TEST REPORT

Report No. .....:	**CTC2025027501**
FCC ID.....:	**2A6V3XL-SBCRF**
Applicant .....:	PowerBass USA., Inc.
Address.....:	2133 South Green Privado,Ontario California, USA , 91761
Manufacturer.....:	PowerBass USA., Inc.
Address.....:	2133 South Green Privado,Ontario California, USA , 91761
Product Name .....:	WIRELESS REMOTE
Trade Mark .....:	/
Model/Type reference.....:	XL-SBCONRF
Listed Model(s).....:	/
Standard .....:	**FCC CFR Title 47 Part 15 Subpart C Section 15.231(a)**
Test Report Form No .....:	CTC-TR-058_A1
Master TRF.....:	Dated 2024-09-20
Date of receipt of test sample.....:	Feb. 18, 2025
Date of testing.....:	Feb. 18, 2025 ~ Mar. 03, 2025
Date of issue.....:	Apr. 30, 2025
Result.....:	**PASS**

Compiled by: (Printed name+signature)	Alicia Liu	Alicia
Supervised by: (Printed name+signature)	Eric Zhang	Eric Zhang
Approved by: (Printed name+signature)	Totti Zhao	Totti Zhao

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1. TEST SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.231(a): Periodic operation in the band 40.66–40.70 MHz and above 70MHz.
ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report Version

Revised No.	Report No.	Date of issue	Description
01	CTC2025027501	Apr. 30, 2025	Original

1.3. Test Description

FCC Part 15 Subpart C (15.247)			
Test Item	**Standard Section**	**Result**	**Test Engineer**
	FCC		
Antenna Requirement	FCC 15.203	Pass	Alicia Liu
Conducted Emission	FCC 15.207	N/A	N/A
Radiated Emissions	FCC 15.205	Pass	Alicia Liu
Field Strength of the Fundamental	FCC 15.231(a)	Pass	Alicia Liu
20dB Bandwidth	FCC 15.231(c)	Pass	Alicia Liu
Continue Transmission Time	FCC 15.231(a)	Pass	Alicia Liu

Note:
1. The measurement uncertainty is not included in the test result.
2. N/A: means this test item is not applicable for this device according to the technology characteristic of device.

1.4. Test Facility

Address of the report laboratory

CTC Laboratories, Inc.

Add: Room 101 of Building B, Room 107, 108, 207, 208 of Building A, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China

Laboratory accreditation

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

A2LA-Lab Cert. No.: 4340.01

CTC Laboratories, Inc. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

Industry Canada (Registration No.: 9783A, CAB Identifier: CN0029)

CTC Laboratories, Inc. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 9783A on Jan, 2016.

FCC (Registration No.: 951311, Designation Number CN1208)

CTC Laboratories, Inc. 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 951311, Aug 26, 2017.

1.5. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 “Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1” and TR-100028-02 “Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2” and is documented in the CTC Laboratories, Inc. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Below is the best measurement capability for CTC Laboratories, Inc.

Test Items	Measurement Uncertainty	Notes
DTS Bandwidth	±0.0196%	(1)
Maximum Conducted Output Power	±0.686 dB	(1)
Maximum Power Spectral Density Level	±0.743 dB	(1)
Band-edge Compliance	±1.328 dB	(1)
Unwanted Emissions In Non-restricted Freq Bands	9kHz-1GHz: ±0.746dB 1GHz-26GHz: ±1.328dB	(1)
Conducted Emissions 9kHz~30MHz	±3.08 dB	(1)
Radiated Emissions 30~1000MHz	±4.51 dB	(1)
Radiated Emissions 1~18GHz	±5.84 dB	(1)
Radiated Emissions 18~40GHz	±6.12 dB	(1)

Note (1): This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1.6. Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15 °C to 35 °C
Relative Humidity:	20 % to 75 %
Air Pressure:	101 kPa

2. GENERAL INFORMATION

2.1. Client Information

Applicant:	PowerBass USA., Inc.
Address:	2133 South Green Privado,Ontario California, USA , 91761
Manufacturer:	PowerBass USA., Inc.
Address:	2133 South Green Privado,Ontario California, USA , 91761

2.2. General Description of EUT

Product Name:	WIRELESS REMOTE
Trade Mark:	/
Model/Type reference:	XL-SBCONRF
Listed Model(s):	/
Model Difference:	/
Sample ID:	CTC241225-001-S001
Power Supply:	DC 3V
Hardware Version:	/
Software Version:	/
RF Parameter	
Modulation:	ASK/OOK
Operation Frequency:	433.92MHz
Channel Number:	1
Antenna Type:	PCB Antenna
Antenna Gain:	0dBi
Remark:	Only radiated measurements are used to show compliance with FCC limits for fundamental and spurious emissions.

2.3. Accessory Equipment Information

Equipment Information			
Name	Model	S/N	Manufacturer
/	/	/	/
Cable Information			
Name	Shielded Type	Ferrite Core	Length
USB Cable	Unshielded	No	100cm
Test Software Information			
Name	Version	/	/
JS1120-3	V3.3.38	/	/

2.4. Operation State

Operation Frequency List: The EUT has been tested under typical operating condition. The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing.

