MEASUREMENT REPORT

FCC PART 15.247 / ISED RSS-247 Bluetooth-LE

FCC ID:	H8N-AP6275S
IC:	1353A-AP6275S
Applicant:	Askey Computer Corporation
Application Type:	Certification
Product:	WIFI+BT Combo Module
Model No.:	AP6275S
Brand Name:	ASKEY
FCC Classification:	Digital Transmission System (DTS)
FCC Rule Part(s):	Part15 Subpart C (Section 15.247)
ISED Rule(s):	RSS-247 Issue 2, RSS-GEN Issue 5
Test Procedure(s):	ANSI C63.10-2013, KDB 558074 D01v05r02
Test Date:	June 04 ~ 21, 2021

Reviewed By: Kevin Guo

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.

Revision History

Report No.	Version	Description	Issue Date	Note
2104RSU079-U3	Rev. 01	Initial Report	07-01-2021	Valid

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Description Page

1. General Information

1.1. Applicant

Askey Computer Corporation

10F, No.119, JIANKANG RD., ZHONGHE DIST., NEW TAIPEI CITY, TAIWAN

1.2. Manufacturer

Askey Computer Corporation

10F, No.119, JIANKANG RD., ZHONGHE DIST., NEW TAIPEI CITY, TAIWAN

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	
☐	**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

2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name	WIFI+BT Combo Module
Model No.	AP6275S
PMN & HVIN	AP6275S
Brand Name	ASKEY
Wi-Fi Specification	802.11a/b/g/n/ac/ax
Bluetooth Specification	V5.0 dual mode
Antenna Information	Refer to section 2.4
Serial No.	Conducted: 41C3S043320 Radiated & AC Conducted Emission: 41C3S043287
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

2.2. Product Specification Subjective to this Report

Frequency Range	2402~2480MHz
Channel Number	40
Type of Modulation	GFSK
Data Rate	1Mbps & 2Mbps

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	Per Chain Max Antenna Gain (dBi)		CDD Directional Gain (dBi)	
			Ant 0	Ant 1	For Power	For PSD
Wi-Fi Internal Antenna						
PIFA	2412 ~ 2462	2	2.1	1.9	2.1	5.11
	5180 ~ 5240	2	4.2	1.9	4.2	7.21
	5260 ~ 5320	2	3.8	3.0	3.8	6.81
	5500 ~ 5720	2	3.8	2.9	3.8	6.81
	5745 ~ 5825	2	3.4	2.3	3.4	6.41
Bluetooth Internal Antenna						
PIFA	2402 ~ 2480	1	1.9		--	

Note 1:

The EUT supports Cyclic Delay Diversity (CDD) technology, the CDD supports 802.11a/g/n/ac/ax, not include 802.11b (SISO only), and CDD signals are correlated.

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

If all antennas have the same gain, G_{ANT}, 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 $N_{ANT} \leq 4$;

If antenna gains are not equal, Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain.

Note 2: All antenna information is provided by the manufacturer, test laboratory will not be responsible if any error.

2.5. Test Mode

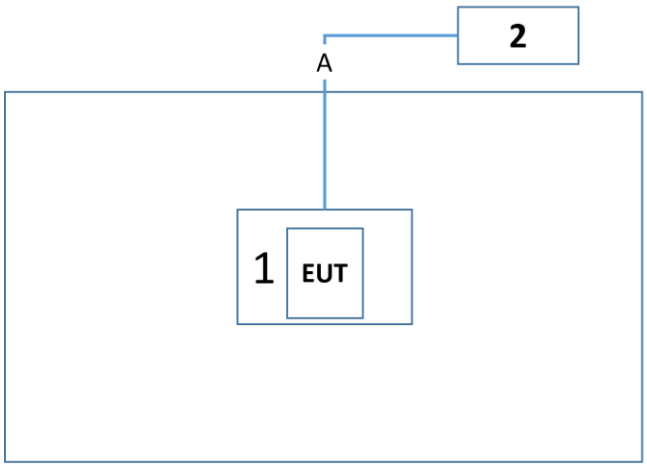
Test Mode	Mode 1: Transmit by BLE-1Mbps
	Mode 2: Transmit by BLE-2Mbps

Note: EUT is as a stand-alone device when the test is processing, but a test fixture will be used as a tool.

2.6. Configuration of Test System

The measurement procedures and appropriate EUT setup described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013) was used in the measurement.

Connection Diagram



Cable Type		Cable Description
A	Console Cable	Shielded, <1.5m

2.7. Test System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Description
1	Test Fixture	ASKEY	N/A	N/A	As a power and signal control board
2	Notebook	DELL	P62G	NA	Non-Shielded, >1.8m

2.8. Test Software

The test utility software used during testing was “Ampak RFTestTool”, and the version was VER 5.8.

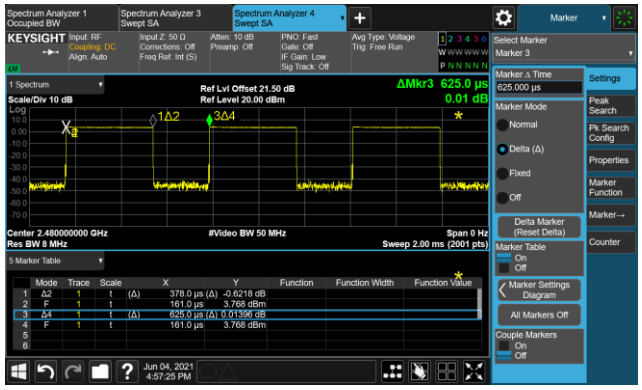
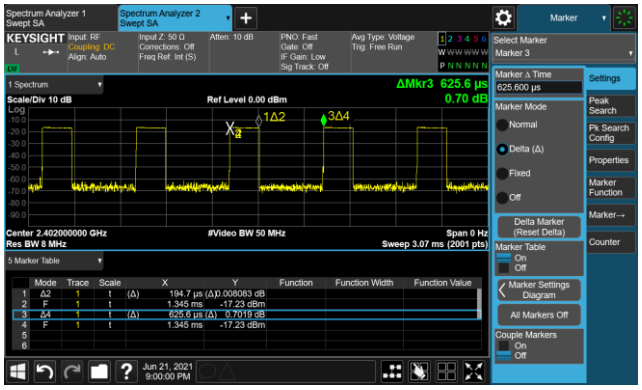
2.9. Test Environment Condition

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

2.10. Duty Cycle

Bluetooth-LE (DTS) operation is possible in channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

Test Mode	Duty Cycle
BLE-1Mbps	60.48%
BLE-2Mbps	31.12%

Duty Cycle (T = Transmission Duration)	
BLE-1Mbps (T= 391.0μs)	BLE-2Mbps (T=194.7μs)
	

2.11. EMI Suppression Device(s)/Modifications

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

2.12. 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.

RSS-Gen Issue 5 Section 4

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.

For information regarding the labelling option, see Section 4.1, 4.2, 4.3 4.4. The label for the certified product represents the manufacturer's or importer's compliance with Innovation, Science and Economic Development Canada's (ISED) regulatory requirements.

Please see attachment for IC label and label location.

3. 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."

Conclusion:

The unit complies with the requirement of §15.203.

4. TEST EQUIPMENT CALIBRATION DATE

Conducted Emission (WZ-SR2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2022/01/12
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2021/09/09
Thermal Hygrometer	testo	608-H1	MRTSUE06404	1 year	2021/07/26
Shielding Room	MIX-BEP	Chamber-SR2	MRTSUE06215	N/A	N/A

Conducted Emission (SIP-SR2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2021/07/02
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2021/09/09
Thermal Hygrometer	testo	608-H1	MRTSUE06621	1 year	2021/12/03

Radiated Emission (WZ-AC1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2022/01/04
PXA Signal Analyzer	Keysight	N9030B	MRTSUE06395	1 year	2021/08/30
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2021/08/08
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2021/09/27
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06597	1 year	2021/12/14
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2021/11/14
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2022/06/10
Thermal Hygrometer	testo	608-H1	MRTSUE06403	1 year	2021/07/26
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2022/04/29

Radiated Emission (WZ-AC2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
MXE EMI Receiver	Keysight	N9038A	MRTSUE06125	1 year	2021/07/02
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2022/05/24
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06171	1 year	2021/10/25
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06597	1 year	2021/12/14
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2021/11/14
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2022/06/10
Thermal Hygrometer	Minggao	ETH529	MRTSUE06170	1 year	2021/12/08
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2022/04/29

Radiated Emission (SIP-AC1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2021/07/02
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2021/07/23
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06645	1 year	2021/08/30
Double Ridged Horn Antenna	R&S	HF907	MRTSUE06610	1 year	2021/08/30
Preamplifier	EMCI	EMC051845SE	MRTSUE06600	1 year	2021/11/12
Thermal Hygrometer	testo	608-H1	MRTSUE06620	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC1	MRTSUE06554	1 year	2021/12/24

Radiated Emission (SIP-AC2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2021/07/02
MXA Signal Analyzer	Keysight	N9020B	MRTSUE06604	1 year	2021/09/26
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06646	1 year	2021/08/30
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06648	1 year	2021/11/26
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06599	1 year	2021/11/26
Preamplifier	EMCI	EMC051845SE	MRTSUE06644	1 year	2021/11/12
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2021/10/13
Thermal Hygrometer	testo	608-H1	MRTSUE06624	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC2	MRTSUE06781	1 year	2021/12/24

Radiated Emission (SIP-AC3)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2021/07/02
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2021/07/23
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06647	1 year	2021/08/08
Double Ridged Horn Antenna	R&S	HF907	MRTSUE06611	1 year	2021/09/13
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06598	1 year	2021/11/26
Preamplifier	EMCI	EMC012645SE	MRTSUE06642	1 year	2022/01/14
Preamplifier	EMCI	EMC184045SE	MRTSUE06641	1 year	2022/01/14
Thermal Hygrometer	testo	608-H1	MRTSUE06622	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC3	MRTSUE06782	1 year	2021/12/24

Conducted Test Equipment (WZ-TR3)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2022/04/13
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06607	1 year	2022/01/07
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2022/04/13
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2021/10/22
USB wideband power sensor	Keysight	U2021XA	MRTSUE06446	1 year	2021/08/30
USB wideband power sensor	Keysight	U2021XA	MRTSUE06447	1 year	2021/08/08
Bluetooth Test Set	Anritsu	MT8852B-042	MRTSUE06389	1 year	2022/06/08
Audio Analyzer	Agilent	U8903B	MRTSUE06143	1 year	2022/05/19
Modulation Analyzer	HP	HP8901A	MRTSUE06098	1 year	2021/09/26
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2021/10/20
Attenuator	MVE	3dB	MRTSUE06529	1 year	2021/12/12
Attenuator	MVE	6dB	MRTSUE06534	1 year	2021/12/12
Attenuator	MVE	10dB	MRTSUE06540	1 year	2021/12/12
Attenuator	MVE	20dB	MRTSUE06547	1 year	2021/12/12
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
Temperature & Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2021/10/22
Thermal Hygrometer	testo	608-H1	MRTSUE06401	1 year	2021/07/26

Conducted Test Equipment (SIP-SR5)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2022/04/13
PXA Signal Analyzer	Keysight	N9030B	MRTSUE06395	1 year	2021/08/30
USB wideband power sensor	Agilent	U2021XA	MRTSUE06595	1 year	2021/09/26
USB wideband power sensor	Agilent	U2021XA	MRTSUE06596	1 year	2021/09/26
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2021/10/20
Bluetooth Test Set	Anritsu	MT8852B-042	MRTSUE06389	1 year	2022/06/08
Attenuator	MVE	3dB	MRTSUE06530	1 year	2021/12/12
Attenuator	MVE	6dB	MRTSUE06535	1 year	2021/12/12
Attenuator	MVE	10dB	MRTSUE06541	1 year	2021/12/12
Attenuator	MVE	20dB	MRTSUE06548	1 year	2021/12/12
Temperature Chamber	BAOYT	BYG-408CS	MRTSUE06847	1 year	2022/02/23
Thermal Hygrometer	testo	622	MRTSUE06629	1 year	2021/11/25

Software	Version	Function
EMI Software	V3	EMI Test Software

5. 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
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: 9KHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~6GHz: 6.40dB Vertical: 9KHz~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)	ISED Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.247(a)(2)	RSS-247 [5.2]	6dB Bandwidth	≥ 500kHz	Conducted	Pass	Section 6.2
N/A	RSS-Gen [6.7]	99% Bandwidth	N/A		Pass	
15.247(b)(3)	RSS-247 [5.4(d)]	Output Power	≤ 1Watt (30dBm) & EIRP ≤ 4Watt (36dBm)		Pass	Section 6.3
15.247(e)	RSS-247 [5.2]	Power Spectral Density	≤ 8dBm/3kHz		Pass	Section 6.4
15.247(d)	RSS-247 [5.5]	Band Edge / Out-of-Band Emissions	20dBc		Pass	Section 6.5
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 6.6 & 6.7
15.207	RSS-Gen [8.8]	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 6.8

Notes:

1) 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.

