


# TEST REPORT

Applicant Name : YEALINK (XIAMEN ) NETWORK TECHNOLOGY CO., LTD.  
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Xiamen City, Fujian, China  
Report Number : SZNS220428-17357E-RF-00A1  
FCC ID: T2C-YL43455

## Test Standard (s)

FCC PART 15.407

## Sample Description

Product Type: Wi-Fi+BT Module  
Model No.: YL43455  
Multiple Model(s) No.: N/A  
Trade Mark:   
Date Received: 2022/04/28  
Report Date: 2022/06/14

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

**Prepared and Checked By:**



Black Ding  
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 "\*" .

Shenzhen Accurate Technology Co., Ltd. is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk "\*\*". Customer model name, addresses, names, trademarks etc. are not considered data.

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## 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	5150-5250MHz: 14.12dBm 5250-5350MHz: 14.40dBm 5470-5725MHz: 12.04dBm 5725-5850MHz: 13.37dBm
Modulation Technique	OFDM
Antenna Specification*	3.0dBi (It is provided by the manufacturer)
Voltage Range	DC 3.3V
Sample number	SZNS220428-17357E-RF-S1 (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.

This is a Class II permissive change of the device, the differences between the original device and the current device are as follows:

- (1) Adding a kind of antenna.

Based on above differences listed, the modifications will impact the test item of “RF Exposure Evaluation”, “Antenna Requirement”, “Conducted Emissions”, “Undesirable Emission& Restricted Bands” and “Conducted Transmitter Output Power”, so in this report, we will updated those items and related photos, the other test data and photos please refer to the original report.

### 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, the ac20/ac40 were reduced since the identical parameters with 802.11n20 and n40.

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 mode: channel 36, 40, 48 were tested; For 802.11n40 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 mode: channel 52, 56, 64 were tested; For 802.11n40 mode: channel 54, 62 were tested. For 802.11ac80 mode, channel 58 was tested.

For 5470-5725MHz Band, 20 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	122	5610
102	5510	124	5620
104	5520	126	5630
106	5530	128	5640
108	5540	132	5660
110	5550	134	5670
112	5560	136	5680
116	5580	138	5690
118	5590	140	5700
120	5600	142	5710

For 802.11a, 802.11n20 mode: channel 100, 116, 140 were tested; For 802.11n40 mode: channel 102, 110, 134, 142 were tested. For 802.11ac80 mode, channel 106, 122,138 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 mode: channel 149, 157, 165 were tested; For 802.11n40 mode: channel 151, 159 were tested. For 802.11ac80 mode, channel 155 was tested.

**EUT Exercise Software**

“AuthenticTool”\* exercise software was used. The software and power level was provided by the applicant.

The worst case was performed under:

U-NII	Mode	Frequency (MHz)	Data Rate	Power Level*
5150 – 5250MHz	802.11 a	5180	6Mbps	16
		5200	6Mbps	16
		5240	6Mbps	16
	802.11 n20	5180	MCS0	16
		5200	MCS0	16
		5240	MCS0	16
	802.11 n40	5190	MCS0	16
		5230	MCS0	16
	802.11 ac80	5210	MCS0	16

U-NII	Mode	Frequency (MHz)	Data Rate	Power Level*
5250 – 5350MHz	802.11 a	5260	6Mbps	16
		5280	6Mbps	16
		5320	6Mbps	16
	802.11 n20	5260	MCS0	16
		5280	MCS0	16
		5320	MCS0	16
	802.11 n40	5270	MCS0	16
		5310	MCS0	16
	802.11 ac80	5290	MCS0	16

U-NII	Mode	Frequency (MHz)	Data Rate	Power Level*
5470 – 5725MHz	802.11 a	5500	6Mbps	16
		5580	6Mbps	16
		5700	6Mbps	16
	802.11 n20	5500	MCS0	16
		5580	MCS0	16
		5700	MCS0	16
	802.11 n40	5510	MCS0	16
		5550	MCS0	16
		5670	MCS0	16
	802.11 ac80	5710	MCS0	16
		5530	MCS0	16
		5610	MCS0	16
		5690	MCS0	16

U-NII	Mode	Frequency (MHz)	Data Rate	Power Level*
5725 – 5850MHz	802.11 a	5745	6Mbps	16
		5785	6Mbps	16
		5825	6Mbps	16
	802.11 n20	5745	MCS0	16
		5785	MCS0	16
		5825	MCS0	16
	802.11 n40	5755	MCS0	16
		5795	MCS0	16
	802.11 ac80	5775	MCS0	16

### Equipment Modifications

No modification was made to the EUT tested.



**Support Equipment List and Details**

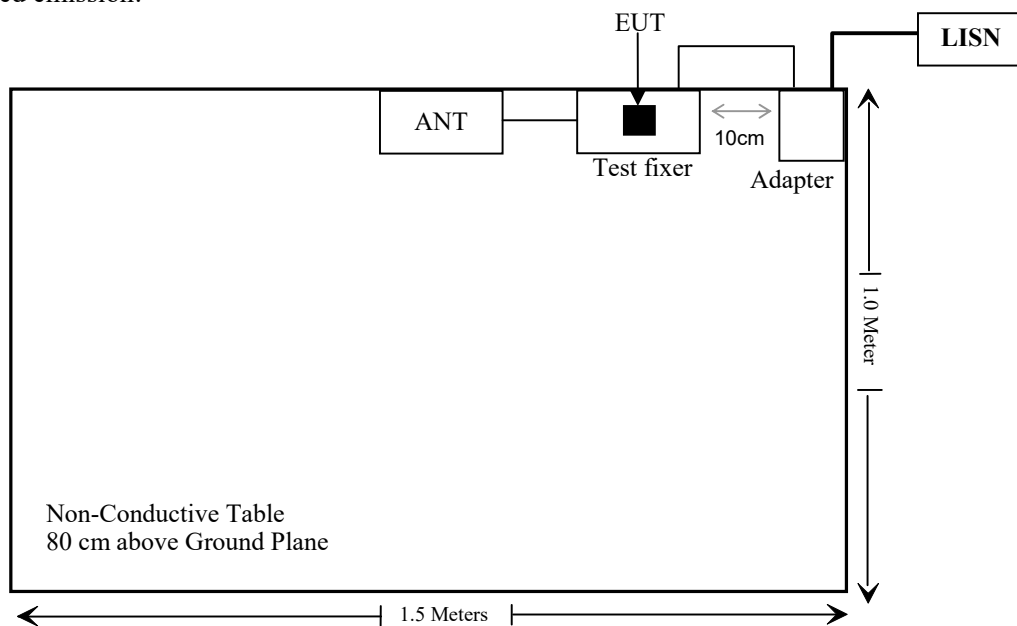
Manufacturer	Description	Model	Serial Number
YEALINK	Test fixer	Unknown	Unknown
YEALINK	Adapter	YLPS480700C	Unknown/

**External I/O Cable**

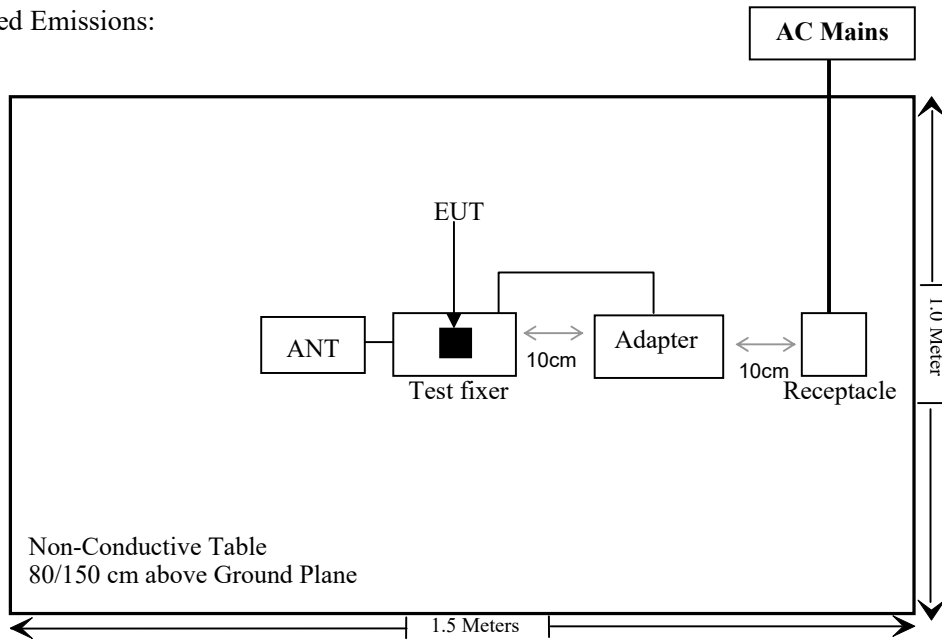
Cable Description	Length (m)	From Port	To
Un-shielding Un-Detachable DC Cable	2.0	Adapter	Test fixer
Un-shielding Detachable AC Cable	1.5	LISN	Adapter

**Block Diagram of Test Setup**

For conducted emission:



For Radiated Emissions:



## SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i) & §1.1307 (b) (3)	RF Exposure Evaluation	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 CR21100090-00C ,which tested and granted by the China Certification ICT Co., Ltd (Dongguan).

