

# TEST REPORT

Applicant Name : Actions Microelectronics Co., Ltd.  
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 GaoXinQu, NanShan, Shenzhen 518000 China  
 Report Number : SZNS211027-55317E-RF-00  
 FCC ID: 2AQJT-EZC5201BS

## Test Standard (s)

FCC PART 15.407

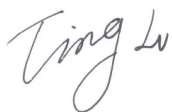
## Sample Description

Product Type: WiFi Dongle  
 Model No.: EZC-5201BS  
 Multiple Model(s) No.: EZC-5200BS(Please refer to DOS for Model difference)  
 Trade Mark: EZCast, BenQ  
 Date Received: 2021/10/27  
 Date of Test: 2021/11/14~2021/12/20  
 Report Date: 2021/12/20

Test Result:	Pass*
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\* In the configuration tested, the EUT complied with the standards above.

## Prepared and Checked By:



Ting Lü  
 EMC Engineer

## Approved By:



Robert Li  
 EMC Engineer

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "\*" .

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## TABLE OF CONTENTS

<b>GENERAL INFORMATION</b> .....	<b>4</b>
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	4
OBJECTIVE .....	4
TEST METHODOLOGY .....	4
MEASUREMENT UNCERTAINTY.....	5
TEST FACILITY .....	5
<b>SYSTEM TEST CONFIGURATION</b> .....	<b>6</b>
DESCRIPTION OF TEST CONFIGURATION .....	6
EUT EXERCISE SOFTWARE .....	7
DUTY CYCLE .....	8
EQUIPMENT MODIFICATIONS .....	8
SUPPORT EQUIPMENT LIST AND DETAILS .....	8
EXTERNAL I/O CABLE.....	8
BLOCK DIAGRAM OF TEST SETUP .....	8
<b>SUMMARY OF TEST RESULTS</b> .....	<b>10</b>
<b>TEST EQUIPMENT LIST</b> .....	<b>11</b>
<b>FCC§15.247 (I), §1.1307 (B) (1) &amp; §2.1093 – RF EXPOSURE</b> .....	<b>13</b>
APPLICABLE STANDARD .....	13
<b>FCC §15.203 – ANTENNA REQUIREMENT</b> .....	<b>14</b>
APPLICABLE STANDARD .....	14
ANTENNA CONNECTOR CONSTRUCTION .....	14
<b>FCC §15.407 (B) (6) §15.207 (A) – CONDUCTED EMISSIONS</b> .....	<b>15</b>
APPLICABLE STANDARD .....	15
EUT SETUP .....	15
EMI TEST RECEIVER SETUP.....	15
TEST PROCEDURE .....	15
CORRECTED FACTOR & MARGIN CALCULATION .....	16
TEST DATA .....	16
<b>§15.205 &amp; §15.209 &amp; §15.407(B)– UNDESIRABLE EMISSION</b> .....	<b>19</b>
APPLICABLE STANDARD .....	19
EUT SETUP .....	19
EMI TEST RECEIVER & SPECTRUM ANALYZER SETUP .....	20
TEST PROCEDURE .....	20
CORRECTED FACTOR & MARGIN CALCULATION .....	21
TEST DATA .....	21
<b>FCC §15.407(A),(E) – 26 DB &amp; 6DB EMISSION BANDWIDTH</b> .....	<b>48</b>
APPLICABLE STANDARD .....	48
TEST PROCEDURE .....	48
TEST DATA .....	49
<b>FCC §15.407(A) – CONDUCTED TRANSMITTER OUTPUT POWER</b> .....	<b>50</b>
APPLICABLE STANDARD .....	50
TEST PROCEDURE .....	50
TEST DATA .....	51

**FCC §15.407(A) - POWER SPECTRAL DENSITY .....52**  
TEST PROCEDURE .....52  
TEST DATA .....53

**APPENDIX .....54**  
APPENDIX A1: EMISSION BANDWIDTH .....54  
APPENDIX A2: OCCUPIED CHANNEL BANDWIDTH .....70  
APPENDIX A3: MIN EMISSION BANDWIDTH.....92  
APPENDIX B: MAXIMUM CONDUCTED OUTPUT POWER .....98  
APPENDIX C: MAXIMUM POWER SPECTRAL DENSITY .....100  
APPENDIX D: DUTY CYCLE.....122

## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

Frequency Range	5G Wi-Fi: 5150-5250MHz; 5250-5350MHz; 5470-5725MHz; 5725-5850MHz
Mode	802.11a/n20/n40/ac20/ac40/ac80
Maximum Conducted Average Output Power	5150-5250 MHz: 14.52dBm 5250-5350MHz: 15.18dBm 5470-5725MHz: 9.75dBm 5725-5850 MHz: 14.54dBm
Modulation Technique	OFDM
Antenna Specification*	2.0 dBi (It is provided by the manufacturer)
Voltage Range	DC 5V from USB port
Sample serial number	SZNS211027-55317E-RF-S2 for Conducted and Radiation Emissions SZNS211027-55317E-RF-S1 for RF Conducted Test (Assigned by ATC)
Sample/EUT Status	Good condition

### Objective

This test report is in accordance with Part 2-Subpart J, Part 15-Subparts A and E of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules.

### Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices. And KDB789033 D02 General U-NII Test Procedures New Rules v02r01.

All emissions measurement was performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Each test item follows test standards and with no deviation.

## Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5%
RF Frequency		$0.082 \times 10^{-7}$
RF output power, conducted		0.73dB
Unwanted Emission, conducted		1.6dB
AC Power Lines Conducted Emissions		2.72dB
Emissions, Radiated	9kHz - 30MHz	2.66dB
	30MHz - 1GHz	4.28dB
	1GHz - 18GHz	4.98dB
	18GHz - 26.5GHz	5.06dB
	26.5GHz - 40GHz	4.72dB
Temperature		1°C
Humidity		6%
Supply voltages		0.4%

*Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor  $K$  with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.*

## Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358, the FCC Designation No.: CN1189. Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 429 7.01.

Listed by Innovation, Science and Economic Development Canada (ISED), the Registration Number is 5077A.

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

The system was configured for testing in an engineering mode, which was provided by manufacturer.

The device supports 5G Wi-Fi 802.11a/n20/n40/ac20/ac40/ac80 modes.

For 5150-5250MHz Band, 7 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
38	5190	46	5230
40	5200	48	5240
42	5210	/	/

For 802.11a, 802.11n20/ac20 mode: channel 36, 40, 48 were tested; For 802.11n40/ac40 mode: channel 38, 46 were tested. For 802.11ac80 mode, channel 42 was tested.

For 5250-5350MHz Band, 7 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	60	5300
54	5270	62	5310
56	5280	64	5320
58	5290	/	/

For 802.11a, 802.11n20/ac20 mode: channel 52, 56, 64 were tested; For 802.11n40/ac40 mode: channel 54, 62 were tested. For 802.11ac80 mode, channel 58 was tested.

For 5470-5725MHz Band, 18 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	120	5600
102	5510	122	5610
104	5520	124	5620
106	5530	126	5630
108	5540	128	5640
110	5550	132	5660
112	5560	134	5670
116	5580	136	5680
118	5590	140	5700

For 802.11a, 802.11n20/ac20 mode: channel 100, 116, 140 were tested; For 802.11n40/ac40 mode: channel 102, 110, 134 were tested. For 802.11ac80 mode, channel 106, 122 was tested.

For 5725-5850MHz Band, 8 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	157	5785
151	5755	159	5795
153	5765	161	5805
155	5775	165	5825

For 802.11a, 802.11n20/ac20 mode: channel 149, 157, 165 were tested; For 802.11n40/ac40 mode: channel 151, 159 were tested. For 802.11ac80 mode, channel 155 was tested.

### EUT Exercise Software

“MP\_Kit\_RTL11ac\_8821CU\_USB\_v3.07\_RICOH\_20190424”\* exercise software was used. The software and power level was provided by the applicant.

The worst case was performed under:

U-NII	Mode	Data Rate	Power Level*		
			Low Channel	Middle Channel	High Channel
5150 – 5250MHz	802.11 a	6Mbps	55	55	55
	802.11 n20	MCS0	55	55	55
	802.11 n40	MCS0	55	/	55
	802.11 ac20	MCS0	55	55	55
	802.11 ac40	MCS0	55	/	55
	802.11 ac80	MCS0	/	55	/
5250 – 5350MHz	802.11 a	6Mbps	55	55	55
	802.11 n20	MCS0	55	55	55
	802.11 n40	MCS0	55	/	55
	802.11 ac20	MCS0	55	55	55
	802.11 ac40	MCS0	55	/	55
	802.11 ac80	MCS0	/	55	/
5470 – 5725MHz	802.11 a	6Mbps	36	36	36
	802.11 n20	MCS0	36	36	36
	802.11 n40	MCS0	36	36	36
	802.11 ac20	MCS0	36	36	36
	802.11 ac40	MCS0	36	36	36
	802.11 ac80	MCS0	36	/	36
5725 – 5850MHz	802.11 a	6Mbps	55	55	55
	802.11 n20	MCS0	55	55	55
	802.11 n40	MCS0	55	/	55
	802.11 ac20	MCS0	55	55	55
	802.11 ac40	MCS0	55	/	55
	802.11 ac80	MCS0	/	55	/

The worse-case data rates are determined to be as follows for each mode based upon investigations by measuring the output power and PSD across all data rated bandwidths, and modulations.

### Duty cycle

Test Result: Pass. Please refer to the Appendix.

### Equipment Modifications

No modification was made to the EUT tested.

### Support Equipment List and Details

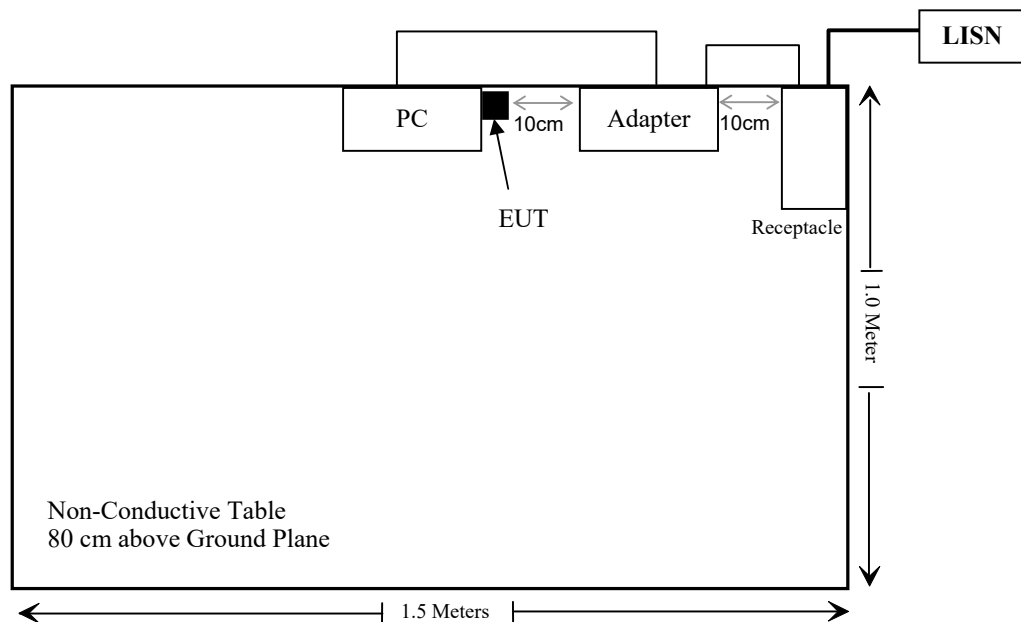
Manufacturer	Description	Model	Serial Number
Lenovo	PC	T430	23447YC

