APPLICATION CERTIFICATION FCC Part 15C
On Behalf of

RMJ Group International

Bluetooth Speaker
Model No.: EBT-164B, CSPTW4830-RG, CSPTW4830-SL, CSPTW4830-CR

FCC ID: 2AM8C-EBT-164B

Prepared for	:	RMJ Group International
Address	:	1002 Quentin Road, Suite 3018, Brooklyn, New York, United States
Prepared by	:	Shenzhen Accurate Technology Co., Ltd.
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Report No.	:	ATE20172532
Date of Test	:	Dec. 20-Dec. 22, 2017
Date of Report	:	Dec. 22, 2017

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Description Page

Test Report Certification

Applicant	:	RMJ Group International
Manufacturer	:	China Etech Groups Ltd
EUT Description	:	Bluetooth Speaker
Model No.	:	EBT-164B, CSPTW4830-RG, CSPTW4830-SL, CSPTW4830-CR
Trade Name	:	N/A

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247: 2017
ANSI C63.10: 2013

The device described above is tested by Shenzhen 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 Shenzhen 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 Shenzhen Accurate Technology Co., Ltd.

Date of Test : Dec. 20-Dec. 22, 2017
Date of Report : Dec. 22, 2017

Test Engineer : (Star Yang, Engineer)

Prepared by : (Star Yang, Engineer)

Approved & Authorized Signer : (Sean Liu, Manager)

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

Model Number	:	EBT-164B, CSPTW4830-RG, CSPTW4830-SL, CSPTW4830-CR (Note: Above series are identical in schematic, structure and critical components except for model name. So we prepare EBT-164B, for test only.)
Bluetooth version	:	V 4.2
Frequency Range	:	2402MHz-2480MHz
Number of Channels	:	79
Antenna Gain(Max)	:	0dBi
Antenna type	:	PCB antenna
Adapter Input Voltage	:	DC 3.7V (Powered by Lithium battery) or DC 5V (Powered by USB port)
Modulation mode	:	GFSK, π/4 DQPSK Because of firmware limitation, this device only supports Bluetooth V4.2(BR+EDR mode) without the BLE mode and EDR 8DPSK mode
Hardware version	:	PADS9.5
Software version	:	2012SDK
Applicant	:	RMJ Group International
Address	:	1002 Quentin Road, Suite 3018, Brooklyn, New York, United States
Manufacturer	:	China Etech Groups Ltd
Address	:	Room 3A15, Floor 4, Block C, Bao Yuan Huafeng Headquarter, Economy Building, Xixiang Road, Xixiang Street, Baoan District, Shenzhen

1.2.Accessory and Auxiliary Equipment

AC/DC Power Adapter (provided by laboratory)	:	Model:TEKA006-0501000UKU
		Input: 100-240V~50/60Hz 0.3A
		Output: DC 5V/1A

1.3.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 (ISEDC) 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

1.4.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	1 Year
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 07, 2017	1 Year
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 07, 2017	1 Year
Pre-Amplifier	Rohde&Schwarz	CBLU1183540-01	3791	Jan. 07, 2017	1 Year
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 13, 2017	1 Year
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 13, 2017	1 Year
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 13, 2017	1 Year
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 13, 2017	1 Year
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 07, 2017	1 Year
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 07, 2017	1 Year
Highpass Filter	Wainwright Instruments	WHKX3.6/18G-10SS	N/A	Jan. 07, 2017	1 Year
Band Reject Filter	Wainwright Instruments	WRCG2400/2485-2375/2510-60/11SS	N/A	Jan. 07, 2017	1 Year
RF COAXIAL CABLE	SUHNER	N-5m(Frequency range:9KHz-26.5GHz)	NO.3	Jan. 07, 2017	1 Year
RF COAXIAL CABLE	SUHNER	N-5m(Frequency range:9KHz-26.5GHz)	NO.4	Jan. 07, 2017	1 Year
RF COAXIAL CABLE	SUHNER	N-1m(Frequency range:9KHz-26.5GHz)	NO.5	Jan. 07, 2017	1 Year
RF COAXIAL CABLE	SUHNER	N-1m(Frequency range:9KHz-26.5GHz)	NO.6	Jan. 07, 2017	1 Year
Temporary antenna connector	NTGS	14AE	N/A	Dec. 20, 2017	N/A

Note: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: Transmitting mode
Low Channel: 2402MHz
Middle Channel: 2441MHz
High Channel: 2480MHz
Hopping

Note: The equipment under test (EUT) was tested under fully-charged battery.
The Bluetooth has been tested under continuous transmission mode.

3.2.Configuration and peripherals

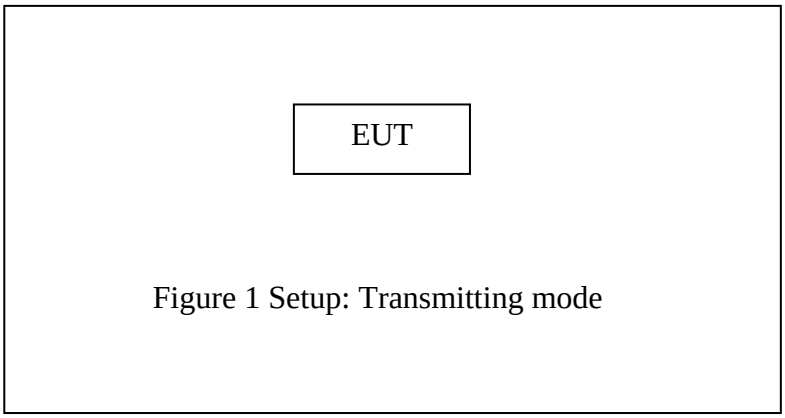


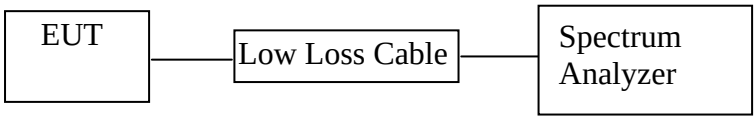
Figure 1 Setup: Transmitting mode

4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.207	Conducted Emission Test	Compliant
Section 15.247(a)(1)	20dB Bandwidth Test	Compliant
Section 15.247(a)(1)	Carrier Frequency Separation Test	Compliant
Section 15.247(a)(1)(iii)	Number Of Hopping Frequency Test	Compliant
Section 15.247(a)(1)(iii)	Dwell Time Test	Compliant
Section 15.247(b)(1)	Maximum Peak Output Power Test	Compliant
Section 15.247(d) Section 15.209	Radiated Emission Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.203	Antenna Requirement	Compliant

5. 20DB BANDWIDTH TEST

5.1.Block Diagram of Test Setup



(EUT: Bluetooth Speaker)

5.2.The Requirement For Section 15.247(a)(1)

Section 15.247(a)(1): 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.

5.3.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.

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 (Hopping off) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, 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 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

5.6.Test Result

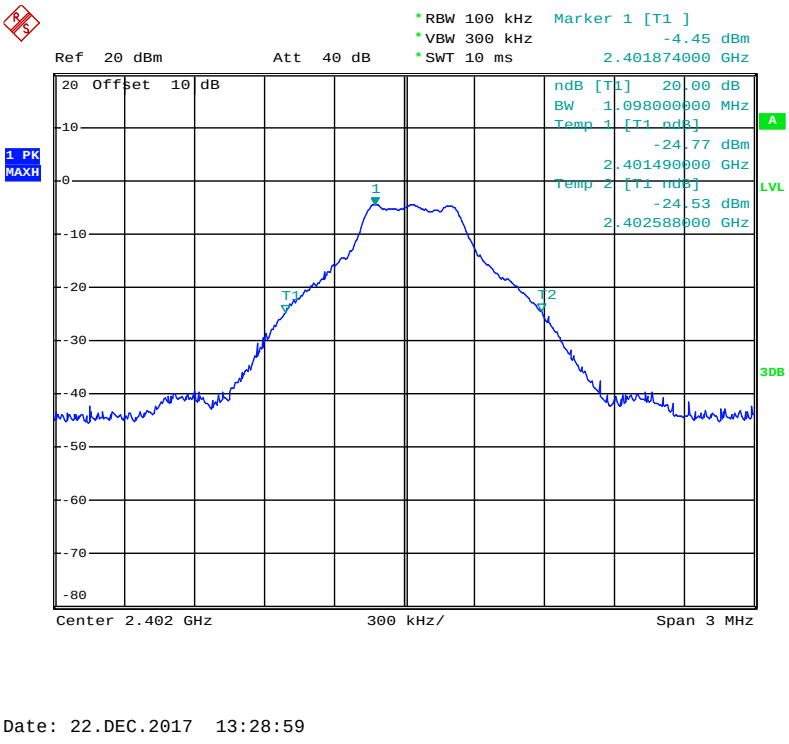
Test Lab: Shielding room
Test Engineer: Star

Channel	Frequency (MHz)	GFSK 20dB Bandwidth (MHz)	Π/4-DQPSK 20dB Bandwidth (MHz)	Result
Low	2402	1.098	1.374	Pass
Middle	2441	1.074	1.380	Pass
High	2480	1.098	1.356	Pass

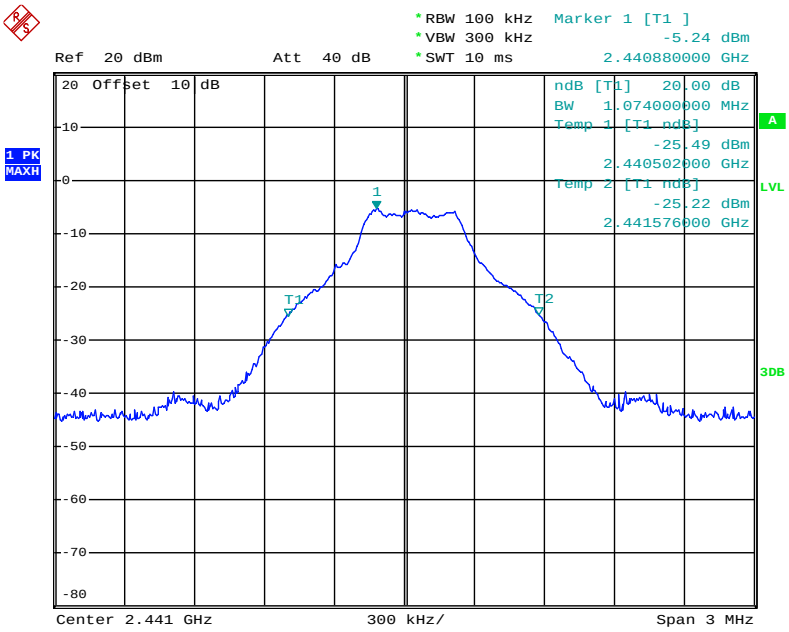
The spectrum analyzer plots are attached as below.

GFSK Mode

Low channel



Middle channel



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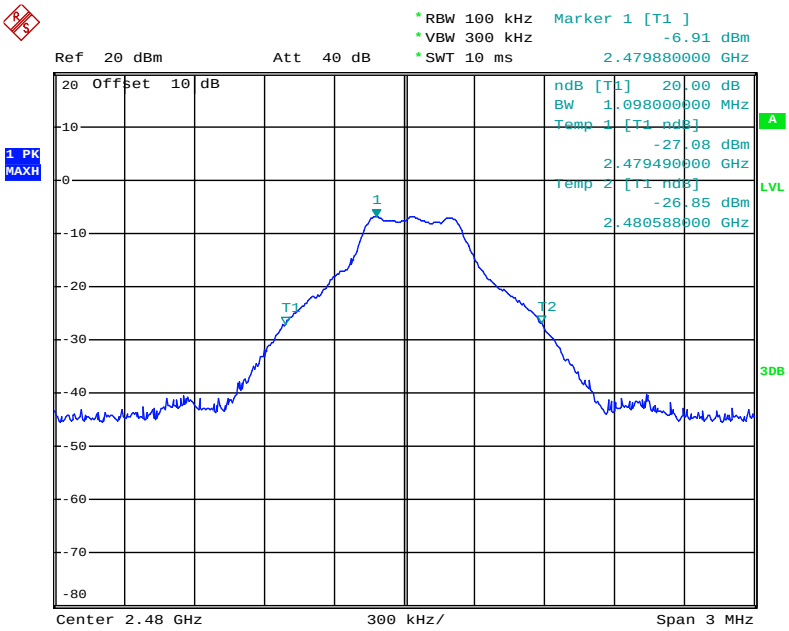
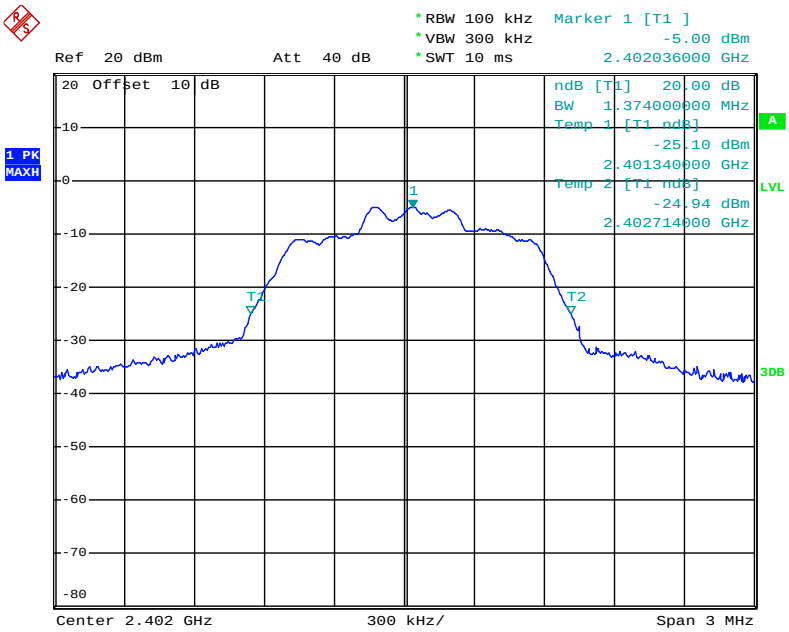
High channel



Date: 22.DEC.2017 13:29:35

Π/4-DQPSK Mode

Low channel



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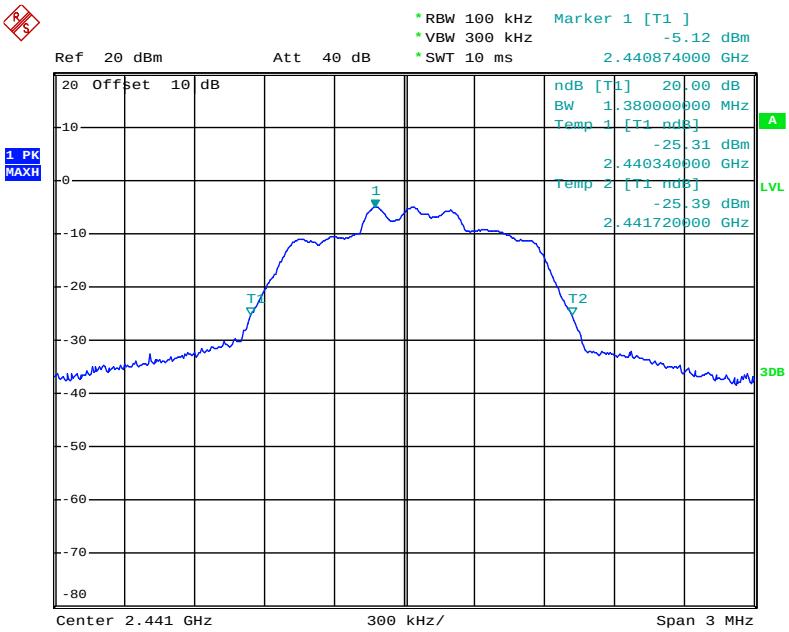
Middle channel



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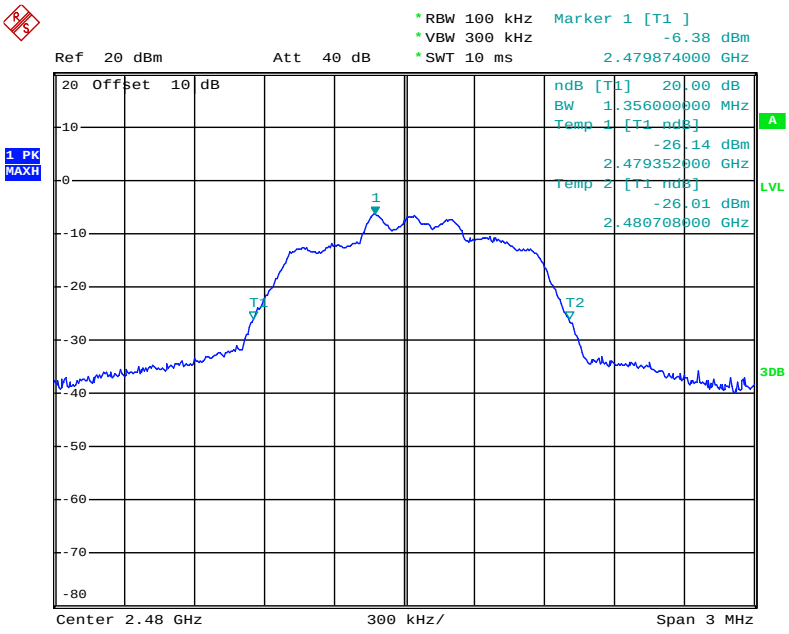
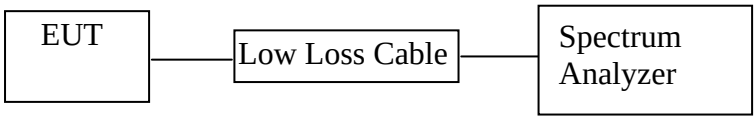
High channel



Date: 22.DEC.2017 13:30:21

6. CARRIER FREQUENCY SEPARATION TEST

6.1.Block Diagram of Test Setup



(EUT: Bluetooth Speaker)

6.2.The Requirement For Section 15.247(a)(1)

Section 15.247(a)(1): 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. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudorandomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

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 (Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, 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 30 kHz and VBW to 100 kHz. Adjust Span to 2MHz.

6.5.3.Set the adjacent channel of the EUT Maxhold another trace.

6.5.4.Measurement the channel separation

6.6.Test Result

Test Lab: Shielding room
Test Engineer: Star

GFSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.008	25KHz or 2/3*20dB bandwidth	PASS
	2403			
Middle	2440	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2480			

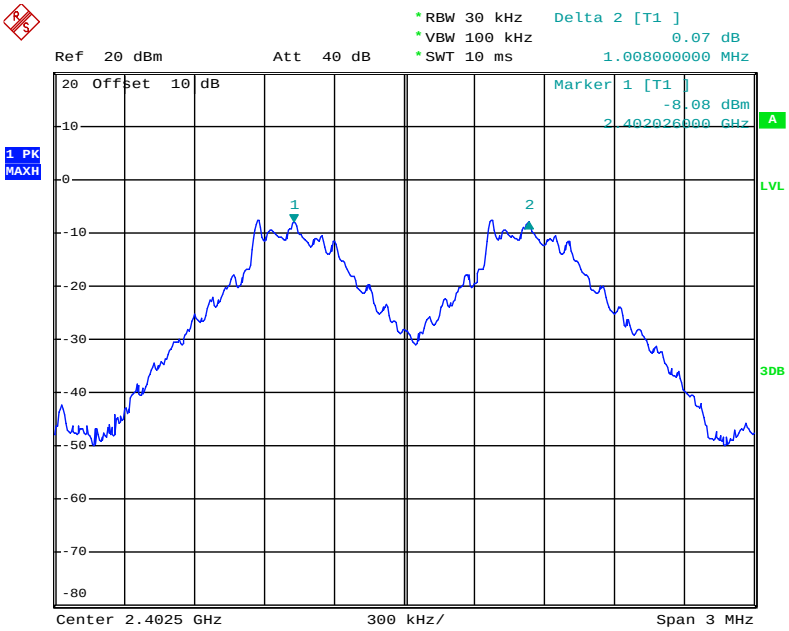
Π/4-DQPSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.008	25KHz or 2/3*20dB bandwidth	PASS
	2403			
Middle	2440	1.008	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2480			

The spectrum analyzer plots are attached as below.

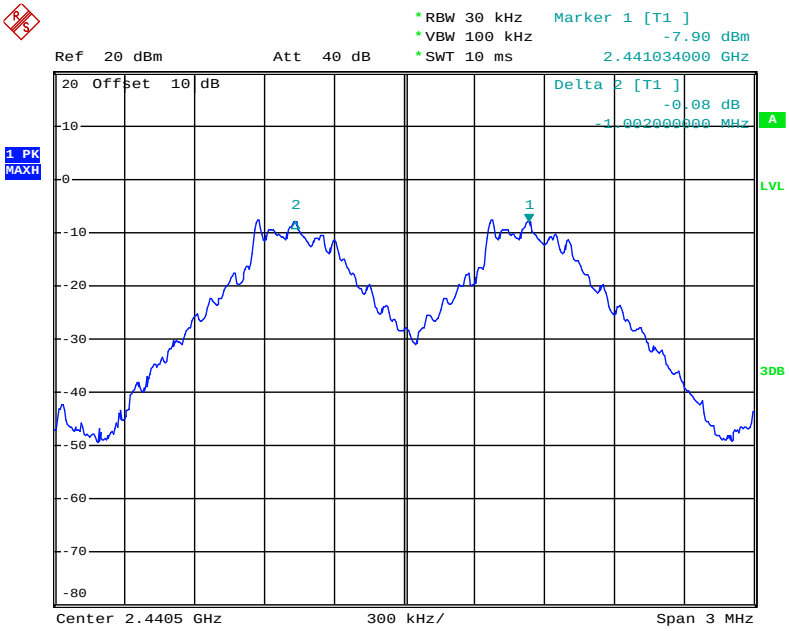
GFSK Mode

Low channel



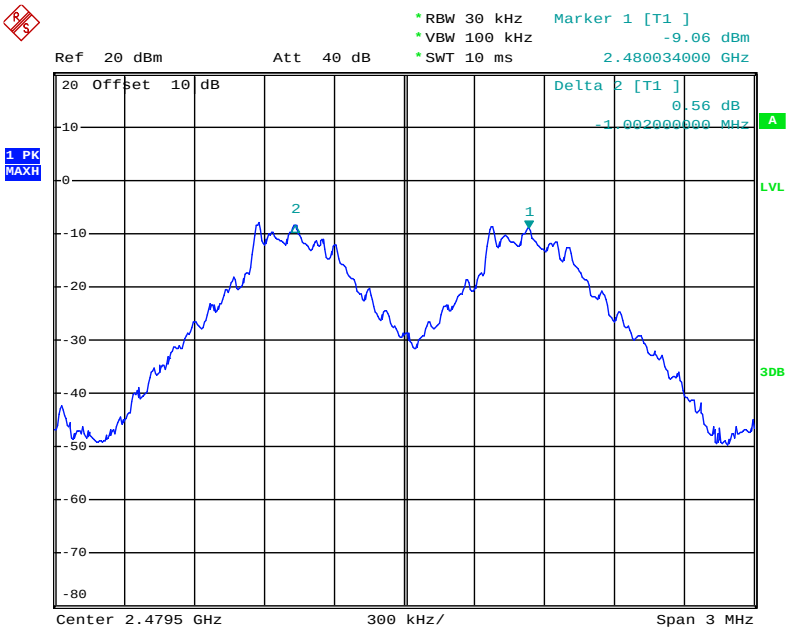
Date: 22.DEC.2017 13:44:12

Middle channel



Date: 22.DEC.2017 13:43:09

High channel



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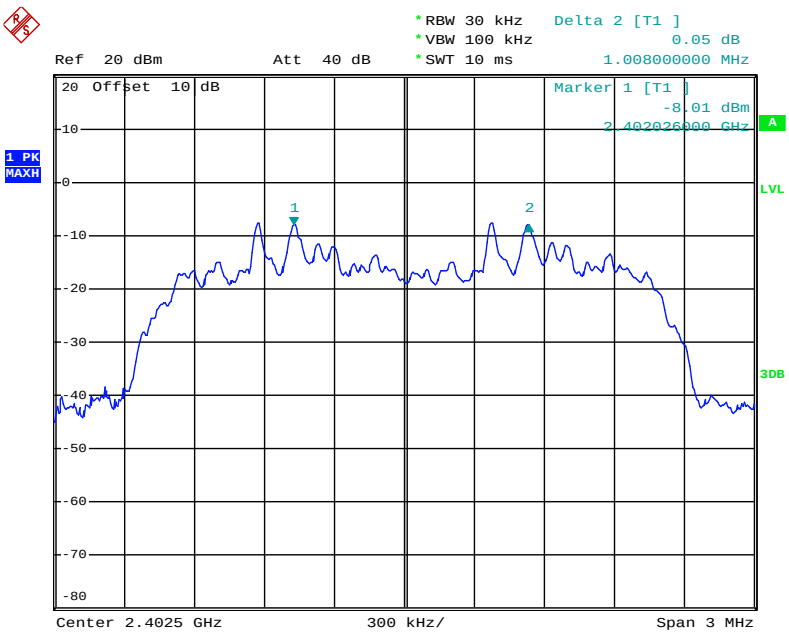
Π/4-DQPSK Mode