Compliant\*\*: please refer to CR21100090-00E ,which tested and granted by the China Certification ICT Co., Ltd (Dongguan).

**TEST EQUIPMENT LIST**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted emission test					
Rohde& Schwarz	EMI Test Receiver	ESCI	100784	2021/12/13	2022/12/12
Rohde & Schwarz	L.I.S.N.	ENV216	101314	2021/12/13	2022/12/12
Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2021/12/13	2022/12/12
Unknown	RF Coaxial Cable	No.17	N0350	2021/12/14	2022/12/13
Conducted Emission Test Software: e3 19821b (V9)					
Radiated emission test					
Rohde& Schwarz	Test Receiver	ESR	102725	2021/12/13	2022/12/12
Rohde&Schwarz	Spectrum Analyzer	FSV40	101949	2021/12/13	2022/12/12
SONOMA INSTRUMENT	Amplifier	310 N	186131	2021/11/09	2022/11/08
A.H. Systems, inc.	Preamplifier	PAM-0118P	135	2021/11/09	2022/11/08
Quinstar	Amplifier	QLW-18405536-J0	15964001002	2021/11/11	2022/11/10
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2021/07/06	2024/07/05
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-1067	2020/01/05	2023/01/04
Schwarzbeck	HORN ANTENNA	BBHA9170	9170-359	2020/01/05	2023/01/04
Radiated Emission Test Software: e3 19821b (V9)					
Unknown	RF Coaxial Cable	No.10	N050	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.11	N1000	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.12	N040	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.13	N300	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.14	N800	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.15	N600	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.16	N650	2021/12/14	2022/12/13
CD	Band Reject Filter	BRM-5.15/5.35g-45	075	2021/12/14	2022/12/13
CD	Band Reject Filter	BRM-5.47/5.725G-45	055	2021/12/14	2022/12/13
CD	Band Reject Filter	BRM-5.725/5.875G-45	065	2021/12/14	2022/12/13

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Tonscend	RF Control Unit	JS0806-2	19G8060182	2021/10/26	2022/10/25
WEINSCHEL	10dB Attenuator	5324	AU 3842	2021/12/14	2022/12/13

\* **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).

## FCC §15.247 (i) & §1.1307 (b) (3) - RF EXPOSURE EVALUATION

### Applicable Standard

According to subpart 15.247 (i) and §1.1307(b) (3), systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

According to KDB 447498 D04 Interim General RF Exposure Guidance

SAR-Based Exemption:

SAR-based thresholds are derived based on frequency, power, and separation distance of the RF source. The formula defines the thresholds in general for either available maximum time-averaged power or maximum time-averaged ERP, whichever is greater.

Per § 1.1307(b)(3)(i)(B), for single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2) of this section): A single RF source is exempt if:

the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold  $P_{th}$  (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive).  $P_{th}$  is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left( \frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

$d$  = the separation distance (cm);

**Result**

Mode	Frequency (MHz)	P <sub>th</sub>		Maximum tune-up conducted power	Maximum ERP	Exemption
		(mW)	(dBm)	(dBm)	(dBm)	
5.2G Wi-Fi	5180-5240	3060	34.86	15.0	15.85	Compliant
5.3G Wi-Fi	5260-5320	3060	34.86	15.0	15.85	Compliant
5.6G Wi-Fi	5500-5720	3060	34.86	12.5	13.35	Compliant
5.8G Wi-Fi	5745-5825	3060	34.86	13.5	14.35	Compliant

Note: 1. The tune up conducted power was declared by the applicant.

2. The antenna gain is 3dBi(0.85dBd), so the ERP was used for evaluation

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

**Result: Compliant.**

## 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 FPC antenna arrangement for 5G Wi-Fi which was permanently attached. Please refer to the EUT photos.

Type	Antenna Gain	Impedance
FPC	3.0 dBi	50 $\Omega$

**Result:** Compliant.

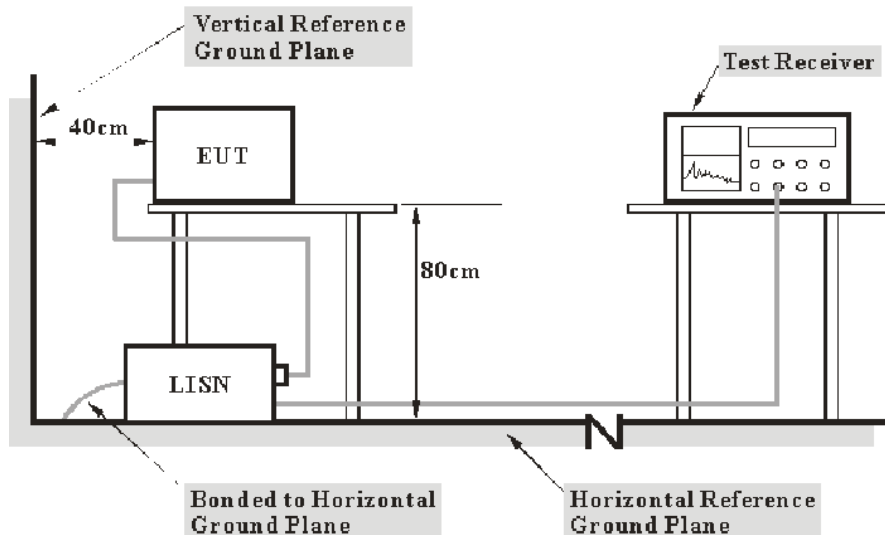


## FCC §15.407 (b) (6) §15.207 (a) – CONDUCTED EMISSIONS

### 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:

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

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

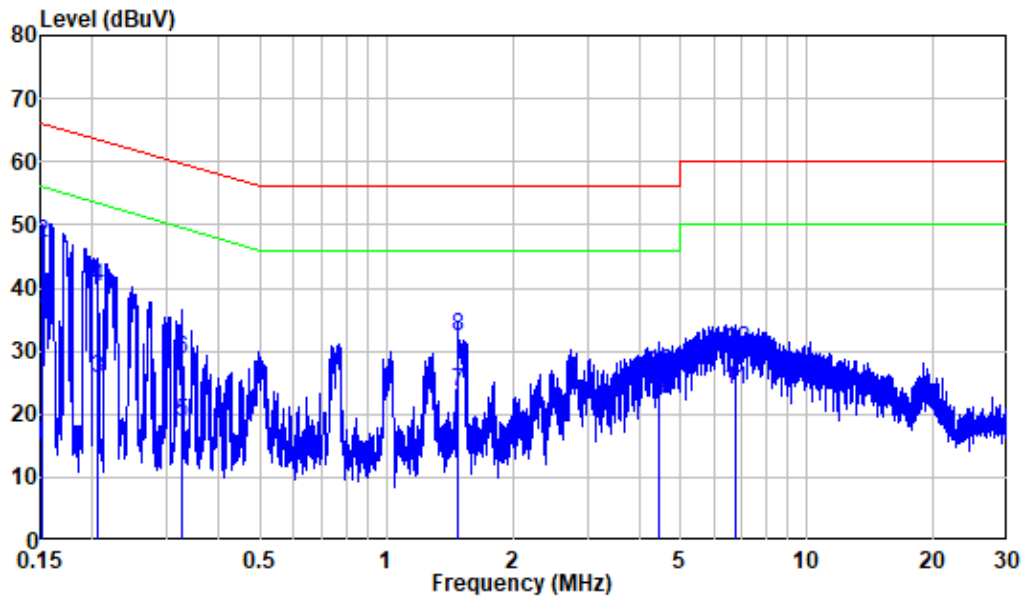
### Environmental Conditions

<b>Temperature:</b>	23 °C
<b>Relative Humidity:</b>	52 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Jason Liu on 2022-06-06.*

