

APPLICATION CERTIFICATION FCC Part 15C
On Behalf of

Zylux Acoustic Corporation

Bluetooth Headphone
Model No.: BeActiv S100

FCC ID: XN6-BUS100

Prepared for : Zylux Acoustic Corporation
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Report No. : ATE20172078
Date of Test : Dec. 20-Dec. 26, 2017
Date of Report : Dec. 27, 2017

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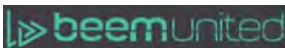
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Test Report Certification

Applicant : Zylux Acoustic Corporation
Manufacturer : Zylux Acoustic Corporation
Factory : Zhao Yang Electronic (Shenzhen) Co., Ltd
EUT Description : Bluetooth Headphone
Model No. : BeActiv S100
Trade Name : 

Measurement Procedure Used:

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

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

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Shenzhen Accurate Technology Co., Ltd.

Date of Test : Dec. 20-Dec. 26, 2017
Date of Report : Dec. 27, 2017

Prepared by :



(Steven Yang, Engineer)

Approved & Authorized Signer :


(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Model Number	:	BeActiv S100
Bluetooth version	:	V 4.1 This report is for BT classic mode
Frequency Range	:	2402MHz-2480MHz
Number of Channels	:	79
Antenna Gain(Max)	:	0dBi
Antenna type	:	Integral Antenna
Adapter Input Voltage	:	DC 3.7V (Powered by battery) or DC 5V (Powered by USB port)
Modulation mode	:	GFSK, $\pi/4$ DQPSK, 8DPSK
Applicant	:	Zylux Acoustic Corporation
Address	:	3F, 22, Lane 35, Jihu Road, Taipei Neihu Technology Park, Taipei 114, Taiwan
Manufacturer	:	Zylux Acoustic Corporation
Address	:	3F, 22, Lane 35, Jihu Road, Taipei Neihu Technology Park, Taipei 114, Taiwan
Factory	:	Zhao Yang Electronic (Shenzhen) Co., Ltd
Address	:	Building 2, De Yong Jia Industrial Park, Guang Qiao Road, Yu Lv Community, Gong Ming Street, Guang Ming New District, Shenzhen, 518132, P.R. China

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 (ISED) The Registration Number is 5077A-2 Accredited by China National Accreditation Service for Conformity Assessment (CNAS) The Registration Number is CNAS L3193 Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 4297.01
Name of Firm	:	Shenzhen Accurate Technology Co., Ltd.
Site Location	:	1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China

1.4. 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-10S	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

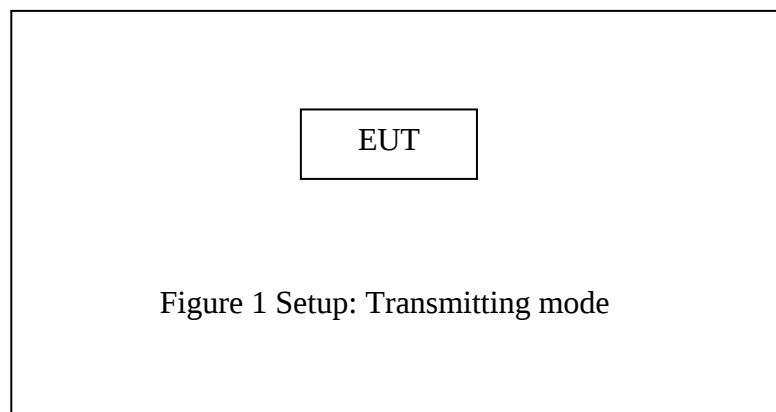
Middle Channel: 2441MHz

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



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 Headphone)

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.

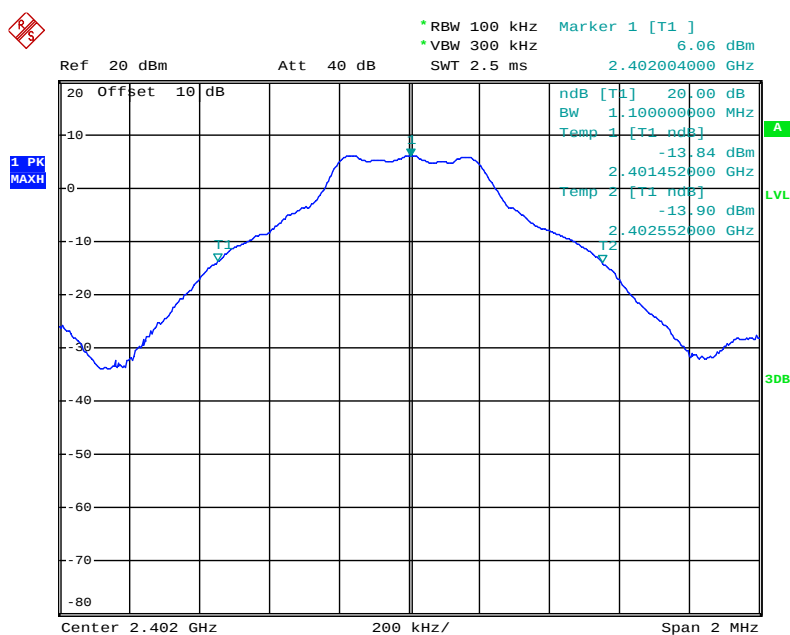
5.6. Test Result

Channel	Frequency (MHz)	GFSK 20dB Bandwidth (MHz)	Π/4-DQPSK 20dB Bandwidth (MHz)	8DPSK 20dB Bandwidth (MHz)	Result
Low	2402	1.100	1.410	1.392	Pass
Middle	2441	1.112	1.410	1.392	Pass
High	2480	1.112	1.410	1.410	Pass

The spectrum analyzer plots are attached as below.

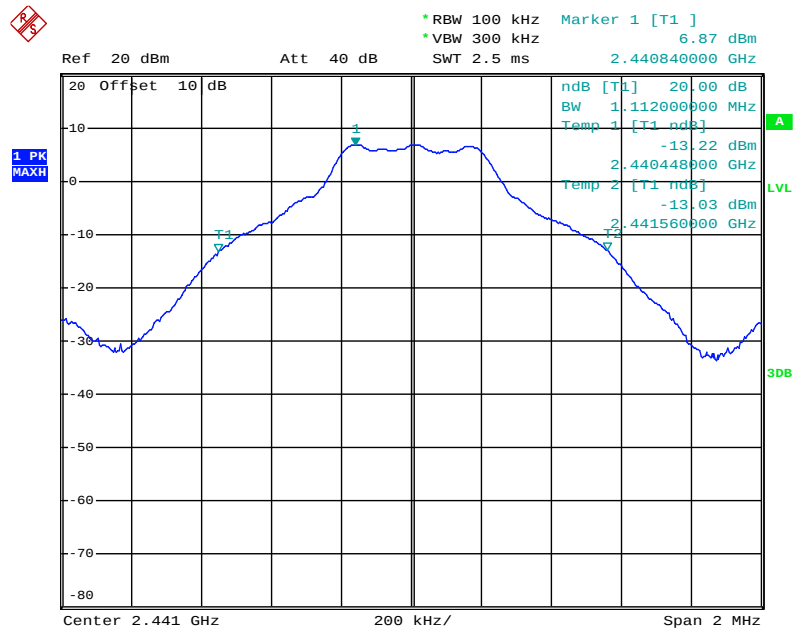
GFSK Mode

Low channel



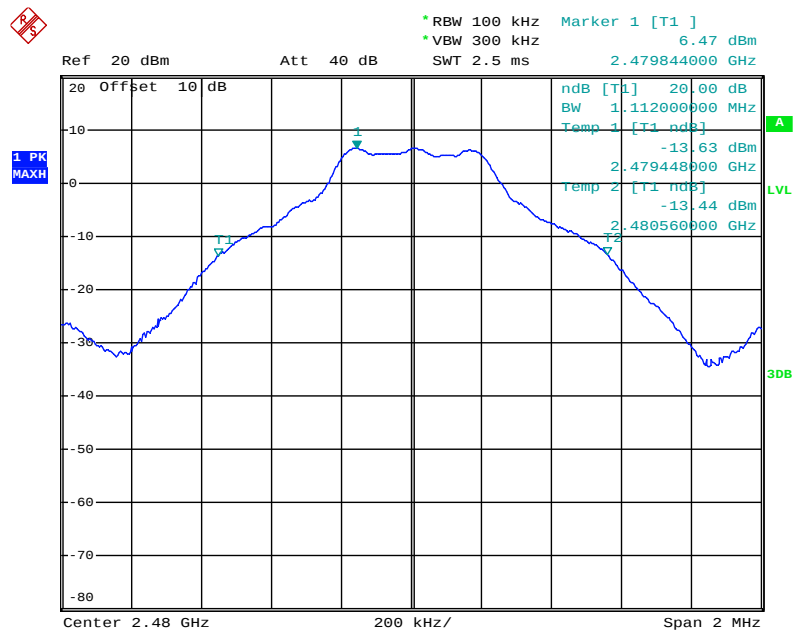
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Middle channel



Date: 20.DEC.2017 15:58:47

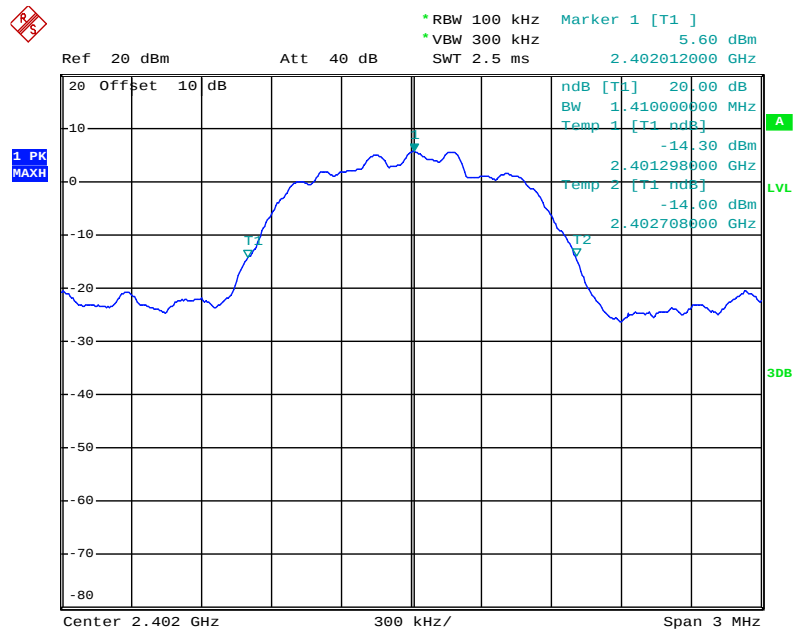
High channel



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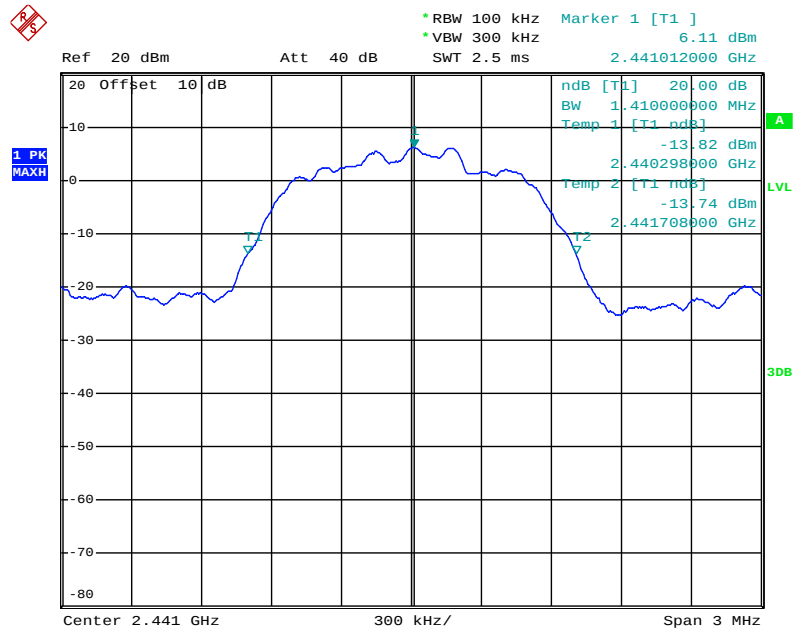
Π/4-DQPSK Mode

Low channel



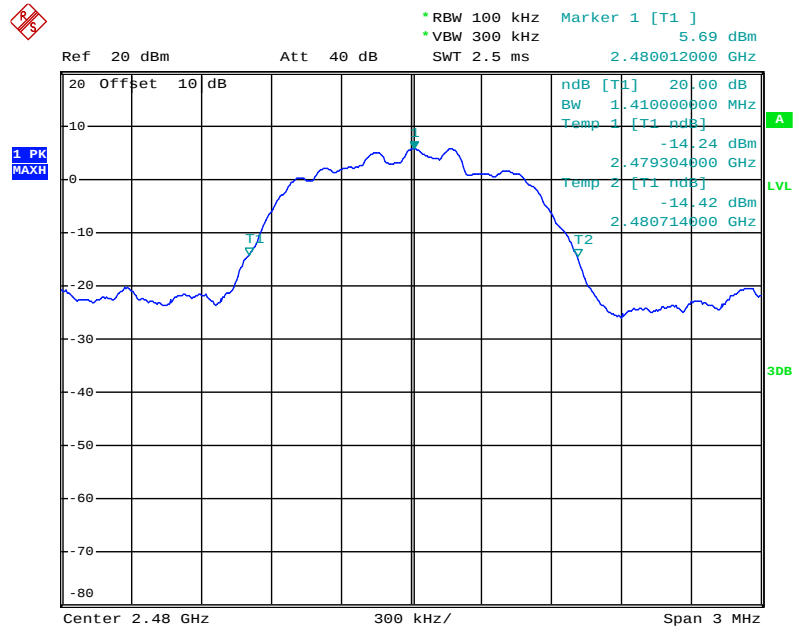
Date: 20.DEC.2017 16:10:10

Middle channel



Date: 20.DEC.2017 16:11:17

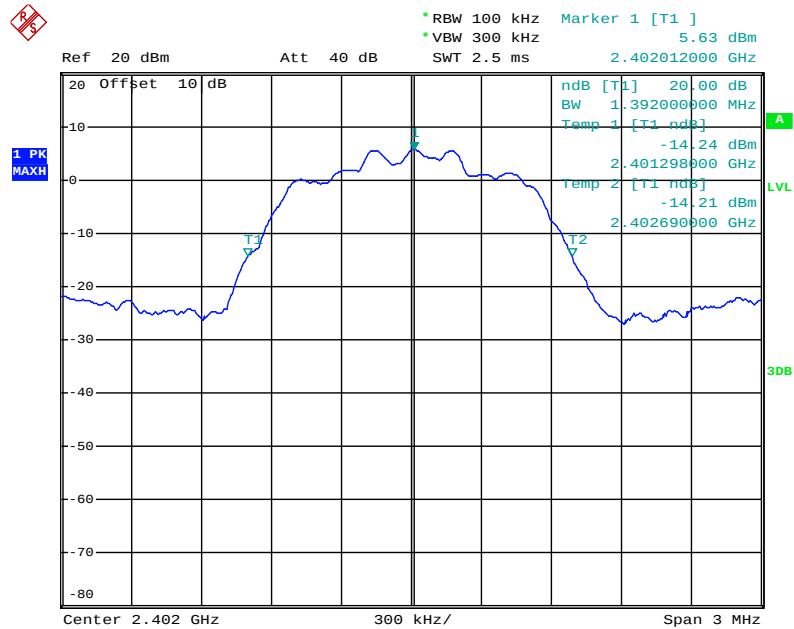
High channel



Date: 20.DEC.2017 16:12:13

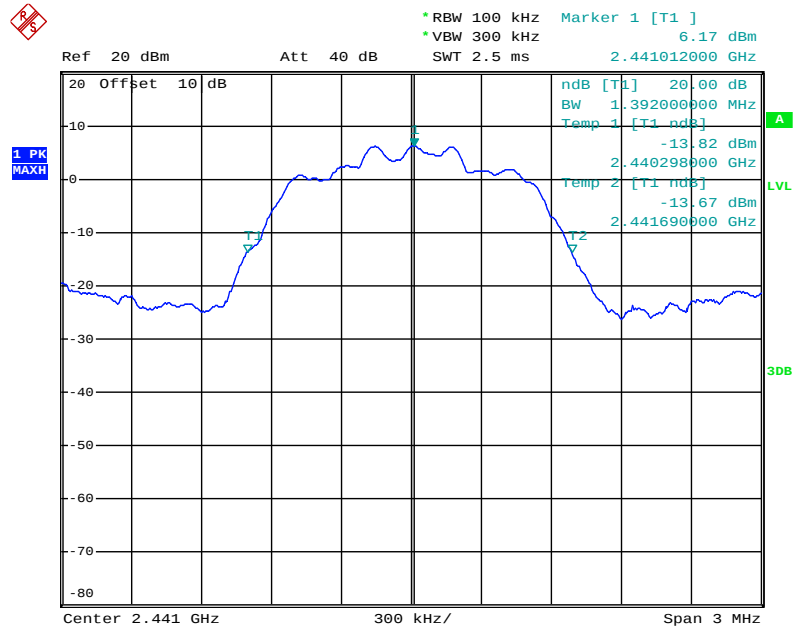
8DPSK Mode

Low channel



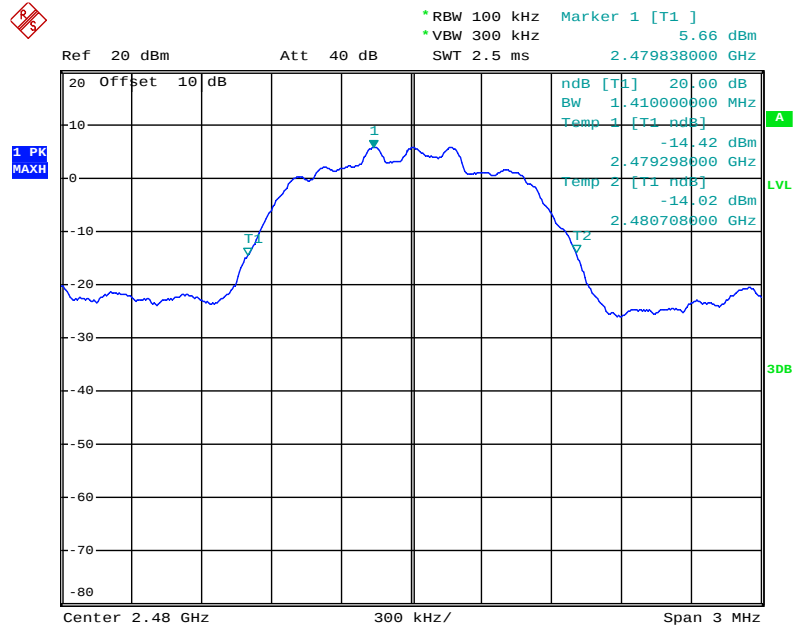
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Middle channel



Date: 20.DEC.2017 16:05:26

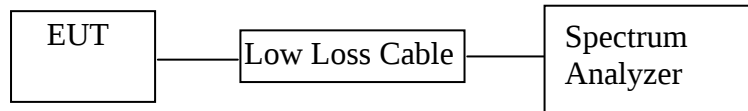
High channel



Date: 20.DEC.2017 17:19:01

6. CARRIER FREQUENCY SEPARATION TEST

6.1. Block Diagram of Test Setup



(EUT: Bluetooth Headphone)

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

GFSK

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			

Π/4-DQPSK

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			

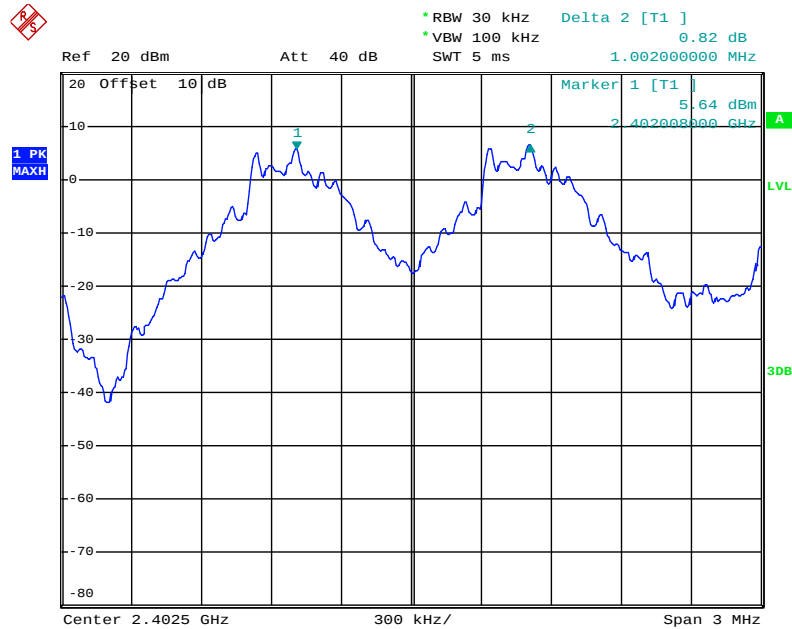
8DPSK

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.

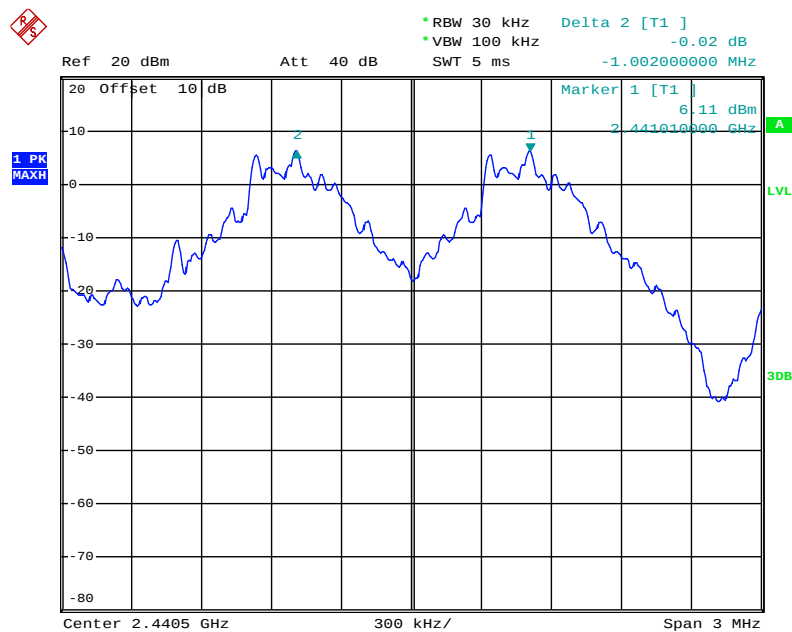
GFSK Mode

Low channel



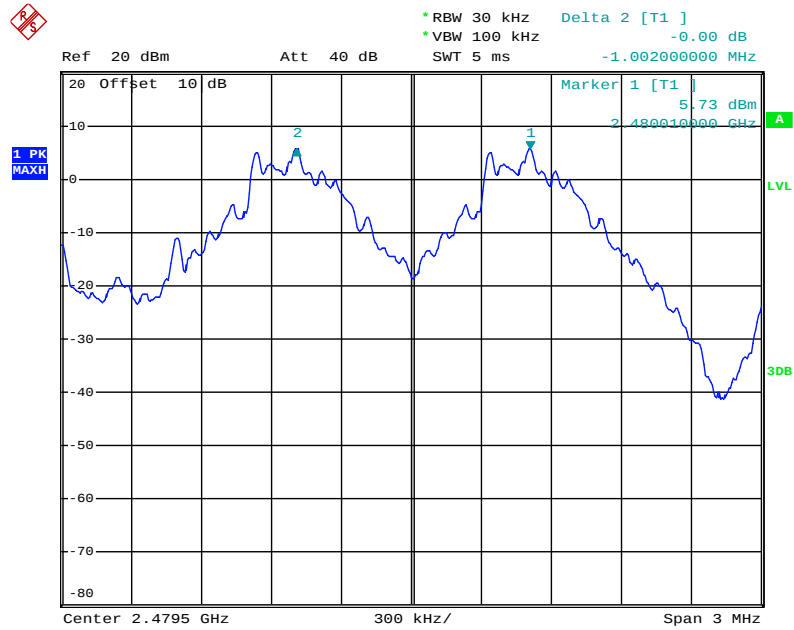
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Middle channel



Date: 20.DEC.2017 16:43:44

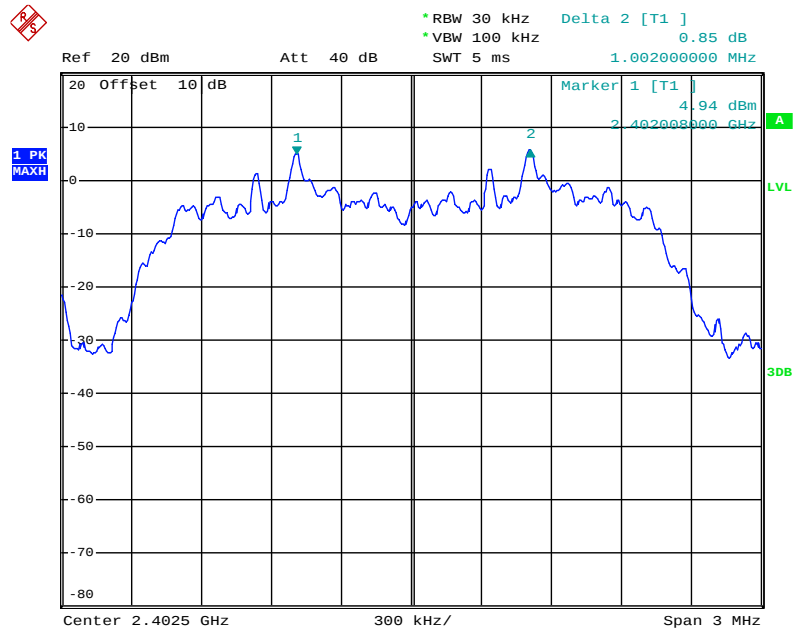
High channel



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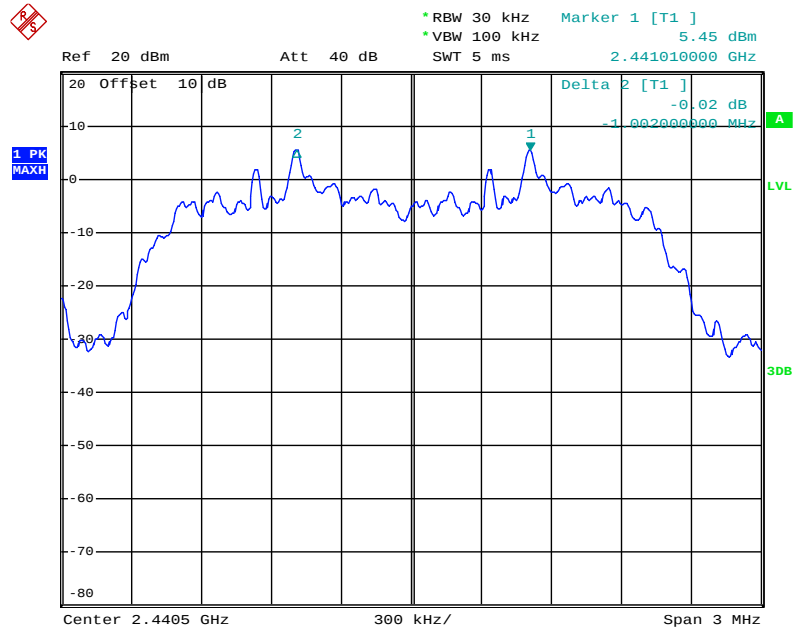
Π/4-DQPSK Mode

