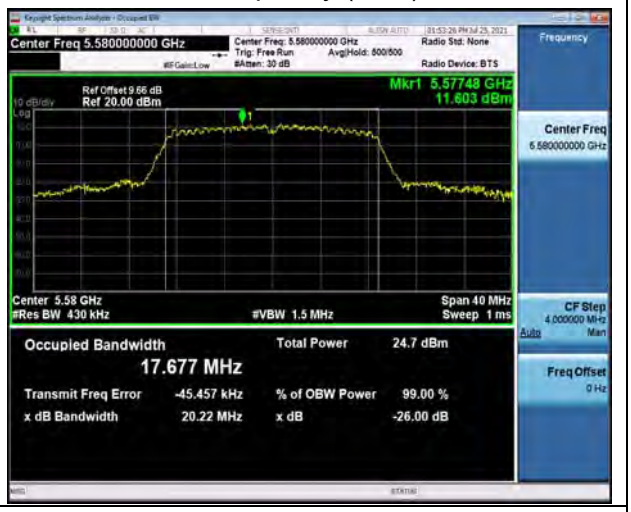
U-NII-2C, 802.11a

Carrier frequency (MHz): 5580

U-NII-2C, 802.11n HT20

Carrier frequency (MHz): 5580

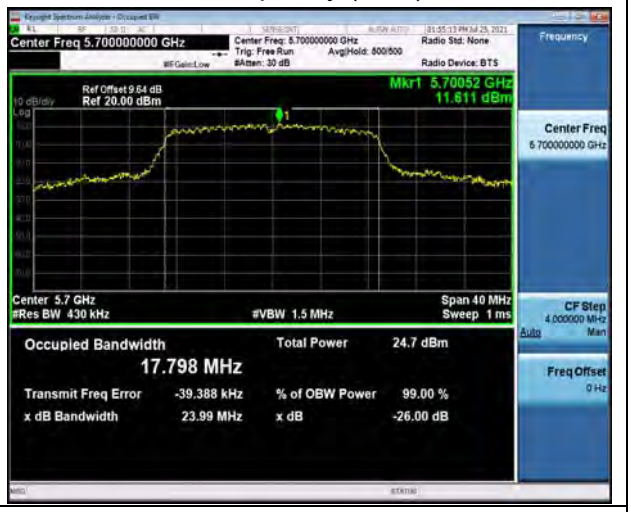


U-NII-2C, 802.11a

Carrier frequency (MHz):5700

U-NII-2C, 802.11n HT20

Carrier frequency (MHz):5700



U-NII-2C, 802.11a

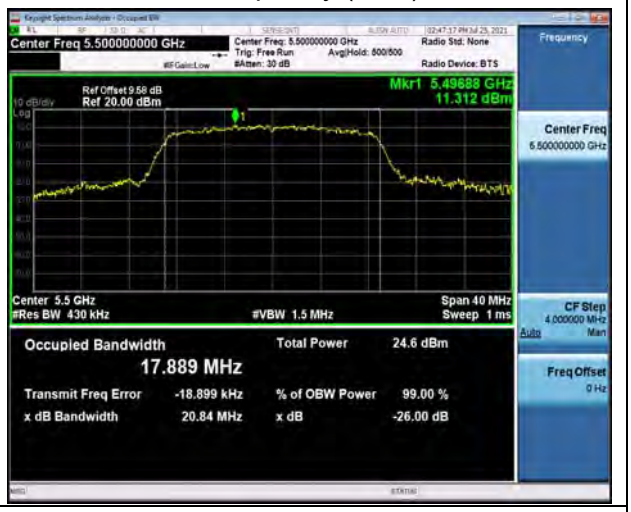
Carrier frequency (MHz):5720

U-NII-2C, 802.11n HT20

Carrier frequency (MHz):5720

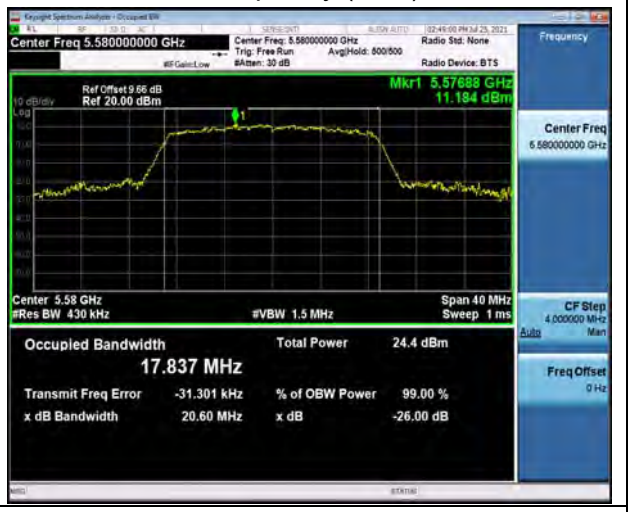
U-NII-2C, 802.11n HT40
Carrier frequency (MHz): 5510

U-NII-2C, 802.11ac VHT20
Carrier frequency (MHz): 5500



U-NII-2C, 802.11n HT40
Carrier frequency (MHz): 5550

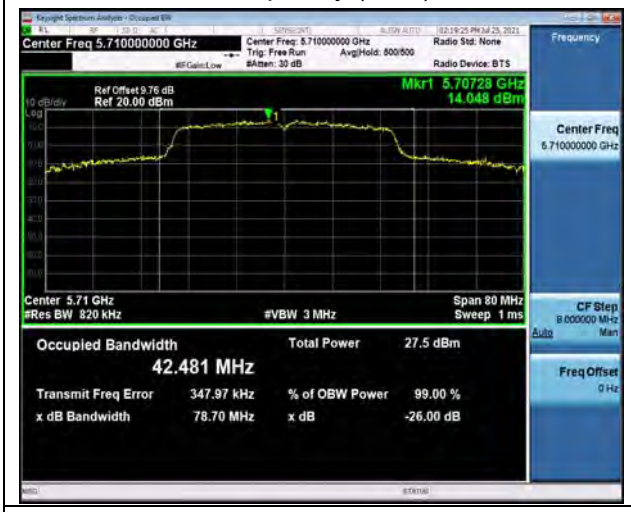
U-NII-2C, 802.11ac VHT20
Carrier frequency (MHz): 5580



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

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

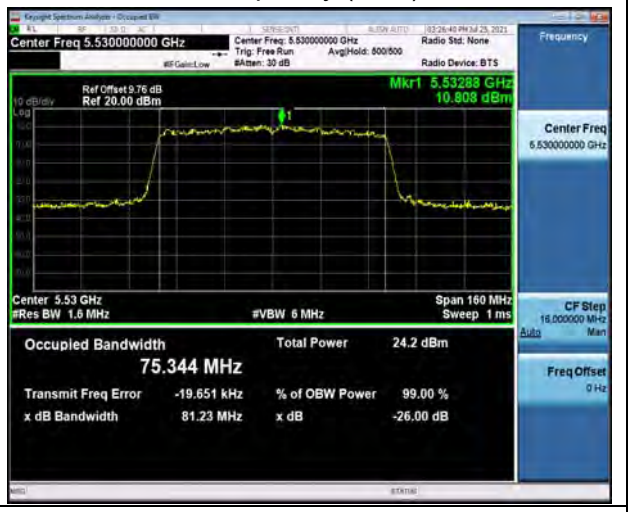
U-NII-2C, 802.11n HT40
Carrier frequency (MHz): 5710



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

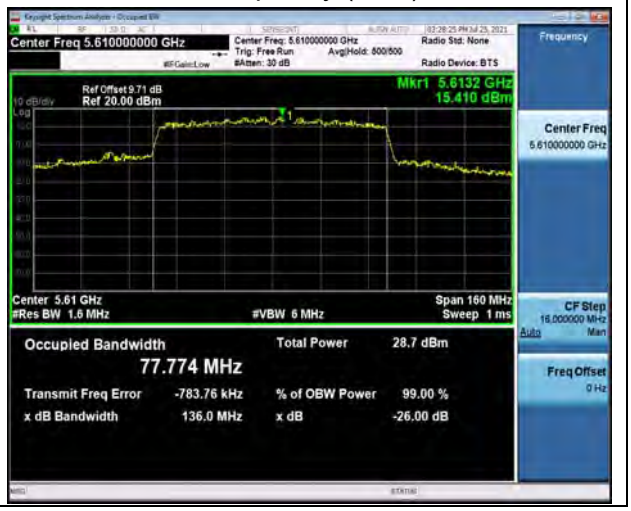
U-NII-2C, 802.11ac VHT40
Carrier frequency (MHz): 5510

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



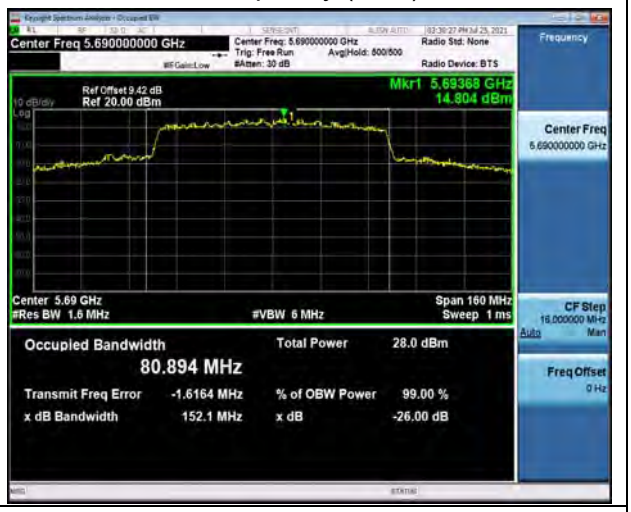
U-NII-2C, 802.11ac VHT40
Carrier frequency (MHz): 5550

