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## FCC TEST REPORT

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Report No: STS1503011F02

Issued for

**DONGGUAN TAIDE INDUSTRIAL CO., LTD.**

**Phase 2, Jinfenghuang Industrial District, Huangdong Village,  
Fenggang Town, Dongguan City, China.**

Application Purpose:	Class II Permissive Change
Product Name:	Bluetooth speaker
Brand Name:	N/A
Model No.:	See page 6
FCC ID:	OYCBT008
Test Standard:	FCC Part 15.247

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Shenzhen STS Test Services Co., Ltd.

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# TEST RESULT CERTIFICATION

**Applicant's name** ..... DONGGUAN TAIDE INDUSTRIAL CO., LTD.  
 Address ..... Phase 2, Jinfenghuang Industrial District, Huangdong Village,  
 Fenggang Town, Dongguan City, China.  
**Manufacture's Name**..... DONGGUAN TAIDE INDUSTRIAL CO.,LTD.  
 Address ..... Phase 2, Jinfenghuang Industrial District, Huangdong Village,  
 Fenggang Town, Dongguan City, China.


**Product description**  
 Product name ..... Bluetooth speaker  
 Band name..... N/A  
 Model and/or type reference ..... BT008  
 Ratings ..... DC 3.7V by Battery


**Standards**..... FCC Part15.247  
 Test procedure..... ANSI C63.4-2009

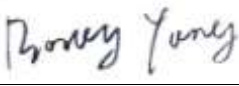
This device described above has been tested by STS, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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**Date of Test**.....  
 Date (s) of performance of tests.. Dec.30,2014 to Jan.04,2015  
 Date of Issue..... Jan.05,2015  
 Test Result ..... **Pass**

Testing Engineer :   
 \_\_\_\_\_  
 (Tony Liu)

Technical Manager :   
 \_\_\_\_\_  
 (Vita Li)

Authorized Signatory :   
 \_\_\_\_\_  
 (Bovey Yang)





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### 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

<b>FCC Part15 (15.247) , Subpart C</b>			
Standard Section	Test Item	Judgment	Remark
15.247(c)	Radiated Spurious Emission	PASS	
15.205	Band Edge Emission	PASS	
15.203	Antenna Requirement	PASS	





### 1.1 TEST FACILITY

Shenzhen STS Test Services Co., Ltd.

Add. : 1/F, Building 2, Zhuoke Science Park, Chongqing Road, Fuyong, Baoan District, Shenzhen, China.

FCC Registration No.: 842334; IC Registration No.: 12108A-1

### 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 %**.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 3.18\text{dB}$
2	RF power,conducted	$\pm 0.16\text{dB}$
3	Spurious emissions,conducted	$\pm 0.21\text{dB}$
4	All emissions,radiated(<1G)	$\pm 4.68\text{dB}$
5	All emissions,radiated(>1G)	$\pm 4.71\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$



## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

Equipment	Bluetooth speaker
Trade Name	N/A
Model Name	BT008
Series Model	BT7500BLK,7xxxxB(X means number from 0 to 9), 3xxxxB(X means number from 0 to 9),NGS-008BT, SSBT008,ETC
Model difference	All the same except for the model name
Channel List	Please refer to the Note 2.
Bluetooth	Frequency:2402 – 2480 MHz GFSK(1Mbps), $\pi/4$ -DQPSK(2Mbps),8-DPSK(3Mbps)
Battery	Rated Voltage: 3.7V Charge Limit: 4.2V
Product SW/HW version	v1.0
Radio SW/HW version	v1.0
Test SW Version	CSR Bluesuite 2.5.0
RF power setting in TEST SW	255
Connecting I/O Port(s)	Please refer to the User's Manual

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. The Model is all the same to the original model except for some internal components on the board but not module ,so that only Radiated Emission were verified for the differences based on the original product. The original report can be referred to AGC00931140305FE03



2.

Channel List					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

3. Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	N/A	N/A	PCB Antenna	NA	0	BT Antenna

The EUT antenna is PCB Antenna. no antenna other than that furnished by the responsible party shall be used with the device.



## 2.1 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible 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	Low channel TX
Mode 2	Middle channel TX
Mode 3	High channel TX
Mode 4	Hopping on

For Conducted Emission	
Final Test Mode	Description
Mode 4	keeping TX

For Radiated Emission	
Final Test Mode	Description
Mode 1	Low channel TX
Mode 2	Middle channel TX
Mode 3	High channel TX
Mode 4	Hopping on

Note:

(1)The measurements are performed at the highest, middle, lowest available channels.

## 2.2 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of FHSS

Test software Version	Test program: N/A		
Frequency	2402 MHz	2441 MHz	2480 MHz
Parameters(1Mbps)	DEF	DEF	DEF
Parameters(2Mbps)	DEF	DEF	DEF
Parameters(3Mbps)	DEF	DEF	DEF

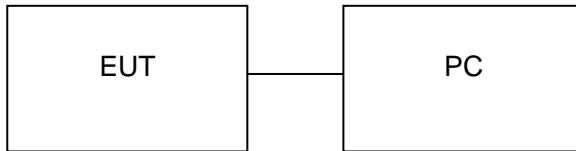


### 2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

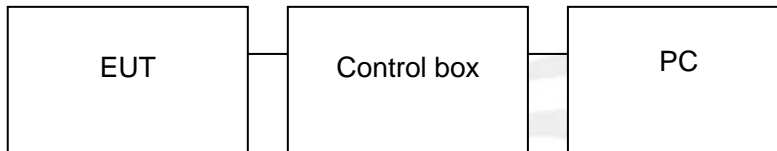
During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of FHSS

#### Radiated Spurious Emission Test

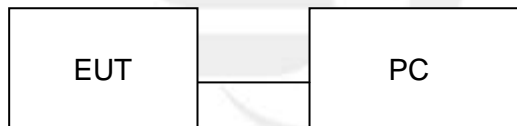
Configure 1: (Normal hopping)



Configure 2: (Control continuous TX)



#### Conducted Emission Test





### 2.4 DESCRIPTION OF SUPPORT UNITS

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
1	Bluetooth speaker	N/A	BT008	N/A	EUT
2	PC	Dell	INSPIRON	N/A	FCC DOC approval
3	Control box	N/A	N/A	N/A	A.E

Item	Shielded Type	Ferrite Core	Length	Note

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” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.
- (4) N/A means not applicable.



## 2.5EQUIPMENTS LIST FOR ALL TEST ITEMS

## Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Spectrum Analyzer	Agilent	E4407B	MY50140340	2014.10.25	2015.10.24
Test Receiver	R&S	ESCI	101427	2014.10.25	2015.10.24
Bilog Antenna	TESEQ	CBL6111D	34678	2014.10.27	2015.10.26
50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2014.06.06	2015.06.06
Horn Antenna	R&S	9120D	152265	2014.10.27	2015.10.26
Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2014.07.06	2015.07.05
Amplifier	EM	EM-30180	060538	2014.12.22	2015.12.21
Loop Antenna	ARA	PLA-1030/B	1029	2014.06.08	2015.06.07
Power Meter	Anritsu	ML2495A	1204003	2014.10.25	2015.10.24
Power Sensor	Anritsu	MA2411B	100309	2014.10.25	2015.10.24

## Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	102086	102086	2014.10.25	2015.10.24
LISN	R&S	ENV216	101242	2014.10.25	2015.10.24
LISN	EMCO	3810/2NM	000-23625	2014.10.25	2015.10.24
50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2014.06.06	2015.06.06
Passive Voltage Probe	R&S	ESH2-Z3	100196	2014.06.06	2015.06.06
Absorbing clamp	R&S	MDS-21	100668	2014.10.27	2015.10.26



### 3.EMC EMISSION TEST

#### 3.1 RADIATED EMISSION MEASUREMENT

##### 3.1.1 RADIATED EMISSION LIMITS

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on Part 15247&205(a), then the Part 15 247&209(a) limit in the table below has to be followed.

LIMITS OF RADIATED EMISSION MEASUREMENT (30MHz - 1000MHz)

Frequencies (MHz)	Field Strength (micorvolts/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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

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

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5 <sup>th</sup> harmonic of the highest frequency or 40 GHz, whichever is lower



Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak
Start Frequency	1000 MHz(Peak/AV)
Stop Frequency	10th carrier harmonic(Peak/AV)
RB / VB (emission in restricted band)	RBW 1MHz / VBW 1MHz Peak detector for Pk value RBW 1MHz / VBW 10Hz Peak detector for AV value

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

### 3.1.2 TEST PROCEDURE

- 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.
- 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.
- 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.
- 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 QuasiPeak detector mode re-measured.
- 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.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

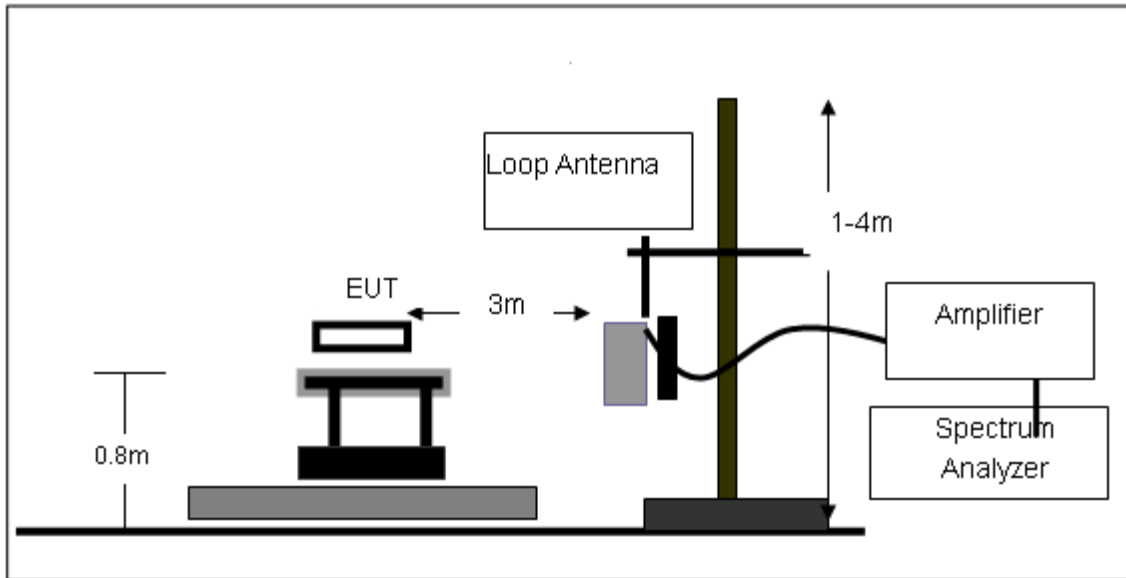
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