2.5. Measurement Instruments List

RF Test System - SRD					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until
1	MXA Signal Analyzer	Keysight	N9020A	MY52091402	Aug. 21, 2025
2	Test Software	Tonscend	JS1120-3	V3.3.38	/

Radiated emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	9168-1013	Dec. 07, 2025
2	Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-648	Dec. 07, 2025
3	Spectrum Analyzer	R&S	FSU26	100105	Dec. 12, 2025
4	Pre-Amplifier	SONOMA	310	186194	Dec. 12, 2025
5	Low Noise Pre-Amplifier	EMCI	EMC051835	980075	Dec. 12, 2025
6	Test Receiver	R&S	ESCI7	100967	Dec. 12, 2025
7	3m chamber 2	Frankonia	EE025	/	Oct. 23, 2025
8	Test Software	FARA	EZ-EMC	FA-03A2	/

Note: 1. The Cal. Interval was one year.

2. The Cal. Interval was three years of the antenna.

3. The cable loss has been calculated in test result which connection between each test instruments.

3. TEST ITEM AND RESULTS

3.1. Conducted Emission

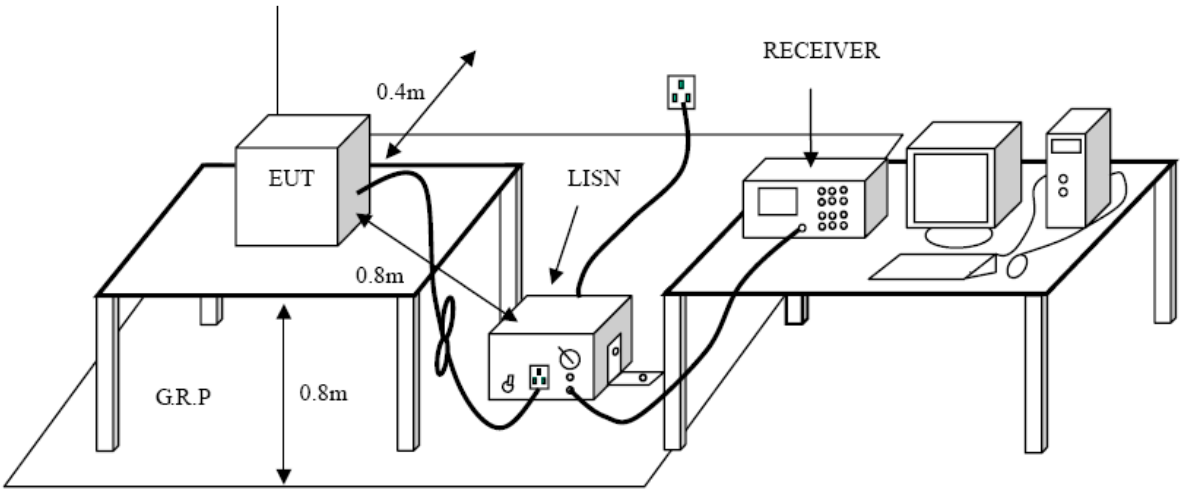
Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.207

Frequency (MHz)	Conducted Limit (dBμV)	
	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 Configuration



Test Procedure

1. The EUT was setup according to ANSI C63.10:2013 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm / 50 μH coupling impedance for the measuring equipment.
4. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
6. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
8. During the above scans, the emissions were maximized by cable manipulation.

Test Mode

Please refer to the clause 2.4.

Test Result

Not applicable.

3.2. Radiated Emission

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.231(b)
The field strength of emissions from intentional radiators operated average value under this section shall not exceed the following

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Unwanted emissions (millivolts/meter)
260 - 470 MHz	3,750 to 12,500 **	375 to 1,250 **

** linear interpolation with frequency, f, in MHz:
F is 433.92MHz
Field strength of fundamental: Limit at 3 meters = 41.67*F - 7083.34
Field strength of harmonics: Limit at 3 meters = 4.167*F - 708.334

So the field strength of emission limits have been calculated in below table.

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolt/meter) at 3m
433.92MHz	100.82 (Peak)
433.92MHz	80.82 (Average)

Radiated Emission Limits (9 kHz~1000 MHz)

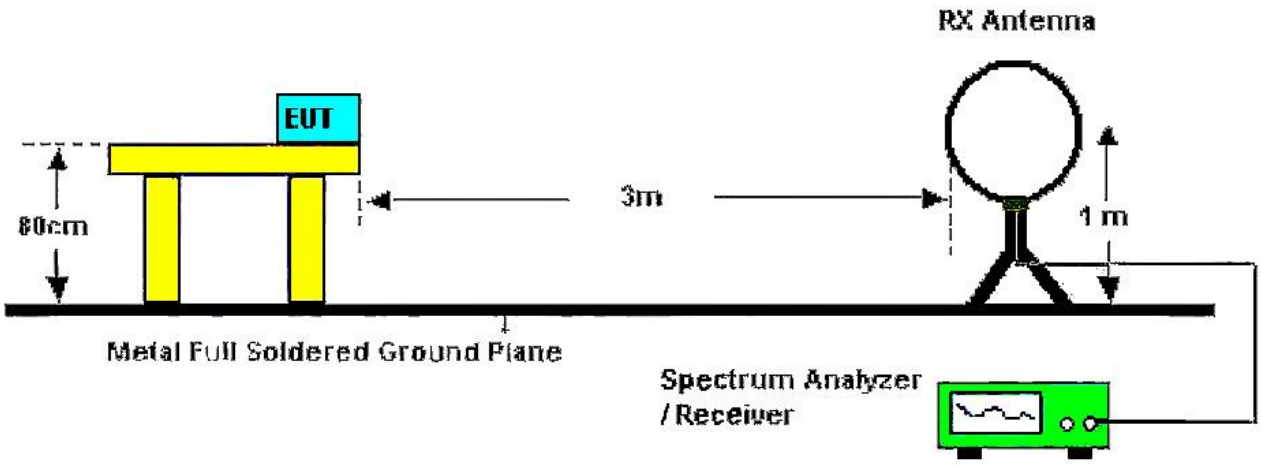
Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Radiated Emission Limit (Above 1000MHz)

