MEASUREMENT REPORT

FCC PART 15.247 / RSS-247 Bluetooth BLE

FCC ID:	O57VR3030S
IC:	10407A-VR3030S
Applicant:	Lenovo (Shanghai) Electronics Technology Co., Ltd
Application Type:	Certification
Product:	Standalone VR Headset
Model No.:	Lenovo VR-3030S
FCC Classification:	Digital Transmission System (DTS)
FCC Rule Part(s):	Part 15 Subpart C (Section 15.247)
IC Rule(s):	RSS-247 Issue 2, RSS-GEN Issue 5
Test Procedure(s):	ANSI C63.10-2013, KDB 558074 D01v05r02
Test Date:	December 02 ~ 20, 2019

Reviewed By: Sunny Sun
(Sunny Sun)

Approved By: Robin Wu
(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
1911RSU052-U3	Rev. 01	Initial Report	12-26-2019	Valid

CONTENTS

General Information

Applicant:	Lenovo (Shanghai) Electronics Technology Co., Ltd.
Applicant Address:	Section 304-305, Building No. 4, # 222, Meiyue Road, China (Shanghai) Pilot Free Trade Zone
Manufacturer:	Lenovo PC HK Limited
Manufacturer Address:	23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong, P.R.China
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
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 accredited (MRT Designation No. CN1166) test facility with the site description report on file and has met all the requirements specified in ANSI C63.4-2014.**
- **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, Radio and SAR testing.**

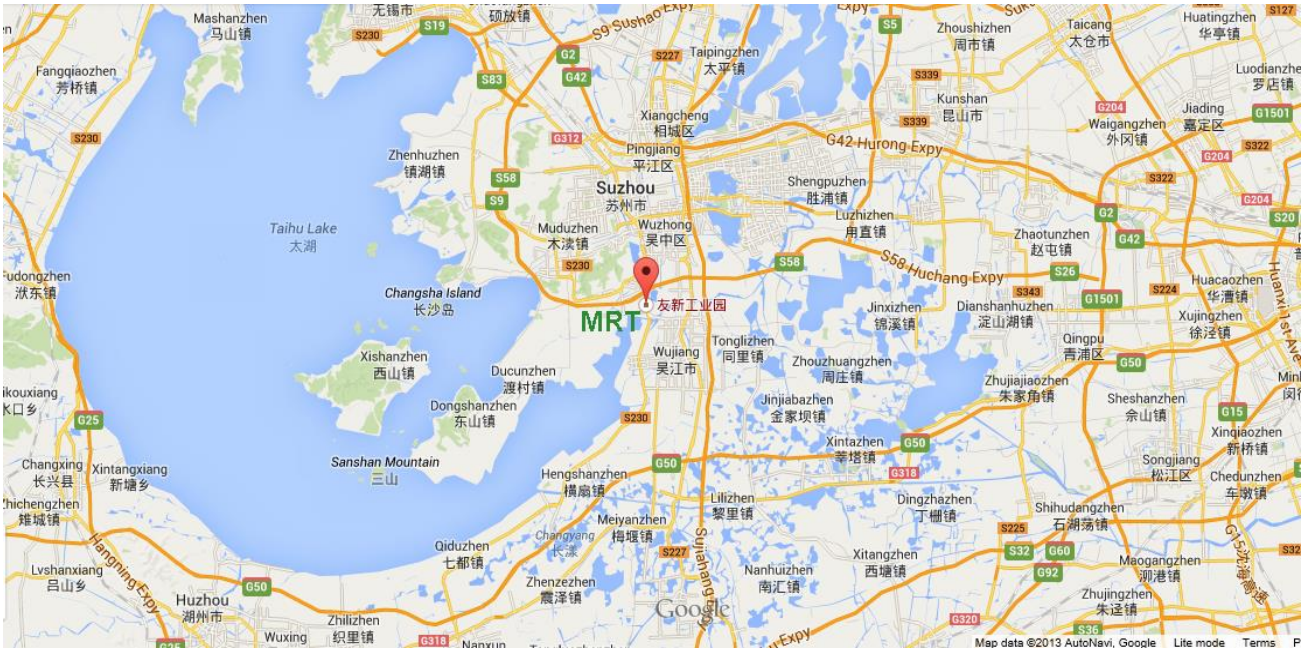
1. INTRODUCTION

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 Innovation, Science and Economic Development Canada.

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 measurement facility compliant with the test site requirements specified in ANSI C63.4-2014.



2. PRODUCT INFORMATION

2.1. Feature of Equipment under Test

Product Name	Standalone VR Headset
Model No.	Lenovo VR-3030S
WLAN Specification	802.11a/b/g/n/ac
Bluetooth Version	v4.2 dual mode
Antenna Specification	Refer to section 2.4
Accessories	
Adapter	MODEL/MODELO: UC13US PRI/ENTRADA: 100-240V ~ 50/60Hz, 0.35A SEC/SALIDA: 5Vdc, 2A

2.2. Product Specification Subjective to this Report

Operating Frequency	2402 ~ 2480MHz
Type of modulation	GFSK
Data Rate	1Mbps

Note: For other features of this EUT, test report will be issued separately.

2.3. Working Frequencies for this report

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	--	--	--	--

2.4. Description of Available Antennas

Antenna Type	Frequency Band (GHz)	T_X Paths	Max Peak Gain (dBi)		Directional Gain (dBi)	
			Ant 1	Ant 2	For Power	For PSD
WLAN Internal Antenna						
FPC	2.4	2	2.40	2.25	2.40	5.41
	5	2	4.10	4.28	4.28	7.29
Bluetooth Internal Antenna						
FPC	2.4	1	2.40	--	--	--

Note 1: The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

For CDD transmissions, directional gain is calculated as follows, N_{ANT} = 2, N_{SS} = 1.

Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

- For power spectral density (PSD) measurements on all devices,

Array Gain = 10 log (N_{ANT}/ N_{SS}) dB = 3.01;

- For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB for $N_{ANT} \leq 4$;

Note 2: WLAN and Bluetooth share Ant 1 port together.

2.5. Test Mode

Test Mode	Mode 1: Transmit by BLE

2.6. Test Software

The test utility software used during testing was “QRCT”, and the version was “3.0.268.0”.

2.7. Test Configuration

The device was tested per the guidance of KDB 558074 D01v04. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

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 12 Section 5

In addition to complying with the applicable RSSs and RSP-100, each unit of a product model (i.e. of a radio apparatus) shall meet the labelling requirements set out in this section prior to being marketed in Canada or imported into Canada.

If the dimensions of the product are extremely small or it is not practical to place the label or marking on the product, and if electronic labelling cannot be implemented, the label shall be placed in a prominent location in the user manual supplied with the product, as agreed upon with ISED prior to the certification application. The user manual may be in an electronic format; if it is not supplied to the user, the user manual must be readily available.

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 guidance 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. A 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 Beam-Width 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	ESR3	MRTSUE06185	1 year	2020/04/15
Two-Line V-Network	R&S	ENV 216	MRTSUE06002	1 year	2020/06/13
Two-Line V-Network	R&S	ENV 216	MRTSUE06003	1 year	2020/06/13
Thermohygrometer	Testo	608-H1	MRTSUE06404	1 year	2020/08/08
Shielding Room	MIX-BEP	Chamber-SR2	MRTSUE06215	N/A	N/A

Radiated Emissions - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2020/08/01
PXA Signal Analyzer	Keysight	9030B	MRTSUE06395	1 year	2020/09/03
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2020/11/13
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2020/03/31
Broad Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2020/10/13
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06024	1 year	2020/12/17
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2020/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2020/06/11
Thermohygrometer	Testo	608-H1	MRTSUE06403	1 year	2020/08/08
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2020/04/30

Radiated Emission - AC2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Keysight	N9038A	MRTSUE06125	1 year	2020/08/01
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2020/11/13
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2020/10/13
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06171	1 year	2020/10/27
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06024	1 year	2020/12/17
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2020/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2020/06/11
Temperature/Humidity Meter	Minggao	ETH529	MRTSUE06170	1 year	2020/12/15
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2020/04/30

Conducted Test Equipment - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2020/04/15
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06452	1 year	2020/07/11
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2020/04/15
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2020/11/18
USB wideband power sensor	Keysight	U2021XA	MRTSUE06446	1 year	2020/06/30
USB wideband power sensor	Keysight	U2021XA	MRTSUE06447	1 year	2020/06/30
Bluetooth Test Set	Anritsu	MT8852B-042	MRTSUE06389	1 year	2020/06/13
Audio Analyzer	Agilent	U8903B	MRTSUE06143	1 year	2020/06/13
Modulation Analyzer	HP	8901A	MRTSUE06098	1 year	2020/10/10
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2020/11/07
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
Temperature & Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2020/11/07
Thermohygrometer	testo	608-H1	MRTSUE06401	1 year	2020/08/08

Software	Version	Function
EMI Software	V3	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.

