RF TEST REPORT

Applicant	Xiaomi Communications Co., Ltd.
FCC ID	2AFZZ119VL
Product	Mobile Phone
Brand	Redmi
Model	21121119VL
Report No.	R2109A0821-R6
Issue Date	November 8, 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

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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: October 15, 2021~ October 21, 2021 Date of Sample Received: September 30, 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.			

This report only changed the Model of product. All test values duplicated from the original report (Report No.: R2109A0819-R6).

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	Xiaomi Communications Co., Ltd.
Applicant address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
Manufacturer	Xiaomi Communications Co., Ltd.
Manufacturer address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

2.2. General information

EUT Description		
Model	21121119VL	
IMEI	Original (21121119SG)	IMEI 1: 860406050010980 IMEI 2: 860406050010998
	Variant (21121119VL)	IMEI 1: 862440050025027 IMEI 2: 862440050025035
Hardware Version	P2	
Software Version	MIUI12.5	
Antenna Type	PIFA Antenna	
Antenna Gain	5150MHz-5250MHz: 0.2 dBi 5250MHz -5350MHz: 0.2 dBi 5470MHz-5725MHz: 0.0 dBi 5725MHz -5850MHz: 0.2 dBi	
Directional Gain	NA	
Operating Frequency Range(s)	U-NII-1: 5150MHz-5250MHz U-NII-2A:5250MHz -5350MHz U-NII-2C:5470MHz-5725MHz U-NII-3: 5725MHz -5850MHz	
Modulation Type	802.11a/n (HT20/HT40) : OFDM 802.11ac (VHT20/VHT40/VHT80): OFDM	
Max. Conducted Power	14.73 dBm	
Extreme temperature range:	-20 ° C to 50° C	
Operating temperature range:	-10 ° C to 60° C	
Operating voltage range:	3.6 V to 4.45 V	
State DC voltage:	3.87V	

Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.
2. This device support automatically discontinue transmission, while the device is not transmitting any information, the device can automatically discontinue transmission and become standby mode for power saving. The device can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

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-2C	20 MHz	100	5500MHz
			104	5520MHz
			108	5540MHz
			112	5560MHz
			116	5580MHz
			120	5600MHz
			124	5620MHz
			128	5640MHz
			132	5660MHz
			136	5680MHz
			140	5700MHz
			144	5720MHz
		40 MHz	102	5510MHz
			110	5550MHz
			118	5590MHz
			126	5630MHz
			134	5670MHz
			142	5710MHz

		80 MHz	106	5530MHz
			122	5610MHz
			138	5690MHz
	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				
Does this device support TDWR Band? ☒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.

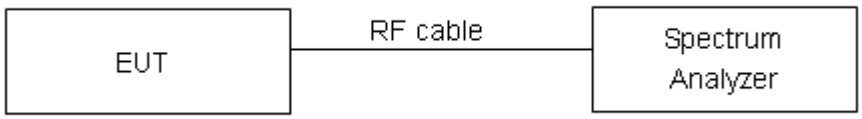
For U-NII-1/U-NII-2A/U-NII-2C, set RBW ≈1% OCB kHz, VBW ≥ 3 × RBW, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the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

For U-NII-3, Set RBW = 100 kHz, VBW ≥ 3 × 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:

U-NII-1

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Conclusion
802.11a	5180	16.365	19.68	PASS
	5200	16.416	19.56	PASS
	5240	16.385	19.50	PASS
802.11n HT20	5180	17.550	19.96	PASS
	5200	17.549	19.88	PASS
	5240	17.508	19.82	PASS
802.11n HT40	5190	35.969	40.13	PASS
	5230	35.941	4013	PASS
802.11ac VHT20	5180	17.532	20.03	PASS
	5200	17.528	19.91	PASS
	5240	17.539	20.29	PASS
802.11ac VHT40	5190	35.935	40.01	PASS
	5230	35.937	39.82	PASS
802.11ac VHT80	5210	75.274	80.23	PASS

U-NII-2A

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Conclusion
802.11a	5260	16.374	19.65	PASS
	5300	16.380	19.67	PASS
	5320	16.388	19.62	PASS
802.11n HT20	5260	17.555	19.94	PASS
	5300	17.505	19.81	PASS
	5320	17.520	20.04	PASS
802.11n HT40	5270	35.929	40.09	PASS
	5310	35.986	40.36	PASS
802.11ac VHT20	5260	17.527	19.93	PASS
	5300	17.540	20.00	PASS
	5320	17.545	19.96	PASS
802.11ac VHT40	5270	35.936	40.29	PASS
	5310	35.928	40.08	PASS
802.11ac VHT80	5290	75.237	80.12	PASS

U-NII-2C

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Conclusion
802.11a	5500	16.396	19.67	PASS
	5600	16.390	19.42	PASS
	5700	16.353	19.28	PASS
	5720	16.378	19.52	PASS
802.11n HT20	5500	17.528	20.16	PASS
	5600	17.517	19.93	PASS
	5700	17.510	19.87	PASS
	5720	17.551	19.95	PASS
802.11n HT40	5510	35.950	40.37	PASS
	5590	35.930	40.54	PASS
	5670	35.986	40.43	PASS
	5710	35.971	40.40	PASS
802.11ac VHT20	5500	17.535	20.01	PASS
	5600	17.520	19.81	PASS
	5700	17.519	19.93	PASS
	5720	17.523	19.79	PASS
802.11ac VHT40	5510	35.902	39.98	PASS
	5590	35.965	39.99	PASS
	5670	35.937	39.85	PASS
	5710	35.946	39.99	PASS
802.11ac VHT80	5610	75.203	80.61	PASS
	5690	75.193	80.39	PASS

U-NII-3

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11a	5745	16.407	15.07	500	PASS
	5785	16.411	14.91	500	PASS
	5825	16.432	15.04	500	PASS
802.11n HT20	5745	17.531	12.61	500	PASS
	5785	17.556	14.95	500	PASS
	5825	17.538	13.84	500	PASS
802.11n HT40	5755	35.955	33.86	500	PASS
	5795	35.935	33.83	500	PASS
802.11ac VHT20	5745	17.556	15.13	500	PASS
	5785	17.517	14.07	500	PASS
	5825	17.547	12.90	500	PASS
802.11ac VHT40	5755	35.965	35.08	500	PASS
	5795	35.934	35.05	500	PASS
802.11ac VHT80	5775	75.258	75.11	500	PASS

U-NII-1, 802.11a

Carrier frequency (MHz): 5180

U-NII-1, 802.11n HT20

Carrier frequency (MHz): 5180

U-NII-1, 802.11a

Carrier frequency (MHz): 5200

U-NII-1, 802.11n HT20

Carrier frequency (MHz): 5200

U-NII-1, 802.11a

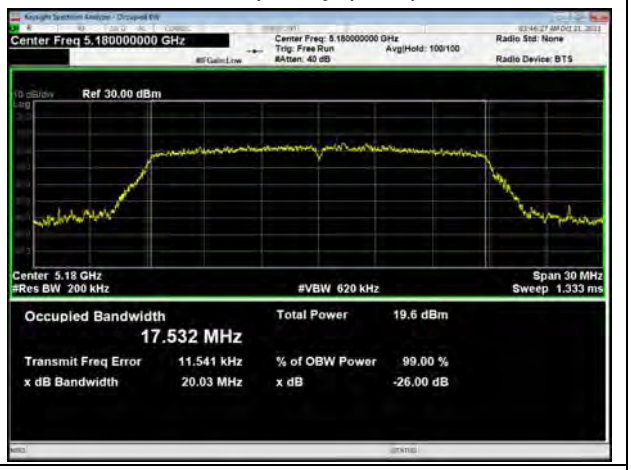
Carrier frequency (MHz):5240

U-NII-1, 802.11n HT20

Carrier frequency (MHz):5240

U-NII-1, 802.11n HT40
Carrier frequency (MHz): 5190

U-NII-1, 802.11ac VHT20
Carrier frequency (MHz): 5180

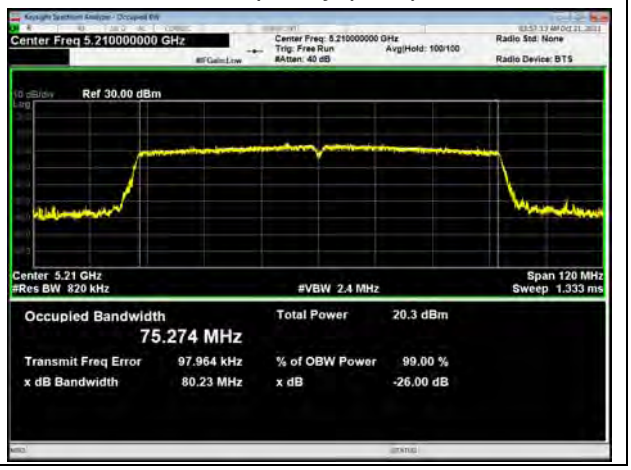


U-NII-1, 802.11n HT40
Carrier frequency (MHz): 5230

U-NII-1, 802.11ac VHT20
Carrier frequency (MHz): 5200

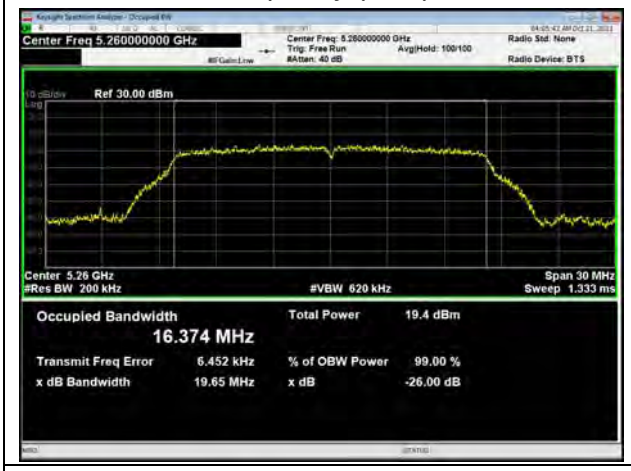
U-NII-1, 802.11ac VHT40
Carrier frequency (MHz): 5190

U-NII-1, 802.11ac VHT20
Carrier frequency (MHz):5240

U-NII-1, 802.11ac VHT40 Carrier frequency (MHz): 5230	U-NII-1, 802.11ac VHT80 Carrier frequency (MHz): 5210
	

U-NII-2A, 802.11a

Carrier frequency (MHz): 5260



U-NII-2A, 802.11n HT20

Carrier frequency (MHz): 5260

U-NII-2A, 802.11a

Carrier frequency (MHz): 5300

U-NII-2A, 802.11n HT20

Carrier frequency (MHz): 5300

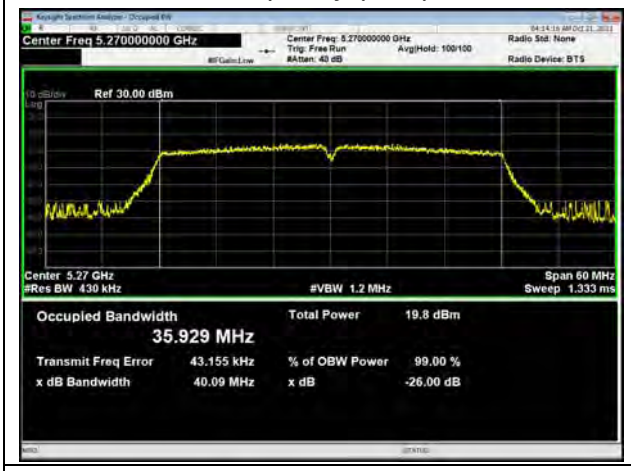
U-NII-2A, 802.11a

Carrier frequency (MHz):5320

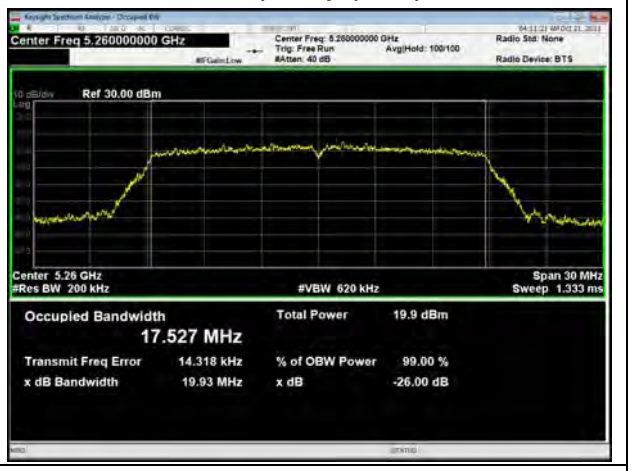
U-NII-2A, 802.11n HT20

Carrier frequency (MHz):5320

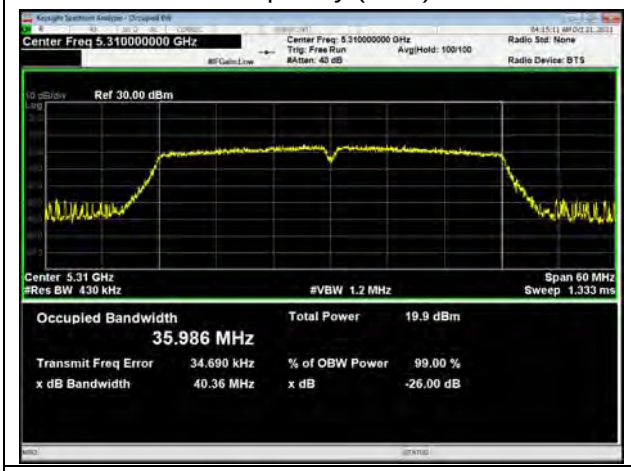
U-NII-2A, 802.11n HT40
Carrier frequency (MHz): 5270



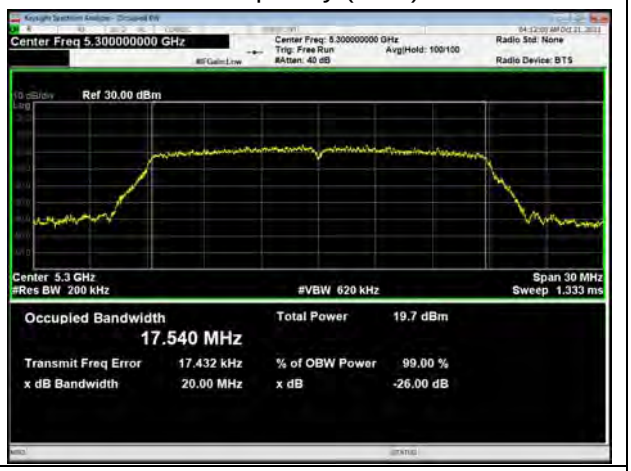
U-NII-2A, 802.11ac VHT20
Carrier frequency (MHz):5260



U-NII-2A, 802.11n HT40
Carrier frequency (MHz): 5310

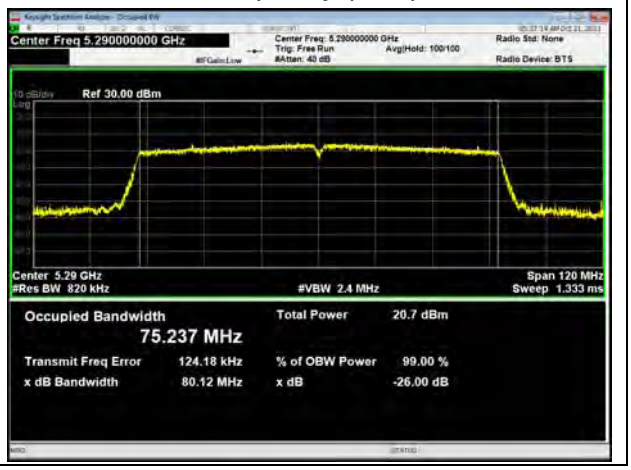


U-NII-2A, 802.11ac VHT20
Carrier frequency (MHz): 5300



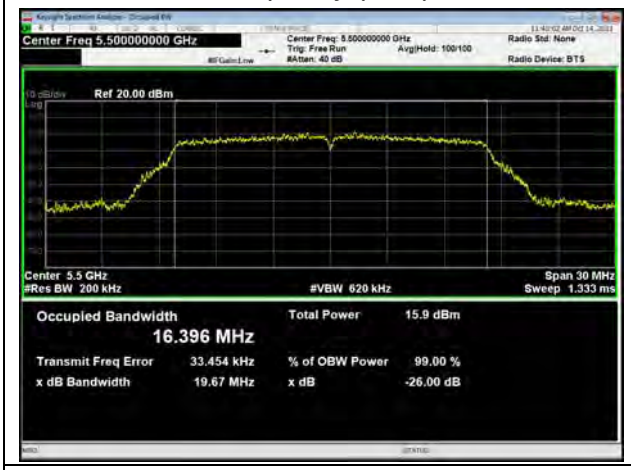
U-NII-2A, 802.11ac VHT40
Carrier frequency (MHz): 5270

U-NII-2A, 802.11ac VHT20
Carrier frequency (MHz):5320

U-NII-2A, 802.11ac VHT40 Carrier frequency (MHz): 5310	U-NII-2A, 802.11ac VHT80 Carrier frequency (MHz): 5290
	

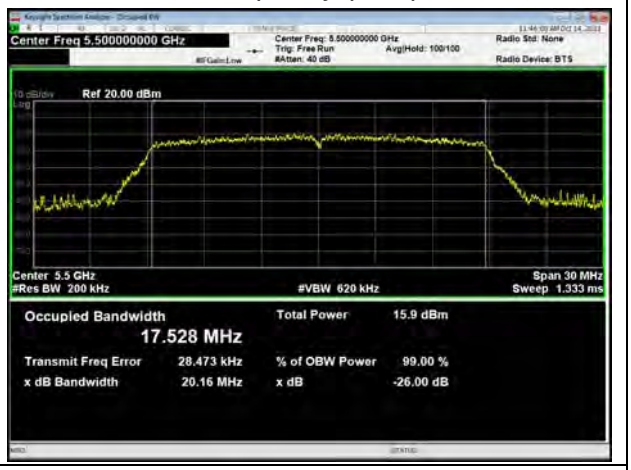
U-NII-2C, 802.11a

Carrier frequency (MHz): 5500



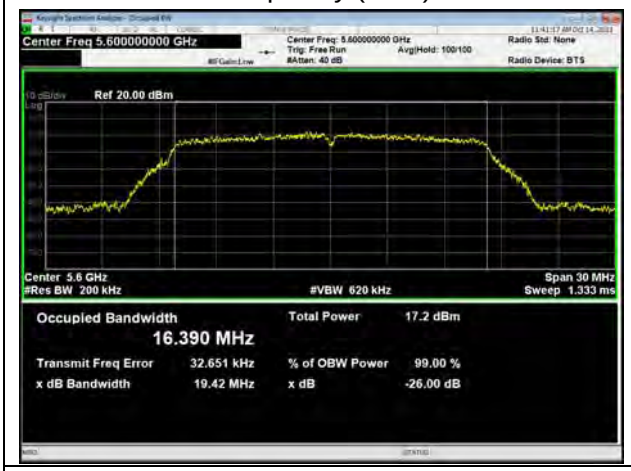
U-NII-2C, 802.11n HT20

Carrier frequency (MHz): 5500



U-NII-2C, 802.11a

Carrier frequency (MHz): 5580



U-NII-2C, 802.11n HT20

Carrier frequency (MHz): 5580

U-NII-2C, 802.11a

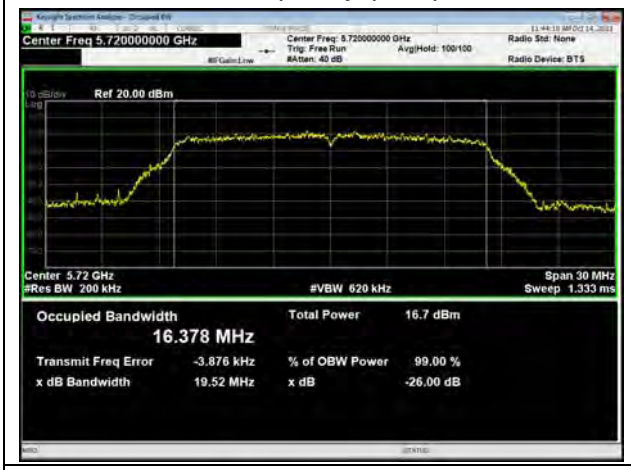
Carrier frequency (MHz):5700

U-NII-2C, 802.11n HT20

Carrier frequency (MHz):5700

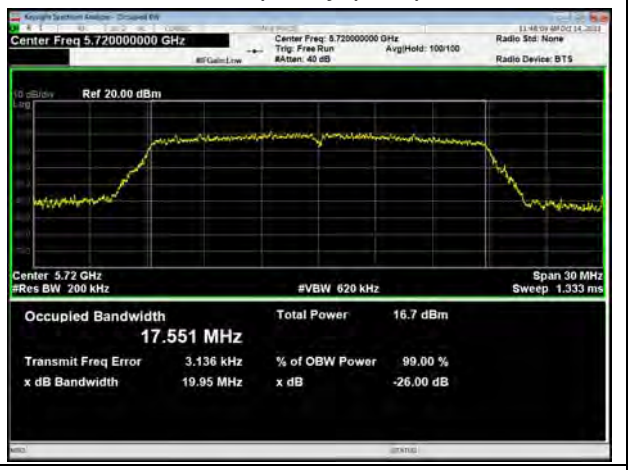
U-NII-2C, 802.11a

Carrier frequency (MHz):5720



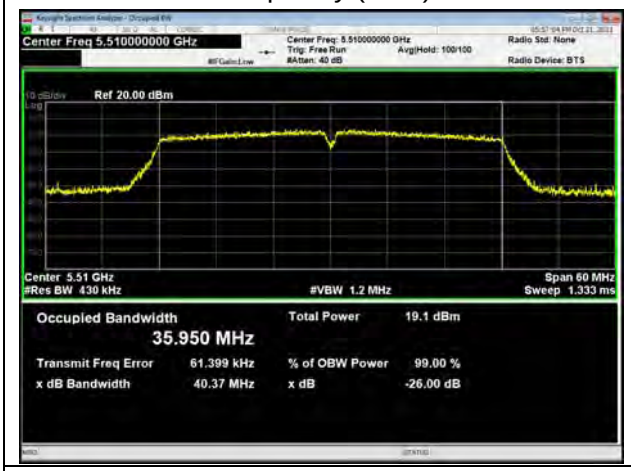
U-NII-2C, 802.11n HT20

Carrier frequency (MHz):5720



U-NII-2C, 802.11n HT40

Carrier frequency (MHz): 5510



U-NII-2C, 802.11ac VHT20

Carrier frequency (MHz): 5500

U-NII-2C, 802.11n HT40

Carrier frequency (MHz): 5550

U-NII-2C, 802.11ac VHT20

Carrier frequency (MHz): 5580

U-NII-2C, 802.11n HT40
Carrier frequency (MHz): 5670

U-NII-2C, 802.11ac VHT20
Carrier frequency (MHz):5700

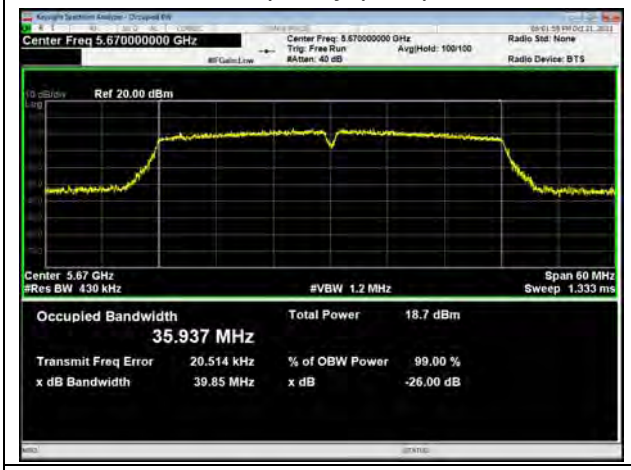
U-NII-2C, 802.11n HT40
Carrier frequency (MHz): 5710

