



# FCC Radio Test Report

**FCC ID: 2ABNJR77-BT**

**FCC 47 CFR Part 15 Subpart C**

**Product :** Bluetooth Speaker

**Trade Name :**  See Me Here

**Model Number :** RV77-BT

## Issued for

Shenzhen See Me Here Electronic Co., Ltd.

3-4<sup>th</sup> Floor, Building D, TongFuYu Industrial Park, Xixiang Town, Bao'an District, Shenzhen, China

## Issued by

Shenzhen STONE Testing Technology Co., Ltd.

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The test results in the report only apply to the tested sample.*



## TEST RESULT CERTIFICATION

Product ..... : Bluetooth Speaker  
Applicant..... : Shenzhen See Me Here Electronic Co., Ltd.  
Address ..... : 3-4<sup>th</sup> Floor, Building D, TongFuYu Industrial Park, Xixiang Town,  
Bao'an District, Shenzhen, China  
Manufacturer ..... : Shenzhen See Me Here Electronic Co., Ltd.  
Address ..... : 3-4<sup>th</sup> Floor, Building D, TongFuYu Industrial Park, Xixiang Town,  
Bao'an District, Shenzhen, China  
Model No. .... : RV77-BT  
Standards ..... : FCC Part 15 Subpart C (15.249)  
Test Method..... : ANSI C63.4: 2003

The above equipment has been tested by Shenzhen STONE Testing Technology Co., Ltd. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

**Test** .....

Date of receipt of test item ..... 2013-12-25

Date(s) of performance of test..... 2013-12-26 to 2014-01-03

Test Result..... : Pass

Testing by	:	<u>Linna Liu</u>	Date	:	<u>2014-01-02</u>
		(Linna Liu)			
Check by	:	<u>Andy Huang</u>	Date	:	<u>2014-01-03</u>
		(Andy Huang)			
Approved by	:	<u>Ethan Chen</u>	Date	:	<u>2014-01-03</u>
		(Ethan Chen)			



<b>Table of Contents</b>	<b>Page</b>
1 . TEST SUMMARY	5
1.1 TEST FACILITY	6
1.2 MEASUREMENT UNCERTAINTY	6
2 . GENERAL INFORMATION	7
2.1 GENERAL DESCRIPTION OF EUT	7
2.2 DESCRIPTION OF TEST MODES	8
2.3 DESCRIPTION OF TEST SETUP	9
2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL	10
2.5 EUT Exercise Software	10
3 . CONDUCTED EMISSION TEST	11
3.1 CONDUCTED EMISSION MEASUREMENT (Frequency Range 150KHz-30MHz)	11
3.2 TEST PROCEDURE	11
3.3 TEST SETUP	12
3.4 TEST INSTRUMENTS	12
3.5 EUT OPERATING CONDITIONS	12
3.6 TEST RESULTS	13
4 . RADIATED EMISSION MEASUREMENT	15
4.1 RADIATED EMISSION LIMIT (Frequency Range 9KHz-1000MHz)	15
4.2 TEST PROCEDURE	16
4.3 TEST SETUP	16
4.4 TEST INSTRUMENTS	17
4.5 EUT OPERATING CONDITIONS	17
4.6 TEST RESULTS	18
5 . 20DB BANDWIDTH MEASUREMENT	28
5.1 LIMITS	28
5.2 TEST PROCEDURE	28
5.3 TEST SETUP	28
5.4 TEST INSTRUMENTS	28
5.5 EUT OPERATING CONDITIONS	28
5.6 TEST RESULTS	28



<b>Table of Contents</b>	<b>Page</b>
6 . ANTENNA REQUIREMENT	33
6.1 REQUIREMENT	33
6.2 ANTENNA CONNECTOR CONSTRUCTION	33



## 1. TEST SUMMARY

Test procedures according to the technical standards:

FCC Part 15 Subpart C (15.249)			
Standard Section	Test Item	Judgment	Remark
15.207	AC Power Conducted Emission	PASS	
15.209	Radiated Emissions	PASS	
15.249	Radiated Spurious Emissions	PASS	
15.249	20dB Bandwidth	PASS	

**NOTE:**

- (1) "N/A" denotes test is not applicable in this Test Report
- (2) The test results of this report relate only to the tested sample(s) identified in this report.



## 1.1 TEST FACILITY

Shenzhen STONE Testing Technology Co., Ltd.

Add. : F/6, Bldg.12, Zhongxing Industrial City, Chuangye Rd., Nanshan District, Shenzhen, Guangdong, China

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

FCC Registration No.: 323508

## 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately **95** %.

### A. Conducted Emission :

The measurement uncertainty is evaluated as  $\pm 3.2$  dB.

### B. Radiated Measurement :

The measurement uncertainty is evaluated as  $\pm 3.7$  dB.



## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

Equipment	Bluetooth Speaker
Model Name	RV77-BT
Additional Model Number(s)	N/A
Model Difference	N/A
Frequency Range	Bluetooth (Version: 3.0): 2402~2480 MHz
Modulation Type	Bluetooth: GFSK/ $\pi/4$ -DQPSK/8-DPSK
RF Output Power	Bluetooth: 94.85 dBuV/m 3m (Peak) 86.59 dBuV/m 3m (Average)
Antenna Type	PCB Antenna (Gain: 2.5 dBi)
Power Source	DC power by Li-ion battery DC power from USB cable by host system
Power Rating	Li-ion battery: DC 3.7V 1000 mAh DC 5.0V from USB cable.
Remark	Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.

**Note:**

- (1) This Test Report is FCC Part 15 Subpart C, 15.249 for Bluetooth.
- (2) For 15B compliance please refer the 15B test report.



