



RF TEST REPORT

Applicant Tabletop Media, LLC d/b/a Ziosk
FCC ID XOX-ZPRO600
Product Payment Tablet
Brand Ziosk
Model Z600 Pro
Report No. R2106A0508-R2
Issue Date August 12, 2021

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15E (2020)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Prepared by: Peng Tao

Approved by: Kai Xu

TA Technology (Shanghai) Co., Ltd.

No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000



TABLE OF CONTENT

1. Test Laboratory	4
1.1. Notes of the test report.....	4
1.2. Test facility	4
1.3. Testing Location.....	4
2. General Description of Equipment under Test.....	5
2.1. Applicant and Manufacturer Information.....	5
2.2. General information.....	5
3. Applied Standards	6
4. Test Configuration	7
5. Test Case Results	9
5.1. Occupied Bandwidth	9
5.2. Average Power Output.....	42
5.3. Frequency Stability.....	48
5.4. Power Spectral Density	52
5.5. Unwanted Emission	71
5.6. Conducted Emission	135
6. Main Test Instruments.....	138
ANNEX A: The EUT Appearance	139
ANNEX B: Test Setup Photos	140

Summary of measurement results

Number	Test Case	Clause in FCC rules	Verdict
1	Average output power	15.407(a)	PASS
2	Occupied bandwidth	15.407(e)	PASS
3	Frequency stability	15.407(g)	PASS
4	Power spectral density	15.407(a)	PASS
5	Unwanted Emissions	15.407(b)	PASS
6	Conducted Emissions	15.207	PASS
Date of Testing: July 1, 2021 ~August 3, 2021			
Date of Sample Received: June 28, 2021			
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard. All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			



1. Test Laboratory

1.1. Notes of the test report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

1.3. Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City: Shanghai
Post code: 201201
Country: P. R. China
Contact: Xu Kai
Telephone: +86-021-50791141/2/3
Fax: +86-021-50791141/2/3-8000
Website: <http://www.ta-shanghai.com>
E-mail: xukai@ta-shanghai.com

2. General Description of Equipment under Test

2.1. Applicant and Manufacturer Information

Applicant	Tabletop Media, LLC d/b/a Ziosk
Applicant address	12404 park central drive, suite 350 Dallas, TX 75251
Manufacturer	SHANGHAI XIANGCHENG COMMUNICATION TECHNOLOGY CO.,LTD
Manufacturer address	ROOM 401,BUILDING 5,No.3000 LONGDONG AVENUE,SHANGHAI CHINA

2.2. General information

EUT Description	
Model	Z600 Pro
Lab internal SN	R2106A0508/S01
Hardware Version	V1.0A
Software Version	1.0
Power Supply	External power supply
Antenna Type	Internal Antenna
Antenna Gain	3dBi
Directional Gain	NA
Test Band	U-NII-1(5150MHz-5250MHz) U-NII-2A(5250MHz-5350MHz) U-NII-3(5725MHz-5850MHz)
Modulation Type	802.11a/n (HT20/HT40) : OFDM 802.11ac (VHT20/VHT40/VHT80): OFDM
Max. Conducted Power	15.80 dBm
Operating Frequency Range(s)	U-NII-1: 5150MHz-5250MHz U-NII-2A:5250MHz -5350MHz U-NII-3: 5725MHz -5850MHz
Extreme temperature range:	-20 ° C to 50° C
Operating temperature range:	-10 ° C to 50° C
Operating voltage range:	3.45 V to 4.4 V
State DC voltage:	3.85V
Note:1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.	



3. Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards:

FCC CFR47 Part 15E (2020) Unlicensed National Information Infrastructure Devices

ANSI C63.10 (2013)

Reference standard:

KDB 789033 D02 General UNII Test Procedures New Rules v02r01

4. Test Configuration

Test Mode

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate. Preliminary tests have been done on all the configuration for confirming worst case. Data rate below means worst-case rate of each test item.

Worst-case data rates are shown as following table.

Mode	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

Wireless Technology and Frequency Range

Wireless Technology		Bandwidth	Channel	Frequency
Wi-Fi	U-NII-1	20 MHz	36	5180MHz
			40	5200MHz
			44	5220MHz
			48	5240MHz
		40 MHz	38	5190MHz
			46	5230MHz
		80 MHz	42	5210MHz
	U-NII-2A	20 MHz	52	5260MHz
			56	5280MHz
			60	5300MHz
			64	5320MHz
		40 MHz	54	5270MHz
			62	5310MHz
		80 MHz	58	5290MHz
	U-NII-3	20 MHz	149	5745MHz
			153	5765MHz
			157	5785MHz
			161	5805MHz
			165	5825MHz
		40 MHz	151	5755MHz
			159	5795MHz
		80 MHz	155	5775MHz

Does this device support TPC Function? ☐Yes ☒No

5. Test Case Results

5.1. Occupied Bandwidth

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable.

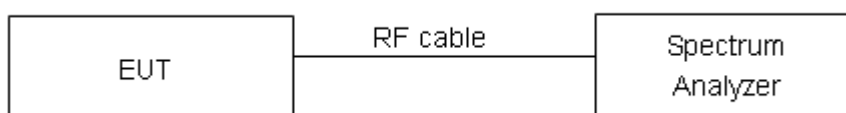
For U-NII-1/U-NII-2A set RBW $\approx 1\%$ OCB kHz, VBW $\geq 3 \times$ RBW, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

For U-NII-3, Set RBW = 100 kHz, VBW $\geq 3 \times$ RBW, 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.

Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

Use the 99 % power bandwidth function of the instrument

Test Setup



Limits

Rule FCC Part §15.407(e)

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

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 936$ Hz.

**Test Results:**

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Verdict
802.11a	5180	17.055	20.200	PASS
	5200	16.965	20.000	PASS
	5240	17.031	20.160	PASS
	5260	16.955	19.920	PASS
	5300	17.011	20.080	PASS
	5320	16.958	20.120	PASS
802.11n HT20	5180	18.009	20.760	PASS
	5200	17.995	21.800	PASS
	5240	18.001	21.800	PASS
	5260	17.954	22.480	PASS
	5300	18.015	21.920	PASS
	5320	18.001	20.920	PASS
802.11n HT40	5190	36.372	40.560	PASS
	5230	36.592	42.320	PASS
	5270	36.532	40.640	PASS
	5310	36.626	41.920	PASS
802.11acVHT20	5180	17.983	20.520	PASS
	5200	17.969	20.360	PASS
	5240	17.930	20.280	PASS
	5260	17.923	20.280	PASS
	5300	17.967	20.600	PASS
	5320	17.929	20.280	PASS
802.11ac VHT40	5190	36.371	40.320	PASS
	5230	36.480	40.400	PASS
	5270	36.381	40.320	PASS
	5310	36.350	40.480	PASS
802.11ac VHT80	5210	75.247	81.280	PASS
	5290	75.309	81.280	PASS



Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Verdict
802.11a	5745	16.992	15.400	PASS
	5785	16.989	15.200	PASS
	5825	16.946	15.160	PASS
802.11n HT20	5745	17.886	15.200	PASS
	5785	17.971	15.160	PASS
	5825	18.001	15.160	PASS
802.11n HT40	5755	36.183	35.200	PASS
	5795	36.533	35.280	PASS
802.11ac VHT20	5745	17.831	15.200	PASS
	5785	17.891	15.200	PASS
	5825	17.824	15.160	PASS
802.11ac VHT40	5755	36.201	35.280	PASS
	5795	36.289	35.280	PASS
802.11ac VHT80	5775	75.244	75.360	PASS