U-NII-2C, 802.11ac VHT20
Carrier frequency (MHz):5720

U-NII-2C, 802.11ac VHT40
Carrier frequency (MHz): 5510

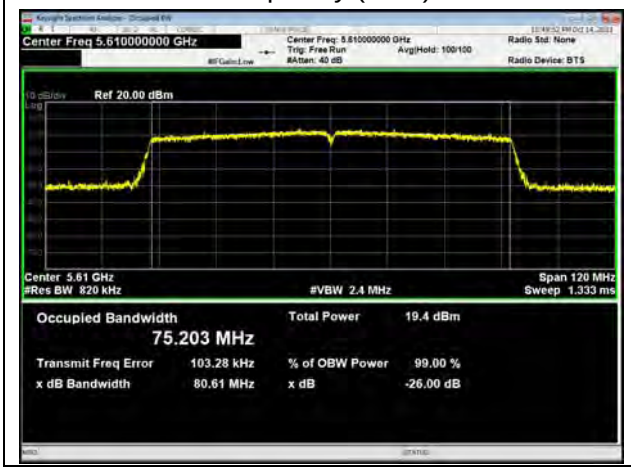
U-NII-2C, 802.11ac VHT40
Carrier frequency (MHz): 5550

U-NII-2C, 802.11ac VHT40
Carrier frequency (MHz): 5670

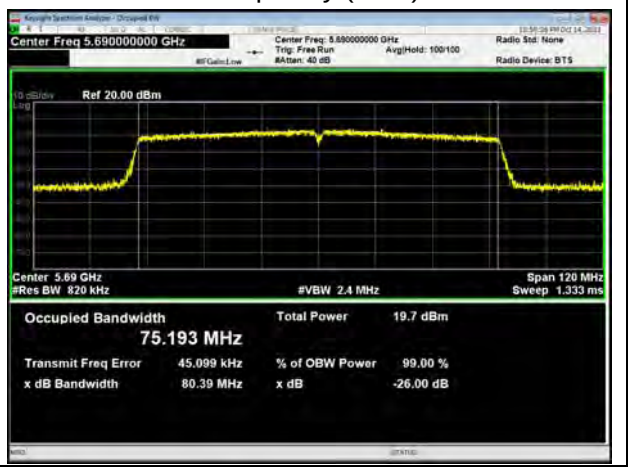


U-NII-2C, 802.11ac VHT40
Carrier frequency (MHz): 5710

U-NII-2C, 802.11ac VHT80
Carrier frequency (MHz): 5530



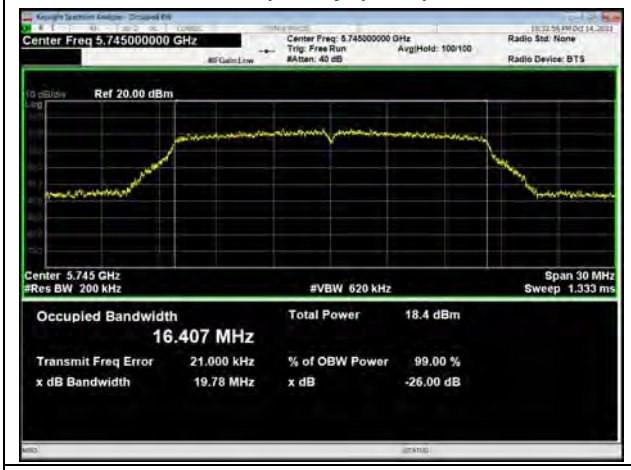
U-NII-2C, 802.11ac VHT80
Carrier frequency (MHz): 5690



99% bandwidth

U-NII-3, 802.11a

Carrier frequency (MHz): 5745



U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5745

U-NII-3, 802.11a

Carrier frequency (MHz): 5785

U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5785

U-NII-3, 802.11a

Carrier frequency (MHz): 5825

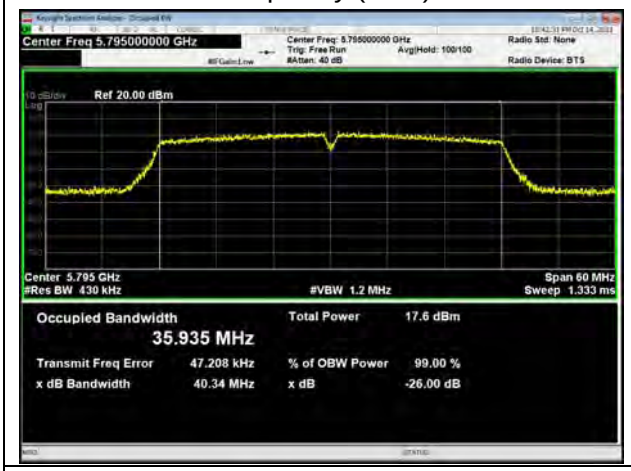
U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5825

U-NII-3, 802.11n HT40
Carrier frequency (MHz): 5755

U-NII-3, 802.11ac VHT20
Carrier frequency (MHz): 5745

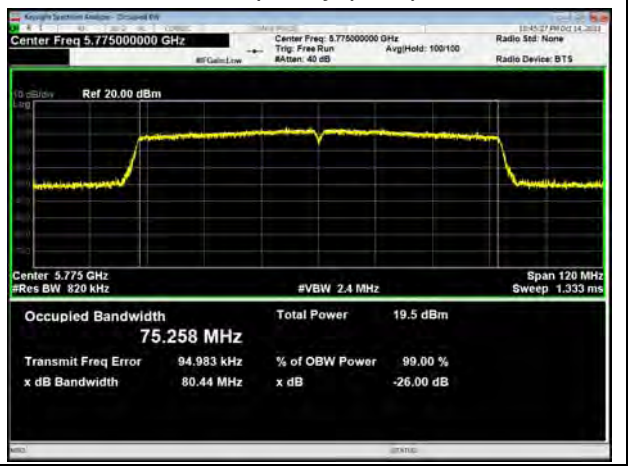
U-NII-3, 802.11n HT40
Carrier frequency (MHz): 5795



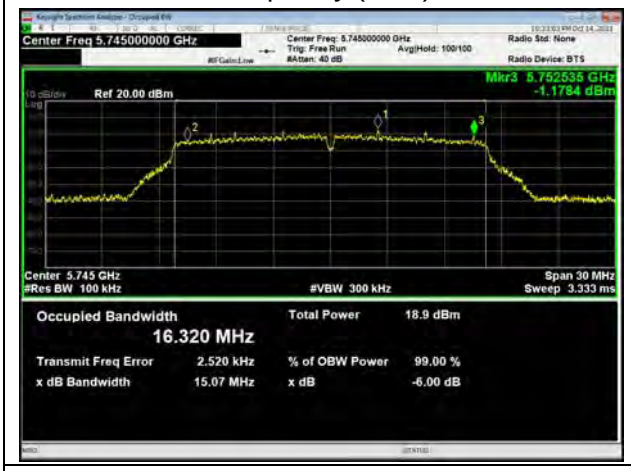
U-NII-3, 802.11ac VHT20
Carrier frequency (MHz): 5785

U-NII-3, 802.11ac VHT40
Carrier frequency (MHz): 5755

U-NII-3, 802.11ac VHT20
Carrier frequency (MHz): 5825

U-NII-3, 802.11ac VHT40 Carrier frequency (MHz): 5795	U-NII-3, 802.11ac VHT80 Carrier frequency (MHz): 5775
	

Minimum 6 dB bandwidth

U-NII-3, 802.11a Carrier frequency (MHz): 5745	U-NII-3, 802.11n HT20 Carrier frequency (MHz): 5745
	
U-NII-3, 802.11a Carrier frequency (MHz): 5785	U-NII-3, 802.11n HT20 Carrier frequency (MHz): 5785
	

U-NII-3, 802.11a

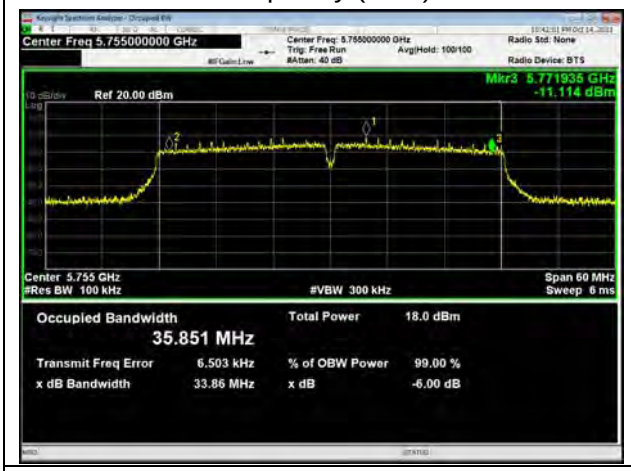
Carrier frequency (MHz): 5825

U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5825

U-NII-3, 802.11n HT40

Carrier frequency (MHz): 5755



U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5745

U-NII-3, 802.11n HT40

Carrier frequency (MHz): 5795

U-NII-3, 802.11ac VHT20

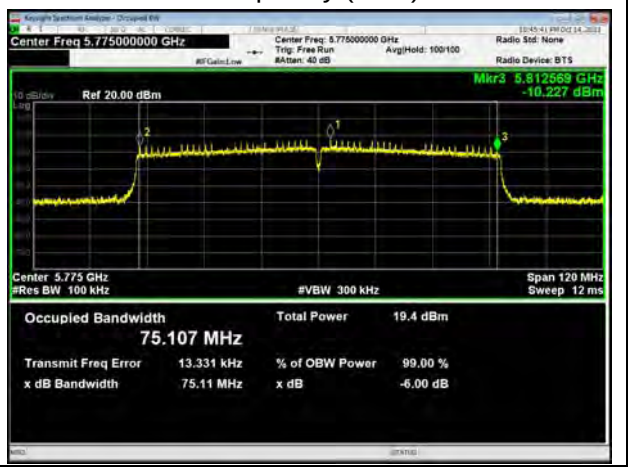
Carrier frequency (MHz): 5785

U-NII-3, 802.11ac VHT40
Carrier frequency (MHz): 5755

U-NII-3, 802.11ac VHT20
Carrier frequency (MHz): 5825

U-NII-3, 802.11ac VHT40
Carrier frequency (MHz): 5795

U-NII-3, 802.11ac VHT80
Carrier frequency (MHz): 5775



5.2. Average Power Output

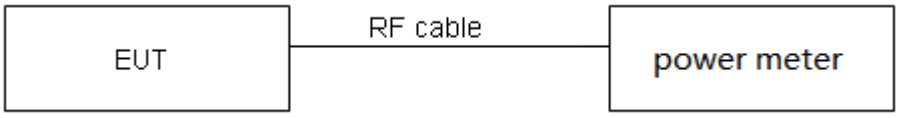
Ambient condition

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	1.39	1.45	0.96	0.16
802.11n HT20	1.30	1.34	0.96	0.16
802.11n HT40	0.65	0.69	0.94	0.29
802.11ac VHT20	1.31	1.36	0.96	0.16
802.11ac VHT40	0.65	0.70	0.94	0.28
802.11ac VHT80	0.32	0.37	0.88	0.55
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	14.5	14.5	15.0	CH38	15.0	15.0	CH42	15.0
CH40	14.5	14.5	15.0	CH46	15.0	15.0	/	/
CH48	14.5	14.5	15.0	/	/	/	/	/
CH52	14.5	14.5	15.0	CH54	15.0	15.0	CH58	15.0
CH60	14.5	14.5	15.0	CH62	15.0	15.0	/	/
CH64	14.5	14.5	15.0	/	/	/	/	/
CH100	14.5	14.5	15.0	CH102	15.0	15.0	CH122	15.0
CH120	14.5	14.5	15.0	CH118	15.0	15.0	CH138	15.0
CH140	14.5	14.5	15.0	CH134	15.0	15.0	/	/
CH144	14.5	14.5	15.0	CH142	15.0	15.0	/	/
CH149	14.5	14.5	15.0	CH151	15.0	15.0	CH155	15.0
CH157	14.5	14.5	15.0	CH159	15.0	15.0	/	/
CH165	14.5	14.5	15.0	/	/	/	/	/

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	19.65	23.93<24	23.93
		60/5300	19.67	23.94<24	23.94
		64/5320	19.62	23.93<24	23.93
	802.11n HT20	52/5260	19.94	24.00	24.00
		60/5300	19.81	23.97<24	23.97
		64/5320	20.04	24.02>24	24.00
	802.11n HT40	54/5270	40.09	27.03>24	24.00
		62/5310	40.36	27.06>24	24.00
	802.11ac VHT20	52/5260	19.93	24.00	24.00
		60/5300	20.00	24.01>24	24.00
		64/5320	19.96	24.00	24.00
	802.11ac VHT40	54/5270	40.29	27.05>24	24.00
		62/5310	40.08	27.03>24	24.00
	802.11ac VHT80	58/5290	80.12	30.04>24	24.00
U-NII-2C	802.11a	100/5500	19.67	23.94<24	23.94
		120/5600	19.42	23.88<24	23.88
		140/5700	19.28	23.85<24	23.85
		144/5720	19.52	23.90<24	23.90
	802.11n HT20	100/5500	20.16	24.04>24	24.00
		120/5600	19.93	24.00	24.00
		140/5700	19.87	23.98<24	23.98
		144/5720	19.95	24.00	24.00
	802.11n HT40	102/5510	40.37	27.06>24	24.00
		118/5590	40.54	27.08>24	24.00
		134/5670	40.43	27.07>24	24.00
		142/5710	40.40	27.06>24	24.00
	802.11ac VHT20	100/5500	20.01	24.01>24	24.00
		120/5600	19.81	23.97<24	23.97
		140/5700	19.93	24.00	24.00
		144/5720	19.79	23.96<24	23.96
	802.11ac VHT40	102/5510	39.98	27.02>24	24.00
		118/5590	39.99	27.02>24	24.00
		134/5670	39.85	27.00>24	24.00
		142/5710	39.99	27.02>24	24.00
	802.11ac VHT80	122/5610	80.61	30.06>24	24.00
		138/5690	80.39	30.05>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	13.58	13.74	24	PASS
	40/5200	13.32	13.48	24	PASS
	48/5240	13.75	13.91	24	PASS
802.11n HT20	36/5180	13.40	13.56	24	PASS
	40/5200	13.59	13.75	24	PASS
	48/5240	13.72	13.88	24	PASS
802.11n HT40	38/5190	13.84	14.13	24	PASS
	46/5230	13.98	14.27	24	PASS
802.11ac VHT20	36/5180	14.36	14.52	24	PASS
	40/5200	14.12	14.28	24	PASS
	48/5240	14.57	14.73	24	PASS
802.11ac VHT40	38/5190	13.78	14.06	24	PASS
	46/5230	14.06	14.34	24	PASS
802.11ac VHT80	42/5210	13.86	14.41	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	13.73	13.89	23.93	PASS
	60/5300	13.71	13.87	23.94	PASS
	64/5320	13.76	13.92	23.93	PASS
802.11n HT20	52/5260	13.67	13.83	24.00	PASS
	60/5300	13.49	13.65	23.97	PASS
	64/5320	13.44	13.60	24.00	PASS
802.11n HT40	54/5270	13.82	14.11	24.00	PASS
	62/5310	13.84	14.13	24.00	PASS
802.11ac VHT20	52/5260	14.12	14.28	24.00	PASS
	60/5300	14.03	14.19	24.00	PASS
	64/5320	14.07	14.23	24.00	PASS
802.11ac VHT40	54/5270	13.85	14.13	24.00	PASS
	62/5310	13.91	14.19	24.00	PASS
802.11ac VHT80	58/5290	13.80	14.35	24.00	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor					

U-NII-2C

Test Mode	Channel/ Frequency (MHz)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
802.11a	100/5500	13.19	13.35	23.94	PASS
	120/5600	13.00	13.16	23.88	PASS
	140/5700	12.87	13.03	23.85	PASS
	144/5720	12.88	13.04	23.90	PASS
802.11n HT20	100/5500	12.97	13.13	24.00	PASS
	120/5600	12.42	12.58	24.00	PASS
	140/5700	12.34	12.49	23.98	PASS
	144/5720	12.44	12.60	24.00	PASS
802.11n HT40	102/5510	13.40	13.69	24.00	PASS
	118/5590	13.28	13.57	24.00	PASS
	134/5670	13.35	13.64	24.00	PASS
	142/5710	13.32	13.61	24.00	PASS
802.11ac VHT20	100/5500	13.52	13.68	24.00	PASS
	120/5600	13.41	13.57	23.97	PASS
	140/5700	13.35	13.51	24.00	PASS
	144/5720	13.36	13.52	23.96	PASS
802.11ac VHT40	102/5510	13.41	13.69	24.00	PASS
	118/5590	13.35	13.63	24.00	PASS
	134/5670	13.38	13.66	24.00	PASS
	142/5710	13.23	13.51	24.00	PASS
802.11ac VHT80	122/5610	13.40	13.95	24.00	PASS
	138/5690	13.32	13.87	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	13.12	13.28	30	PASS
	157/5785	12.99	13.15	30	PASS
	165/5825	13.00	13.16	30	PASS
802.11n HT20	149/5745	12.63	12.79	30	PASS
	157/5785	12.70	12.86	30	PASS
	165/5825	12.64	12.80	30	PASS
802.11n HT40	151/5755	13.29	13.58	30	PASS
	159/5795	13.20	13.49	30	PASS
802.11ac VHT20	149/5745	13.94	14.10	30	PASS
	157/5785	13.73	13.89	30	PASS
	165/5825	13.67	13.83	30	PASS
802.11ac VHT40	151/5755	13.72	14.00	30	PASS
	159/5795	13.83	14.11	30	PASS
802.11ac VHT80	155/5775	13.36	13.91	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 that 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= 936Hz

Test Results

Voltage (V)	Temperature (°C)	U-NII-1 Test Results			
		5200MHz			
		1min	2min	5min	10min
3.87	-20	5199.998265	5199.990049	5199.980910	5199.980457
3.87	-10	5200.007356	5199.984419	5199.979633	5199.978435
3.87	0	5200.002877	5199.978872	5199.977764	5199.971066
3.87	10	5200.001881	5199.971561	5199.968831	5199.965882
3.87	20	5199.996134	5199.966003	5199.960085	5199.961926
3.87	30	5199.990771	5199.956272	5199.959547	5199.953031
3.87	40	5199.987418	5199.955767	5199.958523	5199.948943
3.87	50	5199.982189	5199.949481	5199.950152	5199.938949
3.6	20	5199.978789	5199.948497	5199.947387	5199.931789
4.45	20	5199.968887	5199.941721	5199.945681	5199.925605
Max. ΔMHz		-0.031113	-0.058279	-0.054319	-0.074395
PPM		-5.983355	-11.207530	-10.445965	-14.306692

Voltage (V)	Temperature (°C)	U-NII-2A Test Results			
		5300MHz			
		1min	2min	5min	10min
3.87	-20	5300.006514	5300.003442	5299.997236	5299.992706
3.87	-10	5300.005122	5300.001823	5299.988503	5299.990458
3.87	0	5299.998718	5299.998380	5299.980020	5299.984425
3.87	10	5299.996051	5299.997033	5299.978716	5299.978434
3.87	20	5299.986409	5299.990435	5299.974671	5299.969029
3.87	30	5299.979562	5299.983774	5299.964749	5299.960088
3.87	40	5299.976569	5299.975238	5299.958191	5299.951005
3.87	50	5299.976413	5299.974634	5299.956302	5299.945654
3.6	20	5299.970480	5299.967235	5299.951234	5299.939571
4.45	20	5299.962062	5299.959379	5299.948029	5299.930654
Max. ΔMHz		-0.037938	-0.040621	-0.051971	-0.069346
PPM		-7.158157	-7.664319	-9.805800	-13.084125

Voltage (V)	Temperature (°C)	U-NII-2C Test Results			
		5580MHz			
		1min	2min	5min	10min
3.87	-20	5579.998141	5579.996140	5579.991142	5579.990758
3.87	-10	5579.996005	5579.988438	5579.990699	5579.984524
3.87	0	5579.987934	5579.987892	5579.986971	5579.975150
3.87	10	5579.981380	5579.985124	5579.984769	5579.971090
3.87	20	5579.977985	5579.975337	5579.980016	5579.963750
3.87	30	5579.968054	5579.972631	5579.975058	5579.957627
3.87	40	5579.965684	5579.964375	5579.972204	5579.956601
3.87	50	5579.960723	5579.957872	5579.962449	5579.949288
3.6	20	5579.954871	5579.957297	5579.960000	5579.943899
4.45	20	5579.951468	5579.947477	5579.958553	5579.941373
Max. ΔMHz		-0.048532	-0.052523	-0.041447	-0.058627
PPM		-8.697487	-9.412813	-7.427788	-10.506667

Voltage (V)	Temperature (°C)	U-NII-3 Test Results			
		5785MHz			
		1min	2min	5min	10min
3.87	-20	5784.994852	5784.989673	5784.986485	5784.985297
3.87	-10	5784.992781	5784.984708	5784.979820	5784.984457
3.87	0	5784.990841	5784.981656	5784.976968	5784.983188
3.87	10	5784.988613	5784.977774	5784.969019	5784.977590
3.87	20	5784.978763	5784.968750	5784.968101	5784.968032
3.87	30	5784.976468	5784.961146	5784.966214	5784.962310
3.87	40	5784.968026	5784.955582	5784.956381	5784.952854
3.87	50	5784.962823	5784.948572	5784.950018	5784.945542
3.6	20	5784.959539	5784.947907	5784.946704	5784.935545
4.45	20	5784.950793	5784.941612	5784.939748	5784.929470
Max. ΔMHz		-0.049207	-0.058388	-0.060252	-0.070530
PPM		-8.505973	-10.093084	-10.415297	-12.191857

5.4. Power Spectral Density

Ambient condition

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

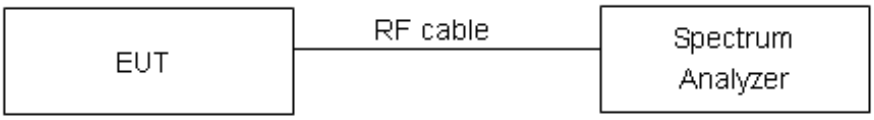
Method of Measurement

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, 5.470-5.725GHz.
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 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 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 transmittingantennas 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	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= 0.75dB.