### External I/O Cable

Cable Description	Length (m)	From Port	To
Un-Shielded Detachable AC Cable	0.8	LISN	Adapter
Un-Shielded Detachable DC Cable	1.5	Adapter	PC

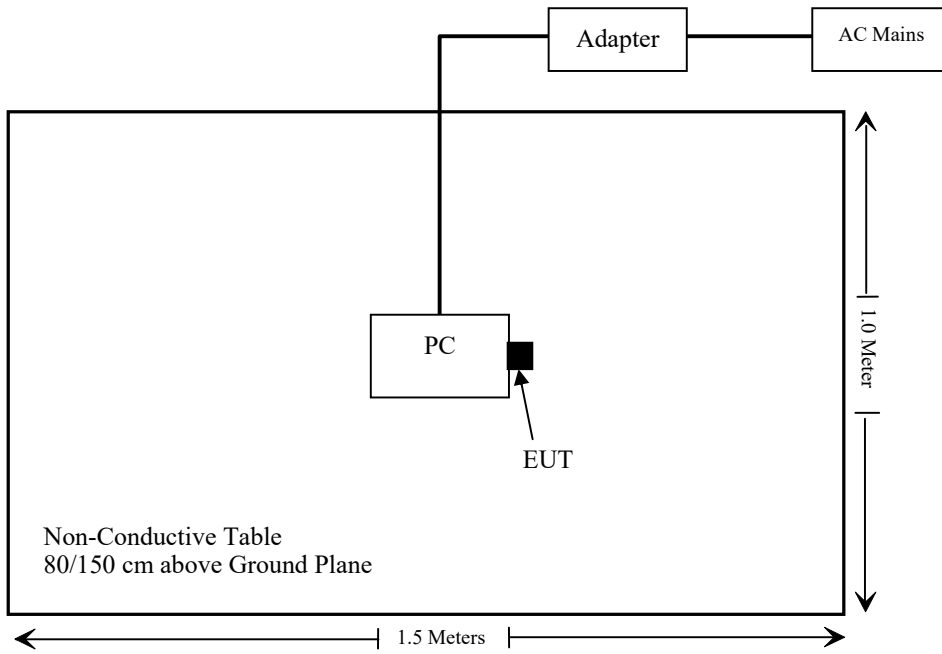
### Block Diagram of Test Setup

#### For Conducted Emissions





**For Spurious Emissions(Below 1G)**



## SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 (b) (1) & §2.1093	RF Exposure	Compliant
§15.203	Antenna Requirement	Compliant
§15.407(b)(9)& §15.207(a)	Conducted Emissions	Compliant
§15.205& §15.209 &§15.407(b)	Undesirable Emission& Restricted Bands	Compliant
§15.407(a) (e)	26 dB Emission Bandwidth & 6dB Bandwidth	Compliant
§15.407(a)	Conducted Transmitter Output Power	Compliant
§15.407 (a)	Power Spectral Density	Compliant
§15.407 (h)	Transmit Power Control (TPC)	Not Applicable
§15.407 (h)	Dynamic Frequency Selection (DFS)	Compliant*

Not Applicable: the EUT has no TPC function which was declared by the applicant.

Compliant\*: Please refer to the DFS report: SZNS211027-55317E-RFC.

**TEST EQUIPMENT LIST**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted emission test					
Rohde& Schwarz	EMI Test Receiver	ESCI	100784	2021/02/03	2022/02/02
R & S	L.I.S.N.	ENV216	101314	2020/12/25	2021/12/24
Anritsu Corp	50ΩCoaxial Switch	MP59B	6200506474	2020/12/25	2021/12/24
Unknown	RF Coaxial Cable	N-2m	No.2	2020/12/25	2021/12/24
Conducted Emission Test Software: e3 19821b (V9)					
Radiated emission test					
Rohde& Schwarz	Test Receiver	ESR	102725	2020/12/25	2021/12/24
Rohde&Schwarz	Spectrum Analyzer	FSV40	101949	2021/05/18	2022/05/17
SONOMA INSTRUMENT	Amplifier	310 N	186131	2020/12/25	2021/12/24
A.H. Systems, inc.	Preamplifier	PAM-0118P	531	2021/11/09	2022/11/08
Quinstar	Amplifier	QLW-18405536-J0	15964001002	2021/11/11	2022/11/10
Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2020/12/25	2021/12/24
SCHWARZBECK	LOOP ANTENNA	FMZB1516	1516131	2020/01/05	2023/01/04
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2020/01/05	2023/01/04
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-1067	2020/01/05	2023/01/04
Schwarzbeck	HORN ANTENNA	BBHA9170	9170-359	2020/01/05	2023/01/04
OREGON SCIENTIFIC	Temperature & Humidity Meter	JB913R	GZ-WS004	2020/01/02	2023/01/01
Radiated Emission Test Software: e3 19821b (V9)					
Unknown	RF Coaxial Cable	N-5m	No.3	2020/12/25	2021/12/24
Unknown	RF Coaxial Cable	N-1m	No.5	2020/12/25	2021/12/24
Unknown	RF Coaxial Cable	N-10m	No.7	2021/11/09	2022/11/08
Unknown	RF Coaxial Cable	N-2m	No.8	2021/11/09	2022/11/08
CD	Band Reject Filter	BRM-5.15/5.35g-45	075	2020/12/25	2021/12/24
CD	Band Reject Filter	BRM-5.47/5.725G-45	075	2020/12/25	2021/12/24
CD	Band Reject Filter	BRM-5.725/5.875G-45	065	2020/12/25	2021/12/24

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF conducted test					
Rohde & Schwarz	Spectrum Analyzer	FSV-40	101495	2020/12/24	2021/12/23
Tonscend	RF Control Unit	JS0806-2	19G8060182	2021/07/06	2022/07/05

\* **Statement of Traceability:** Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

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## **FCC §1.1307 (b) (1) & §2.1093 – RF EXPOSURE**

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### **Applicable Standard**

According to FCC §2.1093 and §1.1307(b) (1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

### **Measurement Result**

Please refer to SAR test report: SZNS211027-55317E-SA.

## **FCC §15.203 – ANTENNA REQUIREMENT**

### **Applicable Standard**

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall 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 manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.407 (a), if the transmitting antennas of directional gain greater than 6dBi are used, the transmit power and power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **Antenna Connector Construction**

The EUT has a internal antennas arrangement for 5G Wi-Fi which were permanently attached. Please refer to the EUT photos.

Type	Antenna Gain	Impedance
PCB	2.0dBi	50 $\Omega$

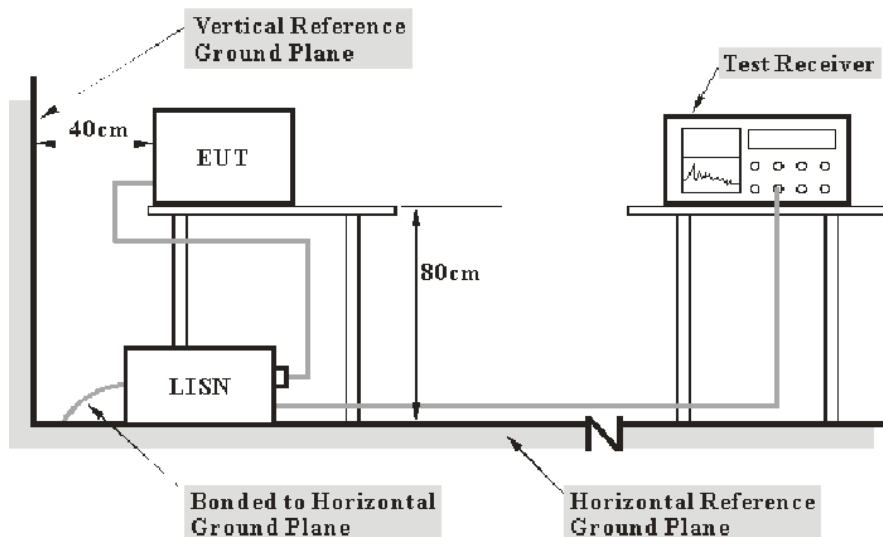
**Result:** Compliant.

## FCC §15.407 (b) (6) §15.207 (a) – CONDUCTED EMISSIONS

### Applicable Standard

FCC §15.207, §15.407(b) (6)

### EUT Setup



- Note: 1. Support units were connected to second LISN.  
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

### EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

### Test Procedure

During the conducted emission test, the adapter was connected to the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and Average detection mode.

## Corrected Factor & Margin Calculation

The Transd factor is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss. The basic equation is as follows:

$$\text{Transd Factor} = \text{LISN VDF} + \text{Cable Loss}$$

The “**Over Limit**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a over limit of -7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\begin{aligned} \text{Over Limit} &= \text{level} - \text{Limit} \\ \text{Level} &= \text{reading level} + \text{Transd Factor} \end{aligned}$$

## Test Data

### Environmental Conditions

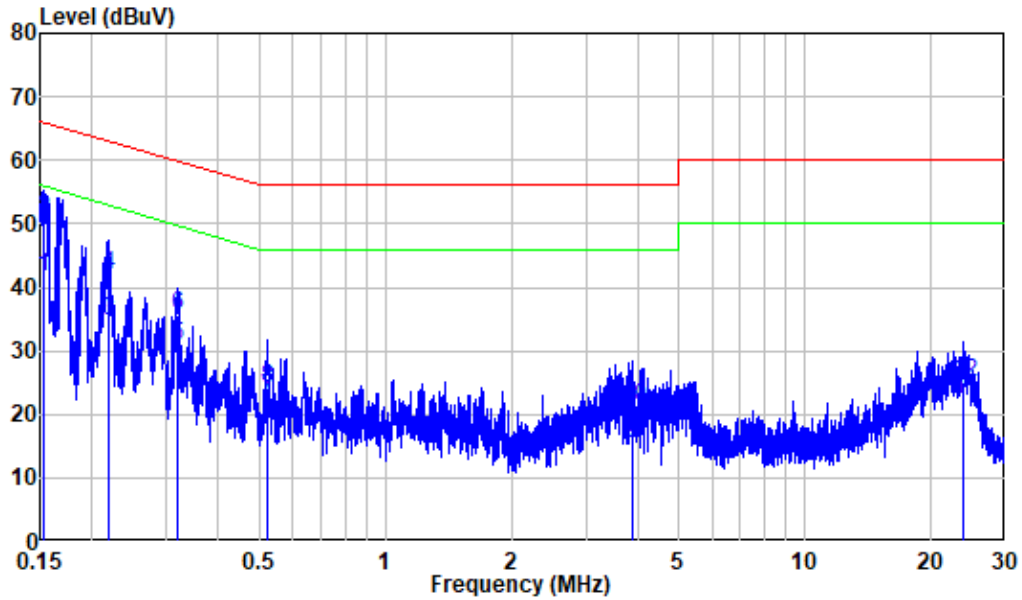
<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	64 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Bin Duan on 2021-11-27.*