802.11a_5180



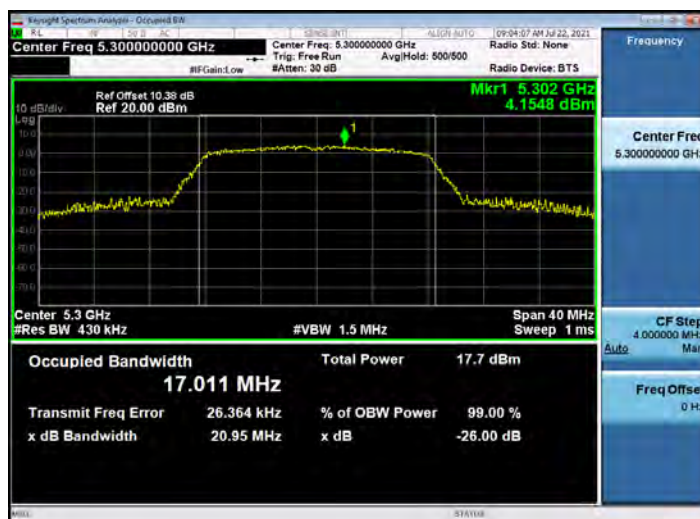
802.11a_5200



802.11a_5240



802.11a_5260



802.11a_5300



802.11a_5320



802.11n HT20_5180



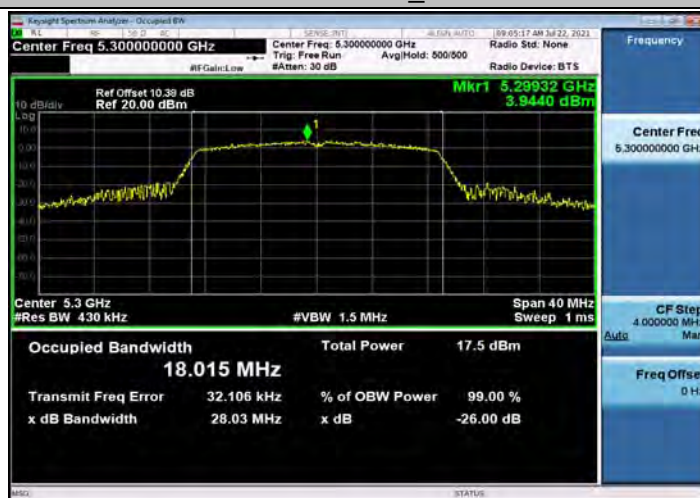
802.11n HT20_5200



802.11n HT20_5240



802.11n HT20_5260



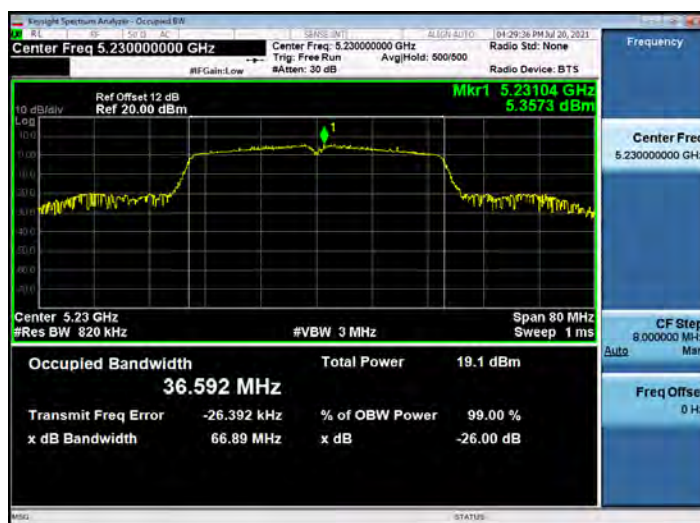
802.11n HT20_5300



802.11n HT20_5320



802.11n HT40_5190



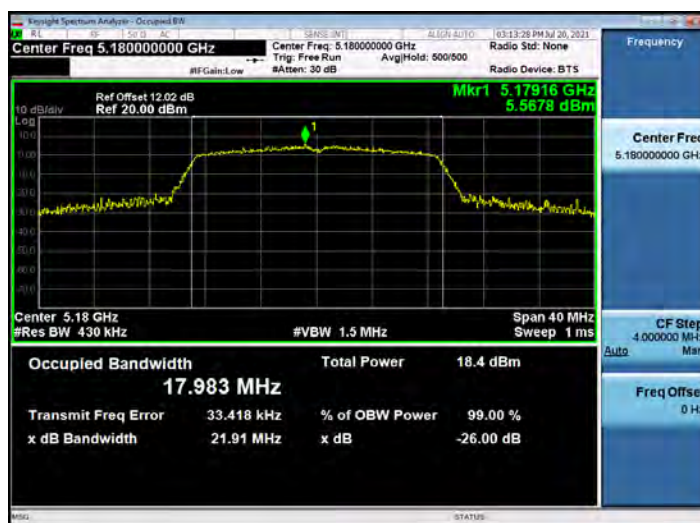
802.11n HT40_5230



802.11n HT40_5270



802.11n HT40_5310



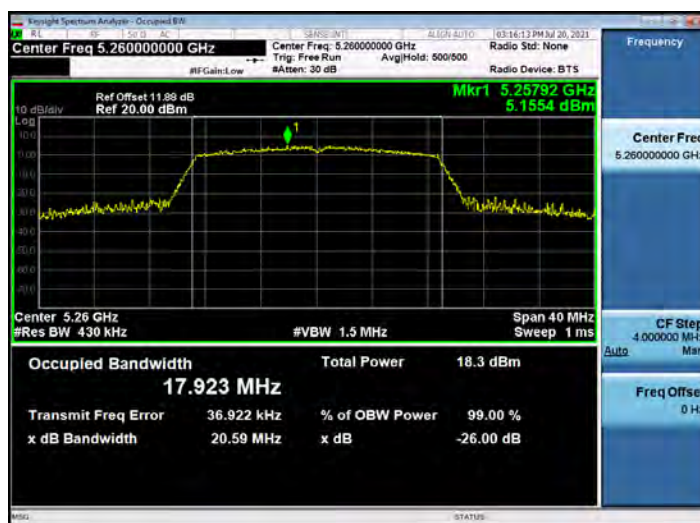
802.11ac VHT20_5180



802.11ac VHT20_5200



802.11ac VHT20_5240



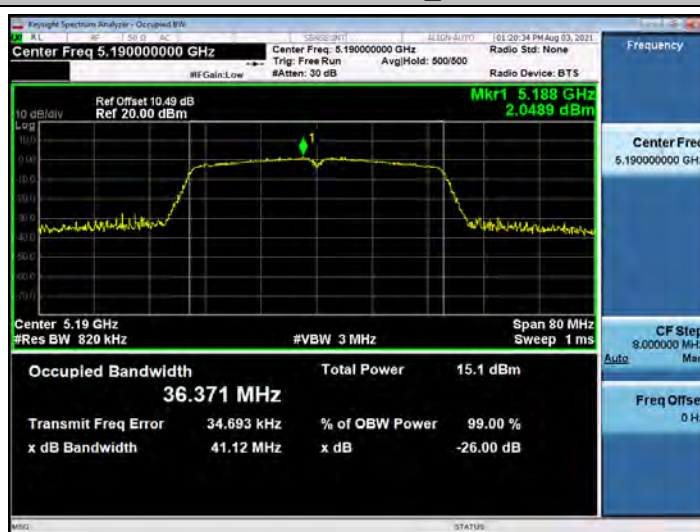
802.11ac VHT20_5260



802.11ac VHT20_5300



802.11ac VHT20_5320



802.11ac VHT40_5190



802.11ac VHT40_5230



802.11ac VHT40_5270



802.11ac VHT40_5310



802.11ac VHT80_5210



802.11ac VHT80_5290

**-26 dB bandwidth**

802.11a_5180



802.11a_5200



802.11a_5240



802.11a_5260



802.11a_5300



802.11a_5320



802.11n HT20_5180



802.11n HT20_5200



802.11n HT20_5240



802.11n HT20_5260



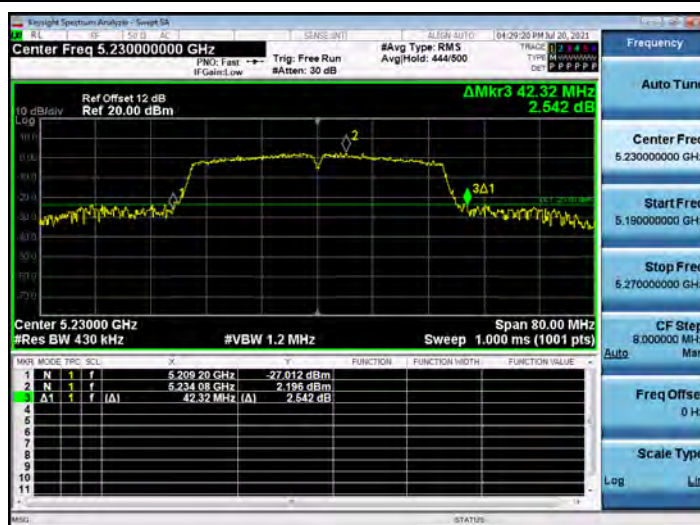
802.11n HT20_5300



802.11n HT20_5320



802.11n HT40_5190



802.11n HT40_5230



802.11n HT40_5270



802.11n HT40_5310



802.11ac VHT20_5180



802.11ac VHT20_5200



802.11ac VHT20_5240



802.11ac VHT20_5260



802.11ac VHT20_5300



802.11ac VHT20_5320



802.11ac VHT40_5190



802.11ac VHT40_5230



802.11ac VHT40_5270



802.11ac VHT40_5310



802.11ac VHT80_5210



802.11ac VHT80_5290



99% bandwidth



802.11a_5745



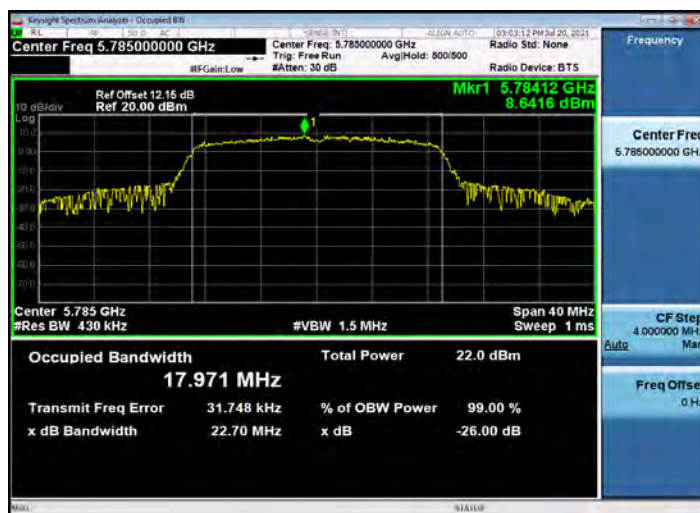
802.11a_5785



802.11a_5825



802.11n HT20_5745



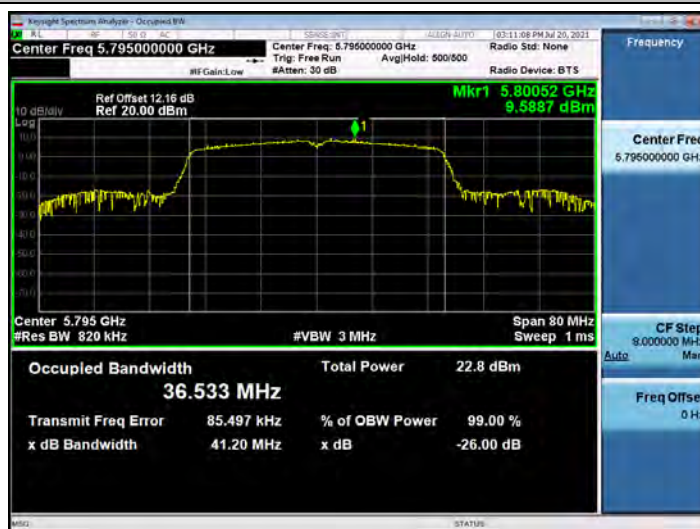
802.11n HT20_5785



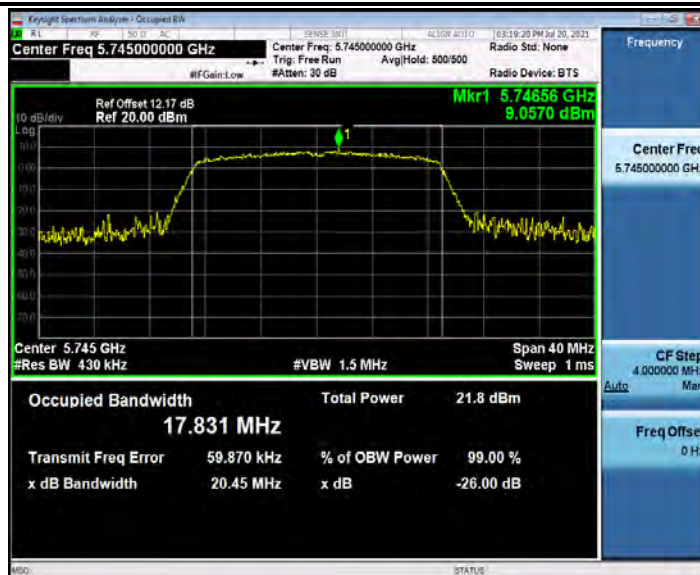
802.11n HT20_5825



802.11n HT40_5755



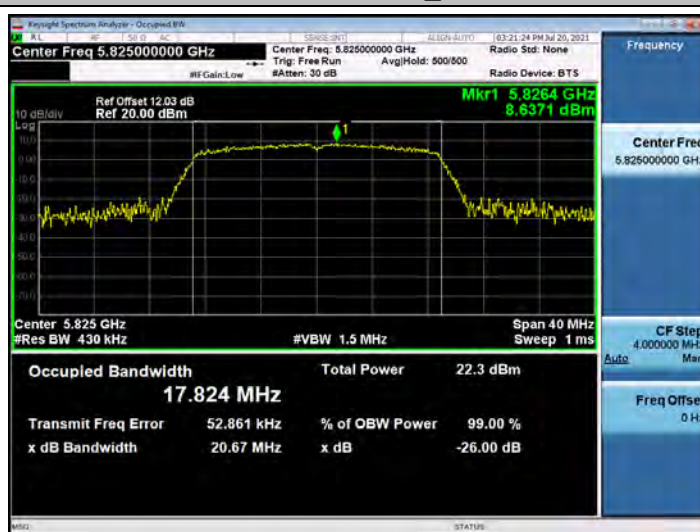
802.11n HT40_5795



802.11ac VHT20_5745



802.11ac VHT20_5785



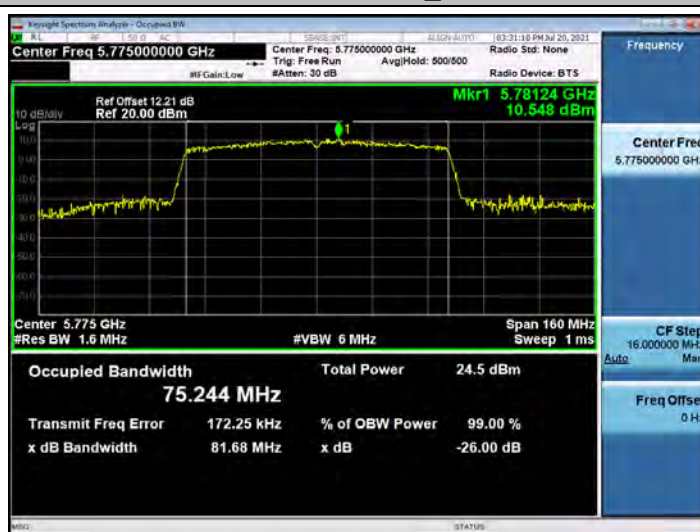
802.11ac VHT20_5825



802.11ac VHT40_5755



802.11ac VHT40_5795



802.11ac VHT80_5775



Minimum 6 dB



802.11a_5745



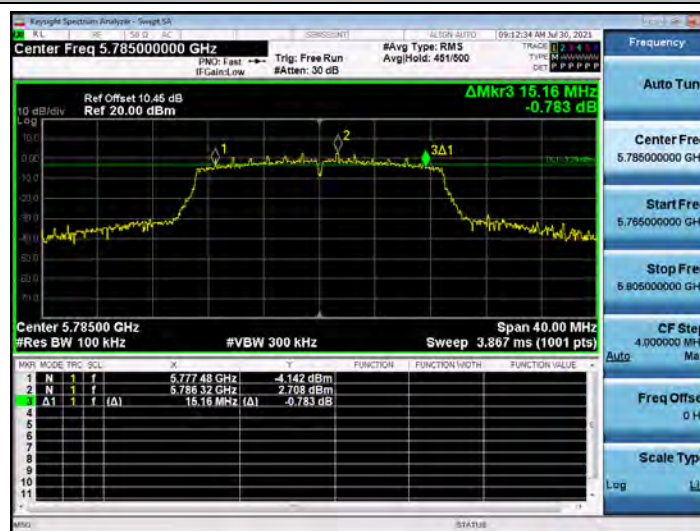
802.11a_5785



802.11a_5825



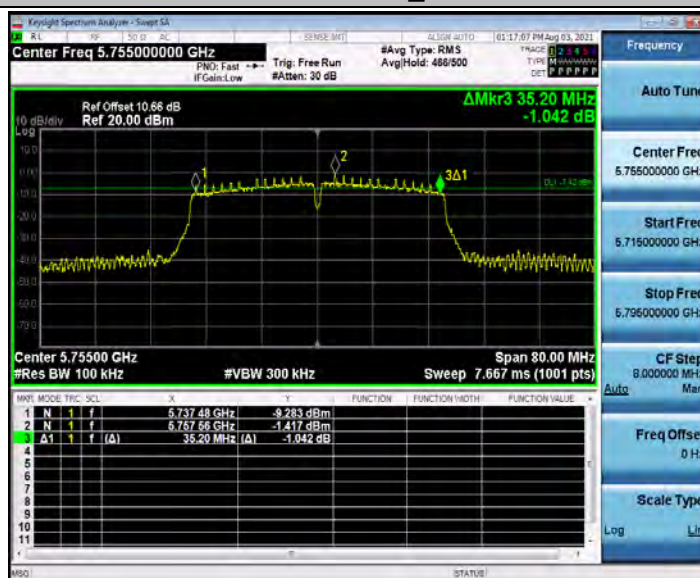
802.11n HT20_5745



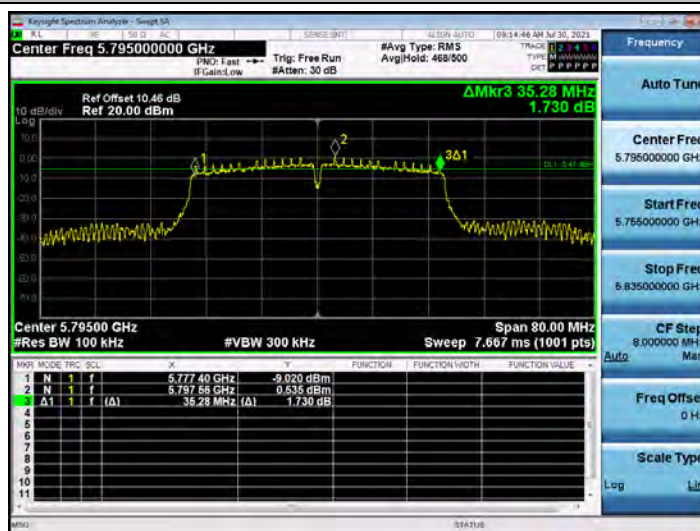
802.11n HT20_5785



802.11n HT20 5825



802.11n HT40 5755



802.11n HT40 5795



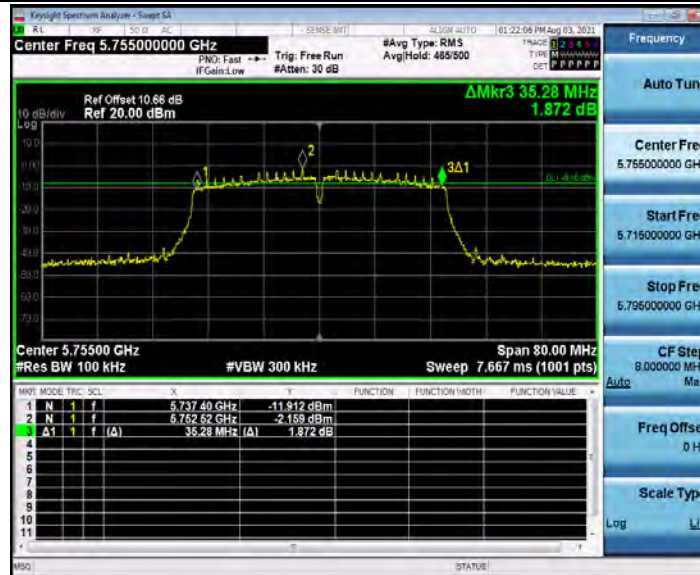
802.11ac VHT20_5745



802.11ac VHT20_5785



802.11ac VHT20_5825



802.11ac VHT40_5755



802.11ac VHT40_5795



802.11ac VHT80_5775

5.2. Average Power Output

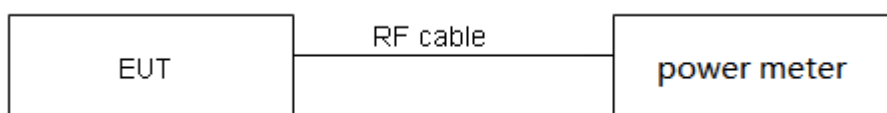
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

During the process of the testing, The EUT was connected to the average power meter through an external attenuator and a known loss cable. The EUT is max power transmission with proper modulation. We use Maximum average Conducted Output Power Level Method in KDB789033 for this test

Test Setup



Limits

Rule FCC Part 15.407(a)(1)(2)(3)

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) 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.

(iii) For fixed point-to-point access points 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. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. 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.

(iv) 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.

(2) 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 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.

(3) 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.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.44$ dB.

Test Results

Mode	T _{on} (ms)	T _(on+off) (ms)	Duty cycle	Duty cycle correction Factor(dB)
802.11a	1.37	1.43	0.96	0.19
802.11n HT20	1.28	1.35	0.95	0.23
802.11n HT40	0.63	0.69	0.91	0.40
802.11ac VHT20	1.29	1.35	0.96	0.20
802.11ac VHT40	0.63	0.7	0.90	0.46
802.11ac VHT80	0.3	0.36	0.83	0.79
Note: when Duty cycle ≥ 0.98 , Duty cycle correction Factor not required.				

Power Index								
Channel	802.11a	802.11n HT20	802.11ac VHT20	Channel	802.11n HT40	802.11ac VHT40	Channel	802.11ac VHT80
CH36	17	17	17	CH38	15	15	CH42	15
CH40	17	17	17	CH46	17	17	/	/
CH48	17	17	17	/	/	/	/	/
CH52	17	17	17	CH54	17	17	CH58	17
CH60	17	17	17	CH62	17	17	/	/
CH64	17	17	17	/	/	/	/	/
CH149	17	17	17	CH151	15	15	CH155	17
CH157	17	17	17	CH159	17	17	/	/
CH165	17	17	17	/	/	/	/	/



Test Mode		Channel/Frequency (MHz)	B=26 dB bandwidth (MHz)	Limit 11 dBm + 10 log B (dBm)	Final Limit(dBm)
U-NII-2A	802.11a	52/5260	19.92	23.99<24	23.99
		60/5300	20.08	24.03>24	24.00
		64/5320	20.12	24.04>24	24.00
	802.11n HT20	52/5260	22.48	24.52>24	24.00
		60/5300	21.92	24.41>24	24.00
		64/5320	20.92	24.21>24	24.00
	802.11n HT40	54/5270	40.64	27.09>24	24.00
		62/5310	41.92	27.22>24	24.00
	802.11ac VHT20	52/5260	20.28	24.07>24	24.00
		60/5300	20.60	24.14>24	24.00
		64/5320	20.28	24.07>24	24.00
	802.11ac VHT40	54/5270	40.32	27.06>24	24.00
		62/5310	40.48	27.07>24	24.00
	802.11ac VHT80	58/5290	81.28	30.10>24	24.00
Note: 250mW=24dBm					



Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor

U-NII-1

Test Mode	Channel/ Frequency (MHz)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
802.11a	36/5180	11.59	11.78	24	PASS
	40/5200	11.22	11.41	24	PASS
	48/5240	11.34	11.53	24	PASS
802.11n HT20	36/5180	11.35	11.58	24	PASS
	40/5200	11.22	11.45	24	PASS
	48/5240	11.21	11.44	24	PASS
802.11n HT40	38/5190	7.78	8.18	24	PASS
	46/5230	11.41	11.81	24	PASS
802.11ac VHT20	36/5180	11.42	11.62	24	PASS
	40/5200	11.1	11.30	24	PASS
	48/5240	11.25	11.45	24	PASS
802.11ac VHT40	38/5190	7.50	7.96	24	PASS
	46/5230	11.07	11.53	24	PASS
802.11ac VHT80	42/5210	7.34	8.13	24	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor					



U-NII-2A

Test Mode	Channel/ Frequency (MHz)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
802.11a	52/5260	11.41	11.60	23.99	PASS
	60/5300	10.76	10.95	24.00	PASS
	64/5320	12.13	12.32	24.00	PASS
802.11n HT20	52/5260	11.26	11.49	24.00	PASS
	60/5300	10.47	10.70	24.00	PASS
	64/5320	11.94	12.17	24.00	PASS
802.11n HT40	54/5270	11.15	11.55	24.00	PASS
	62/5310	11.72	12.12	24.00	PASS
802.11ac VHT20	52/5260	11.23	11.43	24.00	PASS
	60/5300	10.50	10.70	24.00	PASS
