

MEASUREMENT REPORT

FCC PART 15.247 Bluetooth

FCC ID: 2AMPLSE15

APPLICANT: Dongshun Tech Development Limited

Application Type: Certification

Product: Wireless Headphone

Model No.: DH-SE15

Serial Model No.: DH-BTH, DH-SE, BTS-SE, BT-H

FCC Classification: FCC Part 15 Spread Spectrum Transmitter(DSS)

FCC Rule Part(s); Part 15 Subpart C (Section 15.247)

Test Procedure(s): ANSI C63.10-2013

Test Date: January 20, 2018 ~ January 22, 2018

Reviewed By : 
(Kevin Guo)

Approved By : 
(Marlin Chen)



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
1801RSU018-U1	Rev. 01	Initial report	01-22-2018	Valid

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§2.1033 General Information

Applicant:	Dongshun Tech Development Limited
Applicant Address:	6th Building, 2ND Area of Sanxing Industrial Park, Fuhai Avenue, Fuyong, Bao'an, Shenzhen, China
Manufacturer:	Dongshun Tech Development Limited
Manufacturer Address:	6th Building, 2ND Area of Sanxing Industrial Park, Fuhai Avenue, Fuyong, Bao'an, Shenzhen, China
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
MRT FCC Registration No.:	893164
MRT designation No.:	CN1166
Test Device Serial No.:	N/A ☐ Production ☒ Pre-Production ☐ Engineering

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT facility is a FCC registered (MRT Reg. No. 893164) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.



1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on September 30, 2013.



2. PRODUCT INFORMATION

2.1. Feature of Equipment under Test

Product Name	Wireless Headphone
Model No.	DH-SE15
Serial Model No.	DH-BTH, DH-SE, BTS-SE, BT-H
Bluetooth Version	V4.2 Single mode

2.2. Product Specification Subjective to this Report

Operating Frequency	2402~2480MHz
Channel Number	79
Type of modulation	GFSK, Pi/4 DQPSK, 8DPSK
Data Rate	1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps (8DPSK)
Antenna type	PCB Antenna
Antenna Gain	0dBi

- 15.247(g): In accordance with the Bluetooth Industry Standard, the system is designed to comply with all of the regulations in Section 15.247 when the transmitter is presented with a continuous data (or information) system.
- 15.247(h): In accordance with the Bluetooth Industry Standard, the system does not coordinate its channels selection/ hopping sequence with other frequency hopping systems for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters.
- 15.247(h): The EUT employs Adaptive Frequency Hopping (AFH) which identifies sources of interference namely devices operating in 802.11 WLAN and excludes them from the list of available channels. The process of re-mapping reduces the number of test channels from 79 channels to a minimum number of 20 channels.

2.3. Operation Frequency / Channel List

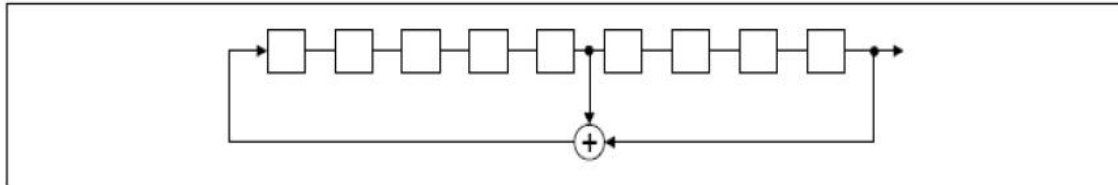
Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2403 MHz	02	2404 MHz
03	2405 MHz	04	2406 MHz	05	2407 MHz
06	2408 MHz	07	2409 MHz	08	2410 MHz
09	2411 MHz	10	2412 MHz	11	2413 MHz
12	2414 MHz	13	2415 MHz	14	2416 MHz
15	2417 MHz	16	2418 MHz	17	2419 MHz
18	2420 MHz	19	2421 MHz	20	2422 MHz
21	2423 MHz	22	2424 MHz	23	2425 MHz
24	2426 MHz	25	2427 MHz	26	2428 MHz
27	2429 MHz	28	2430 MHz	29	2431 MHz
30	2432 MHz	31	2433 MHz	32	2434 MHz
33	2435 MHz	34	2436 MHz	35	2437 MHz
36	2438 MHz	37	2439 MHz	38	2440 MHz
39	2441 MHz	40	2442 MHz	41	2443 MHz
42	2444 MHz	43	2445 MHz	44	2446 MHz
45	2447 MHz	46	2448 MHz	47	2449 MHz
48	2450 MHz	49	2451 MHz	50	2452 MHz
51	2453 MHz	52	2454 MHz	53	2455 MHz
54	2456 MHz	55	2457 MHz	56	2458 MHz
57	2459 MHz	58	2460 MHz	59	2461 MHz
60	2462 MHz	61	2463 MHz	62	2464 MHz
63	2465 MHz	64	2466 MHz	65	2467 MHz
66	2468 MHz	67	2469 MHz	68	2470 MHz
69	2471 MHz	70	2472 MHz	71	2473 MHz
72	2474 MHz	73	2475 MHz	74	2476 MHz
75	2477 MHz	76	2478 MHz	77	2479 MHz
78	2480 MHz	--	--	--	--

2.4. Pseudorandom Frequency Hopping Sequence

The pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th

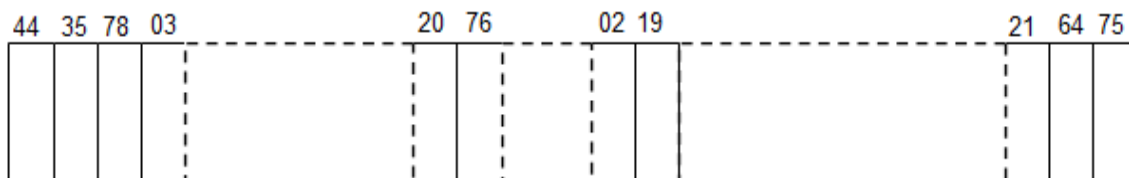
stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONES; i.e. the shift register is initialized with nine ones.

- Number of shift register stages: 9
- Length of pseudo-random sequence: $2^9 - 1 = 511$ bits
- Longest sequence of zeros: 8 (non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An example of Pseudorandom Frequency Hopping Sequence as follow:



Each frequency used equally on the average by each transmitter.

The system receivers have input bandwidths that match the hopping channel bandwidths of their Corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

2.5. Device Capabilities

Bluetooth (v4.2 Single mode)

2.6. Test Configuration

The device was tested per the guidance of ANSI C63.10-2013. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

2.7. Test Software

The test utility software used during testing was “BlueSuite”.

Power Parameter Value

Test Mode	Test Channel No.	Test Frequency (MHz)	Power Parameter Value
DH5	00	2402	70
	39	2441	70
	78	2480	70
2DH5	00	2402	70
	39	2441	70
	78	2480	70
3DH5	00	2402	70
	39	2441	70
	78	2480	70

2.8. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

2.9. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase.

However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

RSP-100 Issue 11 Section 3

The manufacturer, importer or distributor shall meet the labelling requirements set out in this section for every unit:

- (i) prior to marketing in Canada, for products manufactured in Canada
- (ii) prior to importation into Canada, for imported products

For information regarding the e-labelling option, see Notice 2014-DRS1003. The label for the certified product represents the manufacturer’s or importer’s compliance with Innovation, Science and Economic Development Canada’s (ISED) regulatory requirements.

Please see attachment for IC label and label location.

3. DESCRIPTION of TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013), and the “Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems” (DA 00-705) were used in the measurement of the device.

Deviation from measurement procedure.....None

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 8'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions were used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2013.

3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. An MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up for frequencies below 1GHz was placed on top of the 0.8 meter high, 1 x 1.5 meter table; and test set-up for frequencies 1-40GHz was placed on top of the 1.5 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB Beamwidth of horn antenna, the horn antenna should be always directed to the EUT when rising height.

4. ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- The antenna of the device is **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

The device unit complies with the requirement of §15.203.

5. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions - SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2018/08/18
Two-Line V-Network	R&S	ENV 216	MRTSUE06002	1 year	2018/06/21
Two-Line V-Network	R&S	ENV 216	MRTSUE06003	1 year	2018/06/21
Thermohygrometer	Testo	608-H1	MRTSUE06404	1 year	2018/08/14
Shielding Anechoic Chamber	Mikebang	Chamber-SR2	MRTSUE06215	1 year	2018/05/09

Radiated Emission - AC2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
MXE EMI Receiver	Agilent	N9038A	MRTSUE06125	1 year	2018/08/18
EXA Signal Analyzer	Agilent	N9010A	MRTSUE06195	1 year	2018/04/22
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2018/11/20
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2018/10/21
Broad Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06171	1 year	2018/11/18
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2018/11/17
Digital Thermometer & Hygrometer	MingGao	ETH529	MRTSUE06170	1 year	2018/12/12
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2018/05/09

Conducted Test Equipment - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2018/12/06
Temperature Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2018/12/06
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2018/04/25
Thermohygrometer	Testo	608-H1	MRTSUE06401	1 year	2018/08/14

Software	Version	Function
e3	V8.3.5	EMI Test Software

6. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

AC Conducted Emission Measurement - SR2
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 150kHz~30MHz: 3.46dB
Radiated Emission Measurement - AC2
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 9kHz ~ 1GHz: 4.18dB 1GHz ~ 25GHz: 4.76dB
Spurious Emissions, Conducted - TR3
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.78dB
Output Power - TR3
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 1.13dB
Occupied Bandwidth - TR3
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.28%

7. TEST RESULT

7.1. Summary

Company Name: Dongshun Tech Development Limited

FCC ID: 2AMPLSE15

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.247(a)(1)	20dB Bandwidth	N/A	Conducted	PASS	Section 7.2
15.247(b)(1)	Peak Transmitter Output Power	<1 Watt if > 75 non-overlapping channels used		PASS	Section 7.3
15.247(a)(1)	Channel Separation	> 2/3 of 20 dB BW for systems with Output Power < 125mW		PASS	Section 7.4
15.247(a)(1)(iii)	Number of Channels	> 15 Channels		PASS	Section 7.5
15.247(a)(1)(iii)	Time of Occupancy	< 0.4 sec in 31.6 sec period		PASS	Section 7.6
15.247(d)	Band Edge / out- of-Band Emissions	Conducted $\geq$ 20dBc		PASS	Section 7.7 Section 7.8
15.205, 15.209	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209	Radiated	PASS	Section 7.9 Section 7.10
15.207	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 7.11

Note: The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.

7.2. 20dB Bandwidth Measurement

7.2.1. Test Limit

N/A

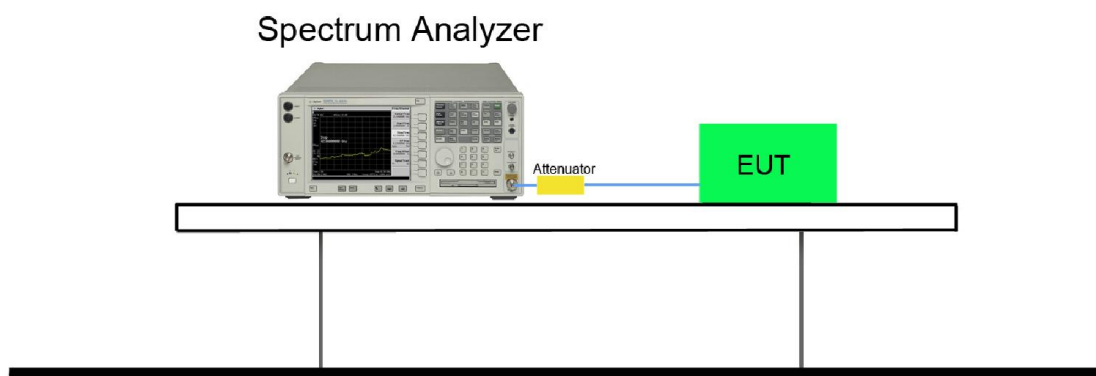
7.2.2. Test Procedure used

ANSI C63.10-2013 - Section 6.9.2

7.2.3. Test Setting

1. Set RBW $\geq 1 \sim 5\%$ of the OBW
2. VBW $\geq 3 \times$ RBW
3. Span = approximately 2 to 5 times the OBW, center frequency is set to the nominal EUT channel center frequency
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = auto couple
7. Allow the trace to stabilize
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

7.2.4. Test Setup



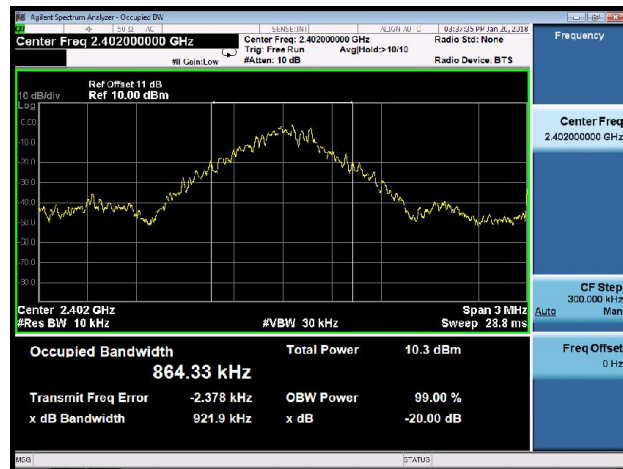
7.2.5. Test Result

Product	Wireless Headphone	Temperature	23°C
Test Engineer	Hunk Li	Relative Humidity	50%
Test Site	TR3	Test Date	2018/01/20

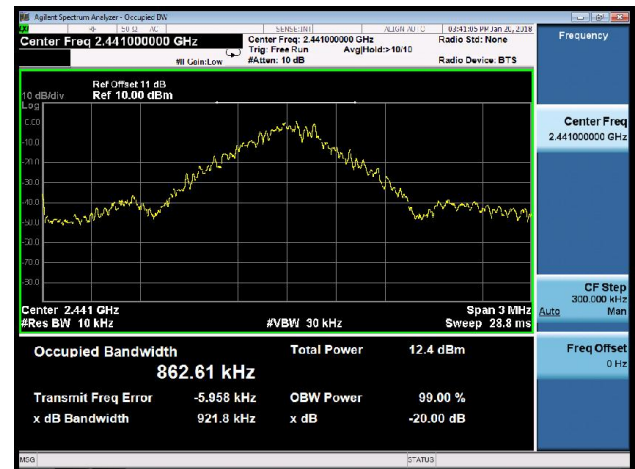
Test Mode	Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	Result
DH5	00	2402	921.9	Pass
DH5	39	2441	921.8	Pass
DH5	78	2480	921.7	Pass
2DH5	00	2402	1325	Pass
2DH5	39	2441	1314	Pass
2DH5	78	2480	1309	Pass
3DH5	00	2402	1278	Pass
3DH5	39	2441	1290	Pass
3DH5	78	2480	1268	Pass

DH5 20dB Bandwidth

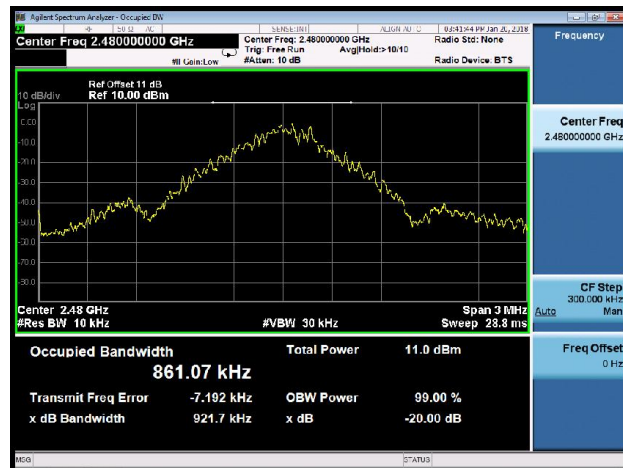
Channel 00 (2402MHz)



Channel 39 (2441MHz)

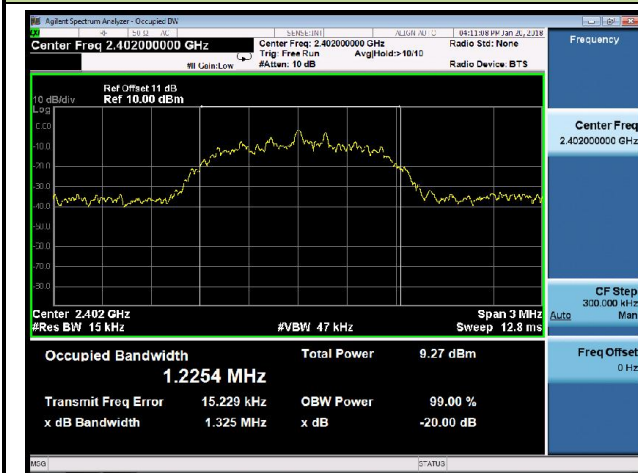


Channel 78 (2480MHz)

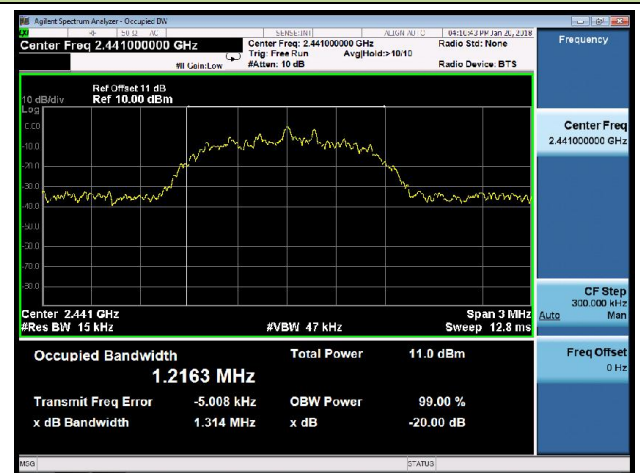


2DH5 20dB Bandwidth

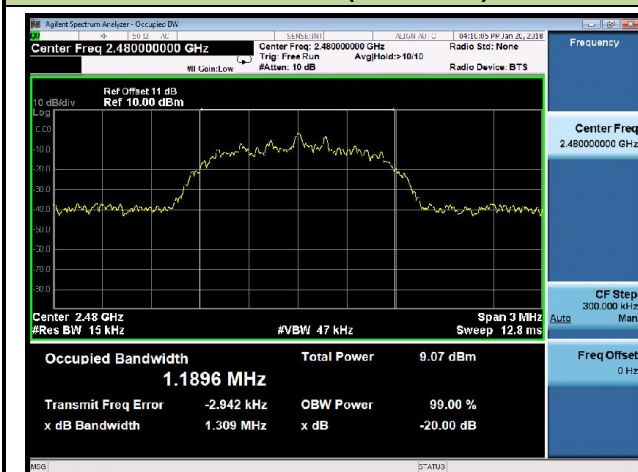
Channel 00 (2402MHz)



Channel 39 (2441MHz)

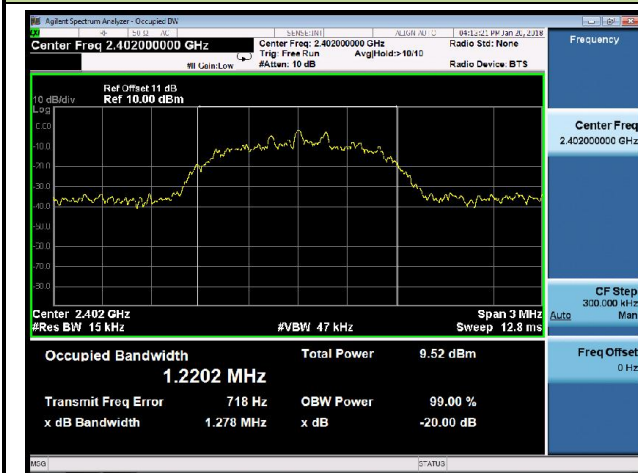


Channel 78 (2480MHz)

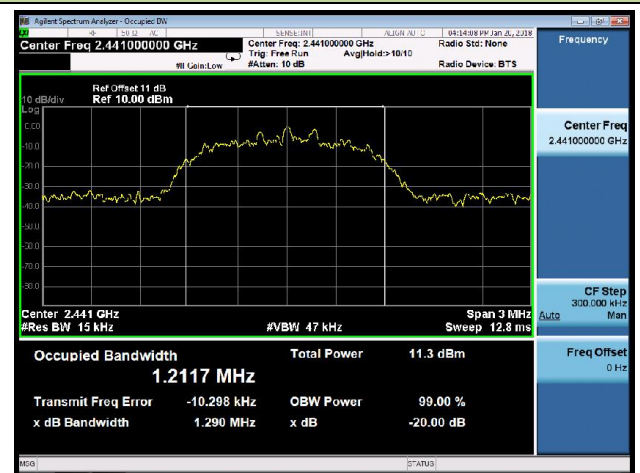


3DH5 20dB Bandwidth

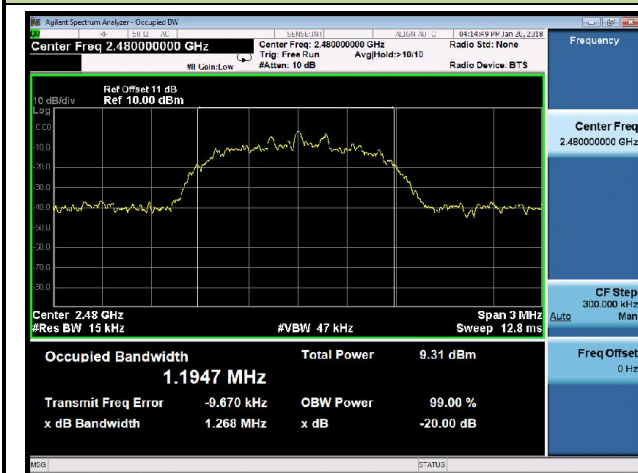
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



7.3. Output Power Measurement

7.3.1. Test Limit

The maximum out power permissible output power is 1 Watt for all other frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels.

