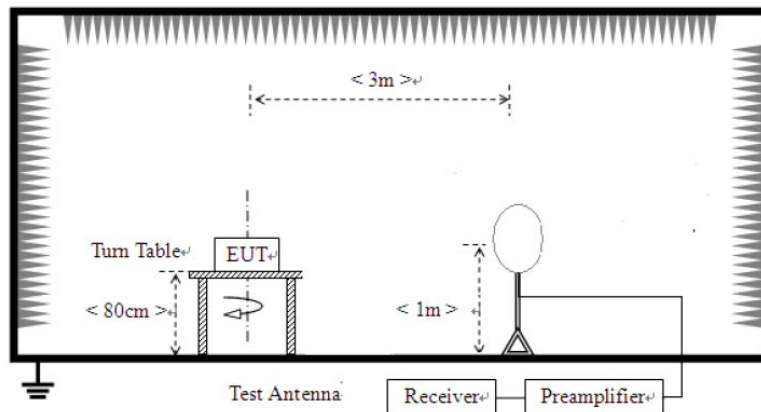
6 Radiated Emission Test

6.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No.744189
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=1MHz VBW=3MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a “QP” in the data table.
- (6) The antenna polarization: Vertical polarization and Horizontal polarization.

Block diagram of Test setup

For radiated emissions from 9kHz to 30MHz

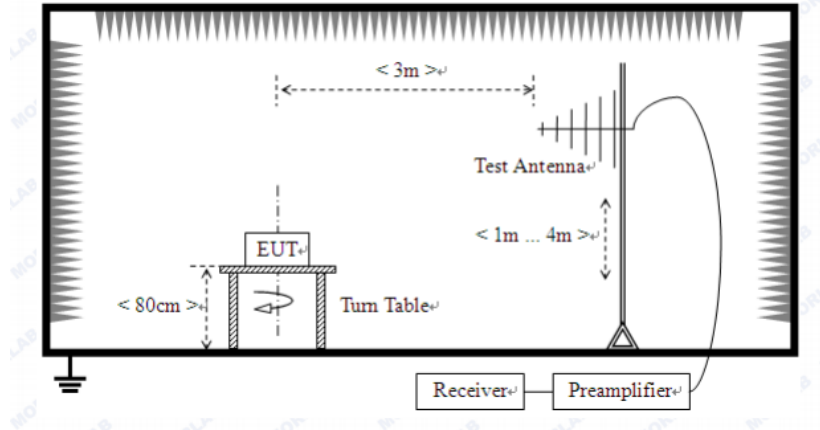


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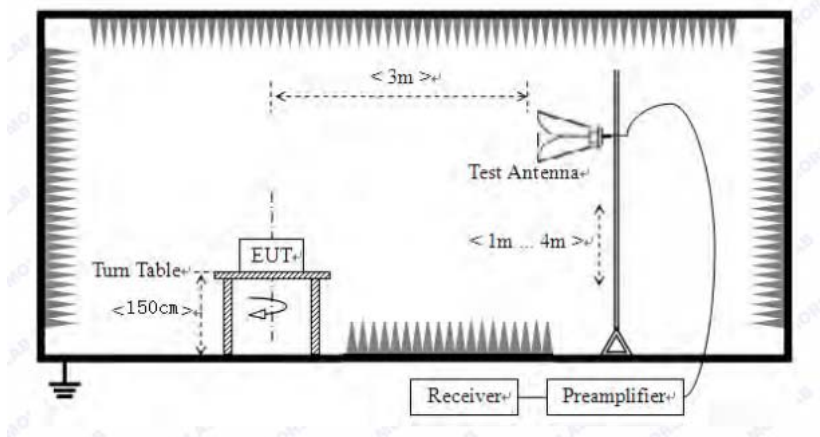
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For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



6.2 Configuration of The EUT

Same as section 5.3 of this report

6.3 EUT Operating Condition

Same as section 5.4 of this report.

6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

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Frequencies in restricted band are complied to limit on Paragraph 15.209

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
0.009-0.490	3	$20\log(2400/F(\text{kHz})) + 40\log(300/3)$
0.490-1.705	3	$20\log(24000/F(\text{kHz})) + 40\log(30/3)$
1.705-30	3	69.5
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

- Note:
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 2. In the Above Table, the tighter limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
 4. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK. For fundamental measurement, PK detector used.
 5. This is a handheld device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.
 6. For radiated emissions from 9kHz to 30MHz, the emission level is much less than the limit for more than 20dB. No necessary to take down the record.
 7. Battery full charged during tests.
 8. BLE-1M and 2M were tested and only the worst case was recorded. BLE-1M was the worst case.

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Test result

General Radiated Emission Data and Harmonics Radiated Emission Data

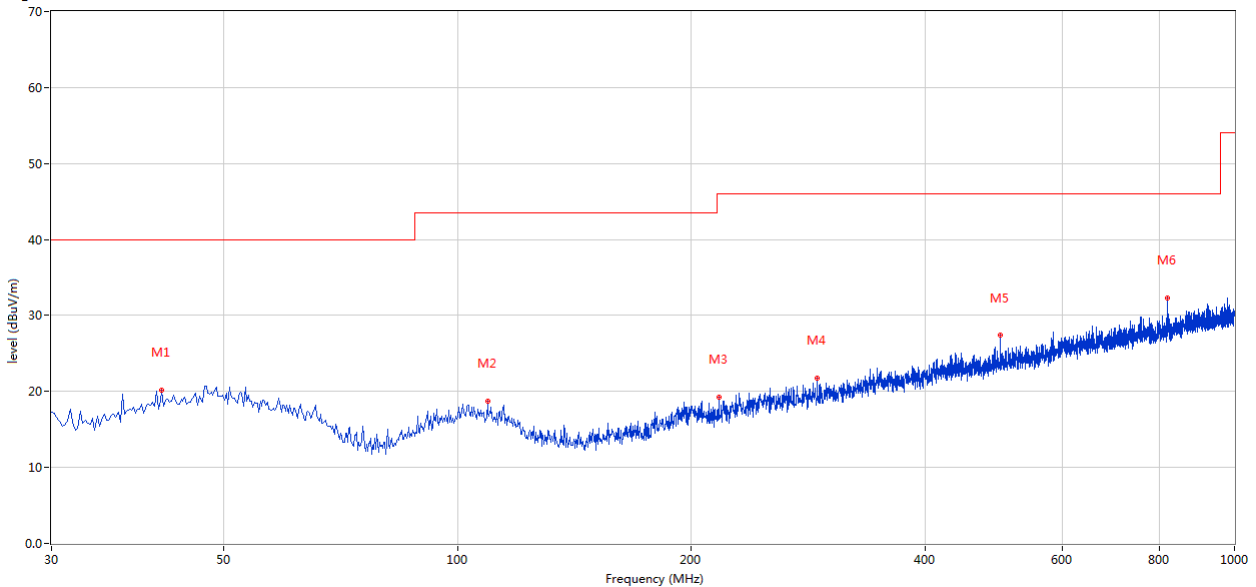
Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Bluetooth Transmitting

Results: Pass

Test Figure:

FCC_FCC Part 15C Class B 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	41.637	20.15	-11.82	40.0	-19.85	Peak	77.00	100	Horizontal	Pass
2	109.278	18.74	-13.56	43.5	-24.76	Peak	251.00	100	Horizontal	Pass
3	216.921	19.26	-13.51	46.0	-26.74	Peak	96.00	100	Horizontal	Pass
4	290.137	21.73	-11.22	46.0	-24.27	Peak	54.00	100	Horizontal	Pass
5	499.848	27.36	-6.90	46.0	-18.64	Peak	356.00	100	Horizontal	Pass
6	818.655	32.28	-2.86	46.0	-13.72	Peak	9.00	100	Horizontal	Pass

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Test result

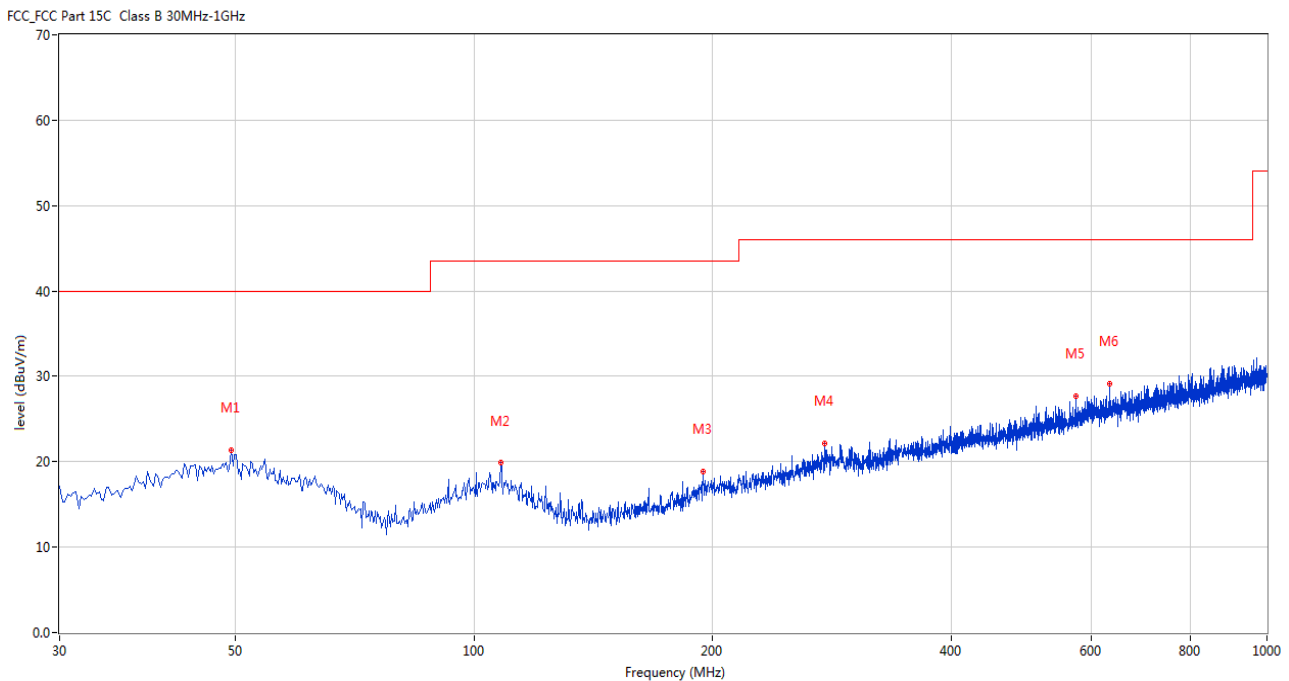
General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: **Keep Transmitting**

Results: Pass

Test Figure:



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	49.395	21.31	-11.28	40.0	-18.69	Peak	201.00	100	Vertical	Pass
2	108.065	19.85	-13.42	43.5	-23.65	Peak	351.00	100	Vertical	Pass
3	194.374	18.83	-13.83	43.5	-24.67	Peak	154.00	100	Vertical	Pass
4	277.046	22.14	-11.54	46.0	-23.86	Peak	101.00	100	Vertical	Pass
5	573.792	27.73	-5.84	46.0	-18.27	Peak	109.00	100	Vertical	Pass
6	633.917	29.20	-4.85	46.0	-16.80	Peak	259.00	100	Vertical	Pass

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Test result

General Radiated Emission Data and Harmonics Radiated Emission Data

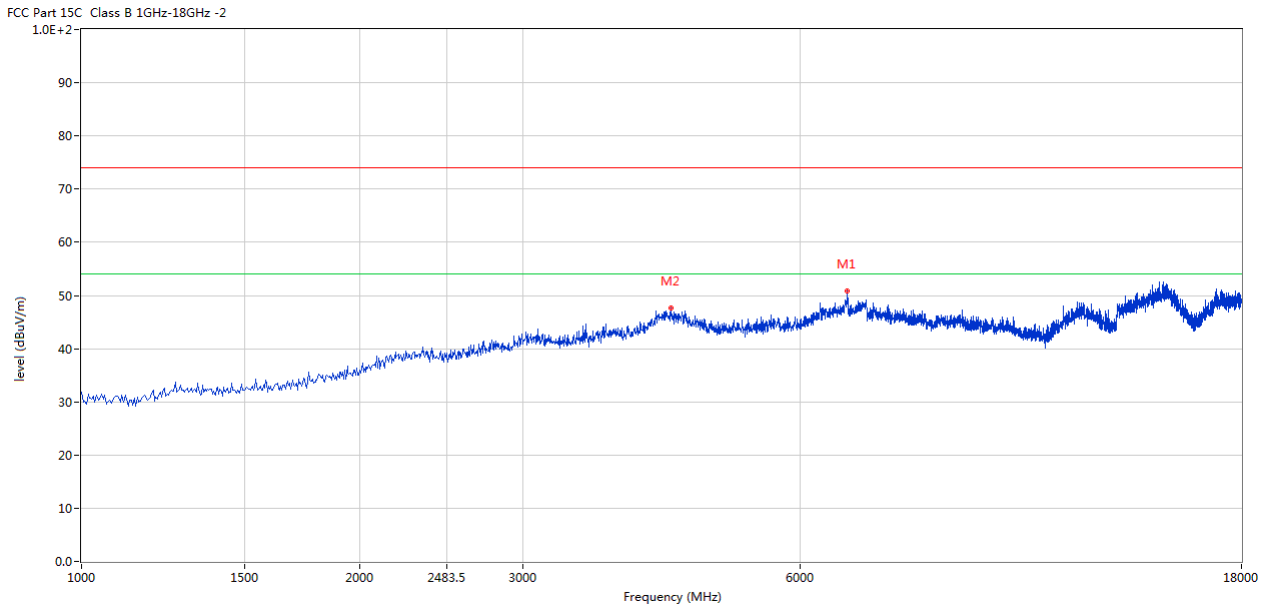
Radiated Emission In Horizontal (1000MHz----18000MHz)

EUT set Condition: Keep Bluetooth Transmitting

Test Channel: High Channel

Results: Pass

Test Figure:



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	6736.066	50.83	6.82	74.0	-23.17	Peak	0.00	100	Horizontal	Pass
2	4348.163	47.65	1.92	74.0	-26.35	Peak	0.00	100	Horizontal	Pass

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Test result

General Radiated Emission Data and Harmonics Radiated Emission Data

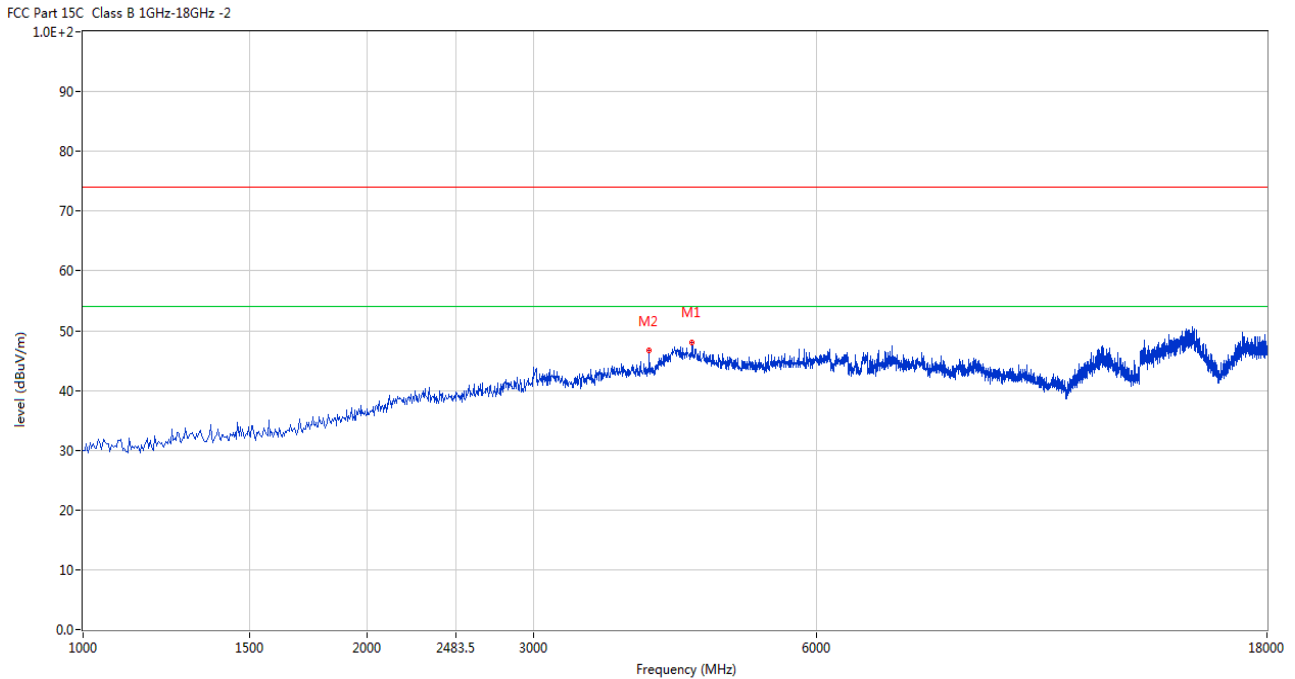
Radiated Emission In Vertical (1000MHz----18000MHz)

