APPLICATION CERTIFICATION FCC Part 15C
On Behalf of
Koss Corporation

Bluetooth Headset

Model No.: KOSS PLUG Wireless, KSC35 Wireless, BT115i, BT221i, BT232i

FCC ID: L76-BT0001

Prepared for	:	Koss Corporation
Address	:	4129 N. Port Washington Avenue, Milwaukee, Wisconsin, United States
Prepared by	:	Shenzhen Accurate Technology Co., Ltd.
Address	:	1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China.
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Report No.	:	ATE20200478
Date of Test	:	May 08, 2020--May 14, 2020
Date of Report	:	May 15, 2020

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Description Page

Test Report Certification

Applicant	:	Koss Corporation
Address	:	4129 N. Port Washington Avenue, Milwaukee, Wisconsin, United States
Manufacturer	:	Dongguan Baizhenrong Limited
Address	:	3 Xin Yuan Street, Ju-zhou No.2 Industrial Zone, Shijie Town, DongGuan, Guangdong, P.R. China
Product	:	Bluetooth Headset
Model No.	:	KOSS PLUG Wireless, KSC35 Wireless, BT115i, BT221i, BT232i
Trade name	:	KOSS

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247
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 : May 08, 2020--May 14, 2020
Date of Report : May 15, 2020

Prepared by :

(Tin[illegible]ng, Engineer)

Approve & Authorized Signer :

(Martin Lü, Manager)

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	Bluetooth Headset
Model Number	:	KOSS PLUG Wireless, KSC35 Wireless, BT115i, BT221i, BT232i
Bluetooth version	:	BT V4.2
Frequency Range	:	2402MHz-2480MHz
Number of Channels	:	79
Antenna Gain(Max)	:	2.0dBi
Antenna type	:	Chip Antenna
Trade Name	:	KOSS
Rating	:	DC 3.7V (Powered by Battery) or DC 5V (Powered by adapter)
Modulation mode	:	GFSK, π/4 DQPSK, 8DPSK
Applicant	:	Koss Corporation
Address	:	4129 N. Port Washington Avenue, Milwaukee, Wisconsin, United States
Manufacturer	:	Dongguan Baizhenrong Limited
Address	:	3 Xin Yuan Street, Ju-zhou No.2 Industrial Zone, Shijie Town, DongGuan, Guangdong, P.R. China
Date of sample received	:	May 07, 2020
Date of Test	:	May 08, 2020--May 14, 2020
Sample number	:	2000436

1.2.Model difference declaration

KOSS PLUG Wireless, KSC35 Wireless, BT115i, BT221i, BT232i are identical in interior structure, electrical circuits and components, except for the model name and appearance.

1.3.Accessory and Auxiliary Equipment

PC	Manufacturer: LENOVO M/N: 4290-RT8 S/N: R9-FW93G 11/08
AC/DC Power Adapter (provided by laboratory)	Model: MX12X6-0502000VU INPUT: 100-240V~50/60Hz 0.35A OUTPUT: 5V/1A

1.4.Description of Test Facility

EMC Lab : Recognition of accreditation by Federal Communications Commission (FCC)
The Designation Number is CN1189
The Registration Number is 708358

Listed by Innovation, Science and Economic Development Canada (ISEDC)
The Registration Number is 5077A-2

Accredited by China National Accreditation Service for Conformity Assessment (CNAS)
The Registration Number is CNAS L3193

Accredited by American Association for Laboratory Accreditation (A2LA)
The Certificate Number is 4297.01

Name of Firm : Shenzhen Accurate Technology Co., Ltd.

Site Location : 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China

1.5.Measurement Uncertainty

Conducted Emission Expanded Uncertainty (Mains ports, 9kHz-30MHz)	=	2.72dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	=	2.66dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	=	4.28dB, k=2
Radiated emission expanded uncertainty (1G-18GHz)	=	4.98dB, k=2
Radiated emission expanded uncertainty (18G-26.5GHz)	=	5.06dB, 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. 04, 2020	1 Year
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 04, 2020	1 Year
Spectrum Analyzer	Rohde&Schwarz	FSV-40	101495	Jan. 04, 2020	1 Year
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 04, 2020	1 Year
Pre-Amplifier	Rohde&Schwarz	CBLU1183540-01	3791	Jan. 04, 2020	1 Year
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 04, 2020	1 Year
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 04, 2020	1 Year
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 04, 2020	1 Year
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 04, 2020	1 Year
Open Switch and Control Unit	Rohde&Schwarz	OSP120 + OSP-B157	101244 + 100866	Jan. 04, 2020	1 Year
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 04, 2020	1 Year
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 04, 2020	1 Year
Highpass Filter	Wainwright Instruments	WHKX3.6/18G-10SS	N/A	Jan. 04, 2020	1 Year
Band Reject Filter	Wainwright Instruments	WRCG2400/2485-2375/2510-60/11SS	N/A	Jan. 04, 2020	1 Year
RF Coaxial Cable (Conducted Emission)	SUHNER	N-2m	No.2	Jan. 04, 2020	1 Year
RF Coaxial Cable (Radiated Emission)	SUHNER	N-5m	NO.3	Jan. 04, 2020	1 Year
RF Coaxial Cable (Radiated Emission)	SUHNER	N-5m	NO.4	Jan. 04, 2020	1 Year
RF Coaxial Cable (Radiated Emission)	SUHNER	N-1m	NO.5	Jan. 04, 2020	1 Year
RF Coaxial Cable (Radiated Emission)	SUHNER	N-1m	NO.6	Jan. 04, 2020	1 Year
Conducted Emission Measurement Software: ES-K1 V1.71					
Radiated Emission Measurement Software: EZ_EMC V1.1.4.2					

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

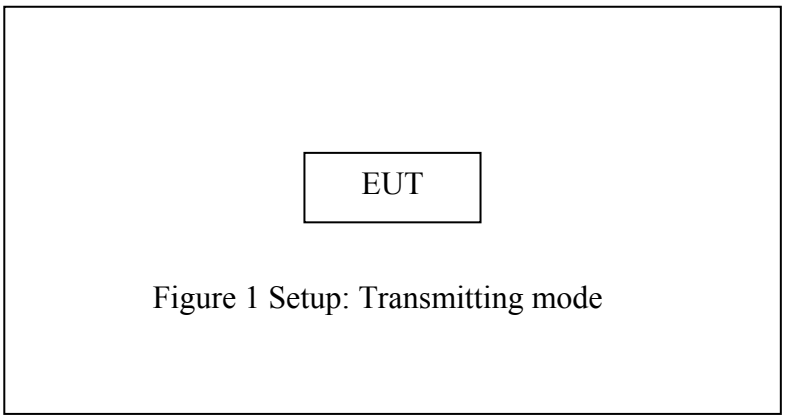


Figure 1 Setup: Transmitting mode

(EUT: Bluetooth Headset)

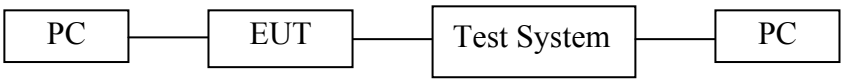
Note: The power was switched from 85% to 115%, and the worse case data was recorded.

4. TEST PROCEDURES AND RESULTS

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

5. 20DB BANDWIDTH TEST

5.1.Block Diagram of Test Setup



(EUT: Bluetooth Headset)

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

Section 15.247(a)(1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

5.3.EUT Configuration on Measurement

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

5.4.Operating Condition of EUT

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

5.4.2.Turn on the power of all equipment.

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

5.5.Test Procedure

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

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

5.5.3.The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

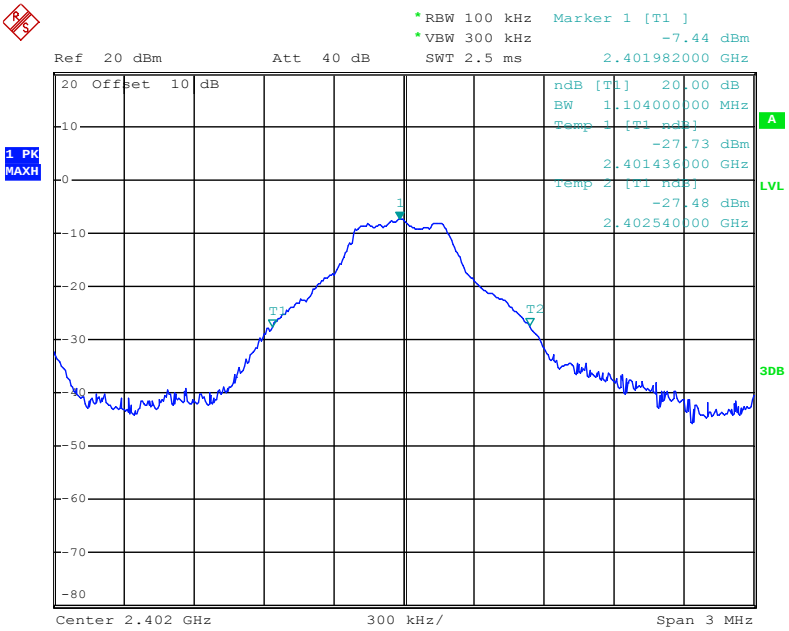
5.6.Test Result

Channel	Frequency (MHz)	GFSK mode 20dB Bandwidth (MHz)	π /4 DQPSK mode 20dB Bandwidth (MHz)	8DPSK mode 20dB Bandwidth (MHz)	Result
Low	2402	1.104	1.464	1.458	Pass
Middle	2441	1.110	1.458	1.434	Pass
High	2480	1.122	1.446	1.410	Pass

The spectrum analyzer plots are attached as below.

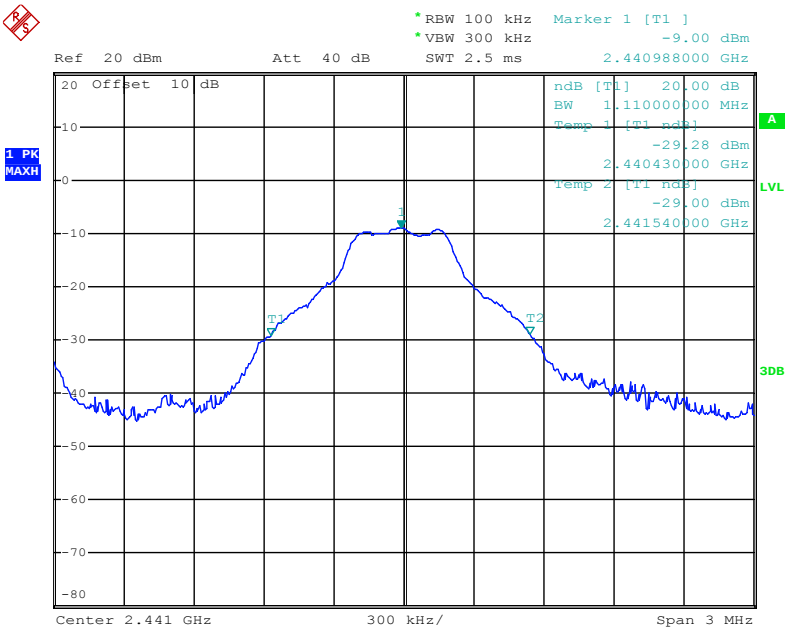
GFSK Mode

Low channel



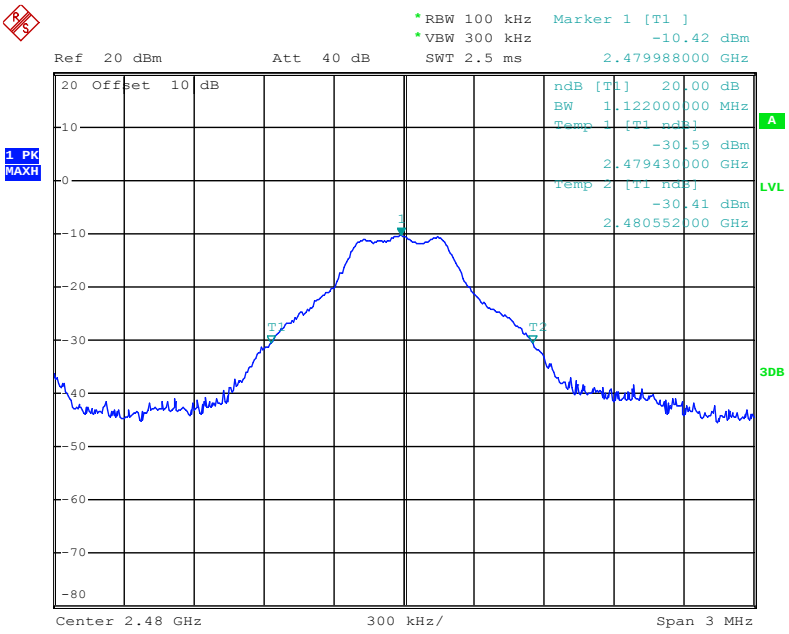
Date: 11.MAY.2020 16:33:58

Middle channel



Date: 11.MAY.2020 16:34:39

High channel



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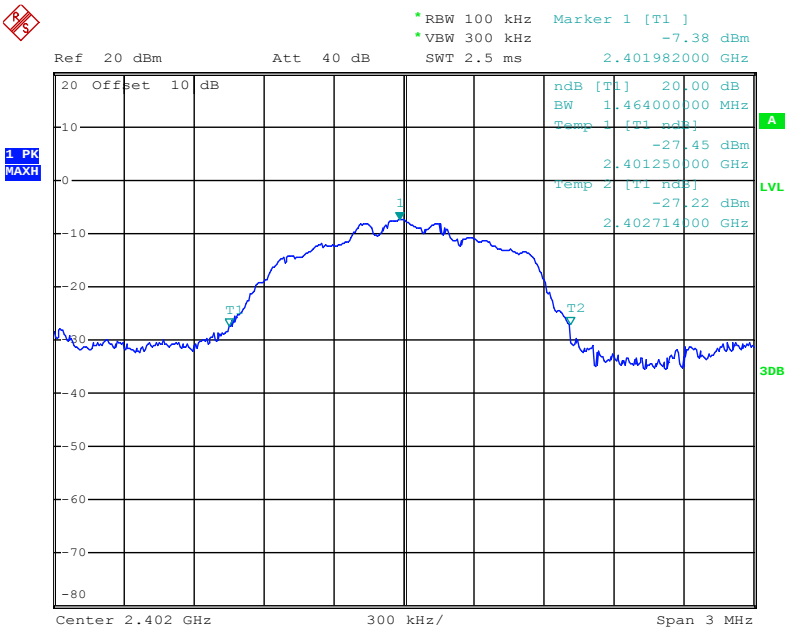
π /4 DQPSK Mode

Low channel



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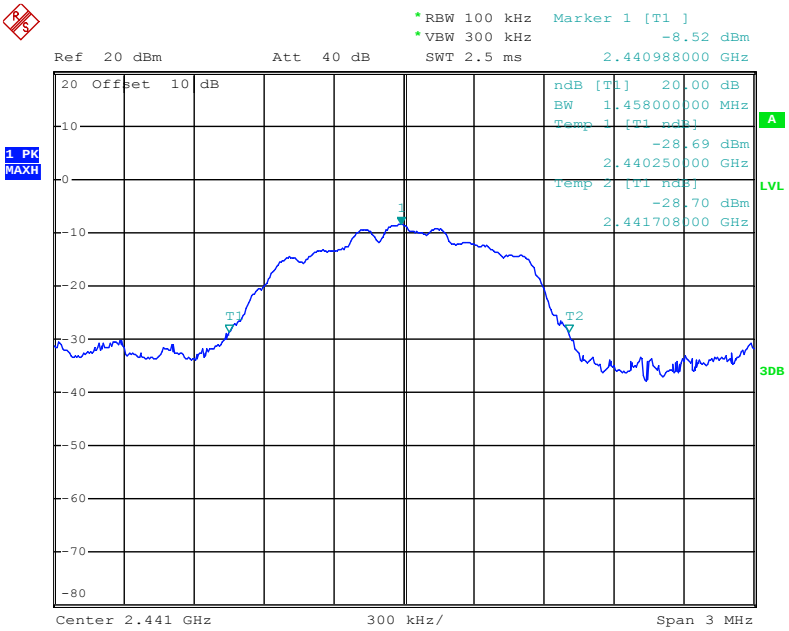
Middle channel



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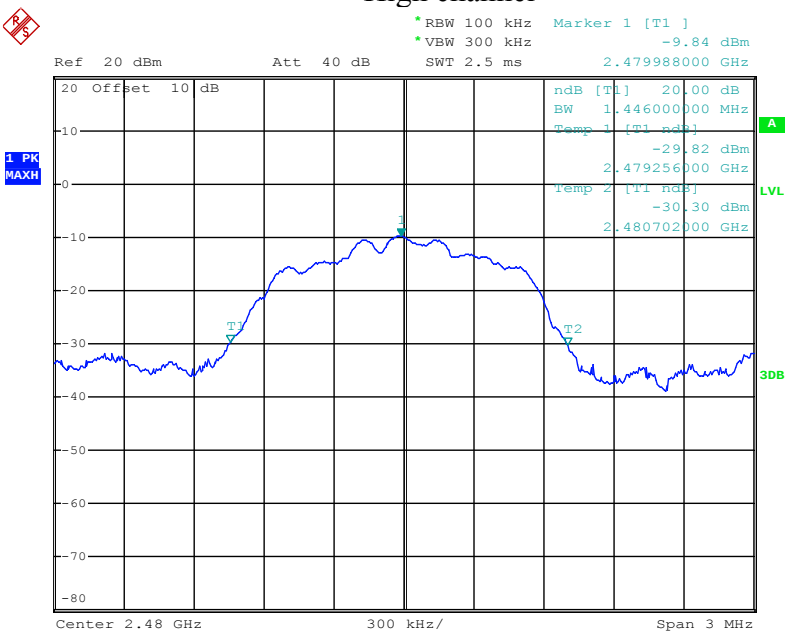
High channel



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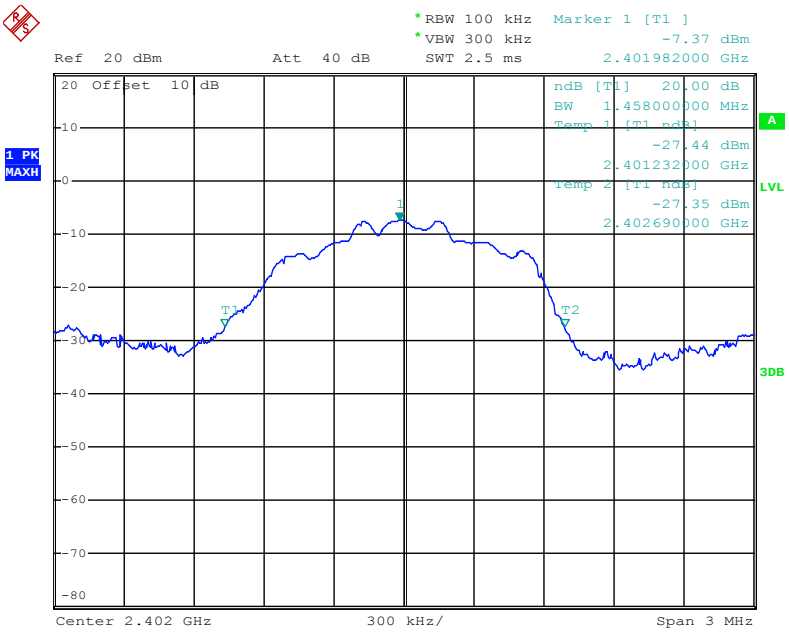
8DPSK Mode

Low channel



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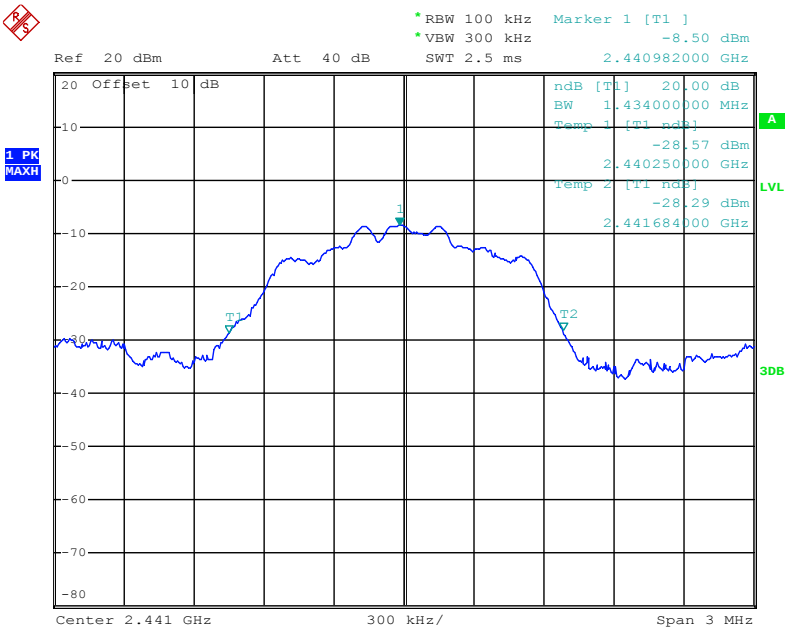
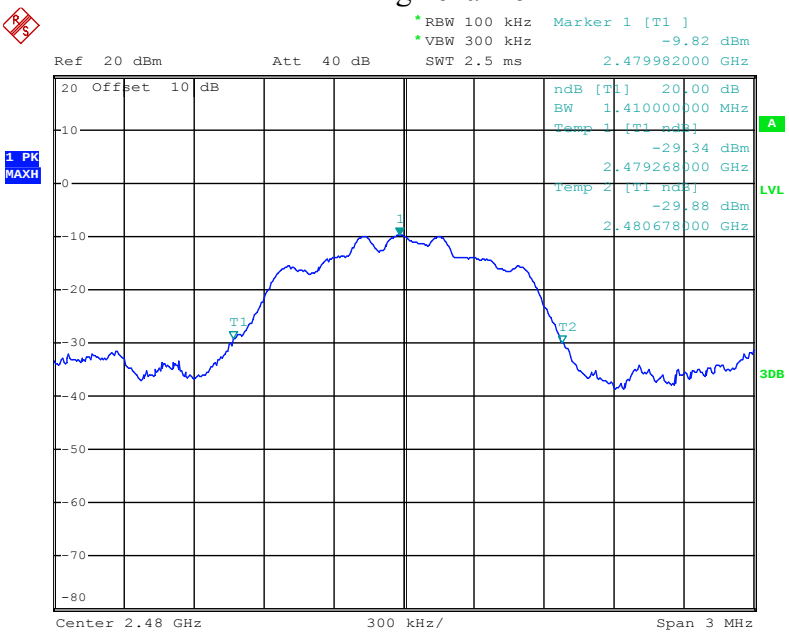
Middle channel



Date: 11.MAY.2020 16:38:11

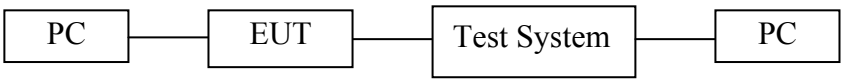
High channel



Date: 11.MAY.2020 16:38:44

6. CARRIER FREQUENCY SEPARATION TEST

6.1.Block Diagram of Test Setup



(EUT: Bluetooth Headset)

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

Section 15.247(a)(1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudorandomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

6.3.EUT Configuration on Measurement

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

6.4.Operating Condition of EUT

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

6.4.2.Turn on the power of all equipment.