*EUT operation mode: Transmitting (worst case is 802.11a mode, 5280MHz)*

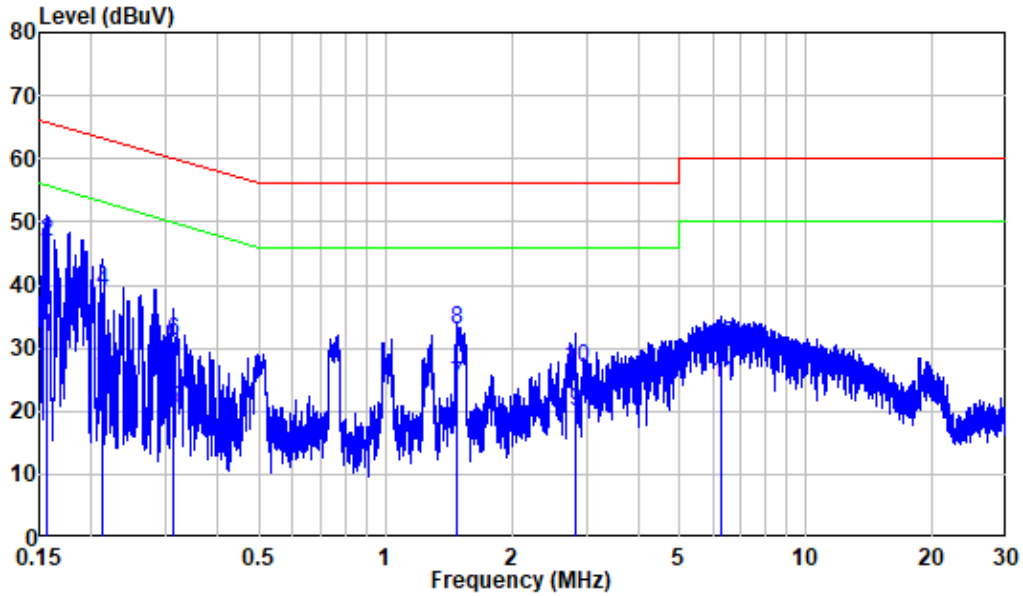
AC 120V/60 Hz, Line:



Site : Shielding Room  
 Condition: Line  
 Mode : 5G WIFI  
 Model : YL43455  
 Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.152	9.80	25.15	34.95	55.88	-20.93	Average
2	0.152	9.80	37.30	47.10	65.88	-18.78	QP
3	0.206	9.80	15.82	25.62	53.37	-27.75	Average
4	0.206	9.80	30.37	40.17	63.37	-23.20	QP
5	0.326	9.80	9.05	18.85	49.56	-30.71	Average
6	0.326	9.80	18.83	28.63	59.56	-30.93	QP
7	1.476	9.81	13.75	23.56	46.00	-22.44	Average
8	1.476	9.81	22.60	32.41	56.00	-23.59	QP
9	4.448	9.84	12.25	22.09	46.00	-23.91	Average
10	4.448	9.84	16.84	26.68	56.00	-29.32	QP
11	6.765	9.87	14.06	23.93	50.00	-26.07	Average
12	6.765	9.87	20.38	30.25	60.00	-29.75	QP

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



Site : Shielding Room  
 Condition: Neutral  
 Mode : 5G WIFI  
 Model : YL43455  
 Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.157	9.80	22.01	31.81	55.64	-23.83	Average
2	0.157	9.80	36.94	46.74	65.64	-18.90	QP
3	0.212	9.80	16.98	26.78	53.15	-26.37	Average
4	0.212	9.80	29.25	39.05	63.15	-24.10	QP
5	0.314	9.80	10.29	20.09	49.87	-29.78	Average
6	0.314	9.80	21.29	31.09	59.87	-28.78	QP
7	1.477	9.81	14.46	24.27	46.00	-21.73	Average
8	1.477	9.81	23.08	32.89	56.00	-23.11	QP
9	2.826	9.83	9.95	19.78	46.00	-26.22	Average
10	2.826	9.83	17.19	27.02	56.00	-28.98	QP
11	6.314	9.94	14.41	24.35	50.00	-25.65	Average
12	6.314	9.94	20.53	30.47	60.00	-29.53	QP

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

### Applicable Standard

FCC §15.407 (b); §15.209; §15.205;

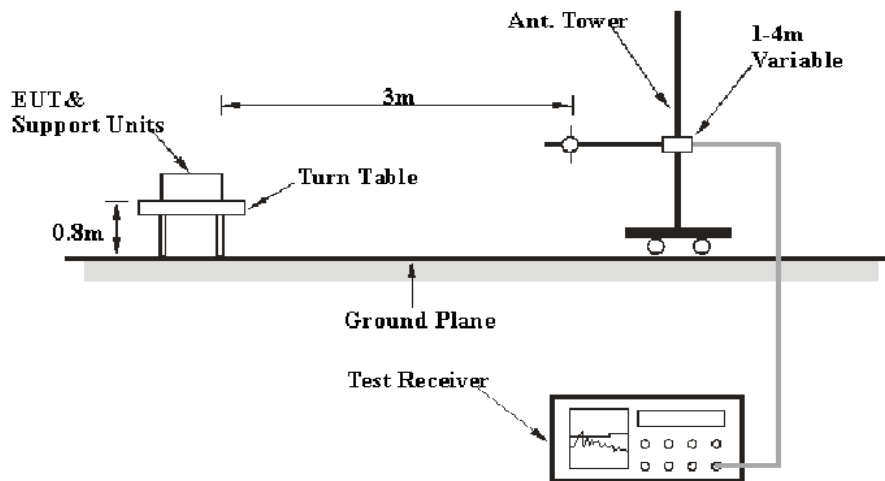
(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

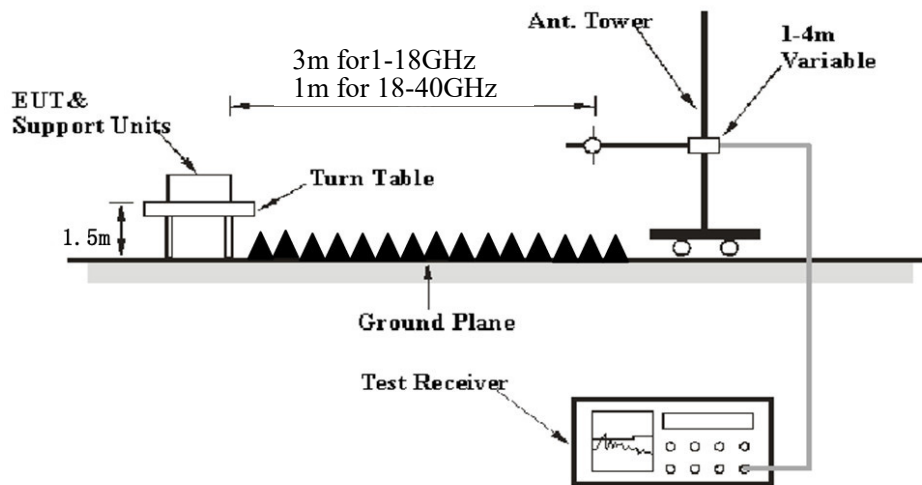
- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of  $-27$  dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of  $-27$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

According to ANSI C63.10-2013,9.4: For field strength measurements made at other than the distance at which the applicable limit is specified, extrapolate the measured field strength to the field strength at the distance specified by the limit using an inverse distance correction factor (20 dB/decade of distance). In some cases, a different distance correction factor may be required;

$$E_{\text{SpecLimit}} = E_{\text{Meas}} + 20 \log \left( \frac{d_{\text{Meas}}}{d_{\text{SpecLimit}}} \right)$$

where

$E_{\text{SpecLimit}}$	is the field strength of the emission at the distance specified by the limit, in dB $\mu$ V/m
$E_{\text{Meas}}$	is the field strength of the emission at the measurement distance, in dB $\mu$ V/m
$d_{\text{Meas}}$	is the measurement distance, in m
$d_{\text{SpecLimit}}$	is the distance specified by the limit, in m

So the extrapolation factor of 1m is  $20 * \log(1/3) = -9.5$  dB, for 18-40GHz range, the limit of 1m distance was added by 9.5dB from limit of 3m to compared with the result measurement at 1m distance.

