

APPLICATION CERTIFICATION FCC Part 15C
On Behalf of

Zylux Acoustic Corporation

Bluetooth Headphone
Model No.: BeActiv E300

FCC ID: XN6-BUE300

Prepared for : Zylux Acoustic Corporation
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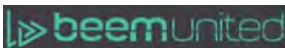
Report No. : ATE20172054
Date of Test : October 17-October 21, 2017
Date of Report : October 23, 2017

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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 E300
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 : October 17-October 21, 2017
Date of Report : October 23, 2017

Prepared by :



(Star Yang, Engineer)

Approved & Authorized Signer :


(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Model Number	:	BeActiv E300
Bluetooth version	:	V 4.1 This report is for BT classic mode
Frequency Range	:	2402MHz-2480MHz
Number of Channels	:	79
Antenna Gain(Max)	:	0 dBi
Antenna type	:	Chip 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: TEKA006-0501500UKU
		Input: 100-240V~50/60Hz 0.3A
		Output: DC 5V/1A
PC (provided by laboratory)	:	Manufacturer: LENOVO
		M/N: 4290-RT8
		S/N: R9-FW93G 11/08

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	CBLU118354 0-01	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	WHKX3.6/18 G-10SS	N/A	Jan. 07, 2017	1 Year
Band Reject Filter	Wainwright Instruments	WRCG2400/2 485-2375/2510 -60/11SS	N/A	Jan. 07, 2017	1 Year

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: Transmitting mode

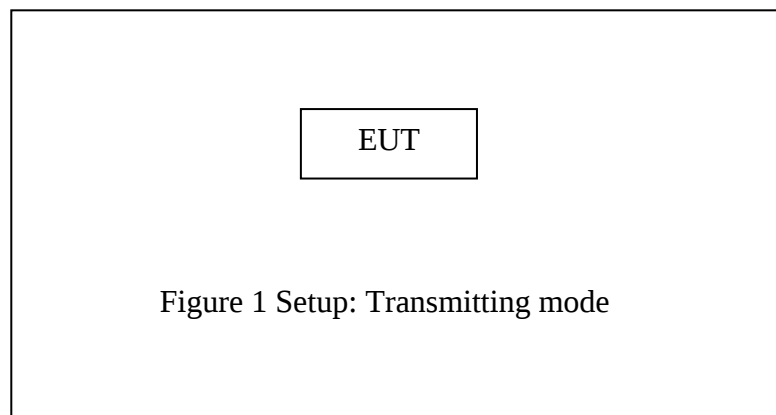
Low Channel: 2402MHz

Middle Channel: 2441MHz

High Channel: 2480MHz

Hopping

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.

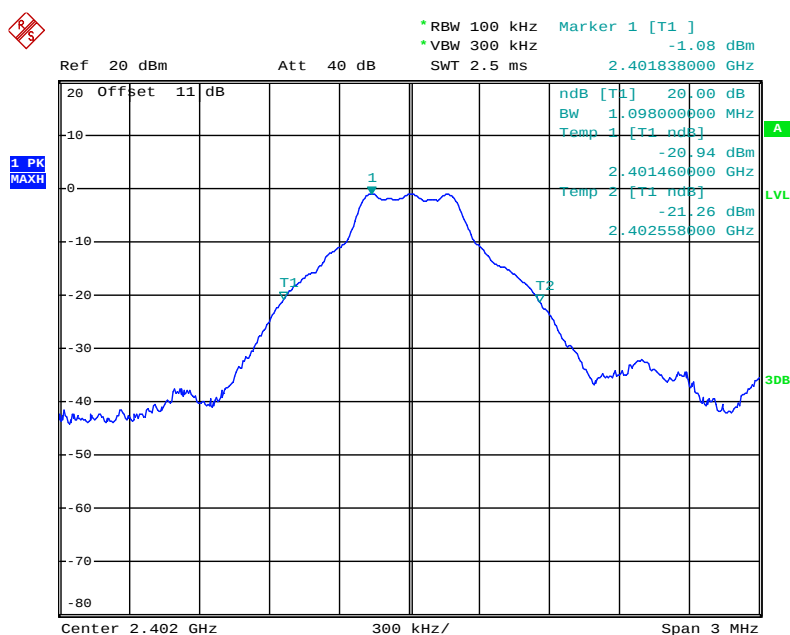
5.6. Test Result

Channel	Frequency (MHz)	GFSK 20dB Bandwidth (MHz)	Π/4-DQPSK 20dB Bandwidth (MHz)	8DPSK 20dB Bandwidth (MHz)	Result
Low	2402	1.098	1.368	1.350	Pass
Middle	2441	1.104	1.356	1.344	Pass
High	2480	1.104	1.362	1.350	Pass

The spectrum analyzer plots are attached as below.

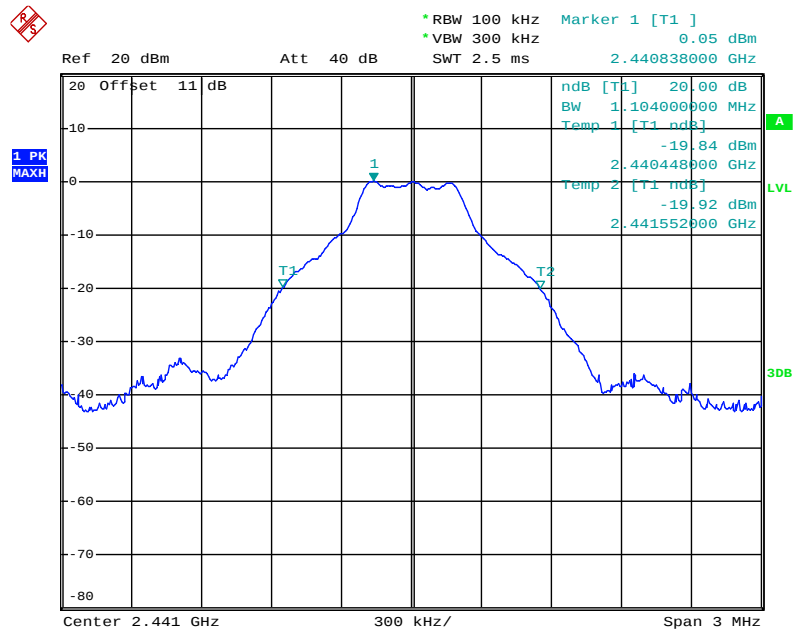
GFSK Mode

Low channel



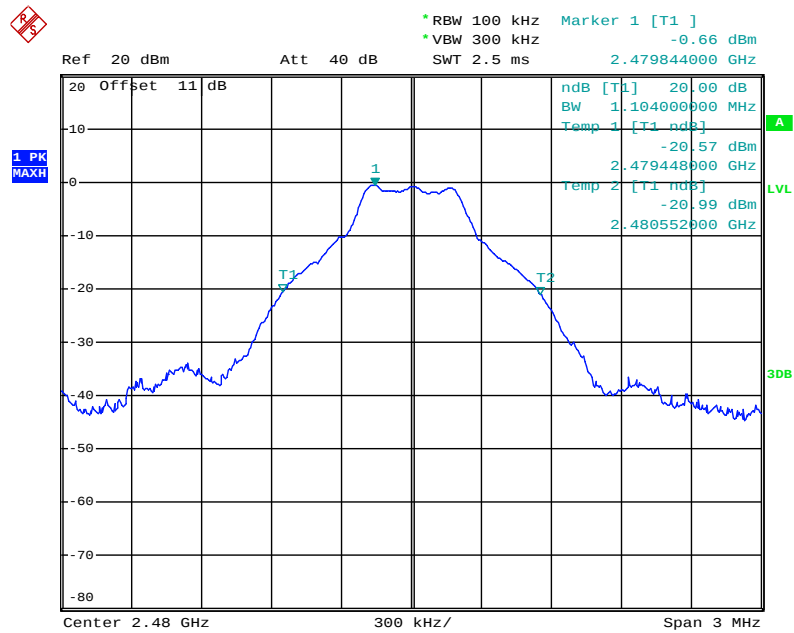
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Middle channel



Date: 20.OCT.2017 13:52:03

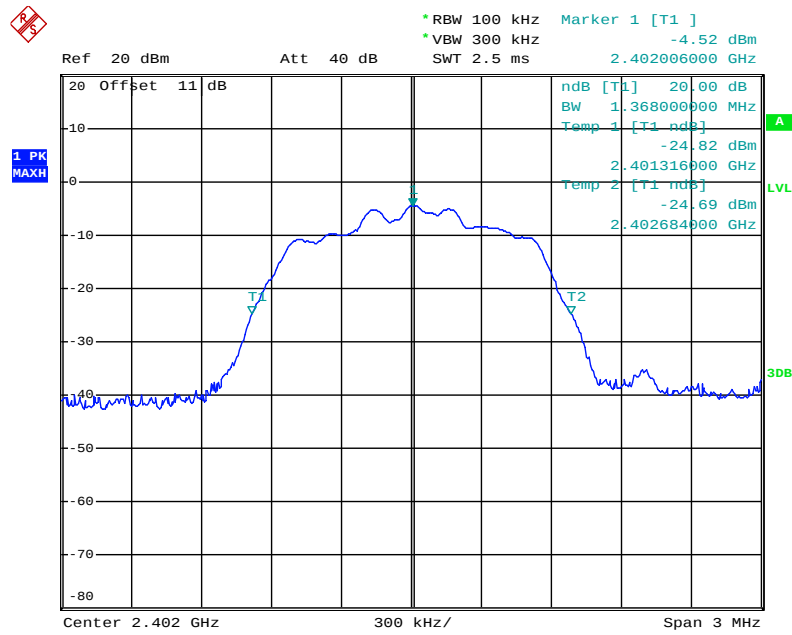
High channel



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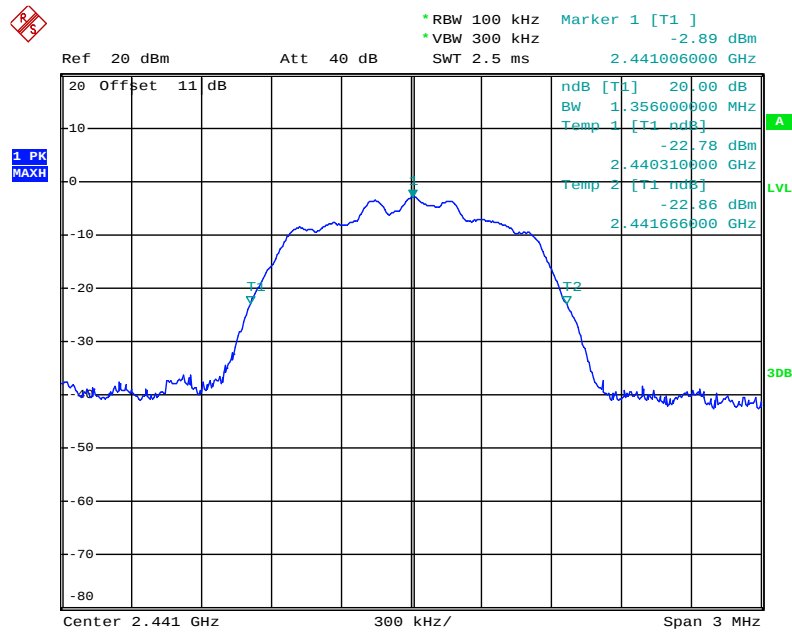
Π/4-DQPSK Mode

Low channel



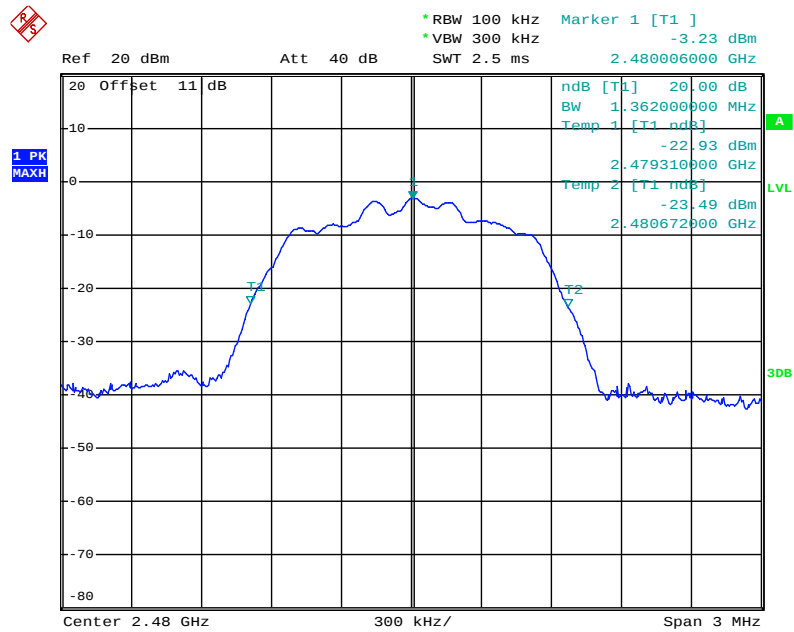
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Middle channel



Date: 20.OCT.2017 13:56:24

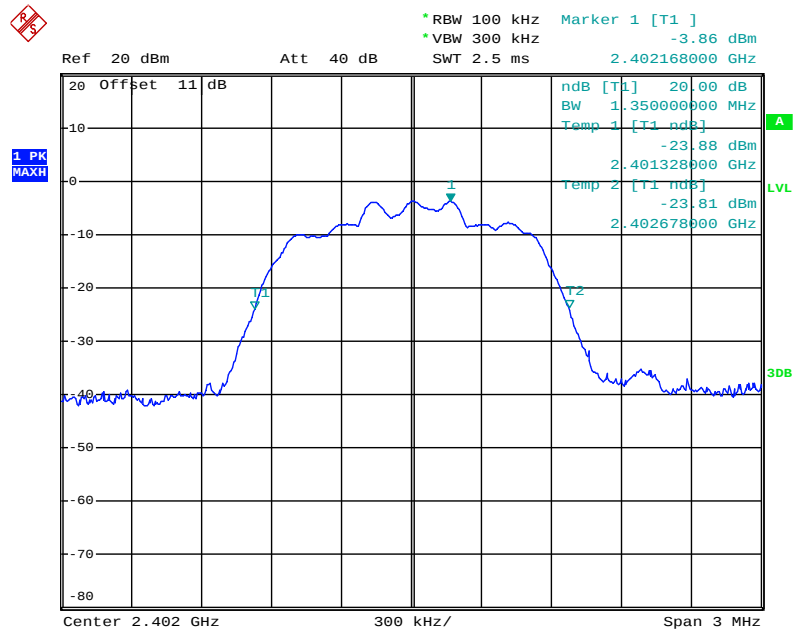
High channel



Date: 20.OCT.2017 13:59:58

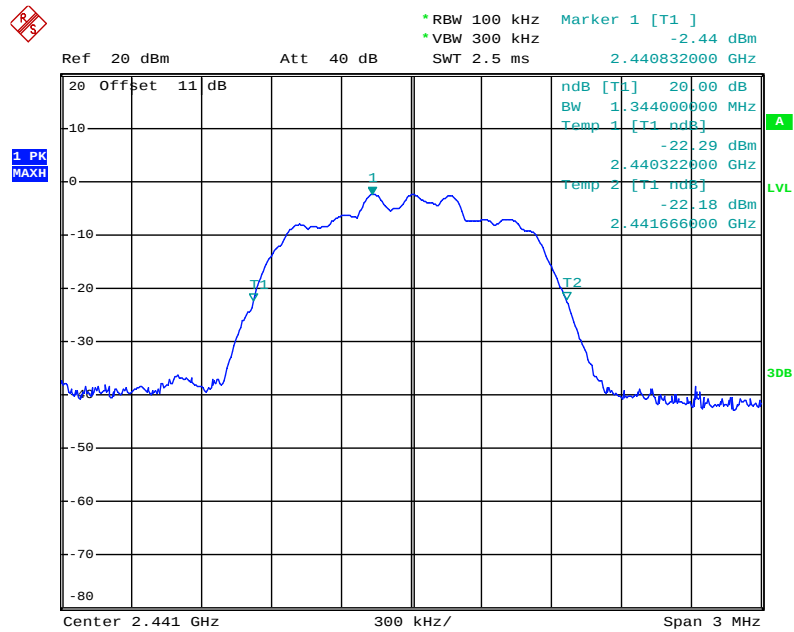
8DPSK Mode

Low channel



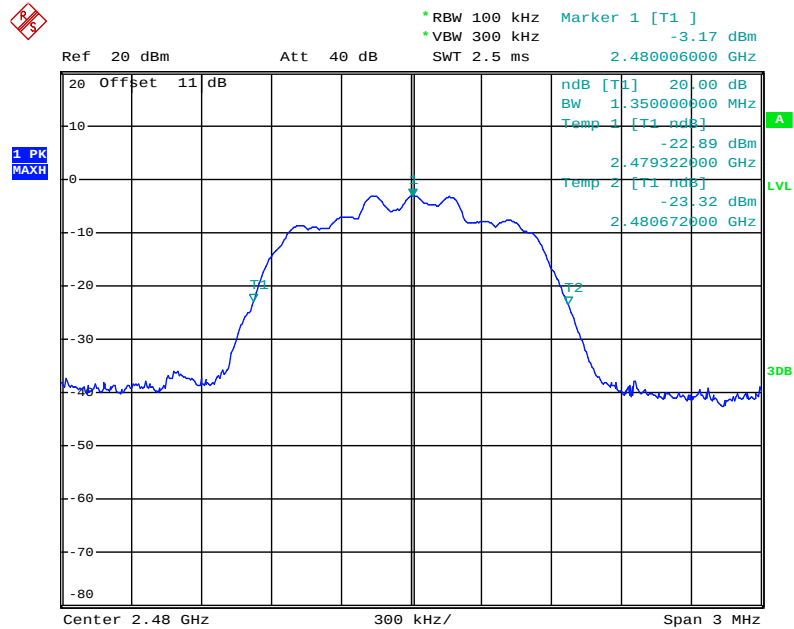
Date: 20.OCT.2017 14:05:28

Middle channel



Date: 20.OCT.2017 14:04:14

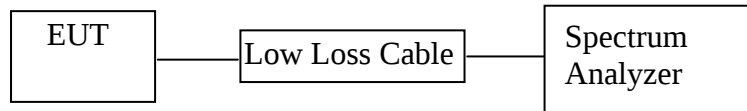
High channel



Date: 20.OCT.2017 14:02:02

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	1.008	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2480			

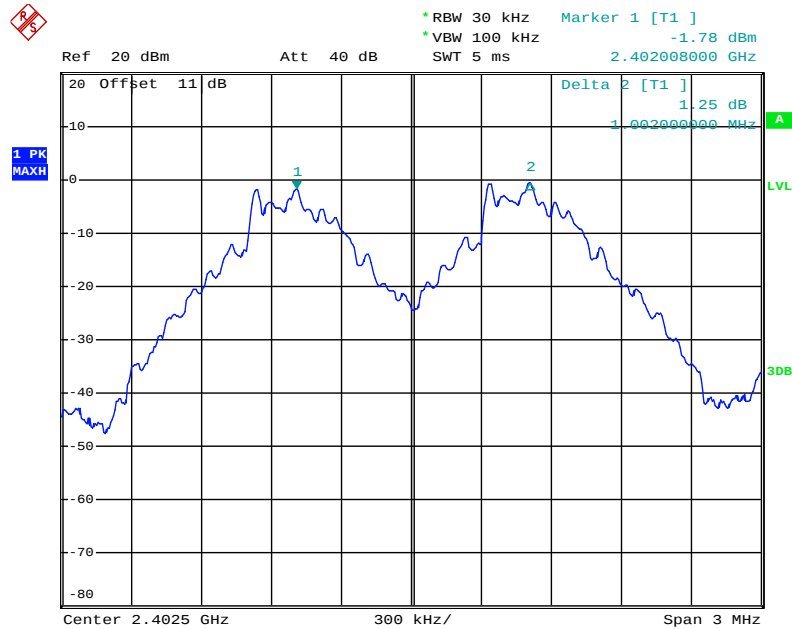
8DPSK

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.

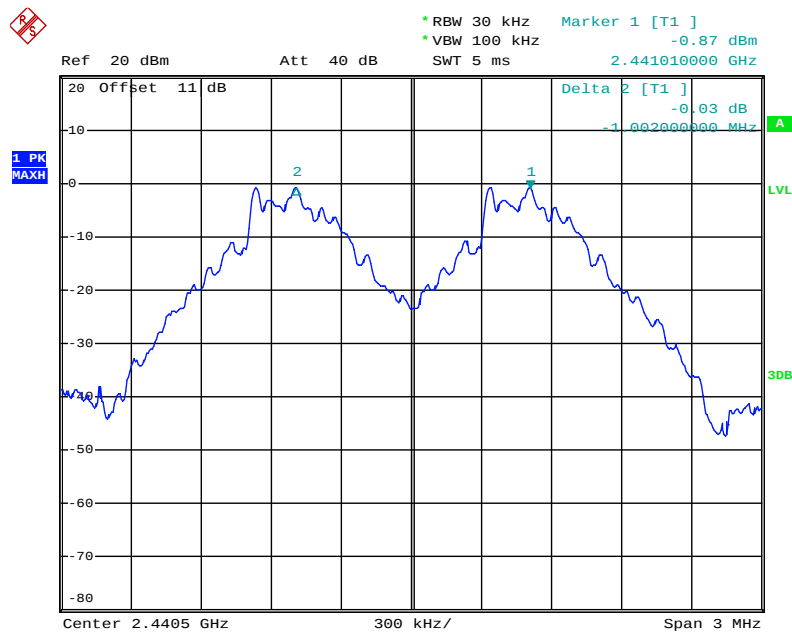
GFSK Mode

Low channel



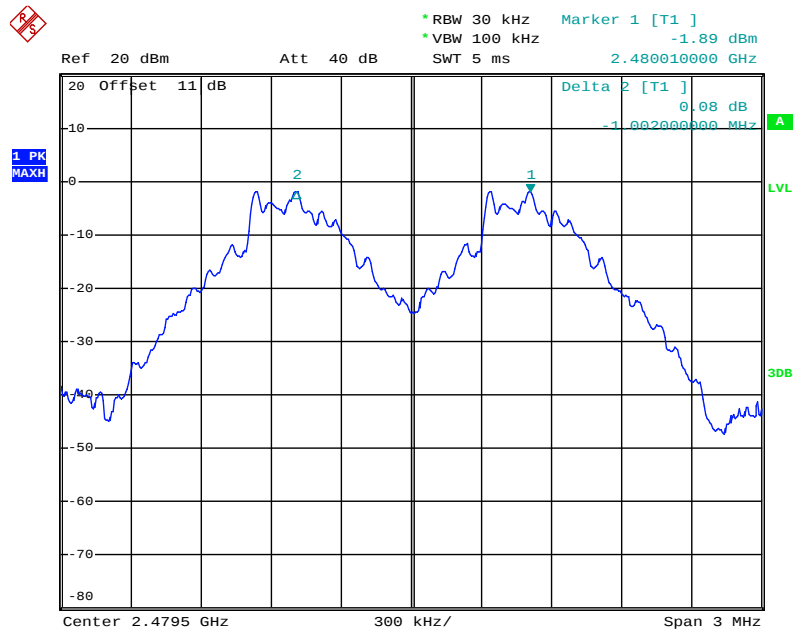
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Middle channel



Date: 20.OCT.2017 14:39:31

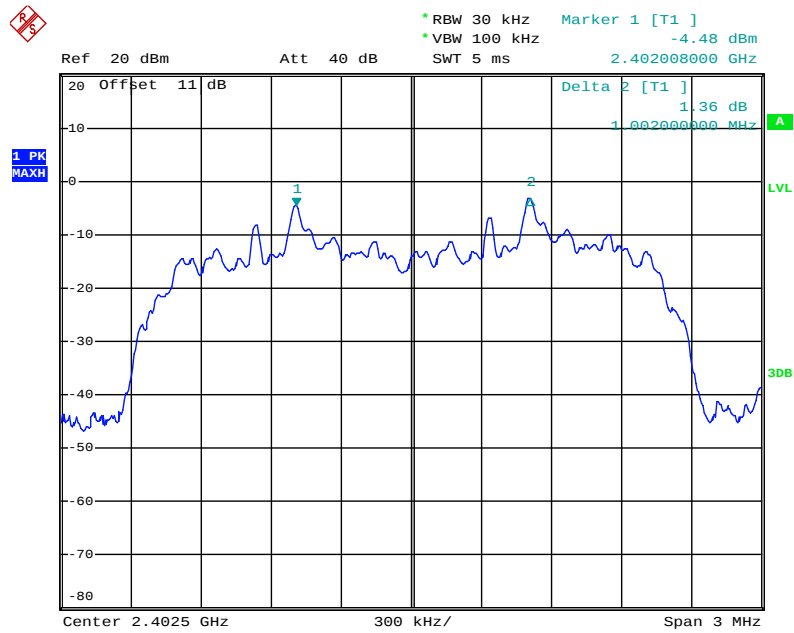
High channel



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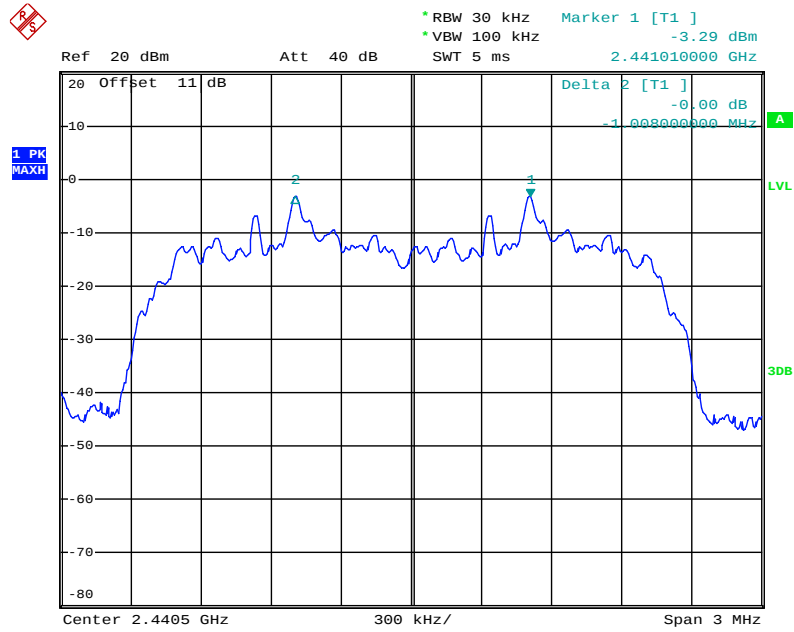
Π/4-DQPSK Mode