6.2. Occupied Bandwidth Measurement

6.2.1.Test Limit

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

6.2.2.Test Procedure used

ANSI C63.10-2013 - Section 11.8 (6dB bandwidth)

ANSI C63.10-2013 - Section 6.9.3 (99% bandwidth)

6.2.3.Test Setting

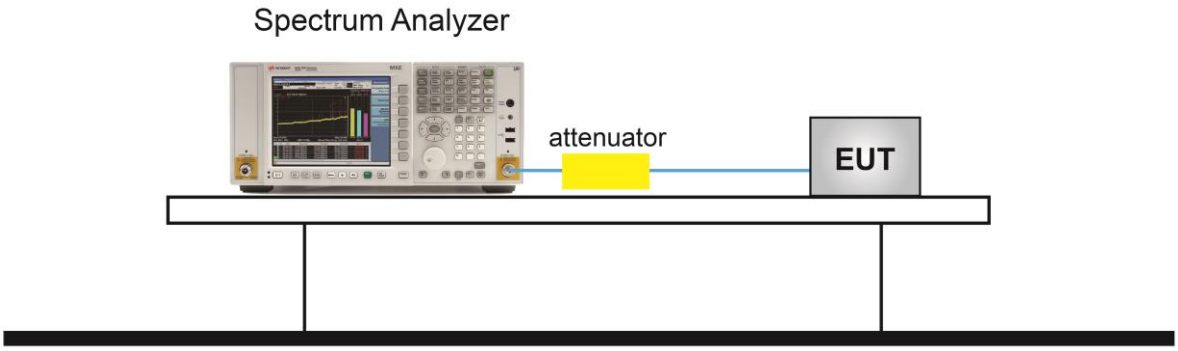
For 6dB bandwidth

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

For 99% bandwidth

1. Span = 1.5 times to 5 times the OBW
2. Set RBW = 1% to 5% the OBW
3. VBW ≥ 3 × RBW
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = Auto couple
7. Allow the trace was allowed to stabilize

6.2.4.Test Setup



6.2.5.Test Result

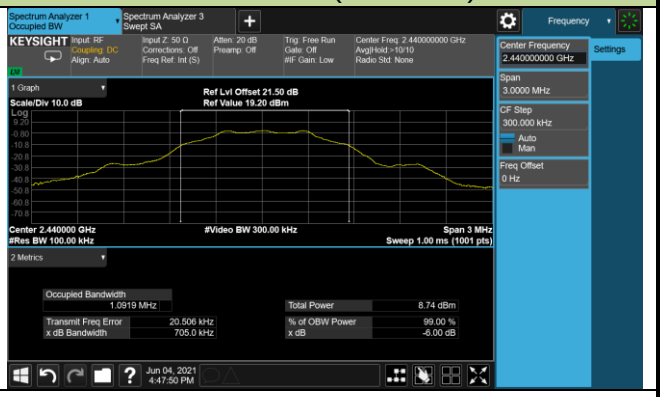
Test Site	WZ-TR3	Test Engineer	Yuri Li
Test Date	2021/06/04 ~ 2021/06/19		

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	6dB Bandwidth (KHz)	Limit (kHz)	99% Bandwidth (kHz)	Result
BLE	1	00	2402	701.5	≥ 500	1054.8	Pass
BLE	1	19	2440	705.0	≥ 500	1056.9	Pass
BLE	1	39	2480	692.8	≥ 500	1051.3	Pass
BLE	2	00	2402	1280.0	≥ 500	2078.2	Pass
BLE	2	19	2440	1278.0	≥ 500	2073.6	Pass
BLE	2	39	2480	1273.0	≥ 500	2071.5	Pass

BLE-1Mbps 6dB Bandwidth

Channel 00 (2402MHz)

Channel 19 (2440MHz)

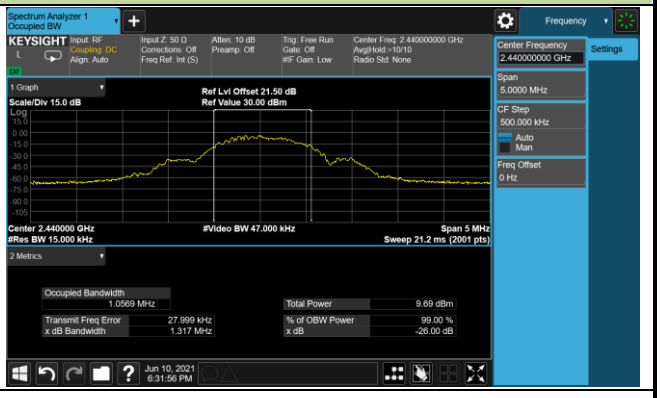


Channel 39 (2480MHz)

BLE-1Mbps 99% Bandwidth

Channel 00 (2402MHz)

Channel 19 (2440MHz)



Channel 39 (2480MHz)

BLE-2Mbps 6dB & 99% Bandwidth	
Channel 00 (2402MHz)	Channel 19 (2440MHz)
	
Channel 39 (2480MHz)	
	

6.3. Output Power Measurement

6.3.1.Test Limit

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

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 Used

ANSI C63.10-2013 - Section 11.9.1.3 PKPM1 Peak-reading power meter method

ANSI C63.10-2013 - Section 11.9.2.3.2 Method AVGPM-G

6.3.3.Test Setting

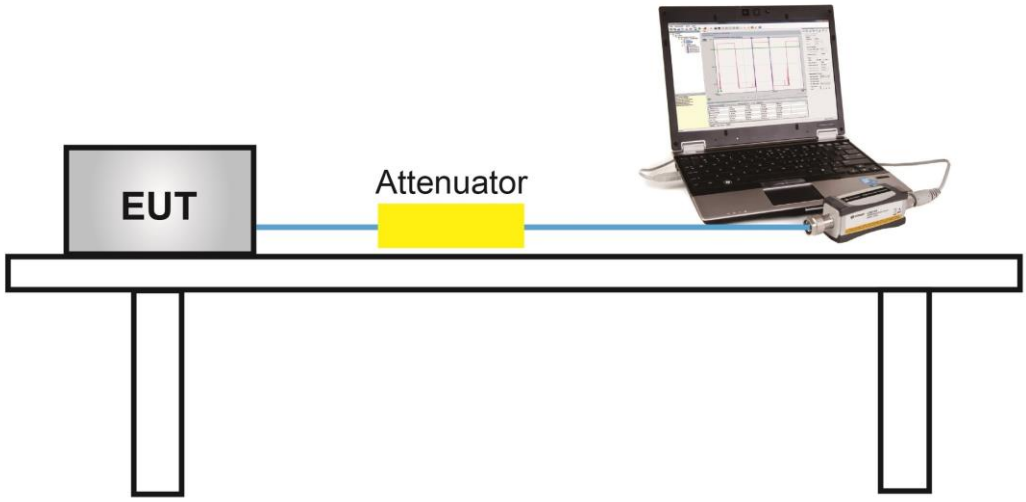
Method PKPM1 (Peak power measurement)

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 (Measurement using a gated RF average-reading power meter)

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since this measurement is made only during the ON time of the transmitter, no duty cycle correction is required.

6.3.4.Test Setup



6.3.5.Test Result

Test Site	WZ-TR3	Test Engineer	Yuri Li
Test Date	2021/06/04		

Test Result of 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	6.84	≤ 30.00	8.74	≤ 36.00	Pass
BLE	1	19	2440	7.38	≤ 30.00	9.28	≤ 36.00	Pass
BLE	1	39	2480	7.87	≤ 30.00	9.77	≤ 36.00	Pass
BLE	2	00	2402	5.89	≤ 30.00	7.79	≤ 36.00	Pass
BLE	2	19	2440	5.71	≤ 30.00	7.61	≤ 36.00	Pass
BLE	2	39	2480	5.84	≤ 30.00	7.74	≤ 36.00	Pass

Note: Max EIRP (dBm) = Peak Power (dBm) + Antenna Gain (dBi), Antenna Gain = 1.9 dBi.

Test Result of 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	5.94	≤ 30.00	7.84	≤ 36.00	Pass
BLE	1	19	2440	6.63	≤ 30.00	8.53	≤ 36.00	Pass
BLE	1	39	2480	7.18	≤ 30.00	9.08	≤ 36.00	Pass
BLE	2	00	2402	4.69	≤ 30.00	6.59	≤ 36.00	Pass
BLE	2	19	2440	4.43	≤ 30.00	6.33	≤ 36.00	Pass
BLE	2	39	2480	4.42	≤ 30.00	6.32	≤ 36.00	Pass

Note: Max EIRP (dBm) = Average Power (dBm) + Antenna Gain (dBi), Antenna Gain = 1.9 dBi.

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.

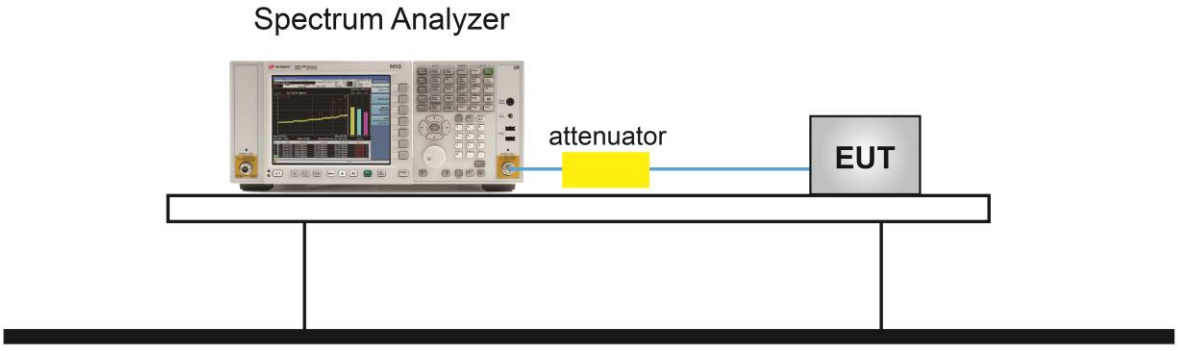
6.4.2.Test Procedure Used

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

6.4.4.Test Setup



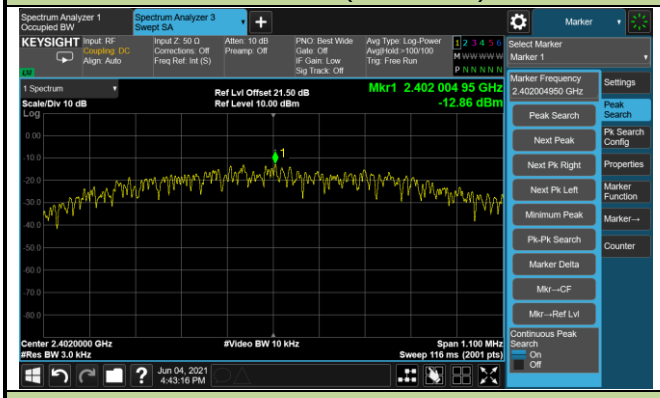
6.4.5.Test Result

Test Site	WZ-TR3	Test Engineer	Yuri Li
Test Date	2021/06/04 ~ 2021/06/19		

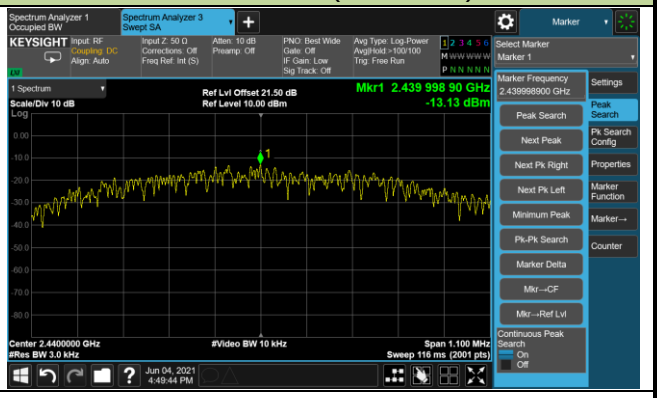
Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	PSD Result (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
BLE	1	00	2402	-12.86	≤ 8.00	Pass
BLE	1	19	2440	-13.13	≤ 8.00	Pass
BLE	1	39	2480	-11.74	≤ 8.00	Pass
BLE	2	00	2402	-14.20	≤ 8.00	Pass
BLE	2	19	2440	-14.02	≤ 8.00	Pass
BLE	2	39	2480	-13.65	≤ 8.00	Pass

BLE-1Mbps PSD

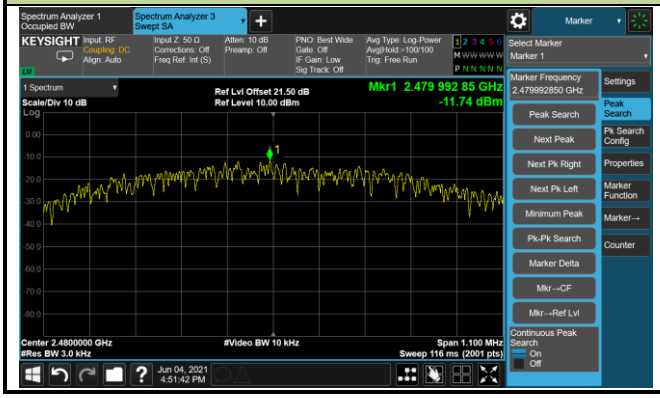
Channel 00 (2402MHz)

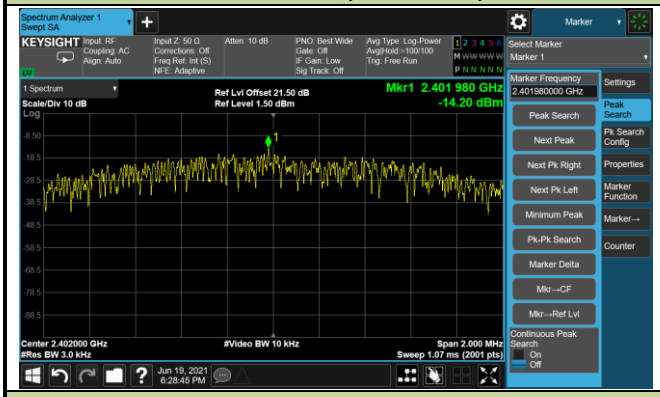
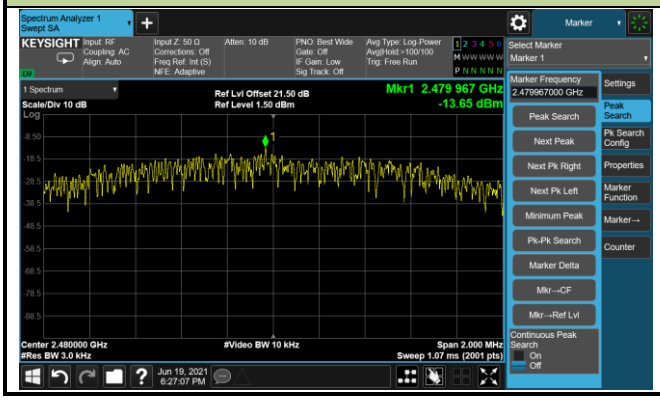


Channel 19 (2440MHz)



Channel 39 (2480MHz)



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

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

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 Used

ANSI C63.10-2013 - Section 11.11.2 & 11.11.3.

