

APPLICATION CERTIFICATION FCC Part 15C
On Behalf of
KEYSHEEN INDUSTRY (SHANGHAI) CO., LTD.

Umbrella Bluetooth Music Speaker with LED Light

Model No.: XPS001W1

FCC ID: Q8B-XPS001W1

Prepared for : KEYSHEEN INDUSTRY (SHANGHAI) CO., LTD.
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Report No. : ATE20171889
Date of Test : Aug. 30, 2017-Sep. 08, 2017
Date of Report : Sep. 09, 2017

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Test Report Certification

Applicant : KEYSHEEN INDUSTRY (SHANGHAI) CO., LTD.
Manufacturer : SHENZHEN FUHENG TONG TECHNOLOGY CO., LTD.
EUT Description : Umbrella Bluetooth Music Speaker with LED Light
Model No. : XPS001W1
Trade Name : N/A

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247: 2016
ANSI C63.10: 2013

The EUT was tested according to DTS test procedure of Apr 05, 2017 KDB558074 D01 DTS Meas Guidance v04 for compliance to FCC 47CFR 15.247 requirements

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.247 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test : Aug. 30, 2017-Sep. 08, 2017
Date of Report: Sep. 09, 2017

Prepared by :

Tim. Liang, Engineer

Approved & Authorized Signer :

(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Umbrella Bluetooth Music Speaker with LED Light
Model Number	:	XPS001W1
Bluetooth version	:	BT V4.1 LE
Frequency Range	:	2402MHz-2480MHz
Number of Channels	:	40
Antenna Gain	:	0dBi
Antenna type	:	PCB Antenna
Power Supply	:	DC 4.5V(powered by battery)
Modulation mode	:	GFSK
Applicant	:	KEYSHEEN INDUSTRY (SHANGHAI) CO., LTD
Address	:	707 Songhua Road, SongzeInd. Div. Zhaoxiang Town Qingpu District, Shanghai, China.
Manufacturer	:	SHENZHEN FUHENG TONG TECHNOLOGY CO.,LTD
Address	:	3F, NO.385, Changfeng Road, Changzhen community, Gongming Street, Guangming New District, Shenzhen, China.
Date of sample received	:	Aug. 30, 2017
Date of Test	:	Sep. 01, 2017-Sep. 08, 2017

1.2.Carrier Frequency of Channels

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

1.3.Special Accessory and Auxiliary Equipment

PC Manufacturer: LENOVO
M/N: 4290-RT8
S/N: R9-FW93G 11/08

1.4. Description of Test Facility

EMC Lab	: Recognition of accreditation by Federal Communications Commission (FCC) The Designation Number is CN1189 The Registration Number is 708358
	Listed by Innovation, Science and Economic Development Canada (ISED) The Registration Number is 5077A-2
	Accredited by China National Accreditation Service for Conformity Assessment (CNAS) The Registration Number is CNAS L3193
	Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 4297.01
Name of Firm	: Shenzhen Accurate Technology Co., Ltd.
Site Location	: 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China

1.5.Measurement Uncertainty

Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty (Above 1GHz)	=	4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 07, 2017	Jan. 06, 2018
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 07, 2017	Jan. 06, 2018
Spectrum Analyzer	Rohde&Schwarz	FSV-40	101495	Jan. 07, 2017	Jan. 06, 2018
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 07, 2017	Jan. 06, 2018
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 07, 2017	Jan. 06, 2018
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 13, 2017	Jan. 12, 2018
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 13, 2017	Jan. 12, 2018
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 13, 2017	Jan. 12, 2018
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 13, 2017	Jan. 12, 2018
Open Switch and Control Unit	Rohde&Schwarz	OSP120 + OSP-B157	101244 + 100866	Jan. 07, 2017	Jan. 06, 2018
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 07, 2017	Jan. 06, 2018
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 07, 2017	Jan. 06, 2018
Highpass Filter	Wainwright Instruments	WHKX3.6/18 G-10SS	N/A	Jan. 07, 2017	Jan. 06, 2018
Band Reject Filter	Wainwright Instruments	WRCG2400/2 485-2375/2510 -60/11SS	N/A	Jan. 07, 2017	Jan. 06, 2018

3. OPERATION OF EUT DURING TESTING

3.1. Operating Mode

The mode is used: **BLE Transmitting mode**

Low Channel: 2402MHz

Middle Channel: 2440MHz

High Channel: 2480MHz

3.2. Configuration and peripherals

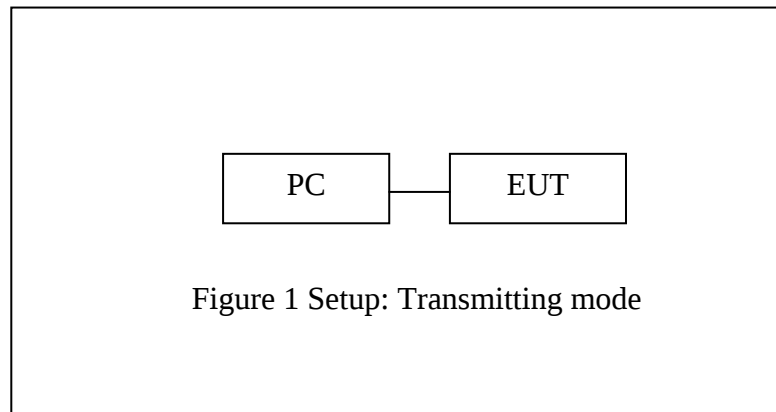


Figure 1 Setup: Transmitting mode

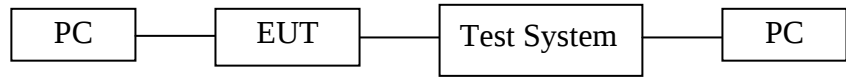
4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.247(a)(2)	6dB Bandwidth Test	Compliant
Section 15.247(e)	Power Spectral Density Test	Compliant
Section 15.247(b)(3)	Maximum Peak Output Power Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.247(d) Section 15.209	Radiated Spurious Emission Test	Compliant
Section 15.247(d)	Conducted Spurious Emission Test	Compliant
Section 15.207	AC Power Line Conducted Emission Test	N/A
Section 15.203	Antenna Requirement	Compliant

Note: The power supply mode of the EUT is DC 4.5V, According to the FCC standard requirements, conducted emission is not applicable.

5. 6DB BANDWIDTH MEASUREMENT

5.1. Block Diagram of Test Setup



(EUT: Umbrella Bluetooth Music Speaker with LED Light)

5.2. The Requirement For Section 15.247(a)(2)

Section 15.247(a)(2): Systems using digital modulation techniques may operate in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

5.3. EUT Configuration on Measurement

The equipment is installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

5.4. Operating Condition of EUT

5.4.1. Setup the EUT and simulator as shown as Section 5.1.

5.4.2. Turn on the power of all equipment.

5.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

5.5. Test Procedure

5.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

5.5.2. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz.

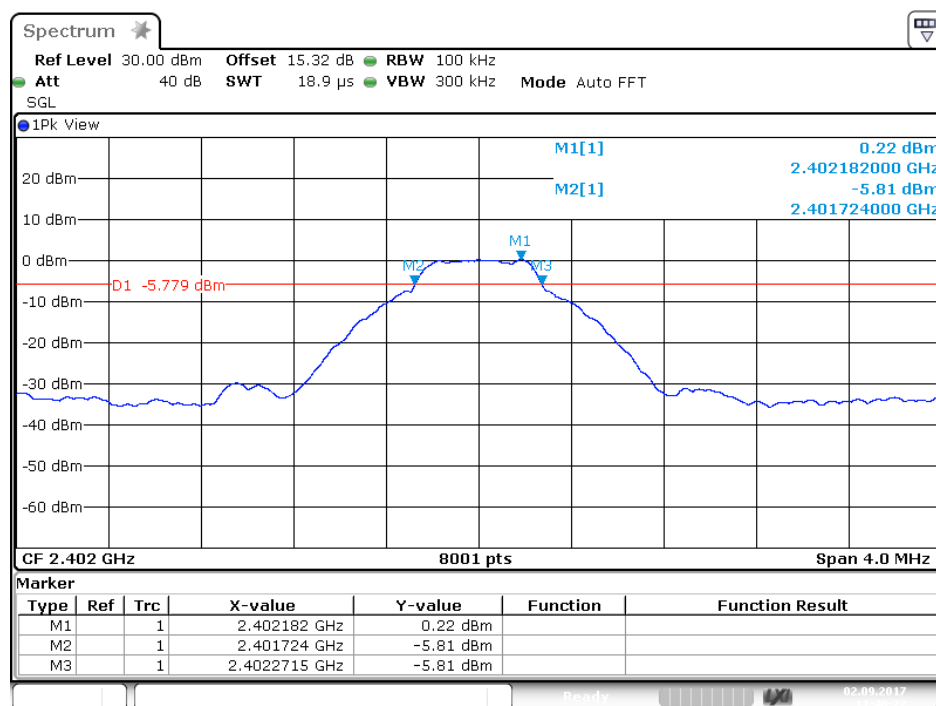
5.5.3. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

5.6.Test Result

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit(MHz)	PASS/FAIL
0	2402	0.5475	0.5	PASS
19	2440	0.5485	0.5	PASS
39	2480	0.5500	0.5	PASS

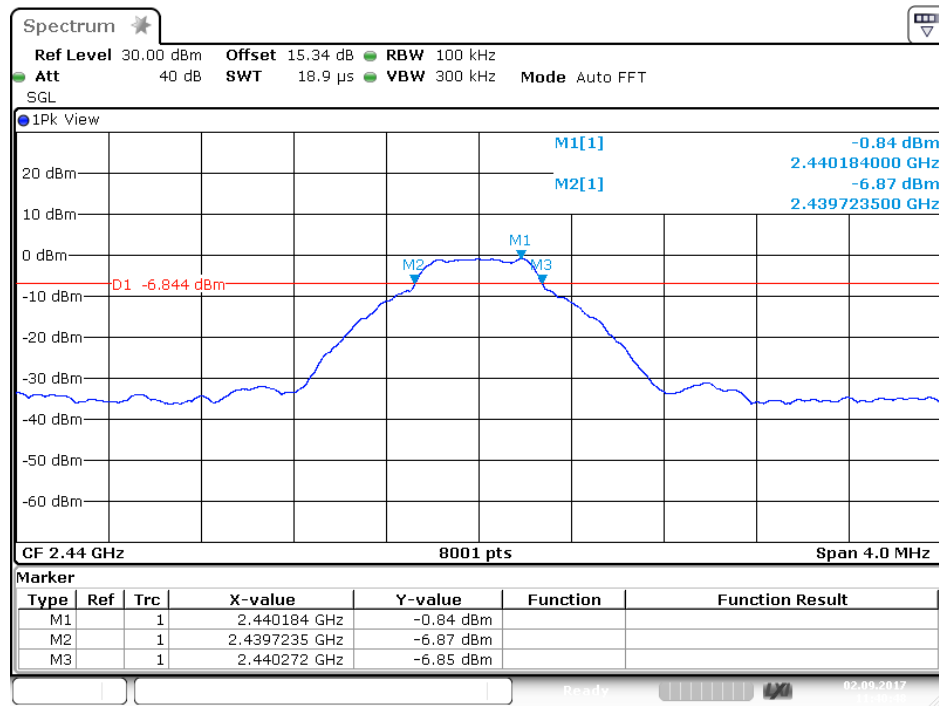
The spectrum analyzer plots are attached as below.

channel 0



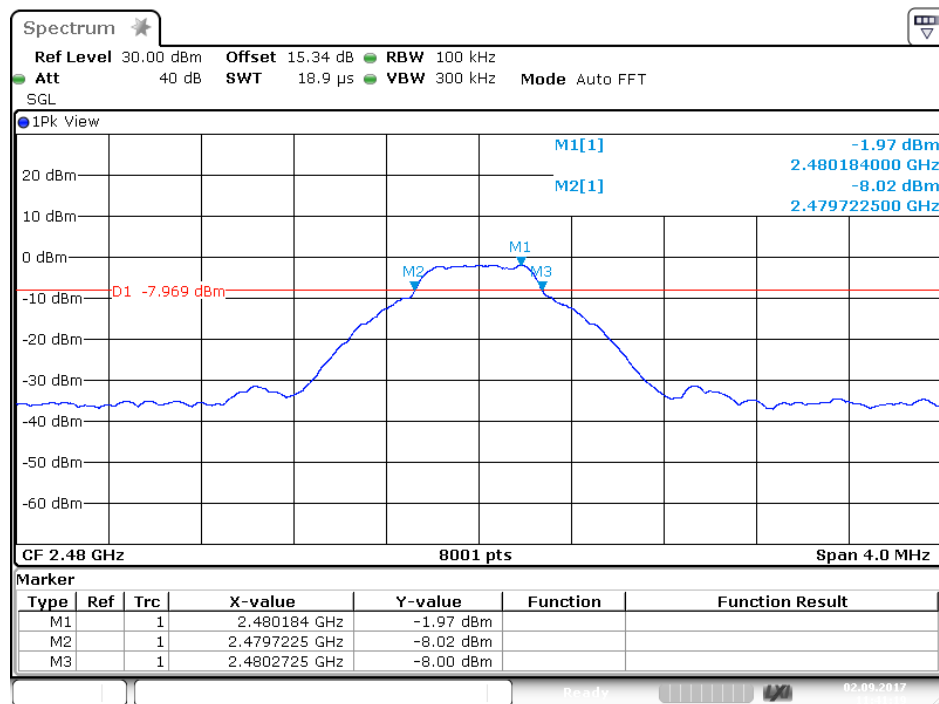
Date: 2.SEP.2017 11:40:22

channel 19



Date: 2.SEP.2017 11:40:48

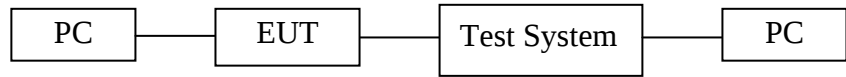
channel 39



Date: 2.SEP.2017 11:41:19

6. MAXIMUM PEAK OUTPUT POWER

6.1. Block Diagram of Test Setup



(EUT: Umbrella Bluetooth Music Speaker with LED Light)

6.2. The Requirement For Section 15.247(b)(3)

Section 15.247(b)(3): For systems using digital modulation in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands: 1 Watt.