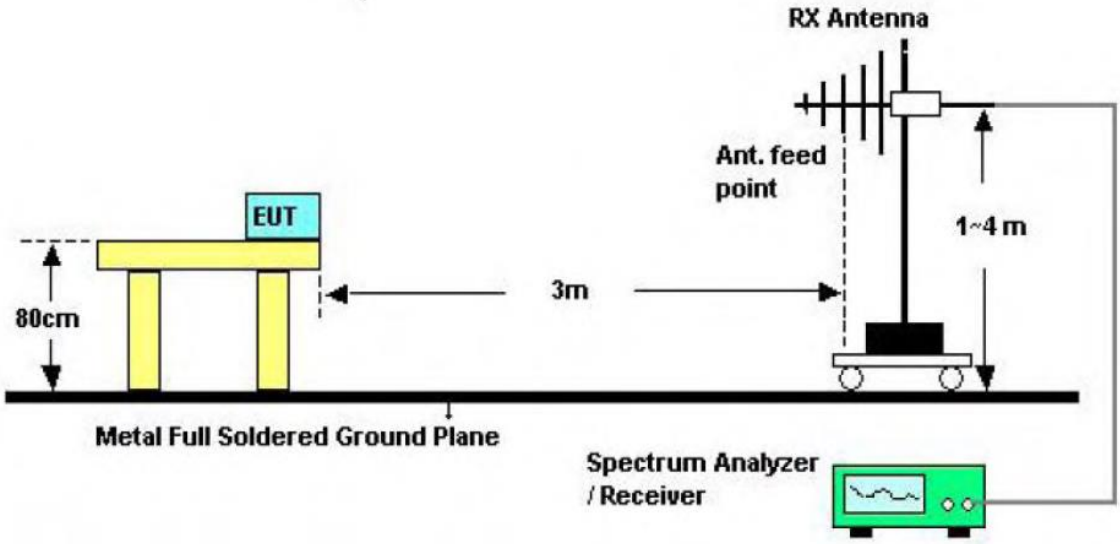
Frequency (MHz)	Distance Meters(at 3m)	
	Peak	Average
Above 1000	74	54

Note:
(1) The tighter limit applies at the band edges.
(2) Emission Level (dBuV/m)=20log Emission Level (uV/m).

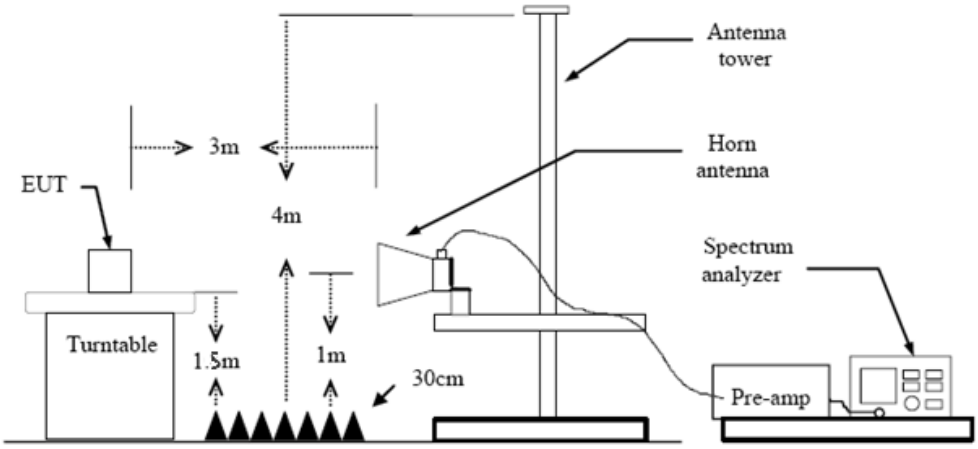
Test Configuration



Below 30MHz Test Setup



30-1000MHz Test Setup



Above 1GHz Test Setup

Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013.
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, 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 to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings

(1) Span shall wide enough to fully capture the emission being measured;
(2) 9k – 150kHz:
RBW=300 Hz, VBW=1 kHz, Sweep=auto, Detector function=peak, Trace=max hold
(3) 0.15M – 30MHz:
RBW=10 kHz, VBW=30 kHz, Sweep=auto, Detector function=peak, Trace=max hold
(4) 30M - 1 GHz:
RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold
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.
(5) From 1 GHz to 10th harmonic:
RBW=1MHz, VBW=3MHz Peak detector for Peak value.
RBW=1MHz, VBW see note 1 with Peak Detector for Average Value.
Note 1: 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 3.8 Duty Cycle.

Test Mode

Please refer to the clause 2.4.