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

6.5. Test Procedure

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

6.5.2. Set RBW of spectrum analyzer to 30 kHz and VBW to 100 kHz. Adjust Span to 2MHz.

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

6.5.4. Measurement the channel separation

6.6. Test Result

GFSK

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

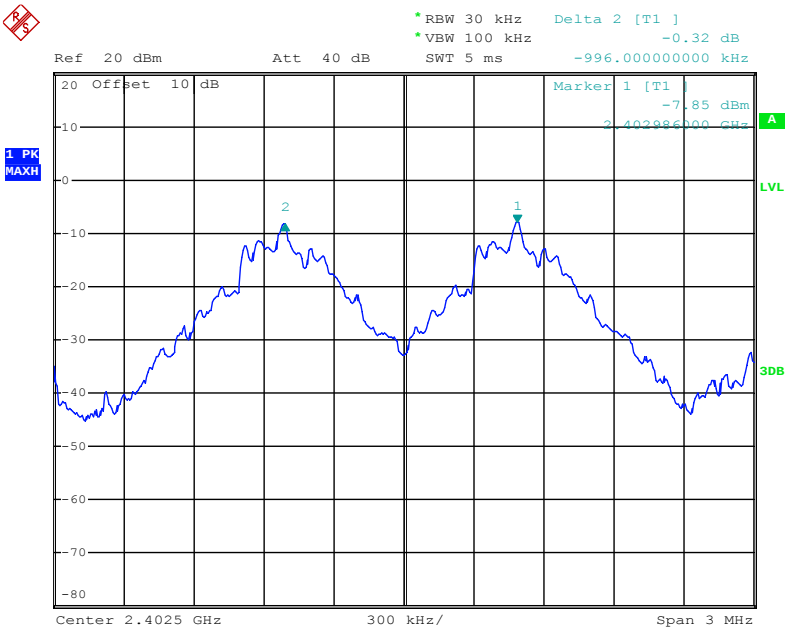
8 DPSK

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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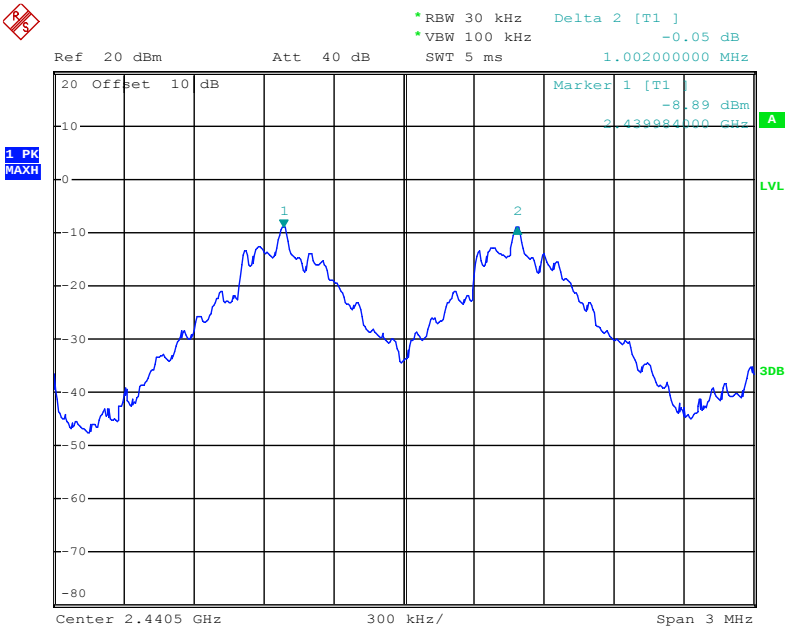
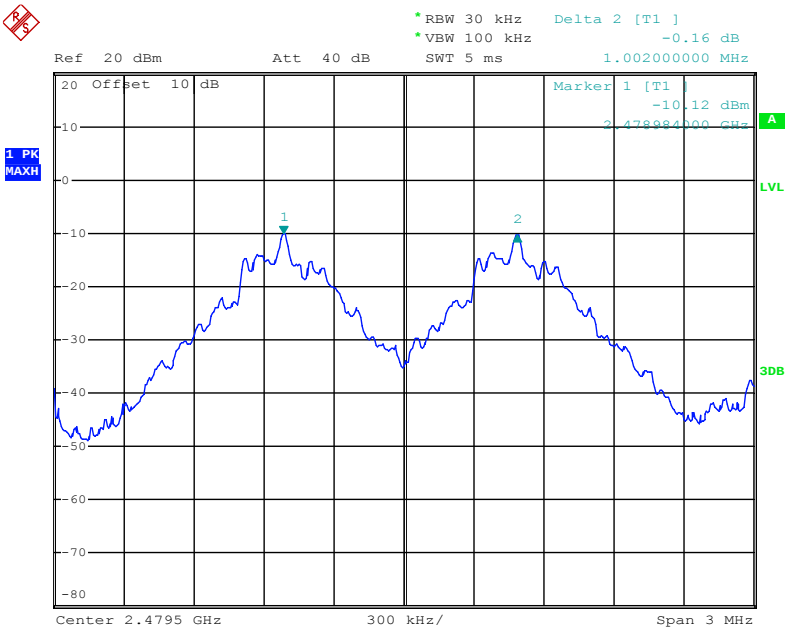
Middle channel



Date: 11.MAY.2020 17:12:00

High channel



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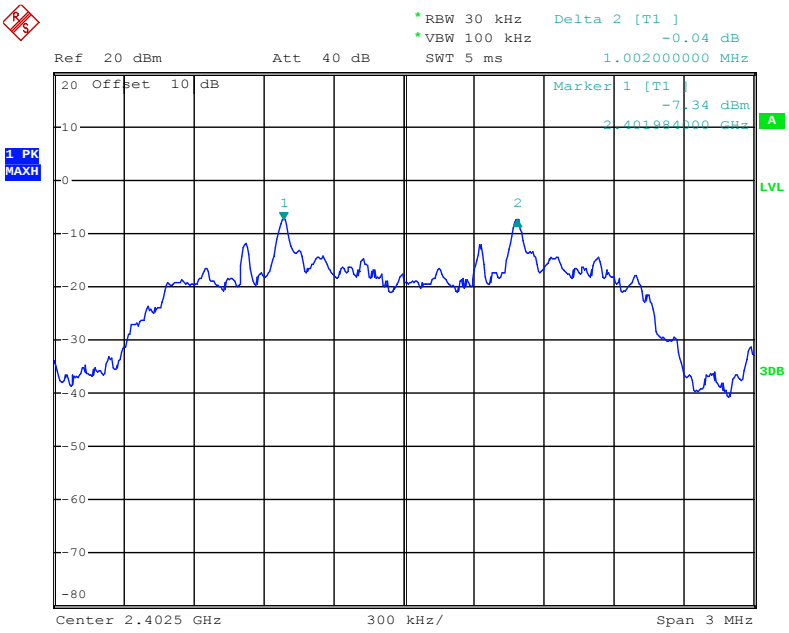
π /4 DQPSK Mode

Low channel



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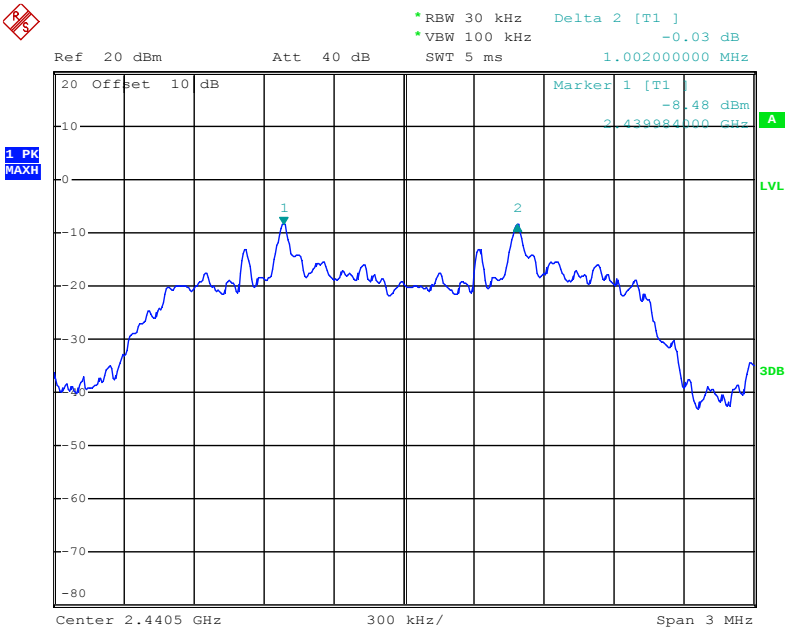
Middle channel



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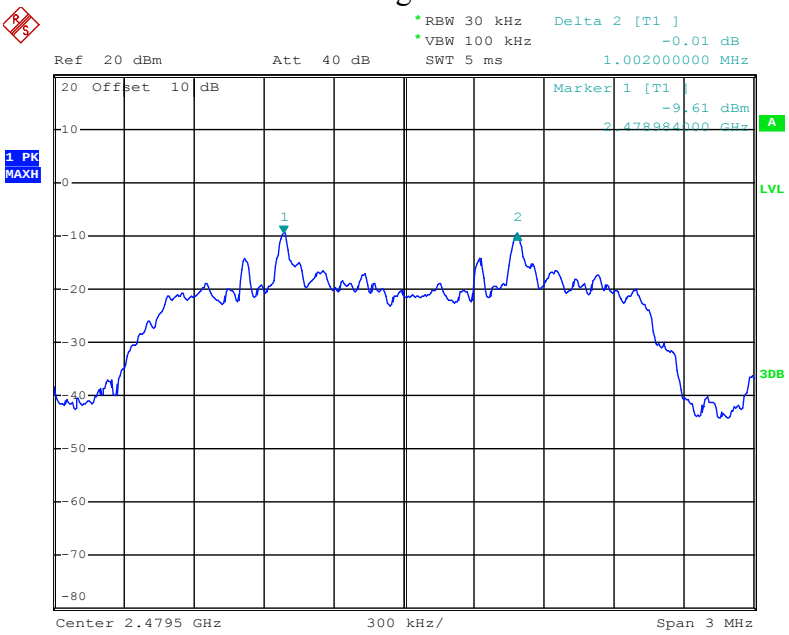
High channel



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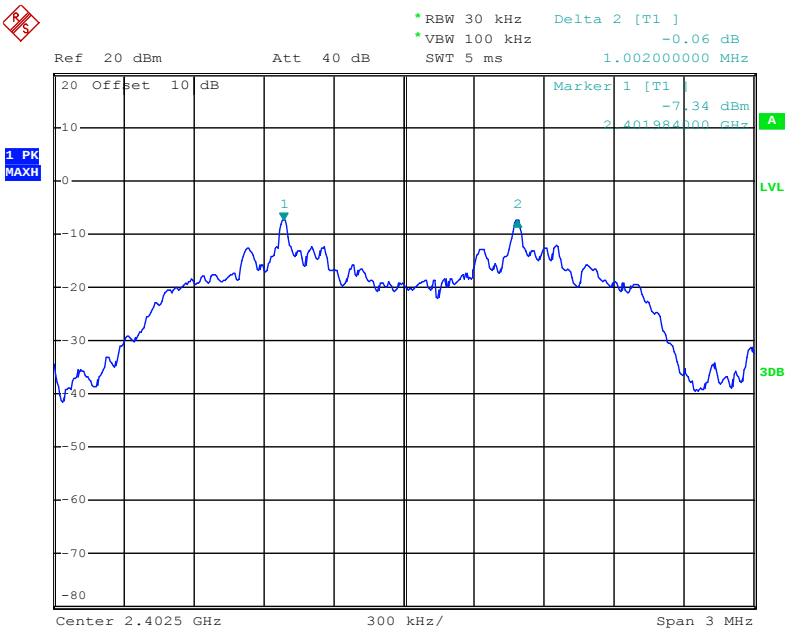
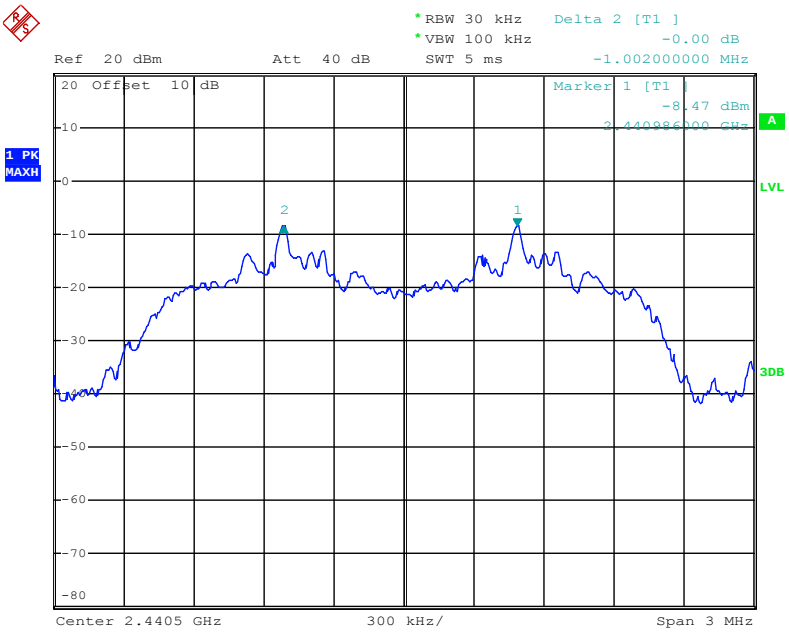
8DPSK Mode

Low channel



Date: 11.MAY.2020 17:14:32

Middle channel



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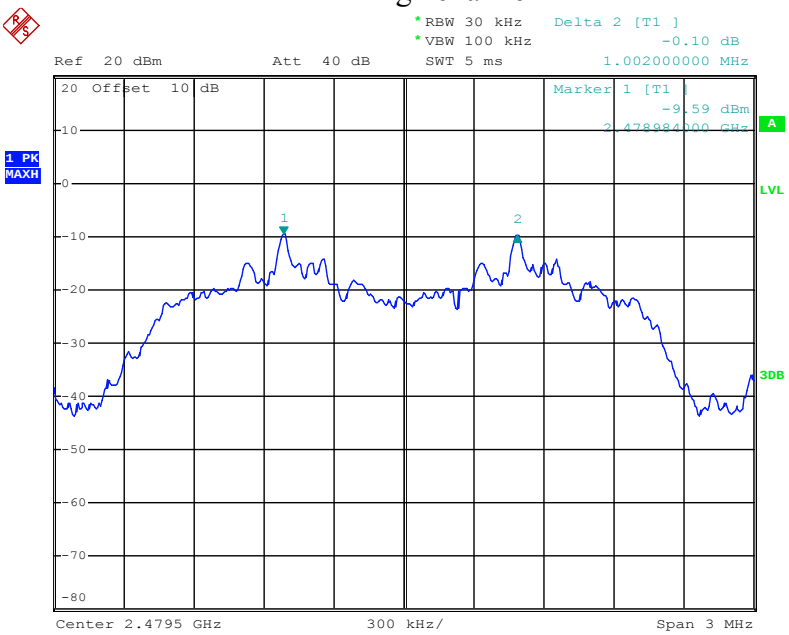
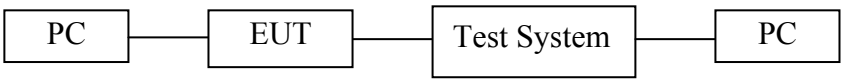
High channel



Date: 11.MAY.2020 17:15:32

7. NUMBER OF HOPPING FREQUENCY TEST

7.1. Block Diagram of Test Setup



(EUT: Bluetooth Headset)

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

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

7.3. EUT Configuration on Measurement

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

7.4. Operating Condition of EUT

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

7.4.2. Turn on the power of all equipment.

7.4.3. Let the EUT work in TX (Hopping on) modes measure it.

7.5. Test Procedure

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

7.5.2. Set the spectrum analyzer as Span=83.5MHz, RBW=100 kHz, VBW=300 kHz.

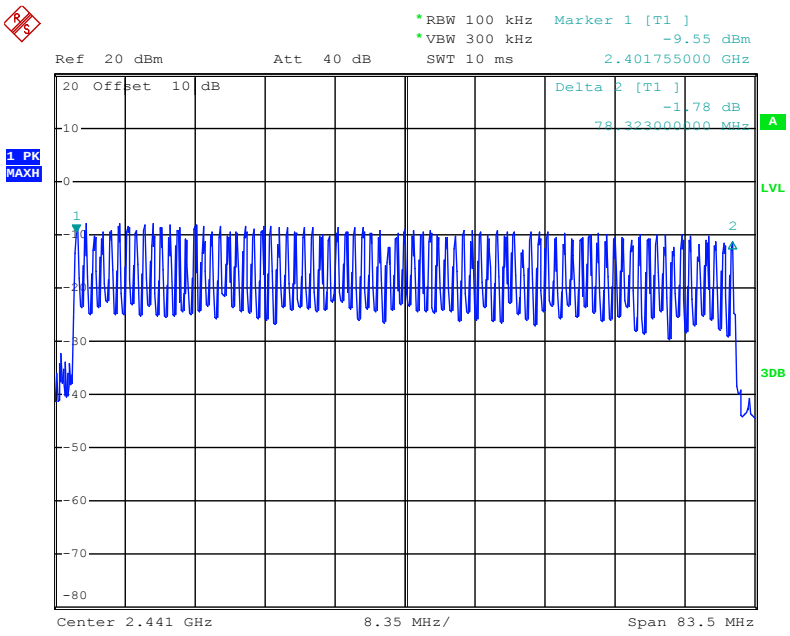
7.5.3. Max hold, view and count how many channel in the band.

7.6. Test Result

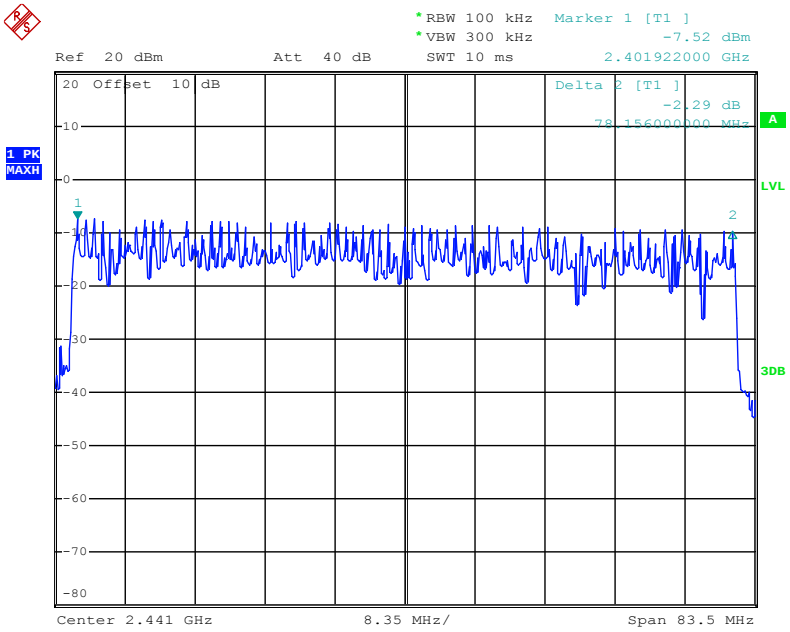
Total number of hopping channel	Measurement result(CH)	Limit(CH)
	79	≥ 15

The spectrum analyzer plots are attached as below.

Number of hopping channels(GFSK)

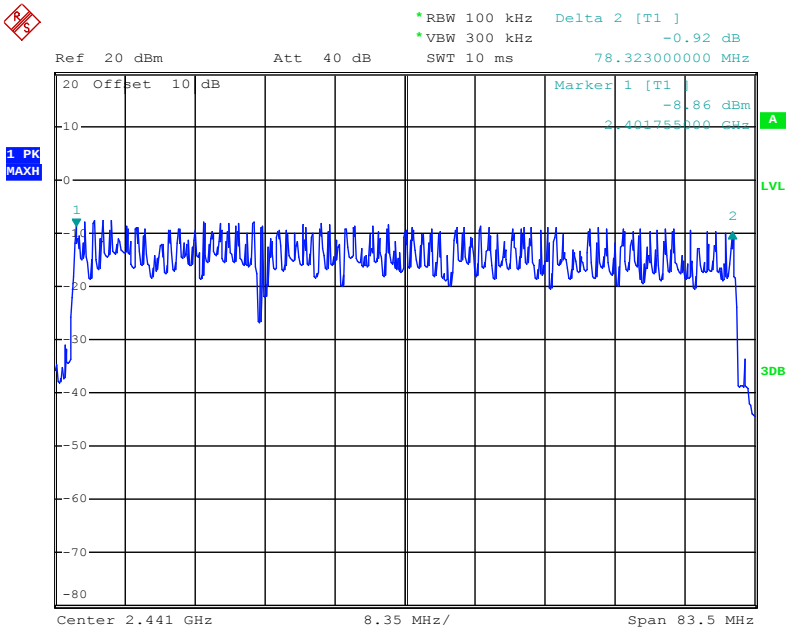


Number of hopping channels(π /4 DQPSK)



Date: 11.MAY.2020 17:09:20

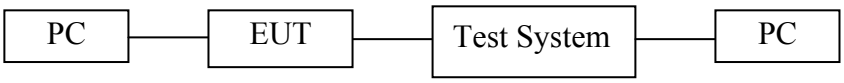
Number of hopping channels(8DPSK)



Date: 11.MAY.2020 17:10:11

8. DWELL TIME TEST

8.1.Block Diagram of Test Setup



(EUT: Bluetooth Headset)

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

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

8.3.EUT Configuration on Measurement

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

8.4.Operating Condition of EUT

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

8.4.2.Turn on the power of all equipment.

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

8.5.Test Procedure

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

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

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

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

8.6.Test Result

GFSK Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2441	0.440	140.8	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2441	1.720	275.2	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2441	3.010	321.1	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

π /4 DQPSK

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
2DH1	2441	0.450	144.0	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
2DH3	2441	1.740	278.4	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
2DH5	2441	3.020	322.1	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

8DPSK mode

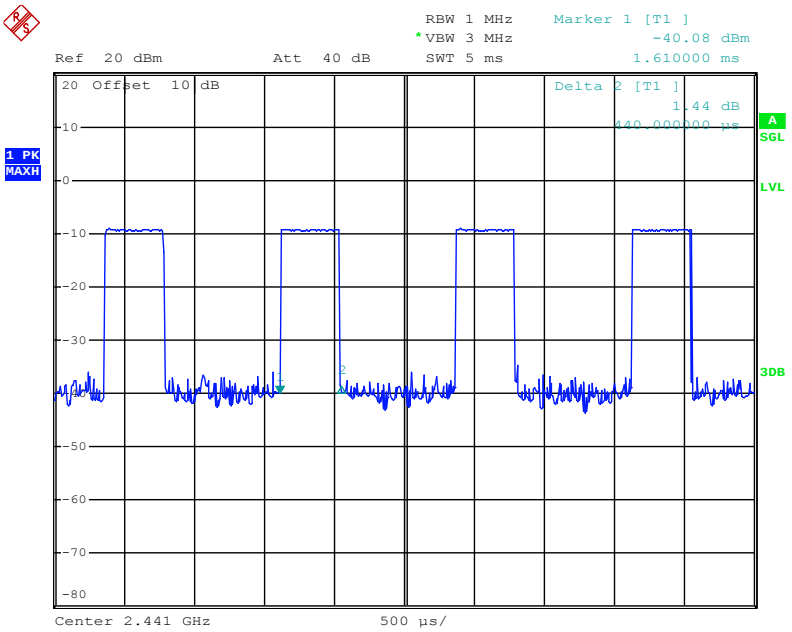
Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
3DH1	2441	0.450	144.0	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
3DH3	2441	1.750	280.0	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
3DH5	2441	2.970	316.8	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

Note: We tested GFSK mode, π /4 DQPSK mode, 8DPSK mode and recorded the worst case data for all test mode.

The spectrum analyzer plots are attached as below.

