

**CFR 47 FCC PART 15 SUBPART C
ISED RSS-247 ISSUE 2 (DTS)**

TEST REPORT

For

Massage Gun

MODEL NUMBER: R-C001SH

REPORT NUMBER: E01A23080074F00101

ISSUE DATE: Sep. 19, 2023

FCC ID: 2A26P-RC001SH

IC: 27707-RC001SH

Prepared for

REESTAR INTERNATIONAL LIMITED

**UNIT 06-07, 28/F CONCORDIA PLAZA, 1 SCIENCE MUSEUM RD TST, EAST KLN,
HONG KONG**

Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	Sep. 19, 2023	Initial Issue	Win

Summary of Test Results

Test Item	Clause	Limit/Requirement	Result
Antenna Requirement	N/A	FCC Part 15.203/15.247 (c) RSS-GEN Clause 6.8	Pass
AC Power Line Conducted Emission	ANSI C63.10-2013, Clause 6.2	FCC Part 15.207 RSS-GEN Clause 8.8	Pass
Conducted Output Power	ANSI C63.10-2013, Clause 11.9.1.3	FCC Part 15.247 (b)(3) RSS-247 Clause 5.4 (d)	Pass
6dB Bandwidth and 99% Occupied Bandwidth	ANSI C63.10-2013, Clause 11.8.1	FCC Part 15.247 (a)(2) RSS-247 Clause 5.2 (a) ISED RSS-Gen Clause 6.7	Pass
Power Spectral Density	ANSI C63.10-2013, Clause 11.10.2	FCC Part 15.247 (e) RSS-247 Clause 5.2 (b)	Pass
Conducted Band edge and spurious emission	ANSI C63.10-2013, Clause 11.11	FCC Part 15.247(d) RSS-247 Clause 5.5	Pass
Radiated Band edge and Spurious Emission	ANSI C63.10-2013, Clause 11.11 & Clause 11.12	FCC Part 15.247 (d) FCC Part 15.205/15.209 RSS-247 Clause 5.5 RSS-GEN Clause 8.9	Pass
Duty Cycle	ANSI C63.10-2013, Clause 11.6	None; for reporting purposes only.	Pass

*This test report is only published to and used by the applicant, and it is not for evidence purpose in China.

*The measurement result for the sample received is <Pass> according to <CFR 47 FCC PART 15 SUBPART C

ISED RSS-247 ISSUE 2 (DTS)> when <Accuracy Method> decision rule is applied.

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: REESTAR INTERNATIONAL LIMITED
Address: UNIT 06-07, 28/F CONCORDIA PLAZA, 1 SCIENCE MUSEUM
RD TST, EAST KLN, HONG KONG

Manufacturer Information

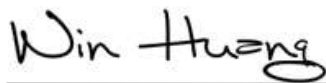
Company Name: Shenzhen Ruiyi Business Technology Co., Ltd.
Address: No. 810-C063, 8th Floor, Xiangbin International Financial Centre,
No.18, West Free Trade Street, China Special Economic Zone,
Qianhai Bay, Shenzhen, Guangdong Province, 518000 China

EUT Information

Product Description: Massage Gun
Model: R-C001SH
Brand: RENPHO
Sample Received Date: Sep. 19, 2023
Sample Status: Normal
Sample ID: A23080074 005
Date of Tested: Aug. 08, 2023 to Sep. 19, 2023

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 FCC PART 15 SUBPART C ISED RSS-247 ISSUE 2 (DTS)	Pass

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Checked By:



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Approved By:



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2. TEST METHODOLOGY

All tests were performed in accordance with the standard CFR 47 FCC PART 15 SUBPART C
ISED RSS-247 ISSUE 2 (DTS)

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	A2LA (Certificate No.: 6947.01) Guangdong Global Testing Technology Co., Ltd. has been assessed and proved to be in compliance with A2LA. FCC (FCC Designation No.: CN1343) Guangdong Global Testing Technology Co., Ltd. has been recognized to perform compliance testing on equipment subject to Supplier's Declaration of Conformity (SDoC) and Certification rules ISED (Company No.: 30714) Guangdong Global Testing Technology Co., Ltd. has been registered and fully described in a report filed with ISED. The Company Number is 30714 and the test lab Conformity Assessment Body Identifier (CABID) is CN0148.
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Note: All tests measurement facilities use to collect the measurement data are located at
Room 101-105, 203-210, Building 1, No.2, Keji 8 Road, Songshan Lake Park, Dongguan city,
Guangdong, People's Republic of China, 523808

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Items	k	Uncertainty
DTS Bandwidth	1.96	±9.2 PPM
20dB Emission Bandwidth	1.96	±9.2 PPM
Carrier Frequency Separation	1.96	±9.2 PPM
Time of Occupancy	1.96	±0.57%
Conducted Output Power	1.96	±1.5 dB
Power Spectral Density Level	1.96	±1.9 dB
Conducted Spurious Emission	1.96	9 kHz-30 MHz: ± 0.95 dB 30 MHz-1 GHz: ± 1.5 dB 1GHz-12.75GHz: ± 1.8 dB 12.75 GHz-26.5 GHz: ± 2.1dB
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.		

Test Item	Measurement Frequency Range	K	U(dB)
Conducted emissions from the AC mains power ports (AMN)	150 kHz ~ 30 MHz	2	3.37
Radiated emissions	9 kHz ~ 30 MHz	2	4.16
Radiated emissions	30 MHz ~ 1 GHz	2	3.79
Radiated emissions	1 GHz ~ 18 GHz	2	5.62
Radiated emissions	18 GHz ~ 40 GHz	2	5.54
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.			

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name		Massage Gun
Model		R-C001SH
Hardware Version		V1.0
Software Version		V1.0
Ratings		Input: 5V, 2A
Power Supply	DC	5V
	Battery	DC 11.1V, 2500mAh

Frequency Band:	2400 MHz to 2483.5 MHz
Frequency Range:	2402 MHz to 2480 MHz
Bluetooth Version:	Bluetooth 5.0
Bluetooth Mode:	Bluetooth LE
Type of Modulation:	GFSK
Number of Channels:	40
Channel Separation:	2 MHz
Maximum Peak Power:	2.79dBm
Antenna Type:	PCB Antenna
Antenna Gain:	1.85dBi
Normal Test Voltage:	5 Vdc
EUT Test software:	BK RF Test _V1.8

5.2. CHANNEL LIST

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

5.3. MAXIMUM EIRP

Test Mode	Frequency (MHz)	Channel Number	Maximum Peak Output Power (dBm)	Maximum EIRP (dBm)
LE 1M	2402 ~ 2480	0-39[40]	2.79	4.64

5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel	Frequency
LE 1M	CH 0(Low Channel), CH 19(MID Channel), CH 39(High Channel)	2402 MHz, 2440 MHz, 2480 MHz

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band				
Test Software Version		BK RF Test _V1.8		
Modulation Type	Transmit Antenna Number	Test Software setting value		
		CH 0	CH 19	CH 39
GFSK(1Mbps)	1	3	3	3

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna	Frequency (MHz)	Antenna Type	MAX Antenna Gain (dBi)
1	2402-2480	PCB	1.85

Test Mode	Transmit and Receive Mode	Description
LE 1M	☒ 1TX, 1RX	Antenna 1 can be used as transmitting/receiving antenna.
Note:		

5.7. EUT ACCESSORY

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
USB-C Cable	1.0	Unshielded	Without Ferrite

5.8. SUPPORT UNITS FOR SYSTEM TEST

The EUT has been tested as an independent unit

Auxiliary Equipment List and Details

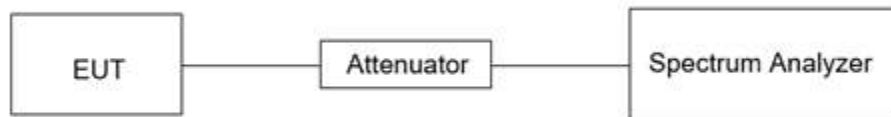
Description	Manufacturer	Model	Serial Number
Adapter	UGREEN	N/A	/
PC	Lenovo	T14	PC

5.9. SETUP DIAGRAM

AC Power Line Conducted Emission:



Conducted Spurious Emission:



Radiated emissions:



6. MEASURING EQUIPMENT AND SOFTWARE USED

Test Equipment of Conducted RF					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
Spectrum Analyzer	Rohde & Schwarz	FSV40	102257	2022/10/08	2023/10/07
Spectrum Analyzer	KEYSIGHT	N9020A	MY51285127	2022/10/08	2023/10/07
EXG Analog Signal Generator	KEYSIGHT	N5173B	MY61253075	2022/10/08	2023/10/07
Vector Signal Generator	Rohde & Schwarz	SMM100A	101899	2023/03/16	2024/03/15
RF Control box	MWRF-test	MW100-RFCB	MW220926GTG	2022/10/08	2023/10/07
Wideband Radio Communication Tester	Rohde & Schwarz	CMW270	102792	2023/03/16	2024/03/15
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	103235	2022/10/08	2023/10/07
temperature humidity chamber	Espec	SH-241	SH-241-2014	2022/10/08	2023/10/07
RF Test Software	MWRF-test	MTS8310E (Ver. V2/0)	N/A	N/A	N/A

Test Equipment of Radiated emissions below 1GHz					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
3m Semi-anechoic Chamber	ETS	9m*6m*6m	Q2146	2022/08/30	2025/08/29
EMI Test Receiver	Rohde & Schwarz	ESCI3	101409	2022/10/08	2023/10/07
Spectrum Analyzer	KEYSIGHT	N9020A	MY51283932	2022/10/08	2023/10/07
Pre-Amplifier	HzEMC	HPA-9K0130	HYP A21001	2022/10/29	2023/10/28
Biconilog Antenna	Schwarzbeck	VULB 9168	01315	2022/10/10	2025/10/09
Biconilog Antenna	ETS	3142E	00243646	2022/03/23	2025/03/22
Loop Antenna	ETS	6502	243668	2022/03/30	2025/03/29
Test Software	Farad	EZ-EMC (Ver.FA-03A2 RE)	N/A	N/A	N/A

Test Equipment of Radiated emissions above 1GHz					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
3m Semi-anechoic Chamber	ETS	9m*6m*6m	Q2149	2022/08/30	2025/08/29
Spectrum Analyzer	Rohde & Schwarz	FSV40	101413	2022/10/08	2023/10/07
Spectrum Analyzer	KEYSIGHT	N9020A	MY51283932	2022/10/08	2023/10/07
Pre-Amplifier	A-INFO	HPA-1G1850	HYP A21003	2022/10/29	2023/10/28
Horn antenna	A-INFO	3117	246069	2022/03/11	2025/03/10
Pre-Amplifier	ZKJC	HPA-184057	HYP A21004	2022/10/29	2023/10/28

Horn antenna	ZKJC	3116C	246265	2022/03/29	2025/03/28
Test Software	Farad	EZ-EMC (Ver.FA-03A2 RE+)	N/A	N/A	N/A

Test Equipment of Conducted emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
Shielded Room	CHENG YU	8m*5m*4m	N/A	2022/10/29	2025/10/28
EMI Test Receiver	Rohde & Schwarz	ESR3	102647	2022/12/03	2023/12/02
LISN/AMN	Rohde & Schwarz	ENV216	102843	2022/10/08	2023/10/07
NNLK 8129 RC	Schwarzbeck	NNLK 8129 RC	5046	2023/03/30	2024/03/29
Test Software	Farad	EZ-EMC (Ver. EMC-con-3A1 1+)	N/A	N/A	N/A

7. ANTENNA PORT TEST RESULTS

7.1. CONDUCTED OUTPUT POWER

LIMITS

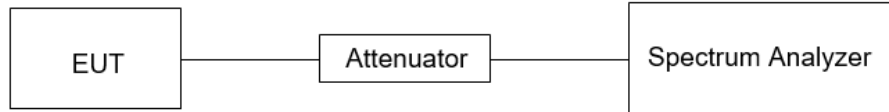
CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(b)(3) ISED RSS-247 5.4 (d)	Peak Conduct Output Power	1 watt or 30 dBm	2400-2483.5

TEST PROCEDURE

Connect the EUT to a low loss RF cable from the antenna port to the Spectrum Analyzer (video bandwidth is greater than the occupied bandwidth).

Measure peak emission level, the indicated level is the peak output power, after any corrections for external attenuators and cables.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.3°C	Relative Humidity	41%
Atmosphere Pressure	101kPa		

TEST RESULTS

Please refer to section "Test Data" - Appendix A

7.2. 6DB BANDWIDTH AND 99% OCCUPIED BANDWIDTH

LIMITS

CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(a)(2) ISED RSS-247 5.2 (a)	6 dB Bandwidth	≥ 500 kHz	2400-2483.5
ISED RSS-Gen Clause 6.7	99 % Occupied Bandwidth	For reporting purposes only.	2400-2483.5

TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.8 for DTS bandwidth and clause 6.9 for Occupied Bandwidth.

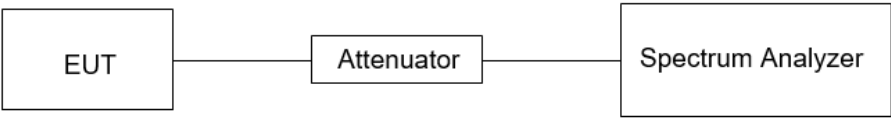
Connect the EUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Frequency Span	For 6 dB Bandwidth: Enough to capture all products of the modulation carrier emission For 99 % Occupied Bandwidth: Between 1.5 times and 5.0 times the OBW
Detector	Peak
RBW	For 6 dB Bandwidth: 100 kHz For 99 % Occupied Bandwidth: 1 % to 5 % of the occupied bandwidth
VBW	For 6 dB Bandwidth: $\geq 3 \times$ RBW For 99 % Occupied Bandwidth: $\geq 3 \times$ RBW
Trace	Max hold
Sweep	Auto couple

a) Use the 99 % power bandwidth function of the instrument, allow the trace to stabilize and report the measured bandwidth.

b) Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.3°C	Relative Humidity	41%
Atmosphere Pressure	101kPa		

TEST RESULTS

Please refer to section "Test Data" - Appendix A

7.3. POWER SPECTRAL DENSITY

LIMITS

CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC §15.247 (e) ISED RSS-247 5.2 (b)	Power Spectral Density	8 dBm in any 3 kHz band	2400-2483.5

TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.10.

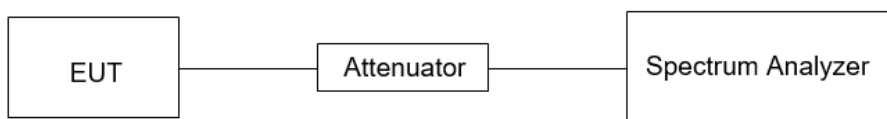
Connect the EUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	PEAK
RBW	$3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
VBW	$\geq 3 \times \text{RBW}$
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple

Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.3°C	Relative Humidity	41%
Atmosphere Pressure	101kPa		

TEST RESULTS

Please refer to section "Test Data" - Appendix A

7.4. CONDUCTED BAND EDGE AND SPURIOUS EMISSION

LIMITS

CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 2		
Section	Test Item	Limit
CFR 47 FCC §15.247 (d) ISED RSS-247 5.5	Conducted Bandedge and Spurious Emissions	at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.11 and 11.13.

Connect the EUT to the spectrum analyser and use the following settings for reference level measurement:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	100 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	$1.5 \times \text{DTS bandwidth}$
Trace	Max hold
Sweep time	Auto couple.

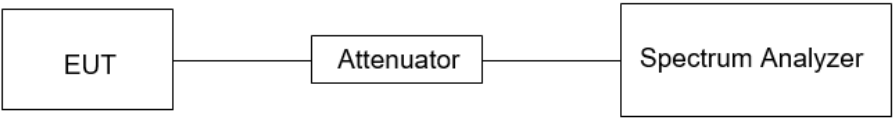
Allow trace to fully stabilize and use the peak marker function to determine the maximum PSD level.

Change the settings for emission level measurement:

Span	Set the center frequency and span to encompass frequency range to be measured
Detector	Peak
RBW	100 kHz
VBW	$\geq 3 \times \text{RBW}$
measurement points	$\geq \text{span}/\text{RBW}$
Trace	Max hold
Sweep time	Auto couple.

Allow trace to fully stabilize and use the peak marker function to determine the maximum PSD level. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.3°C	Relative Humidity	41%
Atmosphere Pressure	101kPa		

TEST RESULTS

Please refer to section "Test Data" - Appendix A

7.5. DUTY CYCLE

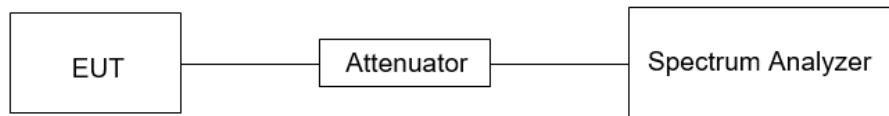
LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.6 Zero – Span Spectrum Analyzer method.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.3°C	Relative Humidity	41%
Atmosphere Pressure	101kPa		

TEST RESULTS

Please refer to section "Test Data" - Appendix A

8. RADIATED TEST RESULTS

LIMITS

Please refer to CFR 47 FCC §15.205 and §15.209.

Please refer to ISED RSS-GEN Clause 8.9 and Clause 8.10.