6.5.3.Test Setting

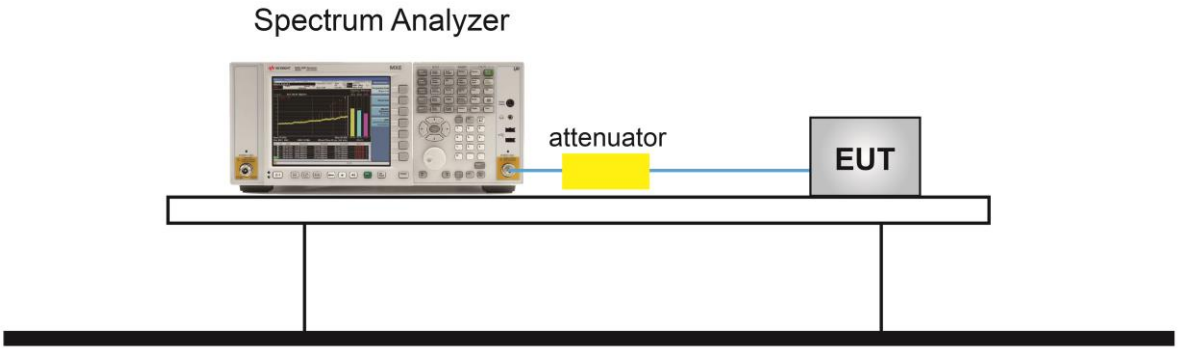
Reference level measurement

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



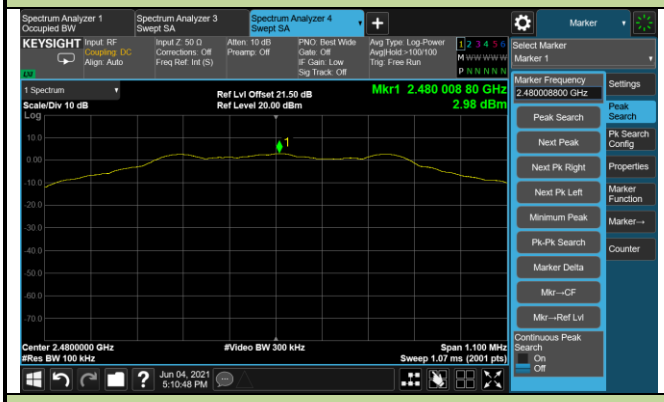
6.5.5.Test Result

Test Site	WZ-TR3	Test Engineer	Yuri Li
Test Date	2021/06/04 ~ 2021/06/21		

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

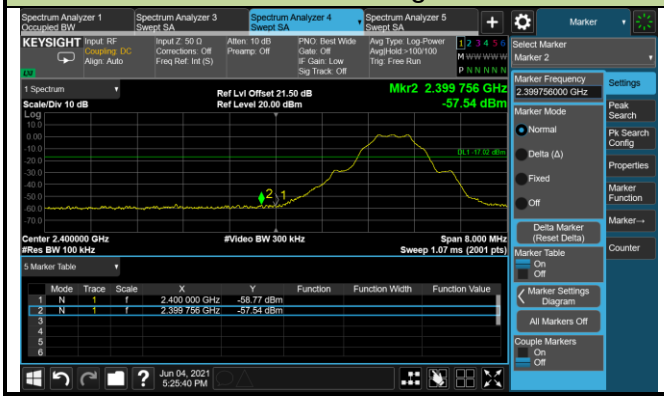
BLE-1Mbps Out-of-Band Emissions

100kHz PSD Reference Level

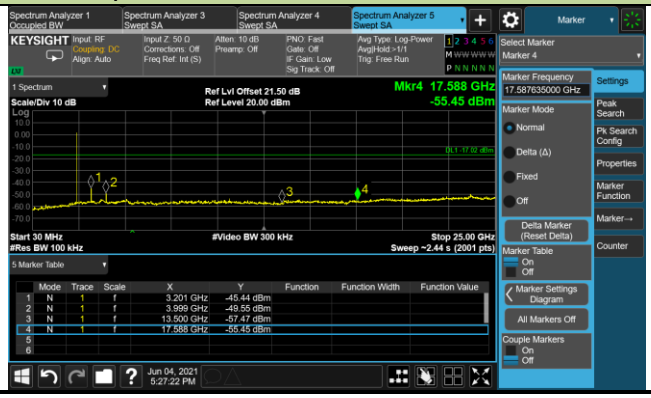


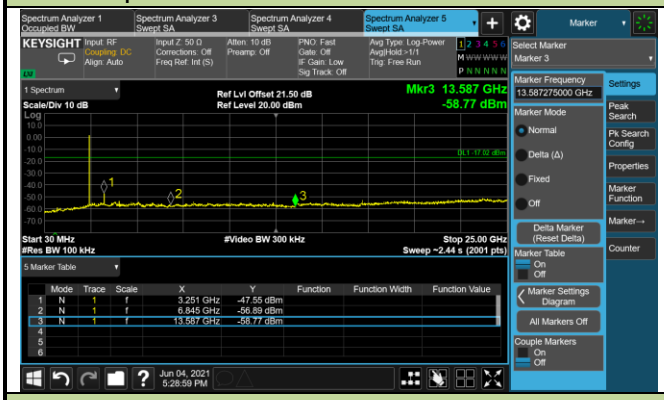
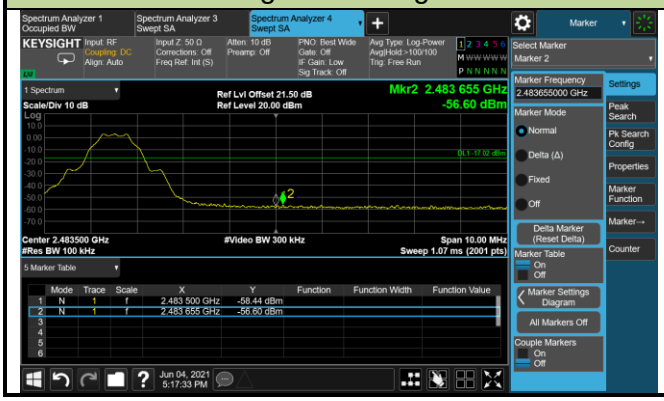
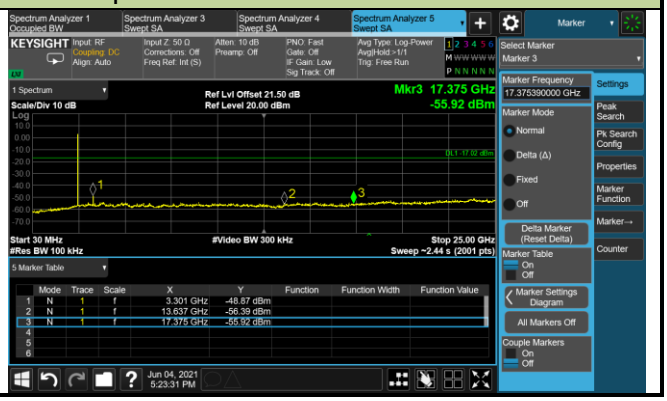
Channel 00 (2402MHz)

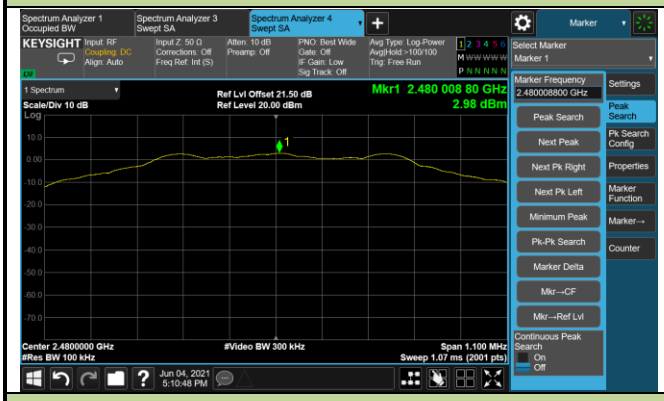
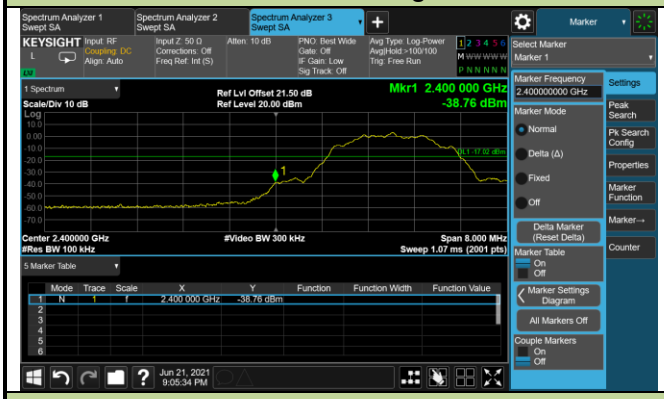
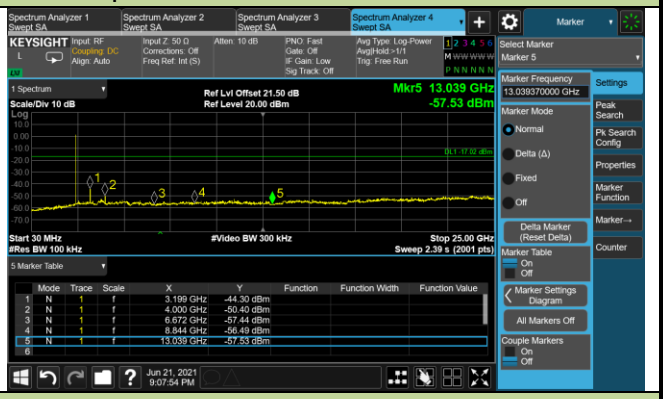
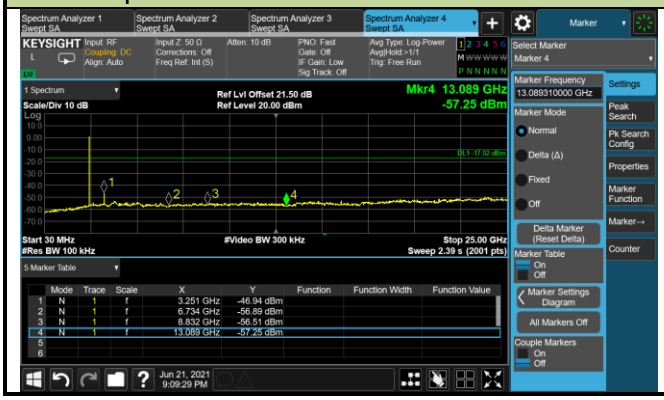
Low Band Edge

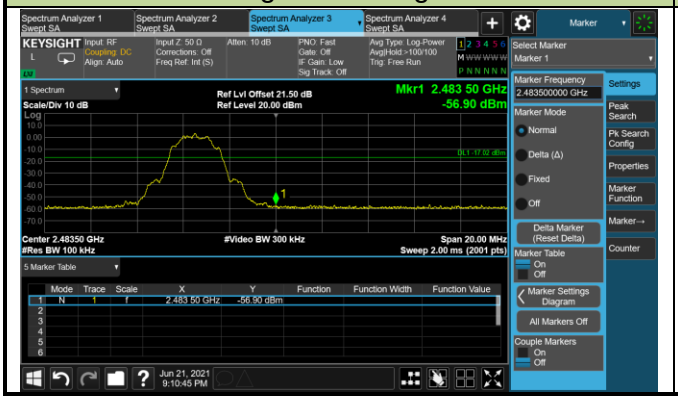
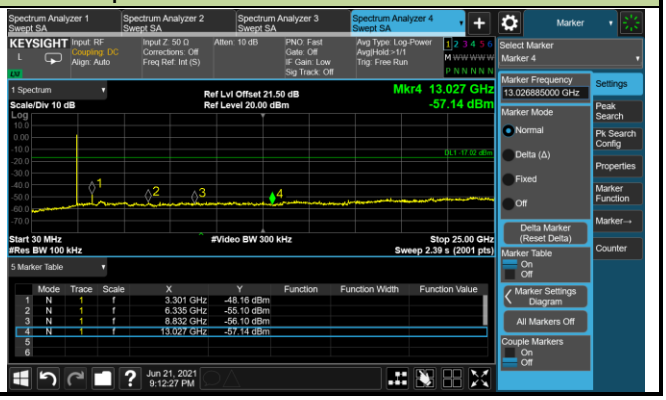


Spurious Emission 30MHz ~ 25GHz



Channel 19 (2440MHz)	
Spurious Emission 30MHz ~ 25GHz	
	
Channel 39 (2480MHz)	
High Band Edge	Spurious Emission 30MHz ~ 25GHz
	

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

Channel 39 (2480MHz)	
High Band Edge	Spurious Emission 30MHz ~ 25GHz
	

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 47CFR must not exceed the limits shown in Table per Section 15.209.

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

6.6.2.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)

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
> 1000 MHz	1 MHz

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

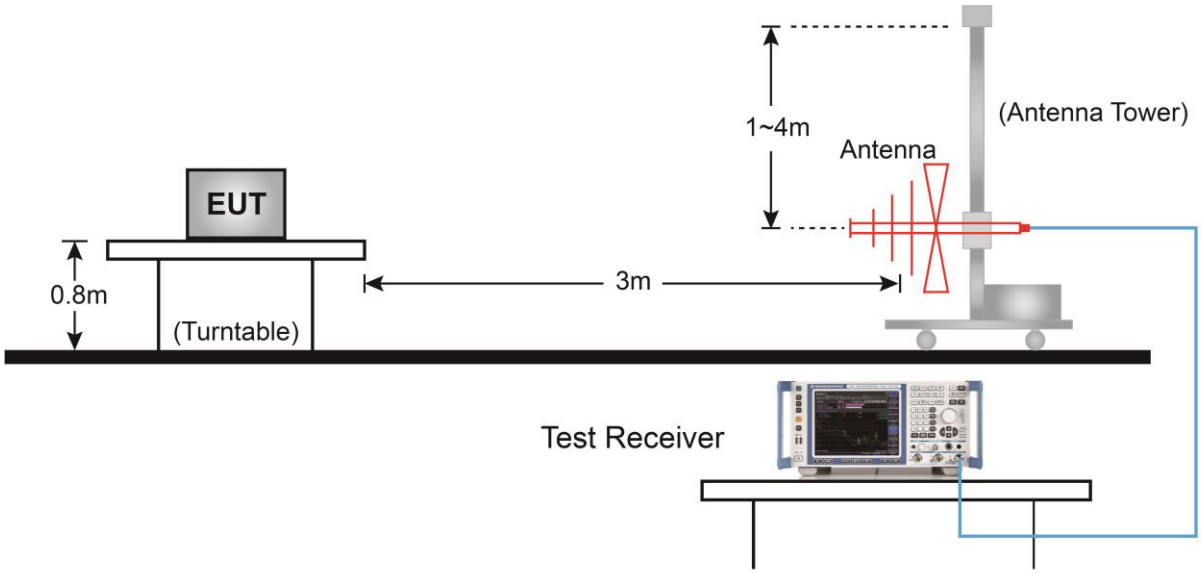
5. Sweep time = auto

6. Trace mode = max hold

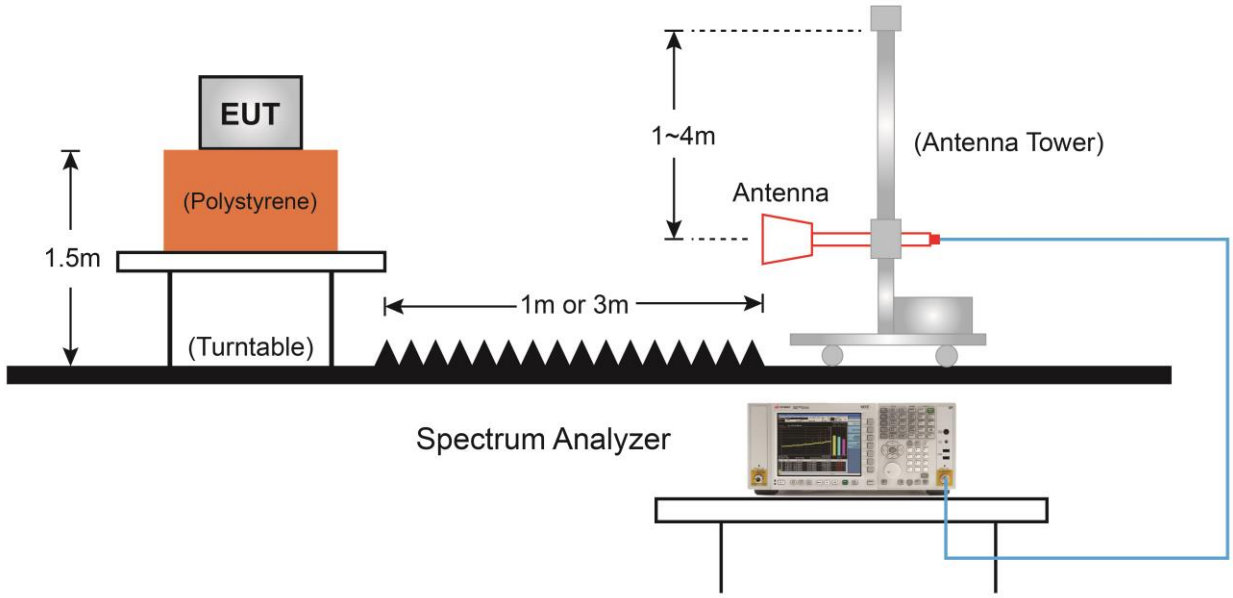
7. Trace was allowed to stabilize

6.6.4.Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



6.6.5.Test Result

Test Site	SIP-AC1	Test Engineer	Mero Zhou
Test Date	2021/06/07	Test Channel	00
Test Mode	BLE-1Mbps		
Note	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
	4000.5	59.7	-11.8	47.9	74.0	-26.1	Peak	Horizontal
	5037.5	55.3	-10.3	45.0	74.0	-29.0	Peak	Horizontal
	11880.0	49.9	-4.0	45.9	74.0	-28.1	Peak	Horizontal
	4000.5	57.5	-11.8	45.7	74.0	-28.3	Peak	Vertical
	4833.5	58.2	-10.5	47.7	74.0	-26.3	Peak	Vertical
	11064.0	50.3	-5.1	45.2	74.0	-28.8	Peak	Vertical
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB) Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)								