### 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>	28~29 °C
<b>Relative Humidity:</b>	63~64 %
<b>ATM Pressure:</b>	101.0 kPa

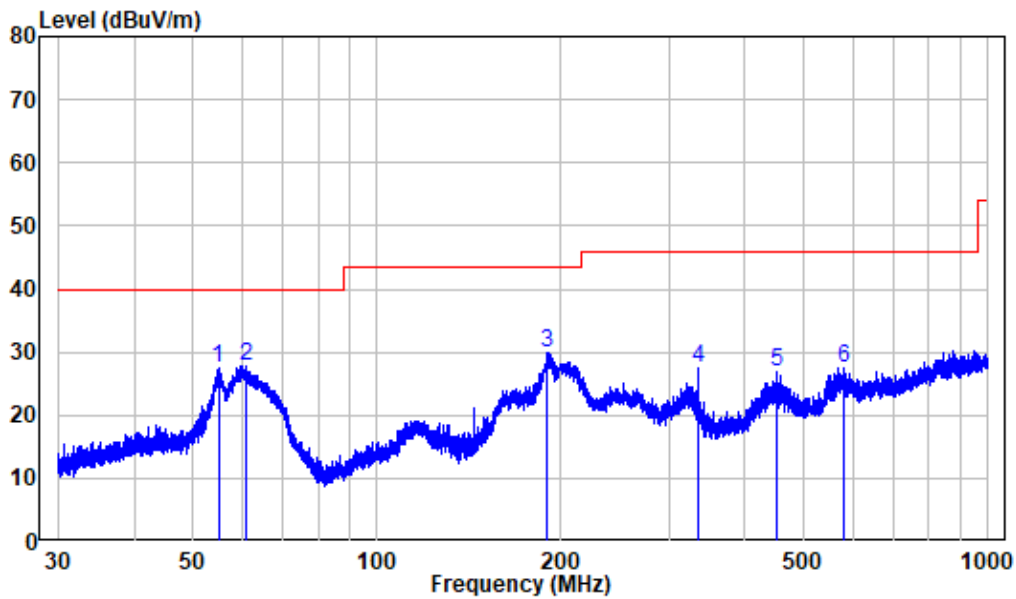
The testing was performed by Level Li on 2022-06-01 for below 1GHz, on 2022-06-08 for above 1GHz.

*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, 5280MHz)**

Note: When the test result of peak was less than the limit of QP more than 6dB, just peak value were recorded.

Horizontal

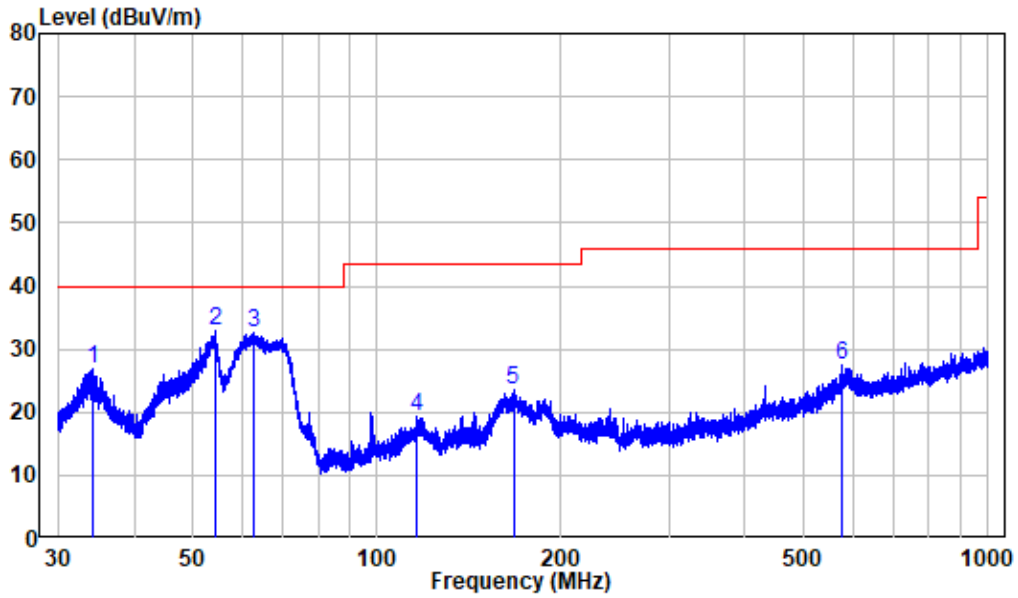


Site : chamber  
 Condition: 3m HORIZONTAL  
 Job No. : SZNS220428-17357E-RFA1  
 Test Mode: 5G WIFI

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	54.955	-10.28	37.62	27.34	40.00	-12.66	Peak
2	60.891	-10.99	38.88	27.89	40.00	-12.11	Peak
3	190.072	-11.57	41.60	30.03	43.50	-13.47	Peak
4	336.035	-7.58	34.99	27.41	46.00	-18.59	Peak
5	451.729	-5.59	32.38	26.79	46.00	-19.21	Peak
6	580.957	-3.29	30.74	27.45	46.00	-18.55	Peak



Vertical



Site : chamber  
 Condition: 3m VERTICAL  
 Job No. : SZNS220428-17357E-RFA1  
 Test Mode: 5G WIFI

	Freq	Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	34.321	-11.75	38.51	26.76	40.00	-13.24	Peak
2	54.213	-10.33	43.28	32.95	40.00	-7.05	Peak
3	62.678	-11.68	44.19	32.51	40.00	-7.49	Peak
4	116.183	-12.83	32.09	19.26	43.50	-24.24	Peak
5	167.090	-13.87	37.36	23.49	43.50	-20.01	Peak
6	576.897	-3.64	31.08	27.44	46.00	-18.56	Peak

**1 GHz-40 GHz (Worst case)****5150-5250 MHz:**

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)
802.11a									
5180 MHz									
4500	64.34	PK	153	1.4	H	-4.72	59.62	74	-14.38
4500	51.25	AV	153	1.4	H	-4.72	46.53	54	-7.47
4500	64.21	PK	211	2.5	V	-4.72	59.49	74	-14.51
4500	51.12	AV	211	2.5	V	-4.72	46.40	54	-7.60
5150	73.17	PK	139	1.5	H	-2.73	70.44	74	-3.56
5150	54.5	AV	139	1.5	H	-2.73	51.77	54	-2.23
5150	71.26	PK	143	2.2	V	-2.73	68.53	74	-5.47
5150	53.95	AV	143	2.2	V	-2.73	51.22	54	-2.78
10360	42.04	PK	267	1.2	H	8.12	50.16	68.2	-18.04
10360	41.25	PK	181	2.3	V	8.12	49.37	68.2	-18.83
5200 MHz									
10400	41.72	PK	262	2.3	H	8.24	49.96	68.2	-18.24
10400	41.09	PK	298	1.2	V	8.24	49.33	68.2	-18.87
5240 MHz									
5350	64.44	PK	262	2	H	-2.33	62.11	74	-11.89
5350	51.26	AV	262	2	H	-2.33	48.93	54	-5.07
5350	64.33	PK	83	1.5	V	-2.33	62.00	74	-12.00
5350	51.15	AV	83	1.5	V	-2.33	48.82	54	-5.18
5460	63.79	PK	115	2.2	H	-2.26	61.53	74	-12.47
5460	50.98	AV	115	2.2	H	-2.26	48.72	54	-5.28
5460	63.7	PK	339	1.9	V	-2.26	61.44	74	-12.56
5460	50.86	AV	339	1.9	V	-2.26	48.60	54	-5.40
10480	40.97	PK	287	2.4	H	8.56	49.53	68.2	-18.67
10480	40.34	PK	84	2.1	V	8.56	48.9	68.2	-19.3

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	64.43	PK	44	2.3	H	-4.72	59.71	74	-14.29
4500	51.31	AV	44	2.3	H	-4.72	46.59	54	-7.41
4500	64.29	PK	30	2.4	V	-4.72	59.57	74	-14.43
4500	51.2	AV	30	2.4	V	-4.72	46.48	54	-7.52
5150	73.32	PK	251	2	H	-2.73	70.59	74	-3.41
5150	54.56	AV	251	2	H	-2.73	51.83	54	-2.17
5150	71.51	PK	103	2.1	V	-2.73	68.78	74	-5.22
5150	54.08	AV	103	2.1	V	-2.73	51.35	54	-2.65
10360	42.01	PK	158	1.5	H	8.12	50.13	68.2	-18.07
10360	41.49	PK	44	1.3	V	8.12	49.61	68.2	-18.59
5200 MHz									
10400	41.76	PK	349	1.3	H	8.24	50	68.2	-18.2
10400	41.35	PK	249	1.6	V	8.24	49.59	68.2	-18.61
5240 MHz									
5350	64.57	PK	144	1.4	H	-2.33	62.24	74	-11.76
5350	51.35	AV	144	1.4	H	-2.33	49.02	54	-4.98
5350	64.46	PK	58	2.1	V	-2.33	62.13	74	-11.87
5350	51.24	AV	58	2.1	V	-2.33	48.91	54	-5.09
5460	63.85	PK	305	2.3	H	-2.26	61.59	74	-12.41
5460	50.91	AV	305	2.3	H	-2.26	48.65	54	-5.35
5460	63.74	PK	65	2.2	V	-2.26	61.48	74	-12.52
5460	51.53	AV	65	2.2	V	-2.26	49.27	54	-4.73
10480	41.05	PK	197	1.5	H	8.56	49.61	68.2	-18.59
10480	40.64	PK	73	2.2	V	8.56	49.2	68.2	-19.00

