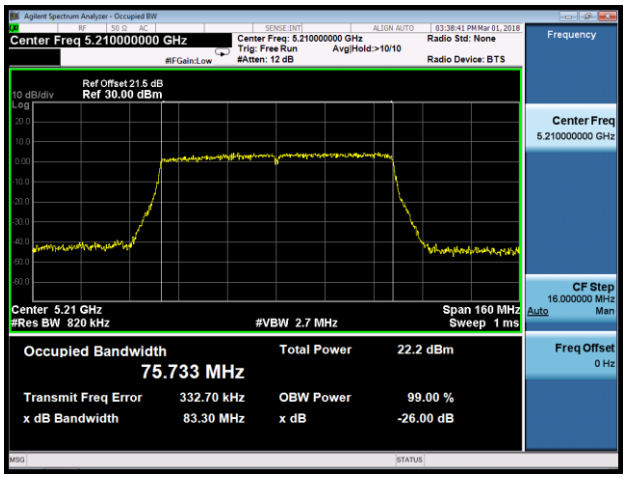
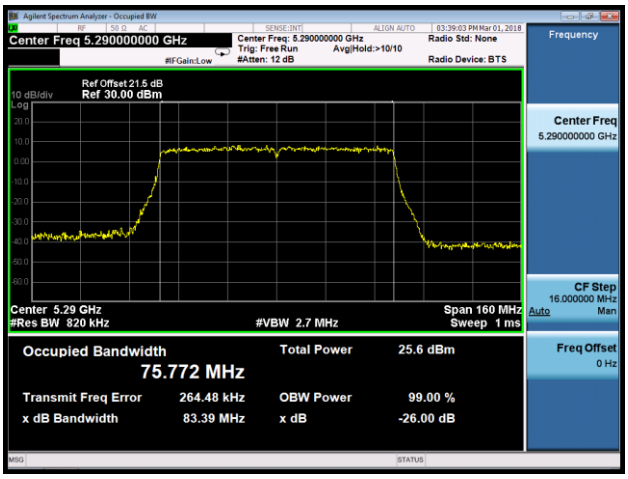
Non-contiguous 80+80 MHz mode

802.11ac-VHT80+80 26dB Bandwidth & 99% Bandwidth - Ant 3 / Ant 2 + 3 (Ant 0 + 1 + 2 + 3)

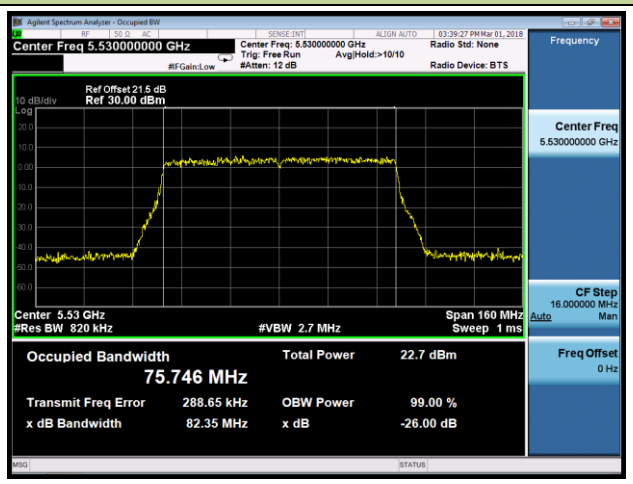
Channel 42 (5210MHz)



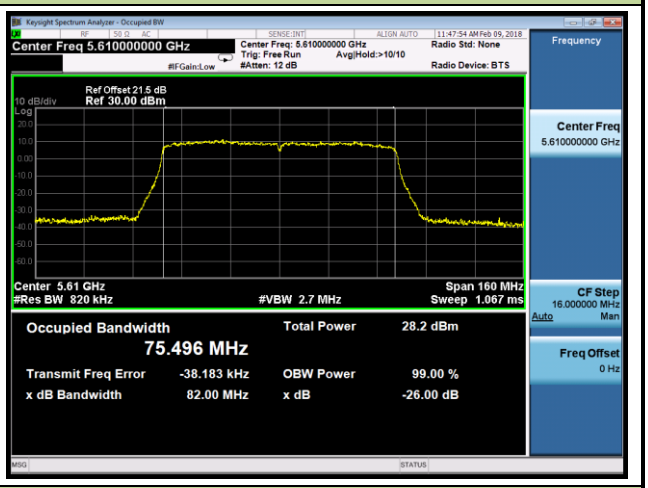
Channel 58 (5290MHz)