Low channel



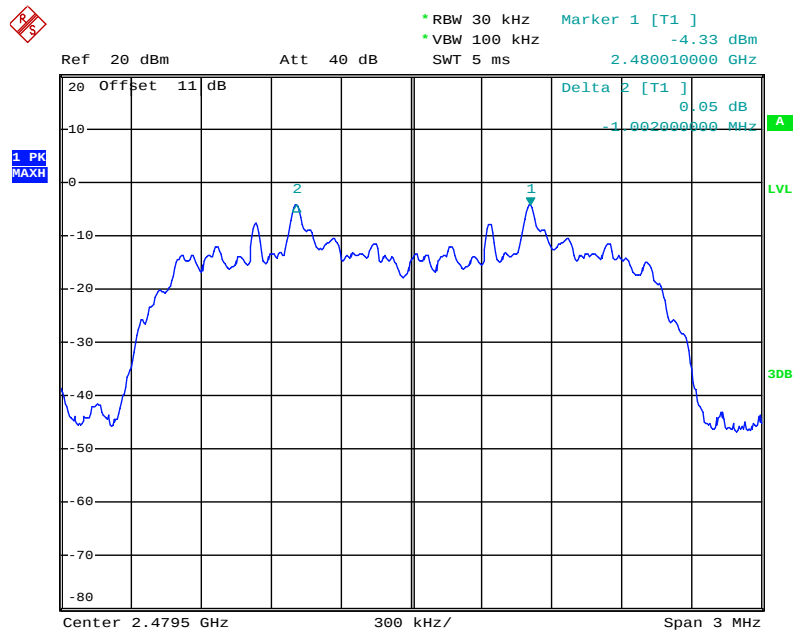
Date: 20.OCT.2017 14:44:35

Middle channel



Date: 20.OCT.2017 14:43:20

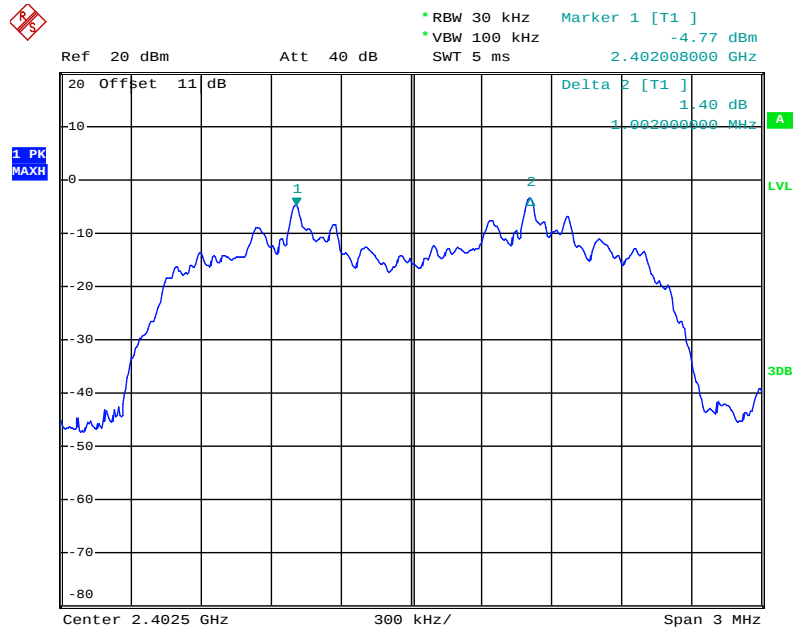
High channel



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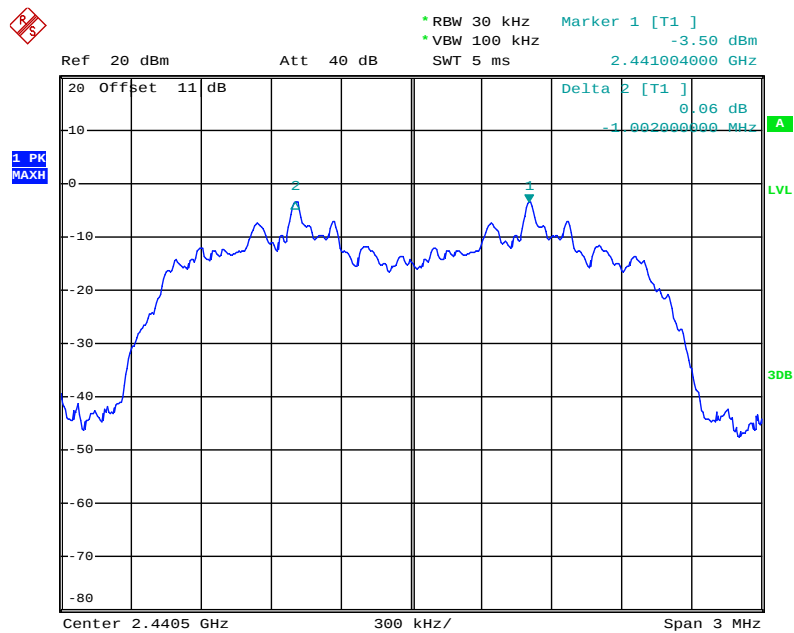
8DPSK Mode

Low channel



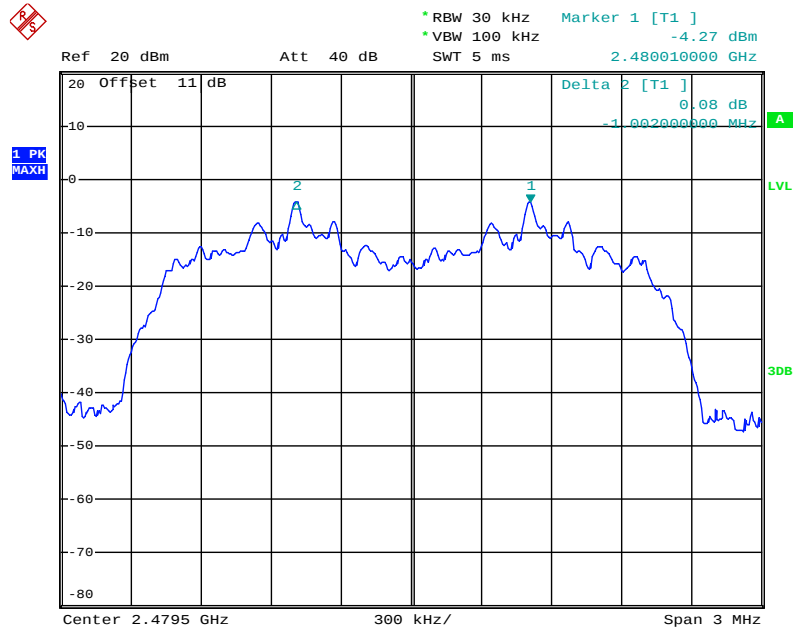
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Middle channel



Date: 20.OCT.2017 14:34:41

High channel



Date: 20.OCT.2017 14:32:44

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.

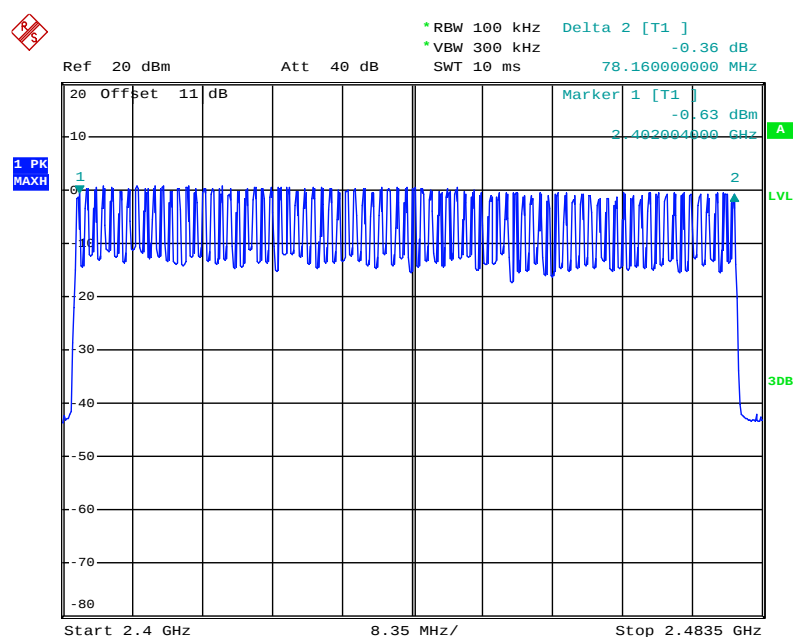
7.5.3. Max hold, view and count how many channel in the band.

7.6.Test Result

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

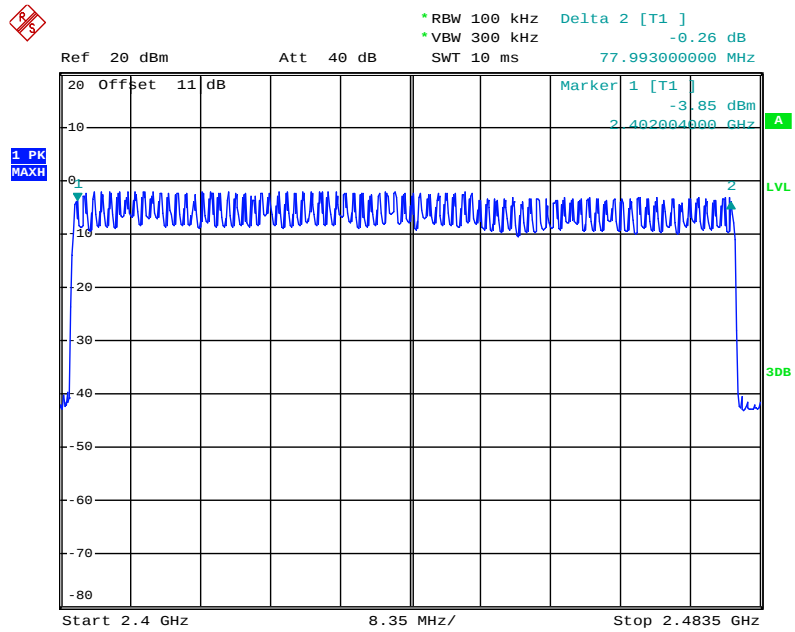
The spectrum analyzer plots are attached as below.

Number of hopping channels(GFSK)



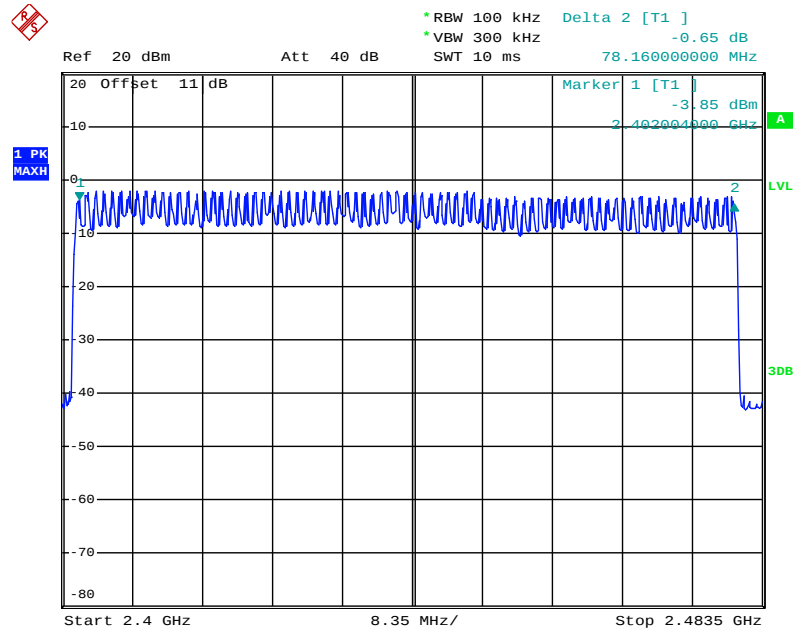
Date: 20.OCT.2017 15:02:02

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



Date: 20.OCT.2017 14:56:13

Number of hopping channels(8DPSK)



Date: 20.OCT.2017 14:56:22

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	0.455	145.60	400
	2441	0.445	142.40	400
	2480	0.455	145.60	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	1.735	277.60	400
	2441	1.735	277.60	400
	2480	1.735	277.60	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	2.965	316.27	400
	2441	2.995	319.47	400
	2480	2.965	316.27	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6 \times 79)) \times 31.6$				

Π/4-DQPSK

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.460	147.20	400
	2441	0.460	147.20	400
	2480	0.460	147.20	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	1.740	278.40	400
	2480	1.720	281.60	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 $\times (1600/(6 \times 79)) \times 31.6$				

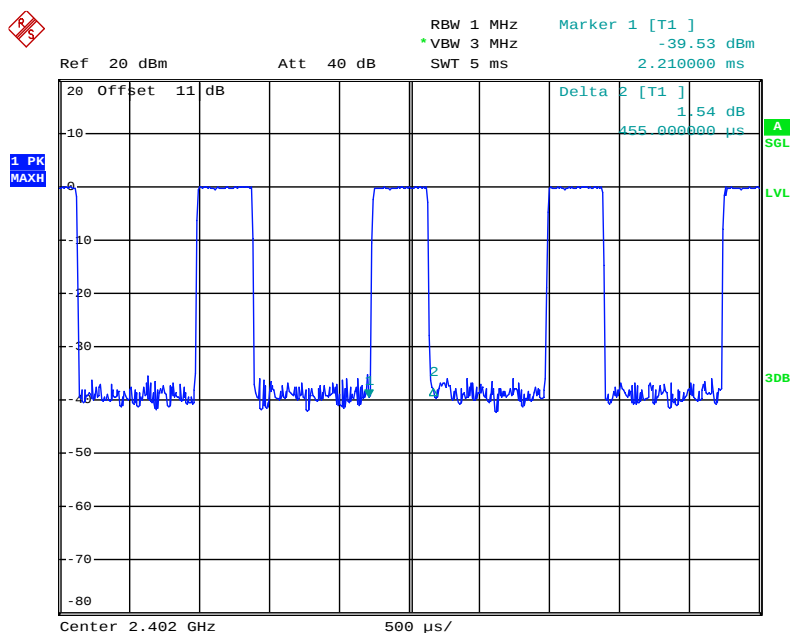
8DPSK Mode

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.