Radiation Disturbance Test Limit for FCC (Class B) (9 kHz ~ 1 GHz)

Emissions radiated outside of the specified frequency bands above 30 MHz			
Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m	
		Quasi-Peak	
30 - 88	100	40	
88 - 216	150	43.5	
216 - 960	200	46	
Above 960	500	54	
Above 1000	500	Peak	Average
		74	54

FCC Emissions radiated outside of the specified frequency bands below 30 MHz		
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30

ISED General field strength limits at frequencies below 30 MHz

Table 6 – General field strength limits at frequencies below 30 MHz		
Frequency	Magnetic field strength (H-Field) (μA/m)	Measurement distance (m)
9 - 490 kHz ^{Note 1}	6.37/F (F in kHz)	300
490 - 1705 kHz	63.7/F (F in kHz)	30
1.705 - 30 MHz	0.08	30

Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

ISED Restricted bands please refer to ISED RSS-GEN Clause 8.10

Table 7 – Restricted frequency bands ^{Note 1}		
MHz	MHz	GHz
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52625	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 - 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 - 8500	
108 - 138		

Note 1: Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

FCC Restricted bands of operation refer to FCC §15.205 (a):

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

Note: ¹Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

²Above 38.6c

TEST PROCEDURE

Below 30 MHz

The setting of the spectrum analyser

RBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
VBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
Sweep	Auto

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.4.
2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80 cm above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1 m height antenna tower.
5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.
6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak and average detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak and average detector and reported.
7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.
8. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377Ω. For example, the measurement frequency X KHz resulted in a level of Y dBuV/m, which is equivalent to $Y-51.5 = Z$ dBuA/m, which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.

Below 1 GHz and above 30 MHz

The setting of the spectrum analyser

RBW	120 kHz
VBW	300 kHz
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.5.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80 cm above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

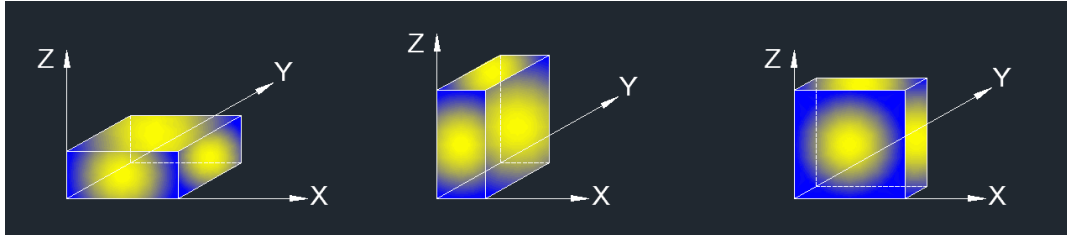
Above 1G

The setting of the spectrum analyser

RBW	1 MHz
VBW	PEAK: 3 MHz AVG: see note 6
Sweep	Auto
Detector	Peak
Trace	Max hold

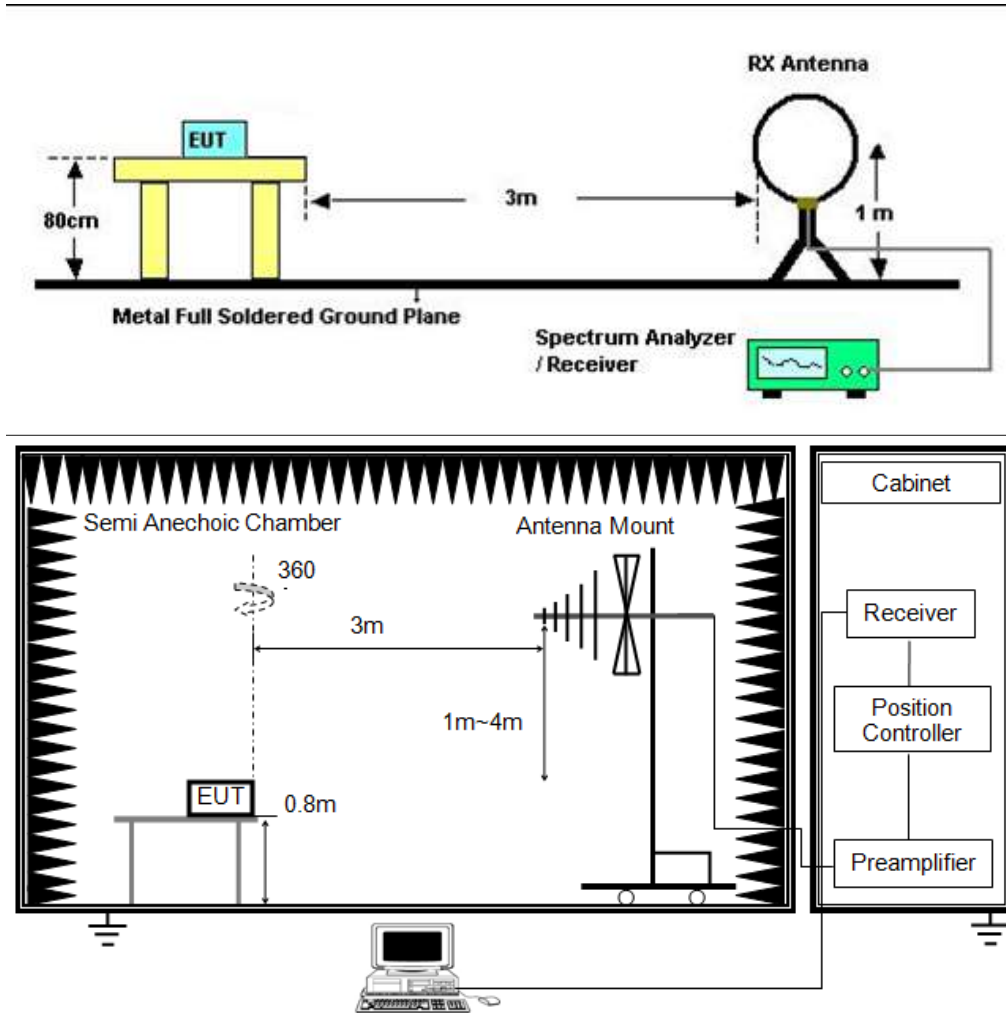
1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.6.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 1.5 m above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. For measurement above 1 GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.
6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 7.1.ON TIME AND DUTY CYCLE.

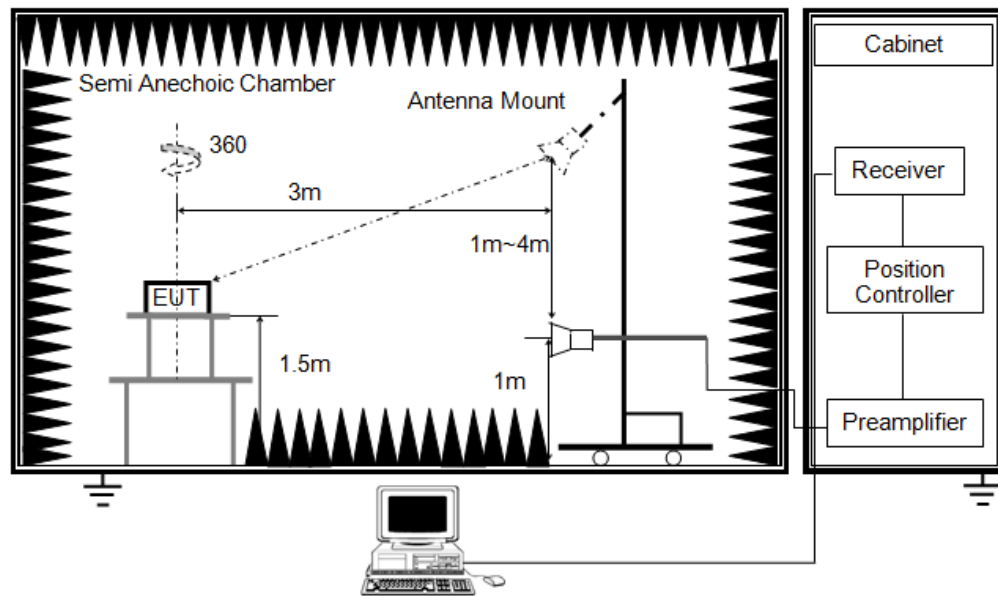
X axis, Y axis, Z axis positions:



Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

TEST SETUP





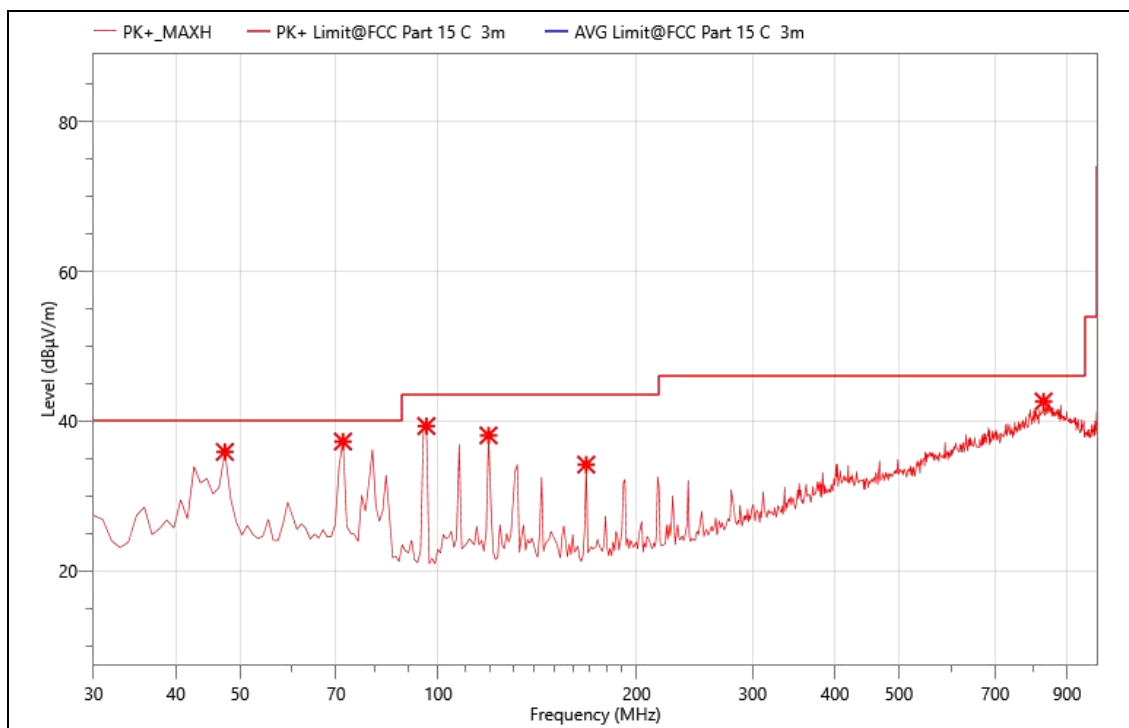
TEST ENVIRONMENT

Temperature	24.3℃	Relative Humidity	54%
Atmosphere Pressure	101kPa		

TEST RESULTS

8.1. RADIATED BAND EDGE AND SPURIOUS EMISSION

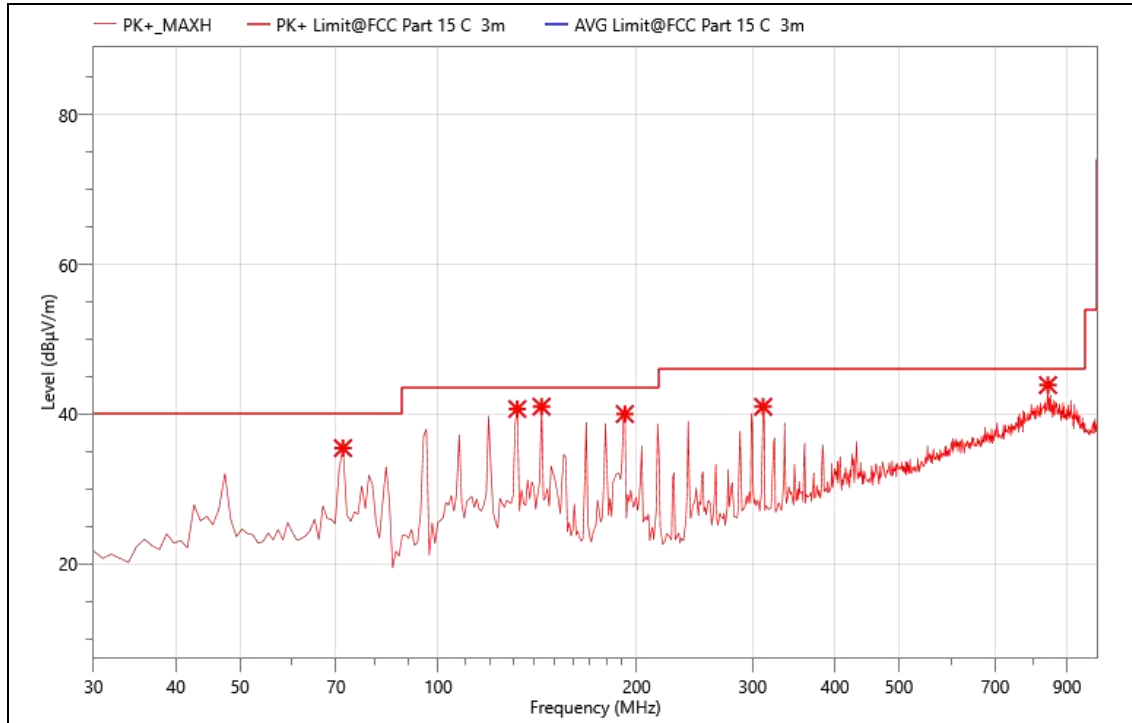
Mode:	BLE 2402MHz
Power:	DC 5V
TE:	Vier
Date	2023/8/9
T/A/P	24.3°C/54%/101Kpa



Critical_Freqs

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)
1	47.460	39.92	35.91	40.00	4.09	PK+	V	-4.01
2	71.710	42.36	37.29	40.00	2.71	PK+	V	-5.07
3	95.960	45.55	39.36	43.50	4.14	PK+	V	-6.19
4	119.240	43.98	38.11	43.50	5.39	PK+	V	-5.87
5	167.740	39.54	34.21	43.50	9.29	PK+	V	-5.33
6	829.280	29.28	42.65	46.00	3.35	PK+	V	13.37

Mode:	BLE 2402MHz
Power:	DC 5V
TE:	Vier
Date	2023/8/9
T/A/P	24.3°C/54%/101Kpa

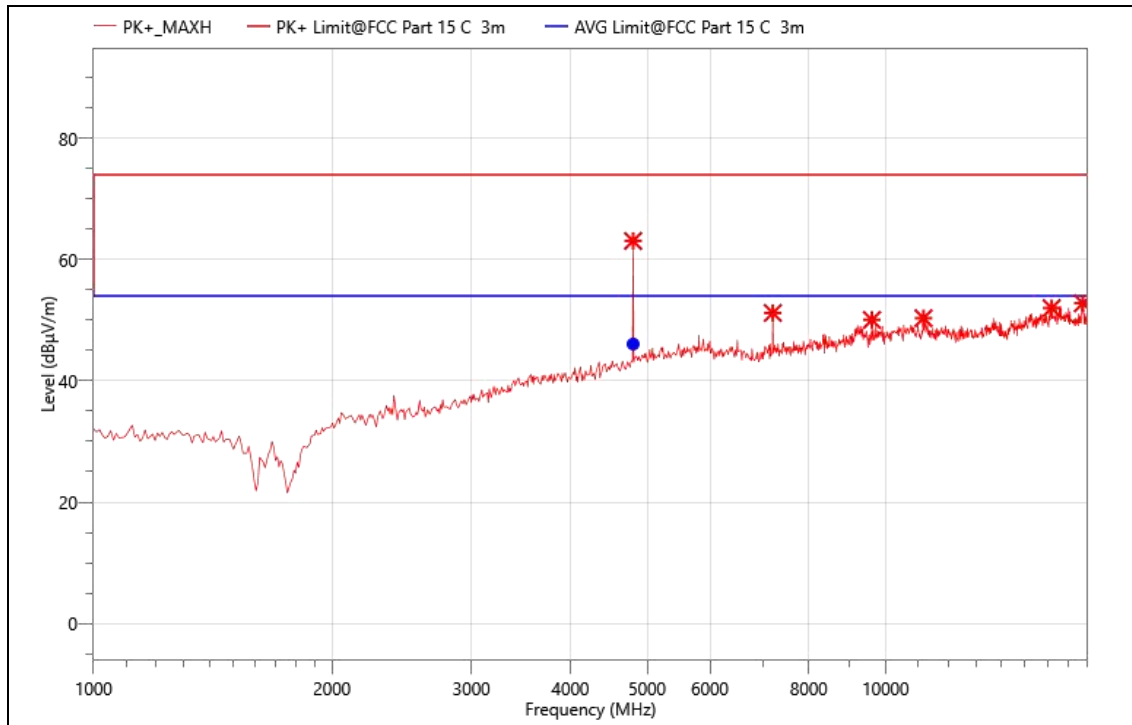


Critical_Freqs

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)
1	71.710	40.55	35.48	40.00	4.52	PK+	H	-5.07
2	131.850	46.38	40.70	43.50	2.80	PK+	H	-5.68
3	143.490	46.67	41.02	43.50	2.48	PK+	H	-5.65
4	191.990	44.81	40.03	43.50	3.47	PK+	H	-4.78
5	311.300	41.58	41.00	46.00	5.00	PK+	H	-0.58
6	841.890	29.98	43.90	46.00	2.10	PK+	H	13.92