### 3.1.3 DEVIATION FROM TEST STANDARD

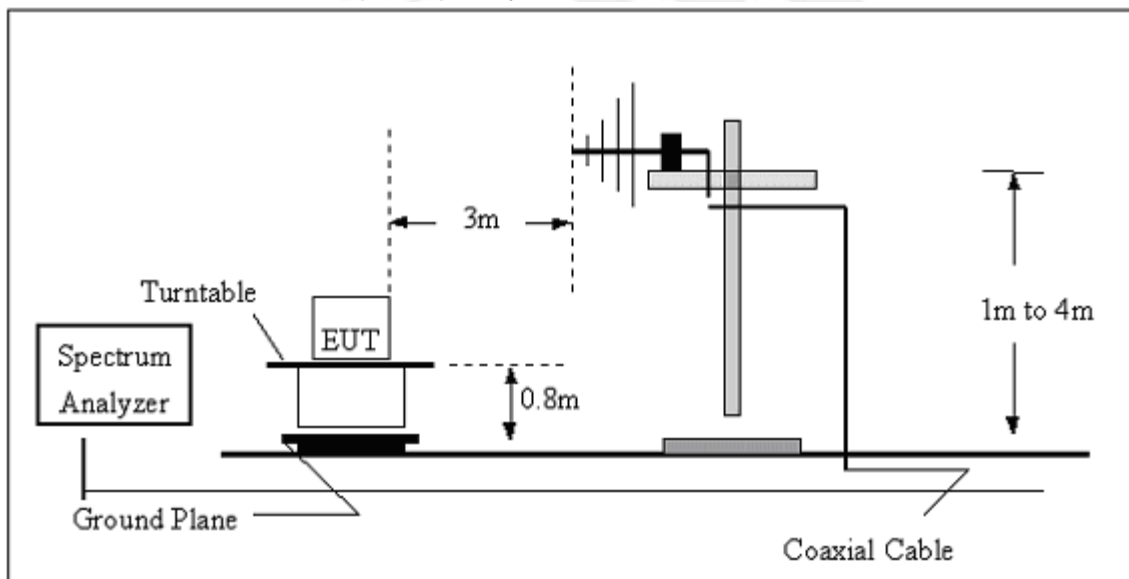
No deviation

### 3.1.4 TESTSETUP

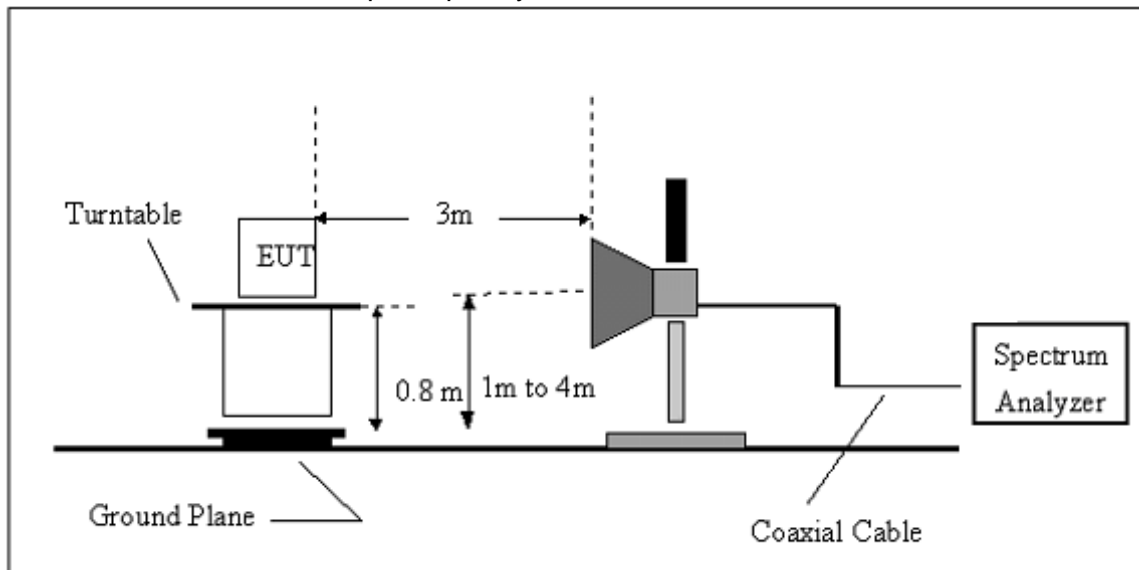
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



## (C) Radiated Emission Test-Up Frequency Above 1GHz



### 3.1.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

**REMARK :** GFSK(1Mbps),  $\pi/4$ -DQPSK(2Mbps), 8-DPSK(3Mbps) all have been tested , 8-DPSK(3Mbps) is found as worst case and only reported



## 3.1.6 TEST RESULTS (WORST CASE : 8-DPSK)

Below 30 MHz

EUT :	Bluetooth speaker	Model Name. :	BT008
Temperature :	23 °C	Relative Humidity :	50%
Pressure :	1010hPa	Polarization :	---
Test Voltage :	DC 3.7V		
Test Mode :	TX Mode		

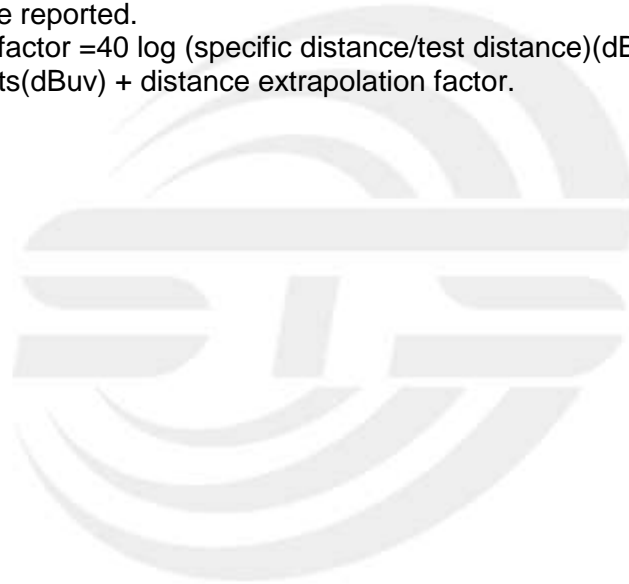
Freq. (MHz)	Reading (dBuV/m)	Limit (dBuV/m)	Margin (dB)	State P/F
--	--	--	--	PASS
--	--	--	--	PASS

**NOTE:**

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

Distance extrapolation factor =  $40 \log(\text{specific distance}/\text{test distance})$ (dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.

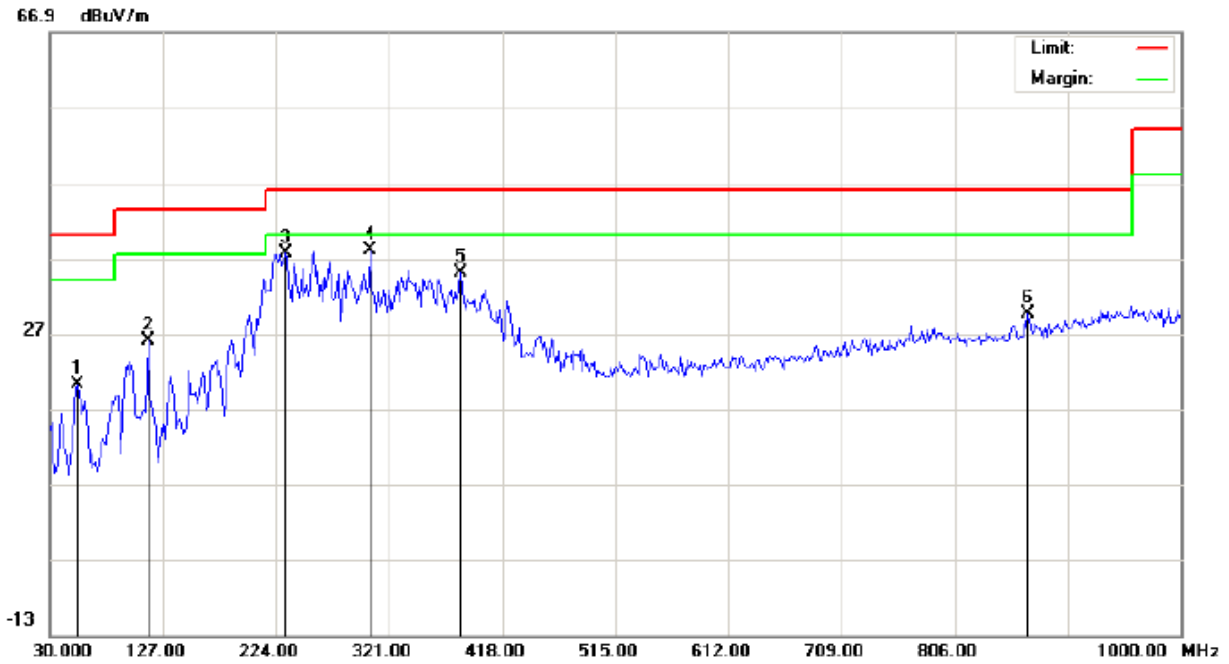






Between 30MHz – 1000 MHz

RADIATED EMISSION TEST- (30MHZ-1GHZ)-LOW CHANNEL-HORIZONTAL



Site: site #1  
 Limit: FCC Class B 3M Radiation  
 EUT: Bluetooth Speaker  
 M/N: BT008  
 Mode: Low Channel TX  
 Note:

Polarization: *Horizontal*  
 Power:  
 Distance: 3m

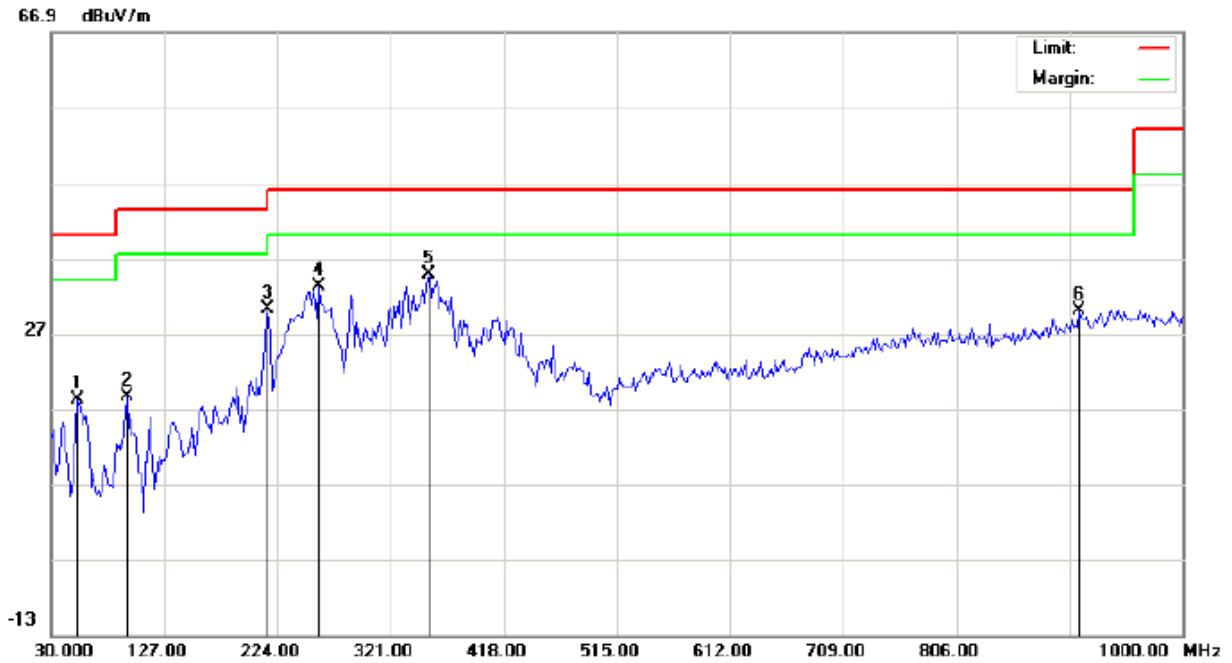
Temperature: 26  
 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		54.2500	8.99	11.20	20.19	40.00	-19.81	peak			
2		114.0667	14.51	11.45	25.96	43.50	-17.54	peak			
3		232.0833	24.38	13.22	37.60	46.00	-8.40	peak			
4	*	304.8333	22.18	15.73	37.91	46.00	-8.09	peak			
5		382.4333	15.99	18.95	34.94	46.00	-11.06	peak			
6		869.0500	1.71	27.81	29.52	46.00	-16.48	peak			

**RESULT: PASS**



RADIATED EMISSION TEST- (30MHZ-1GHZ)-LOW CHANNEL -VERTICAL



Site: site #1  
 Limit: FCC Class B 3M Radiation  
 EUT: Bluetooth Speaker  
 M/N: BT008  
 Mode: Low Channel TX  
 Note:

Polarization: *Vertical*  
 Power:  
 Distance: 3m

Temperature: 26  
 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		52.6332	10.06	8.22	18.28	40.00	-21.72	peak			
2		94.6667	17.25	1.42	18.67	43.50	-24.83	peak			
3		215.9166	19.74	10.56	30.30	43.50	-13.20	peak			
4		259.5667	19.05	14.19	33.24	46.00	-12.76	peak			
5	*	353.3333	15.96	18.76	34.72	46.00	-11.28	peak			
6		911.0833	1.12	28.92	30.04	46.00	-15.96	peak			

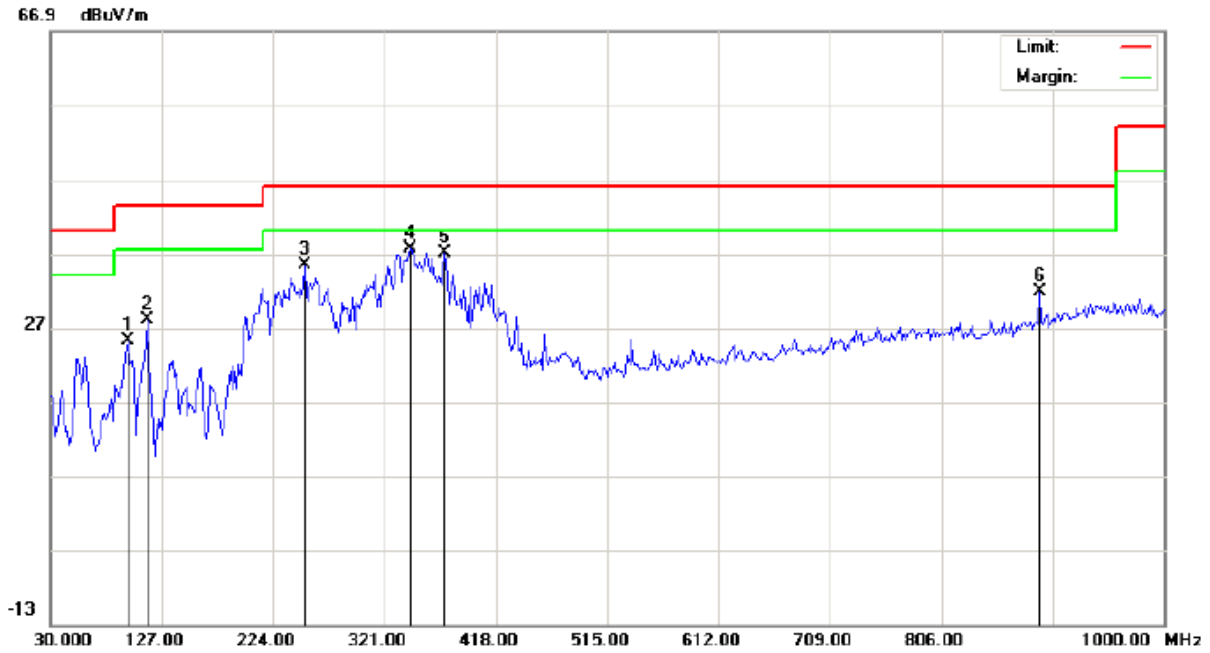
**RESULT: PASS**

**Note:** 1. Factor=Antenna Factor+ Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.



RADIATED EMISSION TEST- (30MHZ-1GHZ)-MIDDLE CHANNEL-HORIZONTAL



Site: site #1  
 Limit: FCC Class B 3M Radiation  
 EUT: Bluetooth Speaker  
 M/N: BT008  
 Mode: Middle Channel TX  
 Note:

Polarization: *Horizontal*  
 Power:  
 Distance: 3m

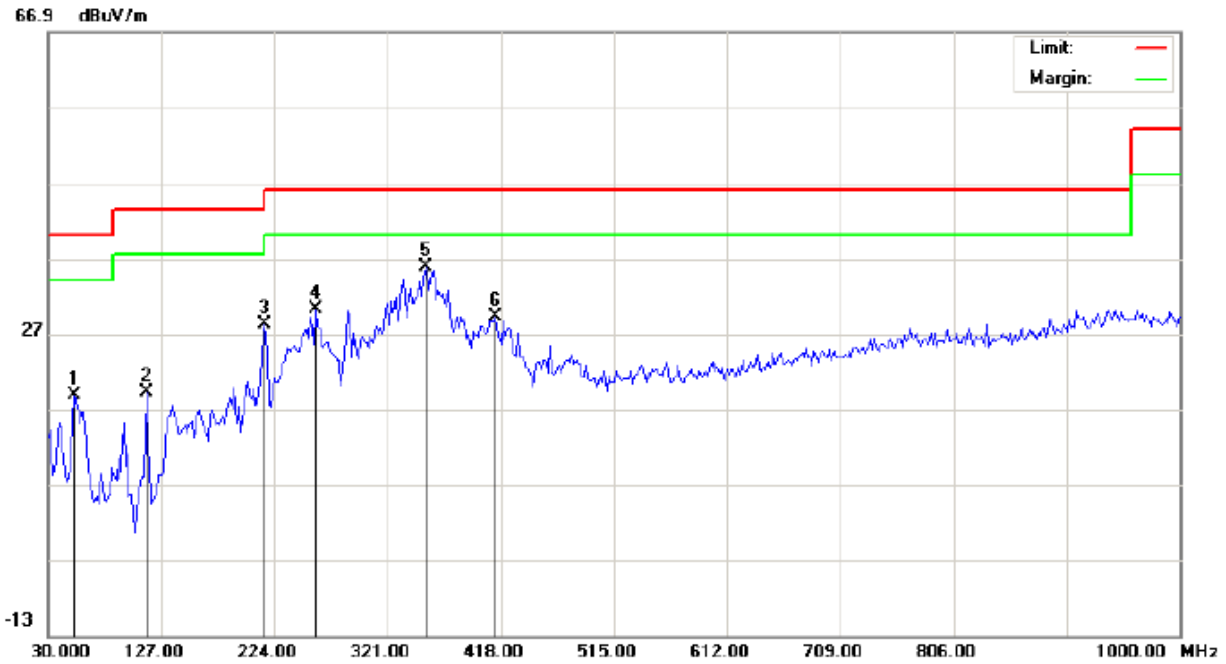
Temperature: 26  
 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna	Table	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		Height	Degree	
									cm	degree	
1		97.9000	14.98	10.25	25.23	43.50	-18.27	peak			
2		114.0667	16.55	11.45	28.00	43.50	-15.50	peak			
3		251.4833	21.45	13.94	35.39	46.00	-10.61	peak			
4	*	343.6333	19.19	18.32	37.51	46.00	-8.49	peak			
5		372.7333	18.20	18.89	37.09	46.00	-8.91	peak			
6		891.6833	3.43	28.39	31.82	46.00	-14.18	peak			