Test Site	SIP-AC1	Test Engineer	Mero Zhou
Test Date	2021/06/07	Test Channel	19
Test Mode	BLE-1Mbps		
Note	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
	4757.0	52.7	-10.6	42.1	74.0	-31.9	Peak	Horizontal
	7698.0	51.6	-6.9	44.7	74.0	-29.3	Peak	Horizontal
	12092.5	50.2	-4.0	46.2	74.0	-27.8	Peak	Horizontal
	4791.0	54.8	-10.6	44.2	74.0	-29.8	Peak	Vertical
	8327.0	51.8	-6.0	45.8	74.0	-28.2	Peak	Vertical
	11514.5	50.9	-4.9	46.0	74.0	-28.0	Peak	Vertical
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB) Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)								

Test Site	SIP-AC1	Test Engineer	Mero Zhou
Test Date	2021/06/07	Test Channel	39
Test Mode	BLE-1Mbps		
Note	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
	4876.0	58.6	-10.3	48.3	74.0	-25.7	Peak	Horizontal
	7502.5	51.6	-7.4	44.2	74.0	-29.8	Peak	Horizontal
	11455.0	50.8	-4.7	46.1	74.0	-27.9	Peak	Horizontal
	3796.5	58.1	-12.1	46.0	74.0	-28.0	Peak	Vertical
	4799.5	55.9	-10.5	45.4	74.0	-28.6	Peak	Vertical
	12007.5	50.4	-4.2	46.2	74.0	-27.8	Peak	Vertical
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB) Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)								

Test Site	WZ-AC1	Test Engineer	Buter Shi
Test Date	2021/06/19	Test Channel	00
Test Mode	BLE-2Mbps		
Note	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
	4000.5	41.1	1.1	42.2	74.0	-31.8	Peak	Horizontal
	4935.5	44.2	3.6	47.8	74.0	-26.2	Peak	Horizontal
	7638.5	40.5	8.4	48.9	74.0	-25.1	Peak	Horizontal
	4000.5	40.4	1.1	41.5	74.0	-32.5	Peak	Vertical
	5071.5	38.3	4.1	42.4	74.0	-31.6	Peak	Vertical
	7434.5	39.5	8.6	48.1	74.0	-25.9	Peak	Vertical
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB) Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)								

Test Site	WZ-AC1	Test Engineer	Buter Shi
Test Date	2021/06/19	Test Channel	19
Test Mode	BLE-2Mbps		
Note	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.		

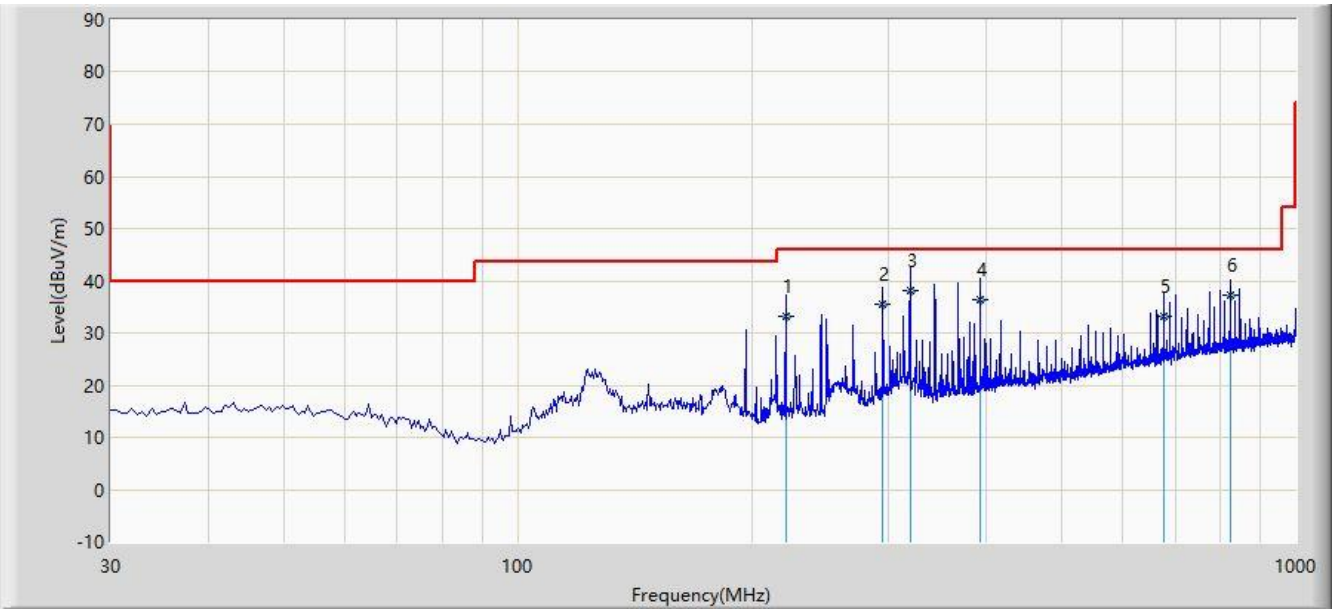
Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4068.5	39.2	1.4	40.6	74.0	-33.4	Peak	Horizontal
	4952.5	38.5	3.7	42.2	74.0	-31.8	Peak	Horizontal
	7400.5	39.7	8.7	48.4	74.0	-25.6	Peak	Horizontal
	3694.5	40.6	0.5	41.1	74.0	-32.9	Peak	Vertical
	4842.0	44.4	3.4	47.8	74.0	-26.2	Peak	Vertical
	8097.5	38.8	9.2	48.0	74.0	-26.0	Peak	Vertical
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB) Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)								

Test Site	WZ-AC1	Test Engineer	Buter Shi
Test Date	2021/06/19	Test Channel	39
Test Mode	BLE-2Mbps		
Note	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
	3813.5	39.5	0.7	40.2	74.0	-33.8	Peak	Horizontal
	4944.0	39.4	3.7	43.1	74.0	-30.9	Peak	Horizontal
	7519.5	38.7	8.5	47.2	74.0	-26.8	Peak	Horizontal
	3737.0	40.6	0.5	41.1	74.0	-32.9	Peak	Vertical
	4655.0	39.9	2.9	42.8	74.0	-31.2	Peak	Vertical
	7511.0	38.8	8.6	47.4	74.0	-26.6	Peak	Vertical
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB) Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)								

The Worst Case of Radiated Emission below 1GHz:

Site: SIP-AC1	Time: 2021/06/07 - 17:06
Limit: FCC_Part15.209_RE(3m)	Engineer: Mero Zhou
Probe: SIP-AC1_VULB 9168 _30-1000MHz	Polarity: Horizontal
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1Mbps at Channel 2402MHz	



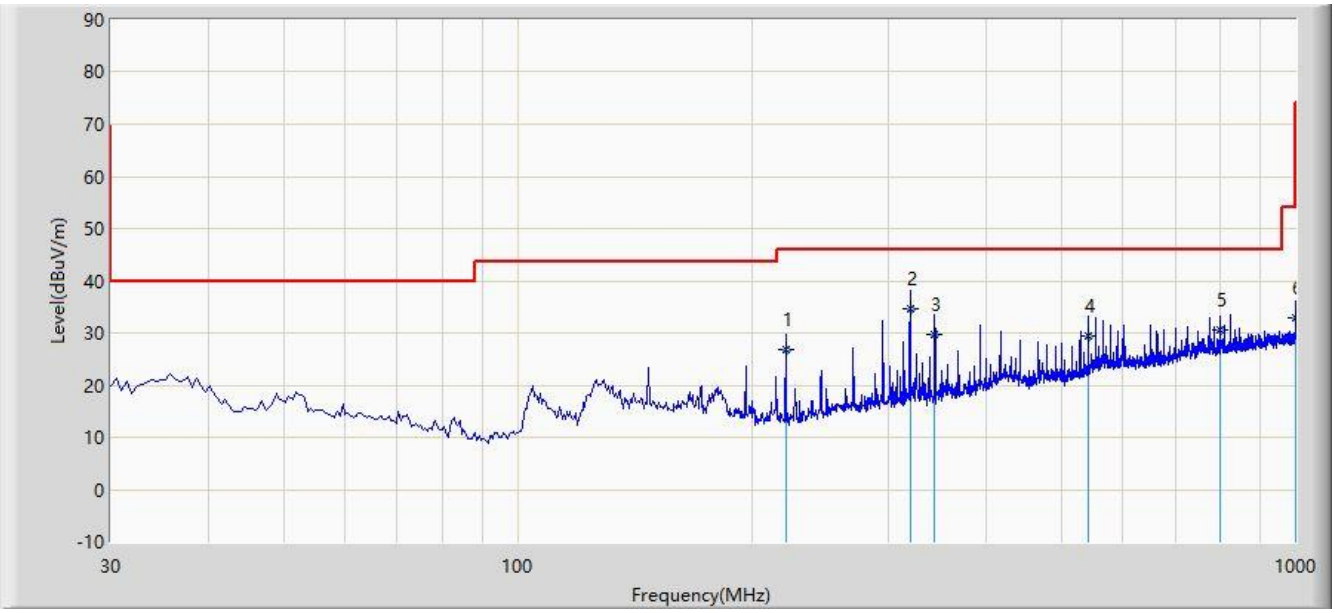
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			221.090	33.264	18.550	-12.736	46.000	14.714	QP
2			294.810	35.566	17.460	-10.434	46.000	18.106	QP
3		*	319.545	38.177	19.360	-7.823	46.000	18.817	QP
4			393.265	36.282	15.850	-9.718	46.000	20.432	QP
5			676.020	33.303	7.440	-12.697	46.000	25.863	QP
6			823.460	37.134	9.070	-8.866	46.000	28.064	QP

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

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

Note 2: The amplitude of radiated emissions (frequency range from 9kHz ~ 30MHz, 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-AC1	Time: 2021/06/07 - 17:07
Limit: FCC_Part15.209_RE(3m)	Engineer: Mero Zhou
Probe: SIP-AC1_VULB 9168 _30-1000MHz	Polarity: Vertical
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1Mbps at Channel 2402MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			221.090	26.954	12.240	-19.046	46.000	14.714	QP
2		*	319.545	34.557	15.740	-11.443	46.000	18.817	QP
3			343.795	29.823	10.630	-16.177	46.000	19.193	QP
4			540.705	29.512	5.990	-16.488	46.000	23.522	QP
5			798.725	30.472	2.750	-15.528	46.000	27.721	QP
6			1000.000	32.826	3.250	-21.174	54.000	29.576	QP

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

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

Note 2: The amplitude of radiated emissions (frequency range from 9kHz ~ 30MHz, 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.

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 Limits		
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

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)
0.090 - 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 8.10 of the RSS-Gen must not exceed the limits shown in Table per Section 8.9.

RSS-Gen Section 8.9			
Frequency [MHz]	Magnetic field strength (H-Field) [uA/m]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 - 0.490	6.37/F(F in kHz)	--	300
0.490 - 1.705	63.7/F(F in kHz)	--	30
1.705 - 30	0.08	--	30
30 - 88	--	100	3
88 - 216	--	150	3
216 - 960	--	200	3
Above 960	--	500	3

6.7.2.Test Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

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

6.7.3.Test Setting

Peak Field Strength Measurements

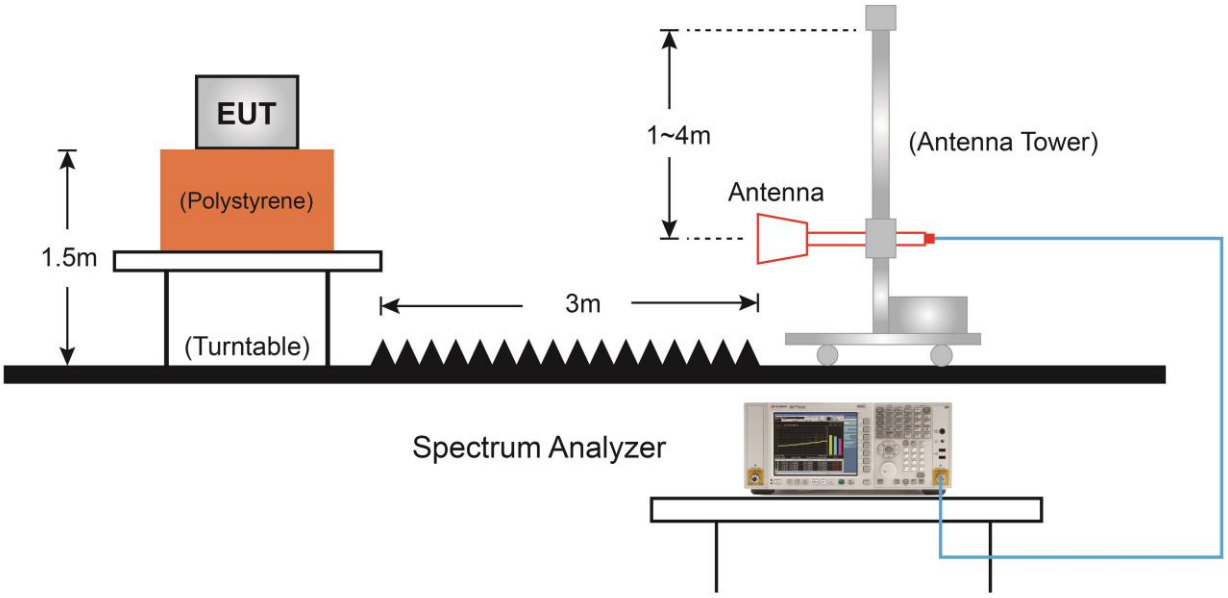
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average 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.