Test Results:

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

U-NII-1

Mode	Channel/ Frequency (MHz)	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	36/5180	5.86	6.02	11	PASS
	40/5200	3.91	4.07	11	PASS
	48/5240	4.07	4.23	11	PASS
802.11n HT20	36/5180	3.68	3.84	11	PASS
	40/5200	3.58	3.74	11	PASS
	48/5240	3.53	3.69	11	PASS
802.11n HT40	38/5190	1.22	1.51	11	PASS
	46/5230	1.63	1.91	11	PASS
802.11ac VHT20	36/5180	4.01	4.17	11	PASS
	40/5200	4.26	4.41	11	PASS
	48/5240	4.23	4.38	11	PASS
802.11ac VHT40	38/5190	1.07	1.35	11	PASS
	46/5230	1.42	1.70	11	PASS
802.11ac VHT80	42/5210	-2.25	-1.69	11	PASS

U-NII-2A

Mode	Channel/ Frequency (MHz)	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	52/5260	4.17	4.33	11	PASS
	60/5300	4.04	4.20	11	PASS
	64/5320	4.33	4.50	11	PASS
802.11n HT20	52/5260	3.89	4.04	11	PASS
	60/5300	3.78	3.94	11	PASS
	64/5320	3.97	4.13	11	PASS
802.11n HT40	54/5270	1.21	1.49	11	PASS
	62/5310	1.22	1.50	11	PASS
802.11ac VHT20	52/5260	4.31	4.47	11	PASS
	60/5300	4.44	4.59	11	PASS
	64/5320	4.44	4.60	11	PASS
802.11ac VHT40	54/5270	1.41	1.70	11	PASS
	62/5310	1.43	1.72	11	PASS
802.11ac VHT80	58/5290	-2.16	-1.61	11	PASS

U-NII-2C

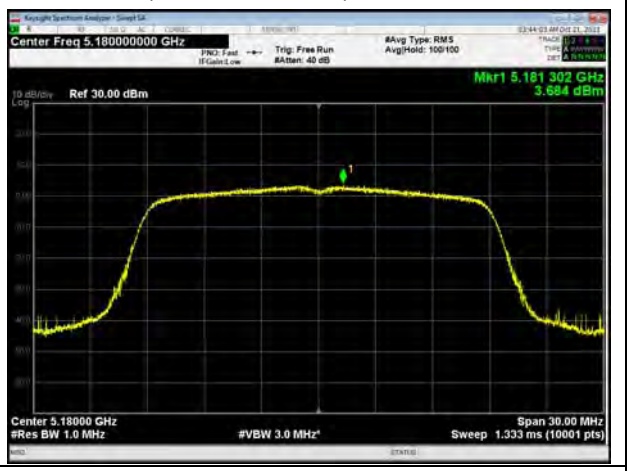
Mode	Channel/ Frequency (MHz)	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	100/5500	0.51	0.67	11	PASS
	120/5600	1.89	2.05	11	PASS
	140/5700	1.97	2.14	11	PASS
	144/5720	1.38	1.54	11	PASS
802.11n HT20	100/5500	0.54	0.70	11	PASS
	120/5600	1.80	1.96	11	PASS
	140/5700	1.74	1.90	11	PASS
	144/5720	1.19	1.35	11	PASS
802.11n HT40	102/5510	0.23	0.52	11	PASS
	118/5590	0.20	0.49	11	PASS
	134/5670	0.26	0.55	11	PASS
	142/5710	0.18	0.47	11	PASS
802.11ac VHT20	100/5500	1.50	1.66	11	PASS
	120/5600	2.77	2.93	11	PASS
	140/5700	2.75	2.91	11	PASS
	144/5720	2.10	2.25	11	PASS
802.11ac VHT40	102/5510	0.41	0.69	11	PASS
	118/5590	0.51	0.79	11	PASS
	134/5670	0.50	0.79	11	PASS
	142/5710	0.47	0.75	11	PASS
802.11ac VHT80	122/5610	-2.86	-2.31	11	PASS
	138/5690	-3.06	-2.51	11	PASS

U-NII-3

Mode	Channel/ Frequency (MHz)	Read Value (dBm/470kHz)	Power Spectral Density (dBm/500kHz)	Limit (dBm/500kHz)	Conclusion
802.11a	149/5745	0.38	0.81	30	PASS
	157/5785	0.17	0.61	30	PASS
	165/5825	-0.63	-0.19	30	PASS
802.11n HT20	149/5745	-1.00	-0.57	30	PASS
	157/5785	-1.24	-0.81	30	PASS
	165/5825	-1.35	-0.92	30	PASS
802.11n HT40	151/5755	-4.35	-3.79	30	PASS
	159/5795	-4.26	-3.70	30	PASS
802.11ac VHT20	149/5745	-0.06	0.36	30	PASS
	157/5785	-0.31	0.12	30	PASS
	165/5825	-1.55	-1.13	30	PASS
802.11ac VHT40	151/5755	-3.02	-2.46	30	PASS
	159/5795	-3.37	-2.81	30	PASS
802.11ac VHT80	155/5775	-6.69	-5.86	30	PASS
Note:PSD=Read Value+Duty cycle+10*log(500/470) correction factor					

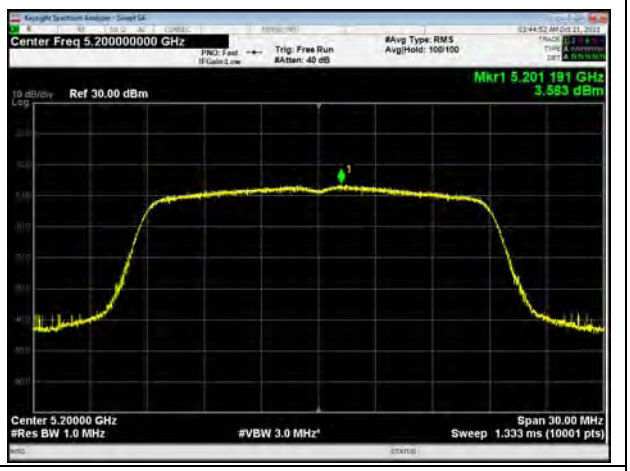
U-NII-1, 802.11a, Channel No.: 36

U-NII-1, 802.11n HT20, Channel No.: 36



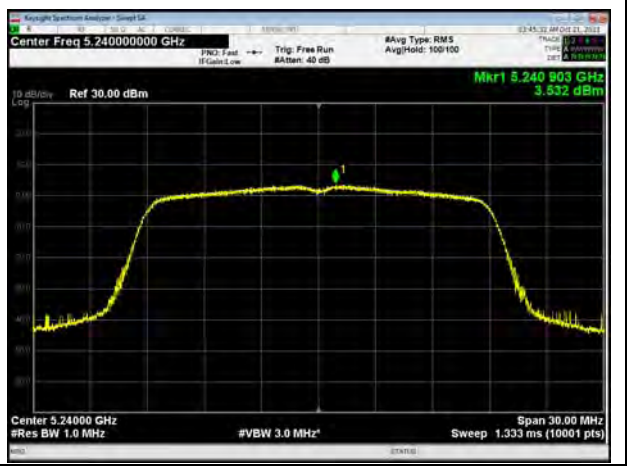
U-NII-1, 802.11a, Channel No.: 40

U-NII-1, 802.11n HT20, Channel No.: 40



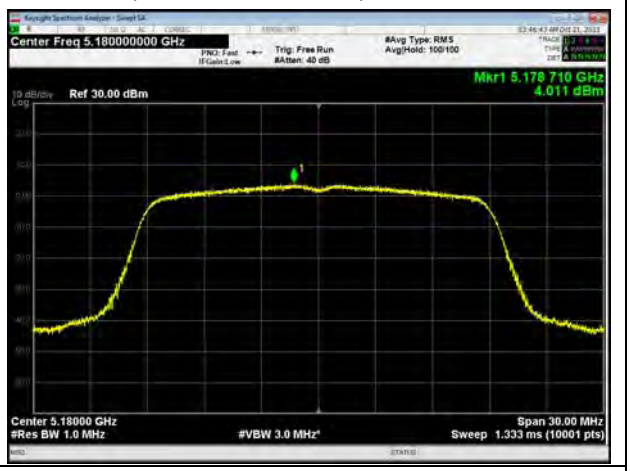
U-NII-1, 802.11a, Channel No.: 48

U-NII-1, 802.11n HT20, Channel No.: 48



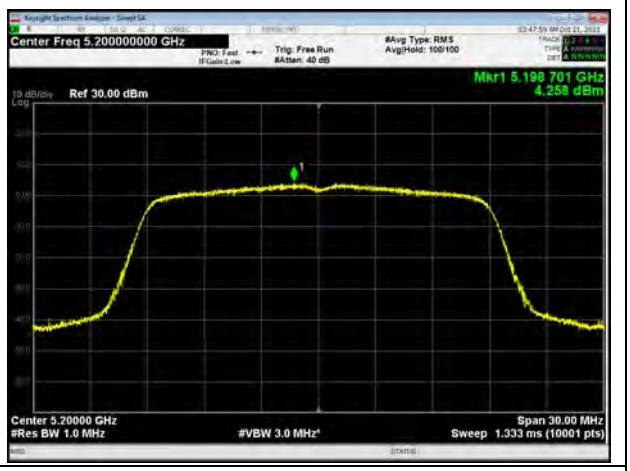
U-NII-1, 802.11n HT40, Channel No.: 38

U-NII-1, 802.11ac VHT20, Channel No.: 36



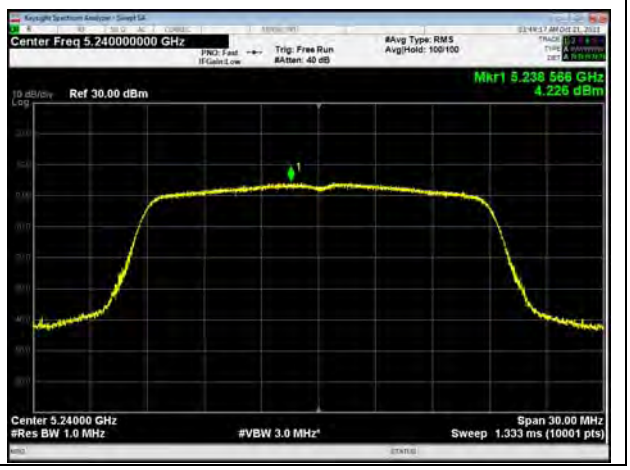
U-NII-1, 802.11n HT40, Channel No.: 46

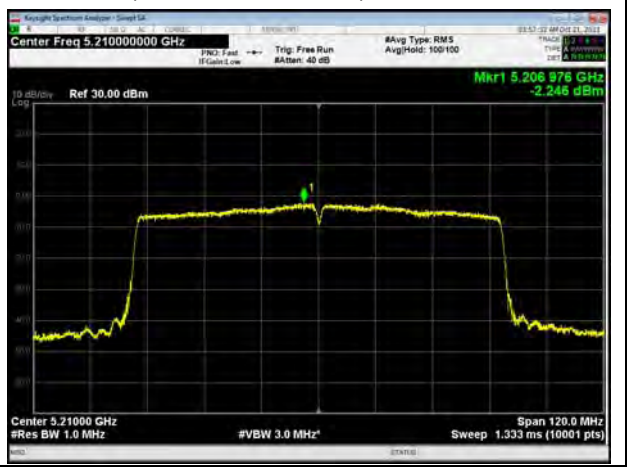
U-NII-1, 802.11ac VHT20, Channel No.: 40



U-NII-1, 802.11ac VHT40, Channel No.: 38

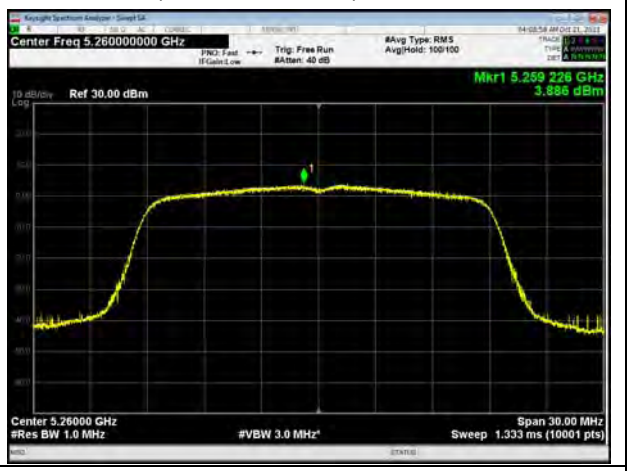
U-NII-1, 802.11ac VHT20, Channel No.: 48



U-NII-1, 802.11ac VHT40, Channel No.: 46	U-NII-1, 802.11ac VHT80, Channel No.: 42
	

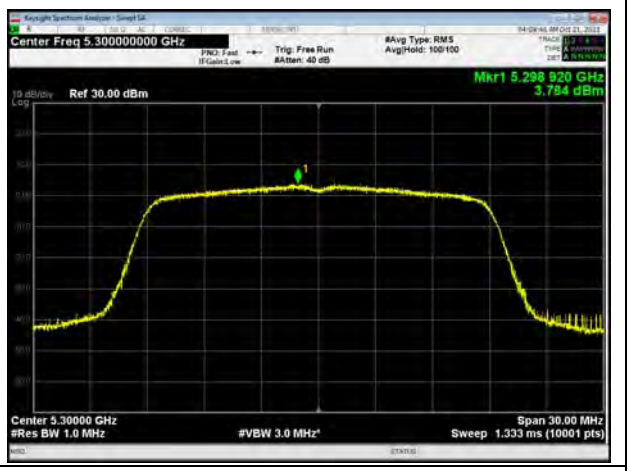
U-NII-2A, 802.11a, Channel No.: 52

U-NII-2A, 802.11n HT20, Channel No.: 52



U-NII-2A, 802.11a, Channel No.: 60

U-NII-2A, 802.11n HT20, Channel No.: 60



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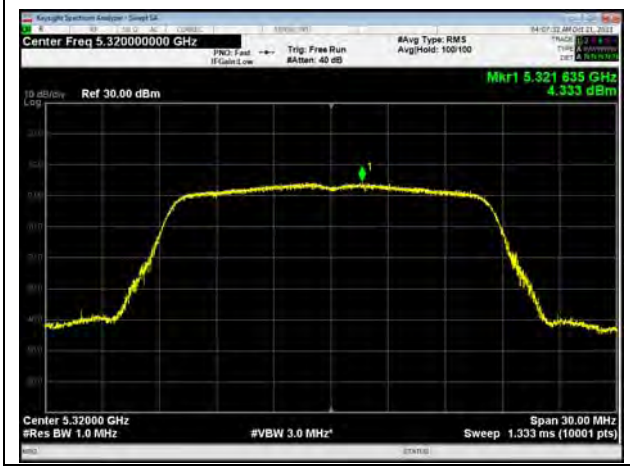
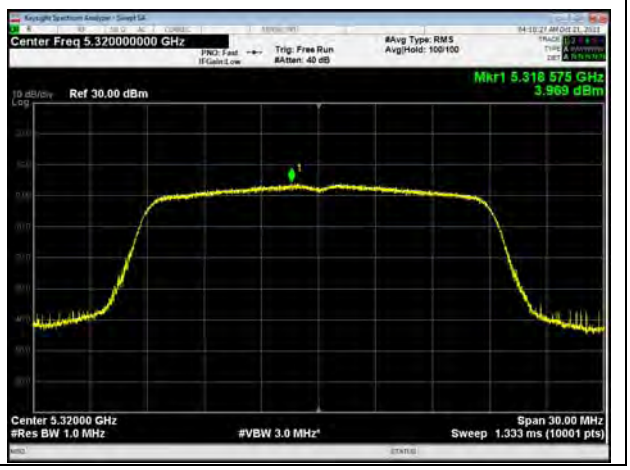
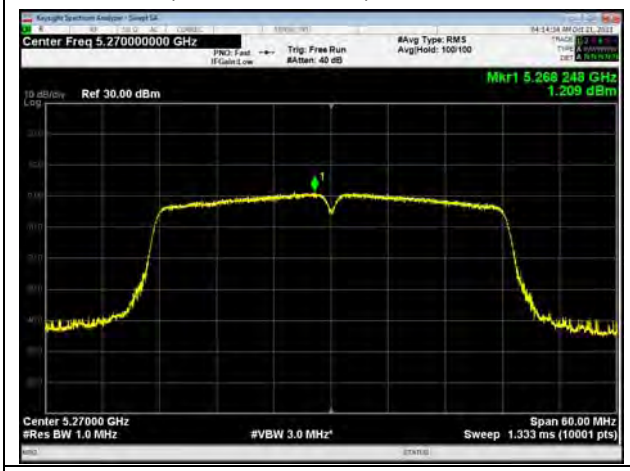


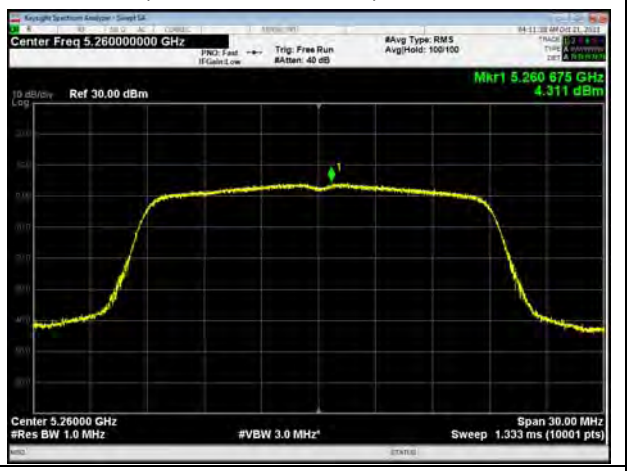
U-NII-2A, 802.11n HT20, Channel No.: 64



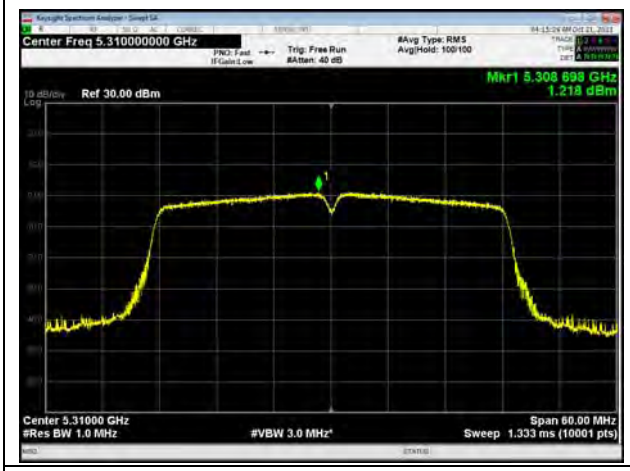
U-NII-2A, 802.11n HT40, Channel No.: 54



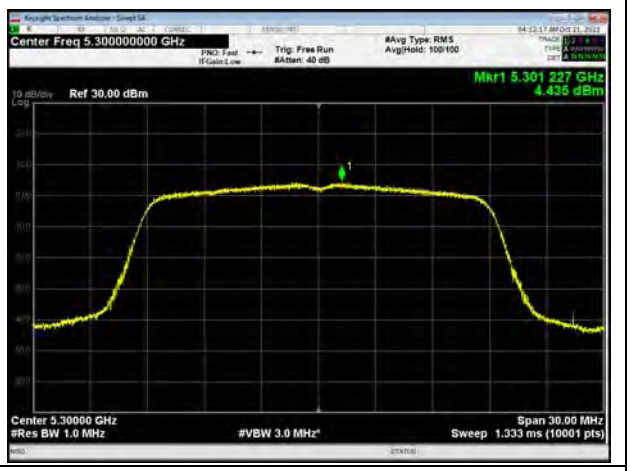
U-NII-2A, 802.11ac VHT20, Channel No.:52



U-NII-2A, 802.11n HT40, Channel No.: 62



U-NII-2A, 802.11ac VHT20, Channel No.: 60



U-NII-2A, 802.11ac VHT40, Channel No.: 54

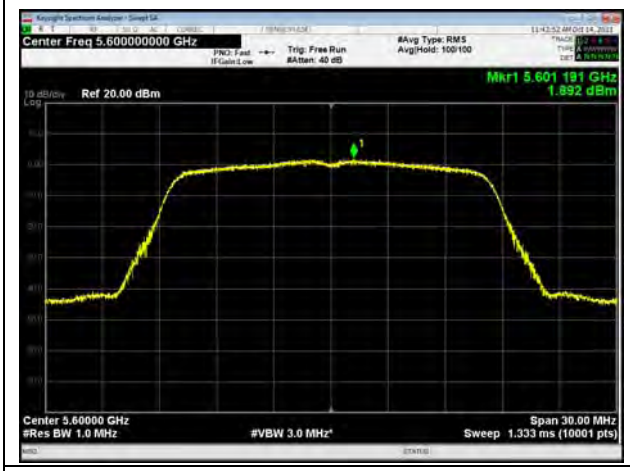
U-NII-2A, 802.11ac VHT20, Channel No.: 64