Low channel



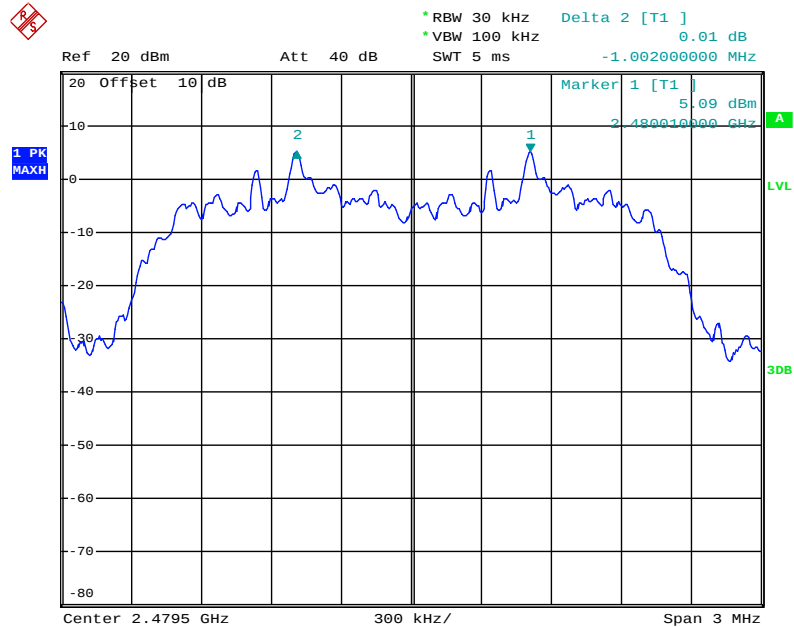
Date: 20.DEC.2017 16:48:26

Middle channel



Date: 20.DEC.2017 16:47:39

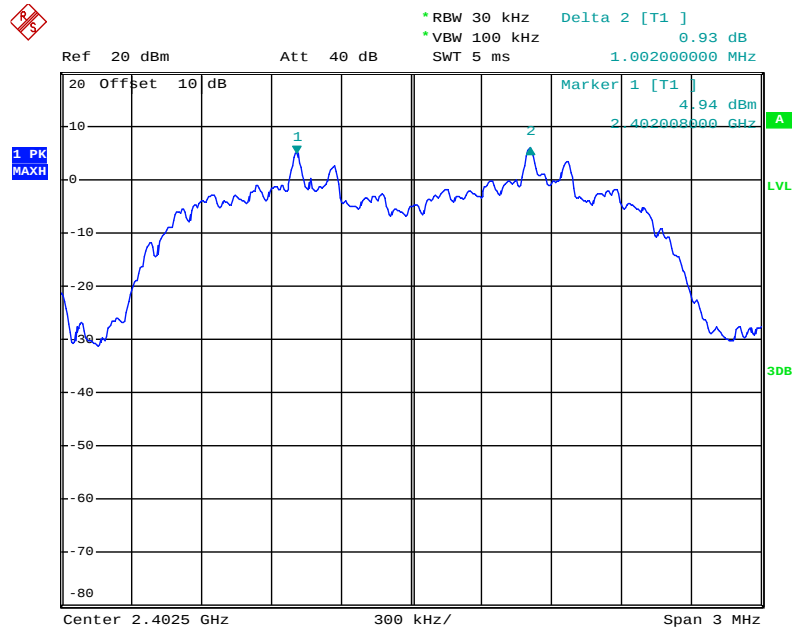
High channel



Date: 20.DEC.2017 16:46:37

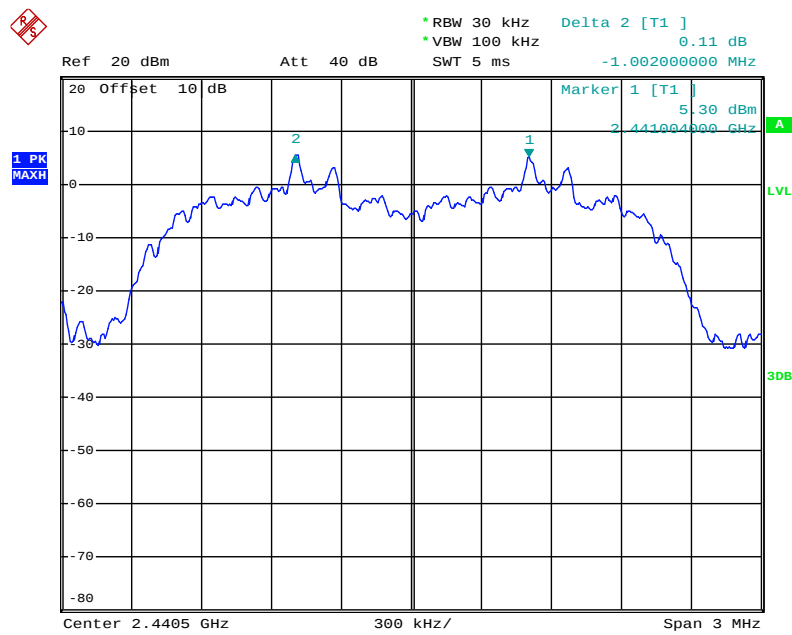
8DPSK Mode

Low channel



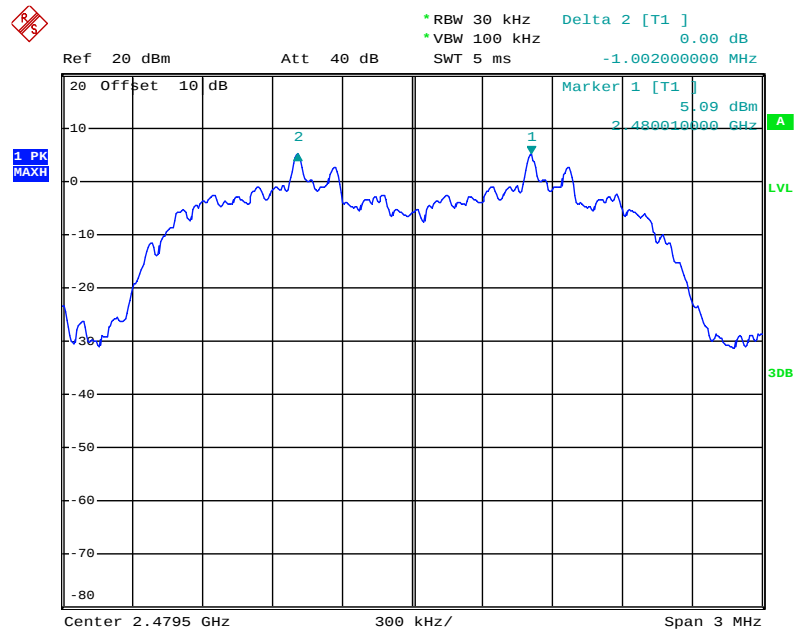
Date: 20.DEC.2017 16:50:07

Middle channel



Date: 20.DEC.2017 16:51:00

High channel



Date: 20.DEC.2017 16:51:56

7. NUMBER OF HOPPING FREQUENCY TEST

7.1. Block Diagram of Test Setup



(EUT: Bluetooth Headphone)

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.

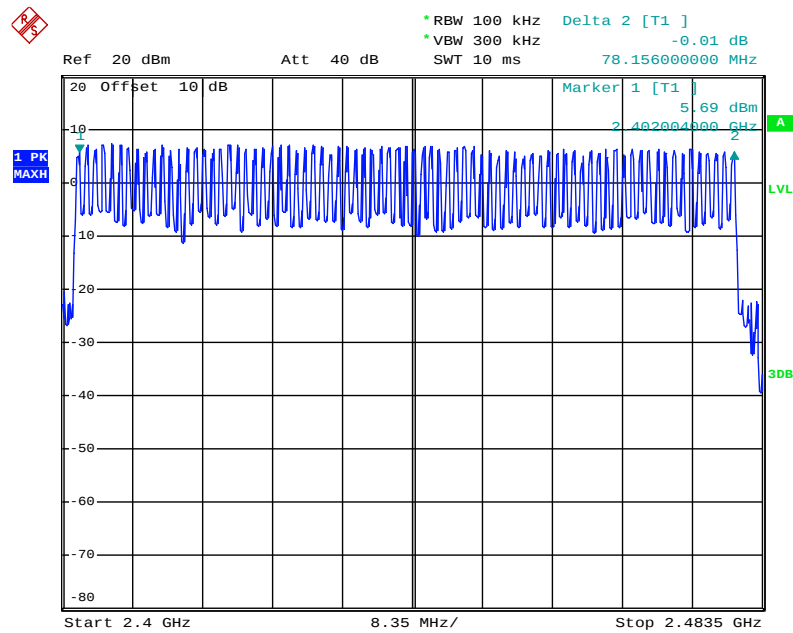
7.5.3. Max hold, view and count how many channel in the band.

7.6.Test Result

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

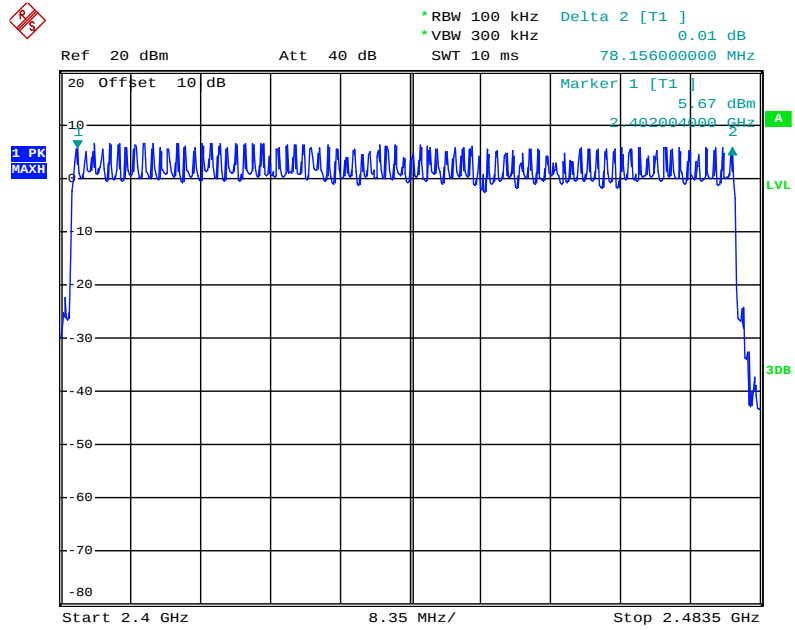
The spectrum analyzer plots are attached as below.

Number of hopping channels(GFSK)



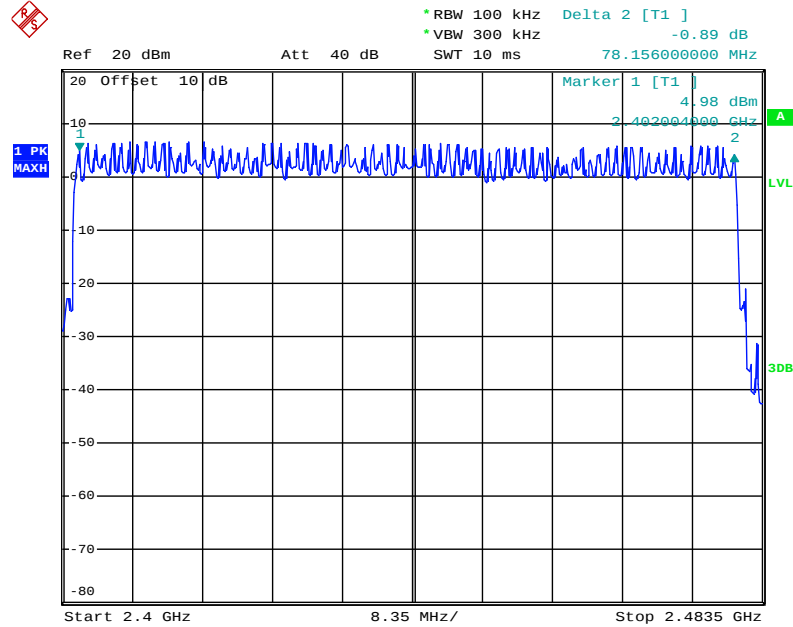
Date: 20.DEC.2017 16:25:05

Number of hopping channels($\pi/4$ -DQPSK)



Date: 20.DEC.2017 16:18:58

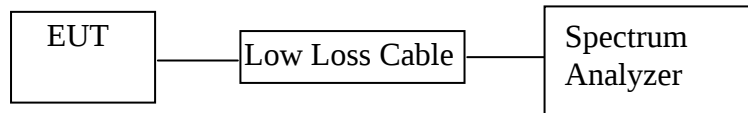
Number of hopping channels(8DPSK)



Date: 20.DEC.2017 16:15:40

8. DWELL TIME TEST

8.1. Block Diagram of Test Setup



(EUT: Bluetooth Headphone)

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

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 = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2 \times 79)) \times 31.6$				
DH3	2402	1.720	275.20	400
	2441	1.720	275.20	400
	2480	1.720	275.20	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4 \times 79)) \times 31.6$				
DH5	2402	2.980	317.87	400
	2441	3.010	321.07	400
	2480	2.980	317.87	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6 \times 79)) \times 31.6$				

II/4-DQPSK

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.450	144.00	400
	2441	0.450	144.00	400
	2480	0.450	144.00	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2 \times 79)) \times 31.6$				
DH3	2402	1.710	273.60	400
	2441	1.710	273.60	400
	2480	1.710	273.60	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4 \times 79)) \times 31.6$				
DH5	2402	3.000	320.00	400
	2441	3.000	320.00	400
	2480	3.000	320.00	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6 \times 79)) \times 31.6$				

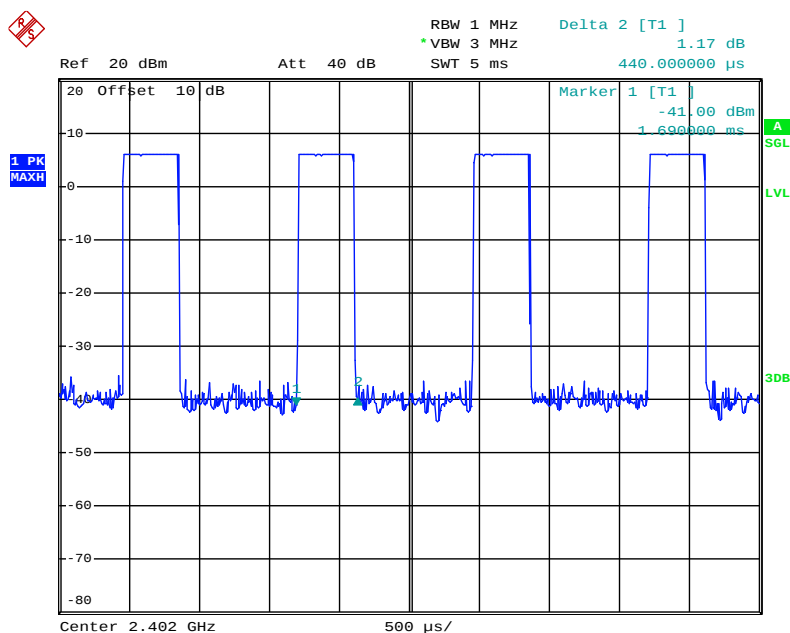
8DPSK Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.450	144.00	400
	2441	0.450	144.00	400
	2480	0.450	144.00	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2 \times 79)) \times 31.6$				
DH3	2402	1.710	273.60	400
	2441	1.710	273.60	400
	2480	1.710	273.60	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4 \times 79)) \times 31.6$				
DH5	2402	3.000	320.00	400
	2441	3.000	320.00	400
	2480	3.000	320.00	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6 \times 79)) \times 31.6$				

The spectrum analyzer plots are attached as below.