The E.I.R.P shall not exceed 4 Watt.

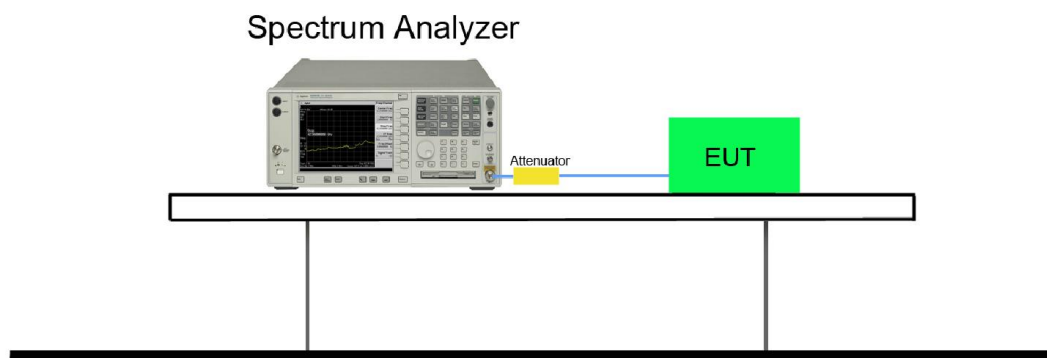
7.3.2. Test Procedure Used

ANSI C63.10-2013 - Section 7.8.5

7.3.3. Test Setting

1. Set RBW $\geq$ the 20 dB bandwidth of the emission being measured.
2. VBW $\geq$ RBW
3. Span = approximately 2 to 3 times the 20dB bandwidth, centered on a hopping channel
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = auto couple
7. Allow the trace to stabilize, Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power (don't forget added the external attenuation and cable loss)

7.3.4. Test Setup



7.3.5. Test Result

Product	Wireless Headphone	Temperature	23°C
Test Engineer	Hunk Li	Relative Humidity	50%
Test Site	TR3	Test Date	2018/01/20

Test Mode	Channel No.	Frequency (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)
DH5	00	2402	4.00	< 30
DH5	39	2441	6.11	< 30
DH5	78	2480	4.97	< 30
2DH5	00	2402	3.51	< 30
2DH5	39	2441	5.45	< 30
2DH5	78	2480	3.92	< 30
3DH5	00	2402	3.59	< 30
3DH5	39	2441	5.64	< 30
3DH5	78	2480	4.17	< 30

DH5 Output Power

Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



2DH5 Output Power

Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



3DH5 Output Power

Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



7.4. Carrier Frequency Separation Measurement

7.4.1. Test Limit

The minimum permissible channel separation for this system is $\frac{2}{3}$ the value of the 20dB BW.

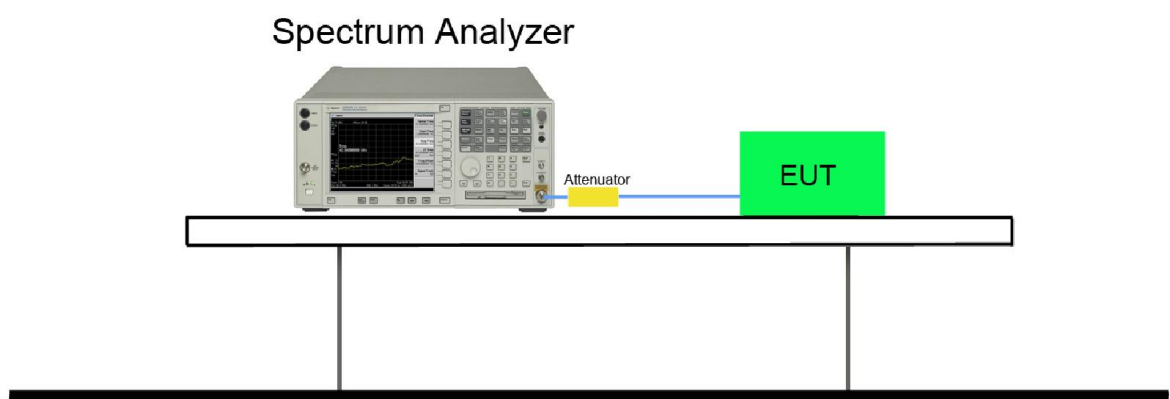
7.4.2. Test Procedure Used

ANSI C63.10-2013 - Section 7.8.2

7.4.3. Test Setting

1. Span = wide enough to capture the peaks of two adjacent channels.
2. RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel.
3. VBW $\geq$ RBW
4. Sweep time = auto couple
5. Detector = Peak
6. Trace mode = Max hold
7. Trace was allowed to stabilize

7.4.4. Test Setup



7.4.5. Test Result

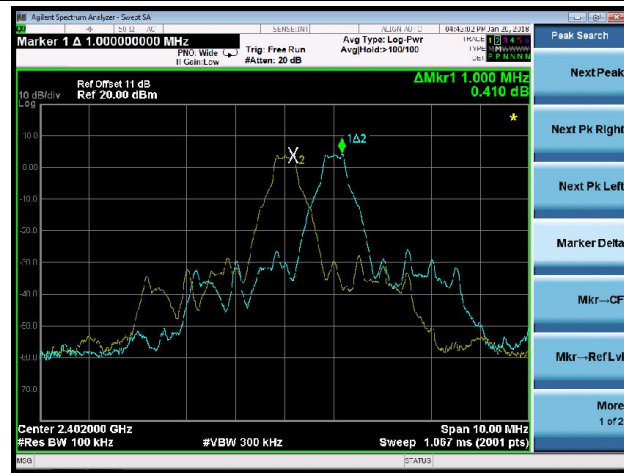
Product	Wireless Headphone	Temperature	23°C
Test Engineer	Hunk Li	Relative Humidity	50%
Test Site	TR3	Test Date	2018/01/20

Test Mode	Channel No.	Frequency (MHz)	Limit (kHz)	Result
DH5	00	2402	≥ 614.60	Pass
DH5	39	2441	≥ 614.53	Pass
DH5	78	2480	≥ 614.47	Pass
2DH5	00	2402	≥ 883.33	Pass
2DH5	39	2441	≥ 876.00	Pass
2DH5	78	2480	≥ 872.67	Pass
3DH5	00	2402	≥ 852.00	Pass
3DH5	39	2441	≥ 860.00	Pass
3DH5	78	2480	≥ 845.33	Pass

Note: The Limit is 2/3 the value of the 20dB BW.

DH5 Carrier Frequency Separation

Channel 00 (2402MHz)



Channel 39 (2441MHz)

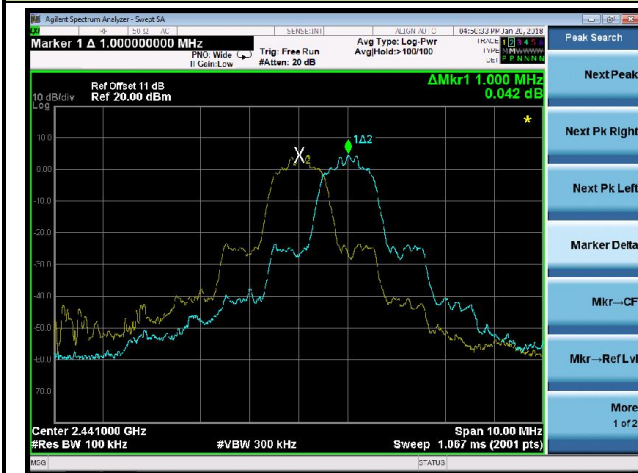


Channel 78 (2480MHz)



2DH5 Carrier Frequency Separation

Channel 00 (2402MHz)



Channel 39 (2441MHz)

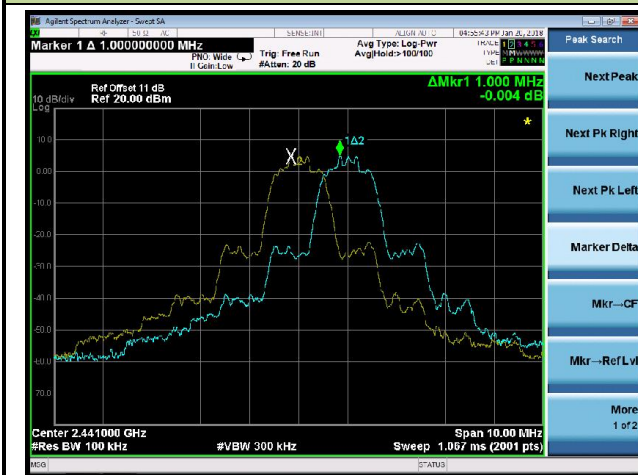


Channel 78 (2480MHz)



3DH5 Carrier Frequency Separation

Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



7.5. Number of Hopping Channels Measurement

7.5.1. Test Limit

This frequency hopping system must employ a minimum of 15 hopping channels.

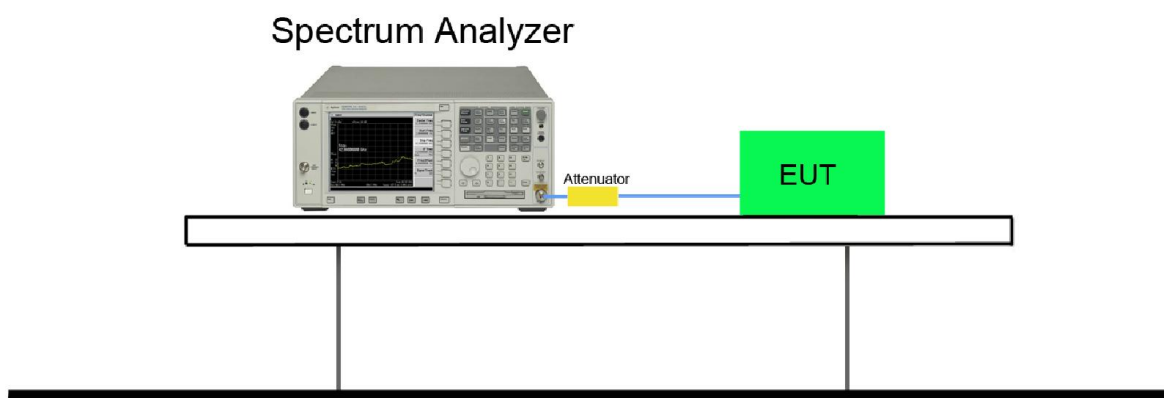
7.5.2. Test Procedure Used

ANSI C63.10-2013 - Section 7.8.3

7.5.3. Test Setting

1. Span = the frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen.
2. RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.
3. VBW $\geq$ RBW
4. Sweep time = auto couple
5. Detector = Peak
6. Trace mode = Max hold
7. The trace was allowed to stabilize

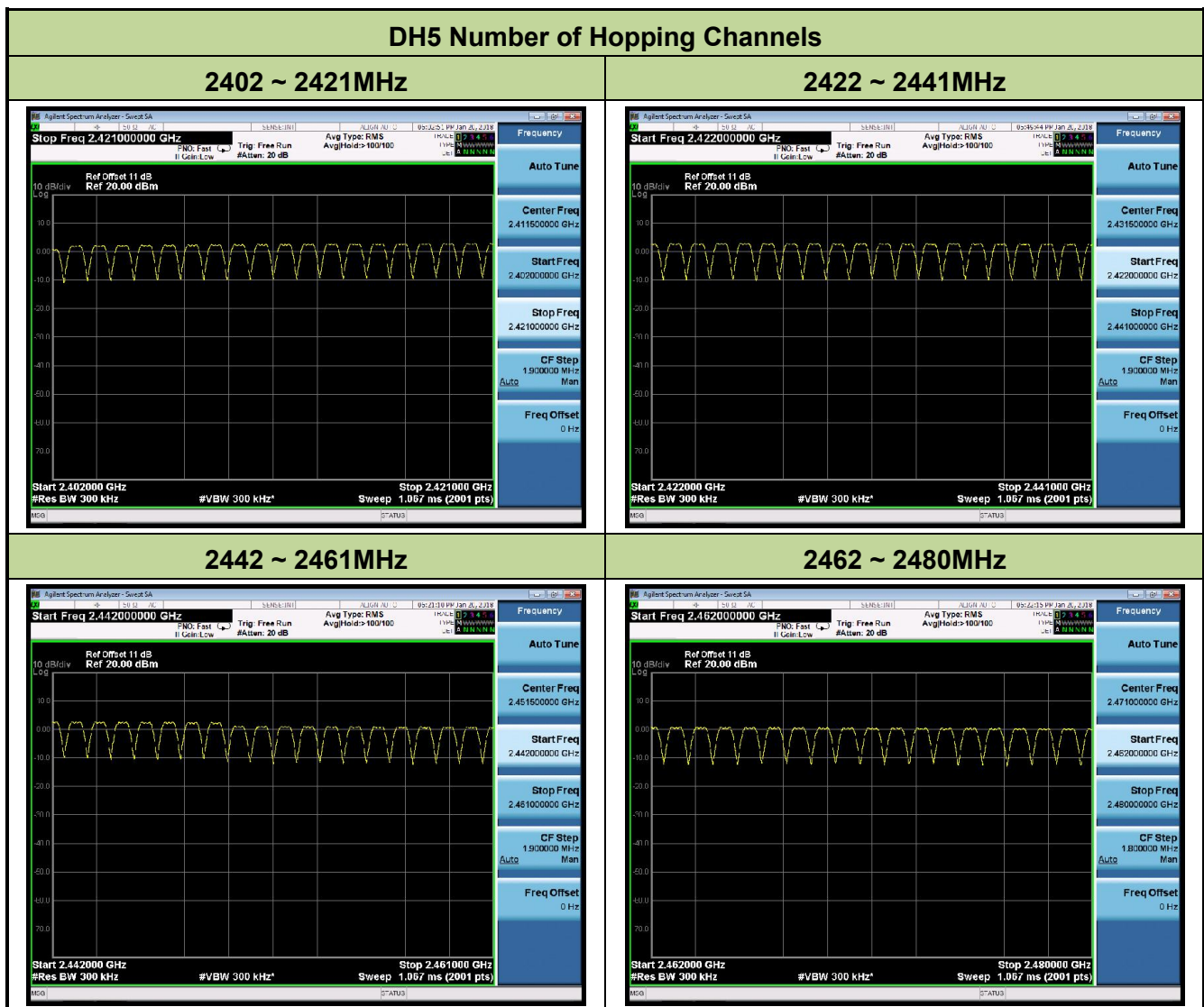
7.5.4. Test Setup



7.5.5. Test Result

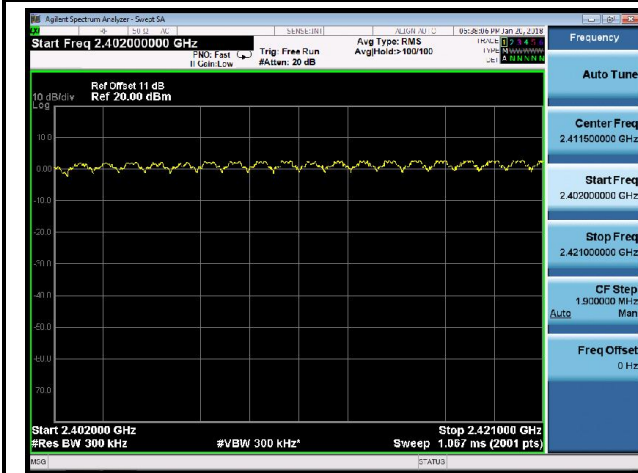
Product	Wireless Headphone	Temperature	23°C
Test Engineer	Hunk Li	Relative Humidity	50%
Test Site	TR3	Test Date	2018/01/20

Test Mode (Hopping)	Channel Numbers	Frequency (MHz)	Limit (Hopping Channels)	Result
DH5	79	2402~2480	≥ 15	Pass
2DH5	79	2402~2480	≥ 15	Pass
3DH5	79	2402~2480	≥ 15	Pass

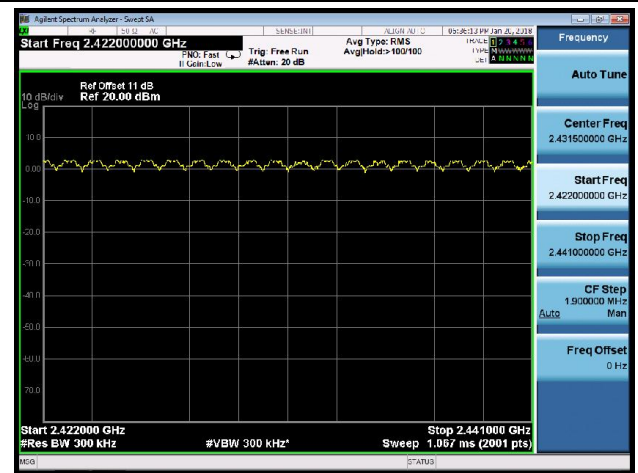


2DH5 Number of Hopping Channels

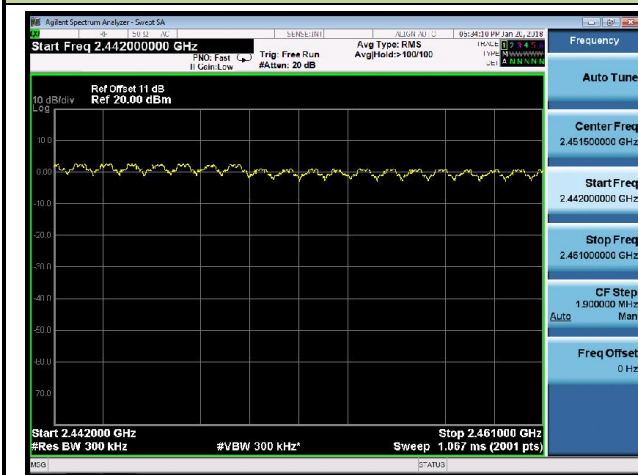
2402 ~ 2421MHz



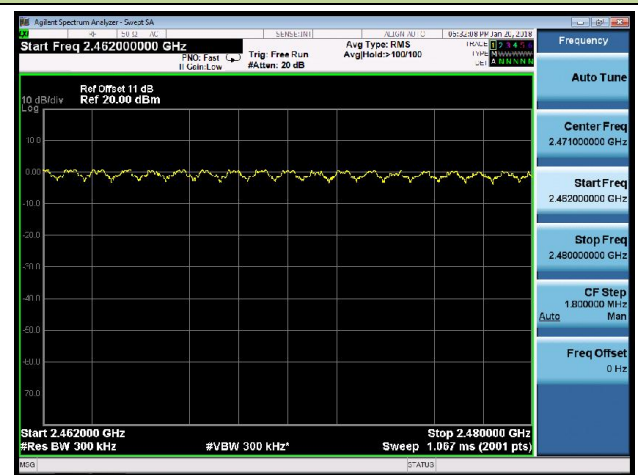
2422 ~ 2441MHz



2442 ~ 2461MHz

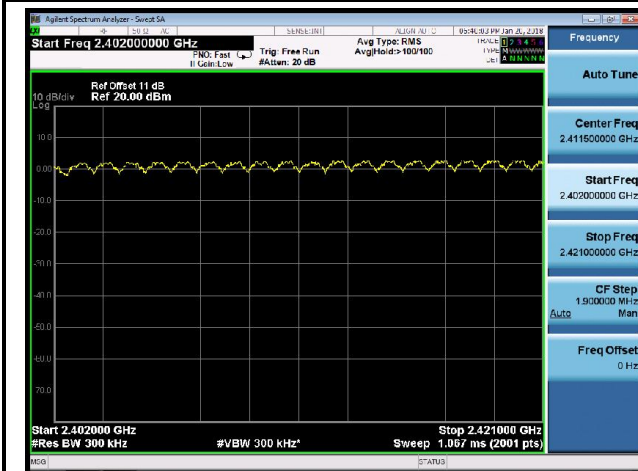


2462 ~ 2480MHz

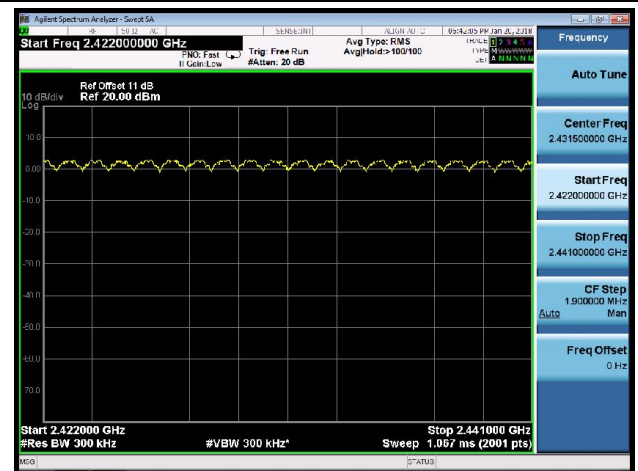


3DH5 Number of Hopping Channels

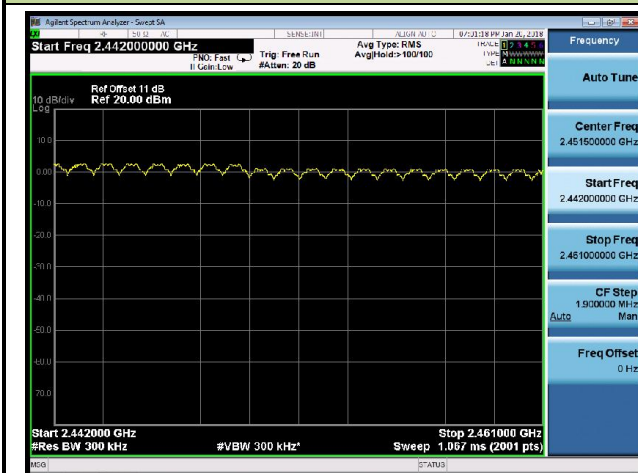
2402 ~ 2421MHz



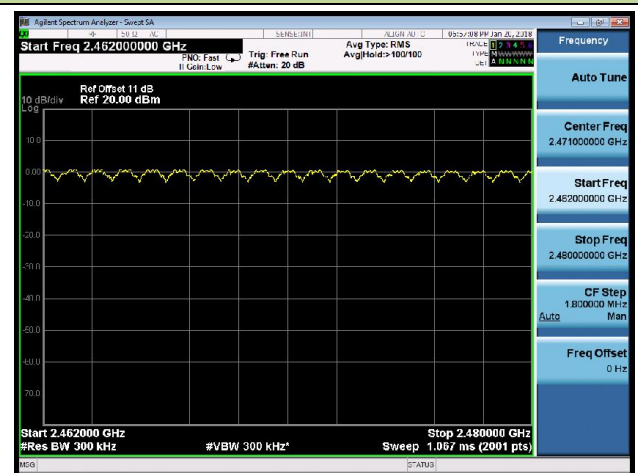
2422 ~ 2441MHz



2442 ~ 2461MHz



2462 ~ 2480MHz



7.6. Time of Occupancy Measurement

7.6.1. Test Limit

The maximum permissible time of occupancy is 400ms within a period of 400ms multiplied by the number of hopping channels employed.