6.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.4. Operating Condition of EUT

6.4.1. Setup the EUT and simulator as shown as Section 6.1.

6.4.2. Turn on the power of all equipment.

6.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

6.5. Test Procedure

6.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

6.5.2. Set RBW of spectrum analyzer to 1 MHz and VBW to 3MHz.

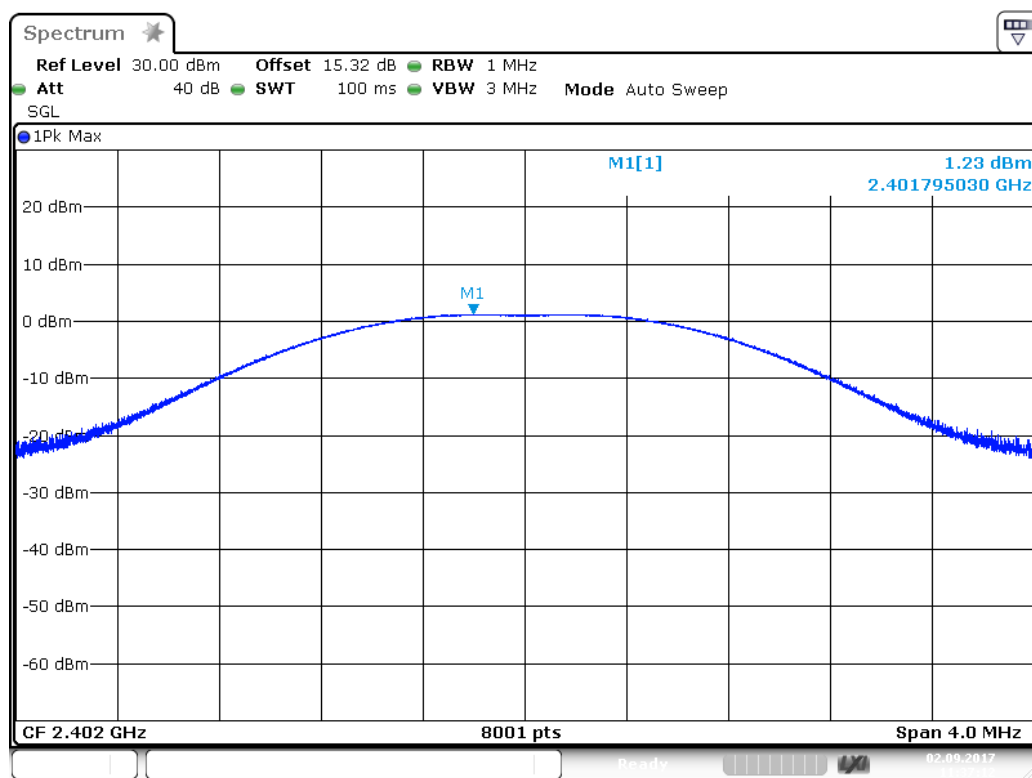
6.5.3. Measurement the maximum peak output power.

6.6.Test Result

Channel	Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass / Fail
0	2402	1.23	30	PASS
19	2440	0.22	30	PASS
39	2480	-0.79	30	PASS

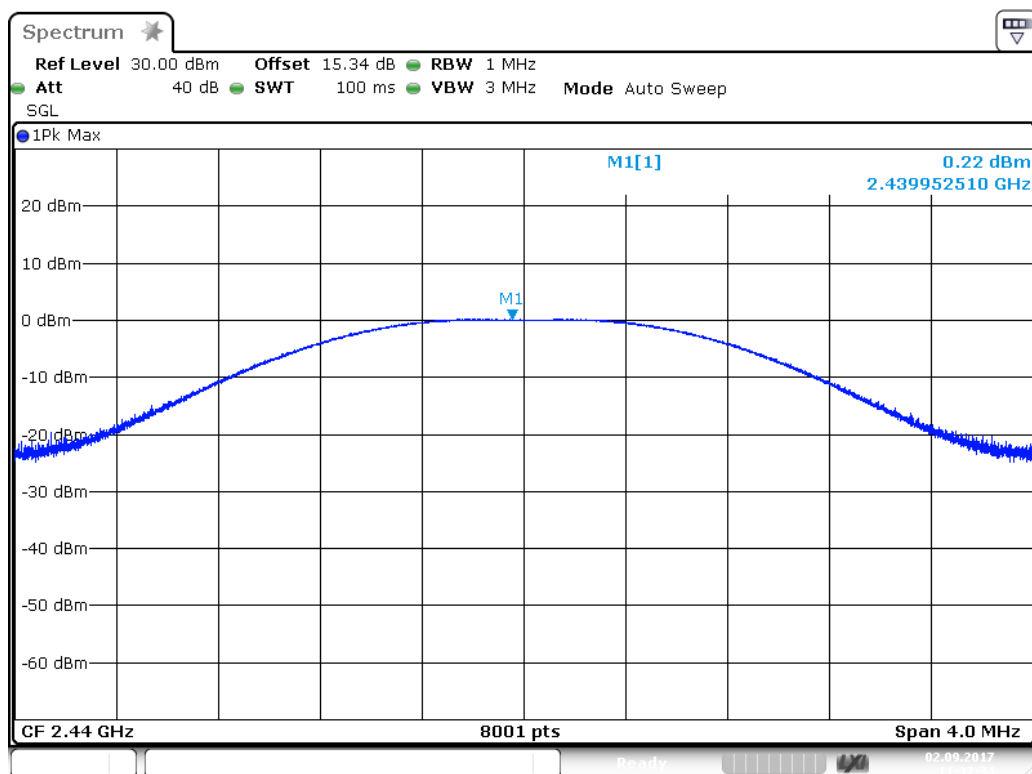
The spectrum analyzer plots are attached as below.

channel 0



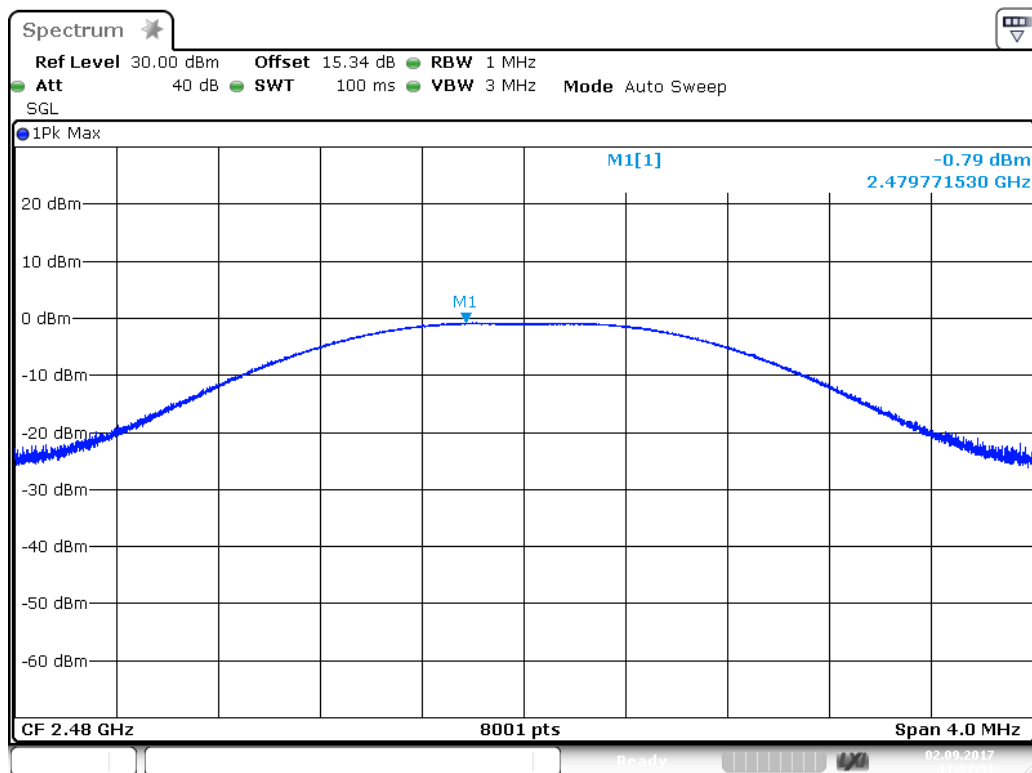
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channel 19



Date: 2.SEP.2017 11:37:34

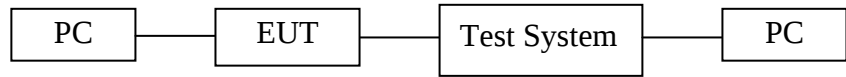
channel 39



Date: 2.SEP.2017 11:37:52

7. POWER SPECTRAL DENSITY MEASUREMENT

7.1. Block Diagram of Test Setup



(EUT: Umbrella Bluetooth Music Speaker with LED Light)

7.2. The Requirement For Section 15.247(e)

Section 15.247(e): For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

7.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

7.4. Operating Condition of EUT

7.4.1. Setup the EUT and simulator as shown as Section 7.1.

7.4.2. Turn on the power of all equipment.

7.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

7.5. Test Procedure

7.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

7.5.2. Measurement Procedure PKPSD:

7.5.3. This procedure must be used if maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit, and is optional if the maximum (average) conducted output power was used to demonstrate compliance.

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
4. Set the VBW $\geq 3 \times \text{RBW}$.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3kHz) and repeat.

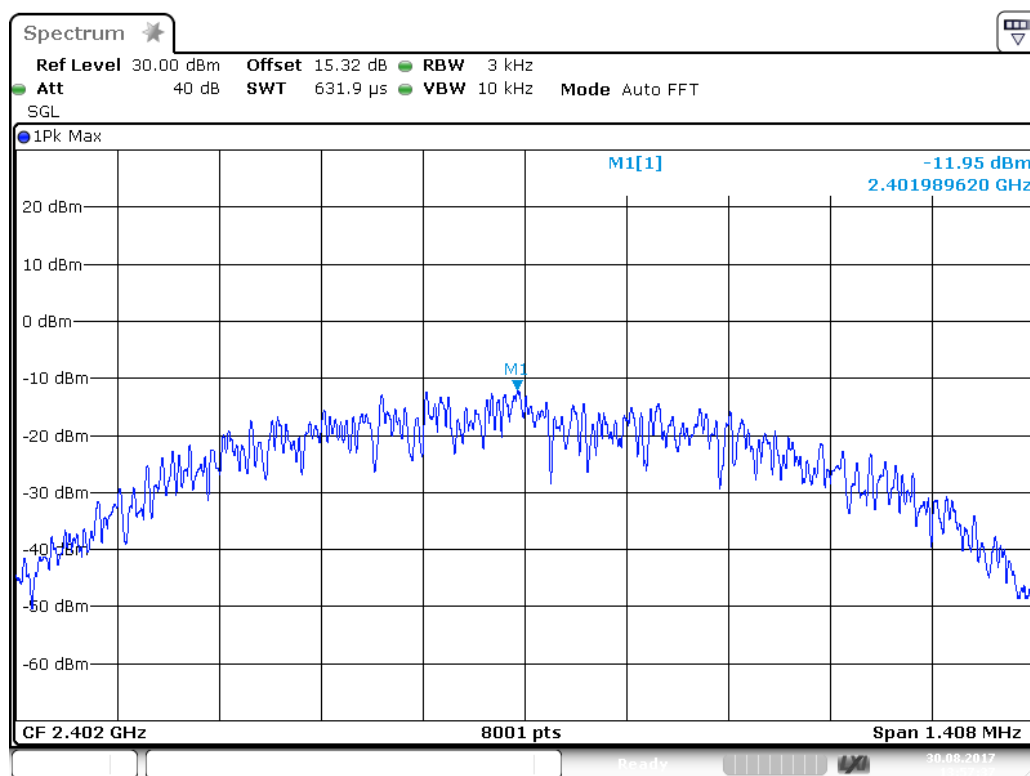
7.5.4. Measurement the maximum power spectral density.