Test Result

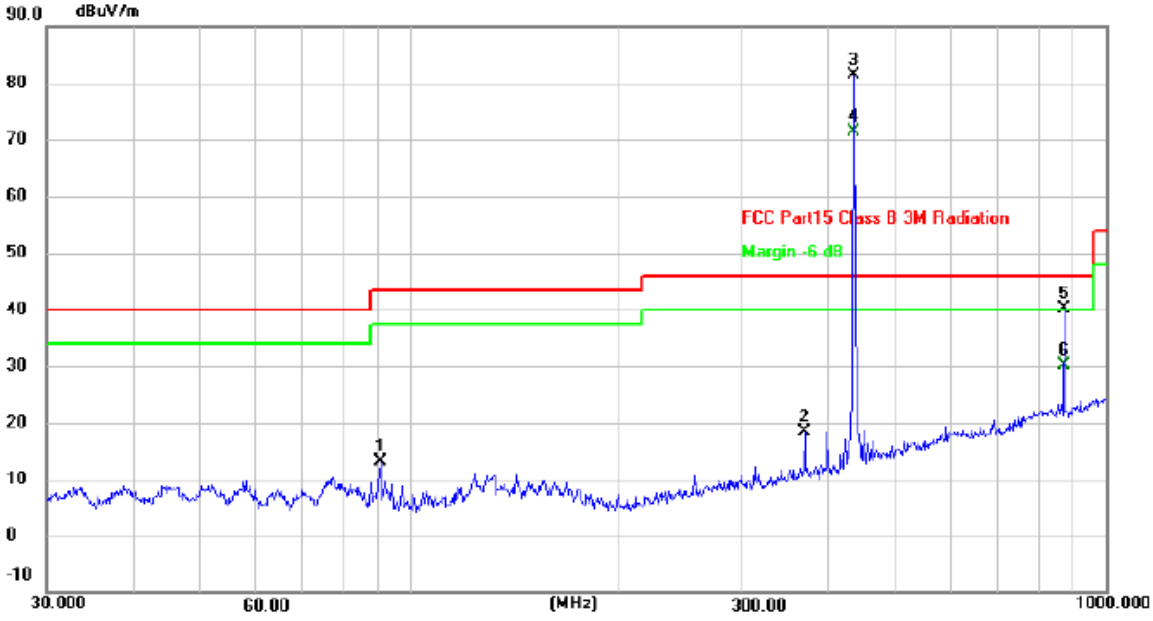
9 kHz~30 MHz

From 9 kHz to 30 MHz: The conclusion is PASS.

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

30MHz-1GHz

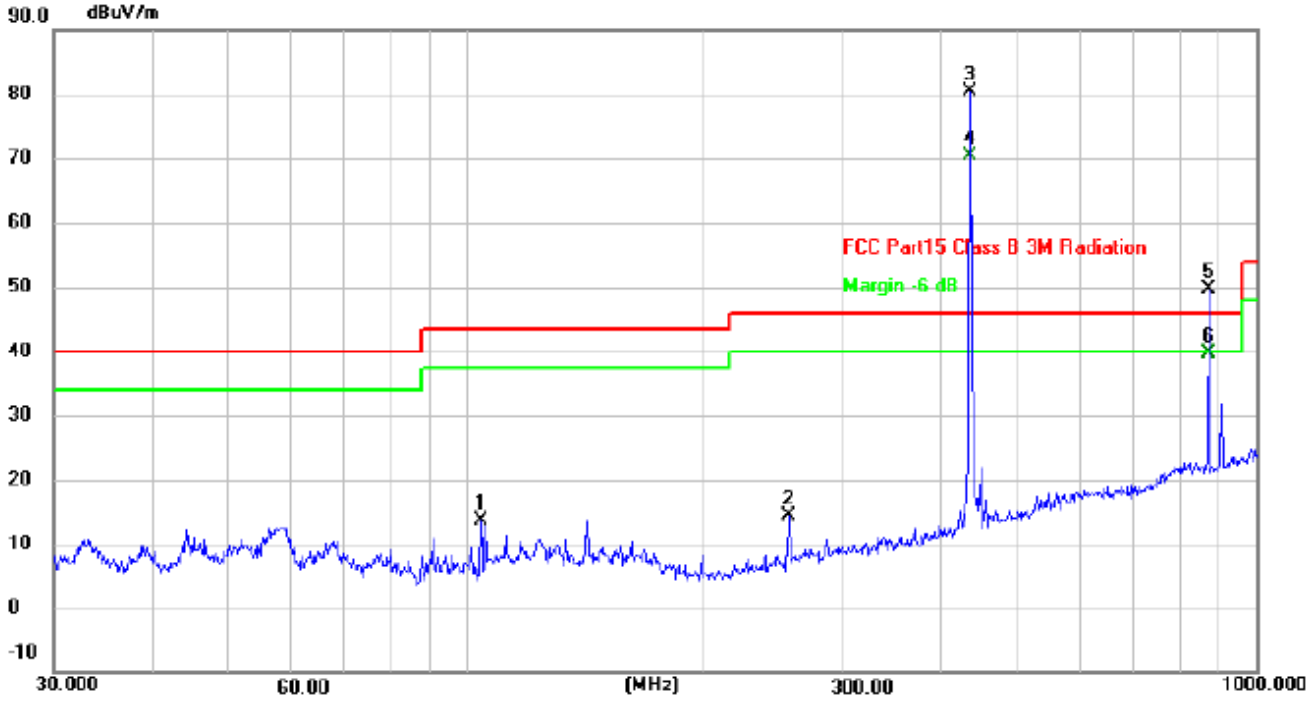
Ant. Pol.	Horizontal
Test Mode:	TX Mode 433.92MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Duty Cycle Factor	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	90.5374	35.10	-21.96	/	13.14	43.50	-30.36	peak
2	369.4045	33.88	-15.50	/	18.38	46.00	-27.62	peak
3	434.0649	94.92	-13.46	/	81.46	100.82	0.64	peak
4	434.0649	84.82		-10.10	74.72	80.82	-26.10	AVG
5	869.1300	45.48	-5.29	/	40.19	80.82	-40.63	peak
6	869.1301	35.38		-10.10	25.28	60.82	-35.54	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level- Limit value
3.AVG=Peak+Duty Cycle Factor(-10.10)