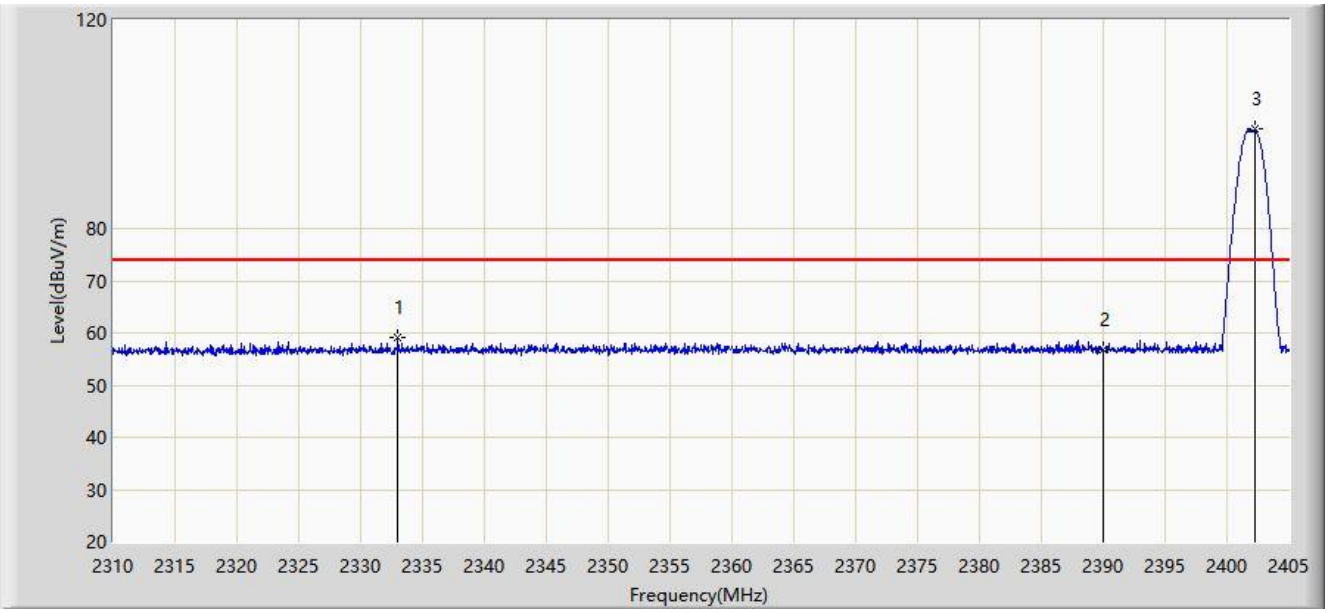
   If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration.
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Trace was allowed to stabilize

6.7.4.Test Setup



6.7.5.Test Result

Site: WZ-AC1	Time: 2021/06/11 - 23:04
Limit: FCC_Part15.209_RE(3m)	Engineer: Buter Shi
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1Mbps at Channel 2402MHz	

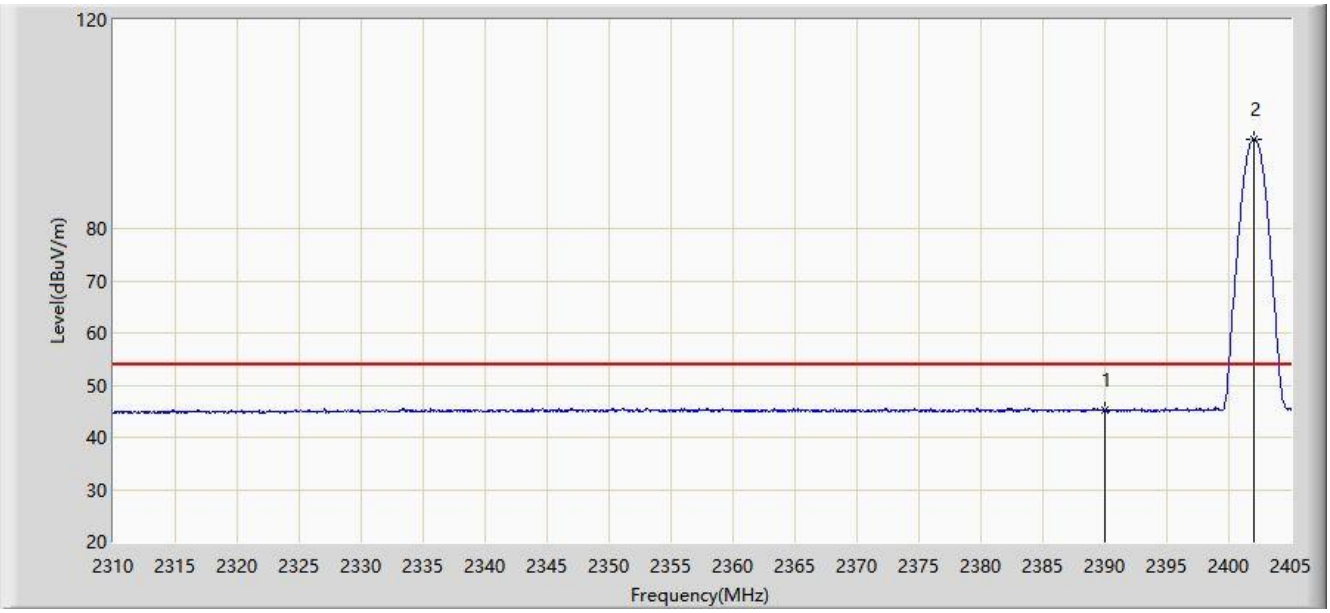


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2332.990	59.001	27.815	-14.999	74.000	31.186	PK
2			2390.000	56.872	25.839	-17.128	74.000	31.034	PK
3		*	2402.245	99.066	68.059	N/A	N/A	31.007	PK

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

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

Site: WZ-AC1	Time: 2021/06/11 - 23:08
Limit: FCC_Part15.209_RE(3m)	Engineer: Buter Shi
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1Mbps at Channel 2402MHz	

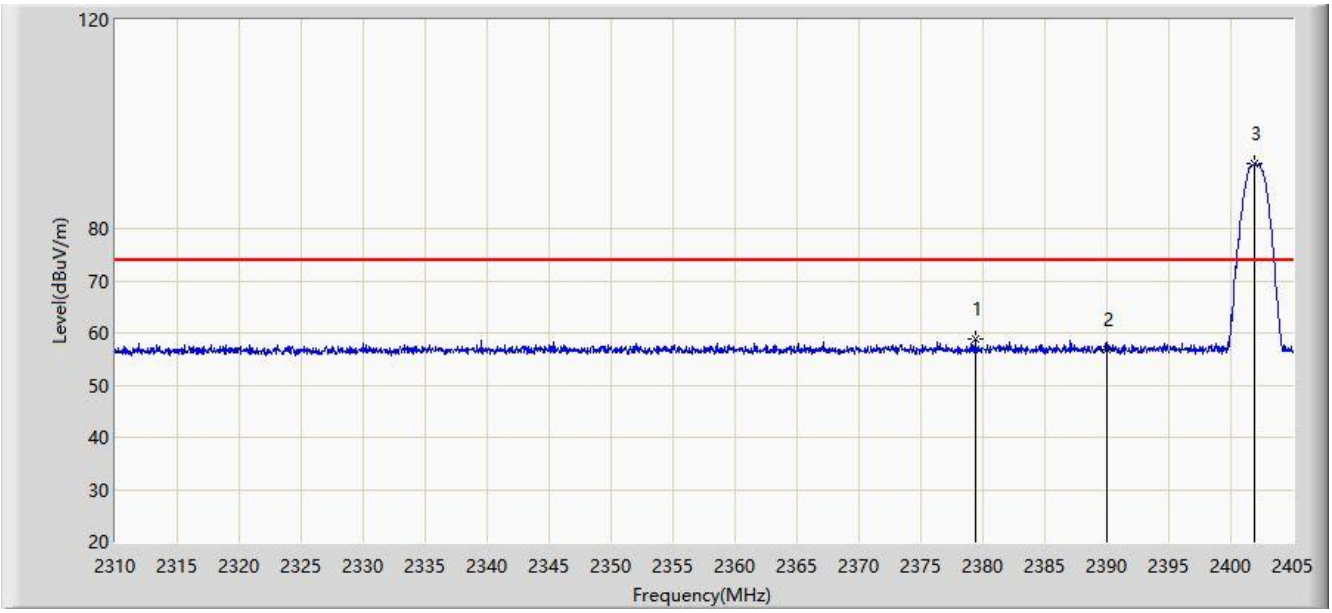


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	45.074	14.041	-8.926	54.000	31.034	AV
2		*	2402.008	97.180	66.172	N/A	N/A	31.008	AV

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

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

Site: WZ-AC1	Time: 2021/06/11 - 23:10
Limit: FCC_Part15.209_RE(3m)	Engineer: Buter Shi
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1Mbps at Channel 2402MHz	

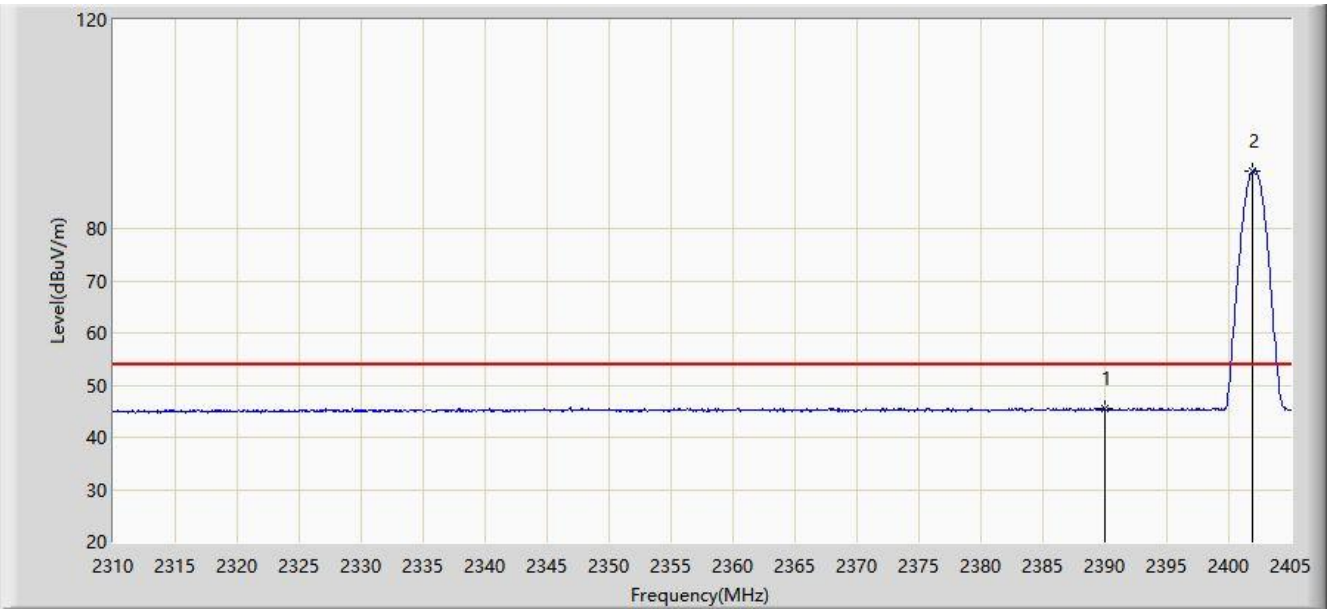


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2379.350	58.826	27.784	-15.174	74.000	31.043	PK
2			2390.000	56.903	25.870	-17.097	74.000	31.034	PK
3		*	2401.960	92.463	61.455	N/A	N/A	31.008	PK

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

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

Site: WZ-AC1	Time: 2021/06/11 - 23:10
Limit: FCC_Part15.209_RE(3m)	Engineer: Buter Shi
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1Mbps at Channel 2402MHz	

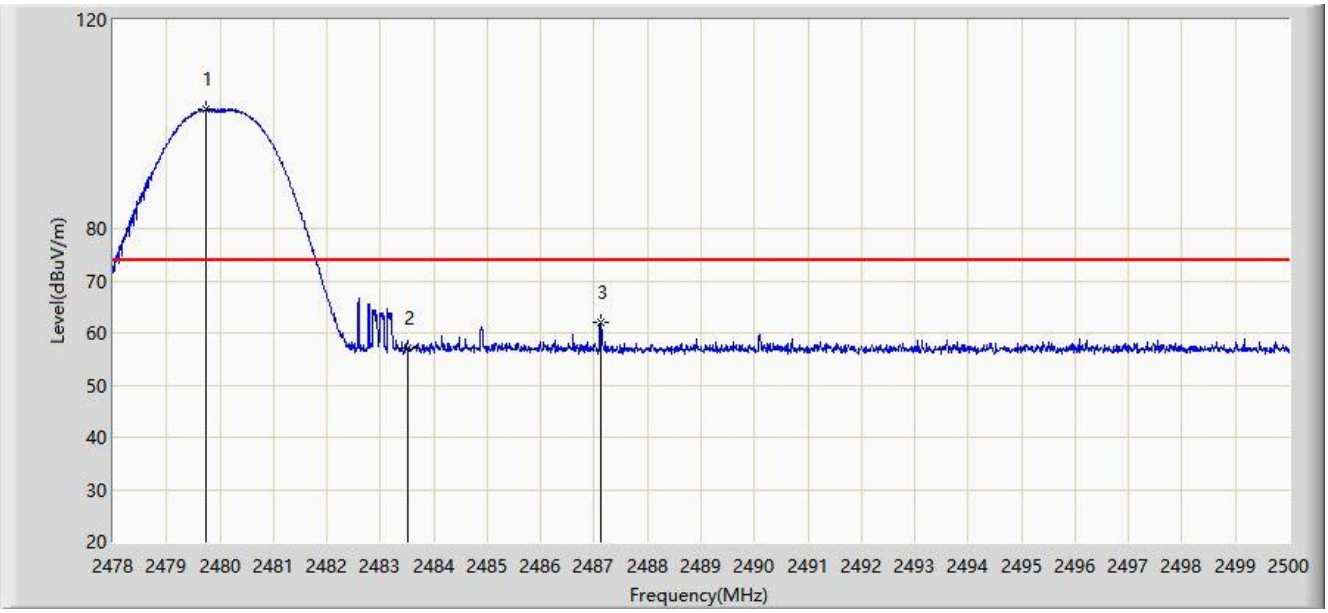


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	45.396	14.363	-8.604	54.000	31.034	AV
2		*	2401.960	90.989	59.981	N/A	N/A	31.008	AV