Low channel



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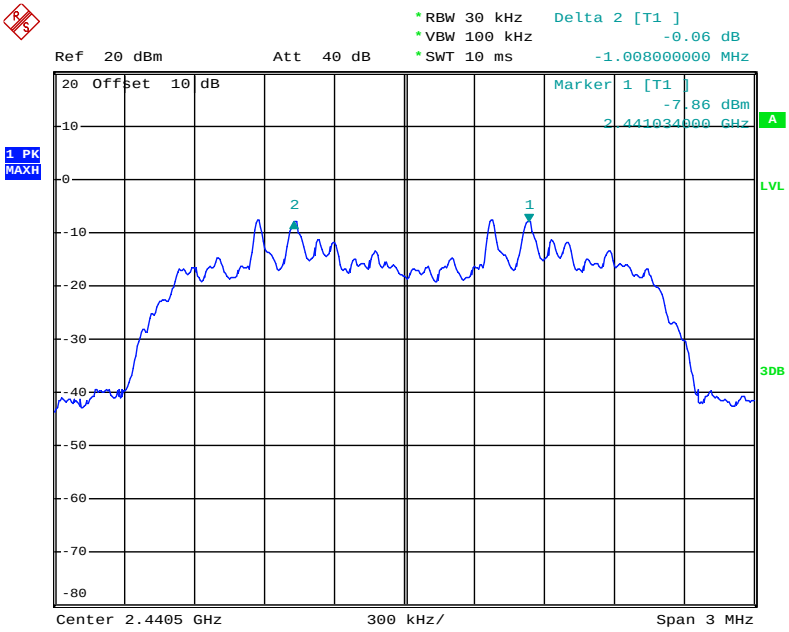
Middle channel



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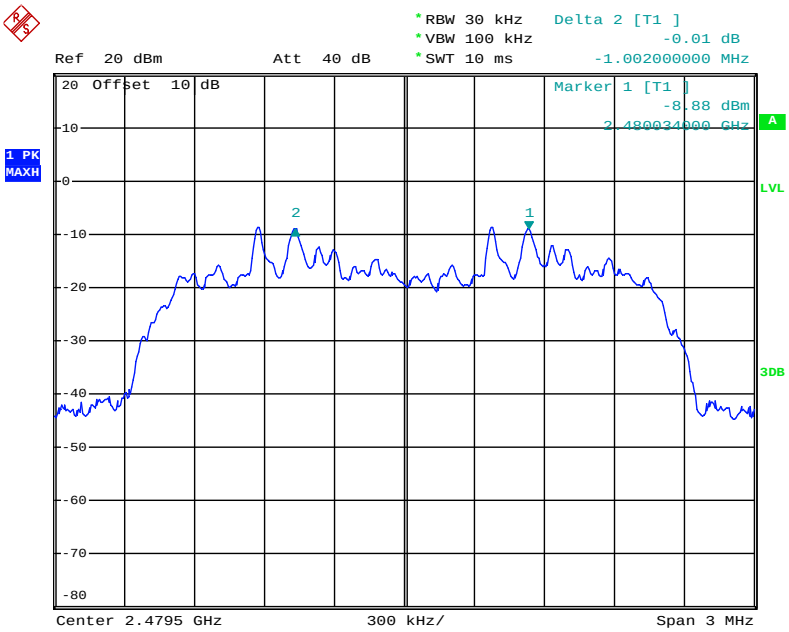
High channel



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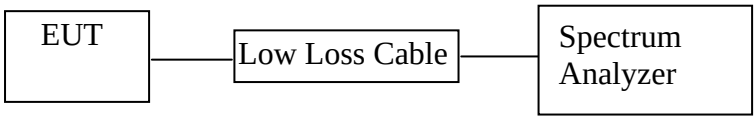
7. NUMBER OF HOPPING FREQUENCY TEST

7.1.Block Diagram of Test Setup



(EUT: Bluetooth Speaker)

7.2.The Requirement For Section 15.247(a)(1)(iii)

Section 15.247(a)(1)(iii): Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

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 (Hopping on) modes measure it.

7.5.Test Procedure

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

7.5.2.Set the spectrum analyzer as RBW=100 kHz, VBW=300 kHz.

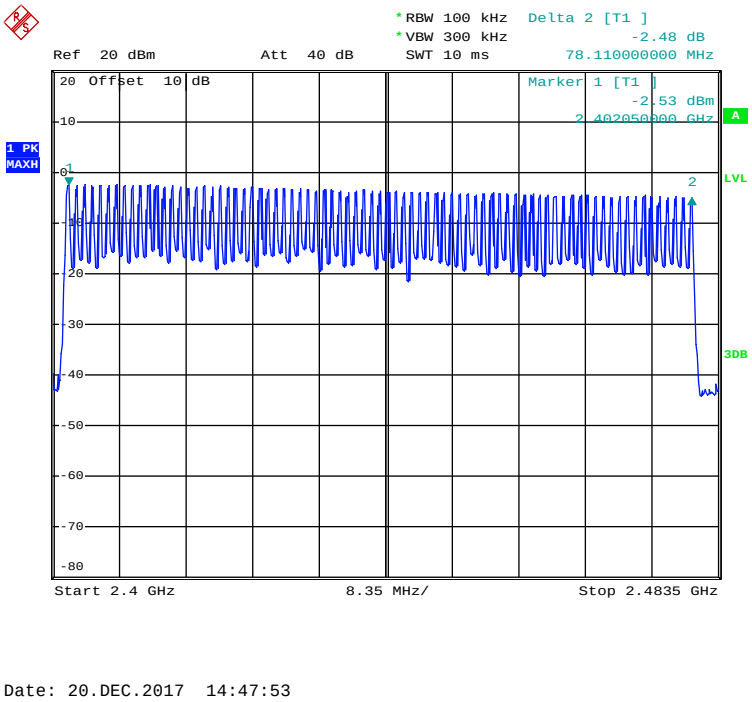
7.5.3.Max hold, view and count how many channel in the band.

7.6.Test Result

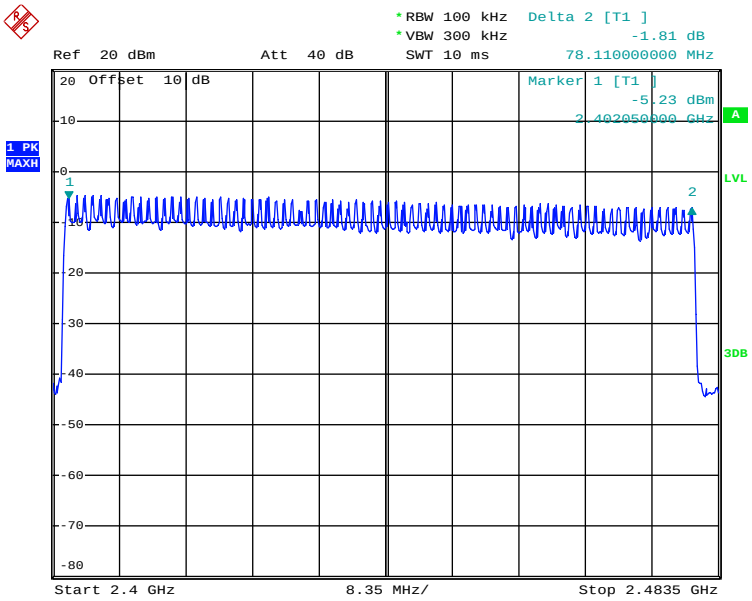
Test Lab: Shielding room
Test Engineer: Star

Total number of hopping channel	Measurement result(CH)	Limit(CH)
	79	⩾15

Number of hopping channels(GFSK)

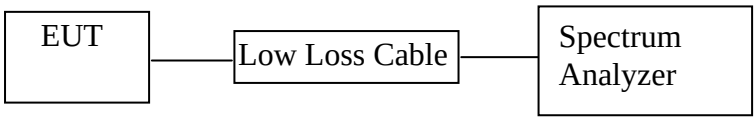


Number of hopping channels(Π/4-DQPSK)



8. DWELL TIME TEST

8.1.Block Diagram of Test Setup



(EUT: Bluetooth Speaker)

8.2.The Requirement For Section 15.247(a)(1)(iii)

Section 15.247(a)(1)(iii): Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

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 (Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

8.5.Test Procedure

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

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

8.5.3.Set the spectrum analyzer as RBW=1MHz, VBW=3MHz, Span=0Hz, Adjust Sweep=5ms, 10ms, 15ms. Get the pulse time.

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

8.6.Test Result

Test Lab: Shielding room
Test Engineer: Star

GFSK Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.520	166.40	400
	2441	0.520	166.40	400
	2480	0.520	166.40	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2402	1.780	284.80	400
	2441	1.800	288.00	400
	2480	1.800	288.00	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2402	3.070	327.47	400
	2441	3.070	327.47	400
	2480	3.070	327.47	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

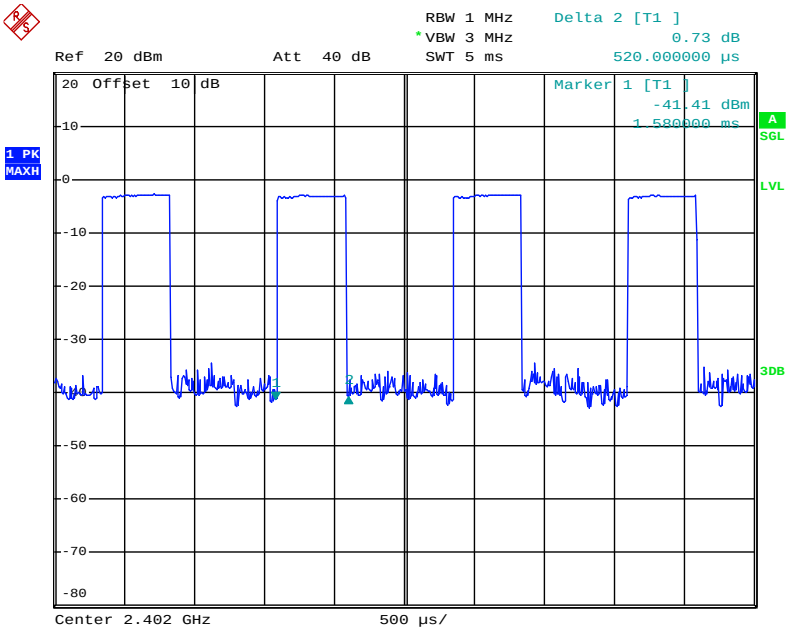
Π/4-DQPSK

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.530	169.60	400
	2441	0.530	169.60	400
	2480	0.530	169.60	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2402	1.810	289.60	400
	2441	1.810	289.60	400
	2480	1.810	289.60	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2402	3.100	330.67	400
	2441	3.070	327.47	400
	2480	3.100	330.67	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

The spectrum analyzer plots are attached as below.

GFSK Mode

DH1 Low channel



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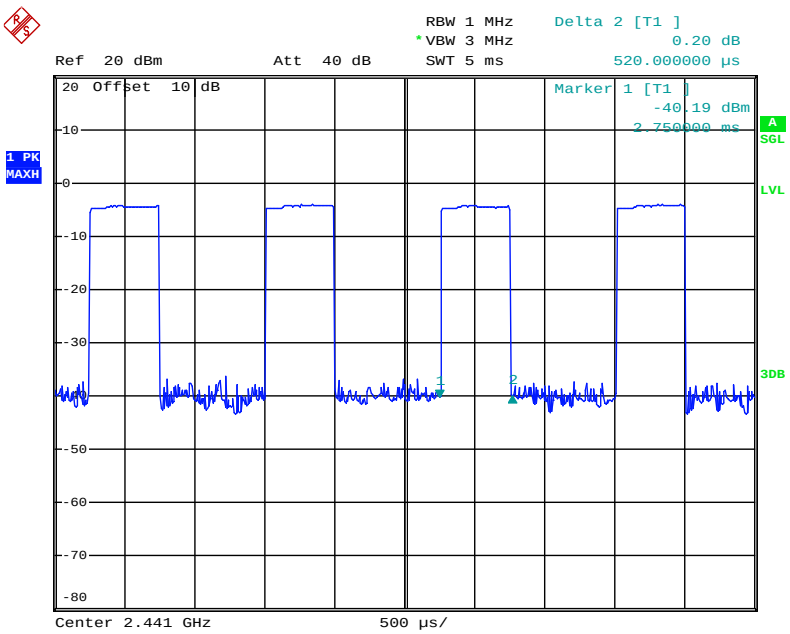
DH1 Middle channel



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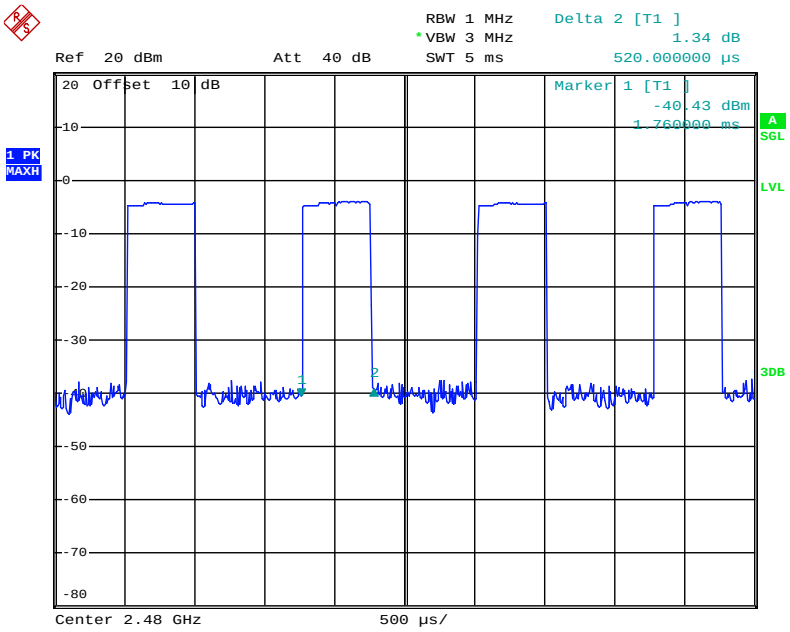
DH1 High channel



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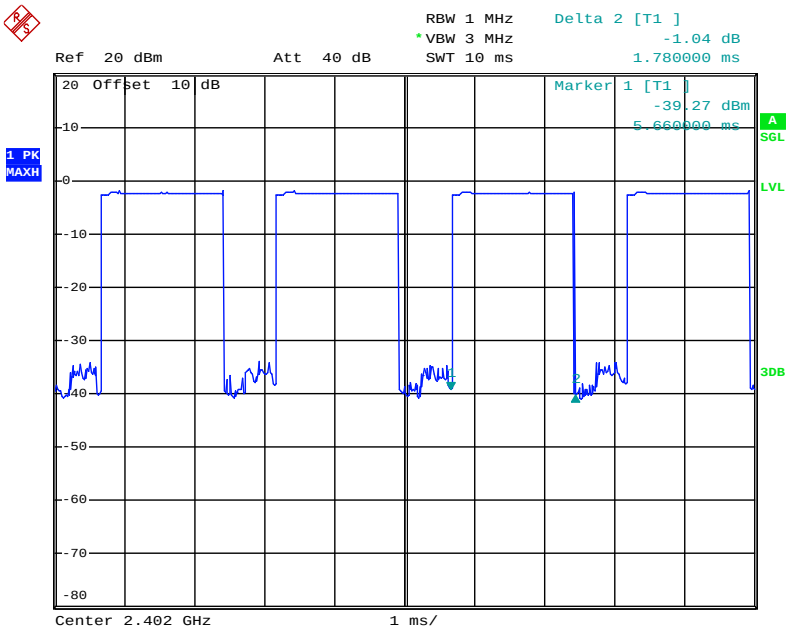
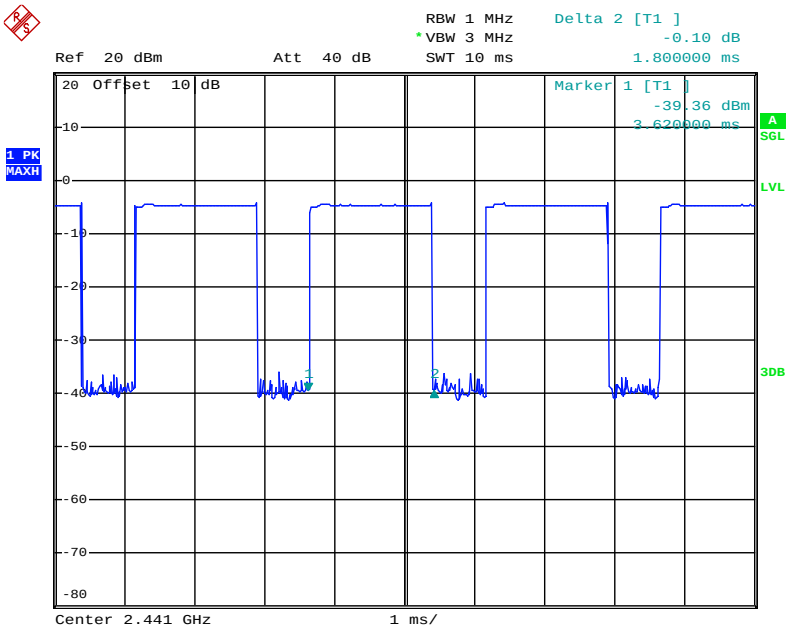
DH3 Low channel