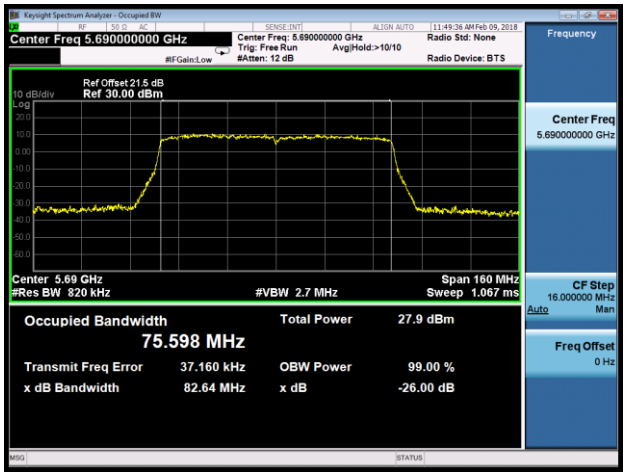
Channel 106 (5530MHz)



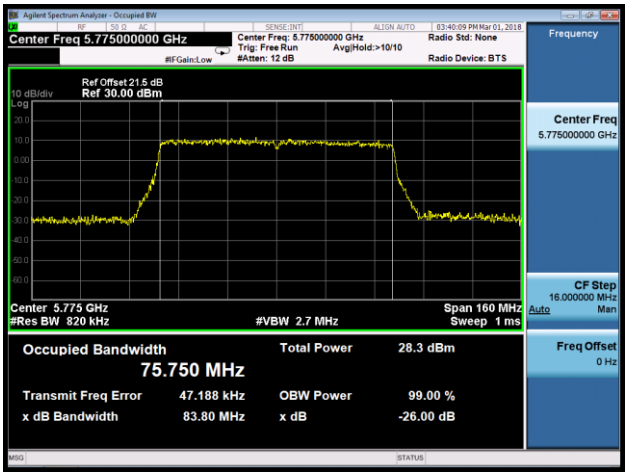
Channel 122 (5610MHz)

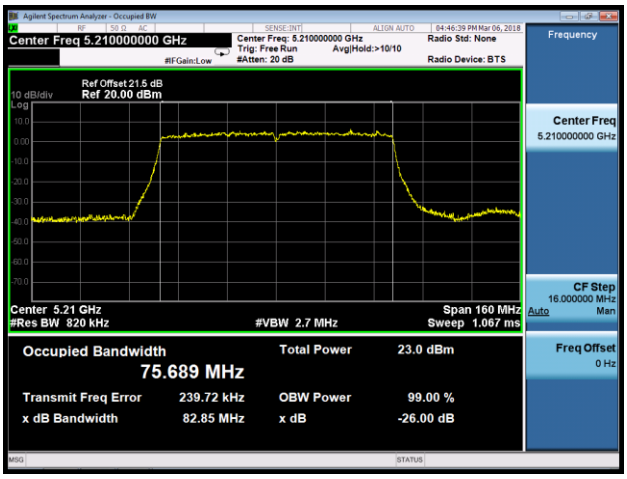
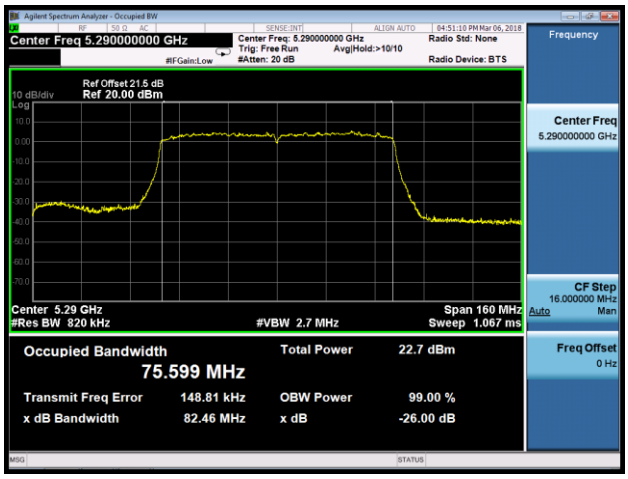


Channel 138 (5690MHz)



