RF MEASUREMENT REPORT

FCC ID:	DD4-MH36458
Applicant:	Shure Incorporated
Address:	5800 West Touhy Avenue, Niles, IL 60714-4608, USA
Product:	Wireless Headphones
Model No.:	MH36458
Trademark:	SHURE, SHURE
FCC Classification:	Digital Transmission System (DTS)
FCC Rule Part(s):	Part 15 Subpart C (Section 15.247)
Result:	Complies
Received Date:	2022-08-01
Test Date:	2022-08-20 ~ 2022-09-06

Reviewed By: Jame Yuan

Approved By: Robin Wu

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

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
2208RSU004-U2	Rev. 01	Initial Report	2022-11-22	Valid

CONTENTS

Description Page

1. General Information 5

1.1. Applicant 5
1.2. Manufacturer 5
1.3. Testing Facility 5
1.4. Product Information 6
1.5. Radio Specification under Test 6
1.6. Working Frequencies 7

2. Test Configuration 8

2.1. Test System Connection Diagram 8
2.2. Test Software 9
2.3. Applied Standards 9
2.4. Test Environment Condition 9

3. Antenna Requirements 10

4. Measuring Instrument 11

5. Decision Rules and Measurement Uncertainty 12

5.1. Decision Rules 12
5.2. Measurement Uncertainty 12

6. Test Result 13

6.1. Summary 13
6.2. 6dB Bandwidth Measurement 14
6.2.1. Test Limit 14
6.2.2. Test Procedure 14
6.2.3. Test Setting 14
6.2.4. Test Setup 14
6.2.5. Test Result 14
6.3. Output Power Measurement 15
6.3.1. Test Limit 15
6.3.2. Test Procedure 15
6.3.3. Test Setting 15
6.3.4. Test Setup 15
6.3.5. Test Result 15
6.4. Power Spectral Density Measurement 16
6.4.1. Test Limit 16
6.4.2. Test Procedure 16
6.4.3. Test Setting 16

6.4.4. Test Setup 16
6.4.5. Test Result 16
6.5. Conducted Band Edge and Out-of-Band Emissions Measurement 17
6.5.1. Test Limit 17
6.5.2. Test Procedure 17
6.5.3. Test Settitng 17
6.5.4. Test Setup 17
6.5.5. Test Result 18
6.6. Radiated Spurious Emission Measurement 19
6.6.1. Test Limit 19
6.6.2. Test Procedure 19
6.6.3. Test Setting 19
6.6.4. Test Setup 21
6.6.5. Test Result 22
6.7. Radiated Restricted Band Edge Measurement 23
6.7.1. Test Limit 23
6.7.2. Test Procedure 24
6.7.3. Test Setting 24
6.7.4. Test Setup 25
6.7.5. Test Result 25
6.8. AC Conducted Emissions Measurement 26
6.8.1. Test Limit 26
6.8.2. Test Setup 26
6.8.3. Test Result 26

Appendix A - Test Result 27

A.1 Duty Cycle Test Result 27
A.2 6dB Bandwidth Test Result 28
A.3 Output Power Test Result 30
A.4 Power Spectral Density Test Result 31
A.5 Conducted Band Edge and Out-of-Band Emissions Test Result 33
A.6 Radiated Spurious Emission Test Result 37
A.7 Radiated Restricted Band Edge Test Result 41
A.8 AC Conducted Emissions Test Result 57

Appendix B - Test Setup Photograph 59

Appendix C - EUT Photograph 60

1. General Information

1.1. Applicant

Shure Incorporated

5800 West Touhy Avenue, Niles, IL 60714-4608, USA

1.2. Manufacturer

Shure Incorporated

5800 West Touhy Avenue, Niles, IL 60714-4608, USA

1.3. Testing Facility

☒	**Test Site – MRT Suzhou Laboratory**				
	Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China **Laboratory Location (Suzhou - SIP)** 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China				
	Laboratory Accreditations				
	A2LA: 3628.01		CNAS: L10551		
	FCC: CN1166		ISED: CN0001		
	VCCI:	☐R-20025	☐G-20034	☐C-20020	☐T-20020
		☐R-20141	☐G-20134	☐C-20103	☐T-20104
☐	**Test Site – MRT Shenzhen Laboratory**				
	Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China				
	Laboratory Accreditations				
	A2LA: 3628.02		CNAS: L10551		
	FCC: CN1284		ISED: CN0105		
☐	**Test Site – MRT Taiwan Laboratory**				
	Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)				
	Laboratory Accreditations				
	TAF: L3261-190725				
	FCC: 291082, TW3261		ISED: TW3261		

1.4. Product Information

Product Name	Wireless Headphones
Model No.	MH36458
EUT Identification No.	20220801Sample#12 (For conducted testing) 20220811Sample#04 (For radiated testing)
Bluetooth Specification	v5.2 dual mode
Antenna Information	Refer to clause 1.5
Power Type	By Li-ion battery
Accessory	
Rechargeable Li-ion Battery	Model No: AS 803035 Capacitance: 800mAh/ 2.96Wh Rated Voltage: 3.7V
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

1.5. Radio Specification under Test

Bluetooth Frequency	2402 ~ 2480MHz
Channel Number	40
Type of modulation	GFSK
Data Rate	1Mbps & 2Mbps
Antenna Type	Monopole Antenna
Antenna Gain	2.6dBi

1.6. Working Frequencies

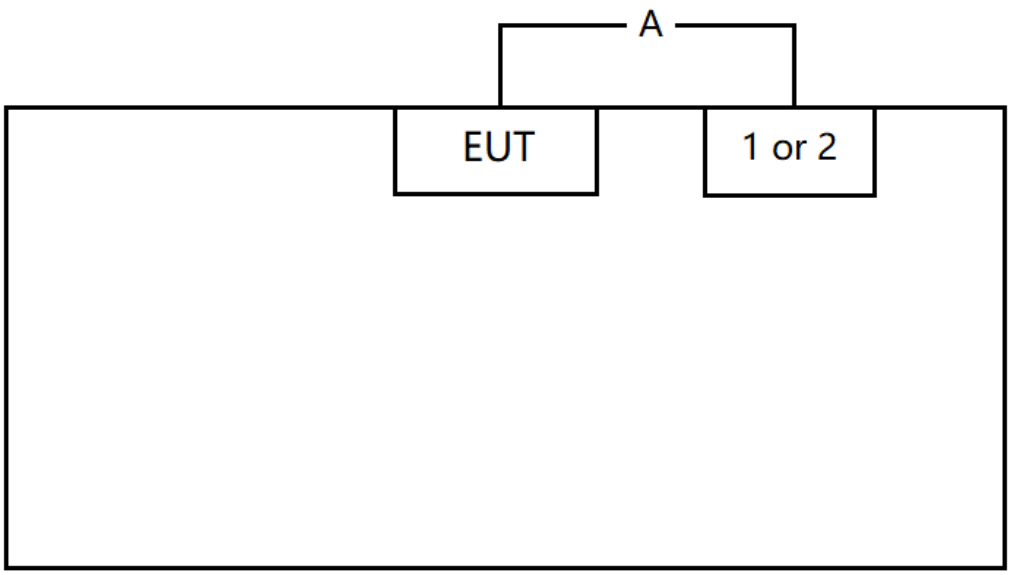
Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz
03	2408 MHz	04	2410 MHz	05	2412 MHz
06	2414 MHz	07	2416 MHz	08	2418 MHz
09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz
15	2432 MHz	16	2434 MHz	17	2436 MHz
18	2438 MHz	19	2440 MHz	20	2442 MHz
21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz
27	2456 MHz	28	2458 MHz	29	2460 MHz
30	2462 MHz	31	2464 MHz	32	2466 MHz
33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz
39	2480 MHz	--	--	--	--

2. Test Configuration

2.1. Test System Connection Diagram

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

Connection Diagram – Radiated Emission testing & AC Conducted Emissions



Product		Manufacturer	Model No.
1	Adapter (for AC Conducted Emissions)	Shenzhen Honor Electronic Co., Ltd	ADS-12B-06 05010E
2	Notebook (for RF Test)	HP	HP 7ZU25PA#AB2
Cable Type		Cable Description	
A	USB Cable	Shielded, 1.0m	

2.2. Test Software

The test utility software used during testing was “BlueTest3.exe”, and the version was 3.3.6.

2.3. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15.247
- KDB 558074 D01v05r02
- ANSI C63.10-2013

2.4. Test Environment Condition

Ambient Temperature	15 ~ 35°C
Relative Humidity	20 ~75%RH

3. 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 unit complies with the requirement of §15.203.

4. Measuring Instrument

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
Anechoic Chamber	RIKEN	SIP-AC1	MRTSUE06554	1 year	2022-12-23	SIP-AC1
Preamplifier	EMCI	EMC051845SE	MRTSUE06600	1 year	2022-11-08	SIP-AC1
Horn Antenna	R&S	HF907	MRTSUE06610	1 year	2023-07-13	SIP-AC1
Thermohygrometer	testo	608-H1	MRTSUE06616	1 year	2022-11-02	SIP-AC1
Thermohygrometer	testo	608-H1	MRTSUE06620	1 year	2022-11-28	SIP-AC1
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06645	1 year	2023-07-30	SIP-AC1
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2022-12-29	SIP-AC1/SIP-AC2
Preamplifier	EMCI	EMC001330	MRTSUE06643	1 year	2023-01-13	SIP-AC1/SIP-AC2
Loop Antenna	Schwarzbeck	FMZB 1519 B	MRTSUE06937	1 year	2023-03-14	SIP-AC1/SIP-AC2
Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2023-06-01	SIP-AC1/SIP-AC2
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06599	1 year	2022-10-20	SIP-AC2
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2022-10-11	SIP-AC2
Thermohygrometer	testo	608-H1	MRTSUE06623	1 year	2022-11-28	SIP-AC2
Thermohygrometer	testo	608-H1	MRTSUE06624	1 year	2022-11-28	SIP-AC2
Preamplifier	EMCI	EMC051845SE	MRTSUE06644	1 year	2022-11-08	SIP-AC2
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06647	1 year	2023-07-13	SIP-AC2
Anechoic Chamber	RIKEN	SIP-AC2	MRTSUE06781	1 year	2022-12-23	SIP-AC2
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06648	1 year	2022-11-09	SIP-AC2
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2023-06-01	SIP-SR2
Power Analyzer	California Instruments	PACS-1	MRTSUE06010	1 year	2022-12-30	SIP-SR2
AC Power Source	California Instruments	3001IX-208-CTS	MRTSUE06011	1 year	2022-12-30	SIP-SR2
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2023-06-01	SIP-SR2
Thermohygrometer	testo	608-H1	MRTSUE06621	1 year	2022-11-28	SIP-SR2
Shielding Room	MIX-BEP	SIP-SR2	MRTSUE06949	5 years	2024-10-23	SIP-SR2
Temperature Chamber	BAOYT	BYG-408CS	MRTSUE06847	1 year	2023-02-22	SIP-TR1
Thermohygrometer	testo	Testo 608-H1	MRTSUE11022	1 year	2022-11-02	SIP-TR1
Signal Analyzer	Keysight	N9030B	MRTSUE06395	1 year	2023-07-08	SIP-TR1
USB Power Sensor	Keysight	U2021XA	MRTSUE06596	1 year	2023-08-23	SIP-TR1

Software	Version	Function
EMI Software	V3.0.0	EMI Test Software
Controller_MF 7802BS	V1.02	RE Antenna & Turntable
Agilent Power Analyzer	V R03.09.00	Power

5. Decision Rules and Measurement Uncertainty

5.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.2. 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
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz~150kHz: 3.74dB 150kHz~30MHz: 3.44dB
Radiated Disturbance
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): Horizontal: 30MHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~40GHz: 6.40dB Vertical: 30MHz~300MHz: 5.24dB 300MHz~1GHz: 6.03dB 1GHz~40GHz: 6.40dB
Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.78dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.13dB
Power Spectrum Density
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.15dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.28%

6. Test Result

6.1. Summary

FCC Section(s)	Test Description	Test Condition	Verdict
15.247(a)(2)	6dB Bandwidth	Conducted	Pass
15.247(b)(3)	Output Power		Pass
15.247(e)	Power Spectral Density		Pass
15.247(d)	Band Edge / Out-of-Band Emissions		Pass
15.205 15.209	General Field Strength (Restricted Bands and Radiated Emission)	Radiated	Pass
15.207	AC Conducted Emissions 150kHz - 30MHz	Line Conducted	Pass

Remark:

1. 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.
2. All modes of operation and data rates were investigated. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.

6.2. 6dB Bandwidth Measurement

6.2.1. Test Limit

The minimum 6dB bandwidth shall be at least 500 kHz.

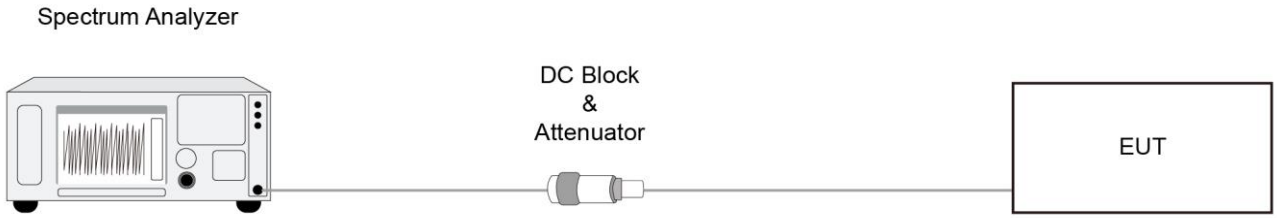
6.2.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.8

6.2.3. Test Setting

1. The Spectrum's automatic bandwidth measurement capability was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 6. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. Set RBW = 100 kHz
3. VBW ≥ 3 × RBW
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = Auto couple
7. Allow the trace to stabilize

6.2.4. Test Setup



6.2.5. Test Result

Refer to Appendix A.2.

6.3. Output Power Measurement

6.3.1. Test Limit

The maximum output power shall be less 1 Watt (30dBm).

The conducted output power limit specified in paragraph FCC Part 15.247(b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs FCC Part 15.247(b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

6.3.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.9.1.3

ANSI C63.10 - 2013 - Section 11.9.2.3.2

6.3.3. Test Setting

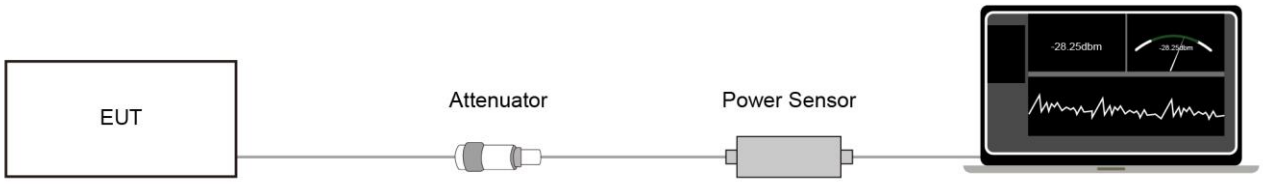
Method PKPM1 (Peak Power Measurement of Signals with DTS BW ≤ 50MHz)

Peak power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The pulse sensor employs a VBW = 50MHz so this method was only used for signals whose DTS bandwidth was less than or equal to 50MHz.