*EUT operation mode: Transmitting (worst case is 802.11a mode, 5320MHz)*

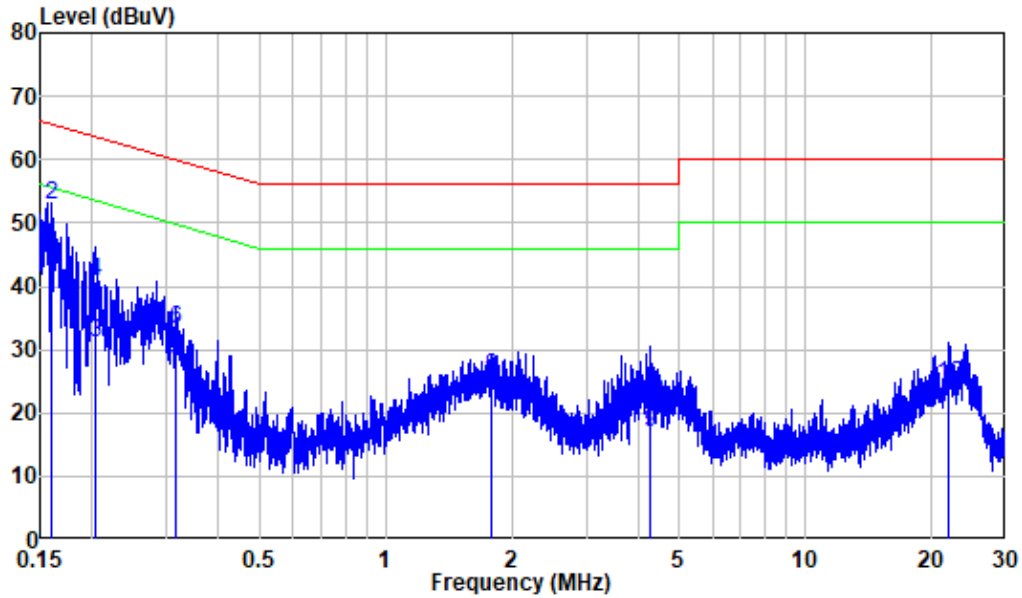


AC 120V/60 Hz, Line:



	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.154	9.89	31.75	41.64	55.79	-14.15	Average
2	0.154	9.89	40.88	50.77	65.79	-15.02	QP
3	0.219	9.80	24.90	34.70	52.85	-18.15	Average
4	0.219	9.80	32.09	41.89	62.85	-20.96	QP
5	0.319	9.80	21.12	30.92	49.73	-18.81	Average
6	0.319	9.80	25.93	35.73	59.73	-24.00	QP
7	0.522	9.81	12.75	22.56	46.00	-23.44	Average
8	0.522	9.81	14.19	24.00	56.00	-32.00	QP
9	3.881	9.94	5.39	15.33	46.00	-30.67	Average
10	3.881	9.94	11.27	21.21	56.00	-34.79	QP
11	23.888	10.33	11.92	22.25	50.00	-27.75	Average
12	23.888	10.33	14.80	25.13	60.00	-34.87	QP

**AC 120V/60 Hz, Neutral:**



	Freq	Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.160	9.92	34.42	44.34	55.45	-11.11	Average
2	0.160	9.92	42.84	52.76	65.45	-12.69	QP
3	0.203	10.00	20.99	30.99	53.50	-22.51	Average
4	0.203	10.00	30.78	40.78	63.50	-22.72	QP
5	0.315	9.95	18.55	28.50	49.83	-21.33	Average
6	0.315	9.95	23.25	33.20	59.83	-26.63	QP
7	1.789	9.92	14.46	24.38	46.00	-21.62	Average
8	1.789	9.92	15.79	25.71	56.00	-30.29	QP
9	4.269	10.04	6.74	16.78	46.00	-29.22	Average
10	4.269	10.04	11.73	21.77	56.00	-34.23	QP
11	21.845	10.24	10.48	20.72	50.00	-29.28	Average
12	21.845	10.24	14.26	24.50	60.00	-35.50	QP

## §15.205 & §15.209 & §15.407(B)– UNDESIRABLE EMISSION

### Applicable Standard

FCC §15.407 (b); §15.209; §15.205;

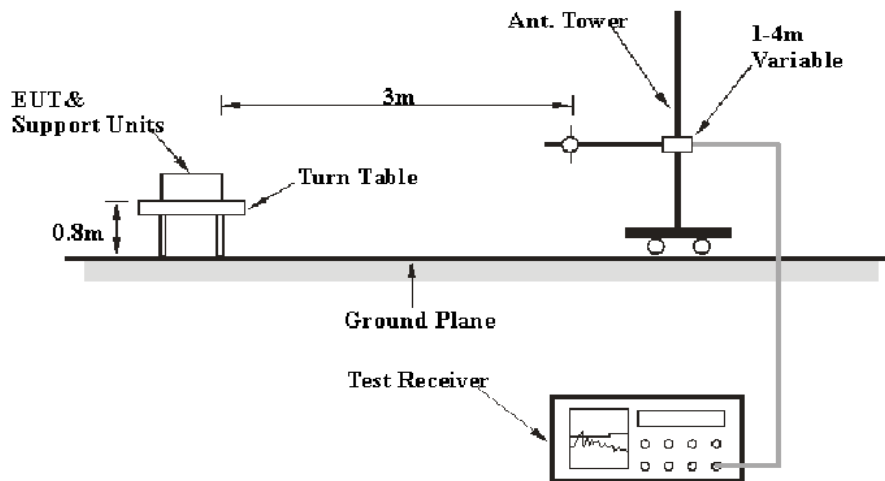
(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

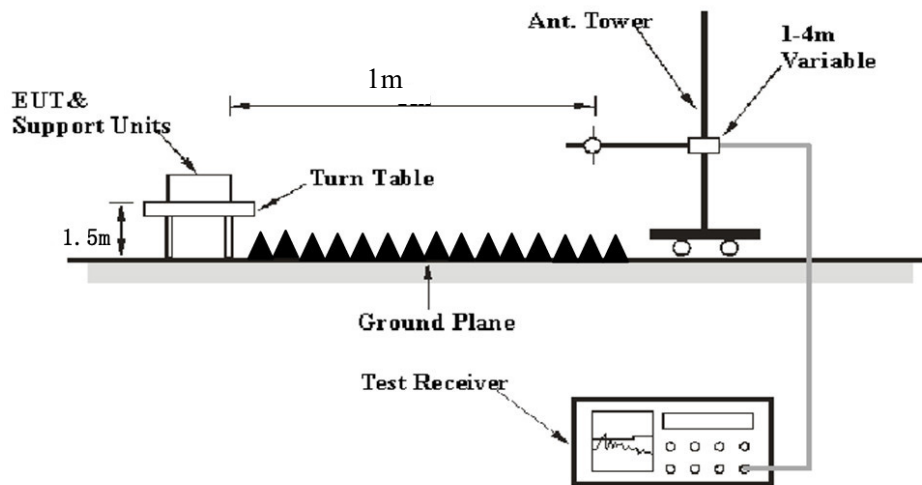
- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of  $-27$  dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of  $-27$  dBm/MHz.
- (3) 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.
- (4) For transmitters operating in the 5.725-5.85 GHz band:
  - (i) 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.

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

### EUT Setup

#### Below 1 GHz:



**Above 1 GHz:**

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC 15.209 and FCC 15.407 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

**EMI Test Receiver & Spectrum Analyzer Setup**

The system was investigated from 30 MHz to 40 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	PK
	1MHz	10 Hz <sup>Note 1</sup>	/	Average
	1MHz	> 1/T <sup>Note 2</sup>	/	Average

Note 1: when duty cycle is no less than 98%

Note 2: when duty cycle is less than 98%

**Test Procedure****Radiated Spurious Emission**

During the radiated emission test, the adapter was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all the installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1GHz, peak and Average detection modes for frequencies above 1GHz.

## Corrected Factor & Margin Calculation

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain. The basic equation is as follows:

$$\text{Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Over Limit/Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over Limit/margin of -7dB means the emission is 7dB below the limit. The equation for calculation is as follows:

$$\begin{aligned} \text{Over Limit/Margin} &= \text{Level} / \text{Corrected Amplitude} - \text{Limit} \\ \text{Level} / \text{Corrected Amplitude} &= \text{Read Level} + \text{Factor} \end{aligned}$$

## Test Data

### Environmental Conditions

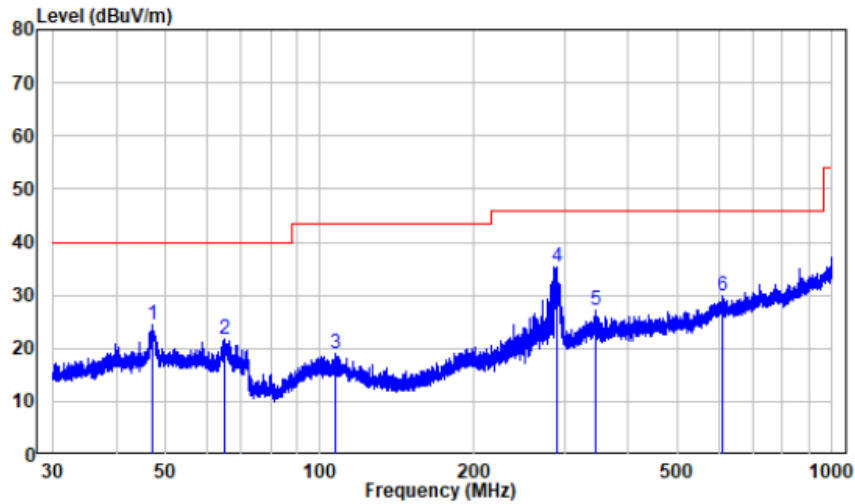
<b>Temperature:</b>	24~26.5 °C
<b>Relative Humidity:</b>	52~64 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Chao Mo on 2021-11-27 for below 1GHz and Caro Hu from 2021-11-19 to 2021-11-27 for above 1GHz.*

*EUT operation mode: Transmitting(Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded)*

**30 MHz – 1 GHz:** (the worst case is 802.11a mode, 5320MHz )

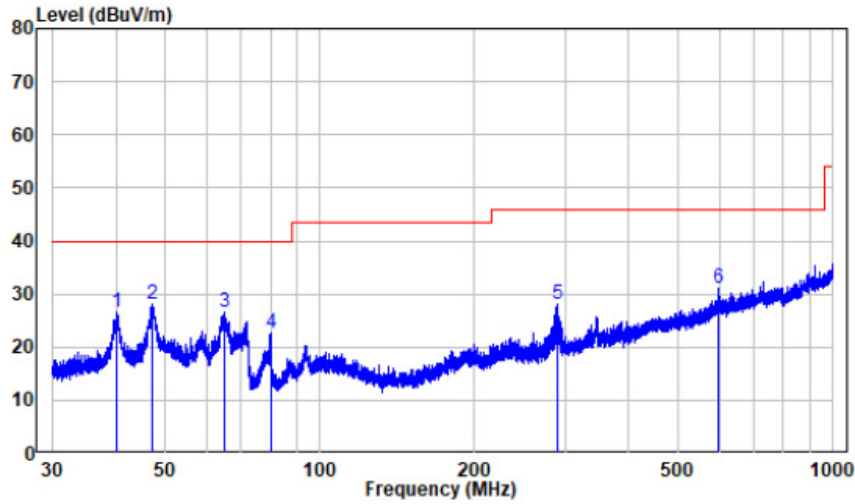
Horizontal



Site : chamber  
 Condition: 3m HORIZONTAL  
 Job NO : : SZNS211027-55317E-RF  
 Test Mode: 5G WIFI

