

TEST REPORT

Product Name : MINI PC
S15 Ultra, S15, F650, S**, S*****, F***,
F****, S15*****, C*****, F*****
(“*” may be alphanumeric characters,
blank or other characters, which represent
operating system or user serial number.
Model Number : But such changes do not concern those
factors (such as hardware and the external
structure) which might impact the security
or electromagnetic compatibility of the
device.)
FCC ID : 2AN9R-S15ULTRA

Prepared for : Fujian Centerm Information Co.,Ltd.
Address : #21 - #22 Buildings, No.618, Jinshan Road, Jinshan Industrial
Park, Cangshan District, Fuzhou City, Fujian Province, China

Prepared by : EMTEK (SHENZHEN) CO., LTD.
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Report Number : ENS2407150008W00104R
Date(s) of Tests : July 23, 2024 to August 19, 2024
Date of Issue : August 23, 2024

TABLE OF CONTENTS

1 TEST RESULT CERTIFICATION.....	4
2 EUT TECHNICAL DESCRIPTION.....	5
3 SUMMARY OF TEST RESULT.....	7
4 TEST METHODOLOGY.....	8
4.1 GENERAL DESCRIPTION OF APPLIED STANDARDS.....	8
4.2 MEASUREMENT EQUIPMENT USED.....	8
4.3 DESCRIPTION OF TEST MODES.....	9
5 FACILITIES AND ACCREDITATIONS.....	13
5.1 FACILITIES.....	13
5.2 LABORATORY ACCREDITATIONS AND LISTINGS.....	13
6 TEST SYSTEM UNCERTAINTY.....	14
7 SETUP OF EQUIPMENT UNDER TEST.....	15
7.1 RADIO FREQUENCY TEST SETUP.....	15
7.2 RADIO FREQUENCY TEST SETUP.....	15
7.3 CONDUCTED EMISSION TEST SETUP.....	17
7.4 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM.....	18
7.5 SUPPORT EQUIPMENT.....	18
8 TEST REQUIREMENTS.....	19
8.1 UNDESIRABLE RADIATED SPURIOUS EMISSION.....	19

Modified Information

Version	Report No.	Revision Date	Summary
Ver.1.0	ENS2407150008W00104R	/	Original Report

1 TEST RESULT CERTIFICATION

Applicant : Fujian Centerm Information Co., Ltd.
Address : #21 - #22 Buildings, No. 618, Jinshan Road, Jinshan Industrial Park, Cangshan District, Fuzhou City, Fujian Province, China
Manufacturer : Fujian Centerm Information Co., Ltd.
Address : #21 - #22 Buildings, No. 618, Jinshan Road, Jinshan Industrial Park, Cangshan District, Fuzhou City, Fujian Province, China
EUT : MINI PC
S15 Ultra, S15, F650, S**, S*****, F***, F****, S15*****, C*****, F***** (“*” may be alphanumeric characters, blank or other characters, which represent operating system or user serial number. But such changes do not concern those factors (such as hardware and the external structure) which might impact the security or electromagnetic compatibility of the device.)
(Note: Pre testing all models, and find the S15 Ultra is the worst, so only the worst data of S15 Ultra is shown in the report.)
Trade Mark : YXK

Measurement Procedure Used:

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 2, Subpart J FCC 47 CFR Part 15, Subpart E	PASS

The above equipment was tested by EMTEK (SHENZHEN) CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with the above table standards requirement.

The test results of this report relate only to the tested sample identified in this report.

Date of Test : July 23, 2024 to August 19, 2024

Prepared by : 
Una Yu/Editor

Reviewer : 
Joe Xia/Supervisor

Approved & Authorized Signer : 
Lisa Wang/Manager

2 EUT TECHNICAL DESCRIPTION

Product Name:	MINI PC
Model Number:	S15 Ultra, S15, F650, S**, S*****, F***, F****, S15*****, C*****, F***** (“*” may be alphanumeric characters, blank or other characters, which represent operating system or user serial number. But such changes do not concern those factors (such as hardware and the external structure) which might impact the security or electromagnetic compatibility of the device.) (Note: Pre testing all models, and find the S15 Ultra is the worst, so only the worst data of S15 Ultra is shown in the report.)
WIFI Type:	UNII-1: 5150MHz-5250MHz Band UNII-2A: 5250MHz-5350MHz Band UNII-2C: 5470MHz-5725MHz Band UNII-3: 5725MHz-5850MHz Band
WLAN Supported:	IEEE 802.11a IEEE 802.11n(20MHz channel bandwidth) IEEE 802.11n(40MHz channel bandwidth) IEEE 802.11ac(20MHz channel bandwidth) IEEE 802.11ac(40MHz channel bandwidth) IEEE 802.11ac(80MHz channel bandwidth) IEEE 802.11ax(20MHz channel bandwidth) IEEE 802.11ax(40MHz channel bandwidth) IEEE 802.11ax(80MHz channel bandwidth)
Modulation:	IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM) IEEE 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) IEEE 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
Frequency Range:	5150MHz-5250MHz Band: 5180-5240MHz for 802.11a 5180-5240MHz for 802.11n(HT20) 5190-5230MHz for 802.11n(HT40) 5180-5240MHz for 802.11ac(HT20) 5190-5230MHz for 802.11ac(HT40) 5210MHz for 802.11ac(HT80) 5180-5240MHz for 802.11ax(HT20) 5190-5230MHz for 802.11ax(HT40) 5210MHz for 802.11ax(HT80)
	5250MHz-5350MHz Band: 5260-5320MHz for 802.11a 5260-5320MHz for 802.11n(HT20) 5270-5310MHz for 802.11n(HT40) 5260-5320MHz for 802.11ac(HT20) 5270-5310MHz for 802.11ac(HT40) 5290MHz for 802.11ac(HT80) 5260-5320MHz for 802.11ax(HT20) 5270-5310MHz for 802.11ax(HT40) 5290MHz for 802.11ax(HT80)
	5470MHz-5725MHz Band: 5500-5700MHz for 802.11a 5500-5700MHz for 802.11n(HT20) 5510-5670MHz for 802.11n(HT40) 5500-5700MHz for 802.11ac(HT20) 5510-5670MHz for 802.11ac(HT40) 5530-5610MHz for 802.11ac(HT80)

	5500-5700MHz for 802.11ax(HT20) 5510-5670MHz for 802.11ax(HT40) 5530-5610MHz for 802.11ax(HT80)
	5725MHz-5850MHz Band: 5745-5825MHz for 802.11a 5745-5825MHz for 802.11n(HT20) 5755-5795MHz for 802.11n(HT40) 5745-5825MHz for 802.11ac(HT20) 5755-5795MHz for 802.11ac(HT40) 5775MHz for 802.11ac(HT80) 5745-5825MHz for 802.11ax(HT20) 5755-5795MHz for 802.11ax(HT40) 5775MHz for 802.11ax(HT80)
TPC Function:	Support
Beamforming:	Not Support
Antenna Type:	Integrated Antenna
Antenna Gain:	Ant1: 4.95dBi, Ant2: 5.19dBi
Power Supply:	AC 120V/60Hz by Adapter Adapter 1: Model: GM39-120300-1A Input: 100-240V~50/60Hz, 1.2A Output: 12V, 3A Adapter 2: Model: GQ36-120300-BU Input: 100-240V~50/60Hz, 1.5A Output: 12V, 3A (Note: The EUT has two adapters, all the adapters are tested, and find the adapter 2 is worst, so only the worst data is shown in the report.)
Temperature Range:	0°C ~ 40°C
Max Output Power:	5150MHz-5250MHz Band: 23.93dBm 5250MHz-5350MHz Band: 23.95dBm 5470MHz-5725MHz Band: 23.89dBm 5725MHz-5850MHz Band: 25.42dBm (Note: The Max Output Power refer to the original module report: RFBBUI-WTW-P21040655-1)

Note: for more details, please refer to the user's manual of the EUT.

3 SUMMARY OF TEST RESULT

FCC Part Clause	Test Parameter	Verdict	Remark
15.407 (a) 15.407 (e)	99% , 6dB and 26dB Bandwidth	PASS	*
15.407 (a)	Maximum Conducted Output Power	PASS	*
15.407 (a)	Peak Power Spectral Density	PASS	*
15.407 (b)	Radiated Spurious Emission	PASS	
15.407 (b)(6) 15.207	Power Line Conducted Emission	PASS	*
15.407(a) 15.203	Antenna Application	PASS	*

NOTE 1: N/A (Not Applicable).

NOTE 2: According to FCC OET KDB 789033 D2 General UNII Test Procedures New Rules v02r01, In addition, the radiated test is also performed to ensure the emissions emanating from the device cabinet also comply with the applicable limits.

NOTE 3:* means that these modules have been tested and comply with FCC requirements, according to technical characteristic and TR 102 070-2 guide, only spurious emissions need to be retested for this report, for all other items' test results please refer to original module's test report No.: RFBBUI-WTW-P21040655-1.

RELATED SUBMITTAL(S) / GRANT(S):

This submittal(s) (test report) is intended for **FCC ID: 2AN9R-S15ULTRA** filing to comply with Section 15.247 of the FCC Part 15, Subpart E Rules.

4 TEST METHODOLOGY

4.1 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to its specifications, the EUT must comply with the requirements of the following standards:
 FCC 47 CFR Part 2, Subpart J
 FCC 47 CFR Part 15, Subpart E
 FCC KDB 789033 D2 General UNII Test Procedures New Rules v02r01

4.2 MEASUREMENT EQUIPMENT USED

For Spurious Emissions Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Pre-Amplifier	Bonn	BLMA 011001N	2213967A	2023/10/23	1Year
EMI Test Receiver	Rohde & Schwarz	ESR7	102551	2023/10/23	1Year
Bilog Antenna	Schwarzbeck	VULB9163	9163142	2024/7/8	2Year
Horn antenna	Schwarzbeck	BBHA9120D	9120D-1198	2023/6/2	2Year
Pre-Amplifier	Bonn	BLMA 0118-5G	2213967B-01	2023/10/23	1Year
Spectrum Analyzer	Rohde & Schwarz	FSV3044	101290	2023/10/23	1Year
Horn antenna	Schwarzbeck	BBHA9170	9170-399	2023/5/12	2Year
Pre-Amplifier	Lunar EM	LNA18G26-40	J1012131010001	2024/5/11	1Year
Pre-Amplifier	Lunar EM	LNA26G40-40	J1013131028001	2024/5/11	1Year
Loop Antenna	Schwarzbeck	FMZB1519	1519-012	2023/5/12	2Year
Wideband Radio Communication Tester	R&S	CMW500	171168	2023/9/14	1Year

4.3 DESCRIPTION OF TEST MODES

The EUT has been tested under its typical operating condition.

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Wifi 5G with 5150-5250MHz

Frequency and Channels list for 802.11a/n(20)/802.11ac(20)/802.11ax(20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220		
40	5200	48	5240		

Frequency and Channels list for 802.11n (40)/802.11ac(40)/802.11ax(40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190				
46	5230				

Frequency and Channel list for 802.11ac(80)/802.11ax(80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210				

Test Frequency and Channels for 802.11a/n(20)/802.11ac(20)/802.11ax(20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	40	5200	48	5240

Test Frequency and channels for 802.11n (40)/802.11ac(40)/802.11ax(40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	N/A	N/A	46	5230

Test Frequency and channels for 802.11ac(80)/802.11ax(80):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	N/A	N/A	N/A	N/A

Wifi 5G with 5250-5350MHz

Frequency and Channels list for 802.11a/n(20)/802.11ac(20)/802.11ax(20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	60	5300		
56	5280	64	5320		

Frequency and Channels list for 802.11n (40)/802.11ac(40)/802.11ax(40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
54	5270				
62	5310				

Frequency and Channels list for 802.11ac(80)/802.11ax(80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
58	5290				

Test Frequency and Channels for 802.11a/n(20)/802.11ac(20)/802.11ax(20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	56	5280	64	5320

Test Frequency and channels for 802.11n (40)/802.11ac(40)/802.11ax(40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
54	5270	N/A	N/A	62	5310

Test Frequency and channels for 802.11ac(80)/802.11ax(80):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
58	5290				

Wifi 5G with 5470-5725MHz

Frequency and Channels list for 802.11a/n(20)/802.11ac(20)/802.11ax(20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	116	5580	132	5660
104	5520	120	5600	136	5680
108	5540	124	5620	140	5700
112	5560	128	5640		

Frequency and Channels list for 802.11n (40)/802.11ac(40)/802.11ax(40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
102	5510	118	5590	134	5670
110	5550	126	5630		

Frequency and Channels list for 802.11ac(80)/802.11ax(80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
106	5530	122	5610		

Test Frequency and Channels for 802.11a/n(20)/802.11ac(20)/802.11ax(20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	116	5580	140	5700

Test Frequency and channels for 802.11n (40)/802.11ac(40)/802.11ax(40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
102	5510			134	5670

Test Frequency and channels for 802.11ac(80)/802.11ax(80):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
106	5530	122	5610		

Wifi 5G with 5725MHz-5850MHz

Frequency and Channels list for 802.11a/n(20)/802.11ac(20)/802.11ax(20):

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

Frequency and Channels list for 802.11n (40)/802.11ac(40)/802.11ax(40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755				
159	5795				

Frequency and Channels list for 802.11ac(80)/802.11ax(80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
155	5775				

Test Frequency and Channels for 802.11a/n(20)/802.11ac(20)/802.11ax(20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	157	5785	165	5825

Test Frequency and channels for 802.11n (40)/802.11ac(40)/802.11ax(40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755			159	5795

Test Frequency and channels for 802.11ac(80)/802.11ax(80):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
155	5775				

5 FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at:

Bldg 69, Majialong Industry Zone District, Nanshan District, Shenzhen, China

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 and CISPR Publication 22.

5.2 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description

EMC Lab.

: **Accredited by CNAS**

The Certificate Registration Number is L2291

The Laboratory has been assessed and proved to be in compliance with CNAS-CL01 (identical to ISO/IEC 17025:2017)

Accredited by FCC

Designation Number: CN1204

Test Firm Registration Number: 882943

Accredited by A2LA

The Certificate Number is 4321.01

Accredited by Industry Canada

The Conformity Assessment Body Identifier is CN0008

Name of Firm

: EMTEK (SHENZHEN) CO., LTD.