Average Power Measurement

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

6.3.4. Test Setup



6.3.5. Test Result

Refer to Appendix A.3.

6.4. Power Spectral Density Measurement

6.4.1. Test Limit

The maximum permissible power spectral density is 8dBm in any 3 kHz band.

The same method of determining the conducted output power shall be used to determine the power spectral density.

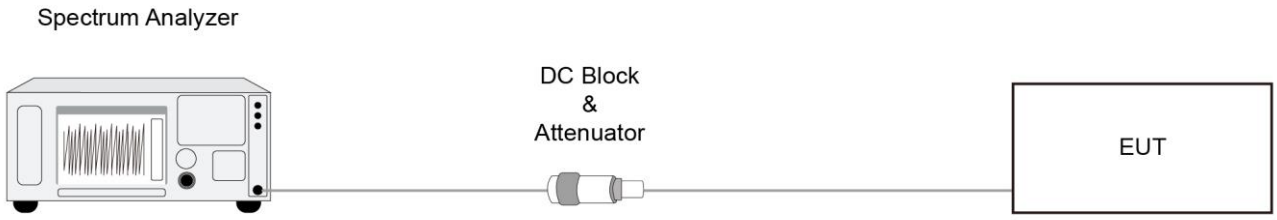
6.4.2. Test Procedure

ANSI C63.10-2013 Section 11.10.2

6.4.3. Test Setting

1. Analyzer was set to the center frequency of the DTS channel under investigation
2. Span = 1.5 times the DTS channel bandwidth
3. RBW = 3kHz
4. VBW = 10kHz
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Trace was allowed to stabilize
9. Use the peak marker function to determine the maximum amplitude level within the RBW.

6.4.4. Test Setup



6.4.5. Test Result

Refer to Appendix A.4.

6.5. Conducted Band Edge and Out-of-Band Emissions Measurement

6.5.1. Test Limit

The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100 kHz bandwidth per the PSD procedure.

6.5.2. Test Procedure

ANSI C63.10-2013 - Section 11.11

6.5.3. Test Settitng

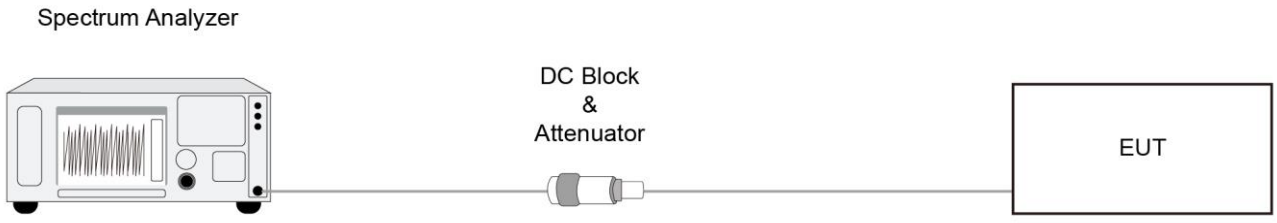
Reference level measurement

1. Set instrument center frequency to DTS channel center frequency
2. Set the span to ≥ 1.5 times the DTS bandwidth
3. Set the RBW = 100 kHz
4. Set the VBW ≥ 3 x RBW
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Allow trace to fully stabilize

Emission level measurement

1. Set the center frequency and span to encompass frequency range to be measured
2. RBW = 100kHz
3. VBW = 300kHz
4. Detector = Peak
5. Trace mode = max hold
6. Sweep time = auto couple
7. The trace was allowed to stabilize

6.5.4. Test Setup



6.5.5. Test Result

Refer to Appendix A.5.

6.6. Radiated Spurious Emission Measurement

6.6.1. 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

6.6.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.11 & 11.12

ANSI C63.10 - 2013 - Section 6.3 (General Requirements)

ANSI C63.10 - 2013 - Section 6.4 (Standard test method below 30MHz)

ANSI C63.10 - 2013 - Section 6.5 (Standard test method above 30MHz to 1GHz)

ANSI C63.10 - 2013 - Section 6.6 (Standard test method above 1GHz)

6.6.3. Test Setting

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
> 1000MHz	1MHz

Quasi-Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest

2. Span was set greater than 1MHz

3. RBW = as specified in Table 1

4. Detector = CISPR quasi-peak

5. Sweep time = auto couple

6. Trace was allowed to stabilize

Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest

2. RBW = 1MHz

3. VBW = 3MHz

4. Detector = peak

5. Sweep time = auto couple

6. Trace mode = max hold

7. Trace was allowed to stabilize

Average Measurements above 1GHz (Method VB)

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest

2. RBW = 1MHz

3. VBW; If the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10 Hz.

If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration.

4. Detector = Peak

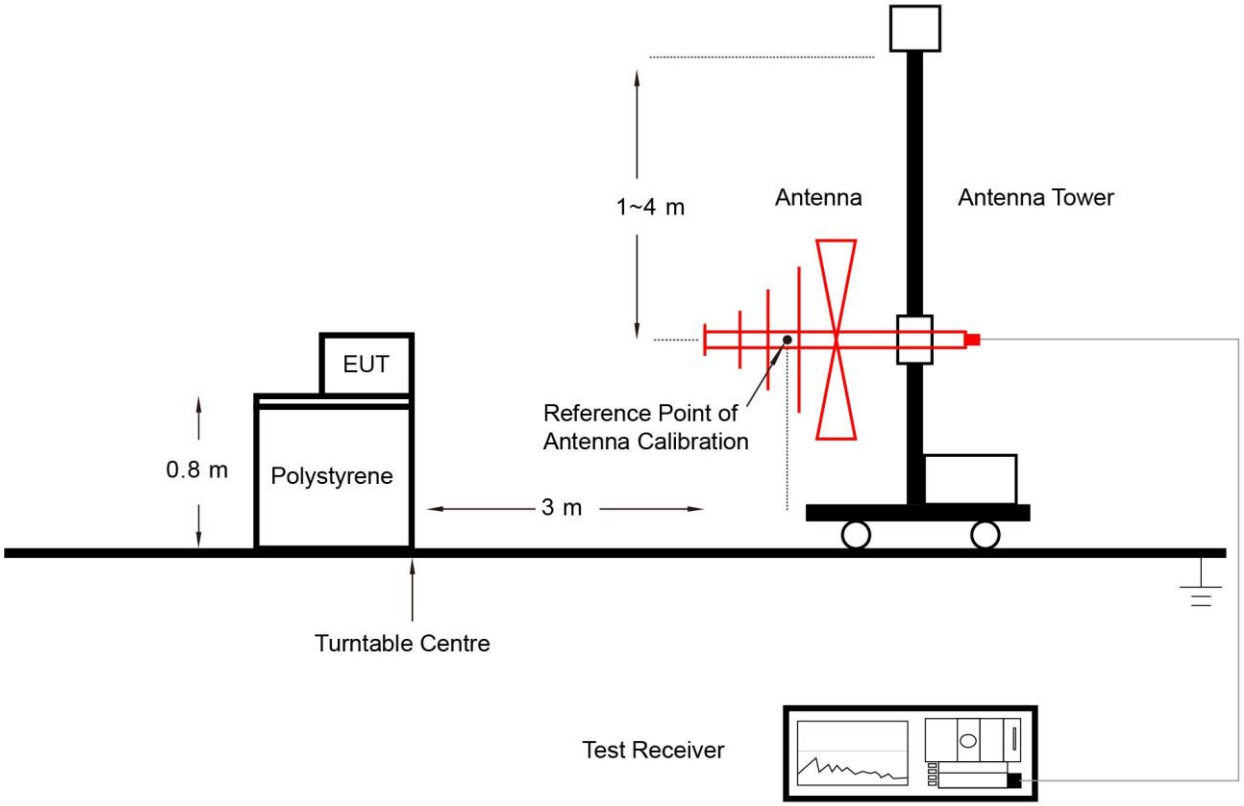
5. Sweep time = auto

6. Trace mode = max hold

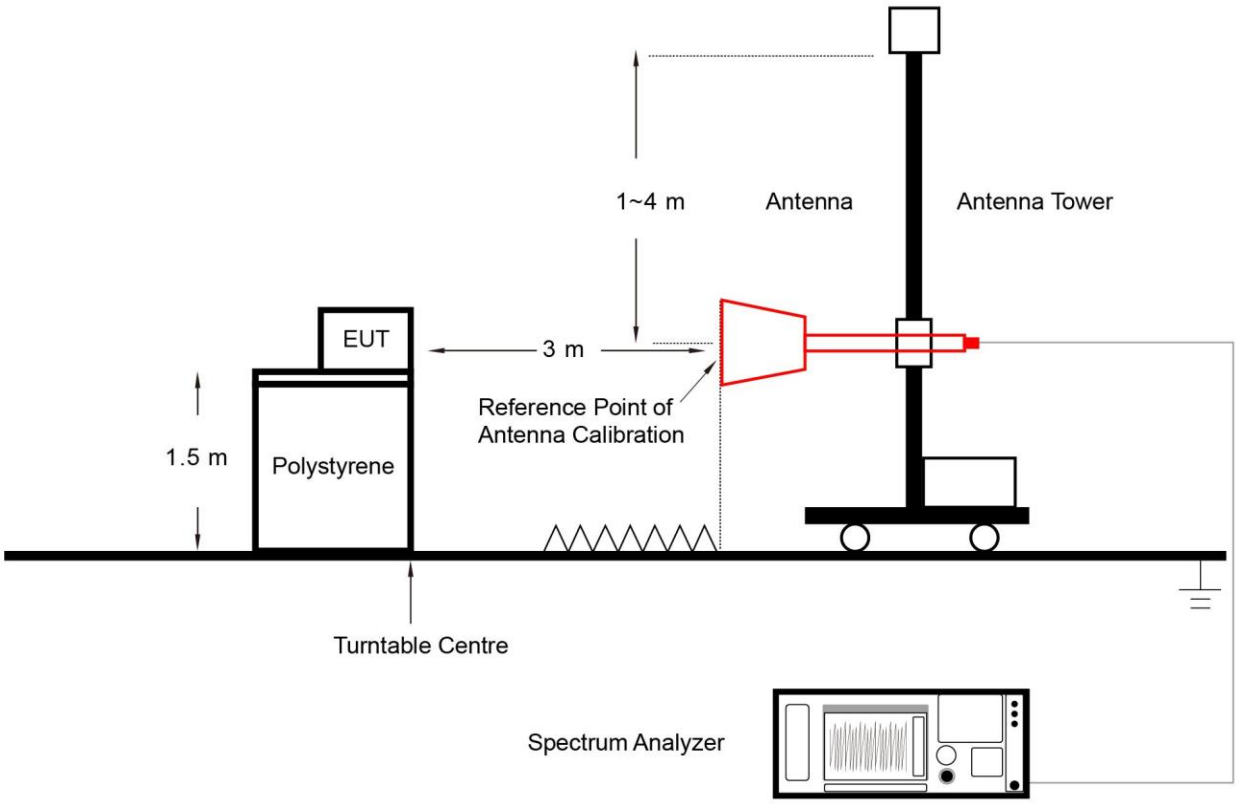
7. Trace was allowed to stabilize

6.6.4. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



6.6.5. Test Result

Refer to Appendix A.6.

6.7. Radiated Restricted Band Edge Measurement

6.7.1. 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	8.025 - 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	--	--	--

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

6.7.2. Test Procedure

ANSI C63.10-2013 Section 6.3 & 6.6 & 11.13

6.7.3. Test Setting

Peak Field Strength Measurements

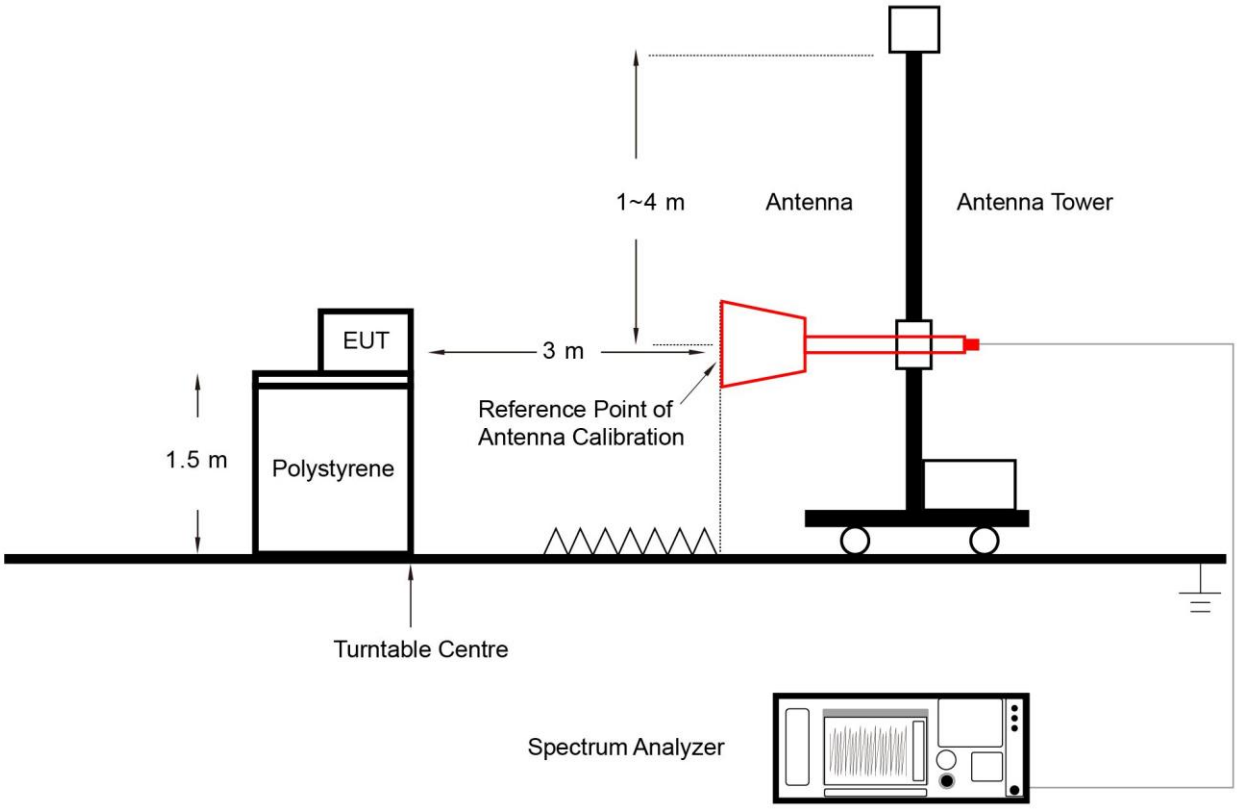
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