RESULT: PASS



RADIATED EMISSION TEST- (30MHZ-1GHZ)- MIDDLE CHANNEL -VERTICAL



Site: site #1  
 Limit: FCC Class B 3M Radiation  
 EUT: Bluetooth Speaker  
 M/N: BT008  
 Mode: Middle Channel TX  
 Note:

Polarization: *Vertical*  
 Power:  
 Distance: 3m

Temperature: 26  
 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		52.6333	10.56	8.22	18.78	40.00	-21.22	peak			
2		114.0667	15.35	3.91	19.26	43.50	-24.24	peak			
3		215.9167	17.74	10.56	28.30	43.50	-15.20	peak			
4		259.5667	16.05	14.19	30.24	46.00	-15.76	peak			
5	*	353.3333	16.96	18.76	35.72	46.00	-10.28	peak			
6		413.1500	9.79	19.47	29.26	46.00	-16.74	peak			

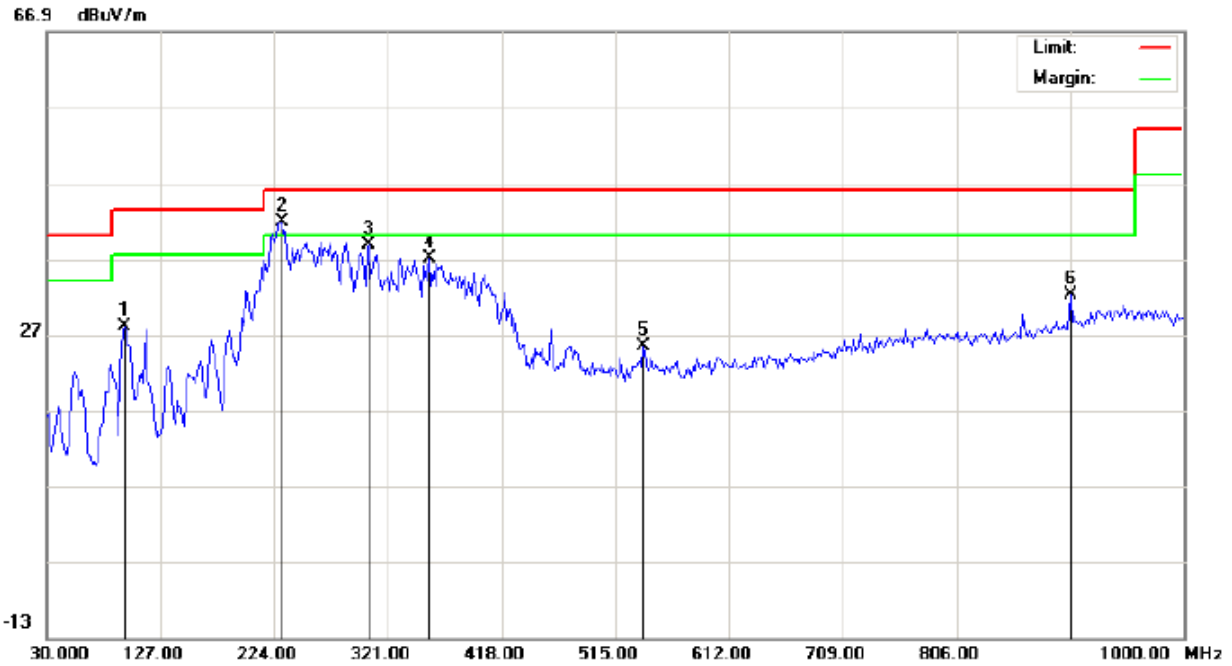
**RESULT: PASS**

**Note:** 1. Factor=Antenna Factor+ Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.



RADIATED EMISSION TEST- (30MHZ-1GHZ)-HIGH CHANNEL-HORIZONTAL



Site: site #1  
 Limit: FCC Class B 3M Radiation  
 EUT: Bluetooth Speaker  
 M/N: BT008  
 Mode: High Channel TX  
 Note:

Polarization: *Horizontal*  
 Power:  
 Distance: 3m

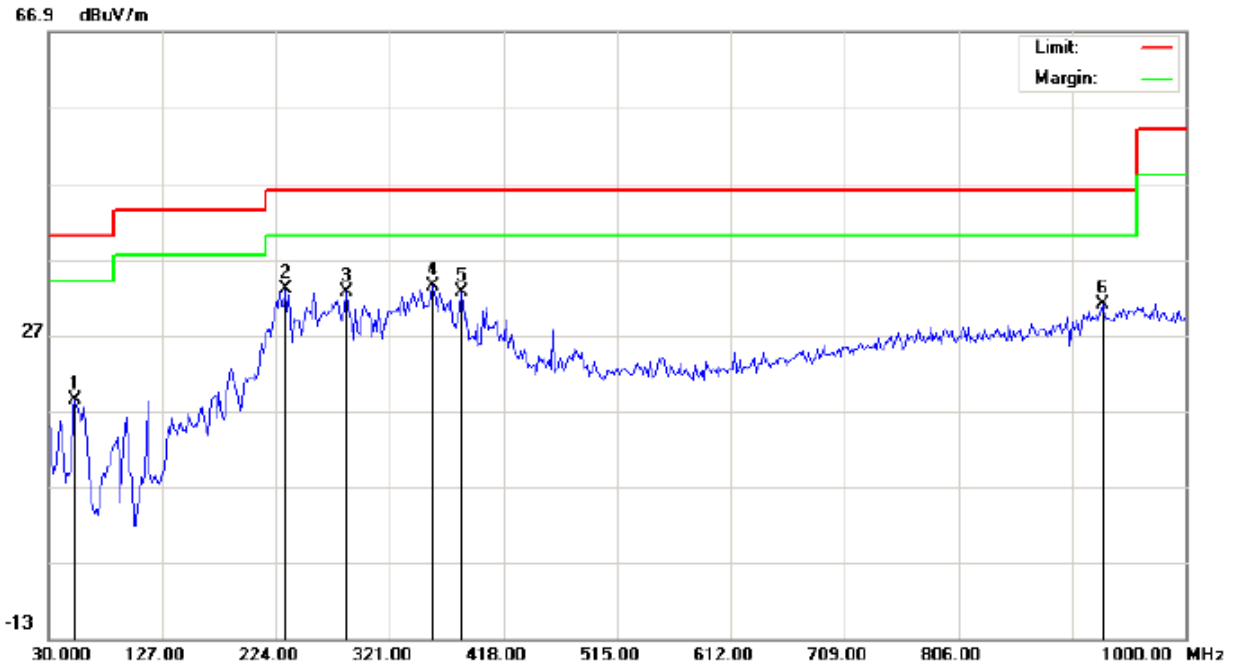
Temperature: 26  
 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		96.2833	17.84	10.07	27.91	43.50	-15.59	peak			
2	*	230.4667	28.61	13.16	41.77	46.00	-4.23	peak			
3		304.8333	23.11	15.73	38.84	46.00	-7.16	peak			
4		356.5667	18.26	18.78	37.04	46.00	-8.96	peak			
5		539.2500	3.24	22.19	25.43	46.00	-20.57	peak			
6		903.0000	3.53	28.69	32.22	46.00	-13.78	peak			

**RESULT: PASS**



RADIATED EMISSION TEST- (30MHZ-1GHZ)-HIGH CHANNEL -VERTICAL



Site: site #1  
 Limit: FCC Class B 3M Radiation  
 EUT: Bluetooth Speaker  
 M/N: BT008  
 Mode: High Channel TX  
 Note:

Polarization: *Vertical*  
 Power:  
 Distance: 3m

Temperature: 26  
 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		52.6333	10.28	8.22	18.50	40.00	-21.50	peak			
2		232.0833	20.94	12.14	33.08	46.00	-12.92	peak			
3		283.8167	17.73	14.92	32.65	46.00	-13.35	peak			
4	*	358.1833	14.60	18.79	33.39	46.00	-12.61	peak			
5		382.4333	13.72	18.95	32.67	46.00	-13.33	peak			
6		928.8667	1.50	29.41	30.91	46.00	-15.09	peak			

