

MEASUREMENT REPORT

FCC PART 15.247 / Bluetooth-LE

FCC ID: HD5-EDA520

Applicant: Honeywell International Inc
Honeywell Safety and Productivity Solutions

Application Type: Certification

Product: Mobile Computer

Model No.: EDA52-0

Brand Name: Honeywell

FCC Classification: Digital Transmission System (DTS)

FCC Rule Part(s): Part15 Subpart C (Section 15.247)

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

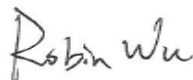
Test Date: March 11 ~ April 22, 2021

Reviewed By:



Jame Yuan

Approved By:



Robin Wu



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
2102RSU043-U3	Rev. 01	Initial Report	04-23-2021	Valid

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1. General Information

1.1. Applicant

Honeywell International Inc
Honeywell Safety and Productivity Solutions
9680 Old Baires Road, Fort Mill, SC 29707 United States

1.2. Manufacturer

Honeywell International Inc
Honeywell Safety and Productivity Solutions
9680 Old Bailes Road, Fort Mill, SC 29707 United States

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 FCC: CN1166 VCCI: R-20025, G-20034, C-20020, T-20020
	CNAS: L10551 ISED: CN0001
☐	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 FCC: CN1284
CNAS: L10551 ISED: CN0105	
☐	Test Site – MRT Taiwan Laboratory
	Laboratory Location (Taiwan) No. 38, Fuxing 2 nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
	Laboratory Accreditations
	TAF: L3261-190725 FCC: 291082, TW3261
CNAS: L3261 ISED: TW3261	

2. PRODUCT INFORMATION

2.1. Feature of Equipment under Test

Product Name	Mobile Computer
Model No.	EDA52-0
Test Device Label No.	Conducted Sample: 20210209Sample#01
	Radiated Sample: 20210209Sample#02
Wi-Fi Specification	802.11a/b/g/n/ac
Bluetooth Version	v5.0 dual mode
NFC Specification	Active, 13.56MHz
Accessories	
USB Adapter	Model No.: ADS-12B-06 05010E
	Input Power: 100 - 240V ~ 50/60Hz, Max. 0.3A
	Output Power: 5VDC 2.0A
Rechargeable Li-ion Battery	Model No.: BAT-EDA52
	Capacitance: 4500mAh
	Rated Voltage: 3.8V

2.2. Radio Specification

Bluetooth Frequency	2402~2480MHz
Channel Number	40
Type of modulation	GFSK
Data Rate	Up to 1Mbps
Antenna Type	FPC Antenna
Antenna Gain	1.84dBi

Note 1: For other features of this EUT, test report will be issued separately.

Note 2: Antenna type and antenna gain are provided by the manufacturer.

2.3. Working Frequencies

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

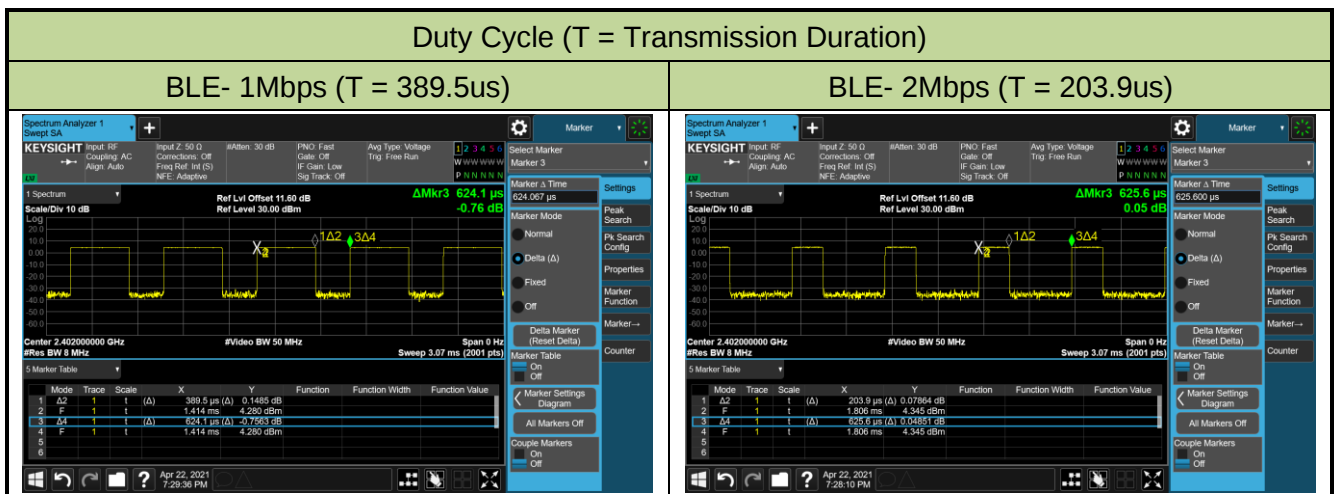
2.4. Test Mode

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

2.5. Duty Cycle

The maximum achievable duty cycles 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	62.41%
BLE- 2Mbps	32.59%

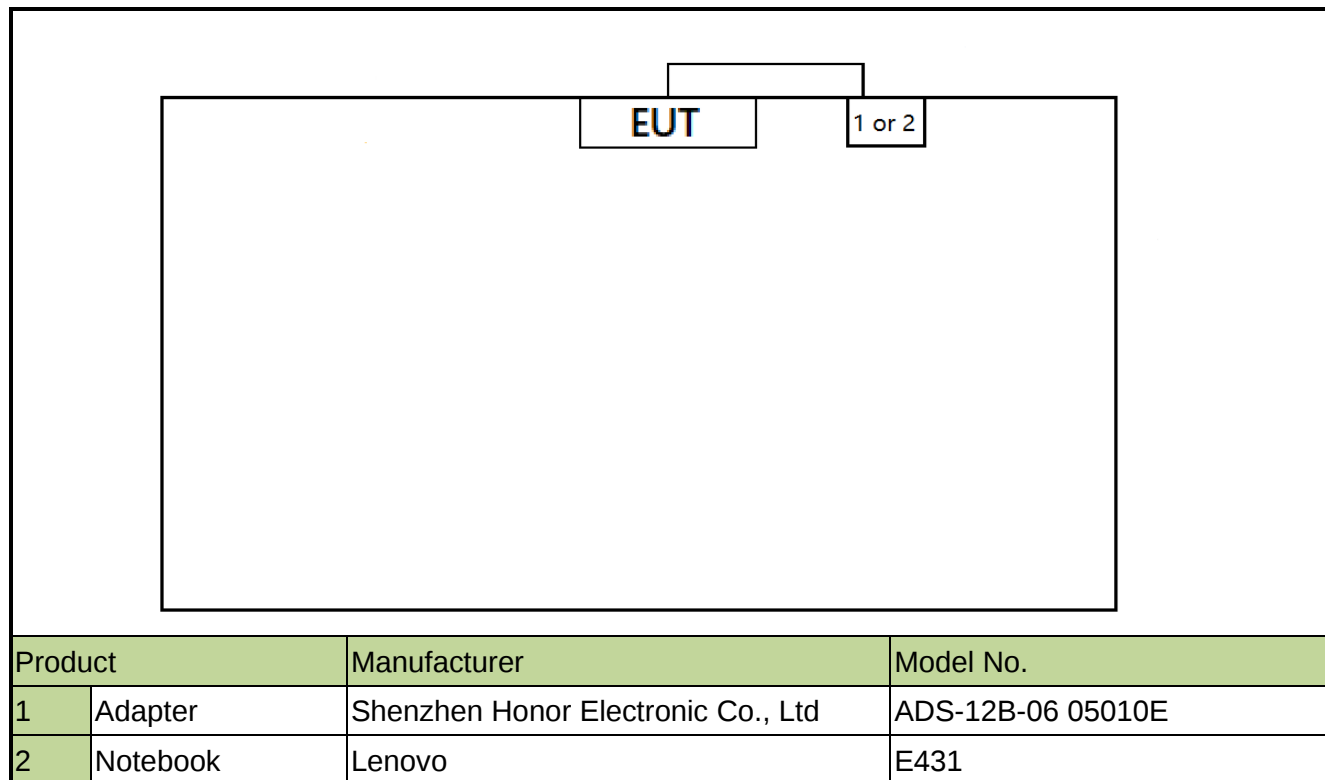


2.6. EMI Suppression Device(s)/Modifications

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

2.7. Test Configuration and Software

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



Note 1: The test utility software used during testing was “QRCT”, and the version was 3.0.268.0.

Note 2: Detail power setting refer to operation description.

2.8. Test Environment Condition

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

3. ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

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

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

Conclusion:

The unit complies with the requirement of §15.203.

4. 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	2022/01/12
PXA Signal Analyzer	Keysight	N9030B	MRTSUE06395	1 year	2021/08/30
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/10/22
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	2021/06/11
EMC Cable	HUBER SUHNER	SF106	MRTSUE11034	1 year	2021/12/12
Thermal Hygrometer	testo	608-H1	MRTSUE06403	1 year	2021/07/26
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2021/04/30
				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	2021/10/22
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2021/05/26
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	2021/06/11
Thermal Hygrometer	Minggao	ETH529	MRTSUE06170	1 year	2021/12/08
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2021/04/30
				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	2021/10/22
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	2021/11/09
Thermal Hygrometer	testo	608-H1	MRTSUE06620	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-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	2021/10/22
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	2021/11/09
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2021/10/12
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	2021/10/22
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	2022/01/15
Preamplifier	EMCI	EMC184045SE	MRTSUE06641	1 year	2022/01/15
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	2021/06/11
Audio Analyzer	Agilent	U8903B	MRTSUE06143	1 year	2021/06/11
Modulation Analyzer	HP	HP8901A	MRTSUE06098	1 year	2021/09/26
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2021/10/20
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
Attenuator	MVE	6dB	MRTSUE06534	1 year	N/A
Attenuator	MVE	10dB	MRTSUE06543	1 year	N/A

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	2021/06/11
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 $k = 2$.

AC Conducted Emission Measurement
Measurement Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 9kHz~150kHz: 3.74dB 150kHz~30MHz: 3.44dB
Radiated Disturbance
Measurement Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): Horizontal: 9kHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~40GHz: 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% ($U=2U_c(y)$): 0.78dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 1.13dB
Power Spectrum Density
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 1.15dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 0.28%

6. TEST RESULT

6.1. Summary

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.247(a)(2)	6dB Bandwidth	$\geq 500\text{kHz}$	Conducted	Pass	Section 6.2
15.247(b)(3)	Output Power	$\leq 1\text{Watt}$		Pass	Section 6.3
15.247(e)	Power Spectral Density	$\leq 8\text{dBm} / 3\text{kHz}$		Pass	Section 6.4
15.247(d)	Band Edge / Out-of-Band Emissions	$\geq 20\text{dBc (Peak)}$		Pass	Section 6.5
15.205 15.209	General Field Strength (Restricted Bands and Radiated Emission)	Emissions in restricted bands must meet the radiated limits detailed in 15.209	Radiated	Pass	Section 6.6 Section 6.7
15.207	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits >	Line Conducted	Pass	Section 6.8

Notes:

- 1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 2) All modes of operation and data rates were investigated. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions.