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

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

Site: WZ-AC1	Time: 2021/06/11 - 23:15
Limit: FCC_Part15.209_RE(3m)	Engineer: Buter Shi
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1Mbps at Channel 2480MHz	

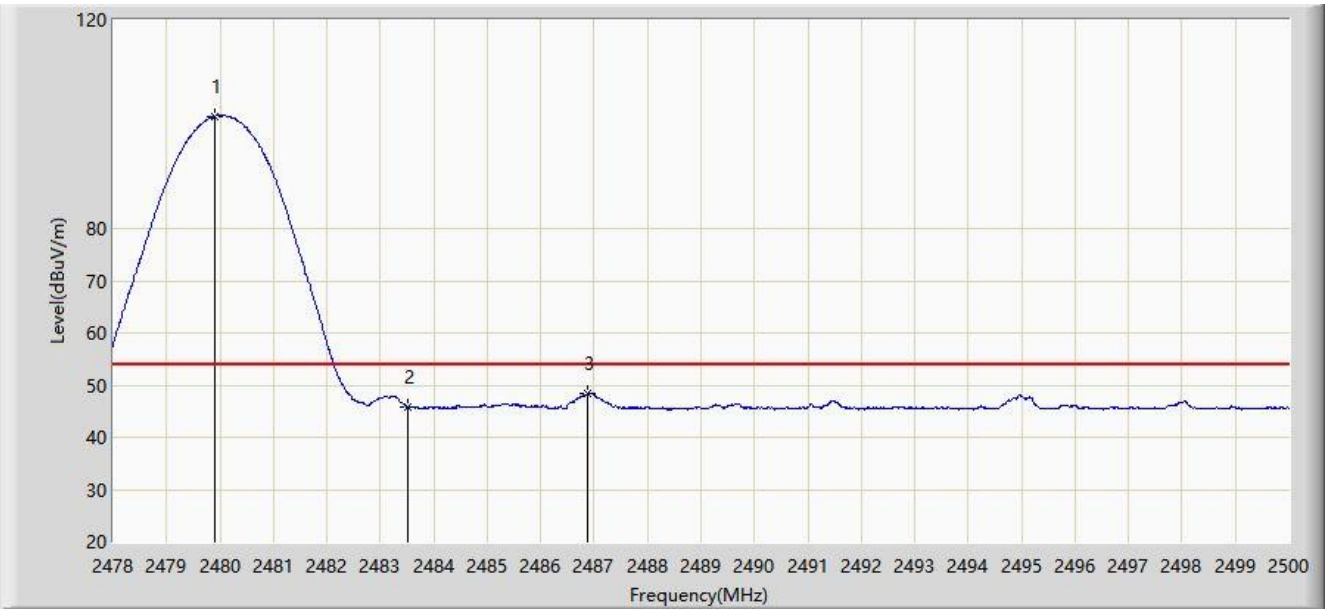


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.738	102.867	71.991	N/A	N/A	30.876	PK
2			2483.500	56.993	26.105	-17.007	74.000	30.888	PK
3			2487.119	62.051	31.152	-11.949	74.000	30.900	PK

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

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

Site: WZ-AC1	Time: 2021/06/11 - 23:17
Limit: FCC_Part15.209_RE(3m)	Engineer: Buter Shi
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1Mbps at Channel 2480MHz	

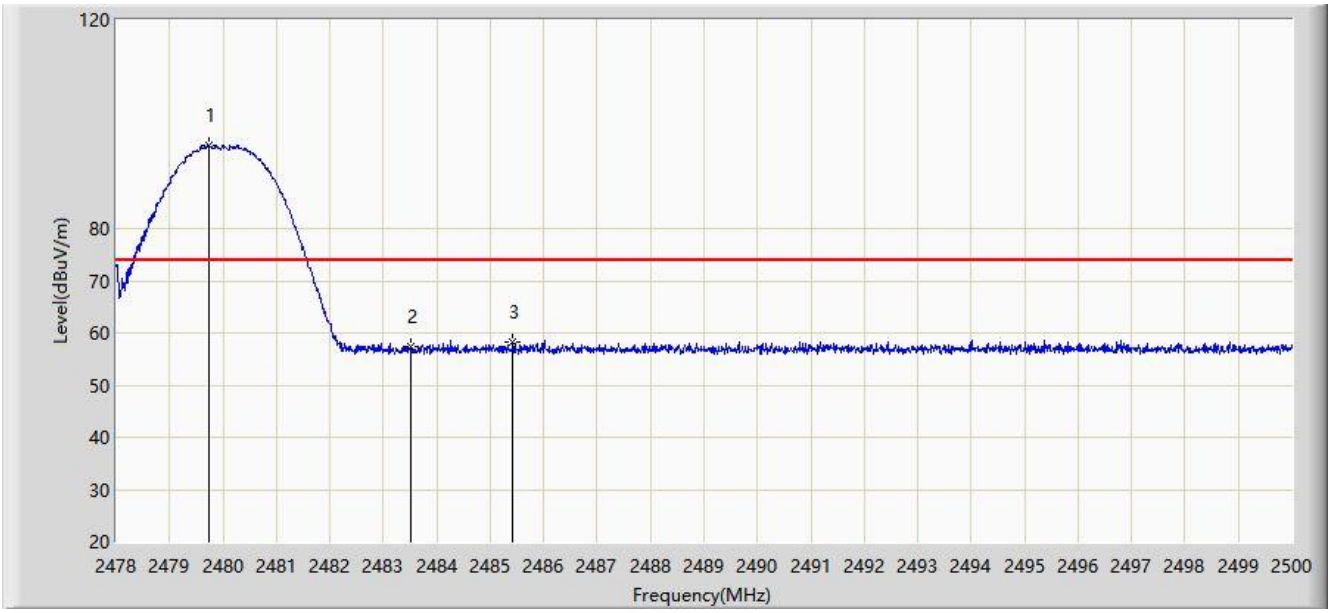


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.903	101.547	70.671	N/A	N/A	30.876	AV
2			2483.500	45.782	14.894	-8.218	54.000	30.888	AV
3			2486.888	48.428	17.529	-5.572	54.000	30.899	AV

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

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

Site: WZ-AC1	Time: 2021/06/11 - 23:19
Limit: FCC_Part15.209_RE(3m)	Engineer: Buter Shi
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1Mbps at Channel 2480MHz	

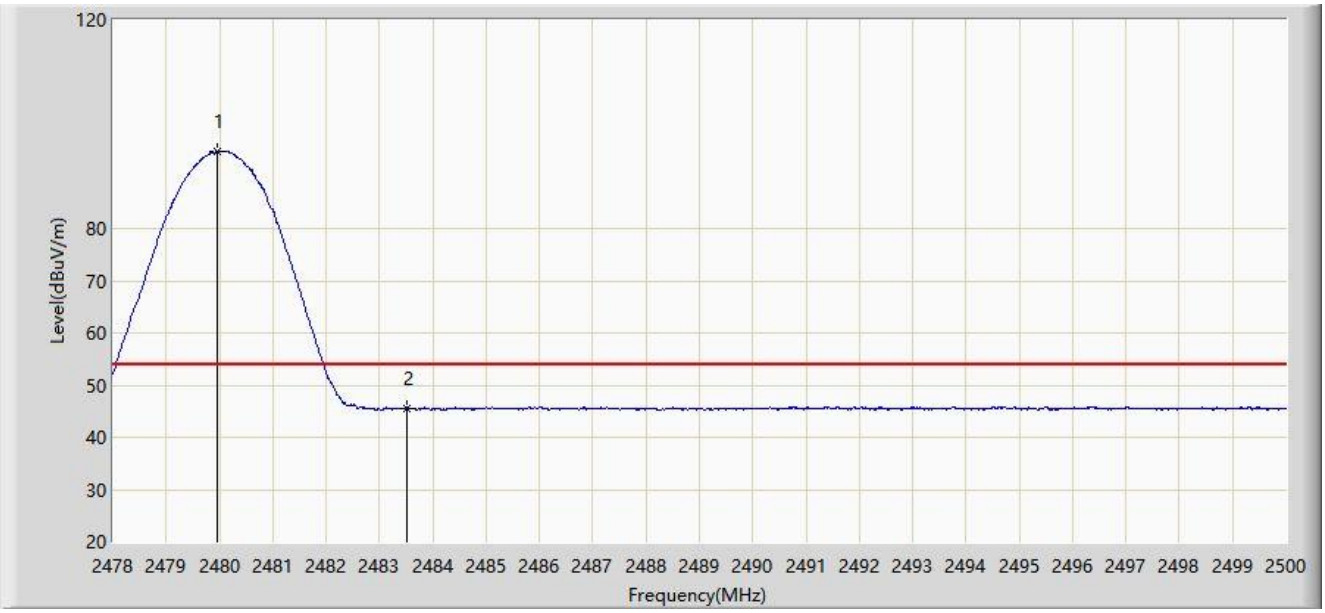


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.727	95.984	65.108	N/A	N/A	30.876	PK
2			2483.500	57.381	26.493	-16.619	74.000	30.888	PK
3			2485.425	58.374	27.480	-15.626	74.000	30.894	PK

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

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

Site: WZ-AC1	Time: 2021/06/11 - 23:19
Limit: FCC_Part15.209_RE(3m)	Engineer: Buter Shi
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1Mbps at Channel 2480MHz	

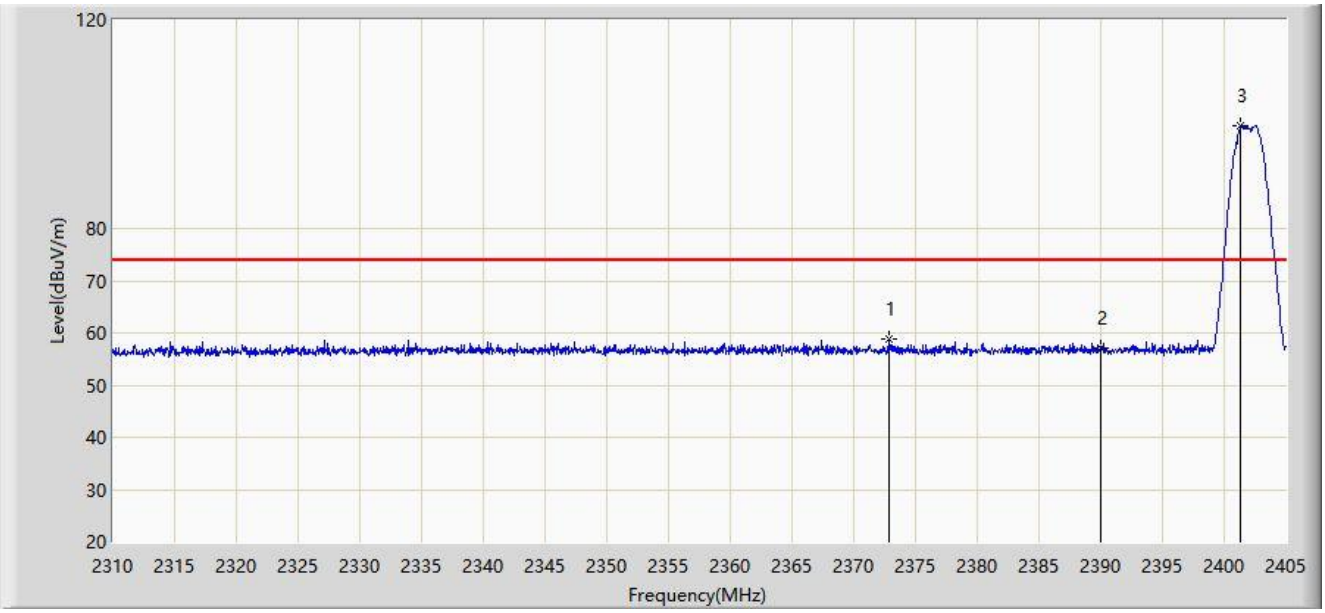


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.947	94.729	63.852	N/A	N/A	30.876	AV
2			2483.500	45.556	14.668	-8.444	54.000	30.888	AV

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

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

Site: WZ-AC1	Time: 2021/06/11 - 23:26
Limit: FCC_Part15.209_RE(3m)	Engineer: Buter Shi
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2Mbps at Channel 2402MHz	

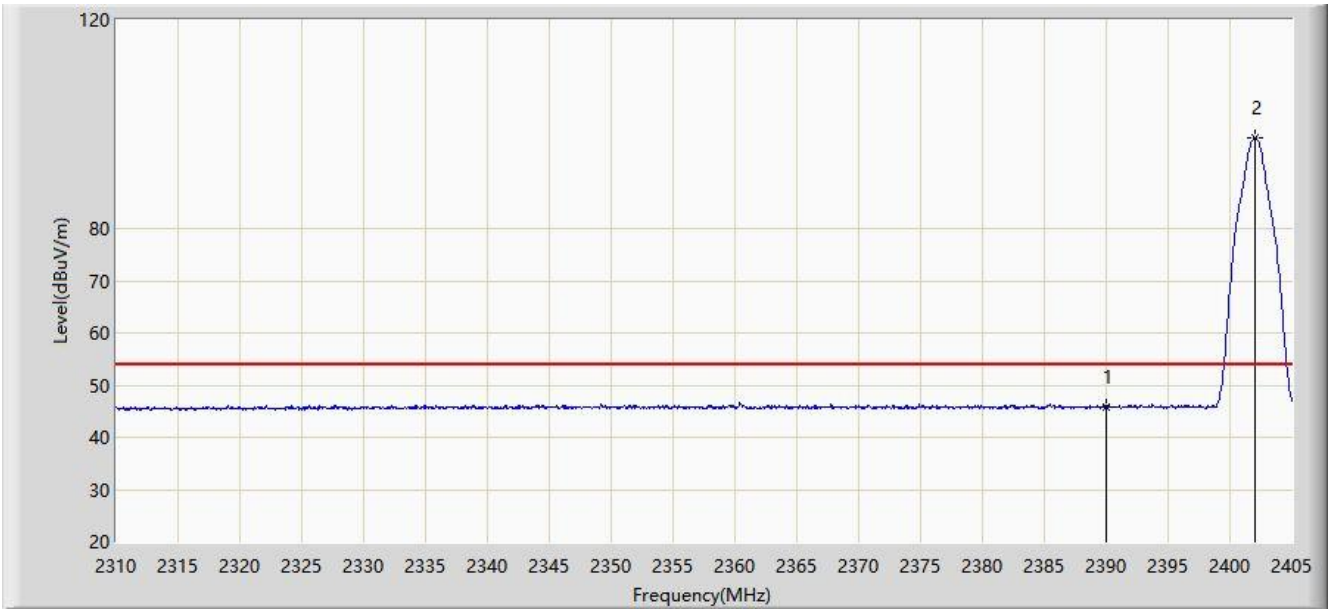


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2372.843	58.904	27.855	-15.096	74.000	31.049	PK
2			2390.000	57.113	26.080	-16.887	74.000	31.034	PK
3		*	2401.343	99.743	68.733	N/A	N/A	31.010	PK