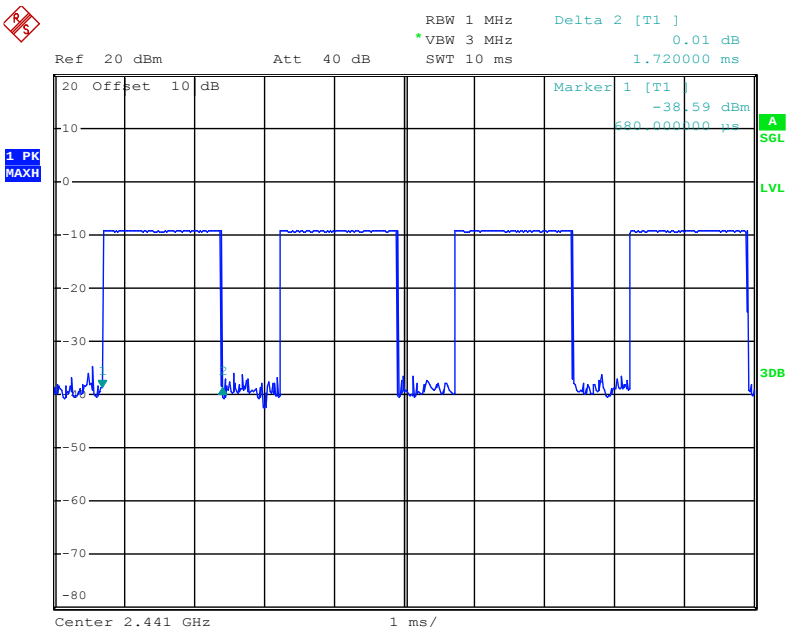
GFSK Mode

DH1 Middle channel



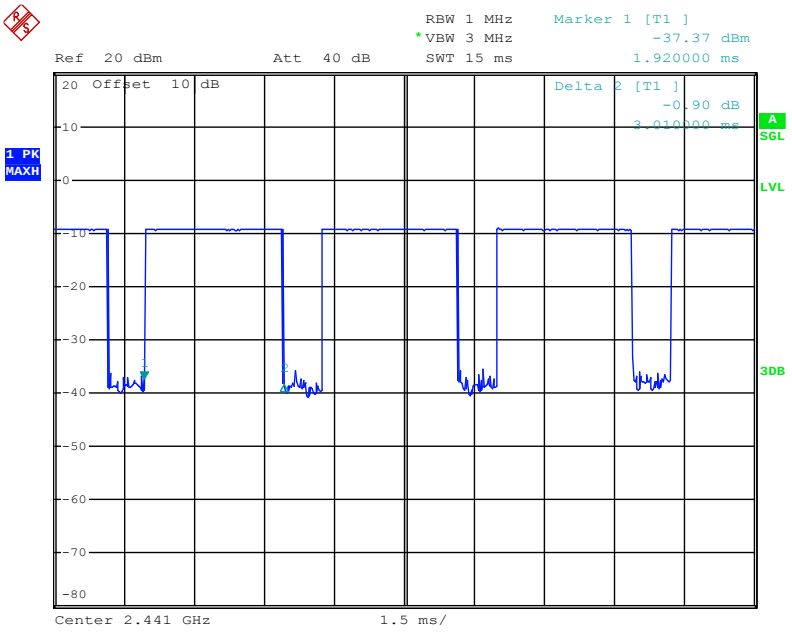
Date: 11.MAY.2020 17:20:09

DH3 Middle channel



Date: 11.MAY.2020 17:18:58

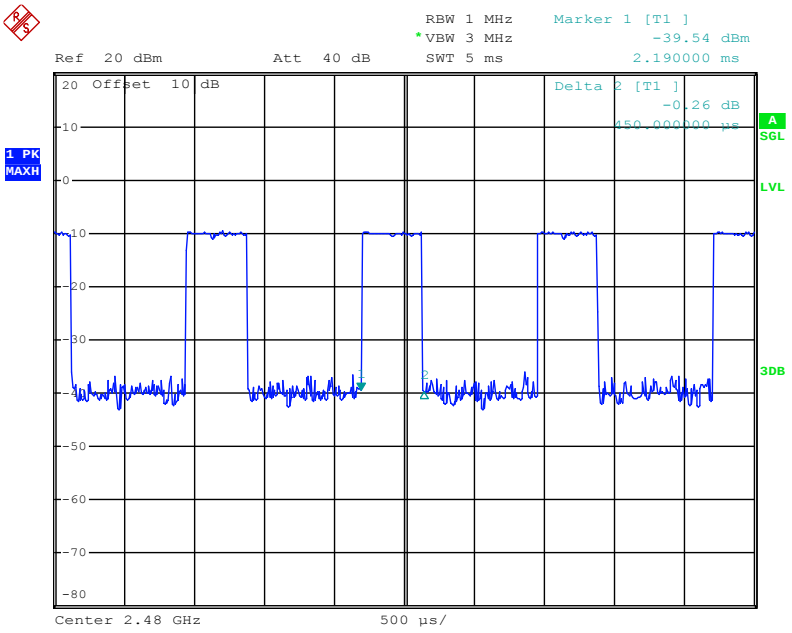
DH5 Middle channel



Date: 11.MAY.2020 17:18:34

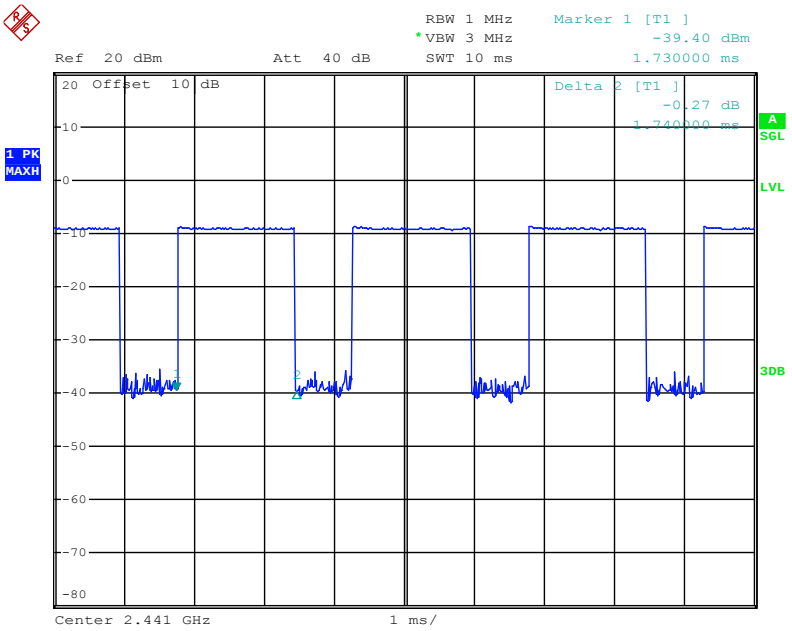
π /4 DQPSK Mode

2DH1 Middle channel



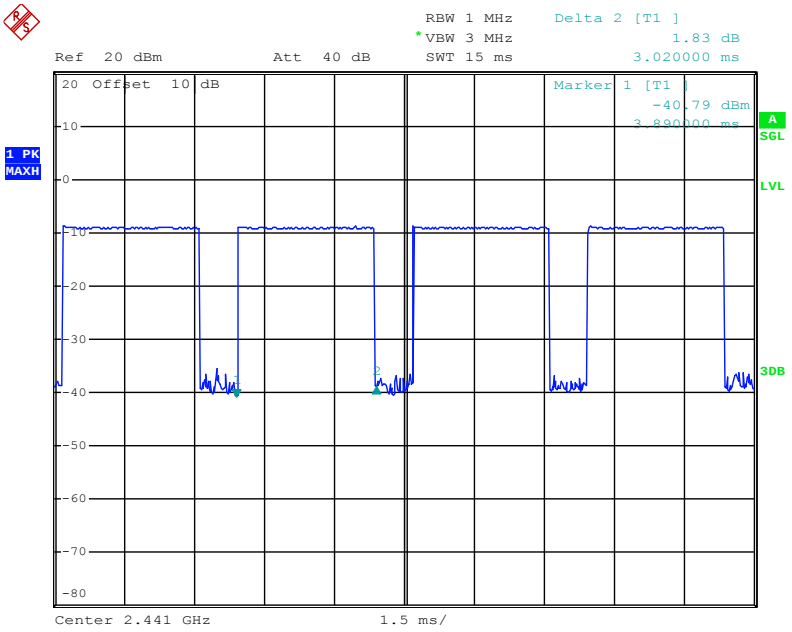
Date: 11.MAY.2020 17:29:56

2DH3 Middle channel



Date: 11.MAY.2020 17:25:24

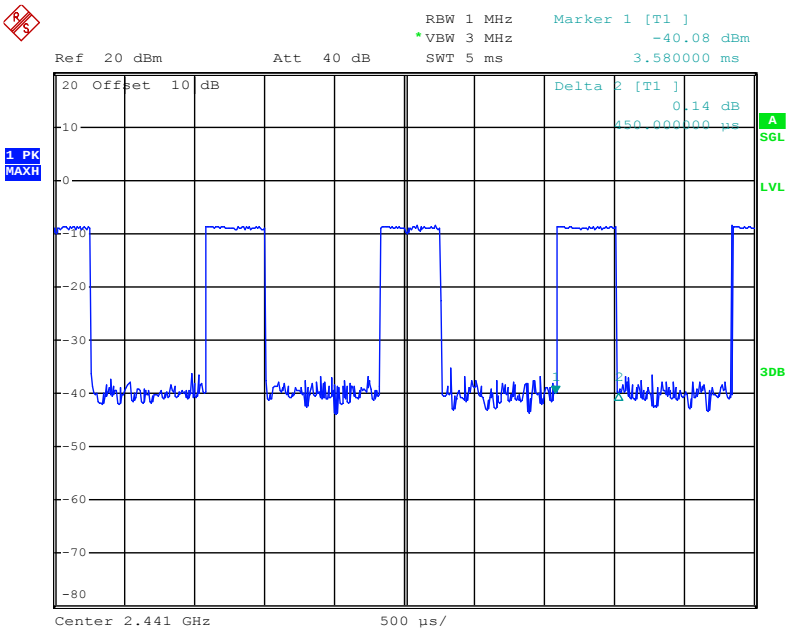
2DH5 Middle channel



Date: 11.MAY.2020 17:24:51

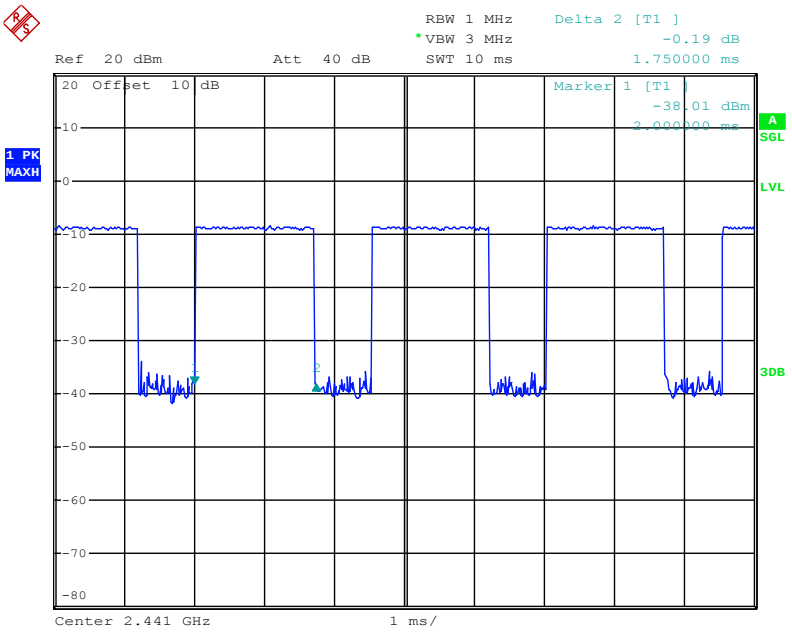
8DPSK Mode

3DH1 Middle channel



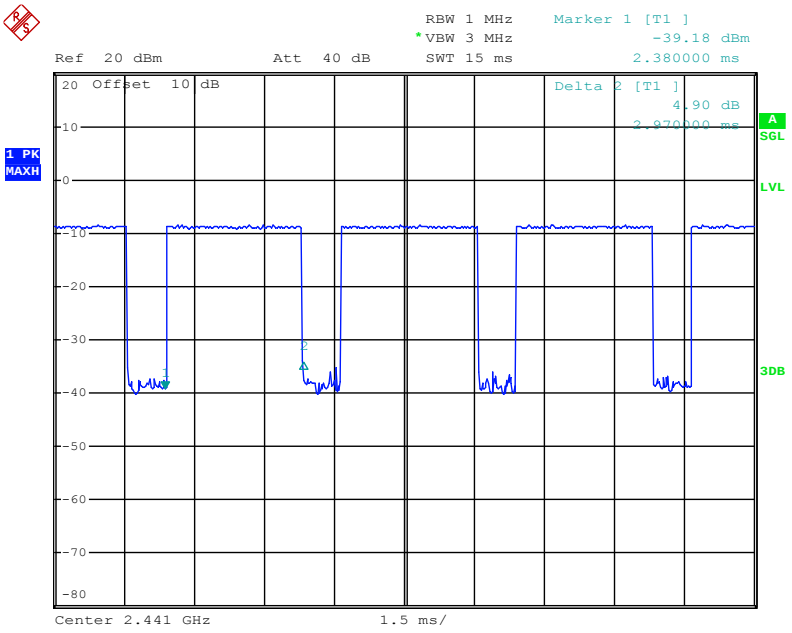
Date: 11.MAY.2020 17:34:50

3DH3 Middle channel



Date: 11.MAY.2020 17:34:23

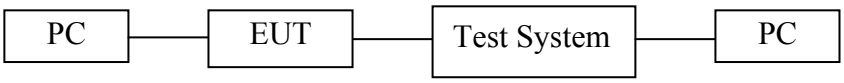
3DH5 Middle channel



Date: 11.MAY.2020 17:33:58

9. MAXIMUM PEAK OUTPUT POWER TEST

9.1. Block Diagram of Test Setup



(EUT: Bluetooth Headset)

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

Section 15.247(b)(1): For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

9.3. EUT Configuration on Measurement

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

9.4. Operating Condition of EUT

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

9.4.2. Turn on the power of all equipment.

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

9.5. Test Procedure

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

9.5.2. Set RBW of spectrum analyzer to 3MHz and VBW to 10MHz for GFSK mode

9.5.3. Set RBW of spectrum analyzer to 3MHz and VBW to 10MHz for π /4 DQPSK mode and 8DPSK mode

9.5.4. 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	-5.79/0.0003	21 / 0.125
Middle	2441	-6.86/0.0002	21 / 0.125
High	2480	-7.93/0.0002	21 / 0.125

π /4 DQPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	-5.31/0.0003	21 / 0.125
Middle	2441	-6.43/0.0002	21 / 0.125
High	2480	-7.14/0.0002	21 / 0.125

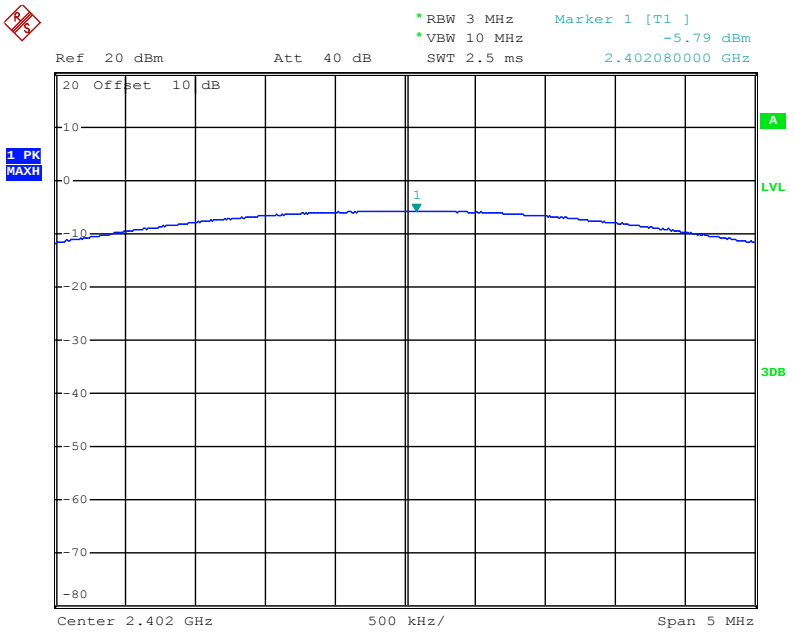
8DPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	-5.06/0.0003	21 / 0.125
Middle	2441	-6.53/0.0002	21 / 0.125
High	2480	-7.41/0.0002	21 / 0.125

The spectrum analyzer plots are attached as below.

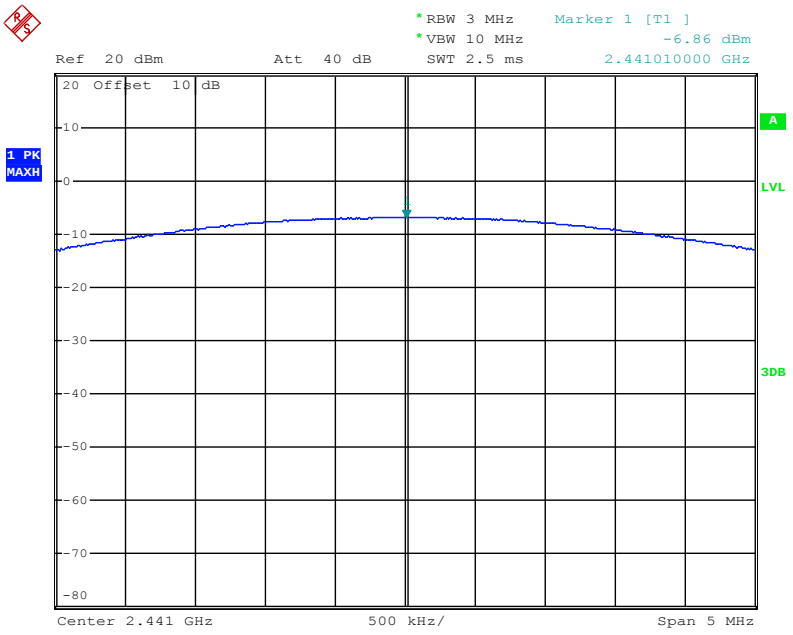
GFSK Mode

Low channel



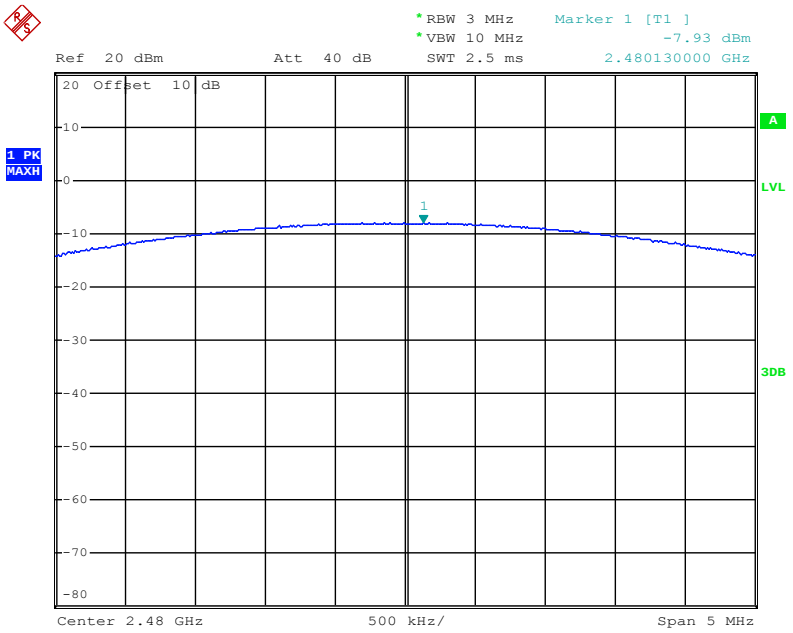
Date: 11.MAY.2020 09:50:44

Middle channel



Date: 11.MAY.2020 09:51:24

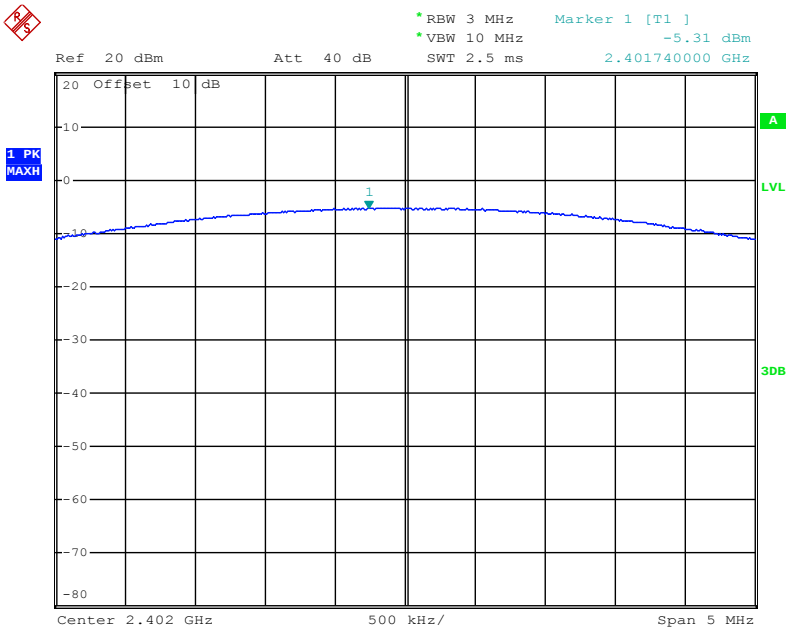
High channel



Date: 11.MAY.2020 09:51:55

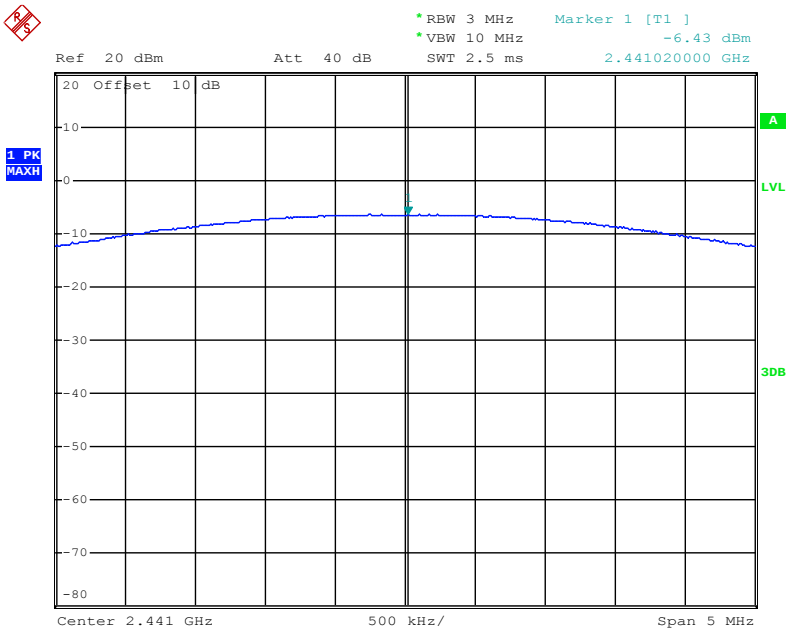
π /4 DQPSK Mode

Low channel



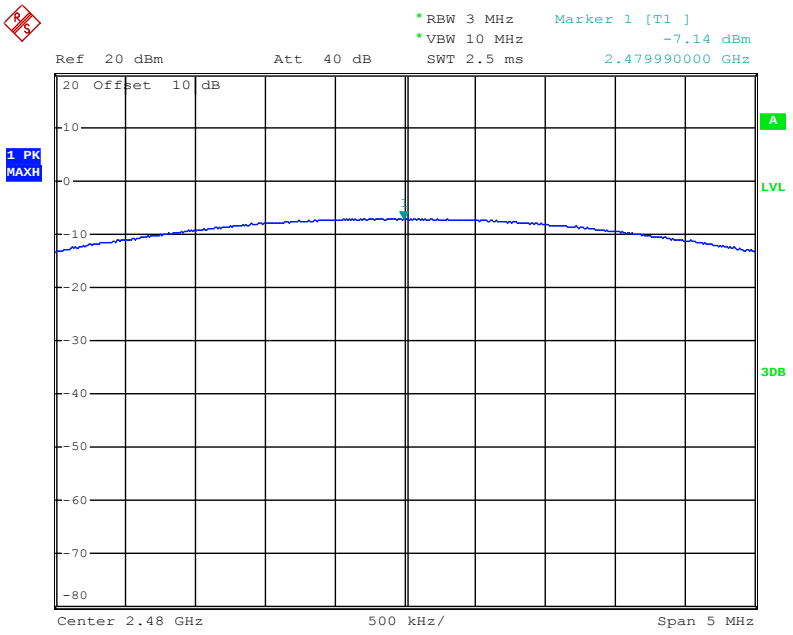
Date: 11.MAY.2020 09:53:04

Middle channel



Date: 11.MAY.2020 09:52:44

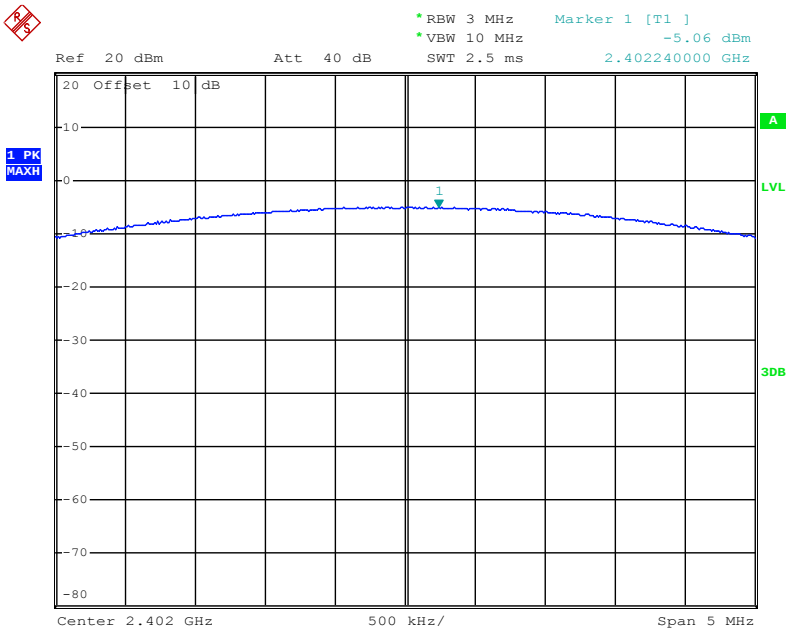
High channel



Date: 11.MAY.2020 09:52:23

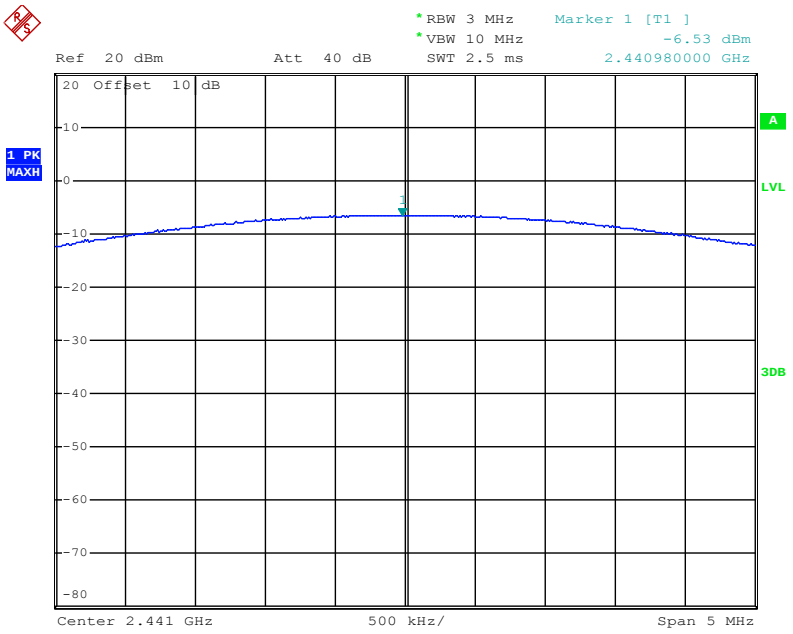
8DPSK Mode

Low channel



Date: 11.MAY.2020 09:53:25

Middle channel



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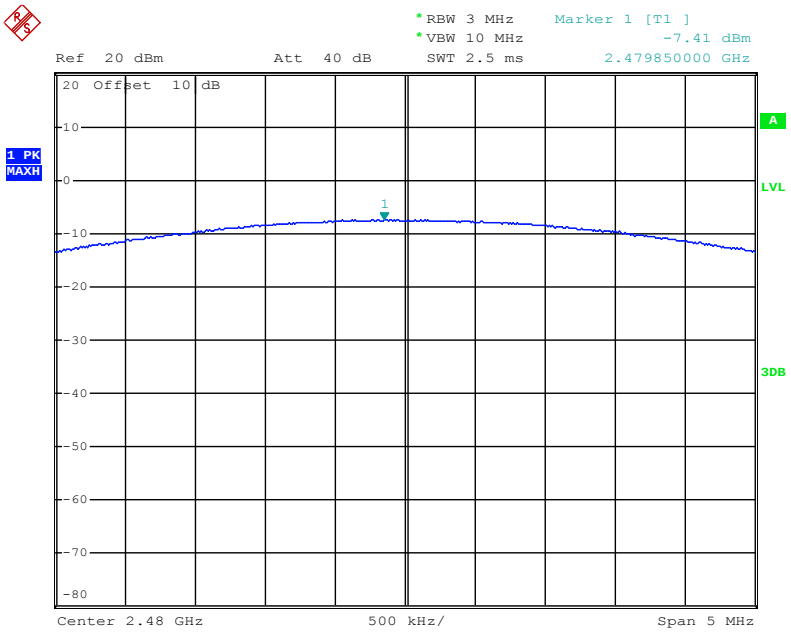
High channel



Date: 11.MAY.2020 09:54:12

10.RADIATED EMISSION TEST

10.1.Block Diagram of Test Setup

10.1.1.Block diagram of connection between the EUT and peripherals

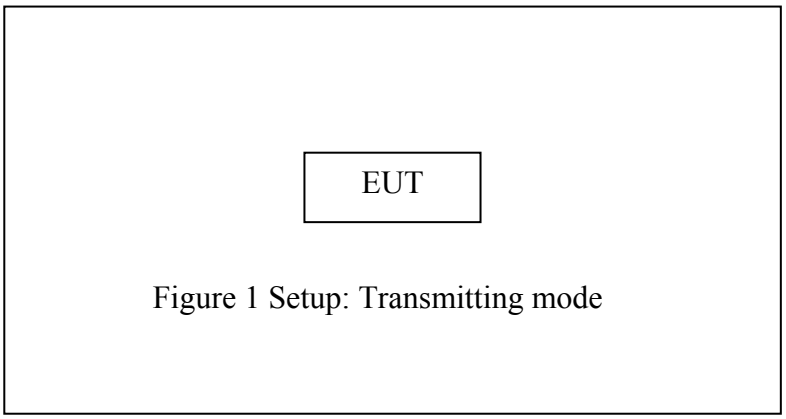
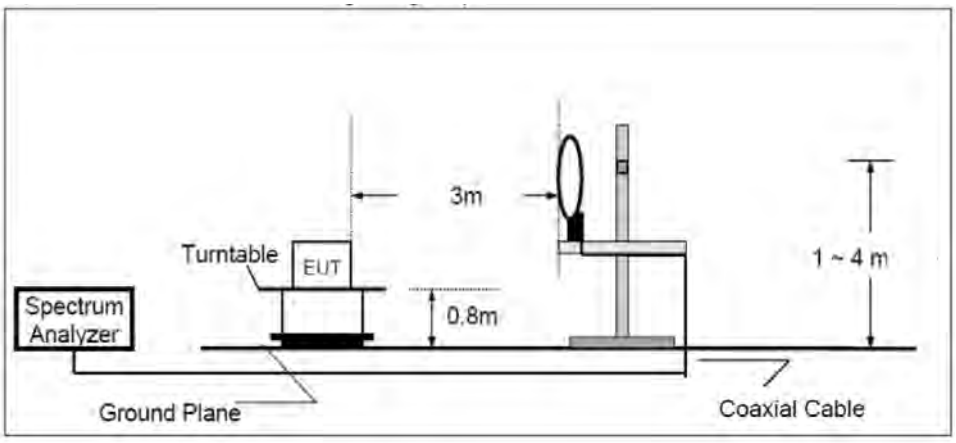


Figure 1 Setup: Transmitting mode

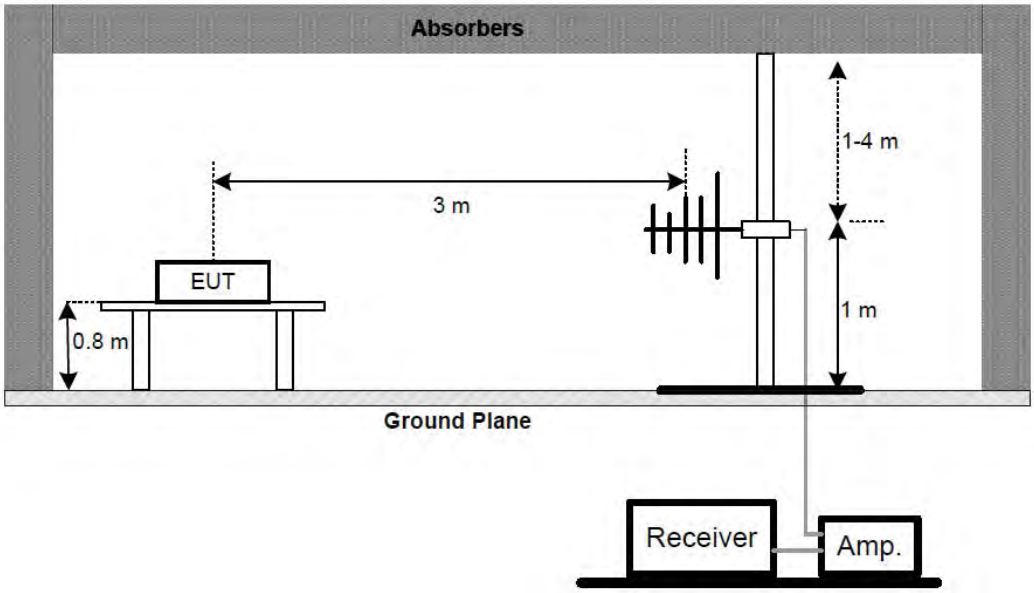
(EUT: Bluetooth Headset)

10.1.2.Semi-Anechoic Chamber Test Setup Diagram

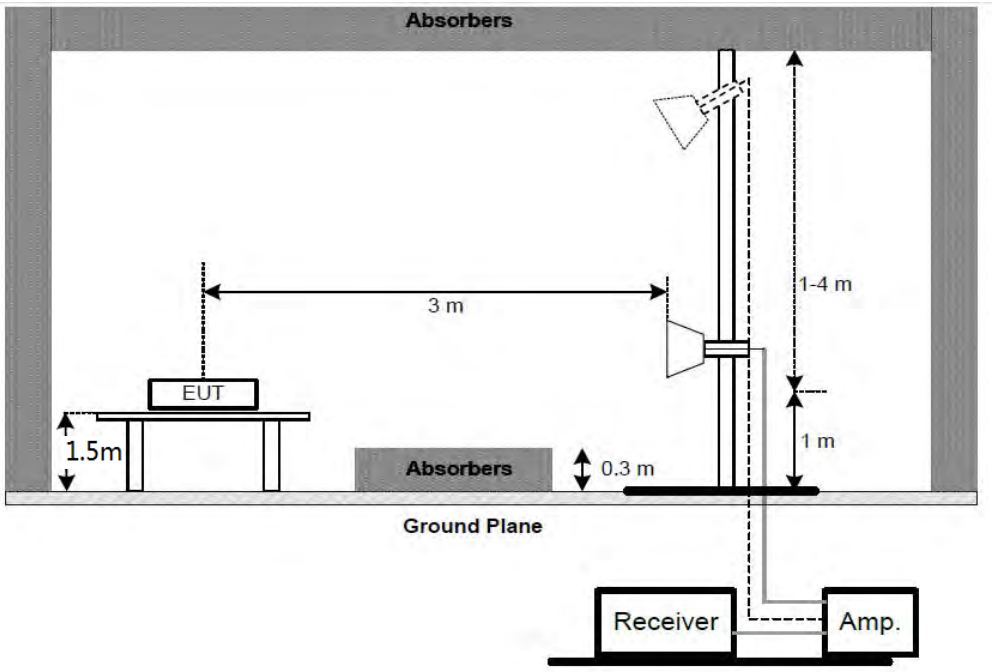
(A) Radiated Emission Test Set-Up, Frequency below 30MHz



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



Above 1GHz:



10.2.The Limit For Section 15.247(d)

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

10.3.Restricted bands of operation

10.3.1.FCC Part 15.205 Restricted bands of operation

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

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510
[2]Above 38.6

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

15.35 apply to these measurements.