U-NII-2A, 802.11ac VHT40, Channel No.: 62	U-NII-2A, 802.11ac VHT80, Channel No.: 58
	

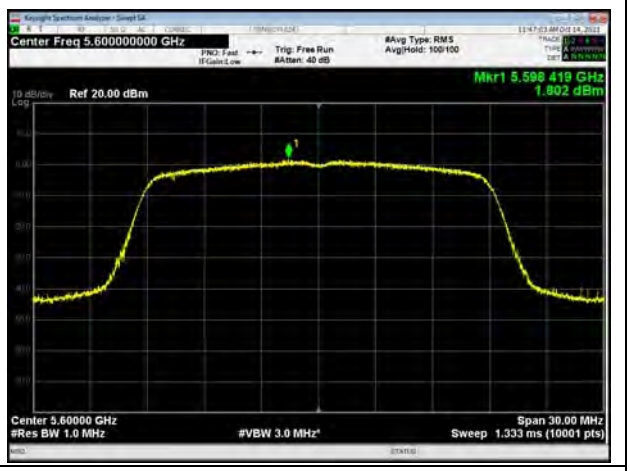
U-NII-2C, 802.11a, Channel No.: 100

U-NII-2C, 802.11n HT20, Channel No.: 100

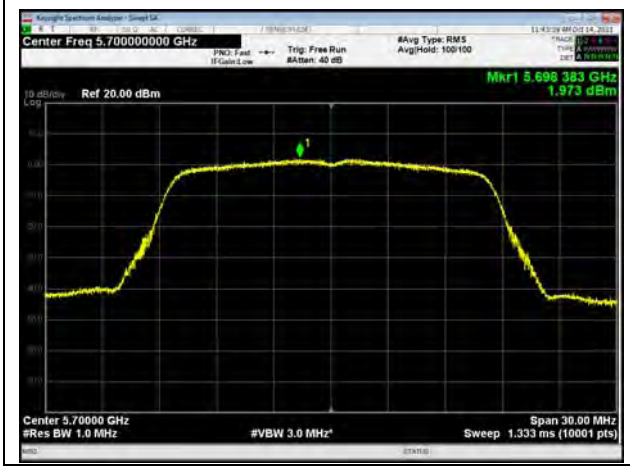
U-NII-2C, 802.11a, Channel No.: 120



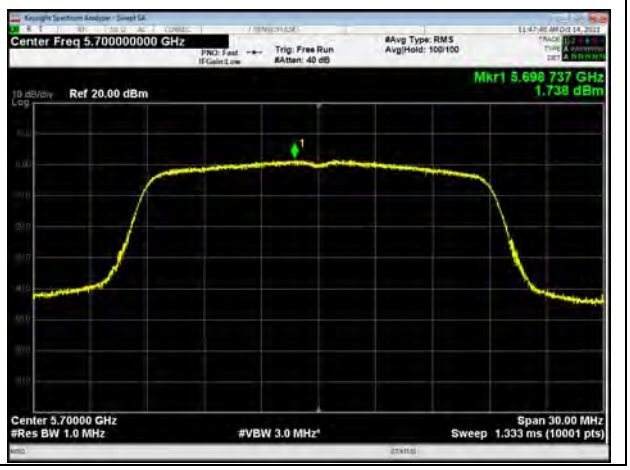
U-NII-2C, 802.11n HT20, Channel No.: 120



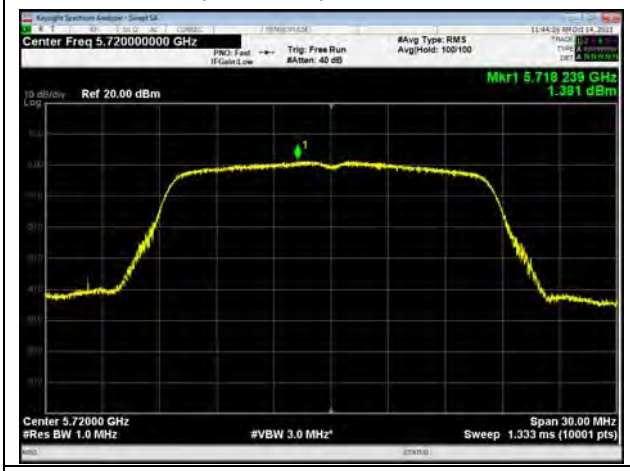
U-NII-2C, 802.11a, Channel No.: 140



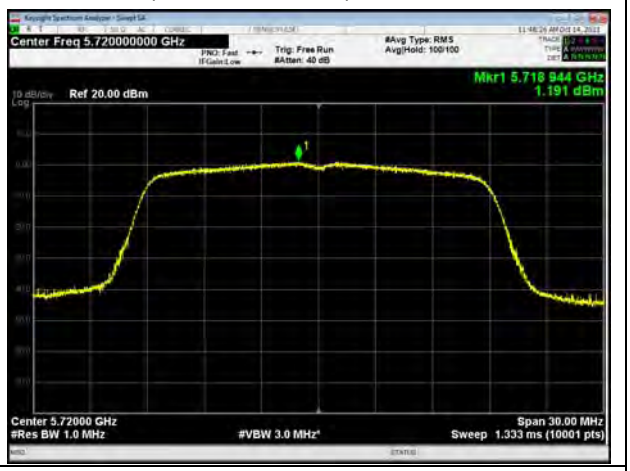
U-NII-2C, 802.11n HT20, Channel No.: 140



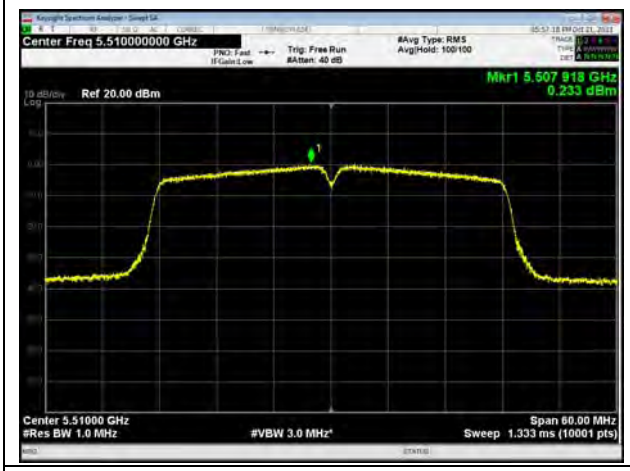
U-NII-2C, 802.11a, Channel No.: 144



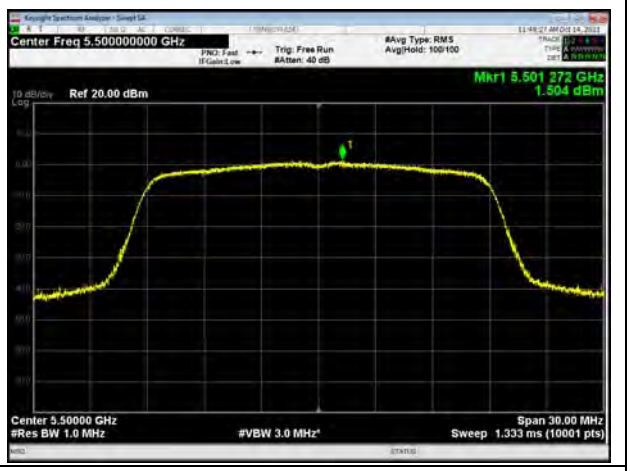
U-NII-2C, 802.11n HT20, Channel No.: 144



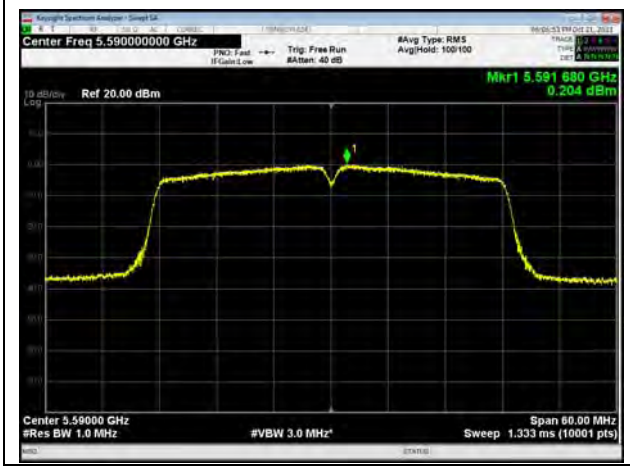
U-NII-2C, 802.11n HT40, Channel No.: 102



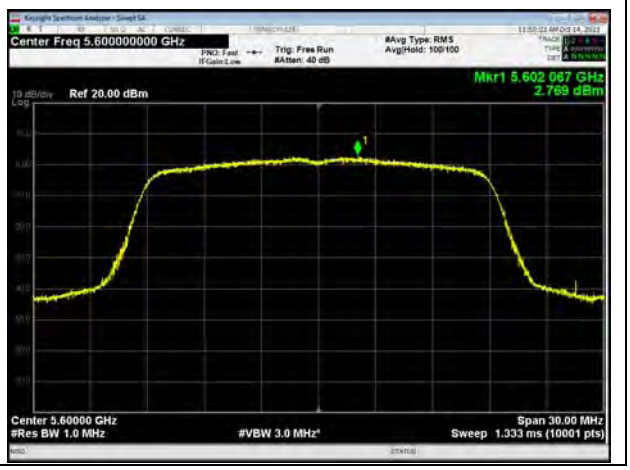
U-NII-2C, 802.11ac VHT20, Channel No.: 100



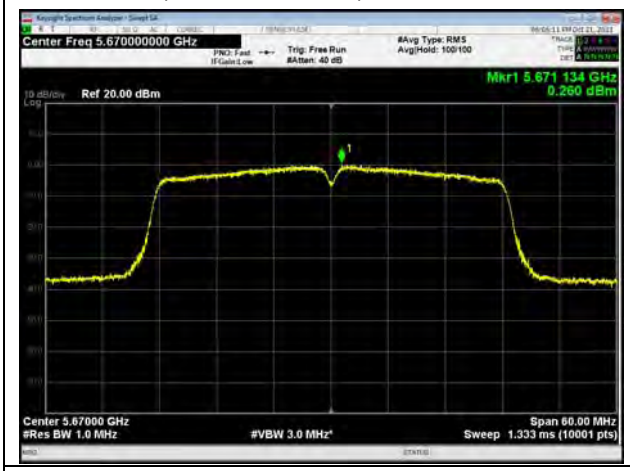
U-NII-2C, 802.11n HT40, Channel No.: 118



U-NII-2C, 802.11ac VHT20, Channel No.: 120

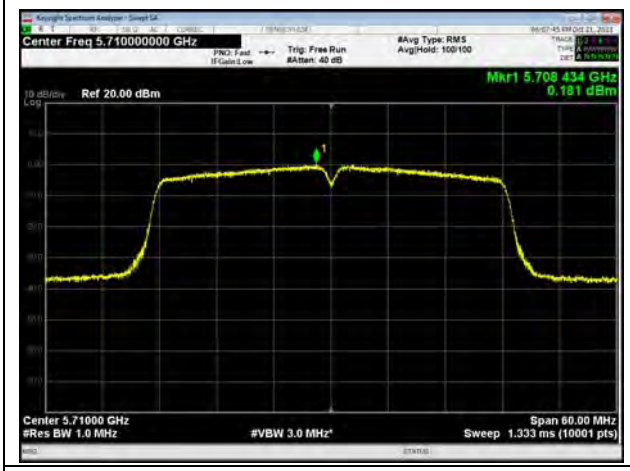


U-NII-2C, 802.11n HT40, Channel No.: 134

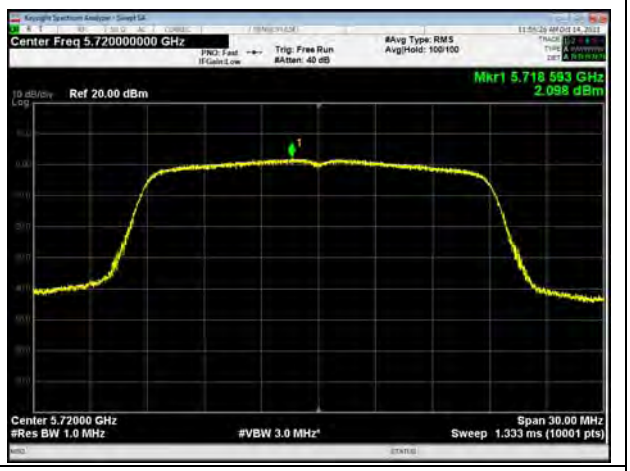


U-NII-2C, 802.11ac VHT20, Channel No.: 140

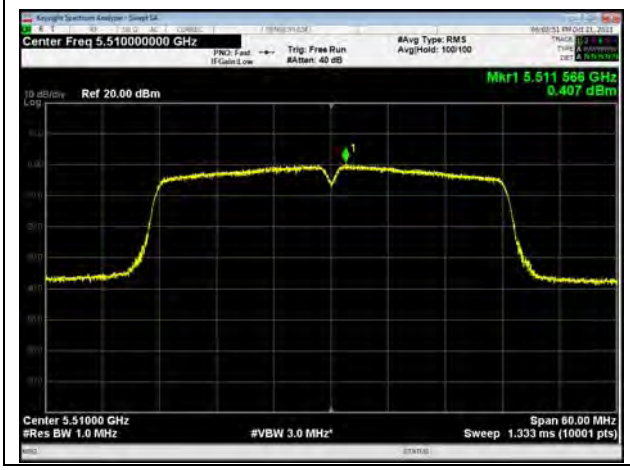
U-NII-2C, 802.11n HT40, Channel No.: 142



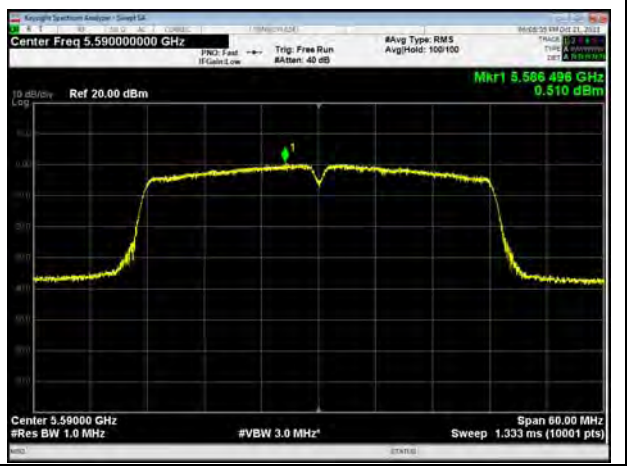
U-NII-2C, 802.11ac VHT20, Channel No.: 144



U-NII-2C, 802.11ac VHT40, Channel No.: 102

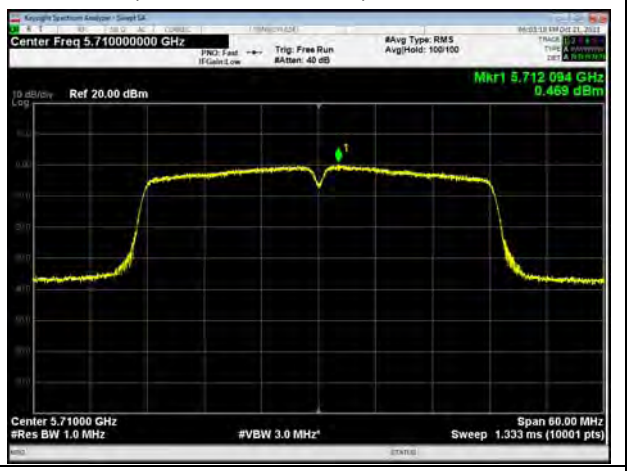


U-NII-2C, 802.11ac VHT40, Channel No.: 118



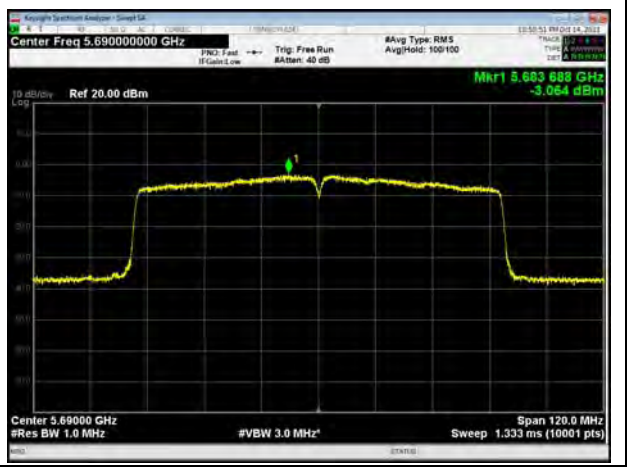
U-NII-2C, 802.11ac VHT40, Channel No.: 134

U-NII-2C, 802.11ac VHT40, Channel No.: 144

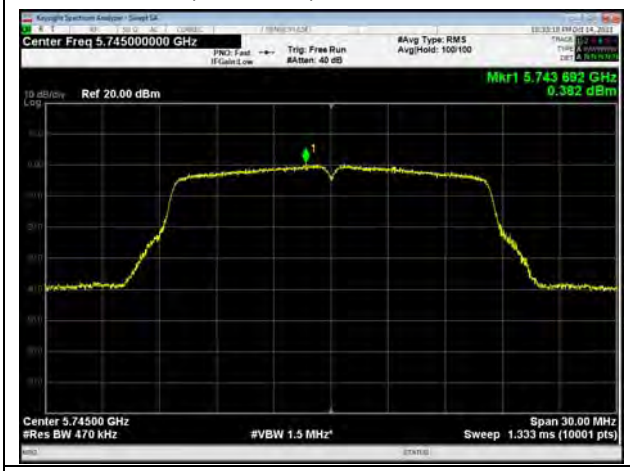


U-NII-2C, 802.11ac VHT80, Channel No.: 122

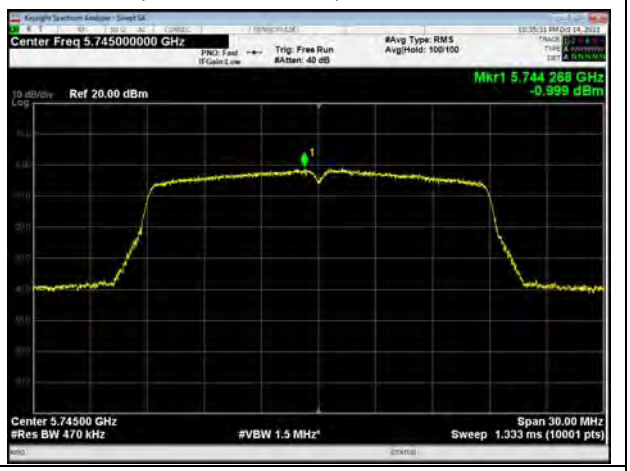
U-NII-2C, 802.11ac VHT80, Channel No.: 138