7.6. Test Result

CHANNEL NUMBER	FREQUENCY (MHz)	PSD (dBm/3KHz)	LIMIT (dBm/3KHz)	PASS/FAIL
0	2402	-11.95	8	PASS
19	2440	-11.81	8	PASS
39	2480	-11.70	8	PASS

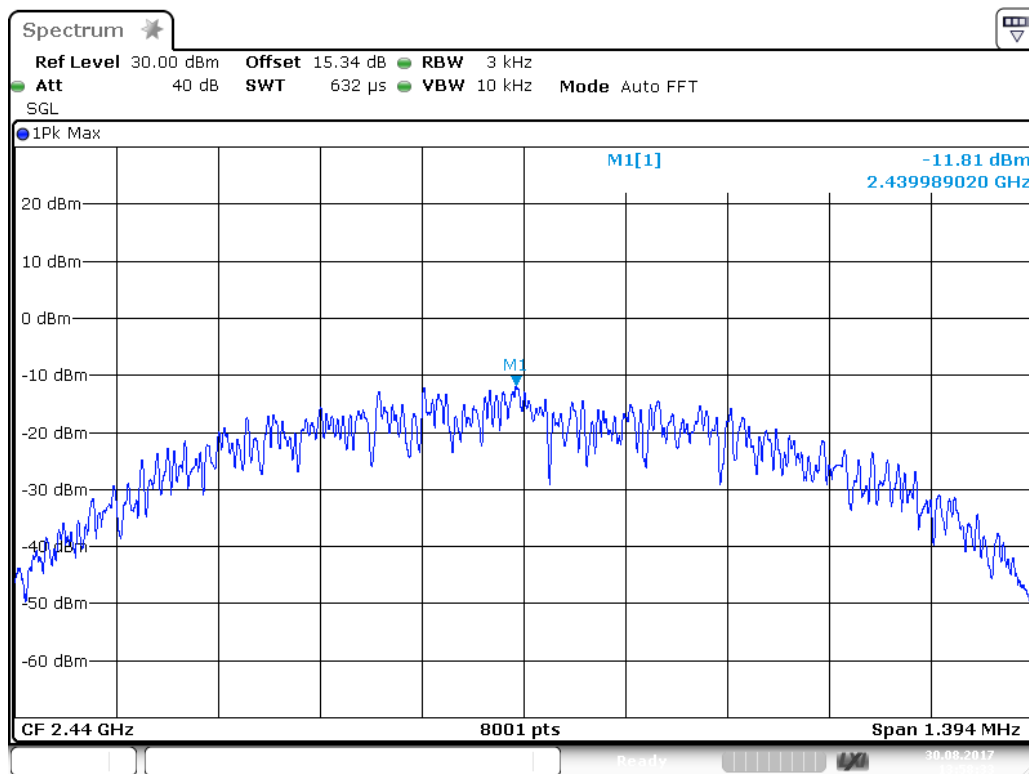
The spectrum analyzer plots are attached as below.

channel 0



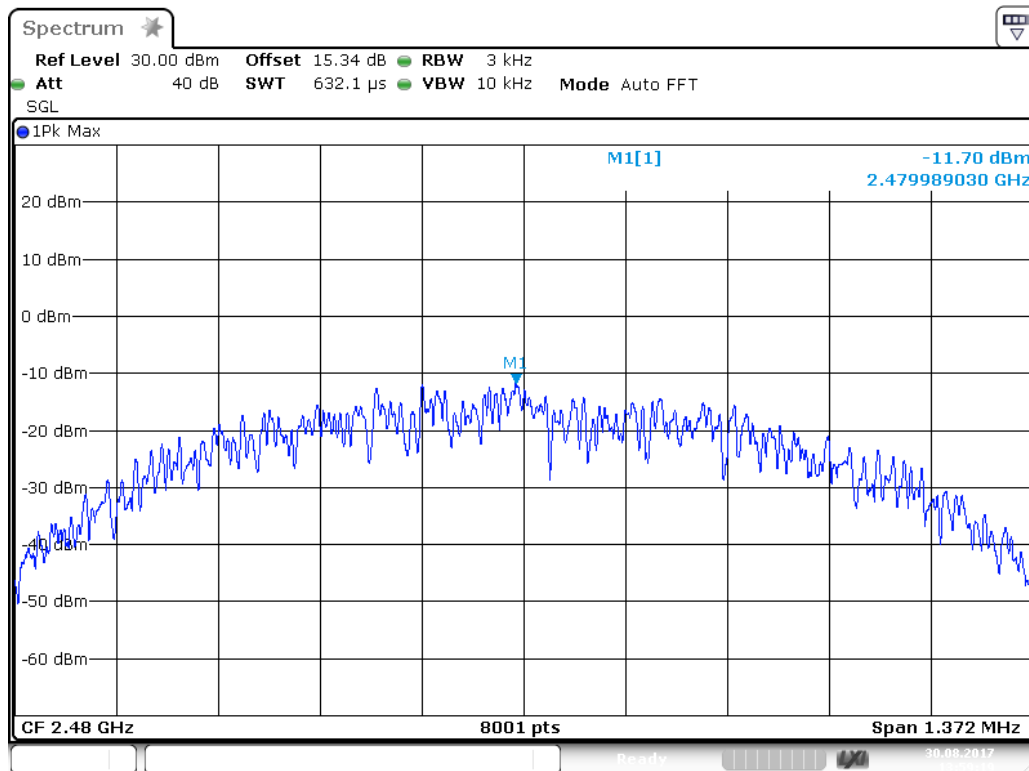
Date: 30.AUG.2017 13:57:37

channel 19



Date: 30.AUG.2017 13:58:33

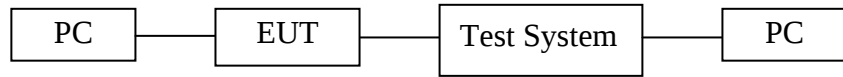
channel 39



Date: 30.AUG.2017 13:59:18

8. BAND EDGE COMPLIANCE TEST

8.1. Block Diagram of Test Setup



(EUT: Umbrella Bluetooth Music Speaker with LED Light)

8.2. The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

8.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

8.4. Operating Condition of EUT

8.4.1. Setup the EUT and simulator as shown as Section 8.1.

8.4.2. Turn on the power of all equipment.

8.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2480MHz TX frequency to transmit.

8.5. Test Procedure

Conducted Band Edge:

8.5.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.

8.5.2. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz.

8.5.3. Radiate Band Edge:

8.5.4. The EUT is placed on a turntable, which is 1.5m above the ground plane and worked at highest radiated power.

8.5.5. The turntable was rotated for 360 degrees to determine the position of maximum emission level.

8.5.6. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.

8.5.7. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

8.5.8. RBW=1MHz, VBW=1MHz

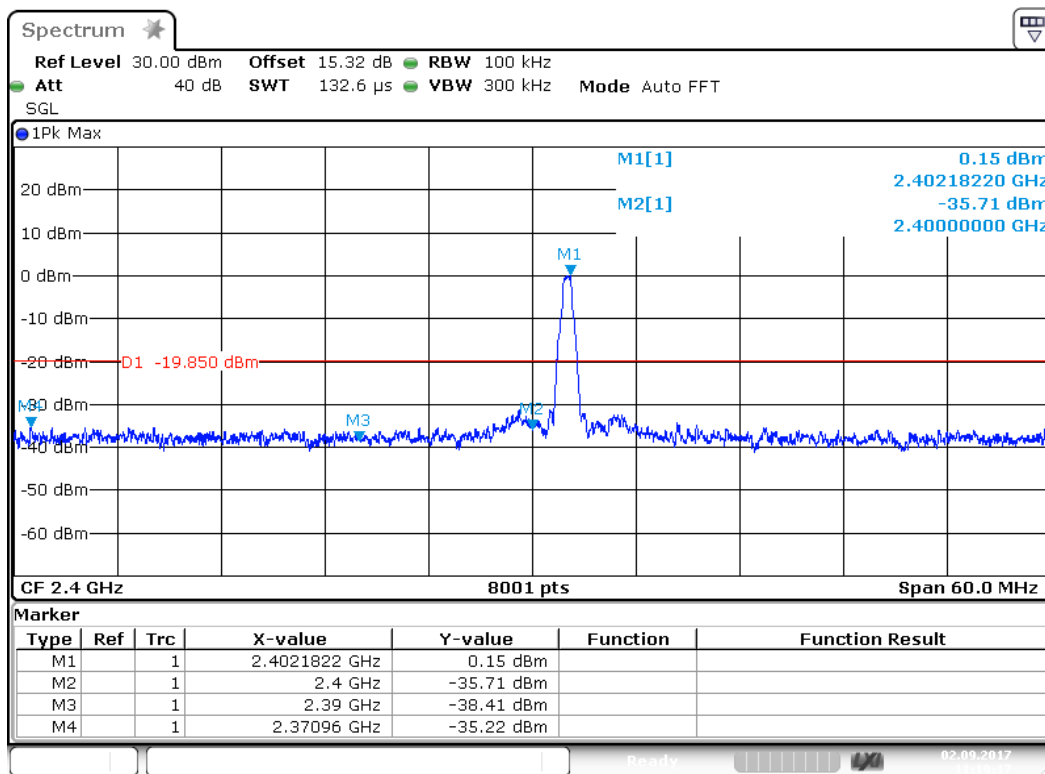
8.5.9. The band edges were measured and recorded.

8.6. Test Result

Pass

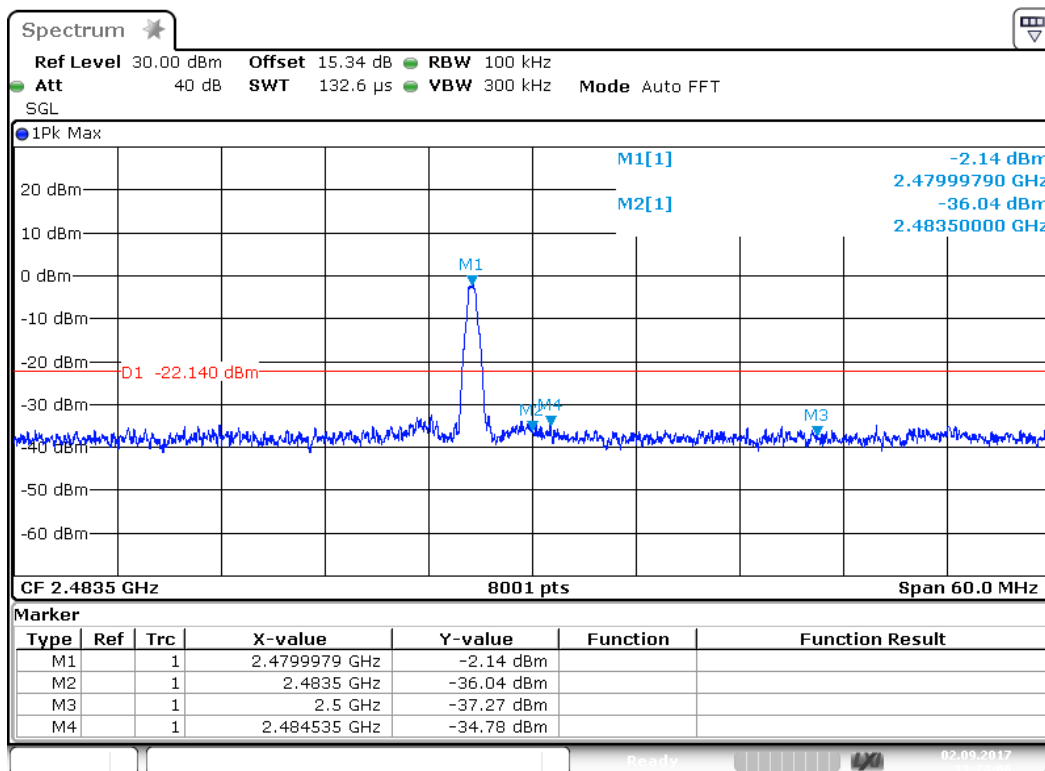
Channel	Frequency	Delta peak to band emission	Limit(dBc)
0	2.4GHz	35.86	20
39	2.4835GHz	33.90	20

channel 0



Date: 2.SEP.2017 11:19:18

channel 39



Date: 2.SEP.2017 11:24:06

Radiated Band Edge Result



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: DING #310

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Umbrella Bluetooth Music Speaker with LED Light