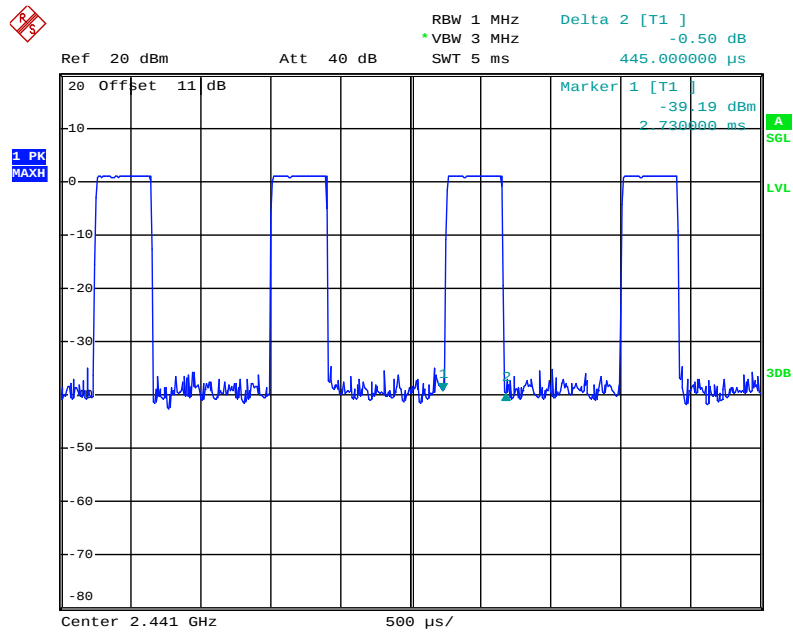
GFSK Mode

DH1 Low channel



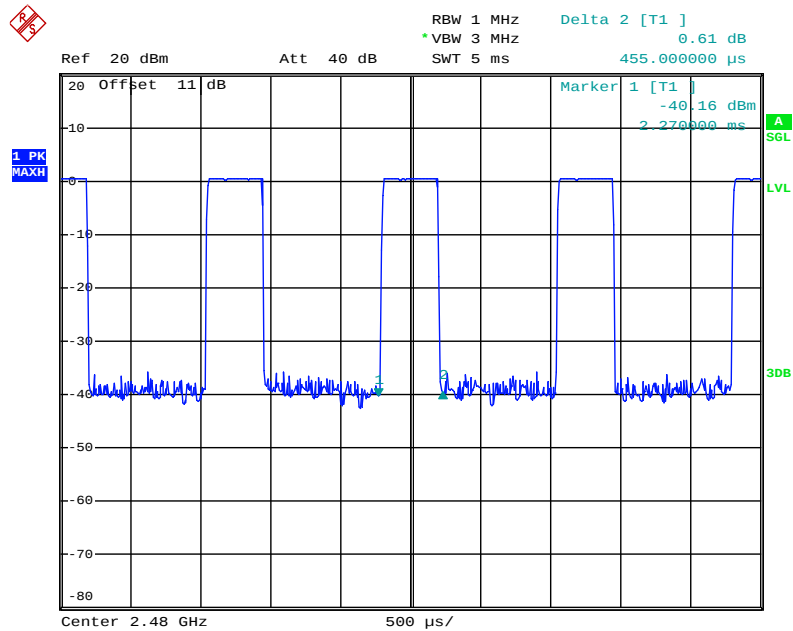
Date: 20.OCT.2017 15:23:57

DH1 Middle channel



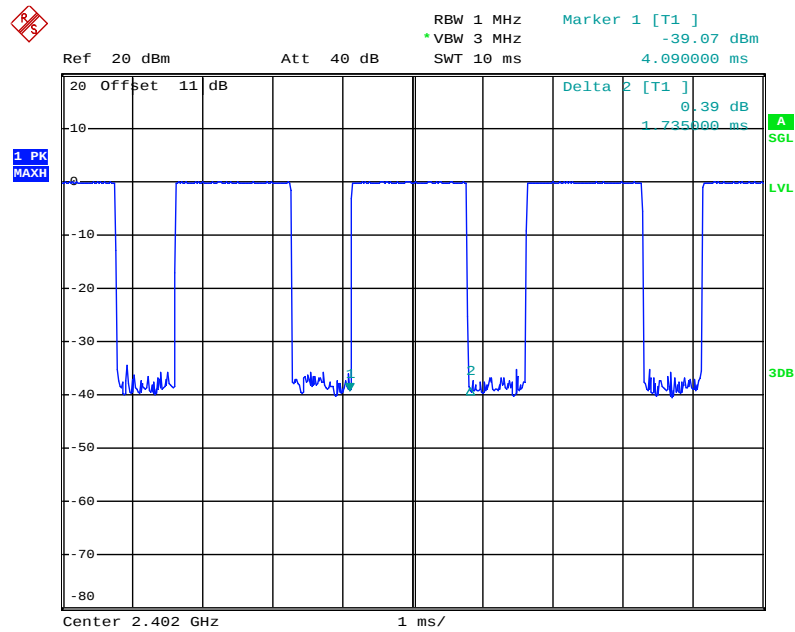
Date: 20.OCT.2017 15:25:36

DH1 High channel



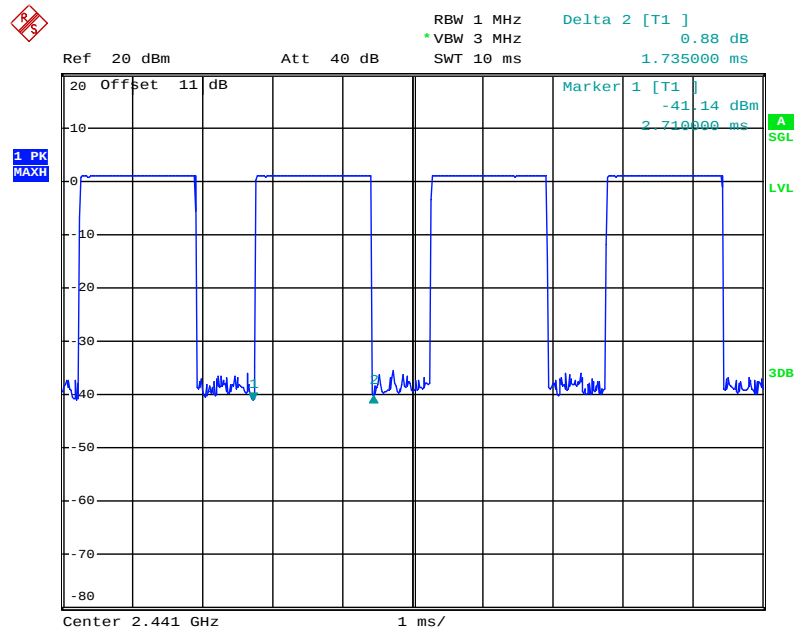
Date: 20.OCT.2017 15:26:52

DH3 Low channel



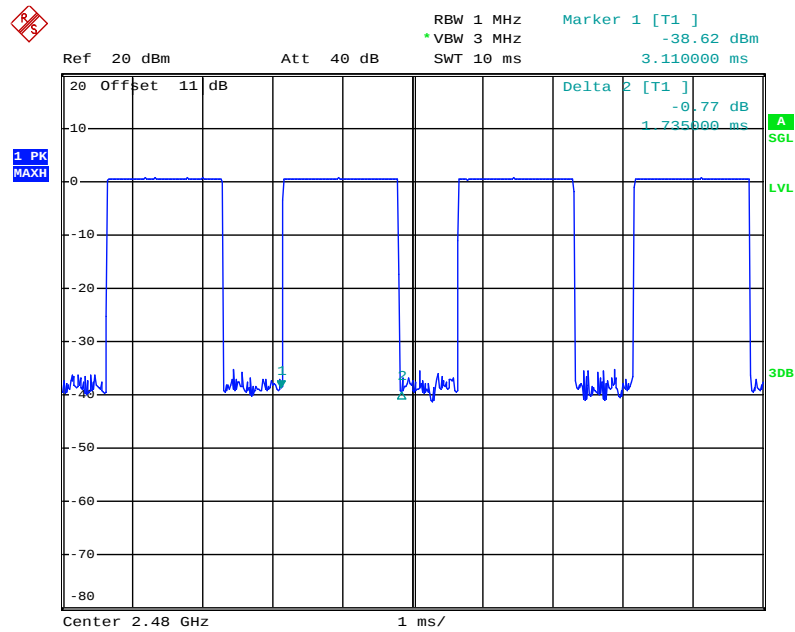
Date: 20.OCT.2017 15:30:01

DH3 Middle channel



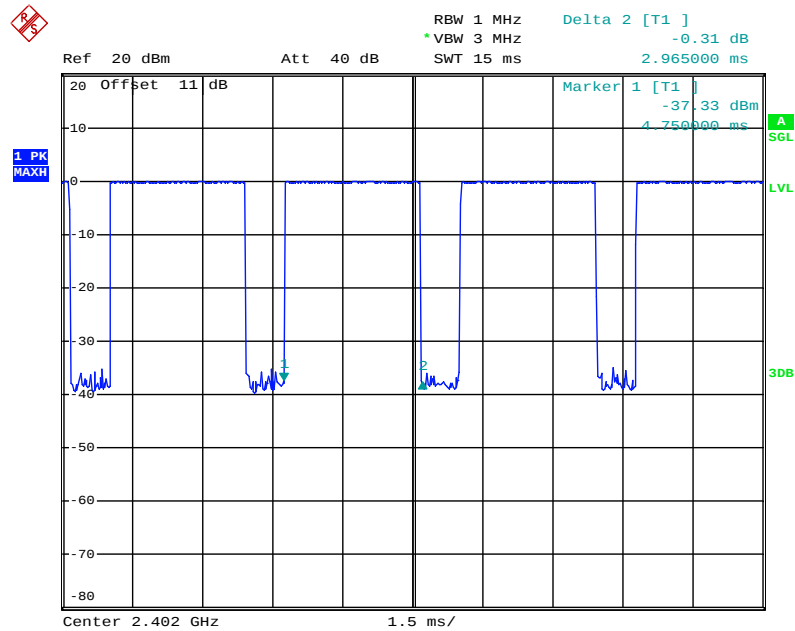
Date: 20.OCT.2017 15:29:13

DH3 High channel



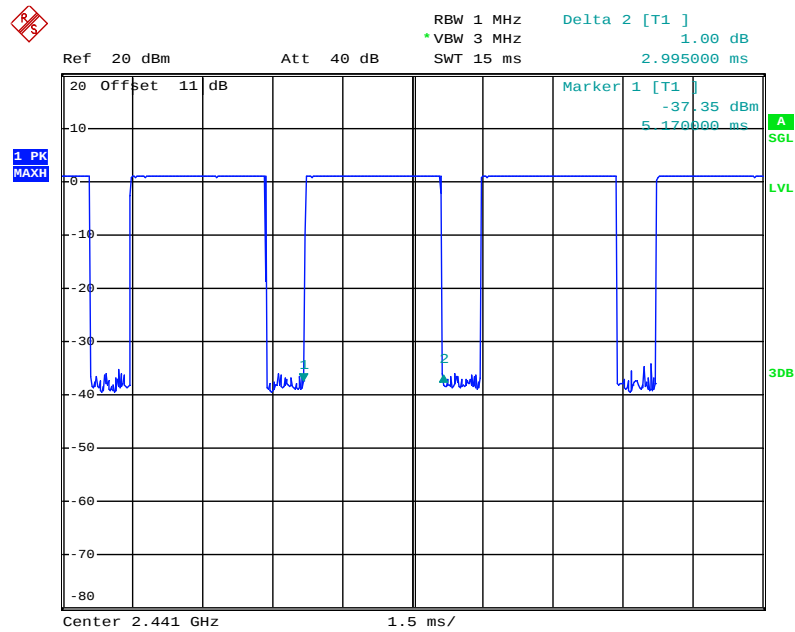
Date: 20.OCT.2017 15:28:30

DH5 Low channel



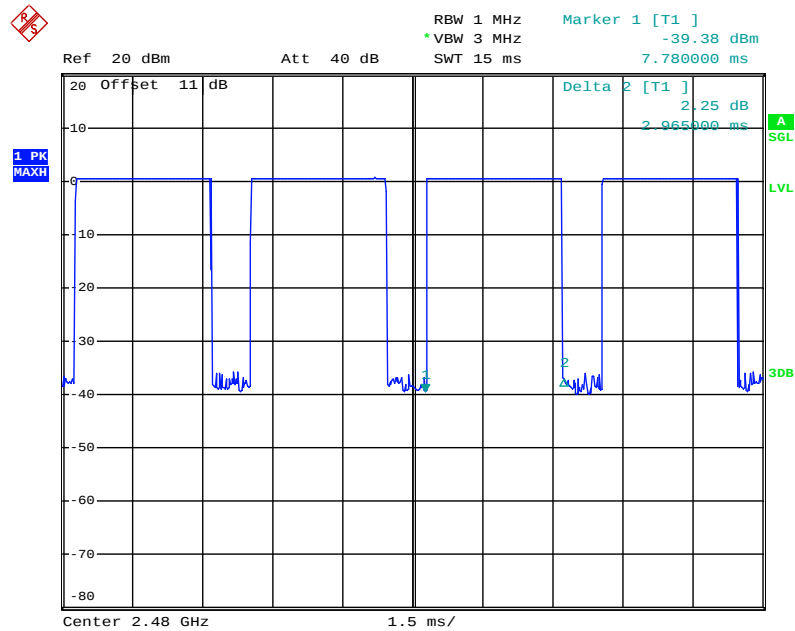
Date: 20.OCT.2017 15:31:21

DH5 Middle channel



Date: 20.OCT.2017 15:32:09

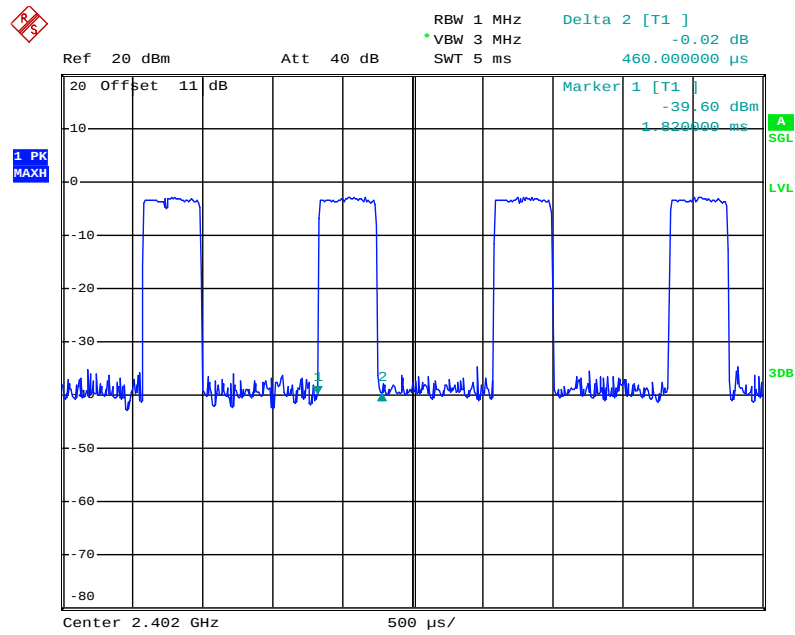
DH5 High channel



Date: 20.OCT.2017 15:32:54

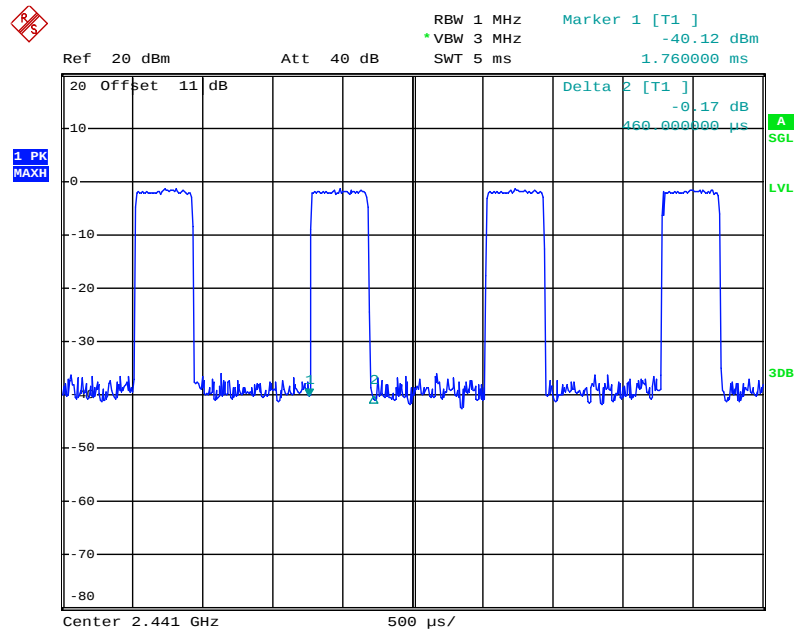
Π/4-DQPSK

2DH1 Low channel



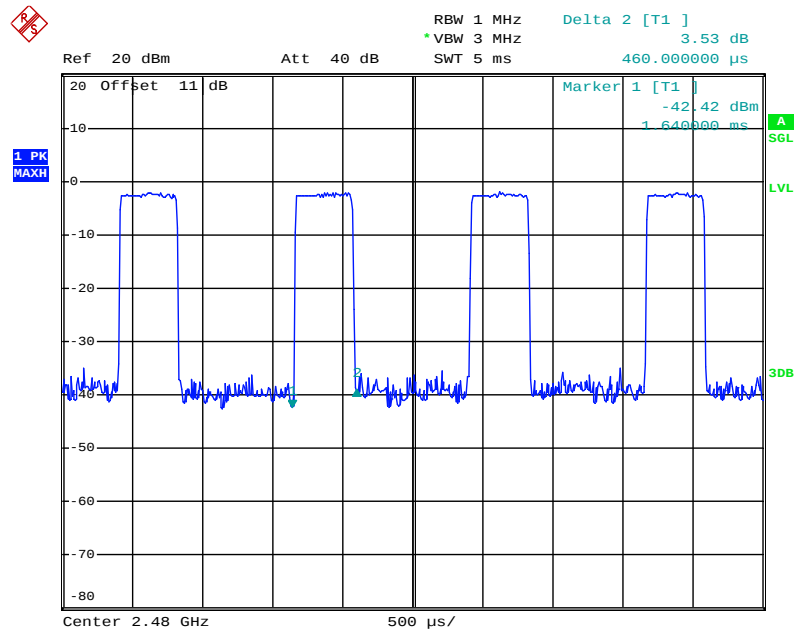
Date: 20.OCT.2017 15:37:50

2DH1 Middle channel



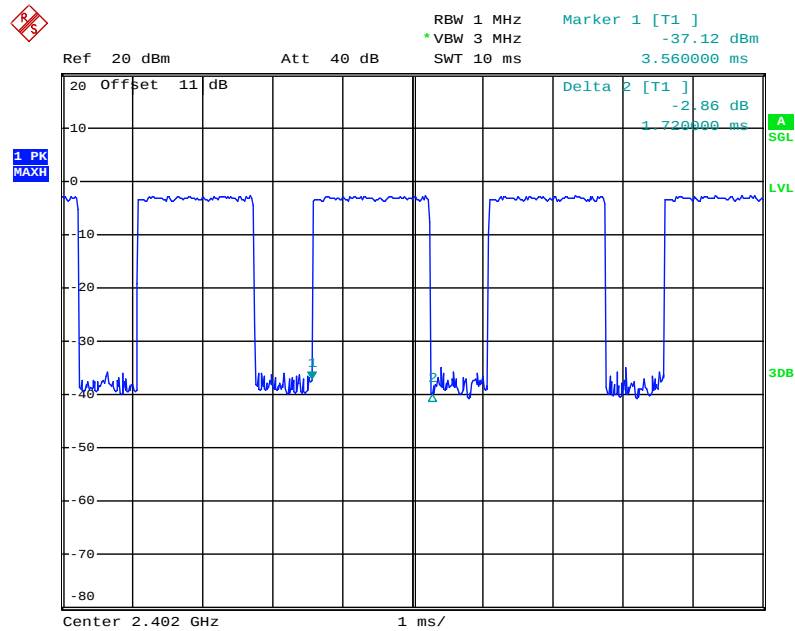
Date: 20.OCT.2017 15:36:05

2DH1 High channel



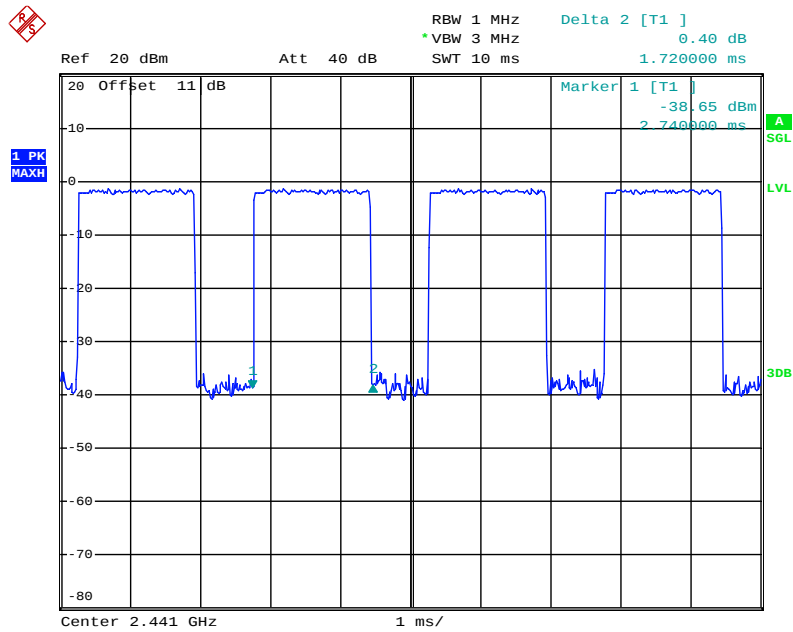
Date: 20.OCT.2017 15:34:37

2DH3 Low channel



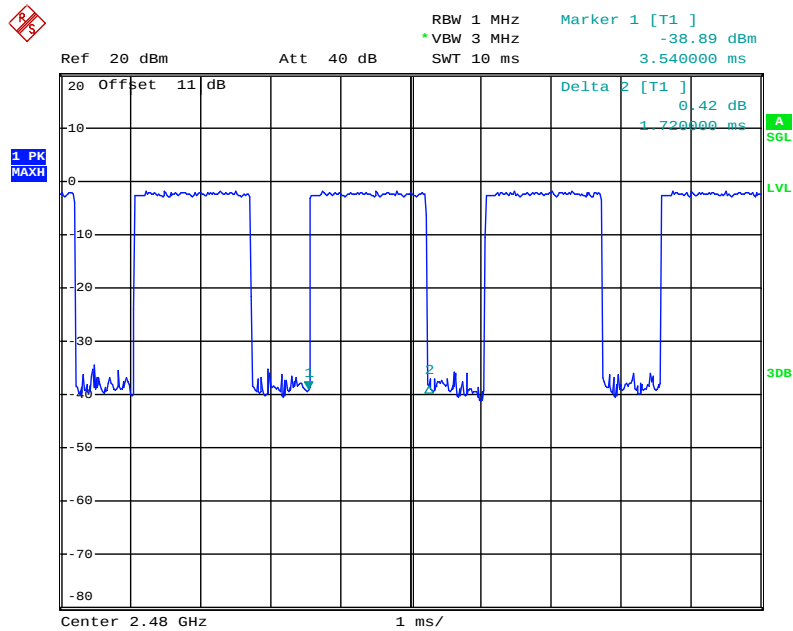
Date: 20.OCT.2017 15:38:52

2DH3 Middle channel



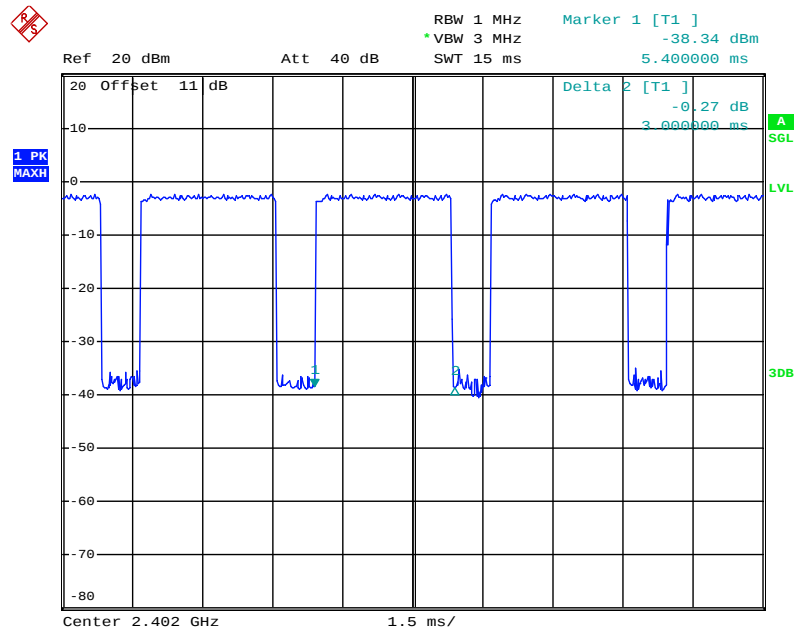
Date: 20.OCT.2017 15:40:27

2DH3 High channel



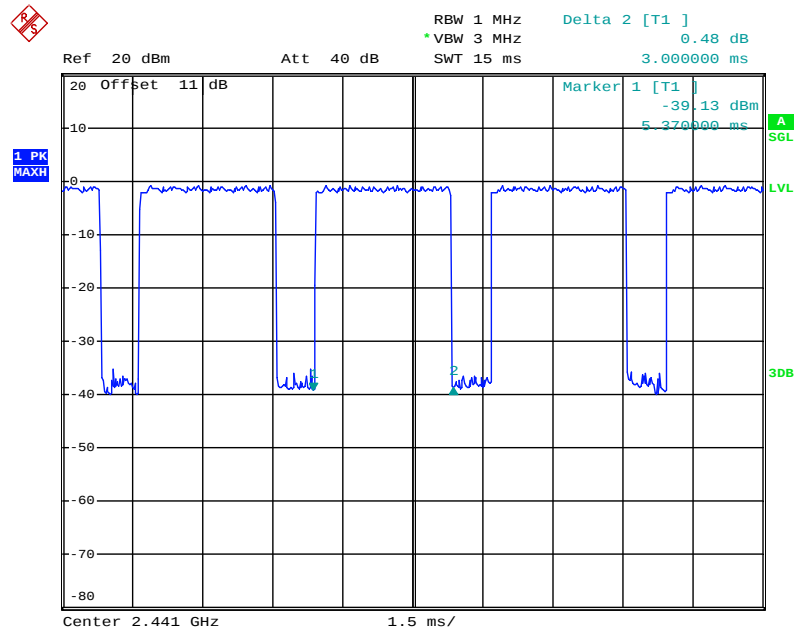
Date: 20.OCT.2017 15:41:03

2DH5 Low channel



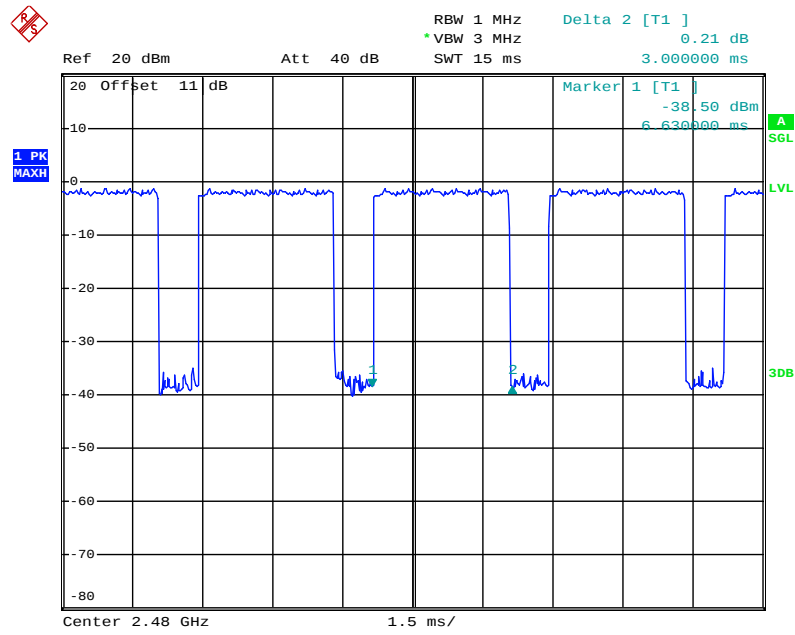
Date: 20.OCT.2017 15:46:18

2DH5 Middle channel



Date: 20.OCT.2017 15:45:11

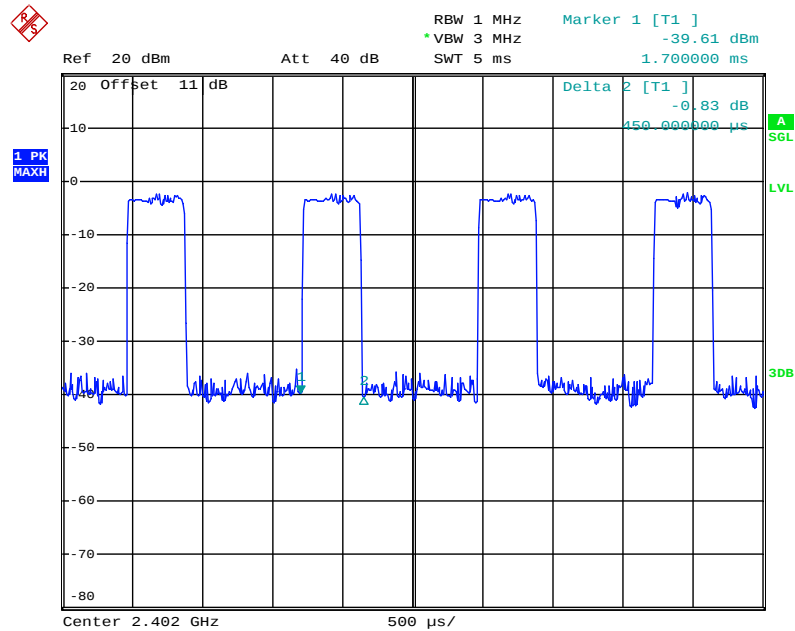
2DH5 High channel



Date: 20.OCT.2017 15:47:11

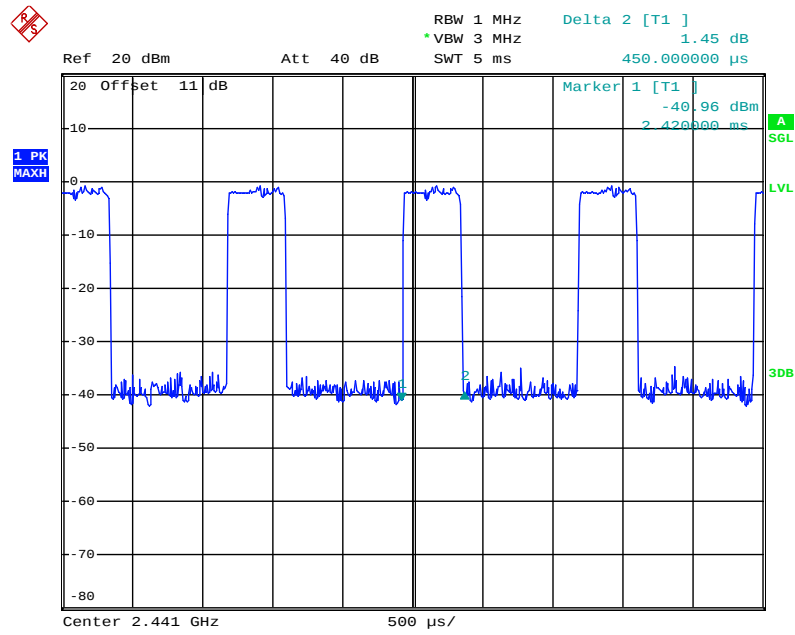
8DPSK Mode

3DH1 Low channel



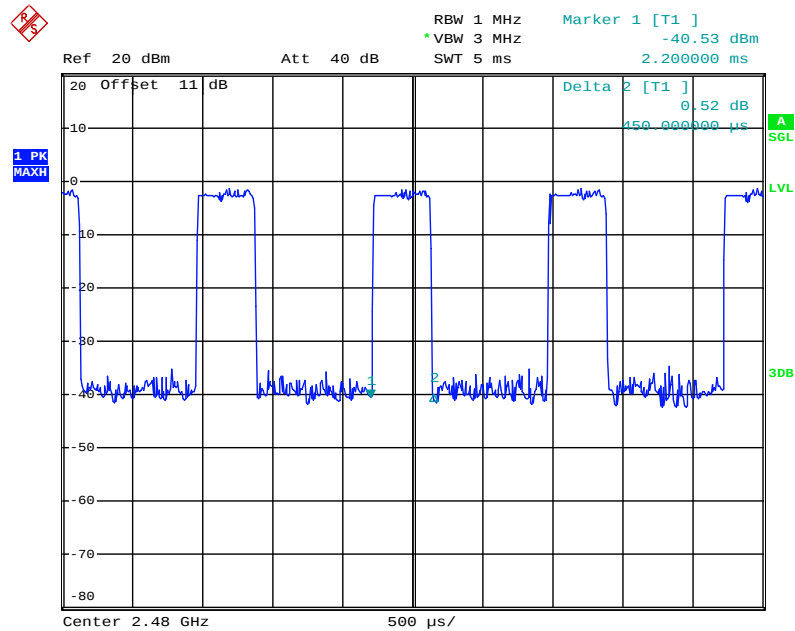
Date: 20.OCT.2017 15:48:31

3DH1 Middle channel



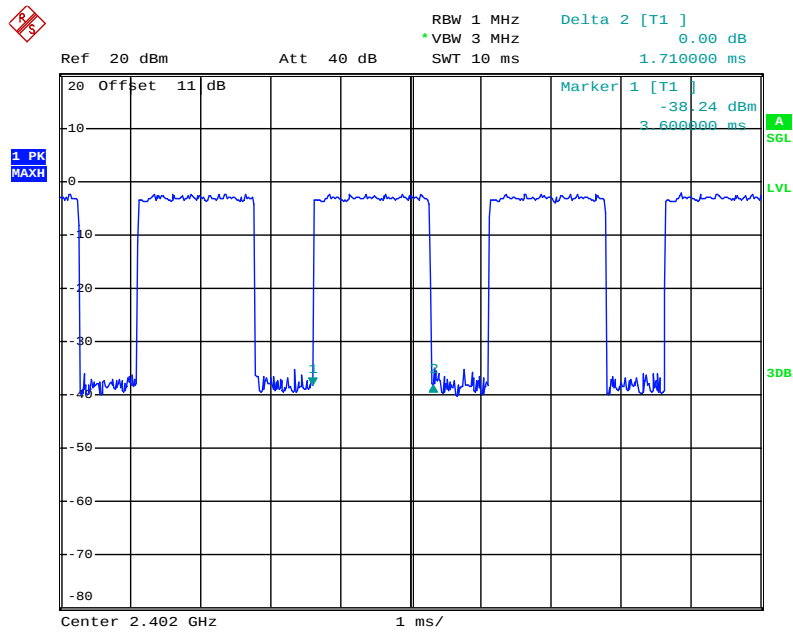
Date: 20.OCT.2017 15:49:36

3DH1 High channel



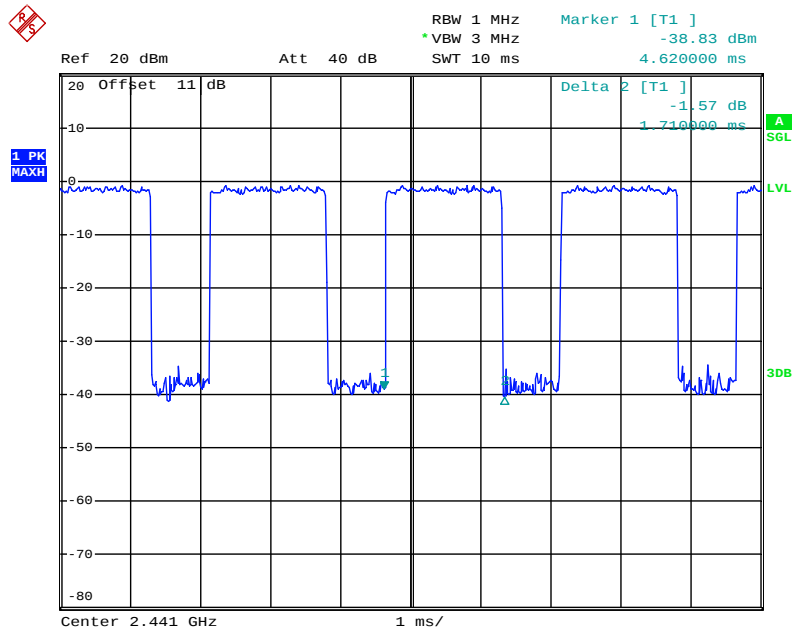
Date: 20.OCT.2017 15:50:11

3DH3 Low channel



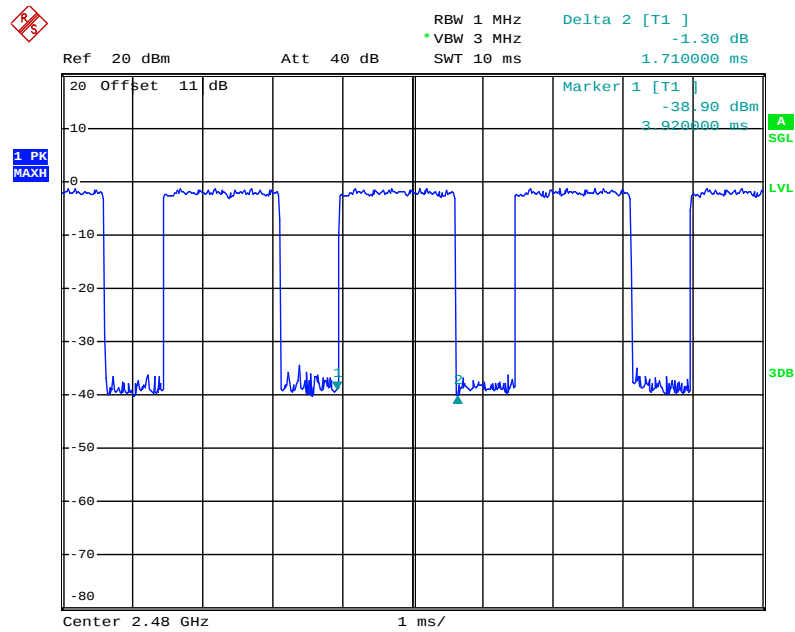
Date: 20.OCT.2017 15:52:24

3DH3 Middle channel



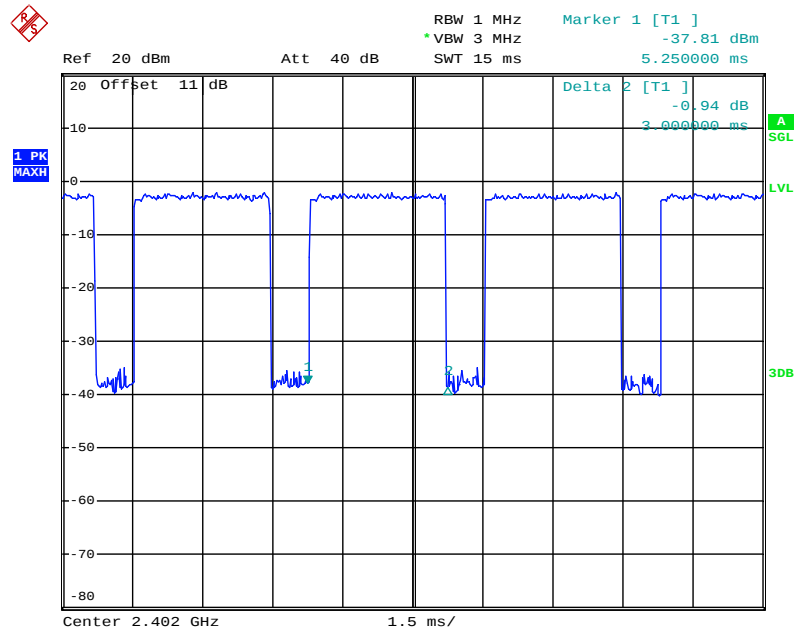
Date: 20.OCT.2017 15:51:49

3DH3 High channel



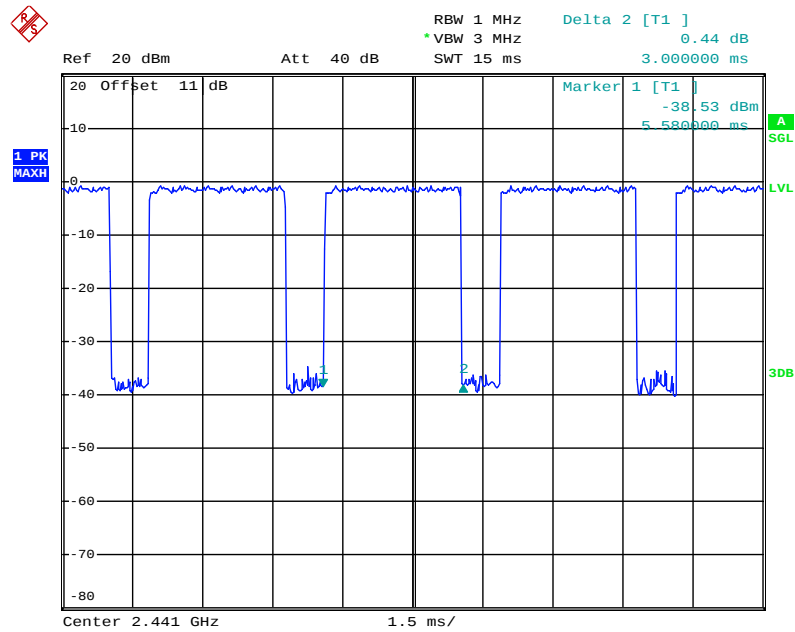
Date: 20.OCT.2017 15:51:14

3DH5 Low channel



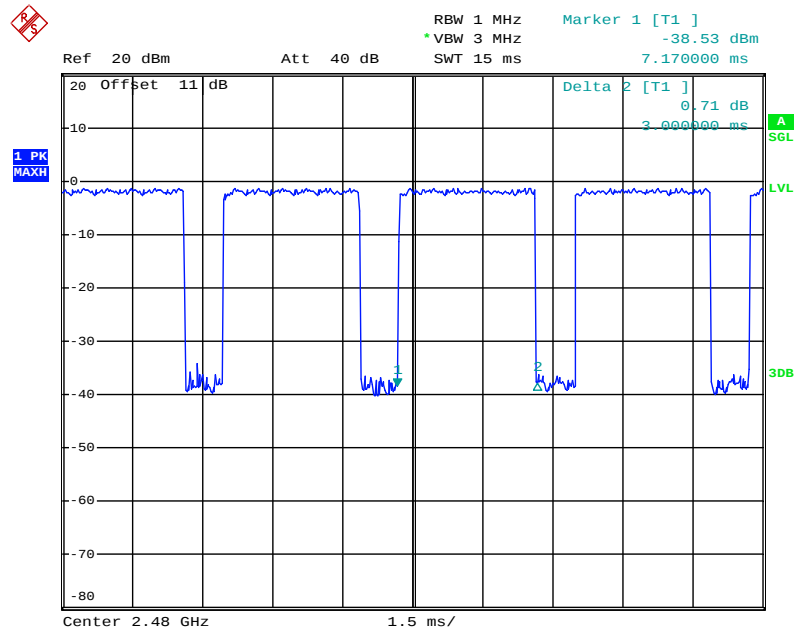
Date: 20.OCT.2017 15:53:45

3DH5 Middle channel



Date: 20.OCT.2017 15:54:42

3DH5 High channel



Date: 20.OCT.2017 15:55:23

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	-0.59/0.0009	21 / 0.125
Middle	2441	0.35/0.0011	21 / 0.125
High	2480	-0.34/0.0009	21 / 0.125

II/4-DQPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	-2.26/0.0006	21 / 0.125
Middle	2441	-1.68/0.0007	21 / 0.125
High	2480	-2.39/0.0006	21 / 0.125

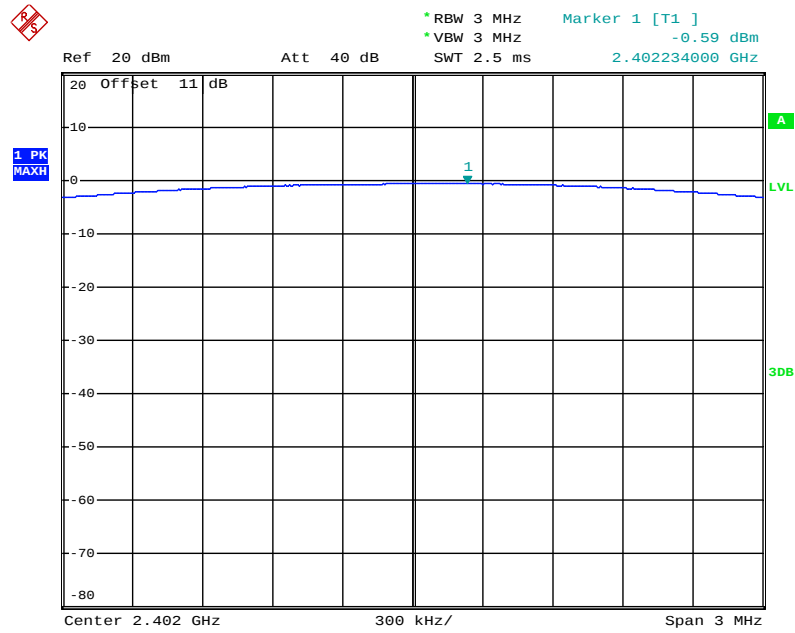
8DPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	-2.26/0.0006	21 / 0.125
Middle	2441	-1.16/0.0008	21 / 0.125
High	2480	-1.88/0.0006	21 / 0.125

The spectrum analyzer plots are attached as below.

