



Shenzhen Certification Technology Service Co., Ltd.
2F, Building B, East Area of Nanchang Second Industrial
Zone, Gushu 2nd Road, Bao'an District, Shenzhen
518126, P.R. China

TEST REPORT

FCC ID: ZAY-Z-B30

Applicant : SHENZHEN ZONOKI DIGITAL TECHNOLOGY CO., LTD
Address : 1-3 Floor, Building B, NO.49, Shangxia Road, Henggang Street,
Shenzhen, Guangdong, China

Equipment Under Test (EUT):

Name : Stereo Bluetooth Headset
Model : Z-B30

In Accordance with: FCC 15.247

Report No : STE120614761
Date of Test : June 20-29, 2012
Date of Issue : June 29, 2012

Test Result: **PASS**

In the configuration tested, the EUT complied with the standards specified above

Authorized Signature

A handwritten signature in black ink, appearing to read "Mark Zhu". It is positioned above a horizontal line.

(Mark Zhu)

General Manager

The manufacturer should ensure that all the products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of Shenzhen Certification Technology Service Co., Ltd. Or test done by Shenzhen Certification Technology Service Co., Ltd. Approvals in connection with, distribution or use of the product described in this report must be approved by Shenzhen Certification Technology Service Co., Ltd. Approvals in writing.

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1. General Information

1.1. Description of Device (EUT)

EUT : Stereo Bluetooth Headset

Model No. : Z-B30

Power supply : DC 3.7V From battery
DC 5V From PC with AC 120V/60Hz

Radio Technology : Bluetooth 2.1+ EDR

FCC Operation : 2402MHz -2480MHz
frequency

Modulation : GFSK, $\pi/4$ DQPSK, 8-DPSK

Antenna Type : Patch antenna, Gain: 3dBi

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Manufacturer : SHENZHEN ZONOKI DIGITAL TECHNOLOGY CO., LTD

Address : 1-3 Floor, Building B, NO.49, Shangxia Road, Henggang
Street, Shenzhen, Guangdong, China

1.2. Accessories of device (EUT)

Accessories 1 : Audio cable

M/N : 1m, unshield

Accessories 2 : USB cable

Type : 1m, unshield

1.3. Test Lab information

Shenzhen Certification Technology Service Co., Ltd.
2F, Building B, East Area of Nanchang Second Industrial Zone,
Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China
FCC Registered No.:197647

2. Summary of test

2.1. Summary of test result

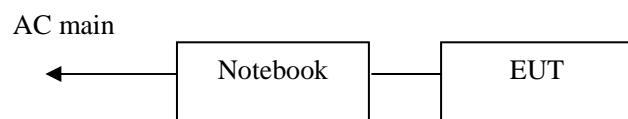
Description of Test Item	Standard	Results
Maximum Peak Output Power	FCC Part 15: 15.247(b)(1) ANSI C63.10 :2009	PASS
20dB Bandwidth	FCC Part 15: 15.215 ANSI C63.10 :2009	PASS
Carrier Frequency Separation	FCC Part 15: 15.247(a)(1) ANSI C63.10 :2009	PASS
Number Of Hopping Channel	FCC Part 15: 15.247(a)(1)(iii) ANSI C63.10 :2009	PASS
Dwell Time	FCC Part 15: 15.247(a)(1)(iii) ANSI C63.10 :2009	PASS
Radiated Emission	FCC Part 15: 15.209 FCC Part 15: 15.247(d) ANSI C63.10 :2009	PASS
Band Edge Compliance	FCC Part 15: 15.247(d) ANSI C63.10 :2009	PASS
Power Line Conducted Emissions	FCC Part 15: 15.207 ANSI C63.10 :2009	PASS
Antenna requirement	FCC Part 15: 15.203	PASS
MPE ESTIMATION	FCC Part 2: 2.1093	PASS

2.2. Assistant equipment used for test

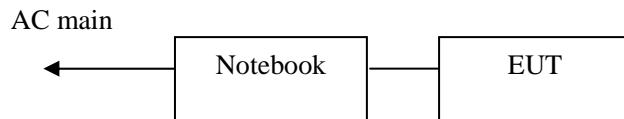
Description : Test PC 1
 Manufacturer : Dell
 Model No. : D430

2.3. Block Diagram

1, For radiated emissions test: EUT was placed on a turn table, which is 0.8 meter high above ground. EUT was be set into BT test mode by Bluesuite software before test.



2, For Power Line Conducted Emissions Test: EUT was connected to power adapter by 1m USB line



2.4. Test mode

The test software “Bluesuite” was used to control EUT work in Continuous TX mode, and select test channel, wireless mode

Tested mode, channel, and data rate information		
Mode	Channel	Frequency (MHz)
BDR:GFSK	Low :CH1	2402
	Middle: CH40	2441
	High: CH79	2480
EDR: $\pi/4$ QPSK	Low :CH1	2402
	Middle: CH40	2441
	High: CH79	2480
EDR:8-DPSK	Low :CH1	2402
	Middle: CH40	2441
	High: CH79	2480

Note: For $\pi/4$ QPSK its same modulation type with 8-DPSK, and based exploratory test, there is no significant difference of that two types test result, so except output power, all other items final test were only performed with 8-DPSK and GFSK.

2.5. Test Conditions

Temperature range	21-25°C
Humidity range	40-75%
Pressure range	86-106kPa

2.6. Measurement Uncertainty (95% confidence levels, k=2)

Item	MU	Remark
Uncertainty for Power point Conducted Emissions Test	2.42dB	
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.54dB	Polarize: V
	4.1dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	2.08dB	Polarize: H
	2.56dB	Polarize: V
Uncertainty for radio frequency	1×10^{-9}	

Uncertainty for conducted RF Power	0.65dB	
Uncertainty for temperature	0.2 °C	
Uncertainty for humidity	1%	
Uncertainty for DC and low frequency voltages	0.06%	

2.7. Test Equipment

Equipment	Manufacture	Model No.	Serial No.	Last cal.	Cal Interval
3m Semi-Anechoic	ETS-LINDGR EN	N/A	SEL0017	05.08, 2012	1 Year
Spectrum analyzer	Agilent	E4443A	MY46185649	05.08, 2012	1 Year
Receiver	R&S	ESCI	100492	05.08, 2012	1 Year
Receiver	R&S	ESCI	101202	05.08, 2012	1 Year
Bilog Antenna	Sunol	JB3	A121206	12.15, 2011	1 Year
Horn Antenna	EMCO	3115	640201028-06	12.15, 2011	1 Year
Power Meter	Anritsu	ML2487A	6K00001491	05.08, 2012	1 Year
ETS Horn Antenna	ETS	3160	SEL0076	05.08, 2012	1 Year
Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	12.15, 2011	1 Year
Cable	Resenberger	N/A	No.1	05.08, 2012	1 Year
Cable	SCHWARZBE CK	N/A	No.2	05.08, 2012	1 Year
Cable	SCHWARZBE CK	N/A	No.3	05.08, 2012	1 Year
Pre-amplifier	R&S	AFS42-0010 1 800-25-S-42	SEL0081	05.08, 2012	1 Year
Pre-amplifier	R&S	AFS33-1800 2650-30-8P- 44	SEL0080	05.08, 2012	1 Year
Base station	Agilent	E5515C	GB44300243	05.08, 2012	1 Year
Temperature controller	Terchy	MHQ	120	05.08, 2012	1 Year
Power divider	Anritsu	K240C	020346	05.08, 2012	1 Year
Signal Generator	HP	83732B	VS3449051	05.08, 2012	1 Year
Attenuator	Agilent	8491B	MY39262165	05.08, 2012	1 Year

3. Maximum Peak Output power

3.1. Limit

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts, the e.i.r.p shall not exceed 4W

3.2. Test Procedure

(1).The EUT was placed on a 0.8m high table in the chamber and turned on in continuously transmitting mode.

(2).The maximum fundamental emission (E) at 3m distance was measured and recorded with receive antenna in both vertical and horizontal by rotating the turntable and by moved up and down antenna, the test Spectrum Analyzer was set as below

RBW: 2MHz (>20dB bandwidth of signal)

VBW: 3MHz

Detector: Peak

(3). Calculate the transmitter's peak power using the following equation:

$$P = [(E*D)^2]/(30G)$$

E is the measured maximum fundamental field strength in V/m

G is the numeric gain of the transmitting antenna with reference to an isotropic radiator.

D is the distance in meters from which the field strength was measured.

P is the power in watts

3.3. Test Result

EUT: Stereo Bluetooth Headset		M/N:Z-B30			
Test date: 2012-06-25		Test site: RF site	Tested by: TaTa jiang		
Mode	Freq (MHz)	Maximum fundamental emission (E) at 3m (dBuV/m)	Result (dBm)	Limit (dBm)	Margin (dB)
GFSK	2402	98.81	2.18	30	27.82
	2441	98.96	2.26	30	27.74
	2480	98.59	2.24	30	27.76
$\pi/4$ QPSK	2402	98.35	1.87	30	28.13
	2441	98.41	1.77	30	28.23
	2480	98.65	2.13	30	27.87
8-DPSK	2402	98.51	1.98	30	28.02
	2441	98.42	1.86	30	28.14
	2480	98.57	1.82	30	28.18
Conclusion: PASS					

4. 20dB bandwidth

4.1. Limit

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

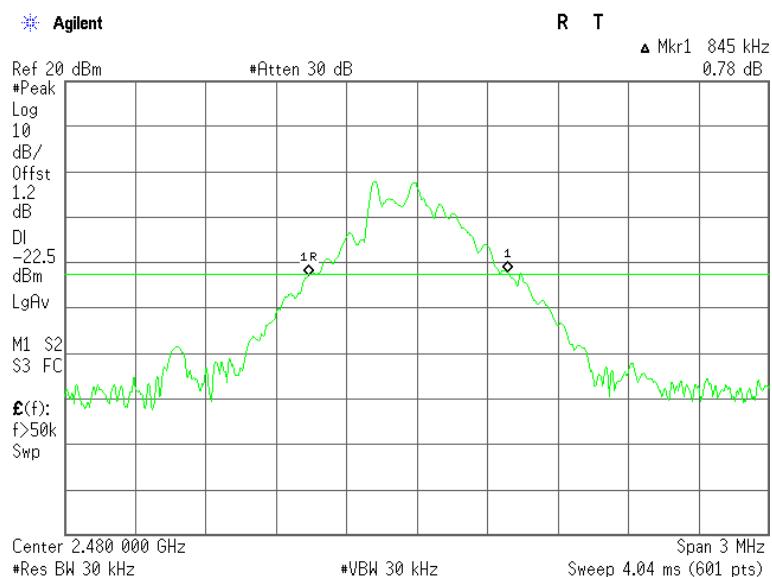
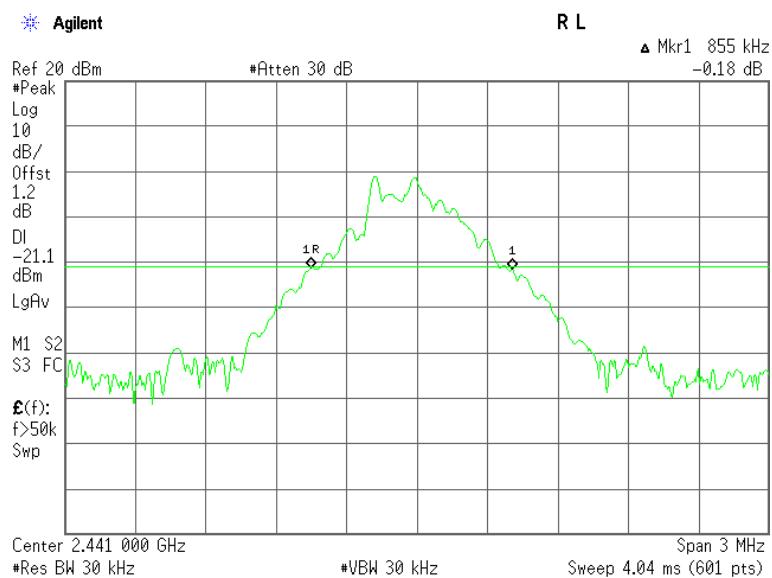
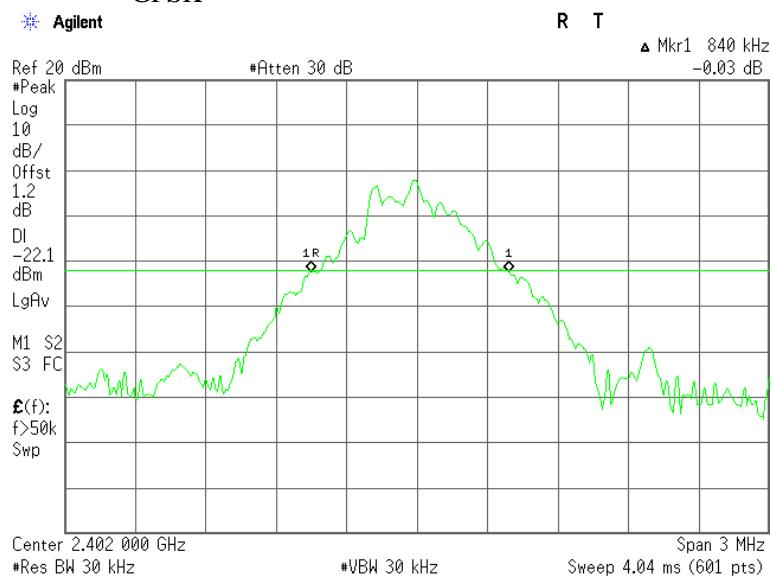
4.2. Test Procedure

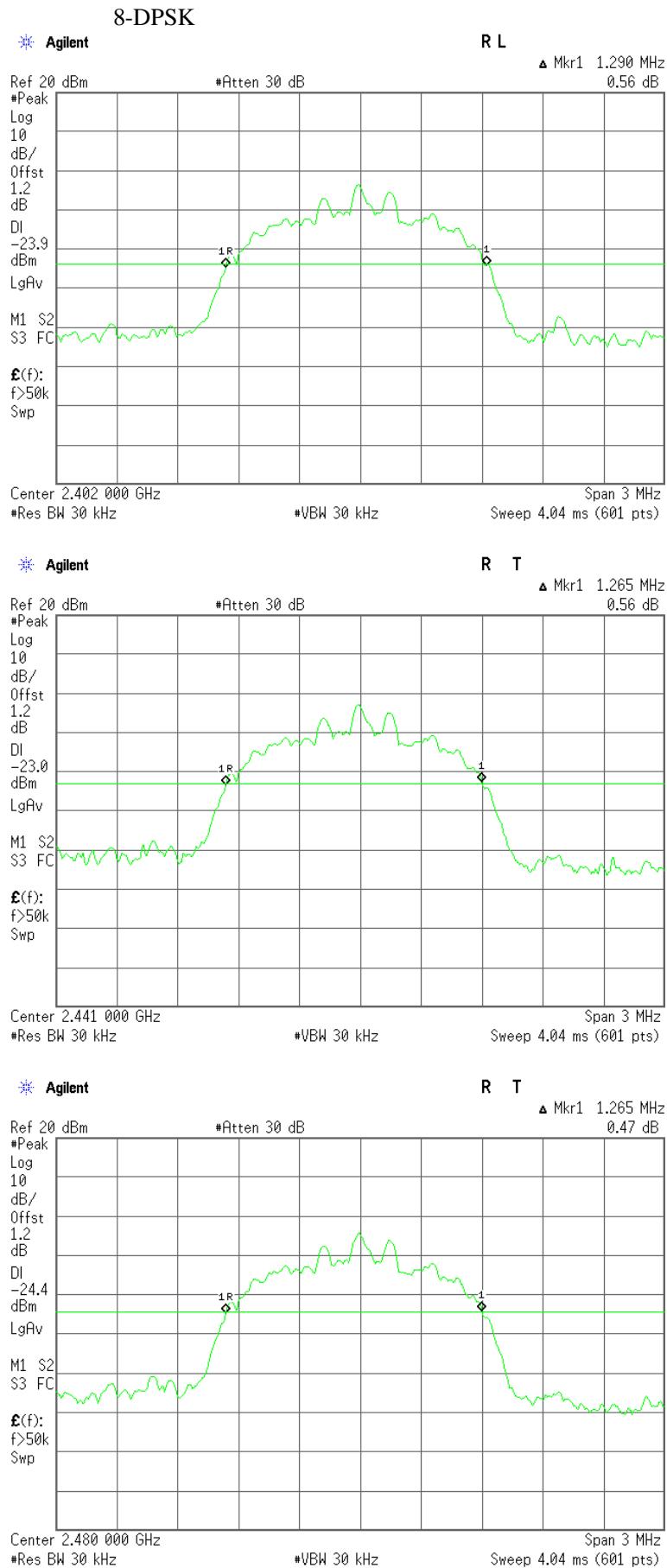
The transmitter output was coupled to a spectrum analyzer via a antenna. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

4.3. Test Result

EUT: Stereo Bluetooth Headset		M/N:Z-B30		
Test date: 2012-06-25		Test site: RF site	Tested by: TaTa jiang	
Mode	Freq (MHz)	20dB Bandwidth (MHz)	Limit (kHz)	Conclusion
GFSK	2402	0.840	/	PASS
	2441	0.855	/	PASS
	2480	0.845	/	PASS
8-DPSK	2402	1.290	/	PASS
	2441	1.265	/	PASS
	2480	1.265	/	PASS

Orginal Test data For 20dB bandwidth
GFSK





5. Carrier Frequency Separation

5.1. Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW

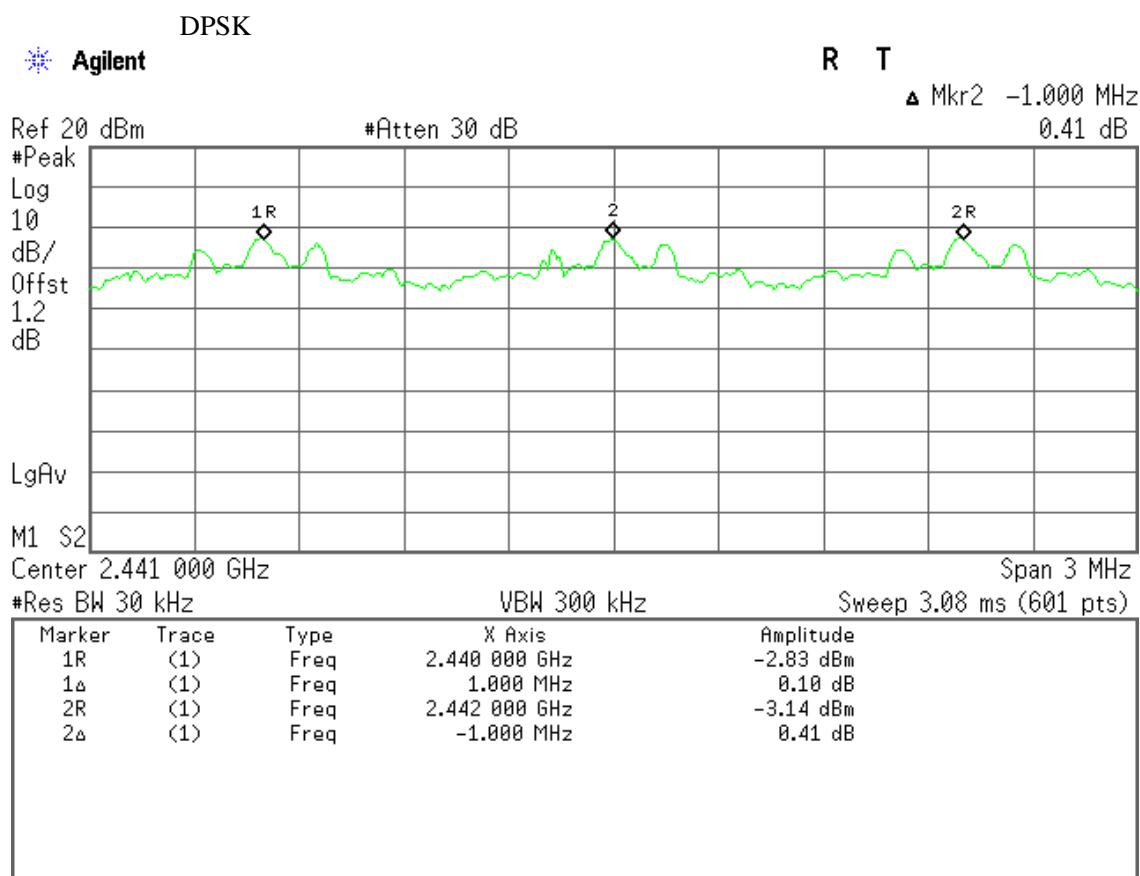
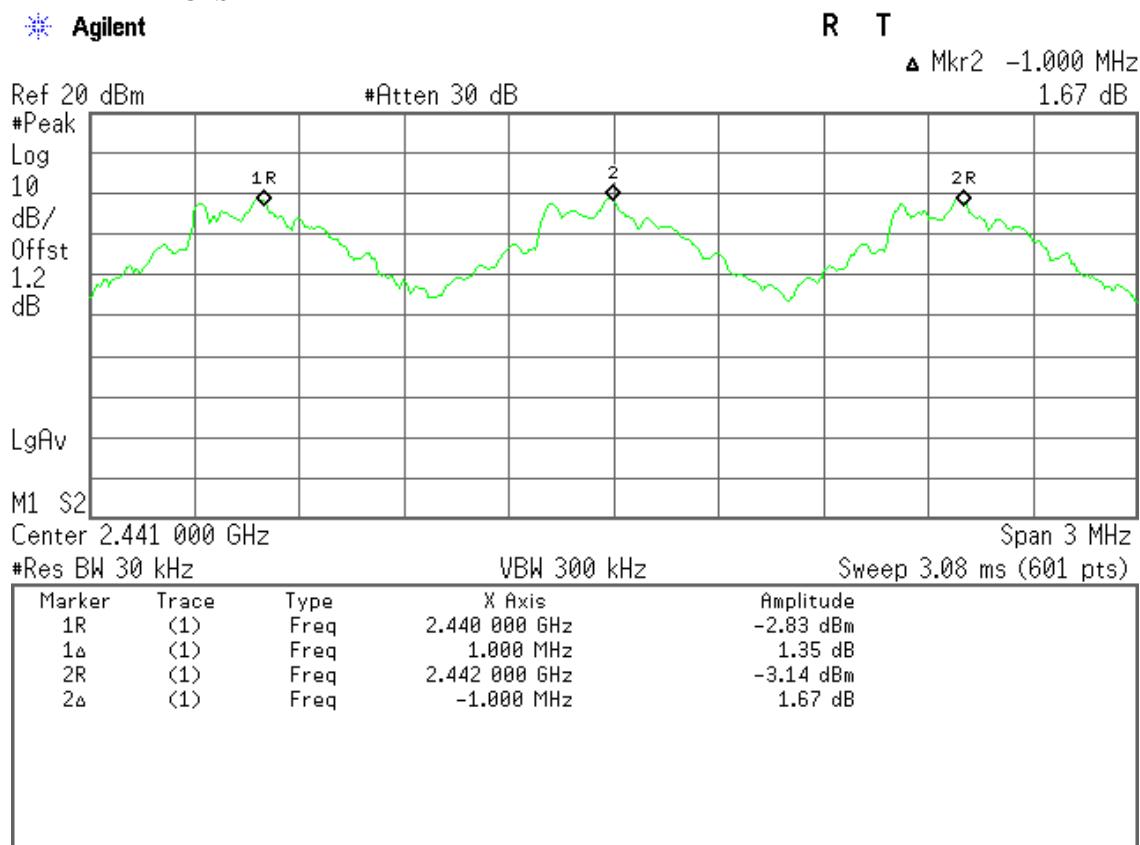
5.2. Test Procedure

The transmitter output was coupled to a spectrum analyzer via a antenna. The carrier frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW.