EUT set Condition: **Keep Transmitting**

Test Channel: **High Channel**

Results: **Pass**

Test Figure:



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	4420.395	48.09	2.04	74.0	-25.91	Peak	354.00	100	Vertical	Pass
2	3982.754	46.75	1.13	74.0	-27.25	Peak	319.00	100	Vertical	Pass

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Test result

General Radiated Emission Data and Harmonics Radiated Emission Data

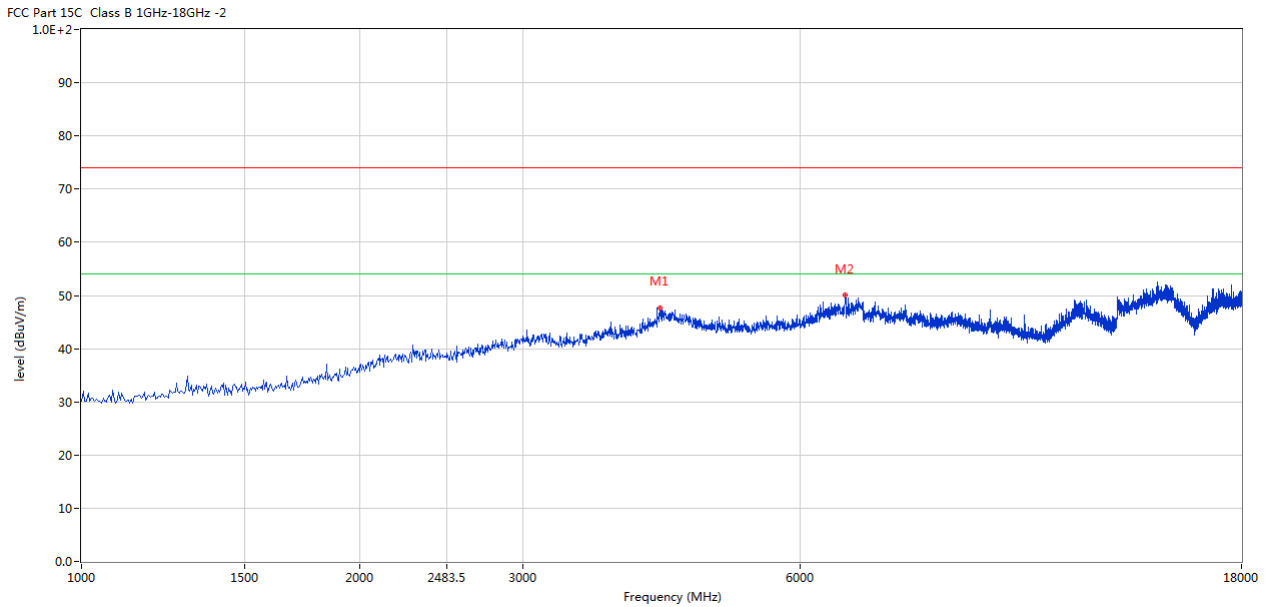
Radiated Emission In Horizontal (1000MHz----18000MHz)

EUT set Condition: Keep Bluetooth Transmitting

Test Channel: Middle Channel

Results: Pass

Test Figure:



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	4224.944	47.74	1.66	74.0	-26.26	Peak	349.00	100	Horizontal	Pass
2	6702.074	50.02	6.67	74.0	-23.98	Peak	344.00	100	Horizontal	Pass

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Test result

General Radiated Emission Data and Harmonics Radiated Emission Data

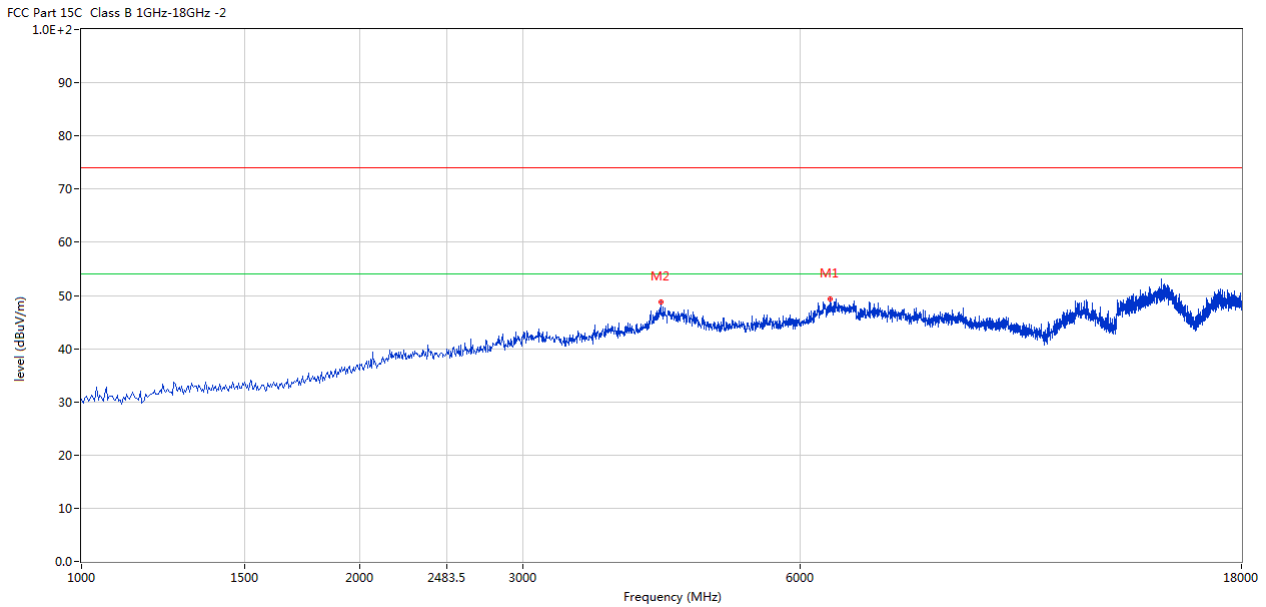
Radiated Emission In Vertical (1000MHz----18000MHz)

EUT set Condition: **Keep Transmitting**

Test Channel: **Middle Channel**

Results: **Pass**

Test Figure:



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	6451.387	49.35	5.57	74.0	-24.65	Peak	5.00	100	Vertical	Pass
2	4233.442	48.76	1.68	74.0	-25.24	Peak	38.00	100	Vertical	Pass

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Test result

General Radiated Emission Data and Harmonics Radiated Emission Data

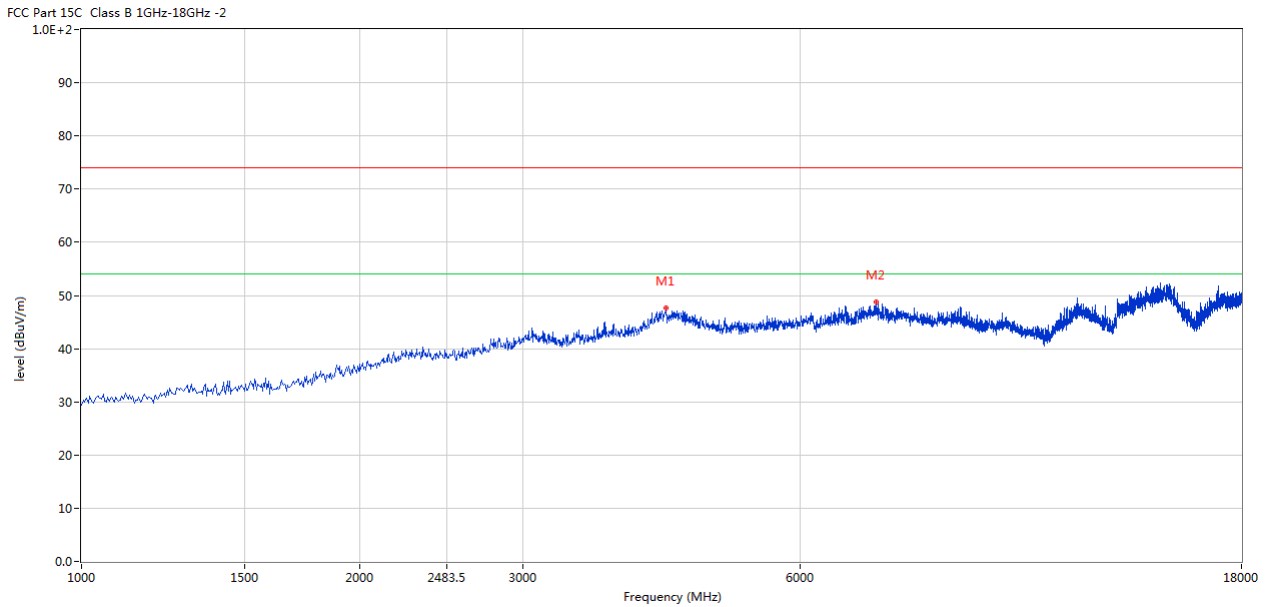
Radiated Emission In Horizontal (1000MHz----18000MHz)

EUT set Condition: Keep Bluetooth Transmitting

Test Channel: Low Channel

Results: Pass

Test Figure:



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	4292.927	47.73	1.82	74.0	-26.27	Peak	5.00	100	Horizontal	Pass
2	7007.998	51.83	8.01	74.0	-22.17	Peak	21.00	100	Horizontal	Pass

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Test result

General Radiated Emission Data and Harmonics Radiated Emission Data

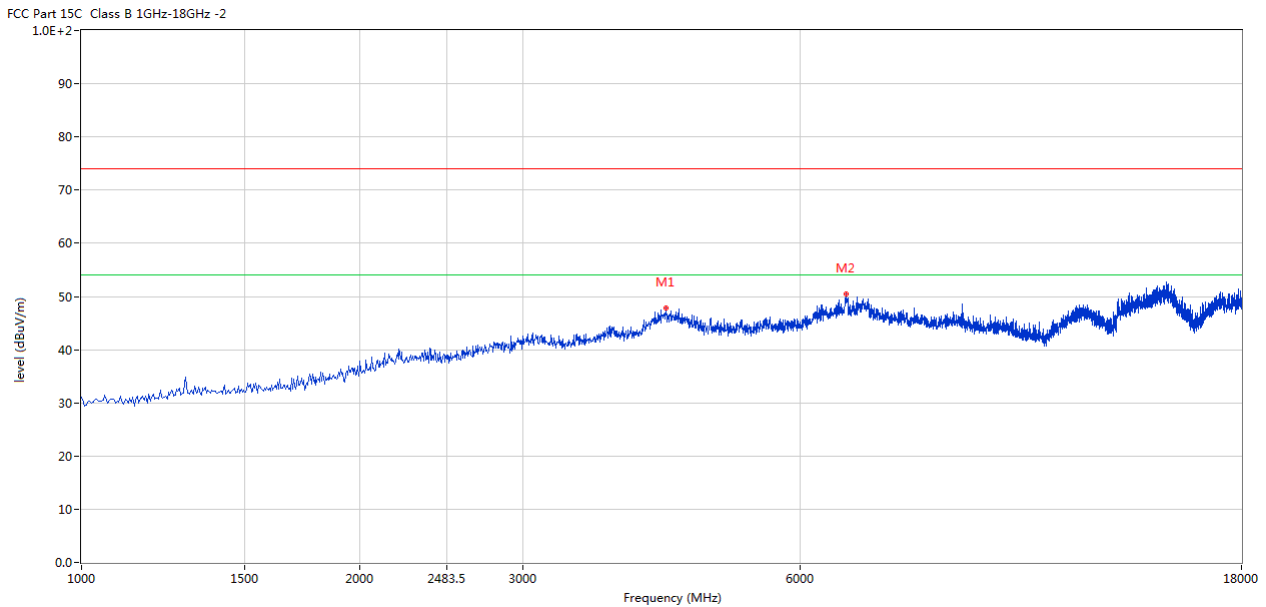
Radiated Emission In Vertical (1000MHz----18000MHz)

EUT set Condition: **Keep Transmitting**

Test Channel: **Low Channel**

Results: **Pass**

Test Figure:



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	4292.927	47.75	1.82	74.0	-26.25	Peak	331.00	100	Vertical	Pass
2	6714.821	50.53	6.73	74.0	-23.47	Peak	360.00	100	Vertical	Pass

Note: 1. Result Level = Reading + Factor

2. Factor= AF + Cable Loss- Preamp

3. Margin = Result– Limit

4. For radiated Emissions from 18-25GHz and below 30MHz, it is only the floor noise and less than the limit for more than 20dB. No necessary to take down.

5. Note: the final peak measurement results less than the AV limit. No necessary to take down the final AV measurement result

6. A 2.4G band-pass filter was used the radiated emissions test.

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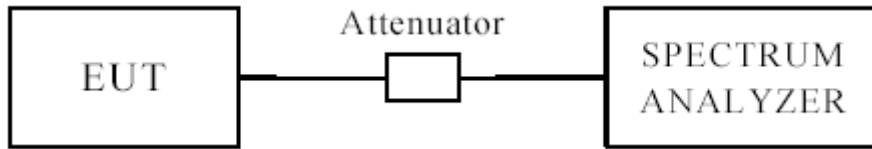
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7.0 6dB Bandwidth Measurement

