RF TEST REPORT

Applicant	ZTE Corporation
FCC ID	SRQ-MC801A
Product	5G CPE
Model	MC801A
Report No.	R2112A1085-R7
Issue Date	January 8, 2022

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.

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Approved by: Kai Xu

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TABLE OF CONTENT

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: December 4, 2021 ~ December 16, 2021 Date of Sample Received: December 1, 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
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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	ZTE Corporation
Applicant address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
Manufacturer	ZTE Corporation
Manufacturer address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

2.2. General information

EUT Description	
Model	MC801A
IMEI	863671043881410
Hardware Version	MC801AHW-1.0.0
Software Version	BD_TLCMXMC801AV1.0.0B01
Power Supply	AC adapter
Antenna Type	Internal Antenna
Antenna Gain	4.0 dBi
Operating Frequency Range(s)	U-NII-1: 5150MHz-5250MHz U-NII-3: 5725MHz -5850MHz
Modulation Type	802.11a/n (HT20/HT40) : OFDM 802.11ac (VHT20/VHT40/VHT80): OFDM 802.11ax (HE20/HE40/HE80): OFDMA
Max. Conducted Power	18.87dBm
Testing temperature range:	-20 ° C to 50° C
Operating temperature range:	-20 ° C to 55° C
Operating voltage range:	10.8 V to 13.2 V
State DC voltage:	12V
EUT Accessory	
Adapter 1	Manufacturer: Shenzhen Ruijing Industrial Co.,Ltd Model: STC-A1215C55-C
Adapter 2	Manufacturer: Shenzhen Dokocom Energy Technology Co., Ltd. Model: STC-A1215C55-C
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

KDB 662911 D01 Multiple Transmitter Output 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		
	Antenna 1	Antenna 2	CDD/MIMO
802.11a	6 Mbps	6 Mbps	6 Mbps
802.11n HT20	MCS0	MCS0	MCS8
802.11n HT40	MCS0	MCS0	MCS8
802.11ac VHT20	MCS0	MCS0	MCS0
802.11ac VHT40	MCS0	MCS0	MCS0
802.11ac VHT80	MCS0	MCS0	MCS0
802.11ax HE20	MCS0	MCS0	MCS0
802.11ax HE40	MCS0	MCS0	MCS0
802.11ax HE80	MCS0	MCS0	MCS0

The worst case Antenna mode for each of the following tests for Wi-Fi:

Test Cases	Antenna 1	Antenna 2	CDD/MIMO
Average conducted output power	O	O	O
Occupied bandwidth	--	--	O
Frequency stability	--	--	O
Power Spectral Density	O	O	O
Unwanted Emissions	--	--	O
Conducted Emissions	--	--	O
Note：“O”: test all bands			

According to RF Output power results in chapter 5.2, MIMO was selected as the worst antenna.

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-3	20 MHz	149	5745MHz
			153	5765MHz
			157	5785MHz
			161	5805MHz
			165	5825MHz
		40 MHz	151	5755MHz
			159	5795MHz
		80 MHz	155	5775MHz

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.

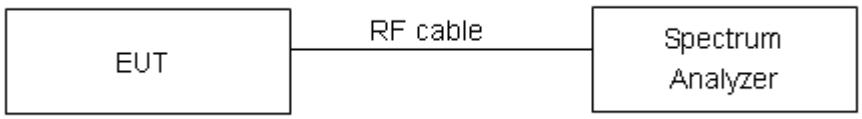
For U-NII-1, set RBW ≈1% OCB kHz, VBW ≥ 3 × RBW, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

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	16.356	18.850	PASS
	5200	16.371	18.859	PASS
	5240	16.383	18.508	PASS
802.11n HT20	5180	17.544	20.255	PASS
	5200	17.547	19.654	PASS
	5240	17.556	19.921	PASS
802.11n HT40	5190	35.915	38.483	PASS
	5230	35.941	38.760	PASS
802.11ac VHT20	5180	17.556	19.938	PASS
	5200	17.555	19.741	PASS
	5240	17.569	19.886	PASS
802.11ac VHT40	5190	35.961	39.087	PASS
	5230	35.962	39.154	PASS
802.11ac VHT80	5210	75.380	79.630	PASS
802.11ax HE20	5180	18.873	20.731	PASS
	5200	18.871	20.488	PASS
	5240	18.917	20.557	PASS
802.11ax HE40	5190	37.641	39.735	PASS
	5230	37.655	39.701	PASS
802.11ax HE80	5210	77.136	80.590	PASS

U-NII-3

Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11a	5745	16.329	15.914	500	PASS
	5785	16.318	16.304	500	PASS
	5825	16.330	16.321	500	PASS
802.11n HT20	5745	17.521	16.909	500	PASS
	5785	17.518	17.564	500	PASS
	5825	17.522	17.558	500	PASS
802.11n HT40	5755	35.991	35.659	500	PASS
	5795	35.955	35.282	500	PASS
802.11ac VHT20	5745	17.531	17.033	500	PASS
	5785	17.533	16.897	500	PASS
	5825	17.521	16.535	500	PASS
802.11ac VHT40	5755	36.032	36.313	500	PASS
	5795	35.982	35.440	500	PASS
802.11ac VHT80	5775	75.402	75.219	500	PASS
802.11ax HE20	5745	18.893	18.348	500	PASS
	5785	18.871	18.926	500	PASS
	5825	18.873	17.610	500	PASS
802.11ax HE40	5755	37.673	36.960	500	PASS
	5795	37.604	37.886	500	PASS
802.11ax HE80	5775	77.106	76.464	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, 802.11n HT40

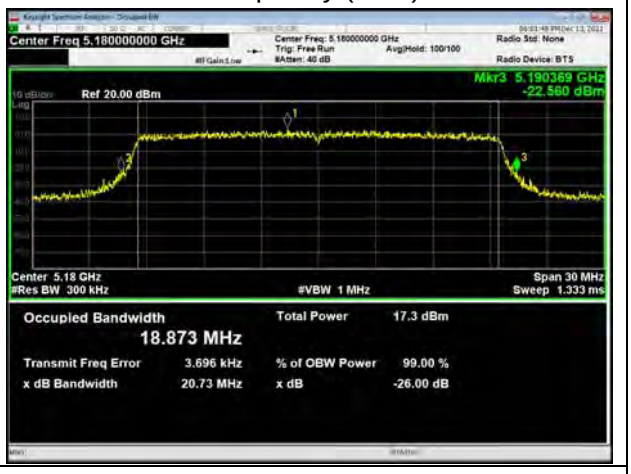
Carrier frequency (MHz): 5230

U-NII-1, 802.11ac VHT20

Carrier frequency (MHz): 5180

U-NII-1, 802.11ax HE20

Carrier frequency (MHz): 5180



U-NII-1, 802.11ac VHT20

Carrier frequency (MHz): 5200

U-NII-1, 802.11ax HE20

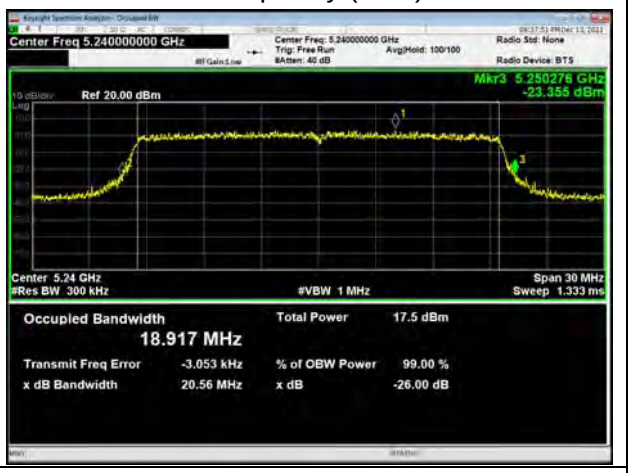
Carrier frequency (MHz): 5200

U-NII-1, 802.11ac VHT20

Carrier frequency (MHz):5240

U-NII-1, 802.11ax HE20

Carrier frequency (MHz):5240



U-NII-1, 802.11ac VHT40

Carrier frequency (MHz): 5190

U-NII-1, 802.11ax HE40

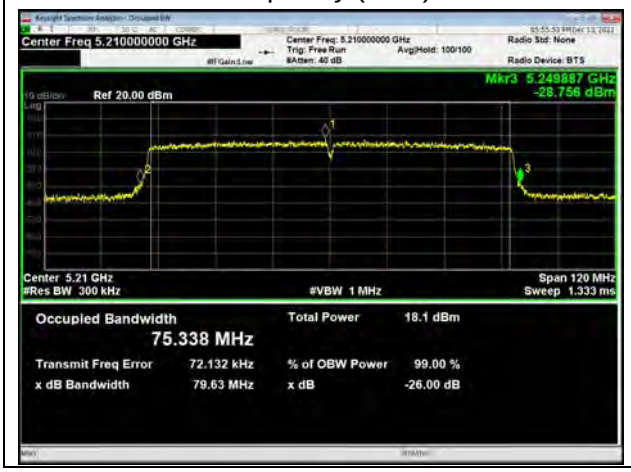
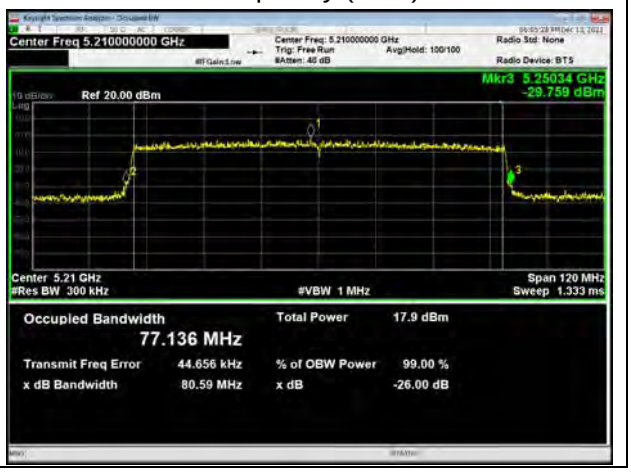
Carrier frequency (MHz): 5190

U-NII-1, 802.11ac VHT40

Carrier frequency (MHz): 5230

U-NII-1, 802.11ax HE40

Carrier frequency (MHz): 5230

U-NII-1, 802.11ac VHT80 Carrier frequency (MHz): 5210	U-NII-1, 802.11ax HE80 Carrier frequency (MHz): 5210
	

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

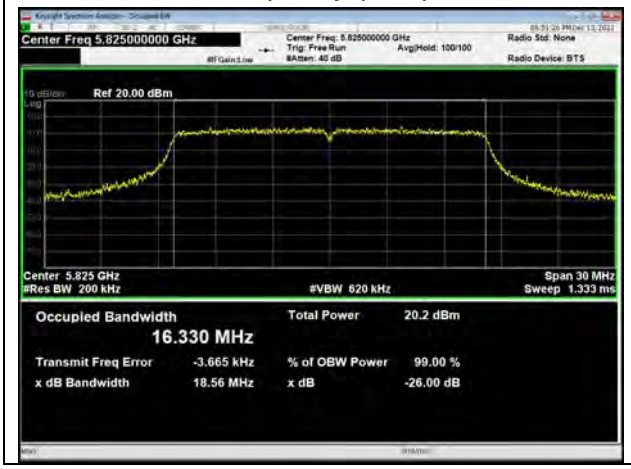
Carrier frequency (MHz): 5785

U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5785

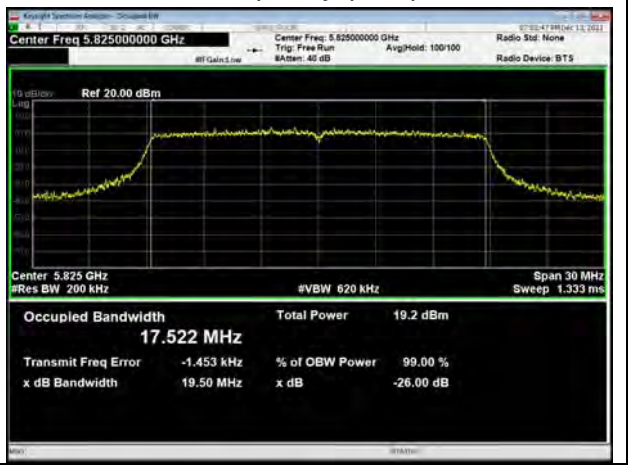
U-NII-3, 802.11a

Carrier frequency (MHz): 5825



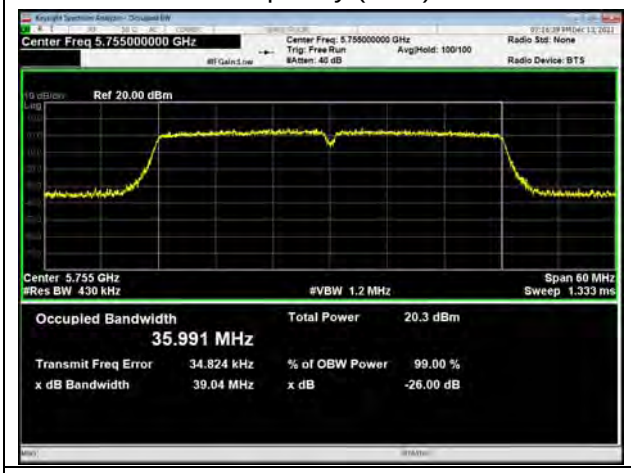
U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5825



U-NII-3, 802.11n HT40

Carrier frequency (MHz): 5755



U-NII-3, 802.11n HT40

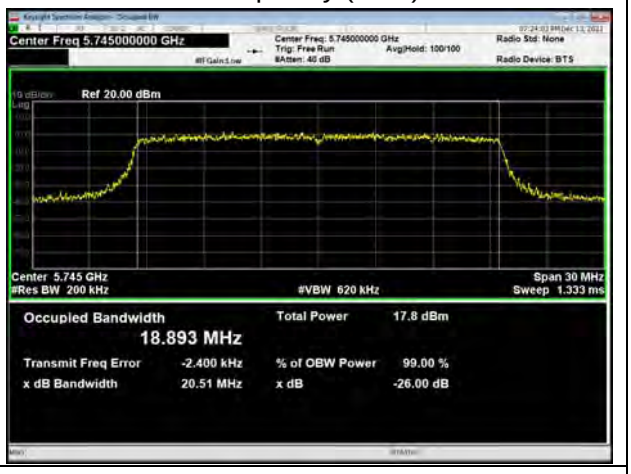
Carrier frequency (MHz): 5795

U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5745

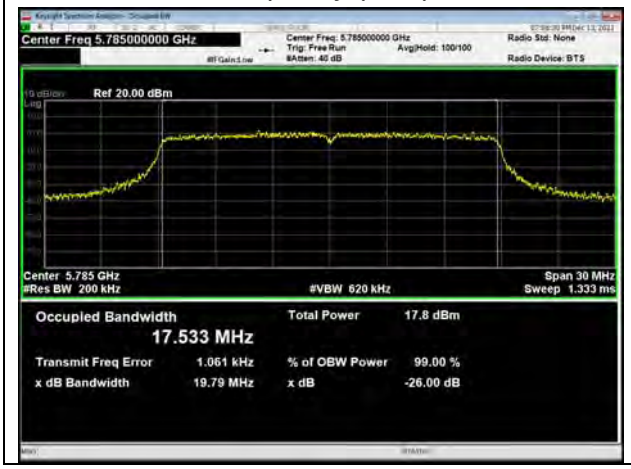
U-NII-3, 802.11ax HE20

Carrier frequency (MHz): 5745



U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5785



U-NII-3, 802.11ax HE20

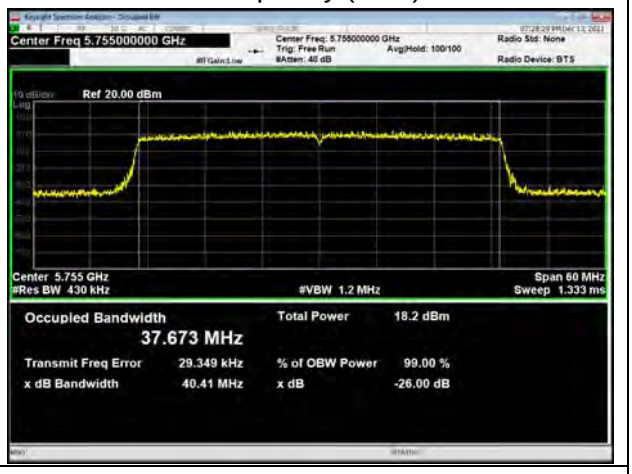
Carrier frequency (MHz): 5785

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

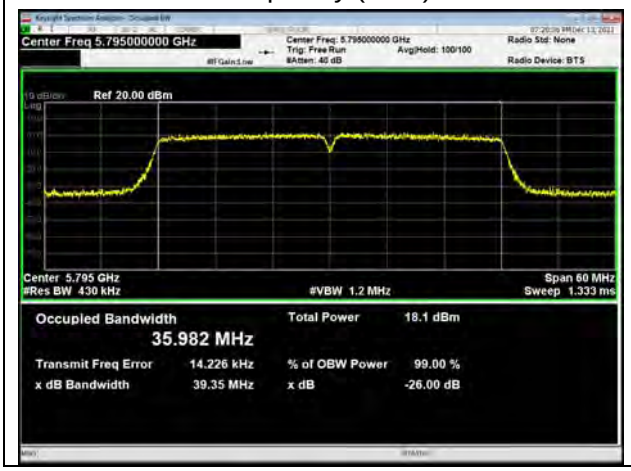
U-NII-3, 802.11ax HE20
Carrier frequency (MHz): 5825

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

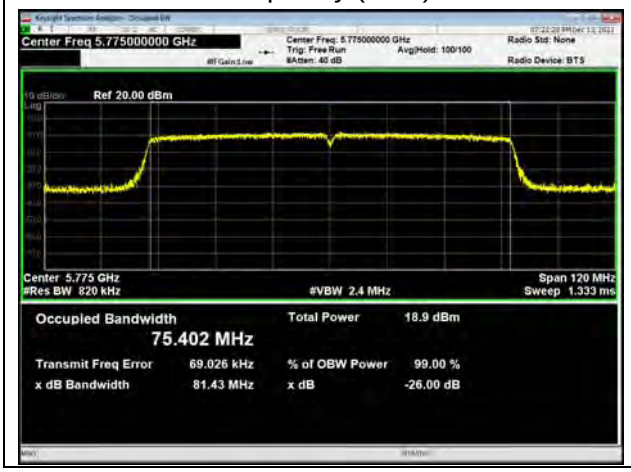
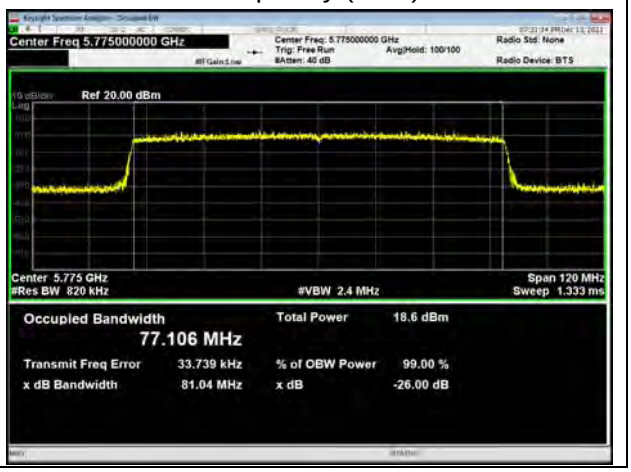
U-NII-3, 802.11ax HE40
Carrier frequency (MHz): 5755



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



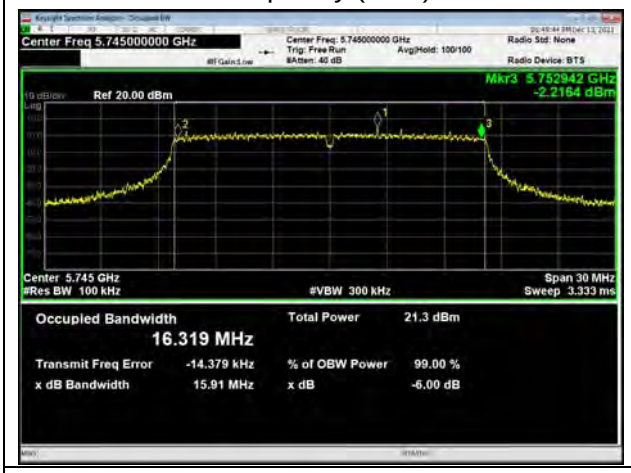
U-NII-3, 802.11ax HE40
Carrier frequency (MHz): 5795

U-NII-3, 802.11ac VHT80 Carrier frequency (MHz): 5775	U-NII-3, 802.11ax HE80 Carrier frequency (MHz): 5775
	

Minimum 6 dB bandwidth

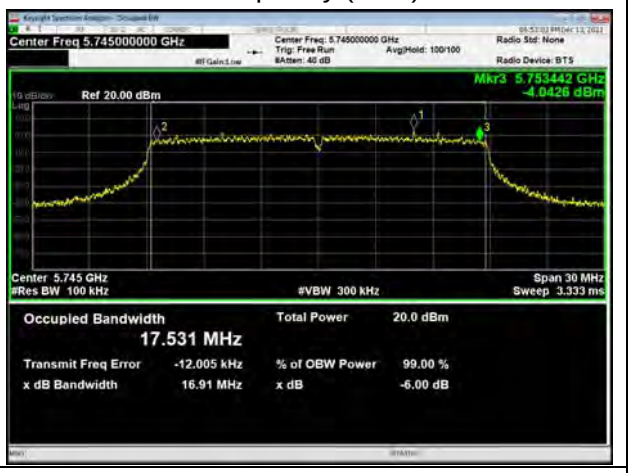
U-NII-3, 802.11a

Carrier frequency (MHz): 5745



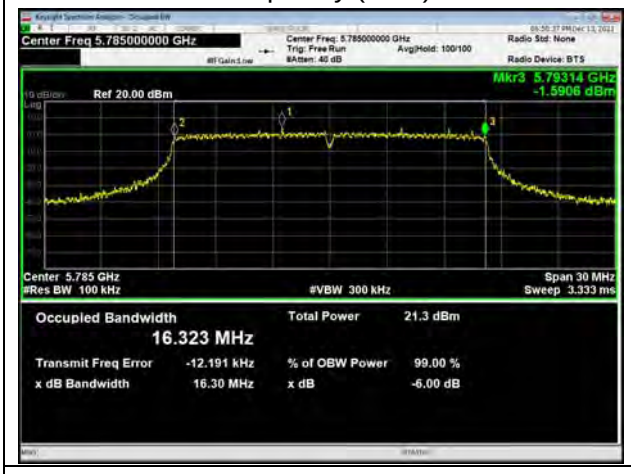
U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5745



U-NII-3, 802.11a

Carrier frequency (MHz): 5785

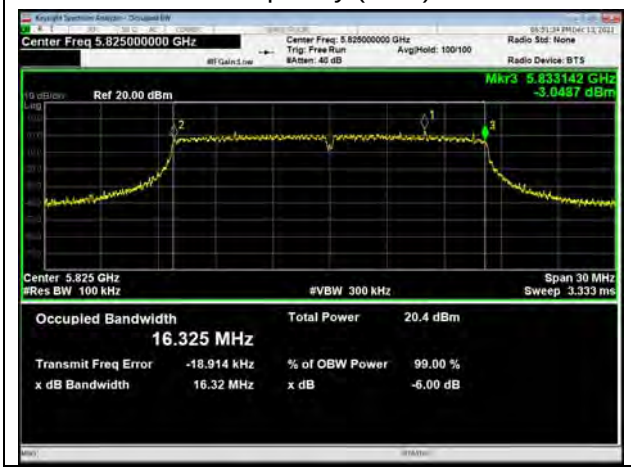


U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5785

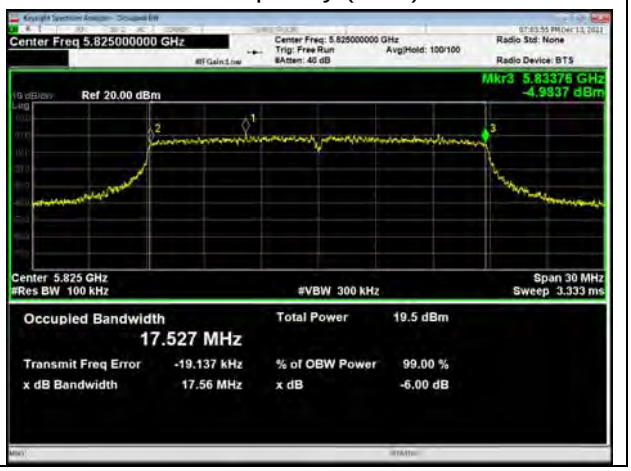
U-NII-3, 802.11a

Carrier frequency (MHz): 5825



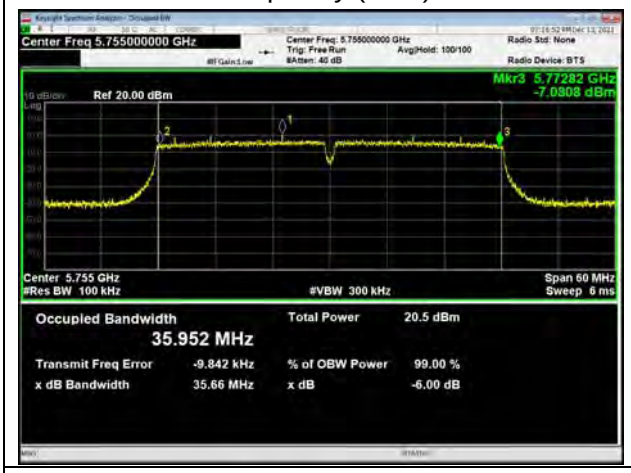
U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5825



U-NII-3, 802.11n HT40

Carrier frequency (MHz): 5755

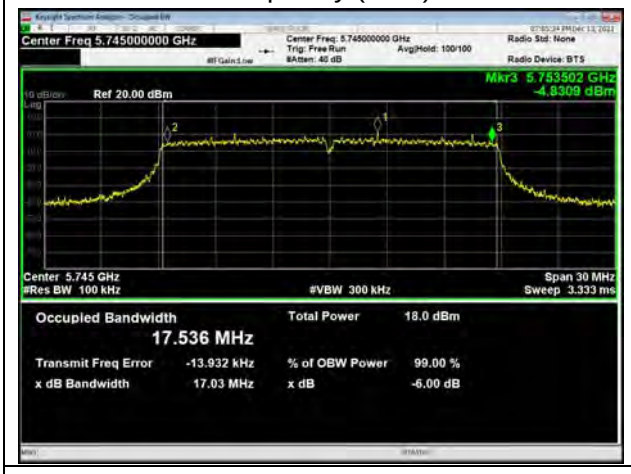


U-NII-3, 802.11n HT40

Carrier frequency (MHz): 5795

U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5745

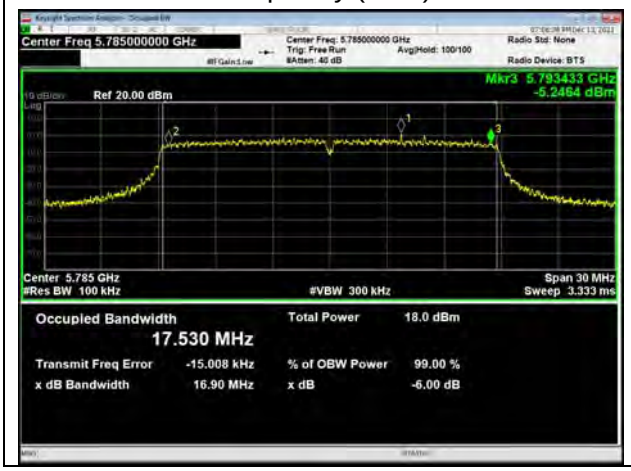


U-NII-3, 802.11ax HE20

Carrier frequency (MHz): 5745

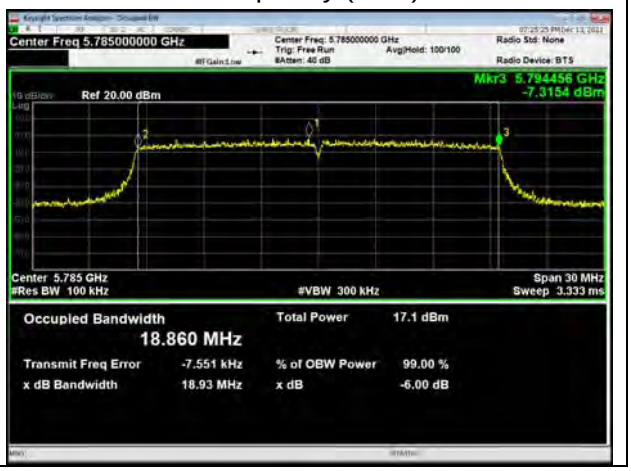
U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5785



U-NII-3, 802.11ax HE20

Carrier frequency (MHz): 5785



U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5825

U-NII-3, 802.11ax HE20

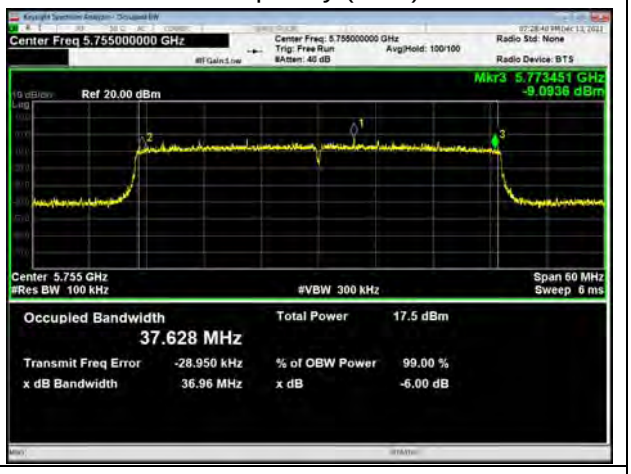
Carrier frequency (MHz): 5825

U-NII-3, 802.11ac VHT40

Carrier frequency (MHz): 5755

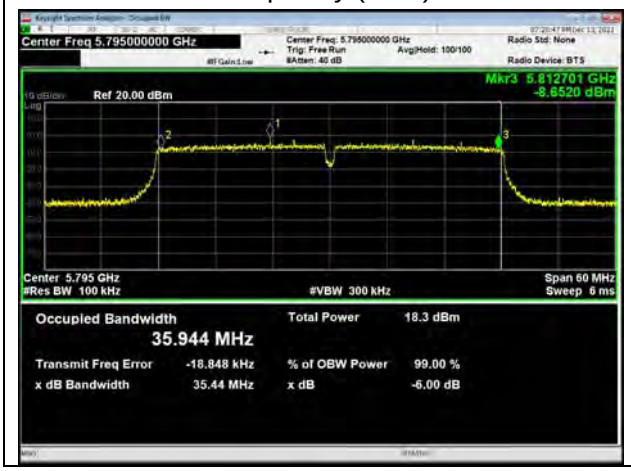
U-NII-3, 802.11ax HE40

Carrier frequency (MHz): 5755



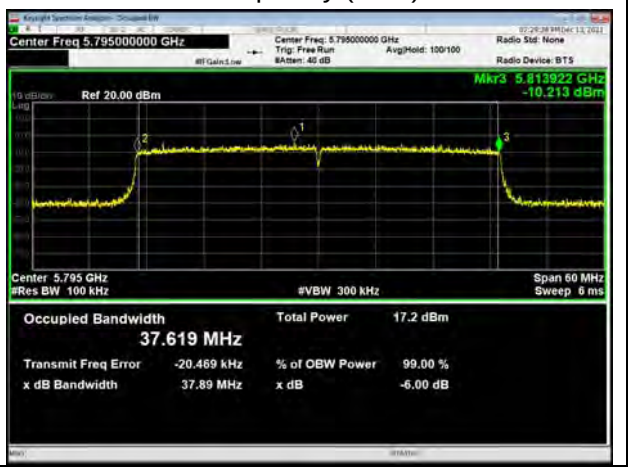
U-NII-3, 802.11ac VHT40

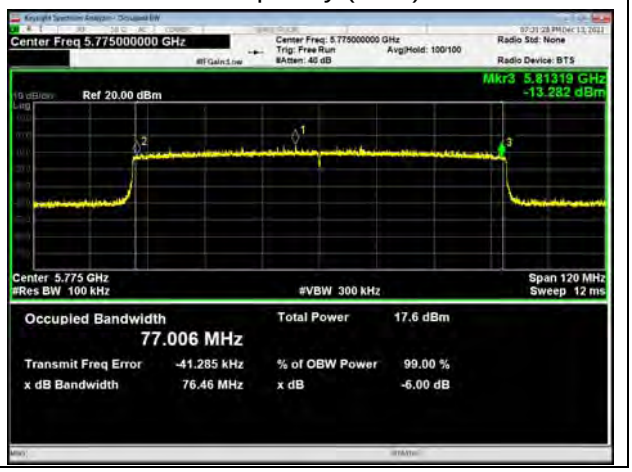
Carrier frequency (MHz): 5795



U-NII-3, 802.11ax HE40

Carrier frequency (MHz): 5795



U-NII-3, 802.11ac VHT80 Carrier frequency (MHz): 5775	U-NII-3, 802.11ax HE80 Carrier frequency (MHz): 5775
	

5.2. Average Power Output

Ambient condition

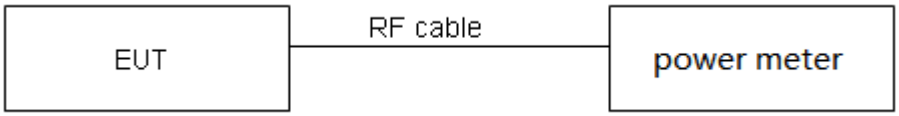
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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

The conducted Power 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)(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 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	1.00	1.00	1.00	0.00
802.11n HT20	1.00	1.00	1.00	0.00
802.11n HT40	1.00	1.00	1.00	0.00
802.11ac VHT20	1.00	1.00	1.00	0.00
802.11ac VHT40	1.00	1.00	1.00	0.00
802.11ac VHT80	1.00	1.00	1.00	0.00
802.11ax HE20	1.00	1.00	1.00	0.00
802.11ax HE40	1.00	1.00	1.00	0.00
802.11ax HE80	1.00	1.00	1.00	0.00
Note: when Duty cycle≥0.98, Duty cycle correction Factor not required.				