Site Location

: Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China

6 TEST SYSTEM UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty
Radiated Emission Test	$\pm 2.0\text{dB}$
Temperature	$\pm 0.5^\circ\text{C}$
Humidity	$\pm 3\%$

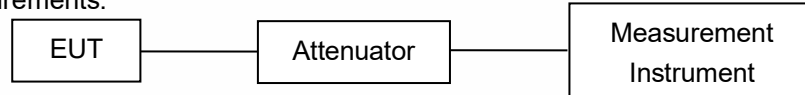
Measurement Uncertainty for a level of Confidence of 95%.



7 SETUP OF EQUIPMENT UNDER TEST

7.1 RADIO FREQUENCY TEST SETUP

The WLAN component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



7.2 RADIO FREQUENCY TEST SETUP

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10. The test distance is 3m. The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

Below 30MHz:

The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The Antenna should be positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The center of the loop shall be 1 m above the ground. For certain applications, the loop antenna plane may also need to be positioned horizontally at the specified distance from the EUT.

Above 30MHz:

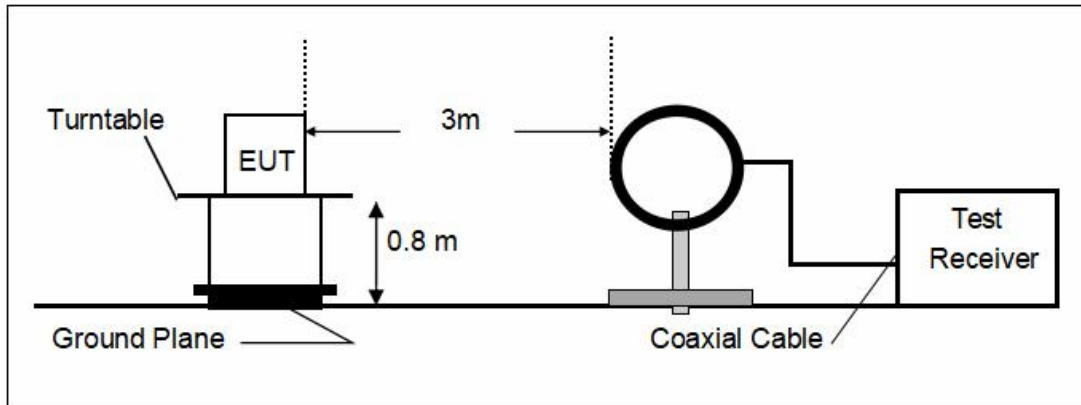
The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Above 1GHz:

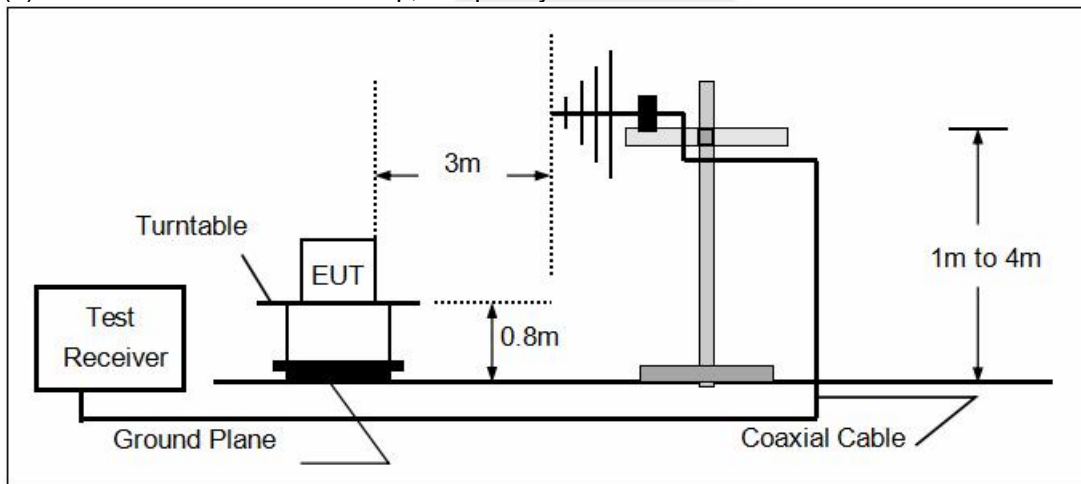
(Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.)

The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

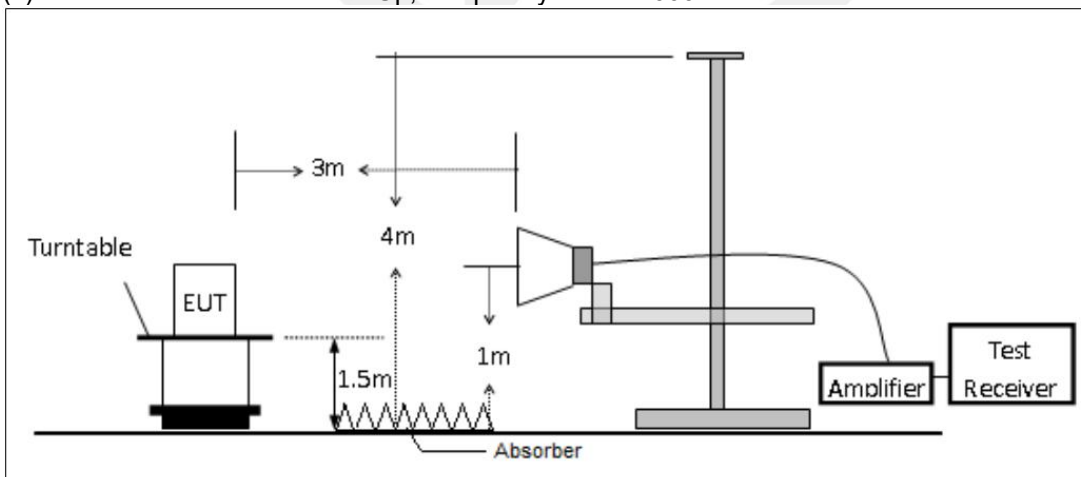
(a) Radiated Emission Test Set-Up, Frequency Below 30MHz



(b) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(c) Radiated Emission Test Set-Up, Frequency above 1000MHz

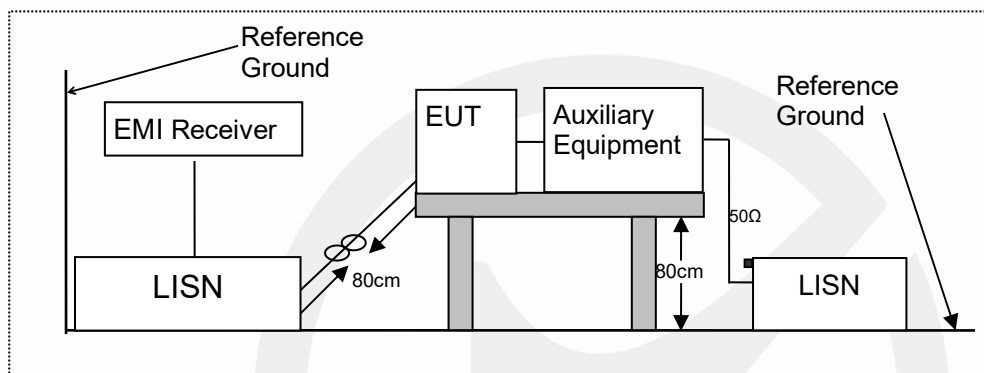


7.3 CONDUCTED EMISSION TEST SETUP

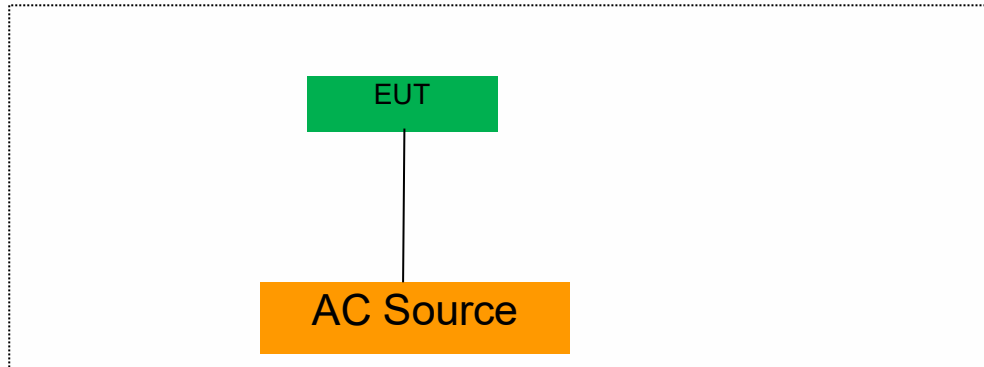
The mains cable of the EUT (maybe per AC/DC Adapter) must be connected to LISN. The LISN shall be placed 0.8 m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8m from the LISN.

Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.1 m.

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.



7.4 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM



7.5 SUPPORT EQUIPMENT

N/A

Notes:

- 1.All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2.Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

8 TEST REQUIREMENTS

8.1 UNDESIRABLE RADIATED SPURIOUS EMISSION

8.1.1 Applicable Standard

According to FCC Part 15.407 (b)
According to 789033 D02 Section II(G)

8.1.2 Conformance Limit

For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table 15.209(a):

Restricted Frequency(MHz)	Field Strength ($\mu\text{V/m}$)	Field Strength (dB $\mu\text{V/m}$)	Measurement Distance
0.009-0.490	2400/F(KHz)	20 log ($\mu\text{V/m}$)	300
0.490-1.705	2400/F(KHz)	20 log ($\mu\text{V/m}$)	30
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

The provisions of §15.205 apply to intentional radiators operating under this section, 15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	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	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			
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Remark: 1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of 15.205, and the emissions located in restricted bands also comply with 15.209 limit.

8.1.3 Test Configuration

Test according to clause 6.2 radio frequency test setup 2.

8.1.4 Test Procedure

■ Unwanted Emissions Measurements below 1000 MHz

Compliance shall be demonstrated using CISPR quasi-peak detection; however, peak detection is permitted as an alternative to quasi-peak detection.

The EUT was placed on a turn table which is 0.8m above ground plane.

And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

Repeat above procedures until all frequency measured was complete.

We use software control the EUT, Let EUT hopping on and transmit with highest power, All the modes have been tested and the worst result was reported.

Use the following spectrum analyzer settings:

Set RBW=120kHz for $f < 1$ GHz(30MHz to 1GHz), 200Hz for $f < 150$ KHz(9KHz to 150KHz), 9KHz for $f < 30$ MHz (150KHz to 30KHz).

Set the VBW > RBW.

Detector = Peak.

Trace mode = max hold.

Follow the guidelines in ANSI C63.10-2013 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization, etc. A pre-amp and a high pass filter are required for this test, in order to provide the measuring system with sufficient sensitivity. Allow the trace to stabilize. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, which must comply with the limit specified in Section 15.35(b). Submit this data.

Repeat above procedures until all frequency measured was complete.

■ Unwanted Maximum peak Emissions Measurements above 1000 MHz

Maximum emission levels are measured by setting the analyzer as follows:

RBW = 1 MHz.

VBW $\geq$ 3 MHz.

Detector = Peak.

Sweep time = auto.

Trace mode = max hold.

Allow sweeps to continue until the trace stabilizes. Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately 1/x, where x is the duty cycle. For example, at 50 percent duty cycle, the measurement time will increase by a factor of two relative to measurement time for continuous transmission.

■ Unwanted Average Emissions Measurements above 1000 MHz

Method VB (Averaging using reduced video bandwidth): Alternative method.

RBW = 1 MHz.

Video bandwidth. • If the EUT is configured to transmit with duty cycle $\geq$ 98 percent, set VBW $\leq$ RBW/100 (i.e., 10 kHz) but not less than 10 Hz.

• If the EUT duty cycle is < 98 percent, set VBW $\geq$ 1/T, where T is defined in section II.B.1.a).

Video bandwidth mode or display mode • The instrument shall be set to ensure that video filtering is applied in the power domain. Typically, this requires setting the detector mode to RMS and setting the Average-VBW Type to Power (RMS).

• As an alternative, the analyzer 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 analyzers 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.

Detector = Peak.

Sweep time = auto.

Trace mode = max hold.

Allow max hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 percent duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of $1/x$, where x is the duty cycle. For example, use at least 200 traces if the duty cycle is 25 percent. (If a specific emission is demonstrated to be continuous—i.e., 100 percent duty cycle—rather than turning on and off with the transmit cycle, at least 50 traces shall be averaged).

■ Band edge measurements.

Unwanted band-edge emissions may be measured using either of the special band-edge measurement techniques (the marker-delta or integration methods) described below. Note that the marker-delta method is primarily a radiated measurement technique that requires the 99% occupied bandwidth edge to be within 2 MHz of the authorized band edge, whereas the integration method can be used in either a radiated or conducted measurement without any special requirement with regards to the displacement of the unwanted emission(s) relative to the authorized bandwidth.

Marker-Delta Method.

The marker-delta method, as described in ANSI C63.10, can be used to perform measurements of the radiated unwanted emissions level of emissions provided that the 99% occupied bandwidth of the fundamental is within 2 MHz of the authorized band-edge.

8.1.5 Test Results

■ ☒ For Undesirable radiated Spurious Emission in U-NII – 1

Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

All the modulation modes are tested, the data of the worst mode are described in the table.

Highest gain of each antenna and highest output power is ANT2 and MIMO as below.