Conducted Emission Measurement - SR2
The maximum measurement uncertainty is evaluated as: 9kHz~150kHz: 3.84dB 150kHz~30MHz: 3.46dB
Radiated Emission Measurement - AC1
The maximum measurement uncertainty is evaluated as: Horizontal: 30MHz~300MHz: 4.07dB 300MHz~1GHz: 3.63dB 1GHz~18GHz: 4.16dB Vertical: 30MHz~300MHz: 4.18dB 300MHz~1GHz: 3.60dB 1GHz~18GHz: 4.76dB
Radiated Emission Measurement - AC2
The maximum measurement uncertainty is evaluated as: Horizontal: 30MHz~300MHz: 3.75dB 300MHz~1GHz: 3.53dB 1GHz~18GHz: 4.28dB Vertical: 30MHz~300MHz: 3.86dB 300MHz~1GHz: 3.53dB 1GHz~18GHz: 4.33dB

7. TEST RESULT

7.1. Summary

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.247(a)(2)	RSS-247 [5.2]	6dB & 99% Bandwidth	≥ 500kHz	Conducted	Pass	Section 7.2
15.247(b)(3)	RSS-247 [5.4(d)]	Output Power	≤ 30dBm		Pass	Section 7.3
15.247(e)	RSS-247 [5.2]	Power Spectral Density	Refer to Section 7.4		Pass	Section 7.4
15.247(d)	RSS-247 [5.5]	Band Edge / Out-of-Band Emissions	≤ 20dBc (Peak)		Pass	Section 7.5
15.205 15.209	RSS-247 [5.5]	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 7.6 & 7.7
15.207	RSS-Gen [8.8]	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 7.8

Notes:

1) 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.
2) 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. 6dB & 99% Bandwidth Measurement

7.2.1.Test Limit

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

7.2.2.Test Procedure used

ANSI C63.10-2013 Section 11.8

7.2.3.Test Setting

6dB Bandwidth

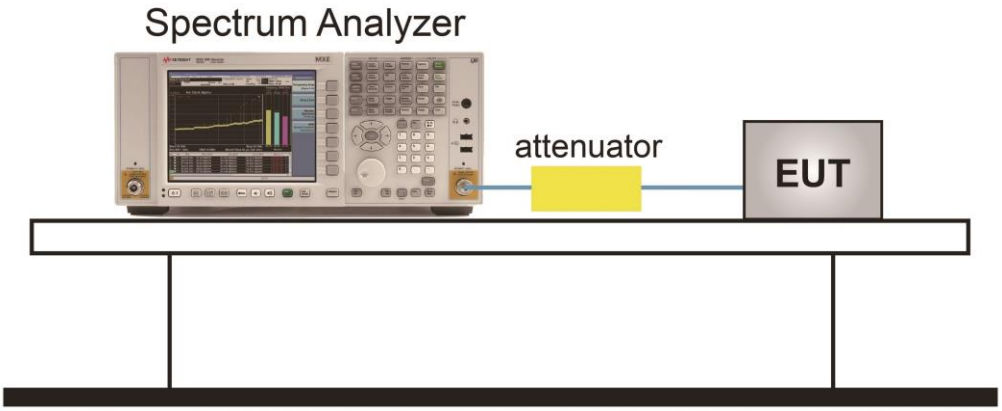
1. The Spectrum's automatic bandwidth measurement capability was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 6. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. Set RBW = 100 kHz
3. VBW ≥ 3 ×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

99% Bandwidth

1. The Spectrum's 99% power bandwidth function shall be used to perform the 99% bandwidth measurement.
2. Set RBW = 1% to 5% of the OBW
3. VBW ≥ 3 × RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple

Allow the trace was allowed to stabilize

7.2.4.Test Setup



7.2.5.Test Result

Product	Standalone VR Headset	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	TR3	Test Date	2019/12/09

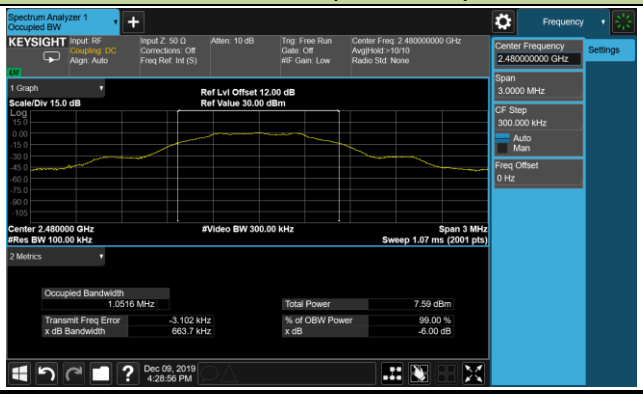
Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
BLE	1	00	2402	0.66	1.04	≥ 0.5	Pass
BLE	1	19	2440	0.68	1.04	≥ 0.5	Pass
BLE	1	39	2480	0.66	1.04	≥ 0.5	Pass

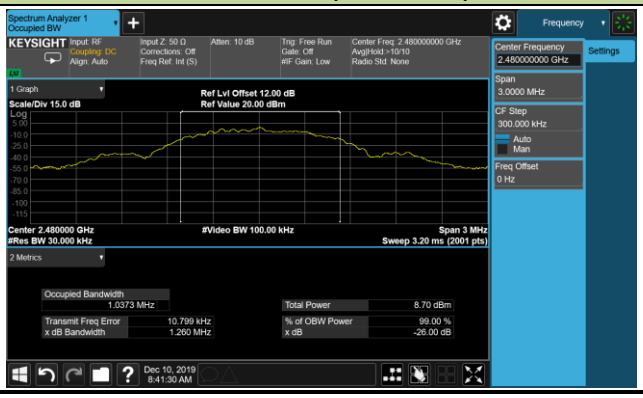
BLE 6dB Bandwidth

Channel 00 (2402MHz)

Channel 19 (2440MHz)

Channel 39 (2480MHz)



BLE 99% Bandwidth	
Channel 00 (2402MHz)	Channel 19 (2440MHz)
	
Channel 39 (2480MHz)	
	

7.3. Output Power Measurement

7.3.1.Test Limit

The maximum out power shall be less 1 Watt (30dBm) and the E.I.R.P shall not exceed 4 Watt (36dBm).

7.3.2.Test Procedure Used

ANSI C63.10 Section 11.9.1.3

ANSI C63.10 Section 11.9.2.3

7.3.3.Test Setting

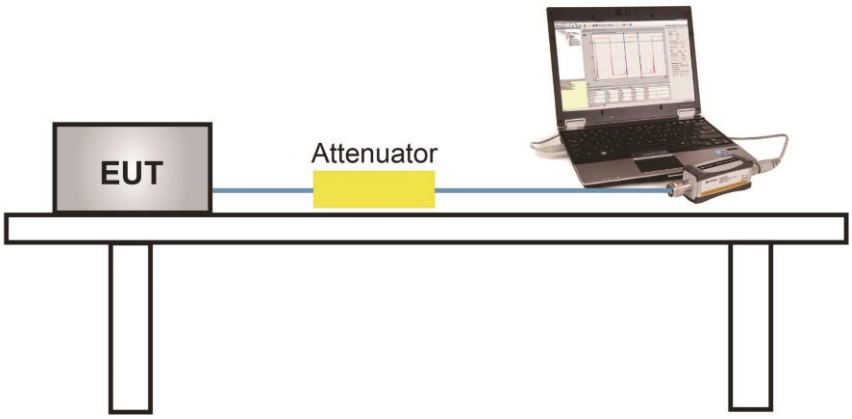
Method PKPM1 (Peak Power Measurement of Signals with DTS BW ≤ 50MHz)

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.

Method AVGPM-G

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.

7.3.4.Test Setup



7.3.5.Test Result of Output Power

Product	Standalone VR Headset	Temperature	23°C
Test Engineer	Bacon Dong	Relative Humidity	51%
Test Site	TR3	Test Date	2019/12/09
Test Result	Peak Output Power		

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Max EIRP (dBm)	EIRP Limit (dBm)	Result
BLE	1	00	2402	2.30	≤ 30.00	4.70	≤ 36.00	Pass
BLE	1	19	2440	1.93	≤ 30.00	4.33	≤ 36.00	Pass
BLE	1	39	2480	2.13	≤ 30.00	4.53	≤ 36.00	Pass

Note: Max EIRP (dBm) = Peak Power (dBm) + Antenna Gain (dBi), Antenna Gain = 2.40dBi.

Product	Standalone VR Headset	Temperature	23°C
Test Engineer	Bacon Dong	Relative Humidity	51%
Test Site	TR3	Test Date	2019/12/09
Test Result	Average Output Power (Reporting Only)		

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	Average Power (dBm)	Limit (dBm)	Max EIRP (dBm)	EIRP Limit (dBm)	Result
BLE	1	00	2402	1.94	≤ 30.00	4.34	≤ 36.00	Pass
BLE	1	19	2440	1.61	≤ 30.00	4.01	≤ 36.00	Pass
BLE	1	39	2480	1.89	≤ 30.00	4.29	≤ 36.00	Pass

Note: Max EIRP (dBm) = Peak Power (dBm) + Antenna Gain (dBi), Antenna Gain = 2.40dBi.

7.4. Power Spectral Density Measurement

7.4.1.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.

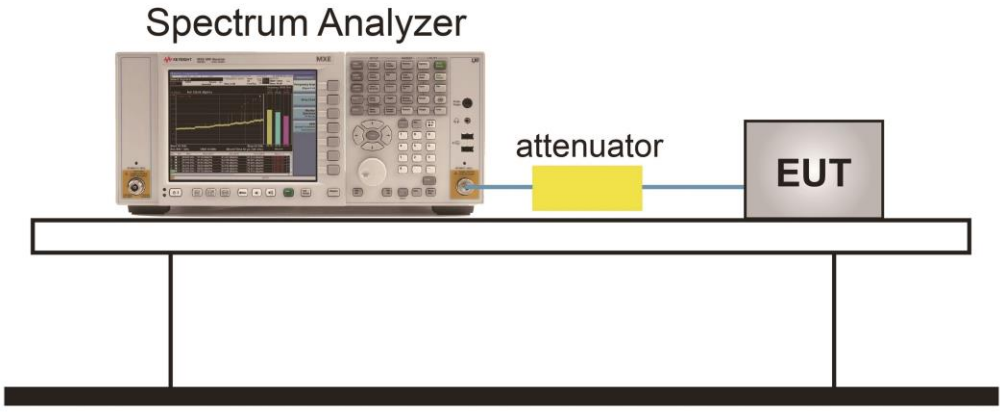
7.4.2.Test Procedure Used

ANSI C63.10 Section 11.10.2

7.4.3.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

7.4.4.Test Setup



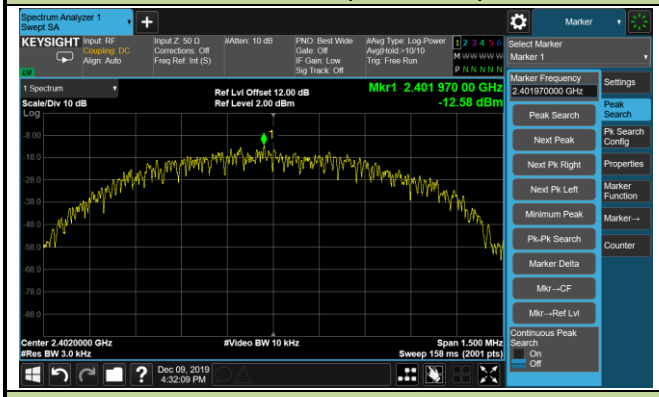
7.4.5.Test Result

Product	Standalone VR Headset	Temperature	23°C
Test Engineer	Snake Ni	Relative Humidity	52%
Test Site	TR3	Test Date	2019/12/09