Power Index											
Channel	802.11a	802.11n HT20	802.11ac VHT20	802.11ax HE20	Channel	802.11n HT40	802.11ac VHT40	802.11ax HE40	Channel	802.11ac VHT80	802.11ac HE80
CH36	15	14	12	11	CH38	14	12	11	CH42	12	11
CH40	15	14	12	11	CH46	14	12	11	/	/	
CH48	15	14	12	11	/	/	/		/	/	
CH149	15	14	12	11	CH151	14	12	11	CH155	12	11
CH157	15	14	12	11	CH159	14	12	11	/	/	
CH165	15	14	12	11	/	/	/		/	/	

SISO Antenna 1

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	15.21	15.21	30	PASS
	40/5200	14.97	14.97	30	PASS
	48/5240	15.36	15.36	30	PASS
802.11n HT20	36/5180	13.98	13.98	30	PASS
	40/5200	13.82	13.82	30	PASS
	48/5240	14.09	14.09	30	PASS
802.11n HT40	38/5190	14.16	14.16	30	PASS
	46/5230	14.45	14.45	30	PASS
802.11ac VHT20	36/5180	11.76	11.76	30	PASS
	40/5200	11.92	11.92	30	PASS
	48/5240	12.00	12.00	30	PASS
802.11ac VHT40	38/5190	12.22	12.22	30	PASS
	46/5230	12.51	12.51	30	PASS
802.11ac VHT80	42/5210	12.23	12.23	30	PASS
802.11ax HE20	36/5180	10.93	10.93	30	PASS
	40/5200	11.11	11.11	30	PASS
	48/5240	11.15	11.15	30	PASS
802.11ax HE40	38/5190	11.20	11.20	30	PASS
	46/5230	11.32	11.32	30	PASS
802.11ax HE80	42/5210	11.26	11.26	30	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	15.70	15.70	30	PASS
	157/5785	15.70	15.70	30	PASS
	165/5825	14.86	14.86	30	PASS
802.11n HT20	149/5745	14.35	14.35	30	PASS
	157/5785	14.36	14.36	30	PASS
	165/5825	13.79	13.79	30	PASS
802.11n HT40	151/5755	14.79	14.79	30	PASS
	159/5795	14.64	14.64	30	PASS
802.11ac VHT20	149/5745	12.32	12.32	30	PASS
	157/5785	12.36	12.36	30	PASS
	165/5825	11.72	11.72	30	PASS
802.11ac VHT40	151/5755	12.78	12.78	30	PASS
	159/5795	12.56	12.56	30	PASS
802.11ac VHT80	155/5775	12.78	12.78	30	PASS
802.11ax HE20	149/5745	11.48	11.48	30	PASS
	157/5785	11.39	11.39	30	PASS
	165/5825	10.83	10.83	30	PASS
802.11ax HE40	151/5755	11.68	11.68	30	PASS
	159/5795	11.45	11.45	30	PASS
802.11ax HE80	155/5775	11.77	11.77	30	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor					

SISO Antenna 2

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	14.35	14.35	30	PASS
	40/5200	14.28	14.28	30	PASS
	48/5240	14.53	14.53	30	PASS
802.11n HT20	36/5180	13.20	13.20	30	PASS
	40/5200	13.10	13.10	30	PASS
	48/5240	13.19	13.19	30	PASS
802.11n HT40	38/5190	13.87	13.87	30	PASS
	46/5230	14.17	14.17	30	PASS
802.11ac VHT20	36/5180	11.71	11.71	30	PASS
	40/5200	11.21	11.21	30	PASS
	48/5240	11.34	11.34	30	PASS
802.11ac VHT40	38/5190	11.65	11.65	30	PASS
	46/5230	12.11	12.11	30	PASS
802.11ac VHT80	42/5210	11.83	11.83	30	PASS
802.11ax HE20	36/5180	10.85	10.85	30	PASS
	40/5200	10.34	10.34	30	PASS
	48/5240	10.26	10.26	30	PASS
802.11ax HE40	38/5190	10.52	10.52	30	PASS
	46/5230	10.96	10.96	30	PASS
802.11ax HE80	42/5210	10.85	10.85	30	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	15.49	15.49	30	PASS
	157/5785	14.61	14.61	30	PASS
	165/5825	13.94	13.94	30	PASS
802.11n HT20	149/5745	14.31	14.31	30	PASS
	157/5785	13.31	13.31	30	PASS
	165/5825	15.13	15.13	30	PASS
802.11n HT40	151/5755	14.08	14.08	30	PASS
	159/5795	13.29	13.29	30	PASS
802.11ac VHT20	149/5745	11.87	11.87	30	PASS
	157/5785	10.88	10.88	30	PASS
	165/5825	10.27	10.27	30	PASS
802.11ac VHT40	151/5755	11.80	11.80	30	PASS
	159/5795	11.34	11.34	30	PASS
802.11ac VHT80	155/5775	11.49	11.49	30	PASS
802.11ax HE20	149/5745	10.80	10.80	30	PASS
	157/5785	11.00	11.00	30	PASS
	165/5825	10.39	10.39	30	PASS
802.11ax HE40	151/5755	10.66	10.66	30	PASS
	159/5795	10.29	10.29	30	PASS
802.11ax HE80	155/5775	10.53	10.53	30	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor					

CDD/MIMO Antenna

U-NII-1

Test Mode	Channel/ Frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
U-NII-1 802.11a	36/5180	15.59	15.59	15.47	15.47	18.54	30.00	PASS
	40/5200	15.91	15.91	15.80	15.80	18.87	30.00	PASS
	48/5240	15.84	15.84	15.33	15.33	18.60	30.00	PASS
802.11n HT20	36/5180	14.48	14.48	14.17	14.17	17.34	30.00	PASS
	40/5200	14.68	14.68	14.54	14.54	17.62	30.00	PASS
	48/5240	14.56	14.56	14.67	14.67	17.63	30.00	PASS
802.11n HT40	38/5190	13.40	13.40	13.50	13.50	16.46	30.00	PASS
	46/5230	13.70	13.70	14.17	14.17	16.95	30.00	PASS
802.11ac VHT20	36/5180	12.79	12.79	12.82	12.82	15.82	30.00	PASS
	40/5200	12.34	12.34	12.45	12.45	15.41	30.00	PASS
	48/5240	12.46	12.46	12.53	12.53	15.51	30.00	PASS
802.11ac VHT40	38/5190	12.49	12.49	12.57	12.57	15.54	30.00	PASS
	46/5230	12.75	12.75	12.83	12.83	15.80	30.00	PASS
802.11ac VHT80	42/5210	12.56	12.56	12.68	12.68	15.63	30.00	PASS
802.11ax HE20	36/5180	11.32	11.32	11.61	11.61	14.48	30.00	PASS
	40/5200	11.21	11.21	11.42	11.42	14.33	30.00	PASS
	48/5240	11.43	11.43	11.52	11.52	14.49	30.00	PASS
802.11ax HE40	38/5190	11.45	11.45	11.61	11.61	14.54	30.00	PASS
	46/5230	11.62	11.62	11.70	11.70	14.67	30.00	PASS
802.11ax HE80	42/5210	11.36	11.36	11.98	11.98	14.69	30.00	PASS

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power $=10\log(10^{(\text{Power antenna1 in dBm}/10)}+10^{(\text{Power antenna2 in dBm}/10)})$.

2. The manufacturer declared the transmitter output signals is CDD mode And N_{ss}=1. According to KDB 662911 D01 Multiple Transmitter Output v02r01 2)f)(i): If all antennas have the same gain, Directional gain = G_{ANT} + Array Gain,

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};

Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

So directional gain = G_{ANT} + Array Gain =4+0=4 dBi<6dBi. So the power limit is 30dBm.

U-NII-3

Test Mode	Channel/ Frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
U-NII-1 802.11a	149/5745	15.57	15.57	15.95	15.95	18.77	30.00	PASS
	157/5785	15.39	15.39	15.25	15.25	18.33	30.00	PASS
	165/5825	14.86	14.86	15.87	15.87	18.40	30.00	PASS
802.11n HT20	149/5745	14.42	14.42	14.20	14.20	17.32	30.00	PASS
	157/5785	14.46	14.46	14.87	14.87	17.68	30.00	PASS
	165/5825	14.41	14.41	14.99	14.99	17.72	30.00	PASS
802.11n HT40	151/5755	14.89	14.89	14.99	14.99	17.95	30.00	PASS
	159/5795	14.95	14.95	14.67	14.67	17.82	30.00	PASS
802.11ac VHT20	149/5745	12.04	12.04	12.31	12.31	15.19	30.00	PASS
	157/5785	11.88	11.88	12.22	12.22	15.07	30.00	PASS
	165/5825	11.45	11.45	12.71	12.71	15.13	30.00	PASS
802.11ac VHT40	151/5755	11.95	11.95	12.90	12.90	15.46	30.00	PASS
	159/5795	11.56	11.56	12.82	12.82	15.24	30.00	PASS
802.11ac VHT80	155/5775	11.90	11.90	10.78	10.78	14.38	30.00	PASS
802.11ax HE20	149/5745	11.34	11.34	11.97	11.97	14.68	30.00	PASS
	157/5785	11.37	11.37	10.87	10.87	14.14	30.00	PASS
	165/5825	11.67	11.67	10.83	10.83	14.28	30.00	PASS
802.11ax HE40	151/5755	11.29	11.29	11.57	11.57	14.44	30.00	PASS
	159/5795	11.46	11.46	11.37	11.37	14.43	30.00	PASS
802.11ax HE80	155/5775	11.94	11.94	11.54	11.54	14.75	30.00	PASS

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power $=10\log(10^{(\text{Power antenna1 in dBm}/10)}+10^{(\text{Power antenna2 in dBm}/10)}$.

2. The manufacturer declared the transmitter output signals is CDD mode And N_{ss}=1. According to KDB 662911 D01 Multiple Transmitter Output v02r01 2)f)(i): If all antennas have the same gain, Directional gain = G_{ANT} + Array Gain,

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};

Array Gain = 5 $\log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less, for 20-MHz channel widths with NANT ≥ 5.

So directional gain = GANT + Array Gain =4+0=4 dBi<6dBi. So the power limt is 30dBm.

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
12	-20	5199.998440	5199.996619	5199.988982	5199.984244
12	-10	5199.996726	5199.995894	5199.985683	5199.976560
12	0	5199.987032	5199.986284	5199.981024	5199.974057
12	10	5199.979836	5199.978668	5199.977888	5199.970095
12	20	5199.979761	5199.971505	5199.969109	5199.968367
12	30	5199.971907	5199.964294	5199.962217	5199.960621
12	40	5199.969264	5199.957962	5199.952409	5199.958615
12	50	5199.966426	5199.952024	5199.942417	5199.949631
10.8	20	5199.964076	5199.950057	5199.938919	5199.947533
13.2	20	5199.955013	5199.942978	5199.936389	5199.941089
Max. ΔMHz		-0.044986842	-0.05702152	-0.063611068	-0.05891125
PPM		-8.65131586	-10.96567685	-12.23289772	-11.32908663

Voltage (V)	Temperature (°C)	U-NII-3 Test Results			
		5785MHz			
		1min	2min	5min	10min
12	-20	5785.005302	5784.996262	5784.988310	5784.979810
12	-10	5785.004410	5784.989608	5784.984967	5784.976713
12	0	5785.001492	5784.980183	5784.981816	5784.973878
12	10	5784.996677	5784.979435	5784.972400	5784.971566
12	20	5784.994225	5784.976969	5784.970373	5784.967090
12	30	5784.992529	5784.970703	5784.969591	5784.965860
12	40	5784.991714	5784.970660	5784.965280	5784.958042
12	50	5784.990731	5784.967435	5784.957602	5784.950617
10.8	20	5784.985062	5784.966389	5784.949765	5784.948394
13.2	20	5784.976046	5784.961888	5784.946863	5784.938864
Max. ΔMHz		-0.023953736	-0.038111698	-0.053136768	-0.061135676
PPM		-4.140663031	-6.588020454	-9.185266705	-10.56796474

5.4. Power Spectral Density

Ambient condition

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

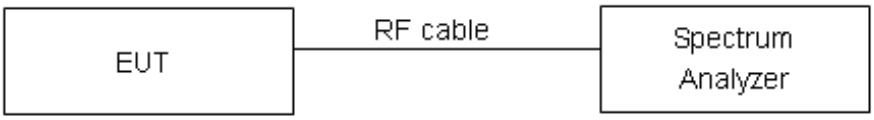
Method of Measurement

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
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.

Frequency Bands/MHz	Limits
5150-5250	17/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:

SISO Antenna 1

U-NII-1

Mode	Channel Number	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	36	4.69	4.69	17	PASS
	40	4.74	4.74	17	PASS
	48	4.72	4.72	17	PASS
802.11n HT20	36	3.26	3.26	17	PASS
	40	2.97	2.97	17	PASS
	48	3.47	3.47	17	PASS
802.11n HT40	38	0.50	0.50	17	PASS
	46	0.71	0.71	17	PASS
802.11ac VHT20	36	1.14	1.14	17	PASS
	40	1.39	1.39	17	PASS
	48	1.17	1.17	17	PASS
802.11ac VHT40	38	-1.62	-1.62	17	PASS
	46	-1.19	-1.19	17	PASS
802.11ac VHT80	42	-4.62	-4.62	17	PASS
802.11ax HE20	36	-0.16	-0.16	17	PASS
	40	-0.68	-0.68	17	PASS
	48	-0.89	-0.89	17	PASS
802.11ax HE40	38	-3.66	-3.66	17	PASS
	46	-3.01	-3.01	17	PASS
802.11ax HE80	42	-6.23	-6.23	17	PASS
Note: 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	2.08	2.35	30	PASS
	157	1.78	2.05	30	PASS
	165	1.08	1.35	30	PASS
802.11n HT20	149	0.21	0.48	30	PASS
	157	0.49	0.76	30	PASS
	165	-0.33	-0.06	30	PASS
802.11n HT40	151	-2.34	-2.07	30	PASS
	159	-2.59	-2.32	30	PASS
802.11ac VHT20	149	-1.81	-1.54	30	PASS
	157	-1.79	-1.52	30	PASS
	165	-2.53	-2.26	30	PASS
802.11ac VHT40	151	-4.39	-4.12	30	PASS
	159	-4.47	-4.20	30	PASS
802.11ac VHT80	155	-7.52	-7.25	30	PASS
802.11ax HE20	151	-0.96	-0.69	30	PASS
	159	-1.13	-0.86	30	PASS
	149	-1.48	-1.21	30	PASS
802.11ax HE40	157	-4.00	-3.73	30	PASS
	165	-4.51	-4.24	30	PASS
802.11ax HE80	151	-7.22	-6.95	30	PASS
Note:PSD=Read Value+Duty cycle+10*LOG(500/470) correction factor					

SISO Antenna 2

U-NII-1

Mode	Channel Number	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	36	4.13	4.13	17	PASS
	40	3.63	3.63	17	PASS
	48	4.05	4.05	17	PASS
802.11n HT20	36	2.35	2.35	17	PASS
	40	2.48	2.48	17	PASS
	48	2.51	2.51	17	PASS
802.11n HT40	38	0.13	0.13	17	PASS
	46	0.39	0.39	17	PASS
802.11ac VHT20	36	0.81	0.81	17	PASS
	40	0.09	0.09	17	PASS
	48	0.60	0.60	17	PASS
802.11ac VHT40	38	-2.03	-2.03	17	PASS
	46	-1.54	-1.54	17	PASS
802.11ac VHT80	42	-5.22	-5.22	17	PASS
802.11ax HE20	36	0.14	0.14	17	PASS
	40	-0.72	-0.72	17	PASS
	48	-0.45	-0.45	17	PASS
802.11ax HE40	38	-3.36	-3.36	17	PASS
	46	-2.73	-2.73	17	PASS
802.11ax HE80	42	-0.14	-0.14	17	PASS
Note: 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	1.77	2.04	30	PASS
	157	0.69	0.96	30	PASS
	165	0.08	0.35	30	PASS
802.11n HT20	149	0.27	0.54	30	PASS
	157	-0.83	-0.56	30	PASS
	165	1.25	1.52	30	PASS
802.11n HT40	151	-3.09	-2.82	30	PASS
	159	-3.95	-3.68	30	PASS
802.11ac VHT20	149	-2.39	-2.12	30	PASS
	157	-3.31	-3.04	30	PASS
	165	-3.79	-3.52	30	PASS
802.11ac VHT40	151	-5.26	-4.99	30	PASS
	159	-5.77	-5.50	30	PASS
802.11ac VHT80	155	-8.73	-8.46	30	PASS
802.11ax HE20	151	-0.24	0.03	30	PASS
	159	-1.27	-1.00	30	PASS
	149	-1.46	-1.19	30	PASS
802.11ax HE40	157	-2.95	-2.68	30	PASS
	165	-3.57	-3.30	30	PASS
802.11ax HE80	151	-6.45	-6.18	30	PASS
Note:PSD=Read Value+Duty cycle+10*LOG(500/470) correction factor					

CDD/MIMO Antenna

U-NII-1

Mode	Channel/ Frequency (MHz)	Power Spectral Density					Limit (dBm /MHz)	Conclusion
		Antenna 1		Antenna 2		Total Power (dBm /MHz)		
		Read Value (dBm/MHz)	PSD (dBm /MHz)	Read Value (dBm/MHz)	PSD (dBm /MHz)			
802.11a	36/5180	6.68	6.68	6.83	6.83	9.77	15.99	PASS
	40/5200	6.68	6.68	7.05	7.05	9.88	15.99	PASS
	48/5240	7.17	7.17	7.50	7.50	10.35	15.99	PASS
802.11n HT20	36/5180	5.21	5.21	5.28	5.28	8.26	15.99	PASS
	40/5200	5.26	5.26	5.70	5.70	8.50	15.99	PASS
	48/5240	5.71	5.71	6.36	6.36	9.06	15.99	PASS
802.11n HT40	38/5190	0.78	0.78	0.80	0.80	3.80	15.99	PASS
	46/5230	1.28	1.28	2.19	2.19	4.77	15.99	PASS
802.11ac VHT20	36/5180	3.1	3.10	3.76	3.76	6.45	15.99	PASS
	40/5200	3.37	3.37	3.75	3.75	6.57	15.99	PASS
	48/5240	3.68	3.68	3.73	3.73	6.72	15.99	PASS
802.11ac VHT40	38/5190	0.53	3.10	0.72	0.72	5.08	15.99	PASS
	46/5230	0.45	3.37	0.77	0.77	5.27	15.99	PASS
802.11ac VHT80	42/5210	-3.17	3.68	-2.84	-2.84	4.55	15.99	PASS
802.11ax HE20	36/5180	1.89	0.53	2.72	2.72	4.77	15.99	PASS
	40/5200	2.23	0.45	2.56	2.56	4.64	15.99	PASS
	48/5240	2.53	-3.17	2.69	2.69	3.69	15.99	PASS
802.11ax HE40	38/5190	-1.21	-1.21	-1.12	-1.12	1.85	15.99	PASS
	46/5230	-1.28	-1.28	-0.41	-0.41	2.19	15.99	PASS
802.11ax HE80	42/5210	-4.06	-4.06	-3.70	-3.70	-0.87	15.99	PASS

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

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a),the power spectral density=$10\log(10^{(\text{PSD antenna1 in dBm/10})}+10^{(\text{PSD antenna2 in dBm/10})})$.

3. The manufacturer declared the transmitter output signals is CDD mode And Nss=1. According to KDB 662911 D01 Multiple Transmitter Output v02r01 2)f)(i): If all antennas have the same gain, Directional gain = GANT + Array Gain, For PSD measurements on all devices, Array Gain=10log(Nant/Nss)dB, so directional gain=G_{ANT}+Array Gain=4+10log (2/1)=7.01>6 dBi. So the PSD limt is 17-(directional gain-6 dBi) =17-(7.01-6)=15.99 dBm.

U-NII-3

Mode	Channel/ Frequency (MHz)	Power Spectral Density					Limit (dBm /MHz)	Conclusion
		Antenna 1		Antenna 2		Total Power (dBm /MHz)		
		Read Value (dBm/MHz)	PSD (dBm /MHz)	Read Value (dBm/MHz)	PSD (dBm /MHz)			
802.11a	149/5745	3.73	4.00	3.62	3.89	6.96	28.99	PASS
	157/5785	3.67	3.94	2.15	2.42	6.26	28.99	PASS
	165/5825	2.89	3.16	2.15	2.42	5.82	28.99	PASS
802.11n HT20	149/5745	2.00	2.27	2.12	2.39	5.34	28.99	PASS
	157/5785	2.11	2.38	2.76	3.03	5.73	28.99	PASS
	165/5825	2.03	2.30	2.00	2.27	5.30	28.99	PASS
802.11n HT40	151/5755	0.13	0.40	0.49	0.76	3.59	28.99	PASS
	159/5795	-0.54	-0.27	-0.05	0.22	2.99	28.99	PASS
802.11ac VHT20	149/5745	0.54	0.81	0.97	1.24	4.04	28.99	PASS
	157/5785	0.64	0.91	0.59	0.86	3.90	28.99	PASS
	165/5825	0.04	0.31	0.00	0.27	3.30	28.99	PASS
802.11ac VHT40	151/5755	-2.05	-1.78	-1.66	-1.39	1.43	28.99	PASS
	159/5795	-2.34	-2.07	-2.14	-1.87	1.04	28.99	PASS
802.11ac VHT80	155/5775	-5.08	-4.81	-4.81	-4.54	-1.66	28.99	PASS
802.11ax HE20	36/5180	-0.67	-0.40	-0.25	0.02	2.83	28.99	PASS
	40/5200	-0.89	-0.62	-0.71	-0.44	2.48	28.99	PASS
	48/5240	-0.85	-0.58	-1.29	-1.02	2.22	28.99	PASS
802.11ax HE40	38/5190	-3.08	-2.81	0.80	1.07	2.56	28.99	PASS
	46/5230	-3.86	-3.59	-4.13	-3.86	-0.71	28.99	PASS
802.11ax HE80	42/5210	-6.20	-5.93	-5.59	-5.32	-2.60	28.99	PASS

1. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a),the power spectral density=10log($10^{(\text{PSD antenna1 in dBm/10})}$+$10^{(\text{PSD antenna2 in dBm/10})}$)

2. The manufacturer declared the transmitter output signals is CDD mode And Nss=1. According to KDB 662911 D01 Multiple Transmitter Output v02r01 2)f)(i): If all antennas have the same gain, Directional gain = GANT + Array Gain, For PSD measurements on all devices, Array Gain=10log(Nant/Nss)dB, so directional gain=G_{ANT}+Array Gain=4+10log (2/1)=7.01>6 dBi. So the PSD limit is 30-(directional gain-6 dBi) =30-(7.01-6)=28.99 dBm.

SISO Antenna 1

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

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

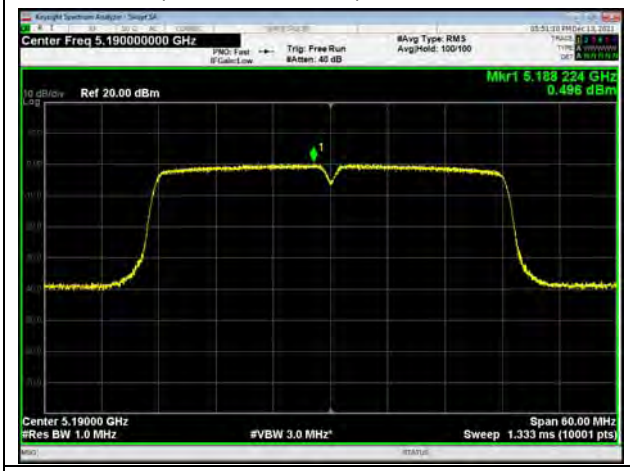
U-NII-1, 802.11a, Channel No.: 40

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

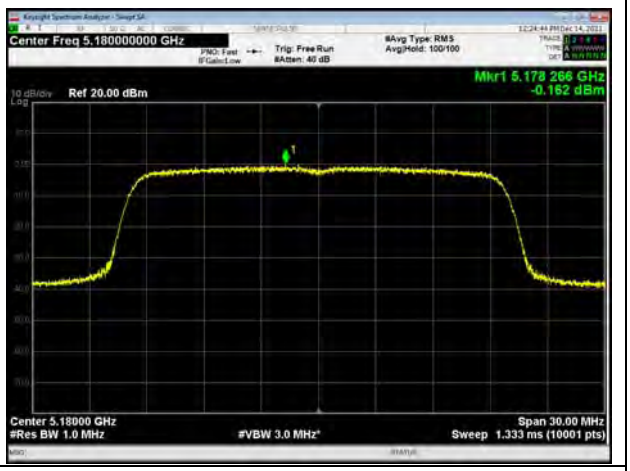
U-NII-1, 802.11n HT40, Channel No.: 38



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

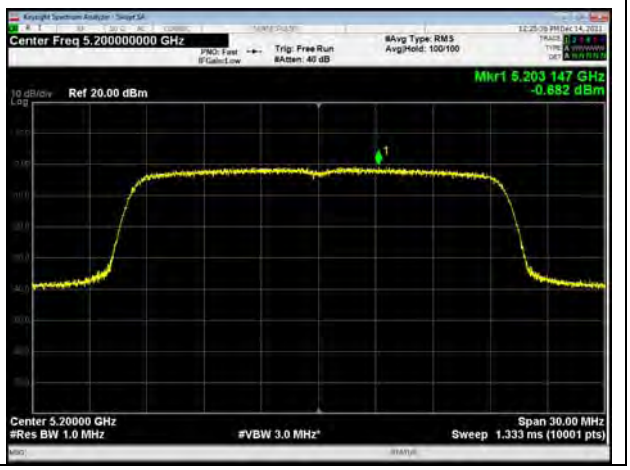
U-NII-1, 802.11ac VHT20, Channel No.: 36

U-NII-1, 802.11ax HE20, Channel No.: 36



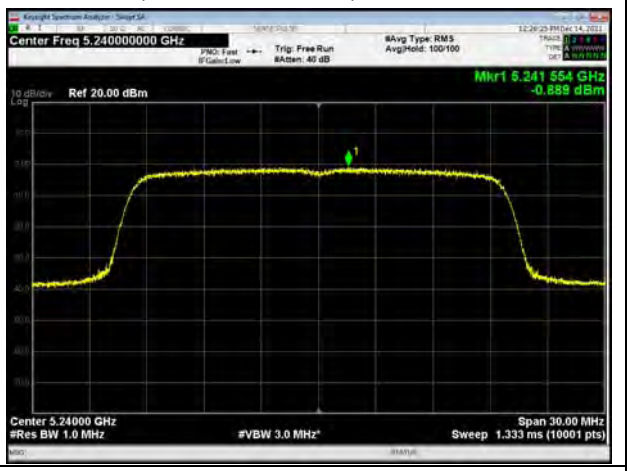
U-NII-1, 802.11ac VHT20, Channel No.: 40