## 2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	USB Charging and Aux In Mode
Mode 2	USB Charging and Bluetooth Mode
Mode 3	BT TX Mode
Mode 4	BT TX (GFSK) Mode
Mode 5	BT TX( $\pi/4$ -DQPSK) Mode
Mode 6	BT TX(8-DPSK) Mode

For Conducted Test	
Final Test Mode	Description
Mode 2	USB Charging and Bluetooth Mode

For Radiated Test	
Final Test Mode	Description
Mode 1	USB Charging and Aux In Mode
Mode 2	USB Charging and Bluetooth Mode
Mode 3	BT TX Mode
Mode 4	BT TX (GFSK) Mode
Mode 6	BT TX(8-DPSK) Mode

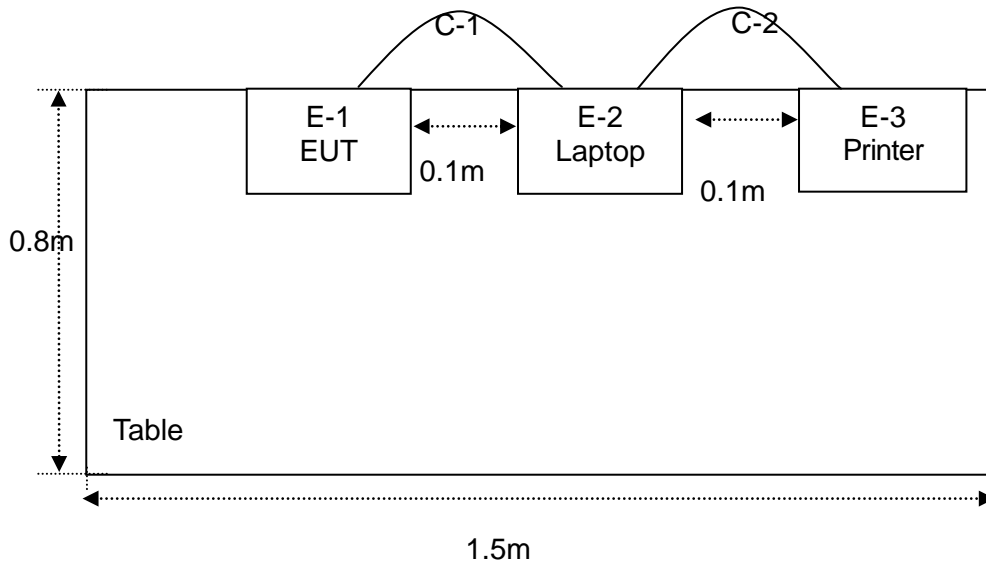
Note:

- (1) Software used to control the EUT for staying in continuous transmitting mode was programmed. After verification, all tests were carried out with the worst case test modes as shown below.
- (2) GFSK Mode:  
Channel (2402/2441/2480 MHz) with DH1 data packet were chosen for full testing.
- (3) 8-DPSK Mode:  
Channel (2402/2441/2480 MHz) with DH1 data packet were chosen for full testing.
- (4) By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that "X axis" position was the worst, then the final test was executed the worst condition and test data were recorded in this report.

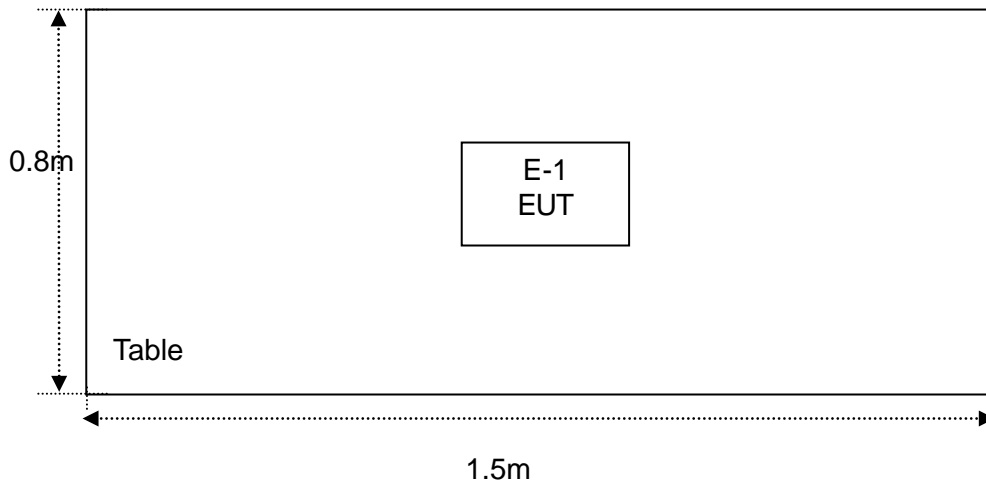


### 2.3 DESCRIPTION OF TEST SETUP

#### USB Charging Mode



#### BT TX Mode





2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Bluetooth Speaker	seemehere	RV77-BT	N/A	EUT
E-2	Laptop	LENOVO	P142S	N/A	
E-3	Printer	HP	5015N	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	YES	YES	60cm	USB Cable
C-2	No	No	60cm	Audio Line

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” means “shielded” “with core”; “NO” means “unshielded” “without core”.

2.5 EUT Exercise Software

Test Software: Bluetool2.1.1.4.exe

GFSK Power Setting: Default  
 π /4-DQPSK Power Setting: Default  
 8-DPSK Power Setting: Default



### 3. CONDUCTED EMISSION TEST

#### 3.1 CONDUCTED EMISSION MEASUREMENT (Frequency Range 150KHz-30MHz)

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

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

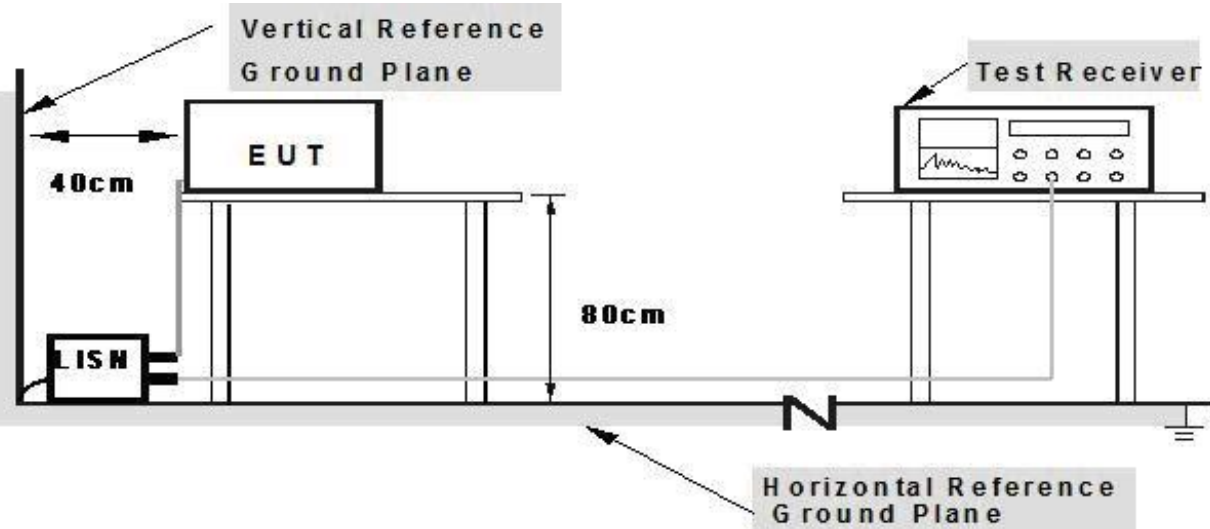
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