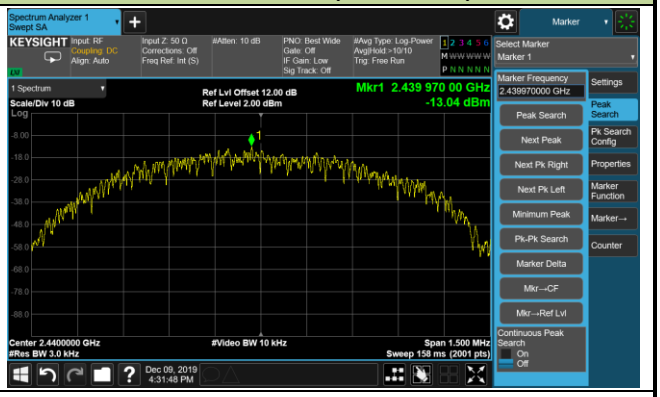
Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	PKPSD Result (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
BLE	1	00	2402	-12.58	≤ 8.00	Pass
BLE	1	19	2440	-13.04	≤ 8.00	Pass
BLE	1	39	2480	-13.64	≤ 8.00	Pass

BLE PKPSD

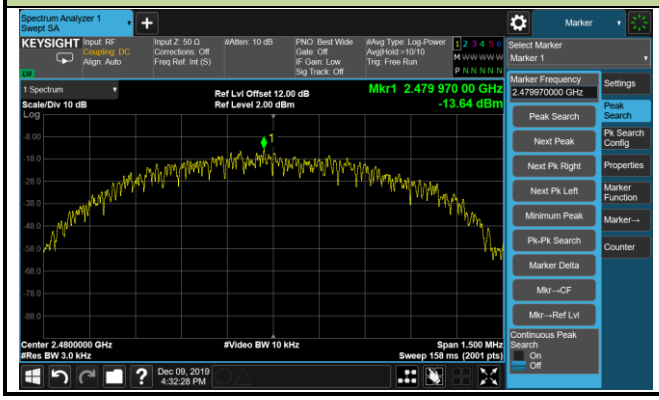
Channel 00 (2402MHz)



Channel 19 (2440MHz)



Channel 39 (2480MHz)



7.5. Conducted Band Edge and Out-of-Band Emissions

7.5.1.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 100kHz bandwidth per the PSD procedure.

7.5.2.Test Procedure Used

ANSI C63.10 Section 11.11

7.5.3.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

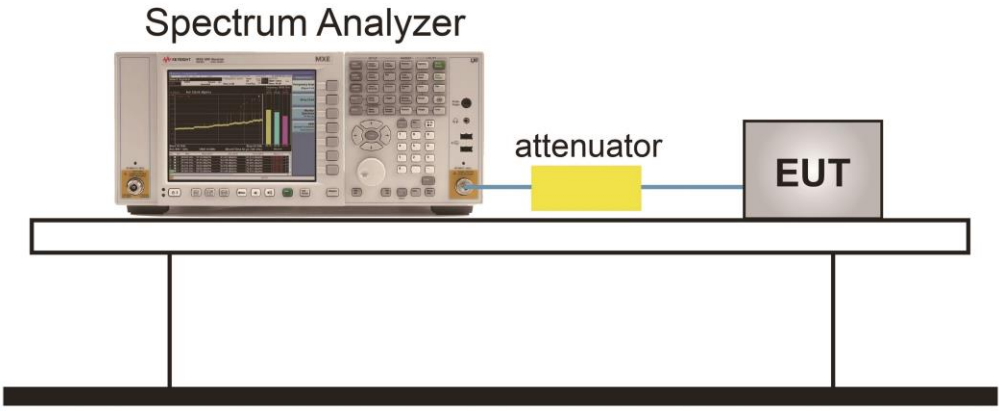
Emission level measurement

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

Test Notes

1. RBW was set to 1.3MHz rather than 100kHz in order to increase the measurement speed.
2. The display line shown in the following plots denotes the limit at 20dB below the fundamental emission level measured in a 100kHz bandwidth. However, since the traces in the following plots are measured with a 1.3MHz RBW, the display line may not necessarily appear to be 20dB below the level of the fundamental in a 1.3MHz bandwidth.
3. For plots showing conducted spurious emissions near the limit, the frequencies were investigated with a reduced RBW to ensure that no emissions were present.

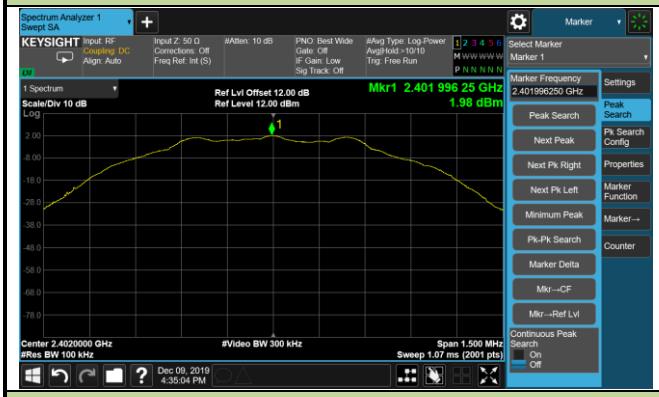
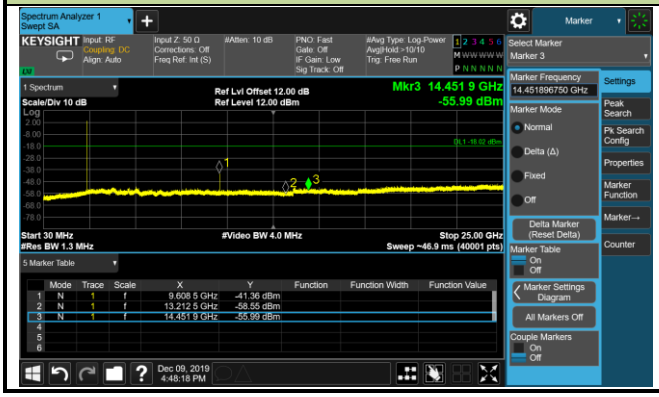
7.5.4.Test Setup

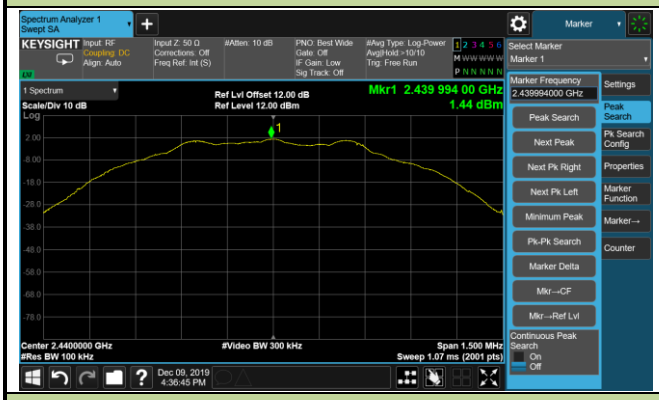
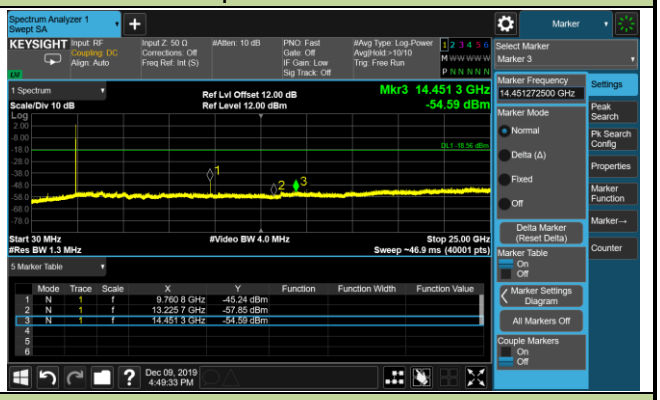
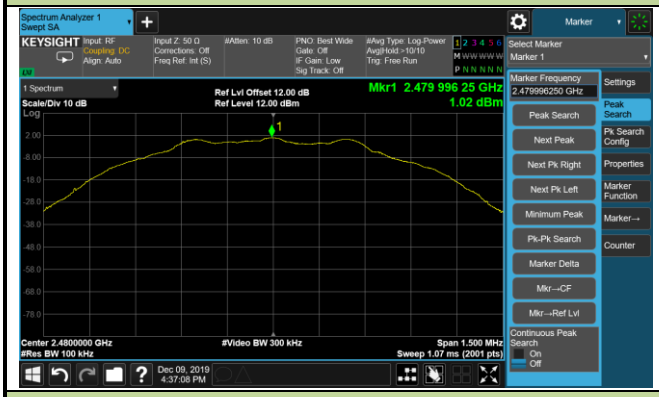
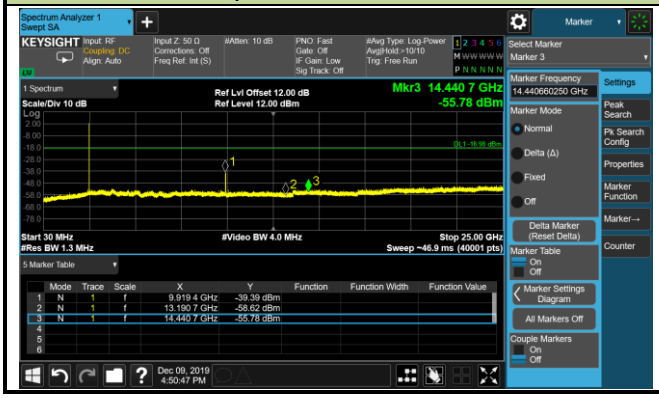


7.5.5.Test Result

Product	Standalone VR Headset	Temperature	23°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	TR3	Test Date	2019/12/09

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

BLE Out-of-Band Emissions	
Channel 00 (2402MHz)	
100kHz PSD reference Level	Low Band Edge
	
Spurious Emission	
	

Channel 19 (2440MHz)	
100kHz PSD reference Level	Spurious Emission
	
Channel 39 (2480MHz)	
100kHz PSD reference Level	High Band Edge
	
Spurious Emission	
	

7.6. Radiated Spurious Emission Measurement

7.6.1.Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR and in Section 8.10 of the RSS-Gen Issue 5must not exceed the limits shown in Table.