Mode: TX 2402MHz

Model: XPS001W1

Manufacturer: SHENZHEN FUHENG TONG TECHNOLOGY CO.,LTD

Polarization: Horizontal

Power Source: DC 4.5V

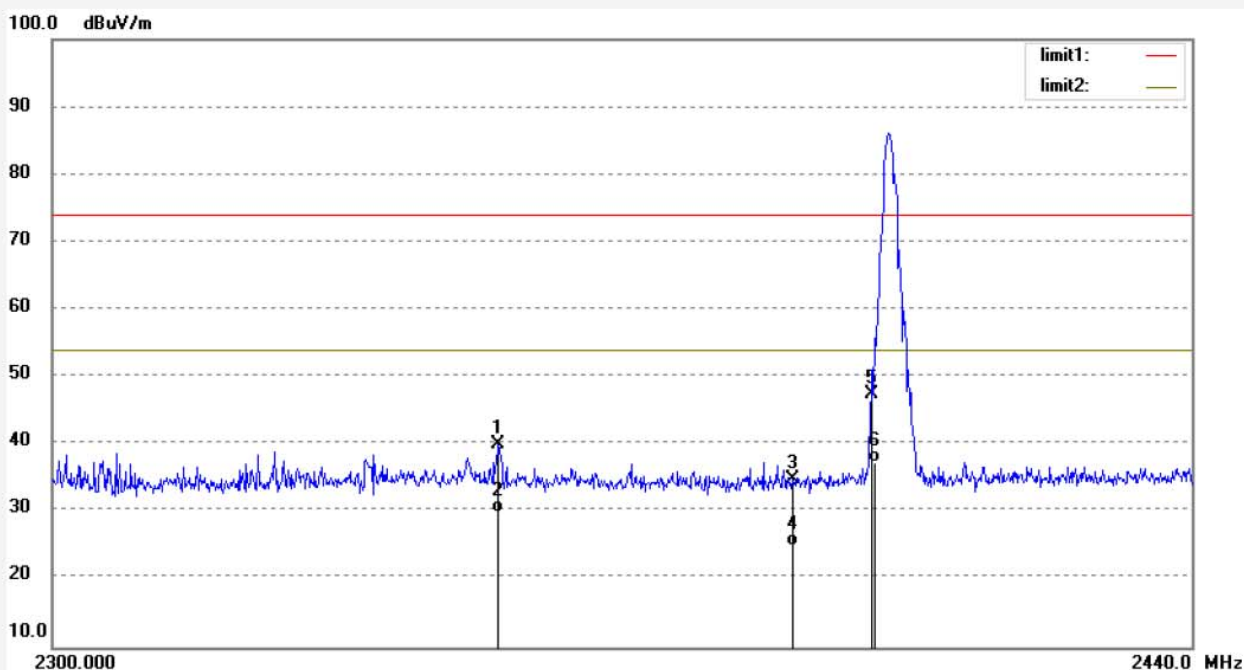
Date: 17/09/02/

Time: 9/21/20

Engineer Signature: DING

Distance: 3m

Note: Report NO.:ATE20171889



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2353.866	46.27	-6.21	40.06	74.00	-33.94	peak	151	116	
2	2353.866	36.19	-6.21	29.98	54.00	-24.02	AVG	152	120	
3	2390.000	40.72	-5.89	34.83	74.00	-39.17	peak	152	38	
4	2390.000	30.86	-5.89	24.97	54.00	-29.03	AVG	152	39	
5	2400.000	53.20	-5.80	47.40	74.00	-26.60	peak	153	301	
6	2400.000	43.08	-5.80	37.28	54.00	-16.72	AVG	153	300	

Job No.: DING #311

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Umbrella Bluetooth Music Speaker with LED Light

Mode: TX 2402MHz

Model: XPS001W1

Manufacturer: SHENZHEN FUHENG TONG TECHNOLOGY CO.,LTD

Polarization: Vertical

Power Source: DC 4.5V

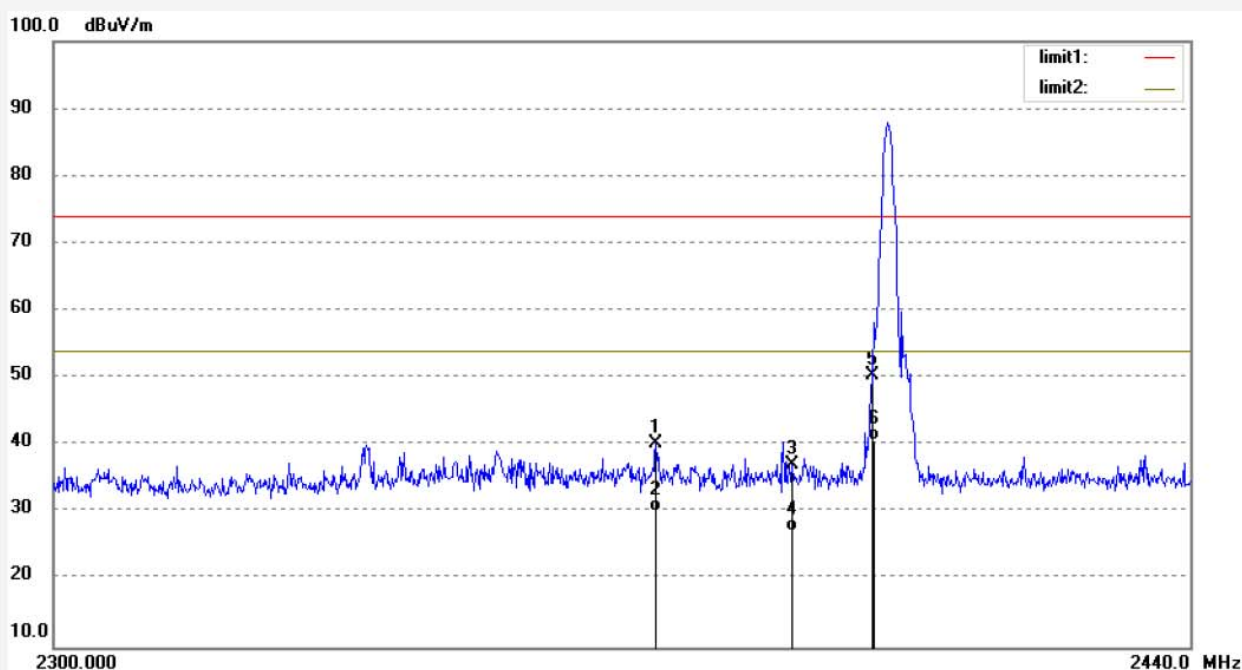
Date: 17/09/02/

Time: 9/22/02

Engineer Signature: DING

Distance: 3m

Note: Report NO.:ATE20171889



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2373.177	46.30	-6.04	40.26	74.00	-33.74	peak	152	327	
2	2373.177	36.24	-6.04	30.20	54.00	-23.80	AVG	152	328	
3	2390.000	43.01	-5.89	37.12	74.00	-36.88	peak	151	230	
4	2390.000	33.06	-5.89	27.17	54.00	-26.83	AVG	151	231	
5	2400.000	56.14	-5.80	50.34	74.00	-23.66	peak	153	346	
6	2400.000	46.57	-5.80	40.77	54.00	-13.23	AVG	153	347	

Job No.: DING #309

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Umbrella Bluetooth Music Speaker with LED Light

Mode: TX 2480MHz

Model: XPS001W1

Manufacturer: SHENZHEN FUHENG TONG TECHNOLOGY CO.,LTD

Polarization: Horizontal

Power Source: DC 4.5V

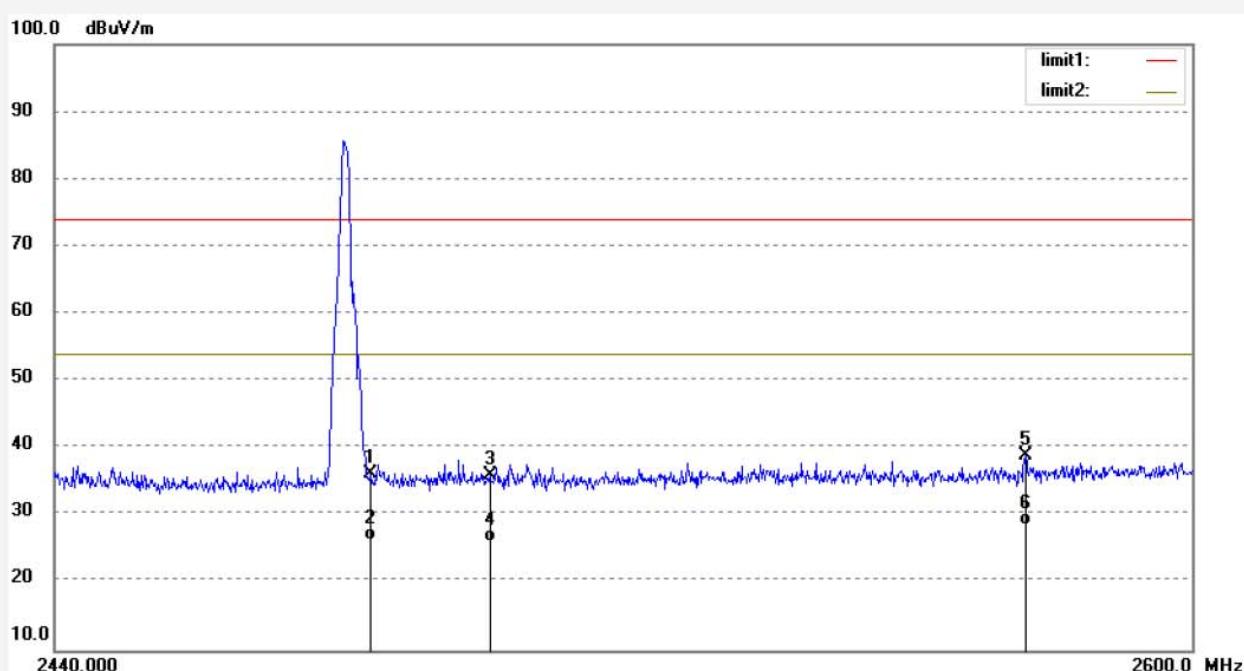
Date: 17/09/02/

Time: 9/19/52

Engineer Signature: DING

Distance: 3m

Note: Report NO.:ATE20171889



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	41.70	-5.51	36.19	74.00	-37.81	peak	152	327	
2	2483.500	31.75	-5.51	26.24	54.00	-27.76	AVG	152	330	
3	2500.000	41.57	-5.50	36.07	74.00	-37.93	peak	153	261	
4	2500.000	31.59	-5.50	26.09	54.00	-27.91	AVG	153	260	
5	2575.954	43.74	-4.83	38.91	74.00	-35.09	peak	151	242	
6	2575.954	33.49	-4.83	28.66	54.00	-25.34	AVG	151	240	

Job No.: DING #308

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Umbrella Bluetooth Music Speaker with LED Light

Mode: TX 2480MHz

Model: XPS001W1

Manufacturer: SHENZHEN FUHENG TONG TECHNOLOGY CO.,LTD

Polarization: Vertical

Power Source: DC 4.5V

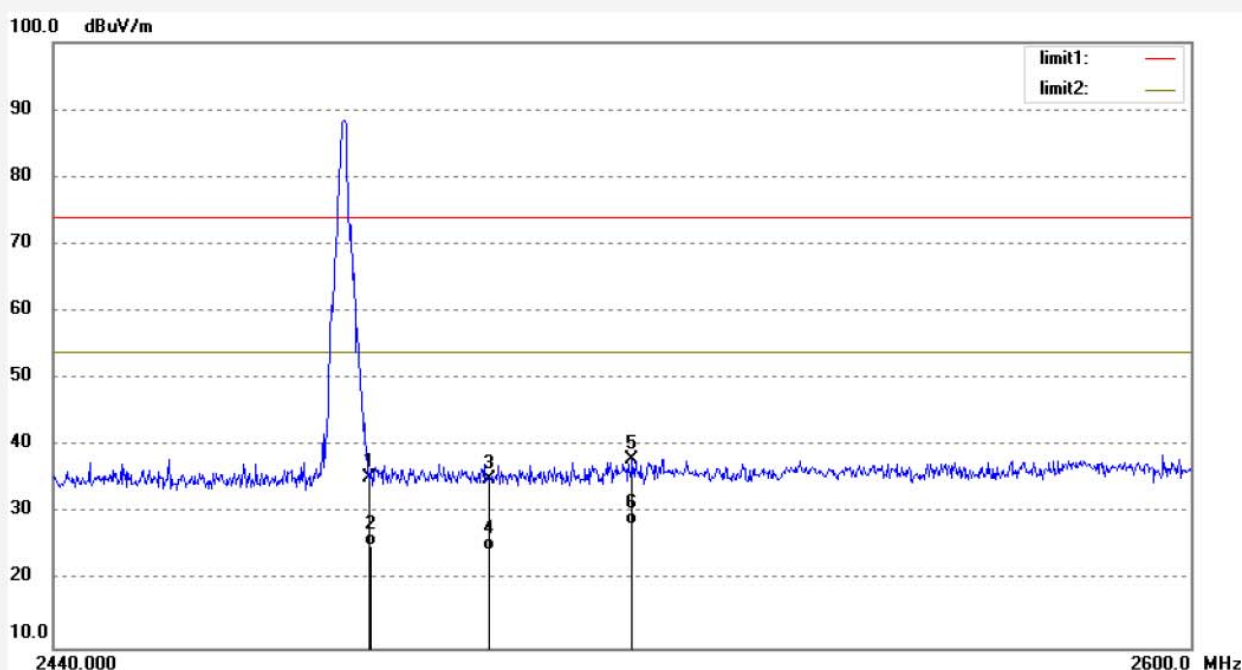
Date: 17/09/02/

Time: 9/18/58

Engineer Signature: DING

Distance: 3m

Note: Report NO.:ATE20171889



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	40.84	-5.51	35.33	74.00	-38.67	peak	151	201	
2	2483.500	30.76	-5.51	25.25	54.00	-28.75	AVG	151	200	
3	2500.000	40.62	-5.50	35.12	74.00	-38.88	peak	152	218	
4	2500.000	29.94	-5.50	24.44	54.00	-29.56	AVG	152	219	
5	2520.173	43.33	-5.30	38.03	74.00	-35.97	peak	151	233	
6	2520.173	33.59	-5.30	28.29	54.00	-25.71	AVG	151	234	

