



# TEST REPORT

**Report No.** ..... : **CTC2025201503**  
**FCC ID**..... : **2A6V3XL-SBCRS**  
**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-SBCONRS  
**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**..... : Mar. 06, 2025  
**Date of testing**..... : Mar. 06, 2025 ~ Mar. 18, 2025  
**Date of issue**..... : Apr. 23, 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	CTC202501503	Apr. 23, 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	Pass	Alicia Liu
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, Luh 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	$\pm 0.0196\%$	(1)
Maximum Conducted Output Power	$\pm 0.686$ dB	(1)
Maximum Power Spectral Density Level	$\pm 0.743$ dB	(1)
Band-edge Compliance	$\pm 1.328$ dB	(1)
Unwanted Emissions In Non-restricted Freq Bands	9kHz-1GHz: $\pm 0.746$ dB 1GHz-26GHz: $\pm 1.328$ dB	(1)
Conducted Emissions 9kHz~30MHz	$\pm 3.08$ dB	(1)
Radiated Emissions 30~1000MHz	$\pm 4.51$ dB	(1)
Radiated Emissions 1~18GHz	$\pm 5.84$ dB	(1)
Radiated Emissions 18~40GHz	$\pm 6.12$ 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-SBCONRS
Listed Model(s):	/
Model Difference:	/
Sample ID:	CTC241225-001-S004
Power Supply:	AC 12V
Hardware Version:	/
Software Version:	/
<b>RF Parameter</b>	
Modulation:	ASK/OOK
Operation Frequency:	433.92MHz
Channel Number:	1
Antenna Type:	Chip 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	ESC17	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