Ant. Pol.	Vertical
Test Mode:	TX Mode 433.92MHz
Remark:	Only worse case is reported

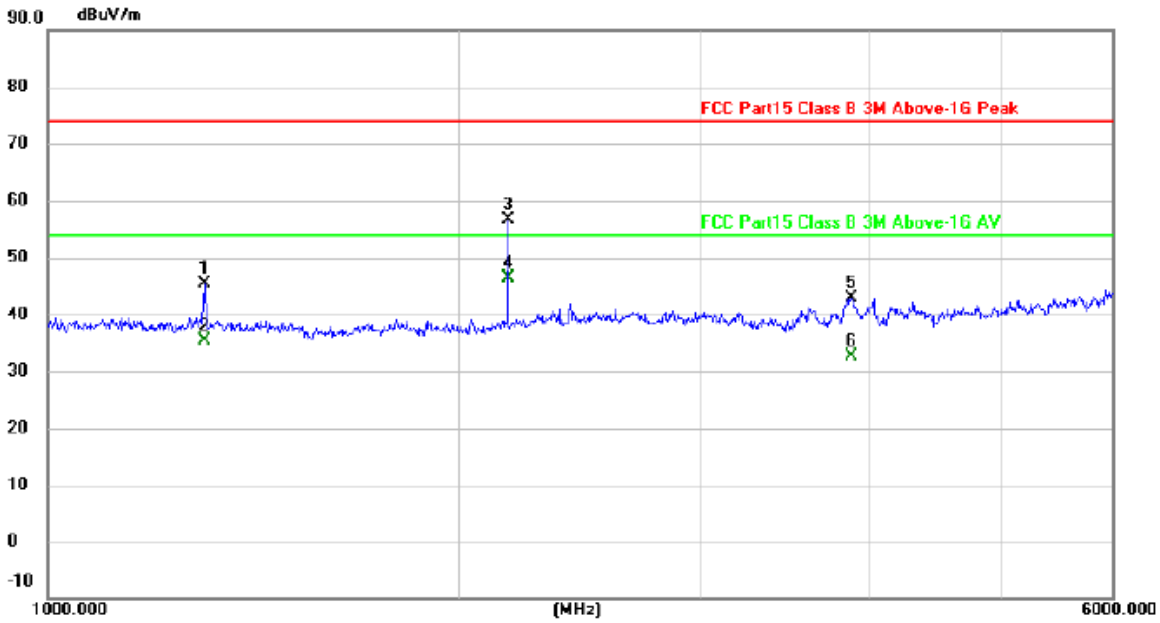


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Duty Cycle Factor	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	104.1701	34.82	-21.18	/	13.64	40.00	-26.36	peak
2	255.6231	33.21	-18.81	/	14.40	40.00	-25.60	peak
3	434.0649	93.95	-13.46	/	80.49	100.82	-20.33	peak
4	434.0649	83.85		-10.10	73.75	80.82	-7.07	AVG
5	869.1300	54.99	-5.29	/	49.70	80.82	-31.12	peak
6	869.1301	44.89		-10.10	34.79	60.82	-26.03	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level- Limit value
3.AVG=Peak+Duty Cycle Factor(-5.26)

Above 1GHz

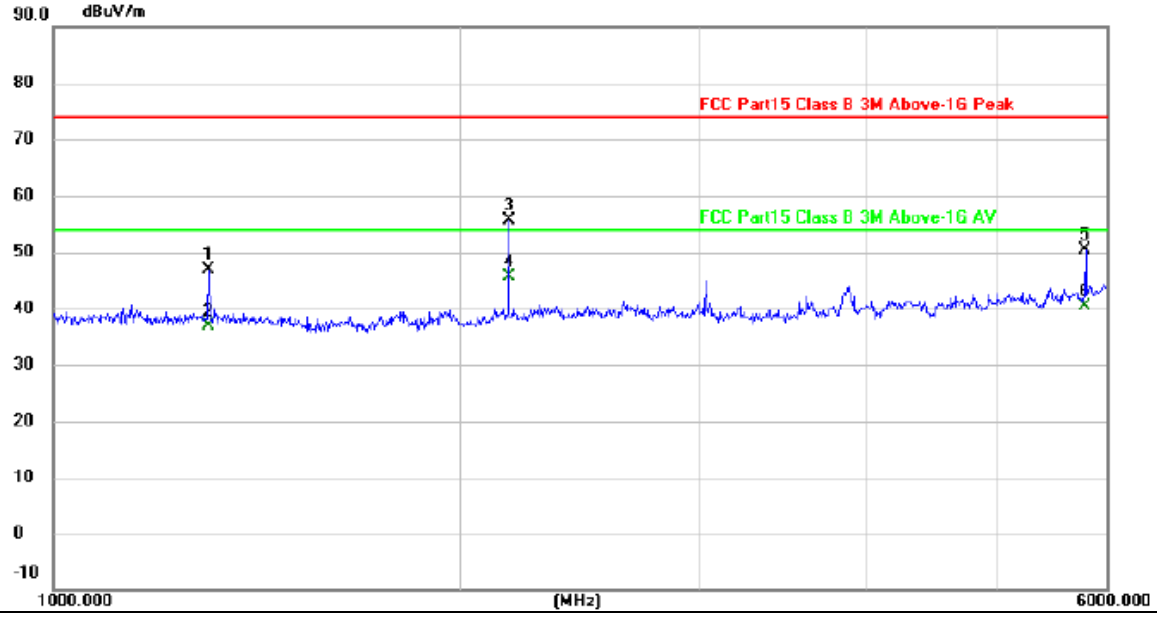
Ant. Pol.	Horizontal
Test Mode:	TX Mode 433.92MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Duty Cycle Factor	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1301.799	57.82	-12.38	/	45.44	74.00	-28.56	peak
2	1301.799	47.72	/	-10.10	37.62	54.00	-16.38	AVG
3	2168.510	65.60	-9.06	/	56.54	74.00	-17.46	peak
4	2168.510	55.50	/	-10.10	45.4	54.00	-8.6	AVG
5	3875.095	48.60	-5.81	/	42.79	74.00	-31.21	peak
6	3875.095	38.50	/	-10.10	28.4	54.00	-25.6	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level- Limit value
3.AVG=Peak+Duty Cycle Factor(-10.10)