Note:

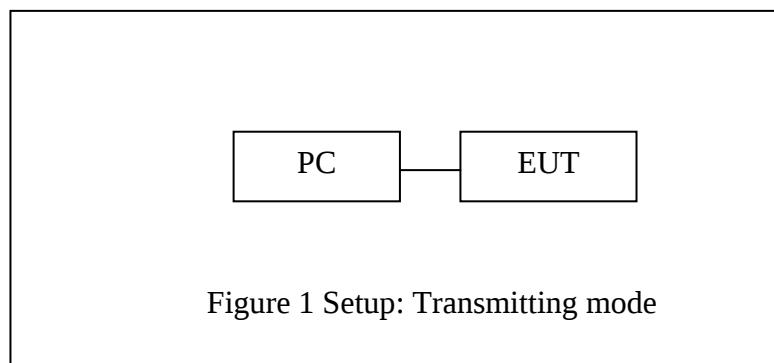
1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

9. RADIATED SPURIOUS EMISSION TEST

9.1. Block Diagram of Test Setup

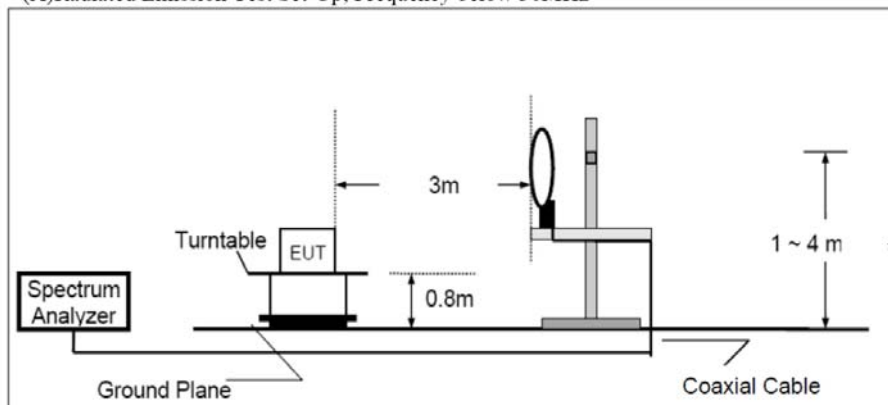
9.1.1. Block diagram of connection between the EUT and peripherals



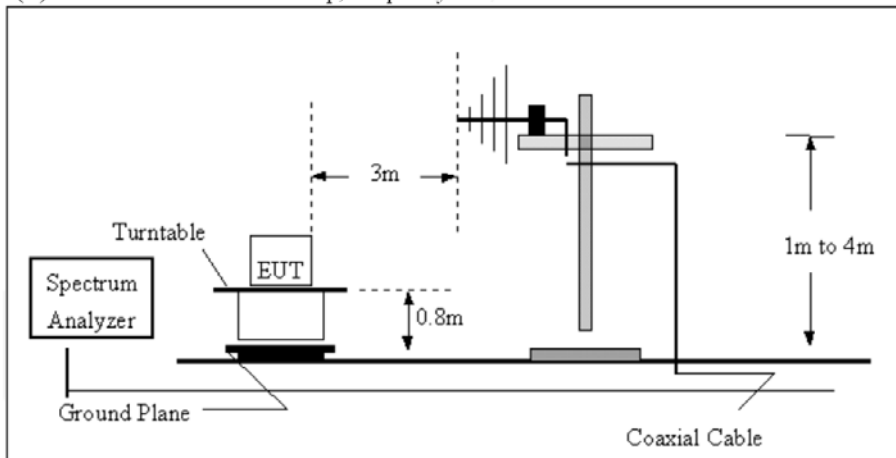
(EUT: Umbrella Bluetooth Music Speaker with LED Light)

9.1.2. Semi-Anechoic Chamber Test Setup Diagram

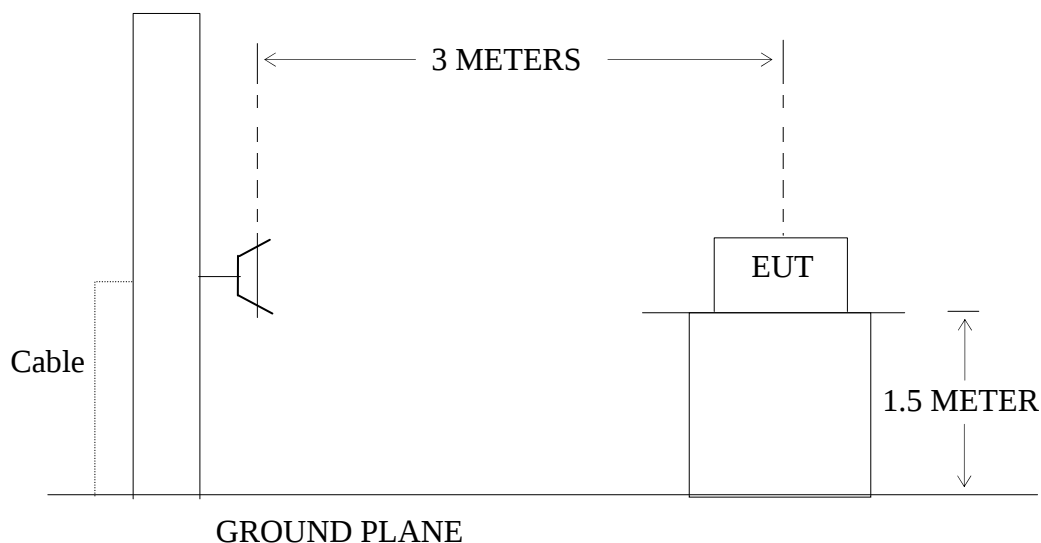
(A) Radiated Emission Test Set-Up, Frequency below 30MHz



(B) Radiated Emission Test Set-Up, Frequency 30-1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1GHz



9.2.The Limit For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

9.3.Restricted bands of operation

9.3.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

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)
13.36-13.41			

¹Until February 1, 1999, this restricted band shall be 0.490-0.510

²Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

9.4.Configuration of EUT on Measurement

The equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

9.5. Operating Condition of EUT

9.5.1. Setup the EUT and simulator as shown as Section 9.1.

9.5.2. Turn on the power of all equipment.

9.5.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

9.6. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground (Below 1GHz). The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground (Above 1GHz). The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 9 kHz in below 30MHz. and set at 120 kHz in 30-1000MHz, and 1MHz in above 1000MHz.

The frequency range from 9 kHz to 25GHz is checked.

The final measurement in band 9-90 kHz, 110-490 kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

9.7. The Field Strength of Radiation Emission Measurement Results

PASS.

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.

2. *: Denotes restricted band of operation.

3. The radiation emissions from 9kHz-30MHz and 18-25GHz are not reported, because the test values lower than the limits of 20dB.

Below 1GHz



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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber

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Fax:+86-0755-26503396

Job No.: frank2017 #946

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Umbrella Bluetooth Music Speaker with LED Light

Mode: TX 2402MHz

Model: XPS001W1

Manufacturer: SHENZHEN FUHENG TONG TECHNOLOGY CO.,LTD

Polarization: Horizontal

Power Source: DC 4.5V

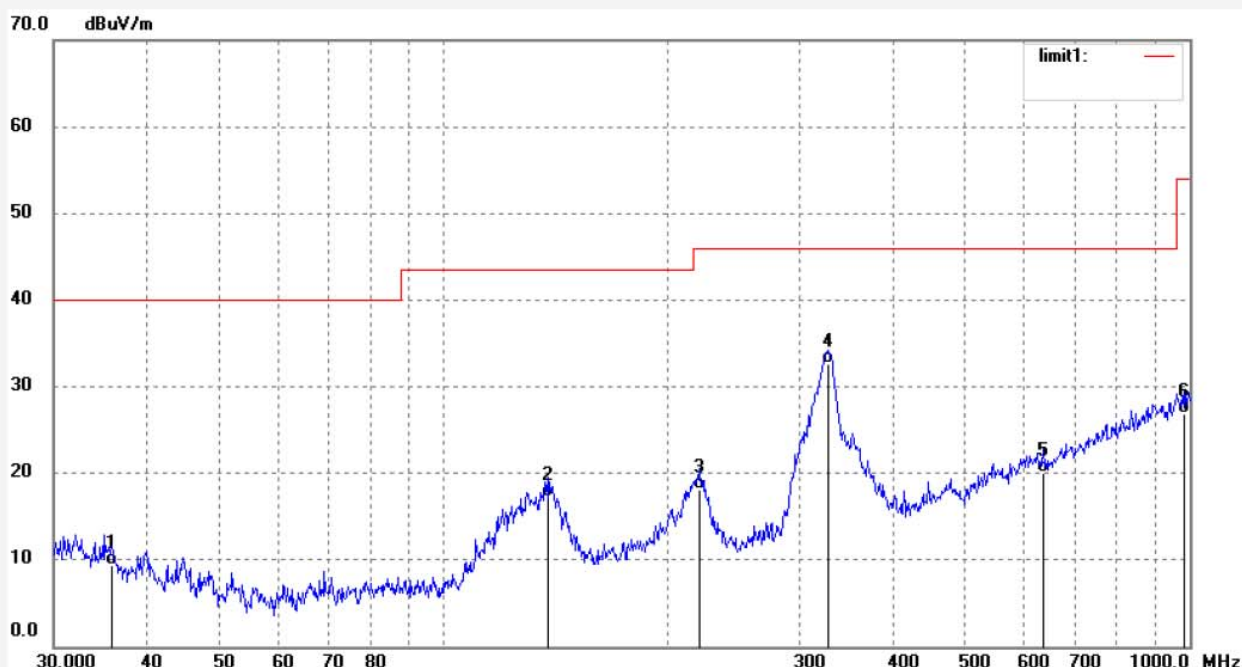
Date: 2017/09/01

Time: 16:39:51

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20171889



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	35.8875	25.65	-16.33	9.32	40.00	-30.68	QP	100	188	
2	137.8400	39.54	-22.27	17.27	43.50	-26.23	QP	100	180	
3	219.9499	36.45	-18.40	18.05	46.00	-27.95	QP	100	90	
4	327.1553	47.41	-14.81	32.60	46.00	-13.40	QP	200	155	
5	635.5575	27.65	-7.66	19.99	46.00	-26.01	QP	200	183	
6	986.0439	27.35	-0.54	26.81	54.00	-27.19	QP	100	152	

Job No.: frank2017 #947

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Umbrella Bluetooth Music Speaker with LED Light