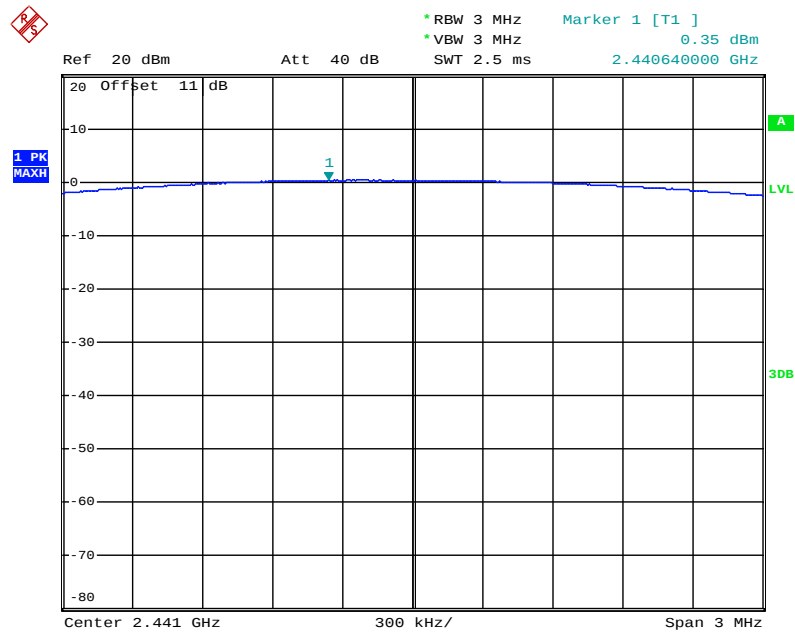
GFSK Mode

Low channel



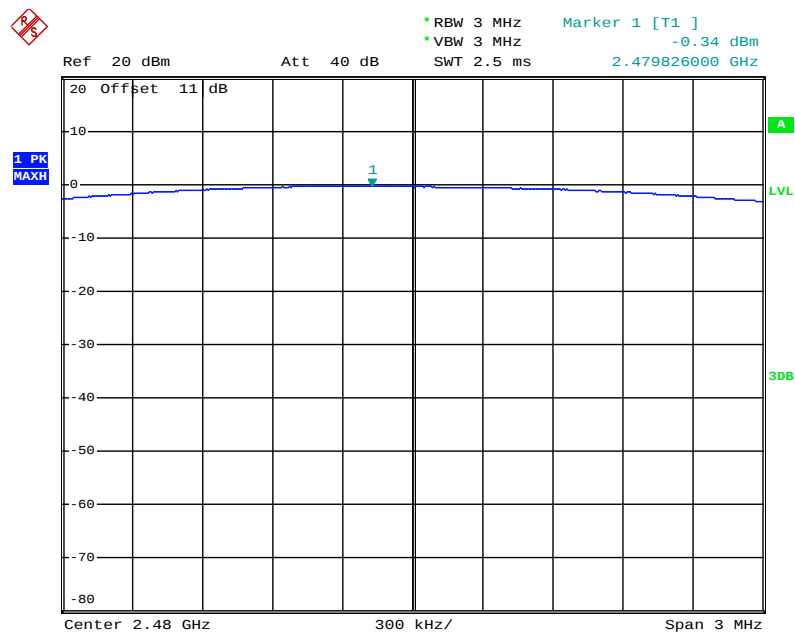
Date: 20.OCT.2017 14:20:18

Middle channel



Date: 20.OCT.2017 14:21:04

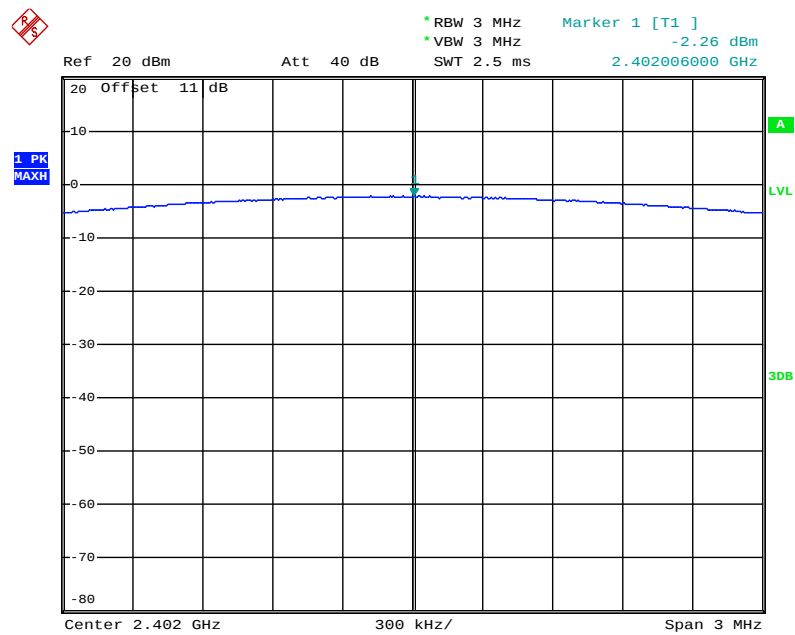
High channel



Date: 20.OCT.2017 14:21:27

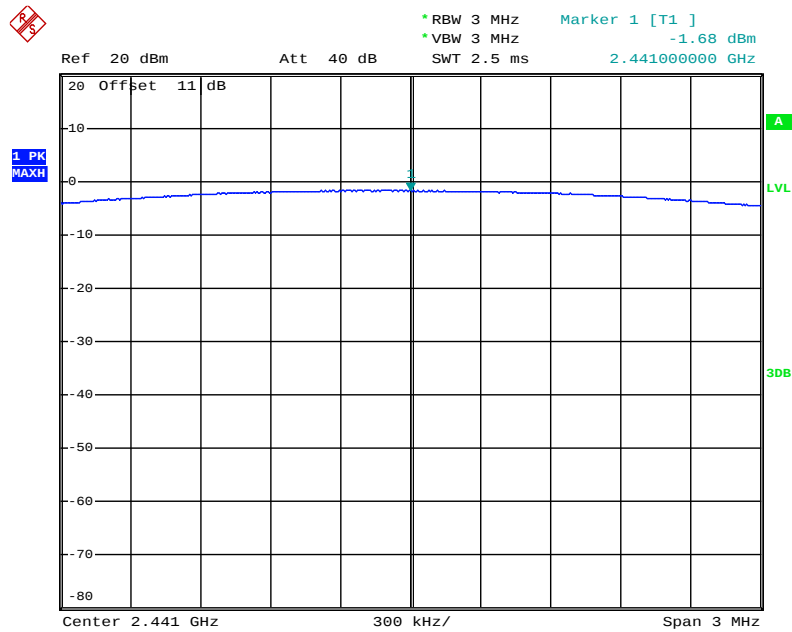
Π/4-DQPSK Mode

Low channel



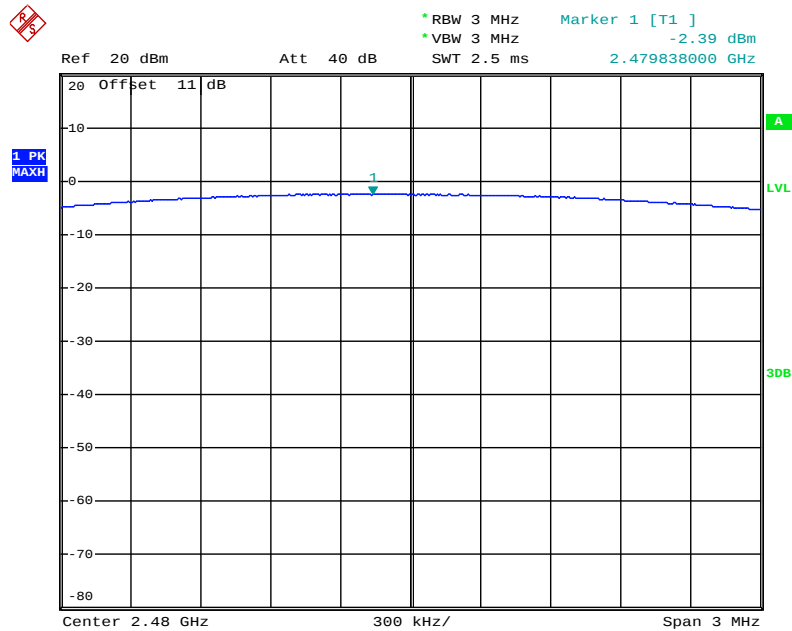
Date: 20.OCT.2017 14:25:08

Middle channel



Date: 20.OCT.2017 14:23:19

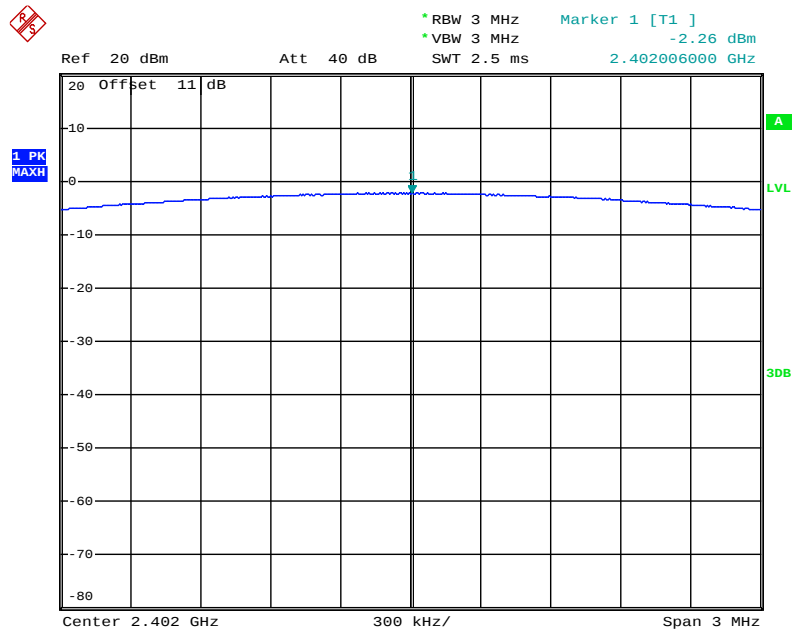
High channel



Date: 20.OCT.2017 14:22:31

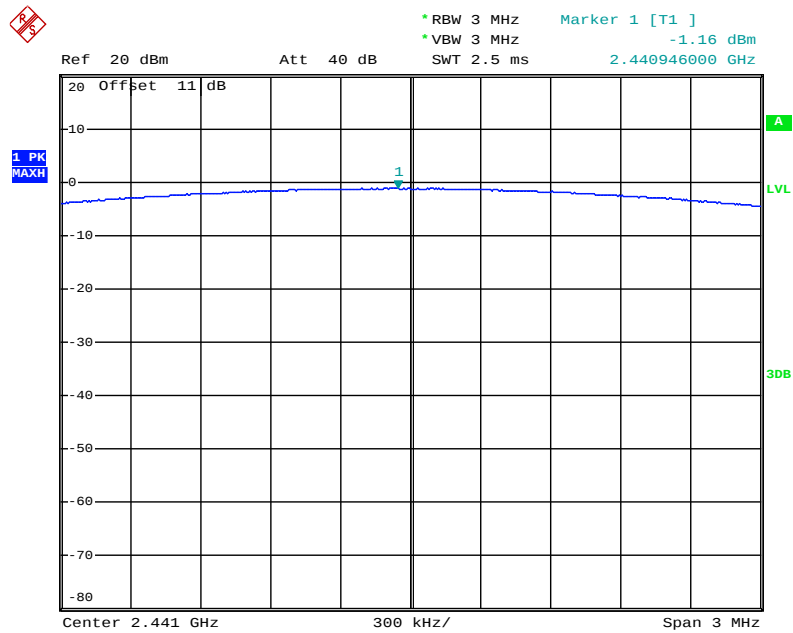
8DPSK Mode

Low channel



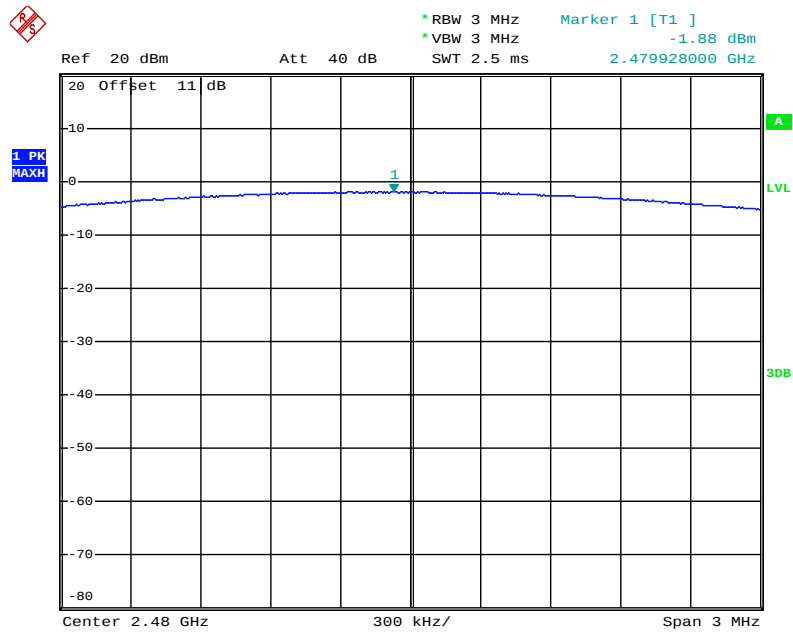
Date: 20.OCT.2017 14:26:15

Middle channel



Date: 20.OCT.2017 14:27:01

High channel

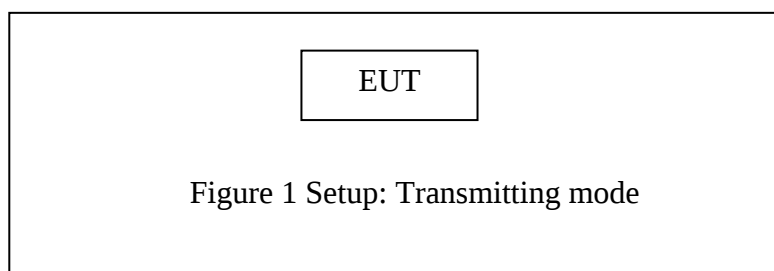


Date: 20.OCT.2017 14:27:47

10.RADIATED EMISSION TEST

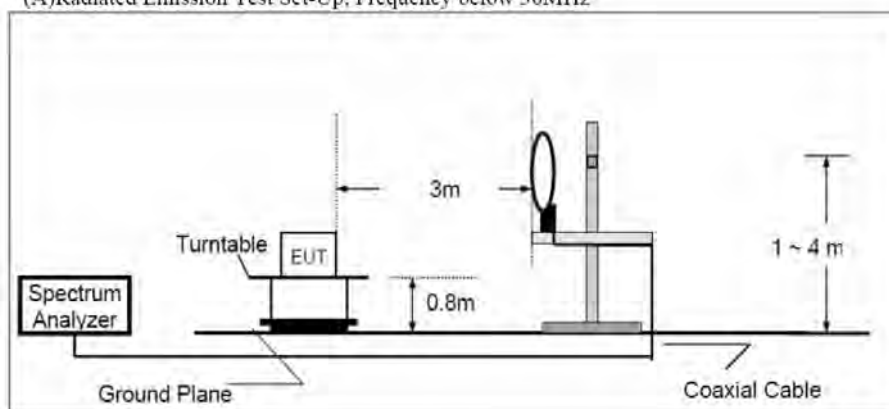
10.1.Block Diagram of Test Setup

10.1.1.Block diagram of connection between the EUT and peripherals

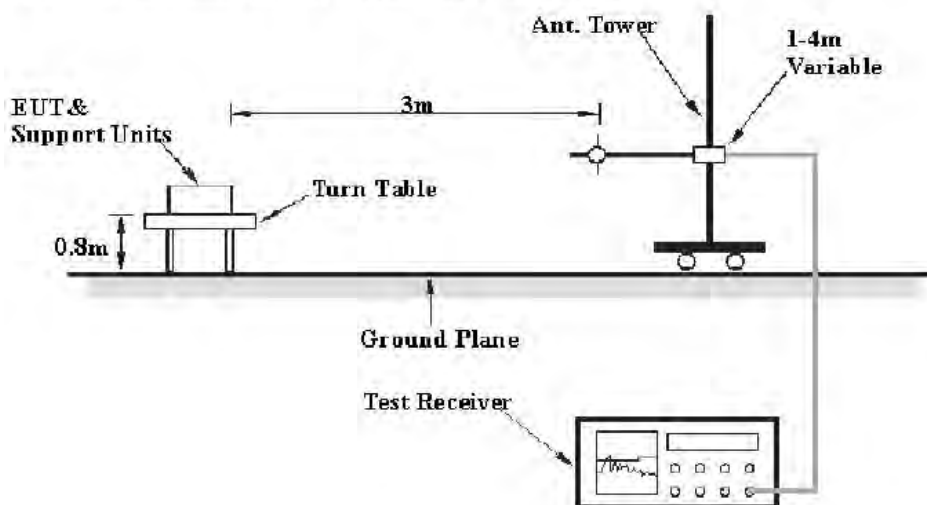


10.1.2.Semi-Anechoic Chamber Test Setup Diagram

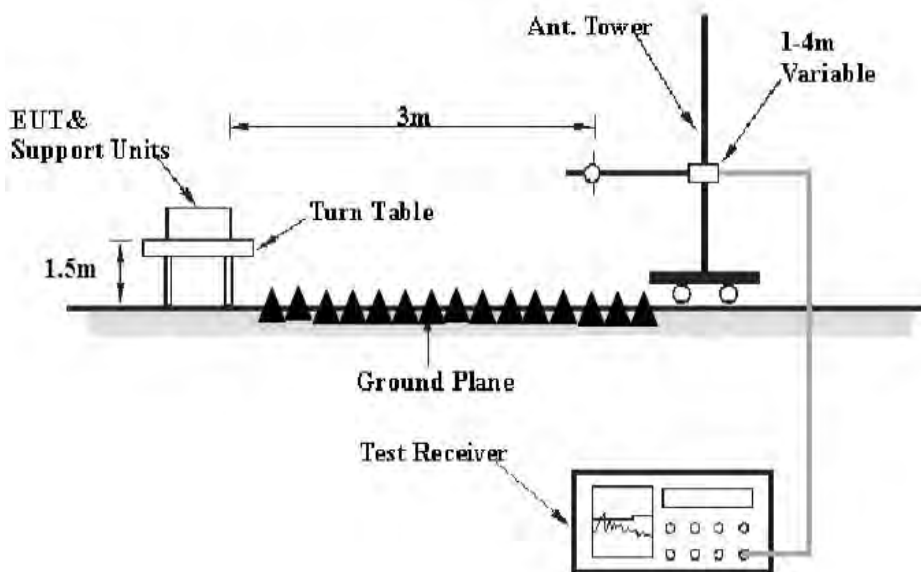
(A)Radiated Emission Test Set-Up, Frequency below 30MHz



(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. The EUT was tested in 3 orthogonal planes.

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.

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 test frequency is from 30MHz to 25GHz, The 18-25GHz emissions are not reported, because the levels are too low against the limit.

Below 1GHz



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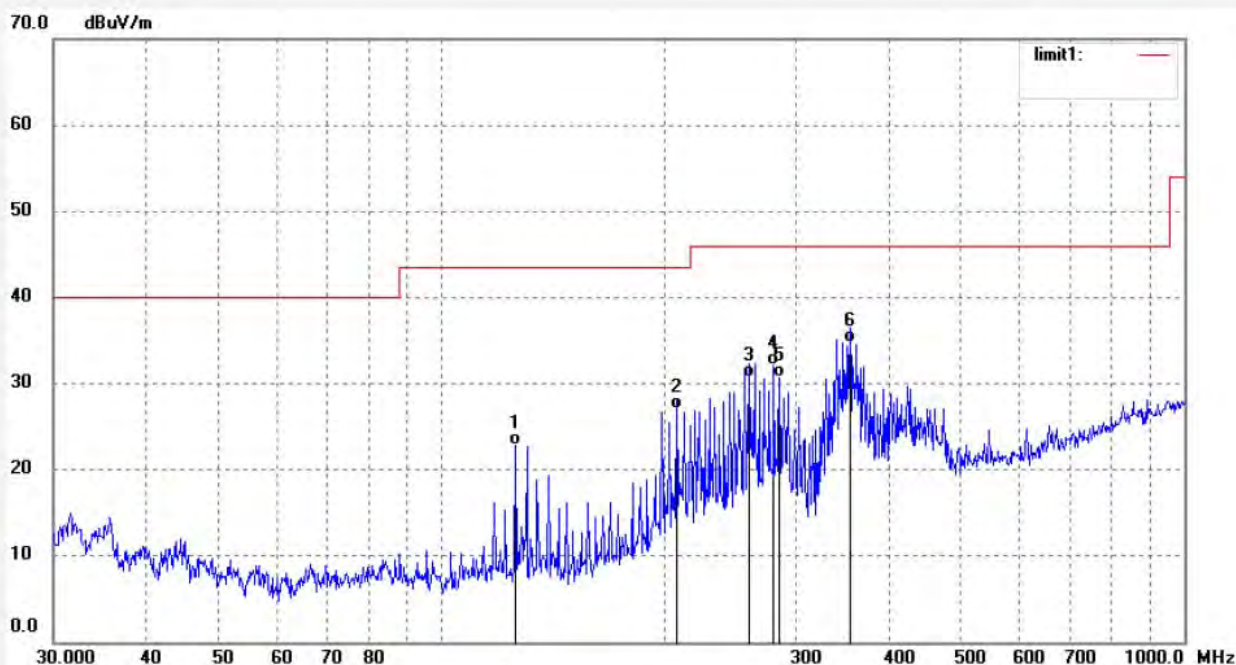
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: frank2017 #1233
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 E300
Manufacturer: Zylux

Polarization: Horizontal
Power Source: DC 3.7V
Date: 17/10/21/
Time: 14/13/20
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172054



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	125.8058	44.96	-22.05	22.91	43.50	-20.59	QP	250	156	
2	207.1967	45.54	-18.47	27.07	43.50	-16.43	QP	250	158	
3	259.4433	48.34	-17.57	30.77	46.00	-15.23	QP	200	167	
4	280.2936	48.75	-16.59	32.16	46.00	-13.84	QP	200	79	
5	285.2610	47.08	-16.37	30.71	46.00	-15.29	QP	200	235	
6	354.6911	48.45	-13.64	34.81	46.00	-11.19	QP	250	152	



ACCURATE TECHNOLOGY CO., LTD.