ANT2:

Test mode: 802.11n(20) Frequency(MHz): 5180

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
6417.21	V	51.91	-43.32	-27	16.32
8577.29	V	55.35	-39.88	-27	12.88
17404.70	V	61.64	-33.59	-27	6.59
7896.95	H	55.15	-40.08	-27	13.08
9963.48	H	57.6	-37.63	-27	10.63
17115.56	H	62.31	-32.92	-27	5.92

Test mode: 802.11n(20) Frequency(MHz): 5200

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
8169.08	V	55.19	-40.04	-27	13.04
9937.97	V	57.75	-37.48	-27	10.48
16800.90	V	59.37	-35.86	-27	8.86
8177.59	H	55.49	-39.74	-27	12.74
10099.55	H	57.93	-37.30	-27	10.30
17557.78	H	60.09	-35.14	-27	8.14

Test mode: 802.11n(20) Frequency(MHz): 5240

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
7854.43	V	55.19	-40.04	-27	13.04
10040.02	V	57.75	-37.48	-27	10.48
16545.77	V	59.37	-35.86	-27	8.86
8339.17	H	55.49	-39.74	-27	12.74
9963.48	H	57.93	-37.30	-27	10.30
17829.92	H	60.09	-35.14	-27	8.14

MIMO:

Test mode:		802.11n(20)		Frequency(MHz):		5180	
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)		
6415.82	V	51.78	-43.45	-27	16.45		
8575.90	V	55.19	-40.04	-27	13.04		
17405.98	V	61.61	-33.62	-27	6.62		
7908.64	H	55.07	-40.16	-27	13.16		
9975.17	H	57.39	-37.84	-27	10.84		
17127.25	H	62.15	-33.08	-27	6.08		

Test mode:		802.11n(20)		Frequency(MHz):		5200	
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)		
8169.08	V	55.19	-40.04	-27	13.04		
9937.97	V	57.75	-37.48	-27	10.48		
16800.90	V	59.37	-35.86	-27	8.86		
8177.59	H	55.49	-39.74	-27	12.74		
10099.55	H	57.93	-37.30	-27	10.30		
17557.78	H	60.09	-35.14	-27	8.14		

Test mode:		802.11n(20)		Frequency(MHz):		5240	
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)		
7853.04	V	55.06	-40.17	-27	13.17		
10038.63	V	57.59	-37.64	-27	10.64		
16547.05	V	59.34	-35.89	-27	8.89		
8350.86	H	55.41	-39.82	-27	12.82		
9975.17	H	57.72	-37.51	-27	10.51		
17841.61	H	59.93	-35.30	-27	8.30		

Note:

- (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
- (3) EIRP[dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77 (d is the measurement distance in 3 meters.)
- (4) The radiation measurements are performed in X, Y, Z axis positioning for transmitting mode, and found the X axis positioning which it is the worst case, only the worst data is recorded in the report.

ANT2:

Test mode: 802.11n(20)		Frequency(MHz): 5180			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
6417.2086	V	51.91	74.00	22.09	Peak
8577.2886	V	55.35	74.00	18.65	Peak
17404.7024	V	61.64	74.00	12.36	Peak
6417.2086	V	33.94	54.00	20.06	Avg
8577.2886	V	32.17	54.00	21.83	Avg
17404.7024	V	40.44	54.00	13.56	Avg
7896.9485	H	55.15	74.00	18.85	Peak
9963.4817	H	57.60	74.00	16.40	Peak
17115.5578	H	62.31	74.00	11.69	Peak
7896.9485	H	35.43	54.00	18.57	Avg
9963.4817	H	35.79	54.00	18.21	Avg
17115.5578	H	41.00	54.00	13.00	Avg

Test mode: 802.11n(20)		Frequency(MHz): 5200			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
8169.0845	V	55.19	74.00	18.81	Peak
9937.969	V	57.75	74.00	16.25	Peak
16800.9004	V	59.37	74.00	14.63	Peak
8169.0845	V	36.42	54.00	17.58	Avg
9937.969	V	35.92	54.00	18.08	Avg
16800.9004	V	41.45	54.00	12.55	Avg
8177.5888	H	55.49	74.00	18.51	Peak
10099.5498	H	57.93	74.00	16.07	Peak
17557.7789	H	60.09	74.00	13.91	Peak
8177.5888	H	36.52	54.00	17.48	Avg
10099.5498	H	37.22	54.00	16.78	Avg
17557.7789	H	41.85	54.00	12.15	Avg

Test mode: 802.11n(20)		Frequency(MHz): 5240			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
7854.4272	V	54.64	74.00	19.36	Peak
10040.02	V	58.74	74.00	15.26	Peak
16545.7729	V	60.71	74.00	13.29	Peak
7854.4272	V	35.42	54.00	18.58	Avg
10040.02	V	36.45	54.00	17.55	Avg
16545.7729	V	38.76	54.00	15.24	Avg
8339.1696	H	55.55	74.00	18.45	Peak
9963.4817	H	57.30	74.00	16.70	Peak
17829.915	H	59.70	74.00	14.30	Peak
8339.1696	H	36.63	54.00	17.37	Avg
9963.4817	H	35.88	54.00	18.12	Avg
17829.915	H	38.24	54.00	15.76	Avg

MIMO:

Test mode: 802.11n(20)		Frequency(MHz): 5180			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
6415.819	V	51.78	74.00	22.22	Peak
8575.899	V	55.19	74.00	18.81	Peak
17405.982	V	61.61	74.00	12.39	Peak
6418.489	V	33.92	54.00	20.08	Avg
8575.039	V	31.91	54.00	22.09	Avg
17402.452	V	40.25	54.00	13.75	Avg
7908.639	H	55.07	74.00	18.93	Peak
9975.172	H	57.39	74.00	16.61	Peak
17127.248	H	62.15	74.00	11.85	Peak
7908.639	H	35.29	54.00	18.71	Avg
9960.172	H	35.61	54.00	18.39	Avg
17112.248	H	40.87	54.00	13.13	Avg

Test mode: 802.11n(20)		Frequency(MHz): 5200			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
8167.695	V	55.06	74.00	18.94	Peak
9936.579	V	57.59	74.00	16.41	Peak
16802.180	V	59.34	74.00	14.66	Peak
8170.365	V	36.4	54.00	17.6	Avg
9935.719	V	35.66	54.00	18.34	Avg
16798.650	V	41.26	54.00	12.74	Avg
8189.279	H	55.41	74.00	18.59	Peak
10111.240	H	57.72	74.00	16.28	Peak
17569.469	H	59.93	74.00	14.07	Peak
8189.279	H	36.38	54.00	17.62	Avg
10096.240	H	37.04	54.00	16.96	Avg
17554.469	H	41.72	54.00	12.28	Avg

Test mode: 802.11n(20)		Frequency(MHz): 5240			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
7853.037	V	54.51	74.00	19.49	Peak
10038.630	V	58.58	74.00	15.42	Peak
16547.053	V	60.68	74.00	13.32	Peak
7855.707	V	35.4	54.00	18.6	Avg
10037.770	V	36.19	54.00	17.81	Avg
16543.523	V	38.57	54.00	15.43	Avg
8350.860	H	55.47	74.00	18.53	Peak
9975.172	H	57.09	74.00	16.91	Peak
17841.605	H	59.54	74.00	14.46	Peak
8350.860	H	36.49	54.00	17.51	Avg
9960.172	H	35.7	54.00	18.3	Avg
17826.605	H	38.11	54.00	15.89	Avg

Note:

- (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).
- (2) Emission Level= Reading Level+Correct Factor +Cable Loss.
- (3) Correct Factor= Ant_F + Cab_L - Preamp
- (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) The radiation measurements are performed in X, Y, Z axis positioning for transmitting mode, and found the X axis positioning which it is the worst case, only the worst data is recorded in the report.

● ☒ Undesirable radiated Undesirable radiated Spurious Emission in Band Edge

Test mode: 802.11n(20) Frequency(MHz): 5180

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5136.51	V	52.19	74.00	21.81	Peak
5136.51	V	44.33	54.00	9.67	Avg
5127.9	H	51.69	74.00	22.31	Peak
5127.9	H	44.29	54.00	9.71	Avg

Test mode: 802.11n(20) Frequency(MHz): 5240

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5355.08	V	52.76	74.00	21.24	Peak
5355.08	V	44.42	54.00	9.58	Avg
5352.06	H	52.70	74.00	21.30	Peak
5352.06	H	44.22	54.00	9.78	Avg

Note:

- (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).
- (2) Emission Level= Reading Level+Correct Factor +Cable Loss.
- (3) Correct Factor= Ant_F + Cab_L - Preamp
- (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Test mode: 802.11n(20) Frequency(MHz): 5180

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5136.51	V	52.19	-43.04	-27	Pass
5127.90	H	51.69	-43.54	-27	Pass

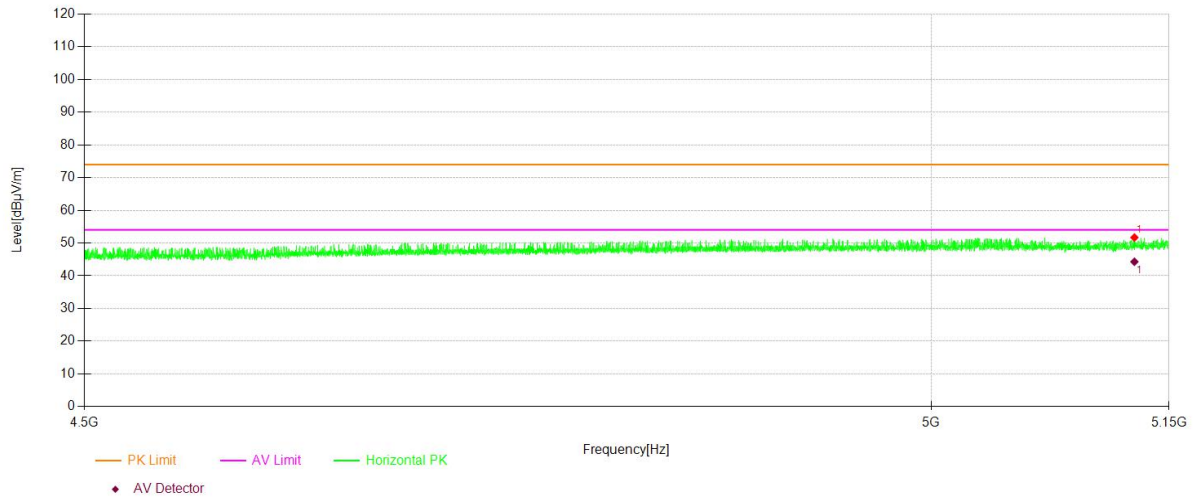
Test mode: 802.11n(20) Frequency(MHz): 5240

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5355.08	V	52.76	-42.47	-27	Pass
5352.06	H	52.7	-42.53	-27	Pass

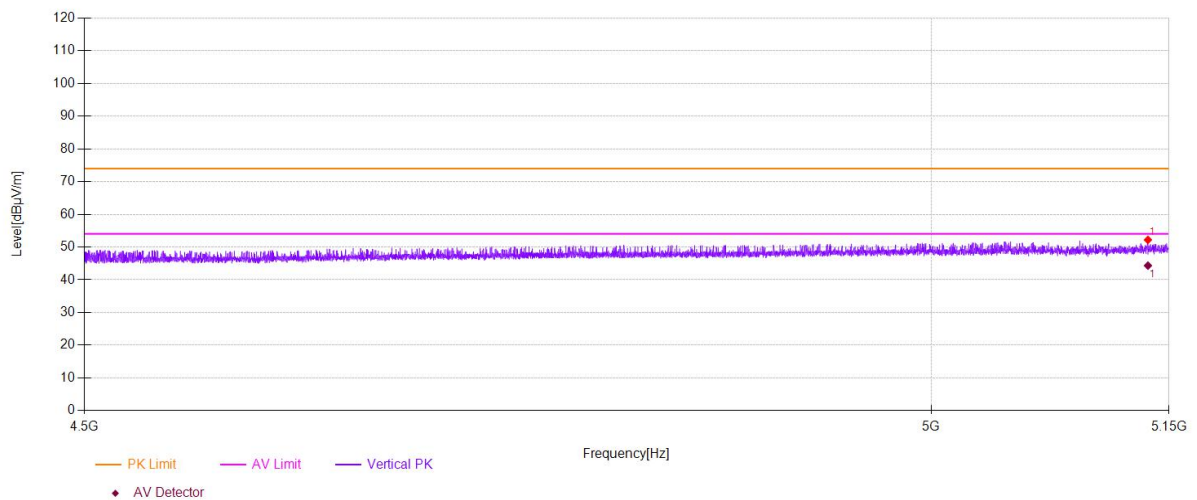
Note:

- (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).
- (2) Emission Level= Reading Level+Correct Factor +Cable Loss.
- (3) Correct Factor= Ant_F + Cab_L - Preamp
- (4) EIRP[dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77 (d is the measurement distance in 3 meters.)