Mode: TX 2402MHz

Model: XPS001W1

Manufacturer: SHENZHEN FUHENG TONG TECHNOLOGY CO.,LTD

Polarization: Vertical

Power Source: DC 4.5V

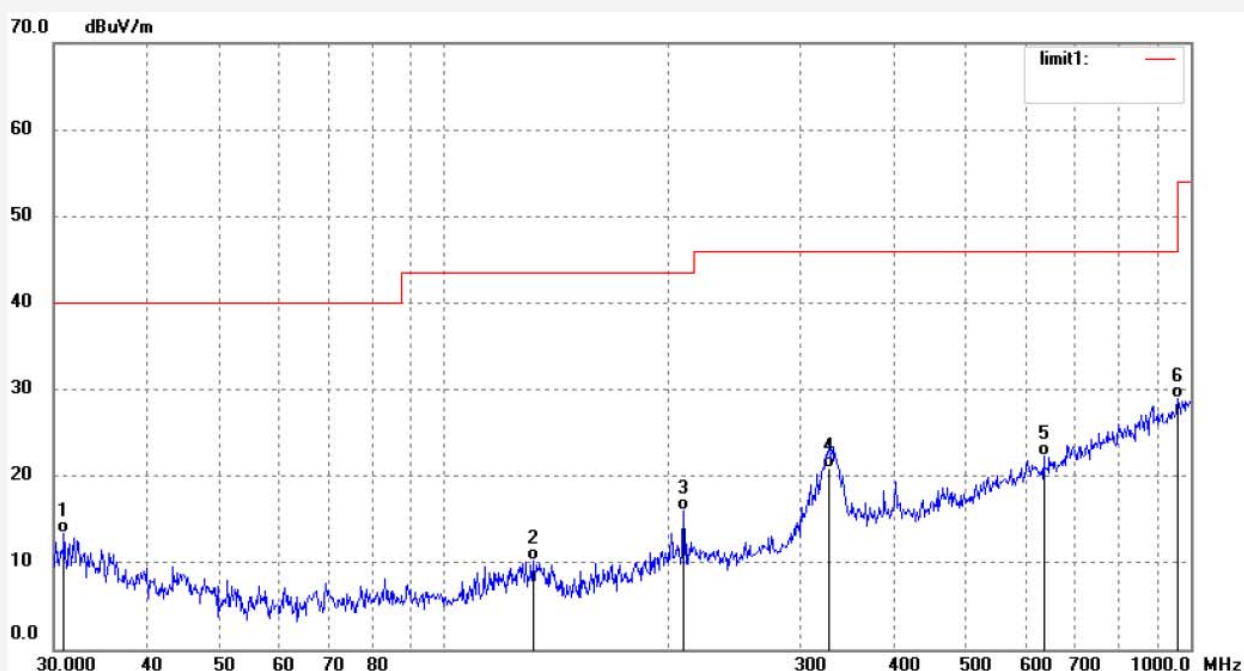
Date: 2017/09/01

Time: 16:40:39

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20171889



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	30.9636	28.31	-14.94	13.37	40.00	-26.63	QP	100	154	
2	131.6853	32.39	-22.16	10.23	43.50	-33.27	QP	100	80	
3	209.3924	34.47	-18.46	16.01	43.50	-27.49	QP	100	122	
4	328.3068	35.68	-14.75	20.93	46.00	-25.07	QP	200	183	
5	635.5575	30.01	-7.66	22.35	46.00	-23.65	QP	100	344	
6	962.0878	30.20	-1.18	29.02	54.00	-24.98	QP	100	128	

Job No.: frank2017 #949

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Umbrella Bluetooth Music Speaker with LED Light

Mode: TX 2440MHz

Model: XPS001W1

Manufacturer: SHENZHEN FUHENG TONG TECHNOLOGY CO.,LTD

Polarization: Horizontal

Power Source: DC 4.5V

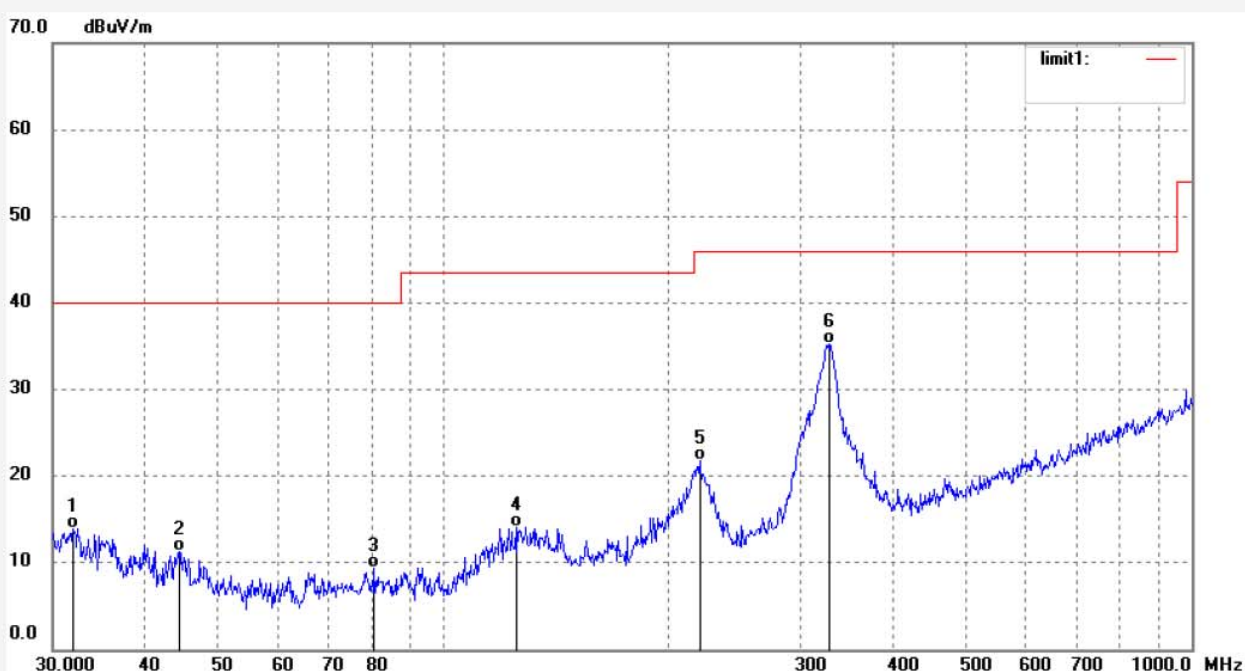
Date: 2017/09/01

Time: 16:47:17

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20171889



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.9586	29.10	-15.19	13.91	40.00	-26.09	QP	100	125	
2	44.3098	30.07	-18.81	11.26	40.00	-28.74	QP	100	180	
3	80.8041	31.36	-21.99	9.37	40.00	-30.63	QP	100	127	
4	124.9248	36.10	-22.05	14.05	43.50	-29.45	QP	100	90	
5	219.9499	40.17	-18.40	21.77	46.00	-24.23	QP	200	183	
6	328.3068	50.00	-14.75	35.25	46.00	-10.75	QP	200	152	

Job No.: frank2017 #948

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Umbrella Bluetooth Music Speaker with LED Light

Mode: TX 2440MHz

Model: XPS001W1

Manufacturer: SHENZHEN FUHENG TONG TECHNOLOGY CO.,LTD

Polarization: Vertical

Power Source: DC 4.5V

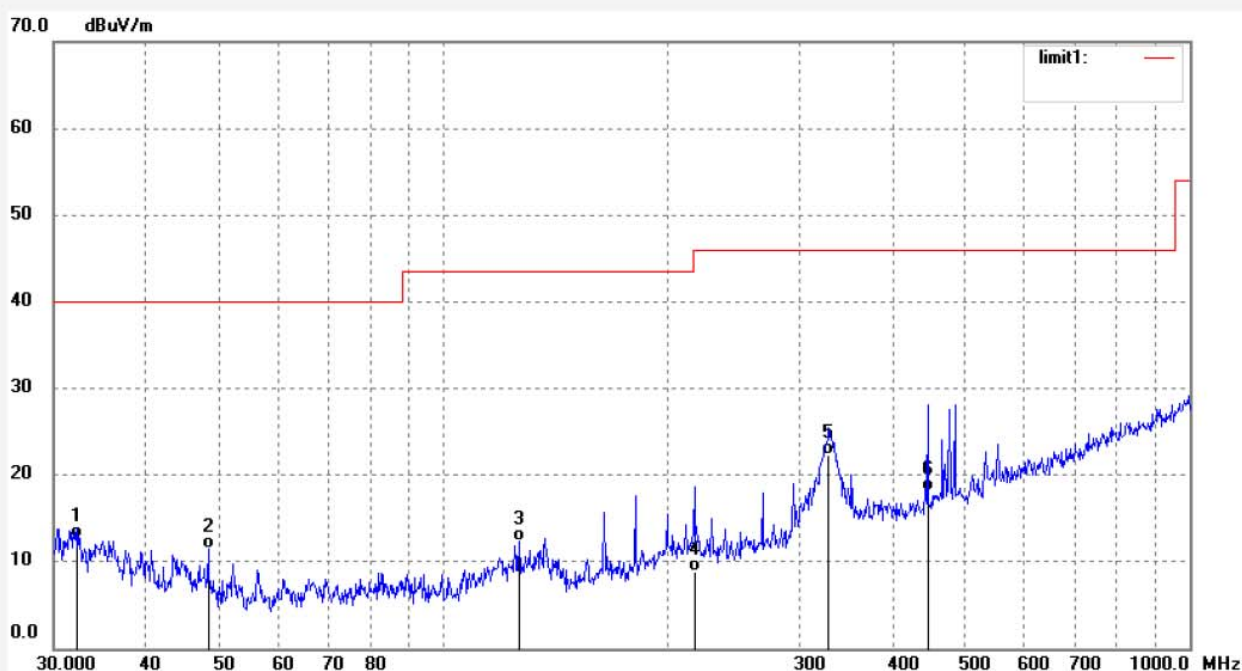
Date: 2017/09/01

Time: 16:46:10

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20171889



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	32.5248	28.07	-15.32	12.75	40.00	-27.25	QP	100	128	
2	48.3780	31.63	-20.19	11.44	40.00	-28.56	QP	100	84	
3	126.2485	34.35	-22.07	12.28	43.50	-31.22	QP	100	136	
4	216.8803	27.32	-18.41	8.91	46.00	-37.09	QP	100	48	
5	328.3068	37.15	-14.75	22.40	46.00	-23.60	QP	200	180	
6	445.6931	30.12	-11.96	18.16	46.00	-27.84	QP	100	155	

Job No.: frank2017 #950

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: DC 4.5V

Test item: Radiation Test

Date: 2017/09/01

Temp.(C)/Hum.(%) 25 C / 55 %

Time: 16:48:03

EUT: Umbrella Bluetooth Music Speaker with LED Light

Engineer Signature: Frank

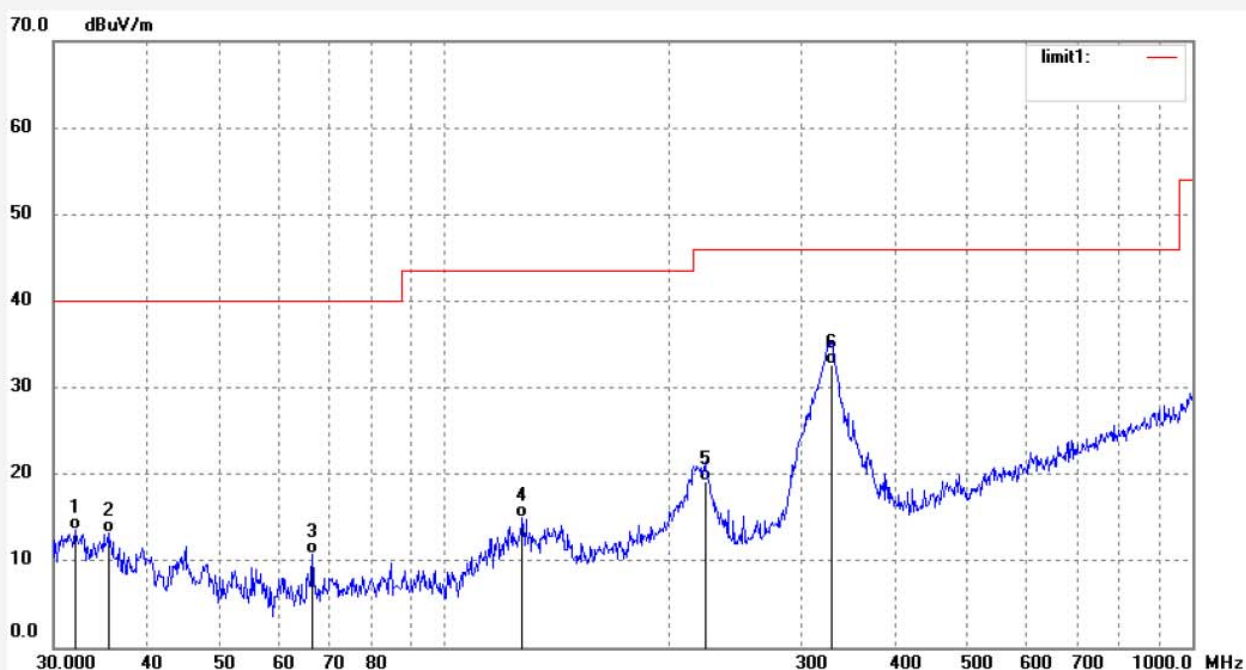
Mode: TX 2480MHz

Distance: 3m

Model: XPS001W1

Manufacturer: SHENZHEN FUHENG TONG TECHNOLOGY CO.,LTD

Note: Report NO.:ATE20171889



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	32.0711	28.77	-15.22	13.55	40.00	-26.45	QP	100	156	
2	35.5112	29.29	-16.16	13.13	40.00	-26.87	QP	100	45	
3	66.6050	32.64	-21.95	10.69	40.00	-29.31	QP	100	244	
4	127.1389	36.96	-22.08	14.88	43.50	-28.62	QP	100	156	
5	223.8481	37.54	-18.35	19.19	46.00	-26.81	QP	200	145	
6	329.4624	47.35	-14.69	32.66	46.00	-13.34	QP	200	312	

Job No.: frank2017 #951

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Umbrella Bluetooth Music Speaker with LED Light