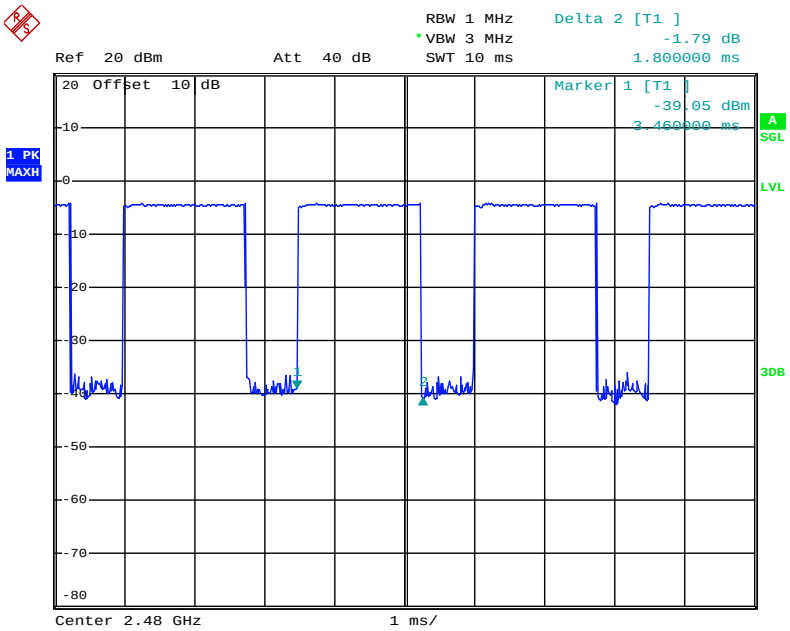
Date: 20.DEC.2017 15:23:48

DH3 Middle channel



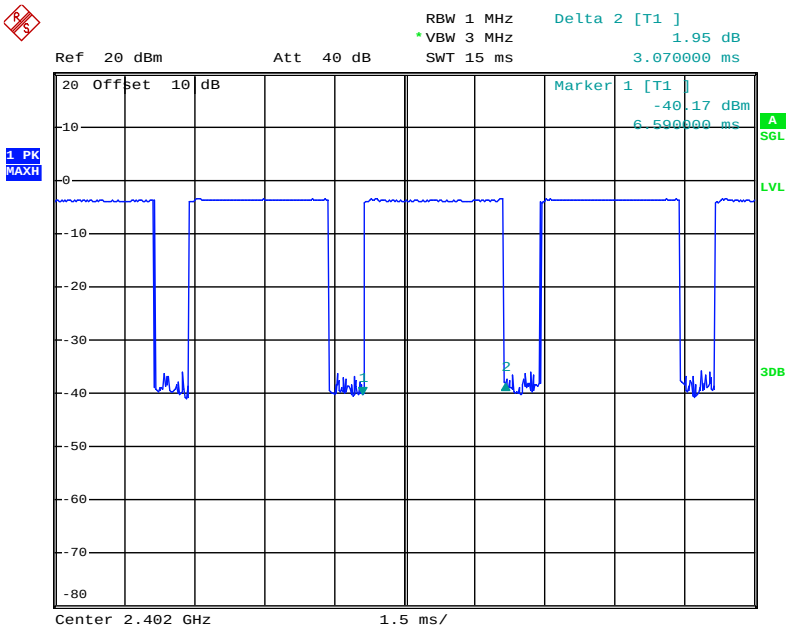
Date: 20.DEC.2017 15:22:22

DH3 High channel



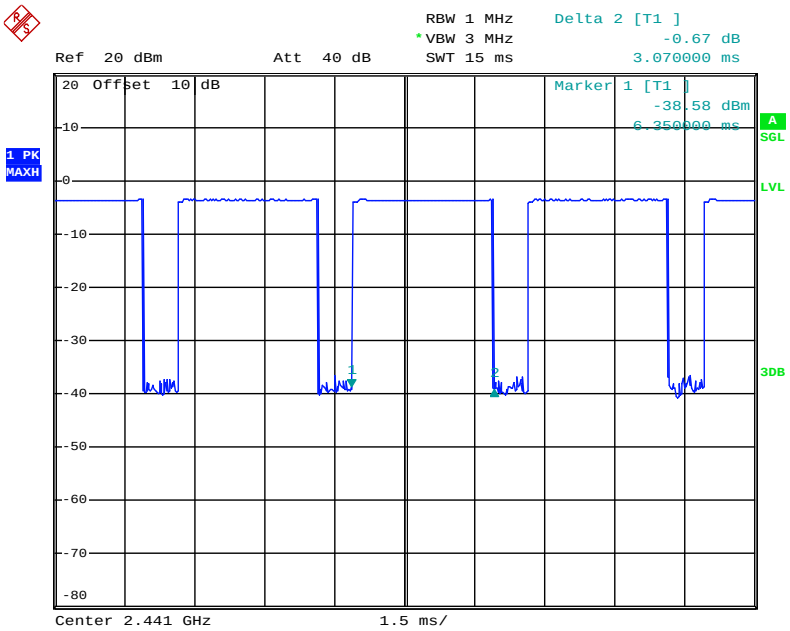
Date: 20.DEC.2017 15:21:15

DH5 Low channel



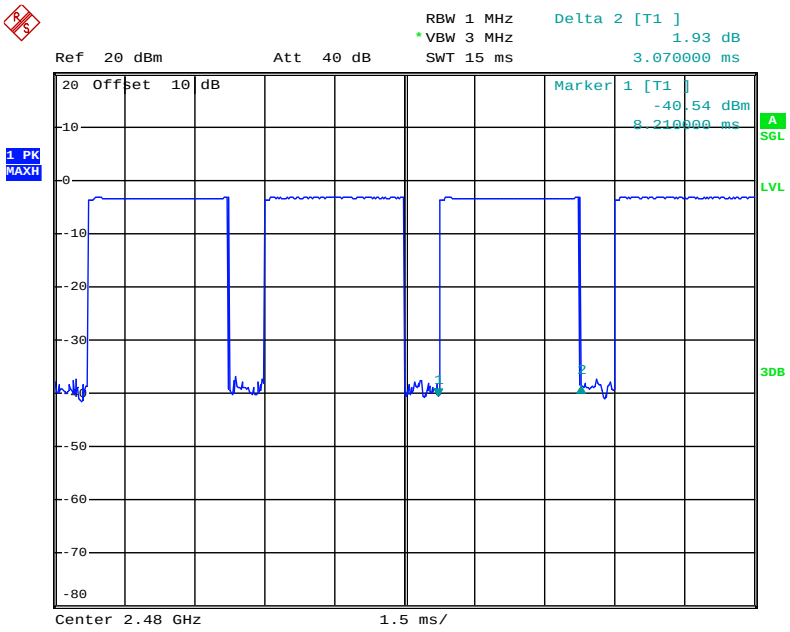
Date: 20.DEC.2017 15:24:26

DH5 Middle channel



Date: 20.DEC.2017 15:24:57

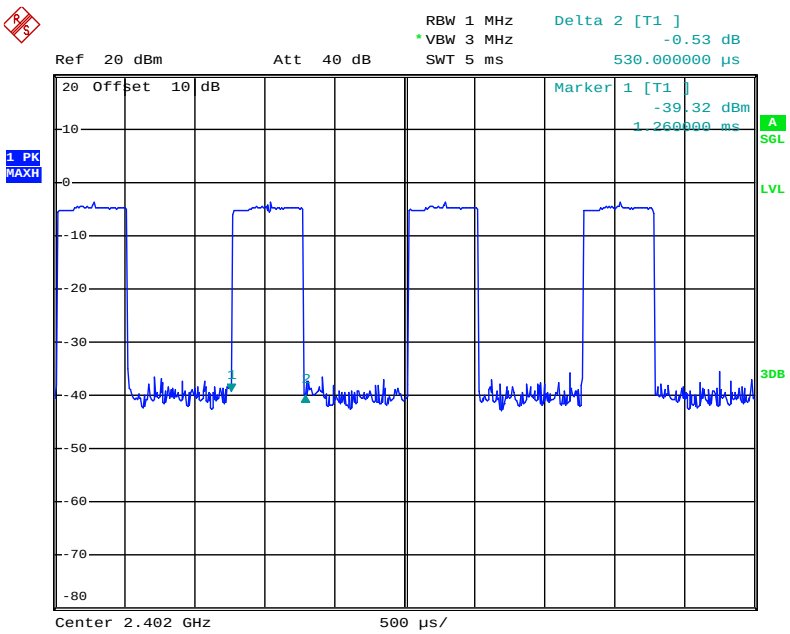
DH5 High channel



Date: 20.DEC.2017 15:25:37

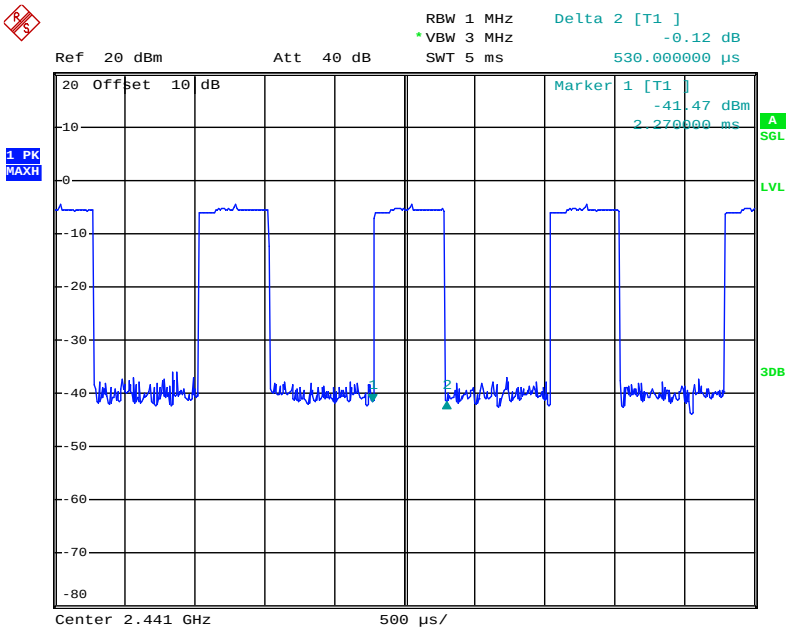
Π/4-DQPSK

2DH1 Low channel



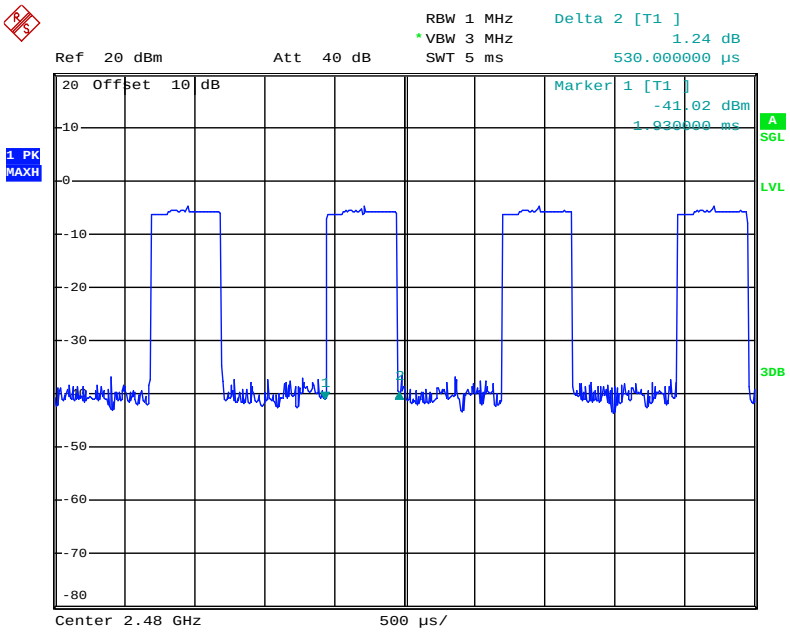
Date: 20.DEC.2017 15:27:49

2DH1 Middle channel



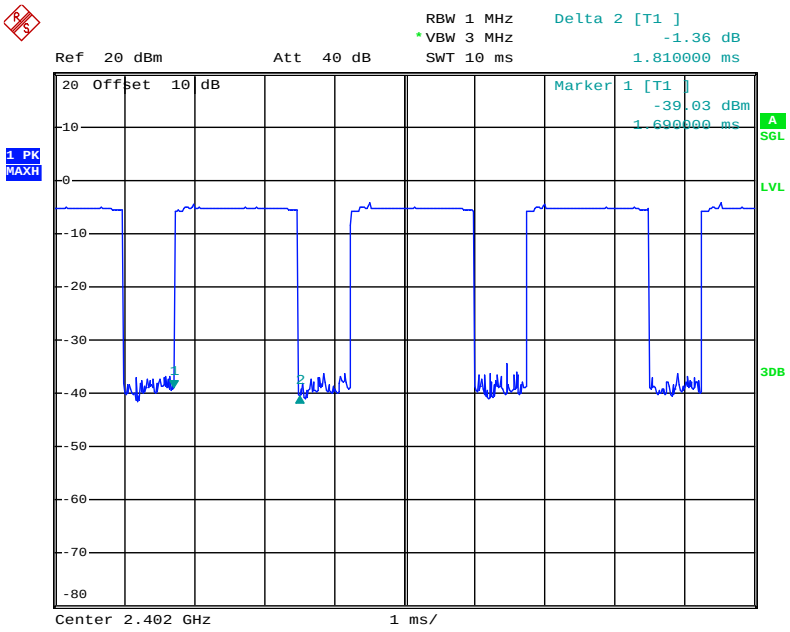
Date: 20.DEC.2017 15:29:02

2DH1 High channel



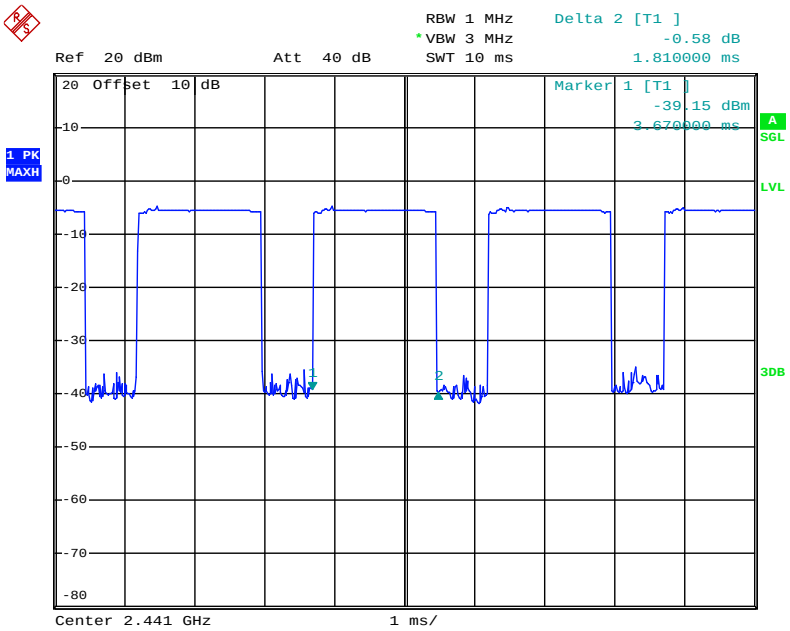
Date: 20.DEC.2017 15:29:46

2DH3 Low channel



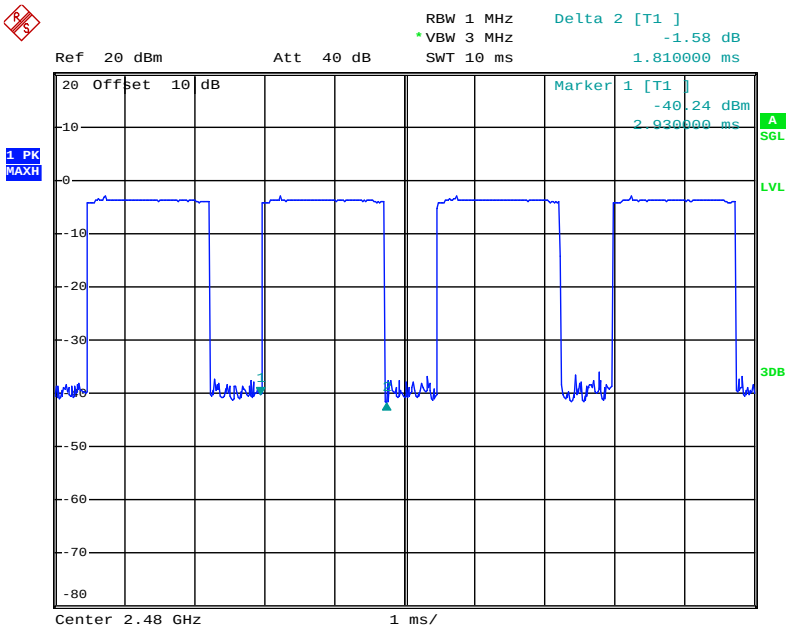
Date: 20.DEC.2017 15:30:46

2DH3 Middle channel



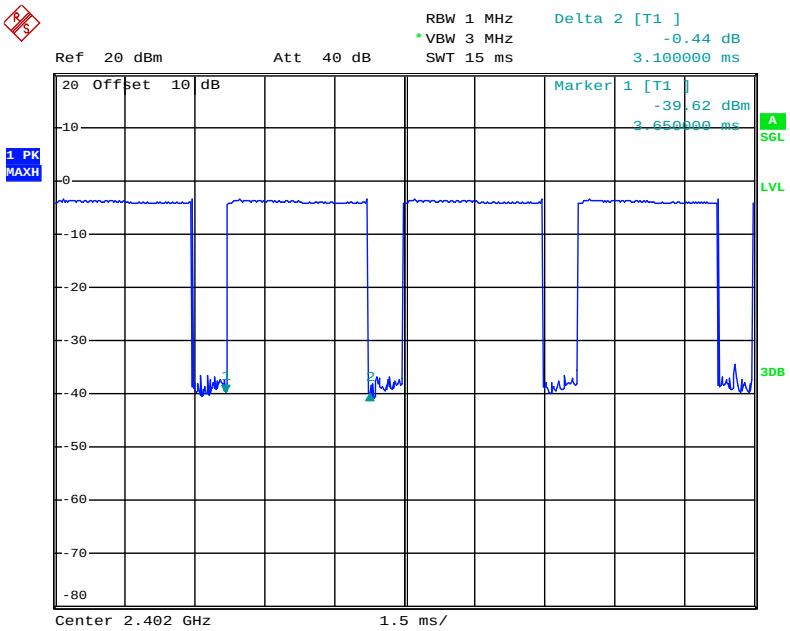
Date: 20.DEC.2017 15:32:01

2DH3 High channel



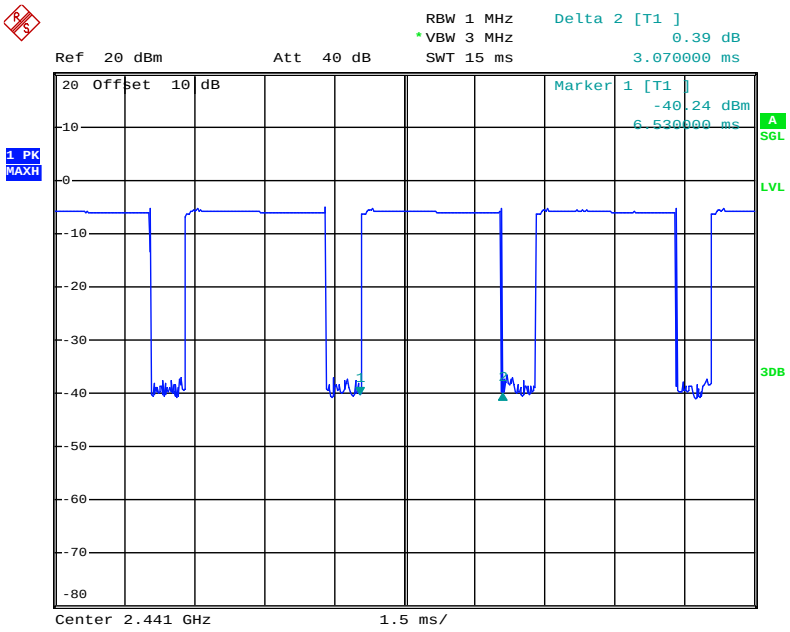
Date: 20.DEC.2017 15:32:59

2DH5 Low channel



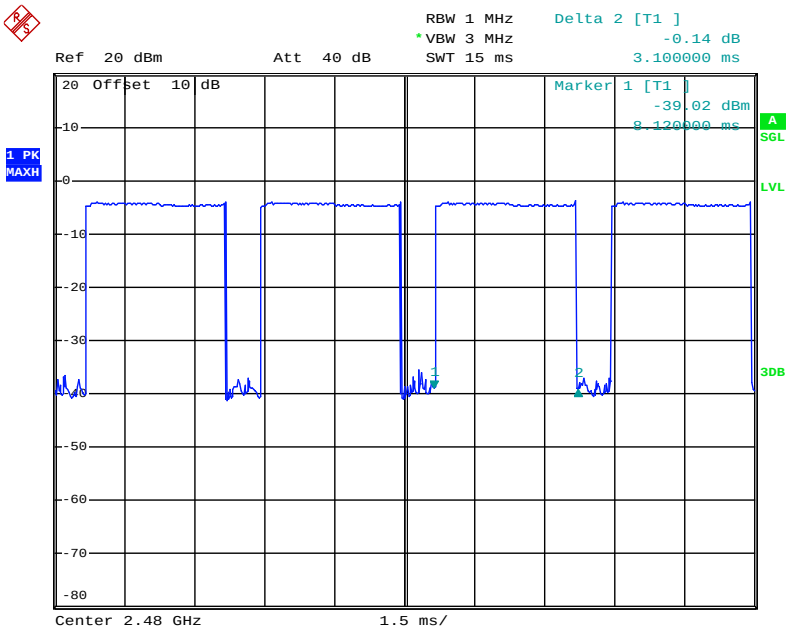
Date: 20.DEC.2017 15:33:52

2DH5 Middle channel



Date: 20.DEC.2017 15:39:37

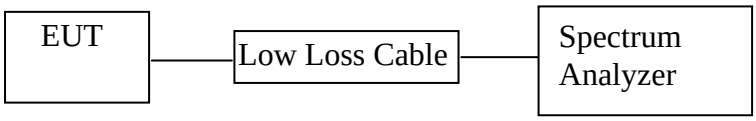
2DH5 High channel



Date: 20.DEC.2017 15:41:11

9. MAXIMUM PEAK OUTPUT POWER TEST

9.1.Block Diagram of Test Setup



(EUT: Bluetooth Speaker)

9.2.The Requirement For Section 15.247(b)(1)

Section 15.247(b)(1): 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.

9.3.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.

9.4.Operating Condition of EUT

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

9.4.2.Turn on the power of all equipment.

9.4.3.Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

9.5.Test Procedure

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

9.5.2.Set RBW of spectrum analyzer to 3MHz and VBW to 3MHz.

9.5.3.Measurement the maximum peak output power.

9.6.Test Result

Test Lab: Shielding room
Test Engineer: Star

GFSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	-2.08/0.0006	21 / 0.125
Middle	2441	-2.68/0.0005	21 / 0.125
High	2480	-2.52/0.0006	21 / 0.125

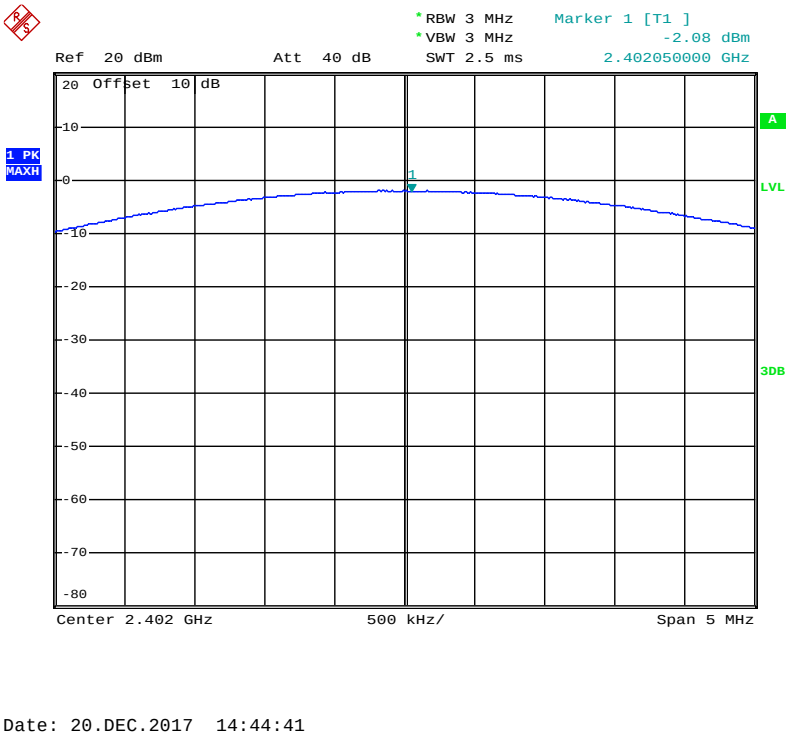
∏/4-DQPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	-2.44/0.0006	21 / 0.125
Middle	2441	-2.83/0.0005	21 / 0.125
High	2480	-2.86/0.0005	21 / 0.125

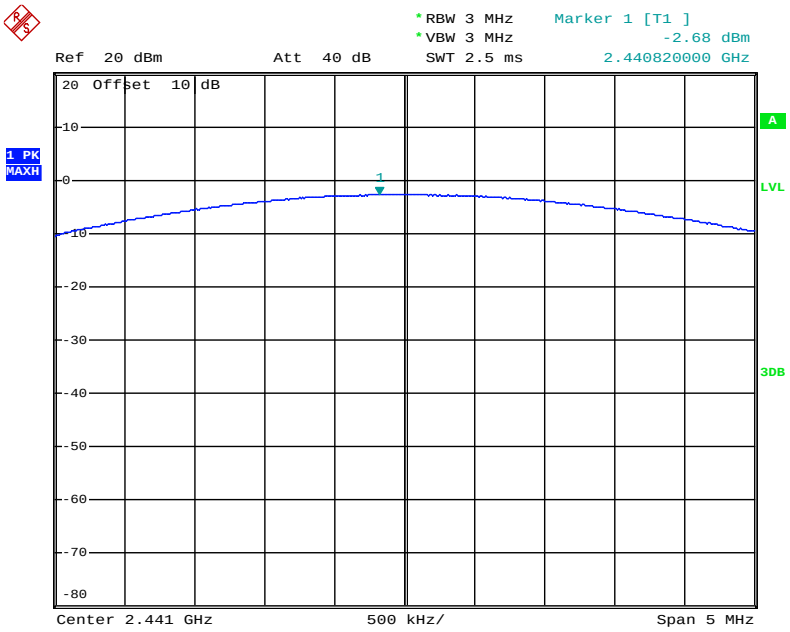
The spectrum analyzer plots are attached as below.