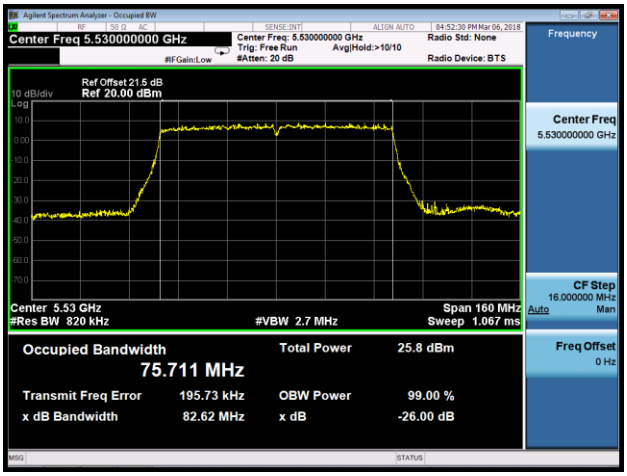
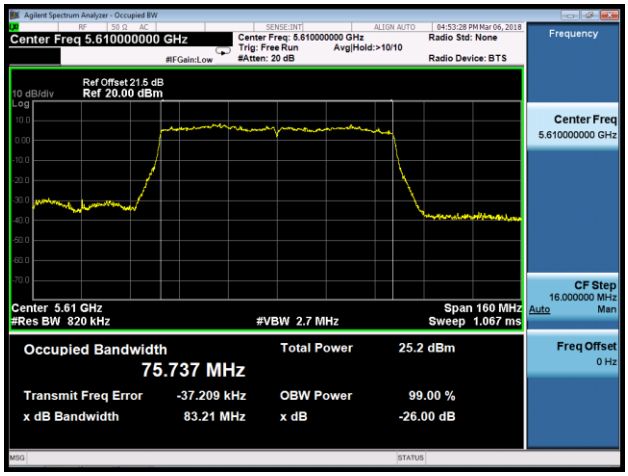
Channel 155 (5775MHz)



Contiguous 80+80 MHz mode	
802.11ac-VHT80+80 26dB Bandwidth & 99% Bandwidth - Ant 0 + 1 + 2 + 3	
Channel 42 (5210MHz)	**Channel 58 (5290MHz)**
	

Note: 26dB OCW = [5290 + (82.46/2)] - [5210 - (82.85/2)] = 162.655 MHz

99% OCW = [5290 + (75.599/2)] - [5210 - (75.689/2)] = 155.644 MHz

802.11ac-VHT80+80 26dB Bandwidth & 99% Bandwidth - Ant 0 + 1 + 2 + 3	
Channel 106 (5530MHz)	**Channel 122 (5610MHz)**
	

Note: 26dB OCW = [5610 + (83.21/2)] - [5530 - (82.62/2)] = 162.915 MHz

99% OCW = [5610 + (75.737/2)] - [5530 - (75.711/2)] = 155.724 MHz

7.3. 6dB Bandwidth Measurement

7.3.1.Test Limit

The minimum 6dBbandwidth shall be at least 500 kHz.

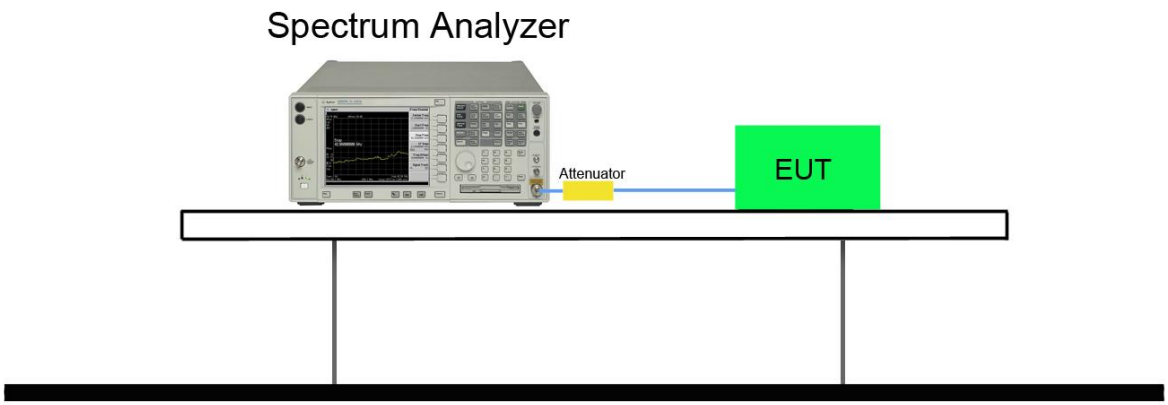
7.3.2.Test Procedure used

KDB 789033 D02v02r01 - Section C.2

7.3.3.TestSetting

1. Set center frequency to the nominal EUT channel center frequency.
2. RBW = 100 kHz.
3. VBW≧ 3 × RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. 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.