	64/5320	11.89	12.09	24.00	PASS
802.11ac VHT40	54/5270	11.14	11.60	24.00	PASS
	62/5310	11.67	12.13	24.00	PASS
802.11ac VHT80	58/5290	7.54	8.33	24.00	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor					

U-NII-3

Test Mode	Channel/ Frequency (MHz)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
802.11a	149/5745	15.02	15.21	30	PASS
	157/5785	15.19	15.38	30	PASS
	165/5825	15.44	15.63	30	PASS
802.11n HT20	149/5745	14.83	15.06	30	PASS
	157/5785	15.05	15.28	30	PASS
	165/5825	15.38	15.61	30	PASS
802.11n HT40	151/5755	11.18	11.58	30	PASS
	159/5795	15.15	15.55	30	PASS
802.11ac VHT20	149/5745	14.80	15.00	30	PASS
	157/5785	15.29	15.49	30	PASS
	165/5825	15.27	15.47	30	PASS
802.11ac VHT40	151/5755	10.84	11.30	30	PASS
	159/5795	15.25	15.71	30	PASS
802.11ac VHT80	155/5775	15.01	15.80	30	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor					

5.3. Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

1. Frequency stability with respect to ambient temperature

- a) Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT. If possible, a dummy load shall be connected to the EUT because an antenna near the metallic walls of an environmental test chamber could affect the output frequency of the EUT. If the EUT is equipped with a permanently attached, adjustable-length antenna, then the EUT shall be placed in the center of the chamber with the antenna adjusted to the shortest length possible. Turn ON the EUT and tune it to one of the number of frequencies shown in 5.6.
- b) Couple the unlicensed wireless device output to the measuring instrument by connecting an antenna to the measuring instrument with a suitable length of coaxial cable and placing the measuring antenna near the EUT (e.g., 15 cm away), or by connecting a dummy load to the measuring instrument, through an attenuator if necessary.
- c) Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).
- d) Turn the EUT OFF and place it inside the environmental temperature chamber. For devices that have oscillator heaters, energize only the heater circuit.
- e) Set the temperature control on the chamber to the highest specified in the regulatory requirements for the type of device and allow the oscillator heater and the chamber temperature to stabilize.
- f) While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.
- g) Measure the frequency at each of frequencies specified in 5.6.
- h) Switch OFF the EUT but do not switch OFF the oscillator heater.
- i) Lower the chamber temperature by not more than 10°C, and allow the temperature inside the chamber to stabilize.
- j) Repeat step f) through step i) down to the lowest specified temperature.

2. Frequency stability when varying supply voltage

Unless otherwise specified, these tests shall be made at ambient room temperature (+15°C to +25 °C). An antenna shall be connected to the antenna output terminals of the EUT if possible. If the EUT is equipped with or uses an adjustable-length antenna, then it shall be fully extended.

- a) Supply the EUT with nominal voltage or install a new or fully charged battery in the EUT. Turn ON the EUT and couple its output to a frequency counter or other frequency-measuring instrument.



- b) Tune the EUT to one of the number of frequencies required in 5.6. Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).
- c) Measure the frequency at each of the frequencies specified in 5.6.
- d) Repeat the above procedure at 85% and 115% of the nominal supply voltage.

Limit

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

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 936\text{Hz}$

**Test Results**

Voltage (V)	Temperature (°C)	U-NII-1 Test Results			
		5200MHz			
		1min	2min	5min	10min
3.85	-20	5200.006223	5200.004356	5200.001395	5200.000499
3.85	-10	5200.006220	5200.003347	5199.991550	5199.996813
3.85	0	5200.001243	5199.997955	5199.982398	5199.989090
3.85	10	5199.991589	5199.996072	5199.979570	5199.979761
3.85	20	5199.983370	5199.994332	5199.977479	5199.975957
3.85	30	5199.978397	5199.992312	5199.974942	5199.974109
3.85	40	5199.973896	5199.985388	5199.971987	5199.964602
3.85	50	5199.965599	5199.979863	5199.971117	5199.962131
3.45	20	5199.964180	5199.974187	5199.964216	5199.956786
4.4V	20	5199.962761	5199.968630	5199.954749	5199.946794
MHz		-0.037239	-0.031370	-0.045251	-0.053206
PPM		-7.161263	-6.032685	-8.702152	-10.232001

Voltage (V)	Temperature (°C)	U-NII-2A Test Results			
		5300MHz			
		1min	2min	5min	10min
3.85	-20	5299.997844	5299.992975	5299.988509	5299.982291
3.85	-10	5299.993997	5299.984592	5299.980523	5299.981588
3.85	0	5299.989323	5299.983907	5299.976583	5299.974224
3.85	10	5299.988458	5299.976177	5299.976235	5299.971943
3.85	20	5299.984391	5299.970157	5299.973335	5299.969979
3.85	30	5299.979273	5299.968123	5299.964873	5299.969297
3.85	40	5299.972626	5299.968024	5299.963073	5299.964880
3.85	50	5299.963530	5299.967051	5299.959888	5299.960821
3.45	20	5299.960027	5299.962412	5299.959013	5299.960183
4.4V	20	5299.958451	5299.957382	5299.956543	5299.952033
MHz		-0.041549	-0.042618	-0.043457	-0.047967
PPM		-7.839526	-8.041060	-8.199482	-9.050341



Voltage (V)	Temperature (°C)	U-NII-3 Test Results			
		5785MHz			
		1min	2min	5min	10min
3.85	-20	5784.995537	5784.994649	5784.990219	5784.980393
3.85	-10	5784.994256	5784.987986	5784.984099	5784.973439
3.85	0	5784.993686	5784.982178	5784.984072	5784.972767
3.85	10	5784.991841	5784.975552	5784.980344	5784.970324
3.85	20	5784.984509	5784.969743	5784.971802	5784.964233
3.85	30	5784.975594	5784.967420	5784.971492	5784.955816
3.85	40	5784.969574	5784.960694	5784.968292	5784.954152
3.85	50	5784.960718	5784.956336	5784.958998	5784.948929
3.45	20	5784.951866	5784.955433	5784.951079	5784.942876
4.4V	20	5784.943587	5784.950284	5784.949092	5784.933516
MHz		-0.056413	-0.049716	-0.050908	-0.066484
PPM		-9.751569	-8.594000	-8.799923	-11.492502

5.4. Power Spectral Density

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

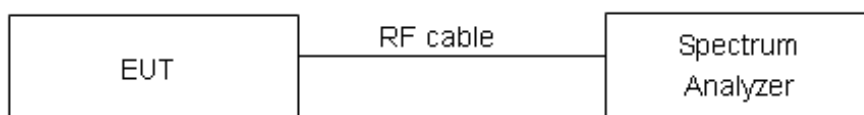
The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable.

Set RBW = 1MHz, VBW =3MHz for the band 5.150-5.250GHz, 5.250-5.350GHz.