Note: 1. Result Level = Read Level+ Antenna Factor+ Cable Loss- Amp. Factor

Mode:	BLE 2402MHz
Power:	DC 5V
TE:	Berny
Date	2023/8/29
T/A/P	24.3°C/54%/101Kpa



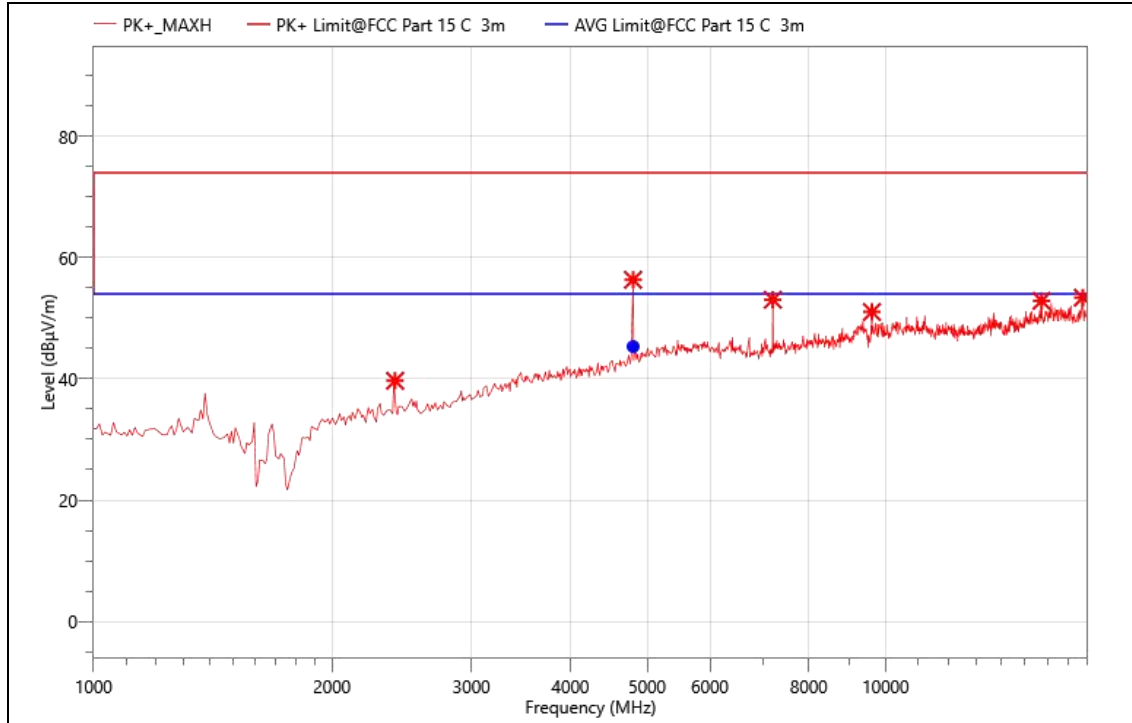
Critical_Freqs

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)
1	4799.500	72.84	63.07	74.00	10.93	PK+	H	-9.77
2	7205.000	54.50	51.20	74.00	22.80	PK+	H	-3.3
3	9610.500	51.11	50.05	74.00	23.95	PK+	H	-1.06
4	11166.000	49.29	50.33	74.00	23.67	PK+	H	1.04
5	16206.500	47.40	52.00	74.00	22.00	PK+	H	4.6
6	17745.000	47.41	52.79	74.00	21.21	PK+	H	5.38

Final_Result

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)	Verdict
1	4799.500	55.84	46.07	54.00	7.93	AVG	H	-9.77	PASS

Mode:	BLE 2402MHz
Power:	DC 5V
TE:	Berny
Date	2023/8/29
T/A/P	24.3°C/54%/101Kpa



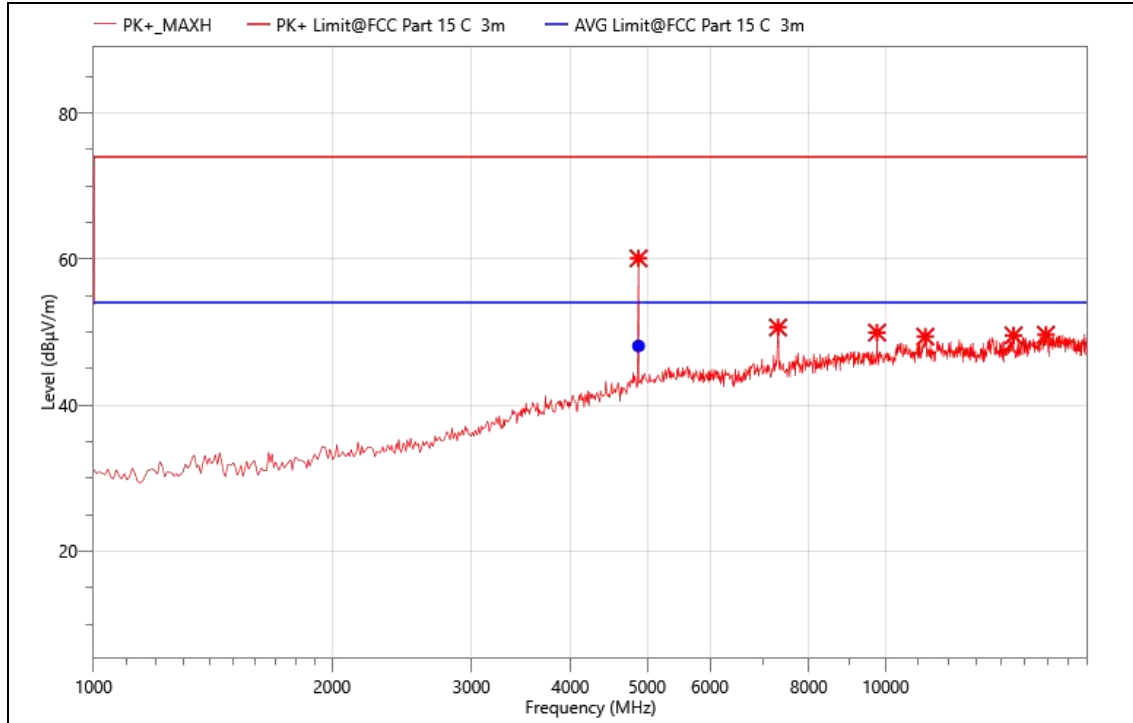
Critical_Freqs

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)
1	2402.500	60.38	39.68	74.00	34.32	PK+	V	-20.7
2	4799.500	66.10	56.33	74.00	17.67	PK+	V	-9.77
3	7205.000	56.34	53.04	74.00	20.96	PK+	V	-3.3
4	9610.500	52.09	51.03	74.00	22.97	PK+	V	-1.06
5	15739.000	49.27	52.86	74.00	21.14	PK+	V	3.59
6	17745.000	48.01	53.39	74.00	20.61	PK+	V	5.38

Final_Result

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)	Verdict
1	4799.500	55.10	45.33	54.00	8.67	AVG	V	-9.77	PASS

Mode:	BLE 2440MHz
Power:	DC 5V
TE:	Berny
Date	2023/8/29
T/A/P	24.3°C/54%/101Kpa



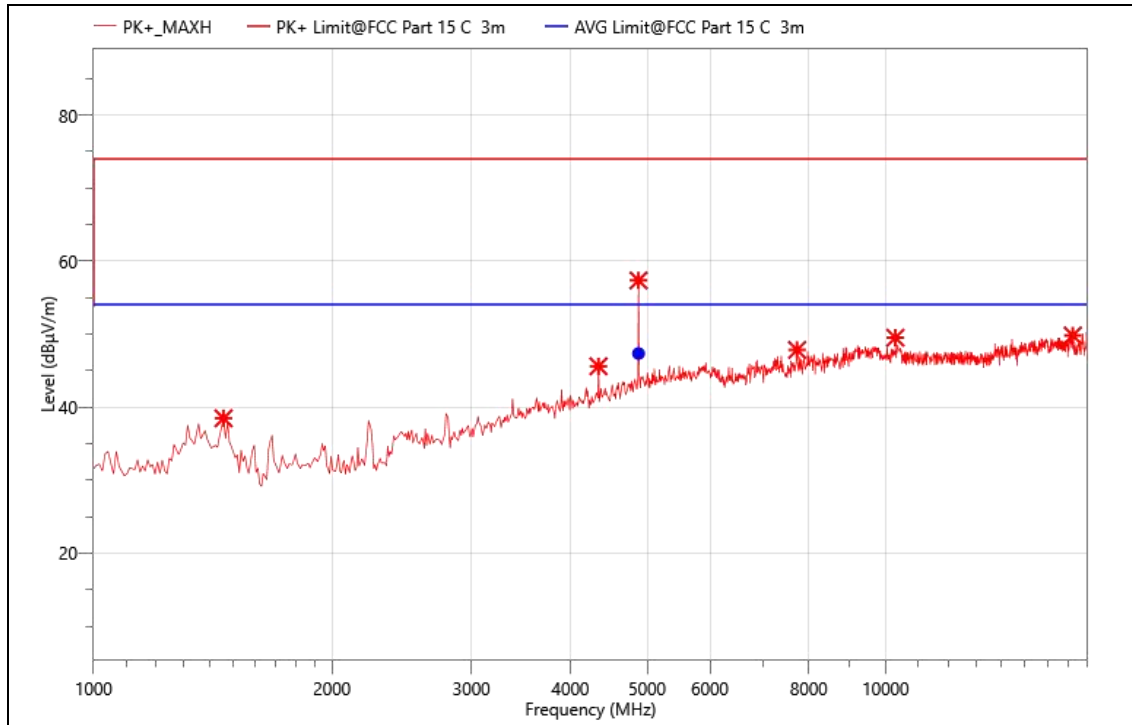
Critical_Freqs

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)
1	4876.000	68.97	60.10	74.00	13.90	PK+	H	-8.87
2	7315.500	54.03	50.64	74.00	23.36	PK+	H	-3.39
3	9755.000	50.81	49.94	74.00	24.06	PK+	H	-0.87
4	11225.500	48.01	49.38	74.00	24.62	PK+	H	1.37
5	14506.500	47.88	49.55	74.00	24.45	PK+	H	1.67
6	15943.000	46.30	49.65	74.00	24.35	PK+	H	3.35

Final_Result

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)	Verdict
1	4876.000	56.97	48.10	54.00	5.90	AVG	H	-8.87	PASS

Mode:	BLE 2440MHz
Power:	DC 5V
TE:	Berny
Date	2023/8/29
T/A/P	24.3°C/54%/101Kpa



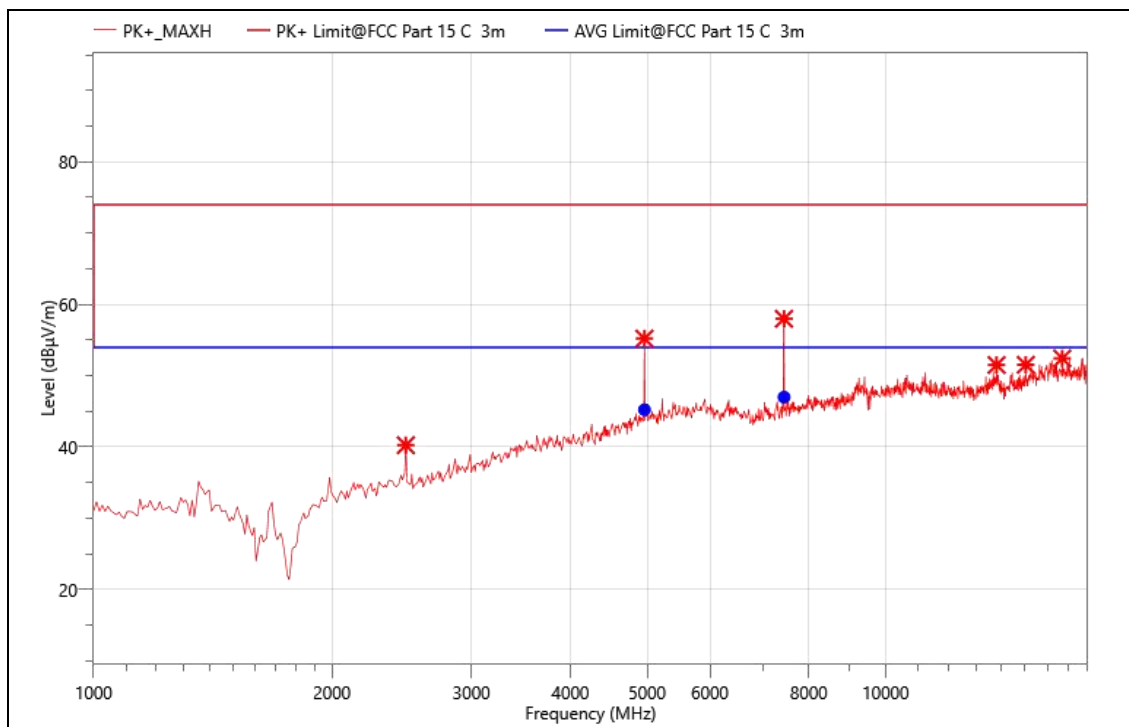
Critical_Freqs

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)
1	1459.000	64.37	38.48	74.00	35.52	PK+	V	-25.89
2	4340.500	56.79	45.60	74.00	28.40	PK+	V	-11.19
3	4876.000	66.22	57.35	74.00	16.65	PK+	V	-8.87
4	7732.000	50.69	47.84	74.00	26.16	PK+	V	-2.85
5	10290.500	49.80	49.51	74.00	24.49	PK+	V	-0.29
6	17235.000	46.10	49.82	74.00	24.18	PK+	V	3.72

Final_Result

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)	Verdict
1	4876.000	56.22	47.35	54.00	6.65	AVG	V	-8.87	PASS

Mode:	BLE-2480MHz
Power:	DC 5V
TE:	Berny
Date	2023/8/29
T/A/P	24.3°C/54%/101Kpa



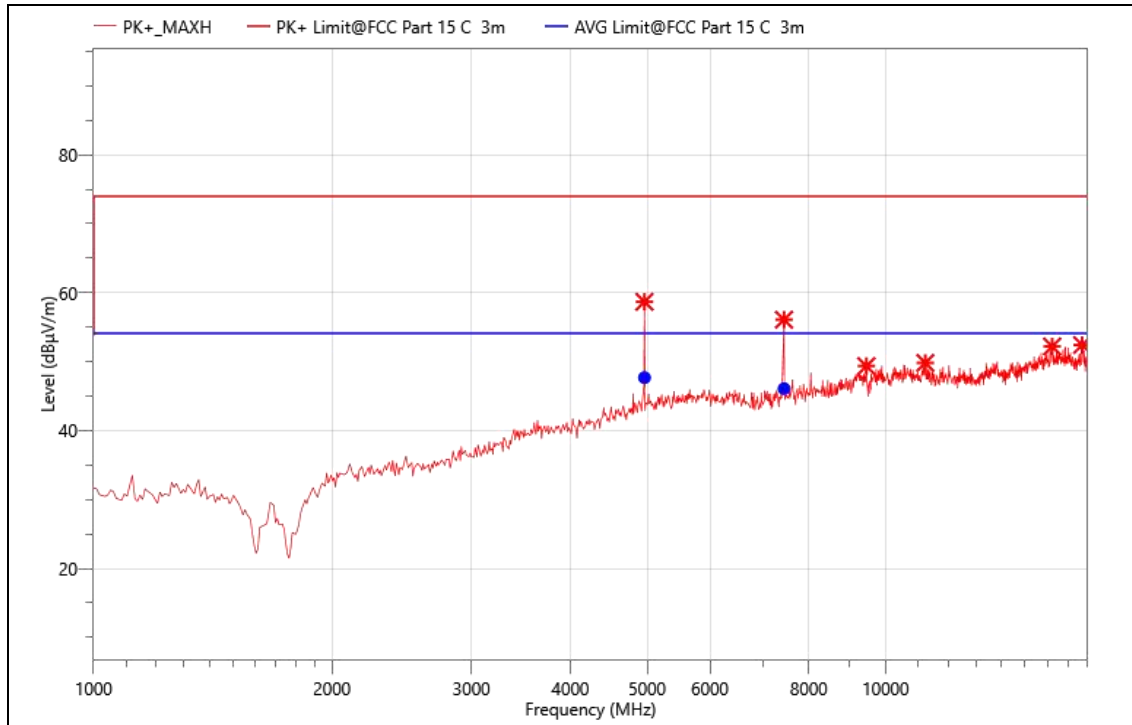
Critical_Freqs

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)
1	2479.000	60.54	40.23	74.00	33.77	PK+	V	-20.31
2	4961.000	64.08	55.20	74.00	18.80	PK+	V	-8.88
3	7443.000	60.89	57.97	74.00	16.03	PK+	V	-2.92
4	13809.500	49.14	51.48	74.00	22.52	PK+	V	2.34
5	15033.500	49.12	51.51	74.00	22.49	PK+	V	2.39
6	16716.500	48.56	52.41	74.00	21.59	PK+	V	3.85

Final_Result

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)	Verdict
1	4961.000	54.08	45.20	54.00	8.80	AVG	V	-8.88	PASS
2	7443.000	49.89	46.97	54.00	7.03	AVG	V	-2.92	PASS

Mode:	BLE-2480MHz
Power:	DC 5V
TE:	Berny
Date	2023/8/29
T/A/P	24.3°C/54%/101Kpa



Critical_Freqs

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)
1	4961.000	67.56	58.68	74.00	15.32	PK+	H	-8.88
2	7443.000	59.00	56.08	74.00	17.92	PK+	H	-2.92
3	9457.500	49.96	49.36	74.00	24.64	PK+	H	-0.6
4	11225.500	48.44	49.81	74.00	24.19	PK+	H	1.37
5	16232.000	47.82	52.20	74.00	21.80	PK+	H	4.38
6	17711.000	47.61	52.41	74.00	21.59	PK+	H	4.8

Final_Result

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)	Verdict
1	4961.000	56.56	47.68	54.00	6.32	AVG	H	-8.88	PASS
2	7443.000	49.00	46.08	54.00	7.92	AVG	H	-2.92	PASS

Other harmonics emissions are lower than 20dB below the allowable limit.