7.1 Test Setup



7.2 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500 kHz

7.3 Test Procedure

1. Set resolution bandwidth (RBW) = 100 kHz
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.4 Test Result

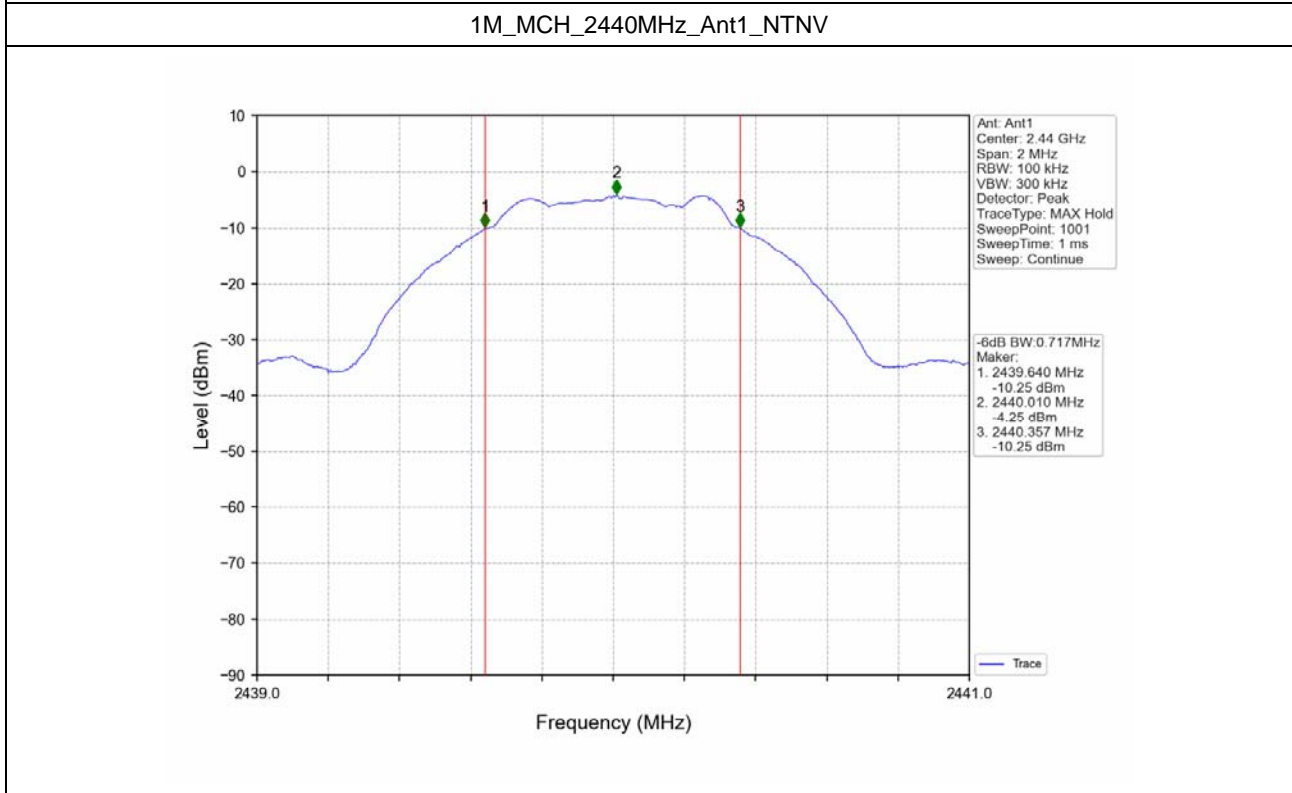
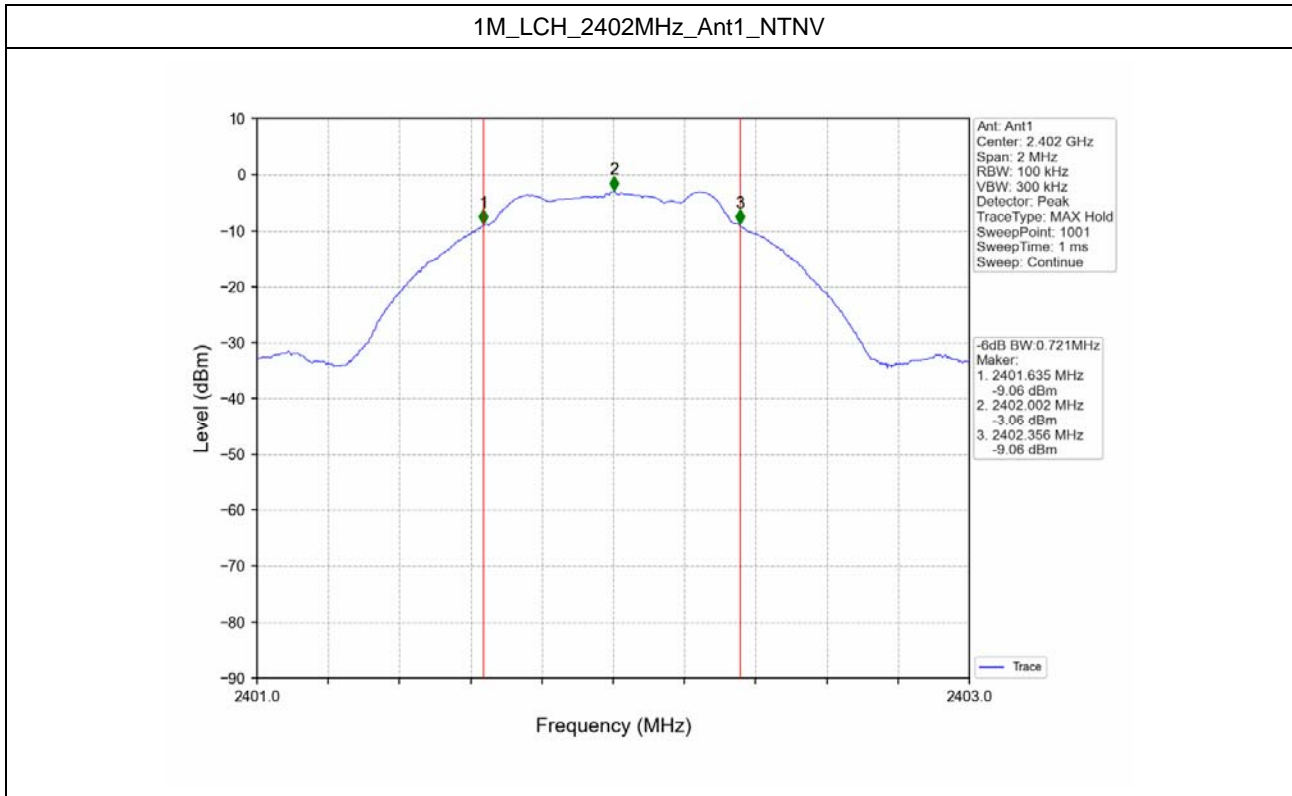
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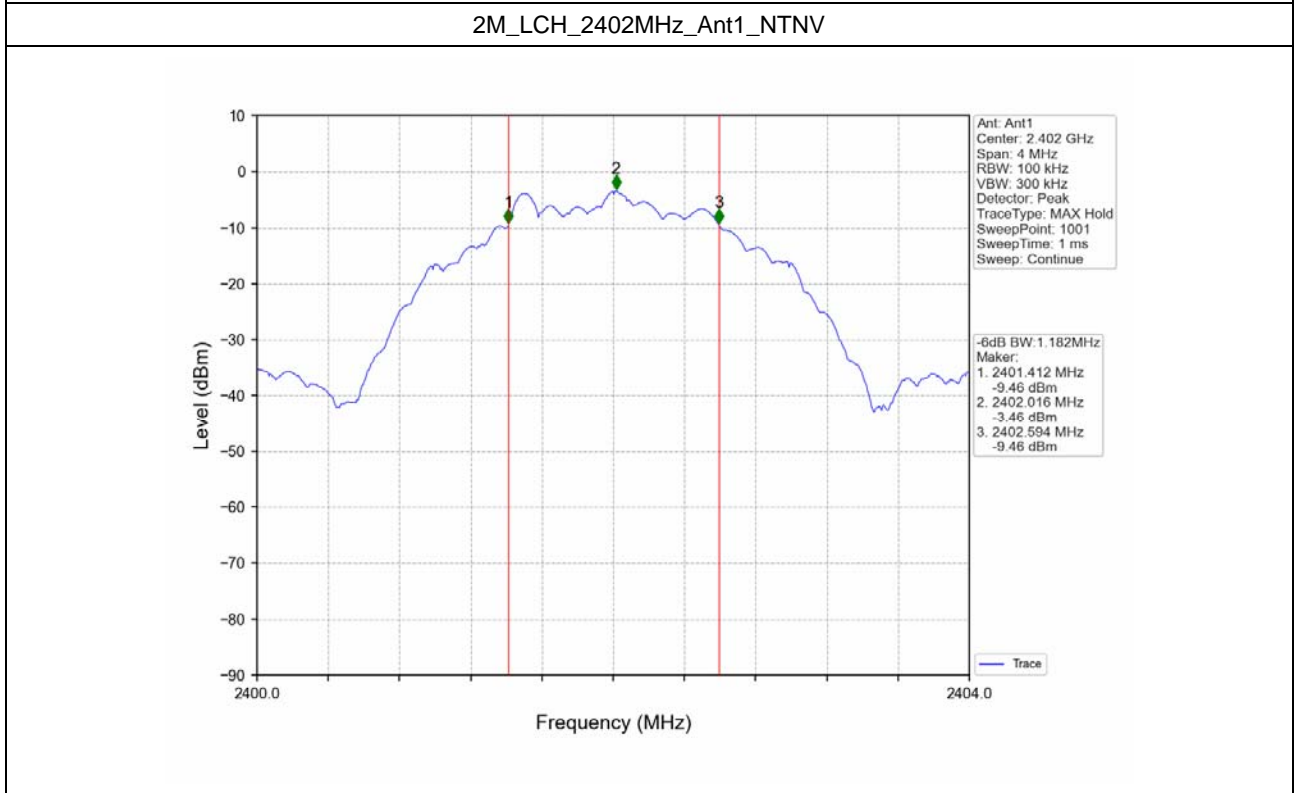
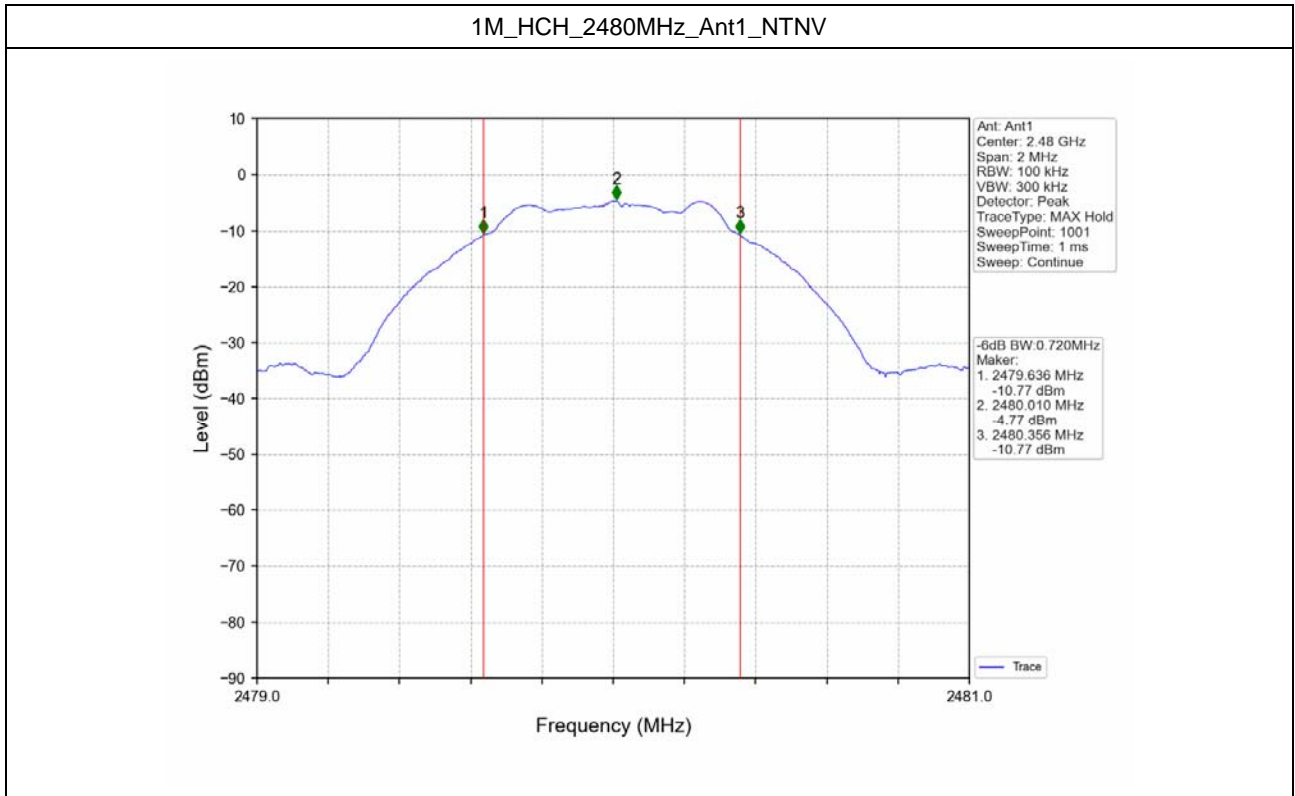
6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	0.721	>=0.5	Pass
		2440	1	0.717	>=0.5	Pass
		2480	1	0.720	>=0.5	Pass
2M	SISO	2402	1	1.182	>=0.5	Pass
		2440	1	1.174	>=0.5	Pass
		2480	1	1.178	>=0.5	Pass

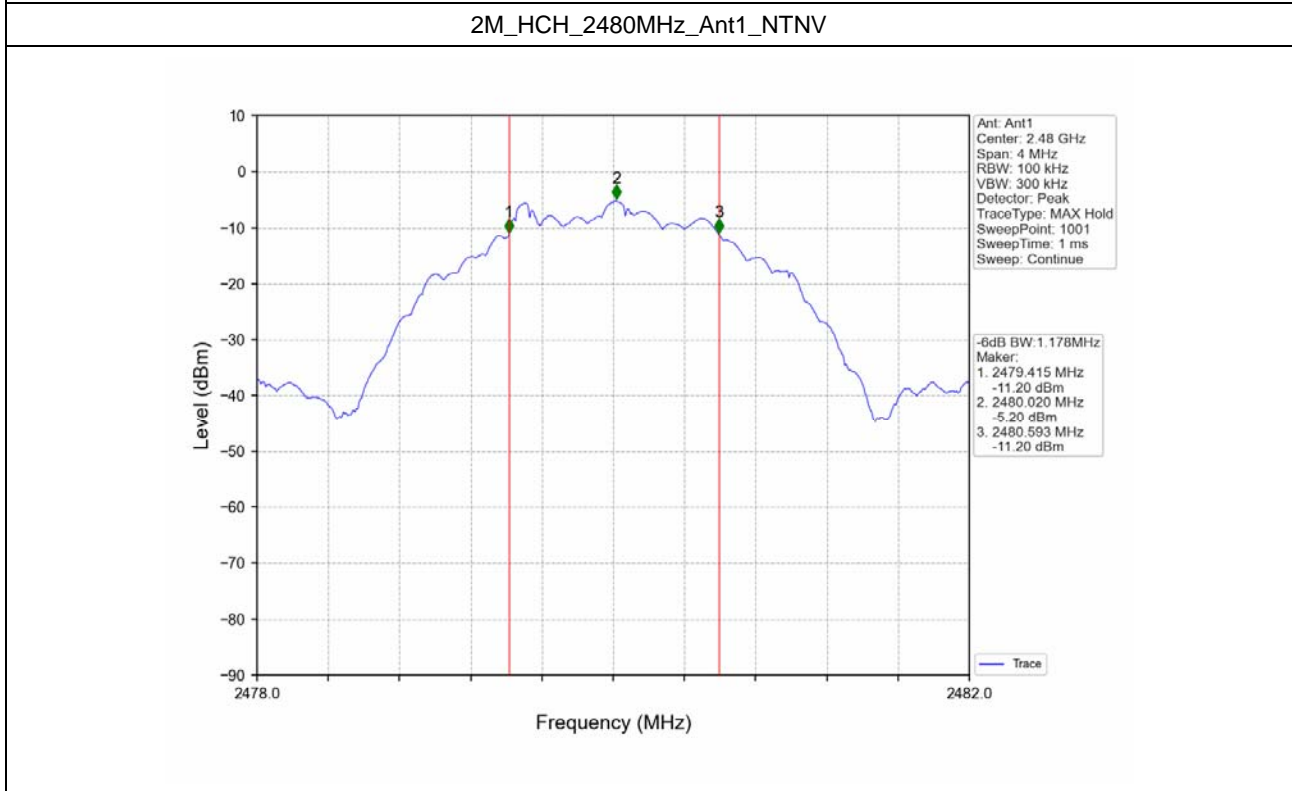
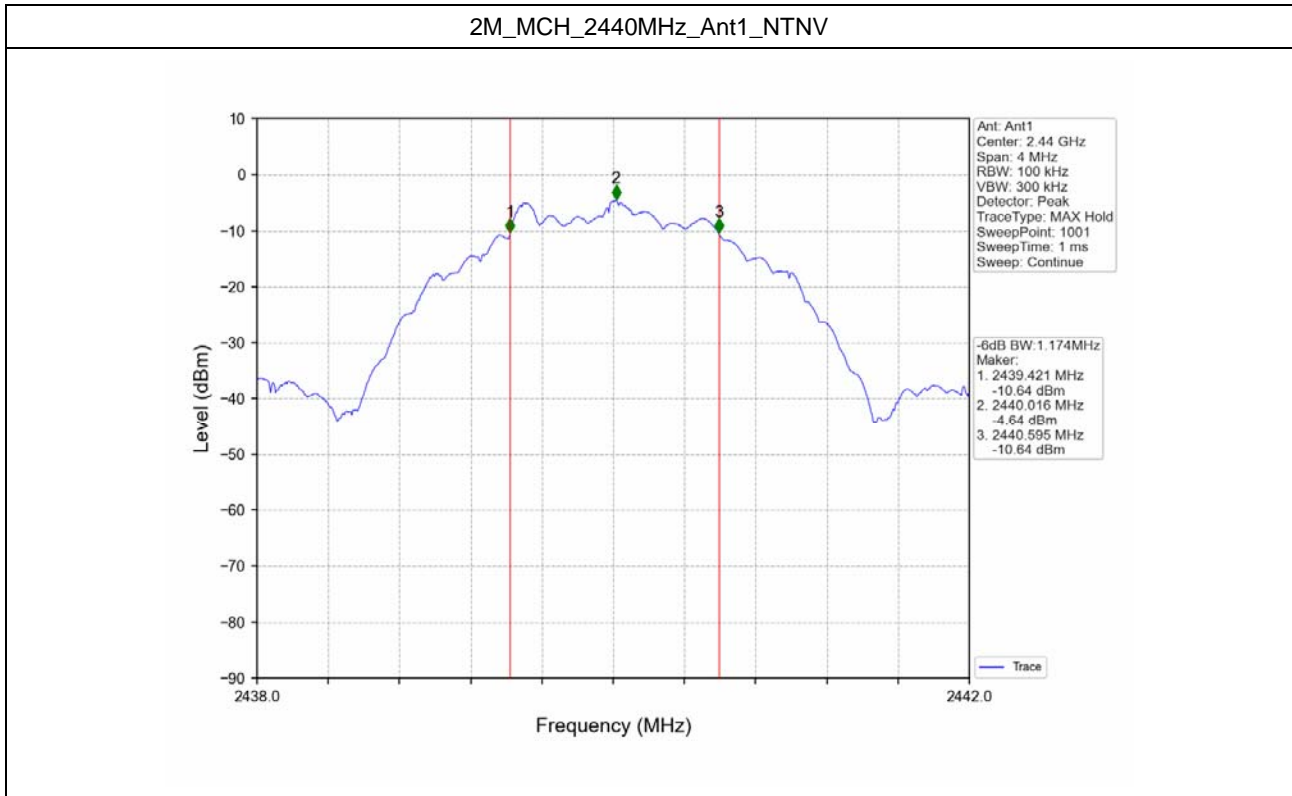
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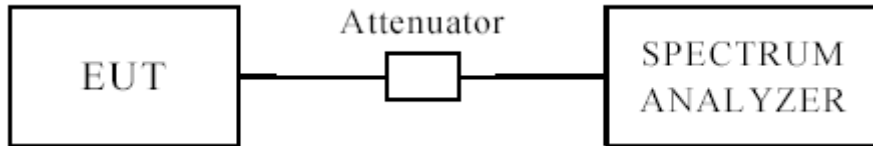


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8. Maximum Output Power

8.1 Test Setup



8.2 Limits of Maximum Output Power

The Maximum Output Power Measurement is 30dBm.

8.3 Test Procedure

The RF power output was measured with a Spectrum Analyzer connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate centre frequency.

Note: the Peak power were measured.