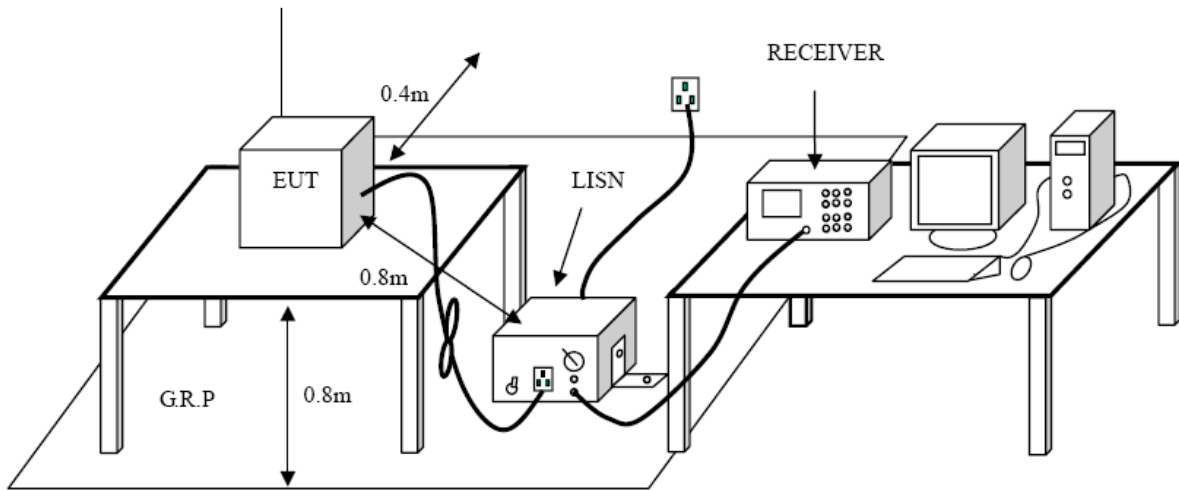
##### Limit

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

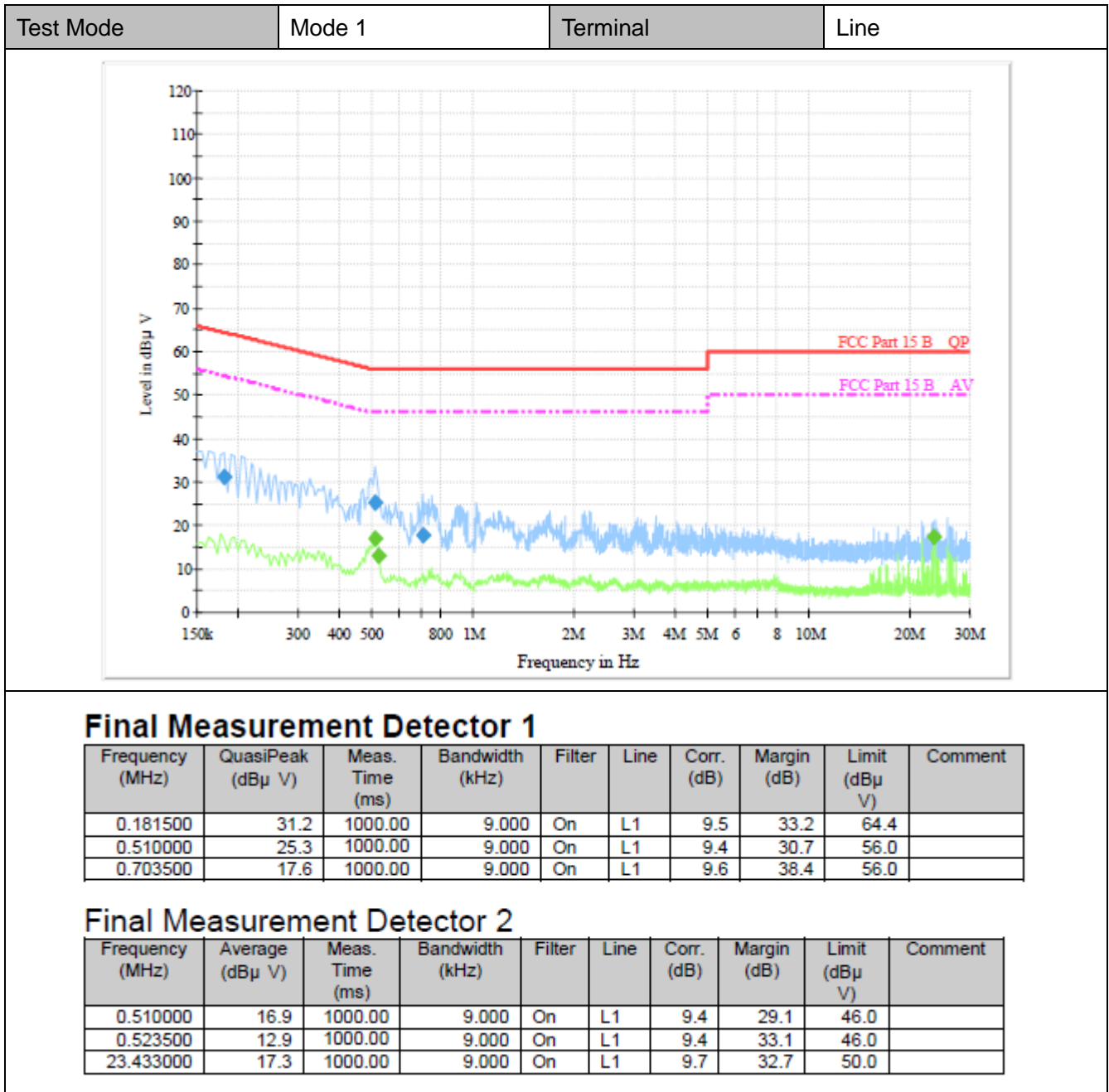


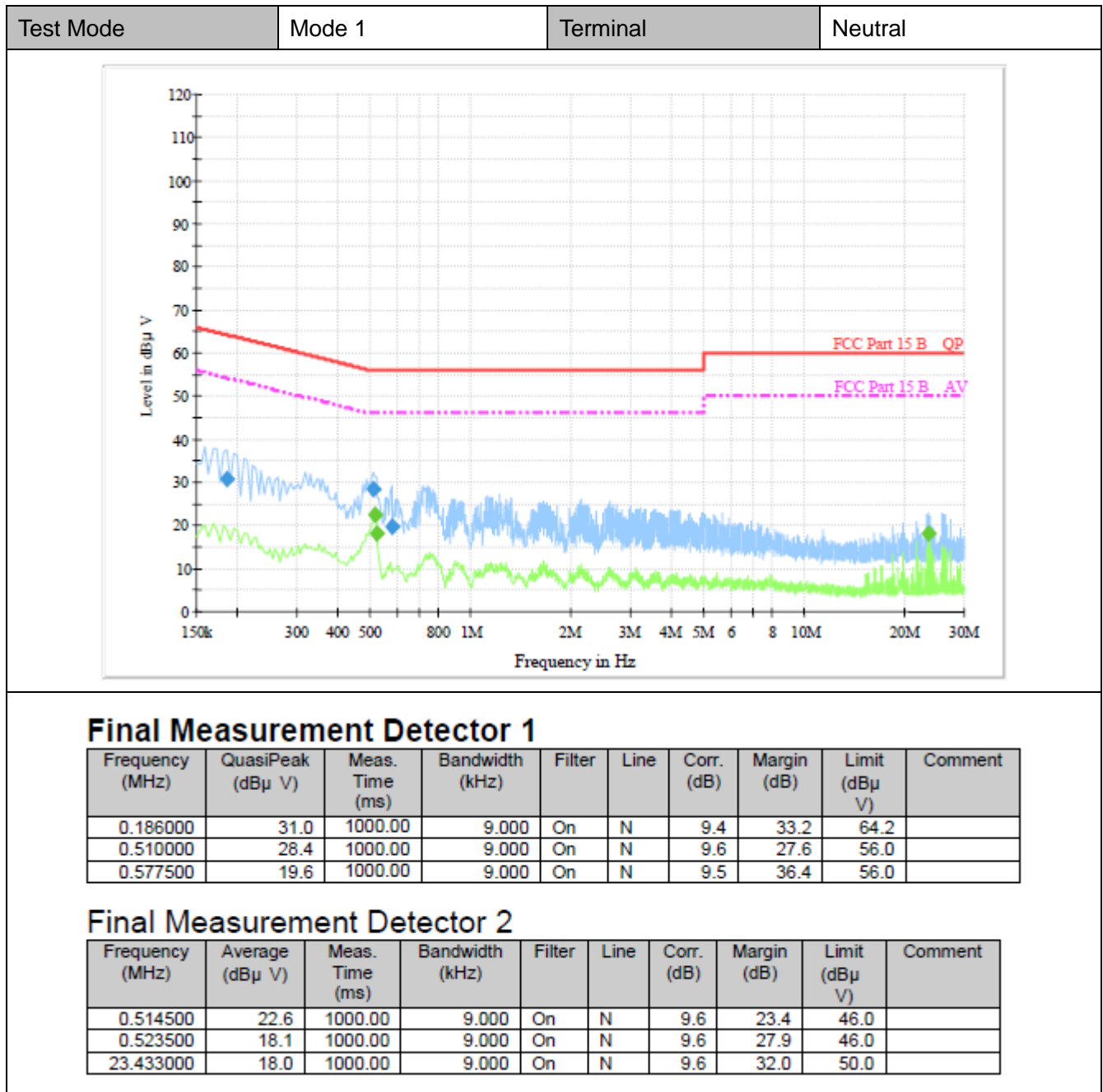
##### Test Procedure

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**





### 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 =  $41.67 \cdot F - 7083.34$

Field strength of harmonics: Limit at 3 meters =  $4.167 \cdot F - 708.334$

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	$2400/F(\text{KHz})$	300
0.490~1.705	$24000/F(\text{KHz})$	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)