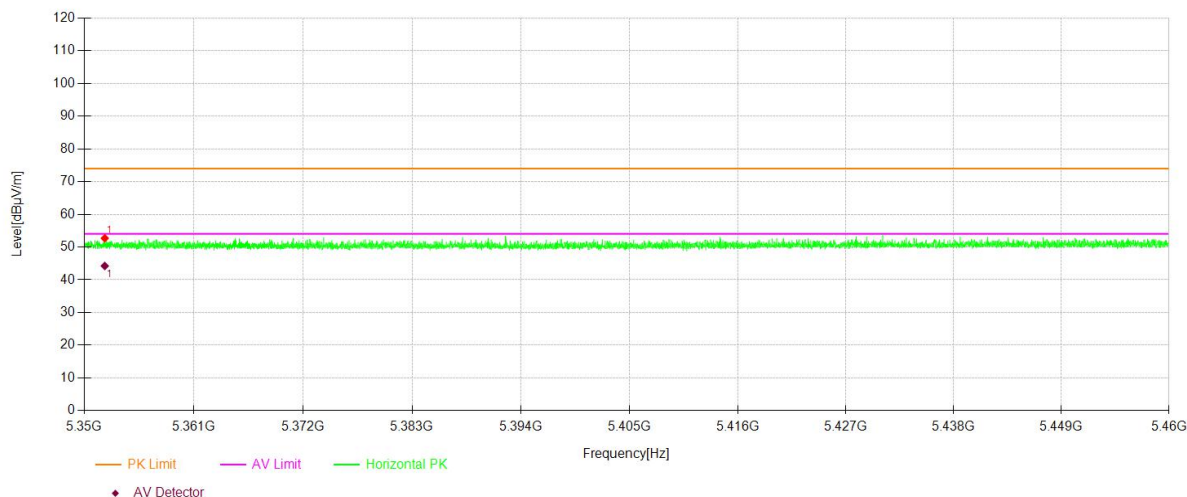
Test Model U-NII - 1
Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11n(HT40)
☒ 5180 ☐ 5200 ☐ 5240 Ant.Pol H



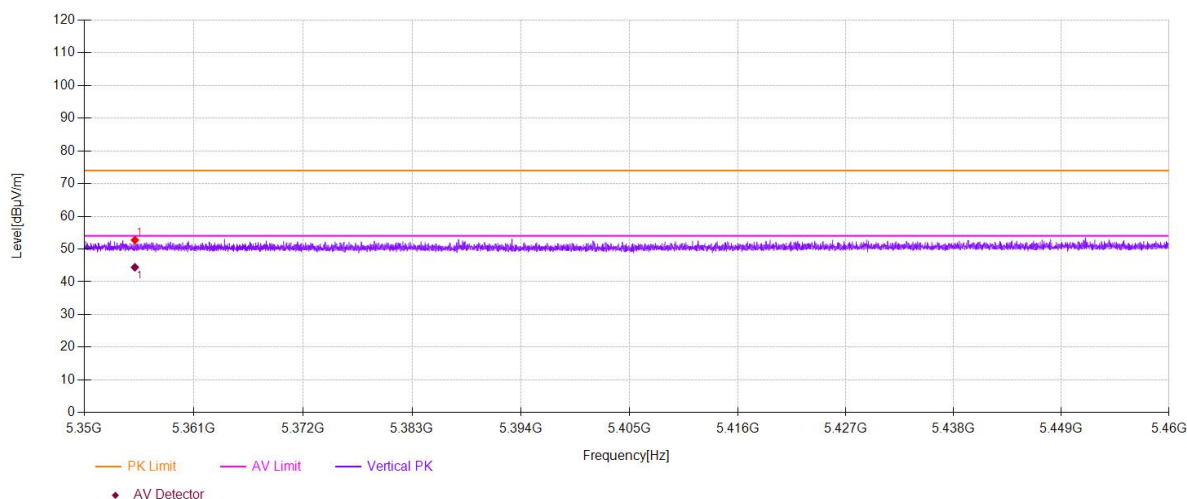
Test Model U-NII - 1
Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11n(HT40)
☒ 5180 ☐ 5200 ☐ 5240 Ant.Pol V



Test Model U-NII - 1
Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11n(HT40)
☐ 5180 ☐ 5200 ☒ 5240 Ant.Pol H



Test Model U-NII - 1
Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11n(HT40)
☐ 5180 ☐ 5200 ☒ 5240 Ant.Pol V



■ ☒ For Undesirable radiated Spurious Emission in U-NII -2A

Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

All the modulation modes are tested, the data of the worst mode are described in the table.

Highest gain of each antenna and highest output power is ANT2 and MIMO as below.

ANT2:

Test mode:		802.11n(20)		Frequency(MHz):		5260	
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)		
8067.03	V	54.65	-40.58	-27	13.58		
10720.36	V	59.03	-36.20	-27	9.20		
16316.16	V	60.3	-34.93	-27	7.93		
8143.57	H	55.07	-40.16	-27	13.16		
9937.97	H	57.88	-37.35	-27	10.35		
16826.41	H	60.11	-35.12	-27	8.12		

Test mode:		802.11n(20)		Frequency(MHz):		5280	
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)		
6927.46	V	54.04	-41.19	-27	14.19		
9903.95	V	57.31	-37.92	-27	10.92		
16800.90	V	60.73	-34.50	-27	7.50		
8483.74	H	55.17	-40.06	-27	13.06		
10159.08	H	58.24	-36.99	-27	9.99		
17209.10	H	61	-34.23	-27	7.23		

Test mode:		802.11n(20)		Frequency(MHz):		5320	
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)		
7854.43	V	54.89	-40.34	-27	13.34		
9886.94	V	57.45	-37.78	-27	10.78		
15993.00	V	59.9	-35.33	-27	8.33		
8611.31	H	55.69	-39.54	-27	12.54		
10677.84	H	58.78	-36.45	-27	9.45		
14521.76	H	60.35	-34.88	-27	7.88		

MIMO:

Test mode: 802.11n(20) Frequency(MHz): 5260					
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
8065.64	V	54.52	-40.71	-27	13.71
10718.97	V	58.87	-36.36	-27	9.36
16317.44	V	60.27	-34.96	-27	7.96
8155.26	H	54.99	-40.24	-27	13.24
9949.66	H	57.67	-37.56	-27	10.56
16838.10	H	59.95	-35.28	-27	8.28

Test mode: 802.11n(20) Frequency(MHz): 5280					
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
6926.07	V	53.91	-41.32	-27	14.32
9902.56	V	57.15	-38.08	-27	11.08
16802.18	V	60.7	-34.53	-27	7.53
8495.43	H	55.09	-40.14	-27	13.14
10170.77	H	58.03	-37.20	-27	10.20
17220.79	H	60.84	-34.39	-27	7.39

Test mode: 802.11n(20) Frequency(MHz): 5320					
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
7853.04	V	54.76	-40.47	-27	13.47
9885.55	V	57.29	-37.94	-27	10.94
15994.28	V	59.87	-35.36	-27	8.36
8623.00	H	55.61	-39.62	-27	12.62
10689.53	H	58.57	-36.66	-27	9.66
14533.45	H	60.19	-35.04	-27	8.04

Note:

- (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
- (3) EIRP[dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77 (d is the measurement distance in 3 meters.)
- (4) The radiation measurements are performed in X, Y, Z axis positioning for transmitting mode, and found the X axis positioning which it is the worst case, only the worst data is recorded in the report.

ANT2:

Test mode: 802.11n(20)		Frequency(MHz): 5260			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
8067.0335	V	54.65	74.00	19.35	Peak
10720.3602	V	59.03	74.00	14.97	Peak
16316.1581	V	60.30	74.00	13.70	Peak
8067.0335	V	35.87	54.00	18.13	Avg
10720.3602	V	38.57	54.00	15.43	Avg
16316.1581	V	40.00	54.00	14.00	Avg
8143.5718	H	55.07	74.00	18.93	Peak
9937.969	H	57.88	74.00	16.12	Peak
16826.4132	H	60.11	74.00	13.89	Peak
8143.5718	H	36.46	54.00	17.54	Avg
9937.969	H	35.83	54.00	18.17	Avg
16826.4132	H	41.01	54.00	12.99	Avg

Test mode: 802.11n(20)		Frequency(MHz): 5280			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
6927.4637	V	54.04	74.00	19.96	Peak
9903.952	V	57.31	74.00	16.69	Peak
16800.9004	V	60.73	74.00	13.27	Peak
6927.4637	V	34.97	54.00	19.03	Avg
9903.952	V	35.94	54.00	18.06	Avg
16800.9004	V	41.49	54.00	12.51	Avg
8483.7419	H	55.17	74.00	18.83	Peak
10159.0795	H	58.24	74.00	15.76	Peak
17209.1046	H	61.00	74.00	13.00	Peak
8483.7419	H	35.84	54.00	18.16	Avg
10159.0795	H	36.31	54.00	17.69	Avg
17209.1046	H	41.06	54.00	12.94	Avg

Test mode: 802.11n(20)		Frequency(MHz): 5320			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
7854.4272	V	54.89	74.00	19.11	Peak
9886.9435	V	57.45	74.00	16.55	Peak
15992.9965	V	59.90	74.00	14.10	Peak
7854.4272	V	35.40	54.00	18.60	Avg
9886.9435	V	35.98	54.00	18.02	Avg
15992.9965	V	37.74	54.00	16.26	Avg
8611.3057	H	55.69	74.00	18.31	Peak
10677.8389	H	58.78	74.00	15.22	Peak
14521.7609	H	60.35	74.00	13.65	Peak
8611.3057	H	36.30	54.00	17.70	Avg
10677.8389	H	38.60	54.00	15.40	Avg
14521.7609	H	40.93	54.00	13.07	Avg

MIMO:

Test mode: 802.11n(20)		Frequency(MHz): 5260			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
8065.644	V	54.52	74.00	19.48	Peak
10718.970	V	58.87	74.00	15.13	Peak
16317.438	V	60.27	74.00	13.73	Peak
8068.314	V	35.85	54.00	18.15	Avg
10718.110	V	38.31	54.00	15.69	Avg
16313.908	V	39.81	54.00	14.19	Avg
8155.262	H	54.99	74.00	19.01	Peak
9949.659	H	57.67	74.00	16.33	Peak
16838.103	H	59.95	74.00	14.05	Peak
8155.262	H	36.32	54.00	17.68	Avg
9934.659	H	35.65	54.00	18.35	Avg
16823.103	H	40.88	54.00	13.12	Avg

Test mode: 802.11n(20)		Frequency(MHz): 5280			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
6926.074	V	53.91	74.00	20.09	Peak
9902.562	V	57.15	74.00	16.85	Peak
16802.180	V	60.7	74.00	13.3	Peak
6928.744	V	34.95	54.00	19.05	Avg
9901.702	V	35.68	54.00	18.32	Avg
16798.650	V	41.3	54.00	12.7	Avg
8495.432	H	55.09	74.00	18.91	Peak
10170.770	H	58.03	74.00	15.97	Peak
17220.795	H	60.84	74.00	13.16	Peak
8495.432	H	35.7	54.00	18.3	Avg
10155.770	H	36.13	54.00	17.87	Avg
17205.795	H	40.93	54.00	13.07	Avg

Test mode: 802.11n(20)		Frequency(MHz): 5320			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
7853.037	V	54.76	74.00	19.24	Peak
9885.554	V	57.29	74.00	16.71	Peak
15994.277	V	59.87	74.00	14.13	Peak
7855.707	V	35.38	54.00	18.62	Avg
9884.694	V	35.72	54.00	18.28	Avg
15990.747	V	37.55	54.00	16.45	Avg
8622.996	H	55.61	74.00	18.39	Peak
10689.529	H	58.57	74.00	15.43	Peak
14533.451	H	60.19	74.00	13.81	Peak
8622.996	H	36.16	54.00	17.84	Avg
10674.529	H	38.42	54.00	15.58	Avg
14518.451	H	40.8	54.00	13.2	Avg

Note:

- (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).
- (2) Emission Level= Reading Level+Correct Factor +Cable Loss.
- (3) Correct Factor= Ant_F + Cab_L - Preamp
- (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) The radiation measurements are performed in X, Y, Z axis positioning for transmitting mode, and found the X axis positioning which it is the worst case, only the worst data is recorded in the report.

● ☒ Undesirable radiated Undesirable radiated Spurious Emission in Band Edge

Test mode: 802.11n(20) Frequency(MHz): 5260

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5127.9	V	61.36	74.00	12.64	Peak
5127.9	V	44.41	54.00	9.59	Avg
5086.05	H	60.77	74.00	13.23	Peak
5086.05	H	44.38	54.00	9.62	Avg

Test mode: 802.11n(20) Frequency(MHz): 5320

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5351.80	V	62.54	74.00	11.46	Peak
5351.80	V	44.35	54.00	9.65	Avg
5353.97	H	63.10	74.00	10.90	Peak
5353.97	H	44.84	54.00	9.16	Avg

Note:

- (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).
- (2) Emission Level= Reading Level+Correct Factor +Cable Loss.
- (3) Correct Factor= Ant_F + Cab_L - Preamp
- (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Test mode: 802.11n(20) Frequency(MHz): 5260

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5127.90	V	61.36	-33.87	-27	Pass
5086.05	H	60.77	-34.46	-27	Pass

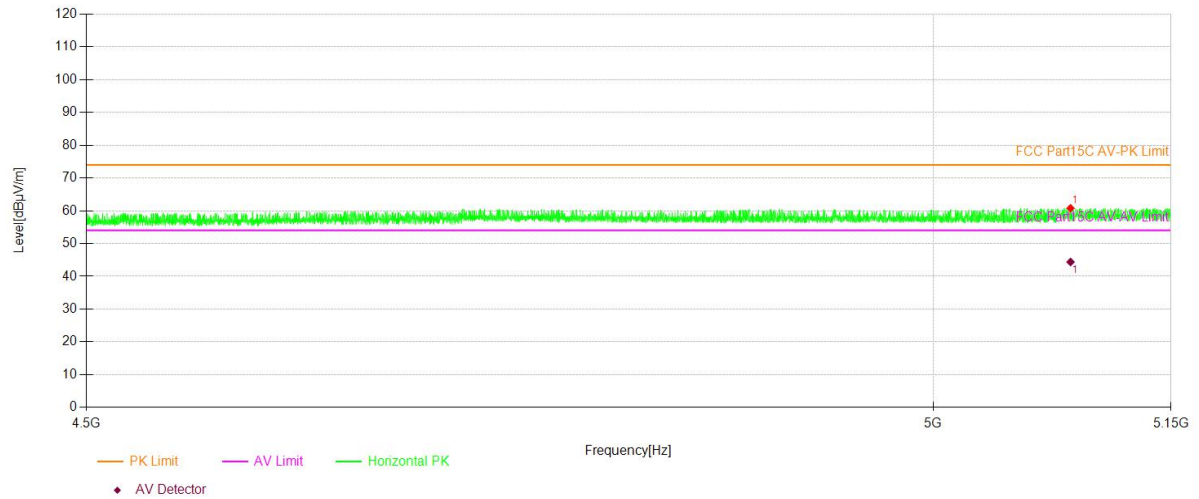
Test mode: 802.11n(20) Frequency(MHz): 5320

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5351.80	V	62.54	-32.69	-27	Pass
5353.97	H	63.1	-32.13	-27	Pass

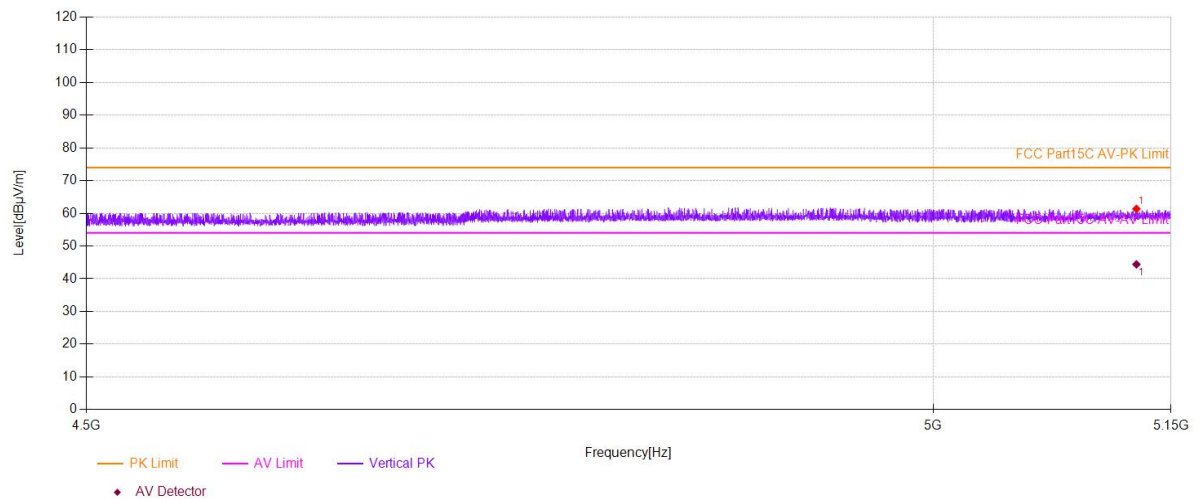
Note:

- (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).
- (2) Emission Level= Reading Level+Correct Factor +Cable Loss.
- (3) Correct Factor= Ant_F + Cab_L - Preamp
- (4) EIRP[dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77 (d is the measurement distance in 3 meters.)