5.3. Test Result

EUT: Stereo Bluetooth Headset		M/N:Z-B30		
Test date: 2012-06-25		Test site: RF site	Tested by: TaTa jiang	
Mode	Channel separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz) 2/3 20dB bandwidth	Conclusion
GFSK	1.0	0.855	0.57	PASS
8-DPSK	1.0	1.290	0.86	PASS

Orginal test data for channel separation
GFSK



6. Number Of Hopping Channel

6.1. Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels

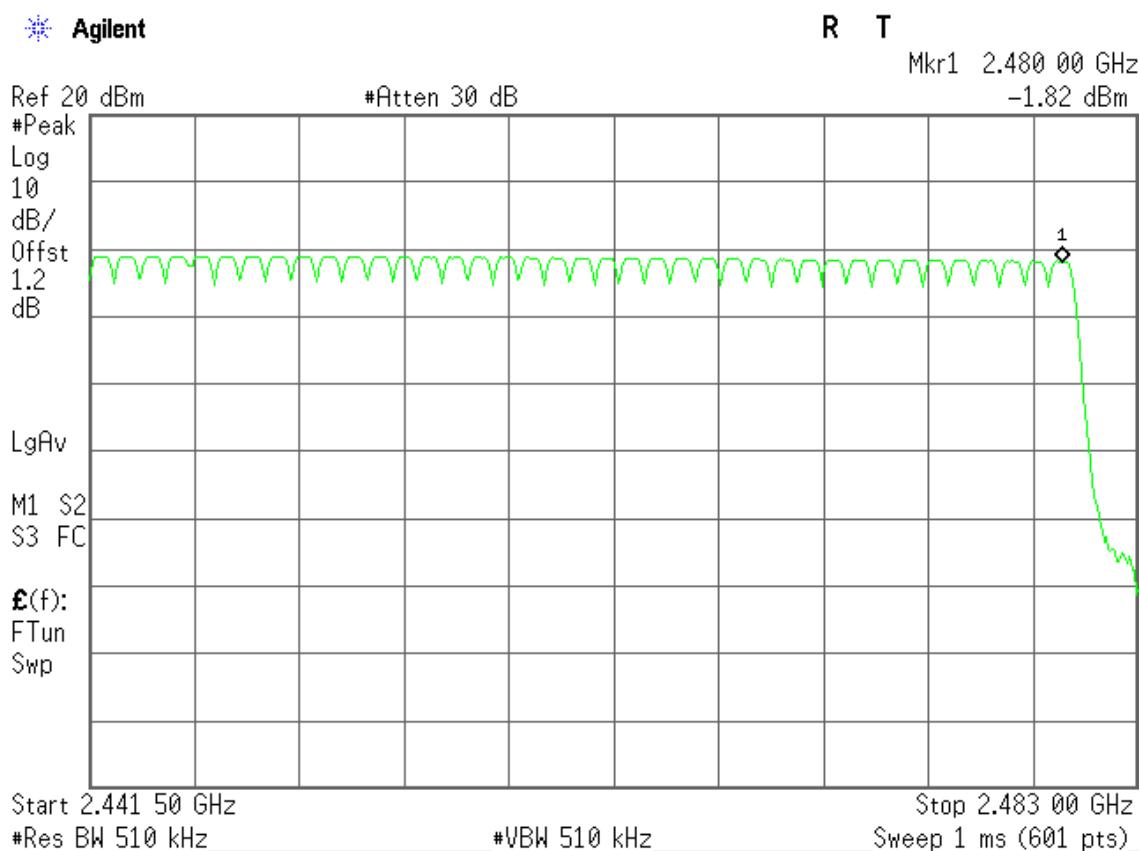
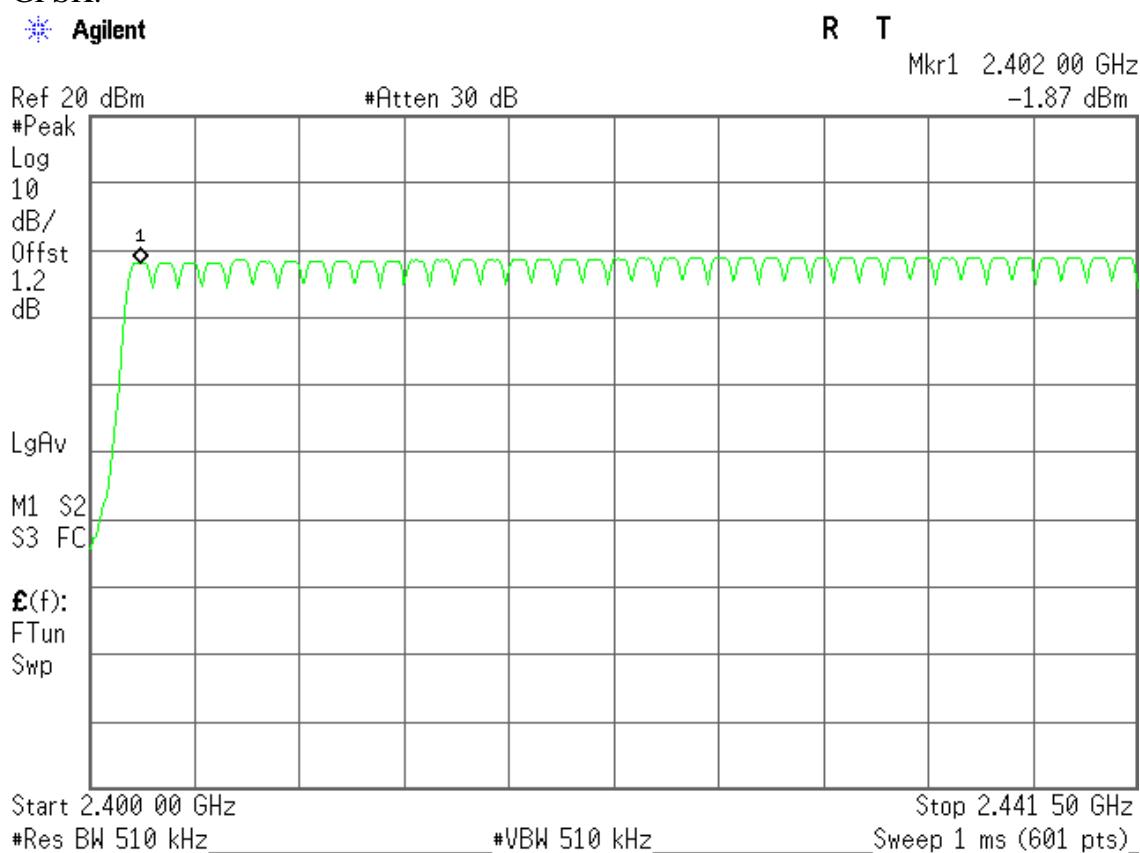
6.2. Test Procedure

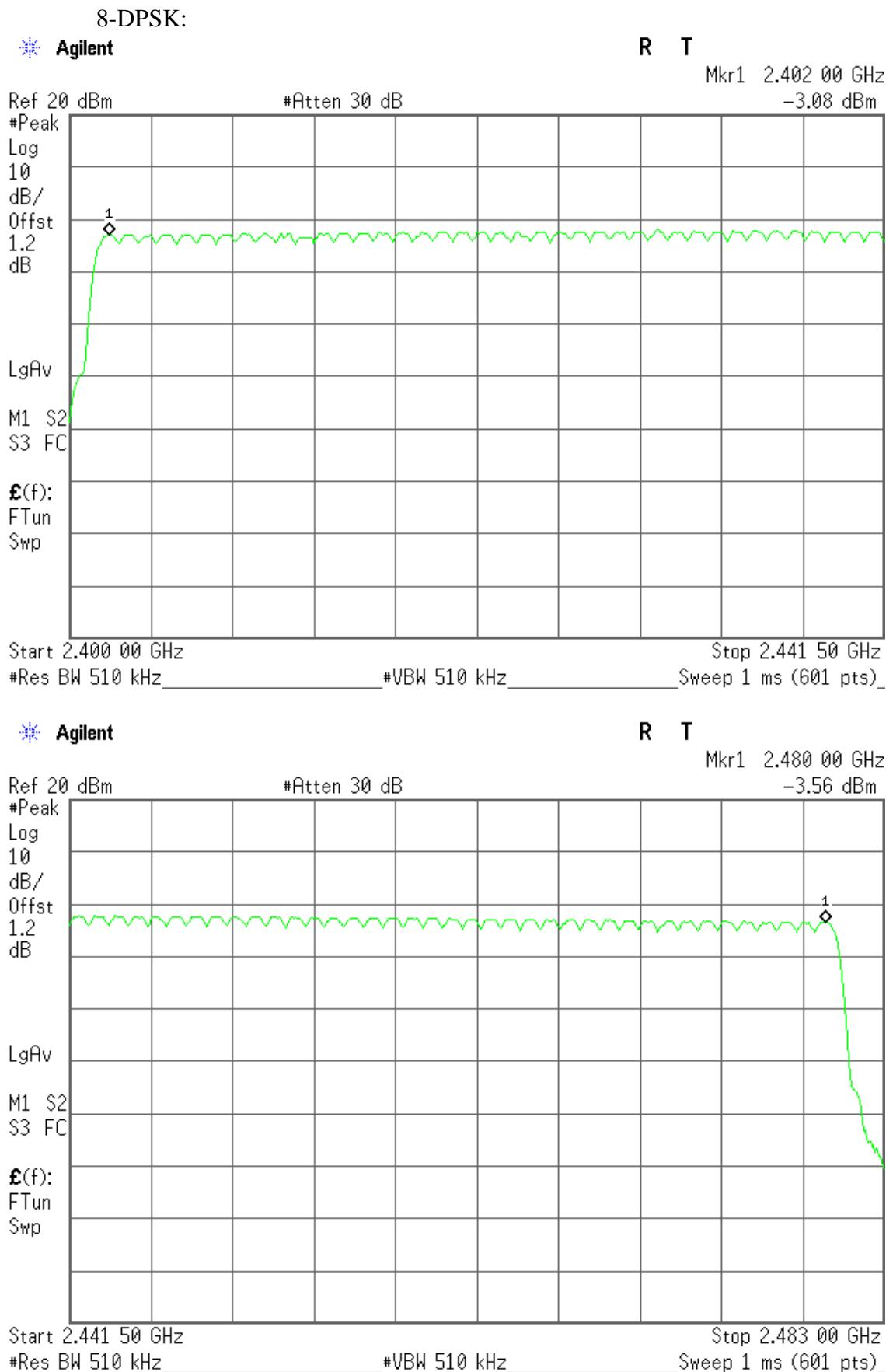
The transmitter output was coupled to a spectrum analyzer via a antenna. The number of hopping channel was measured by spectrum analyzer with 300kHz RBW and 1MHz VBW.

6.3. Test Result

EUT: Stereo Bluetooth Headset		M/N:Z-B30	
Test date: 2012-06-27		Test site: RF site	Tested by: TaTa jiang
Mode	Number of hopping channel	Limit	Conclusion
GFSK	79	>15	PASS
8-DPSK	79	>15	PASS

Original test data for hopping channel number
GFSK:





7. Dwell Time

7.1. Test limit

Please refer section 15.247

According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz. The average time of occupancy on any frequency shall not greater than 0.4 s within period of 0.4 sec- onds multiplied by the number of hopping channel employed.

7.2. Test Procedure

7.2.1. Place the EUT on the table and set it in transmitting mode.

7.2.2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

7.2.3. Set center frequency of spectrum analyzer = operating frequency.

7.2.4. Set the spectrum analyzer as RBW, VBW=1MHz, Span = 0Hz, Sweep = auto.

7.2.5. Repeat above procedures until all frequency measured were complete.

7.3. Test Results

PASS.

A period time = $0.4 \text{ (s)} * 79 = 31.6(\text{s})$

CH Low: DH1 time slot = $0.404(\text{ms}) * (1600/(1*79)) * 31.6 = 258.6 \text{ (ms)}$

DH3 time slot = $1.658 \text{ (ms)} * (1600/(3*79)) * 31.6 = 353.7 \text{ (ms)}$

DH5 time slot = $2.898 \text{ (ms)} * (1600/(5*79)) * 31.6 = 370.9 \text{ (ms)}$

3-DH1 time slot = $0.390 \text{ (ms)} * (1600/(1*79)) * 31.6 = 249.6(\text{ms})$

3-DH3 time slot = $1.658 \text{ (ms)} * (1600/(3*79)) * 31.6 = 353.7(\text{ms})$

3-DH5 time slot = $2.898 \text{ (ms)} * (1600/(5*79)) * 31.6 = 370.9 \text{ (ms)}$

CH Mid: DH1 time slot = $0.404(\text{ms}) * (1600/(1*79)) * 31.6 = 258.6(\text{ms})$

DH3 time slot = $1.644 \text{ (ms)} * (1600/(3*79)) * 31.6 = 350.7 \text{ (ms)}$

DH5 time slot = $2.898 \text{ (ms)} * (1600/(5*79)) * 31.6 = 370.9 \text{ (ms)}$

3-DH1 time slot = $0.404 \text{ (ms)} * (1600/(1*79)) * 31.6 = 258.6 \text{ (ms)}$

3-DH3 time slot = $1.658 \text{ (ms)} * (1600/(3*79)) * 31.6 = 353.7 \text{ (ms)}$

3-DH5 time slot = $2.912(\text{ms}) * (1600/(5*79)) * 31.6 = 372.7 \text{ (ms)}$

CH High: DH1 time slot = $0.404 \text{ (ms)} * (1600/(1*79)) * 31.6 = 258.6 \text{ (ms)}$

DH3 time slot = $1.658 \text{ (ms)} * (1600/(3*79)) * 31.6 = 353.7 \text{ (ms)}$

DH5 time slot = $2.898 \text{ (ms)} * (1600/(5*79)) * 31.6 = 370.9 \text{ (ms)}$

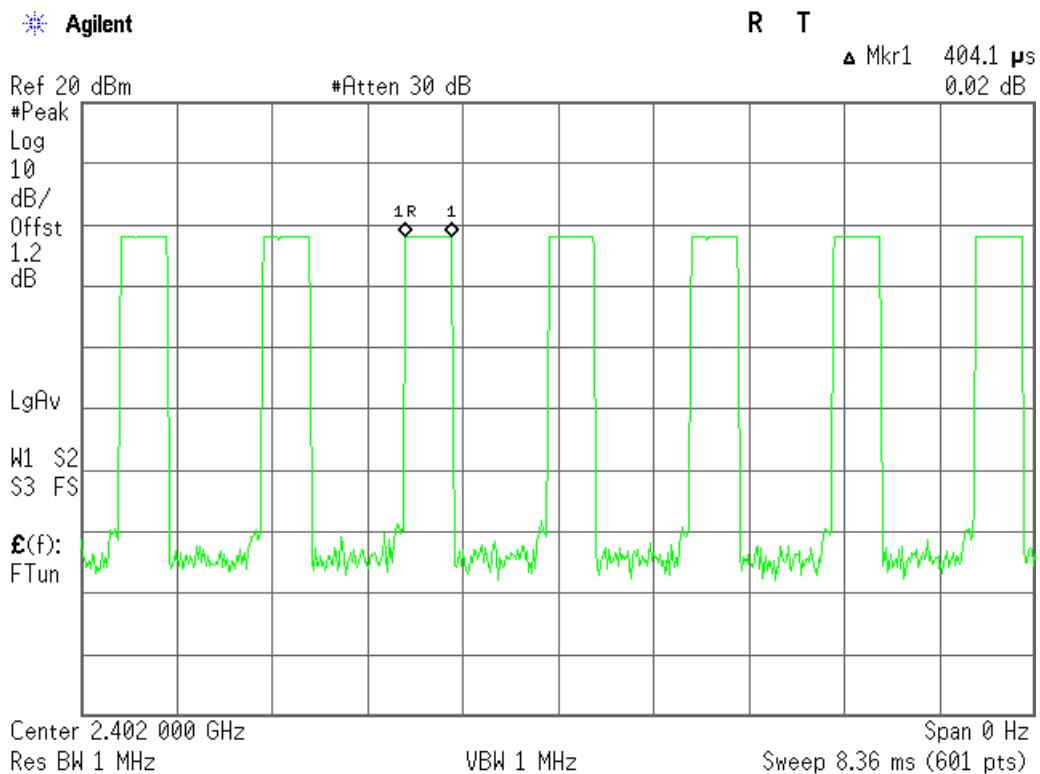
3-DH1 time slot = $0.404 \text{ (ms)} * (1600/(1*79)) * 31.6 = 258.6 \text{ (ms)}$

3-DH3 time slot = $1.658 \text{ (ms)} * (1600/(3*79)) * 31.6 = 353.7 \text{ (ms)}$

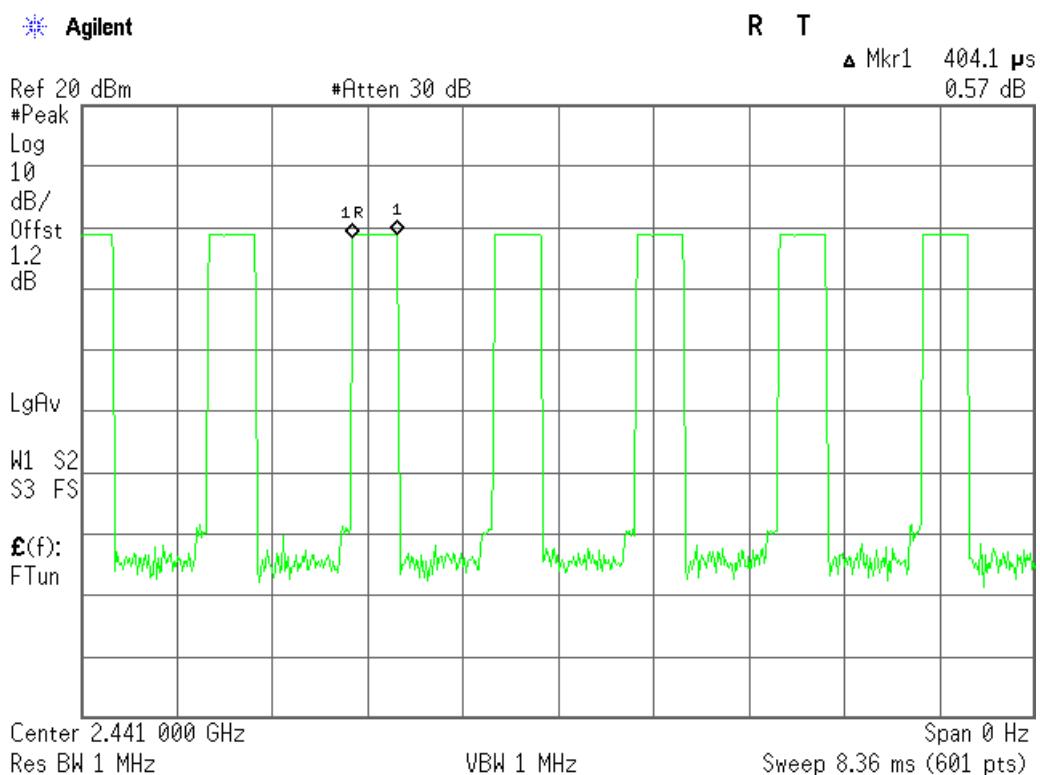
3-DH5 time slot = $2.898 \text{ (ms)} * (1600/(5*79)) * 31.6 = 370.9 \text{ (ms)}$

Detailed information please see the following page.