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 ≥ 1/T
4. 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

6.7.4. Test Setup



6.7.5. Test Result

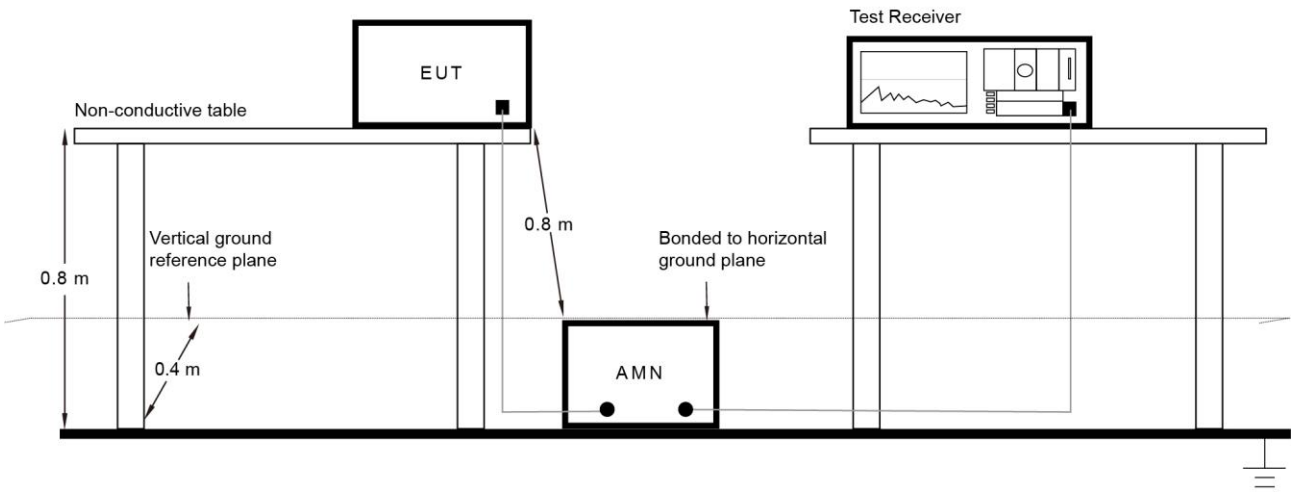
Refer to Appendix A.7.

6.8. AC Conducted Emissions Measurement

6.8.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
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.		

6.8.2. Test Setup



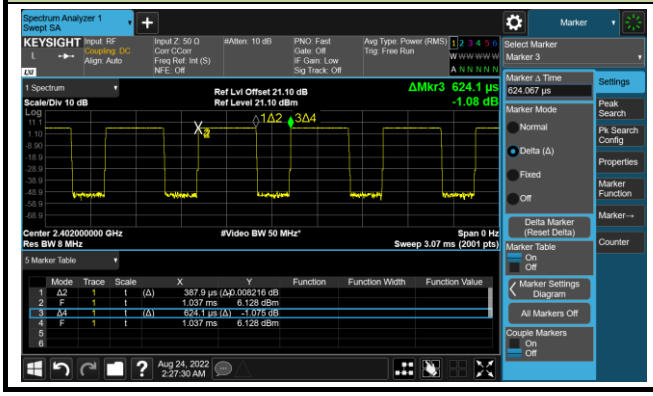
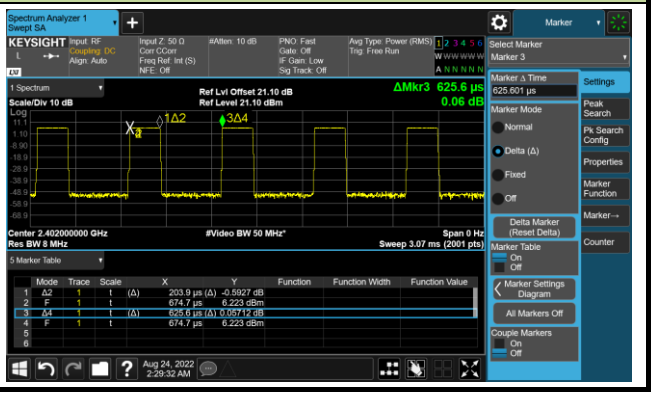
6.8.3. Test Result

Refer to Appendix A.8.

Appendix A - Test Result

A.1 Duty Cycle Test Result

Test Site	SIP-TR1	Test Engineer	Nandy Zhang
Test Date	2022-08-24		

Test Mode	Duty Cycle
BLE-1Mbps	62.15%
BLE-2Mbps	32.59%
Duty Cycle (T = Transmission Duration)	
BLE-1Mbps (T = 387.9μs)	BLE-2Mbps (T = 203.9μs)
	

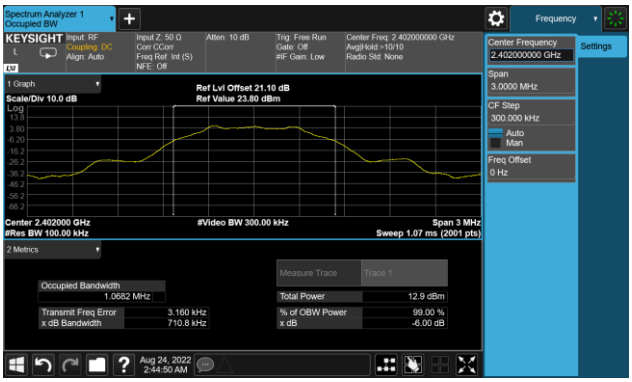
A.2 6dB Bandwidth Test Result

Test Site	SIP-TR1	Test Engineer	Nandy Zhang
Test Date	2022-08-24		

Test Mode	Data Rate	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
BLE	1Mbps	00	2402	0.7108	≥ 0.5
BLE	1Mbps	19	2440	0.7125	≥ 0.5
BLE	1Mbps	39	2480	0.6984	≥ 0.5
BLE	2Mbps	00	2402	1.212	≥ 0.5
BLE	2Mbps	19	2440	1.259	≥ 0.5
BLE	2Mbps	39	2480	1.212	≥ 0.5

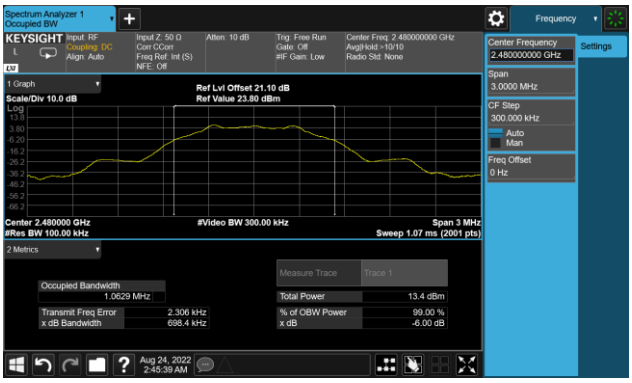
BLE-1Mbps 6dB Bandwidth

Channel 00 (2402MHz)



Channel 19 (2440MHz)

Channel 39 (2480MHz)



BLE-2Mbps 6dB Bandwidth	
Channel 00 (2402MHz)	Channel 19 (2440MHz)
	
Channel 39 (2480MHz)	
	

A.3 Output Power Test Result

Test Site	SIP-TR1	Test Engineer	Nandy Zhang
Test Date	2022-08-20		

Test Result of Peak Output Power

Test Mode	Data Rate	Channel No.	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Result
BLE	1Mbps	00	2402	6.68	≤ 30.00	Pass
BLE	1Mbps	19	2440	7.22	≤ 30.00	Pass
BLE	1Mbps	39	2480	7.12	≤ 30.00	Pass
BLE	2Mbps	00	2402	6.63	≤ 30.00	Pass
BLE	2Mbps	19	2440	7.21	≤ 30.00	Pass
BLE	2Mbps	39	2480	7.21	≤ 30.00	Pass

Test Result of Average Output Power (Reporting Only)

Test Mode	Data Rate	Channel No.	Frequency (MHz)	Average Power (dBm)	Limit (dBm)	Result
BLE	1Mbps	00	2402	6.18	≤ 30.00	Pass
BLE	1Mbps	19	2440	6.81	≤ 30.00	Pass
BLE	1Mbps	39	2480	6.69	≤ 30.00	Pass
BLE	2Mbps	00	2402	6.14	≤ 30.00	Pass
BLE	2Mbps	19	2440	6.71	≤ 30.00	Pass
BLE	2Mbps	39	2480	6.74	≤ 30.00	Pass

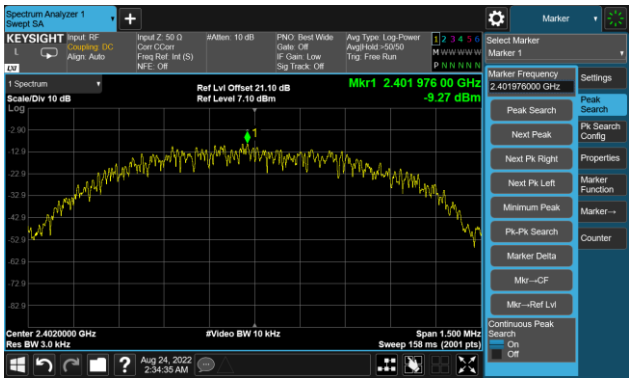
A.4 Power Spectral Density Test Result

Test Site	SIP-TR1	Test Engineer	Nandy Zhang
Test Date	2022-08-24		

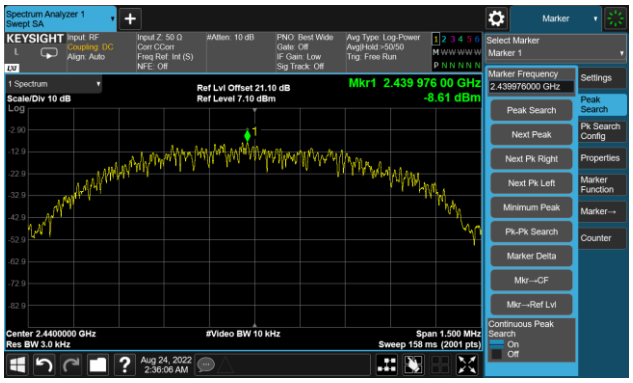
Test Mode	Data Rate	Channel No.	Frequency (MHz)	PSD Result (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
BLE	1Mbps	00	2402	-9.27	≤ 8.00	Pass
BLE	1Mbps	19	2440	-8.61	≤ 8.00	Pass
BLE	1Mbps	39	2480	-8.70	≤ 8.00	Pass
BLE	2Mbps	00	2402	-12.74	≤ 8.00	Pass
BLE	2Mbps	19	2440	-12.22	≤ 8.00	Pass
BLE	2Mbps	39	2480	-12.18	≤ 8.00	Pass

BLE-1Mbps PSD

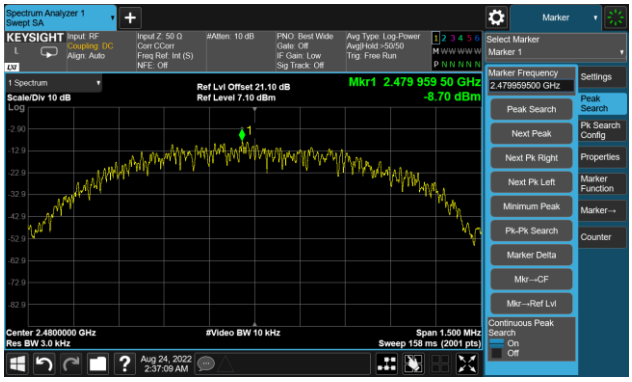
Channel 00 (2402MHz)

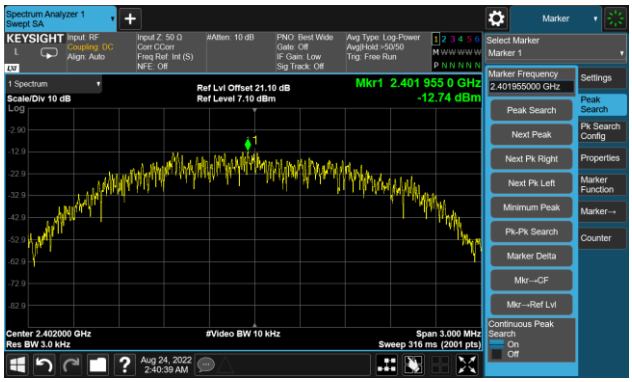
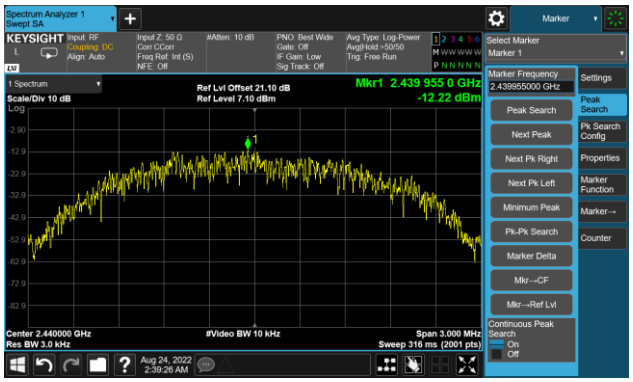
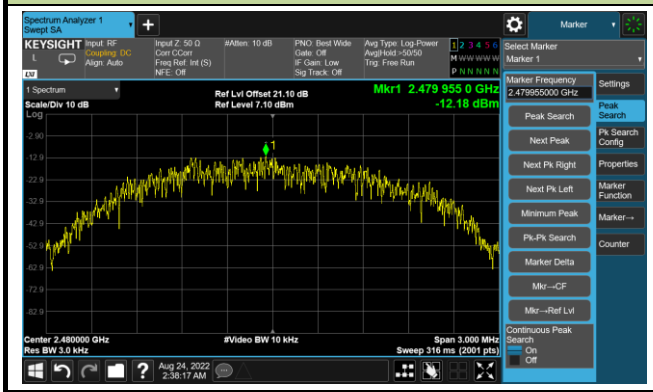


Channel 19 (2440MHz)



Channel 39 (2480MHz)



BLE-2Mbps PSD	
Channel 00 (2402MHz)	Channel 19 (2440MHz)
	
Channel 39 (2480MHz)	
	