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

Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: frank2017 #1232

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 E300

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

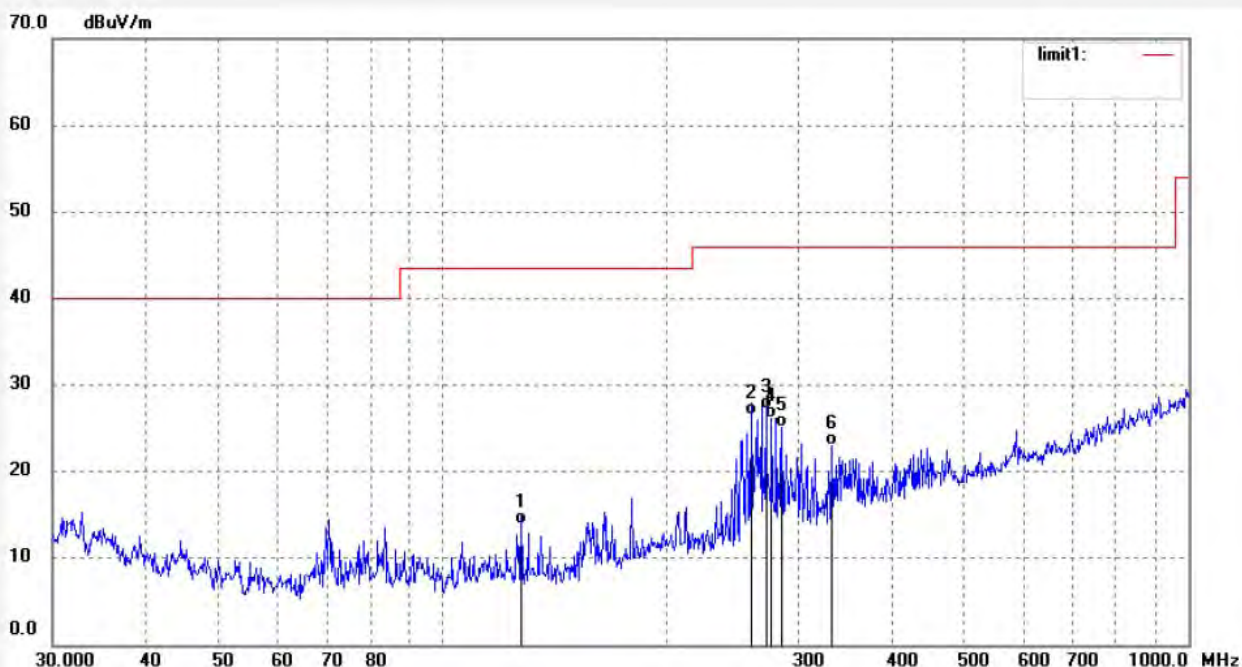
Date: 17/10/21/

Time: 14/12/42

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	127.5865	36.01	-22.09	13.92	43.50	-29.58	QP	150	153	
2	259.4433	44.12	-17.57	26.55	46.00	-19.45	QP	150	57	
3	271.5686	44.32	-17.02	27.30	46.00	-18.70	QP	150	132	
4	276.3817	42.99	-16.83	26.16	46.00	-19.84	QP	150	138	
5	285.2610	41.55	-16.37	25.18	46.00	-20.82	QP	150	185	
6	331.7857	37.53	-14.57	22.96	46.00	-23.04	QP	150	305	



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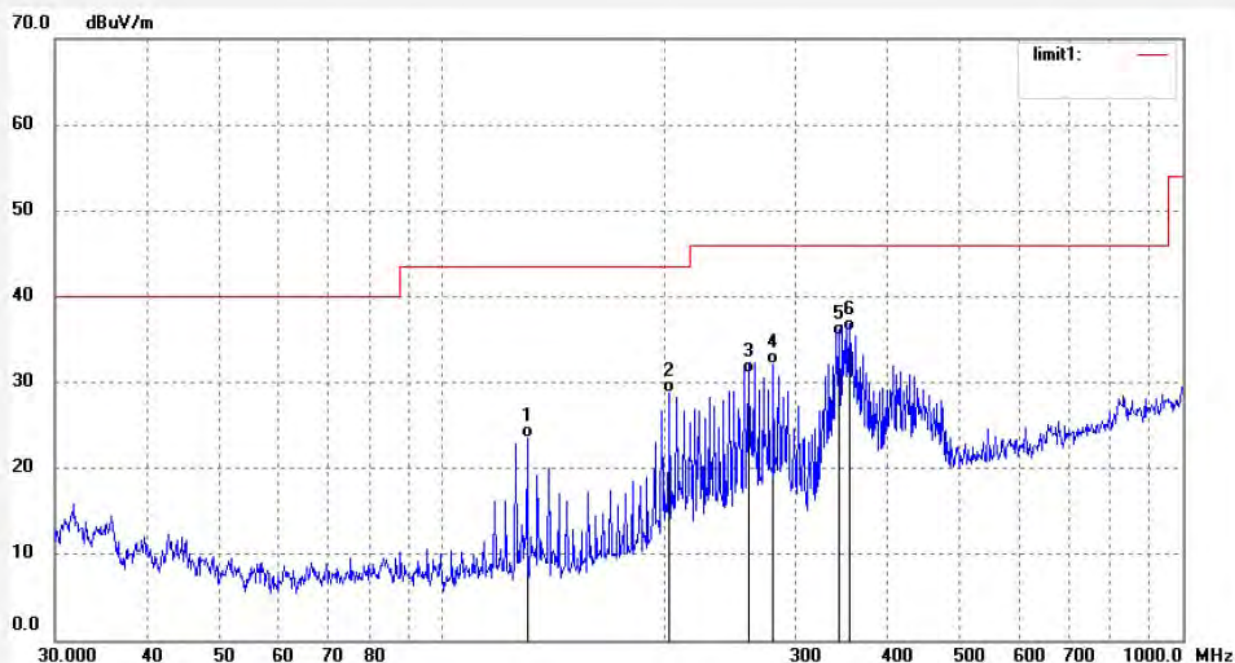
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: frank2017 #1234
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 E300
Manufacturer: Zylux

Polarization: Horizontal
Power Source: DC 3.7V
Date: 17/10/21/
Time: 14/13/34
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172054



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	130.3048	45.63	-22.14	23.49	43.50	-20.01	QP	200	168	
2	202.8745	47.40	-18.56	28.84	43.50	-14.66	QP	200	153	
3	259.4433	48.65	-17.57	31.08	46.00	-14.92	QP	250	195	
4	280.2936	48.75	-16.59	32.16	46.00	-13.84	QP	200	56	
5	343.6505	49.49	-14.08	35.41	46.00	-10.59	QP	200	273	
6	354.6911	49.56	-13.64	35.92	46.00	-10.08	QP	250	48	



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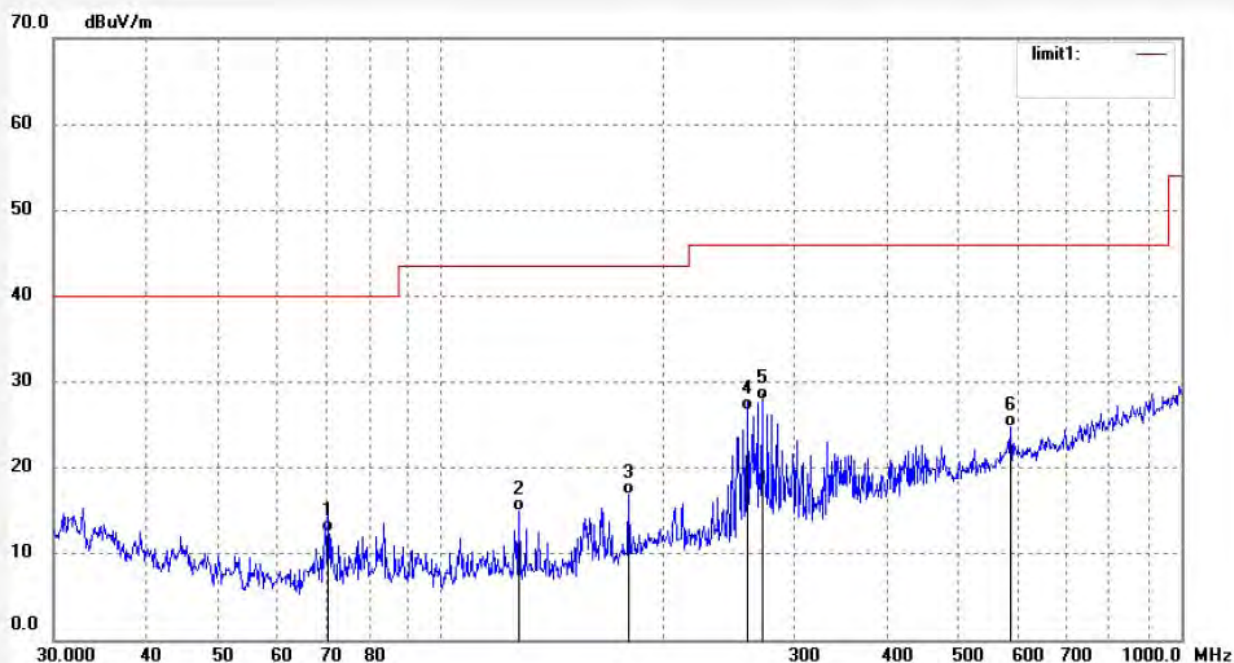
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: frank2017 #1235
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 E300
Manufacturer: Zylux

Polarization: Vertical
Power Source: DC 3.7V
Date: 17/10/21/
Time: 14/12/42
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172054



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	70.4565	34.54	-22.10	12.44	40.00	-27.56	QP	150	39	
2	127.5865	36.99	-22.09	14.90	43.50	-28.60	QP	100	45	
3	179.3989	37.31	-20.38	16.93	43.50	-26.57	QP	100	67	
4	259.4433	44.21	-17.57	26.64	46.00	-19.36	QP	150	287	
5	271.5686	45.01	-17.02	27.99	46.00	-18.01	QP	150	153	
6	588.2803	33.49	-8.69	24.80	46.00	-21.20	QP	100	156	



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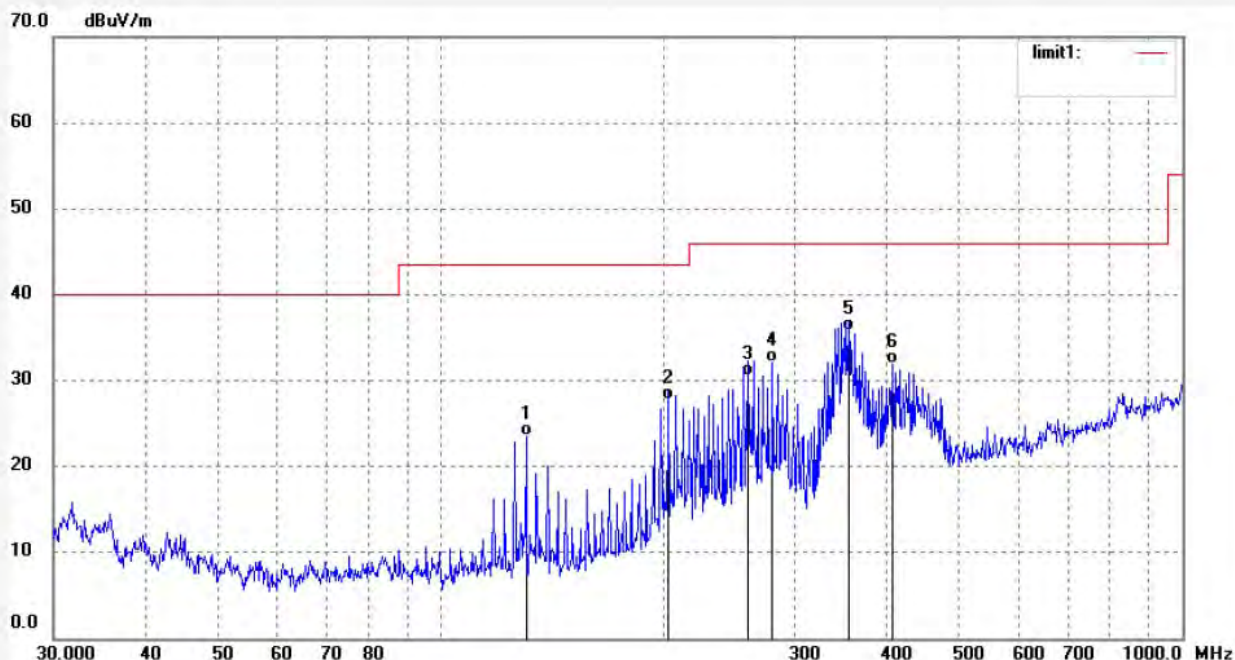
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: frank2017 #1237
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 E300
Manufacturer: Zylux

Polarization: Horizontal
Power Source: DC 3.7V
Date: 17/10/21/
Time: 14/13/34
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172054





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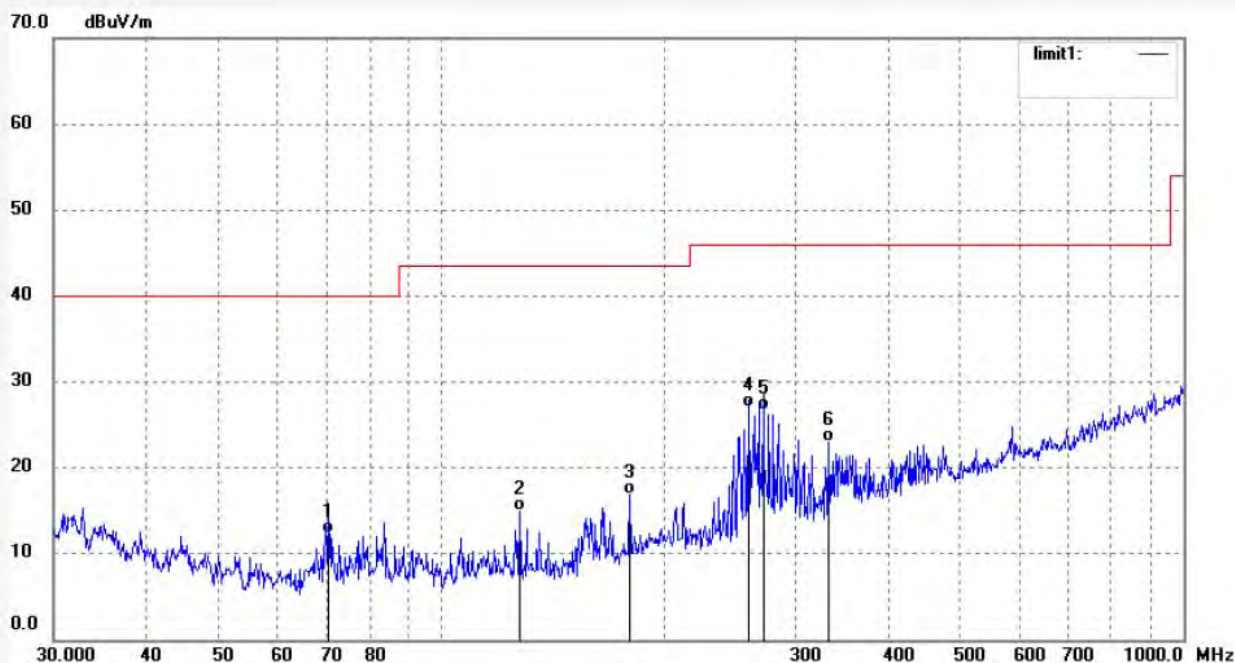
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: frank2017 #1236
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 E300
Manufacturer: Zylux

Polarization: Vertical
Power Source: DC 3.7V
Date: 17/10/21/
Time: 14/12/42
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172054



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	70.4565	34.45	-22.10	12.35	40.00	-27.65	QP	200	38	
2	127.5865	36.99	-22.09	14.90	43.50	-28.60	QP	100	53	
3	179.3989	37.31	-20.38	16.93	43.50	-26.57	QP	100	137	
4	259.4433	44.60	-17.57	27.03	46.00	-18.97	QP	150	342	
5	271.5686	43.67	-17.02	26.65	46.00	-19.35	QP	150	153	
6	331.7857	37.53	-14.57	22.96	46.00	-23.04	QP	100	51	

Above 1GHz



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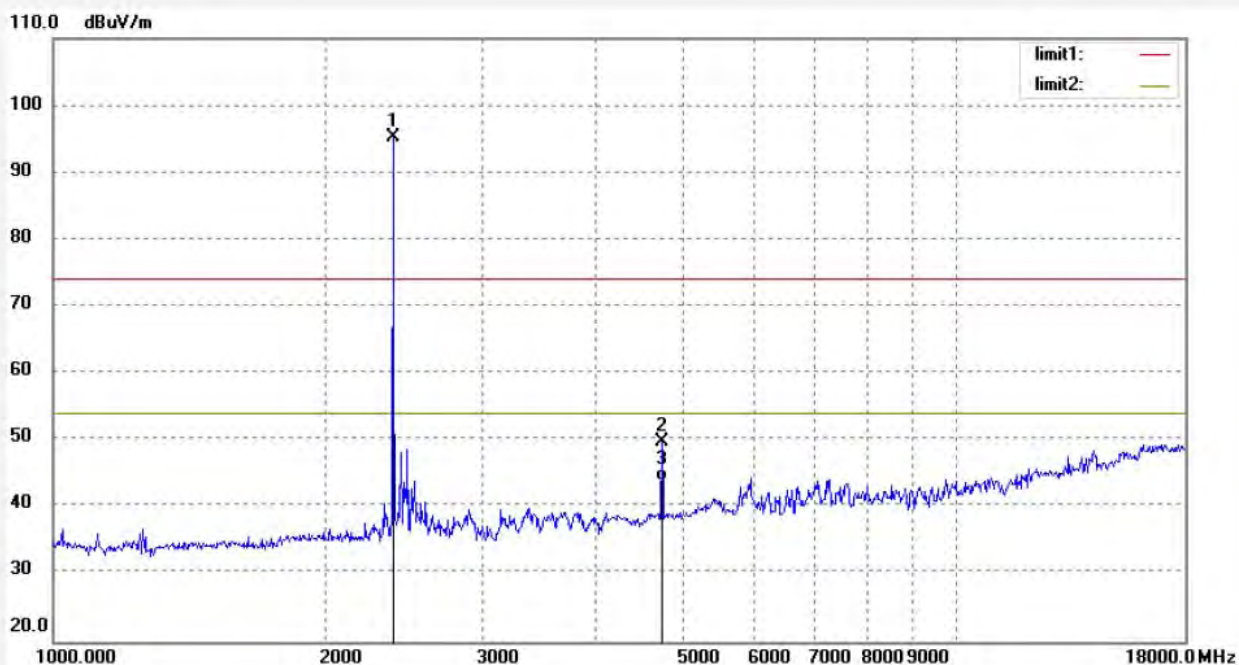
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: frank2017 #1297
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX 2402MHz (GFSK)
Model: BeActiv E300
Manufacturer: Zylux

Polarization: Horizontal
Power Source: DC 3.7V
Date: 17/10/21/
Time: 16/16/41
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172054



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.019	99.37	-4.01	95.36			peak			
2	4804.057	46.38	3.46	49.84	74.00	-24.16	peak			
3	4804.057	40.45	3.46	43.91	54.00	-10.09	AVG	300	155	

Note: Average measurement with peak detection at No.3



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Fax:+86-0755-26503396

Job No.: frank2017 #1284

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2402MHz (GFSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

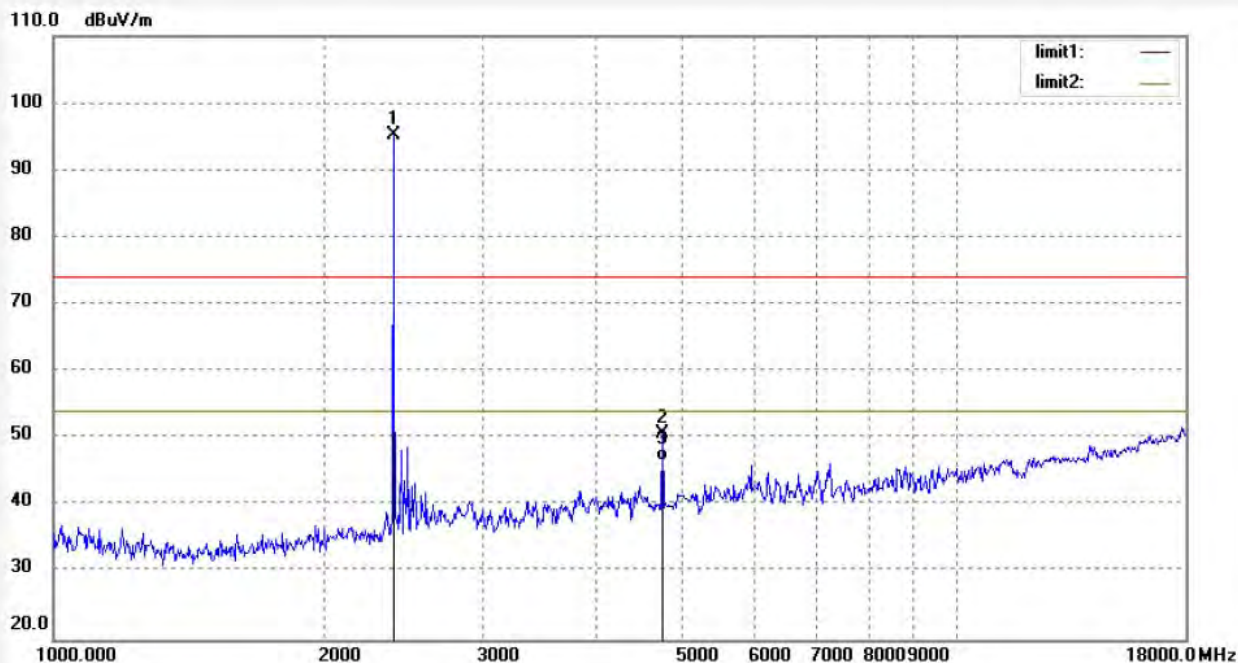
Date: 17/10/21/

Time: 16/16/09

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.719	99.37	-4.01	95.36			peak			
2	4804.057	47.24	3.46	50.70	74.00	-23.30	peak			
3	4804.057	43.15	3.46	46.61	54.00	-7.39	AVG	250	153	

Note: Average measurement with peak detection at No.3



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Site: 1# Chamber

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Fax:+86-0755-26503396

Job No.: frank2017 #1282

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2441MHz (GFSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Horizontal

Power Source: DC 3.7V

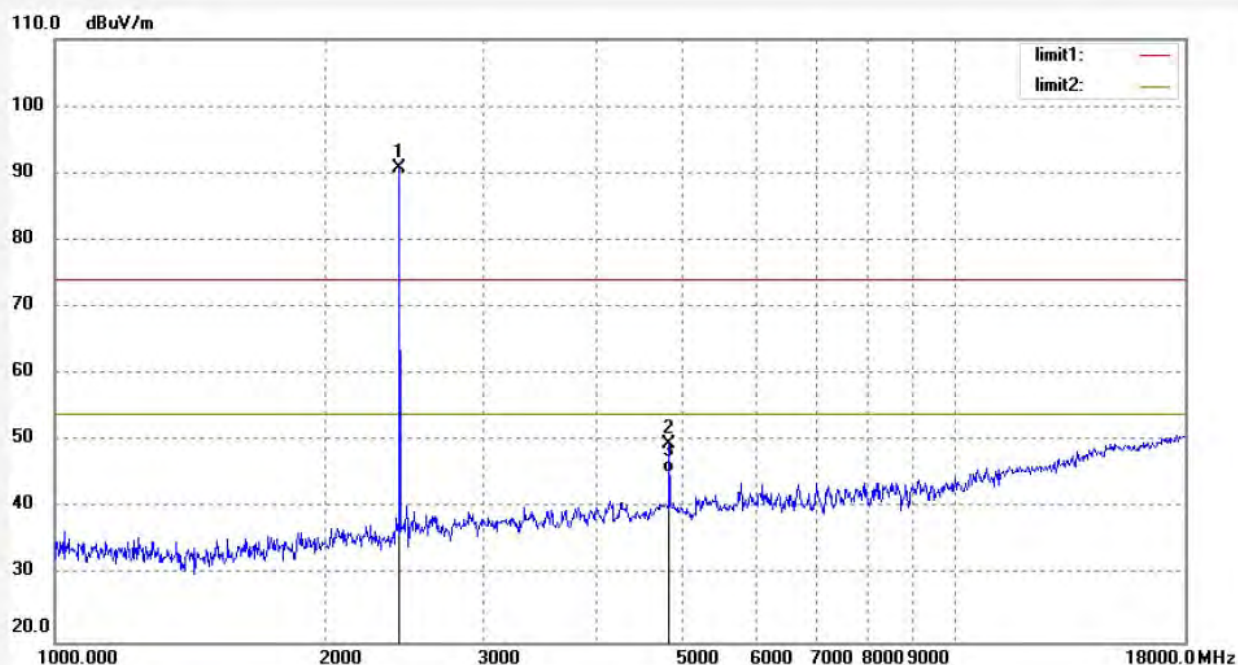
Date: 17/10/21/

Time: 16/14/42

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.621	94.51	-3.83	90.68			peak			
2	4882.324	45.67	3.82	49.49	74.00	-24.51	peak			
3	4882.324	41.54	3.82	45.36	54.00	-8.64	AVG	250	248	

Note: Average measurement with peak detection at No.3



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

Job No.: frank2017 #1283

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2441MHz (GFSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

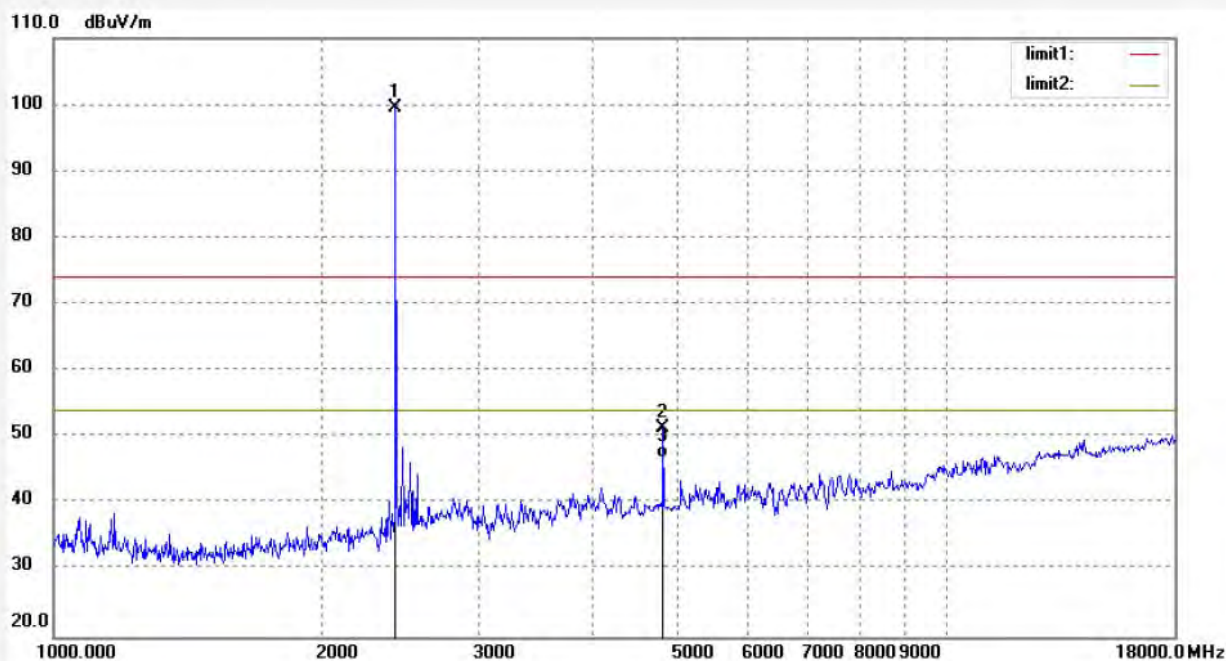
Date: 17/10/21/

Time: 16/15/16

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



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	103.27	-3.83	99.44			peak			
2	4882.324	47.56	3.82	51.38	74.00	-22.62	peak			
3	4882.324	43.15	3.82	46.97	54.00	-7.03	AVG	250	123	

Note: Average measurement with peak detection at No.3



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Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: frank2017 #1281

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2480MHz (GFSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Horizontal

Power Source: DC 3.7V

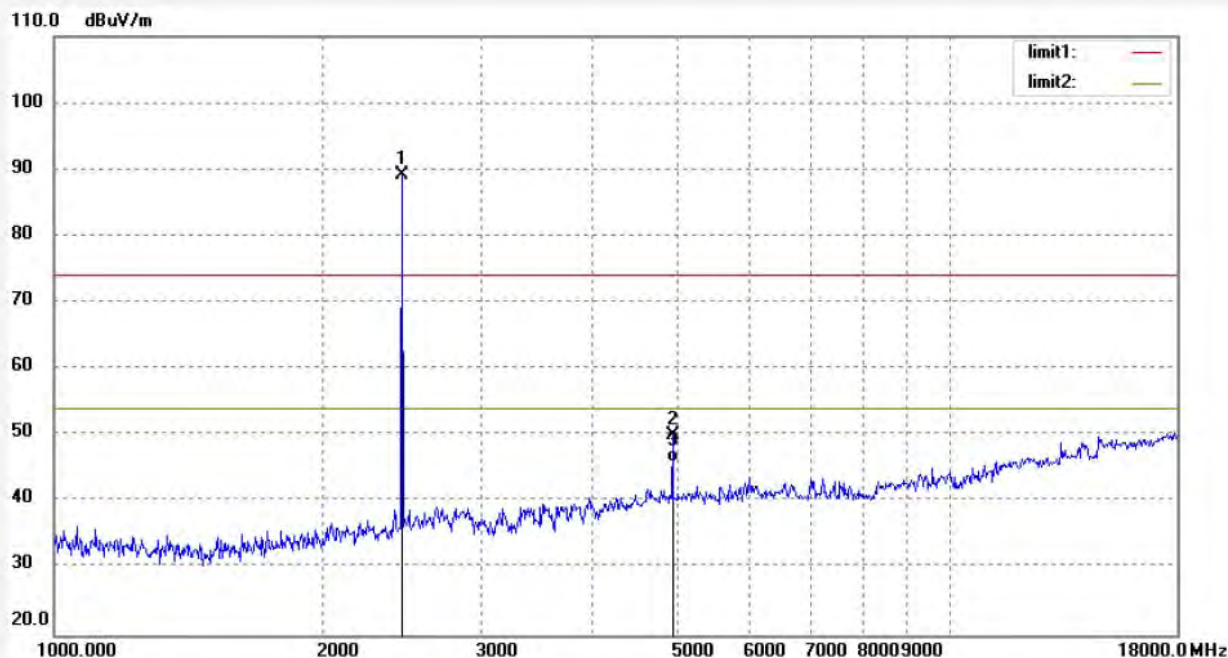
Date: 17/10/21/

Time: 16/13/48

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.034	92.77	-3.67	89.10			peak			
2	4960.014	45.77	4.25	50.02	74.00	-23.98	peak			
3	4960.014	41.64	4.25	45.89	54.00	-8.11	AVG	300	158	

Note: Average measurement with peak detection at No.3



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

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

Job No.: frank2017 #1280

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2480MHz (GFSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

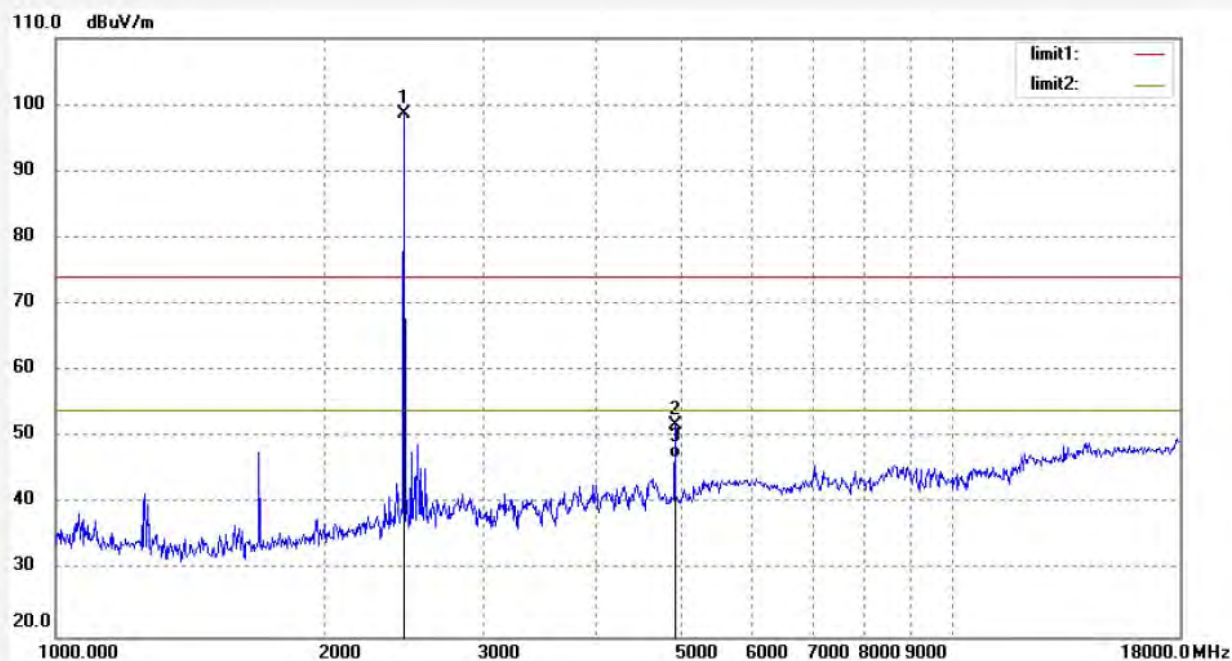
Date: 17/10/21/

Time: 16/13/09

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054

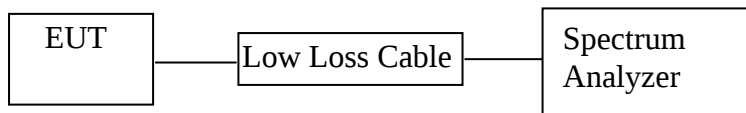


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.034	102.26	-3.67	98.59			peak			
2	4960.014	47.50	4.25	51.75	74.00	-22.25	peak			
3	4960.024	42.65	4.25	46.90	54.00	-7.10	AVG	250	151	

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.