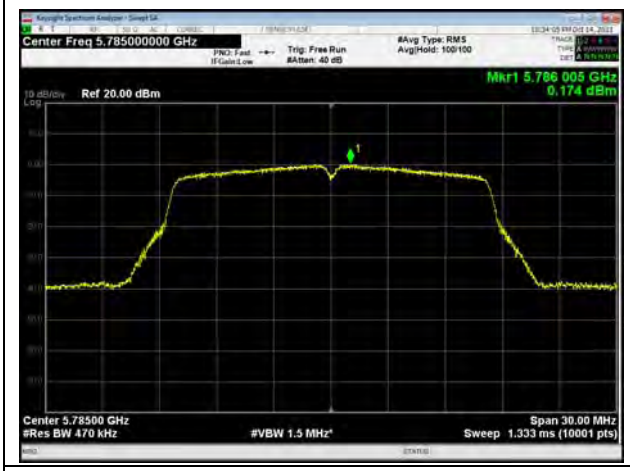
U-NII-3, 802.11a, Channel No.: 149



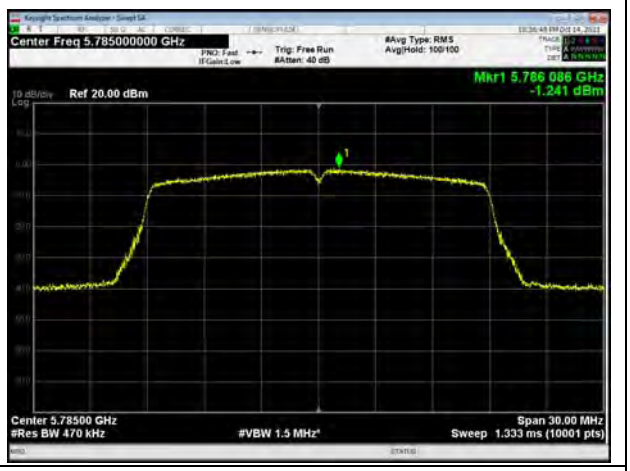
U-NII-3, 802.11n HT20, Channel No.: 149



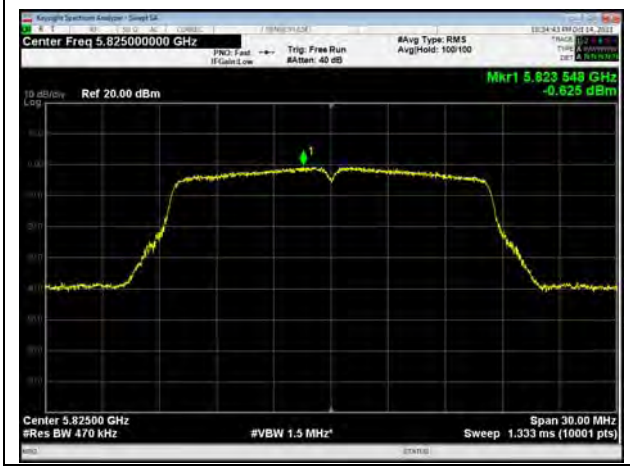
U-NII-3, 802.11a, Channel No.: 157



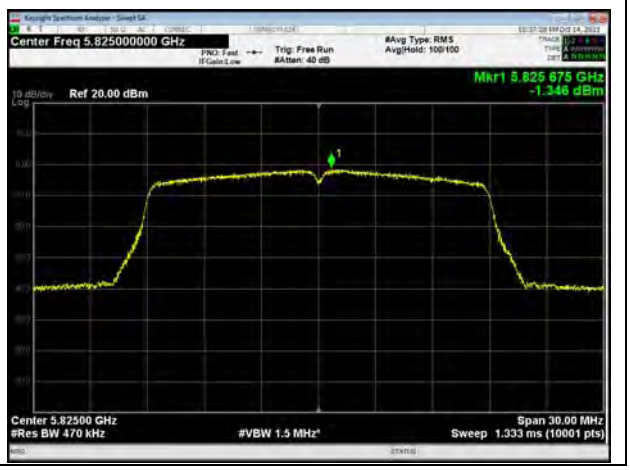
U-NII-3, 802.11n HT20, Channel No.: 157



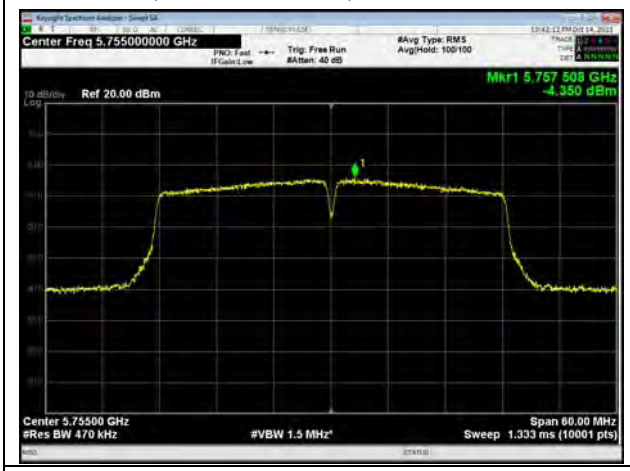
U-NII-3, 802.11a, Channel No.: 165



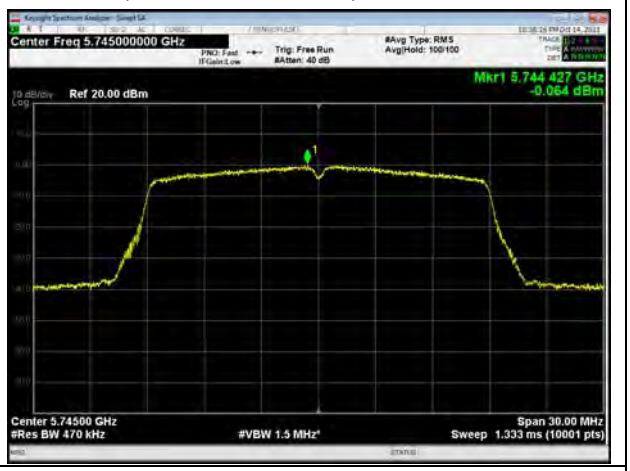
U-NII-3, 802.11n HT20, Channel No.: 165



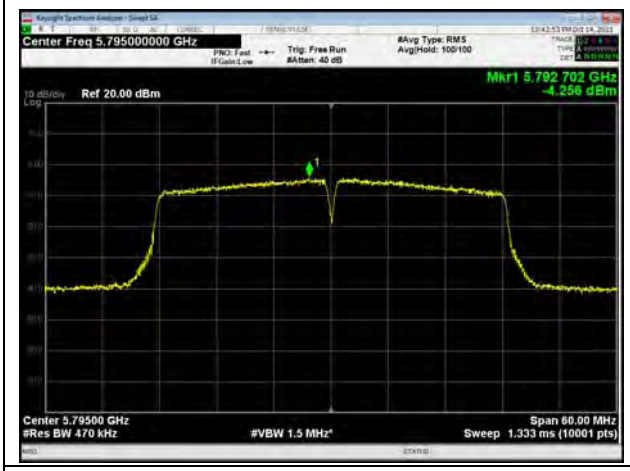
U-NII-3, 802.11n HT40, Channel No.: 151



U-NII-3, 802.11ac VHT20, Channel No.: 149

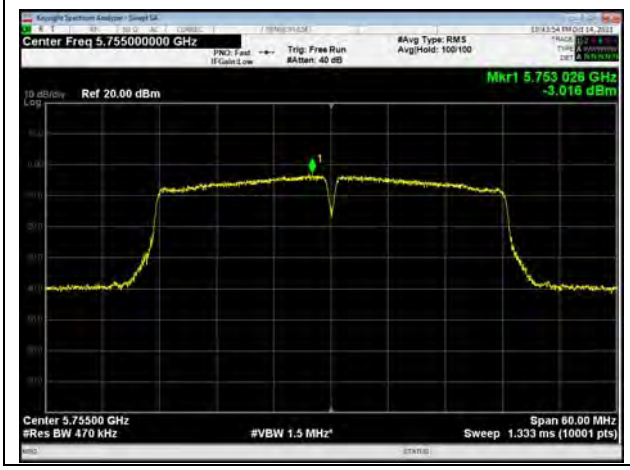


U-NII-3, 802.11n HT40, Channel No.: 159

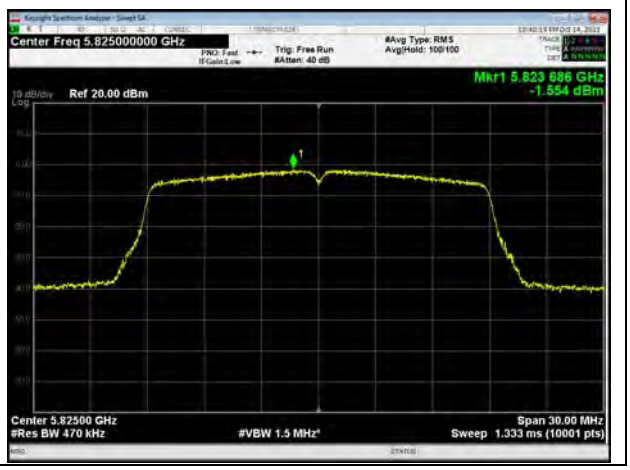


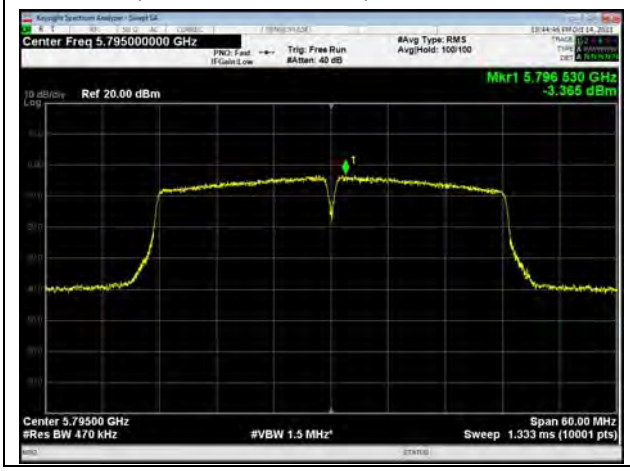
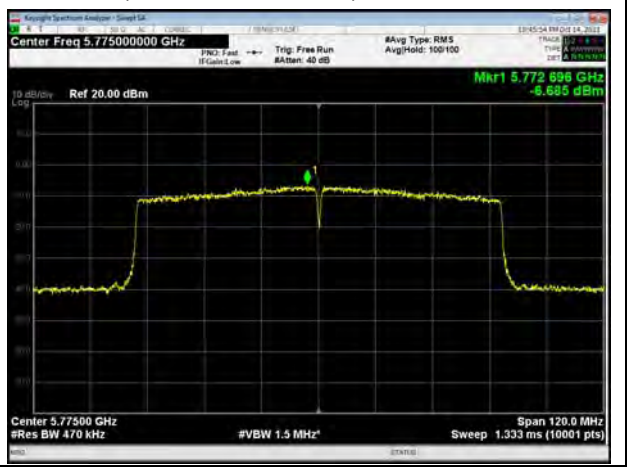
U-NII-3, 802.11ac VHT20, Channel No.: 157

U-NII-3, 802.11ac VHT40, Channel No.: 151



U-NII-3, 802.11ac VHT20, Channel No.: 165



U-NII-3, 802.11ac VHT40, Channel No.: 159	U-NII-3, 802.11ac VHT80, Channel No.: 155
	

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.

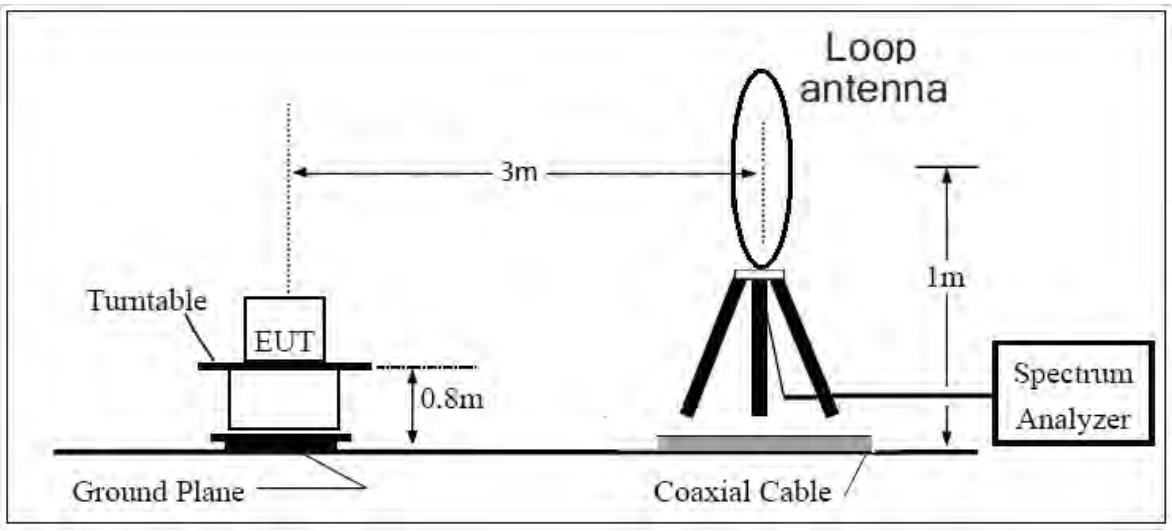
3) If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission.

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 / (minimum transmitter on time)] and no less than 1 Hz.

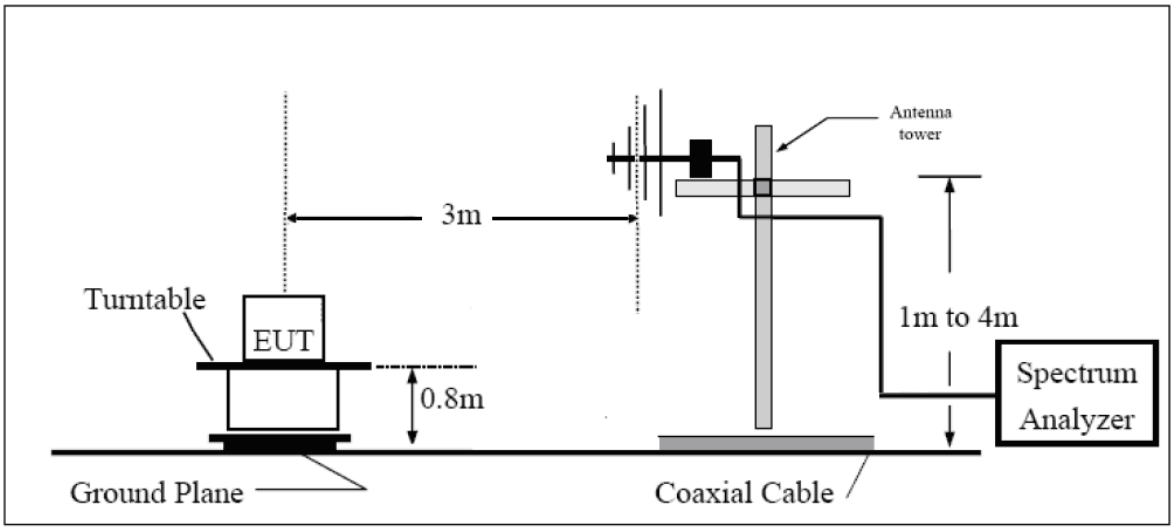
The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the loop antenna is vertical, others antenna are vertical and horizontal.

The test is in transmitting mode.

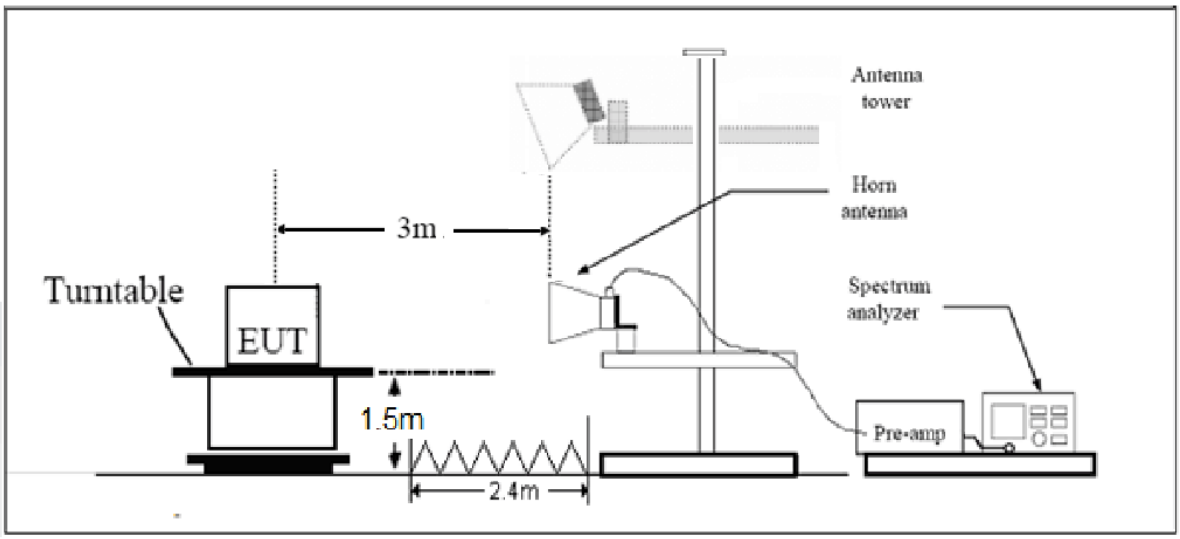
9KHz~~~30MHz



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[dBμV/m] = EIRP[dBm] - 20 log(d[meters]) + 104.77, where E = field strength and

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

§2、E[dBμV/m] = EIRP[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

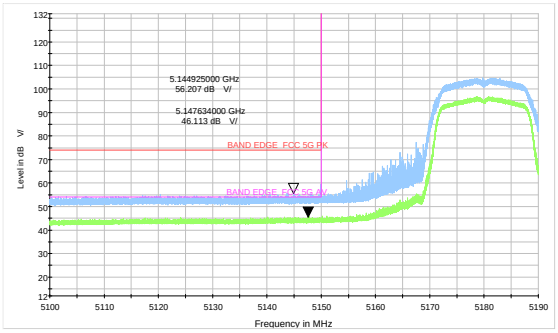
Test Results:

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.

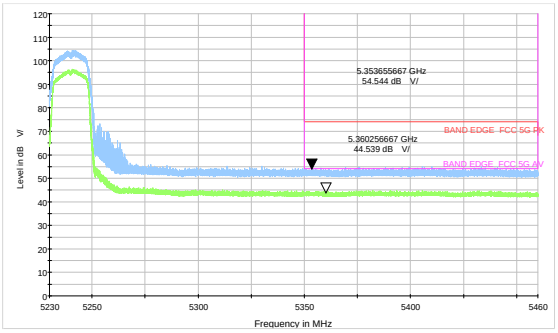
The signal beyond the limit is carrier.

U-NII-1

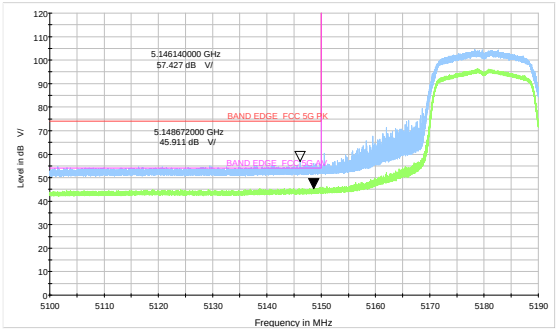
802.11a-Channel 36: Peak & Average



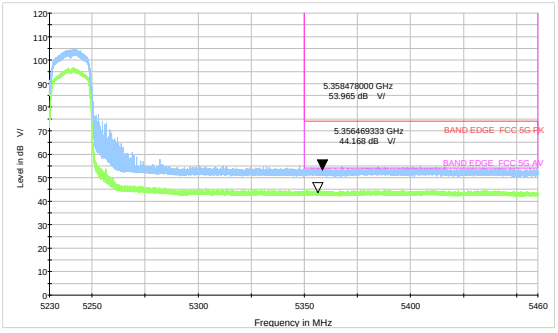
802.11a-Channel 48: Peak & Average



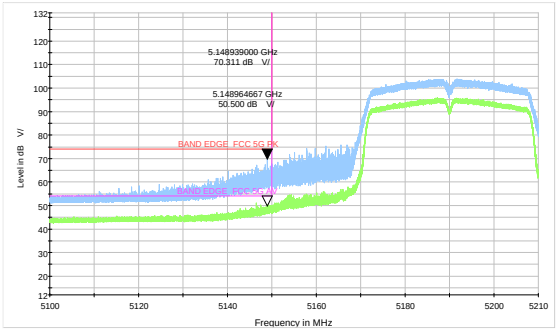
802.11ac VHT20 -Channel 36: Peak & Average



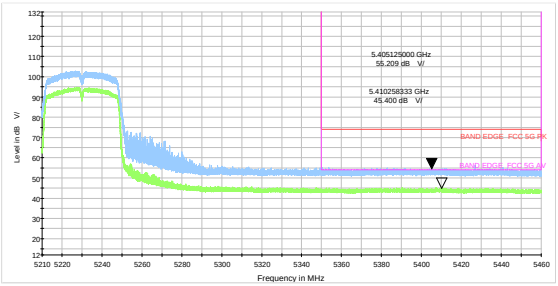
802.11ac VHT20 -Channel 48: Peak & Average



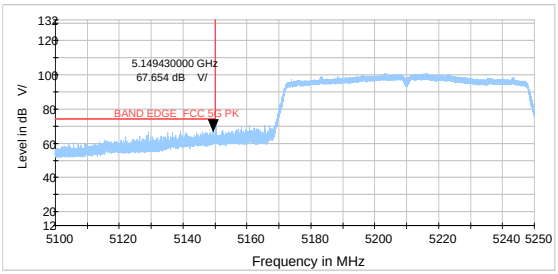
802.11ac VHT40-Channel 38: Peak & Average



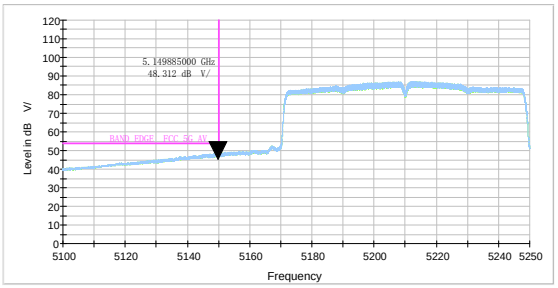
802.11ac VHT40-Channel 46: Peak & Average



802.11ac VHT80-Channel 42: Peak

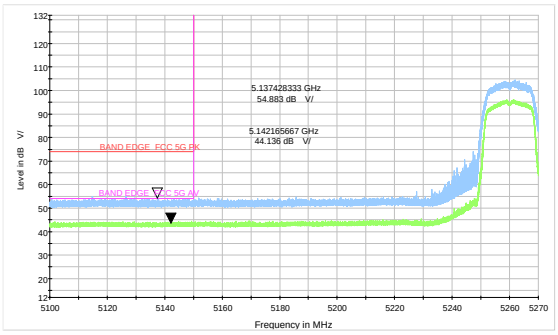


802.11ac VHT80-Channel 42: Average

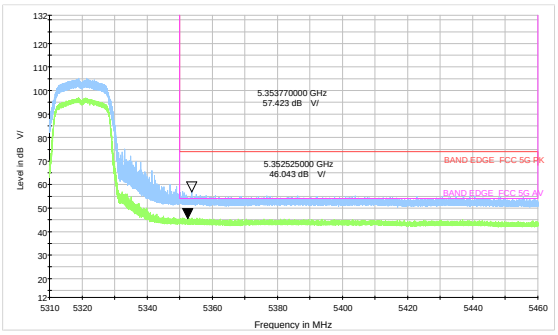


U-NII-2A

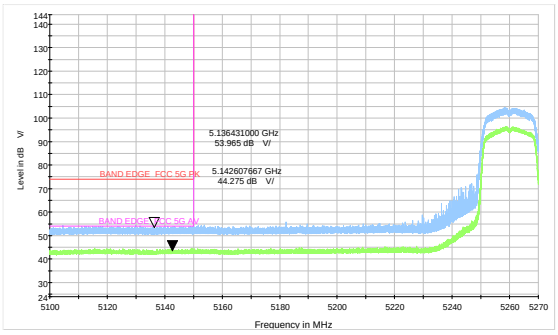
802.11a-Channel 52: Peak & Average



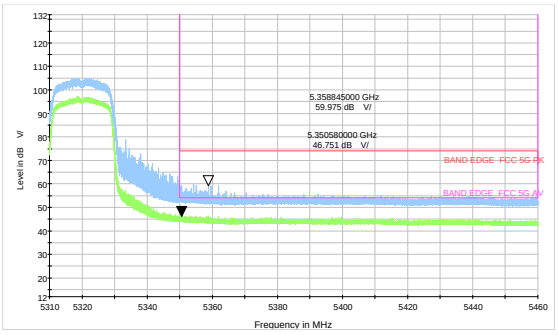
802.11a-Channel 64: Peak & Average



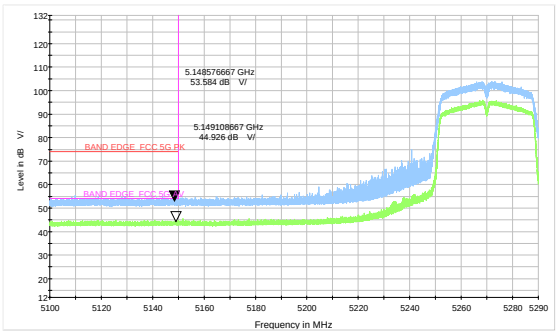
802.11ac VHT20 -Channel 52: Peak & Average