7.3.4.Test Setup



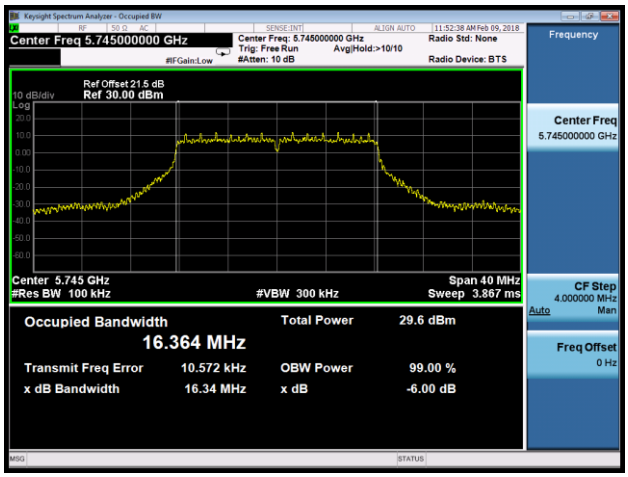
7.3.5.Test Result

Product	ACCESS POINT	Temperature	24°C
Test Engineer	Kevin Ker	Relative Humidity	59%
Test Site	SR2	Test Date	2018/02/09
Antenna Type	Omin Antenna (AP-ANT-20W)		

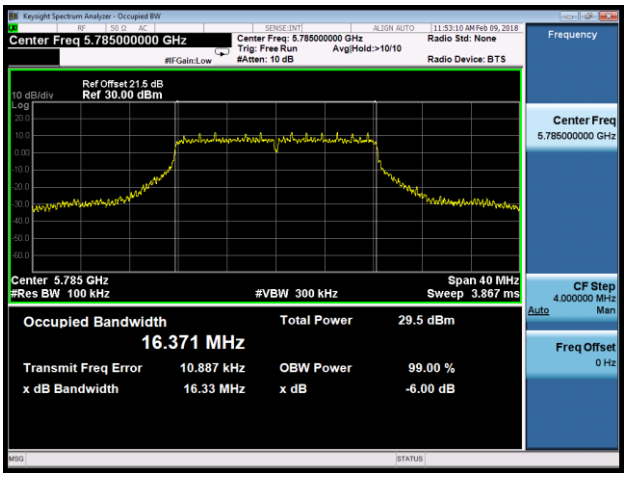
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
Ant 0 / Ant 0 + 1 + 2 + 3						
802.11a	6Mbps	149	5745	16.34	≥0.5	Pass
802.11a	6Mbps	157	5785	16.33	≥0.5	Pass
802.11a	6Mbps	165	5825	16.33	≥0.5	Pass
802.11ac-VHT20	MCS0	149	5745	16.96	≥0.5	Pass
802.11ac-VHT20	MCS0	157	5785	17.53	≥0.5	Pass
802.11ac-VHT20	MCS0	165	5825	17.57	≥0.5	Pass
802.11ac-VHT40	MCS0	151	5755	35.12	≥0.5	Pass
802.11ac-VHT40	MCS0	159	5795	35.15	≥0.5	Pass
802.11ac-VHT80	MCS0	155	5775	76.12	≥0.5	Pass
Non-contiguous 80+80 MHz mode_Ant 0 / Ant 0 + 1 (Ant 0 + 1 + 2 + 3)						
802.11ac-VHT80+80	MCS0	155	5775	76.20	≥0.5	Pass
Non-contiguous 80+80 MHz mode_Ant 3 / Ant 2 + 3 (Ant 0 + 1 + 2 + 3)						
802.11ac-VHT80+80	MCS0	155	5775	76.17	≥0.5	Pass