U-NII-2C, 802.11ac VHT80
Carrier frequency (MHz): 5610

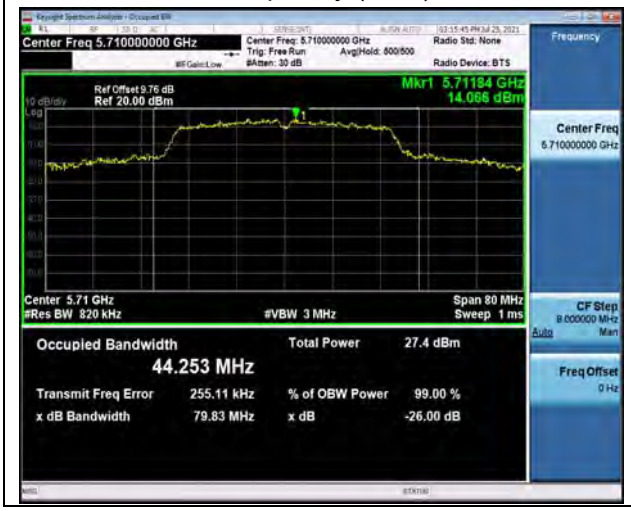


U-NII-2C, 802.11ac VHT40
Carrier frequency (MHz): 5670

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



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



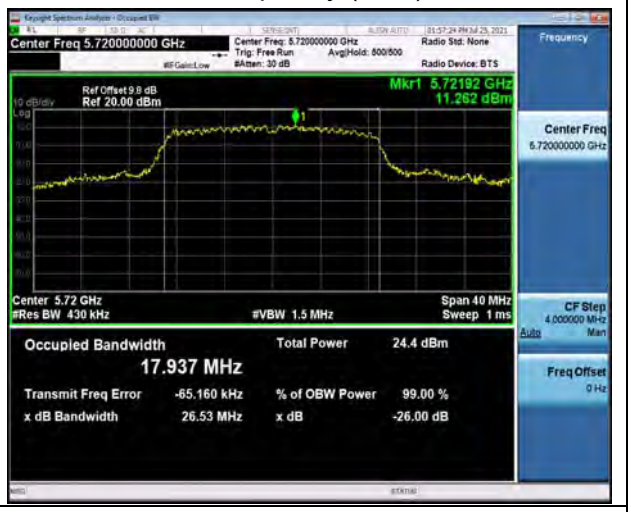
99% bandwidth

U-NII-3, 802.11a

Carrier frequency (MHz):5720

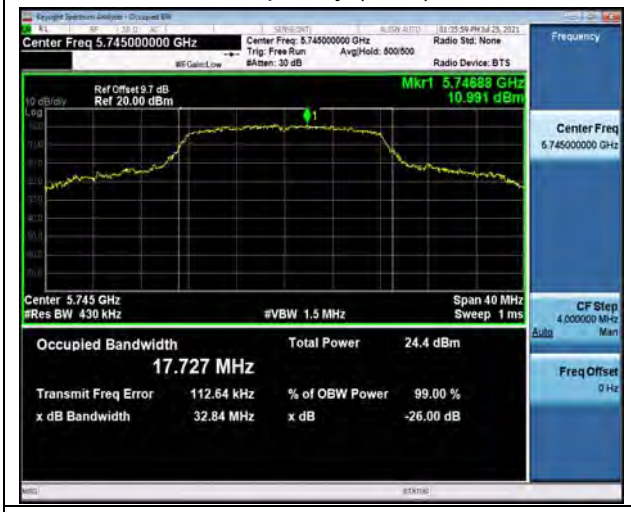
U-NII-3, 802.11n HT20

Carrier frequency (MHz):5720



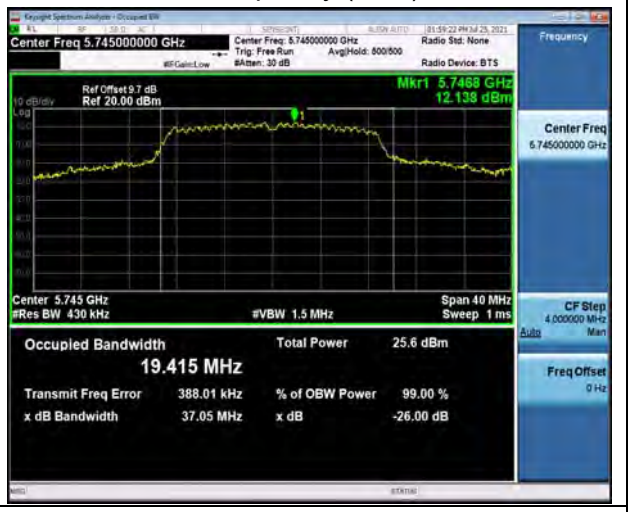
U-NII-3, 802.11a

Carrier frequency (MHz): 5745



U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5745

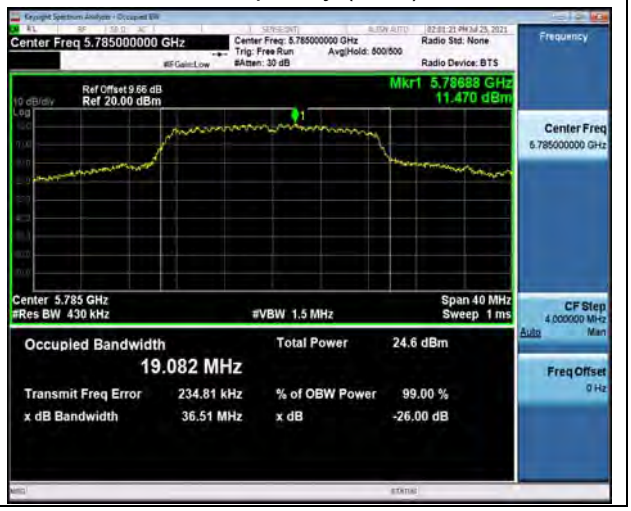


U-NII-3, 802.11a

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): 5710

U-NII-3, 802.11ac VHT20

Carrier frequency (MHz):5720

U-NII-3, 802.11n HT40

Carrier frequency (MHz): 5755

U-NII-3, 802.11ac VHT20

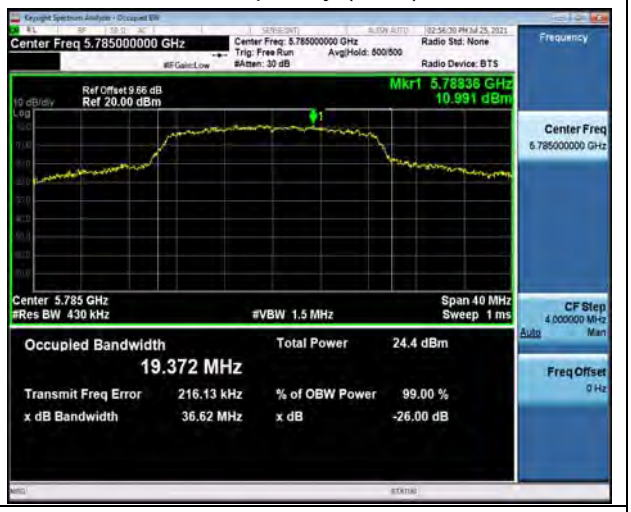
Carrier frequency (MHz): 5745

U-NII-3, 802.11n HT40

Carrier frequency (MHz): 5795

U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5785

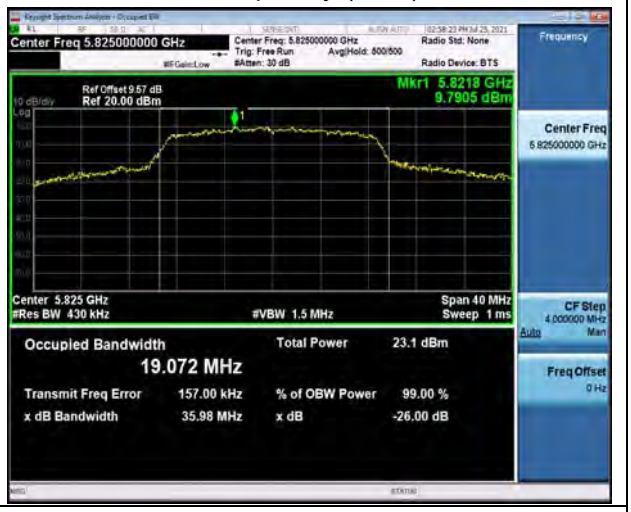


U-NII-3, 802.11ac VHT40

Carrier frequency (MHz): 5755

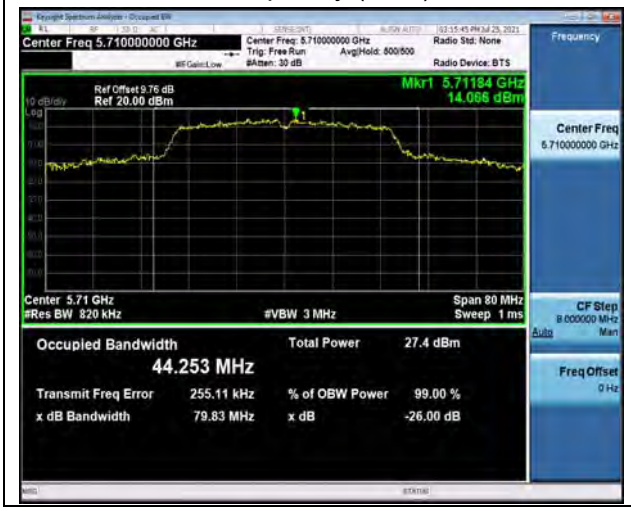
U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5825