6.2. 6dB Bandwidth Measurement

6.2.1. Test Limit

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

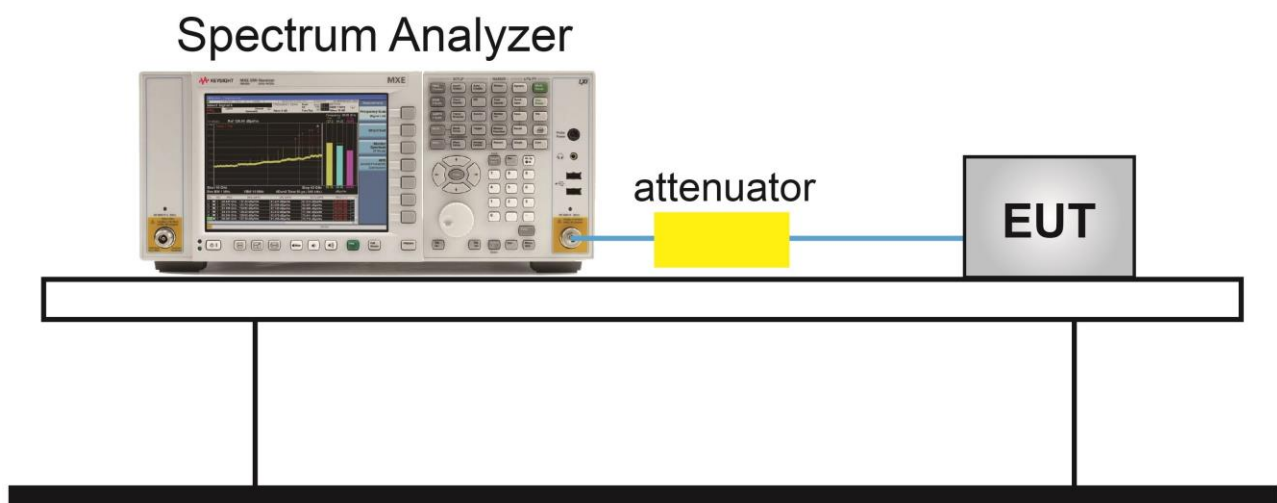
6.2.2. Test Procedure used

ANSI C63.10-2013 - Section 11.8

6.2.3. Test Setting

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

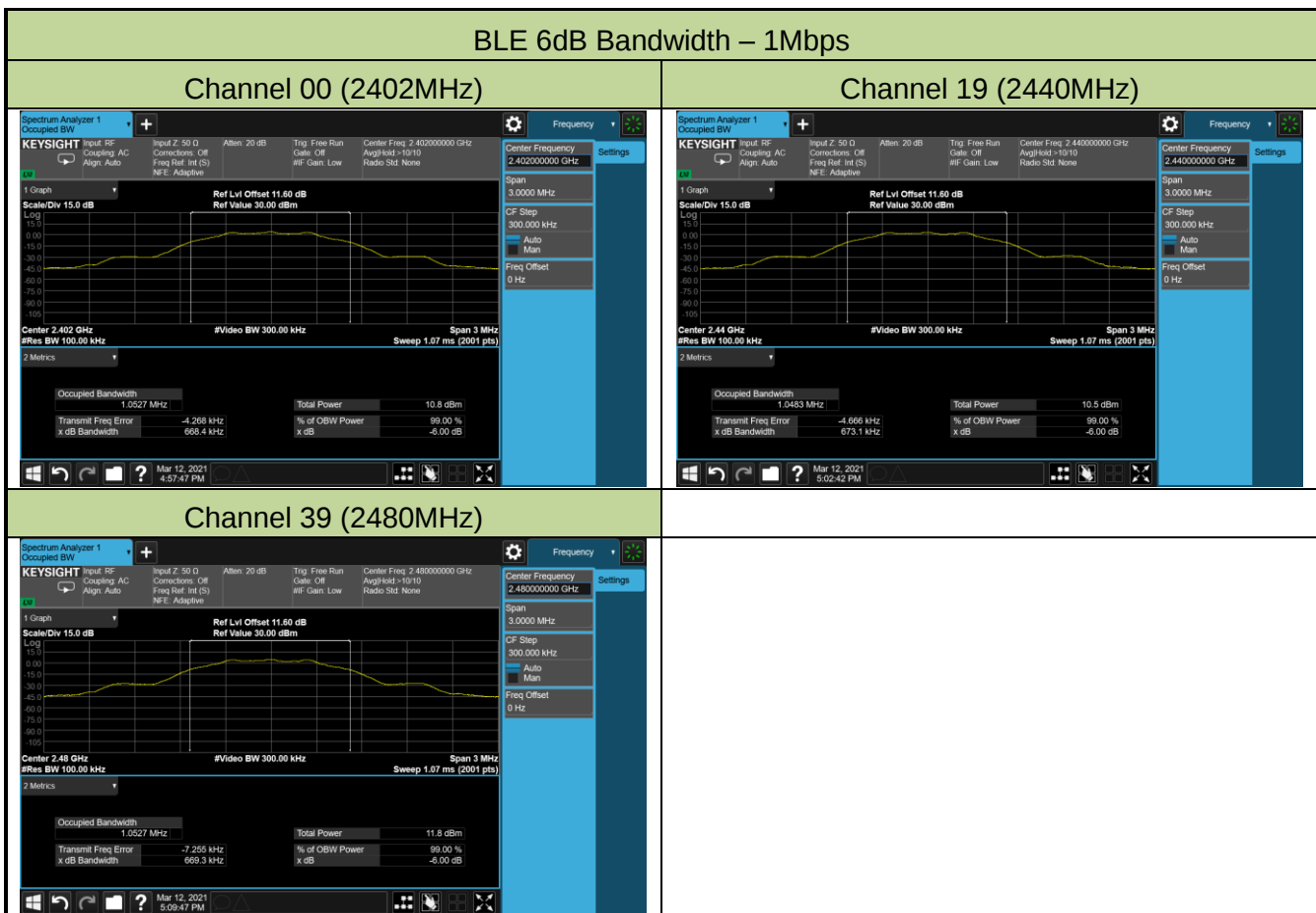
6.2.4. Test Setup



6.2.5. Test Result

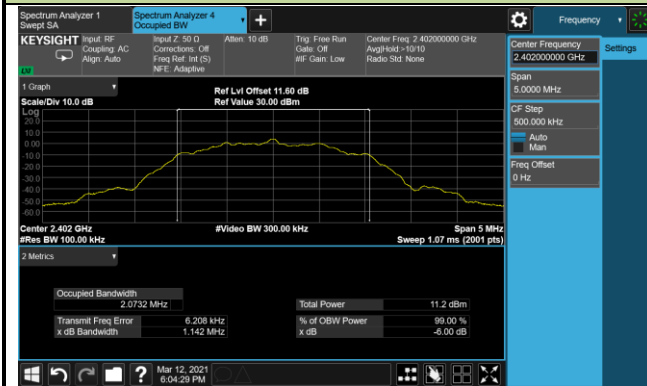
Test Site	WZ-TR3	Test Engineer	Luis Yang
Test Date	2021/03/12		

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
BLE	1	00	2402	668.4	≥ 0.5	Pass
BLE	1	19	2440	673.1	≥ 0.5	Pass
BLE	1	39	2480	669.3	≥ 0.5	Pass
BLE	2	00	2402	1142.0	≥ 0.5	Pass
BLE	2	19	2440	1149.0	≥ 0.5	Pass
BLE	2	39	2480	1147.0	≥ 0.5	Pass

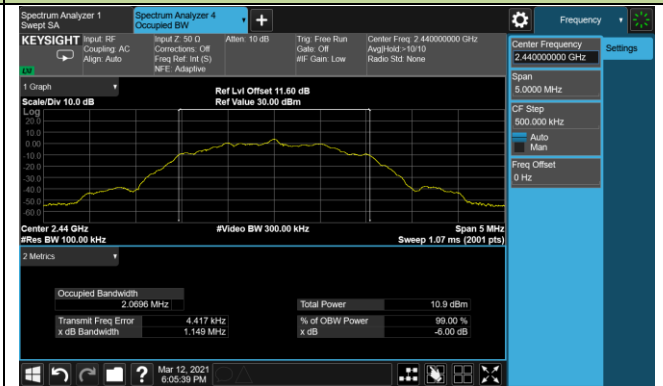


BLE 6dB Bandwidth – 2Mbps

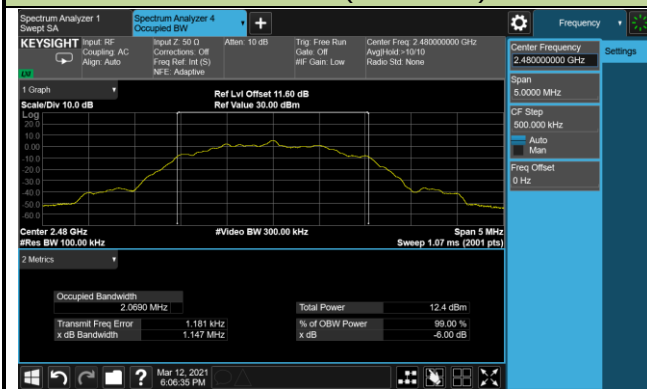
Channel 00 (2402MHz)



Channel 19 (2440MHz)



Channel 39 (2480MHz)



6.3. Output Power Measurement

6.3.1. Test Limit

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

6.3.2. Test Procedure Used

ANSI C63.10-2013 - Section 11.9.1.3

ANSI C63.10-2013 - Section 11.9.2.3.2

6.3.3. Test Setting

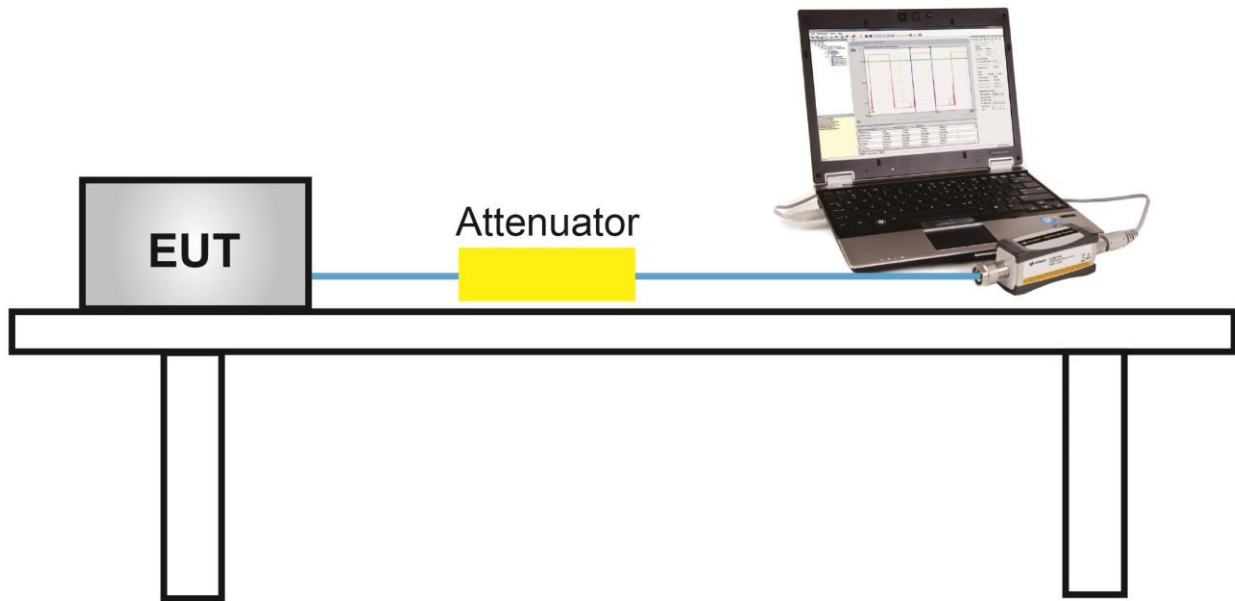
Method PKPM1 (Peak Power Measurement)

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 of Output Power

Test Site	WZ-TR3	Test Engineer	Luis Yang
Test Date	2021/03/11		

Test Result of Peak Output Power

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Result
BLE	1	00	2402	5.37	≤ 30.00	Pass
BLE	1	19	2440	5.19	≤ 30.00	Pass
BLE	1	39	2480	6.03	≤ 30.00	Pass
BLE	2	00	2402	5.62	≤ 30.00	Pass
BLE	2	19	2440	5.56	≤ 30.00	Pass
BLE	2	39	2480	6.33	≤ 30.00	Pass

Test Result of Average Output Power (Reporting Only)

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	Average Power (dBm)	Limit (dBm)	Result
BLE	1	00	2402	3.88	≤ 30.00	Pass
BLE	1	19	2440	3.65	≤ 30.00	Pass
BLE	1	39	2480	4.89	≤ 30.00	Pass
BLE	2	00	2402	3.86	≤ 30.00	Pass
BLE	2	19	2440	3.64	≤ 30.00	Pass
BLE	2	39	2480	4.88	≤ 30.00	Pass

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.

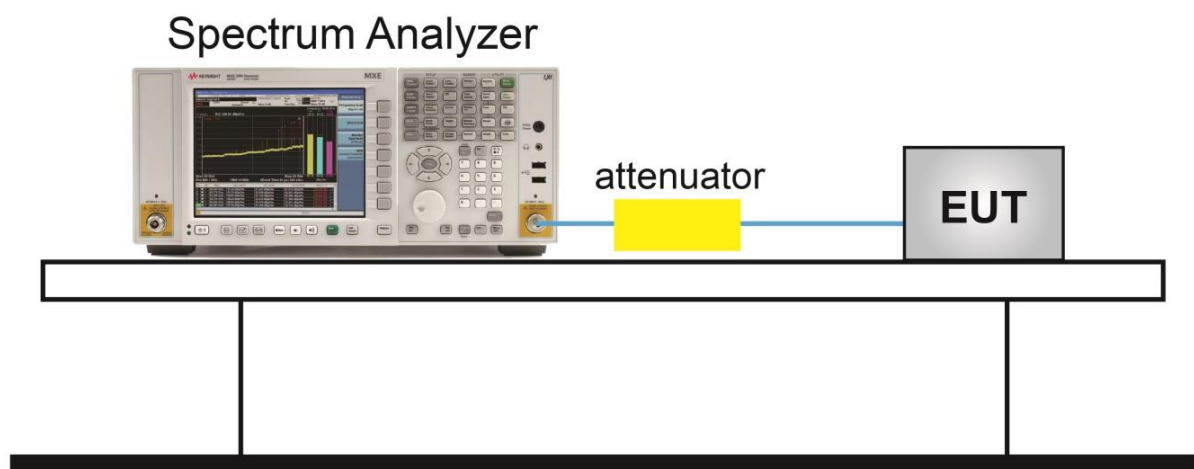
6.4.2. Test Procedure Used

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 OBW
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

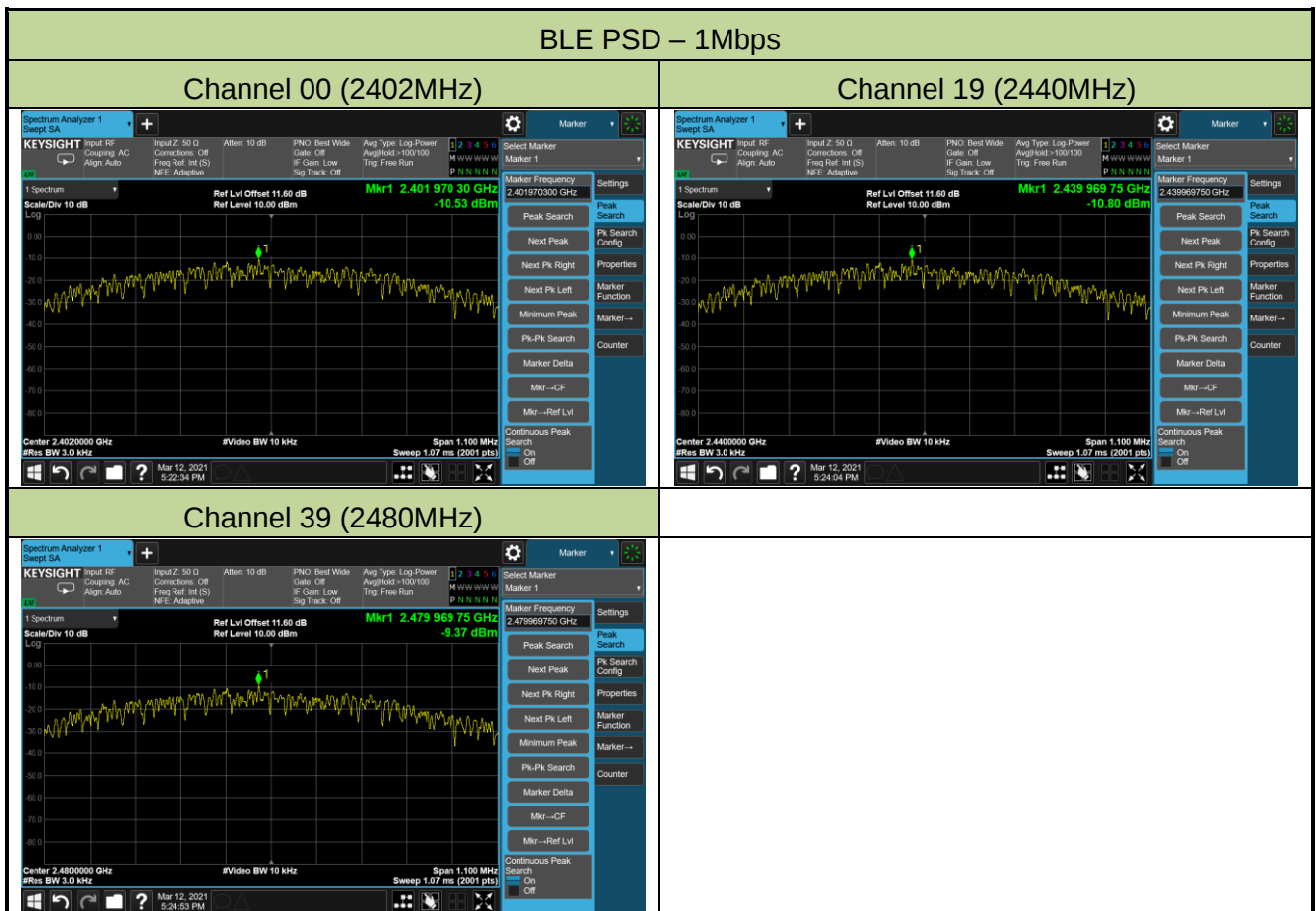
6.4.4. Test Setup



6.4.5. Test Result

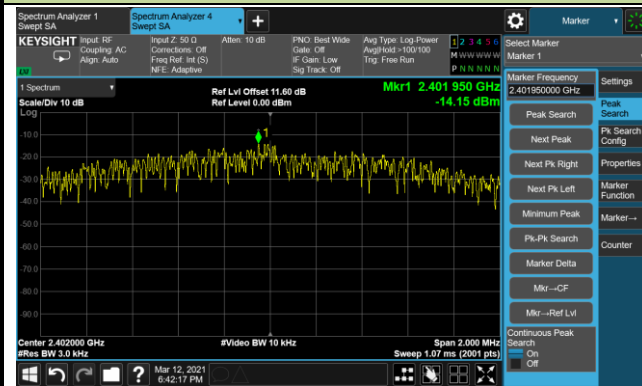
Test Site	WZ-TR3	Test Engineer	Luis Yang
Test Date	2021/03/12		

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	PSD Result (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
BLE	1	00	2402	-10.53	≤ 8.00	Pass
BLE	1	19	2440	-10.80	≤ 8.00	Pass
BLE	1	39	2480	-9.37	≤ 8.00	Pass
BLE	2	00	2402	-14.15	≤ 8.00	Pass
BLE	2	19	2440	-14.43	≤ 8.00	Pass
BLE	2	39	2480	-12.98	≤ 8.00	Pass

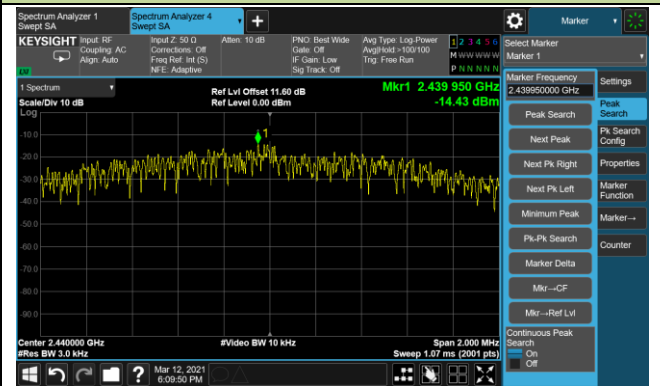


BLE PSD – 2Mbps

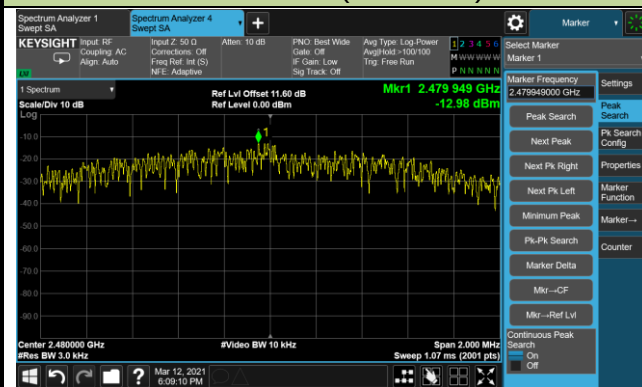
Channel 00 (2402MHz)



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 100kHz bandwidth per the PSD procedure.