	Freq Factor		Read Level		Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	47.08	-9.92	34.33	24.41	40.00	-15.59	Peak
2	65.31	-12.62	34.39	21.77	40.00	-18.23	Peak
3	107.32	-12.00	31.02	19.02	43.50	-24.48	Peak
4	290.91	-9.01	44.40	35.39	46.00	-10.61	Peak
5	344.69	-7.13	34.31	27.18	46.00	-18.82	Peak
6	612.87	-2.15	32.08	29.93	46.00	-16.07	Peak

Vertical



Site : chamber  
 Condition: 3m VERTICAL  
 Job NO : : SZNS211027-55317E-RF  
 Test Mode: 5G WIFI

	Freq	Factor	Read Level	Level	Limit	Over	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	40.03	-10.25	36.87	26.62	40.00	-13.38	Peak
2	47.02	-9.92	38.05	28.13	40.00	-11.87	Peak
3	65.29	-12.61	39.23	26.62	40.00	-13.38	Peak
4	80.01	-16.82	39.55	22.73	40.00	-17.27	Peak
5	290.02	-9.02	37.03	28.01	46.00	-17.99	Peak
6	599.58	-1.96	33.06	31.10	46.00	-14.90	Peak

**5150-5250 MHz:**

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11a									
5180 MHz									
4500	63.34	PK	157	2.4	H	-4.72	58.62	74	-15.38
4500	49.41	AV	157	2.4	H	-4.72	44.69	54	-9.31
4500	63.49	PK	85	1.9	V	-4.72	58.77	74	-15.23
4500	49.40	AV	85	1.9	V	-4.72	44.68	54	-9.32
5150	68.51	PK	299	1.8	H	-2.73	65.78	74	-8.22
5150	51.64	AV	299	1.8	H	-2.73	48.91	54	-5.09
5150	67.65	PK	259	1.3	V	-2.73	64.92	74	-9.08
5150	50.37	AV	259	1.3	V	-2.73	47.64	54	-6.36
10360	45.87	PK	70	1.9	H	8.10	53.97	68.2	-14.23
10360	47.68	PK	345	1.9	V	8.10	55.78	68.2	-12.42
5200 MHz									
10400	48.67	PK	152	1.7	H	8.24	56.91	68.2	-11.29
10400	49.80	PK	43	1.7	V	8.24	58.04	68.2	-10.16
5240 MHz									
5350	68.69	PK	157	2.1	H	-2.33	66.36	74	-7.64
5350	52.49	AV	157	2.1	H	-2.33	50.16	54	-3.84
5350	69.20	PK	109	1.5	V	-2.33	66.87	74	-7.13
5350	53.04	AV	109	1.5	V	-2.33	50.71	54	-3.29
5460	64.46	PK	349	2.1	H	-2.3	62.16	74	-11.84
5460	50.03	AV	349	2.1	H	-2.3	47.73	54	-6.27
5460	64.43	PK	243	1.6	V	-2.3	62.13	74	-11.87
5460	50.19	AV	243	1.6	V	-2.3	47.89	54	-6.11
10480	48.38	PK	328	1.7	H	8.6	56.98	68.2	-11.22
10480	50.57	PK	19	1.7	V	8.6	59.17	68.2	-9.03



Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dB $\mu$ V/m)	FCC Part 15.407	
	Reading (dB $\mu$ V)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dB $\mu$ V/m)	Margin (dB)
802.11n20									
5180 MHz									
4500	63.42	PK	55	2.2	H	-4.72	58.70	74	-15.30
4500	49.05	AV	55	2.2	H	-4.72	44.33	54	-9.67
4500	63.68	PK	217	2.2	V	-4.72	58.96	74	-15.04
4500	49.19	AV	217	2.2	V	-4.72	44.47	54	-9.53
5150	71.58	PK	351	1.4	H	-2.73	68.85	74	-5.15
5150	52.92	AV	351	1.4	H	-2.73	50.19	54	-3.81
5150	67.88	PK	84	1.5	V	-2.73	65.15	74	-8.85
5150	50.67	AV	84	1.5	V	-2.73	47.94	54	-6.06
10360	43.96	PK	223	2	H	8.10	52.06	68.2	-16.14
10360	46.34	PK	204	2	V	8.10	54.44	68.2	-13.76
5200 MHz									
10400	44.95	PK	38	1.2	H	8.24	53.19	68.2	-15.01
10400	47.60	PK	70	1.2	V	8.24	55.84	68.2	-12.36
5240 MHz									
5350	63.88	PK	12	1	H	-2.33	61.55	74	-12.45
5350	49.23	AV	12	1	H	-2.33	46.9	54	-7.10
5350	63.32	PK	230	1.5	V	-2.33	60.99	74	-13.01
5350	49.09	AV	230	1.5	V	-2.33	46.76	54	-7.24
5460	63.75	PK	325	1.9	H	-2.3	61.45	74	-12.55
5460	49.50	AV	325	1.9	H	-2.3	47.2	54	-6.80
5460	64.85	PK	133	1.2	V	-2.3	62.55	74	-11.45
5460	49.96	AV	133	1.2	V	-2.3	47.66	54	-6.34
10480	46.38	PK	276	1.7	H	8.6	54.98	68.2	-13.22
10480	48.50	PK	196	1.7	V	8.6	57.10	68.2	-11.10

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dB $\mu$ V/m)	FCC Part 15.407	
	Reading (dB $\mu$ V)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dB $\mu$ V/m)	Margin (dB)
802.11n40									
5190 MHz									
4500	64.30	PK	290	1.1	H	-4.72	59.58	74	-14.42
4500	49.15	AV	290	1.1	H	-4.72	44.43	54	-9.57
4500	63.52	PK	160	1	V	-4.72	58.80	74	-15.20
4500	49.14	AV	160	1	V	-4.72	44.42	54	-9.58
5150	68.90	PK	353	2	H	-2.73	66.17	74	-7.83
5150	53.49	AV	353	2	H	-2.73	50.76	54	-3.24
5150	66.96	PK	170	1.3	V	-2.73	64.23	74	-9.77
5150	52.22	AV	170	1.3	V	-2.73	49.49	54	-4.51
10380	41.11	PK	258	1.5	H	8.20	49.31	68.2	-18.89
10380	41.58	PK	286	1.5	V	8.20	49.78	68.2	-18.42
5230 MHz									
5350	63.12	PK	344	1.9	H	-2.33	60.79	74	-13.21
5350	50.71	AV	344	1.9	H	-2.33	48.38	54	-5.62
5350	63.79	PK	138	1	V	-2.33	61.46	74	-12.54
5350	50.79	AV	138	1	V	-2.33	48.46	54	-5.54
5460	63.14	PK	74	2.3	H	-2.3	60.84	74	-13.16
5460	50.53	AV	74	2.3	H	-2.3	48.23	54	-5.77
5460	63.66	PK	326	2	V	-2.3	61.36	74	-12.64
5460	50.96	AV	326	2	V	-2.3	48.66	54	-5.34
10460	40.69	PK	247	1.7	H	8.43	49.12	68.2	-19.08
10460	40.93	PK	164	1.7	V	8.43	49.36	68.2	-18.84

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11ac20									
5180 MHz									
4500	64.06	PK	196	1.9	H	-4.72	59.34	74	-14.66
4500	50.72	AV	196	1.9	H	-4.72	46.00	54	-8.00
4500	74.28	PK	341	2.3	V	-4.72	69.56	74	-4.44
4500	55.19	AV	341	2.3	V	-4.72	50.47	54	-3.53
5150	61.95	PK	358	2	H	-2.73	59.22	74	-14.78
5150	48.82	AV	358	2	H	-2.73	46.09	54	-7.91
5150	68.69	PK	127	1.1	V	-2.73	65.96	74	-8.04
5150	51.76	AV	127	1.1	V	-2.73	49.03	54	-4.97
10360	47.93	PK	310	1.8	H	8.10	56.03	68.2	-12.17
10360	48.38	PK	17	1.8	V	8.10	56.48	68.2	-11.72
5200 MHz									
10400	45.86	PK	173	2.4	H	8.24	54.1	68.2	-14.10
10400	46.56	PK	193	2.4	V	8.24	54.8	68.2	-13.40
5240 MHz									
5350	63.17	PK	201	1.1	H	-2.33	60.84	74	-13.16
5350	50.90	AV	201	1.1	H	-2.33	48.57	54	-5.43
5350	63.49	PK	224	2.4	V	-2.33	61.16	74	-12.84
5350	50.70	AV	224	2.4	V	-2.33	48.37	54	-5.63
5460	62.91	PK	276	1.9	H	-2.3	60.61	74	-13.39
5460	50.56	AV	276	1.9	H	-2.3	48.26	54	-5.74
5460	63.33	PK	73	1.9	V	-2.3	61.03	74	-12.97
5460	50.67	AV	73	1.9	V	-2.3	48.37	54	-5.63
10480	51.34	PK	189	1.7	H	8.6	59.94	68.2	-8.26
10480	49.18	PK	129	1.7	V	8.6	57.78	68.2	-10.42

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dB $\mu$ V/m)	FCC Part 15.407	
	Reading (dB $\mu$ V)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dB $\mu$ V/m)	Margin (dB)
802.11ac40									
5190 MHz									
4500	63.66	PK	207	1.9	H	-4.72	58.94	74	-15.06
4500	50.63	AV	207	1.9	H	-4.72	45.91	54	-8.09
4500	63.88	PK	254	2	V	-4.72	59.16	74	-14.84
4500	50.94	AV	254	2	V	-4.72	46.22	54	-7.78
5150	65.82	PK	253	1	H	-2.73	63.09	74	-10.91
5150	51.62	AV	253	1	H	-2.73	48.89	54	-5.11
5150	65.70	PK	150	1.4	V	-2.73	62.97	74	-11.03
5150	51.33	AV	150	1.4	V	-2.73	48.60	54	-5.40
10380	41.53	PK	276	1.5	H	8.20	49.73	68.2	-18.47
10380	40.97	PK	32	1.5	V	8.20	49.17	68.2	-19.03
5230 MHz									
5350	63.72	PK	32	2.3	H	-2.33	61.39	74	-12.61
5350	50.22	AV	32	2.3	H	-2.33	47.89	54	-6.11
5350	63.21	PK	15	1.9	V	-2.33	60.88	74	-13.12
5350	50.56	AV	15	1.9	V	-2.33	48.23	54	-5.77
5460	63.84	PK	118	1.4	H	-2.3	61.54	74	-12.46
5460	49.94	AV	118	1.4	H	-2.3	47.64	54	-6.36
5460	63.74	PK	271	1.6	V	-2.3	61.44	74	-12.56
5460	50.24	AV	271	1.6	V	-2.3	47.94	54	-6.06
10460	40.86	PK	71	1.7	H	8.43	49.29	68.2	-18.91
10460	40.56	PK	279	1.7	V	8.43	48.99	68.2	-19.21