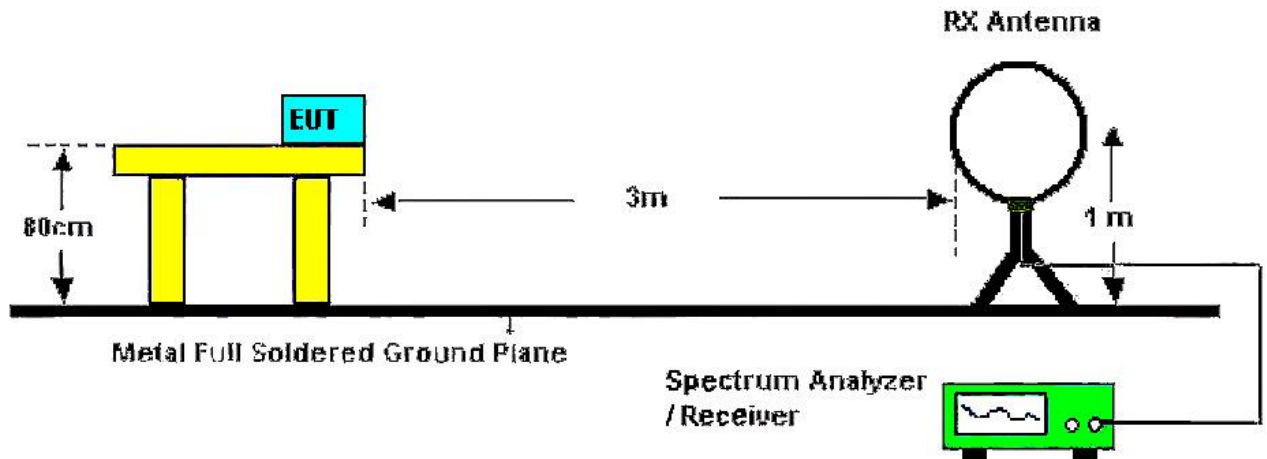
Frequency (MHz)	Distance Meters(at 3m)	
	Peak	Average
Above 1000	74	54

Note:

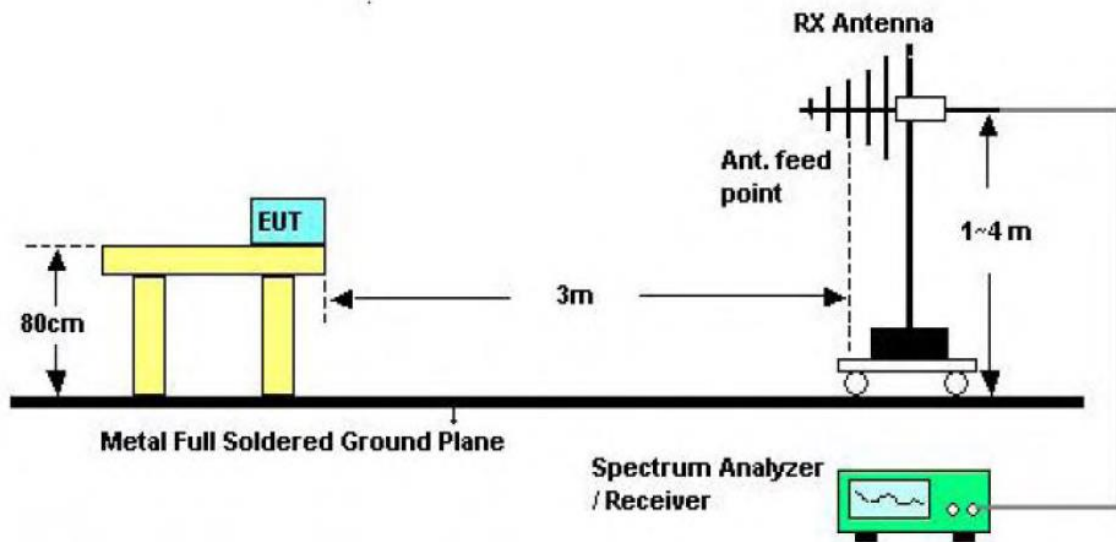
(1) The tighter limit applies at the band edges.

(2) Emission Level (dBuV/m)=20log Emission Level (uV/m).

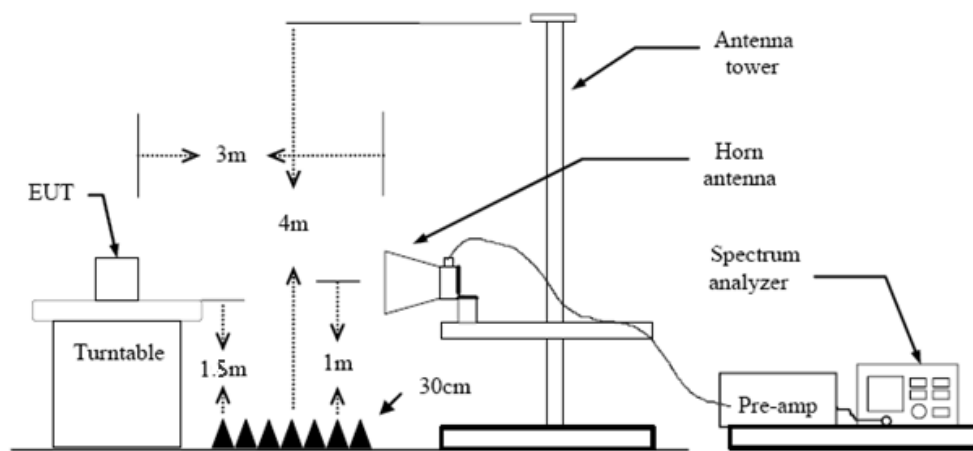
## Test Configuration



Below 30MHz Test Setup



30-1000MHz Test Setup



Above 1GHz Test Setup

## Test Procedure

CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China  
Tel.: (86)755-27521059 Fax: (86)755-27521011 Http://www.sz-ctc.org.cn

TRF No: CTC-TR-058\_A1

For anti-fake verification, please visit the official website of China Inspection And Testing Society : [yz.cnca.cn](http://yz.cnca.cn)



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 holdIf 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 10<sup>th</sup> 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**