#### 3.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 3.3 TEST SETUP



- Note: 1.Support units were connected to second LISN.**  
**2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes**

### 3.4 TEST INSTRUMENTS

Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
LISN	R&S	NSLK81	8126466	Jul. 06, 2012	Jul. 05, 2014	1 year
LISN	R&S	NSLK81	8126487	Dec. 24, 2013	Dec. 23, 2014	1 year
50Ω Switch	ANRITSU CORP	MP59B	6200983704	Jul. 06, 2012	Jul. 05, 2014	1 year
Test Cable	N/A	C01	N/A	Jul. 06, 2012	Jul. 05, 2014	1 year
Test Cable	N/A	C02	N/A	Jul. 06, 2012	Jul. 05, 2014	1 year
Test Cable	N/A	C03	N/A	Jul. 06, 2012	Jul. 05, 2014	1 year
EMI Test Receiver	R&S	ESCI	1166.595	Jul. 06, 2012	Jul. 05, 2014	1 year
Passive Voltage Probe	ESH2-Z3	R&S	100196	Jul. 06, 2012	Jul. 05, 2014	1 year

### 3.5 EUT OPERATING CONDITIONS

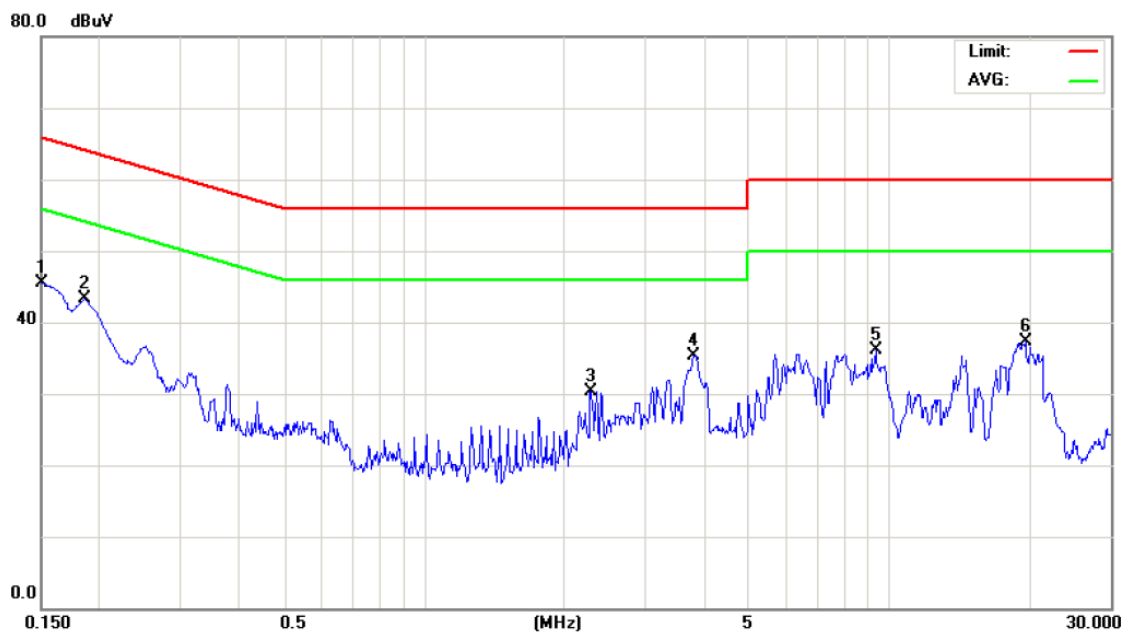
The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.



### 3.6 TEST RESULTS

EUT :	Bluetooth Speaker	Model Name. :	RV77-BT
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Test Date :	2013-12-27
Test Mode :	Mode 2	Phase :	Line
Test Voltage :	120V/ 60Hz		

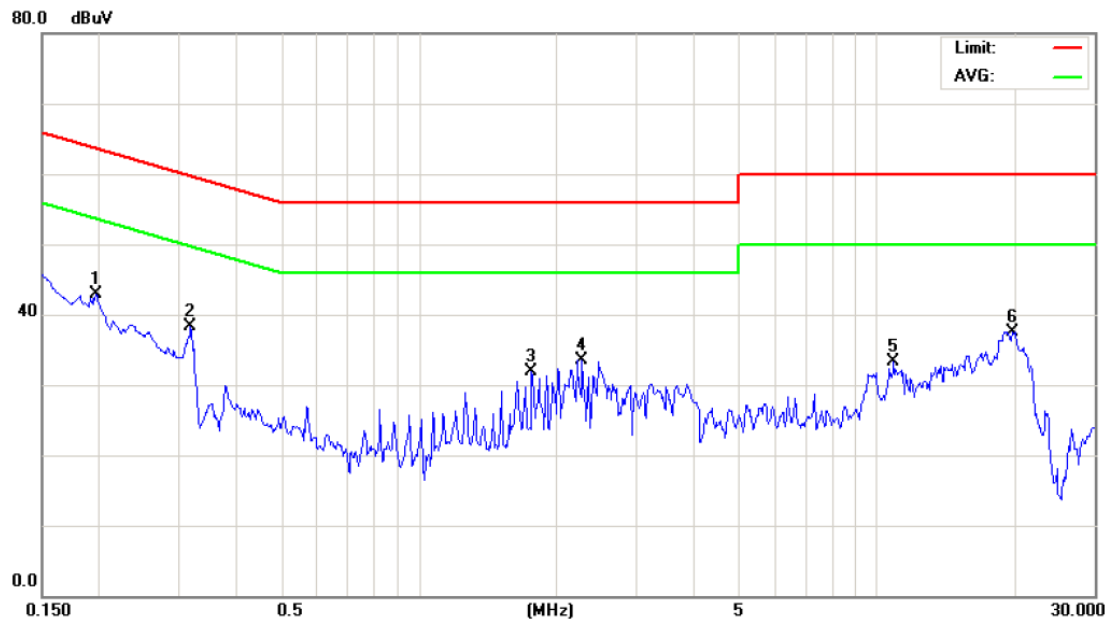
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1	*	0.1500	35.52	10.02	45.54	66.00	-20.46	QP
2		0.1853	33.25	10.03	43.28	64.24	-20.96	QP
3		2.2845	20.19	10.18	30.37	56.00	-25.63	QP
4		3.7993	25.04	10.20	35.24	56.00	-20.76	QP
5		9.3518	25.73	10.28	36.01	60.00	-23.99	QP
6		19.6354	26.91	10.49	37.40	60.00	-22.60	QP