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	64.1	PK	101	1.3	H	-4.72	59.38	74	-14.62
4500	51.23	AV	101	1.3	H	-4.72	46.51	54	-7.49
4500	63.99	PK	72	1.9	V	-4.72	59.27	74	-14.73
4500	51.12	AV	72	1.9	V	-4.72	46.4	54	-7.6
5150	68.75	PK	20	1.7	H	-2.73	66.02	74	-7.98
5150	54.26	AV	20	1.7	H	-2.73	51.53	54	-2.47
5150	68.38	PK	301	1.9	V	-2.73	65.65	74	-8.35
5150	53.94	AV	301	1.9	V	-2.73	51.21	54	-2.79
10380	41.69	PK	100	2	H	8.18	49.87	68.2	-18.33
10380	41.06	PK	175	2.1	V	8.18	49.24	68.2	-18.96
5230 MHZ									
5350	64.31	PK	99	1.2	H	-2.33	61.98	74	-12.02
5350	51.27	AV	99	1.2	H	-2.33	48.94	54	-5.06
5350	64.19	PK	131	1.3	V	-2.33	61.86	74	-12.14
5350	51.16	AV	131	1.3	V	-2.33	48.83	54	-5.17
5460	63.61	PK	145	1.6	H	-2.26	61.35	74	-12.65
5460	50.76	AV	145	1.6	H	-2.26	48.50	54	-5.50
5460	63.49	PK	146	2.4	V	-2.26	61.23	74	-12.77
5460	50.65	AV	146	2.4	V	-2.26	48.39	54	-5.61
10460	41	PK	61	1.4	H	8.47	49.47	68.2	-18.73
10460	40.39	PK	29	2	V	8.47	48.86	68.2	-19.34

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									
5210MHz									
4500	63.34	PK	89	2.5	H	-4.72	58.62	74	-15.38
4500	51.88	AV	89	2.5	H	-4.72	47.16	54	-6.84
4500	63.25	PK	63	1.5	V	-4.72	58.53	74	-15.47
4500	51.79	AV	63	1.5	V	-4.72	47.07	54	-6.93
5150	67.17	PK	253	2	H	-2.73	64.44	74	-9.56
5150	54.54	AV	253	2	H	-2.73	51.81	54	-2.19
5150	66.52	PK	222	1.7	V	-2.73	63.79	74	-10.21
5150	54.41	AV	222	1.7	V	-2.73	51.68	54	-2.32
5350	64.16	PK	58	1.7	H	-2.33	61.83	74	-12.17
5350	50.67	AV	58	1.7	H	-2.33	48.34	54	-5.66
5350	64.05	PK	334	1.5	V	-2.33	61.72	74	-12.28
5350	50.54	AV	334	1.5	V	-2.33	48.21	54	-5.79
5460	63.62	PK	241	1	H	-2.26	61.36	74	-12.64
5460	50.45	AV	241	1	H	-2.26	48.19	54	-5.81
5460	63.5	PK	320	1.3	V	-2.26	61.24	74	-12.76
5460	50.36	AV	320	1.3	V	-2.26	48.1	54	-5.9
10420	41.61	PK	247	2.4	H	8.32	49.93	68.2	-18.27
10420	41.14	PK	167	1.1	V	8.32	49.46	68.2	-18.74

**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	63.45	PK	100	2	H	-4.72	58.73	74	-15.27
4500	50.34	AV	100	2	H	-4.72	45.62	54	-8.38
4500	63.31	PK	255	1.5	V	-4.72	58.59	74	-15.41
4500	50.22	AV	255	1.5	V	-4.72	45.5	54	-8.50
5150	64.35	PK	92	2.4	H	-2.73	61.62	74	-12.38
5150	50.61	AV	92	2.4	H	-2.73	47.88	54	-6.12
5150	64.26	PK	91	2.1	V	-2.73	61.53	74	-12.47
5150	50.5	AV	91	2.1	V	-2.73	47.77	54	-6.23
10520	40.94	PK	185	1.4	H	8.65	49.59	68.2	-18.61
10520	40.49	PK	101	1.7	V	8.65	49.14	68.2	-19.06
5280 MHz									
10560	41.87	PK	191	2	H	8.69	50.56	68.2	-17.64
10560	41.36	PK	352	1.9	V	8.69	50.05	68.2	-18.15
5320 MHz									
5350	69.16	PK	0	1.7	H	-2.33	66.83	74	-7.17
5350	53.81	AV	0	1.7	H	-2.33	51.48	54	-2.52
5350	67.9	PK	171	2.1	V	-2.33	65.57	74	-8.43
5350	53.17	AV	171	2.1	V	-2.33	50.84	54	-3.16
5460	63.76	PK	46	1.3	H	-2.26	61.5	74	-12.5
5460	51.89	AV	46	1.3	H	-2.26	49.63	54	-4.37
5460	63.65	PK	346	2.5	V	-2.26	61.39	74	-12.61
5460	51.78	AV	346	2.5	V	-2.26	49.52	54	-4.48
10640	41.86	PK	48	1.6	H	8.92	50.78	74	-23.22
10640	41.37	PK	2	2.2	V	8.92	50.29	74	-23.71

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									
5260MHz									
4500	63.68	PK	16	1.2	H	-4.72	58.96	74	-15.04
4500	51.1	AV	16	1.2	H	-4.72	46.38	54	-7.62
4500	63.55	PK	348	1.1	V	-4.72	58.83	74	-15.17
4500	50.99	AV	348	1.1	V	-4.72	46.27	54	-7.73
5150	64.31	PK	355	1.6	H	-2.73	61.58	74	-12.42
5150	50.59	AV	355	1.6	H	-2.73	47.86	54	-6.14
5150	64.2	PK	180	2.4	V	-2.73	61.47	74	-12.53
5150	50.48	AV	180	2.4	V	-2.73	47.75	54	-6.25
10520	40.85	PK	349	2.3	H	8.65	49.5	68.2	-18.70
10520	40.46	PK	54	1.1	V	8.65	49.11	68.2	-19.09
5280 MHz									
10560	41.65	PK	316	1.9	H	8.69	50.34	68.2	-17.86
10560	41.2	PK	335	1.6	V	8.69	49.89	68.2	-18.31
5320 MHz									
5350	68.81	PK	88	1.5	H	-2.33	66.48	74	-7.52
5350	53.6	AV	88	1.5	H	-2.33	51.27	54	-2.73
5350	67.76	PK	197	1.7	V	-2.33	65.43	74	-8.57
5350	53.04	AV	197	1.7	V	-2.33	50.71	54	-3.29
5460	63.68	PK	347	1.7	H	-2.26	61.42	74	-12.58
5460	51.96	AV	347	1.7	H	-2.26	49.7	54	-4.30
5460	63.59	PK	197	2	V	-2.26	61.33	74	-12.67
5460	51.85	AV	197	2	V	-2.26	49.59	54	-4.41
10640	41.95	PK	326	1.6	H	8.92	50.87	74	-23.13
10640	41.18	PK	139	1.6	V	8.92	50.1	74	-23.90

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									
5270 MHZ									
4500	63.43	PK	191	1.7	H	-4.72	58.71	74	-15.29
4500	51.15	AV	191	1.7	H	-4.72	46.43	54	-7.57
4500	63.31	PK	213	2.3	V	-4.72	58.59	74	-15.41
4500	51.02	AV	213	2.3	V	-4.72	46.3	54	-7.7
5150	64.41	PK	8	2.3	H	-2.73	61.68	74	-12.32
5150	50.98	AV	8	2.3	H	-2.73	48.25	54	-5.75
5150	64.29	PK	270	2.4	V	-2.73	61.56	74	-12.44
5150	50.87	AV	270	2.4	V	-2.73	48.14	54	-5.86
10540	41.62	PK	182	2.4	H	8.65	50.27	68.2	-17.93
10540	40.79	PK	135	1.1	V	8.65	49.44	68.2	-18.76
5310 MHZ									
5350	67.4	PK	182	1.3	H	-2.33	65.07	74	-8.93
5350	52.71	AV	182	1.3	H	-2.33	50.38	54	-3.62
5350	66.28	PK	83	1.2	V	-2.33	63.95	74	-10.05
5350	52.17	AV	83	1.2	V	-2.33	49.84	54	-4.16
5460	63.97	PK	288	2.2	H	-2.26	61.71	74	-12.29
5460	51.8	AV	288	2.2	H	-2.26	49.54	54	-4.46
5460	63.86	PK	139	1.2	V	-2.26	61.6	74	-12.4
5460	51.69	AV	139	1.2	V	-2.26	49.43	54	-4.57
10620	42.3	PK	77	2.1	H	8.89	51.19	74	-22.81
10620	41.39	PK	1	1.1	V	8.89	50.28	74	-23.72