7.6.2. Test Procedure Used

ANSI C63.10-2013 - Section 7.8.4

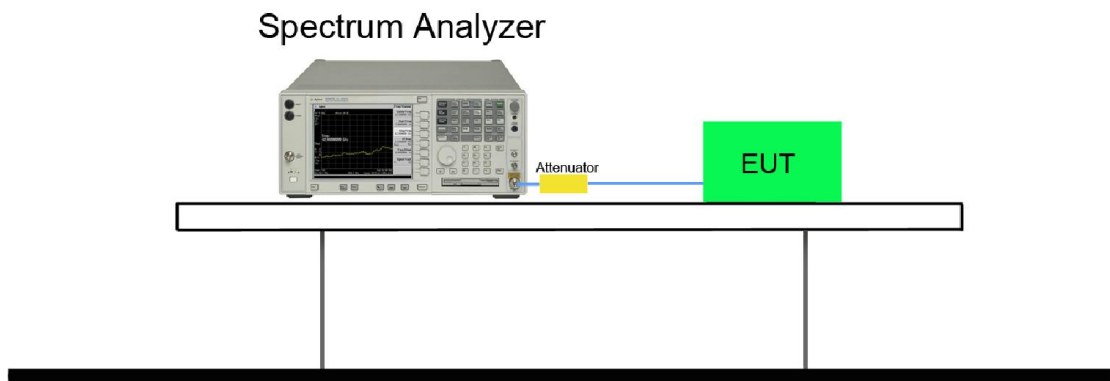
7.6.3. Test Setting

1. Span = zero span, centered on a hopping channel.
2. RBW shall be $\leq$ channel spacing and where possible RBW should be set $\gg 1 / T$, where T is the expected dwell time per channel.
3. VBW $\geq$ RBW
4. Sweep time = as necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel.
5. Detector = Peak
6. Trace mode = Max hold

If possible, use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (data rate, modulation format, etc.), repeat this test for each variation.

An oscilloscope may be used instead of a spectrum analyzer. The EUT shall show compliance with the appropriate regulatory limit for the number of hopping channels. A plot of the data shall be included in the test report.

7.6.4. Test Setup



7.6.5. Test Result

Product	Wireless Headphone	Temperature	23°C
Test Engineer	Hunk Li	Relative Humidity	50%
Test Site	TR3	Test Date	2018/01/20

Test Mode	Channel No.	Frequency (MHz)	Hops Over Occupancy Time(Hops)	Packet Transfer Time (ms)	Time of Occupancy (ms)	Limit (ms)	Result
3DH1	39	2441	320	0.40	128	< 400	Pass
3DH3	39	2441	160	1.65	264	< 400	Pass
3DH5	39	2441	107	2.90	310.3	< 400	Pass



Note 1: According the Bluetooth Standard Specification, the nominal hop rate is 1600 hops/s. All Bluetooth unit participating in the piconet are time and hop synchronized to the channel.

Hops Over Occupancy Time in 31.6s for 3DH1 = $1600 / 2 / 79 * 31.6 = 320$.

Hops Over Occupancy Time in 31.6s for 3DH3 = $1600 / 4 / 79 * 31.6 = 160$.

Hops Over Occupancy Time in 31.6s for 3DH5 = $1600 / 6 / 79 * 31.6 = 107$.

Note 2: Time of Occupancy = Packet Transfer Time * Hops Over Occupancy Time in 31.6s.

7.7. Band-edge Compliance Measurement

7.7.1. Test Limit

The maximum permissible emission level is 20dBc. Any emissions were lying outside of the emission bandwidth and in authorized band edges to a field strength limit specified in Section 15.209 of the Title 47 CFR.

7.7.2. Test Procedure Used

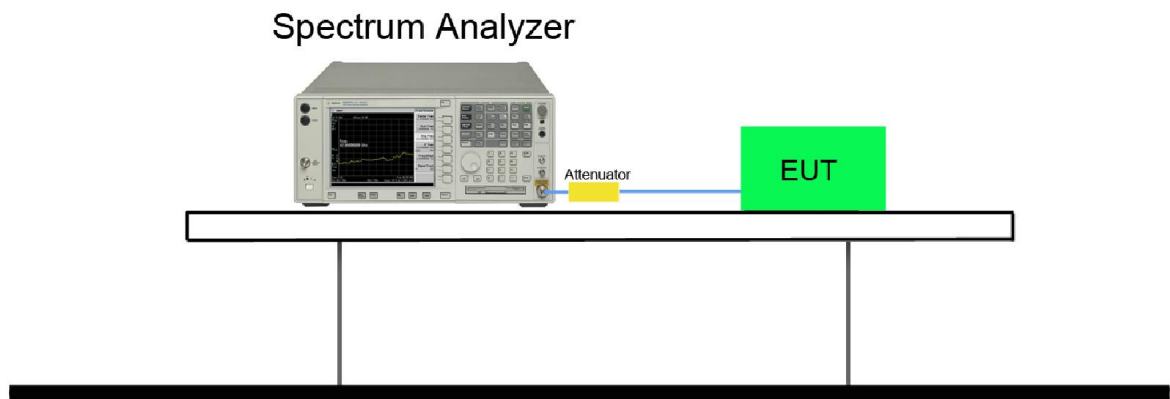
ANSI C63.10-2013 - Section 6.10.4

7.7.3. Test Setting

1. Span = wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation.
2. RBW = 100KHz
3. VBW = 300KHz
4. Detector = Peak
5. Sweep time = auto couple
6. Trace mode = Max hold
7. Trace was allowed to stabilize

Allow the trace to stabilize. Set the marker on the emission at the band edge, or on the highest modulation product outside of the band, if this level is greater than that at the band edge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission.

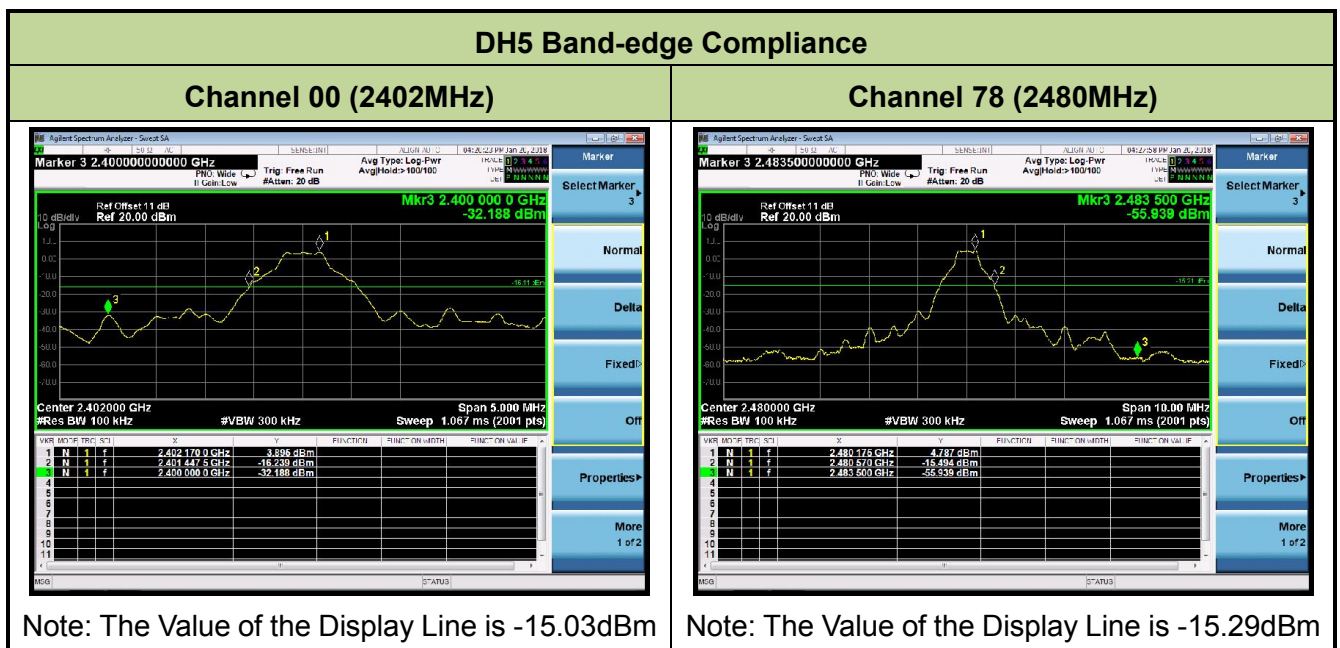
7.7.4. Test Setup



7.7.5. Test Result

Product	Wireless Headphone	Temperature	23°C
Test Engineer	Hunk Li	Relative Humidity	50%
Test Site	TR3	Test Date	2018/01/20

Test Mode	Channel No.	Frequency (MHz)	Limit	Result
DH5	00	2402	20dBc	Pass
DH5	78	2480	20dBc	Pass
2DH5	00	2402	20dBc	Pass
2DH5	78	2480	20dBc	Pass
3DH5	00	2402	20dBc	Pass
3DH5	78	2480	20dBc	Pass



2DH5 Band-edge Compliance

Channel 00 (2402MHz)



Note: The Value of the Display Line is -16.91dBm

Channel 78 (2480MHz)



Note: The Value of the Display Line is -17.15dBm

3DH5 Band-edge Compliance

Channel 00 (2402MHz)



Note: The Value of the Display Line is -17.11dBm

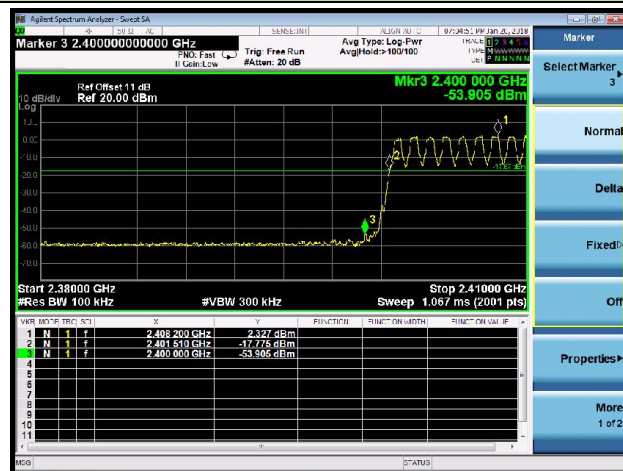
Channel 78 (2480MHz)



Note: The Value of the Display Line is -17.43dBm

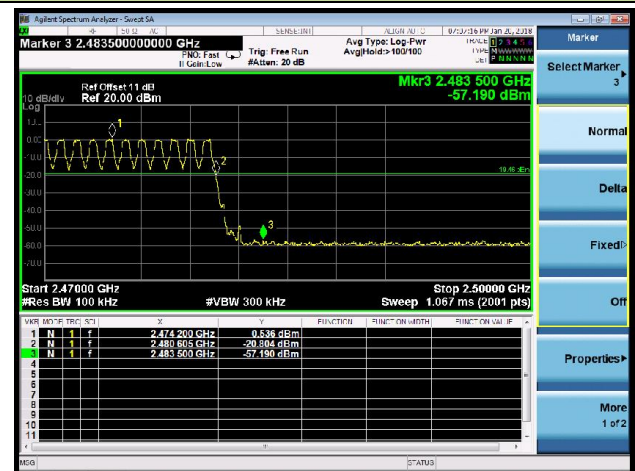
DH5 Operation Frequency Range of 20dB Bandwidth within Hopping Mode

Channel 00 (2402MHz)



Note: The Value of the Display Line is -14.27dBm

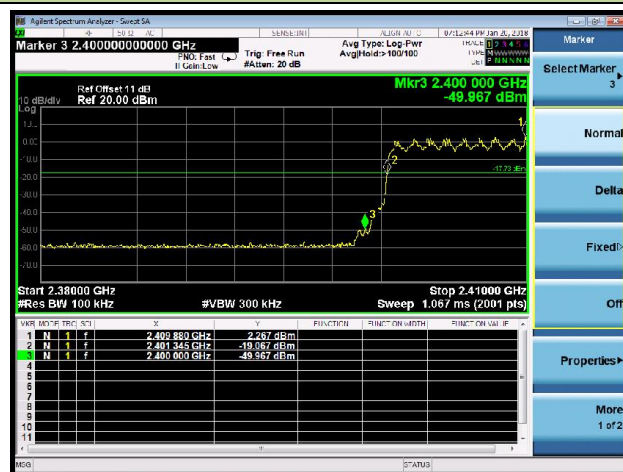
Channel 78 (2480MHz)



Note: The Value of the Display Line is -14.17dBm

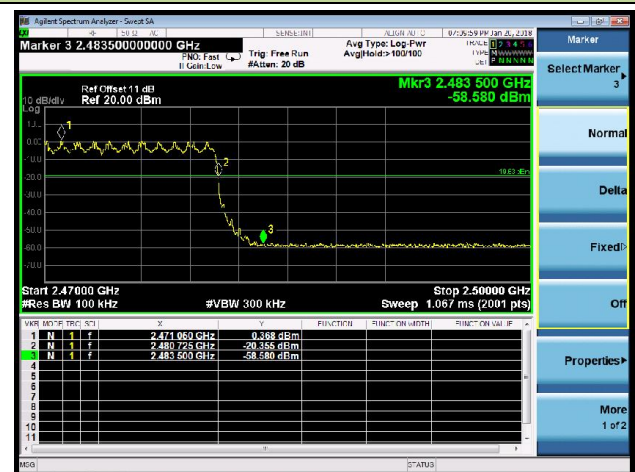
2DH5 Operation Frequency Range of 20dB Bandwidth within Hopping Mode

Channel 00 (2402MHz)



Note: The Value of the Display Line is -16.33dBm

Channel 78 (2480MHz)



Note: The Value of the Display Line is -16.11dBm

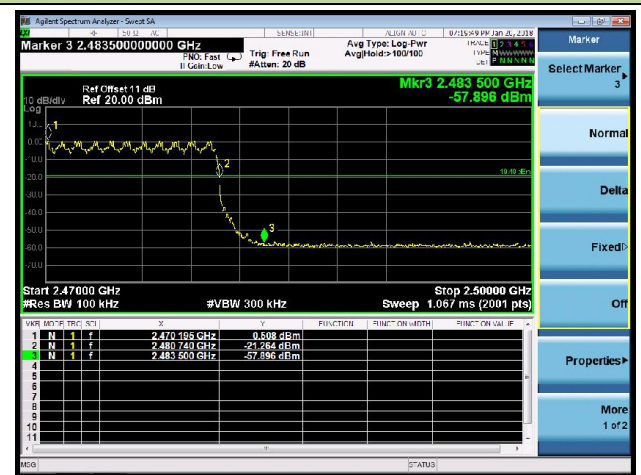
3DH5 Operation Frequency Range of 20dB Bandwidth within Hopping Mode

Channel 00 (2402MHz)



Note: The Value of the Display Line is -16.33dBm

Channel 78 (2480MHz)



Note: The Value of the Display Line is -15.93dBm

7.8. Conducted Spurious Emissions Measurement

7.8.1. Test Limit

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 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, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

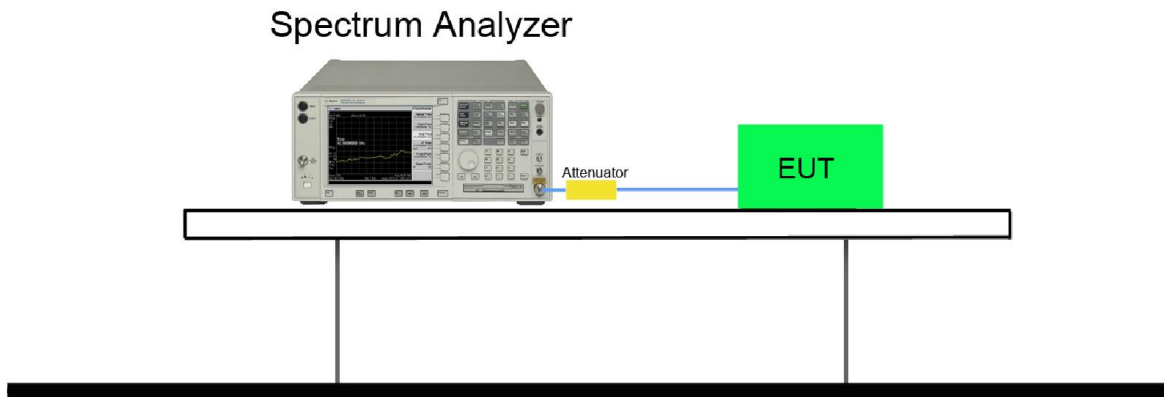
7.8.2. Test Procedure Used

ANSI C63.10-2013 - Section 7.8.8

7.8.3. Test Setting

1. Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
2. RBW = 100 KHz
3. VBW $\geq$ RBW
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize
8. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this section.

7.8.4. Test Setup



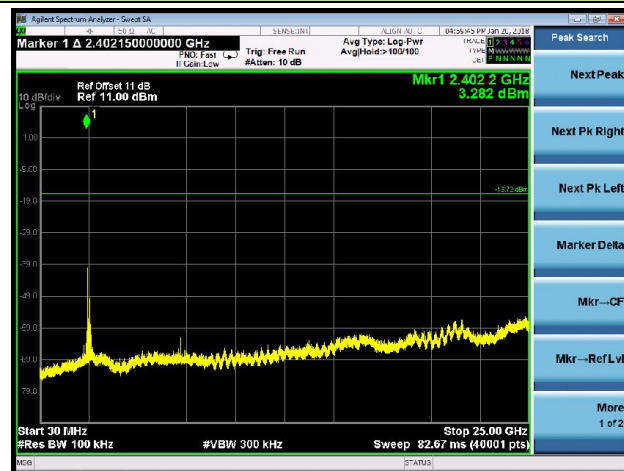
7.8.5. Test Result

Product	Wireless Headphone	Temperature	23°C
Test Engineer	Hunk Li	Relative Humidity	50%
Test Site	TR3	Test Date	2018/01/20

Test Mode	Channel No.	Frequency (MHz)	Limit (MHz)	Result
DH5	00	2402	20dBc	Pass
DH5	39	2441	20dBc	Pass
DH5	78	2480	20dBc	Pass
2DH5	00	2402	20dBc	Pass
2DH5	39	2441	20dBc	Pass
2DH5	78	2480	20dBc	Pass
3DH5	00	2402	20dBc	Pass
3DH5	39	2441	20dBc	Pass
3DH5	78	2480	20dBc	Pass

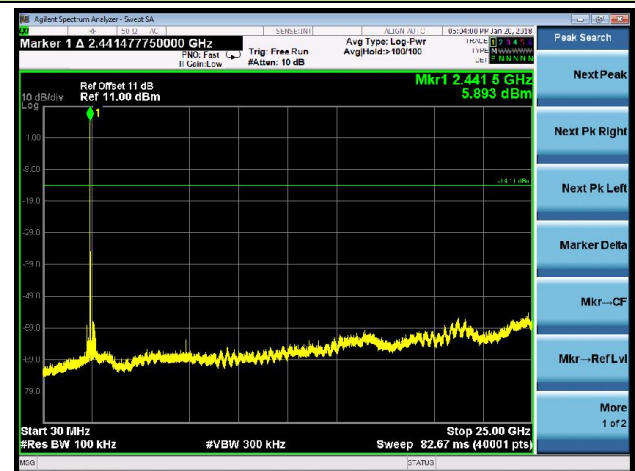
DH5 Conducted Spurious Emissions

Channel 00 (2402MHz)



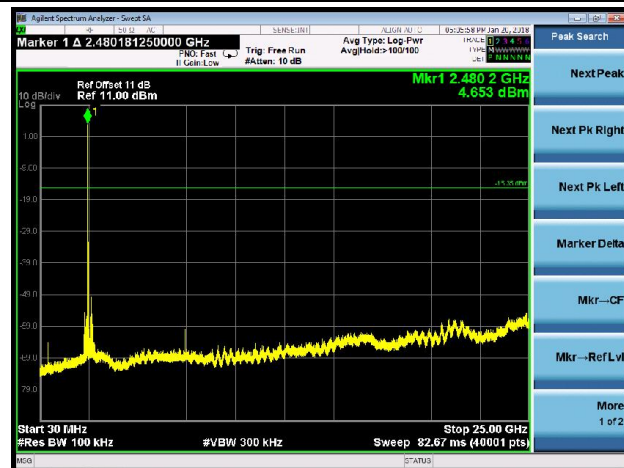
Note: The Value of the Display Line is -15.56dBm

Channel 39 (2441MHz)