EUT :	Bluetooth Speaker	Model Name. :	RV77-BT
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Test Date :	2013-07-12
Test Mode :	Mode 2	Phase :	Neutral
Test Voltage :	120V/ 60Hz		

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1	*	0.1965	32.82	10.14	42.96	63.76	-20.80	QP
2		0.3165	28.09	10.14	38.23	59.80	-21.57	QP
3		1.7620	21.73	10.25	31.98	56.00	-24.02	QP
4		2.2726	23.23	10.27	33.50	56.00	-22.50	QP
5		10.9050	23.00	10.39	33.39	60.00	-26.61	QP
6		19.8445	26.99	10.50	37.49	60.00	-22.51	QP





#### 4. RADIATED EMISSION MEASUREMENT

##### 4.1 RADIATED EMISSION LIMIT (Frequency Range 9KHz-1000MHz)

20 dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table bellow has to be followed.

FREQUENCY (MHz)	Field Strength (uV/m at 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

Harmonic emissions limits comply with below 54 dBuV/m at 3m, other emissions radiated outside of the specific frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 154.209(a) limit in the table above has to be followed.

##### Limits of Fundamental and Spurious Emissions

FUNDAMENTAL		
FREQUENCY RANGE (MHz)	LIMITS (PEAK) dB(uV/m)	LIMITS (AVERAGE) dB(uV/m)
2400~2483.5	114	94
SPURIOUS EMISSION		
FREQUENCY RANGE (MHz)	LIMITS (PEAK) dB(uV/m)	LIMITS (AVERAGE) dB(uV/m)
Above 1000	74	54

**Note:**

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (2) Emission Level(dBuV/m)=20log Emission Level(uV/m)

The following table is the setting of the receiver

Receiver Parameter	Setting
Attenuation	Auto
Start Frequency~ Stop Frequency	9kHz~150kHz/ RB 200Hz for QP
Start Frequency~ Stop Frequency	150kHz~30MHz/ RB 9kHz for QP
Start Frequency~ Stop Frequency	30MHz~1000MHz/ RB120kHz for QP

The following table is the setting of the spectrum

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10 <sup>th</sup> carrier harmonic
RB/ VB (emission in restricted band)	1MHz/ 3 MHz for Peak, 1MHz/ 10Hz for Average

#### 4.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. 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, above 1G Average detector mode will be instead.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

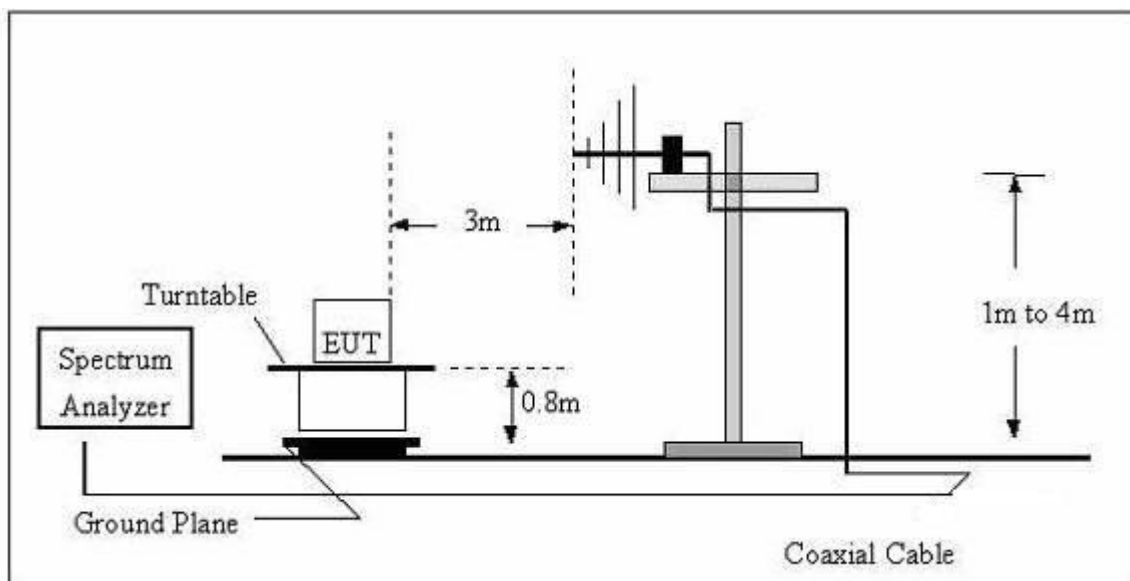
Note:

Both horizontal and vertical antenna polarities were tested.

And performed pretest to three orthogonal axis. The worst case emissions were reported.

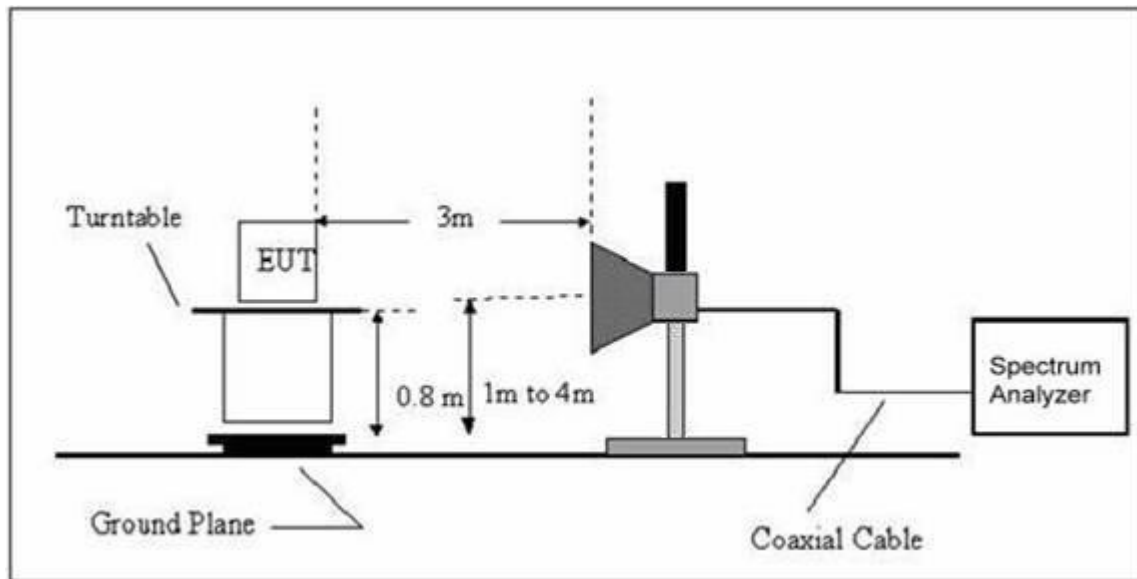
#### 4.3 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz





(B) Radiated Emission Test Set-Up Frequency Above 1GHz



4.4 TEST INSTRUMENTS

Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
Broadband Antenna	R&S	VULB 9168	VULB 9168-456	Jul. 06, 2012	Jul. 05, 2014	1 year
Test Cable	N/A	R-01	N/A	Dec. 24, 2013	Dec. 23, 2014	1 year
Test Cable	N/A	R-02	N/A	Dec. 24, 2013	Dec. 23, 2014	1 year
EMI Test Receiver	R&S	ESCI	101324	Jul. 06, 2012	Jul. 05, 2014	1 year
Antenna Mast	EM	SC100_1	N/A	N/A	N/A	N/A
Turn Table	EM	SC100	060531	N/A	N/A	N/A
50Ω Switch	Anritsu Corp	MP59B	6200983705	Jul. 06, 2012	Jul. 05, 2014	1 year
Spectrum Analyzer	R&S	FSP40	100154	Jul. 06, 2012	Jul. 05, 2014	1 year
Horn Antenna	R&S	HF906	10029	Jul. 06, 2012	Jul. 05, 2014	1 year
Amplifier	EM	EM-30180	060538	Jul. 06, 2012	Jul. 05, 2014	1 year

4.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



## 4.6 TEST RESULTS

### 4.6.1 TEST RESULTS (Bellow 1GHz)

EUT :	Bluetooth Speaker	Model Name. :	RV77-BT
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Test Date :	2013-12-30
Test Mode :	BT TX Mode	Polarization :	Horizontal
Test Power :	AC 120V/60 Hz		

No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1 *	33.6100	36.60	-5.37	31.23	40.00	-8.77	peak	
2	127.4000	35.22	-4.77	30.45	43.50	-13.05	peak	
3	217.3600	38.45	-4.91	33.54	46.00	-12.46	peak	
4	411.5000	28.60	1.18	29.78	46.00	-16.22	peak	
5	450.9100	30.12	2.33	32.45	46.00	-13.55	peak	
6	749.3500	25.31	8.81	34.12	46.00	-11.88	peak	

Remark:

Factor = Antenna Factor + Cable Loss.



EUT :	Bluetooth Speaker	Model Name. :	RV77-BT
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Test Date :	2013-12-30
Test Mode :	BT TX Mode	Polarization :	Vertical
Test Power :	AC 120V/60 Hz		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1	*	43.2100	34.71	-4.64	30.07	40.00	-9.93	peak	
2		125.4400	34.42	-4.77	29.65	43.50	-13.85	peak	
3		157.1600	35.09	-3.64	31.45	43.50	-12.05	peak	
4		314.0800	35.79	-1.67	34.12	46.00	-11.88	peak	
5		455.7800	32.11	2.42	34.53	46.00	-11.47	peak	
6		689.6100	28.02	7.42	35.44	46.00	-10.56	peak	

Remark:

Factor = Antenna Factor + Cable Loss.



4.6.2 TEST RESULTS (Above 1GHz)

EUT :	Bluetooth Speaker	Model Name. :	RV77-BT
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Test Date :	2013-12-30
Test Mode :	GFSK TX 2402MHz	Polarization :	Horizontal
Test Power :	DC 3.7V		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		4804.000	52.03	4.43	56.46	74.00	-17.54	peak
2	*	4804.000	38.23	4.43	42.66	54.00	-11.34	AVG

EUT :	Bluetooth Speaker	Model Name. :	RV77-BT
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Test Date :	2013-12-30
Test Mode :	GFSK TX 2402MHz	Polarization :	Vertical
Test Power :	DC 3.7V		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4804.000	55.26	4.43	59.69	74.00	-14.31	peak	
2	*	4804.000	39.47	4.43	43.90	54.00	-10.10	AVG	



EUT :	Bluetooth Speaker	Model Name. :	RV77-BT
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Test Date :	2013-12-30
Test Mode :	GFSK TX 2441MHz	Polarization :	Horizontal
Test Power :	DC 3.7V		

No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	4882.000	49.68	4.70	54.38	74.00	-19.62	peak
2 *	4882.000	35.46	4.70	40.16	54.00	-13.84	AVG

EUT :	Bluetooth Speaker	Model Name. :	RV77-BT
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Test Date :	2013-12-30
Test Mode :	GFSK TX 2441MHz	Polarization :	Vertical
Test Power :	DC 3.7V		

No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	4882.000	51.64	4.70	56.34	74.00	-17.66	peak
2 *	4882.000	37.23	4.70	41.93	54.00	-12.07	AVG



EUT :	Bluetooth Speaker	Model Name. :	RV77-BT
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Test Date :	2013-12-30
Test Mode :	GFSK TX 2480MHz	Polarization :	Horizontal
Test Power :	DC 3.7V		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		4960.120	49.13	4.96	54.09	74.00	-19.91	peak
2	*	4960.120	35.16	4.96	40.12	54.00	-13.88	AVG

EUT :	Bluetooth Speaker	Model Name. :	RV77-BT
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Test Date :	2013-12-30
Test Mode :	GFSK TX 2480MHz	Polarization :	Vertical
Test Power :	DC 3.7V		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		4960.120	50.49	4.96	55.45	74.00	-18.55	peak
2	*	4960.120	36.02	4.96	40.98	54.00	-13.02	AVG