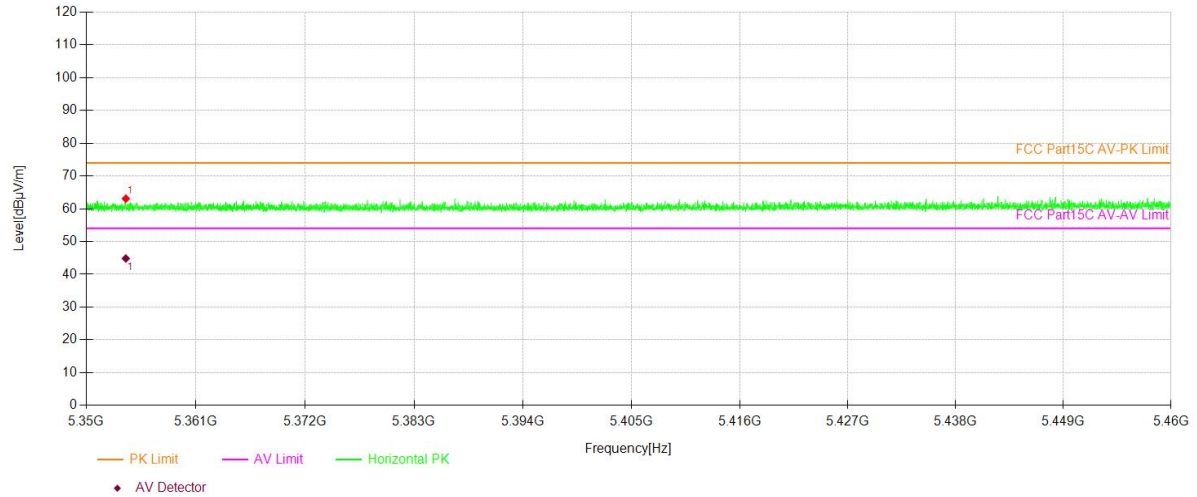
Test Model U-NII -2A
Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11 ac (VHT20)
☒ 5260 ☐ 5300 ☐ 5320 Ant.Pol H



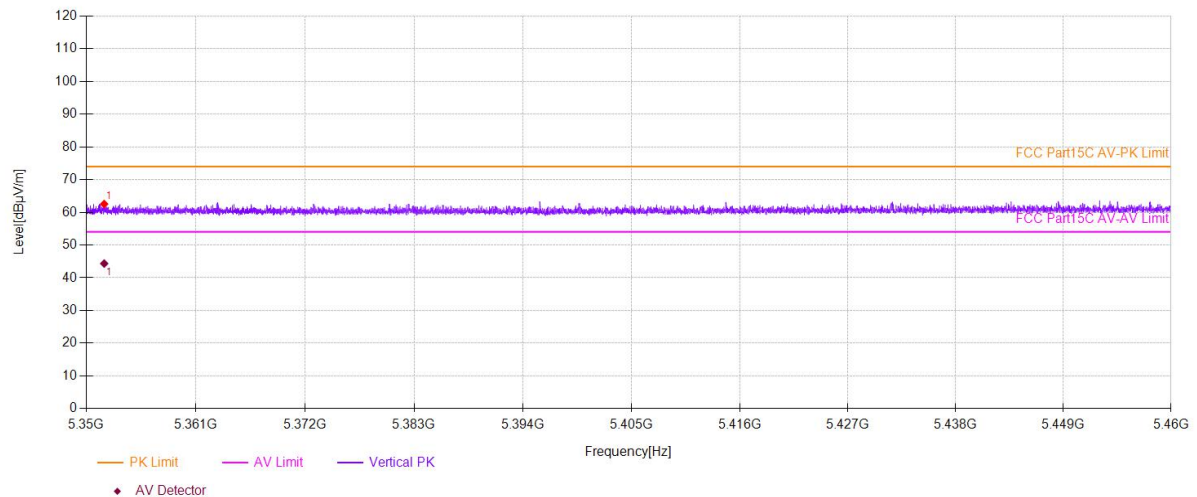
Test Model U-NII -2A
Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11 ac (VHT20)
☒ 5260 ☐ 5300 ☐ 5320 Ant.Pol V



Test Model U-NII -2A
Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11 ac (VHT20)
☐ 5260 ☐ 5300 ☒ 5320 Ant.Pol H



Test Model U-NII -2A
Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11 ac (VHT20)
☐ 5260 ☐ 5300 ☒ 5320 Ant.Pol V



■ ☒ For Undesirable radiated Spurious Emission in U-NII -2C

Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

All the modulation modes are tested, the data of the worst mode are described in the table.

Highest gain of each antenna and highest output power is ANT2 and MIMO as below.

ANT2:

Test mode: 802.11n(20) Frequency(MHz): 5500

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
7811.91	V	55.99	-39.24	-27	12.24
10116.56	V	57.83	-37.40	-27	10.40
17336.67	V	59.93	-35.30	-27	8.30
8016.01	H	55.45	-39.78	-27	12.78
10040.02	H	58.61	-36.62	-27	9.62
17311.16	H	59.64	-35.59	-27	8.59

Test mode: 802.11n(20) Frequency(MHz): 5580

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
7412.21	V	53.53	-41.70	-27	14.70
10074.04	V	57.84	-37.39	-27	10.39
16868.93	V	60.11	-35.12	-27	8.12
7981.99	H	55.72	-39.51	-27	12.51
9861.43	H	57.99	-37.24	-27	10.24
17268.63	H	60.65	-34.58	-27	7.58

Test mode: 802.11n(20) Frequency(MHz): 5700

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
7352.68	V	54.16	-41.07	-27	14.07
9912.46	V	57.85	-37.38	-27	10.38
17795.90	V	61.86	-33.37	-27	6.37
7862.93	H	54.68	-40.55	-27	13.55
10116.56	H	58.05	-37.18	-27	10.18
17787.39	H	60.72	-34.51	-27	7.51

MIMO:

Test mode: 802.11n(20) Frequency(MHz): 5500					
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
7810.52	V	55.86	-39.37	-27	12.37
10115.17	V	57.67	-37.56	-27	10.56
17337.95	V	59.9	-35.33	-27	8.33
8027.70	H	55.37	-39.86	-27	12.86
10051.71	H	58.4	-36.83	-27	9.83
17322.85	H	59.48	-35.75	-27	8.75

Test mode: 802.11n(20) Frequency(MHz): 5580					
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
7410.82	V	53.4	-41.83	-27	14.83
10072.65	V	57.68	-37.55	-27	10.55
16870.21	V	60.08	-35.15	-27	8.15
7993.68	H	55.64	-39.59	-27	12.59
9873.12	H	57.78	-37.45	-27	10.45
17280.32	H	60.49	-34.74	-27	7.74

Test mode: 802.11n(20) Frequency(MHz): 5700					
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
7351.29	V	54.03	-41.20	-27	14.20
9911.07	V	57.69	-37.54	-27	10.54
17797.18	V	61.83	-33.40	-27	6.40
7874.62	H	54.6	-40.63	-27	13.63
10128.25	H	57.84	-37.39	-27	10.39
17799.08	H	60.56	-34.67	-27	7.67

Note:

- (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
- (3) EIRP[dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77 (d is the measurement distance in 3 meters.)
- (4) The radiation measurements are performed in X, Y, Z axis positioning for transmitting mode, and found the X axis positioning which it is the worst case, only the worst data is recorded in the report.

ANT2:

Test mode: 802.11n(20)		Frequency(MHz): 5500			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
7811.906	V	55.99	74.00	18.01	Peak
10116.5583	V	57.83	74.00	16.17	Peak
17336.6683	V	59.93	74.00	14.07	Peak
7811.906	V	35.58	54.00	18.42	Avg
10116.5583	V	37.21	54.00	16.79	Avg
17336.6683	V	39.78	54.00	14.22	Avg
8016.008	H	55.45	74.00	18.55	Peak
10040.02	H	58.61	74.00	15.39	Peak
17311.1556	H	59.64	74.00	14.36	Peak
8016.008	H	35.17	54.00	18.83	Avg
10040.02	H	36.99	54.00	17.01	Avg
17311.1556	H	40.30	54.00	13.70	Avg

Test mode: 802.11n(20)		Frequency(MHz): 5580			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
7412.2061	V	53.53	74.00	20.47	Peak
10074.037	V	57.84	74.00	16.16	Peak
16868.9345	V	60.11	74.00	13.89	Peak
7412.2061	V	35.18	54.00	18.82	Avg
10074.037	V	37.51	54.00	16.49	Avg
16868.9345	V	40.43	54.00	13.57	Avg
7981.991	H	55.72	74.00	18.28	Peak
9861.4307	H	57.99	74.00	16.01	Peak
17268.6343	H	60.65	74.00	13.35	Peak
7981.991	H	35.54	54.00	18.46	Avg
9861.4307	H	35.24	54.00	18.76	Avg
17268.6343	H	40.66	54.00	13.34	Avg

Test mode: 802.11n(20)		Frequency(MHz): 5700			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
7352.6763	V	54.16	74.00	19.84	Peak
9912.4562	V	57.85	74.00	16.15	Peak
17795.8979	V	61.86	74.00	12.14	Peak
7352.6763	V	34.94	54.00	19.06	Avg
9912.4562	V	36.11	54.00	17.89	Avg
17795.8979	V	38.69	54.00	15.31	Avg
7862.9315	H	54.68	74.00	19.32	Peak
10116.5583	H	58.05	74.00	15.95	Peak
17787.3937	H	60.72	74.00	13.28	Peak
7862.9315	H	35.83	54.00	18.17	Avg
10116.5583	H	37.06	54.00	16.94	Avg
17787.3937	H	38.43	54.00	15.57	Avg

MIMO:

Test mode: 802.11n(20)		Frequency(MHz): 5500			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
7810.516	V	55.86	74.00	18.14	Peak
10115.168	V	57.67	74.00	16.33	Peak
17337.948	V	59.9	74.00	14.1	Peak
7813.186	V	35.56	54.00	18.44	Avg
10114.308	V	36.95	54.00	17.05	Avg
17334.418	V	39.59	54.00	14.41	Avg
8027.698	H	55.37	74.00	18.63	Peak
10051.710	H	58.4	74.00	15.6	Peak
17322.846	H	59.48	74.00	14.52	Peak
8027.698	H	35.03	54.00	18.97	Avg
10036.710	H	36.81	54.00	17.19	Avg
17307.846	H	40.17	54.00	13.83	Avg

Test mode: 802.11n(20)		Frequency(MHz): 5580			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
7410.816	V	53.4	74.00	20.6	Peak
10072.647	V	57.68	74.00	16.32	Peak
16870.215	V	60.08	74.00	13.92	Peak
7413.486	V	35.16	54.00	18.84	Avg
10071.787	V	37.25	54.00	16.75	Avg
16866.685	V	40.24	54.00	13.76	Avg
7993.681	H	55.64	74.00	18.36	Peak
9873.121	H	57.78	74.00	16.22	Peak
17280.324	H	60.49	74.00	13.51	Peak
7993.681	H	35.4	54.00	18.6	Avg
9858.121	H	35.06	54.00	18.94	Avg
17265.324	H	40.53	54.00	13.47	Avg

Test mode: 802.11n(20)		Frequency(MHz): 5700			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
7351.286	V	54.03	74.00	19.97	Peak
9911.066	V	57.69	74.00	16.31	Peak
17797.178	V	61.83	74.00	12.17	Peak
7353.956	V	34.92	54.00	19.08	Avg
9910.206	V	35.85	54.00	18.15	Avg
17793.648	V	38.5	54.00	15.5	Avg
7874.622	H	54.6	74.00	19.4	Peak
10128.248	H	57.84	74.00	16.16	Peak
17799.084	H	60.56	74.00	13.44	Peak
7874.622	H	35.69	54.00	18.31	Avg
10113.248	H	36.88	54.00	17.12	Avg
17784.084	H	38.3	54.00	15.7	Avg

Note:

- (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).
- (2) Emission Level= Reading Level+Correct Factor +Cable Loss.
- (3) Correct Factor= Ant_F + Cab_L - Preamp
- (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) The radiation measurements are performed in X, Y, Z axis positioning for transmitting mode, and found the X axis positioning which it is the worst case, only the worst data is recorded in the report.