FCC Part 15 Subpart C Paragraph 15.209 & RSS-Gen Section 8.9		
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

7.6.2.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)

7.6.3.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

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

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

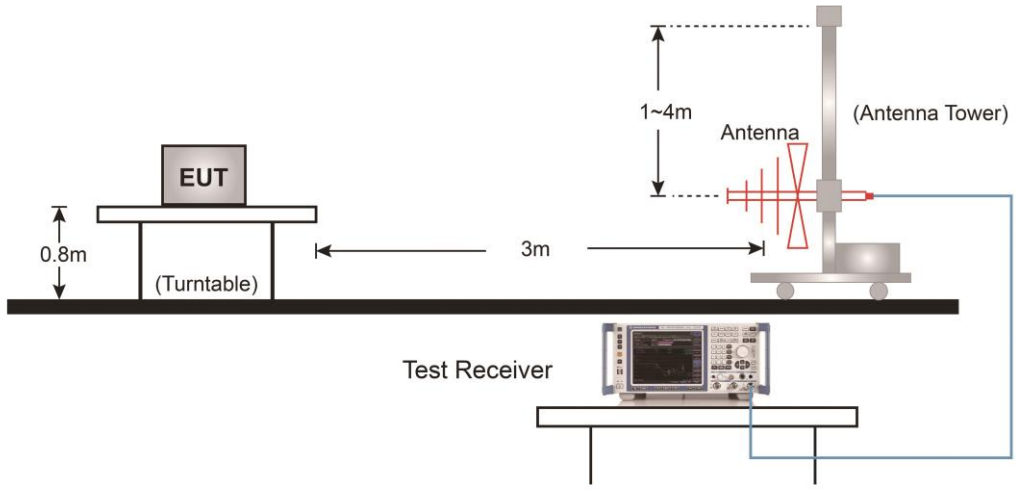
5. Sweep time = auto

6. Trace mode = max hold

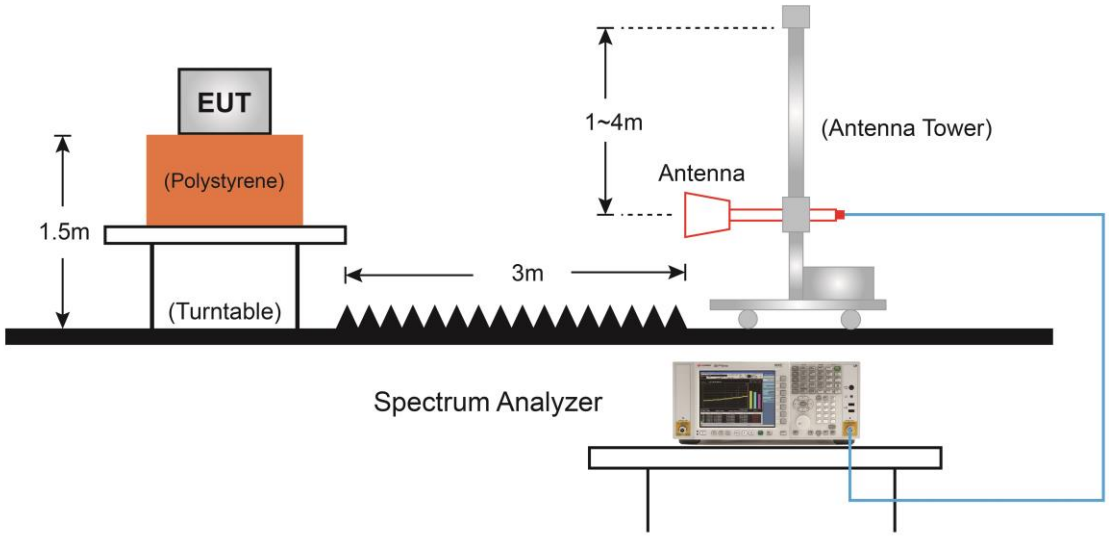
7. Trace was allowed to stabilize

7.6.4.Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



7.6.5.Test Result

Product	Standalone VR Headset	Temperature	26°C
Test Engineer	Dillon Daio	Relative Humidity	57 %
Test Site	AC2	Test Date	2019/12/17
Test Mode	BLE	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
	7502.5	33.5	12.0	45.5	74.0	-28.5	Peak	Horizontal
*	7953.0	32.9	12.3	45.2	74.0	-28.8	Peak	Horizontal
	8199.5	32.6	12.3	44.9	74.0	-29.1	Peak	Horizontal
*	8539.5	32.9	12.8	45.7	74.0	-28.3	Peak	Horizontal
	7502.5	32.2	12.0	44.2	74.0	-29.8	Peak	Vertical
*	7944.5	33.5	12.2	45.7	74.0	-28.3	Peak	Vertical
	8182.5	32.0	12.4	44.4	74.0	-29.6	Peak	Vertical
*	8599.0	32.6	13.3	45.9	74.0	-28.1	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 20dBc of the fundamental emission level (88.7dBμV/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	Standalone VR Headset	Temperature	26°C
Test Engineer	Dillon Daio	Relative Humidity	57 %
Test Site	AC2	Test Date	2019/12/17
Test Mode	BLE	Test Channel	19
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
	7596.0	33.1	12.1	45.2	74.0	-28.8	Peak	Horizontal
*	8012.5	32.8	12.5	45.3	74.0	-28.7	Peak	Horizontal
	8344.0	32.4	12.5	44.9	74.0	-29.1	Peak	Horizontal
*	8964.5	32.0	14.0	46.0	74.0	-28.0	Peak	Horizontal
	7528.0	32.9	11.8	44.7	74.0	-29.3	Peak	Vertical
*	7902.0	32.7	12.2	44.9	74.0	-29.1	Peak	Vertical
	8216.5	33.1	12.2	45.3	74.0	-28.7	Peak	Vertical
*	8633.0	32.6	13.3	45.9	74.0	-28.1	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 20dBc of the fundamental emission level (90.7dBμV/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	Standalone VR Headset	Temperature	26°C
Test Engineer	Dillon Daio	Relative Humidity	57 %
Test Site	AC2	Test Date	2019/12/17
Test Mode	BLE	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
	7604.5	33.6	12.0	45.6	74.0	-28.4	Peak	Horizontal
*	7944.5	32.5	12.2	44.7	74.0	-29.3	Peak	Horizontal
	8199.5	33.0	12.3	45.3	74.0	-28.7	Peak	Horizontal
*	8794.5	32.0	13.7	45.7	74.0	-28.3	Peak	Horizontal
	7485.5	33.2	12.2	45.4	74.0	-28.6	Peak	Vertical
*	7893.5	33.7	12.0	45.7	74.0	-28.3	Peak	Vertical
	8148.5	32.5	12.3	44.8	74.0	-29.2	Peak	Vertical
*	8735.0	31.6	13.7	45.3	74.0	-28.7	Peak	Vertical

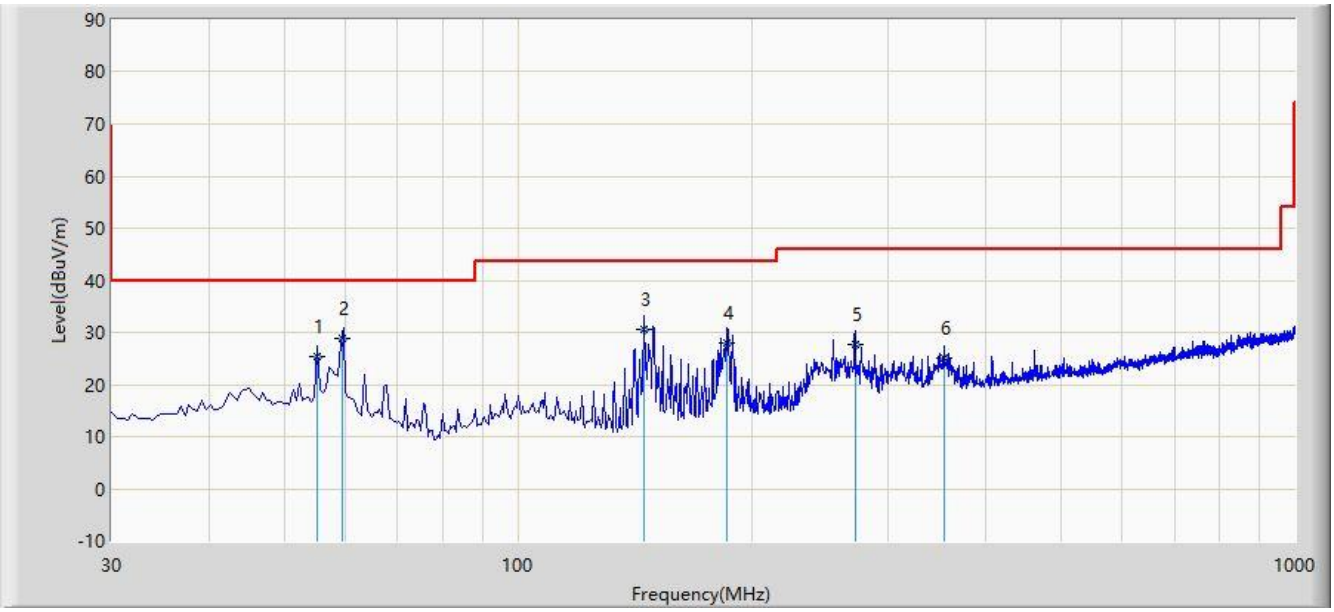
Note 1: “*” is not in restricted band, its limit is 20dBc of the fundamental emission level (92.8dBμV/m) or 15.209 which is higher.