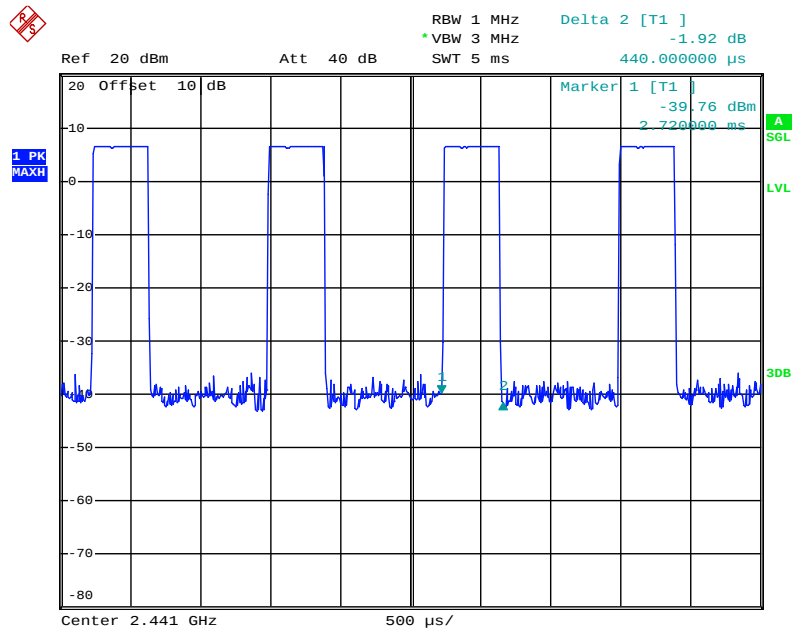
GFSK Mode

DH1 Low channel



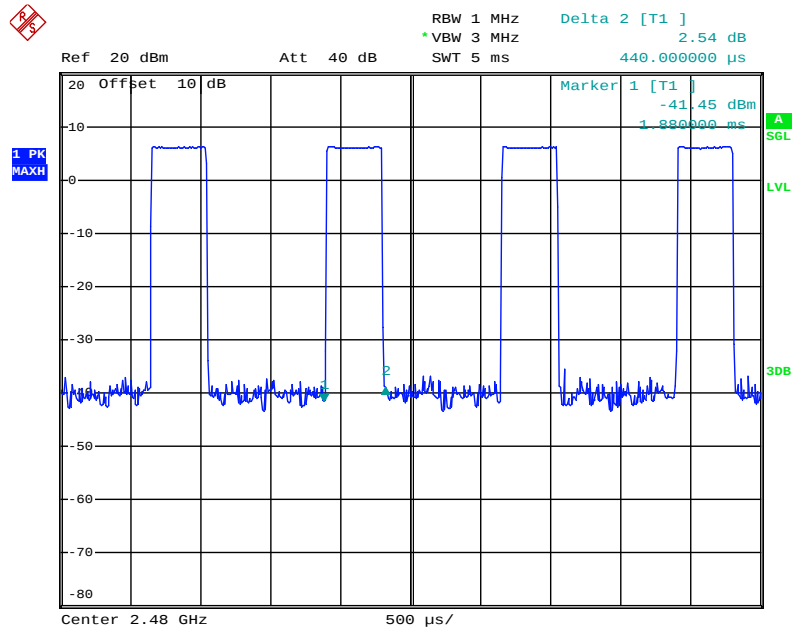
Date: 20.DEC.2017 16:54:30

DH1 Middle channel



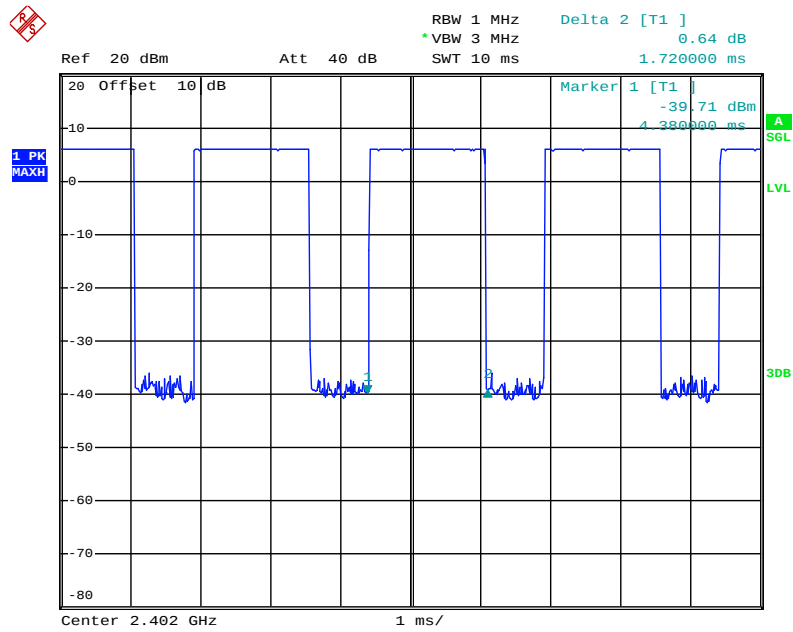
Date: 20.DEC.2017 16:55:25

DH1 High channel



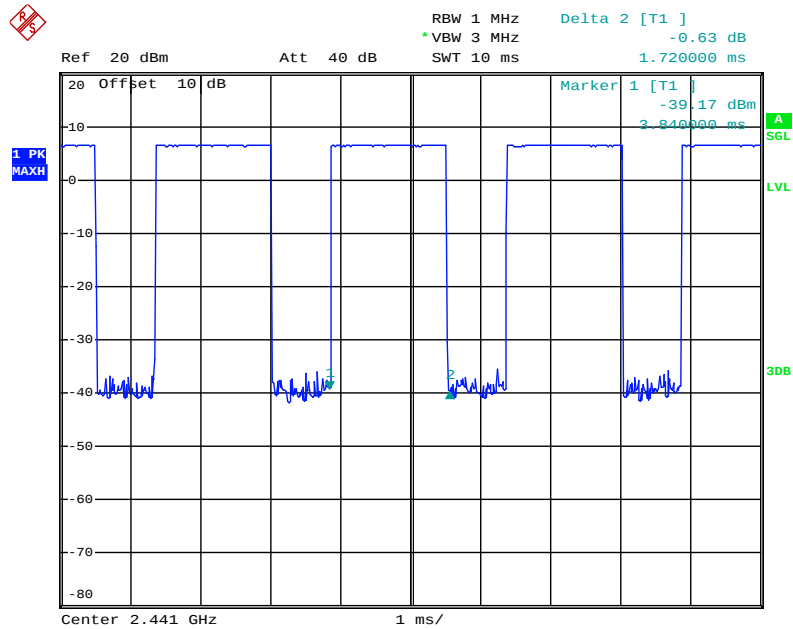
Date: 20.DEC.2017 16:56:00

DH3 Low channel



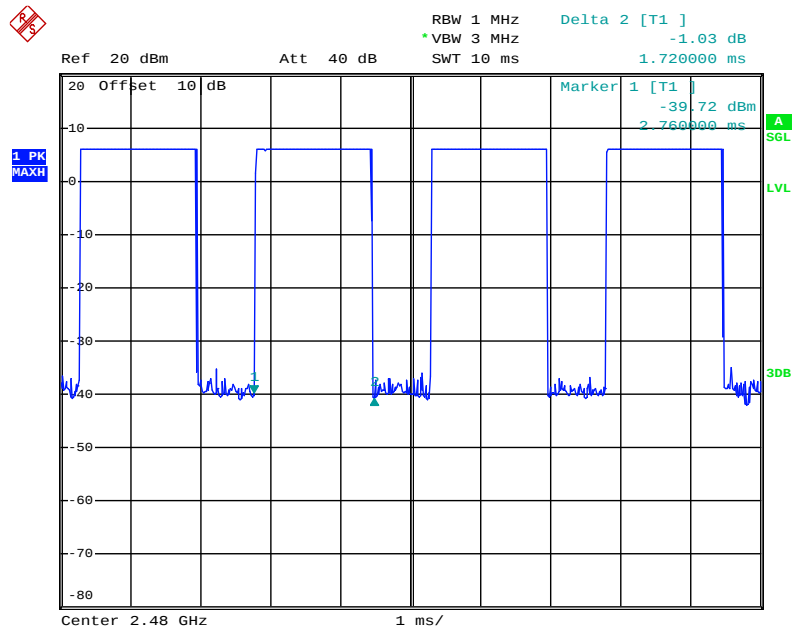
Date: 20.DEC.2017 16:56:58

DH3 Middle channel



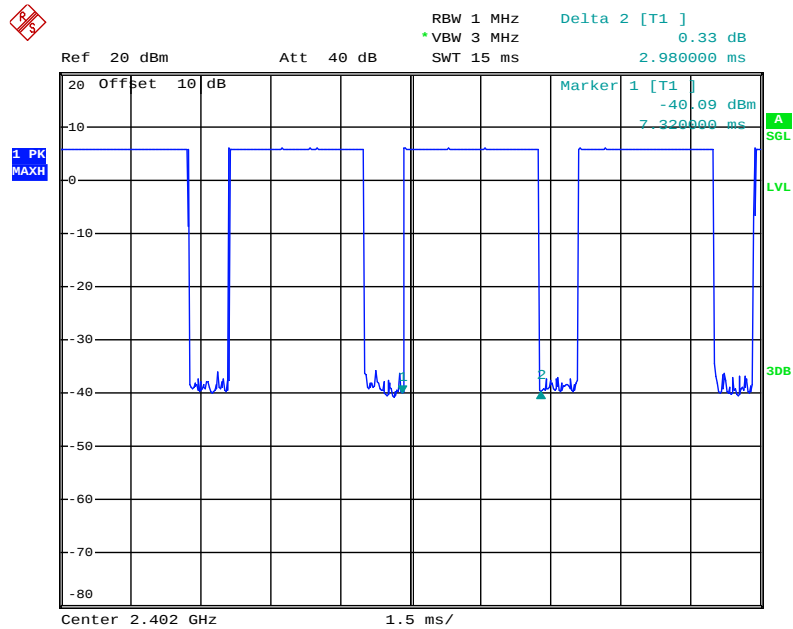
Date: 20.DEC.2017 16:57:31

DH3 High channel



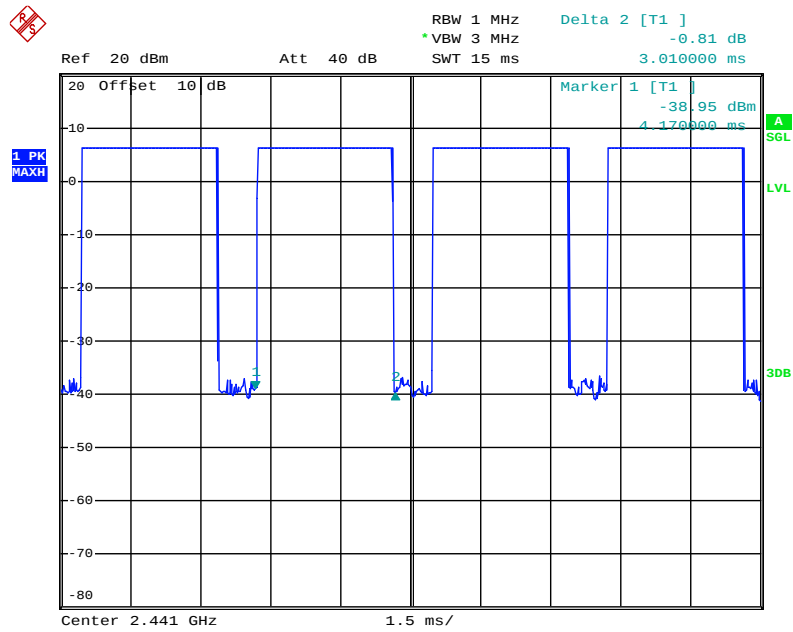
Date: 20.DEC.2017 16:58:03

DH5 Low channel



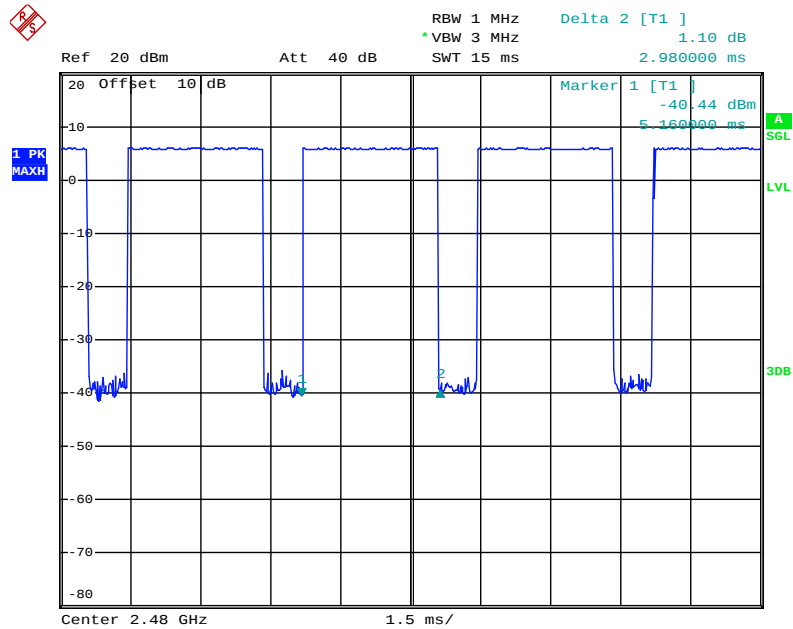
Date: 20.DEC.2017 16:59:02

DH5 Middle channel



Date: 20.DEC.2017 16:59:53

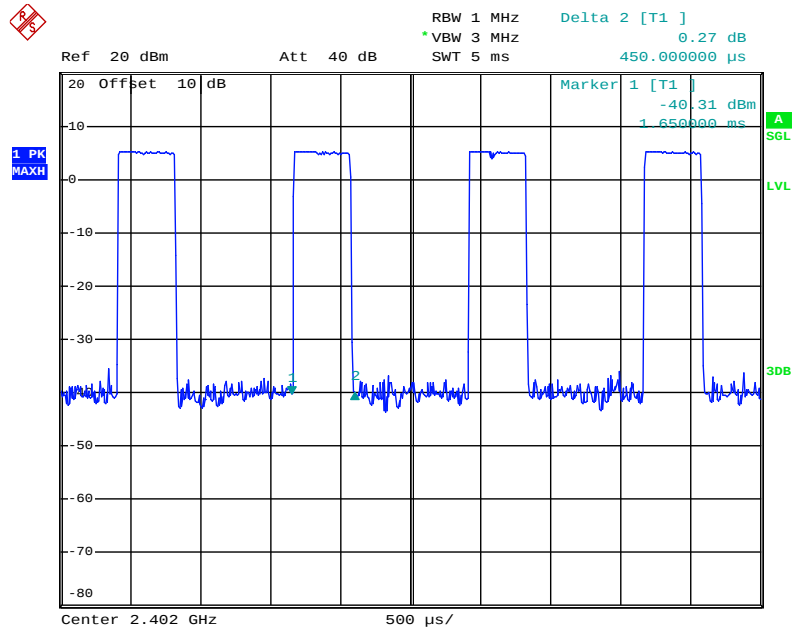
DH5 High channel



Date: 20.DEC.2017 17:00:27

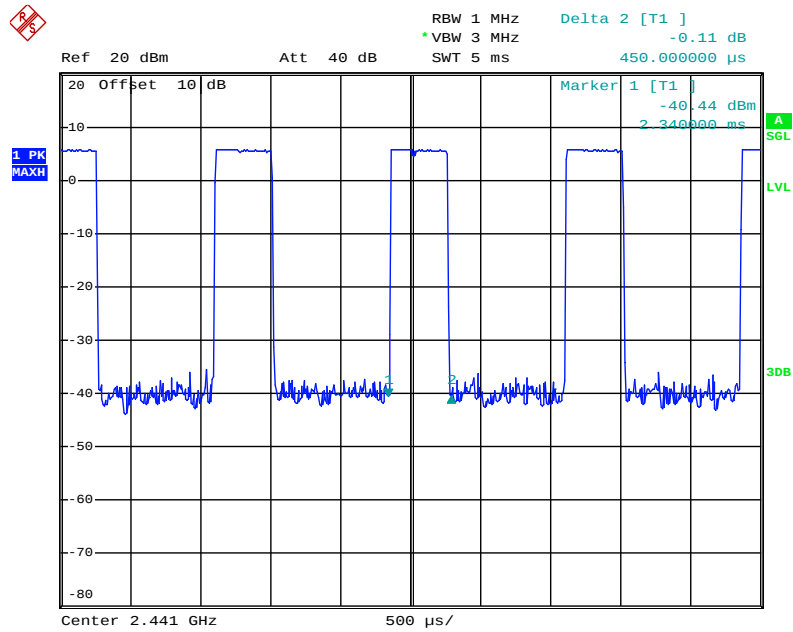
Π/4-DQPSK

2DH1 Low channel



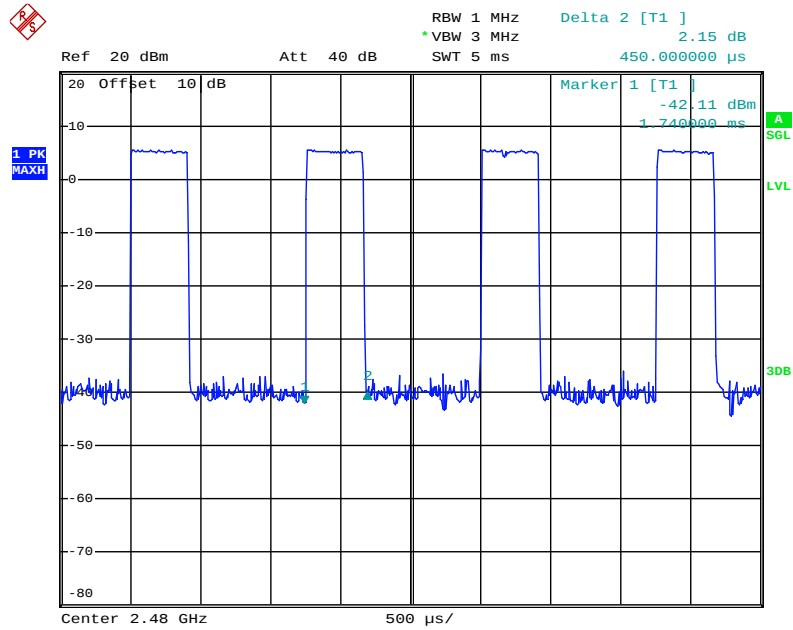
Date: 20.DEC.2017 17:01:40

2DH1 Middle channel



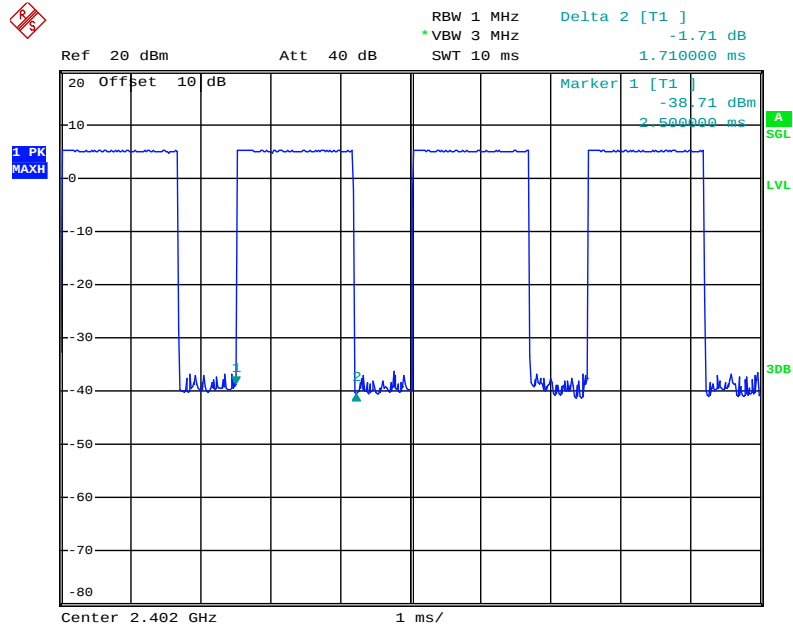
Date: 20.DEC.2017 17:02:55

2DH1 High channel



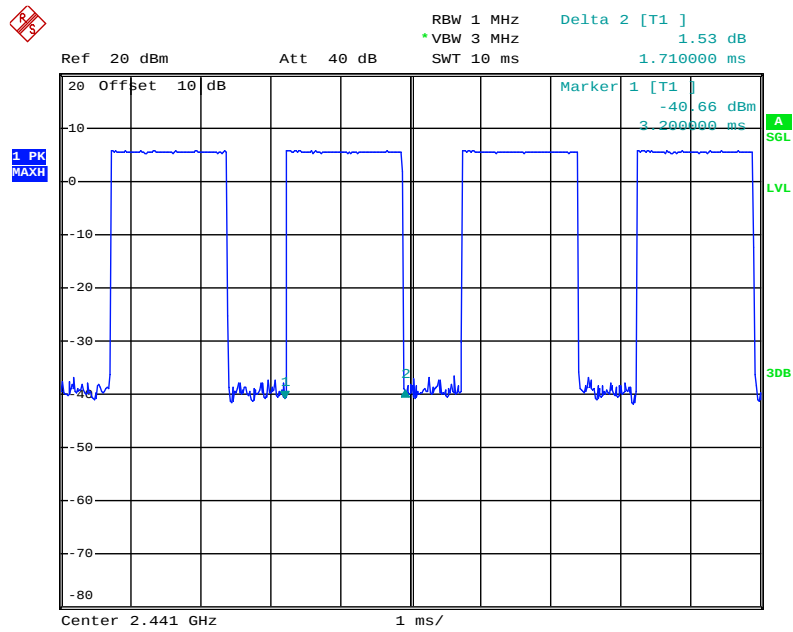
Date: 20.DEC.2017 17:03:27

2DH3 Low channel



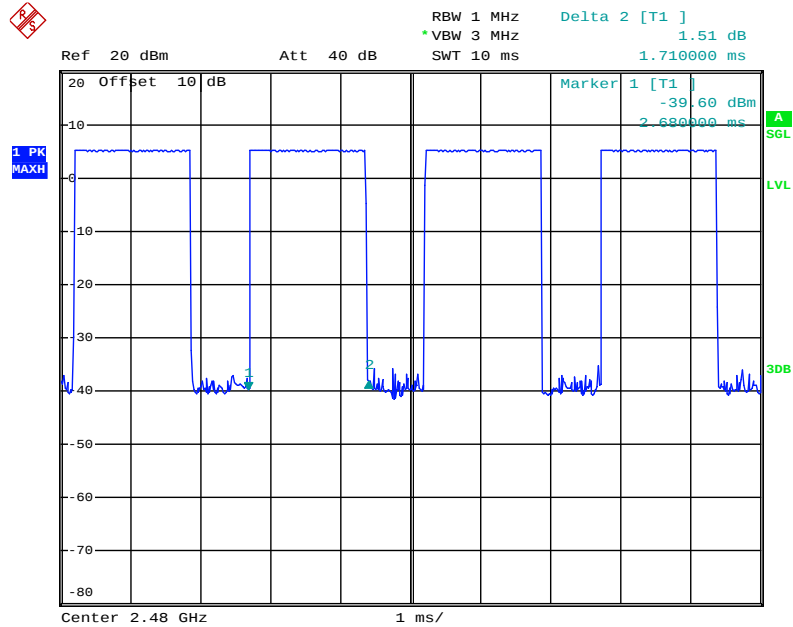
Date: 20.DEC.2017 17:04:26

2DH3 Middle channel



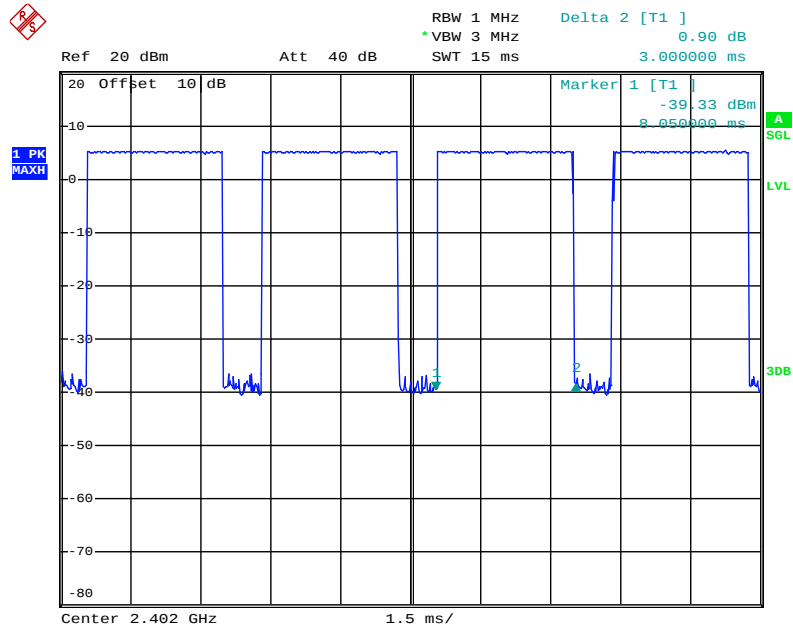
Date: 20.DEC.2017 17:05:14

2DH3 High channel



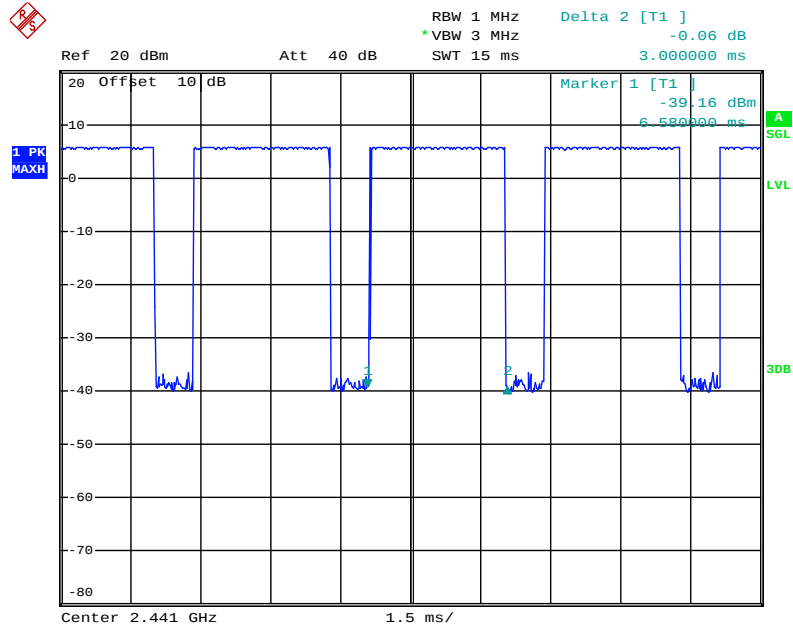
Date: 20.DEC.2017 17:06:06

2DH5 Low channel



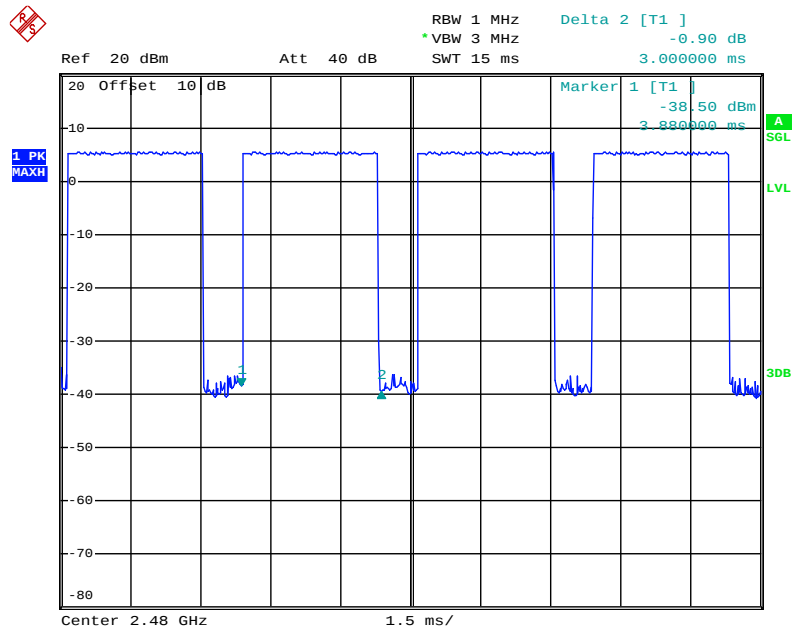
Date: 20.DEC.2017 17:07:03

2DH5 Middle channel



Date: 20.DEC.2017 17:07:35

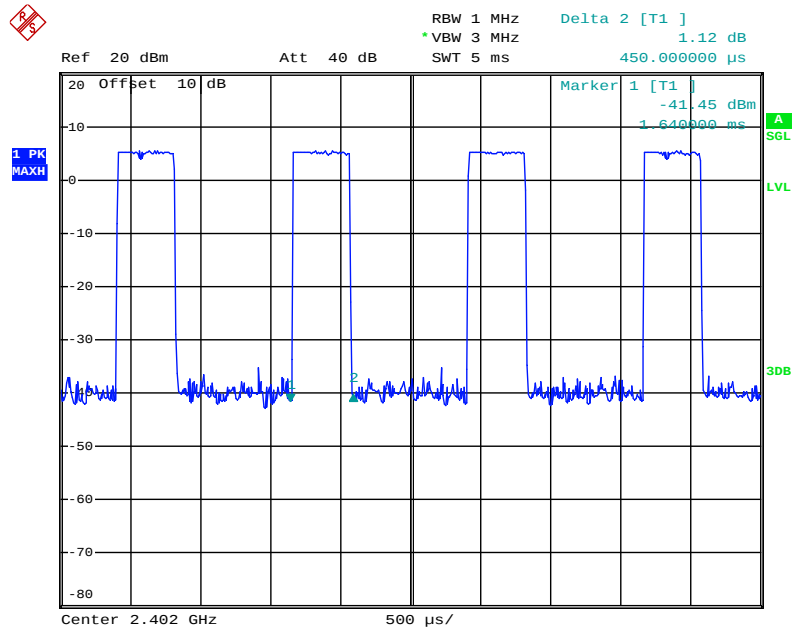
2DH5 High channel



Date: 20.DEC.2017 17:08:06

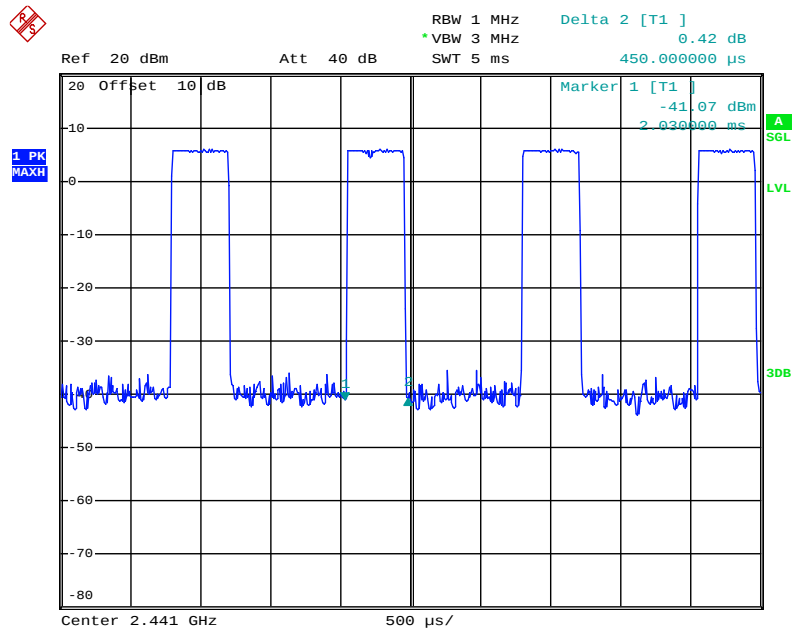
8DPSK Mode

3DH1 Low channel



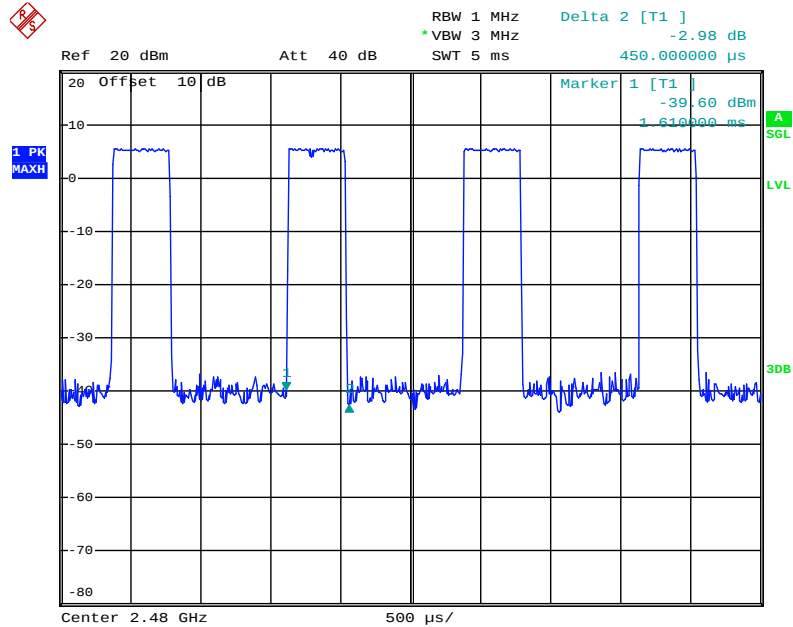
Date: 20.DEC.2017 17:09:38

3DH1 Middle channel



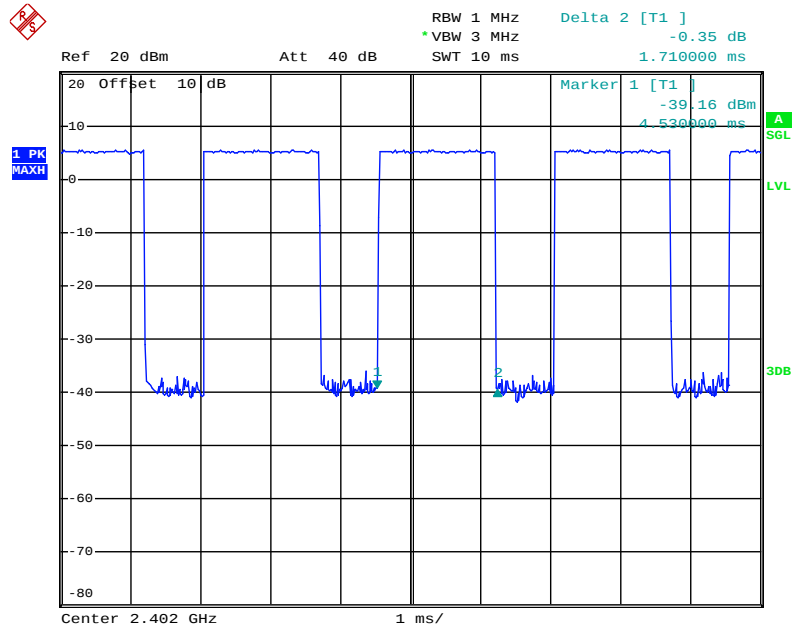
Date: 20.DEC.2017 17:10:33

3DH1 High channel



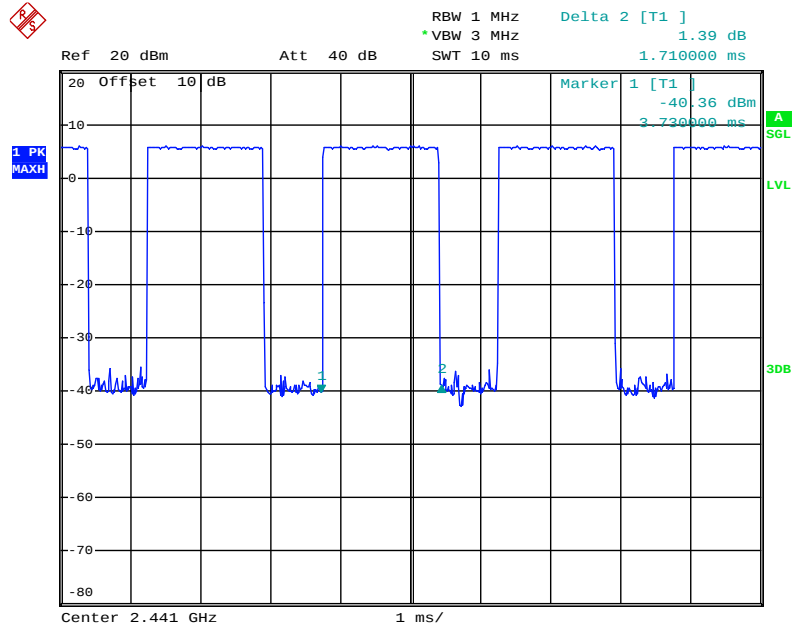
Date: 20.DEC.2017 17:11:22

3DH3 Low channel



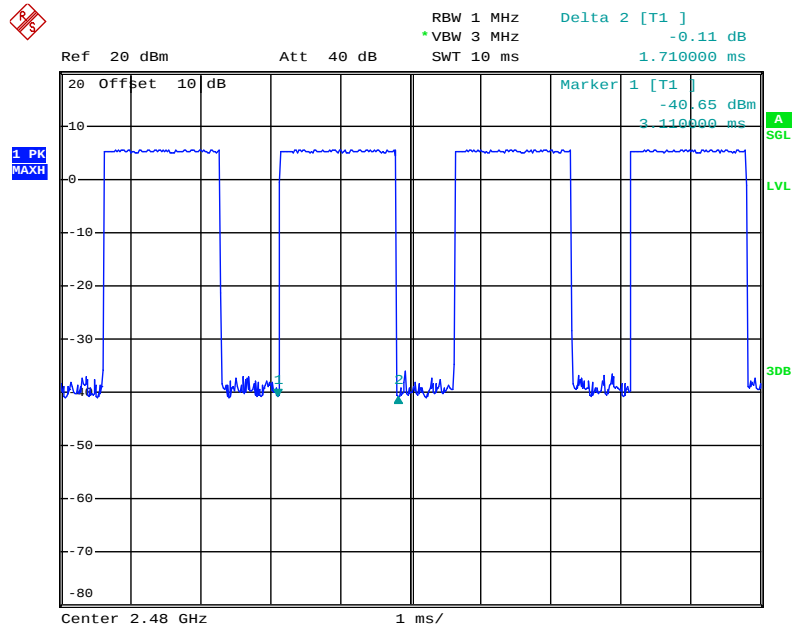
Date: 20.DEC.2017 17:12:44

3DH3 Middle channel



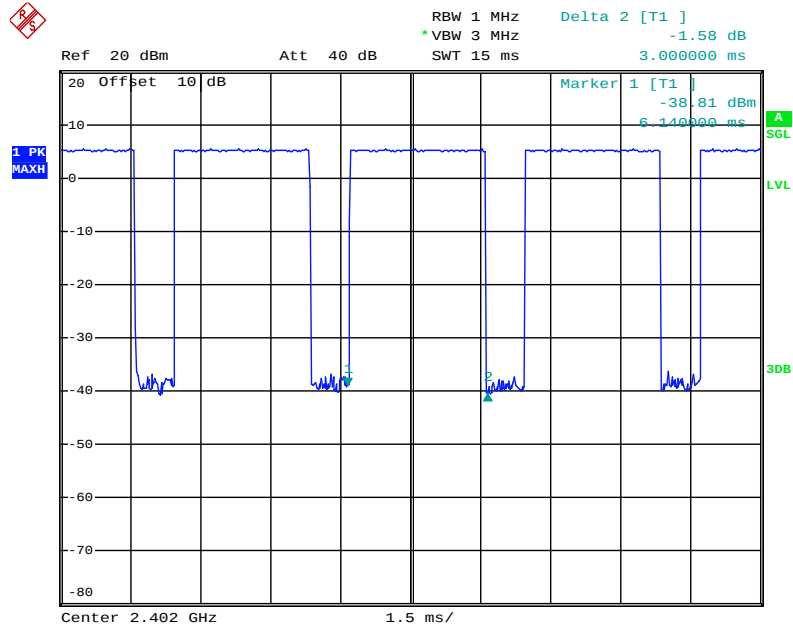
Date: 20.DEC.2017 17:13:19

3DH3 High channel



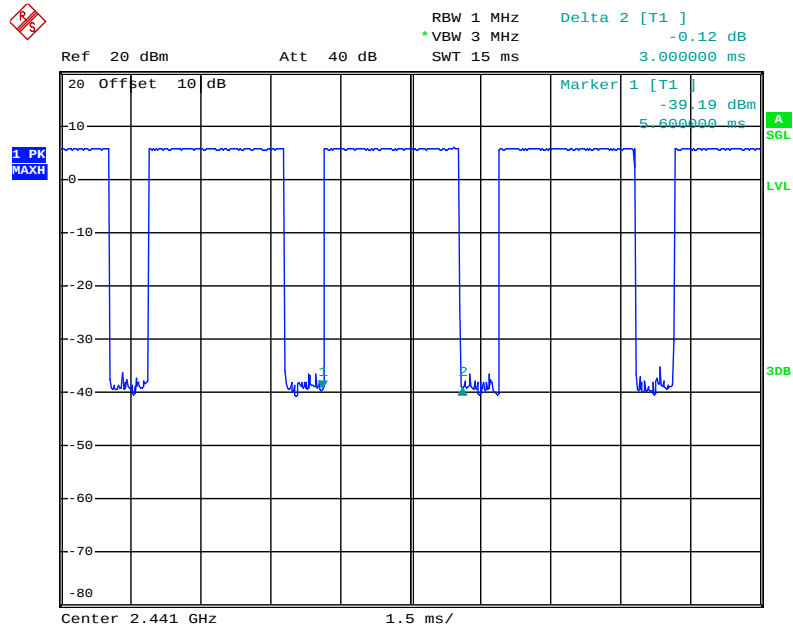
Date: 20.DEC.2017 17:13:46

3DH5 Low channel



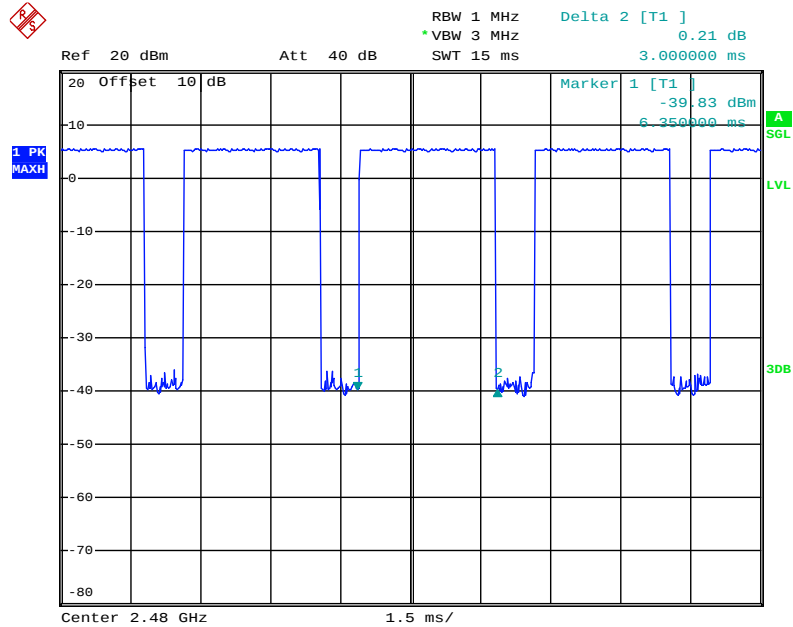
Date: 20.DEC.2017 17:14:51

3DH5 Middle channel



Date: 20.DEC.2017 17:15:28

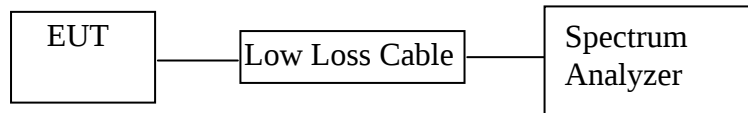
3DH5 High channel



Date: 20.DEC.2017 17:16:43

9. MAXIMUM PEAK OUTPUT POWER TEST

9.1. Block Diagram of Test Setup



(EUT: Bluetooth Headphone)

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

GFSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	6.65/0.0046	21 / 0.125
Middle	2441	7.10/0.0051	21 / 0.125
High	2480	6.76/0.0047	21 / 0.125

II/4-DQPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	5.87/0.0037	21 / 0.125
Middle	2441	6.47/0.0044	21 / 0.125
High	2480	6.09/0.0041	21 / 0.125

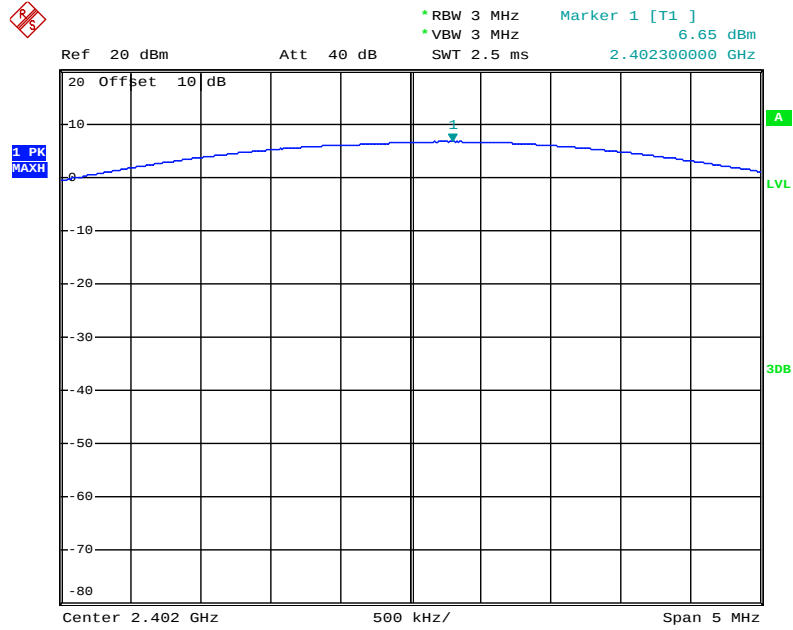
8DPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	5.83/0.0038	21 / 0.125
Middle	2441	6.41/0.0044	21 / 0.125
High	2480	6.09/0.0041	21 / 0.125

The spectrum analyzer plots are attached as below.