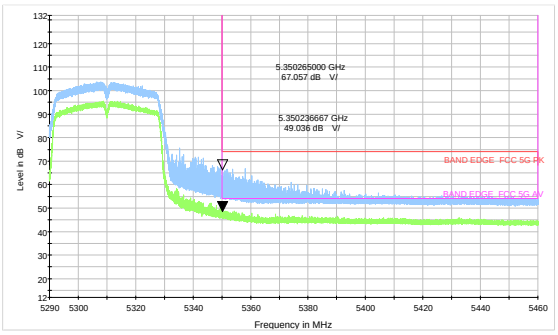
802.11ac VHT20 -Channel 64: Peak & Average



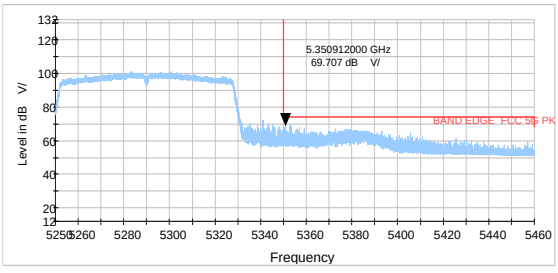
802.11ac VHT40-Channel 54: Peak & Average



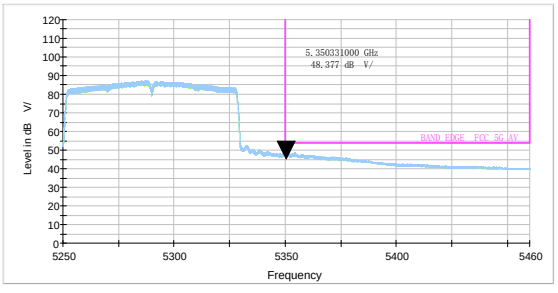
802.11ac VHT40-Channel 62: Peak & Average



802.11ac VHT80- Channel 58: Peak

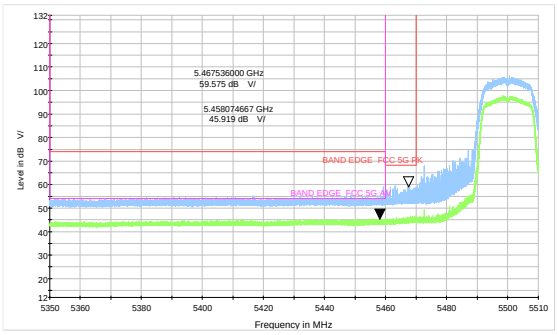


802.11ac VHT80- Channel 58: Average

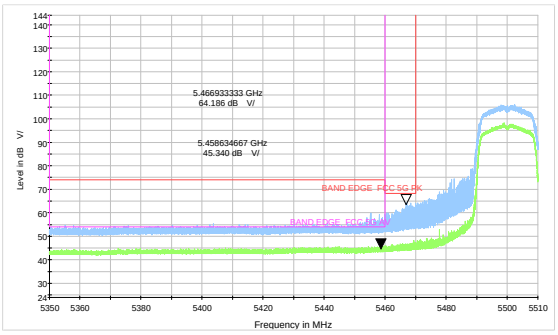


U-NII-2C

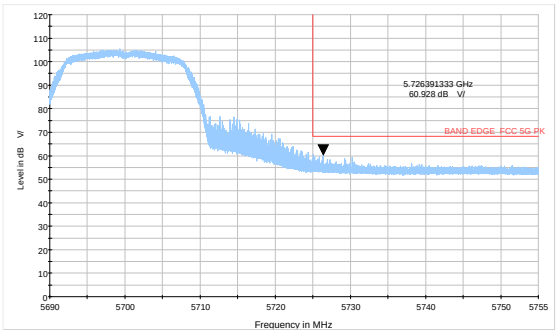
802.11a-Channel 100: Peak & Average



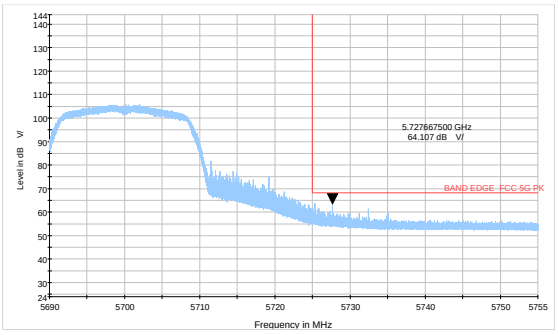
802.11ac VHT20-Channel 100: Peak &Average



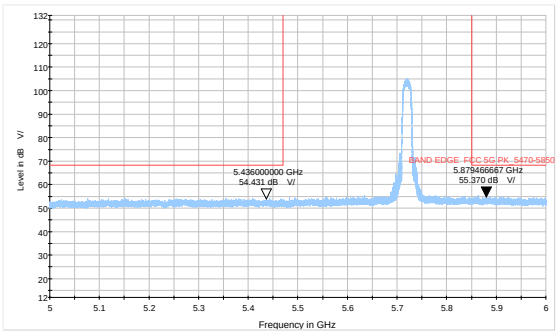
802.11a-Channel 140: Peak



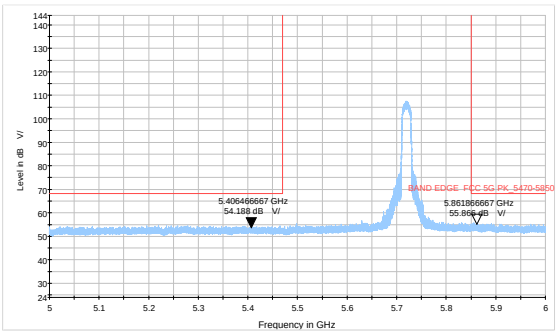
802.11ac VHT20-Channel 140: Peak



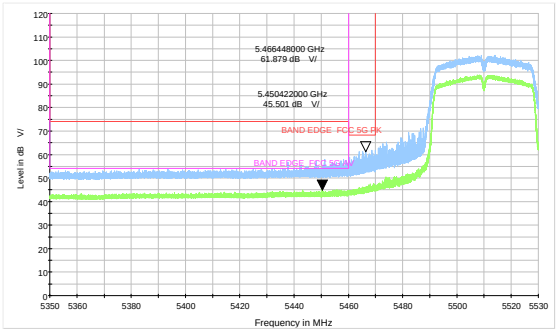
802.11a-Channel 144: Peak



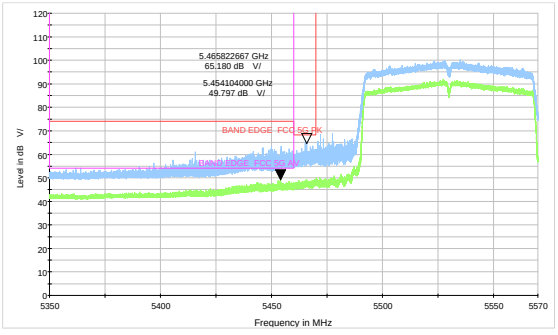
802.11ac VHT20-Channel 144: Peak



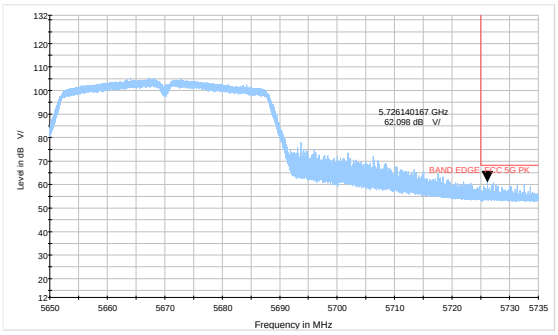
802.11ac VHT40-Channel 102: Peak &Average



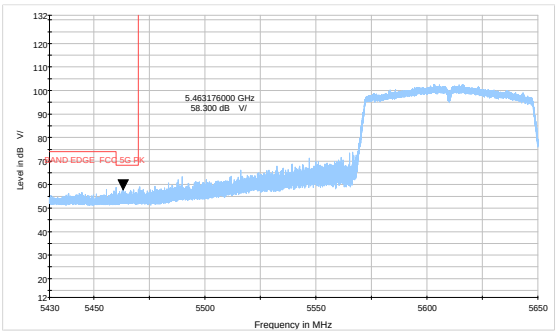
802.11ac VHT80-Channel 106: Peak & Average



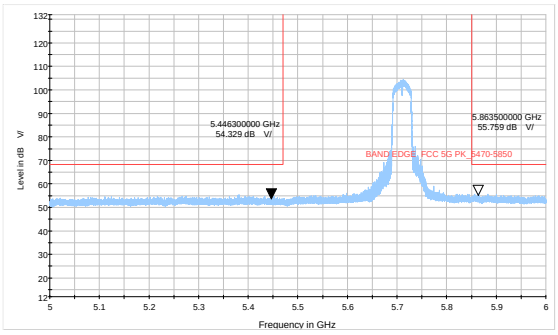
802.11ac VHT40-Channel 134: Peak



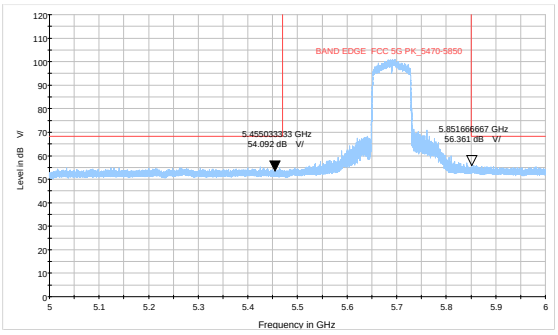
802.11ac VHT80-Channel 122: Peak



802.11ac VHT40-Channel 142: Peak

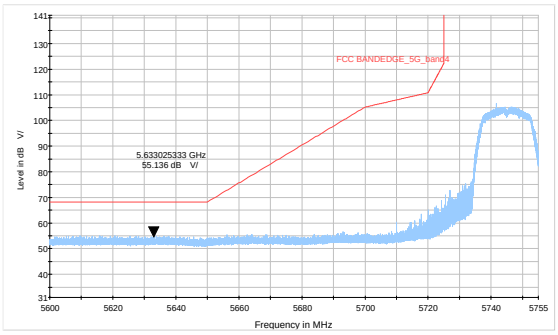


802.11ac VHT80-Channel 138: Peak

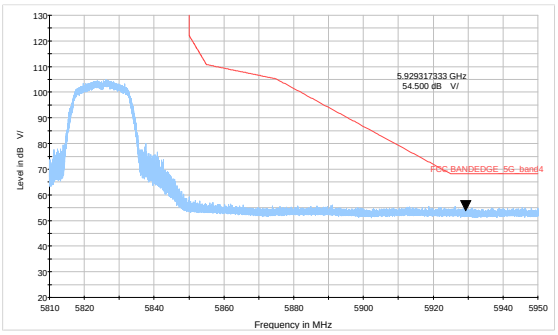


U-NII-3

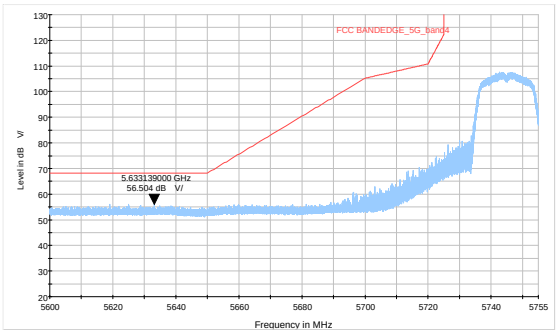
802.11a-Channel 149: Peak



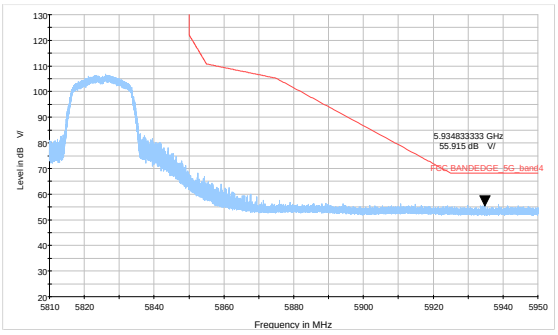
802.11a-Channel 165: Peak & Average



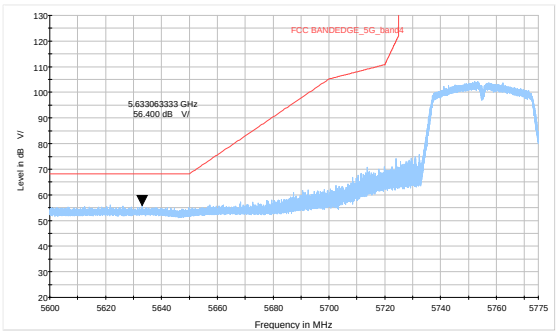
802.11ac VHT20-Channel 149: Peak



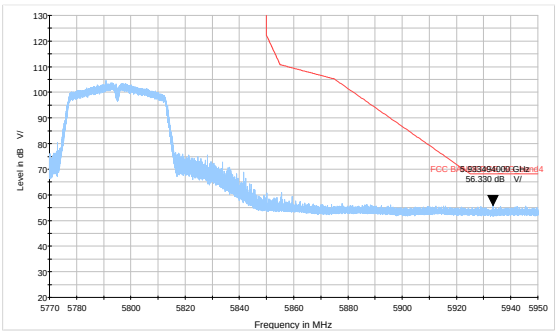
802.11ac VHT20-Channel 165: Peak



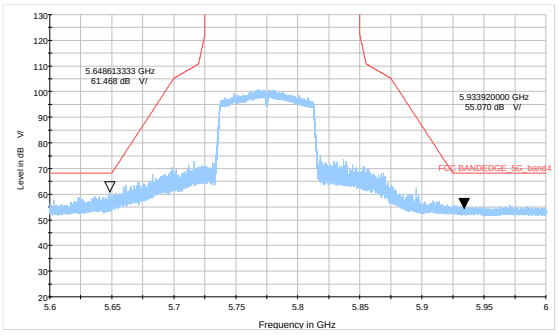
802.11ac VHT40-Channel 151: Peak



802.11ac VHT40-Channel 159: Peak



802.11ac VHT80- Channel 155: Peak



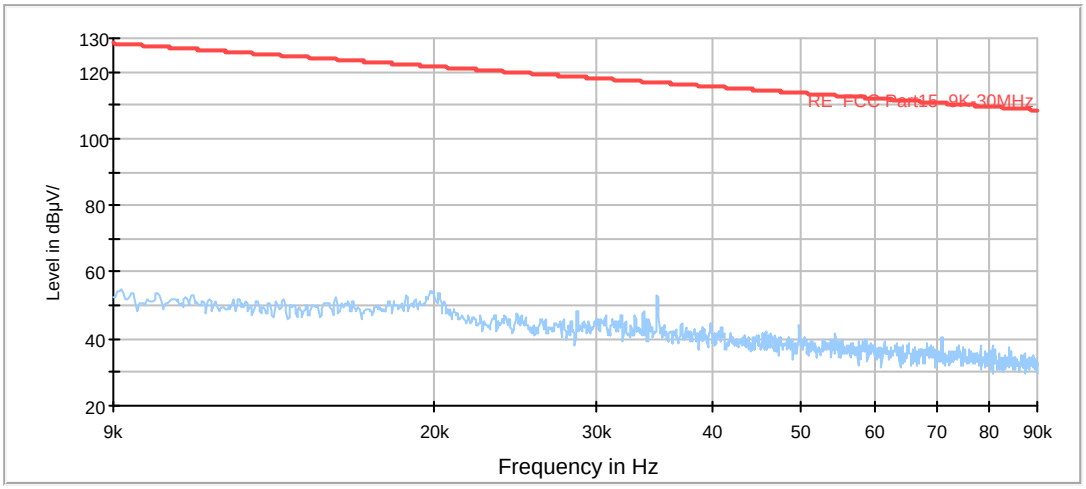
Result of RE

Test result

During the test, the Radiates Emission from 30MHz to 1GHz was performed in all modes with all channels, 802.11ac VHT20, Channel 116 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

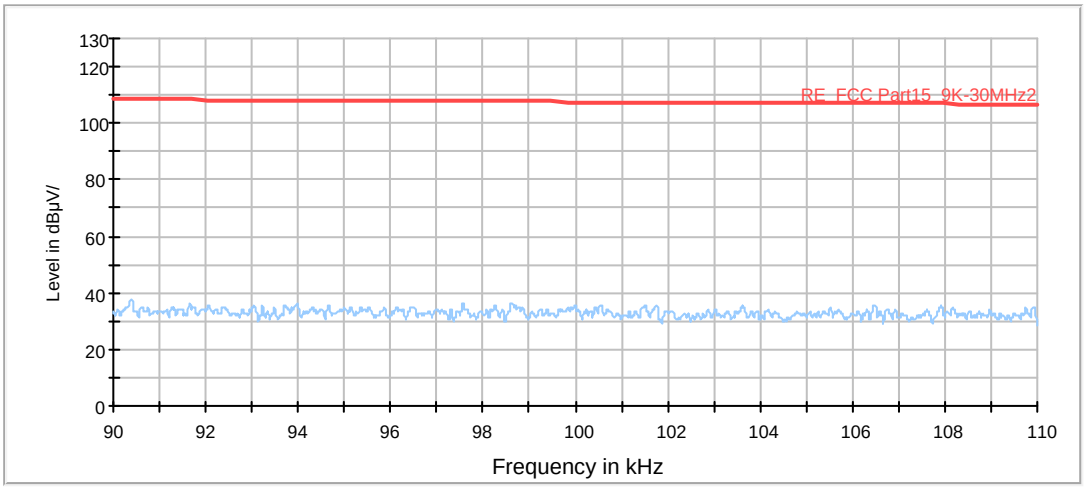
Continuous TX mode:

FCC RE 9K-90KHz AV



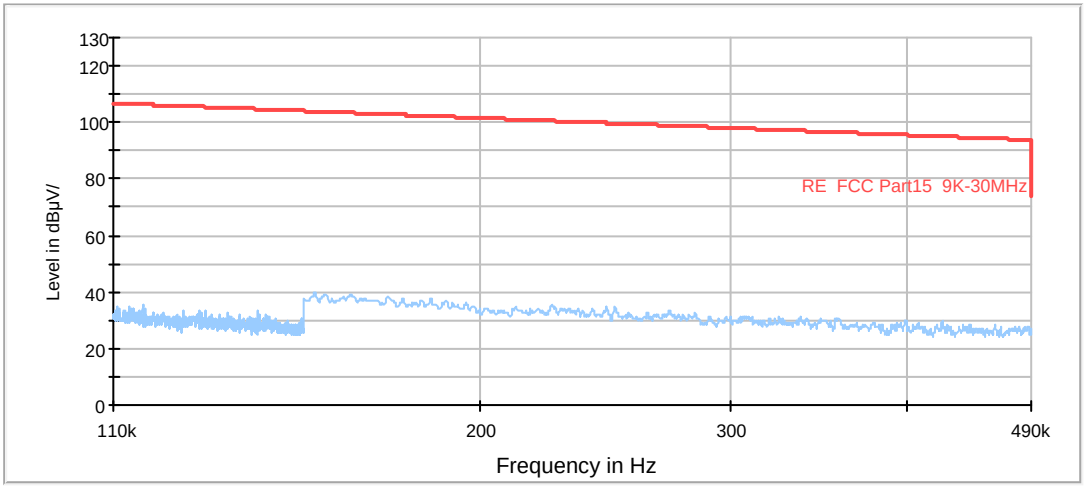
Radiates Emission from 9KHz to 90KHz

FCC RE 90K-110KHz QP



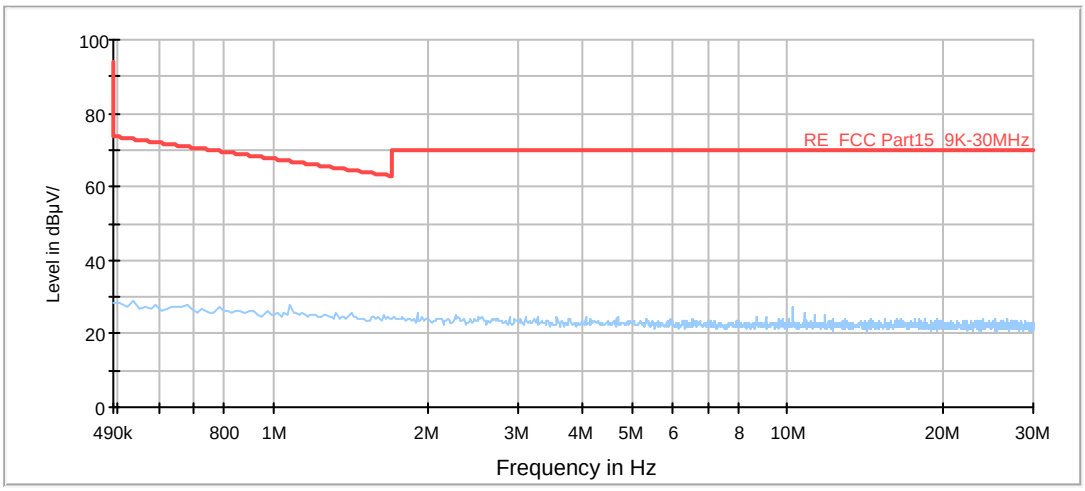
Radiates Emission from 90KHz to 110KHz

FCC RE 110K-490KHz AV

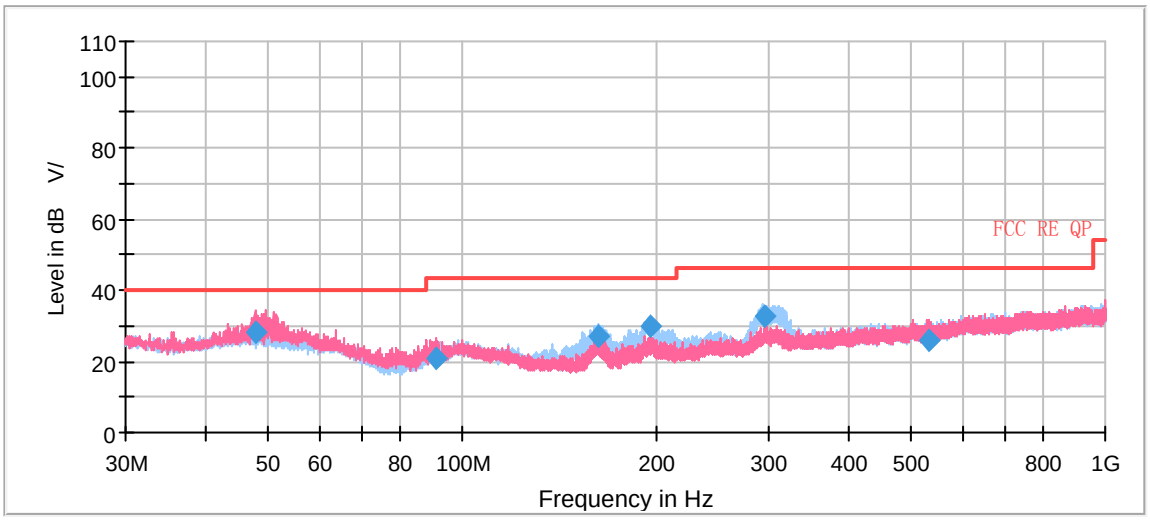


Radiates Emission from 110KHz to 490KHz

FCC RE 490K-30MHz QP



Radiates Emission from 490KHz to 30MHz

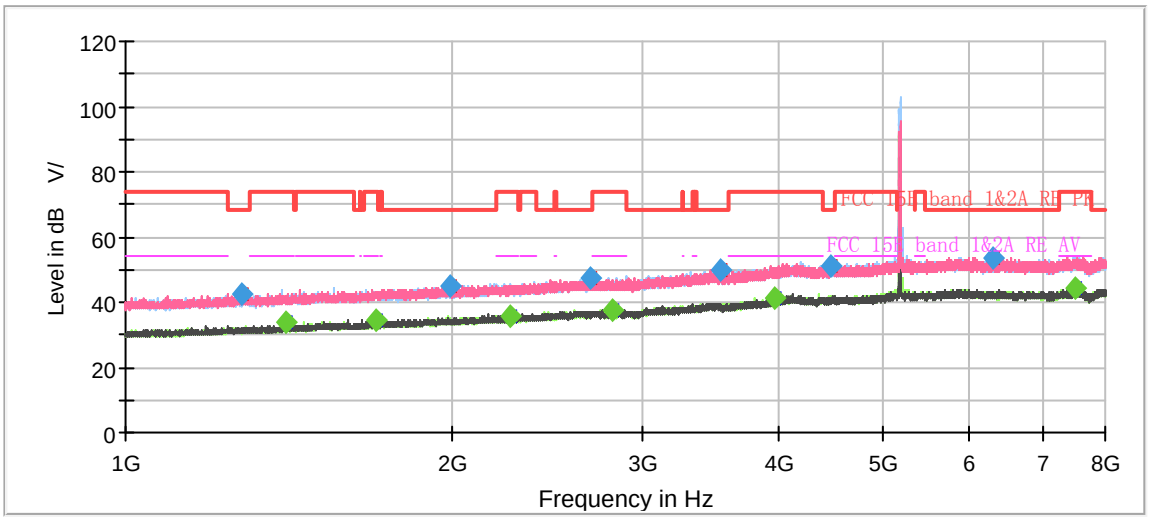


Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
47.924765	28.13	100.0	V	326.0	0	11.87	40.00
91.358794	21.09	100.0	V	88.0	-7	22.41	43.50
162.846833	27.08	184.0	H	104.0	-9	16.42	43.50
196.233333	29.83	125.0	H	265.0	-5	13.67	43.50
295.500500	32.72	100.0	H	288.0	-4	13.28	46.00
531.672667	26.17	209.0	V	173.0	1	19.83	46.00