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

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

Site: WZ-AC1	Time: 2021/06/11 - 23:26
Limit: FCC_Part15.209_RE(3m)	Engineer: Buter Shi
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2Mbps at Channel 2402MHz	

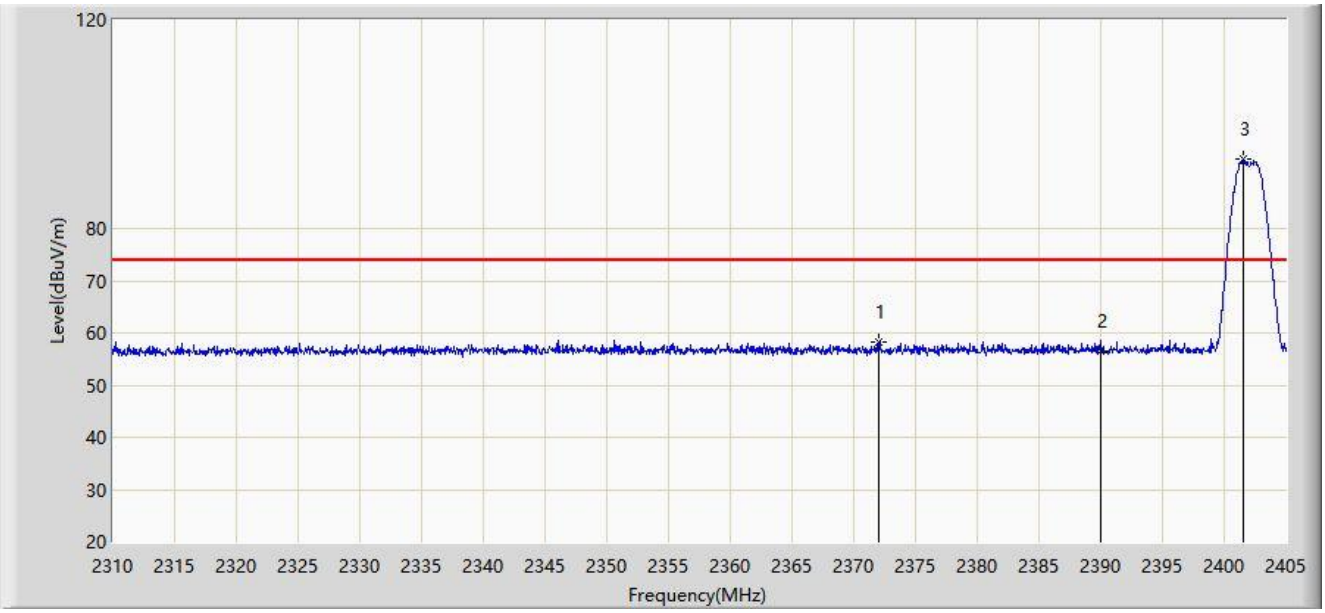


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	45.892	14.859	-8.108	54.000	31.034	AV
2		*	2402.055	97.506	66.498	N/A	N/A	31.008	AV

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

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

Site: WZ-AC1	Time: 2021/06/11 - 23:27
Limit: FCC_Part15.209_RE(3m)	Engineer: Buter Shi
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2Mbps at Channel 2402MHz	

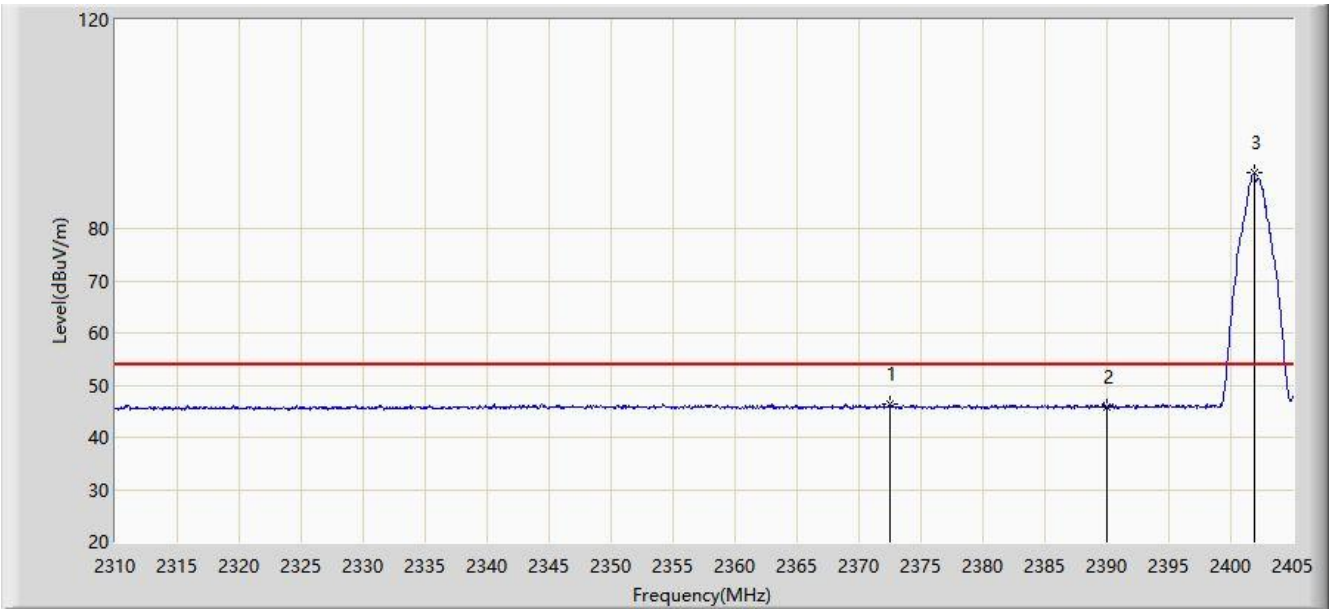


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2371.988	58.324	27.274	-15.676	74.000	31.050	PK
2			2390.000	56.638	25.605	-17.362	74.000	31.034	PK
3		*	2401.532	93.236	62.227	N/A	N/A	31.009	PK

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

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

Site: WZ-AC1	Time: 2021/06/11 - 23:27
Limit: FCC_Part15.209_RE(3m)	Engineer: Buter Shi
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2Mbps at Channel 2402MHz	

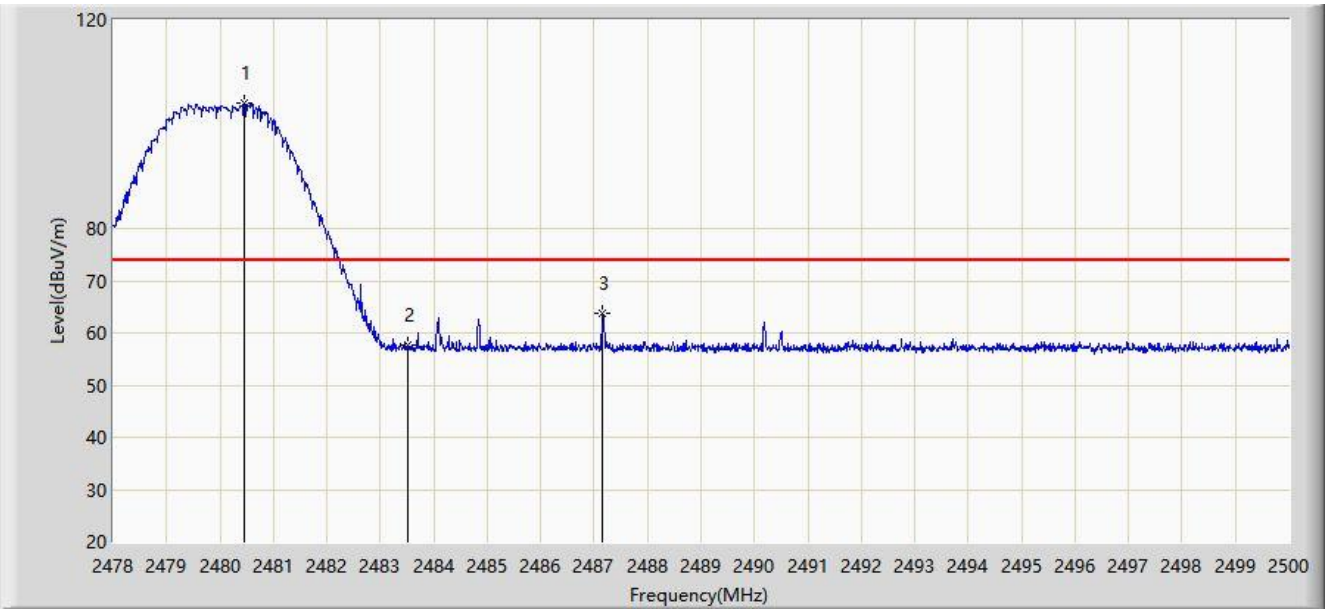


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2372.462	46.284	15.234	-7.716	54.000	31.049	AV
2			2390.000	45.666	14.633	-8.334	54.000	31.034	AV
3		*	2401.913	90.688	59.680	N/A	N/A	31.009	AV

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

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

Site: WZ-AC1	Time: 2021/06/11 - 23:30
Limit: FCC_Part15.209_RE(3m)	Engineer: Buter Shi
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2Mbps at Channel 2480MHz	

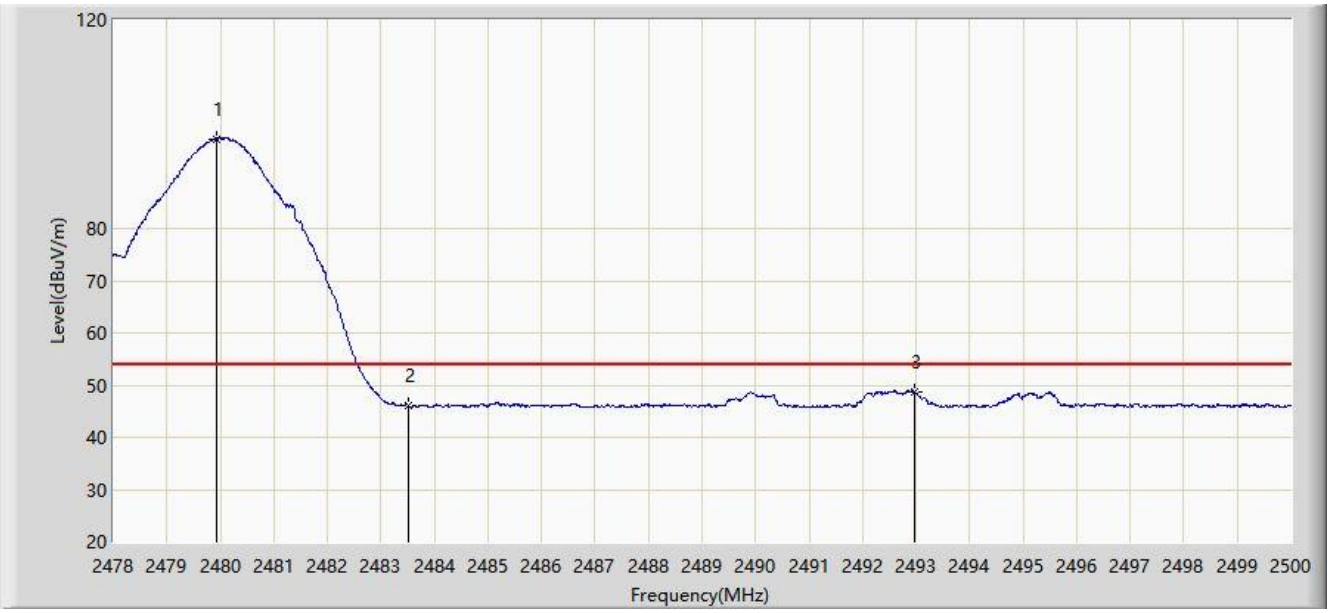


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.442	104.076	73.198	N/A	N/A	30.878	PK
2			2483.500	57.727	26.839	-16.273	74.000	30.888	PK
3			2487.152	63.858	32.958	-10.142	74.000	30.900	PK

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

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

Site: WZ-AC1	Time: 2021/06/11 - 23:33
Limit: FCC_Part15.209_RE(3m)	Engineer: Buter Shi
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2Mbps at Channel 2480MHz	

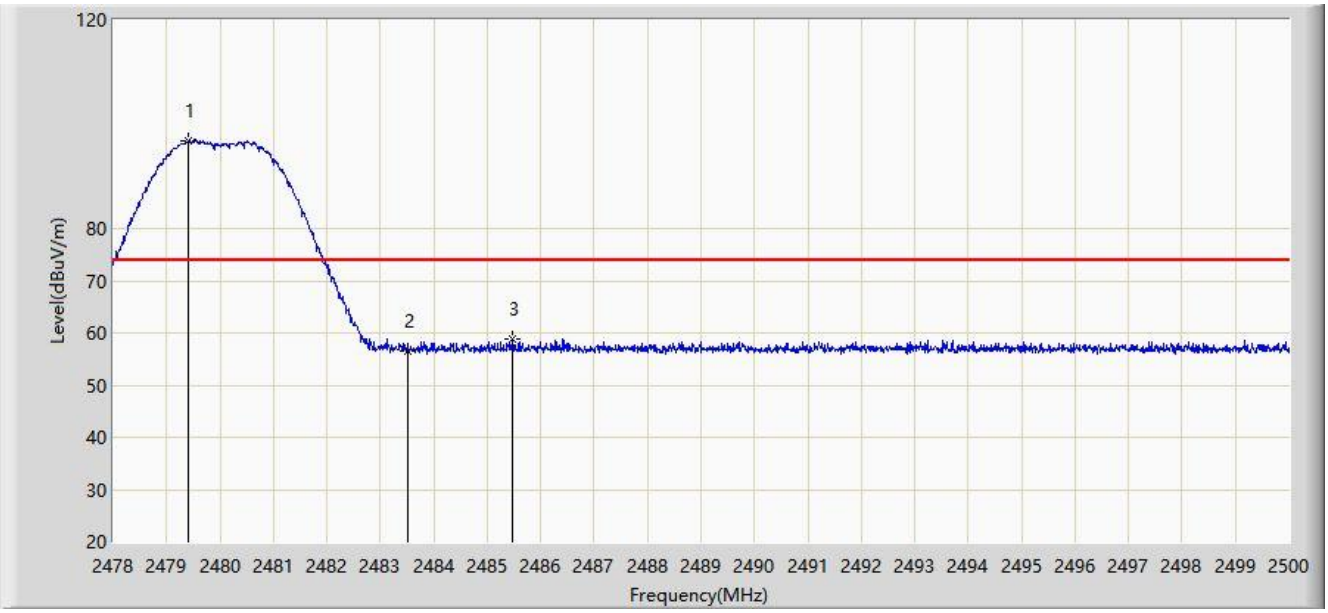


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.925	97.224	66.347	N/A	N/A	30.876	AV
2			2483.500	46.227	15.339	-7.773	54.000	30.888	AV
3			2492.971	48.752	17.835	-5.248	54.000	30.916	AV