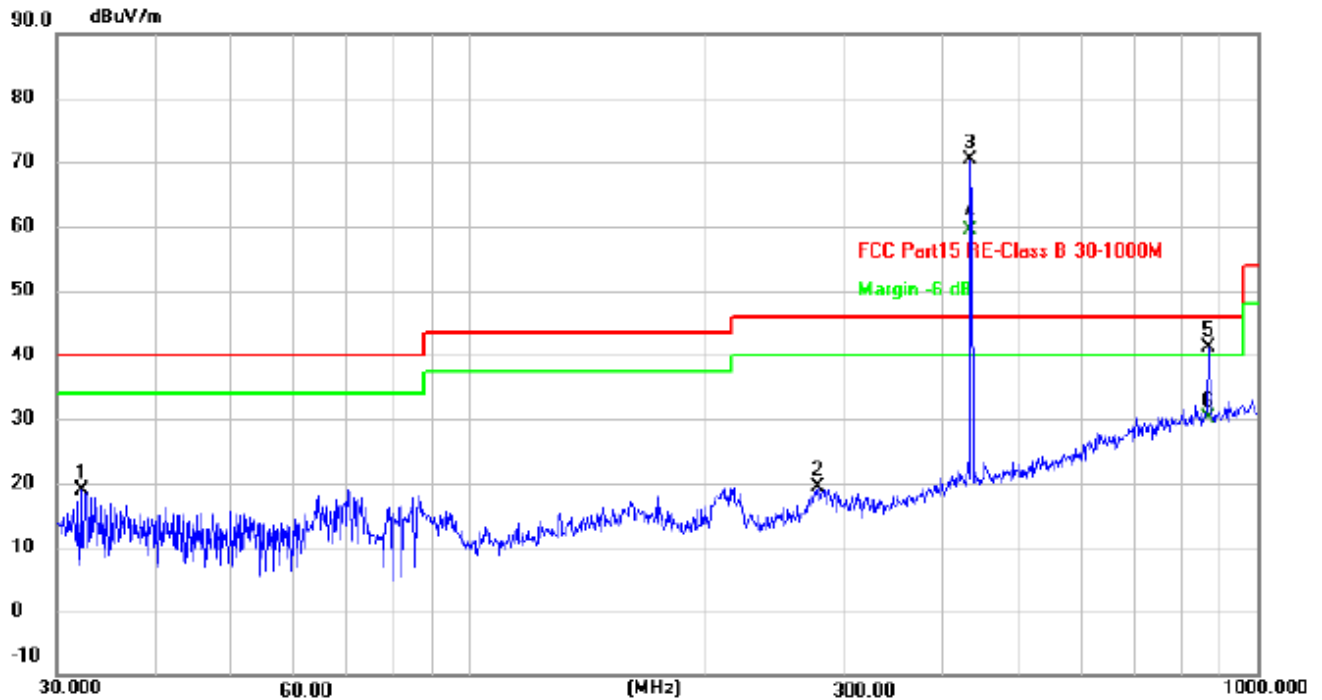
From 9 kHz to 30 MHz: The conclusion is PASS.

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	32.1794	34.88	-16.03	/	18.85	43.50	-24.65	peak
2	277.0935	35.74	-16.40	/	19.34	46.00	-26.66	peak
3	432.5455	82.04	-11.63	/	70.41	100.82	-30.41	peak
4	432.5456	70.93		-11.11	59.30	80.82	-21.52	AVG
5	866.0878	44.03	-2.84	/	41.19	80.82	-39.63	peak
6	866.0879	32.92		-11.11	30.08	60.82	-30.74	AVG

## Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

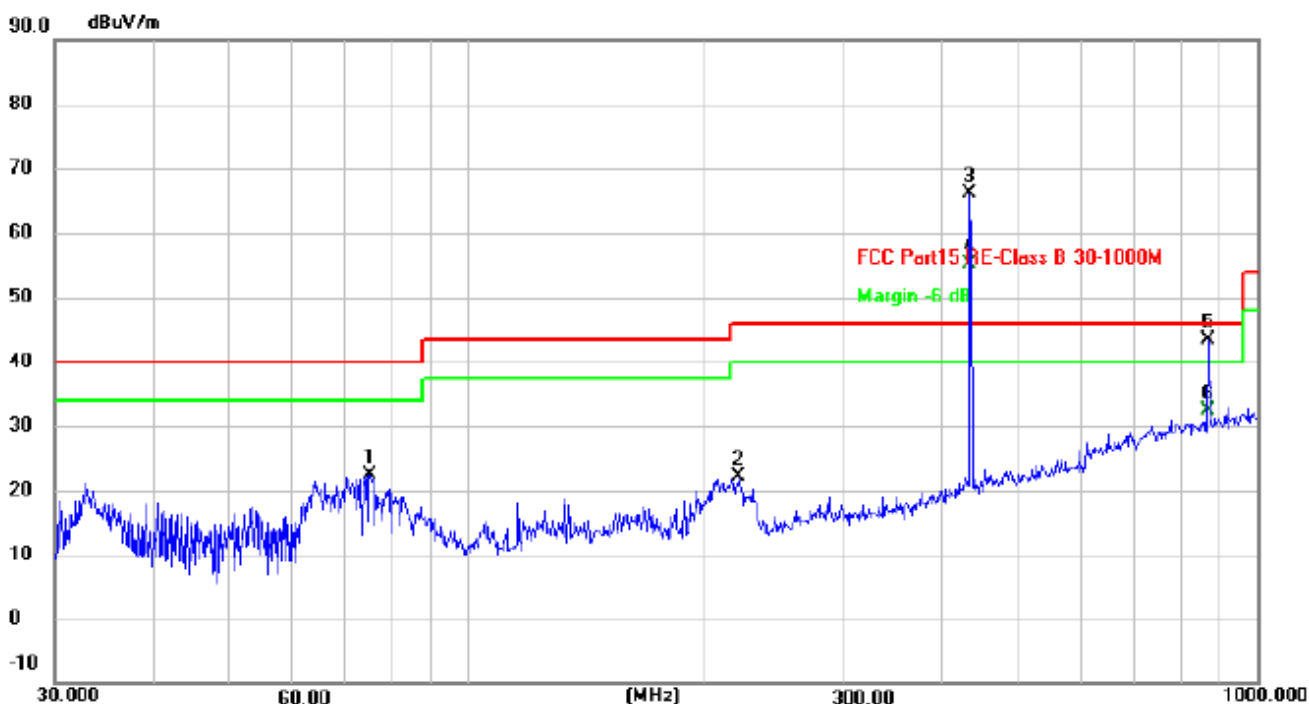
2.Margin value = Level- Limit value

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	75.1822	42.26	-19.78	/	22.48	40.00	-17.52	peak
2	220.6171	40.70	-18.56	/	22.14	40.00	-17.86	peak
3	432.5455	77.75	-11.63		66.12	100.82	-34.7	peak
4	432.5457	66.64		-11.11	55.53	80.82	-25.29	AVG
5	866.0878	46.25	-2.84	/	43.41	80.82	-37.41	peak
6	866.0879	35.14		-11.11	24.03	60.82	-36.79	AVG