**RESULT: PASS**

**Note:** 1. Factor=Antenna Factor+ Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

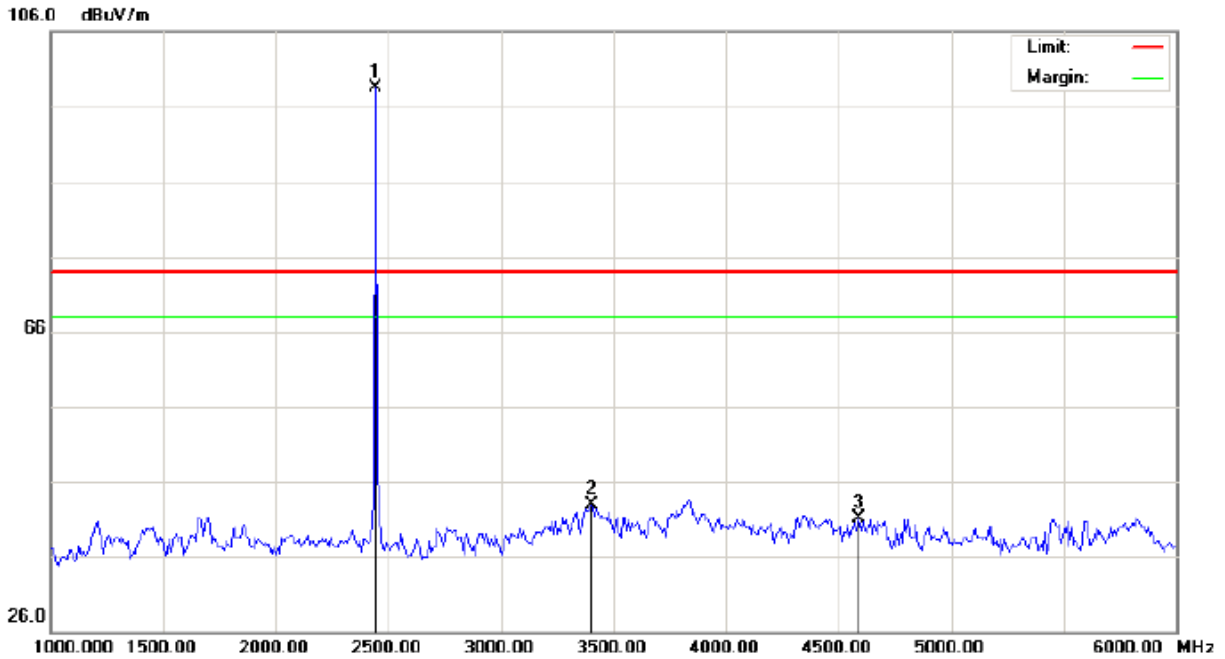








RADIATED EMISSION ABOVE 1GHZ (1-10<sup>th</sup> Harmonics)-MIDDLE CHANNEL-HORIZONTAL



Site: site #1      Polarization: *Horizontal*      Temperature: 26  
 Limit: FCC Class B 3M Radiation above 1GHZ(PK)      Power:      Humidity: 60 %  
 EUT: Bluetooth Speaker      Distance:  
 M/N: BT008  
 Mode: Middle Channel TX  
 Note:

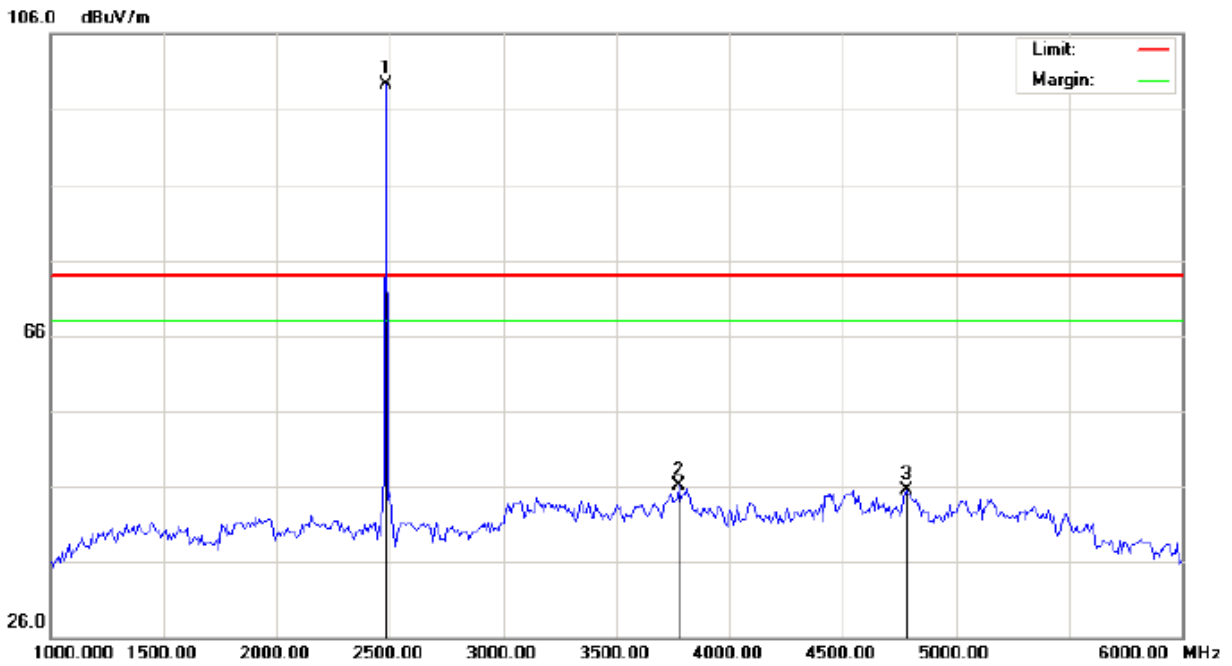
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2441.000	88.11	10.36	98.47	74.00	24.47	peak			
2		3400.000	30.92	12.02	42.94	74.00	-31.06	peak			
3		4591.667	33.91	7.13	41.04	74.00	-32.96	peak			

**RESULT: PASS**





RADIATED EMISSION ABOVE 1GHZ (1-10<sup>th</sup> Harmonics)-HIGH CHANNEL-HORIZONTAL



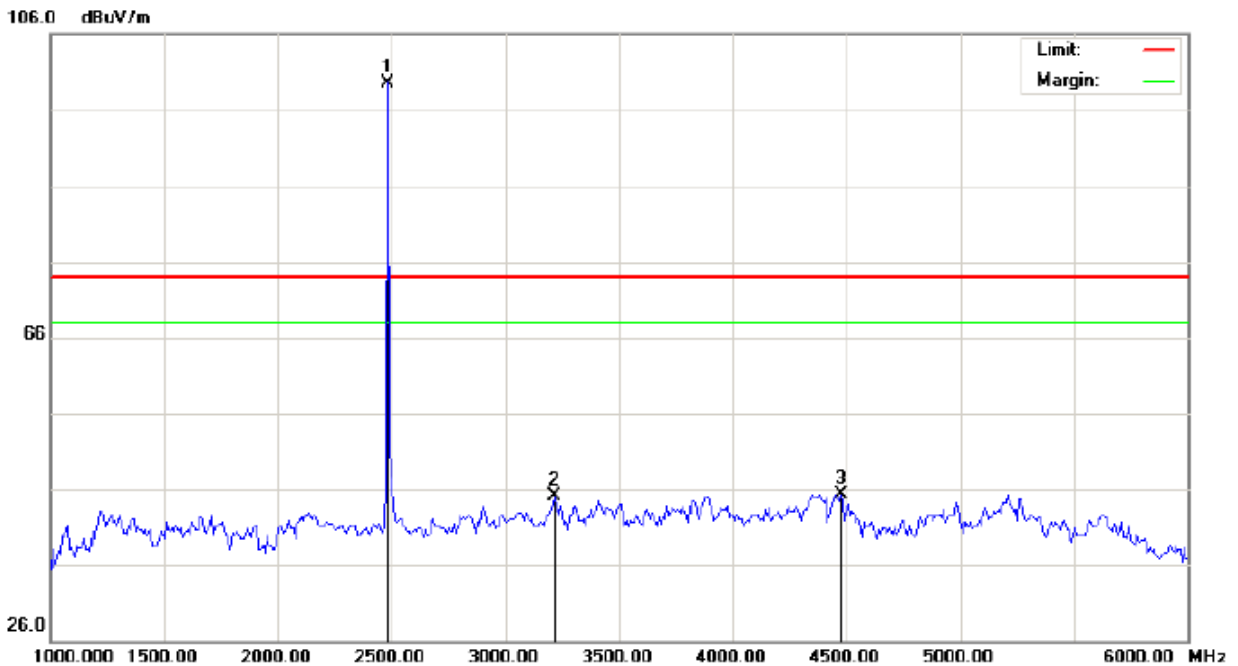
Site: site #1      Polarization: *Horizontal*      Temperature: 26  
 Limit: FCC Class B 3M Radiation above 1GHZ(PK)      Power:      Humidity: 60 %  
 EUT: Bluetooth Speaker      Distance:  
 M/N: BT008  
 Mode: High Channel TX  
 Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna	Table	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		Height	Degree	
									cm	degree	
1	*	2480.000	88.89	10.41	99.30	74.00	25.30	peak			
2		3775.000	32.22	13.80	46.02	74.00	-27.98	peak			
3		4783.333	37.90	7.63	45.53	74.00	-28.47	peak			

**RESULT: PASS**



RADIATED EMISSION ABOVE 1GHZ (1-10<sup>th</sup> Harmonics)-HIGH CHANNEL –VERTICAL



Site: site #1      Polarization: *Vertical*      Temperature: 26  
 Limit: FCC Class B 3M Radiation above 1GHZ(PK)      Power:      Humidity: 60 %  
 EUT: Bluetooth Speaker      Distance:  
 M/N: BT008  
 Mode: High Channel TX  
 Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna	Table	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		Height	Degree	
1	*	2480.000	89.08	10.41	99.49	74.00	25.49	peak			
2		3216.667	33.19	11.84	45.03	74.00	-28.97	peak			
3		4475.000	37.99	7.30	45.29	74.00	-28.71	peak			