6.5.2. Test Procedure Used

ANSI C63.10-2013 - Section 11.11

6.5.3. Test Setting

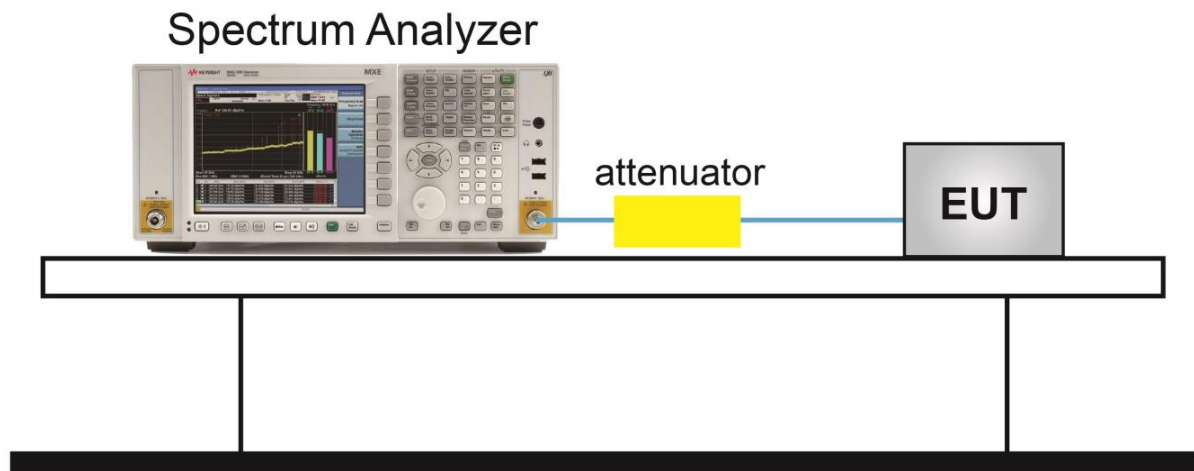
Reference level measurement

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 $\geq 3 \times$ 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

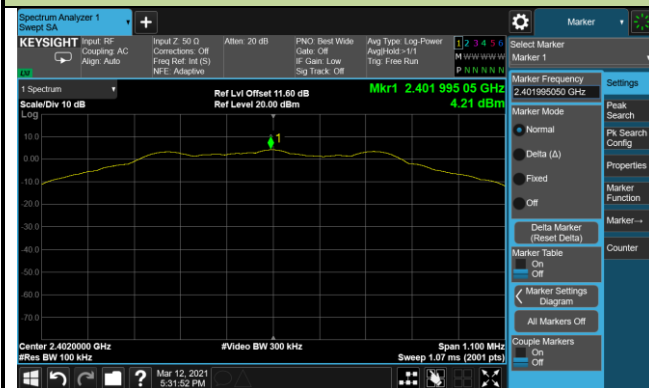
Test Site	WZ-TR3	Test Engineer	Luis Yang
Test Date	2021/03/12		

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	2	00	2402	20dBc	Pass
BLE	2	19	2440	20dBc	Pass
BLE	2	39	2480	20dBc	Pass

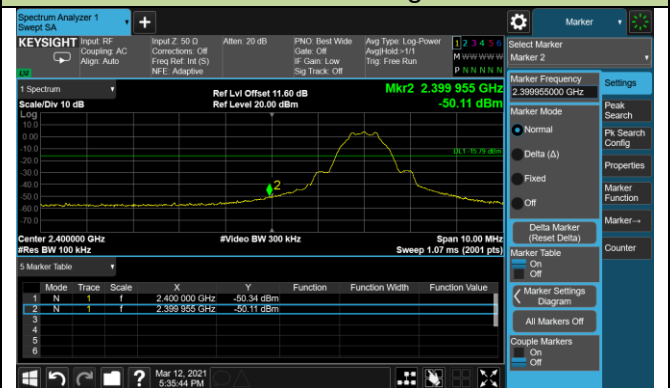
BLE Out-of-Band Emissions – 1Mbps

Channel 00 (2402MHz)

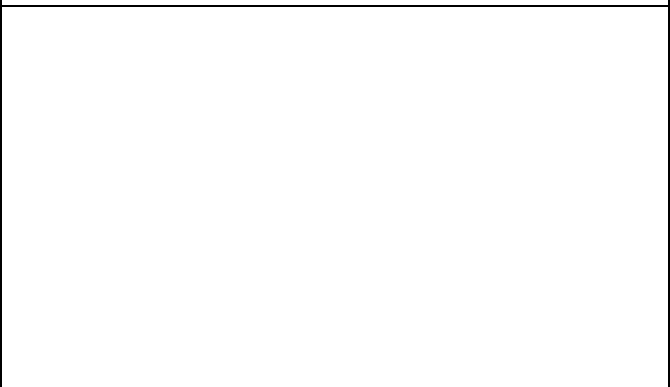
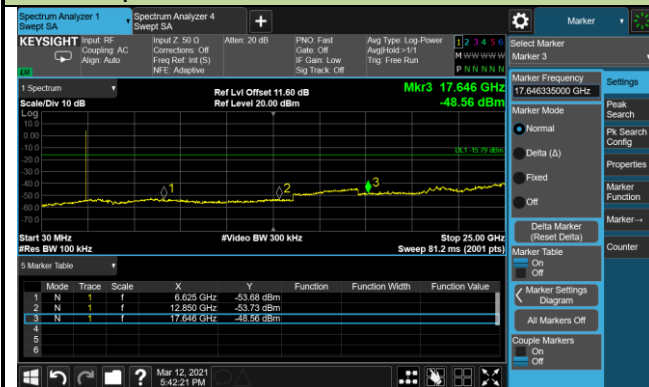
100kHz PSD reference Level



Low Band Edge

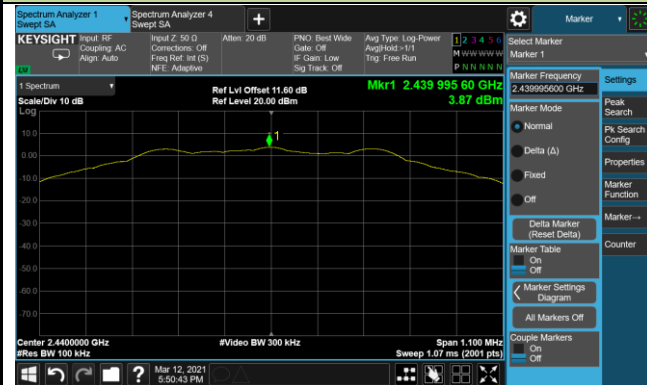


Spurious Emission 30MHz ~ 25GHz

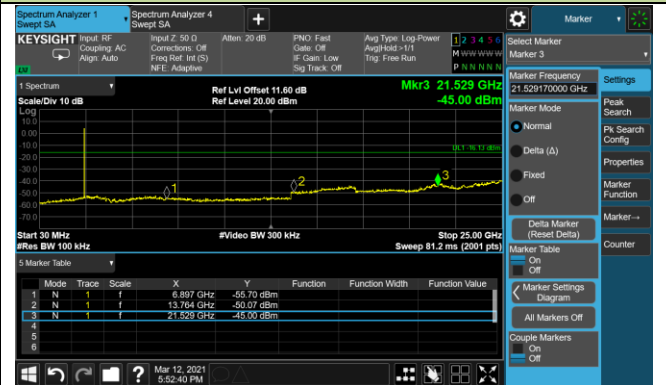


Channel 19 (2440MHz)

100kHz PSD reference Level

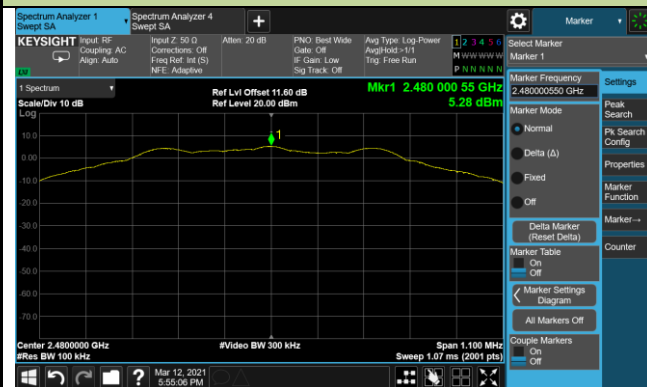


Spurious Emission 30MHz ~ 25GHz

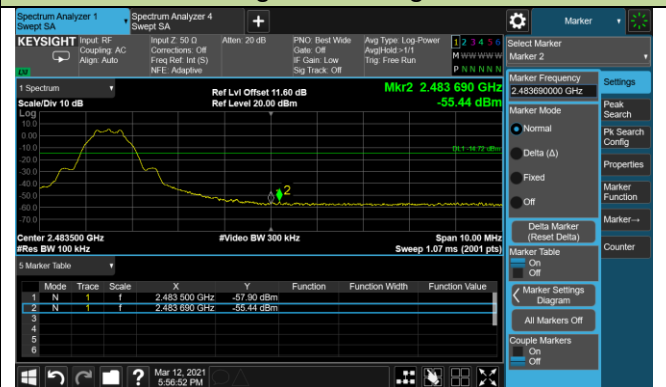


Channel 39 (2480MHz)

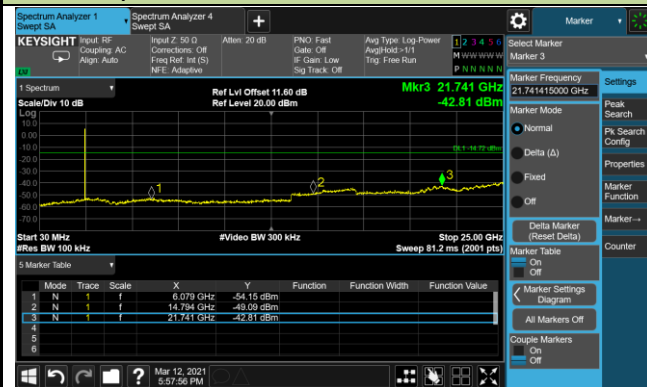
100kHz PSD reference Level



High Band Edge



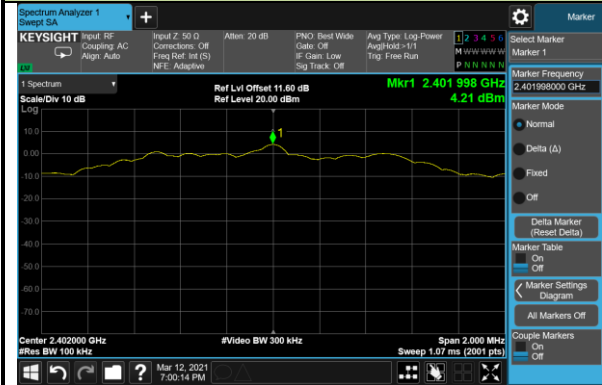
Spurious Emission 30MHz ~ 25GHz



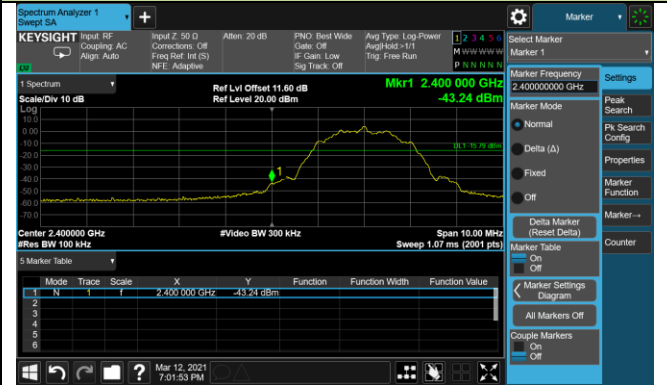
BLE Out-of-Band Emissions – 2Mbps

Channel 00 (2402MHz)

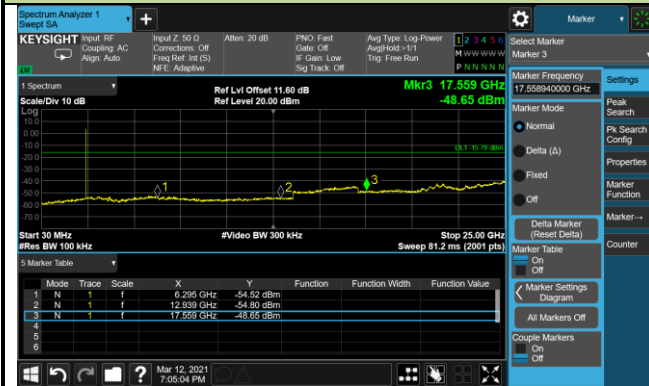
100kHz PSD reference Level



Low Band Edge

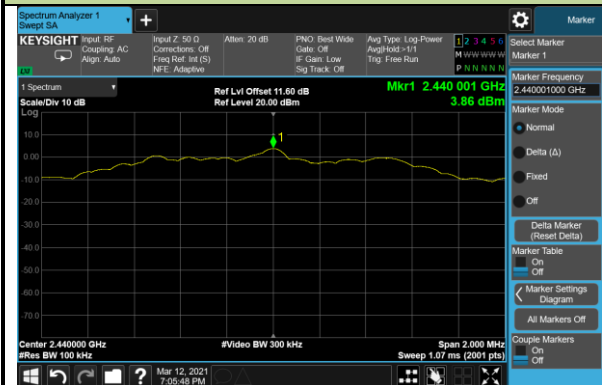


Spurious Emission 30MHz ~ 25GHz

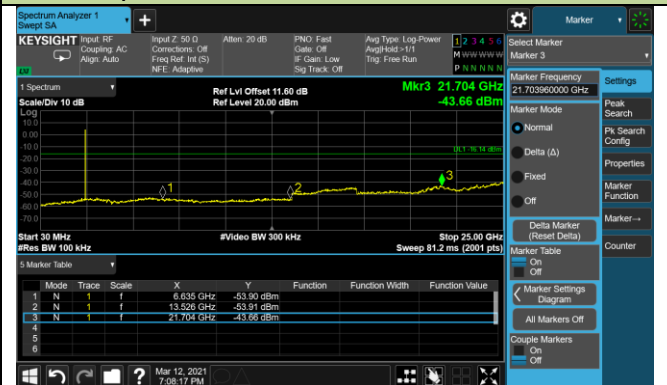


Channel 19 (2440MHz)