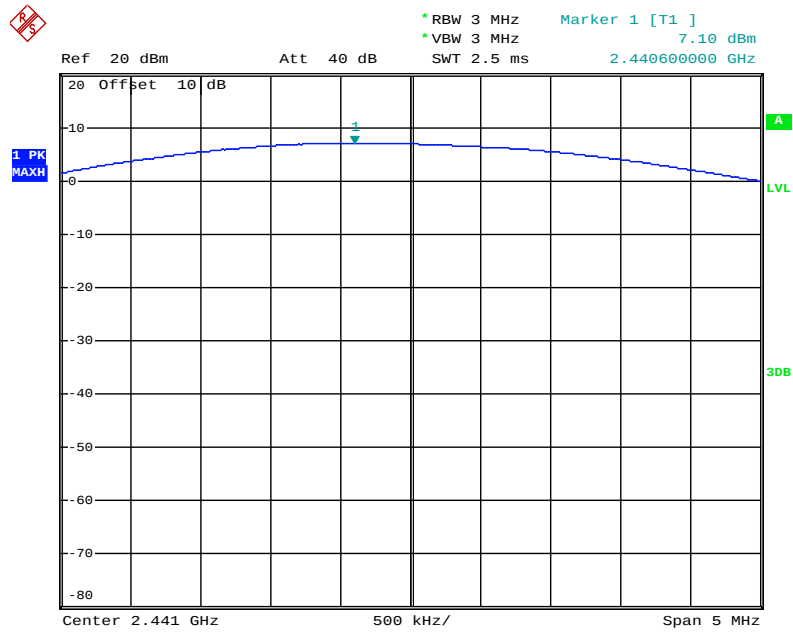
GFSK Mode

Low channel



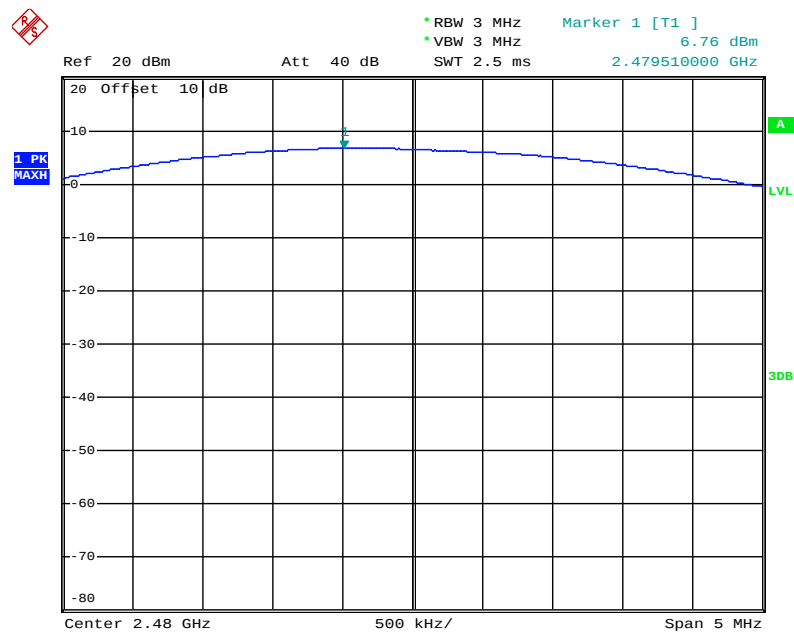
Date: 20.DEC.2017 16:38:10

Middle channel



Date: 20.DEC.2017 16:39:25

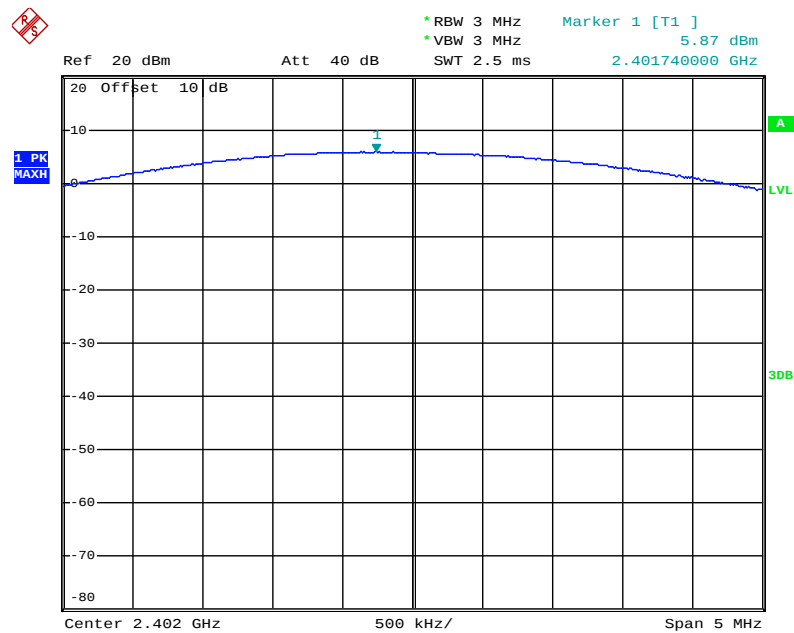
High channel



Date: 20.DEC.2017 16:39:48

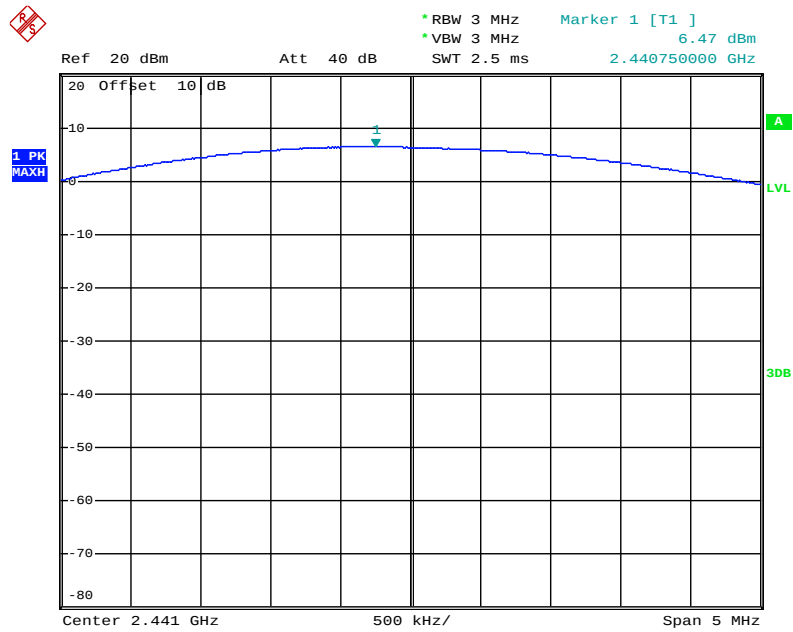
Π/4-DQPSK Mode

Low channel



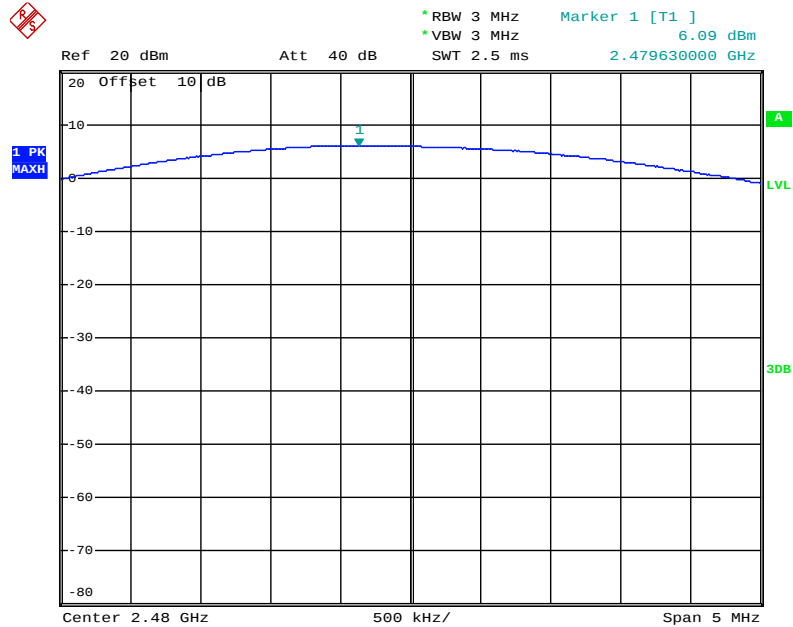
Date: 20.DEC.2017 16:34:54

Middle channel



Date: 20.DEC.2017 16:36:11

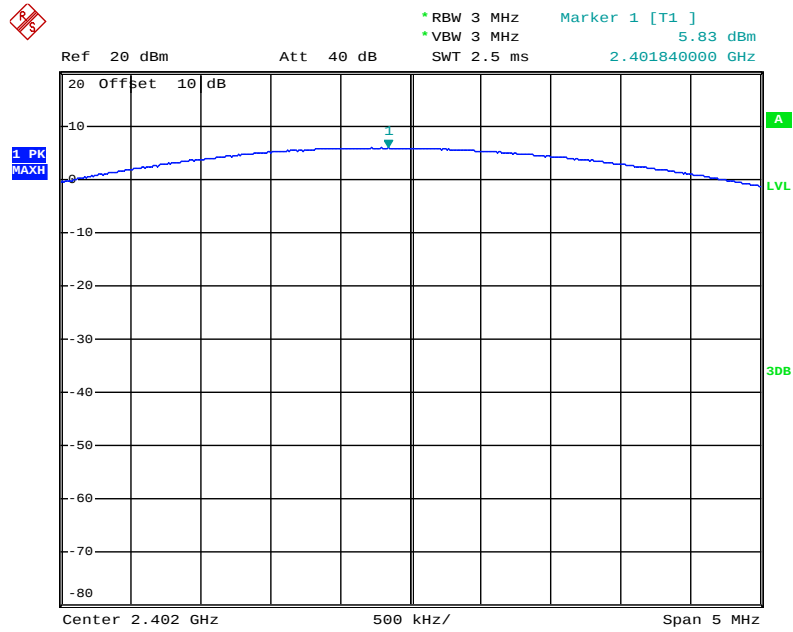
High channel



Date: 20.DEC.2017 16:36:58

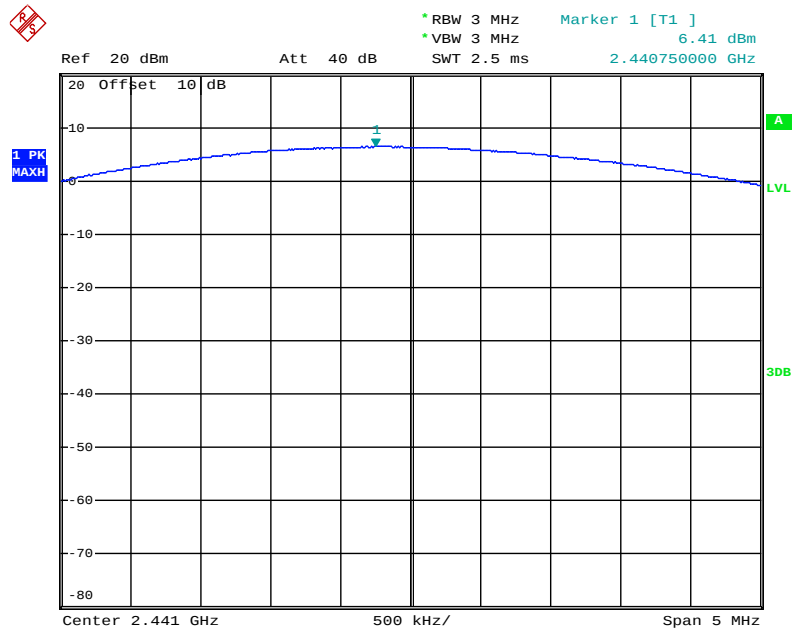
8DPSK Mode

Low channel



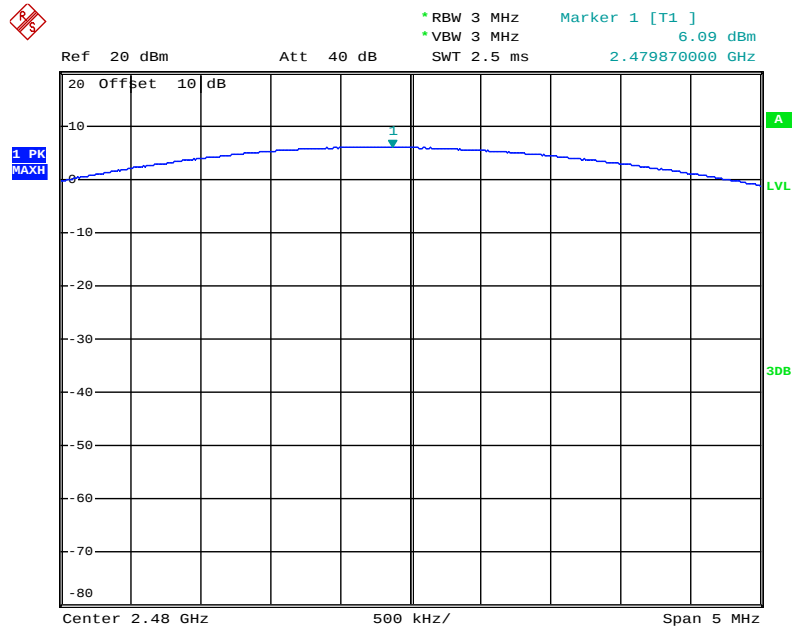
Date: 20.DEC.2017 16:34:20

Middle channel



Date: 20.DEC.2017 16:33:55

High channel

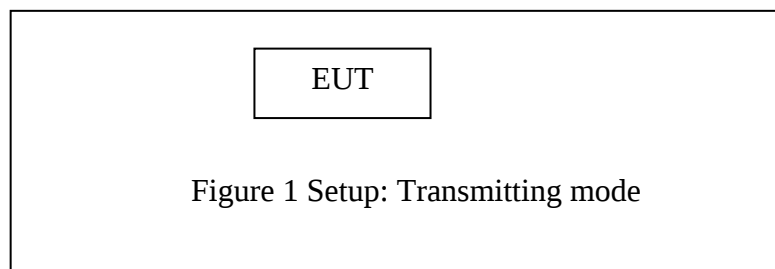


Date: 20.DEC.2017 16:33:19

10.RADIATED EMISSION TEST

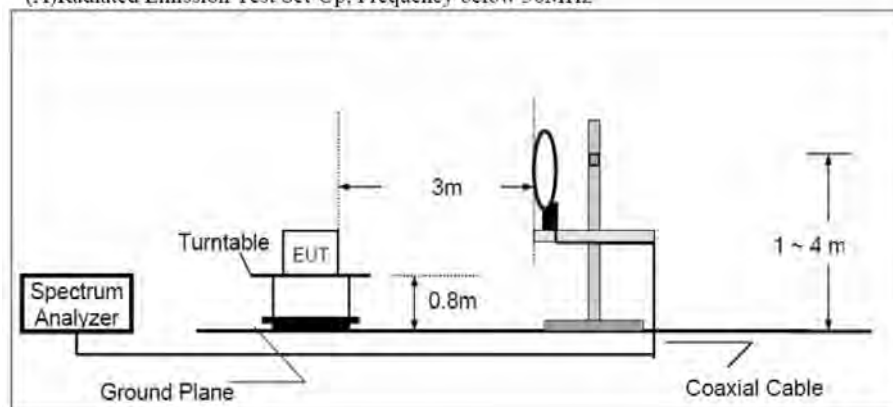
10.1.Block Diagram of Test Setup

10.1.1.Block diagram of connection between the EUT and peripherals

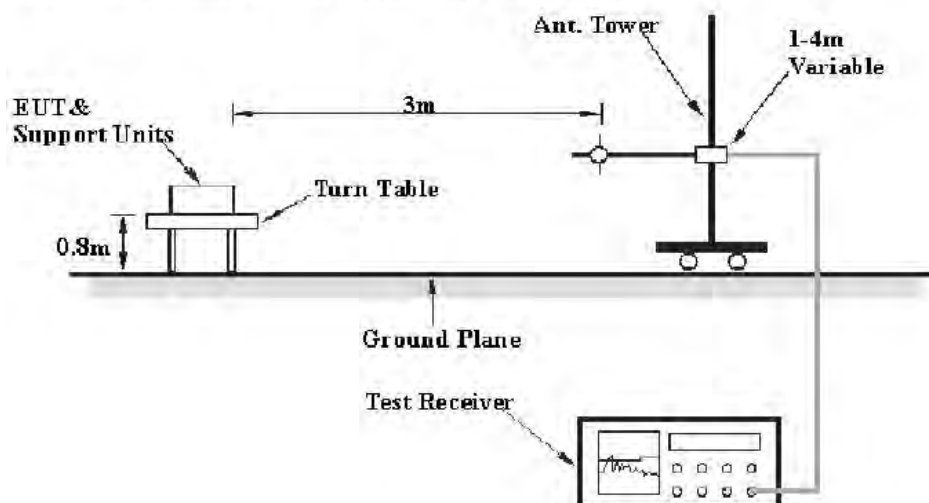


10.1.2.Semi-Anechoic Chamber Test Setup Diagram

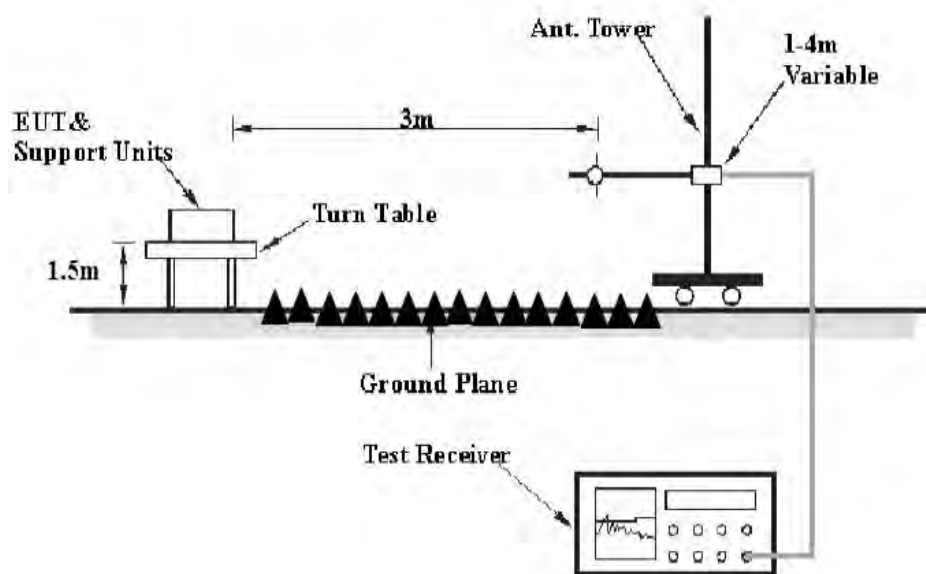
(A) Radiated Emission Test Set-Up, Frequency below 30MHz



(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			

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

²Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 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 (dB μ v)	Factor (dB/m)	Result (dB μ v/m)	Limit (dB μ v/m)	Margin (dB)	Remark
X.XX	28.66	-15.19	13.47	40.0	-26.53	QP

Frequency(MHz) = Emission frequency in MHz

Reading(dB μ v) = Uncorrected Analyzer/Receiver reading

Factor (dB/m) = Antenna factor + Cable Loss – Amplifier gain

Result(dB μ v/m) = Reading(dB μ v) + Factor(dB/m)

Limit (dB μ v/m) = Limit stated in standard

Margin (dB) = Result(dB μ v/m) - Limit (dB μ v/m)

QP = Quasi-peak Reading

Calculation Formula:

Margin(dB) = Result (dB μ V/m)–Limit(dB μ V/m)

Result(dB μ V/m)= Reading(dB μ V)+ Factor(dB/m)

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

10.8.The Field Strength of Radiation Emission Measurement Results

PASS.

The frequency range from 9kHz to 26.5GHz is checked.

Note: 1.We tested GFSK mode, $\Pi/4$ -DQPSK Mode & 8QPSK mode and recorded the worst case data (GFSK mode) for all test mode.

2. The radiation emissions from 9KHz-30MHz and 18-26.5GHz are not reported, because the test values lower than the limits of 20dB.

The spectrum analyzer plots are attached as below.

Below 1GHz



ACCURATE TECHNOLOGY CO., LTD.

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

Site: 1# Chamber

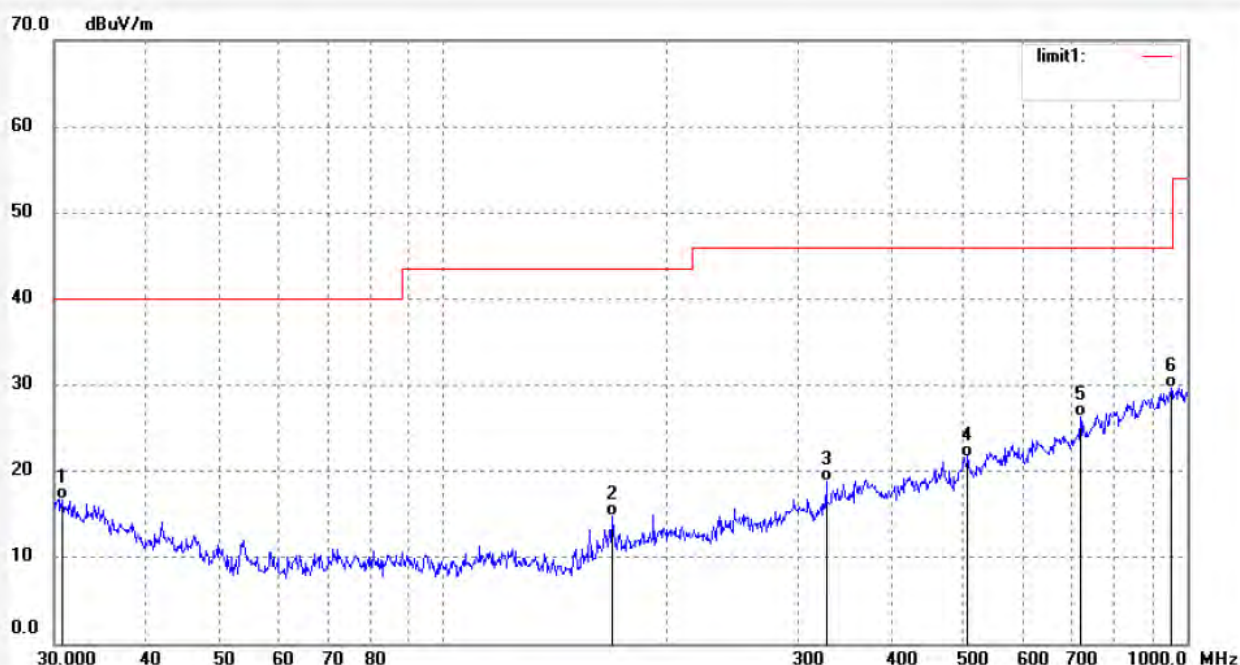
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR2017 #1365
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX 2402MHz (GFSK)
Model: BeActiv S100
Manufacturer: Zylux

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/26
Time: 17:47:17
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	30.7469	37.07	-20.39	16.68	40.00	-23.32	QP	200	256	
2	168.9970	40.85	-26.11	14.74	43.50	-28.76	QP	200	102	
3	327.1553	39.05	-20.31	18.74	46.00	-27.26	QP	200	133	
4	507.5693	37.77	-16.07	21.70	46.00	-24.30	QP	200	92	
5	718.7246	37.39	-11.05	26.34	46.00	-19.66	QP	200	103	
6	952.0000	35.90	-6.27	29.63	46.00	-16.37	QP	200	222	



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Job No.: STAR2017 #1366

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2402MHz (GFSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

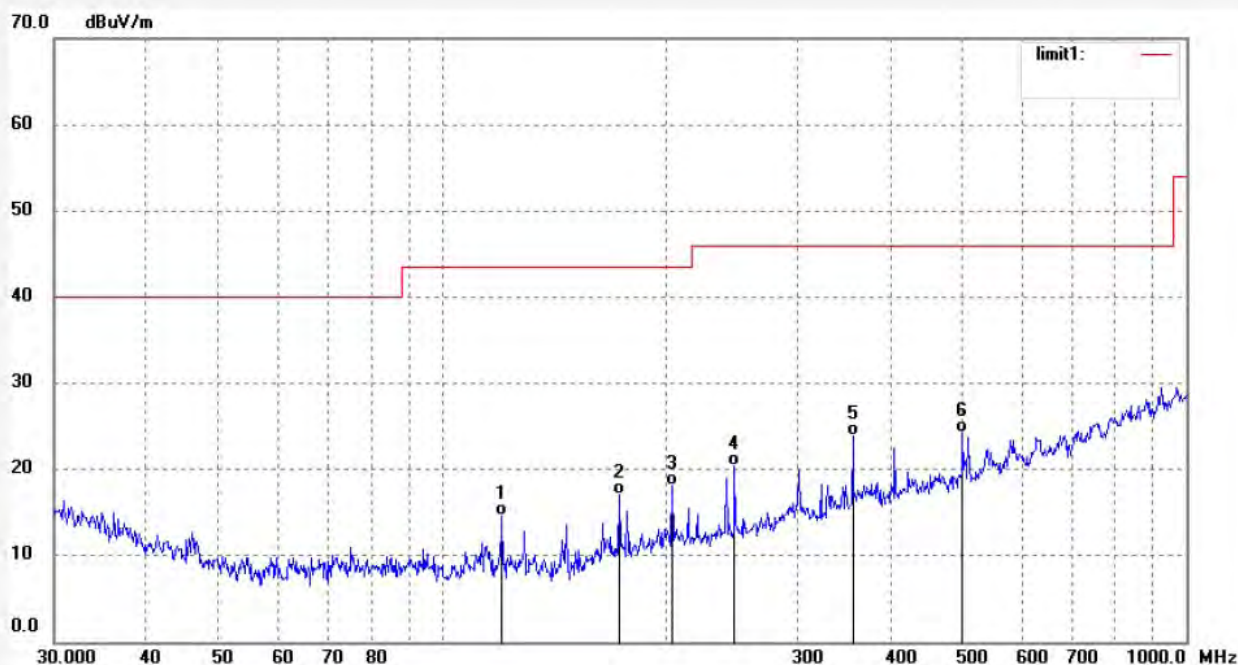
Date: 2017/12/26

Time: 17:48:48

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	120.1888	41.97	-27.44	14.53	43.50	-28.97	QP	150	123	
2	172.5975	43.38	-26.27	17.11	43.50	-26.39	QP	150	212	
3	203.5886	42.32	-24.23	18.09	43.50	-25.41	QP	150	236	
4	246.9901	44.02	-23.66	20.36	46.00	-25.64	QP	150	255	
5	355.9397	42.93	-19.09	23.84	46.00	-22.16	QP	150	146	
6	500.4857	40.57	-16.31	24.26	46.00	-21.74	QP	150	209	



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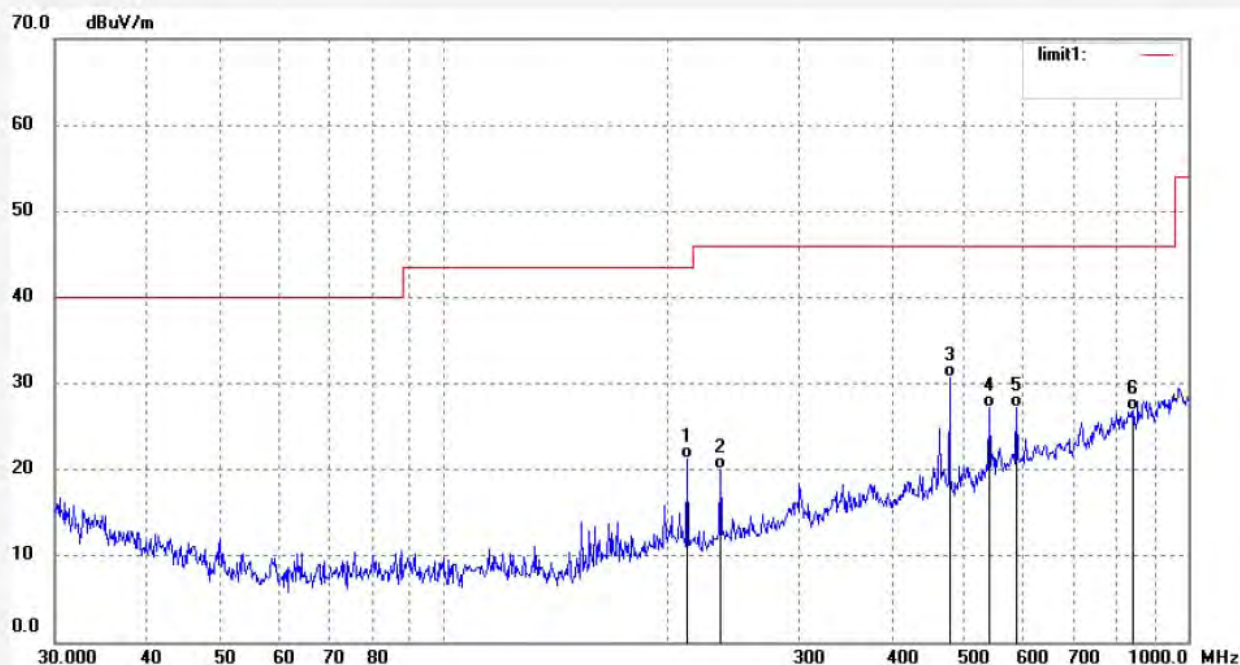
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR2017 #1367
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX 2441MHz (GFSK)
Model: BeActiv S100
Manufacturer: Zylux