10.4.Configuration of EUT on Measurement

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

10.5.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.

10.6.Data Sample

Frequency (MHz)	Reading (dBμv)	Factor (dB/m)	Result (dBμv/m)	Limit (dBμv/m)	Margin (dB)	Remark
X.XX	28.66	-15.19	13.47	40.0	-26.53	QP

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

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

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

10.7.The Field Strength of Radiation Emission Measurement Results

Note: 1.We tested GFSK mode, π /4 DQPSK Mode, 8DPSK Mode and recorded the worst case data (8DPSK mode) from 30MHz-25GHz.

2. The test frequency is from 9KHz to 25GHz, The radiation emission from 9KHz-30MHz and 18-25GHz are not reported, because the levels are too low against the limit.

Below 1GHz

ACCURATE TECHNOLOGY CO., LTD.
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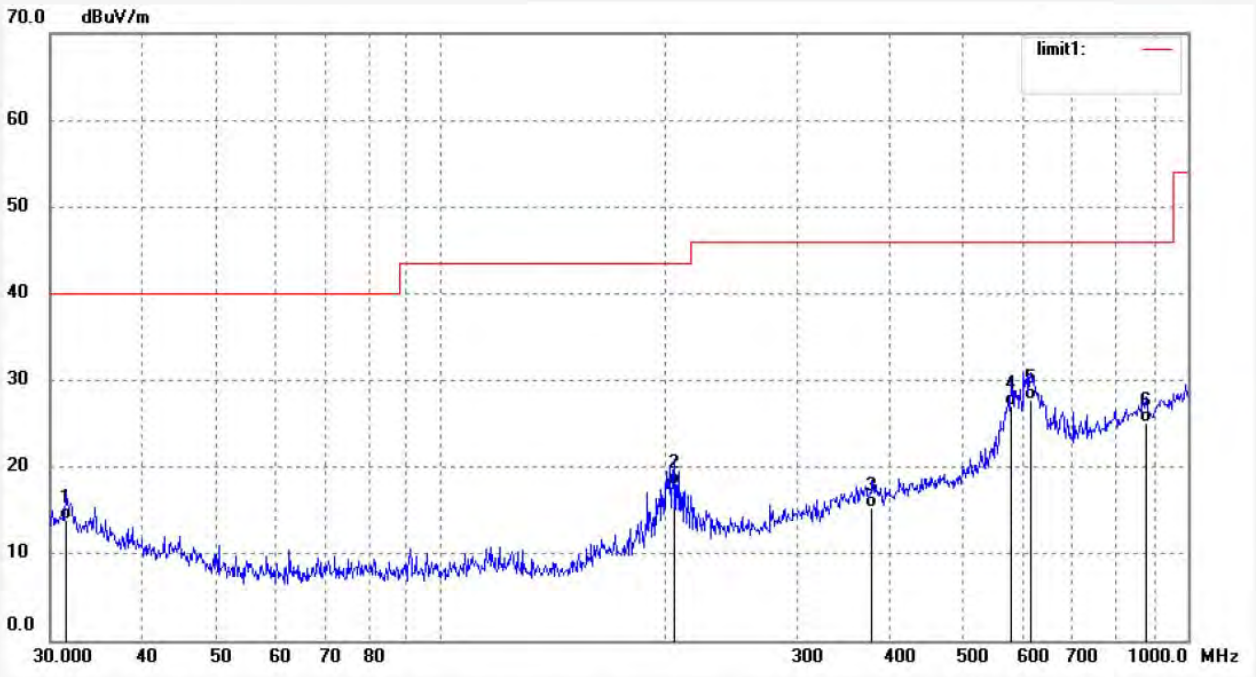
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: jp2020 #89
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2402MHz
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2020/05/09
Time: 17:01:54
Engineer Signature: Ben
Distance: 3m

Note: Report NO.:ATE20200478



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.5126	34.57	-20.57	14.00	40.00	-26.00	QP	200	119	
2	205.7458	42.06	-24.16	17.90	43.50	-25.60	QP	200	126	
3	377.8480	34.06	-18.66	15.40	46.00	-30.60	QP	200	139	
4	580.0705	41.21	-14.11	27.10	46.00	-18.90	QP	200	186	
5	615.7743	41.16	-13.36	27.80	46.00	-18.20	QP	200	202	
6	878.0931	32.66	-7.56	25.10	46.00	-20.90	QP	200	246	

ACCURATE TECHNOLOGY CO., LTD.
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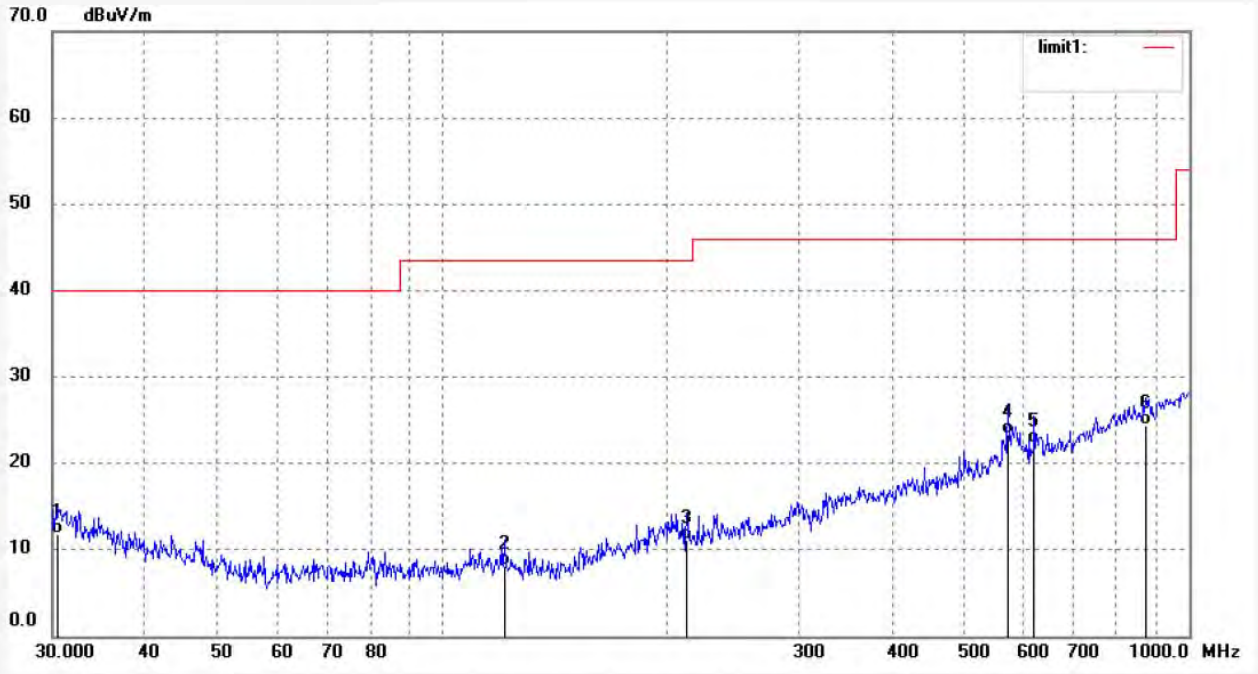
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: jp2020 #90
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2402MHz
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2020/05/09
Time: 17:02:46
Engineer Signature: Ben
Distance: 3m

Note: Report NO.:ATE20200478



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	30.5317	32.23	-20.33	11.90	40.00	-28.10	QP	100	105	
2	121.0362	35.56	-27.46	8.10	43.50	-35.40	QP	100	119	
3	212.3559	35.29	-24.09	11.20	43.50	-32.30	QP	100	139	
4	571.9750	37.71	-14.31	23.40	46.00	-22.60	QP	100	168	
5	620.1167	35.65	-13.25	22.40	46.00	-23.60	QP	100	196	
6	875.0132	32.01	-7.61	24.40	46.00	-21.60	QP	100	245	

ACCURATE TECHNOLOGY CO., LTD.
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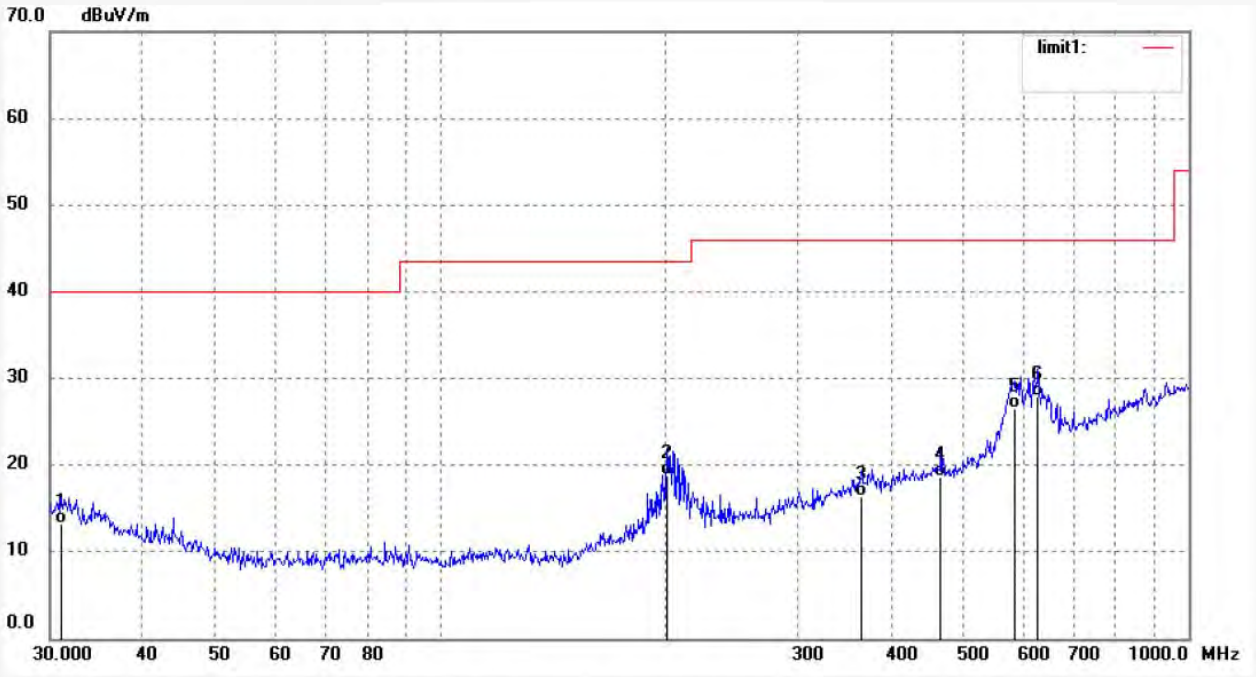
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: jp2020 #92
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2441MHz
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2020/05/09
Time: 17:14:30
Engineer Signature: Ben
Distance: 3m

Note: Report NO.:ATE20200478



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.0728	33.77	-20.47	13.30	40.00	-26.70	QP	200	115	
2	200.7472	43.13	-24.33	18.80	43.50	-24.70	QP	200	129	
3	364.8025	35.13	-18.83	16.30	46.00	-29.70	QP	200	138	
4	466.5230	35.51	-16.81	18.70	46.00	-27.30	QP	200	186	
5	584.1611	40.62	-14.02	26.60	46.00	-19.40	QP	200	201	
6	628.8935	41.08	-13.08	28.00	46.00	-18.00	QP	200	269	

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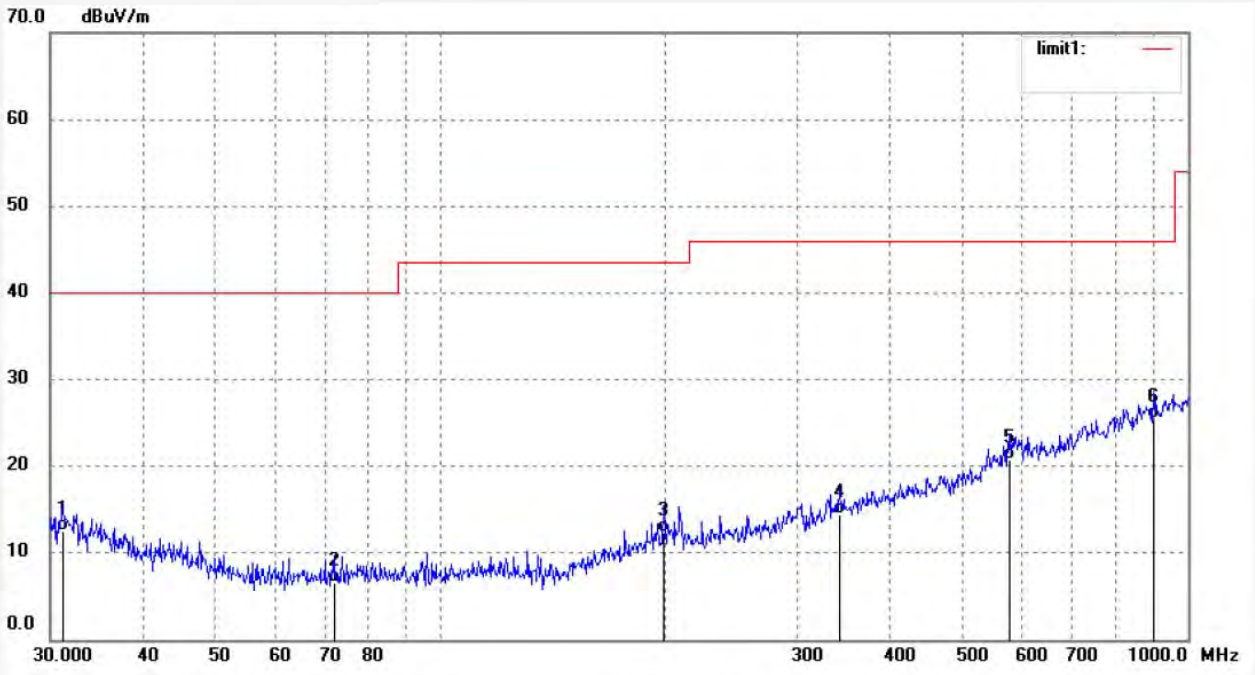
Job No.: jp2020 #91
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2441MHz
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2020/05/09
Time: 17:03:19
Engineer Signature: Ben
Distance: 3m

Note: Report NO.:ATE20200478



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.1822	33.09	-20.49	12.60	40.00	-27.40	QP	100	105	
2	71.9578	34.17	-27.57	6.60	40.00	-33.40	QP	100	134	
3	198.6424	36.84	-24.44	12.40	43.50	-31.10	QP	100	176	
4	341.2441	34.09	-19.69	14.40	46.00	-31.60	QP	100	196	
5	578.0359	34.85	-14.15	20.70	46.00	-25.30	QP	100	219	
6	899.9577	32.60	-7.20	25.40	46.00	-20.60	QP	100	275	

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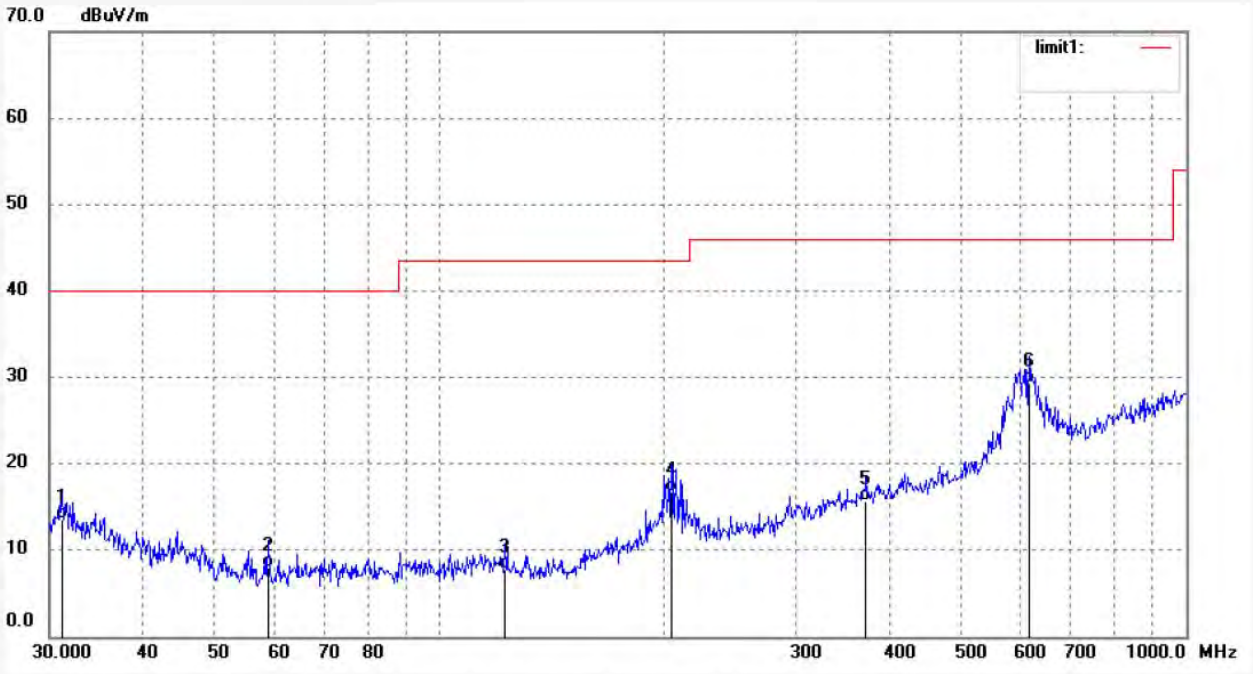
Job No.: jp2020 #93
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2480MHz
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2020/05/09
Time: 17:15:05
Engineer Signature: Ben
Distance: 3m

Note: Report NO.:ATE20200478



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.1822	34.09	-20.49	13.60	40.00	-26.40	QP	200	102	
2	58.8978	35.16	-27.16	8.00	40.00	-32.00	QP	200	126	
3	122.3188	35.31	-27.51	7.80	43.50	-35.70	QP	200	175	
4	204.3052	40.88	-24.18	16.70	43.50	-26.80	QP	200	196	
5	372.5747	34.34	-18.74	15.60	46.00	-30.40	QP	200	206	
6	615.7743	42.76	-13.36	29.40	46.00	-16.60	QP	200	286	

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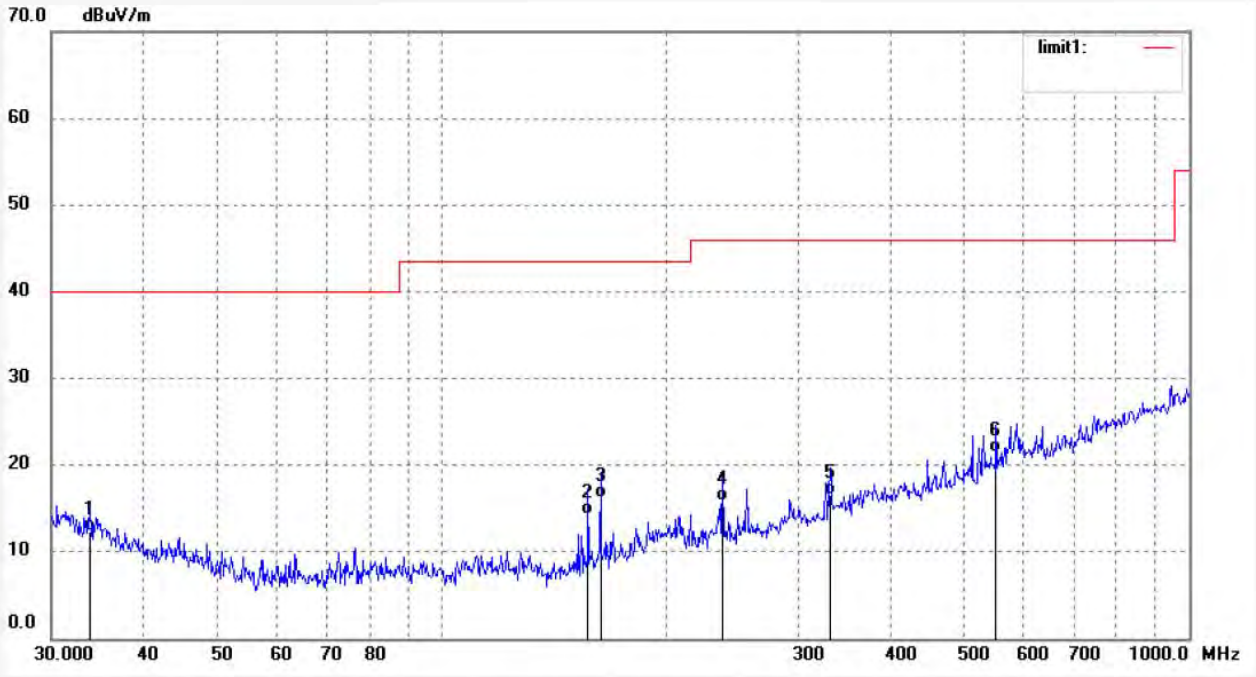
Job No.: jp2020 #94	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 2020/05/09
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 17:15:45
EUT: Bluetooth Headset	Engineer Signature: Ben
Mode: TX 2480MHz	Distance: 3m
Model: KOSS PLUG Wireless	
Manufacturer: Dongguan Baizhenrong Limited	

Note: Report NO.:ATE20200478



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	33.8066	33.56	-21.16	12.40	40.00	-27.60	QP	100	115	
2	156.9764	41.71	-27.41	14.30	43.50	-29.20	QP	100	136	
3	163.1622	42.93	-26.73	16.20	43.50	-27.30	QP	100	186	
4	237.6262	39.66	-23.76	15.90	46.00	-30.10	QP	100	198	
5	330.6220	36.73	-20.13	16.60	46.00	-29.40	QP	100	216	
6	552.2270	36.25	-14.75	21.50	46.00	-24.50	QP	100	286	

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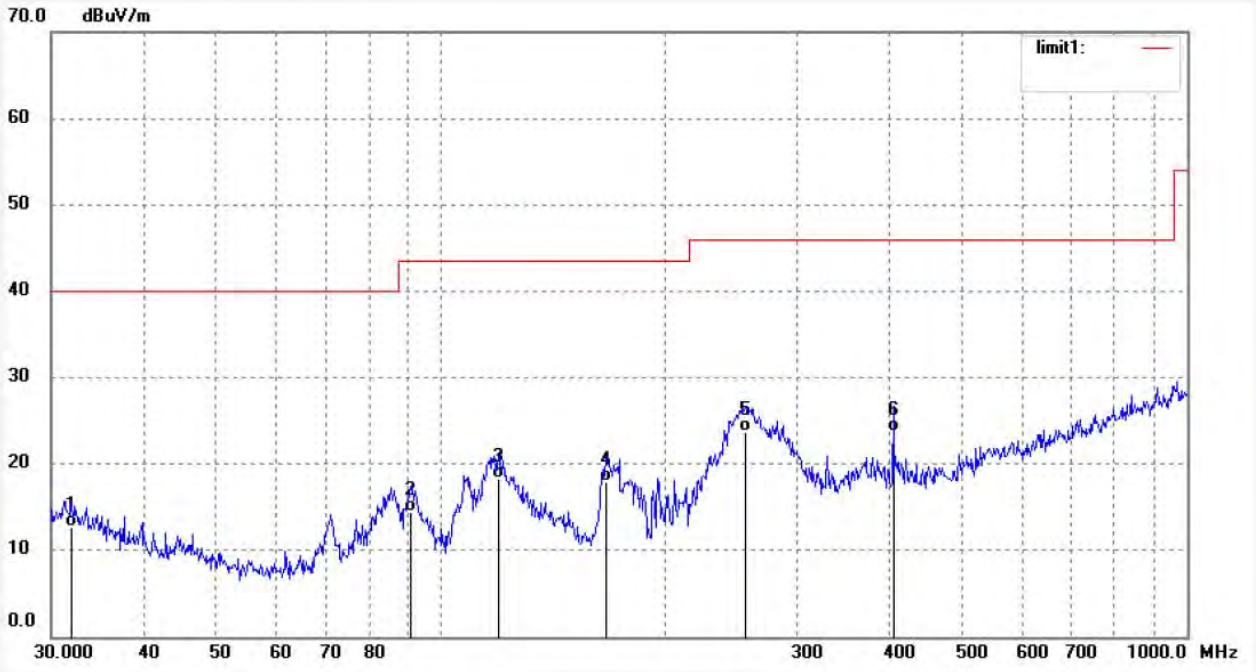
Job No.: jp2020 #96	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2020/05/09
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 17:20:43
EUT: Bluetooth Headset	Engineer Signature: Ben
Mode: CHARGING	Distance: 3m
Model: KOSS PLUG Wireless	
Manufacturer: Dongguan Baizhenrong Limited	

Note: Report NO.:ATE20200478



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.9586	33.39	-20.69	12.70	40.00	-27.30	QP	200	102	
2	91.0574	41.81	-27.41	14.40	43.50	-29.10	QP	200	136	
3	119.3471	45.73	-27.43	18.30	43.50	-25.20	QP	200	186	
4	166.6382	44.26	-26.36	17.90	43.50	-25.60	QP	200	202	
5	255.8223	47.00	-23.30	23.70	46.00	-22.30	QP	200	263	
6	403.9334	42.03	-18.23	23.80	46.00	-22.20	QP	200	302	

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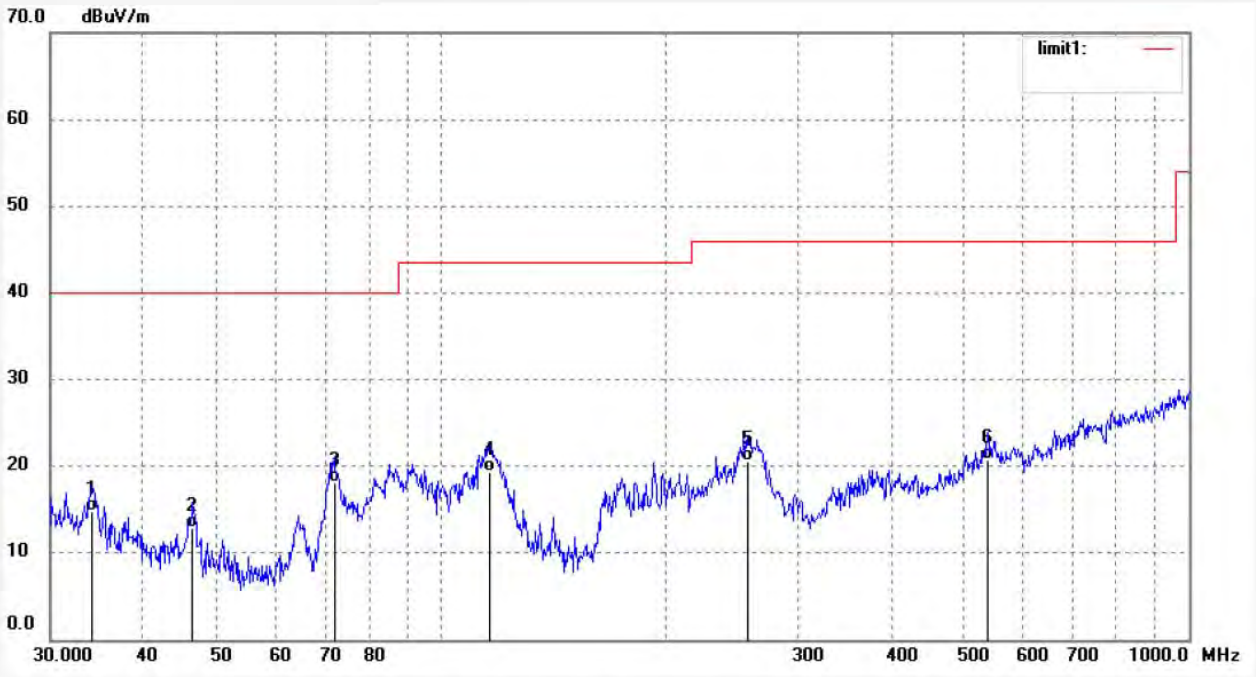
Job No.: jp2020 #95
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: CHARGING
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 2020/05/09
Time: 17:19:11
Engineer Signature: Ben
Distance: 3m

Note: Report NO.:ATE20200478



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	34.0451	36.02	-21.22	14.80	40.00	-25.20	QP	100	102	
2	46.5439	37.77	-24.97	12.80	40.00	-27.20	QP	100	136	
3	71.9578	45.77	-27.57	18.20	40.00	-21.80	QP	100	186	
4	116.0391	46.67	-27.37	19.30	43.50	-24.20	QP	100	197	
5	256.7230	43.85	-23.25	20.60	46.00	-25.40	QP	100	215	
6	538.8106	35.94	-15.14	20.80	46.00	-25.20	QP	100	263	

Above 1GHz

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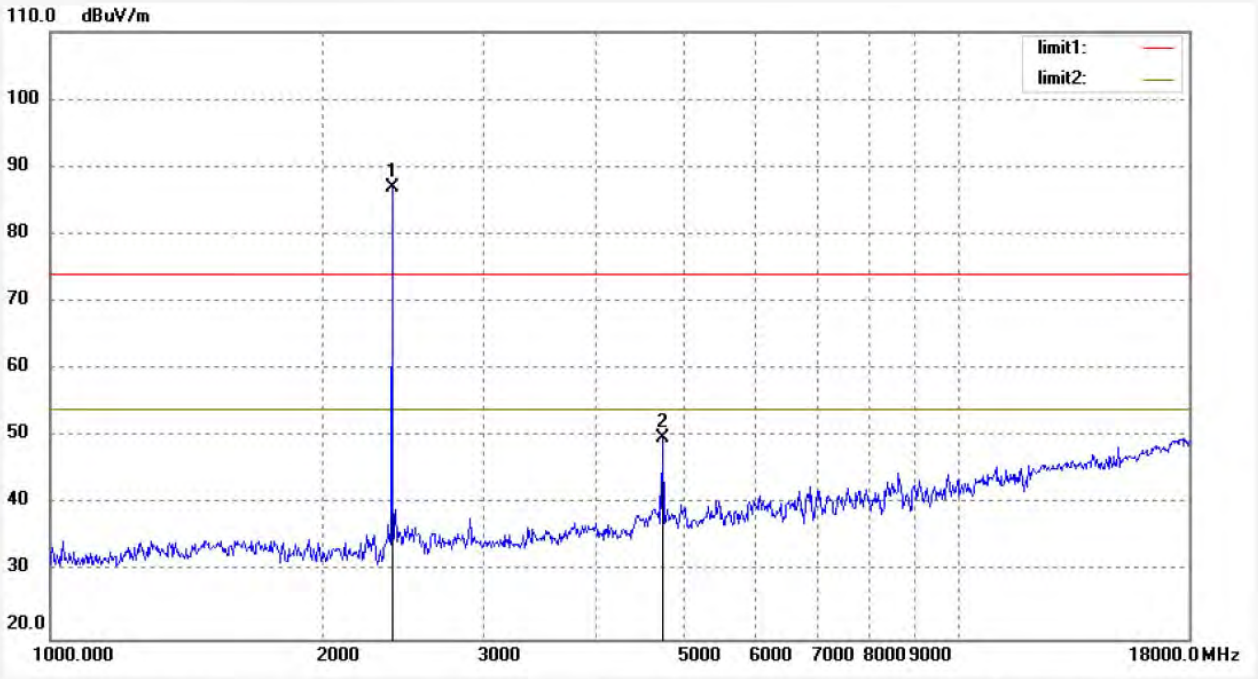
Job No.: JPZRLK #79
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2402MHz
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 9/25/43
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.419	92.40	-6.37	86.03			peak	200	65	
2	4804.957	49.00	0.70	49.70	74.00	-24.30	peak	200	109	

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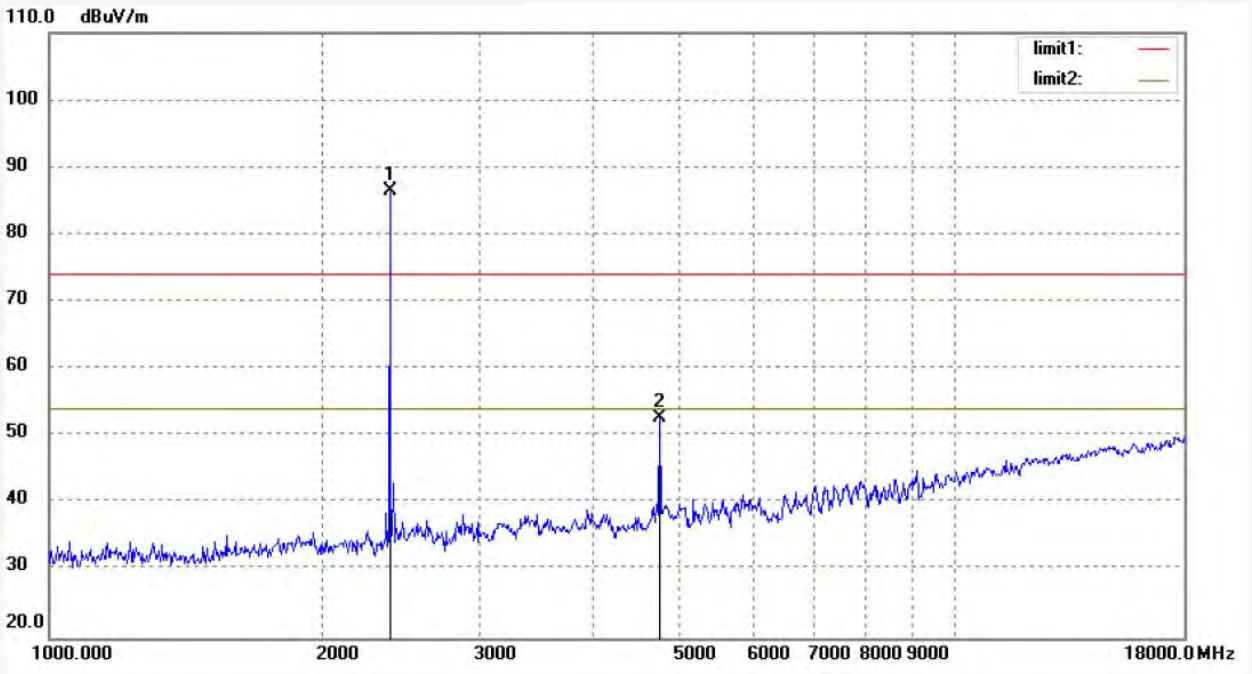
Job No.: JPZRLK #80
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2402MHz
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 9/26/43
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.419	93.87	-6.37	87.50			peak	150	331	
2	4804.957	52.06	0.70	52.76	74.00	-21.24	peak	150	106	

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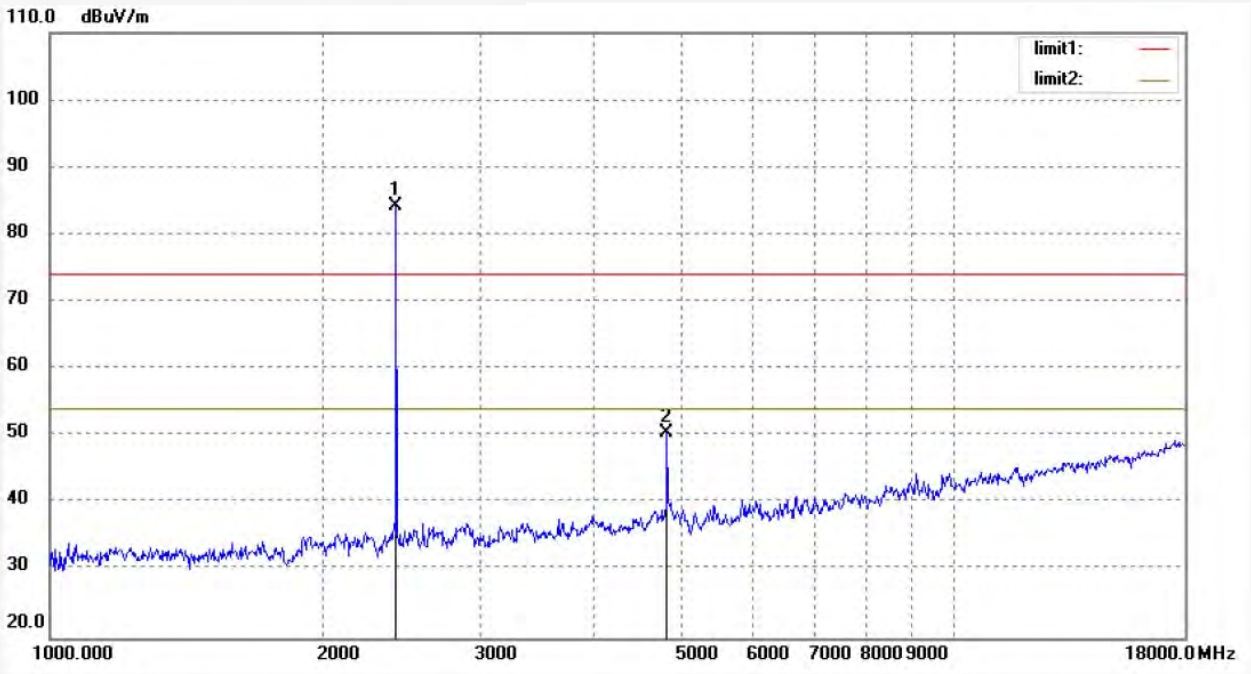
Job No.: JPZRLK #82
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2441MHz
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 9/33/04
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.121	90.41	-6.20	84.21			peak	200	66	
2	4882.324	49.38	1.07	50.45	74.00	-23.55	peak	200	109	

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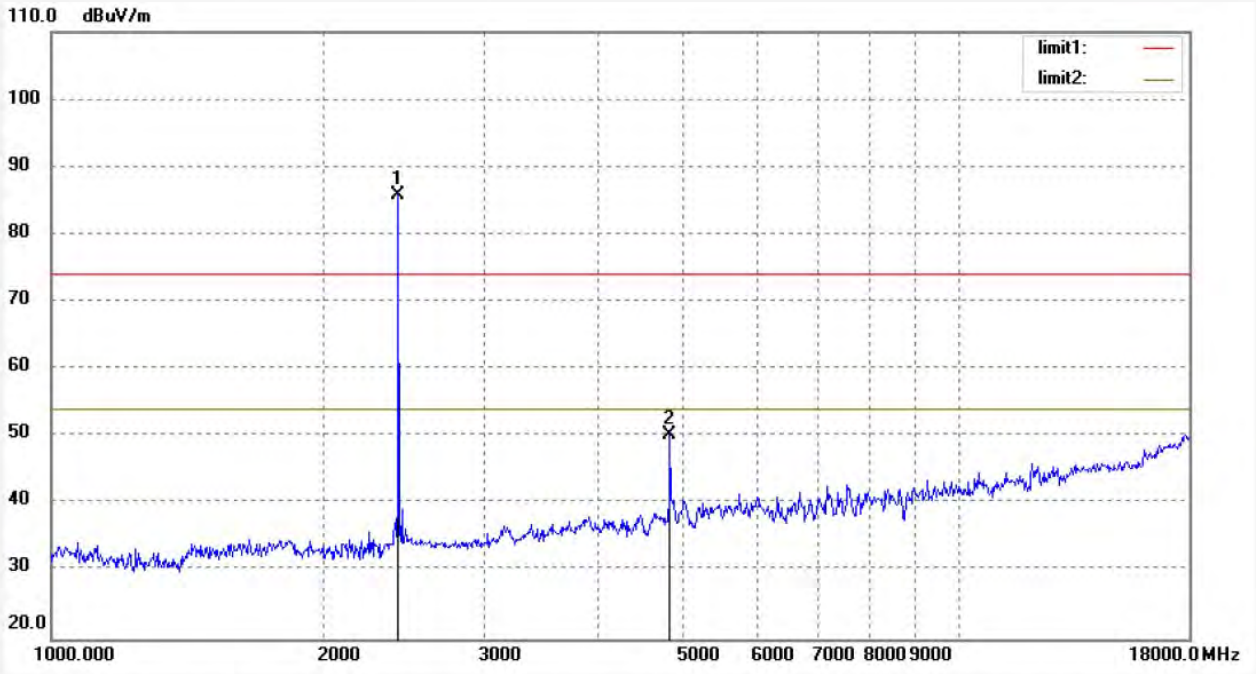
Job No.: JPZRLK #81
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2441MHz
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 9/28/03
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.121	92.98	-6.20	86.78			peak	150	166	
2	4882.324	49.27	1.07	50.34	74.00	-23.66	peak	150	109	

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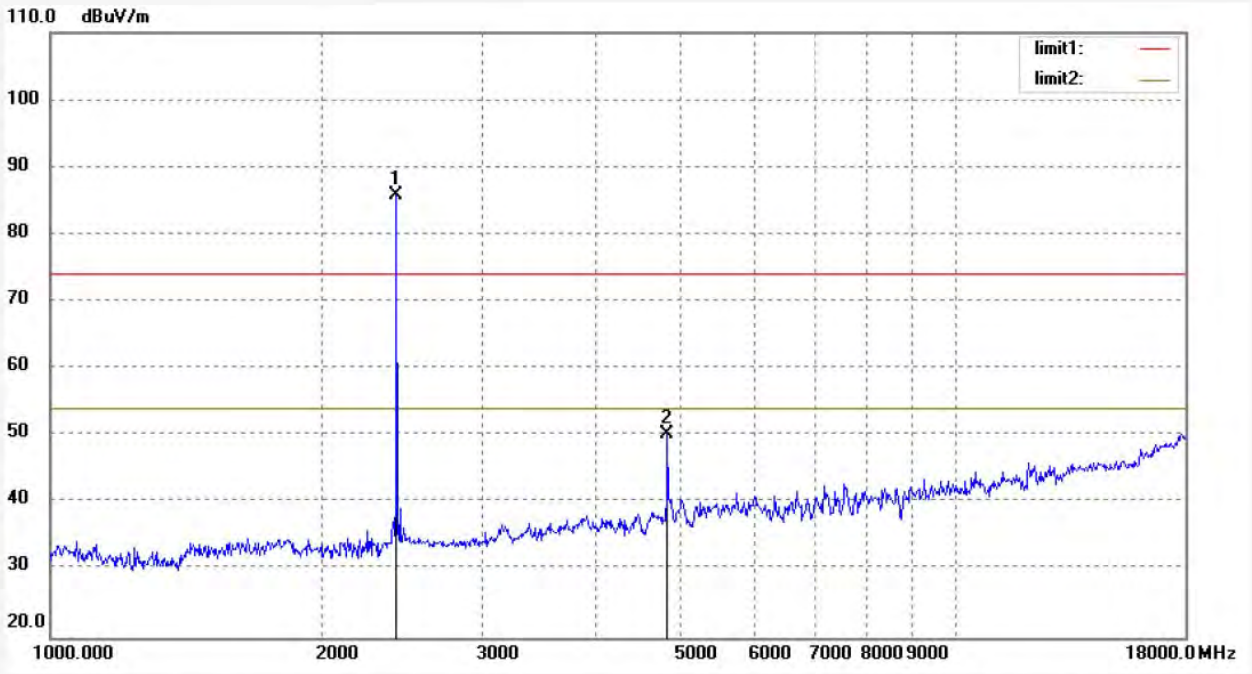
Job No.: JPZRLK #81	Polarization: Vertical
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 2020/05/12/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 9/28/03
EUT: Bluetooth Headset	Engineer Signature:
Mode: TX 2441MHz	Distance: 3m
Model: KOSS PLUG Wireless	
Manufacturer: Dongguan Baizhenrong Limited	

Note: Report NO.:ATE20200478



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.121	91.98	-6.20	85.78			peak	150	166	
2	4882.324	49.27	1.07	50.34	74.00	-23.66	peak	150	109	

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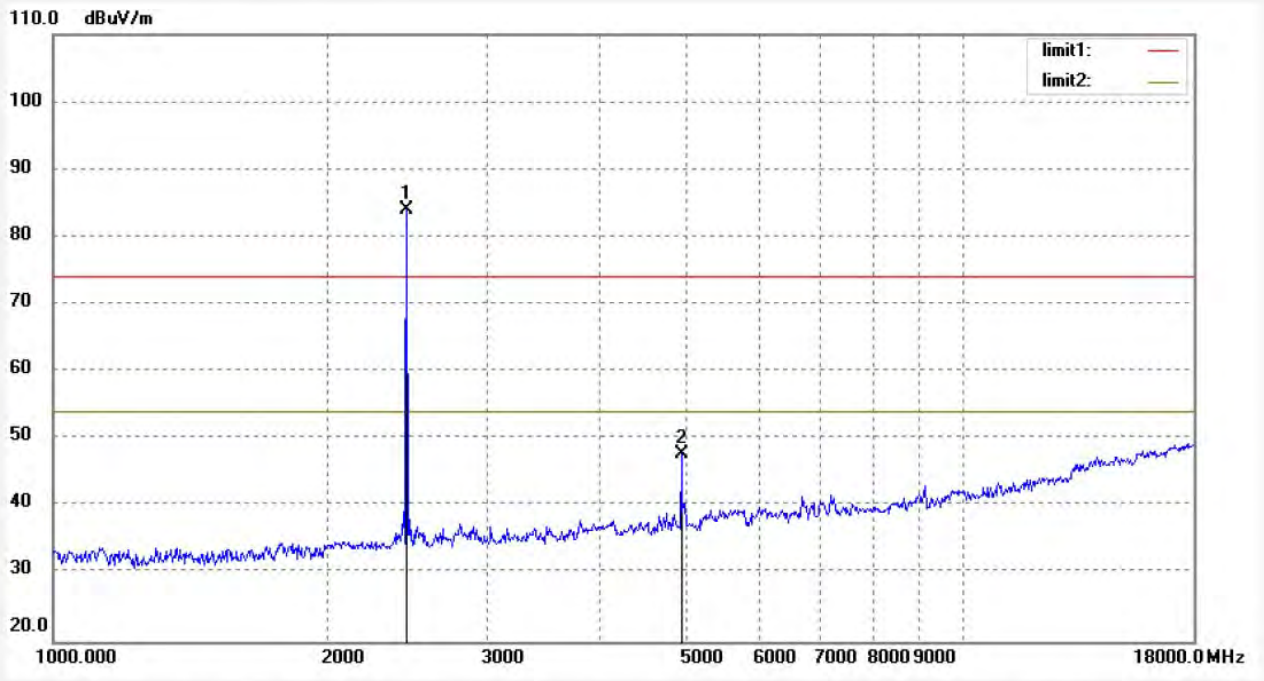
Job No.: JPZRLK #83
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2480MHz
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 9/34/25
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



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	90.99	-6.04	84.95			peak	200	66	
2	4960.444	46.20	1.50	47.70	74.00	-26.30	peak	200	103	

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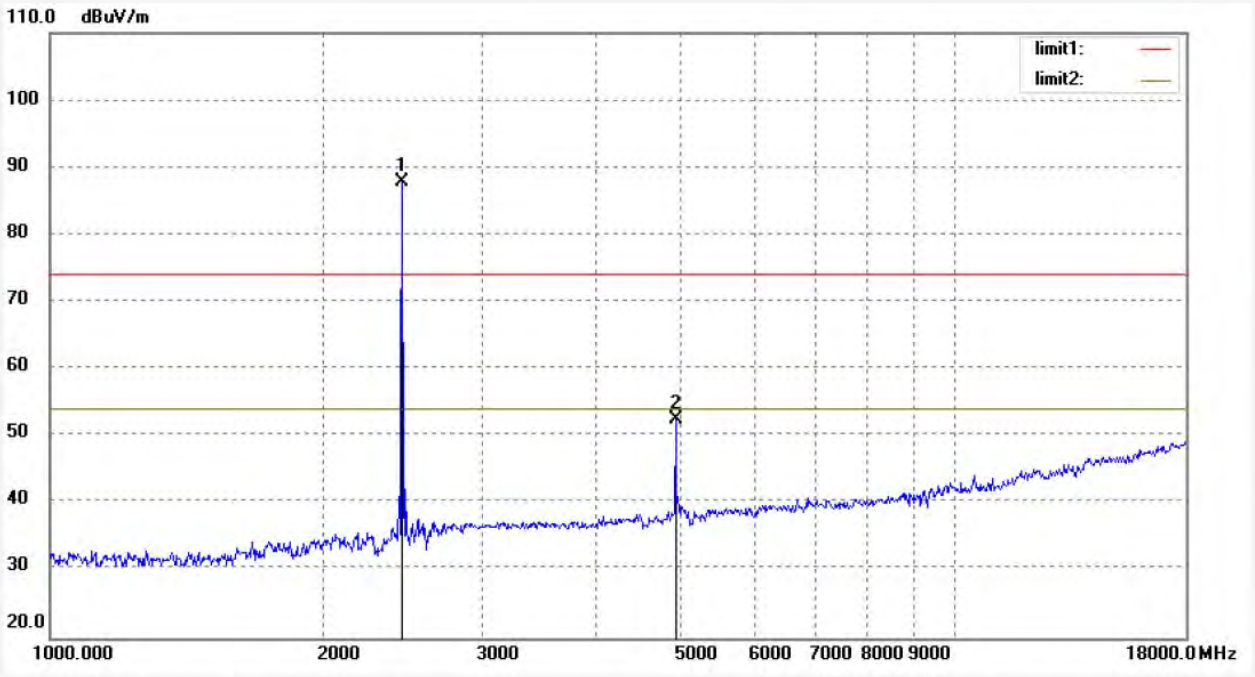
Job No.: JPZRLK #84
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2480MHz
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 9/35/39
Engineer Signature:
Distance: 3m

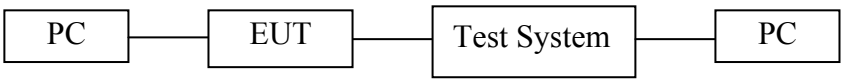
Note: Report NO.:ATE20200478



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	93.94	-6.04	87.90			peak	150	96	
2	4960.444	50.91	1.50	52.41	74.00	-21.59	peak	150	136	

11.BAND EDGE COMPLIANCE TEST

11.1.Block Diagram of Test Setup



(EUT: Bluetooth Headset)

11.2.The Requirement For Section 15.247(d)

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

11.3.EUT Configuration on Measurement

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

11.4.Operating Condition of EUT

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

11.4.2.Turn on the power of all equipment.

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

11.5.Test Procedure

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

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

11.5.3.The band edges was measured and recorded.