100kHz PSD reference Level

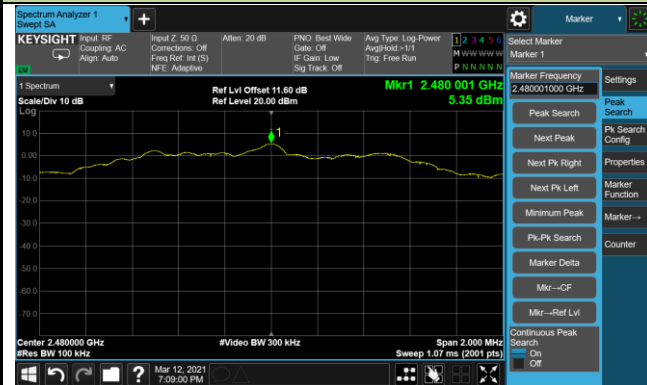


Spurious Emission 30MHz ~ 25GHz

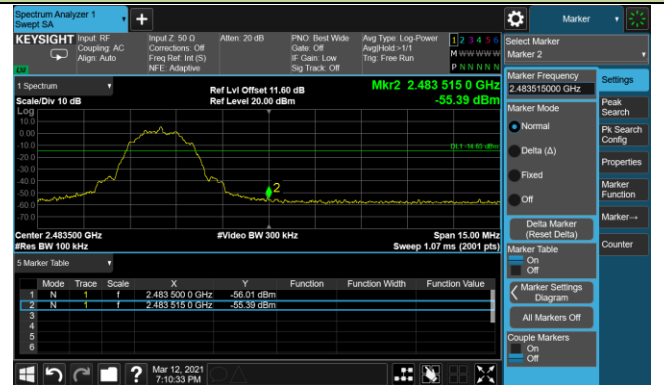


Channel 39 (2480MHz)

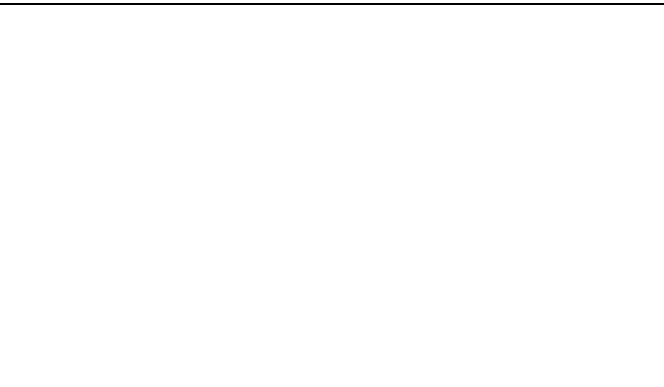
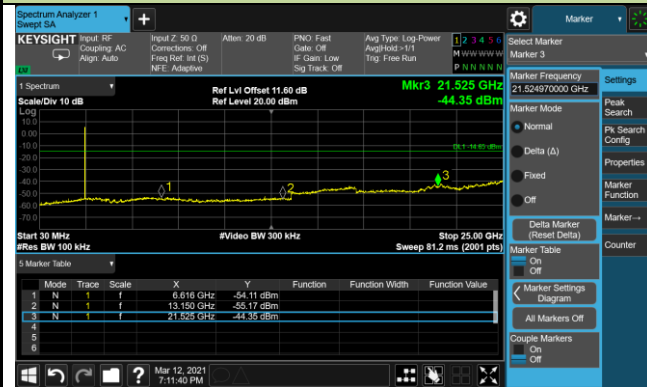
100kHz PSD reference Level



High Band Edge



Spurious Emission 30MHz ~ 25GHz



6.6. Radiated Spurious Emission Measurement

6.6.1. Test Limit

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

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measured Distance (m)
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 C63.10-2013 - Section 6.3 & 6.4 & 6.5 & 6.6

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)

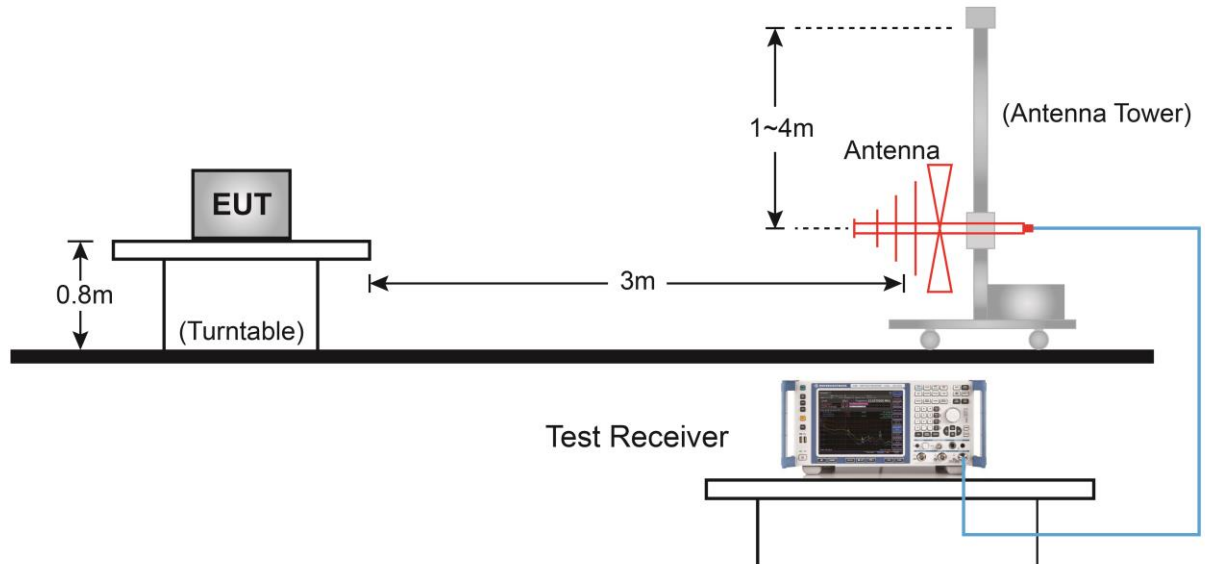
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10Hz

If the EUT duty cycle is $< 98\%$, set $\text{VBW} \geq 1/T$. T is the minimum transmission duration

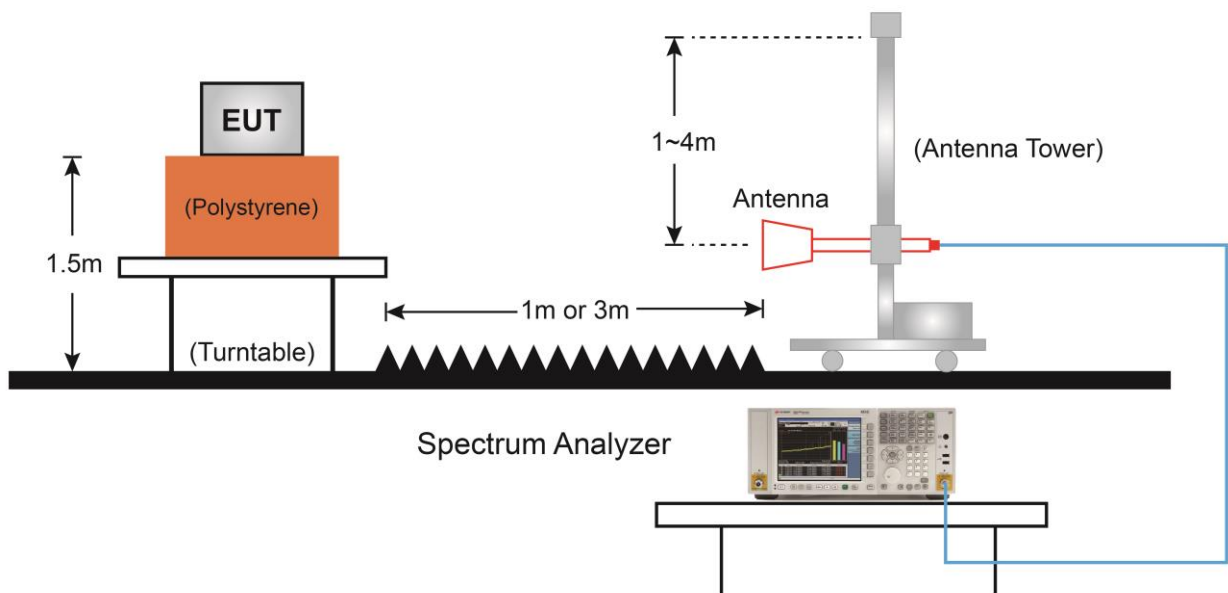
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Trace was allowed to stabilize

6.6.4. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



6.6.5. Test Result

Test Site	WZ-AC1	Test Engineer	Antony Yang
Test Mode	BLE - 1Mbps	Test Date	2021/03/16
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.		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
4196.0	38.1	3.1	41.2	74.0	-32.8	Peak	Horizontal
4808.0	37.9	5.3	43.2	74.0	-30.8	Peak	Horizontal
7655.5	35.9	9.5	45.4	74.0	-28.6	Peak	Horizontal
4791.0	36.6	5.1	41.7	74.0	-32.3	Peak	Vertical
7655.5	35.9	9.5	45.4	74.0	-28.6	Peak	Vertical
8165.5	36.9	10.2	47.1	74.0	-26.9	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	Antony Yang
Test Mode	BLE - 1Mbps	Test Date	2021/03/16
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.		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
4808.0	38.1	5.3	43.4	74.0	-30.6	Peak	Horizontal
7638.5	37.0	9.5	46.5	74.0	-27.5	Peak	Horizontal
8429.0	37.1	10.1	47.2	74.0	-26.8	Peak	Horizontal
4808.0	38.6	5.3	43.9	74.0	-30.1	Peak	Vertical
7375.0	35.8	9.4	45.2	74.0	-28.8	Peak	Vertical
8429.0	35.8	10.1	45.9	74.0	-28.1	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	Antony Yang
Test Mode	BLE - 1Mbps	Test Date	2021/03/16
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.		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
4808.0	38.1	5.3	43.4	74.0	-30.6	Peak	Horizontal
7519.5	35.8	9.6	45.4	74.0	-28.6	Peak	Horizontal
8429.0	36.1	10.1	46.2	74.0	-27.8	Peak	Horizontal
4876.0	35.6	4.9	40.5	74.0	-33.5	Peak	Vertical
7570.5	35.1	9.7	44.8	74.0	-29.2	Peak	Vertical
8429.0	36.5	10.1	46.6	74.0	-27.4	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	Antony Yang
Test Mode	BLE - 2Mbps	Test Date	2021/03/16
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.		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
4374.5	38.1	3.9	42.0	74.0	-32.0	Peak	Horizontal
4876.0	35.6	4.9	40.5	74.0	-33.5	Peak	Horizontal
7528.0	35.6	9.6	45.2	74.0	-28.8	Peak	Horizontal
4808.0	38.5	5.3	43.8	74.0	-30.2	Peak	Vertical
7596.0	35.9	9.4	45.3	74.0	-28.7	Peak	Vertical
8318.5	37.5	10.0	47.5	74.0	-26.5	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	Antony Yang
Test Mode	BLE - 2Mbps	Test Date	2021/03/16
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.		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
4255.5	38.8	3.2	42.0	74.0	-32.0	Peak	Horizontal
4833.5	37.7	4.9	42.6	74.0	-31.4	Peak	Horizontal
7545.0	36.9	9.6	46.5	74.0	-27.5	Peak	Horizontal
4918.5	36.9	5.1	42.0	74.0	-32.0	Peak	Vertical
7434.5	36.1	9.5	45.6	74.0	-28.4	Peak	Vertical
8429.0	36.1	10.1	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	Antony Yang
Test Mode	BLE - 2Mbps	Test Date	2021/03/16
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.		

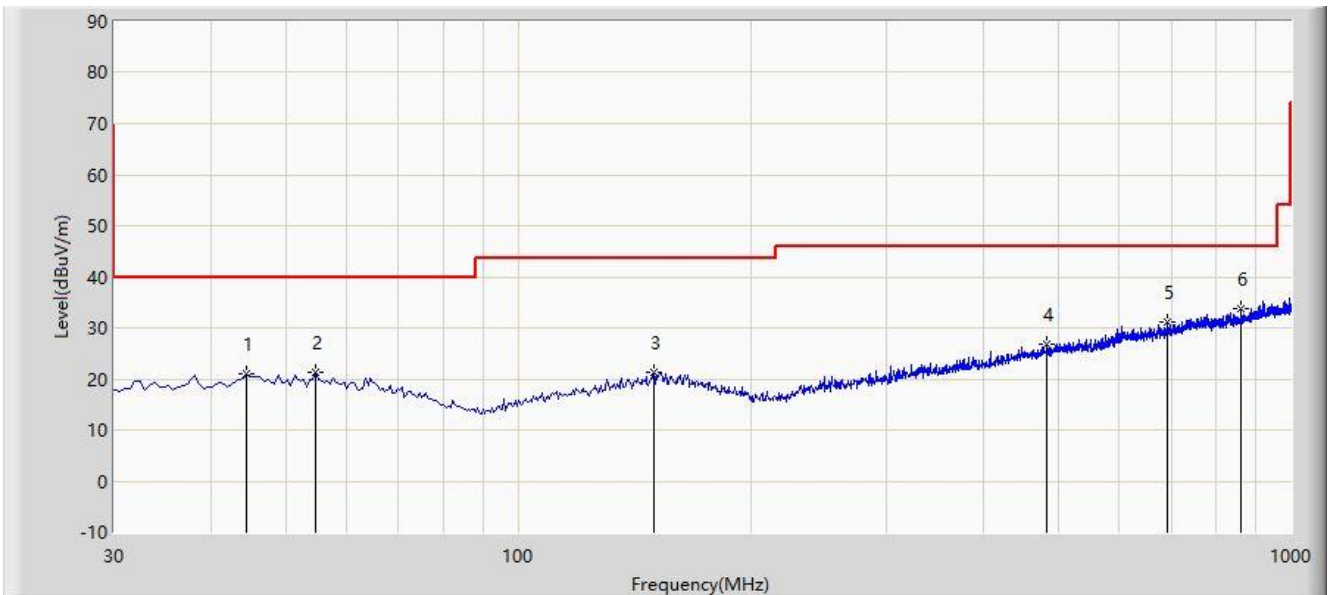
Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
4808.0	37.7	5.3	43.0	74.0	-31.0	Peak	Horizontal
7579.0	35.2	9.6	44.8	74.0	-29.2	Peak	Horizontal
8412.0	37.8	10.1	47.9	74.0	-26.1	Peak	Horizontal
3949.5	39.0	2.5	41.5	74.0	-32.5	Peak	Vertical
7553.5	37.0	9.7	46.7	74.0	-27.3	Peak	Vertical
8242.0	36.6	10.0	46.6	74.0	-27.4	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 Result of Radiated Emission below 1GHz:

Site: WZ-AC1	Time: 2021/03/16
Limit: FCC_Part15.209_RSE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_VULB 9168 _30-1000MHz	Polarity: Horizontal
EUT: Mobile Computer	Power: AC 120V/60Hz
Worst Case Mode: Transmit by BLE at channel 2480MHz	



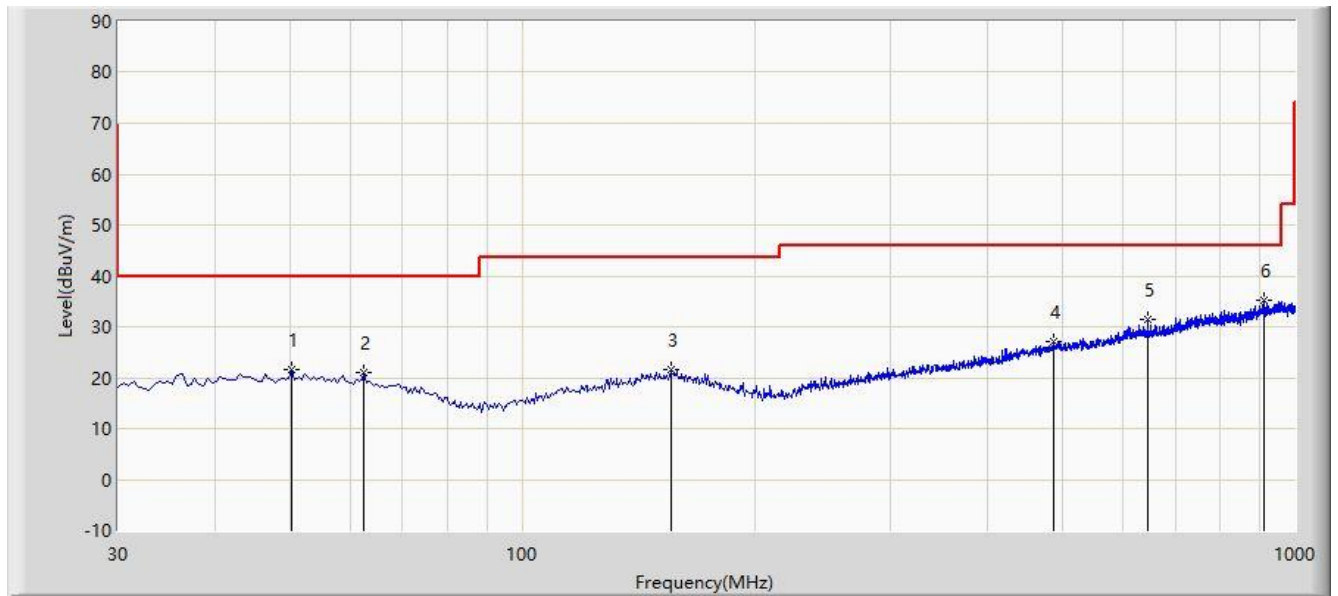
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			44.550	20.919	3.074	-19.081	40.000	17.845	PK
2			54.735	21.221	3.215	-18.779	40.000	18.006	PK
3			149.795	21.411	3.189	-22.089	43.500	18.222	PK
4			483.960	26.921	3.652	-19.079	46.000	23.269	PK
5			692.510	31.167	4.049	-14.833	46.000	27.118	PK
6		*	861.290	33.821	4.379	-12.179	46.000	29.442	PK

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 to 30MHz and 18GHz to 25GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

Site: WZ-AC1	Time: 2021/03/16
Limit: FCC_Part15.209_RSE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_VULB 9168 _30-1000MHz	Polarity: Vertical
EUT: Mobile Computer	Power: AC 120V/60Hz
Worst Case 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			50.370	21.579	3.471	-18.421	40.000	18.108	PK
2			62.495	21.065	3.830	-18.935	40.000	17.235	PK
3			155.615	21.690	3.413	-21.810	43.500	18.276	PK
4			486.870	27.246	3.909	-18.754	46.000	23.337	PK
5			644.980	31.412	4.898	-14.588	46.000	26.514	PK
6		*	912.700	35.297	5.110	-10.703	46.000	30.187	PK

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

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

Note 2: The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 25GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value.

Therefore, the data is not presented in the report.

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

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

6.7.2.Test Procedure Used

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

6.7.3.Test Setting

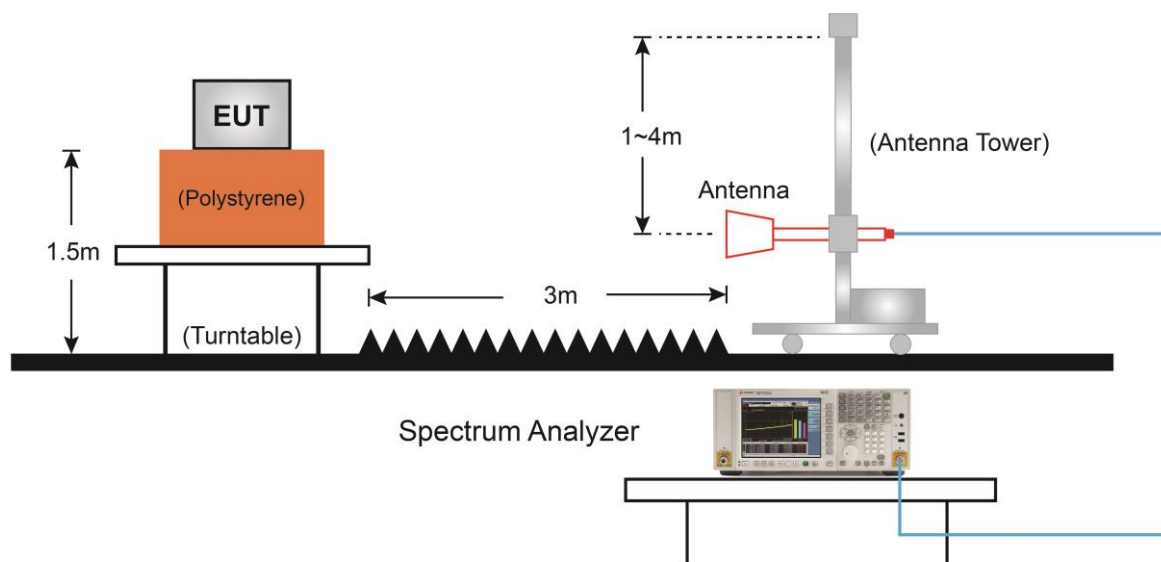
Peak Field Strength Measurements

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

Average Field Strength Measurements

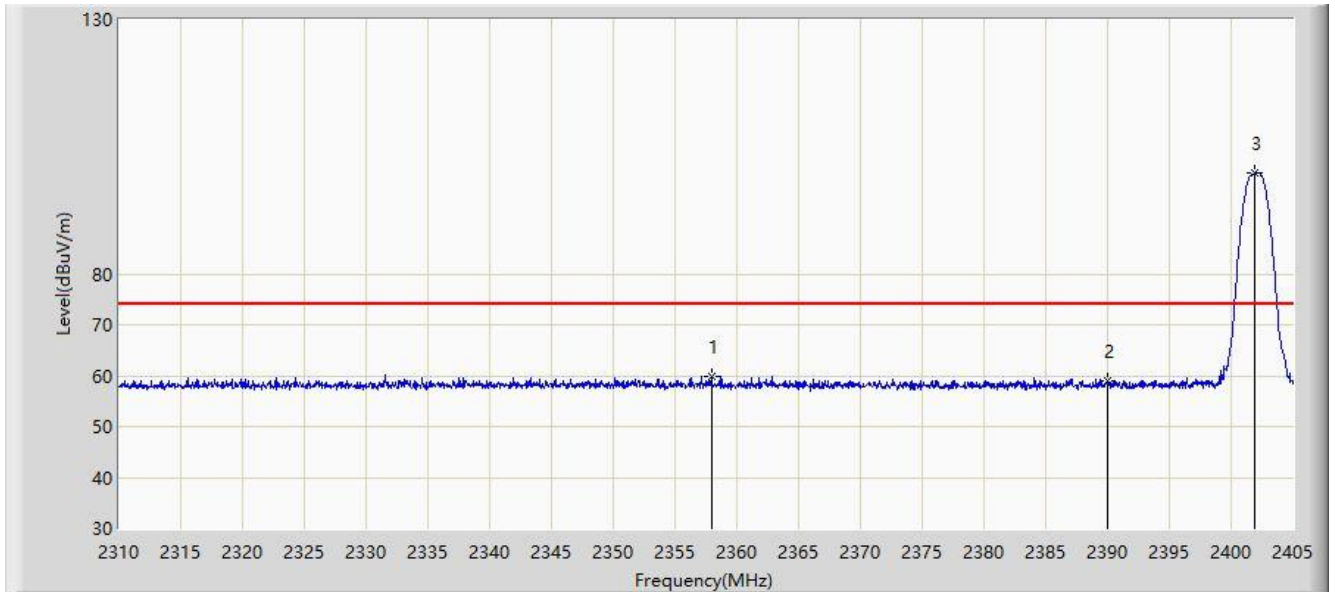
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW $\geq 1/T$
4. De As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain).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

6.7.4.Test Setup



6.7.5. Test Result

Site: WZ-AC1	Time: 2021/03/13 - 17:32
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at Channel 2402MHz	

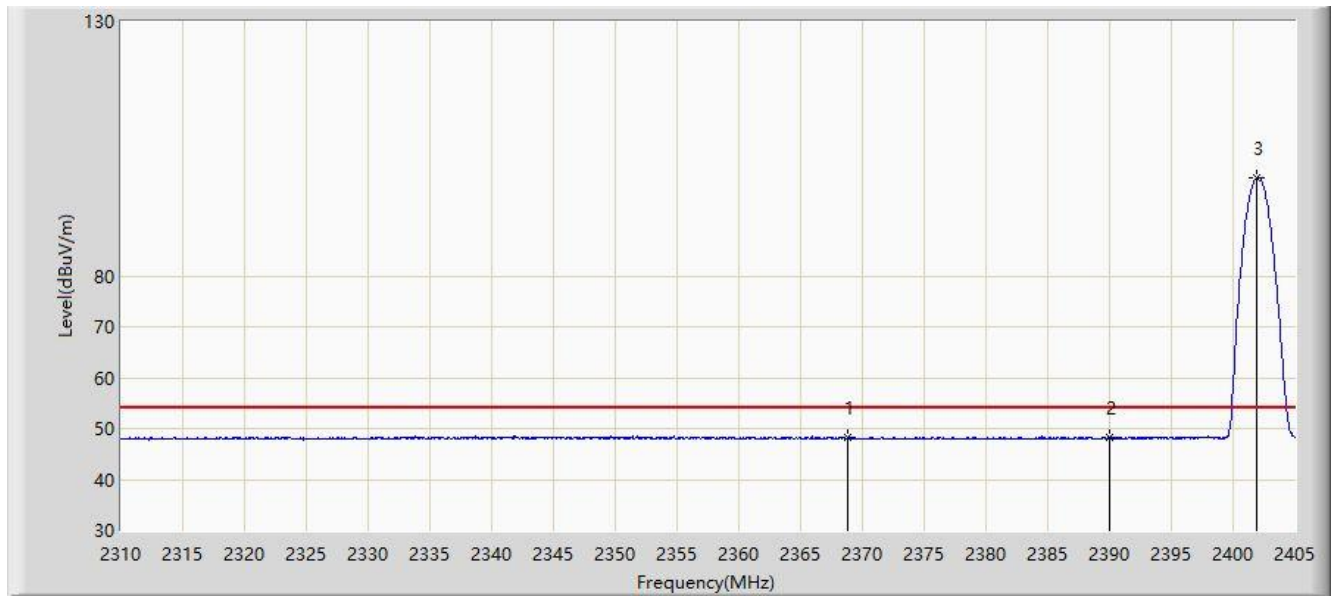


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2357.927	59.982	27.366	-14.018	74.000	32.617	PK
2			2390.000	58.880	26.347	-15.120	74.000	32.533	PK
3		*	2401.913	99.794	67.253	N/A	N/A	32.541	PK

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

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

Site: WZ-AC1	Time: 2021/03/13 - 17:33
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at Channel 2402MHz	

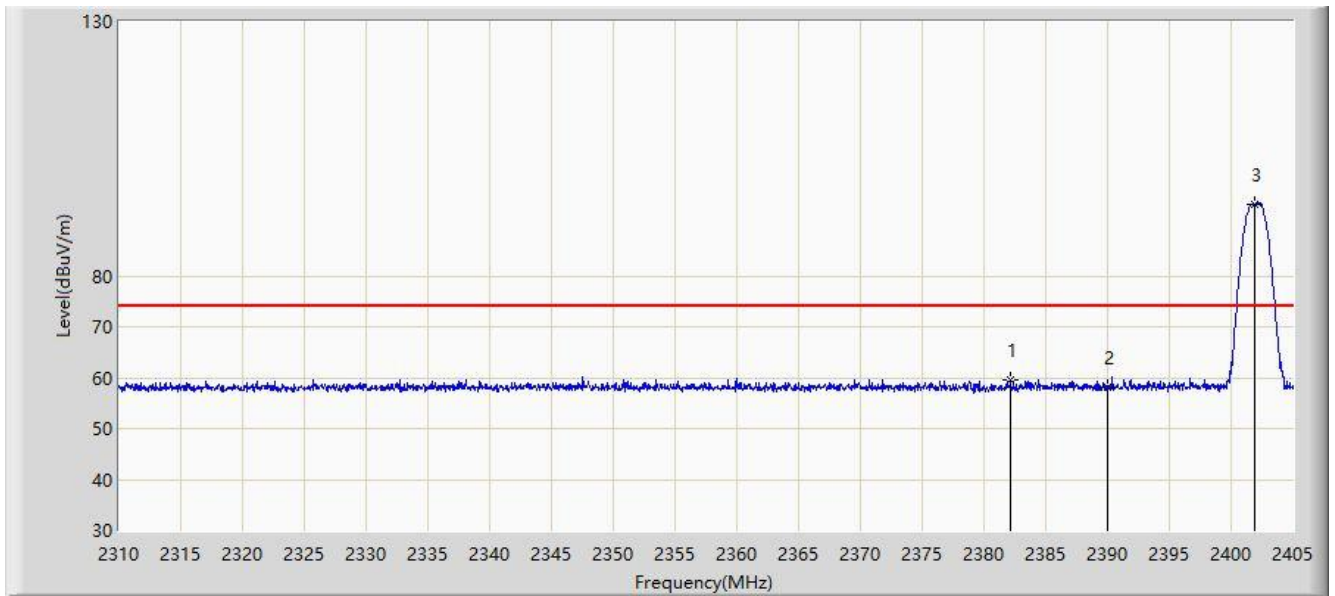


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2368.758	48.190	15.634	-5.810	54.000	32.555	AV
2			2390.000	48.159	15.626	-5.841	54.000	32.533	AV
3		*	2401.865	99.163	66.622	N/A	N/A	32.541	AV

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

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

Site: WZ-AC1	Time: 2021/03/13 - 17:47
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at Channel 2402MHz	

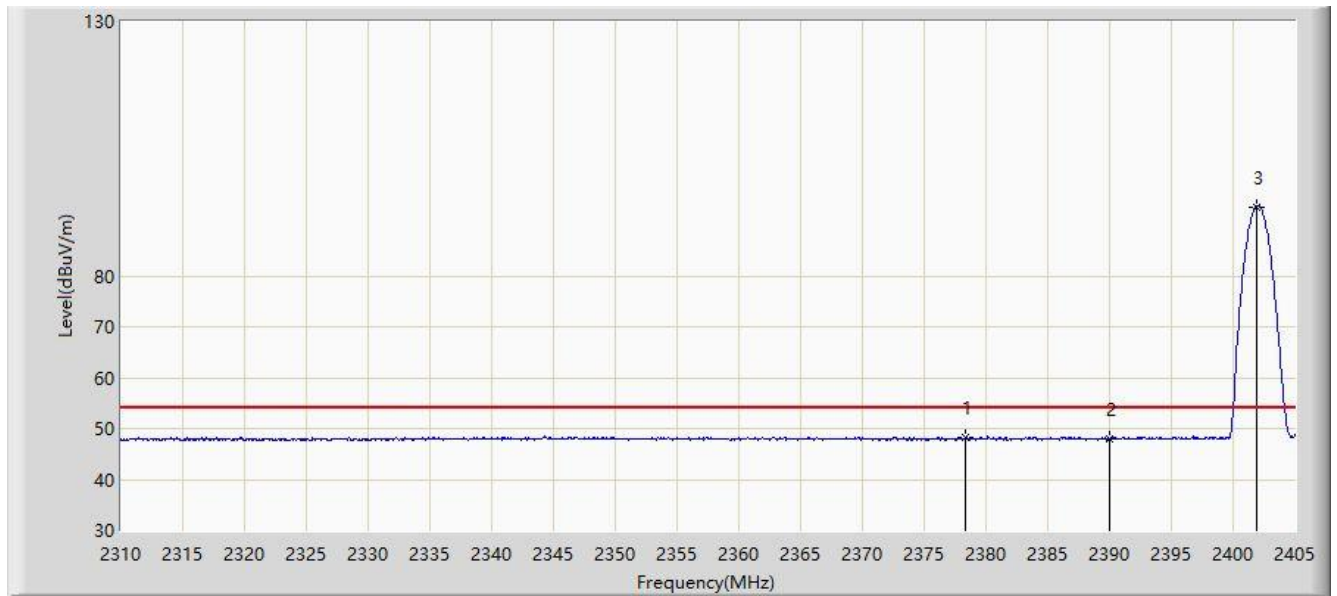


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2382.153	59.446	26.946	-14.554	74.000	32.500	PK
2			2390.000	58.026	25.493	-15.974	74.000	32.533	PK
3		*	2401.960	94.137	N/A	N/A	74.000	32.540	PK

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

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

Site: WZ-AC1	Time: 2021/03/13 - 17:49
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at Channel 2402MHz	

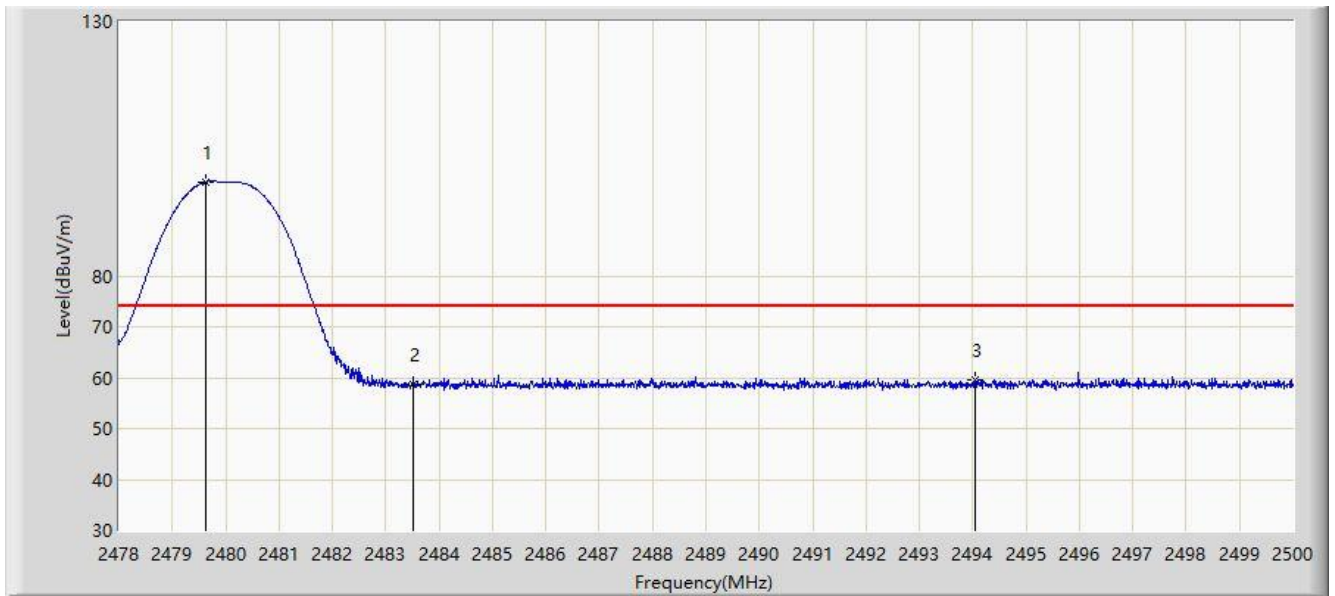


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			2378.305	48.223	15.725	-5.777	54.000	32.497	AV
2			2390.000	47.903	15.370	-6.097	54.000	32.533	AV
3		*	2401.865	93.575	61.034	N/A	N/A	32.541	AV

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

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

Site: WZ-AC1	Time: 2021/03/13 - 17:51
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at Channel 2480MHz	

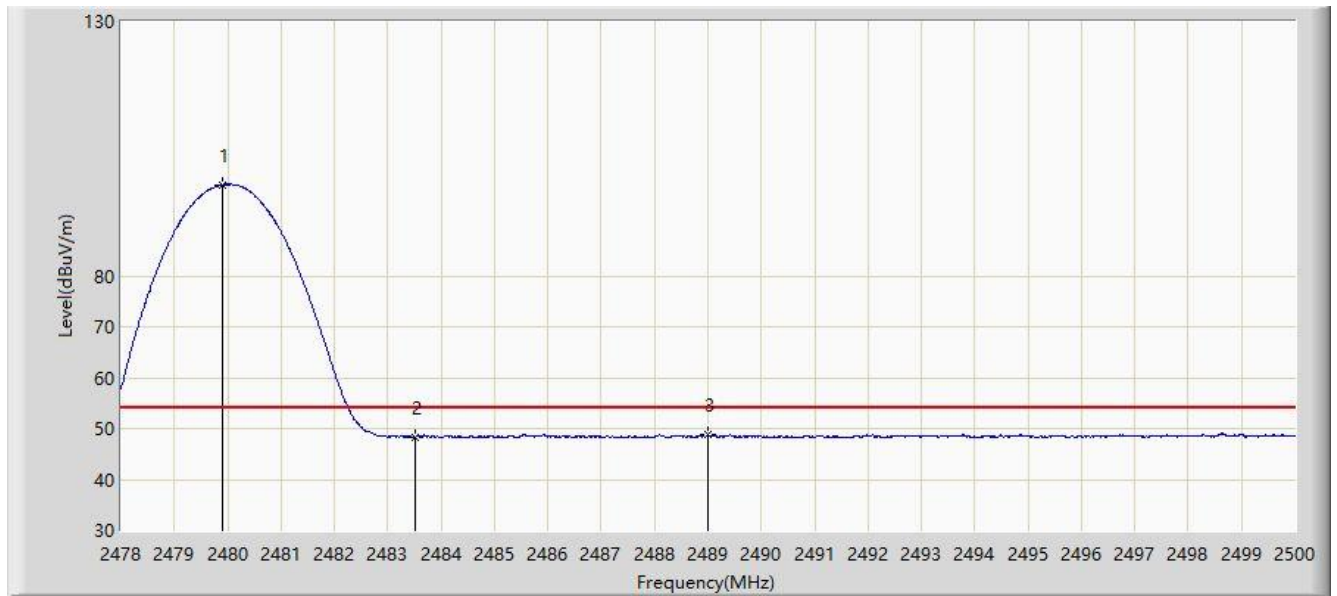


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	2479.639	98.501	66.049	N/A	N/A	32.452	PK
2			2483.500	58.624	26.195	-15.376	74.000	32.429	PK
3			2494.038	59.593	27.169	-14.407	74.000	32.424	PK

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

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

Site: WZ-AC1	Time: 2021/03/13 - 17:53
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at Channel 2480MHz	

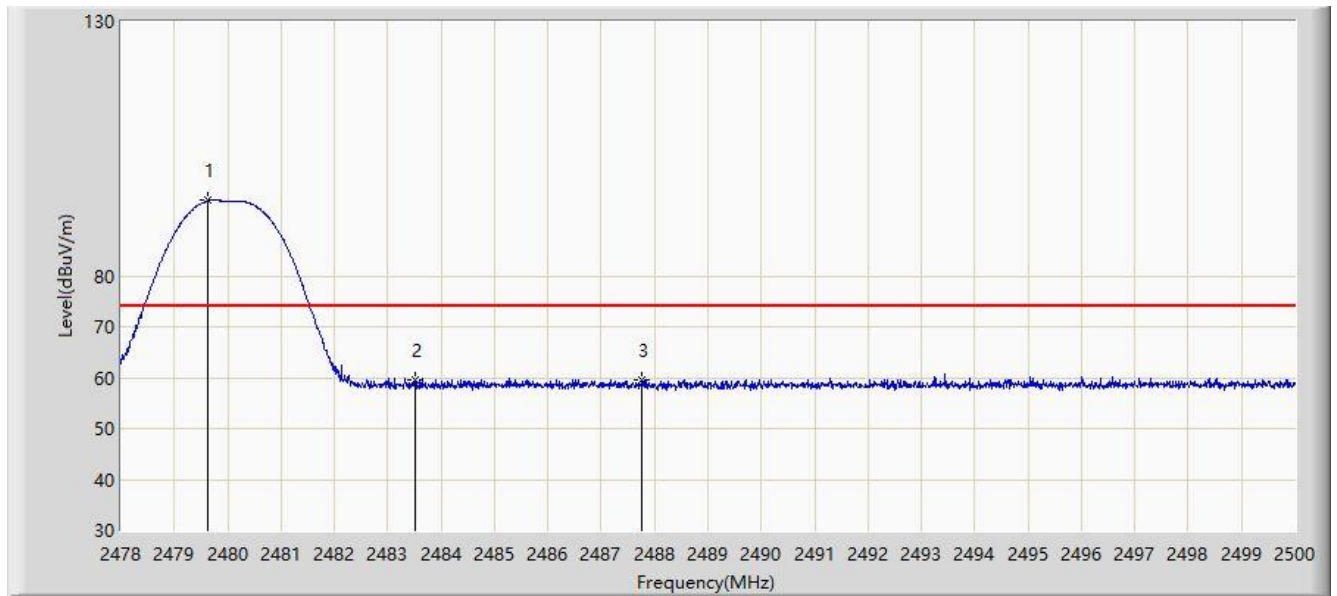


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	2479.903	97.863	65.413	N/A	N/A	32.450	AV
2			2483.500	48.321	15.892	-5.679	54.000	32.429	AV
3			2489.011	48.804	16.395	-5.196	54.000	32.409	AV

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

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

Site: WZ-AC1	Time: 2021/03/13 - 17:54
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at Channel 2480MHz	

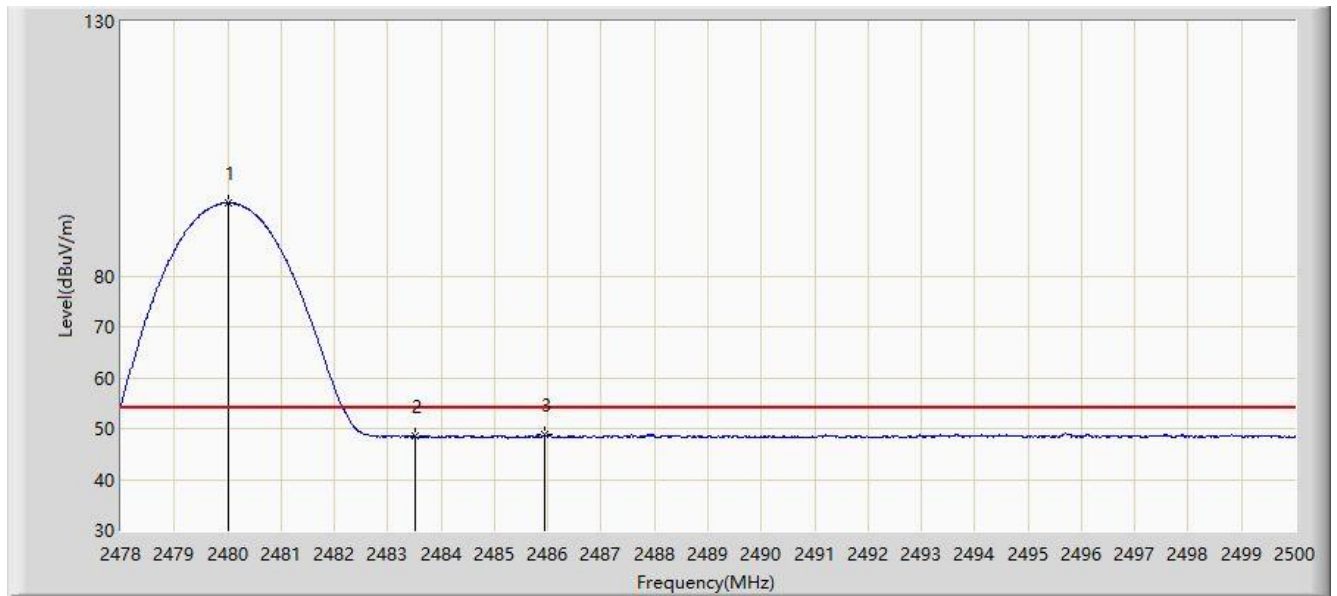


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	2479.639	94.806	62.354	N/A	N/A	32.452	PK
2			2483.500	59.446	27.017	-14.554	74.000	32.429	PK
3			2487.768	59.655	27.250	-14.345	74.000	32.404	PK

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

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

Site: WZ-AC1	Time: 2021/03/13 - 17:56
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at Channel 2480MHz	

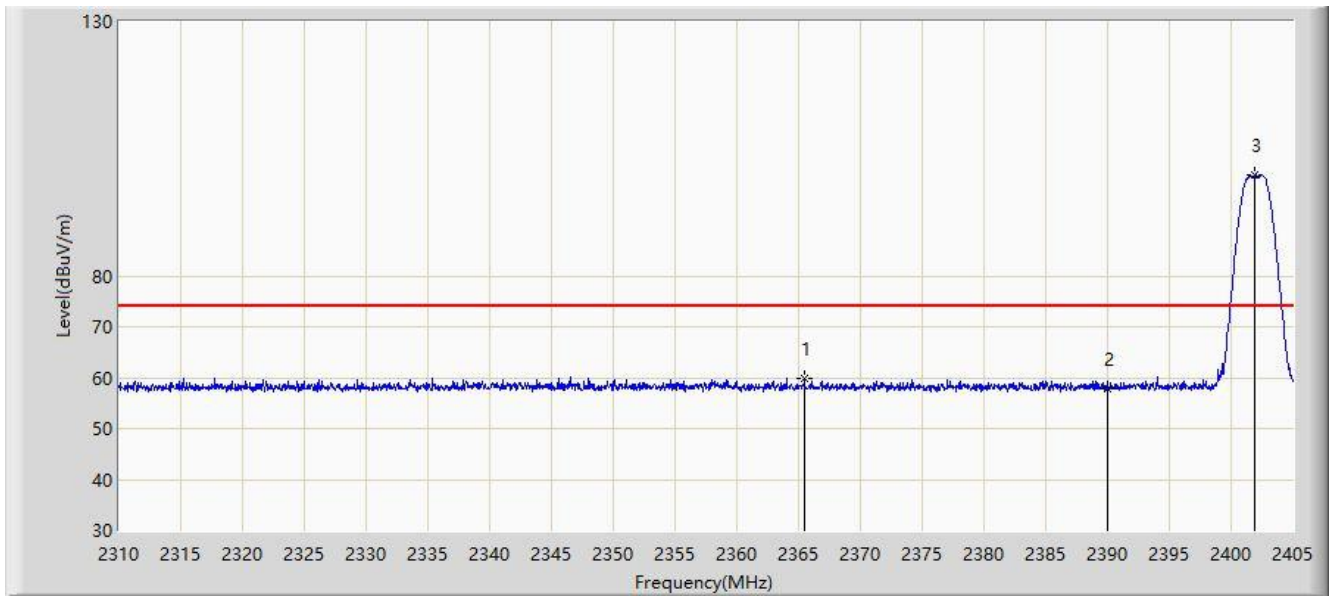


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	2480.024	94.446	61.997	N/A	N/A	32.449	AV
2			2483.500	48.427	15.998	-5.573	54.000	32.429	AV
3			2485.953	48.822	16.408	-5.178	54.000	32.414	AV

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

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

Site: WZ-AC1	Time: 2021/03/13 - 17:57
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at Channel 2402MHz	

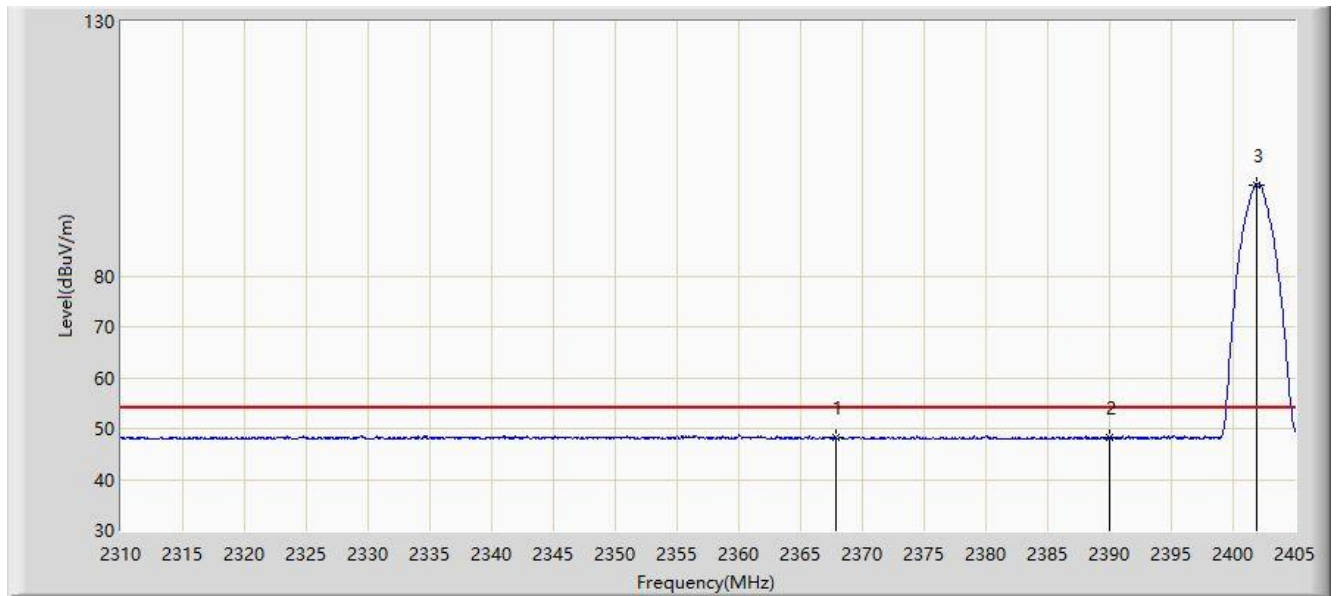


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2365.480	59.923	27.347	-14.077	74.000	32.576	PK
2			2390.000	57.814	25.281	-16.186	74.000	32.533	PK
3		*	2401.865	99.728	67.187	N/A	N/A	32.541	PK

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

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

Site: WZ-AC1	Time: 2021/03/13 - 17:59
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at Channel 2402MHz	

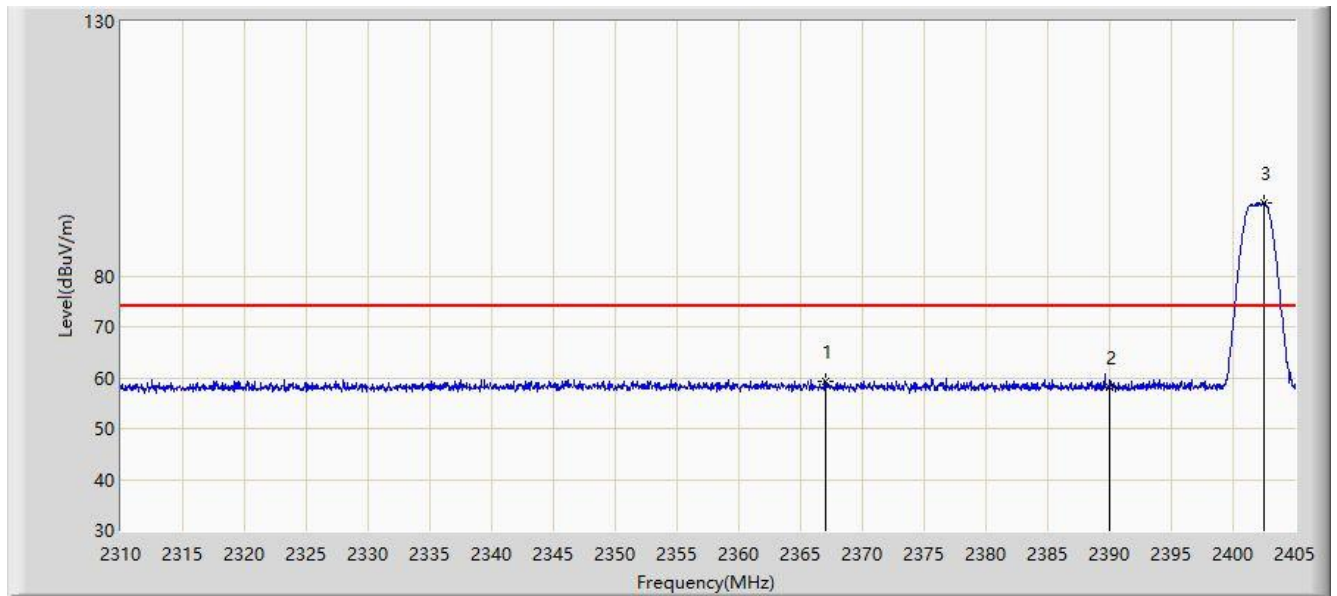


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			2367.855	48.187	15.626	-5.813	54.000	32.561	AV
2			2390.000	48.123	15.590	-5.877	54.000	32.533	AV
3		*	2401.913	97.900	65.359	N/A	N/A	32.541	AV

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

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

Site: WZ-AC1	Time: 2021/03/13 - 18:00
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at Channel 2402MHz	

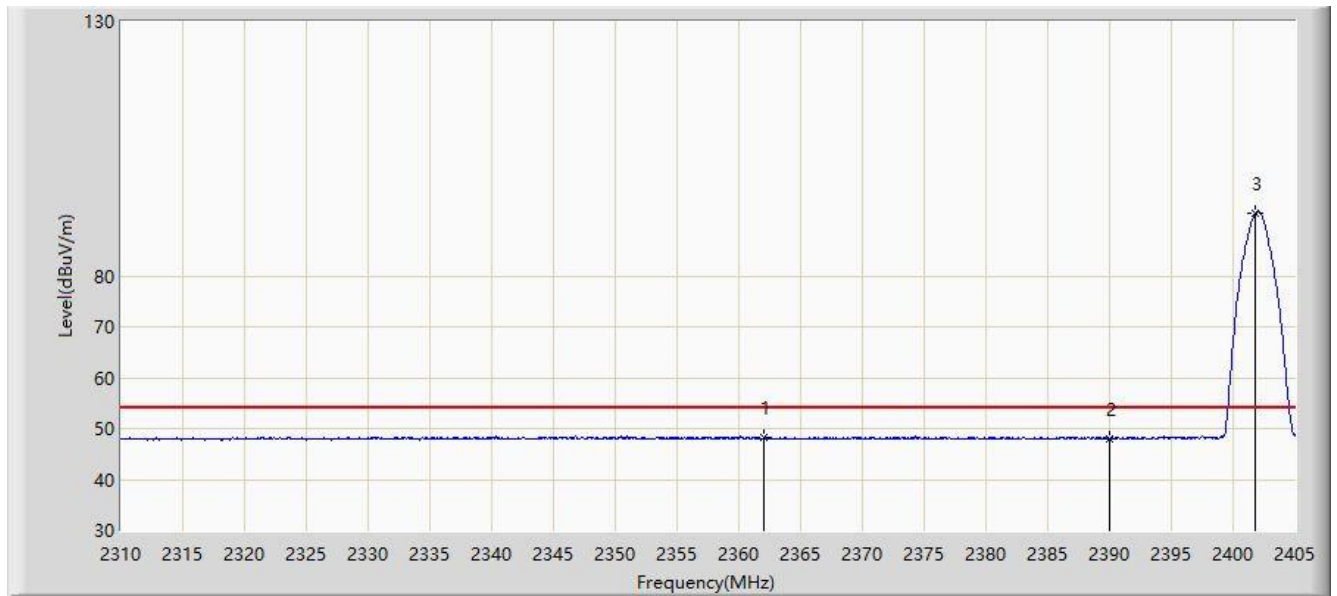


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2367.048	59.403	26.837	-14.597	74.000	32.566	PK
2			2390.000	58.117	25.584	-15.883	74.000	32.533	PK
3		*	2402.482	94.443	61.905	N/A	N/A	32.538	PK

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

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

Site: WZ-AC1	Time: 2021/03/13 - 18:02
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at Channel 2402MHz	

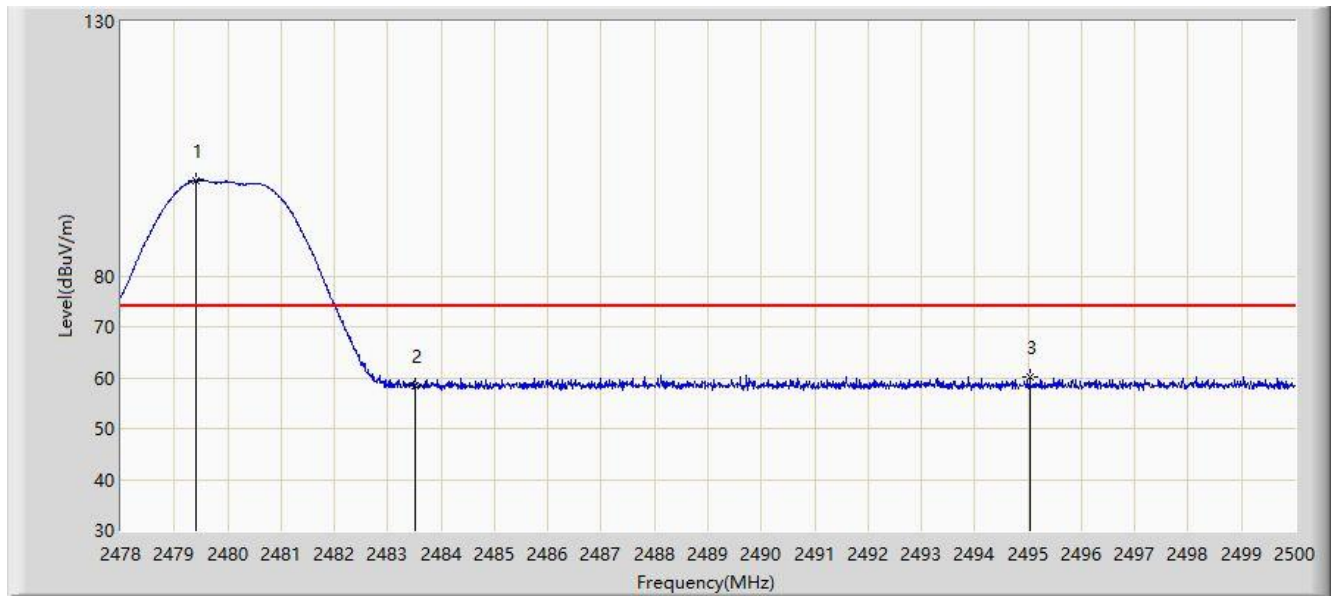


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			2362.060	48.182	15.585	-5.818	54.000	32.596	AV
2			2390.000	48.060	15.527	-5.940	54.000	32.533	AV
3		*	2401.817	92.273	59.732	N/A	N/A	32.541	AV

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

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

Site: WZ-AC1	Time: 2021/03/13 - 18:03
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at Channel 2480MHz	

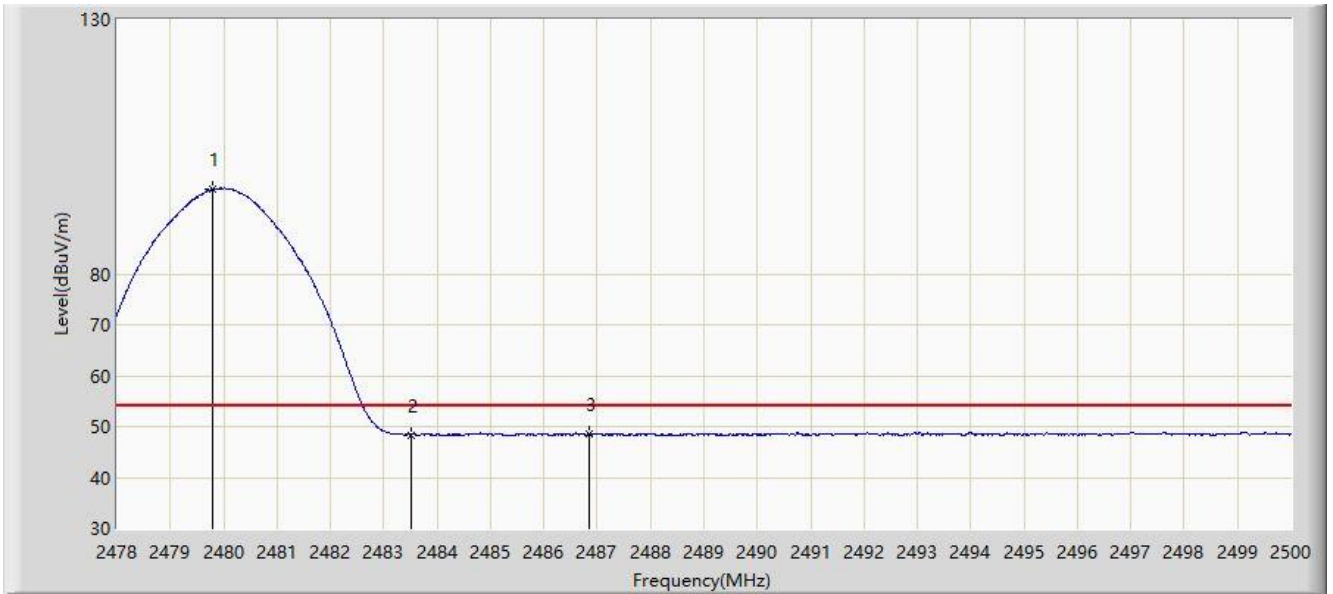


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	2479.419	98.791	66.338	N/A	N/A	32.453	PK
2			2483.500	58.309	25.880	-15.691	74.000	32.429	PK
3			2495.039	60.148	27.721	-13.852	74.000	32.428	PK

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

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

Site: WZ-AC1	Time: 2021/03/13 - 18:05
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at Channel 2480MHz	