Polarization: Vertical
Power Source: DC 3.7V
Date: 2017/12/26
Time: 17:49:31
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	212.3559	45.29	-24.09	21.20	43.50	-22.30	QP	150	74	
2	235.1346	43.81	-23.79	20.02	46.00	-25.98	QP	150	69	
3	478.1394	47.37	-16.65	30.72	46.00	-15.28	QP	150	221	
4	540.7071	42.31	-15.09	27.22	46.00	-18.78	QP	150	301	
5	588.2804	41.11	-13.93	27.18	46.00	-18.82	QP	150	325	
6	844.8028	34.94	-8.13	26.81	46.00	-19.19	QP	150	245	



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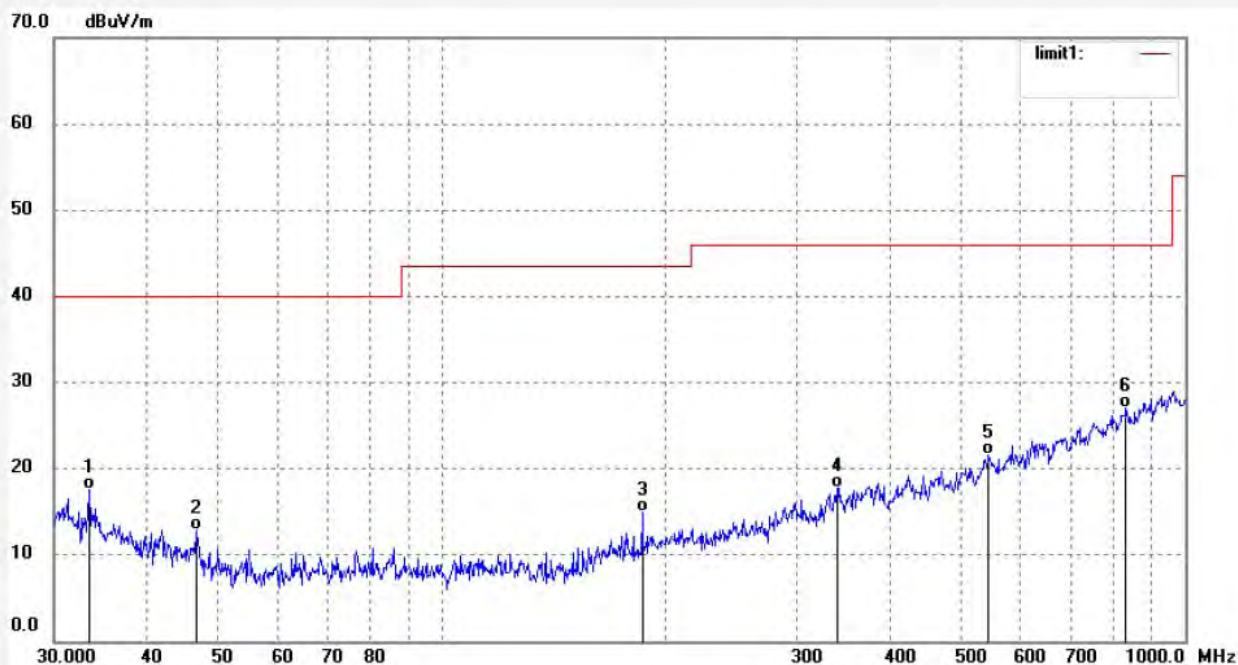
F1,Bldg.A,Changyuan New Material Port Keyuan Rd,
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Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR2017 #1368
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX 2441MHz (GFSK)
Model: BeActiv S100
Manufacturer: Zylux

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/26
Time: 17:50:19
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	33.4520	38.66	-21.06	17.60	40.00	-22.40	QP	200	136	
2	46.7077	37.80	-25.02	12.78	40.00	-27.22	QP	200	122	
3	185.8143	40.48	-25.48	15.00	43.50	-28.50	QP	200	106	
4	340.0473	37.59	-19.75	17.84	46.00	-28.16	QP	200	168	
5	544.5202	36.64	-14.97	21.67	46.00	-24.33	QP	200	187	
6	833.0126	35.35	-8.33	27.02	46.00	-18.98	QP	200	144	



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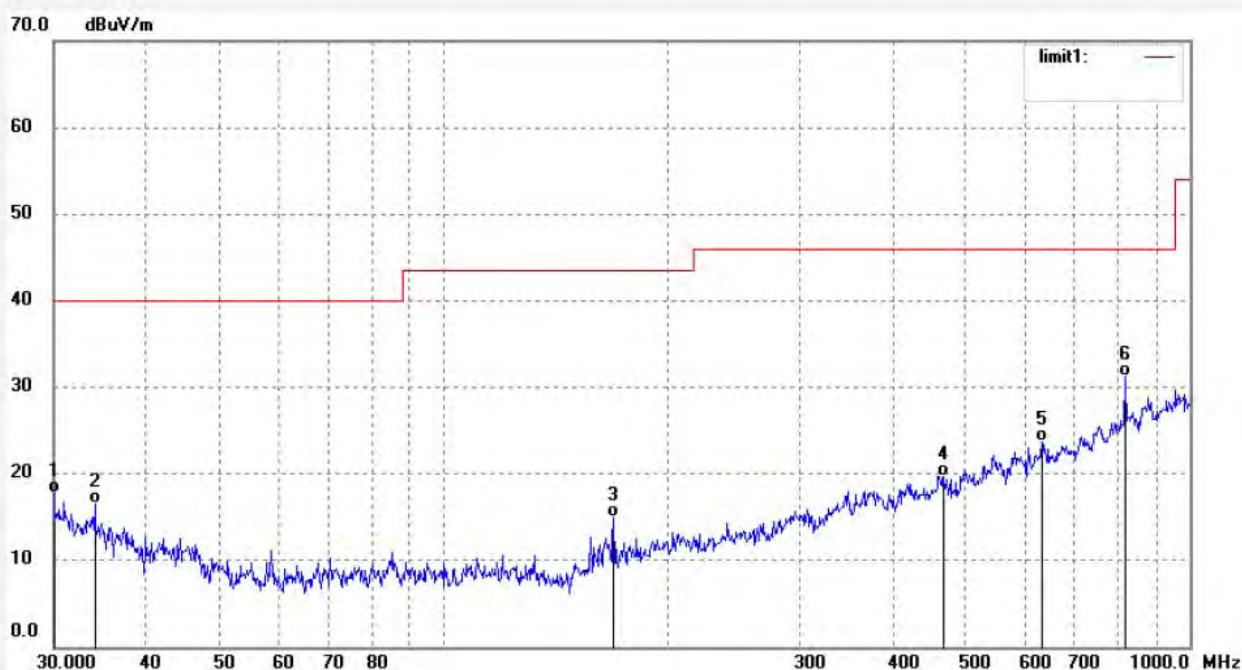
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR2017 #1369
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX 2480MHz (GFSK)
Model: BeActiv S100
Manufacturer: Zylux

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/26
Time: 17:51:10
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	30.0000	37.89	-20.20	17.69	40.00	-22.31	QP	200	132	
2	34.0449	37.79	-21.22	16.57	40.00	-23.43	QP	200	103	
3	168.9970	41.04	-26.11	14.93	43.50	-28.57	QP	200	125	
4	468.1650	36.48	-16.80	19.68	46.00	-26.32	QP	200	167	
5	633.3284	36.68	-13.00	23.68	46.00	-22.32	QP	200	193	
6	818.5062	39.83	-8.61	31.22	46.00	-14.78	QP	200	178	



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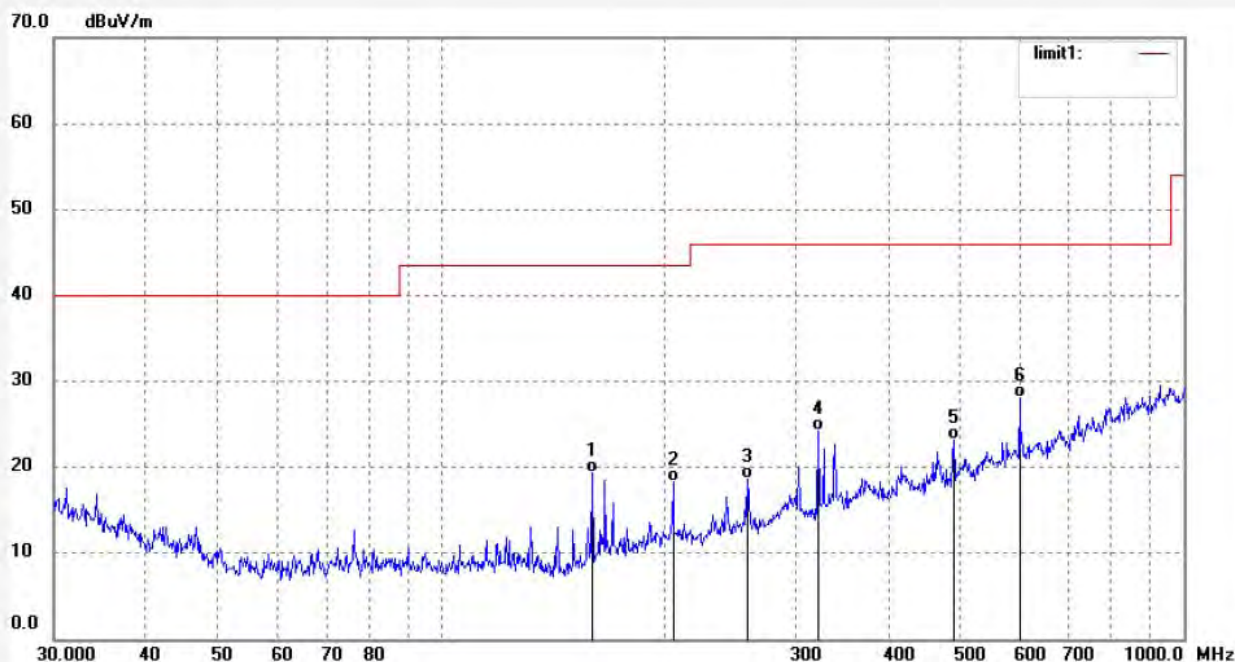
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Site: 1# Chamber
Tel:+86-0755-26503290
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Job No.: STAR2017 #1370
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX 2480MHz (GFSK)
Model: BeActiv S100
Manufacturer: Zylux

Polarization: Vertical
Power Source: DC 3.7V
Date: 2017/12/26
Time: 17:52:51
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	159.7586	46.39	-27.09	19.30	43.50	-24.20	QP	150	342	
2	205.0243	42.49	-24.16	18.33	43.50	-25.17	QP	150	233	
3	258.5334	41.82	-23.14	18.68	46.00	-27.32	QP	150	207	
4	321.4581	44.83	-20.56	24.27	46.00	-21.73	QP	150	178	
5	490.0451	39.67	-16.46	23.21	46.00	-22.79	QP	150	168	
6	600.8140	41.80	-13.67	28.13	46.00	-17.87	QP	150	125	

Above 1GHz



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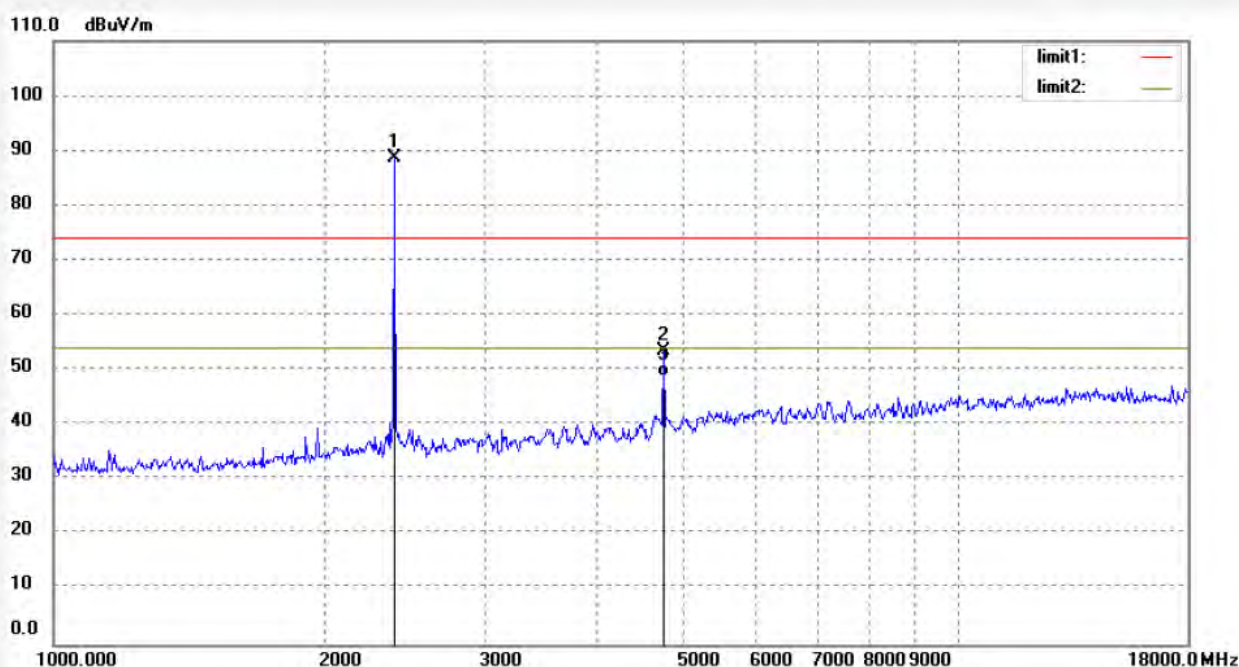
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
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Job No.: star2017 #1346
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX 2402MHz (GFSK)
Model: BeActiv S100
Manufacturer: Zylux

Polarization: Horizontal
Power Source: DC 3.7V
Date: 17/12/26/
Time: 9/17/42
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.019	94.97	-6.37	88.60			peak	200	145	
2	4804.057	52.67	0.70	53.37	74.00	-20.63	peak	200	261	
3	4804.057	48.21	0.70	48.91	54.00	-5.09	AVG	200	112	

Note: Average measurement with peak detection at No.3



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Job No.: star2017 #1347

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2402MHz (GFSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

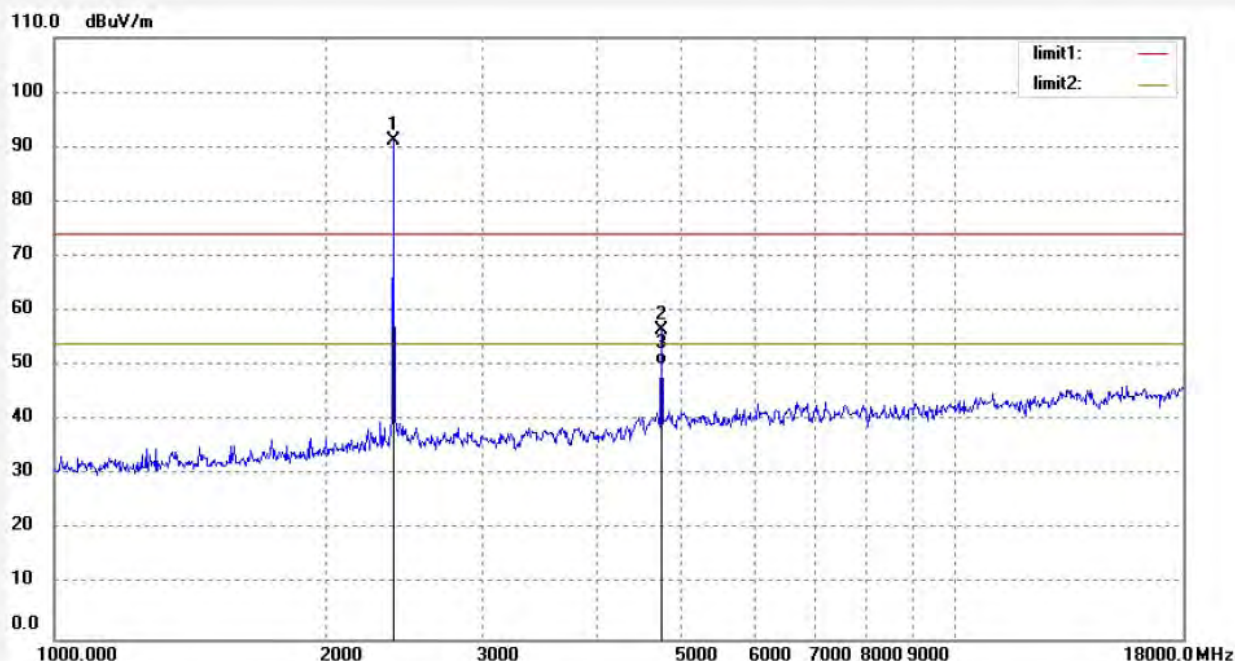
Date: 17/12/26/

Time: 9/19/29

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.019	97.47	-6.37	91.10			peak	150	73	
2	4804.057	55.72	0.70	56.42	74.00	-17.58	peak	150	108	
3	4804.057	49.60	0.70	50.30	54.00	-3.70	AVG	150	122	

Note: Average measurement with peak detection at No.3



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Job No.: star2017 #1349

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2441MHz (GFSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Horizontal

Power Source: DC 3.7V

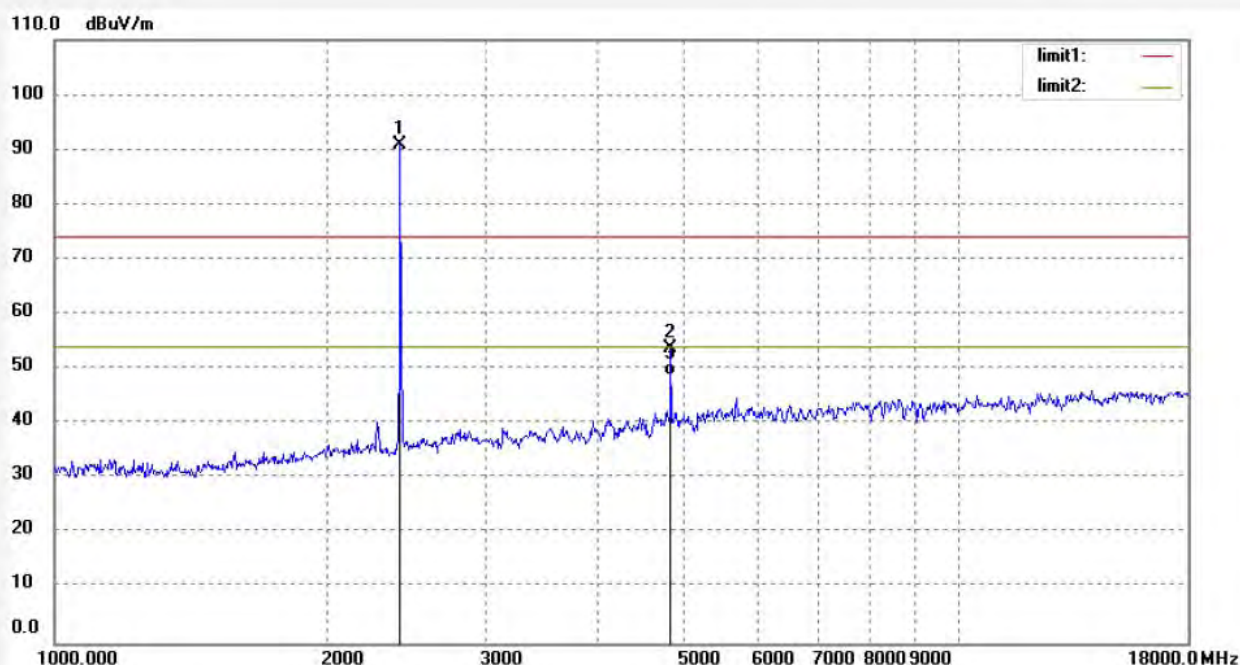
Date: 17/12/26/

Time: 9/43/37

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.021	97.14	-6.20	90.94			peak	200	63	
2	4882.024	52.57	1.07	53.64	74.00	-20.36	peak	200	118	
3	4882.024	47.85	1.07	48.92	54.00	-5.08	AVG	200	169	

Note: Average measurement with peak detection at No.3



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Job No.: star2017 #1348

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2441MHz (GFSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

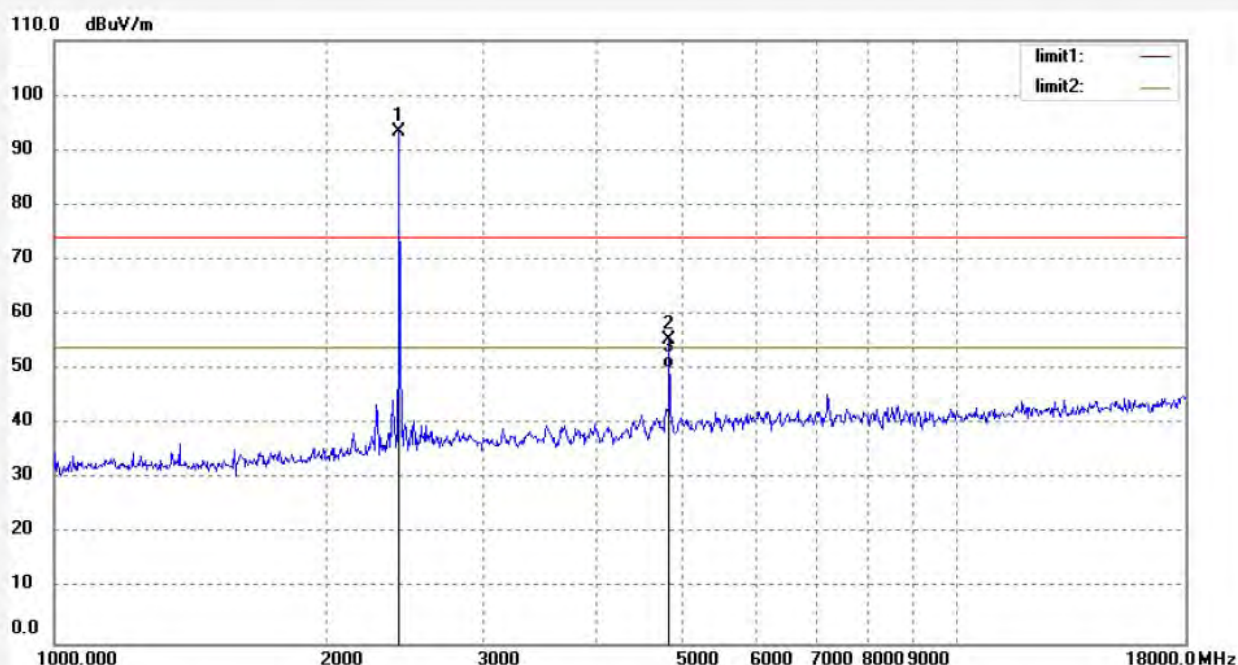
Date: 17/12/26/

Time: 9/41/47

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.021	99.49	-6.20	93.29			peak	150	315	
2	4882.324	54.48	1.07	55.55	74.00	-18.45	peak	150	276	
3	4882.324	49.00	1.07	50.07	54.00	-3.93	AVG	150	169	

Note: Average measurement with peak detection at No.3



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Job No.: star2017 #1350

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2480MHz (GFSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Horizontal

Power Source: DC 3.7V

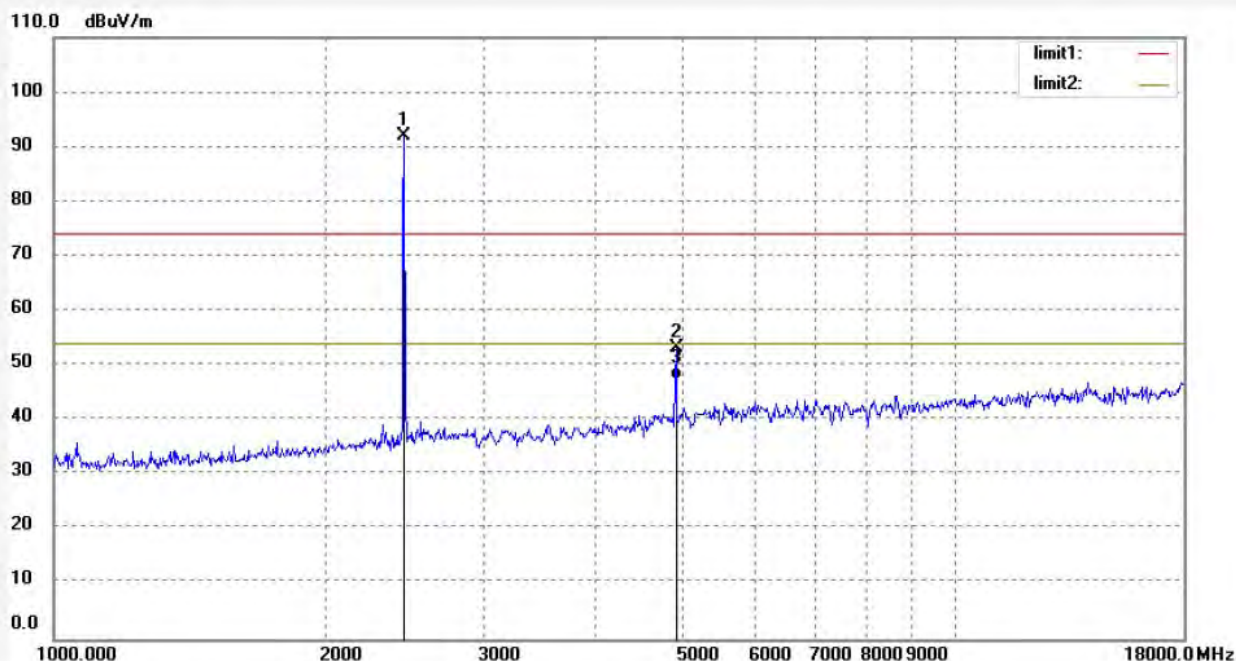
Date: 17/12/26/

Time: 9/45/55

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.034	98.08	-6.04	92.04			peak	200	114	
2	4960.144	51.72	1.50	53.22	74.00	-20.78	peak	200	138	
3	4960.144	45.97	1.50	47.47	54.00	-6.53	AVG	200	241	

Note: Average measurement with peak detection at No.3



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Job No.: star2017 #1351

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2480MHz (GFSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

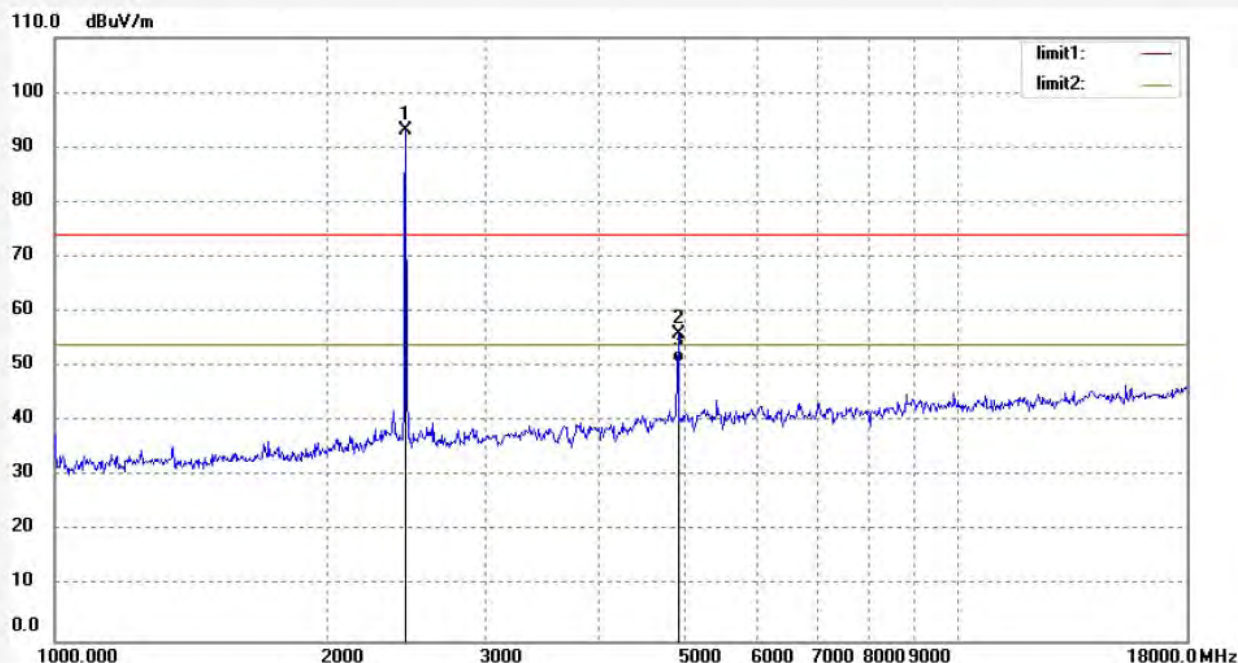
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Time: 9/47/33

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Distance: 3m

Note: Report No.:ATE20172078

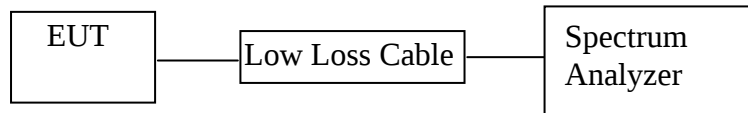


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.034	99.20	-6.04	93.16			peak	150	74	
2	4960.444	54.33	1.50	55.83	74.00	-18.17	peak	150	190	
3	4960.444	49.25	1.50	50.75	54.00	-3.25	AVG	150	213	

Note: Average measurement with peak detection at No.3

11.BAND EDGE COMPLIANCE TEST

11.1.Block Diagram of Test Setup



(EUT: Bluetooth Headphone)

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.