EUT :	Bluetooth Speaker	Model Name. :	RV77-BT
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Test Date :	2013-12-30
Test Mode :	8DPSK TX 2402MHz	Polarization :	Horizontal
Test Power :	DC 3.7V		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		4803.980	48.73	4.43	53.16	74.00	-20.84	peak
2	*	4803.980	36.00	4.43	40.43	54.00	-13.57	AVG

EUT :	Bluetooth Speaker	Model Name. :	RV77-BT
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Test Date :	2013-12-30
Test Mode :	8DPSK TX 2402MHz	Polarization :	Vertical
Test Power :	DC 3.7V		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	*	4803.980	51.22	4.43	55.65	74.00	-18.35	peak
2		4803.980	37.00	4.43	41.43	74.00	-32.57	peak



EUT :	Bluetooth Speaker	Model Name. :	RV77-BT
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Test Date :	2013-12-30
Test Mode :	8DPSK TX 2441MHz	Polarization :	Horizontal
Test Power :	DC 3.7V		

No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	4882.210	50.28	4.70	54.98	74.00	-19.02	peak
2 *	4882.210	35.73	4.70	40.43	54.00	-13.57	AVG

EUT :	Bluetooth Speaker	Model Name. :	RV77-BT
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Test Date :	2013-12-30
Test Mode :	8DPSK TX 2441MHz	Polarization :	Vertical
Test Power :	DC 3.7V		

No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	4882.210	52.23	4.70	56.93	74.00	-17.07	peak
2 *	4882.210	38.42	4.70	43.12	54.00	-10.88	AVG





EUT :	Bluetooth Speaker	Model Name. :	RV77-BT
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Test Date :	2013-12-30
Test Mode :	8DPSK TX 2480MHz	Polarization :	Horizontal
Test Power :	DC 3.7V		

No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	4960.120	49.58	4.96	54.54	74.00	-19.46	peak
2 *	4960.120	35.36	4.96	40.32	54.00	-13.68	AVG

EUT :	Bluetooth Speaker	Model Name. :	RV77-BT
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Test Date :	2013-12-30
Test Mode :	8DPSK TX 2480MHz	Polarization :	Vertical
Test Power :	DC 3.7V		

No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	4960.120	51.16	4.96	56.12	74.00	-17.88	peak
2 *	4960.120	37.13	4.96	42.09	54.00	-11.91	AVG



4.6.3 FUNDAMENTAL AND BAND EDGE

<b>GFSK TX Mode</b>					
<b>Fundamental</b>					
<b>Frequency (MHz)</b>	<b>Polarization (H/V)</b>	<b>Emission (dBuV/m)</b>		<b>Limit (dBuV/m)</b>	
		<b>PEAK</b>	<b>AVERAGE</b>	<b>PEAK</b>	<b>AVERAGE</b>
<b>2402</b>	<b>H</b>	<b>94.85</b>	<b>86.59</b>	<b>114</b>	<b>94</b>
	<b>V</b>	<b>89.71</b>	<b>82.05</b>		
<b>2441</b>	<b>H</b>	<b>93.62</b>	<b>86.14</b>		
	<b>V</b>	<b>88.47</b>	<b>81.63</b>		
<b>2480</b>	<b>H</b>	<b>93.28</b>	<b>86.50</b>		
	<b>V</b>	<b>88.66</b>	<b>82.03</b>		
<b>Band Edge</b>					
<b>Frequency (MHz)</b>	<b>Polarization (H/V)</b>	<b>Emission (dBuV/m)</b>		<b>Limit (dBuV/m)</b>	
		<b>PEAK</b>	<b>AVERAGE</b>	<b>PEAK</b>	<b>AVERAGE</b>
<b>2390</b>	<b>H</b>	<b>54.62</b>	<b>45.75</b>	<b>74</b>	<b>54</b>
	<b>V</b>	<b>52.94</b>	<b>42.38</b>		
<b>2483.5</b>	<b>H</b>	<b>56.48</b>	<b>47.08</b>		
	<b>V</b>	<b>53.62</b>	<b>45.36</b>		



<b>8-DPSK TX Mode</b>					
<b>Fundamental</b>					
<b>Frequency (MHz)</b>	<b>Polarization (H/V)</b>	<b>Emission (dBuV/m)</b>		<b>Limit (dBuV/m)</b>	
		<b>PEAK</b>	<b>AVERAGE</b>	<b>PEAK</b>	<b>AVERAGE</b>
<b>2402</b>	<b>H</b>	<b>92.75</b>	<b>85.08</b>	<b>114</b>	<b>94</b>
	<b>V</b>	<b>88.37</b>	<b>81.40</b>		
<b>2441</b>	<b>H</b>	<b>91.39</b>	<b>84.15</b>		
	<b>V</b>	<b>87.56</b>	<b>81.28</b>		
<b>2480</b>	<b>H</b>	<b>90.76</b>	<b>84.11</b>		
	<b>V</b>	<b>87.40</b>	<b>81.29</b>		
<b>Band Edge</b>					
<b>Frequency (MHz)</b>	<b>Polarization (H/V)</b>	<b>Emission (dBuV/m)</b>		<b>Limit (dBuV/m)</b>	
		<b>PEAK</b>	<b>AVERAGE</b>	<b>PEAK</b>	<b>AVERAGE</b>
<b>2390</b>	<b>H</b>	<b>52.36</b>	<b>43.72</b>	<b>74</b>	<b>54</b>
	<b>V</b>	<b>50.48</b>	<b>42.27</b>		
<b>2483.5</b>	<b>H</b>	<b>55.76</b>	<b>46.61</b>		
	<b>V</b>	<b>53.54</b>	<b>44.70</b>		



## 5. 20DB BANDWIDTH MEASUREMENT

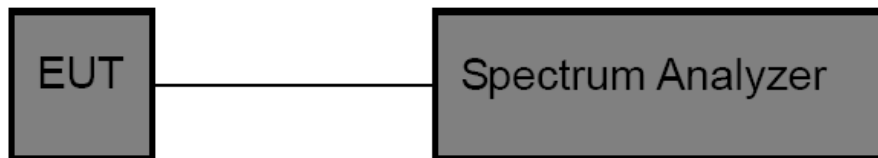
### 5.1 LIMITS

20dB Bandwidth	N/A
99% Occupied Bandwidth	N/A

### 5.2 TEST PROCEDURE

The EUT was directly connected to the power meter and antenna output port as show in the block diagram as bellow.

