APPLICATION CERTIFICATION FCC Part 15C
On Behalf of

Koss Corporation

Bluetooth Headset
Model No.: BT115i, BT221i, BT232i

FCC ID: L76-BT0001

Prepared for	:	Koss Corporation
Address	:	4129 North Port Washington Avenue Milwaukee WISCONSIN 53212 United States
Prepared by	:	Shenzhen Accurate Technology Co., Ltd.
Address	:	1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China Tel: (0755) 26503290 Fax: (0755) 26503396

Report No.	:	ATE20172592
Date of Test	:	December 29, 2017
Date of Report	:	December 30, 2017

TABLE OF CONTENTS

Description Page

Test Report Certification

Applicant	:	Koss Corporation
Manufacturer	:	Dongguan Baizhenrong Limited
EUT Description	:	Bluetooth Headset
Model No.	:	BT115i, BT221i, BT232i
Trade Name	:	KOSS

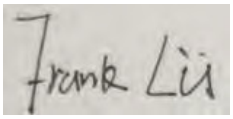
Measurement Procedure Used:

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

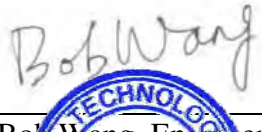
The device described above is tested by Shenzhen Accurate Technology Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.247 limits. The measurement results are contained in this test report and 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 : December 29, 2017
Date of Report : December 30, 2017



Test Engineer : _____
(Frank Lü, Engineer)



Prepared by : _____
(Bob Wang, Engineer)

Approved & Authorized Signer : _____
(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

Model Number	:	BT115i, BT221i, BT232i (Note: We hereby state that these models are identical in interior structure, electrical circuits and components, and just model names and earphone·type/shape are different for the marketing requirement. So we prepare BT115i for test only.)
Bluetooth version	:	V 4.2 This report is for BT classic mode
Frequency Range	:	2402MHz-2480MHz
Number of Channels	:	79
Antenna Gain(Max)	:	2.0dBi
Antenna type	:	Integral Antenna
Adapter Input Voltage	:	DC 3.7V (Powered by battery) or DC 5V (Powered by USB port)
Rated Voltage	:	DC 3.7V Battery
Battery Capacity	:	100 mAh
Modulation mode	:	GFSK, π/4 DQPSK, 8DPSK
Hardware version	:	BT V4.2
software version	:	1522S
Applicant	:	Koss Corporation
Address	:	4129 North Port Washington Avenue Milwaukee WISCONSIN 53212 United States
Manufacturer	:	Dongguan Baizhenrong Limited
Address	:	3 Xin Yuan Street, Ju-zhou No.2 Industrial Zone, Shijie Town, DongGuan, GuangDong Province, P.R.C

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

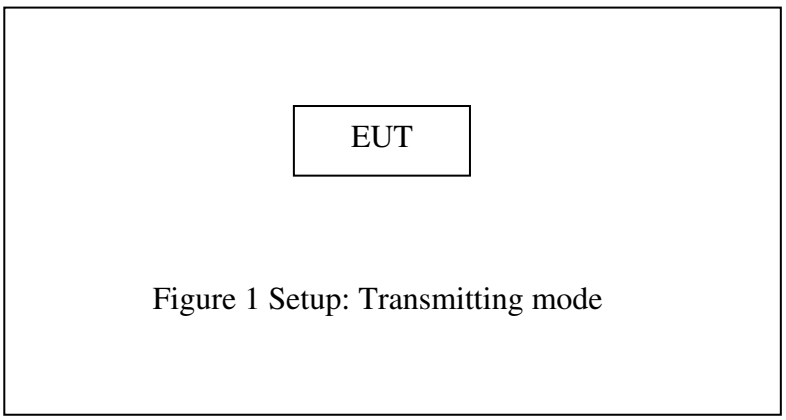


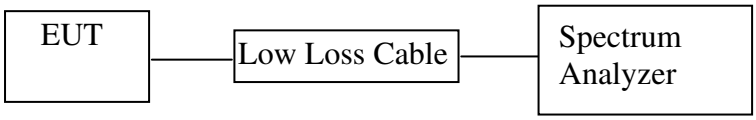
Figure 1 Setup: Transmitting mode

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 Headset)

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

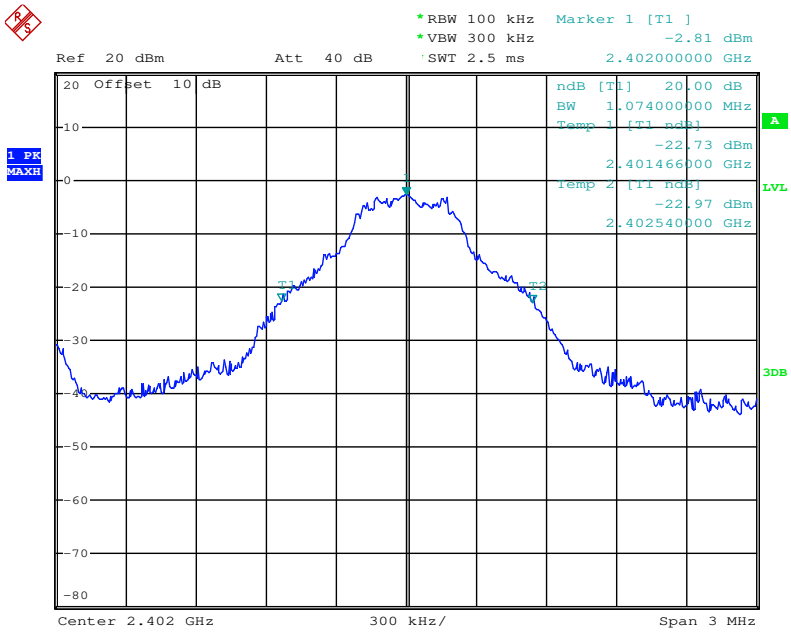
Test Lab: Shielding room
Test Engineer: Frank

Channel	Frequency (MHz)	GFSK 20dB Bandwidth (MHz)	Π/4-DQPSK 20dB Bandwidth (MHz)	8DPSK 20dB Bandwidth (MHz)	Result
Low	2402	1.074	1.374	1.386	Pass
Middle	2441	1.104	1.422	1.422	Pass
High	2480	1.098	1.398	1.428	Pass

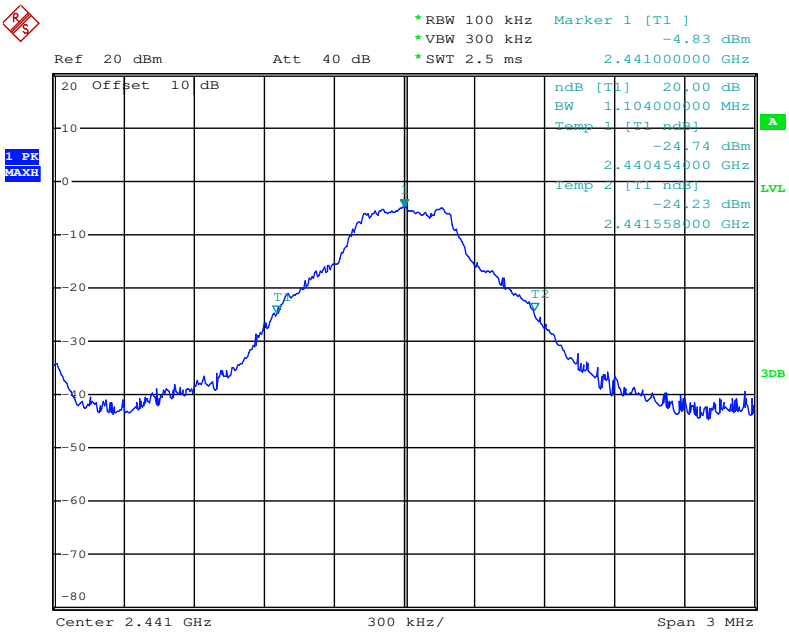
The spectrum analyzer plots are attached as below.

GFSK Mode

Low channel

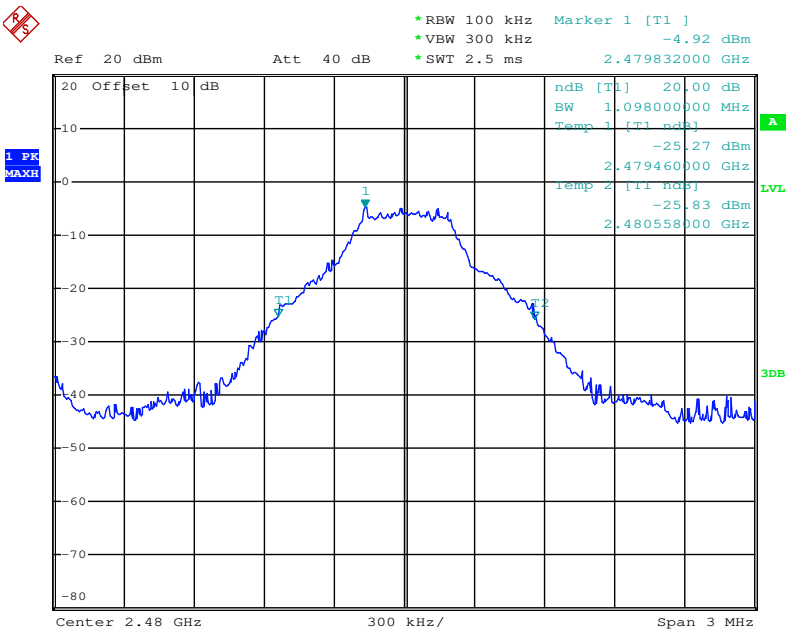


Middle channel



Date: 29.DEC.2017 19:09:52

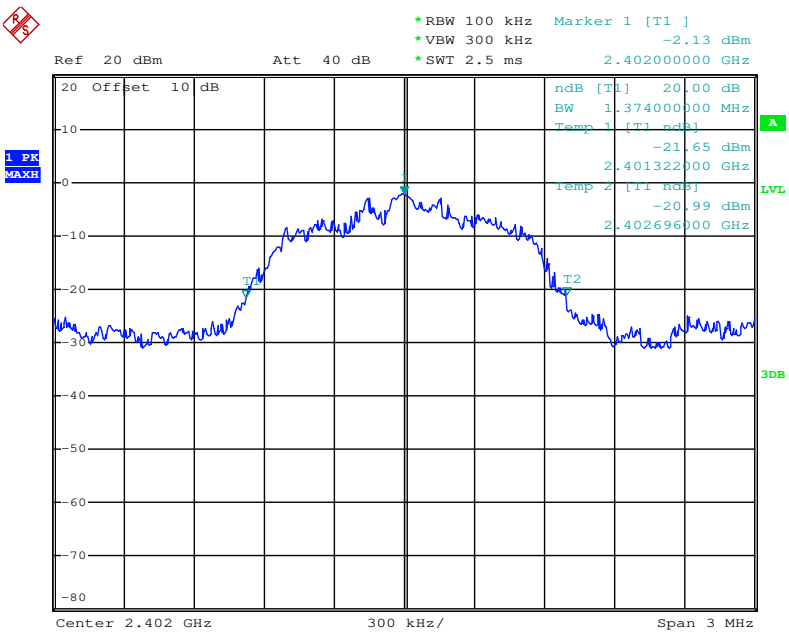
High channel



Date: 29.DEC.2017 19:10:32

Π/4-DQPSK Mode

Low channel



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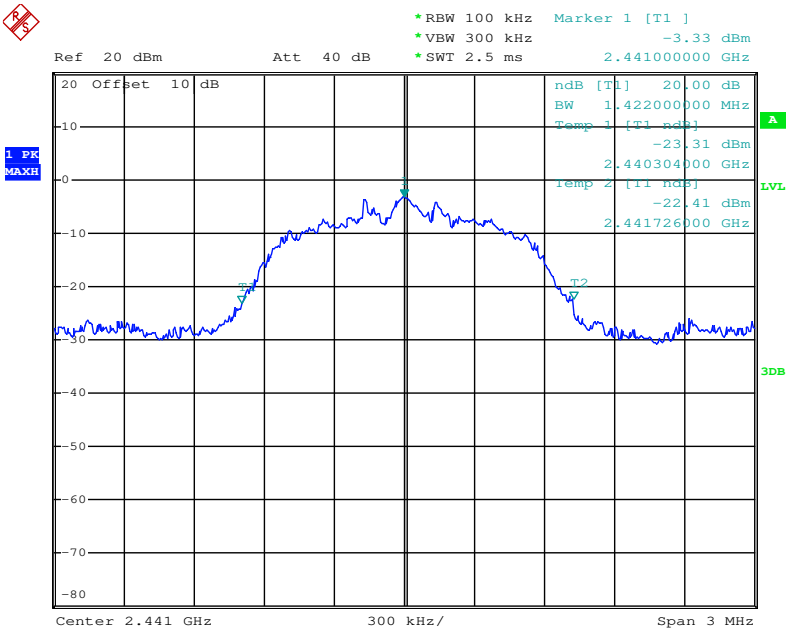
Middle channel



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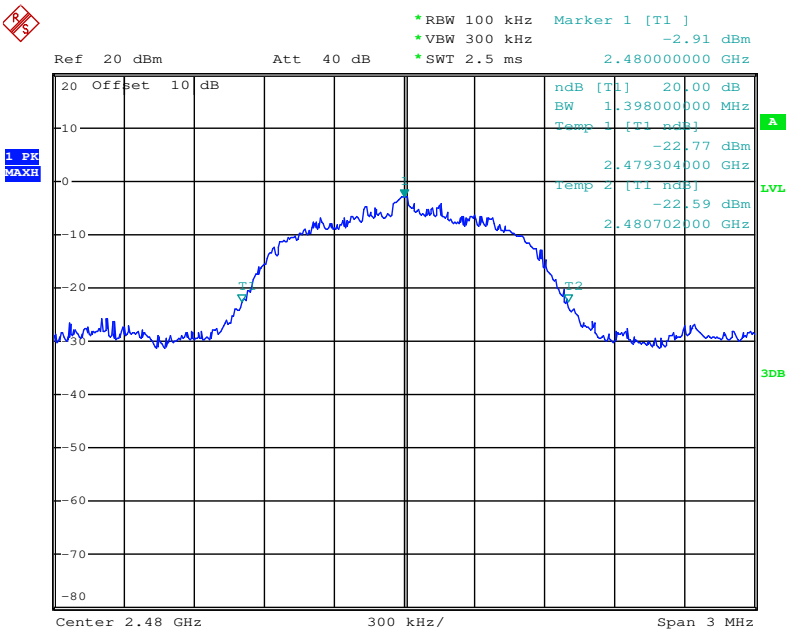
High channel



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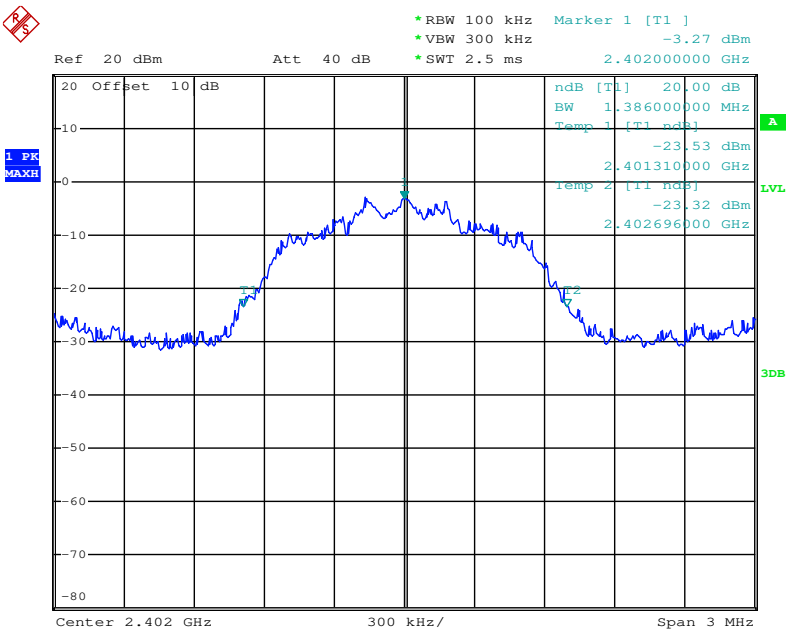
8DPSK Mode

Low channel



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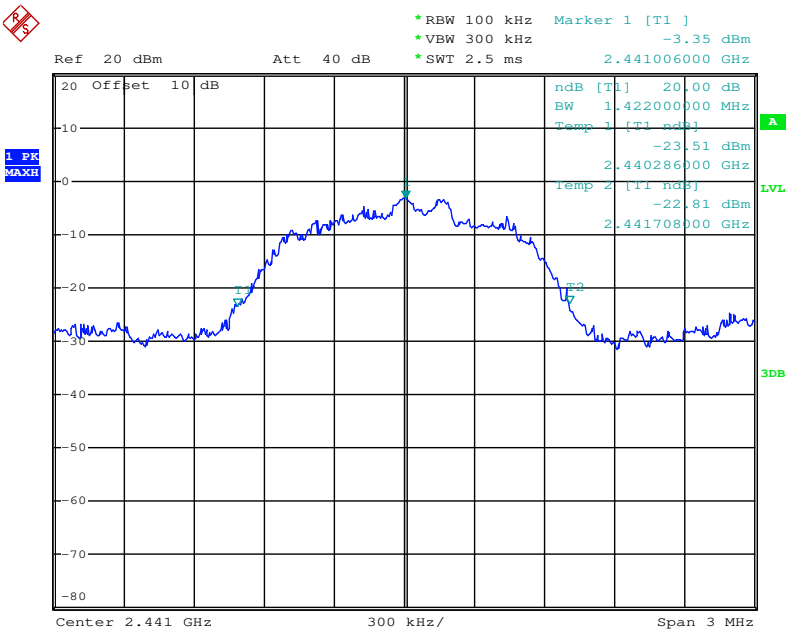
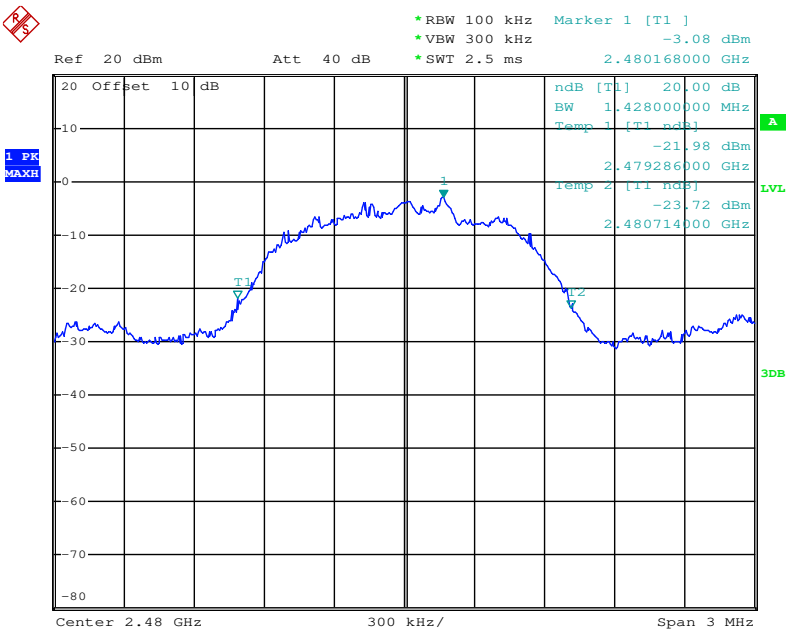
Middle channel



Date: 29.DEC.2017 19:13:39

High channel



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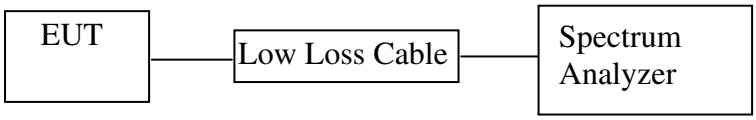
6. CARRIER FREQUENCY SEPARATION TEST

6.1.Block Diagram of Test Setup



(EUT: Bluetooth Headset)

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: Frank

GFSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	0.996	25KHz or 2/3*20dB bandwidth	PASS
	2403			
Middle	2440	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	0.996	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	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	0.996	25KHz or 2/3*20dB bandwidth	PASS
	2480			

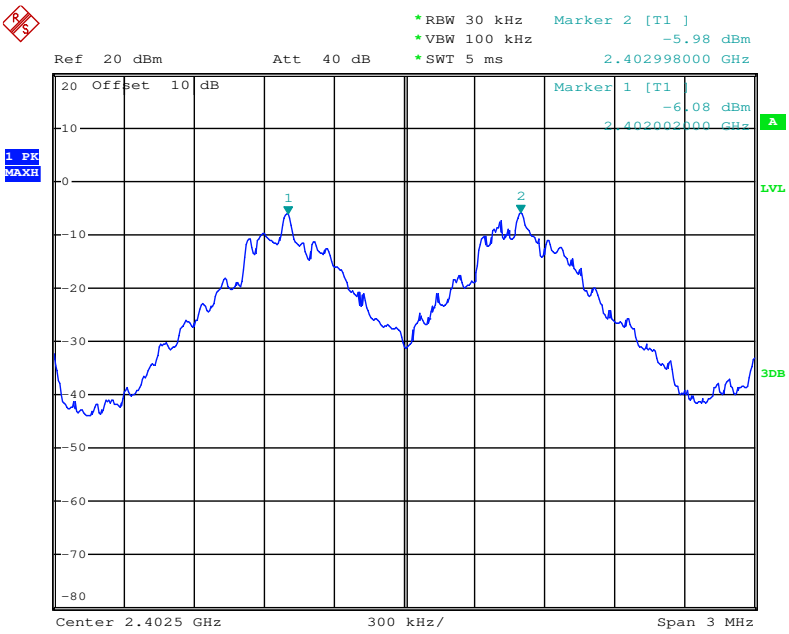
8DPSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.002	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			

The spectrum analyzer plots are attached as below.

GFSK Mode

Low channel



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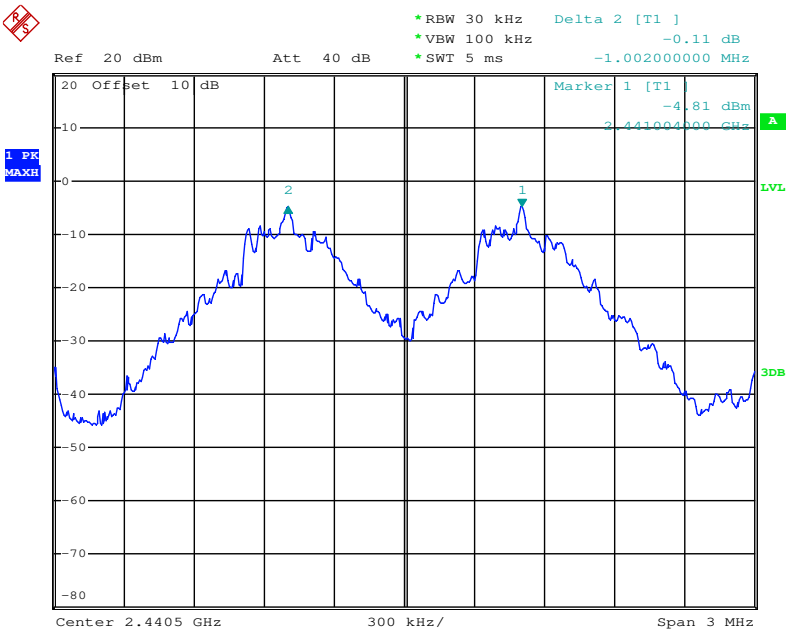
Middle channel



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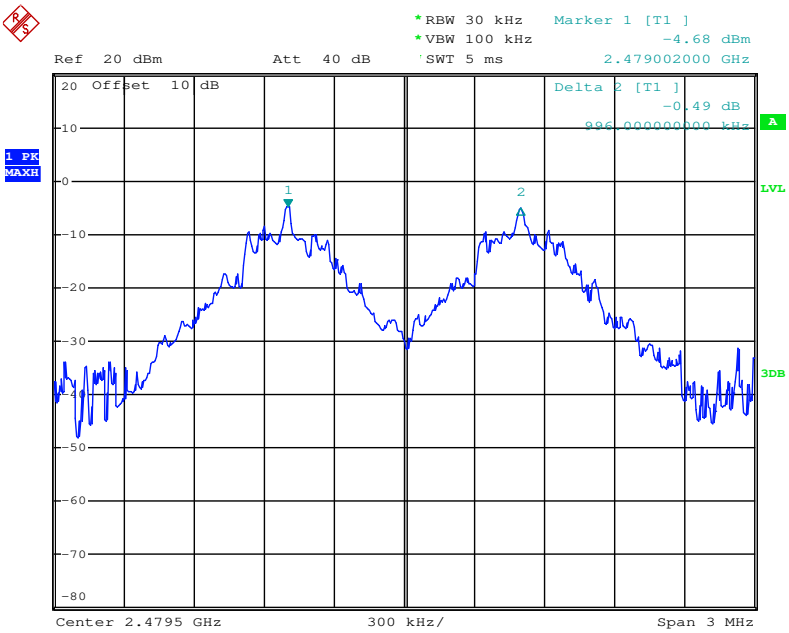
High channel



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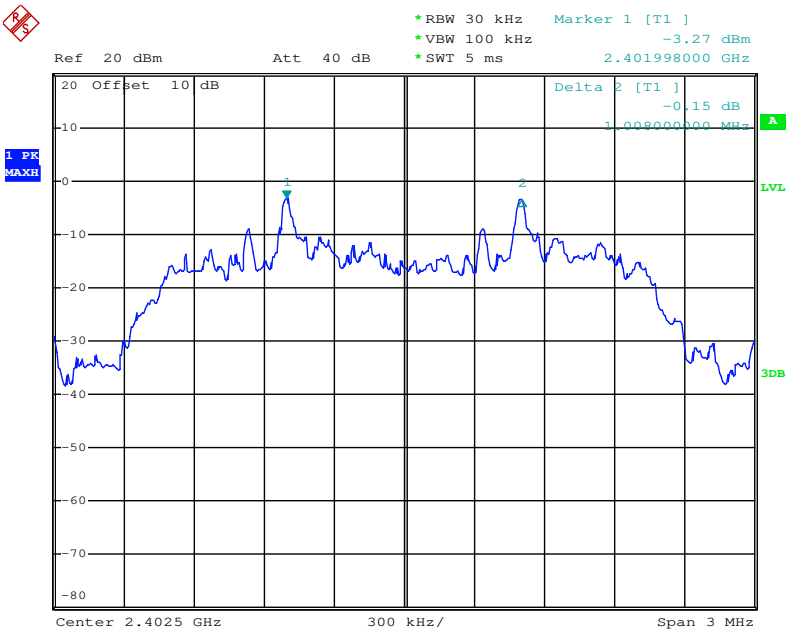
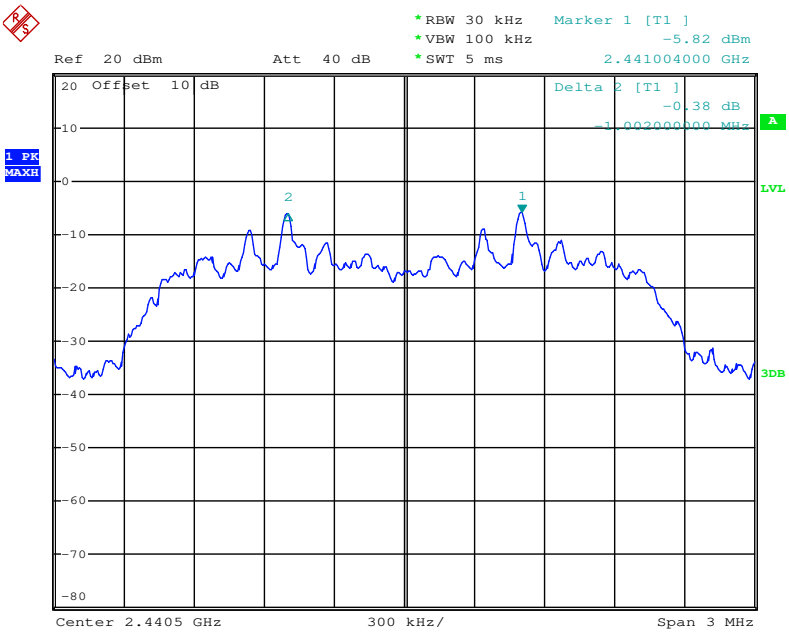
Π/4-DQPSK Mode

Low channel



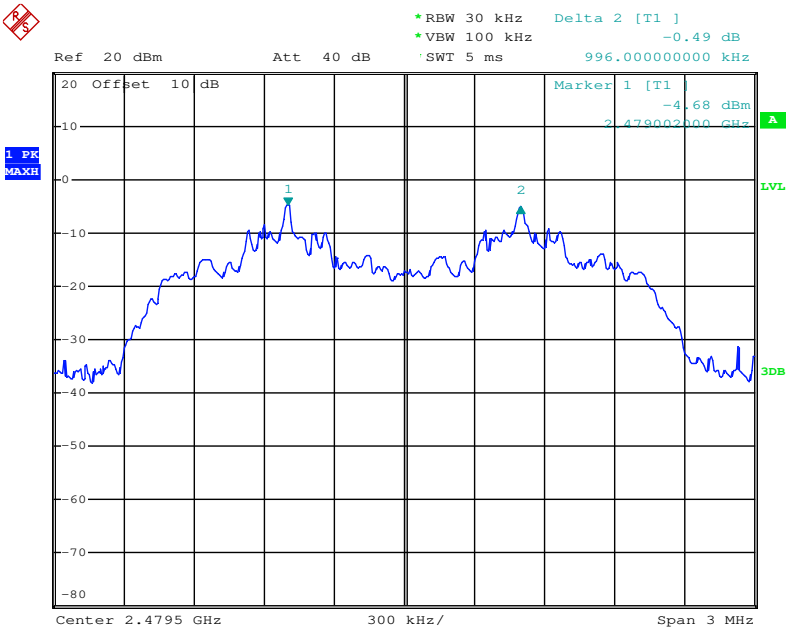
Date: 29.DEC.2017 18:56:23

Middle channel



Date: 29.DEC.2017 18:54:39

High channel



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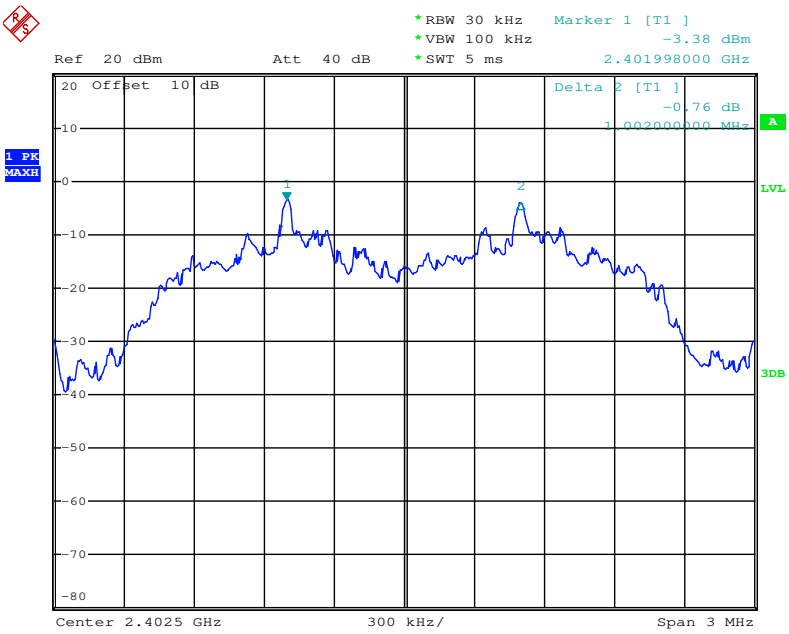
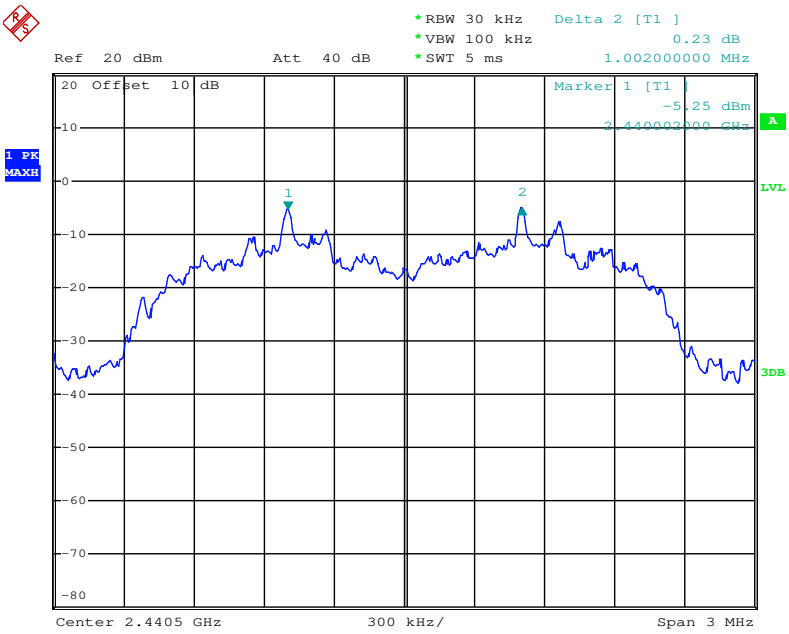
8DPSK Mode

Low channel



Date: 29.DEC.2017 18:57:27

Middle channel



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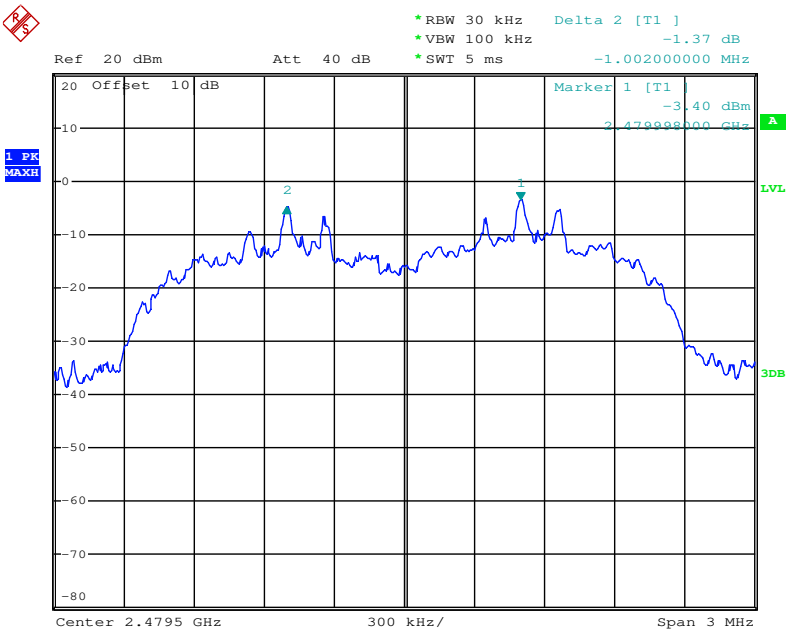
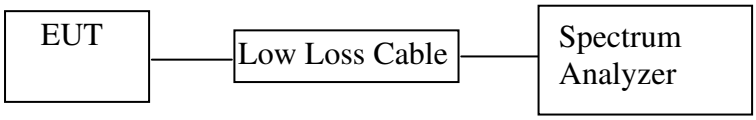
High channel



Date: 29.DEC.2017 18:59:45

7. NUMBER OF HOPPING FREQUENCY TEST

7.1.Block Diagram of Test Setup



(EUT: Bluetooth Headset)

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

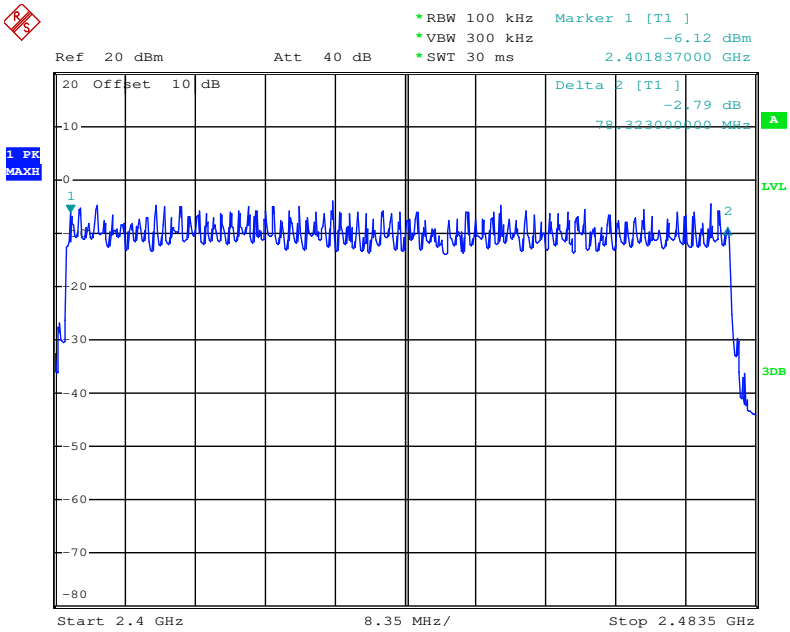
Test Lab: Shielding room

Test Engineer: Frank

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

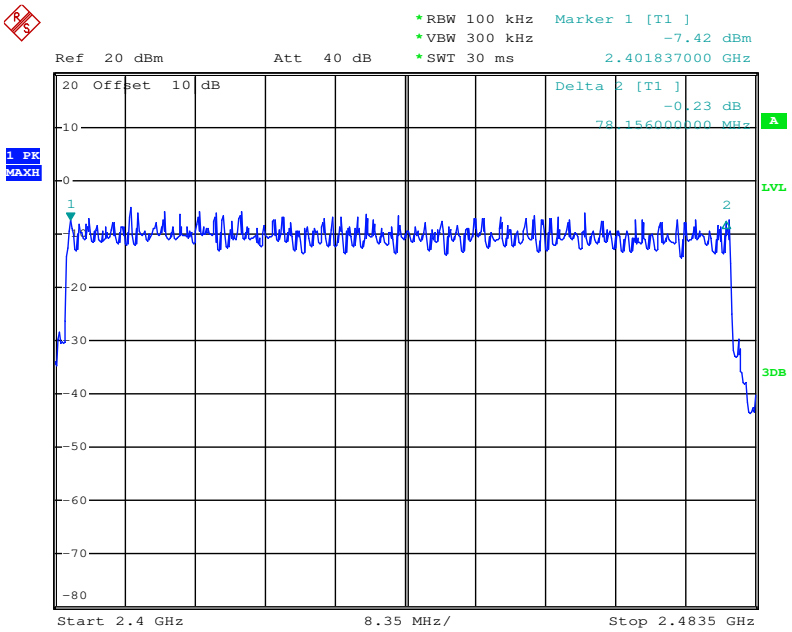
The spectrum analyzer plots are attached as below.

Number of hopping channels(GFSK)



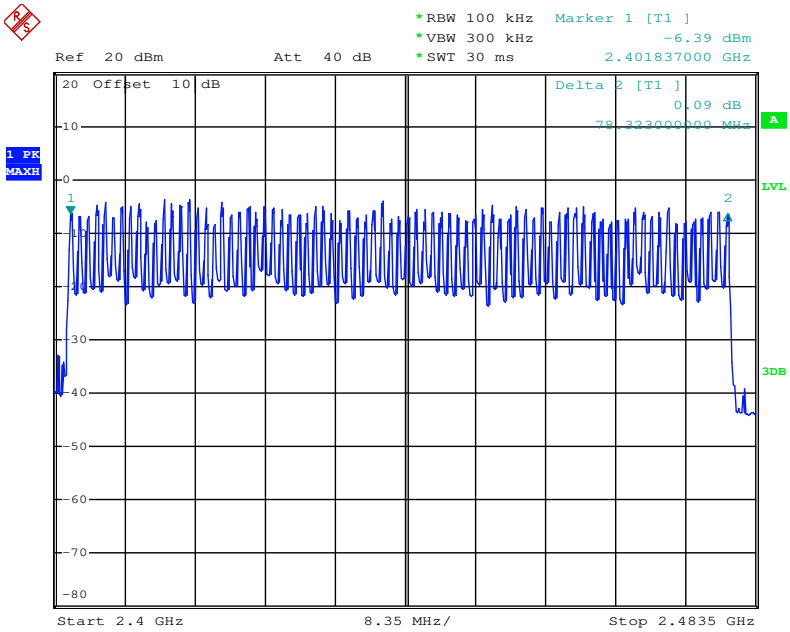
Date: 29.DEC.2017 18:45:00

Number of hopping channels(Π/4-DQPSK)



Date: 29.DEC.2017 18:43:19

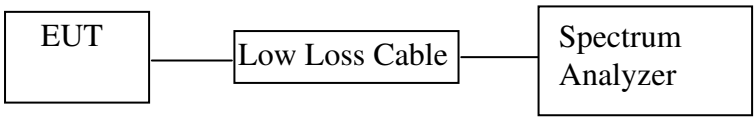
Number of hopping channels(8DPSK)



Date: 29.DEC.2017 18:46:49

8. DWELL TIME TEST

8.1.Block Diagram of Test Setup



(EUT: Bluetooth Headset)

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: Frank

GFSK Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.440	140.80	400
	2441	0.440	140.80	400
	2480	0.440	140.80	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2402	1.720	275.20	400
	2441	1.720	275.20	400
	2480	1.720	275.20	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2402	3.010	321.07	400
	2441	2.980	317.87	400
	2480	2.980	317.87	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	0.450	144.00	400
	2441	0.460	147.20	400
	2480	0.460	147.20	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2402	1.710	273.60	400
	2441	1.700	272.00	400
	2480	1.740	278.40	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2402	3.000	320.00	400
	2441	3.000	320.00	400
	2480	3.010	321.07	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

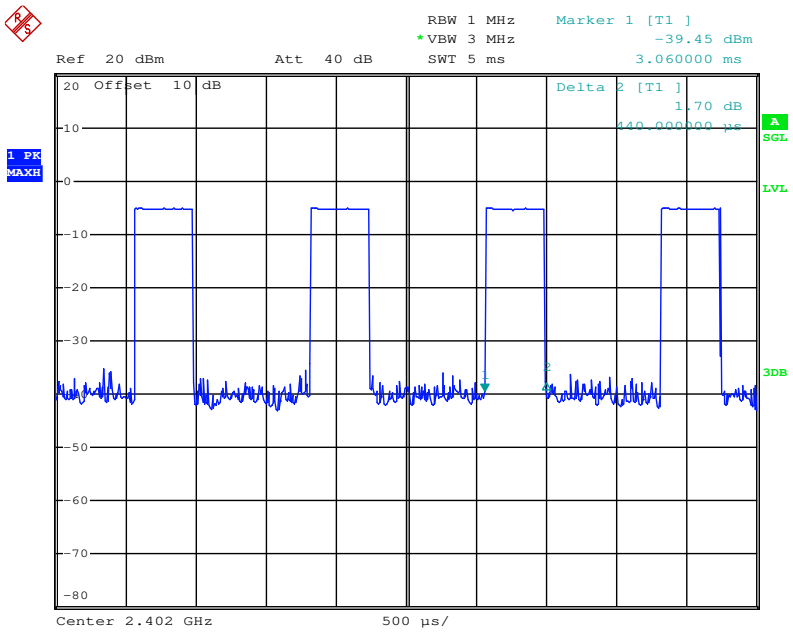
8DPSK Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.450	144.00	400
	2441	0.460	147.20	400
	2480	0.450	144.00	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2402	1.730	276.80	400
	2441	1.720	275.20	400
	2480	1.730	276.80	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2402	2.990	318.93	400
	2441	3.000	320.00	400
	2480	2.990	318.93	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.

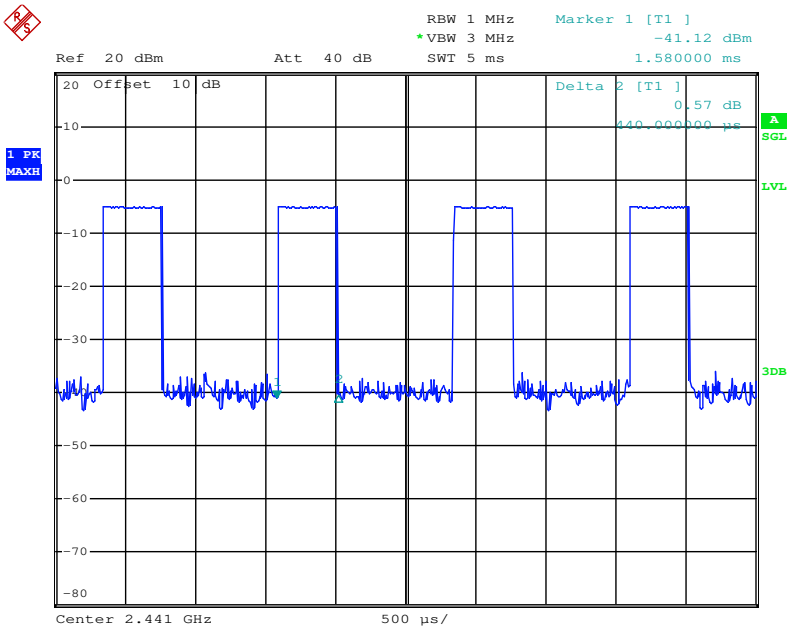
GFSK Mode

DH1 Low channel



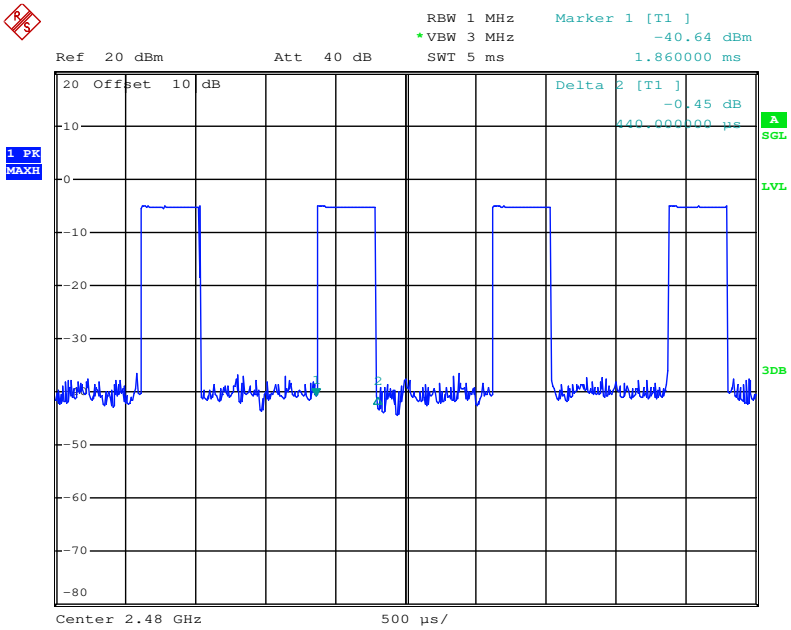
Date: 29.DEC.2017 19:16:32

DH1 Middle channel



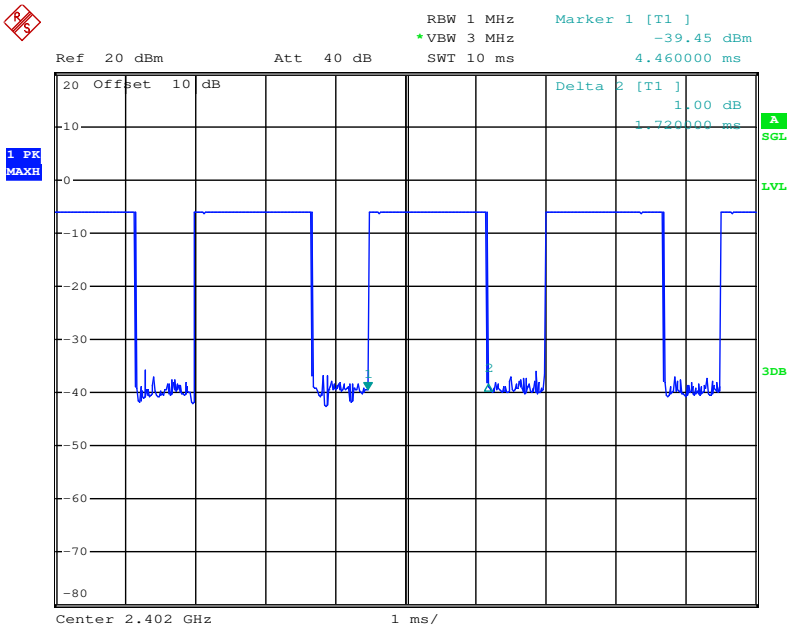
Date: 29.DEC.2017 19:21:05

DH1 High channel



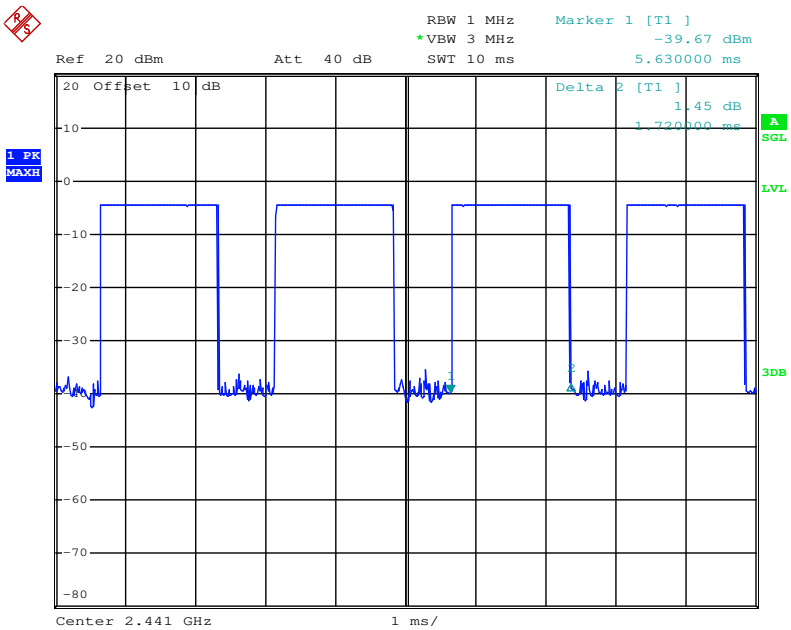
Date: 29.DEC.2017 19:22:14

DH3 Low channel



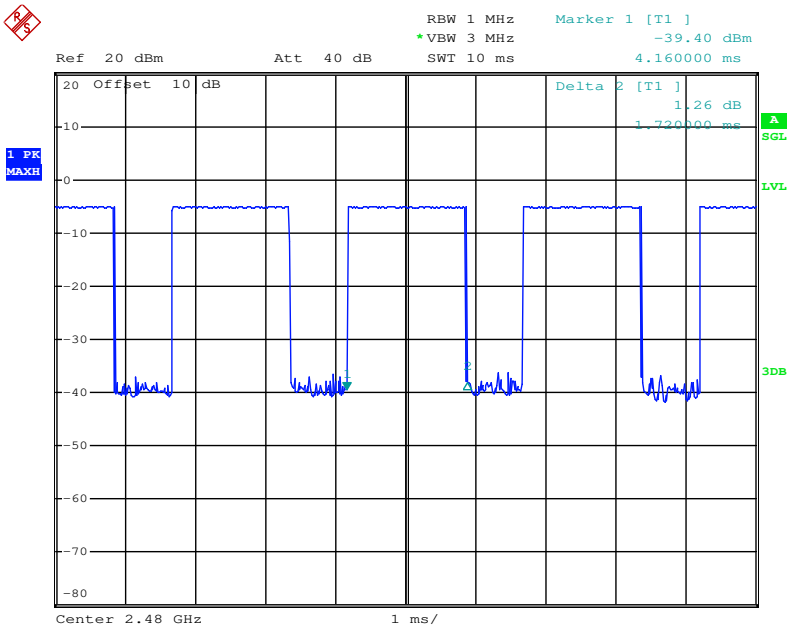
Date: 29.DEC.2017 19:17:52

DH3 Middle channel



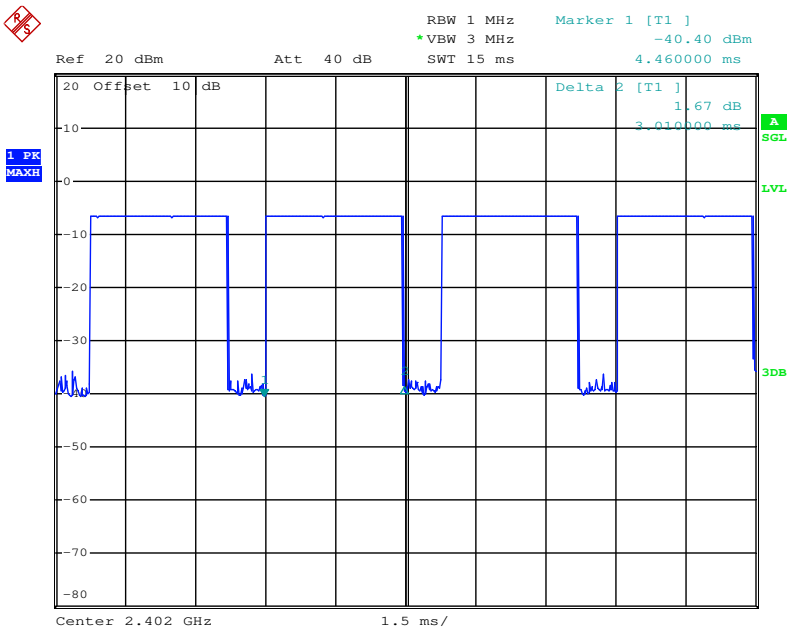
Date: 29.DEC.2017 19:20:22

DH3 High channel



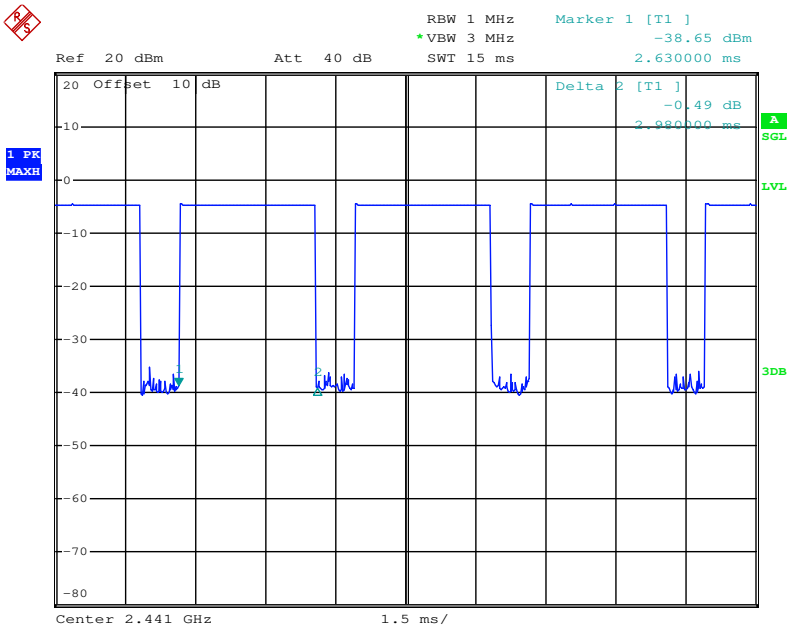
Date: 29.DEC.2017 19:23:08

DH5 Low channel



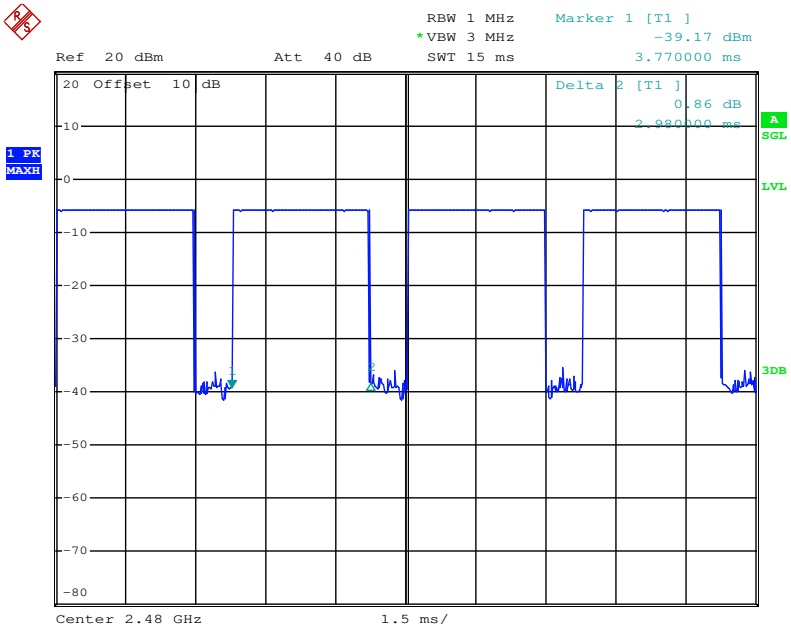
Date: 29.DEC.2017 19:18:36

DH5 Middle channel



Date: 29.DEC.2017 19:19:36

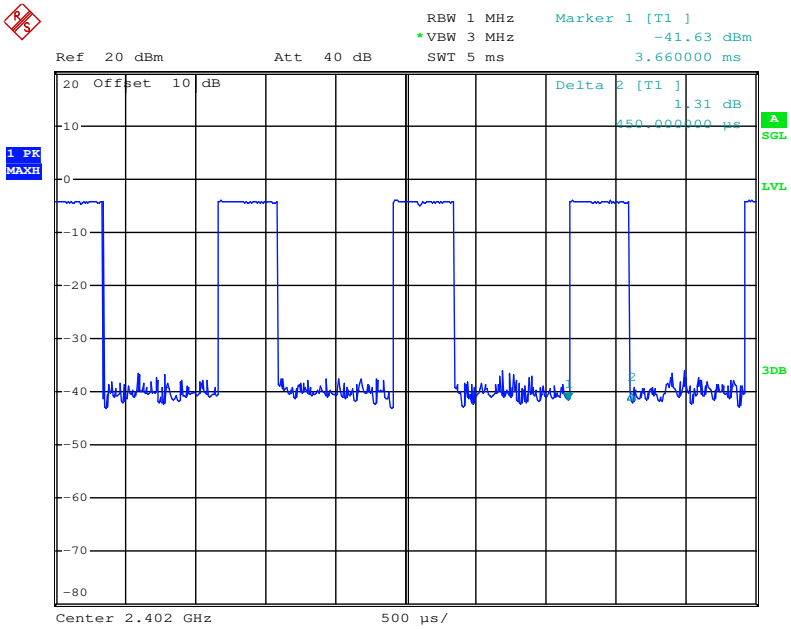
DH5 High channel



Date: 29.DEC.2017 19:24:06

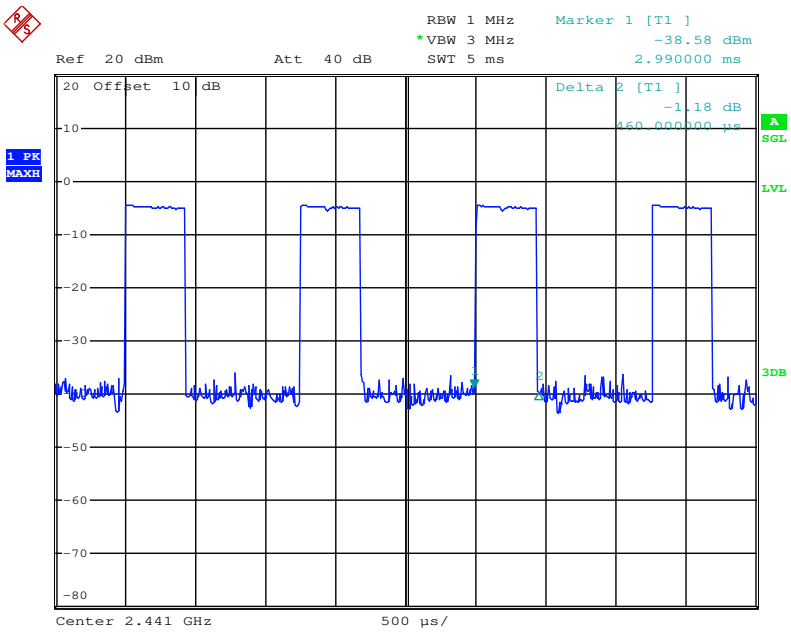
Π/4-DQPSK

2DH1 Low channel



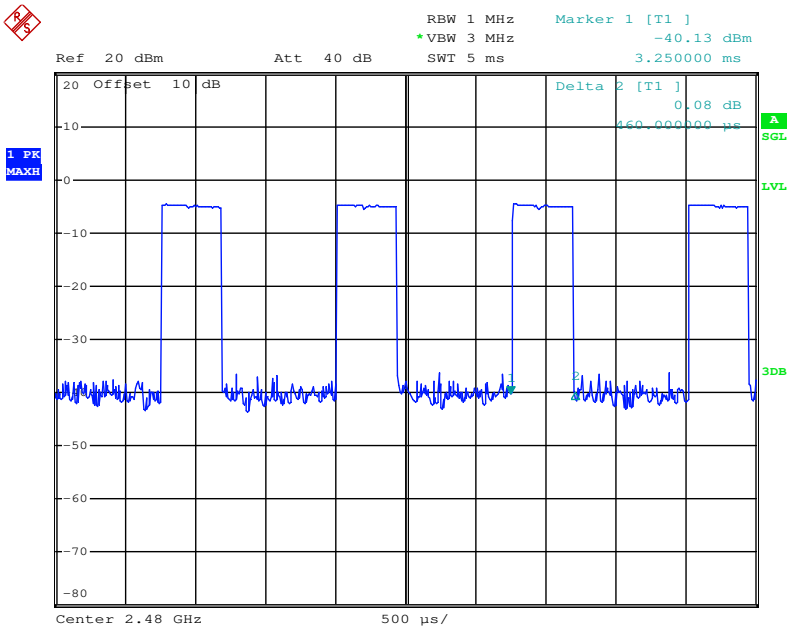
Date: 29.DEC.2017 19:33:07

2DH1 Middle channel



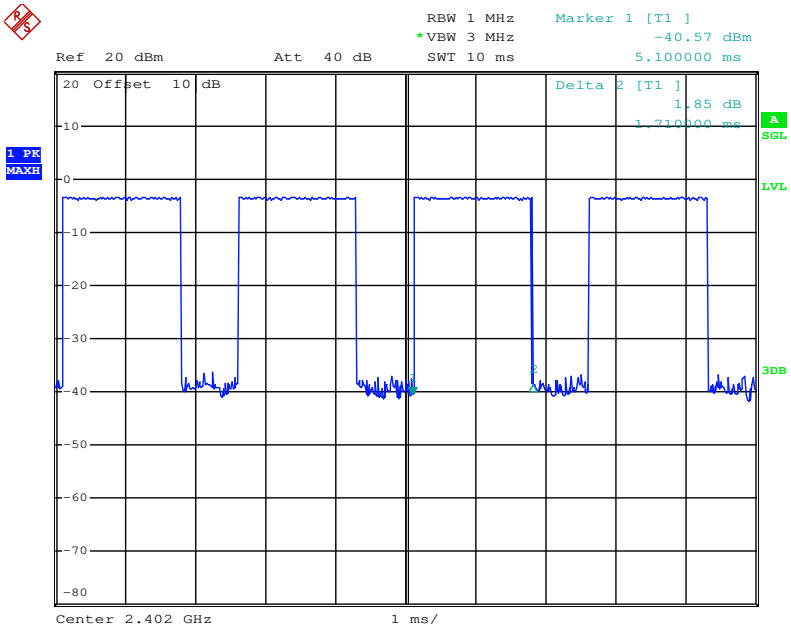
Date: 29.DEC.2017 19:27:57

2DH1 High channel



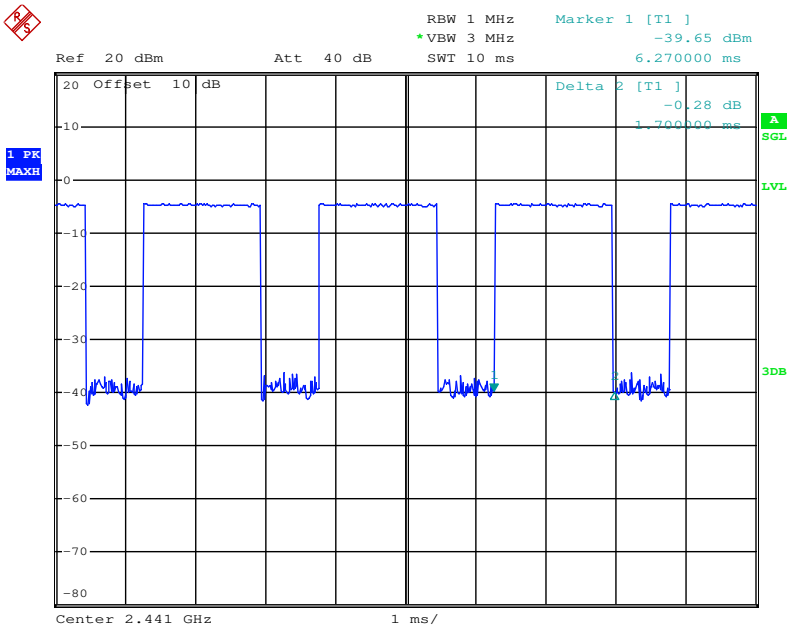
Date: 29.DEC.2017 19:26:57

2DH3 Low channel



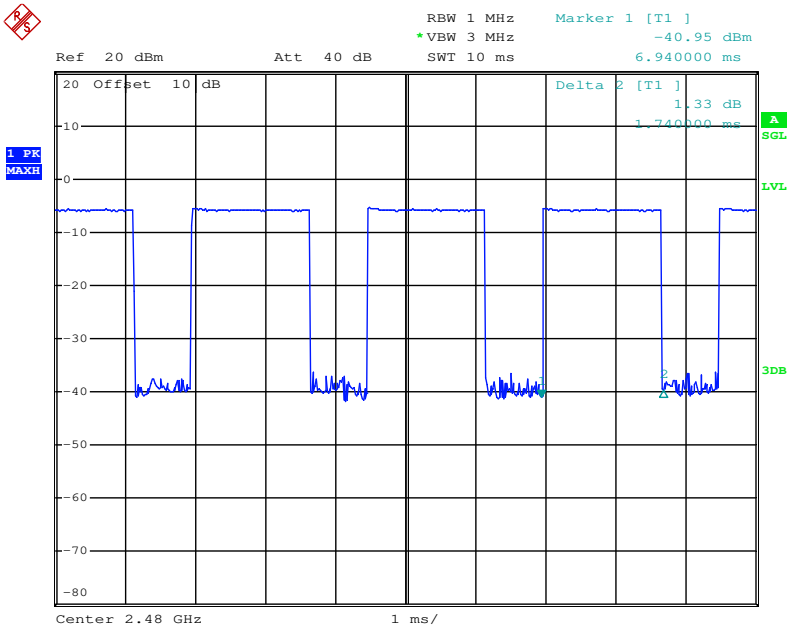
Date: 29.DEC.2017 19:33:55

2DH3 Middle channel



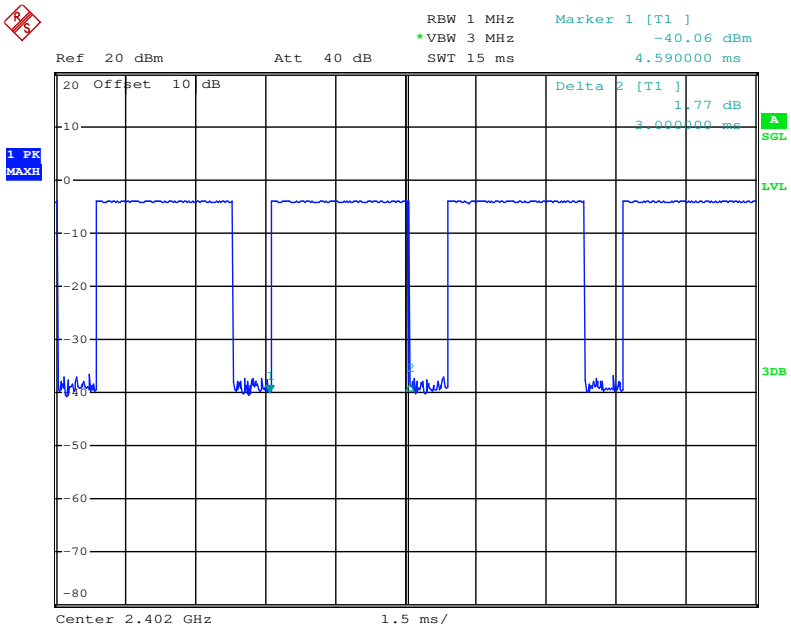
Date: 29.DEC.2017 19:35:55

2DH3 High channel



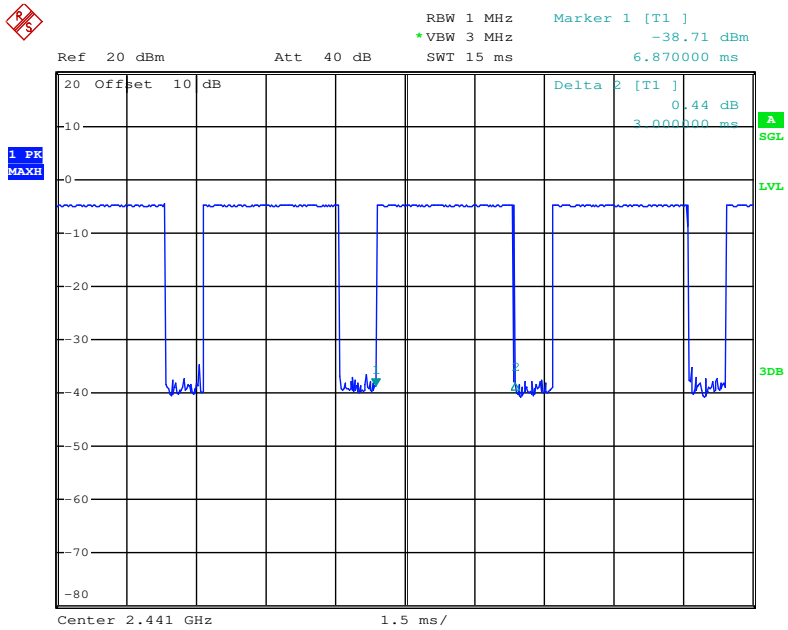
Date: 29.DEC.2017 19:26:02

2DH5 Low channel



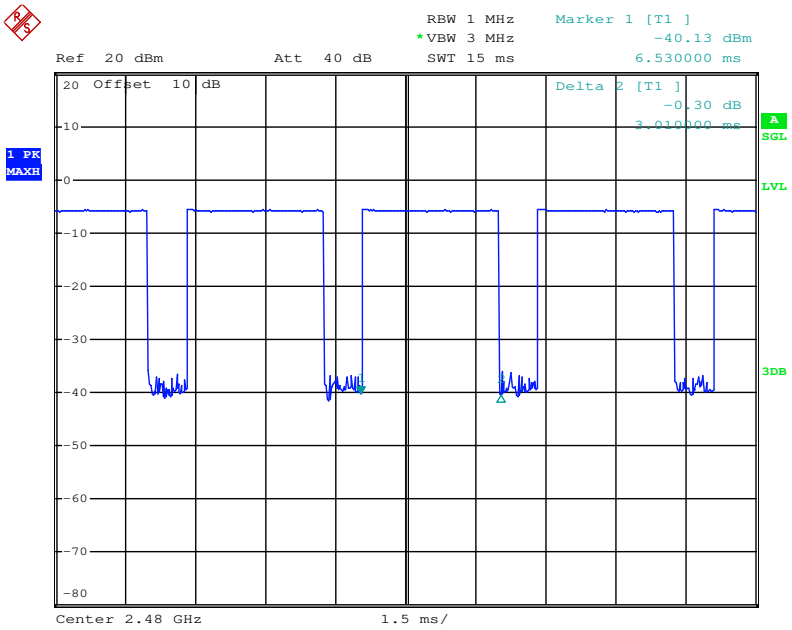
Date: 29.DEC.2017 19:34:31

2DH5 Middle channel



Date: 29.DEC.2017 19:35:17

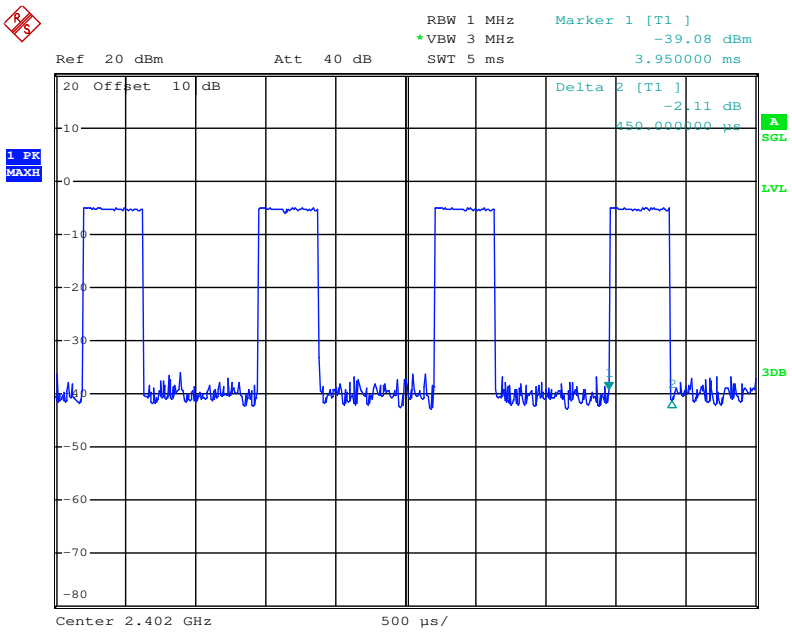
2DH5 High channel



Date: 29.DEC.2017 19:25:01

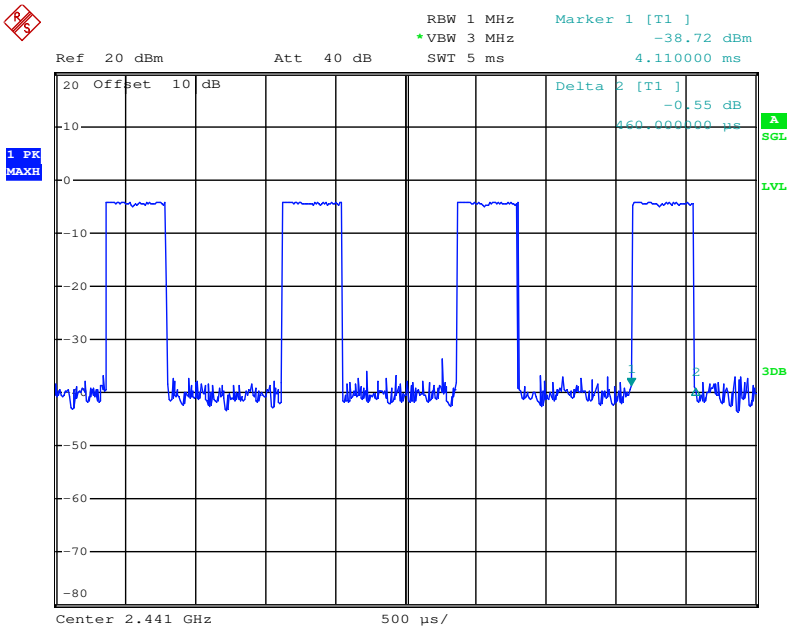
8DPSK Mode

3DH1 Low channel



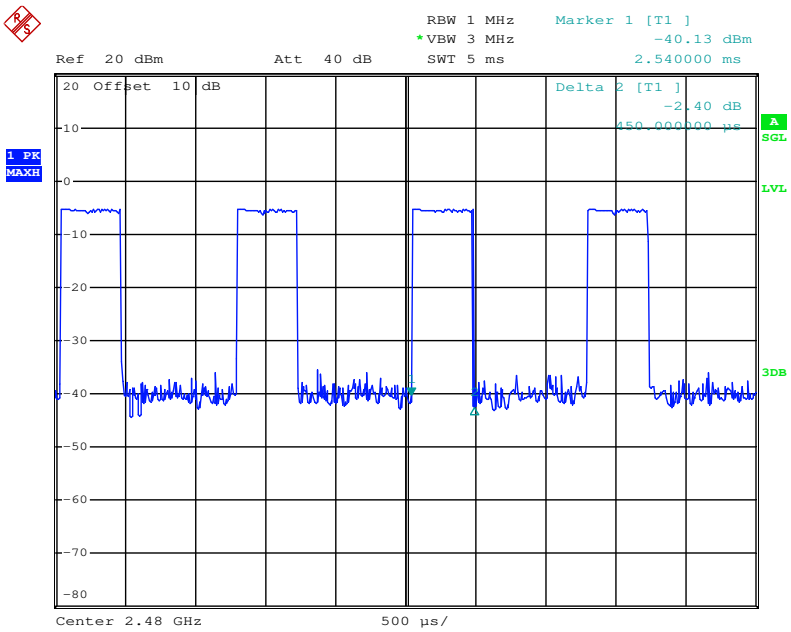
Date: 29.DEC.2017 19:38:45

3DH1 Middle channel



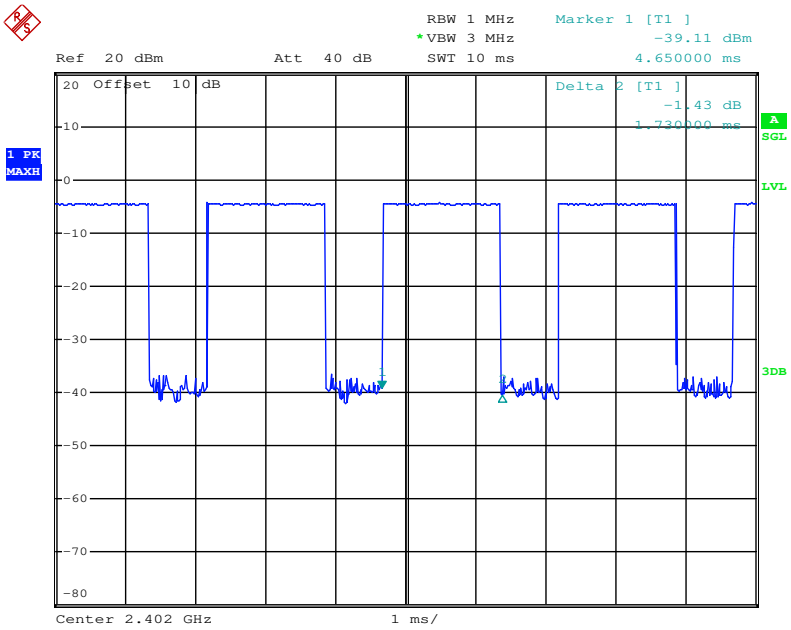
Date: 29.DEC.2017 19:42:41

3DH1 High channel



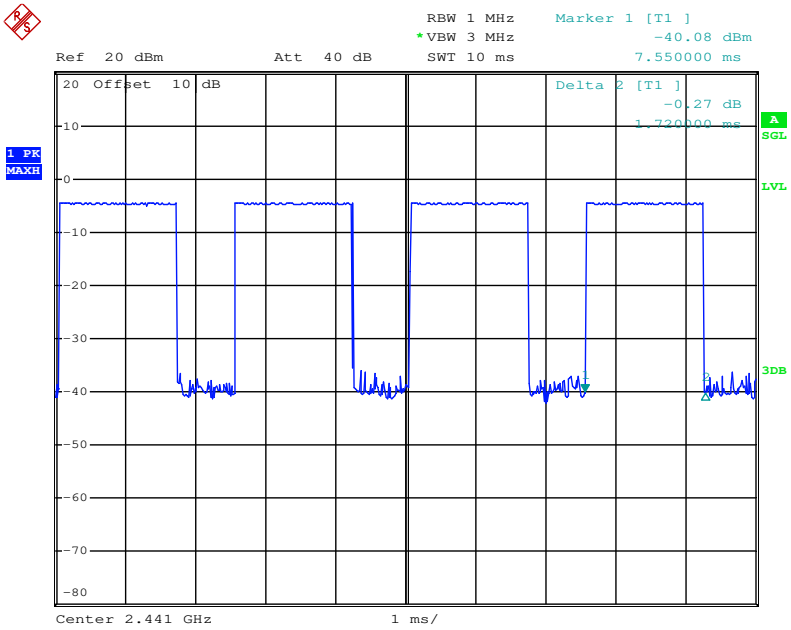
Date: 29.DEC.2017 19:43:32

3DH3 Low channel



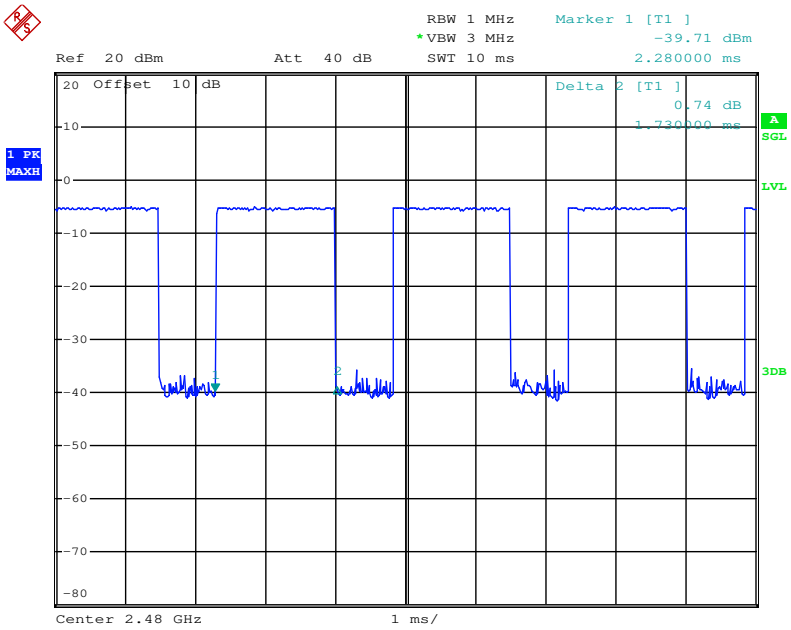
Date: 29.DEC.2017 19:39:23

3DH3 Middle channel



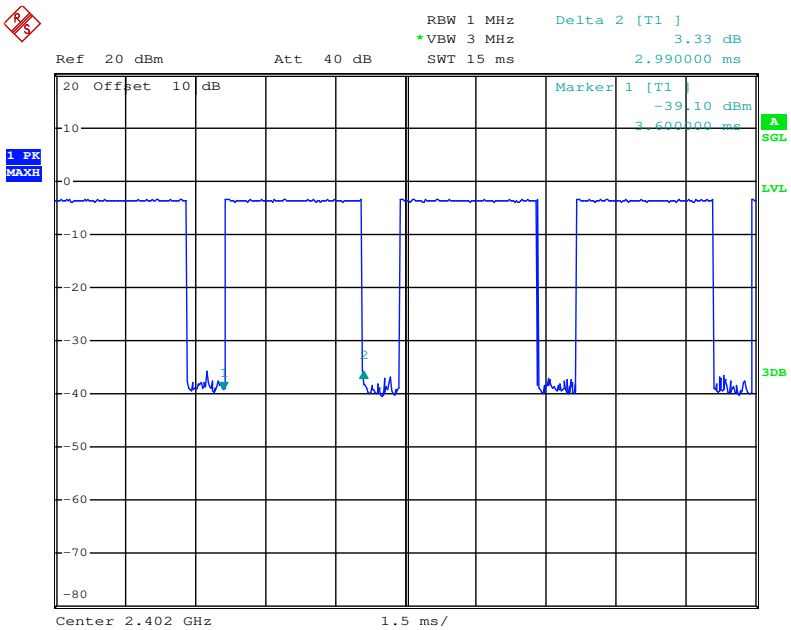
Date: 29.DEC.2017 19:41:56

3DH3 High channel



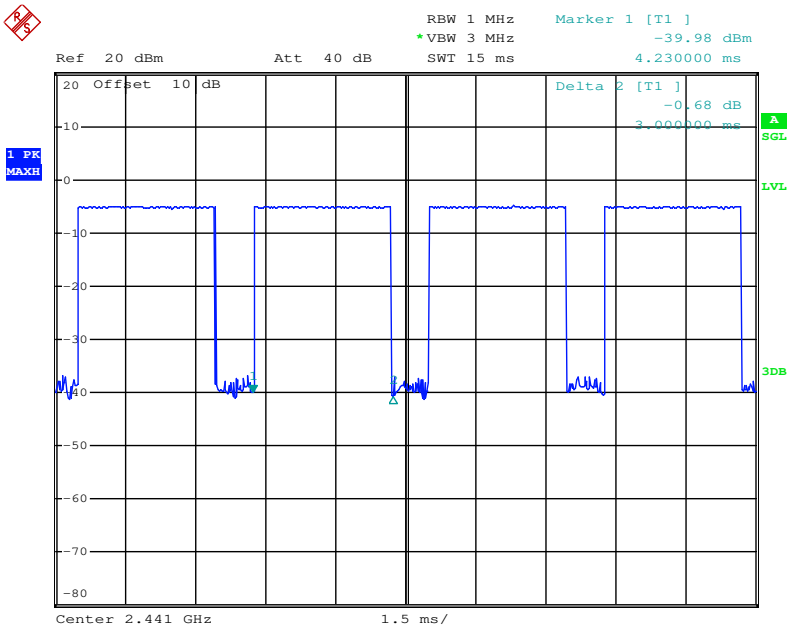
Date: 29.DEC.2017 19:44:42

3DH5 Low channel



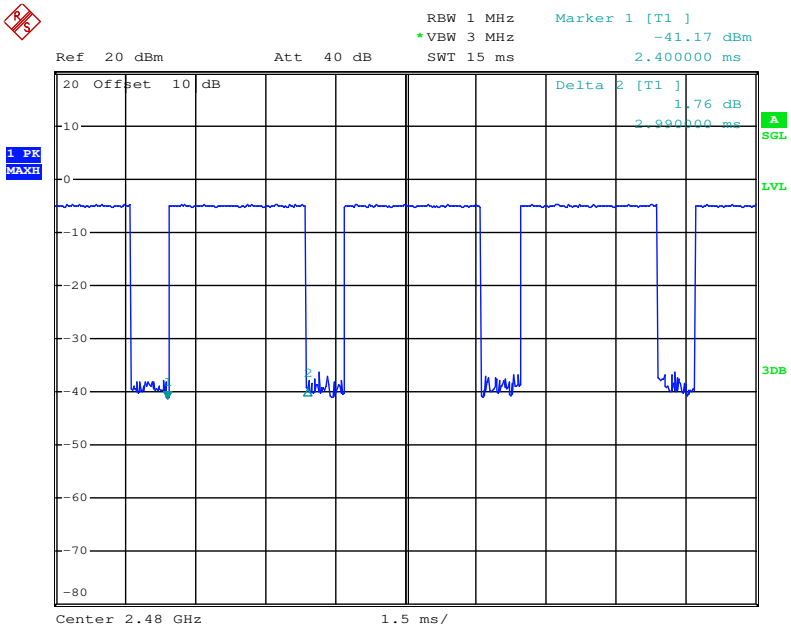
Date: 29.DEC.2017 19:40:05

3DH5 Middle channel



Date: 29.DEC.2017 19:41:08

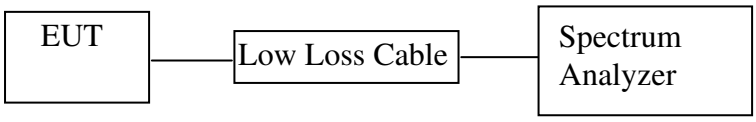
3DH5 High channel



Date: 29.DEC.2017 19:45:21

9. MAXIMUM PEAK OUTPUT POWER TEST

9.1.Block Diagram of Test Setup



(EUT: Bluetooth Headset)

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: Frank

GFSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	-4.41/0.0004	21 / 0.125
Middle	2441	-4.39/0.0004	21 / 0.125
High	2480	-5.11/0.0003	21 / 0.125

Π/4-DQPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	-5.29/0.0003	21 / 0.125
Middle	2441	-5.37/0.0003	21 / 0.125
High	2480	-6.69/0.0002	21 / 0.125

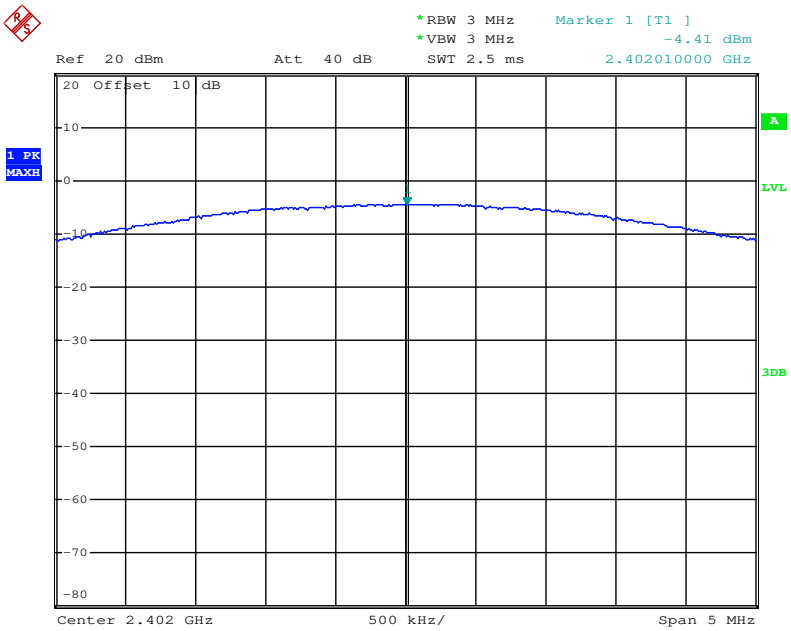
8DPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	-6.20/0.0002	21 / 0.125
Middle	2441	-4.86/0.0003	21 / 0.125
High	2480	-4.22/0.0004	21 / 0.125

The spectrum analyzer plots are attached as below.

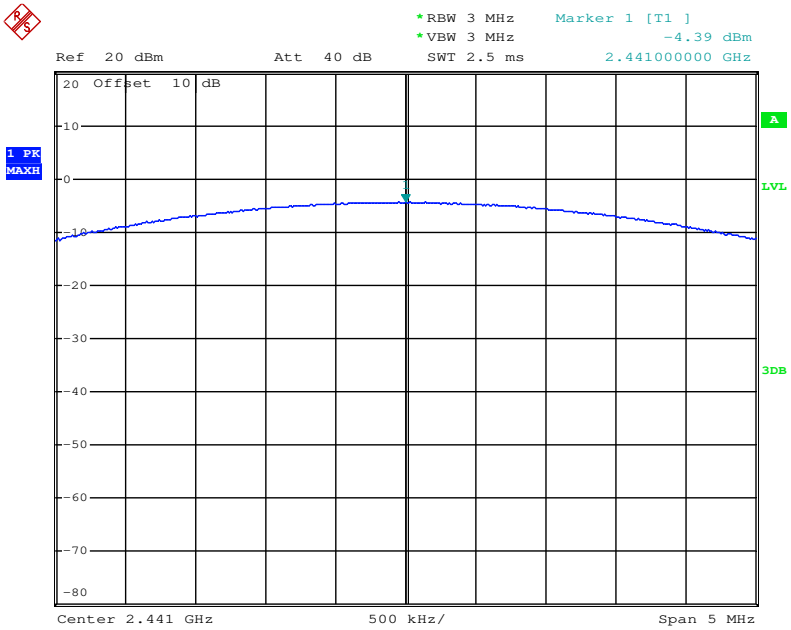
GFSK Mode

Low channel



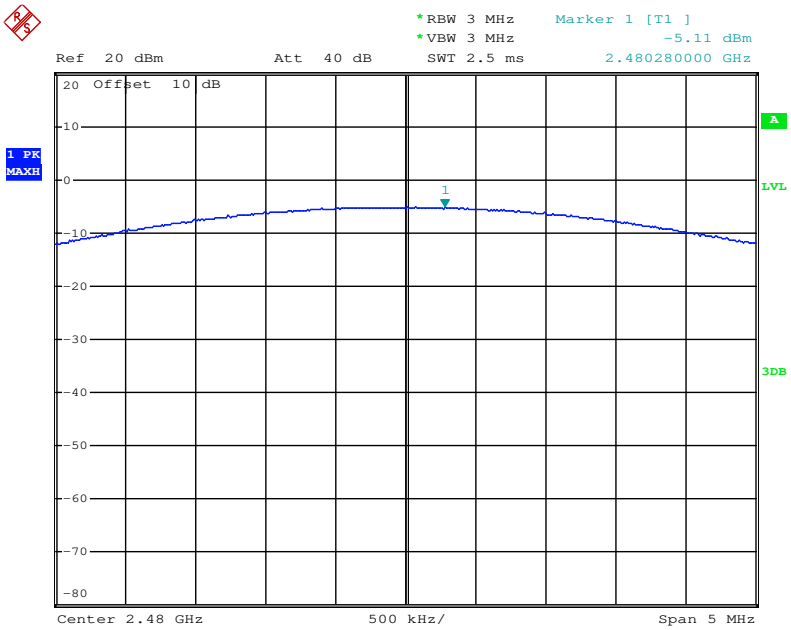
Date: 29.DEC.2017 18:35:56

Middle channel



Date: 29.DEC.2017 18:35:10

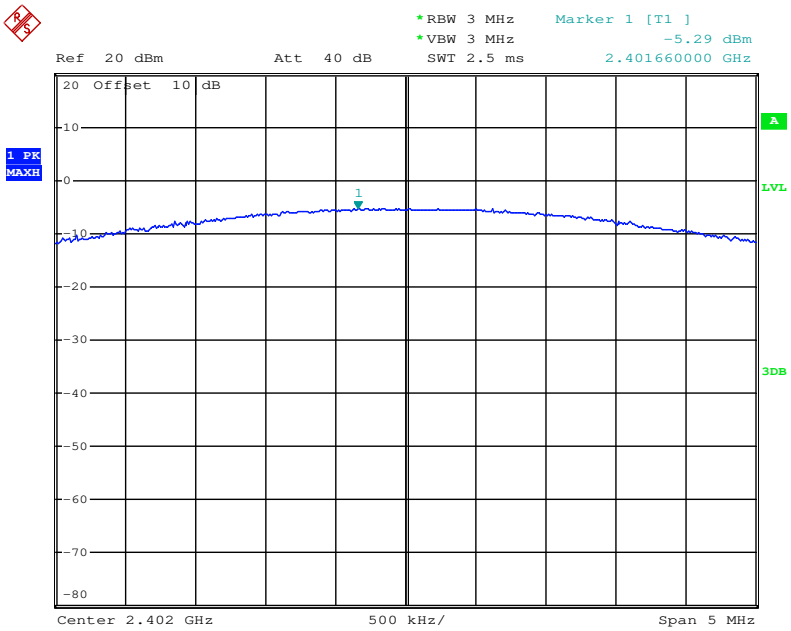
High channel



Date: 29.DEC.2017 18:36:31

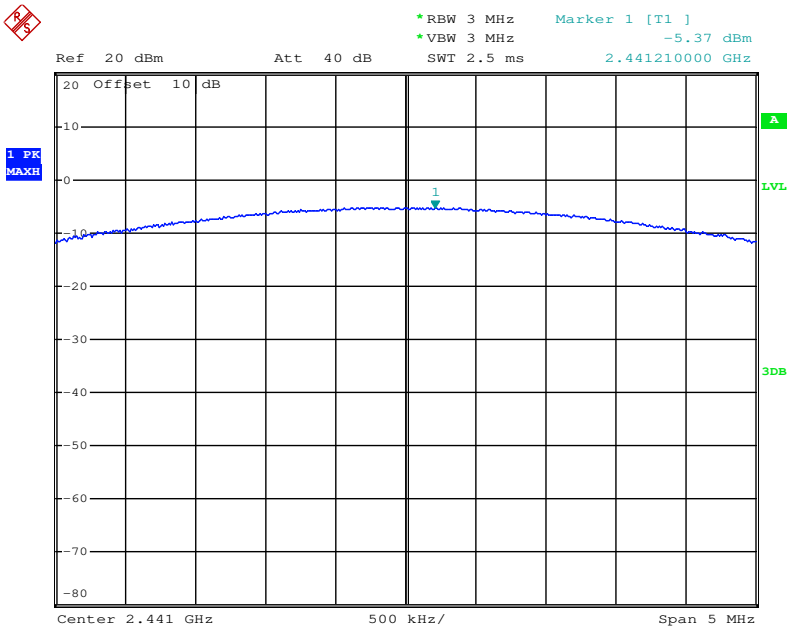
Π/4-DQPSK Mode

Low channel



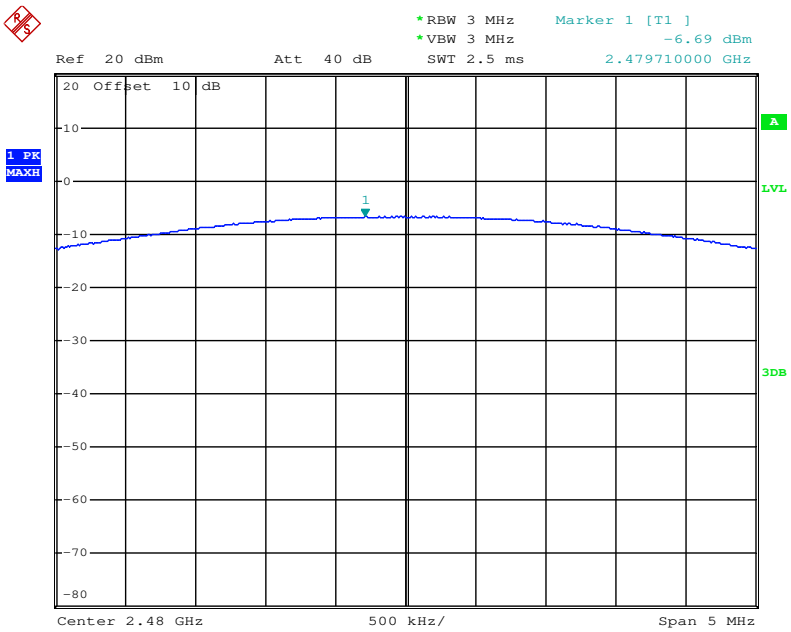
Date: 29.DEC.2017 18:38:12

Middle channel



Date: 29.DEC.2017 18:37:42

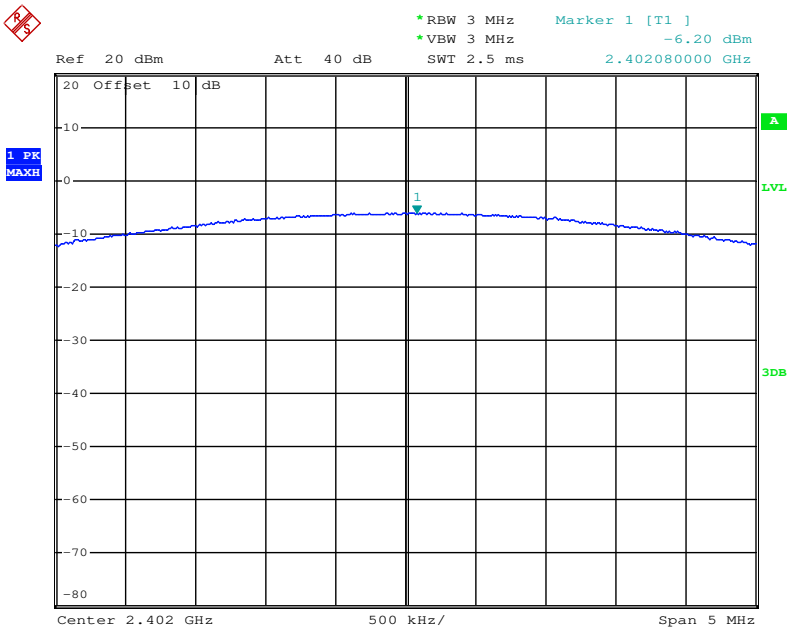
High channel



Date: 29.DEC.2017 18:37:07

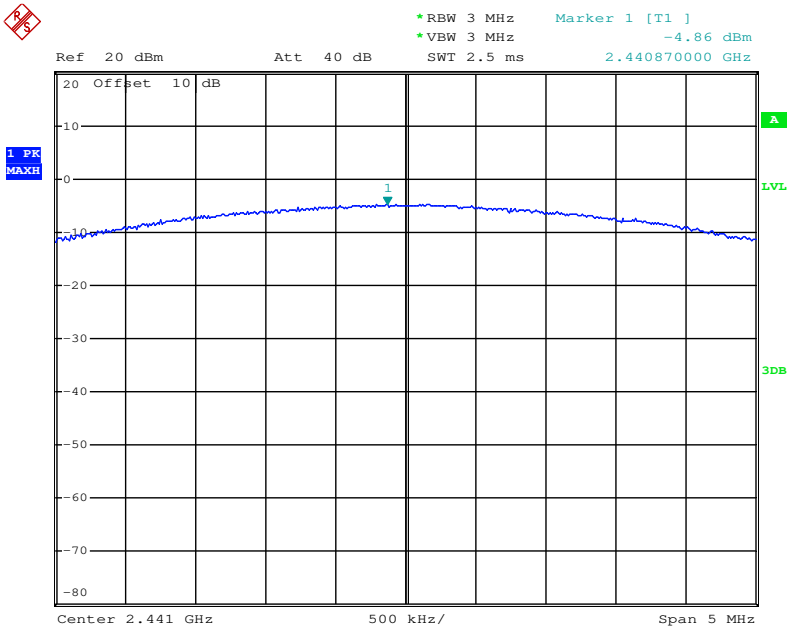
8DPSK Mode

Low channel



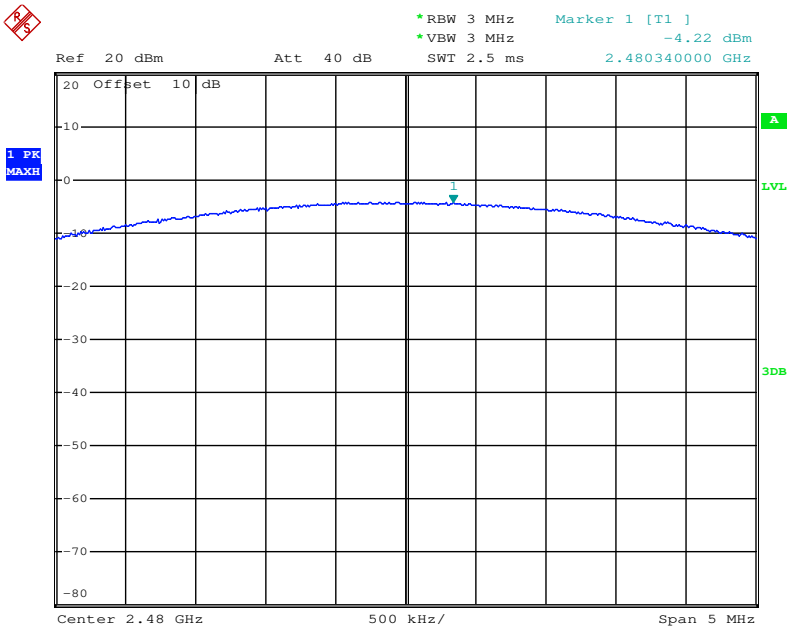
Date: 29.DEC.2017 18:38:48

Middle channel



Date: 29.DEC.2017 18:39:13

High channel



Date: 29.DEC.2017 18:39:42

10. RADIATED EMISSION TEST

10.1. Block Diagram of Test Setup

10.1.1. Block diagram of connection between the EUT and peripherals

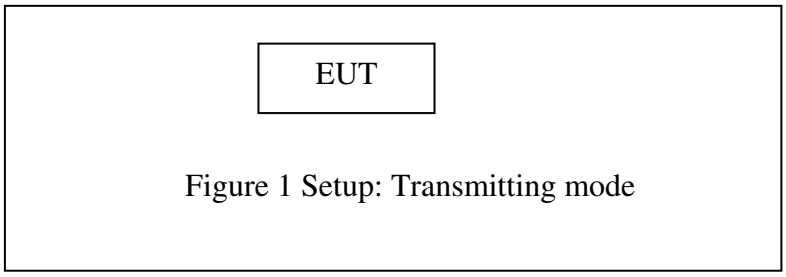
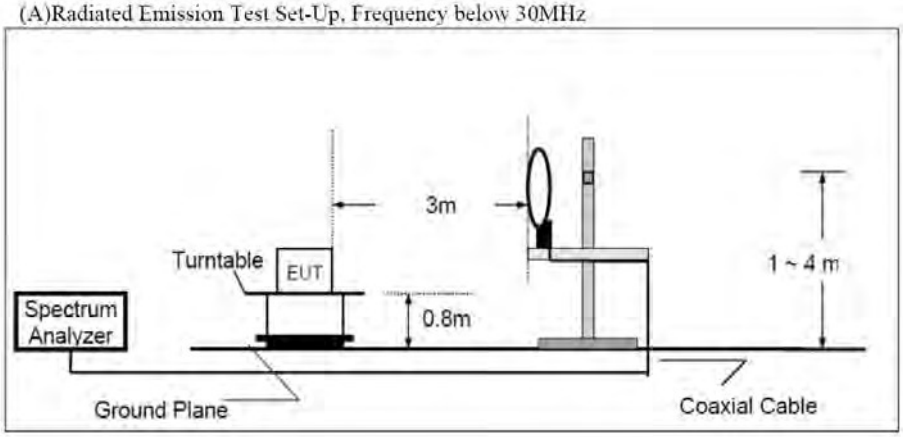


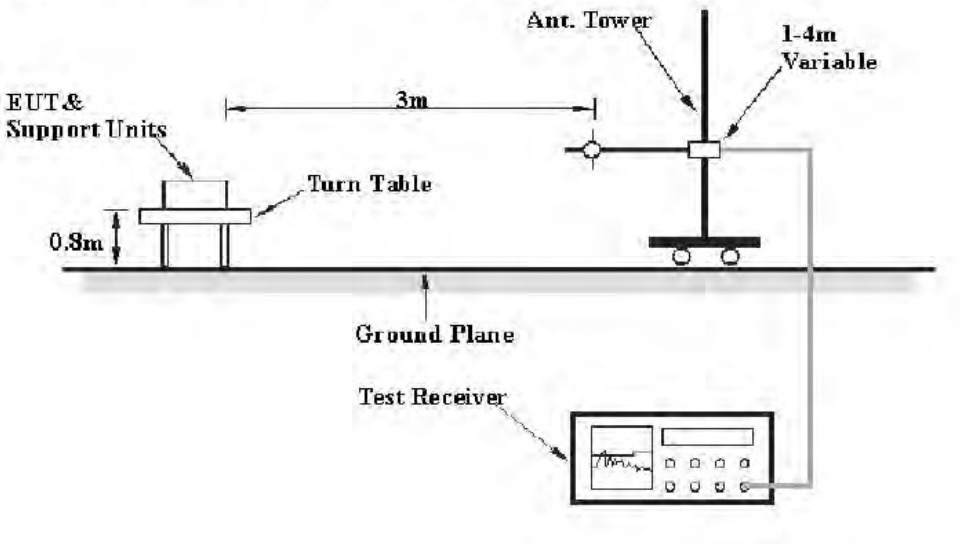
Figure 1 Setup: Transmitting mode

10.1.2. Semi-Anechoic Chamber Test Setup Diagram

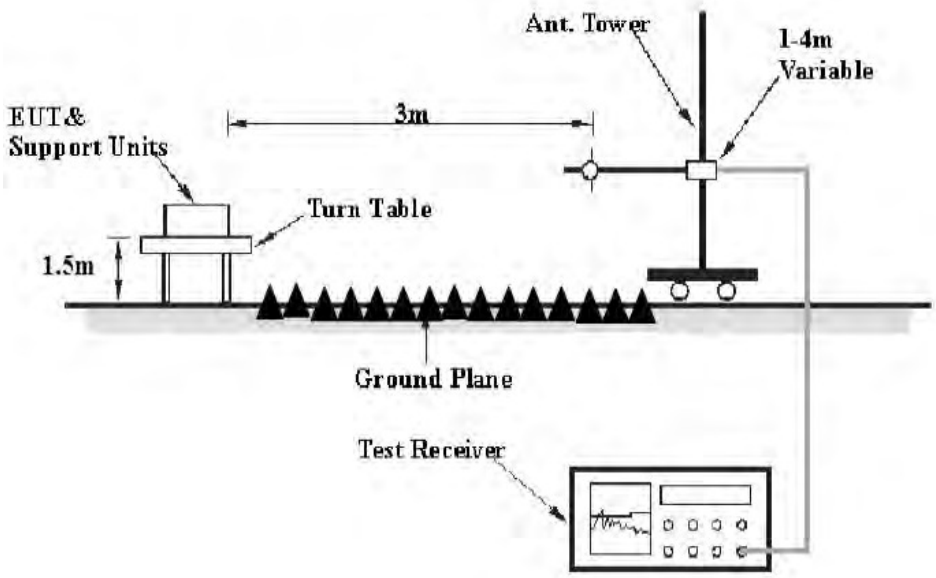
(A)Radiated Emission Test Set-Up, Frequency below 30MHz



(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	28.66	-15.19	13.47	40.0	-26.53	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

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

Note: 1.We tested GFSK mode, Π/4-DQPSK Mode & 8QPSK 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

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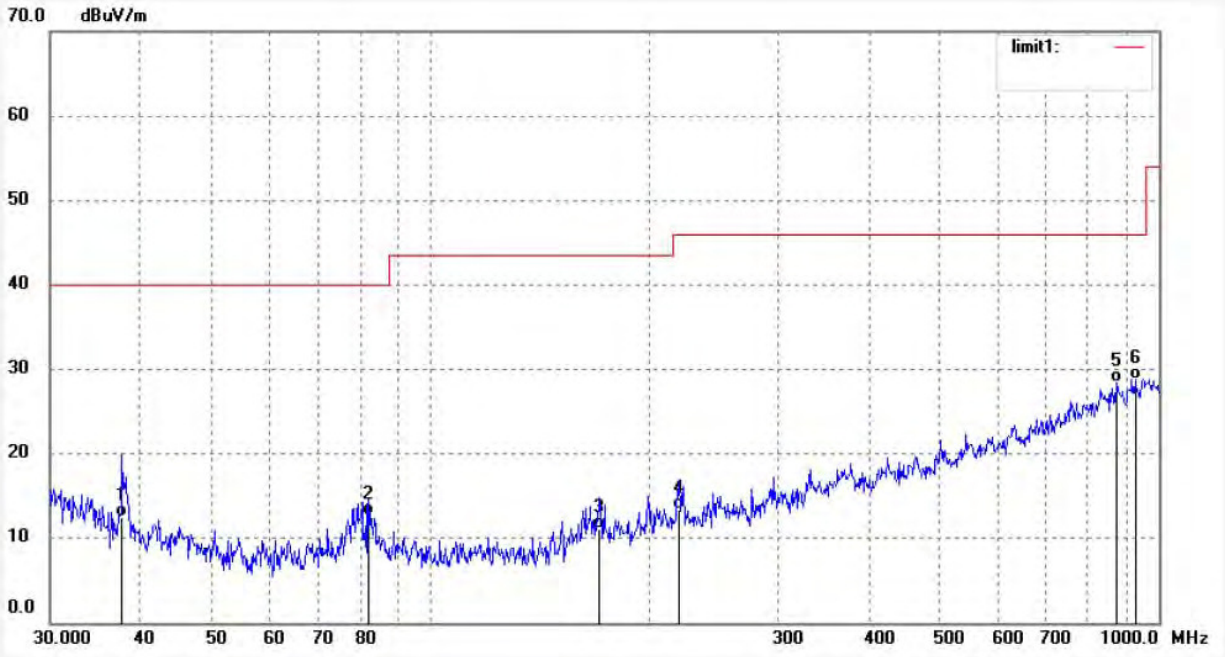
Job No.: frank2017 #2002
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2402MHz(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/29
Time: 13:49:06
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	37.6970	35.15	-22.60	12.55	40.00	-27.45	QP	200	72	
2	82.2361	40.15	-27.43	12.72	40.00	-27.28	QP	200	324	
3	170.7878	37.15	-26.08	11.07	43.50	-32.43	QP	200	78	
4	219.1785	37.41	-24.02	13.39	46.00	-32.61	QP	200	237	
5	875.0131	36.06	-7.61	28.45	46.00	-17.55	QP	200	123	
6	928.8709	35.52	-6.71	28.81	46.00	-17.19	QP	200	121	

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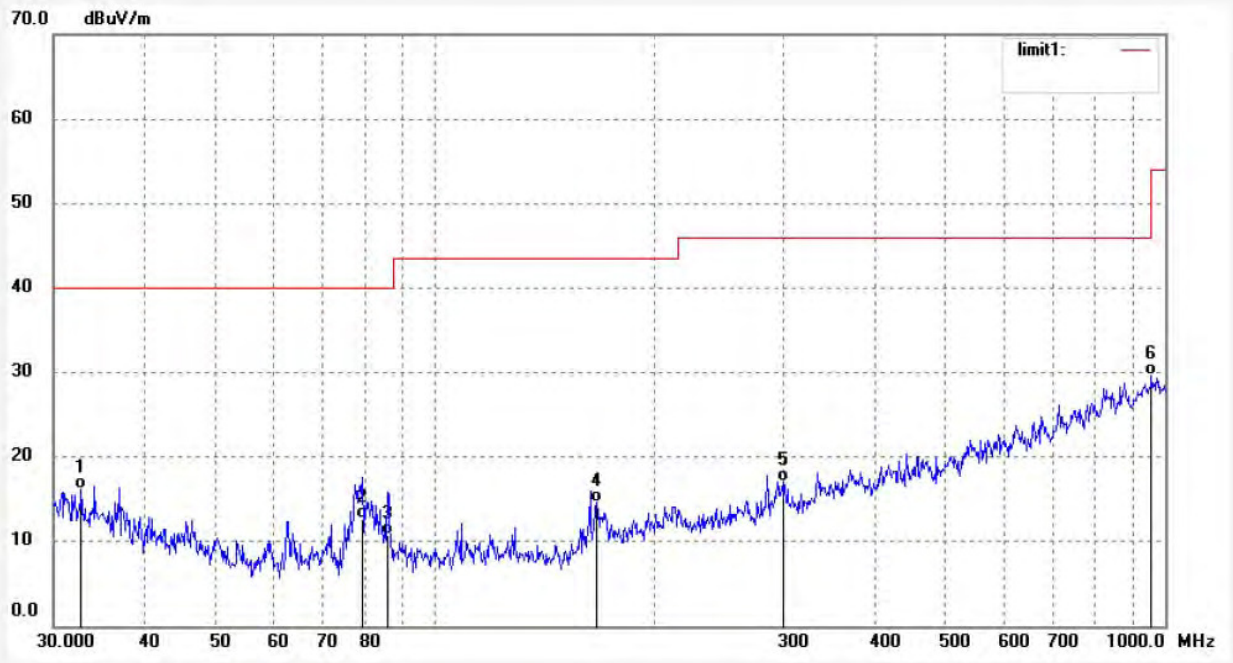
Job No.: frank2017 #2003
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2402MHz(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2017/12/29
Time: 13:49:46
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	32.7542	37.04	-20.89	16.15	40.00	-23.85	QP	100	198	
2	79.6764	40.12	-27.42	12.70	40.00	-27.30	QP	100	273	
3	86.0794	38.15	-27.46	10.69	40.00	-29.31	QP	100	45	
4	166.6383	41.04	-26.36	14.68	43.50	-28.82	QP	100	144	
5	299.6440	38.37	-21.23	17.14	46.00	-28.86	QP	100	217	
6	958.7133	35.70	-6.10	29.60	46.00	-16.40	QP	100	221	

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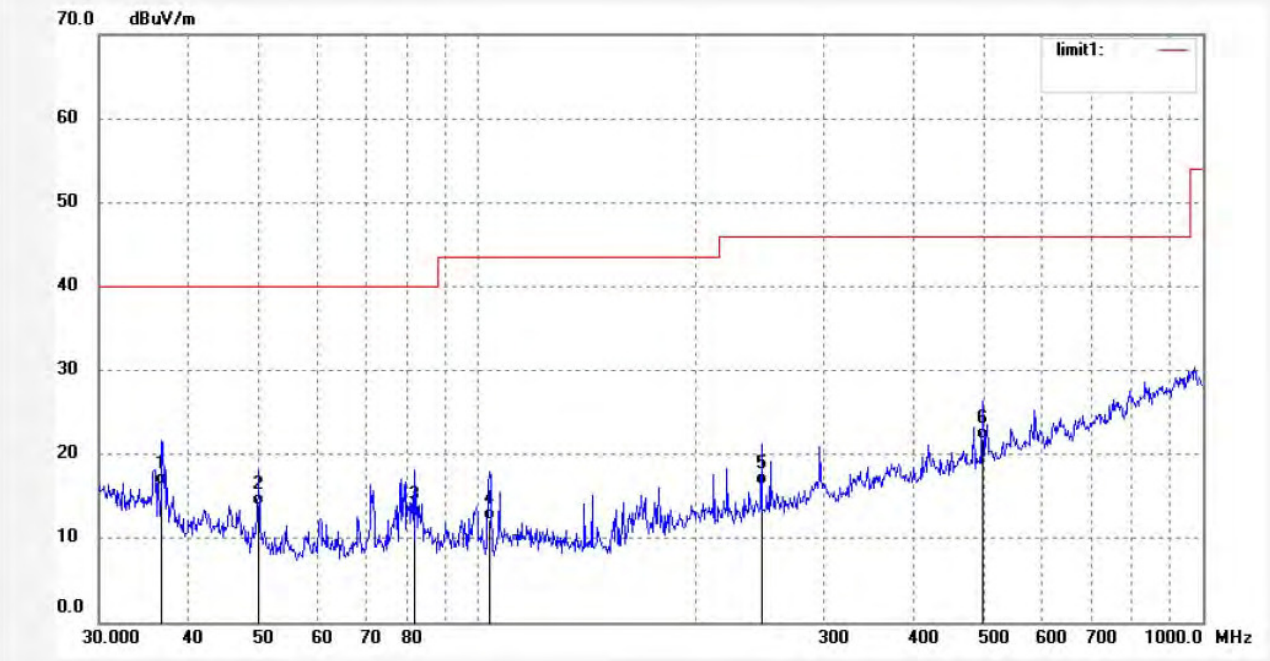
Job No.: frank2017 #2004
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2441MHz(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2017/12/29
Time: 13:51:22
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	36.6520	38.45	-22.16	16.29	40.00	-23.71	QP	100	123	
2	49.9322	40.15	-26.17	13.98	40.00	-26.02	QP	100	127	
3	81.6603	40.12	-27.42	12.70	40.00	-27.30	QP	100	127	
4	103.6988	40.26	-28.11	12.15	43.50	-31.35	QP	100	95	
5	246.1237	40.12	-23.67	16.45	46.00	-29.55	QP	100	144	
6	496.9809	38.15	-16.36	21.79	46.00	-24.21	QP	100	328	

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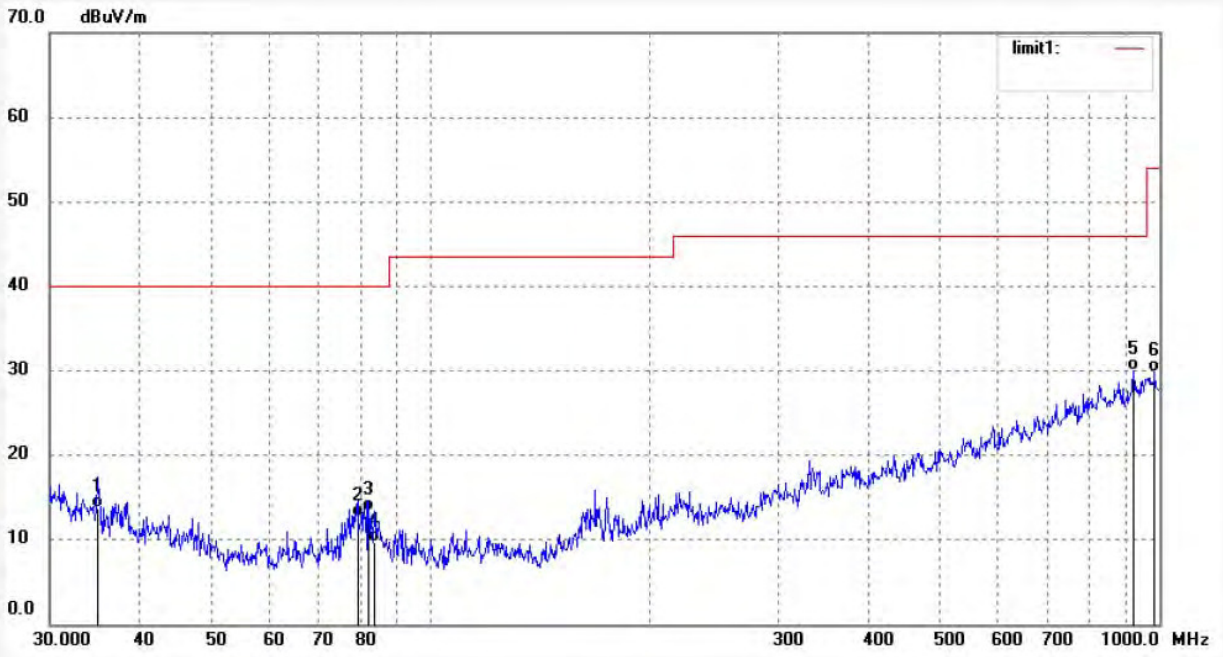
Job No.: frank2017 #2005
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2441MHz(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/29
Time: 13:52:02
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	34.8928	35.12	-21.42	13.70	40.00	-26.30	QP	200	123	
2	79.3970	40.12	-27.43	12.69	40.00	-27.31	QP	200	127	
3	82.2360	40.75	-27.43	13.32	40.00	-26.68	QP	200	54	
4	83.6937	37.12	-27.44	9.68	40.00	-30.32	QP	200	210	
5	922.3667	36.77	-6.81	29.96	46.00	-16.04	QP	200	22	
6	986.0439	35.25	-5.36	29.89	54.00	-24.11	QP	200	123	

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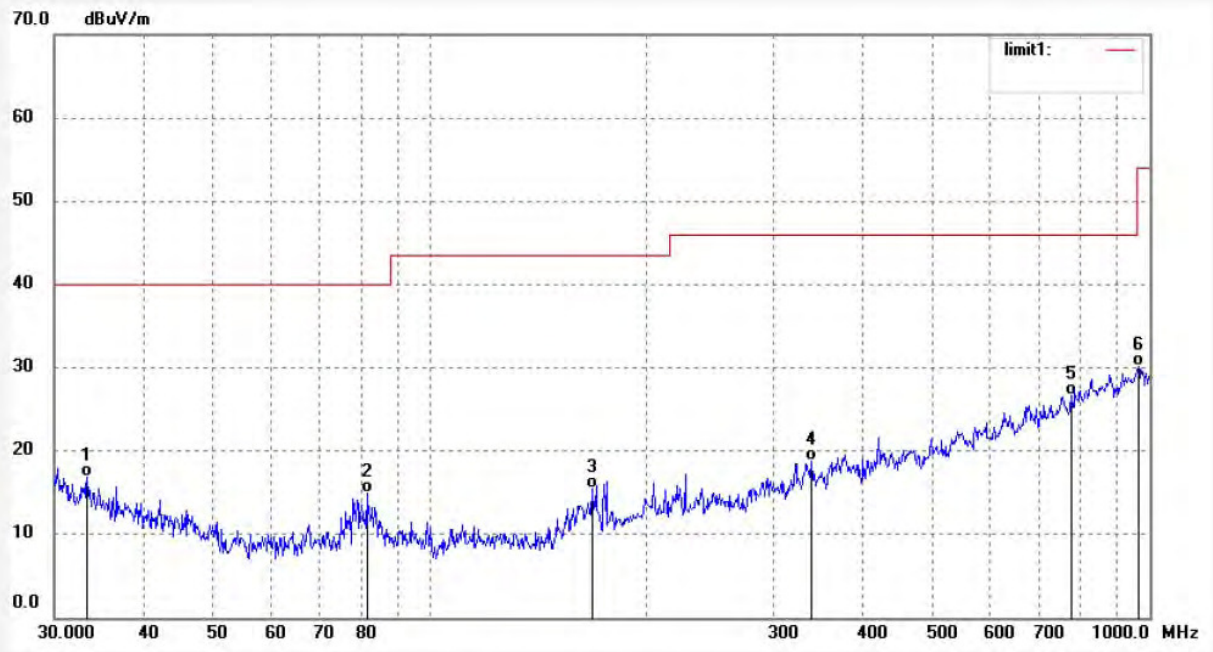
Job No.: frank2017 #2006
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2480MHz(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/29
Time: 13:53:40
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	33.3348	37.95	-21.03	16.92	40.00	-23.08	QP	200	254	
2	81.6603	42.45	-27.42	15.03	40.00	-24.97	QP	200	32	
3	167.8136	41.76	-26.23	15.53	43.50	-27.97	QP	200	124	
4	338.8546	38.56	-19.79	18.77	46.00	-27.23	QP	200	122	
5	779.2178	36.26	-9.55	26.71	46.00	-19.29	QP	200	324	
6	965.4741	36.04	-5.91	30.13	54.00	-23.87	QP	200	312	

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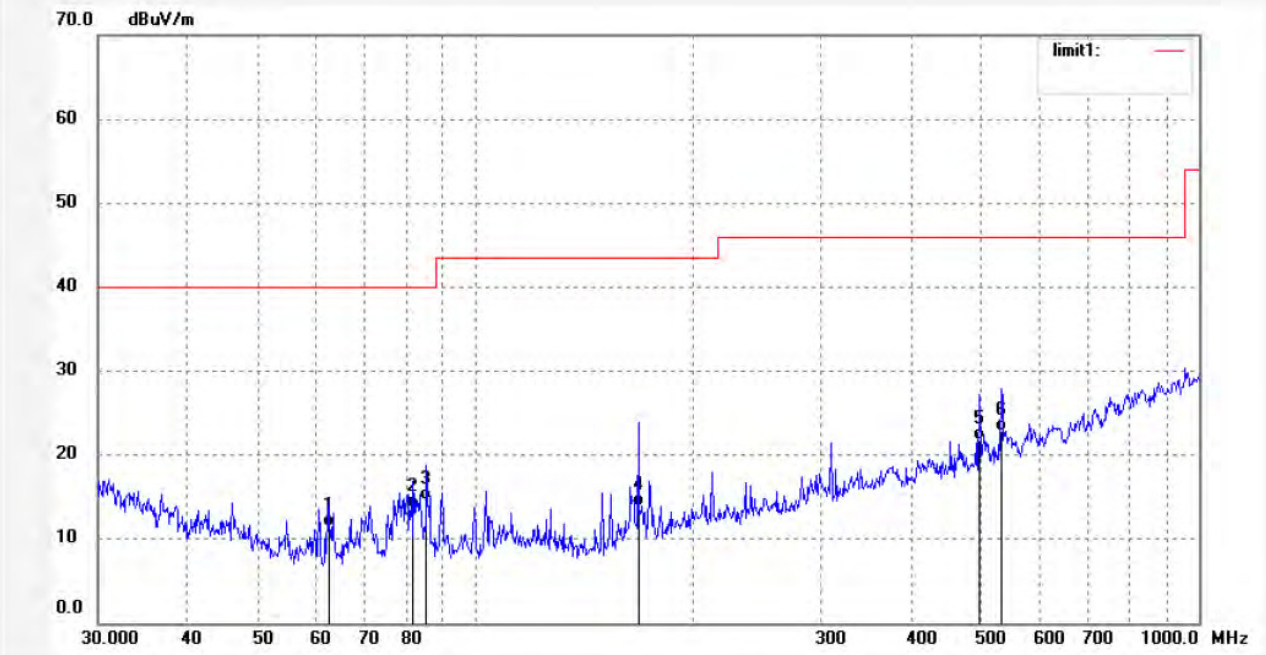
Job No.: frank2017 #2007
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2480MHz(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2017/12/29
Time: 13:55:24
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	62.5230	38.65	-27.25	11.40	40.00	-28.60	QP	100	121	
2	81.6603	41.21	-27.42	13.79	40.00	-26.21	QP	100	90	
3	85.4769	42.13	-27.45	14.68	40.00	-25.32	QP	100	341	
4	167.8136	40.12	-26.23	13.89	43.50	-29.61	QP	100	78	
5	496.9809	38.15	-16.36	21.79	46.00	-24.21	QP	100	222	
6	533.1611	38.12	-15.29	22.83	46.00	-23.17	QP	100	74	

Above 1GHz

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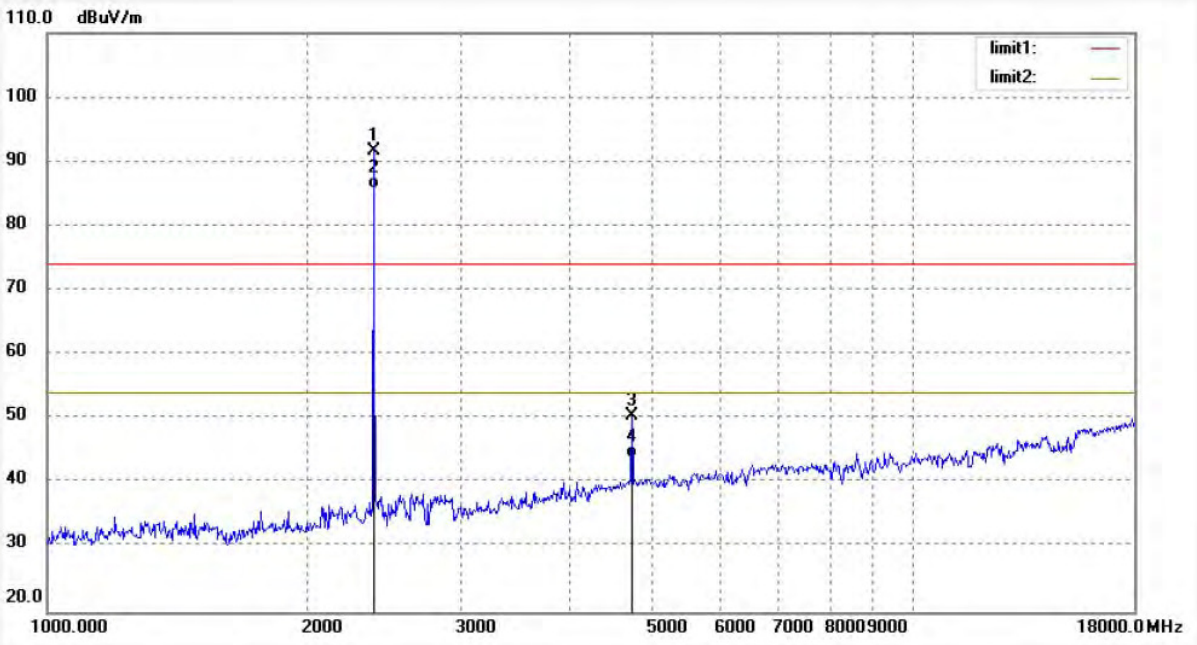
Job No.: frank2017 #2014
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2402MHz(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:08:01
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	95.93	-4.37	91.56			peak	200	138	
2	2402.000	90.12	-4.37	85.75			AVG	200	152	
3	4804.000	47.78	2.70	50.48	74.00	-23.52	peak	200	214	
4	4804.000	41.15	2.70	43.85	54.00	-10.15	AVG	200	103	

Note: Average measurement with peak detection at No.3

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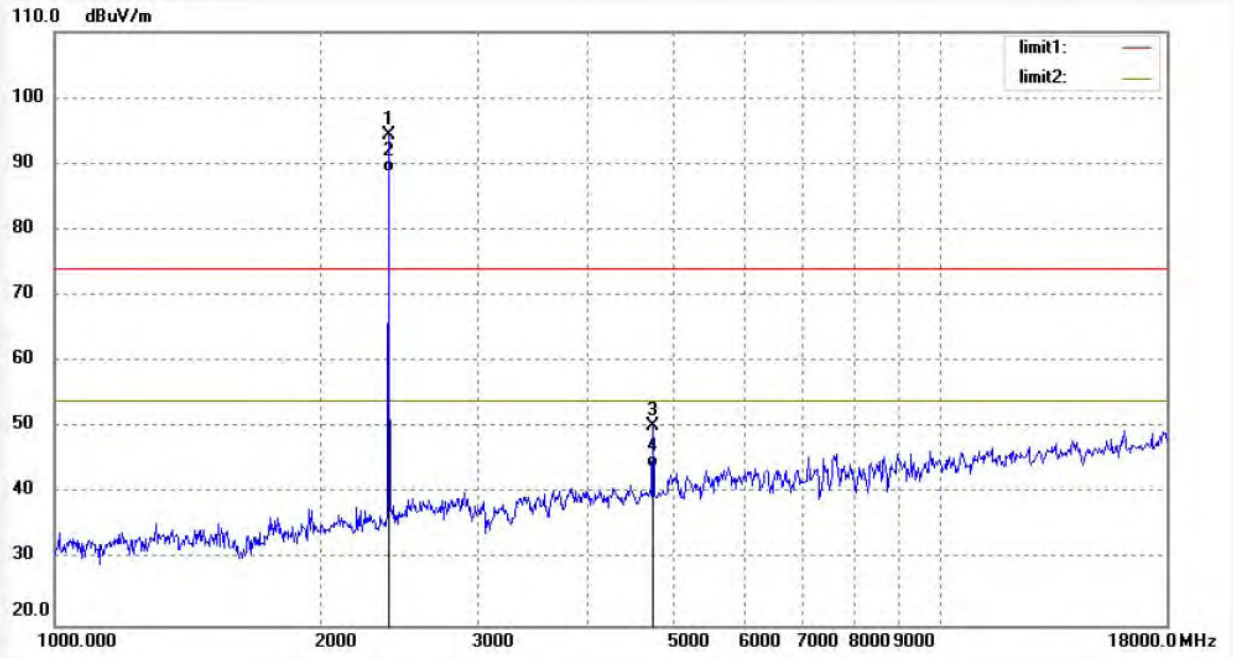
Job No.: frank2017 #2015
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2402MHz(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:09:07
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	98.77	-4.37	94.40			peak	250	122	
2	2402.000	93.13	-4.37	88.76			AVG	250	211	
3	4804.000	47.55	2.70	50.25	74.00	-23.75	peak	250	81	
4	4804.000	41.15	2.70	43.85	54.00	-10.15	AVG	250	247	

Note: Average measurement with peak detection at No.3

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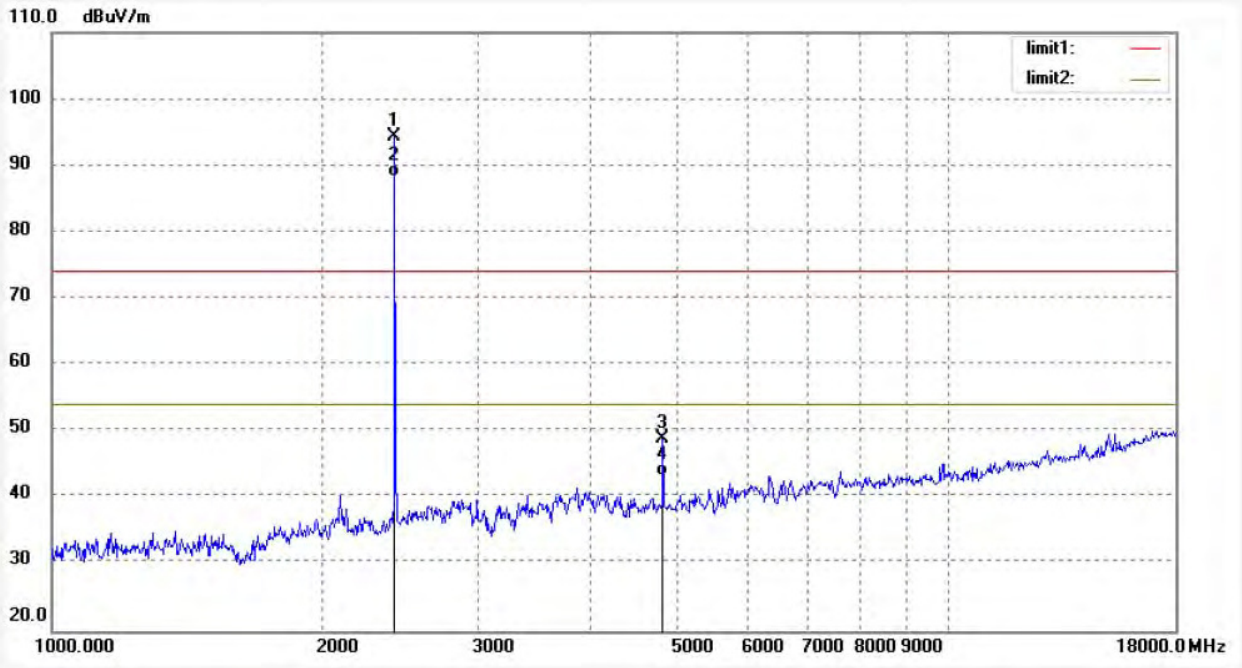
Job No.: frank2017 #2016
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2441MHz(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:10:19
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	98.62	-4.20	94.42			peak	250	132	
2	2441.000	92.50	-4.20	88.30			AVG	200	222	
3	4882.000	45.81	3.07	48.88	74.00	-25.12	peak	250	94	
4	4882.000	40.12	3.07	43.19	54.00	-10.81	AVG	200	201	

Note: Average measurement with peak detection at No.3

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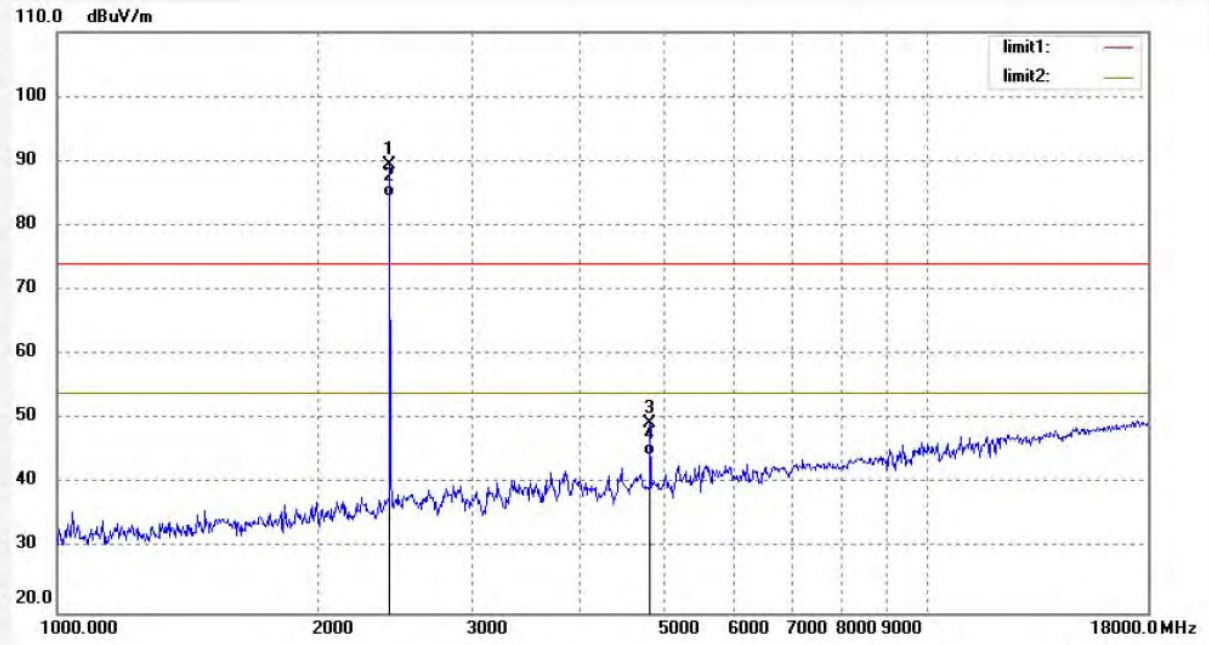
Job No.: frank2017 #2017
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2441MHz(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:11:33
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	93.68	-4.20	89.48			peak	200	315	
2	2441.000	88.65	-4.20	84.45			AVG	200	93	
3	4882.000	46.37	3.07	49.44	74.00	-24.56	peak	200	61	
4	4882.000	41.32	3.07	44.39	54.00	-9.61	AVG	250	109	

Note: Average measurement with peak detection at No.3

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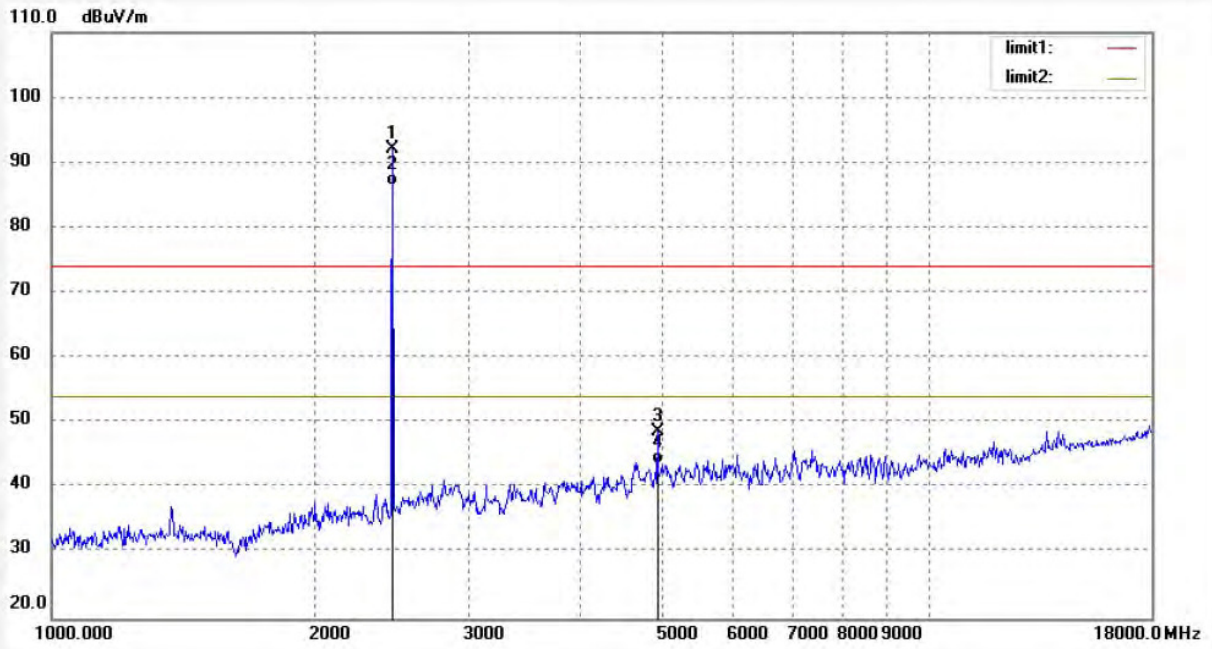
Job No.: frank2017 #2018
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2480MHz(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:16:17
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	96.25	-4.04	92.21			peak	200	130	
2	2480.000	90.50	-4.04	86.46			AVG	200	208	
3	4960.000	45.11	3.50	48.61	74.00	-25.39	peak	250	69	
4	4960.000	40.21	3.50	43.71	54.00	-10.29	AVG	250	341	

Note: Average measurement with peak detection at No.3

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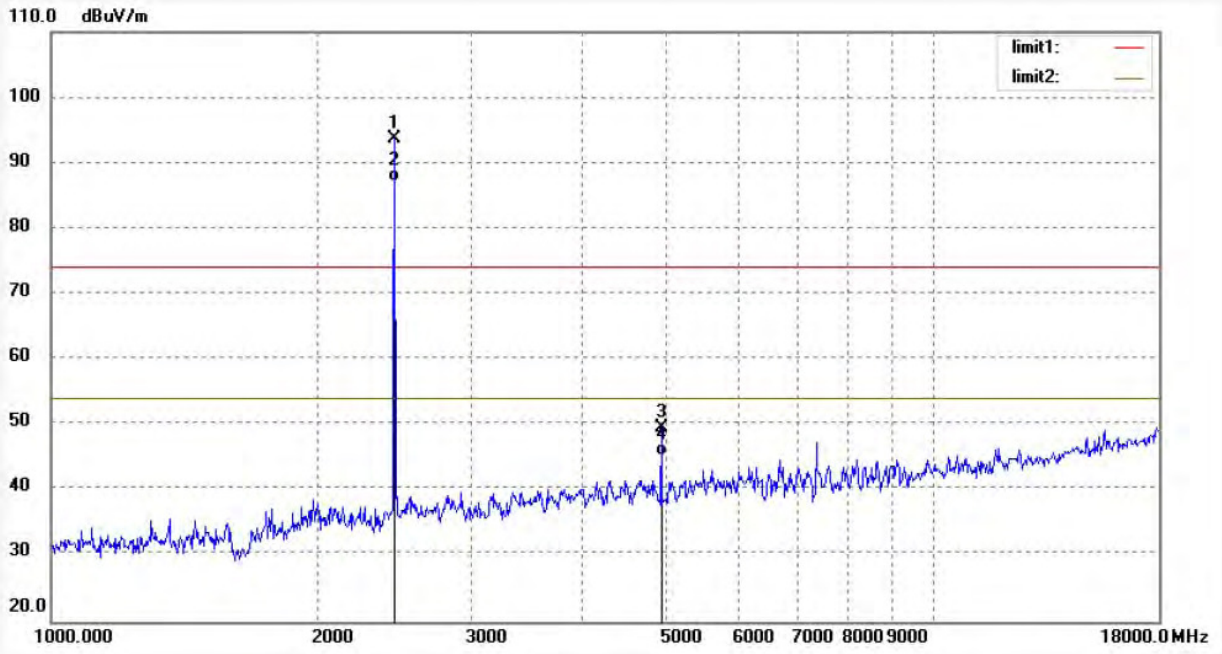
Job No.: frank2017 #2019
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2480MHz(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:17:12
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592

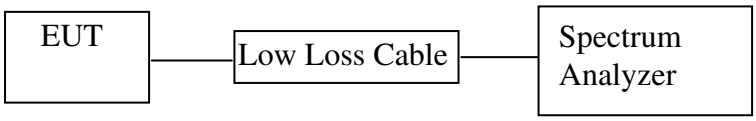


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	97.75	-4.04	93.71			peak	250	197	
2	2480.000	91.15	-4.04	87.11			AVG	250	93	
3	4960.000	46.10	3.50	49.60	74.00	-24.40	peak	150	123	
4	4960.000	41.80	3.50	45.30	54.00	-8.70	AVG	200	48	

Note: Average measurement with peak detection at No.3

11.BAND EDGE COMPLIANCE TEST

11.1.Block Diagram of Test Setup



(EUT: Bluetooth Headset)

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: Frank

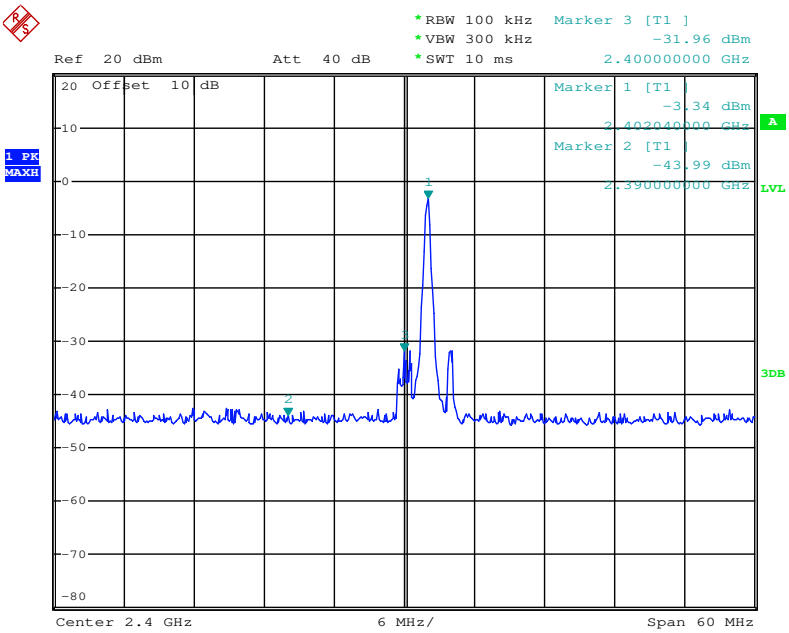
Note: Both hopping-on mode and hopping-off mode had been pre-tested, and only the worst case was recorded in the test report.

Non-hopping mode

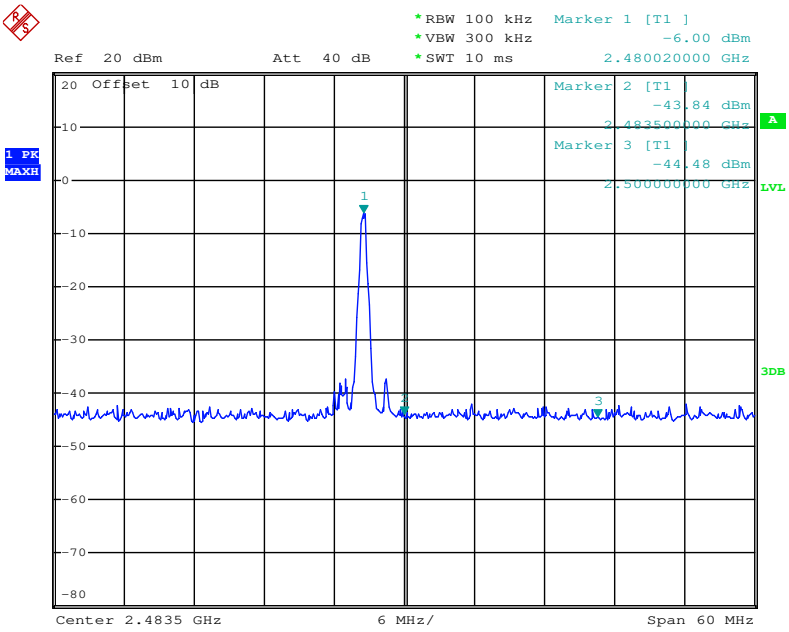
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
GFSK Mode		
2400.00	28.62	> 20dBc
2483.50	37.84	> 20dBc
Π/4-DQPSK Mode		
2400.00	27.61	> 20dBc
2483.50	39.67	> 20dBc
8DPSK Mode		
2400.00	24.75	> 20dBc
2483.50	35.55	> 20dBc

The spectrum analyzer plots are attached as below.

GFSK Mode

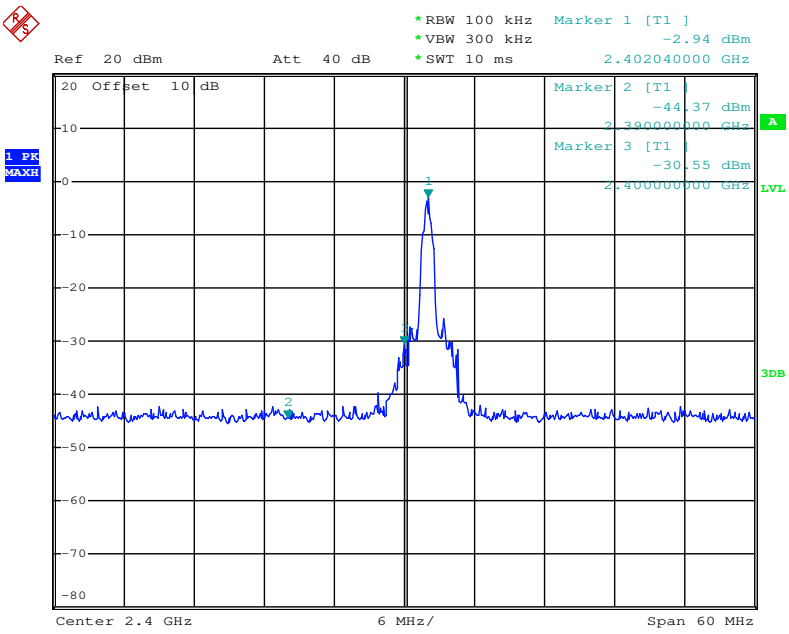


Date: 29.DEC.2017 19:02:01

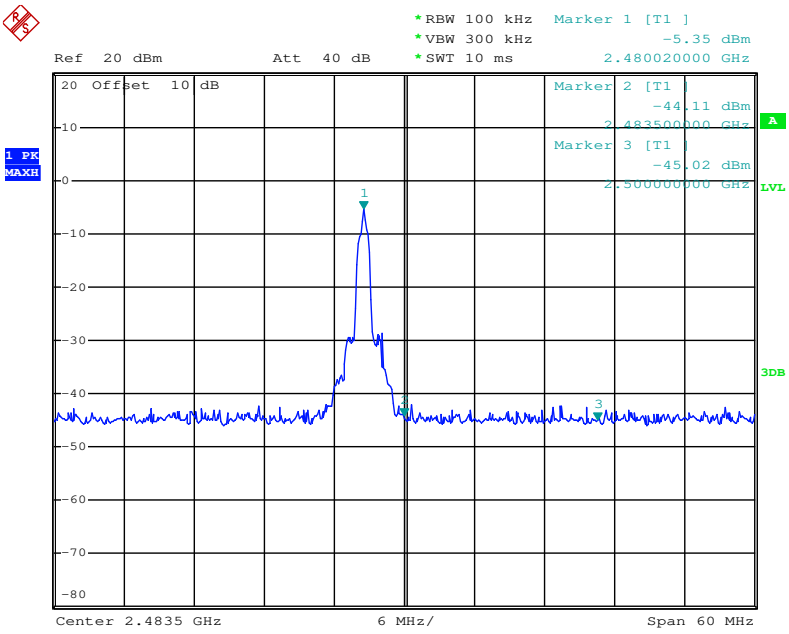


Date: 29.DEC.2017 19:03:10

Π/4-DQPSK Mode

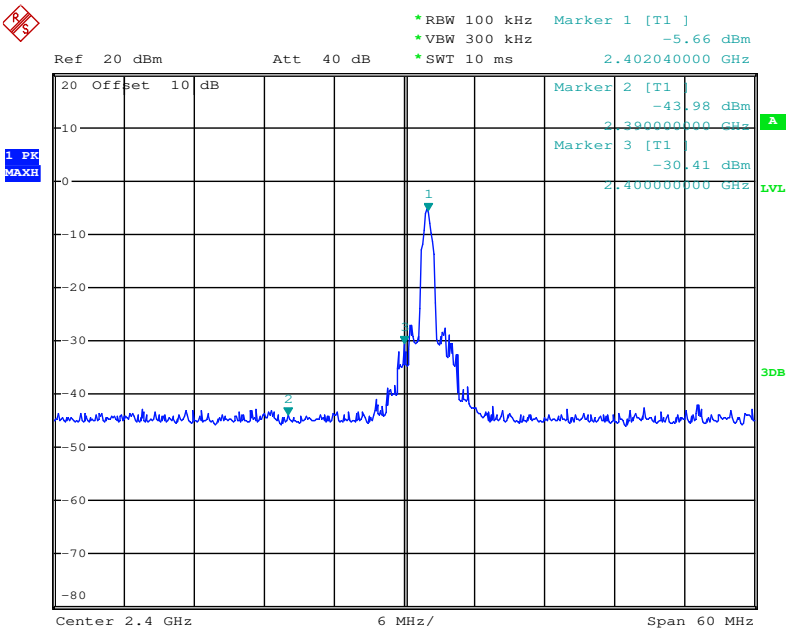


Date: 29.DEC.2017 19:04:49

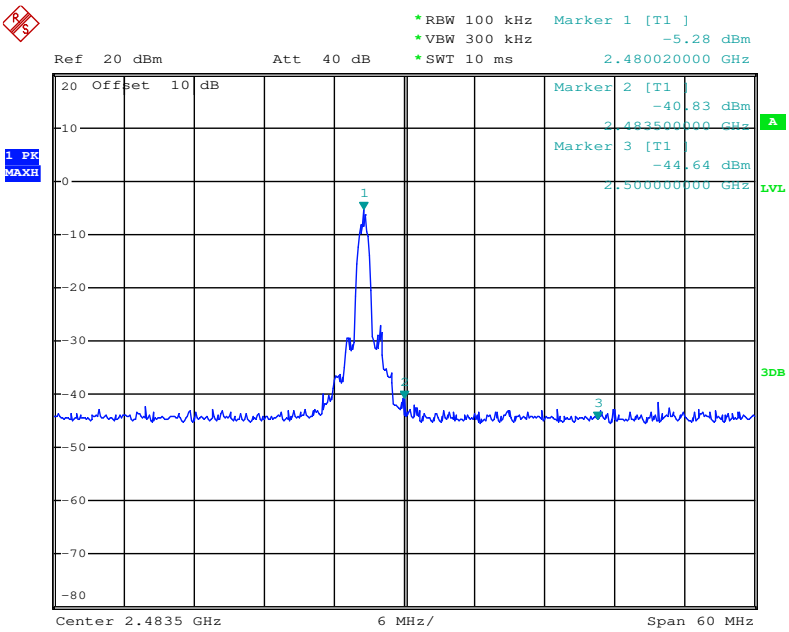


Date: 29.DEC.2017 19:03:53

8DPSK Mode



Date: 29.DEC.2017 19:05:32



Date: 29.DEC.2017 19:06:23

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.

The spectrum analyzer plots are attached as below.

Test Lab: 3m Anechoic chamber
Test Engineer: Frank

Non-hopping mode

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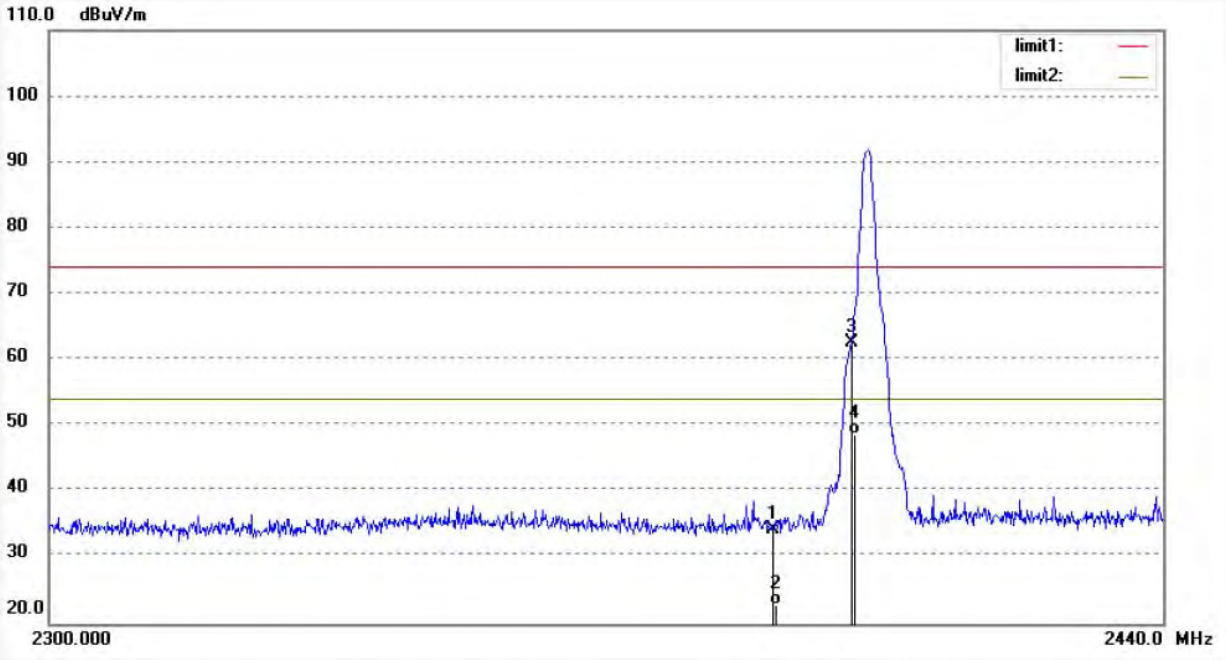
Job No.: frank2017 #2036
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2402MHz(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:41:35
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



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	38.70	-4.32	34.38	74.00	-39.62	peak	250	132	
2	2390.000	27.15	-4.32	22.83	54.00	-31.17	AVG	250	97	
3	2400.000	66.96	-4.27	62.69	74.00	-11.31	peak	250	45	
4	2400.000	53.00	-4.27	48.73	54.00	-5.27	AVG	250	102	

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

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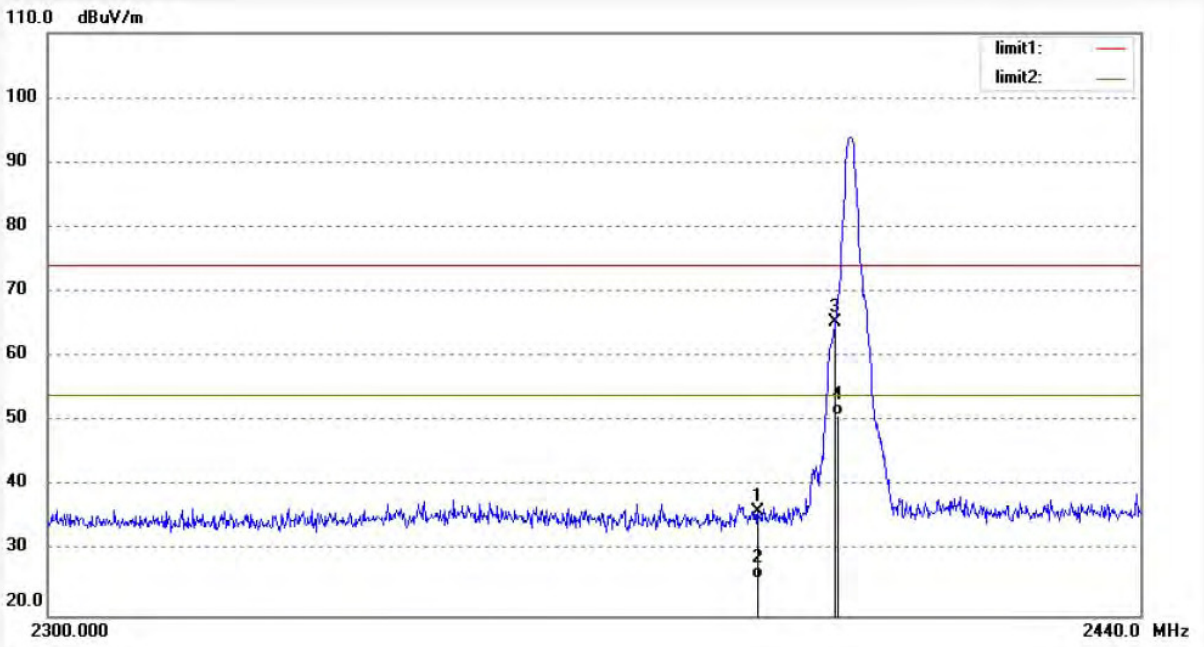
Job No.: frank2017 #2037
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2402MHz(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:42:28
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



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	40.31	-4.32	35.99	74.00	-38.01	peak	250	132	
2	2390.000	30.12	-4.32	25.80	54.00	-28.20	AVG	250	185	
3	2400.000	69.53	-4.27	65.26	74.00	-8.74	peak	250	58	
4	2400.000	55.15	-4.27	50.88	54.00	-3.12	AVG	250	241	

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

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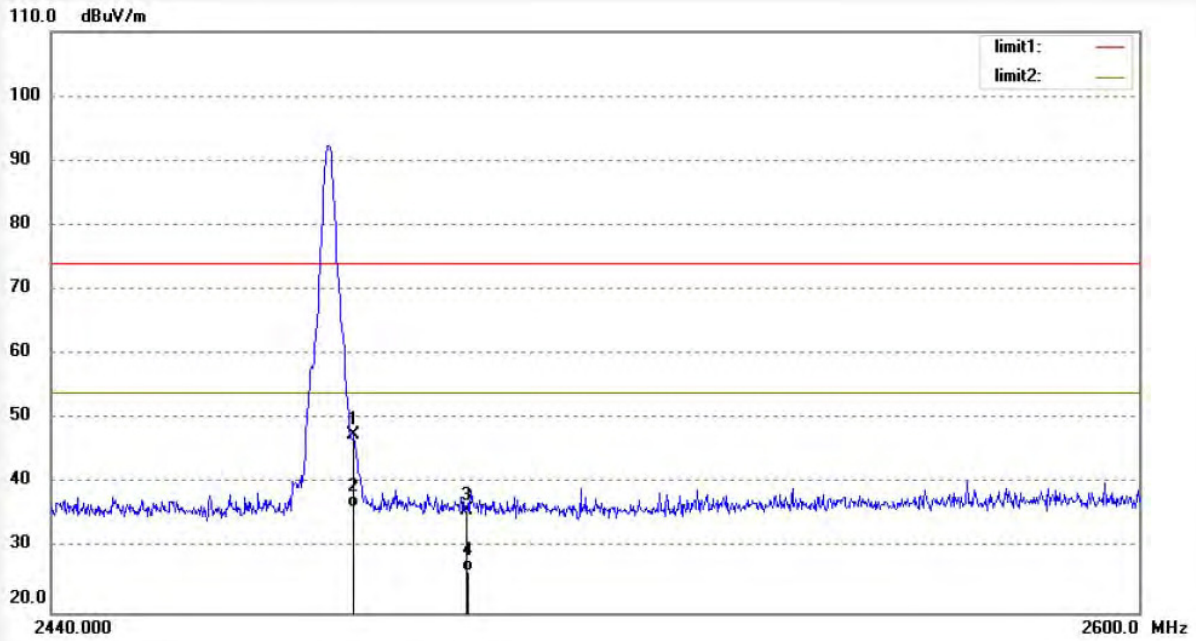
Job No.: frank2017 #2038
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2480MHz(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:43:51
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



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	51.44	-3.89	47.55	74.00	-26.45	peak	250	194	
2	2483.500	40.30	-3.89	36.41	54.00	-17.59	AVG	250	259	
3	2500.000	39.66	-3.81	35.85	74.00	-38.15	peak	250	94	
4	2500.000	30.12	-3.81	26.31	54.00	-27.69	AVG	250	267	

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

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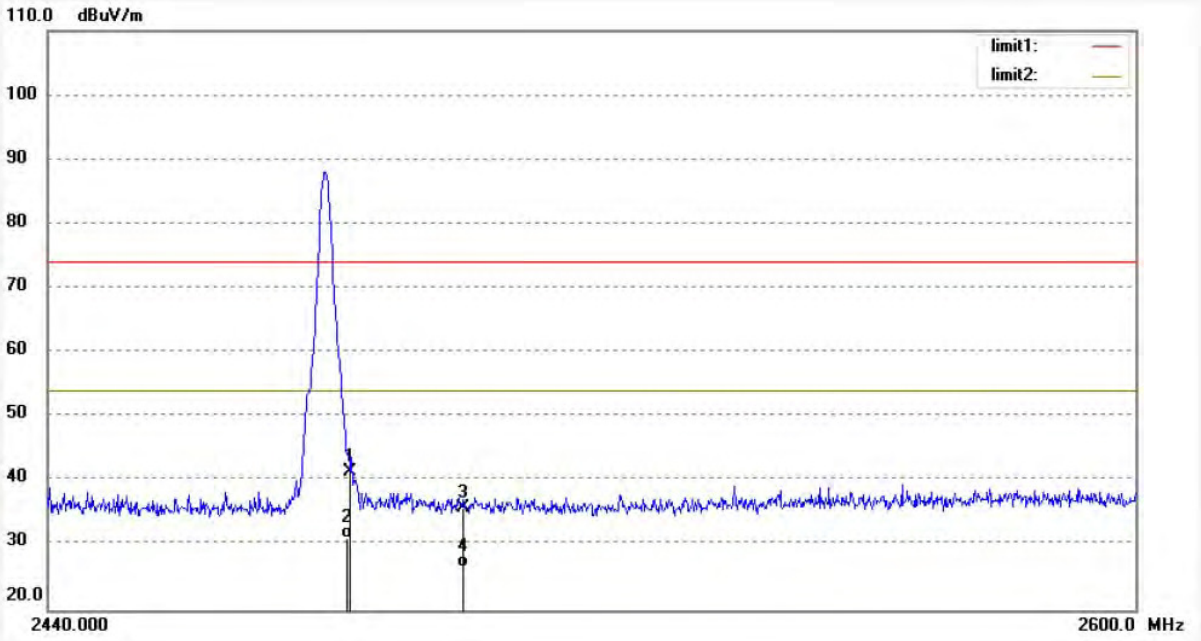
Job No.: frank2017 #2039
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2480MHz(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:44:56
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



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	45.27	-3.89	41.38	74.00	-32.62	peak	250	121	
2	2483.500	35.12	-3.89	31.23	54.00	-22.77	AVG	250	321	
3	2500.000	39.66	-3.81	35.85	74.00	-38.15	peak	250	94	
4	2500.000	30.45	-3.81	26.64	54.00	-27.36	AVG	250	204	

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

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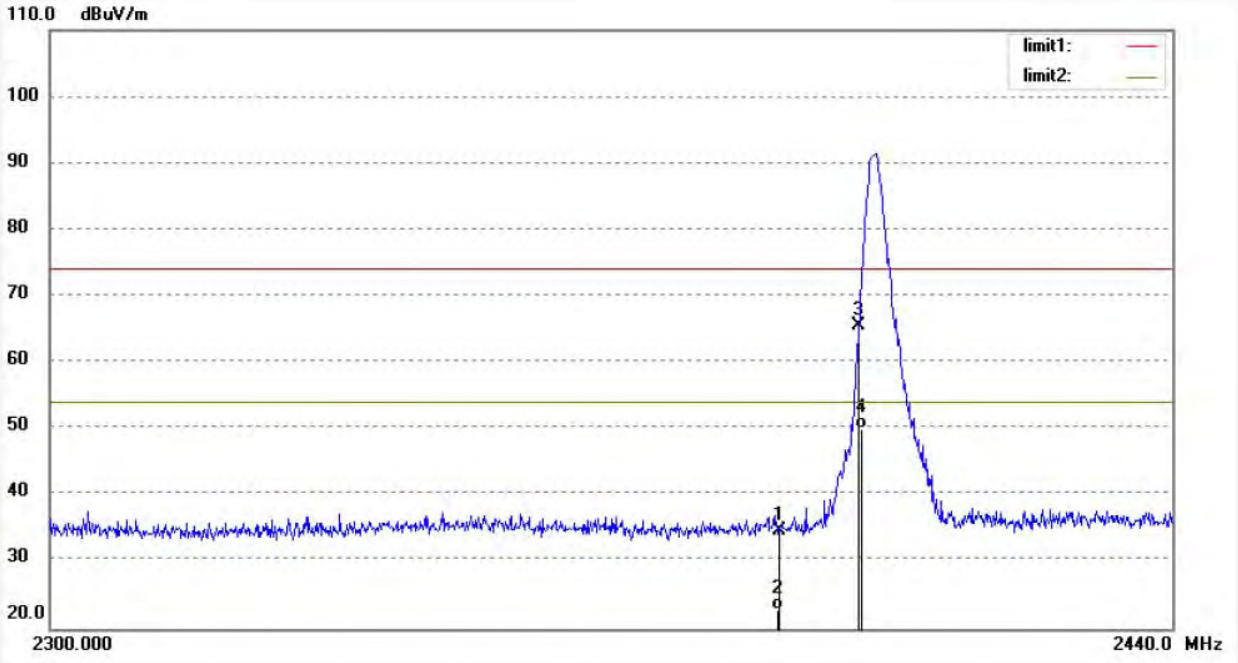
Job No.: frank2017 #2034
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2402MHz(π/4DQPSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:38:58
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



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	38.95	-4.32	34.63	74.00	-39.37	peak	250	210	
2	2390.000	27.15	-4.32	22.83	54.00	-31.17	AVG	250	254	
3	2400.000	69.84	-4.27	65.57	74.00	-8.43	peak	250	108	
4	2400.000	54.23	-4.27	49.96	54.00	-4.04	AVG	250	121	

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

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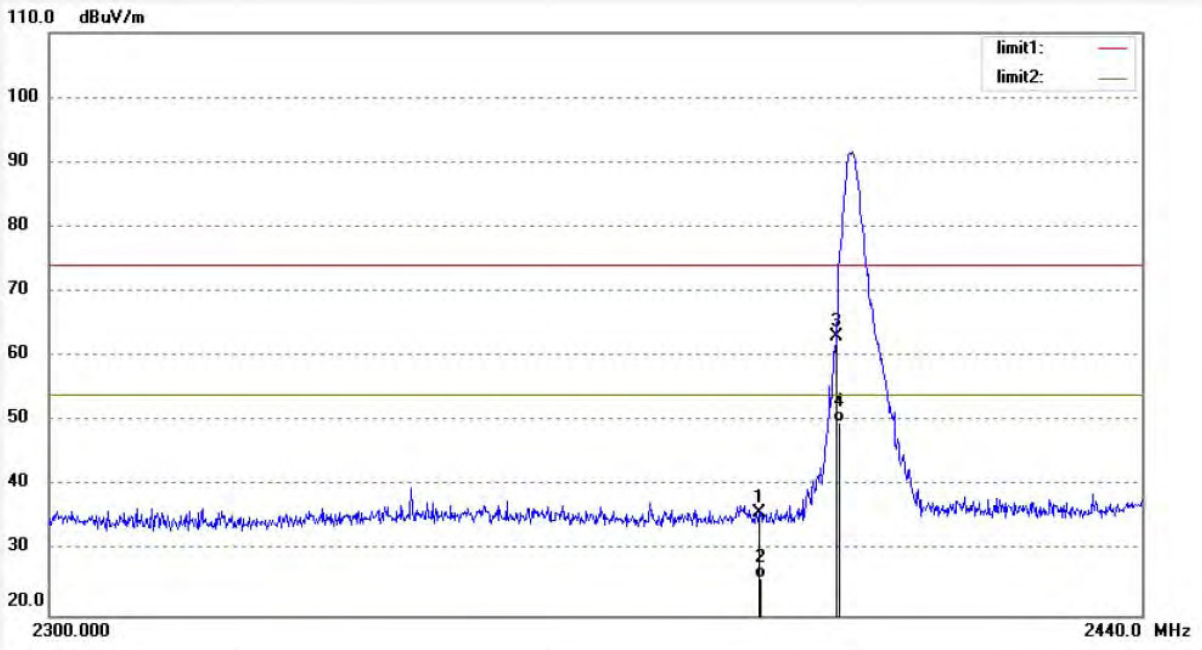
Job No.: frank2017 #2035
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2402MHz(π/4DQPSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:39:52
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



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	40.11	-4.32	35.79	74.00	-38.21	peak	250	122	
2	2390.000	30.00	-4.32	25.68	54.00	-28.32	AVG	250	61	
3	2400.000	67.39	-4.27	63.12	74.00	-10.88	peak	250	109	
4	2400.000	54.00	-4.27	49.73	54.00	-4.27	AVG	250	232	

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

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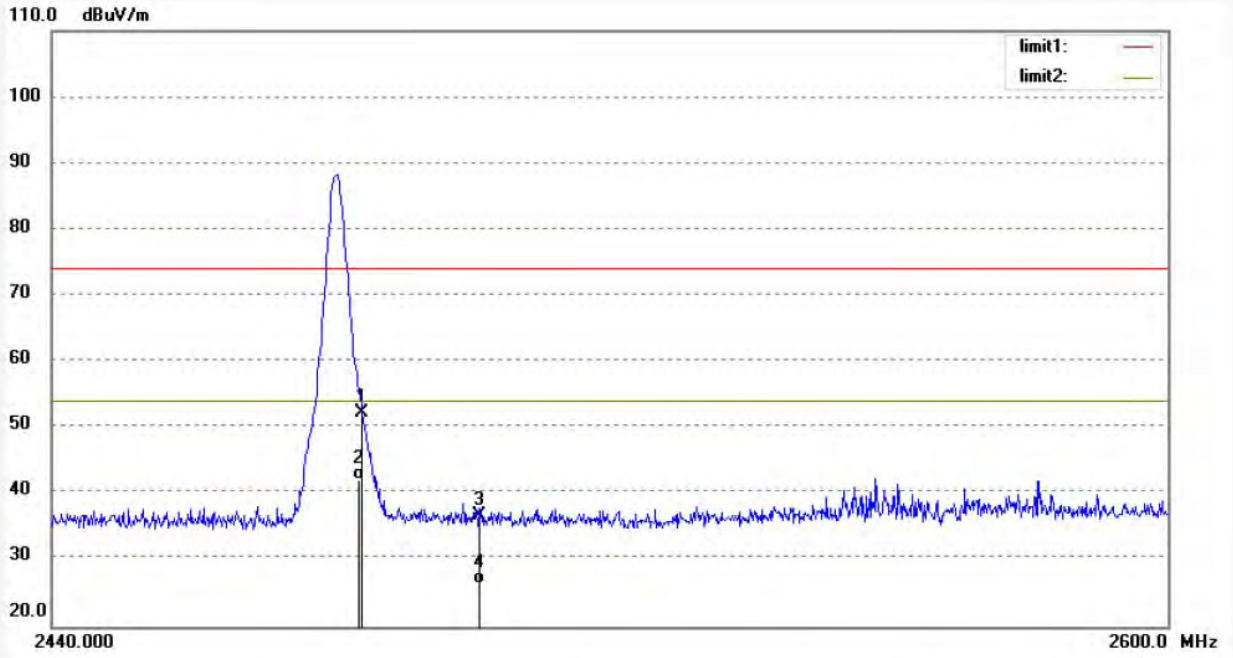
Job No.: frank2017 #2040
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2480MHz(π/4DQPSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:46:19
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



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	56.27	-3.89	52.38	74.00	-21.62	peak	250	12	
2	2483.500	46.12	-3.89	42.23	54.00	-11.77	AVG	250	103	
3	2500.000	40.48	-3.81	36.67	74.00	-37.33	peak	250	57	
4	2500.000	30.12	-3.81	26.31	54.00	-27.69	AVG	200	124	

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

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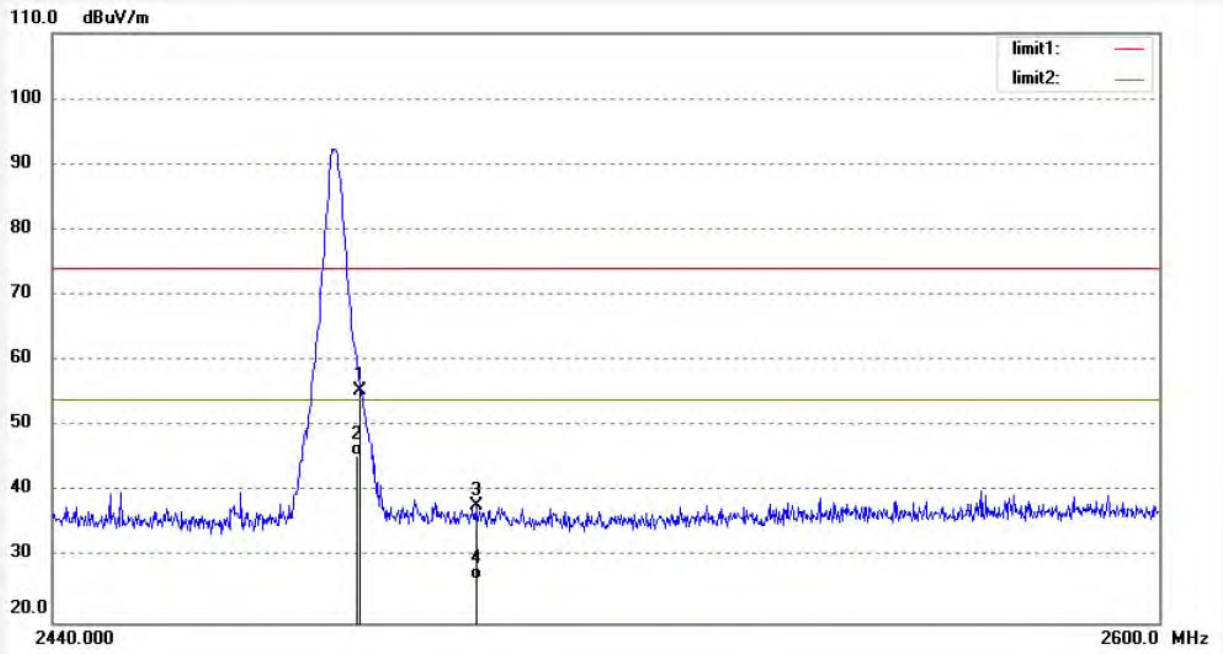
Job No.: frank2017 #2041
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2480MHz(π/4DQPSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:47:14
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



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	59.29	-3.89	55.40	74.00	-18.60	peak	250	123	
2	2483.500	49.48	-3.89	45.59	54.00	-8.41	AVG	250	22	
3	2500.000	41.59	-3.81	37.78	74.00	-36.22	peak	250	167	
4	2500.000	30.48	-3.81	26.67	54.00	-27.33	AVG	250	154	

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

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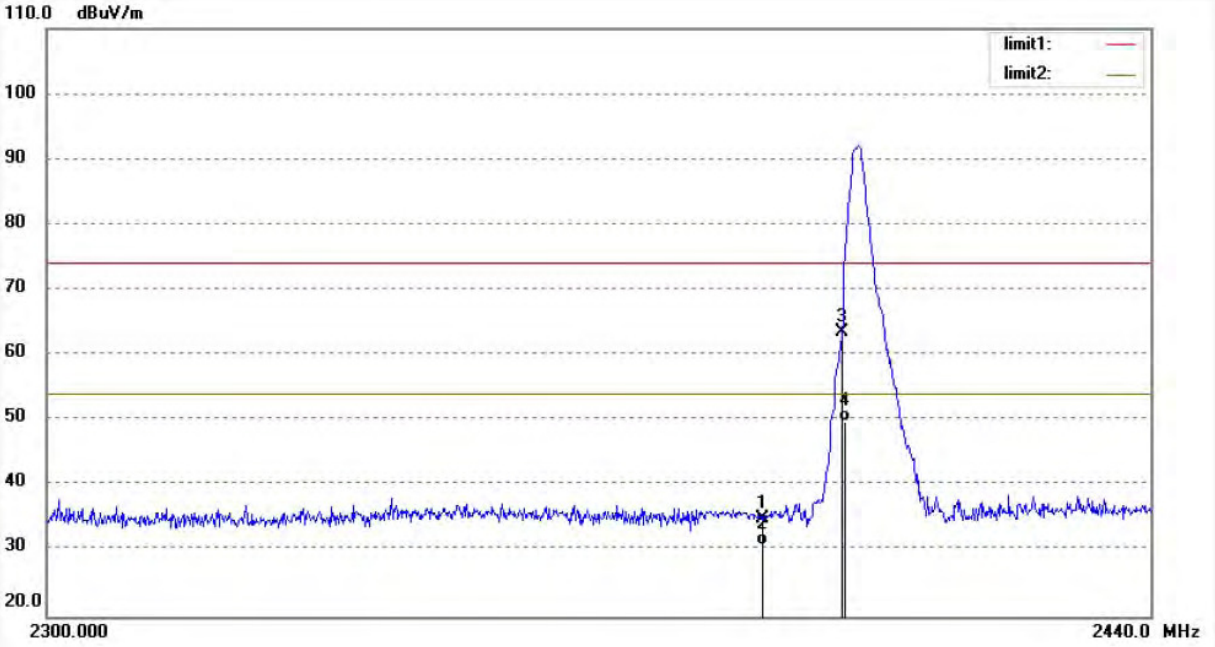
Job No.: frank2017 #2032	Polarization: Vertical
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 2017/12/29
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 15:36:28
EUT: Bluetooth Headphone	Engineer Signature: Frank
Mode: TX2402MHz(8DPSK)	Distance: 3m
Model: BT115i	
Manufacturer: Dongguan Baizhenrong Limited	

Note: Report NO.:ATE20172592



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	39.31	-4.32	34.99	74.00	-39.01	peak	250	138	
2	2390.000	35.15	-4.32	30.83	54.00	-23.17	AVG	250	214	
3	2400.000	67.71	-4.27	63.44	74.00	-10.56	peak	250	59	
4	2400.000	54.01	-4.27	49.74	54.00	-4.26	AVG	250	211	

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

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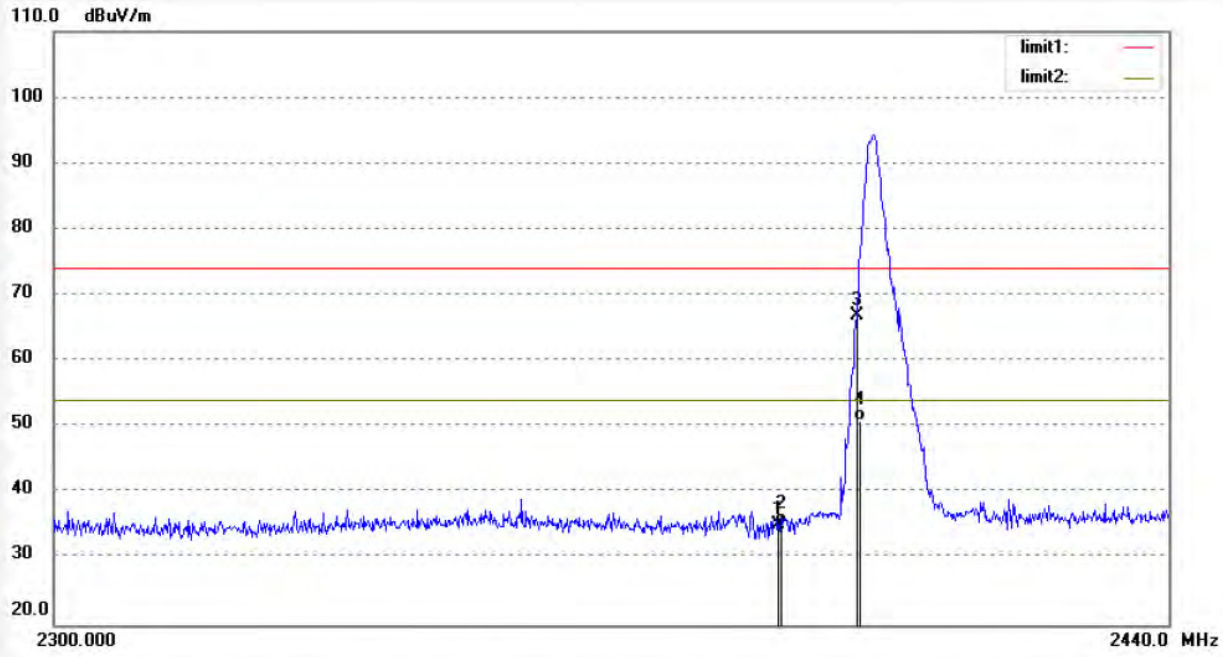
Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: frank2017 #2033
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2402MHz(8DPSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:37:54
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



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	39.40	-4.32	35.08	74.00	-38.92	peak	250	122	
2	2390.000	39.40	-4.32	35.08	54.00	-18.92	AVG	250	84	
3	2400.000	71.24	-4.27	66.97	74.00	-7.03	peak	250	211	
4	2400.000	55.12	-4.27	50.85	54.00	-3.15	AVG	250	100	

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

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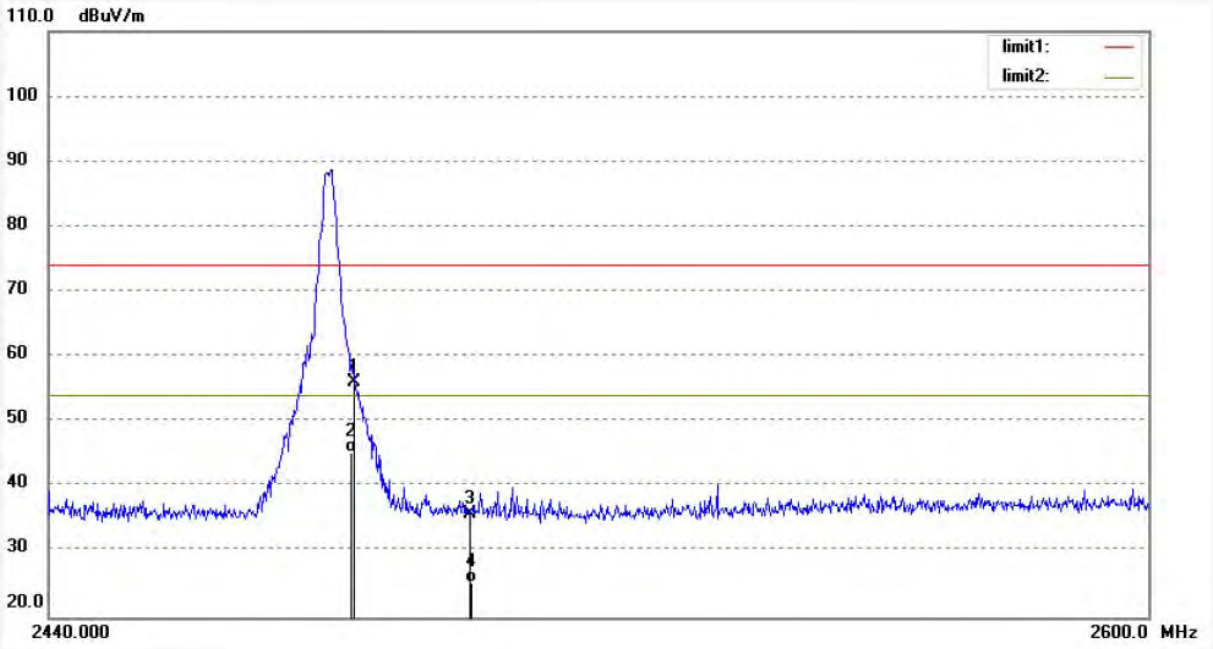
Fax:+86-0755-26503396

Job No.: frank2017 #2042	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 2017/12/29
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 15:48:28
EUT: Bluetooth Headphone	Engineer Signature: Frank
Mode: TX2480MHz(8DPSK)	Distance: 3m
Model: BT115i	
Manufacturer: Dongguan Baizhenrong Limited	

Note: Report NO.:ATE20172592



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	59.97	-3.89	56.08	74.00	-17.92	peak	250	184	
2	2483.500	49.15	-3.89	45.26	54.00	-8.74	AVG	250	19	
3	2500.000	39.62	-3.81	35.81	74.00	-38.19	peak	250	201	
4	2500.000	29.15	-3.81	25.34	54.00	-28.66	AVG	250	215	

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

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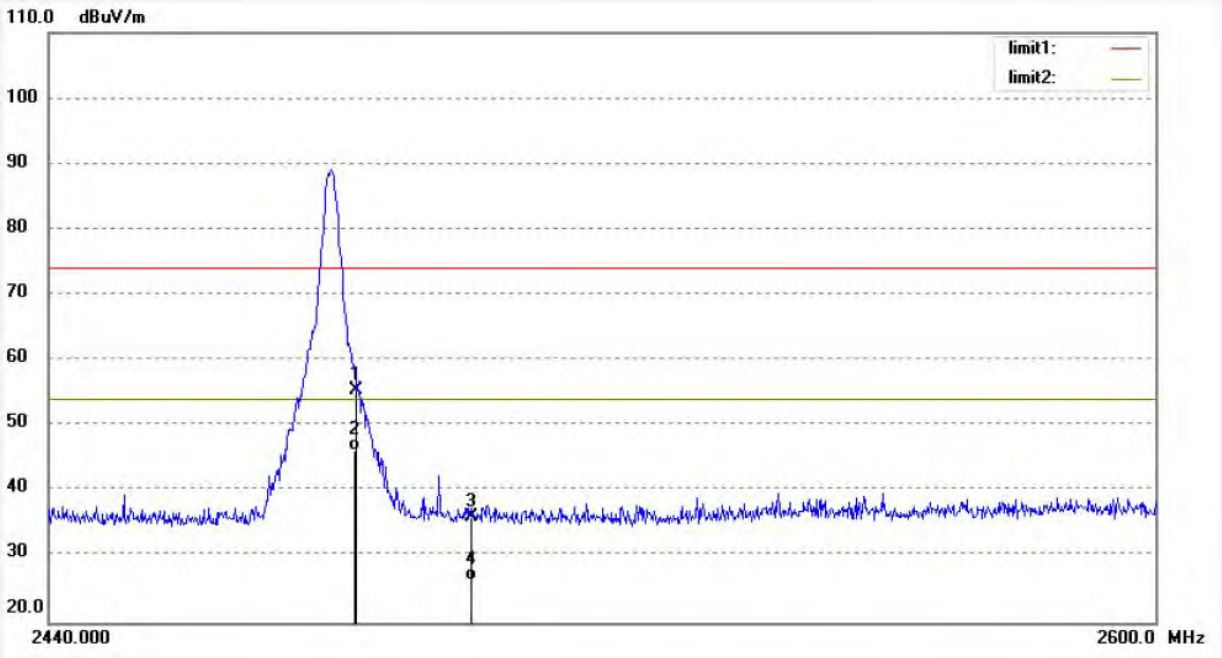
Fax:+86-0755-26503396

Job No.: frank2017 #2043
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX2480MHz(8DPSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:49:32
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



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	59.28	-3.89	55.39	74.00	-18.61	peak	250	123	
2	2483.500	50.12	-3.89	46.23	54.00	-7.77	AVG	250	225	
3	2500.000	39.96	-3.81	36.15	74.00	-37.85	peak	250	164	
4	2500.000	30.15	-3.81	26.34	54.00	-27.66	AVG	250	92	

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

Hopping mode

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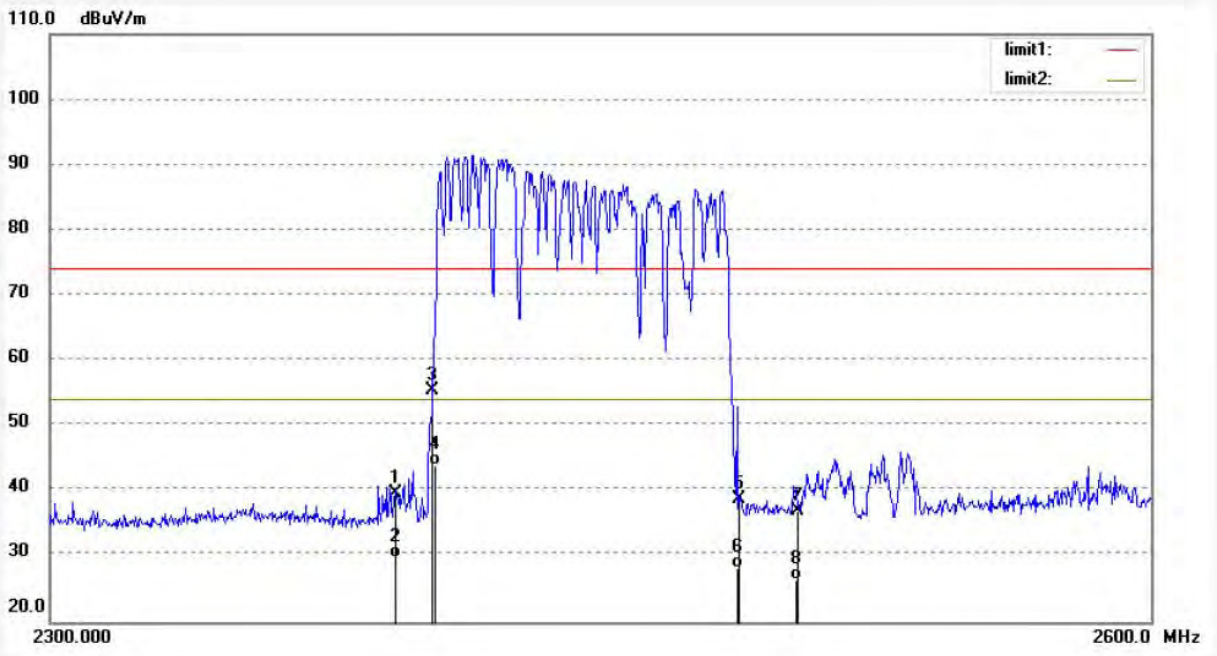
Fax:+86-0755-26503396

Job No.: frank2017 #2044
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: HOPPING(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:52:55
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



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	43.95	-4.32	39.63	74.00	-34.37	peak	250	121	
2	2390.000	34.12	-4.32	29.80	54.00	-24.20	AVG	250	13	
3	2400.000	59.68	-4.27	55.41	74.00	-18.59	peak	250	101	
4	2400.000	48.15	-4.27	43.88	54.00	-10.12	AVG	200	127	
5	2483.500	42.62	-3.89	38.73	74.00	-35.27	peak	200	195	
6	2483.500	32.15	-3.89	28.26	54.00	-25.74	AVG	200	125	
7	2500.000	40.83	-3.81	37.02	74.00	-36.98	peak	200	111	
8	2500.000	30.12	-3.81	26.31	54.00	-27.69	AVG	250	320	

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

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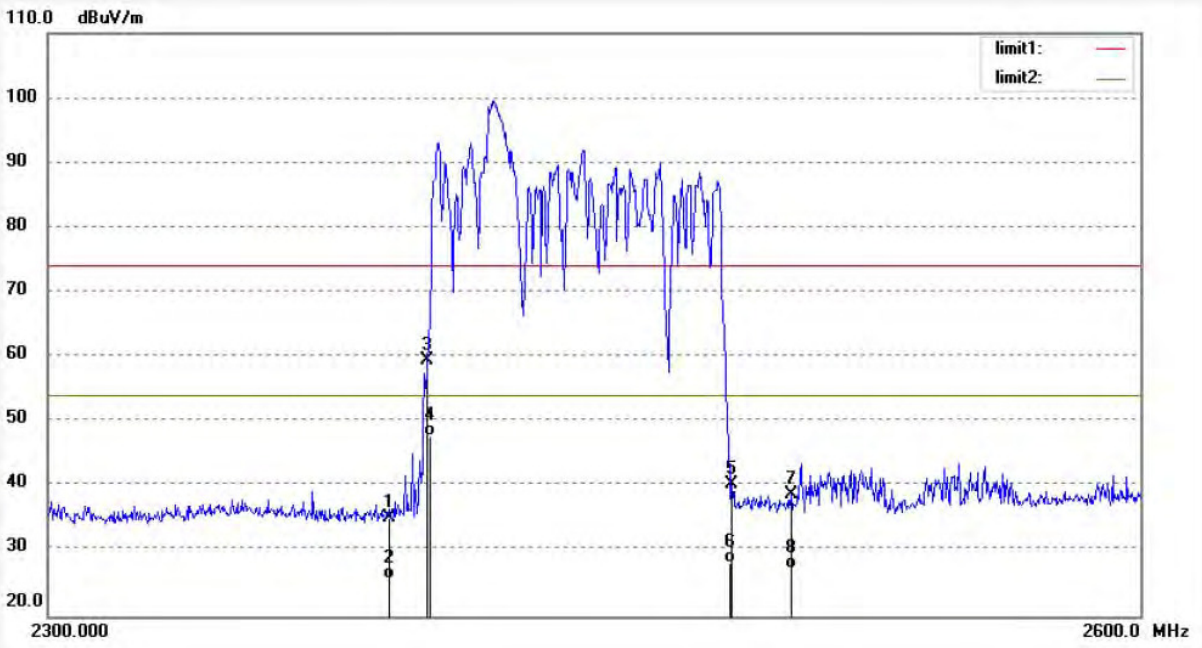
Job No.: frank2017 #2045
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: HOPPING(GFSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:55:13
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



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	39.40	-4.32	35.08	74.00	-38.92	peak	200	138	
2	2390.000	30.12	-4.32	25.80	54.00	-28.20	AVG	200	94	
3	2400.000	63.70	-4.27	59.43	74.00	-14.57	peak	200	251	
4	2400.000	52.12	-4.27	47.85	54.00	-6.15	AVG	200	103	
5	2483.500	44.19	-3.89	40.30	74.00	-33.70	peak	250	158	
6	2483.500	32.12	-3.89	28.23	54.00	-25.77	AVG	250	149	
7	2500.000	42.57	-3.81	38.76	74.00	-35.24	peak	250	201	
8	2500.000	31.15	-3.81	27.34	54.00	-26.66	AVG	200	321	

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

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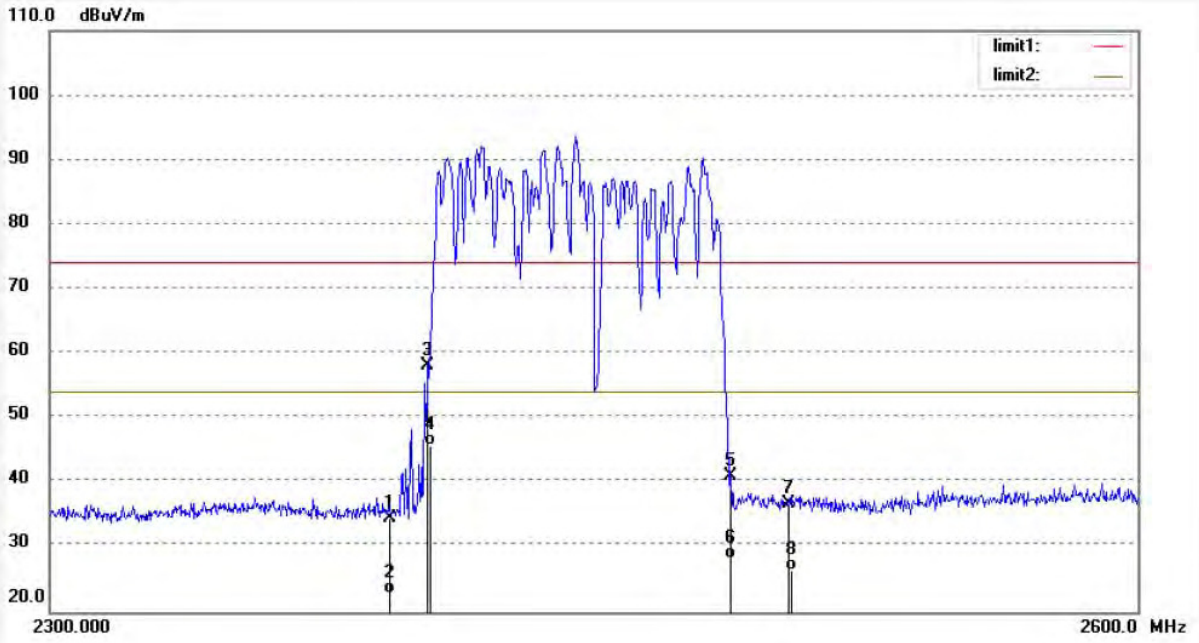
Job No.: frank2017 #2046
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: HOPPING(π/4DQPSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/29
Time: 15:57:29
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



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	38.87	-4.32	34.55	74.00	-39.45	peak	250	132	
2	2390.000	27.13	-4.32	22.81	54.00	-31.19	AVG	300	195	
3	2400.000	62.30	-4.27	58.03	74.00	-15.97	peak	300	28	
4	2400.000	50.12	-4.27	45.85	54.00	-8.15	AVG	250	312	
5	2483.500	44.90	-3.89	41.01	74.00	-32.99	peak	200	182	
6	2483.500	32.15	-3.89	28.26	54.00	-25.74	AVG	250	97	
7	2500.000	40.61	-3.81	36.80	74.00	-37.20	peak	250	83	
8	2500.000	30.18	-3.81	26.37	54.00	-27.63	AVG	250	156	

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

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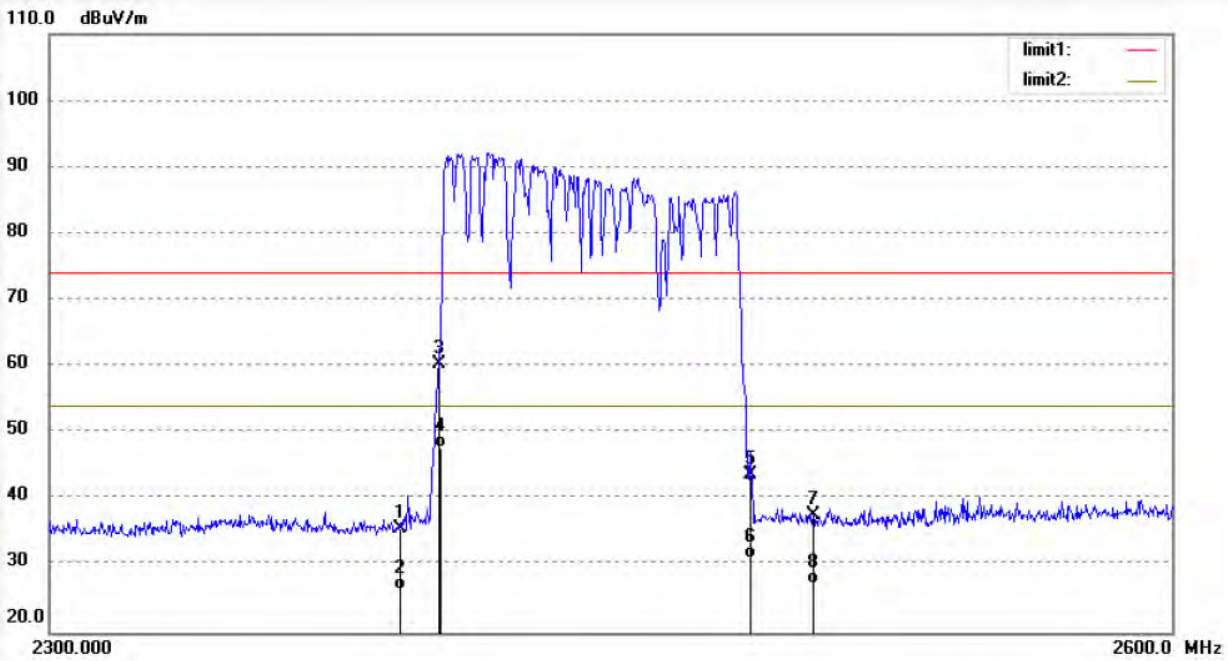
Fax:+86-0755-26503396

Job No.: frank2017 #2047
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: HOPPING(π/4DQPSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2017/12/29
Time: 16:00:26
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



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	39.85	-4.32	35.53	74.00	-38.47	peak	200	159	
2	2390.000	30.65	-4.32	26.33	54.00	-27.67	AVG	150	138	
3	2400.000	64.60	-4.27	60.33	74.00	-13.67	peak	200	29	
4	2400.000	52.15	-4.27	47.88	54.00	-6.12	AVG	150	101	
5	2483.500	47.57	-3.89	43.68	74.00	-30.32	peak	200	321	
6	2483.500	35.12	-3.89	31.23	54.00	-22.77	AVG	200	168	
7	2500.000	41.42	-3.81	37.61	74.00	-36.39	peak	200	95	
8	2500.000	31.21	-3.81	27.40	54.00	-26.60	AVG	200	112	

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

ACCURATE TECHNOLOGY CO., LTD.
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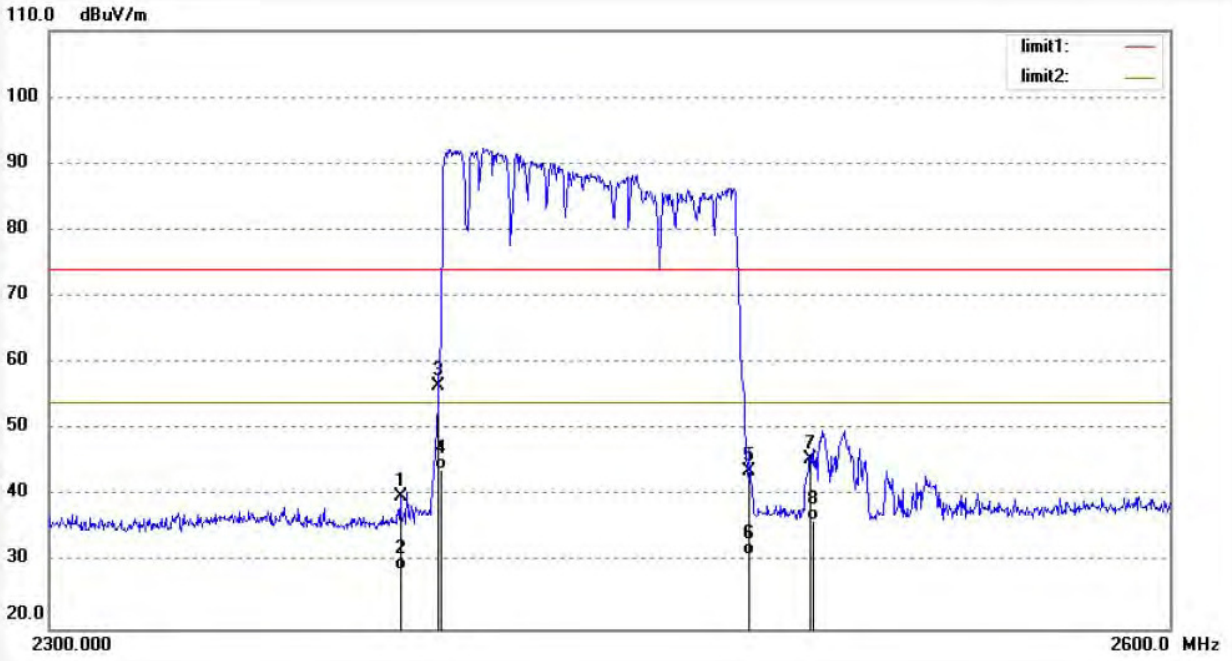
Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: frank2017 #2048
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: HOPPING(8DPSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2017/12/29
Time: 16:02:12
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



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	44.19	-4.32	39.87	74.00	-34.13	peak	150	270	
2	2390.000	33.15	-4.32	28.83	54.00	-25.17	AVG	150	351	
3	2400.000	60.83	-4.27	56.56	74.00	-17.44	peak	250	75	
4	2400.000	48.15	-4.27	43.88	54.00	-10.12	AVG	250	130	
5	2483.500	47.57	-3.89	43.68	74.00	-30.32	peak	250	91	
6	2483.500	35.12	-3.89	31.23	54.00	-22.77	AVG	250	156	
7	2500.000	49.40	-3.81	45.59	74.00	-28.41	peak	250	150	
8	2500.000	40.12	-3.81	36.31	54.00	-17.69	AVG	250	122	

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

ACCURATE TECHNOLOGY CO., LTD.
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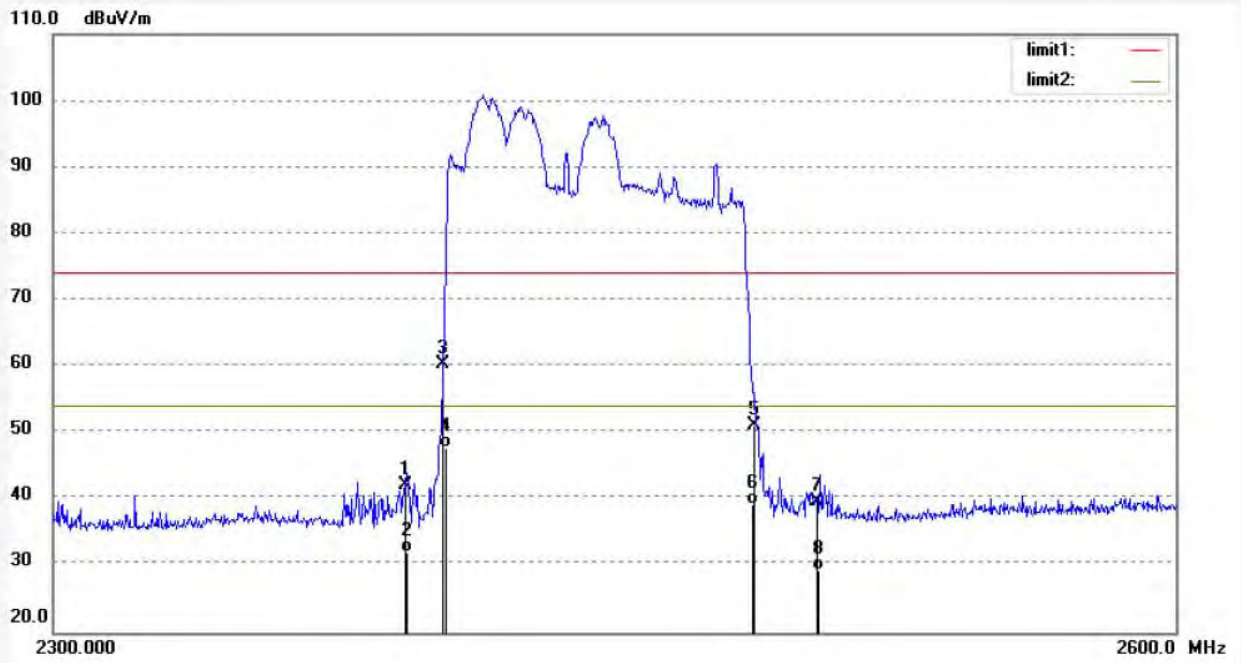
Job No.: frank2017 #2049
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: HOPPING(8DPSK)
Model: BT115i
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/29
Time: 16:15:03
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172592



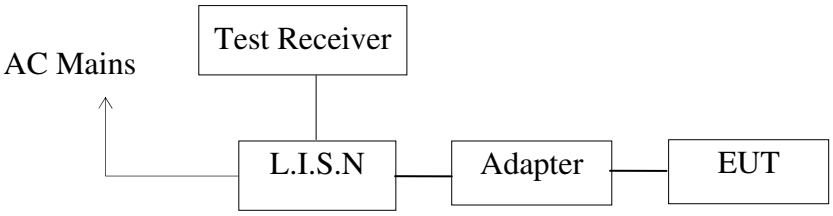
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	46.50	-4.32	42.18	74.00	-31.82	peak	250	91	
2	2390.000	36.45	-4.32	32.13	54.00	-21.87	AVG	300	147	
3	2400.000	64.65	-4.27	60.38	74.00	-13.62	peak	300	132	
4	2400.000	52.12	-4.27	47.85	54.00	-6.15	AVG	250	154	
5	2483.500	55.07	-3.89	51.18	74.00	-22.82	peak	250	56	
6	2483.500	43.12	-3.89	39.23	54.00	-14.77	AVG	250	54	
7	2500.000	43.54	-3.81	39.73	74.00	-34.27	peak	250	125	
8	2500.000	33.12	-3.81	29.31	54.00	-24.69	AVG	250	214	

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)

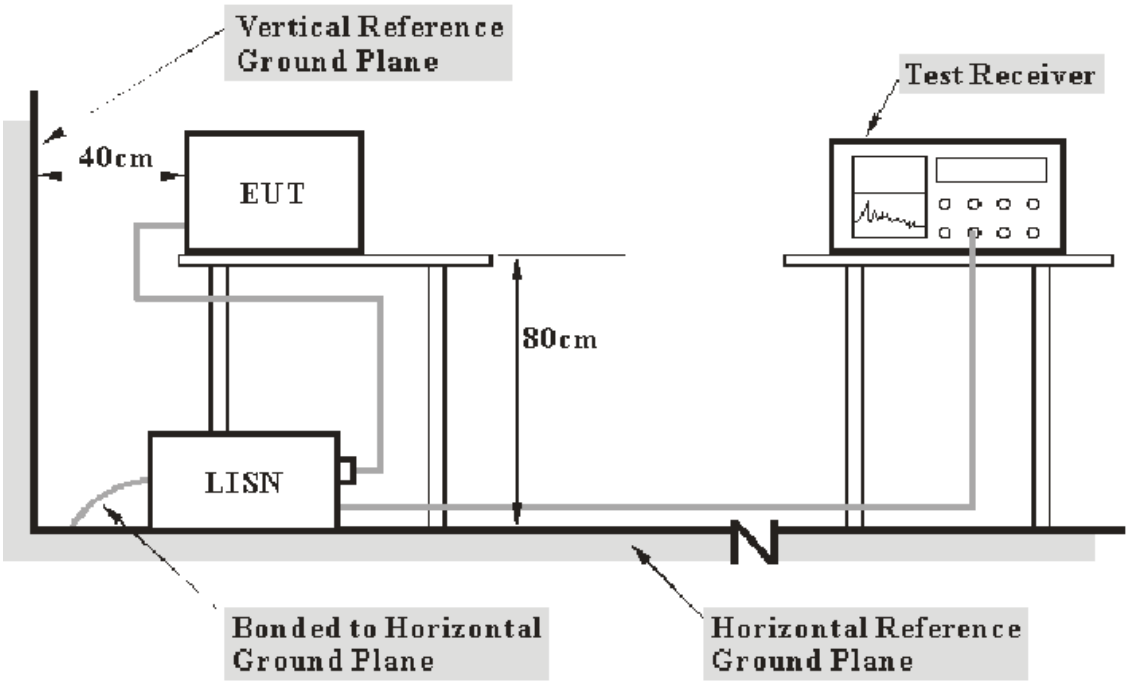
12.1. Block Diagram of Test Setup

12.1.1. Block diagram of connection between the EUT and simulators



(EUT: Bluetooth Headset)

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	10.6	25.3	17.0	59.0	49.0	33.4	31.7	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: Frank

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.

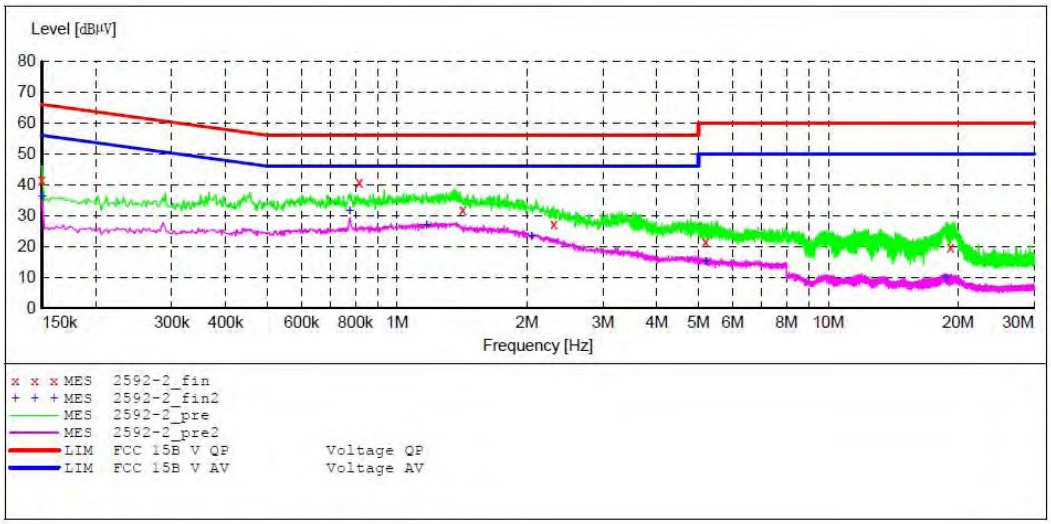
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15C

```
EUT:                  Bluetooth Headphone    M/N:BT115i
Manufacturer:         Dongguan Baizhenrong Limited
Operating Condition:  BT communication
Test Site:            2#Shielding Room
Operator:             Frank
Test Specification:   L    120V/60Hz
Comment:              Report NO.:ATE20172592
Start of Test:        2017-12-29 / 11:28:05
```

SCAN TABLE: "V 150K-30MHz fin"

```
  Short Description:              _SUB_STD_VTERM2 1.70
  Start      Stop       Step      Detector  Meas.     IF       Transducer
  Frequency  Frequency  Width               Time      Bandw.
  150.0 kHz  30.0 MHz   4.5 kHz   QuasiPeak 1.0 s     9 kHz    NSLK8126 2008
                                  Average
```



MEASUREMENT RESULT: "2592-2_fin"

2017-12-29 11:30

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	41.70	10.8	66	24.3	QP	L1	GND
0.816000	40.80	11.1	56	15.2	QP	L1	GND
1.419000	32.00	11.2	56	24.0	QP	L1	GND
2.310000	27.40	11.3	56	28.6	QP	L1	GND
5.190000	21.60	11.4	60	38.4	QP	L1	GND
19.221000	19.90	11.7	60	40.1	QP	L1	GND

MEASUREMENT RESULT: "2592-2_fin2"

2017-12-29 11:30

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	36.30	10.8	56	19.7	AV	L1	GND
0.775500	31.50	11.1	46	14.5	AV	L1	GND
1.171500	26.80	11.2	46	19.2	AV	L1	GND
2.049000	23.30	11.3	46	22.7	AV	L1	GND
5.203500	15.20	11.4	50	34.8	AV	L1	GND
18.721500	9.80	11.7	50	40.2	AV	L1	GND

ACCURATE TECHNOLOGY CO.,LTD

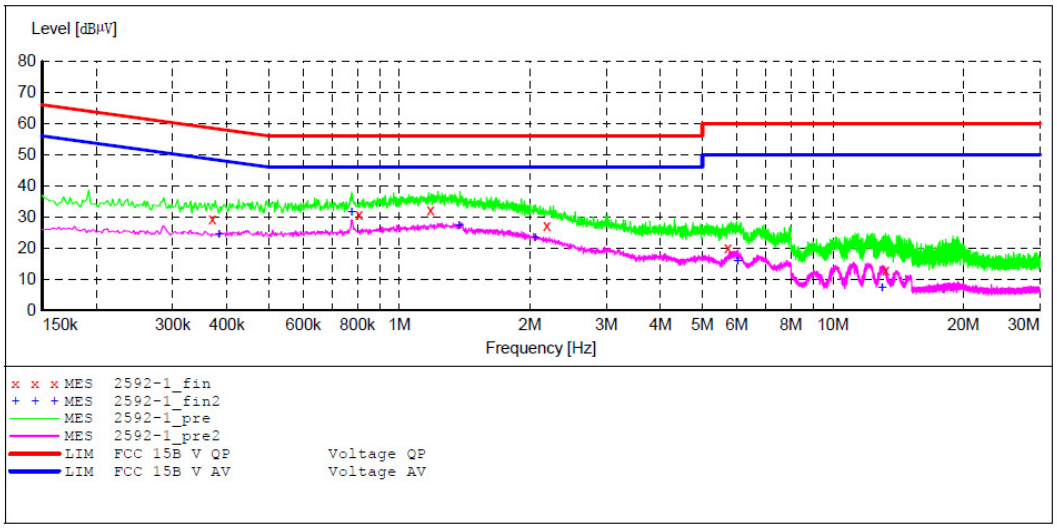
CONDUCTED EMISSION STANDARD FCC PART 15C

EUT: Bluetooth Headphone M/N:BT115i
Manufacturer: Dongguan Baizhenrong Limited
Operating Condition: BT communication
Test Site: 2#Shielding Room
Operator: Frank
Test Specification: N 120V/60Hz
Comment: Report NO.:ATE20172592
Start of Test: 2017-12-29 / 11:24:09

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "2592-1_fin"

2017-12-29 11:26

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.370500	29.40	10.9	59	29.1	QP	N	GND
0.807000	30.80	11.1	56	25.2	QP	N	GND
1.180500	32.20	11.2	56	23.8	QP	N	GND
2.188500	27.40	11.3	56	28.6	QP	N	GND
5.721000	20.10	11.5	60	39.9	QP	N	GND
13.231500	13.20	11.6	60	46.8	QP	N	GND

MEASUREMENT RESULT: "2592-1_fin2"

2017-12-29 11:26

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.384000	24.40	10.9	48	23.8	AV	N	GND
0.775500	31.50	11.1	46	14.5	AV	N	GND
1.374000	27.30	11.2	46	18.7	AV	N	GND
2.053500	23.20	11.3	46	22.8	AV	N	GND
6.031500	15.70	11.5	50	34.3	AV	N	GND
12.979500	7.40	11.6	50	42.6	AV	N	GND

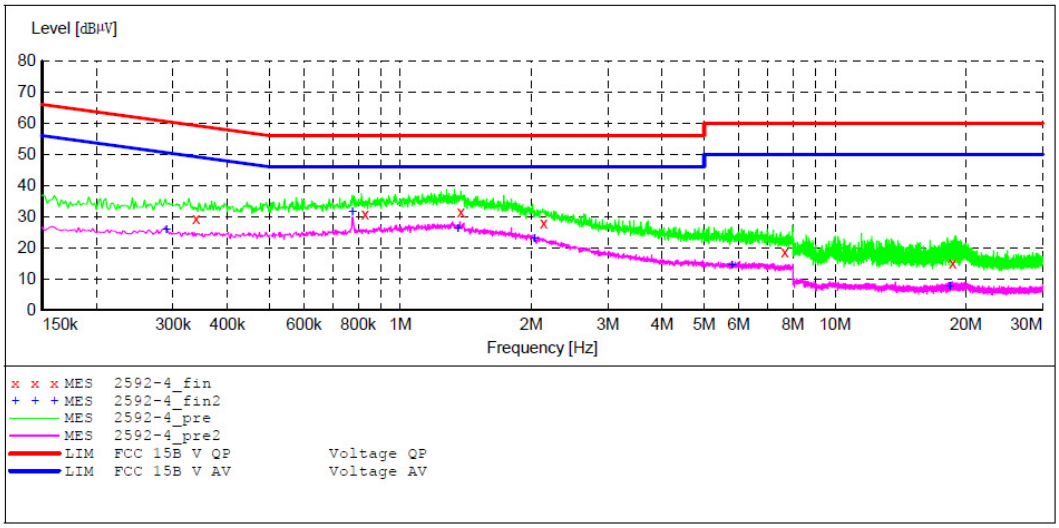
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15C

```
EUT:                  Bluetooth Headphone    M/N:BT115i
Manufacturer:         Dongguan Baizhenrong Limited
Operating Condition:  BT communication
Test Site:            2#Shielding Room
Operator:             Frank
Test Specification:   N    240V/60Hz
Comment:              Report NO.:ATE20172592
Start of Test:        2017-12-29 / 11:35:38
```

SCAN TABLE: "V 150K-30MHz fin"

```
  Short Description:            _SUB_STD_VTERM2 1.70
  Start      Stop       Step      Detector  Meas.     IF      Transducer
  Frequency  Frequency  Width               Time      Bandw.
  150.0 kHz  30.0 MHz   4.5 kHz   QuasiPeak 1.0 s     9 kHz   NSLK8126 2008
                                  Average
```



MEASUREMENT RESULT: "2592-4_fin"

2017-12-29 11:38

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.339000	29.50	10.9	59	29.7	QP	N	GND
0.829500	31.00	11.1	56	25.0	QP	N	GND
1.378500	31.70	11.2	56	24.3	QP	N	GND
2.134500	27.90	11.3	56	28.1	QP	N	GND
7.660500	18.70	11.5	60	41.3	QP	N	GND
18.627000	15.30	11.7	60	44.7	QP	N	GND

MEASUREMENT RESULT: "2592-4_fin2"

2017-12-29 11:38

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.289500	25.70	10.9	51	24.8	AV	N	GND
0.775500	31.50	11.1	46	14.5	AV	N	GND
1.356000	26.10	11.2	46	19.9	AV	N	GND
2.035500	23.00	11.3	46	23.0	AV	N	GND
5.797500	14.40	11.5	50	35.6	AV	N	GND
18.348000	7.60	11.7	50	42.4	AV	N	GND

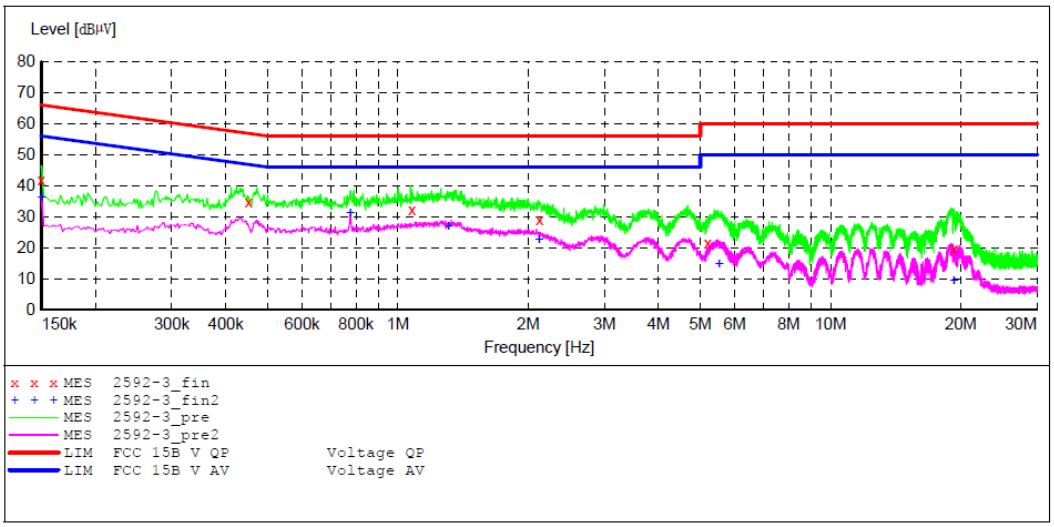
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15C

```
EUT:                  Bluetooth Headphone    M/N:BT115i
Manufacturer:         Dongguan Baizhenrong Limited
Operating Condition:  BT communication
Test Site:            2#Shielding Room
Operator:             Frank
Test Specification:   L    240V/60Hz
Comment:              Report NO.:ATE20172592
Start of Test:        2017-12-29 / 11:31:37
```

SCAN TABLE: "V 150K-30MHz fin"

```
  Short Description:              _SUB_STD_VTERM2 1.70
  Start      Stop       Step      Detector  Meas.     IF       Transducer
  Frequency  Frequency  Width               Time      Bandw.
  150.0 kHz  30.0 MHz   4.5 kHz   QuasiPeak 1.0 s     9 kHz    NSLK8126 2008
                                  Average
```



MEASUREMENT RESULT: "2592-3_fin"

2017-12-29 11:34

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	42.00	10.8	66	24.0	QP	L1	GND
0.451500	34.90	11.0	57	21.9	QP	L1	GND
1.077000	32.30	11.1	56	23.7	QP	L1	GND
2.125500	29.10	11.3	56	26.9	QP	L1	GND
5.199000	21.50	11.4	60	38.5	QP	L1	GND
19.293000	19.70	11.7	60	40.3	QP	L1	GND

MEASUREMENT RESULT: "2592-3_fin2"

2017-12-29 11:34

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	36.20	10.8	56	19.8	AV	L1	GND
0.775500	31.40	11.1	46	14.6	AV	L1	GND
1.311000	27.10	11.2	46	18.9	AV	L1	GND
2.121000	22.60	11.3	46	23.4	AV	L1	GND
5.527500	14.80	11.5	50	35.2	AV	L1	GND
19.279500	9.40	11.7	50	40.6	AV	L1	GND

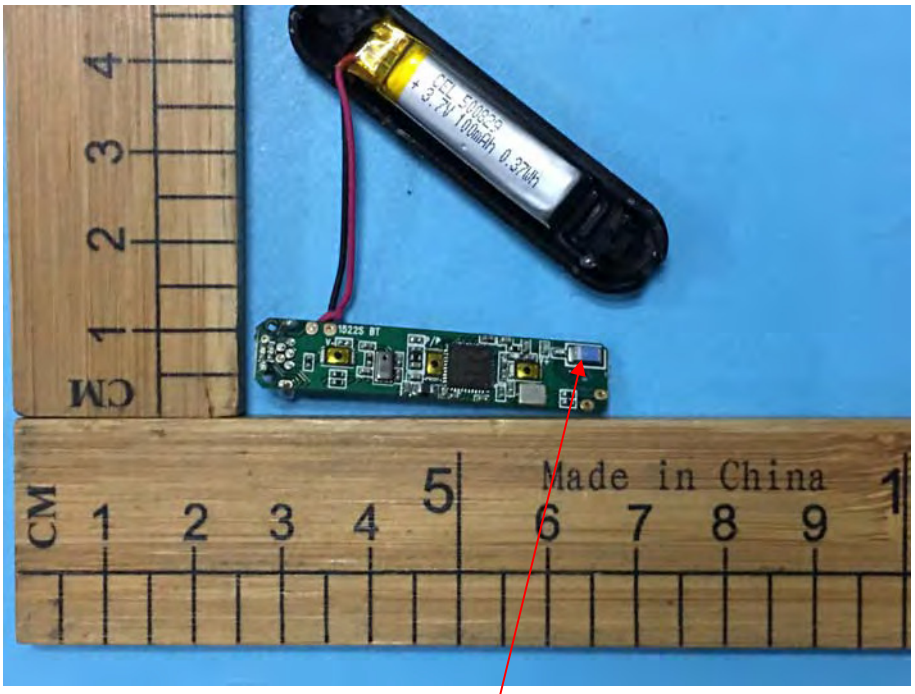
13. ANTENNA REQUIREMENT

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 2.0dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.



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