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 test mode of Radiated Emission below 1GHz:

Site: AC2	Time: 2019/12/20 - 10:21
Limit: FCC_Part15.209_RE(3m)	Engineer: Dillon Diao
Probe: VULB9168_20-2000MHz	Polarity: Horizontal
EUT: Standalone VR Headset	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2402MHz	



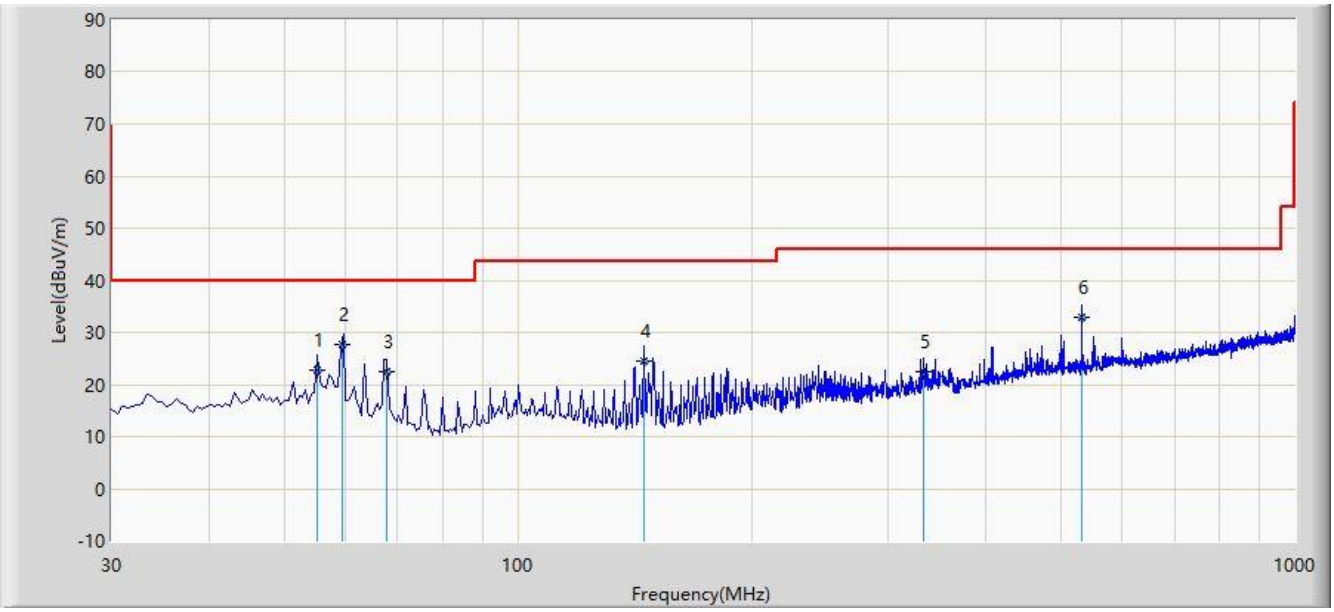
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			55.210	25.452	11.420	-14.548	40.000	14.032	QP
2		*	59.560	28.841	15.420	-11.159	40.000	13.422	QP
3			145.420	30.601	21.480	-12.899	43.500	9.121	QP
4			186.140	27.942	16.590	-15.558	43.500	11.353	QP
5			271.540	27.564	13.260	-18.436	46.000	14.305	QP
6			353.260	25.193	8.650	-20.807	46.000	16.543	QP

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + 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: 2019/12/20 - 10:22
Limit: FCC_Part15.209_RE(3m)	Engineer: Dillon Diao
Probe: VULB9168_20-2000MHz	Polarity: Vertical
EUT: Standalone VR Headset	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2402MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			55.210	22.722	8.690	-17.278	40.000	14.032	QP
2		*	59.540	27.675	14.250	-12.325	40.000	13.426	QP
3			67.820	22.564	11.410	-17.436	40.000	11.154	QP
4			145.620	24.384	15.260	-19.116	43.500	9.125	QP
5			332.510	22.541	6.540	-23.459	46.000	16.001	QP
6			532.420	32.869	13.250	-13.131	46.000	19.619	QP

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + 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.

7.7. Radiated Restricted Band Edge Measurement

7.7.1.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 - 156.525	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	--	--	--

For RSS-Gen Section 8.10 Requirement

Radiated emissions which fall in the restricted bands, as defined in Section 8.10 of RSS-Gen, must also comply with the radiated emission limits specified in Section 8.9.

Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.009 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.525225	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	--
8.37625 - 8.38675	1718.8 -1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 -2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 -13.41	3260 - 3267	
16.42 - 16.423	3332 -3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 - 8500	
108 - 138	--	

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47CFR and in Section 8.10 of the RSS-Gen must not exceed the limits shown in Table.

FCC Part 15 Subpart C Paragraph 15.209 & RSS-Gen Section 8.9		
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

7.7.2.Test Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

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

7.7.3.Test Setting

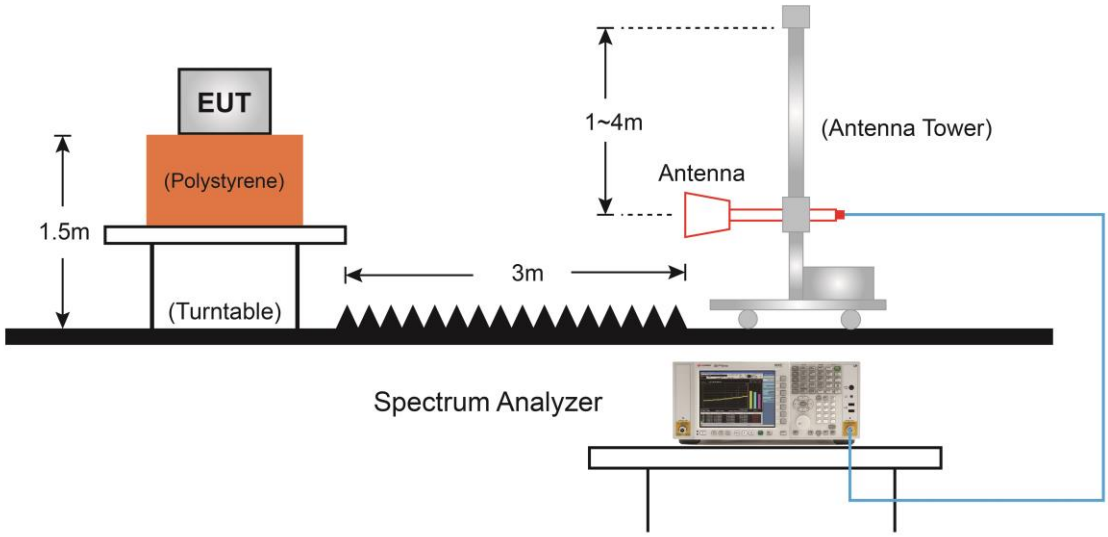
Peak Field Strength Measurements

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

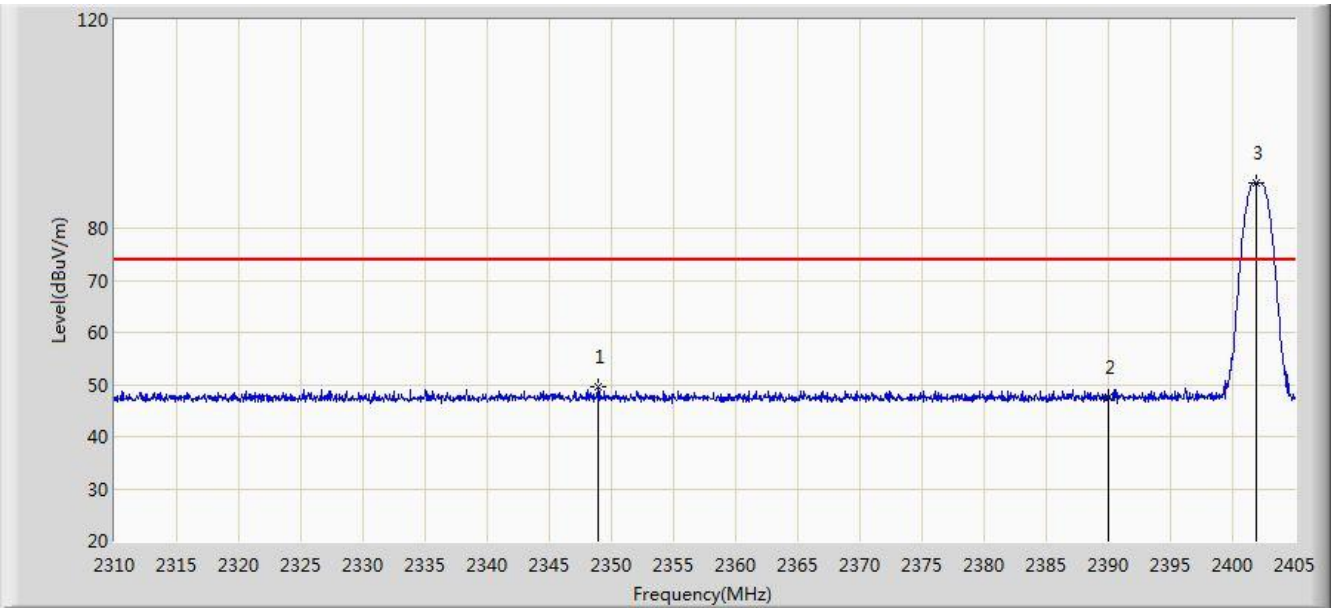
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW ≥ 1/T
4. De As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). 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

7.7.4.Test Setup



7.7.5.Test Result

Site: AC2	Time: 2019/12/05 - 01:07
Limit: FCC_Part15.209_RSE(3m)	Engineer: Jason Gao
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Standalone VR Headset	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2402MHz	