Mode: TX 2480MHz

Model: XPS001W1

Manufacturer: SHENZHEN FUHENG TONG TECHNOLOGY CO.,LTD

Polarization: Vertical

Power Source: DC 4.5V

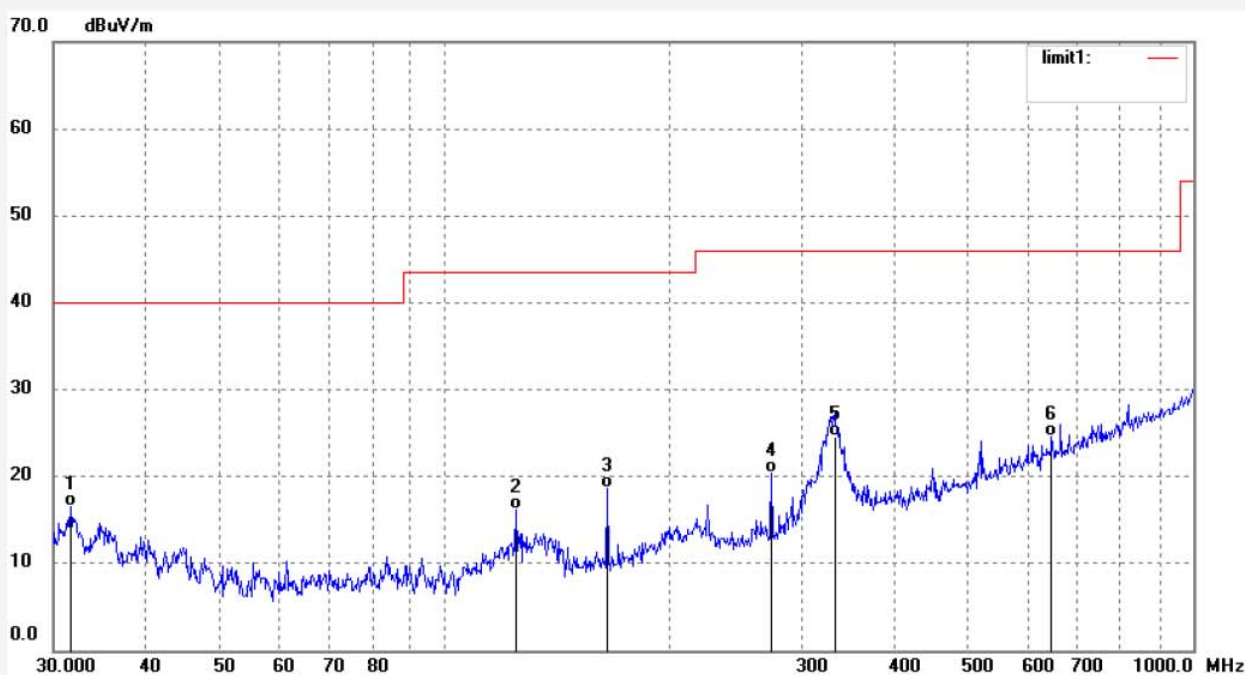
Date: 2017/09/01

Time: 16:49:02

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20171889



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.6234	31.62	-15.10	16.52	40.00	-23.48	QP	100	175	
2	124.4868	38.16	-22.03	16.13	43.50	-27.37	QP	100	180	
3	164.8911	39.48	-20.85	18.63	43.50	-24.87	QP	100	139	
4	273.4837	37.32	-16.94	20.38	46.00	-25.62	QP	100	352	
5	331.7857	39.12	-14.57	24.55	46.00	-21.45	QP	200	245	
6	646.8216	31.94	-7.40	24.54	46.00	-21.46	QP	200	16	

Above 1GHz



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Fax:+86-0755-26503396

Job No.: DING #302

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Umbrella Bluetooth Music Speaker with LED Light

Mode: TX 2402MHz

Model: XPS001W1

Manufacturer: SHENZHEN FUHENG TONG TECHNOLOGY CO.,LTD

Polarization: Horizontal

Power Source: DC 4.5V

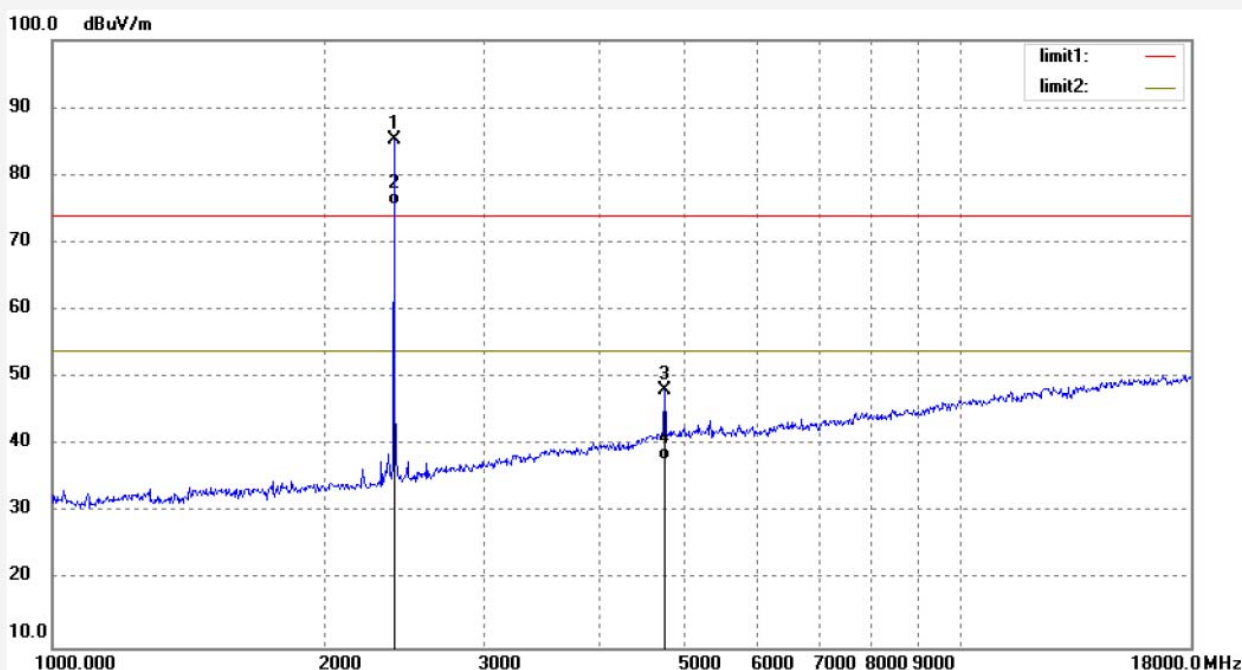
Date: 17/09/02/

Time: 9/11/58

Engineer Signature: DING

Distance: 3m

Note: Report NO.:ATE20171889



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.119	91.30	-5.98	85.32			peak	151	219	
2	2402.119	81.46	-5.98	75.48			AVG	151	220	
3	4804.257	44.99	3.15	48.14	74.00	-25.86	peak	152	127	
4	4804.257	34.57	3.15	37.72	54.00	-16.28	AVG	152	128	

Job No.: DING #303

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Umbrella Bluetooth Music Speaker with LED Light

Mode: TX 2402MHz

Model: XPS001W1

Manufacturer: SHENZHEN FUHENG TONG TECHNOLOGY CO.,LTD

Polarization: Vertical

Power Source: DC 4.5V

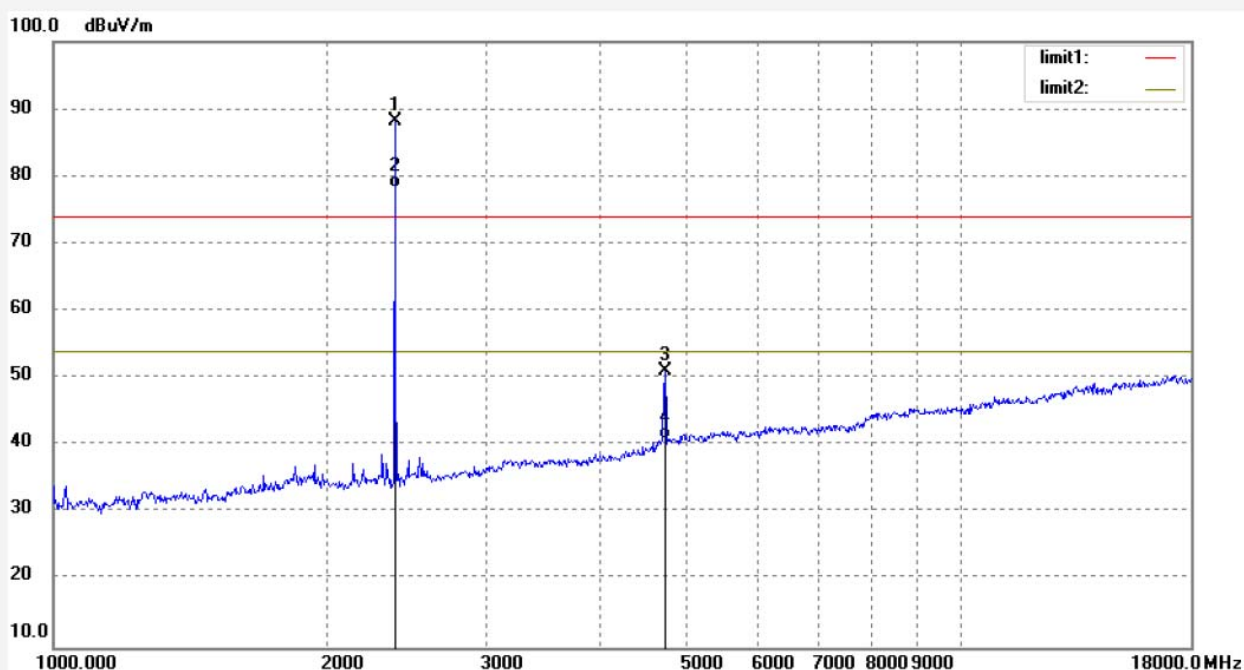
Date: 17/09/02/

Time: 9/12/40

Engineer Signature: DING

Distance: 3m

Note: Report NO.:ATE20171889



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.119	94.12	-5.98	88.14			peak	152	76	
2	2402.119	84.21	-5.98	78.23			AVG	153	75	
3	4804.257	47.92	3.15	51.07	74.00	-22.93	peak	152	32	
4	4804.257	37.68	3.15	40.83	54.00	-13.17	AVG	153	33	

Job No.: DING #305

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Umbrella Bluetooth Music Speaker with LED Light

Mode: TX 2440MHz

Model: XPS001W1

Manufacturer: SHENZHEN FUHENG TONG TECHNOLOGY CO.,LTD

Polarization: Horizontal

Power Source: DC 4.5V

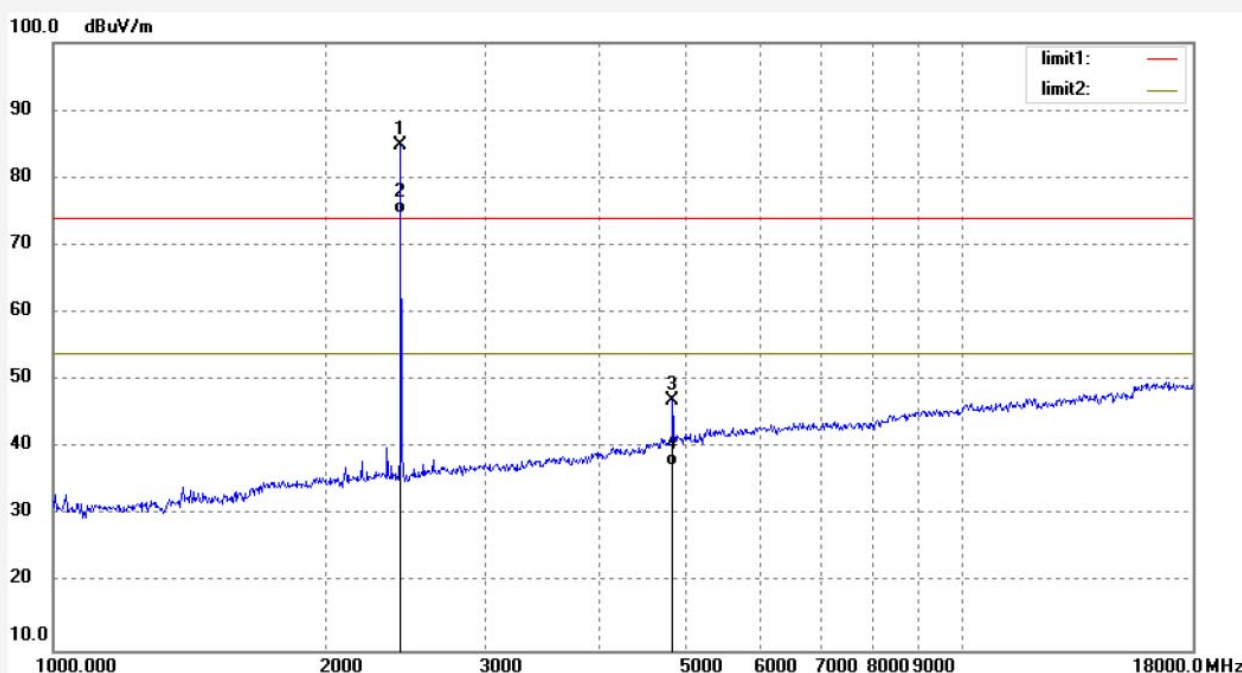
Date: 17/09/02/

Time: 9/15/22

Engineer Signature: DING

Distance: 3m

Note: Report NO.:ATE20171889



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.121	90.61	-5.72	84.89			peak	153	48	
2	2440.121	80.49	-5.72	74.77			AVG	153	47	
3	4880.224	43.45	3.67	47.12	74.00	-26.88	peak	152	69	
4	4880.224	33.76	3.67	37.43	54.00	-16.57	AVG	152	70	