Set RBW = 470kHz, VBW =1.5MHz for the band 5.725-5.850GHz

The conducted PSD is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

Test setup



Limits

Rule FCC Part 15.407(a)(1)/ Part 15.407(a)(2) / Part 15.407(a)(3)

For an indoor access point operating in the band 5.15-5.25 GHz, 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 the 5.25-5.35 GHz and 5.47-5.725 GHz bands, 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 power spectral density shall not exceed 30 dBm in any 500kHz 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.

Frequency Bands/MHz	Limits
5150-5250	17/11dBm/MHz
5.25-5.35 GHz and 5.47-5.725 GHz	11dBm/MHz
5725-5850	30dBm/500kHz



Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.75\text{dB}$.

**Test Results:**

Note: Power Spectral Density =Read Value+Duty cycle correction factor

U-NII-1

Mode	Channel Number	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	36	1.51	1.70	11	PASS
	40	1.13	1.32	11	PASS
	48	1.29	1.48	11	PASS
802.11n HT20	36	1.04	1.27	11	PASS
	40	0.73	0.96	11	PASS
	48	0.91	1.14	11	PASS
802.11n HT40	38	-5.43	-5.03	11	PASS
	46	-1.82	-1.42	11	PASS
802.11ac VHT20	36	1.16	1.36	11	PASS
	40	0.67	0.87	11	PASS
	48	0.88	1.08	11	PASS
802.11ac VHT40	38	-5.57	-5.11	11	PASS
	46	-2.17	-1.71	11	PASS
802.11ac VHT80	42	-9.06	-8.27	11	PASS

Note: 1. Power Spectral Density =Read Value+Duty cycle correction factor

U-NII-2A

Mode	Channel Number	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	52	1.58	1.77	11	PASS
	60	0.64	0.83	11	PASS
	64	2.17	2.36	11	PASS
802.11n HT20	52	0.92	1.15	11	PASS
	60	0.07	0.30	11	PASS
	64	1.79	2.02	11	PASS
802.11n HT40	54	-1.81	-1.41	11	PASS
	62	-1.27	-0.87	11	PASS
802.11ac	52	0.99	1.19	11	PASS



VHT20	60	0.42	0.62	11	PASS
	64	1.7	1.90	11	PASS
802.11ac VHT40	54	-2.04	-1.58	11	PASS
	62	-1.52	-1.06	11	PASS
802.11ac VHT80	58	-8.76	-7.97	11	PASS
Note: 1. Power Spectral Density =Read Value+Duty cycle correction factor					

U-NII-3

Mode	Channel Number	Read Value (dBm/470kHz)	Power Spectral Density (dBm/500kHz)	Limit (dBm/500kHz)	Conclusion
802.11a	149	0.22	0.41	30	PASS
	157	0.61	0.80	30	PASS
	165	1.08	1.27	30	PASS
802.11n HT20	149	-0.28	-0.05	30	PASS
	157	-0.22	0.01	30	PASS
	165	-0.24	-0.01	30	PASS
802.11n HT40	151	-5.16	-4.76	30	PASS
	159	-2.63	-2.23	30	PASS
802.11ac VHT20	149	-0.1	0.10	30	PASS
	157	0.14	0.34	30	PASS
	165	0.51	0.71	30	PASS
802.11ac VHT40	151	-5.75	-5.29	30	PASS
	159	-2.75	-2.29	30	PASS
802.11ac VHT80	155	-6.44	-5.65	30	PASS
Note:PSD=Read Value+Duty cycle+10*LOG(500/470) correction factor					



802.11a_5180



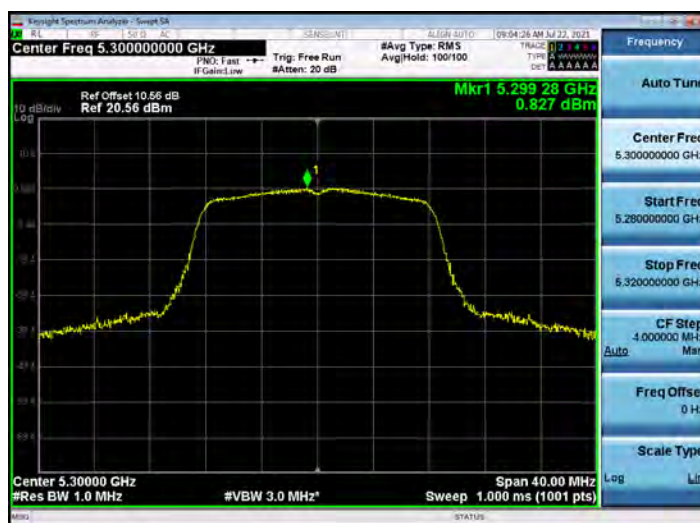
802.11a_5200



802.11a_5240



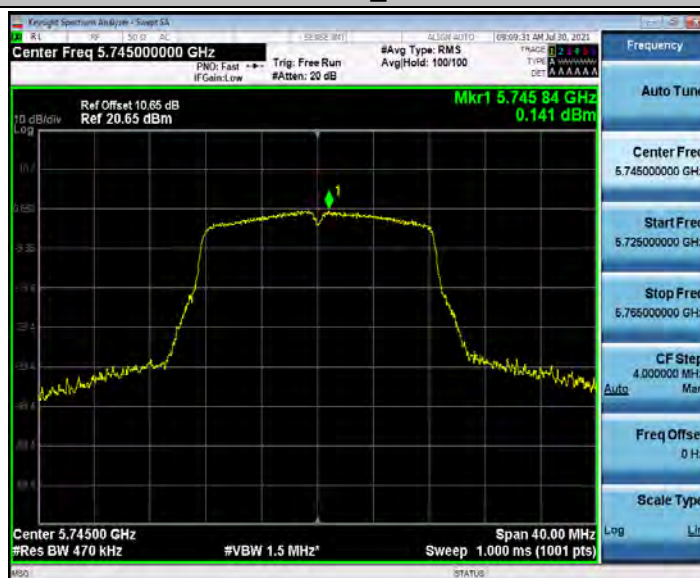
802.11a_5260



802.11a_5300



802.11a_5320



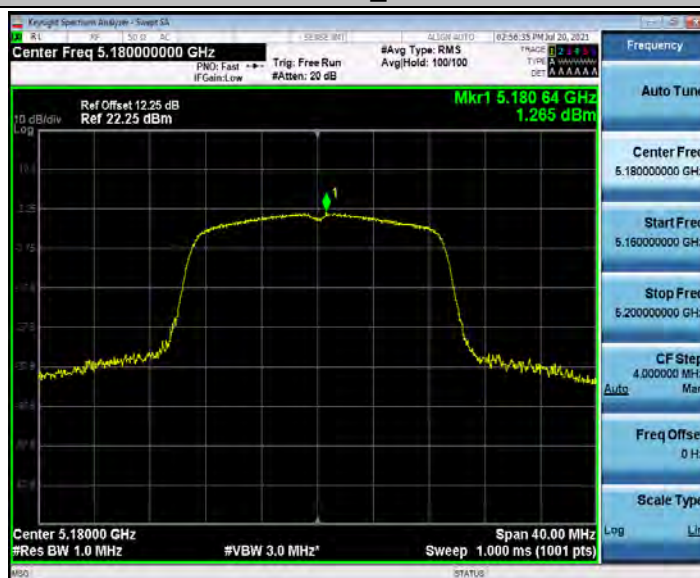
802.11a_5745



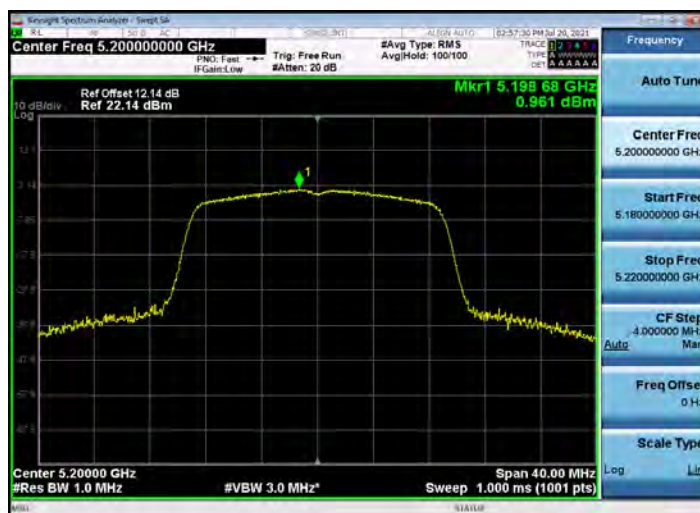
802.11a_5785



802.11a_5825



802.11n HT20_5180



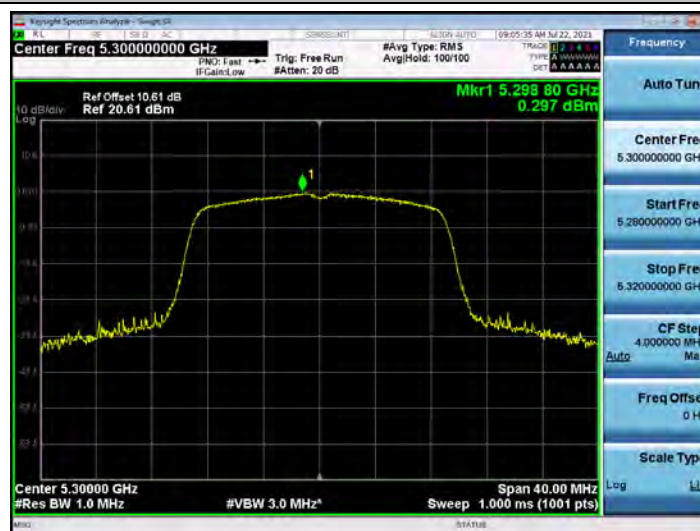
802.11n HT20_5200



802.11n HT20_5240



802.11n HT20_5260



802.11n HT20_5300



802.11n HT20_5320



802.11n HT20_5745



802.11n HT20_5785



802.11n HT20_5825



802.11n HT40_5190



802.11n HT40_5230



802.11n HT40_5270



802.11n HT40_5310



802.11n HT40_5755



802.11n HT40_5795



802.11ac VHT20_5180



802.11ac VHT20_5200



802.11ac VHT20_5240



802.11ac VHT20_5260



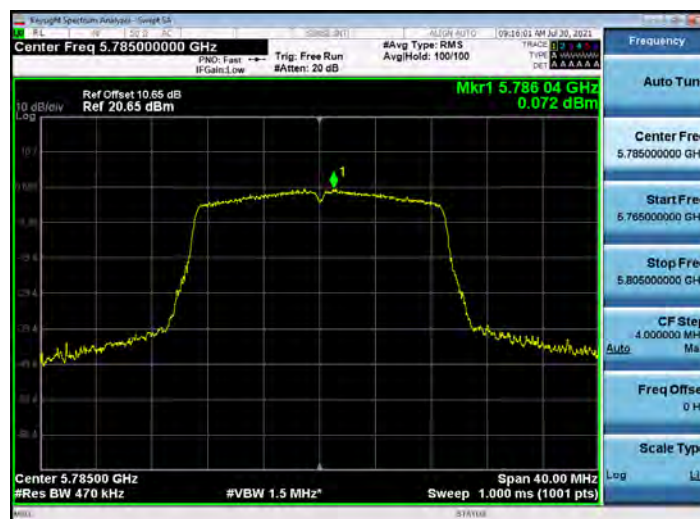
802.11ac VHT20_5300



802.11ac VHT20_5320



802.11ac VHT20_5745



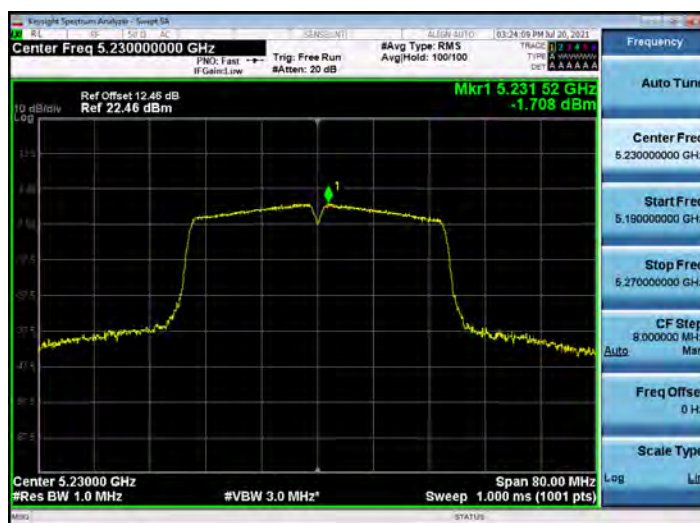
802.11ac VHT20_5785



802.11ac VHT20_5825



802.11ac VHT40_5190



802.11ac VHT40_5230



802.11ac VHT40_5270



802.11ac VHT40_5310



802.11ac VHT40_5755



802.11ac VHT40_5795



802.11ac VHT80_5210



802.11ac VHT80_5290



802.11ac VHT80_5775

5.5. Unwanted Emission

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The test set-up was made in accordance to the general provisions of ANSI C63.10. The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The radiated emissions measurements were made in a typical installation configuration.

Sweep the whole frequency band range from 9kHz to the 10th harmonic of the carrier, and the emissions less than 20 dB below the permissible value are reported.

During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.