A.5 Conducted Band Edge and Out-of-Band Emissions Test Result

Test Site	SIP-TR1	Test Engineer	Nandy Zhang
Test Date	2022-08-24		

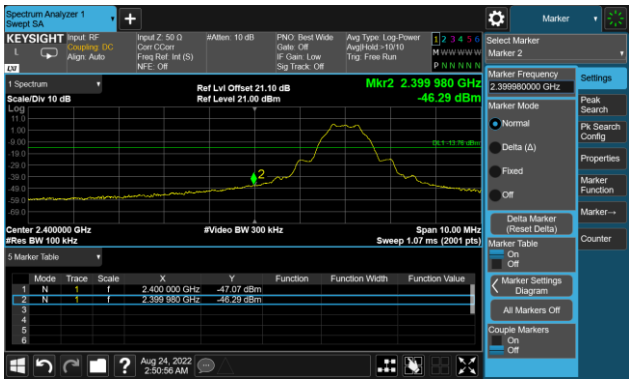
Test Mode	Data Rate / Mbps	Channel No.	Frequency (MHz)	Limit (dBc)	Result
BLE	1	00	2402	20	Pass
BLE	1	19	2440	20	Pass
BLE	1	39	2480	20	Pass
BLE	2	00	2402	20	Pass
BLE	2	19	2440	20	Pass
BLE	2	39	2480	20	Pass

BLE-1Mbps Out-of-Band Emissions

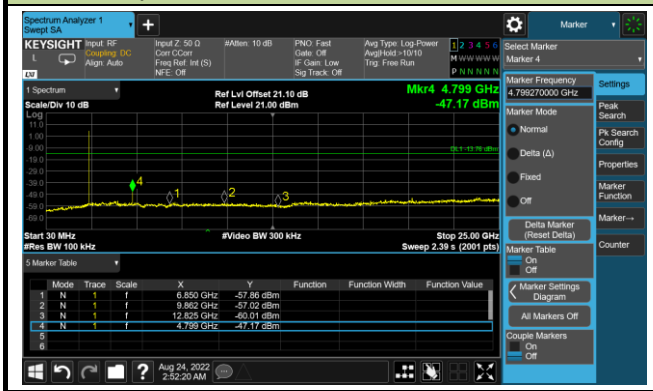
Channel 00 (2402MHz)

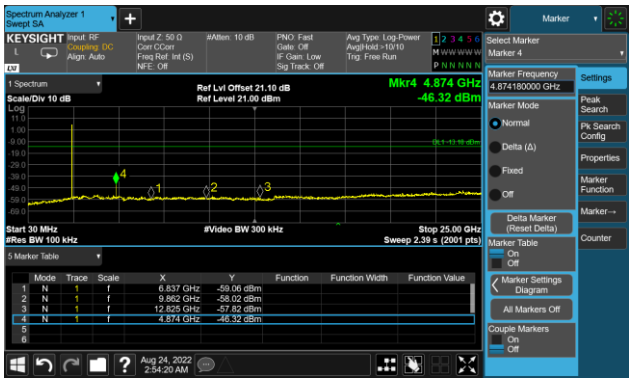
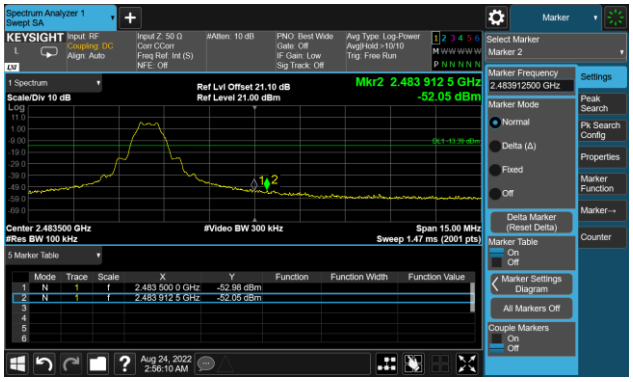
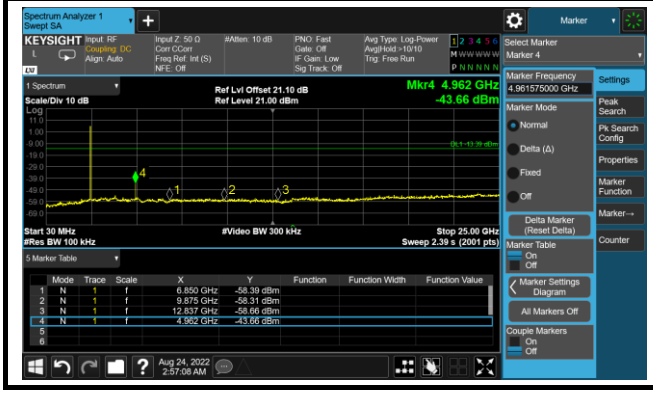
100kHz PSD Reference Level

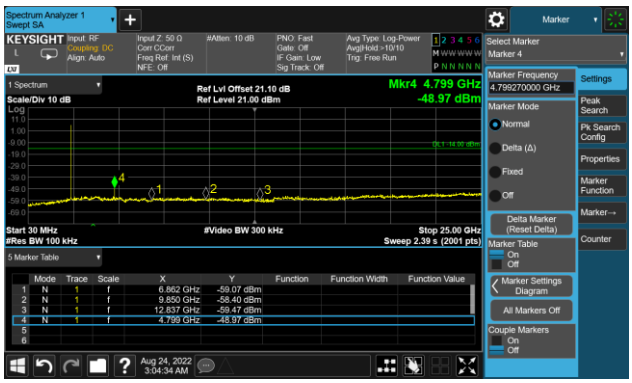
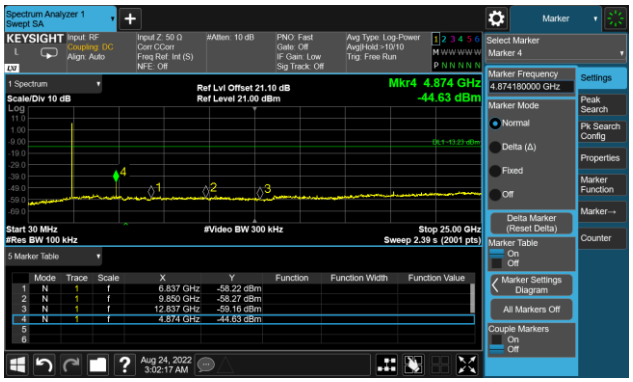
Low Band Edge

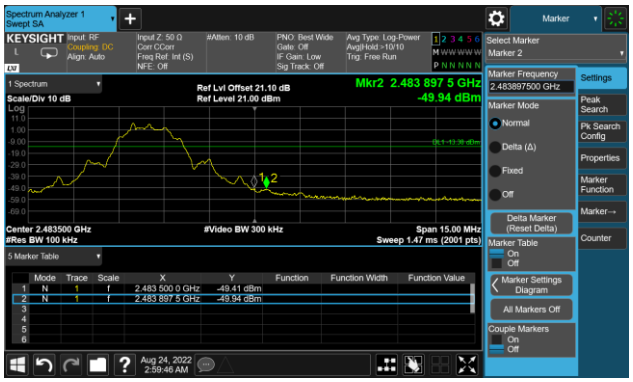
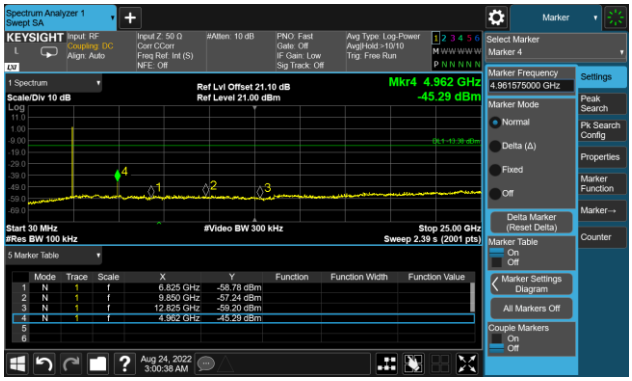


Spurious Emission 30MHz ~ 25GHz



Channel 19 (2440MHz)	
100kHz PSD Reference Level	Spurious Emission 30MHz ~ 25GHz
	
Channel 39 (2480MHz)	
100kHz PSD Reference Level	High Band Edge
	
Spurious Emission 30MHz ~ 25GHz	
	

BLE-2Mbps Out-of-Band Emissions	
Channel 00 (2402MHz)	
100kHz PSD Reference Level	Low Band Edge
	
Spurious Emission 30MHz ~ 25GHz	
	
Channel 19 (2440MHz)	
100kHz PSD Reference Level	Spurious Emission 30MHz ~ 25GHz
	

Channel 39 (2480MHz)	
100kHz PSD Reference Level	High Band Edge
	
Spurious Emission 30MHz ~ 25GHz	
	

A.6 Radiated Spurious Emission Test Result

Test Site	SIP-AC1	Test Engineer	Arvin Ding
Test Date	2022-08-27	Test Mode:	BLE-1Mbps
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.		

Test Channel	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
00	4799.5	52.7	-9.7	43.0	74.0	-31.0	Peak	Horizontal
	11854.5	47.4	-2.8	44.6	74.0	-29.4	Peak	Horizontal
	15560.5	44.0	3.6	47.6	74.0	-26.4	Peak	Horizontal
	4799.5	52.2	-9.7	42.5	74.0	-31.5	Peak	Vertical
	11718.5	47.0	-2.7	44.3	74.0	-29.7	Peak	Vertical
	15934.5	44.5	4.6	49.1	74.0	-24.9	Peak	Vertical
19	3660.5	55.2	-12.2	43.0	74.0	-31.0	Peak	Horizontal
	11846.0	47.0	-2.6	44.4	74.0	-29.6	Peak	Horizontal
	15807.0	43.2	4.9	48.1	74.0	-25.9	Peak	Horizontal
	4876.0	52.8	-9.6	43.2	74.0	-30.8	Peak	Vertical
	8242.0	48.4	-5.0	43.4	74.0	-30.6	Peak	Vertical
	11965.0	47.2	-2.6	44.6	74.0	-29.4	Peak	Vertical
39	3720.0	56.7	-12.1	44.6	74.0	-29.4	Peak	Horizontal
	8378.0	48.0	-5.3	42.7	74.0	-31.3	Peak	Horizontal
	11744.0	47.4	-2.9	44.5	74.0	-29.5	Peak	Horizontal
	3728.5	56.5	-12.0	44.5	74.0	-29.5	Peak	Vertical
	4961.0	52.8	-9.3	43.5	74.0	-30.5	Peak	Vertical
	7570.5	49.5	-5.8	43.7	74.0	-30.3	Peak	Vertical

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

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

Test Site	SIP-AC1	Test Engineer	Arvin Ding
Test Date	2022-08-27	Test Mode:	BLE-2Mbps
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.		

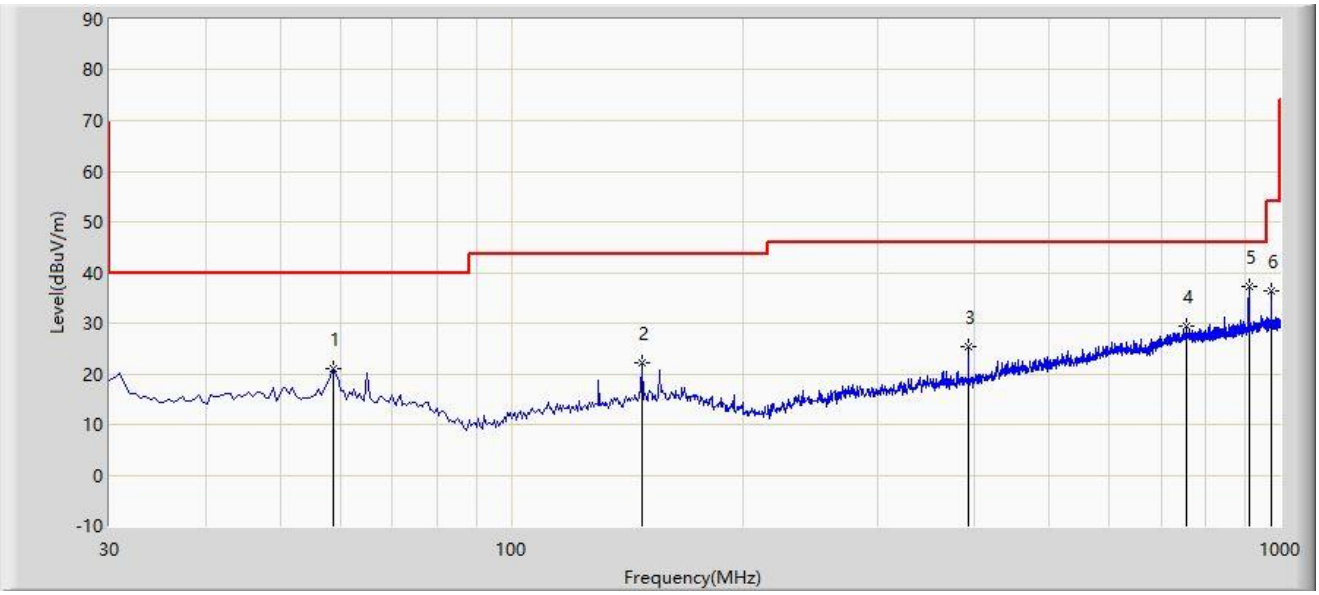
Test Channel	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
00	3601.0	53.1	-12.5	40.6	74.0	-33.4	Peak	Horizontal
	7698.0	48.5	-5.4	43.1	74.0	-30.9	Peak	Horizontal
	12509.0	46.7	-1.8	44.9	74.0	-29.1	Peak	Horizontal
	4799.5	52.3	-9.7	42.6	74.0	-31.4	Peak	Vertical
	10877.0	47.7	-3.8	43.9	74.0	-30.1	Peak	Vertical
	15926.0	42.4	5.6	48.0	74.0	-26.0	Peak	Vertical
19	3660.5	53.7	-12.2	41.5	74.0	-32.5	Peak	Horizontal
	8318.5	48.1	-5.0	43.1	74.0	-30.9	Peak	Horizontal
	12534.5	46.4	-1.9	44.5	74.0	-29.5	Peak	Horizontal
	3660.5	53.3	-12.2	41.1	74.0	-32.9	Peak	Vertical
	4876.0	51.9	-9.6	42.3	74.0	-31.7	Peak	Vertical
	11370.0	46.7	-2.8	43.9	74.0	-30.1	Peak	Vertical
39	3720.0	55.2	-12.1	43.1	74.0	-30.9	Peak	Horizontal
	7587.5	48.3	-5.6	42.7	74.0	-31.3	Peak	Horizontal
	12211.5	46.2	-2.3	43.9	74.0	-30.1	Peak	Horizontal
	3728.5	55.4	-12.0	43.4	74.0	-30.6	Peak	Vertical
	4961.0	52.5	-9.3	43.2	74.0	-30.8	Peak	Vertical
	11106.5	47.5	-3.4	44.1	74.0	-29.9	Peak	Vertical

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

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

The Result of Radiated Emission below 1GHz:

Site: SIP-AC2	Test Date: 2022-08-30
Limit: FCC_Part15.209_RSE(3m)	Engineer: Yien Qian
Probe: VULB 9168_00999_25-2000MHz	Polarity: Horizontal
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 1M at 2440MHz	



No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		58.615	21.145	3.076	-18.855	40.000	18.069	PK
2		147.855	22.042	4.322	-21.458	43.500	17.720	PK
3		393.265	25.313	4.375	-20.687	46.000	20.937	PK
4		755.075	29.307	0.670	-16.693	46.000	28.637	PK
5	*	910.275	37.299	7.144	-8.701	46.000	30.155	PK
6		975.265	36.448	5.669	-17.552	54.000	30.779	PK

Note 1: " * ", means this data is the worst emission level.