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

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

Site: WZ-AC1	Time: 2021/06/11 - 23:35
Limit: FCC_Part15.209_RE(3m)	Engineer: Buter Shi
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2Mbps at Channel 2480MHz	

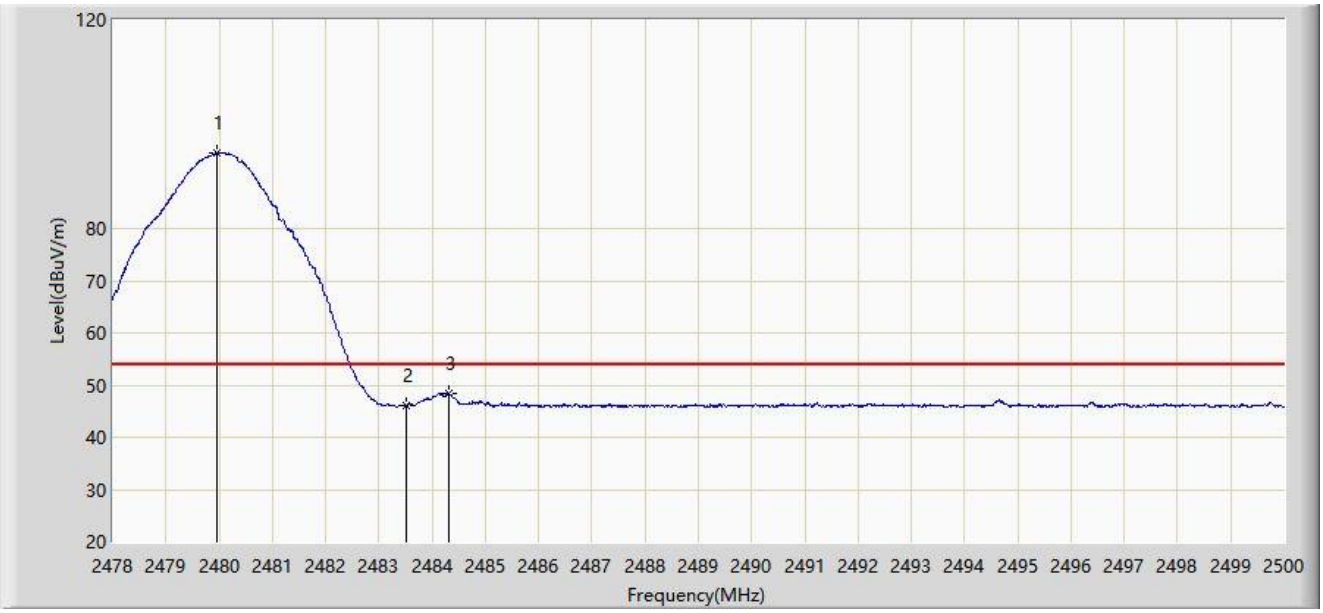


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.397	96.881	66.006	N/A	N/A	30.875	PK
2			2483.500	56.568	25.680	-17.432	74.000	30.888	PK
3			2485.480	58.871	27.977	-15.129	74.000	30.894	PK

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

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

Site: WZ-AC1	Time: 2021/06/11 - 23:35
Limit: FCC_Part15.209_RE(3m)	Engineer: Buter Shi
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2Mbps at Channel 2480MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.947	94.410	63.533	N/A	N/A	30.876	AV
2			2483.500	46.167	15.279	-7.833	54.000	30.888	AV
3			2484.314	48.540	17.649	-5.460	54.000	30.891	AV

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

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

6.8. AC Conducted Emissions Measurement

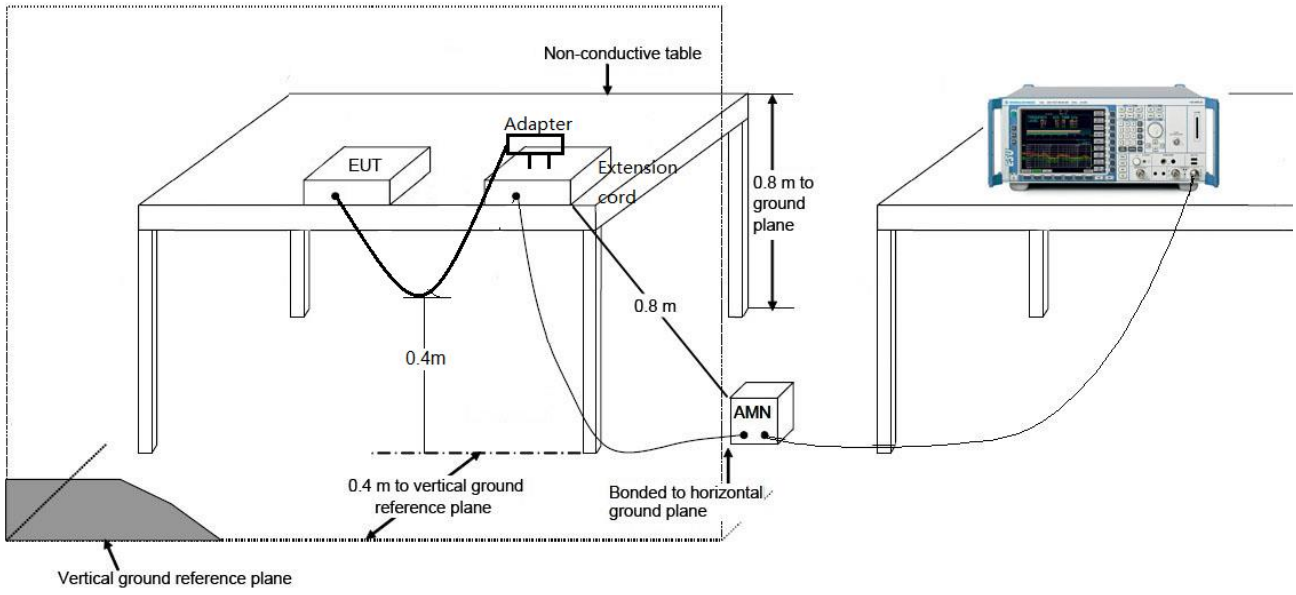
6.8.1.Test Limit

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

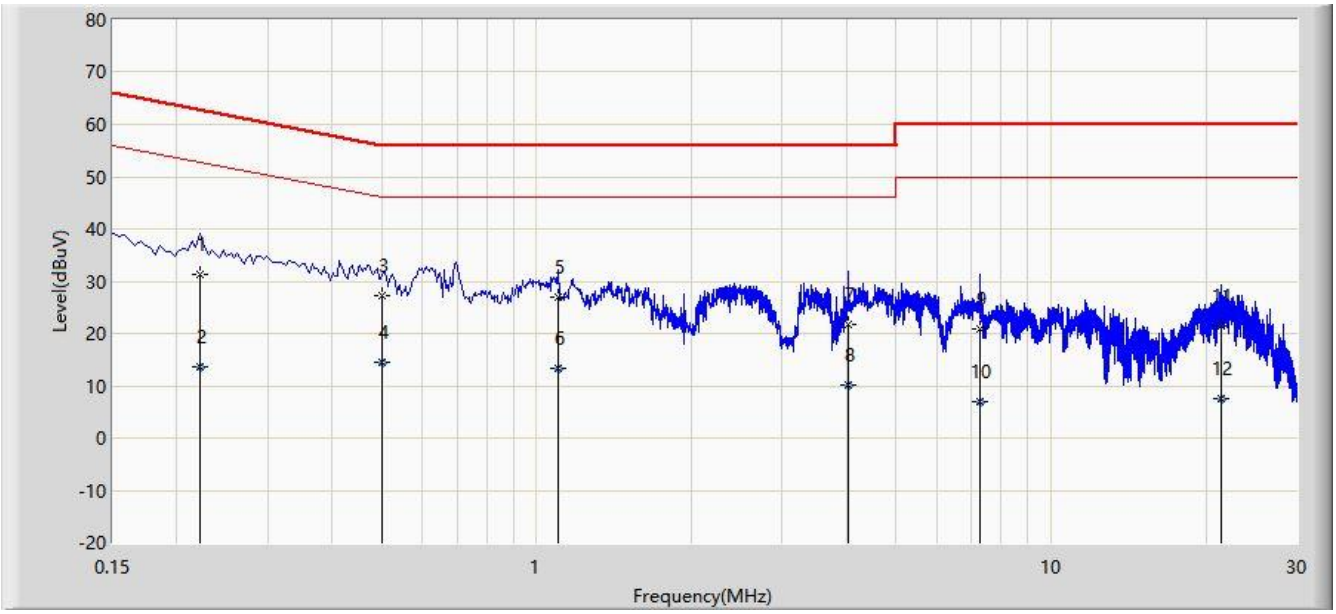
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

6.8.2.Test Setup



6.8.3.Test Result

Site: WZ-SR2	Time: 2021/06/15 - 09:57
Limit: FCC_Part15.207_CE_AC Power	Engineer: Antony Yang
Probe: ENV216_101683_Filter Off_With Adapter	Polarity: Line
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2Mbps at Channel 2402MHz	

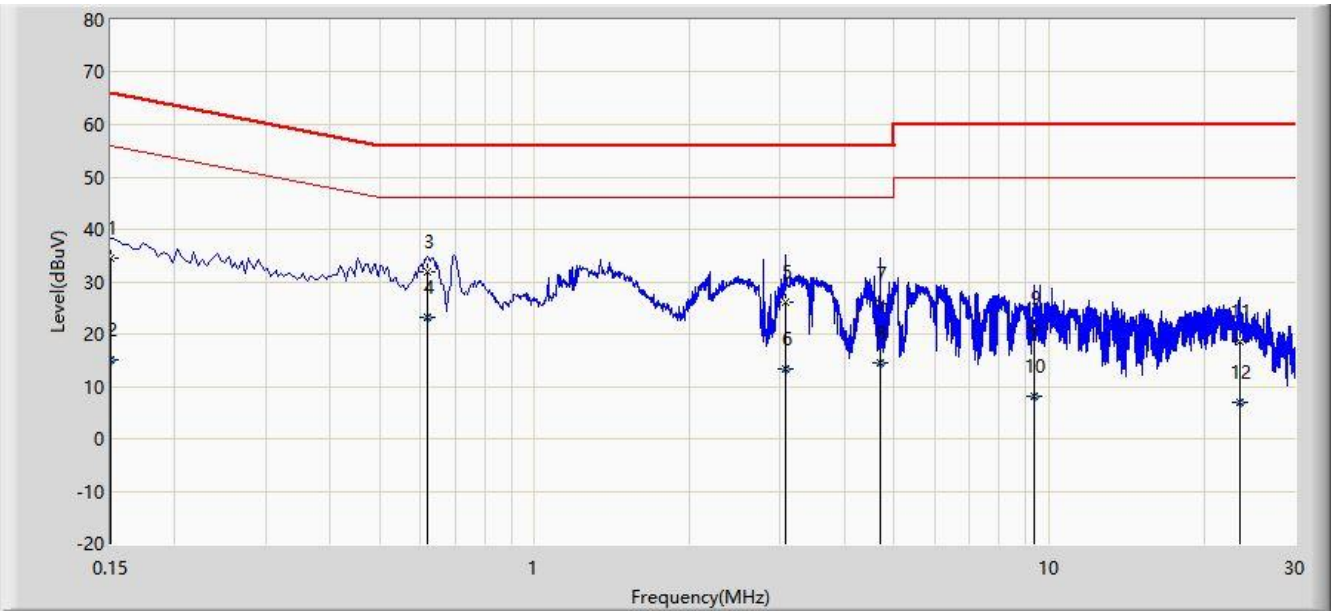


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.222	31.350	21.708	-31.394	62.744	9.642	QP
2			0.222	13.534	3.892	-39.210	52.744	9.642	AV
3		*	0.500	27.146	17.476	-28.854	56.000	9.670	QP
4			0.500	14.557	4.887	-31.443	46.000	9.670	AV
5			1.098	26.943	17.242	-29.057	56.000	9.701	QP
6			1.098	13.234	3.533	-32.766	46.000	9.701	AV
7			4.026	21.771	11.703	-34.229	56.000	10.068	QP
8			4.026	10.175	0.108	-35.825	46.000	10.068	AV
9			7.294	20.889	10.533	-39.111	60.000	10.356	QP
10			7.294	6.864	-3.491	-43.136	50.000	10.356	AV
11			21.422	21.436	10.699	-38.564	60.000	10.737	QP
12			21.422	7.657	-3.080	-42.343	50.000	10.737	AV

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

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

Site: WZ-SR2	Time: 2021/06/15 - 10:01
Limit: FCC_Part15.207_CE_AC Power	Engineer: Antony Yang
Probe: ENV216_101683_Filter Off_With Adapter	Polarity: Neutral
EUT: WIFI+BT Combo Module	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2Mbps at Channel 2402MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.150	34.360	24.729	-31.640	66.000	9.630	QP
2			0.150	15.006	5.375	-40.994	56.000	9.630	AV
3			0.618	31.913	22.228	-24.087	56.000	9.685	QP
4		*	0.618	23.218	13.534	-22.782	46.000	9.685	AV
5			3.066	26.175	16.273	-29.825	56.000	9.902	QP
6			3.066	13.289	3.387	-32.711	46.000	9.902	AV
7			4.690	25.895	15.701	-30.105	56.000	10.194	QP
8			4.690	14.554	4.359	-31.446	46.000	10.194	AV
9			9.342	21.265	10.797	-38.735	60.000	10.467	QP
10			9.342	8.178	-2.290	-41.822	50.000	10.467	AV
11			23.466	18.616	7.746	-41.384	60.000	10.869	QP
12			23.466	7.025	-3.845	-42.975	50.000	10.869	AV

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

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

7. CONCLUSION

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

The End

Appendix A - Test Setup Photograph

Refer to “2104RSU079-UT” file.

Appendix B - EUT Photograph

Refer to “ 2104RSU079-UE” file.