### 5.3 TEST SETUP



### 5.4 TEST INSTRUMENTS

Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
Spectrum Analyzer	R&S	FSP40	100154	Jul. 06, 2012	Jul. 05. 2014	1 year

### 5.5 EUT OPERATING CONDITIONS

The EUT was set to continuously transmitting in the maximum power during the test.

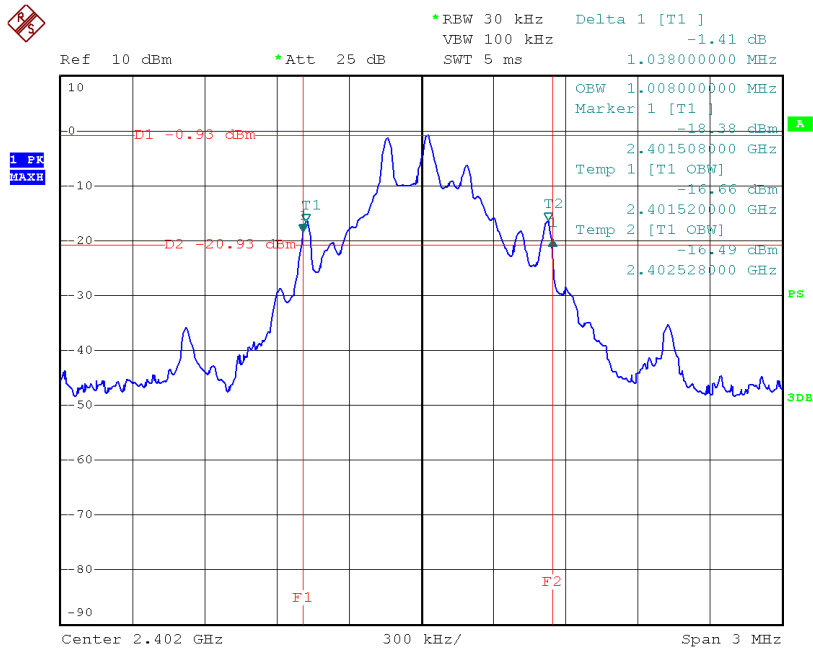
### 5.6 TEST RESULTS



<b>GFSK Mode (1Mbps)</b>			
<b>Frequency (MHz)</b>	<b>20dB Bandwidth (kHz)</b>	<b>99% OBW (kHz)</b>	<b>Limit</b>
2402	1038.00	1008.00	N/A
2441	1050.00	1002.00	
2480	1044.00	1002.00	
<b>8-DPSK Mode (3Mbps)</b>			
<b>Frequency (MHz)</b>	<b>20dB Bandwidth (kHz)</b>	<b>99% OBW (kHz)</b>	<b>Limit</b>
2402	1158.00	1162.00	N/A
2441	1158.00	1116.00	
2480	1158.00	1116.00	
<b>Note:</b> Test plots please refer following pages.			

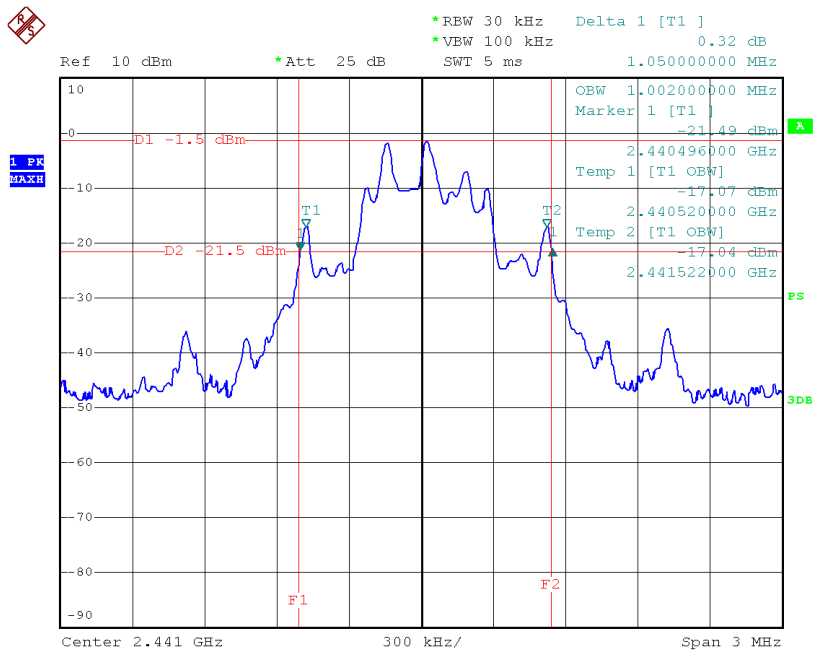


### 2402 MHz (GFSK)



Date: 30.DEC.2013 17:25:52

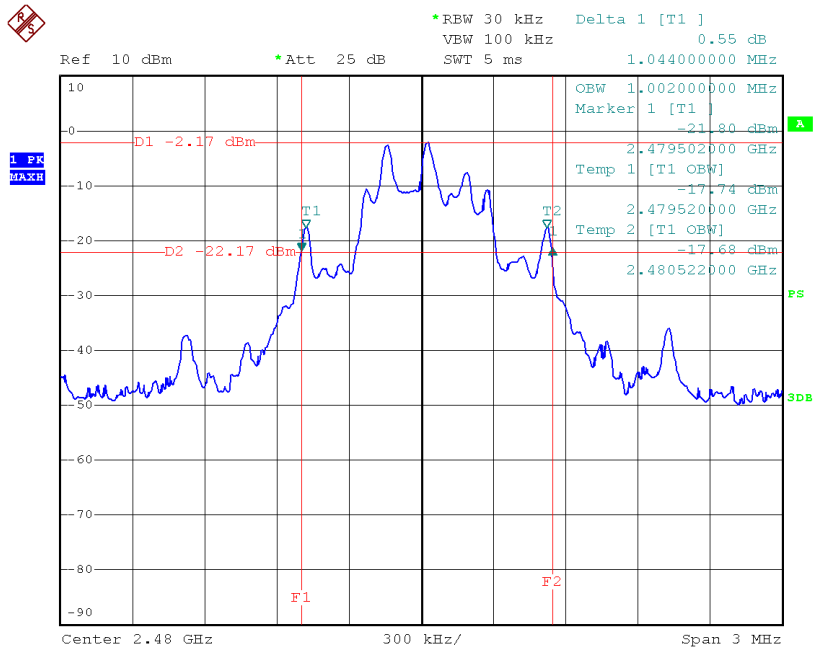
### 2441 MHz (GFSK)