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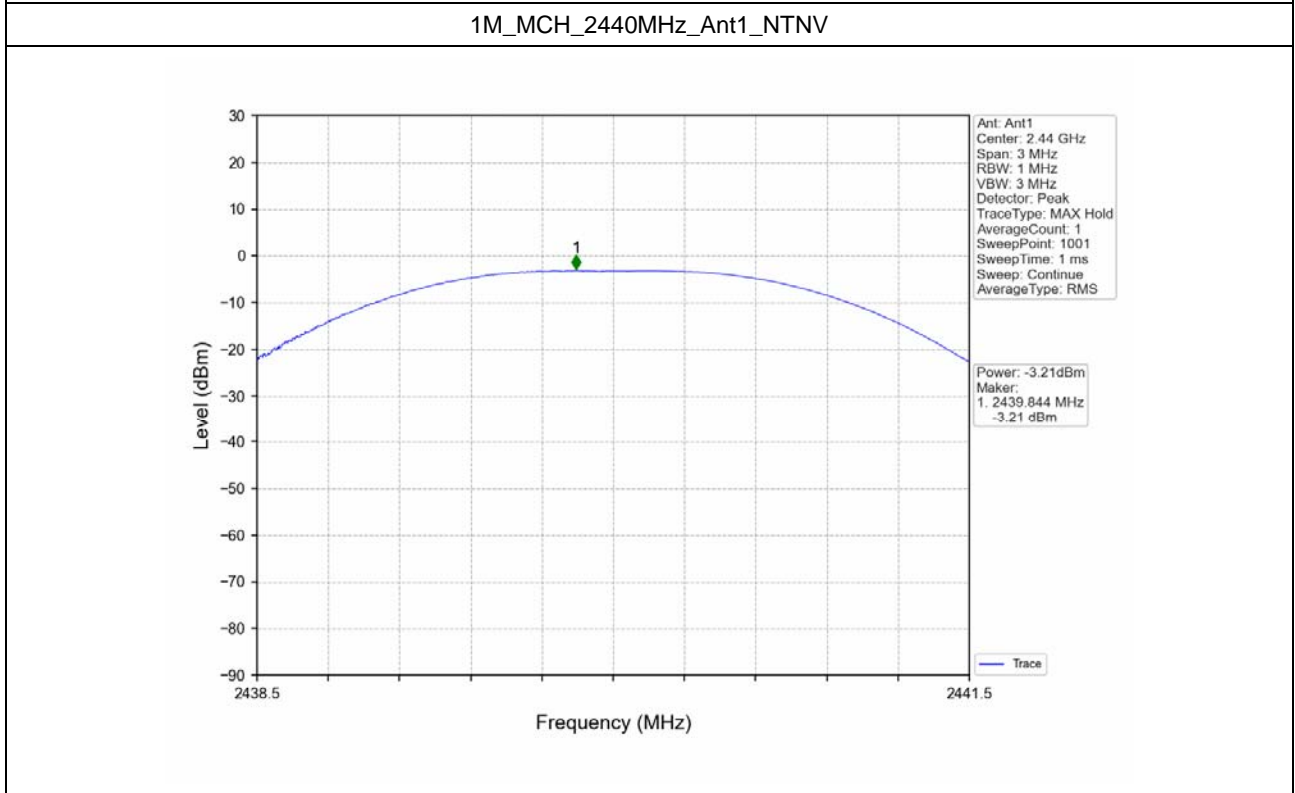
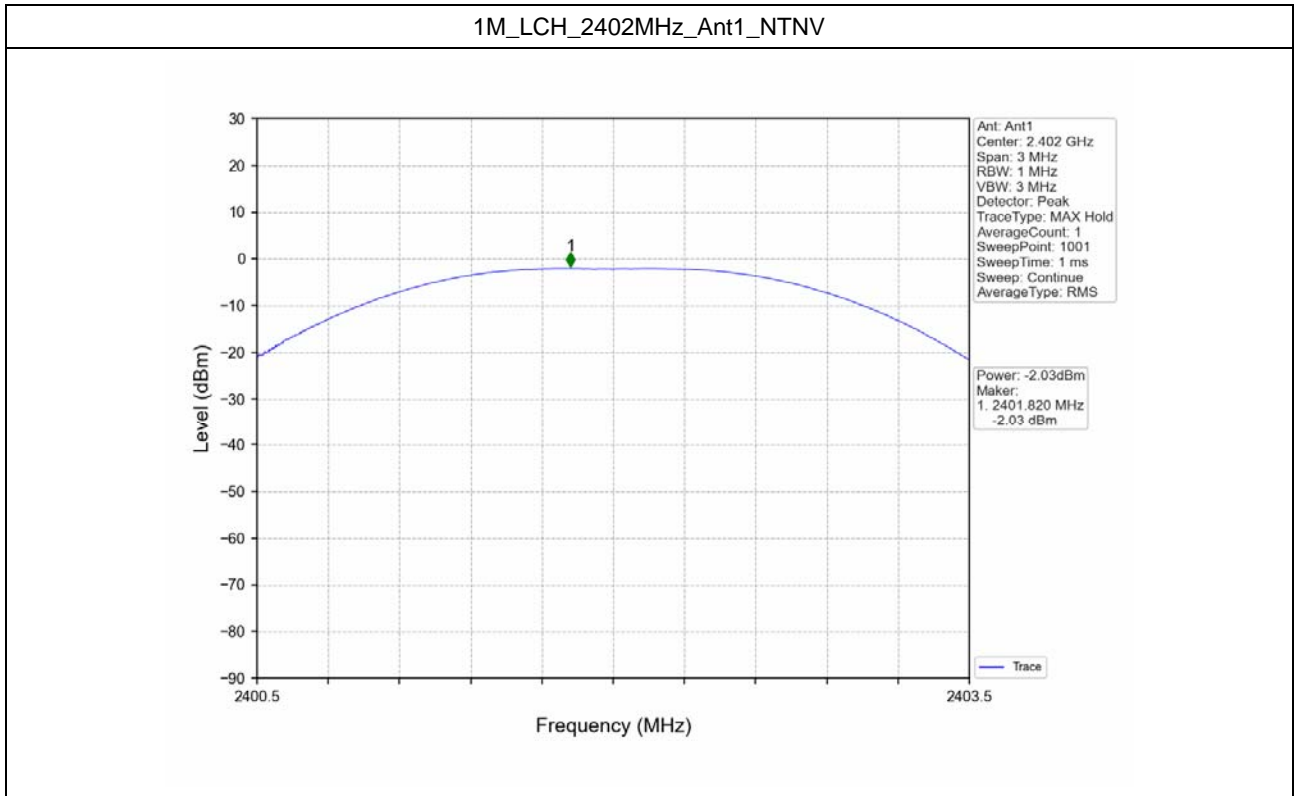


8.4 Test Results

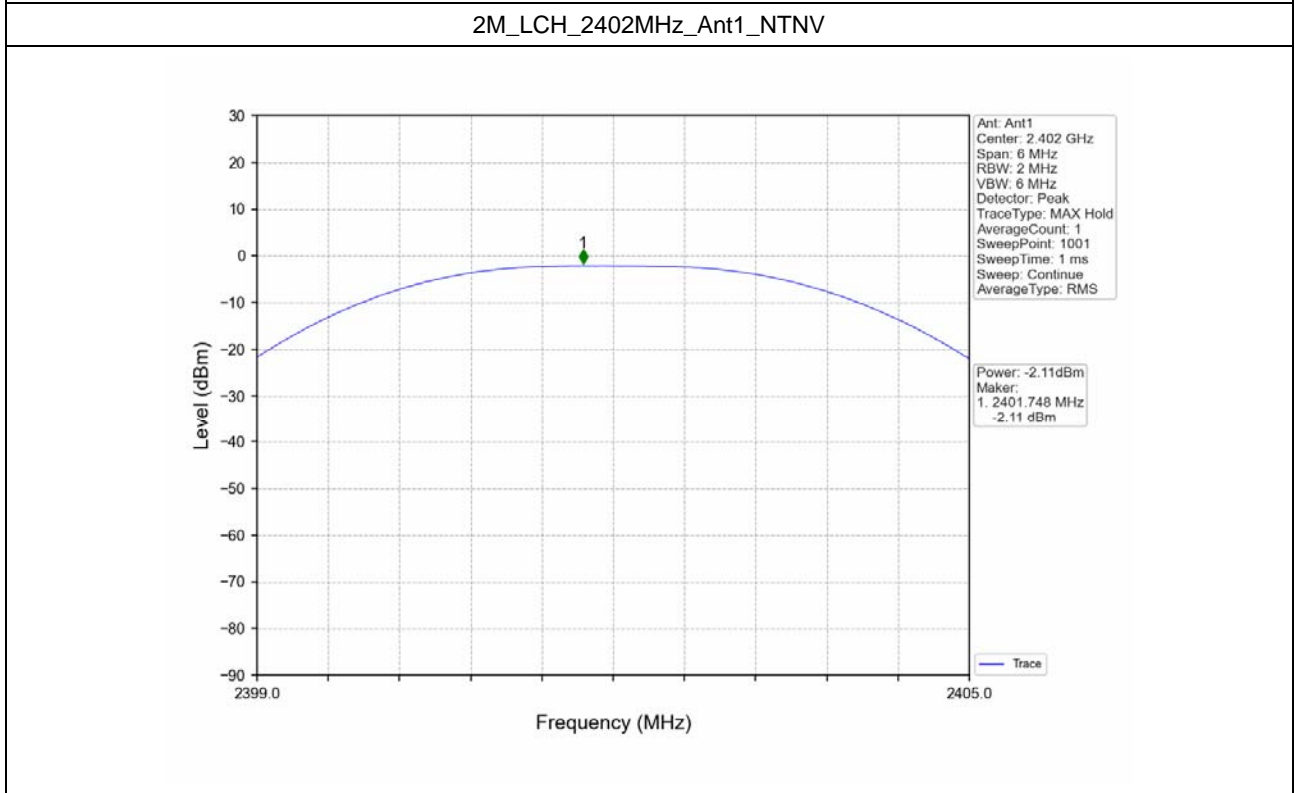
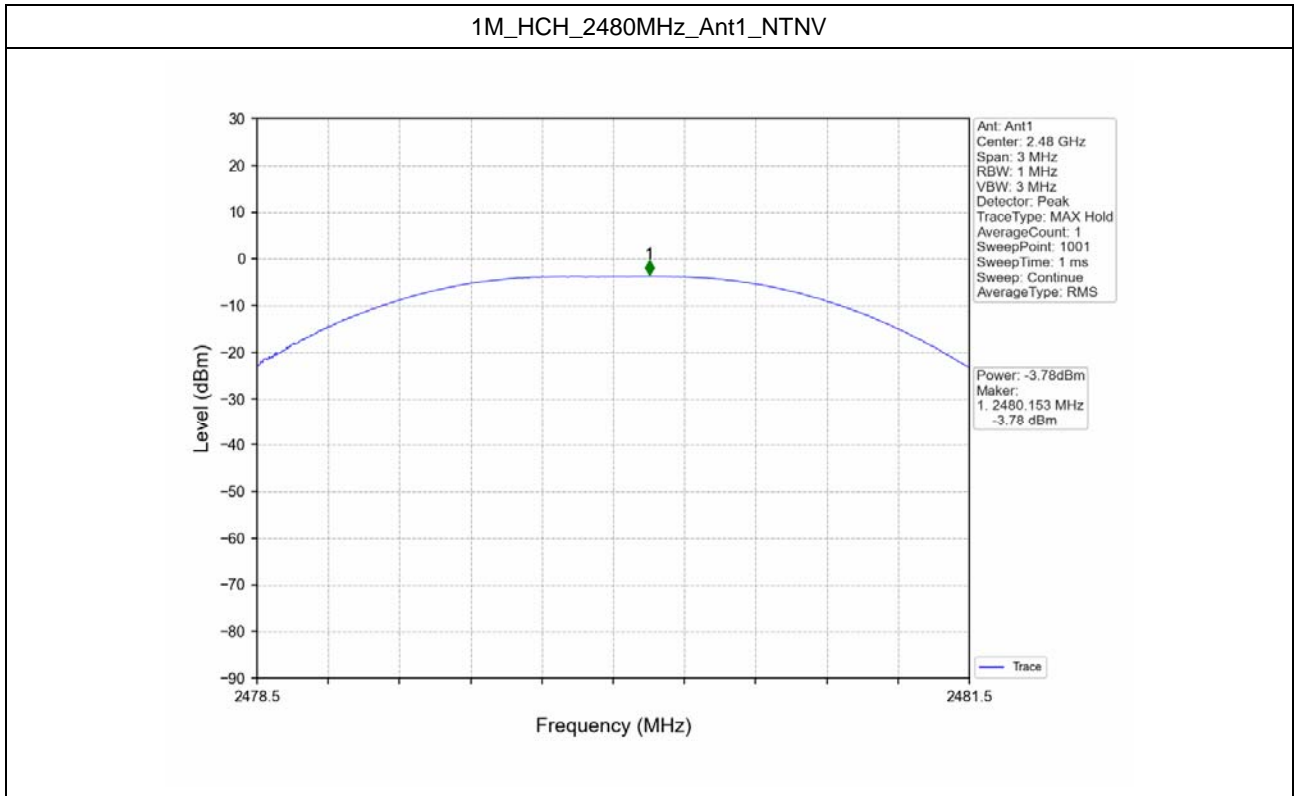
Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
1M	SISO	2402	-2.03	<=30	Pass
		2440	-3.21	<=30	Pass
		2480	-3.78	<=30	Pass
2M	SISO	2402	-2.11	<=30	Pass
		2440	-3.28	<=30	Pass
		2480	-3.81	<=30	Pass

Note1: Antenna Gain: Ant1: 0.00dBi;

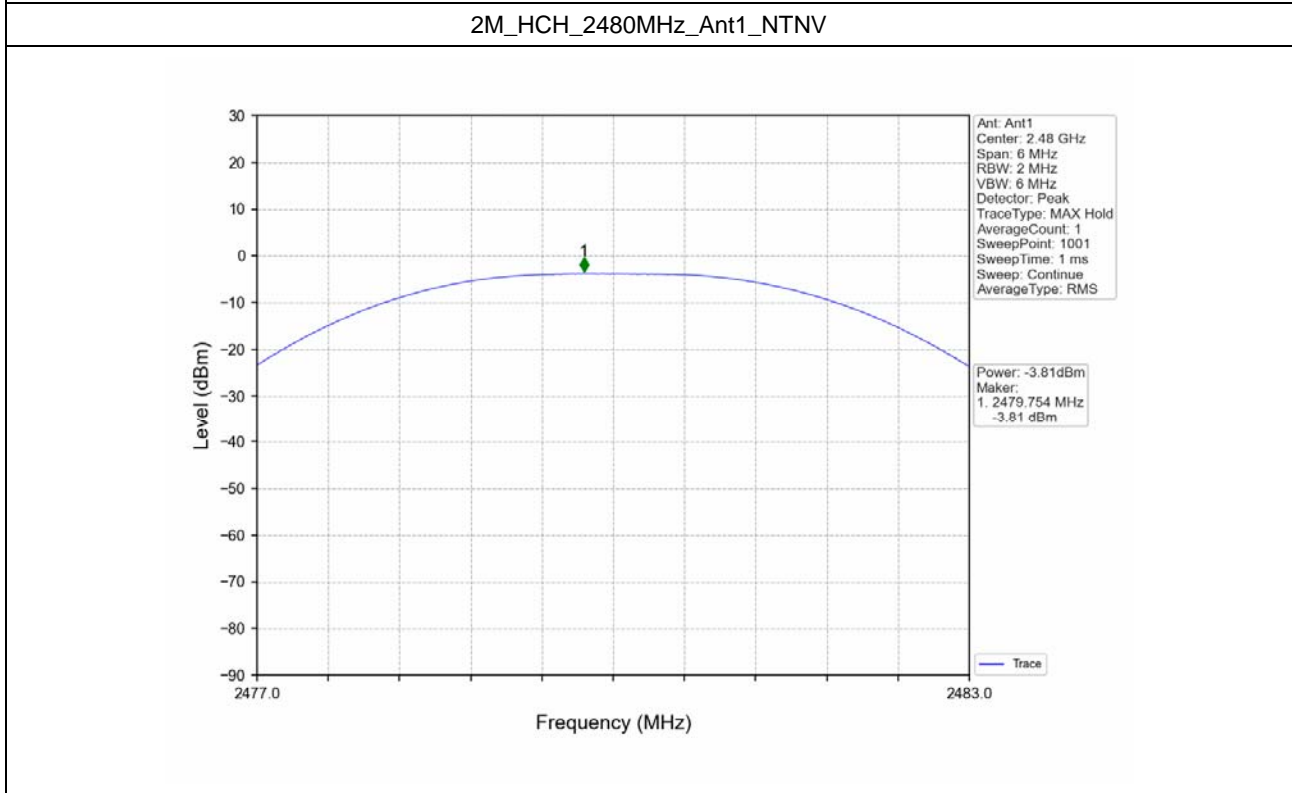
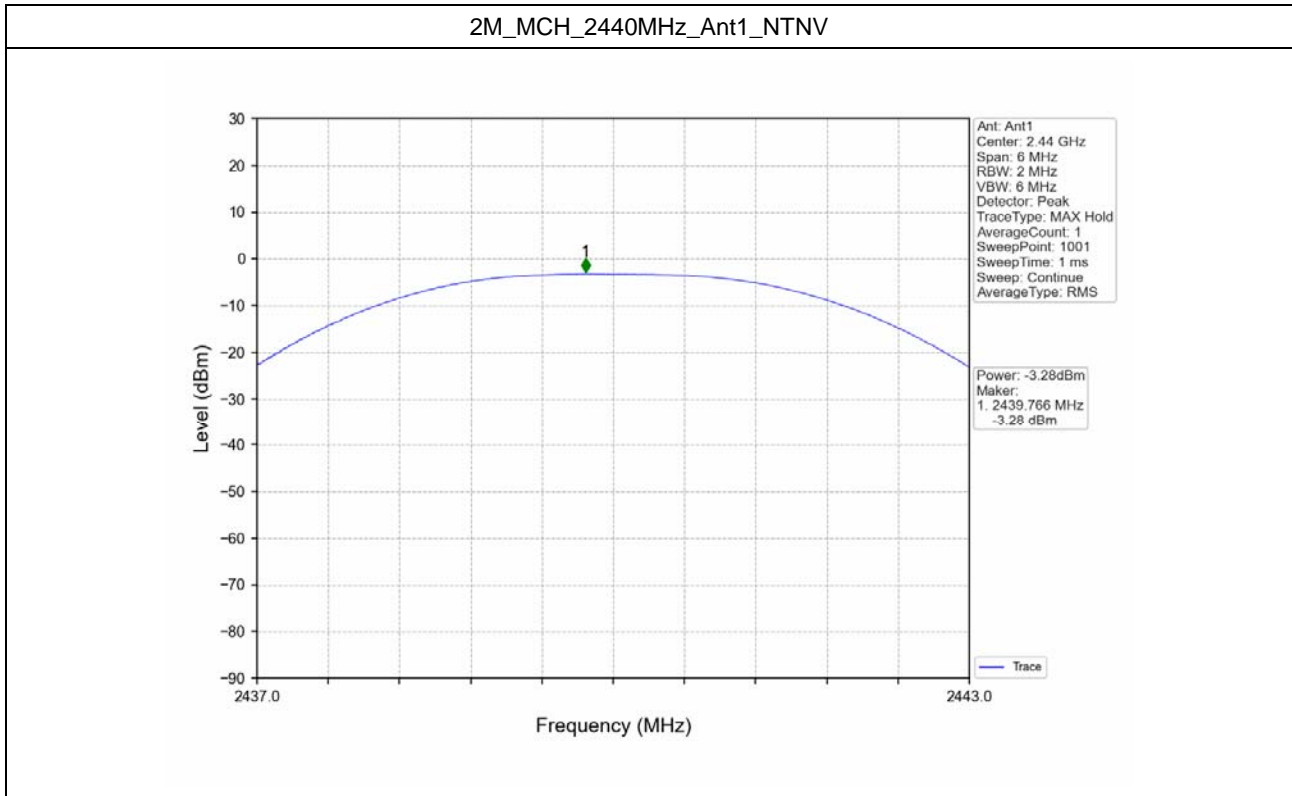
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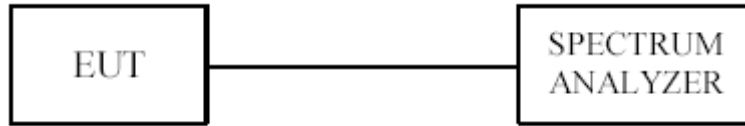