## Remarks:

1. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) - Pre-amplifier Factor

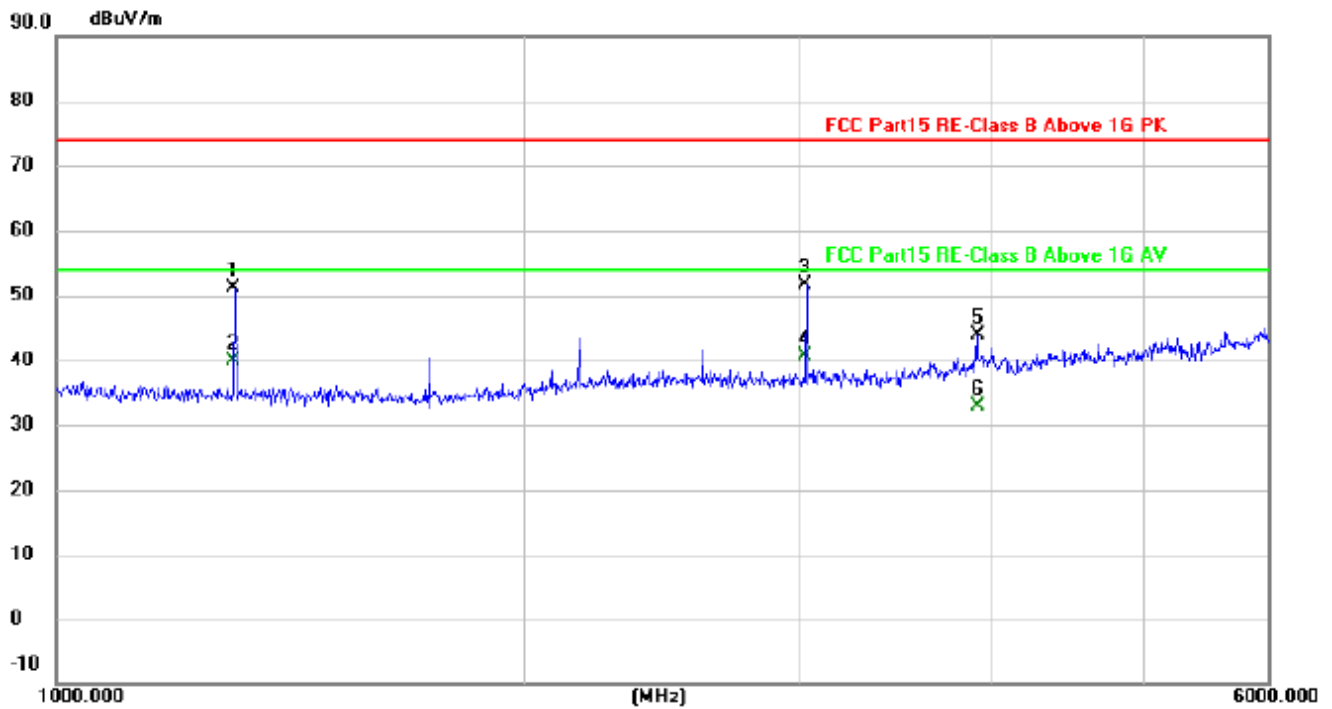
2. Margin value = Level - Limit value

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



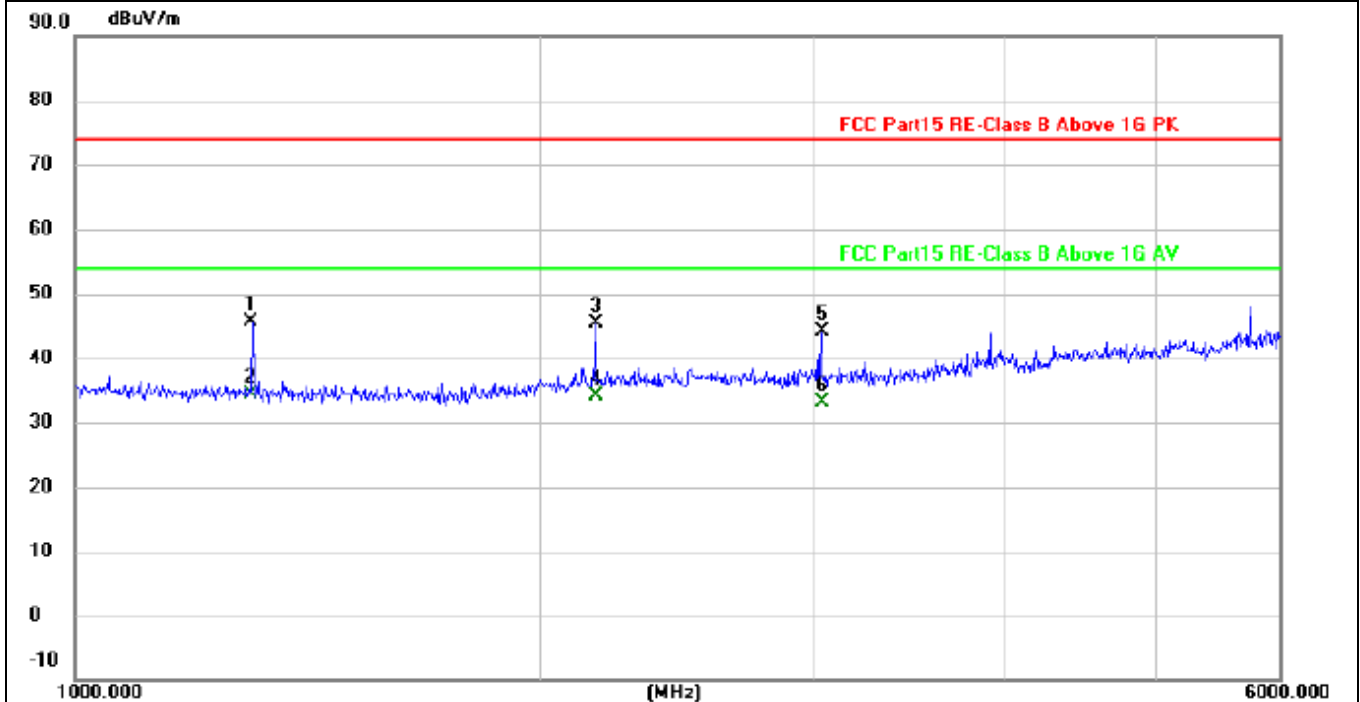
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Duty Cycle Factor	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1301.332	57.82	-7.28	/	51.01	74.00	-22.99	peak
2	1301.332	47.72		-11.11	36.61	54.00	-17.39	AVG
3	3031.626	65.60	-2.26	/	51.75	74.00	-22.25	peak
4	3031.626	55.50		-11.11	44.39	54.00	-9.61	AVG
5	3902.968	48.60	0.14	/	43.88	74.00	-30.12	peak
6	3902.968	38.50		-11.11	27.39	54.00	-26.61	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	1301.332	52.85	-7.28	/	45.57	74.00	-28.43	peak
2	1301.332	41.74		-11.11	30.63	54.00	-23.37	AVG
3	2168.510	49.10	-3.80	/	45.30	74.00	-28.7	peak
4	2168.510	37.99		-11.11	26.88	54.00	-27.12	AVG
5	3037.063	46.39	-2.25	/	44.14	74.00	-29.86	peak
6	3037.063	35.28		-11.11	24.14	54.00	-29.86	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

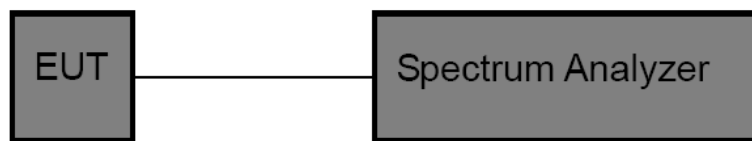
#### Limit

#### **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.

$$433.92\text{MHz} \times 0.25\% = 1.085\text{MHz}$$

#### 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)  $\geq 3$  RBW.
  - (3) Detector = Peak.
  - (4) Trace mode = Max hold.
  - (5) Sweep = Auto couple.