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dB $\mu$ V/m)	FCC Part 15.407	
	Reading (dB $\mu$ V)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dB $\mu$ V/m)	Margin (dB)
802.11ac80									
5210 MHz									
4500	63.76	PK	263	1.1	H	-4.72	59.04	74	-14.96
4500	50.56	AV	263	1.1	H	-4.72	45.84	54	-8.16
4500	64.00	PK	345	1.2	V	-4.72	59.28	74	-14.72
4500	50.97	AV	345	1.2	V	-4.72	46.25	54	-7.75
5150	66.73	PK	242	1.4	H	-2.73	64.00	74	-10.00
5150	52.96	AV	242	1.4	H	-2.73	50.23	54	-3.77
5150	67.60	PK	290	2.3	V	-2.73	64.87	74	-9.13
5150	53.03	AV	290	2.3	V	-2.73	50.30	54	-3.70
5350	63.88	PK	338	1.1	H	-2.33	61.55	74	-12.45
5350	50.38	AV	338	1.1	H	-2.33	48.05	54	-5.95
5350	63.13	PK	127	1.3	V	-2.33	60.8	74	-13.20
5350	50.08	AV	127	1.3	V	-2.33	47.75	54	-6.25
5460	63.92	PK	266	1.2	H	-2.3	61.62	74	-12.38
5460	50.53	AV	266	1.2	H	-2.3	48.23	54	-5.77
5460	63.87	PK	212	2.1	V	-2.3	61.57	74	-12.43
5460	50.40	AV	212	2.1	V	-2.3	48.1	54	-5.90
10420.00	41.62	PK	42	2.4	H	8.24	49.86	68.2	-18.34
10420.00	41.14	PK	265	2.4	V	8.24	49.38	68.2	-18.82

**5250-5350 MHz:**

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11a									
5260MHz									
4500	63.74	PK	125	1.7	H	-4.72	59.02	74	-14.98
4500	40.21	AV	125	1.7	H	-4.72	35.49	54	-18.51
4500	65.35	PK	54	1.5	V	-4.72	60.63	74	-13.37
4500	51.93	AV	54	1.5	V	-4.72	47.21	54	-6.79
5150	61.91	PK	85	1.9	H	-2.73	59.18	74	-14.82
5150	48.45	AV	85	1.9	H	-2.73	45.72	54	-8.28
5150	62.89	PK	108	2.1	V	-2.73	60.16	74	-13.84
5150	49.99	AV	108	2.1	V	-2.73	47.26	54	-6.74
10520	51.70	PK	186	2.4	H	8.65	60.35	68.2	-7.85
10520	49.41	PK	147	2.4	V	8.65	58.06	68.2	-10.14
5280MHz									
10560	51.78	PK	312	2	H	8.65	60.43	68.2	-7.77
10560	50.00	PK	99	2	V	8.65	58.65	68.2	-9.55
5320MHz									
5350	70.86	PK	18	1.6	H	-2.33	68.53	74	-5.47
5350	53.26	AV	18	1.6	H	-2.33	50.93	54	-3.07
5350	63.32	PK	149	1.8	V	-2.33	60.99	74	-13.01
5350	50.46	AV	149	1.8	V	-2.33	48.13	54	-5.87
5460	69.02	PK	220	1.8	H	-2.3	66.72	74	-7.28
5460	52.57	AV	220	1.8	H	-2.3	50.27	54	-3.73
5460	63.32	PK	140	1.4	V	-2.3	61.02	74	-12.98
5460	50.41	AV	140	1.4	V	-2.3	48.11	54	-5.89
10640	51.87	PK	30	2.5	H	8.9	60.77	74	-13.23
10640	34.82	AV	30	2.5	H	8.9	43.72	54	-10.28
10640	48.63	PK	76	1.7	V	8.9	57.53	74	-16.47
10640	34.11	AV	76	1.7	V	8.9	43.01	54	-10.99

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11n20									
5260MHz									
4500	63.97	PK	323	2.3	H	-4.72	59.25	74	-14.75
4500	50.20	AV	323	2.3	H	-4.72	45.48	54	-8.52
4500	64.79	PK	76	2.1	V	-4.72	60.07	74	-13.93
4500	51.80	AV	76	2.1	V	-4.72	47.08	54	-6.92
5150	62.22	PK	135	1.4	H	-2.73	59.49	74	-14.51
5150	48.11	AV	135	1.4	H	-2.73	45.38	54	-8.62
5150	62.64	PK	94	1.1	V	-2.73	59.91	74	-14.09
5150	49.81	AV	94	1.1	V	-2.73	47.08	54	-6.92
10520	50.55	PK	315	2	H	8.65	59.20	68.2	-9
10520	49.21	PK	74	2	V	8.65	57.86	68.2	-10.34
5280MHz									
10560	50.16	PK	174	1.3	H	8.65	58.81	68.2	-9.39
10560	49.81	PK	16	1.3	V	8.65	58.46	68.2	-9.74
5320MHz									
5350	69.41	PK	279	2.1	H	-2.33	67.08	74	-6.92
5350	53.24	AV	279	2.1	H	-2.33	50.91	54	-3.09
5350	63.80	PK	307	1.9	V	-2.33	61.47	74	-12.53
5350	50.60	AV	307	1.9	V	-2.33	48.27	54	-5.73
5460	68.94	PK	186	1.6	H	-2.3	66.64	74	-7.36
5460	53.05	AV	186	1.6	H	-2.3	50.75	54	-3.25
5460	63.94	PK	120	1.4	V	-2.3	61.64	74	-12.36
5460	50.24	AV	120	1.4	V	-2.3	47.94	54	-6.06
10640	55.47	PK	304	2	H	8.9	64.37	74	-9.63
10640	31.85	AV	304	2	H	8.9	40.75	54	-13.25
10640	54.63	PK	321	1.4	V	8.9	63.53	74	-10.47
10640	31.21	AV	321	1.4	V	8.9	40.11	54	-13.89

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dB $\mu$ V/m)	FCC Part 15.407	
	Reading (dB $\mu$ V)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dB $\mu$ V/m)	Margin (dB)
802.11n40									
5270MHz									
4500	63.90	PK	102	2.5	H	-4.72	59.18	74	-14.82
4500	50.53	AV	102	2.5	H	-4.72	45.81	54	-8.19
4500	65.04	PK	187	1.7	V	-4.72	60.32	74	-13.68
4500	52.02	AV	187	1.7	V	-4.72	47.30	54	-6.7
5150	61.65	PK	335	2	H	-2.73	58.92	74	-15.08
5150	48.25	AV	335	2	H	-2.73	45.52	54	-8.48
5150	63.11	PK	251	2	V	-2.73	60.38	74	-13.62
5150	49.74	AV	251	2	V	-2.73	47.01	54	-6.99
10540	46.16	PK	53	2	H	8.65	54.81	68.2	-13.39
10540	45.26	PK	159	2	V	8.65	53.91	68.2	-14.29
5310MHz									
5350	69.97	PK	295	1.8	H	-2.33	67.64	74	-6.36
5350	53.24	AV	295	1.8	H	-2.33	50.91	54	-3.09
5350	64.13	PK	308	1.8	V	-2.33	61.8	74	-12.2
5350	50.40	AV	308	1.8	V	-2.33	48.07	54	-5.93
5460	68.15	PK	321	2.4	H	-2.3	65.85	74	-8.15
5460	52.78	AV	321	2.4	H	-2.3	50.48	54	-3.52
5460	63.69	PK	294	1.8	V	-2.3	61.39	74	-12.61
5460	50.59	AV	294	1.8	V	-2.3	48.29	54	-5.71
10620	46.79	PK	154	1.9	H	8.8	55.59	74	-18.41
10620	32.17	AV	154	1.9	H	8.8	40.97	54	-13.03
10620	45.75	PK	246	1.7	V	8.8	54.55	74	-19.45
10620	31.43	AV	246	1.7	V	8.8	40.23	54	-13.77



Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dB $\mu$ V/m)	FCC Part 15.407	
	Reading (dB $\mu$ V)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dB $\mu$ V/m)	Margin (dB)
802.11ac20									
5260MHz									
4500	64.16	PK	244	1.1	H	-4.72	59.44	74	-14.56
4500	50.41	AV	244	1.1	H	-4.72	45.69	54	-8.31
4500	64.92	PK	67	2.4	V	-4.72	60.20	74	-13.8
4500	51.66	AV	67	2.4	V	-4.72	46.94	54	-7.06
5150	61.78	PK	243	1.9	H	-2.73	59.05	74	-14.95
5150	48.14	AV	243	1.9	H	-2.73	45.41	54	-8.59
5150	63.11	PK	29	1.6	V	-2.73	60.38	74	-13.62
5150	50.09	AV	29	1.6	V	-2.73	47.36	54	-6.64
10520	52.42	PK	38	2.4	H	8.65	61.07	68.2	-7.13
10520	49.53	PK	316	2.4	V	8.65	58.18	68.2	-10.02
5280MHz									
10560	51.82	PK	176	1.9	H	8.65	60.47	68.2	-7.73
10560	49.93	PK	10	1.9	V	8.65	58.58	68.2	-9.62
5320MHz									
5350	63.72	PK	214	2.3	H	-2.33	61.39	74	-12.61
5350	50.30	AV	214	2.3	H	-2.33	47.97	54	-6.03
5350	65.49	PK	12	2.4	V	-2.33	63.16	74	-10.84
5350	50.20	AV	12	2.4	V	-2.33	47.87	54	-6.13
5460	63.39	PK	183	2	H	-2.3	61.09	74	-12.91
5460	50.01	AV	183	2	H	-2.3	47.71	54	-6.29
5460	66.02	PK	177	1.6	V	-2.3	63.72	74	-10.28
5460	50.17	AV	177	1.6	V	-2.3	47.87	54	-6.13
10640	45.26	PK	353	1.9	H	8.9	54.16	74	-19.84
10640	30.05	AV	353	1.9	H	8.9	38.95	54	-15.05
10640	45.61	PK	129	1	V	8.9	54.51	74	-19.49
10640	29.25	AV	129	1	V	8.9	38.15	54	-15.85

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11ac40									
5270MHz									
4500	64.47	PK	25	1.1	H	-4.72	59.75	74	-14.25
4500	50.28	AV	25	1.1	H	-4.72	45.56	54	-8.44
4500	64.79	PK	285	2.2	V	-4.72	60.07	74	-13.93
4500	51.99	AV	285	2.2	V	-4.72	47.27	54	-6.73
5150	62.46	PK	86	2	H	-2.73	59.73	74	-14.27
5150	48.36	AV	86	2	H	-2.73	45.63	54	-8.37
5150	62.66	PK	24	1.7	V	-2.73	59.93	74	-14.07
5150	49.86	AV	24	1.7	V	-2.73	47.13	54	-6.87
10540	40.96	PK	214	2	H	8.65	49.61	68.2	-18.59
10540	40.25	PK	223	2	V	8.65	48.90	68.2	-19.3
5310MHz									
5350	70.22	PK	352	2.5	H	-2.33	67.89	74	-6.11
5350	53.11	AV	352	2.5	H	-2.33	50.78	54	-3.22
5350	64.12	PK	196	2.4	V	-2.33	61.79	74	-12.21
5350	50.41	AV	196	2.4	V	-2.33	48.08	54	-5.92
5460	68.74	PK	204	2.3	H	-2.3	66.44	74	-7.56
5460	52.58	AV	204	2.3	H	-2.3	50.28	54	-3.72
5460	63.77	PK	128	1.9	V	-2.3	61.47	74	-12.53
5460	50.19	AV	128	1.9	V	-2.3	47.89	54	-6.11
10640	40.69	PK	300	1.4	H	8.9	49.59	74	-24.41
10640	27.92	AV	300	1.4	H	8.9	36.82	54	-17.18
10640	40.19	PK	284	1.1	V	8.9	49.09	74	-24.91
10640	27.59	AV	284	1.1	V	8.9	36.49	54	-17.51