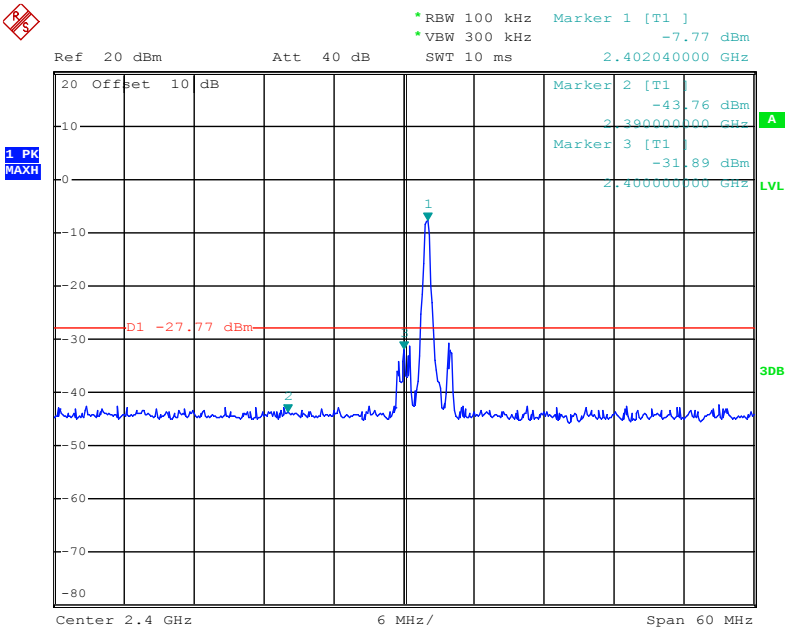
11.6.Test Result

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
GFSK		
2400.00	24.12	> 20dBc
2483.50	34.24	> 20dBc
π /4 DQPSK Mode		
2400.00	23.09	> 20dBc
2483.50	35.05	> 20dBc
8DPSK Mode		
2400.00	23.73	> 20dBc
2483.50	33.72	> 20dBc

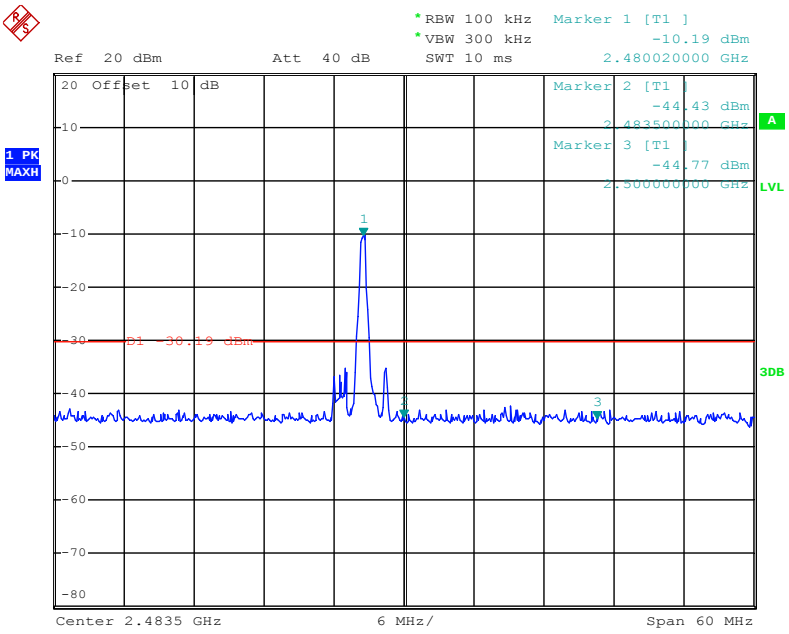
Note: Both hopping-on mode and hopping-off mode had been pre-tested, and only the worst case was recorded in the test report.

The spectrum analyzer plots are attached as below.

GFSK Mode

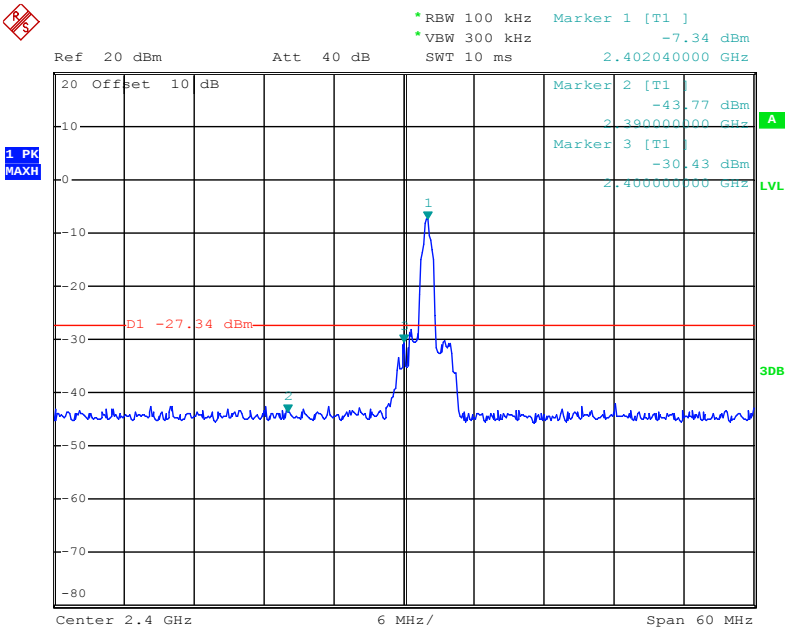


Date: 11.MAY.2020 17:02:45



Date: 11.MAY.2020 17:06:23

π /4 DQPSK Mode



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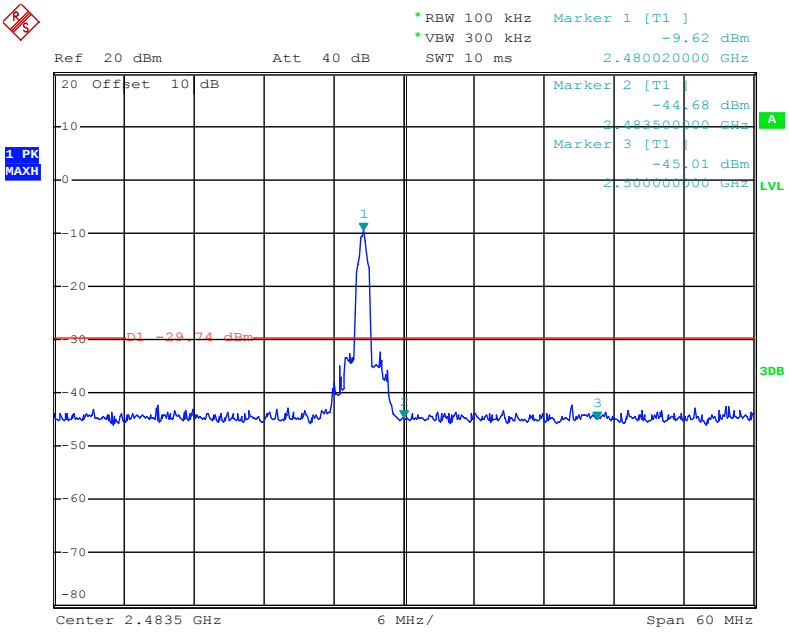
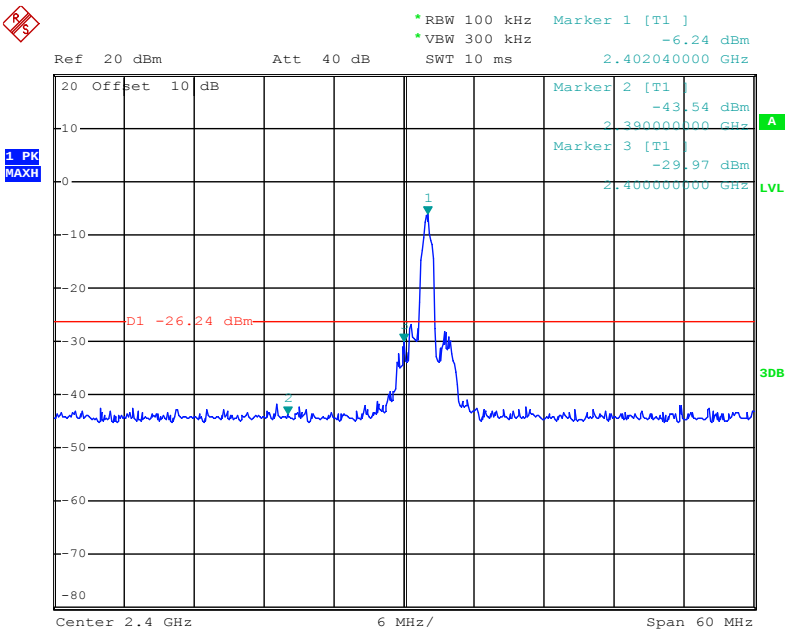


Date: 11.MAY.2020 17:05:52

8DPSK Mode



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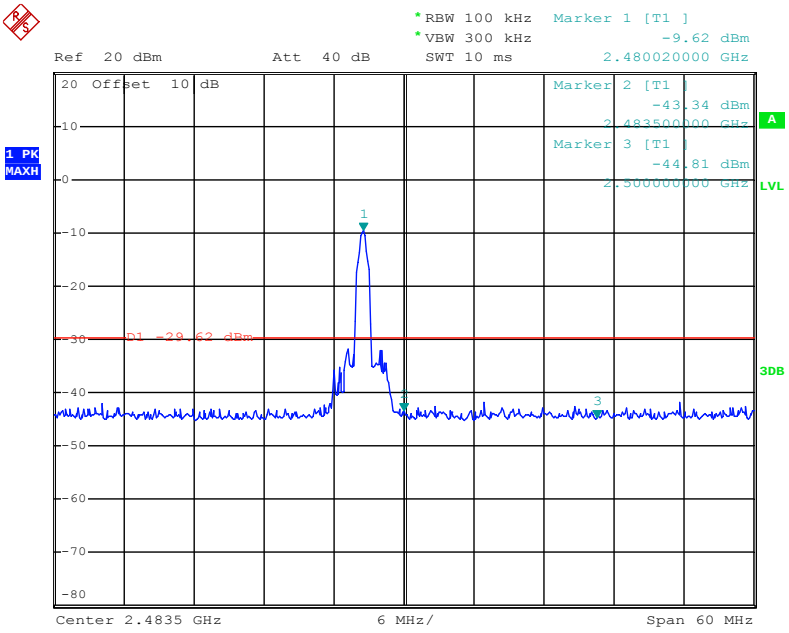

Date: 11.MAY.2020 17:05:22

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.

Note:

1.We tested GFSK mode, π /4 DQPSK Mode, 8DPSK Mode and recorded the worst case data (8DPSK mode) for hopping mode.

Non-hopping mode

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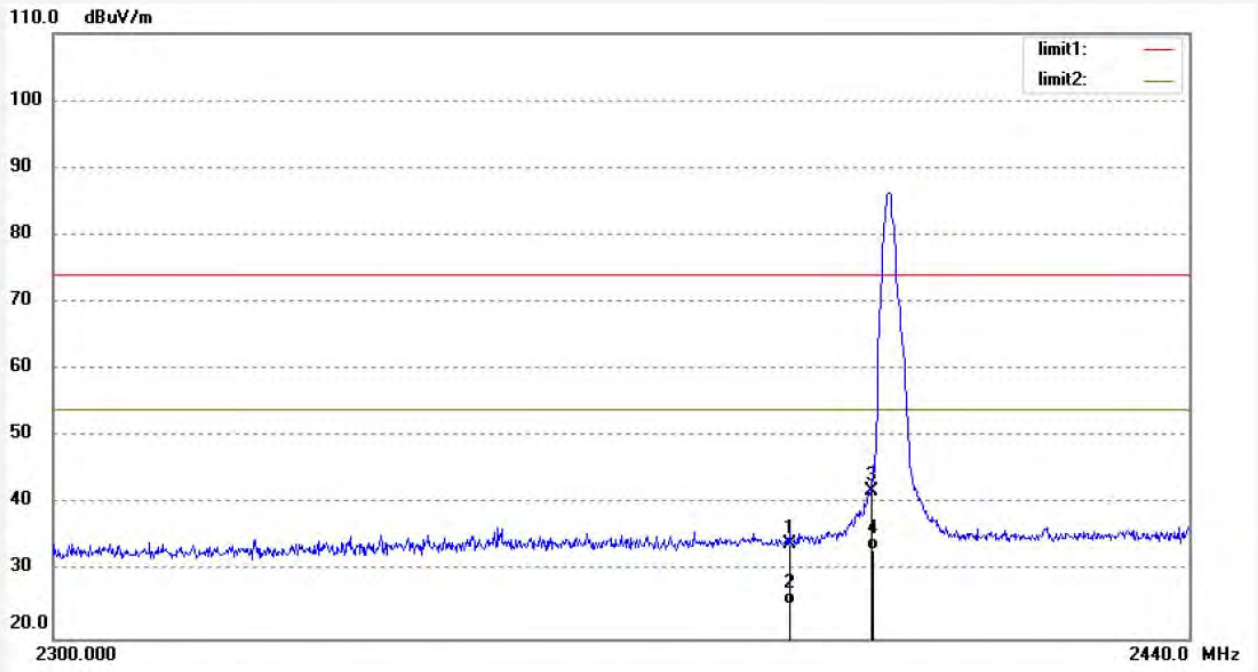
Job No.: JPZRLK #115
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2402MHz(GFSK)
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 9/53/24
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



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	40.35	-6.32	34.03	74.00	-39.97	peak	200	193	
2	2390.000	31.48	-6.32	25.16	54.00	-28.84	AVG	200	321	
3	2400.000	48.18	-6.27	41.91	74.00	-32.09	peak	200	201	
4	2400.000	39.48	-6.27	33.21	54.00	-20.79	AVG	200	96	

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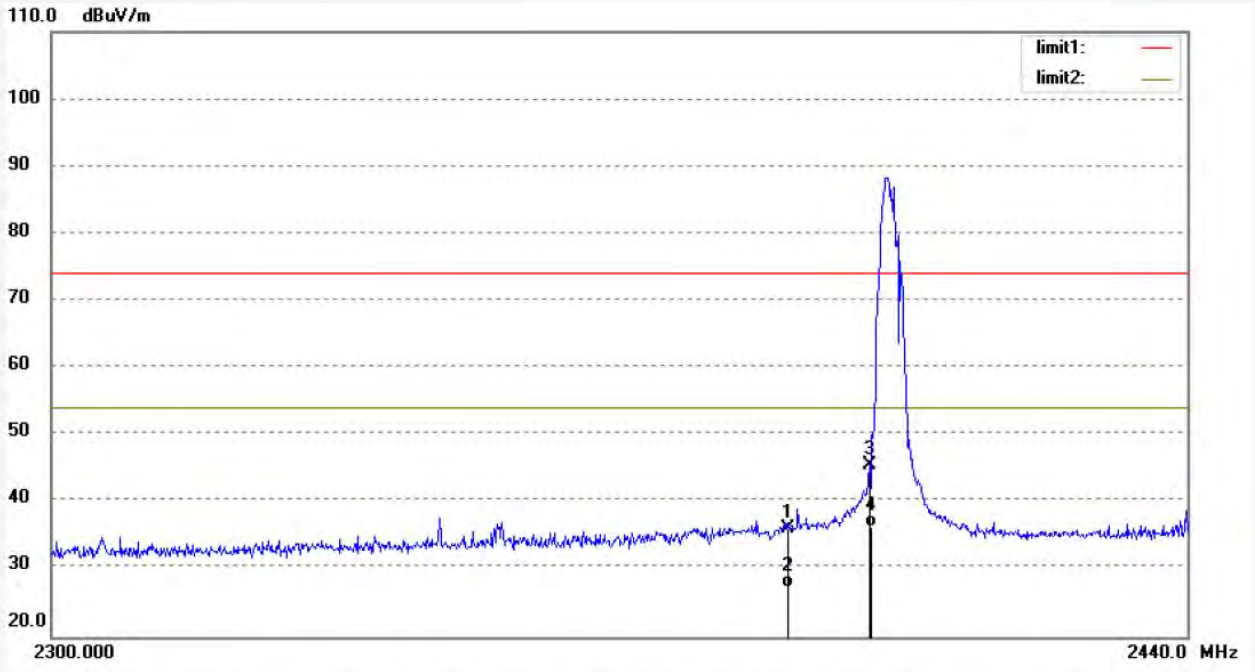
Job No.: JPZRLK #116
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2402MHz(GFSK)
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 9/54/59
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



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	42.37	-6.32	36.05	74.00	-37.95	peak	150	103	
2	2390.000	33.54	-6.32	27.22	54.00	-26.78	AVG	150	92	
3	2400.000	51.72	-6.27	45.45	74.00	-28.55	peak	150	63	
4	2400.000	42.65	-6.27	36.38	54.00	-17.62	AVG	150	165	

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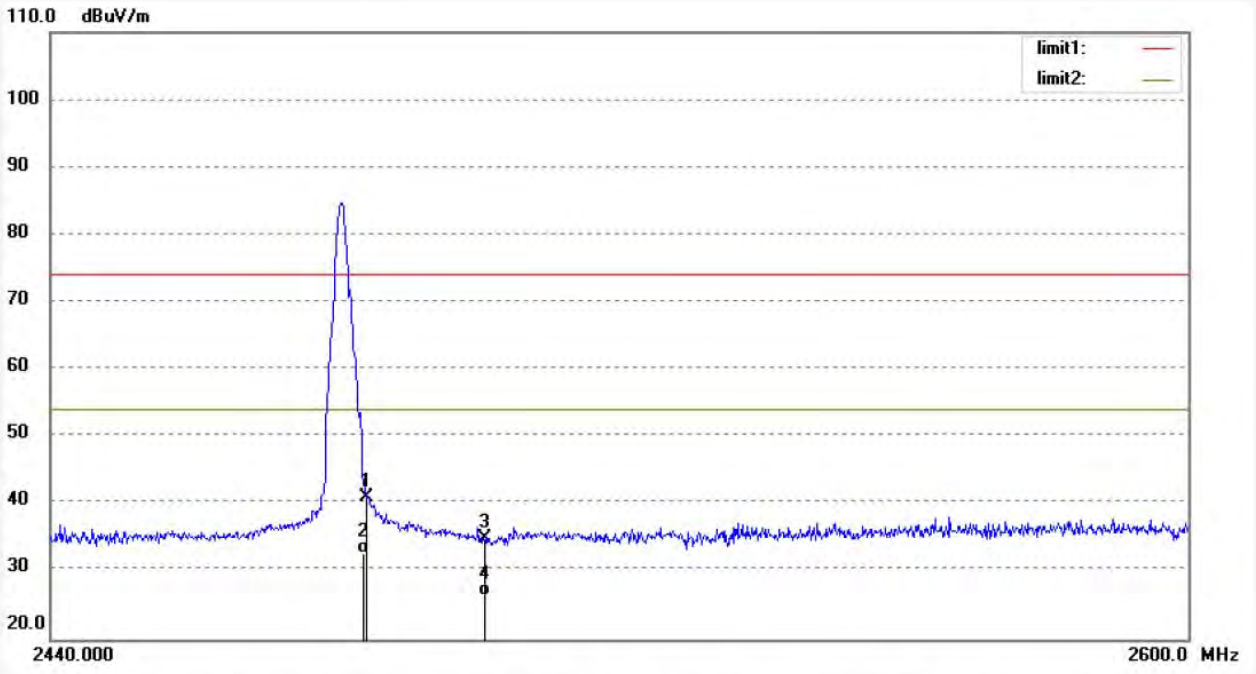
Job No.: JPZRLK #106	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 2020/05/12/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 9/38/30
EUT: Bluetooth Headset	Engineer Signature:
Mode: TX 2480MHz(GSFK)	Distance: 3m
Model: KOSS PLUG Wireless	
Manufacturer: Dongguan Baizhenrong Limited	

Note: Report NO.:ATE20200478



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	46.82	-5.89	40.93	74.00	-33.07	peak	200	103	
2	2483.500	38.49	-5.89	32.60	54.00	-21.40	AVG	200	66	
3	2500.000	40.68	-5.81	34.87	74.00	-39.13	peak	200	218	
4	2500.000	32.22	-5.81	26.41	54.00	-27.59	AVG	200	73	

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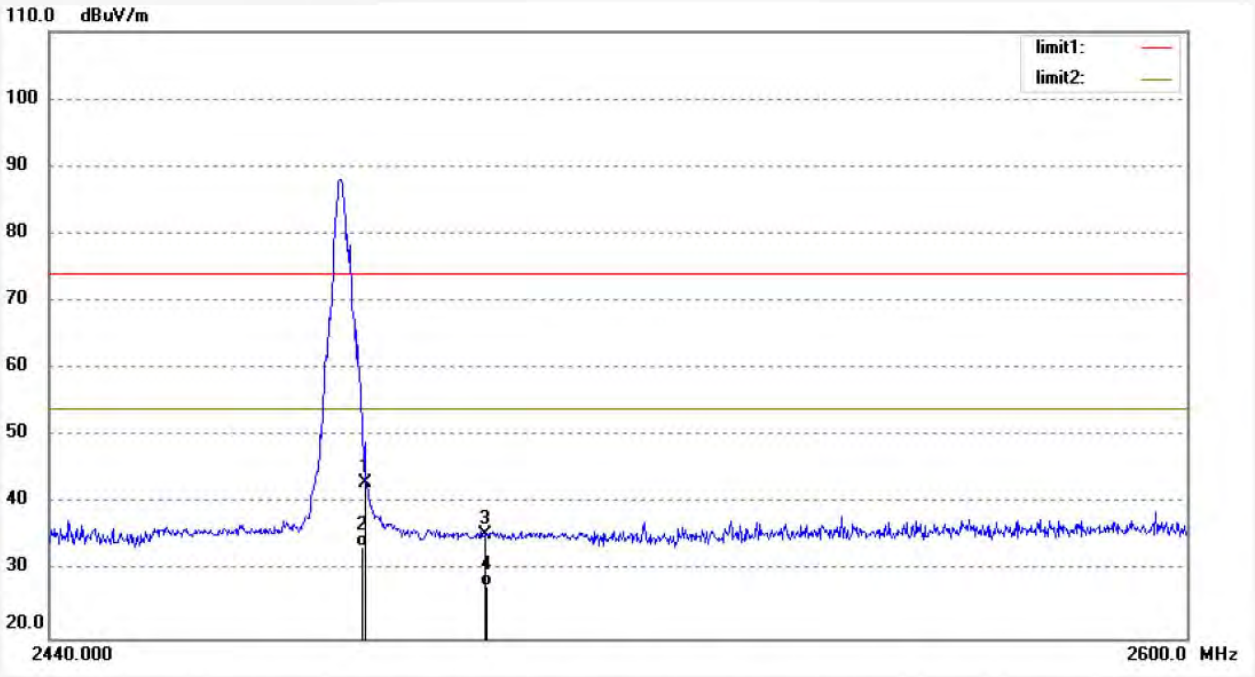
Job No.: JPZRLK #105
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2480MHz(GSFK)
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 9/36/59
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



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	48.92	-5.89	43.03	74.00	-30.97	peak	150	139	
2	2483.500	39.48	-5.89	33.59	54.00	-20.41	AVG	150	69	
3	2500.000	41.24	-5.81	35.43	74.00	-38.57	peak	150	215	
4	2500.000	33.49	-5.81	27.68	54.00	-26.32	AVG	150	331	

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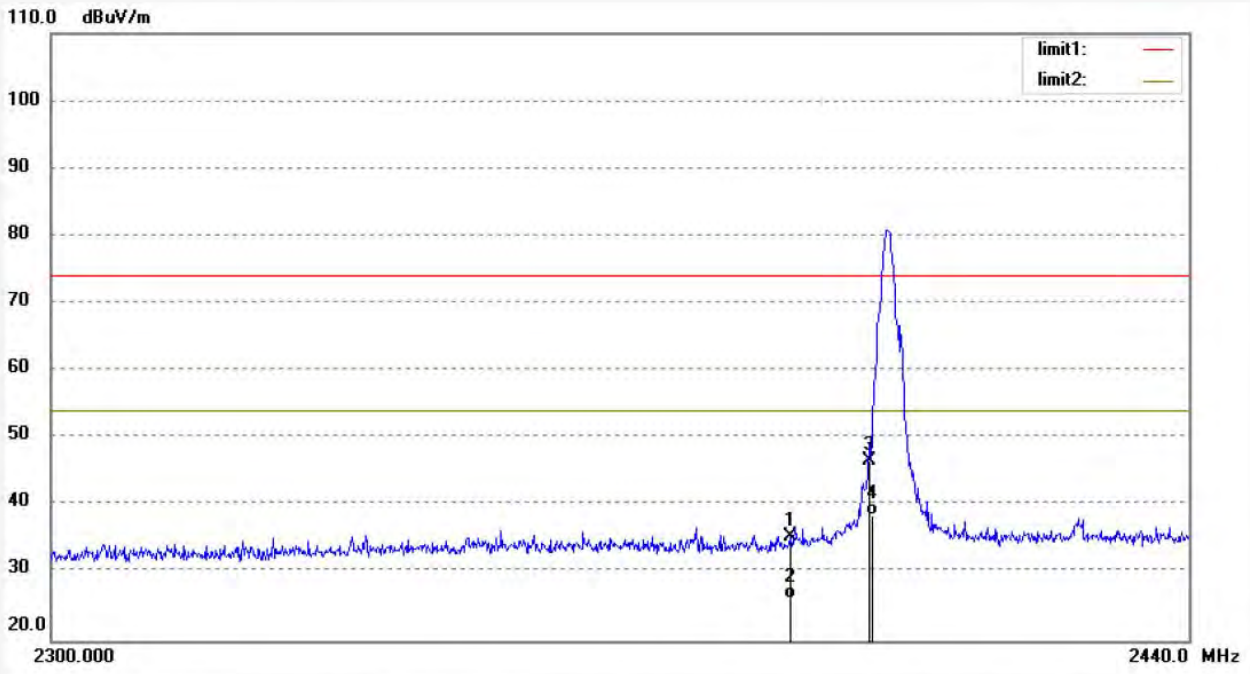
Job No.: JPZRLK #114
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2402MHz(π/4 DQPSK)
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 9/51/34
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



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	41.71	-6.32	35.39	74.00	-38.61	peak	200	116	
2	2390.000	32.49	-6.32	26.17	54.00	-27.83	AVG	200	52	
3	2400.000	53.01	-6.27	46.74	74.00	-27.26	peak	200	324	
4	2400.000	44.90	-6.27	38.63	54.00	-15.37	AVG	200	93	

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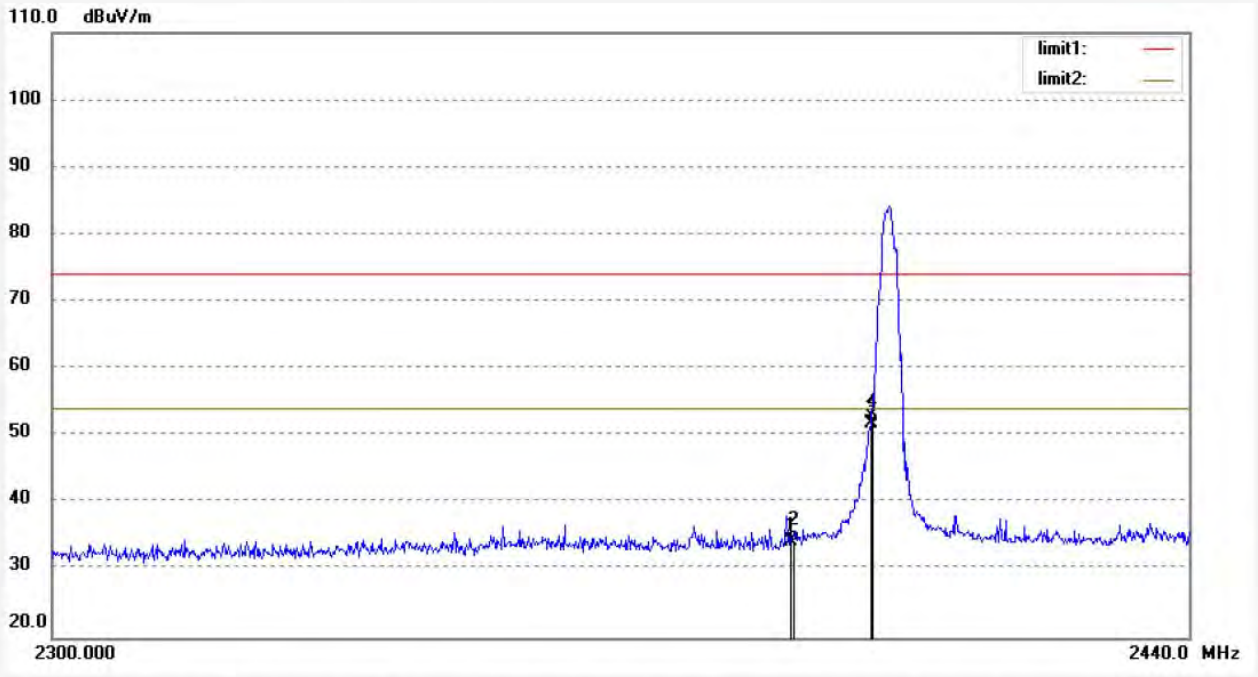
Job No.: JPZRLK #113
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2402MHz(π/4 DQPSK)
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 9/49/07
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