Set the spectrum analyzer in the following:

9kHz~150 kHz

RBW=200Hz, VBW=1kHz/ Sweep=AUTO

150 kHz~30MHz

RBW=9KHz, VBW=30KHz,/ Sweep=AUTO

Below 1GHz

RBW=100kHz / VBW=300kHz / Sweep=AUTO

a) Peak emission levels are measured by setting the instrument as follows:

Above 1GHz

PEAK: RBW=1MHz VBW=3MHz/ Sweep=AUTO

b) Average emission levels are measured by setting the instrument as follows:

Above 1GHz

AVERAGE: RBW=1MHz / VBW=3MHz / Sweep=AUTO

c) Detector: The measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

d) Averaging type = power (i.e., rms) (As an alternative, the detector and averaging type may be set for linear voltage averaging. Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.)

e) Sweep time = auto.

f) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, then the number of traces shall be increased by a factor of 1 / D, where D is the duty cycle. For example, with 50% duty cycle, at least 200 traces shall be averaged. (If a specific

emission is demonstrated to be continuous—i.e., 100% duty cycle—then rather than turning ON and OFF with the transmit cycle, at least 100 traces shall be averaged.)

g) If tests are performed with the EUT transmitting at a duty cycle less than 98%, then a correction factor shall be added to the measurement results prior to comparing with the emission limit, to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows:

1) If power averaging (rms) mode was used in the preceding step e), then the correction factor is $[10 \log (1 / D)]$, where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 3 dB shall be added to the measured emission levels.

2) If linear voltage averaging mode was used in the preceding step e), then the correction factor is $[20 \log (1 / D)]$, where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 6 dB shall be added to the measured emission levels.

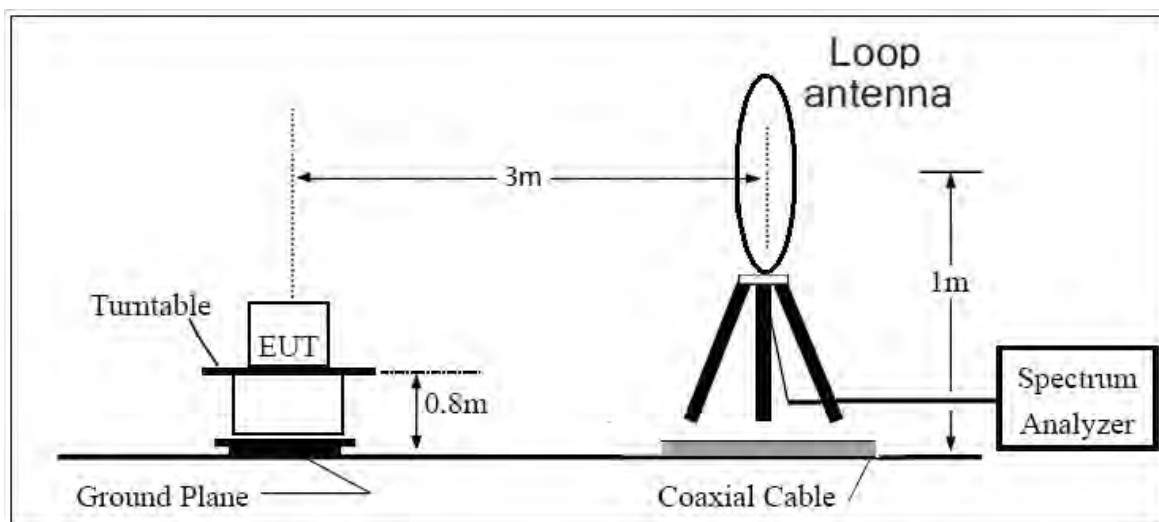
3) If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission.

Reduce the video bandwidth until no significant variations in the displayed signal are observed in subsequent traces, provided the video bandwidth is no less than 1 Hz. For regulatory requirements that specify averaging only over the transmit duration (e.g., digital transmission system [DTS] and Unlicensed National Information Infrastructure [U-NII]), the video bandwidth shall be greater than $[1 / (\text{minimum transmitter on time})]$ and no less than 1 Hz.

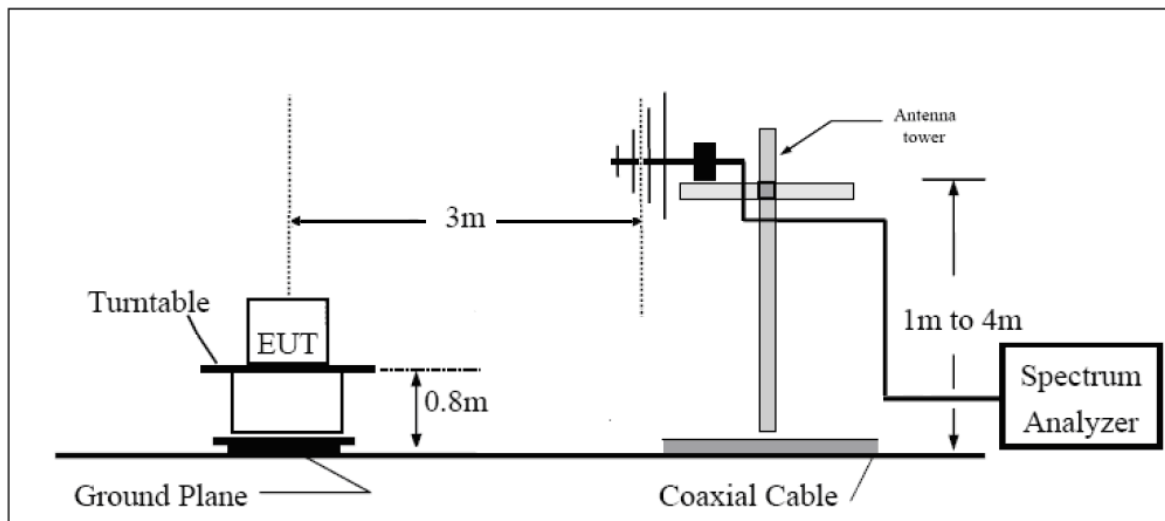
The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the loop antenna is vertical, others antenna are vertical and horizontal.

The test is in transmitting mode.

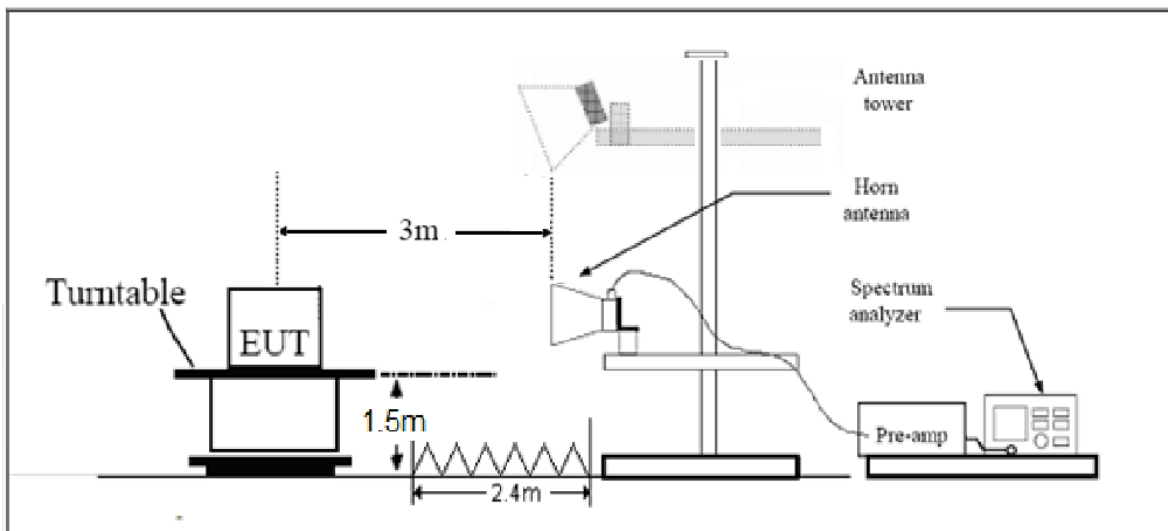
9KHz~~~30MHz



30MHz~~~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m



Limits

- (1) For transmitters operating in the 5725-5850 MHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
- (2) 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(68.2dBμV/m).
- (3) 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(68.2dBμV/m).
- (4) 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(68.2dBμV/m).

Note: the following formula is used to convert the EIRP to field strength

§1、 $E[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] - 20 \log(d[\text{meters}]) + 104.77$, where E = field strength and

d = distance at which field strength limit is specified in the rules;

§2、 $E[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] + 95.2$, for d = 3 meters

- (5) Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table.

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
0.009–0.490	2400/F(kHz)	/
0.490–1.705	24000/F(kHz)	/
1.705–30.0	30	/
30-88	100	40
88-216	150	43.5
216-960	200	46
Above960	500	54

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41			

Measurement Uncertainty

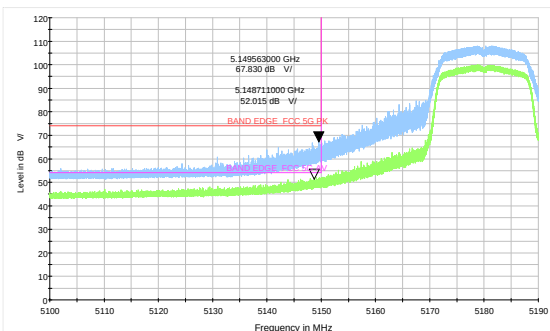
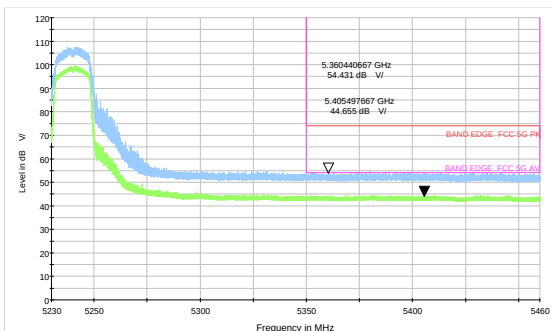
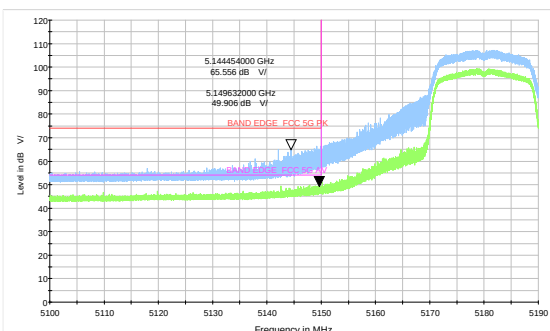
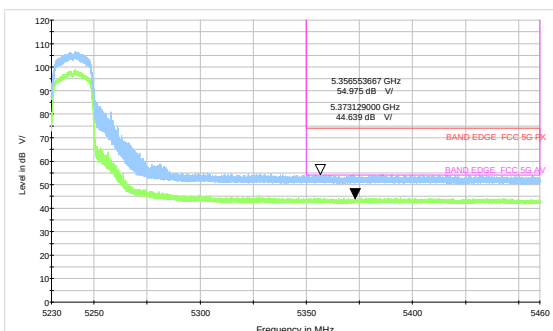
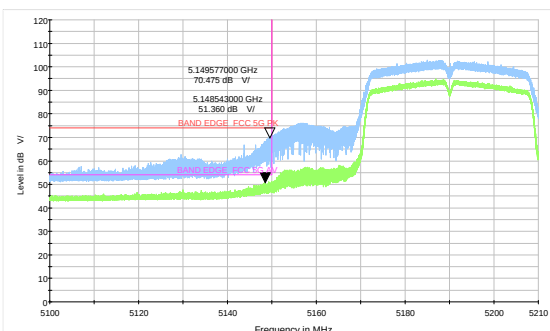
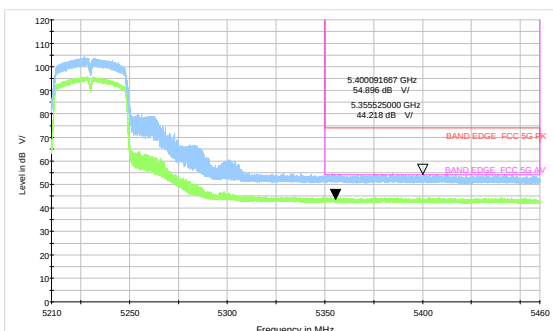
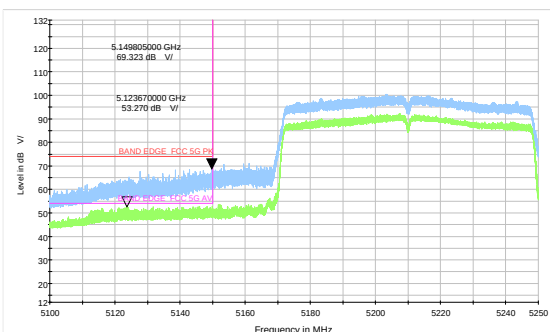
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
9KHz-30MHz	3.55 dB
30MHz-200MHz	4.17 dB
200MHz-1GHz	4.84 dB
1-18GHz	4.35 dB
18-26.5GHz	5.90 dB
26.5GHz~40GHz	5.92 dB

**Test Results:**

The modulation and bandwidth are similar for 802.11n mode for 20MHz/40MHz and 802.11ac mode for V20MHz/V40MHz, therefore investigated worst case to representative mode in test report.