Ant. Pol.	Vertical
Test Mode:	TX Mode 433.92MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Duty Cycle Factor	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1301.799	59.34	-12.38	/	46.96	74.00	-27.04	peak
2	1301.799	49.24	/	-10.10	39.14	54.00	-14.86	AVG
3	2168.510	64.70	-9.06	/	55.64	74.00	-18.36	peak
4	2168.510	54.60	/	-10.10	44.5	54.00	-9.5	AVG
5	5797.099	51.43	1.05	/	52.48	74.00	-21.52	peak
6	5797.099	41.33	/	-10.10	31.23	54.00	-22.77	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level- Limit value
3.AVG=Peak+Duty Cycle Factor(-5.26)

3.3. 20db Bandwidth

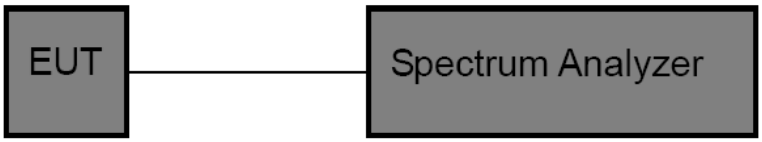
Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.231 (c)

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

433.92MHz*0.25%=1.085MHz

Test Configuration



Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. Spectrum Setting:
   (1) Set RBW = 1% ~ 5% occupied bandwidth.
   (2) Set the video bandwidth (VBW) ≥ 3 RBW.
   (3) Detector = Peak.
   (4) Trace mode = Max hold.
   (5) Sweep = Auto couple.

Test Mode

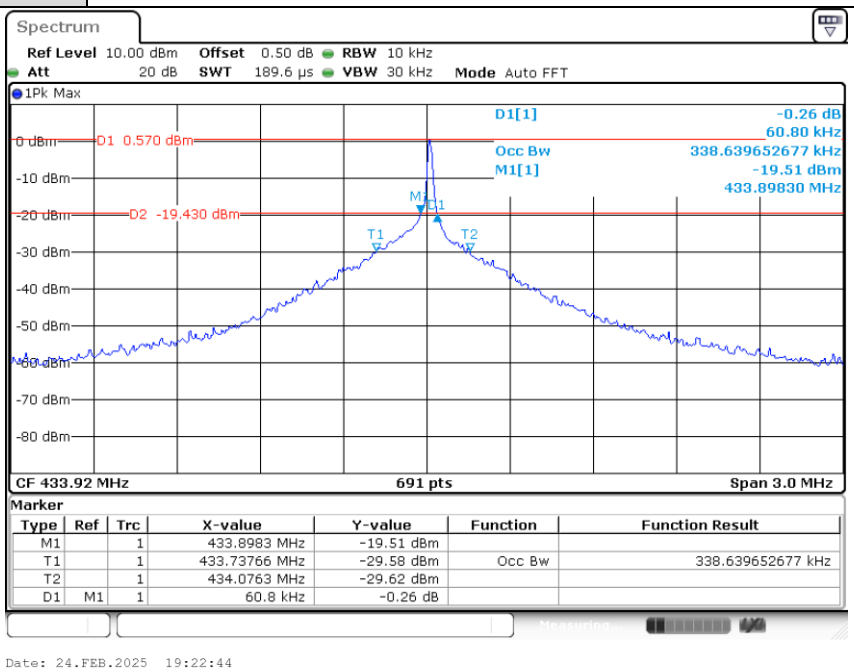
Please refer to the clause 2.4.

Test Result

Freq(MHz)	20dB BW [kHz]	Limit[MHz]	Verdict
433.92	60.8	1.085	PASS

20dB Bandwidth Test Graphs

Test Frequency	433.92 MHz



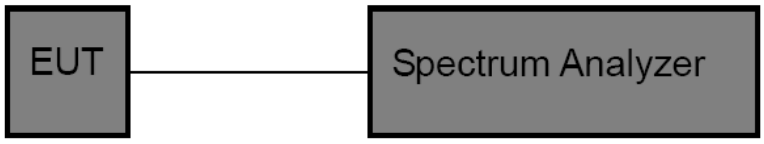
3.4. Continue Transmission Time

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.231 (a)

A manually operated transmitter shall employ a switch that will auto-matically deactivate the transmitter within not more than 5 seconds of being released.