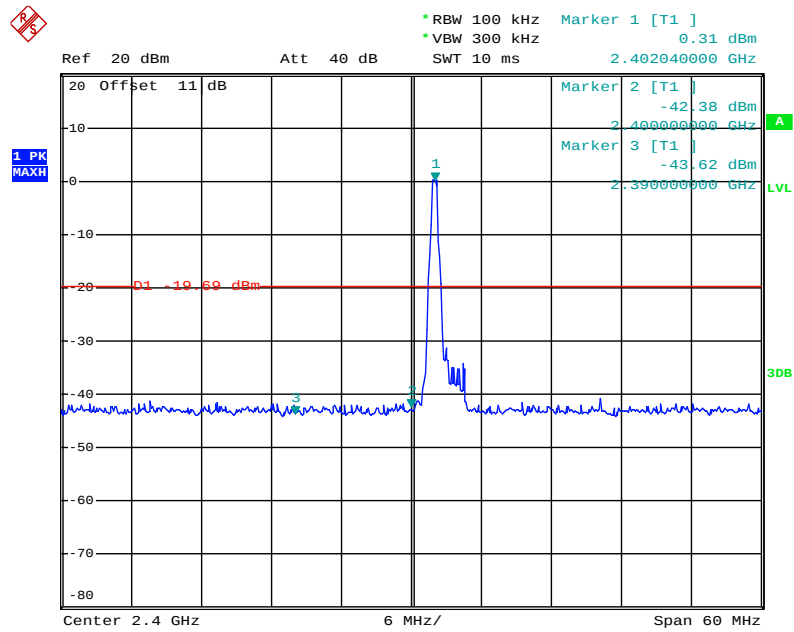
11.5.2. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz with convenient frequency span including 100 kHz bandwidth from band edge.

11.5.3. The band edges was measured and recorded.

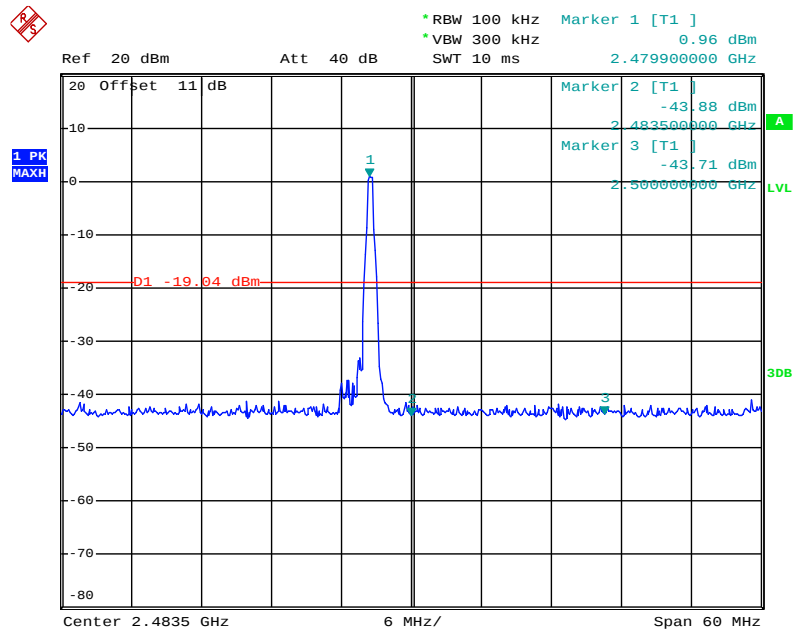
11.6. Test Result

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
GFSK Mode		
2400.00	42.07	> 20dBc
2483.50	42.92	> 20dBc
Π/4-DQPSK Mode		
2400.00	39.58	> 20dBc
2483.50	41.40	> 20dBc
8DPSK Mode		
2400.00	39.39	> 20dBc
2483.50	40.96	> 20dBc

GFSK Mode

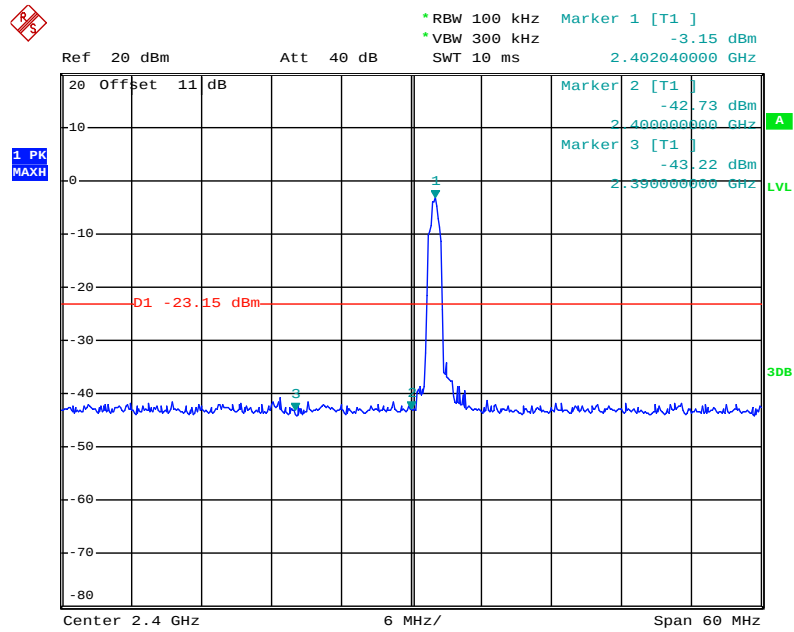


Date: 20.OCT.2017 15:09:25

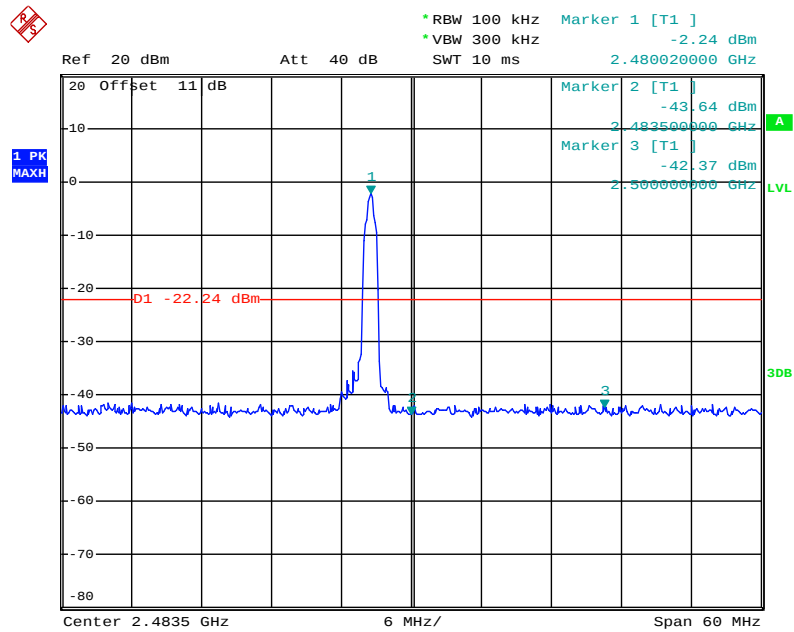


Date: 20.OCT.2017 15:11:12

Π/4-DQPSK Mode

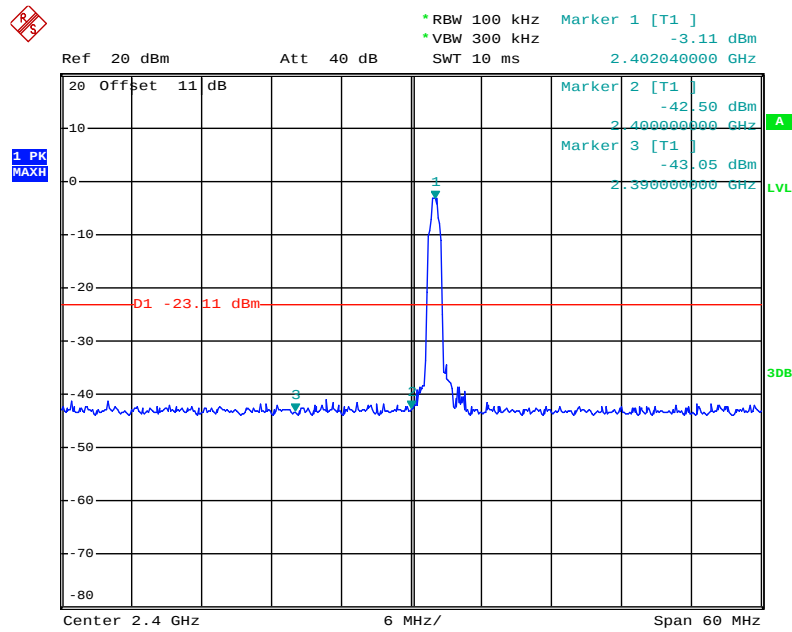


Date: 20.OCT.2017 15:15:13

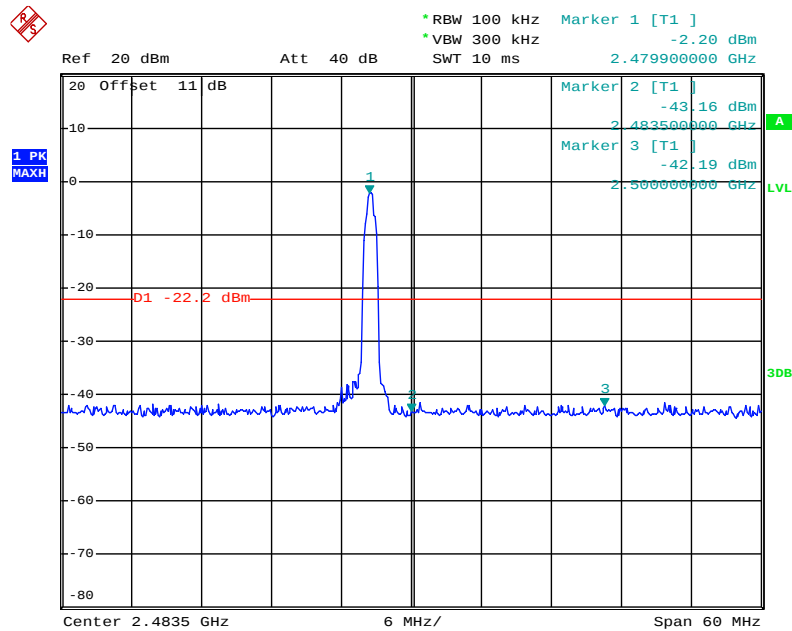


Date: 20.OCT.2017 15:13:28

8DPSK Mode



Date: 20.OCT.2017 15:17:24



Date: 20.OCT.2017 15:19:01

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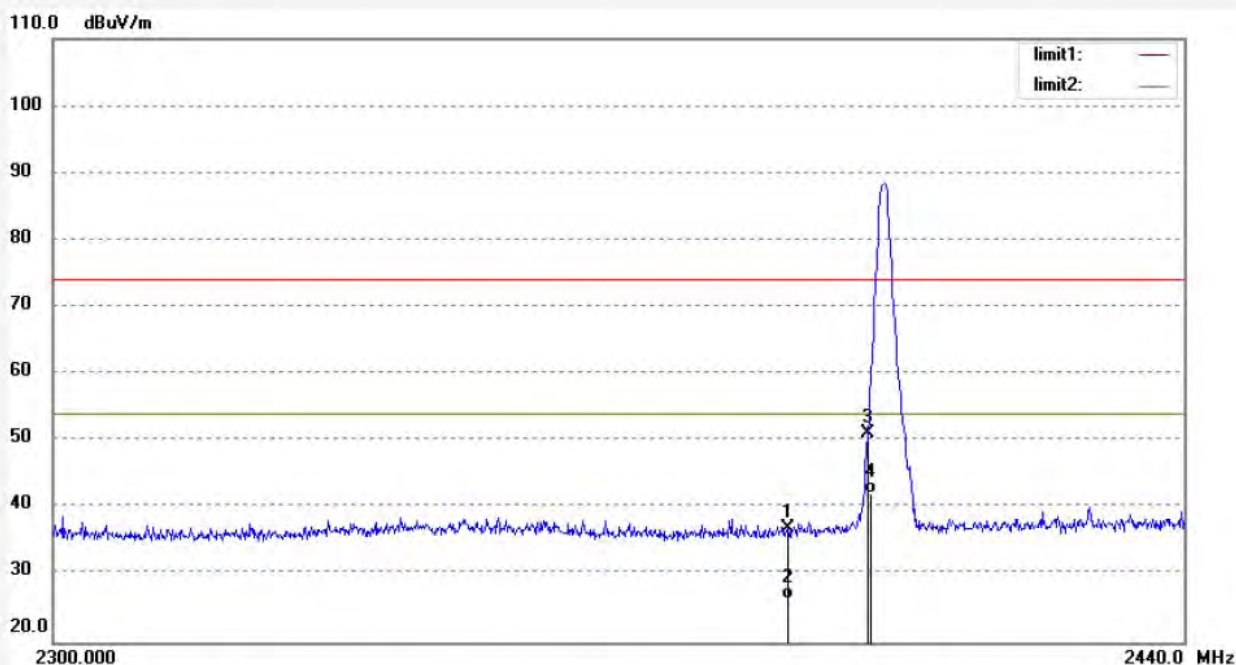
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: frank2017 #1277
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX 2402MHz (GFSK)
Model: BeActiv E300
Manufacturer: Zylux

Polarization: Horizontal
Power Source: DC 3.7V
Date: 17/10/21/
Time: 16/09/38
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172054



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	40.98	-3.96	37.02	74.00	-36.98	peak			
2	2390.000	30.45	-3.96	26.49	54.00	-27.51	AVG	250	153	
3	2400.000	55.13	-3.91	51.22	74.00	-22.78	peak			
4	2400.000	46.15	-3.91	42.24	54.00	-11.76	AVG	250	246	

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



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Site: 1# Chamber
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Job No.: frank2017 #1276

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2402MHz (GFSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

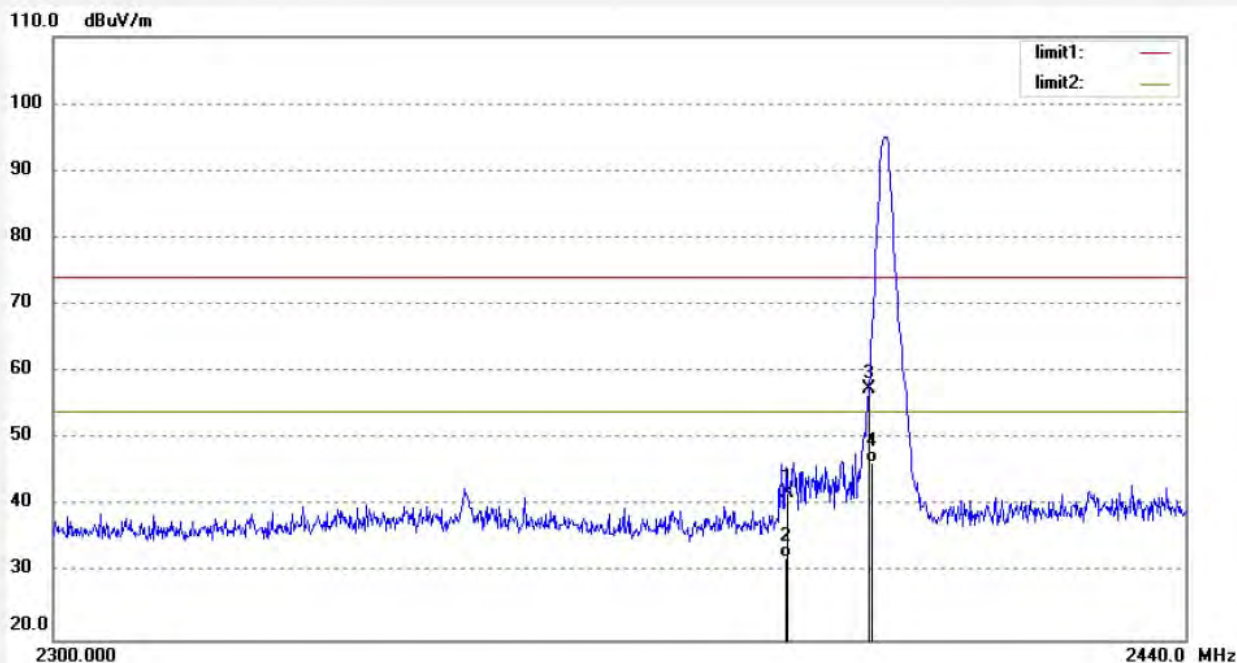
Date: 17/10/21/

Time: 16/06/21

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



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	45.95	-3.96	41.99	74.00	-32.01	peak			
2	2390.000	36.12	-3.96	32.16	54.00	-21.84	AVG	250	41	
3	2400.000	61.44	-3.91	57.53	74.00	-16.47	peak			
4	2400.000	50.45	-3.91	46.54	54.00	-7.46	AVG	250	315	

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 #1278

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2480MHz (GFSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Horizontal

Power Source: DC 3.7V

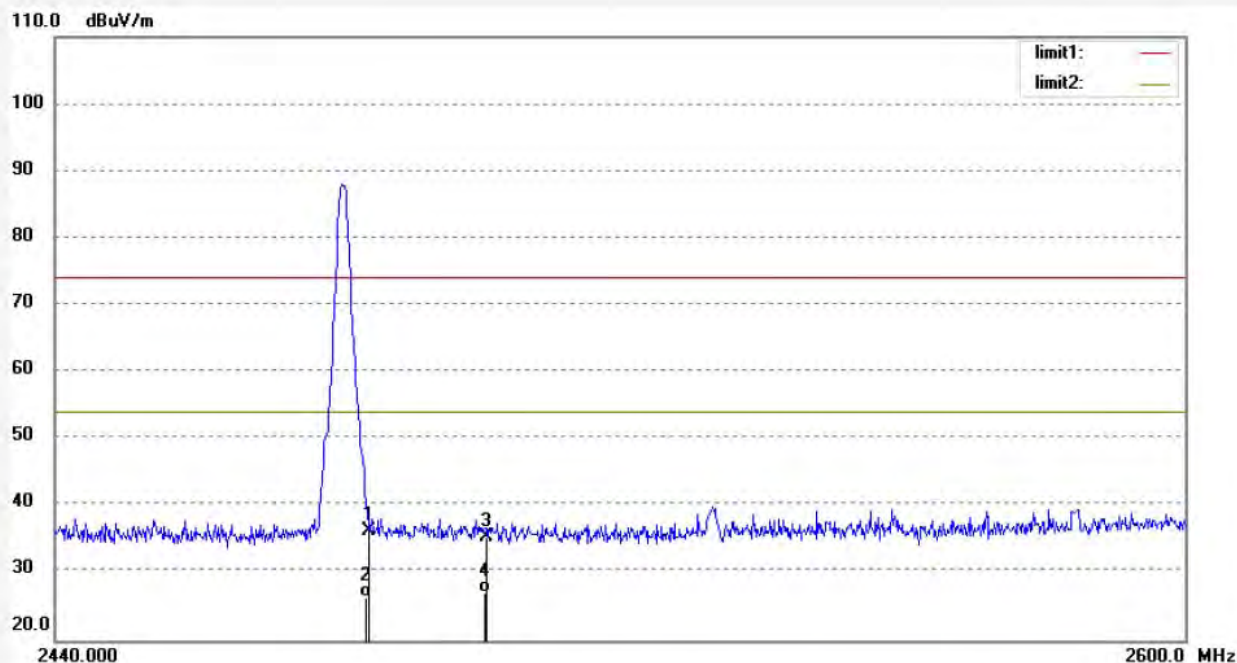
Date: 17/10/21/

Time: 16/10/40

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



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	39.82	-3.50	36.32	74.00	-37.68	peak			
2	2483.500	30.00	-3.50	26.50	54.00	-27.50	AVG	250	45	
3	2500.000	38.91	-3.42	35.49	74.00	-38.51	peak			
4	2500.000	30.45	-3.42	27.03	54.00	-26.97	AVG	300	276	

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



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Fax:+86-0755-26503396

Job No.: frank2017 #1279

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2480MHz (GFSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

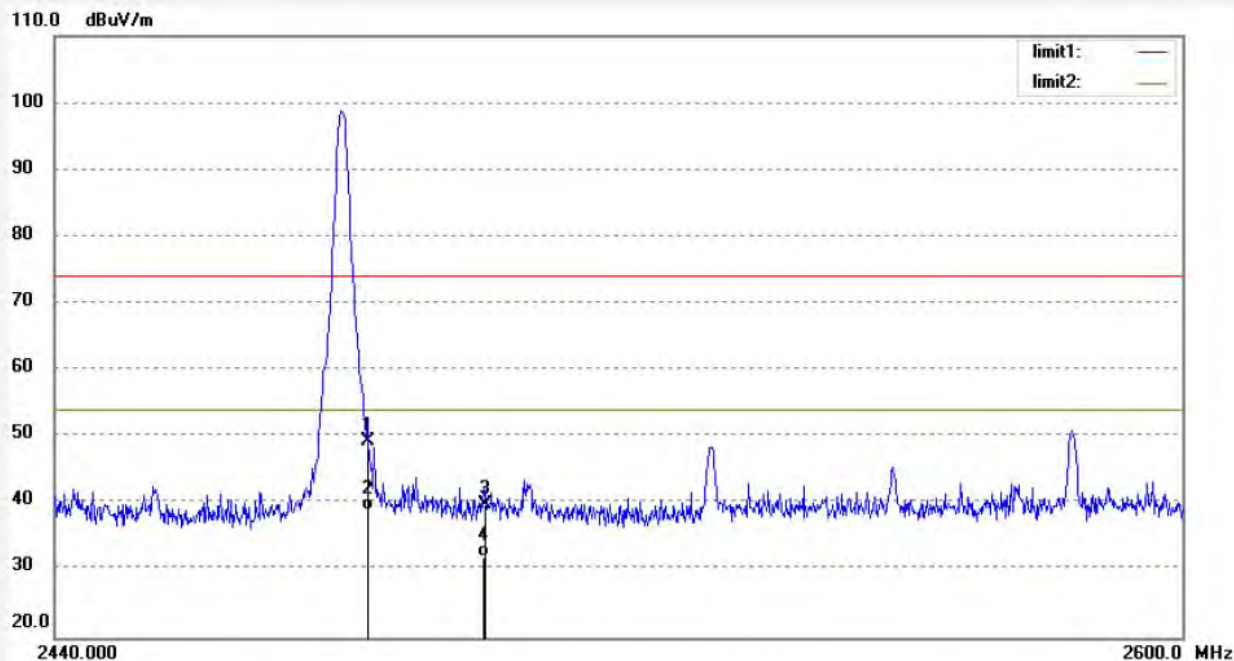
Date: 17/10/21/

Time: 16/12/01

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



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	52.96	-3.50	49.46	74.00	-24.54	peak			
2	2483.500	42.54	-3.50	39.04	54.00	-14.96	AVG	300	157	
3	2500.000	43.23	-3.42	39.81	74.00	-34.19	peak			
4	2500.000	35.42	-3.42	32.00	54.00	-22.00	AVG	300	37	

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



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Fax:+86-0755-26503396

Job No.: frank2017 #1274

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2402MHz (π/4-DQPSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Horizontal

Power Source: DC 3.7V

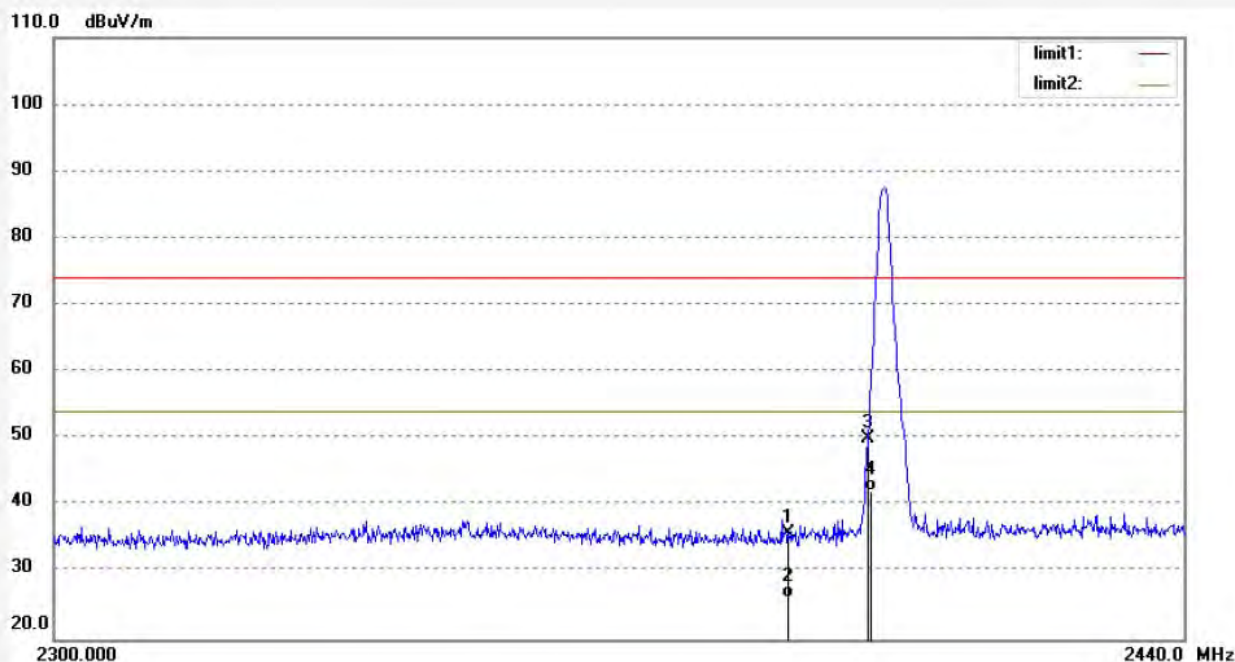
Date: 17/10/21/

Time: 16/04/40

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



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	39.93	-3.96	35.97	74.00	-38.03	peak			
2	2390.000	30.12	-3.96	26.16	54.00	-27.84	AVG	250	130	
3	2400.000	53.85	-3.91	49.94	74.00	-24.06	peak			
4	2400.000	46.15	-3.91	42.24	54.00	-11.76	AVG	250	272	

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



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Fax:+86-0755-26503396

Job No.: frank2017 #1275

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2402MHz (π/4-DQPSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