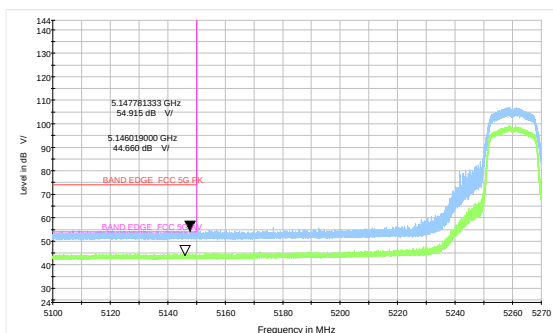
The signal beyond the limit is carrier.

U-NII-1**802.11a-Channel 36: Peak +Average****802.11a-Channel 48: Peak +Average****802.11n HT20-Channel 36: Peak +Average****802.11n HT20-Channel 48: Peak +Average****802.11n HT40-Channel 38: Peak +Average****802.11n HT40-Channel 46: Peak +Average****802.11ac VHT80 -Channel 42: Peak +Average**

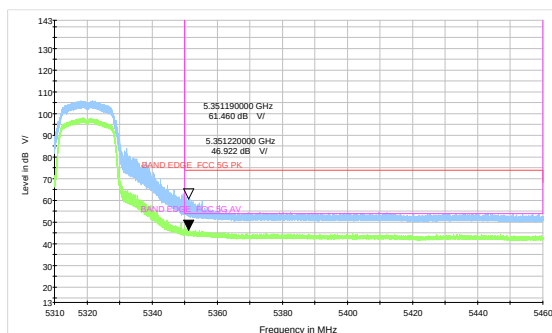


U-NII-2A

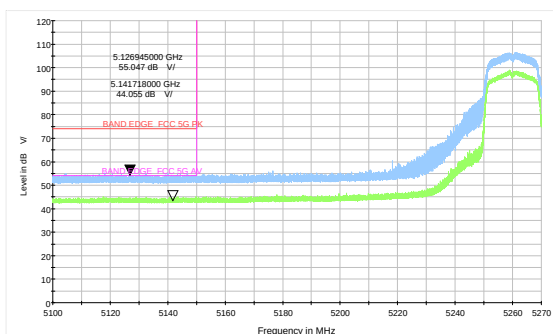
802.11a-Channel 52: Peak +Average



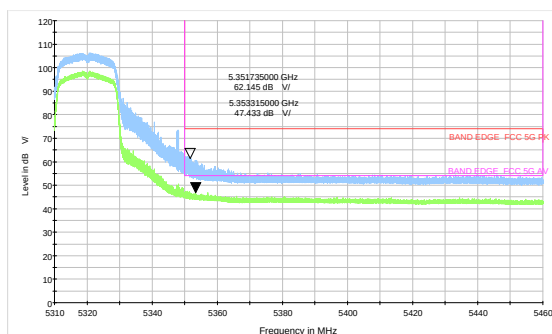
802.11a-Channel 64: Peak +Average



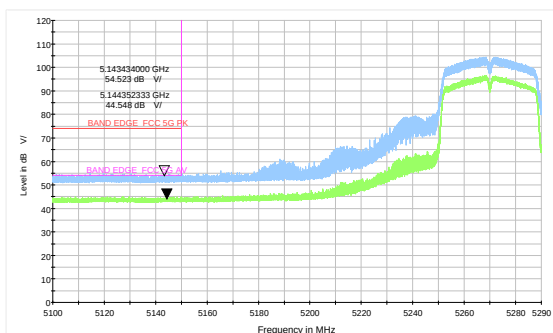
802.11a-Channel 52: Peak +Average



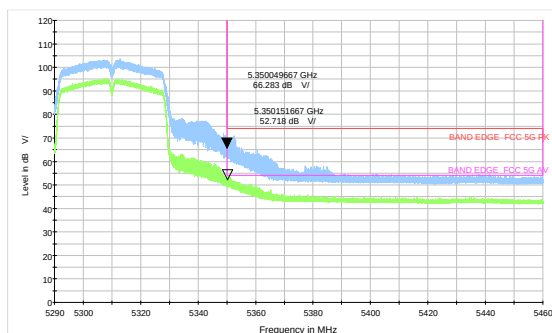
802.11a-Channel 64: Peak +Average



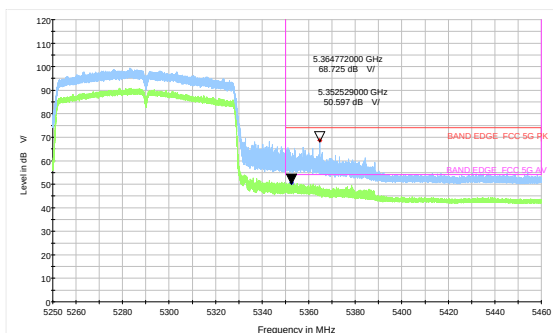
802.11n HT40-Channel 54: Peak +Average



802.11n HT40-Channel 62: Peak +Average



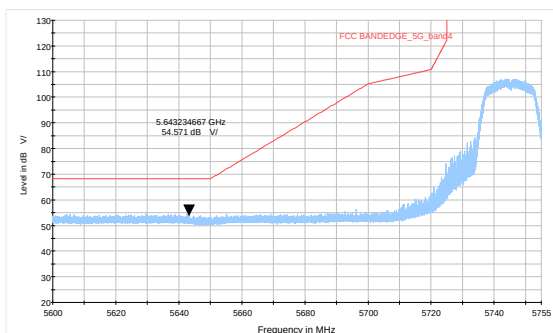
802.11ac VHT80 -Channel 58: Peak +Average



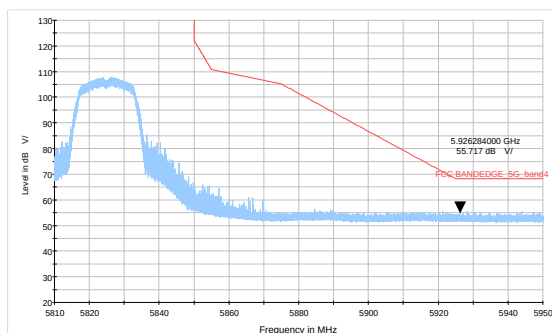


U-NII-3

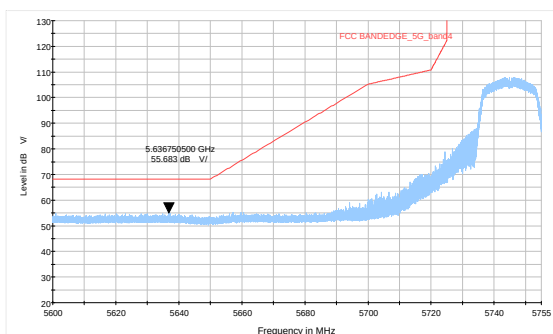
802.11a-Channel 149: Peak



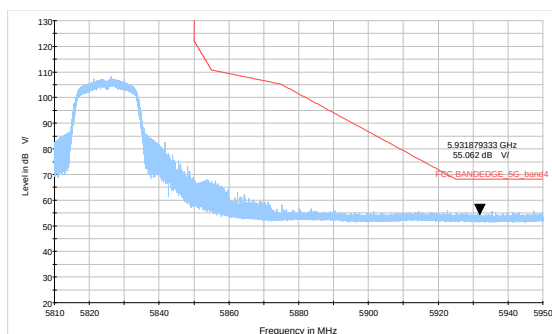
802.11a-Channel 165: Peak



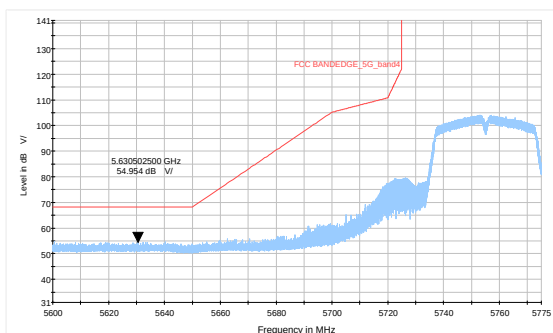
802.11n HT20-Channel 149: Peak



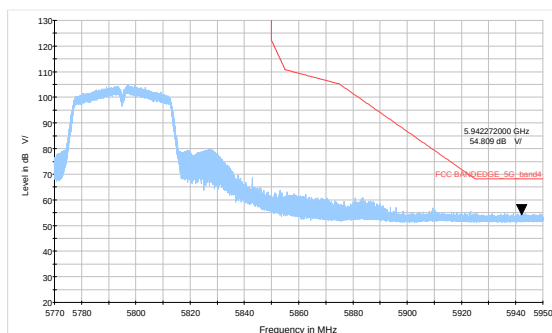
802.11n HT20-Channel 165: Peak



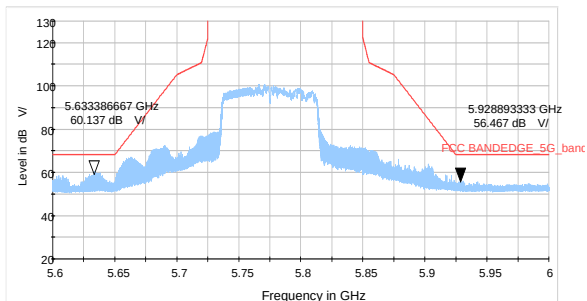
802.11n HT40-Channel 151: Peak



802.11n HT40-Channel 159: Peak



802.11ac VHT80- Channel 155: Peak



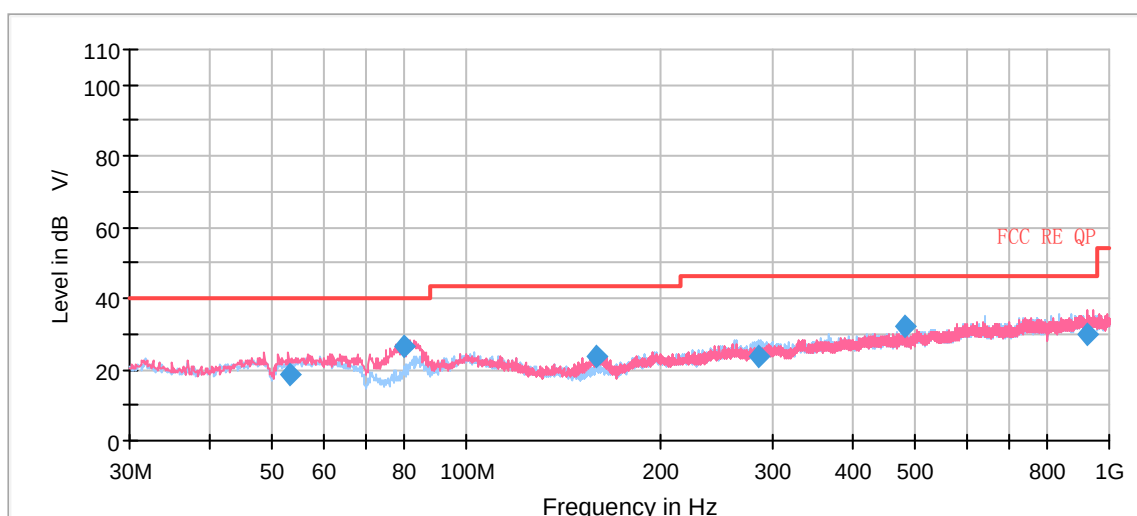
Result of RE

Test result

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the Emissions in the frequency band 9kHz-30MHz and 26.5GHz-40GHz are more than 20dB below the limit are not reported.

During the test, the Radiates Emission from 30MHz to 1GHz was performed in all modes with all channels, 802.11a CH149 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Continuous TX mode:



Radiates Emission from 30MHz to 1GHz

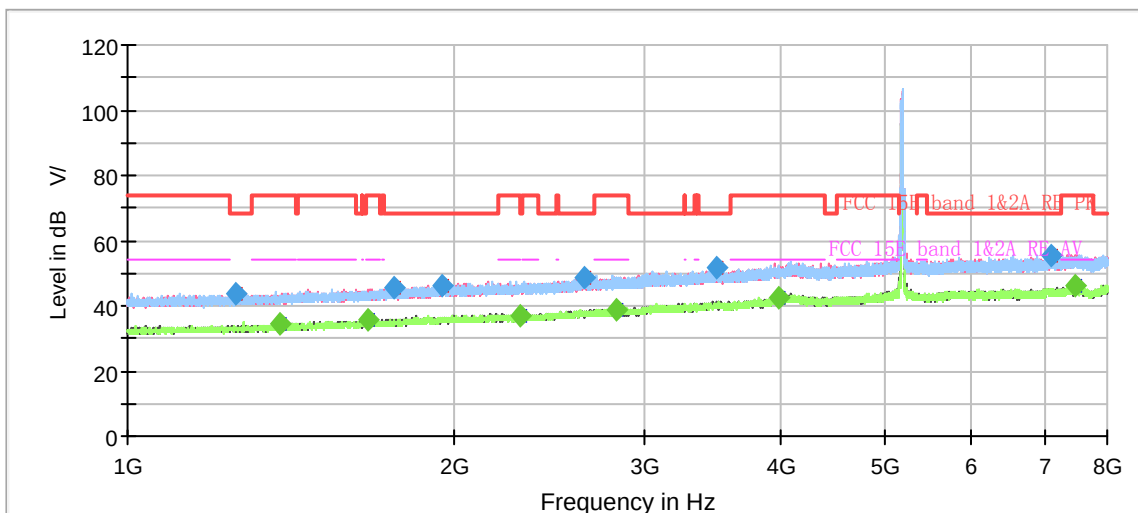
Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
53.237500	18.88	100.0	V	70.0	-4.8	21.12	40.00
79.995000	26.47	109.0	V	118.0	-12.3	13.53	40.00
160.019250	23.47	100.0	V	0.0	-9.2	20.03	43.50
285.959250	23.94	109.0	H	1.0	-3.9	22.06	46.00
479.998750	32.14	100.0	H	244.0	-0.1	13.86	46.00
924.247500	30.07	100.0	V	209.0	5.8	15.93	46.00