● ☒ Undesirable radiated Undesirable radiated Spurious Emission in Band Edge

Test mode: 802.11n(20) Frequency(MHz): 5500

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5465.26	V	53.26	74.00	20.74	Peak
5465.26	V	44.62	54.00	9.38	Avg
5468.66	H	53.38	74.00	20.62	Peak
5468.66	H	45.19	54.00	8.81	Avg

Test mode: 802.11n(20) Frequency(MHz): 5700

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
5725.25	V	53.62	74.00	20.38	Peak
5725.25	V	45.72	54.00	8.28	Avg
5729.96	H	53.69	74.00	20.31	Peak
5729.96	H	45.95	54.00	8.05	Avg

Note:

- (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).
- (2) Emission Level= Reading Level+Correct Factor +Cable Loss.
- (3) Correct Factor= Ant_F + Cab_L - Preamp
- (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Test mode: 802.11n(20) Frequency(MHz): 5500

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5465.26	V	53.26	-41.97	-27	Pass
5468.66	H	53.38	-41.85	-27	Pass

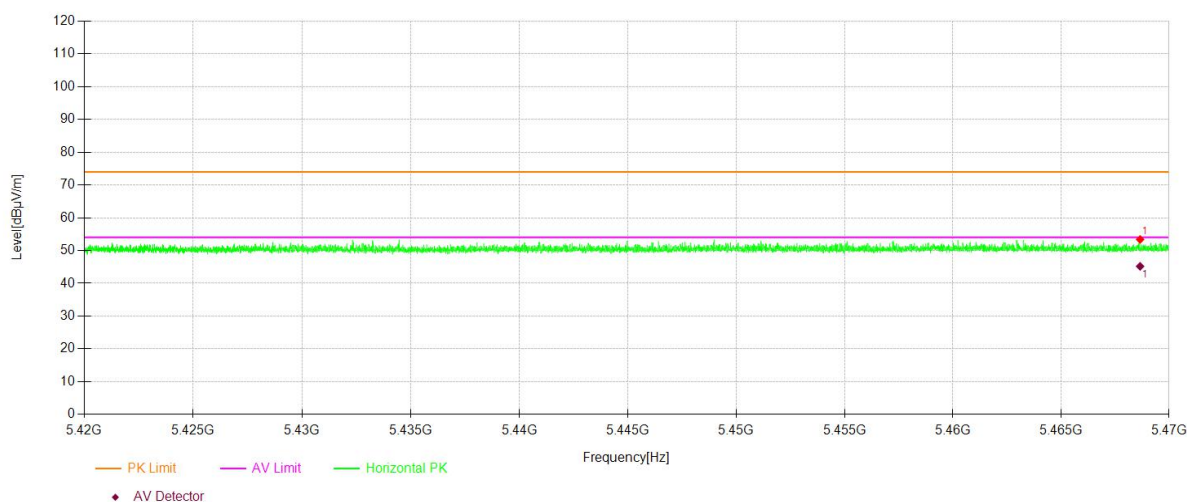
Test mode: 802.11n(20) Frequency(MHz): 5700

Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5725.25	V	53.62	-41.61	-27	Pass
5729.96	H	53.69	-41.54	-27	Pass

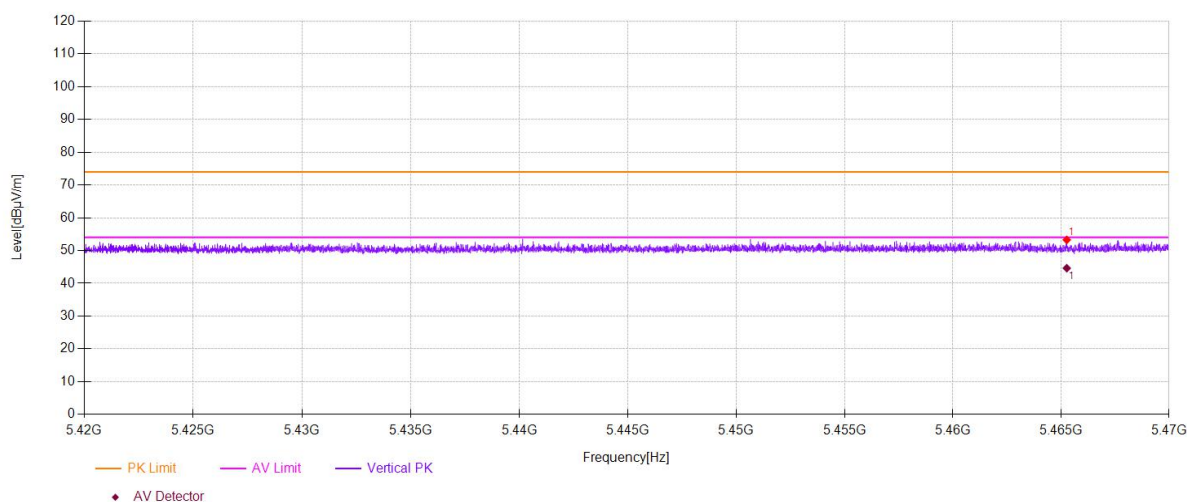
Note:

- (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).
- (2) Emission Level= Reading Level+Correct Factor +Cable Loss.
- (3) Correct Factor= Ant_F + Cab_L - Preamp
- (4) EIRP[dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77 (d is the measurement distance in 3 meters.)

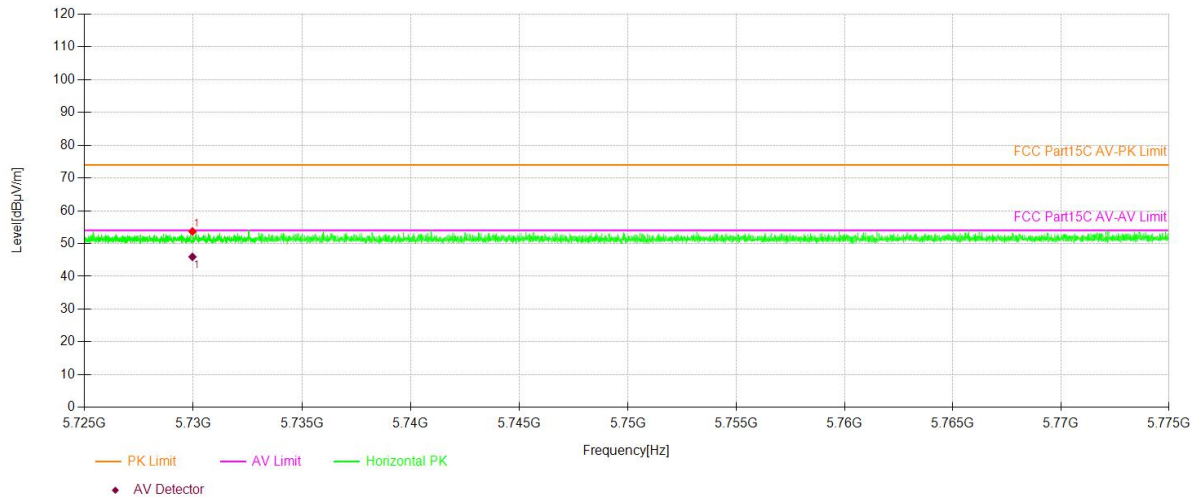
Test Model U-NII -2C
Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11 ac (VHT20)
☒ 5500 ☐ 5580 ☐ 5700 Ant.Pol H



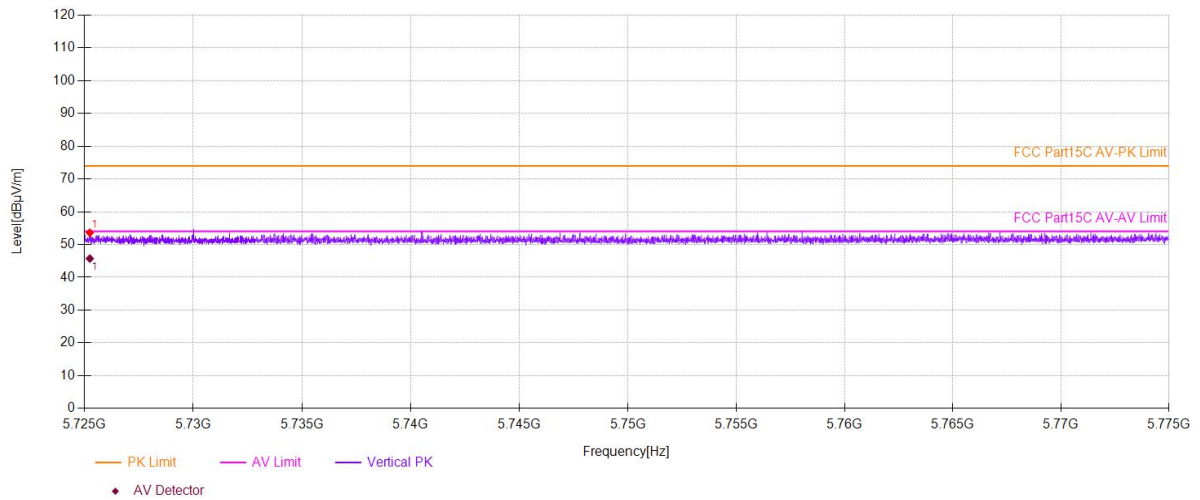
Test Model U-NII -2C
Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11 ac (VHT20)
☒ 5500 ☐ 5580 ☐ 5700 Ant.Pol V



Test Model U-NII -2C
Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11 ac (VHT20)
☐ 5500 ☐ 5580 ☒ 5700 Ant.Pol H



Test Model U-NII -2C
Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11 ac (VHT20)
☐ 5500 ☐ 5580 ☒ 5700 Ant.Pol V



■ ☒ For Undesirable radiated Spurious Emission in U-NII -3

Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

All the modulation modes are tested, the data of the worst mode are described in the table.

Highest gain of each antenna and highest output power is ANT2 and MIMO as below.

ANT2:

Test mode:		802.11n(20)		Frequency(MHz):		5745	
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)		
7905.45	V	54.26	-40.97	-27	13.97		
9912.46	V	57.81	-37.42	-27	10.42		
17753.38	V	60.9	-34.33	-27	7.33		
7939.47	H	55.06	-40.17	-27	13.17		
10125.06	H	57.59	-37.64	-27	10.64		
17591.80	H	60.45	-34.78	-27	7.78		

Test mode:		802.11n(20)		Frequency(MHz):		5785	
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)		
7990.50	V	54.8	-40.43	-27	13.43		
10150.58	V	57.78	-37.45	-27	10.45		
16860.43	V	59.41	-35.82	-27	8.82		
7905.45	H	54.9	-40.33	-27	13.33		
9920.96	H	57.69	-37.54	-27	10.54		
17583.29	H	60.44	-34.79	-27	7.79		

Test mode:		802.11n(20)		Frequency(MHz):		5825	
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)		
8611.31	V	55.73	-39.50	-27	12.50		
9895.45	V	58.28	-36.95	-27	9.95		
15406.20	V	61.5	-33.73	-27	6.73		
7854.43	H	55.17	-40.06	-27	13.06		
9929.46	H	57.76	-37.47	-27	10.47		
16222.61	H	60.84	-34.39	-27	7.39		

MIMO:

Test mode: 802.11n(20) Frequency(MHz): 5745					
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
7904.06	V	54.13	-41.10	-27	14.10
9911.07	V	57.65	-37.58	-27	10.58
17754.66	V	60.87	-34.36	-27	7.36
7951.16	H	54.98	-40.25	-27	13.25
10136.75	H	57.38	-37.85	-27	10.85
17603.49	H	60.29	-34.94	-27	7.94

Test mode: 802.11n(20) Frequency(MHz): 5785					
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
7989.11	V	54.67	-40.56	-27	13.56
10149.19	V	57.62	-37.61	-27	10.61
16861.71	V	59.38	-35.85	-27	8.85
7917.14	H	54.82	-40.41	-27	13.41
9932.65	H	57.48	-37.75	-27	10.75
17594.98	H	60.28	-34.95	-27	7.95

Test mode: 802.11n(20) Frequency(MHz): 5825					
Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
8609.92	V	55.6	-39.63	-27	12.63
9894.06	V	58.12	-37.11	-27	10.11
15407.48	V	61.47	-33.76	-27	6.76
7866.12	H	55.09	-40.14	-27	13.14
9941.15	H	57.55	-37.68	-27	10.68
16234.30	H	60.68	-34.55	-27	7.55

Note:

- (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
- (3) EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77 (d is the measurement distance in 3 meters.)
- (4) The radiation measurements are performed in X, Y, Z axis positioning for transmitting mode, and found the X axis positioning which it is the worst case, only the worst data is recorded in the report.