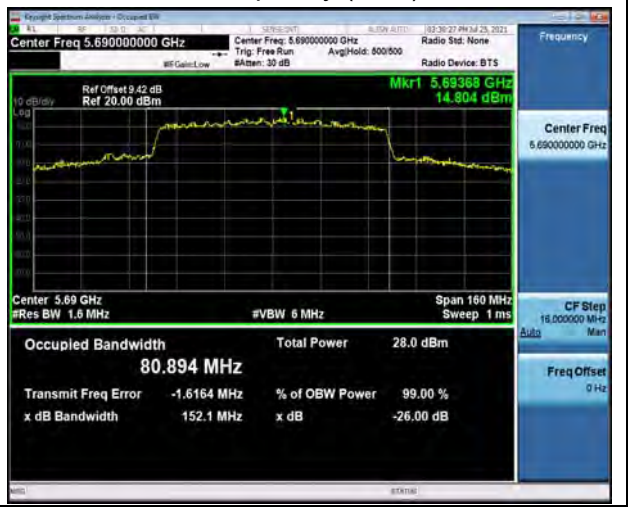
U-NII-3, 802.11ac VHT40

Carrier frequency (MHz): 5710



U-NII-3, 802.11ac VHT80

Carrier frequency (MHz): 5690

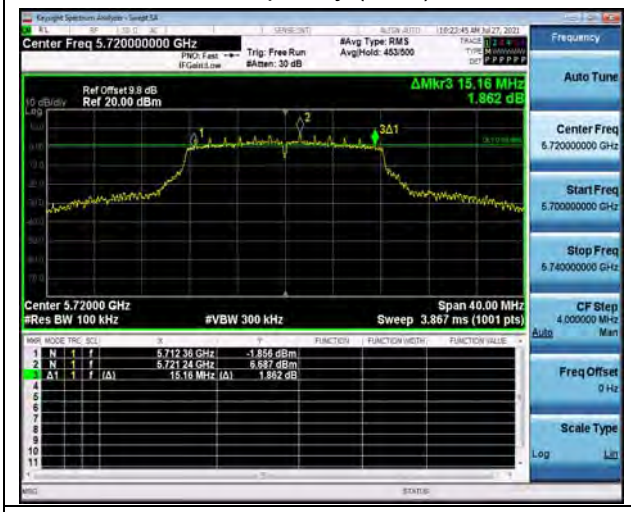


U-NII-3, 802.11ac VHT40 Carrier frequency (MHz): 5795	U-NII-3, 802.11ac VHT80 Carrier frequency (MHz): 5775
	