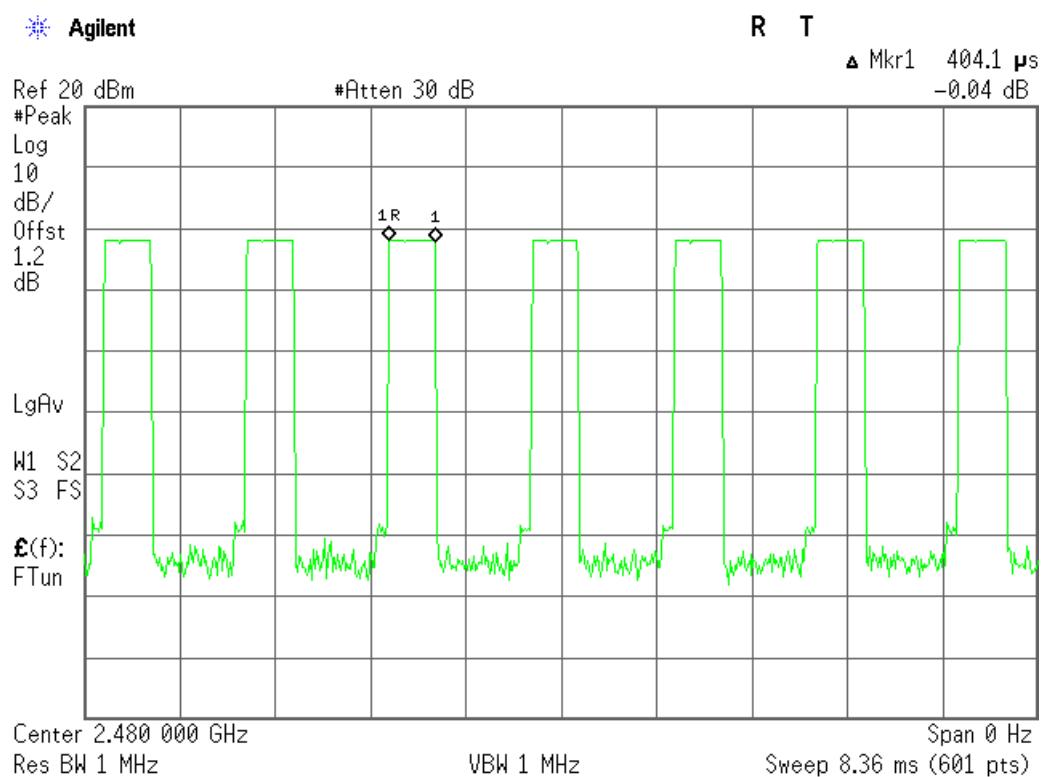
DH1: CH Low



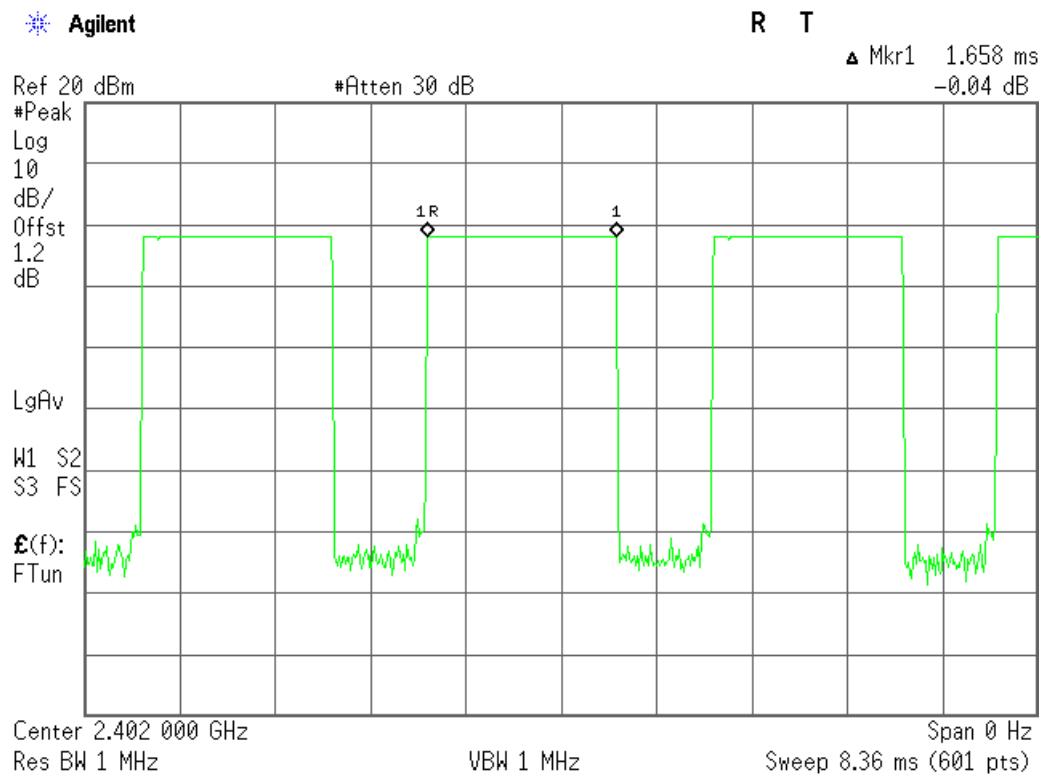
DH1: CH Mid



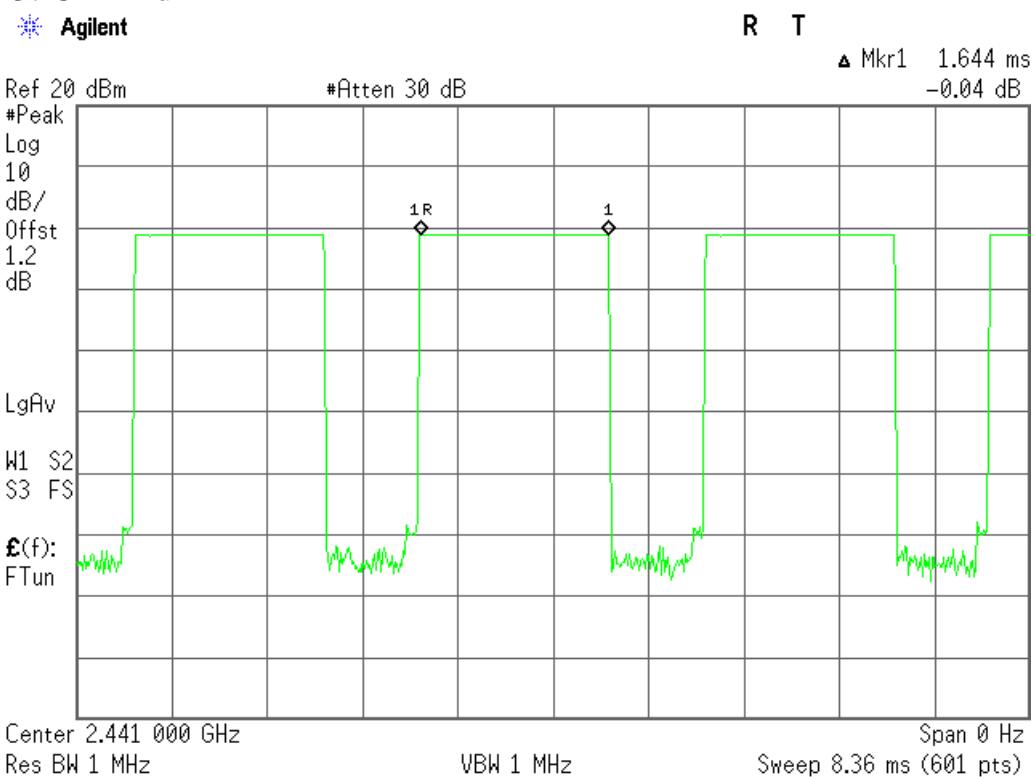
DH1: CH High



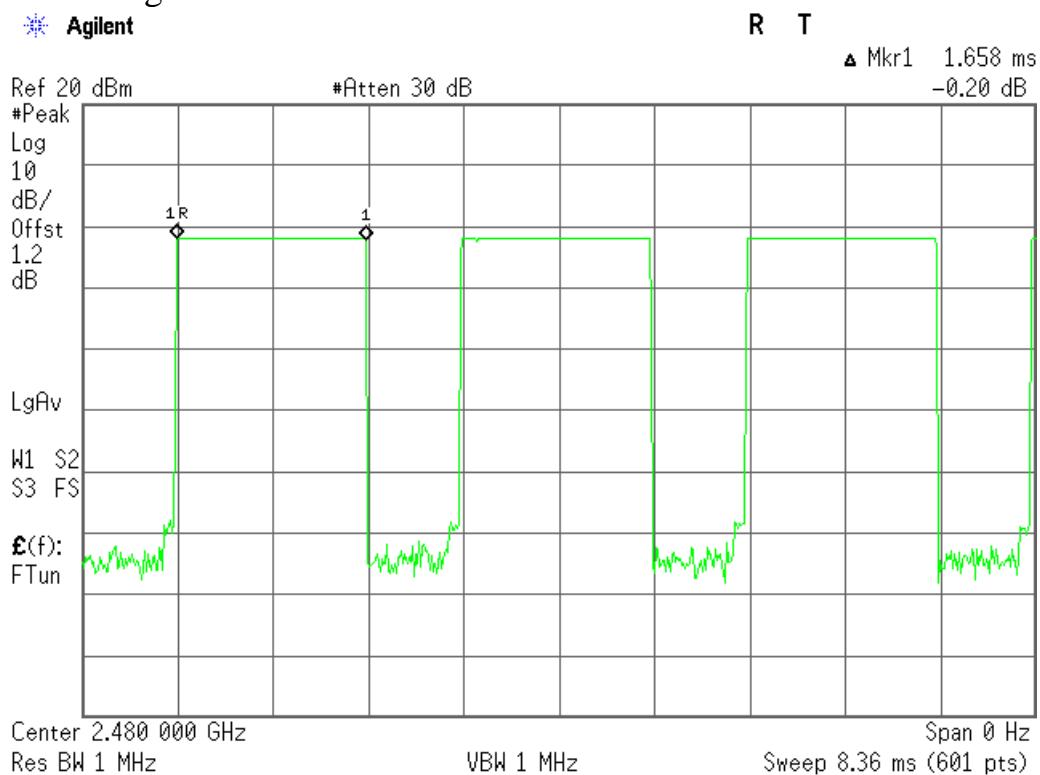
DH3: CH Low:



DH3: CH Mid

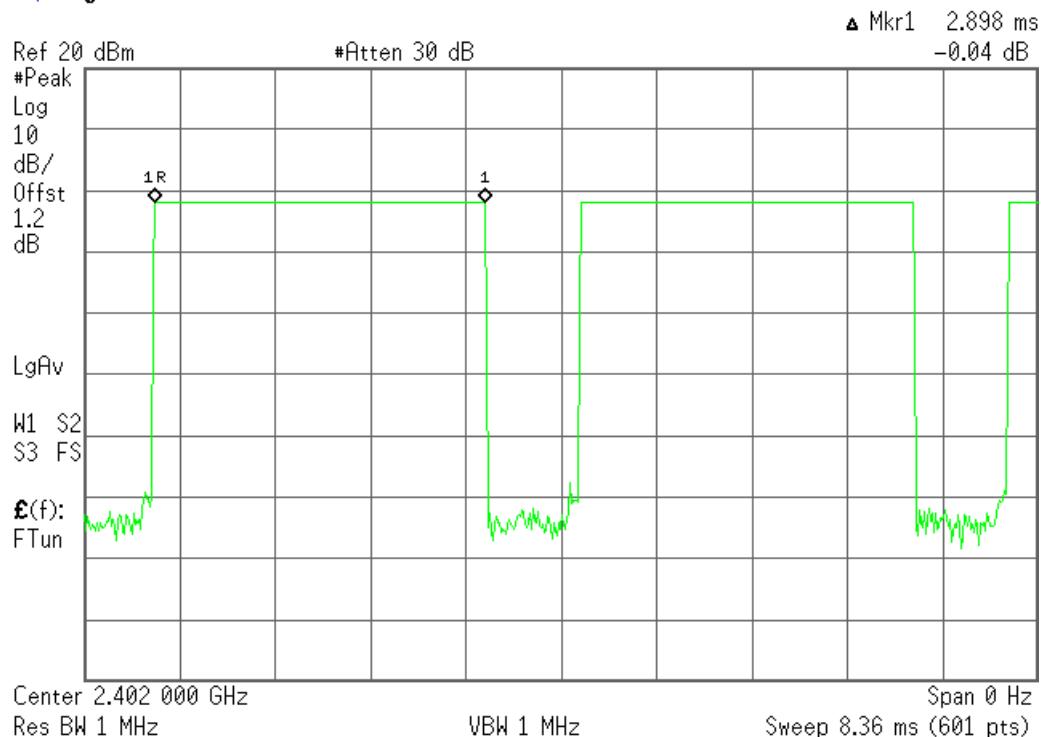


DH3 CH High



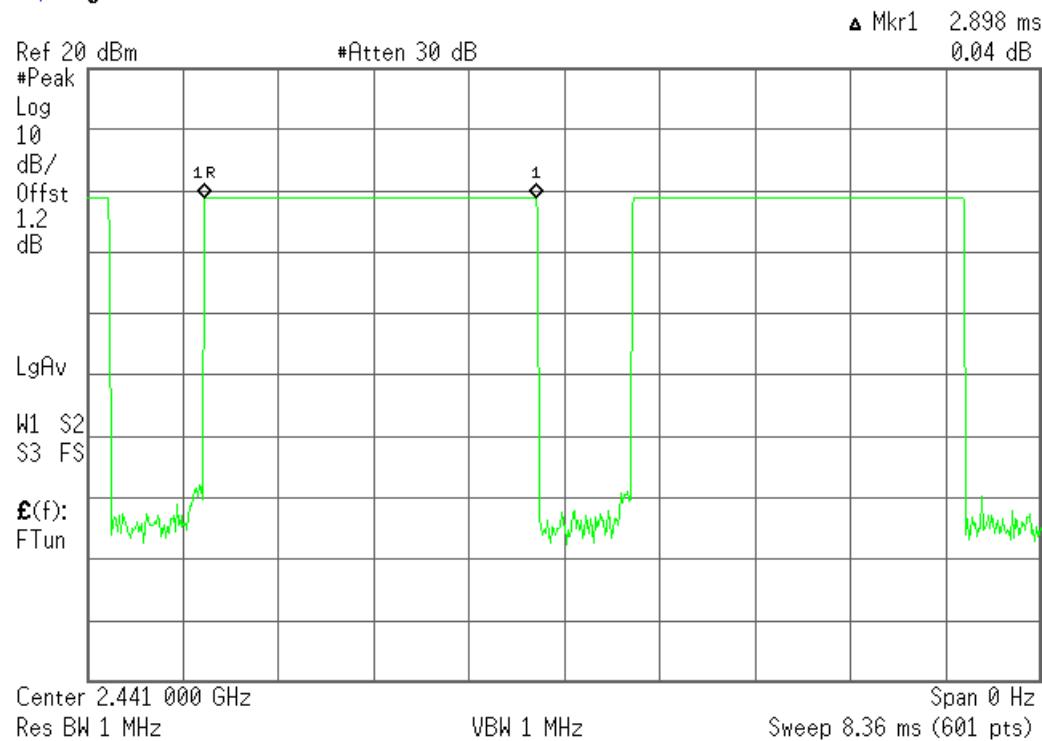
DH5 CH Low

Agilent

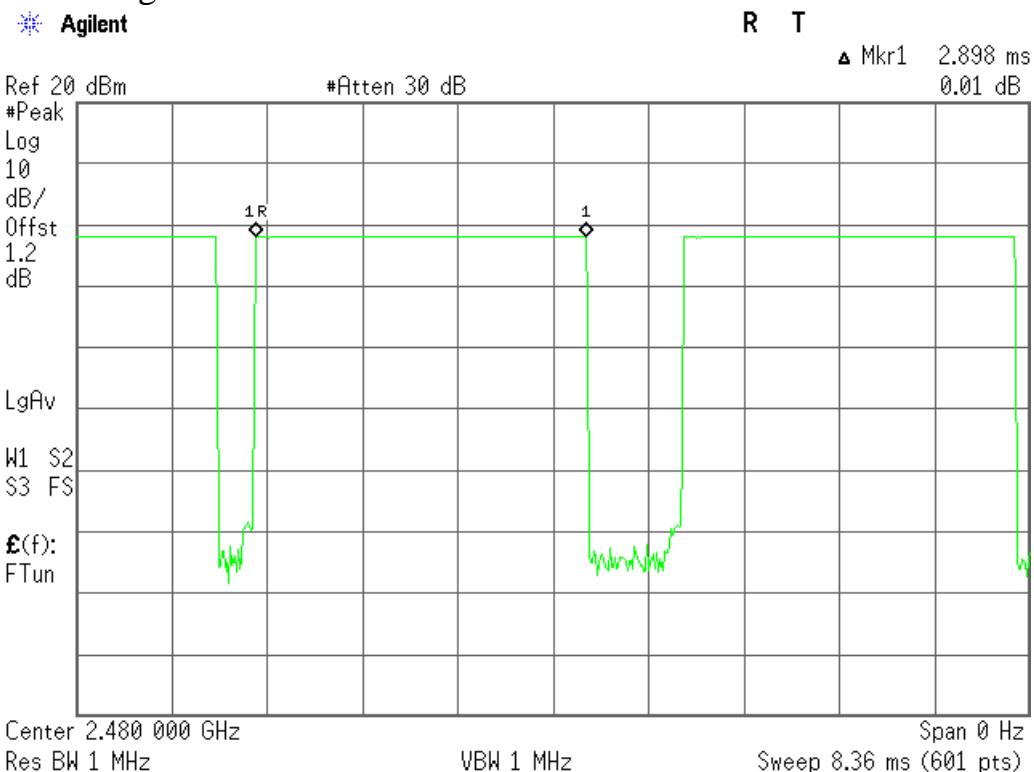


DH5 CH Mid

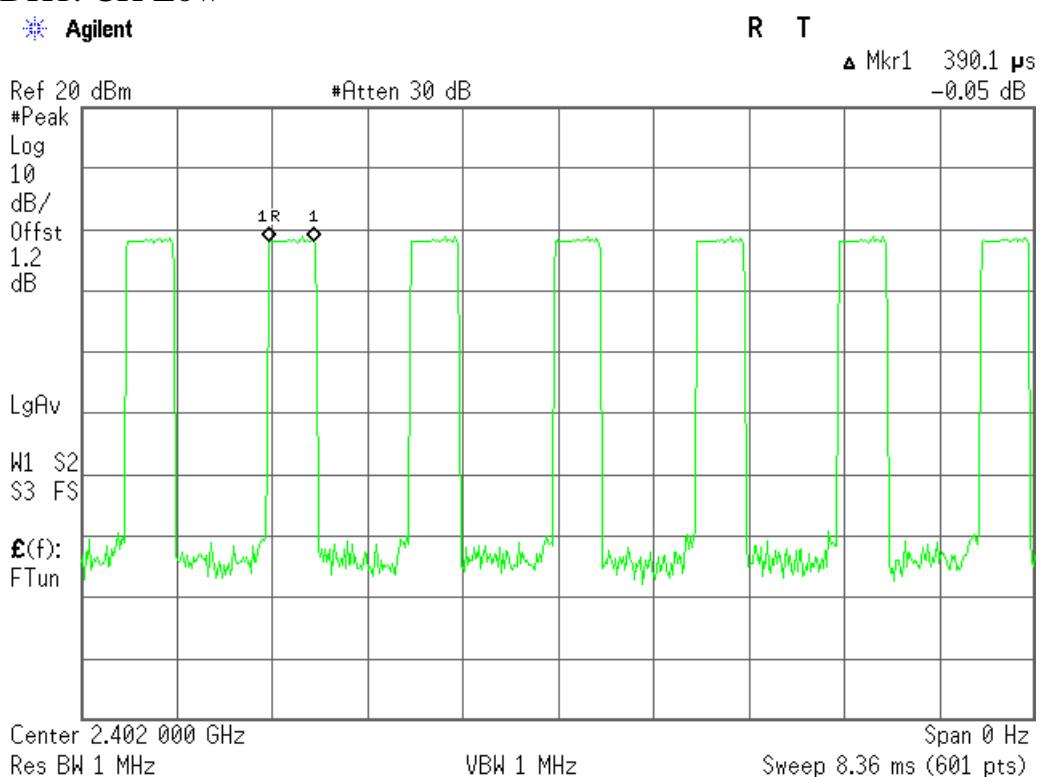
Agilent



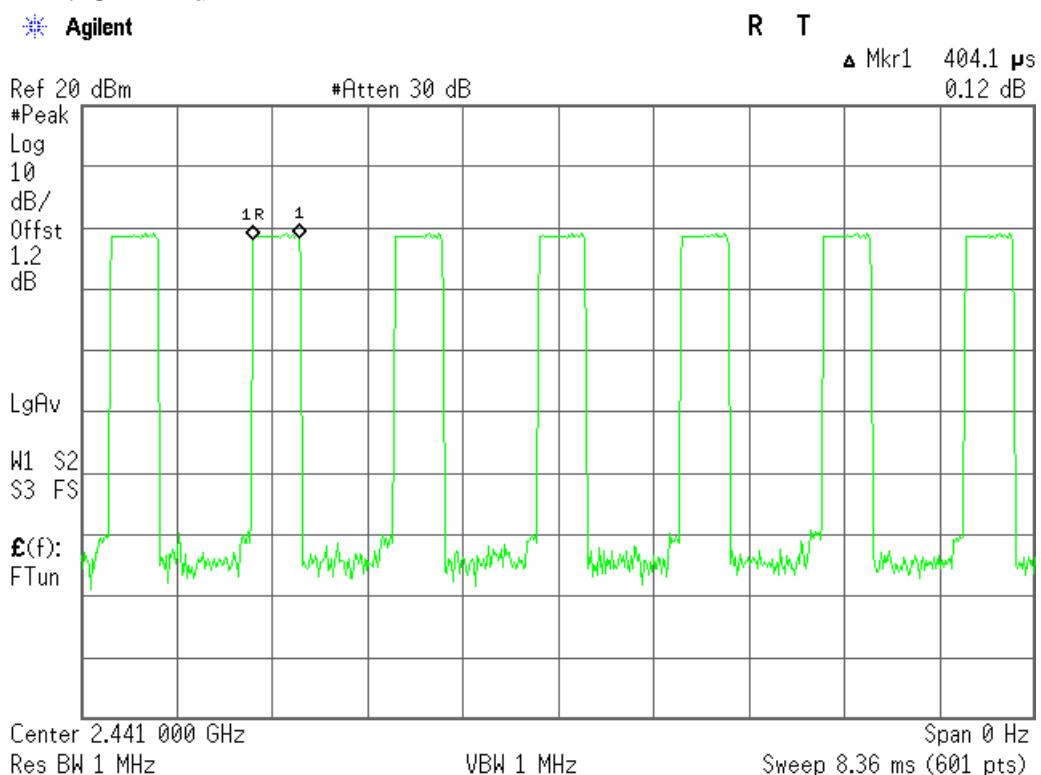
DH5 CH High



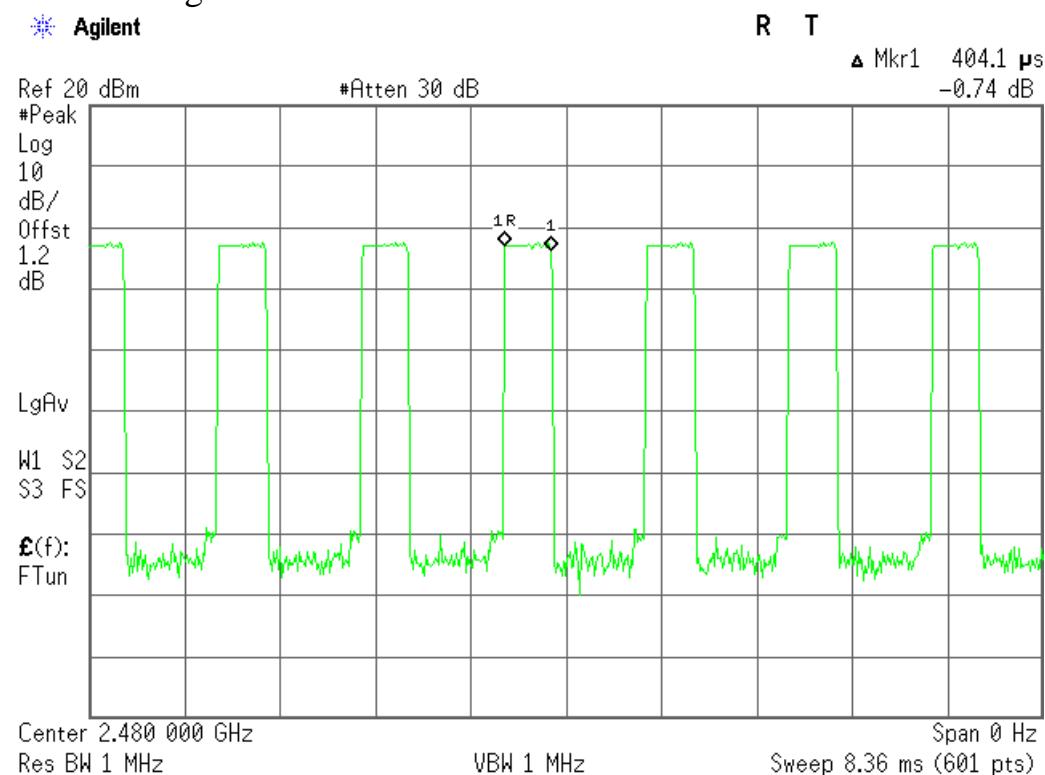
3-DH1: CH Low



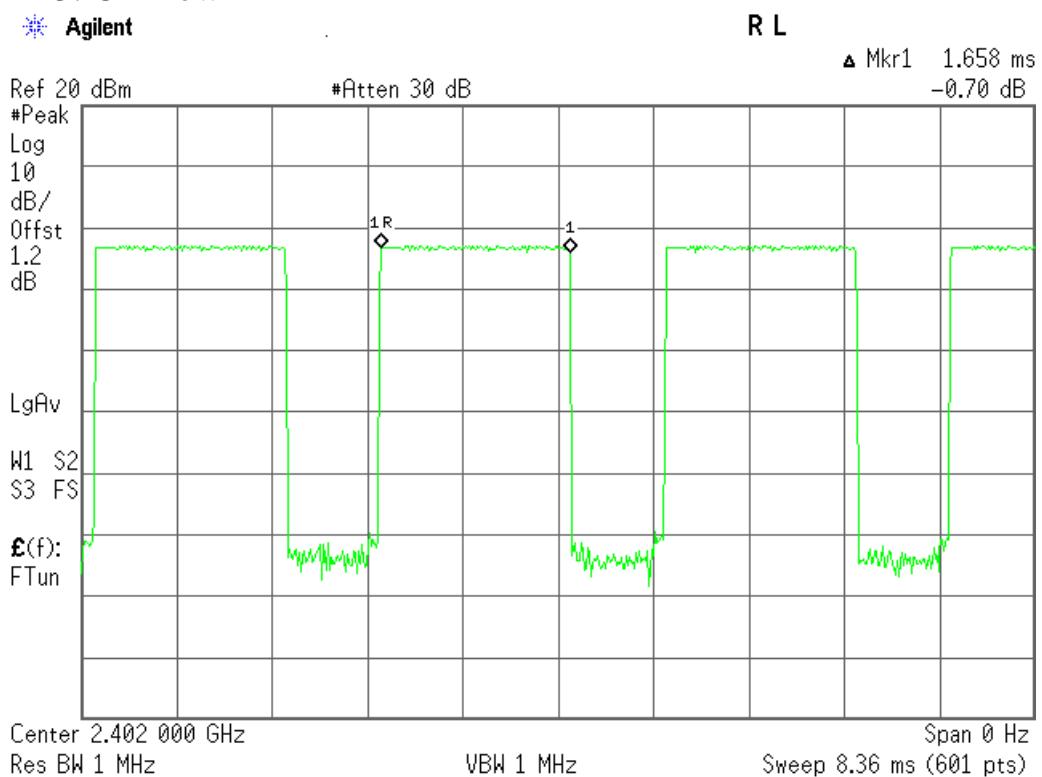
3-DH1: CH Mid



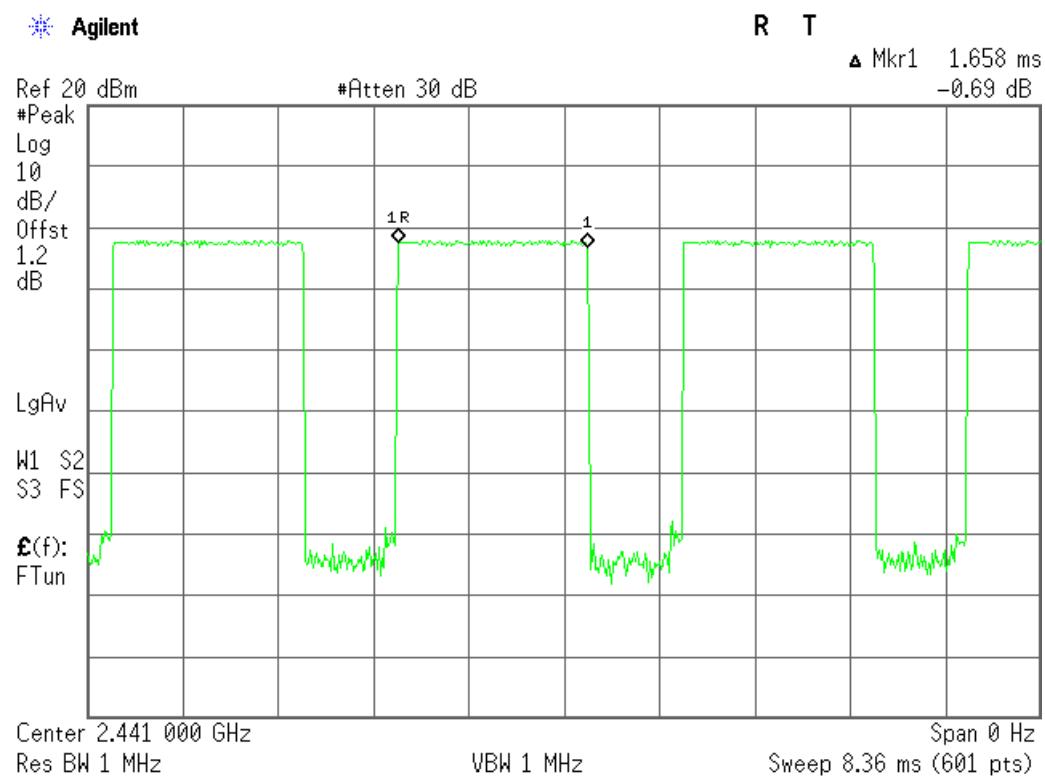
3-DH1: CH High



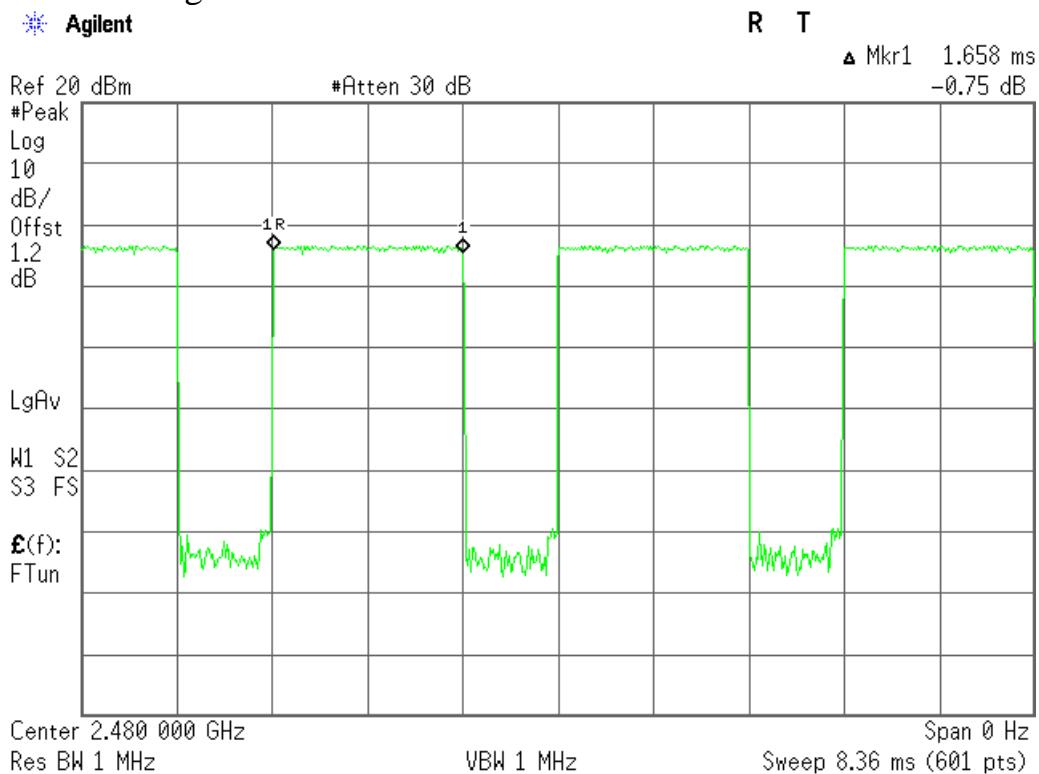
3-DH3: CH Low



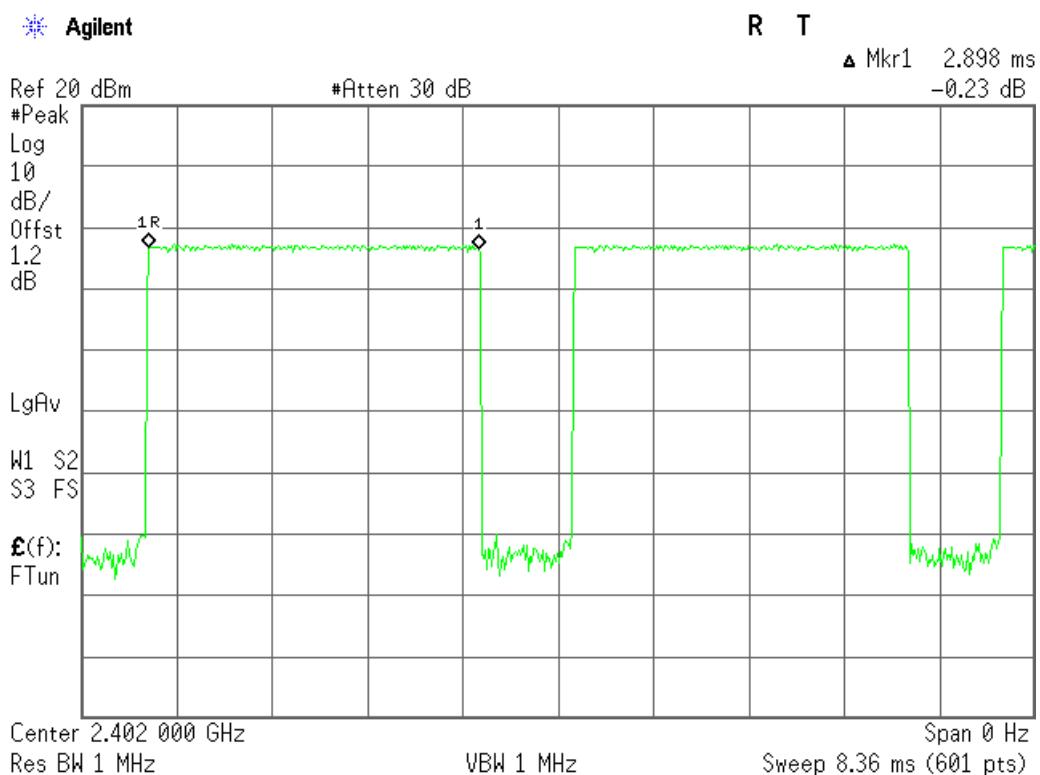
3-DH3: CH Mid



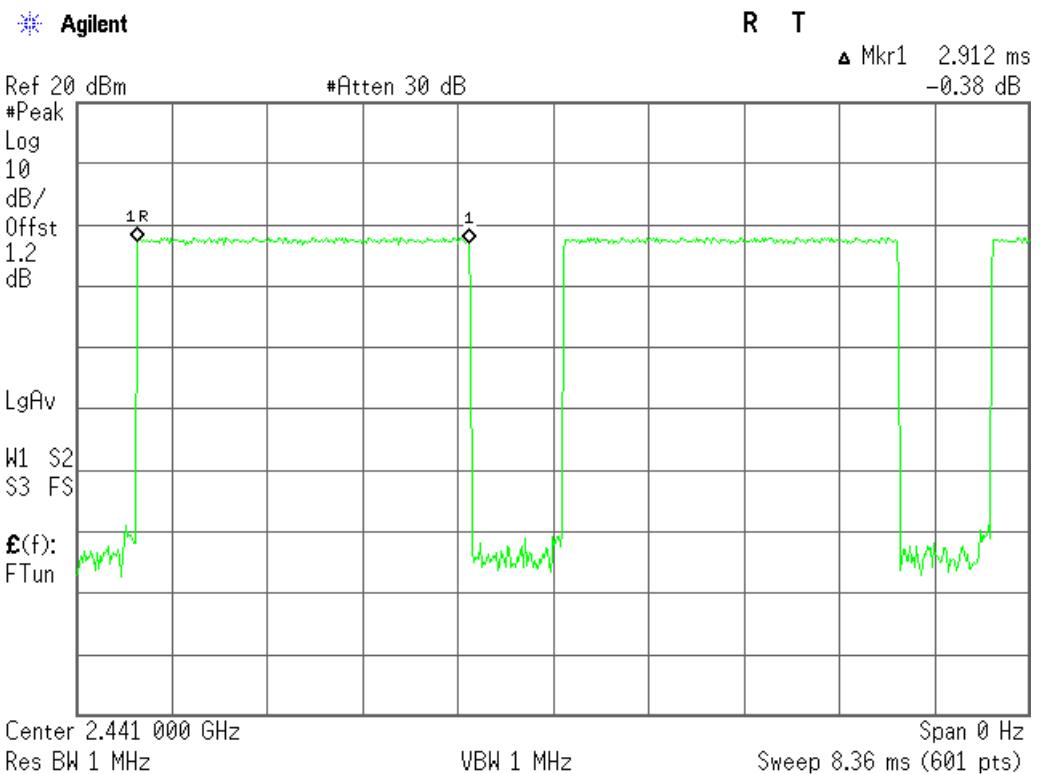
3-DH3: CH High



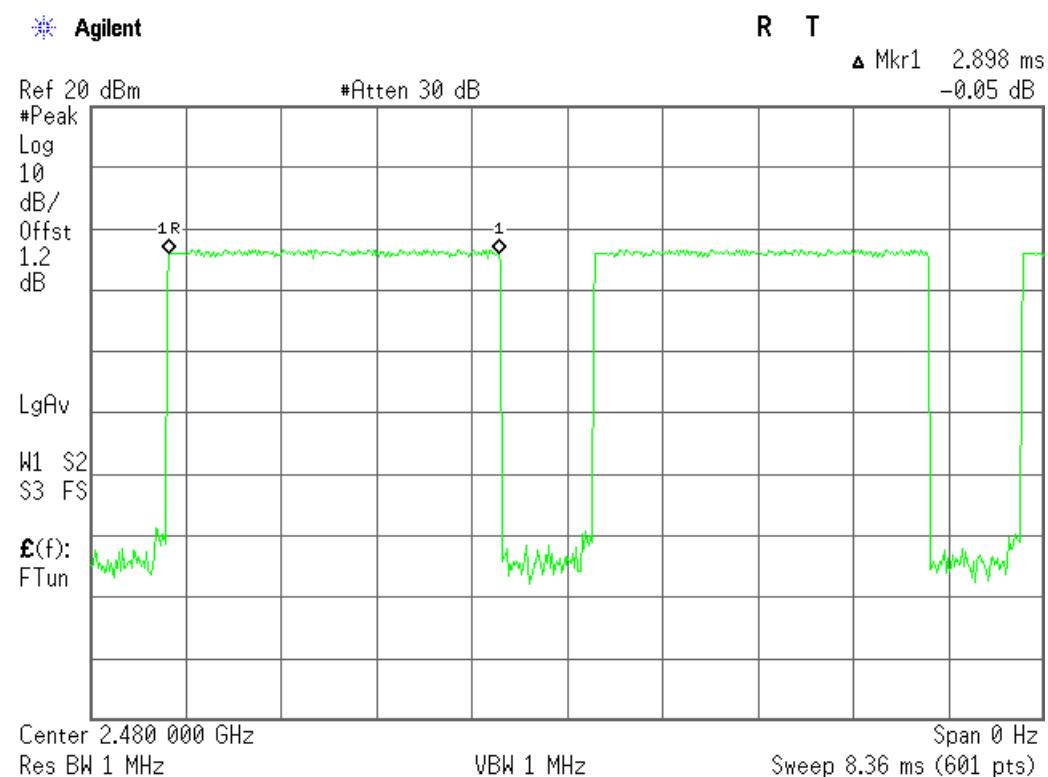
3-DH5: CH Low



3-DH5: CH Mid



3-DH5: CH High



8. Radiated emissions

8.1. Limit

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

15.205 Restricted frequency band

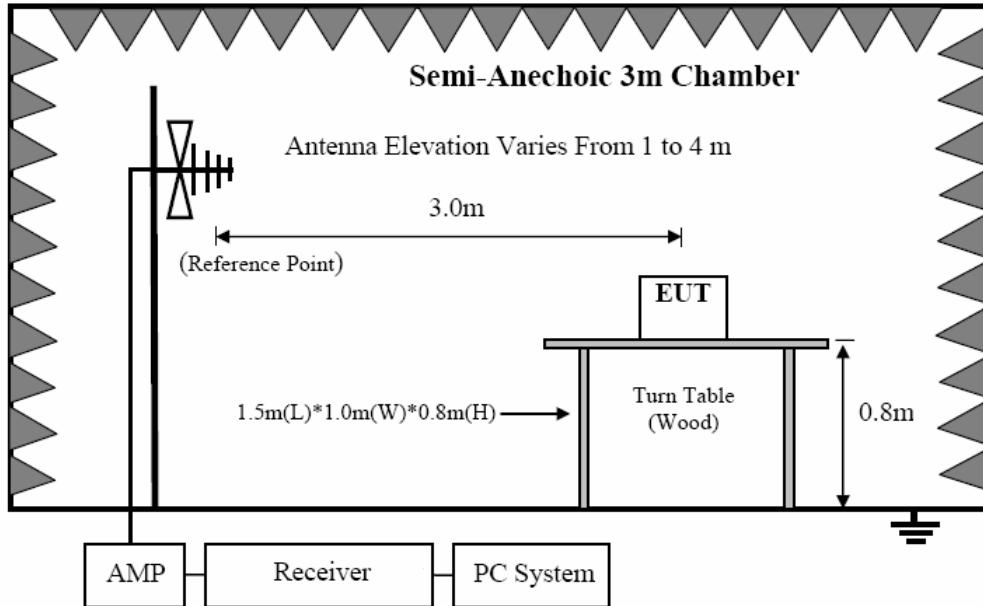
MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 -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

15.209 Limit

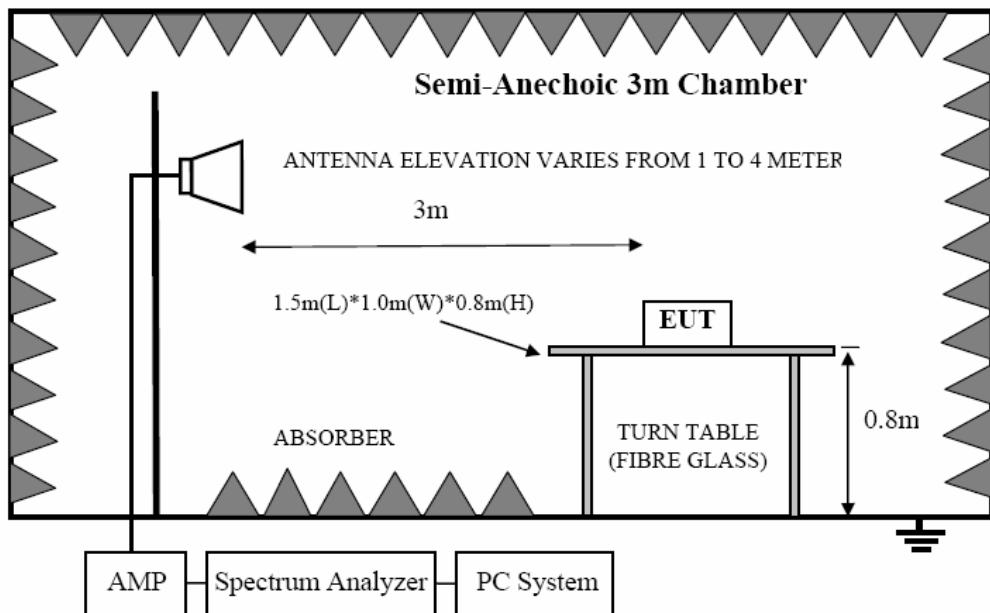
FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		µV/m	dB(µV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(µV)/m (Peak) 54.0 dB(µV)/m (Average)	

8.2. Block Diagram of Test setup

8.2.1. In 3m Anechoic Chamber Test Setup Diagram for below 1GHz



8.2.2. In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz



Note: For harmonic emissions test a appropriate high pass filter was inserted in the input port of AMP.