ANT2:

Test mode: 802.11n(20)		Frequency(MHz): 5745			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
7905.4527	V	54.26	74.00	19.74	Peak
9912.4562	V	57.81	74.00	16.19	Peak
17753.3767	V	60.90	74.00	13.10	Peak
7905.4527	V	35.61	54.00	18.39	Avg
9912.4562	V	35.92	54.00	18.08	Avg
17753.3767	V	38.49	54.00	15.51	Avg
7939.4697	H	55.06	74.00	18.94	Peak
10125.0625	H	57.59	74.00	16.41	Peak
17591.7959	H	60.45	74.00	13.55	Peak
7939.4697	H	35.31	54.00	18.69	Avg
10125.0625	H	36.82	54.00	17.18	Avg
17591.7959	H	41.23	54.00	12.77	Avg

Test mode: 802.11n(20)		Frequency(MHz): 5785			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
7990.4952	V	54.80	74.00	19.20	Peak
10150.5753	V	57.78	74.00	16.22	Peak
16860.4302	V	59.41	74.00	14.59	Peak
7990.4952	V	35.50	54.00	18.50	Avg
10150.5753	V	36.42	54.00	17.58	Avg
16860.4302	V	41.26	54.00	12.74	Avg
7905.4527	H	54.90	74.00	19.10	Peak
9920.9605	H	57.69	74.00	16.31	Peak
17583.2916	H	60.44	74.00	13.56	Peak
7905.4527	H	35.63	54.00	18.37	Avg
9920.9605	H	35.84	54.00	18.16	Avg
17583.2916	H	41.01	54.00	12.99	Avg

Test mode: 802.11n(20)		Frequency(MHz): 5825			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
8611.3057	V	55.73	74.00	18.27	Peak
9895.4477	V	58.28	74.00	15.72	Peak
15406.2031	V	61.50	74.00	12.50	Peak
8611.3057	V	36.40	54.00	17.60	Avg
9895.4477	V	35.76	54.00	18.24	Avg
15406.2031	V	38.36	54.00	15.64	Avg
7854.4272	H	55.17	74.00	18.83	Peak
9929.4647	H	57.76	74.00	16.24	Peak
16222.6113	H	60.84	74.00	13.16	Peak
7854.4272	H	35.52	54.00	18.48	Avg
9929.4647	H	36.50	54.00	17.50	Avg
16222.6113	H	38.82	54.00	15.18	Avg

MIMO:

Test mode: 802.11n(20)		Frequency(MHz): 5745			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
7904.063	V	54.13	74.00	19.87	Peak
9911.066	V	57.65	74.00	16.35	Peak
17754.657	V	60.87	74.00	13.13	Peak
7906.733	V	35.59	54.00	18.41	Avg
9910.206	V	35.66	54.00	18.34	Avg
17751.127	V	38.3	54.00	15.7	Avg
7951.160	H	54.98	74.00	19.02	Peak
10136.753	H	57.38	74.00	16.62	Peak
17603.486	H	60.29	74.00	13.71	Peak
7951.160	H	35.17	54.00	18.83	Avg
10121.753	H	36.64	54.00	17.36	Avg
17588.486	H	41.1	54.00	12.9	Avg

Test mode: 802.11n(20)		Frequency(MHz): 5785			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
7989.105	V	54.67	74.00	19.33	Peak
10149.185	V	57.62	74.00	16.38	Peak
16861.710	V	59.38	74.00	14.62	Peak
7991.775	V	35.48	54.00	18.52	Avg
10148.325	V	36.16	54.00	17.84	Avg
16858.180	V	41.07	54.00	12.93	Avg
7917.143	H	54.82	74.00	19.18	Peak
9932.651	H	57.48	74.00	16.52	Peak
17594.982	H	60.28	74.00	13.72	Peak
7917.143	H	35.49	54.00	18.51	Avg
9917.651	H	35.66	54.00	18.34	Avg
17579.982	H	40.88	54.00	13.12	Avg

Test mode: 802.11n(20)		Frequency(MHz): 5825			
Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
8609.916	V	55.6	74.00	18.4	Peak
9894.058	V	58.12	74.00	15.88	Peak
15407.483	V	61.47	74.00	12.53	Peak
8612.586	V	36.38	54.00	17.62	Avg
9893.198	V	35.5	54.00	18.5	Avg
15403.953	V	38.17	54.00	15.83	Avg
7866.117	H	55.09	74.00	18.91	Peak
9941.155	H	57.55	74.00	16.45	Peak
16234.301	H	60.68	74.00	13.32	Peak
7866.117	H	35.38	54.00	18.62	Avg
9926.155	H	36.32	54.00	17.68	Avg
16219.301	H	38.69	54.00	15.31	Avg

Note:

- (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).
- (2) Emission Level= Reading Level+Correct Factor +Cable Loss.
- (3) Correct Factor= Ant_F + Cab_L - Preamp
- (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) The radiation measurements are performed in X, Y, Z axis positioning for transmitting mode, and found the X axis positioning which it is the worst case, only the worst data is recorded in the report.

- ☒ Undesirable radiated Spurious Emission in band edge

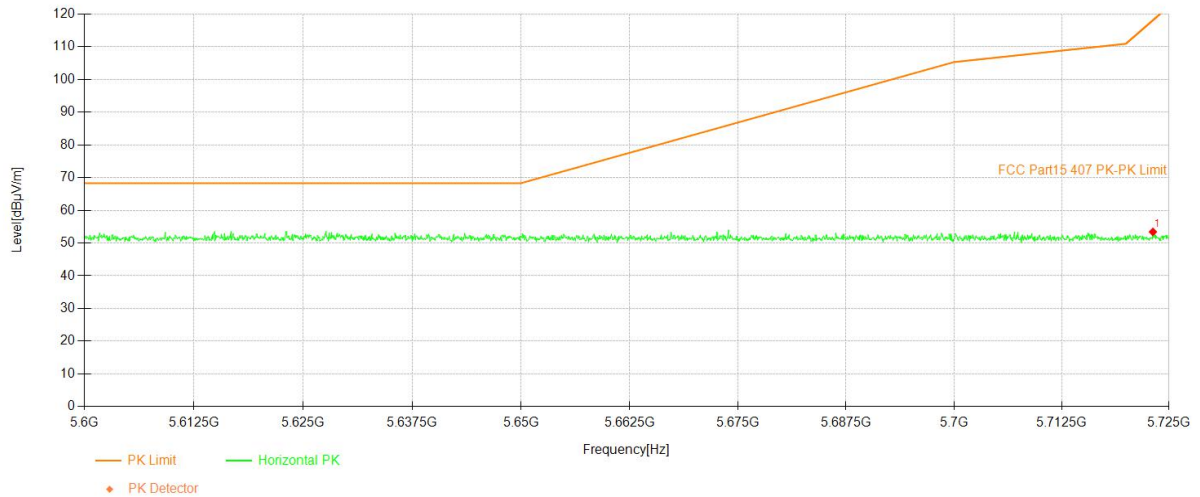
Test mode:		802.11n(20)		Frequency:		5745	
Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)		E.I.R.P (dBm)		Limit (dBm)	Verdict
5723.12	H	53.42		-41.45		-27	Pass
5724.37	V	53.78		-41.81		-27	Pass

Test mode:		802.11n(20)		Frequency:		5825	
Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)		E.I.R.P (dBm)		Limit (dBm)	Verdict
5855.81	H	53.73		-40.85		-27	Pass
5852.31	V	54.38		-41.50		-27	Pass

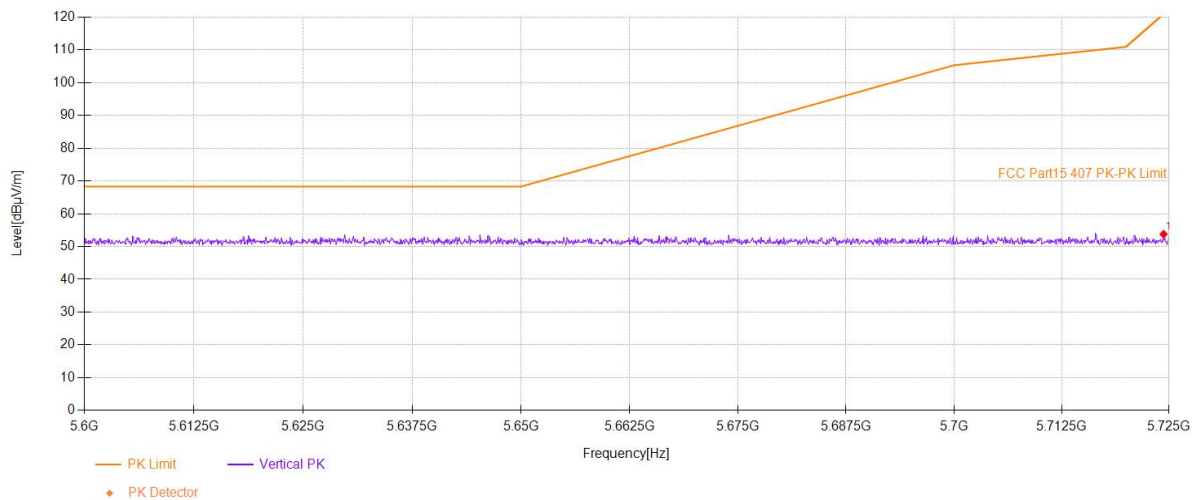
Note:

- (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).
- (2) Emission Level= Reading Level+Correct Factor +Cable Loss.
- (3) Correct Factor= Ant_F + Cab_L - Preamp
- (4) EIRP[dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77 (d is the measurement distance in 3 meters.)

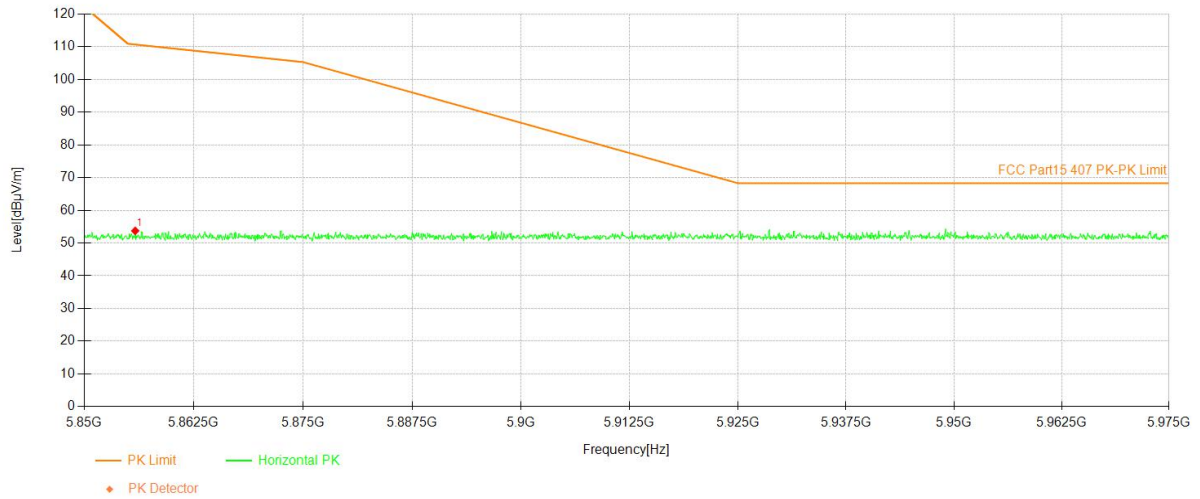
Test Model U-NII -3
 Undesirable radiated Undesirable radiated Spurious Emission in Band Edge
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11n(HT40)
☒ 5745 Ant.Pol H



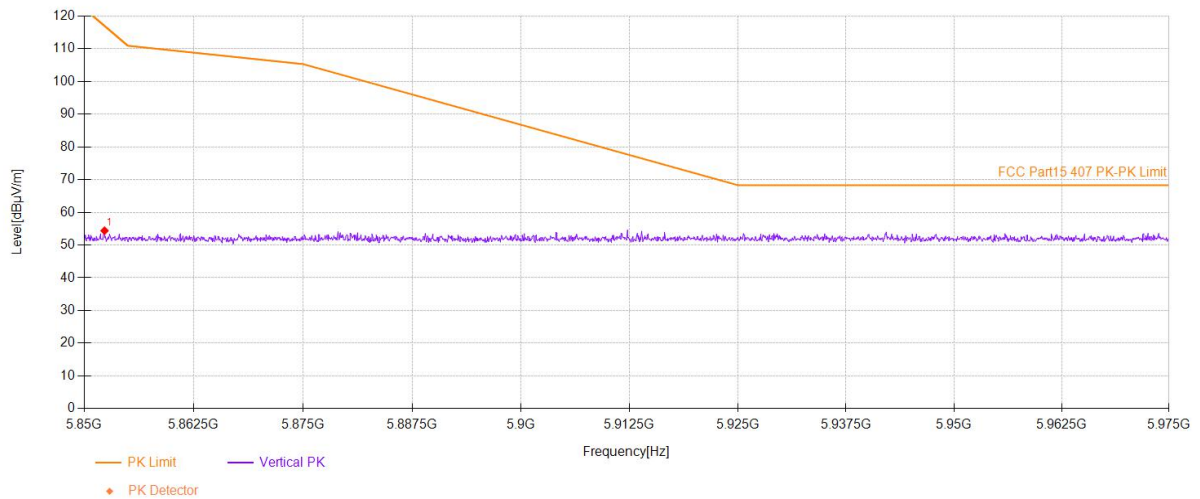
Test Model U-NII -3
 Undesirable radiated Undesirable radiated Spurious Emission in Band Edge
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11n(HT40)
☒ 5745 Ant.Pol V



Test Model U-NII -3
Undesirable radiated Undesirable radiated Spurious Emission in Band Edge
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11n(HT40)
☒ 5825 Ant.Pol H

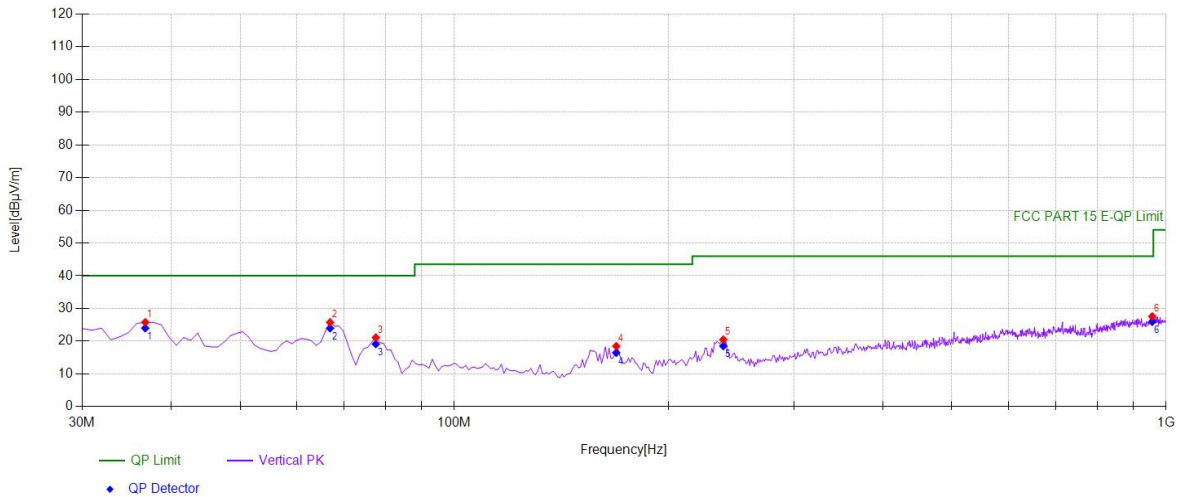


Test Model U-NII -3
Undesirable radiated Undesirable radiated Spurious Emission in Band Edge
☐ 802.11a ☒ 802.11n(HT20) ☐ 802.11n(HT40)
☒ 5825 Ant.Pol V



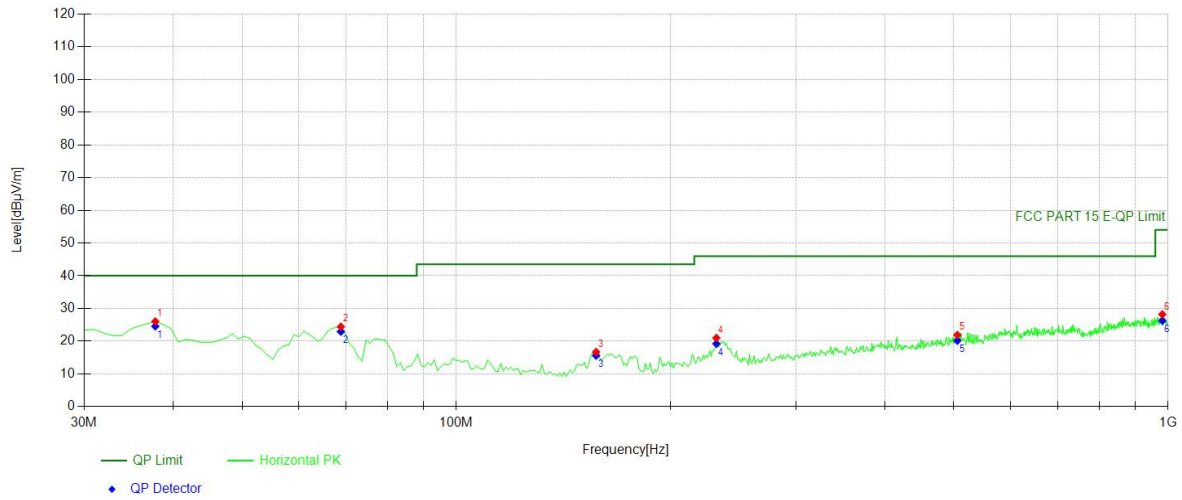
- Undesirable radiated Spurious Emission below 1GHz (30MHz to 1GHz)
All the modulation modes are tested, the data of the worst mode are described in the table.