Minimum 6 dB bandwidth

U-NII-3, 802.11a

Carrier frequency (MHz): 5720



U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5720

U-NII-3, 802.11a

Carrier frequency (MHz): 5745

U-NII-3, 802.11n HT20

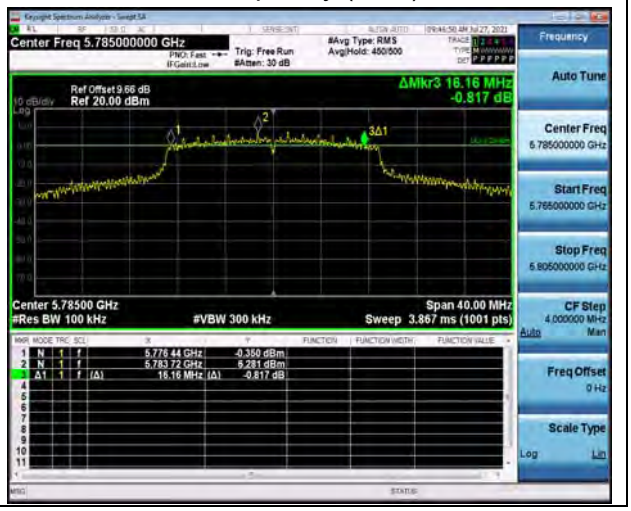
Carrier frequency (MHz): 5745

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

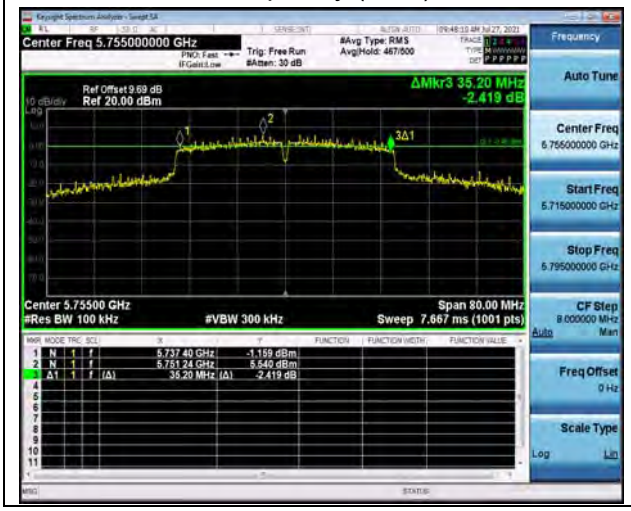
Carrier frequency (MHz): 5710

U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5720

U-NII-3, 802.11n HT40

Carrier frequency (MHz): 5755

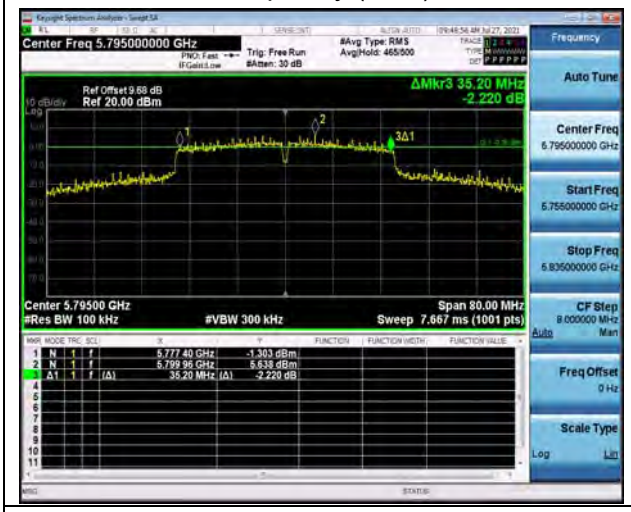


U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5745

U-NII-3, 802.11n HT40

Carrier frequency (MHz): 5795

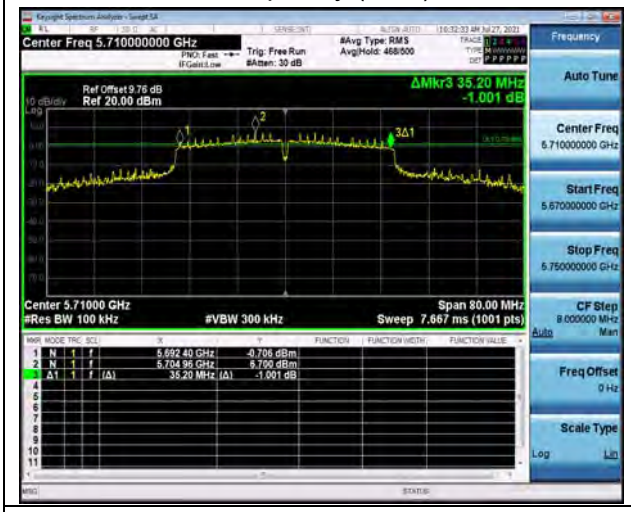


U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5785

U-NII-3, 802.11ac VHT40

Carrier frequency (MHz): 5710

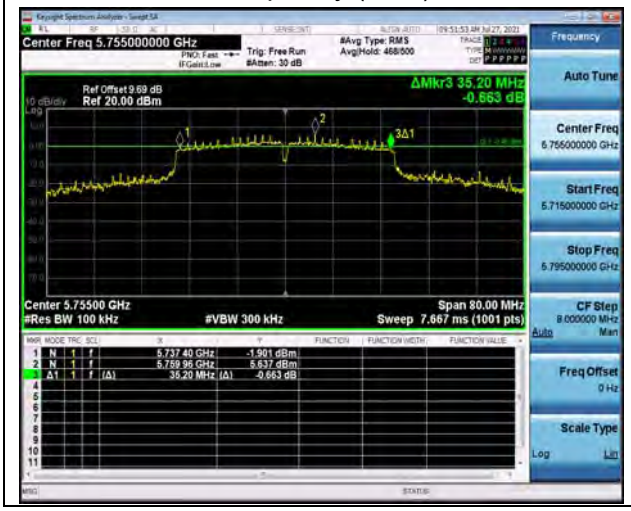


U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5825

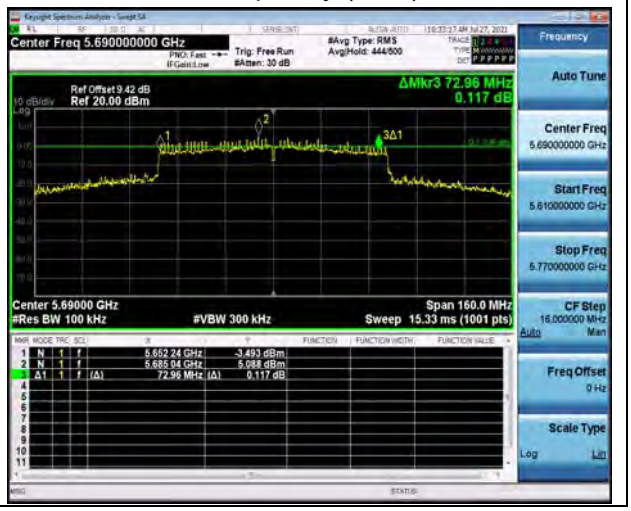
U-NII-3, 802.11ac VHT40

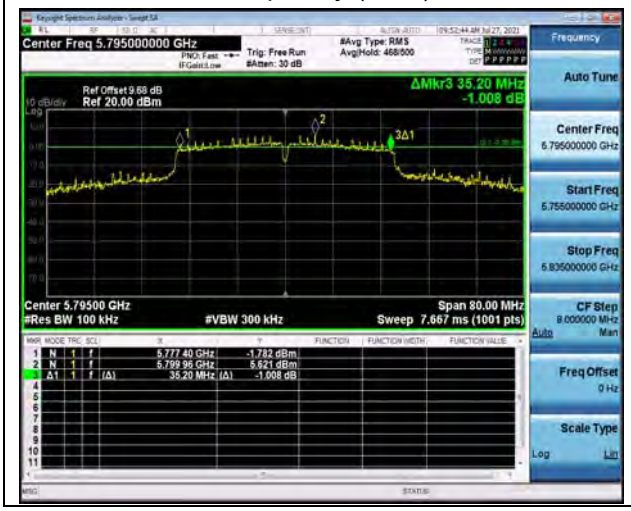
Carrier frequency (MHz): 5755



U-NII-3, 802.11ac VHT80

Carrier frequency (MHz): 5690



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

5.2. Average Power Output

Ambient condition

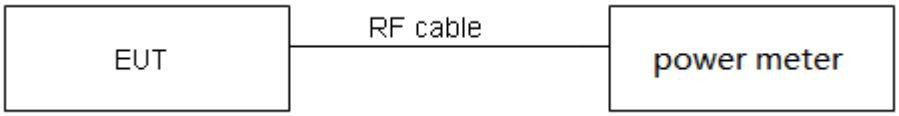
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

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

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

(3)For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Measurement Uncertainty

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

Test Results

Mode	T_{on} (ms)	$T_{(on+off)}$ (ms)	Duty cycle	Duty cycle correction Factor(dB)
802.11a	1.38	1.44	0.96	0.18
802.11n HT20	1.28	1.34	0.96	0.20
802.11n HT40	0.61	0.67	0.91	0.41
802.11ac VHT20	1.17	1.24	0.94	0.25
802.11ac VHT40	0.58	0.64	0.91	0.43
802.11ac VHT80	0.27	0.33	0.82	0.87
Note: when Duty cycle≥0.98, Duty cycle correction Factor not required.				

Test Mode		Channel/Frequency (MHz)	B=26 dB bandwidth (MHz)	Limit 11 dBm + 10 log B (dBm)	Final Limit(dBm)
U-NII-2A	802.11a	52/5260	16.95	23.29<24	23.29
		60/5300	16.95	23.29<24	23.29
		64/5320	16.92	23.28<24	23.28
	802.11n HT20	52/5260	17.83	23.51<24	23.51
		60/5300	17.85	23.52<24	23.52
		64/5320	17.84	23.51<24	23.51
	802.11n HT40	54/5270	36.16	26.58>24	24.00
		62/5310	36.17	26.58>24	24.00
	802.11ac VHT20	52/5260	17.65	23.47<24	23.47
		60/5300	17.69	23.48<24	23.48
		64/5320	17.66	23.47<24	23.47
	802.11ac VHT40	54/5270	36.34	26.60>24	24.00
		62/5310	36.25	26.59>24	24.00
	802.11ac VHT80	58/5290	75.45	29.78>24	24.00
U-NII-2C	802.11a	100/5500	16.98	23.30<24	23.30
		116/5580	16.97	23.30<24	23.30
		140/5700	17.08	23.32<24	23.32
	802.11n HT20	144/5720	17.13	23.34<24	23.34
		100/5500	17.94	23.54<24	23.54
		116/5580	17.96	23.54<24	23.54
	802.11n HT40	140/5700	18.14	23.59<24	23.59
		144/5720	18.19	23.60<24	23.60
		102/5510	37.49	26.74>24	24.00
	802.11ac VHT20	110/5550	36.87	26.67>24	24.00
		134/5670	49.17	27.92>24	24.00
		142/5710	48.28	27.84>24	24.00
	802.11ac VHT40	100/5500	17.72	23.48<24	23.48
		116/5580	17.76	23.49<24	23.49
		140/5700	17.86	23.52<24	23.52
	802.11ac VHT80	144/5720	17.92	23.53<24	23.53
Note: 250mW=24dBm					

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

MIMO

Without Beamforming

U-NII-1

Mode	Channel/ Frequency (MHz)	Antenna 1		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)			
802.11a	36/5180	12.82	13.00	13.33	13.51	16.28	30.00	PASS
	40/5200	12.02	12.20	13.09	13.27	15.78	30.00	PASS
	48/5240	12.60	12.78	11.92	12.10	15.47	30.00	PASS
802.11n HT20	36/5180	12.82	13.02	13.50	13.70	16.38	30.00	PASS
	40/5200	13.01	13.21	13.75	13.95	16.60	30.00	PASS
	48/5240	11.42	11.62	12.55	12.75	15.23	30.00	PASS
802.11n HT40	38/5190	14.27	14.68	14.70	15.11	17.91	30.00	PASS
	46/5230	13.68	14.09	13.97	14.38	17.25	30.00	PASS
802.11ac VHT20	36/5180	12.94	13.19	13.32	13.57	16.40	30.00	PASS
	40/5200	13.05	13.30	13.72	13.97	16.66	30.00	PASS
	48/5240	12.20	12.45	12.46	12.71	15.59	30.00	PASS
802.11ac VHT40	38/5190	14.23	14.66	14.78	15.21	17.95	30.00	PASS
	46/5230	13.68	14.11	13.96	14.39	17.26	30.00	PASS
802.11ac VHT80	42/5210	13.08	13.95	13.69	14.56	17.28	30.00	PASS

Note: 1.Average Power with duty factor = Average Power Measured +Duty cycle correction factor

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

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

3. The manufacturer declared that the directional gain = 5dBi<6dBi. So the power limt is 30dBm

U-NII-2A

Mode	Channel/ Frequency (MHz)	Antenna 1		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)			
802.11a	52/5260	12.12	12.30	12.46	12.64	15.49	23.29	PASS
	60/5300	12.46	12.64	12.18	12.36	15.52	23.29	PASS
	64/5320	12.05	12.23	12.90	13.08	15.69	23.28	PASS
802.11n HT20	52/5260	11.66	11.86	12.08	12.28	15.08	23.51	PASS
	60/5300	11.35	11.55	12.35	12.55	15.09	23.52	PASS
	64/5320	12.12	12.32	13.15	13.35	15.87	23.51	PASS
802.11n HT40	54/5270	13.69	14.10	14.00	14.41	17.27	24.00	PASS
	62/5310	14.04	14.45	14.86	15.27	17.89	24.00	PASS
802.11ac VHT20	52/5260	11.80	12.05	12.00	12.25	15.16	23.47	PASS
	60/5300	11.64	11.89	12.37	12.62	15.28	23.48	PASS
	64/5320	12.24	12.49	13.08	13.33	15.94	23.47	PASS
802.11ac VHT40	54/5270	13.75	14.18	14.02	14.45	17.32	24.00	PASS
	62/5310	14.02	14.45	14.75	15.18	17.84	24.00	PASS
802.11ac VHT80	58/5290	13.61	14.48	13.82	14.69	17.60	24.00	PASS

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),
The Total Power $=10\log(10^{(\text{Power antenna1 in dBm}/10)}+10^{(\text{Power antenna2 in dBm}/10)})$.