8.3. Test Procedure

- (1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.

- (2) Setup EUT and simulator as shown in section 1.4 and 6.1
- (3) Test antenna was located 3m from the EUT on an adjustable mast. Below pre-scan procedure was first performed in order to find prominent radiated emissions.
 - (a) Change work frequency or channel of device if practicable.
 - (b) Change modulation type of device if practicable.
 - (c) Change power supply range from 85% to 115% of the rated supply voltage for AC power supply.
 - (d) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions
- (4) Spectrum frequency from 9KHz to 25GHz (tenth harmonic of fundamental frequency) was investigated
- (5) For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10 2009 on Radiated Emission test.
- (6) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1MHz, VBW is set at 3MHz for Peak measure; RBW is set at 1MHz, VBW is set at 10Hz for Average measure.

8.4. Test Result

We have scanned the 5th harmonic from 9KHz to the EUT.

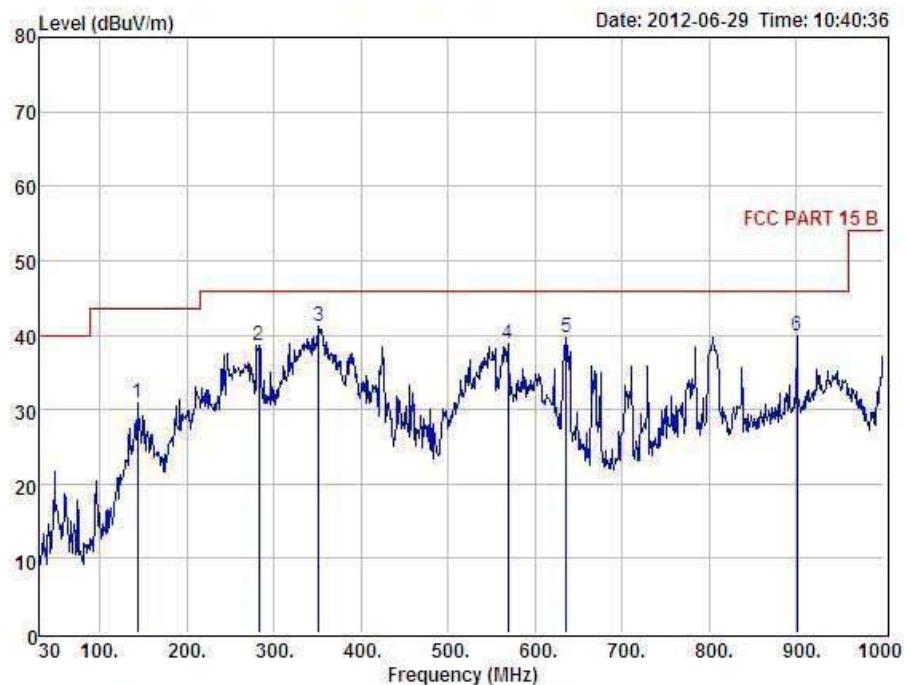
Detailed information please see the following page.

From 9KHz to 30MHz: Conclusion: PASS

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



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2F, Building B, East Area of Nanchang Second Industrial Zone
Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China
Tel: 4006786199 FAX: +86-755-26736857
Website: <http://www.cessz.com> Email: Service@cessz.com

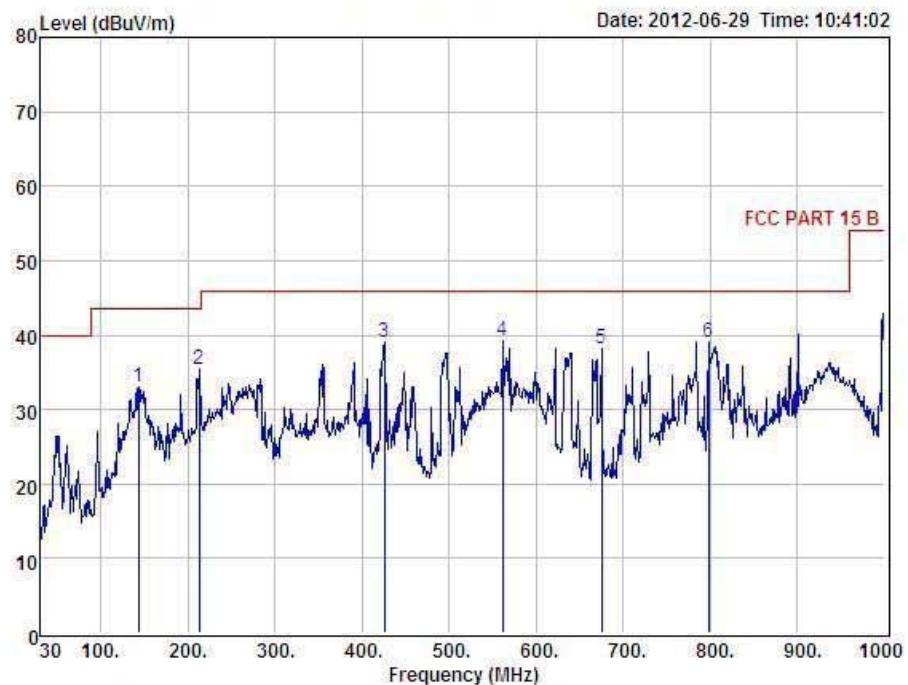


Condition : FCC PART 15 B 3m POL: HORIZONTAL
 EUT : Stereo Bluetooth Headset
 Model No. : Z-B30
 Test Mode : Tx Mode
 Power : DC 3.7V
 Test Engineer : Simple
 Remark :

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	143.49	45.05	13.64	28.90	1.10	30.89	43.50	-12.61	QP
2	282.20	53.56	12.41	29.15	1.84	38.66	46.00	-7.34	QP
3	351.07	54.48	13.83	29.27	2.20	41.24	46.00	-4.76	QP
4	568.35	47.79	17.70	29.75	3.14	38.88	46.00	-7.12	QP
5	635.28	47.23	18.92	29.80	3.27	39.62	46.00	-6.38	QP
6	900.09	44.13	21.64	29.64	3.80	39.93	46.00	-6.07	QP



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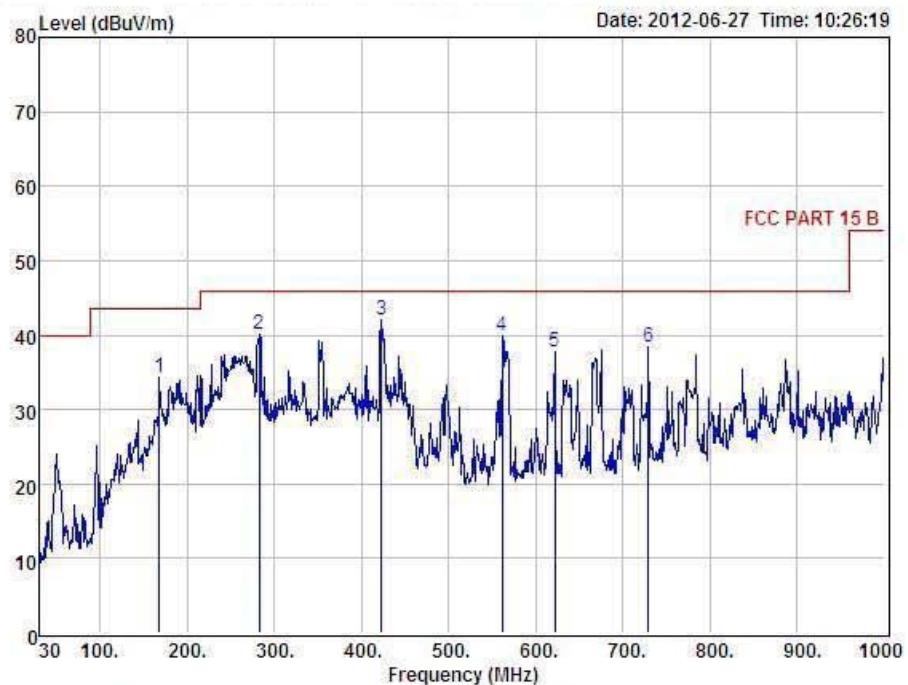


Condition : FCC PART 15 B 3m POL: VERTICAL
 EUT : Stereo Bluetooth Headset
 Model No. : Z-B30
 Test Mode : Tx Mode
 Power : DC 3.7V
 Test Engineer : Simple
 Remark :

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	143.49	47.29	13.64	28.90	1.10	33.13	43.50	-10.37	QP
2	213.33	52.59	10.30	29.04	1.47	35.32	43.50	-8.18	QP
3	425.76	50.46	15.38	29.46	2.60	38.98	46.00	-7.02	QP
4	561.56	48.23	17.60	29.74	3.12	39.21	46.00	-6.79	QP
5	675.05	45.24	19.40	29.77	3.35	38.22	46.00	-7.78	QP
6	793.24	44.49	20.69	29.65	3.60	39.13	46.00	-6.87	QP



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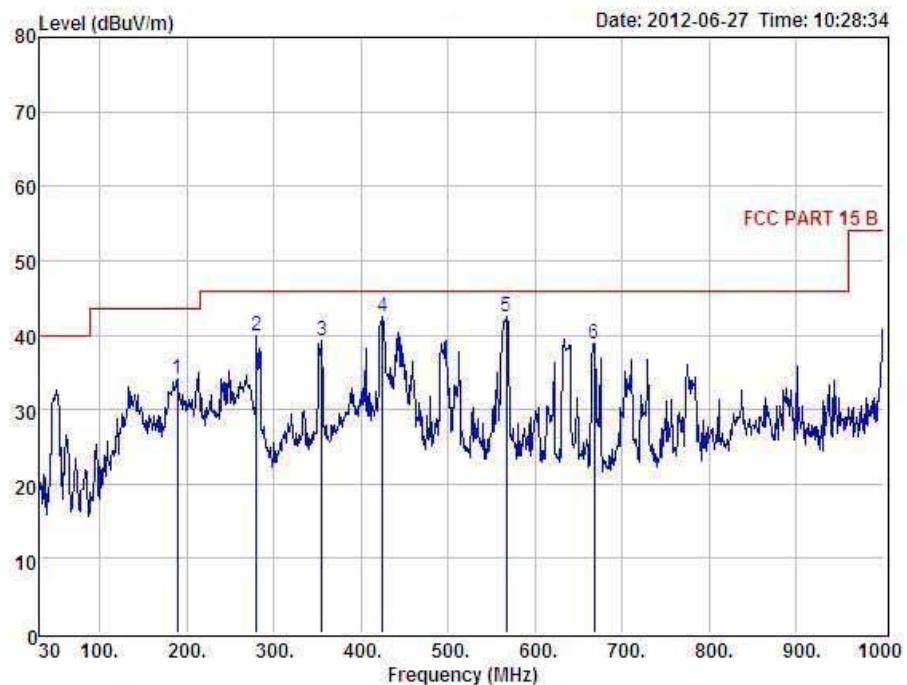


Condition : FCC PART 15 B 3m POL: HORIZONTAL
 EUT : Stereo Bluetooth Headset
 Model No. : Z-B30
 Test Mode : Charge
 Power : DC 5V From PC With AC 120V/60Hz
 Test Engineer : Simple
 Remark :

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	167.74	48.70	13.37	28.92	1.23	34.38	43.50	-9.12	QP
2	282.20	55.01	12.41	29.15	1.84	40.11	46.00	-5.89	QP
3	422.85	53.64	15.28	29.45	2.59	42.06	46.00	-3.94	QP
4	561.56	48.82	17.60	29.74	3.12	39.80	46.00	-6.20	QP
5	621.70	45.54	18.73	29.81	3.24	37.70	46.00	-8.30	QP
6	729.37	44.64	20.02	29.71	3.46	38.41	46.00	-7.59	QP



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Condition : FCC PART 15 B 3m POL: VERTICAL
 EUT : Stereo Bluetooth Headset
 Model No. : Z-B30
 Test Mode : Charge
 Power : DC 5V From PC With AC 120V/60Hz
 Test Engineer : Simple
 Remark :

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	189.08	50.90	10.71	28.95	1.34	34.00	43.50	-9.50	QP
2	280.26	54.77	12.37	29.15	1.83	39.82	46.00	-6.18	QP
3	354.95	52.39	13.91	29.28	2.22	39.24	46.00	-6.76	QP
4	424.79	54.02	15.33	29.45	2.60	42.50	46.00	-3.50	QP
5	566.41	51.43	17.67	29.75	3.13	42.48	46.00	-3.52	QP
6	667.29	45.95	19.30	29.78	3.33	38.80	46.00	-7.20	QP

1GHz—25GHz Radiated emission Test result																	
EUT: Stereo Bluetooth Headset		M/N:Z-B30															
Power: DC 3.7V																	
Test date: 2012-06-25 Test site: 3m Chamber Tested by: TaTa jiang																	
Test mode: GFSK Tx CH1 2402MHz																	
Antenna polarity: Vertical																	
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark								
1	2402	87.34	28.45	6.63	36.09	86.33	/	/	PK								
2	4804	43.06	34.31	10.51	35.36	52.52	74.00	21.48	PK								
3	4804	29.41	34.31	10.51	35.36	38.87	54.00	15.13	AV								
4	7206	/															
5	9608	/															
6	12010	/															
Antenna Polarity: Horizontal																	
1	2402	98.59	28.45	6.63	36.09	97.58	/	/	PK								
2	4804	41.05	34.31	10.51	35.36	50.51	74.00	23.49	PK								
3	4804	30.21	34.31	10.51	35.36	39.67	54.00	14.33	AV								
4	7206	/															
5	9608	/															
6	12010	/															
Note:																	
1, Measuring frequency from 1GHz to 25GHz																	
2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK																	
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK																	
3, Result = Read level + Antenna factor + cable loss-Amp factor																	
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.																	

1GHz—25GHz Radiated emissison Test result																	
EUT: Stereo Bluetooth Headset		M/N:Z-B30															
Power: DC 3.7V																	
Test date: 2012-06-25		Test site: 3m Chamber Tested by: TaTa jiang															
Test mode: GFSK Tx CH40 2441MHz																	
Antenna polarity: Vertical																	
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark								
1	2441	86.34	28.48	6.68	36.12	85.38	/	/	PK								
2	4882	41.25	34.37	10.57	35.42	50.77	74.00	23.23	PK								
3	4882	29.86	34.37	10.57	35.42	39.38	54.00	14.62	AV								
4	7323	/															
5	9764	/															
6	12205	/															
Antenna Polarity: Horizontal																	
1	2441	97.82	28.48	6.68	36.12	96.86	/	/	PK								
2	4882	41.37	34.37	10.57	35.42	50.89	74.00	23.11	PK								
3	4882	30.17	34.37	10.57	35.42	39.69	54.00	14.31	AV								
4	7323	/															
5	9764	/															
6	12205	/															
Note:																	
1, Measuring frequency from 1GHz to 25GHz																	
2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz ,Sweep time=Auto, Detector: PK																	
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz ,Sweep time=Auto, Detector: PK																	
3, Result = Read level + Antenna factor + cable loss-Amp factor																	
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.																	

1GHz—25GHz Radiated emission Test result									
EUT: Stereo Bluetooth Headset M/N:Z-B30									
Power: DC 3.7V									
Test date: 2012-06-25 Test site: 3m Chamber Tested by: TaTa jiang									
Test mode: GFSK Tx CH79 2480MHz									
Antenna polarity: Vertical									
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480	88.42	28.51	6.71	36.15	87.49	/	/	PK
2	4960	42.08	35.12	10.59	35.44	52.35	74.00	21.65	PK
3	4960	30.97	35.12	10.59	35.44	41.24	54.00	12.76	AV
4	7440	/							
5	9920	/							
6	12400	/							
Antenna Polarity: Horizontal									
1	2480	97.29	28.51	6.71	36.15	96.36	/	/	PK
2	4960	43.18	35.12	10.59	35.44	53.45	74.00	20.55	PK
3	4960	30.11	35.12	10.59	35.44	40.38	54.00	13.62	AV
4	7440	/							
5	9920	/							
6	12400	/							
Note:									
1,Measuring frequency from 1GHz to 25GHz									
2,Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK									
2,Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK									
3,Result = Read level + Antenna factor + cable loss-Amp factor									
4,All the other emissions not reported were too low to read and deemed to comply with									
FCC limit.									

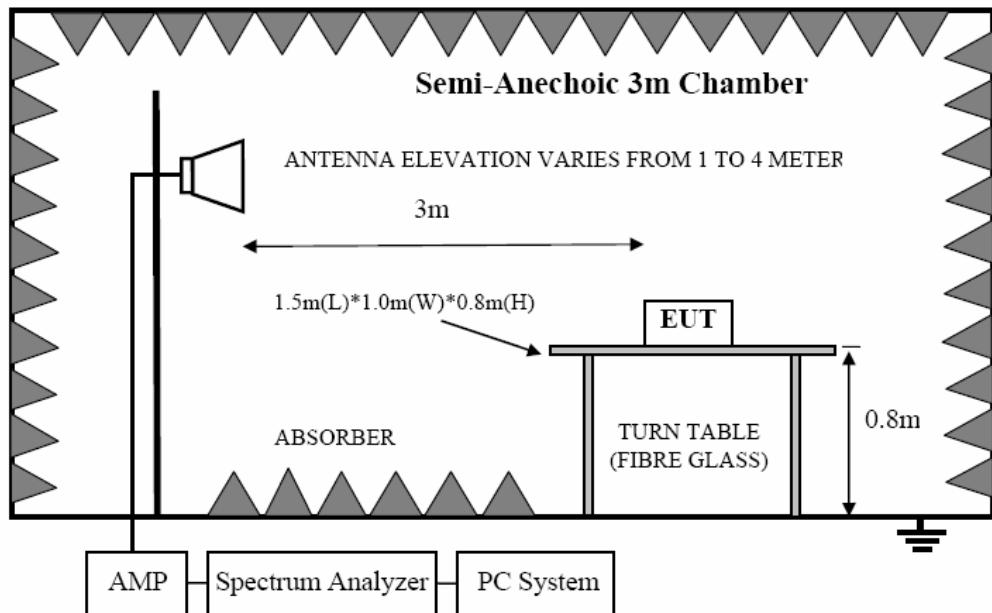
1GHz—25GHz Radiated emission Test result														
EUT: Stereo Bluetooth Headset					M/N:Z-B30									
Power: DC 3.7V														
Test date: 2012-06-25 Test site: 3m Chamber Tested by: TaTa jiang														
Test mode: 8-DPSK Tx CH1 2402MHz														
Antenna polarity: Vertical														
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark					
1	2402	88.27	28.46	6.65	36.09	87.29	/	/	PK					
2	4804	42.19	34.47	10.41	35.26	51.81	74.00	22.19	PK					
3	4804	30.59	34.47	10.41	35.26	40.21	54.00	13.79	AV					
4	7206	/												
5	9608	/												
6	12010	/												
Antenna Polarity: Horizontal														
1	2402	98.29	28.46	6.65	36.09	97.31	/	/	PK					
2	4804	42.35	34.47	10.41	35.26	51.97	74.00	22.03	PK					
3	4804	30.28	34.47	10.41	35.26	39.90	54.00	14.10	AV					
4	7206	/												
5	9608	/												
6	12010	/												
Note:														
1,Measuring frequency from 1GHz to 25GHz														
2,Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK														
2,Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK														
3,Result = Read level + Antenna factor + cable loss-Amp factor														
4,All the other emissions not reported were too low to read and deemed to comply with FCC limit.														