Date: 30.DEC.2013 17:34:07

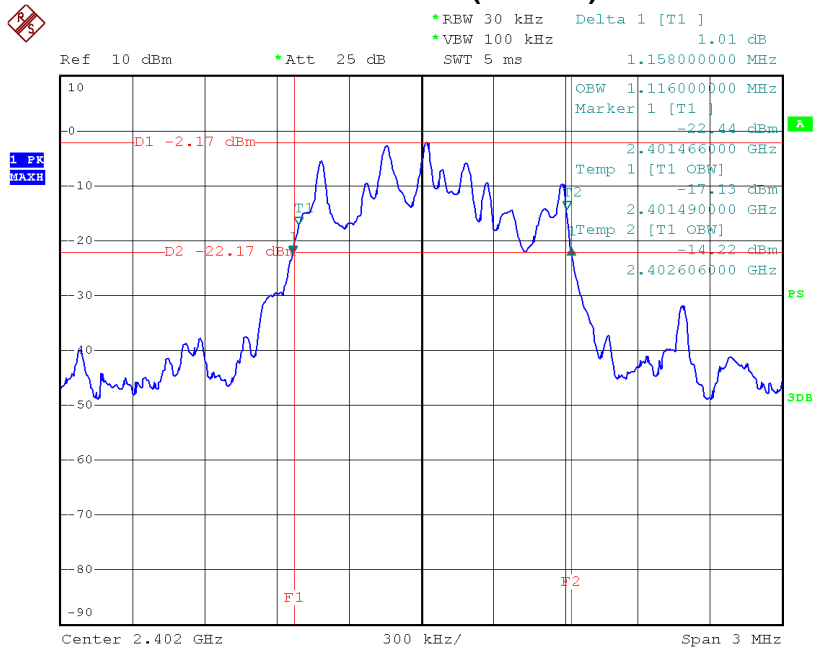


### 2480 MHz (GFSK)



Date: 30.DEC.2013 17:29:30

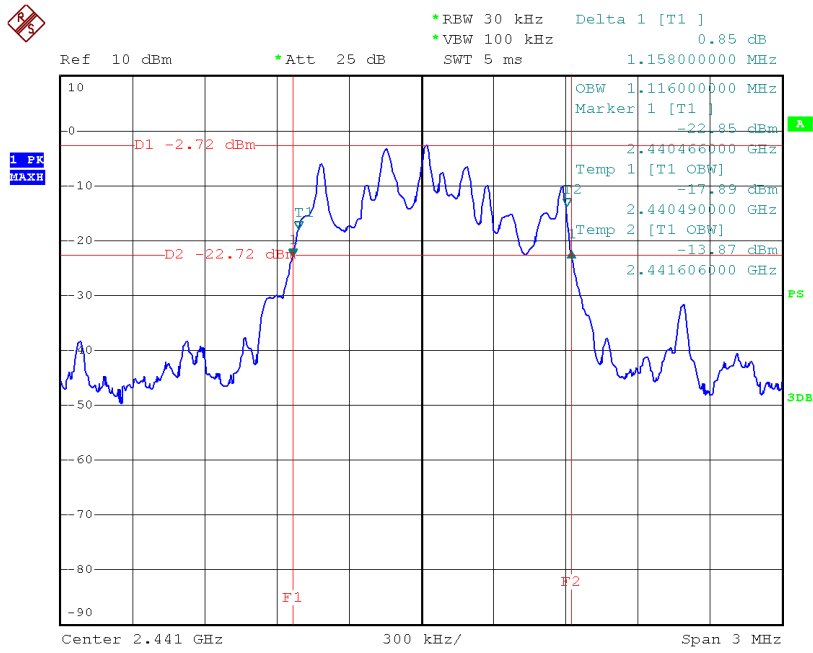
### 2402 MHz(8-DPSK)



Date: 30.DEC.2013 17:38:11

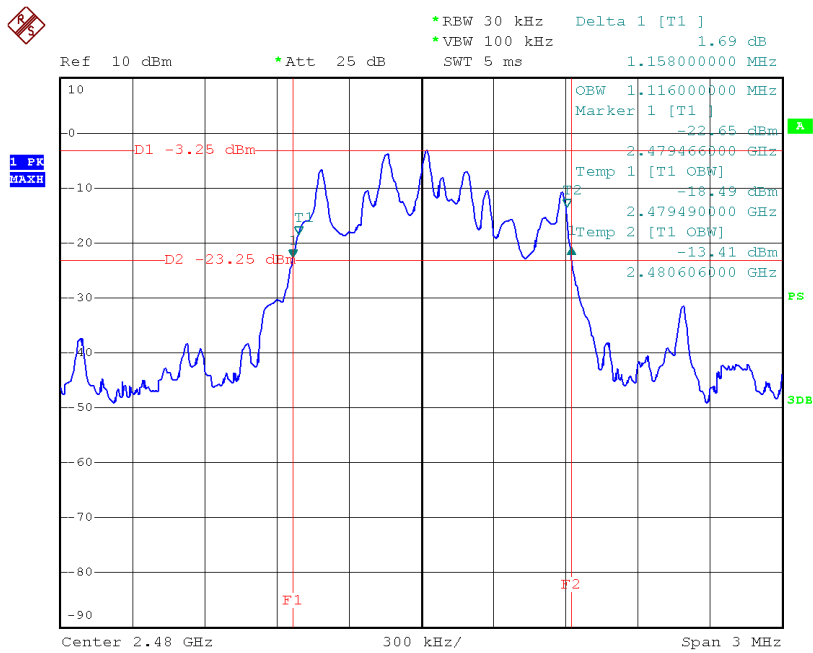


### 2441 MHz (8-DPSK)



Date: 30.DEC.2013 17:39:55

### 2480 MHz (8-DPSK)



Date: 30.DEC.2013 17:40:52





## 6. ANTENNA REQUIREMENT

### 6.1 REQUIREMENT

Antenna Requirement (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 an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. 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.
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### 6.2 ANTENNA CONNECTOR CONSTRUCTION

The EUT antenna is a PCB Antenna. And the maximum gain of this antenna is 2.5 dBi. It complies with the standard requirement.