



MEASUREMENT REPORT

FCC PART 15.247 Bluetooth-LE

FCC ID: A2HCN6F14

APPLICANT: ALCO Electronics Limited.

Application Type: Certification

Product: Notebook

Model No.: NS14A5

Serial Model No.: CN6F14

Brand Name: AVITA, VENTURER

FCC Classification: Digital Transmission System (DTS)

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

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

Test Date: April 10 ~ 15, 2020

Reviewed By:

Kevin Guo

(Kevin Guo)

Approved By:

Robin Wu

(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
2004RSU019-U3	Rev. 01	Initial Report	04-19-2020	Valid

CONTENTS

Description	Page
General Information	5
1. INTRODUCTION	6
1.1. Scope	6
1.2. MRT Test Location	6
2. PRODUCT INFORMATION	7
2.1. Feature of Equipment under Test	7
2.2. Product Specification Subjective to this Report.....	7
2.3. Working Frequencies for this report	8
2.4. Description of Available Antennas	9
2.5. Test Mode	9
2.6. Test Software	9
2.7. Duty Cycle	10
2.8. EMI Suppression Device(s)/Modifications.....	10
2.9. Labeling Requirements.....	10
3. DESCRIPTION OF TEST	11
3.1. Evaluation Procedure	11
3.2. AC Line Conducted Emissions	11
3.3. Radiated Emissions	12
4. ANTENNA REQUIREMENTS	13
5. TEST EQUIPMENT CALIBRATION DATE	14
6. MEASUREMENT UNCERTAINTY	16
7. TEST RESULT	17
7.1. Summary	17
7.2. 6dB Bandwidth Measurement.....	18
7.2.1. Test Limit	18
7.2.2. Test Procedure used.....	18
7.2.3. Test Setting.....	18
7.2.4. Test Setup.....	18
7.2.5. Test Result.....	19
7.3. Output Power Measurement.....	20
7.3.1. Test Limit	20
7.3.2. Test Procedure Used	20
7.3.3. Test Setting.....	20

7.3.4.	Test Setup.....	20
7.3.5.	Test Result.....	21
7.4.	Power Spectral Density Measurement.....	22
7.4.1.	Test Limit.....	22
7.4.2.	Test Procedure Used.....	22
7.4.3.	Test Setting.....	22
7.4.4.	Test Setup.....	22
7.4.5.	Test Result.....	23
7.5.	Conducted Band Edge and Out-of-Band Emissions.....	24
7.5.1.	Test Limit.....	24
7.5.2.	Test Procedure Used.....	24
7.5.3.	Test Setting.....	24
7.5.4.	Test Setup.....	25
7.5.5.	Test Result.....	26
7.6.	Radiated Spurious Emission Measurement.....	28
7.6.1.	Test Limit.....	28
7.6.2.	Test Procedure Used.....	28
7.6.3.	Test Setting.....	28
7.6.4.	Test Setup.....	30
7.6.5.	Test Result.....	31
7.7.	Radiated Restricted Band Edge Measurement.....	36
7.7.1.	Test Limit.....	36
7.7.2.	Test Procedure Used.....	37
7.7.3.	Test Setting.....	37
7.7.4.	Test Setup.....	38
7.7.5.	Test Result.....	39
7.8.	AC Conducted Emissions Measurement.....	47
7.8.1.	Test Limit.....	47
7.8.2.	Test Setup.....	47
7.8.3.	Test Result.....	48
8.	CONCLUSION.....	50
	Appendix A - Test Setup Photograph.....	51
	Appendix B - EUT Photograph.....	52

General Information

Applicant:	ALCO Electronics Limited.
Applicant Address:	11/F Metropole Square, 2 On Yiu Street, Sha Tin, New Territories, Hong Kong
Manufacturer:	ALCO Electronics (Dongguan) Limited.
Manufacturer Address:	Gong Ye Xi Road, Houjie Technology Industrial Park, Dongguan, Guangdong, P.R.C. Postal Code:523960
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
Test Device Serial No.:	N/A <input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-Production <input type="checkbox"/> Engineering

Test Facility / Accreditations

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

- MRT facility is a FCC registered (MRT Designation No. CN1166) test facility with the site description report on file and has met all the requirements specified in ANSI C63.4-2014.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications, Radio and SAR testing.



1. INTRODUCTION

1.1. Scope

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


1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The measurement facility compliant with the test site requirements specified in ANSI C63.4-2014.



2. PRODUCT INFORMATION

2.1. Feature of Equipment under Test

Product Name:	Notebook
Model No.:	NS14A5
Serial Model No.:	CN6F14
Brand Name:	
Wi-Fi Specification:	802.11a/b/g/n/ac
Bluetooth Version:	v4.2 dual mode
Accessory	
AC Adapter:	MODEL: A17-065N1A INPUT: 100-240V ~ 50/60Hz, Max. 1.8A OUTPUT: 20Vdc, 3.25A/15Vdc, 3A/9Vdc, 2A/5Vdc, 2A

Note: The different models are only for marketing different clients, others are the same.

2.2. Product Specification Subjective to this Report

Bluetooth Frequency	2402 ~ 2480MHz
Channel Number	40
Type of modulation	GFSK
Data Rate	1Mbps

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

2.3. Working Frequencies for this report

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

2.4. Description of Available Antennas

Antenna Type	Frequency Band (MHz)	Tx Paths	Max Antenna Gain (dBi)	CDD Directional Gain (dBi)	
				For Power	For PSD
Wi-Fi Antenna					
PIFA Antenna	2412 ~ 2462	2	0.45	0.45	4.46
	5150 ~ 5250				
	5725 ~ 5850				
Bluetooth Antenna					
PIFA Antenna	2402 ~ 2480	1	0.45	--	--

Note 1: Device supports two antennas (Main Ant and AUX Ant), we defined AUX Ant as Ant A and Main Ant as Ant B.

Note 2: The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

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

If all antennas have the same gain, G_{ANT} , Directional gain = $G_{ANT} + \text{Array Gain}$, 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 $N_{ANT} \leq 4$;

2.5. Test Mode

Test Mode	Mode 1: Transmit by BLE
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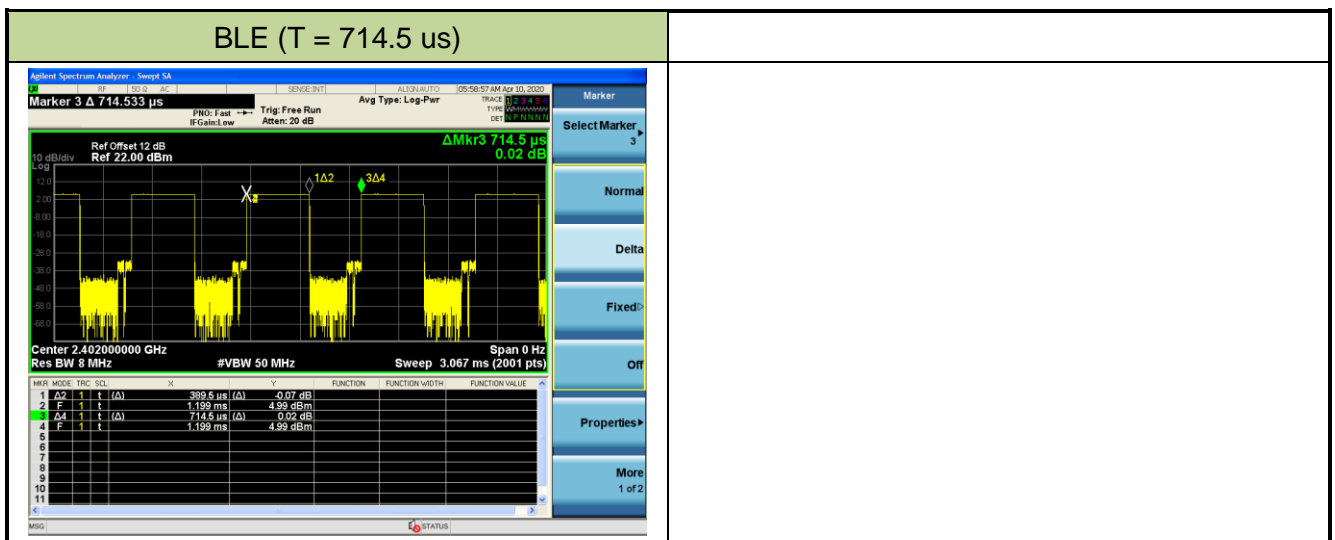
2.6. Test Software

The test utility software used during testing was "DRTU", and the version was "11.1823.0-07788".

2.7. Duty Cycle

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, and detector = peak. 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	54.51%



2.8. EMI Suppression Device(s)/Modifications

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

2.9. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

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

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

3. DESCRIPTION OF TEST

3.1. Evaluation Procedure

The measurement procedure described in the document titled “American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices” (ANSI C63.10-2013) was used in the measurement.

3.2. AC Line Conducted Emissions

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

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

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

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

3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the Antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. A MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable. For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive Antenna height using a broadband Antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn Antennas were used. For frequencies below 30MHz, a calibrated loop Antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband Antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up for frequencies below 1GHz was placed on top of the 0.8 meter high, 1 x 1.5 meter table; and test set-up for frequencies 1-40GHz was placed on top of the 1.5 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive Antenna height was noted for each frequency found.

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

4. ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

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

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

Conclusion:

The device unit complies with the requirement of §15.203.

5. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions - SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2021/01/18
Two-Line V-Network	R&S	ENV 216	MRTSUE06002	1 year	2020/06/13
Two-Line V-Network	R&S	ENV 216	MRTSUE06003	1 year	2020/06/13
Thermohygrometer	Testo	608-H1	MRTSUE06404	1 year	2020/08/08
Shielding Room	MIX-BEP	Chamber-SR2	MRTSUE06215	N/A	N/A

Radiated Emissions - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2020/08/01
PXA Signal Analyzer	Keysight	9030B	MRTSUE06395	1 year	2020/09/03
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2020/11/13
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2021/04/03
Broad Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2020/10/13
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06024	1 year	2020/12/29
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2020/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2020/06/11
Thermohygrometer	Testo	608-H1	MRTSUE06403	1 year	2020/08/08
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2020/04/30

Radiated Emission - AC2

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

Conducted Test Equipment - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2021/04/14
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06452	1 year	2020/07/11
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2021/04/14
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2020/11/18
USB wideband power sensor	Keysight	U2021XA	MRTSUE06446	1 year	2020/06/30
USB wideband power sensor	Keysight	U2021XA	MRTSUE06447	1 year	2020/06/30
Bluetooth Test Set	Anritsu	MT8852B-042	MRTSUE06389	1 year	2020/06/13
Audio Analyzer	Agilent	U8903B	MRTSUE06143	1 year	2020/06/13
Modulation Analyzer	HP	8901A	MRTSUE06098	1 year	2020/10/10
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2020/11/07
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
Temperature & Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2020/11/07
Thermohygrometer	testo	608-H1	MRTSUE06401	1 year	2020/08/08

Software	Version	Function
EMI Software	V3	EMI Test Software

6. MEASUREMENT UNCERTAINTY

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

Conducted Emission Measurement - SR2
<p>The maximum measurement uncertainty is evaluated as:</p> <p>9kHz~150kHz: 3.84dB</p> <p>150kHz~30MHz: 3.46dB</p>
Radiated Emission Measurement - AC1
<p>The maximum measurement uncertainty is evaluated as:</p> <p>Horizontal: 30MHz~300MHz: 4.07dB</p> <p style="padding-left: 40px;">300MHz~1GHz: 3.63dB</p> <p style="padding-left: 40px;">1GHz~18GHz: 4.16dB</p> <p>Vertical: 30MHz~300MHz: 4.18dB</p> <p style="padding-left: 40px;">300MHz~1GHz: 3.60dB</p> <p style="padding-left: 40px;">1GHz~18GHz: 4.76dB</p>
Radiated Emission Measurement - AC2
<p>The maximum measurement uncertainty is evaluated as:</p> <p>Horizontal: 30MHz~300MHz: 3.75dB</p> <p style="padding-left: 40px;">300MHz~1GHz: 3.53dB</p> <p style="padding-left: 40px;">1GHz~18GHz: 4.28dB</p> <p>Vertical: 30MHz~300MHz: 3.86dB</p> <p style="padding-left: 40px;">300MHz~1GHz: 3.53dB</p> <p style="padding-left: 40px;">1GHz~18GHz: 4.33dB</p>

7. TEST RESULT

7.1. 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 7.2
15.247(b)(3)	Output Power	$\leq 30.00\text{dBm}$		Pass	Section 7.3
15.247(e)	Power Spectral Density	Refer to Section 7.4		Pass	Section 7.4
15.247(d)	Band Edge / Out-of-Band Emissions	$\leq 20\text{dBc}$ (Peak)		Pass	Section 7.5
15.205 15.209	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209	Radiated	Pass	Section 7.6 & 7.7
15.207	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 7.8

Notes:

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

7.2. 6dB Bandwidth Measurement

7.2.1. Test Limit

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

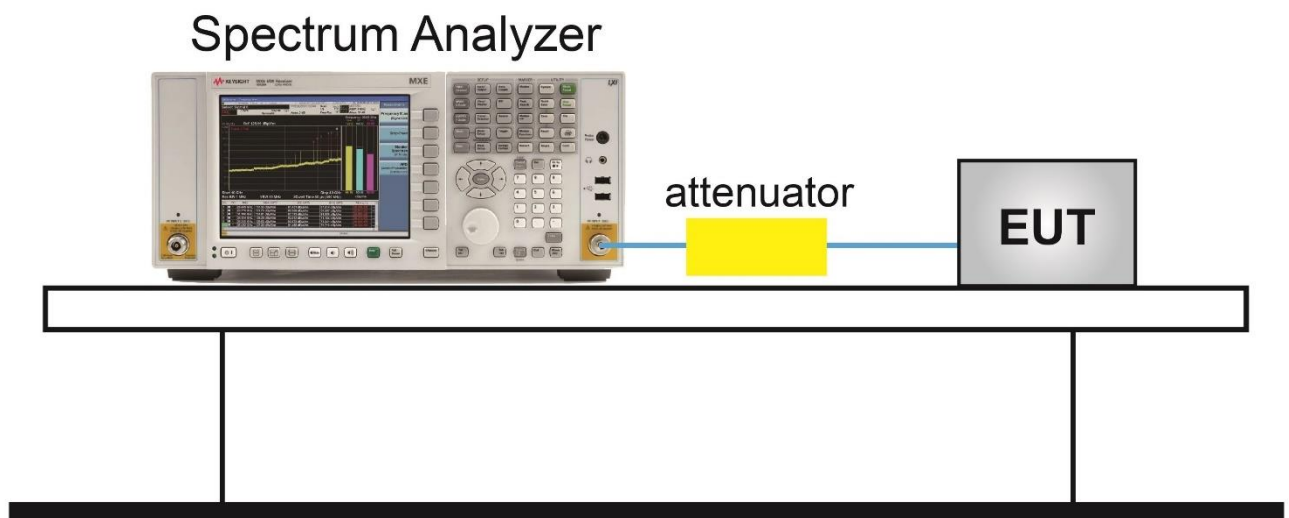
7.2.2. Test Procedure used

ANSI C63.10-2013 Section 11.8

7.2.3. Test Setting

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

7.2.4. Test Setup



7.2.5. Test Result

Product	Notebook	Temperature	25.5°C
Test Engineer	Lewis Huang	Relative Humidity	47%
Test Site	TR3	Test Date	2020/04/10

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
BLE	1	00	2402	0.63	1.05	≥ 0.5	Pass
BLE	1	19	2440	0.64	1.05	≥ 0.5	Pass
BLE	1	39	2480	0.65	1.05	≥ 0.5	Pass



7.3. Output Power Measurement

7.3.1. Test Limit

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

7.3.2. Test Procedure Used

ANSI C63.10 Section 11.9.1.3

ANSI C63.10 Section 11.9.2.3.2

7.3.3. Test Setting

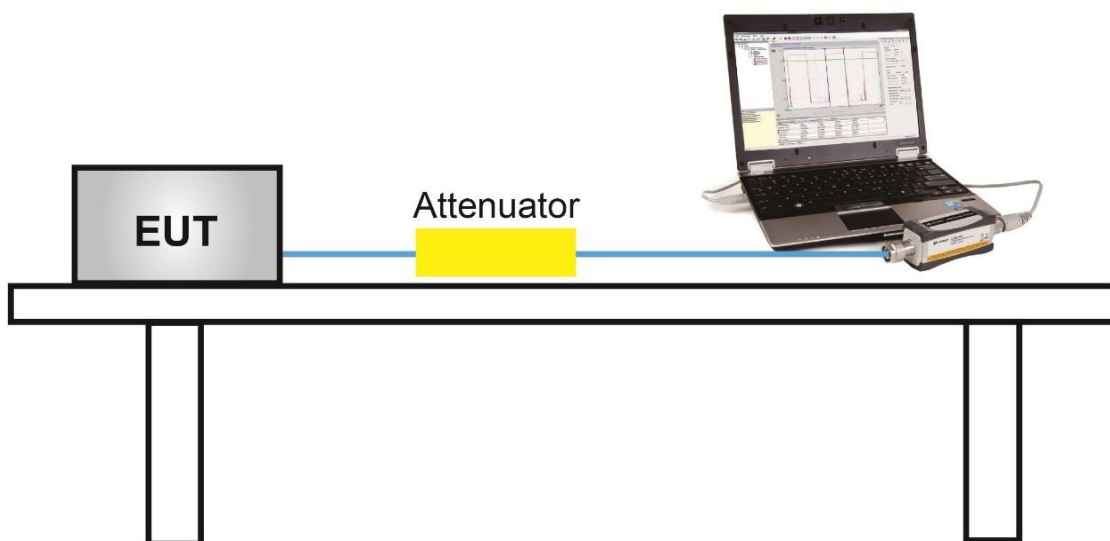
PKPM1 Peak-reading power meter method

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

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.

7.3.4. Test Setup



7.3.5. Test Result

Product	Notebook	Temperature	25.5°C
Test Engineer	Lewis Huang	Relative Humidity	47%
Test Site	TR3	Test Date	2020/04/10

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Result
Peak Output Power						
BLE	1	00	2402	5.93	≤ 30.00	Pass
BLE	1	19	2440	6.33	≤ 30.00	Pass
BLE	1	39	2480	5.55	≤ 30.00	Pass

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	Average Power (dBm)	Limit (dBm)	Result
Average Output Power (Reporting Only)						
BLE	1	00	2402	5.27	≤ 30.00	Pass
BLE	1	19	2440	5.70	≤ 30.00	Pass
BLE	1	39	2480	4.78	≤ 30.00	Pass

7.4. Power Spectral Density Measurement

7.4.1. Test Limit

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

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

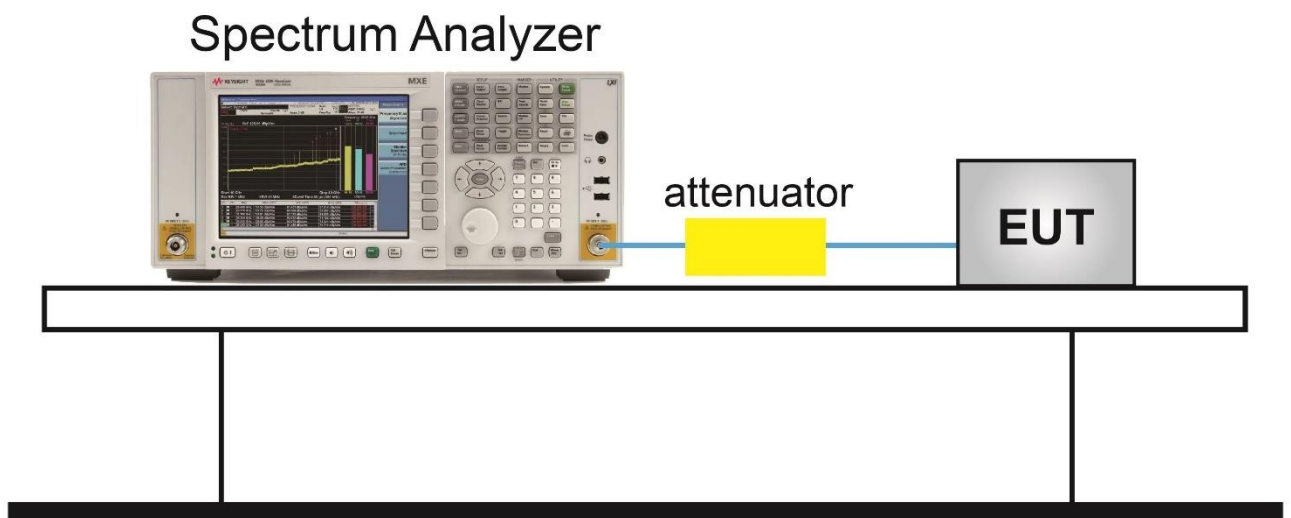
7.4.2. Test Procedure Used

ANSI C63.10 Section 11.10.2

7.4.3. Test Setting

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

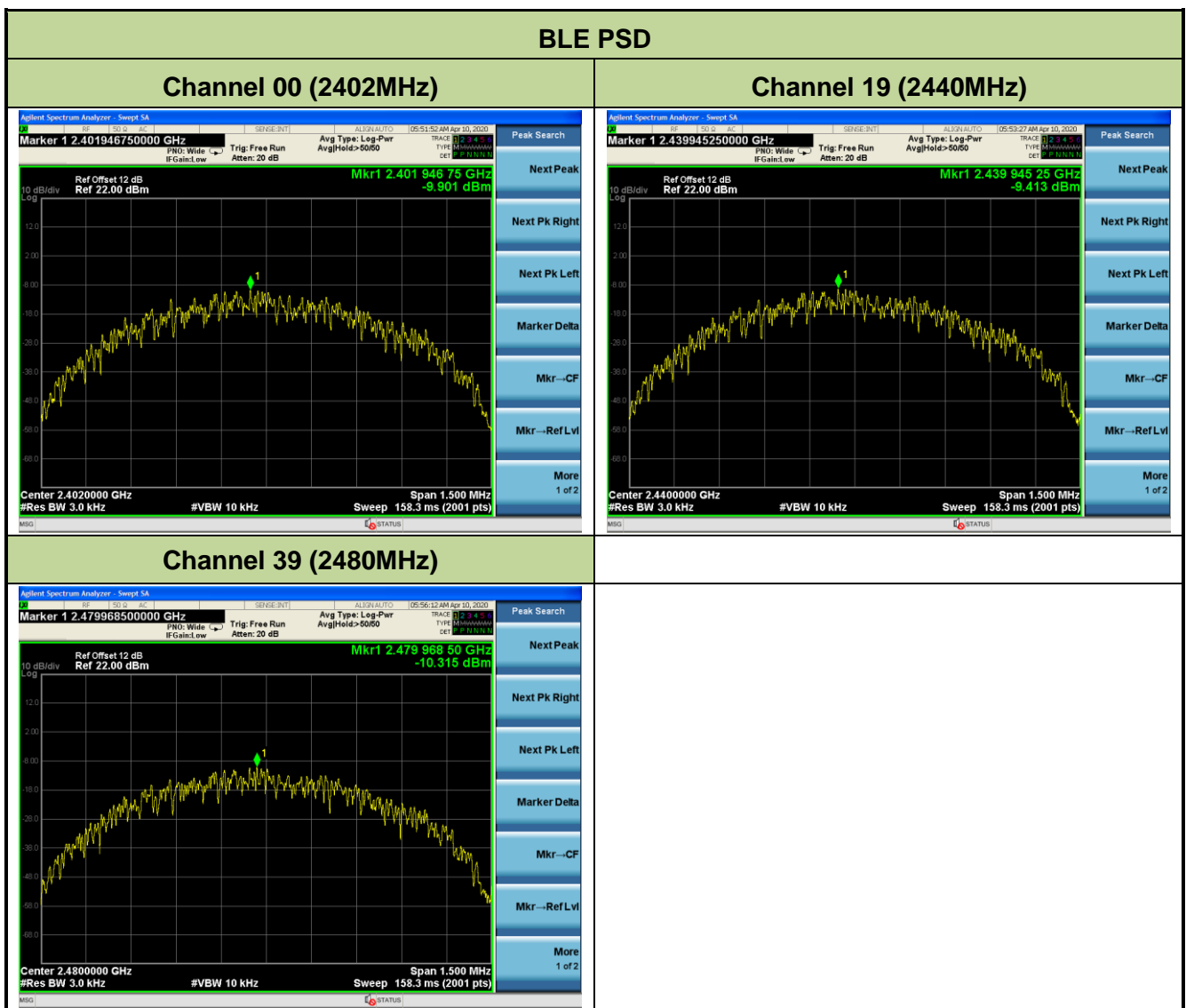
7.4.4. Test Setup



7.4.5. Test Result

Product	Notebook	Temperature	25.5°C
Test Engineer	Lewis Huang	Relative Humidity	67%
Test Site	TR3	Test Date	2020/04/10

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	PSD Result (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
BLE	1	00	2402	-9.90	≤ 8.00	Pass
BLE	1	19	2440	-9.41	≤ 8.00	Pass
BLE	1	39	2480	-10.32	≤ 8.00	Pass



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

7.5.1. Test Limit

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

7.5.2. Test Procedure Used

ANSI C63.10 Section 11.11

7.5.3. Test 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

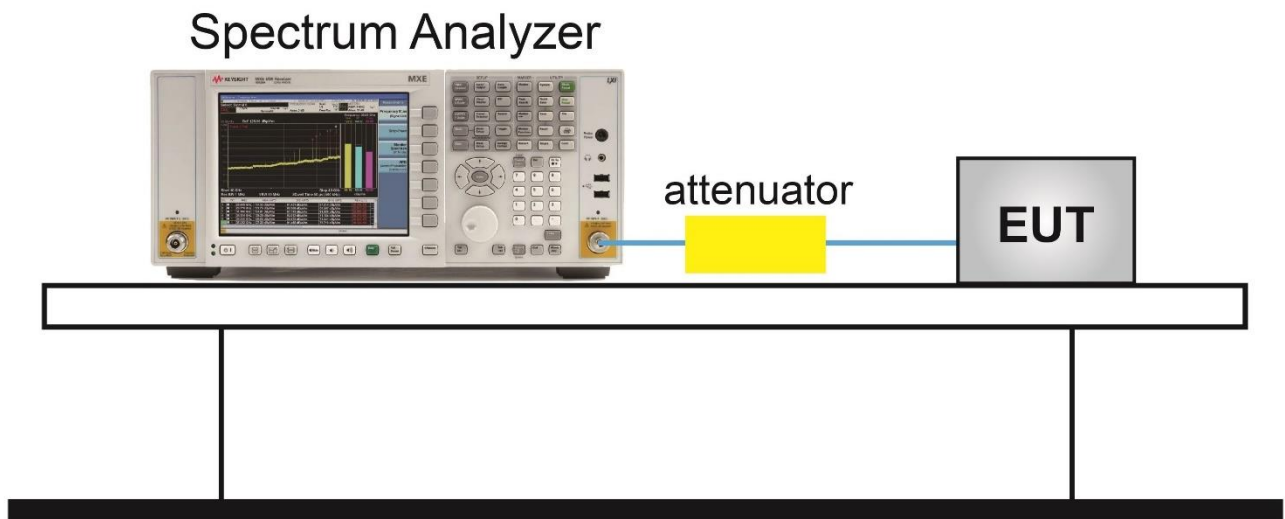
Emission level measurement

1. Set the center frequency and span to encompass frequency range to be measured
2. RBW = 1.3MHz
3. VBW = 4MHz
4. Detector = Peak
5. Trace mode = max hold
6. Sweep time = auto couple
7. The trace was allowed to stabilize

Test Notes

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

7.5.4. Test Setup



7.5.5. Test Result

Product	Notebook	Temperature	25.5°C
Test Engineer	Lewis Huang	Relative Humidity	47%
Test Site	TR3	Test Date	2020/04/10

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

BLE Out-of-Band Emissions

Channel 00 (2402MHz)

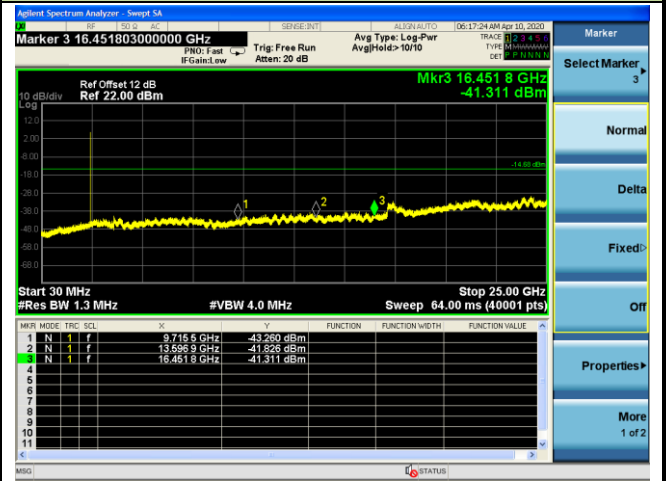
100kHz PSD reference Level	Low Band Edge
<div style="text-align: center; background-color: #d9ead3; padding: 5px;"> Spurious Emission </div>	

Channel 19 (2440MHz)

100kHz PSD reference Level

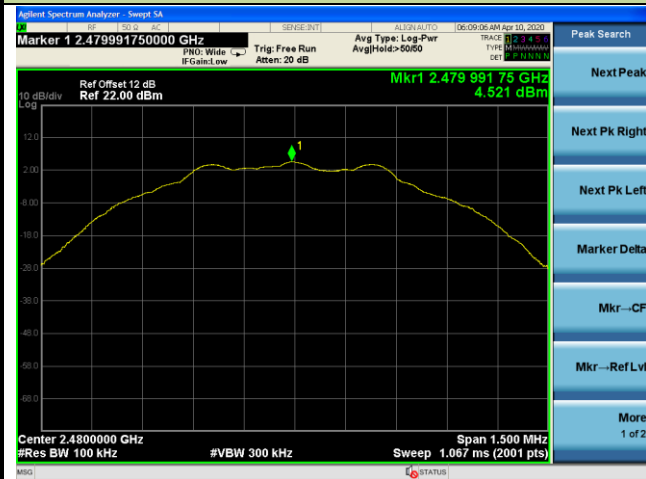


Spurious Emission



Channel 39 (2480MHz)

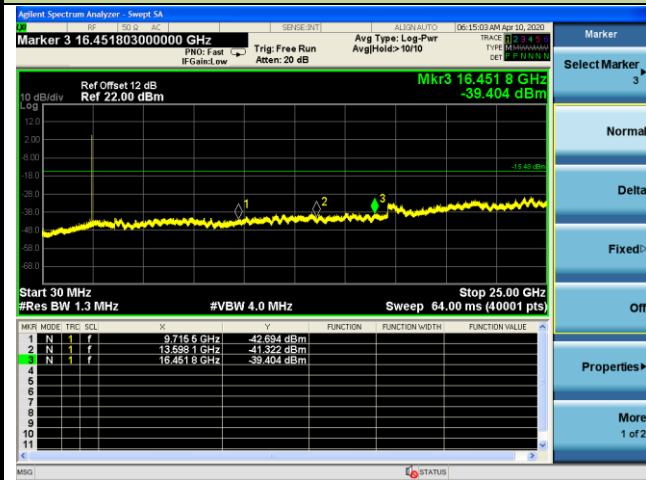
100kHz PSD reference Level



High Band Edge



Spurious Emission



7.6. Radiated Spurious Emission Measurement

7.6.1. Test Limit

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

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

7.6.2. Test Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

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

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

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

7.6.3. Test Setting

Table 1 - RBW as a function of frequency

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

Quasi-Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = as specified in Table 1
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Peak Measurements above 1GHz

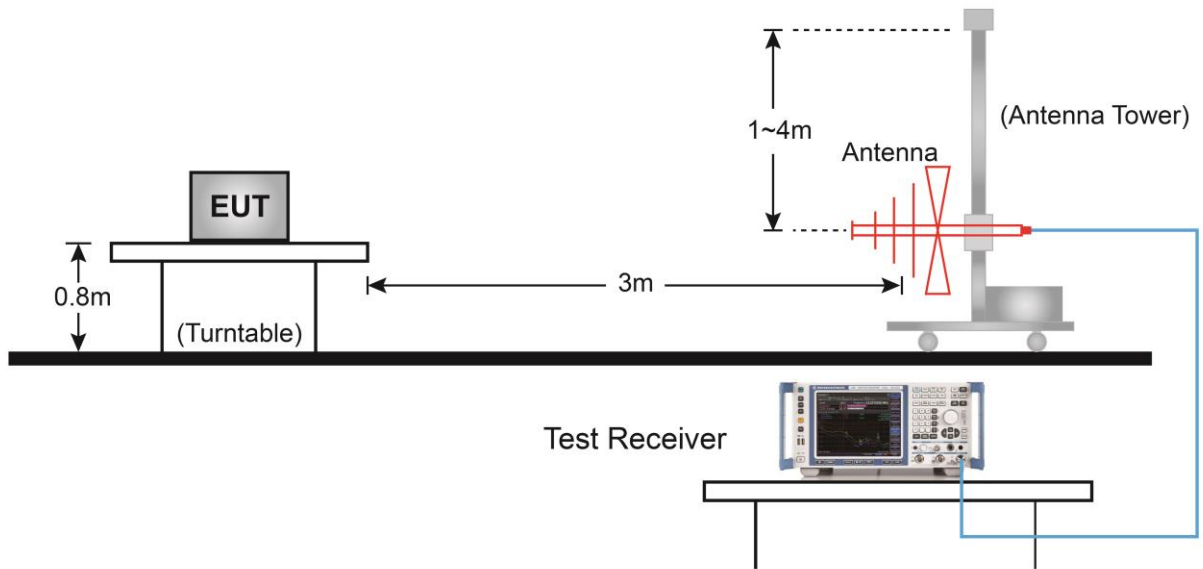
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz

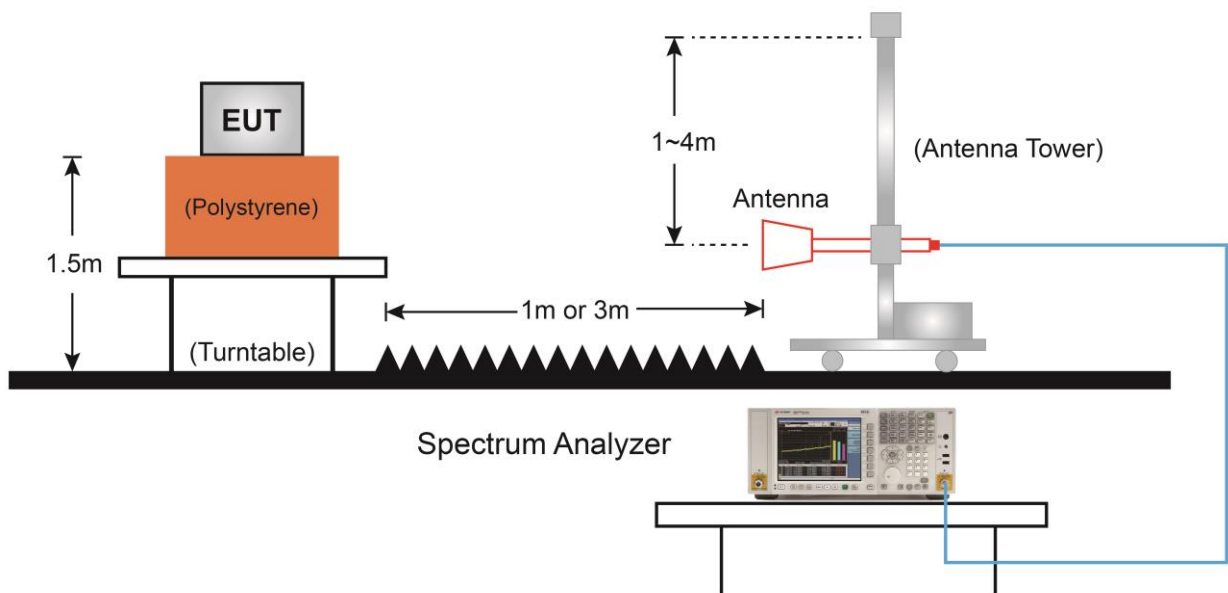
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10 Hz.
If the EUT duty cycle is $< 98\%$, set VBW $\geq 1/T$. T is the minimum transmission duration.
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Trace was allowed to stabilize

7.6.4. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



7.6.5. Test Result

Product	Notebook	Temperature	23°C
Test Engineer	Lewis Huang	Relative Humidity	53%
Test Site	AC1	Test Date	2020/04/10
Test Mode:	BLE	Test Channel:	00
Remark:	<ol style="list-style-type: none"> 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
	4026.0	34.8	3.3	38.1	74.0	-35.9	Peak	Horizontal
	4697.5	35.2	5.4	40.6	74.0	-33.4	Peak	Horizontal
*	6797.0	33.6	9.8	43.4	77.2	-33.8	Peak	Horizontal
*	8641.5	32.5	13.6	46.1	77.2	-31.1	Peak	Horizontal
	3864.5	35.8	2.9	38.7	74.0	-35.3	Peak	Vertical
	5139.5	34.1	6.8	40.9	74.0	-33.1	Peak	Vertical
*	6474.0	33.4	9.1	42.5	77.2	-34.7	Peak	Vertical
*	8794.5	32.9	14.2	47.1	77.2	-30.1	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (97.2 dBμV/m) or 15.209 which is higher.

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

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

Product	Notebook	Temperature	23°C
Test Engineer	Lewis Huang	Relative Humidity	53%
Test Site	AC1	Test Date	2020/04/10
Test Mode:	BLE	Test Channel:	19
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	3745.5	36.2	2.6	38.8	74.0	-35.2	Peak	Horizontal
	4978.0	33.9	6.4	40.3	74.0	-33.7	Peak	Horizontal
*	7230.5	34.8	11.5	46.3	77.6	-31.3	Peak	Horizontal
*	8871.0	32.4	14.3	46.7	77.6	-30.9	Peak	Horizontal
	4170.5	34.8	3.6	38.4	74.0	-35.6	Peak	Vertical
	4825.0	34.8	6.1	40.9	74.0	-33.1	Peak	Vertical
*	6584.5	33.5	9.8	43.3	77.6	-34.3	Peak	Vertical
*	8837.0	32.2	14.3	46.5	77.6	-31.1	Peak	Vertical

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

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

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

Product	Notebook	Temperature	23°C
Test Engineer	Lewis Huang	Relative Humidity	53%
Test Site	AC1	Test Date	2020/04/10
Test Mode:	BLE	Test Channel:	39
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	3762.5	35.9	2.7	38.6	74.0	-35.4	Peak	Horizontal
	4961.0	34.0	6.2	40.2	74.0	-33.8	Peak	Horizontal
*	6049.0	33.8	7.7	41.5	76.6	-35.1	Peak	Horizontal
*	6899.0	33.7	10.0	43.7	76.6	-32.9	Peak	Horizontal
	3822.0	35.1	2.9	38.0	74.0	-36.0	Peak	Vertical
	4952.5	34.0	6.2	40.2	74.0	-33.8	Peak	Vertical
*	6567.5	32.3	9.6	41.9	76.6	-34.7	Peak	Vertical
*	7876.5	34.0	12.1	46.1	76.6	-30.5	Peak	Vertical

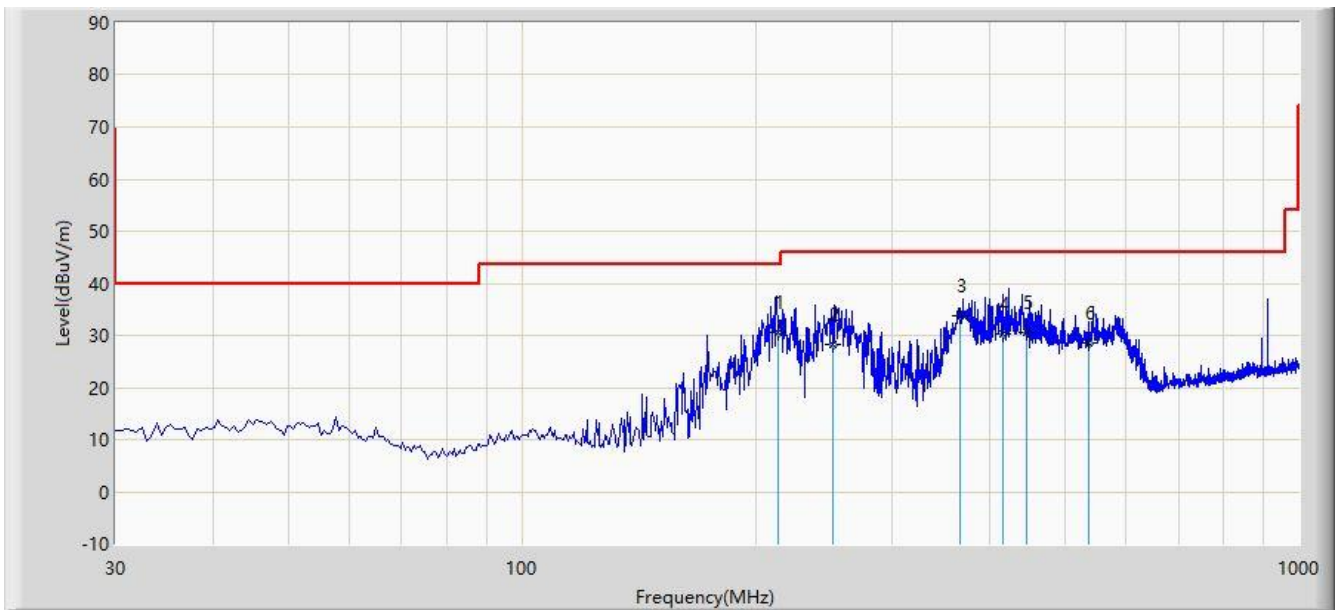
Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (96.6dBμV/m) or 15.209 which is higher.

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

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

The worst case of Radiated Emission below 1GHz:

Site: AC1	Time: 2020/04/10 - 14:54
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: AC1_VULB 9168 _30-2000MHz	Polarity: Horizontal
EUT: Notebook	Power: By Battery
Worse Case Mode: Transmit by BLE at channel 2402MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			213.330	30.659	18.396	-12.841	43.500	12.263	QP
2			251.645	28.137	14.246	-17.863	46.000	13.891	QP
3		*	367.075	33.670	16.461	-12.330	46.000	17.208	QP
4			416.545	30.418	11.933	-15.582	46.000	18.485	QP
5			446.615	30.588	11.396	-15.412	46.000	19.191	QP
6			535.855	28.651	7.833	-17.349	46.000	20.817	QP

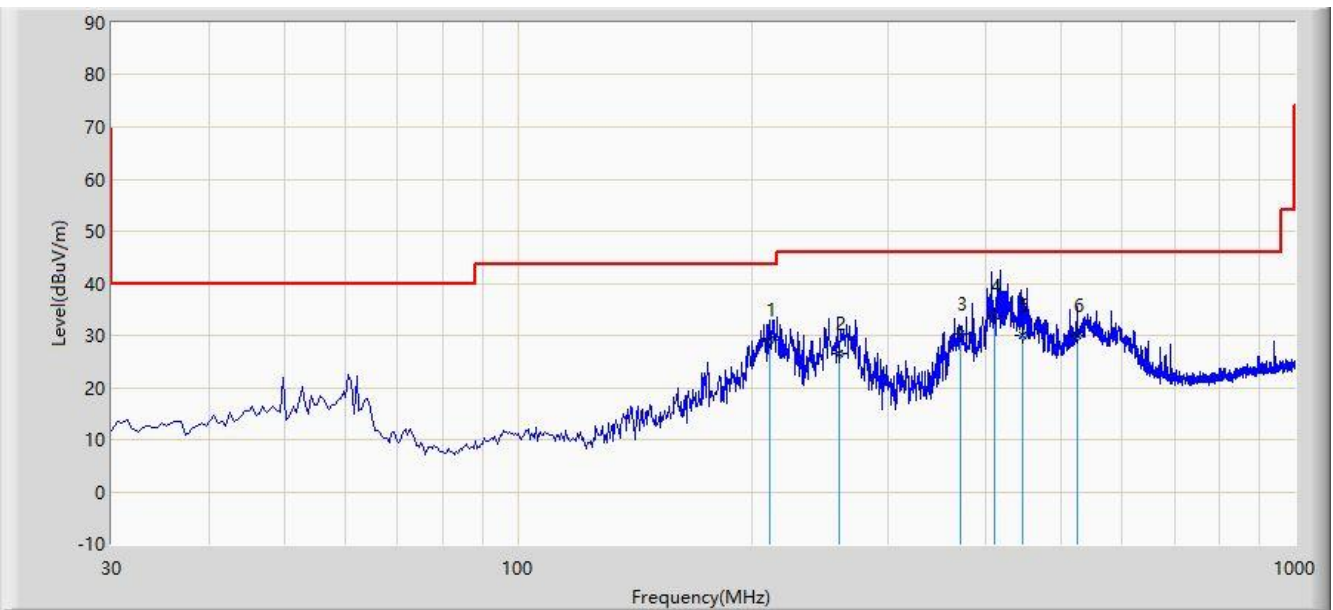
Note 1: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

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

Note 2: The amplitude of Radiated emissions (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 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: AC1	Time: 2020/04/10 - 14:57
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: AC1_VULB 9168 _30-2000MHz	Polarity: Vertical
EUT: Notebook	Power: By Battery
Worse Case Mode: Transmit by BLE at channel 2402MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			210.905	29.159	16.913	-14.341	43.500	12.247	QP
2			259.405	26.589	12.489	-19.411	46.000	14.100	QP
3			371.440	30.188	12.824	-15.812	46.000	17.364	QP
4		*	411.210	33.849	15.502	-12.151	46.000	18.347	QP
5			446.130	30.026	10.846	-15.974	46.000	19.180	QP
6			525.185	29.917	9.303	-16.083	46.000	20.614	QP

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

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

Note 2: The amplitude of Radiated emissions (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 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.

7.7. Radiated Restricted Band Edge Measurement

7.7.1. Test Limit

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

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41	--	--	--

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.

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

7.7.2. Test Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

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

7.7.3. Test Setting

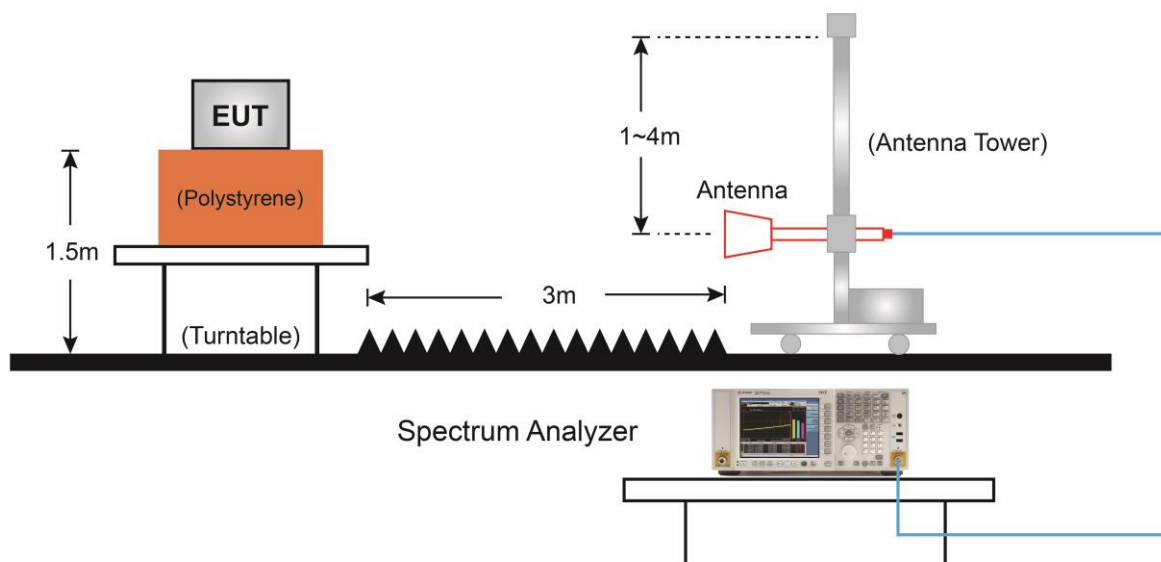
Peak Field Strength Measurements

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

Average Field Strength Measurements

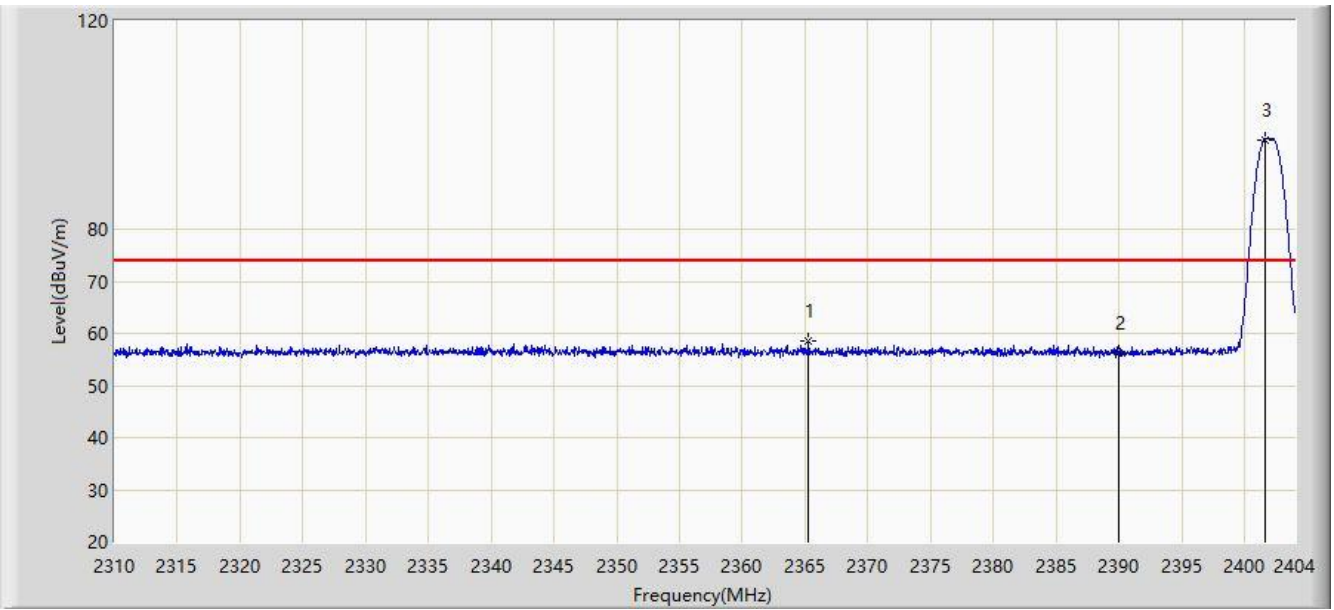
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW $\geq 1/T$
4. De As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain).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

7.7.4. Test Setup



7.7.5. Test Result

Site: AC1	Time: 2020/04/10 - 09:55
Limit: FCC_Part15.209_RE (3m)	Engineer: Lewis Huang
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Notebook	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2402MHz	

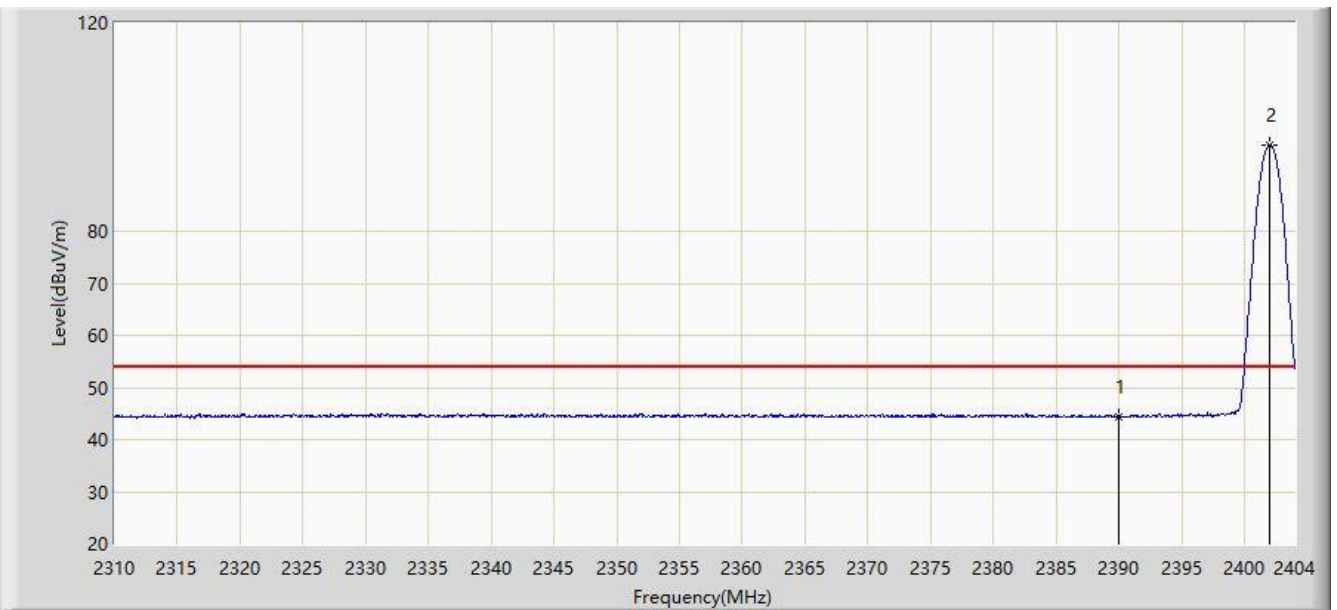


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2365.272	58.449	26.341	-15.551	74.000	32.108	PK
2			2390.000	56.153	24.081	-17.847	74.000	32.072	PK
3		*	2401.603	97.239	65.164	N/A	N/A	32.075	PK

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

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

Site: AC1	Time: 2020/04/10 - 10:38
Limit: FCC_Part15.209_RE (3m)	Engineer: Lewis Huang
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Notebook	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2402MHz	

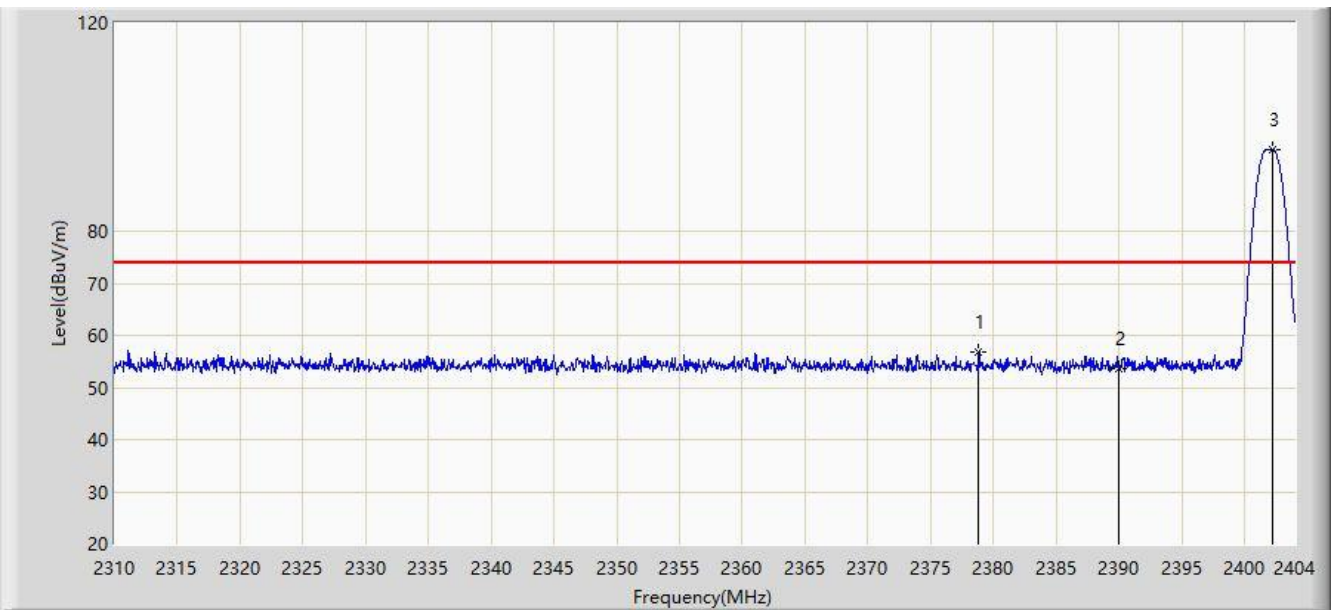


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	44.444	12.372	-9.556	54.000	32.072	AV
2		*	2402.026	96.559	64.484	N/A	N/A	32.076	AV

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

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

Site: AC1	Time: 2020/04/10 - 10:40
Limit: FCC_Part15.209_RE (3m)	Engineer: Lewis Huang
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Notebook	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2402MHz	

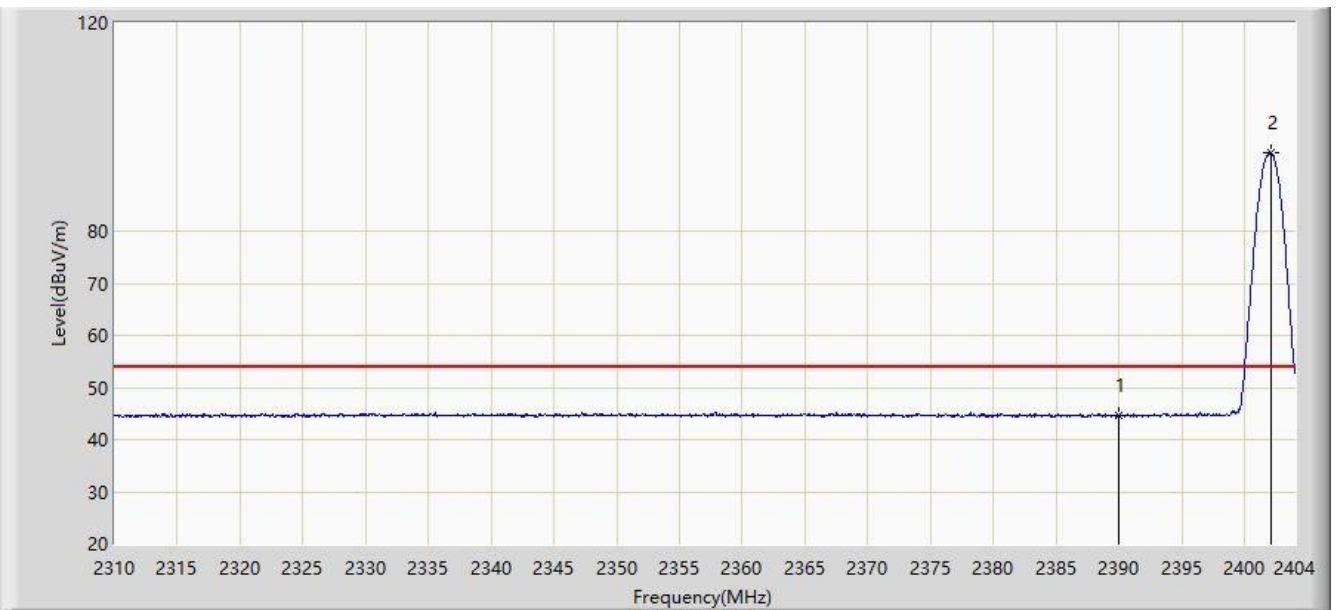


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2378.808	56.951	24.875	-17.049	74.000	32.076	PK
2			2390.000	53.714	21.642	-20.286	74.000	32.072	PK
3		*	2402.214	95.641	63.565	N/A	N/A	32.075	PK

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

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

Site: AC1	Time: 2020/04/10 - 10:43
Limit: FCC_Part15.209_RE (3m)	Engineer: Lewis Huang
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Notebook	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2402MHz	

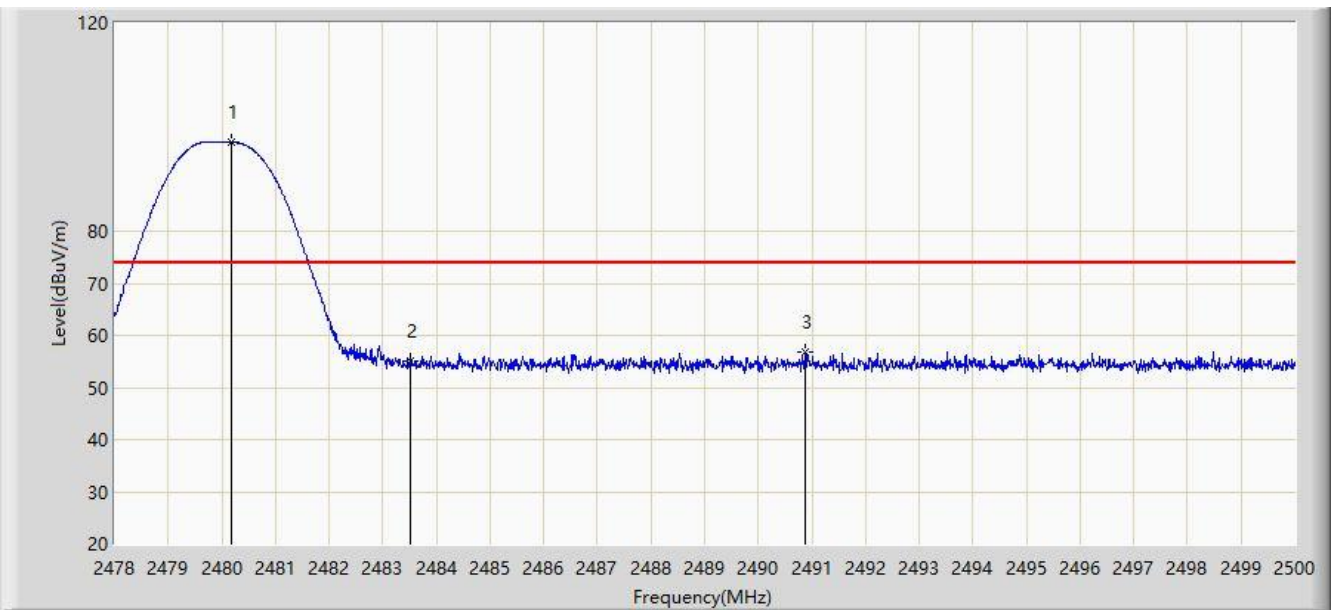


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	44.588	12.516	-9.412	54.000	32.072	AV
2		*	2402.073	95.122	63.047	N/A	N/A	32.076	AV

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

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

Site: AC1	Time: 2020/04/10 - 10:45
Limit: FCC_Part15.209_RE (3m)	Engineer: Lewis Huang
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Notebook	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2480MHz	

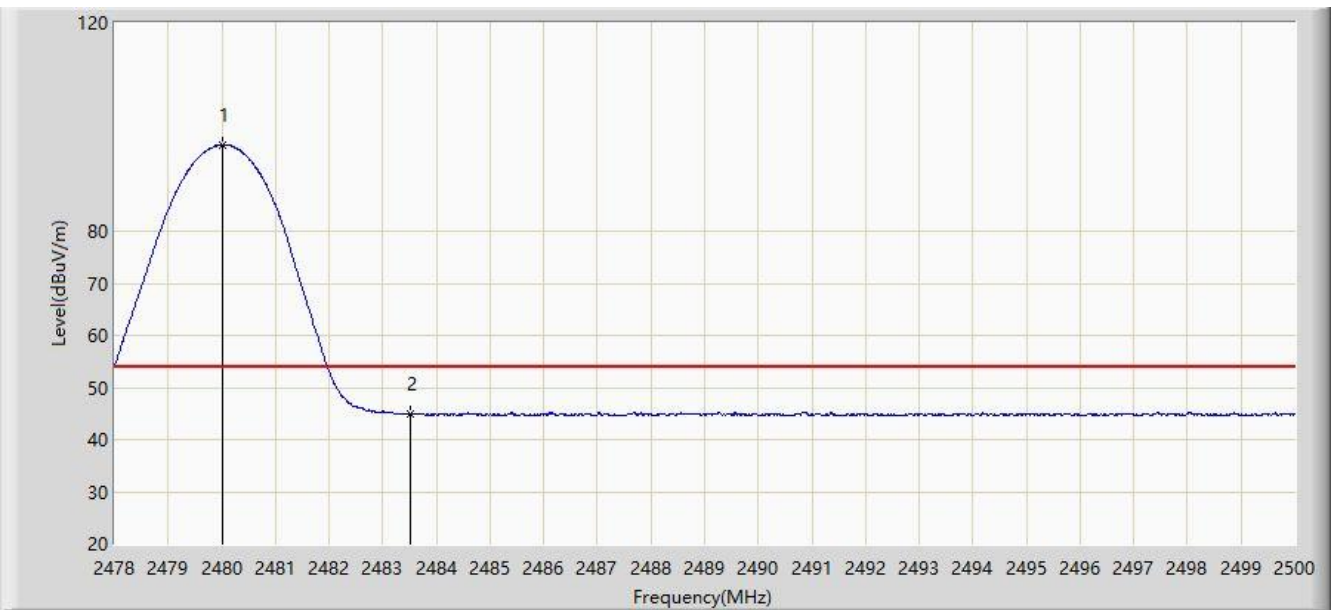


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.178	97.008	64.965	N/A	N/A	32.043	PK
2			2483.500	55.006	22.969	-18.994	74.000	32.037	PK
3			2490.881	56.699	24.676	-17.301	74.000	32.023	PK

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

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

Site: AC1	Time: 2020/04/10 - 11:00
Limit: FCC_Part15.209_RE (3m)	Engineer: Lewis Huang
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Notebook	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2480MHz	

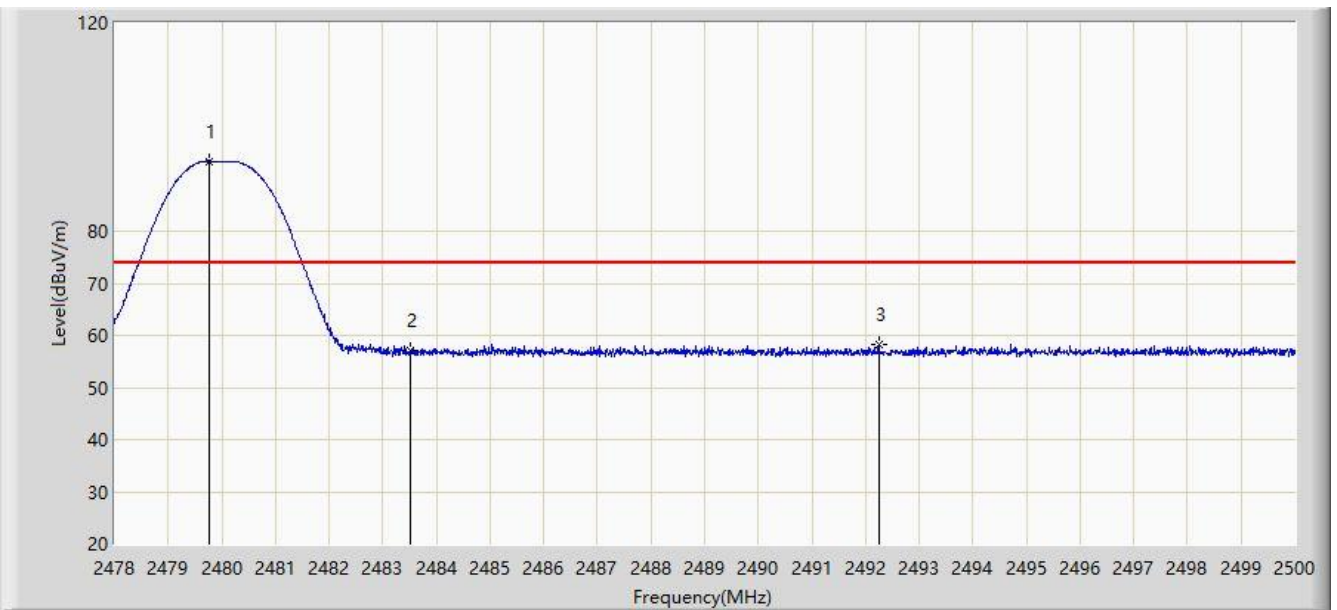


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.002	96.570	64.526	N/A	N/A	32.044	AV
2			2483.500	44.791	12.754	-9.209	54.000	32.037	AV

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

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

Site: AC1	Time: 2020/04/10 - 11:01
Limit: FCC_Part15.209_RE (3m)	Engineer: Lewis Huang
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Notebook	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2480MHz	

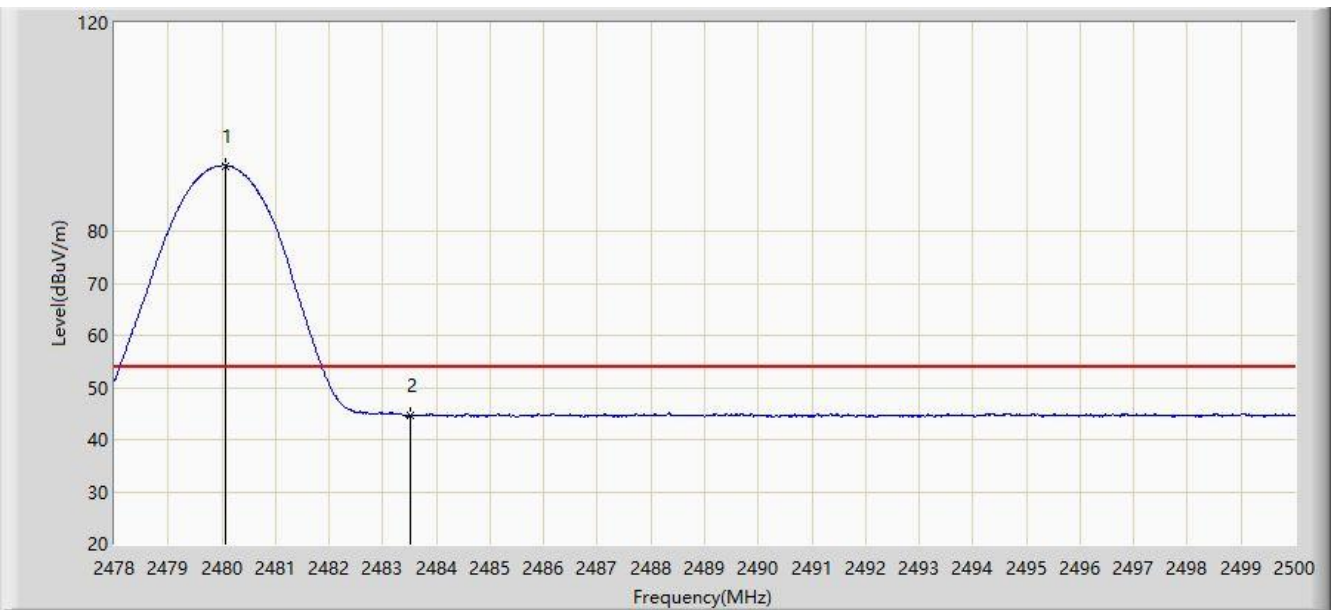


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.771	93.471	61.427	N/A	N/A	32.044	PK
2			2483.500	57.146	25.109	-16.854	74.000	32.037	PK
3			2492.245	58.122	26.102	-15.878	74.000	32.020	PK

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

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

Site: AC1	Time: 2020/04/10 - 11:16
Limit: FCC_Part15.209_RE (3m)	Engineer: Lewis Huang
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Notebook	Power: AC 120V/60Hz
Test Mode: Transmit by BLE at channel 2480MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.079	92.601	60.558	N/A	N/A	32.043	AV
2			2483.500	44.616	12.579	-9.384	54.000	32.037	AV

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

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

7.8. AC Conducted Emissions Measurement

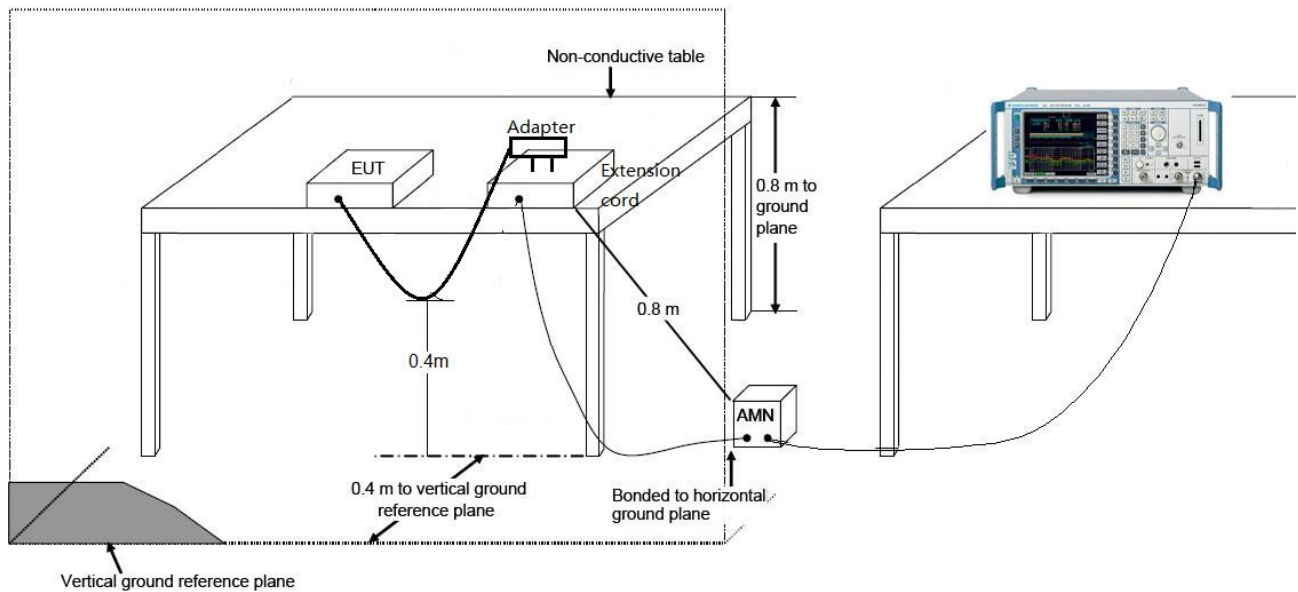
7.8.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

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

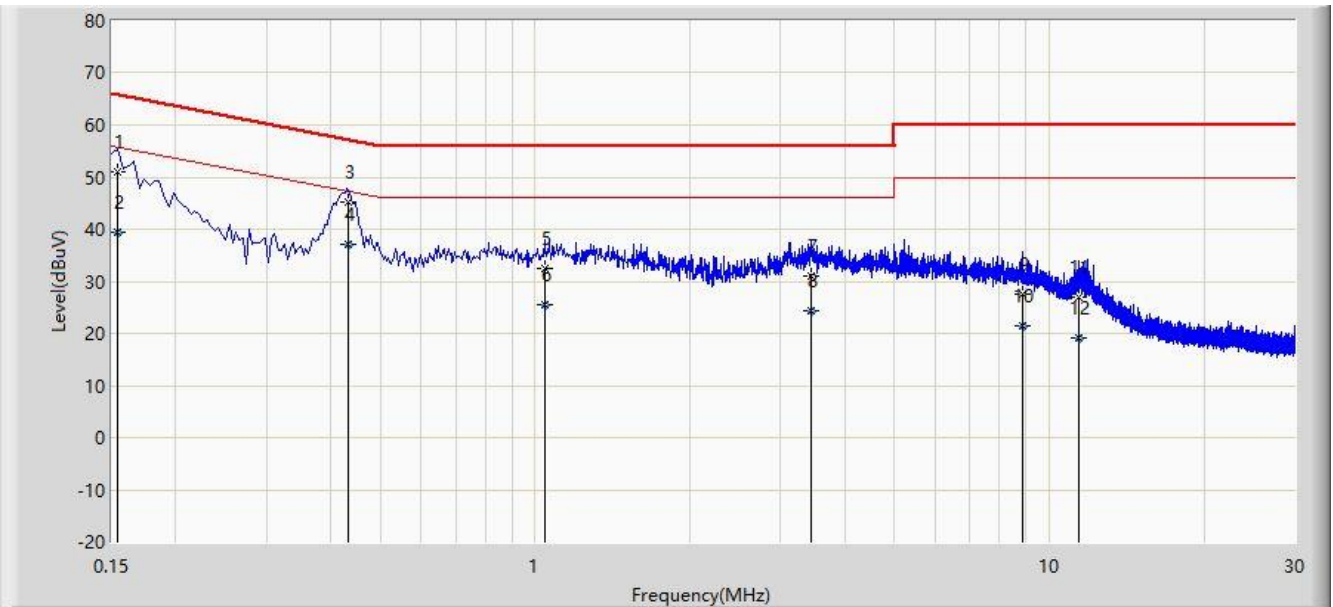
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

7.8.2. Test Setup



7.8.3. Test Result

Site: SR2	Time: 2020/04/13 - 13:24
Limit: FCC_Part15.207_CE_AC Power	Engineer: Lewis Huang
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: Notebook	Power: AC 120V/60Hz
Worse Case Mode: Transmit by BLE at channel 2402MHz	

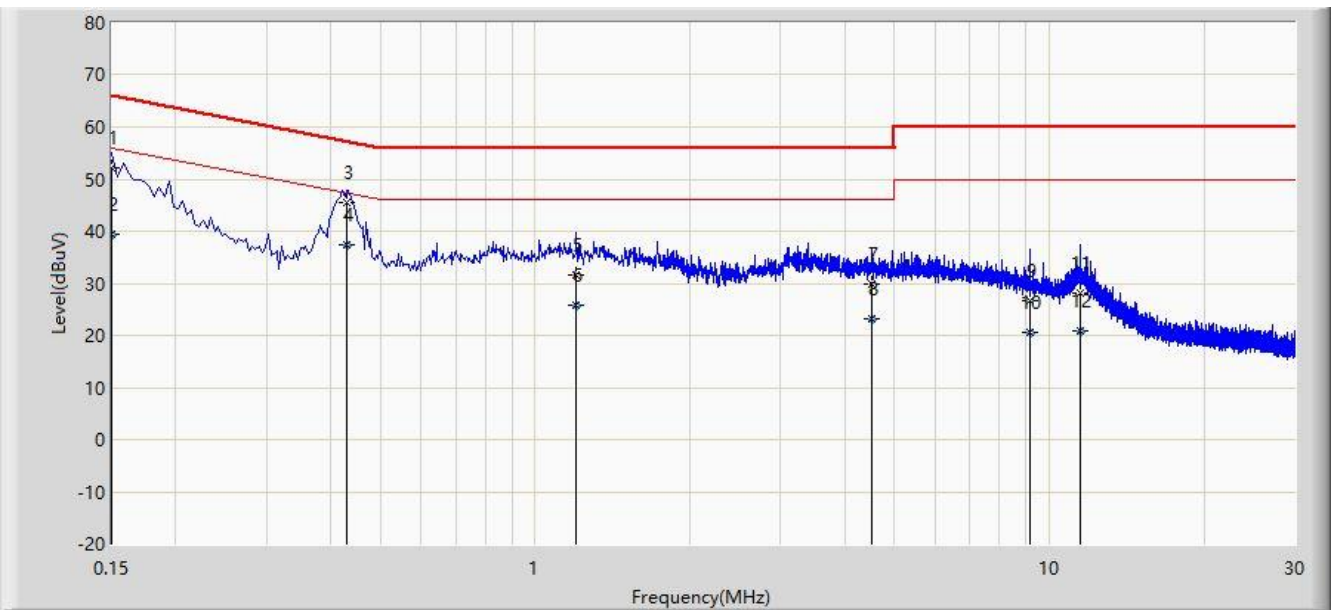


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.154	50.994	40.334	-14.787	65.781	10.660	QP
2			0.154	39.438	28.777	-16.344	55.781	10.660	AV
3			0.434	45.259	35.290	-11.917	57.176	9.969	QP
4		*	0.434	37.010	27.041	-10.166	47.176	9.969	AV
5			1.042	32.388	22.609	-23.612	56.000	9.780	QP
6			1.042	25.418	15.638	-20.582	46.000	9.780	AV
7			3.442	30.914	21.218	-25.086	56.000	9.696	QP
8			3.442	24.276	14.580	-21.724	46.000	9.696	AV
9			8.874	27.535	17.751	-32.465	60.000	9.784	QP
10			8.874	21.402	11.618	-28.598	50.000	9.784	AV
11			11.434	26.862	17.033	-33.138	60.000	9.829	QP
12			11.434	19.115	9.286	-30.885	50.000	9.829	AV

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

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

Site: SR2	Time: 2020/04/13 - 13:28
Limit: FCC_Part15.207_CE_AC Power	Engineer: Lewis Huang
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: Notebook	Power: AC 120V/60Hz
Worse Case Mode: Transmit by BLE at channel 2402MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.150	52.155	41.364	-13.845	66.000	10.791	QP
2			0.150	39.429	28.638	-16.571	56.000	10.791	AV
3			0.430	45.480	35.513	-11.772	57.253	9.967	QP
4		*	0.430	37.427	27.460	-9.826	47.253	9.967	AV
5			1.202	31.687	21.942	-24.313	56.000	9.746	QP
6			1.202	25.716	15.970	-20.284	46.000	9.746	AV
7			4.514	29.774	20.062	-26.226	56.000	9.713	QP
8			4.514	23.323	13.610	-22.677	46.000	9.713	AV
9			9.178	26.656	16.851	-33.344	60.000	9.805	QP
10			9.178	20.463	10.658	-29.537	50.000	9.805	AV
11			11.494	28.203	18.346	-31.797	60.000	9.857	QP
12			11.494	20.890	11.033	-29.110	50.000	9.857	AV

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

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

8. CONCLUSION

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

————— The End —————

Appendix A - Test Setup Photograph

Refer to "2004RSU019-UT" file.

Appendix B - EUT Photograph

Refer to "2004RSU019-UE" file.