1GHz—25GHz Radiated emission Test result																	
EUT: Stereo Bluetooth Headset		M/N:Z-B30															
Power: DC 3.7V																	
Test date: 2012-06-25		Test site: 3m Chamber Tested by: TaTa jiang															
Test mode: 8-DPSK Tx CH40 2441MHz																	
Antenna polarity: Vertical																	
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/ m)	Margin (dB)	Remark								
1	2441	87.45	28.49	6.67	36.13	86.48	/	/	PK								
2	4882	41.08	34.51	10.43	35.30	50.72	74.00	23.28	PK								
3	4882	30.96	34.51	10.43	35.30	40.60	54.00	13.40	AV								
4	7323	/															
5	9764	/															
6	12205	/															
Antenna Polarity: Horizontal																	
1	2441	98.46	28.49	6.67	36.13	97.49	/	/	PK								
2	4882	42.57	34.51	10.43	35.30	52.21	74.00	21.79	PK								
3	4882	30.22	34.51	10.43	35.30	39.86	54.00	14.14	AV								
4	7323	/															
5	9764	/															
6	12205	/															
Note:																	
1,Measuring frequency from 1GHz to 25GHz																	
2,Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz ,Sweep time=Auto, Detector: PK																	
2,Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz ,Sweep time=Auto, Detector: PK																	
3,Result = Read level + Antenna factor + cable loss-Amp factor																	
4,All the other emissions not reported were too low to read and deemed to comply with FCC limit.																	

1GHz—25GHz Radiated emissison Test result																	
EUT: Stereo Bluetooth Headset		M/N:Z-B30															
Power: DC 3.7V																	
Test date: 2012-06-25		Test site: 3m Chamber Tested by: TaTa jiang															
Test mode: 8-DPSK Tx CH79 2480MHz																	
Antenna polarity: Vertical																	
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark								
1	2480	88.18	28.52	6.70	36.16	87.24	/	/	PK								
2	4960	42.61	35.15	10.59	35.33	53.02	74.00	20.98	PK								
3	4960	30.11	35.15	10.59	35.33	40.52	54.00	13.48	AV								
4	7440	/															
5	9920	/															
6	12400	/															
Antenna Polarity: Horizontal																	
1	2480	99.03	28.52	6.70	36.16	98.09	/	/	PK								
2	4960	42.67	35.15	10.59	35.33	53.08	74.00	20.92	PK								
3	4960	30.26	35.15	10.59	35.33	40.67	54.00	13.33	AV								
4	7440	/															
5	9920	/															
6	12400	/															
Note:																	
1, Measuring frequency from 1GHz to 25GHz																	
2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK																	
2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK																	
3, Result = Read level + Antenna factor + cable loss-Amp factor																	
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.																	

9. Band Edge Compliance

9.1. Block Diagram of Test Setup



9.2. Limit

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz and 5725MHz to 5850MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

9.3. Test Procedure

Same with clause 6.3 except change investigated frequency range from 2310MHz to 2415MHz , 2475MHz to 2500MHz and 5725MHz to 5850MHz

9.4. Test Result

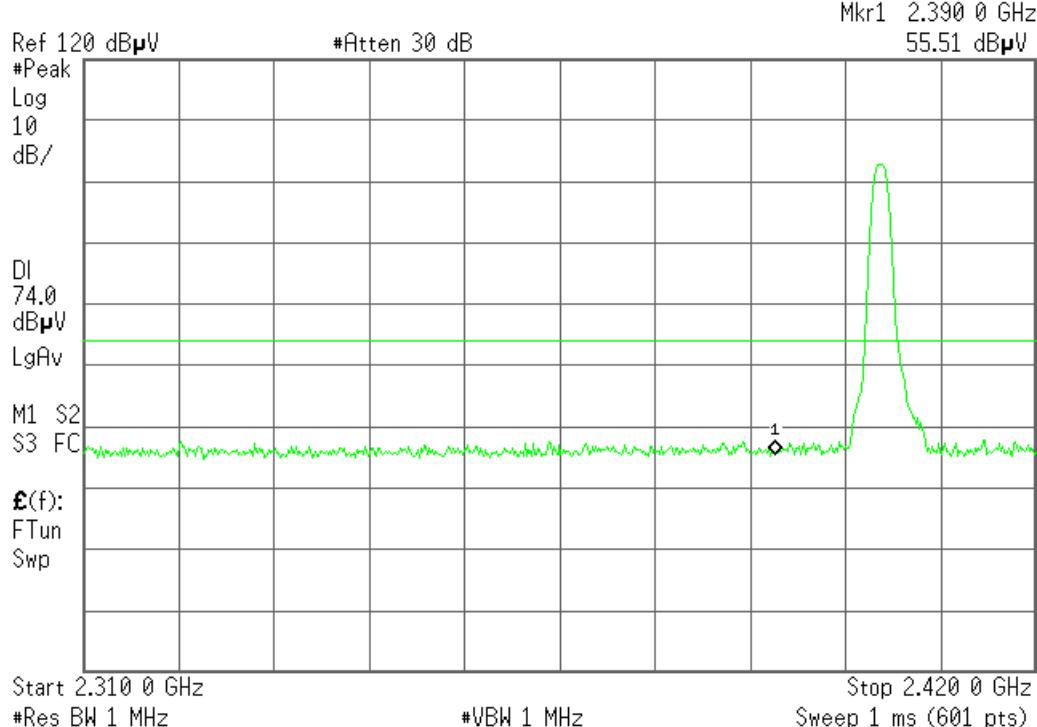
PASS. (See below detailed test data)

GFSK

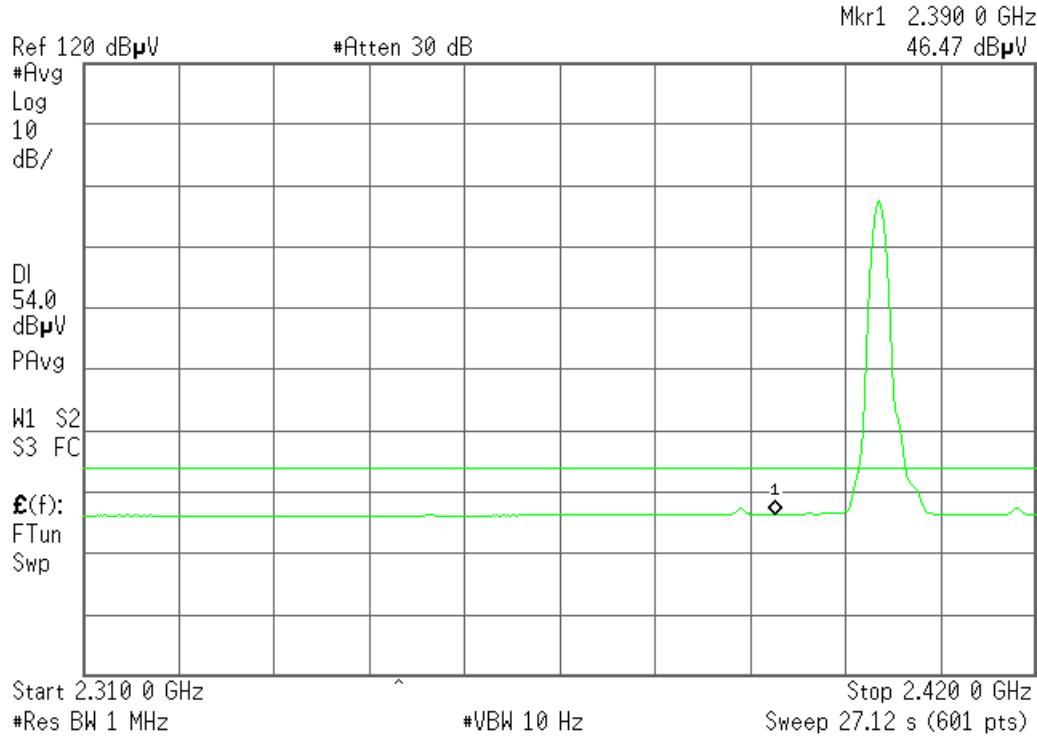
CH LOW :

Detector mode: Peak**Polarity: Horizontal**

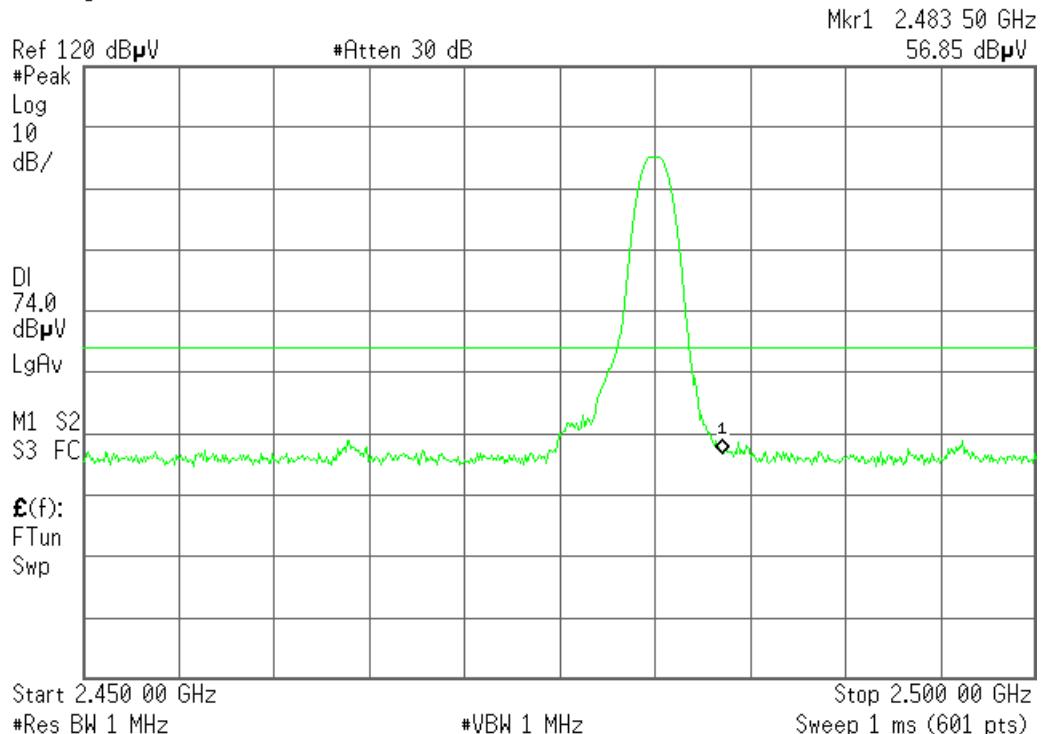
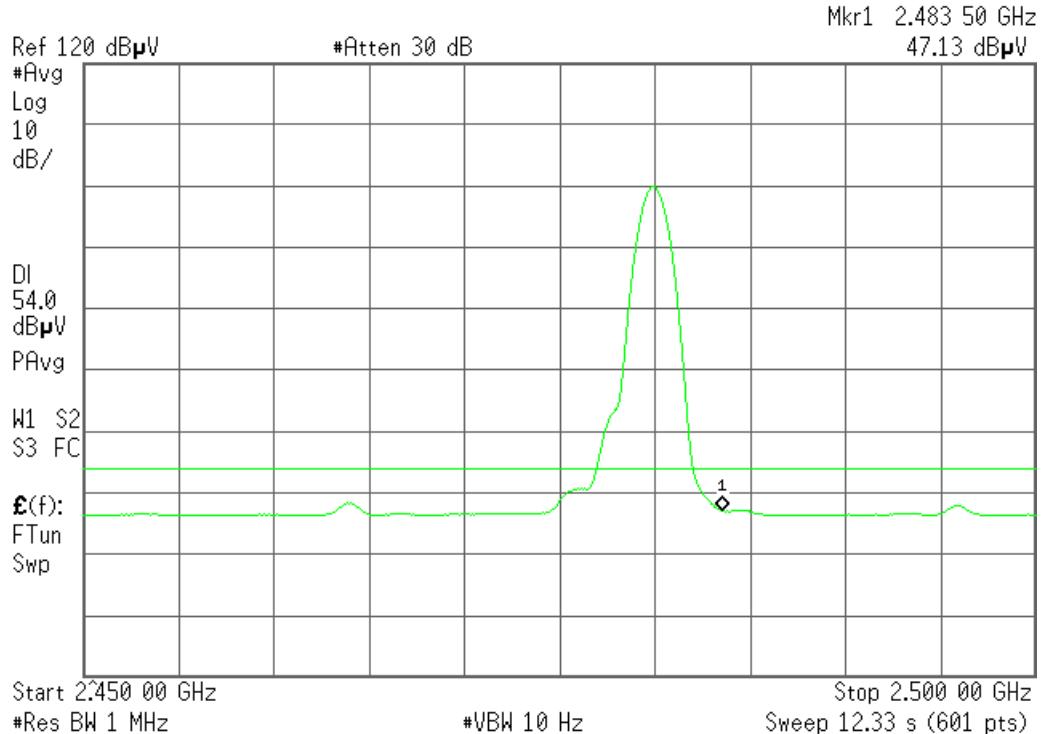
* Agilent

**Detector mode: Average****Polarity: Horizontal**

* Agilent



CH High :

Detector mode: Peak**Polarity: Horizontal** Agilent**Detector mode: Average****Polarity: Horizontal** Agilent

CH LOW :

Detector mode: Peak

Polarity: Vertical

Agilent

Ref 120 dB μ V

#Atten 30 dB

R T

Mkr1 2.390 0 GHz

55.98 dB μ V#Peak
Log
10
dB/DI
74.0
dB μ V

LgAv

M1 S2
S3 FCf(f):
FTun
SwpStart 2.310 0 GHz
#Res BW 1 MHz

#VBW 1 MHz

Stop 2.420 0 GHz
Sweep 1 ms (601 pts)

Detector mode: Average

Polarity: Vertical

Agilent

Ref 120 dB μ V

#Avg

Mkr1 2.390 0 GHz

46.48 dB μ VLog
10
dB/DI
54.0
dB μ V

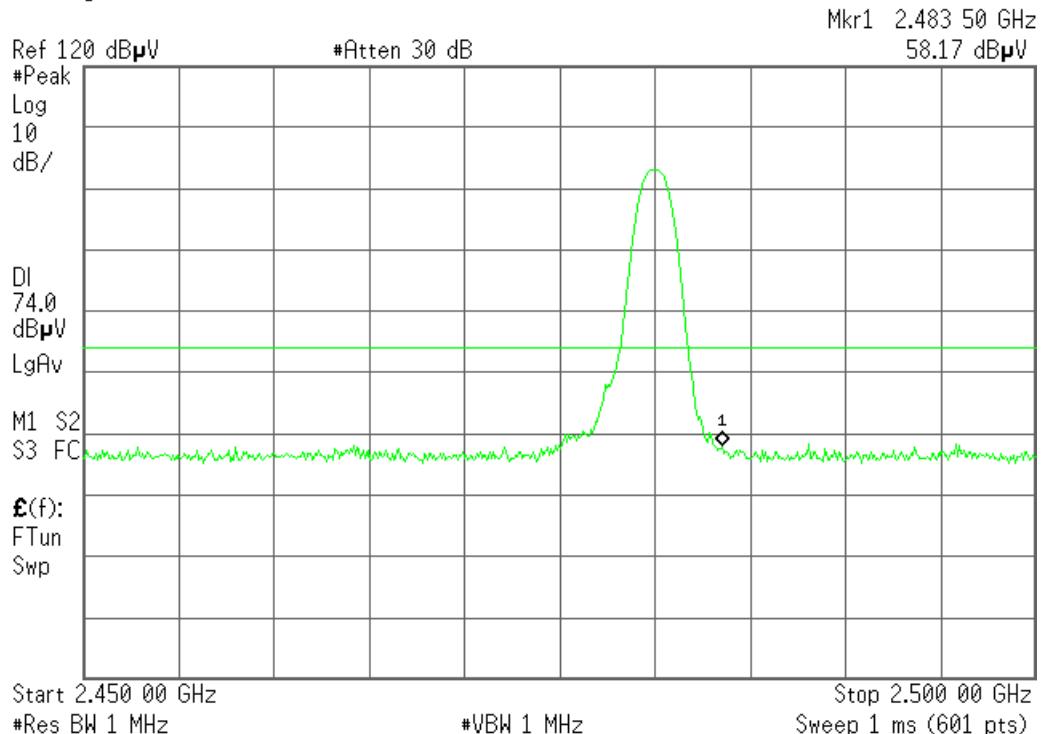
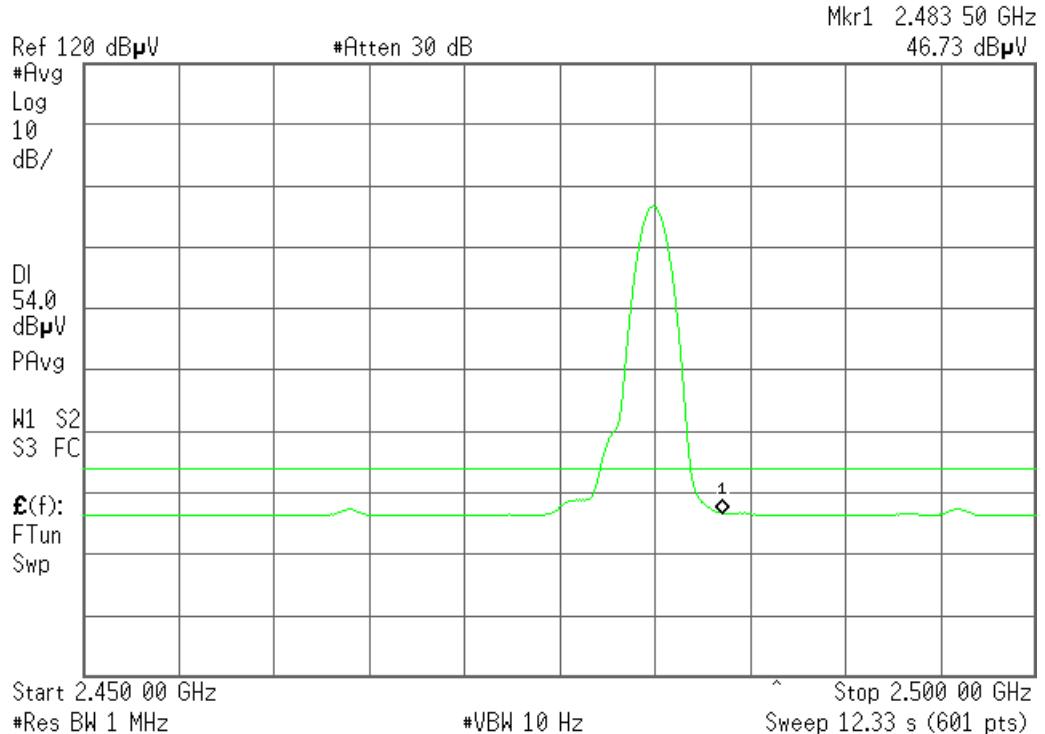
PAvg

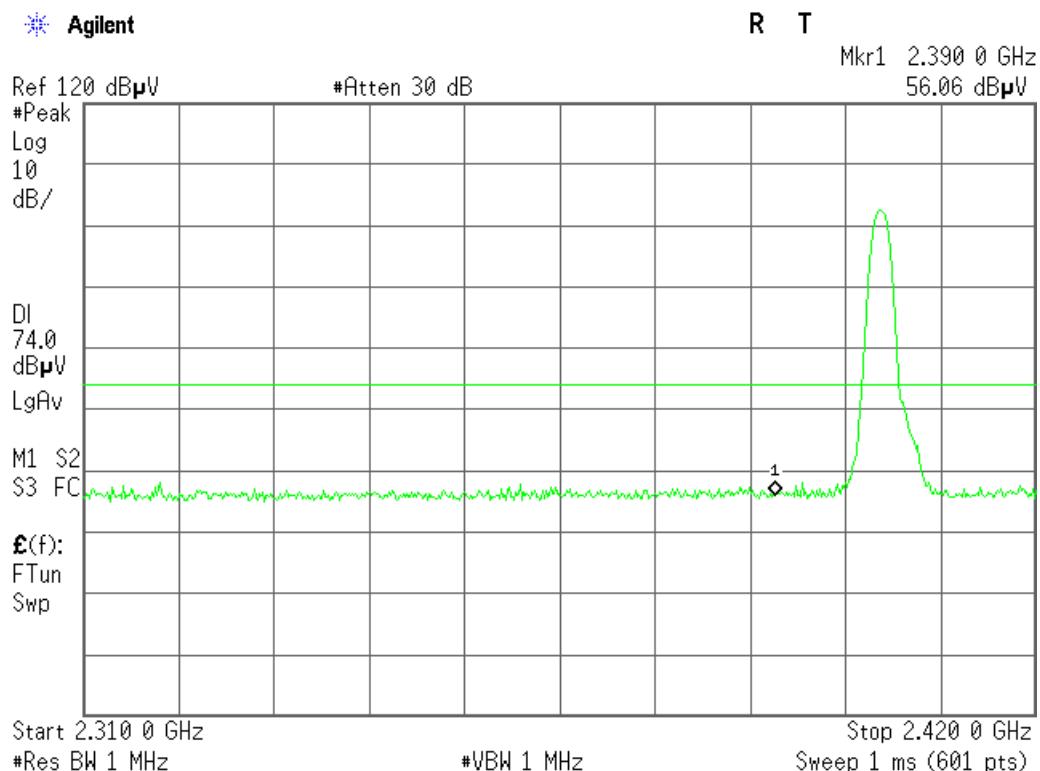
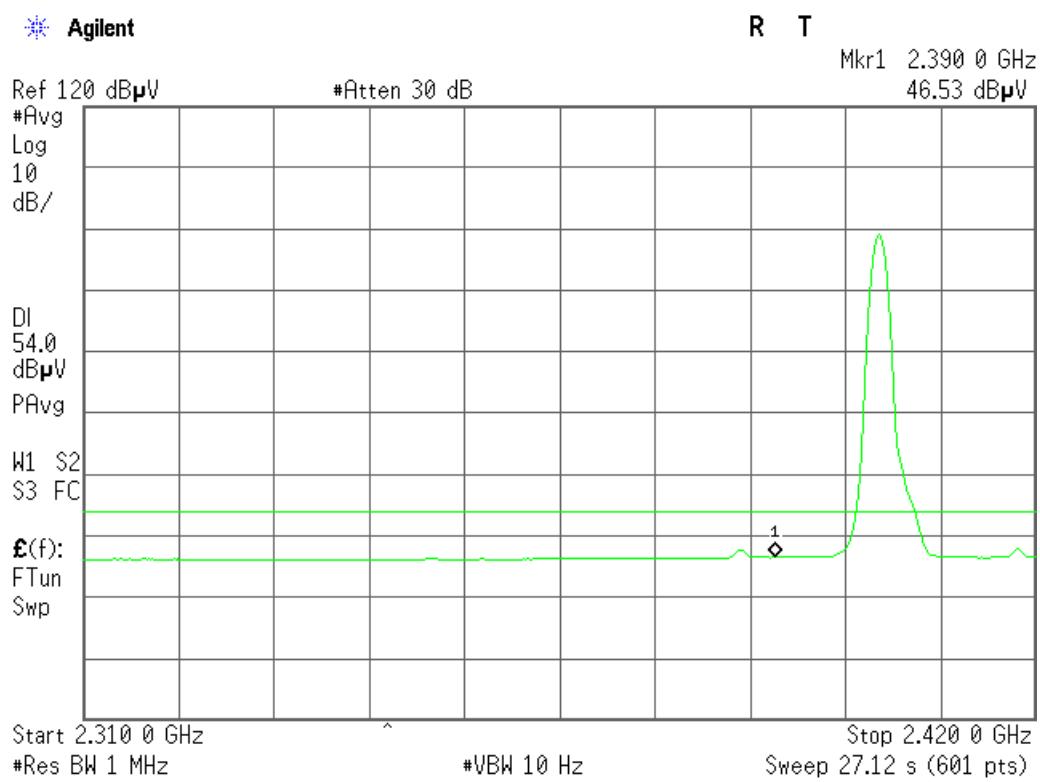
W1 S2
S3 FCf(f):
FTun
SwpStart 2.310 0 GHz
#Res BW 1 MHz