U-NII-1, 802.11ax HE20, Channel No.: 40

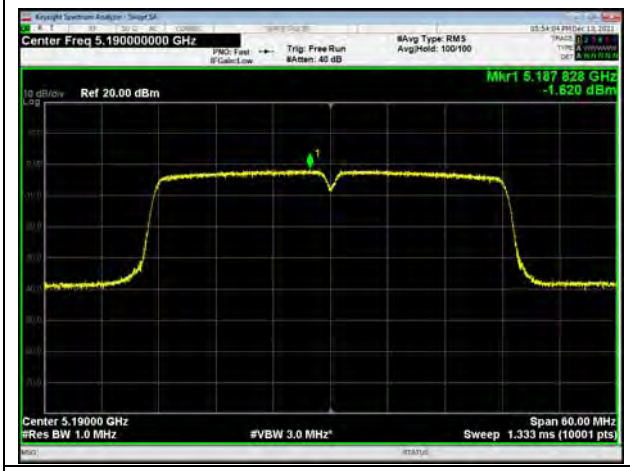


U-NII-1, 802.11ac VHT20, Channel No.: 48

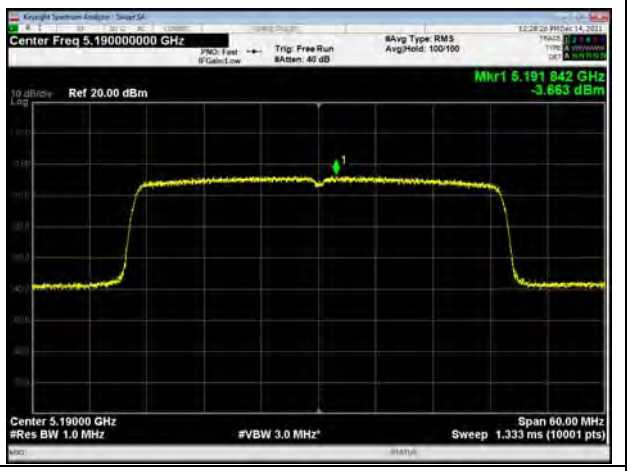
U-NII-1, 802.11ax HE20, Channel No.: 48



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

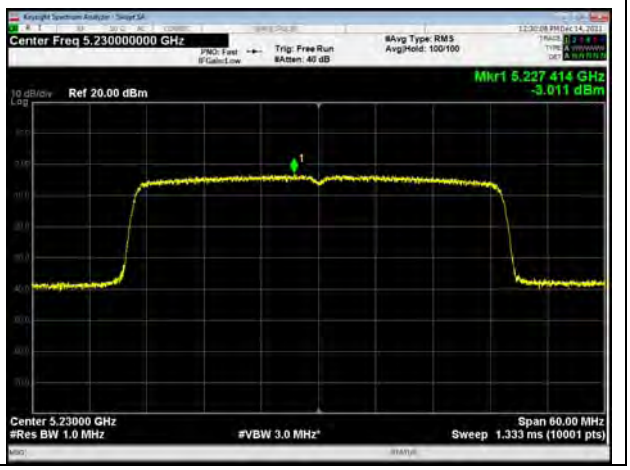


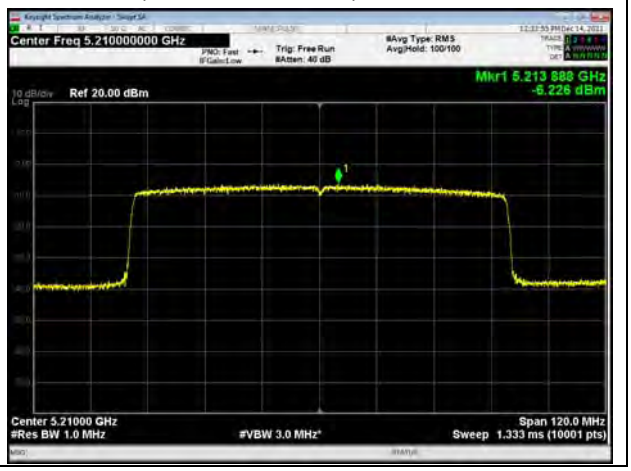
U-NII-1, 802.11ax HE40, Channel No.: 38



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

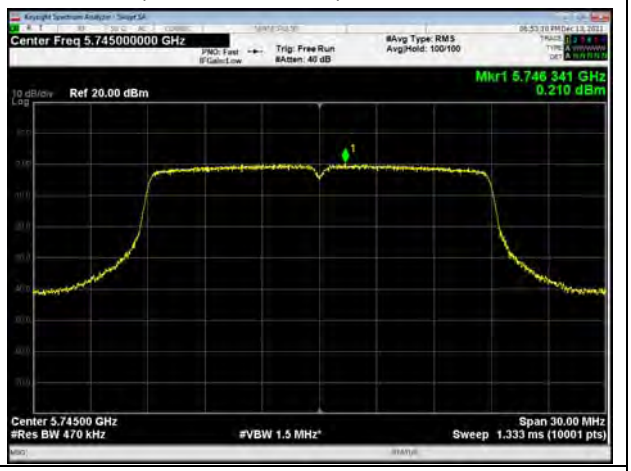
U-NII-1, 802.11ax HE40, Channel No.: 46



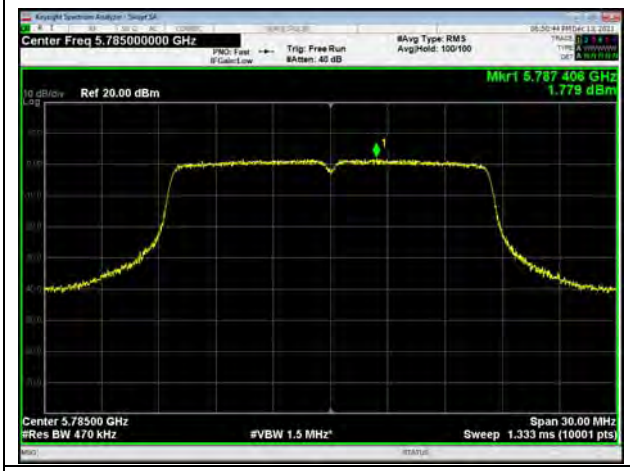
U-NII-1, 802.11ac VHT80, Channel No.: 42	U-NII-1, 802.11ax HE80, Channel No.: 42
	

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

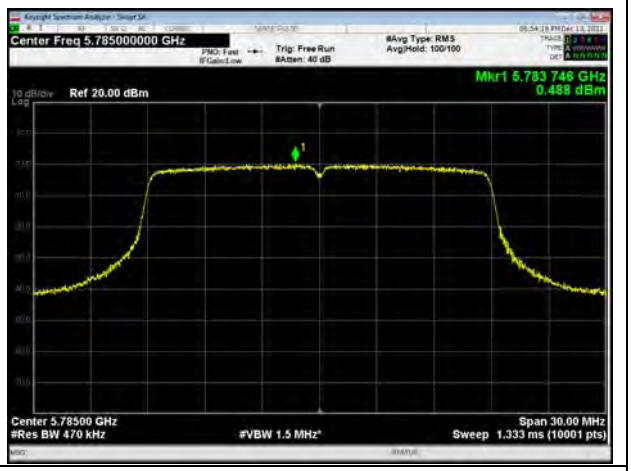
U-NII-3, 802.11n HT20, Channel No.: 149



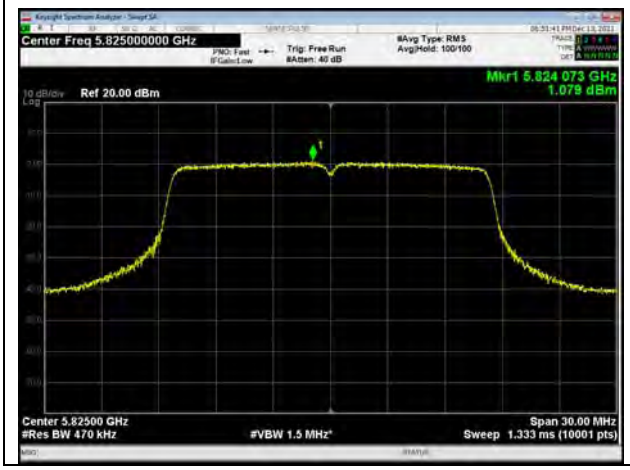
U-NII-3, 802.11a, Channel No.: 157



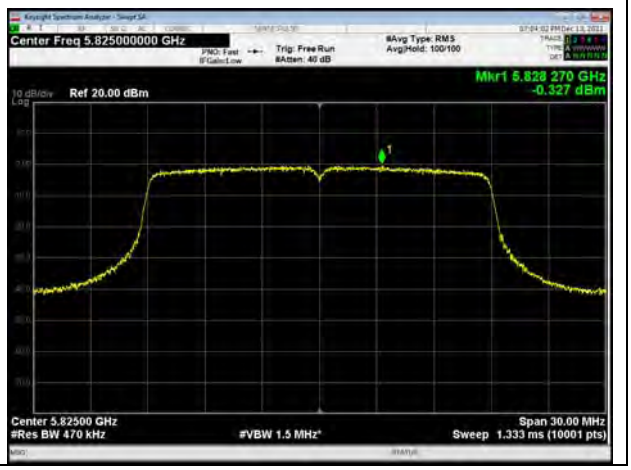
U-NII-3, 802.11n HT20, Channel No.: 157



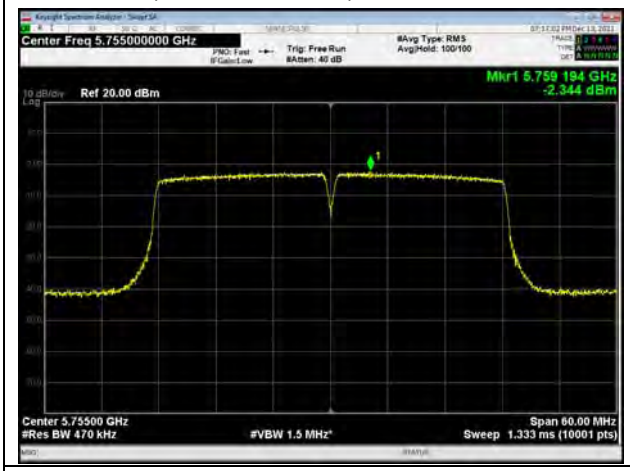
U-NII-3, 802.11a, Channel No.: 165



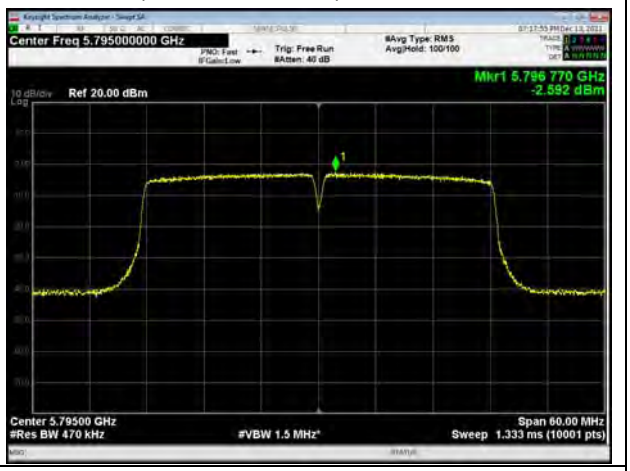
U-NII-3, 802.11n HT20, Channel No.: 165



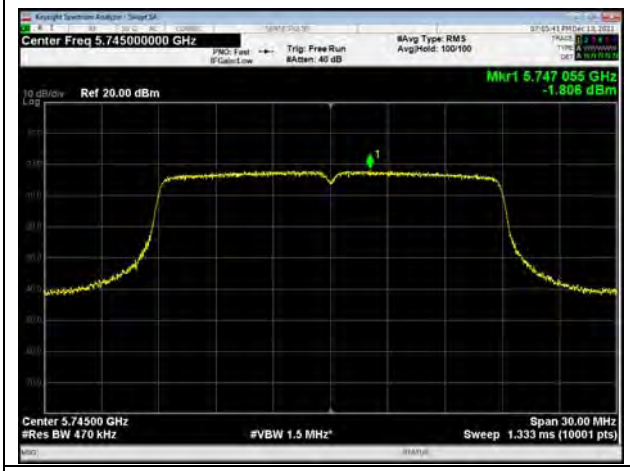
U-NII-3, 802.11n HT40, Channel No.: 151



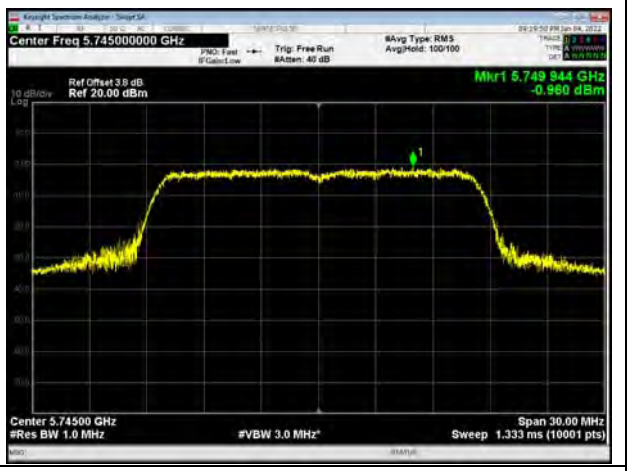
U-NII-3, 802.11n HT40, Channel No.: 159



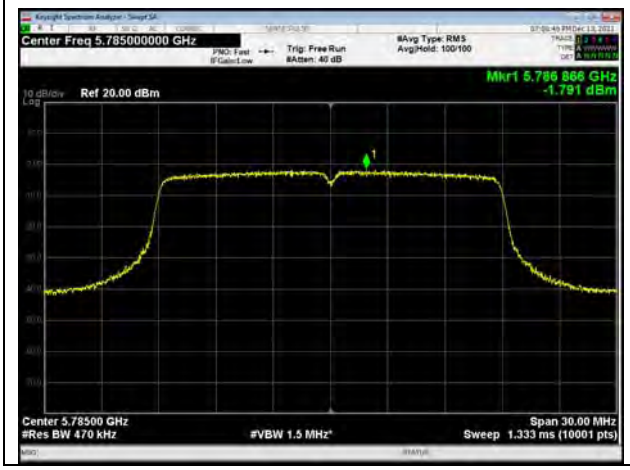
U-NII-3, 802.11ac VHT20, Channel No.: 149



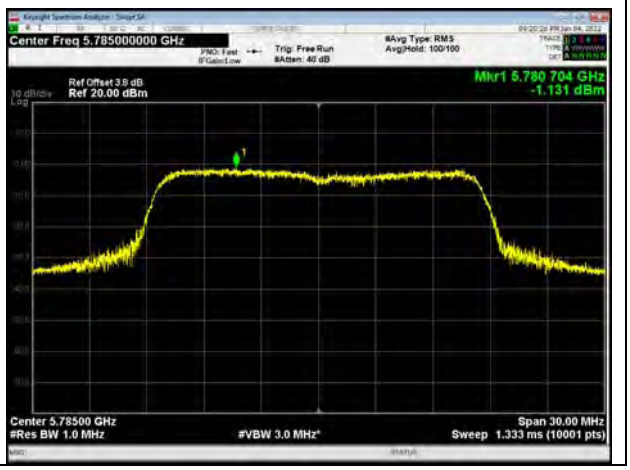
U-NII-3, 802.11ax HE20, Channel No.: 149



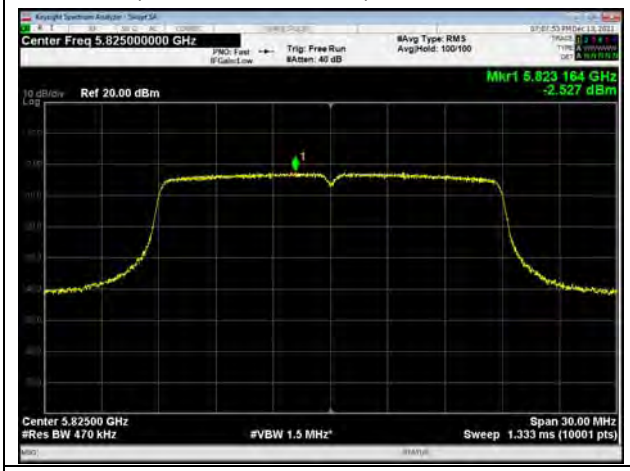
U-NII-3, 802.11ac VHT20, Channel No.: 157



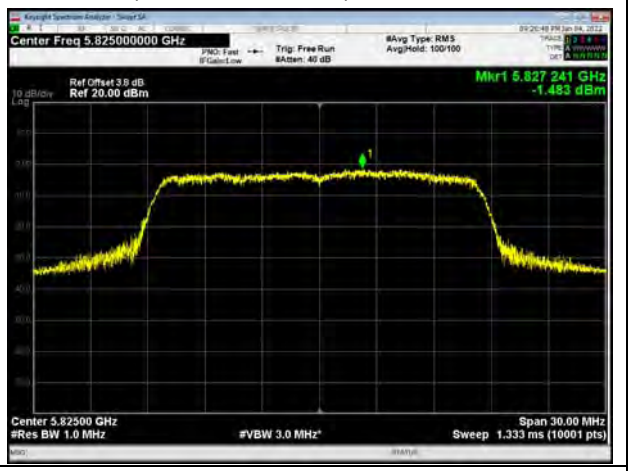
U-NII-3, 802.11ax HE20, Channel No.: 157



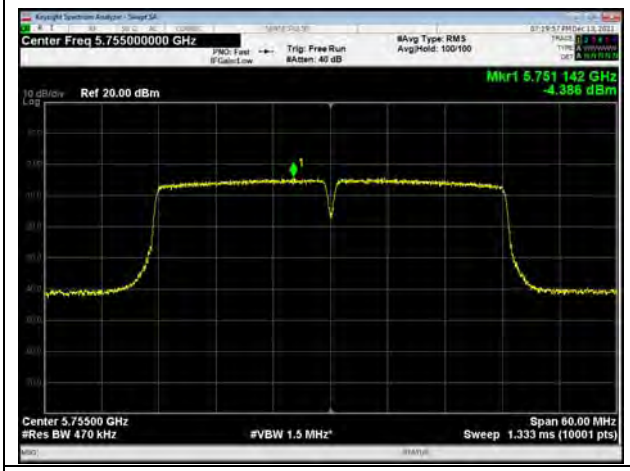
U-NII-3, 802.11ac VHT20, Channel No.: 165



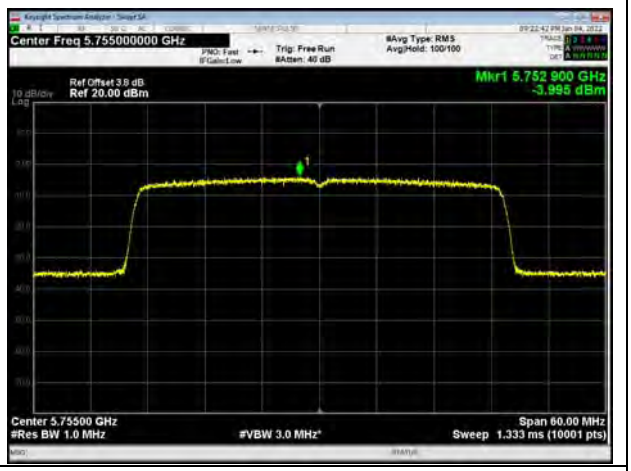
U-NII-3, 802.11ax HE20, Channel No.: 165



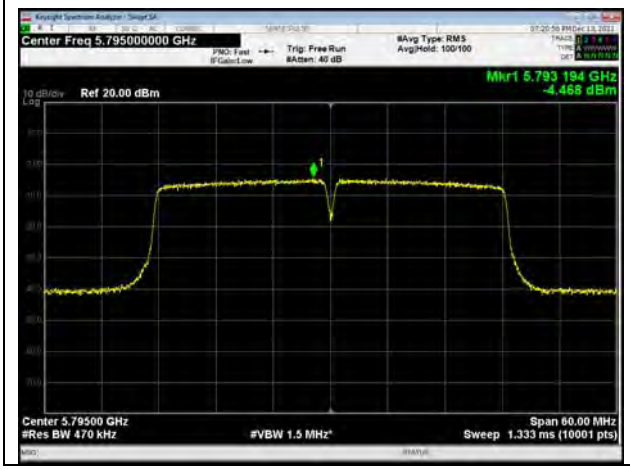
U-NII-3, 802.11ac VHT40, Channel No.: 151



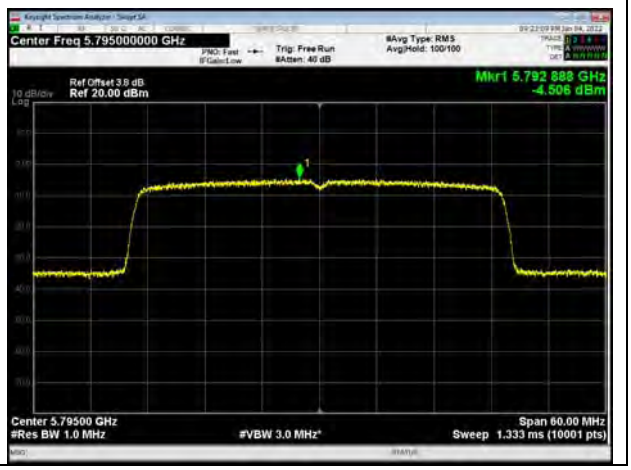
U-NII-3, 802.11ax HE40, Channel No.: 151

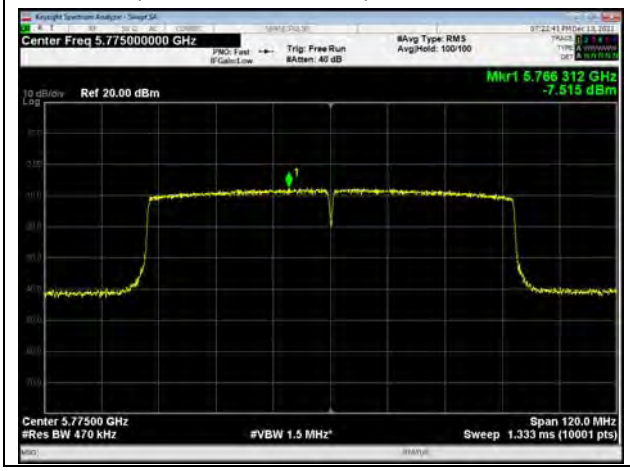
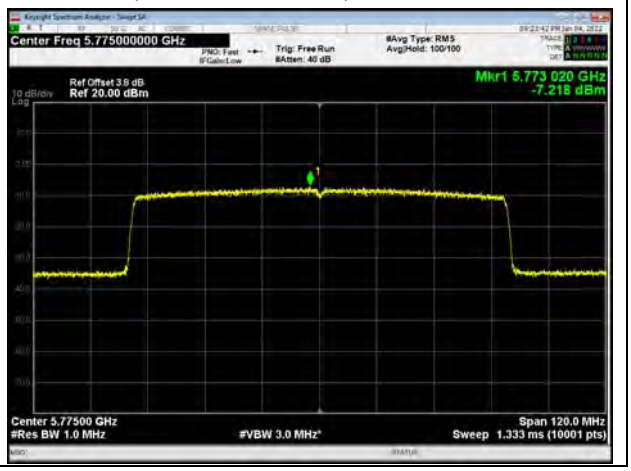


U-NII-3, 802.11ac VHT40, Channel No.: 159



U-NII-3, 802.11ax HE40, Channel No.: 159



U-NII-3, 802.11ac VHT80, Channel No.: 155	U-NII-3, 802.11ax HE80, Channel No.: 155
	

SISO Antenna 2

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

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

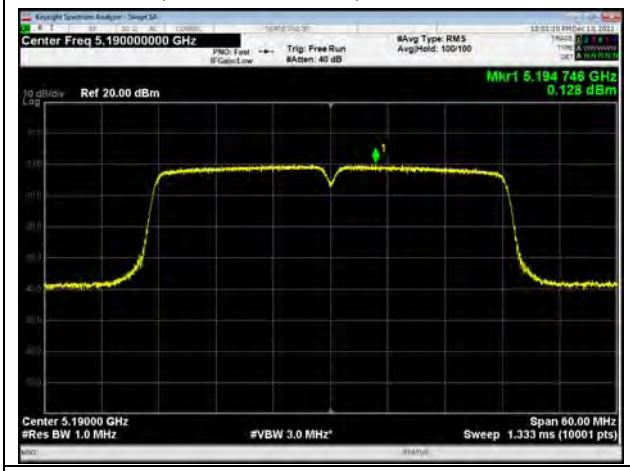
U-NII-1, 802.11a, Channel No.: 40

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

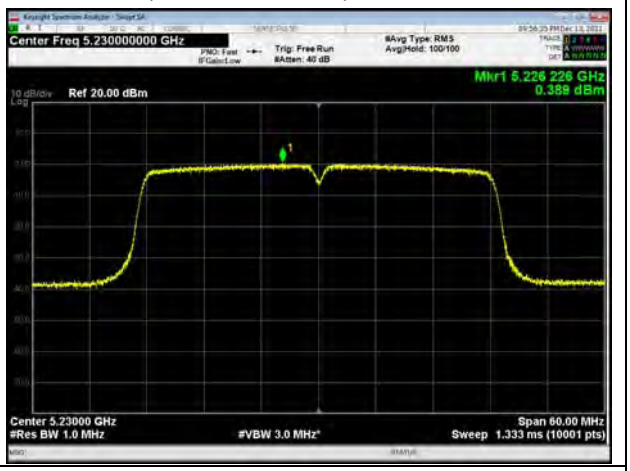
U-NII-1, 802.11a, Channel No.: 48

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

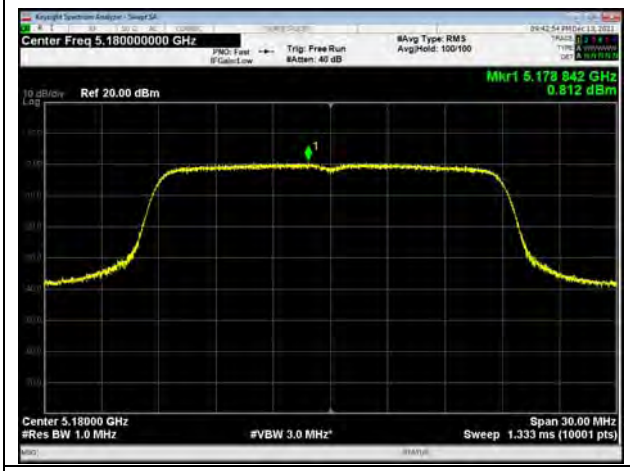
U-NII-1, 802.11n HT40, Channel No.: 38



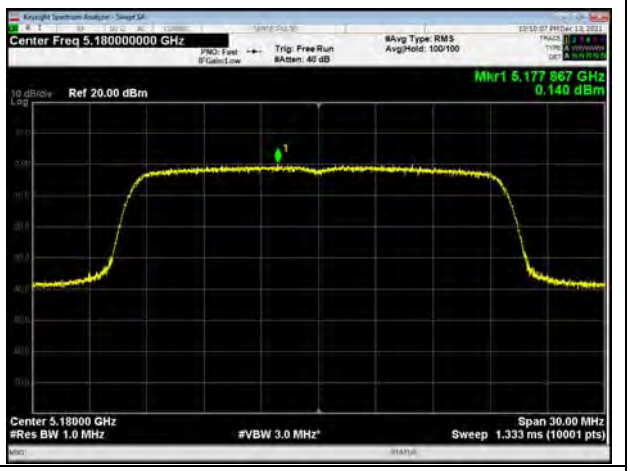
U-NII-1, 802.11n HT40, Channel No.: 46



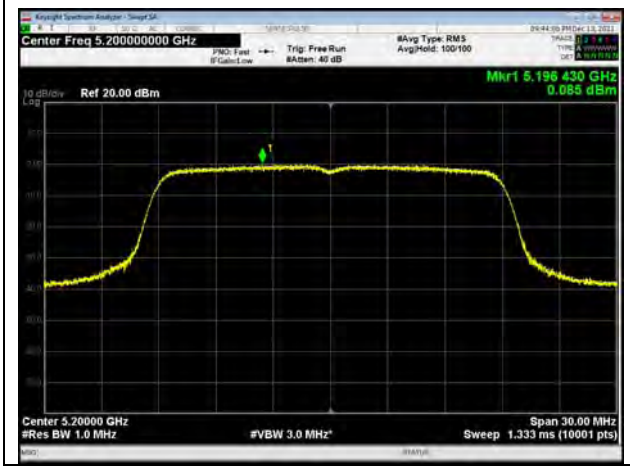
U-NII-1, 802.11ac VHT20, Channel No.: 36



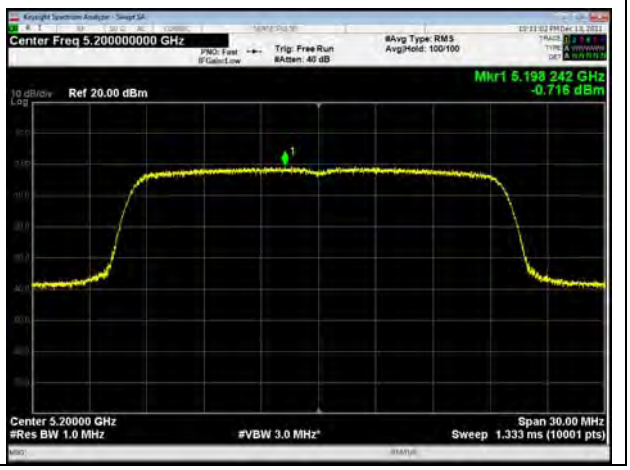
U-NII-1, 802.11ax HE20, Channel No.: 36



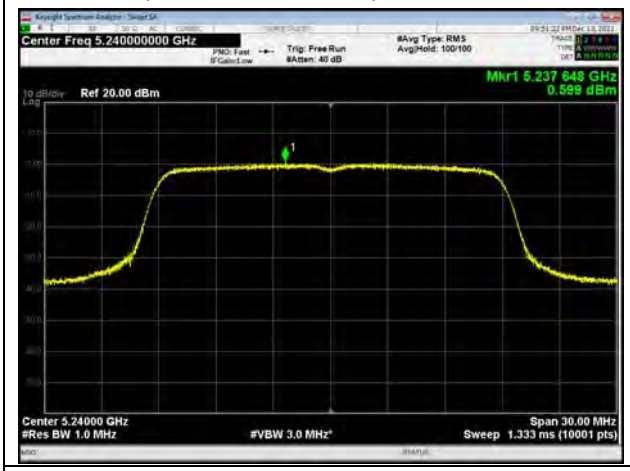
U-NII-1, 802.11ac VHT20, Channel No.: 40