Test Configuration



Test Procedure

1. The transmitter output was connected to the spectrum analyzer through an attenuator, the path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously
3. Spectrum Setting:
   Frequency=Center carrier frequency
   RBW=100KHz, VBW=300KHz, Span= 0
   Sweep time= 10second, Detector function = peak, Trace = single
4. Measure and record the results in the test report

Test Mode

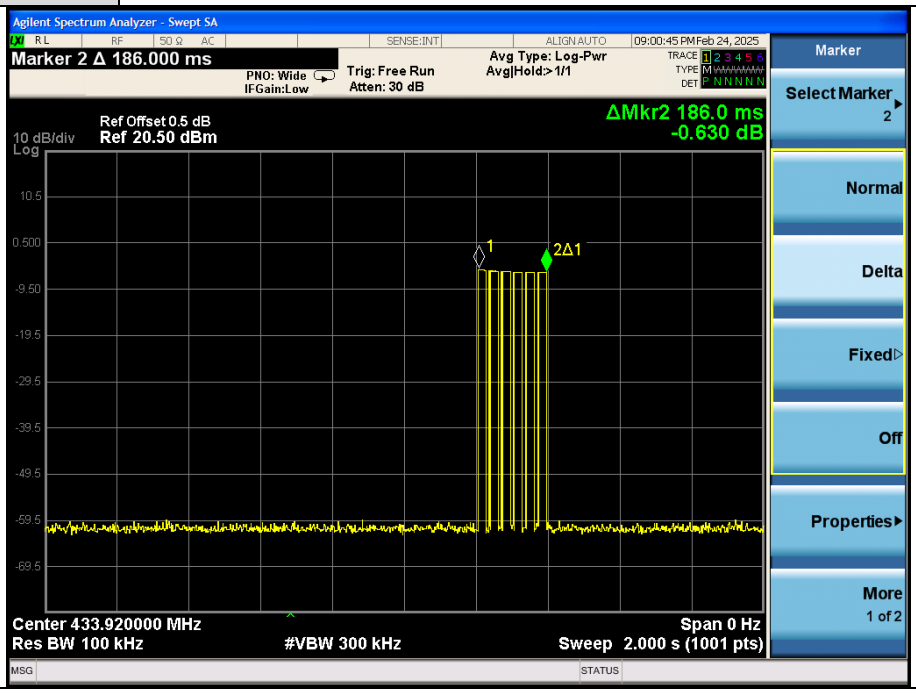
Please refer to the clause 2.4.

Test Result

Frequency (MHz)	Transmission time (ms)	Limit (s)	Result
433.92	186.0	<5.00	Pass

Test plot as follows:

Test Frequency	433.92 MHz

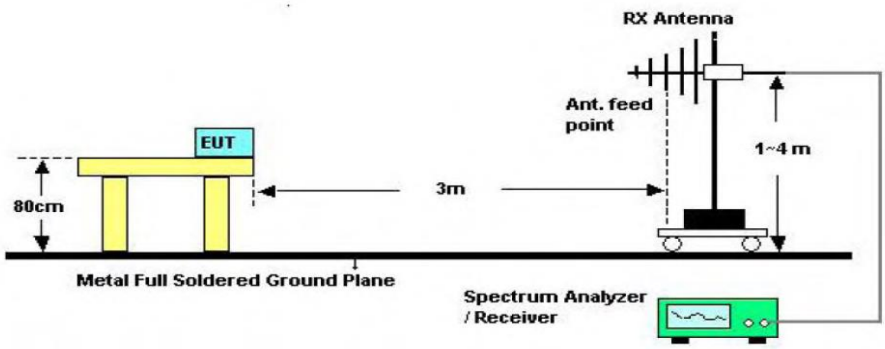


3.5. Duty Cycle

Limit

The duration of each transmission shall not be more than 1 second and the rest time between transfers shall be at least 30 times the duration of propagation, but in any case less than 10 seconds.

Test Configuration



Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013 requirements.
2. The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT waspositioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. Thisis repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.

Test Mode

Please refer to the clause 2.4.

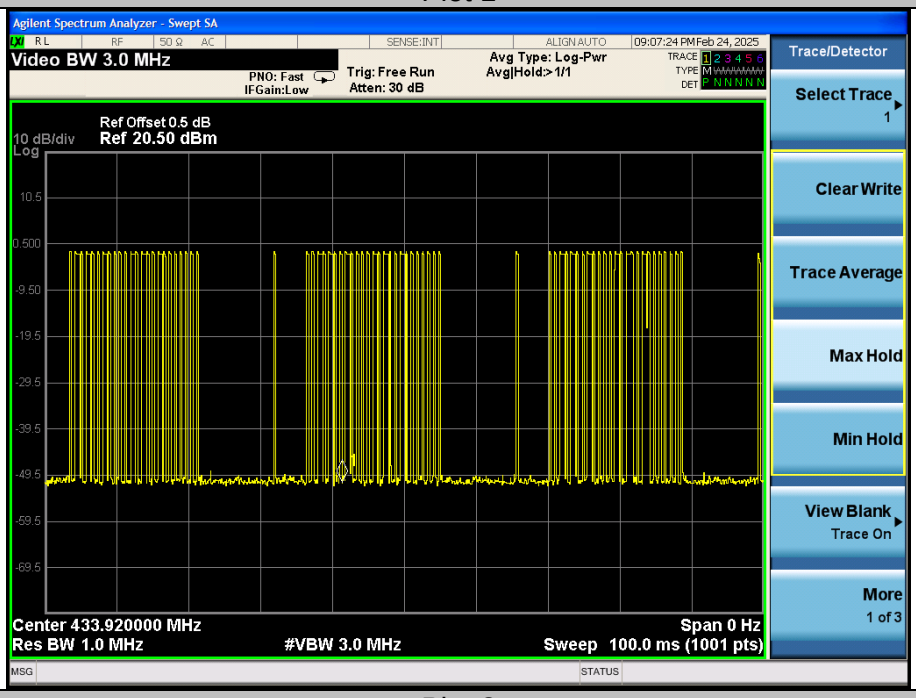
Test Result

Please refer the following pages:
Plot 1: Because the transmit period of the EUT already exceed 100ms, so 100ms was used for calculated, the large pulses total 18, the small pulses total 57.
Plot 2: One large pulse in a time period of 0.66ms.
Plot 3: One small pulse in a time period of 0.34ms.