**RESULT: PASS**

**Note:** 6~25GHz at least have 20dB margin. No recording in the test report.

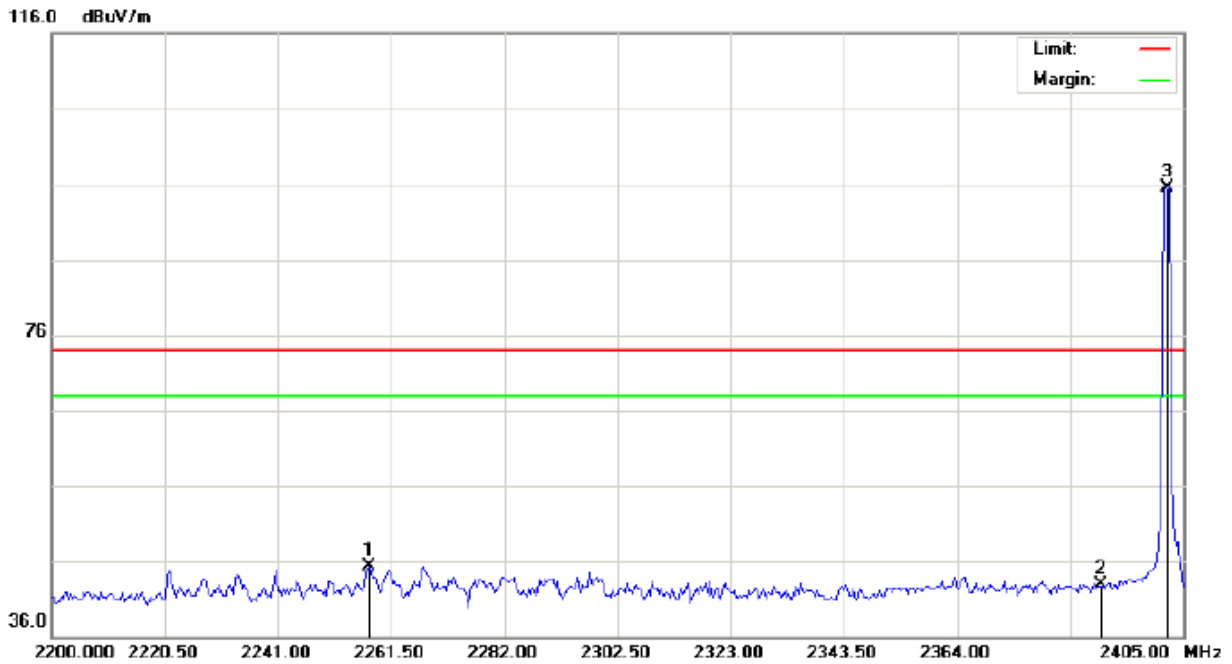
Factor=Antenna Factor+ Cable loss-Amplifier gain, Margin=Measurement-Limit.

The "Factor" value can be calculated automatically by software of measurement system.



**BAND EDGE TEST(WORST CASE:8-DPSK)**

TEST PLOT OF BAND EDGE FOR LOW CHANNEL -Horizontal

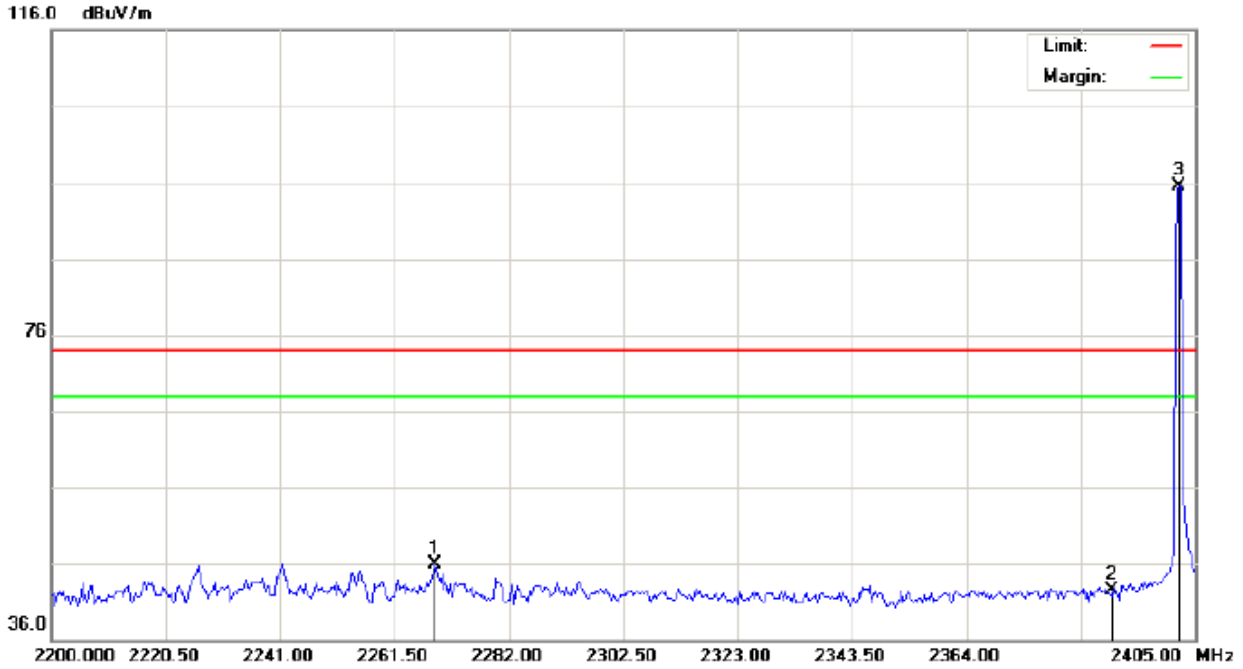


Site: site #1 Polarization: *Horizontal* Temperature: 26  
 Limit: FCC Class B 3M Radiation above 1GHZ(PK) Power: Humidity: 60 %  
 EUT: Bluetooth Speaker Distance:  
 M/N: BT008  
 Mode: Low Channel TX  
 Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna	Table	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		Height	Degree	
									cm	degree	
1		2257.400	35.15	10.16	45.31	74.00	-28.69	peak			
2		2390.000	32.50	10.31	42.81	74.00	-31.19	peak			
3	*	2402.000	85.22	10.32	95.54	74.00	21.54	peak			



TEST PLOT OF BAND EDGE FOR LOW CHANNEL -Vertical

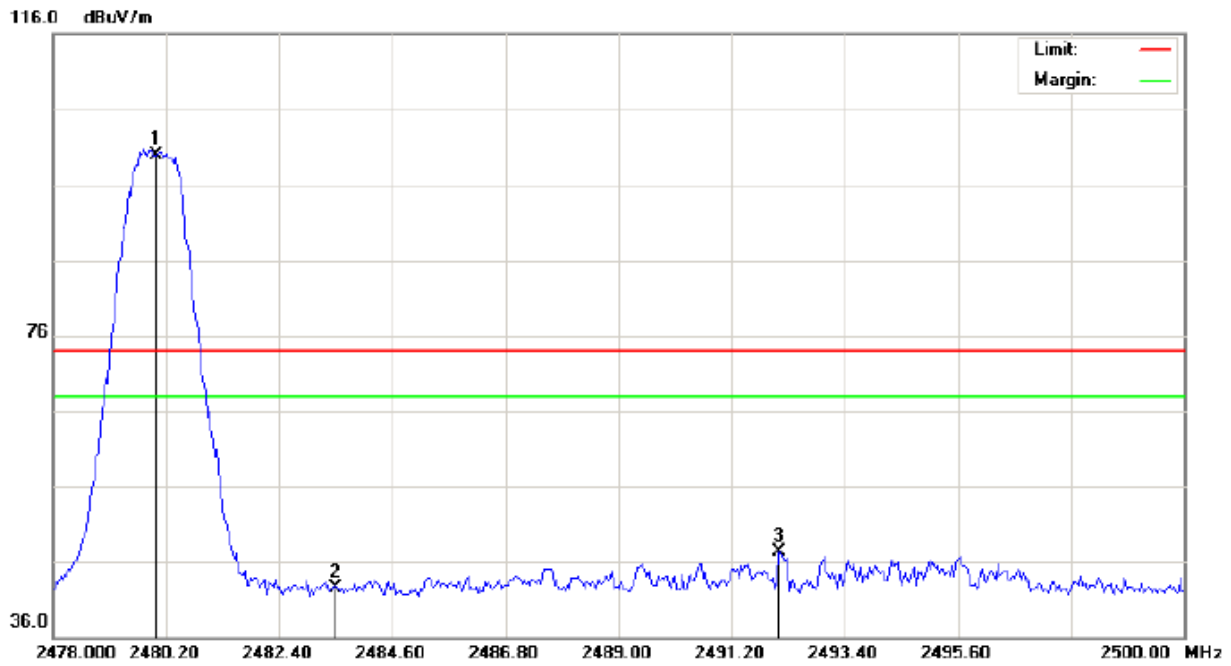


Site: site #1	Polarization: <i>Vertical</i>	Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHZ(PK)	Power:	Humidity: 60 %
EUT: Bluetooth Speaker	Distance:	
M/N: BT008		
Mode: Low Channel TX		
Note:		

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna	Table	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		Height	Degree	
									cm	degree	
1		2268.675	35.68	10.18	45.86	74.00	-28.14	peak			
2		2390.000	32.21	10.31	42.52	74.00	-31.48	peak			
3	*	2402.000	85.09	10.32	95.41	74.00	21.41	peak			