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9. Power Spectral Density Measurement

9.1 Test Setup



9.2 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm/3kHz.

9.3 Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 3 kHz.
3. Set the VBW= 10 kHz.
4. Set the span to 1.5 times the DTS channel bandwidth.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
11. The resulting peak PSD level must be ≤ 8 dBm/3kHz.

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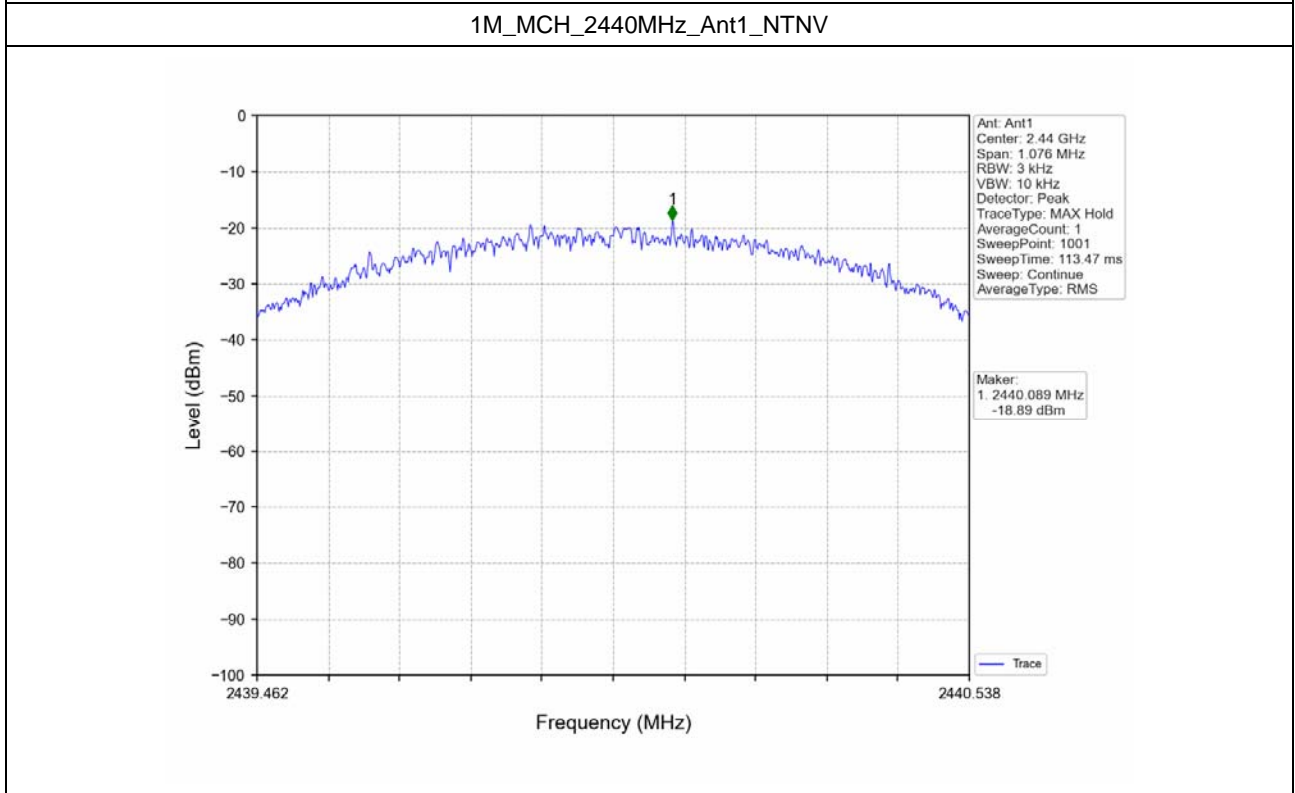
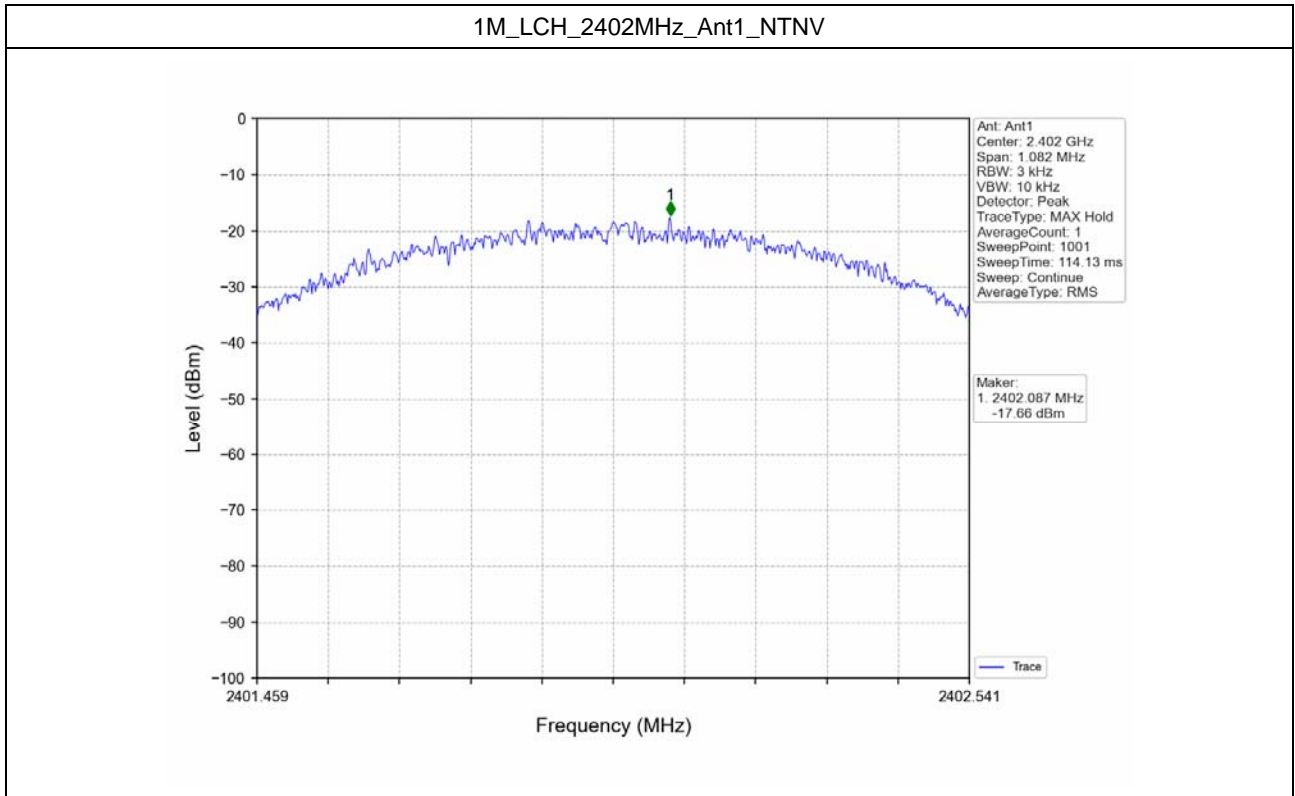


9.4 Test Result

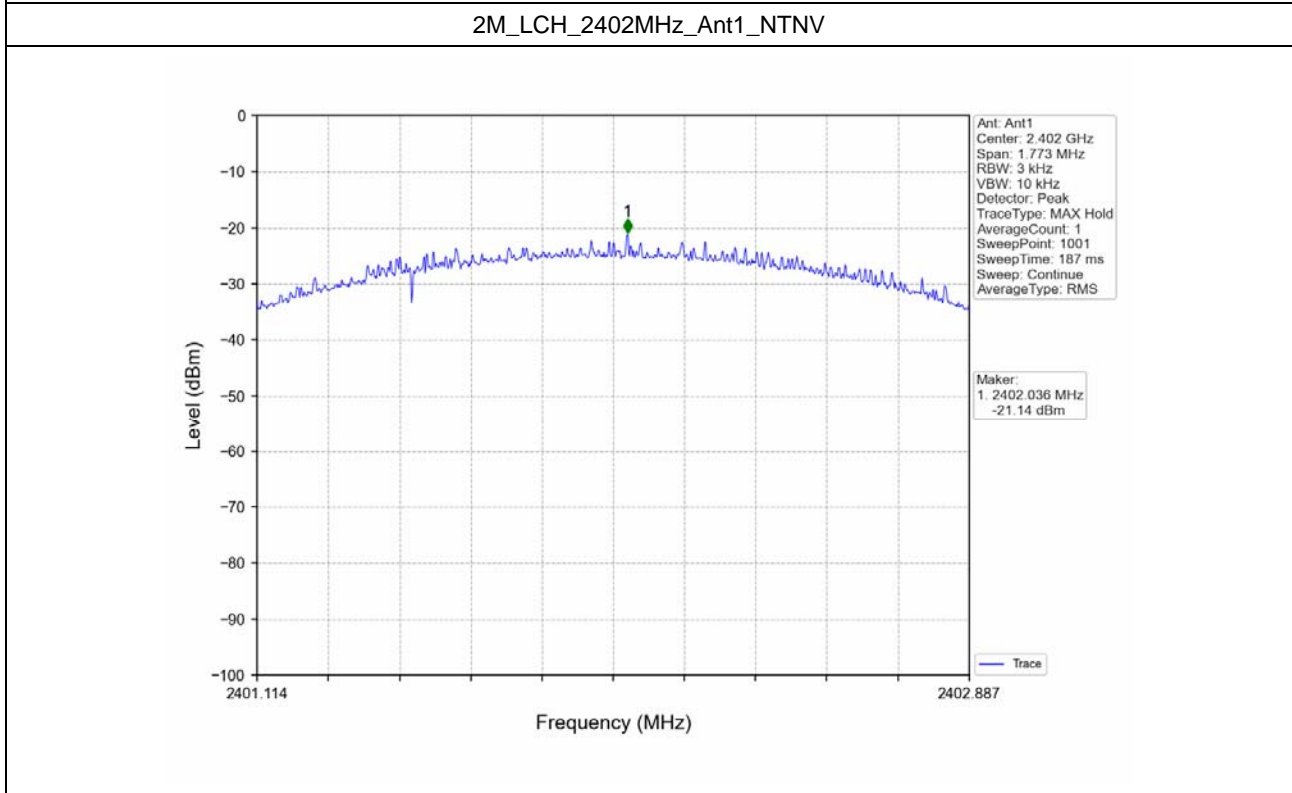
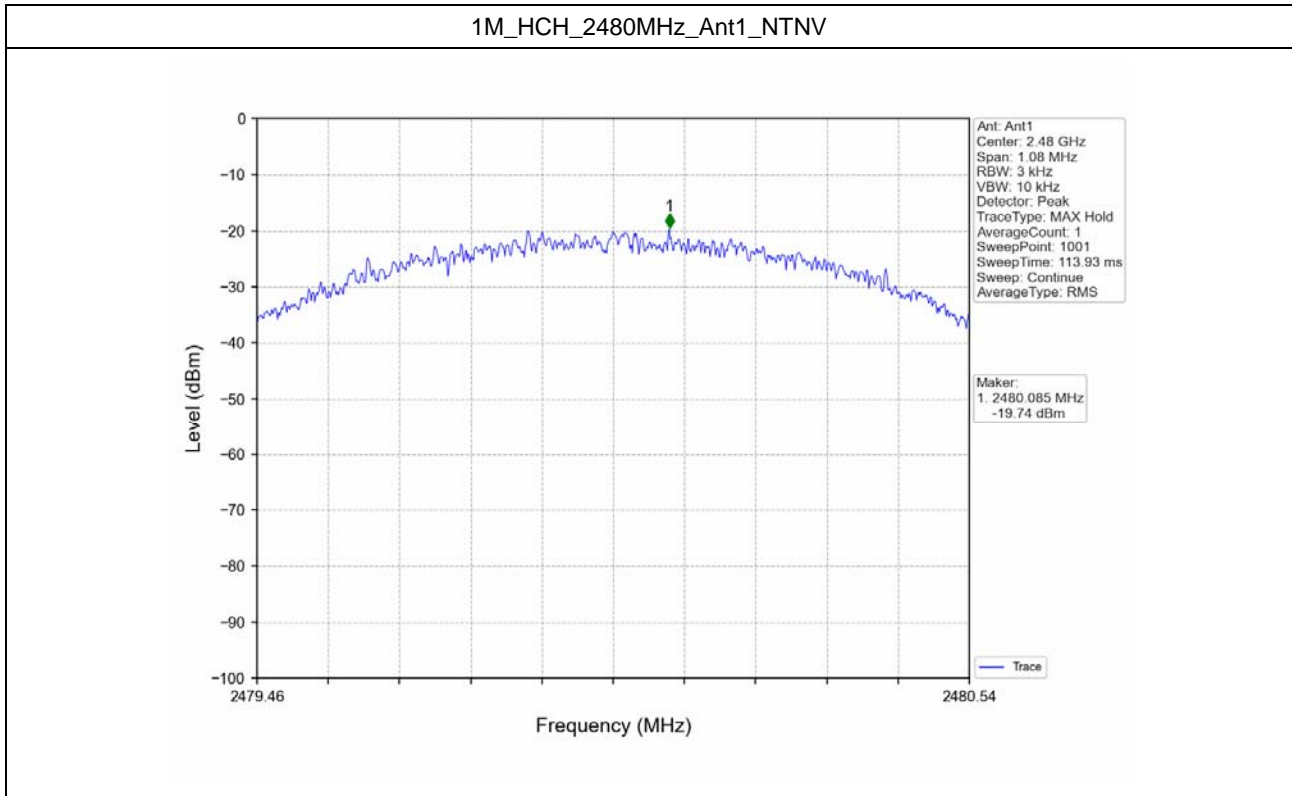
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
1M	SISO	2402	-17.66	<=8	Pass
		2440	-18.89	<=8	Pass
		2480	-19.74	<=8	Pass
2M	SISO	2402	-21.14	<=8	Pass
		2440	-22.34	<=8	Pass
		2480	-22.88	<=8	Pass