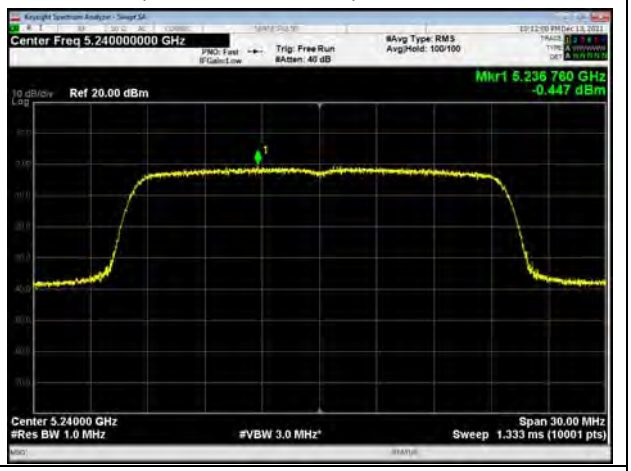
U-NII-1, 802.11ax HE20, Channel No.: 40



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

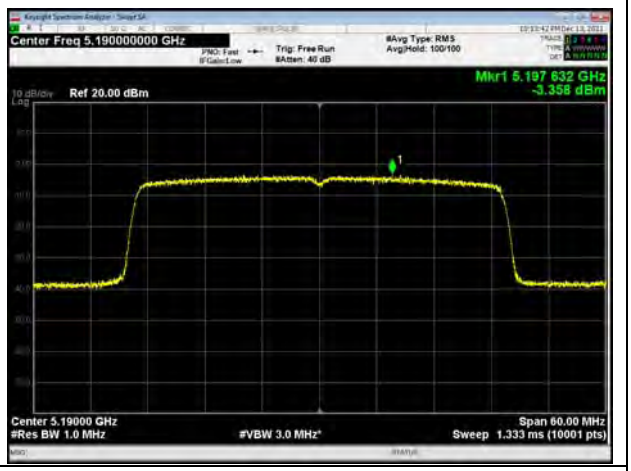


U-NII-1, 802.11ax HE20, Channel No.: 48

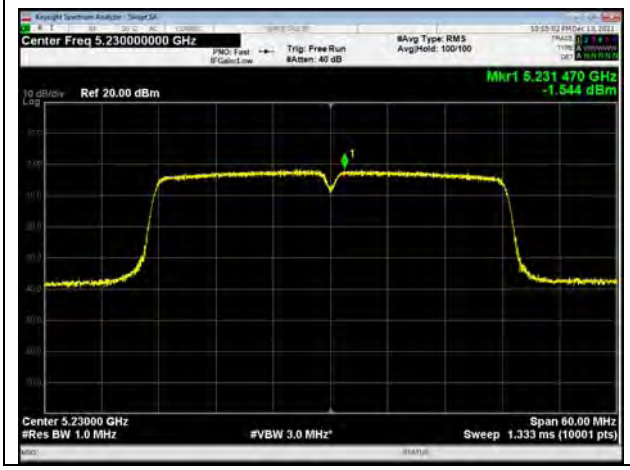


U-NII-1, 802.11ac VHT40, Channel No.: 38

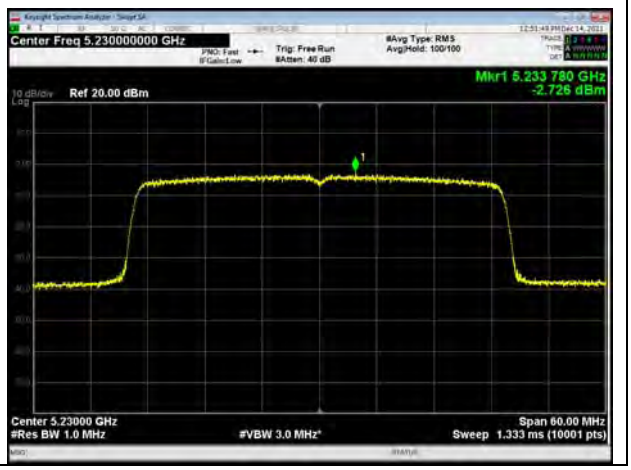
U-NII-1, 802.11ax HE40, Channel No.: 38

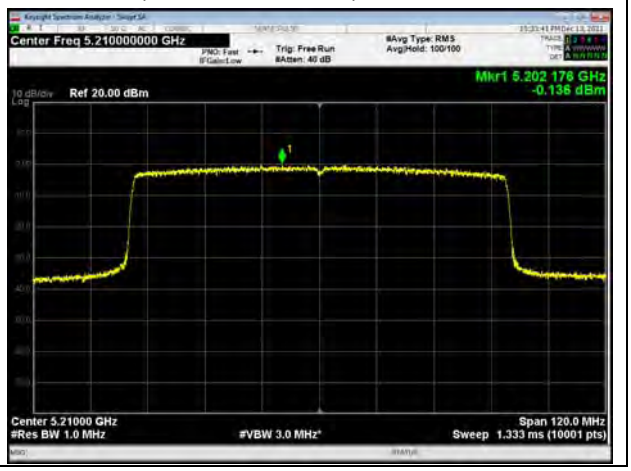


U-NII-1, 802.11ac VHT40, Channel No.: 46

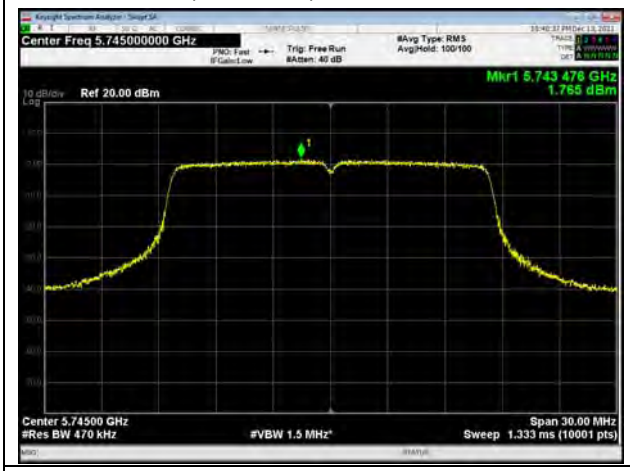


U-NII-1, 802.11ax HE40, Channel No.: 46

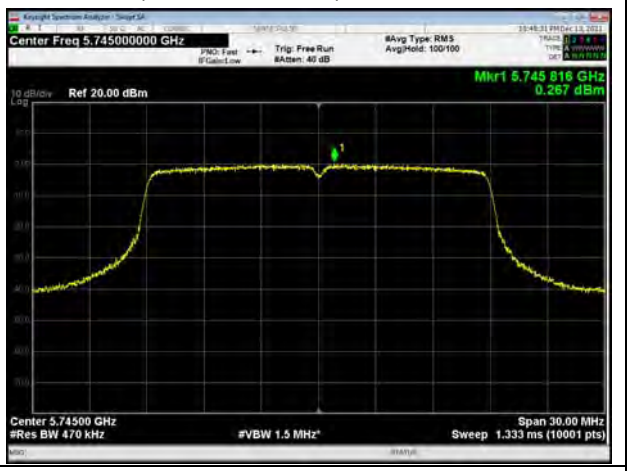


U-NII-1, 802.11ac VHT80, Channel No.: 42	U-NII-1, 802.11ax HE80, Channel No.: 42
	

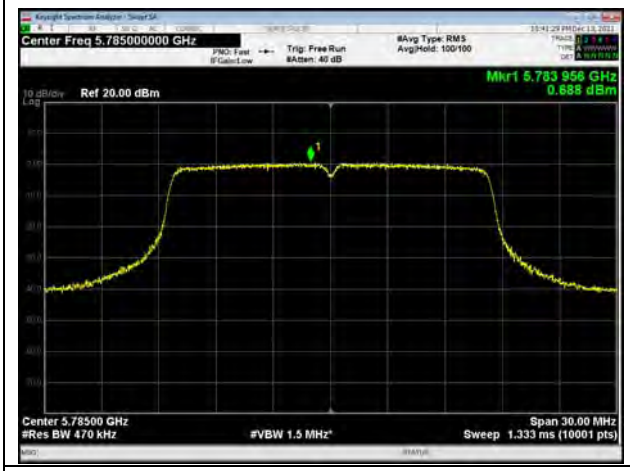
U-NII-3, 802.11a, Channel No.: 149



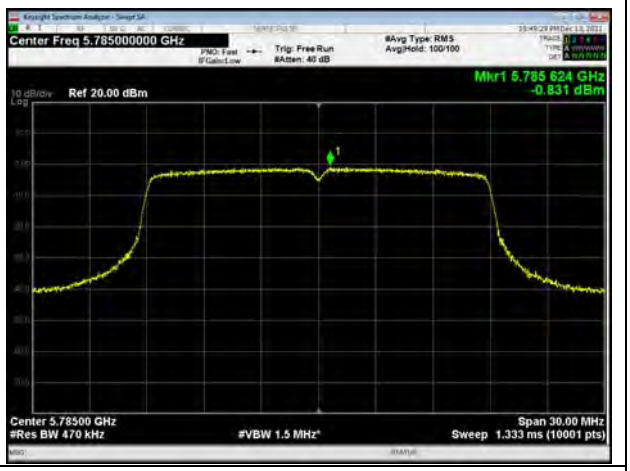
U-NII-3, 802.11n HT20, Channel No.: 149



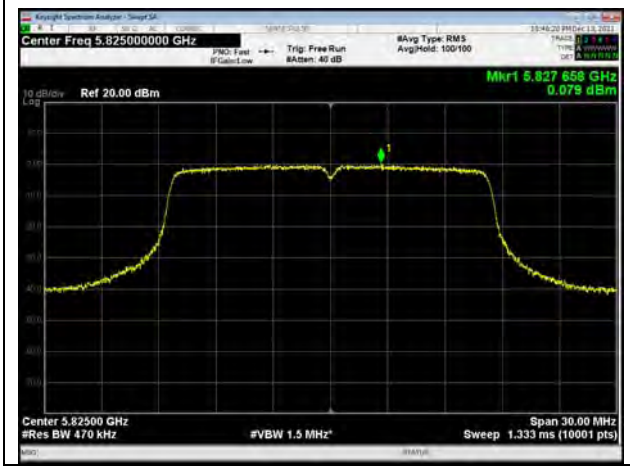
U-NII-3, 802.11a, Channel No.: 157



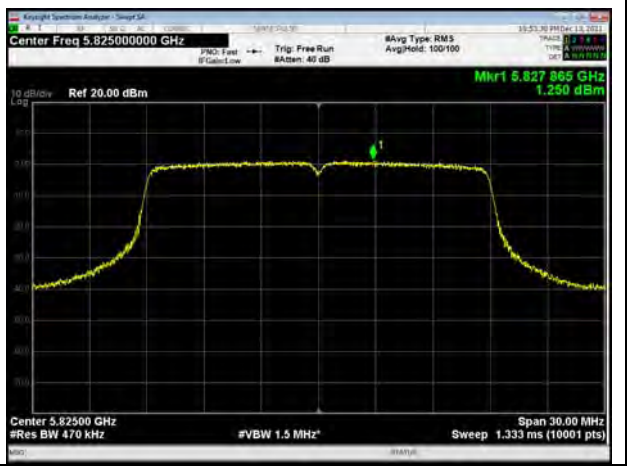
U-NII-3, 802.11n HT20, Channel No.: 157



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

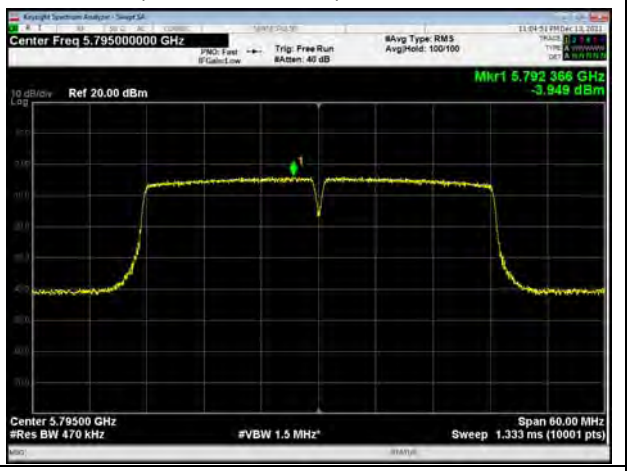


U-NII-3, 802.11n HT20, Channel No.: 165

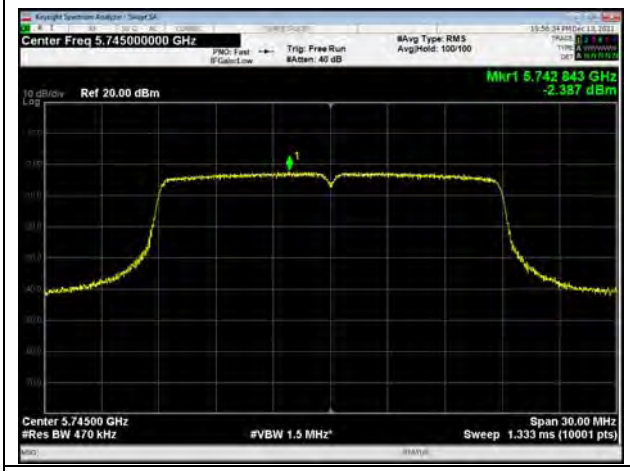


U-NII-3, 802.11n HT40, Channel No.: 151

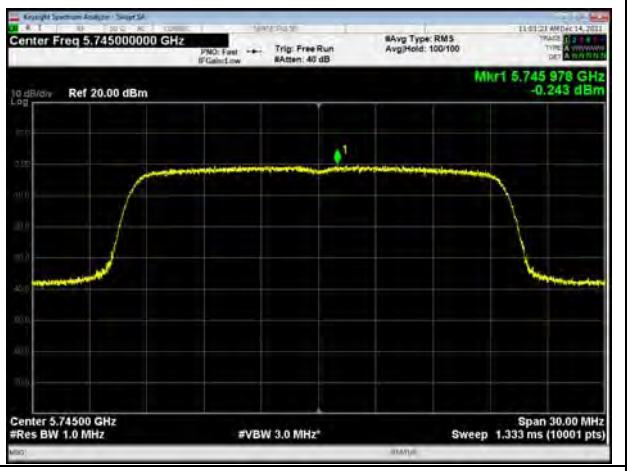
U-NII-3, 802.11n HT40, Channel No.: 159



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

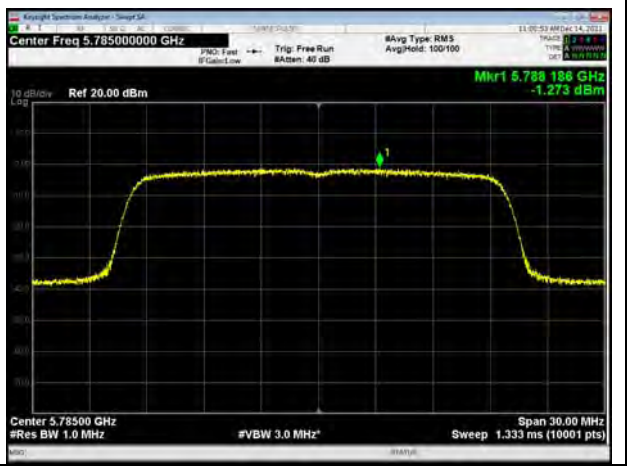


U-NII-3, 802.11ax HE20, Channel No.: 149

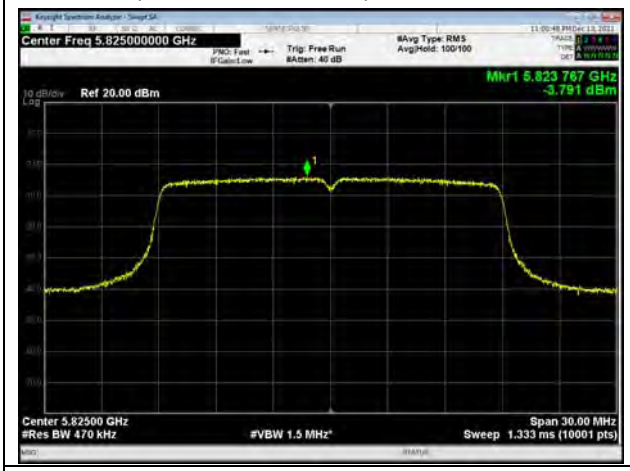


U-NII-3, 802.11ac VHT20, Channel No.: 157

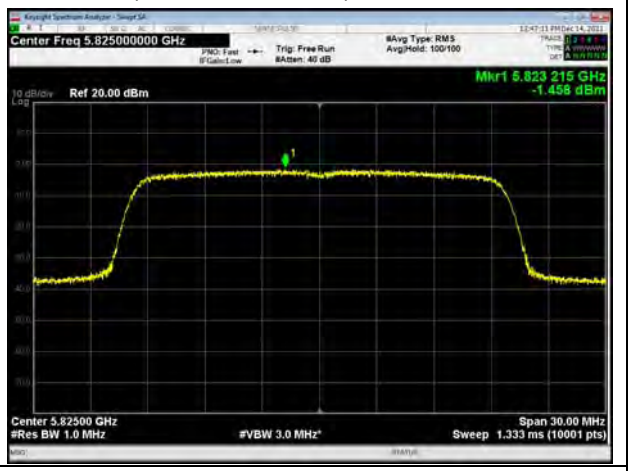
U-NII-3, 802.11ax HE20, Channel No.: 157



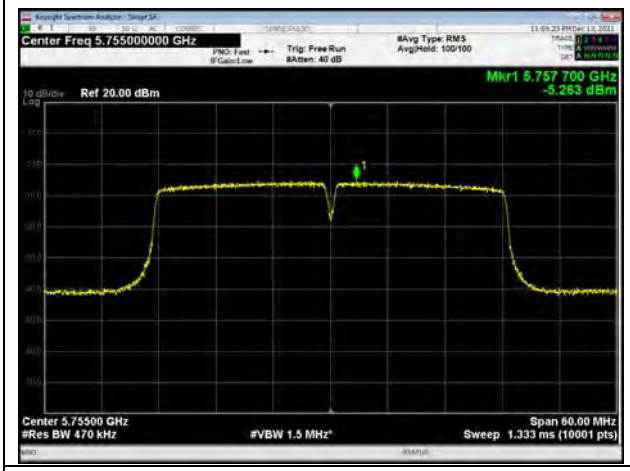
U-NII-3, 802.11ac VHT20, Channel No.: 165



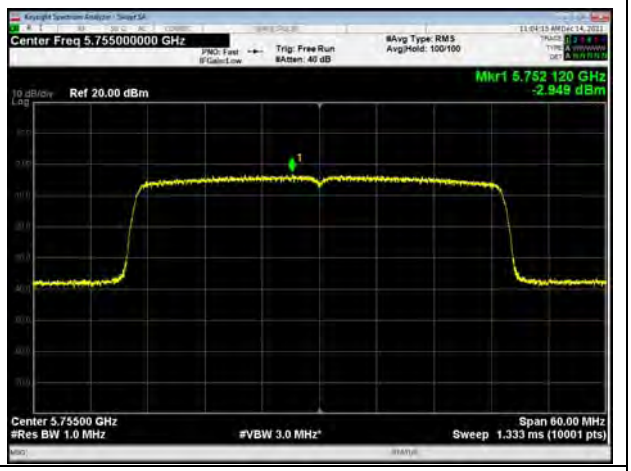
U-NII-3, 802.11ax HE20, Channel No.: 165



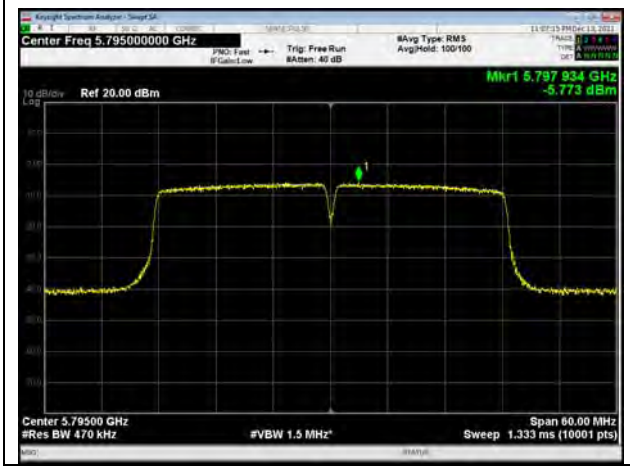
U-NII-3, 802.11ac VHT40, Channel No.: 151



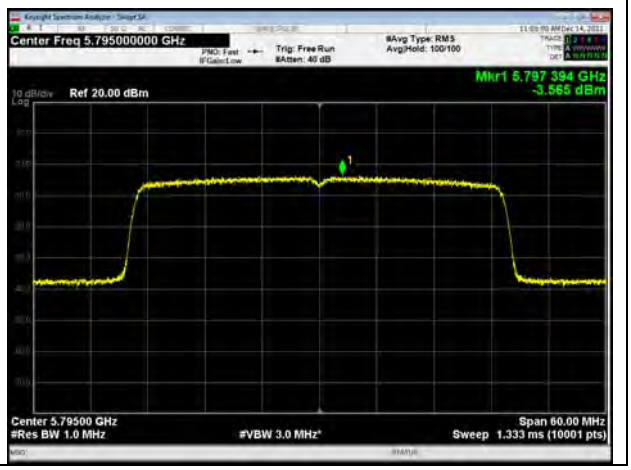
U-NII-3, 802.11ax HE40, Channel No.: 151

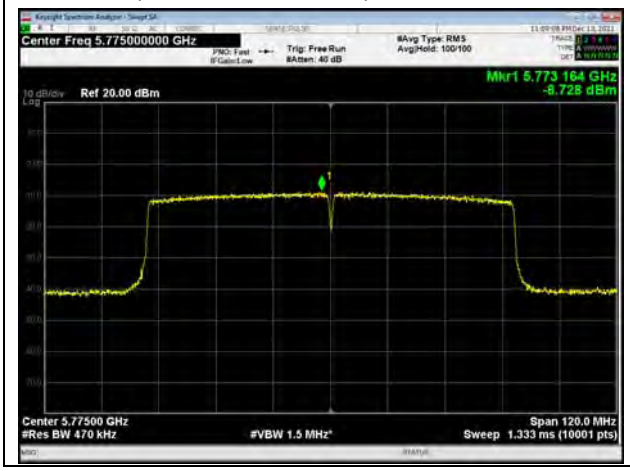
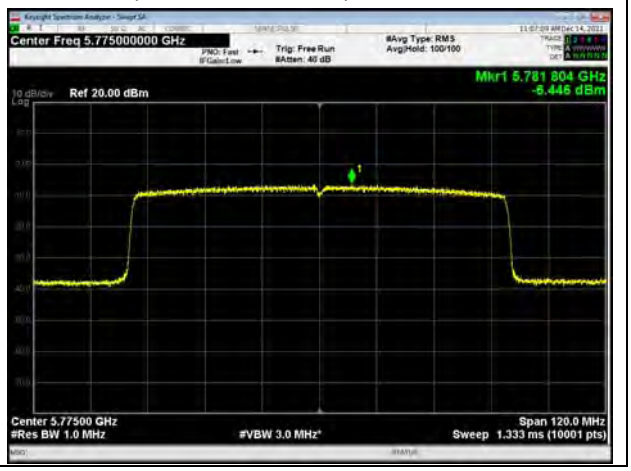


U-NII-3, 802.11ac VHT40, Channel No.: 159



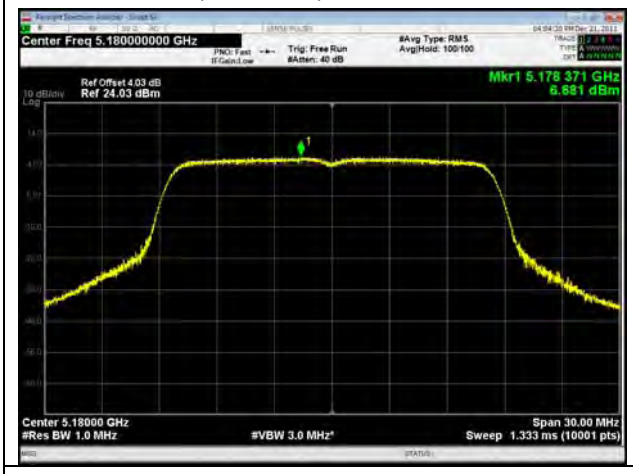
U-NII-3, 802.11ax HE40, Channel No.: 159



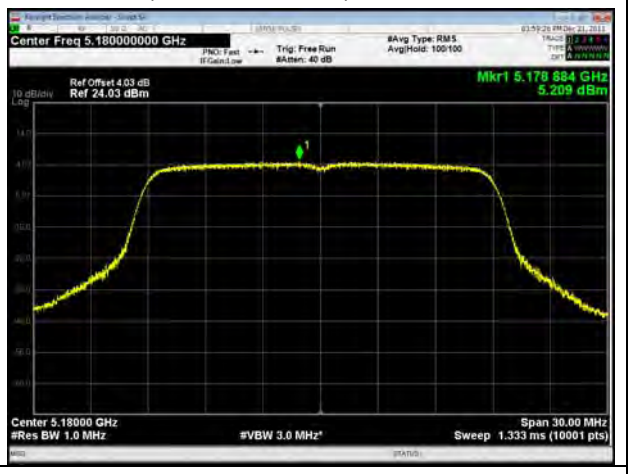
U-NII-3, 802.11ac VHT80, Channel No.: 155	U-NII-3, 802.11ax HE80, Channel No.: 155
	

CDD/MIMO Antenna 1

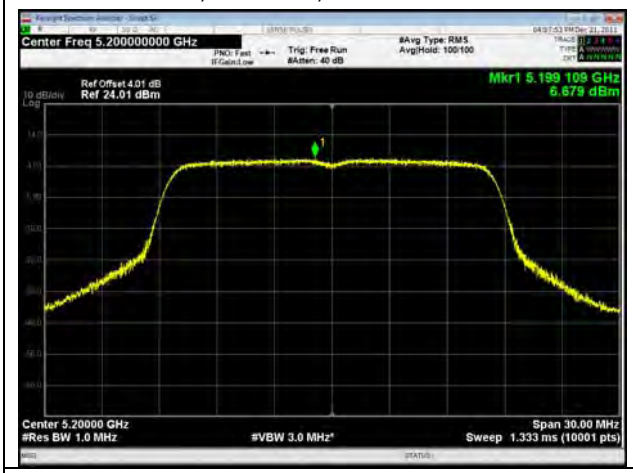
U-NII-1, 802.11a, Channel No.: 36



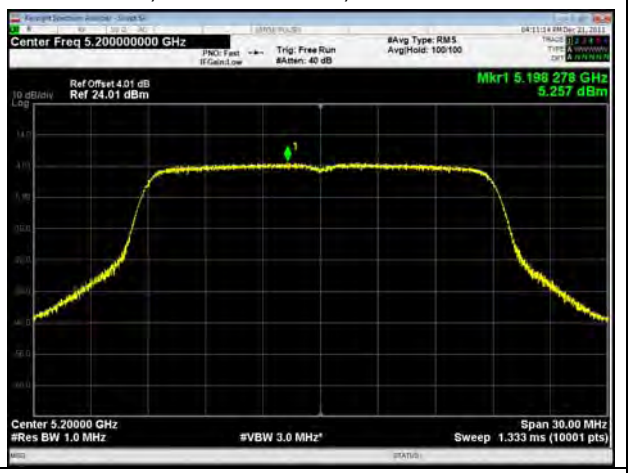
U-NII-1, 802.11n HT20, Channel No.: 36



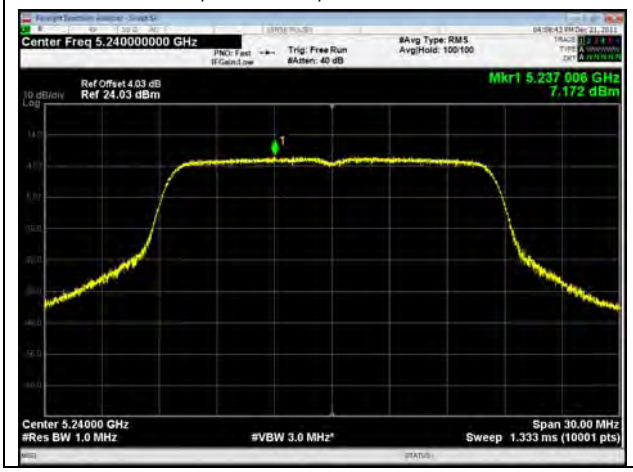
U-NII-1, 802.11a, Channel No.: 40



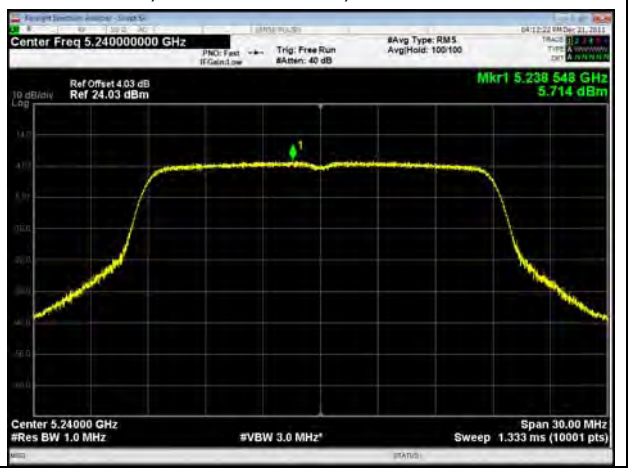
U-NII-1, 802.11n HT20, Channel No.: 40



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

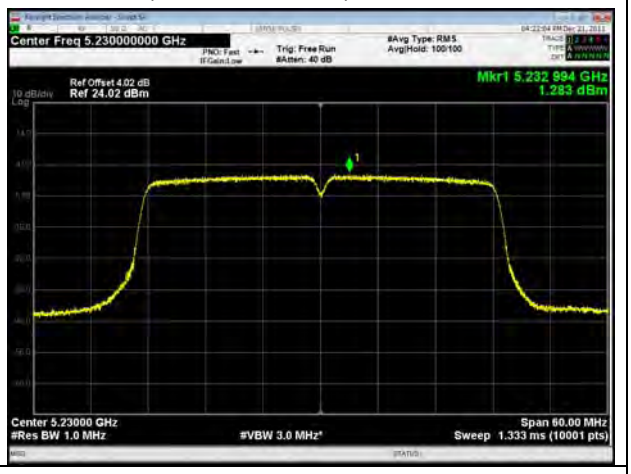


U-NII-1, 802.11n HT20, Channel No.: 48

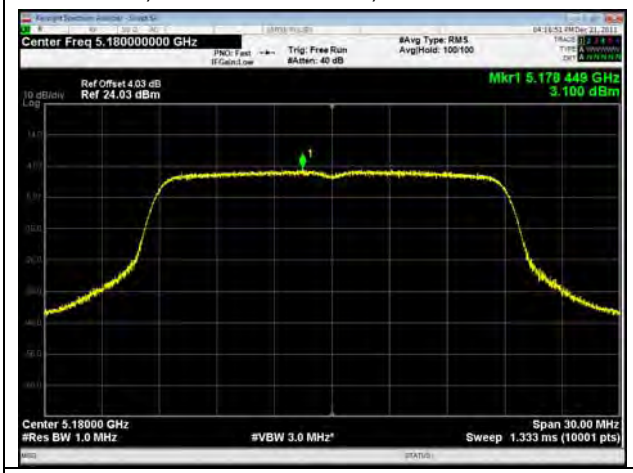


U-NII-1, 802.11n HT40, Channel No.: 38

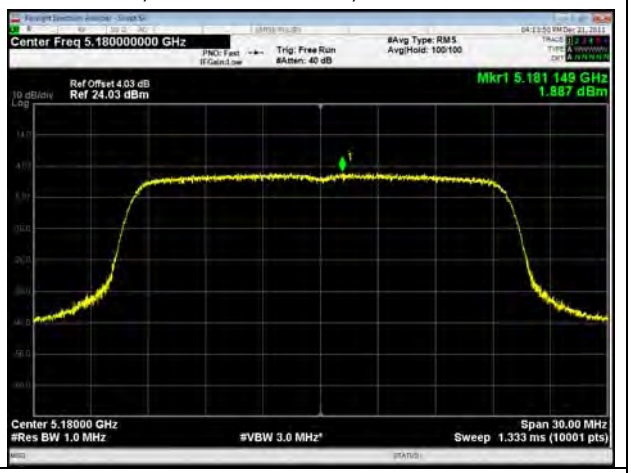
U-NII-1, 802.11n HT40, Channel No.: 46



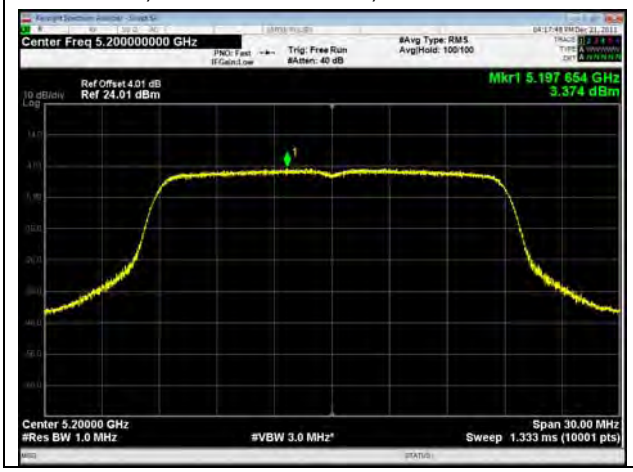
U-NII-1, 802.11ac VHT20, Channel No.: 36