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	40.71	-6.32	34.39	74.00	-39.61	peak	150	51	
2	2390.000	40.71	-6.32	34.39	54.00	-19.61	AVG	150	96	
3	2400.000	58.03	-6.27	51.76	74.00	-22.24	peak	150	229	
4	2400.000	58.03	-6.27	51.76	54.00	-2.24	AVG	150	103	

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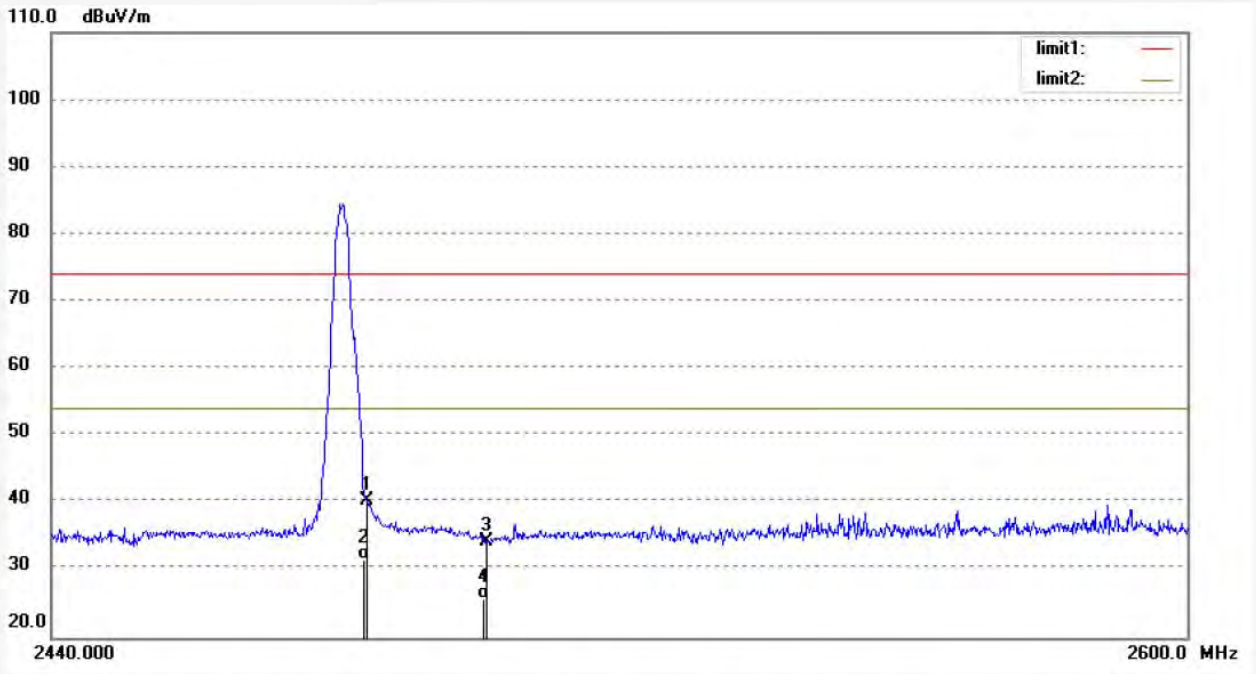
Job No.: JPZRLK #107
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2480MHz(π/4 DQPSK)
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 9/40/25
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



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	46.21	-5.89	40.32	74.00	-33.68	peak	200	66	
2	2483.500	37.46	-5.89	31.57	54.00	-22.43	AVG	200	106	
3	2500.000	40.15	-5.81	34.34	74.00	-39.66	peak	200	96	
4	2500.000	31.49	-5.81	25.68	54.00	-28.32	AVG	200	156	

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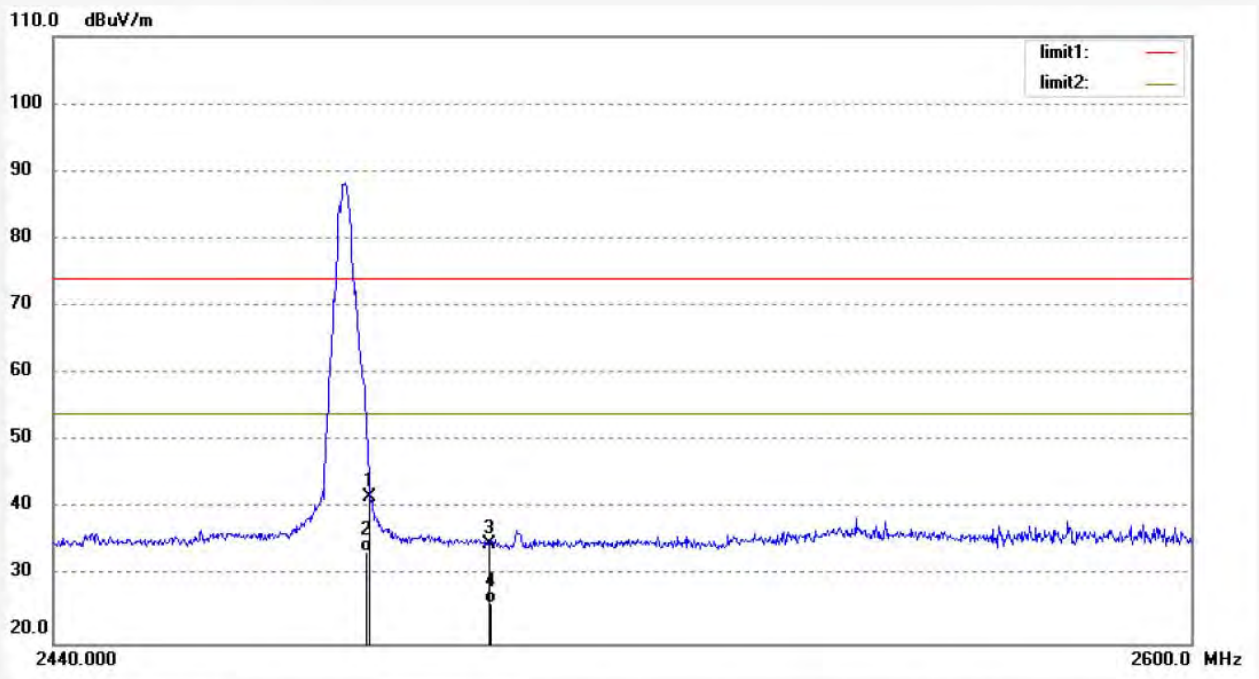
Job No.: JPZRLK #108
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2480MHz(π/4 DQPSK)
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 9/41/28
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



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	47.55	-5.89	41.66	74.00	-32.34	peak	150	63	
2	2483.500	39.49	-5.89	33.60	54.00	-20.40	AVG	150	165	
3	2500.000	40.53	-5.81	34.72	74.00	-39.28	peak	150	58	
4	2500.000	31.78	-5.81	25.97	54.00	-28.03	AVG	150	163	

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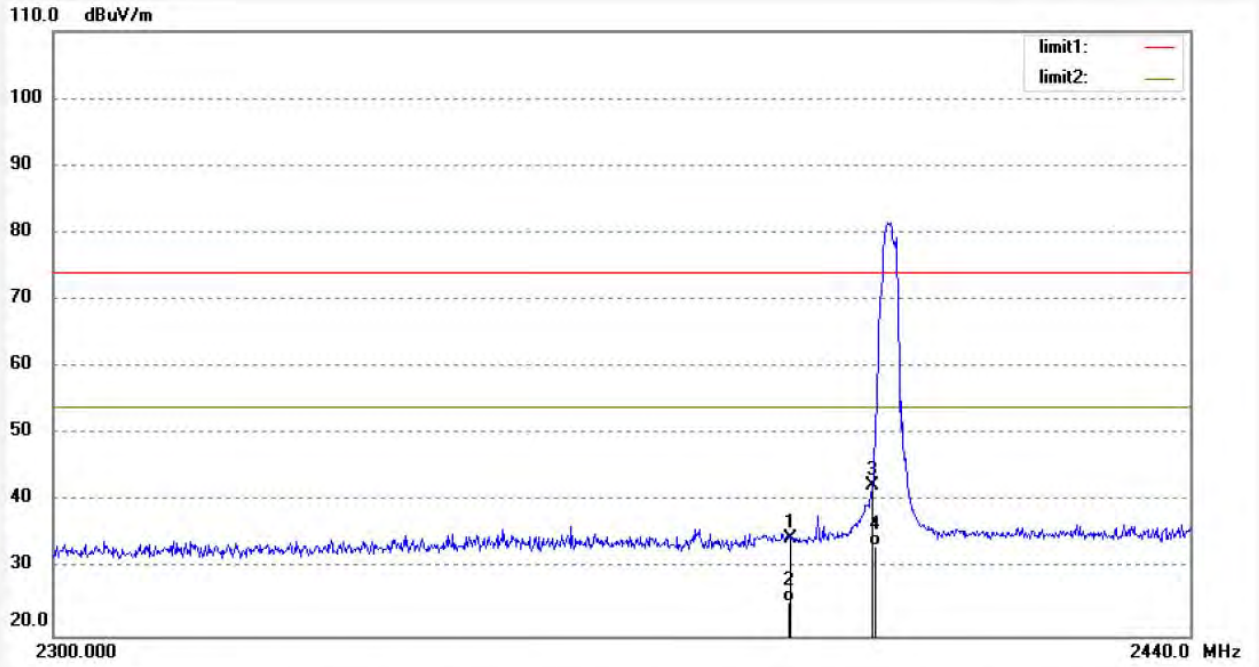
Job No.: JPZRLK #111
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2402MHz(8DPSK)
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 9/46/06
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



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	40.93	-6.32	34.61	74.00	-39.39	peak	200	52	
2	2390.000	31.49	-6.32	25.17	54.00	-28.83	AVG	250	321	
3	2400.000	48.72	-6.27	42.45	74.00	-31.55	peak	200	64	
4	2400.000	39.75	-6.27	33.48	54.00	-20.52	AVG	250	196	

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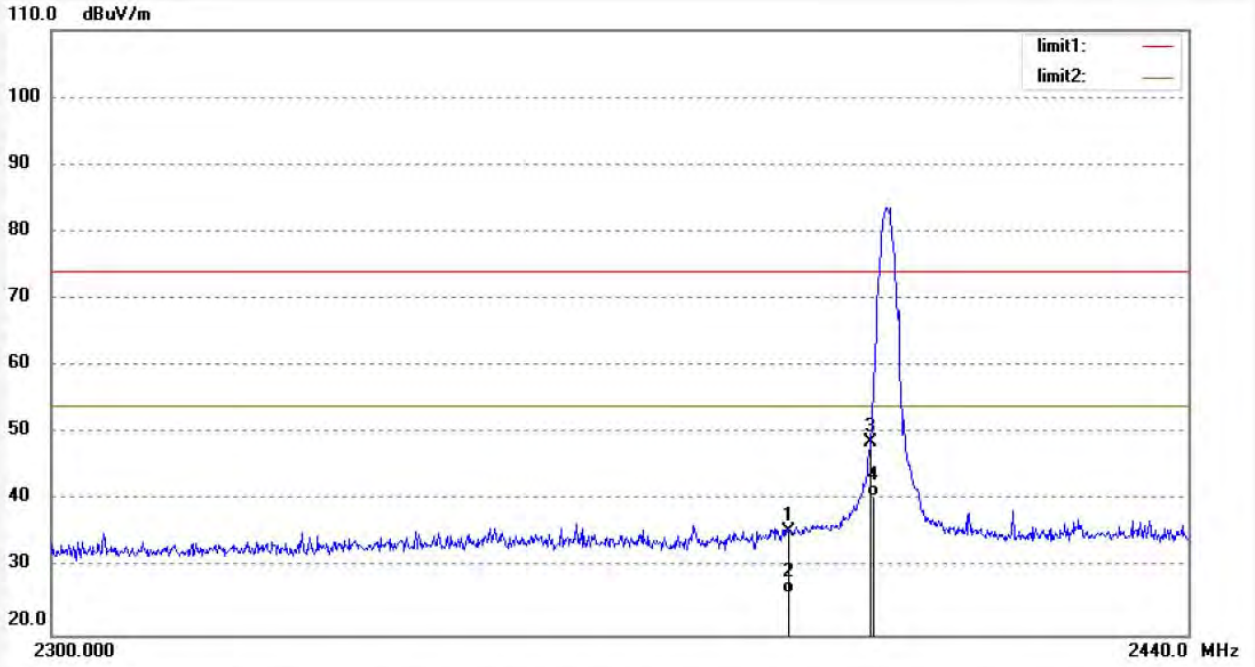
Job No.: JPZRLK #112
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2402MHz(8DPSK)
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 9/47/20
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



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	41.63	-6.32	35.31	74.00	-38.69	peak	150	332	
2	2390.000	32.49	-6.32	26.17	54.00	-27.83	AVG	150	66	
3	2400.000	54.86	-6.27	48.59	74.00	-25.41	peak	150	159	
4	2400.000	46.78	-6.27	40.51	54.00	-13.49	AVG	150	102	

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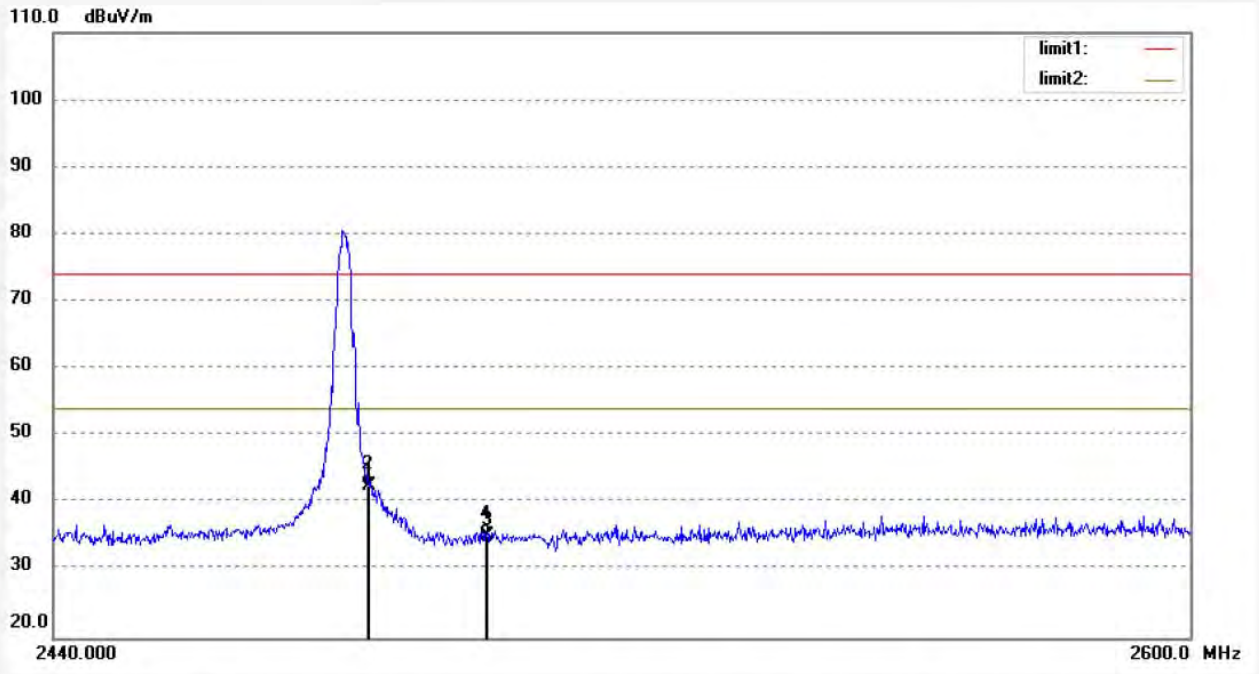
Job No.: JPZRLK #110	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 2020/05/12/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 9/44/38
EUT: Bluetooth Headset	Engineer Signature:
Mode: TX 2480MHz(8DPSK)	Distance: 3m
Model: KOSS PLUG Wireless	
Manufacturer: Dongguan Baizhenrong Limited	

Note: Report NO.:ATE20200478



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	48.61	-5.89	42.72	74.00	-31.28	peak	200	156	
2	2483.500	48.61	-5.89	42.72	54.00	-11.28	AVG	250	55	
3	2500.000	40.94	-5.81	35.13	74.00	-38.87	peak	200	352	
4	2500.000	40.94	-5.81	35.13	54.00	-18.87	AVG	250	196	

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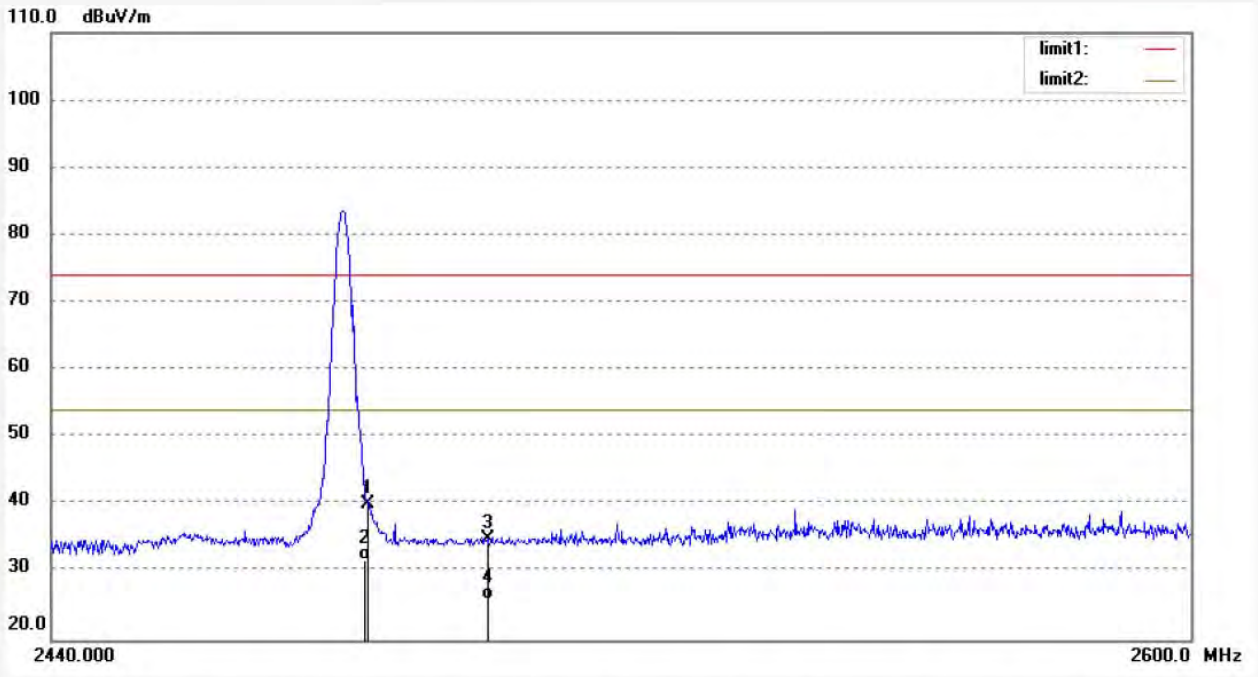
Job No.: JPZRLK #109
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: TX 2480MHz(8DPSK)
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 9/43/11
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



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	46.14	-5.89	40.25	74.00	-33.75	peak	150	96	
2	2483.500	37.68	-5.89	31.79	54.00	-22.21	AVG	150	210	
3	2500.000	40.85	-5.81	35.04	74.00	-38.96	peak	150	332	
4	2500.000	31.78	-5.81	25.97	54.00	-28.03	AVG	150	126	

Hopping mode(Worse case: 8DPSK Mode)

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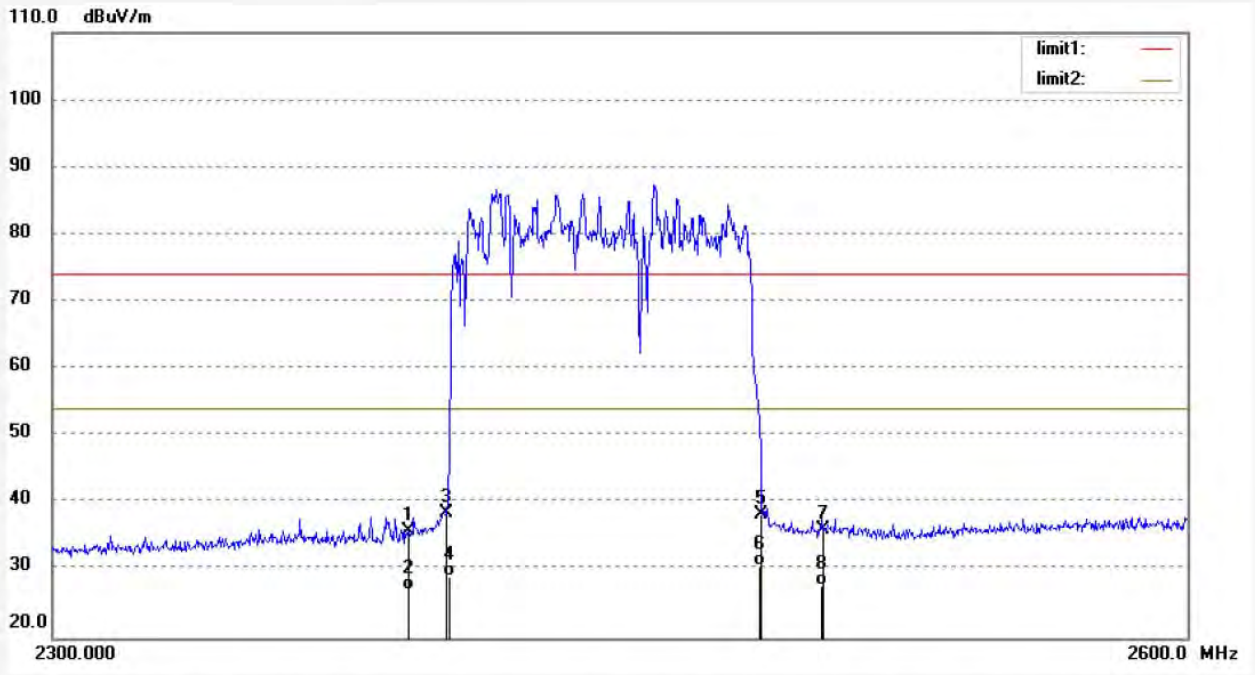
Job No.: JPZRLK #117
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: HOPPING(GFSK)
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 10/01/54
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



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	42.28	-6.32	35.96	74.00	-38.04	peak	200	89	
2	2390.000	33.45	-6.32	27.13	54.00	-26.87	AVG	200	201	
3	2400.000	44.88	-6.27	38.61	74.00	-35.39	peak	200	210	
4	2400.000	35.48	-6.27	29.21	54.00	-24.79	AVG	200	332	
5	2483.500	44.18	-5.89	38.29	74.00	-35.71	peak	200	93	
6	2483.500	36.48	-5.89	30.59	54.00	-23.41	AVG	200	211	
7	2500.000	41.89	-5.81	36.08	74.00	-37.92	peak	200	52	
8	2500.000	33.49	-5.81	27.68	54.00	-26.32	AVG	200	146	

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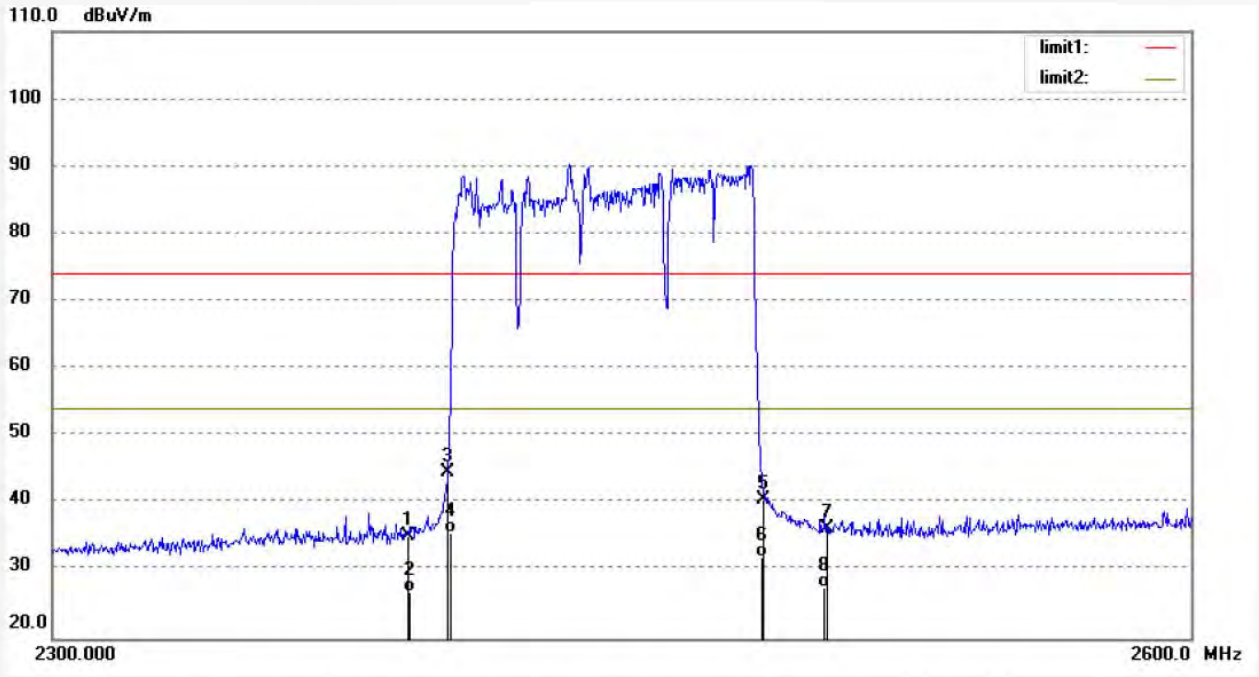
Job No.: JPZRLK #118
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: HOPPING(GFSK)
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 9/59/13
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