Job No.: DING #304

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Umbrella Bluetooth Music Speaker with LED Light

Mode: TX 2440MHz

Model: XPS001W1

Manufacturer: SHENZHEN FUHENG TONG TECHNOLOGY CO.,LTD

Polarization: Vertical

Power Source: DC 4.5V

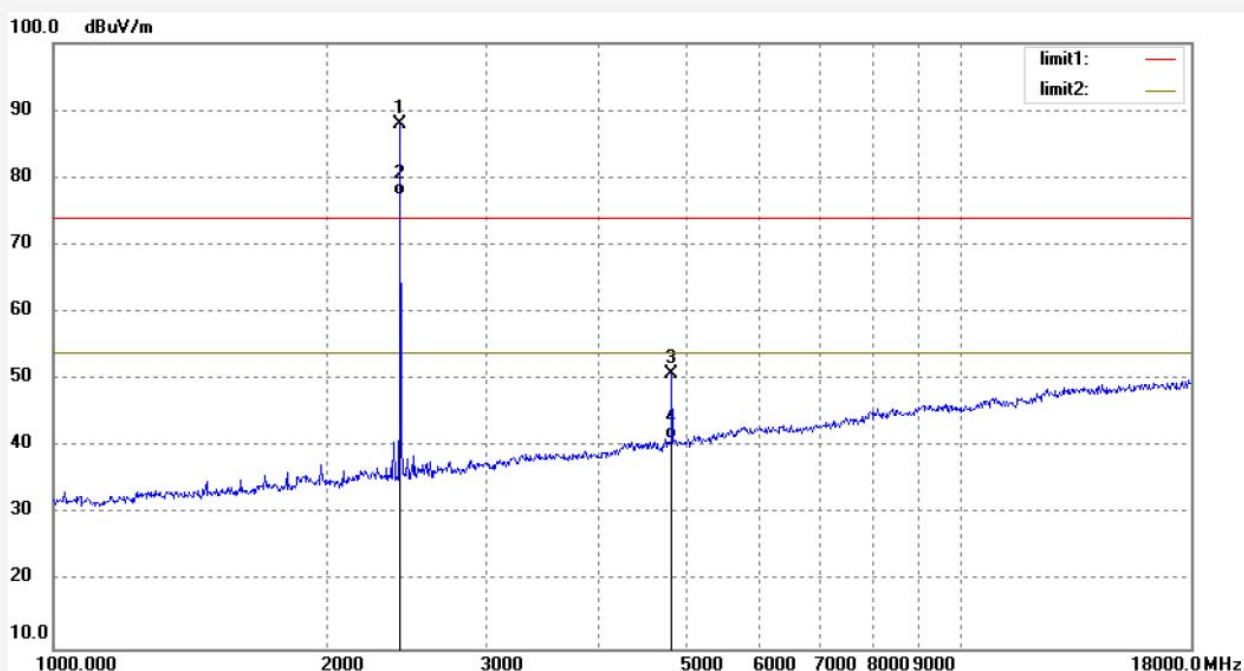
Date: 17/09/02/

Time: 9/14/13

Engineer Signature: DING

Distance: 3m

Note: Report NO.:ATE20171889



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.121	93.61	-5.72	87.89			peak	152	63	
2	2440.121	83.02	-5.72	77.30			AVG	152	64	
3	4880.224	47.19	3.67	50.86	74.00	-23.14	peak	153	172	
4	4880.224	37.44	3.67	41.11	54.00	-12.89	AVG	153	172	

Job No.: DING #306

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Umbrella Bluetooth Music Speaker with LED Light

Mode: TX 2480MHz

Model: XPS001W1

Manufacturer: SHENZHEN FUHENG TONG TECHNOLOGY CO.,LTD

Polarization: Horizontal

Power Source: DC 4.5V

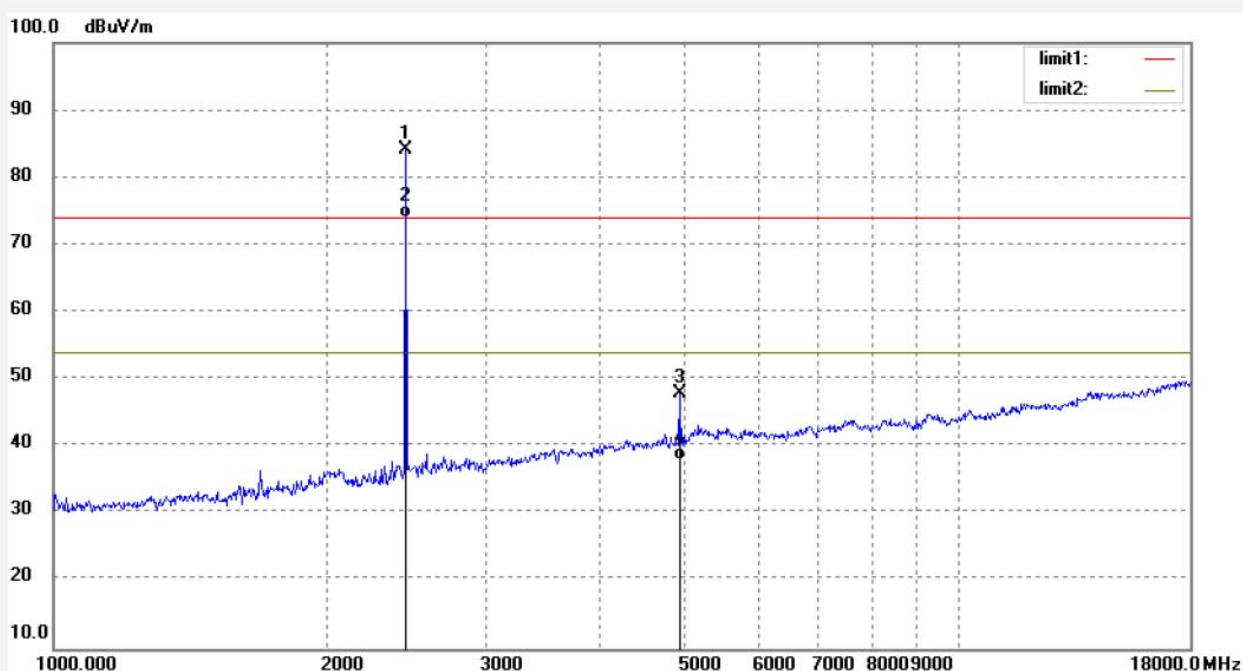
Date: 17/09/02/

Time: 9/16/27

Engineer Signature: DING

Distance: 3m

Note: Report NO.:ATE20171889



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.034	89.66	-5.55	84.11			peak	152	19	
2	2480.034	79.64	-5.55	74.09			AVG	152	20	
3	4960.044	43.44	4.54	47.98	74.00	-26.02	peak	153	28	
4	4960.044	33.56	4.54	38.10	54.00	-15.90	AVG	153	27	

Job No.: DING #307

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Umbrella Bluetooth Music Speaker with LED Light

Mode: TX 2480MHz

Model: XPS001W1

Manufacturer: SHENZHEN FUHENG TONG TECHNOLOGY CO.,LTD

Polarization: Vertical

Power Source: DC 4.5V

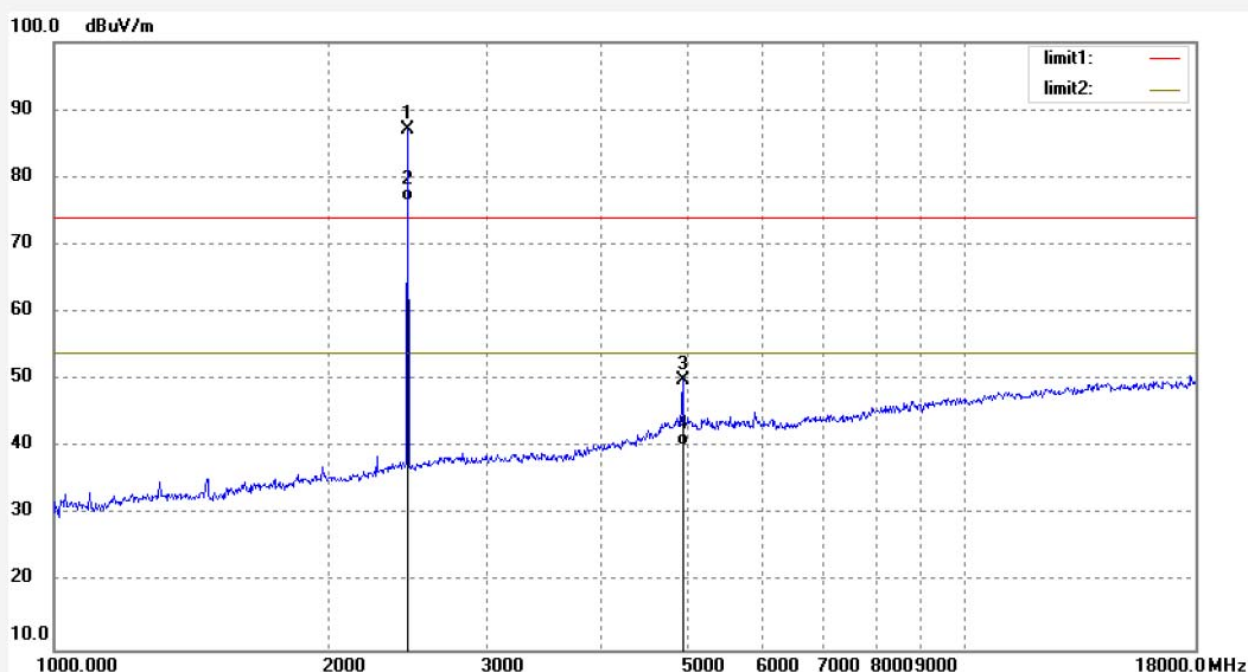
Date: 17/09/02/

Time: 9/17/56

Engineer Signature: DING

Distance: 3m

Note: Report NO.:ATE20171889



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.034	92.55	-5.55	87.00			peak	152	237	
2	2480.034	82.14	-5.55	76.59			AVG	152	238	
3	4960.044	45.33	4.54	49.87	74.00	-24.13	peak	151	240	
4	4960.044	35.68	4.54	40.22	54.00	-13.78	AVG	151	241	

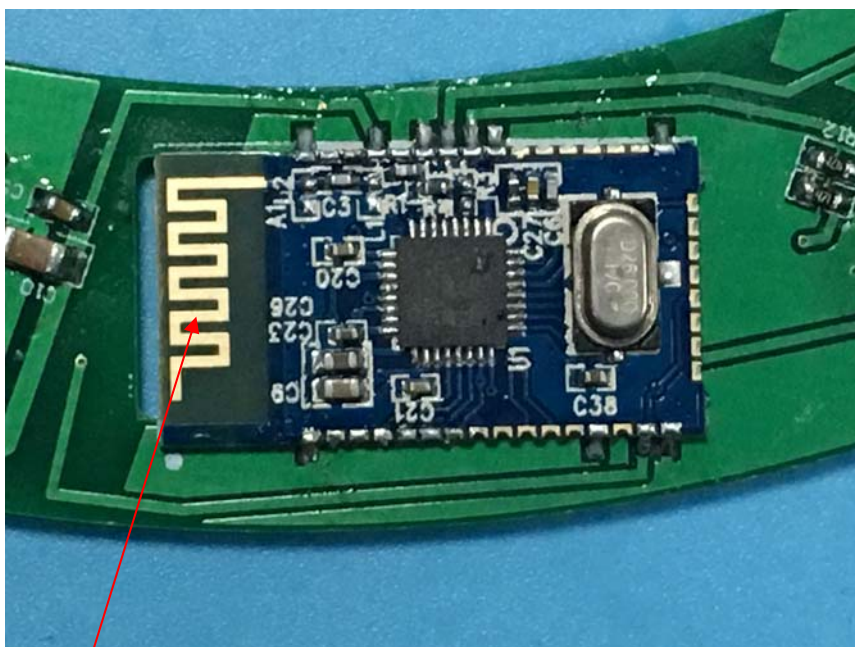
10.ANTENNA REQUIREMENT

10.1.The Requirement

According to 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.

10.2.Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Antenna gain of EUT is 0dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna