MEASUREMENT REPORT

FCC PART 15.407 WLAN 802.11a/n

FCC ID:	2APLNCL3
APPLICANT:	Seura Inc
Application Type:	Certification
Product:	NTP Clock
Model No.:	CL.3
Brand Name:	Seura
FCC Classification:	Unlicensed National Information Infrastructure (NII)
FCC Rule Part(s):	Part15 Subpart E (Section 15.407)
Test Procedure(s):	ANSI C63.10-2013, KDB 789033 D02v02r01
Test Date:	September 25 ~ 30, 2019

Reviewed By: (Sunny Sun)

Approved By: (Robin Wu)

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

The test results relate only to the samples tested.
This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in KDB 789033 D02v02r01. 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
1909RSU033-U2	Rev. 01	Draft Report	10-11-2019	

CONTENTS

Description Page

§2.1033 General Information 6

1. INTRODUCTION 7

1.1. Scope 7
1.2. MRT Test Location 7

2. PRODUCT INFORMATION 8

2.1. Equipment Description 8
2.2. Product Specification Subjective to this Report 8
2.3. Working Frequencies for this Report 9
2.4. Test Mode 9
2.5. Device Capabilities 10
2.6. Description of Test Software 10
2.7. Test Configuration 11
2.8. EMI Suppression Device(s)/Modifications 11
2.9. Labeling Requirements 11

3. DESCRIPTION OF TEST 12

3.1. Evaluation Procedure 12
3.2. AC Line Conducted Emissions 12
3.3. Radiated Emissions 13

4. ANTENNA REQUIREMENTS 14

5. TEST EQUIPMENT CALIBRATION DATE 15

6. MEASUREMENT UNCERTAINTY 17

7. TEST RESULT 18

7.1. Summary 18
7.2. 26dB Bandwidth& 99% Bandwidth Measurement 19
7.2.1. Test Limit 19
7.2.2. TestProcedureUsed 19
7.2.3. TestSetting 19
7.2.4. Test Setup 19
7.2.5. Test Result 20
7.3. 6dB Bandwidth Measurement 23
7.3.1. Test Limit 23
7.3.2. Test Procedure Used 23
7.3.3. Test Setting 23

7.3.4. Test Setup 23
7.3.5. Test Result.....24
7.4. Output Power Measurement 27
7.4.1. Test Limit 27
7.4.2. Test Procedure Used.....27
7.4.3. Test Setting.....27
7.4.4. Test Setup 27
7.4.5. Test Result.....28
7.5. Transmit Power Control.....30
7.5.1. Test Limit 30
7.5.2. Test Procedure Used.....30
7.5.3. Test Setting.....30
7.5.4. Test Setup 30
7.5.5. Test Result.....30
7.6. Power Spectral Density Measurement.....31
7.6.1. TestLimit 31
7.6.2. Test Procedure Used.....31
7.6.3. Test Setting.....31
7.6.4. Test Setup 32
7.6.5. Test Result.....33
7.7. Frequency Stability Measurement.....36
7.7.1. Test Limit 36
7.7.2. Test Procedure Used.....36
7.7.3. Test Setup 37
7.7.4. Test Result.....38
7.8. Radiated Spurious Emission Measurement 39
7.8.1. Test Limit 39
7.8.2. Test Procedure Used.....39
7.8.3. Test Setting.....39
7.8.4. Test Setup 41
7.8.5. Test Result.....42
7.9. Radiated RestrictedBand Edge Measurement 52
7.9.1. Test Limit 52
7.9.2. Test Procedure Used.....53
7.9.3. Test Setting.....53
7.9.4. Test Setup 54
7.9.5. Test Result.....55
7.10. AC Conducted Emissions Measurement.....67
7.10.1. Test Limit 67

7.10.2. Test Setup 67
7.10.3. Test Result.....68

8. CONCLUSION.....70

Appendix A - Test Setup Photograph.....71

Appendix B - EUT Photograph 72

§2.1033 General Information

Applicant:	Seura Inc
Applicant Address:	1230 Ontario Rd, Green Bay, WI 54311
Manufacturer:	Seura Inc
Manufacturer Address:	1230 Ontario Rd, Green Bay, WI 54311
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China

Test Facility / Accreditations

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

- **MRT facility is a FCC registered (MRT Reg. No. 893164) 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 (A2LACert. No.3628.01) in EMC, Telecommunications, Radio and SAR testing.**

Accredited Laboratory

A2LA has accredited

MRT TECHNOLOGY (SUZHOU) CO., LTD.

Suzhou, Jiangsu, People's Republic of China

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

Presented this 24th day of July 2018.

President and CEO
For the Accreditation Council
Certificate Number 3628.01
Valid to August 31, 2020

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

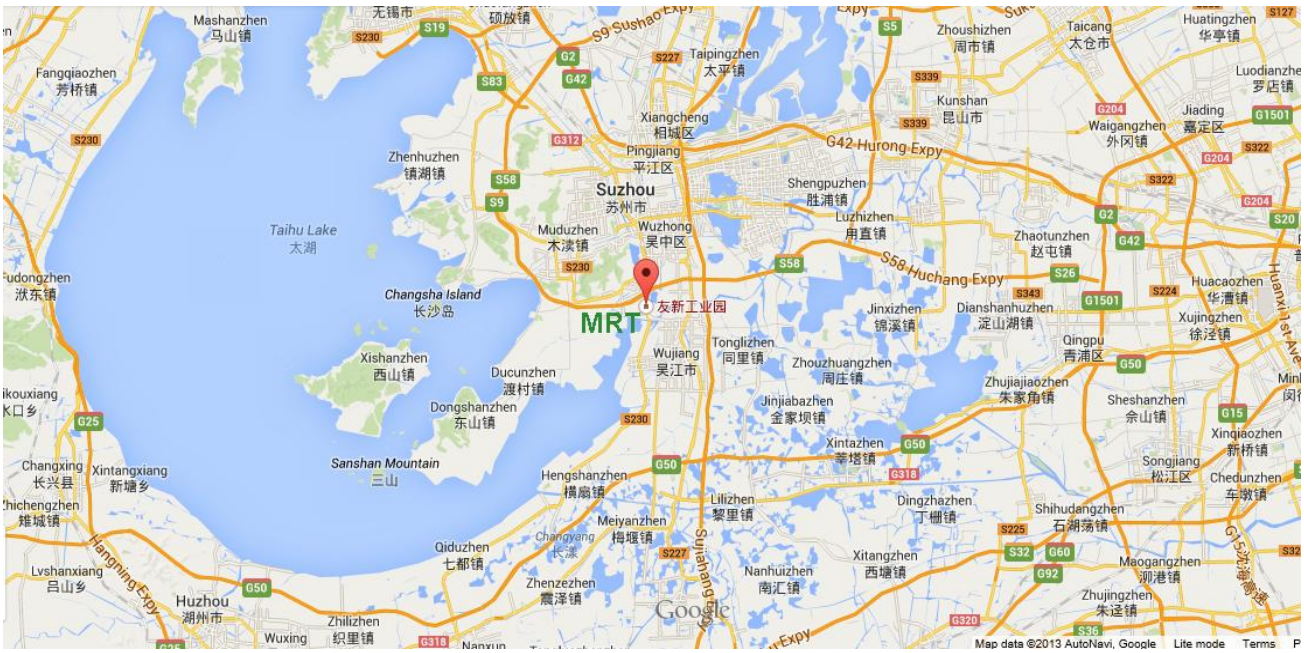
1. INTRODUCTION

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 ISED 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. Equipment Description

Product Name:	NTP Clock
Model No.:	CL.3
Brand Name:	Seura
Wi-Fi Specification:	802.11a/b/g/n

2.2. Product Specification Subjective to this Report

Frequency Range:	For 802.11a/n-HT20: 5745~5825MHz For 802.11n-HT40: 5755~5795MHz
Type of Modulation:	802.11a/n: OFDM
Data Rate:	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 150Mbps
Maximum Average Output Power:	802.11a: 8.35dBm 802.11n-HT20: 10.34dBm 802.11n-HT40: 10.31dBm
Antenna Type:	PCB Antenna
Antenna Gain:	1.5dBi

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

2.3. Working Frequencies for this Report

802.11a/n-HT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745 MHz	153	5765 MHz	157	5785 MHz
161	5805 MHz	165	5825 MHz	--	--

802.11n-HT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz	--	--

2.4. Test Mode

Test Mode	Mode 1: Transmit by 802.11a (6Mbps)
	Mode 2: Transmit by 802.11n-HT20 (MCS0)
	Mode 3: Transmit by 802.11n-HT40 (MCS0)

2.5. Device Capabilities

This device contains the following capabilities:

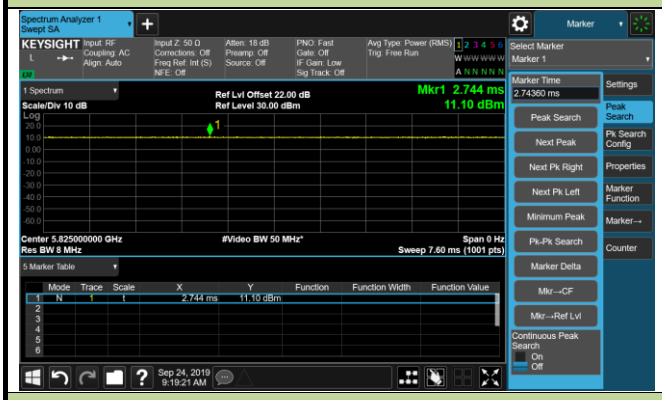
2.4GHz WLAN (DTS), 5GHz WLAN (NII)

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

Test Mode	Duty Cycle
802.11a	100 %
802.11n-HT20	100 %
802.11n-HT40	100 %

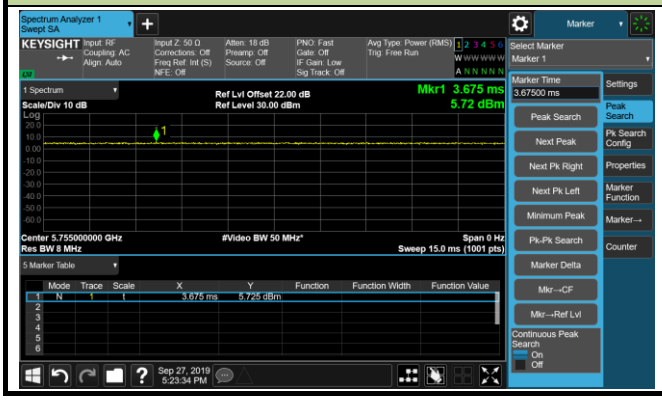
Duty Cycle

802.11a



802.11n-HT20

802.11n-HT40



2.6. Description of Test Software

The test utility software used during testing was “MT7637 QA”, and the version was 0.0.1.60.

Power parameter value refers to operation description.

2.7. Test Configuration

This device was tested per the guidance of KDB 789033 D02v02r01. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

2.8. EMI Suppression Device(s)/Modifications

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

2.9. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

3. DESCRIPTION OF TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013), and the guidance provided in KDB 789033 D02v02r01 were used in the measurement.

Deviation from measurement procedure…….....None

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an8'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 are 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. An80cm 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 unit complies with the requirement of §15.203.

5. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions - SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2020/04/15
Two-Line V-Network	R&S	ENV 216	MRTSUE06002	1 year	2020/06/13
Two-Line V-Network	R&S	ENV 216	MRTSUE06003	1 year	2020/06/13
Thermohygrometer	Testo	608-H1	MRTSUE06404	1 year	2020/08/08
Shielding Room	MIX-BEP	Chamber-SR2	MRTSUE06215	N/A	N/A

Radiated Emissions - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2020/08/01
PXA Signal Analyzer	Keysight	9030B	MRTSUE06395	1 year	2020/09/03
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2019/11/09
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2020/03/31
Broad Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2019/10/19
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06024	1 year	2019/12/17
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2019/11/16
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	2019/11/09
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2019/10/19
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06171	1 year	2019/11/09
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06024	1 year	2019/12/17
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2019/11/16
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2020/06/11
Temperature/Humidity Meter	Minggao	ETH529	MRTSUE06170	1 year	2019/12/13
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2020/04/30

Conducted Test Equipment - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2020/04/15
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06452	1 year	2020/07/11
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2020/04/15
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2019/11/16
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	2019/10/18
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2019/11/16
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
Temperature & Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2019/11/16
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.

AC Conducted Emission Measurement - SR2
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz~150kHz: 3.84dB 150kHz~30MHz: 3.46dB
Radiated Emission Measurement - AC1
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): Horizontal: 30MHz~300MHz: 4.07dB 300MHz~1GHz: 3.63dB 1GHz~18GHz: 4.16dB Vertical: 30MHz~300MHz: 4.18dB 300MHz~1GHz: 3.60dB 1GHz~18GHz: 4.76dB
Radiated Emission Measurement - AC2
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): Horizontal: 30MHz~300MHz: 3.75dB 300MHz~1GHz: 3.53dB 1GHz~18GHz: 4.28dB Vertical: 30MHz~300MHz: 3.86dB 300MHz~1GHz: 3.53dB 1GHz~18GHz: 4.33dB

7. TEST RESULT

7.1. Summary

FCC Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.407(a)	26dB Bandwidth	N/A	Conducted	Pass	Section7.2
15.407(e)	6dB Bandwidth	≥ 500kHz		Pass	Section 7.3
15.407(a)(3)	Maximum Conducted Output Power	U-NII-3: ≤1W		Pass	Section 7.4
15.407(h)(1)	Transmit Power Control	≤ 24dBm		N/A	Section 7.5
15.407(a)(3),(5)	Peak Power Spectral Density	U-NII-3: ≤ 30dBm/500kHz		Pass	Section 7.6
15.407(g)	Frequency Stability	N/A		Pass	Section 7.7
15.407(b)(4)(i)	Undesirable Emissions	≤ -27dBm/MHz EIRP Detail see section 7.9	Radiated	Pass	Section 7.8 Section7.9
15.205, 15.209 15.407(b)(5), (6), (7)	General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in15.209		Pass	
15.207	AC Conducted Emissions 150kHz-30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 7.10

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.
3) “N/A” means that the test item is not applicable, and the detailed information refers to relevant section.

7.2. 26dB Bandwidth& 99% Bandwidth Measurement

7.2.1.Test Limit

N/A

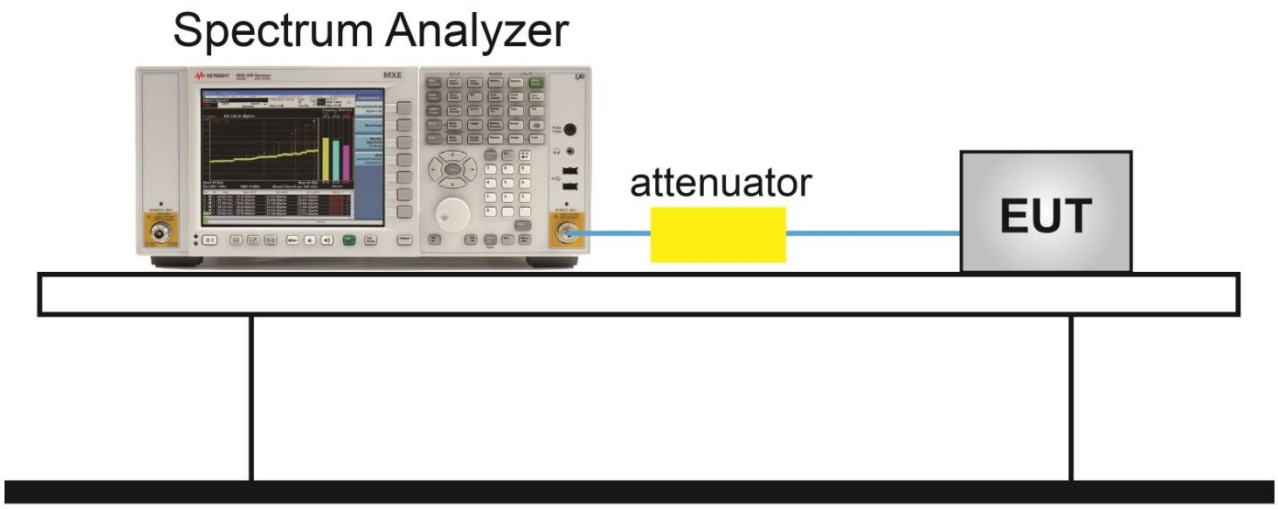
7.2.2.TestProcedureUsed

ANSI C63.10-2013-Section 6.9.2 & 6.9.3

7.2.3.TestSetting

1. The analyzers' automatic bandwidth measurement capability was used to perform the 26dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 26. The automatic bandwidth measurement function also has the capability of simultaneously measuring the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediated power nulls in the fundamental emission.
2. RBW = Approximately 1% of the emission bandwidth.
3. VBW ≥ 3×RBW.
4. Detector = Peak.
5. Trace mode = Max hold.

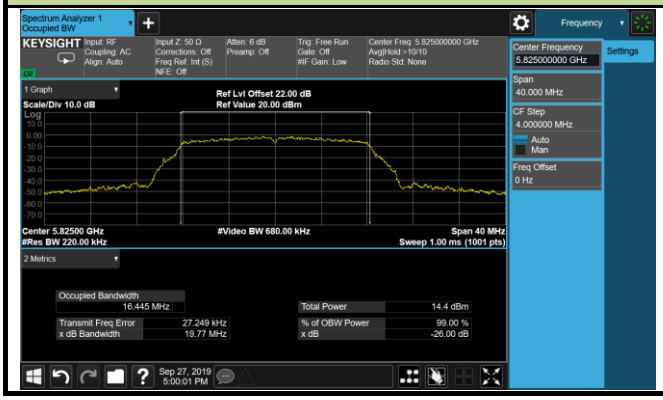
7.2.4.Test Setup



7.2.5.Test Result

Product	NTP Clock	Temperature	25℃
Test Engineer	Flay Yang	Relative Humidity	52%
Test Site	TR3	Test Date	2019/09/27

Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11a	6Mbps	149	5745	19.76	16.43
802.11a	6Mbps	157	5785	19.77	16.46
802.11a	6Mbps	165	5825	19.77	16.45
802.11n-HT20	MCS0	149	5745	20.33	17.56
802.11n-HT20	MCS0	157	5785	20.28	17.56
802.11n-HT20	MCS0	165	5825	20.28	17.56
802.11n-HT40	MCS0	151	5755	40.34	35.87
802.11n-HT40	MCS0	159	5795	40.61	36.03

802.11a 26dB Bandwidth & 99% Bandwidth	
Channel 149 (5745MHz)	Channel 157 (5785MHz)
802.11a 26dB Bandwidth & 99% Bandwidth	
Channel 165 (5825MHz)	
	

802.11n-HT20 26dB Bandwidth & 99% Bandwidth

Channel 149 (5745MHz)

Channel 157 (5785MHz)

Channel 165 (5825MHz)

802.11n-HT40 26dB Bandwidth & 99% Bandwidth

Channel 151 (5755MHz)

Channel 159 (5795MHz)

7.3. 6dB Bandwidth Measurement

7.3.1.Test Limit

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

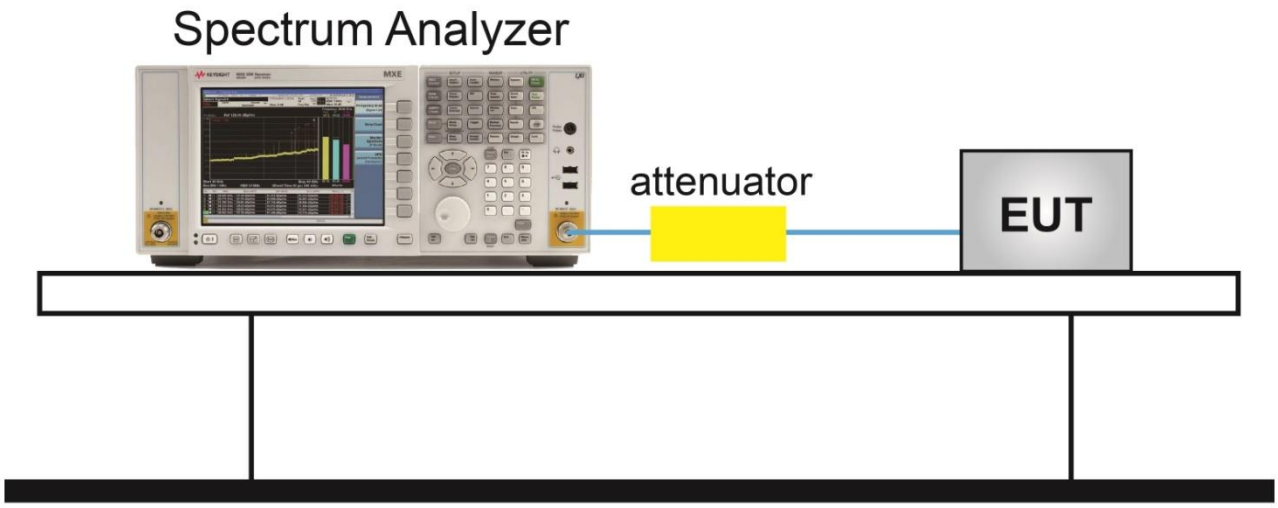
7.3.2.Test Procedure Used

ANSI C63.10-2013 - Section 6.9.2

7.3.3.Test Setting

1. Set center frequency to the nominal EUT channel center frequency.
2. RBW = 100 kHz.
3. VBW≥ 3 × RBW.
4. Detector = Peak.
5. Trace mode = Max hold.
6. Sweep = Auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

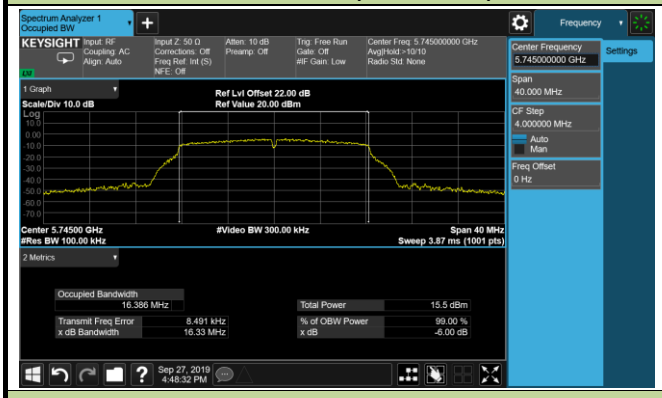
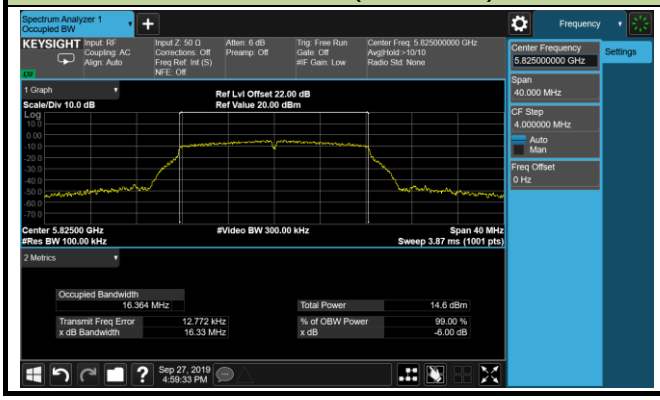
7.3.4.Test Setup



7.3.5.Test Result

Product	NTP Clock	Temperature	25℃
Test Engineer	Flay Yang	Relative Humidity	52%
Test Site	TR3	Test Date	2019/09/27

Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11a	6Mbps	149	5745	16.33	≥0.5	Pass
802.11a	6Mbps	157	5785	16.38	≥0.5	Pass
802.11a	6Mbps	165	5825	16.33	≥0.5	Pass
802.11n-HT20	MCS0	149	5745	17.57	≥0.5	Pass
802.11n-HT20	MCS0	157	5785	17.55	≥0.5	Pass
802.11n-HT20	MCS0	165	5825	17.60	≥0.5	Pass
802.11n-HT40	MCS0	151	5755	35.80	≥0.5	Pass
802.11n-HT40	MCS0	159	5795	35.78	≥0.5	Pass

802.11a 6dB Bandwidth	
Channel 149 (5745MHz)	Channel 157 (5785MHz)
	
Channel 165 (5825MHz)	
	

802.11n-HT20 6dB Bandwidth

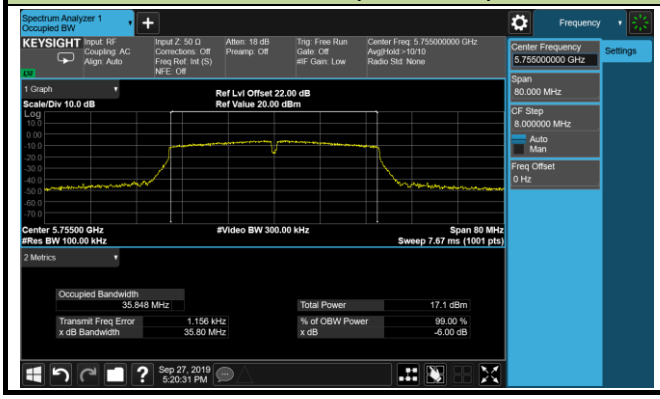
Channel 149 (5745MHz)

Channel 157 (5785MHz)

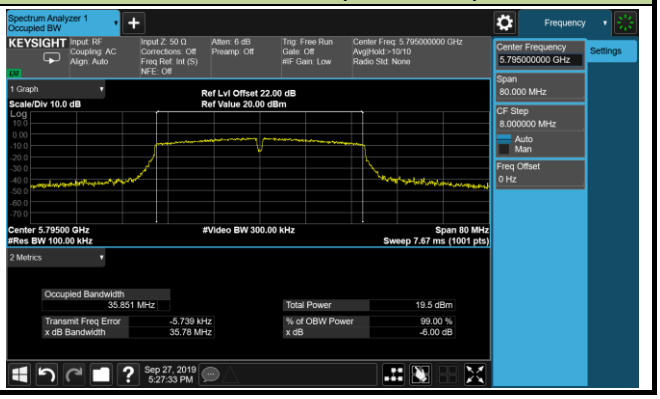
Channel 165 (5825MHz)

802.11n-HT40 6dB Bandwidth

Channel 151 (5755MHz)



Channel 159 (5795MHz)



7.4. Output Power Measurement

7.4.1.Test Limit

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm).

If transmitting antennas of directional gain greater than 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

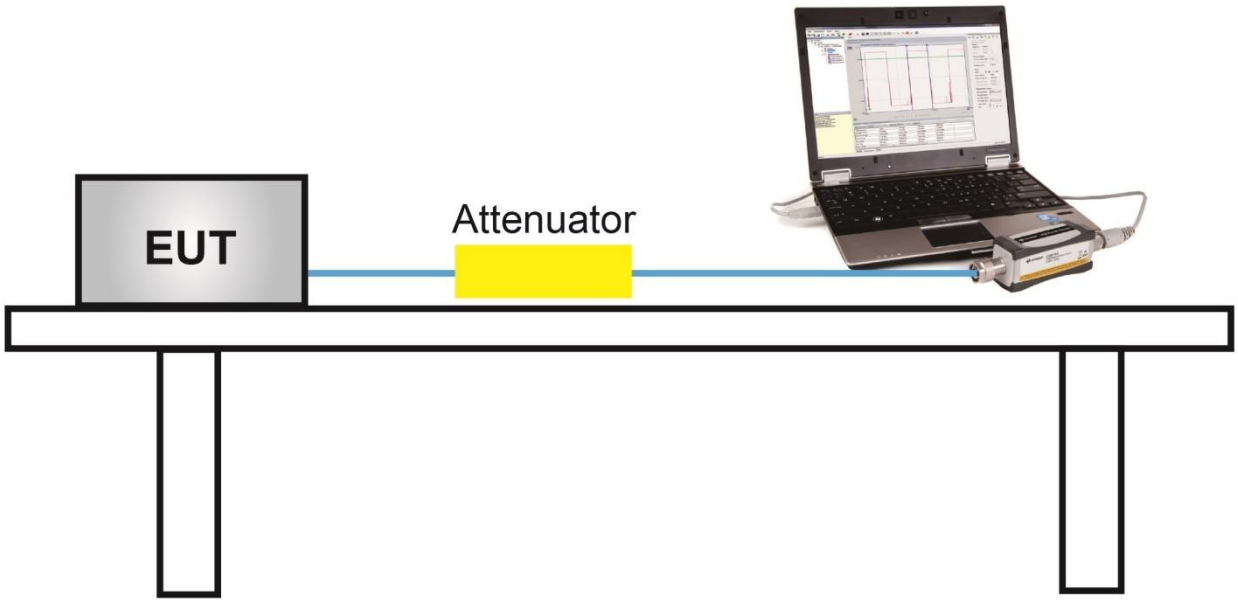
7.4.2.Test Procedure Used

ANSI C63.10-2013- Section 12.3.3.2 Method PM-G

7.4.3.Test Setting

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

7.4.4.Test Setup



7.4.5.Test Result

Output power test was verified over all data rates of each mode shown as below table, and then choose the maximum output power (gray marker) for final test of each channel.

Test Mode	Bandwidth	Channel No.	Frequency (MHz)	Data Rate/ MCS	Average Power (dBm)
802.11a	20	149	5745	6Mbps	8.35
				24Mbps	8.02
				54Mbps	7.64
802.11n	20	149	5745	MCS0	9.59
				MCS4	9.12
				MCS7	8.71
802.11n	40	151	5755	MCS0	10.31
				MCS4	10.11
				MCS7	9.82

Product	NTP Clock	Temperature	22℃
Test Engineer	Flay Yang	Relative Humidity	52%
Test Site	TR3	Test Date	2019/09/25

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Average Power (dBm)	Average Power Limit (dBm)	Result
11a	6Mbps	149	5745	8.35	≤ 30.00	Pass
11a	6Mbps	157	5785	7.51	≤ 30.00	Pass
11a	6Mbps	165	5825	8.04	≤ 30.00	Pass
11n-HT20	MCS0	149	5745	9.59	≤ 30.00	Pass
11n-HT20	MCS0	157	5785	9.46	≤ 30.00	Pass
11n-HT20	MCS0	165	5825	10.34	≤ 30.00	Pass
11n-HT40	MCS0	151	5755	10.31	≤ 30.00	Pass
11n-HT40	MCS0	159	5795	12.99	≤ 30.00	Pass

7.5. Transmit Power Control

7.5.1.Test Limit

The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm.

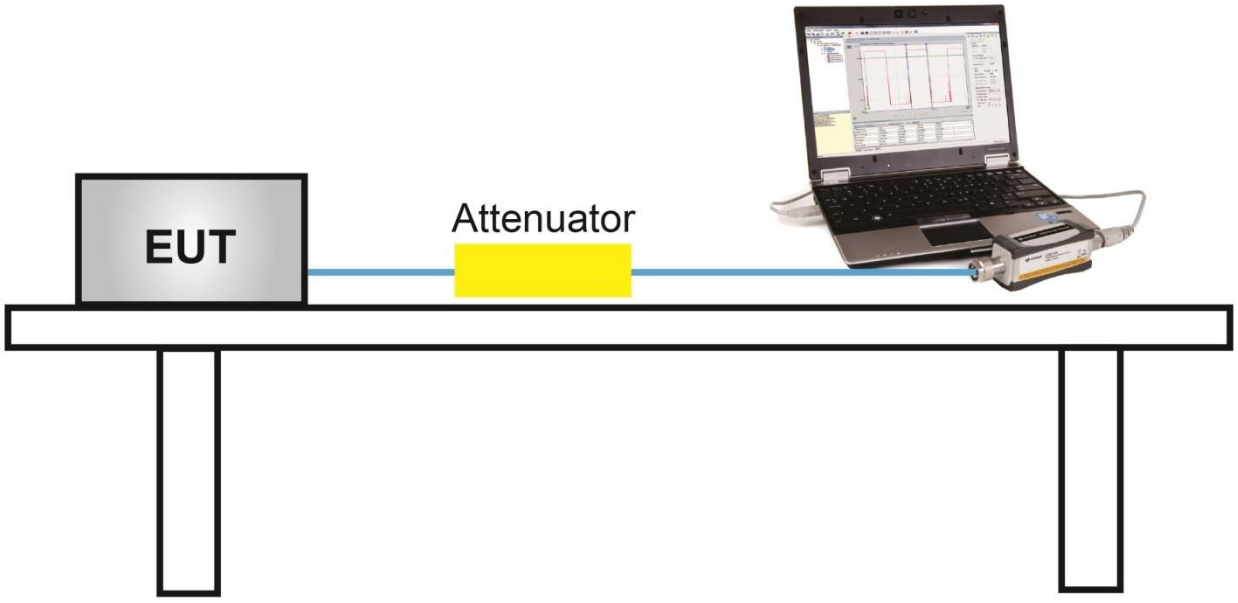
7.5.2.Test Procedure Used

ANSI C63.10-2013- Section 12.3.3.2 Method PM-G

7.5.3.Test Setting

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

7.5.4.Test Setup



7.5.5.Test Result

U-NII devices operating in the 5.25-5.35 GHz band and the 5.47-5.725 GHz band shall employ a TPC mechanism. This device operating in the 5.725-5.85 GHz, so this requirement doesn't apply.

7.6. Power Spectral Density Measurement

7.6.1.TestLimit

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

If transmitting antennas of directional gain greater than 6dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

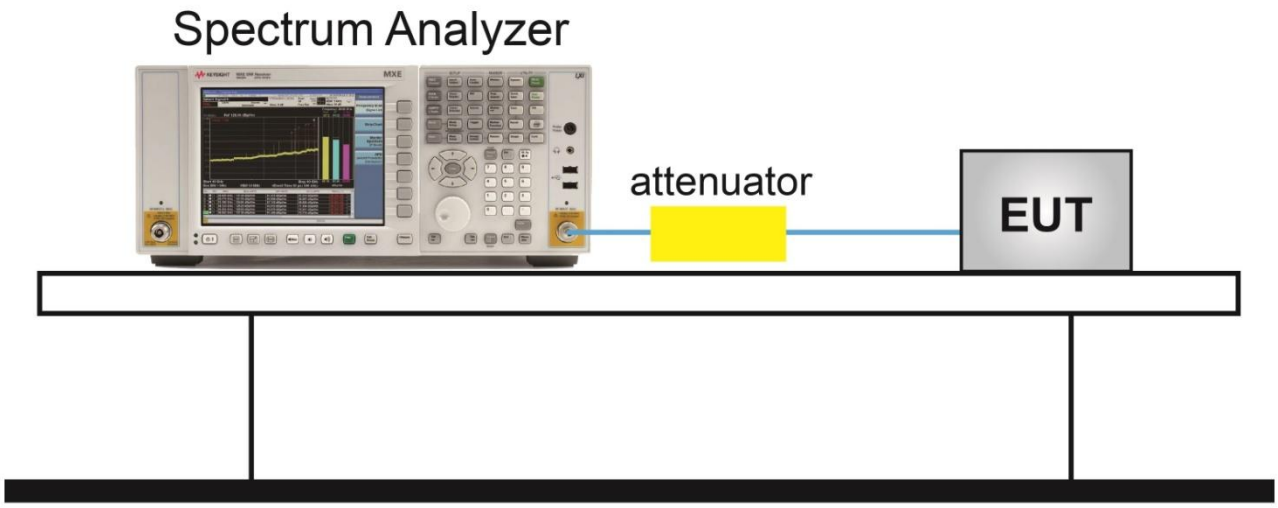
7.6.2.Test Procedure Used

ANSI C63.10- Section 12.5

7.6.3.Test Setting

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire 26dB EBW of the signal.
3. RBW = 1MHz, if measurement bandwidth of Maximum PSD is specified in 500 kHz, RBW = 100kHz
4. VBW = 3MHz
5. Number of sweep points ≥ 2 × (span / RBW)
6. Detector = Power averaging (Average)
7. Sweep time = Auto
8. Trigger = Free run
9. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
10. Add 10*log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add 10*log(1/0.25) = 6 dB if the duty cycle is 25 percent.
11. When the measurement bandwidth of Maximum PSD is specified in 500 kHz, add a constant factor 10*log(500kHz/100kHz) = 6.99 dB to the measured result.

7.6.4.Test Setup



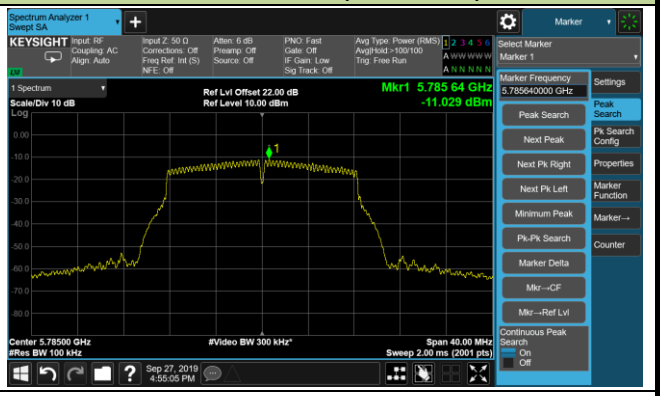
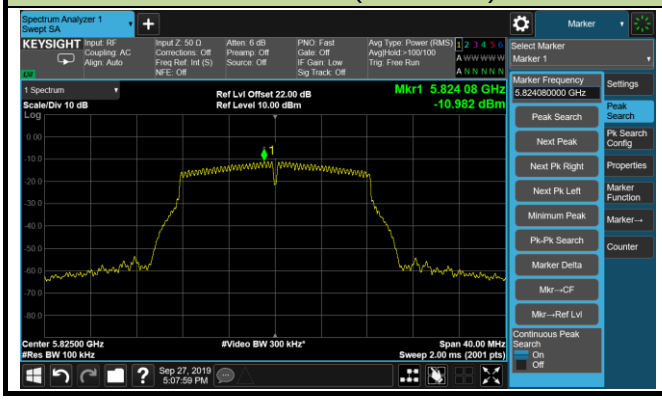
7.6.5.Test Result

Product	NTP Clock	Temperature	25℃
Test Engineer	Flay Yang	Relative Humidity	52%
Test Site	TR3	Test Date	2019/09/27

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	PSD (dBm/ 100kHz)	Duty Cycle (%)	Constant Factor (dB)	Final PSD(dBm/ 500kHz)	Limit (dBm/ 500kHz)	Result
802.11a	6Mbps	149	5745	-10.72	100	6.99	-3.73	≤ 30.00	Pass
802.11a	6Mbps	157	5785	-11.03	100	6.99	-4.04	≤ 30.00	Pass
802.11a	6Mbps	165	5825	-10.98	100	6.99	-3.99	≤ 30.00	Pass
802.11n-HT20	MCS0	149	5745	-9.83	100	6.99	-2.84	≤ 30.00	Pass
802.11n-HT20	MCS0	157	5785	-9.31	100	6.99	-2.32	≤ 30.00	Pass
802.11n-HT20	MCS0	165	5825	-9.36	100	6.99	-2.37	≤ 30.00	Pass
802.11n-HT40	MCS0	151	5755	-11.80	100	6.99	-4.81	≤ 30.00	Pass
802.11n-HT40	MCS0	159	5795	-9.13	100	6.99	-2.14	≤ 30.00	Pass

Note 1: When EUT duty cycle ≥ 98%, Final PSD (dBm/500kHz) = PSD (dBm/100kHz)+ Constant Factor (dB).

Note 2: When EUT duty cycle < 98%, Final PSD (dBm/500kHz) = PSD (dBm/100kHz)+ Constant Factor (dB) + 10*log (1/Duty Cycle).

802.11a Power Spectral Density	
Channel 149 (5745MHz)	Channel 157 (5785MHz)
	
Channel 165 (5825MHz)	
	

802.11n-HT20 Power Spectral Density

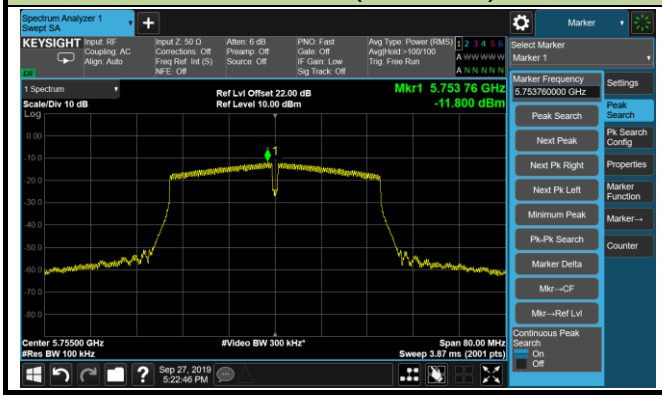
Channel 149 (5745MHz)

Channel 157 (5785MHz)

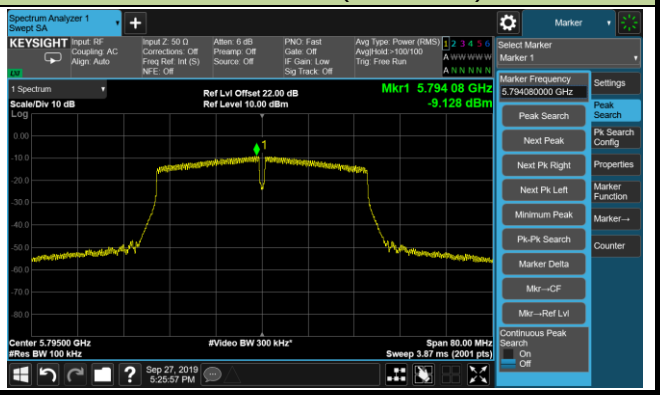
Channel 165 (5825MHz)

802.11n-HT40 Power Spectral Density

Channel 151 (5755MHz)



Channel 159 (5795MHz)



7.7. Frequency Stability Measurement

7.7.1.Test Limit

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

7.7.2.Test Procedure Used

Frequency Stability Under Temperature Variations:

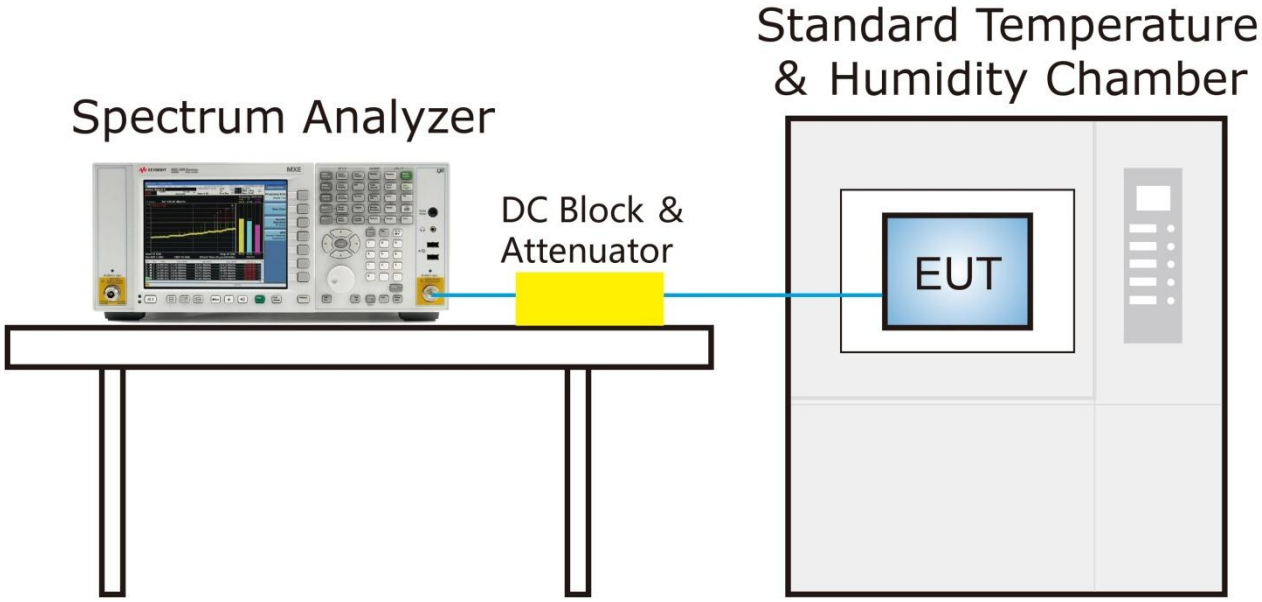
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20℃ operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10℃ decreased per stage until the lowest temperature reached.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, record the maximum frequency change.

7.7.3.Test Setup



7.7.4.Test Result

Product	NTP Clock	Temperature	-30 ~ 50℃
Test Engineer	Flay Yang	Relative Humidity	46 ~ 58%RH
Test Site	TR3	Test Time	2019/09/30
Test Mode	5745MHz (Carrier Mode)		

Voltage (%)	Power (V_{DC})	Temp (℃)	Frequency Tolerance (ppm)
100%	120	- 30	-1.22
		- 20	-1.20
		- 10	-1.17
		0	-1.14
		+ 10	-1.13
		+ 20 (Ref)	-1.12
		+ 30	-1.16
		+ 40	-1.21
		+ 50	-1.28
115%	138	+ 20	-1.32
85%	102	+ 20	-1.41

Note: Frequency Tolerance (ppm) = {[Measured Frequency (MHz) - Declared Frequency (MHz)] / Declared Frequency (MHz)} *10^6.

7.8. Radiated Spurious Emission Measurement

7.8.1.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 15.209 Limits		
Frequency (MHz)	Field Strength (μV/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

7.8.2.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)

7.8.3.Test Setting

Table 1 - RBW as a function of frequency

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

Quasi-Peak Measurements below 1GHz

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

Peak Measurements above 1GHz

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

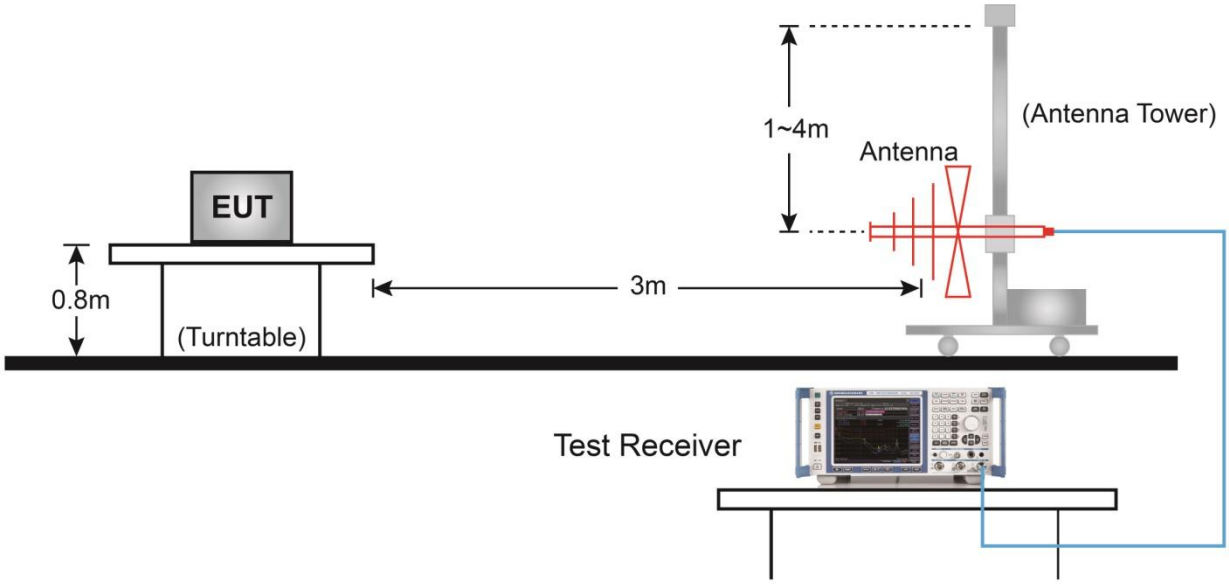
Average Measurements above 1GHz (Method VB)

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

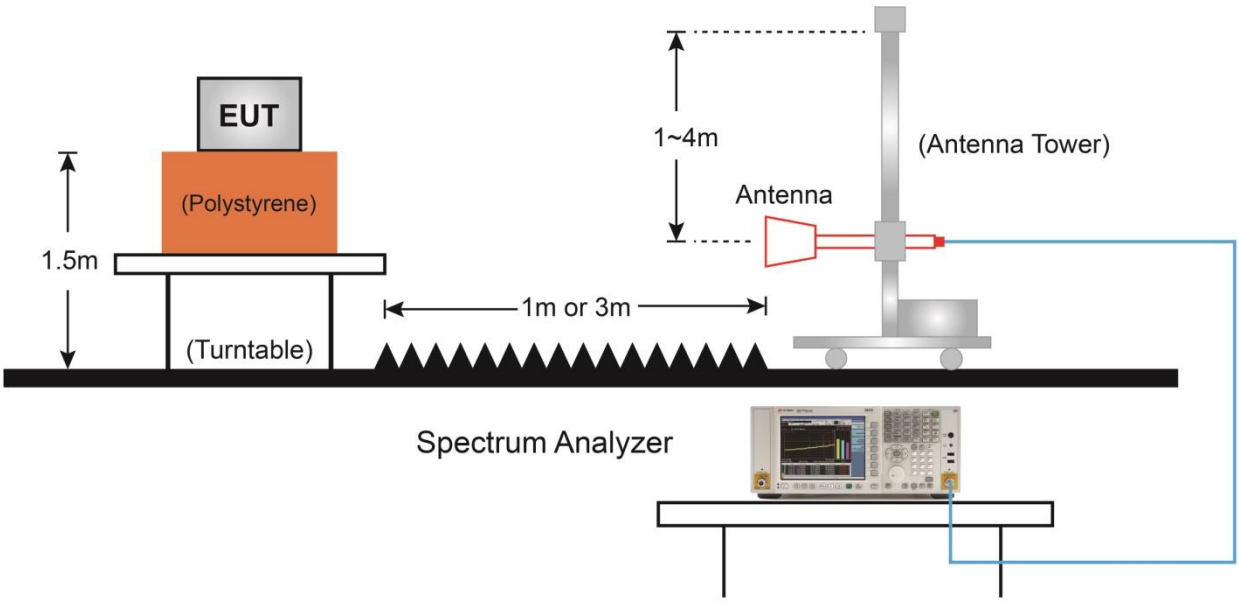
   If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Trace was allowed to stabilize

7.8.4.Test Setup

Below 1GHz Test Setup:



Above1GHz Test Setup:



7.8.5.Test Result

Product	NTP Clock	Temperature	25℃
Test Engineer	Flay Yang	Relative Humidity	56%
Test Site	AC2	Test Date	2019/09/27
Test Mode	802.11a	Test Channel	149
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
*	8573.5	36.1	10.5	46.5	68.2	-21.7	Peak	Horizontal
*	10358.5	36.4	14.2	50.6	68.2	-17.6	Peak	Horizontal
	10885.5	36.8	15.4	52.2	74.0	-21.8	Peak	Horizontal
	11480.5	36.2	16.0	52.2	74.0	-21.8	Peak	Horizontal
*	8828.5	35.6	11.2	46.8	68.2	-21.4	Peak	Vertical
*	10120.5	36.6	12.7	49.3	68.2	-18.9	Peak	Vertical
	11489.0	49.8	16.1	65.9	74.0	-8.1	Peak	Vertical
	11489.0	37.2	16.1	53.3	54.0	-0.7	Average	Vertical
	12152.0	35.3	15.1	50.4	74.0	-23.6	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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	NTP Clock	Temperature	25℃
Test Engineer	Flay Yang	Relative Humidity	56%
Test Site	AC2	Test Date	2019/09/27
Test Mode	802.11a	Test Channel	157
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
*	8760.5	36.0	10.9	46.9	68.2	-21.3	Peak	Horizontal
*	10256.5	35.3	13.6	48.9	68.2	-19.3	Peak	Horizontal
	10860.0	34.5	15.3	49.8	74.0	-24.2	Peak	Horizontal
	11565.5	37.8	16.3	54.1	74.0	-19.9	Peak	Horizontal
	11565.5	25.2	16.3	41.5	54.0	-12.5	Average	Horizontal
*	8803.0	34.5	10.7	45.2	68.2	-23.0	Peak	Vertical
*	10384.0	34.7	15.1	49.7	68.2	-18.5	Peak	Vertical
	11574.0	50.1	16.5	66.6	74.0	-7.4	Peak	Vertical
	11574.0	37.2	16.5	53.7	54.0	-0.3	Average	Vertical
	12041.5	35.2	15.1	50.3	74.0	-23.7	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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	NTP Clock	Temperature	25℃
Test Engineer	Flay Yang	Relative Humidity	56%
Test Site	AC2	Test Date	2019/09/27
Test Mode	802.11a	Test Channel	165
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
*	8811.5	35.7	11.0	46.7	68.2	-21.5	Peak	Horizontal
*	10384.0	35.2	15.1	50.3	68.2	-17.9	Peak	Horizontal
	11013.0	35.8	15.8	51.6	74.0	-22.4	Peak	Horizontal
	11642.0	39.8	16.2	56.0	74.0	-18.0	Peak	Horizontal
	11642.0	27.5	16.2	43.7	54.0	-10.3	Average	Horizontal
*	8837.0	35.6	11.0	46.6	68.2	-21.6	Peak	Vertical
*	9993.0	36.7	12.1	48.9	68.2	-19.3	Peak	Vertical
	11021.5	36.0	15.9	51.9	74.0	-22.1	Peak	Vertical
	11021.5	37.4	15.9	53.3	54.0	-0.7	Average	Vertical
	11650.5	49.4	16.2	65.6	74.0	-8.4	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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	NTP Clock	Temperature	25℃
Test Engineer	Flay Yang	Relative Humidity	56%
Test Site	AC2	Test Date	2019/09/27
Test Mode	802.11n-HT20	Test Channel	149
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
*	8616.0	36.0	11.0	47.0	68.2	-21.2	Peak	Horizontal
*	10384.0	35.2	15.1	50.3	68.2	-17.9	Peak	Horizontal
	10783.5	36.1	15.5	51.7	74.0	-22.3	Peak	Horizontal
	11565.5	36.1	16.3	52.4	74.0	-21.6	Peak	Horizontal
*	8820.0	35.3	11.3	46.7	68.2	-21.5	Peak	Vertical
*	9840.0	36.1	12.0	48.1	68.2	-20.1	Peak	Vertical
	10783.5	35.4	15.5	51.0	74.0	-23.0	Peak	Vertical
	11489.0	49.3	16.1	65.4	74.0	-8.6	Peak	Vertical
	11489.0	37.5	16.1	53.6	54.0	-0.4	Average	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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	NTP Clock	Temperature	25℃
Test Engineer	Flay Yang	Relative Humidity	56%
Test Site	AC2	Test Date	2019/09/27
Test Mode	802.11n-HT20	Test Channel	157
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
*	8675.5	36.9	10.4	47.3	68.2	-20.9	Peak	Horizontal
*	10375.5	36.0	14.8	50.7	68.2	-17.5	Peak	Horizontal
	11089.5	35.2	15.7	50.9	74.0	-23.1	Peak	Horizontal
	11574.0	39.7	16.5	56.2	74.0	-17.8	Peak	Horizontal
	11574.0	27.4	16.5	43.9	54.0	-10.1	Average	Horizontal
*	8769.0	35.4	11.0	46.4	68.2	-21.8	Peak	Vertical
*	10086.5	36.9	12.7	49.6	68.2	-18.6	Peak	Vertical
	10962.0	34.6	15.3	49.8	74.0	-24.2	Peak	Vertical
	11565.5	50.7	16.3	67.1	74.0	-6.9	Peak	Vertical
	11565.5	37.3	16.3	53.7	54.0	-0.3	Average	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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	NTP Clock	Temperature	25℃
Test Engineer	Flay Yang	Relative Humidity	56%
Test Site	AC2	Test Date	2019/09/27
Test Mode	802.11n-HT20	Test Channel	165
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
*	8828.5	36.1	11.2	47.3	68.2	-20.9	Peak	Horizontal
*	10103.5	36.1	12.6	48.7	68.2	-19.5	Peak	Horizontal
	11030.0	36.1	16.0	52.2	74.0	-21.8	Peak	Horizontal
	11650.5	38.4	16.2	54.6	74.0	-19.4	Peak	Horizontal
	11650.5	26.2	16.2	42.3	54.0	-11.7	Average	Horizontal
*	8769.0	34.4	11.0	45.4	68.2	-22.8	Peak	Vertical
*	10358.5	35.8	14.2	49.9	68.2	-18.3	Peak	Vertical
	11030.0	35.3	16.0	51.3	74.0	-22.7	Peak	Vertical
	11650.5	50.6	16.2	66.8	74.0	-7.2	Peak	Vertical
	11650.5	36.9	16.2	53.0	54.0	-1.0	Average	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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	NTP Clock	Temperature	25℃
Test Engineer	Flay Yang	Relative Humidity	56%
Test Site	AC2	Test Date	2019/09/27
Test Mode	802.11n-HT40	Test Channel	151
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
*	8769.0	34.9	11.0	45.9	68.2	-22.3	Peak	Horizontal
*	9984.5	36.8	12.5	49.3	68.2	-18.9	Peak	Horizontal
	11030.0	35.4	16.0	51.4	74.0	-22.6	Peak	Horizontal
	11514.5	37.4	16.4	53.8	74.0	-20.2	Peak	Horizontal
*	8718.0	35.5	10.9	46.4	68.2	-21.8	Peak	Vertical
*	10069.5	37.4	12.5	50.0	68.2	-18.2	Peak	Vertical
	10928.0	36.2	15.6	51.8	74.0	-22.2	Peak	Vertical
	11510.4	49.7	16.4	66.1	74.0	-7.9	Peak	Vertical
	11510.4	37.5	16.4	53.9	54.0	-0.1	Average	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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	NTP Clock	Temperature	25℃
Test Engineer	Flay Yang	Relative Humidity	56%
Test Site	AC2	Test Date	2019/09/27
Test Mode	802.11n-HT40	Test Channel	159
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
*	8726.5	35.4	11.0	46.4	68.2	-21.8	Peak	Horizontal
*	9721.0	37.1	11.4	48.5	68.2	-19.7	Peak	Horizontal
	10851.5	36.1	15.5	51.6	74.0	-22.4	Peak	Horizontal
	11582.5	38.1	16.6	54.7	74.0	-19.3	Peak	Horizontal
	11582.5	26.2	16.6	42.7	54.0	-11.3	Average	Horizontal
*	8692.5	35.1	10.6	45.7	68.2	-22.5	Peak	Vertical
*	10120.5	36.0	12.7	48.7	68.2	-19.5	Peak	Vertical
	11098.0	35.5	15.9	51.3	74.0	-22.7	Peak	Vertical
	11591.0	49.4	16.6	66.0	74.0	-8.0	Peak	Vertical
	11591.0	37.3	16.6	53.9	54.0	-0.1	Average	Vertical

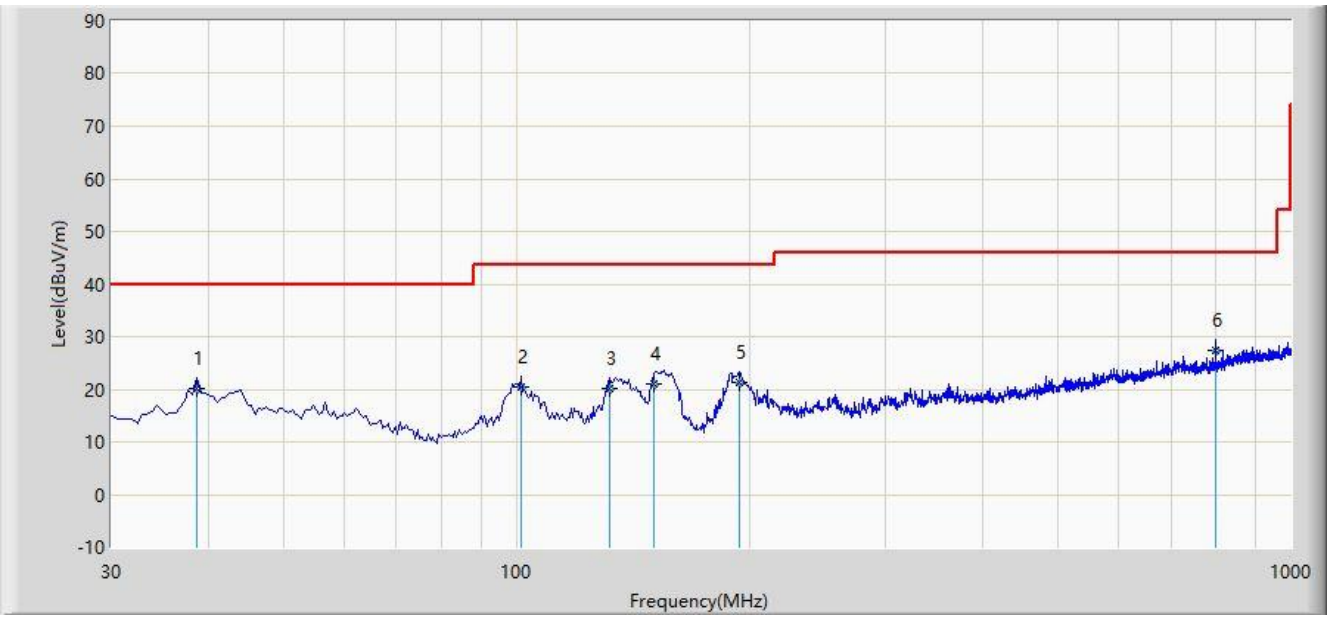
Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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: AC2	Time: 2019/09/26 - 16:00
Limit: FCC_Part15.209_RE(3m)	Engineer: Dandy Li
Probe: VULB9162_0.03-8GHz	Polarity: Horizontal
EUT: NTP Clock	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5745MHz	



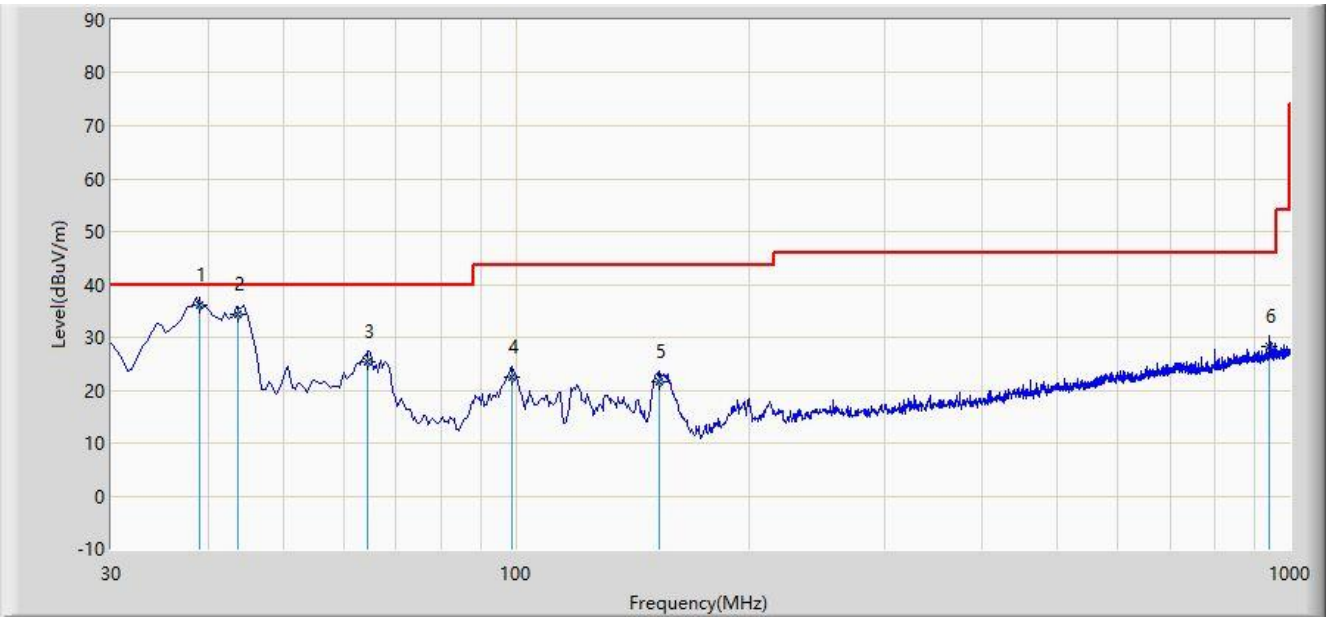
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			38.730	20.195	6.749	-19.805	40.000	13.445	QP
2			101.295	20.344	7.466	-23.156	43.500	12.879	QP
3			131.850	20.224	10.619	-23.276	43.500	9.605	QP
4			150.765	20.929	11.745	-22.571	43.500	9.184	QP
5			193.930	21.276	9.618	-22.224	43.500	11.659	QP
6		*	800.180	27.405	5.367	-18.595	46.000	22.038	QP

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

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

Note 2: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 40GHz), therefore no data appear in the report.

Site: AC2	Time: 2019/09/26 - 16:07
Limit: FCC_Part15.209_RE(3m)	Engineer: Dandy Li
Probe: VULB9162_0.03-8GHz	Polarity: Vertical
EUT: NTP Clock	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5745MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	38.995	36.095	22.600	-3.905	40.000	13.495	QP
2			43.712	34.294	19.900	-5.706	40.000	14.394	QP
3			64.435	25.329	12.824	-14.671	40.000	12.505	QP
4			98.870	22.551	9.997	-20.949	43.500	12.555	QP
5			153.190	21.519	12.264	-21.981	43.500	9.255	QP
6			941.800	28.359	4.809	-17.641	46.000	23.550	QP

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

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

Note 2: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 40GHz), therefore no data appear in the report.

7.9. Radiated RestrictedBand Edge Measurement

7.9.1.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	--	--	--

For 15.407(b) Requirement:

For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

Refer to KDB 789033 D02v02r01 G)2)c), as specified in § 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a maximum emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in § 15.407(b)(4)). However, an out-of-band emission that complies with

both the peak and average limits of § 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz maximum emission limit.

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

FCC Part 15.209 Limits		
Frequency (MHz)	Field Strength (μV/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

7.9.2.Test Procedure Used

ANSI C63.10 - Section 6.3 (General Requirements)

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

7.9.3.Test Setting

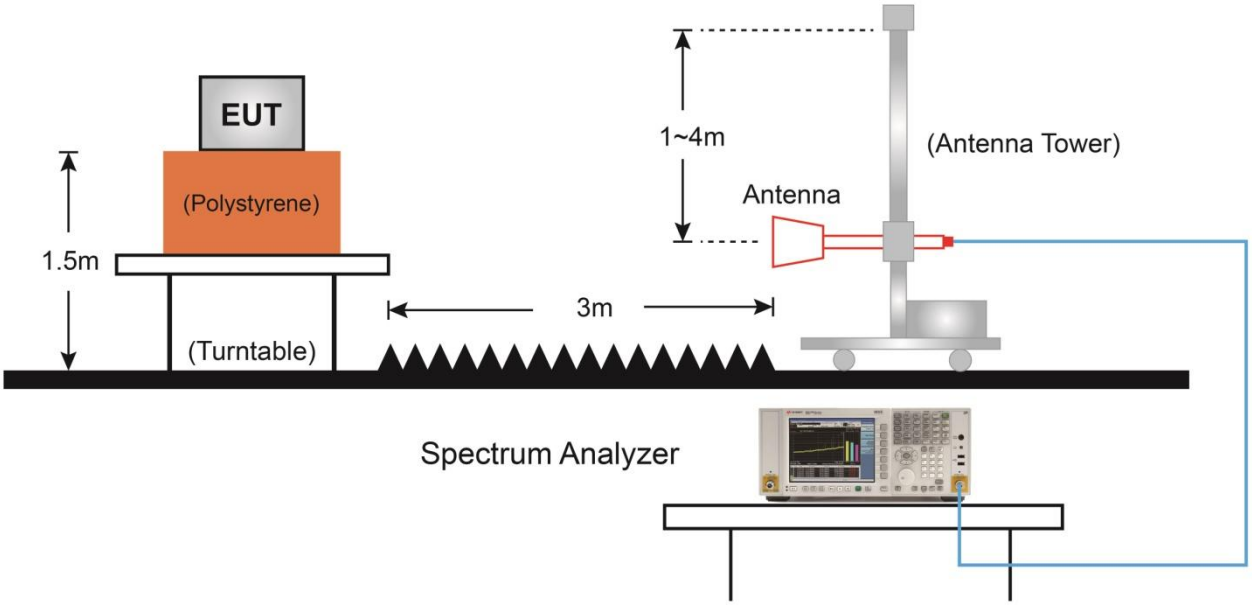
Peak Measurements above 1GHz

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

Average Measurements above 1GHz (Method VB)

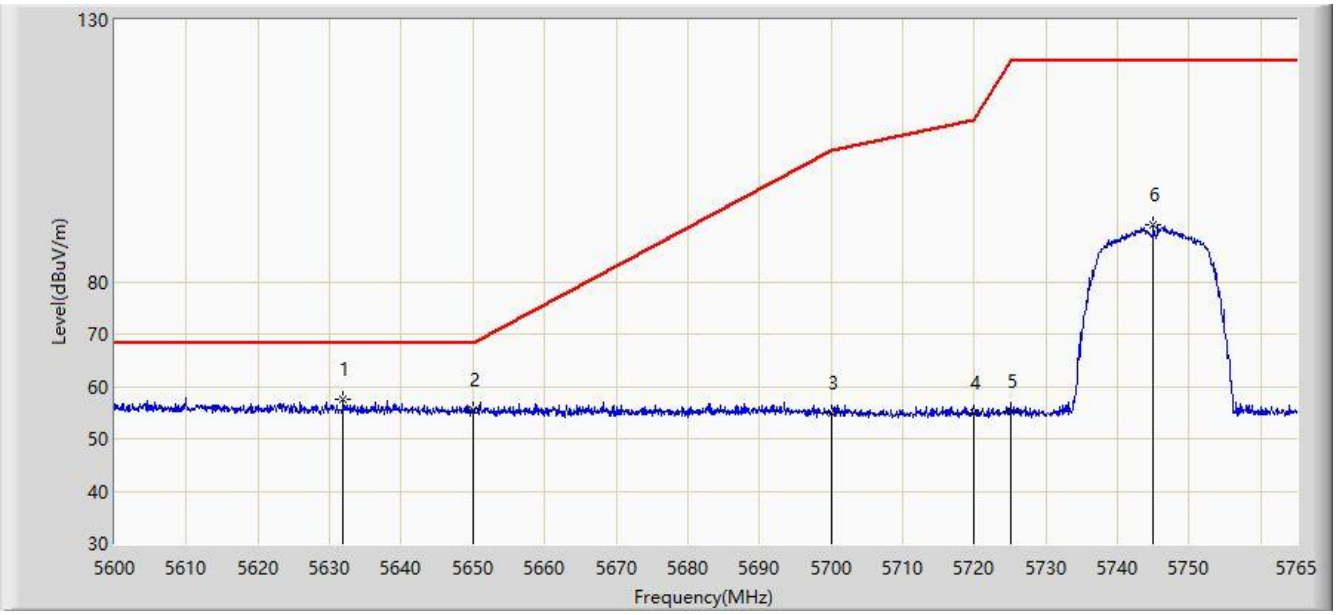
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; if the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10Hz
4. If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration
5. Detector = Peak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

7.9.4.Test Setup



7.9.5.Test Result

Site: AC2	Time: 2019/09/27 - 11:13
Limit: FCC_Part15.209_RE(3m)	Engineer: Dandy Li
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: NTP Clock	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at channel 5745MHz	

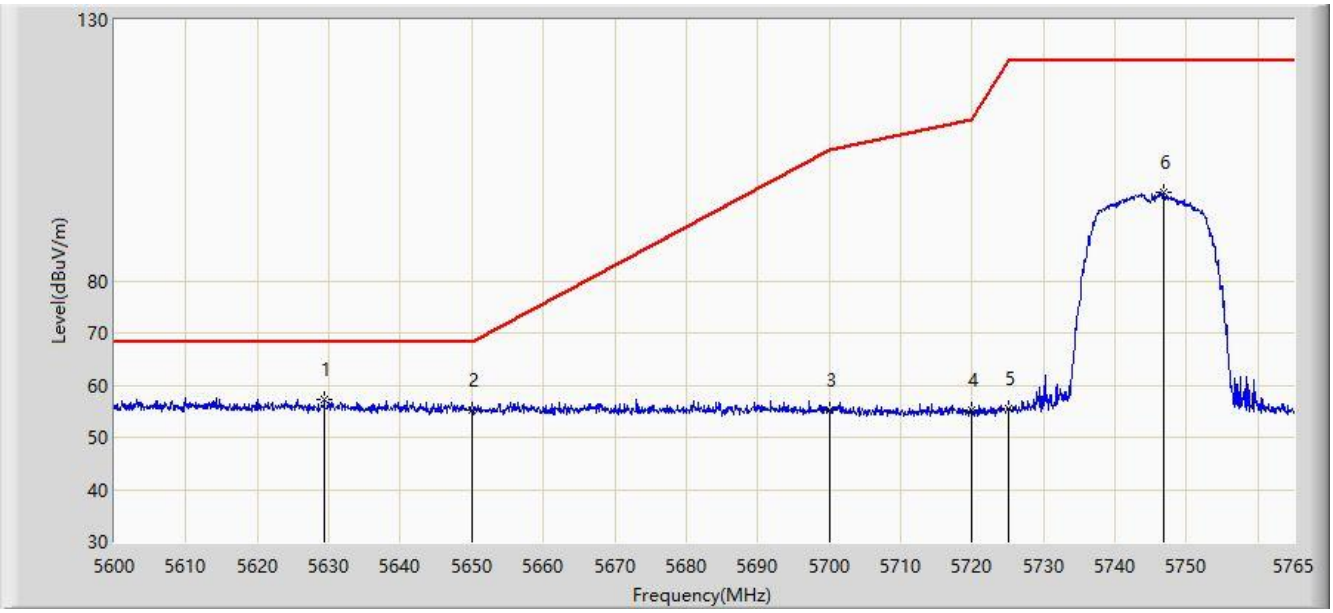


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5631.928	57.529	54.613	-10.671	68.200	2.916	PK
2			5650.000	55.538	52.778	-12.662	68.200	2.760	PK
3			5700.000	55.056	52.575	-50.144	105.200	2.481	PK
4			5720.000	54.789	52.311	-56.011	110.800	2.478	PK
5			5725.000	55.336	52.725	-66.864	122.200	2.611	PK
6			5745.035	90.919	88.468	N/A	N/A	2.451	PK

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

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

Site: AC2	Time: 2019/09/27 - 11:17
Limit: FCC_Part15.209_RE(3m)	Engineer: Dandy Li
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: NTP Clock	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at channel 5745MHz	

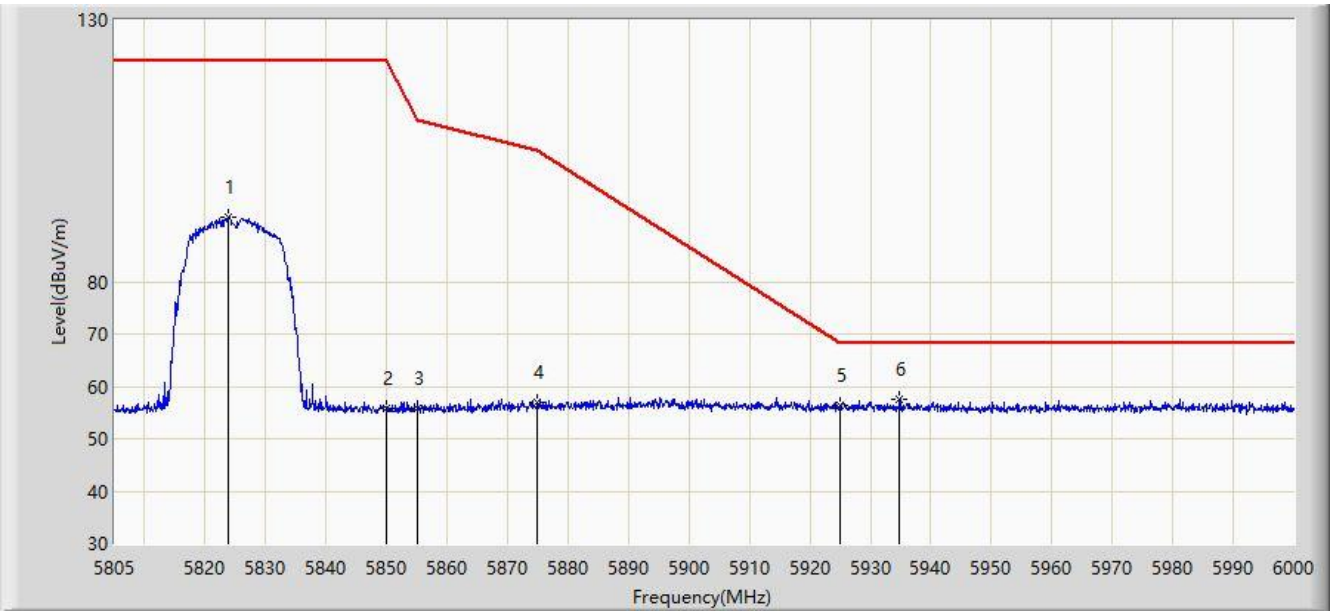


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5629.370	57.197	54.243	-11.003	68.200	2.953	PK
2			5650.000	55.267	52.507	-12.933	68.200	2.760	PK
3			5700.000	55.111	52.630	-50.089	105.200	2.481	PK
4			5720.000	55.085	52.607	-55.715	110.800	2.478	PK
5			5725.000	55.518	52.907	-66.682	122.200	2.611	PK
6			5746.768	97.058	94.577	N/A	N/A	2.480	PK

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

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

Site: AC2	Time: 2019/09/27 - 11:19
Limit: FCC_Part15.209_RE(3m)	Engineer: Dandy Li
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: NTP Clock	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at channel 5825MHz	

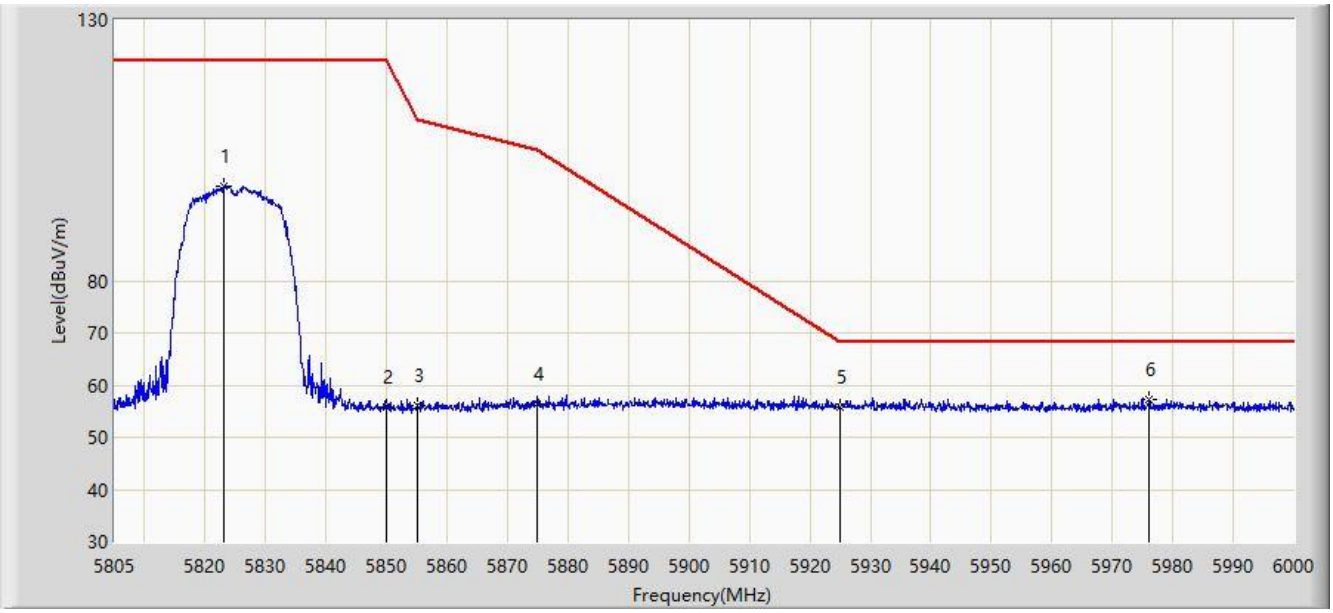


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5823.720	92.326	89.100	N/A	N/A	3.227	PK
2			5850.000	55.725	52.557	-66.475	122.200	3.168	PK
3			5855.000	55.799	52.570	-55.001	110.800	3.229	PK
4			5875.000	56.921	53.293	-48.279	105.200	3.627	PK
5			5925.000	56.245	52.862	-11.955	68.200	3.382	PK
6		*	5934.772	57.627	54.325	-10.573	68.200	3.303	PK

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

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

Site: AC2	Time: 2019/09/27 - 11:22
Limit: FCC_Part15.209_RE(3m)	Engineer: Dandy Li
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: NTP Clock	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at channel 5825MHz	

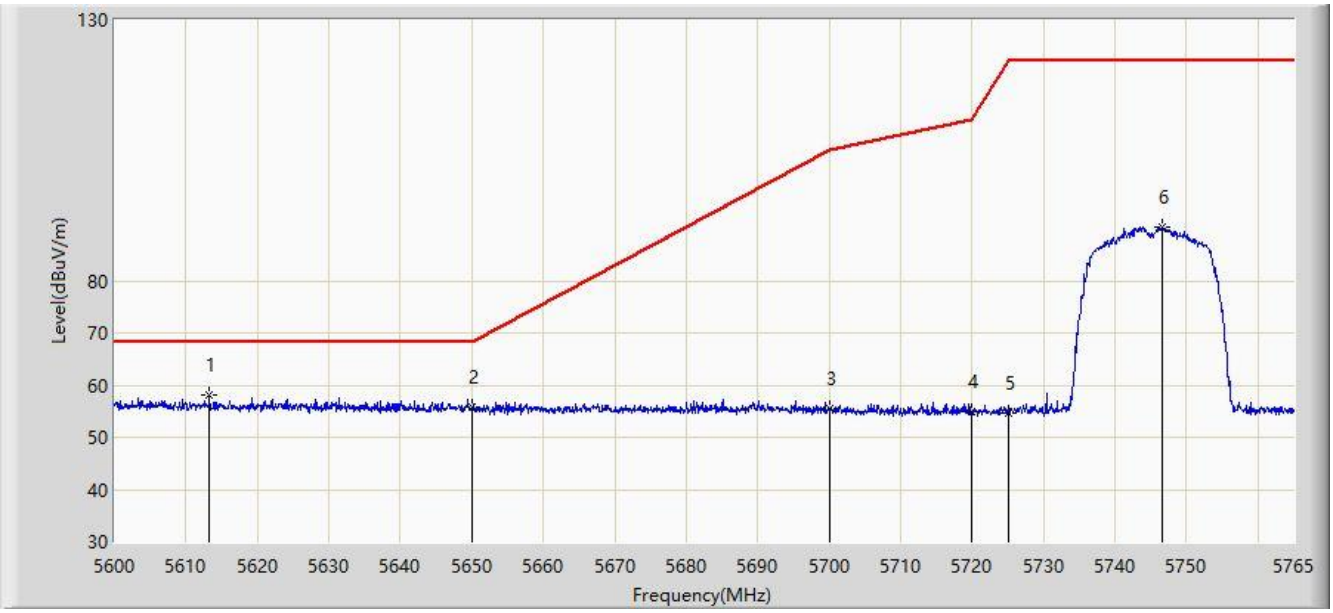


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5823.038	97.978	94.753	N/A	N/A	3.224	PK
2			5850.000	55.780	52.612	-66.420	122.200	3.168	PK
3			5855.000	56.012	52.783	-54.788	110.800	3.229	PK
4			5875.000	56.345	52.717	-48.855	105.200	3.627	PK
5			5925.000	55.769	52.386	-12.431	68.200	3.382	PK
6		*	5976.112	57.227	53.446	-10.973	68.200	3.781	PK

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

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

Site: AC2	Time: 2019/09/27 - 11:24
Limit: FCC_Part15.209_RE(3m)	Engineer: Dandy Li
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: NTP Clock	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at channel 5745MHz	

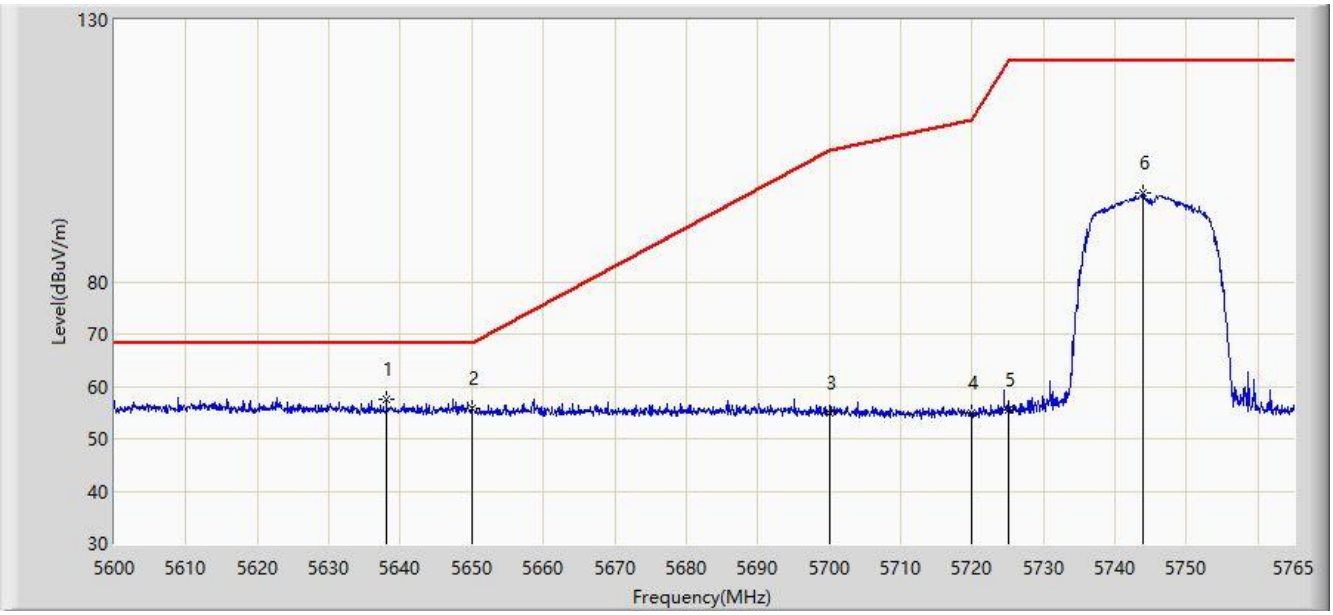


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5613.283	58.255	55.241	-9.945	68.200	3.014	PK
2			5650.000	55.906	53.146	-12.294	68.200	2.760	PK
3			5700.000	55.453	52.972	-49.747	105.200	2.481	PK
4			5720.000	54.963	52.485	-55.837	110.800	2.478	PK
5			5725.000	54.755	52.144	-67.445	122.200	2.611	PK
6			5746.603	90.406	87.928	N/A	N/A	2.478	PK

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

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

Site: AC2	Time: 2019/09/27 - 11:26
Limit: FCC_Part15.209_RE(3m)	Engineer: Dandy Li
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: NTP Clock	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at channel 5745MHz	