Note1: Antenna Gain: Ant1: 0.00dBi;

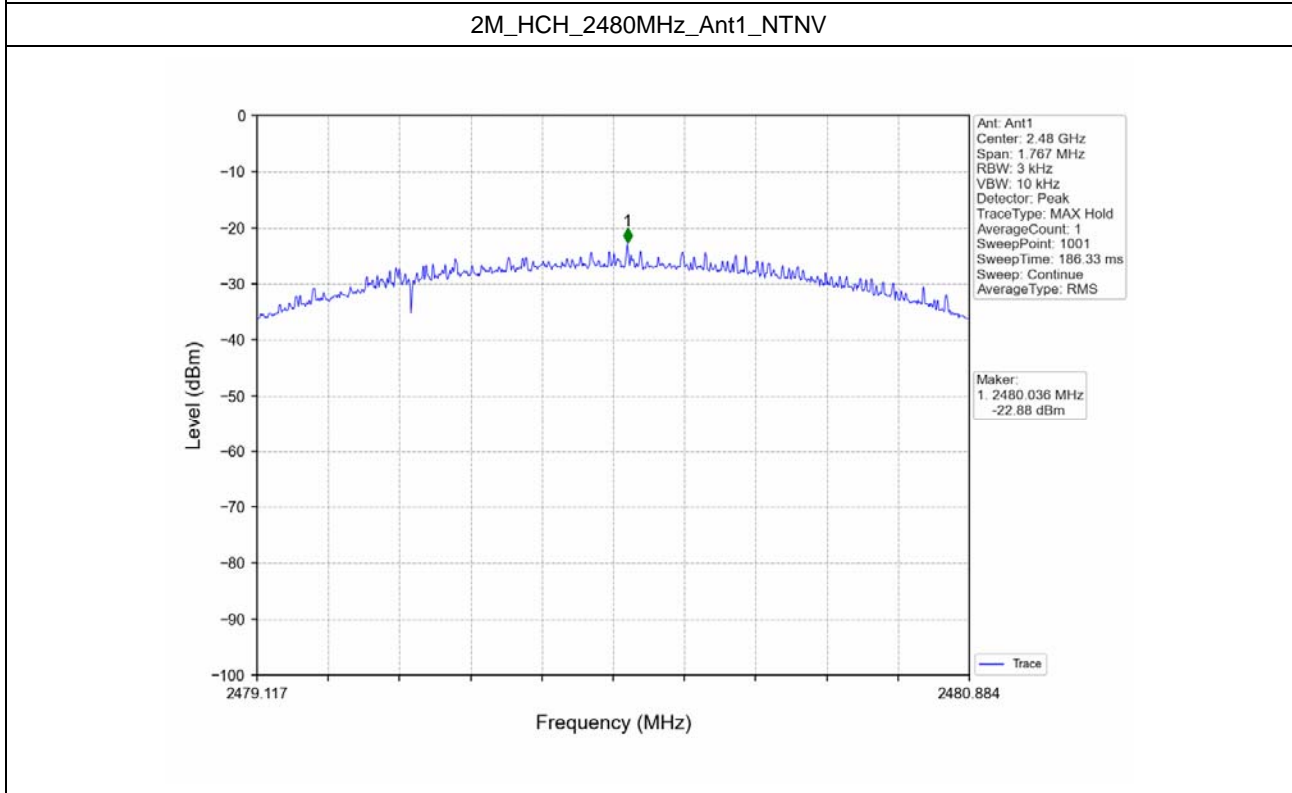
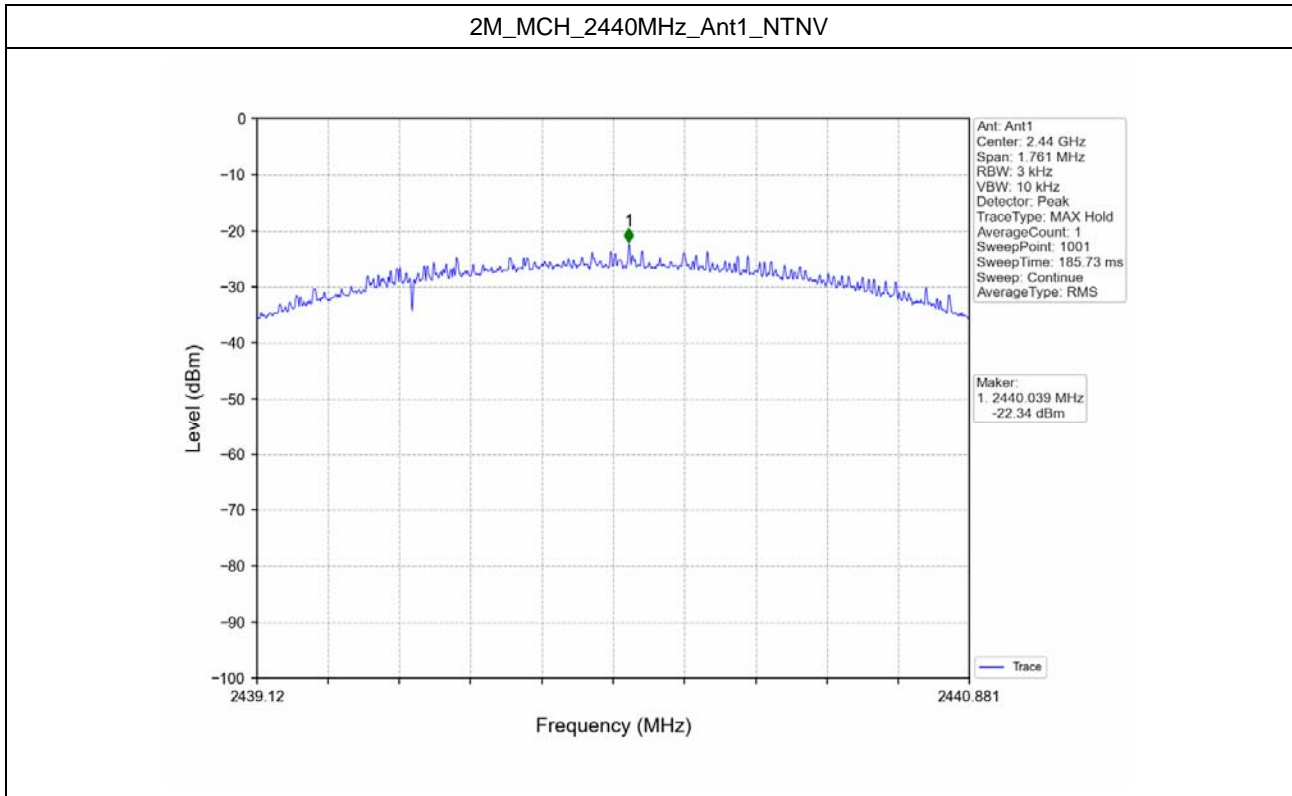
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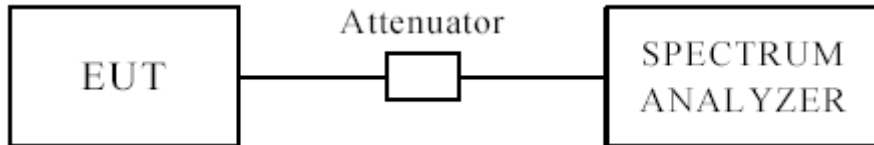


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10 Out of Band Measurement

10.1 Test Setup for band edge



The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup

10.2 Limits of Out of Band Emissions Measurement

1. Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

10.3 Test Procedure

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of Radiated emission test. (Peak values with RBW=1MHz, VBW=3MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector)

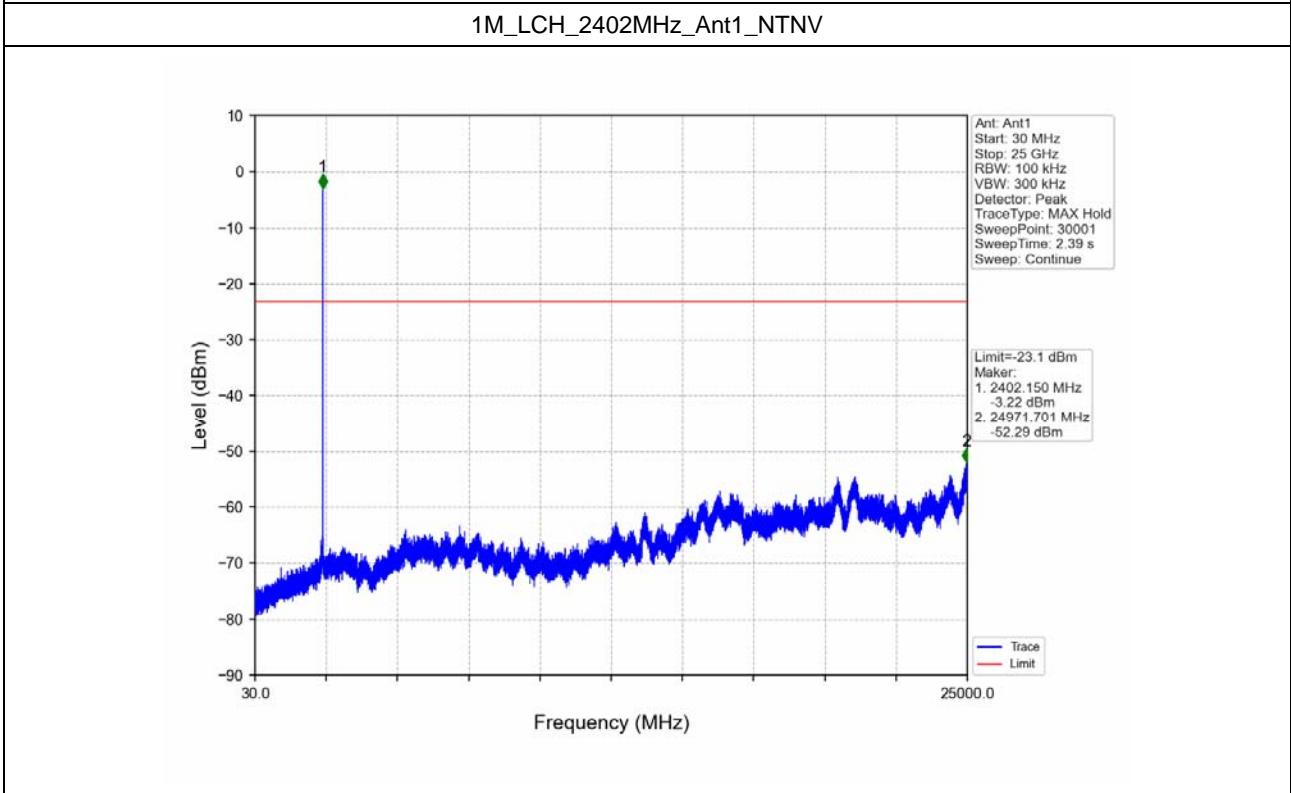
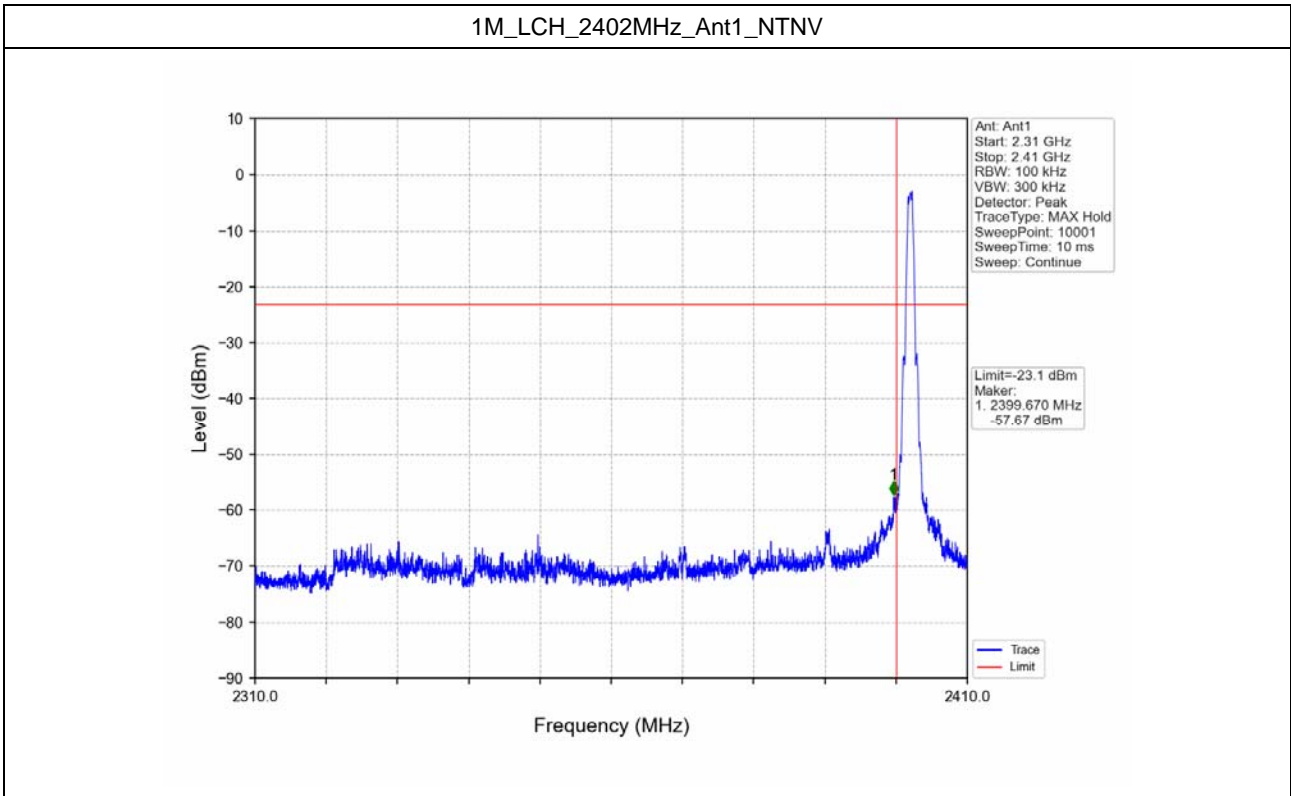
For bandage test, the spectrum set as follows: RBW=100 kHz, VBW=300 kHz. A conducted measurement used