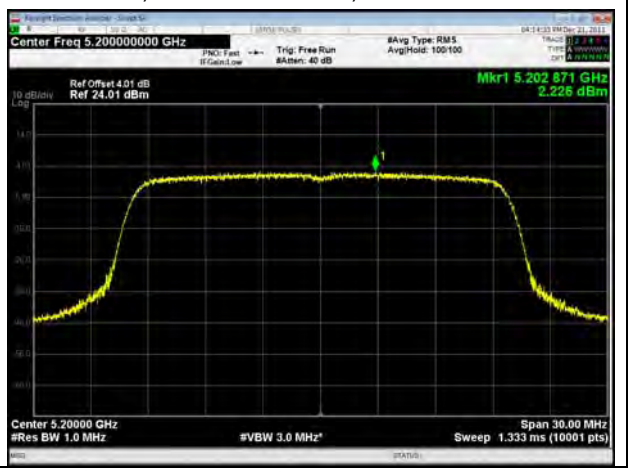
U-NII-1, 802.11ax HE20, Channel No.: 36



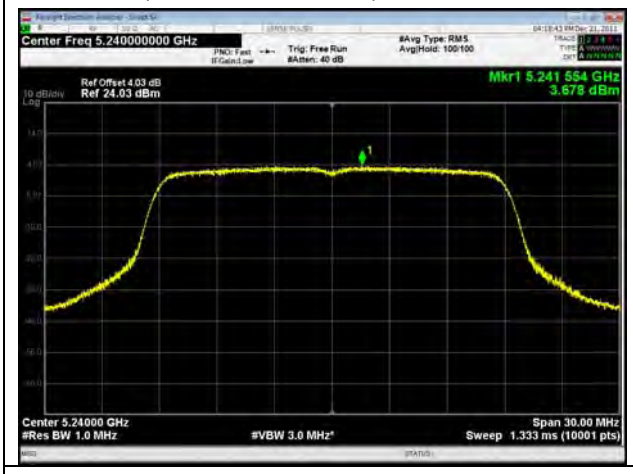
U-NII-1, 802.11ac VHT20, Channel No.: 40



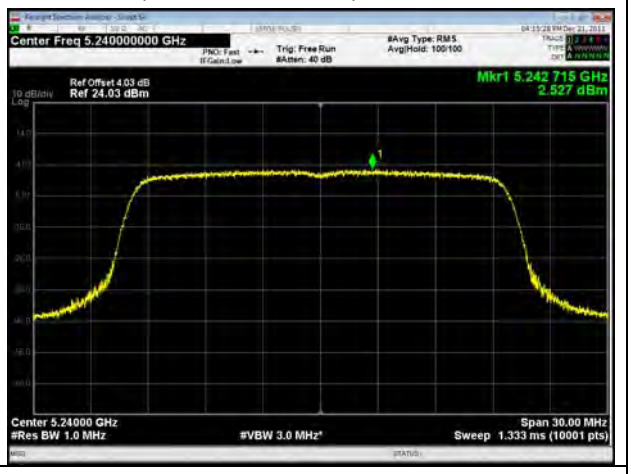
U-NII-1, 802.11ax HE20, Channel No.: 40



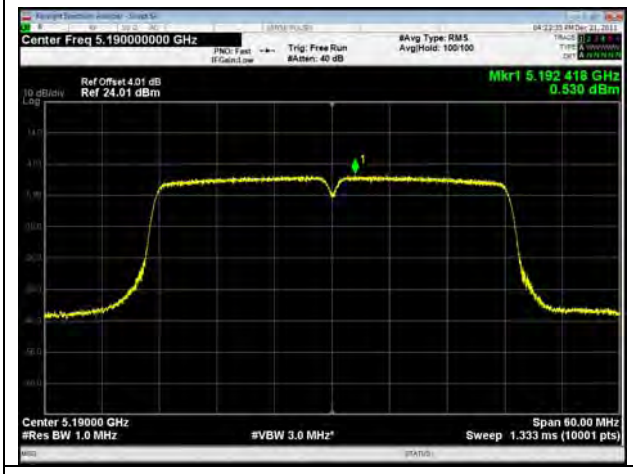
U-NII-1, 802.11ac VHT20, Channel No.: 48



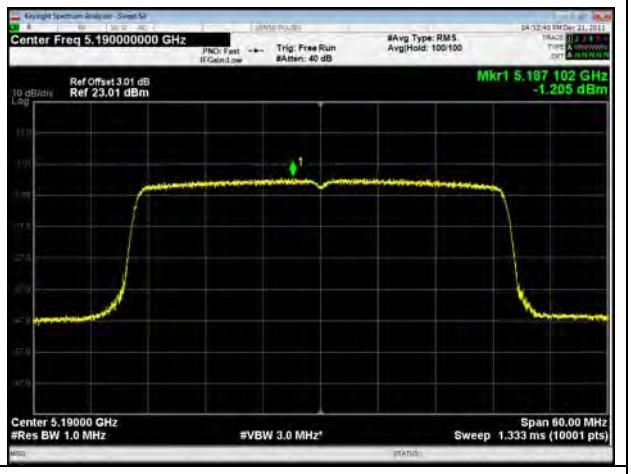
U-NII-1, 802.11ax HE20, Channel No.: 48



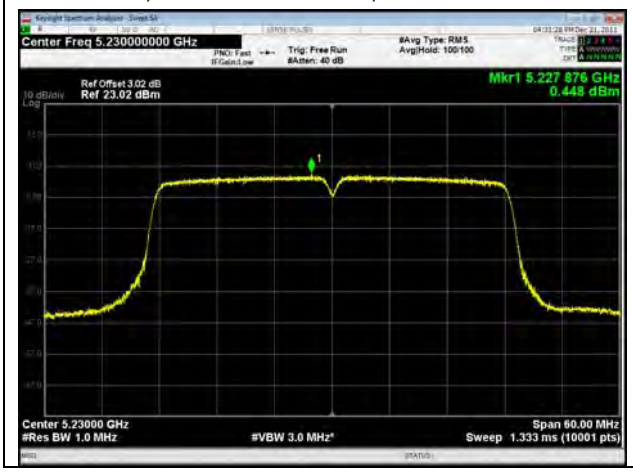
U-NII-1, 802.11ac VHT40, Channel No.: 38



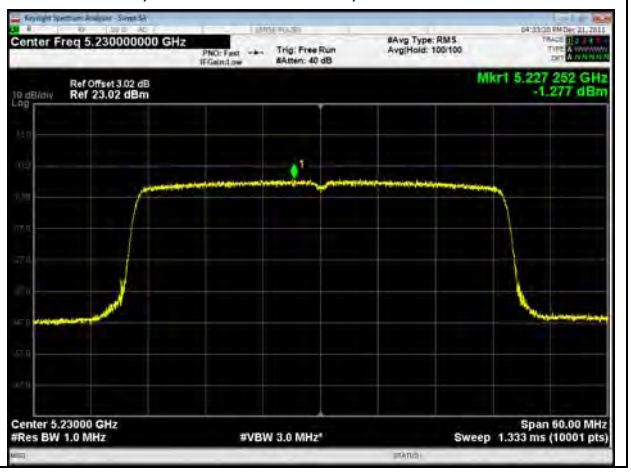
U-NII-1, 802.11ax HE40, Channel No.: 38

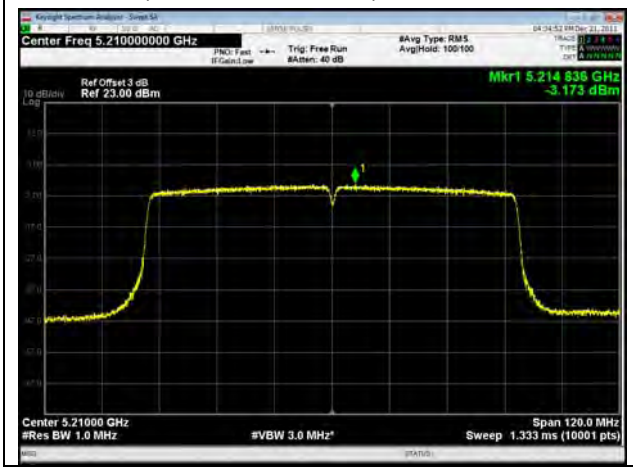
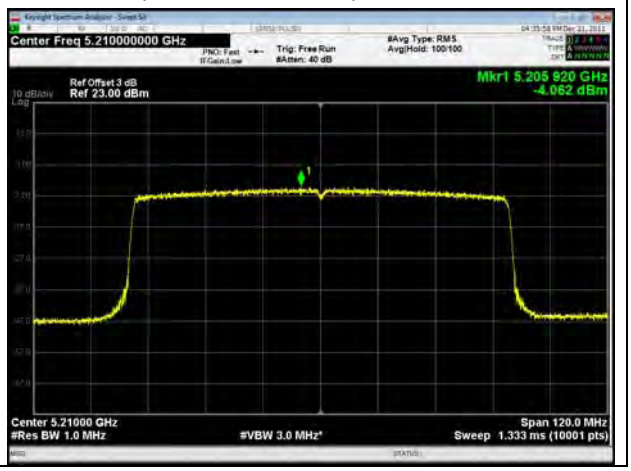


U-NII-1, 802.11ac VHT40, Channel No.: 46

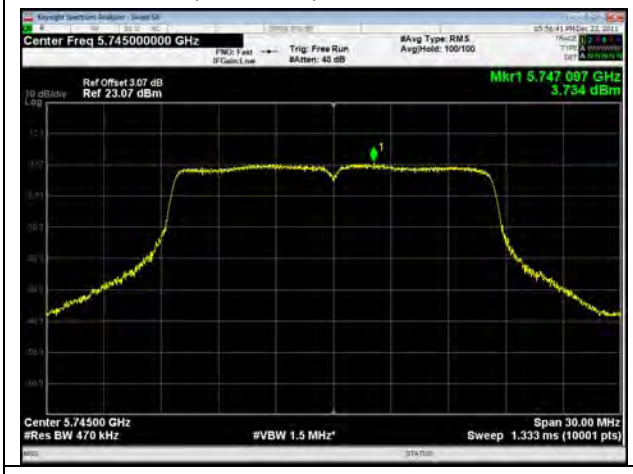


U-NII-1, 802.11ax HE40, Channel No.: 46

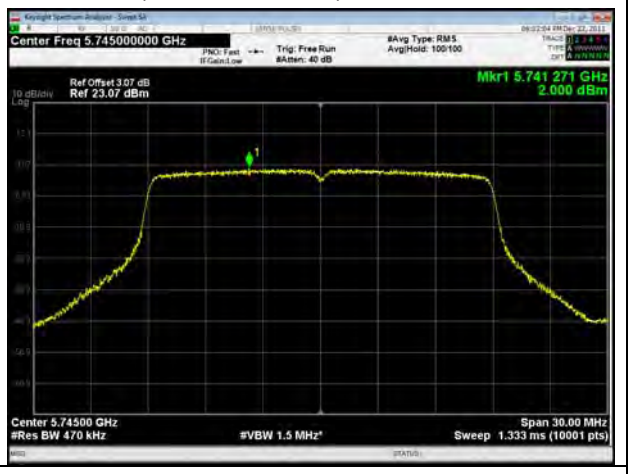


U-NII-1, 802.11ac VHT80, Channel No.: 42	U-NII-1, 802.11ax HE80, Channel No.: 42
	

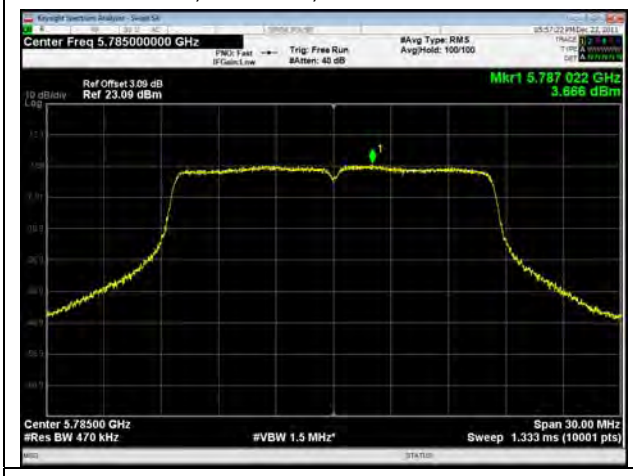
U-NII-3, 802.11a, Channel No.: 149



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

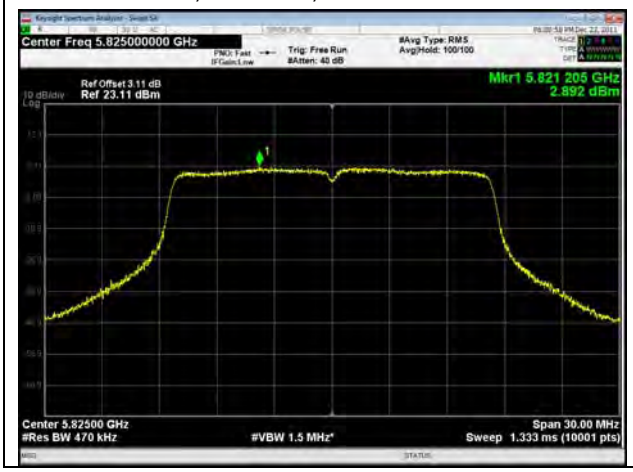


U-NII-3, 802.11a, Channel No.: 157

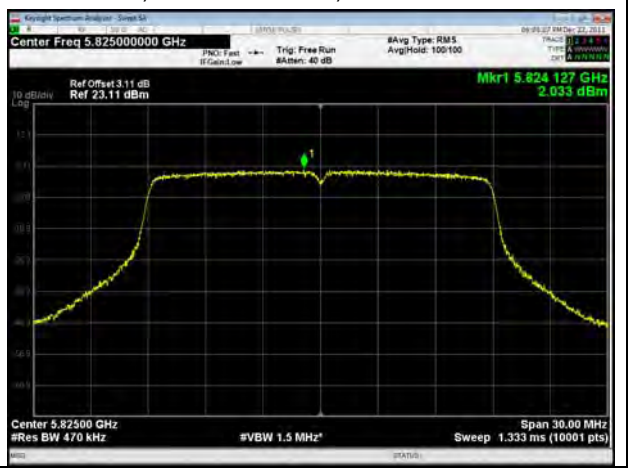


U-NII-3, 802.11n HT20, Channel No.: 157

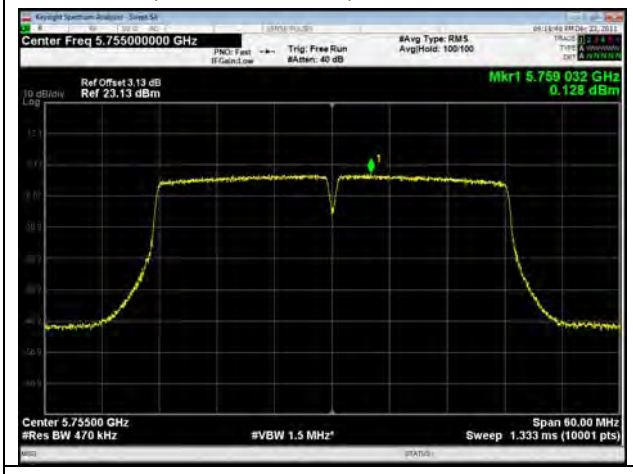
U-NII-3, 802.11a, Channel No.: 165



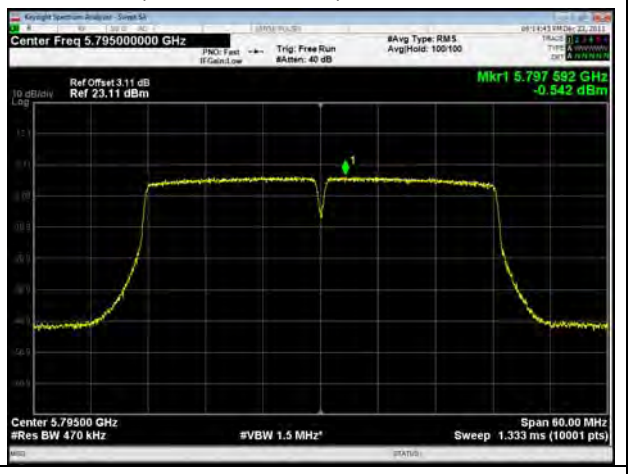
U-NII-3, 802.11n HT20, Channel No.: 165



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



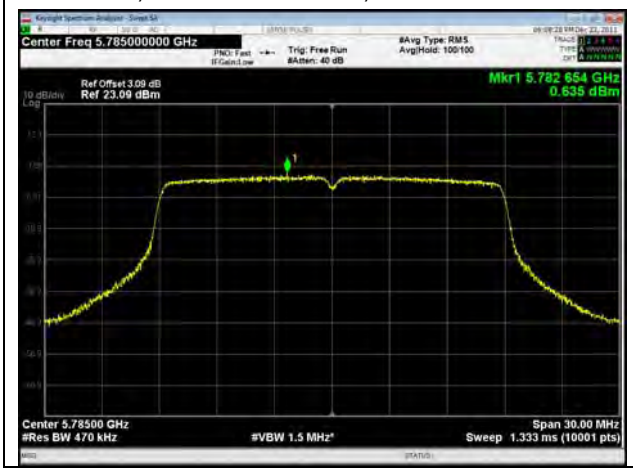
U-NII-3, 802.11n HT40, Channel No.: 159



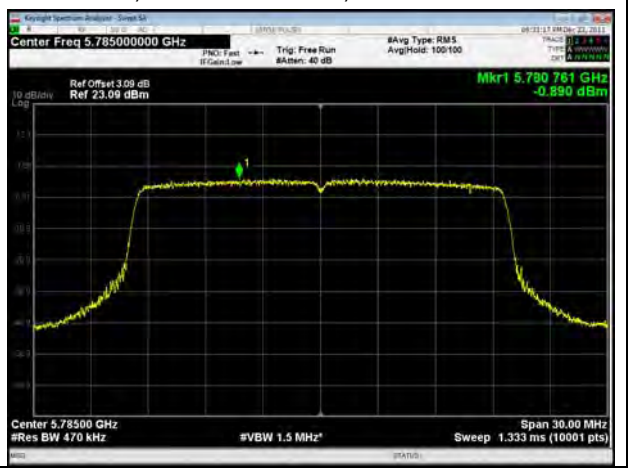
U-NII-3, 802.11ac VHT20, Channel No.: 149

U-NII-3, 802.11ax HE20, Channel No.: 149

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



U-NII-3, 802.11ax HE20, Channel No.: 157



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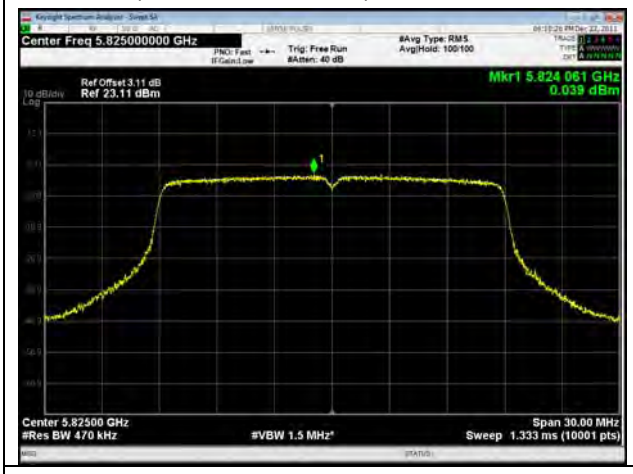
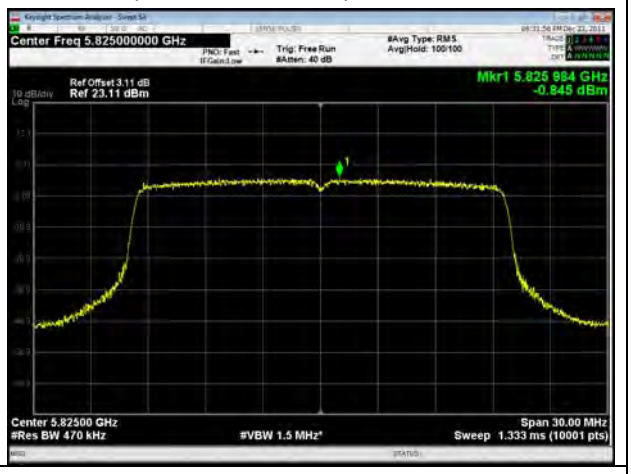
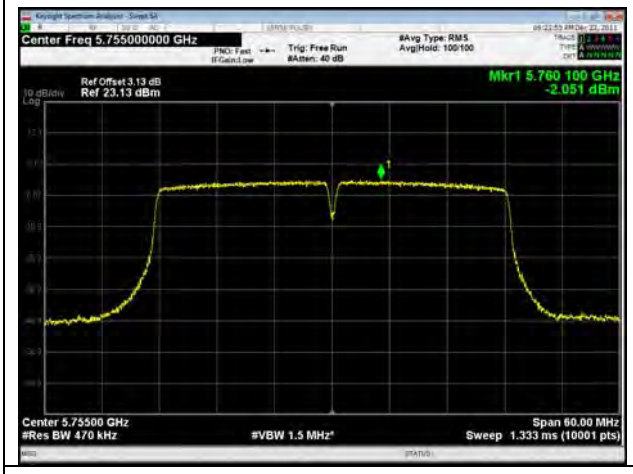


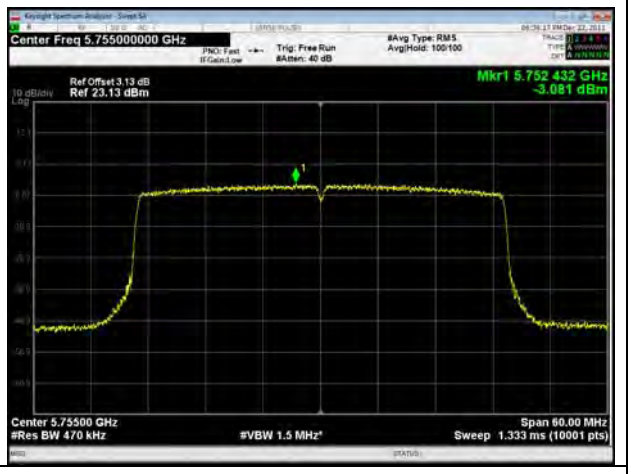
U-NII-3, 802.11ax HE20, Channel No.: 165



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

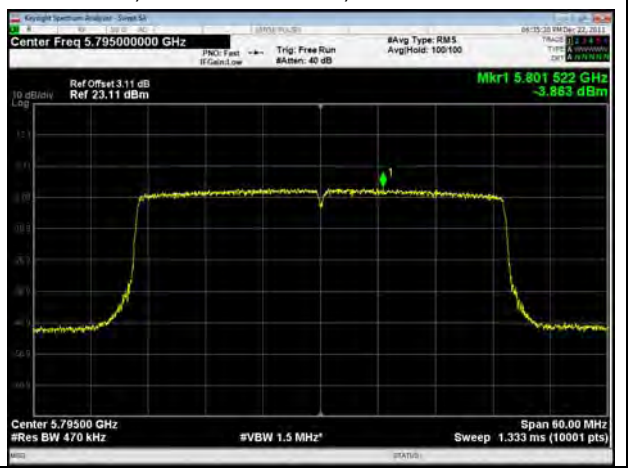


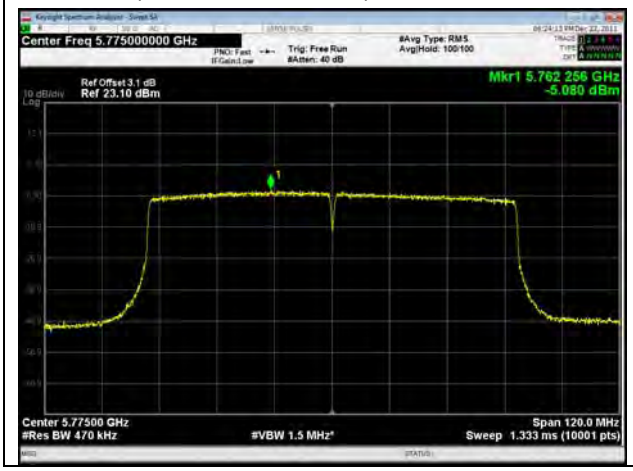
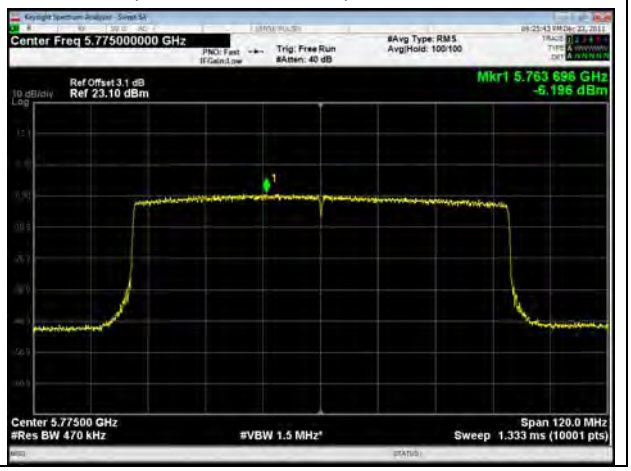
U-NII-3, 802.11ax HE40, Channel No.: 151



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

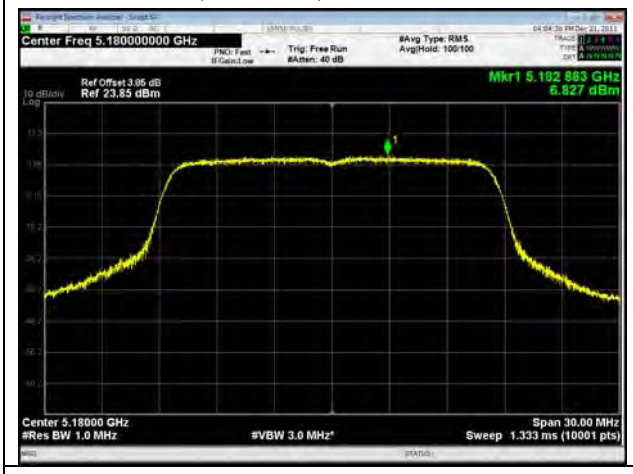
U-NII-3, 802.11ax HE40, Channel No.: 159



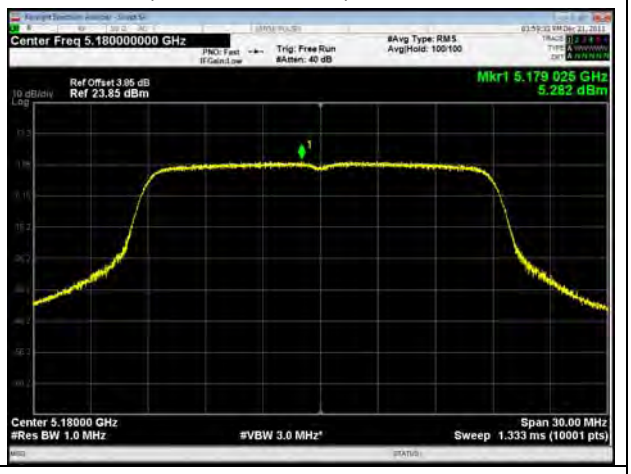
U-NII-3, 802.11ac VHT80, Channel No.: 155	U-NII-3, 802.11ax HE80, Channel No.: 155
	