GFSK Mode

Low channel

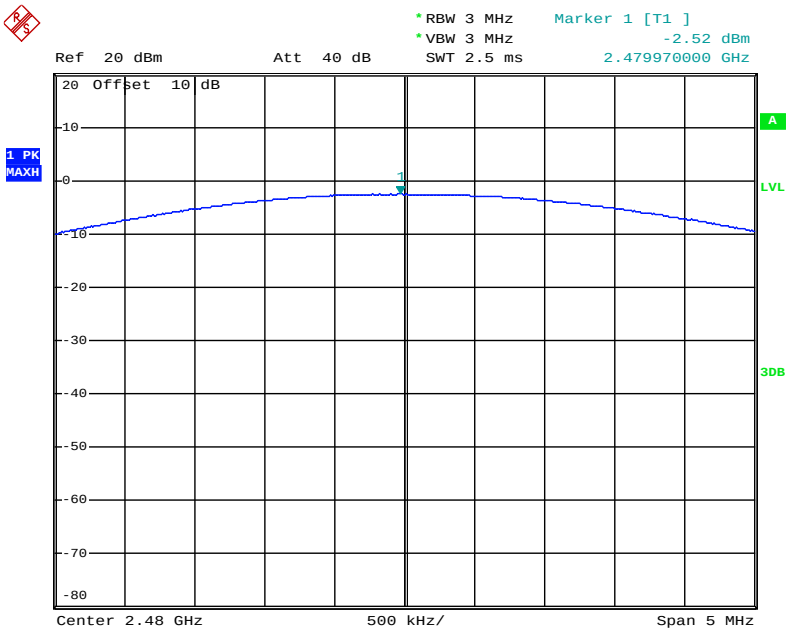


Middle channel



Date: 20.DEC.2017 14:43:31

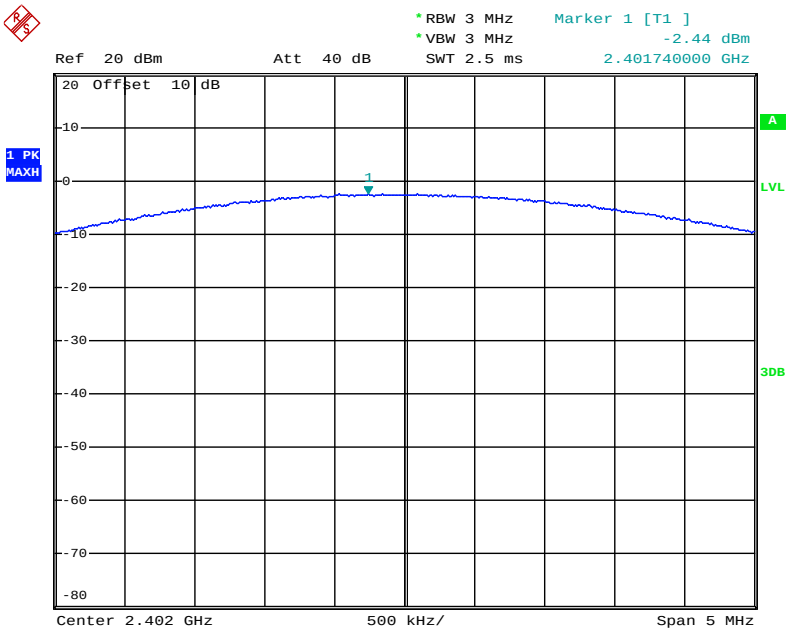
High channel



Date: 20.DEC.2017 14:41:22

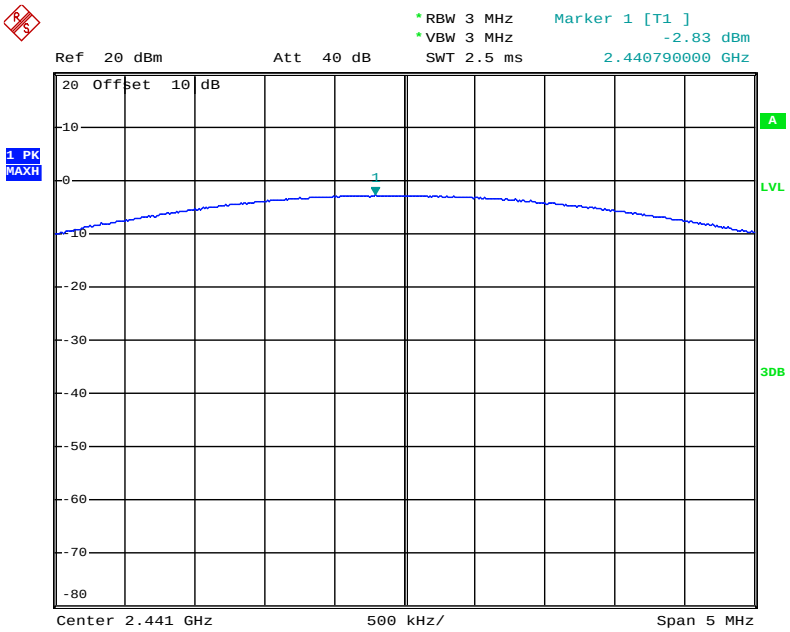
Π/4-DQPSK Mode

Low channel



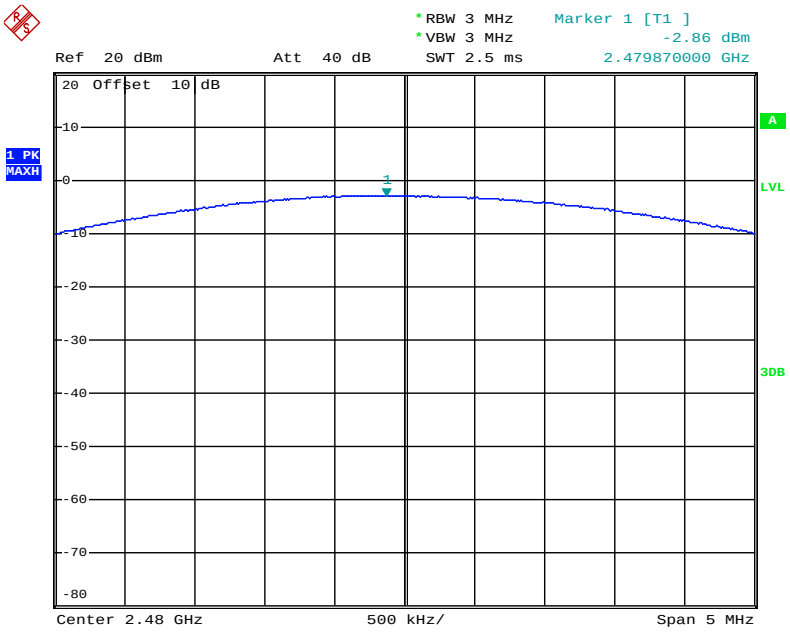
Date: 20.DEC.2017 14:37:49

Middle channel



Date: 20.DEC.2017 14:38:54

High channel



Date: 20.DEC.2017 14:39:57

10. RADIATED EMISSION TEST

10.1. Block Diagram of Test Setup

10.1.1. Block diagram of connection between the EUT and peripherals

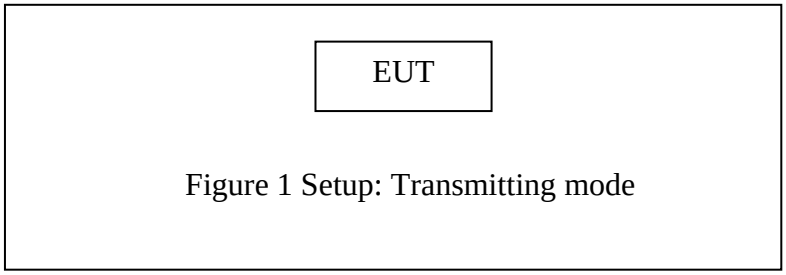
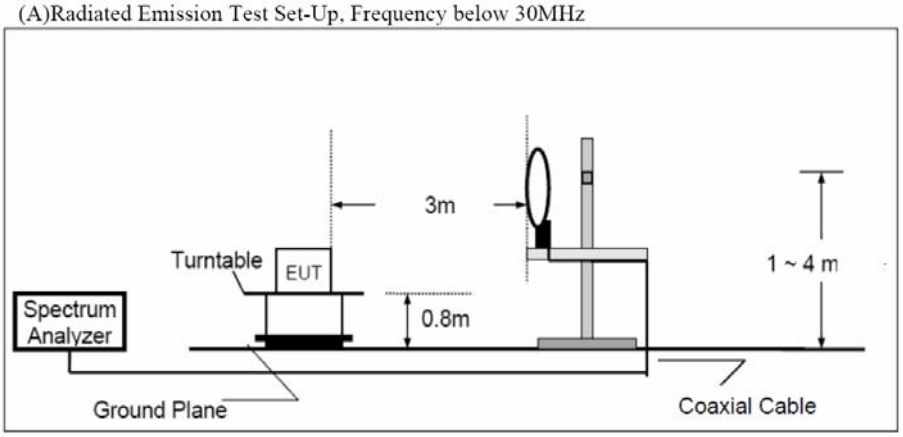


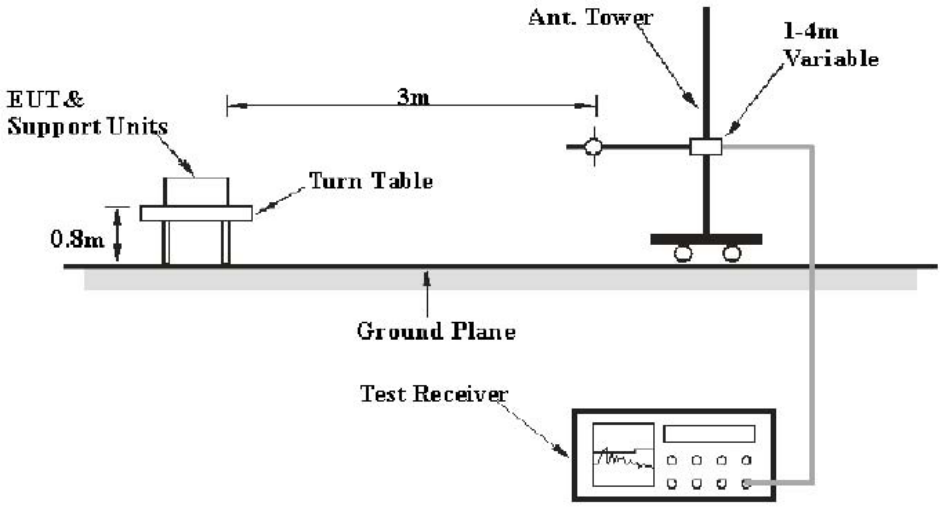
Figure 1 Setup: Transmitting mode

10.1.2. Semi-Anechoic Chamber Test Setup Diagram

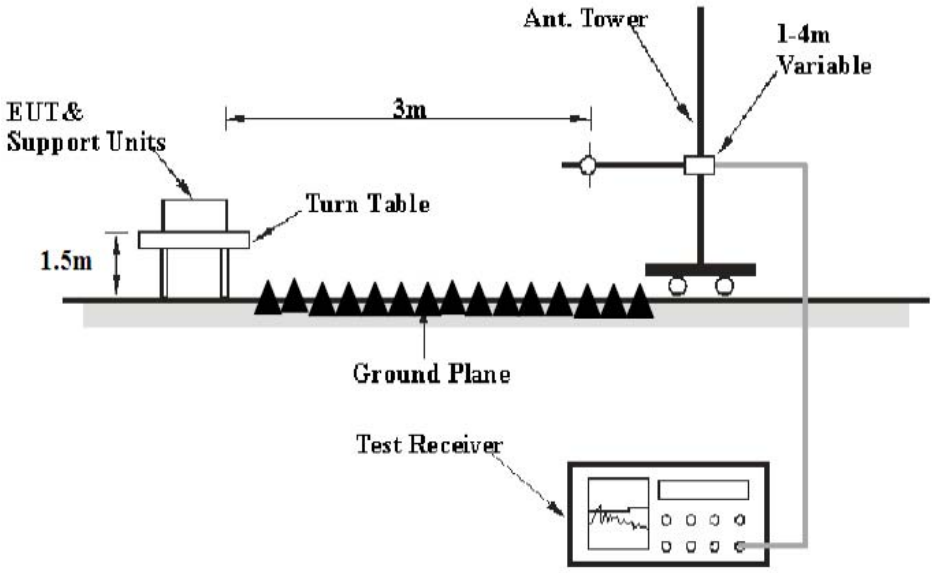
(A)Radiated Emission Test Set-Up, Frequency below 30MHz



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



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



10.2.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).

10.3.Restricted bands of operation

10.3.1.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			

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510
[2]Above 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.

10.4.Configuration of EUT on Measurement

The equipment is 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.

10.5. Operating Condition of EUT

10.5.1. Setup the EUT and simulator as shown as Section 10.1.

10.5.2. Turn on the power of all equipment.

10.5.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

10.6. 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. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

10.7.Data Sample

Frequency (MHz)	Reading (dBμv)	Factor (dB/m)	Result (dBμv/m)	Limit (dBμv/m)	Margin (dB)	Remark
X.XX	48.69	-13.35	35.34	46	-10.66	QP

Frequency(MHz) = Emission frequency in MHz
Reading(dBμv) = Uncorrected Analyzer/Receiver reading
Factor (dB/m) = Antenna factor + Cable Loss – Amplifier gain
Result(dBμv/m) = Reading(dBμv) + Factor(dB/m)
Limit (dBμv/m) = Limit stated in standard
Margin (dB) = Result(dBμv/m) - Limit (dBμv/m)
QP = Quasi-peak Reading

Calculation Formula:
Margin(dB) = Result (dBμV/m)–Limit(dBμV/m)
Result(dBμV/m)= Reading(dBμV)+ Factor(dB/m)

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit.

10.8.The Field Strength of Radiation Emission Measurement Results

PASS.
Test Lab: 3m Anechoic chamber
Test Engineer: Star

Note: 1.We tested GFSK mode, Π/4-DQPSK Mode and recorded the worst case data

(GFSK mode) for all test mode.

2. Testing is carried out with frequency rang 9kHz to the tenth harmonics, which above 3th Harmonics are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

The measurements greater than 20dB below the limit from 9kHz to 30MHz and 18 to 25GHz.

The spectrum analyzer plots are attached as below.

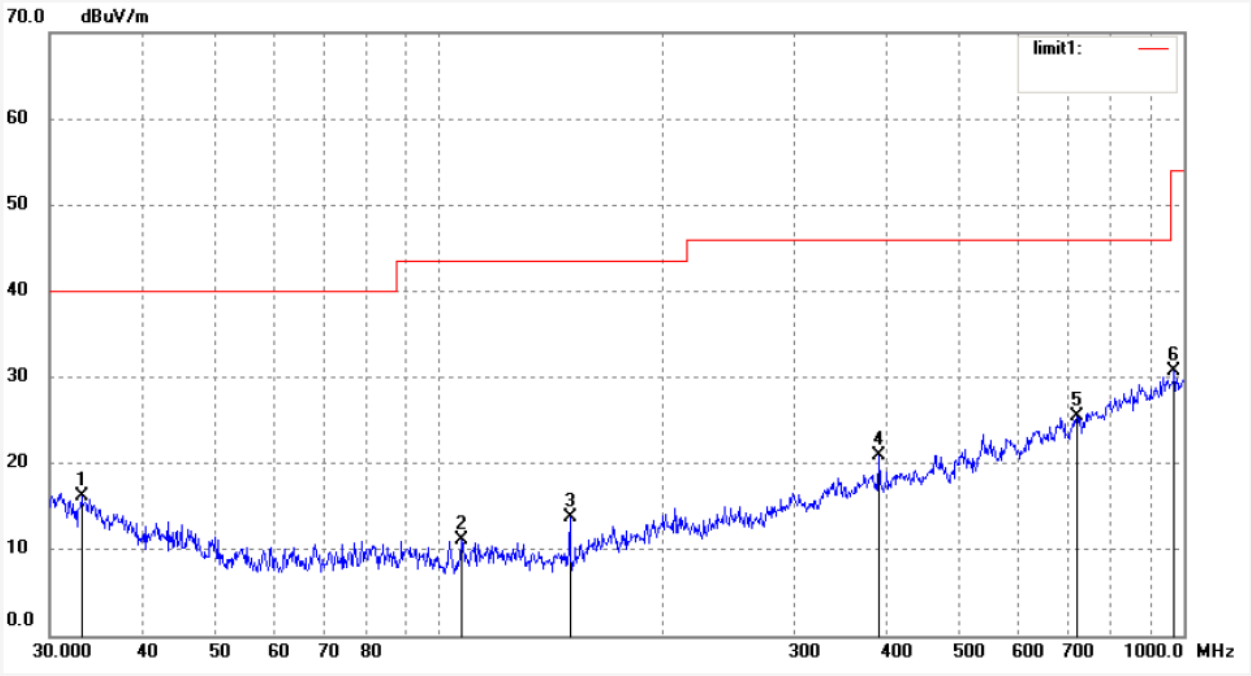
Below 1GHz

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.: star2017 #1297
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: TX 2402MHz (GFSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Horizontal
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/16/07
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



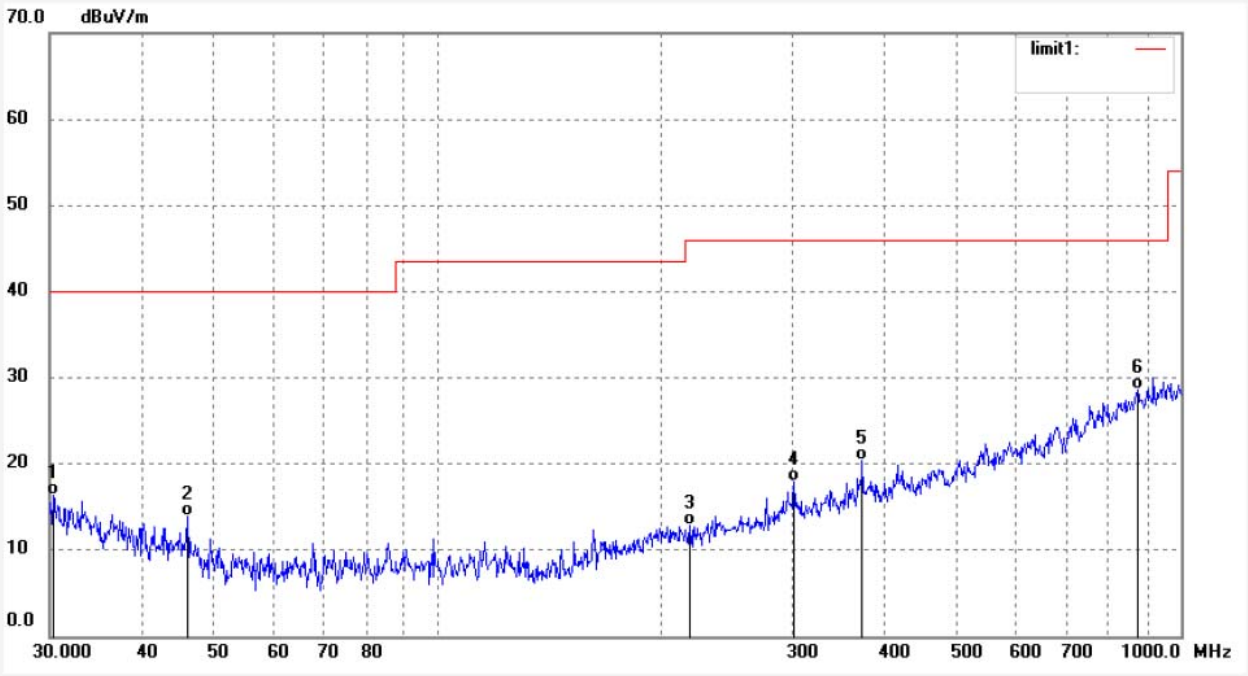
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	33.1015	37.17	-20.98	16.19	40.00	-23.81	peak	100	228	
2	107.4073	38.92	-27.73	11.19	43.50	-32.31	peak	100	136	
3	149.9676	41.74	-28.05	13.69	43.50	-29.81	peak	100	129	
4	389.9873	39.42	-18.49	20.93	46.00	-25.07	peak	100	82	
5	718.7246	36.54	-11.05	25.49	46.00	-20.51	peak	100	88	
6	972.2826	36.38	-5.74	30.64	54.00	-23.36	peak	100	147	

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.: star2017 #1298
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: TX 2402MHz (GFSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Vertical
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/17/41
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



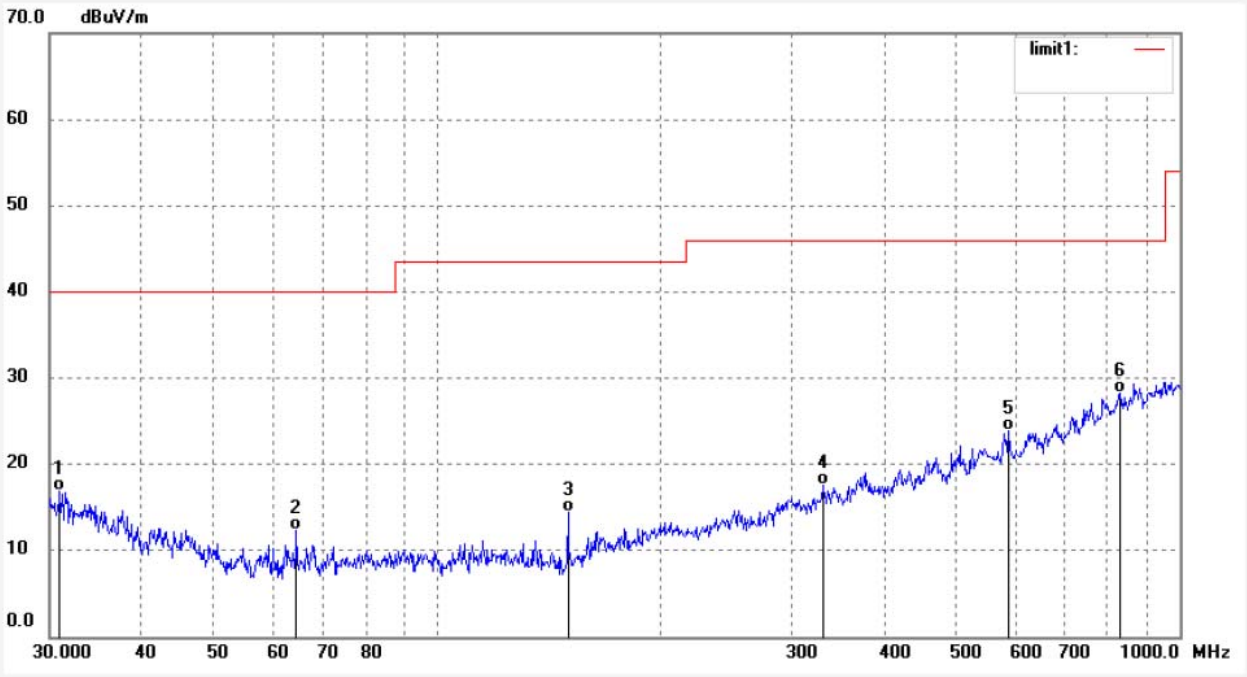
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	30.3179	36.67	-20.28	16.39	40.00	-23.61	QP	200	256	
2	46.0557	38.70	-24.80	13.90	40.00	-26.10	QP	200	147	
3	218.4097	36.89	-24.03	12.86	46.00	-33.14	QP	200	122	
4	301.7572	39.08	-21.17	17.91	46.00	-28.09	QP	200	35	
5	372.5747	39.05	-18.74	20.31	46.00	-25.69	QP	200	54	
6	875.0132	36.17	-7.61	28.56	46.00	-17.44	QP	200	147	

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.: star2017 #1300
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: TX 2441MHz (GFSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Horizontal
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/19/44
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	30.9637	37.40	-20.44	16.96	40.00	-23.04	QP	100	211	
2	64.5318	39.65	-27.29	12.36	40.00	-27.64	QP	100	44	
3	149.9676	42.57	-28.05	14.52	43.50	-28.98	QP	100	202	
4	330.6220	37.67	-20.13	17.54	46.00	-28.46	QP	100	87	
5	588.2804	37.80	-13.93	23.87	46.00	-22.13	QP	100	44	
6	833.0126	36.60	-8.33	28.27	46.00	-17.73	QP	100	69	

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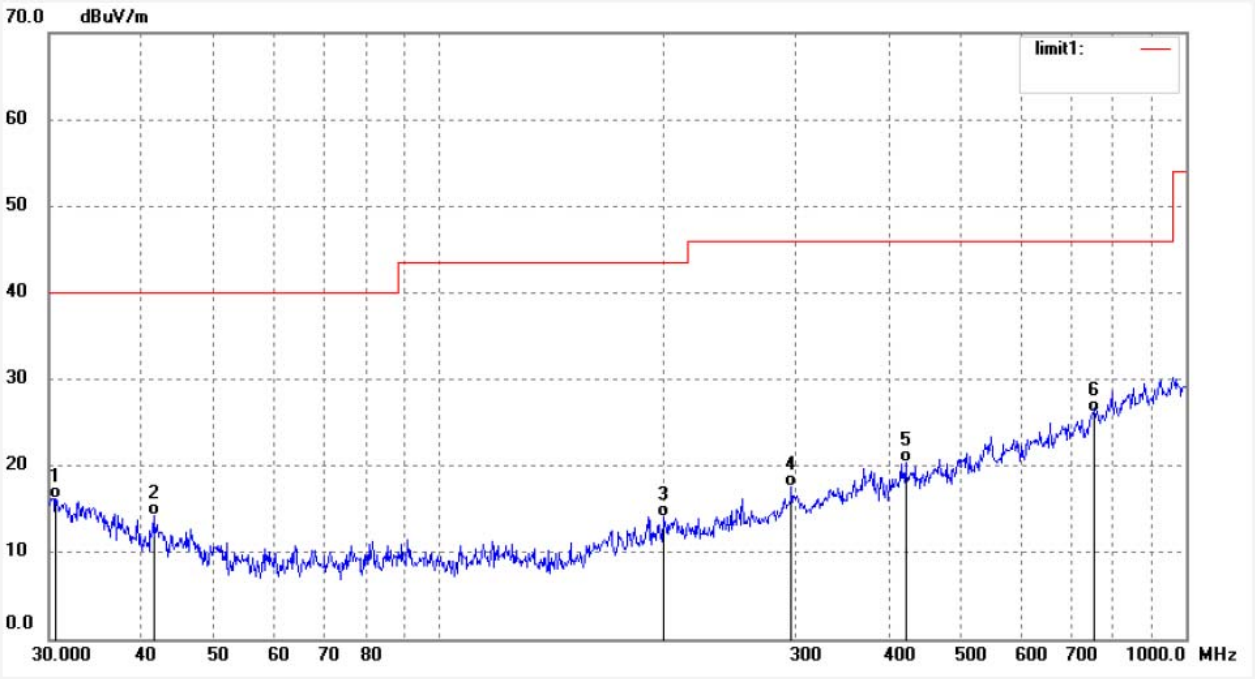
Job No.: star2017 #1299
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: TX 2441MHz (GFSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Vertical
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/18/54
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	30.6391	36.60	-20.36	16.24	40.00	-23.76	QP	200	241	
2	41.4483	38.15	-23.84	14.31	40.00	-25.69	QP	200	198	
3	199.3415	38.53	-24.39	14.14	43.50	-29.36	QP	200	177	
4	296.5022	38.93	-21.36	17.57	46.00	-28.43	QP	200	76	
5	421.3287	38.36	-17.98	20.38	46.00	-25.62	QP	200	102	
6	749.6761	36.47	-10.34	26.13	46.00	-19.87	QP	200	136	