Test mode: 802.11n(20) Frequency(MHz): 5180



Suspected Data List

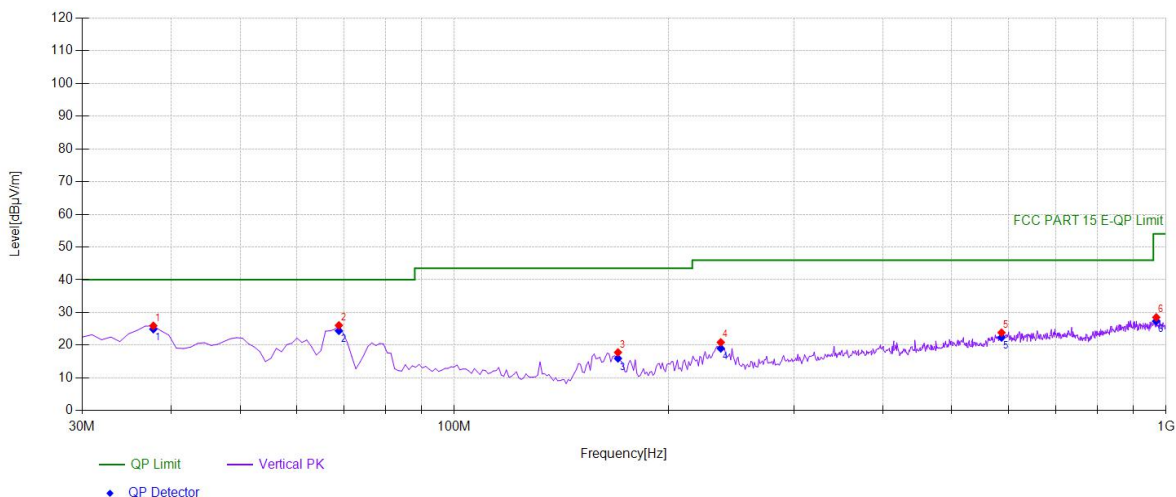
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	36.7968	43.63	-17.83	25.80	PK	40.00	14.20	Vertical
2	66.8969	44.05	-18.27	25.78	PK	40.00	14.22	Vertical
3	77.5776	40.95	-19.83	21.12	PK	40.00	18.88	Vertical
4	168.848	37.44	-18.97	18.47	PK	43.50	25.03	Vertical
5	238.758	36.24	-15.73	20.51	PK	46.00	25.49	Vertical
6	956.306	30.16	-2.58	27.58	PK	46.00	18.42	Vertical



Suspected Data List

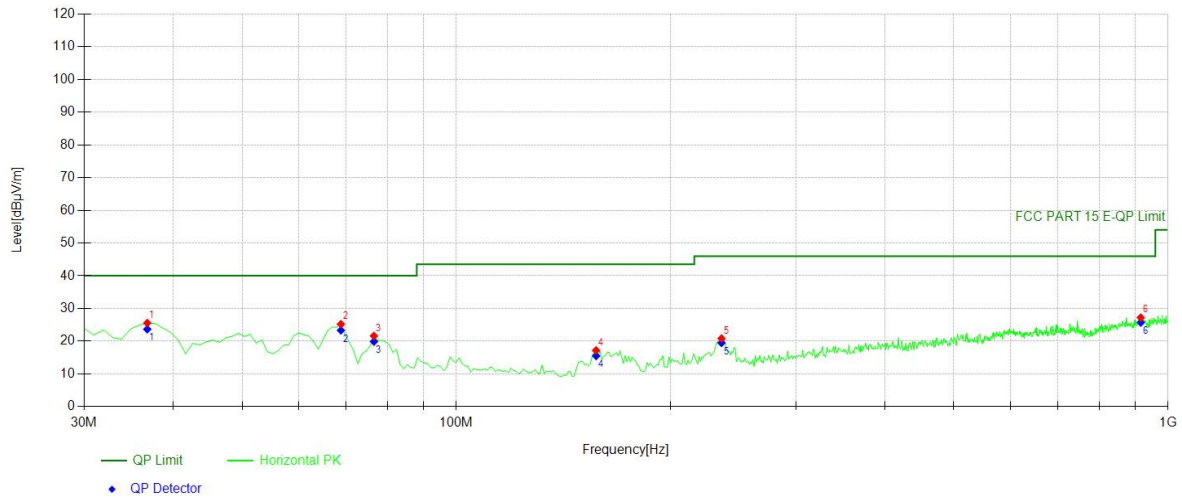
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	37.7678	43.75	-17.71	26.04	PK	40.00	13.96	Horizontal
2	68.8388	42.96	-18.53	24.43	PK	40.00	15.57	Horizontal
3	157.197	36.16	-19.44	16.72	PK	43.50	26.78	Horizontal
4	231.962	36.92	-15.93	20.99	PK	46.00	25.01	Horizontal
5	505.775	31.87	-9.95	21.92	PK	46.00	24.08	Horizontal
6	981.551	30.59	-2.39	28.20	PK	54.00	25.80	Horizontal

Test mode: 802.11n(20) Frequency(MHz): 5200



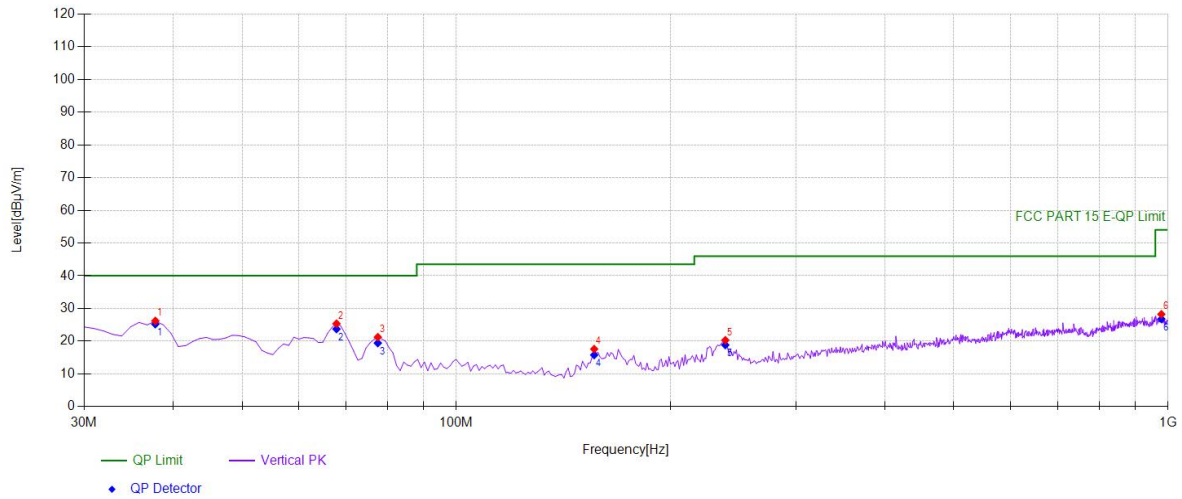
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	37.7678	43.64	-17.71	25.93	PK	40.00	14.07	Vertical
2	68.8388	44.60	-18.53	26.07	PK	40.00	13.93	Vertical
3	169.819	36.72	-18.92	17.80	PK	43.50	25.70	Vertical
4	236.816	36.66	-15.79	20.87	PK	46.00	25.13	Vertical
5	587.337	30.91	-7.07	23.84	PK	46.00	22.16	Vertical
6	968.928	30.90	-2.38	28.52	PK	54.00	25.48	Vertical



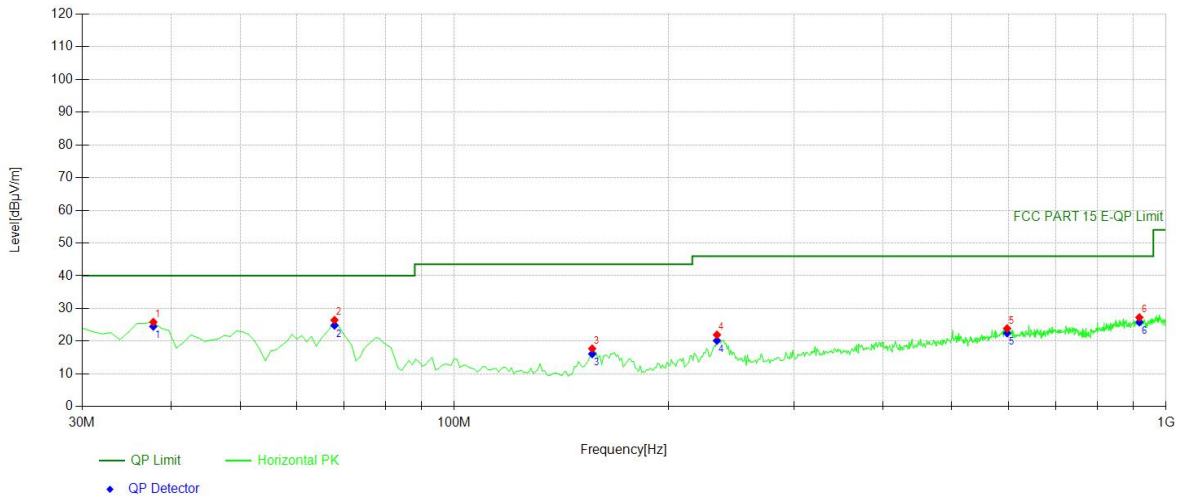
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	36.7968	43.38	-17.83	25.55	PK	40.00	14.45	Horizontal
2	68.8388	43.75	-18.53	25.22	PK	40.00	14.78	Horizontal
3	76.6066	41.30	-19.69	21.61	PK	40.00	18.39	Horizontal
4	157.197	36.64	-19.44	17.20	PK	43.50	26.30	Horizontal
5	235.845	36.64	-15.81	20.83	PK	46.00	25.17	Horizontal
6	915.525	30.24	-3.02	27.22	PK	46.00	18.78	Horizontal

Test mode: 802.11n(20) Frequency(MHz): 5240



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	37.7678	43.92	-17.71	26.21	PK	40.00	13.79	Vertical
2	67.8679	43.77	-18.40	25.37	PK	40.00	14.63	Vertical
3	77.5776	41.08	-19.83	21.25	PK	40.00	18.75	Vertical
4	156.226	37.06	-19.45	17.61	PK	43.50	25.89	Vertical
5	238.758	36.03	-15.73	20.30	PK	46.00	25.70	Vertical
6	978.638	30.64	-2.39	28.25	PK	54.00	25.75	Vertical



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	37.7678	43.57	-17.71	25.86	PK	40.00	14.14	Horizontal
2	67.8679	44.86	-18.40	26.46	PK	40.00	13.54	Horizontal
3	156.226	37.19	-19.45	17.74	PK	43.50	25.76	Horizontal
4	233.903	37.83	-15.87	21.96	PK	46.00	24.04	Horizontal
5	598.018	30.44	-6.54	23.90	PK	46.00	22.10	Horizontal
6	917.467	30.24	-2.99	27.25	PK	46.00	18.75	Horizontal

Detail of factor for radiated emission:

Frequency(MHz)	Ant_F(dB)	Cab_L(dB)	Preamp(dB)	Correct Factor(dB)
0.009	20.6	0.03	\	20.63
0.15	20.7	0.1	\	20.8
1	20.9	0.15	\	21.05
10	20.1	0.28	\	20.38
30	18.8	0.45	\	19.25
30	11.7	0.62	27.9	-15.58
100	12.5	1.02	27.8	-14.28
300	12.9	1.91	27.5	-12.69
600	19.2	2.92	27	-4.88
800	21.1	3.54	26.6	-1.96
1000	22.3	4.17	26.2	0.27
1000	25.6	1.76	41.4	-14.04
3000	28.9	3.27	43.2	-11.03
5000	31.1	4.2	44.6	-9.3
8000	36.2	5.95	44.7	-2.55
10000	38.4	6.3	43.9	0.8
12000	38.5	7.14	42.3	3.34
15000	40.2	8.15	41.4	6.95
18000	45.4	9.02	41.3	13.12
18000	37.9	1.81	47.9	-8.19
21000	37.9	1.95	48.7	-8.85
25000	39.3	2.01	42.8	-1.49
28000	39.6	2.16	46.0	-4.24
31000	41.2	2.24	44.5	-1.06
34000	41.5	2.29	46.6	-2.81
37000	43.8	2.30	46.4	-0.3
40000	43.2	2.50	42.2	3.5

--- End of Report ---

声 明 Statement

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