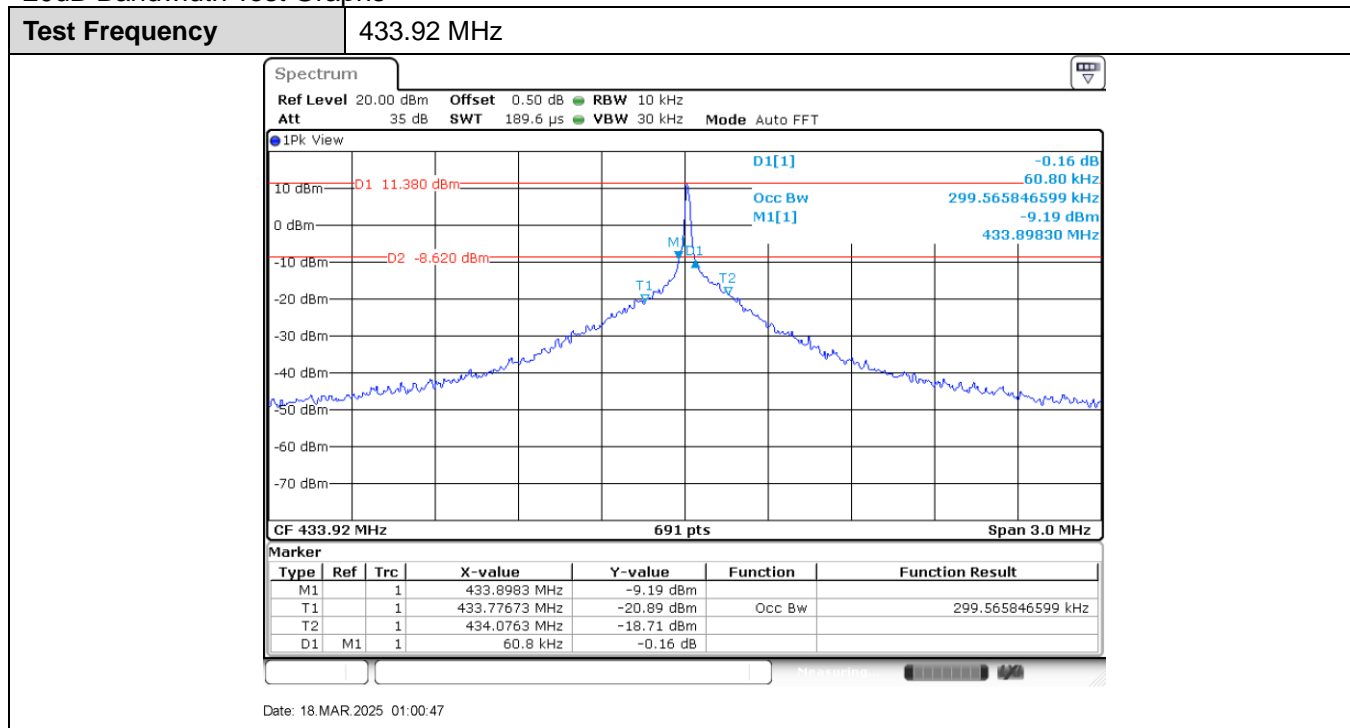
#### Test Mode

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





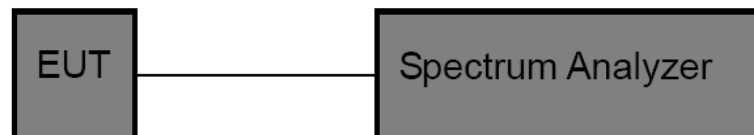
### 3.4. Continue Transmission Time

#### 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

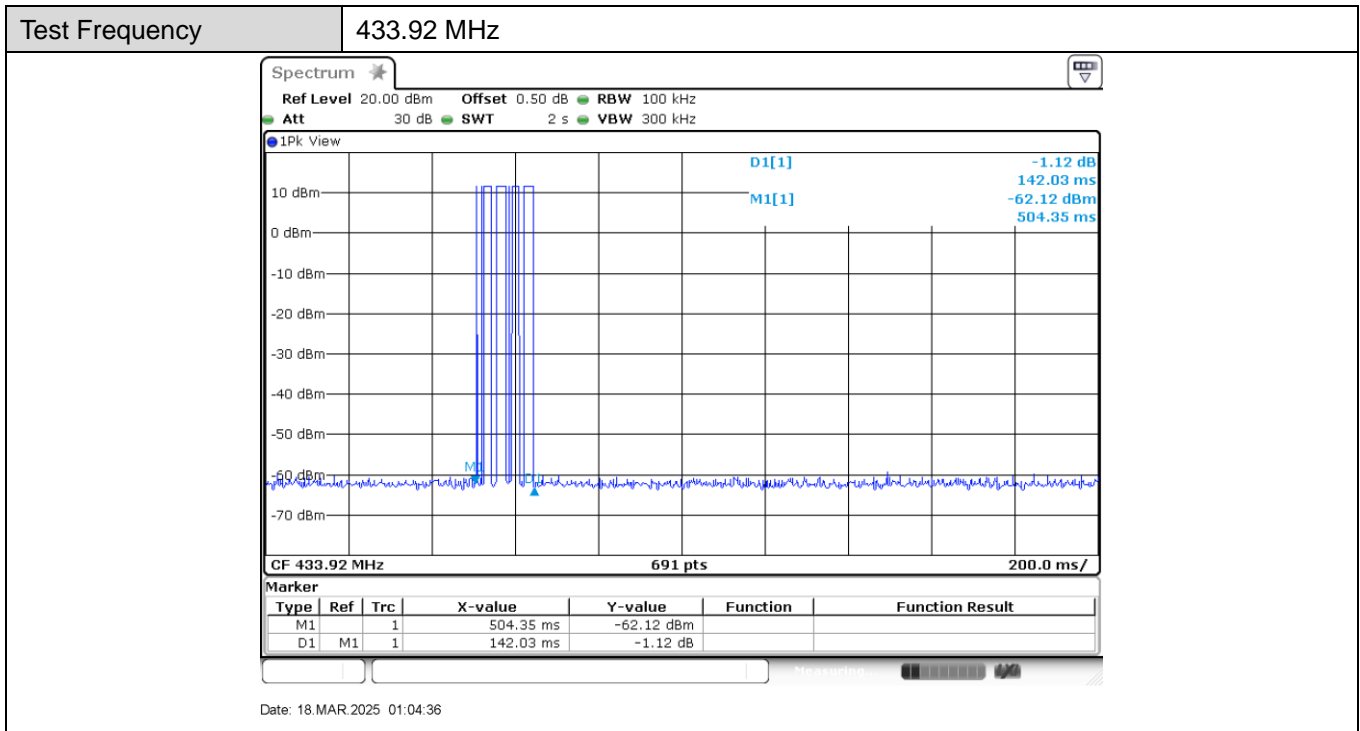
Please refer to the clause 2.4.

#### Test Result

Frequency (MHz)	Transmission time (ms)	Limit (s)	Result
433.92	142.03	<5.00	Pass



Test plot as follows:



CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China  
Tel.: (86)755-27521059 Fax: (86)755-27521011 Http://www.sz-ctc.org.cn

TRF No: CTC-TR-058\_A1

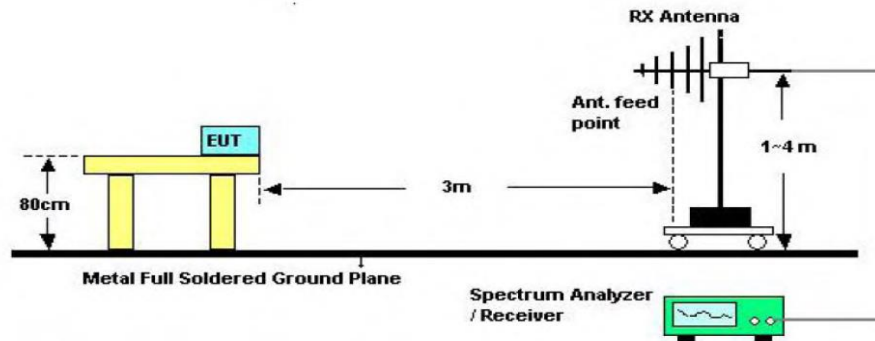
For anti-fake verification, please visit the official website of China Inspection And Testing Society : [yz.cnca.cn](http://yz.cnca.cn)

### 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 was positioned 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. This is 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 33, the small pulses total 45.