CDD/MIMO Antenna 2

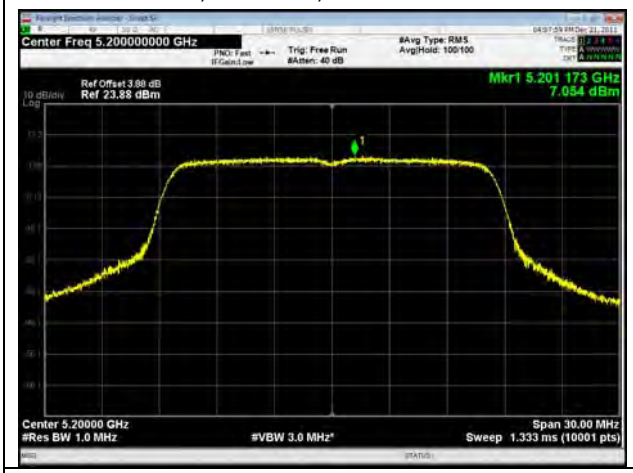
U-NII-1, 802.11a, Channel No.: 36



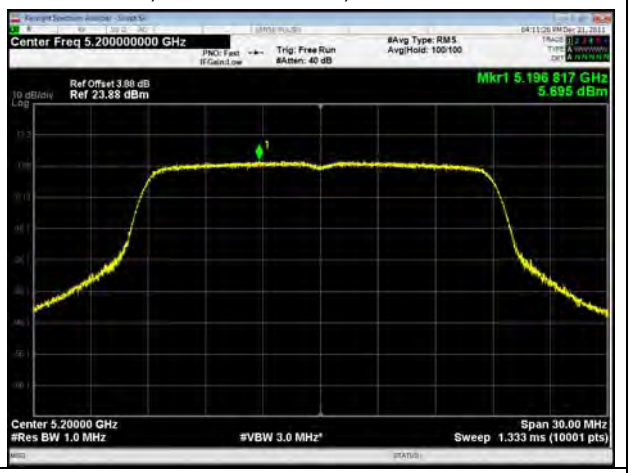
U-NII-1, 802.11n HT20, Channel No.: 36



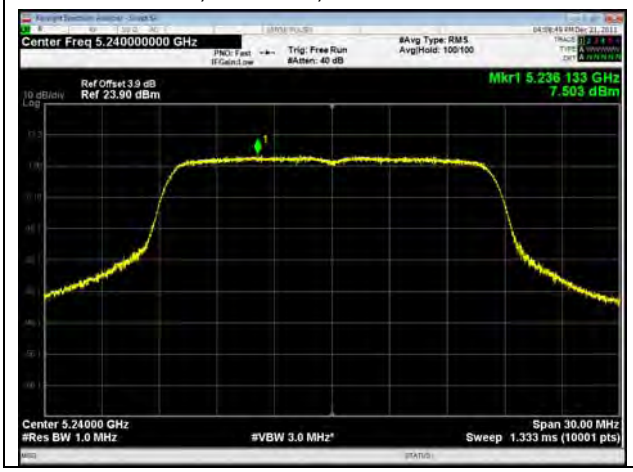
U-NII-1, 802.11a, Channel No.: 40



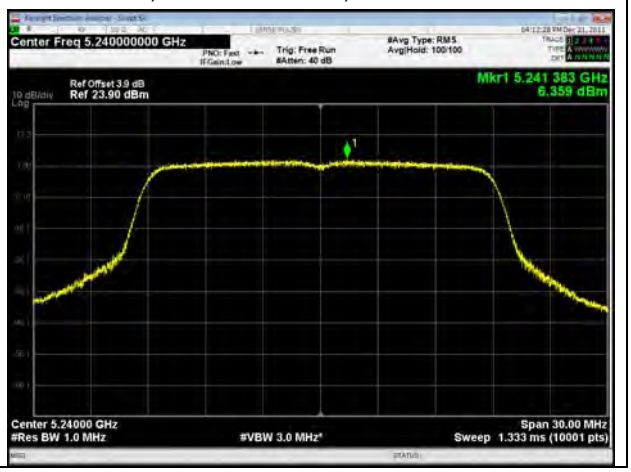
U-NII-1, 802.11n HT20, Channel No.: 40



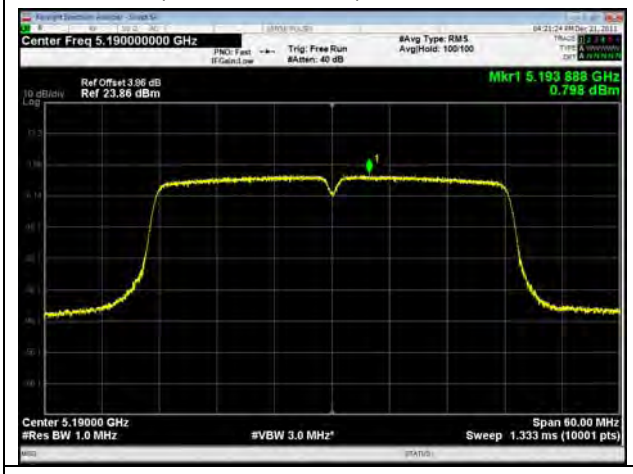
U-NII-1, 802.11a, Channel No.: 48



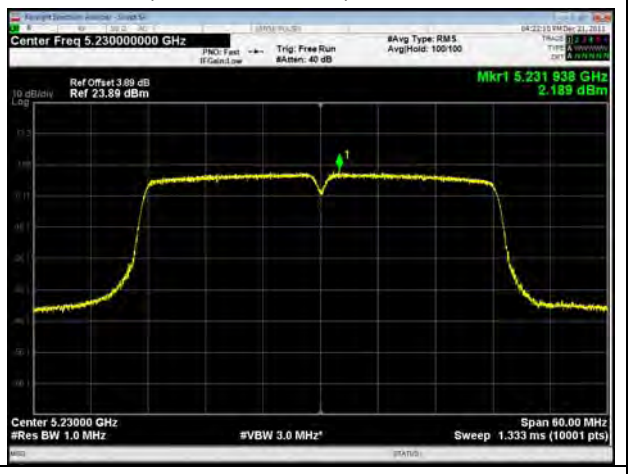
U-NII-1, 802.11n HT20, Channel No.: 48



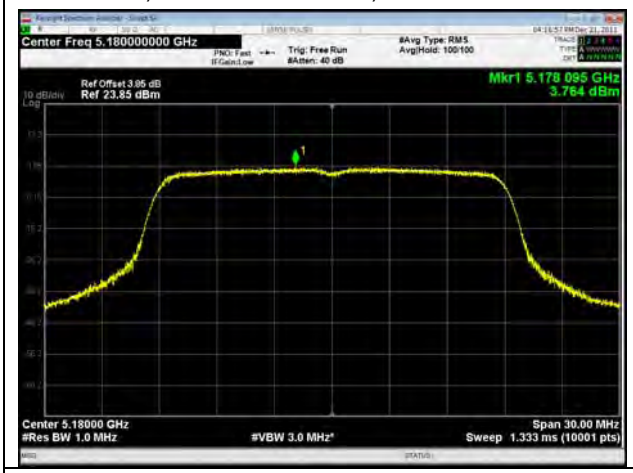
U-NII-1, 802.11n HT40, Channel No.: 38



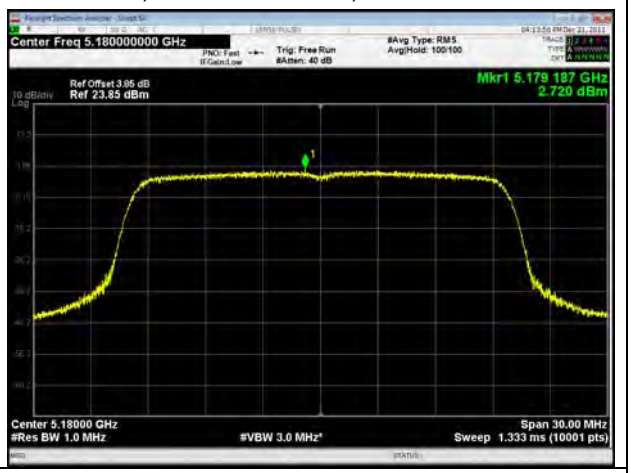
U-NII-1, 802.11n HT40, Channel No.: 46



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



U-NII-1, 802.11ax HE20, Channel No.: 36



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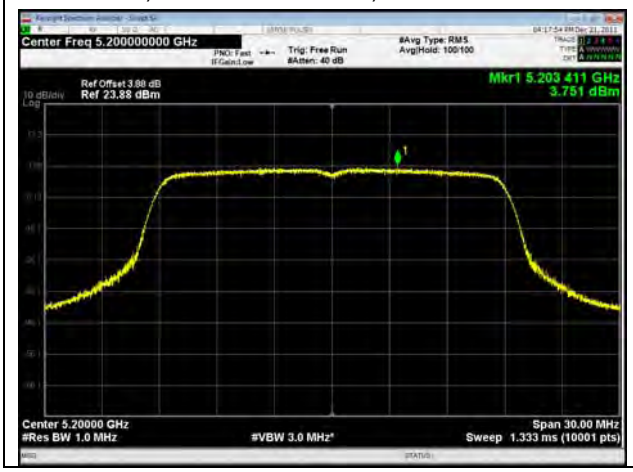
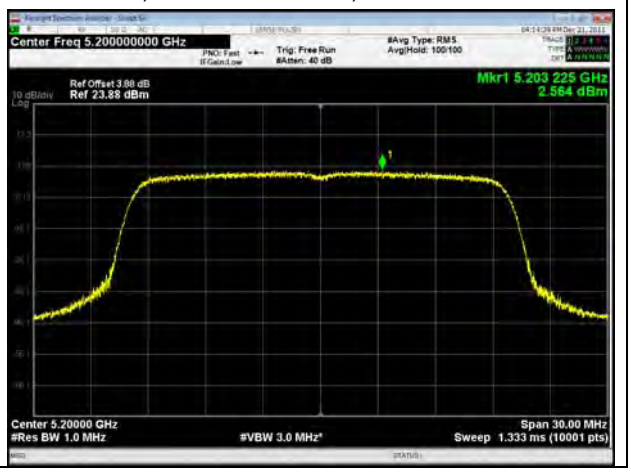
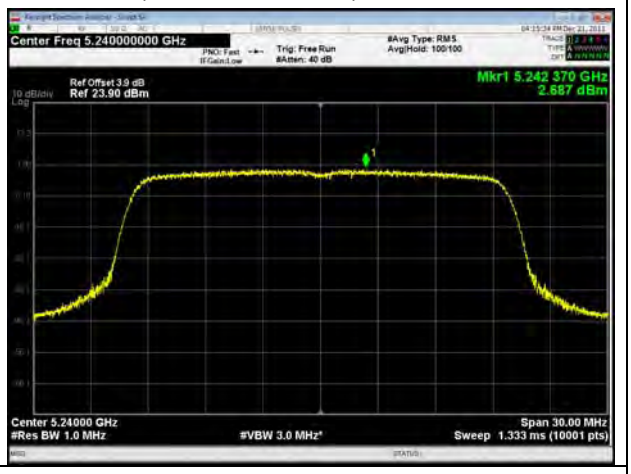


U-NII-1, 802.11ax HE20, Channel No.: 40

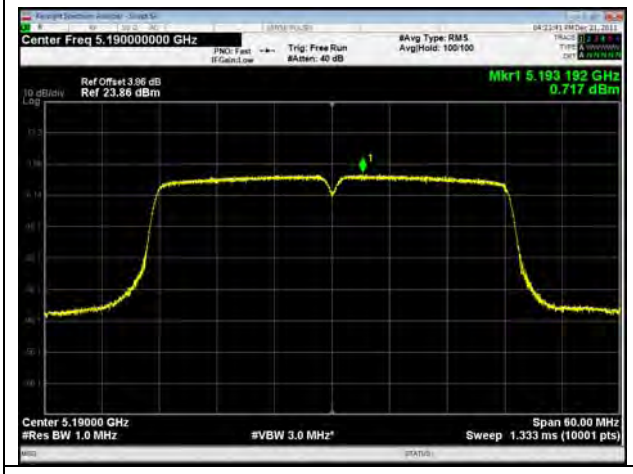


U-NII-1, 802.11ac VHT20, Channel No.: 48

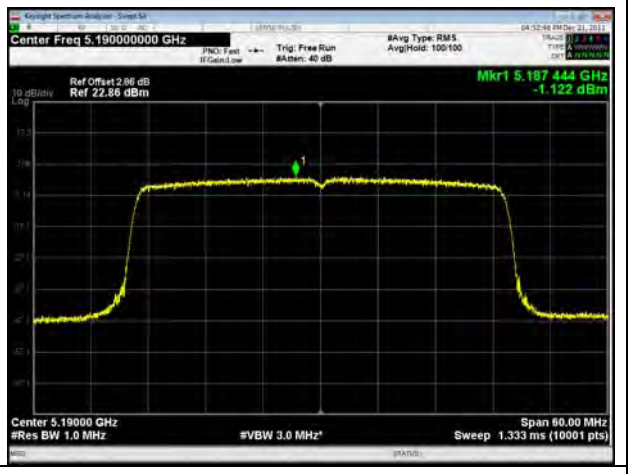
U-NII-1, 802.11ax HE20, Channel No.: 48



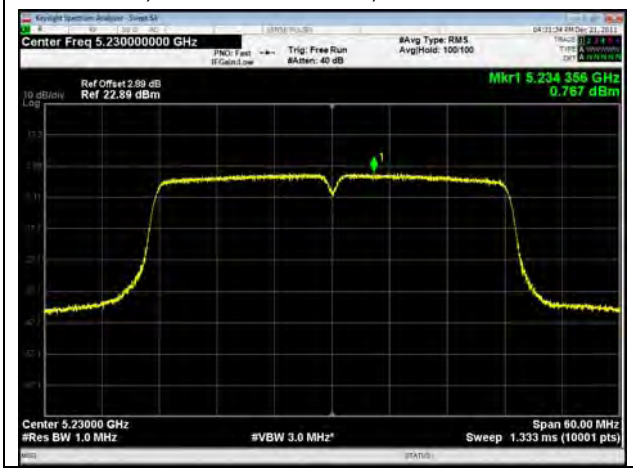
U-NII-1, 802.11ac VHT40, Channel No.: 38



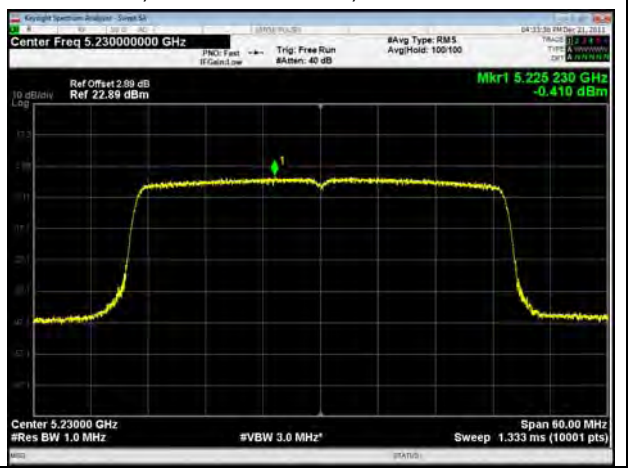
U-NII-1, 802.11ax HE40, Channel No.: 38

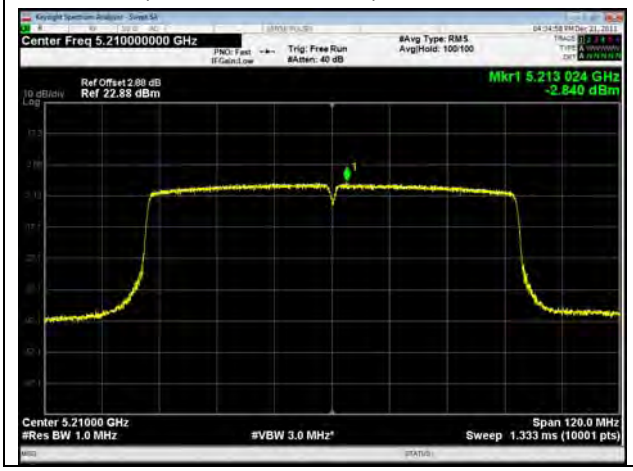
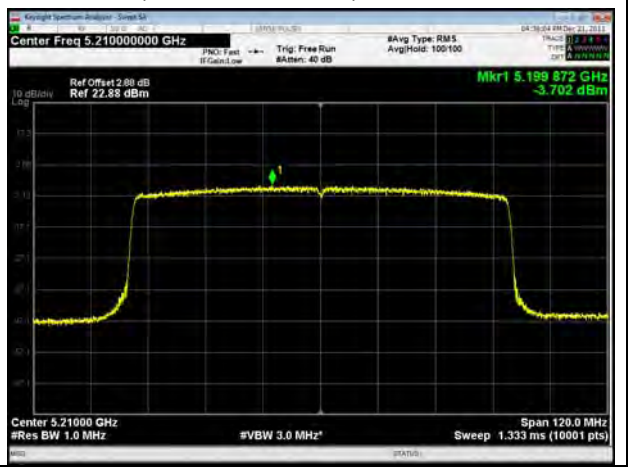


U-NII-1, 802.11ac VHT40, Channel No.: 46



U-NII-1, 802.11ax HE40, Channel No.: 46

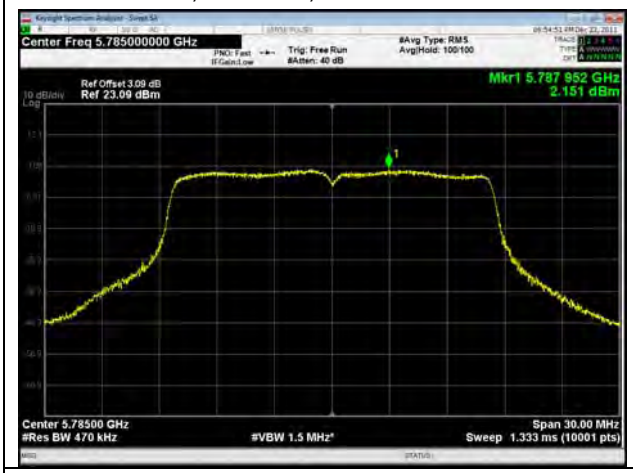


U-NII-1, 802.11ac VHT80, Channel No.: 42	U-NII-1, 802.11ax HE80, Channel No.: 42
	

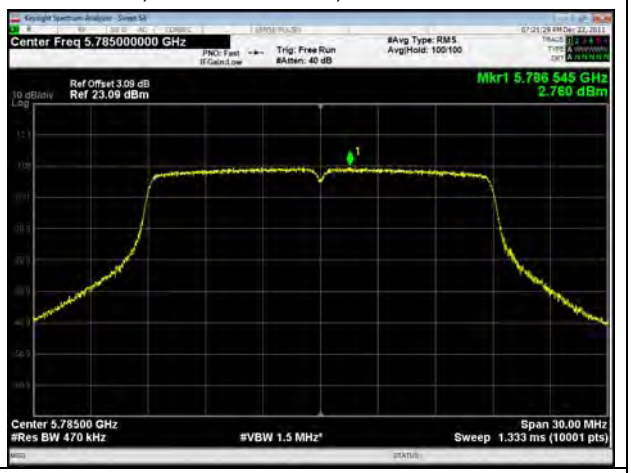
U-NII-3, 802.11a, Channel No.: 149

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

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

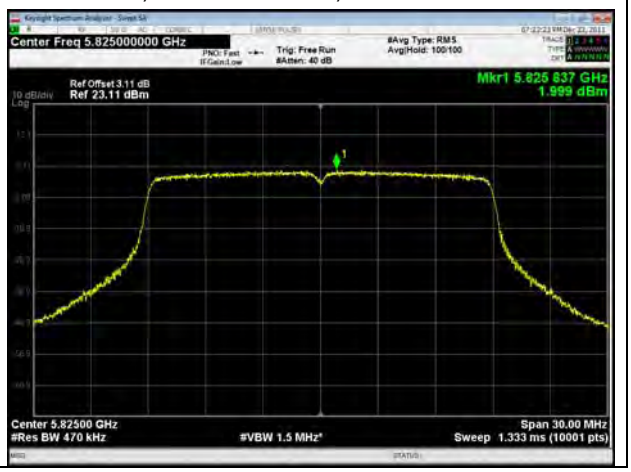


U-NII-3, 802.11n HT20, Channel No.: 157

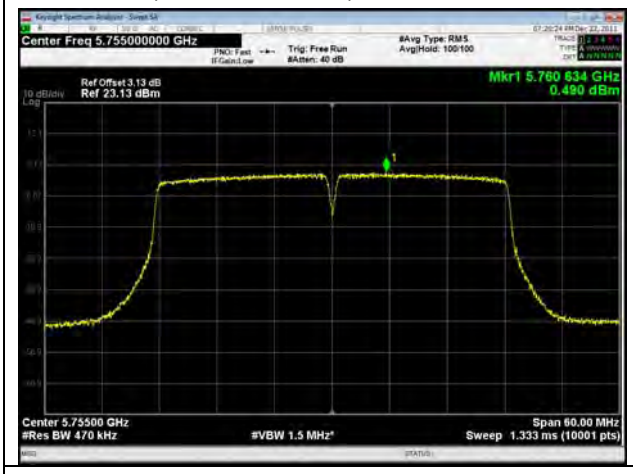


U-NII-3, 802.11a, Channel No.: 165

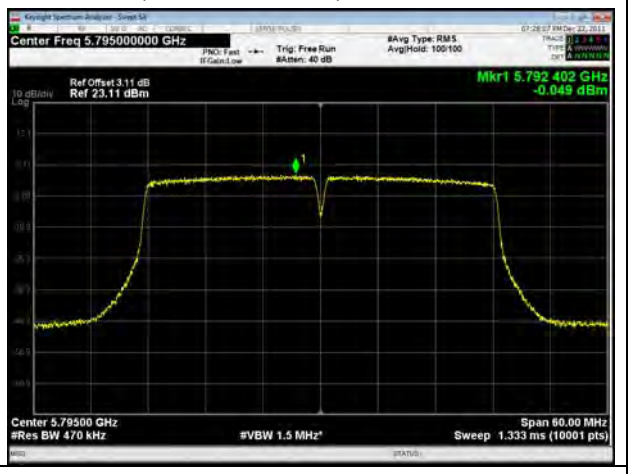
U-NII-3, 802.11n HT20, Channel No.: 165



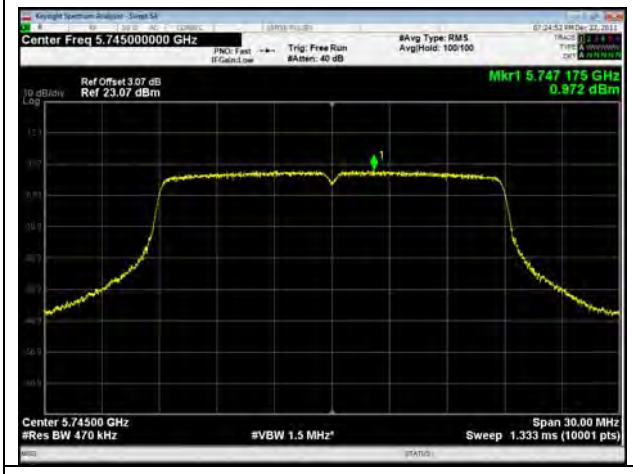
U-NII-3, 802.11n HT40, Channel No.: 151



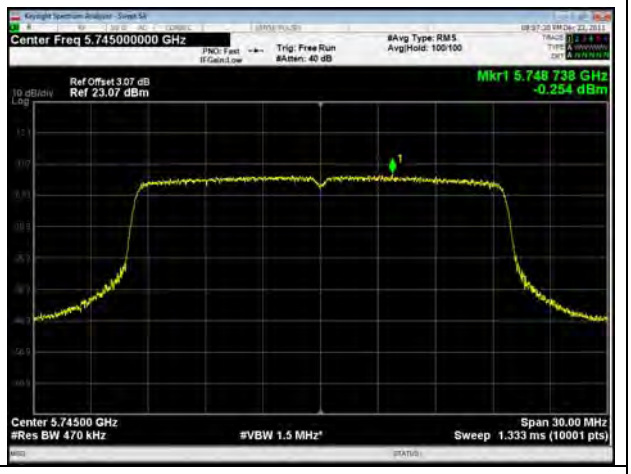
U-NII-3, 802.11n HT40, Channel No.: 159



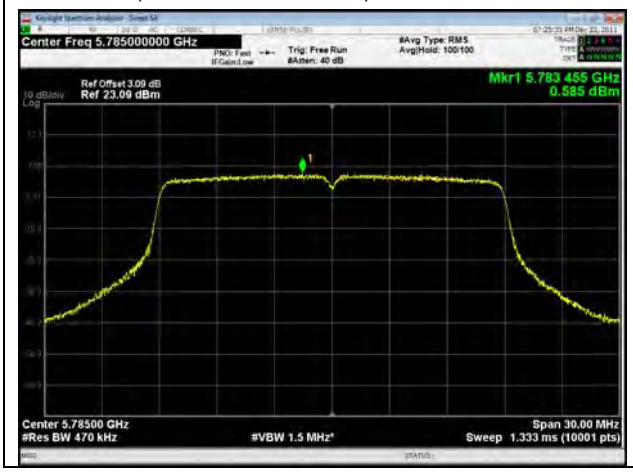
U-NII-3, 802.11ac VHT20, Channel No.: 149



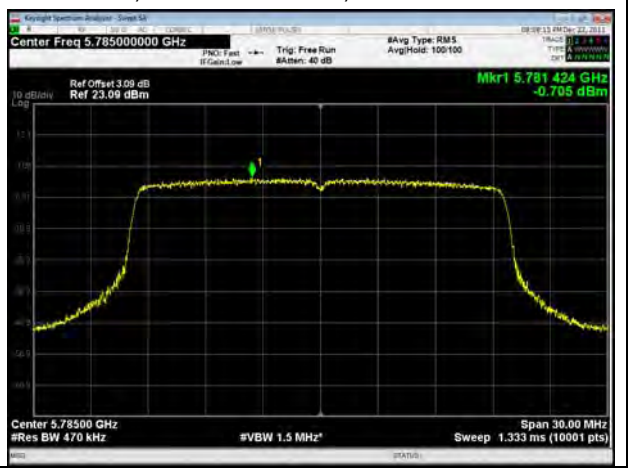
U-NII-3, 802.11ax HE20, Channel No.: 149



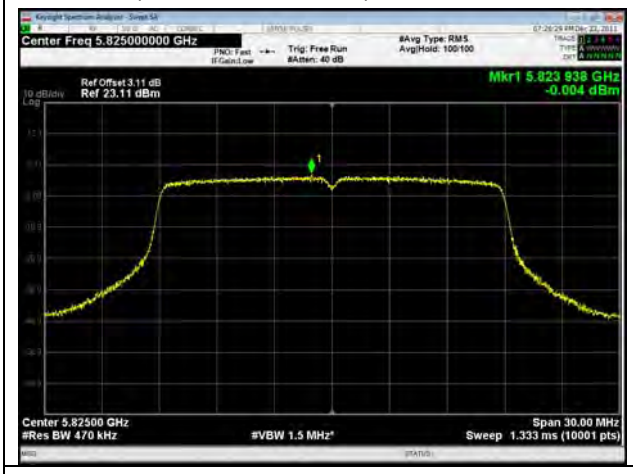
U-NII-3, 802.11ac VHT20, Channel No.: 157



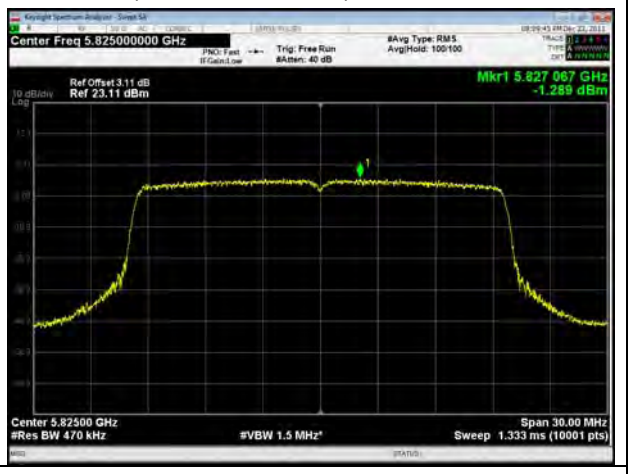
U-NII-3, 802.11ax HE20, Channel No.: 157



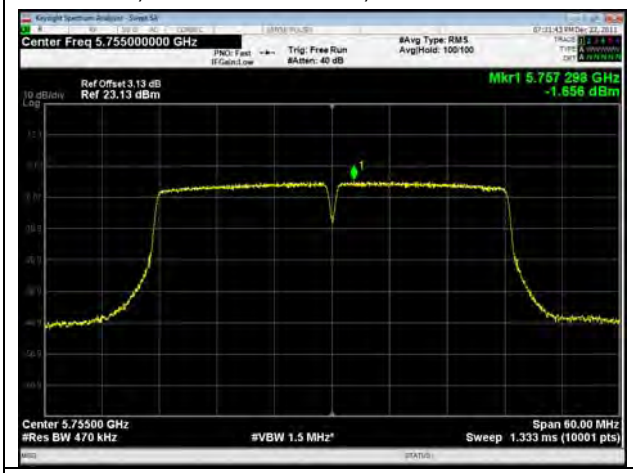
U-NII-3, 802.11ac VHT20, Channel No.: 165



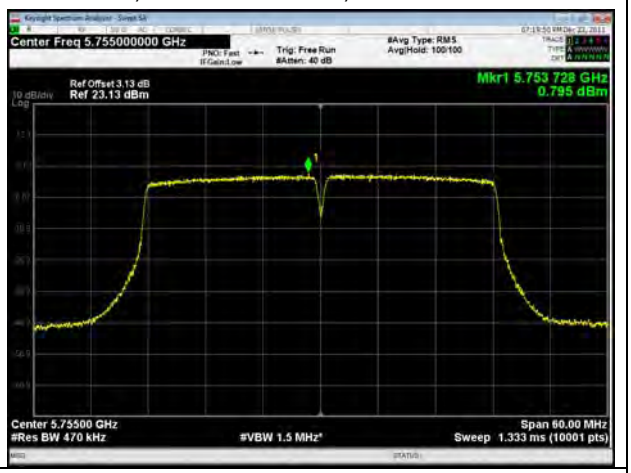
U-NII-3, 802.11ax HE20, Channel No.: 165



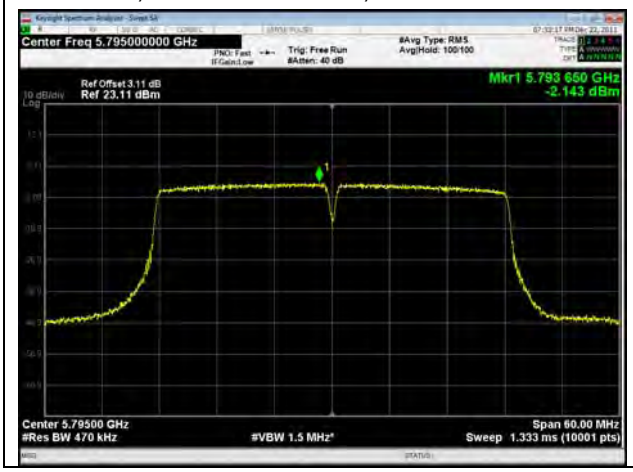
U-NII-3, 802.11ac VHT40, Channel No.: 151



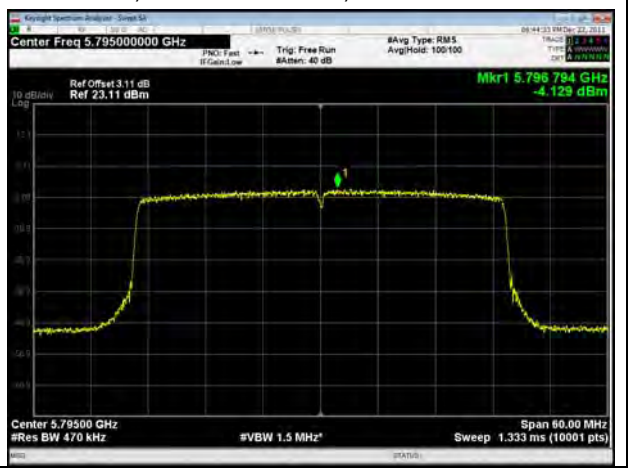
U-NII-3, 802.11ax HE40, Channel No.: 151

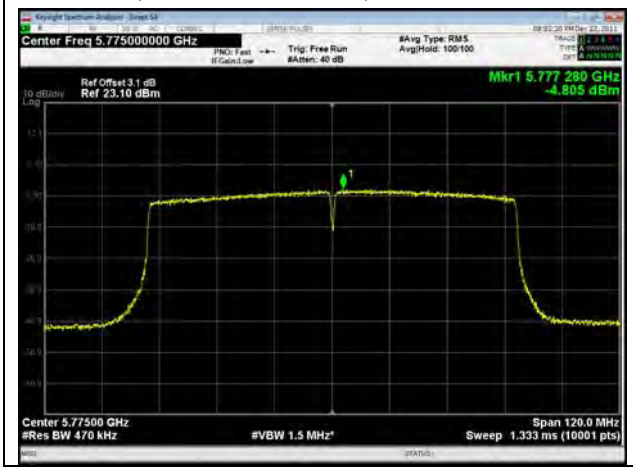
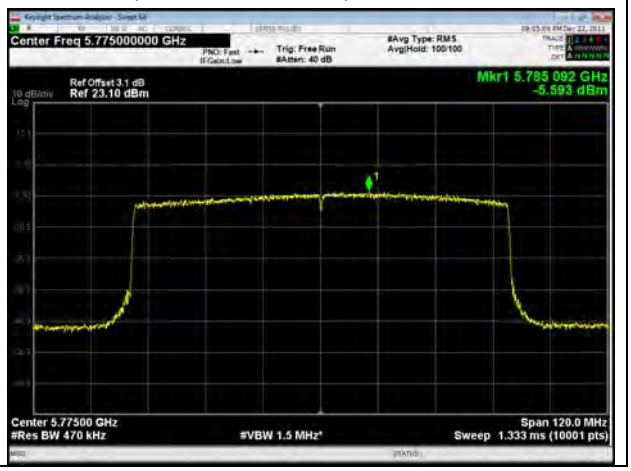


U-NII-3, 802.11ac VHT40, Channel No.: 159



U-NII-3, 802.11ax HE40, Channel No.: 159



U-NII-3, 802.11ac VHT80, Channel No.: 155	U-NII-3, 802.11ax HE80, 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.