Remark: 1. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

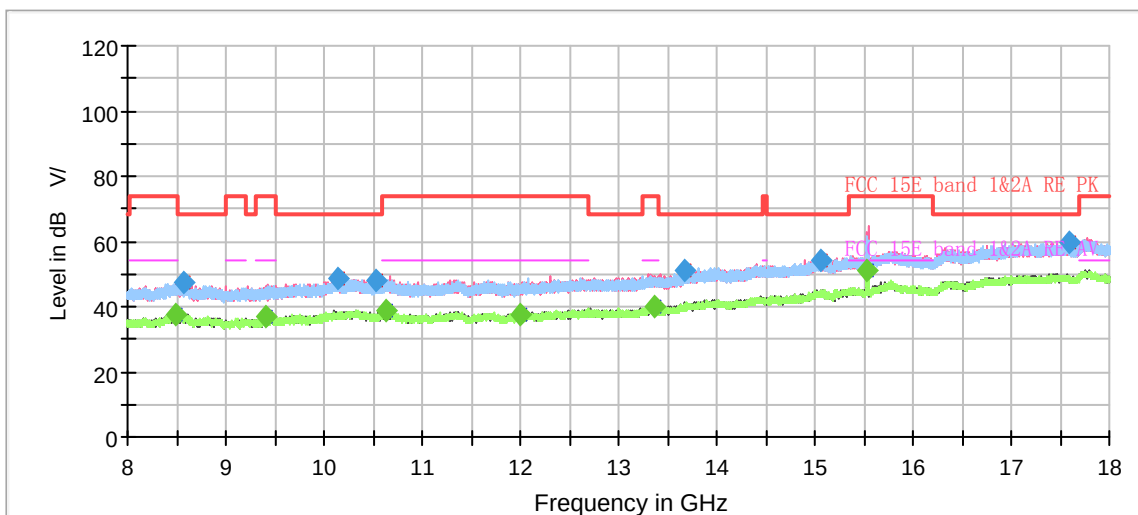
2. Margin = Limit – Quasi-Peak



802.11a CH36



Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 8GHz



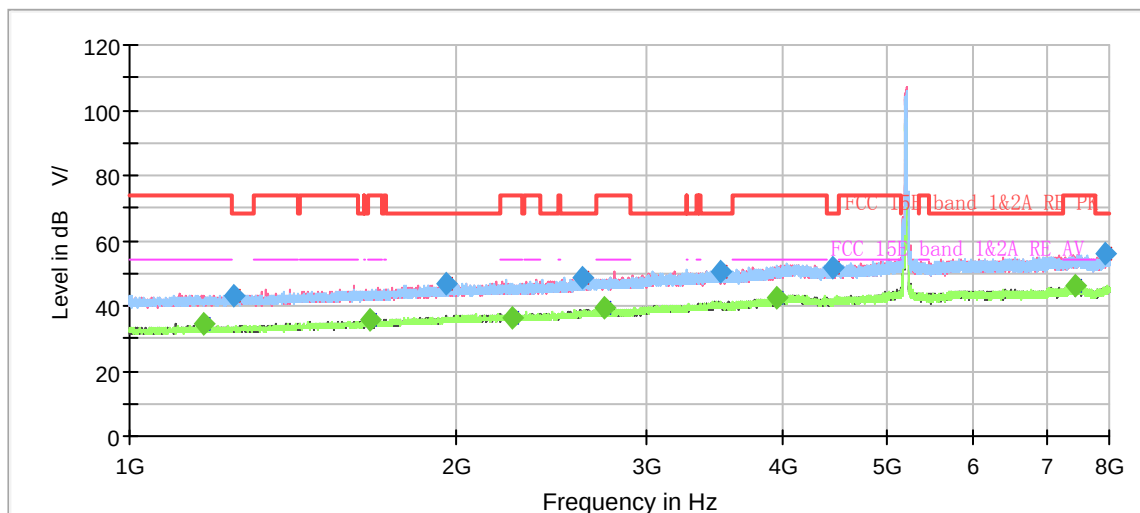
Radiates Emission from 8GHz to 18GHz



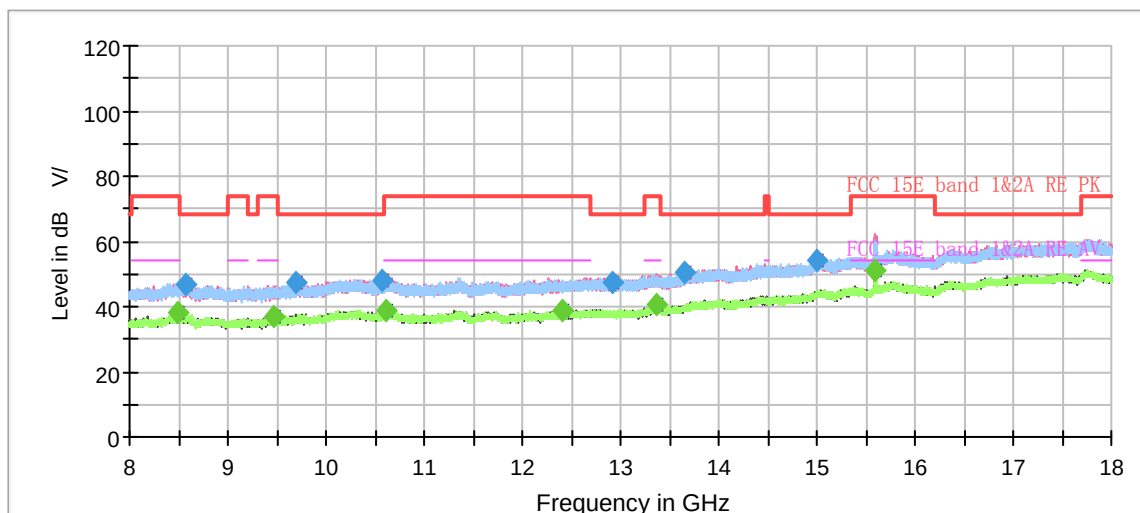
Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1255.966667	43.96	---	68.20	24.24	100.0	H	210.0	-7.0
1383.133333	---	34.47	54.00	19.53	100.0	H	339.0	-6.3
1664.766667	---	35.54	54.00	18.46	200.0	H	178.0	-4.7
1757.400000	45.26	---	68.20	22.94	100.0	H	95.0	-4.1
1948.500000	46.42	---	68.20	21.78	100.0	H	356.0	-3.0
2298.266667	---	36.86	54.00	17.14	100.0	H	296.0	-1.5
2634.033333	48.33	---	68.20	19.87	100.0	H	313.0	0.2
2817.666667	---	39.01	54.00	14.99	200.0	H	0.0	1.0
3487.566667	51.42	---	68.20	16.78	200.0	H	143.0	3.7
3988.066667	---	42.57	54.00	11.43	200.0	V	205.0	6.1
7114.733333	55.44	---	68.20	12.76	100.0	V	58.0	11.0
7469.166667	---	46.22	54.00	7.78	200.0	H	0.0	11.5

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11a CH40



Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 8GHz



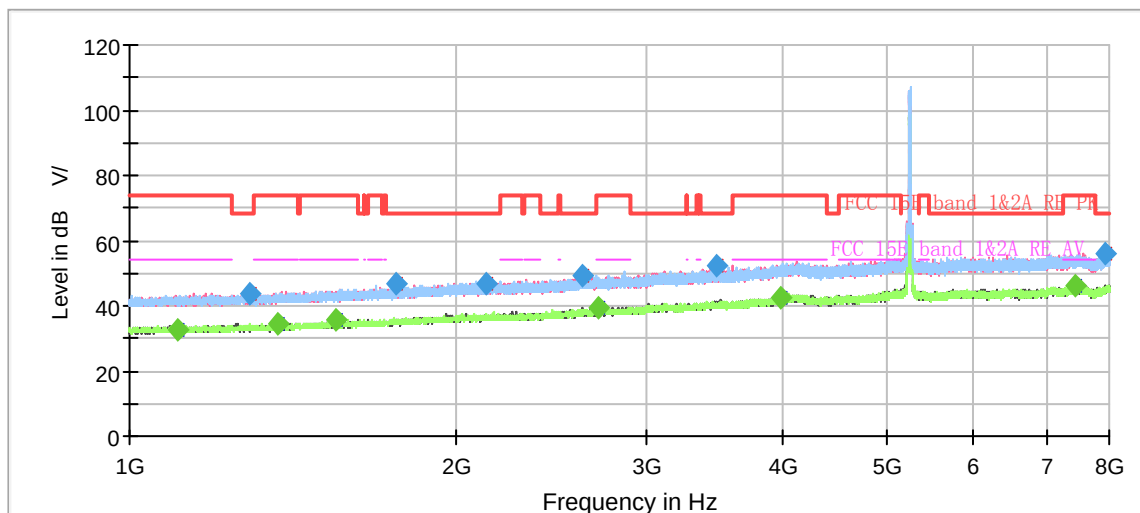
Radiates Emission from 8GHz to 18GHz



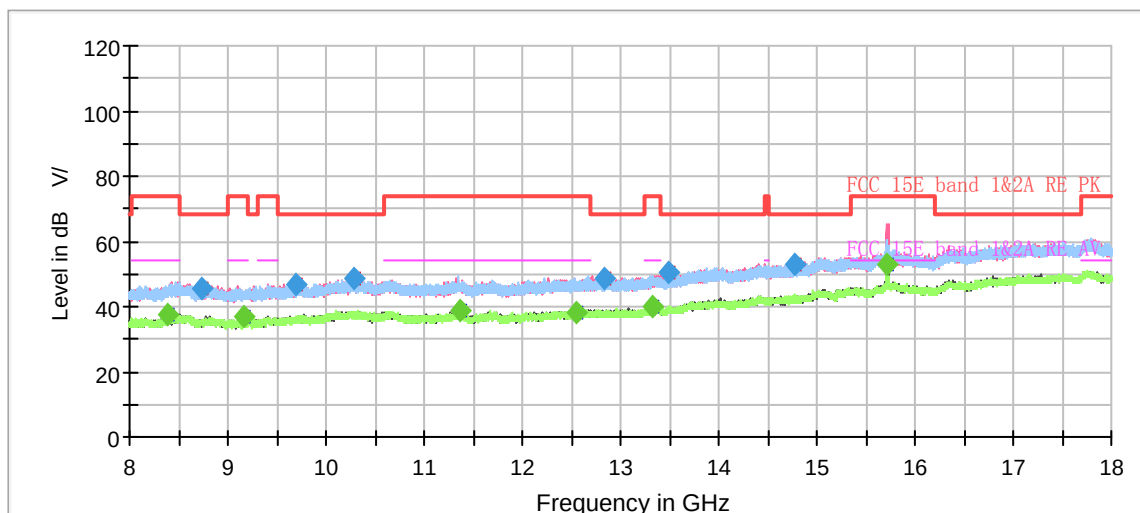
Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1171.733333	---	34.54	54.00	19.46	200.0	V	317.0	-7.4
1249.900000	43.36	---	68.20	24.84	100.0	H	233.0	-7.0
1662.666667	---	35.53	54.00	18.47	100.0	H	215.0	-4.7
1959.933333	46.67	---	68.20	21.53	200.0	V	292.0	-2.9
2248.333333	---	36.40	54.00	17.60	200.0	V	317.0	-1.7
2619.566667	48.81	---	68.20	19.39	100.0	V	52.0	0.2
2739.266667	---	39.13	54.00	14.87	100.0	H	224.0	0.7
3504.133333	50.76	---	68.20	17.44	100.0	V	228.0	3.7
3957.500000	---	42.65	54.00	11.35	200.0	V	231.0	5.9
4458.000000	52.00	---	68.20	16.20	100.0	V	63.0	6.4
7453.533333	---	46.11	54.00	7.89	200.0	V	180.0	11.5
7929.066667	55.73	---	68.20	12.47	100.0	H	268.0	11.7