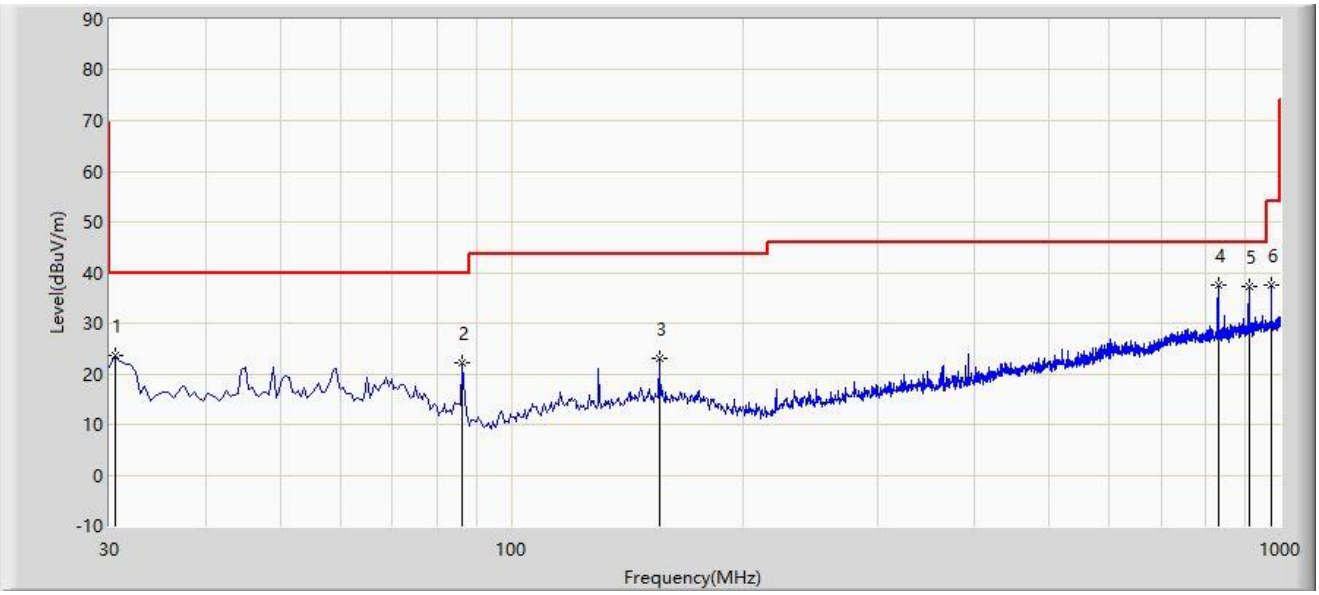
Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Note 4: Quasi-Peak measurement was not performed when peak measure level was lower than the quasi-peak limit.

Note 5: The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 25GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

Site: SIP-AC2	Test Date: 2022-08-30
Limit: FCC_Part15.209_RSE(3m)	Engineer: Yien Qian
Probe: VULB 9168_00999_25-2000MHz	Polarity: Vertical
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 1M at 2440MHz	



No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		30.485	23.563	6.647	-16.437	40.000	16.915	PK
2		86.260	22.312	9.414	-17.688	40.000	12.898	PK
3		155.615	22.909	4.855	-20.591	43.500	18.054	PK
4	*	831.705	37.393	8.380	-8.607	46.000	29.013	PK
5		910.275	37.177	7.022	-8.823	46.000	30.155	PK
6		975.265	37.563	6.784	-16.437	54.000	30.779	PK

Note 1: " * ", means this data is the worst emission level.

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

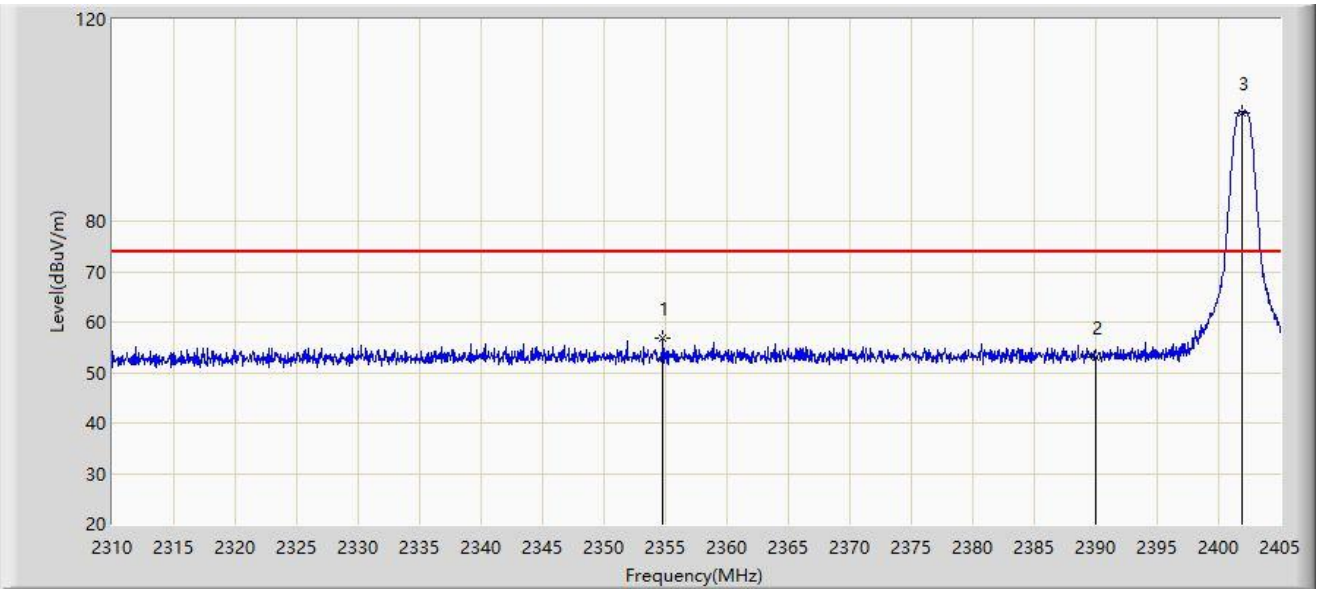
Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Note 4: Quasi-Peak measurement was not performed when peak measure level was lower than the quasi-peak limit.

Note 5: The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 25GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

A.7 Radiated Restricted Band Edge Test Result

Site: SIP-AC1	Test Date: 2022-08-27
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Arvin Ding
Probe: HF907_102862_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 1M at 2402MHz	



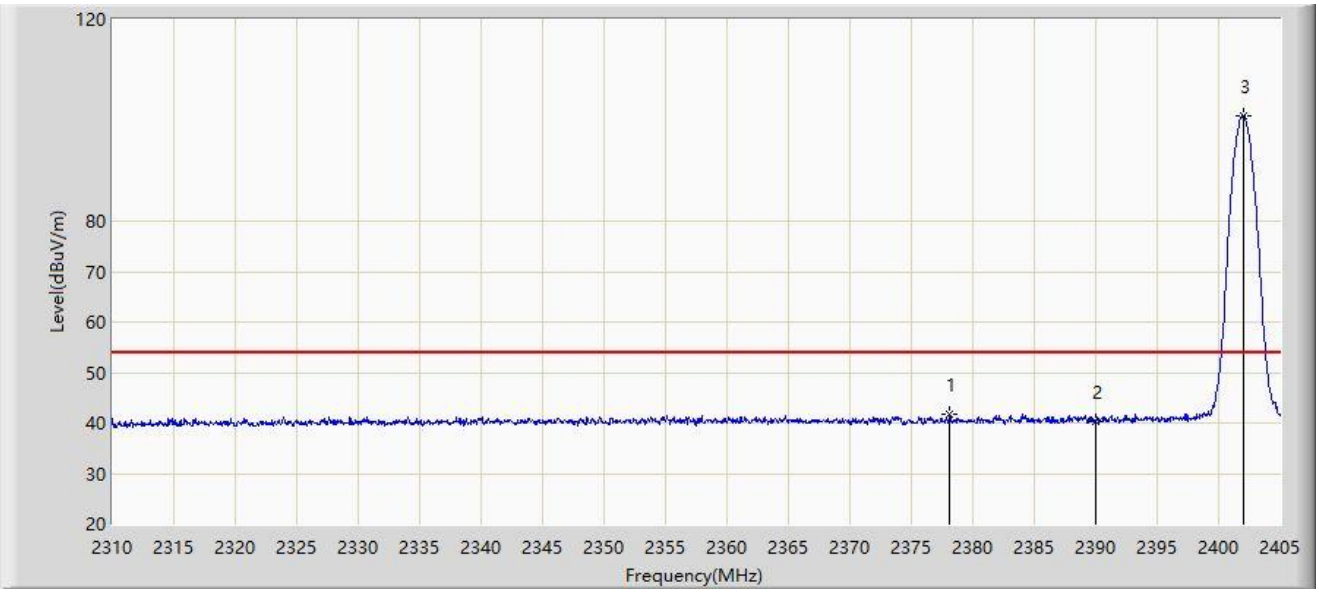
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	2354.792	56.783	25.501	-17.217	74.000	31.282	PK
2		2390.000	53.132	21.620	-20.868	74.000	31.512	PK
3		2401.865	101.565	69.951	N/A	N/A	31.614	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC1	Test Date: 2022-08-27
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Arvin Ding
Probe: HF907_102862_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 1M at 2402MHz	



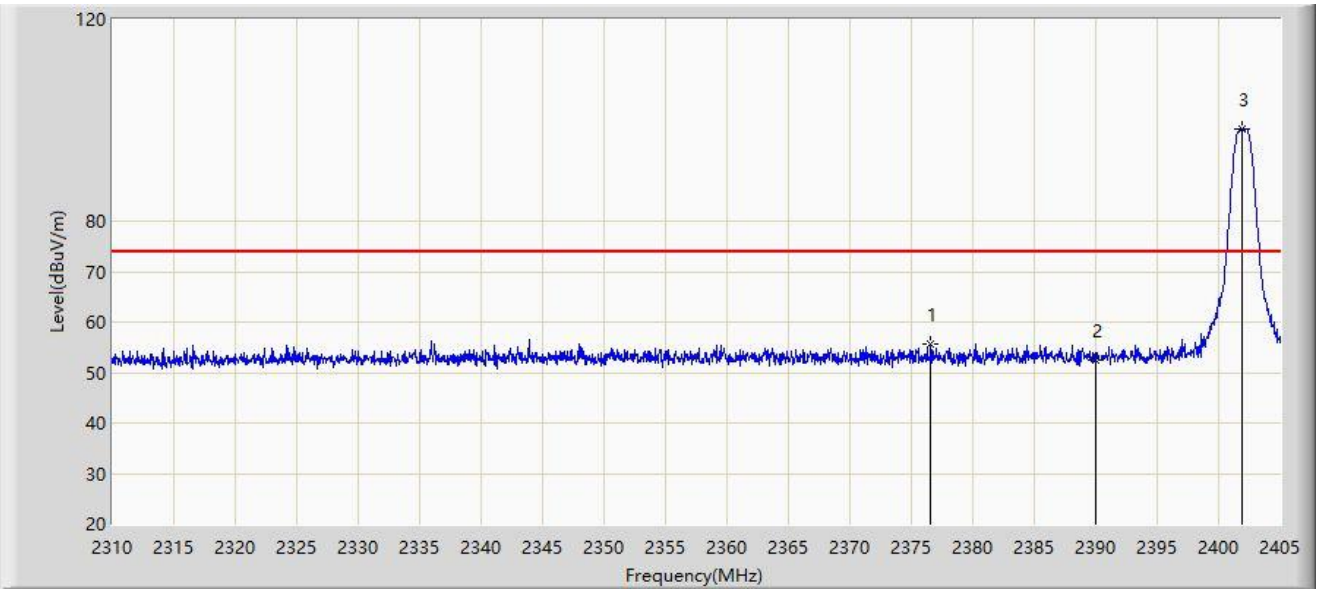
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	2378.115	41.693	10.430	-12.307	54.000	31.262	AV
2		2390.000	40.287	8.775	-13.713	54.000	31.512	AV
3		2402.008	100.933	69.319	N/A	N/A	31.614	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC1	Test Date: 2022-08-27
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Arvin Ding
Probe: HF907_102862_1-18GHz	Polarity: Vertical
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 1M at 2402MHz	



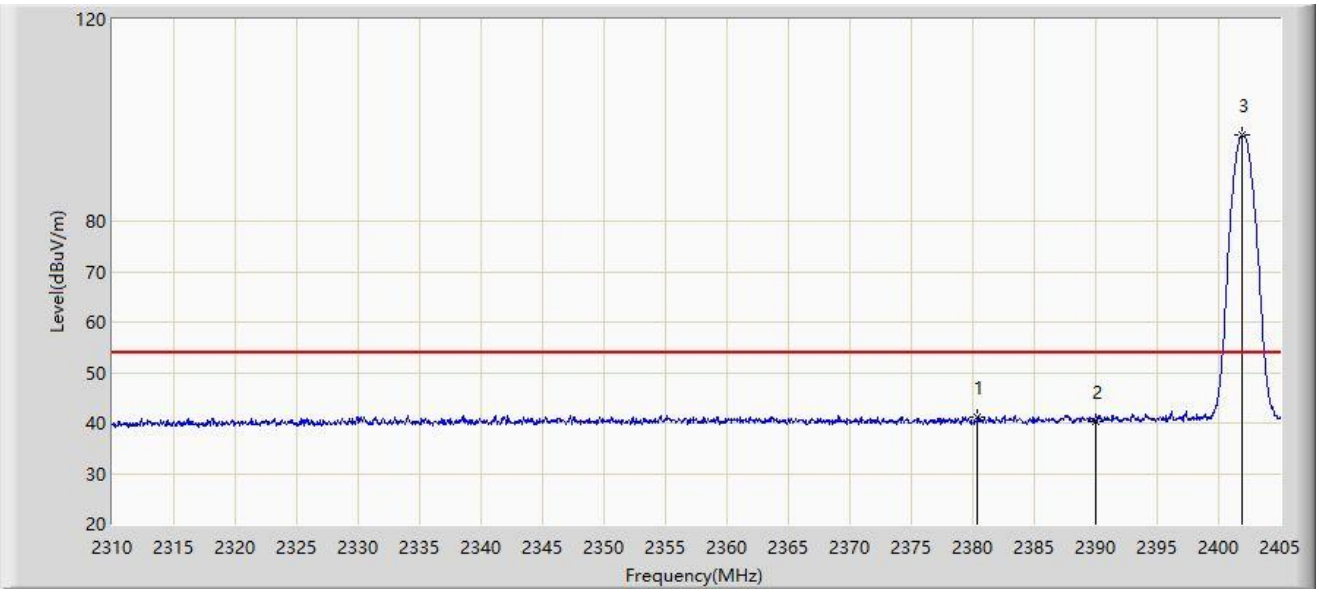
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	2376.595	55.774	24.533	-18.226	74.000	31.241	PK
2		2390.000	52.457	20.945	-21.543	74.000	31.512	PK
3		2401.960	98.183	66.569	N/A	N/A	31.615	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC1	Test Date: 2022-08-27
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Arvin Ding
Probe: HF907_102862_1-18GHz	Polarity: Vertical
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 1M at 2402MHz	