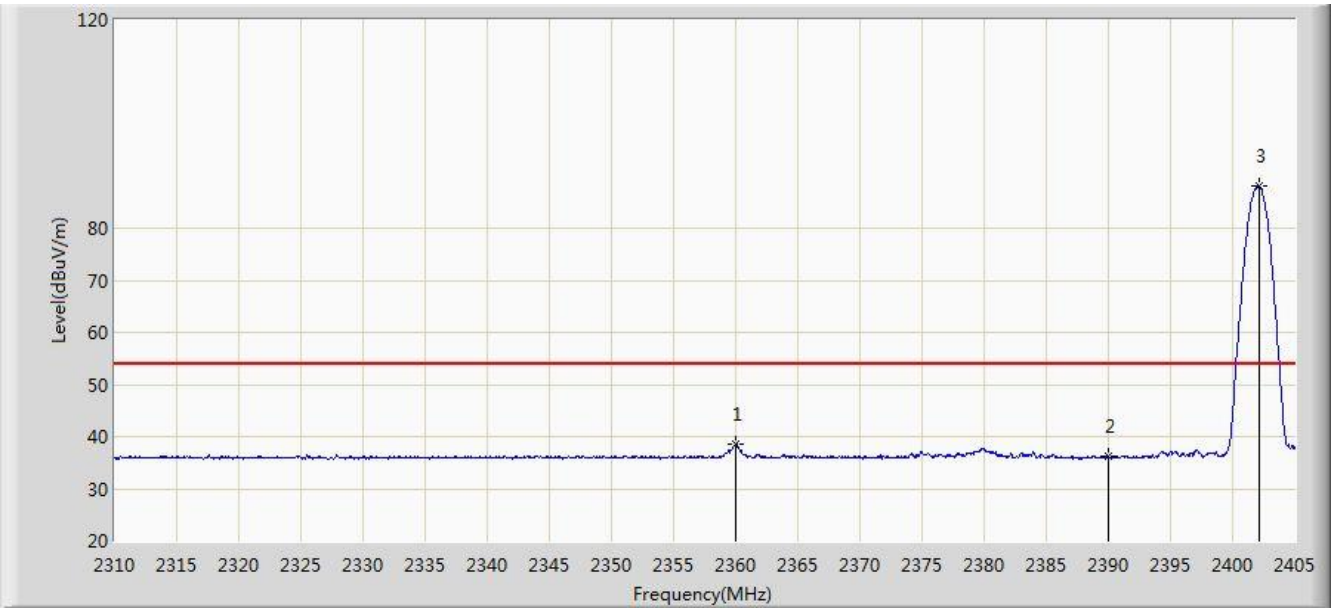


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2348.903	49.466	16.856	-24.534	74.000	32.609	PK
2			2390.000	47.569	15.084	-26.431	74.000	32.485	PK
3		*	2401.865	88.720	56.207	N/A	N/A	32.514	PK

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

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

Site: AC2	Time: 2019/12/05 - 02:03
Limit: FCC_Part15.209_RSE(3m)	Engineer: Jason Gao
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Standalone VR Headset	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2402MHz	

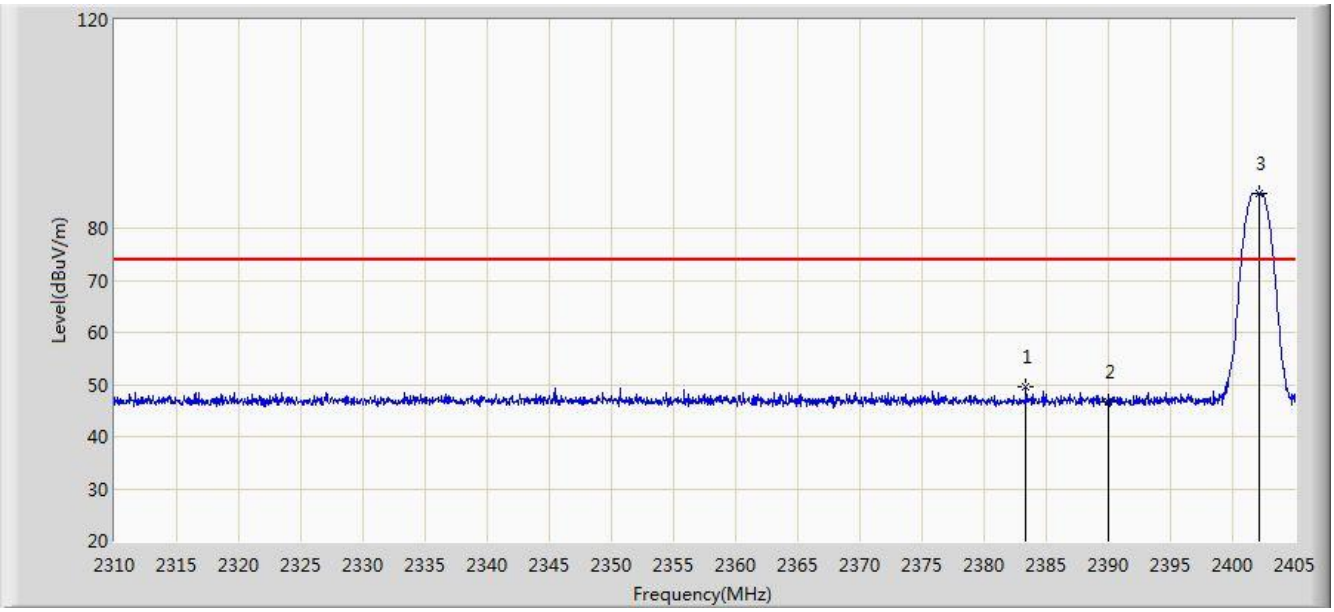


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2359.970	38.546	5.965	-15.454	54.000	32.581	AV
2			2390.000	36.275	3.790	-17.725	54.000	32.485	AV
3		*	2402.150	88.066	55.552	N/A	N/A	32.514	AV

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

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

Site: AC2	Time: 2019/12/05 - 02:07
Limit: FCC_Part15.209_RSE(3m)	Engineer: Jason Gao
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Standalone VR Headset	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2402MHz	

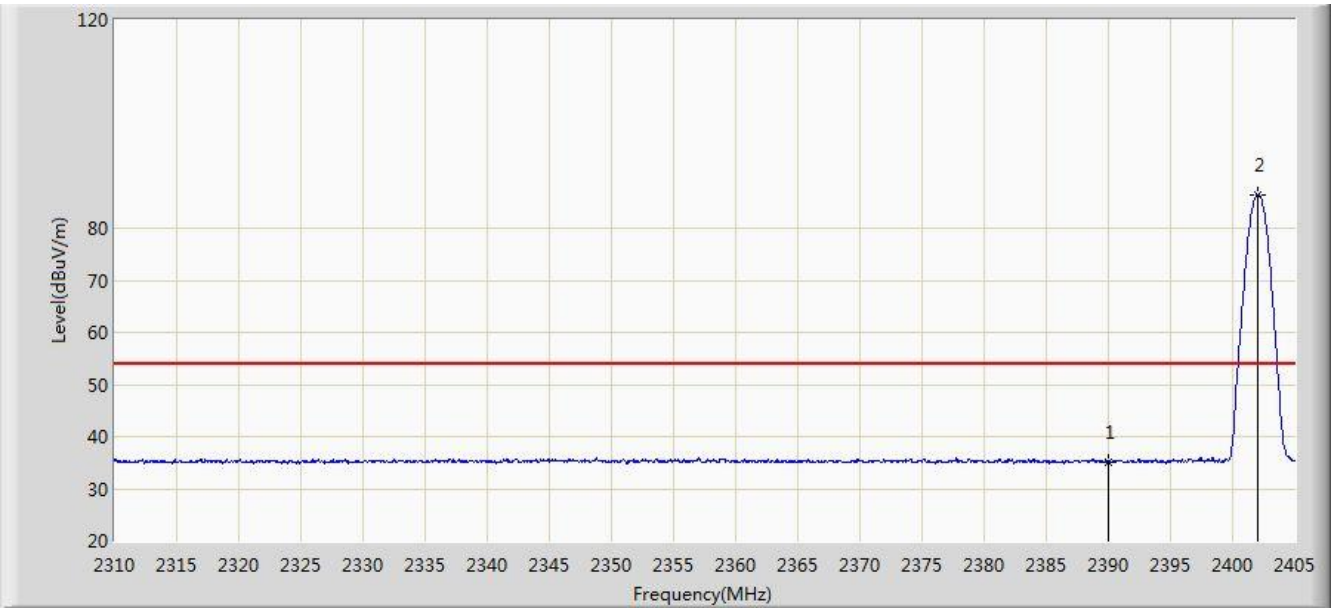


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2383.387	49.490	17.012	-24.510	74.000	32.478	PK
2			2390.000	46.731	14.246	-27.269	74.000	32.485	PK
3		*	2402.150	86.723	54.209	N/A	N/A	32.514	PK

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

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

Site: AC2	Time: 2019/12/05 - 02:10
Limit: FCC_Part15.209_RSE(3m)	Engineer: Jason Gao
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Standalone VR Headset	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2402MHz	

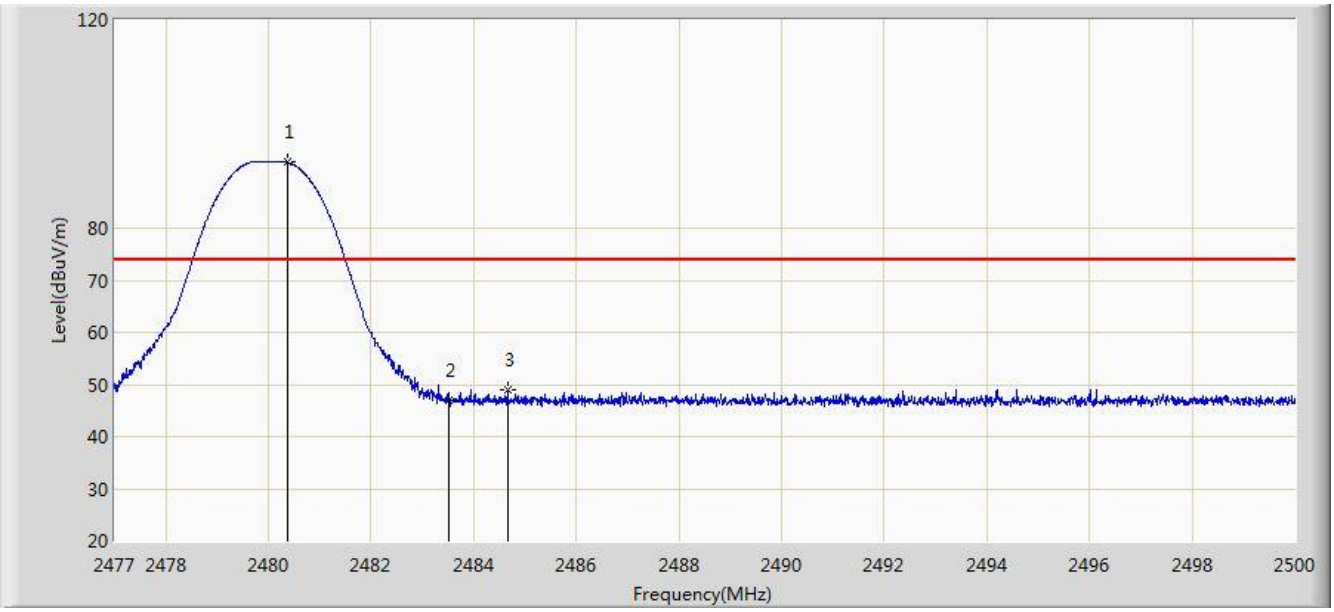


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	35.199	2.714	-18.801	54.000	32.485	AV
2		*	2402.008	86.370	53.857	N/A	N/A	32.513	AV