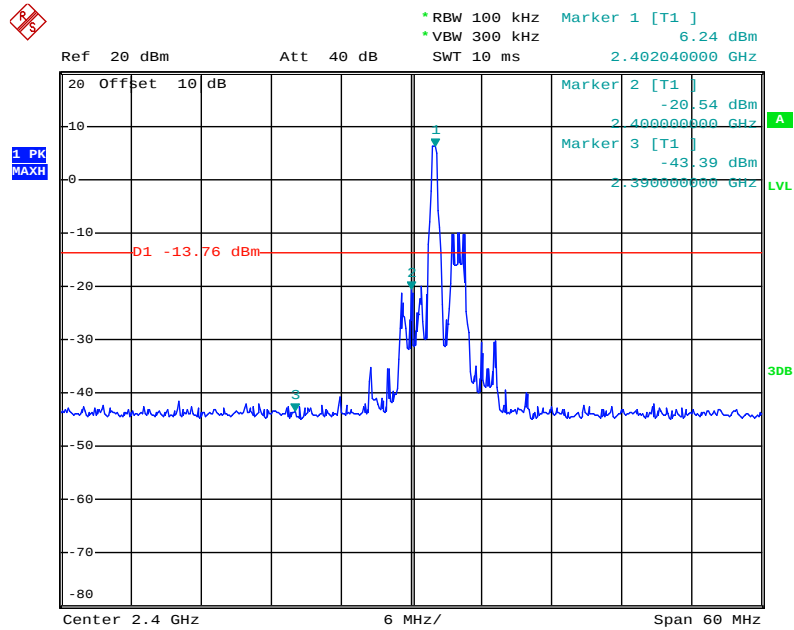
11.5.3. The band edges was measured and recorded.

11.6. Test Result

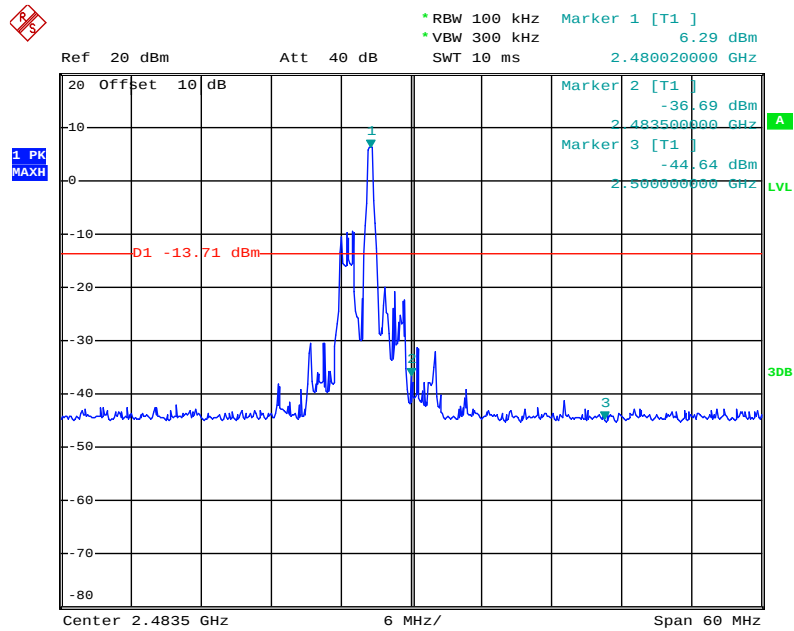
Note: Both hopping-on mode and hopping-off mode had been pre-tested, and only the worst case was recorded in the test report.

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
GFSK Mode		
2400.00	26.78	> 20dBc
2483.50	42.98	> 20dBc
Π/4-DQPSK Mode		
2400.00	28.01	> 20dBc
2483.50	48.13	> 20dBc
8DPSK Mode		
2400.00	28.42	> 20dBc
2483.50	46.84	> 20dBc

GFSK Mode

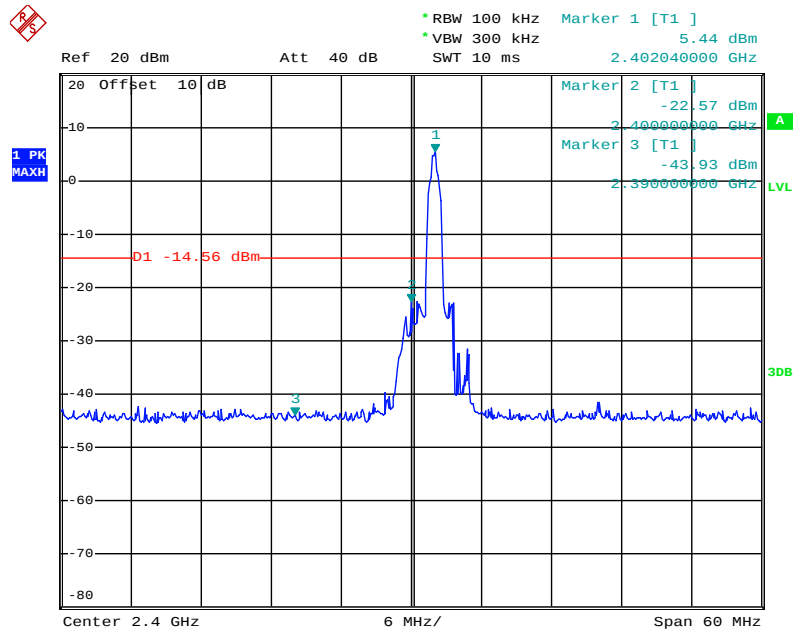


Date: 20.DEC.2017 16:27:21

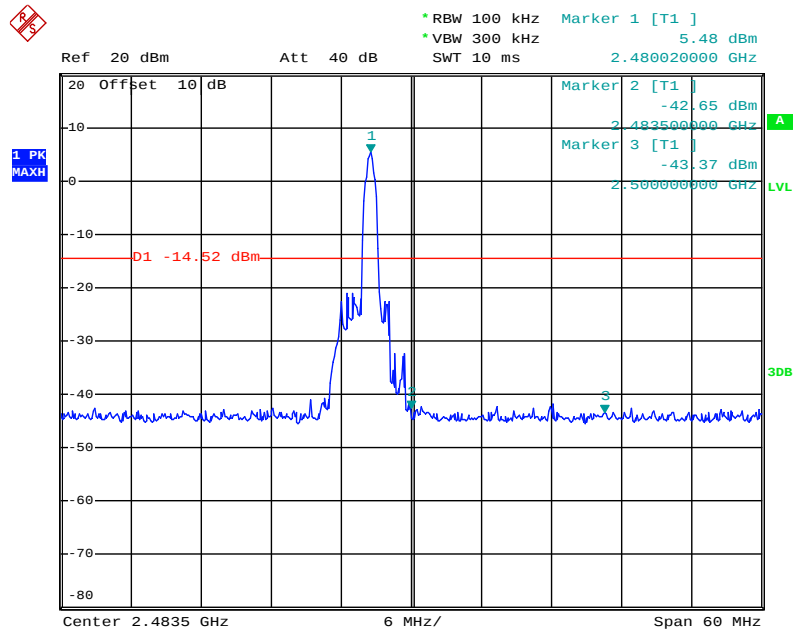


Date: 20.DEC.2017 16:28:35

Π/4-DQPSK Mode

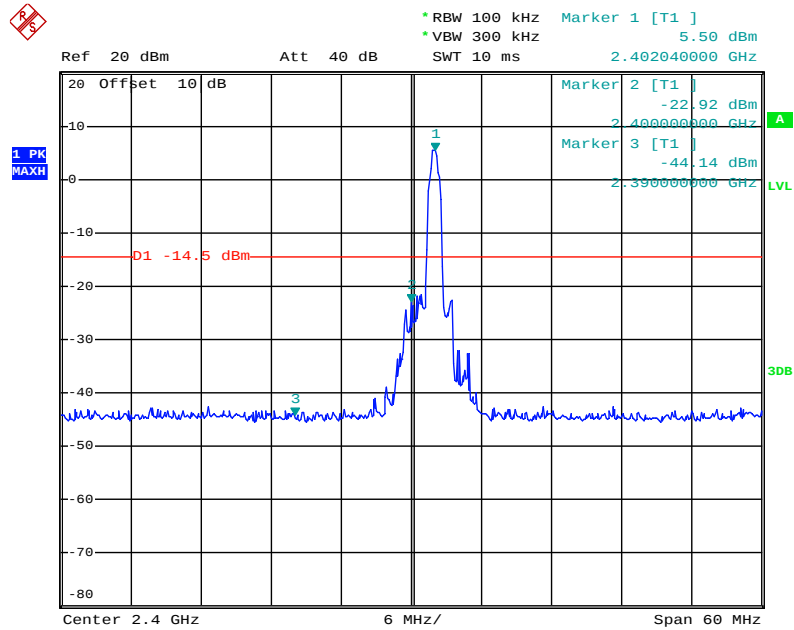


Date: 20.DEC.2017 16:30:33

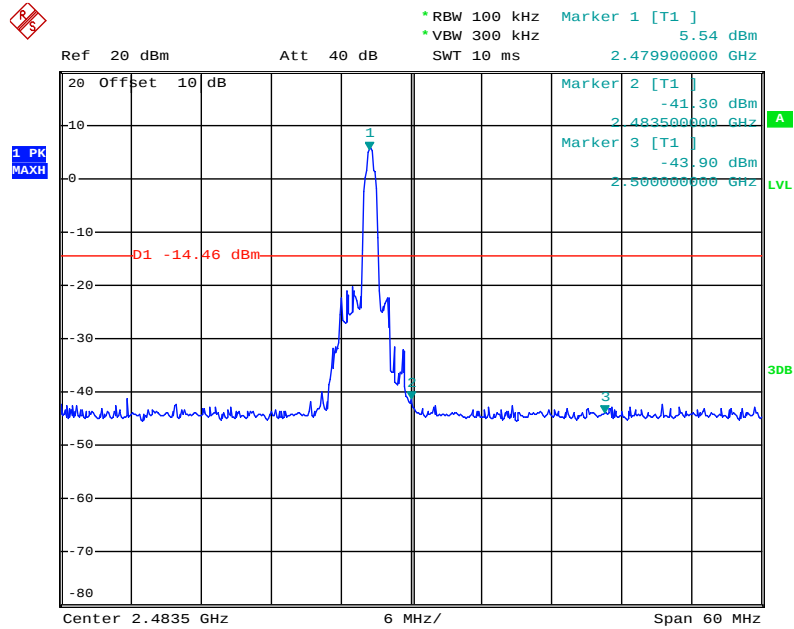


Date: 20.DEC.2017 16:29:42

8DPSK Mode



Date: 20.DEC.2017 16:31:33



Date: 20.DEC.2017 16:32:27

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.

Non-hopping mode



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Job No.: STAR2017 #1375

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2402MHz (GFSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

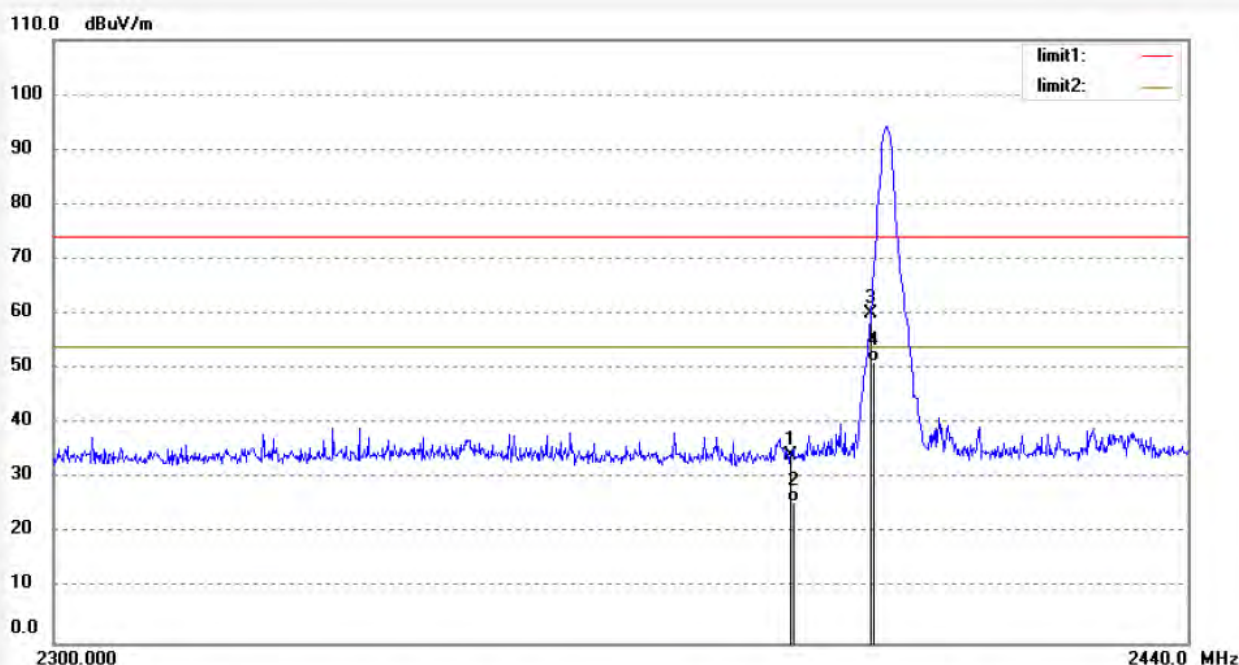
Date: 2017/12/26

Time: 18:24:28

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20172078



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	40.49	-6.32	34.17	74.00	-39.83	peak	150	44	
2	2390.000	32.14	-6.32	25.82	54.00	-28.18	AVG	150	145	
3	2400.000	66.47	-6.27	60.20	74.00	-13.80	peak	150	129	
4	2400.000	57.50	-6.27	51.23	54.00	-2.77	AVG	150	188	

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



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Site: 1# Chamber

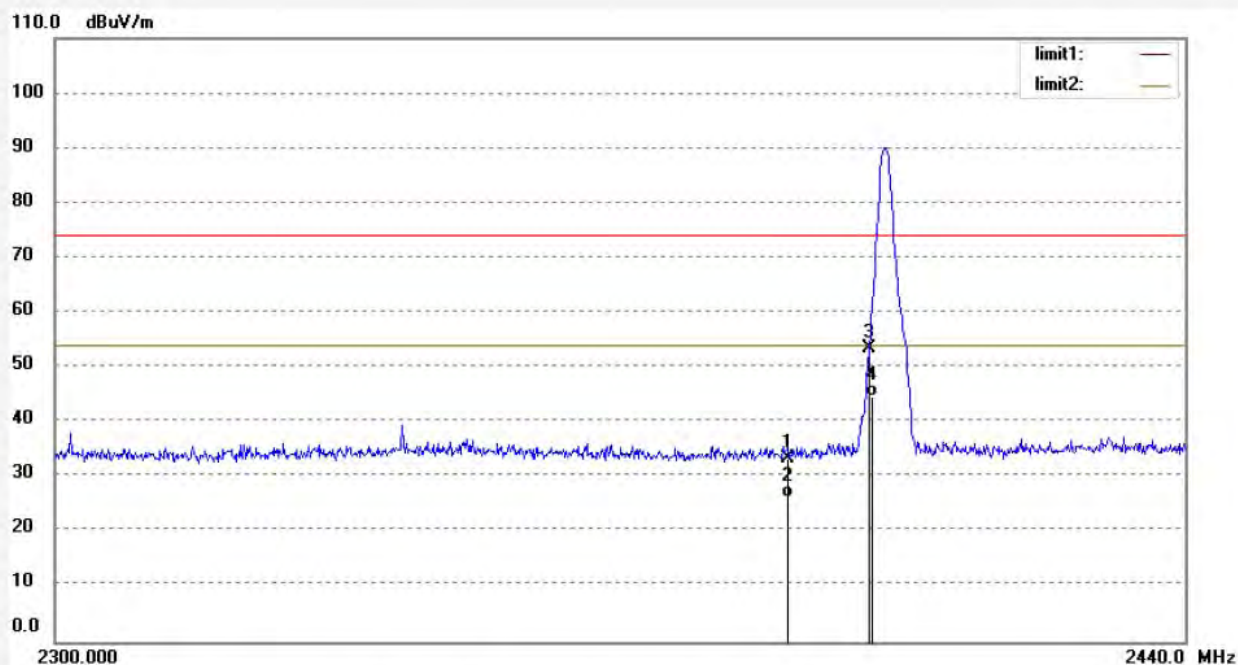
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR2017 #1376
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX 2402MHz (GFSK)
Model: BeActiv S100
Manufacturer: Zylux

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/26
Time: 18:25:38
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172078



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	39.77	-6.32	33.45	74.00	-40.55	peak	200	170	
2	2390.000	32.54	-6.32	26.22	54.00	-27.78	AVG	200	233	
3	2400.000	59.76	-6.27	53.49	74.00	-20.51	peak	200	215	
4	2400.000	51.00	-6.27	44.73	54.00	-9.27	AVG	200	351	

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



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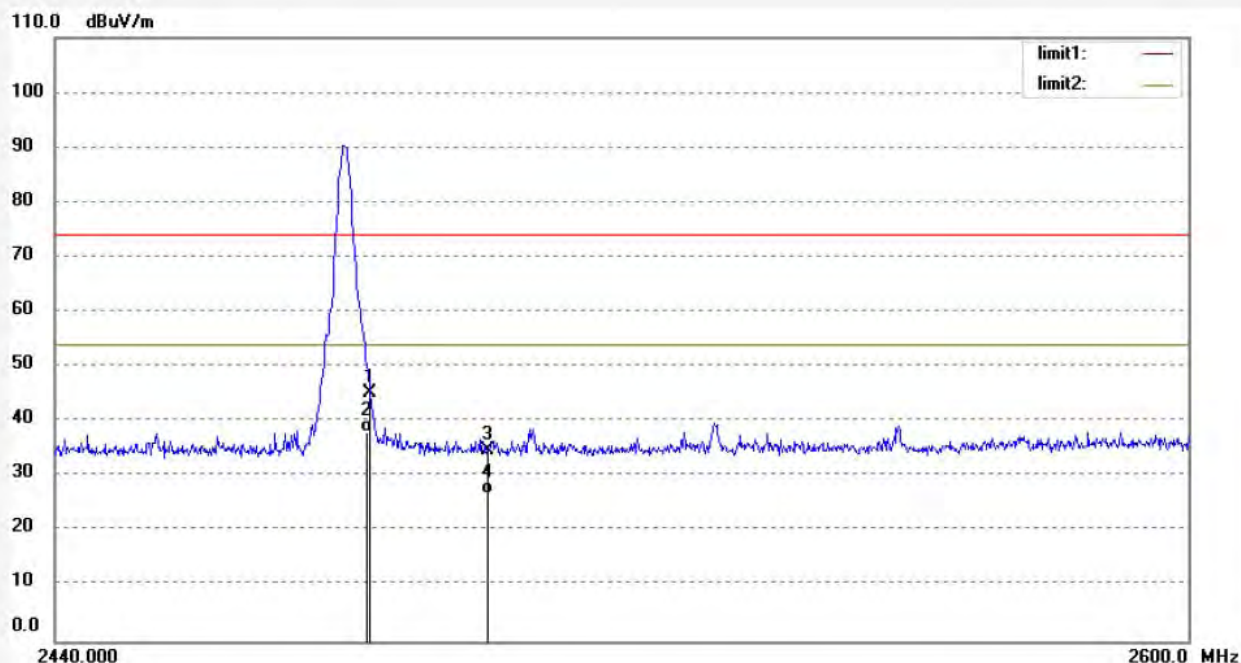
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: STAR2017 #1377
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX 2480MHz (GFSK)
Model: BeActiv S100
Manufacturer: Zylux

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/26
Time: 18:27:04
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172078



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	51.26	-5.89	45.37	74.00	-28.63	peak	200	136	
2	2483.500	43.87	-5.89	37.98	54.00	-16.02	AVG	200	106	
3	2500.000	40.58	-5.81	34.77	74.00	-39.23	peak	200	47	
4	2500.000	32.51	-5.81	26.70	54.00	-27.30	AVG	200	26	

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



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Fax:+86-0755-26503396

Job No.: STAR2017 #1378

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2480MHz (GFSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

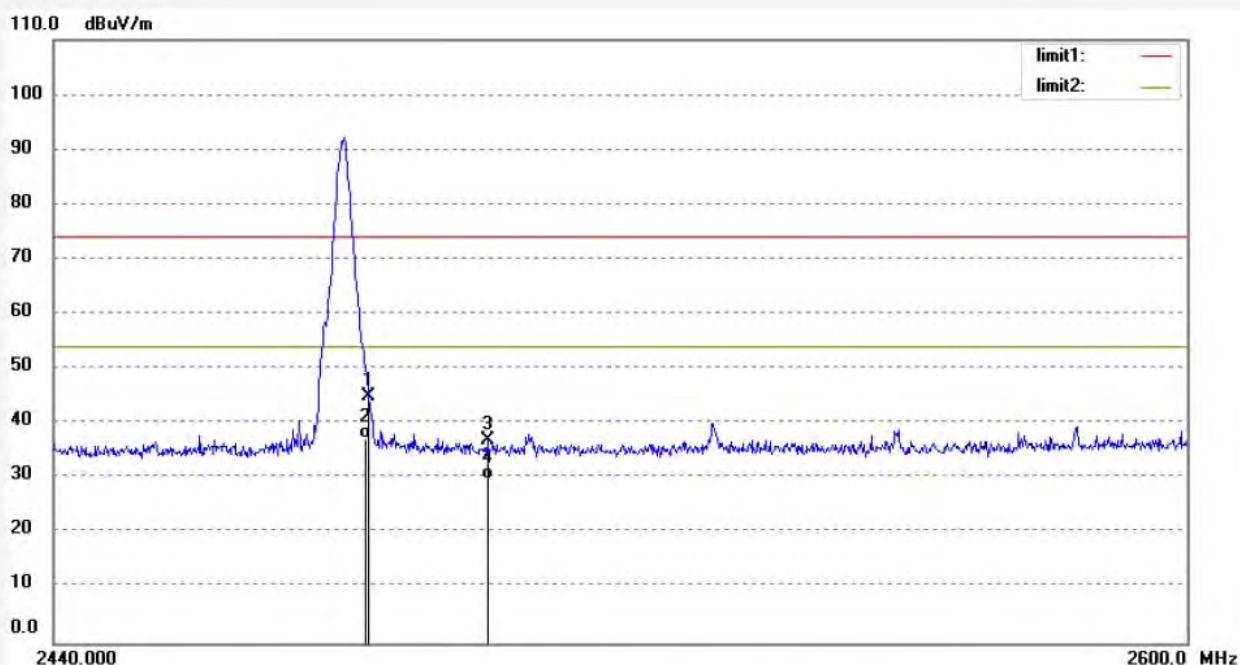
Date: 2017/12/26

Time: 18:28:11

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20172078



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	50.83	-5.89	44.94	74.00	-29.06	peak	150	72	
2	2483.500	43.28	-5.89	37.39	54.00	-16.61	AVG	150	49	
3	2500.000	42.71	-5.81	36.90	74.00	-37.10	peak	150	132	
4	2500.000	35.71	-5.81	29.90	54.00	-24.10	AVG	150	142	

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



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Site: 1# Chamber

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Fax:+86-0755-26503396

Job No.: STAR2017 #1381

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2402MHz (π/4-DQPSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Horizontal

Power Source: DC 3.7V

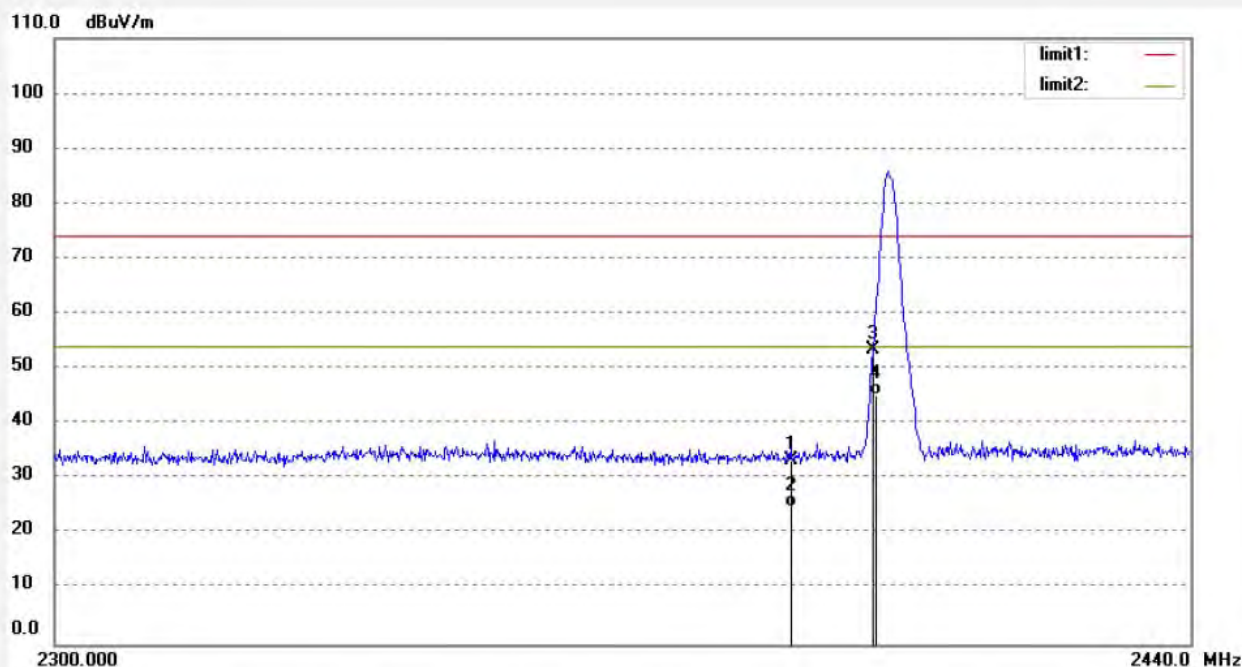
Date: 2017/12/26

Time: 18:31:54

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20172078



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	39.62	-6.32	33.30	74.00	-40.70	peak	200	321	
2	2390.000	31.25	-6.32	24.93	54.00	-29.07	AVG	200	254	
3	2400.000	59.83	-6.27	53.56	74.00	-20.44	peak	200	221	
4	2400.000	51.64	-6.27	45.37	54.00	-8.63	AVG	200	174	

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



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Fax:+86-0755-26503396

Job No.: STAR2017 #1382

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2402MHz (π/4-DQPSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

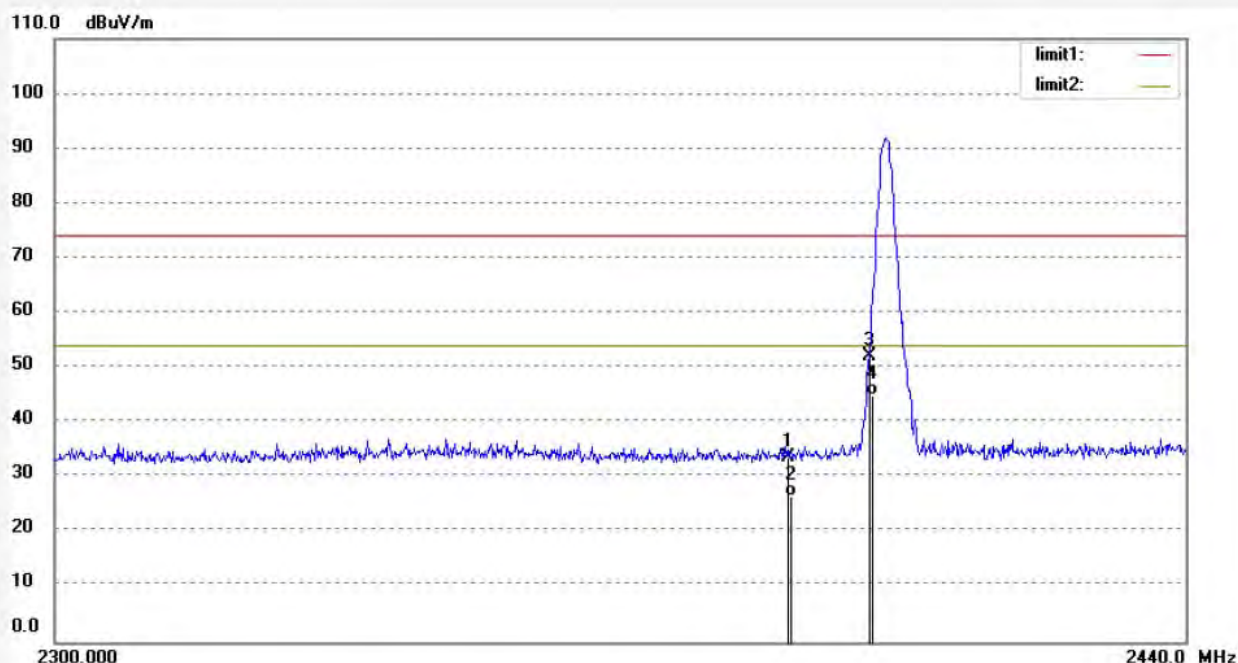
Date: 2017/12/26

Time: 18:32:40

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20172078



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	39.98	-6.32	33.66	74.00	-40.34	peak	150	103	
2	2390.000	32.99	-6.32	26.67	54.00	-27.33	AVG	150	125	
3	2400.000	58.27	-6.27	52.00	74.00	-22.00	peak	150	192	
4	2400.000	51.29	-6.27	45.02	54.00	-8.98	AVG	150	84	