U-NII-2C

Mode	Channel/ Frequency (MHz)	Antenna 1		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)			
802.11a	100/5500	17.74	17.92	17.41	17.59	20.77	23.30	PASS
	116/5580	16.00	16.18	16.17	16.35	19.28	23.30	PASS
	140/5700	15.86	16.04	16.79	16.97	19.54	23.32	PASS
	144/5720	14.83	15.01	15.67	15.85	18.47	23.34	PASS
802.11n HT20	100/5500	17.14	17.34	17.04	17.24	20.30	23.54	PASS
	116/5580	16.26	16.46	16.61	16.81	19.65	23.54	PASS
	140/5700	15.68	15.88	16.69	16.89	19.42	23.59	PASS
	144/5720	14.69	14.89	15.58	15.78	18.37	23.60	PASS
802.11n HT40	102/5510	20.32	20.73	19.97	20.38	23.57	24.00	PASS
	110/5550	18.98	19.39	18.26	18.67	22.05	24.00	PASS
	134/5670	18.44	18.85	19.03	19.44	22.16	24.00	PASS
	142/5710	18.36	18.77	19.13	19.54	22.18	24.00	PASS
802.11ac VHT20	100/5500	17.35	17.60	16.97	17.22	20.43	23.48	PASS
	116/5580	16.44	16.69	16.75	17.00	19.86	23.49	PASS
	140/5700	15.78	16.03	16.67	16.92	19.51	23.52	PASS
	144/5720	14.80	15.05	15.54	15.79	18.45	23.53	PASS
802.11ac VHT40	102/5510	20.31	20.74	19.99	20.42	23.59	24.00	PASS
	110/5550	18.92	19.35	18.26	18.69	22.04	24.00	PASS
	134/5670	18.42	18.85	19.04	19.47	22.18	24.00	PASS
	142/5710	18.28	18.71	19.11	19.54	22.15	24.00	PASS
802.11ac VHT80	106/5530	15.03	15.90	14.75	15.62	18.77	24.00	PASS
	138/5690	18.16	19.03	18.56	19.43	22.25	24.00	PASS

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),
The Total Power =$10\log(10^{(\text{Power antenna1 in dBm}/10)}+10^{(\text{Power antenna2 in dBm}/10)})$.

U-NII-3

Mode	Channel/ Frequency (MHz)	Antenna 1		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)			
802.11a	149/5745	16.77	16.95	17.31	17.49	20.24	30.00	PASS
	157/5785	17.37	17.55	17.58	17.76	20.67	30.00	PASS
	165/5825	15.20	15.38	14.89	15.07	18.24	30.00	PASS
802.11n HT20	149/5745	17.19	17.39	17.79	17.99	20.71	30.00	PASS
	157/5785	16.46	16.66	16.77	16.97	19.83	30.00	PASS
	165/5825	15.68	15.88	15.43	15.63	18.77	30.00	PASS
802.11n HT40	151/5755	17.82	18.23	18.18	18.59	21.42	30.00	PASS
	159/5795	17.90	18.31	17.89	18.30	21.31	30.00	PASS
802.11ac VHT20	149/5745	17.34	17.59	17.86	18.11	20.87	30.00	PASS
	157/5785	16.64	16.89	16.77	17.02	19.97	30.00	PASS
	165/5825	15.67	15.92	15.43	15.68	18.81	30.00	PASS
802.11ac VHT40	151/5755	17.79	18.22	18.22	18.65	21.45	30.00	PASS
	159/5795	17.86	18.29	17.94	18.37	21.34	30.00	PASS
802.11ac VHT80	155/5775	17.06	17.93	17.30	18.17	21.06	30.00	PASS

Note: 1.Average Power with duty factor = Average Power Measured +Duty cycle correction factor
2. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),
The Total Power $=10\log(10^{(\text{Power antenna1 in dBm}/10)}+10^{(\text{Power antenna2 in dBm}/10)})$.
3. The manufacturer declared that the directional gain = 5dBi<6dBi. So the power limt is 30dBm

Beamforming

Test Mode		Channel/Frequency (MHz)	B=26 dB bandwidth (MHz)	Limit 11 dBm + 10 log B (dBm)	Final Limit(dBm)
U-NII-2A	802.11a	52/5260	16.98	23.30<24	23.30
		60/5300	16.99	23.30<24	23.30
		64/5320	16.94	23.29<24	23.29
	802.11n HT20	52/5260	17.84	23.51<24	23.51
		60/5300	17.83	23.51<24	23.51
		64/5320	17.84	23.51<24	23.51
	802.11n HT40	54/5270	36.15	26.58>24	24.00
		62/5310	36.09	26.57>24	24.00
	802.11ac VHT20	52/5260	17.65	23.47<24	23.47
		60/5300	17.67	23.47<24	23.47
		64/5320	17.66	23.47<24	23.47
	802.11ac VHT40	54/5270	36.29	26.60>24	24.00
		62/5310	36.27	26.60>24	24.00
	802.11ac VHT80	58/5290	75.48	29.78>24	24.00
U-NII-2C	802.11a	100/5500	17.00	23.31<24	23.31
		116/5580	16.99	23.30<24	23.30
		140/5700	17.08	23.33<24	23.33
	802.11n HT20	144/5720	17.11	23.33<24	23.33
		100/5500	17.93	23.54<24	23.54
		116/5580	17.95	23.54<24	23.54
	802.11n HT40	140/5700	18.08	23.57<24	23.57
		144/5720	18.13	23.58<24	23.58
		102/5510	36.51	26.62>24	24.00
	802.11ac VHT20	110/5550	47.49	27.77>24	24.00
		134/5670	46.39	27.66>24	24.00
		142/5710	37.90	26.79>24	24.00
	802.11ac VHT40	100/5500	17.69	23.48<24	23.48
		116/5580	17.76	23.49<24	23.49
		140/5700	17.84	23.51<24	23.51
	802.11ac VHT80	144/5720	17.92	23.53<24	23.53
Note: 250mW=24dBm					

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

U-NII-1

Mode	Channel/ Frequency (MHz)	Antenna 1		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)			
802.11a	36/5180	12.91	13.13	13.41	13.63	16.39	28.80	PASS
	40/5200	12.54	12.76	13.12	13.34	16.07	28.80	PASS
	48/5240	11.55	11.77	11.90	12.12	14.96	28.80	PASS
802.11n HT20	36/5180	12.86	13.06	13.50	13.70	16.40	28.80	PASS
	40/5200	12.94	13.14	13.77	13.97	16.59	28.80	PASS
	48/5240	12.10	12.30	12.62	12.82	15.58	28.80	PASS
802.11n HT40	38/5190	14.30	14.70	14.80	15.20	17.97	28.80	PASS
	46/5230	13.78	14.18	14.01	14.41	17.31	28.80	PASS
802.11ac VHT20	36/5180	12.88	13.10	13.43	13.65	16.39	28.80	PASS
	40/5200	13.14	13.36	13.76	13.98	16.69	28.80	PASS
	48/5240	12.20	12.42	12.61	12.83	15.64	28.80	PASS
802.11ac VHT40	38/5190	14.23	14.66	14.80	15.23	17.96	28.80	PASS
	46/5230	13.70	14.13	14.11	14.54	17.35	28.80	PASS
802.11ac VHT80	42/5210	13.17	14.04	13.78	14.65	17.37	28.80	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 that the directional gain = 7.2dBi>6dBi. So the power limt is 30-(directional gain-6 dBi) =30-(7.2-6) =28.80 dBm.

U-NII-2A

Mode	Channel/ Frequency (MHz)	Antenna 1		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)			
802.11a	52/5260	12.26	12.48	12.59	12.81	15.65	22.10	PASS
	60/5300	11.59	11.81	12.26	12.48	15.16	22.10	PASS
	64/5320	12.15	12.37	12.95	13.17	15.80	22.09	PASS
802.11n HT20	52/5260	11.57	11.77	12.10	12.30	15.05	22.31	PASS
	60/5300	11.50	11.70	12.51	12.71	15.25	22.31	PASS
	64/5320	12.11	12.31	13.09	13.29	15.84	22.31	PASS
802.11n HT40	54/5270	13.69	14.09	13.97	14.37	17.24	22.80	PASS
	62/5310	14.05	14.45	14.91	15.31	17.91	22.80	PASS
802.11ac VHT20	52/5260	11.67	11.89	12.05	12.27	15.09	22.27	PASS
	60/5300	11.49	11.71	12.45	12.67	15.22	22.27	PASS
	64/5320	12.14	12.36	13.17	13.39	15.91	22.27	PASS
802.11ac VHT40	54/5270	13.73	14.16	14.14	14.57	17.38	22.80	PASS
	62/5310	14.05	14.48	15.07	15.50	18.03	22.80	PASS
802.11ac VHT80	58/5290	13.62	14.49	13.85	14.72	17.62	22.80	PASS

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),
The Total Power $=10\log(10^{(\text{Power antenna1 in dBm}/10)}+10^{(\text{Power antenna2 in dBm}/10)})$.