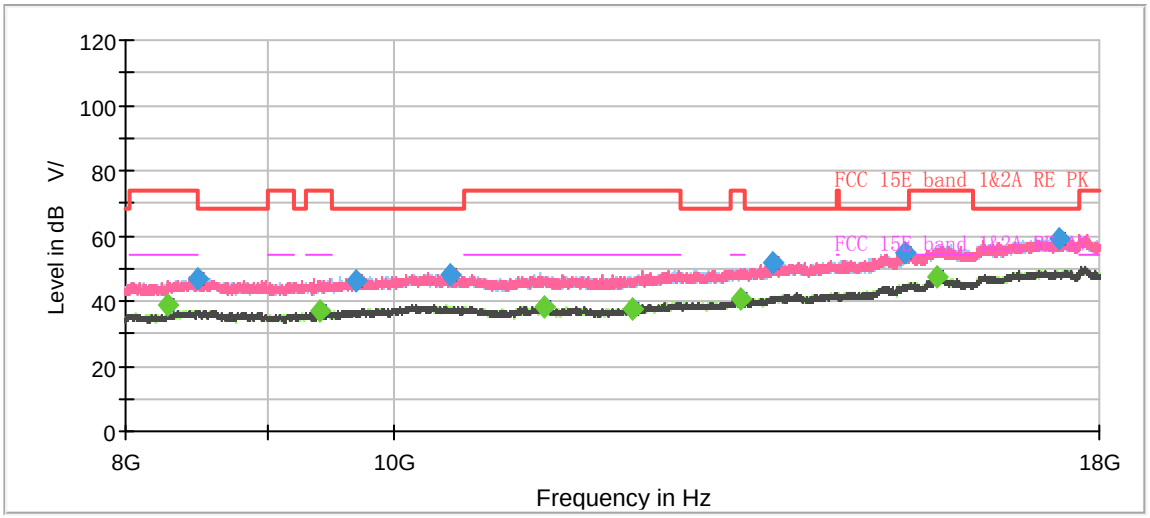
Remark: 1. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)
2. Margin = Limit – Quasi-Peak

802.11a CH36



Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 8GHz

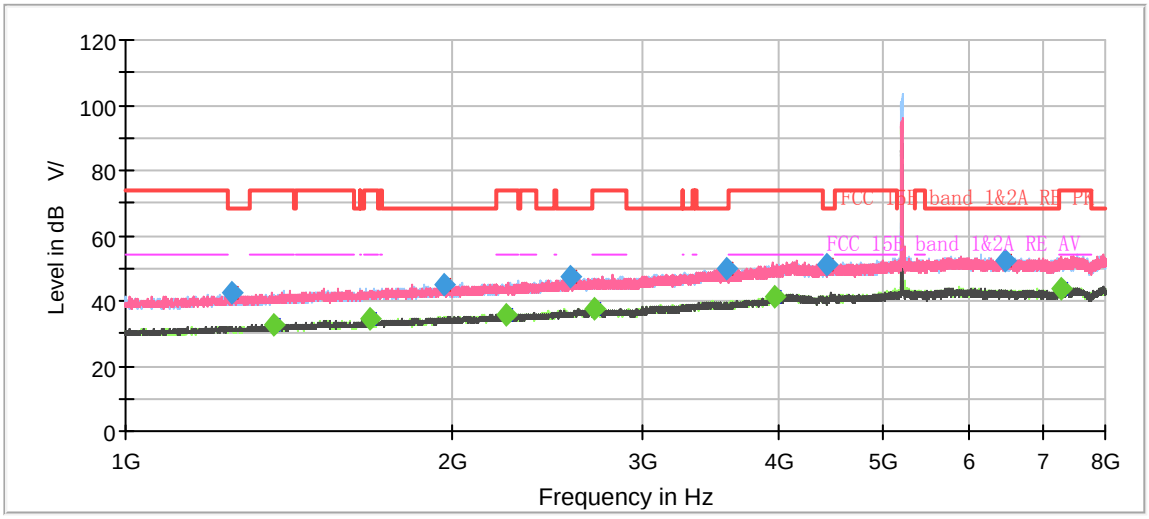


Radiates Emission from 8GHz to 18GHz

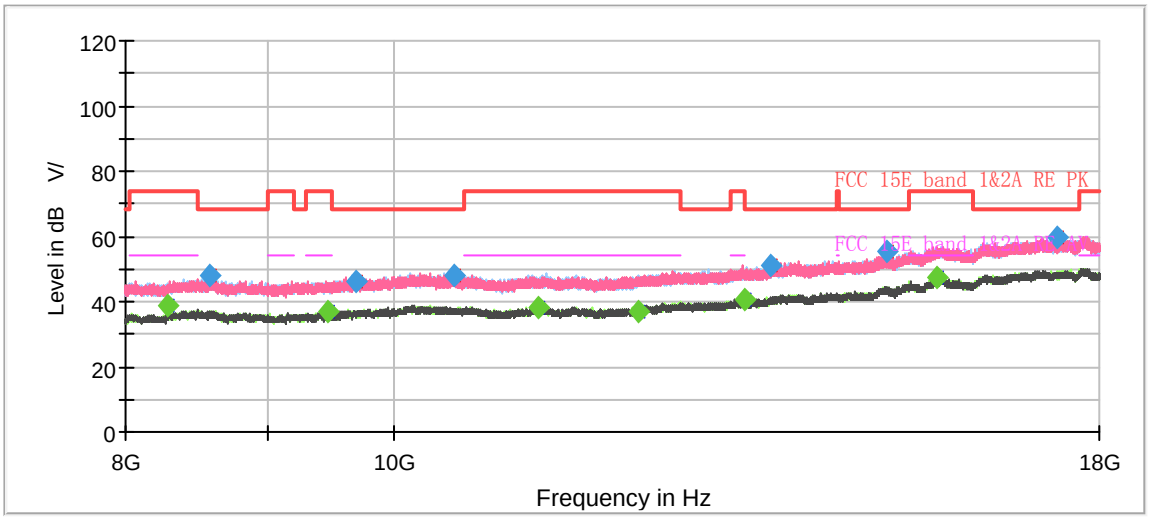
Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1277.666667	42.52	---	68.20	25.68	200.0	V	309.0	-7
1406.233333	---	33.56	54.00	20.44	200.0	V	67.0	-6
1699.300000	---	34.21	54.00	19.79	100.0	V	166.0	-5
1988.633333	45.07	---	68.20	23.13	200.0	H	75.0	-3
2265.833333	---	35.57	54.00	18.43	200.0	H	49.0	-2
2685.600000	47.38	---	68.20	20.82	200.0	H	135.0	0
2806.000000	---	37.48	54.00	16.52	100.0	V	43.0	1
3531.200000	49.88	---	68.20	18.32	100.0	H	132.0	4
3962.633333	---	41.21	54.00	12.79	100.0	H	116.0	6
4469.433333	51.28	---	68.20	16.92	200.0	H	62.0	7
6300.166667	53.63	---	68.20	14.57	100.0	H	230.0	10
7512.100000	---	44.06	54.00	9.94	100.0	V	222.0	11
15722.000000	---	47.23	54.00	6.77	100.0	V	218.0	14

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

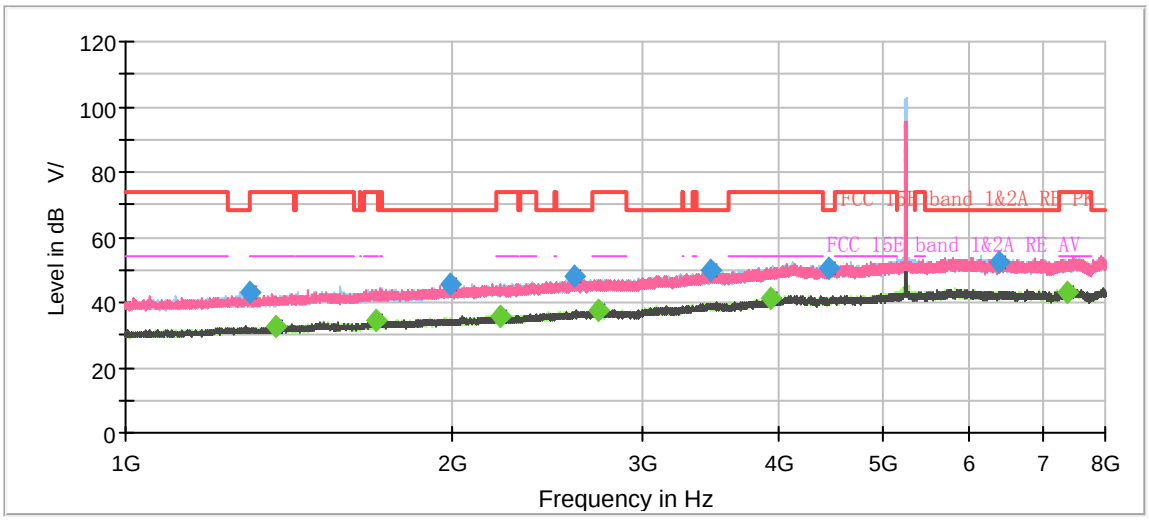


Radiates Emission from 8GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1254.566667	42.32	---	68.20	25.88	100.0	H	239.0	-7
1370.766667	---	32.63	54.00	21.37	200.0	V	110.0	-7
1681.800000	---	34.34	54.00	19.66	200.0	V	284.0	-5
1962.966667	45.00	---	68.20	23.20	200.0	V	200.0	-3
2243.433333	---	35.70	54.00	18.30	200.0	H	71.0	-2
2574.066667	47.29	---	68.20	20.91	100.0	H	282.0	0
2704.733333	---	37.51	54.00	16.49	100.0	V	165.0	1
3588.600000	49.66	---	68.20	18.54	200.0	H	2.0	4
3962.166667	---	41.29	54.00	12.71	100.0	H	99.0	6
4430.933333	51.28	---	68.20	16.92	100.0	H	274.0	7
6470.033333	52.53	---	68.20	15.67	200.0	V	60.0	10
7276.666667	---	44.00	54.00	10.00	100.0	V	165.0	11
15718.333333	---	47.19	54.00	6.81	200.0	H	22.0	14

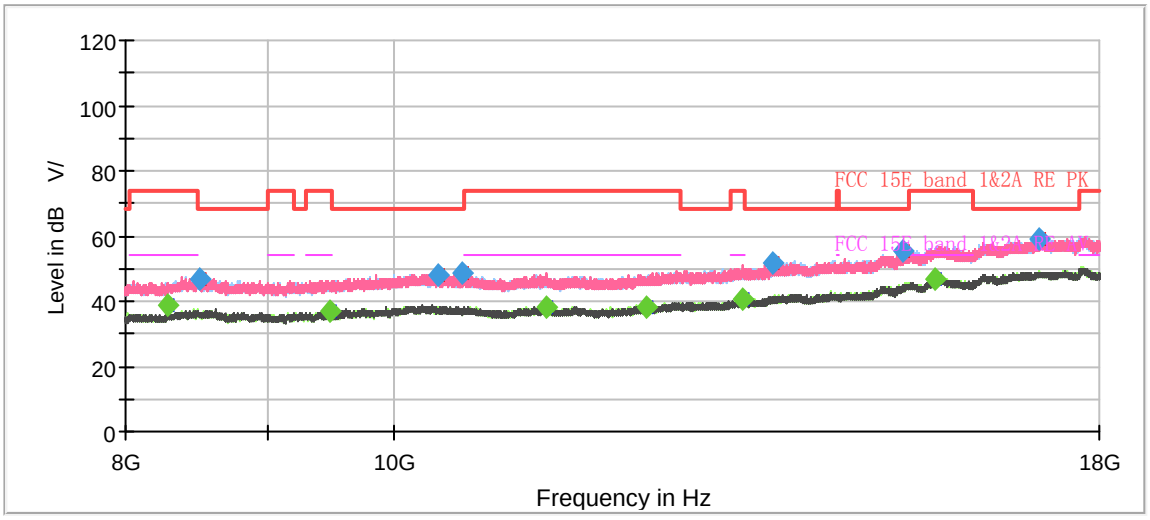
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11a CH48



Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 8GHz

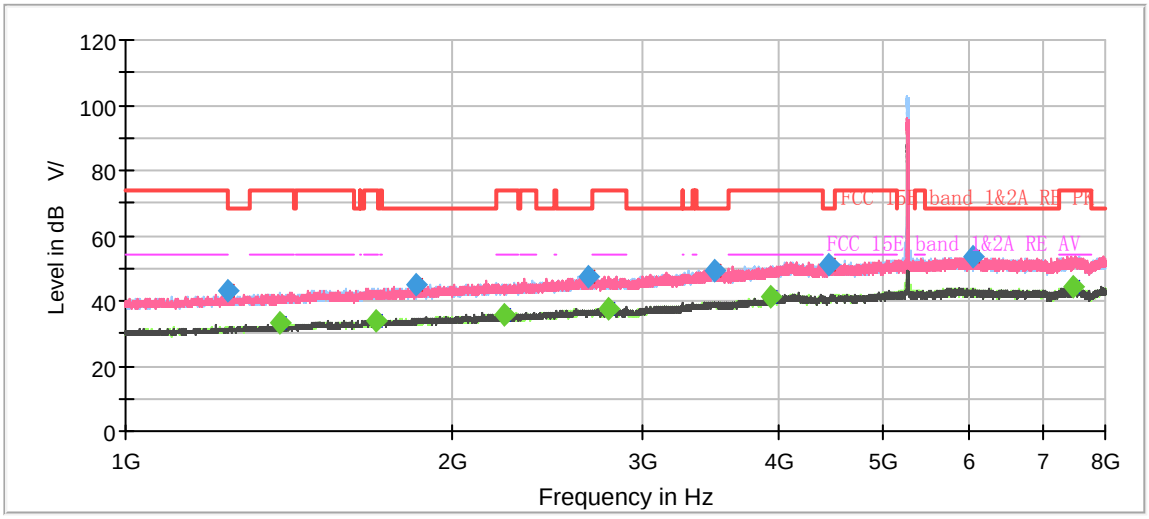


Radiates Emission from 8GHz to 18GHz

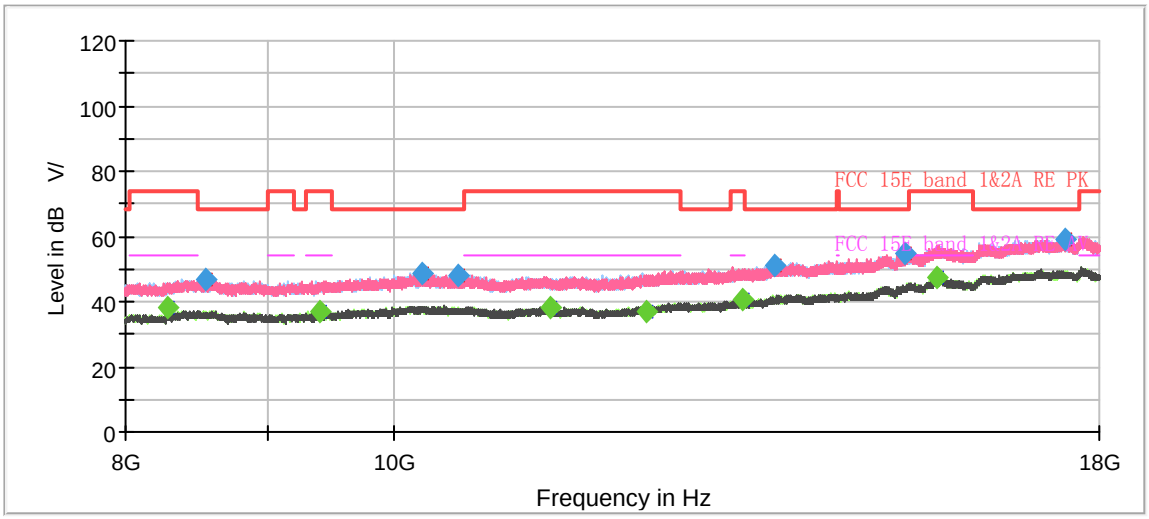
Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1299.600000	43.34	---	68.20	24.86	100.0	V	136.0	-7
1376.133333	---	32.65	54.00	21.35	100.0	H	188.0	-6
1704.200000	---	34.17	54.00	19.83	200.0	V	245.0	-5
1989.566667	45.53	---	68.20	22.67	200.0	V	315.0	-3
2212.400000	---	35.76	54.00	18.24	200.0	H	156.0	-2
2594.366667	47.98	---	68.20	20.22	100.0	H	202.0	0
2728.766667	---	37.58	54.00	16.42	100.0	V	0.0	1
3454.666667	49.62	---	68.20	18.58	200.0	H	43.0	4
3940.000000	---	41.37	54.00	12.63	200.0	H	178.0	6
4442.600000	50.68	---	68.20	17.52	200.0	H	170.0	7
6394.666667	52.05	---	68.20	16.15	200.0	H	264.0	10
7393.800000	---	42.91	54.00	11.09	200.0	H	2.0	11