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dB $\mu$ V/m)	FCC Part 15.407	
	Reading (dB $\mu$ V)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dB $\mu$ V/m)	Margin (dB)
802.11ac80									
5290MHz									
4500	63.60	PK	137	1	H	-4.72	58.88	74	-15.12
4500	50.40	AV	137	1	H	-4.72	45.68	54	-8.32
4500	64.07	PK	358	1.6	V	-4.72	59.35	74	-14.65
4500	50.29	AV	358	1.6	V	-4.72	45.57	54	-8.43
5150	62.79	PK	102	1.4	H	-2.73	60.06	74	-13.94
5150	49.94	AV	102	1.4	H	-2.73	47.21	54	-6.79
5150	63.05	PK	25	2	V	-2.73	60.32	74	-13.68
5150	49.83	AV	25	2	V	-2.73	47.10	54	-6.9
5350	71.27	PK	303	1.5	H	-2.33	68.94	74	-5.06
5350	52.38	AV	303	1.5	H	-2.33	50.05	54	-3.95
5350	71.25	PK	304	1.8	V	-2.33	68.92	74	-5.08
5350	52.31	AV	304	1.8	V	-2.33	49.98	54	-4.02
5460	63.21	PK	38	2.4	H	-2.3	60.91	74	-13.09
5460	50.39	AV	38	2.4	H	-2.3	48.09	54	-5.91
5460	63.32	PK	143	1.2	V	-2.3	61.02	74	-12.98
5460	50.56	AV	143	1.2	V	-2.3	48.26	54	-5.74
10580	41.68	PK	284	2.1	H	8.7	50.38	68.2	-17.82
10580	41.08	PK	37	2.1	V	8.7	49.78	68.2	-18.42

**5470-5725MHz:**

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11a									
5500MHz									
5400	69.43	PK	245	2.3	H	-2.29	67.14	74	-6.86
5400	49.02	AV	245	2.3	H	-2.29	46.73	54	-7.27
5400	69.93	PK	335	2.3	V	-2.29	67.64	74	-6.36
5400	49.27	AV	335	2.3	V	-2.29	46.98	54	-7.02
5470	67.02	PK	21	1.7	H	-2.2	64.82	68.2	-3.38
5470	65.64	PK	30	1.5	V	-2.2	63.44	68.2	-4.76
11000	40.06	PK	246	1.2	H	9.67	49.73	74	-24.27
11000	40.34	PK	170	1.2	V	9.67	50.01	74	-23.99
5580MHz									
11160	41.81	PK	20	1.3	H	8.60	50.41	74	-23.59
11160	42.13	PK	221	1.3	V	8.60	50.73	74	-23.27
5700MHz									
5725	65.10	PK	190	1.7	H	-2.02	63.08	68.2	-5.12
5725	64.79	AV	190	1.7	H	-2.02	62.77	68.2	-5.43
5745	65.40	PK	206	1.7	V	-1.9	63.5	68.2	-4.70
5745	64.45	AV	206	1.7	V	-1.9	62.55	68.2	-5.65
11400	43.76	PK	122	2.1	H	7.26	51.02	74	-22.98
11400	44.22	PK	334	1.6	V	7.26	51.48	74	-22.52

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dB $\mu$ V/m)	FCC Part 15.407	
	Reading (dB $\mu$ V)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dB $\mu$ V/m)	Margin (dB)
802.11n20									
5500MHz									
5400	69.44	PK	80	1.2	H	-2.29	67.15	74	-6.85
5400	49.10	AV	80	1.2	H	-2.29	46.81	54	-7.19
5400	69.72	PK	215	1.5	V	-2.29	67.43	74	-6.57
5400	49.23	AV	215	1.5	V	-2.29	46.94	54	-7.06
5470	69.19	PK	354	1.1	H	-2.2	66.99	68.2	-1.21
5470	65.72	PK	314	1.2	V	-2.2	63.52	68.2	-4.68
11000	51.85	PK	150	1.8	H	9.67	61.52	74	-12.48
11000	35.63	AV	150	1.8	H	9.67	45.3	54	-8.70
11000	52.27	PK	132	1.9	V	9.67	61.94	74	-12.06
11000	35.96	AV	132	1.9	V	9.67	45.63	54	-8.37
5580MHz									
11160	41.71	PK	110	2.2	H	8.60	50.31	74	-23.69
11160	42.12	PK	273	2.2	V	8.60	50.72	74	-23.28
5700MHz									
5725	69.19	PK	22	2.4	H	-2.02	67.17	68.2	-1.03
5725	64.68	AV	22	2.4	H	-2.02	62.66	68.2	-5.54
5745	66.55	PK	276	2	V	-1.9	64.65	68.2	-3.55
5745	64.75	AV	276	2	V	-1.9	62.85	68.2	-5.35
11400	55.10	PK	195	2	H	7.26	62.36	74	-11.64
11400	38.91	AV	195	2	H	7.26	46.17	54	-7.83
11400	54.82	PK	289	2	V	7.26	62.08	74	-11.92
11400	39.25	AV	289	2	V	7.26	46.51	54	-7.49

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11n40									
5510MHz									
5400	68.83	PK	57	2.4	H	-2.29	66.54	74	-7.46
5400	49.02	AV	57	2.4	H	-2.29	46.73	54	-7.27
5400	68.64	PK	6	2.3	V	-2.29	66.35	74	-7.65
5400	49.11	AV	6	2.3	V	-2.29	46.82	54	-7.18
5470	65.71	PK	162	2.5	H	-2.2	63.51	68.2	-4.69
5470	66.03	PK	349	1.5	V	-2.2	63.83	68.2	-4.37
11020	40.10	PK	294	1.3	H	9.6	49.7	74	-24.30
11020	40.61	PK	288	1.1	V	9.6	50.21	74	-23.79
5550MHz									
11100	40.28	PK	116	1.3	H	9.12	49.40	74	-24.60
11100	40.75	PK	199	1.3	V	9.12	49.87	74	-24.13
5670MHz									
5725	65.96	PK	202	1.4	H	-2.02	63.94	68.2	-4.26
5725	64.33	AV	202	1.4	H	-2.02	62.31	68.2	-5.89
5745	66.25	PK	150	1.7	V	-1.9	64.35	68.2	-3.85
5745	64.34	AV	150	1.7	V	-1.9	62.44	68.2	-5.76
11340	42.94	PK	123	2.2	H	7.6	50.54	74	-23.46
11340	43.48	PK	176	1.8	V	7.6	51.08	74	-22.92
802.11ac20									
5500MHz									
5400	69.13	PK	120	1	H	-2.29	66.84	74	-7.16
5400	53.75	AV	120	1	H	-2.29	51.46	54	-2.54
5400	69.04	PK	50	2.3	V	-2.29	66.75	74	-7.25
5400	51.40	AV	50	2.3	V	-2.29	49.11	54	-4.89
5470	46.21	PK	262	2.1	H	-2.2	44.01	68.2	-24.19
5470	46.30	PK	134	1.3	V	-2.2	44.10	68.2	-24.10
11100	41.37	PK	303	1.2	H	9.12	50.49	74	-23.51
11100	41.22	PK	143	1.2	V	9.12	50.34	74	-23.66
5580MHz									
11160	41.77	PK	232	2	H	8.60	50.37	74	-23.63
11160	42.13	PK	96	2	V	8.60	50.73	74	-23.27
5700MHz									
5725	65.85	PK	214	1.2	H	-2.02	63.83	68.2	-4.37
5725	64.44	AV	214	1.2	H	-2.02	62.42	68.2	-5.78
5745	66.16	PK	165	2.2	V	-1.9	64.26	68.2	-3.94
5745	64.54	AV	165	2.2	V	-1.9	62.64	68.2	-5.56
11400	43.75	PK	350	1.2	H	7.26	51.01	74	-22.99
11400	44.25	PK	112	1.1	V	7.26	51.51	74	-22.49

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11ac40									
5510MHz									
5400	70.63	PK	52	1.8	H	-2.29	68.34	74	-5.66
5400	50.02	AV	52	1.8	H	-2.29	47.73	54	-6.27
5400	70.47	PK	158	1.8	V	-2.29	68.18	74	-5.82
5400	50.18	AV	158	1.8	V	-2.29	47.89	54	-6.11
5470	69.31	PK	19	2.5	H	-2.2	67.11	68.2	-1.09
5470	66.02	PK	177	1.5	V	-2.2	63.82	68.2	-4.38
11020	40.09	PK	98	2.3	H	9.6	49.69	74	-24.31
11020	40.20	PK	85	1	V	9.6	49.8	74	-24.20
5550MHz									
11100	39.94	PK	186	1.6	H	9.12	49.06	74	-24.94
11100	39.96	PK	235	1.6	V	9.12	49.08	74	-24.92
5670MHz									
5725	64.13	PK	279	1.3	H	-2.02	62.11	68.2	-6.09
5725	66.36	AV	279	1.3	H	-2.02	64.34	68.2	-3.86
5745	64.24	PK	110	1.7	V	-1.9	62.34	68.2	-5.86
5745	66.78	AV	110	1.7	V	-1.9	64.88	68.2	-3.32
11340	42.71	PK	151	1.9	H	7.6	50.31	74	-23.69
11340	42.90	PK	236	1.6	V	7.6	50.5	74	-23.50
802.11ac80									
5530MHz									
5400	69.92	PK	278	1.8	H	-2.29	67.63	74	-6.37
5400	51.23	AV	278	1.8	H	-2.29	48.94	54	-5.06
5400	70.21	PK	310	1.7	V	-2.29	67.92	74	-6.08
5400	51.37	AV	310	1.7	V	-2.29	49.08	54	-4.92
5470	69.29	PK	85	2.3	H	-2.2	67.09	68.2	-1.11
5470	66.85	PK	291	1.4	V	-2.2	64.65	68.2	-3.55
11060	40.31	PK	133	1.8	H	9.40	49.71	74	-24.29
11060	40.51	PK	256	1.8	V	9.40	49.91	74	-24.09
5610MHz									
5725	66.13	PK	258	2.3	H	-2.02	64.11	68.2	-4.09
5725	64.34	AV	258	2.3	H	-2.02	62.32	68.2	-5.88
5745	66.76	PK	309	1.7	V	-1.9	64.86	68.2	-3.34
5745	64.64	AV	309	1.7	V	-1.9	62.74	68.2	-5.46
11220	42.27	PK	92	1.2	H	8.40	50.67	74	-23.33
11220	42.43	PK	177	1.2	V	8.40	50.83	74	-23.17