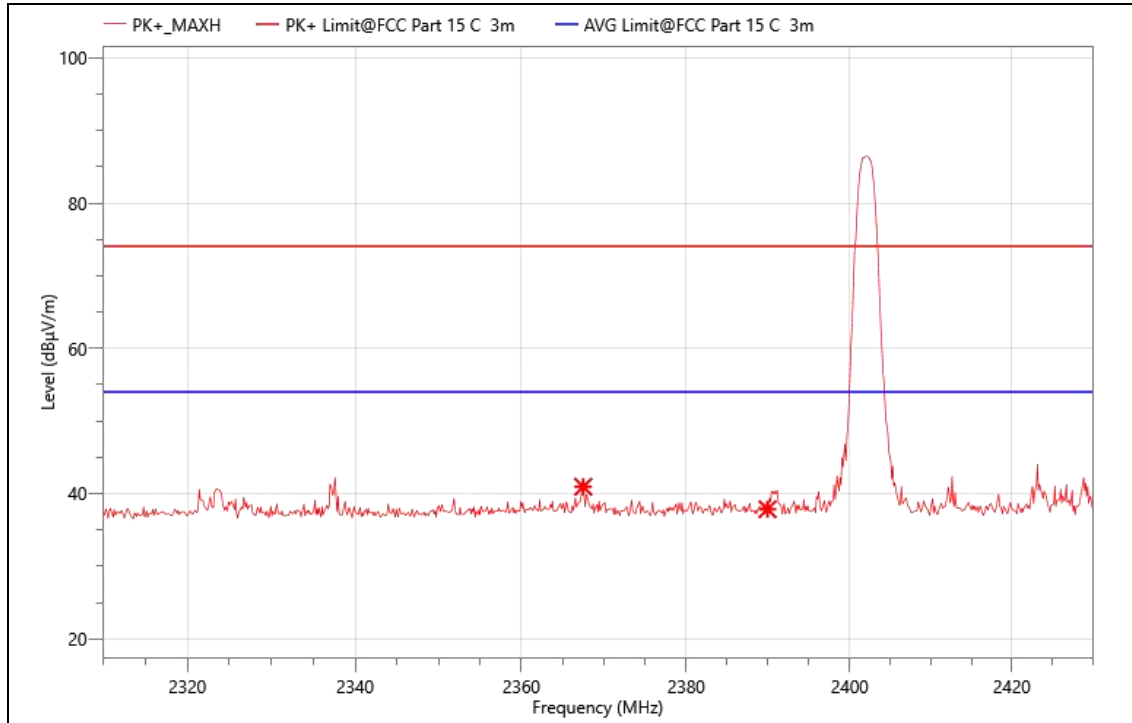
Note: (1) All Readings are Peak Value and AV.

(2) Emission Level= Reading Level+ Probe Factor +Cable Loss.

(3) The average measurement was not performed when the peak measured data under the limit of average detection.

(4) Measuring frequencies from 1GHz to 25GHz.

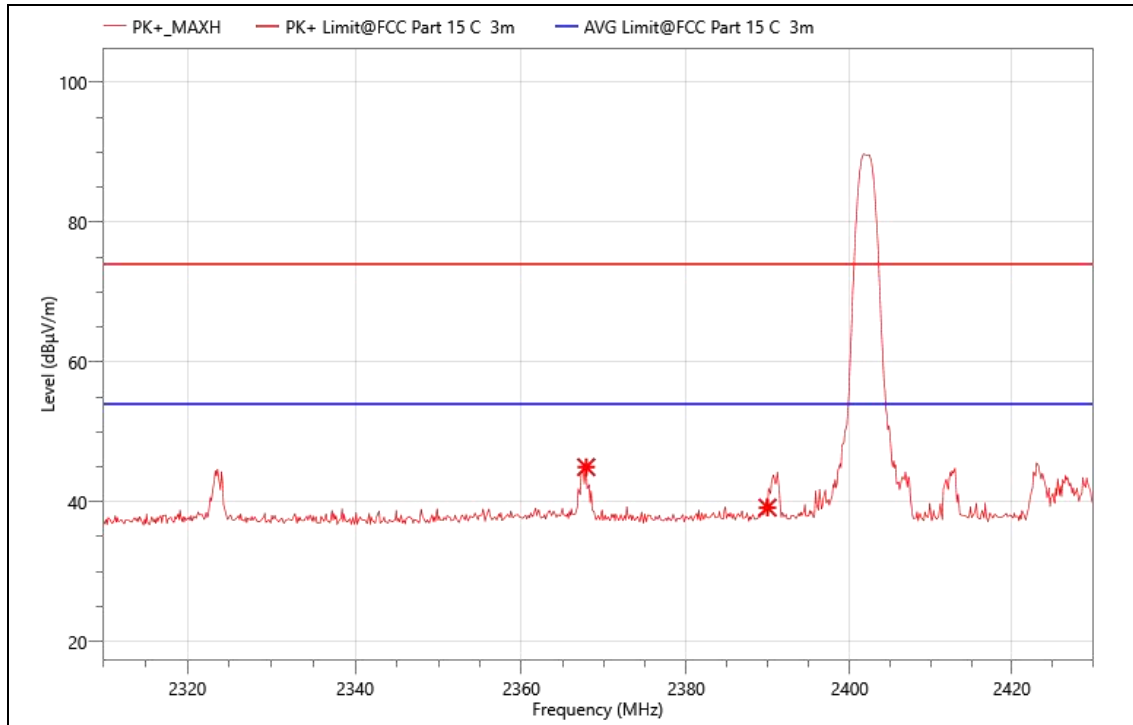
Mode:	BLE 2402MHz
Power:	DC 5V
TE:	Vier
Date	2023/8/9
T/A/P	24.3°C/54%/101Kpa



Critical_Freqs

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)
1	2367.480	61.67	40.94	74.00	33.06	PK+	V	-20.73
2	2389.920	58.57	37.84	74.00	36.16	PK+	V	-20.73

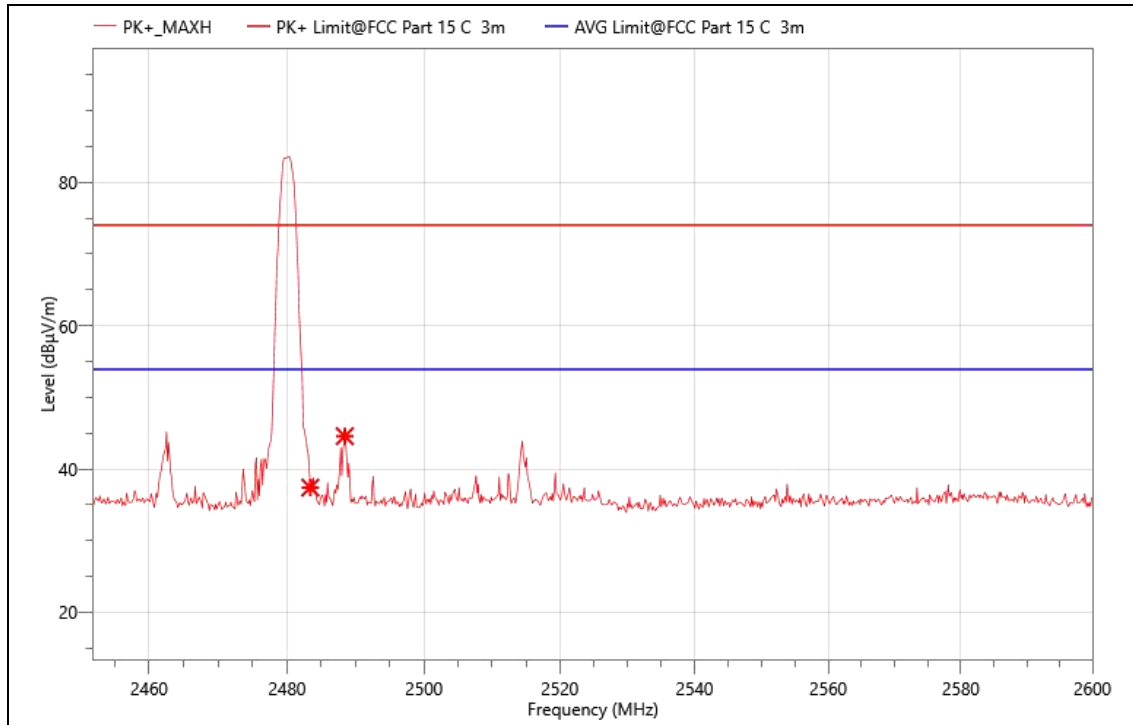
Mode:	BLE 2402MHz
Power:	DC 5V
TE:	Vier
Date	2023/8/9
T/A/P	24.3°C/54%/101Kpa



Critical_Freqs

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)
1	2367.840	65.68	44.95	74.00	29.05	PK+	H	-20.73
2	2389.920	59.89	39.16	74.00	34.84	PK+	H	-20.73

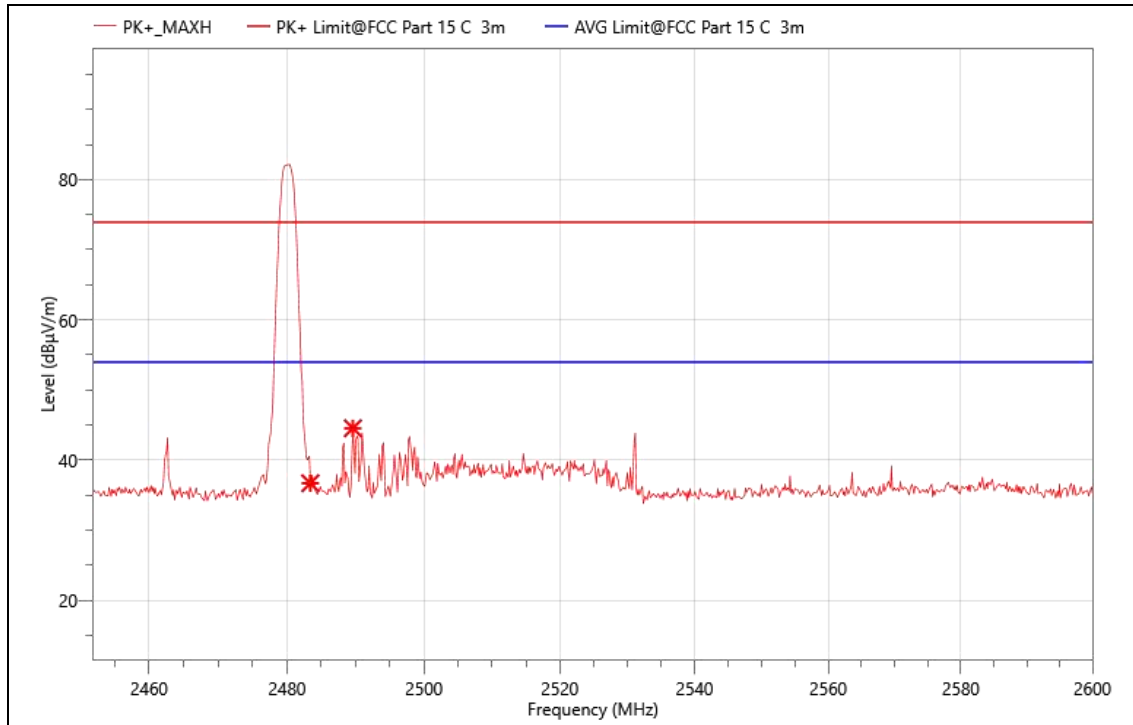
Mode:	BLE 2480MHz
Power:	DC 5V
TE:	Vier
Date	2023/8/9
T/A/P	24.3°C/54%/101Kpa



Critical_Freqs

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)
1	2483.376	57.71	37.41	74.00	36.59	PK+	H	-20.3
2	2488.408	64.87	44.59	74.00	29.41	PK+	H	-20.28

Mode:	BLE 2480MHz
Power:	DC 5V
TE:	Vier
Date	2023/8/9
T/A/P	24.3°C/54%/101Kpa



Critical_Freqs

No.	Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.	Pol.	Corr. (dB)
1	2483.376	57.01	36.71	74.00	37.29	PK+	V	-20.3
2	2489.592	64.83	44.55	74.00	29.45	PK+	V	-20.28

9. ANTENNA REQUIREMENT

REQUIREMENT

The EUT'S antenna is met the requirement of FCC part 15C section 15.203 and 15.247.

FCC part 15C section 15.247 requirements:

Systems operating in the 2402-2480MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

DESCRIPTION

Pass

10. AC POWER LINE CONDUCTED EMISSION

LIMITS

Please refer to CFR 47 FCC §15.207 (a) and ISED RSS-Gen Clause 8.8

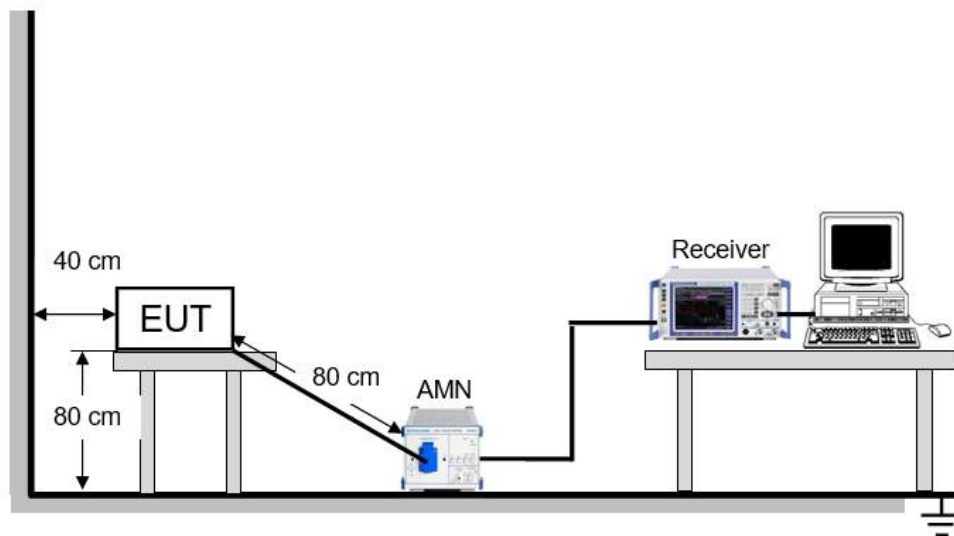
FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

TEST PROCEDURE

The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

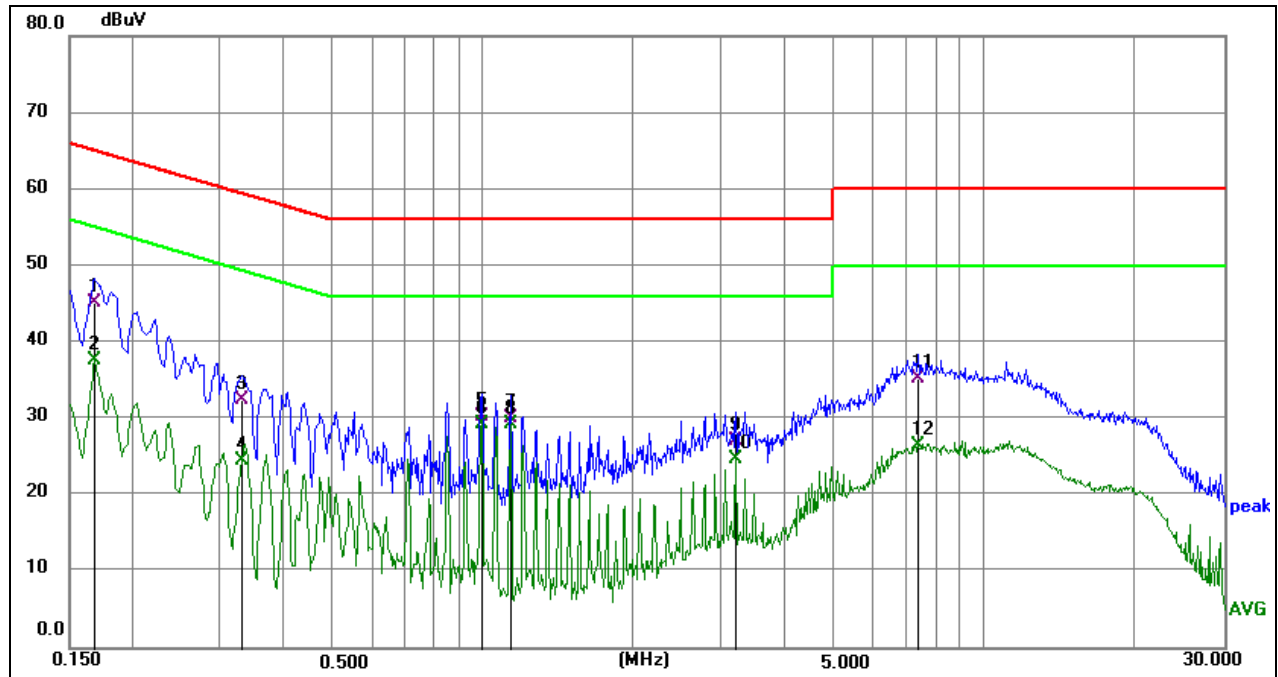
The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