U-NII-2C

Mode	Channel/ Frequency (MHz)	Antenna 1		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)			
802.11a	100/5500	15.90	16.12	15.48	15.70	18.92	21.71	PASS
	116/5580	16.03	16.25	16.19	16.41	19.34	21.70	PASS
	140/5700	15.34	15.56	16.21	16.43	19.02	21.73	PASS
	144/5720	15.17	15.39	15.74	15.96	18.69	21.73	PASS
802.11n HT20	100/5500	16.32	16.52	16.28	16.48	19.51	21.94	PASS
	116/5580	15.82	16.02	16.13	16.33	19.19	21.94	PASS
	140/5700	15.75	15.95	16.91	17.11	19.58	21.97	PASS
	144/5720	14.83	15.03	15.79	15.99	18.55	21.98	PASS
802.11n HT40	102/5510	18.76	19.16	18.45	18.85	22.02	22.40	PASS
	110/5550	18.94	19.34	18.31	18.71	22.05	22.40	PASS
	134/5670	18.39	18.79	19.02	19.42	22.13	22.40	PASS
	142/5710	18.30	18.70	19.02	19.42	22.09	22.40	PASS
802.11ac VHT20	100/5500	16.48	16.70	16.12	16.34	19.53	21.88	PASS
	116/5580	15.98	16.20	16.25	16.47	19.34	21.89	PASS
	140/5700	15.86	16.08	16.84	17.06	19.61	21.91	PASS
	144/5720	14.85	15.07	15.74	15.96	18.55	21.93	PASS
802.11ac VHT40	102/5510	18.81	19.24	18.55	18.98	22.12	22.40	PASS
	110/5550	19.01	19.44	18.43	18.86	22.17	22.40	PASS
	134/5670	18.44	18.87	19.08	19.51	22.21	22.40	PASS
	142/5710	18.27	18.70	19.12	19.55	22.15	22.40	PASS
802.11ac VHT80	106/5530	15.08	15.95	14.84	15.71	18.84	22.40	PASS
	138/5690	18.17	19.04	18.59	19.46	22.27	22.40	PASS

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),
The Total Power $=10\log(10^{(\text{Power antenna1 in dBm}/10)}+10^{(\text{Power antenna2 in dBm}/10)})$.

U-NII-3

Mode	Channel/ Frequency (MHz)	Antenna 1		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)			
802.11a	149/5745	17.10	17.32	17.46	17.68	20.51	28.20	PASS
	157/5785	17.61	17.83	17.65	17.87	20.86	28.20	PASS
	165/5825	15.40	15.62	15.02	15.24	18.44	28.20	PASS
802.11n HT20	149/5745	17.19	17.39	17.88	18.08	20.76	28.20	PASS
	157/5785	16.62	16.82	16.87	17.07	19.96	28.20	PASS
	165/5825	15.64	15.84	15.51	15.71	18.79	28.20	PASS
802.11n HT40	151/5755	17.73	18.13	18.10	18.50	21.33	28.20	PASS
	159/5795	18.01	18.41	18.03	18.43	21.43	28.20	PASS
802.11ac VHT20	149/5745	17.26	17.48	17.90	18.12	20.82	28.20	PASS
	157/5785	16.65	16.87	16.90	17.12	20.00	28.20	PASS
	165/5825	15.80	16.02	15.55	15.77	18.90	28.20	PASS
802.11ac VHT40	151/5755	17.74	18.17	18.25	18.68	21.44	28.20	PASS
	159/5795	17.96	18.39	18.08	18.51	21.46	28.20	PASS
802.11ac VHT80	155/5775	17.08	17.95	17.34	18.21	21.09	28.20	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 that the directional gain = 7.8dBi>6dBi. So the power limt is 30-(directional gain-6 dBi) =30-(7.8-6) =28.20 dBm.

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	5200.007200	5199.998579	5199.993075	5199.990802
12	-10	5200.008330	5199.992870	5199.989417	5199.983697
12	0	5200.004483	5199.987371	5199.984349	5199.980772
12	10	5199.995335	5199.981665	5199.976139	5199.973251
12	20	5199.987013	5199.974400	5199.967345	5199.972335
12	30	5199.979802	5199.972605	5199.966821	5199.968914
12	40	5199.977672	5199.962615	5199.962255	5199.968704
12	50	5199.969041	5199.960634	5199.962051	5199.968025
10	20	5199.960772	5199.950965	5199.960282	5199.965674
14	20	5199.958344	5199.950295	5199.954417	5199.961104
MHz		-0.041656	-0.049705	-0.045583	-0.038896
PPM		-8.010702	-9.558569	-8.765887	-7.479943

Voltage (V)	Temperature (°C)	U-NII-2A Test Results			
		5300MHz			
		1min	2min	5min	10min
12	-20	5300.004572	5299.999870	5299.991266	5299.983607
12	-10	5299.997835	5299.994308	5299.982641	5299.977269
12	0	5299.995194	5299.988493	5299.973651	5299.971051
12	10	5299.985751	5299.979888	5299.966798	5299.963034
12	20	5299.979335	5299.970115	5299.965874	5299.962328
12	30	5299.974998	5299.968987	5299.959298	5299.959099
12	40	5299.968418	5299.964487	5299.955679	5299.953623
12	50	5299.960830	5299.962568	5299.953029	5299.951707
10	20	5299.955545	5299.956106	5299.952288	5299.942770
14	20	5299.955466	5299.955480	5299.943780	5299.933317
MHz		-0.044534	-0.044520	-0.056220	-0.066683
PPM		-8.402631	-8.399958	-10.607531	-12.581693

Voltage (V)	Temperature (°C)	U-NII-2C Test Results			
		5580MHz			
		1min	2min	5min	10min
12	-20	5580.001416	5579.993631	5579.990619	5579.980866
12	-10	5579.998636	5579.985992	5579.987774	5579.979036
12	0	5579.991801	5579.985900	5579.982232	5579.978853
12	10	5579.991725	5579.985655	5579.982093	5579.977959
12	20	5579.982338	5579.976742	5579.978636	5579.970795
12	30	5579.980183	5579.973443	5579.977711	5579.964909
12	40	5579.976478	5579.972458	5579.969807	5579.961502
12	50	5579.968298	5579.968632	5579.969359	5579.955279
10	20	5579.967287	5579.965596	5579.968094	5579.954653
14	20	5579.963272	5579.964155	5579.967770	5579.949995
MHz		-0.036728	-0.035845	-0.032230	-0.050005
PPM		-6.582111	-6.423782	-5.775941	-8.961411

Voltage (V)	Temperature (°C)	U-NII-3 Test Results			
		5785MHz			
		1min	2min	5min	10min
12	-20	5784.995394	5784.986301	5784.981760	5784.975599
12	-10	5784.988431	5784.982770	5784.972769	5784.975065
12	0	5784.986342	5784.974122	5784.972245	5784.968321
12	10	5784.985903	5784.964923	5784.964268	5784.967815
12	20	5784.981772	5784.963984	5784.962124	5784.960427
12	30	5784.972097	5784.959715	5784.960386	5784.955535
12	40	5784.969372	5784.958507	5784.951381	5784.948509
12	50	5784.963273	5784.953879	5784.948755	5784.942154
10	20	5784.959960	5784.952702	5784.939488	5784.940578
14	20	5784.956422	5784.948126	5784.936554	5784.938177
MHz		-0.043578	-0.051874	-0.063446	-0.061823
PPM		-7.532879	-8.967003	-10.967415	-10.686774

5.4. Power Spectral Density

Ambient condition

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

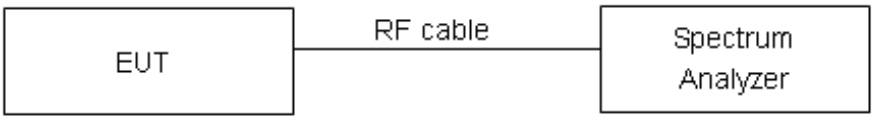
Method of Measurement

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

Set RBW = 1MHz, VBW =3MHz for the band 5.150-5.250GHz, 5.250-5.350GHz, 5.470-5.725GHz.
Set RBW = 470kHz, VBW =1.5MHz for the band 5.725-5.850GHz

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

Test setup



Limits

Rule FCC Part 15.407(a)(1)/ Part 15.407(a)(2) / Part 15.407(a)(3)
For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500kHz band. If transmittingantennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the

amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

Measurement Uncertainty

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

Test Results:

Without Beamforming

MIMO

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	2.57	2.75	3.13	3.31	6.05	17.00	PASS
	40/5200	2.50	2.68	3.10	3.28	6.01	17.00	PASS
	48/5240	1.32	1.50	1.47	1.65	4.59	17.00	PASS
802.11n HT20	36/5180	2.54	2.74	3.13	3.33	6.05	17.00	PASS
	40/5200	2.66	2.86	3.25	3.45	6.17	17.00	PASS
	48/5240	1.57	1.77	2.28	2.48	5.15	17.00	PASS
802.11n HT40	38/5190	0.86	1.27	1.60	2.01	4.66	17.00	PASS
	46/5230	0.32	0.73	0.70	1.11	3.93	17.00	PASS
802.11ac VHT20	36/5180	2.49	2.74	2.96	3.21	5.99	17.00	PASS
	40/5200	2.73	2.98	3.57	3.82	6.43	17.00	PASS
	48/5240	1.98	2.23	2.14	2.39	5.32	17.00	PASS
802.11ac VHT40	38/5190	0.99	1.42	1.59	2.02	4.74	17.00	PASS
	46/5230	0.43	0.86	0.75	1.18	4.03	17.00	PASS
802.11ac VHT80	42/5210	-3.3	-2.43	-2.70	-1.83	0.89	17.00	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 that the directional gain = 5dBi <6dBi. So the PSD limit is 17dBm.