10.4 Test Result

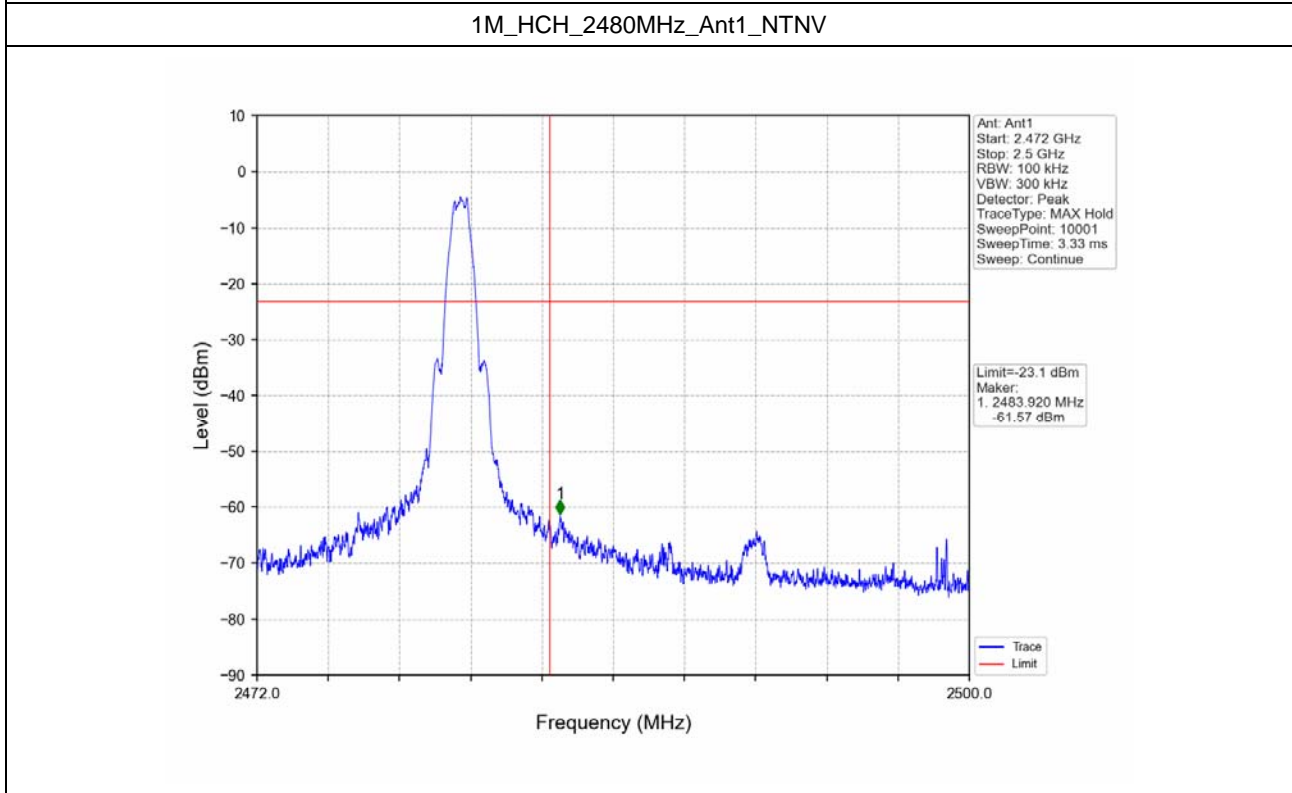
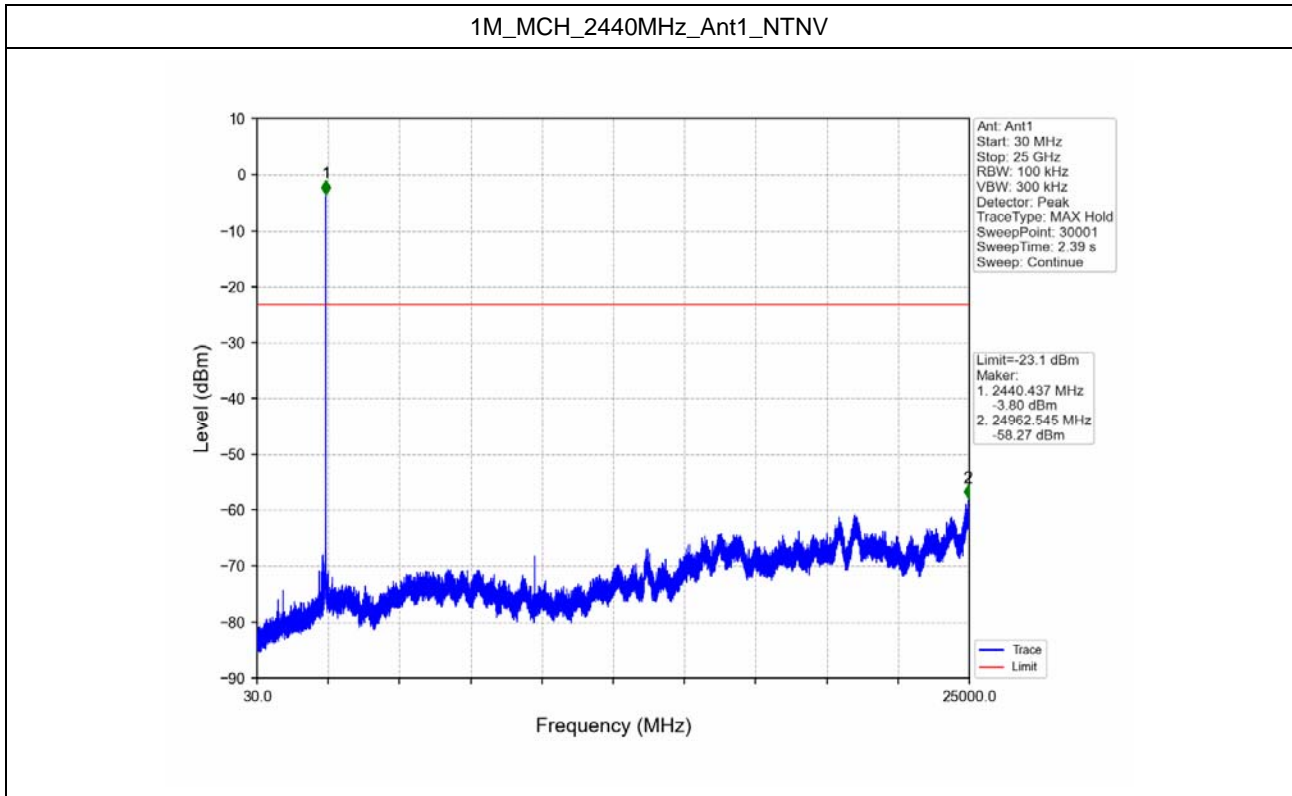
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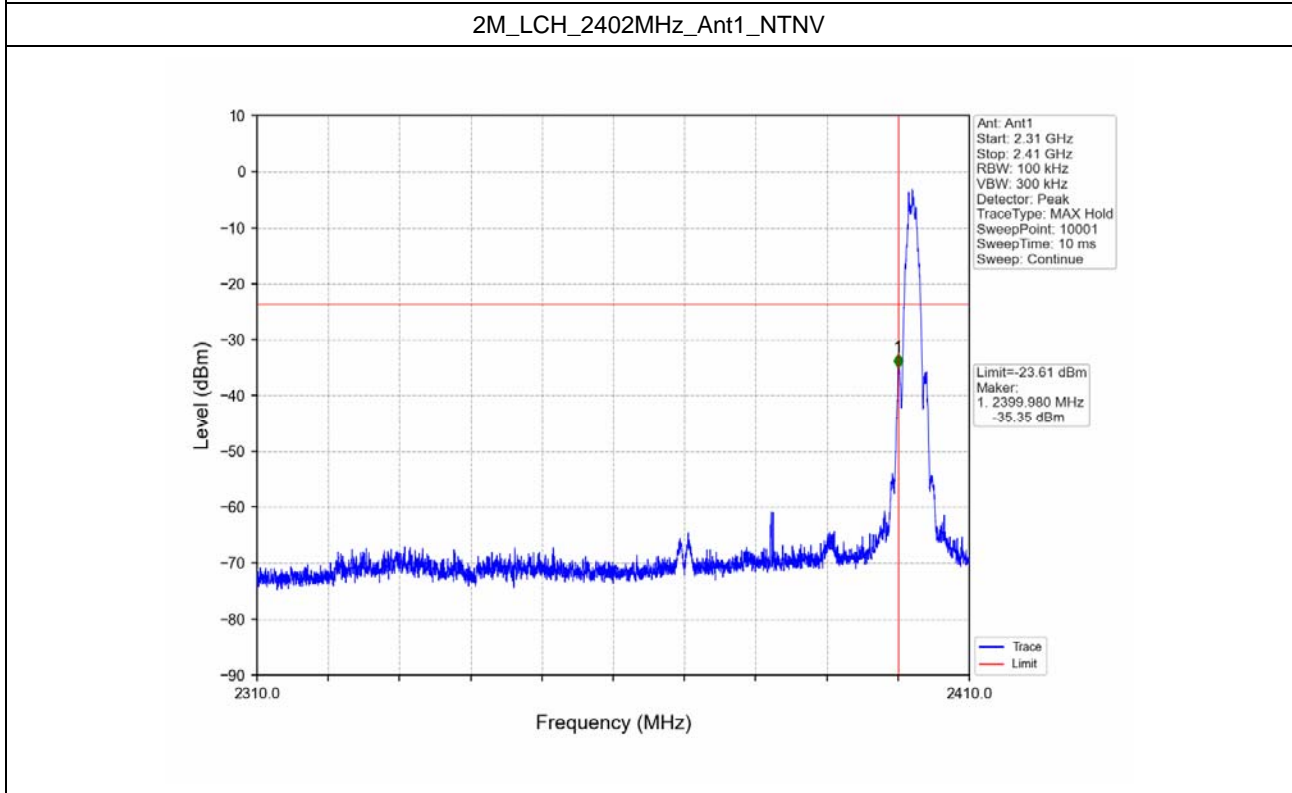
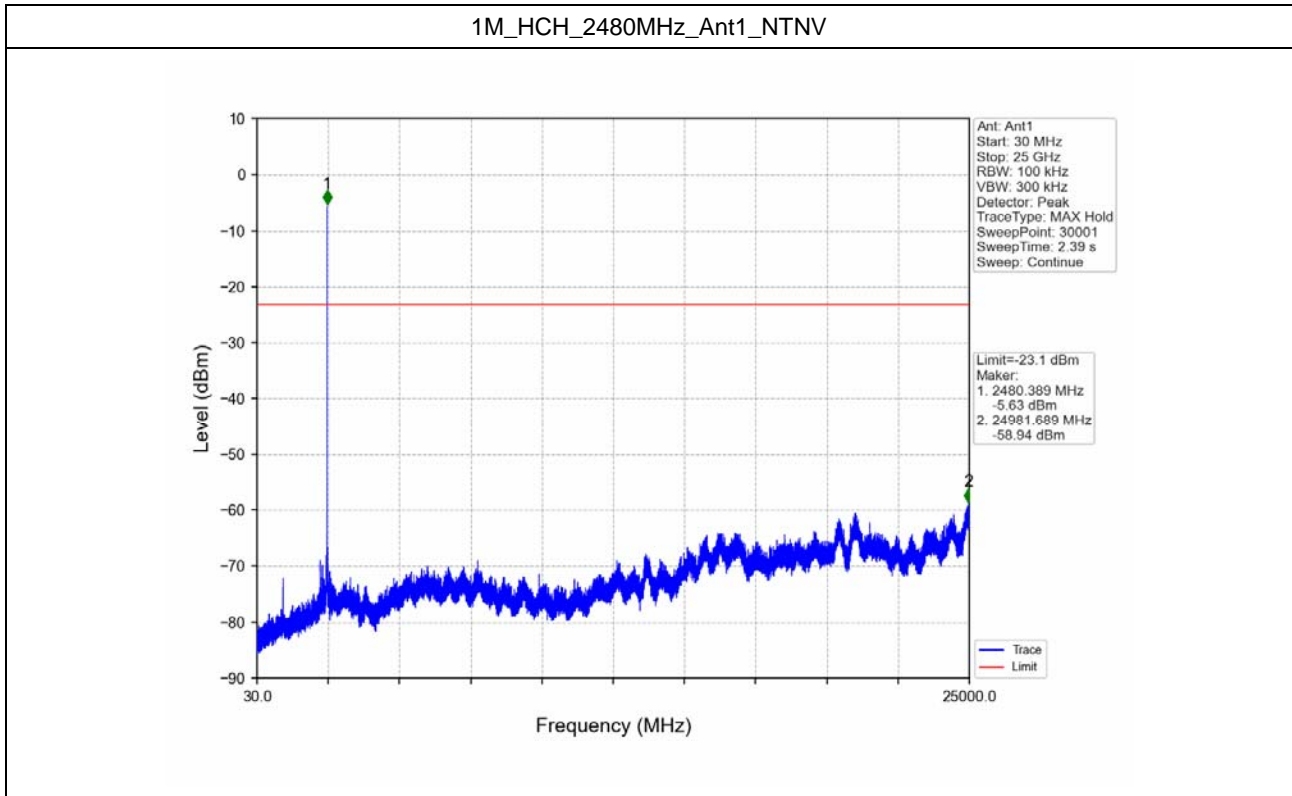
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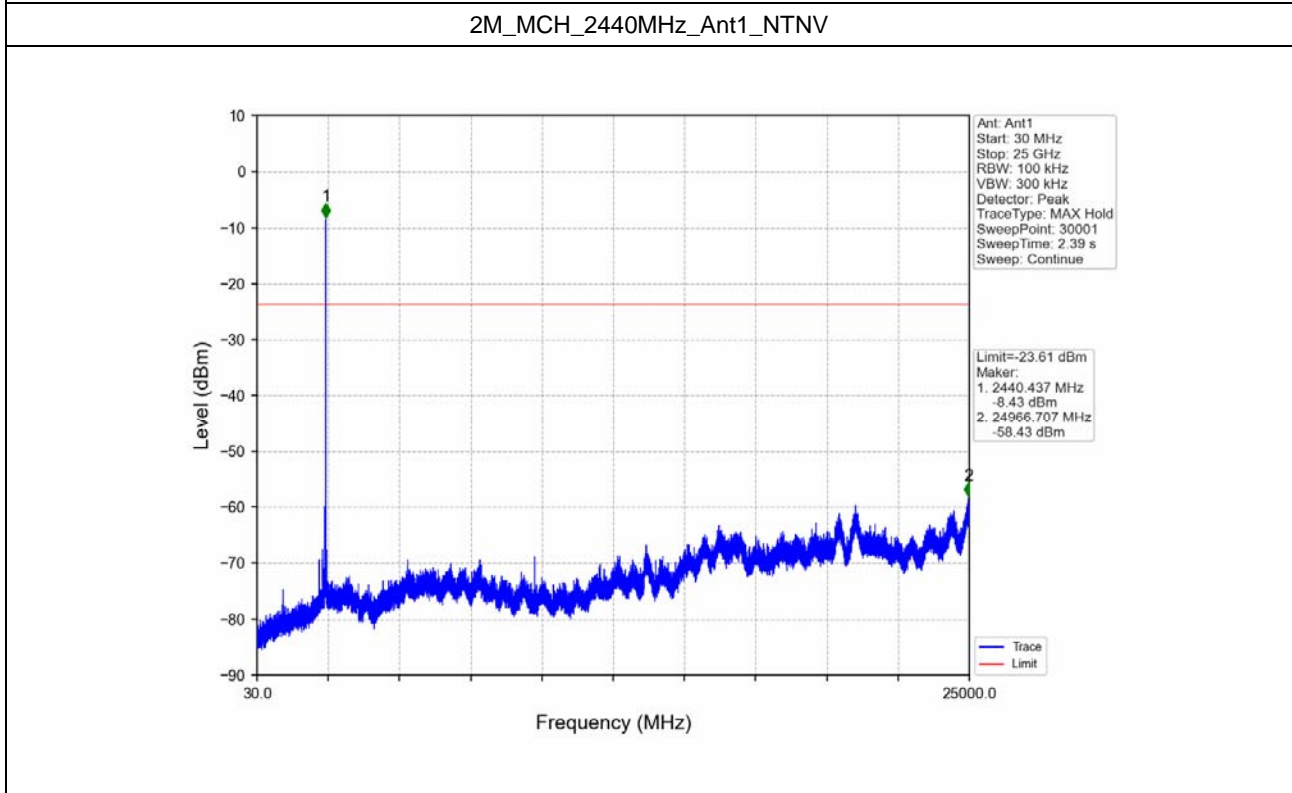
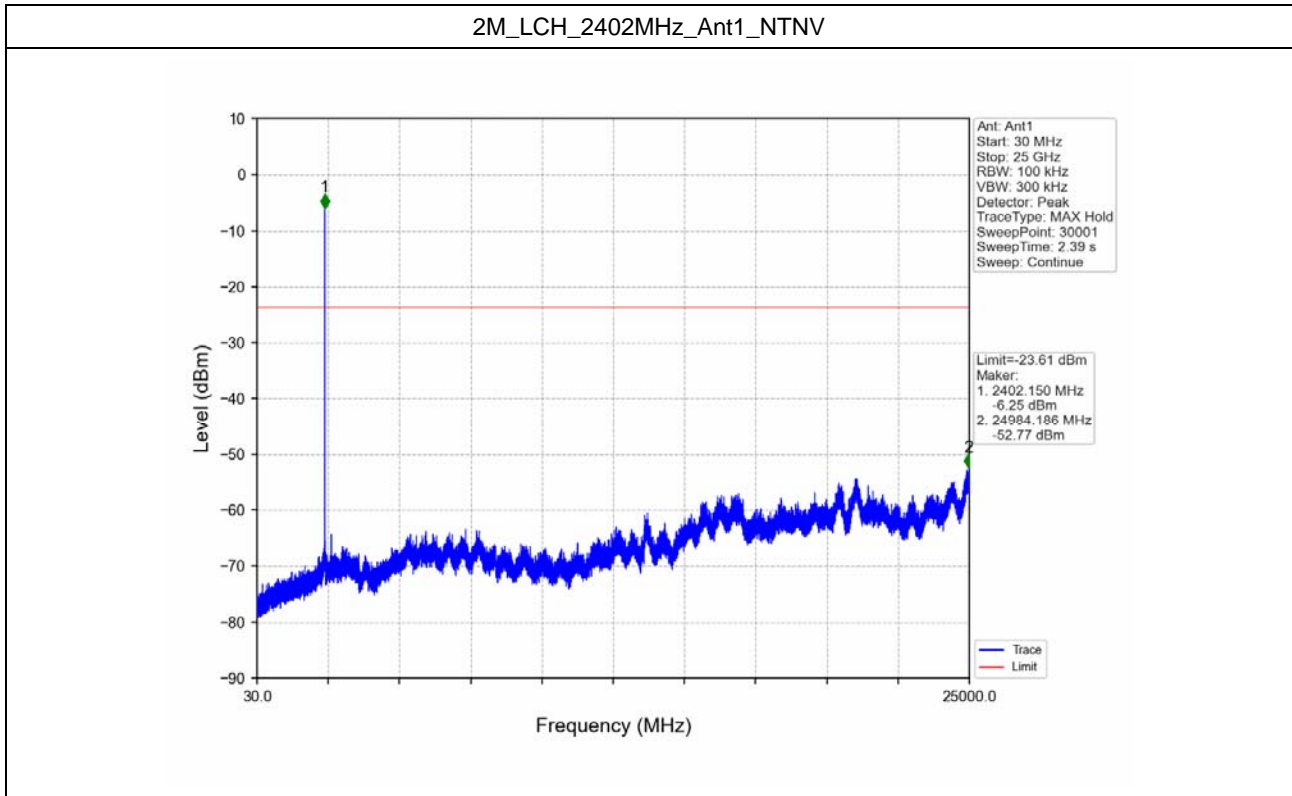
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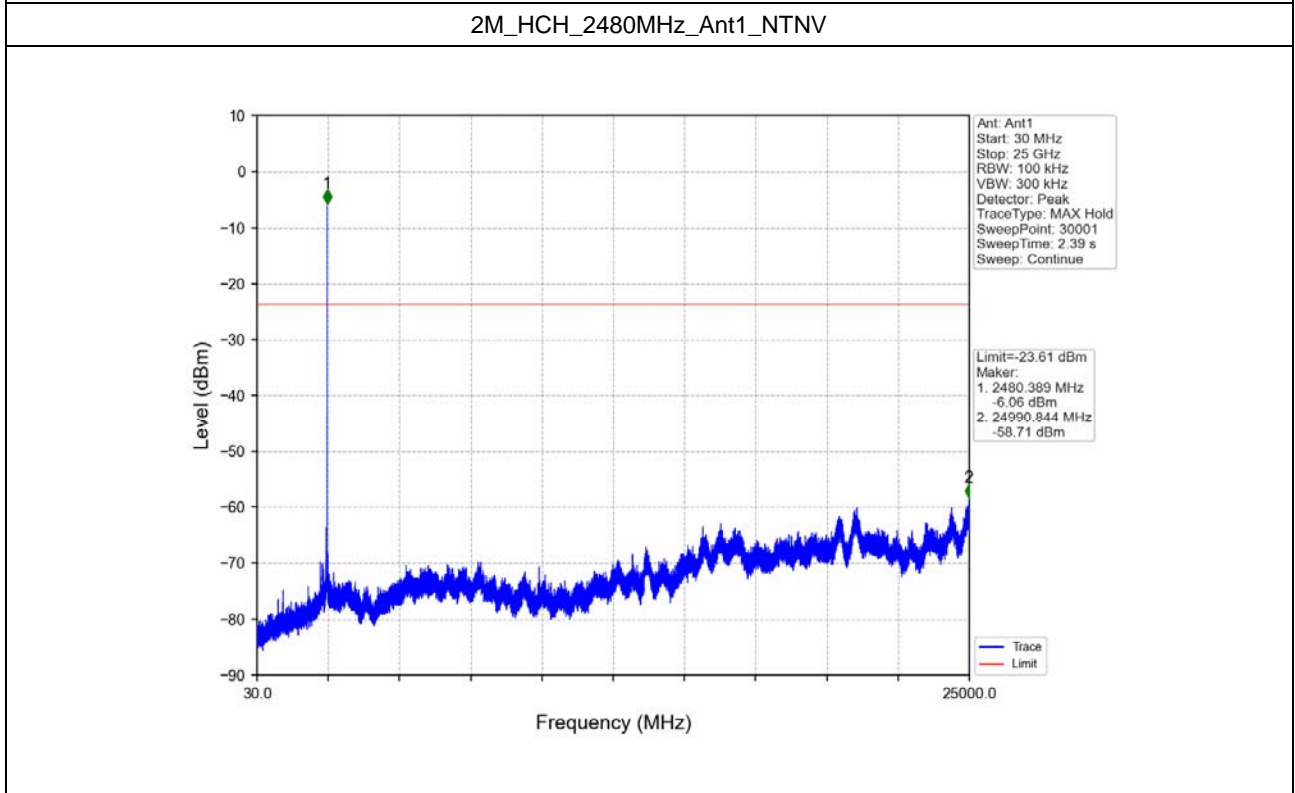
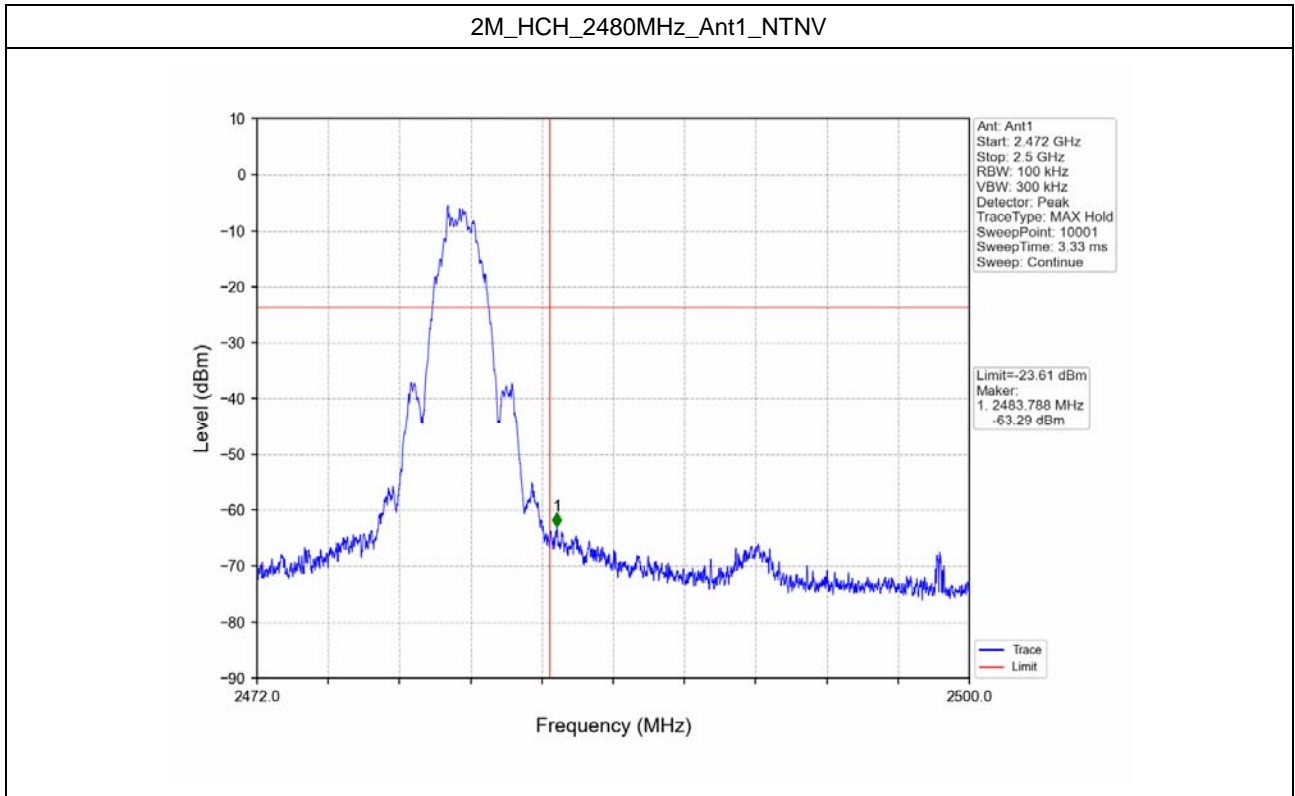
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10.4 Restricted band Measurement