TEST SETUP



TEST ENVIRONMENT

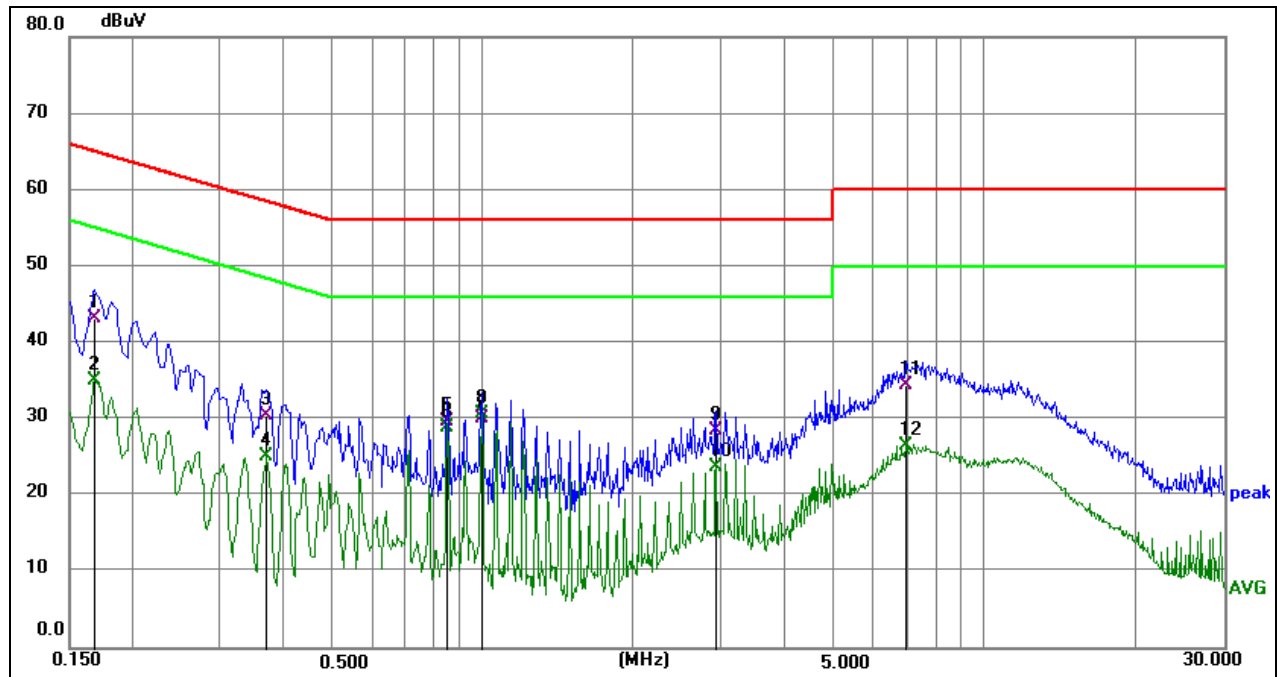
Temperature	26°C	Relative Humidity	54%
Atmosphere Pressure	101kPa		

TEST RESULTS

Phase: N

Mode: 2402MHz

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1680	35.21	9.95	45.16	65.06	-19.90	QP
2	0.1680	27.63	9.95	37.58	55.06	-17.48	AVG
3	0.3300	22.63	9.89	32.52	59.45	-26.93	QP
4	0.3300	14.65	9.89	24.54	49.45	-24.91	AVG
5	0.9960	20.13	10.11	30.24	56.00	-25.76	QP
6	0.9960	19.15	10.11	29.26	46.00	-16.74	AVG
7	1.1355	20.03	10.12	30.15	56.00	-25.85	QP
8	1.1355	19.18	10.12	29.30	46.00	-16.70	AVG
9	3.1965	16.95	10.21	27.16	56.00	-28.84	QP
10	3.1965	14.44	10.21	24.65	46.00	-21.35	AVG
11	7.3770	24.72	10.54	35.26	60.00	-24.74	QP
12	7.3770	15.90	10.54	26.44	50.00	-23.56	AVG



Phase: L1

Mode: 2402MHz

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1680	33.35	9.91	43.26	65.06	-21.80	QP
2	0.1680	25.22	9.91	35.13	55.06	-19.93	AVG
3	0.3704	20.51	9.91	30.42	58.49	-28.07	QP
4	0.3704	15.19	9.91	25.10	48.49	-23.39	AVG
5	0.8520	19.54	10.09	29.63	56.00	-26.37	QP
6	0.8520	18.70	10.09	28.79	46.00	-17.21	AVG
7	0.9960	20.11	10.04	30.15	56.00	-25.85	QP
8	0.9960	20.54	10.04	30.58	46.00	-15.42	AVG
9	2.9175	18.45	10.07	28.52	56.00	-27.48	QP
10	2.9175	13.68	10.07	23.75	46.00	-22.25	AVG
11	6.9675	23.96	10.56	34.52	60.00	-25.48	QP
12	6.9675	15.85	10.56	26.41	50.00	-23.59	AVG

Note: 1. Result = Reading + Correct Factor.

2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).

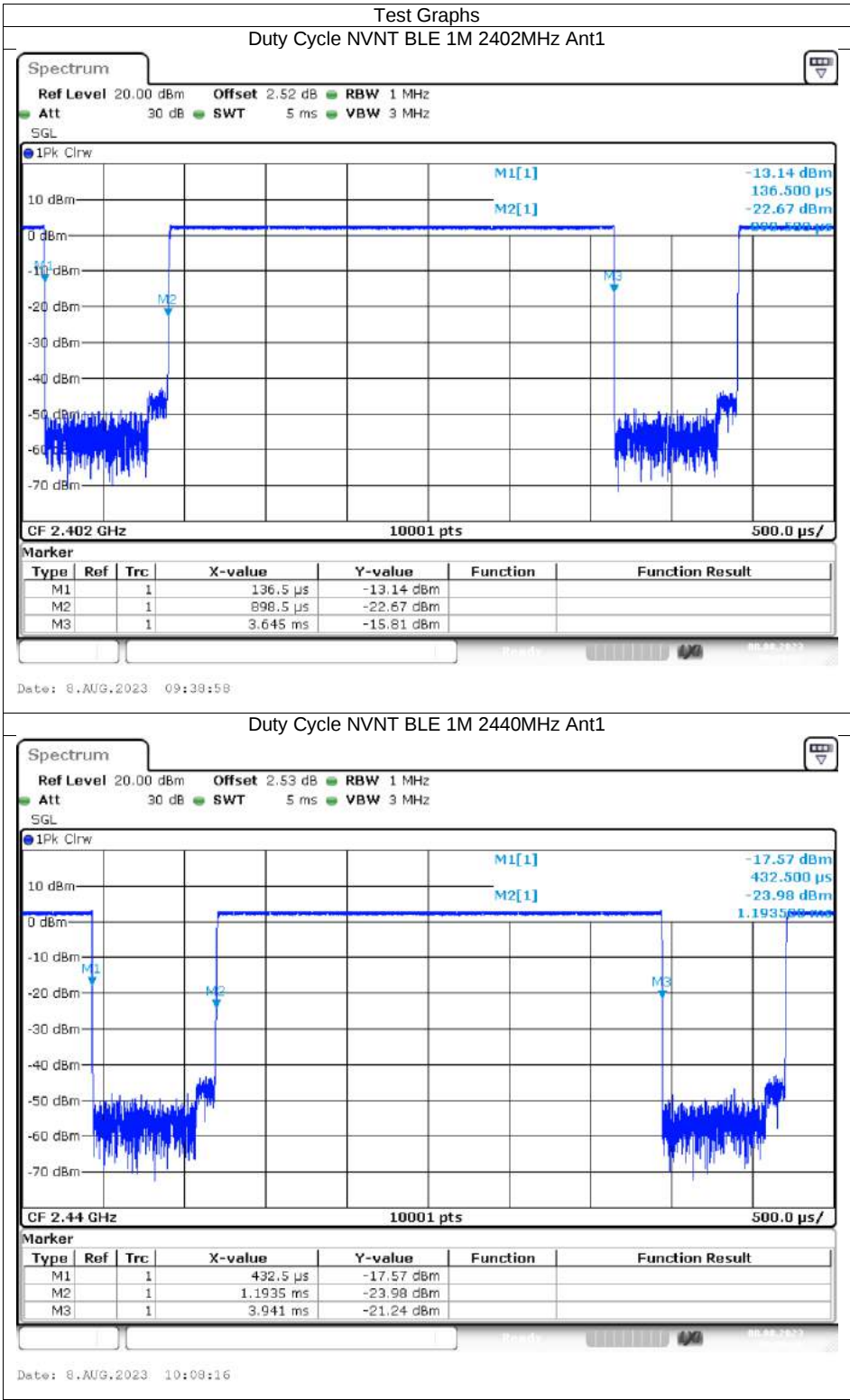
4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

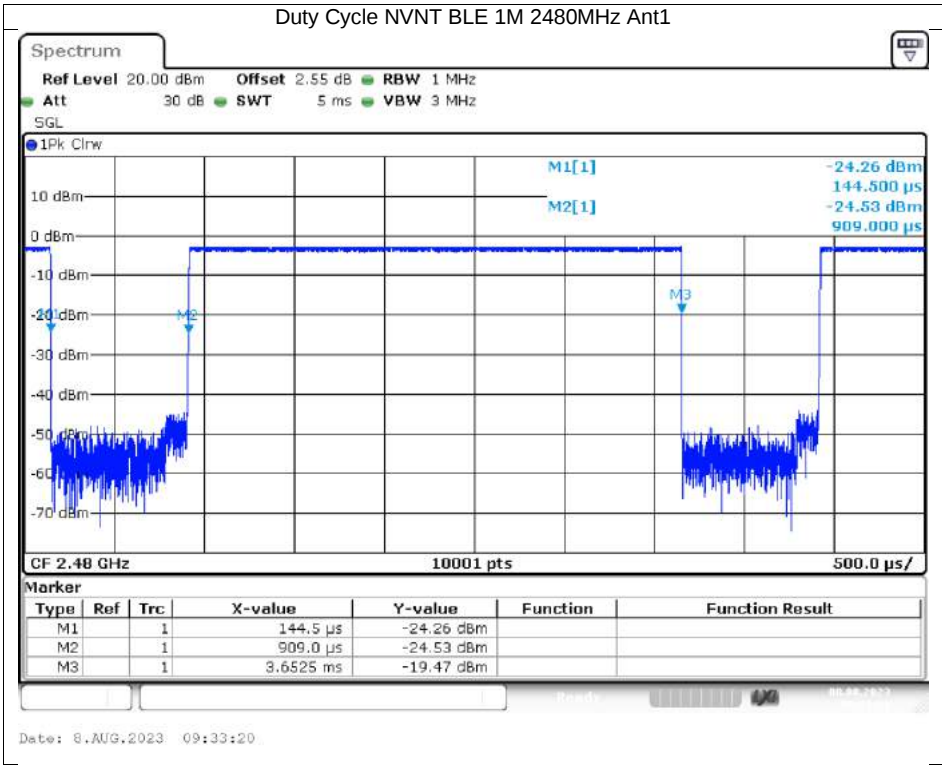
Note: All the modes have been tested, only the worst data was recorded in the report.

11. TEST DATA - Appendix A

Duty Cycle

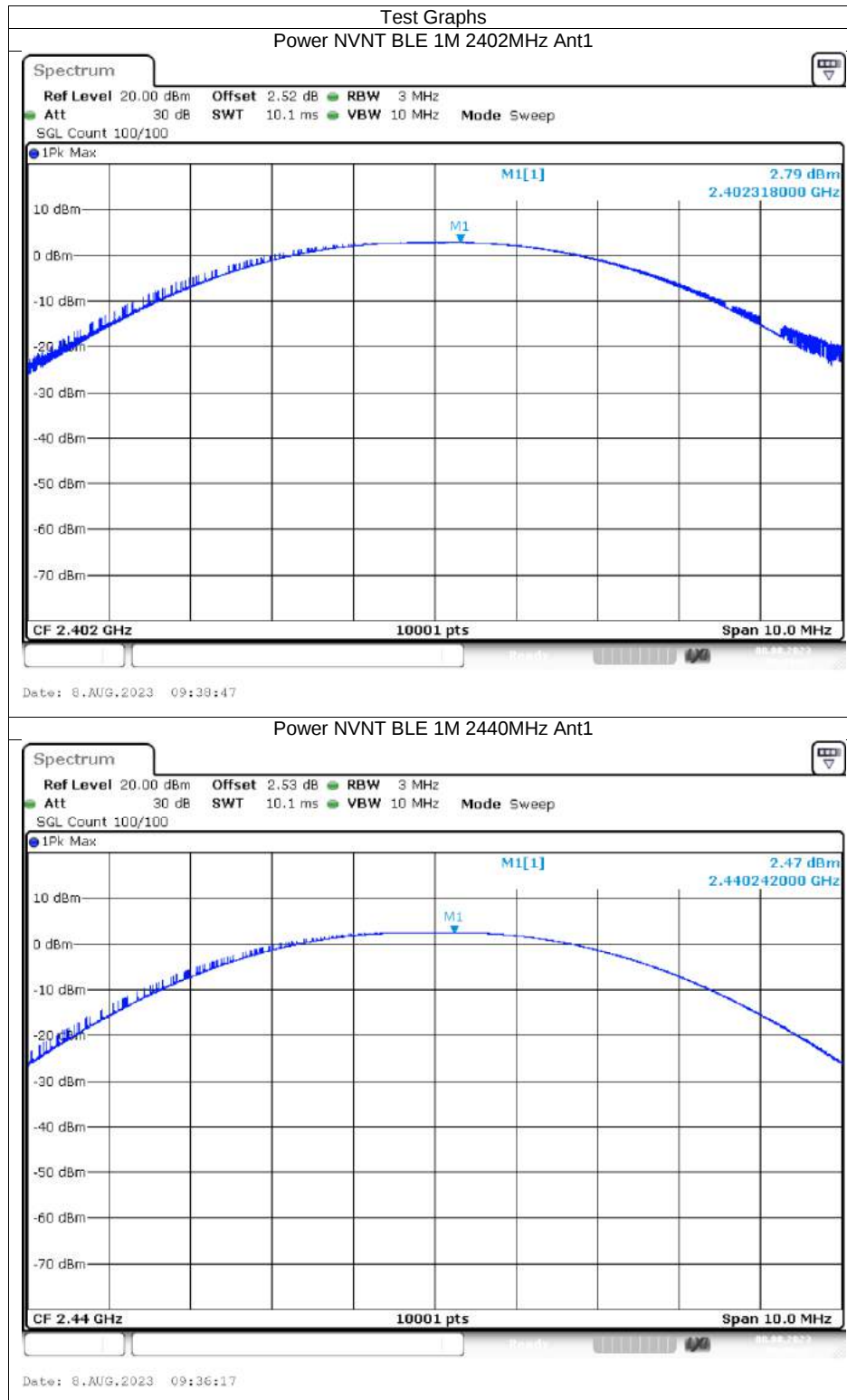
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	Ant1	78.28	1.06	0.36
NVNT	BLE 1M	2440	Ant1	78.31	1.06	0.36
NVNT	BLE 1M	2480	Ant1	78.21	1.07	0.36