**5725-5850 MHz:**

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11a									
5745MHz									
5650	65.05	PK	74	1.5	H	-1.95	63.10	68.2	-5.1
5650	64.96	PK	324	2.2	V	-1.95	63.01	68.2	-5.19
5700	69.40	PK	102	1.9	H	-2.02	67.38	105.2	-37.82
5700	67.49	PK	65	2	V	-2.02	65.47	105.2	-39.73
5720	79.63	PK	330	2.1	H	-2	77.63	110.8	-33.17
5720	74.35	PK	133	2	V	-2	72.35	110.8	-38.45
5725	88.91	PK	342	1.7	H	-2	86.91	122.2	-35.29
5725	81.28	PK	309	1.7	V	-2	79.28	122.2	-42.92
11490	51.26	PK	313	2.2	H	6.58	57.84	74	-16.16
11490	36.63	AV	313	2.2	H	6.58	43.21	54	-10.79
11490	53.11	PK	230	1.4	V	6.58	59.69	74	-14.31
11490	38.04	AV	230	1.4	V	6.58	44.62	54	-9.38
5785MHz									
11570	44.18	PK	1	1.7	H	6.6	50.78	74	-23.22
11570	44.30	PK	204	1.7	V	6.6	50.90	74	-23.10
5825MHz									
5850	66.41	PK	301	1.6	H	-1.81	64.60	122.2	-57.6
5850	66.74	PK	239	2.4	V	-1.81	64.93	122.2	-57.27
5855	245.65	PK	19	1.1	H	-181	64.65	110.8	-46.15
5855	66.86	PK	76	1.5	V	-1.81	65.05	110.8	-45.75
5875	66.53	PK	313	1.6	H	-1.84	64.69	105.2	-40.51
5875	66.63	PK	259	1.8	V	-1.84	64.79	105.2	-40.41
5925	66.33	PK	295	1.7	H	-1.8	64.53	68.2	-3.67
5925	66.25	PK	35	1.7	V	-1.8	64.45	68.2	-3.75
11650	42.86	PK	227	2	H	6.77	49.63	74	-24.37
11650	42.97	PK	21	2.2	V	6.77	49.74	74	-24.26



Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11n20									
5745MHz									
5650	65.55	PK	64	1.9	H	-1.95	63.60	68.2	-4.6
5650	65.39	PK	12	2.3	V	-1.95	63.44	68.2	-4.76
5700	73.73	PK	101	1.7	H	-2.02	71.71	105.2	-33.49
5700	68.22	PK	324	2.4	V	-2.02	66.2	105.2	-39
5720	82.93	PK	315	2.2	H	-2	80.93	110.8	-29.87
5720	74.55	PK	321	1.8	V	-2	72.55	110.8	-38.25
5725	93.64	PK	240	1.7	H	-2	91.64	122.2	-30.56
5725	84.88	PK	80	1.7	V	-2	82.88	122.2	-39.32
11490	52.32	PK	231	2.1	H	6.58	58.90	74	-15.1
11490	37.38	AV	231	2.1	H	6.58	43.96	54	-10.04
11490	54.17	PK	126	1.6	V	6.58	60.75	74	-13.25
11490	38.91	AV	126	1.6	V	6.58	45.49	54	-8.51
5785MHz									
11570	44.05	PK	290	1.7	H	6.6	50.65	74	-23.35
11570	44.27	PK	108	1.7	V	6.6	50.87	74	-23.13
5825MHz									
5850	66.53	PK	319	2.2	H	-1.81	64.72	122.2	-57.48
5850	66.47	PK	189	1.4	V	-1.81	64.66	122.2	-57.54
5855	245.89	PK	117	1.4	H	-1.81	64.89	110.8	-45.91
5855	66.63	PK	15	2	V	-1.81	64.82	110.8	-45.98
5875	67.32	PK	189	2	H	-1.84	65.48	105.2	-39.72
5875	67.08	PK	184	1.2	V	-1.84	65.24	105.2	-39.96
5925	66.50	PK	199	1.7	H	-1.8	64.70	68.2	-3.5
5925	66.41	PK	66	1.7	V	-1.8	64.61	68.2	-3.59
11650	42.79	PK	155	2.3	H	6.77	49.56	74	-24.44
11650	43.03	PK	252	1.9	V	6.77	49.80	74	-24.2

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dB $\mu$ V/m)	FCC Part 15.407	
	Reading (dB $\mu$ V)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dB $\mu$ V/m)	Margin (dB)
802.11n40									
5755MHz									
5650	65.26	PK	119	1.6	H	-1.95	63.31	68.2	-4.89
5650	65.18	PK	217	1.7	V	-1.95	63.23	68.2	-4.97
5700	65.22	PK	128	1.8	H	-2.02	63.2	105.2	-42
5700	65.49	PK	157	1.9	V	-2.02	63.47	105.2	-41.73
5720	65.44	PK	215	2	H	-2	63.44	110.8	-47.36
5720	66.10	PK	276	1.9	V	-2	64.1	110.8	-46.7
5725	66.35	PK	153	1.7	H	-2	64.35	122.2	-57.85
5725	66.68	PK	95	1.7	V	-2	64.68	122.2	-57.52
11510	43.40	PK	21	1.3	H	6.5	49.90	74	-24.1
11510	43.49	PK	299	2.5	V	6.5	49.99	74	-24.01
5795MHz									
5850	66.65	PK	151	1.1	H	-1.81	64.84	122.2	-57.36
5850	66.93	PK	307	2	V	-1.81	65.12	122.2	-57.08
5855	245.89	PK	269	1.2	H	-1.81	64.89	110.8	-45.91
5855	67.07	PK	256	1.3	V	-1.81	65.26	110.8	-45.54
5875	66.89	PK	246	1.4	H	-1.84	65.05	105.2	-40.15
5875	67.45	PK	187	1.3	V	-1.84	65.61	105.2	-39.59
5925	66.11	PK	16	1.7	H	-1.8	64.31	68.2	-3.89
5925	66.38	PK	149	1.7	V	-1.8	64.58	68.2	-3.62
11590	43.58	PK	228	2.1	H	6.58	50.16	74	-23.84
11590	43.67	PK	147	2	V	6.58	50.25	74	-23.75

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11ac20									
5745MHz									
5650	65.90	PK	11	1.3	H	-1.95	63.95	68.2	-4.25
5650	65.48	PK	329	1.5	V	-1.95	63.53	68.2	-4.67
5700	74.15	PK	347	1.5	H	-2.02	72.13	105.2	-33.07
5700	67.76	PK	227	1.9	V	-2.02	65.74	105.2	-39.46
5720	82.14	PK	210	1.5	H	-2	80.14	110.8	-30.66
5720	75.80	PK	300	1.6	V	-2	73.8	110.8	-37
5725	93.36	PK	131	1.7	H	-2	91.36	122.2	-30.84
5725	86.16	PK	99	1.7	V	-2	84.16	122.2	-38.04
11490	52.35	PK	293	2.2	H	6.58	58.93	74	-15.07
11490	36.84	AV	293	2.2	H	6.58	43.42	54	-10.58
11490	53.85	PK	296	2.2	V	6.58	60.43	74	-13.57
11490	37.03	AV	296	2.2	V	6.58	43.61	54	-10.39
5785MHz									
11570	43.96	PK	226	1.7	H	6.6	50.56	74	-23.44
11570	44.09	PK	33	1.7	V	6.6	50.69	74	-23.31
5825MHz									
5850	66.57	PK	212	1.8	H	-1.81	64.76	122.2	-57.44
5850	66.85	PK	36	2.3	V	-1.81	65.04	122.2	-57.16
5855	245.82	PK	38	2	H	-181	64.82	110.8	-45.98
5855	67.04	PK	118	2.2	V	-1.81	65.23	110.8	-45.57
5875	67.09	PK	112	1.2	H	-1.84	65.25	105.2	-39.95
5875	67.55	PK	71	1.3	V	-1.84	65.71	105.2	-39.49
5925	66.59	PK	240	1.7	H	-1.8	64.79	68.2	-3.41
5925	66.67	PK	222	1.7	V	-1.8	64.87	68.2	-3.33
11650	42.54	PK	290	2.3	H	6.77	49.31	74	-24.69
11650	42.75	PK	336	1.7	V	6.77	49.52	74	-24.48

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dB $\mu$ V/m)	FCC Part 15.407	
	Reading (dB $\mu$ V)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dB $\mu$ V/m)	Margin (dB)
802.11ac40									
5755MHz									
5650	65.14	PK	70	2.4	H	-1.95	63.19	68.2	-5.01
5650	65.39	PK	275	1.5	V	-1.95	63.44	68.2	-4.76
5700	65.47	PK	150	1.6	H	-2.02	63.45	105.2	-41.75
5700	65.87	PK	243	2.2	V	-2.02	63.85	105.2	-41.35
5720	65.73	PK	316	2.4	H	-2	63.73	110.8	-47.07
5720	66.53	PK	143	2.4	V	-2	64.53	110.8	-46.27
5725	66.24	PK	277	1.7	H	-2	64.24	122.2	-57.96
5725	66.88	PK	267	1.7	V	-2	64.88	122.2	-57.32
11510	43.51	PK	74	1.1	H	6.5	50.01	74	-23.99
11510	43.79	PK	291	1.8	V	6.5	50.29	74	-23.71
5795MHz									
5850	66.62	PK	0	2.2	H	-1.81	64.81	122.2	-57.39
5850	66.70	PK	258	2.3	V	-1.81	64.89	122.2	-57.31
5855	245.84	PK	178	1.5	H	-1.81	64.84	110.8	-45.96
5855	66.85	PK	14	1.5	V	-1.81	65.04	110.8	-45.76
5875	66.49	PK	83	2.1	H	-1.84	64.65	105.2	-40.55
5875	66.70	PK	7	1.5	V	-1.84	64.86	105.2	-40.34
5925	66.42	PK	108	1.7	H	-1.8	64.62	68.2	-3.58
5925	66.55	PK	40	1.7	V	-1.8	64.75	68.2	-3.45
11590	43.88	PK	262	1.6	H	6.58	50.46	74	-23.54
11590	44.12	PK	353	2	V	6.58	50.70	74	-23.3

Frequency (MHz)	Receiver		Turn-Table Angle Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407	
	Reading (dBμV)	PK/QP/AV		Height (m)	Polar (H / V)			Limit (dBμV/m)	Margin (dB)
802.11ac80									
5775MHz									
5650	64.76	PK	207	1.7	H	-1.95	62.81	68.2	-5.39
5650	65.08	PK	25	1.1	V	-1.95	63.13	68.2	-5.07
5700	65.30	PK	86	1.1	H	-2.02	63.28	105.2	-41.92
5700	65.57	PK	343	1.2	V	-2.02	63.55	105.2	-41.65
5720	66.27	PK	271	1.8	H	-2	64.27	110.8	-46.53
5720	66.66	PK	107	2.4	V	-2	64.66	110.8	-46.14
5725	66.86	PK	11	1.7	H	-2	64.86	122.2	-57.34
5725	66.97	PK	307	1.7	V	-2	64.97	122.2	-57.23
5850	66.59	PK	317	1.2	H	-1.81	64.78	122.2	-57.42
5850	66.72	PK	328	1.7	V	-1.81	64.91	122.2	-57.29
5855	245.73	PK	326	1.1	H	-181	64.73	110.8	-46.07
5855	66.87	PK	72	1	V	-1.81	65.06	110.8	-45.74
5875	66.69	PK	187	1.8	H	-1.84	64.85	105.2	-40.35
5875	66.96	PK	252	1.1	V	-1.84	65.12	105.2	-40.08
5925	66.34	PK	189	1.7	H	-1.8	64.54	68.2	-3.66
5925	66.45	PK	18	1.7	V	-1.8	64.65	68.2	-3.55
11550	43.63	PK	0	1.8	H	6.61	50.24	74	-23.76
11550	43.85	PK	325	1.1	V	6.61	50.46	74	-23.54