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									
5290 MHz									
4500	63.62	PK	124	1.9	H	-4.72	58.9	74	-15.1
4500	51.25	AV	124	1.9	H	-4.72	46.53	54	-7.47
4500	63.51	PK	165	2.4	V	-4.72	58.79	74	-15.21
4500	51.14	AV	165	2.4	V	-4.72	46.42	54	-7.58
5150	63.95	PK	218	1.1	H	-2.73	61.22	74	-12.78
5150	51.81	AV	218	1.1	H	-2.73	49.08	54	-4.92
5150	63.84	PK	149	1.7	V	-2.73	61.11	74	-12.89
5150	51.7	AV	149	1.7	V	-2.73	48.97	54	-5.03
5350	67.79	PK	38	2.2	H	-2.33	65.46	74	-8.54
5350	52.68	AV	38	2.2	H	-2.33	50.35	54	-3.65
5350	65.86	PK	162	1.9	V	-2.33	63.53	74	-10.47
5350	52.27	AV	162	1.9	V	-2.33	49.94	54	-4.06
5460	64.61	PK	166	1.2	H	-2.26	62.35	74	-11.65
5460	52.06	AV	166	1.2	H	-2.26	49.8	54	-4.20
5460	64.5	PK	111	1.7	V	-2.26	62.24	74	-11.76
5460	51.95	AV	111	1.7	V	-2.26	49.69	54	-4.31
10580	41.36	PK	243	1.6	H	8.77	50.13	68.2	-18.07
10580	42.33	PK	200	2.4	V	8.77	51.10	68.2	-17.10

**5470-5725MHz:**

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)
802.11a									
5500 MHz									
5460	63.45	PK	18	2.3	H	-2.26	61.19	74	-12.81
5460	50.40	AV	18	2.3	H	-2.26	48.14	54	-5.86
5460	63.32	PK	346	1.1	V	-2.26	61.06	74	-12.94
5460	50.29	AV	346	1.1	V	-2.26	48.03	54	-5.97
5470	65.54	PK	213	1.7	H	-2.22	63.32	68.2	-4.88
5470	65.33	PK	205	2	V	-2.22	63.11	68.2	-5.09
11000	40.03	PK	297	1.2	H	9.67	49.7	74	-24.30
11000	40.94	PK	213	1	V	9.67	50.61	74	-23.39
5600 MHz									
11160	41.45	PK	308	1.4	H	8.68	50.13	74	-23.87
11160	42.53	PK	118	1.9	V	8.68	51.21	74	-22.79
5700 MHz									
5725	66.64	PK	123	1.7	H	-1.96	64.68	68.2	-3.52
5725	66.4	PK	71	2.5	V	-1.96	64.44	68.2	-3.76
5745	65.44	PK	134	1.2	H	-1.91	63.53	68.2	-4.67
5745	65.08	PK	106	2.3	V	-1.91	63.17	68.2	-5.03
11400	43.75	PK	324	1.6	H	7.26	51.01	74	-22.99
11400	44.84	PK	226	1.1	V	7.26	52.10	74	-21.90

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									
5500 MHZ									
5460	63.77	PK	17	2.2	H	-2.26	61.51	74	-12.49
5460	50.5	AV	17	2.2	H	-2.26	48.24	54	-5.76
5460	63.65	PK	320	2.3	V	-2.26	61.39	74	-12.61
5460	50.39	AV	320	2.3	V	-2.26	48.13	54	-5.87
5470	65.64	PK	33	1.5	H	-2.22	63.42	68.2	-4.78
5470	65.07	PK	37	2	V	-2.22	62.85	68.2	-5.35
11000	41.46	PK	352	1.2	H	9.67	51.13	74	-22.87
11000	43.38	PK	251	1.2	V	9.67	53.05	74	-20.95
5580 MHZ									
11160	42.34	PK	135	1	H	8.68	51.02	74	-22.98
11160	44.69	PK	121	2	V	8.68	53.37	74	-20.63
5700 MHZ									
5725	66.84	PK	118	2.1	H	-1.96	64.88	68.2	-3.32
5725	66.58	PK	285	1.5	V	-1.96	64.62	68.2	-3.58
5745	65.26	PK	16	2	H	-1.91	63.35	68.2	-4.85
5745	65.11	PK	59	1.7	V	-1.91	63.2	68.2	-5.00
11400	44.19	PK	204	2.2	H	7.26	51.45	74	-22.55
11400	46.84	PK	341	1.8	V	7.26	54.10	74	-19.90
11400	32.75	AV	341	1.8	V	7.26	40.01	54	-13.99

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)
802.11n40									
5510 MHZ									
5460	63.48	PK	7	2.3	H	-2.26	61.22	74	-12.78
5460	50.82	AV	7	2.3	H	-2.26	48.56	54	-5.44
5460	63.37	PK	26	1.3	V	-2.26	61.11	74	-12.89
5460	50.71	AV	26	1.3	V	-2.26	48.45	54	-5.55
5470	67.3	PK	28	2.4	H	-2.22	65.08	68.2	-3.12
5470	65.95	PK	257	1.6	V	-2.22	63.73	68.2	-4.47
11020	42.95	PK	276	1.8	H	9.57	52.52	74	-21.48
11020	44.13	PK	69	1.4	V	9.57	53.7.	74	-20.30
5550 MHZ									
11100	42.73	PK	223	1.3	H	9.12	51.85	74	-22.15
11100	43.97	PK	85	1.2	V	9.12	53.09	74	-20.91
5670 MHZ									
5725	66.8	PK	302	1.2	H	-1.96	64.84	68.2	-3.36
5725	66.24	PK	207	1	V	-1.96	64.28	68.2	-3.92
11340	45.15	PK	286	2.2	H	7.67	52.82	74	-21.18
11340	46.24	PK	195	1.1	V	7.67	53.91	74	-20.09
5710MHz									
5850	66.44	PK	275	1.4	H	-1.81	64.63	68.2	-3.57
5850	66.05	PK	163	2.4	V	-1.81	64.24	68.2	-3.96
6000	64.82	PK	176	2	H	-1.71	63.11	68.2	-5.09
6000	64.68	PK	143	1.9	V	-1.71	62.97	68.2	-5.23
11420	46.07	PK	160	1.2	H	7.08	53.15	74	-20.85
11420	46.91	PK	173	1.4	V	7.08	53.99	74	-20.01

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									
5530 MHz									
5460	64.38	PK	318	1	H	-2.26	62.12	74	-11.88
5460	51.91	AV	318	1	H	-2.26	49.65	54	-4.35
5460	63.26	PK	140	1.4	V	-2.26	61.00	74	-13.00
5460	51.79	AV	140	1.4	V	-2.26	49.53	54	-4.47
5470	67.21	PK	80	1.1	H	-2.22	64.99	68.2	-3.21
5470	66.78	PK	44	1.9	V	-2.22	64.56	68.2	-3.64
11060	42.10	PK	313	2.5	H	9.37	51.47	74	-22.53
11060	42.81	PK	274	1.3	V	9.37	52.18	74	-21.82
5610 MHz									
5725	67.01	PK	261	2.3	H	-1.96	65.05	68.2	-3.15
5725	66.49	PK	35	1.8	V	-1.96	64.53	68.2	-3.67
11220	44.13	PK	213	1.4	H	8.33	52.46	74	-21.54
11220	44.88	PK	138	2.4	V	8.33	53.21	74	-20.79
5690 MHz									
5850	66.75	PK	261	2.3	H	-1.81	64.94	68.2	-3.26
5850	66.48	PK	35	1.8	V	-1.81	64.67	68.2	-3.53
6000	65.59	PK	268	2.4	H	-1.71	63.88	68.2	-4.32
6000	65.15	PK	239	1.1	V	-1.71	63.44	68.2	-4.76
11380	45.32	PK	308	1.2	H	7.40	52.72	74	-21.28
11380	46.24	PK	123	1.9	V	7.40	53.64	74	-20.36