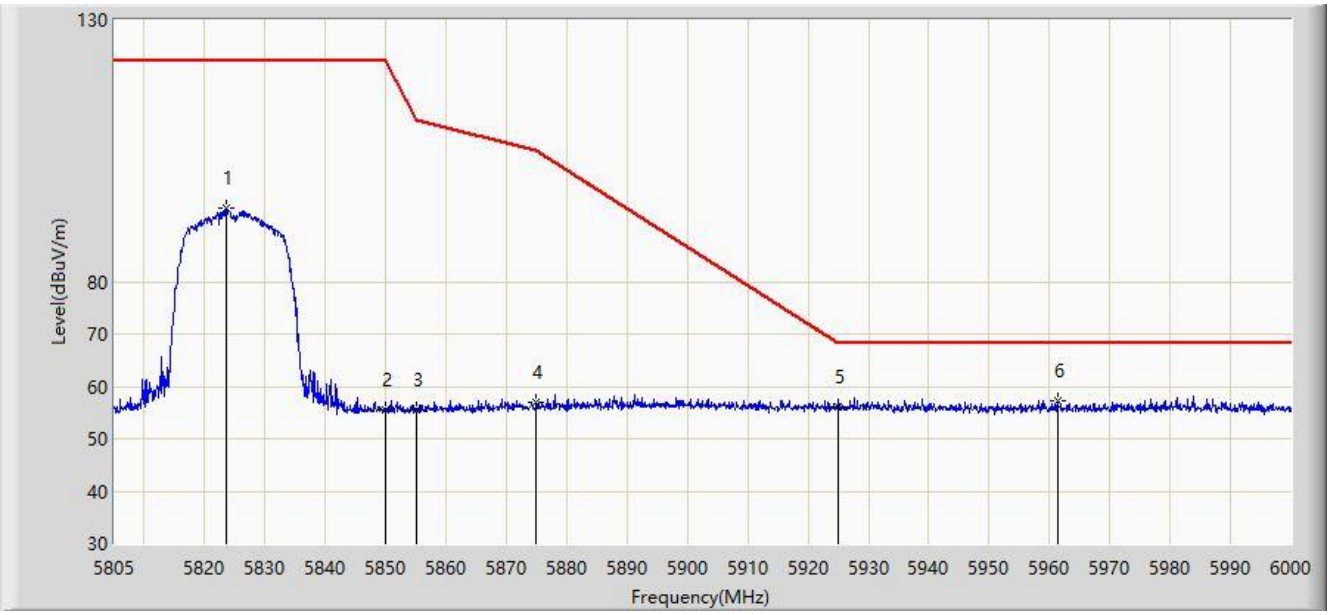


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5638.033	57.631	54.804	-10.569	68.200	2.827	PK
2			5650.000	55.749	52.989	-12.451	68.200	2.760	PK
3			5700.000	55.053	52.572	-50.147	105.200	2.481	PK
4			5720.000	54.881	52.403	-55.919	110.800	2.478	PK
5			5725.000	55.552	52.941	-66.648	122.200	2.611	PK
6			5743.962	96.896	94.463	N/A	N/A	2.433	PK

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

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

Site: AC2	Time: 2019/09/27 - 11:27
Limit: FCC_Part15.209_RE(3m)	Engineer: Dandy Li
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: NTP Clock	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at channel 5825MHz	

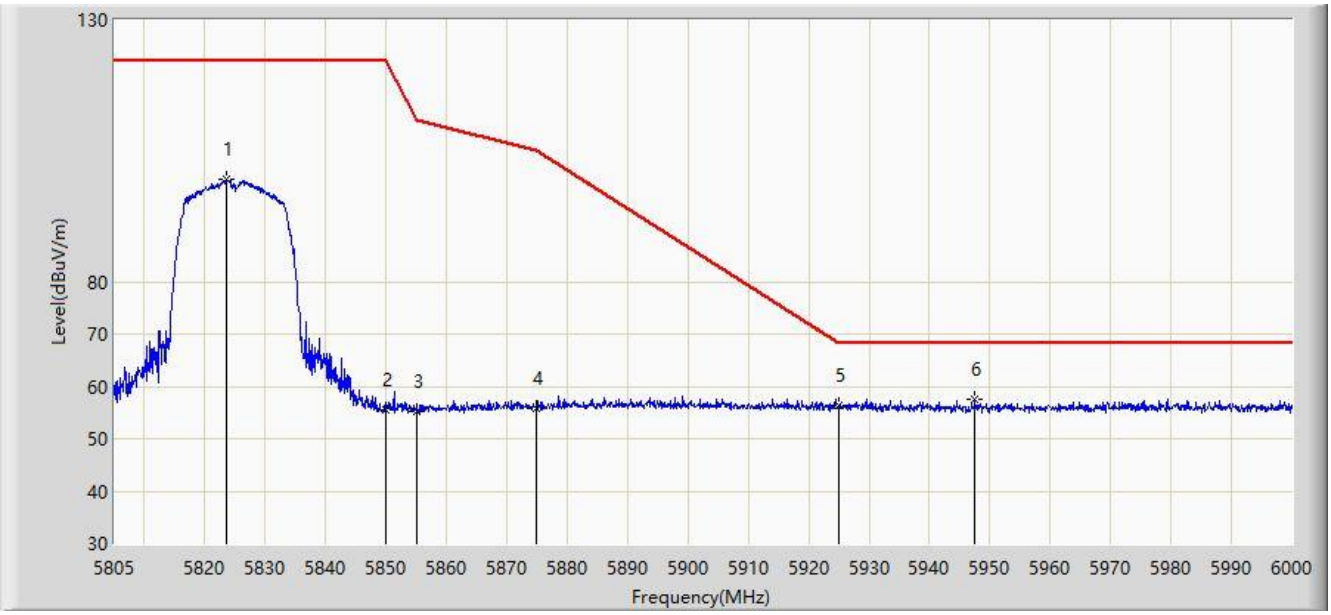


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5823.525	94.041	90.815	N/A	N/A	3.226	PK
2			5850.000	55.652	52.484	-66.548	122.200	3.168	PK
3			5855.000	55.431	52.202	-55.369	110.800	3.229	PK
4			5875.000	56.906	53.278	-48.294	105.200	3.627	PK
5			5925.000	56.056	52.673	-12.144	68.200	3.382	PK
6		*	5961.292	57.375	53.907	-10.825	68.200	3.468	PK

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

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

Site: AC2	Time: 2019/09/27 - 11:30
Limit: FCC_Part15.209_RE(3m)	Engineer: Dandy Li
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: NTP Clock	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at channel 5825MHz	

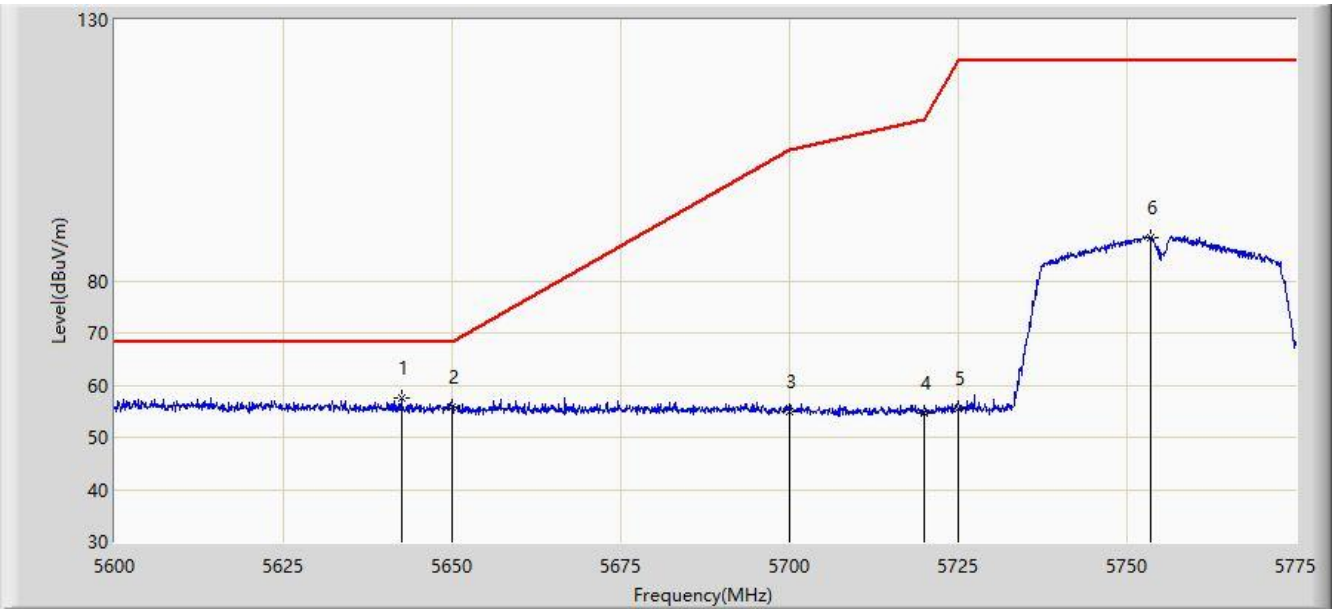


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5823.623	99.470	96.244	N/A	N/A	3.226	PK
2			5850.000	55.633	52.465	-66.567	122.200	3.168	PK
3			5855.000	55.106	51.877	-55.694	110.800	3.229	PK
4			5875.000	55.938	52.310	-49.262	105.200	3.627	PK
5			5925.000	56.288	52.905	-11.912	68.200	3.382	PK
6		*	5947.545	57.399	54.237	-10.801	68.200	3.162	PK

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

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

Site: AC2	Time: 2019/09/27 - 11:10
Limit: FCC_Part15.209_RE(3m)	Engineer: Dandy Li
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: NTP Clock	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at channel 5755MHz	

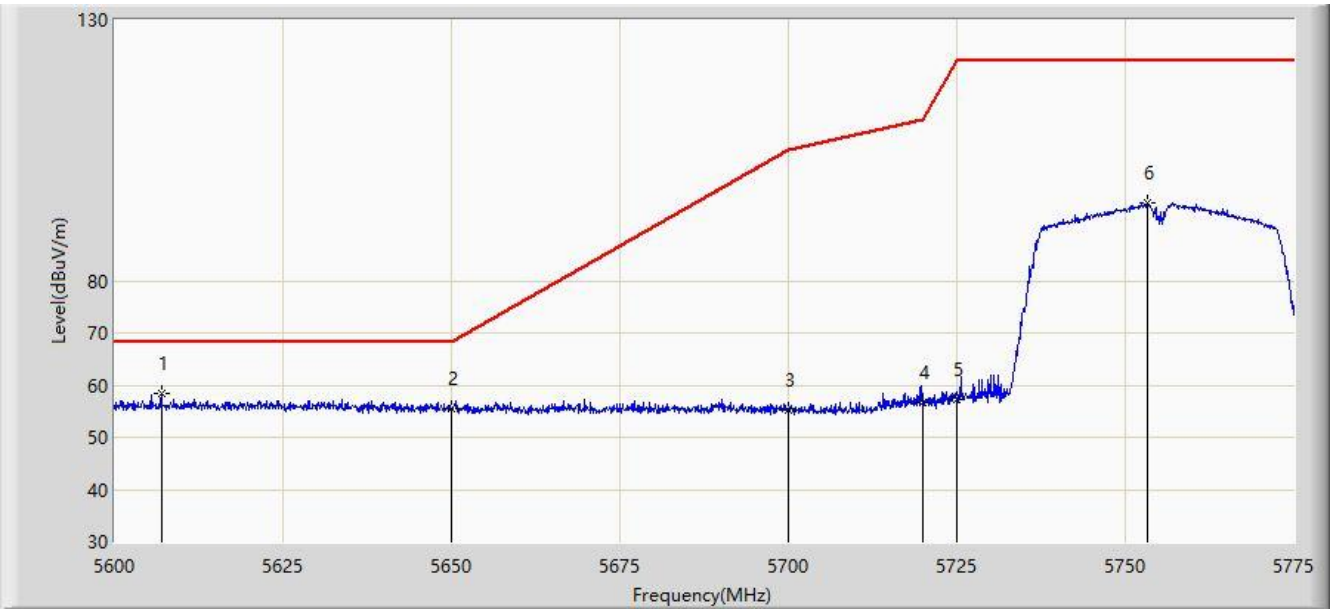


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5642.437	57.478	54.698	-10.722	68.200	2.781	PK
2			5650.000	55.722	52.962	-12.478	68.200	2.760	PK
3			5700.000	54.964	52.483	-50.236	105.200	2.481	PK
4			5720.000	54.621	52.143	-56.179	110.800	2.478	PK
5			5725.000	55.455	52.844	-66.745	122.200	2.611	PK
6			5753.562	88.254	85.657	N/A	N/A	2.597	PK

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

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

Site: AC2	Time: 2019/09/27 - 11:13
Limit: FCC_Part15.209_RE(3m)	Engineer: Dandy Li
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: NTP Clock	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at channel 5755MHz	

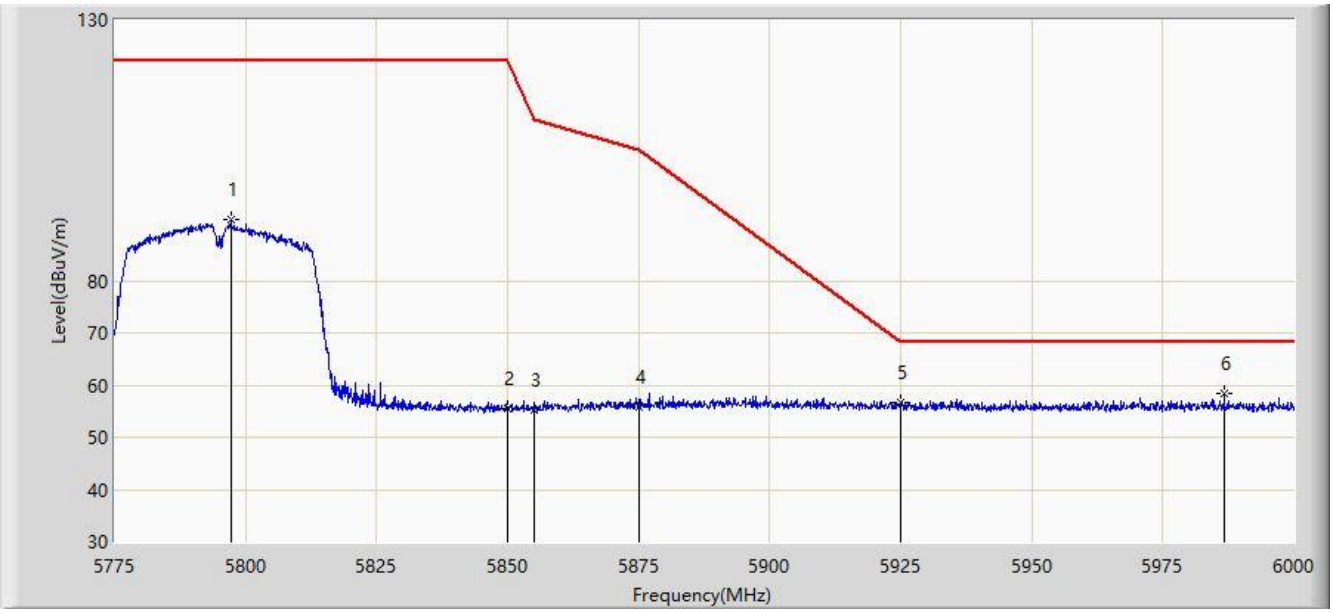


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5606.913	58.280	55.277	-9.920	68.200	3.004	PK
2			5650.000	55.543	52.783	-12.657	68.200	2.760	PK
3			5700.000	55.296	52.815	-49.904	105.200	2.481	PK
4			5720.000	56.719	54.241	-54.081	110.800	2.478	PK
5			5725.000	57.226	54.615	-64.974	122.200	2.611	PK
6			5753.212	94.798	92.207	N/A	N/A	2.590	PK