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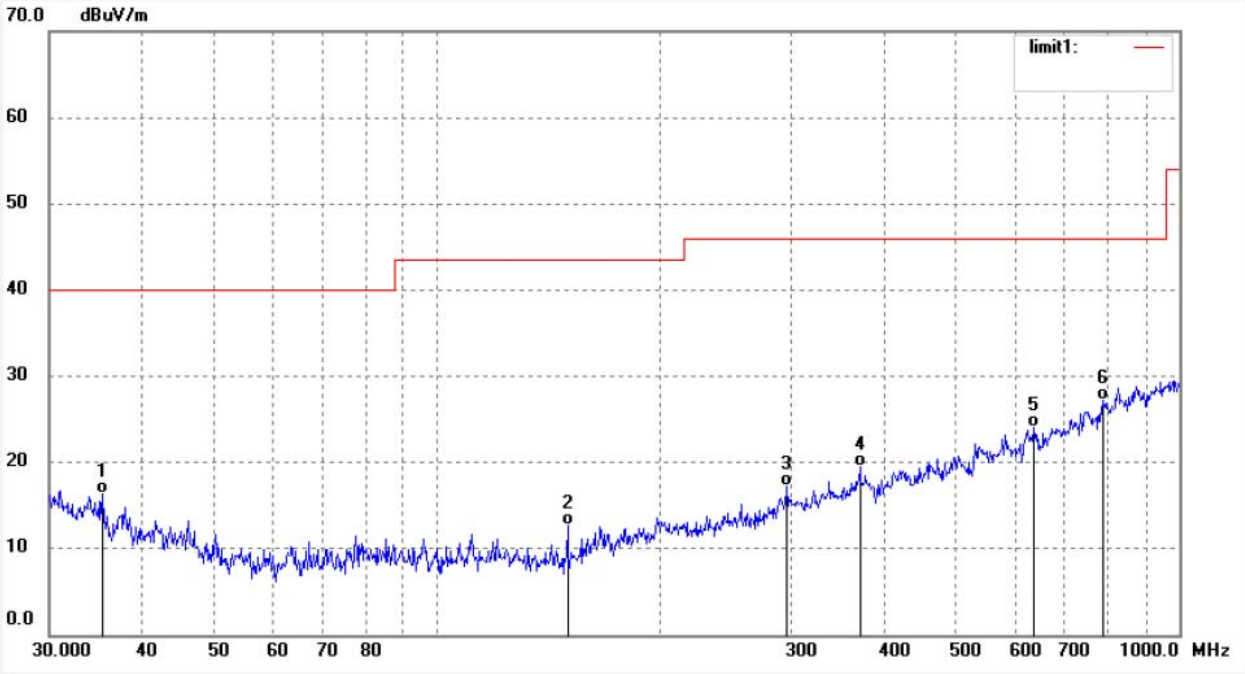
Job No.: star2017 #1301
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: TX 2480MHz (GFSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Horizontal
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/20/28
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	35.3866	38.06	-21.62	16.44	40.00	-23.56	QP	100	65	
2	149.9676	40.71	-28.05	12.66	43.50	-30.84	QP	100	251	
3	296.5022	38.67	-21.36	17.31	46.00	-28.69	QP	100	233	
4	371.2679	38.34	-18.75	19.59	46.00	-26.41	QP	100	168	
5	637.7947	37.02	-12.90	24.12	46.00	-21.88	QP	100	142	
6	790.2465	36.54	-9.25	27.29	46.00	-18.71	QP	100	122	

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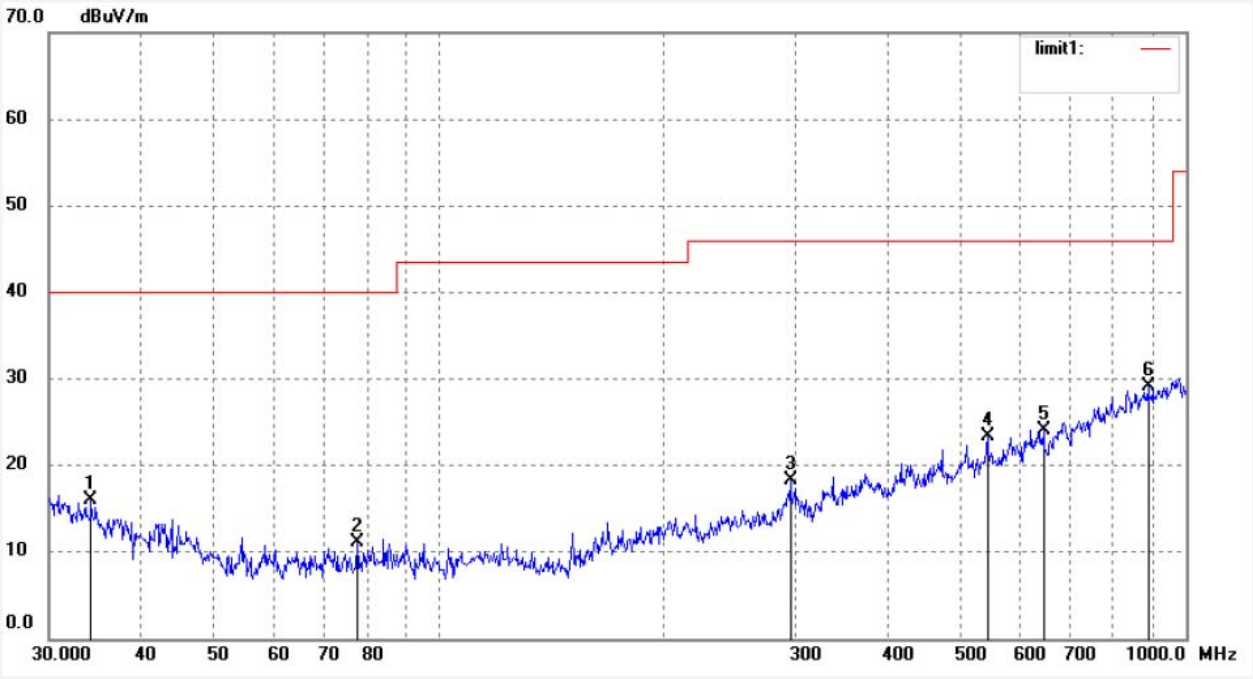
Job No.: star2017 #1302
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: TX 2480MHz (GFSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Vertical
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/21/23
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	34.1649	37.31	-21.25	16.06	40.00	-23.94	peak	100	21	
2	77.7407	38.67	-27.54	11.13	40.00	-28.87	peak	100	117	
3	295.4623	39.71	-21.39	18.32	46.00	-27.68	peak	100	325	
4	542.6104	38.44	-15.03	23.41	46.00	-22.59	peak	100	208	
5	644.5530	36.88	-12.76	24.12	46.00	-21.88	peak	100	275	
6	890.5212	36.49	-7.35	29.14	46.00	-16.86	peak	100	185	

Above 1GHz

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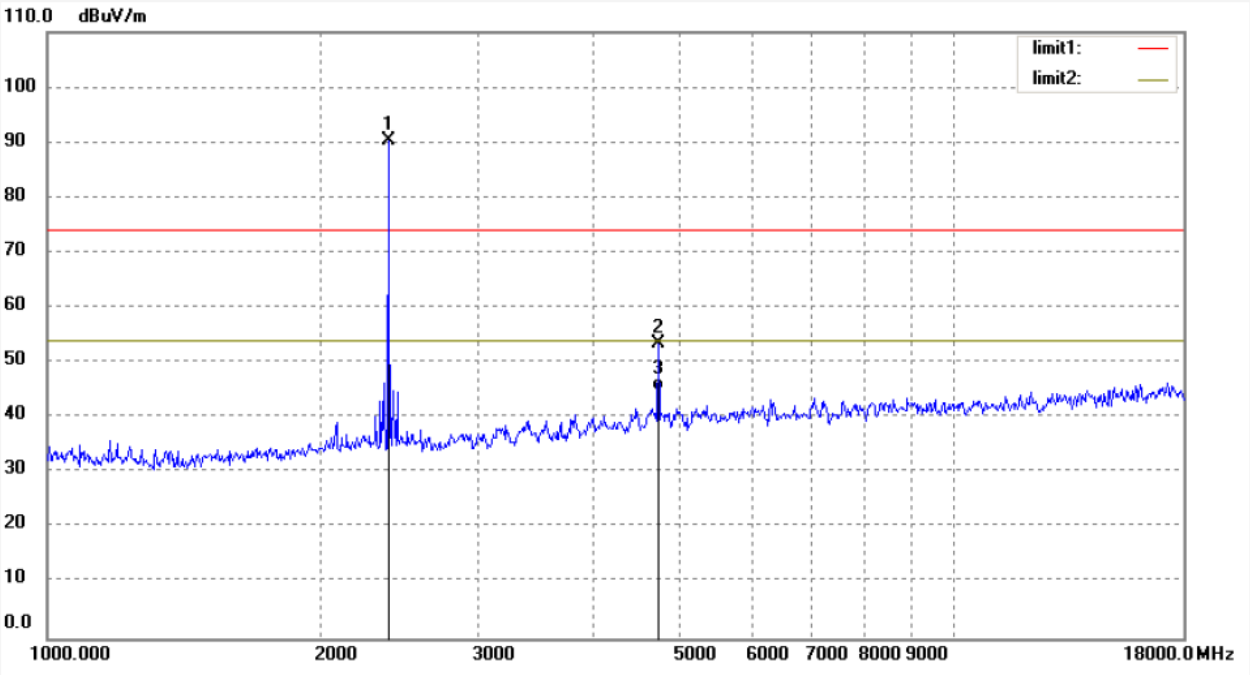
Job No.: star2017 #1304	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 17/12/22/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 9/27/25
EUT: Bluetooth Speaker	Engineer Signature: star
Mode: TX 2402MHz (GFSK)	Distance: 3m
Model: EBT-164B	
Manufacturer: China Etech Groups Ltd	

Note: Report No.:ATE20172532



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.019	96.62	-6.37	90.25				200	44	
2	4804.057	52.75	0.70	53.45	74.00	-20.55	peak	200	26	
3	4804.057	44.21	0.70	44.91	54.00	-9.09	AVG	200	147	

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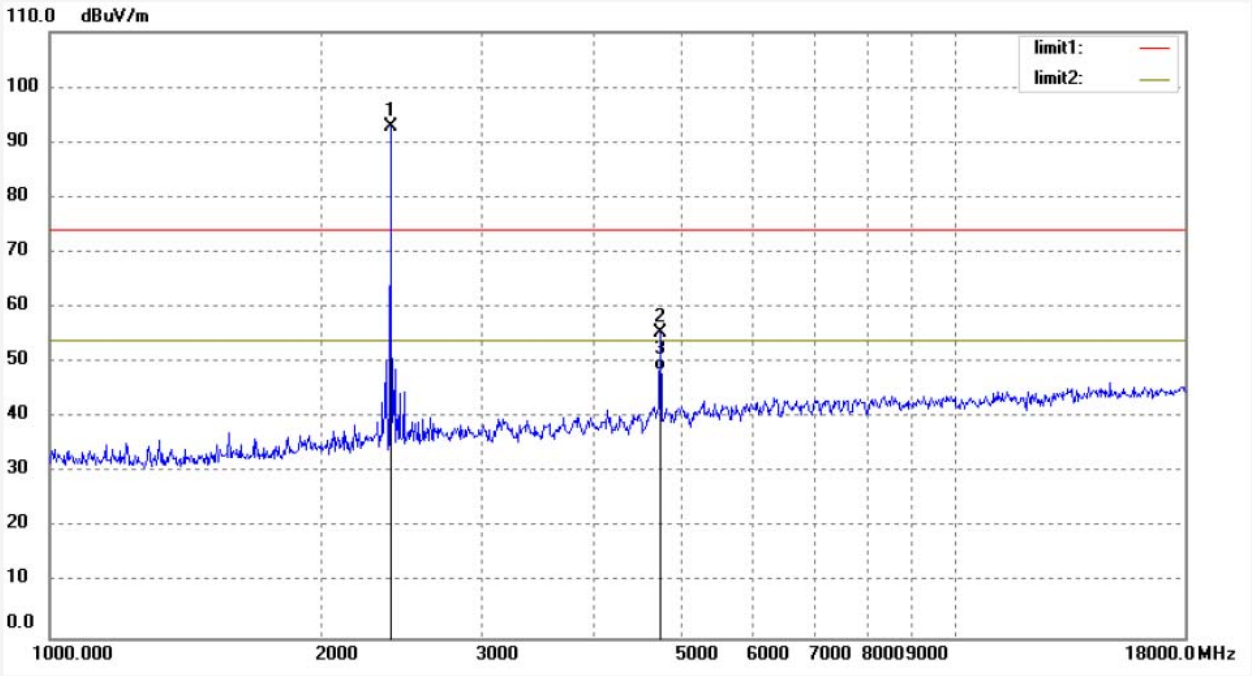
Job No.: star2017 #1303
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: TX 2402MHz (GFSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Vertical
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/25/43
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.019	99.30	-6.37	92.93				150	222	
2	4804.057	54.81	0.70	55.51	74.00	-18.49	peak	150	211	
3	4804.057	47.87	0.70	48.57	54.00	-5.43	AVG	150	46	

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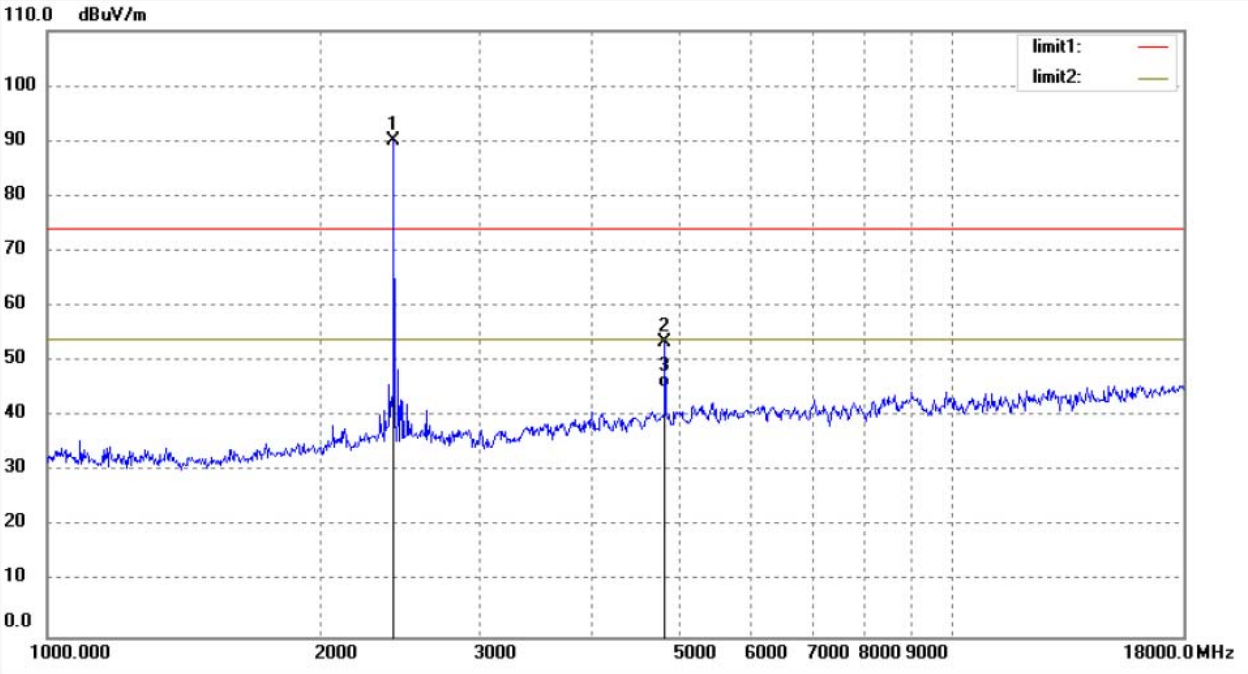
Job No.: star2017 #1305
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: TX 2441MHz (GFSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Horizontal
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/28/57
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.021	96.34	-6.20	90.14				200	44	
2	4882.324	52.34	1.07	53.41	74.00	-20.59	peak	200	124	
3	4882.324	44.25	1.07	45.32	54.00	-8.68	AVG	200	175	

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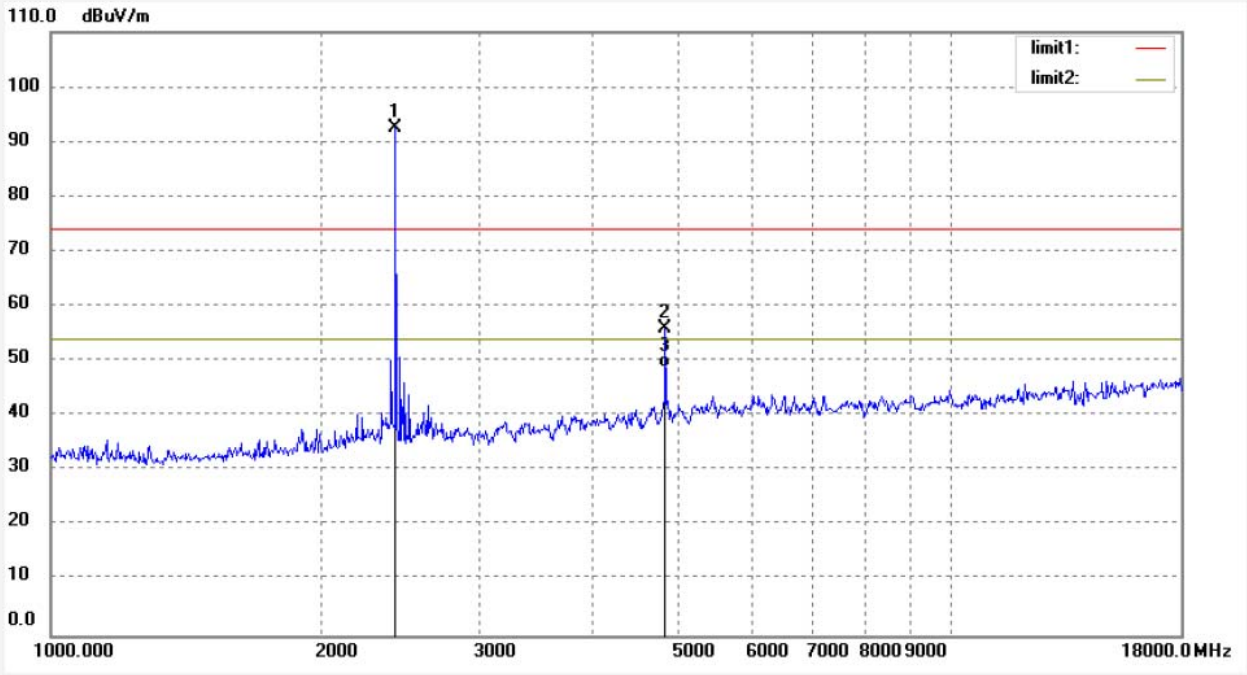
Job No.: star2017 #1306
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: TX 2441MHz (GFSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Vertical
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/30/46
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.021	98.78	-6.20	92.58			peak	150	84	
2	4882.324	54.80	1.07	55.87	74.00	-18.13	peak	150	105	
3	4882.324	47.62	1.07	48.69	54.00	-5.31	AVG	150	116	

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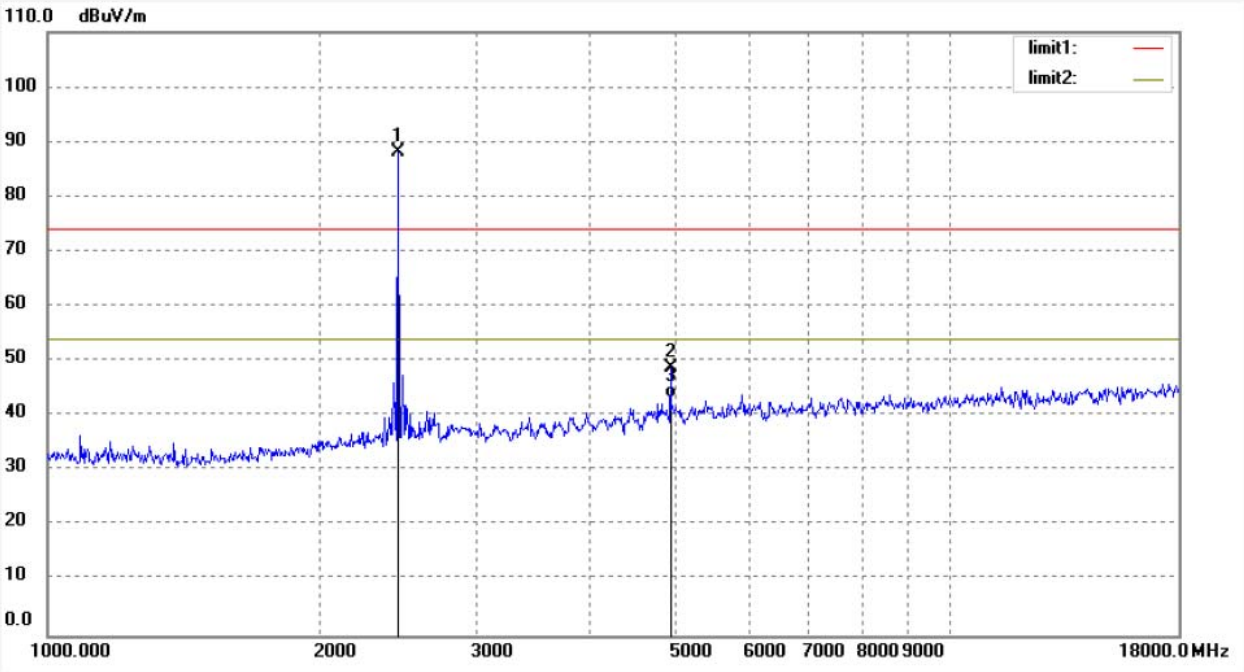
Job No.: star2017 #1308
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: TX 2480MHz (GFSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Horizontal
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/34/44
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



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	94.26	-6.04	88.22			peak	200	41	
2	4960.144	47.23	1.50	48.73	74.00	-25.27	peak	200	265	
3	4960.144	41.69	1.50	43.19	54.00	-10.81	AVG	200	211	

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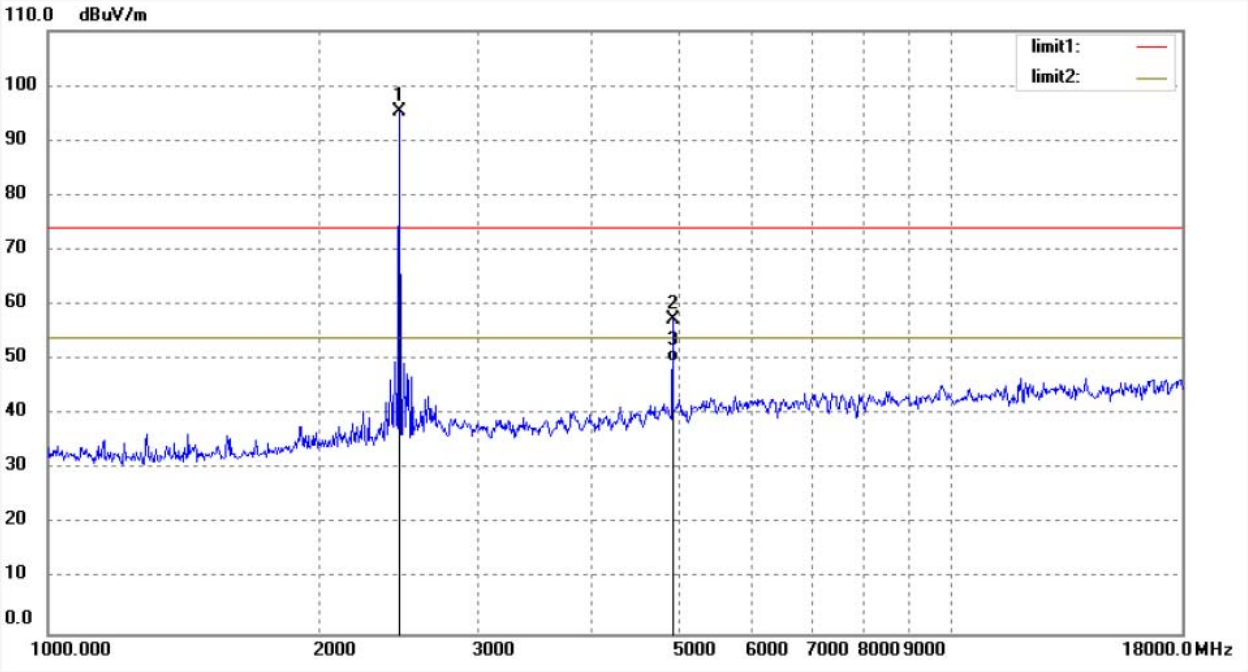
Job No.: star2017 #1307	Polarization: Vertical
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 17/12/22/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 9/32/46
EUT: Bluetooth Speaker	Engineer Signature: star
Mode: TX 2480MHz (GFSK)	Distance: 3m
Model: EBT-164B	
Manufacturer: China Etech Groups Ltd	

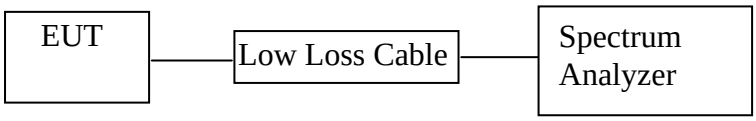
Note: Report No.:ATE20172532



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	101.37	-6.04	95.33			peak	150	261	
2	4960.144	55.71	1.50	57.21	74.00	-16.79	peak	150	177	
3	4960.144	48.21	1.50	49.71	54.00	-4.29	AVG	150	92	

11.BAND EDGE COMPLIANCE TEST

11.1.Block Diagram of Test Setup



(EUT: Bluetooth Speaker)

11.2.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).