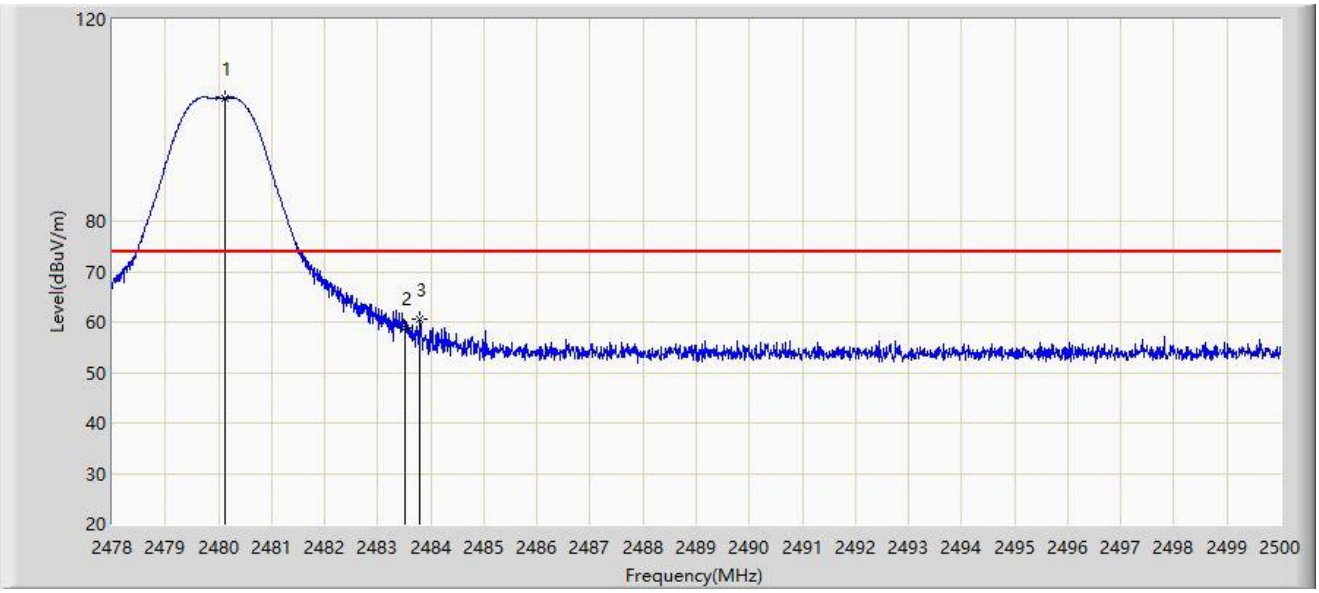
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	2380.347	41.303	9.993	-12.697	54.000	31.309	AV
2		2390.000	40.284	8.772	-13.716	54.000	31.512	AV
3		2401.913	97.207	65.593	N/A	N/A	31.614	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC1	Test Date: 2022-08-27
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Arvin Ding
Probe: HF907_102862_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 1M at 2480MHz	



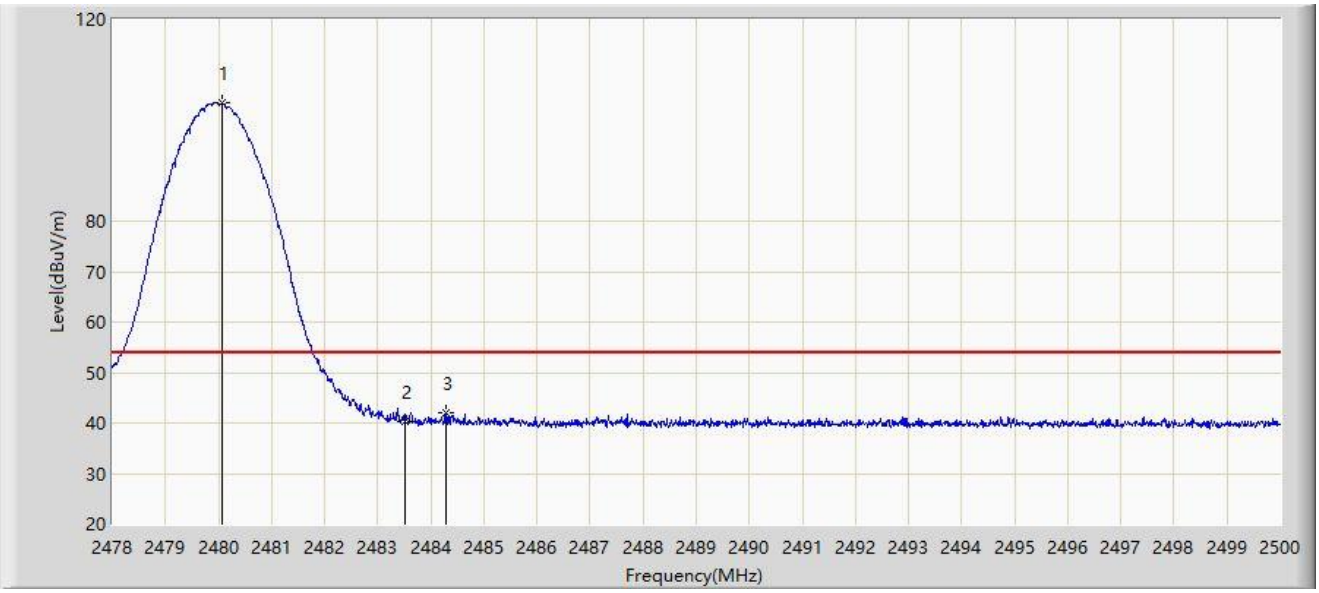
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		2480.112	104.376	72.431	N/A	N/A	31.945	PK
2		2483.500	58.957	27.005	-15.043	74.000	31.952	PK
3	*	2483.797	60.600	28.648	-13.400	74.000	31.952	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC1	Test Date: 2022-08-27
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Arvin Ding
Probe: HF907_102862_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 1M at 2480MHz	



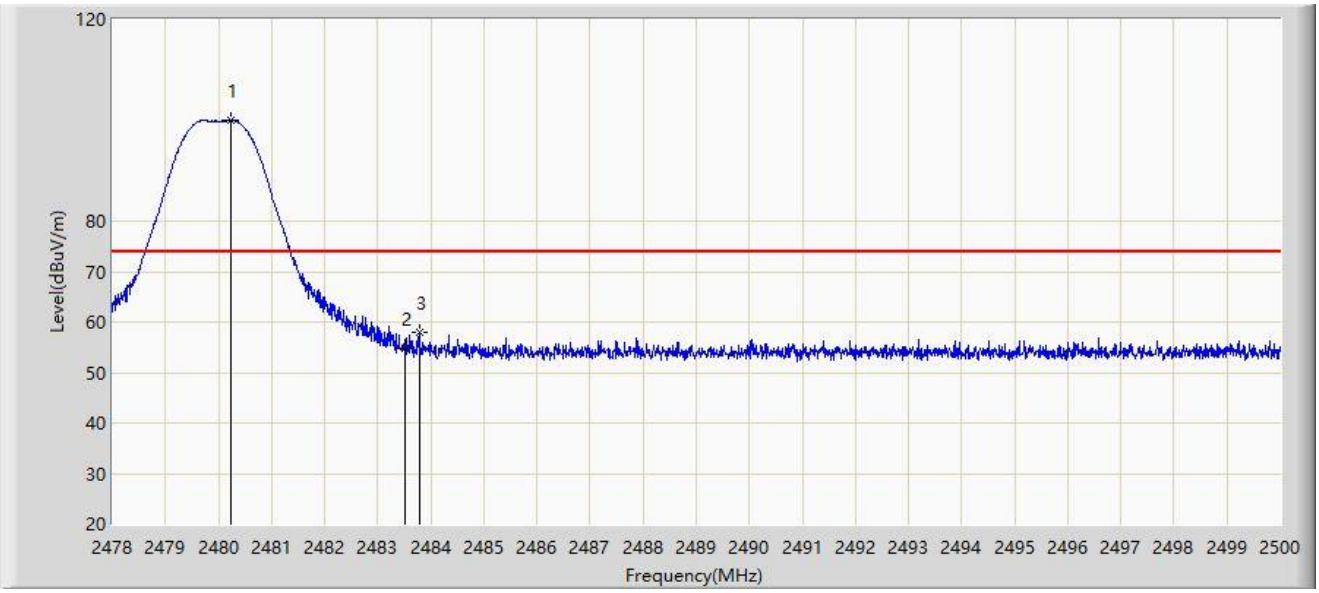
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		2480.057	103.417	71.472	N/A	N/A	31.944	AV
2		2483.500	40.362	8.410	-13.638	54.000	31.952	AV
3	*	2484.281	42.008	10.055	-11.992	54.000	31.953	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC1	Test Date: 2022-08-27
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Arvin Ding
Probe: HF907_102862_1-18GHz	Polarity: Vertical
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 1M at 2480MHz	



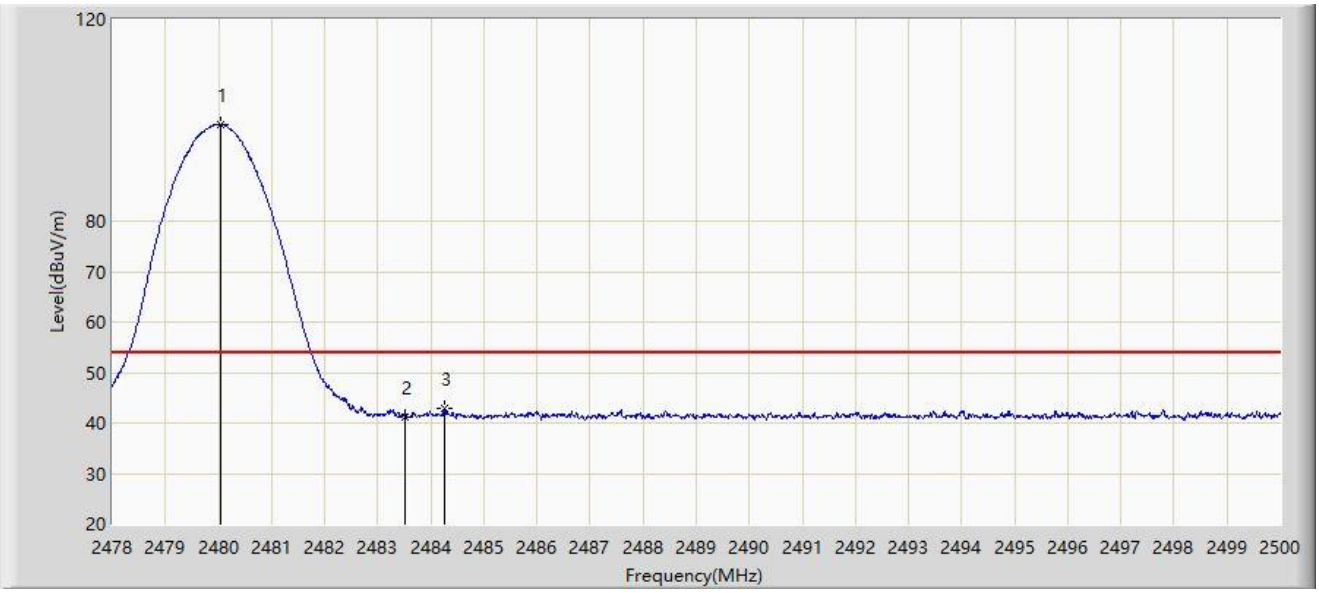
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		2480.222	99.979	68.034	N/A	N/A	31.945	PK
2		2483.500	54.773	22.821	-19.227	74.000	31.952	PK
3	*	2483.786	57.951	25.999	-16.049	74.000	31.952	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC1	Test Date: 2022-08-27
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Arvin Ding
Probe: HF907_102862_1-18GHz	Polarity: Vertical
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 1M at 2480MHz	



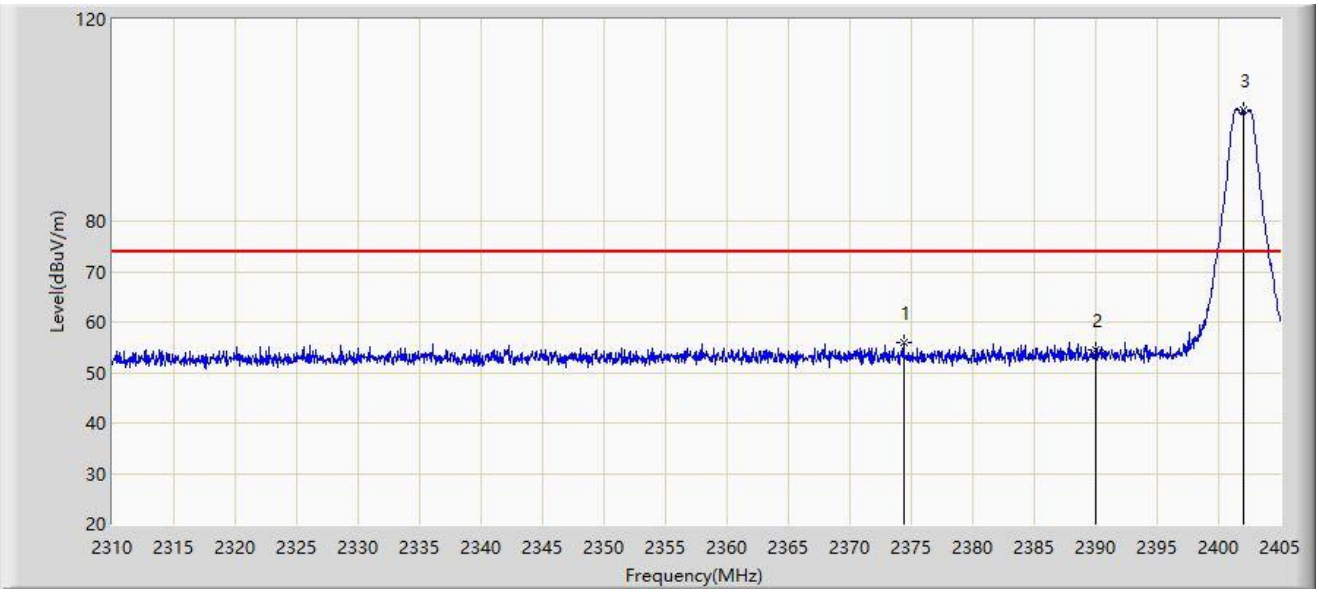
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		2480.046	99.145	67.200	N/A	N/A	31.944	AV
2		2483.500	41.213	9.261	-12.787	54.000	31.952	AV
3	*	2484.270	42.813	10.860	-11.187	54.000	31.953	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC1	Test Date: 2022-08-27
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Arvin Ding
Probe: HF907_102862_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 2M at 2402MHz	