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

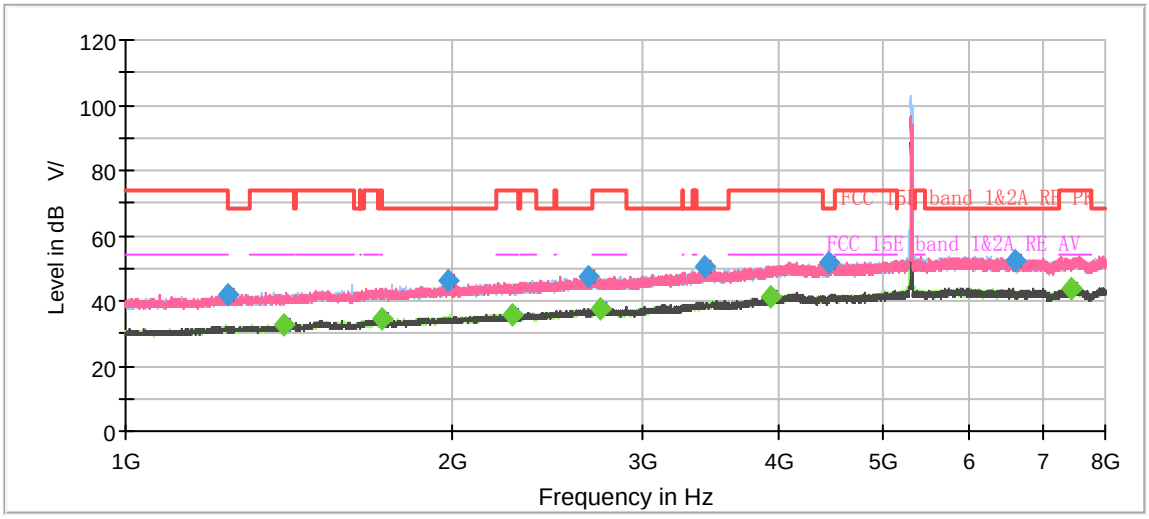


Radiates Emission from 8GHz to 18GHz

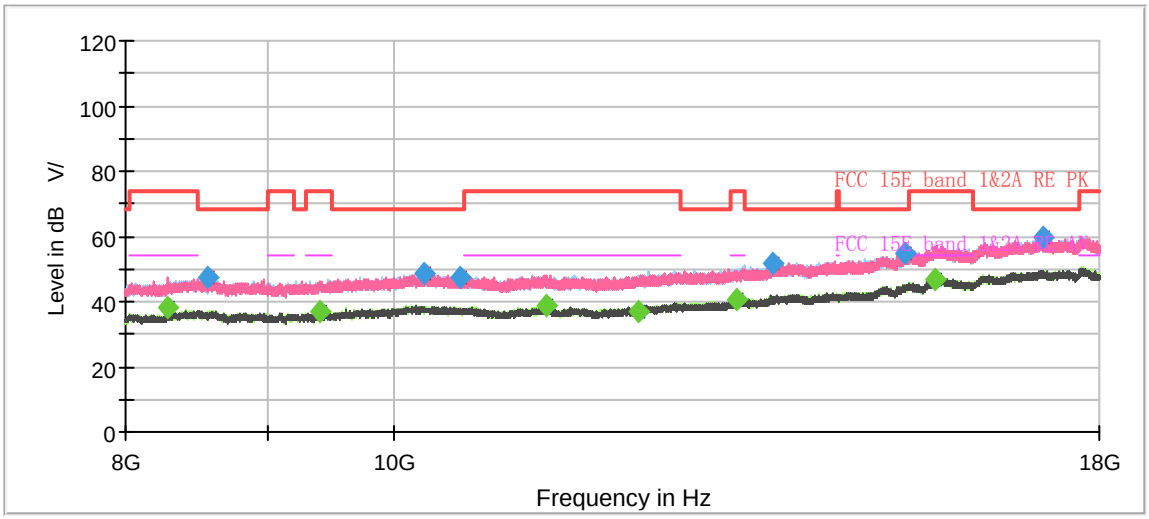
Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1244.066667	42.88	---	68.20	25.32	200.0	V	159.0	-7
1386.633333	---	32.98	54.00	21.02	100.0	V	18.0	-6
1703.500000	---	34.03	54.00	19.97	200.0	H	58.0	-5
1852.133333	45.09	---	68.20	23.11	200.0	V	1.0	-4
2235.733333	---	35.68	54.00	18.32	200.0	H	121.0	-2
2674.866667	47.24	---	68.20	20.96	100.0	V	192.0	0
2783.600000	---	37.66	54.00	16.34	200.0	V	322.0	1
3491.766667	49.40	---	68.20	18.80	100.0	H	263.0	4
3940.700000	---	41.45	54.00	12.55	100.0	V	265.0	6
4454.500000	51.17	---	68.20	17.03	100.0	V	171.0	7
6053.533333	53.72	---	68.20	14.48	100.0	V	73.0	10
7487.833333	---	44.10	54.00	9.90	100.0	H	94.0	11
15715.666667	---	47.35	54.00	6.65	200.0	V	141.0	14

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

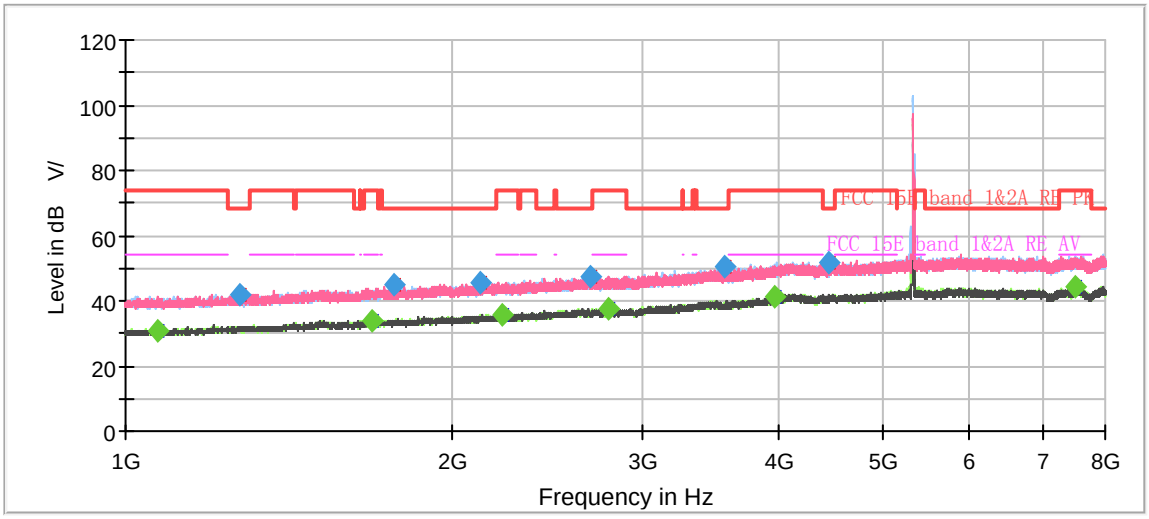


Radiates Emission from 8GHz to 18GHz

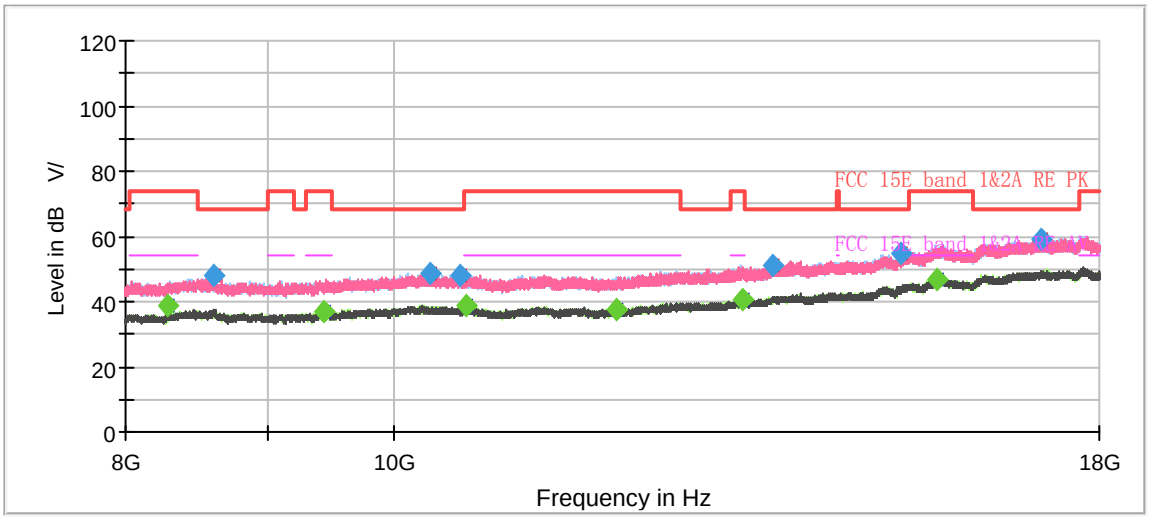
Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1241.500000	42.06	---	68.20	26.14	100.0	H	0.0	-7
1399.466667	---	32.89	54.00	21.11	100.0	H	328.0	-6
1720.533333	---	34.17	54.00	19.83	100.0	H	278.0	-4
1984.900000	46.05	---	68.20	22.15	100.0	V	69.0	-3
2276.800000	---	35.74	54.00	18.26	200.0	H	165.0	-2
2673.466667	47.50	---	68.20	20.70	100.0	V	310.0	0
2734.366667	---	37.38	54.00	16.62	200.0	H	228.0	1
3417.100000	50.21	---	68.20	17.99	200.0	H	124.0	4
3931.366667	---	41.37	54.00	12.63	100.0	V	118.0	6
4456.833333	51.49	---	68.20	16.71	200.0	H	47.0	7
6620.066667	52.10	---	68.20	16.10	200.0	H	285.0	10
7456.333333	---	43.60	54.00	10.40	200.0	V	45.0	11

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

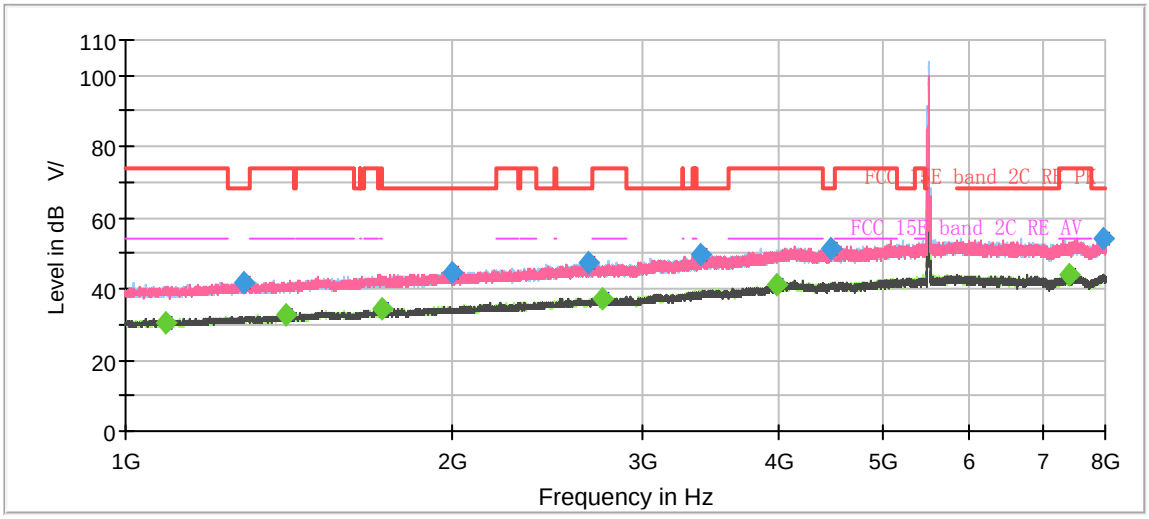


Radiates Emission from 8GHz to 18GHz

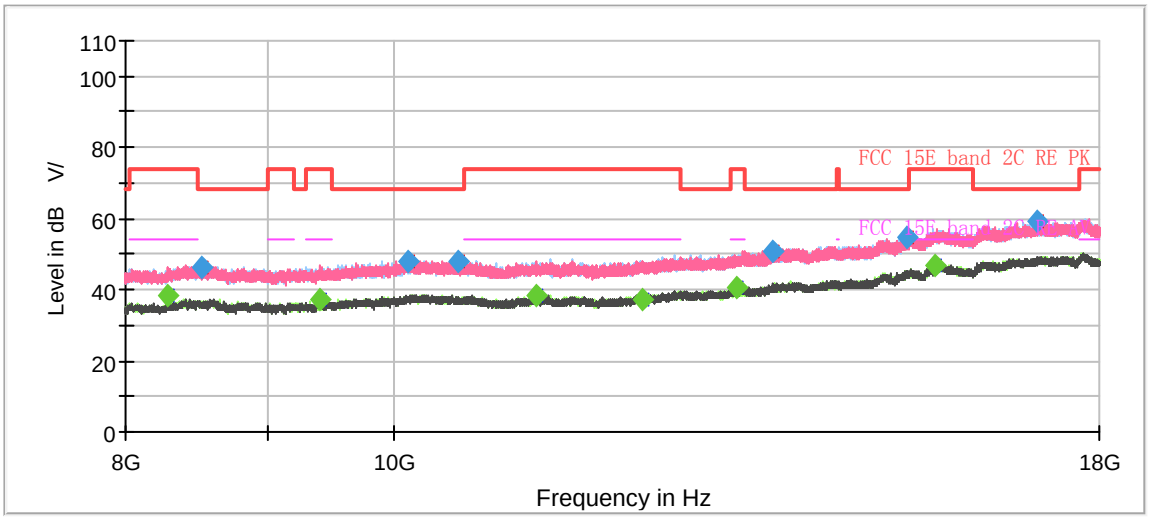
Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1070.466667	---	30.87	54.00	23.13	200.0	V	45.0	-8
1273.000000	42.01	---	68.20	26.19	100.0	V	347.0	-7
1683.666667	---	34.00	54.00	20.00	200.0	V	65.0	-5
1771.633333	44.78	---	68.20	23.42	100.0	V	0.0	-4
2125.366667	45.55	---	68.20	22.65	100.0	H	252.0	-2
2220.800000	---	35.41	54.00	18.59	100.0	H	69.0	-2
2682.333333	47.29	---	68.20	20.91	200.0	V	11.0	0
2791.766667	---	37.43	54.00	16.57	100.0	V	56.0	1
3573.666667	50.29	---	68.20	17.91	100.0	H	232.0	4
3963.566667	---	41.47	54.00	12.53	200.0	V	201.0	6
4445.400000	51.43	---	68.20	16.77	100.0	V	56.0	7
7497.633333	---	44.14	54.00	9.86	200.0	H	183.0	11

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

802.11a CH100



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

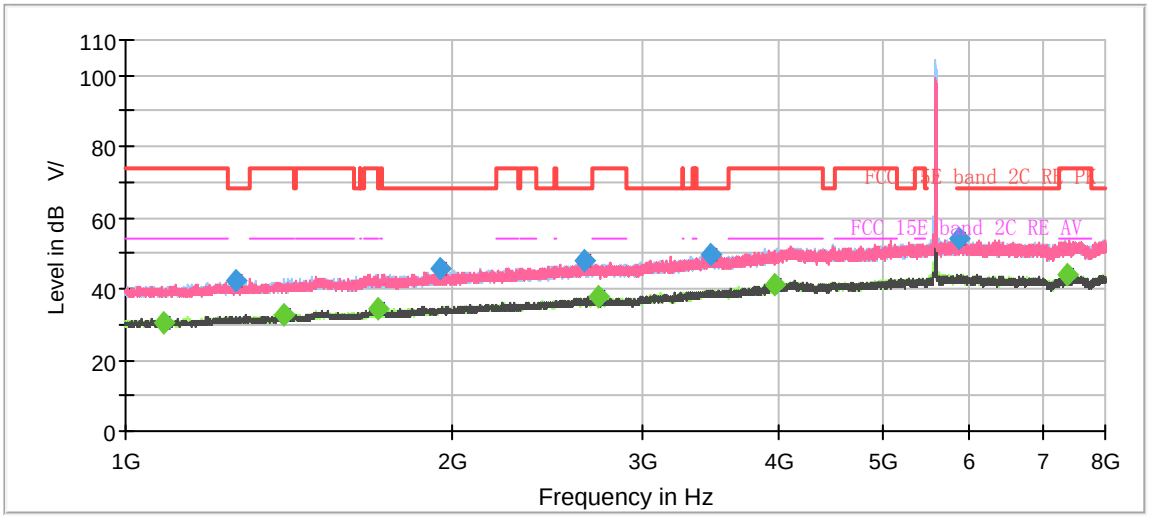


Radiates Emission from 8GHz to 18GHz

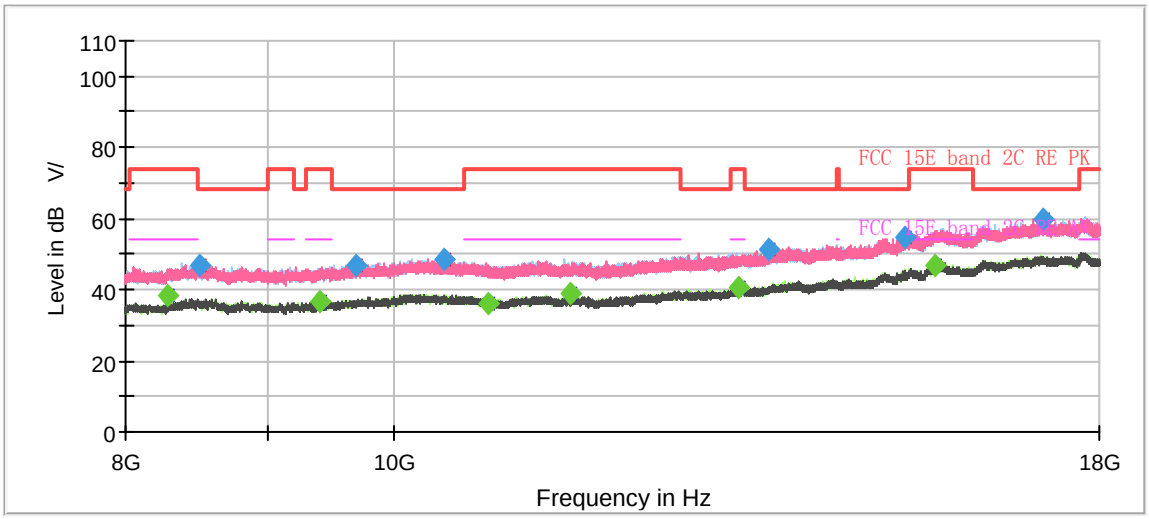
Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1089.133333	---	30.66	54.00	23.34	100.0	H	175.0	-8
1286.766667	41.67	---	68.20	26.53	200.0	V	0.0	-7
1408.100000	---	32.54	54.00	21.46	200.0	H	261.0	-6
1721.000000	---	34.37	54.00	19.63	100.0	V	148.0	-4
1996.566667	44.72	---	68.20	23.48	200.0	H	27.0	-3
2669.733333	47.54	---	68.20	20.66	200.0	H	66.0	0
2752.566667	---	37.44	54.00	16.56	200.0	V	3.0	1
3391.900000	49.48	---	68.20	18.72	200.0	H	288.0	3
3989.700000	---	41.12	54.00	12.88	100.0	V	61.0	6
4459.866667	51.25	---	68.20	16.95	200.0	V	258.0	7
7401.033333	---	43.88	54.00	10.12	200.0	V	359.0	11
7978.066667	53.96	---	68.20	14.24	200.0	V	215.0	12

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

802.11a CH116



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

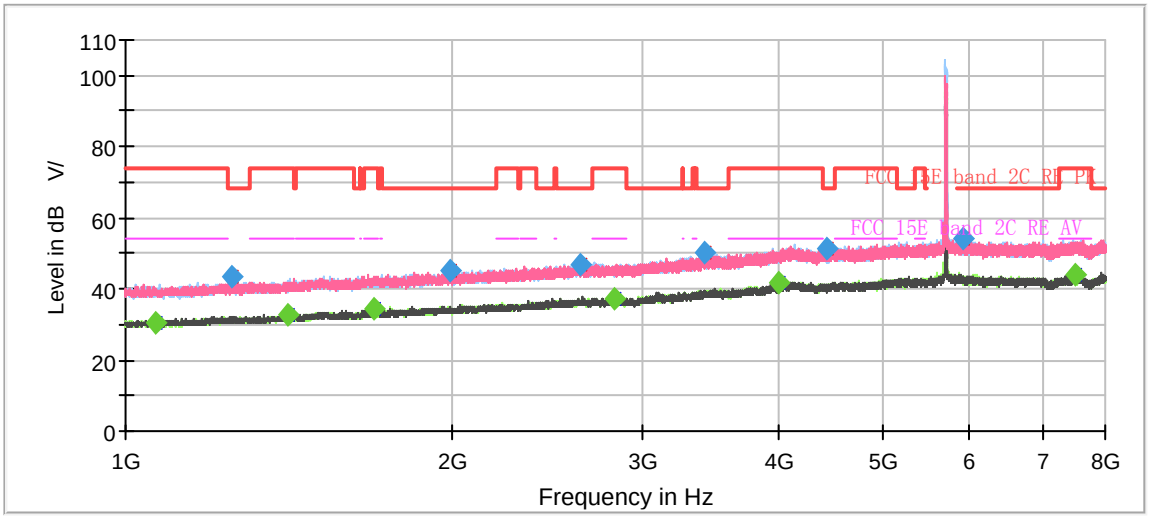


Radiates Emission from 8GHz to 18GHz

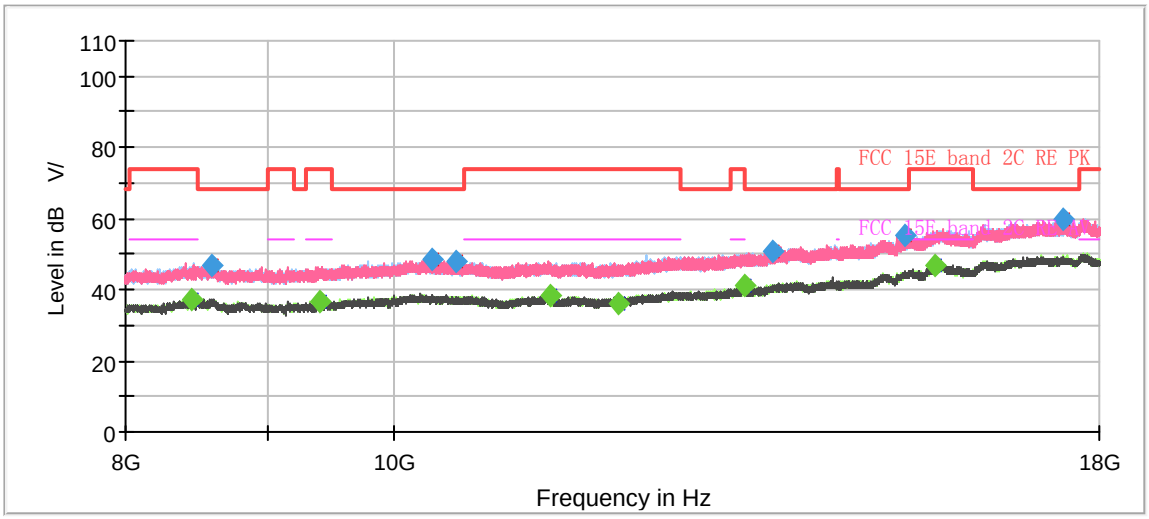
Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1085.166667	---	30.60	54.00	23.40	100.0	H	184.0	-8
1264.366667	42.27	---	68.20	25.93	100.0	H	231.0	-7
1398.300000	---	32.96	54.00	21.04	200.0	H	101.0	-6
1709.566667	---	34.23	54.00	19.77	100.0	H	0.0	-5
1952.933333	45.64	---	68.20	22.56	200.0	H	170.0	-3
2651.533333	47.88	---	68.20	20.32	100.0	H	59.0	0
2732.033333	---	37.54	54.00	16.46	100.0	V	18.0	1
3460.500000	49.79	---	68.20	18.41	100.0	H	101.0	4
3966.133333	---	41.23	54.00	12.77	200.0	H	95.0	6
5855.900000	54.00	---	68.20	14.20	100.0	V	205.0	10
7390.533333	---	43.82	54.00	10.18	100.0	V	136.0	11

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

802.11a CH140



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



Radiates Emission from 8GHz to 18GHz