Note: The Value of the Display Line is -13.72dBm

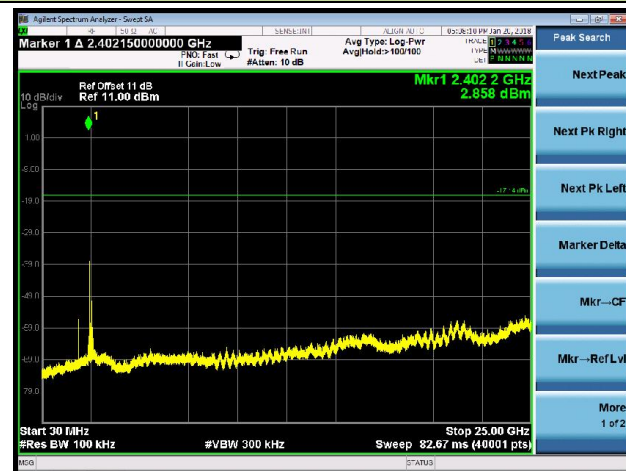
Channel 78 (2480MHz)



Note: The Value of the Display Line is -15.29dBm

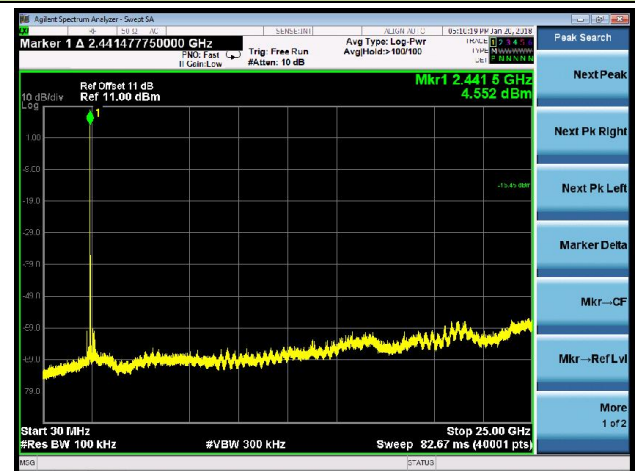
2DH5 Conducted Spurious Emissions

Channel 00 (2402MHz)



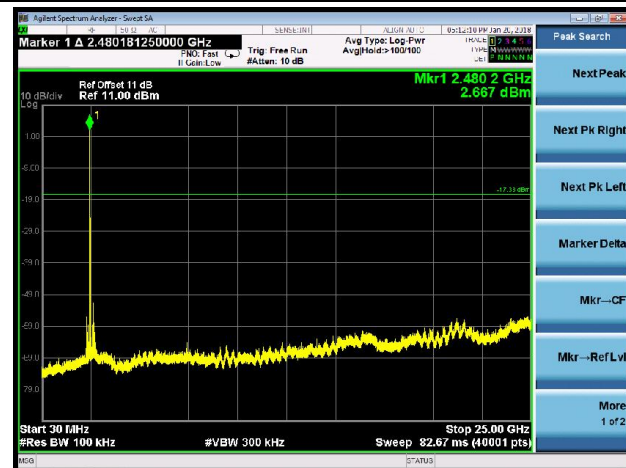
Note: The Value of the Display Line is -16.91dBm

Channel 39 (2441MHz)



Note: The Value of the Display Line is -15.84dBm

Channel 78 (2480MHz)

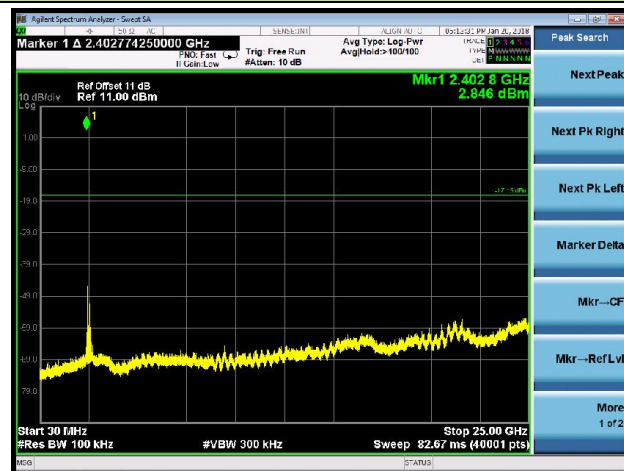


Note: The Value of the Display Line is -18.84dBm

Note: The Value of the Display Line is -20.22dBm

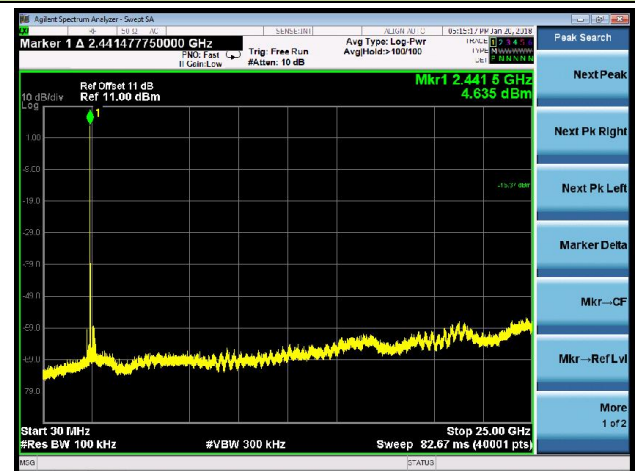
3DH5 Conducted Spurious Emissions

Channel 00 (2402MHz)



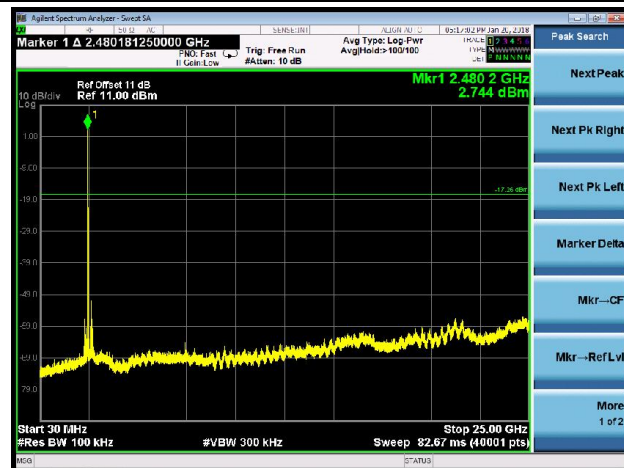
Note: The Value of the Display Line is -17.24dBm

Channel 39 (2441MHz)



Note: The Value of the Display Line is -15.67dBm

Channel 78 (2480MHz)



Note: The Value of the Display Line is -17.18dBm

7.9. Radiated Spurious Emission Measurement

7.9.1. Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

7.9.2. Test Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

ANSI C63.10 Section 6.4 (Standard test method below 30MHz)

ANSI C63.10 Section 6.5 (Standard test method above 30MHz to 1GHz)

ANSI C63.10 Section 6.6 (Standard test method above 1GHz)

7.9.3. Test Setting

Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in Table 1
3. VBW = 3MHz
4. Detector = peak

5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Table 1 - RBW as a function of frequency

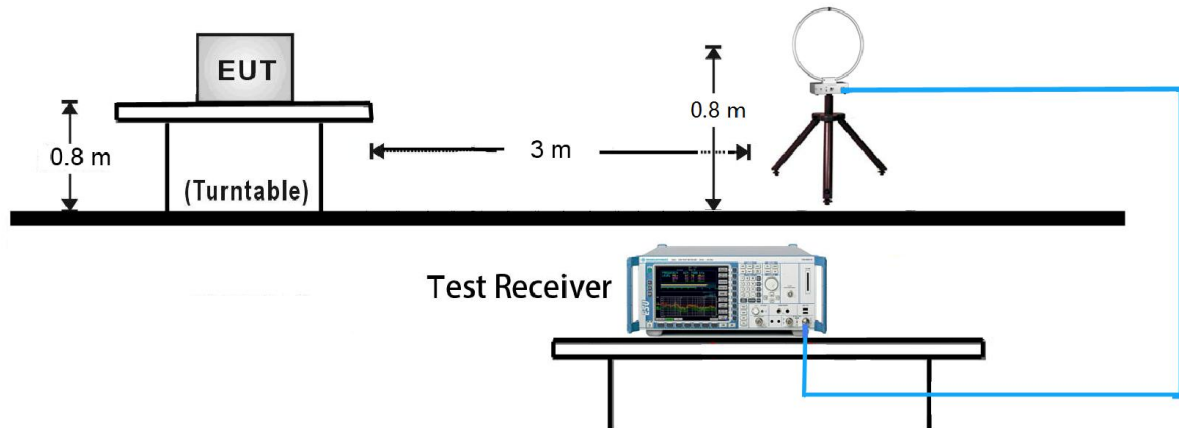
Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

Average Field Strength Measurements

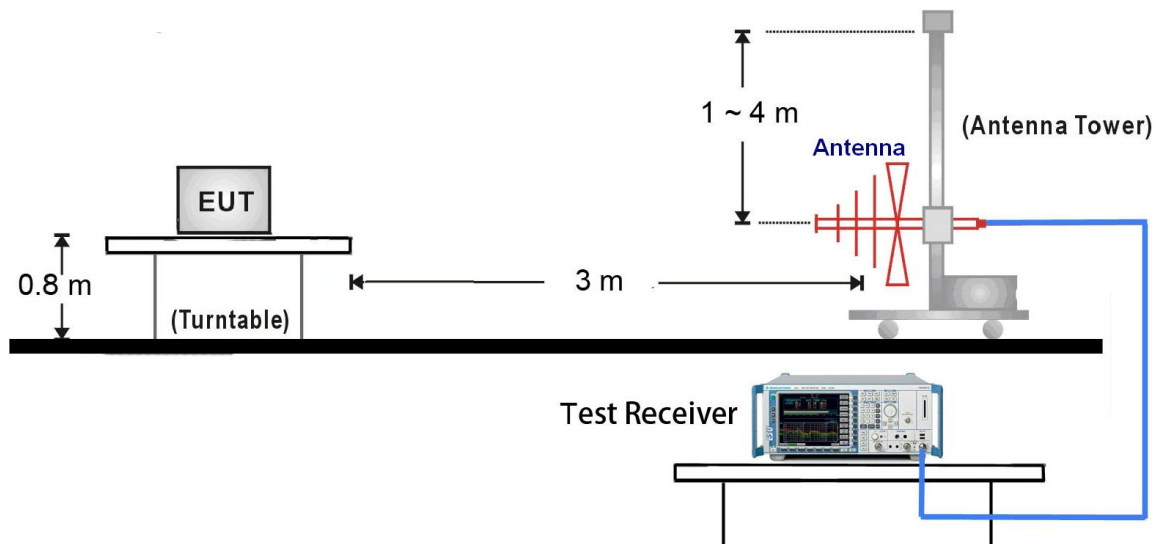
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW $\geq 1/T$
4. De As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode
5. Detector = Peak
6. Sweep time = auto
7. Trace mode = max hold
8. Allow max hold to run for at least 50 times (1/duty cycle) traces

7.9.4. Test Setup

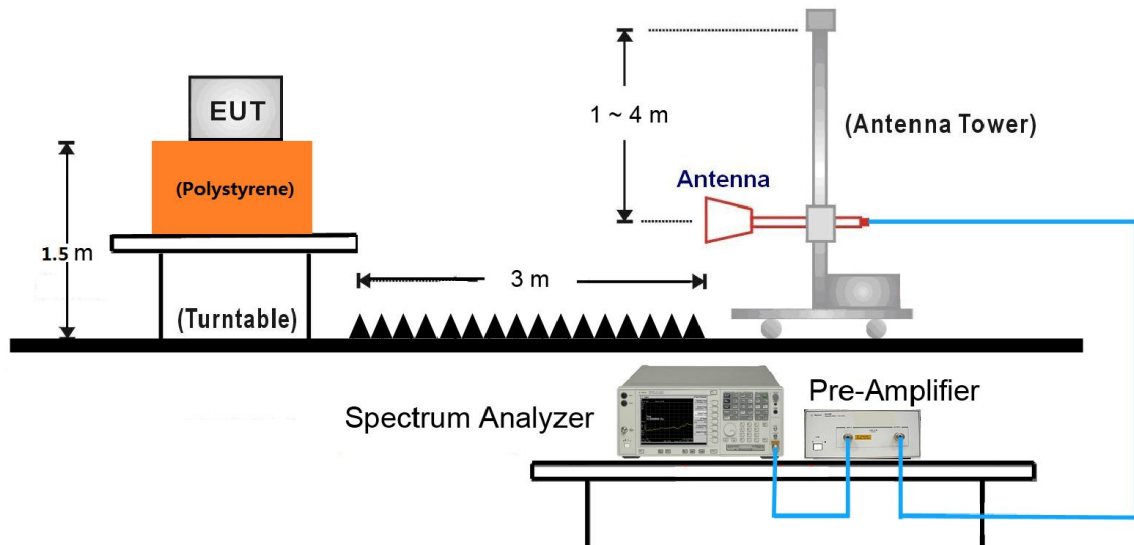
9kHz ~ 30MHz Test Setup:



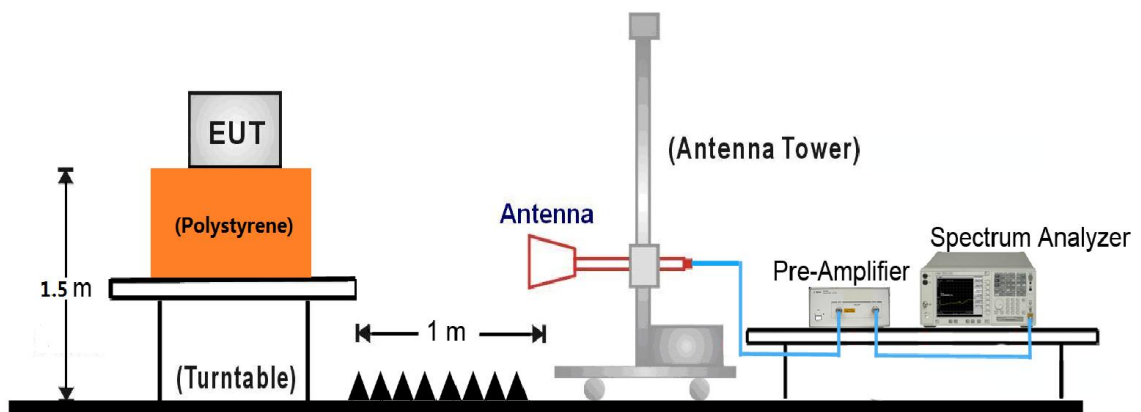
30MHz ~ 1GHz Test Setup:



1GHz ~ 18GHz Test Setup:



18GHz ~ 25GHz Test Setup:



7.9.5. Test Result

Product	Wireless Headphone	Temperature	23°C
Test Engineer	Snake Ni	Relative Humidity	52%
Test Site	AC2	Test Date	2018/01/20
Test Mode:	DH5	Test Channel:	00
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4808.0	45.5	5.5	51.0	74	-23.0	PK	Horizontal
*	7205.0	32.5	13.9	46.4	74	-27.6	PK	Horizontal
	8497.0	32.6	14.2	46.8	74	-27.2	PK	Horizontal
*	10239.5	31.4	18.1	49.5	74	-24.5	PK	Horizontal
	4808.0	43.8	5.5	49.3	74	-24.7	PK	Vertical
	7203.5	33.1	13.9	47.0	74	-27.0	PK	Vertical
*	8083.5	31.5	14.7	46.2	74	-27.8	PK	Vertical
*	10025.0	32.6	17.7	50.3	74	-23.7	PK	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (96.5dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Wireless Headphone	Temperature	23°C
Test Engineer	Bruce Wang	Relative Humidity	52%
Test Site	AC2	Test Date	2018/01/20
Test Mode:	DH5	Test Channel:	39
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4882.0	45.3	5.6	50.9	74	-23.1	PK	Horizontal
	7324.5	35.4	13.8	49.2	74	-24.8	PK	Horizontal
*	8738.0	31.5	14.7	46.2	74	-27.8	PK	Horizontal
*	9876.5	31.8	17.3	49.1	74	-24.9	PK	Horizontal
	4882.0	44.9	5.6	50.5	74	-23.5	PK	Vertical
	7324.5	34.3	13.8	48.1	74	-25.9	PK	Vertical
*	8947.0	29.6	14.7	44.3	74	-29.7	PK	Vertical
*	10113.0	31.2	18	49.2	74	-24.8	PK	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (97.6dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Wireless Headphone	Temperature	23°C
Test Engineer	Bruce Wang	Relative Humidity	52%
Test Site	AC2	Test Date	2018/01/20
Test Mode:	DH5	Test Channel:	78
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4960.0	47.0	5.7	52.7	74	-21.3	PK	Horizontal
	4960.1	45.6	5.7	51.3	74	-22.7	AV	Horizontal
	7440.0	34.0	14.3	48.3	74	-25.7	PK	Horizontal
*	8666.5	31.5	14.4	45.9	74	-28.1	PK	Horizontal
*	10256.0	32.3	18.2	50.5	74	-23.5	PK	Horizontal
	4960.0	45.0	5.7	50.7	74	-23.3	PK	Vertical
	7440.0	33.7	14.3	48.0	74	-26.0	PK	Vertical
*	8666.5	31.6	14.4	46.0	74	-28.0	PK	Vertical
*	10124.0	32.4	17.9	50.3	74	-25.7	PK	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (98.6dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Wireless Headphone	Temperature	23°C
Test Engineer	Bruce Wang	Relative Humidity	52%
Test Site	AC2	Test Date	2018/01/20
Test Mode:	2DH5	Test Channel:	00
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4804.0	44.0	5.5	49.5	74	-24.5	PK	Horizontal
	7649.0	32.8	13.9	46.7	74	-27.3	PK	Horizontal
*	8952.5	32.0	14.7	46.7	74	-27.3	PK	Horizontal
*	10025.0	31.9	17.7	49.6	74	-24.4	PK	Horizontal
	4804.0	41.1	5.5	46.6	74	-27.4	PK	Vertical
	7621.5	33.0	14.2	47.2	74	-26.8	PK	Vertical
*	8600.5	32.1	14.3	46.4	74	-27.6	PK	Vertical
*	10063.5	32.4	17.5	49.9	74	-24.1	PK	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (95.9dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Wireless Headphone	Temperature	23°C
Test Engineer	Bruce Wang	Relative Humidity	52%
Test Site	AC2	Test Date	2018/01/20
Test Mode:	2DH5	Test Channel:	39
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4879.0	44.8	5.6	50.4	74	-23.6	PK	Horizontal
	7533.5	32.2	14.5	46.7	74	-27.3	PK	Horizontal
*	8633.5	32.1	14.3	46.4	74	-27.6	PK	Horizontal
*	10107.5	31.8	18.0	49.8	74	-24.2	PK	Horizontal
	4879.0	44.2	5.6	49.8	74	-24.2	PK	Vertical
	7324.5	33.0	13.8	46.8	74	-27.2	PK	Vertical
*	8639.0	32.1	14.3	46.4	74	-27.6	PK	Vertical
*	10124.0	32.7	17.9	50.6	74	-23.4	PK	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (96.9dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Wireless Headphone	Temperature	23°C
Test Engineer	Bruce Wang	Relative Humidity	52%
Test Site	AC2	Test Date	2018/01/20
Test Mode:	2DH5	Test Channel:	78
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4960.0	44.3	5.7	50.0	74	-24.0	PK	Horizontal
	7423.5	31.9	14.2	46.1	74	-27.9	PK	Horizontal
*	9145.0	31.6	15.7	47.3	74	-26.7	PK	Horizontal
*	9926.0	32.6	17.5	50.1	74	-23.9	PK	Horizontal
	4960.0	39.8	5.7	45.5	74	-28.5	PK	Vertical
	7440.0	32.4	14.3	46.7	74	-27.3	PK	Vertical
*	8859.0	31.4	14.9	46.3	74	-27.7	PK	Vertical
*	10228.5	32.0	18.1	50.1	74	-23.9	PK	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (98.2dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Wireless Headphone	Temperature	23°C
Test Engineer	Bruce Wang	Relative Humidity	52%
Test Site	AC2	Test Date	2018/01/20
Test Mode:	3DH5	Test Channel:	00
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4804.0	42.2	5.5	47.7	74	-26.3	PK	Horizontal
	7456.5	31.7	14.2	45.9	74	-28.1	PK	Horizontal
*	8963.5	31.7	14.8	46.5	74	-27.5	PK	Horizontal
*	10184.5	31.9	18.0	49.9	74	-24.1	PK	Horizontal
	4804.0	40.0	5.5	45.5	74	-28.5	PK	Vertical
	7335.5	32.0	13.9	45.9	74	-28.1	PK	Vertical
*	8644.5	31.9	14.3	46.2	74	-27.8	PK	Vertical
*	10206.5	32.0	18.2	50.2	74	-23.8	PK	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (96.4dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Wireless Headphone	Temperature	23°C
Test Engineer	Bruce Wang	Relative Humidity	52%
Test Site	AC2	Test Date	2018/01/20
Test Mode:	3DH5	Test Channel:	39
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4882.0	43.8	5.6	49.4	74	-24.6	PK	Horizontal
	7528.0	32.9	14.5	47.4	74	-26.6	PK	Horizontal
*	8958.0	32.1	14.7	46.8	74	-27.2	PK	Horizontal
*	10008.5	31.7	17.7	49.4	74	-24.6	PK	Horizontal
	4882.0	42.4	5.6	48.0	74	-26.0	PK	Vertical
	7335.5	33.1	13.9	47.0	74	-27.0	PK	Vertical
*	9497.0	32.8	16.0	48.8	74	-25.2	PK	Vertical
*	10256.0	32.3	18.2	50.5	74	-23.5	PK	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (97.3dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Wireless Headphone	Temperature	23°C
Test Engineer	Bruce Wang	Relative Humidity	52%
Test Site	AC2	Test Date	2018/01/20
Test Mode:	3DH5	Test Channel:	78
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4960.0	42.5	5.7	48.2	74	-25.8	PK	Horizontal
	7440.0	32.9	14.3	47.2	74	-26.8	PK	Horizontal
*	8919.5	31.6	14.8	46.4	74	-27.6	PK	Horizontal
*	10135.0	31.5	17.9	49.4	74	-24.6	PK	Horizontal
	4960.0	41.2	5.7	46.9	74	-27.1	PK	Vertical
	7440.0	32.1	14.3	46.4	74	-27.6	PK	Vertical
*	9167.0	31.5	15.8	47.3	74	-26.7	PK	Vertical
*	10019.5	31.8	17.7	49.5	74	-24.5	PK	Vertical