11.3.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.

11.4.Operating Condition of EUT

11.4.1.Setup the EUT and simulator as shown as Section 11.1.

11.4.2.Turn on the power of all equipment.

11.4.3.Let the EUT work in TX (Hopping off, Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2480MHz TX frequency to transmit.

11.5.Test Procedure

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

11.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz with convenient frequency span including 100 kHz bandwidth from band edge.

11.5.3.The band edges was measured and recorded.

11.6.Test Result

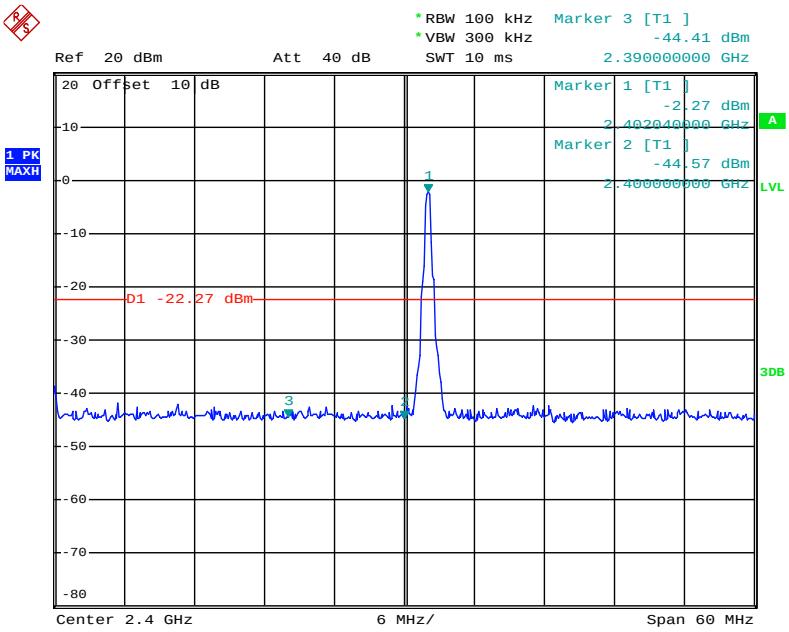
Test Lab: Shielding room
Test Engineer: Star

Note: Both hopping-on mode and hopping-off mode had been pre-tested, and only the worst case was recorded in the test report.

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
GFSK Mode		
2400.00	42.14	> 20dBc
2483.50	39.58	> 20dBc
Π/4-DQPSK Mode		
2400.00	38.41	> 20dBc
2483.50	39.03	> 20dBc

The spectrum analyzer plots are attached as below.

GFSK Mode



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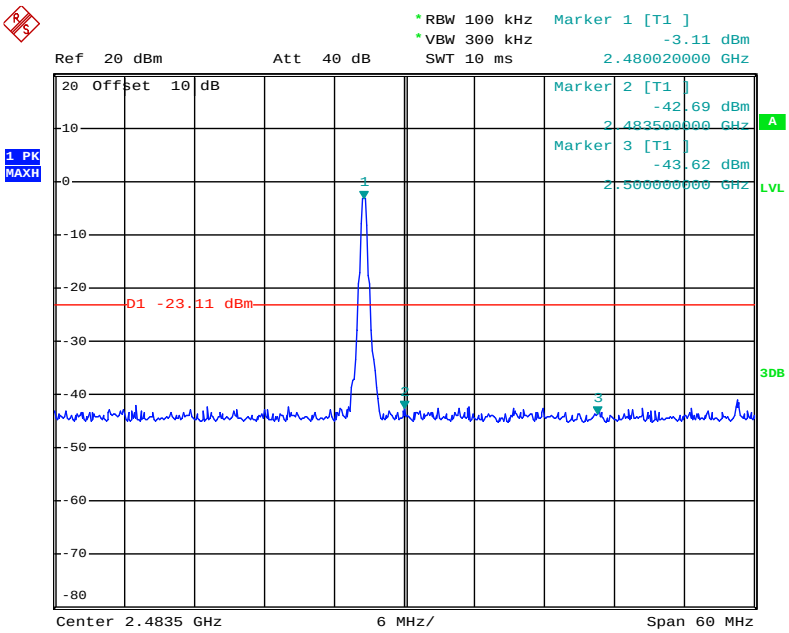
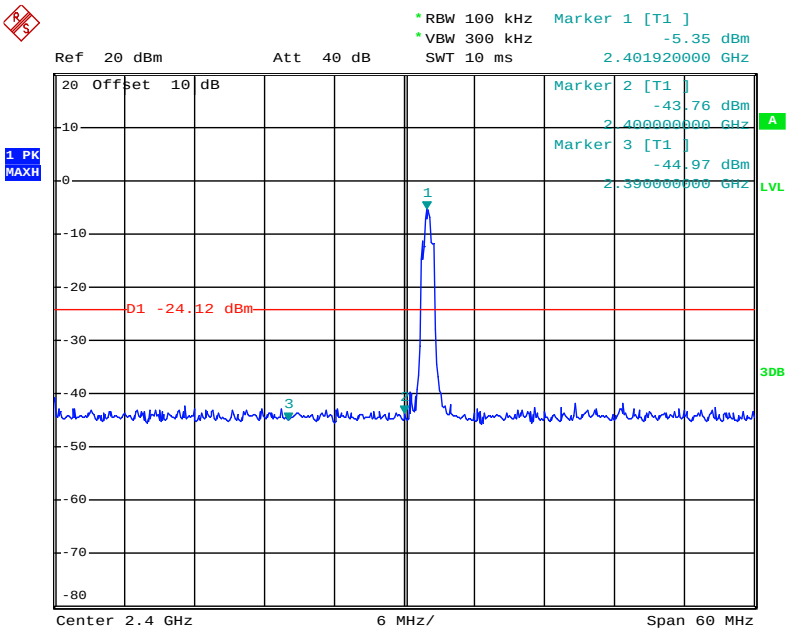
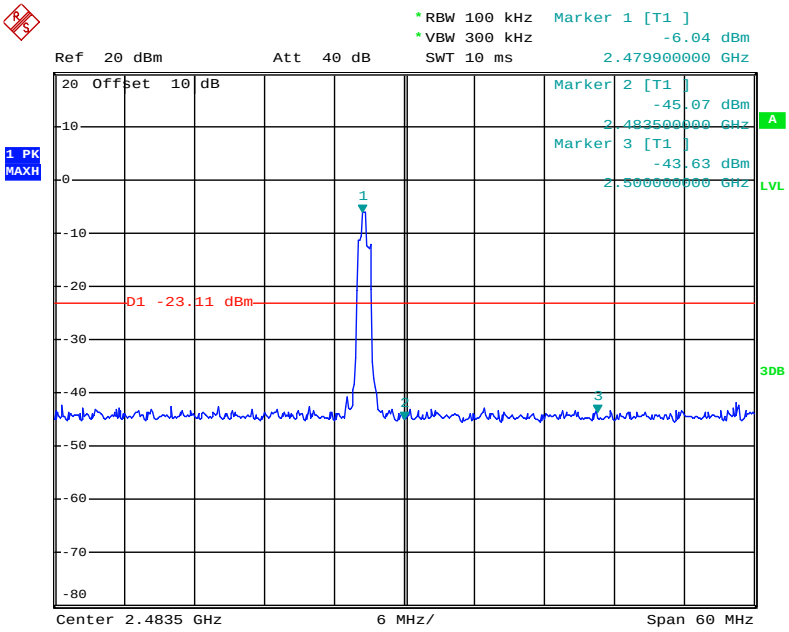


Date: 20.DEC.2017 14:54:07

Π/4-DQPSK Mode



Date: 20.DEC.2017 14:57:01



Date: 20.DEC.2017 14:54:57

Radiated Band Edge Result

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:

   Result = Reading + Corrected Factor
3. Display the measurement of peak values.

Test Procedure:

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.

Let the EUT work in TX (Hopping off, Hopping on) modes measure it.
We select 2402MHz, 2480MHz TX frequency to transmit(Hopping off mode).
We select 2402-2480MHz TX frequency to transmit(Hopping on mode).

During the radiated emission test, the spectrum analyzer was set with the following configurations:
1.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
2.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
3.All modes of operation were investigated and the worst-case emissions are reported.

Test Lab: 3m Anechoic chamber
Test Engineer: Star

Non-hopping mode

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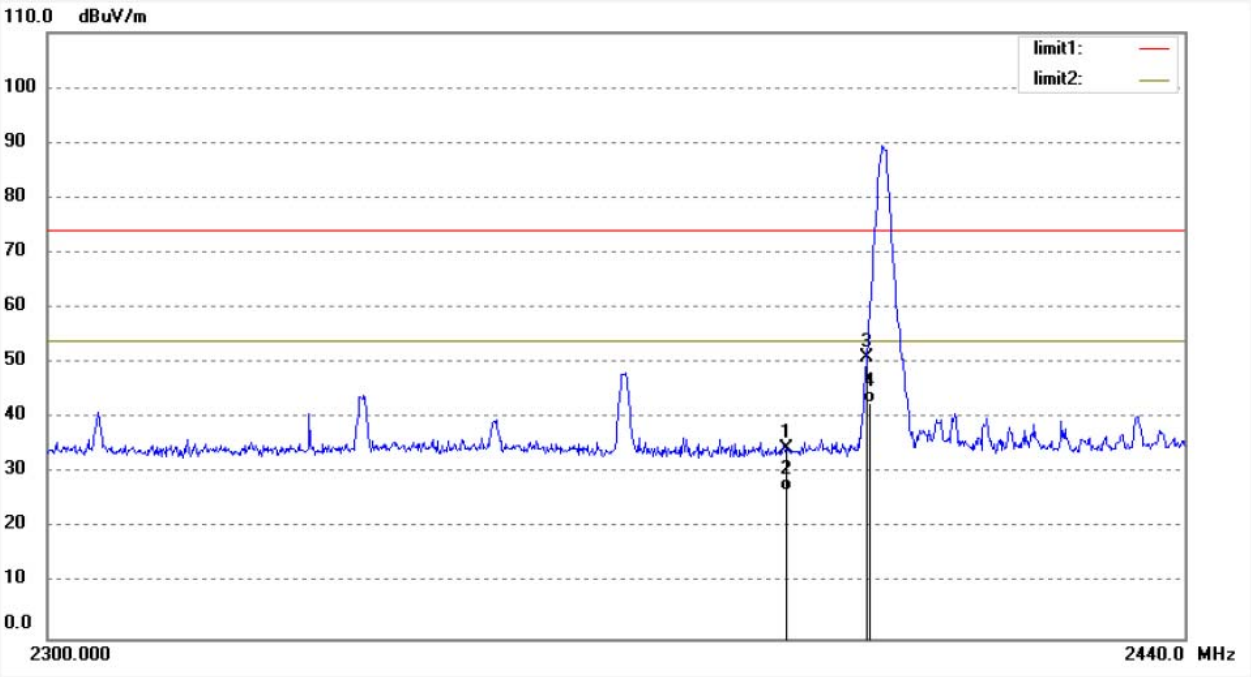
Job No.: star2017 #1316	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 17/12/22/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 9/51/24
EUT: Bluetooth Speaker	Engineer Signature: star
Mode: TX 2402MHz (GFSK)	Distance: 3m
Model: EBT-164B	
Manufacturer: China Etech Groups Ltd	

Note: Report No.:ATE20172532



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	40.81	-6.32	34.49	74.00	-39.51	peak	200	45	
2	2390.000	33.21	-6.32	26.89	54.00	-27.11	AVG	200	120	
3	2400.000	57.33	-6.27	51.06	74.00	-22.94	peak	200	234	
4	2400.000	49.00	-6.27	42.73	54.00	-11.27	AVG	200	204	

Note: Average measurement with peak detection at No.2&4

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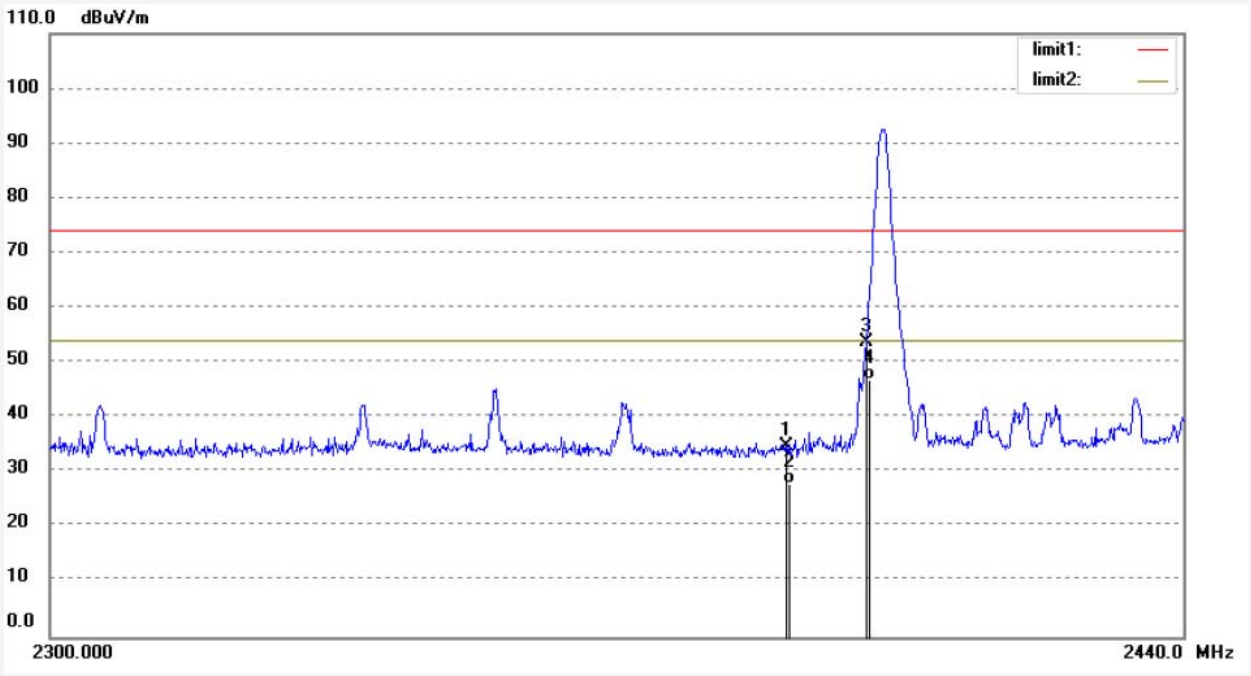
Job No.: star2017 #1315
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: TX 2402MHz (GFSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Vertical
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/49/51
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	41.00	-6.32	34.68	74.00	-39.32	peak	150	301	
2	2390.000	34.23	-6.32	27.91	54.00	-26.09	AVG	150	254	
3	2400.000	60.12	-6.27	53.85	74.00	-20.15	peak	150	211	
4	2400.000	53.15	-6.27	46.88	54.00	-7.12	AVG	150	266	

Note: Average measurement with peak detection at No.2&4

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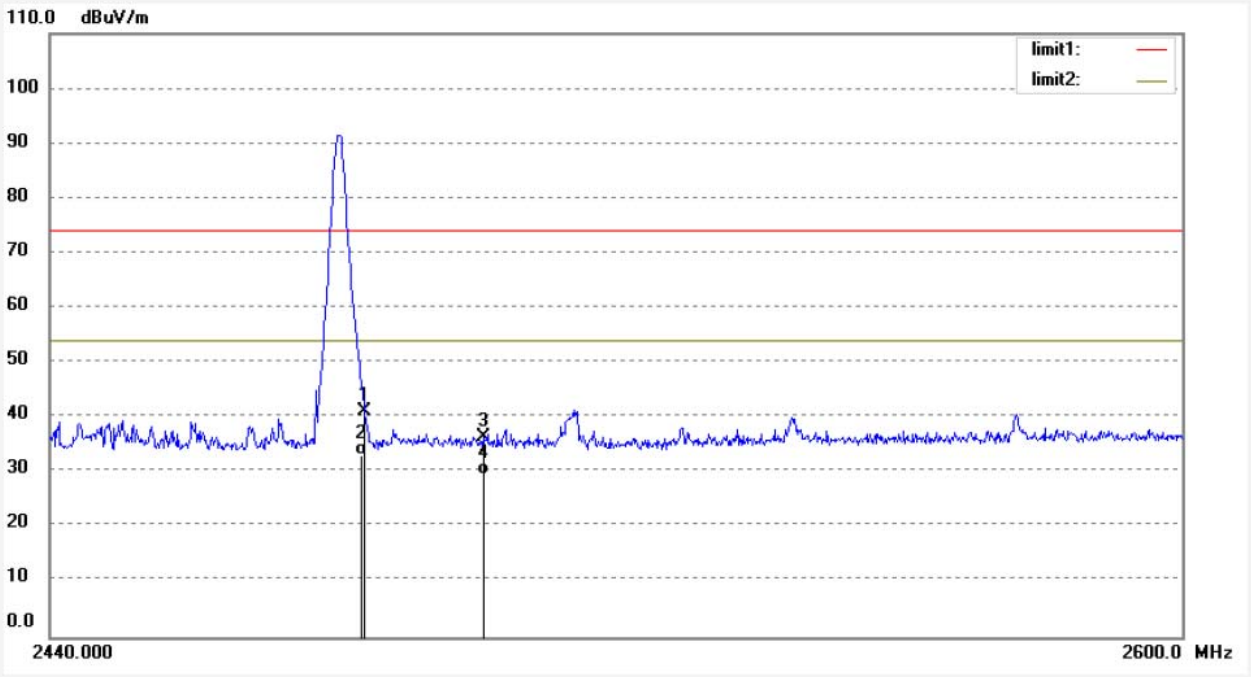
Fax:+86-0755-26503396

Job No.: star2017 #1309
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: TX 2480MHz (GFSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Horizontal
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/37/57
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



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	46.90	-5.89	41.01	74.00	-32.99	peak	200	314	
2	2483.500	38.93	-5.89	33.04	54.00	-20.96	AVG	200	258	
3	2500.000	42.12	-5.81	36.31	74.00	-37.69	peak	200	247	
4	2500.000	35.26	-5.81	29.45	54.00	-24.55	AVG	200	255	

Note: Average measurement with peak detection at No.2&4

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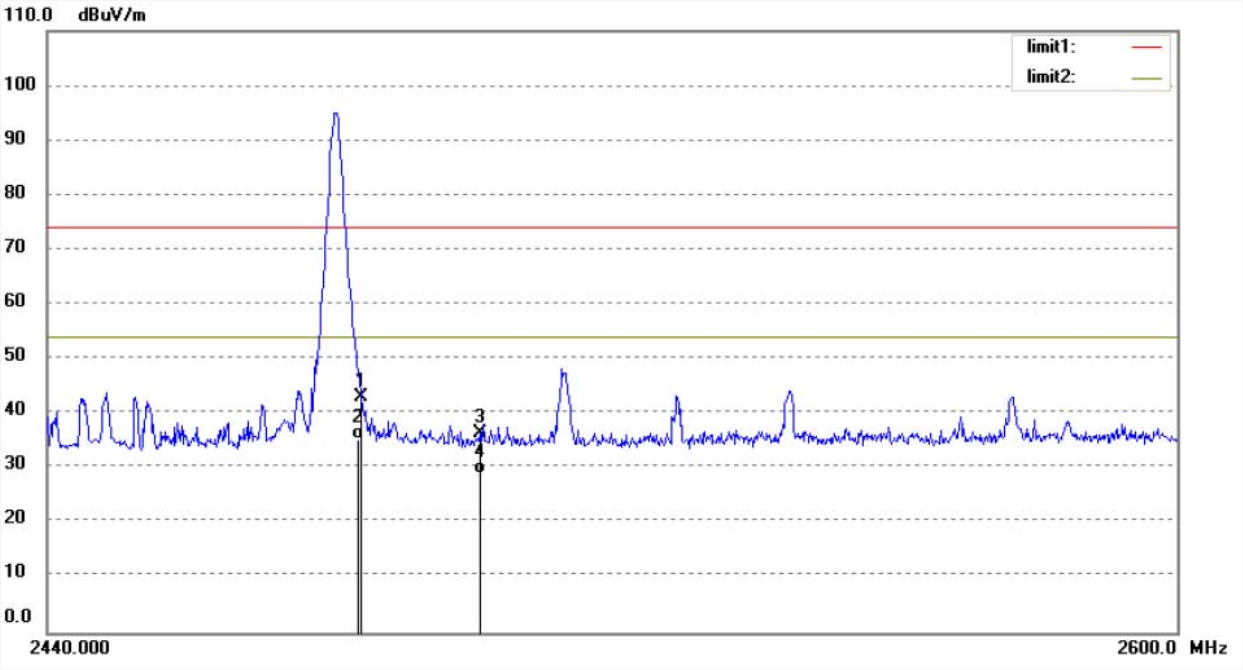
Job No.: star2017 #1310
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: TX 2480MHz (GFSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Vertical
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/39/04
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



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	48.84	-5.89	42.95	74.00	-31.05	peak	150	44	
2	2483.500	41.30	-5.89	35.41	54.00	-18.59	AVG	150	25	
3	2500.000	42.17	-5.81	36.36	74.00	-37.64	peak	150	110	
4	2500.000	34.69	-5.81	28.88	54.00	-25.12	AVG	150	132	

Note: Average measurement with peak detection at No.2&4

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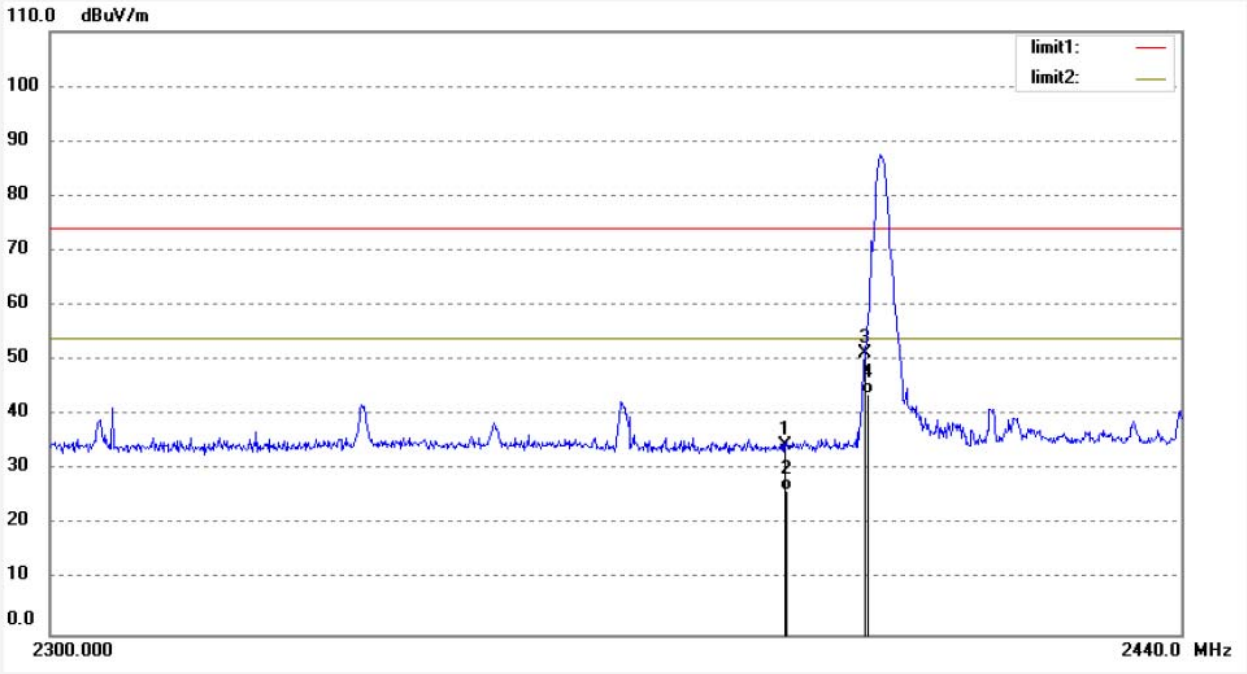
Job No.: star2017 #1313
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: TX 2402MHz (∏/4-DQPSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Horizontal
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/46/35
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	40.74	-6.32	34.42	74.00	-39.58	peak	200	222	
2	2390.000	32.69	-6.32	26.37	54.00	-27.63	AVG	200	189	
3	2400.000	57.64	-6.27	51.37	74.00	-22.63	peak	200	178	
4	2400.000	50.00	-6.27	43.73	54.00	-10.27	AVG	200	164	

Note: Average measurement with peak detection at No.2&4

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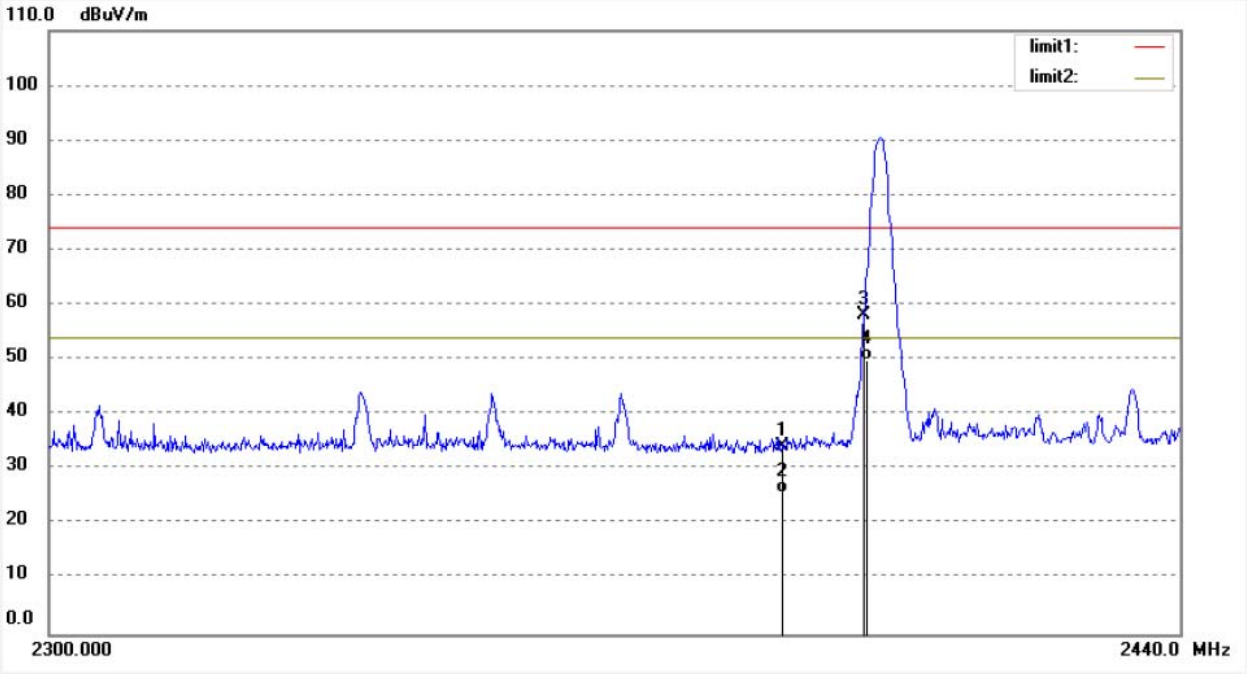
Fax:+86-0755-26503396

Job No.: star2017 #1314
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: TX 2402MHz (∏/4-DQPSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Vertical
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/48/08
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	40.61	-6.32	34.29	74.00	-39.71	peak	150	147	
2	2390.000	32.00	-6.32	25.68	54.00	-28.32	AVG	150	122	
3	2400.000	64.47	-6.27	58.20	74.00	-15.80	peak	150	135	
4	2400.000	56.25	-6.27	49.98	54.00	-4.02	AVG	150	205	

Note: Average measurement with peak detection at No.2&4

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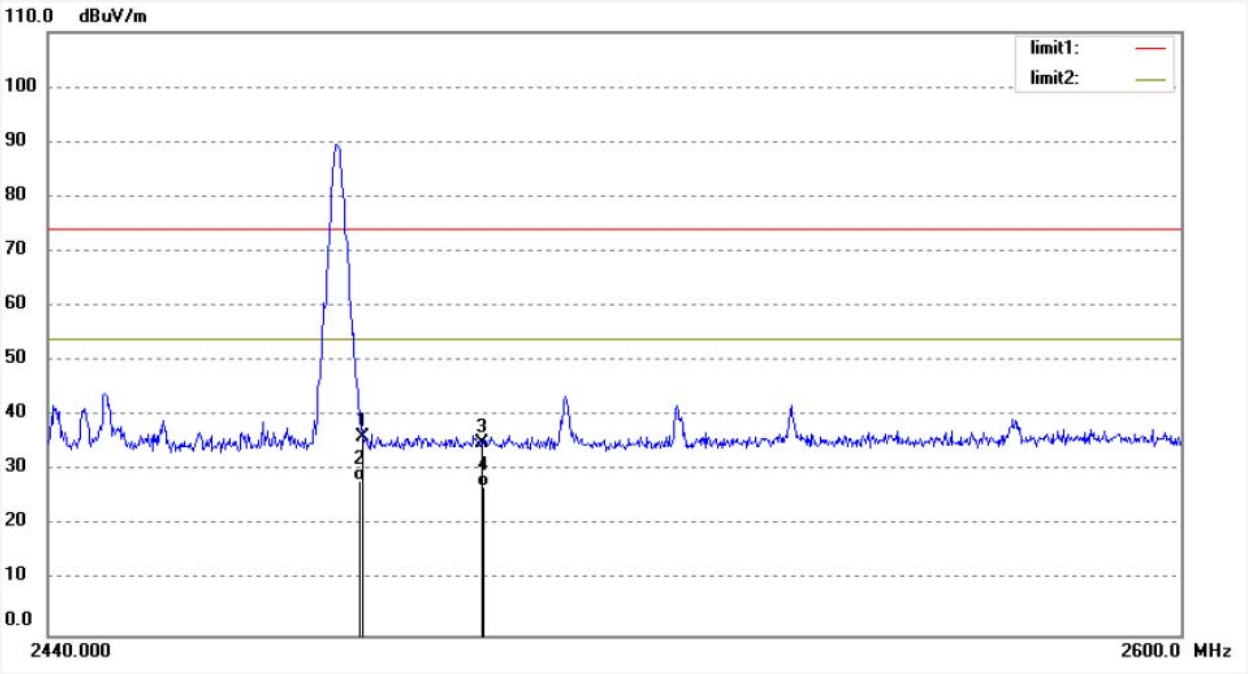
Job No.: star2017 #1312
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: TX 2480MHz (∏/4-DQPSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Horizontal
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/42/07
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



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	42.15	-5.89	36.26	74.00	-37.74	peak	200	55	
2	2483.500	34.05	-5.89	28.16	54.00	-25.84	AVG	200	143	
3	2500.000	40.91	-5.81	35.10	74.00	-38.90	peak	200	95	
4	2500.000	32.96	-5.81	27.15	54.00	-26.85	AVG	200	110	

Note: Average measurement with peak detection at No.2&4

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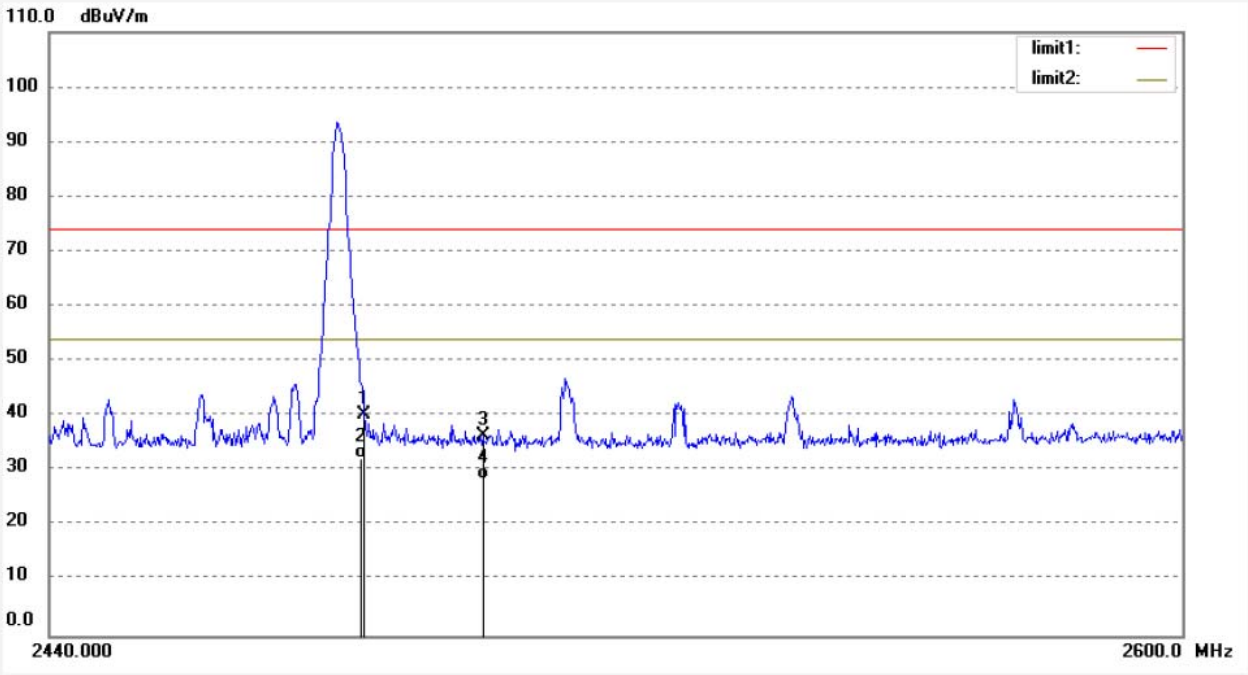
Job No.: star2017 #1311
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: TX 2480MHz (∏/4-DQPSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Vertical
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/40/48
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



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	46.26	-5.89	40.37	74.00	-33.63	peak	150	242	
2	2483.500	38.25	-5.89	32.36	54.00	-21.64	AVG	150	122	
3	2500.000	42.22	-5.81	36.41	74.00	-37.59	peak	150	46	
4	2500.000	34.22	-5.81	28.41	54.00	-25.59	AVG	150	105	

Note: Average measurement with peak detection at No.2&4

Hopping mode

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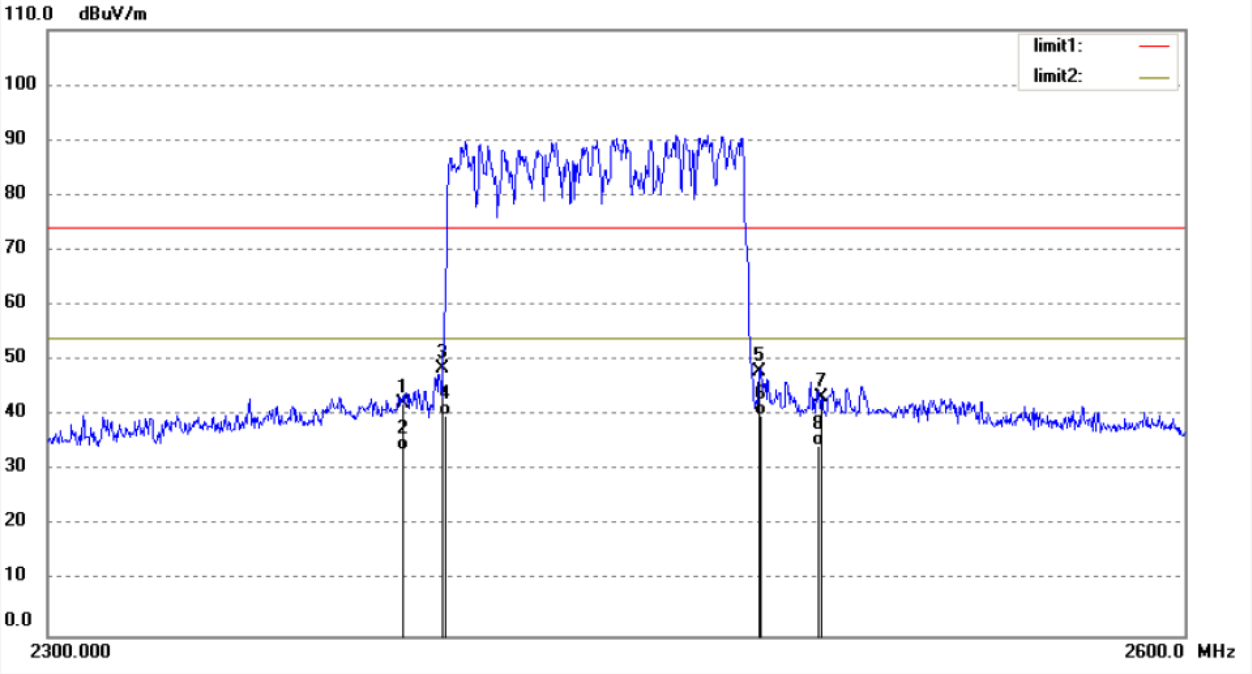
Job No.: star2017 #1317
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: Hopping (GFSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Horizontal
Power Source: DC 3.7V
Date: 17/12/22/
Time: 9/57/59
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	48.46	-6.32	42.14	74.00	-31.86	peak	200	14	
2	2390.000	40.00	-6.32	33.68	54.00	-20.32	AVG	200	256	
3	2400.000	54.69	-6.27	48.42	74.00	-25.58	peak	200	187	
4	2400.000	46.25	-6.27	39.98	54.00	-14.02	AVG	200	54	
5	2483.500	53.80	-5.89	47.91	74.00	-26.09	peak	200	325	
6	2483.500	45.80	-5.89	39.91	54.00	-14.09	AVG	200	46	
7	2500.000	49.08	-5.81	43.27	74.00	-30.73	peak	200	288	
8	2500.000	40.25	-5.81	34.44	54.00	-19.56	AVG	200	54	

Note: Average measurement with peak detection at No.2&4&6&8

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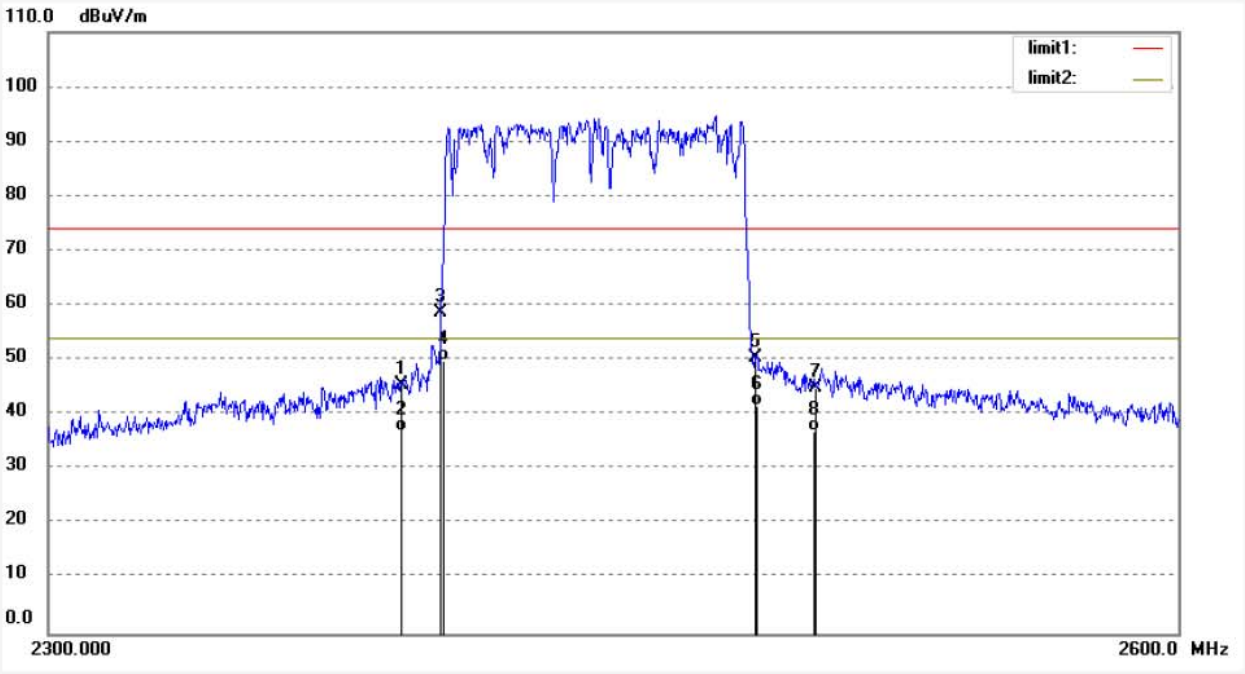
Fax:+86-0755-26503396

Job No.: star2017 #1318
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: Hopping (GFSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Vertical
Power Source: DC 3.7V
Date: 17/12/22/
Time: 10/01/43
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	51.85	-6.32	45.53	74.00	-28.47	peak	150	248	
2	2390.000	43.25	-6.32	36.93	54.00	-17.07	AVG	150	177	
3	2400.000	65.12	-6.27	58.85	74.00	-15.15	peak	150	168	
4	2400.000	56.21	-6.27	49.94	54.00	-4.06	AVG	150	54	
5	2483.500	56.41	-5.89	50.52	74.00	-23.48	peak	150	325	
6	2483.500	47.62	-5.89	41.73	54.00	-12.27	AVG	150	47	
7	2500.000	50.64	-5.81	44.83	74.00	-29.17	peak	150	128	
8	2500.000	42.88	-5.81	37.07	54.00	-16.93	AVG	150	114	

Note: Average measurement with peak detection at No.2&4&6&8

ACCURATE TECHNOLOGY CO., LTD.
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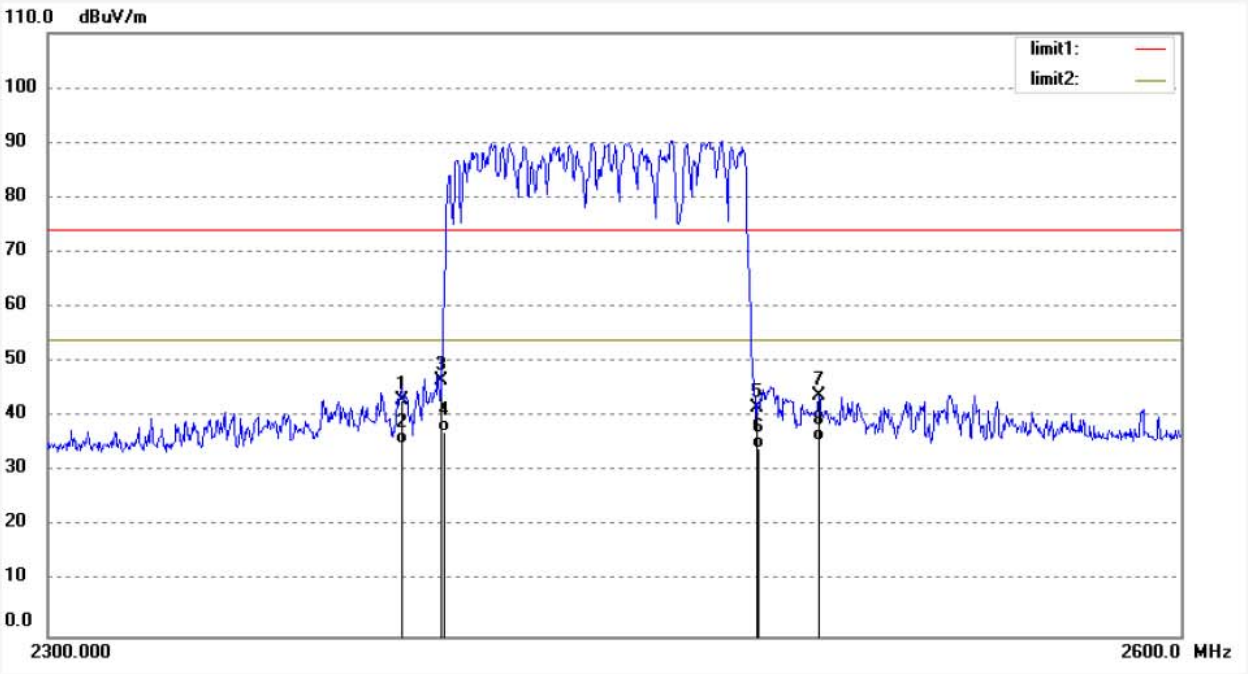
Job No.: star2017 #1320
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: Hopping (∏/4-DQPSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Horizontal
Power Source: DC 3.7V
Date: 17/12/22/
Time: 10/07/10
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	49.29	-6.32	42.97	74.00	-31.03	peak	200	141	
2	2390.000	41.36	-6.32	35.04	54.00	-18.96	AVG	200	234	
3	2400.000	52.90	-6.27	46.63	74.00	-27.37	peak	200	111	
4	2400.000	43.57	-6.27	37.30	54.00	-16.70	AVG	200	247	
5	2483.500	47.68	-5.89	41.79	74.00	-32.21	peak	200	88	
6	2483.500	40.00	-5.89	34.11	54.00	-19.89	AVG	200	125	
7	2500.000	49.66	-5.81	43.85	74.00	-30.15	peak	200	161	
8	2500.000	41.30	-5.81	35.49	54.00	-18.51	AVG	200	265	

Note: Average measurement with peak detection at No.2&4&6&8

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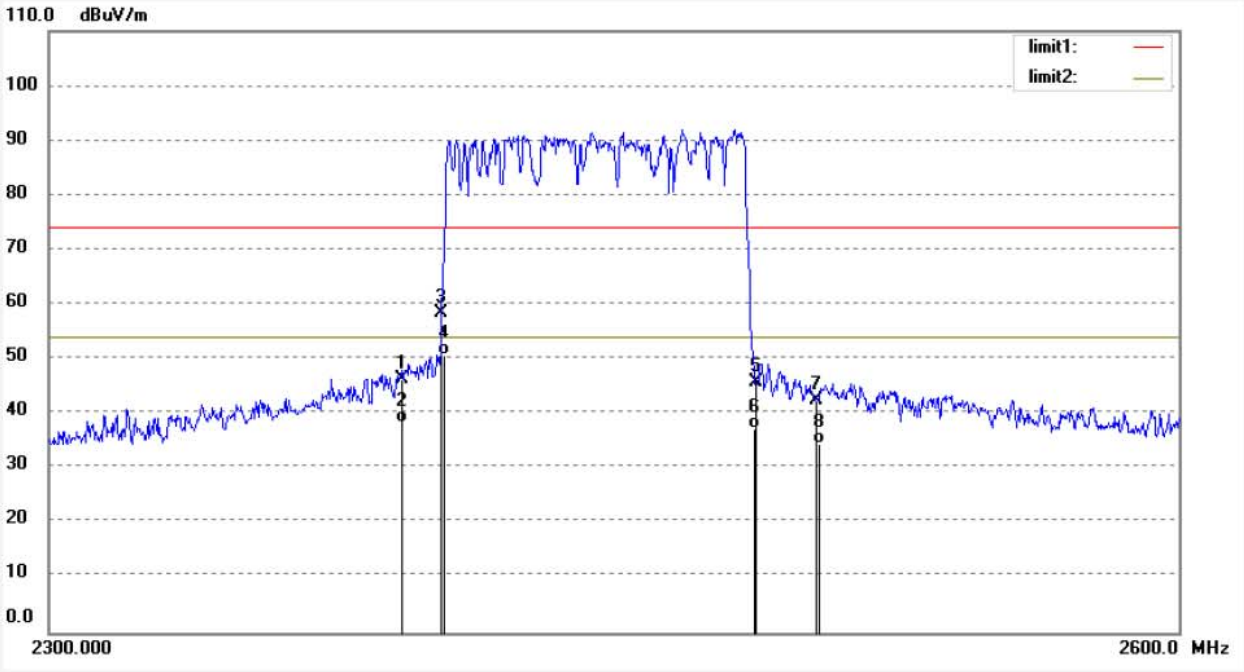
Job No.: star2017 #1319
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Speaker
Mode: Hopping (∏/4-DQPSK)
Model: EBT-164B
Manufacturer: China Etech Groups Ltd

Polarization: Vertical
Power Source: DC 3.7V
Date: 17/12/22/
Time: 10/04/13
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172532



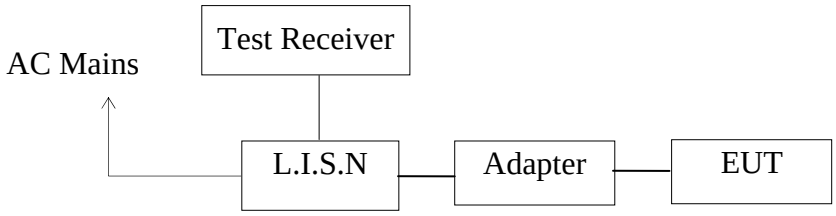
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	52.63	-6.32	46.31	74.00	-27.69	peak	150	244	
2	2390.000	44.55	-6.32	38.23	54.00	-15.77	AVG	150	147	
3	2400.000	64.83	-6.27	58.56	74.00	-15.44	peak	150	169	
4	2400.000	56.91	-6.27	50.64	54.00	-3.36	AVG	150	52	
5	2483.500	51.65	-5.89	45.76	74.00	-28.24	peak	150	144	
6	2483.500	43.27	-5.89	37.38	54.00	-16.62	AVG	150	156	
7	2500.000	48.40	-5.81	42.59	74.00	-31.41	peak	150	174	
8	2500.000	40.25	-5.81	34.44	54.00	-19.56	AVG	150	236	

Note: Average measurement with peak detection at No.2&4&6&8

12. AC POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207(A)

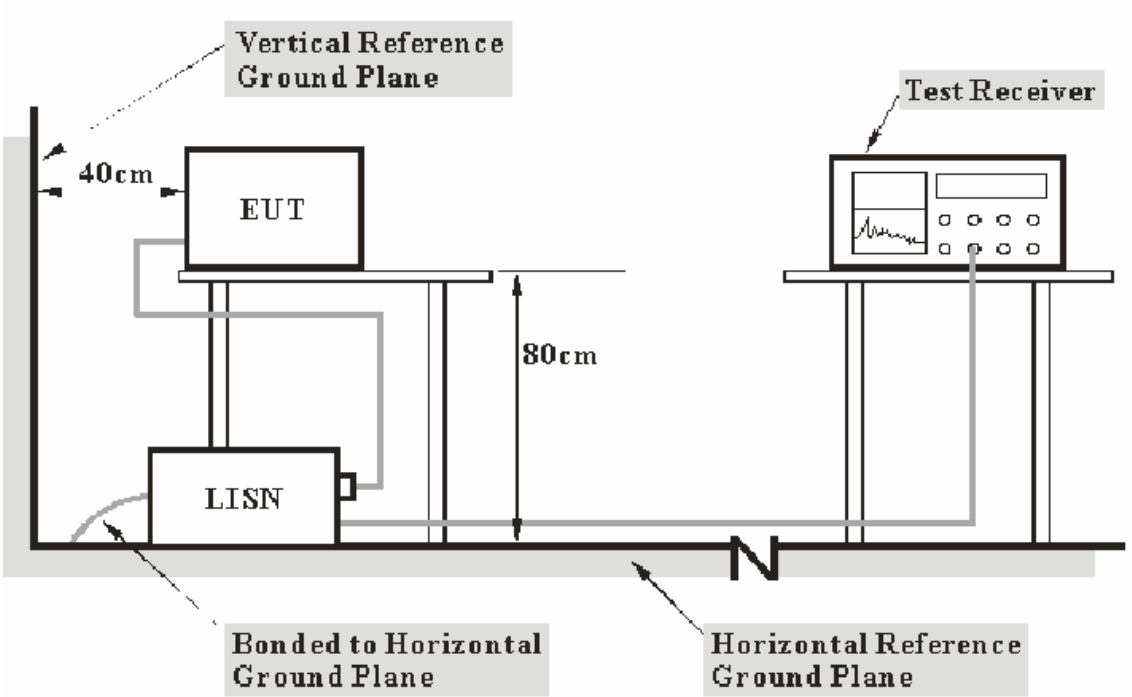
12.1. Block Diagram of Test Setup

12.1.1. Block diagram of connection between the EUT and simulators



(EUT: Bluetooth Speaker)

12.1.2. Test System Setup



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

12.2.Power Line Conducted Emission Measurement Limits

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0
NOTE1: The lower limit shall apply at the transition frequencies. NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.		

12.3.Configuration of EUT on Measurement

The equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

12.4.Operating Condition of EUT

12.4.1.Setup the EUT and simulator as shown as Section 12.1.

12.4.2.Turn on the power of all equipment.

12.4.3.Let the EUT work in test mode and measure it.

12.5.Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Measurement.
The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

12.6.Data Sample

Frequency (MHz)	Transducer value (dB)	QuasiPeak Level (dBμV)	Average Level (dBμV)	QuasiPeak Limit (dBμV)	Average Limit (dBμV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XX	10.5	51.1	34.2	56.0	46.0	4.9	11.8	Pass

Frequency(MHz) = Emission frequency in MHz
Transducer value(dB) = Insertion loss of LISN + Cable Loss
Level(dBμV) = Quasi-peak Reading/Average Reading + Transducer value
Limit (dBμV) = Limit stated in standard
Margin = Limit (dBμV) - Level (dBμV)

Calculation Formula:
Margin = Limit (dBμV) - Level (dBμV)

12.7.Power Line Conducted Emission Measurement Results

PASS.
Test Lab: Shielding room
Test Engineer: Star

The frequency range from 150kHz to 30MHz is checked.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.
Emissions attenuated more than 20 dB below the permissible value are not reported.

All data was recorded in the Quasi-peak and average detection mode.

The spectral diagrams are attached as below.

ACCURATE TECHNOLOGY CO.,LTD

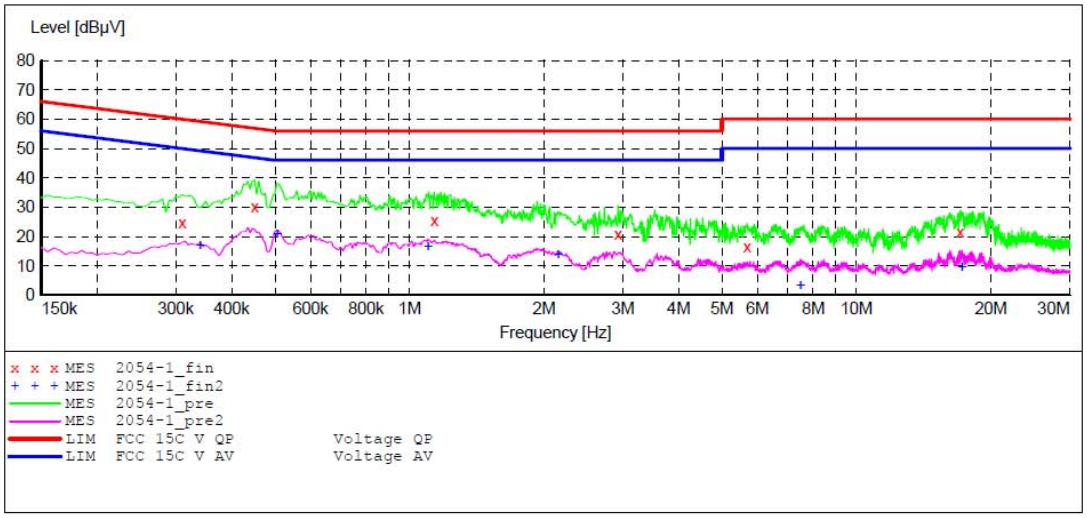
CONDUCTED EMISSION STANDARD FCC PART 15 C

```
EUT:                  Bluetooth Speaker  M/N:EBT-164B
Manufacturer:         China Etech Groups Ltd
Operating Condition:  BT communication
Test Site:            1#Shielding Room
Operator:             Star
Test Specification:   L  240V/60Hz
Comment:              Report NO.:ATE20172532
Start of Test:        12/21/2017 / 9:49:42AM
```

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak Average	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "2054-1_fin"

12/21/2017 9:53AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.310000	24.60	10.6	60	35.4	QP	L1	GND
0.450000	29.90	10.7	57	27.0	QP	L1	GND
1.135000	25.60	10.9	56	30.4	QP	L1	GND
2.930000	20.80	11.1	56	35.2	QP	L1	GND
5.690000	16.50	11.2	60	43.5	QP	L1	GND
17.065000	21.70	11.4	60	38.3	QP	L1	GND

MEASUREMENT RESULT: "2054-1_fin2"

12/21/2017 9:53AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.340000	16.90	10.6	49	32.3	AV	L1	GND
0.505000	20.60	10.7	46	25.4	AV	L1	GND
1.100000	16.50	10.9	46	29.5	AV	L1	GND
2.150000	13.90	11.0	46	32.1	AV	L1	GND
7.500000	3.40	11.2	50	46.6	AV	L1	GND
17.230000	9.50	11.4	50	40.5	AV	L1	GND

ACCURATE TECHNOLOGY CO.,LTD

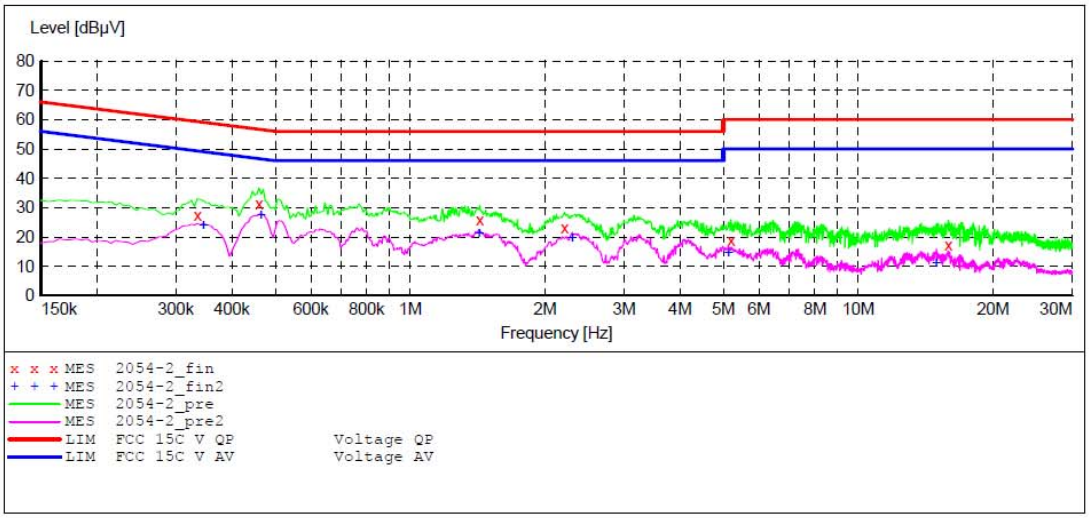
CONDUCTED EMISSION STANDARD FCC PART 15 C

```
EUT:                  Bluetooth Speaker  M/N:EBT-164B
Manufacturer:         China Etech Groups Ltd
Operating Condition:  BT communication
Test Site:            1#Shielding Room
Operator:             Star
Test Specification:   N  240V/60Hz
Comment:              Report NO.:ATE20172532
Start of Test:        12/21/2017 / 9:54:44AM
```

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak Average	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "2054-2_fin"

12/21/2017 9:58AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.335000	27.30	10.6	59	32.0	QP	N	GND
0.460000	31.30	10.7	57	25.4	QP	N	GND
1.430000	25.90	10.9	56	30.1	QP	N	GND
2.210000	23.10	11.0	56	32.9	QP	N	GND
5.200000	18.80	11.2	60	41.2	QP	N	GND
15.880000	17.10	11.4	60	42.9	QP	N	GND

MEASUREMENT RESULT: "2054-2_fin2"

12/21/2017 9:58AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.345000	24.00	10.6	49	25.1	AV	N	GND
0.465000	27.20	10.7	47	19.4	AV	N	GND
1.425000	21.10	10.9	46	24.9	AV	N	GND
2.300000	19.70	11.0	46	26.3	AV	N	GND
5.130000	14.50	11.2	50	35.5	AV	N	GND
14.935000	11.10	11.4	50	38.9	AV	N	GND

ACCURATE TECHNOLOGY CO.,LTD

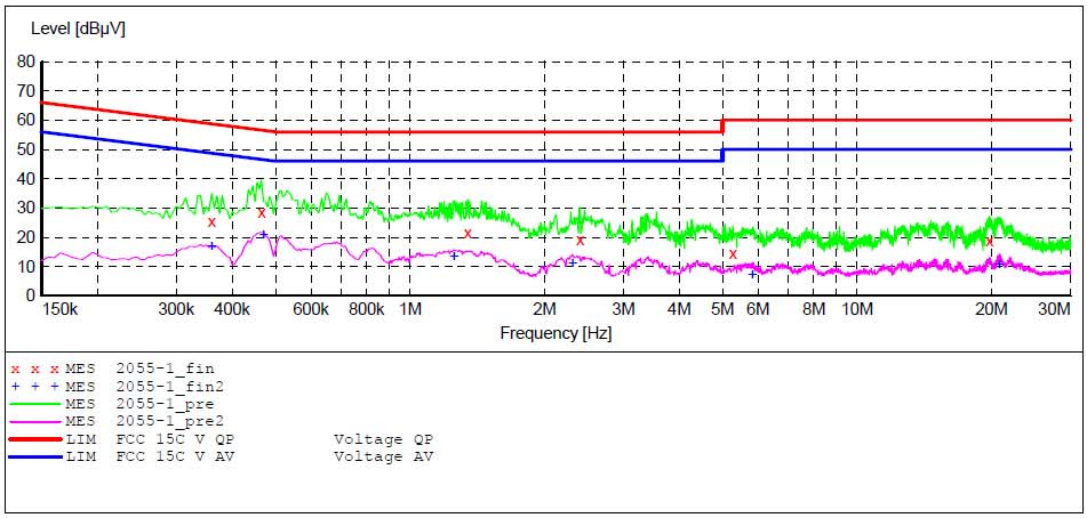
CONDUCTED EMISSION STANDARD FCC PART 15 C

```
EUT:                  Bluetooth Speaker  M/N:EBT-164B
Manufacturer:         China Etech Groups Ltd
Operating Condition:  BT communication
Test Site:            1#Shielding Room
Operator:             Star
Test Specification:   N  120V/60Hz
Comment:              Report NO.:ATE20172532
Start of Test:        12/21/2017 / 9:58:54AM
```

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak Average	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "2055-1_fin"

12/21/2017 10:02AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.360000	25.30	10.6	59	33.4	QP	N	GND
0.465000	28.50	10.7	57	28.1	QP	N	GND
1.345000	21.50	10.9	56	34.5	QP	N	GND
2.400000	19.40	11.0	56	36.6	QP	N	GND
5.270000	14.70	11.2	60	45.3	QP	N	GND
19.750000	18.70	11.4	60	41.3	QP	N	GND

MEASUREMENT RESULT: "2055-1_fin2"

12/21/2017 10:02AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.360000	17.00	10.6	49	31.7	AV	N	GND
0.470000	20.70	10.7	47	25.8	AV	N	GND
1.255000	13.30	10.9	46	32.7	AV	N	GND
2.310000	10.90	11.0	46	35.1	AV	N	GND
5.830000	7.10	11.2	50	42.9	AV	N	GND
20.800000	10.60	11.4	50	39.4	AV	N	GND

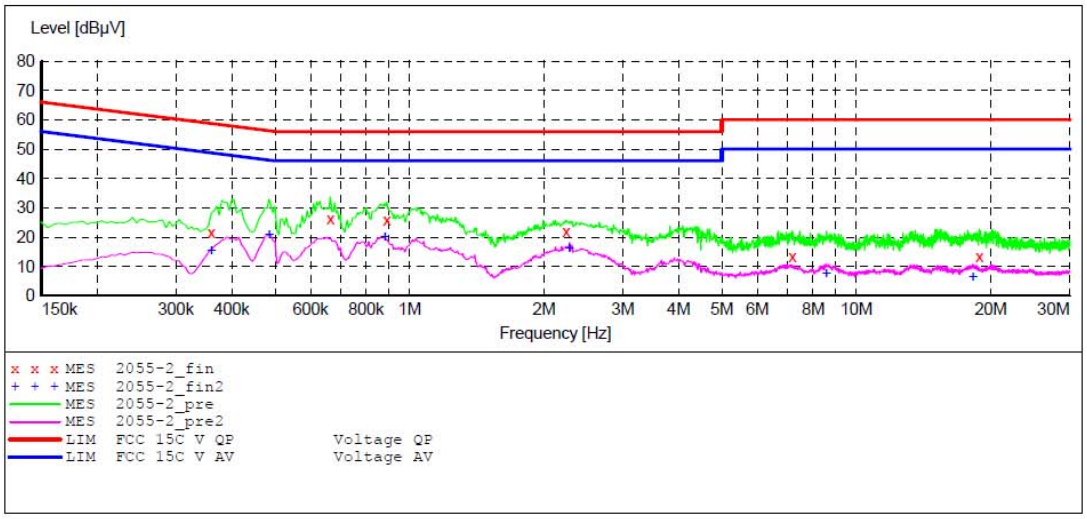
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15 C

```
EUT:                  Bluetooth Speaker  M/N:EBT-164B
Manufacturer:         China Etech Groups Ltd
Operating Condition:  BT communication
Test Site:            1#Shielding Room
Operator:             Star
Test Specification:   L  120V/60Hz
Comment:              Report NO.:ATE20172532
Start of Test:        12/21/2017 / 10:07:52AM
```

SCAN TABLE: "V 9K-30MHz fin"

```
  Short Description:              _SUB_STD_VTERM2 1.70
  Start      Stop       Step       Detector  Meas.     IF       Transducer
  Frequency  Frequency  Width                Time      Bandw.
  9.0 kHz    150.0 kHz  100.0 Hz   QuasiPeak 1.0 s     200 Hz   NSLK8126 2008
                                   Average
  150.0 kHz  30.0 MHz   5.0 kHz    QuasiPeak 1.0 s     9 kHz    NSLK8126 2008
                                   Average
```



MEASUREMENT RESULT: "2055-2_fin"

12/21/2017 10:09AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.360000	21.60	10.6	59	37.1	QP	L1	GND
0.665000	26.40	10.8	56	29.6	QP	L1	GND
0.890000	25.80	10.8	56	30.2	QP	L1	GND
2.240000	22.00	11.0	56	34.0	QP	L1	GND
7.200000	13.30	11.2	60	46.7	QP	L1	GND
18.835000	13.30	11.4	60	46.7	QP	L1	GND

MEASUREMENT RESULT: "2055-2_fin2"

12/21/2017 10:09AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.360000	15.30	10.6	49	33.4	AV	L1	GND
0.485000	20.60	10.7	46	25.7	AV	L1	GND
0.880000	19.80	10.8	46	26.2	AV	L1	GND
2.280000	15.90	11.0	46	30.1	AV	L1	GND
8.570000	7.40	11.3	50	42.6	AV	L1	GND
18.220000	6.20	11.4	50	43.8	AV	L1	GND

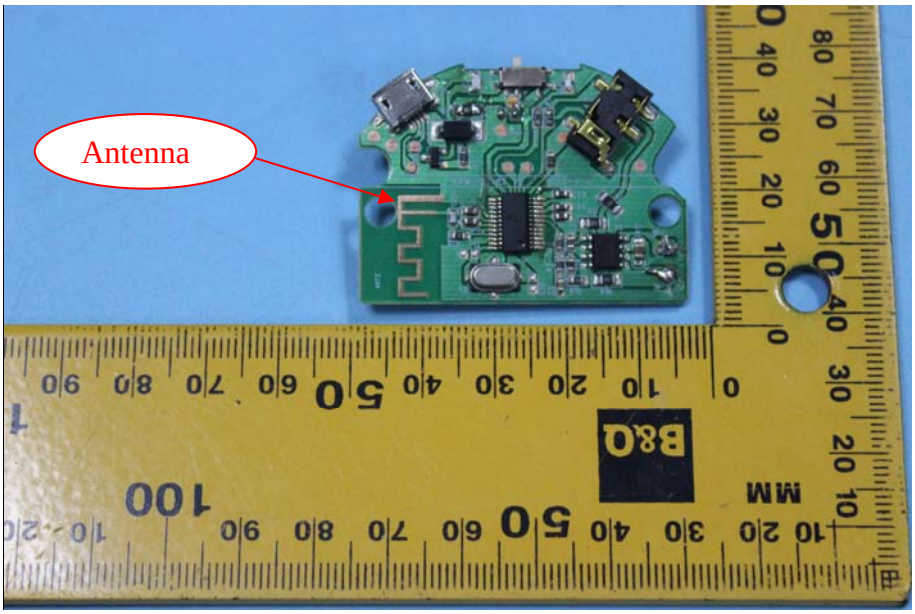
13. ANTENNA REQUIREMENT

13.1. 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.

13.2. Antenna Construction

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



******* End of Test Report *******