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



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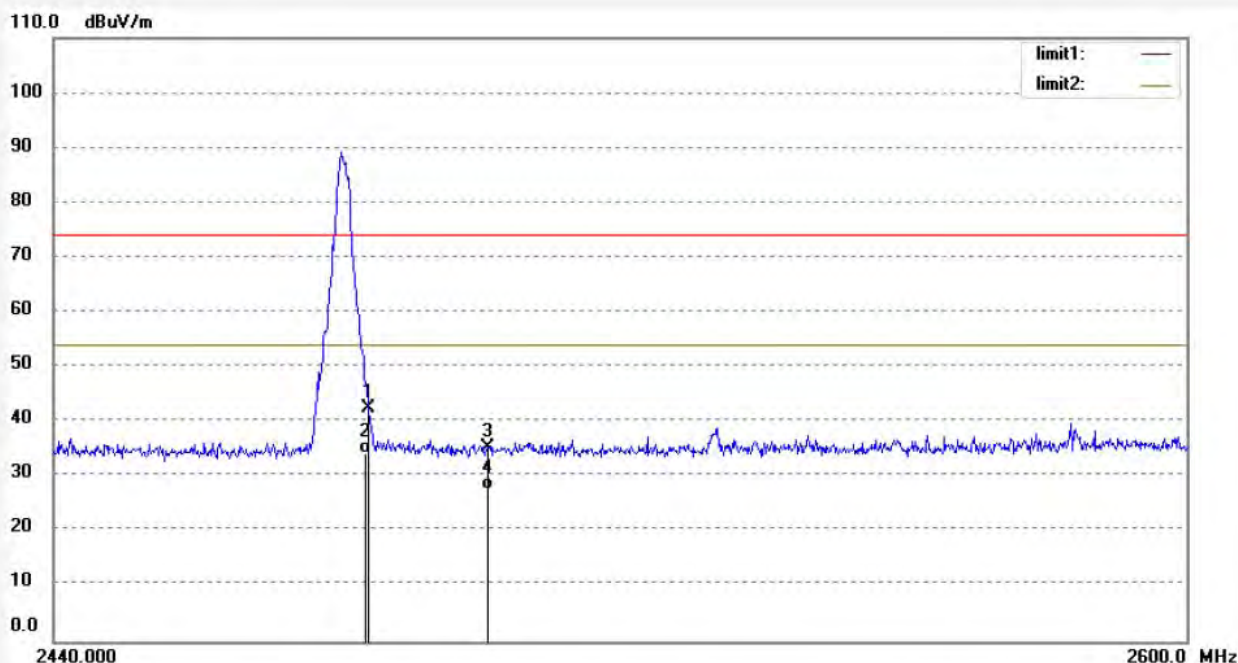
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: STAR2017 #1380
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX 2480MHz (π/4-DQPSK)
Model: BeActiv S100
Manufacturer: Zylux

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/26
Time: 18:30:17
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	48.28	-5.89	42.39	74.00	-31.61	peak	200	139	
2	2483.500	40.00	-5.89	34.11	54.00	-19.89	AVG	200	120	
3	2500.000	41.09	-5.81	35.28	74.00	-38.72	peak	200	119	
4	2500.000	33.58	-5.81	27.77	54.00	-26.23	AVG	200	132	

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



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Site: 1# Chamber

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Job No.: STAR2017 #1379

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2480MHz (π/4-DQPSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

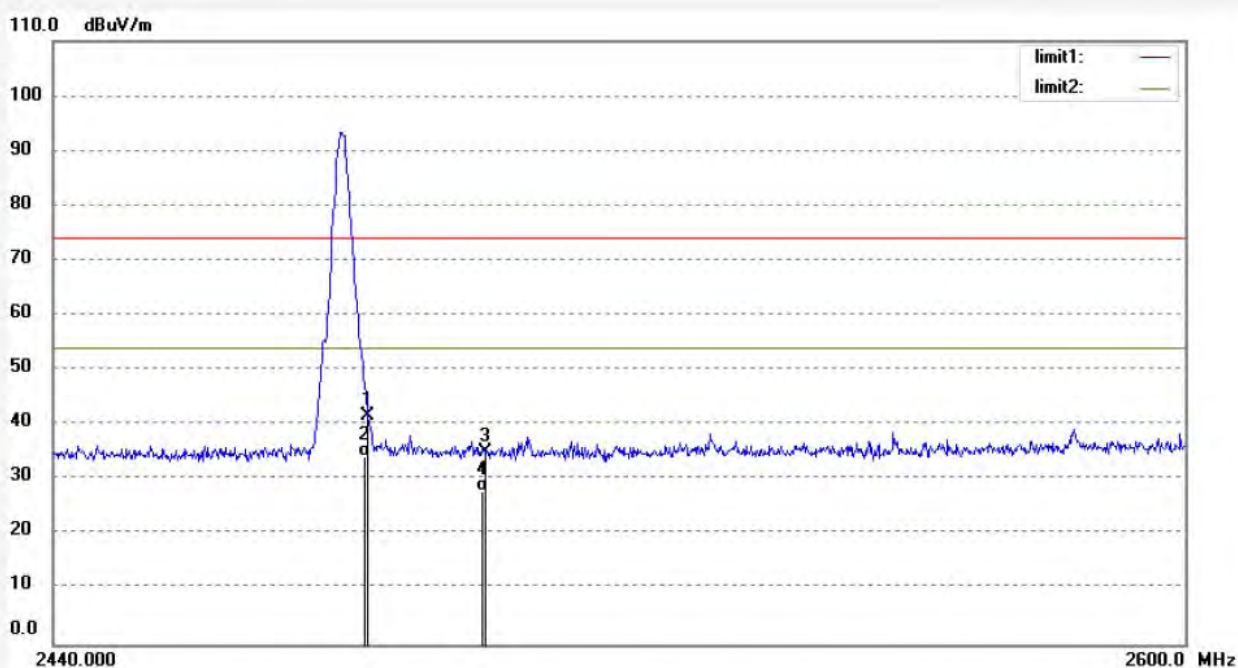
Date: 2017/12/26

Time: 18:29:39

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20172078



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	47.67	-5.89	41.78	74.00	-32.22	peak	150	179	
2	2483.500	40.00	-5.89	34.11	54.00	-19.89	AVG	150	182	
3	2500.000	40.84	-5.81	35.03	74.00	-38.97	peak	150	120	
4	2500.000	33.62	-5.81	27.81	54.00	-26.19	AVG	150	114	

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



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Site: 1# Chamber

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Job No.: STAR2017 #1384

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2402MHz (8DPSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Horizontal

Power Source: DC 3.7V

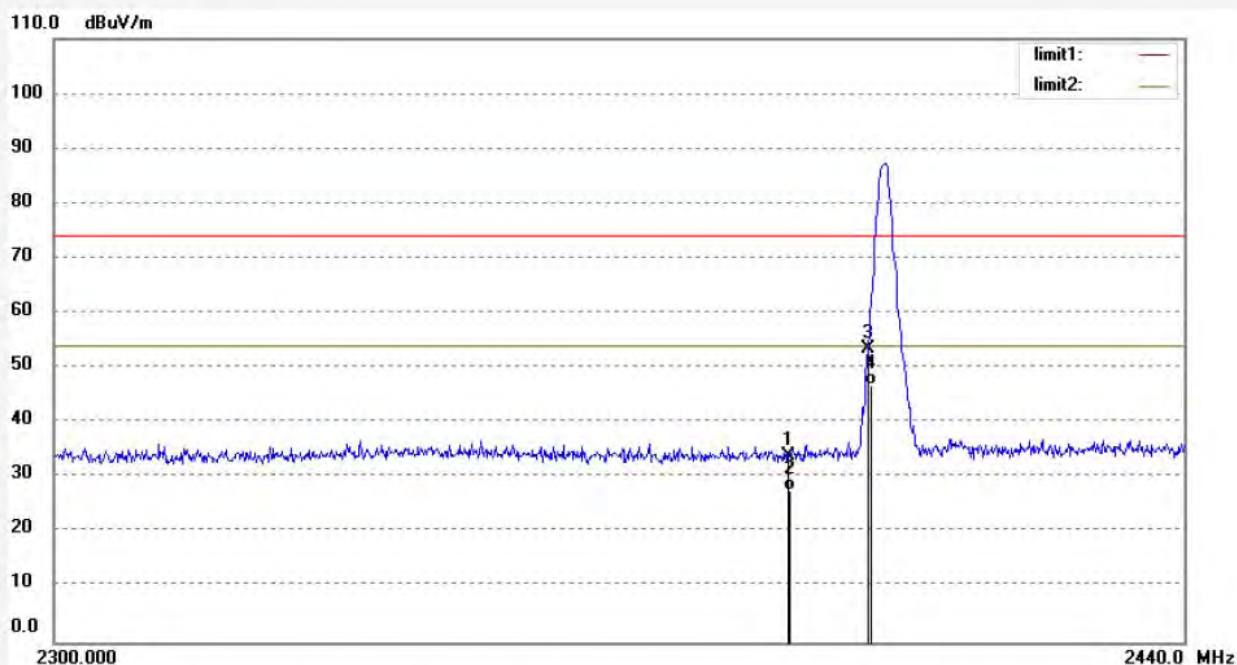
Date: 2017/12/26

Time: 18:34:59

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20172078



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	40.38	-6.32	34.06	74.00	-39.94	peak	200	77	
2	2390.000	33.94	-6.32	27.62	54.00	-26.38	AVG	200	103	
3	2400.000	59.86	-6.27	53.59	74.00	-20.41	peak	200	254	
4	2400.000	53.12	-6.27	46.85	54.00	-7.15	AVG	200	211	

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



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

Job No.: STAR2017 #1383

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2402MHz (8DPSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

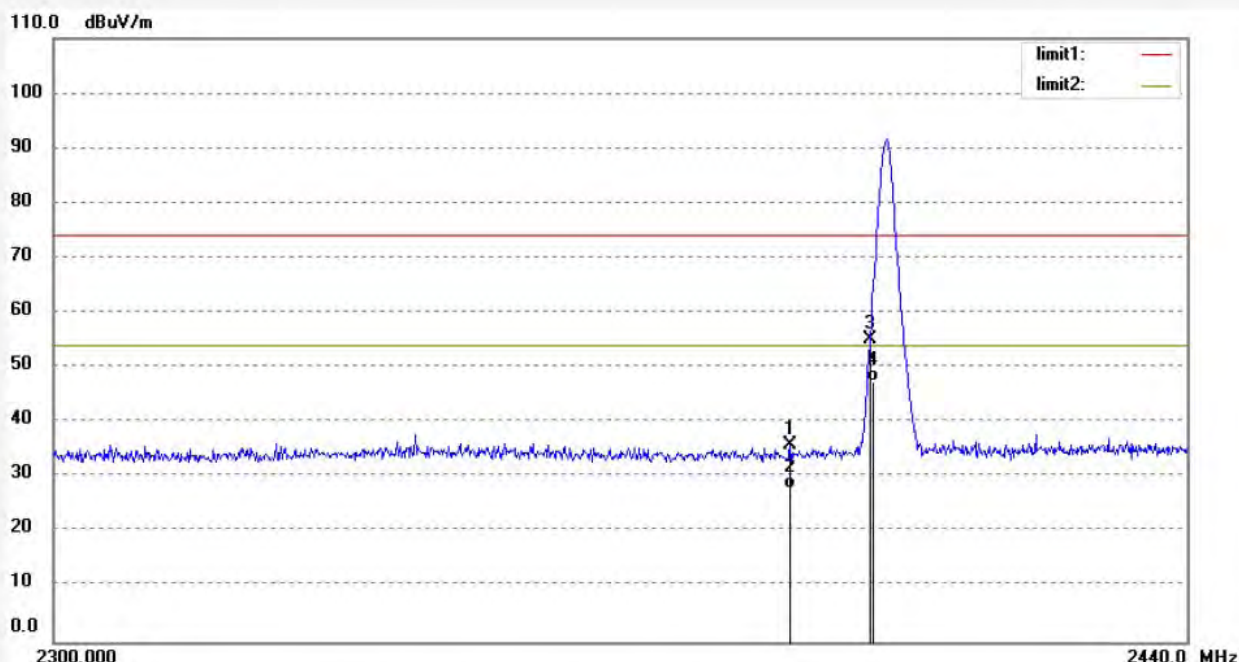
Date: 2017/12/26

Time: 18:34:06

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20172078



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	42.24	-6.32	35.92	74.00	-38.08	peak	150	133	
2	2390.000	34.27	-6.32	27.95	54.00	-26.05	AVG	150	254	
3	2400.000	61.31	-6.27	55.04	74.00	-18.96	peak	150	145	
4	2400.000	53.69	-6.27	47.42	54.00	-6.58	AVG	150	42	

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



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Site: 1# Chamber

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Fax:+86-0755-26503396

Job No.: STAR2017 #1385

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2480MHz (8DPSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Horizontal

Power Source: DC 3.7V

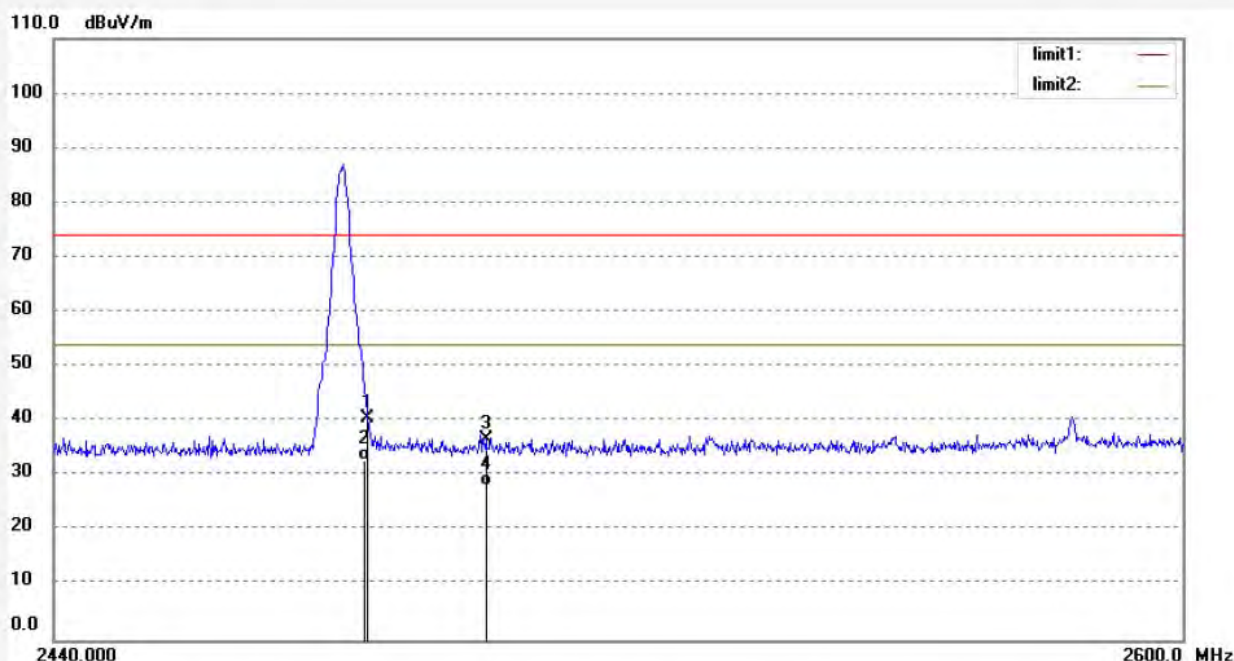
Date: 2017/12/26

Time: 18:36:16

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	46.45	-5.89	40.56	74.00	-33.44	peak	200	301	
2	2483.500	38.69	-5.89	32.80	54.00	-21.20	AVG	200	248	
3	2500.000	42.63	-5.81	36.82	74.00	-37.18	peak	200	233	
4	2500.000	34.05	-5.81	28.24	54.00	-25.76	AVG	200	172	

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



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

Job No.: STAR2017 #1386

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2480MHz (8DPSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

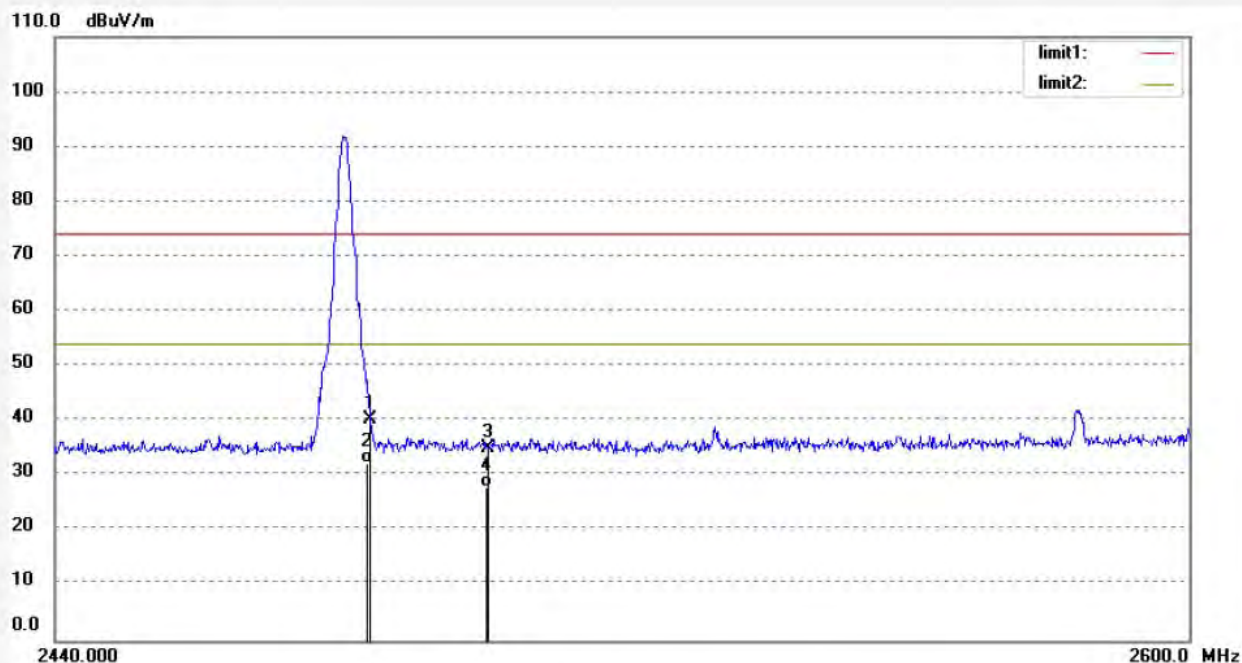
Date: 2017/12/26

Time: 18:37:47

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	46.26	-5.89	40.37	74.00	-33.63	peak	150	71	
2	2483.500	38.10	-5.89	32.21	54.00	-21.79	AVG	150	26	
3	2500.000	40.83	-5.81	35.02	74.00	-38.98	peak	150	112	
4	2500.000	33.69	-5.81	27.88	54.00	-26.12	AVG	150	193	

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

Hopping mode



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Fax:+86-0755-26503396

Job No.: STAR2017 #1392

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: Hopping (GFSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Horizontal

Power Source: DC 3.7V

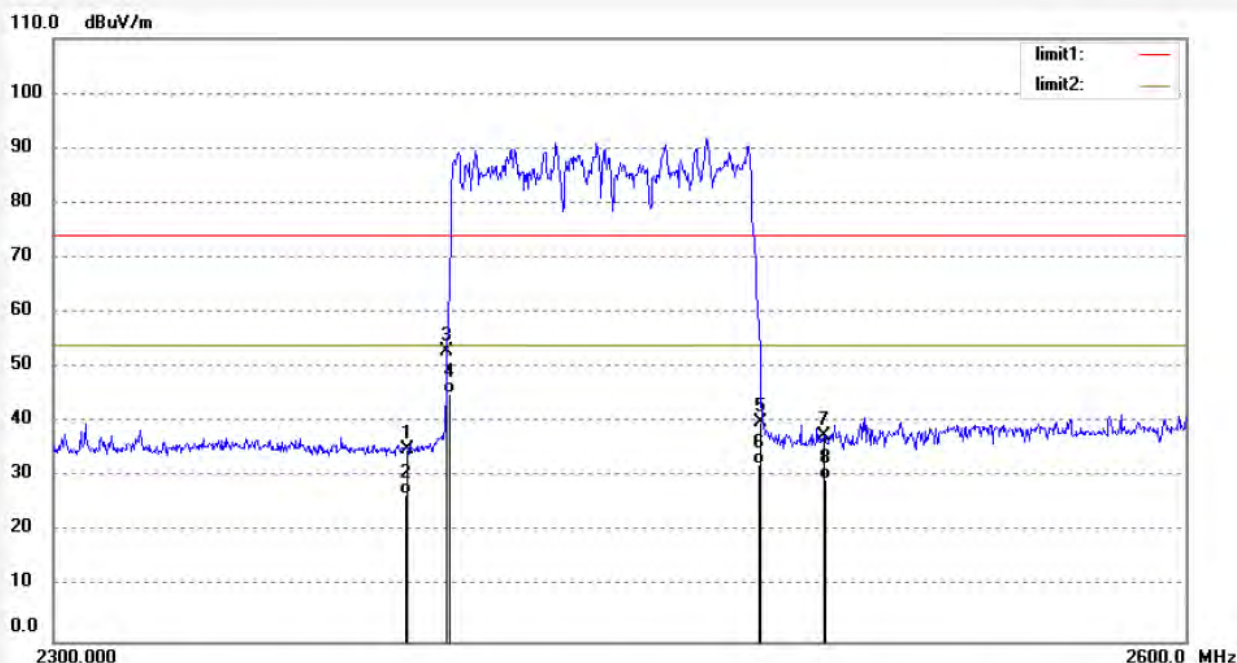
Date: 2017/12/26

Time: 19:05:36

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	41.31	-6.32	34.99	74.00	-39.01	peak	200	162	
2	2390.000	33.25	-6.32	26.93	54.00	-27.07	AVG	200	178	
3	2400.000	59.08	-6.27	52.81	74.00	-21.19	peak	200	255	
4	2400.000	51.47	-6.27	45.20	54.00	-8.80	AVG	200	139	
5	2483.500	45.80	-5.89	39.91	74.00	-34.09	peak	200	25	
6	2483.500	38.34	-5.89	32.45	54.00	-21.55	AVG	200	32	
7	2500.000	43.26	-5.81	37.45	74.00	-36.55	peak	200	100	
8	2500.000	35.27	-5.81	29.46	54.00	-24.54	AVG	200	298	

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



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Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR2017 #1393

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: Hopping (GFSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

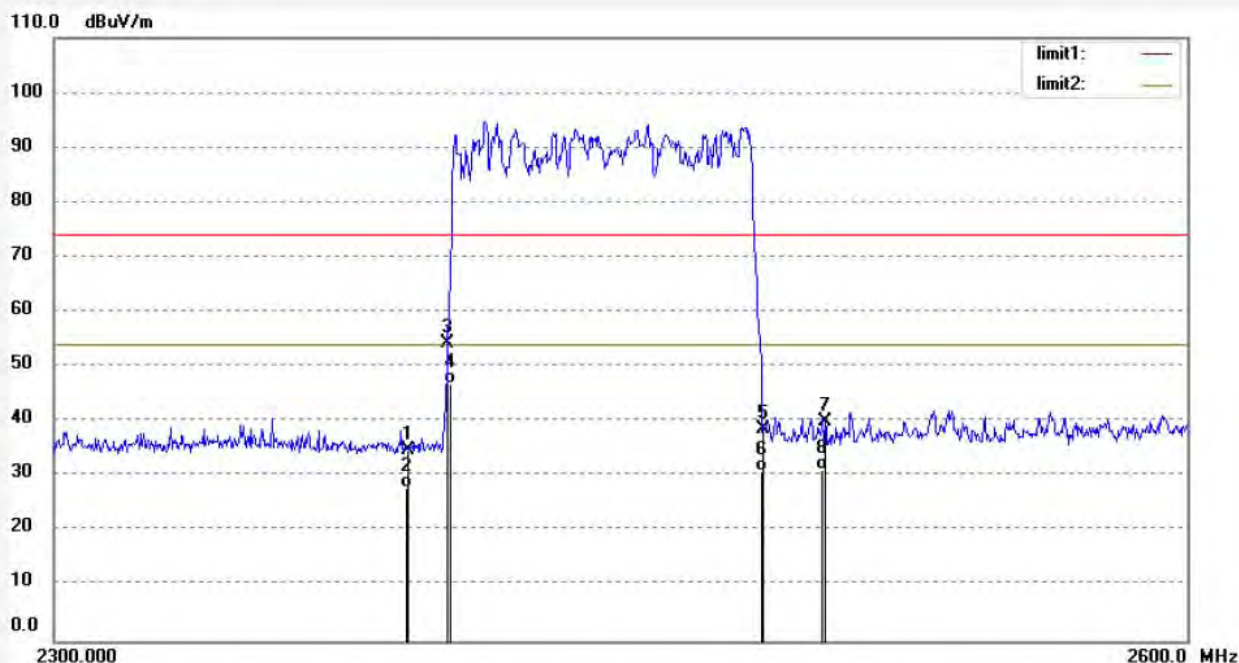
Date: 2017/12/26

Time: 19:11:39

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	41.15	-6.32	34.83	74.00	-39.17	peak	150	42	
2	2390.000	34.16	-6.32	27.84	54.00	-26.16	AVG	150	39	
3	2400.000	60.55	-6.27	54.28	74.00	-19.72	peak	150	122	
4	2400.000	53.22	-6.27	46.95	54.00	-7.05	AVG	150	173	
5	2483.500	44.63	-5.89	38.74	74.00	-35.26	peak	150	253	
6	2483.500	36.90	-5.89	31.01	54.00	-22.99	AVG	150	320	
7	2500.000	45.86	-5.81	40.05	74.00	-33.95	peak	150	300	
8	2500.000	37.13	-5.81	31.32	54.00	-22.68	AVG	150	217	

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



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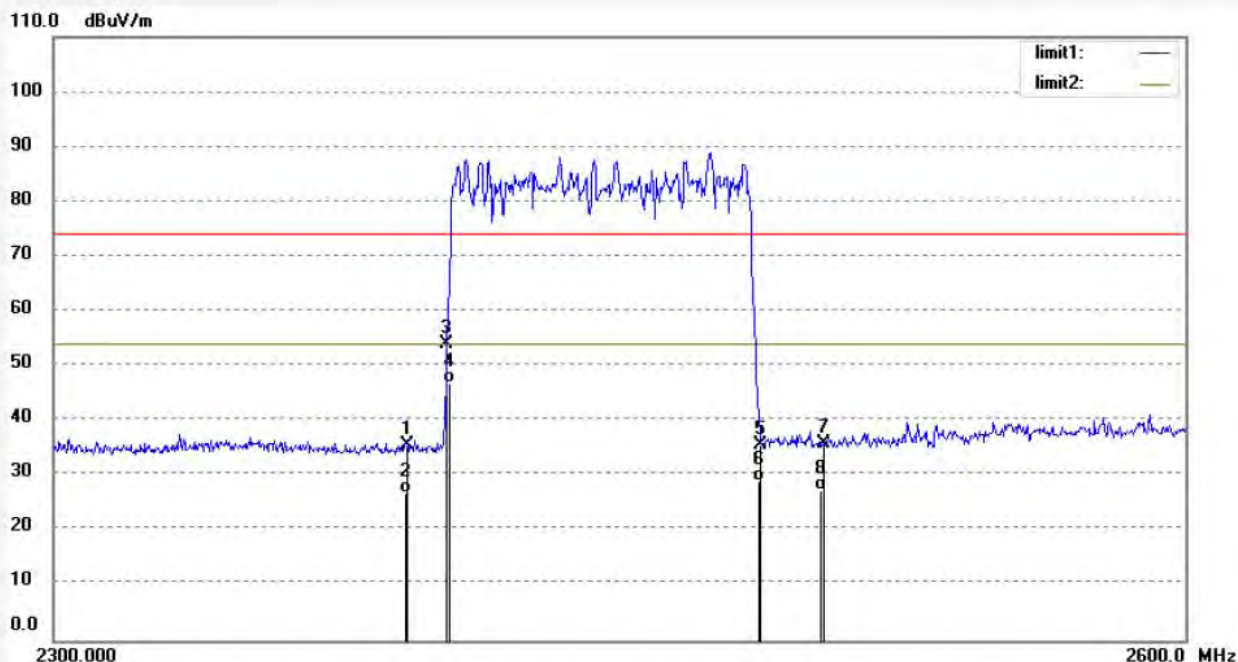
F1,Bldg.A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: STAR2017 #1391
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: Hopping (π/4-DQPSK)
Model: BeActiv S100
Manufacturer: Zylux

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/26
Time: 19:00:09
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	41.85	-6.32	35.53	74.00	-38.47	peak	200	144	
2	2390.000	33.17	-6.32	26.85	54.00	-27.15	AVG	200	265	
3	2400.000	60.27	-6.27	54.00	74.00	-20.00	peak	200	217	
4	2400.000	53.06	-6.27	46.79	54.00	-7.21	AVG	200	23	
5	2483.500	41.56	-5.89	35.67	74.00	-38.33	peak	200	193	
6	2483.500	34.90	-5.89	29.01	54.00	-24.99	AVG	200	178	
7	2500.000	41.77	-5.81	35.96	74.00	-38.04	peak	200	146	
8	2500.000	33.28	-5.81	27.47	54.00	-26.53	AVG	200	269	

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



ACCURATE TECHNOLOGY CO., LTD.