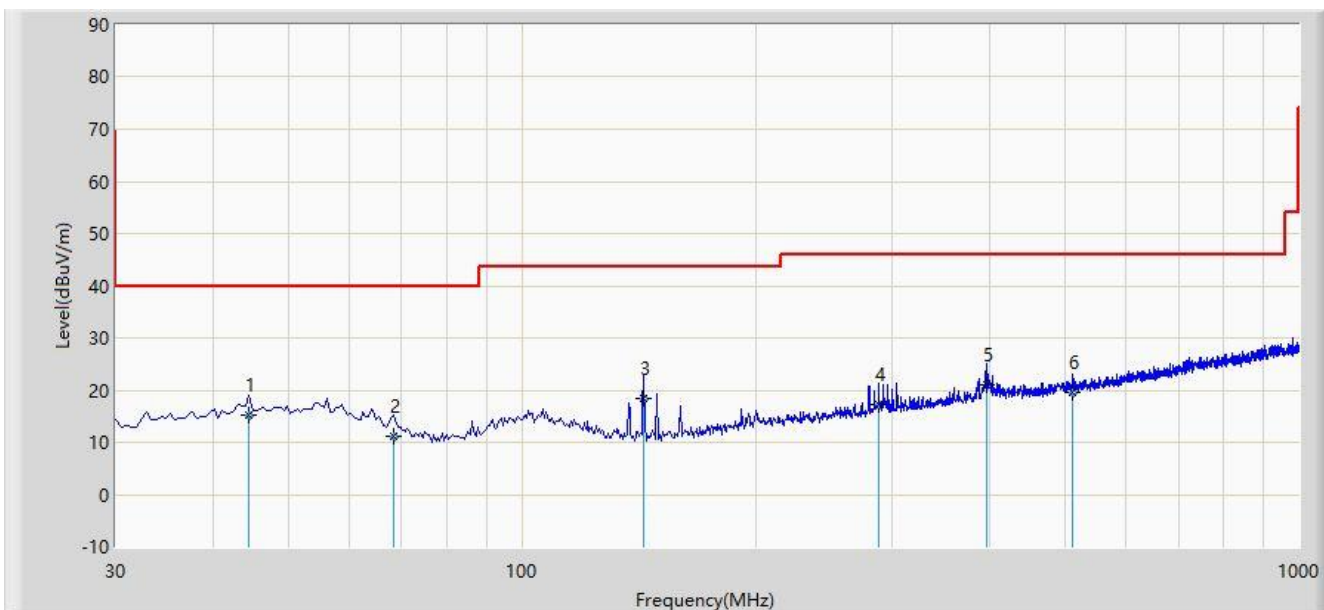
Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (98.5dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

The Worst Case of Radiated Emission 9kHz ~ 1GHz and 18GHz ~ 25GHz:

Site: AC2	Time: 2018/01/19 - 14:29
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: VULB9162_0.03-8GHz	Polarity: Horizontal
EUT: Wireless Headphone	Power: By Battery
Worst Case Mode: Transmit by DH5 at Channel 2441MHz	



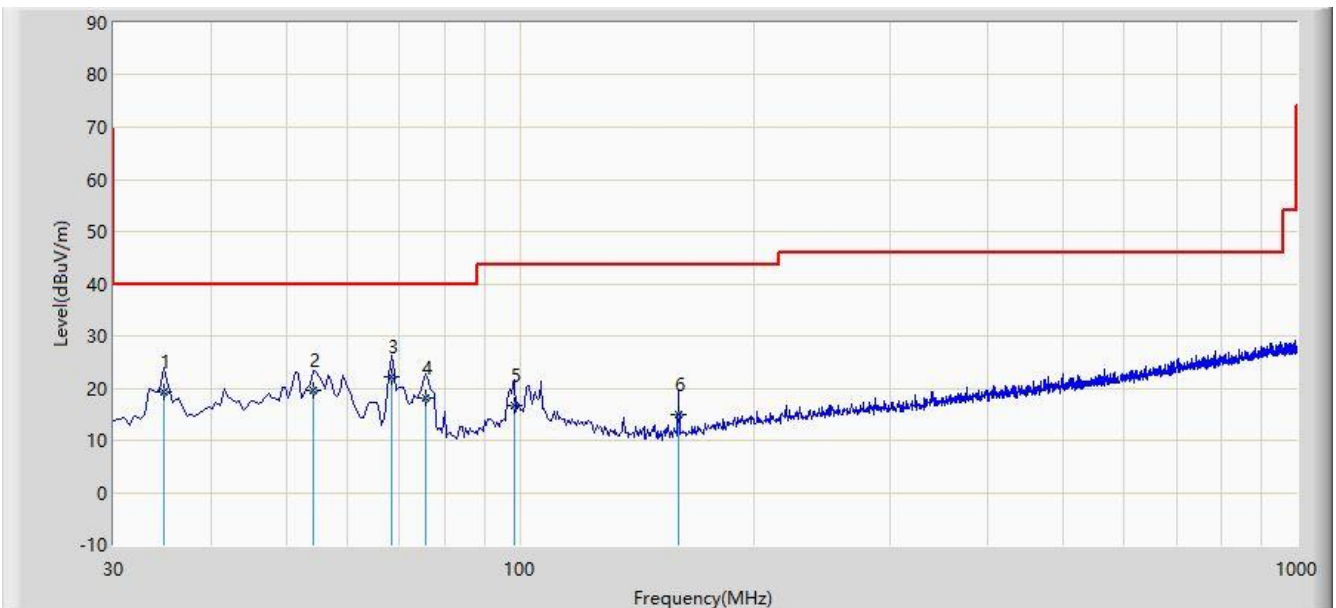
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	44.550	15.220	0.376	-24.780	40.000	14.844	QP
2			68.332	11.292	-0.280	-28.708	40.000	11.572	QP
3			143.490	18.372	8.722	-25.128	43.500	9.651	QP
4			288.020	17.216	2.612	-28.784	46.000	14.604	QP
5			396.175	21.032	4.059	-24.968	46.000	16.973	QP
6			512.090	19.621	0.776	-26.379	46.000	18.845	QP

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

Site: AC2	Time: 2018/01/19 - 14:35
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: VULB9162_0.03-8GHz	Polarity: Vertical
EUT: Wireless Headphone	Power: By Battery
Worst Case Mode: Transmit by DH5 at Channel 2441MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			34.850	19.401	6.388	-20.599	40.000	13.013	QP
2			54.250	19.539	4.606	-20.461	40.000	14.933	QP
3		*	68.315	22.037	10.460	-17.963	40.000	11.577	QP
4			75.590	18.103	8.357	-21.897	40.000	9.745	QP
5			98.385	16.792	3.850	-26.708	43.500	12.942	QP
6			159.980	15.031	4.973	-28.469	43.500	10.058	QP

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

7.10. Radiated Restricted Band Edge Measurement

7.10.1. Test Limit

For 15.205 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (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	8.25 - 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 - 156.525	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	--	--	--

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

7.10.2. Test Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

ANSI C63.10 Section 6.6 (Standard test method above 1GHz)

7.10.3. Test Setting

Peak Field Strength Measurements

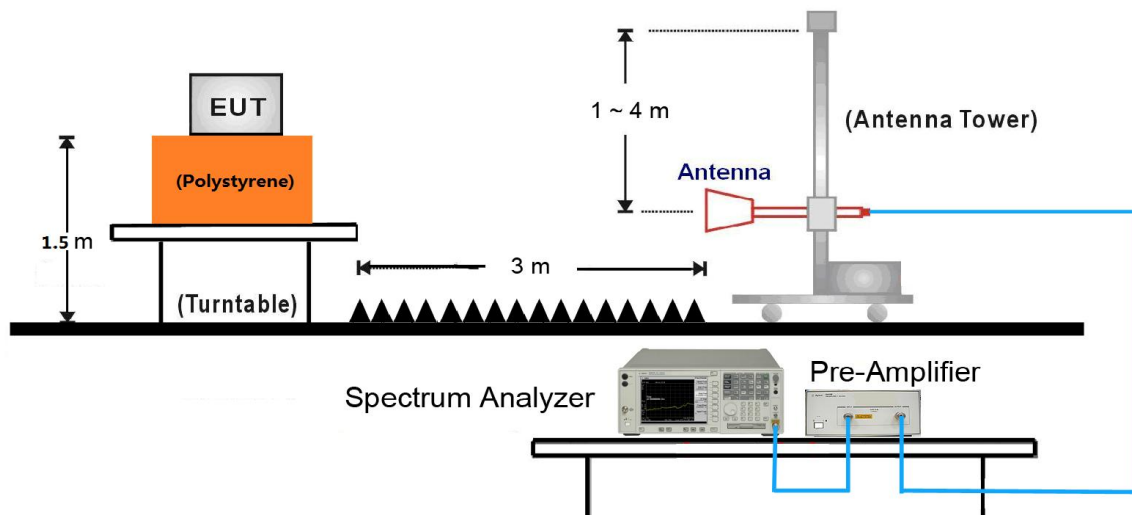
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in Table 1
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW $\geq 1/T$
4. De As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode
5. Detector = Peak
6. Sweep time = auto
7. Trace mode = max hold
8. Allow max hold to run for at least 50 times (1/duty cycle) traces

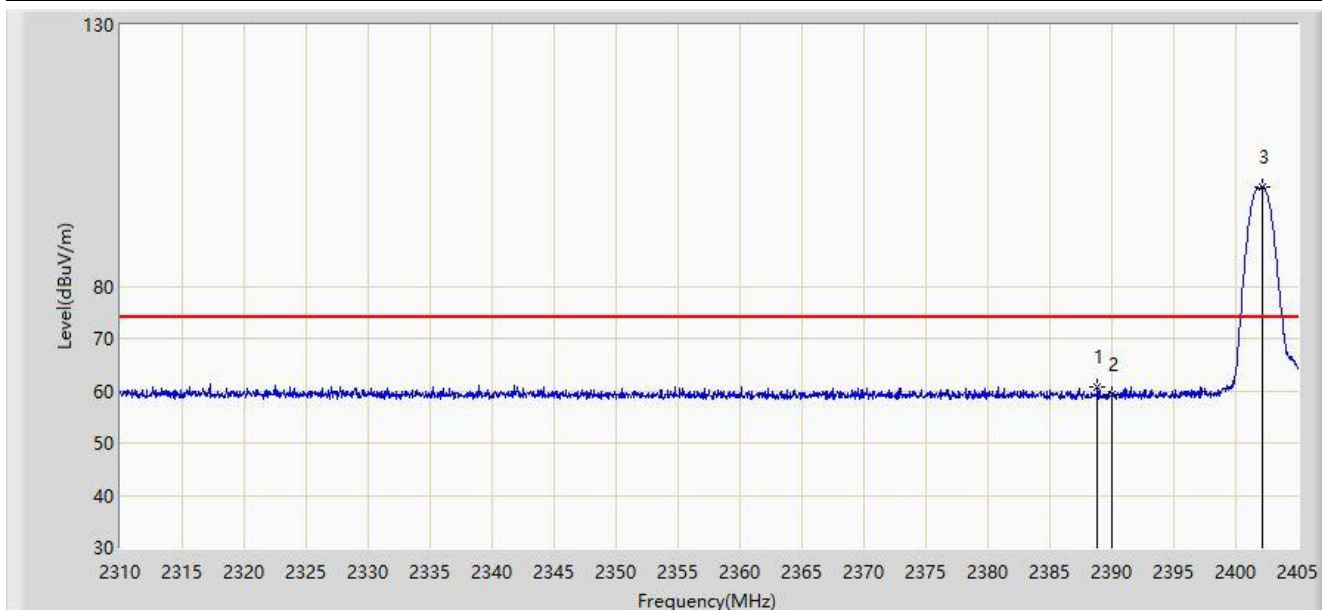
7.10.4. Test Setup

1GHz ~ 18GHz Test Setup:



7.10.5. Test Result

Site: AC2	Time: 2018/01/19 - 15:00
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by DH5 at Channel 2402MHz	

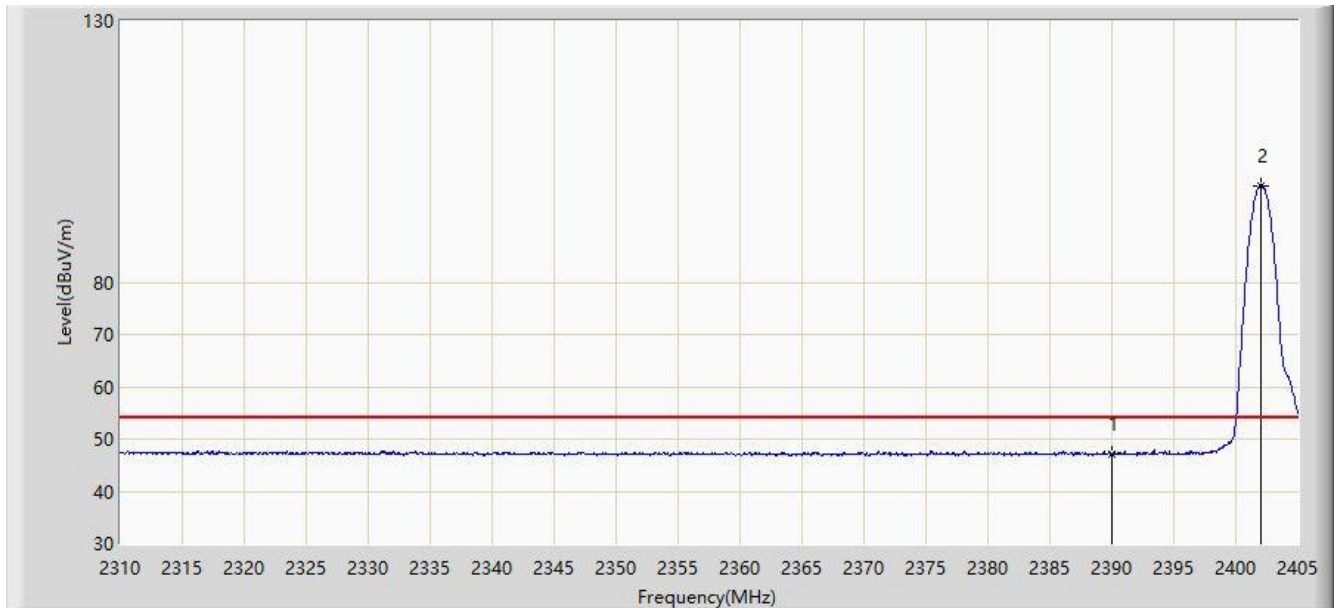


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2388.850	60.602	28.025	-13.398	74.000	32.577	PK
2			2390.000	59.330	26.755	-14.670	74.000	32.575	PK
3		*	2402.150	98.991	66.432	24.991	74.000	32.559	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 15:05
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by DH5 at Channel 2402MHz	

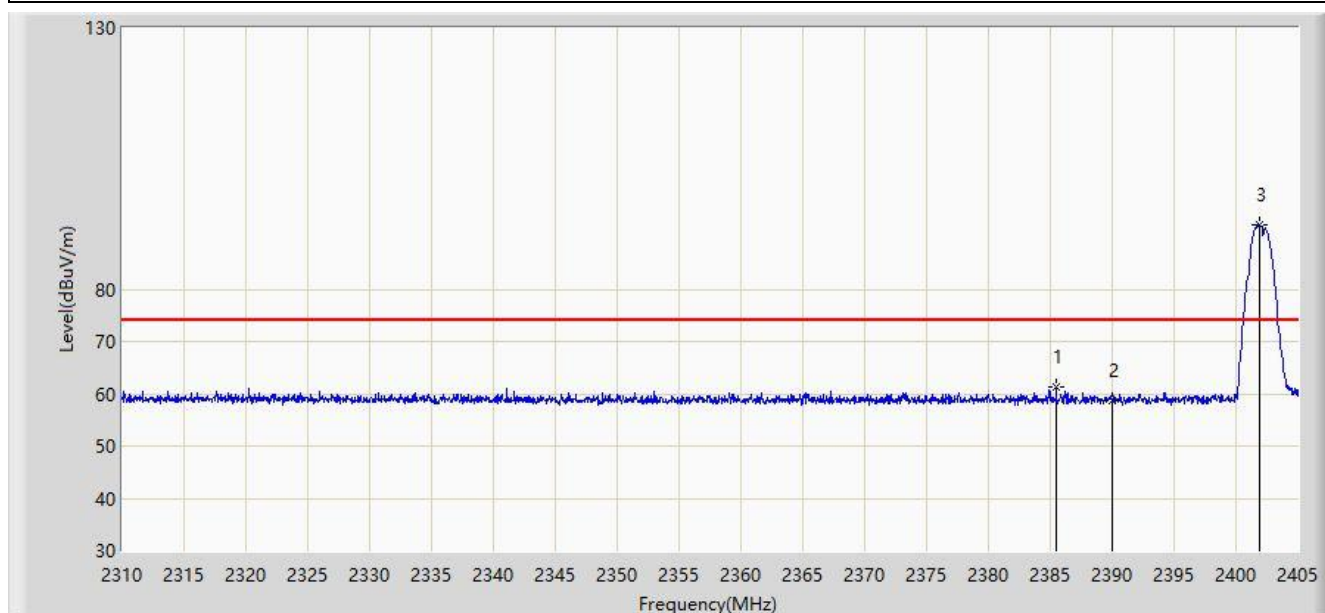


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	47.123	14.548	-6.877	54.000	32.575	AV
2		*	2402.008	98.543	65.984	44.543	54.000	32.559	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 15:07
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by DH5 at Channel 2402MHz	

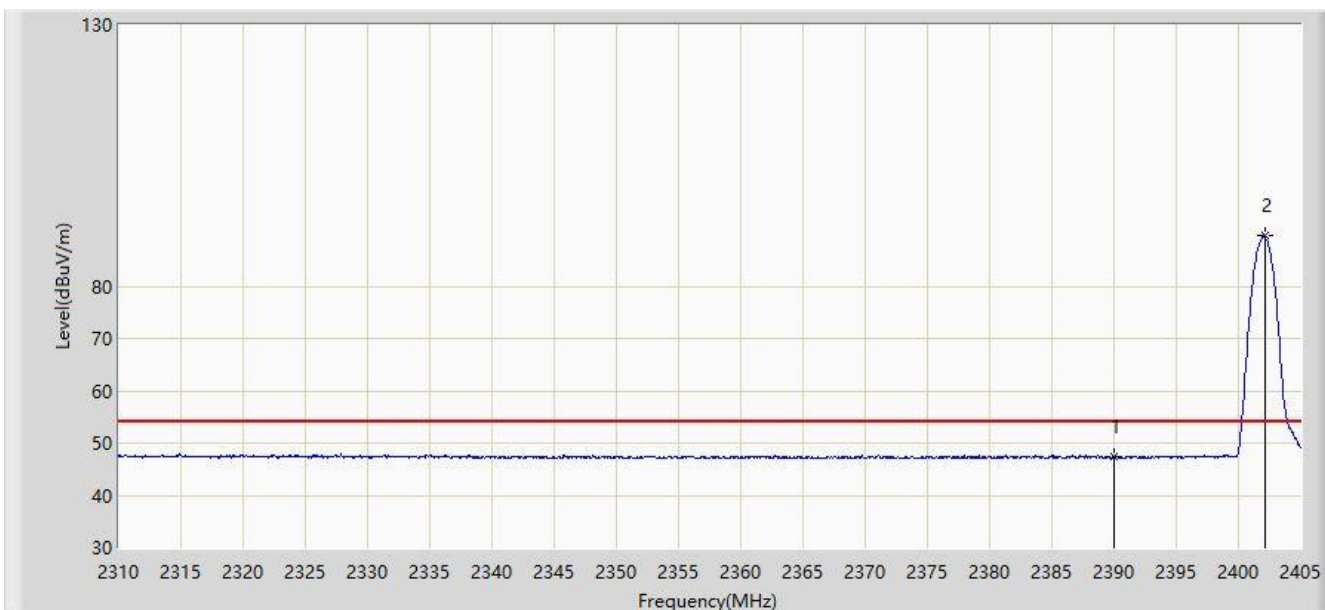


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2385.478	61.172	28.589	-12.828	74.000	32.583	PK
2			2390.000	58.565	25.990	-15.435	74.000	32.575	PK
3		*	2401.865	92.200	59.641	18.200	74.000	32.559	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 15:09
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by DH5 at Channel 2402MHz	