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

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

Site: AC2	Time: 2019/12/05 - 02:16
Limit: FCC_Part15.209_RSE(3m)	Engineer: Jason Gao
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Standalone VR Headset	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2480MHz	

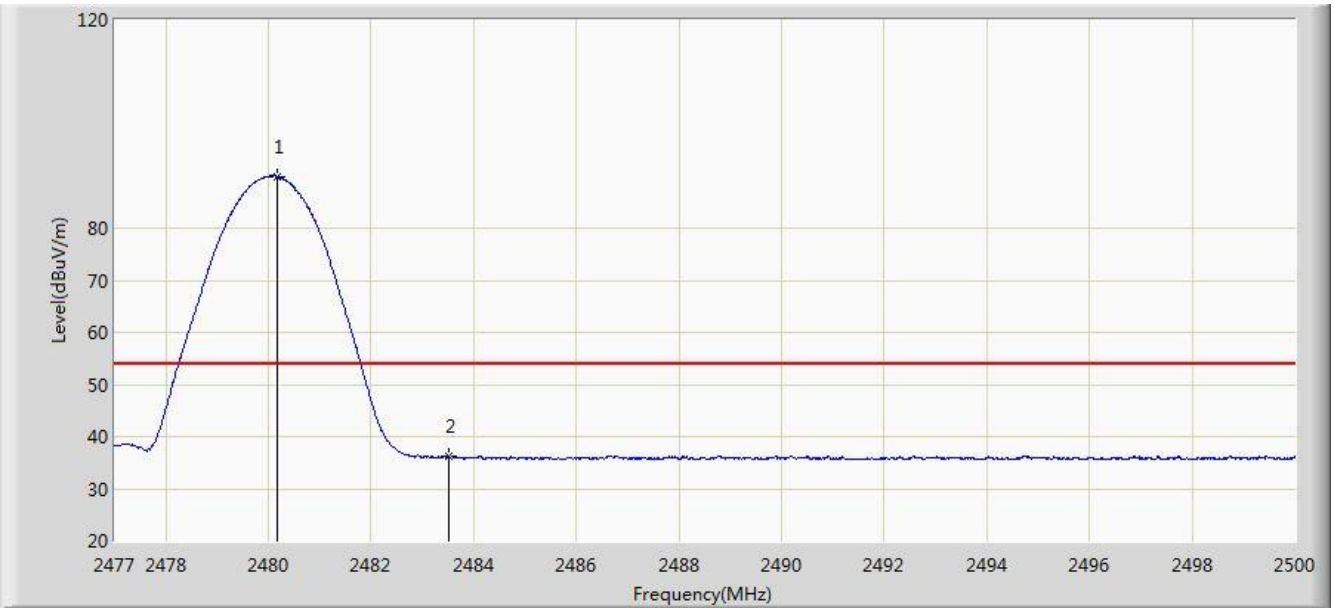


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.381	92.641	60.259	N/A	N/A	32.382	PK
2			2483.500	47.082	14.707	-26.918	74.000	32.375	PK
3			2484.659	48.944	16.572	-25.056	74.000	32.372	PK

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

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

Site: AC2	Time: 2019/12/05 - 02:21
Limit: FCC_Part15.209_RSE(3m)	Engineer: Jason Gao
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Standalone VR Headset	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2480MHz	

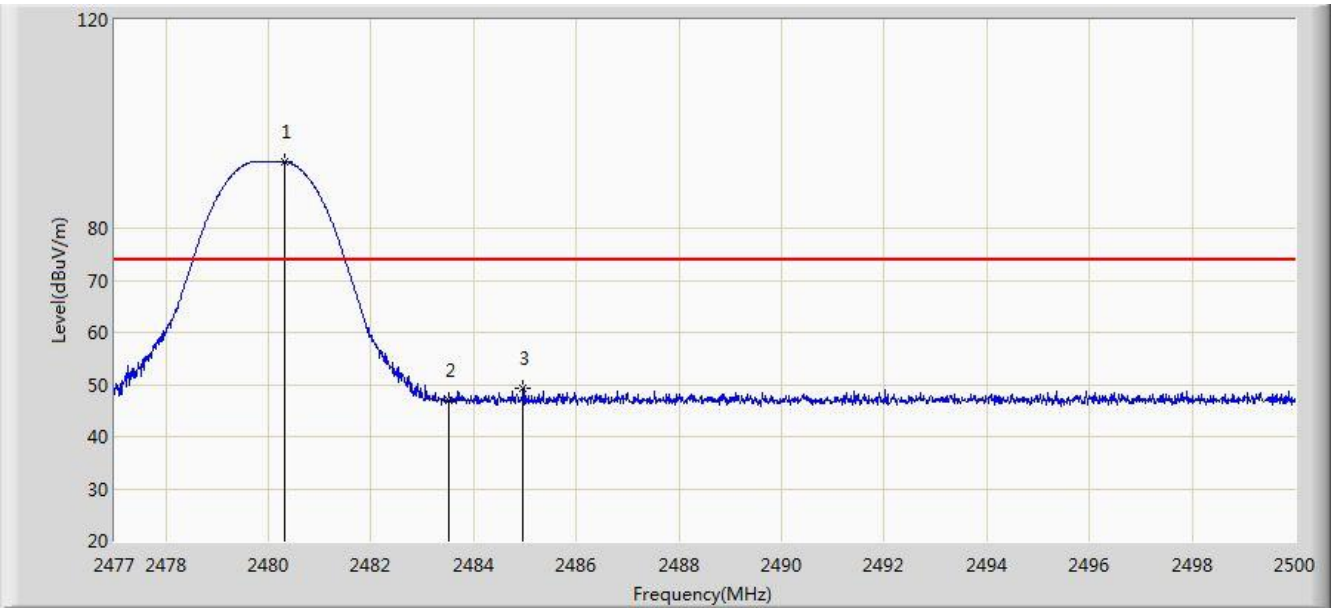


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.174	89.924	57.542	N/A	N/A	32.382	AV
2			2483.500	36.116	3.741	-17.884	54.000	32.375	AV

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

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

Site: AC2	Time: 2019/12/05 - 02:25
Limit: FCC_Part15.209_RSE(3m)	Engineer: Jason Gao
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Standalone VR Headset	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2480MHz	

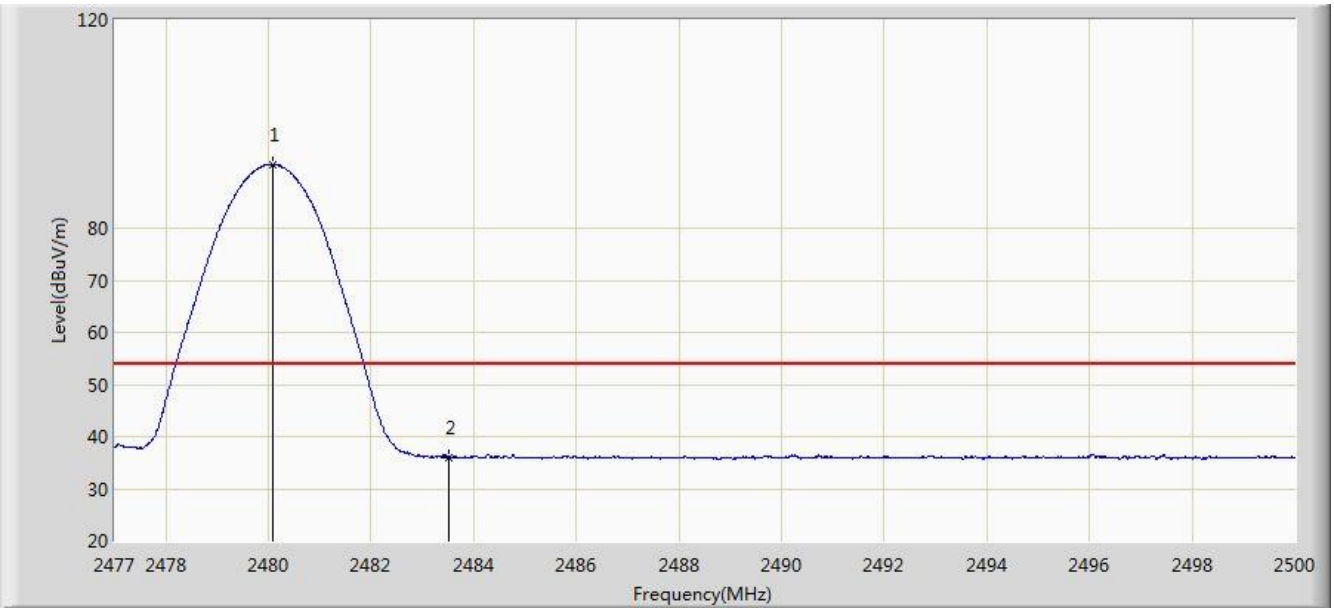


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.312	92.746	60.364	N/A	N/A	32.382	PK
2			2483.500	46.965	14.590	-27.035	74.000	32.375	PK
3			2484.969	49.180	16.809	-24.820	74.000	32.371	PK