U-NII-2A

Mode	Channel /Frequency (MHz)	Power Spectral Density					Limit (dBm /MHz)	Conclusion
		ANT1		ANT2		Total PSD (dBm/MHz)		
		Read Value (dBm/MHz)	PSD (dBm/MHz)	Read Value (dBm/MHz)	PSD (dBm/MHz)			
802.11a	52/5260	2.02	2.20	2.40	2.58	5.41	11.00	PASS
	60/5300	1.31	1.49	2.07	2.25	4.90	11.00	PASS
	64/5320	2.02	2.20	2.84	3.02	5.64	11.00	PASS
802.11n HT20	52/5260	1.56	1.76	1.77	1.97	4.88	11.00	PASS
	60/5300	1.05	1.25	2.08	2.28	4.80	11.00	PASS
	64/5320	1.78	1.98	2.93	3.13	5.60	11.00	PASS
802.11n HT40	54/5270	0.38	0.79	0.67	1.08	3.95	11.00	PASS
	62/5310	0.66	1.07	1.48	1.89	4.51	11.00	PASS
802.11ac HT20	52/5260	1.60	1.85	2.21	2.46	5.18	11.00	PASS
	60/5300	1.59	1.84	2.12	2.37	5.13	11.00	PASS
	64/5320	1.94	2.19	2.80	3.05	5.65	11.00	PASS
802.11ac HT40	54/5270	0.57	1.00	0.85	1.28	4.15	11.00	PASS
	62/5310	0.63	1.06	1.49	1.92	4.52	11.00	PASS
802.11ac HT80	58/5290	-2.58	-1.71	-2.71	-1.84	1.24	11.00	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 that the directional gain = 5dBi <6dBi. So the PSD limit is 11dBm.

U-NII-2C

Mode	Channel /Frequency (MHz)	Power Spectral Density					Limit (dBm /MHz)	Conclusion
		ANT1		ANT2		Total PSD (dBm/MHz)		
		Read Value (dBm/MHz)	PSD (dBm/MHz)	Read Value (dBm/MHz)	PSD (dBm/MHz)			
802.11a	100/5500	7.77	7.95	7.13	7.31	10.66	11.00	PASS
	116/5580	5.66	5.84	5.83	6.01	8.94	11.00	PASS
	140/5700	5.59	5.77	6.55	6.73	9.29	11.00	PASS
	144/5720	5.30	5.48	6.42	6.60	9.09	11.00	PASS
802.11n HT20	100/5500	6.77	6.97	6.91	7.11	10.05	11.00	PASS
	116/5580	6.18	6.38	6.58	6.78	9.59	11.00	PASS
	140/5700	5.37	5.57	6.31	6.51	9.07	11.00	PASS
	144/5720	5.07	5.27	6.18	6.38	8.87	11.00	PASS
802.11n HT40	102/5510	7.19	7.60	6.54	6.95	10.29	11.00	PASS
	110/5550	5.76	6.17	4.73	5.14	8.69	11.00	PASS
	134/5670	4.96	5.37	5.73	6.14	8.78	11.00	PASS
	142/5710	5.33	5.74	6.00	6.41	9.10	11.00	PASS
802.11ac HT20	100/5500	7.12	7.37	6.75	7.00	10.20	11.00	PASS
	116/5580	6.24	6.49	6.50	6.75	9.63	11.00	PASS
	140/5700	5.53	5.78	6.66	6.91	9.39	11.00	PASS
	144/5720	5.38	5.63	5.96	6.21	8.94	11.00	PASS
802.11ac HT40	102/5510	7.02	7.45	6.69	7.12	10.30	11.00	PASS
	110/5550	5.46	5.89	4.91	5.34	8.63	11.00	PASS
	134/5670	4.85	5.28	5.51	5.94	8.63	11.00	PASS
	142/5710	5.20	5.63	5.93	6.36	9.02	11.00	PASS
802.11ac HT80	106/5530	-1.11	-0.24	-1.66	-0.79	2.51	11.00	PASS
	138/5690	1.92	2.79	2.54	3.41	6.12	11.00	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 that the directional gain = 5dBi <6dBi. So the PSD limit is 11dBm.

Mode	Channel/ Frequency (MHz)	Power Spectral Density					Limit (dBm/ 500kHz)	Conclusion
		Antenna 1		Antenna 2		Total Power (dBm/ 500kHz)		
		Read Value (dBm/ 470kHz)	Power Spectral Density (dBm/ 500kHz)	Read Value (dBm/ 470kHz)	Power Spectral Density (dBm/ 500kHz)			
802.11a	149/5745	3.51	3.96	4.45	4.90	7.47	30.00	PASS
	157/5785	4.07	4.52	4.30	4.75	7.65	30.00	PASS
	165/5825	2.23	2.68	1.56	2.01	5.37	30.00	PASS
802.11n HT20	149/5745	4.11	4.58	4.68	5.15	7.88	30.00	PASS
	157/5785	3.07	3.54	3.38	3.85	6.71	30.00	PASS
	165/5825	2.29	2.76	2.34	2.81	5.79	30.00	PASS
802.11n HT40	151/5755	1.34	2.02	1.54	2.22	5.13	30.00	PASS
	159/5795	1.33	2.01	1.67	2.35	5.19	30.00	PASS
802.11ac VHT20	149/5745	3.79	4.31	4.28	4.80	7.57	30.00	PASS
	157/5785	3.57	4.09	3.50	4.02	7.07	30.00	PASS
	165/5825	2.38	2.90	1.78	2.30	5.62	30.00	PASS
802.11ac VHT40	151/5755	1.22	1.92	2.06	2.76	5.37	30.00	PASS
	159/5795	1.32	2.02	1.40	2.10	5.07	30.00	PASS
802.11ac VHT80	155/5775	-1.76	-0.62	-0.22	0.92	3.23	30.00	PASS

Note: 1. Power Spectral Density = Read Value+Duty cycle correction factor +10*LOG(500/470)

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 that the directional gain = 5dBi <6dBi. So the PSD limit is 30dBm.

Beamforming

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	2.74	2.96	3.19	3.41	6.20	15.80	PASS
	40/5200	2.37	2.59	2.99	3.21	5.92	15.80	PASS
	48/5240	1.38	1.60	1.69	1.91	4.76	15.80	PASS
802.11n HT20	36/5180	2.5	2.70	3.36	3.56	6.16	15.80	PASS
	40/5200	2.55	2.75	3.48	3.68	6.25	15.80	PASS
	48/5240	1.85	2.05	2.42	2.62	5.36	15.80	PASS
802.11n HT40	38/5190	0.94	1.34	1.31	1.71	4.54	15.80	PASS
	46/5230	0.41	0.81	0.89	1.29	4.07	15.80	PASS
802.11ac VHT20	36/5180	2.61	2.83	3.17	3.39	6.13	15.80	PASS
	40/5200	2.73	2.95	3.44	3.66	6.33	15.80	PASS
	48/5240	2.05	2.27	2.44	2.66	5.48	15.80	PASS
802.11ac VHT40	38/5190	1.16	1.59	1.34	1.77	4.69	15.80	PASS
	46/5230	0.3	0.73	0.74	1.17	3.96	15.80	PASS
802.11ac VHT80	42/5210	-3.07	-2.20	-2.76	-1.89	0.97	15.80	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 that the directional gain = 7.2 dBi ＞ 6dBi. So the PSD limt is 17-(directional gain-6 dBi) =17-(7.2-6) =15.80 dBm.

U-NII-2A

Mode	Channel /Frequency (MHz)	Power Spectral Density					Limit (dBm /MHz)	Conclusion
		ANT1		ANT2		Total PSD (dBm/MHz)		
		Read Value (dBm/MHz)	PSD (dBm/MHz)	Read Value (dBm/MHz)	PSD (dBm/MHz)			
802.11a	52/5260	2.13	2.35	2.59	2.81	5.59	9.80	PASS
	60/5300	1.39	1.61	2.14	2.36	5.01	9.80	PASS
	64/5320	1.99	2.21	2.97	3.19	5.73	9.80	PASS
802.11n HT20	52/5260	1.39	1.59	1.80	2.00	4.81	9.80	PASS
	60/5300	1.21	1.41	2.05	2.25	4.86	9.80	PASS
	64/5320	1.78	1.98	2.80	3.00	5.53	9.80	PASS
802.11n HT40	54/5270	0.51	0.91	0.85	1.25	4.09	9.80	PASS
	62/5310	0.73	1.13	1.50	1.90	4.54	9.80	PASS
802.11ac HT20	52/5260	1.43	1.65	1.87	2.09	4.88	9.80	PASS
	60/5300	1.27	1.49	2.18	2.40	4.98	9.80	PASS
	64/5320	1.88	2.10	2.69	2.91	5.53	9.80	PASS
802.11ac HT40	54/5270	0.38	0.81	0.88	1.31	4.08	9.80	PASS
	62/5310	0.84	1.27	1.64	2.07	4.70	9.80	PASS
802.11ac HT80	58/5290	-2.57	-1.70	-2.76	-1.89	1.22	9.80	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 that the directional gain = 7.2 dBi ＞ 6dBi. So the PSD limt is 11-(directional gain-6 dBi) =11-(7.2-6) =9.80 dBm.