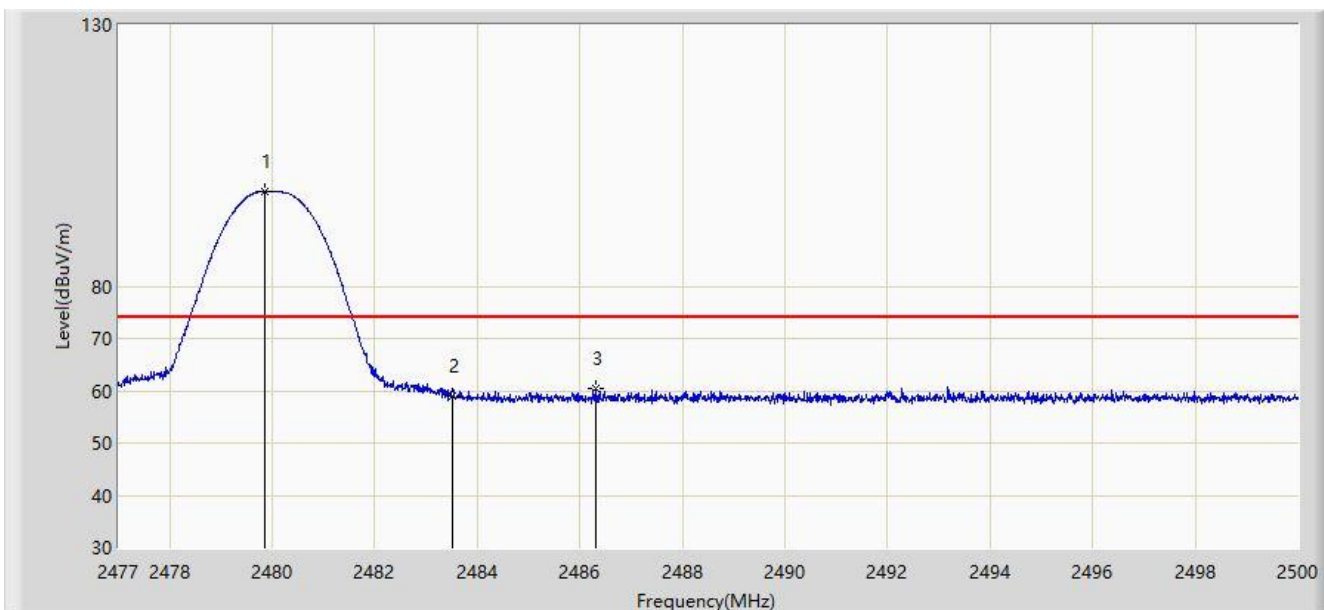


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	47.261	14.686	-6.739	54.000	32.575	AV
2		*	2402.150	89.662	57.103	35.662	54.000	32.559	AV

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 15:10
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by DH5 at Channel 2480MHz	

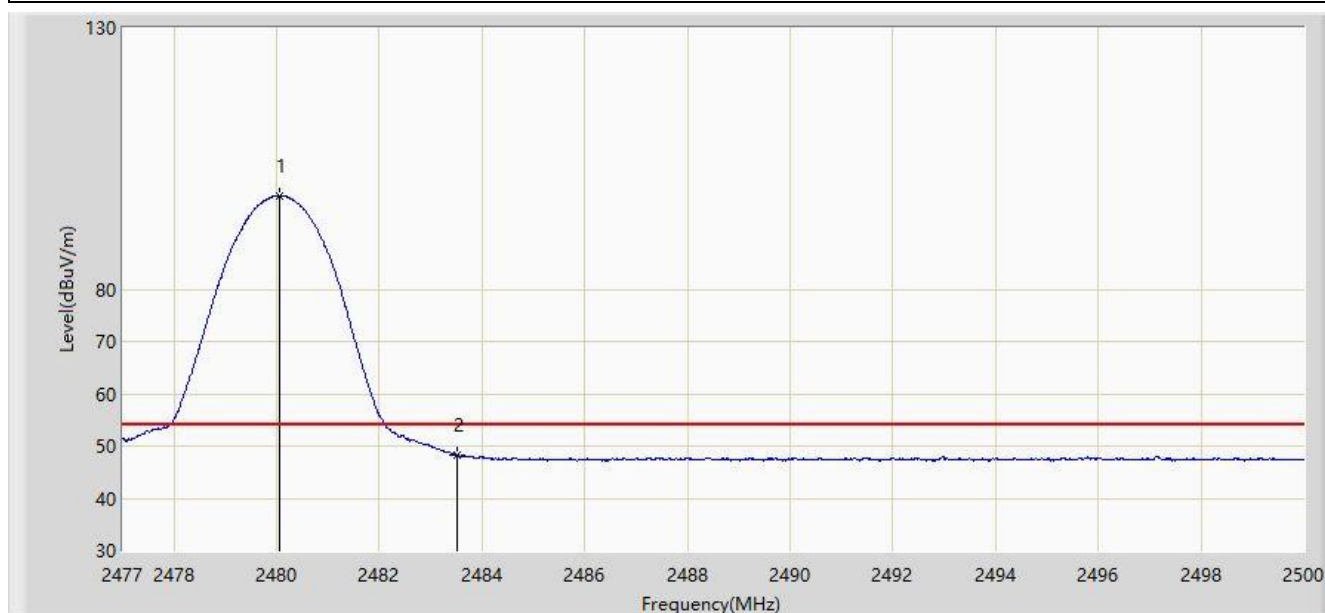


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2479.852	98.183	65.596	24.183	74.000	32.587	PK
2			2483.500	58.935	26.339	-15.065	74.000	32.596	PK
3			2486.303	60.437	27.834	-13.563	74.000	32.603	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 15:12
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by DH5 at Channel 2480MHz	

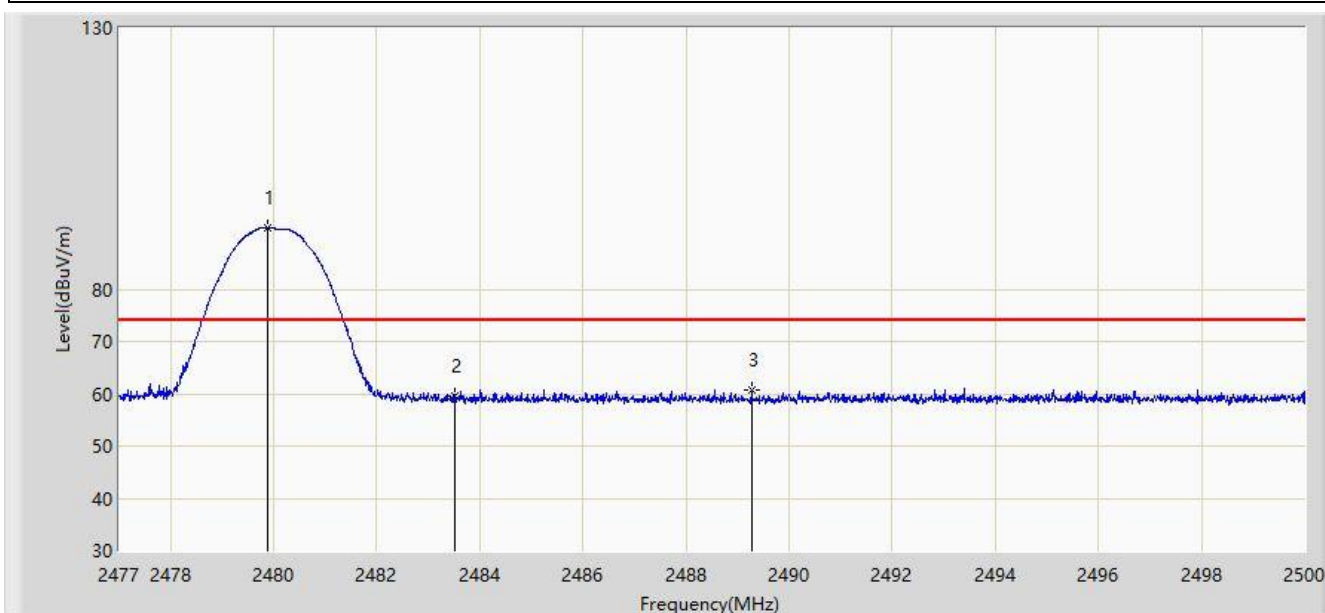


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2480.059	97.859	65.272	43.859	54.000	32.587	AV
2			2483.500	48.288	15.692	-5.712	54.000	32.596	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 15:13
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by DH5 at Channel 2480MHz	

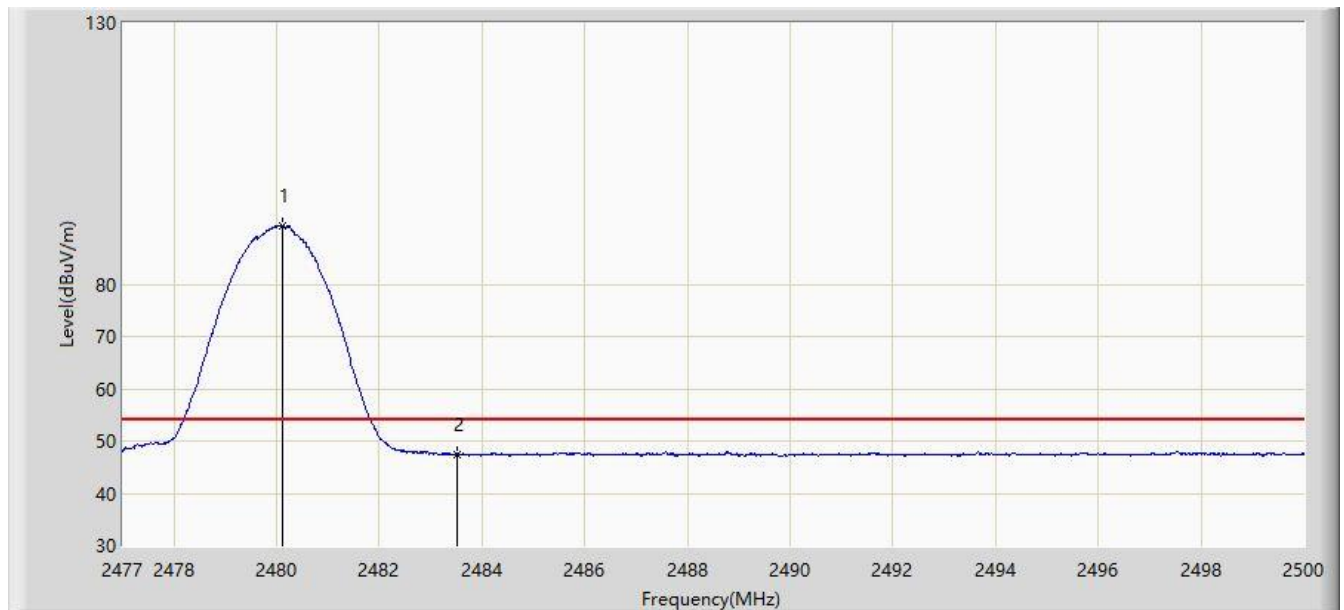


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2479.886	91.793	59.206	17.793	74.000	32.587	PK
2			2483.500	59.425	26.829	-14.575	74.000	32.596	PK
3			2489.271	60.688	28.078	-13.312	74.000	32.610	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 15:14
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by DH5 at Channel 2480MHz	

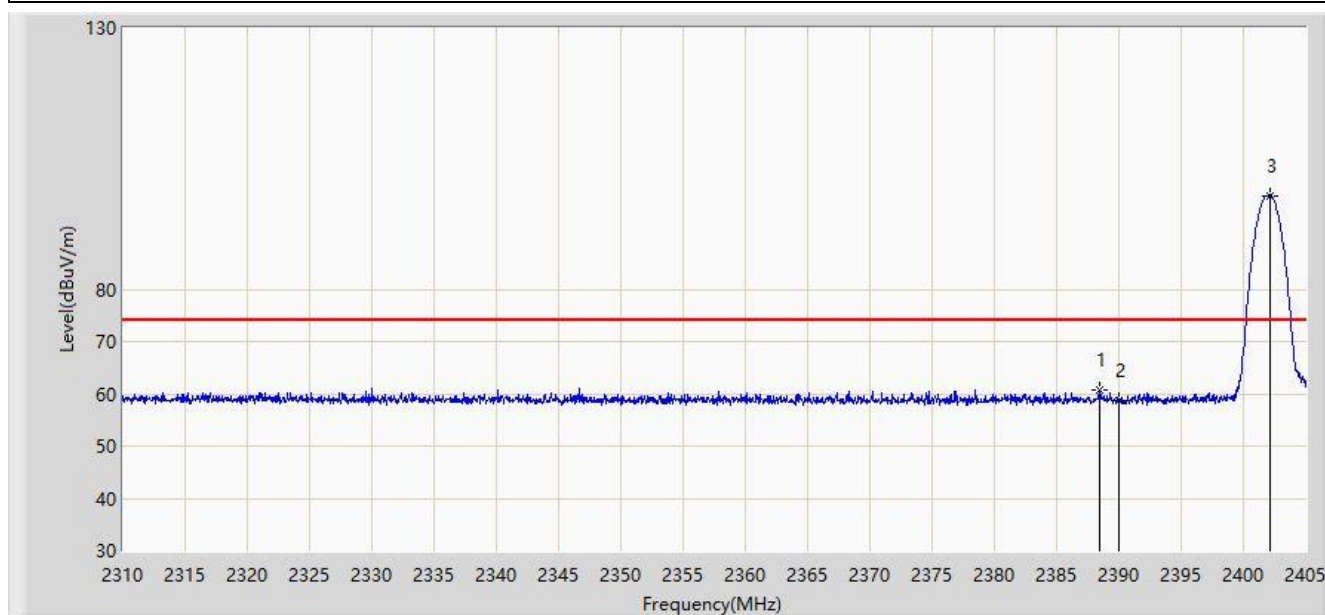


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2480.105	91.079	58.492	37.079	54.000	32.587	AV
2			2483.500	47.471	14.875	-6.529	54.000	32.596	AV

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 15:15
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by 2DH5 at Channel 2402MHz	

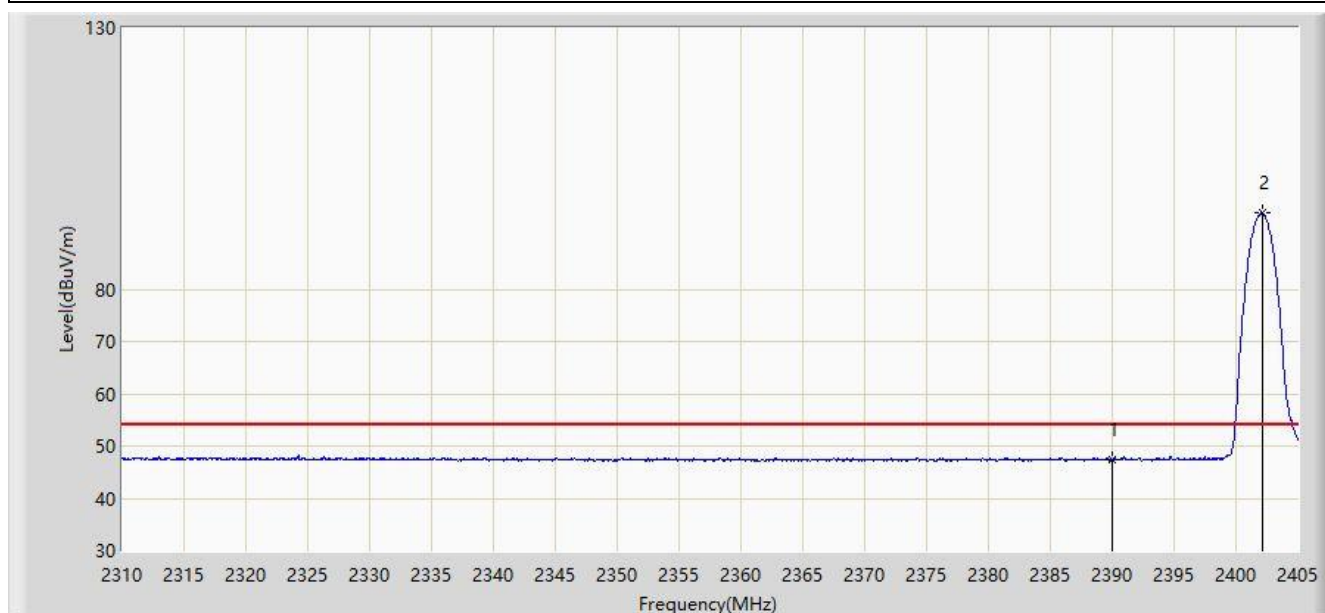


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2388.470	60.630	28.053	-13.370	74.000	32.577	PK
2			2390.000	58.648	26.073	-15.352	74.000	32.575	PK
3		*	2402.150	97.961	65.402	23.961	74.000	32.559	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 15:18
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by 2DH5 at Channel 2402MHz	

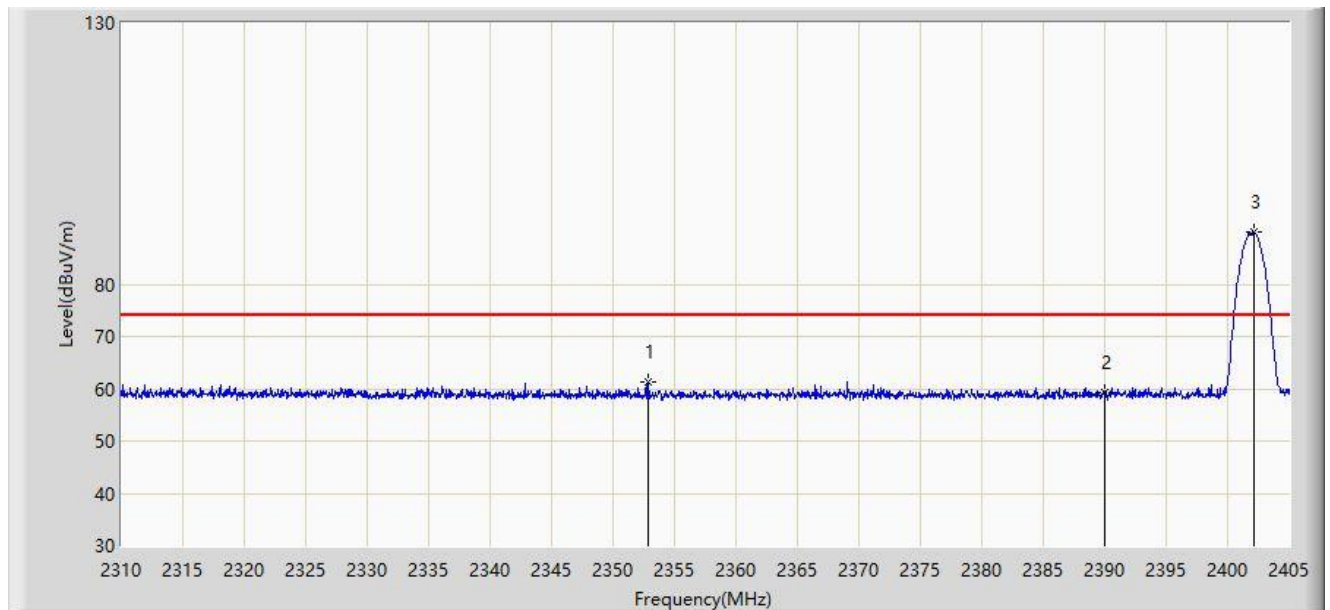


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	47.304	14.729	-6.696	54.000	32.575	AV
2		*	2402.150	94.637	62.078	40.637	54.000	32.559	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 15:20
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by 2DH5 at Channel 2402MHz	

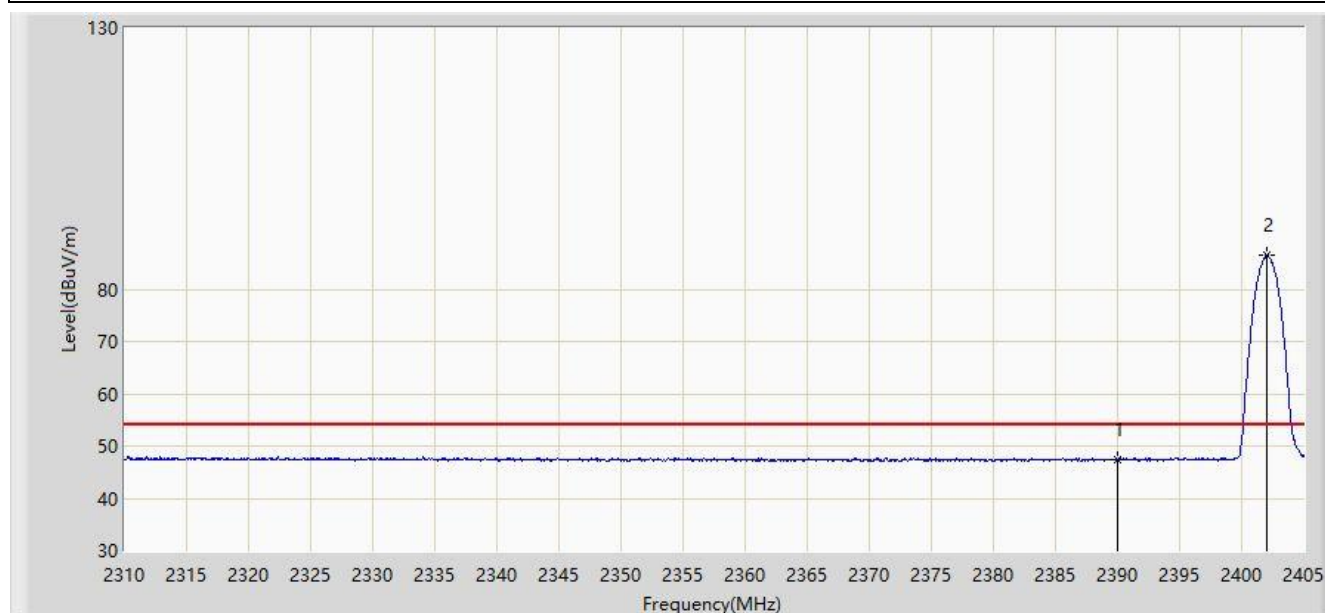


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2352.893	61.223	28.582	-12.777	74.000	32.641	PK
2			2390.000	59.404	26.829	-14.596	74.000	32.575	PK
3		*	2402.150	90.057	57.498	16.057	74.000	32.559	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 15:21
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by 2DH5 at Channel 2402MHz	