TEST PLOT OF BAND EDGE FOR HIGH CHANNEL -Horizontal

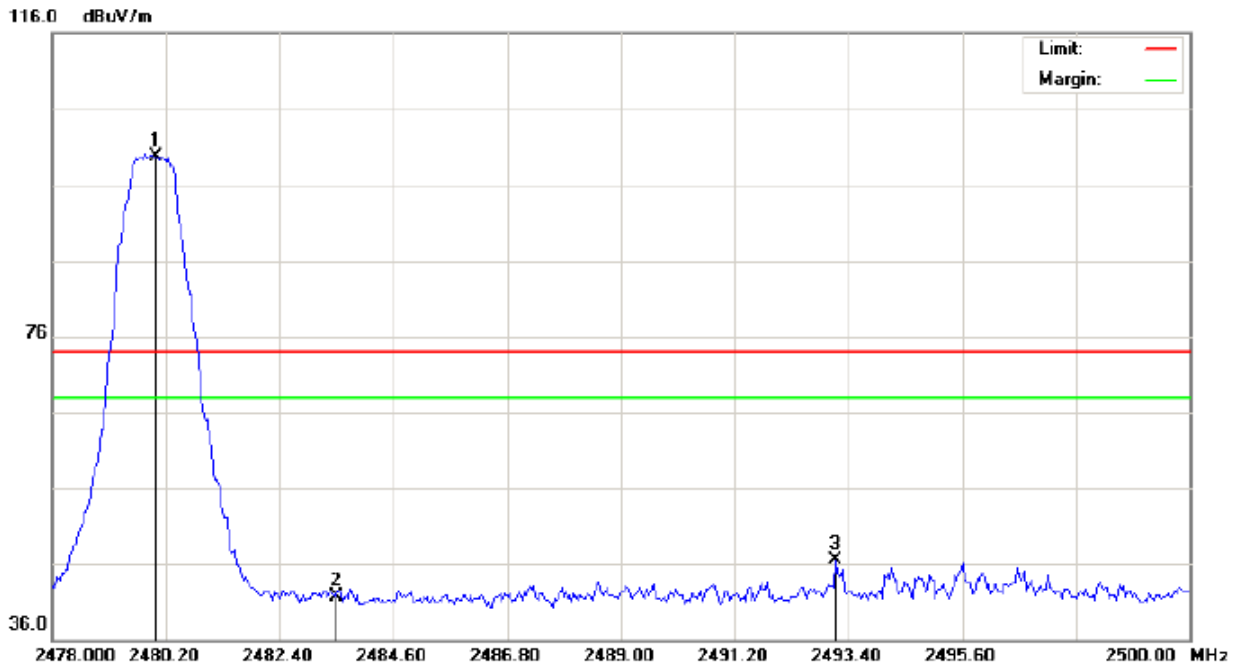


Site: site #1      Polarization: *Horizontal*      Temperature: 26  
 Limit: FCC Class B 3M Radiation above 1GHZ(PK)      Power:      Humidity: 60 %  
 EUT: Bluetooth Speaker      Distance:  
 M/N: BT008  
 Mode: High Channel TX  
 Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna	Table	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		Height	Degree	
									cm	degree	
1	*	2480.000	89.55	10.41	99.96	74.00	25.96	peak			
2		2483.500	32.19	10.41	42.60	74.00	-31.40	peak			
3		2492.117	36.89	10.42	47.31	74.00	-26.69	peak			



TEST PLOT OF BAND EDGE FOR HIGH CHANNEL -Vertical



Site: site #1      Polarization: **Vertical**      Temperature: 26  
 Limit: FCC Class B 3M Radiation above 1GHZ(PK)      Power:      Humidity: 60 %  
 EUT: Bluetooth Speaker      Distance:  
 M/N: BT008  
 Mode: High Channel TX  
 Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2480.000	89.32	10.41	99.73	74.00	25.73	peak			
2		2483.500	31.26	10.41	41.67	74.00	-32.33	peak			
3		2493.143	36.16	10.42	46.58	74.00	-27.42	peak			

**RESULT: PASS**

**Note:** 1. Factor=Antenna Factor+ Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.



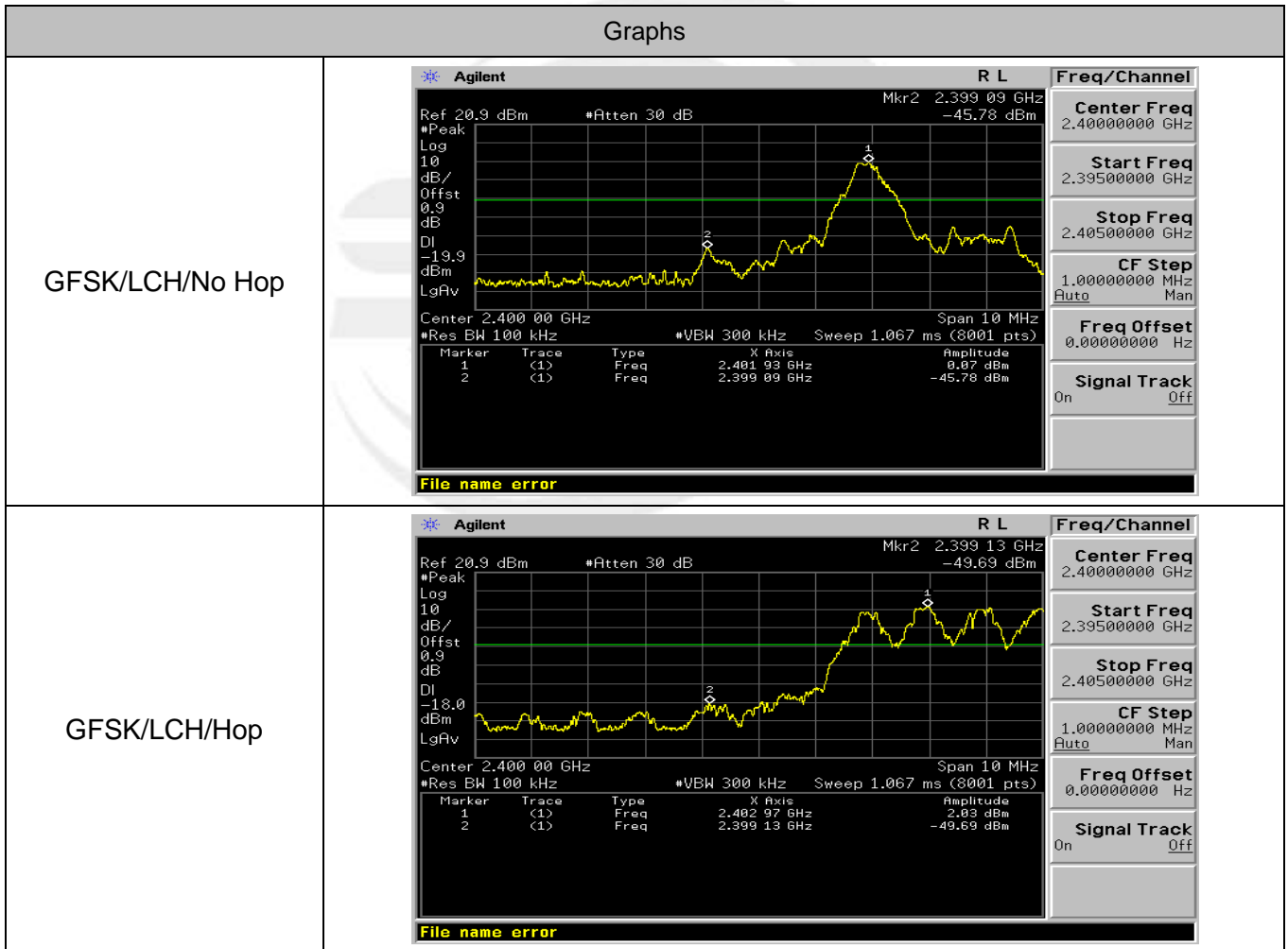


CONDUCTED TEST RESULT FOR BANDEDGE

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBm]	Verdict
GFSK	LCH	2402	Off	-45.78	PASS
			On	-49.69	PASS
GFSK	HCH	2480	Off	-52.42	PASS
			On	-49.96	PASS
$\pi/4$ DQPSK	LCH	2402	Off	-51.66	PASS
			On	-51.29	PASS
$\pi/4$ DQPSK	HCH	2480	Off	-59.90	PASS
			On	-54.29	PASS
8DPSK	LCH	2402	Off	-52.24	PASS
			On	-50.67	PASS
8DPSK	HCH	2480	Off	-60.30	PASS
			On	-56.22	PASS

Note:All modes were tested,only the worst case record in the report.