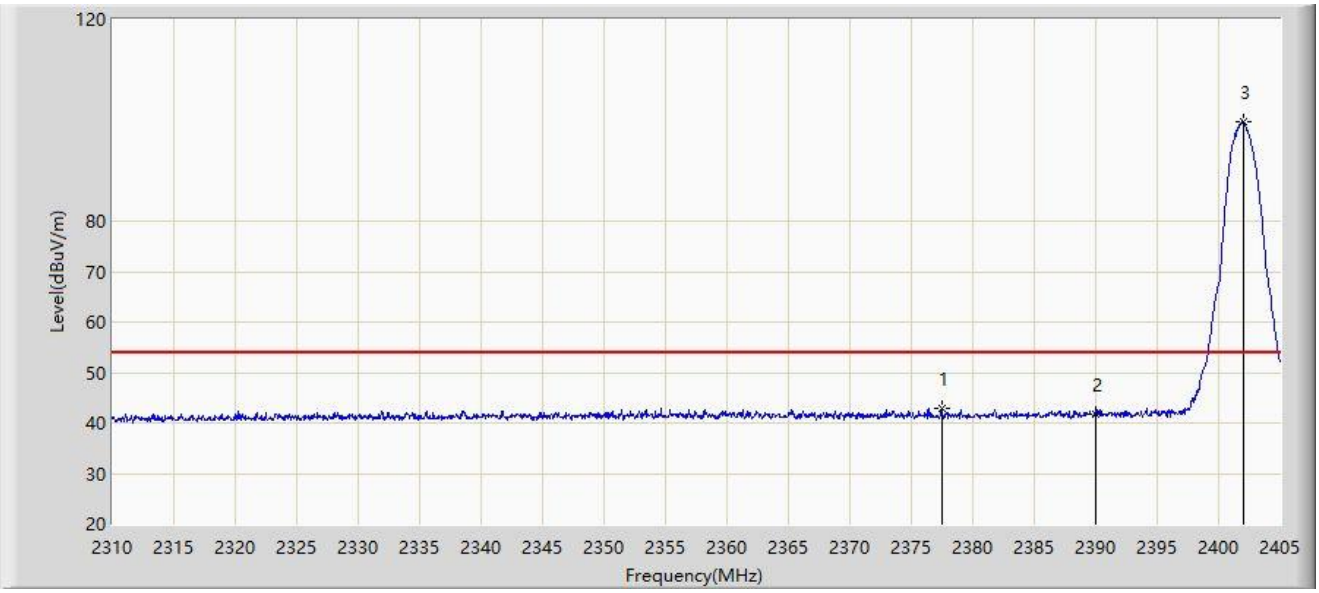
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	2374.363	55.976	24.728	-18.024	74.000	31.248	PK
2		2390.000	54.485	22.973	-19.515	74.000	31.512	PK
3		2402.055	102.173	70.559	N/A	N/A	31.614	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC1	Test Date: 2022-08-27
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Arvin Ding
Probe: HF907_102862_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 2M at 2402MHz	



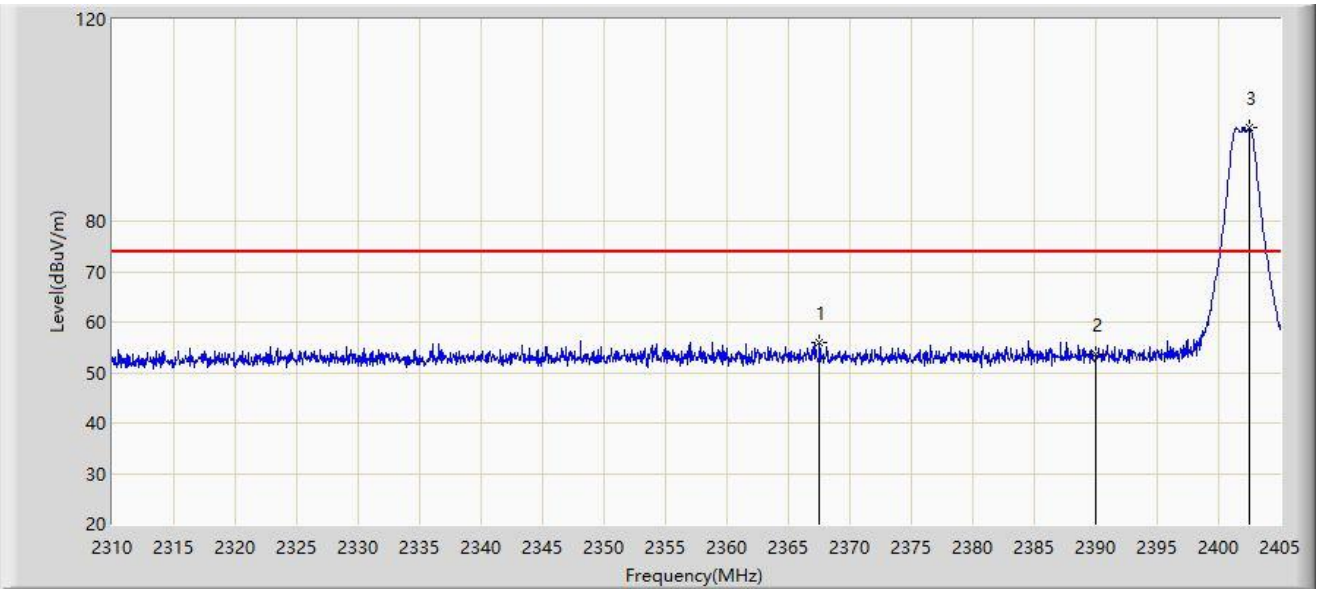
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	2377.450	42.930	11.681	-11.070	54.000	31.249	AV
2		2390.000	41.715	10.203	-12.285	54.000	31.512	AV
3		2402.008	99.843	68.229	N/A	N/A	31.614	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC1	Test Date: 2022-08-27
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Arvin Ding
Probe: HF907_102862_1-18GHz	Polarity: Vertical
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 2M at 2402MHz	



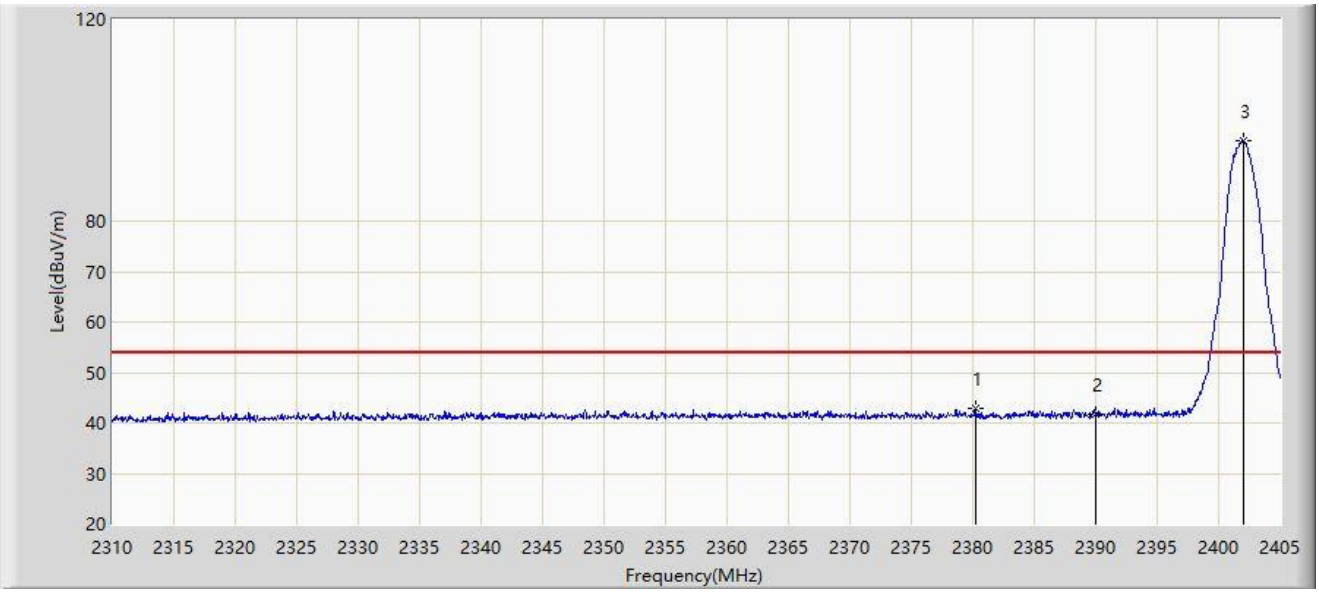
No	Mark	Frequency (MHz)	Measure Level (dBµV/m)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV/m)	Factor (dB/m)	Type
1	*	2367.522	56.002	24.732	-17.998	74.000	31.270	PK
2		2390.000	53.512	22.000	-20.488	74.000	31.512	PK
3		2402.482	98.504	66.889	N/A	N/A	31.615	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC1	Test Date: 2022-08-27
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Arvin Ding
Probe: HF907_102862_1-18GHz	Polarity: Vertical
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 2M at 2402MHz	



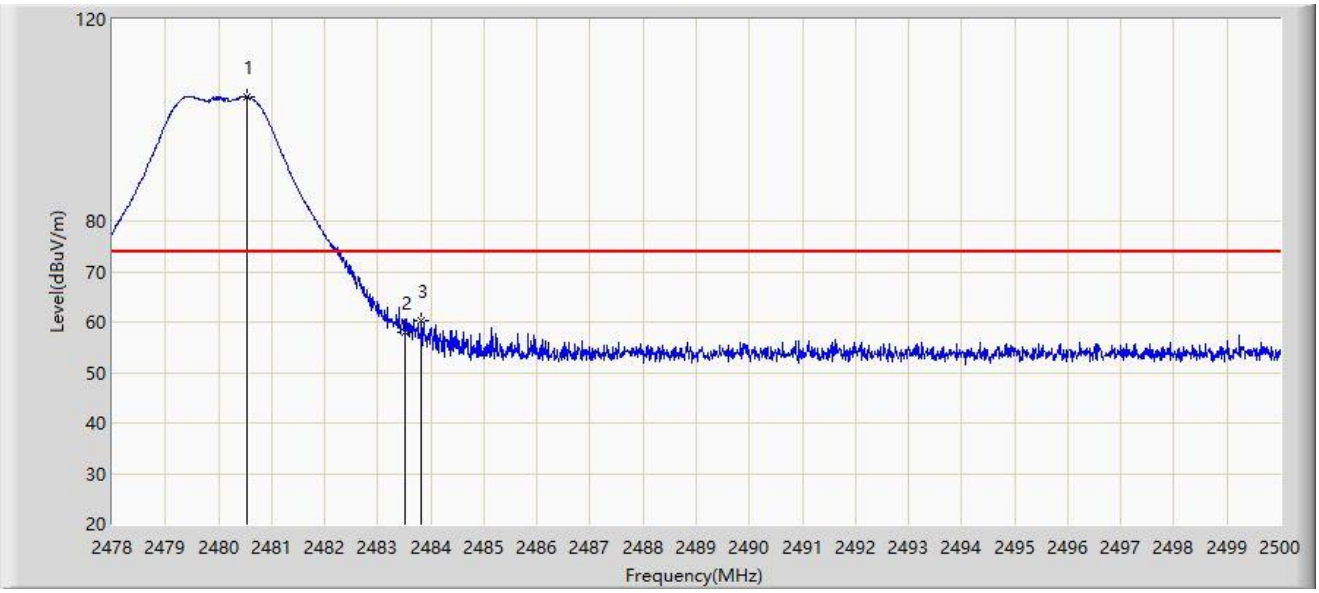
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	2380.205	42.832	11.525	-11.168	54.000	31.306	AV
2		2390.000	41.830	10.318	-12.170	54.000	31.512	AV
3		2402.008	96.004	64.390	N/A	N/A	31.614	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC1	Test Date: 2022-08-27
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Arvin Ding
Probe: HF907_102862_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 2M at 2480MHz	



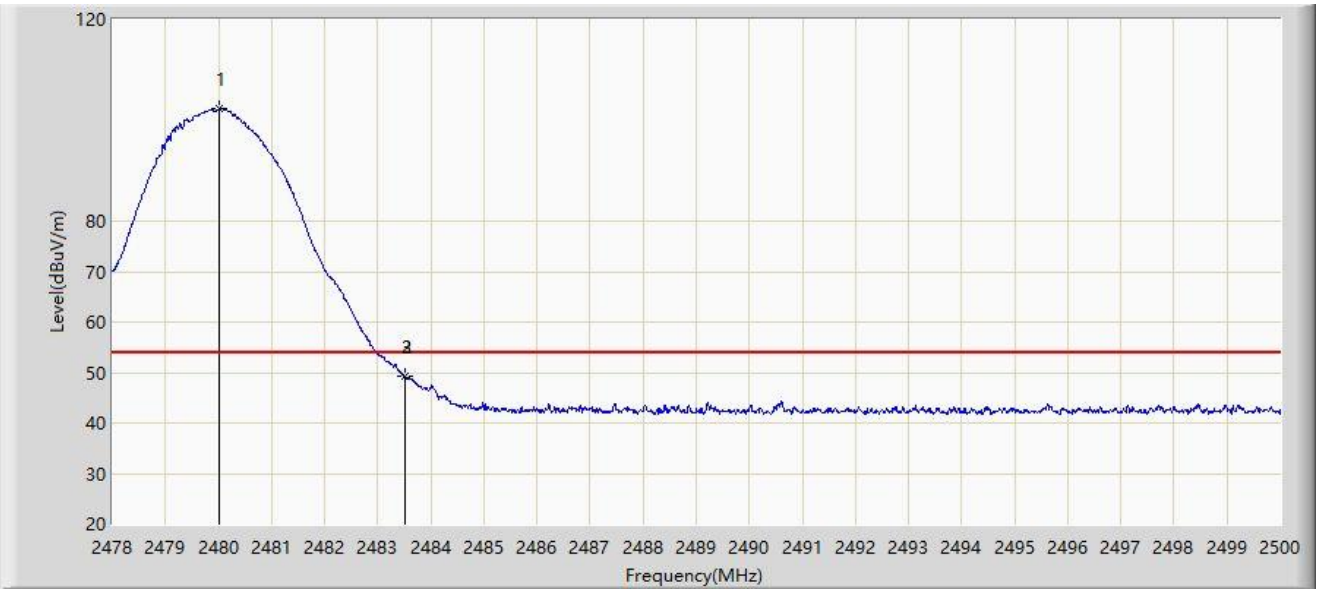
No	Mark	Frequency (MHz)	Measure Level (dBµV/m)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV/m)	Factor (dB/m)	Type
1		2480.530	104.648	72.702	N/A	N/A	31.946	PK
2		2483.500	57.973	26.021	-16.027	74.000	31.952	PK
3	*	2483.830	60.266	28.314	-13.734	74.000	31.952	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC1	Test Date: 2022-08-27
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Arvin Ding
Probe: HF907_102862_1-18GHz	Polarity: Horizontal
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 2M at 2480MHz	