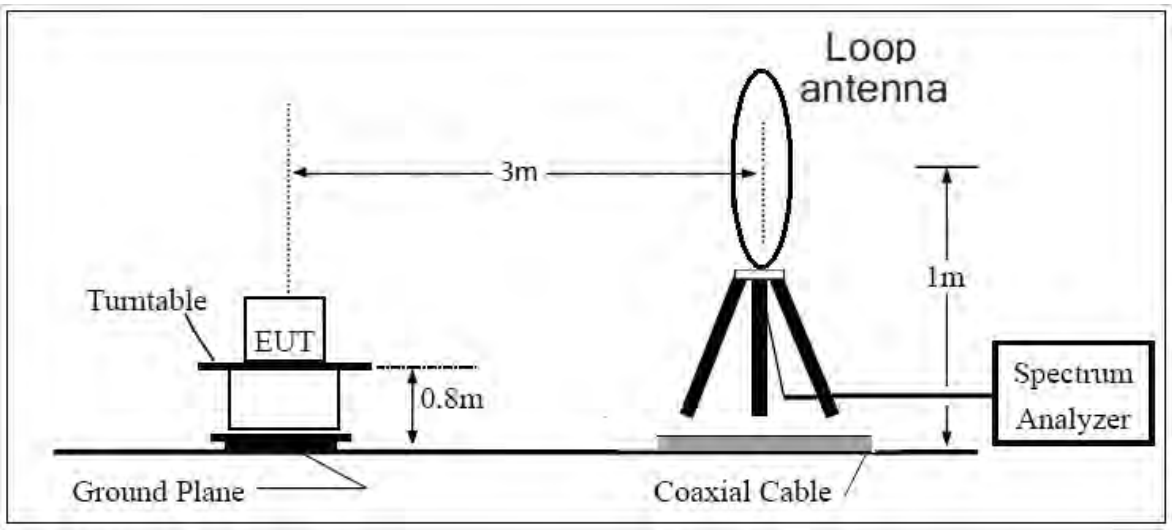
3) If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission.

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.

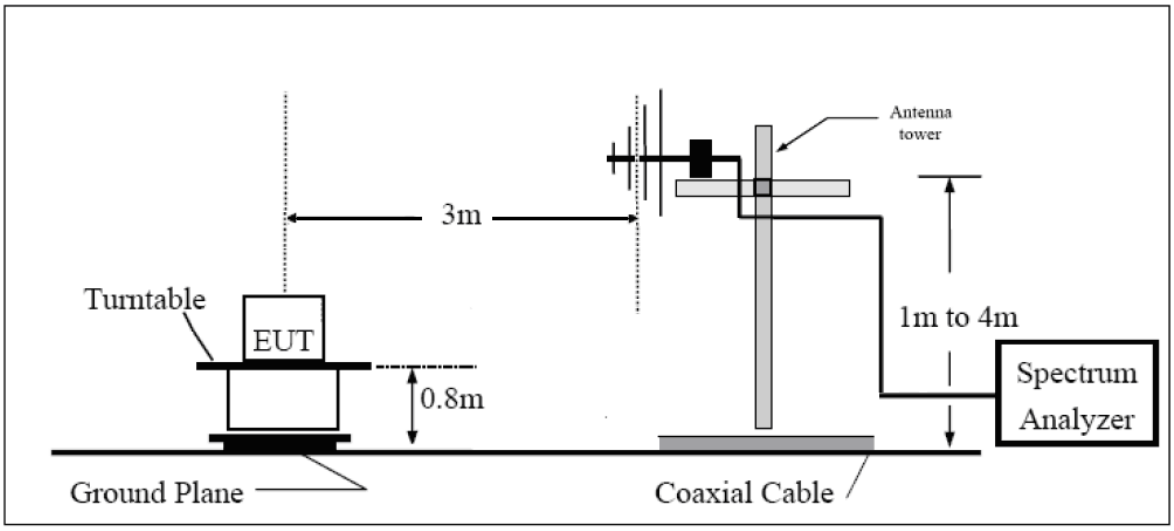
The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the loop antenna is vertical, others antenna are vertical and horizontal.

The test is in transmitting mode.

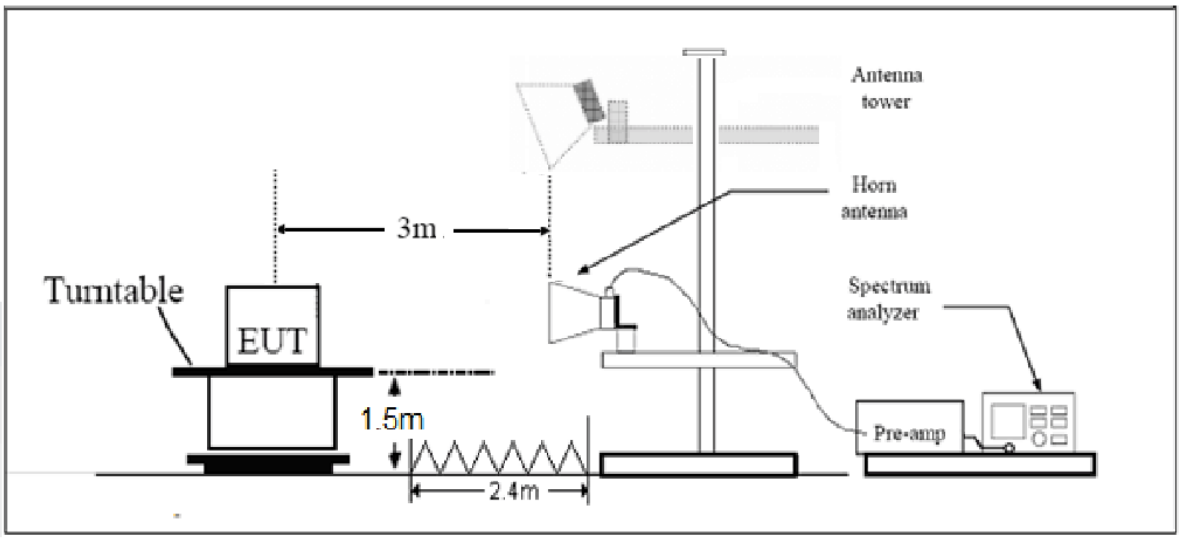
9KHz~~~30MHz



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

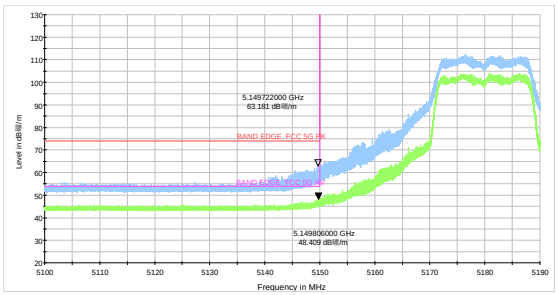
Test Results:

A font (dB㎷/m)in the test plot =(dB μ V/m)

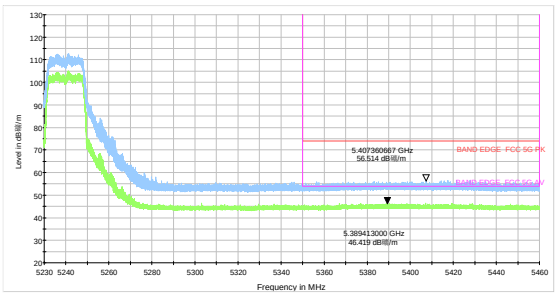
The signal beyond the limit is carrier.

U-NII-1

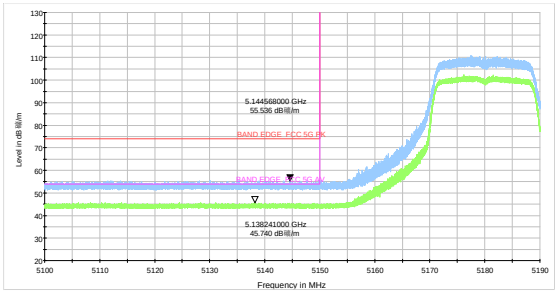
802.11a-Channel 36: Peak & Average



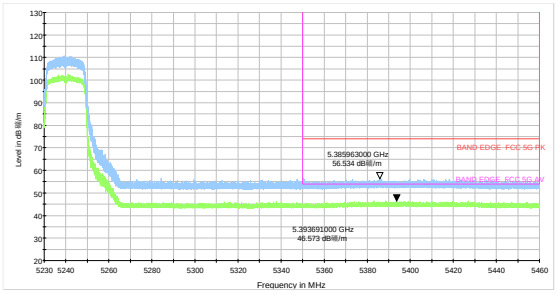
802.11a-Channel 48: Peak & Average



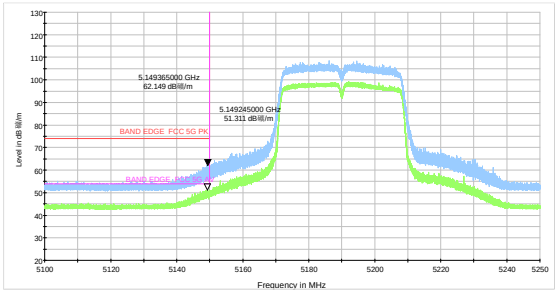
802.11n HT20-Channel 36: Peak& Average



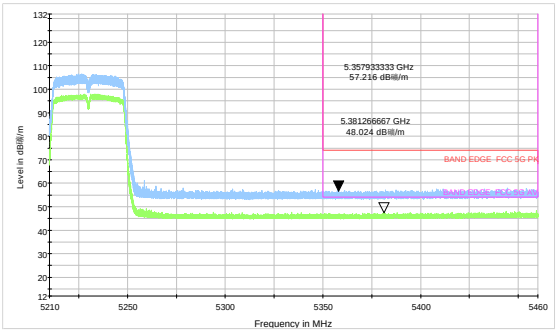
802.11n HT20-Channel 48: Peak& Average



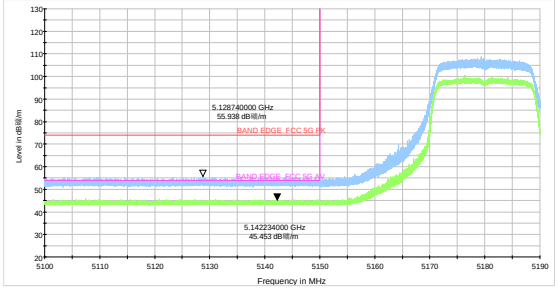
802.11n HT40-Channel 38: Peak& Average



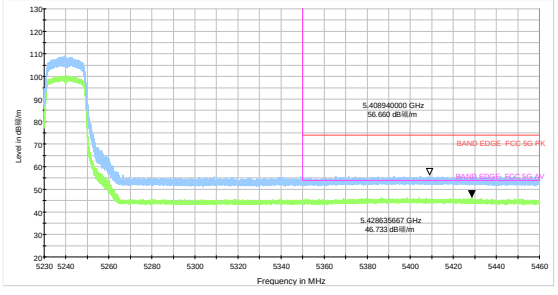
802.11n HT40-Channel 46: Peak& Average



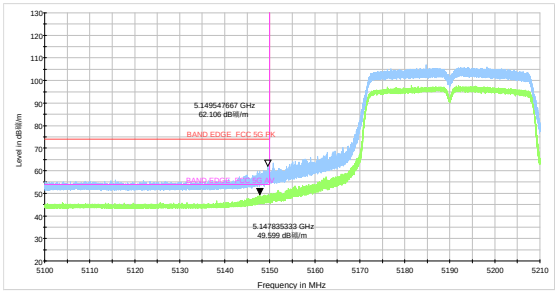
802.11ac VHT20 -Channel 36: Peak & Average



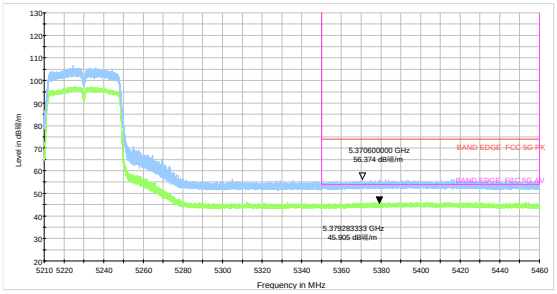
802.11ac VHT20 -Channel 48: Peak & Average



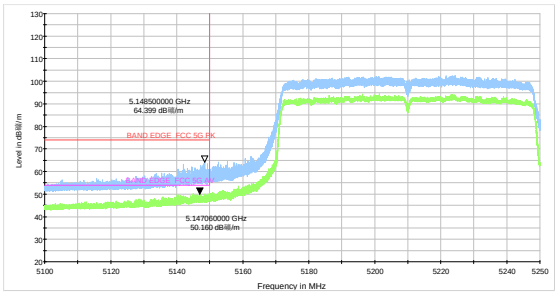
802.11ac VHT40-Channel 38: Peak & Average



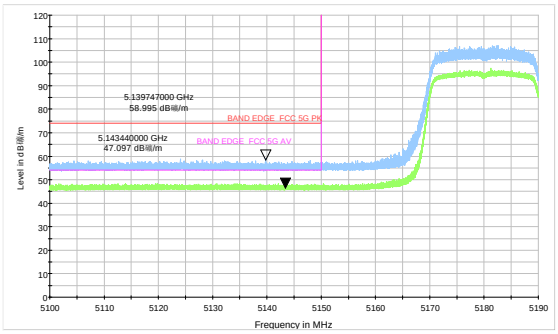
802.11ac VHT40-Channel 46: Peak & Average



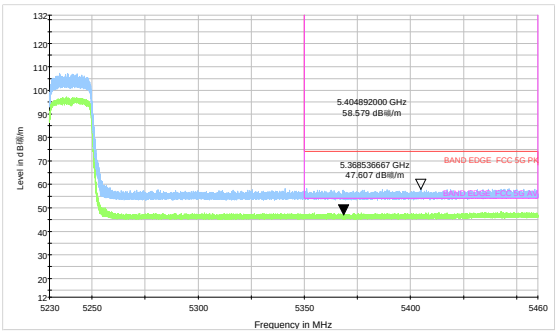
802.11ac VHT80-Channel 42: Peak & Average



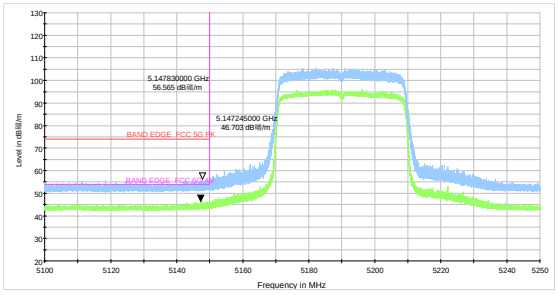
802.11ax HE20 -Channel 36: Peak & Average



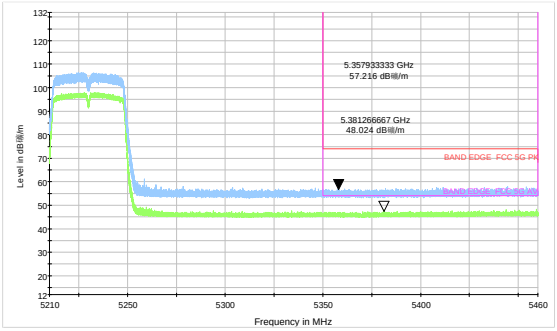
802.11ax HE20 -Channel 48: Peak & Average



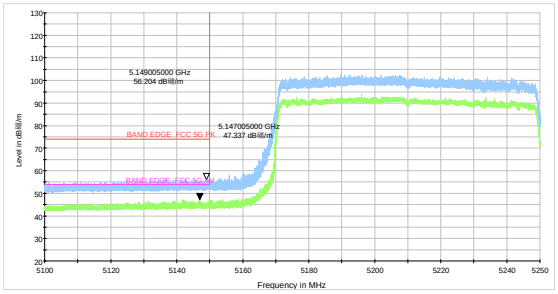
802.11ax HE40-Channel 38: Peak & Average



802.11ax HE40-Channel 46: Peak & Average

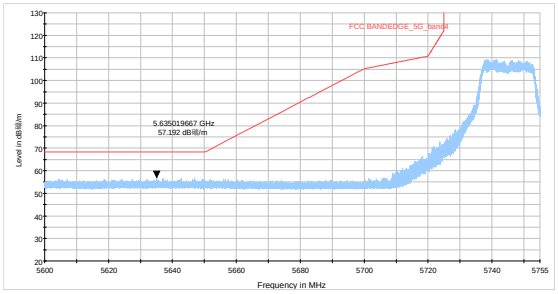


802.11ax HE80-Channel 42: Peak & Average

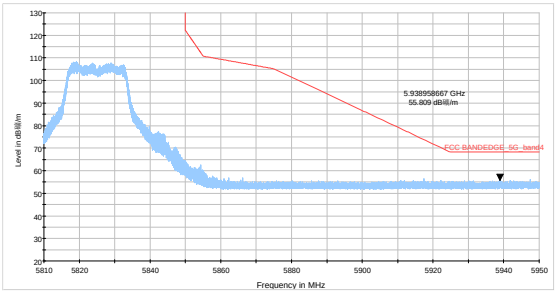


U-NII-3

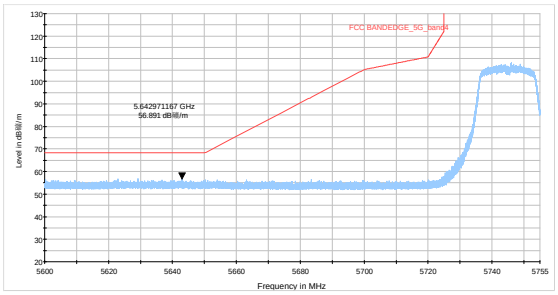
802.11a-Channel 149: Peak



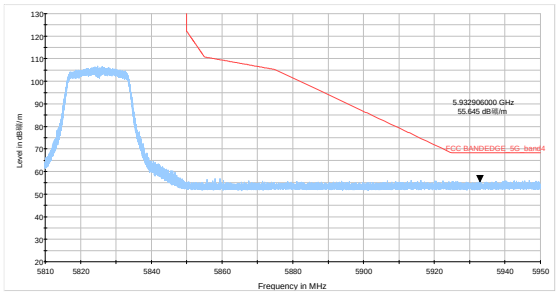
802.11a-Channel 165: Peak & Average



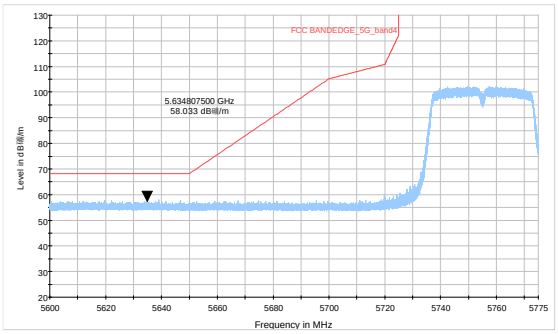
802.11n HT20-Channel 149: Peak



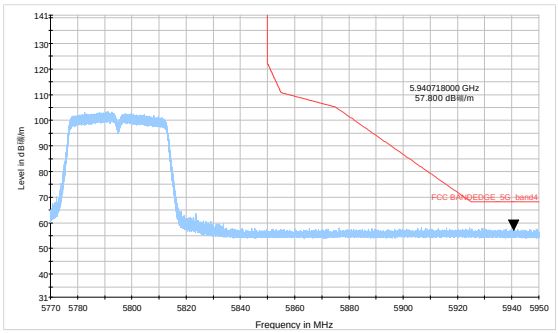
802.11n HT20-Channel 165: Peak



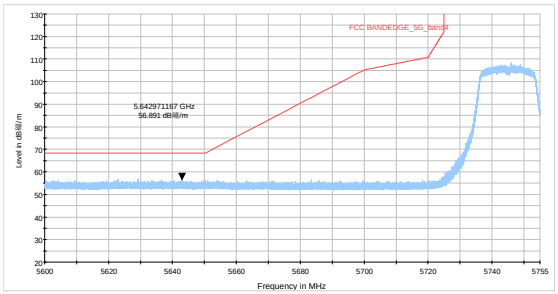
802.11n HT40-Channel 151: Peak



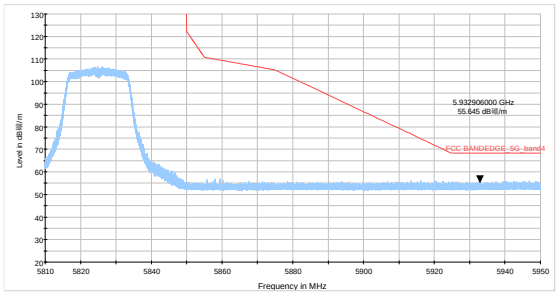
802.11n HT40-Channel 159: Peak



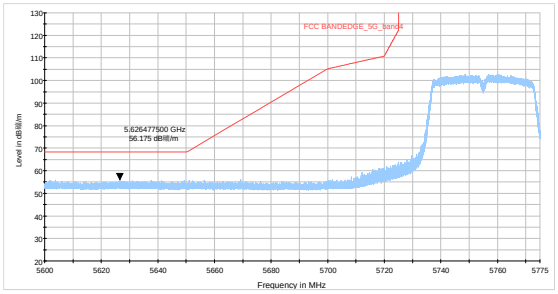
802.11ac VHT20-Channel 149: Peak



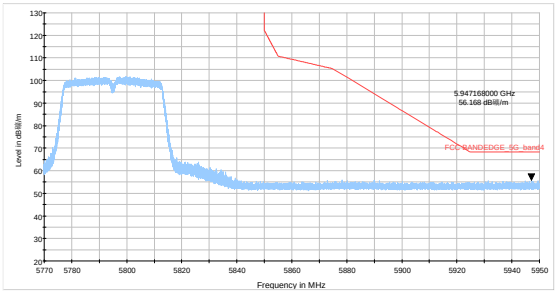
802.11ac VHT20-Channel 165: Peak



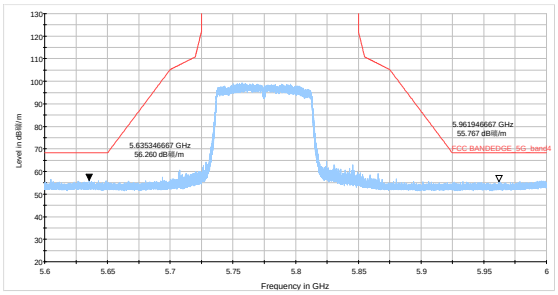
802.11ac VHT40-Channel 151: Peak



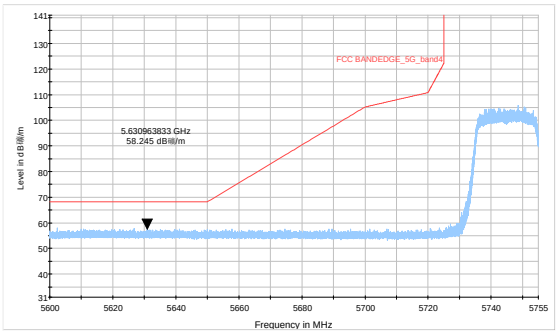
802.11ac VHT40-Channel 159: Peak



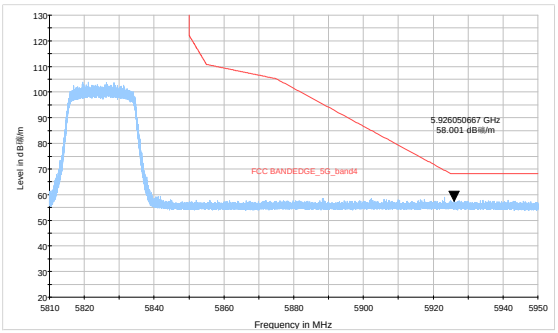
802.11ac VHT80- Channel 155: Peak



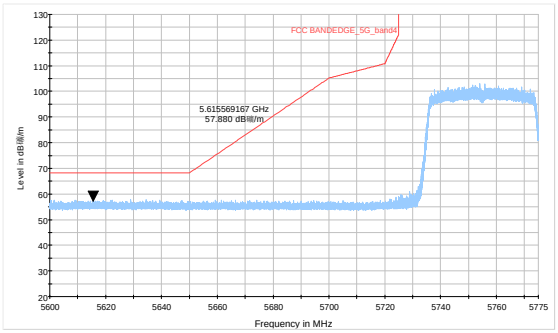
802.11ax HE20-Channel 149: Peak



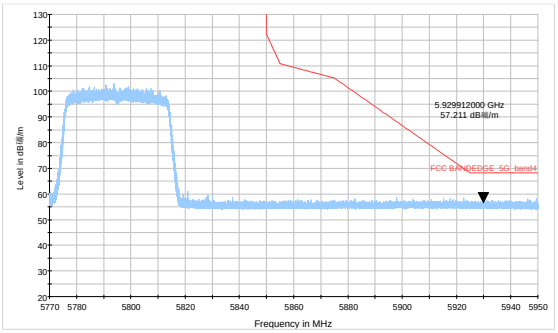
802.11ax HE20-Channel 165: Peak



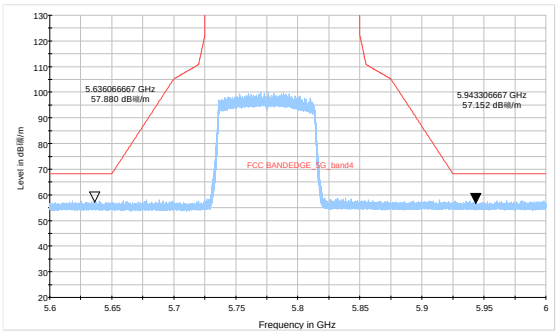
802.11ax HE40-Channel 151: Peak



802.11ax HE40-Channel 159: Peak



802.11ax HE80- 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 9 26.5GHz-40GHz are more than 20dB below the limit are not reported.

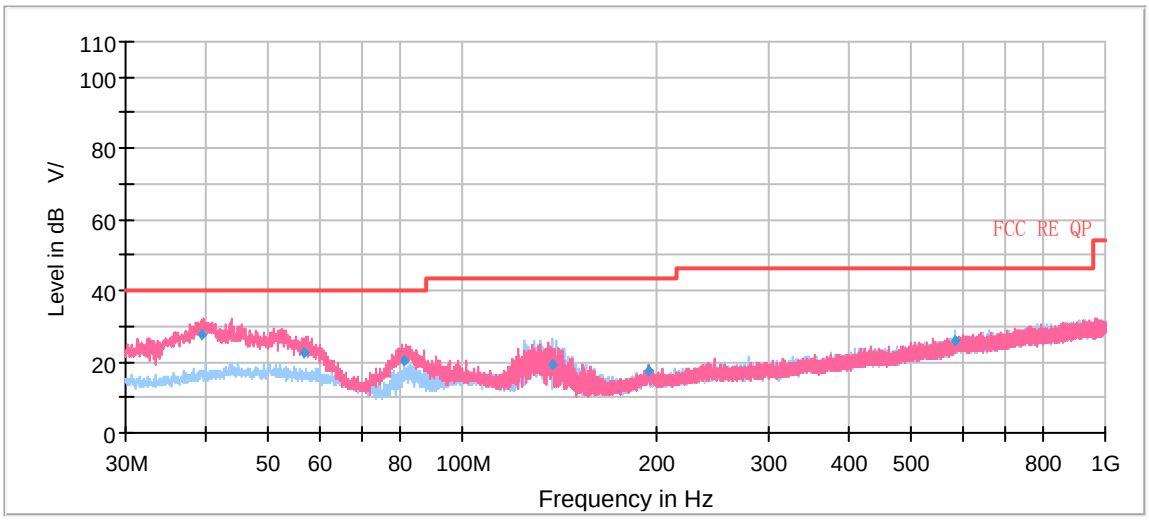
After the pretest, MIMO was selected as the worst antenna.

A font (Level in dB碼/m)in the test plot =(level in dB μ V/m)

A font (Level in dB V/)in the test plot =(level in dB μ V/m)

During the test, the Radiates Emission from 30MHz to 1GHz was performed in all modes with all channels, 802.11n (HT20), Channel 36 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Continuous TX mode:



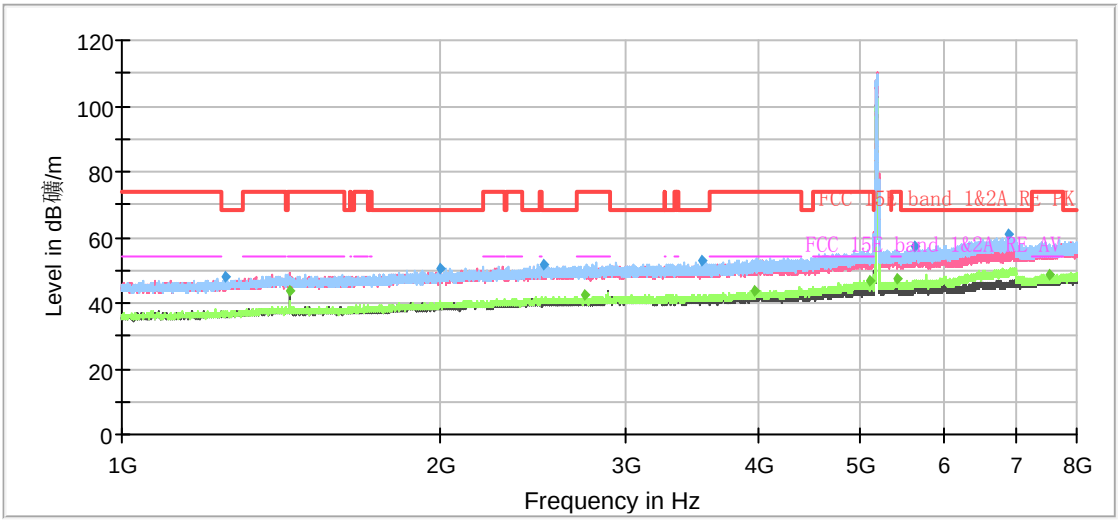
Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
39.515333	27.48	100.0	V	204.0	19	12.52	40.00
56.786333	22.43	110.0	V	316.0	20	17.57	40.00
81.146333	20.36	125.0	V	219.0	14	19.64	40.00
138.015333	19.02	175.0	H	94.0	15	24.48	43.50
195.197000	17.64	225.0	V	266.0	19	25.86	43.50
583.680333	26.19	100.0	H	153.0	26	19.81	46.00

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

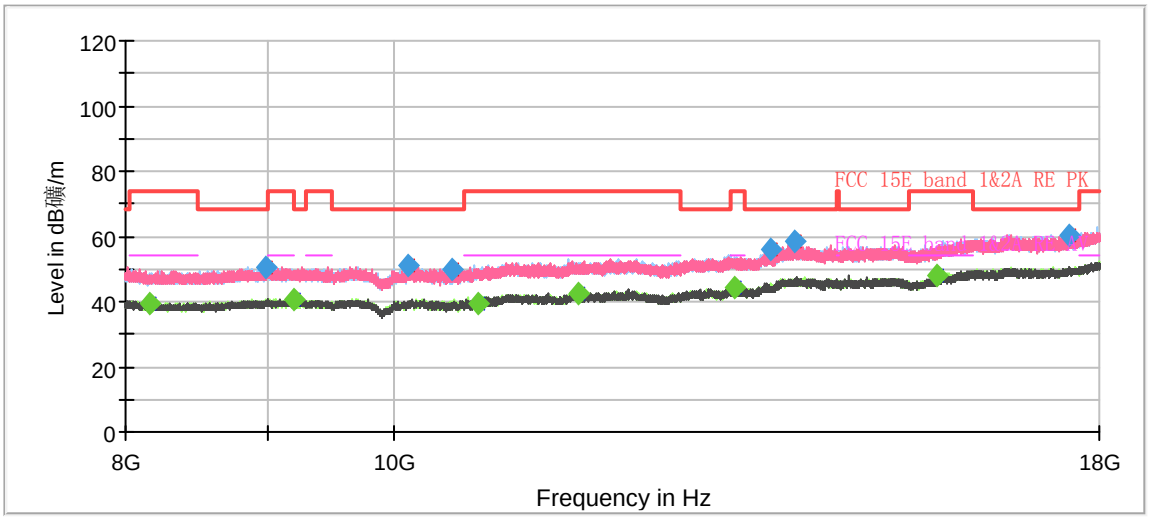
2. Margin = Limit – Quasi-Peak

802.11a CH36



Radiates Emission from 1GHz to 8GHz

Note: The signal beyond the limit is carrier.