Test Graph





<p>GFSK/HCH/No Hop</p>	<p>Agilent R L Freq/Channel</p> <p>Ref 20.9 dBm #Atten 30 dB Mkr2 2.483 87 GHz</p> <p>#Peak -52.42 dBm</p> <p>Log 10 dB/Offst 0.9 dB</p> <p>DI -15.8 dBm</p> <p>LgRv</p> <p>Center 2.483 50 GHz Span 10 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms (8001 pts)</p> <table border="1"> <thead> <tr> <th>Marker</th> <th>Trace</th> <th>Type</th> <th>X Axis</th> <th>Amplitude</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(1)</td> <td>Freq</td> <td>2.479 75 GHz</td> <td>4.17 dBm</td> </tr> <tr> <td>2</td> <td>(1)</td> <td>Freq</td> <td>2.483 87 GHz</td> <td>-52.42 dBm</td> </tr> </tbody> </table> <p>File name error</p>	Marker	Trace	Type	X Axis	Amplitude	1	(1)	Freq	2.479 75 GHz	4.17 dBm	2	(1)	Freq	2.483 87 GHz	-52.42 dBm
Marker	Trace	Type	X Axis	Amplitude												
1	(1)	Freq	2.479 75 GHz	4.17 dBm												
2	(1)	Freq	2.483 87 GHz	-52.42 dBm												
<p>GFSK/HCH/Hop</p>	<p>Agilent R L Freq/Channel</p> <p>Ref 20.9 dBm #Atten 30 dB Mkr2 2.486 76 GHz</p> <p>#Peak -49.96 dBm</p> <p>Log 10 dB/Offst 0.9 dB</p> <p>DI -16.0 dBm</p> <p>LgRv</p> <p>Center 2.483 50 GHz Span 10 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms (8001 pts)</p> <table border="1"> <thead> <tr> <th>Marker</th> <th>Trace</th> <th>Type</th> <th>X Axis</th> <th>Amplitude</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(1)</td> <td>Freq</td> <td>2.479 75 GHz</td> <td>4.01 dBm</td> </tr> <tr> <td>2</td> <td>(1)</td> <td>Freq</td> <td>2.486 76 GHz</td> <td>-49.96 dBm</td> </tr> </tbody> </table> <p>File name error</p>	Marker	Trace	Type	X Axis	Amplitude	1	(1)	Freq	2.479 75 GHz	4.01 dBm	2	(1)	Freq	2.486 76 GHz	-49.96 dBm
Marker	Trace	Type	X Axis	Amplitude												
1	(1)	Freq	2.479 75 GHz	4.01 dBm												
2	(1)	Freq	2.486 76 GHz	-49.96 dBm												
<p><math>\pi</math> /4DQPSK/LCH/No Hop</p>	<p>Agilent R L Freq/Channel</p> <p>Ref 20.9 dBm #Atten 30 dB Mkr2 2.399 96 GHz</p> <p>#Peak -51.66 dBm</p> <p>Log 10 dB/Offst 0.9 dB</p> <p>DI -26.4 dBm</p> <p>LgRv</p> <p>Center 2.400 00 GHz Span 10 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms (8001 pts)</p> <table border="1"> <thead> <tr> <th>Marker</th> <th>Trace</th> <th>Type</th> <th>X Axis</th> <th>Amplitude</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(1)</td> <td>Freq</td> <td>2.402 83 GHz</td> <td>-6.37 dBm</td> </tr> <tr> <td>2</td> <td>(1)</td> <td>Freq</td> <td>2.399 96 GHz</td> <td>-51.66 dBm</td> </tr> </tbody> </table> <p>File name error</p>	Marker	Trace	Type	X Axis	Amplitude	1	(1)	Freq	2.402 83 GHz	-6.37 dBm	2	(1)	Freq	2.399 96 GHz	-51.66 dBm
Marker	Trace	Type	X Axis	Amplitude												
1	(1)	Freq	2.402 83 GHz	-6.37 dBm												
2	(1)	Freq	2.399 96 GHz	-51.66 dBm												
<p><math>\pi</math> /4DQPSK/LCH/Hop</p>	<p>Agilent R L Freq/Channel</p> <p>Ref 20.9 dBm #Atten 30 dB Mkr2 2.400 00 GHz</p> <p>#Peak -51.29 dBm</p> <p>Log 10 dB/Offst 0.9 dB</p> <p>DI -24.4 dBm</p> <p>LgRv</p> <p>Center 2.400 00 GHz Span 10 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms (8001 pts)</p> <table border="1"> <thead> <tr> <th>Marker</th> <th>Trace</th> <th>Type</th> <th>X Axis</th> <th>Amplitude</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(1)</td> <td>Freq</td> <td>2.404 99 GHz</td> <td>-4.38 dBm</td> </tr> <tr> <td>2</td> <td>(1)</td> <td>Freq</td> <td>2.400 00 GHz</td> <td>-51.29 dBm</td> </tr> </tbody> </table> <p>File name error</p>	Marker	Trace	Type	X Axis	Amplitude	1	(1)	Freq	2.404 99 GHz	-4.38 dBm	2	(1)	Freq	2.400 00 GHz	-51.29 dBm
Marker	Trace	Type	X Axis	Amplitude												
1	(1)	Freq	2.404 99 GHz	-4.38 dBm												
2	(1)	Freq	2.400 00 GHz	-51.29 dBm												



<p><math>\pi</math> /4DQPSK/HCH/No Hop</p>	<table border="1"> <thead> <tr> <th>Marker</th> <th>Trace</th> <th>Type</th> <th>X Axis</th> <th>Amplitude</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(1)</td> <td>Freq</td> <td>2.480 05 GHz</td> <td>-0.12 dBm</td> </tr> <tr> <td>2</td> <td>(1)</td> <td>Freq</td> <td>2.484 26 GHz</td> <td>-59.90 dBm</td> </tr> </tbody> </table> <p>File name error</p>	Marker	Trace	Type	X Axis	Amplitude	1	(1)	Freq	2.480 05 GHz	-0.12 dBm	2	(1)	Freq	2.484 26 GHz	-59.90 dBm
Marker	Trace	Type	X Axis	Amplitude												
1	(1)	Freq	2.480 05 GHz	-0.12 dBm												
2	(1)	Freq	2.484 26 GHz	-59.90 dBm												
<p><math>\pi</math> /4DQPSK/HCH/Hop</p>	<table border="1"> <thead> <tr> <th>Marker</th> <th>Trace</th> <th>Type</th> <th>X Axis</th> <th>Amplitude</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(1)</td> <td>Freq</td> <td>2.479 94 GHz</td> <td>-4.52 dBm</td> </tr> <tr> <td>2</td> <td>(1)</td> <td>Freq</td> <td>2.486 05 GHz</td> <td>-54.29 dBm</td> </tr> </tbody> </table> <p>File name error</p>	Marker	Trace	Type	X Axis	Amplitude	1	(1)	Freq	2.479 94 GHz	-4.52 dBm	2	(1)	Freq	2.486 05 GHz	-54.29 dBm
Marker	Trace	Type	X Axis	Amplitude												
1	(1)	Freq	2.479 94 GHz	-4.52 dBm												
2	(1)	Freq	2.486 05 GHz	-54.29 dBm												
<p>8DPSK/LCH/No Hop</p>	<table border="1"> <thead> <tr> <th>Marker</th> <th>Trace</th> <th>Type</th> <th>X Axis</th> <th>Amplitude</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(1)</td> <td>Freq</td> <td>2.401 92 GHz</td> <td>-3.16 dBm</td> </tr> <tr> <td>2</td> <td>(1)</td> <td>Freq</td> <td>2.399 81 GHz</td> <td>-52.24 dBm</td> </tr> </tbody> </table> <p>File name error</p>	Marker	Trace	Type	X Axis	Amplitude	1	(1)	Freq	2.401 92 GHz	-3.16 dBm	2	(1)	Freq	2.399 81 GHz	-52.24 dBm
Marker	Trace	Type	X Axis	Amplitude												
1	(1)	Freq	2.401 92 GHz	-3.16 dBm												
2	(1)	Freq	2.399 81 GHz	-52.24 dBm												
<p>8DPSK/LCH/Hop</p>	<table border="1"> <thead> <tr> <th>Marker</th> <th>Trace</th> <th>Type</th> <th>X Axis</th> <th>Amplitude</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(1)</td> <td>Freq</td> <td>2.403 91 GHz</td> <td>-4.67 dBm</td> </tr> <tr> <td>2</td> <td>(1)</td> <td>Freq</td> <td>2.399 97 GHz</td> <td>-50.67 dBm</td> </tr> </tbody> </table> <p>File name error</p>	Marker	Trace	Type	X Axis	Amplitude	1	(1)	Freq	2.403 91 GHz	-4.67 dBm	2	(1)	Freq	2.399 97 GHz	-50.67 dBm
Marker	Trace	Type	X Axis	Amplitude												
1	(1)	Freq	2.403 91 GHz	-4.67 dBm												
2	(1)	Freq	2.399 97 GHz	-50.67 dBm												



<p>8DPSK/HCH/No Hop</p>	<p>Agilent R L Freq/Channel</p> <p>Ref 20.9 dBm #Atten 30 dB Mkr2 2.484 01 GHz -60.30 dBm</p> <p>Center 2.483 50 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms (8001 pts)</p> <table border="1"> <thead> <tr> <th>Marker</th> <th>Trace</th> <th>Type</th> <th>X Axis</th> <th>Amplitude</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(1)</td> <td>Freq</td> <td>2.479 94 GHz</td> <td>-1.79 dBm</td> </tr> <tr> <td>2</td> <td>(1)</td> <td>Freq</td> <td>2.484 81 GHz</td> <td>-60.30 dBm</td> </tr> </tbody> </table> <p>File name error</p>	Marker	Trace	Type	X Axis	Amplitude	1	(1)	Freq	2.479 94 GHz	-1.79 dBm	2	(1)	Freq	2.484 81 GHz	-60.30 dBm
Marker	Trace	Type	X Axis	Amplitude												
1	(1)	Freq	2.479 94 GHz	-1.79 dBm												
2	(1)	Freq	2.484 81 GHz	-60.30 dBm												
<p>8DPSK/HCH/Hop</p>	<p>Agilent R L Freq/Channel</p> <p>Ref 20.9 dBm #Atten 30 dB Mkr2 2.487 93 GHz -56.22 dBm</p> <p>Center 2.483 50 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms (8001 pts)</p> <table border="1"> <thead> <tr> <th>Marker</th> <th>Trace</th> <th>Type</th> <th>X Axis</th> <th>Amplitude</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(1)</td> <td>Freq</td> <td>2.478 59 GHz</td> <td>-5.61 dBm</td> </tr> <tr> <td>2</td> <td>(1)</td> <td>Freq</td> <td>2.487 93 GHz</td> <td>-56.22 dBm</td> </tr> </tbody> </table> <p>File name error</p>	Marker	Trace	Type	X Axis	Amplitude	1	(1)	Freq	2.478 59 GHz	-5.61 dBm	2	(1)	Freq	2.487 93 GHz	-56.22 dBm
Marker	Trace	Type	X Axis	Amplitude												
1	(1)	Freq	2.478 59 GHz	-5.61 dBm												
2	(1)	Freq	2.487 93 GHz	-56.22 dBm												



## APPENDIX-PHOTOS OF TEST SETUP

### Radiated Measurement Photos