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

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

Site: AC2	Time: 2019/09/27 - 11:05
Limit: FCC_Part15.209_RE(3m)	Engineer: Dandy Li
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: NTP Clock	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at channel 5795MHz	

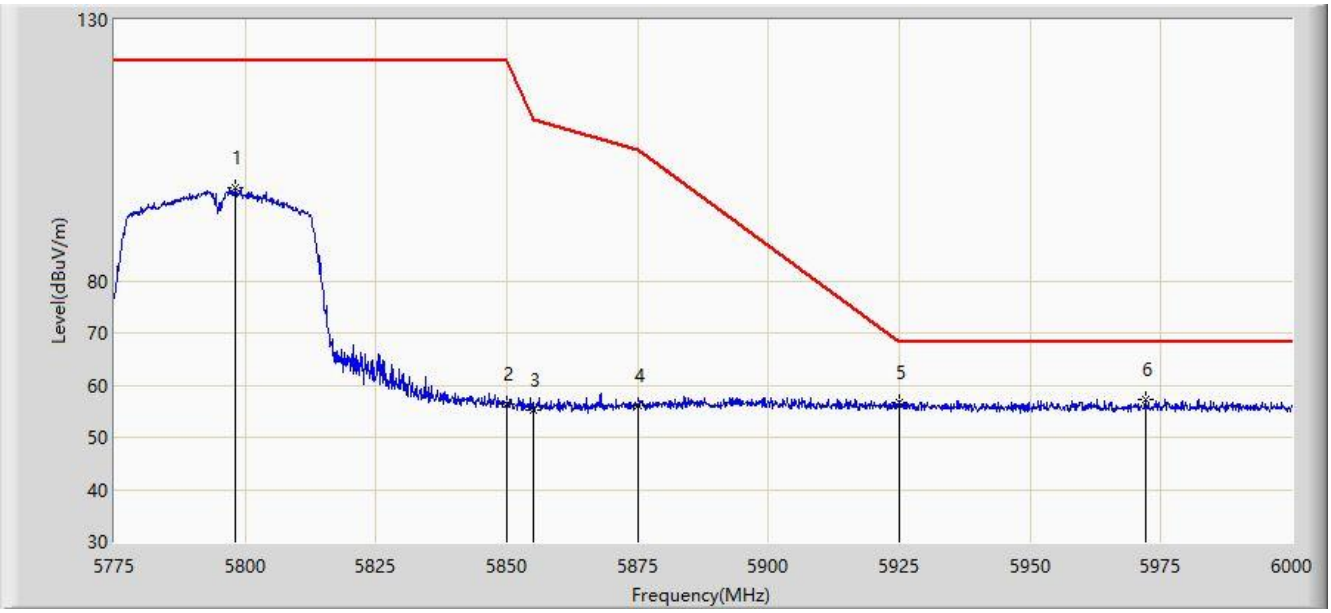


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5797.275	91.709	88.588	N/A	N/A	3.120	PK
2			5850.000	55.642	52.474	-66.558	122.200	3.168	PK
3			5855.000	55.315	52.086	-55.485	110.800	3.229	PK
4			5875.000	55.782	52.154	-49.418	105.200	3.627	PK
5			5925.000	56.653	53.270	-11.547	68.200	3.382	PK
6		*	5986.725	58.422	54.576	-9.778	68.200	3.847	PK

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

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

Site: AC2	Time: 2019/09/27 - 11:08
Limit: FCC_Part15.209_RE(3m)	Engineer: Dandy Li
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: NTP Clock	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at channel 5795MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5798.175	97.872	94.746	N/A	N/A	3.126	PK
2			5850.000	56.518	53.350	-65.682	122.200	3.168	PK
3			5855.000	55.292	52.063	-55.508	110.800	3.229	PK
4			5875.000	56.080	52.452	-49.120	105.200	3.627	PK
5			5925.000	56.636	53.253	-11.564	68.200	3.382	PK
6		*	5972.212	57.185	53.485	-11.015	68.200	3.700	PK

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

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

7.10. AC Conducted Emissions Measurement

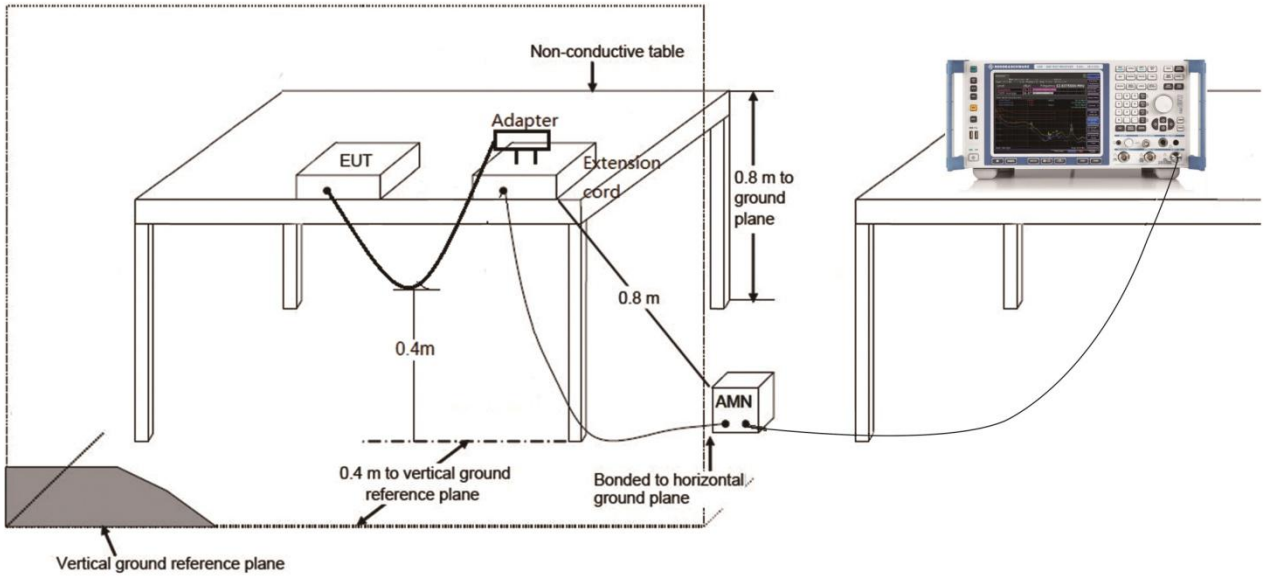
7.10.1. Test Limit

FCC Part 15.207 Limits		
Frequency (MHz)	QP (dBμV)	Average (dBμV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

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

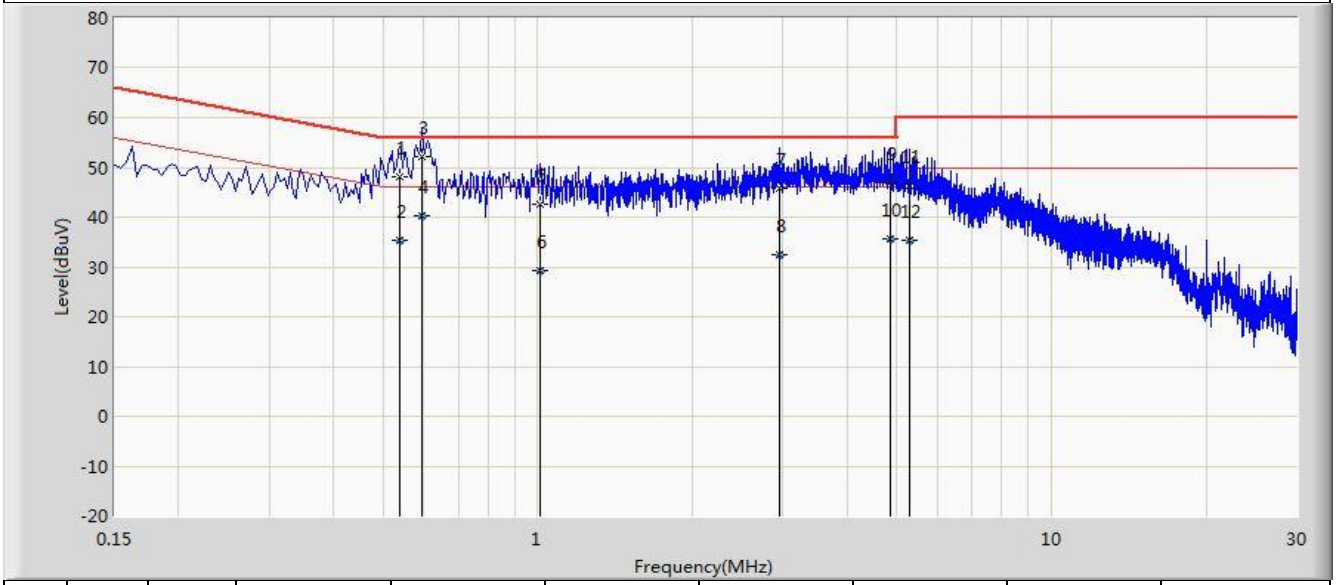
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

7.10.2. Test Setup



7.10.3.Test Result

Site: SR2	Time: 2019/09/30 - 11:23
Limit: FCC_Part15.207_CE_AC Power	Engineer: Bacon Dong
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: NTP Clock	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5745MHz	

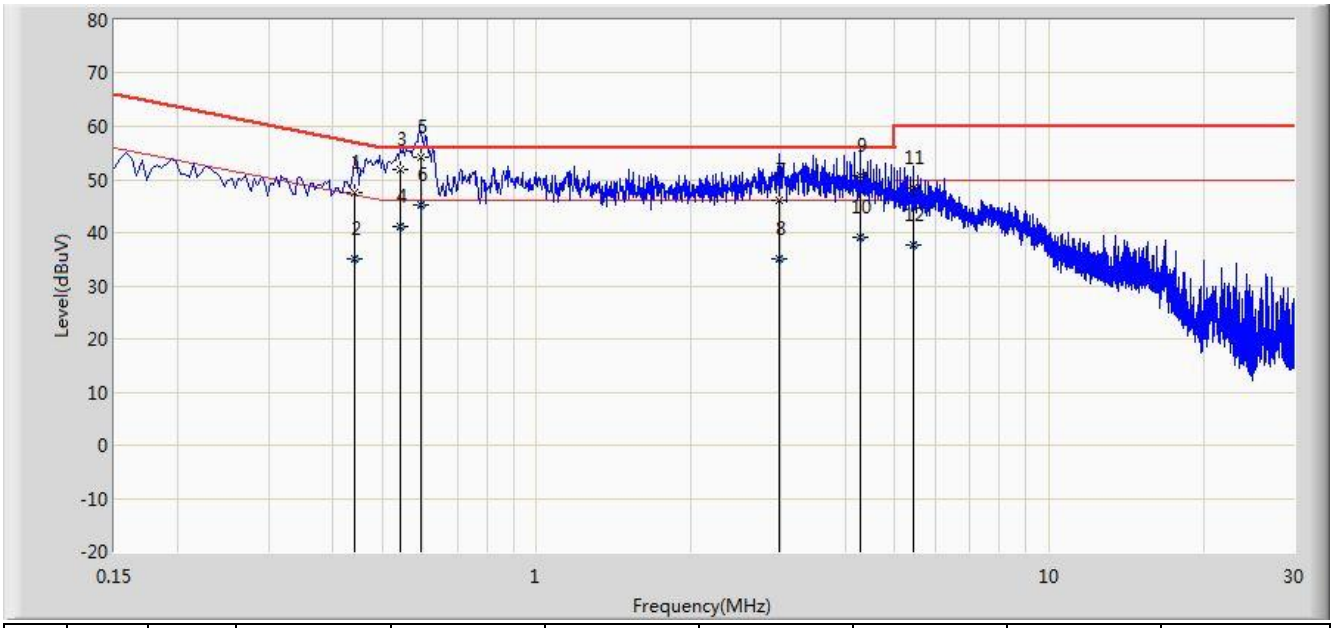


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.538	48.231	38.084	-7.769	56.000	10.147	QP
2			0.538	35.466	25.319	-10.534	46.000	10.147	AV
3		*	0.594	52.134	42.016	-3.866	56.000	10.118	QP
4			0.594	40.411	30.293	-5.589	46.000	10.118	AV
5			1.010	42.466	32.557	-13.534	56.000	9.909	QP
6			1.010	29.336	19.427	-16.664	46.000	9.909	AV
7			2.958	45.935	36.077	-10.065	56.000	9.858	QP
8			2.958	32.481	22.623	-13.519	46.000	9.858	AV
9			4.850	46.971	36.945	-9.029	56.000	10.026	QP
10			4.850	35.555	25.529	-10.445	46.000	10.026	AV
11			5.290	46.373	36.323	-13.627	60.000	10.050	QP
12			5.290	35.252	25.203	-14.748	50.000	10.050	AV

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

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

Site: SR2	Time: 2019/09/30 - 11:27
Limit: FCC_Part15.207_CE_AC Power	Engineer: Bacon Dong
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: NTP Clock	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5745MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.442	47.500	37.356	-9.524	57.024	10.144	QP
2			0.442	35.057	24.913	-11.967	47.024	10.144	AV
3			0.542	51.839	41.675	-4.161	56.000	10.163	QP
4			0.542	41.037	30.874	-4.963	46.000	10.163	AV
5			0.595	54.155	44.021	-1.845	56.000	10.134	QP
6		*	0.595	45.251	35.117	-0.749	46.000	10.134	AV
7			2.966	45.991	36.128	-10.009	56.000	9.863	QP
8			2.966	34.928	25.064	-11.072	46.000	9.863	AV
9			4.286	50.602	40.616	-5.398	56.000	9.986	QP
10			4.286	39.035	29.048	-6.965	46.000	9.986	AV
11			5.422	48.379	38.297	-11.621	60.000	10.082	QP
12			5.422	37.746	27.664	-12.254	50.000	10.082	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 in compliance with Part 15E of the FCC rules.

The End

Appendix A - Test Setup Photograph

Refer to “1909RSU033-UT” file.

Appendix B - EUT Photograph

Refer to “1909RSU033-UE” file.