U-NII-2C

Mode	Channel /Frequency (MHz)	Power Spectral Density					Limit (dBm /MHz)	Conclusion
		ANT1		ANT2		Total PSD (dBm/MHz)		
		Read Value (dBm/MHz)	PSD (dBm/MHz)	Read Value (dBm/MHz)	PSD (dBm/MHz)			
802.11a	100/5500	5.77	5.99	5.40	5.62	8.82	9.40	PASS
	116/5580	5.72	5.94	6.15	6.37	9.17	9.40	PASS
	140/5700	5.27	5.49	5.98	6.20	8.87	9.40	PASS
	144/5720	5.74	5.96	6.50	6.72	9.36	9.40	PASS
802.11n HT20	100/5500	6.13	6.33	6.13	6.33	9.34	9.40	PASS
	116/5580	5.59	5.79	5.72	5.92	8.87	9.40	PASS
	140/5700	5.51	5.71	6.76	6.96	9.39	9.40	PASS
	144/5720	5.38	5.58	6.21	6.41	9.03	9.40	PASS
802.11n HT40	102/5510	5.37	5.77	5.46	5.86	8.83	9.40	PASS
	110/5550	5.87	6.27	5.07	5.47	8.90	9.40	PASS
	134/5670	5.08	5.48	5.58	5.98	8.75	9.40	PASS
	142/5710	5.16	5.56	5.88	6.28	8.95	9.40	PASS
802.11ac HT20	100/5500	6.28	6.50	6.00	6.21	9.37	9.40	PASS
	116/5580	5.63	5.85	6.06	6.28	9.08	9.40	PASS
	140/5700	5.48	5.70	6.67	6.89	9.34	9.40	PASS
	144/5720	5.53	5.75	6.08	6.30	9.04	9.40	PASS
802.11ac HT40	102/5510	5.42	5.85	5.85	6.28	9.08	9.40	PASS
	110/5550	5.81	6.24	5.00	5.43	8.86	9.40	PASS
	134/5670	5.05	5.48	5.72	6.15	8.84	9.40	PASS
	142/5710	5.33	5.76	5.99	6.42	9.11	9.40	PASS
802.11ac HT80	106/5530	-1.14	-0.27	-1.20	-0.33	2.71	9.40	PASS
	138/5690	2.00	2.87	2.30	3.17	6.03	9.40	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 that the directional gain = 7.6 dBi ＞ 6dBi. So the PSD limt is 11-(directional gain-6 dBi) =11-(7.6-6) =9.40 dBm.

U-NII-3

Mode	Channel/ Frequency (MHz)	Power Spectral Density					Limit (dBm/ 500kHz)	Conclusion
		Antenna 1		Antenna 2		Total Power (dBm/ 500kHz)		
		Read Value (dBm/ 470kHz)	Power Spectral Density (dBm/ 500kHz)	Read Value (dBm/ 470kHz)	Power Spectral Density (dBm/ 500kHz)			
802.11a	149/5745	4.04	4.26	4.15	4.37	7.32	28.20	PASS
	157/5785	4.51	4.73	4.50	4.72	7.73	28.20	PASS
	165/5825	2.28	2.50	1.97	2.19	5.35	28.20	PASS
802.11n HT20	149/5745	3.89	4.36	4.27	4.74	7.56	28.20	PASS
	157/5785	3.31	3.78	3.43	3.90	6.85	28.20	PASS
	165/5825	2.16	2.63	2.32	2.79	5.72	28.20	PASS
802.11n HT40	151/5755	1.97	2.64	1.62	2.29	5.48	28.20	PASS
	159/5795	1.46	2.13	1.29	1.96	5.06	28.20	PASS
802.11ac VHT20	149/5745	3.83	4.32	4.41	4.90	7.63	28.20	PASS
	157/5785	3.22	3.71	3.49	3.98	6.85	28.20	PASS
	165/5825	2.45	2.94	2.10	2.59	5.78	28.20	PASS
802.11ac VHT40	151/5755	1.20	1.90	1.66	2.36	5.14	28.20	PASS
	159/5795	1.42	2.12	1.53	2.23	5.18	28.20	PASS
802.11ac VHT80	155/5775	-1.19	-0.05	-0.10	1.04	3.54	28.20	PASS

Note: 1. Power Spectral Density = Read Value+Duty cycle correction factor +10*LOG(500/470)

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 that the directional gain = 7.8 dBi ＞ 6dBi. So the PSD limt is 30-(directional gain-6 dBi) =30-(7.8-6) =28.20 dBm.

Without Beamforming 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, 802.11ac VHT20, Channel No.: 36

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

U-NII-2C, 802.11a, Channel No.: 116

U-NII-2C, 802.11n HT20, Channel No.: 116

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

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

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

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

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

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

U-NII-2C, 802.11n HT40, Channel No.: 110

U-NII-2C, 802.11ac VHT20, Channel No.: 116

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

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

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

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

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

U-NII-2C, 802.11ac VHT80, Channel No.: 106

U-NII-2C, 802.11ac VHT40, Channel No.: 110

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

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

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

U-NII-2C, 802.11ac VHT40, Channel No.: 142

U-NII-3, 802.11a, Channel No.: 144

U-NII-3, 802.11n HT20, Channel No.: 144

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.: 142

U-NII-3, 802.11ac VHT20, Channel No.: 142

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

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

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

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

U-NII-3, 802.11ac VHT40, Channel No.: 142

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

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

U-NII-3, 802.11ac VHT20, Channel No.: 138

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

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

Without Beamforming Antenna 2

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

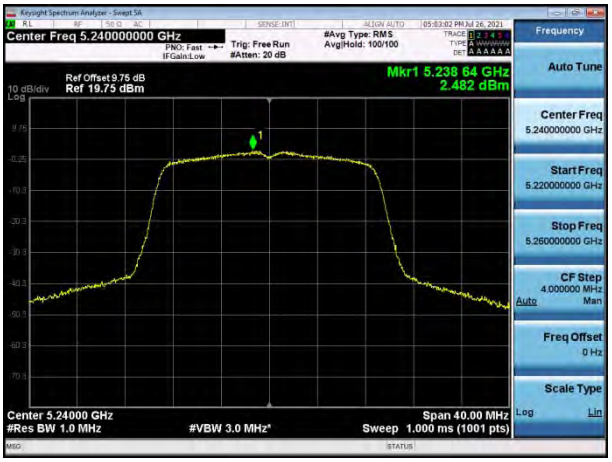
U-NII-1, 802.11n HT20, Channel No.: 36

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, 802.11ac VHT20, Channel No.: 36

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

U-NII-2C, 802.11a, Channel No.: 116

U-NII-2C, 802.11n HT20, Channel No.: 116

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

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

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

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

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

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

U-NII-2C, 802.11n HT40, Channel No.: 110

U-NII-2C, 802.11ac VHT20, Channel No.: 116

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

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

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

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

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

U-NII-2C, 802.11ac VHT80, Channel No.: 106

U-NII-2C, 802.11ac VHT40, Channel No.: 110

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

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

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

U-NII-2C, 802.11ac VHT40, Channel No.: 142

U-NII-3, 802.11a, Channel No.: 144

U-NII-3, 802.11n HT20, Channel No.: 144

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.: 142

U-NII-3, 802.11ac VHT20, Channel No.: 142

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

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

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

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

U-NII-3, 802.11ac VHT40, Channel No.: 142

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

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

U-NII-3, 802.11ac VHT80, Channel No.: 138

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

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

Beamforming 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, 802.11ac VHT20, Channel No.: 36

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

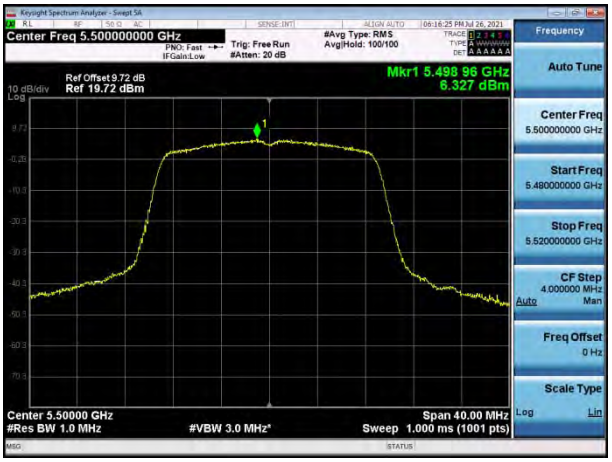
U-NII-2A, 802.11ac VHT20, Channel No.: 64

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

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

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

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



U-NII-2C, 802.11a, Channel No.: 116

U-NII-2C, 802.11n HT20, Channel No.: 116

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

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

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

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

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

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

U-NII-2C, 802.11n HT40, Channel No.: 110

U-NII-2C, 802.11ac VHT20, Channel No.: 116

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

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

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

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

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

U-NII-2C, 802.11ac VHT80, Channel No.: 106

U-NII-2C, 802.11ac VHT40, Channel No.: 110

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

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

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

U-NII-2C, 802.11ac VHT40, Channel No.: 142

U-NII-3, 802.11a, Channel No.: 144

U-NII-3, 802.11n HT20, Channel No.: 144

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.: 142

U-NII-3, 802.11ac VHT20, Channel No.: 142

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

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

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

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

U-NII-3, 802.11ac VHT40, Channel No.: 142

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

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

U-NII-3, 802.11ac VHT20, Channel No.: 138

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

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

Beamforming 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, 802.11ac VHT20, Channel No.: 36

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

U-NII-2C, 802.11a, Channel No.: 116

U-NII-2C, 802.11n HT20, Channel No.: 116

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

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

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

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