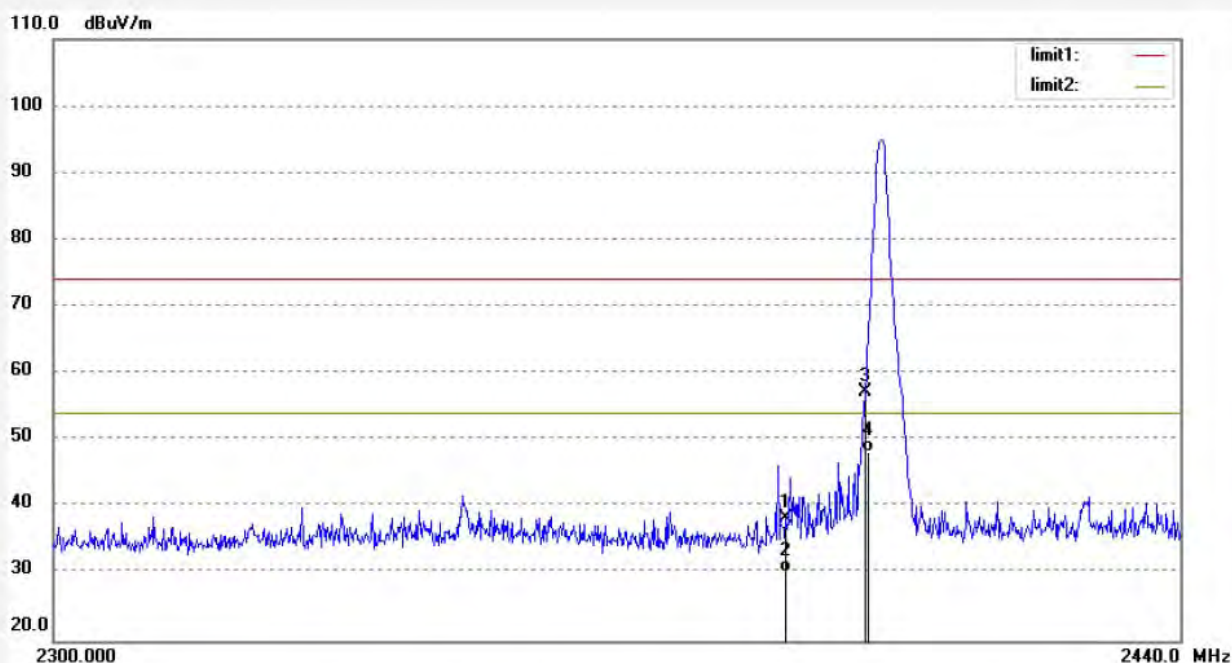
Date: 17/10/21/

Time: 16/05/19

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



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	42.27	-3.96	38.31	74.00	-35.69	peak			
2	2390.000	34.16	-3.96	30.20	54.00	-23.80	AVG	250	153	
3	2400.000	61.10	-3.91	57.19	74.00	-16.81	peak			
4	2400.000	52.12	-3.91	48.21	54.00	-5.79	AVG	250	322	

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



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Fax:+86-0755-26503396

Job No.: frank2017 #1273

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2480MHz (π/4-DQPSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Horizontal

Power Source: DC 3.7V

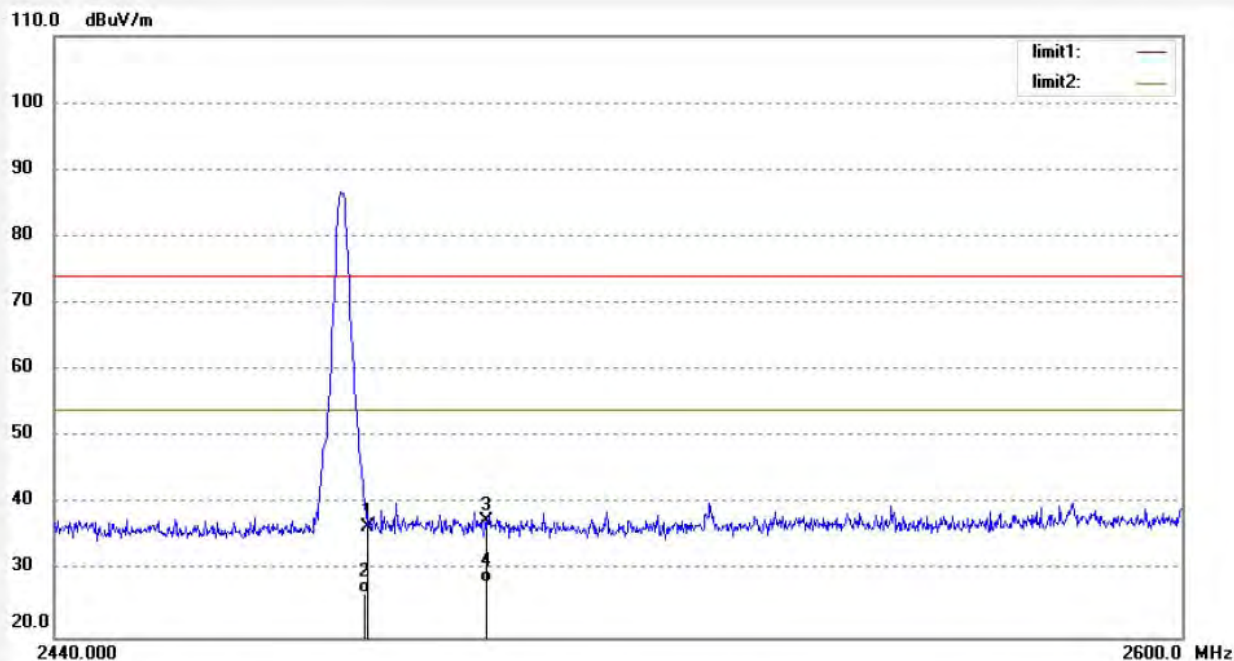
Date: 17/10/21/

Time: 16/03/32

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	40.12	-3.50	36.62	74.00	-37.38	peak			
2	2483.500	30.15	-3.50	26.65	54.00	-27.35	AVG	250	402	
3	2500.000	40.90	-3.42	37.48	74.00	-36.52	peak			
4	2500.000	31.54	-3.42	28.12	54.00	-25.88	AVG	300	113	

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



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Job No.: frank2017 #1272

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2480MHz (π/4-DQPSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

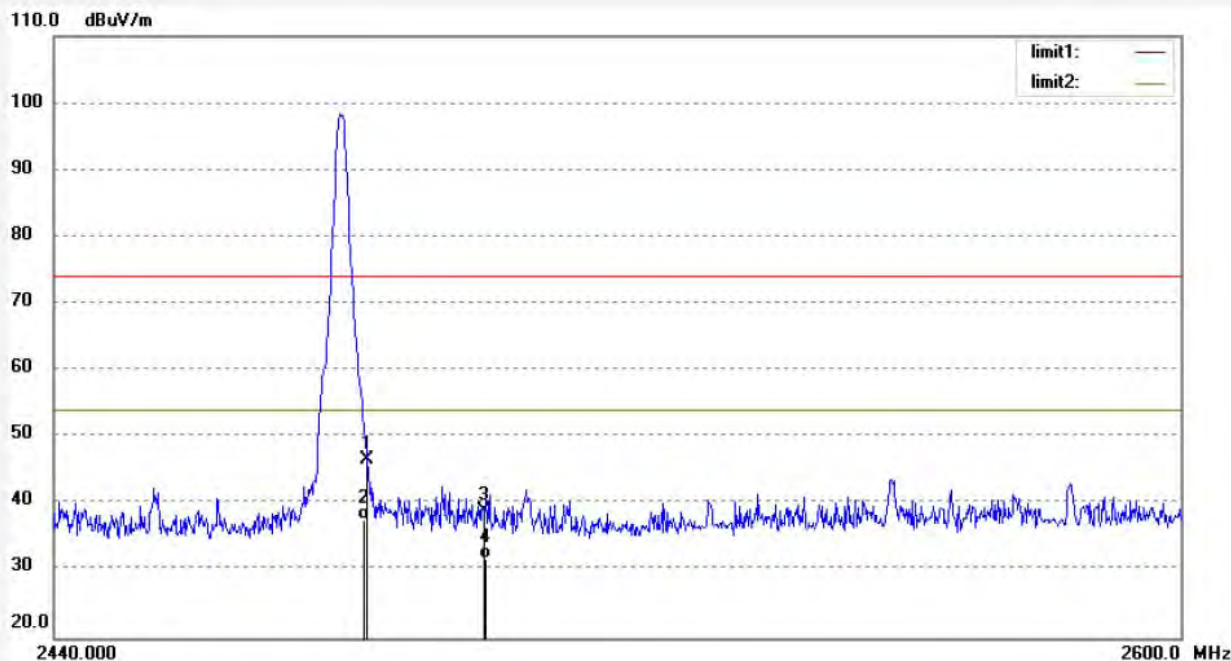
Date: 17/10/21/

Time: 16/02/19

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



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	50.24	-3.50	46.74	74.00	-27.26	peak			
2	2483.500	41.12	-3.50	37.62	54.00	-16.38	AVG	300	46	
3	2500.000	42.37	-3.42	38.95	74.00	-35.05	peak			
4	2500.000	35.15	-3.42	31.73	54.00	-22.27	AVG	300	136	

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



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Job No.: frank2017 #1269

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2402MHz (8DPSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Horizontal

Power Source: DC 3.7V

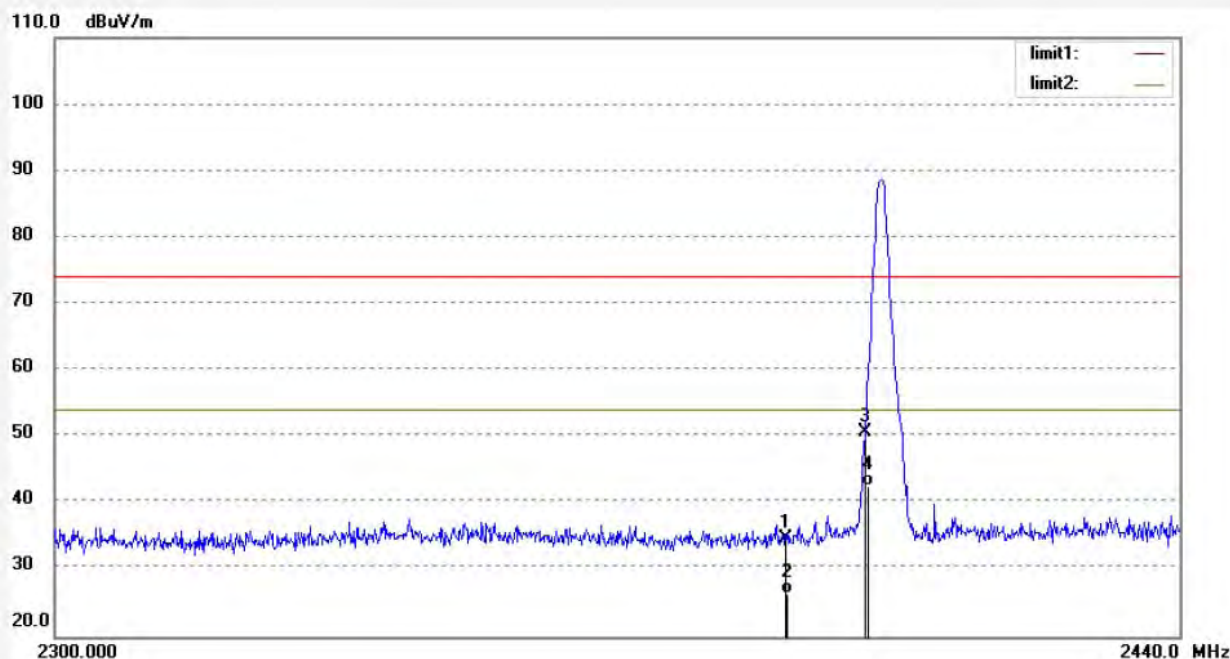
Date: 17/10/21/

Time: 15/59/06

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



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	38.69	-3.96	34.73	74.00	-39.27	peak			
2	2390.000	30.45	-3.96	26.49	54.00	-27.51	AVG	300	48	
3	2400.000	54.67	-3.91	50.76	74.00	-23.24	peak			
4	2400.000	46.45	-3.91	42.54	54.00	-11.46	AVG	300	183	

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



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Job No.: frank2017 #1268

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2402MHz (8DPSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

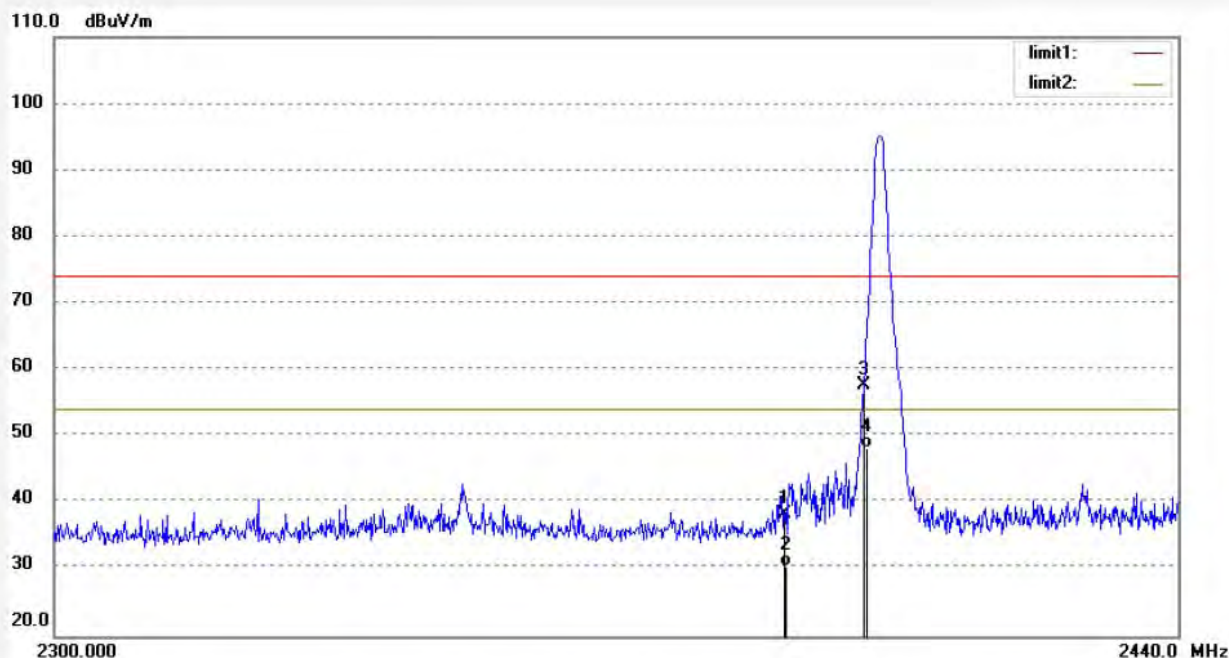
Date: 17/10/21/

Time: 15/58/33

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



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	42.19	-3.96	38.23	74.00	-35.77	peak			
2	2390.000	34.45	-3.96	30.49	54.00	-23.51	AVG	300	156	
3	2400.000	61.50	-3.91	57.59	74.00	-16.41	peak			
4	2400.000	52.15	-3.91	48.24	54.00	-5.76	AVG	300	342	

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



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Fax:+86-0755-26503396

Job No.: frank2017 #1270

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: TX 2480MHz (8DPSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Horizontal

Power Source: DC 3.7V

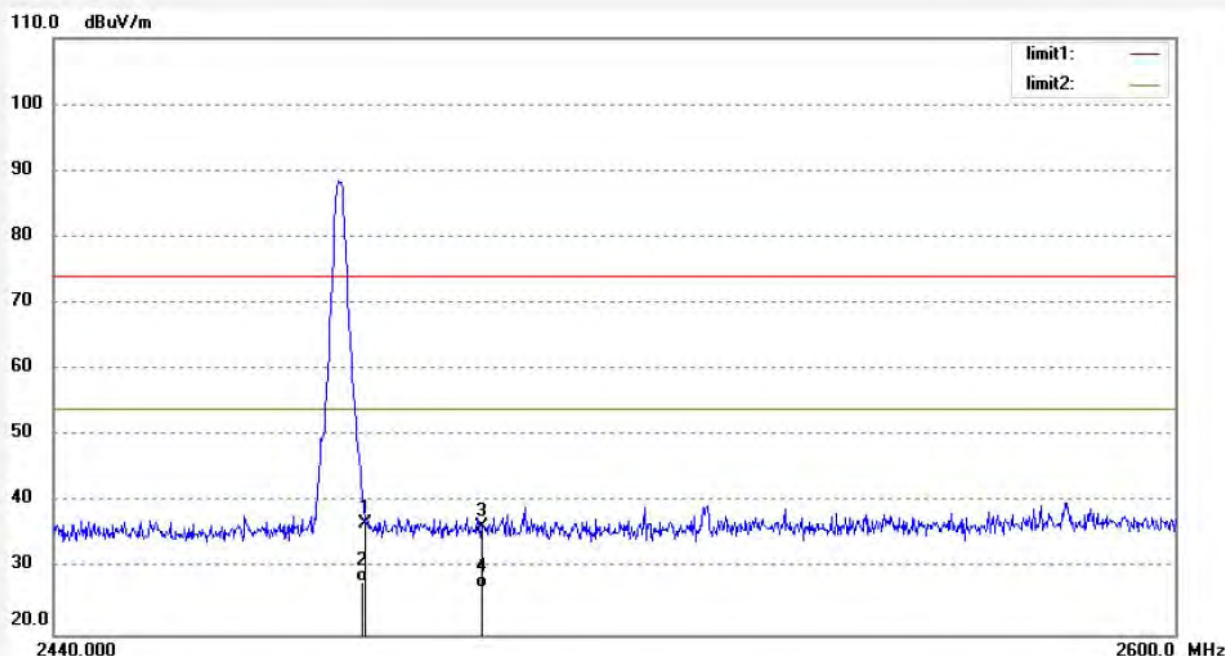
Date: 17/10/21/

Time: 16/00/39

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	40.22	-3.50	36.72	74.00	-37.28	peak			
2	2483.500	31.54	-3.50	28.04	54.00	-25.96	AVG	300	153	
3	2500.000	39.82	-3.42	36.40	74.00	-37.60	peak			
4	2500.000	30.45	-3.42	27.03	54.00	-26.97	AVG	300	356	

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



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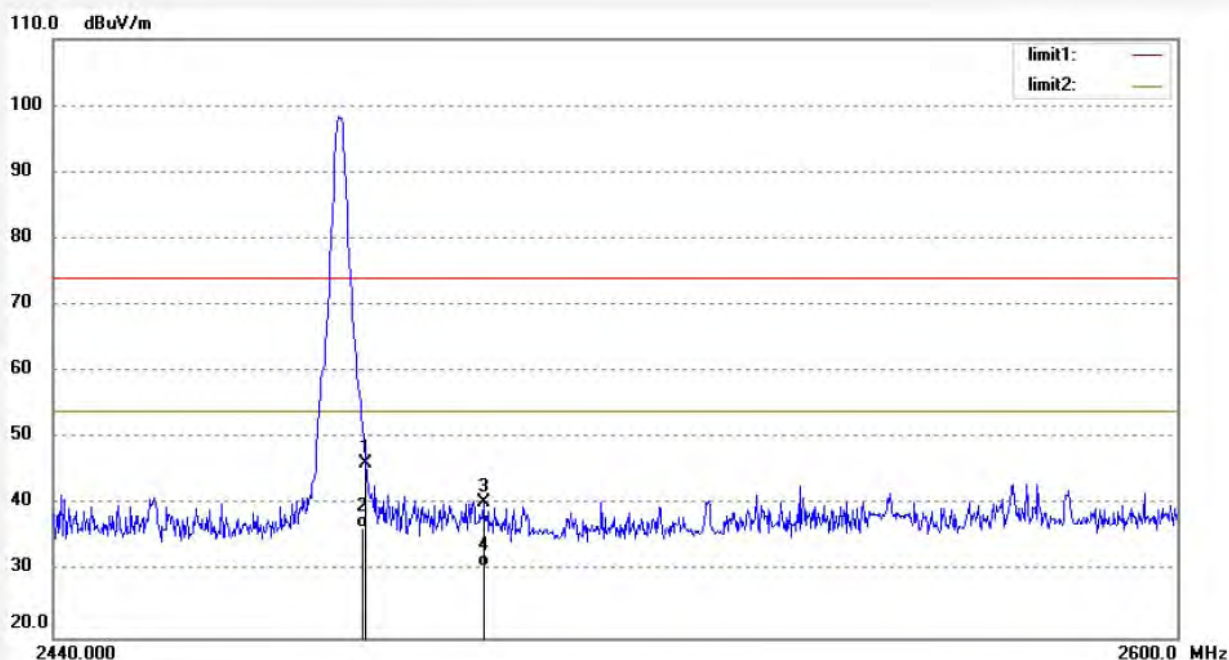
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: frank2017 #1271
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: TX 2480MHz (8DPSK)
Model: BeActiv E300
Manufacturer: Zylux

Polarization: Vertical
Power Source: DC 3.7V
Date: 17/10/21/
Time: 16/01/32
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172054



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	49.64	-3.50	46.14	74.00	-27.86	peak			
2	2483.500	40.15	-3.50	36.65	54.00	-17.35	AVG	300	115	
3	2500.000	43.76	-3.42	40.34	74.00	-33.66	peak			
4	2500.000	34.15	-3.42	30.73	54.00	-23.27	AVG	300	329	

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

Hopping mode



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Job No.: frank2017 #1262

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: HOOPING(GFSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Horizontal

Power Source: DC 3.7V

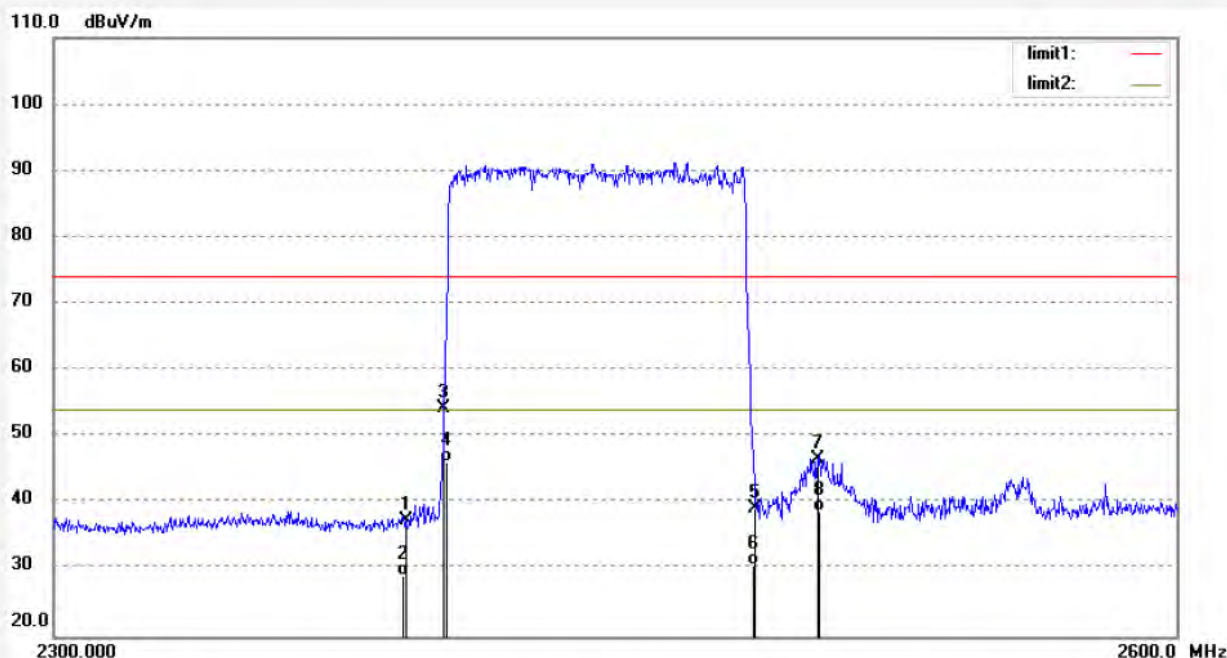
Date: 17/10/21/

Time: 15/36/38

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



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	41.38	-3.96	37.42	74.00	-36.58	peak			
2	2390.000	33.15	-3.96	29.19	54.00	-24.81	AVG	250	138	
3	2400.000	58.24	-3.91	54.33	74.00	-19.67	peak			
4	2400.000	50.12	-3.91	46.21	54.00	-7.79	AVG	250	283	
5	2483.500	42.69	-3.50	39.19	74.00	-34.81	peak			
6	2483.500	34.12	-3.50	30.62	54.00	-23.38	AVG	300	345	
7	2500.000	50.11	-3.42	46.69	74.00	-27.31	peak			
8	2500.000	42.12	-3.42	38.70	54.00	-15.30	AVG	300	278	

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



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Job No.: frank2017 #1263

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: HOOPING(GFSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Vertical

Power Source: DC 3.7V

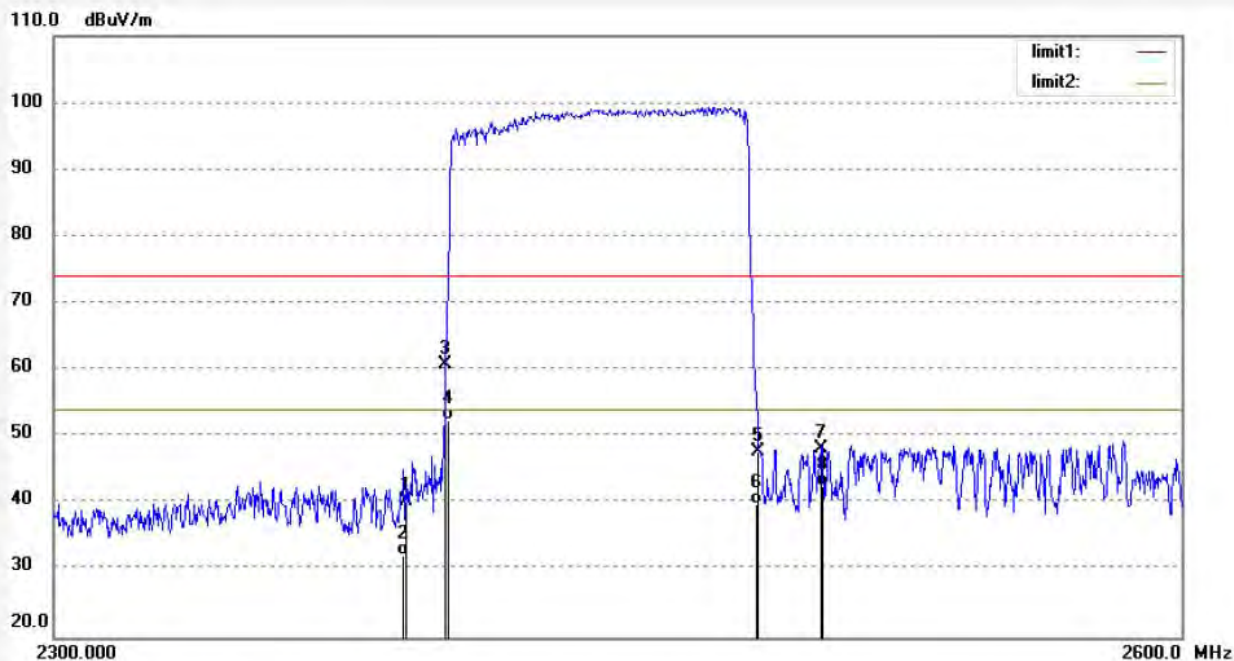
Date: 17/10/21/

Time: 15/38/51

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



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	44.26	-3.96	40.30	74.00	-33.70	peak			
2	2390.000	36.12	-3.96	32.16	54.00	-21.84	AVG	300	12	
3	2400.000	64.82	-3.91	60.91	74.00	-13.09	peak			
4	2400.000	56.45	-3.91	52.54	54.00	-1.46	AVG	300	348	
5	2483.500	51.35	-3.50	47.85	74.00	-26.15	peak			
6	2483.500	43.45	-3.50	39.95	54.00	-14.05	AVG	300	273	
7	2500.000	51.68	-3.42	48.26	74.00	-25.74	peak			
8	2500.000	46.12	-3.42	42.70	54.00	-11.30	AVG	250	185	

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



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Fax:+86-0755-26503396

Job No.: frank2017 #1265

Standard: FCC PK

Test item: Radiation Test

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

EUT: Bluetooth Headphone

Mode: HOOPING(Π/4-DQPSK)