**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									
5745 MHz									
5650	65.62	PK	316	1.8	H	-1.95	63.67	68.2	-4.53
5700	66.26	PK	63	2.5	H	-2.02	64.24	105.2	-40.96
5720	73.69	PK	86	1.1	H	-1.97	71.72	110.8	-39.08
5725	78.31	PK	141	2.3	H	-1.96	76.35	122.2	-45.85
5650	65.49	PK	151	2.2	V	-1.95	63.54	68.2	-4.66
5700	66.17	PK	355	1.1	V	-2.02	64.15	105.2	-41.05
5720	71.5	PK	199	1.7	V	-1.97	69.53	110.8	-41.27
5725	76.22	PK	62	1.1	V	-1.96	74.26	122.2	-47.94
11490	46.88	PK	297	2	H	6.63	53.51	74	-20.49
11490	49.97	PK	34	1.3	V	6.63	56.6	74	-17.40
11490	34.91	AV	34	1.3	V	6.63	41.54	54	-12.46
5785 MHz									
11570	48.66	PK	172	1	H	6.59	55.25	74	-18.75
11570	33.55	AV	172	1	H	6.59	40.14	54	-13.86
11570	50.9	PK	156	2.4	V	6.59	57.49	74	-16.51
11570	37.07	AV	156	2.4	V	6.59	43.66	54	-10.34
5825 MHz									
5850	71.57	PK	273	2.1	H	-1.81	69.76	122.2	-52.44
5855	68.06	PK	212	2.2	H	-1.82	66.24	110.8	-44.56
5875	67.15	PK	324	1	H	-1.84	65.31	105.2	-39.89
5925	66.74	PK	220	1	H	-1.82	64.92	68.2	-3.28
5850	69.63	PK	253	1.3	V	-1.81	67.82	122.2	-54.38
5855	67.43	PK	222	1.5	V	-1.82	65.61	110.8	-45.19
5875	67.07	PK	2	1.2	V	-1.84	65.23	105.2	-39.97
5925	66.61	PK	7	1.5	V	-1.82	64.79	68.2	-3.41
11650	46.6	PK	229	2	H	6.77	53.37	74	-20.63
11650	48.96	PK	203	1.9	V	6.77	55.73	74	-18.27
11650	35.05	AV	203	1.9	V	6.77	41.82	54	-12.18

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	65.81	PK	46	2.3	H	-1.95	63.86	68.2	-4.34
5700	66.55	PK	318	1.6	H	-2.02	64.53	105.2	-40.67
5720	72.94	PK	307	2.3	H	-1.97	70.97	110.8	-39.83
5725	78.7	PK	65	1	H	-1.96	76.74	122.2	-45.46
5650	65.63	PK	266	1	V	-1.95	63.68	68.2	-4.52
5700	63.37	PK	217	1.9	V	-2.02	61.35	105.2	-43.85
5720	71.17	PK	1	1.5	V	-1.97	69.2	110.8	-41.6
5725	76.49	PK	214	1.5	V	-1.96	74.53	122.2	-47.67
11490	45.46	PK	222	1.1	H	6.63	52.09	74	-21.91
11490	47.97	PK	79	1.5	V	6.63	54.60	74	-19.40
11490	34.05	AV	79	1.5	V	6.63	40.68	54	-13.32
5785 MHz									
11570	48.06	PK	63	1.9	H	6.59	54.65	74	-19.35
11570	31.74	AV	63	1.9	H	6.59	38.33	54	-15.67
11570	49.87	PK	8	1	V	6.59	56.46	74	-17.54
11570	34.69	AV	8	1	V	6.59	41.28	54	-12.72
5825 MHz									
5850	68.73	PK	203	2	H	-1.81	66.92	122.2	-55.28
5855	67.67	PK	78	2	H	-1.82	65.85	110.8	-44.95
5875	67.08	PK	279	1.6	H	-1.84	65.24	105.2	-39.96
5925	66.75	PK	110	1.1	H	-1.82	64.93	68.2	-3.27
5850	68.14	PK	24	2.5	V	-1.81	66.33	122.2	-55.87
5855	67.43	PK	254	1.6	V	-1.82	65.61	110.8	-45.19
5875	66.96	PK	29	1.4	V	-1.84	65.12	105.2	-40.08
5925	66.66	PK	296	1.7	V	-1.82	64.84	68.2	-3.36
11650	44.50	PK	226	2.4	H	6.77	51.27	74	-22.73
11650	45.78	PK	218	1.6	V	6.77	52.55	74	-21.45

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									
5755 MHz									
5650	65.73	PK	120	1.4	H	-1.95	63.78	68.2	-4.42
5700	69.55	PK	154	2.2	H	-2.02	67.53	105.2	-37.67
5720	78.28	PK	315	2.4	H	-1.97	76.31	110.8	-34.49
5725	82.4	PK	255	2.1	H	-1.96	80.44	122.2	-41.76
5650	65.62	PK	282	2.2	V	-1.95	63.67	68.2	-4.53
5700	68.88	PK	300	2.2	V	-2.02	66.86	105.2	-38.34
5720	76.71	PK	221	1.9	V	-1.97	74.74	110.8	-36.06
5725	80.88	PK	171	1.1	V	-1.96	78.92	122.2	-43.28
11510	44.9	PK	20	1.1	H	6.59	51.49	74	-22.51
11510	46.77	PK	86	2	V	6.59	53.36	74	-20.64
5795 MHz									
5850	67.66	PK	146	1.8	H	-1.81	65.85	122.2	-56.35
5855	67.4	PK	38	1.5	H	-1.82	65.58	110.8	-45.22
5875	67.13	PK	191	1.5	H	-1.84	65.29	105.2	-39.91
5925	66.72	PK	208	1.6	H	-1.82	64.9	68.2	-3.3
5850	67.4	PK	81	1.9	V	-1.81	65.59	122.2	-56.61
5855	67.23	PK	327	1.4	V	-1.82	65.41	110.8	-45.39
5875	67.04	PK	176	1.3	V	-1.84	65.2	105.2	-40
5925	66.64	PK	102	1	V	-1.82	64.82	68.2	-3.38
11590	44.59	PK	311	1.1	H	6.57	51.16	74	-22.84
11590	45.98	PK	5	1.9	V	6.57	52.55	74	-21.45



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	65.81	PK	206	1.1	H	-1.95	63.86	68.2	-4.34
5700	69.7	PK	209	2.5	H	-2.02	67.68	105.2	-37.52
5720	75.2	PK	18	1.3	H	-1.97	73.23	110.8	-37.57
5725	77.54	PK	189	2.2	H	-1.96	75.58	122.2	-46.62
5650	65.69	PK	17	1.8	V	-1.95	63.74	68.2	-4.46
5700	68.99	PK	224	1.9	V	-2.02	66.97	105.2	-38.23
5720	73.23	PK	80	1.8	V	-1.97	71.26	110.8	-39.54
5725	75.79	PK	48	1.9	V	-1.96	73.83	122.2	-48.37
5850	72.86	PK	345	2.4	H	-1.81	71.05	122.2	-51.15
5855	70.06	PK	38	1.4	H	-1.82	68.24	110.8	-42.56
5875	67.9	PK	160	2.1	H	-1.84	66.06	105.2	-39.14
5925	66.8	PK	346	2.4	H	-1.82	64.98	68.2	-3.22
5850	71.63	PK	125	1.6	V	-1.81	69.82	122.2	-52.38
5855	69.31	PK	300	2.2	V	-1.82	67.49	110.8	-43.31
5875	67.54	PK	30	2.1	V	-1.84	65.70	105.2	-39.50
5925	66.7	PK	300	2.1	V	-1.82	64.88	68.2	-3.32
11550	46.36	PK	276	2.4	H	6.61	52.97	74	-21.03
11550	46.59	PK	350	1.2	V	6.61	53.20	74	-20.80

**Note:**

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

Corrected Amplitude = Corrected Factor + Reading

Margin = Corrected Amplitude – Limit

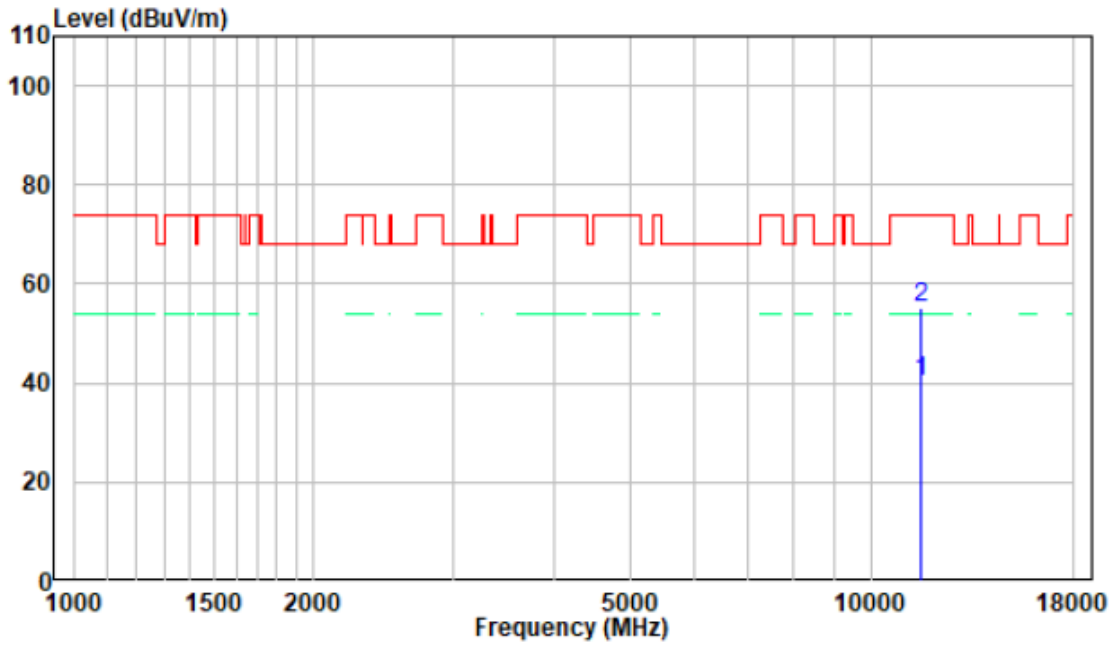
The other spurious emission which is in the noise floor level was not recorded.