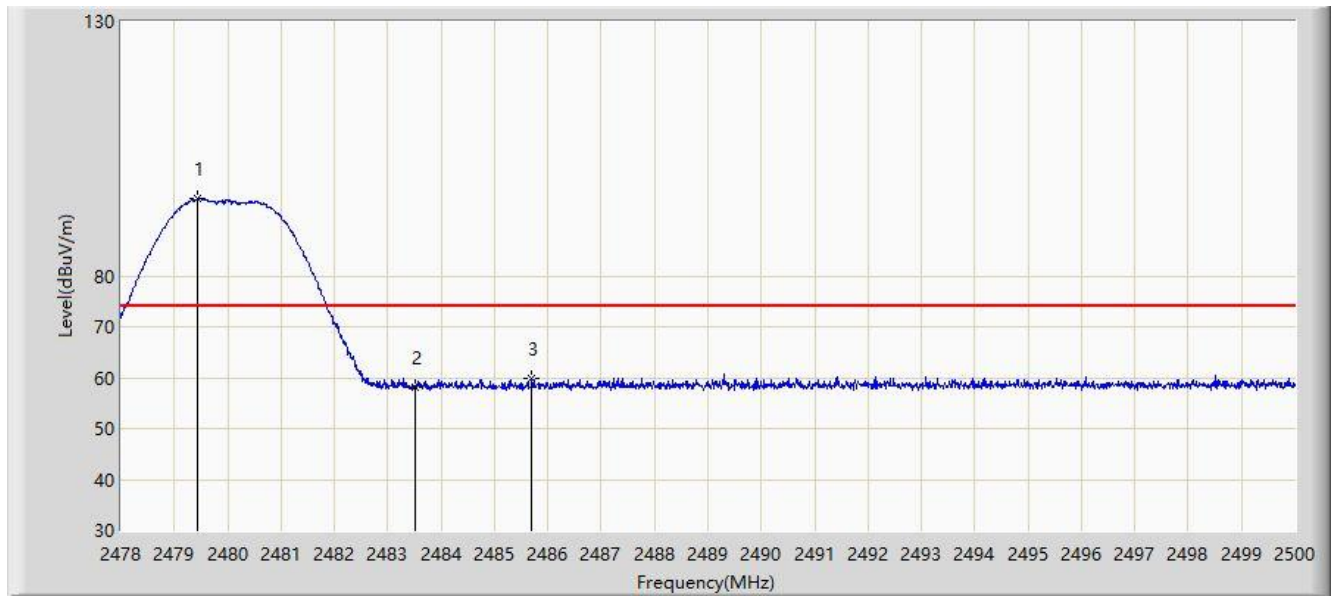


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	2479.793	96.656	64.205	N/A	N/A	32.451	AV
2			2483.500	48.350	15.921	-5.650	54.000	32.429	AV
3			2486.855	48.592	16.184	-5.408	54.000	32.408	AV

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

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

Site: WZ-AC1	Time: 2021/03/13 - 18:06
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at Channel 2480MHz	

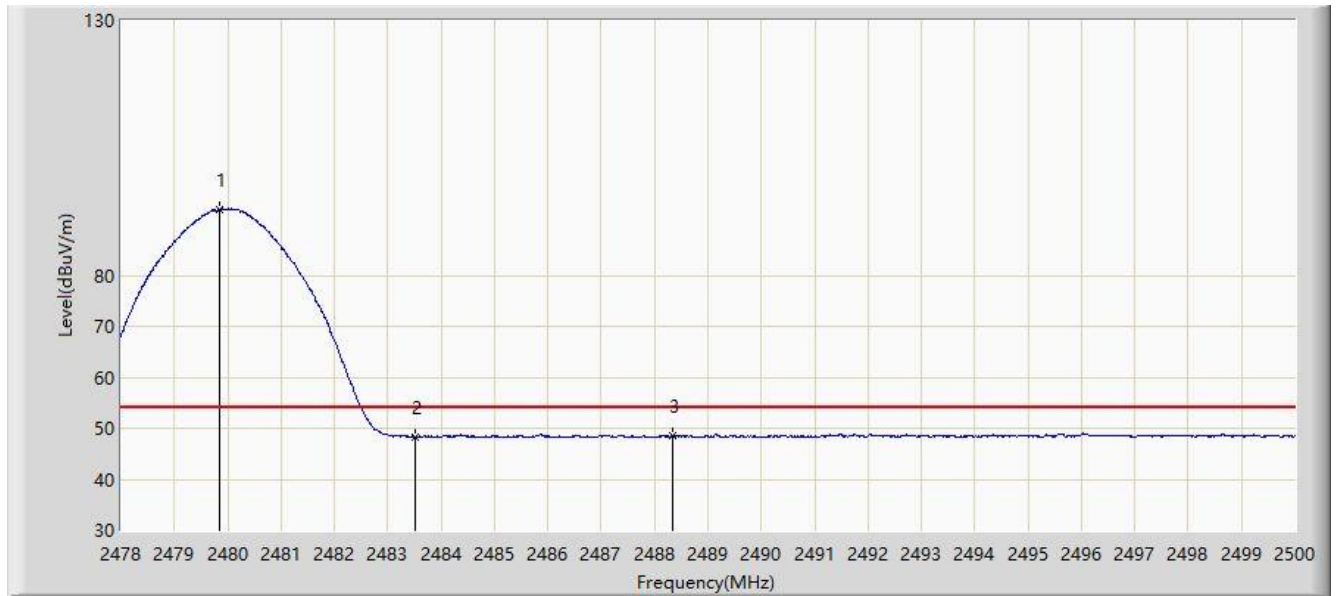


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	2479.441	95.150	62.697	N/A	N/A	32.453	PK
2			2483.500	57.984	25.555	-16.016	74.000	32.429	PK
3			2485.700	59.884	27.469	-14.116	74.000	32.416	PK

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

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

Site: WZ-AC1	Time: 2021/03/13 - 18:07
Limit: FCC_Part15_15.209 RE(3m)	Engineer: Antony Yang
Probe: WZ-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at Channel 2480MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	2479.837	92.909	60.459	N/A	N/A	32.450	AV
2			2483.500	48.312	15.883	-5.688	54.000	32.429	AV
3			2488.351	48.505	16.098	-5.495	54.000	32.406	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

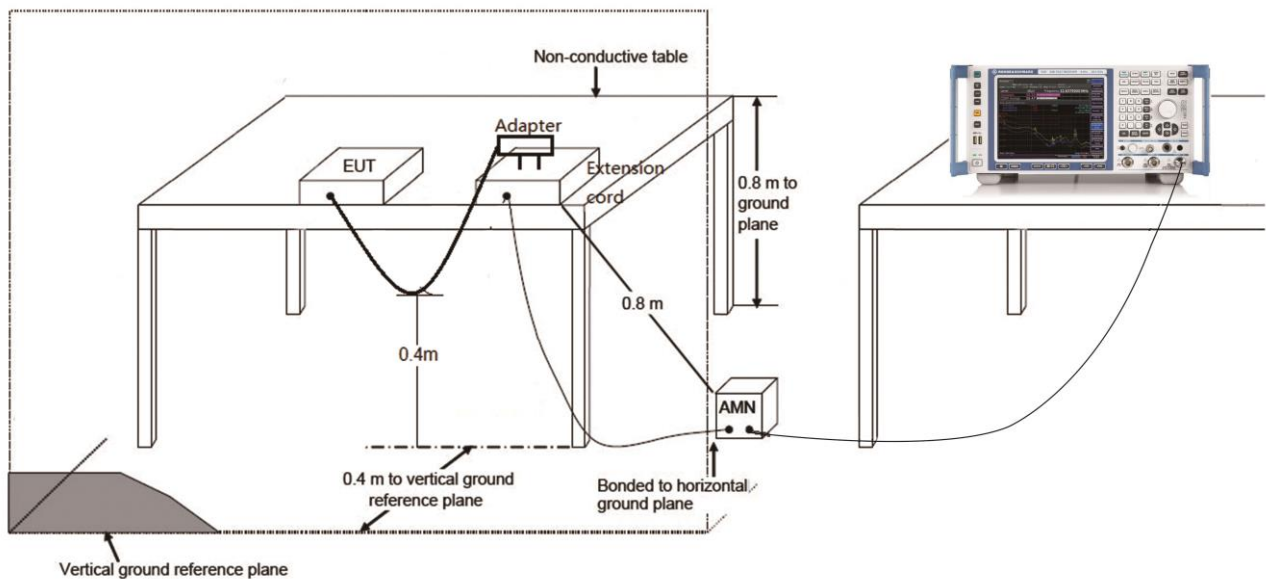
6.8.1. Test Limit

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

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

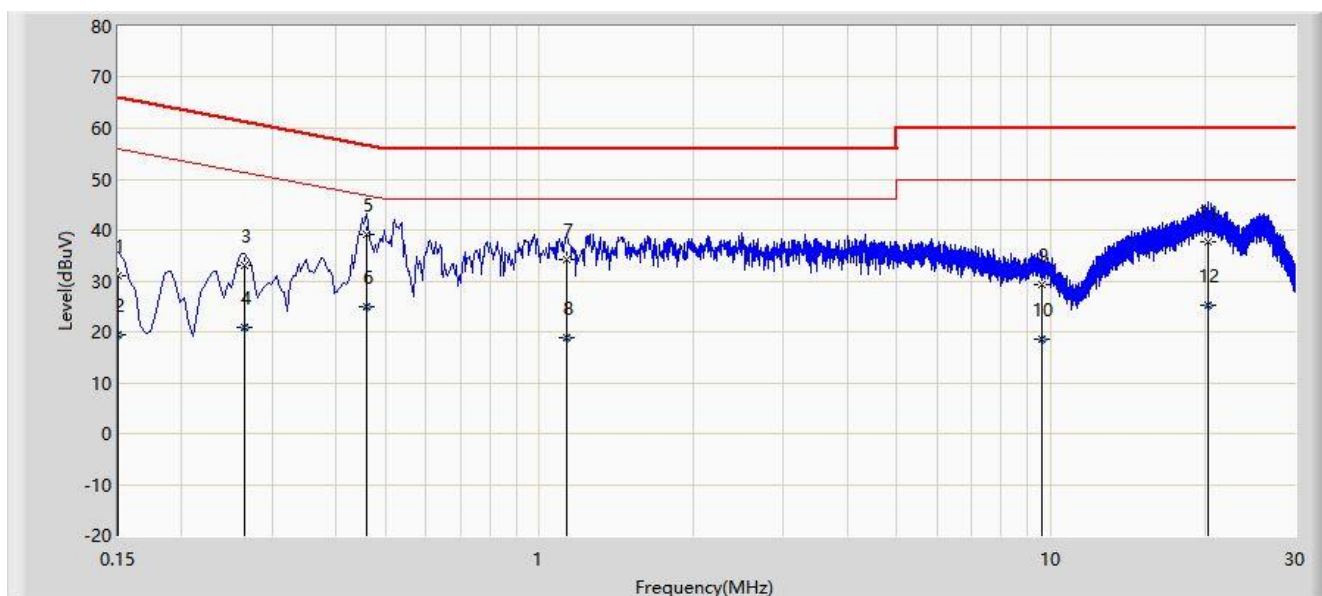
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

6.8.2. Test Setup



6.8.3.Test Result

Site: WZ-SR2	Time: 2021/04/19
Limit: FCC_Part15.207_CE_AC Power	Engineer: Helen Han
Probe: ENV216_101683_Filter Off_Without Adapter	Polarity: Neutral
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2402MHz	

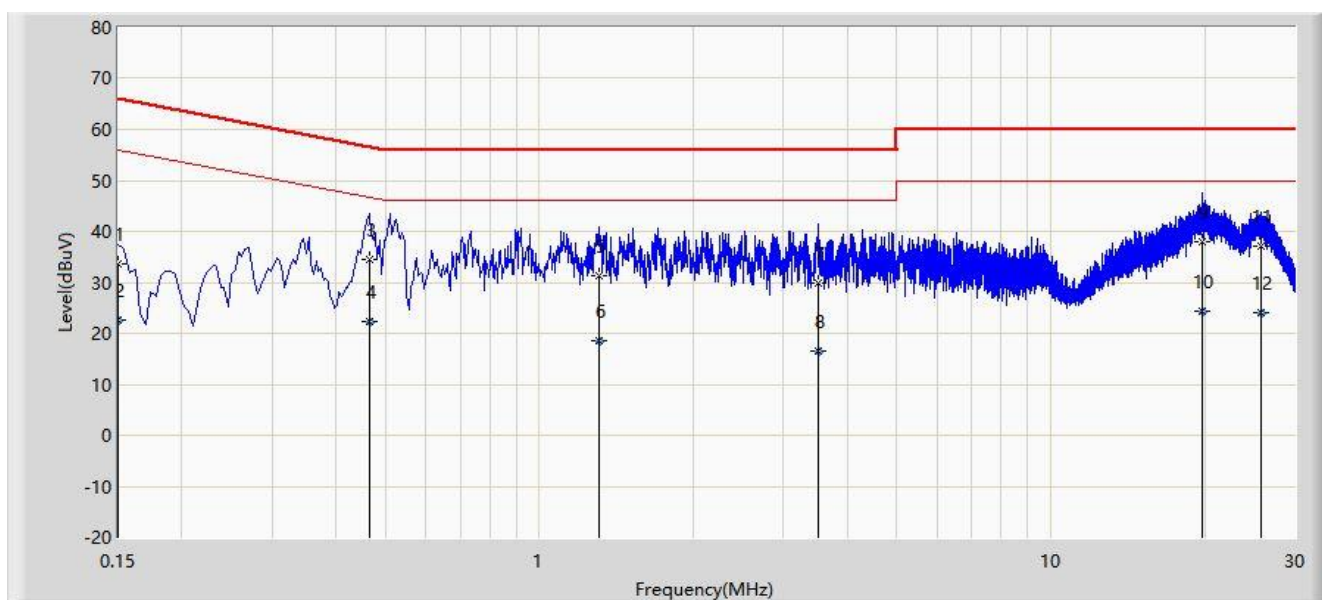


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV)	Factor	Type
1			0.150	31.108	21.320	-34.892	66.000	9.788	QP
2			0.150	19.300	9.512	-36.700	56.000	9.788	AV
3			0.266	33.076	23.255	-28.166	61.242	9.821	QP
4			0.266	20.755	10.935	-30.486	51.242	9.821	AV
5		*	0.458	39.159	29.306	-17.569	56.729	9.853	QP
6			0.458	24.981	15.128	-21.748	46.729	9.853	AV
7			1.130	34.287	24.396	-21.713	56.000	9.891	QP
8			1.130	18.900	9.009	-27.100	46.000	9.891	AV
9			9.622	29.278	18.682	-30.722	60.000	10.597	QP
10			9.622	18.602	8.005	-31.398	50.000	10.597	AV
11			20.362	37.702	26.959	-22.298	60.000	10.743	QP
12			20.362	25.111	14.369	-24.889	50.000	10.743	AV

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

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

Site: WZ-SR2	Time: 2021/04/19
Limit: FCC_Part15.207_CE_AC Power	Engineer: Helen Han
Probe: ENV216_101683_Filter Off_Without Adapter	Polarity: Line
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2402MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV)	Factor	Type
1			0.150	33.602	23.804	-32.398	66.000	9.798	QP
2			0.150	22.721	12.923	-33.279	56.000	9.798	AV
3		*	0.466	34.593	24.729	-21.991	56.585	9.864	QP
4			0.466	22.236	12.372	-24.348	46.585	9.864	AV
5			1.306	31.443	21.543	-24.557	56.000	9.900	QP
6			1.306	18.695	8.795	-27.305	46.000	9.900	AV
7			3.518	29.970	19.807	-26.030	56.000	10.163	QP
8			3.518	16.394	6.231	-29.606	46.000	10.163	AV
9			19.758	37.994	27.177	-22.006	60.000	10.816	QP
10			19.758	24.220	13.403	-25.780	50.000	10.816	AV
11			25.798	36.987	26.106	-23.013	60.000	10.881	QP
12			25.798	23.946	13.065	-26.054	50.000	10.881	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 compliance with Part 15C of the FCC rules.

The End

Appendix A - Test Setup Photograph

Refer to “2102RSU043-UT” file.

Appendix B - EUT Photograph

Refer to “2102RSU043-UE” file.