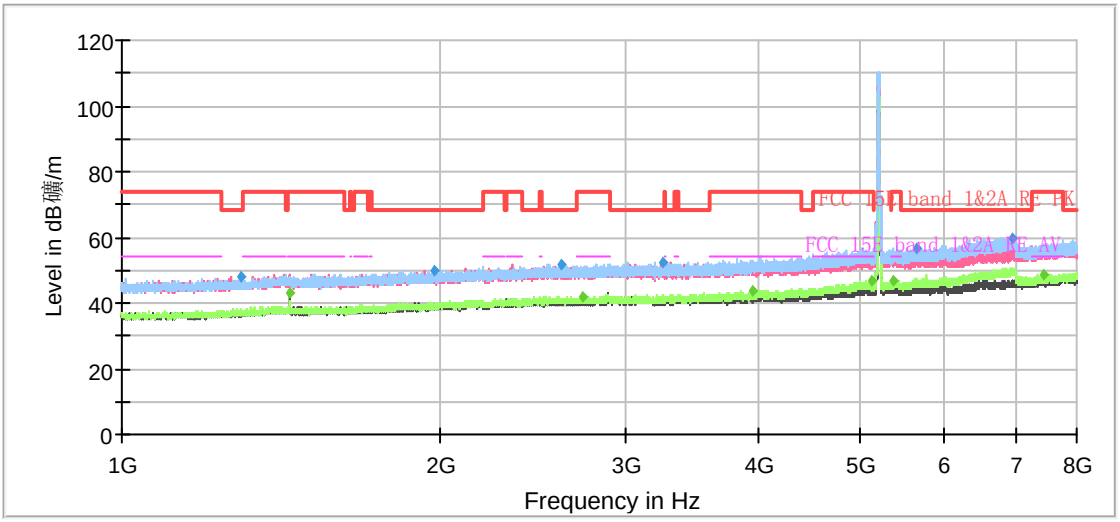


Radiates Emission from 8GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1253.633333	47.97	---	68.20	20.23	500.0	100.0	H	46.0	-8
1440.766667	---	43.69	54.00	10.31	500.0	200.0	V	318.0	-7
1997.033333	50.57	---	68.20	17.63	500.0	100.0	H	12.0	-5
2507.800000	51.98	---	68.20	16.22	500.0	200.0	H	355.0	-4
2736.233333	---	42.18	54.00	11.82	500.0	200.0	H	310.0	-4
3542.166667	52.69	---	68.20	15.51	500.0	100.0	H	63.0	-3
3970.333333	---	43.75	54.00	10.25	500.0	200.0	H	352.0	-1
5089.400000	---	47.04	54.00	6.96	500.0	100.0	H	4.0	2
5414.433333	---	47.09	54.00	6.91	500.0	200.0	H	355.0	3
5618.833333	57.19	---	68.20	11.01	500.0	200.0	H	357.0	3
6889.100000	60.90	---	68.20	7.30	500.0	100.0	H	7.0	7
7527.266667	---	48.55	54.00	5.45	500.0	200.0	H	216.0	7

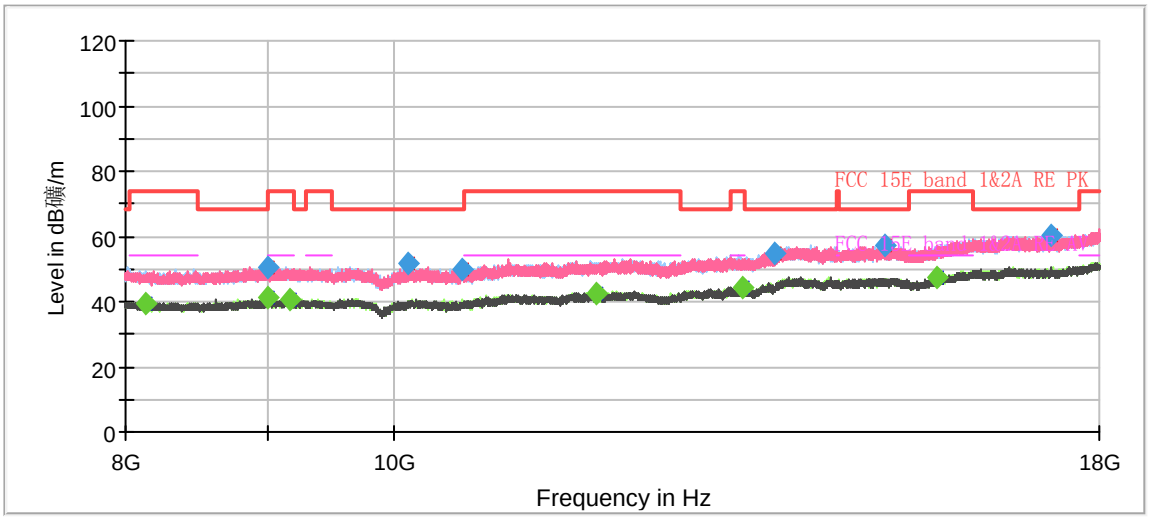
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11a CH40



Radiates Emission from 1GHz to 8GHz

Note: The signal beyond the limit is carrier.

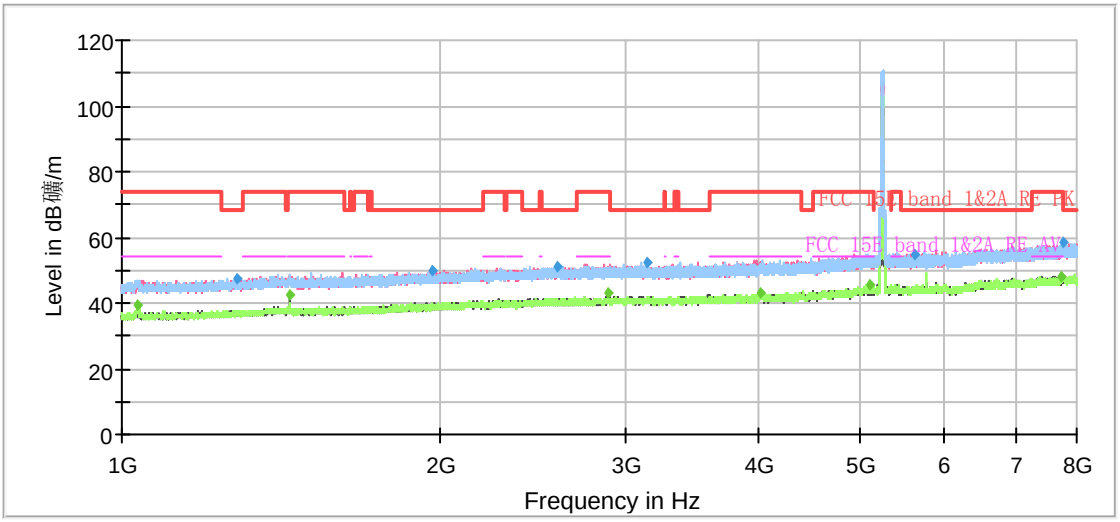


Radiates Emission from 8GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1297.033333	48.16	---	68.20	20.04	500.0	200.0	V	195.0	-8
1440.533333	---	43.25	54.00	10.75	500.0	200.0	V	321.0	-7
1971.366667	49.75	---	68.20	18.45	500.0	200.0	H	0.0	-5
2602.766667	51.91	---	68.20	16.29	500.0	200.0	H	234.0	-4
2727.366667	---	41.86	54.00	12.14	500.0	200.0	H	263.0	-4
3244.666667	52.47	---	68.20	15.73	500.0	200.0	H	353.0	-3
3950.033333	---	43.53	54.00	10.47	500.0	200.0	H	194.0	-1
5113.433333	---	46.59	54.00	7.41	500.0	200.0	H	179.0	2
5362.866667	---	46.82	54.00	7.18	500.0	200.0	H	330.0	3
5645.900000	56.83	---	68.20	11.37	500.0	100.0	H	3.0	3
6961.433333	59.94	---	68.20	8.26	500.0	100.0	H	3.0	7
7438.366667	---	48.66	54.00	5.34	500.0	200.0	H	277.0	7

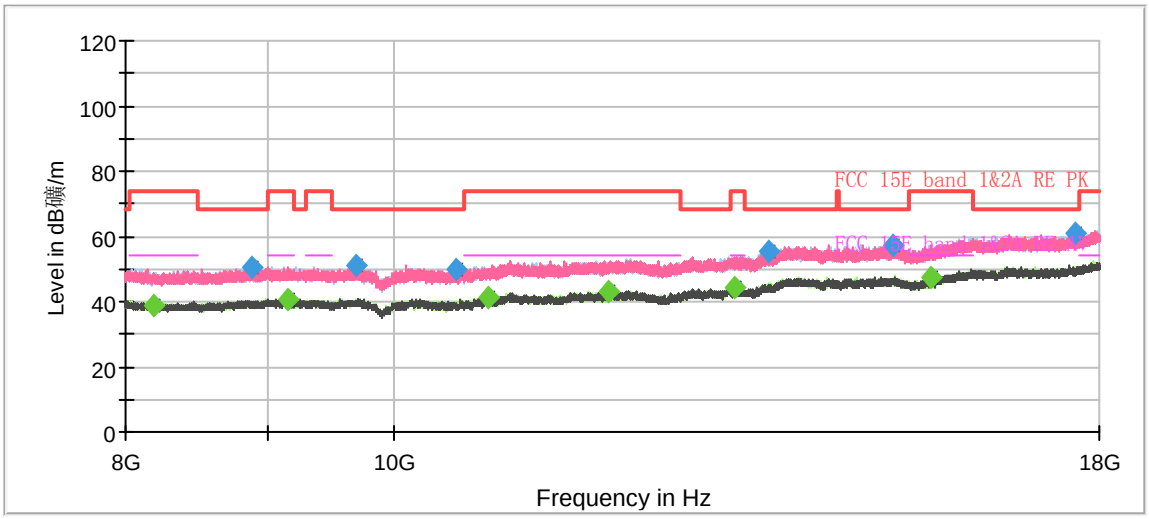
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11a CH48



Radiates Emission from 1GHz to 8GHz

Note: The signal beyond the limit is carrier.

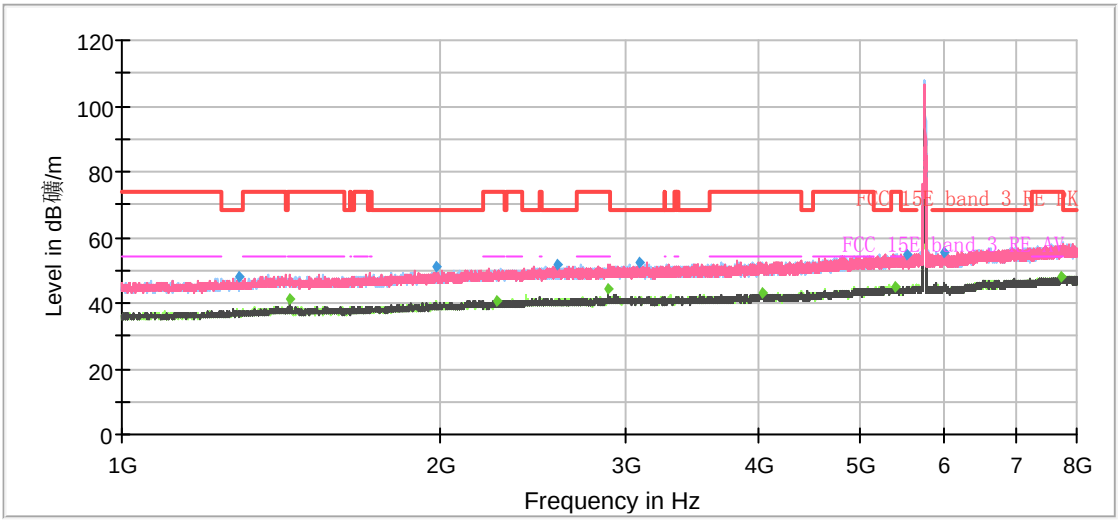


Radiates Emission from 8GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1036.400000	---	39.58	54.00	14.42	500.0	100.0	H	73.0	-10
1283.500000	47.46	---	68.20	20.74	500.0	100.0	V	324.0	-8
1440.533333	---	42.41	54.00	11.59	500.0	200.0	V	335.0	-7
1969.966667	49.85	---	68.20	18.35	500.0	100.0	H	236.0	-5
2578.733333	51.13	---	68.20	17.07	500.0	100.0	H	3.0	-4
2881.133333	---	43.25	54.00	10.75	500.0	100.0	V	359.0	-3
3135.933333	52.52	---	68.20	15.68	500.0	100.0	H	167.0	-3
4017.233333	---	42.96	54.00	11.04	500.0	200.0	H	0.0	-1
5090.800000	---	45.46	54.00	8.54	500.0	200.0	H	24.0	2
5629.100000	54.81	---	68.20	13.39	500.0	200.0	H	300.0	3
7737.733333	---	48.10	54.00	5.90	500.0	100.0	V	272.0	7
7764.100000	58.65	---	68.20	9.55	500.0	100.0	V	344.0	7

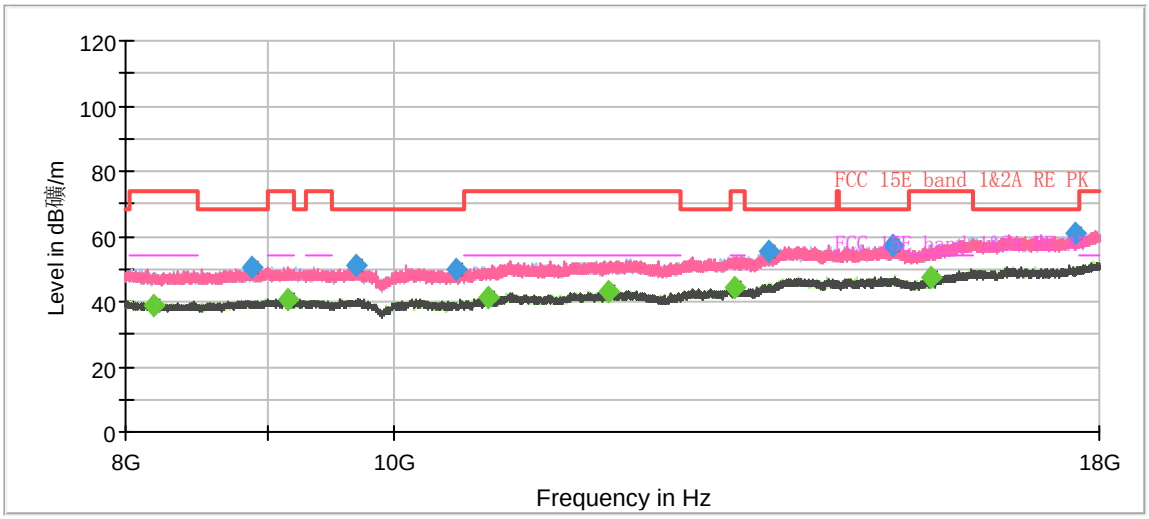
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11a CH149



Radiates Emission from 1GHz to 8GHz

Note: The signal beyond the limit is carrier.

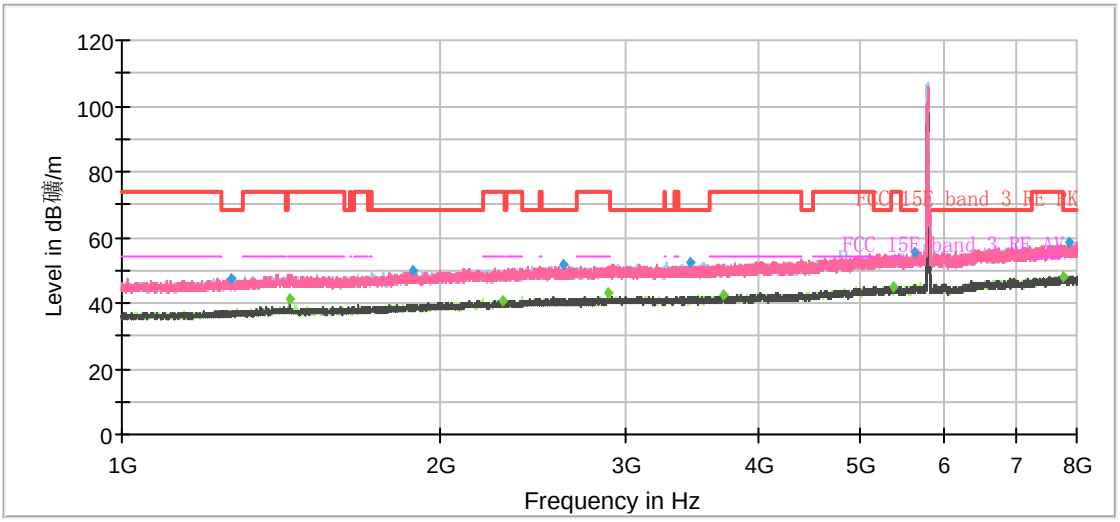


Radiates Emission from 8GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1291.200000	47.87	---	68.20	20.33	500.0	200.0	H	73.0	-8
1440.533333	---	41.54	54.00	12.46	500.0	200.0	V	328.0	-7
1982.800000	50.91	---	68.20	17.29	500.0	200.0	H	322.0	-5
2264.666667	---	40.56	54.00	13.44	500.0	200.0	H	322.0	-4
2578.966667	51.62	---	68.20	16.58	500.0	100.0	H	314.0	-4
2881.133333	---	44.11	54.00	9.89	500.0	100.0	V	349.0	-3
3088.800000	52.19	---	68.20	16.01	500.0	100.0	V	263.0	-3
4028.900000	---	42.94	54.00	11.06	500.0	100.0	V	358.0	-1
5386.433333	---	45.17	54.00	8.83	500.0	100.0	V	152.0	3
5524.566667	54.91	---	68.20	13.29	500.0	200.0	H	140.0	3
5997.533333	55.26	---	68.20	12.94	500.0	100.0	V	166.0	5
7748.233333	---	48.22	54.00	5.78	500.0	200.0	H	1.0	7

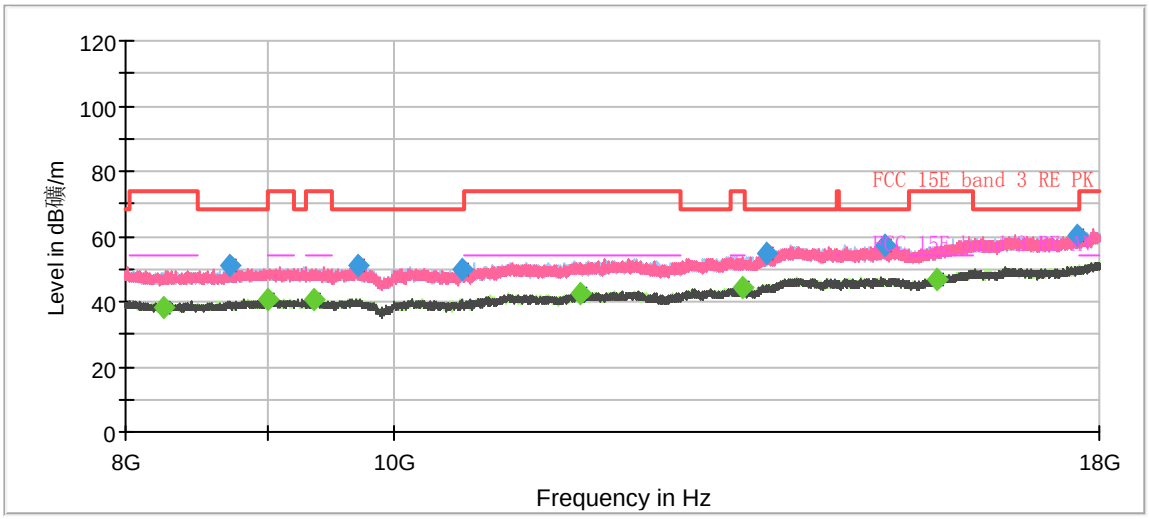
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11a CH157



Radiates Emission from 1GHz to 8GHz

Note: The signal beyond the limit is carrier.

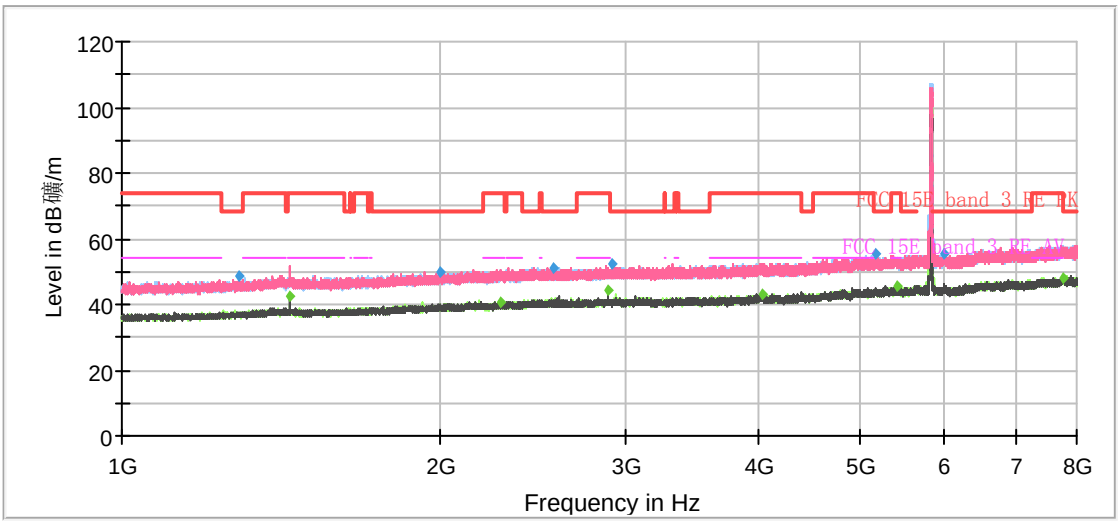


Radiates Emission from 8GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1266.700000	47.63	---	68.20	20.57	500.0	200.0	H	0.0	-8
1440.766667	---	41.35	54.00	12.65	500.0	200.0	V	315.0	-7
1880.833333	49.74	---	68.20	18.46	500.0	100.0	V	0.0	-5
2294.300000	---	40.42	54.00	13.58	500.0	200.0	V	109.0	-4
2619.100000	51.91	---	68.20	16.29	500.0	100.0	H	337.0	-4
2881.133333	---	43.18	54.00	10.82	500.0	100.0	H	352.0	-3
3443.466667	52.32	---	68.20	15.88	500.0	200.0	H	179.0	-3
3697.566667	---	42.50	54.00	11.50	500.0	200.0	V	1.0	-2
5369.633333	---	45.02	54.00	8.98	500.0	200.0	V	352.0	3
5628.633333	55.25	---	68.20	12.95	500.0	100.0	V	9.0	3
7748.933333	---	47.94	54.00	6.06	500.0	200.0	H	275.0	7
7864.666667	58.45	---	68.20	9.75	500.0	200.0	V	178.0	7

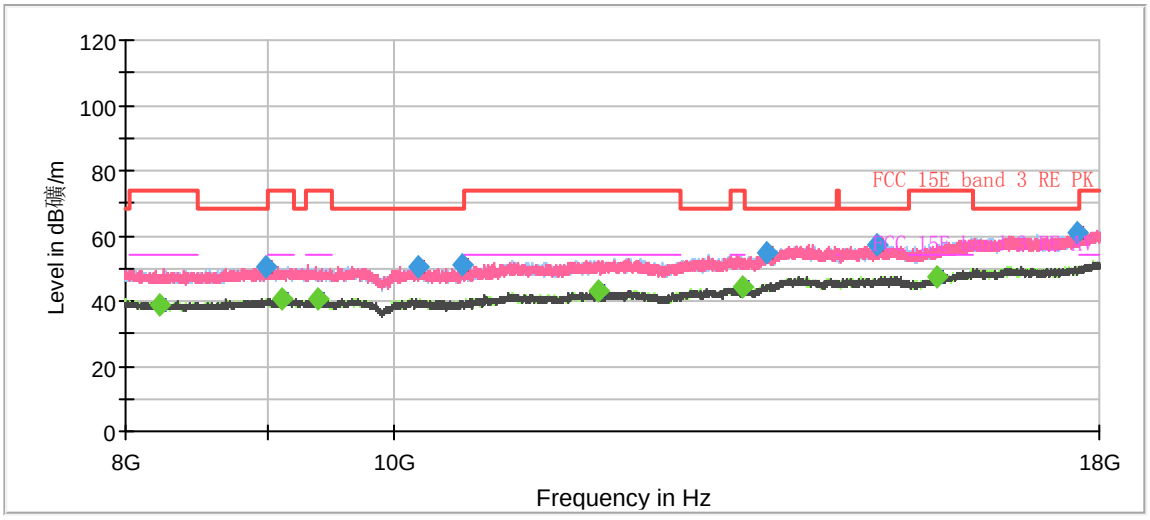
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11a CH165



Radiates Emission from 1GHz to 8GHz

Note: The signal beyond the limit is carrier.

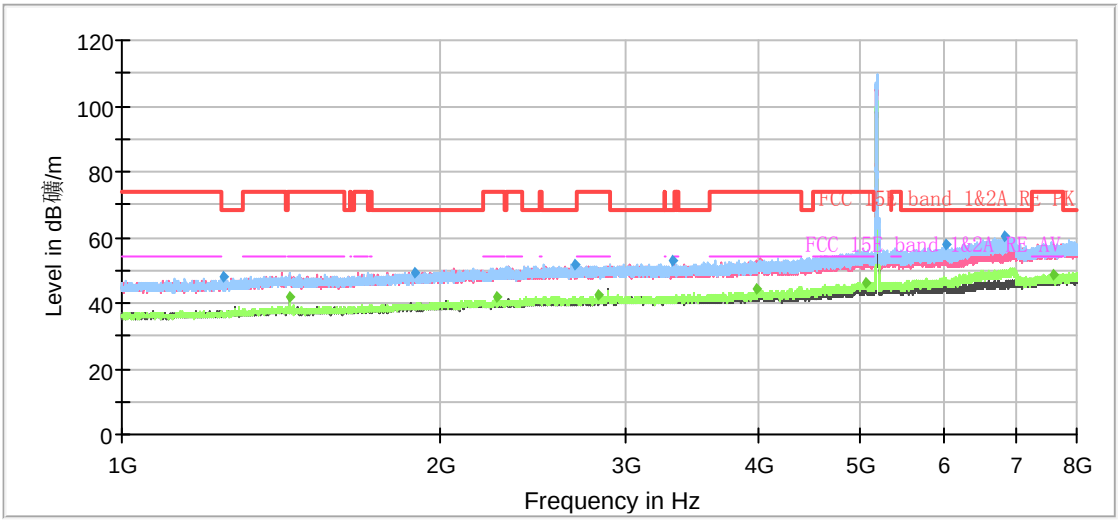


Radiates Emission from 8GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1291.200000	48.48	---	68.20	19.72	500.0	200.0	H	0.0	-8
1440.533333	---	42.27	54.00	11.73	500.0	200.0	V	358.0	-7
1996.566667	49.67	---	68.20	18.53	500.0	200.0	H	350.0	-5
2282.866667	---	40.51	54.00	13.49	500.0	100.0	V	184.0	-4
2560.066667	51.26	---	68.20	16.94	500.0	100.0	H	223.0	-4
2881.133333	---	44.08	54.00	9.92	500.0	100.0	V	358.0	-3
2904.000000	52.36	---	68.20	15.84	500.0	200.0	V	269.0	-3
4033.333333	---	43.00	54.00	11.00	500.0	200.0	H	2.0	-1
5157.766667	55.21	---	68.20	12.99	500.0	100.0	H	209.0	2
5406.966667	---	45.32	54.00	8.68	500.0	100.0	H	223.0	3
5997.066667	55.49	---	68.20	12.71	500.0	100.0	V	279.0	5
7748.933333	---	48.28	54.00	5.72	500.0	200.0	V	24.0	7

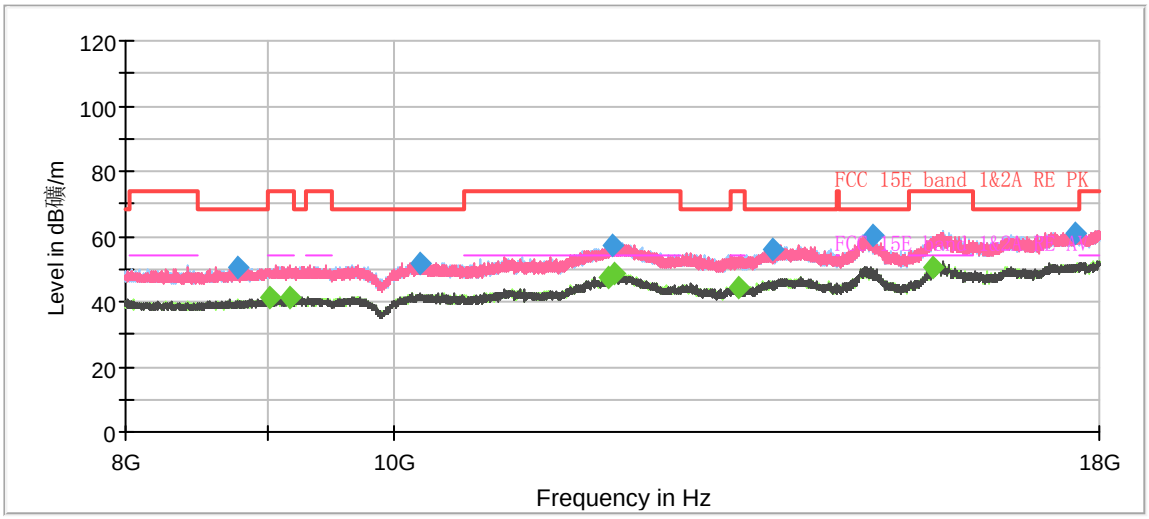
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11n (HT20) CH36



Radiates Emission from 1GHz to 8GHz

Note: The signal beyond the limit is carrier.



Radiates Emission from 8GHz to 18GHz