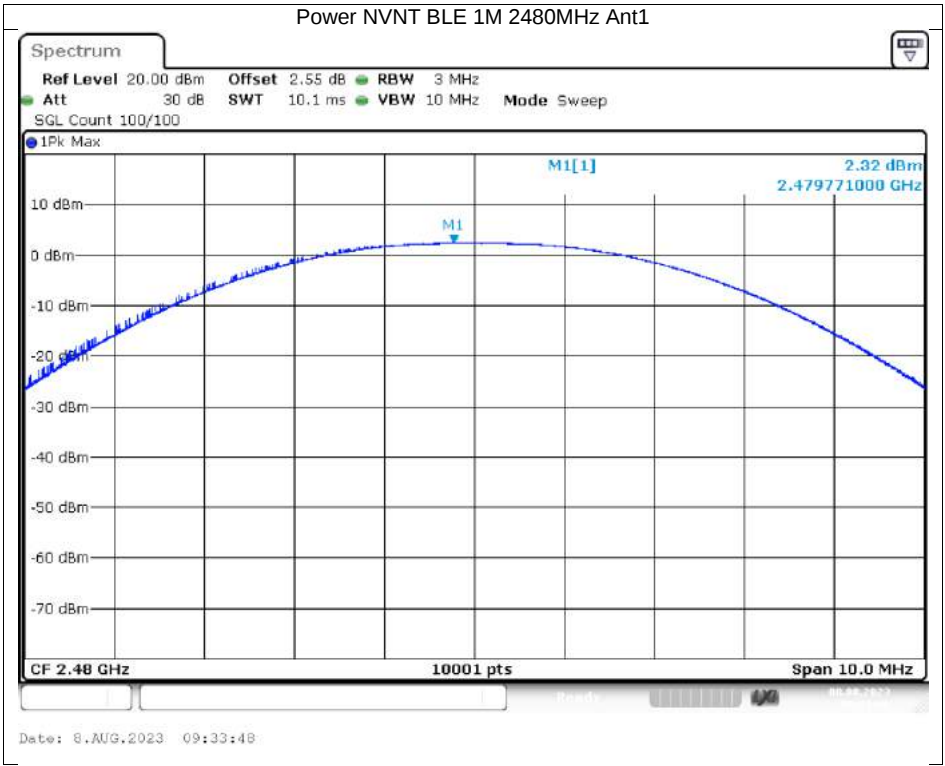




Maximum Conducted Output Power

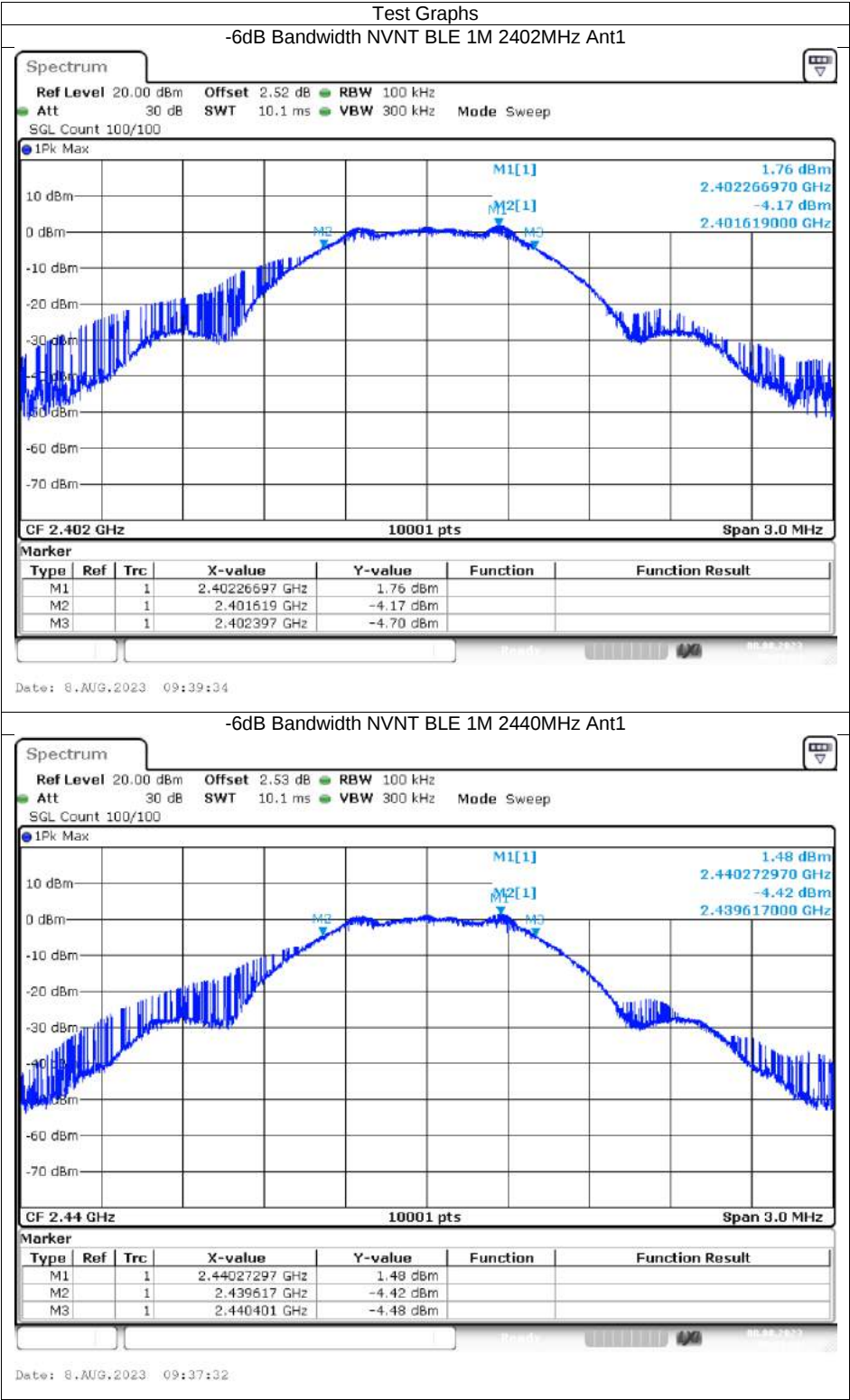
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	E.I.R.P (dBm)	E.I.R.P Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	2.79	0	2.79	30	4.64	<=36.02	Pass
NVNT	BLE 1M	2440	Ant1	2.47	0	2.47	30	4.32	<=36.02	Pass
NVNT	BLE 1M	2480	Ant1	2.32	0	2.32	30	4.17	<=36.02	Pass
Note1: Antenna Gain: 1.85dBi; Note2: E.I.R.P = Measured Power + Antenna Gain										

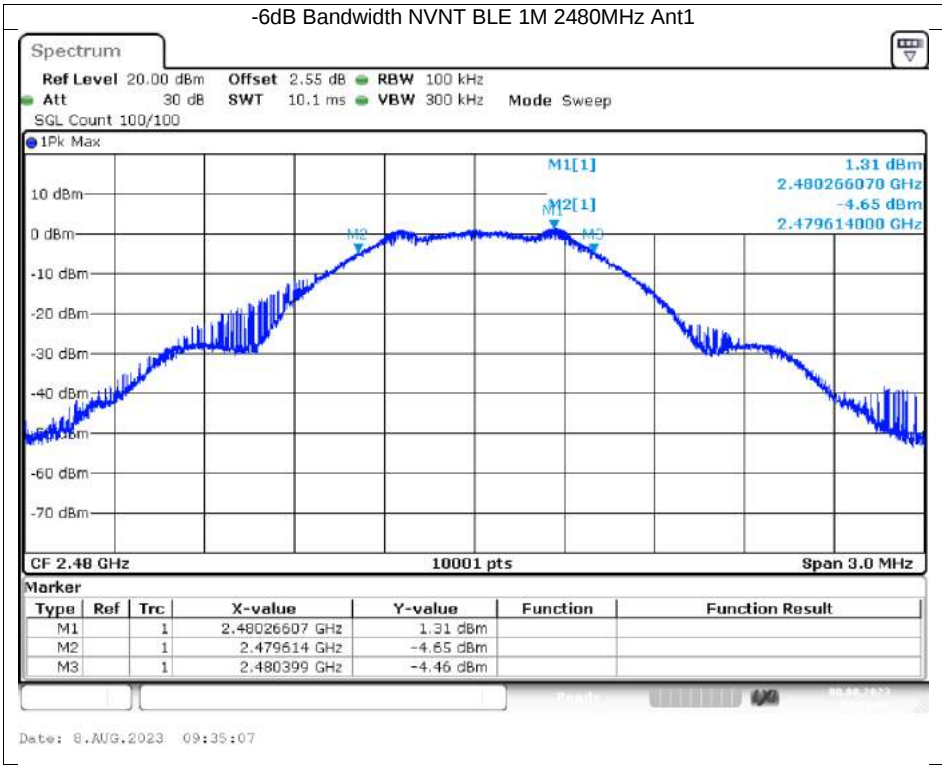




-6dB Bandwidth

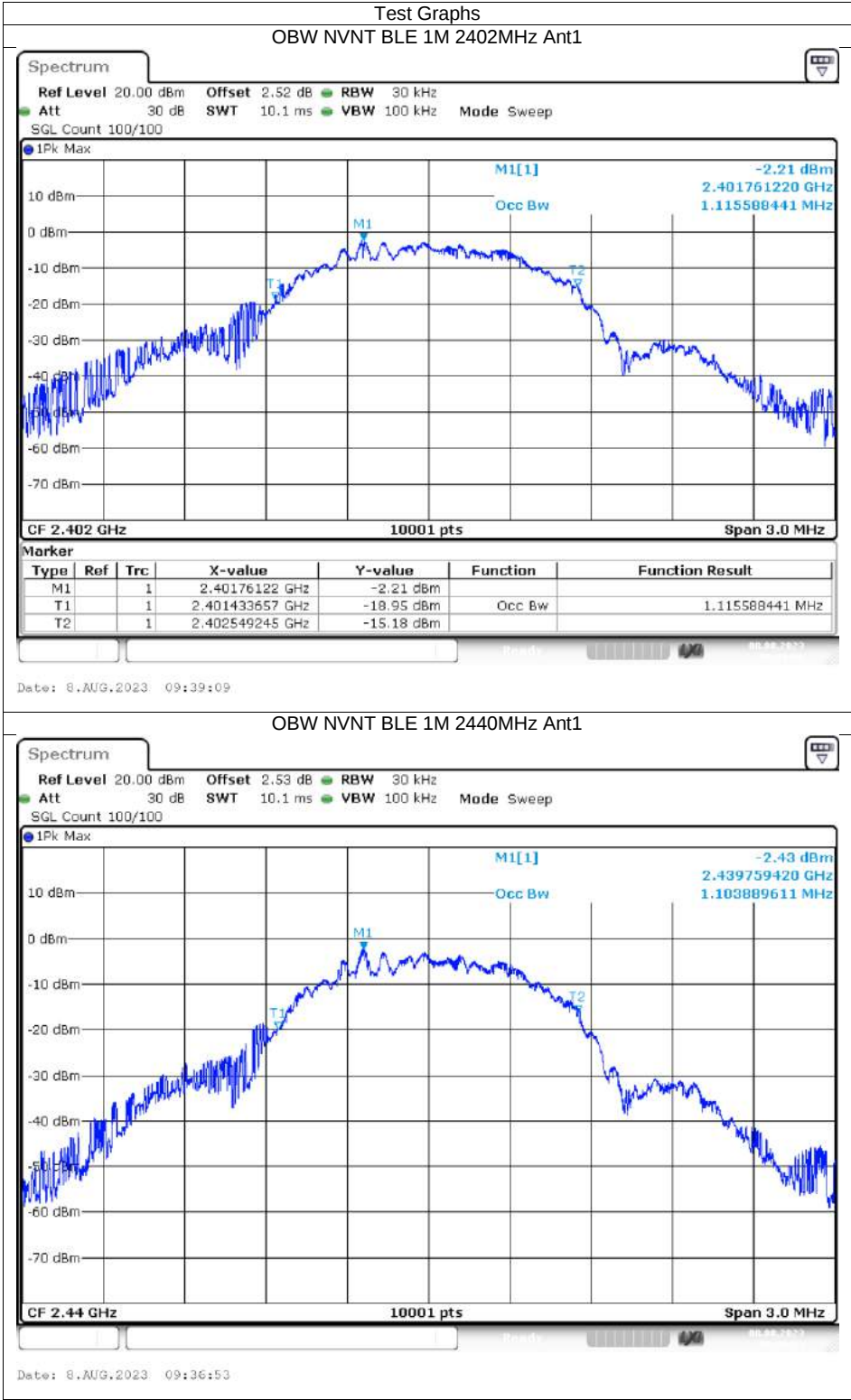
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	0.778	0.5	Pass
NVNT	BLE 1M	2440	Ant1	0.784	0.5	Pass
NVNT	BLE 1M	2480	Ant1	0.785	0.5	Pass

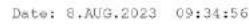




Occupied Channel Bandwidth

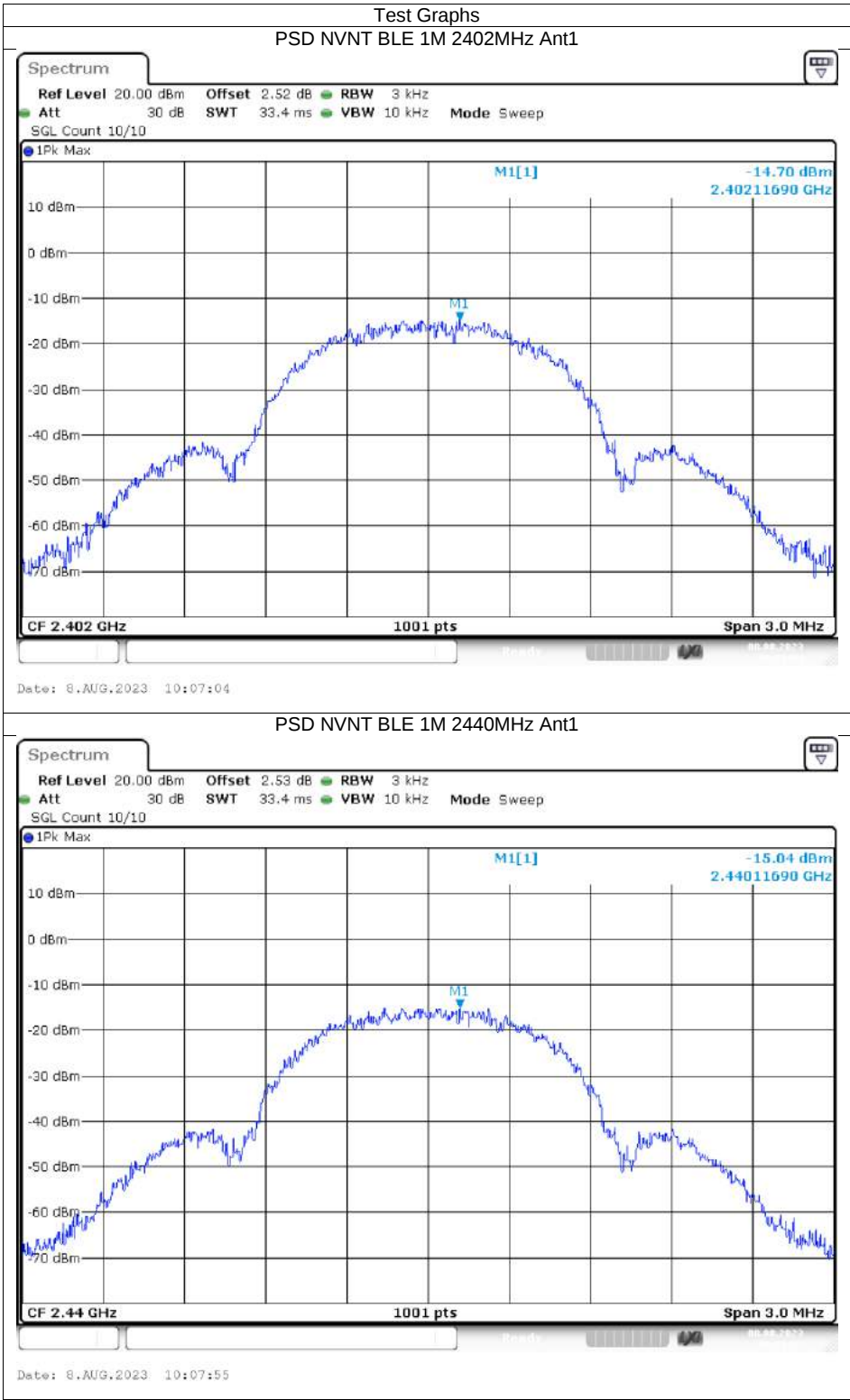
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE 1M	2402	Ant1	1.116
NVNT	BLE 1M	2440	Ant1	1.104
NVNT	BLE 1M	2480	Ant1	1.095