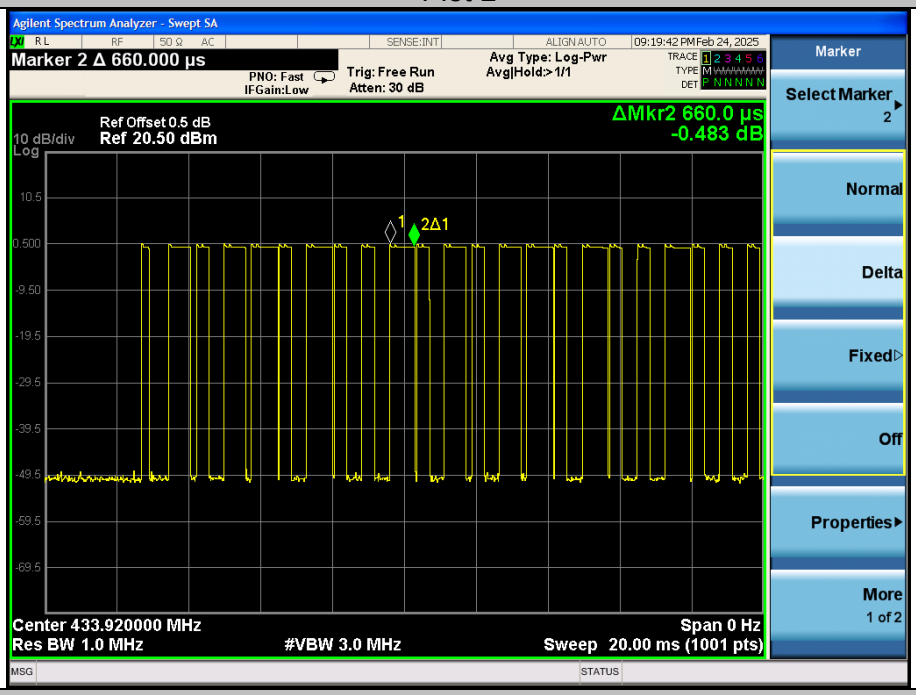
Duty Cycle=ON/Total=(18*0.66+57*0.34)/100=31.26/100=31.26%
20 log(Duty Cycle)=-10.10

Test plot as follows:

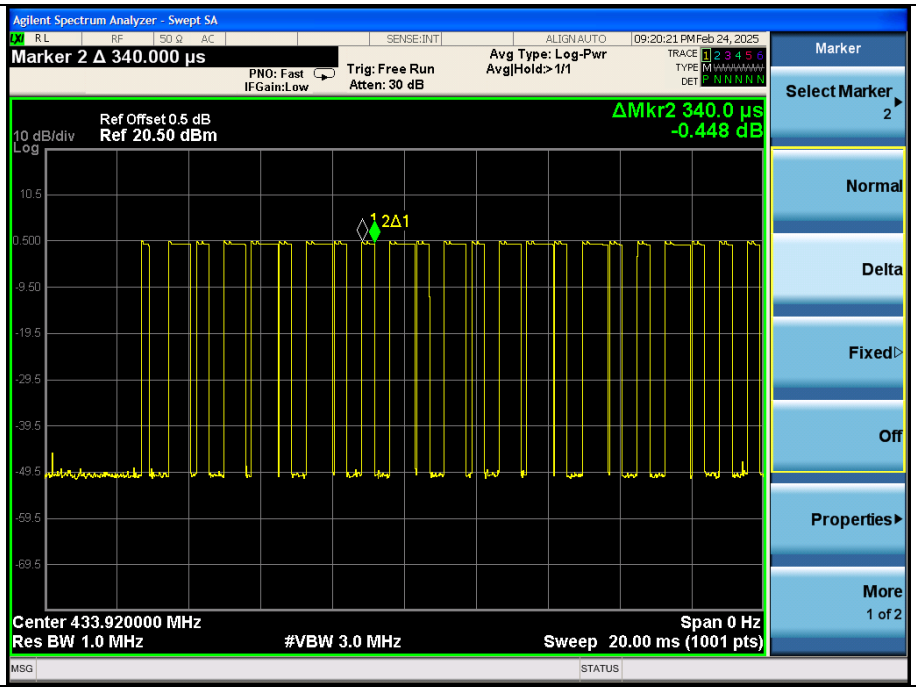
Plot 1



Plot 2



Plot 3


Agilent Spectrum Analyzer - Swept SA
Marker 2 Δ 340.000 µs
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>1/1
09:20:21 PM Feb 24, 2025
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.50 dBm
ΔMkr2 340.0 µs
-0.448 dB
1 2Δ1
Center 433.920000 MHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 20.00 ms (1001 pts)
Marker
Select Marker
2
Normal
Delta
Fixed
Off
Properties
More
1 of 2
MSG
STATUS

3.6. Antenna Requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C 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. The use of a permanently attached antenna or of 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.
FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i)
(i) Systems operating in the 2400~2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

Test Result

The directional gain of the antenna is less than 6dBi, please refer to the EUT internal photographs antenna photo.

Result

PASS.
The EUT has 1 antenna: a PCB Antenna.
Note: ☒Antenna use a permanently attached antenna which is not replaceable.
☐Not using a standard antenna jack or electrical connector for antenna replacement.
☐The antenna has to be professionally installed (please provide method of installation).

**************************THE END OF REPORT*************************