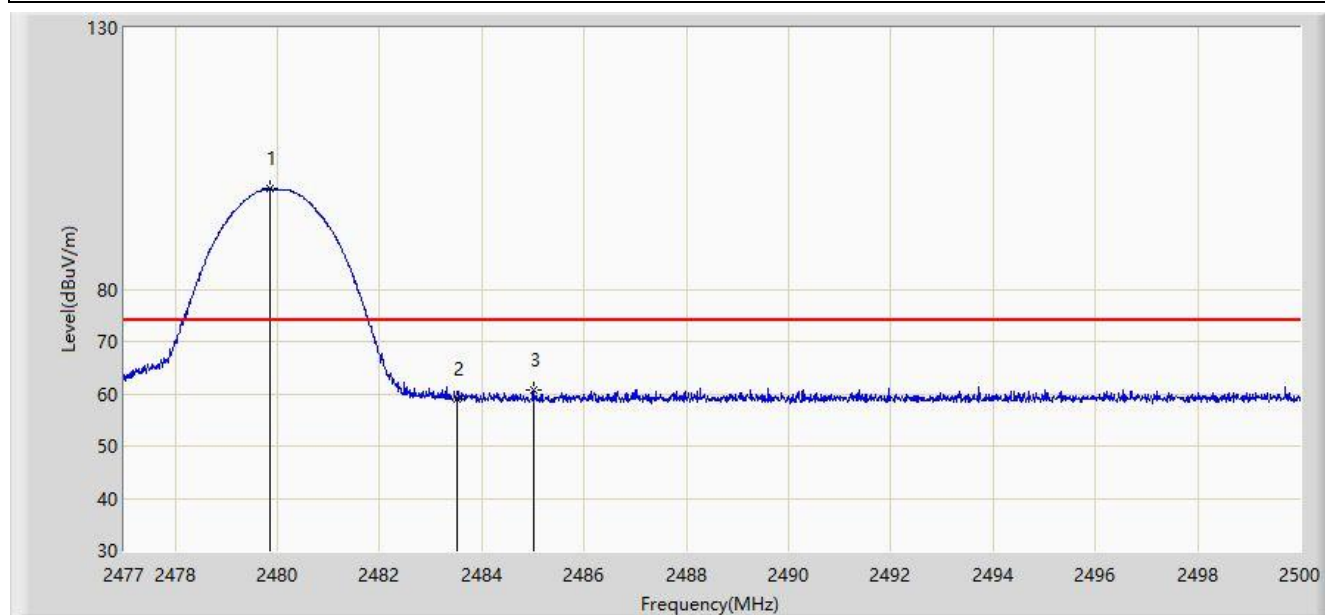


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	47.328	14.753	-6.672	54.000	32.575	AV
2		*	2402.008	86.454	53.895	32.454	54.000	32.559	AV

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 15:22
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by 2DH5 at Channel 2480MHz	

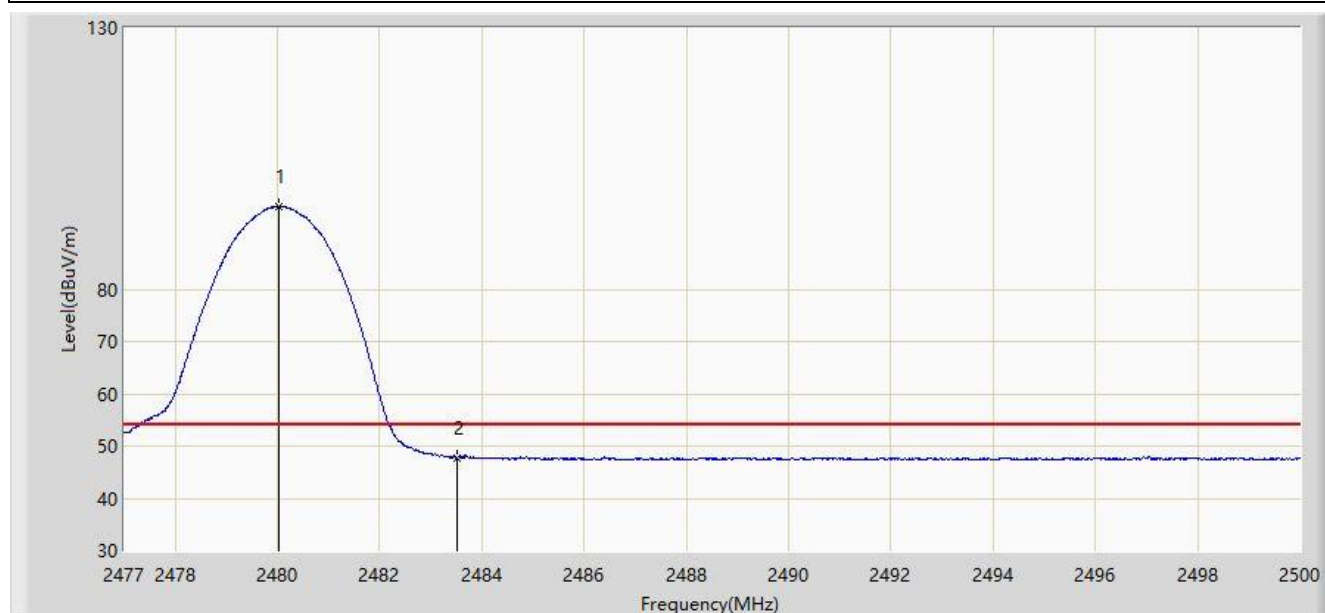


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2479.852	99.212	66.625	25.212	74.000	32.587	PK
2			2483.500	58.847	26.251	-15.153	74.000	32.596	PK
3			2485.004	60.724	28.124	-13.276	74.000	32.599	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 15:24
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by 2DH5 at Channel 2480MHz	

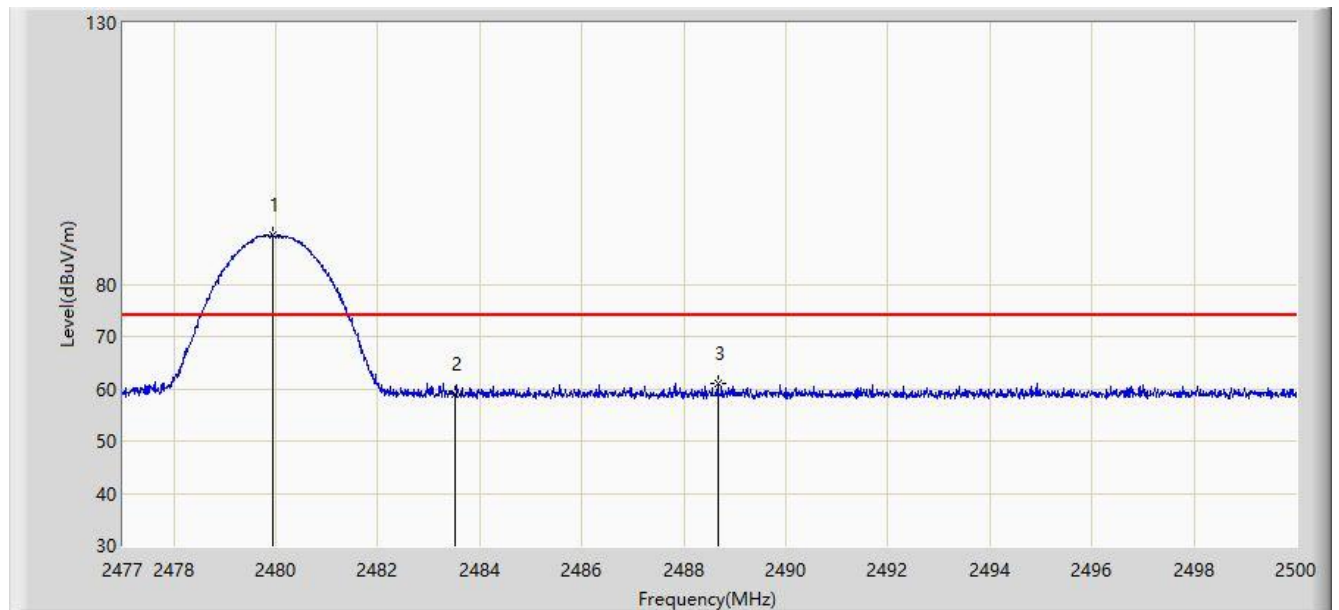


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2480.024	95.799	63.212	41.799	54.000	32.587	AV
2			2483.500	47.763	15.167	-6.237	54.000	32.596	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 15:25
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by 2DH5 at Channel 2480MHz	

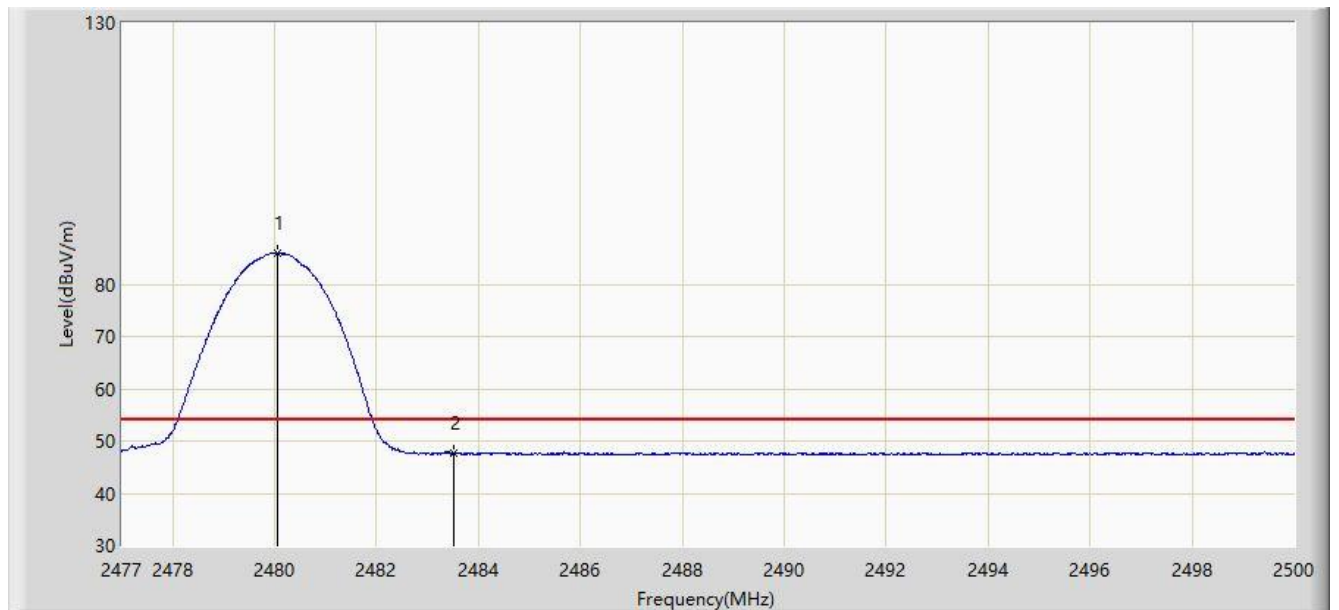


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2479.933	89.511	56.924	15.511	74.000	32.587	PK
2			2483.500	58.876	26.280	-15.124	74.000	32.596	PK
3			2488.661	61.132	28.523	-12.868	74.000	32.609	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 15:26
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by 2DH5 at Channel 2480MHz	

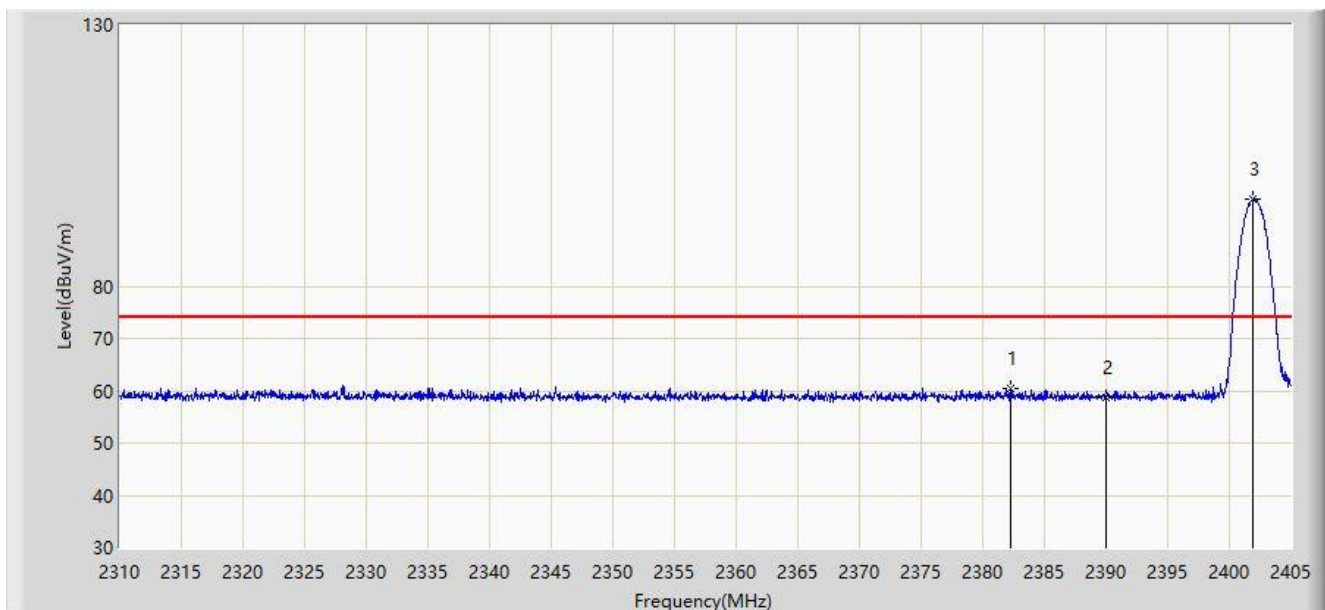


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2480.059	86.012	53.425	32.012	54.000	32.587	AV
2			2483.500	47.582	14.986	-6.418	54.000	32.596	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 15:41
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by 3DH5 at Channel 2402MHz	

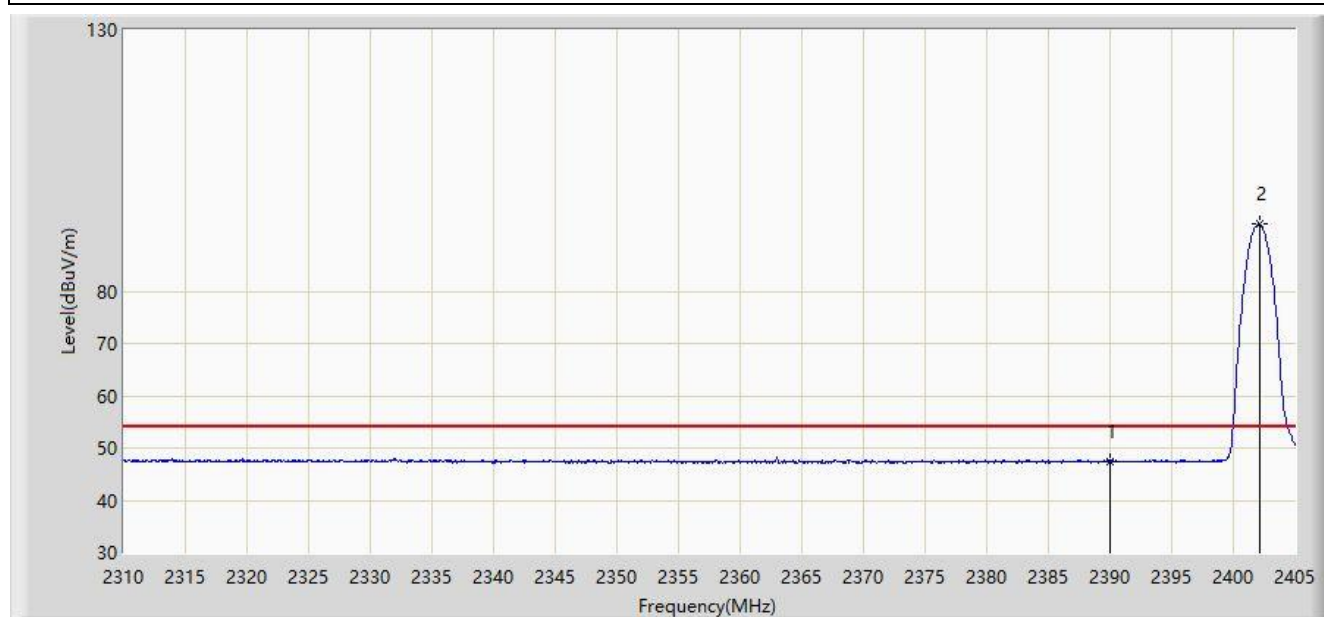


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2382.248	60.423	27.835	-13.577	74.000	32.588	PK
2			2390.000	58.741	26.166	-15.259	74.000	32.575	PK
3		*	2401.960	96.723	64.164	22.723	74.000	32.559	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 15:59
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by 3DH5 at Channel 2402MHz	

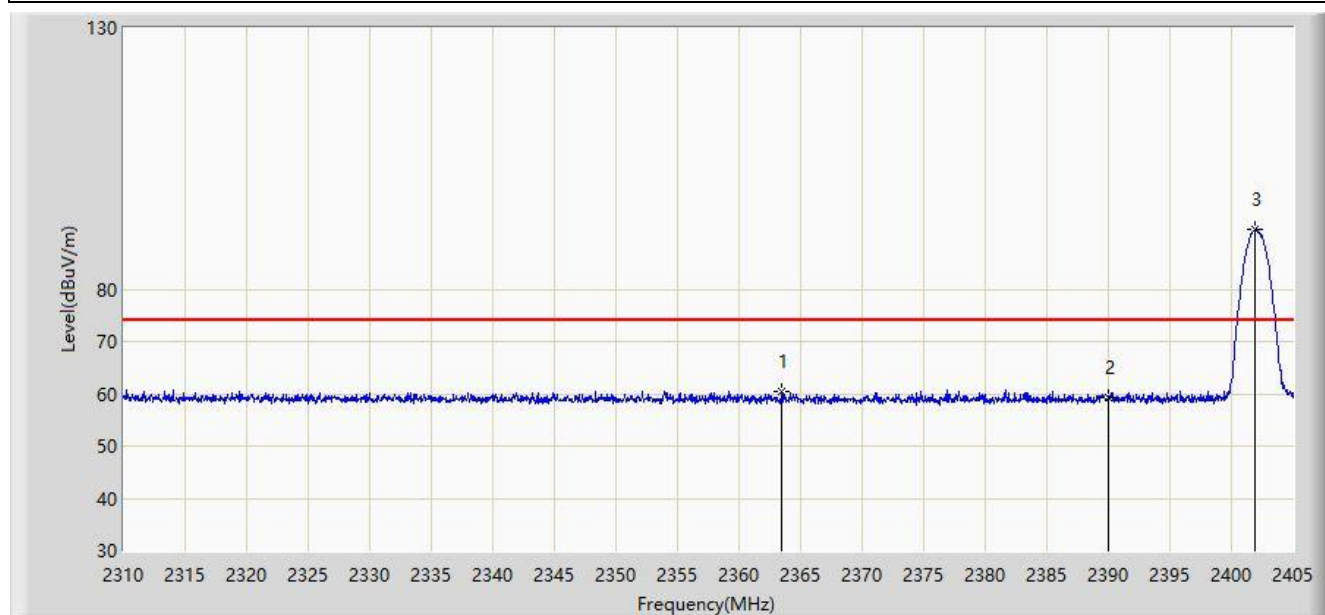


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	47.492	14.917	-6.508	54.000	32.575	AV
2		*	2402.150	92.796	60.237	38.796	54.000	32.559	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 16:00
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by 3DH5 at Channel 2402MHz	

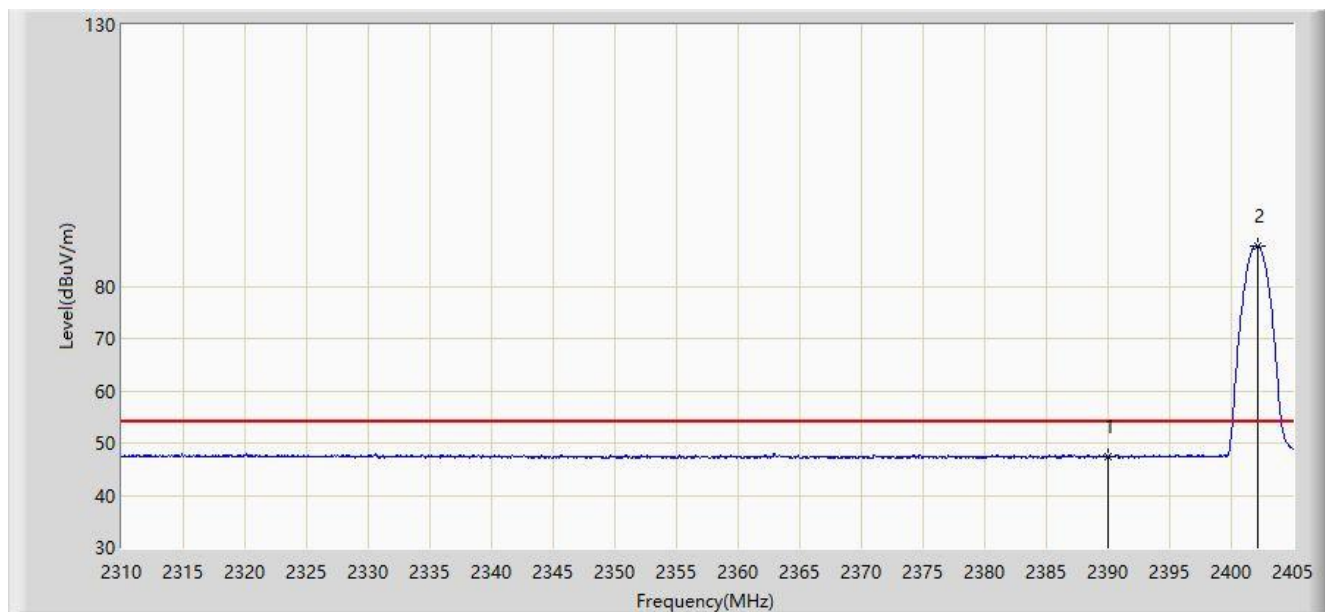


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2363.485	60.401	27.783	-13.599	74.000	32.618	PK
2			2390.000	59.330	26.755	-14.670	74.000	32.575	PK
3		*	2401.865	91.391	58.832	17.391	74.000	32.559	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 16:02
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by 3DH5 at Channel 2402MHz	