#VBW 10 Hz

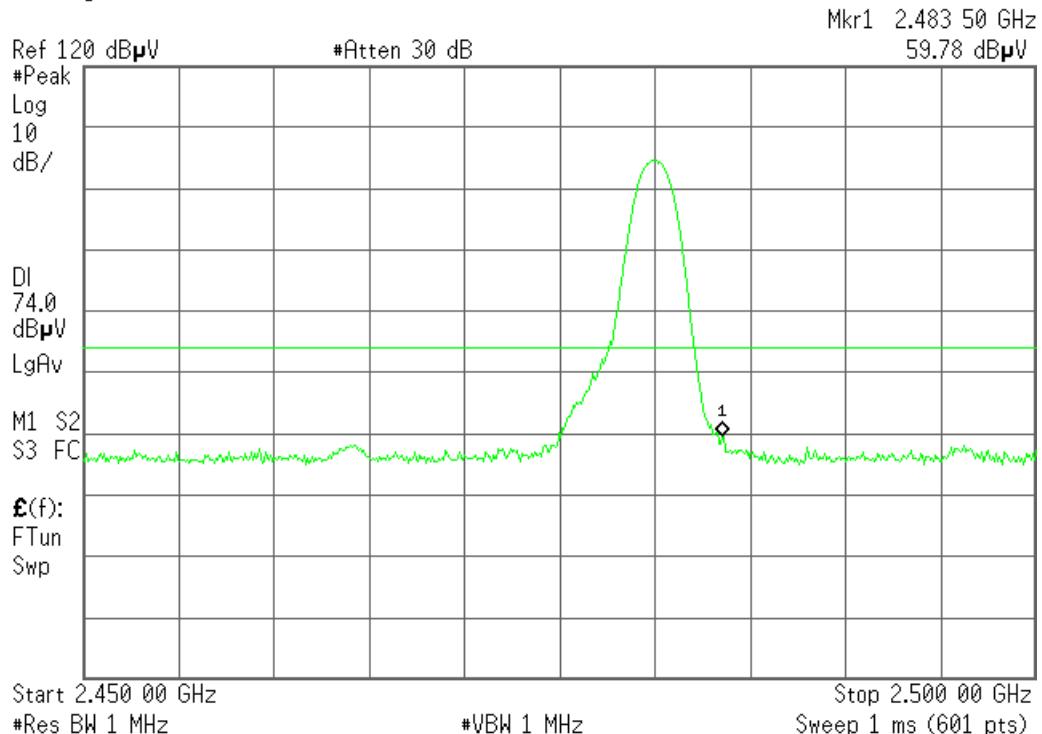
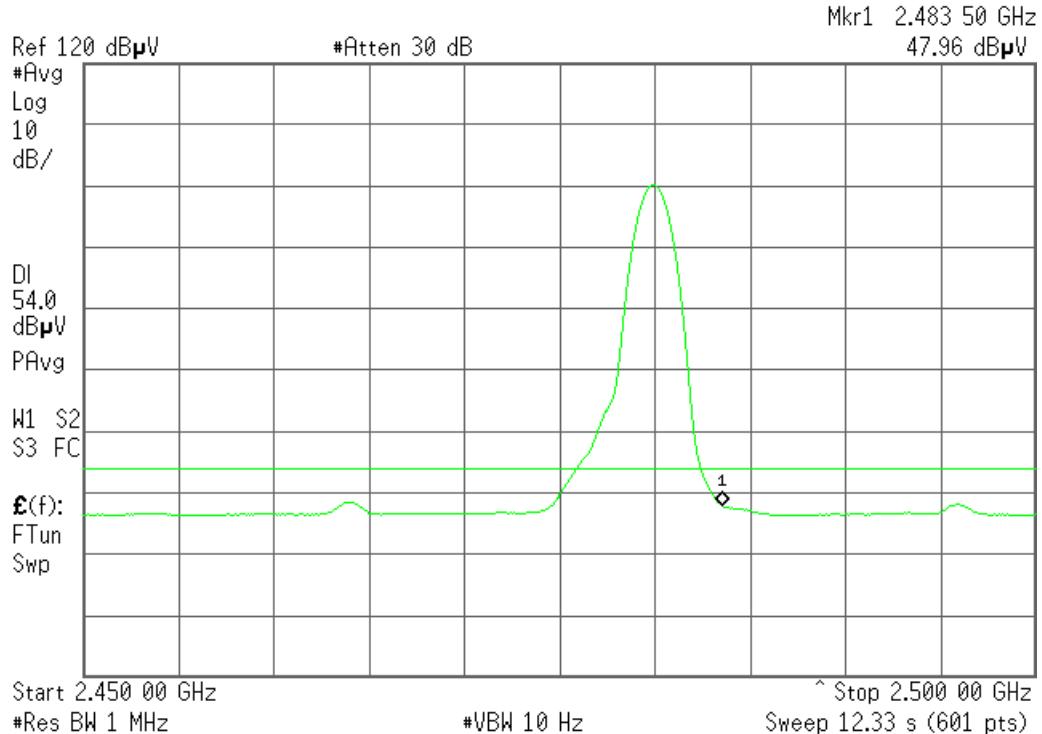
Stop 2.420 0 GHz
Sweep 27.12 s (601 pts)

CH High :

Detector mode: Peak**Polarity: Vertical** Agilent**Detector mode: Average****Polarity: Vertical** Agilent

8-DPSK**CH LOW :****Detector mode: Peak****Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

CH High :

Detector mode: Peak**Polarity: Horizontal** Agilent**Detector mode: Average****Polarity: Horizontal** Agilent

CH LOW :

Detector mode: Peak**Polarity: Vertical** AgilentRef 120 dB μ V

#Atten 30 dB

R T

Mkr1 2.390 0 GHz

55.92 dB μ V#Peak
Log
10
dB/DI
74.0
dB μ V

LgAv

M1 S2
S3 FC $\mathfrak{f}(f)$:
FTun
SwpStart 2.310 0 GHz
#Res BW 1 MHz

#VBW 1 MHz

Stop 2.420 0 GHz
Sweep 1 ms (601 pts)**Detector mode: Average****Polarity: Vertical** AgilentRef 120 dB μ V

#Avg 30 dB

Mkr1 2.390 0 GHz

46.50 dB μ V#Avg
Log
10
dB/DI
54.0
dB μ V

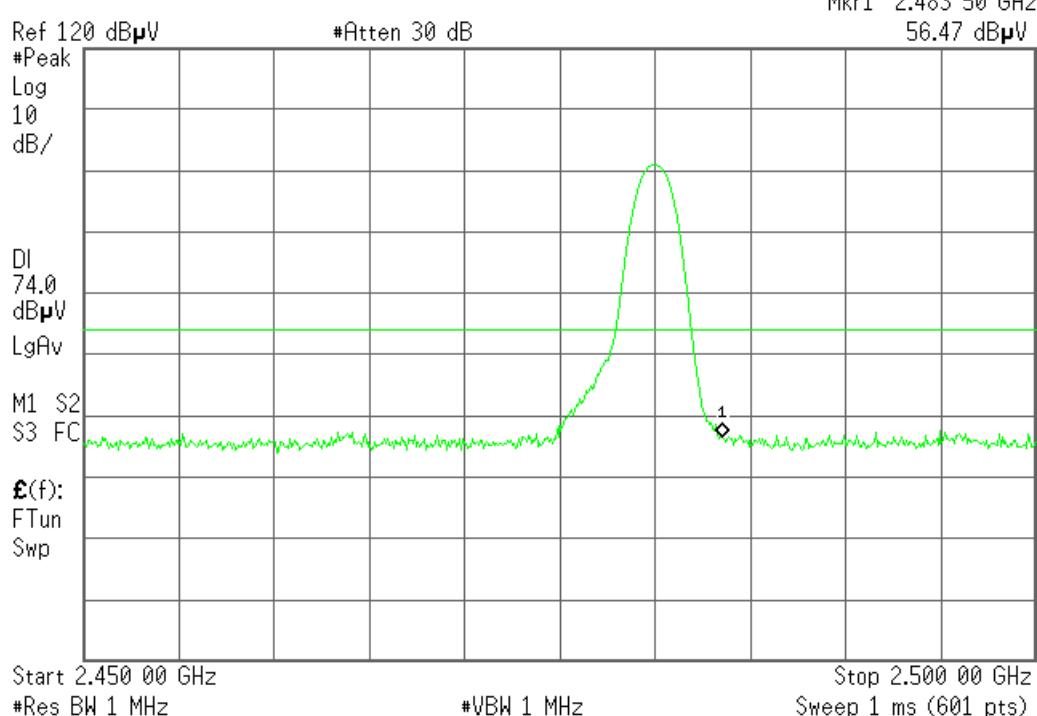
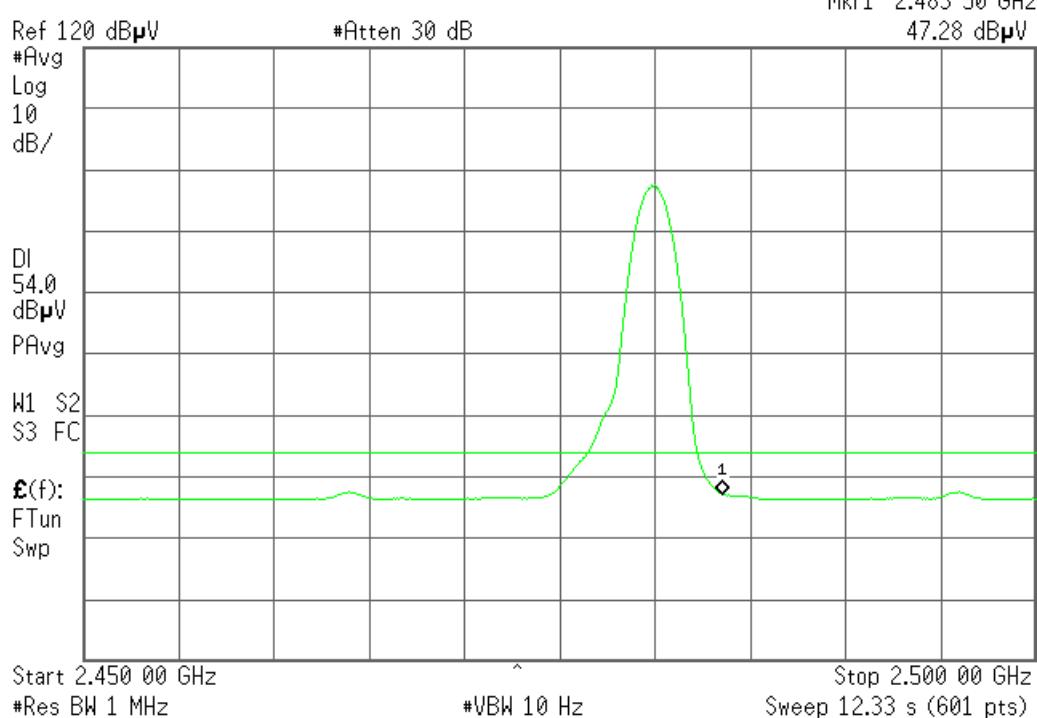
PAvg

W1 S2
S3 FC $\mathfrak{f}(f)$:
FTun
SwpStart 2.310 0 GHz
#Res BW 1 MHz

#VBW 10 Hz

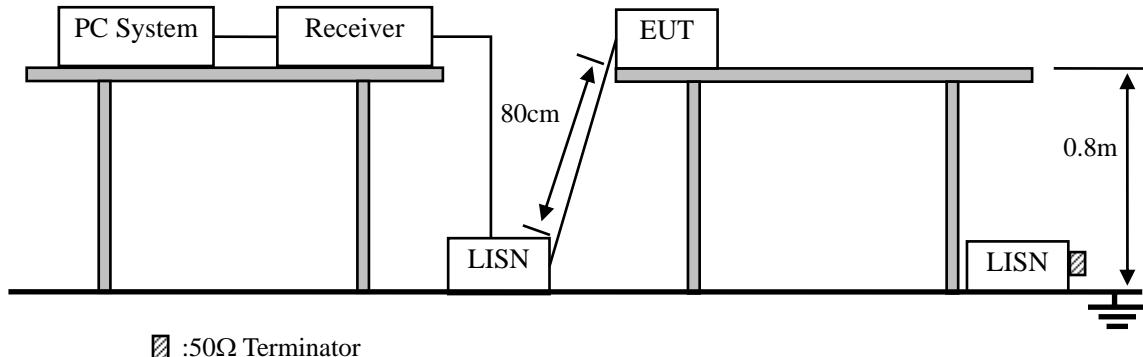
Stop 2.420 0 GHz
Sweep 27.12 s (601 pts)

CH High :

Detector mode: Peak**Polarity: Vertical** Agilent**Detector mode: Average****Polarity: Vertical** Agilent

10. Power Line Conducted Emissions

10.1. Block Diagram of Test Setup



10.2. Limit

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

10.3. Test Procedure

- (1) The EUT was placed on a non-metallic table, 80cm above the ground plane.
- (2) Setup the EUT and simulator as shown in 10.1
- (3) The EUT Power connected to the power mains through a power adapter and a line impedance stabilization network (L.I.S.N1). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N1), this provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4 2009 and ANSI C64.10:2009 on conducted Emission test.
- (4) The bandwidth of test receiver is set at 10KHz.
- (5) The frequency range from 150 KHz to 30MHz is checked.

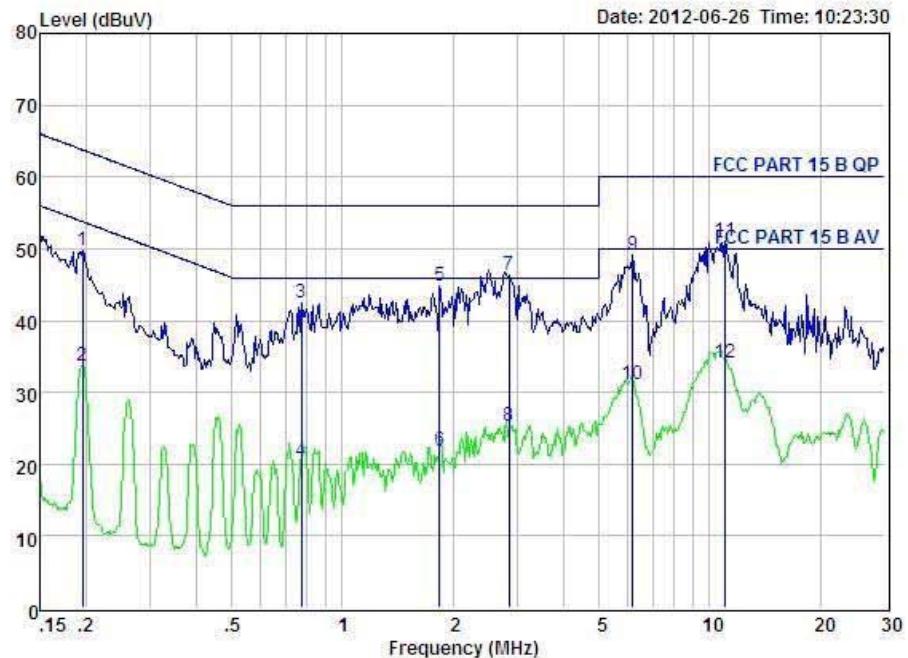
10.4. Test Result

PASS. (See below detailed test data)

From 30MHz to 1GHz



Shenzhen Certification Technology Service Co., Ltd.
2F, Building B, East Area of Nanchang Second Industrial Zone,
Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China
Tel: 4006786199 Fax: +86-755-26736857
Website: <http://www.cessz.com> Email: Service@cessz.com

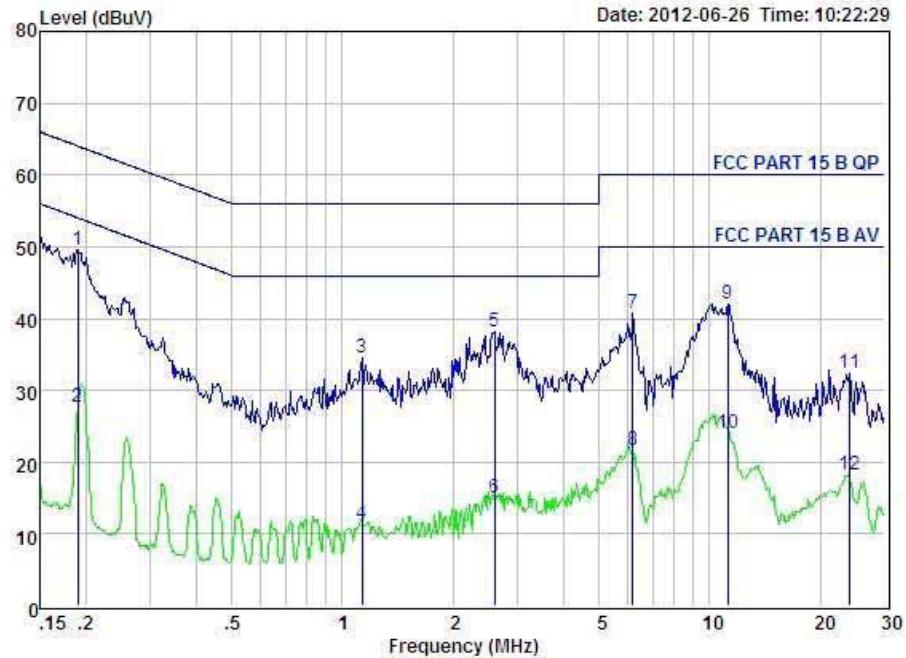


Condition : FCC PART 15 B QP POL: LINE
 EUT : Stereo Bluetooth Headset
 Model No. : Z-B30
 Test Mode : Normal
 Power : DC 5V From PC With AC 120V/60Hz
 Test Engineer: Simple
 Remark :

Item	Freq	Read	LISN	Preamp	Cable	Level	Limit	Margin	Remark
	MHz	dBuV	Factor	Factor	dB	dBuV	dBuV	dBuV	
1	0.197	39.83	0.03	-9.72	0.10	49.68	63.76	-14.08	QP
2	0.197	23.83	0.03	-9.72	0.10	33.68	63.76	-30.08	Average
3	0.775	32.61	0.04	-9.71	0.10	42.46	56.00	-13.54	QP
4	0.775	10.61	0.04	-9.71	0.10	20.46	56.00	-35.54	Average
5	1.839	35.04	0.05	-9.70	0.10	44.89	56.00	-11.11	QP
6	1.839	12.04	0.05	-9.70	0.10	21.89	56.00	-34.11	Average
7	2.839	36.44	0.06	-9.70	0.12	46.32	56.00	-9.68	QP
8	2.839	15.44	0.06	-9.70	0.12	25.32	56.00	-30.68	Average
9	6.186	39.34	0.11	-9.60	0.14	49.19	60.00	-10.81	QP
10	6.186	21.34	0.11	-9.60	0.14	31.19	60.00	-28.81	Average
11	11.021	41.15	0.24	-9.49	0.22	51.10	60.00	-8.90	QP
12	11.021	24.15	0.24	-9.49	0.22	34.10	60.00	-25.90	Average



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Tel: 4006786199 Fax: +86-755-26736857
Website: <http://www.cessz.com> Email: Service@cessz.com



Condition : FCC PART 15 B QP POL: NEUTRAL
 EUT : Stereo Bluetooth Headset
 Model No. : Z-B30
 Test Mode : Normal
 Power : DC 5V From PC With AC 120V/60Hz
 Test Engineer: Simple
 Remark :