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	41.62	-6.32	35.30	74.00	-38.70	peak	150	115	
2	2390.000	33.16	-6.32	26.84	54.00	-27.16	AVG	150	320	
3	2400.000	50.90	-6.27	44.63	74.00	-29.37	peak	150	213	
4	2400.000	41.97	-6.27	35.70	54.00	-18.30	AVG	150	63	
5	2483.500	46.46	-5.89	40.57	74.00	-33.43	peak	150	115	
6	2483.500	37.98	-5.89	32.09	54.00	-21.91	AVG	150	92	
7	2500.000	42.07	-5.81	36.26	74.00	-37.74	peak	150	322	
8	2500.000	33.42	-5.81	27.61	54.00	-26.39	AVG	150	166	

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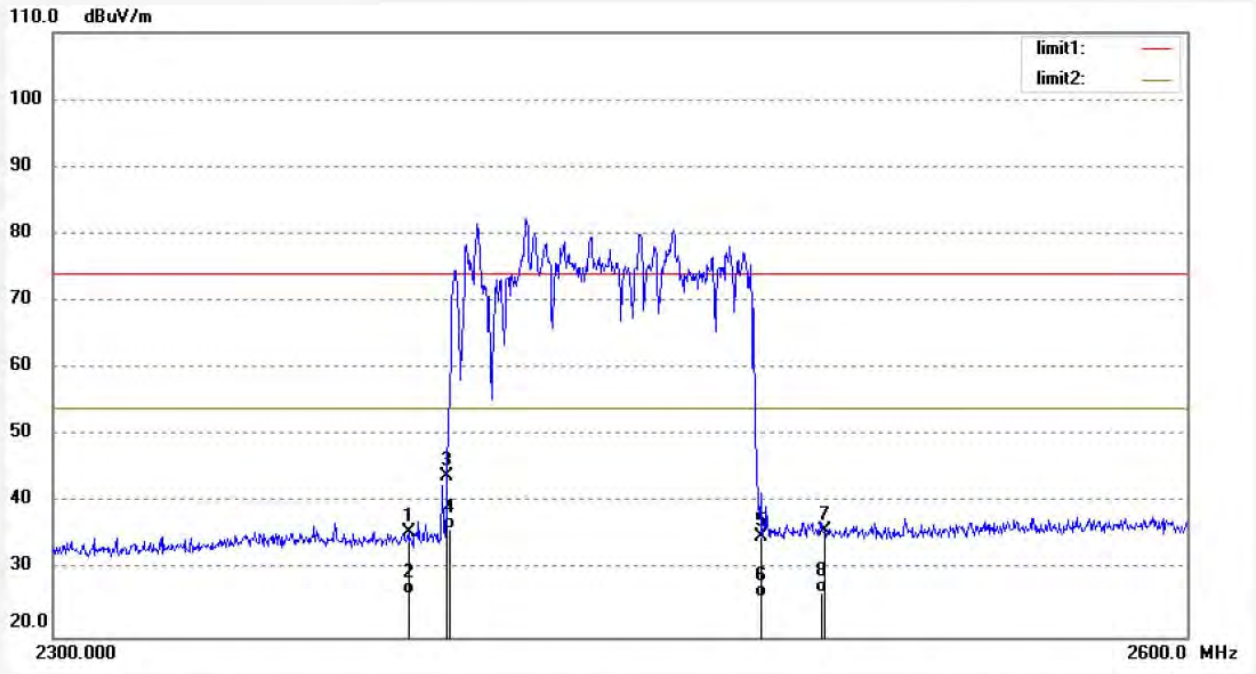
Job No.: JPZRLK #119
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: HOPPING(π/4 DQPSK)
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 10/04/28
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



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	41.93	-6.32	35.61	74.00	-38.39	peak	200	195	
2	2390.000	32.78	-6.32	26.46	54.00	-27.54	AVG	200	332	
3	2400.000	50.24	-6.27	43.97	74.00	-30.03	peak	200	102	
4	2400.000	42.45	-6.27	36.18	54.00	-17.82	AVG	200	119	
5	2483.500	40.78	-5.89	34.89	74.00	-39.11	peak	200	96	
6	2483.500	31.78	-5.89	25.89	54.00	-28.11	AVG	200	324	
7	2500.000	41.63	-5.81	35.82	74.00	-38.18	peak	200	56	
8	2500.000	32.45	-5.81	26.64	54.00	-27.36	AVG	200	201	

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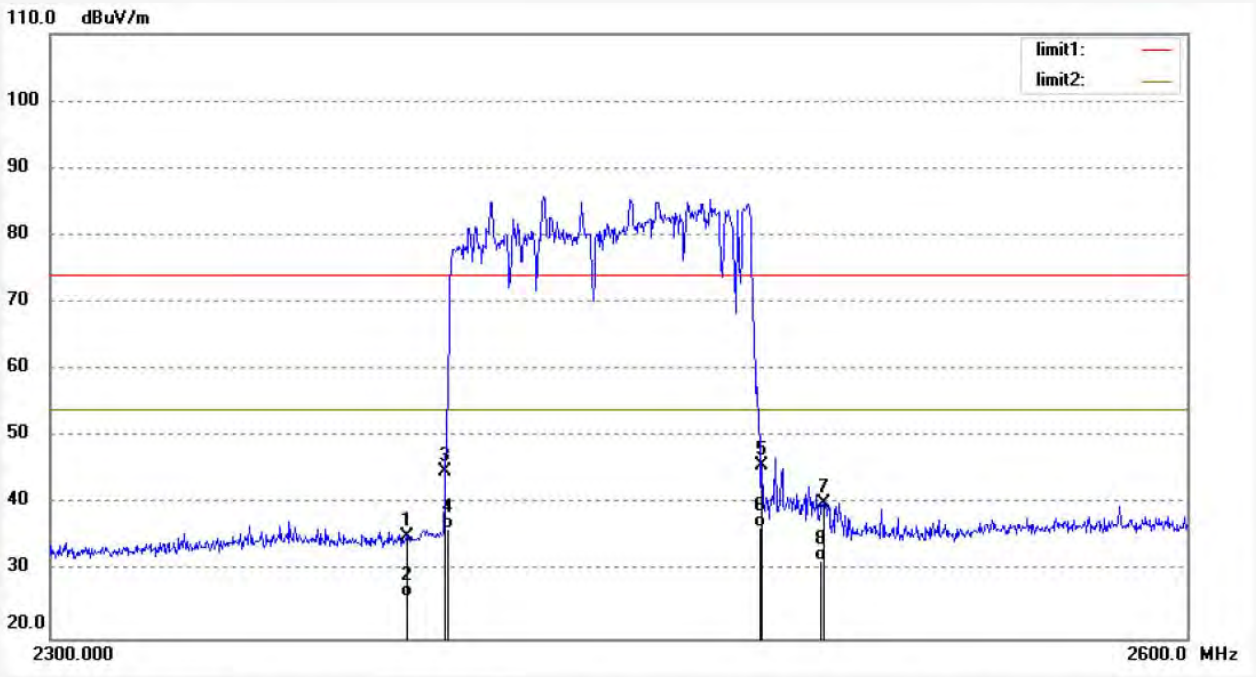
Job No.: JPZRLK #120
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: HOPPING(π/4 DQPSK)
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 10/06/46
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



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	41.48	-6.32	35.16	74.00	-38.84	peak	150	10	
2	2390.000	32.48	-6.32	26.16	54.00	-27.84	AVG	150	293	
3	2400.000	51.07	-6.27	44.80	74.00	-29.20	peak	150	331	
4	2400.000	42.64	-6.27	36.37	54.00	-17.63	AVG	150	47	
5	2483.500	51.66	-5.89	45.77	74.00	-28.23	peak	150	82	
6	2483.500	42.45	-5.89	36.56	54.00	-17.44	AVG	150	111	
7	2500.000	46.00	-5.81	40.19	74.00	-33.81	peak	150	321	
8	2500.000	37.45	-5.81	31.64	54.00	-22.36	AVG	150	66	

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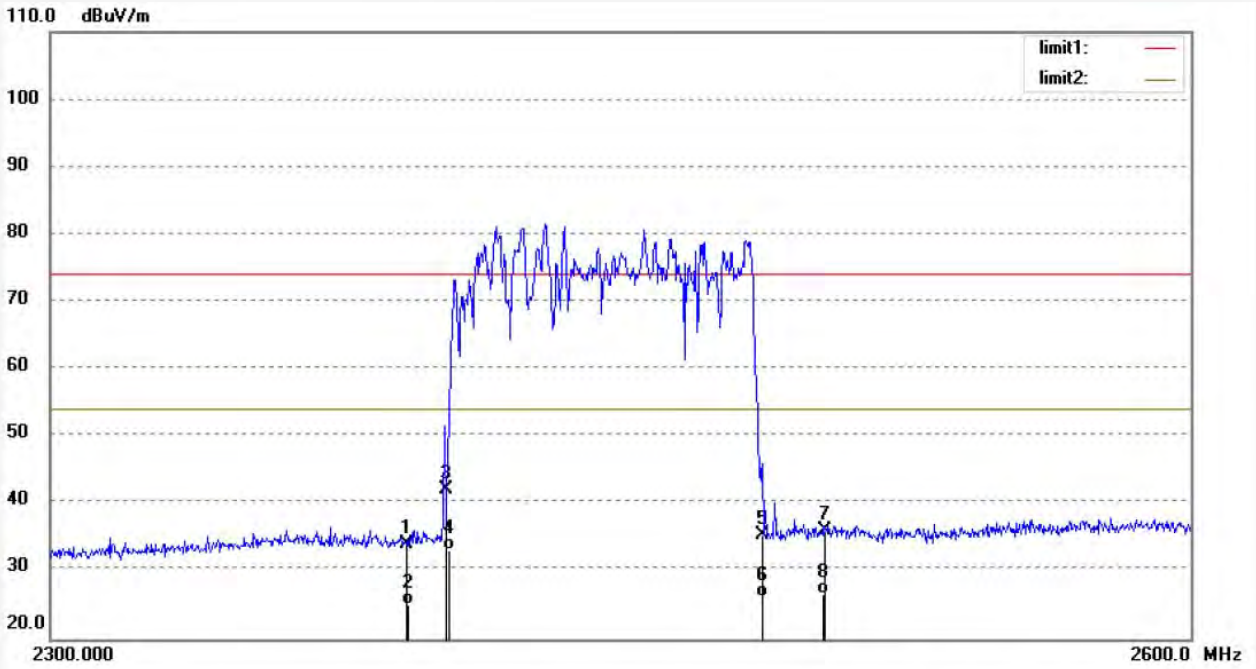
Job No.: JPZRLK #122
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: HOPPING(8DPSK)
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Horizontal
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 10/11/28
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20200478



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	40.27	-6.32	33.95	74.00	-40.05	peak	200	210	
2	2390.000	31.48	-6.32	25.16	54.00	-28.84	AVG	200	96	
3	2400.000	48.36	-6.27	42.09	74.00	-31.91	peak	200	311	
4	2400.000	39.49	-6.27	33.22	54.00	-20.78	AVG	200	201	
5	2483.500	41.34	-5.89	35.45	74.00	-38.55	peak	200	99	
6	2483.500	32.10	-5.89	26.21	54.00	-27.79	AVG	250	331	
7	2500.000	41.81	-5.81	36.00	74.00	-38.00	peak	250	211	
8	2500.000	32.45	-5.81	26.64	54.00	-27.36	AVG	250	85	

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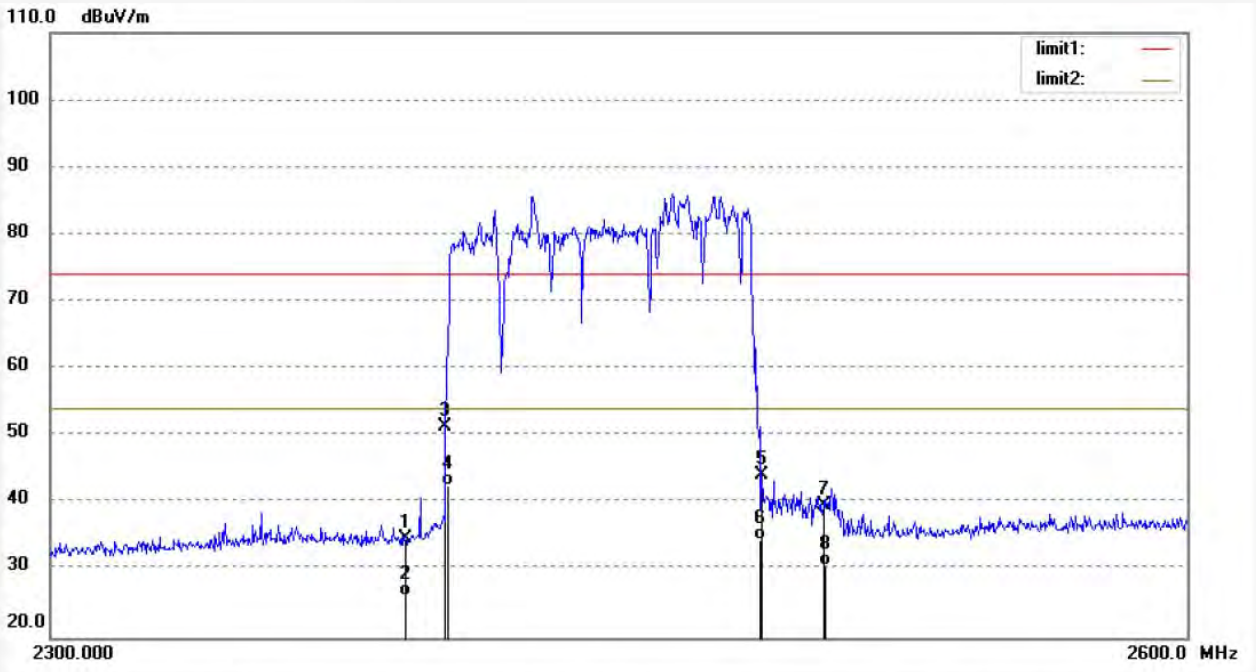
Job No.: JPZRLK #121
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Headset
Mode: HOPPING(8DPSK)
Model: KOSS PLUG Wireless
Manufacturer: Dongguan Baizhenrong Limited

Polarization: Vertical
Power Source: DC 3.7V
Date: 2020/05/12/
Time: 10/09/20
Engineer Signature:
Distance: 3m

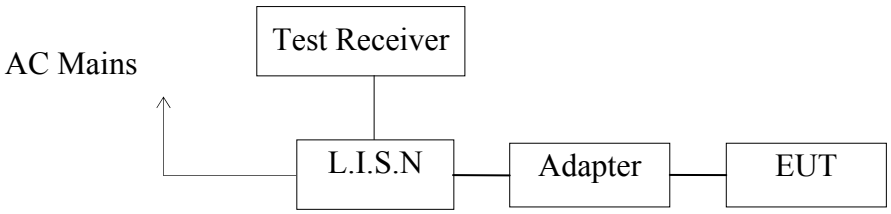
Note: Report NO.:ATE20200478



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	41.03	-6.32	34.71	74.00	-39.29	peak	150	103	
2	2390.000	32.48	-6.32	26.16	54.00	-27.84	AVG	150	219	
3	2400.000	57.63	-6.27	51.36	74.00	-22.64	peak	150	66	
4	2400.000	48.88	-6.27	42.61	54.00	-11.39	AVG	150	116	
5	2483.500	50.10	-5.89	44.21	74.00	-29.79	peak	150	63	
6	2483.500	40.48	-5.89	34.59	54.00	-19.41	AVG	150	215	
7	2500.000	45.40	-5.81	39.59	74.00	-34.41	peak	150	54	
8	2500.000	36.45	-5.81	30.64	54.00	-23.36	AVG	150	117	

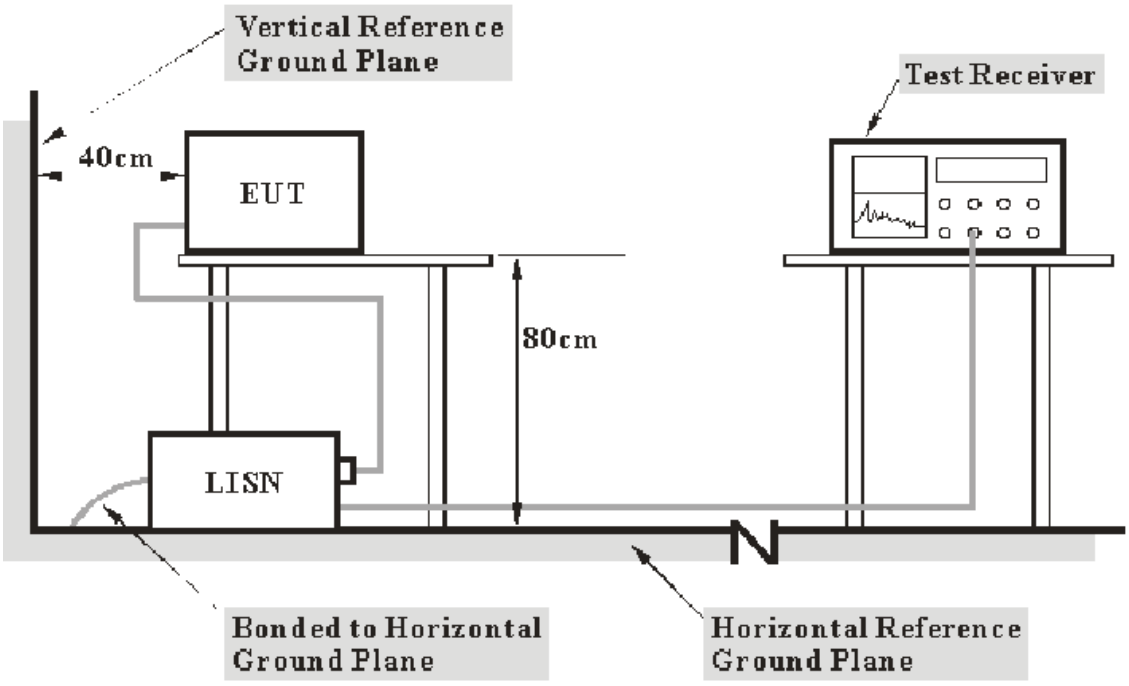
12. AC POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207(A)

12.1. Block Diagram of Test Setup



(EUT: Bluetooth Headset)

12.2. 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.

12.3.Power Line Conducted Emission Measurement Limits

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

12.4.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.

12.5.Operating Condition of EUT

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

12.5.2.Turn on the power of all equipment.

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

12.6.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 C63.4: 2014 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.

12.7.Data Sample

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

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

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

12.8.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.
We tested the conducted emission of high and low voltage mode and recorded the worst mode data. All data was recorded in the Quasi-peak and average detection mode.

Test mode : CHARGING and bluetooth (AC 120V/60Hz)

MEASUREMENT RESULT: "ZR-0509-04_fin"

5/9/2020 5:37PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.300000	28.40	10.6	60	31.8	QP	N	GND
0.495000	31.60	10.7	56	24.5	QP	N	GND
0.880000	20.80	10.8	56	35.2	QP	N	GND
4.670000	18.30	11.1	56	37.7	QP	N	GND
6.080000	19.70	11.2	60	40.3	QP	N	GND
26.665000	7.40	11.5	60	52.6	QP	N	GND

MEASUREMENT RESULT: "ZR-0509-04_fin2"

5/9/2020 5:37PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.350000	11.40	10.6	49	37.6	AV	N	GND
0.490000	20.10	10.7	46	26.1	AV	N	GND
0.975000	8.80	10.8	46	37.2	AV	N	GND
4.030000	8.50	11.1	46	37.5	AV	N	GND
6.060000	8.20	11.2	50	41.8	AV	N	GND
24.325000	3.50	11.5	50	46.5	AV	N	GND

MEASUREMENT RESULT: "ZR-0509-03_fin"

5/9/2020 5:33PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.295000	28.10	10.6	60	32.3	QP	L1	GND
0.490000	32.10	10.7	56	24.1	QP	L1	GND
0.885000	20.90	10.8	56	35.1	QP	L1	GND
4.210000	19.70	11.1	56	36.3	QP	L1	GND
6.130000	20.90	11.2	60	39.1	QP	L1	GND
22.240000	8.10	11.4	60	51.9	QP	L1	GND

MEASUREMENT RESULT: "ZR-0509-03_fin2"

5/9/2020 5:33PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.325000	14.30	10.6	50	35.3	AV	L1	GND
0.490000	23.30	10.7	46	22.9	AV	L1	GND
0.975000	11.70	10.8	46	34.3	AV	L1	GND
4.690000	9.80	11.1	46	36.2	AV	L1	GND
7.560000	7.70	11.2	50	42.3	AV	L1	GND
25.765000	7.30	11.5	50	42.7	AV	L1	GND

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

The spectral diagrams are attached as below.

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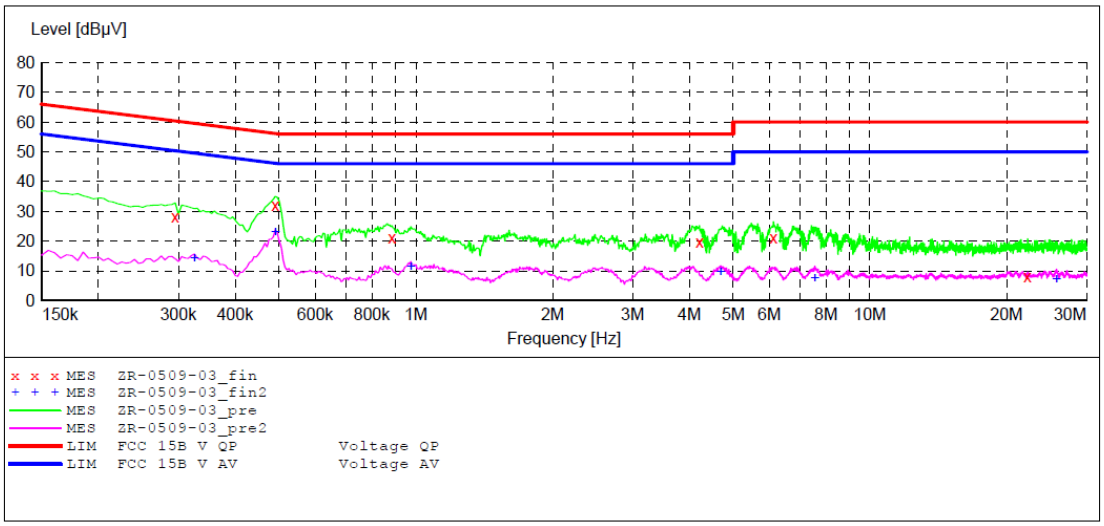
CONDUCTED EMISSION STANDARD FCC PART 15C

```
EUT:                  Bluetootn Headset M/N:KOSS PLUG Wireless
Manufacturer:         Dongguan Baizhenrong Limited
Operating Condition:  CHARGING and bluetooth
Test Site:            1#Shielding Room
Operator:             Ben
Test Specification:   L 120V/60Hz
Comment:              Report No.:ATE20200478
Start of Test:        5/9/2020 / 5:30:24PM
```

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: "ZR-0509-03_fin"

5/9/2020 5:33PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.295000	28.10	10.6	60	32.3	QP	L1	GND
0.490000	32.10	10.7	56	24.1	QP	L1	GND
0.885000	20.90	10.8	56	35.1	QP	L1	GND
4.210000	19.70	11.1	56	36.3	QP	L1	GND
6.130000	20.90	11.2	60	39.1	QP	L1	GND
22.240000	8.10	11.4	60	51.9	QP	L1	GND

MEASUREMENT RESULT: "ZR-0509-03_fin2"

5/9/2020 5:33PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.325000	14.30	10.6	50	35.3	AV	L1	GND
0.490000	23.30	10.7	46	22.9	AV	L1	GND
0.975000	11.70	10.8	46	34.3	AV	L1	GND
4.690000	9.80	11.1	46	36.2	AV	L1	GND
7.560000	7.70	11.2	50	42.3	AV	L1	GND
25.765000	7.30	11.5	50	42.7	AV	L1	GND

ACCURATE TECHNOLOGY CO.,LTD

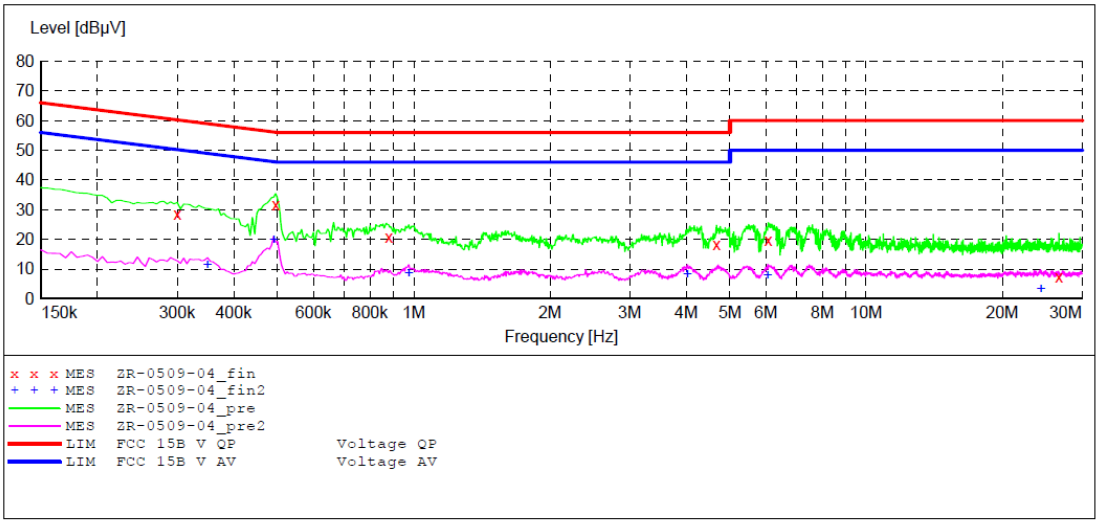
CONDUCTED EMISSION STANDARD FCC PART 15C

```
EUT:                  Bluetootn Headset M/N:KOSS PLUG Wireless
Manufacturer:         Dongguan Baizhenrong Limited
Operating Condition:  CHARGING and bluetooth
Test Site:            1#Shielding Room
Operator:             Ben
Test Specification:   N 120V/60Hz
Comment:              Report No.:ATE20200478
Start of Test:        5/9/2020 / 5:34:18PM
```

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

Short Description: SUB STD VTERM2 1.70

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



MEASUREMENT RESULT: "ZR-0509-04_fin"

5/9/2020 5:37PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.300000	28.40	10.6	60	31.8	QP	N	GND
0.495000	31.60	10.7	56	24.5	QP	N	GND
0.880000	20.80	10.8	56	35.2	QP	N	GND
4.670000	18.30	11.1	56	37.7	QP	N	GND
6.080000	19.70	11.2	60	40.3	QP	N	GND
26.665000	7.40	11.5	60	52.6	QP	N	GND

MEASUREMENT RESULT: "ZR-0509-04_fin2"

5/9/2020 5:37PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.350000	11.40	10.6	49	37.6	AV	N	GND
0.490000	20.10	10.7	46	26.1	AV	N	GND
0.975000	8.80	10.8	46	37.2	AV	N	GND
4.030000	8.50	11.1	46	37.5	AV	N	GND
6.060000	8.20	11.2	50	41.8	AV	N	GND
24.325000	3.50	11.5	50	46.5	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 Antenna gain of EUT is 2.0dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.