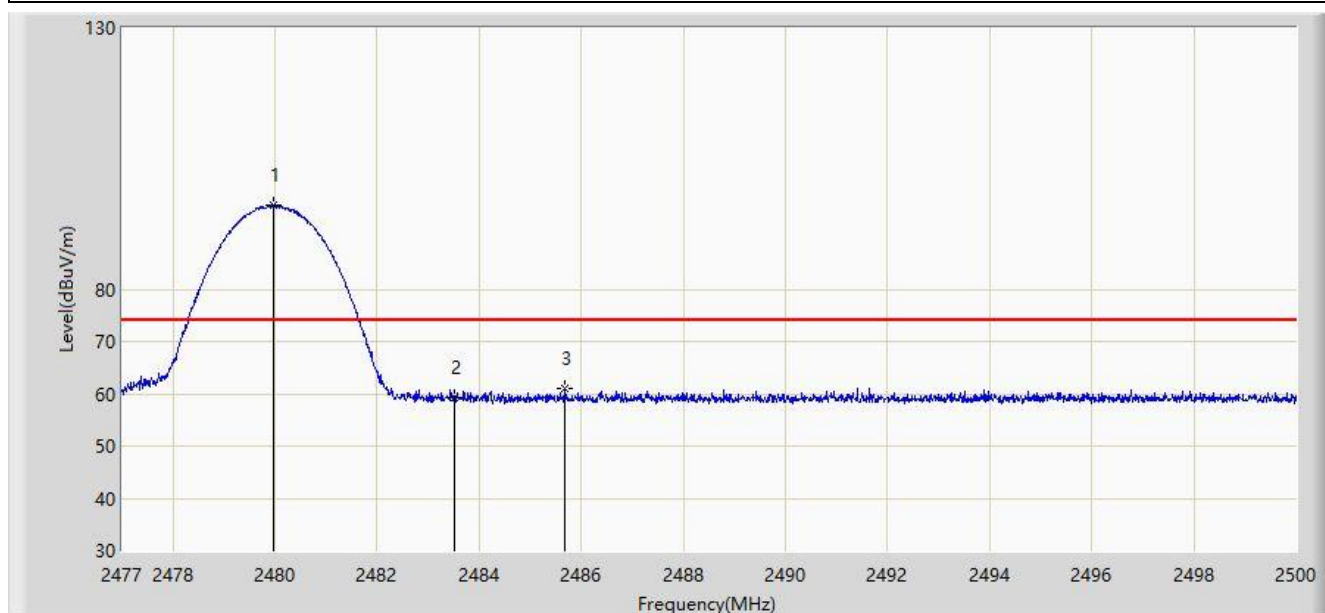


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	47.392	14.817	-6.608	54.000	32.575	AV
2		*	2402.150	87.761	55.202	33.761	54.000	32.559	AV

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 16:03
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by 3DH5 at Channel 2480MHz	

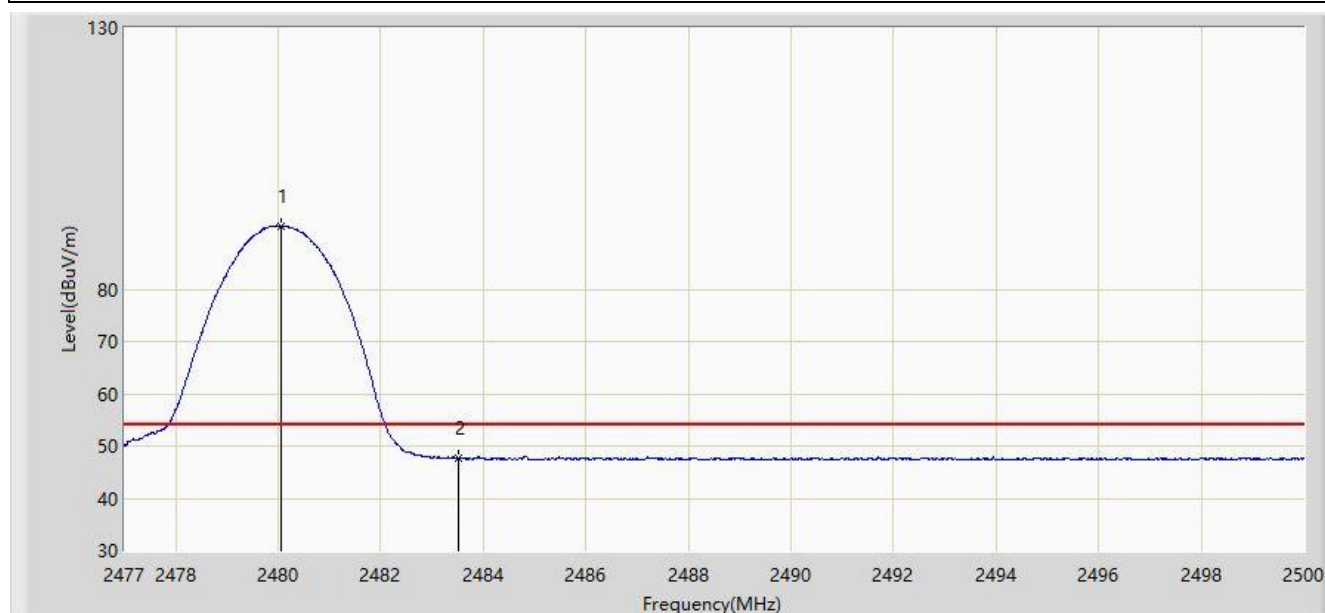


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2479.979	96.017	63.430	22.017	74.000	32.587	PK
2			2483.500	59.131	26.535	-14.869	74.000	32.596	PK
3			2485.671	61.153	28.552	-12.847	74.000	32.602	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 16:04
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by 3DH5 at Channel 2480MHz	

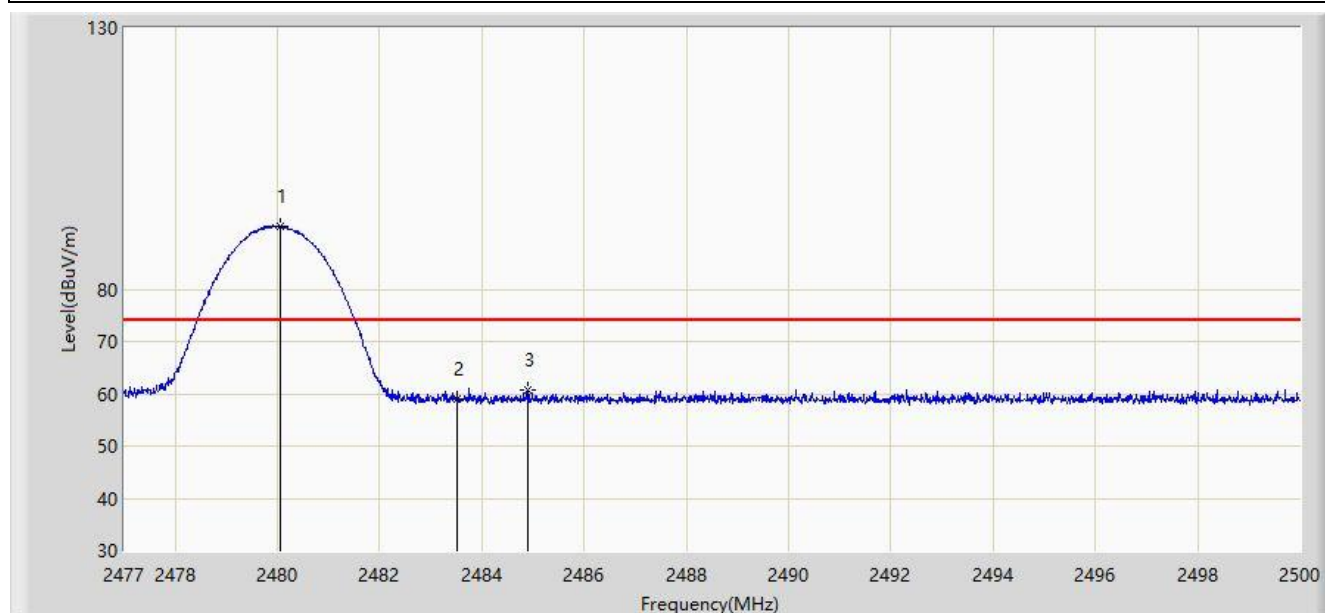


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2480.059	92.122	59.535	38.122	54.000	32.587	AV
2			2483.500	47.619	15.023	-6.381	54.000	32.596	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 16:05
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by 3DH5 at Channel 2480MHz	

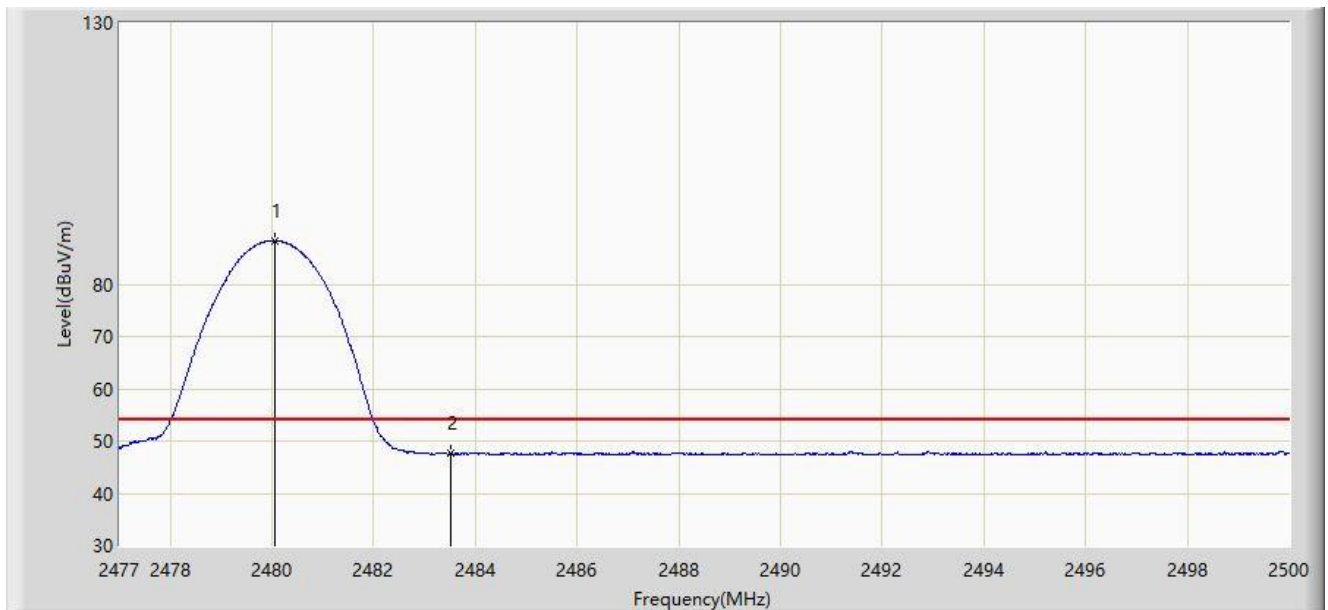


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2480.059	92.020	59.433	18.020	74.000	32.587	PK
2			2483.500	58.851	26.255	-15.149	74.000	32.596	PK
3			2484.900	60.612	28.013	-13.388	74.000	32.599	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2018/01/19 - 16:06
Limit: FCC_Part15.209_RE(3m)	Engineer: Snake Ni
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Wireless Headphone	Power: By Battery
Test Mode: Transmit by 3DH5 at Channel 2480MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2480.059	88.284	55.697	34.284	54.000	32.587	AV
2			2483.500	47.657	15.061	-6.343	54.000	32.596	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

7.11. AC Conducted Emissions Measurement

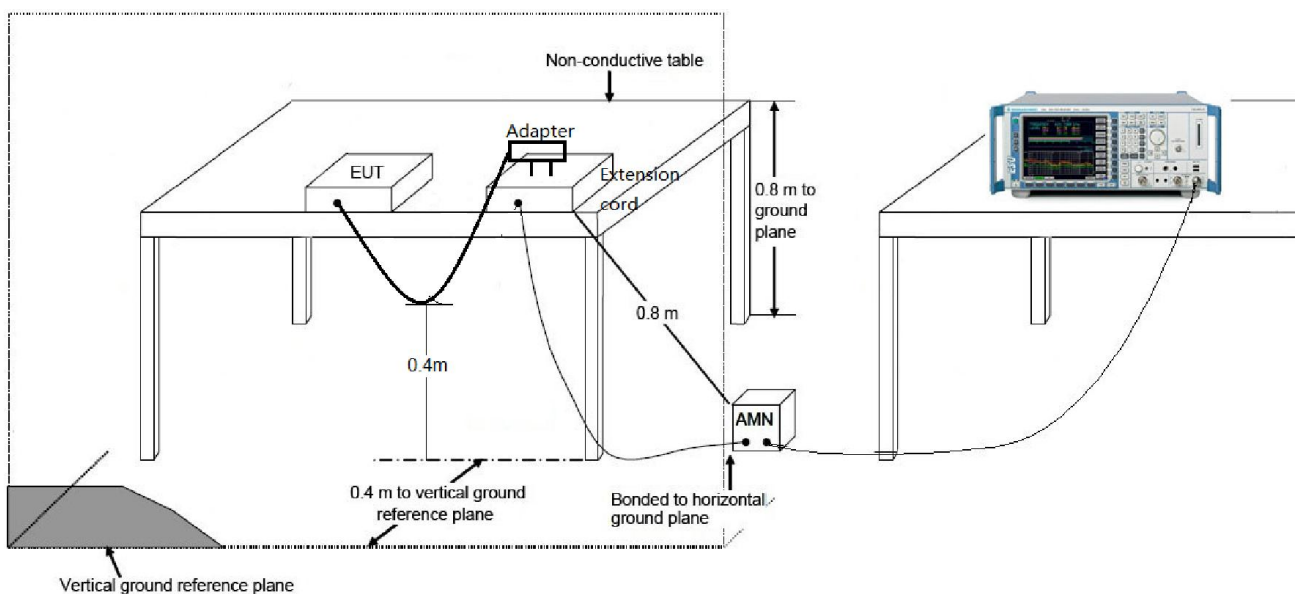
7.11.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 / RSS-Gen Limits		
Frequency (MHz)	QP (dB μ V)	Average (dB μ V)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

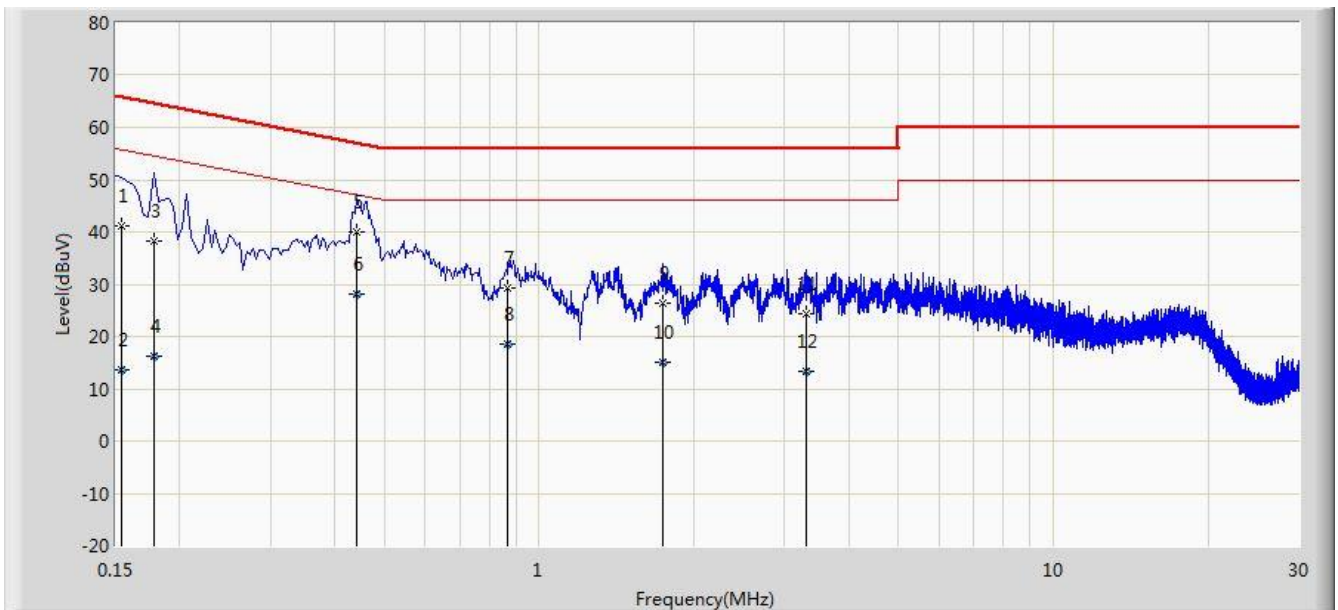
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

7.11.2. Test Setup



7.11.3. Test Result

Site: SR2	Time: 2018/01/22 - 14:54
Limit: FCC_Part15.207_CE_AC Power	Engineer: Polly Zong
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: Wireless Headphone	Power: AC 120V/60Hz
Worst Case Mode: Transmit by DH5 at channel 2441MHz	

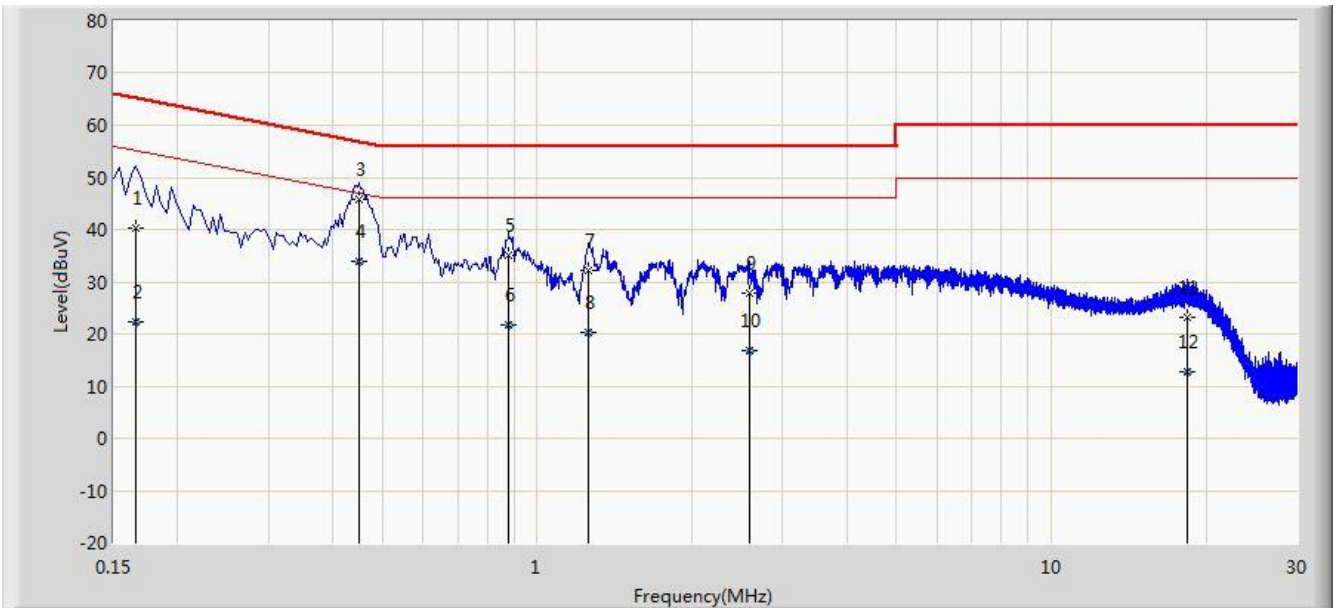


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.154	41.217	30.478	-24.564	65.781	10.740	QP
2			0.154	13.740	3.000	-42.041	55.781	10.740	AV
3			0.178	38.296	28.238	-26.282	64.578	10.058	QP
4			0.178	16.163	6.104	-38.416	54.578	10.058	AV
5		*	0.442	39.982	29.862	-17.042	57.024	10.120	QP
6			0.442	28.100	17.980	-18.924	47.024	10.120	AV
7			0.870	29.231	19.255	-26.769	56.000	9.976	QP
8			0.870	18.450	8.474	-27.550	46.000	9.976	AV
9			1.742	26.397	16.517	-29.603	56.000	9.880	QP
10			1.742	15.073	5.193	-30.927	46.000	9.880	AV
11			3.298	24.279	14.389	-31.721	56.000	9.890	QP
12			3.298	13.373	3.483	-32.627	46.000	9.890	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Site: SR2	Time: 2018/01/22 - 15:07
Limit: FCC_Part15.207_CE_AC Power	Engineer: Polly Zong
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: Wireless Headphone	Power: AC 120V/60Hz
Worst Case Mode: Transmit by DH5 at channel 2441MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.166	40.378	30.307	-24.780	65.158	10.071	QP
2			0.166	22.237	12.166	-32.921	55.158	10.071	AV
3		*	0.450	45.716	35.566	-11.159	56.875	10.150	QP
4			0.450	33.812	23.662	-13.064	46.875	10.150	AV
5			0.882	34.963	24.990	-21.037	56.000	9.974	QP
6			0.882	21.788	11.815	-24.212	46.000	9.974	AV
7			1.258	32.284	22.385	-23.716	56.000	9.899	QP
8			1.258	20.229	10.330	-25.771	46.000	9.899	AV
9			2.586	27.866	18.009	-28.134	56.000	9.857	QP
10			2.586	16.827	6.970	-29.173	46.000	9.857	AV
11			18.330	23.329	13.191	-36.671	60.000	10.138	QP
12			18.330	12.704	2.566	-37.296	50.000	10.138	AV

Note: Measure Level (dBuV) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

8. CONCLUSION

The data collected relate only the item(s) tested and show that the device is in compliance with Part 15C of the FCC Rules.

The End