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

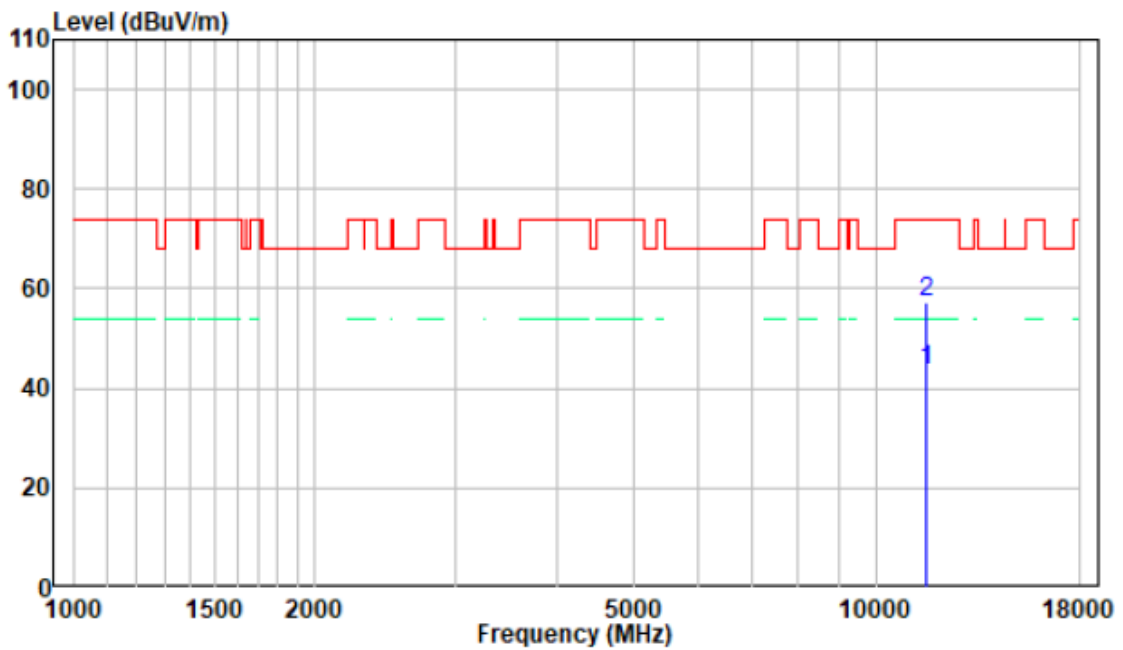
1 GHz - 18 GHz: (Pre-Scan plots)

802.11 a mode, 5785MHz

Horizontal



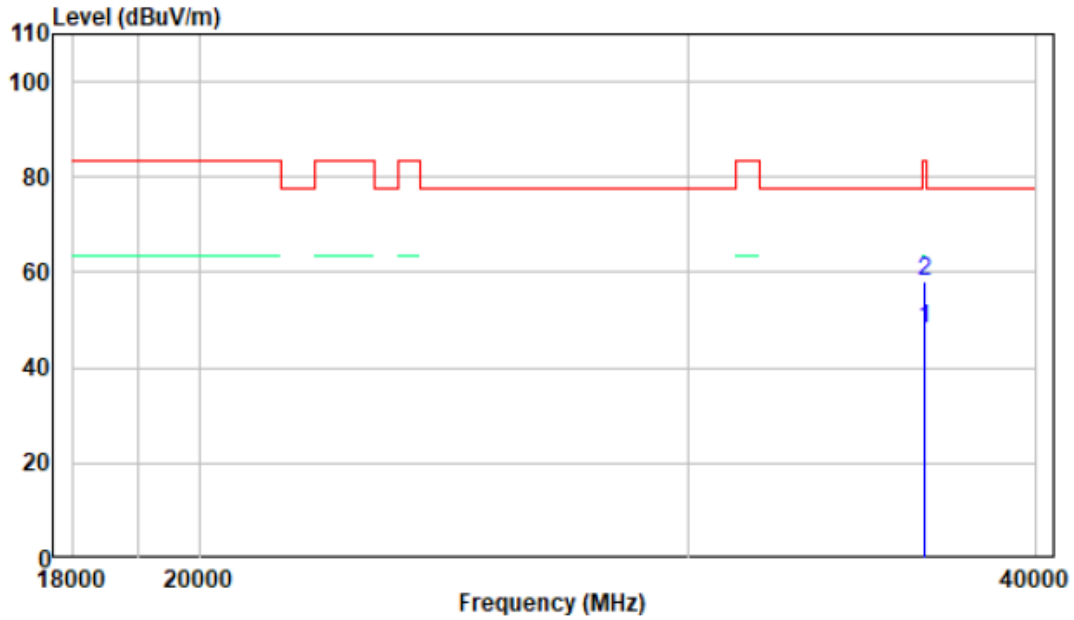
Vertical



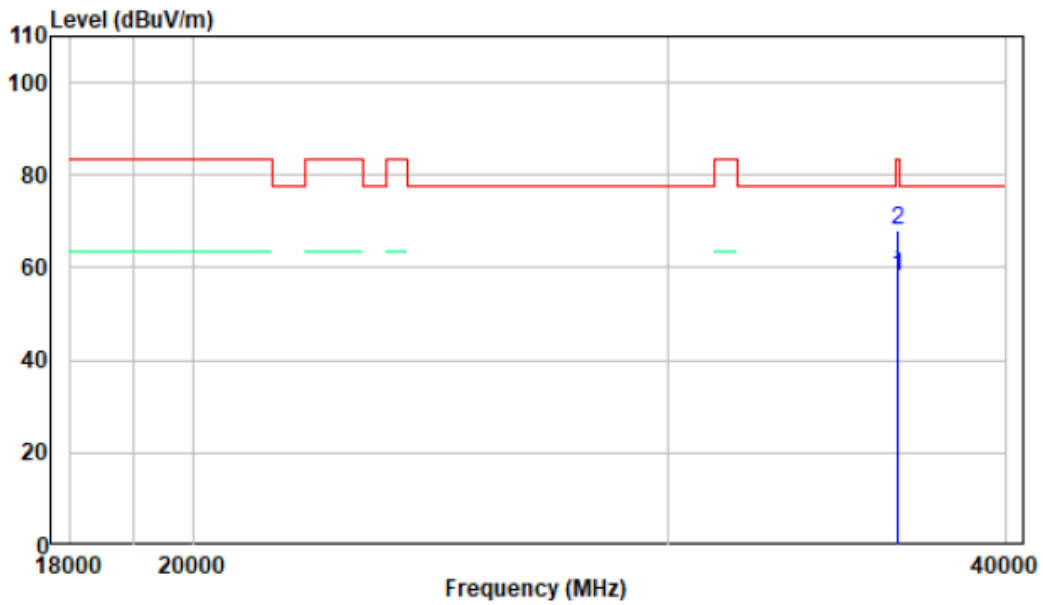
18-40GHz: (Pre-Scan plots)

802.11 a mode, 5785MHz

Horizontal



Vertical



## **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.

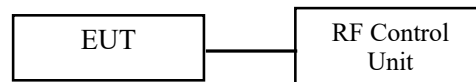
For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting 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>	26.5 °C
<b>Relative Humidity:</b>	58 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Andy Yu on 2022-05-09.*

*EUT operation mode: Transmitting*

**Test Result: Pass**

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11n-HT40	Ant1	5270	14.16	24	PASS
		5310	14.40	24	PASS

Note: For Wi-Fi, only spot tested and recorded the worst mode, the other modes please refer to the original report.

**\*\*\*\*\* END OF REPORT \*\*\*\*\***