**Plot 2:** One large pulse in a time period of 0.578ms.

**Plot 3:** One small pulse in a time period of 0.196ms.

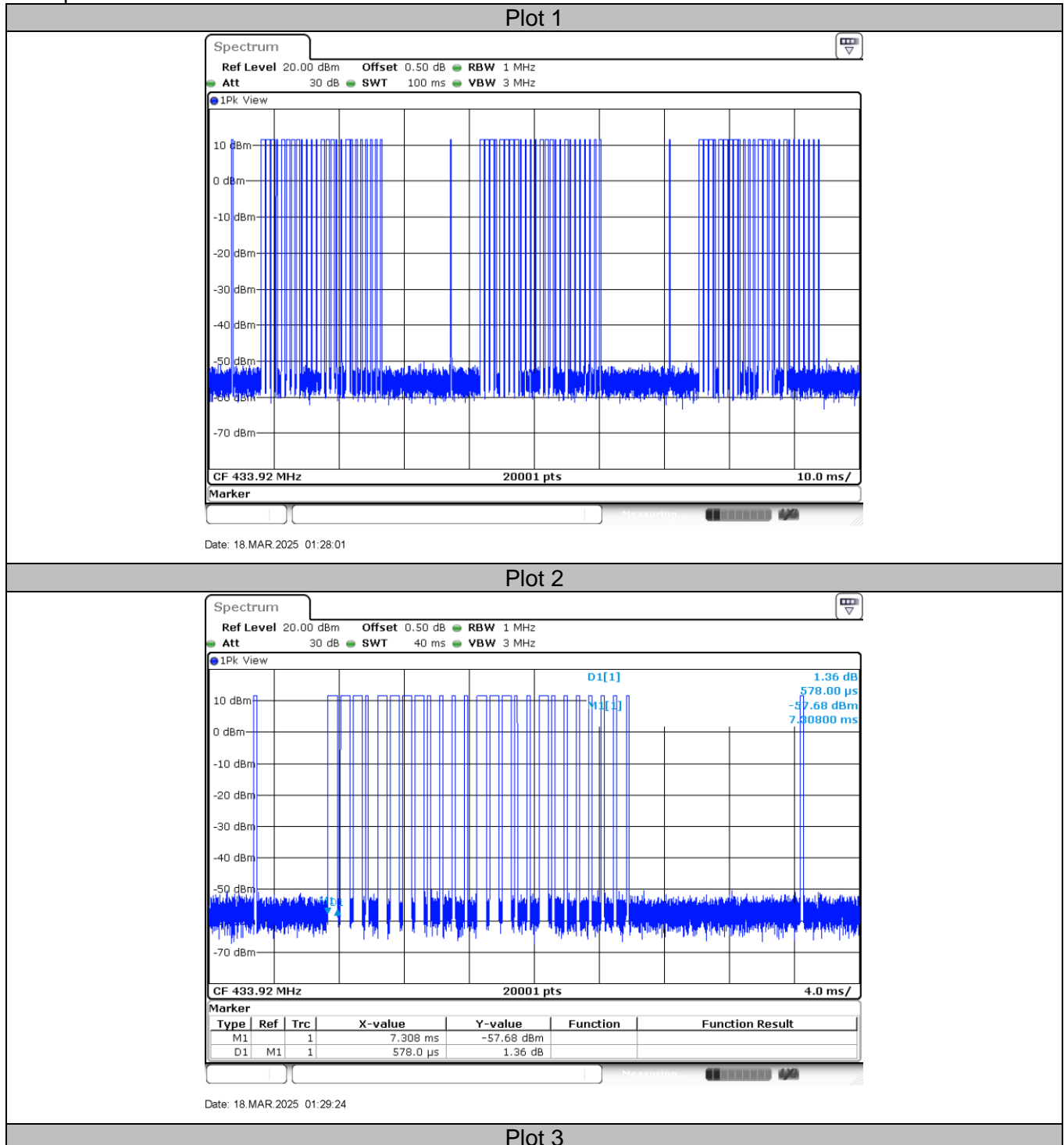
**Duty Cycle=ON/Total= (33\*0.578+45\*0.196)/100=27.828/100=27.828%**

**20 log (Duty Cycle) =-11.11**





Test plot as follows:

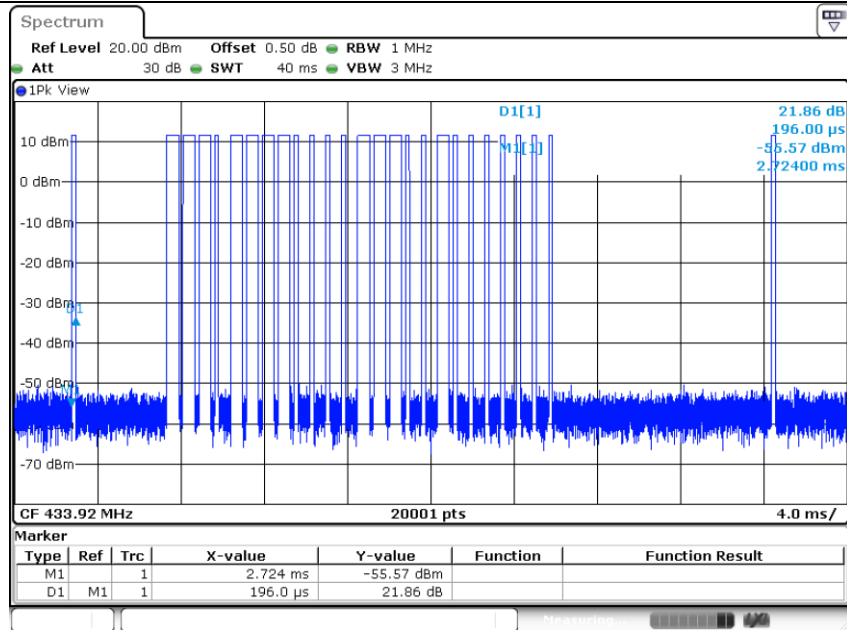


CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China  
Tel.: (86)755-27521059 Fax: (86)755-27521011 Http://www.sz-ctc.org.cn

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Date: 18.MAR.2025 01:30:19

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### 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\*\*\*\*\*