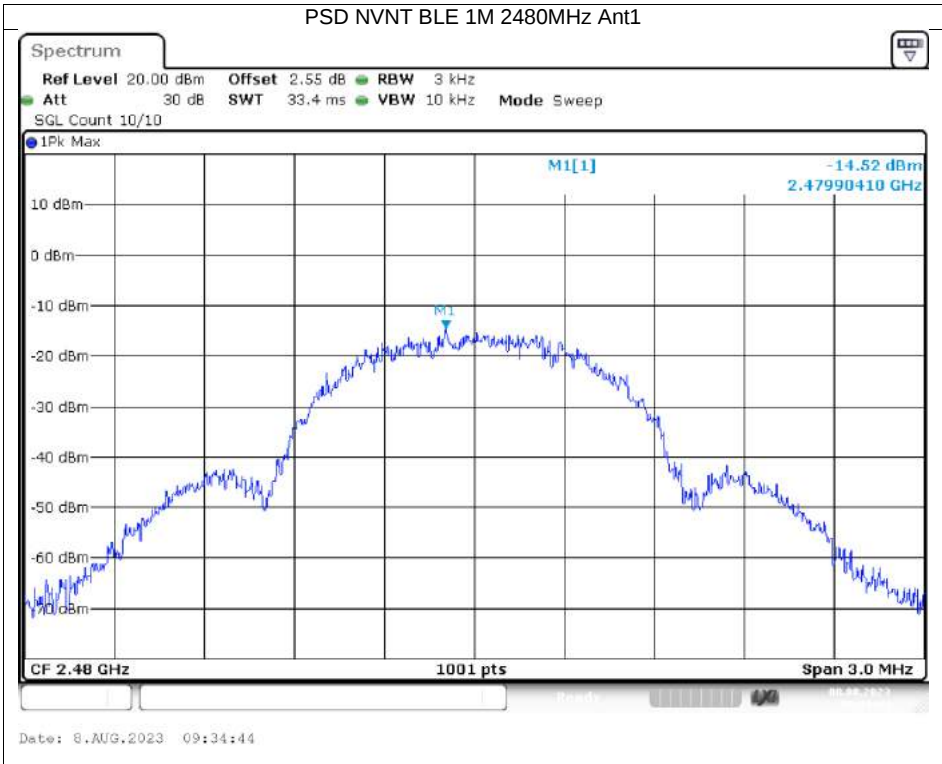




Maximum Power Spectral Density Level

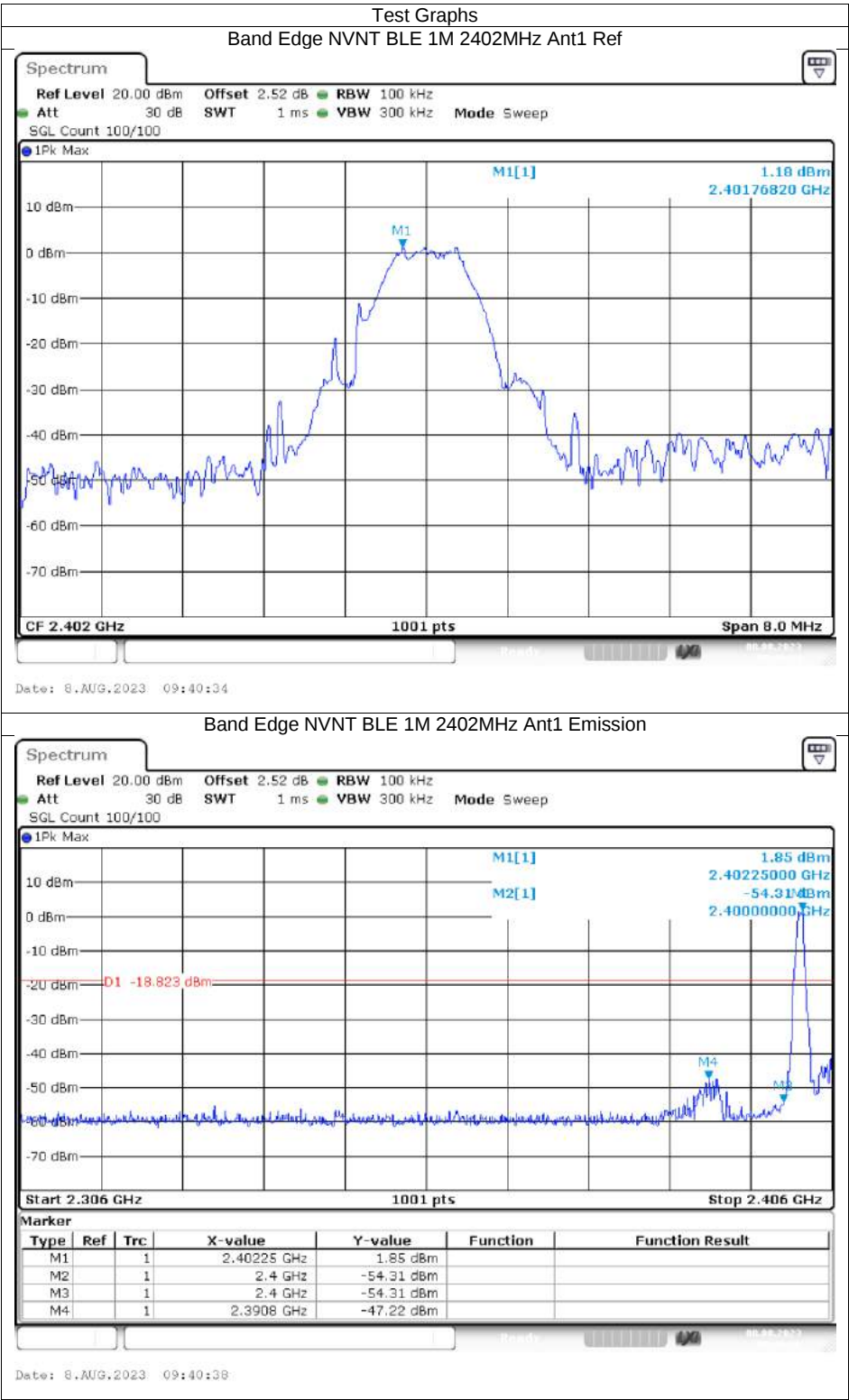
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Duty Factor (dB)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1M	2402	Ant1	-14.7	0	-14.7	8	Pass
NVNT	BLE 1M	2440	Ant1	-15.04	0	-15.04	8	Pass
NVNT	BLE 1M	2480	Ant1	-14.52	0	-14.52	8	Pass

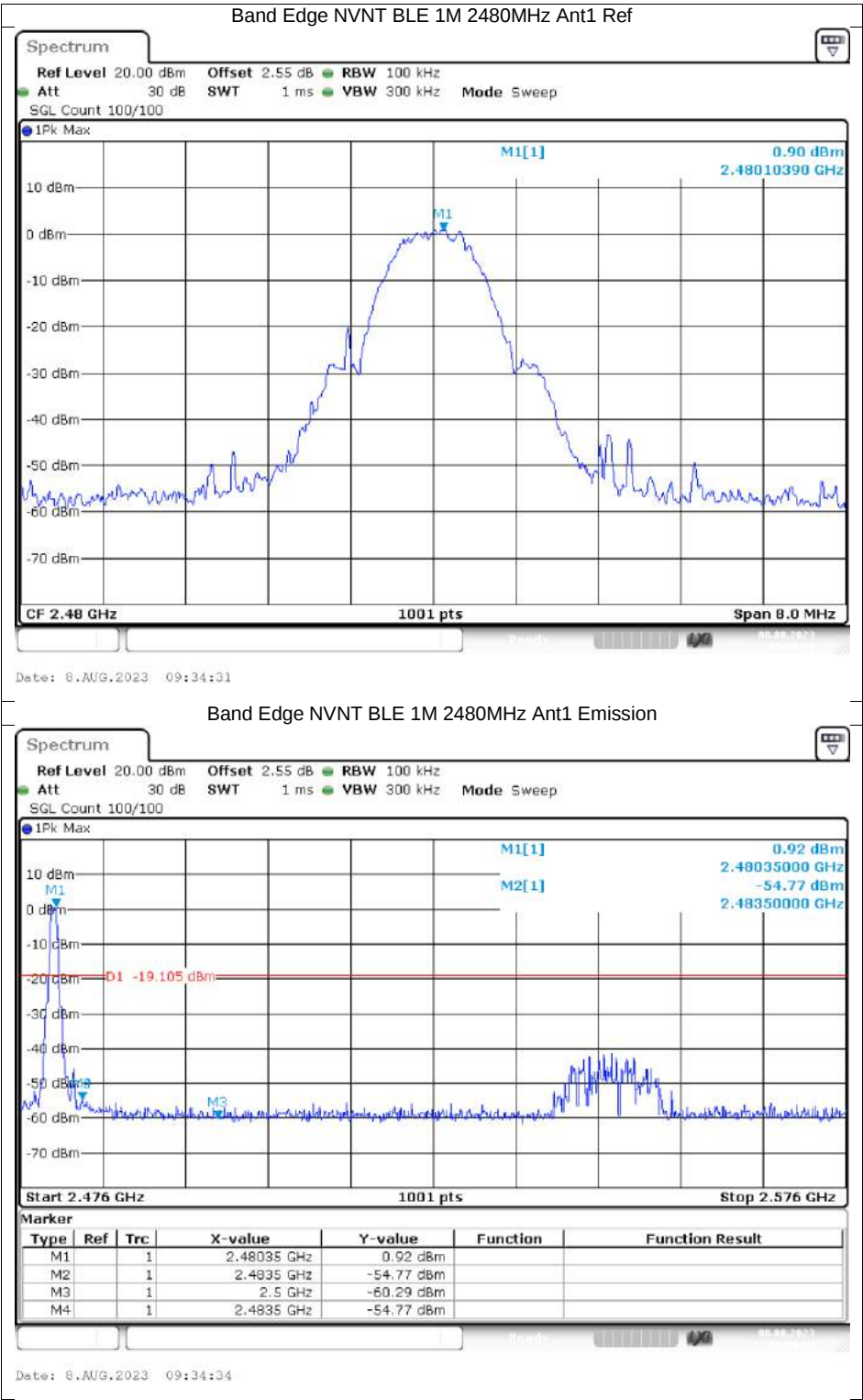




Band Edge

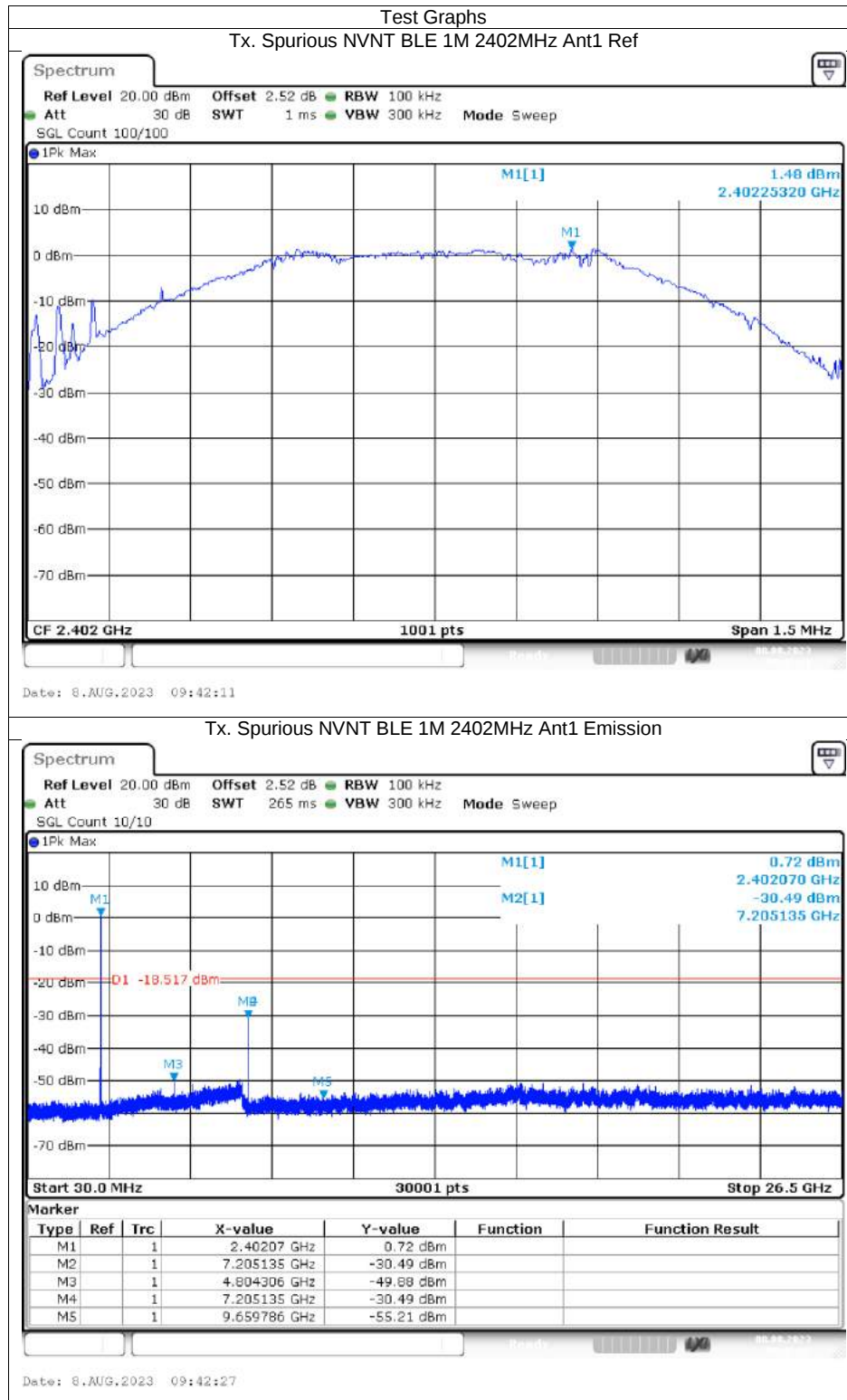
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-48.39	-20	Pass
NVNT	BLE 1M	2480	Ant1	-55.67	-20	Pass

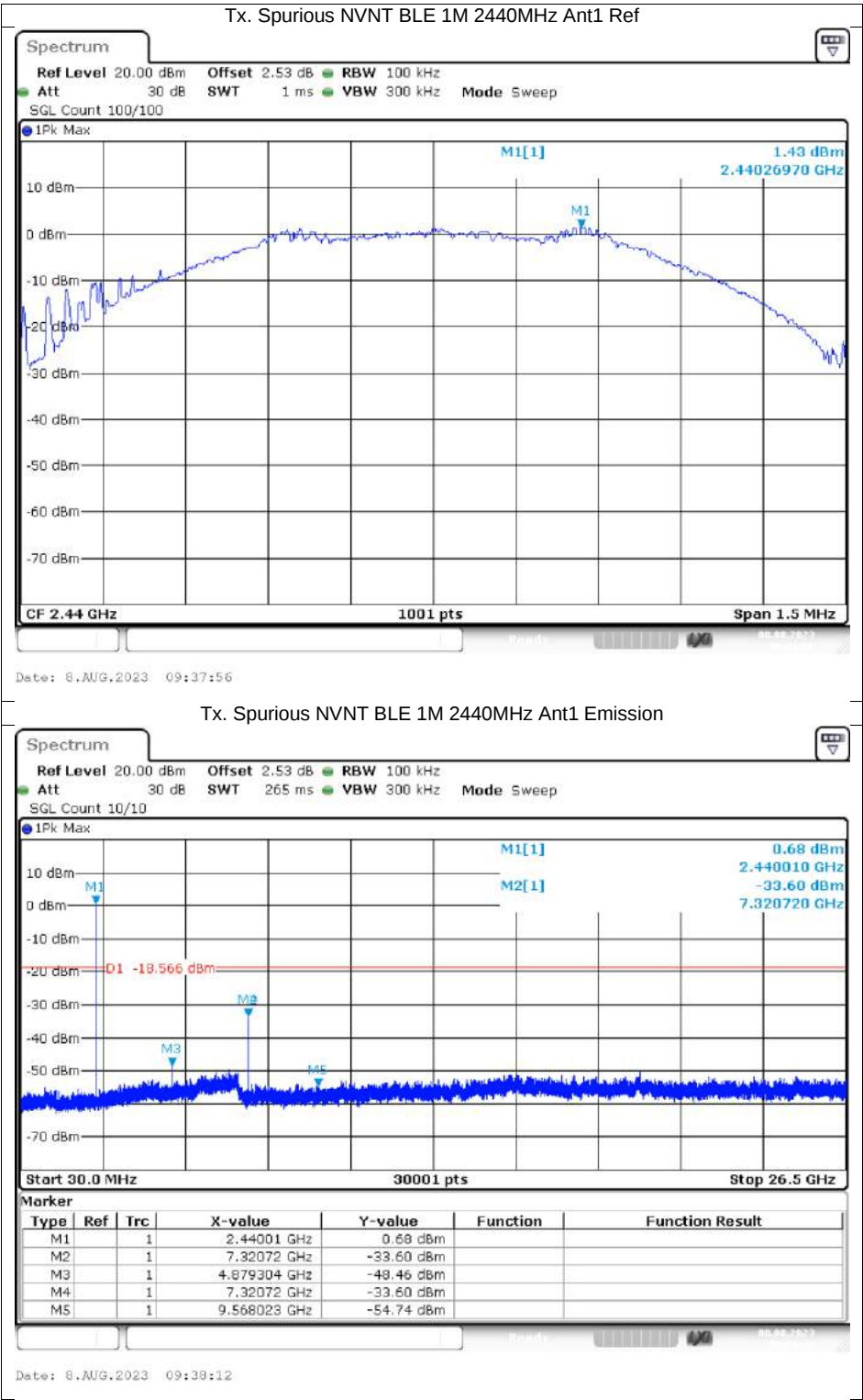


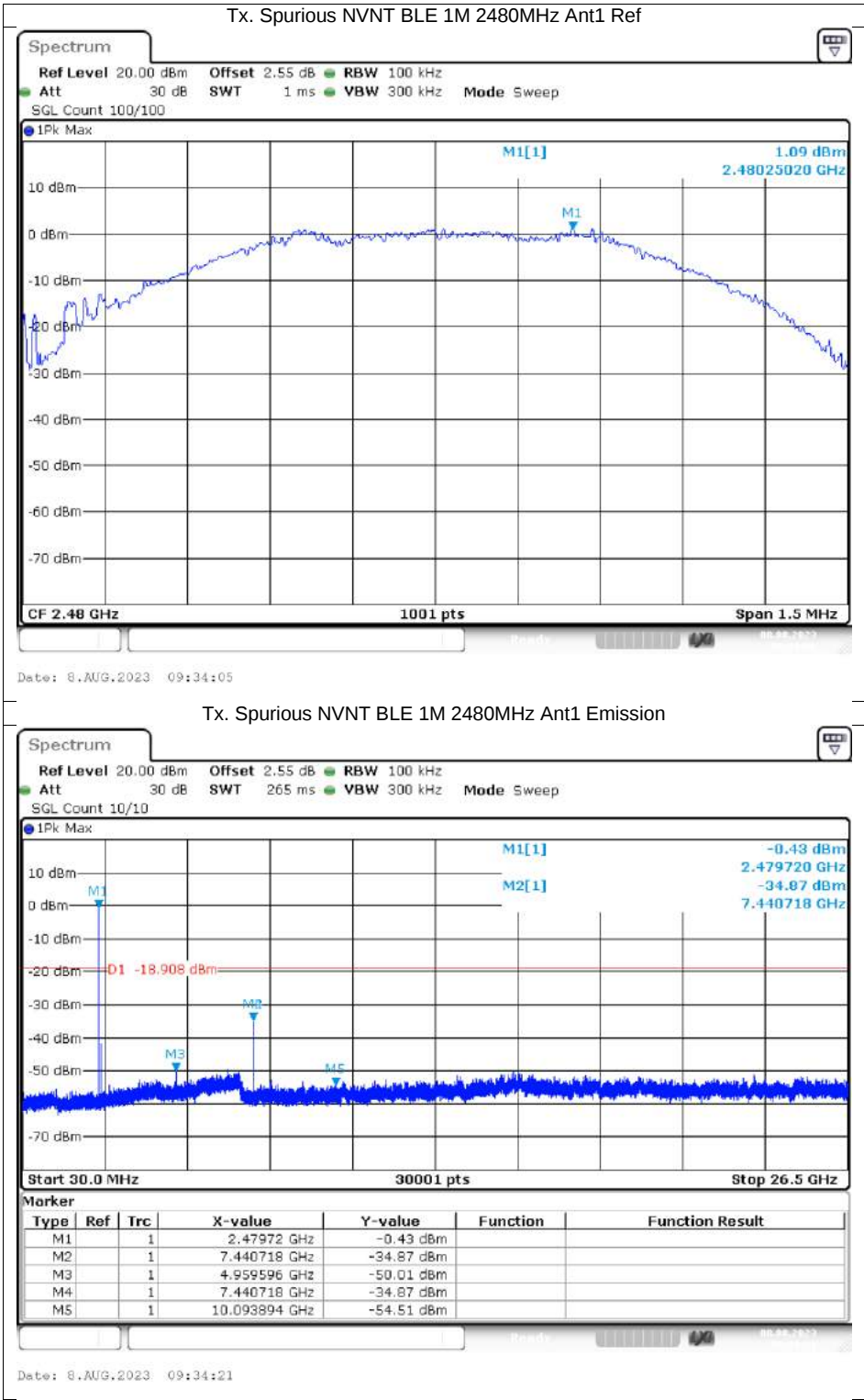


Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-31.97	-20	Pass
NVNT	BLE 1M	2440	Ant1	-35.02	-20	Pass
NVNT	BLE 1M	2480	Ant1	-35.95	-20	Pass