**Note:**

Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor

Corrected Amplitude = Corrected Factor + Reading

Margin = Corrected Amplitude – Limit

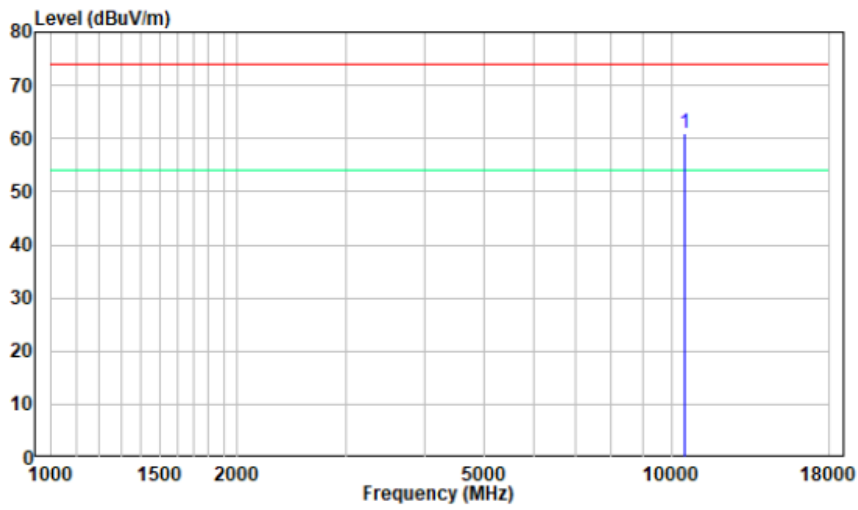
The other spurious emission which is in the noise floor level was not recorded.

The test result of peak was less than the limit of average, so just peak values were recorded.

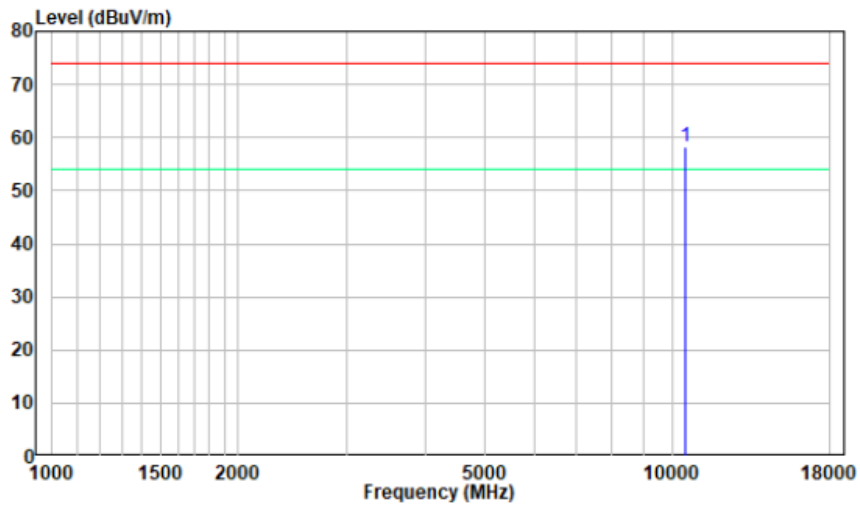
1 GHz - 18 GHz: (Pre-Scan plots)

802.11 ac20 mode, 5260MHz

Horizontal



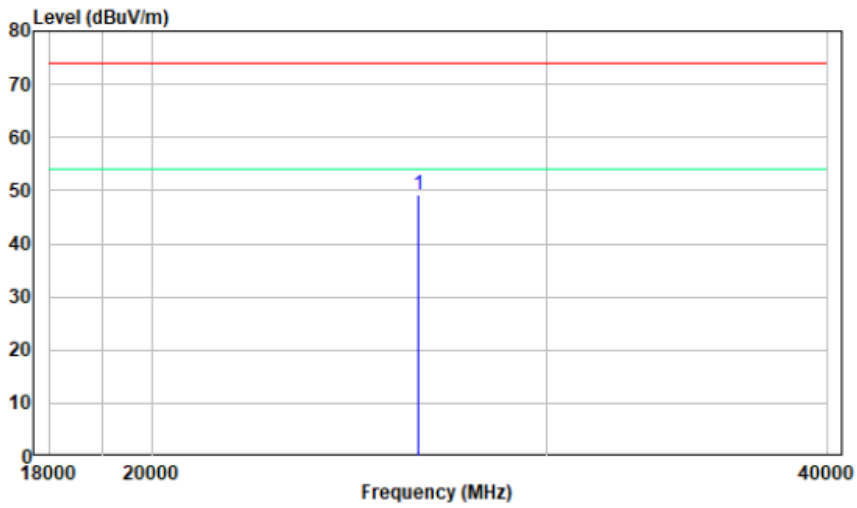
Vertical



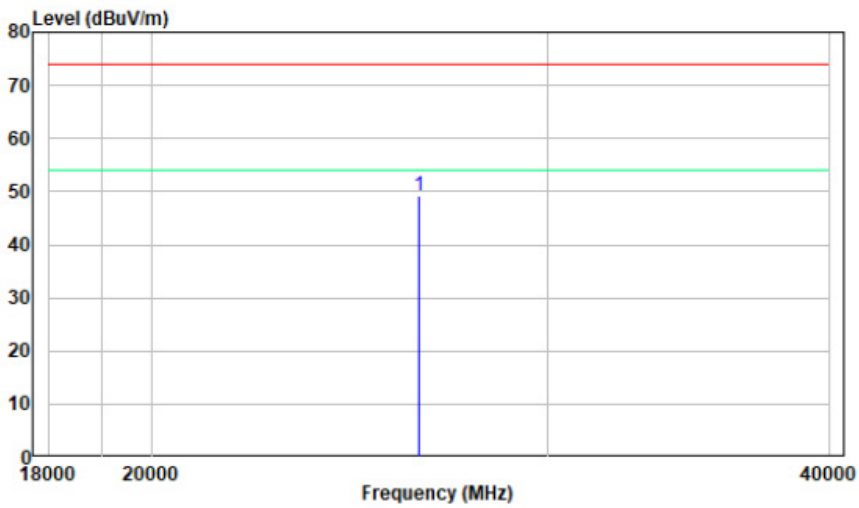
**18-40GHz:** (Pre-Scan plots)

802.11 ac20 mode, 5260MHz

Horizontal



Vertical



## **FCC §15.407(a),(e) – 26 dB & 6dB EMISSION BANDWIDTH**

### **Applicable Standard**

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

### **Test Procedure**

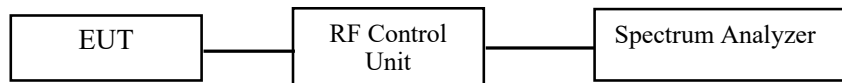
#### **1. Emission Bandwidth (EBW)**

- a) Set RBW = approximately 1% of the emission bandwidth.
- b) Set the VBW > RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

#### **2. Minimum Emission Bandwidth for the band 5.725-5.85 GHz**

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.725-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) 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.





**Test Data****Environmental Conditions**

<b>Temperature:</b>	27 °C
<b>Relative Humidity:</b>	57 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Paul Liu from 2021-11-14 to 2021-12-20.*

*EUT operation mode: Transmitting*

**Test Result: Pass**

*Please refer to the Appendix.*

## **FCC §15.407(a) – CONDUCTED TRANSMITTER OUTPUT POWER**

### **Applicable Standard**

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

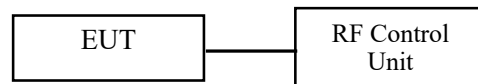
For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

### **Test Procedure**

- c. Place the EUT on a bench and set it in transmitting mode.
- d. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.
- e. Add a correction factor to the display.



Note: The RF control Unit built-in a power sensor.

**Test Data****Environmental Conditions**

<b>Temperature:</b>	27 °C
<b>Relative Humidity:</b>	57 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Paul Liu from 2021-11-14 to 2021-12-02.*

*EUT operation mode: Transmitting*

**Test Result: Pass**

*Please refer to the Appendix.*

## **FCC §15.407(a) - POWER SPECTRAL DENSITY**

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

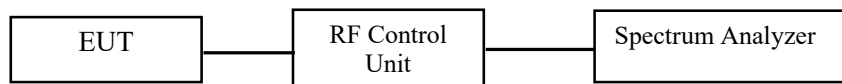
For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

### **Test Procedure**

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, "provided that the measured power is integrated over the full reference bandwidth" to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

- a) Set  $\text{RBW} \geq 1/T$ , where T is defined in section II.B.1.a).
- b) Set  $\text{VBW} \geq 3 \text{ RBW}$ .
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add  $10 \log (500 \text{ kHz}/\text{RBW})$  to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add  $10 \log (1\text{MHz}/\text{RBW})$  to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.



**Test Data****Environmental Conditions**

<b>Temperature:</b>	27 °C
<b>Relative Humidity:</b>	57 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Paul Liu from 2021-11-14 to 2021-12-20.*

*EUT operation mode: Transmitting*

**Test Result: Pass**

*Please refer to the Appendix.*

## APPENDIX

### Appendix A1: Emission Bandwidth Test Result

Test Mode	Antenna	Channel	26db EBW [MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	20.120	---	PASS
		5200	20.560	---	PASS
		5240	22.800	---	PASS
		5260	20.320	---	PASS
		5280	20.520	---	PASS
		5320	20.520	---	PASS
		5500	23.640	---	PASS
		5580	23.400	---	PASS
11N20SISO	Ant1	5700	22.960	---	PASS
		5180	22.160	---	PASS
		5200	22.680	---	PASS
		5240	22.160	---	PASS
		5260	22.280	---	PASS
		5280	22.400	---	PASS
		5320	22.320	---	PASS
		5500	21.640	---	PASS
11N40SISO	Ant1	5580	21.680	---	PASS
		5700	21.960	---	PASS
		5190	42.480	---	PASS
		5230	44.640	---	PASS
		5270	42.480	---	PASS
		5310	44.960	---	PASS
11AC20SISO	Ant1	5510	44.560	---	PASS
		5550	44.720	---	PASS
		5670	45.200	---	PASS
		5180	21.000	---	PASS
		5200	21.040	---	PASS
		5240	21.240	---	PASS
		5260	21.440	---	PASS
		5280	20.840	---	PASS
11AC40SISO	Ant1	5320	22.840	---	PASS
		5500	22.320	---	PASS
		5580	22.240	---	PASS
		5700	22.640	---	PASS
		5190	40.960	---	PASS
		5230	44.800	---	PASS
11AC80SISO	Ant1	5270	42.560	---	PASS
		5310	44.800	---	PASS
		5510	45.040	---	PASS
		5550	45.040	---	PASS
		5670	45.520	---	PASS
		5210	83.840	---	PASS
11AC80SISO	Ant1	5290	82.560	---	PASS
		5530	84.320	---	PASS
		5610	83.840	---	PASS

### Test Graphs