Item	Freq	Read	LISN	Preamp	Cable	Level	Limit	Margin	Remark
	MHz	dBuV	Factor	Factor	Loss	dBuV	dBuV	dBuV	
1	0.190	39.72	0.03	-9.72	0.10	49.57	64.02	-14.45	QP
2	0.190	17.72	0.03	-9.72	0.10	27.57	64.02	-36.45	Average
3	1.129	24.62	0.04	-9.71	0.10	34.47	56.00	-21.53	QP
4	1.129	1.62	0.04	-9.71	0.10	11.47	56.00	-44.53	Average
5	2.594	28.23	0.06	-9.70	0.11	38.10	56.00	-17.90	QP
6	2.594	5.23	0.06	-9.70	0.11	15.10	56.00	-40.90	Average
7	6.186	30.89	0.11	-9.60	0.14	40.74	60.00	-19.26	QP
8	6.186	11.89	0.11	-9.60	0.14	21.74	60.00	-38.26	Average
9	11.198	32.17	0.24	-9.49	0.22	42.12	60.00	-17.88	QP
10	11.198	14.17	0.24	-9.49	0.22	24.12	60.00	-35.88	Average
11	24.142	21.85	0.44	-9.57	0.45	32.31	60.00	-27.69	QP
12	24.142	7.85	0.44	-9.57	0.45	18.31	60.00	-41.69	Average

Note: 1. Result Level = Read Level +LISN Factor + Cable loss

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

11. Antenna Requirements

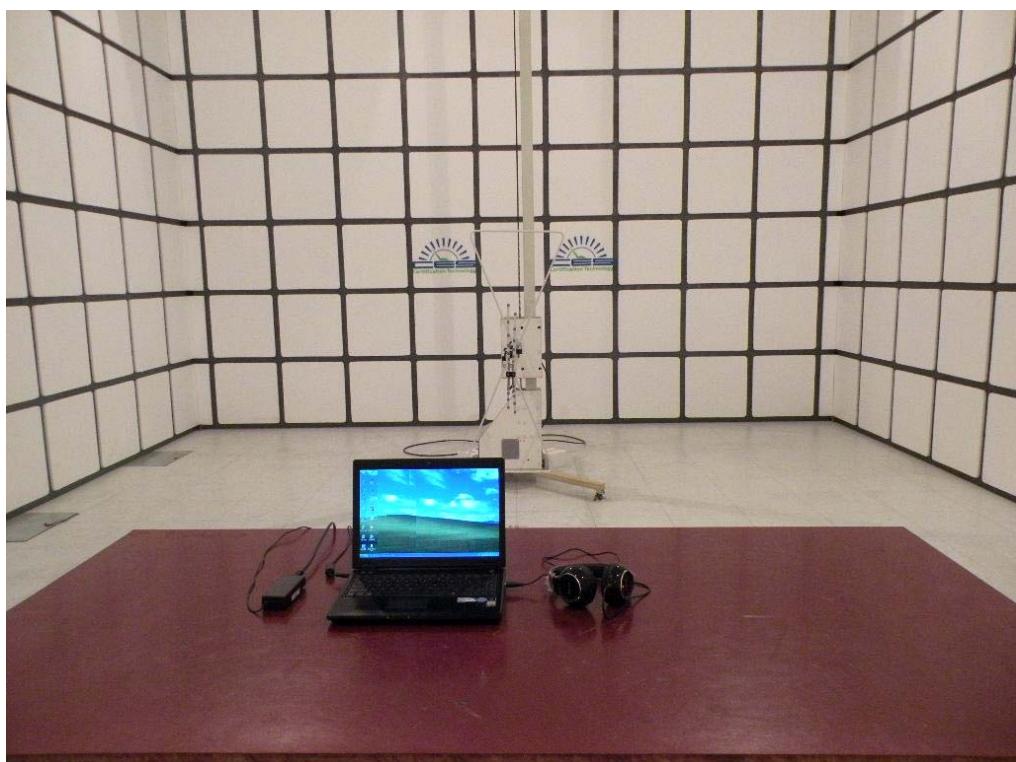
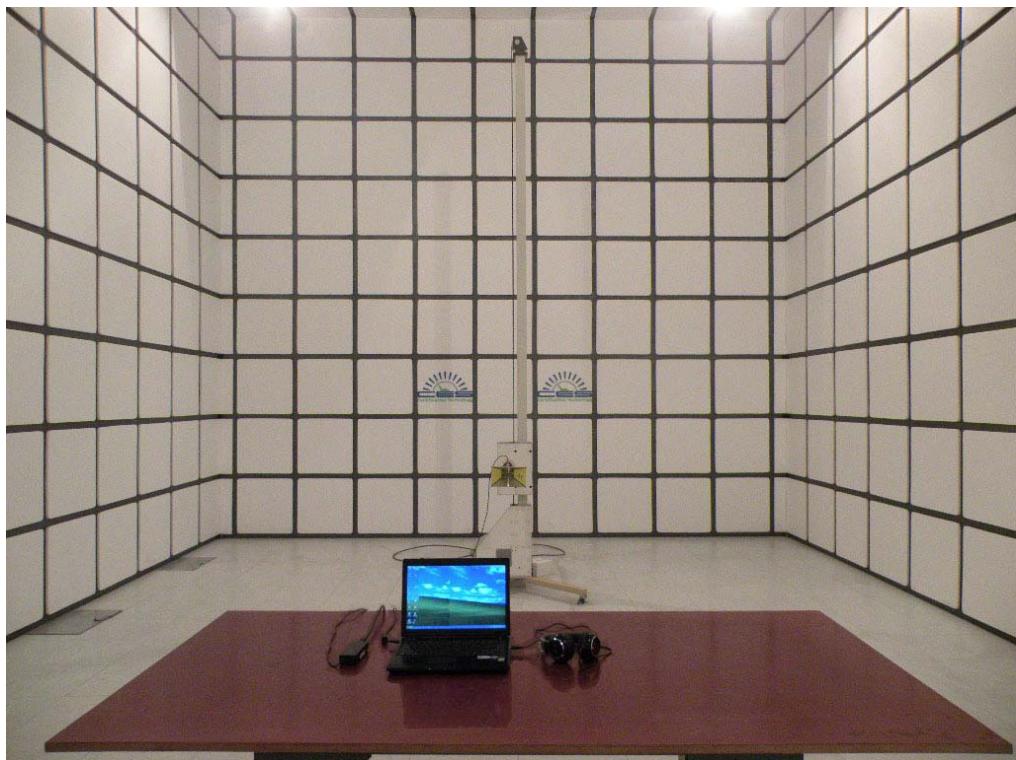
11.1. Limit

For intentional device, according to FCC 47 CFR 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

11.2. Result

The antennas used for this product are integral Patch Antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 0dBi.

12. Test setup photo





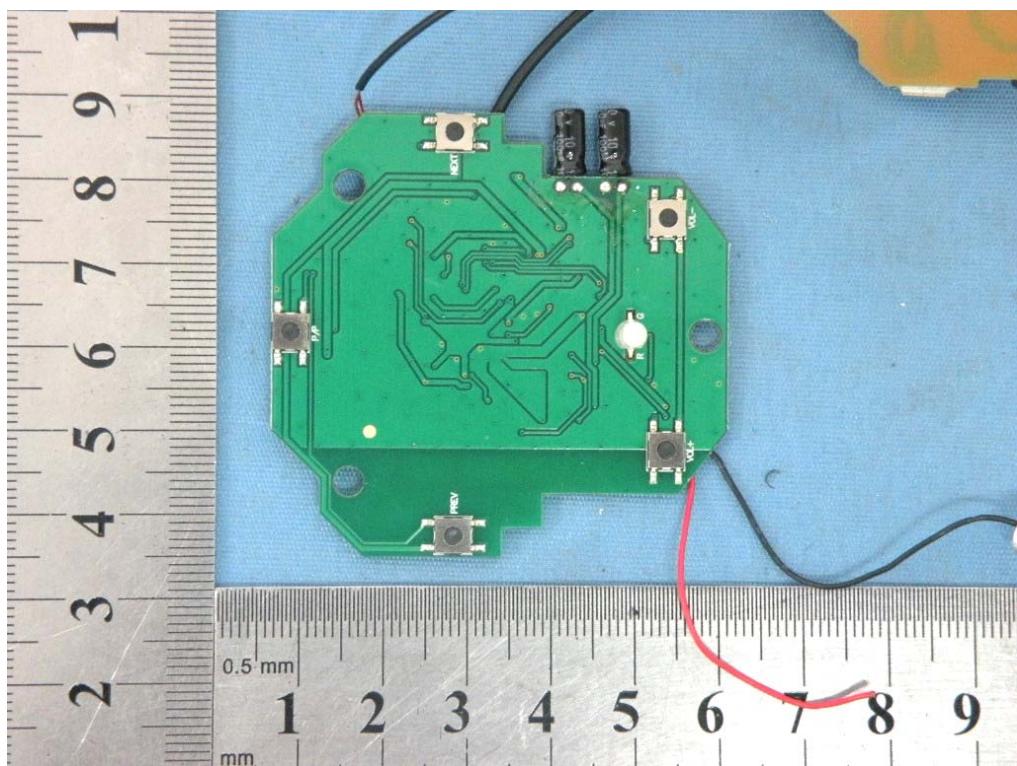
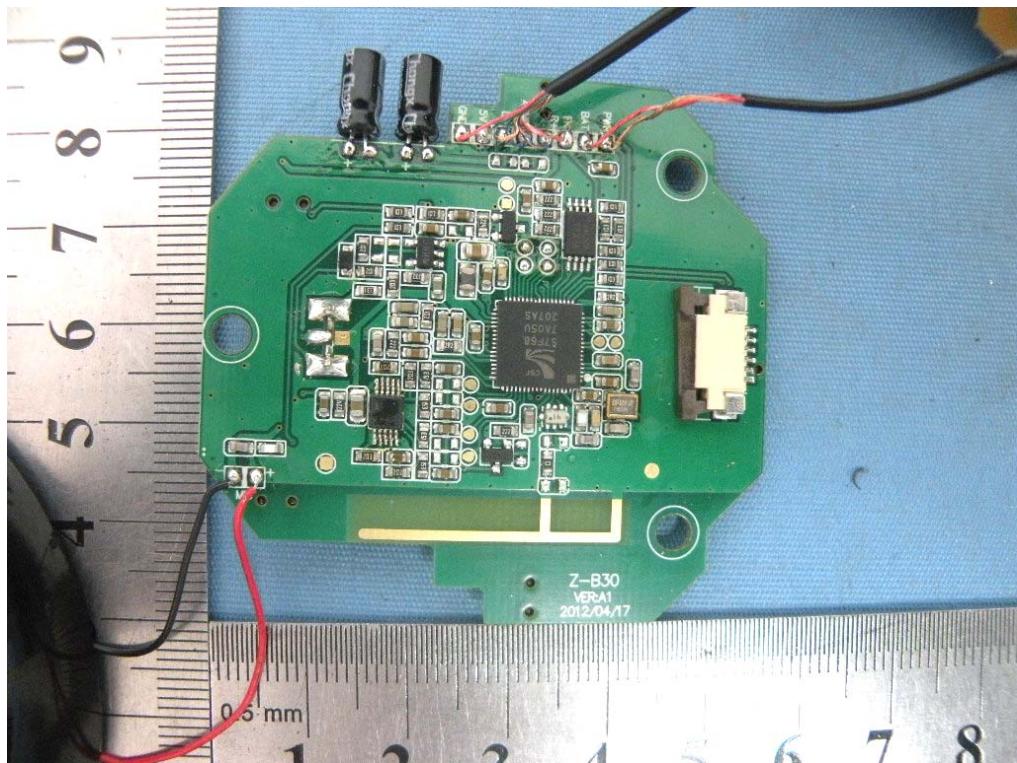
13. Photos of EUT

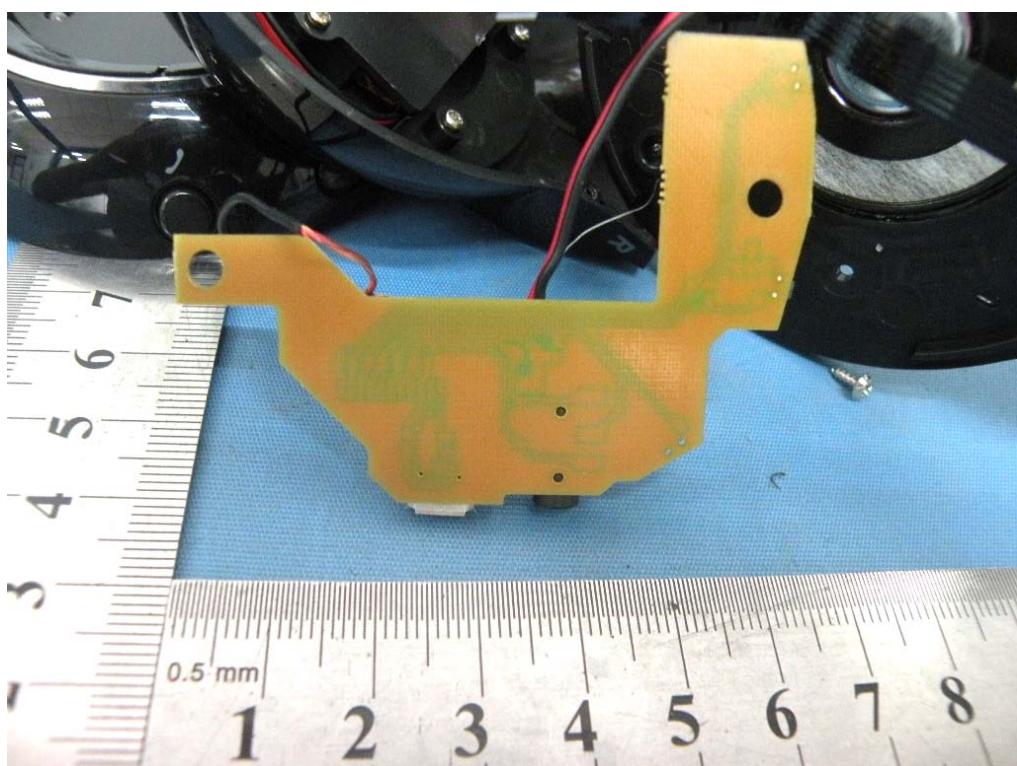
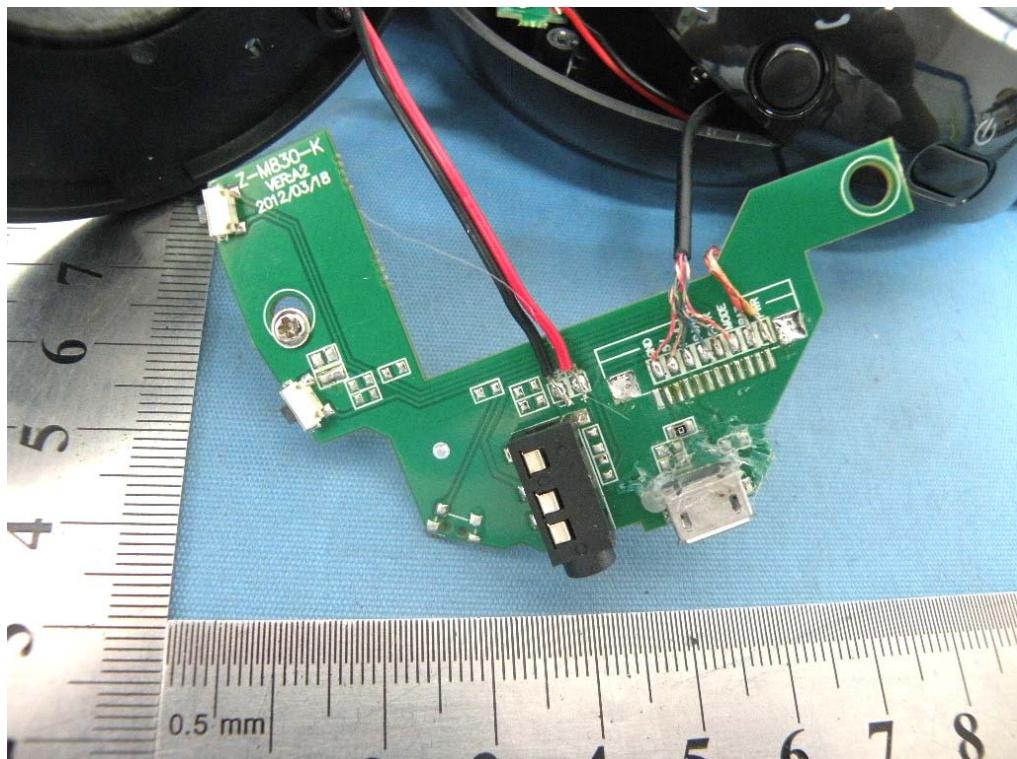


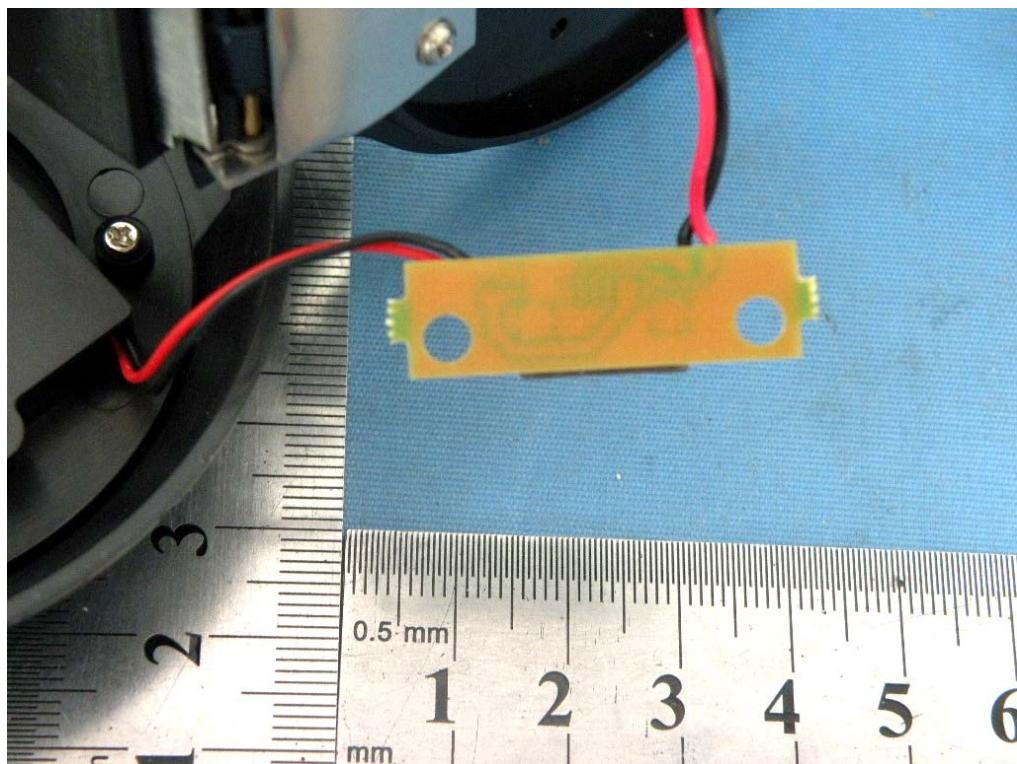
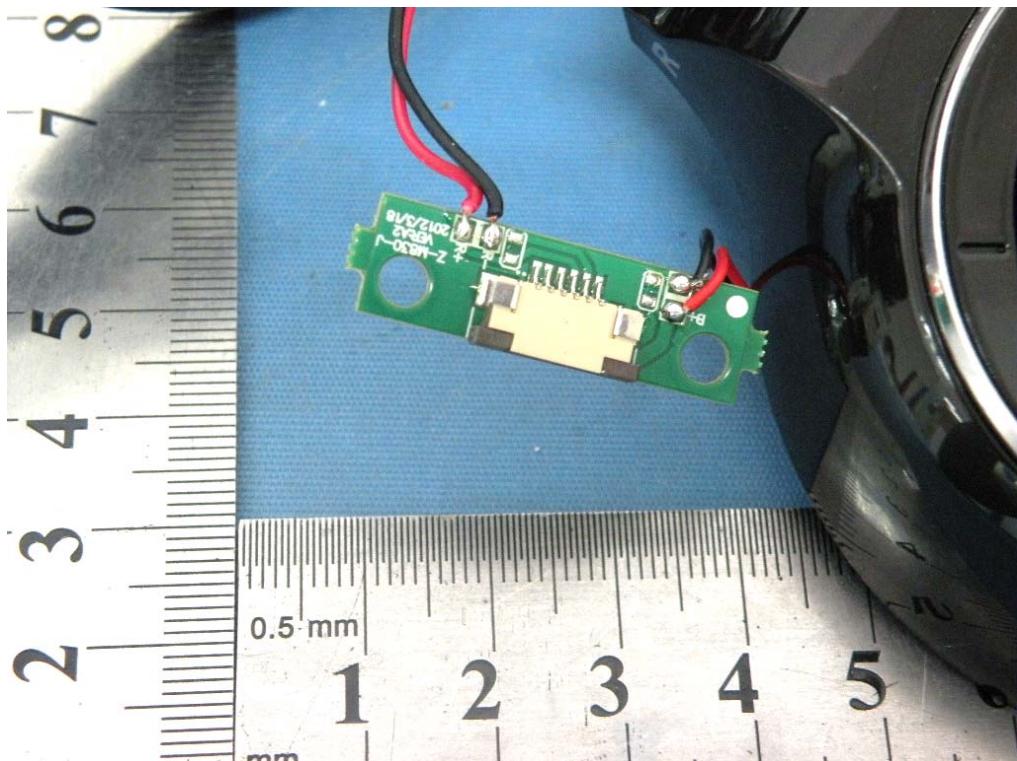












END OF THE REPORT

FCC ID: ZAY-Z-B30

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