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11a CH48



Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 8GHz



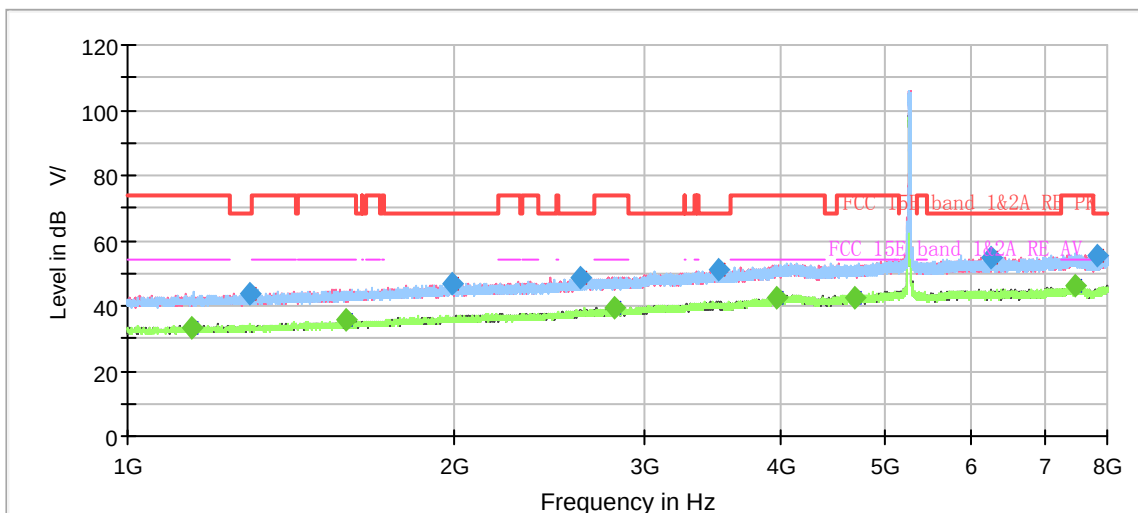
Radiates Emission from 8GHz to 18GHz



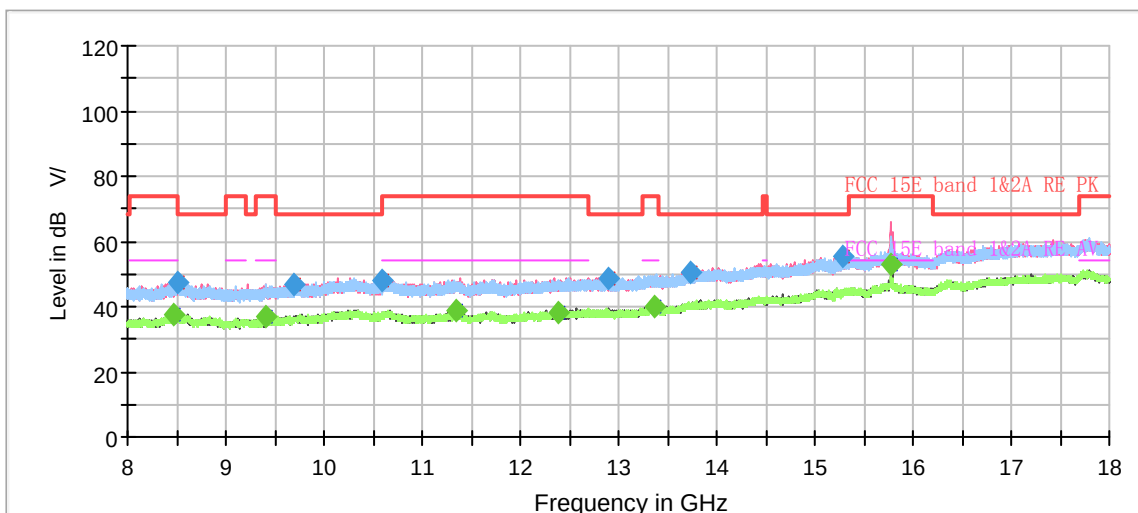
Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1105.233333	---	32.31	54.00	21.69	100.0	V	292.0	-7.7
1290.733333	43.45	---	68.20	24.75	100.0	H	104.0	-6.8
1367.033333	---	34.71	54.00	19.29	100.0	H	311.0	-6.4
1548.566667	---	35.78	54.00	18.22	100.0	H	113.0	-5.3
1758.100000	46.70	---	68.20	21.50	200.0	H	112.0	-4.1
2130.733333	46.80	---	68.20	21.40	200.0	H	79.0	-2.1
2618.166667	49.05	---	68.20	19.15	200.0	H	121.0	0.1
2709.166667	---	39.30	54.00	14.70	200.0	H	2.0	0.6
3480.333333	52.12	---	68.20	16.08	100.0	H	216.0	3.7
3989.700000	---	42.59	54.00	11.41	200.0	H	359.0	6.1
7456.566667	---	46.19	54.00	7.81	200.0	H	112.0	11.5
7943.066667	55.92	---	68.20	12.28	100.0	H	318.0	11.8

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11a CH52



Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 8GHz



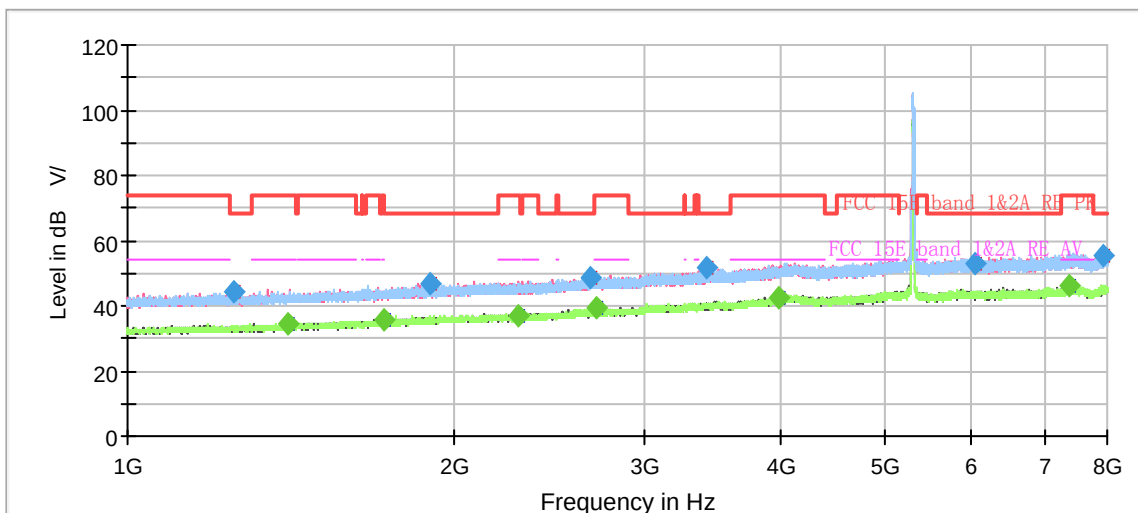
Radiates Emission from 8GHz to 18GHz



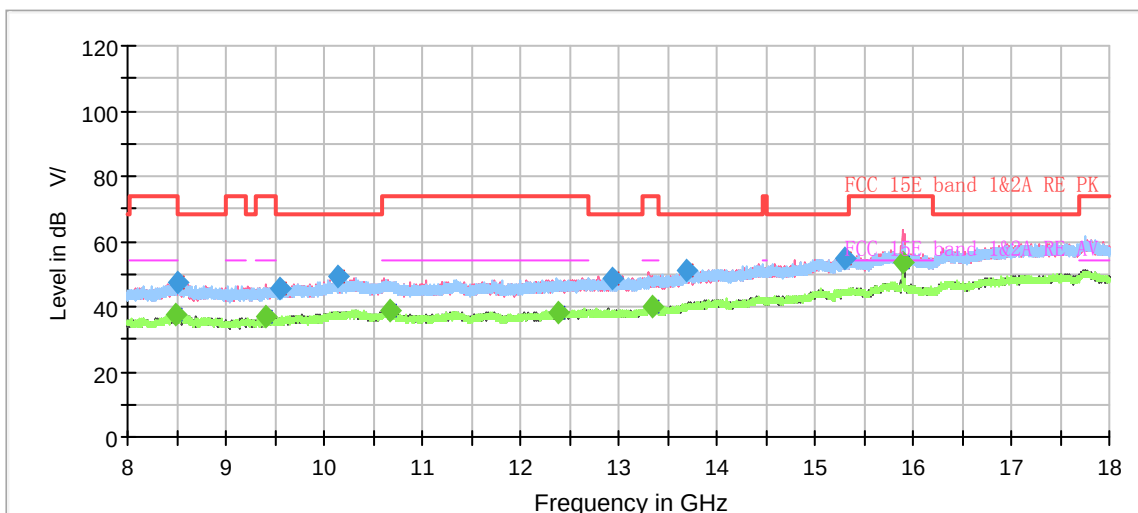
Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1143.500000	---	33.08	54.00	20.92	200.0	V	216.0	-7.6
1295.400000	43.66	---	68.20	24.54	100.0	V	178.0	-6.8
1589.633333	---	35.86	54.00	18.14	200.0	H	340.0	-5.1
1991.200000	46.69	---	68.20	21.51	200.0	H	61.0	-2.7
2613.733333	48.69	---	68.20	19.51	200.0	V	0.0	0.1
2811.833333	---	39.47	54.00	14.53	100.0	V	0.0	1.0
3512.533333	51.15	---	68.20	17.05	100.0	V	221.0	3.8
3966.133333	---	42.62	54.00	11.38	100.0	V	132.0	5.9
4686.200000	---	42.65	54.00	11.35	200.0	V	277.0	7.0
6241.133333	54.83	---	68.20	13.37	200.0	H	217.0	10.0
7467.066667	---	46.12	54.00	7.88	200.0	H	326.0	11.5
7845.066667	55.51	---	68.20	12.69	200.0	H	104.0	11.5

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11a CH60



Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 8GHz



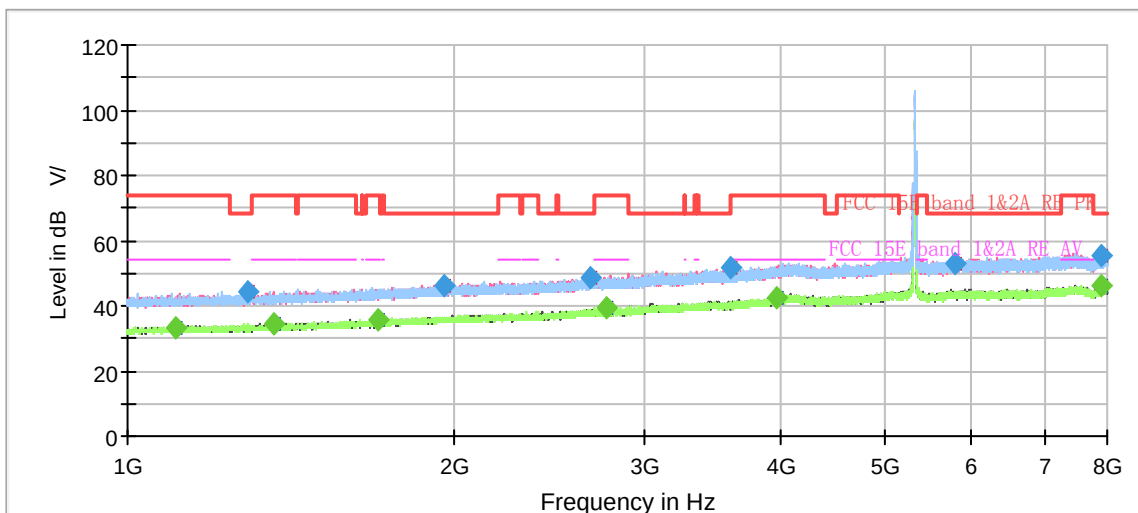
Radiates Emission from 8GHz to 18GHz



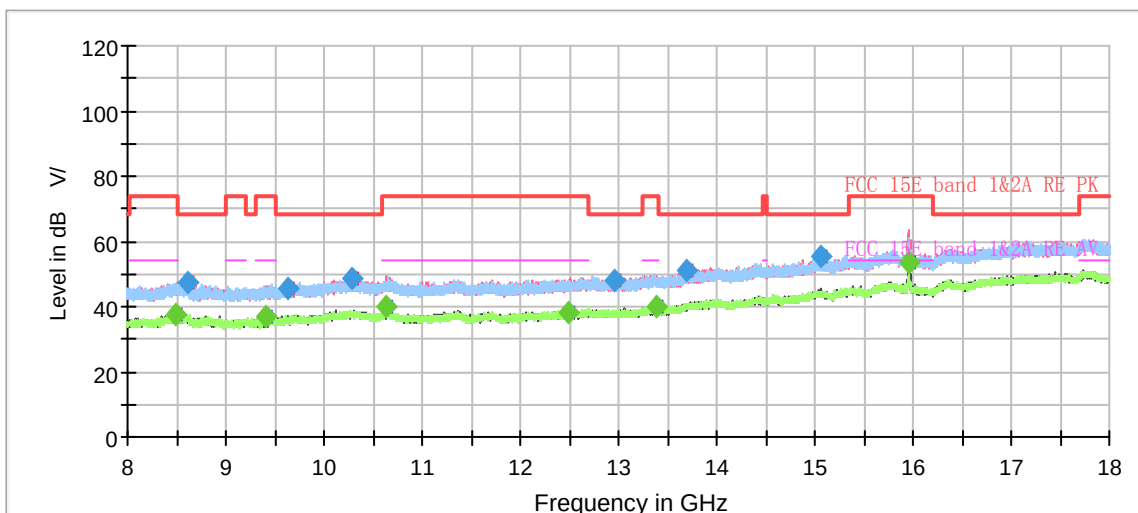
Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1252.700000	44.59	---	68.20	23.61	100.0	H	303.0	-7.0
1404.833333	---	34.64	54.00	19.36	100.0	V	99.0	-6.1
1721.000000	---	35.47	54.00	18.53	100.0	H	355.0	-4.4
1903.700000	46.86	---	68.20	21.34	100.0	H	96.0	-3.3
2288.000000	---	37.18	54.00	16.82	100.0	V	0.0	-1.6
2668.566667	48.62	---	68.20	19.58	100.0	V	108.0	0.4
2710.100000	---	39.18	54.00	14.82	200.0	H	75.0	0.6
3421.533333	51.71	---	68.20	16.49	100.0	H	88.0	3.5
3990.633333	---	42.44	54.00	11.56	100.0	V	319.0	6.1
6033.233333	53.16	---	68.20	15.04	100.0	H	200.0	9.6
7378.633333	---	45.97	54.00	8.03	200.0	H	246.0	11.5
7947.500000	55.60	---	68.20	12.60	100.0	H	0.0	11.8

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11a CH64



Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 8GHz



Radiates Emission from 8GHz to 18GHz