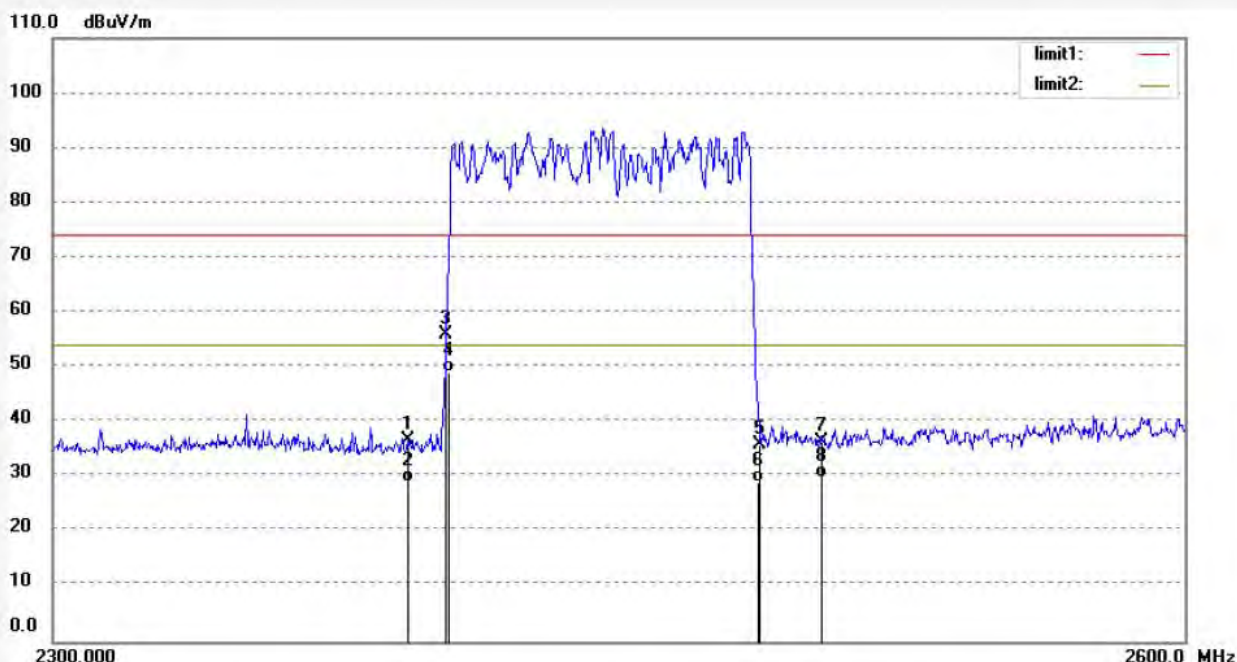
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: STAR2017 #1390
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: Hopping (π/4-DQPSK)
Model: BeActiv S100
Manufacturer: Zylux

Polarization: Vertical
Power Source: DC 3.7V
Date: 2017/12/26
Time: 18:55:57
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172078



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	43.06	-6.32	36.74	74.00	-37.26	peak	150	111	
2	2390.000	35.24	-6.32	28.92	54.00	-25.08	AVG	150	254	
3	2400.000	62.36	-6.27	56.09	74.00	-17.91	peak	150	120	
4	2400.000	55.24	-6.27	48.97	54.00	-5.03	AVG	150	144	
5	2483.500	41.91	-5.89	36.02	74.00	-37.98	peak	150	293	
6	2483.500	34.97	-5.89	29.08	54.00	-24.92	AVG	150	275	
7	2500.000	42.16	-5.81	36.35	74.00	-37.65	peak	150	244	
8	2500.000	35.66	-5.81	29.85	54.00	-24.15	AVG	150	178	

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



ACCURATE TECHNOLOGY CO., LTD.

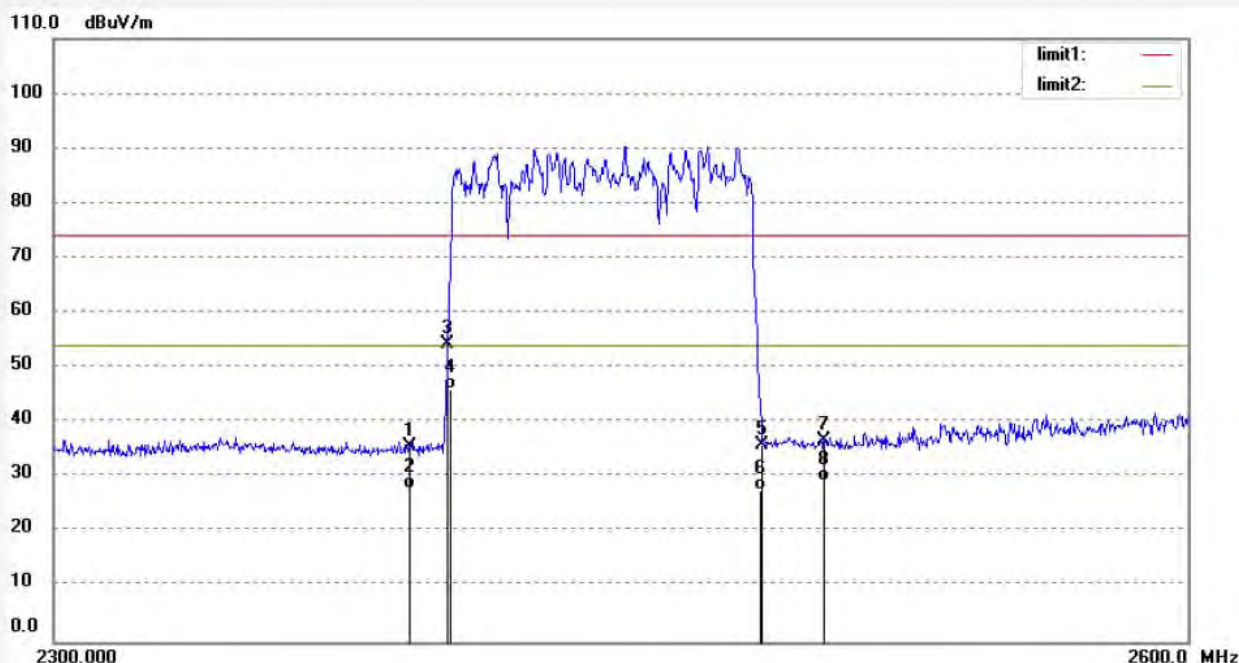
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: STAR2017 #1388
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: Hopping (8DPSK)
Model: BeActiv S100
Manufacturer: Zylux

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2017/12/26
Time: 18:43:27
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20172078



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	42.07	-6.32	35.75	74.00	-38.25	peak	200	144	
2	2390.000	34.20	-6.32	27.88	54.00	-26.12	AVG	200	123	
3	2400.000	60.51	-6.27	54.24	74.00	-19.76	peak	200	269	
4	2400.000	52.39	-6.27	46.12	54.00	-7.88	AVG	200	254	
5	2483.500	41.81	-5.89	35.92	74.00	-38.08	peak	200	203	
6	2483.500	33.45	-5.89	27.56	54.00	-26.44	AVG	200	187	
7	2500.000	42.40	-5.81	36.59	74.00	-37.41	peak	200	122	
8	2500.000	35.22	-5.81	29.41	54.00	-24.59	AVG	200	97	

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



ACCURATE TECHNOLOGY CO., LTD.

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

Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR2017 #1389

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: Hopping (8DPSK)

Model: BeActiv S100

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

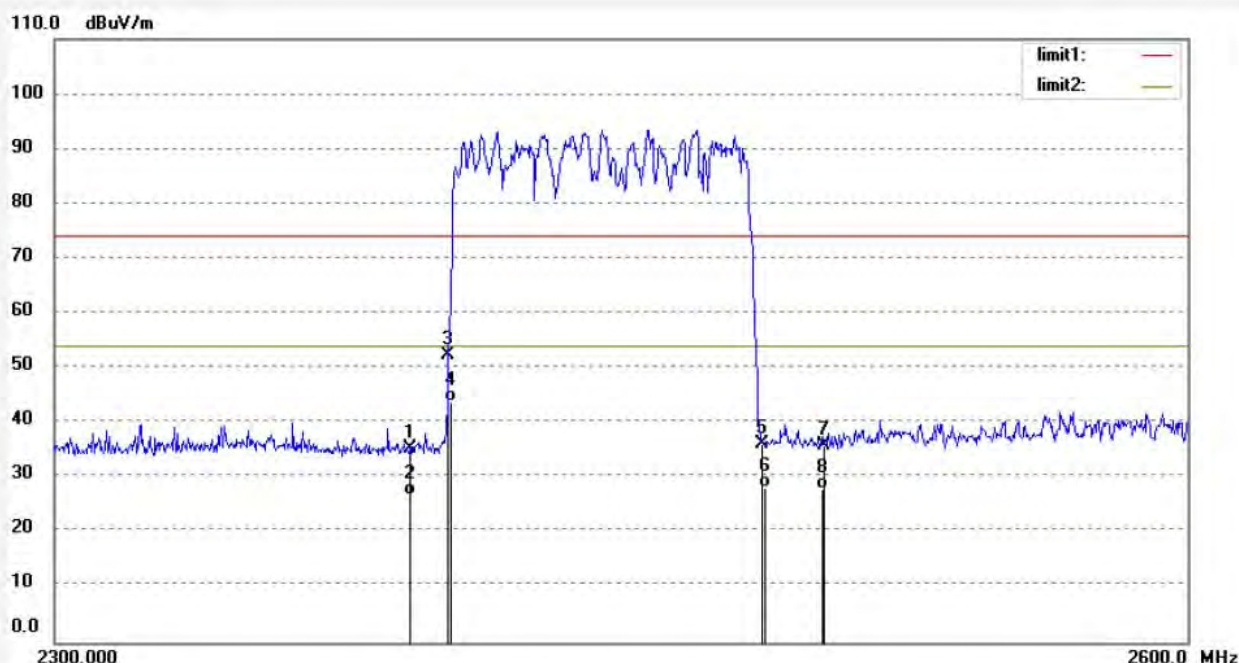
Date: 2017/12/26

Time: 18:49:00

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20172078



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	41.73	-6.32	35.41	74.00	-38.59	peak	150	144	
2	2390.000	33.24	-6.32	26.92	54.00	-27.08	AVG	150	136	
3	2400.000	58.64	-6.27	52.37	74.00	-21.63	peak	150	125	
4	2400.000	50.25	-6.27	43.98	54.00	-10.02	AVG	150	139	
5	2483.500	42.05	-5.89	36.16	74.00	-37.84	peak	150	254	
6	2483.500	34.21	-5.89	28.32	54.00	-25.68	AVG	150	78	
7	2500.000	41.60	-5.81	35.79	74.00	-38.21	peak	150	41	
8	2500.000	33.69	-5.81	27.88	54.00	-26.12	AVG	150	110	

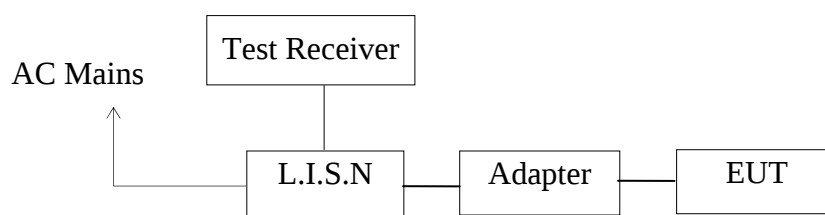
Note: Average measurement with peak detection at No.2&4&6&8

12.AC POWER LINE CONDUCTED EMISSION FOR FCC PART

15 SECTION 15.207(A)

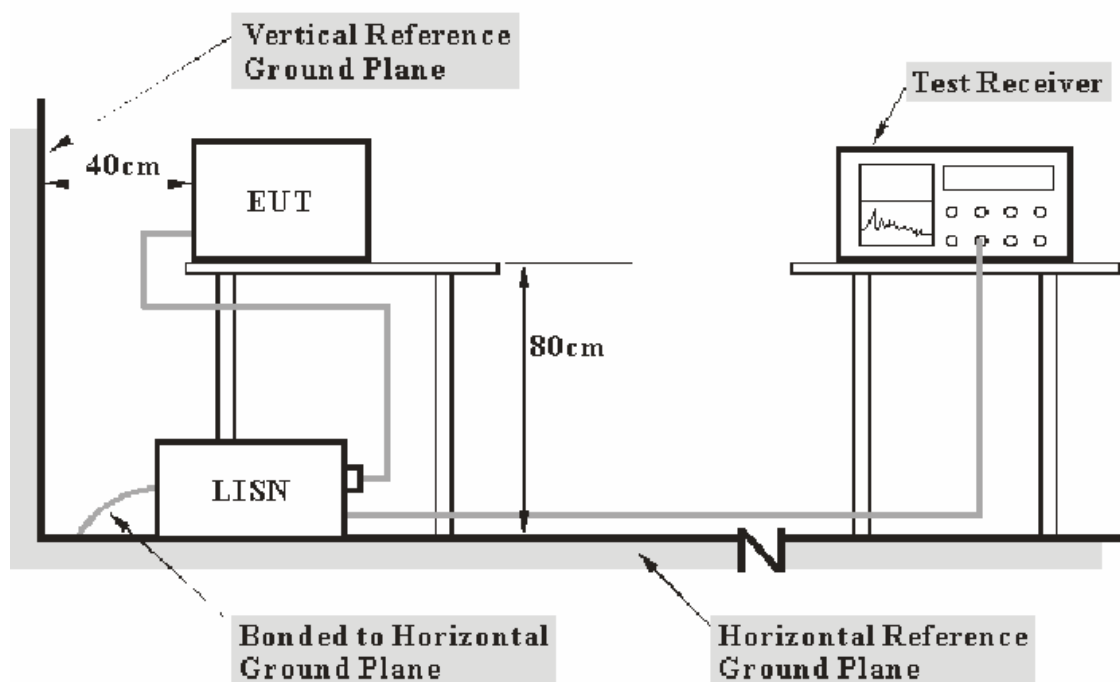
12.1.Block Diagram of Test Setup

12.1.1.Block diagram of connection between the EUT and simulators



(EUT: Bluetooth Headphone)

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(μ V)	
	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.

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.

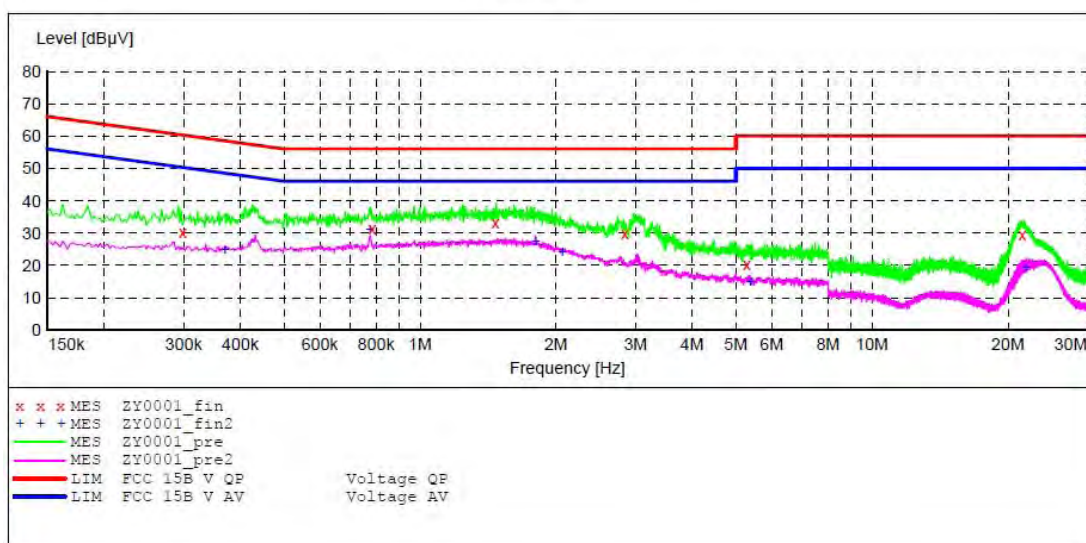
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Bluetooth Headphone M/N:BeActiv S100
 Manufacturer: Zylux
 Operating Condition: Charging
 Test Site: 2#Shielding Room
 Operator: Star
 Test Specification: N 120V/60Hz
 Comment: Report NO.:ATE20172078
 Start of Test: 2017-12-26 / 10:32:27

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: "ZY0001_fin"

2017-12-26 10:38

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.298500	30.30	10.9	60	30.0	QP	N	GND
0.784500	31.20	11.1	56	24.8	QP	N	GND
1.468500	33.10	11.2	56	22.9	QP	N	GND
2.841000	29.80	11.3	56	26.2	QP	N	GND
5.289000	20.40	11.4	60	39.6	QP	N	GND
21.534000	29.40	11.7	60	30.6	QP	N	GND

MEASUREMENT RESULT: "ZY0001_fin2"

2017-12-26 10:38

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.370500	25.20	10.9	49	23.3	AV	N	GND
0.775500	31.40	11.1	46	14.6	AV	N	GND
1.801500	27.60	11.2	46	18.4	AV	N	GND
2.067000	24.30	11.3	46	21.7	AV	N	GND
5.383500	15.00	11.5	50	35.0	AV	N	GND
21.844500	19.50	11.7	50	30.5	AV	N	GND

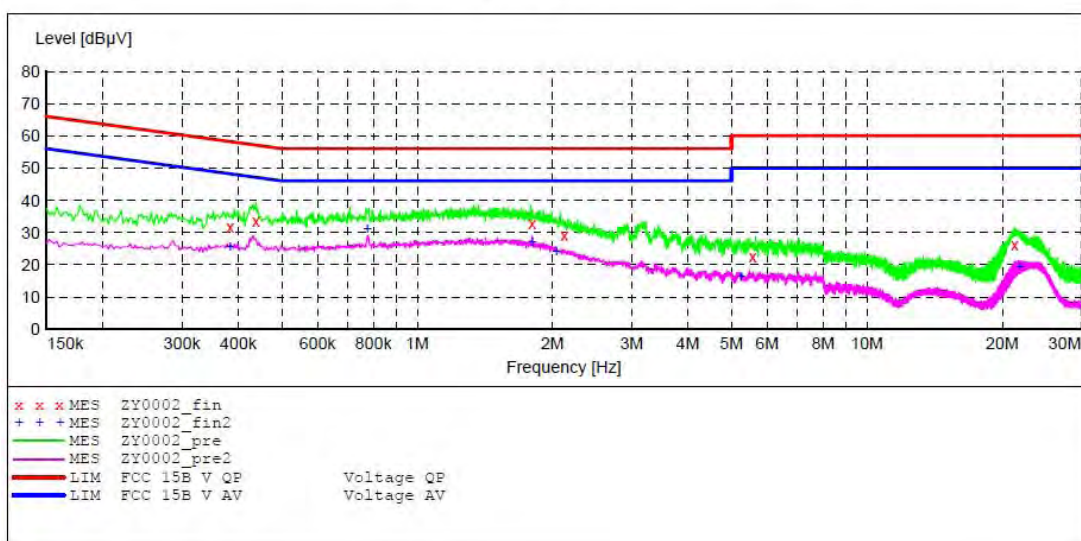
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Bluetooth Headphone M/N:BeActiv S100
 Manufacturer: Zylux
 Operating Condition: Charging
 Test Site: 2#Shielding Room
 Operator: Star
 Test Specification: L 120V/60Hz
 Comment: Report NO.:ATE20172078
 Start of Test: 2017-12-26 / 10:39:08

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: "ZY0002_fin"

2017-12-26 10:41

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.384000	31.70	10.9	58	26.5	QP	L1	GND
0.438000	33.70	11.0	57	23.4	QP	L1	GND
1.801500	32.90	11.2	56	23.1	QP	L1	GND
2.125500	29.30	11.3	56	26.7	QP	L1	GND
5.568000	22.70	11.5	60	37.3	QP	L1	GND
21.286500	26.20	11.7	60	33.8	QP	L1	GND

MEASUREMENT RESULT: "ZY0002_fin2"

2017-12-26 10:41

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.384000	25.70	10.9	48	22.5	AV	L1	GND
0.775500	31.40	11.1	46	14.6	AV	L1	GND
1.801500	27.50	11.2	46	18.5	AV	L1	GND
2.040000	24.40	11.3	46	21.6	AV	L1	GND
5.248500	16.60	11.4	50	33.4	AV	L1	GND
21.853500	19.40	11.7	50	30.6	AV	L1	GND

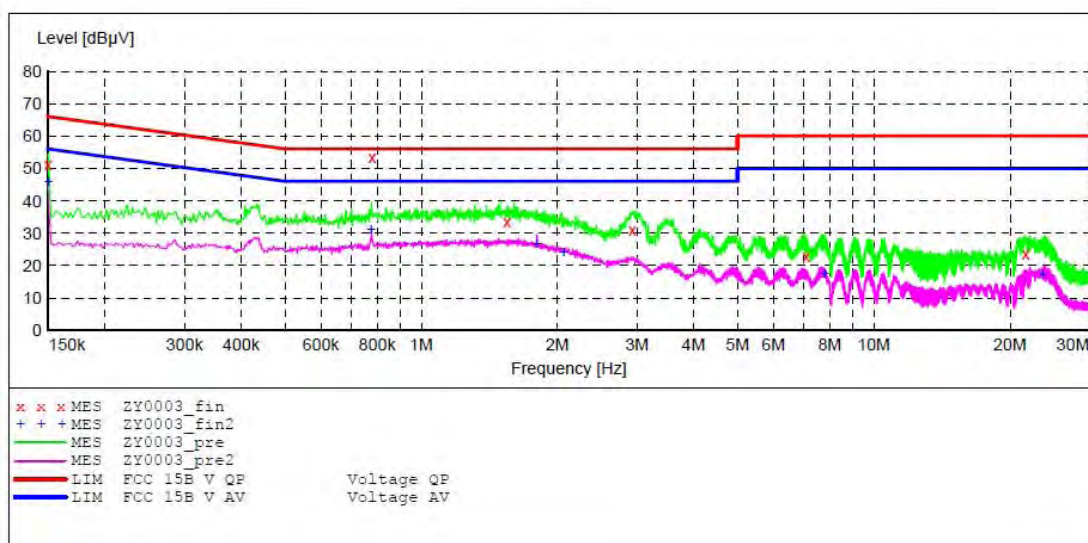
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Bluetooth Headphone M/N:BeActiv S100
 Manufacturer: Zylux
 Operating Condition: Charging
 Test Site: 2#Shielding Room
 Operator: Star
 Test Specification: L 240V/60Hz
 Comment: Report NO.:ATE20172078
 Start of Test: 2017-12-26 / 10:42:30

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: "ZY0003_fin"

2017-12-26 10:45

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.150000	51.20	10.8	66	14.8	QP	L1	GND
0.780000	53.50	11.1	56	2.5	QP	L1	GND
1.549500	33.40	11.2	56	22.6	QP	L1	GND
2.926500	31.00	11.3	56	25.0	QP	L1	GND
7.098000	23.00	11.5	60	37.0	QP	L1	GND
21.637500	23.60	11.7	60	36.4	QP	L1	GND

MEASUREMENT RESULT: "ZY0003_fin2"

2017-12-26 10:45

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.150000	46.20	10.8	56	9.8	AV	L1	GND
0.775500	31.50	11.1	46	14.5	AV	L1	GND
1.801500	27.00	11.2	46	19.0	AV	L1	GND
2.067000	24.40	11.3	46	21.6	AV	L1	GND
7.786500	17.80	11.5	50	32.2	AV	L1	GND
23.581500	17.50	11.7	50	32.5	AV	L1	GND

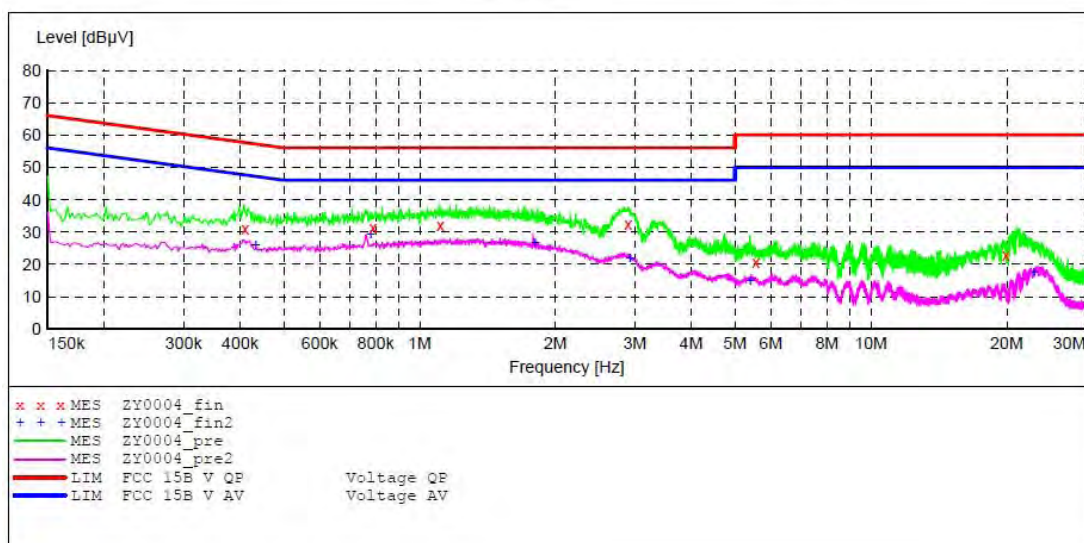
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Bluetooth Headphone M/N:BeActiv S100
 Manufacturer: Zylux
 Operating Condition: Charging
 Test Site: 2#Shielding Room
 Operator: Star
 Test Specification: N 240V/60Hz
 Comment: Report NO.:ATE20172078
 Start of Test: 2017-12-26 / 10:46:28

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: "ZY0004_fin"

2017-12-26 10:52

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.411000	31.00	11.0	58	26.6	QP	N	GND
0.789000	31.30	11.1	56	24.7	QP	N	GND
1.113000	32.20	11.2	56	23.8	QP	N	GND
2.899500	32.60	11.3	56	23.4	QP	N	GND
5.563500	20.70	11.5	60	39.3	QP	N	GND
19.932000	22.90	11.7	60	37.1	QP	N	GND

MEASUREMENT RESULT: "ZY0004_fin2"

2017-12-26 10:52

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.433500	26.20	11.0	47	21.0	AV	N	GND
0.780000	29.50	11.1	46	16.5	AV	N	GND
1.801500	26.80	11.2	46	19.2	AV	N	GND
2.931000	22.10	11.3	46	23.9	AV	N	GND
5.410500	15.30	11.5	50	34.7	AV	N	GND
22.983000	17.80	11.7	50	32.2	AV	N	GND

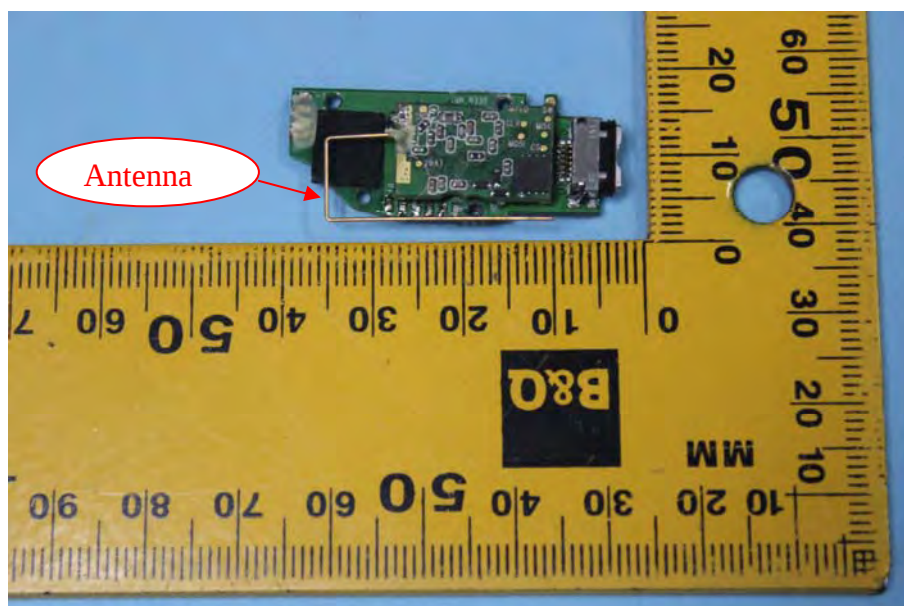
13.ANTENNA REQUIREMENT

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



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