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

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

Site: AC2	Time: 2019/12/05 - 02:26
Limit: FCC_Part15.209_RSE(3m)	Engineer: Jason Gao
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Standalone VR Headset	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2480MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.082	92.282	59.899	N/A	N/A	32.383	AV
2			2483.500	36.063	3.688	-17.937	54.000	32.375	AV

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

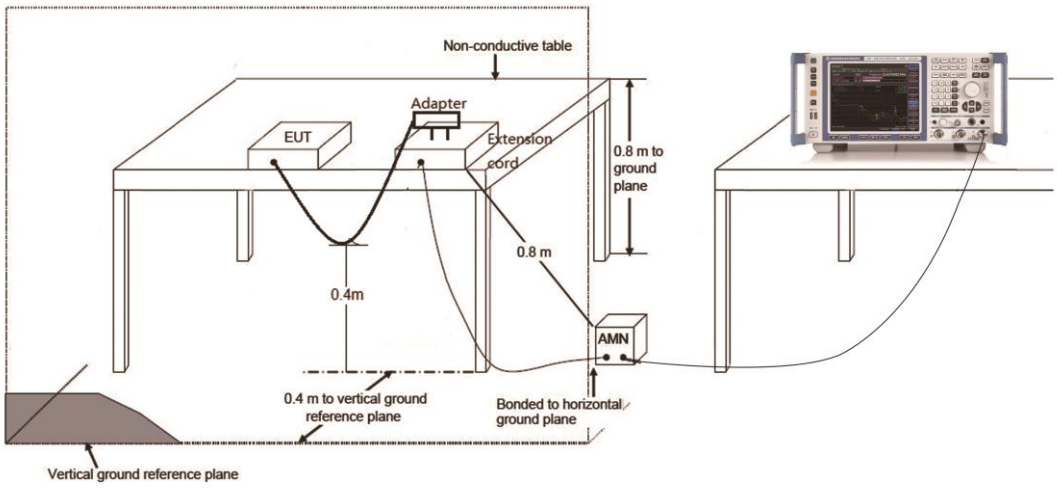
Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

7.8. AC Conducted Emissions Measurement

7.8.1.Test Limit

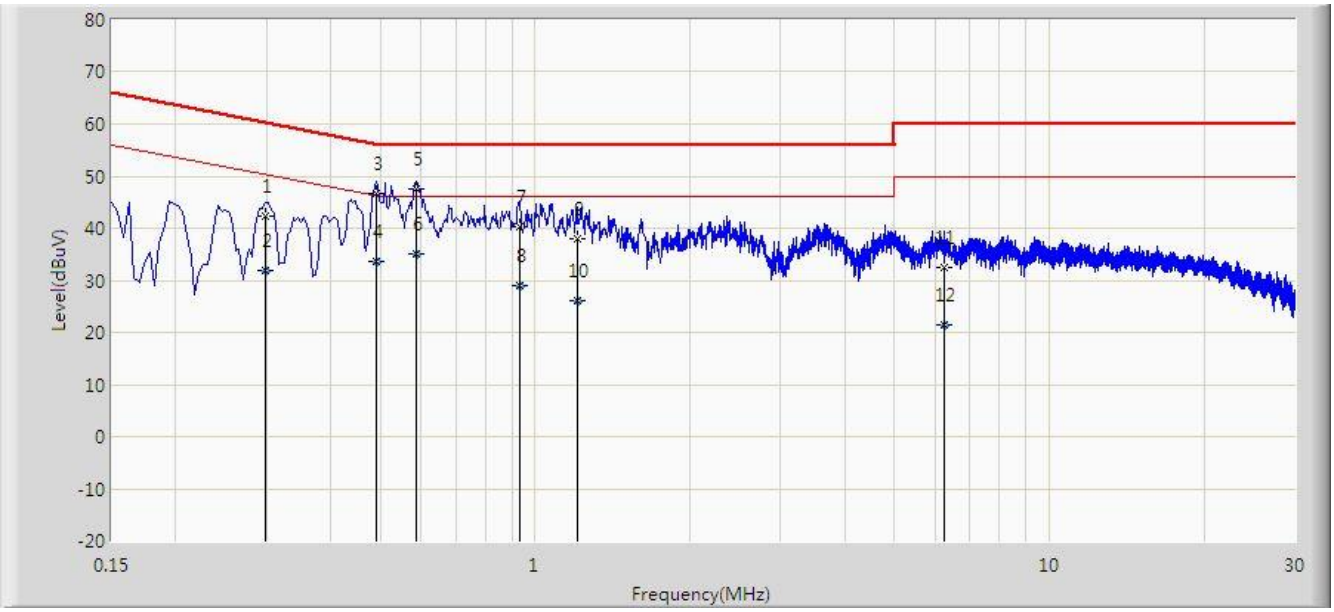
FCC Part 15 Subpart C Paragraph 15.207 & RSS-Gen Issue 5 Section 7.2.4 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50
Note 1: The lower limit shall apply at the transition frequencies. Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.		

7.8.2.Test Setup



7.8.3.Test Result

Site: SR2	Time: 2019/12/19 - 15:52
Limit: FCC_Part15.207_CE_AC Power	Engineer: Liz Yuan
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: Standalone VR Headset	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2402MHz	

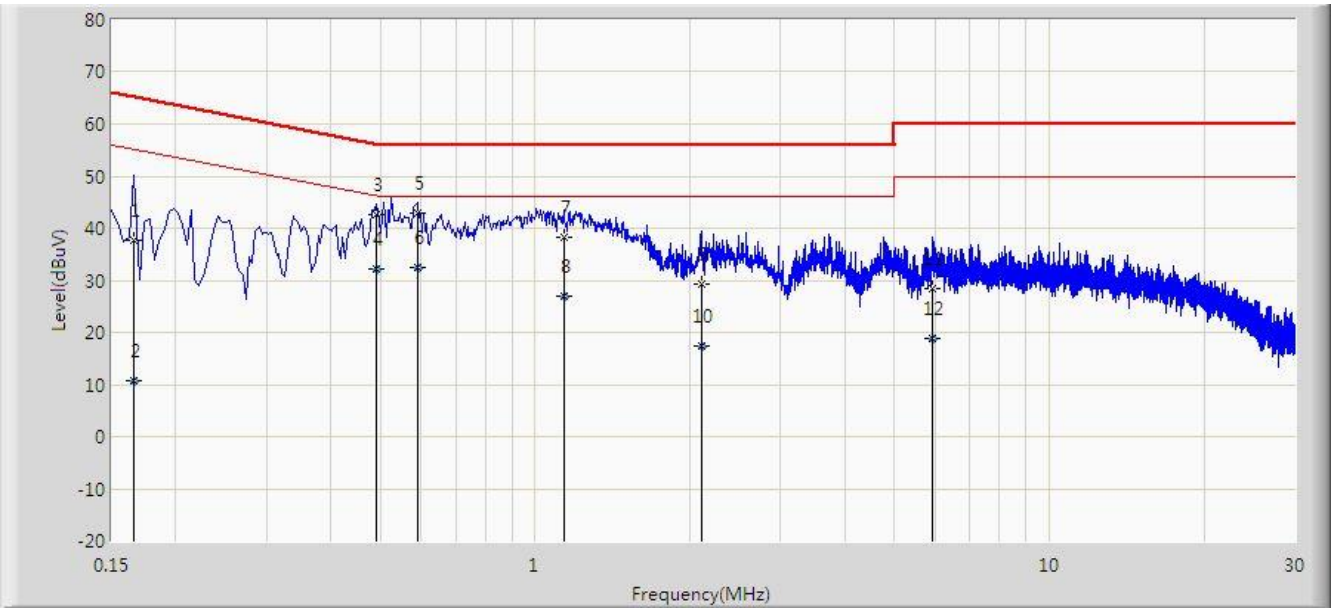


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.298	42.414	32.378	-17.884	60.298	10.036	QP
2			0.298	31.951	21.915	-18.347	50.298	10.036	AV
3			0.491	46.679	36.500	-9.472	56.151	10.179	QP
4			0.491	33.679	23.500	-12.472	46.151	10.179	AV
5		*	0.586	47.539	37.400	-8.461	56.000	10.139	QP
6			0.586	35.039	24.900	-10.961	46.000	10.139	AV
7			0.934	40.425	30.480	-15.575	56.000	9.945	QP
8			0.934	28.924	18.979	-17.076	46.000	9.945	AV
9			1.206	37.843	27.941	-18.157	56.000	9.902	QP
10			1.206	26.037	16.135	-19.963	46.000	9.902	AV
11			6.250	32.545	22.408	-27.455	60.000	10.137	QP
12			6.250	21.533	11.396	-28.467	50.000	10.137	AV

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

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

Site: SR2	Time: 2019/12/19 - 15:39
Limit: FCC_Part15.207_CE_AC Power	Engineer: Liz Yuan
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: Standalone VR Headset	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2402MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.166	37.733	27.646	-27.425	65.158	10.087	QP
2			0.166	10.831	0.743	-44.327	55.158	10.087	AV
3			0.490	42.479	32.321	-13.689	56.168	10.158	QP
4			0.490	32.235	22.077	-13.933	46.168	10.158	AV
5		*	0.590	42.850	32.730	-13.150	56.000	10.120	QP
6			0.590	32.458	22.338	-13.542	46.000	10.120	AV
7			1.138	38.185	28.281	-17.815	56.000	9.904	QP
8			1.138	26.971	17.067	-19.029	46.000	9.904	AV
9			2.102	29.312	19.444	-26.688	56.000	9.868	QP
10			2.102	17.459	7.591	-28.541	46.000	9.868	AV
11			5.934	28.407	18.296	-31.593	60.000	10.110	QP
12			5.934	18.894	8.784	-31.106	50.000	10.110	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + 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 unit is compliance with Part 15C of the FCC Rules and RSS-247 of the ISED Rules.

The End

Appendix A - Test Setup Photograph

Refer to “1911RSU052-UT” file.

Appendix B - EUT Photograph

Refer to “1911RSU052-UE” file.