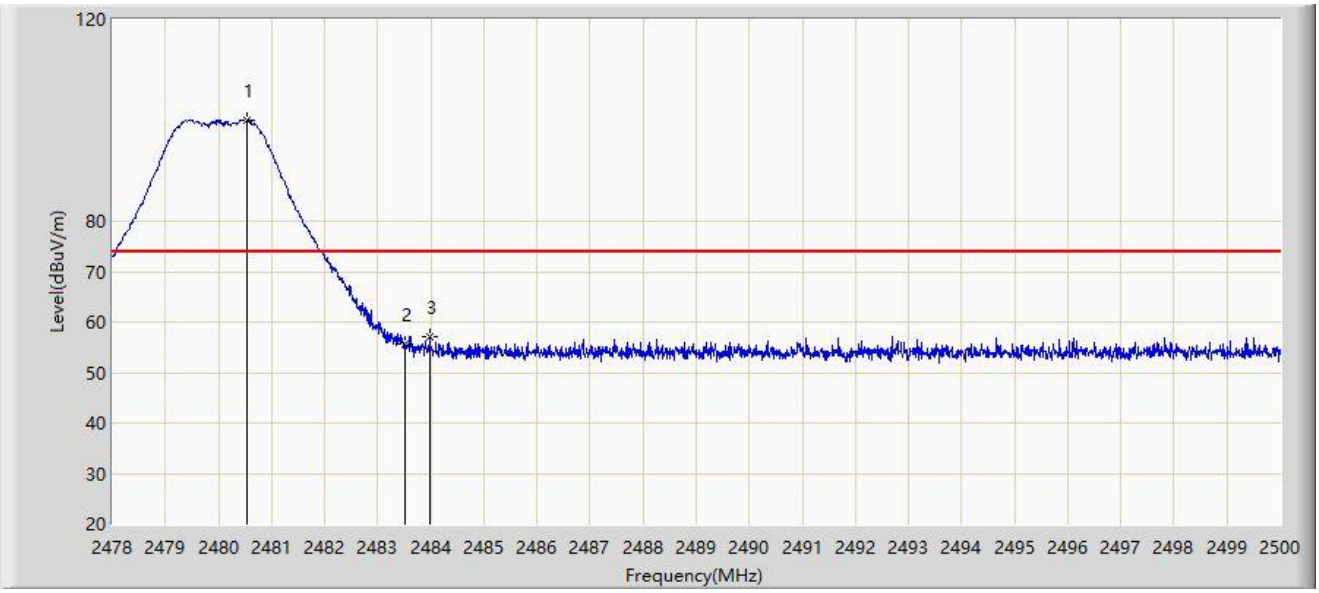
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		2480.024	102.201	70.256	N/A	N/A	31.944	AV
2		2483.500	49.297	17.345	-4.703	54.000	31.952	AV
3	*	2483.511	49.378	17.426	-4.622	54.000	31.952	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC1	Test Date: 2022-08-27
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Arvin Ding
Probe: HF907_102862_1-18GHz	Polarity: Vertical
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 2M at 2480MHz	



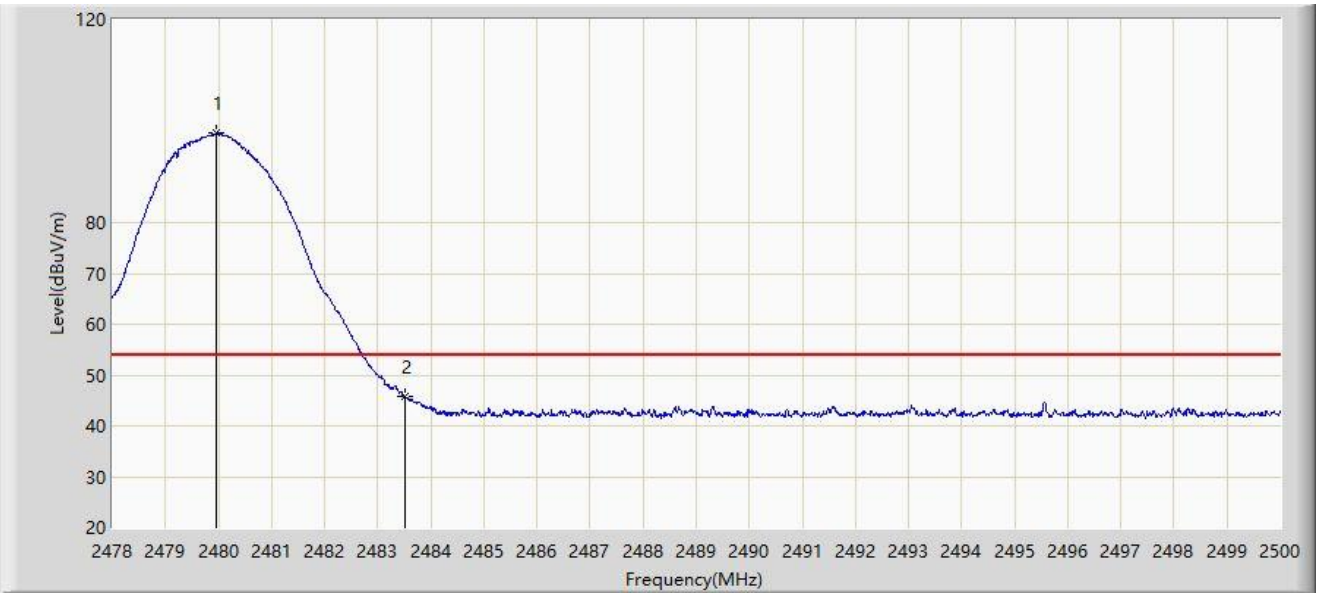
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		2480.541	100.020	68.074	N/A	N/A	31.946	PK
2		2483.500	55.694	23.742	-18.306	74.000	31.952	PK
3	*	2483.984	57.051	25.099	-16.949	74.000	31.953	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC1	Test Date: 2022-08-27
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Arvin Ding
Probe: HF907_102862_1-18GHz	Polarity: Vertical
EUT: Wireless Headphones	Power: By Battery
Test Mode: Transmit by BLE 2M at 2480MHz	



No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		2479.969	97.655	65.711	N/A	N/A	31.945	AV
2	*	2483.500	45.718	13.766	-8.282	54.000	31.952	AV

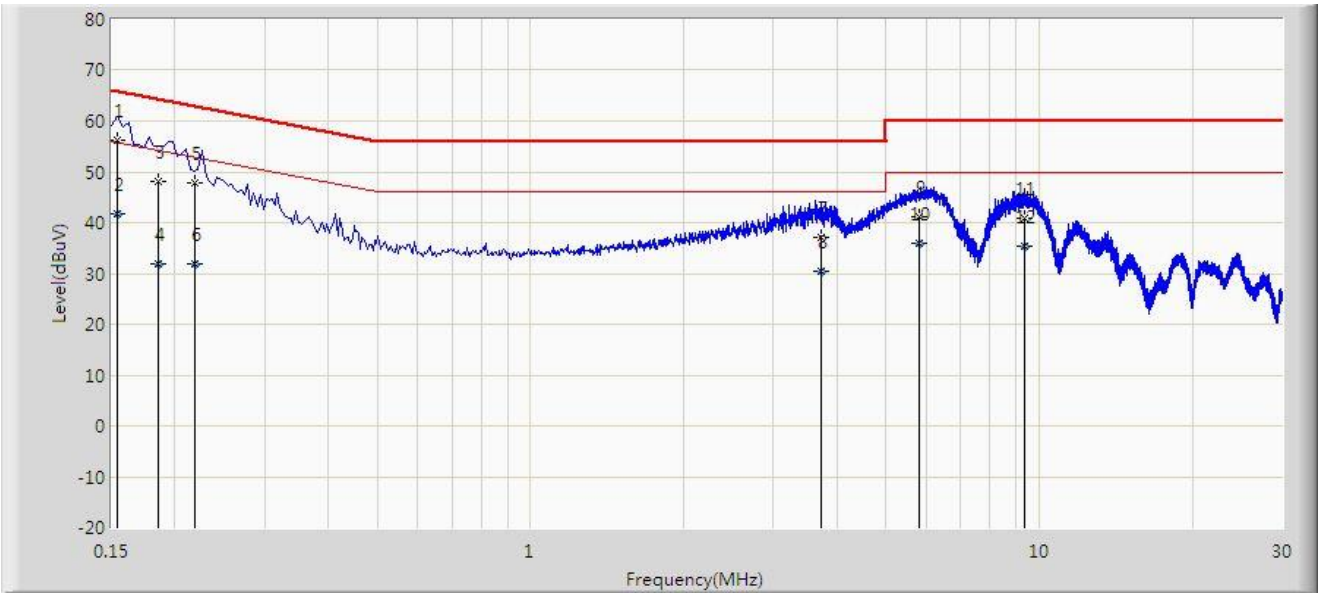
Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

A.8 AC Conducted Emissions Test Result

Site: SIP-SR2	Time: 2022/09/06
Temperature: 27.2°C	Humidity: 57.8%
Limit: FCC_Part15.207_CE_AC Power	Engineer: Miron Ding
Probe: SIP-SR2-ENV216_101684_C	Polarity: Line
EUT: Wireless Headphones	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at 2440MHz	



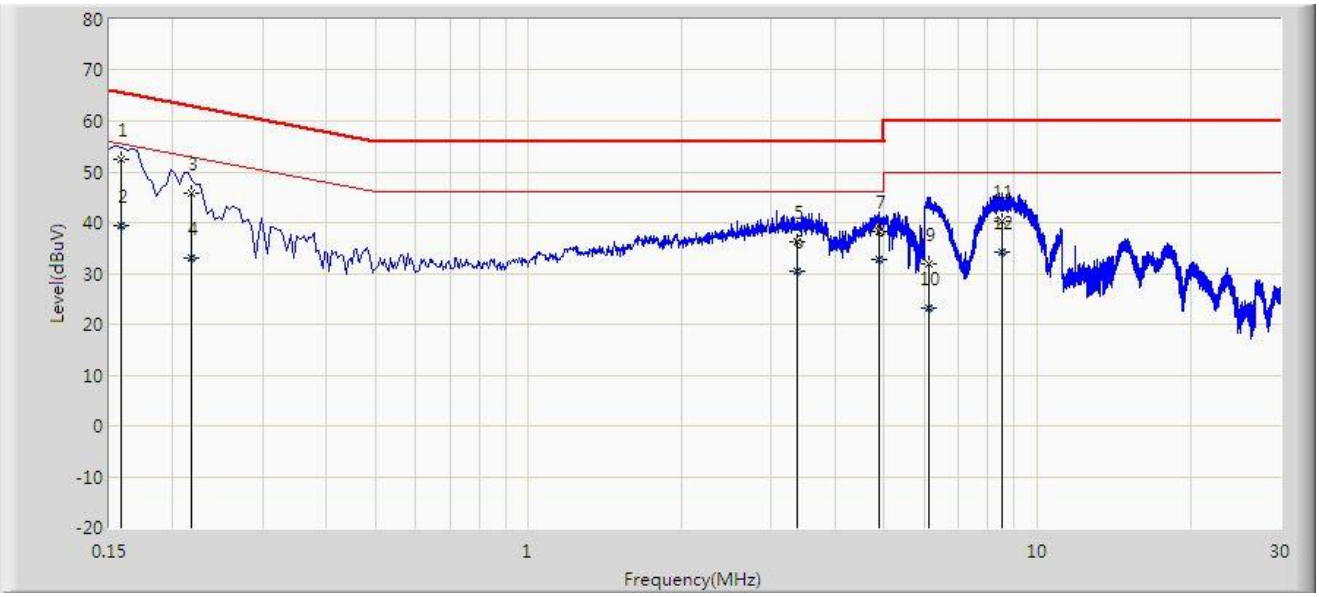
No	Mark	Frequency (MHz)	Measure Level (dBµV)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV)	Factor (dB)	Type
1	*	0.154	56.149	46.500	-9.632	65.781	9.649	QP
2		0.154	41.649	32.000	-14.132	55.781	9.649	AV
3		0.186	48.151	38.500	-16.062	64.213	9.651	QP
4		0.186	31.951	22.300	-22.262	54.213	9.651	AV
5		0.219	47.886	38.200	-14.971	62.857	9.686	QP
6		0.219	31.986	22.300	-20.871	52.857	9.686	AV
7		3.718	37.227	27.400	-18.773	56.000	9.827	QP
8		3.718	30.427	20.600	-15.573	46.000	9.827	AV
9		5.807	41.302	31.400	-18.698	60.000	9.902	QP
10		5.807	35.802	25.900	-14.198	50.000	9.902	AV
11		9.346	40.907	30.884	-19.093	60.000	10.023	QP
12		9.346	35.263	25.240	-14.737	50.000	10.023	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Site: SIP-SR2	Time: 2022/09/06
Temperature: 27.2°C	Humidity: 57.8%
Limit: FCC_Part15.207_CE_AC Power	Engineer: Miron Ding
Probe: SIP-SR2-ENV216_101684_C	Polarity: Neutral
EUT: Wireless Headphones	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at 2440MHz	



No	Mark	Frequency (MHz)	Measure Level (dBµV)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV)	Factor (dB)	Type
1	*	0.158	52.538	42.900	-13.030	65.568	9.638	QP
2		0.158	39.338	29.700	-16.230	55.568	9.638	AV
3		0.218	45.776	36.100	-17.119	62.895	9.676	QP
4		0.218	33.176	23.500	-19.719	52.895	9.676	AV
5		3.370	36.206	26.400	-19.794	56.000	9.805	QP
6		3.370	30.506	20.700	-15.494	46.000	9.805	AV
7		4.874	38.318	28.498	-17.682	56.000	9.821	QP
8		4.874	32.625	22.805	-13.375	46.000	9.821	AV
9		6.138	31.816	21.923	-28.184	60.000	9.893	QP
10		6.138	23.256	13.363	-26.744	50.000	9.893	AV
11		8.546	40.151	30.161	-19.849	60.000	9.991	QP
12		8.546	34.240	24.249	-15.760	50.000	9.991	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Appendix B - Test Setup Photograph

Refer to “2208RSU004-UT” file.

Appendix C - EUT Photograph

Refer to “2208RSU004-UE” file.

The End