EUT	Game Controller		Model	CX-X1
Mode	Keep Transmitting		Input Voltage	DC3.7V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
Low Channel, Horizontal				
2390	PK (dB μ V/m)	43.68	Limit	74(dB μ V/m)
	AV (dB μ V/m)	--		54(dB μ V/m)
Low Channel, Vertical				
2390	PK (dB μ V/m)	42.67	Limit	74(dB μ V/m)
	AV (dB μ V/m)	--		54(dB μ V/m)

10.4 Restricted band Measurement

EUT	Game Controller		Model	CX-X1
Mode	Keep Transmitting		Input Voltage	DC3.7V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
High Channel, Horizontal				
2483.5	PK (dB μ V/m)	57.32	Limit	74(dB μ V/m)
	AV (dB μ V/m)	47.65		54(dB μ V/m)
High Channel, Vertical				
2483.5	PK (dB μ V/m)	53.71	Limit	74(dB μ V/m)
	AV (dB μ V/m)	44.68		54(dB μ V/m)

- Note: 1. The measured PK value less than the AV limit, no necessary to take down the AV measurement result.
 2. BLE-1M and 2M were tested and only the worst case was recorded. BLE-1M was the worst case.

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11.0 Antenna Requirement

11.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

11.2 Antenna Connected construction

PCB antenna with gain 0dBi maximum

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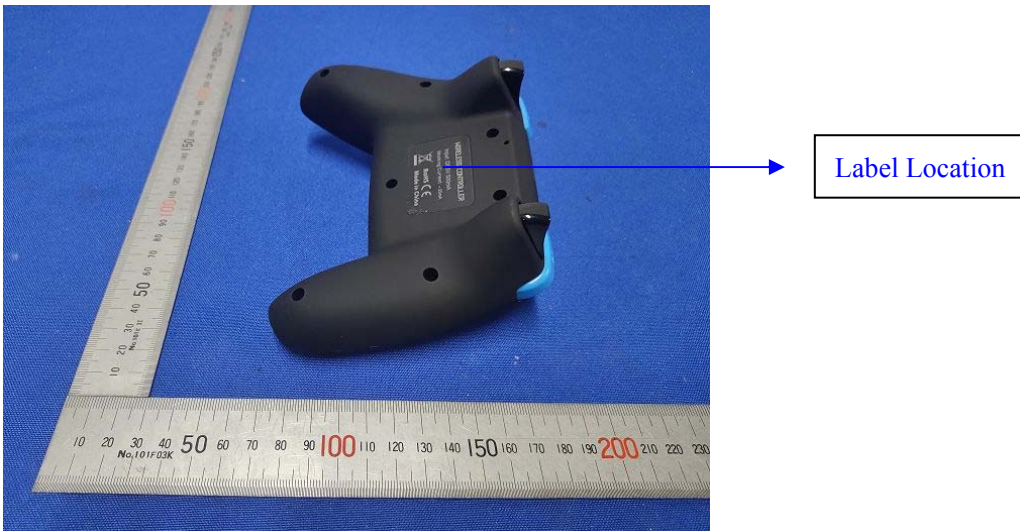
12.0 FCC ID Label

FCC ID: 2A6BTCX-X1

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:

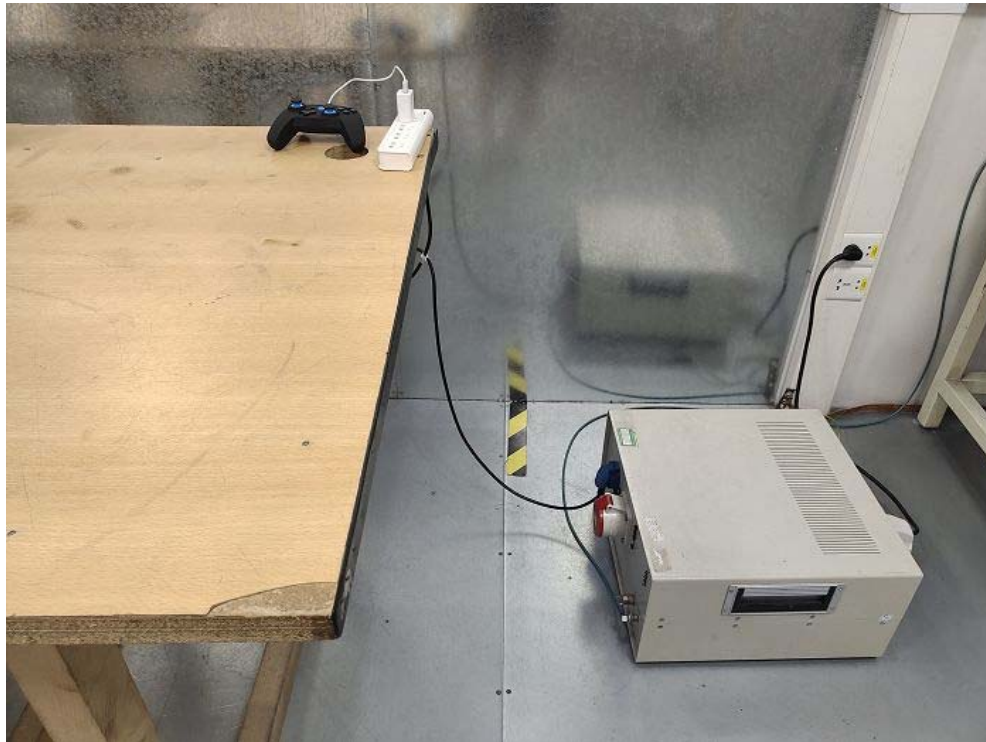


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13.0 Photo of testing

Conducted Emission Test Setup:



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Radiated Emission Test Setup:



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Outside View



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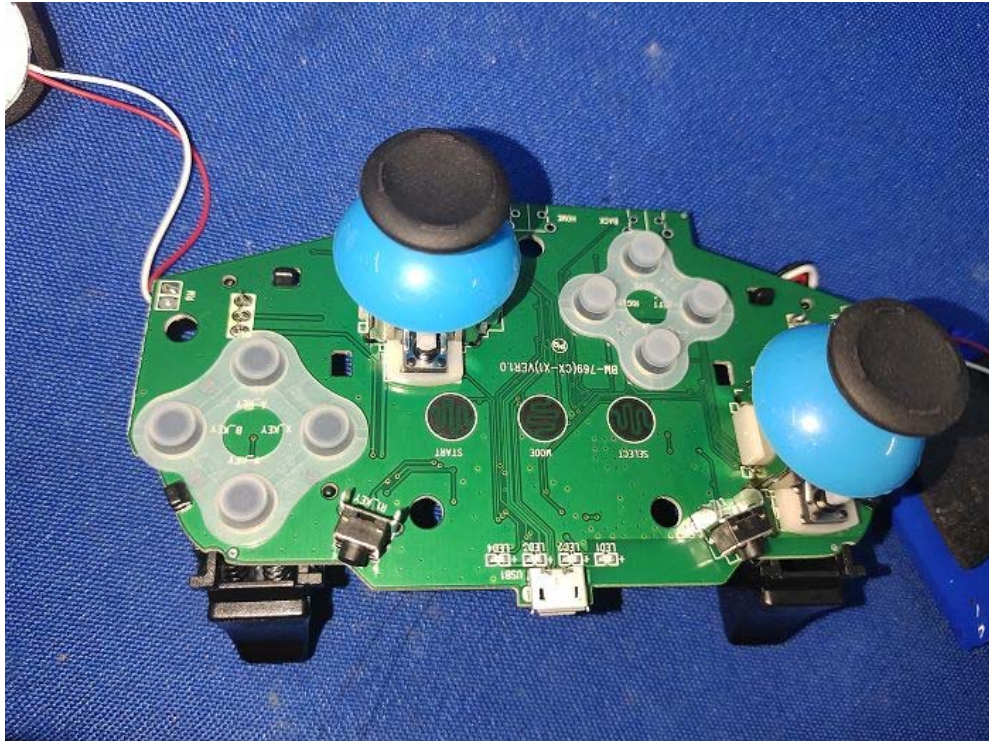


Inside view



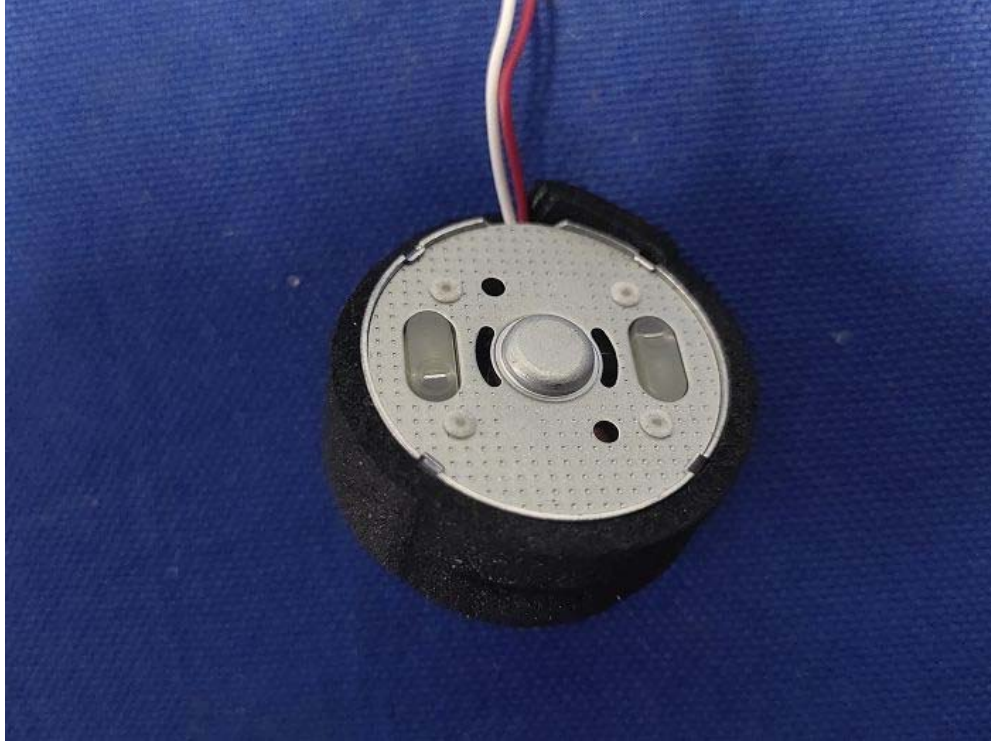
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Inside view



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Inside view



--End of Report--

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