APPENDIX: PHOTOGRAPHS OF TEST CONFIGURATION

AC Power Line Conducted Emission



Radiated Band edge and Spurious Emission





APPENDIX: PHOTOGRAPHS OF THE EUT

External

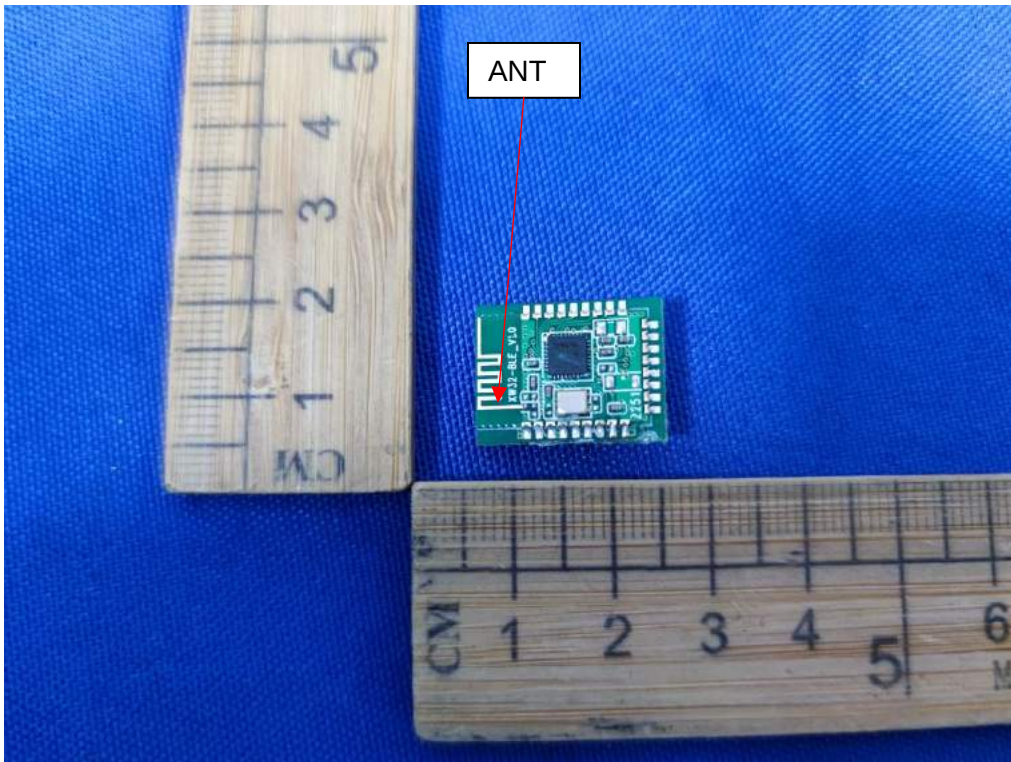


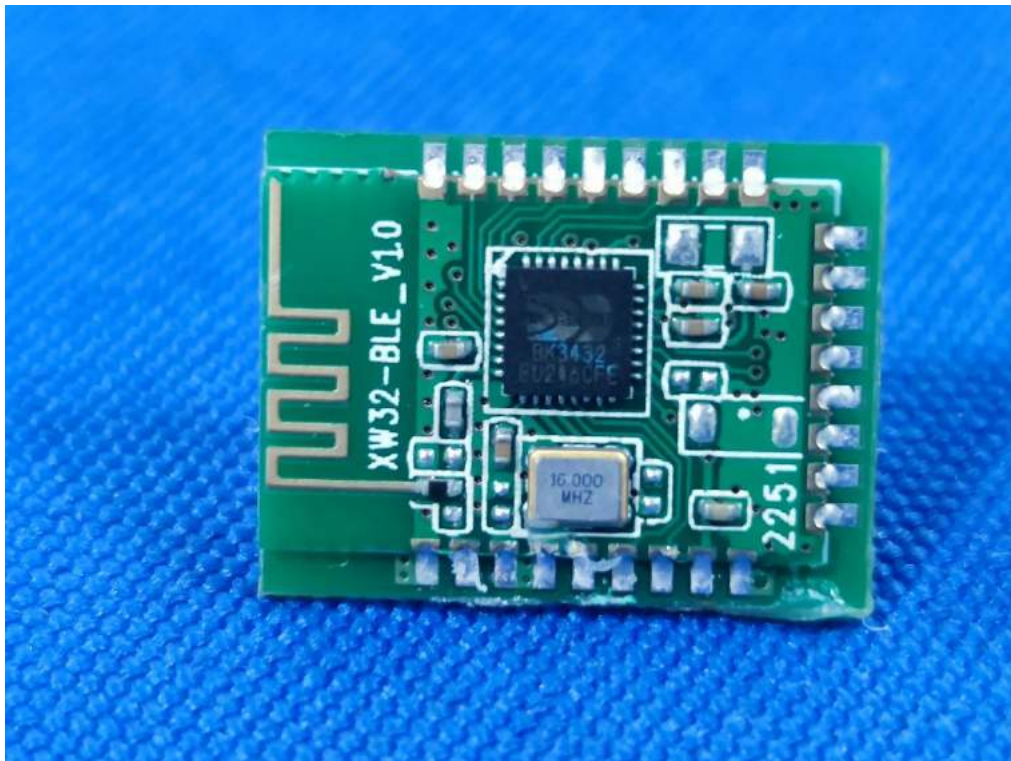
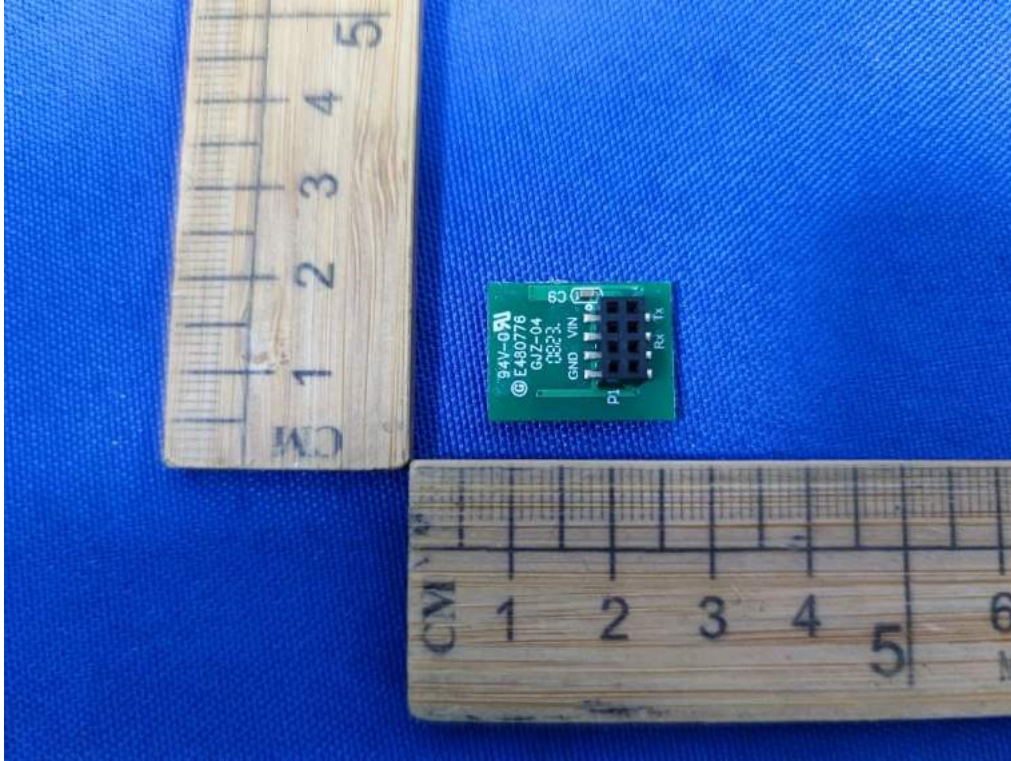


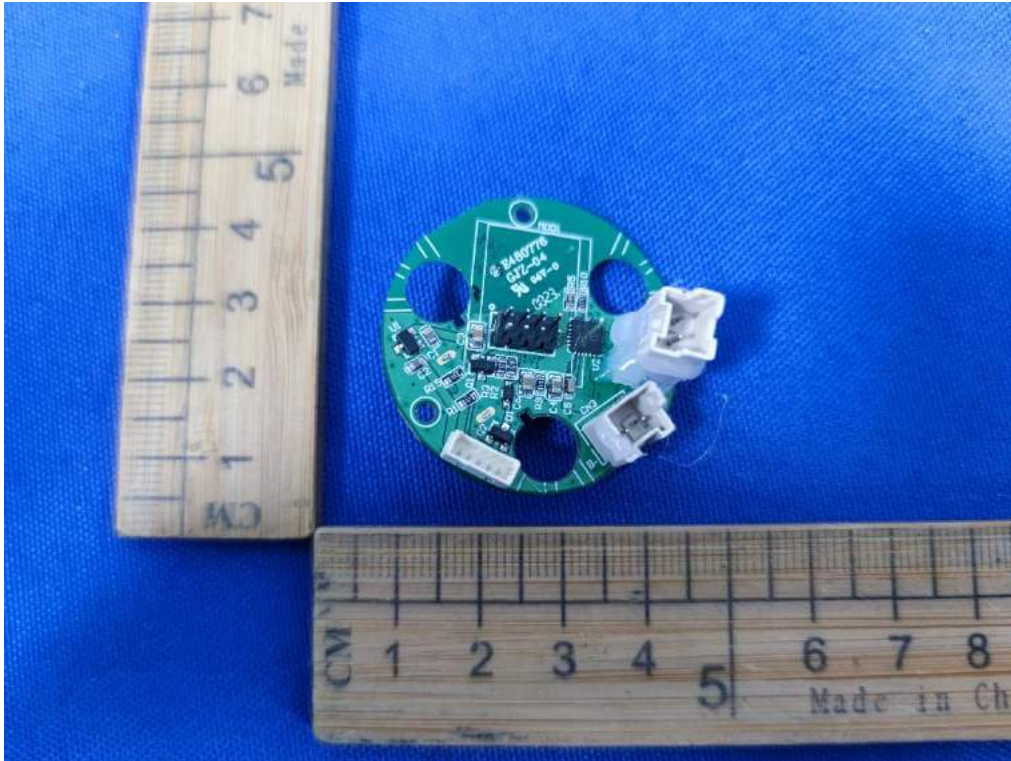


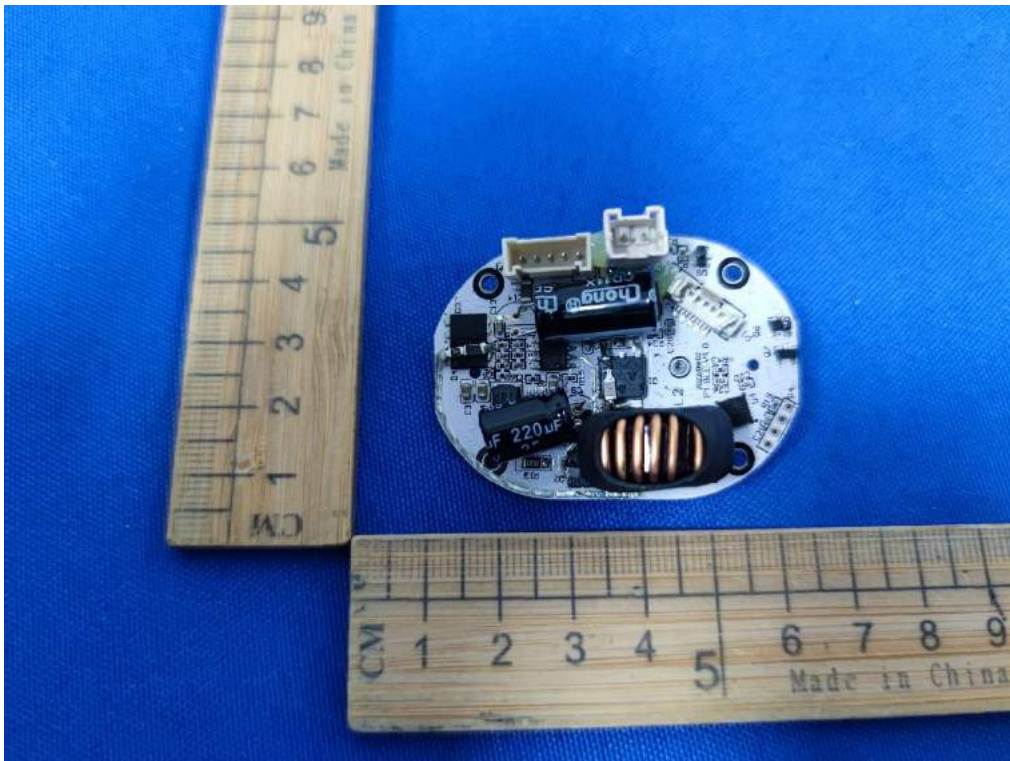
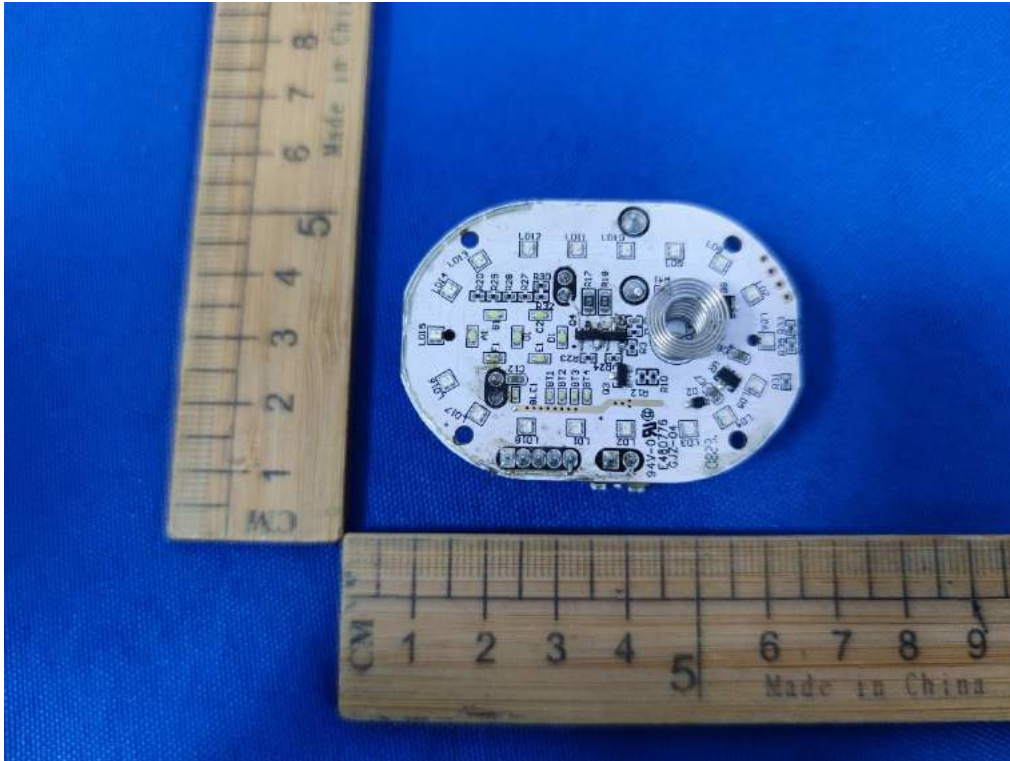


Internal











END OF REPORT