Model: BeActiv E300

Manufacturer: Zylux

Polarization: Horizontal

Power Source: DC 3.7V

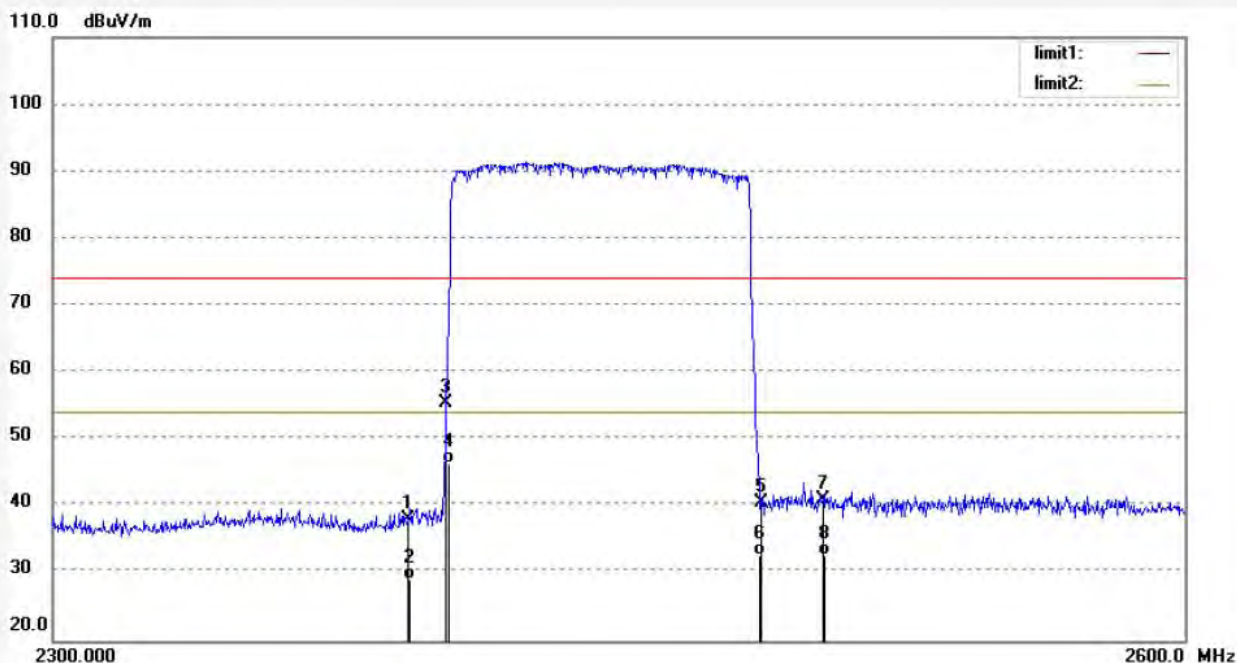
Date: 17/10/21/

Time: 15/52/39

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20172054



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	42.02	-3.96	38.06	74.00	-35.94	peak			
2	2390.000	33.12	-3.96	29.16	54.00	-24.84	AVG	250	12	
3	2400.000	59.35	-3.91	55.44	74.00	-18.56	peak			
4	2400.000	50.45	-3.91	46.54	54.00	-7.46	AVG	300	34	
5	2483.500	44.16	-3.50	40.66	74.00	-33.34	peak			
6	2483.500	36.12	-3.50	32.62	54.00	-21.38	AVG	300	273	
7	2500.000	44.56	-3.42	41.14	74.00	-32.86	peak			
8	2500.000	36.12	-3.42	32.70	54.00	-21.30	AVG	250	163	

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



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Site: 1# Chamber

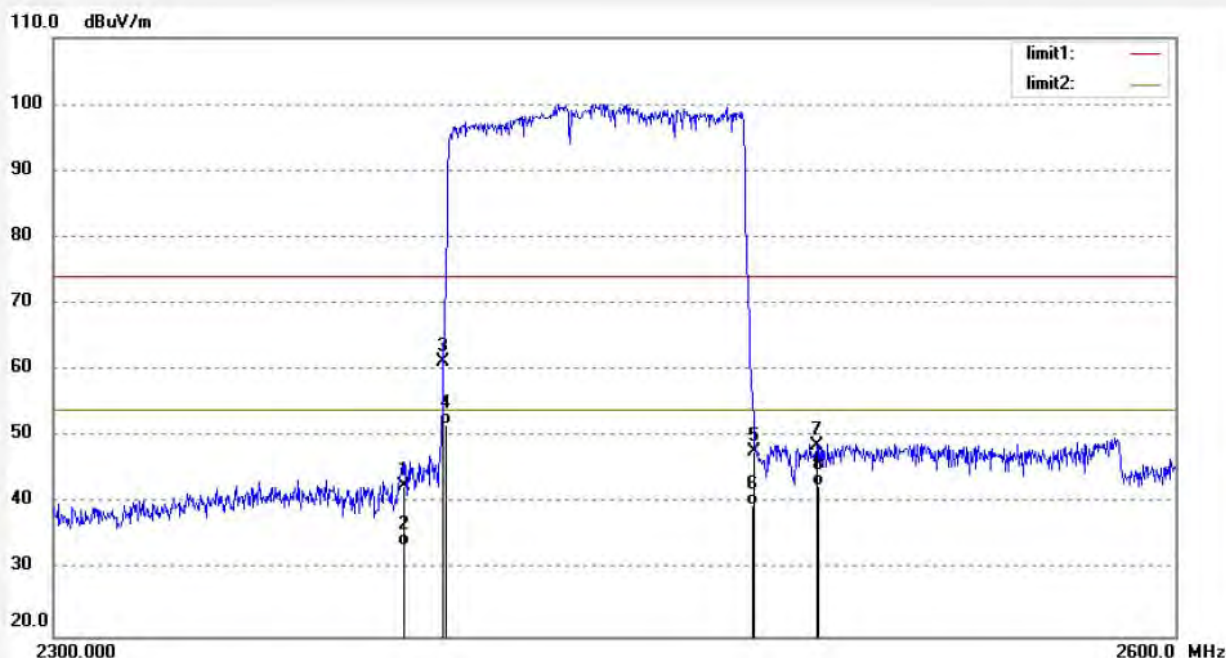
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: frank2017 #1264
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: HOOPING(Π/4-DQPSK)
Model: BeActiv E300
Manufacturer: Zylux

Polarization: Vertical
Power Source: DC 3.7V
Date: 17/10/21/
Time: 15/40/59
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172054



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	46.60	-3.96	42.64	74.00	-31.36	peak			
2	2390.000	37.54	-3.96	33.58	54.00	-20.42	AVG	300	158	
3	2400.000	65.10	-3.91	61.19	74.00	-12.81	peak			
4	2400.000	55.65	-3.91	51.74	54.00	-2.26	AVG	300	125	
5	2483.500	51.35	-3.50	47.85	74.00	-26.15	peak			
6	2483.500	43.12	-3.50	39.62	54.00	-14.38	AVG	300	85	
7	2500.000	52.07	-3.42	48.65	74.00	-25.35	peak			
8	2500.000	46.12	-3.42	42.70	54.00	-11.30	AVG	300	90	

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



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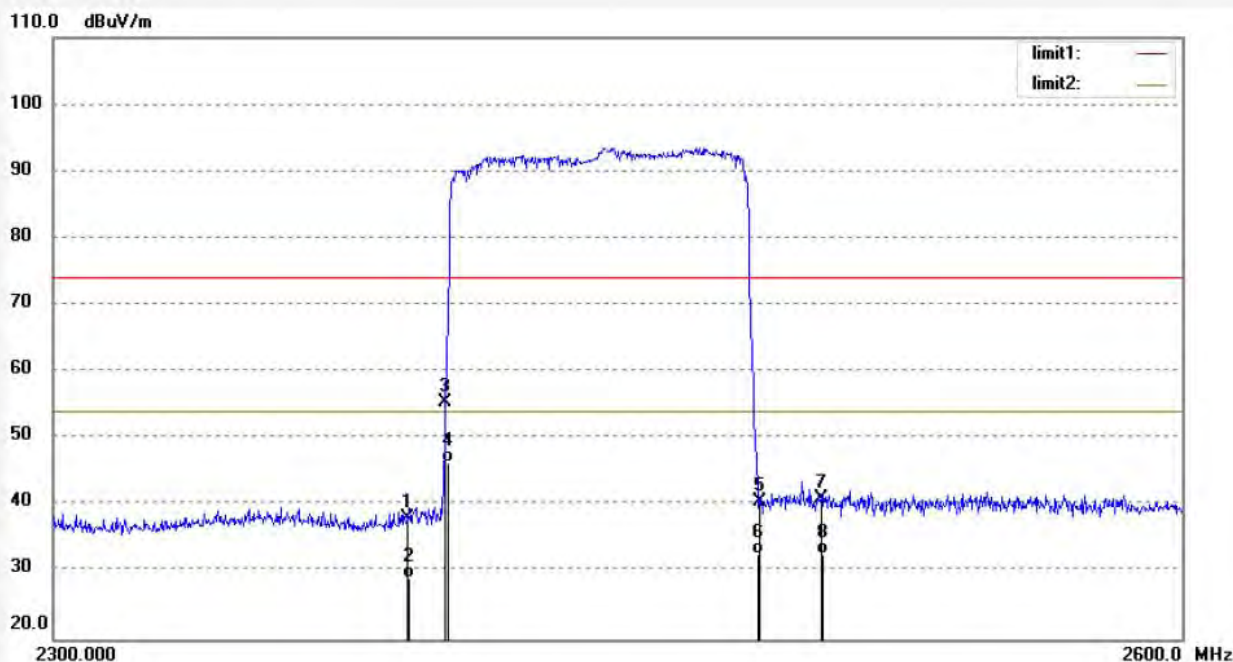
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: frank2017 #1266
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: HOOPING(8DPSK)
Model: BeActiv E300
Manufacturer: Zylux

Polarization: Horizontal
Power Source: DC 3.7V
Date: 17/10/21/
Time: 15/53/02
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172054



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	42.02	-3.96	38.06	74.00	-35.94	peak			
2	2390.000	33.12	-3.96	29.16	54.00	-24.84	AVG	300	145	
3	2400.000	59.35	-3.91	55.44	74.00	-18.56	peak			
4	2400.000	50.45	-3.91	46.54	54.00	-7.46	AVG	250	254	
5	2483.500	44.16	-3.50	40.66	74.00	-33.34	peak			
6	2483.500	36.12	-3.50	32.62	54.00	-21.38	AVG	300	158	
7	2500.000	44.56	-3.42	41.14	74.00	-32.86	peak			
8	2500.000	36.12	-3.42	32.70	54.00	-21.30	AVG	250	32	

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



ACCURATE TECHNOLOGY CO., LTD.

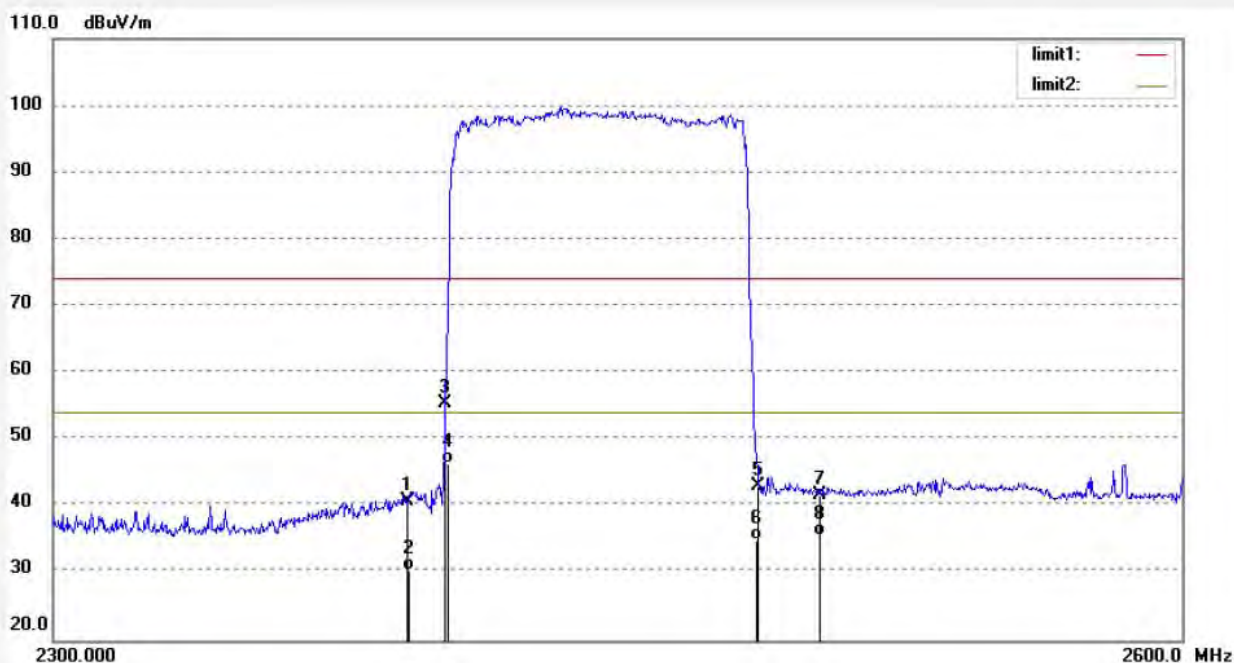
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: frank2017 #1267
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headphone
Mode: HOOPPING(8DPSK)
Model: BeActiv E300
Manufacturer: Zylux

Polarization: Vertical
Power Source: DC 3.7V
Date: 17/10/21/
Time: 15/53/32
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20172054



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	44.88	-3.96	40.92	74.00	-33.08	peak			
2	2390.000	34.41	-3.96	30.45	54.00	-23.55	AVG	250	45	
3	2400.000	59.35	-3.91	55.44	74.00	-18.56	peak			
4	2400.000	50.45	-3.91	46.54	54.00	-7.46	AVG	250	148	
5	2483.500	46.67	-3.50	43.17	74.00	-30.83	peak			
6	2483.500	38.45	-3.50	34.95	54.00	-19.05	AVG	300	322	
7	2500.000	45.23	-3.42	41.81	74.00	-32.19	peak			
8	2500.000	39.12	-3.42	35.70	54.00	-18.30	AVG	250	246	

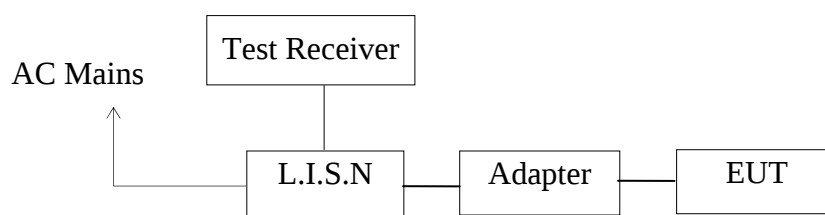
Note: Average measurement with peak detection at No.2&4&6&8

12.AC POWER LINE CONDUCTED EMISSION FOR FCC PART

15 SECTION 15.207(A)

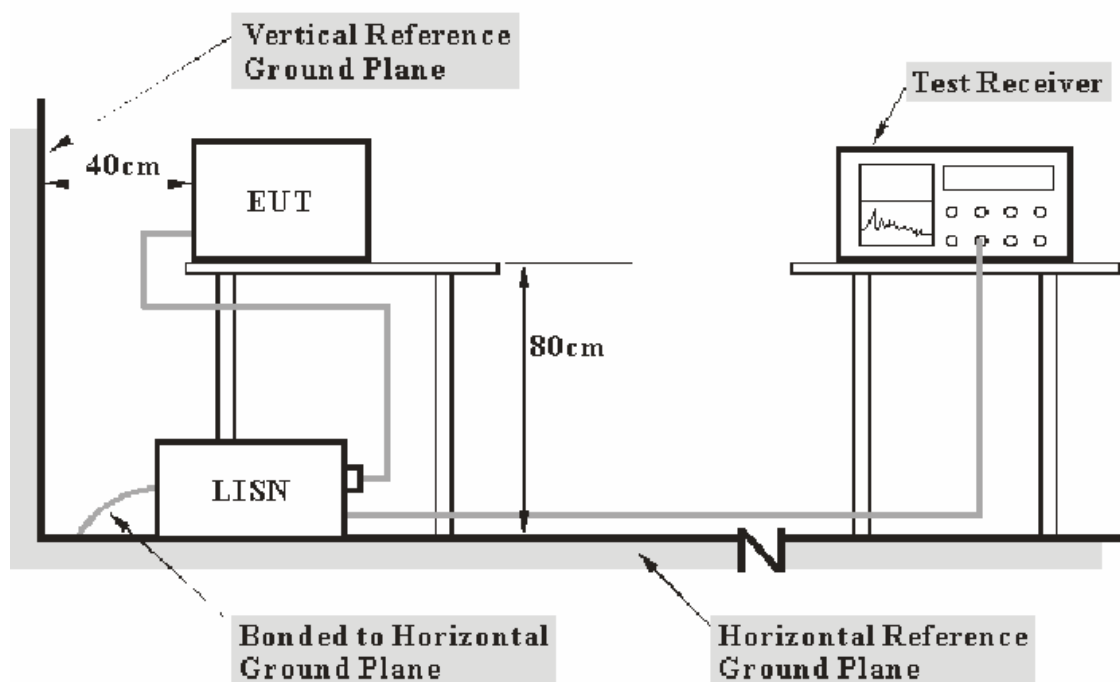
12.1.Block Diagram of Test Setup

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.

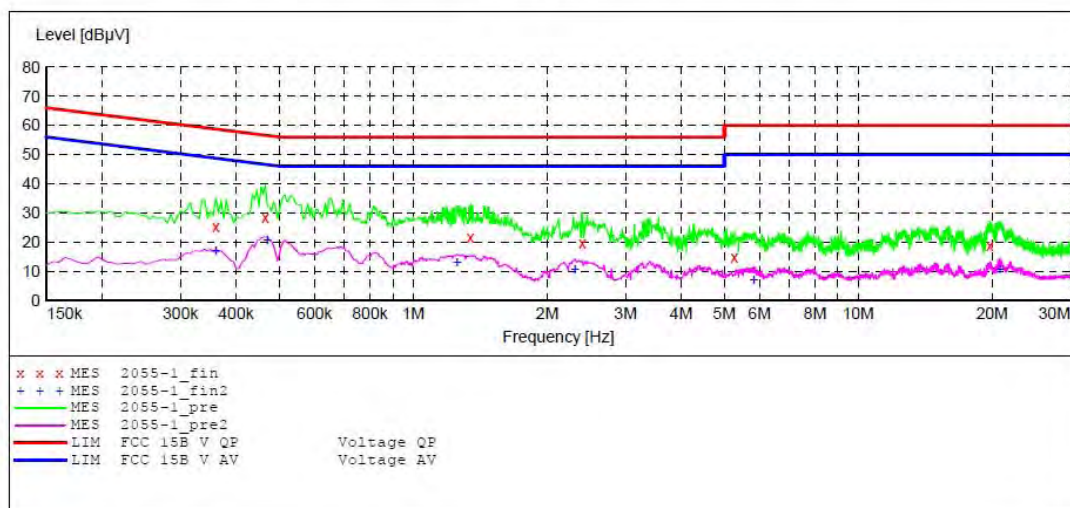
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Bluetooth Headphone M/N:BeActiv E300
 Manufacturer: Zylux
 Operating Condition: Charging
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: N 120V/60Hz
 Comment: Report NO.:ATE20172054
 Start of Test: 10/17/2017 / 9:58:54AM

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

Short Description: _SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "2055-1_fin"

10/17/2017 10:02AM

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

MEASUREMENT RESULT: "2055-1_fin2"

10/17/2017 10:02AM

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

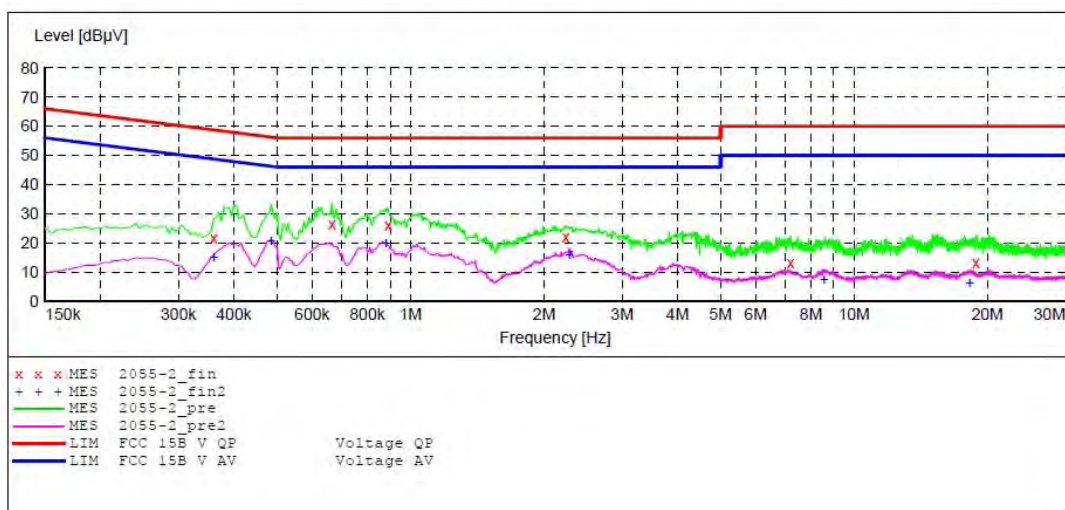
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Bluetooth Headphone M/N:BeActiv E300
 Manufacturer: Zylux
 Operating Condition: Charging
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: L 120V/60Hz
 Comment: Report NO.:ATE20172054
 Start of Test: 10/17/2017 / 10:07:52AM

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

Short Description: SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "2055-2_fin"

10/17/2017 10:09AM

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

MEASUREMENT RESULT: "2055-2_fin2"

10/17/2017 10:09AM

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

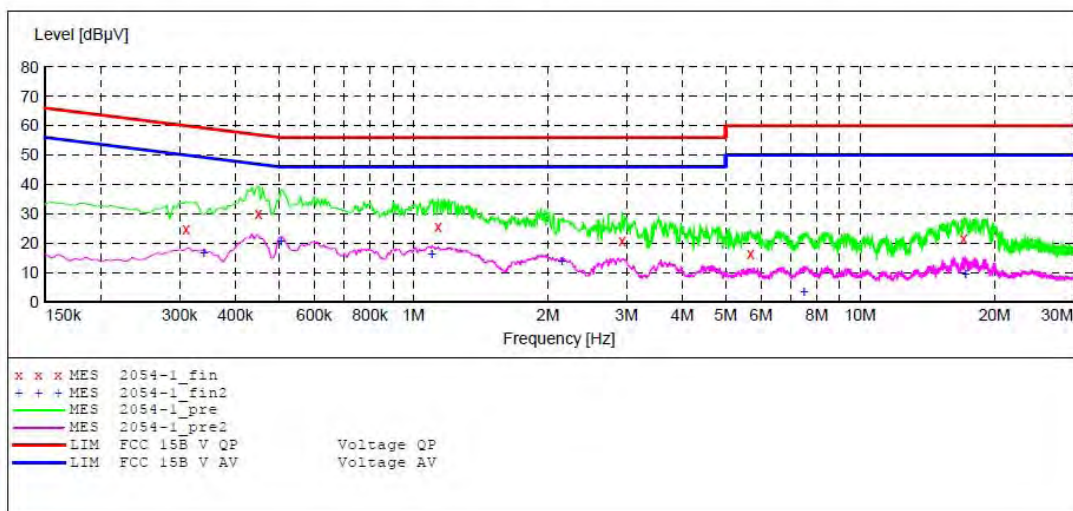
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Bluetooth Headphone M/N:BeActiv E300
 Manufacturer: Zylux
 Operating Condition: Charging
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: L 240V/60Hz
 Comment: Report NO.:ATE20172054
 Start of Test: 10/17/2017 / 9:49:42AM

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

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



MEASUREMENT RESULT: "2054-1_fin"

10/17/2017 9:53AM

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

MEASUREMENT RESULT: "2054-1_fin2"

10/17/2017 9:53AM

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

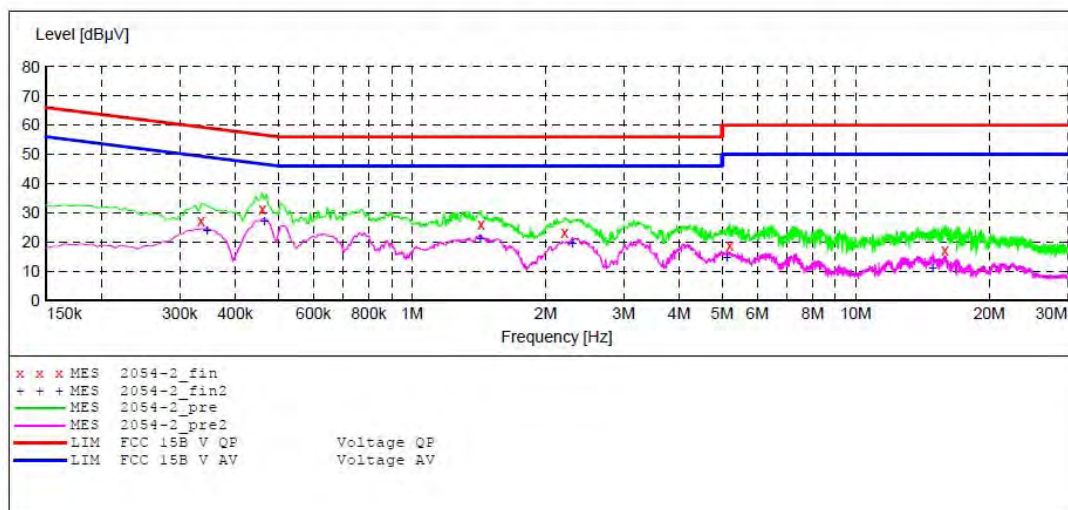
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Bluetooth Headphone M/N:BeActiv E300
 Manufacturer: Zylux
 Operating Condition: Charging
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: N 240V/60Hz
 Comment: Report NO.:ATE20172054
 Start of Test: 10/17/2017 / 9:54:44AM

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

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



MEASUREMENT RESULT: "2054-2_fin"

10/17/2017 9:58AM

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

MEASUREMENT RESULT: "2054-2_fin2"

10/17/2017 9:58AM

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

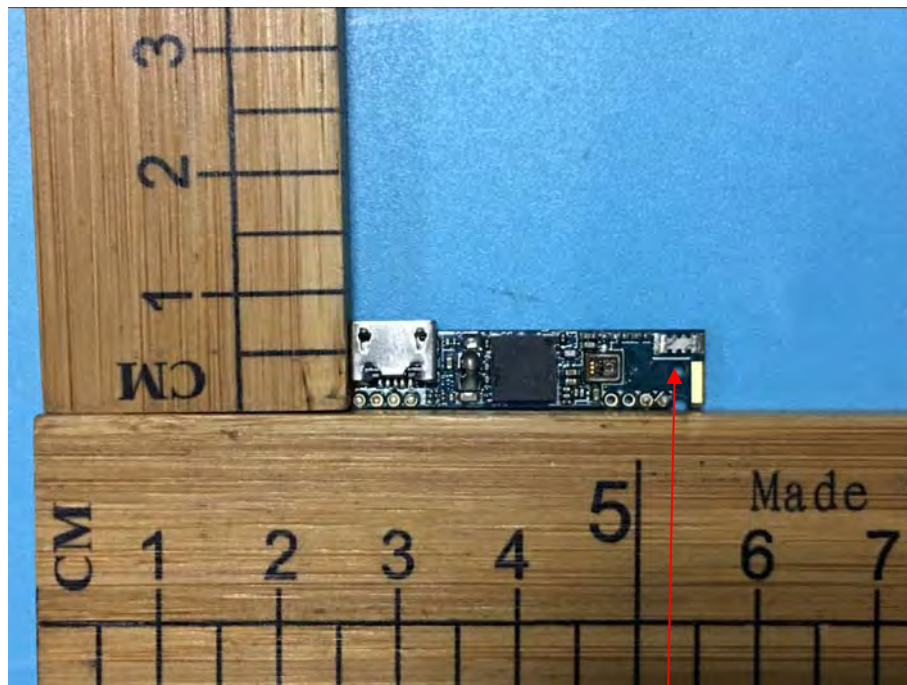
13.ANTENNA REQUIREMENT

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.



Antenna

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