802.11a 6dB Bandwidth - Ant 0 / Ant 0 + 1 + 2 + 3

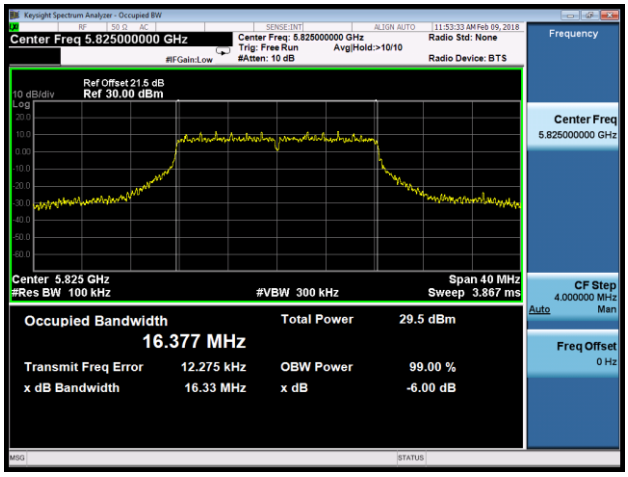
Channel 149 (5745MHz)



Channel 157 (5785MHz)

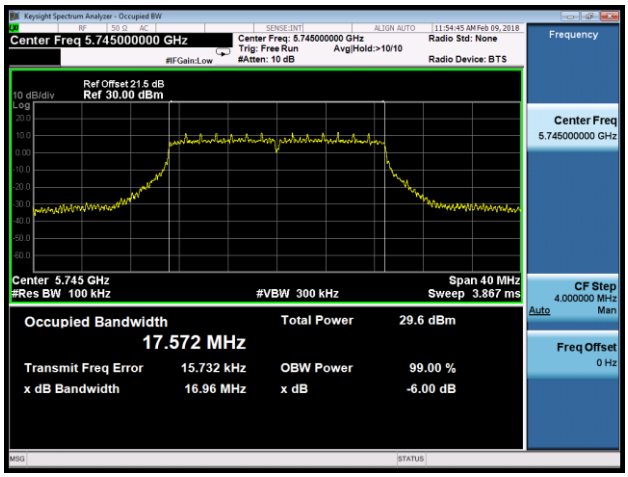


Channel 165 (5825MHz)

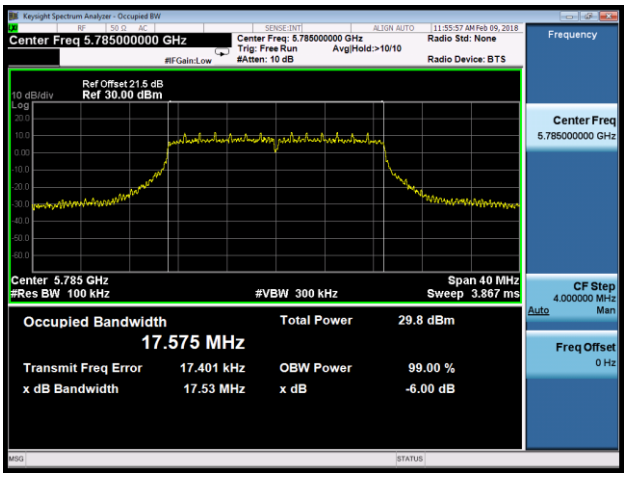


802.11ac-VHT20 6dB Bandwidth - Ant 0 / Ant 0 + 1 + 2 + 3

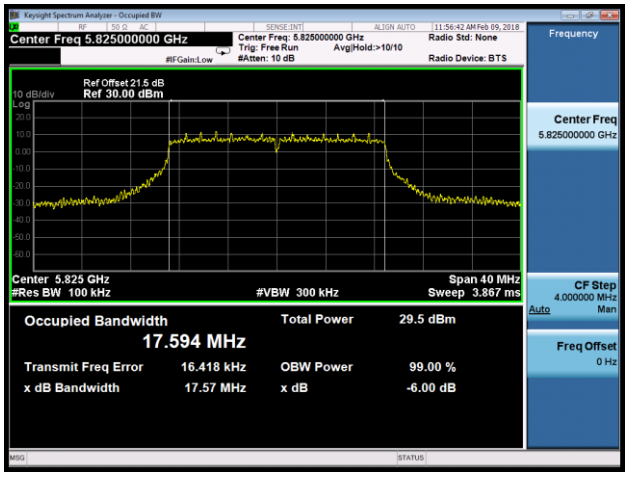
Channel 149 (5745MHz)



Channel 157 (5785MHz)

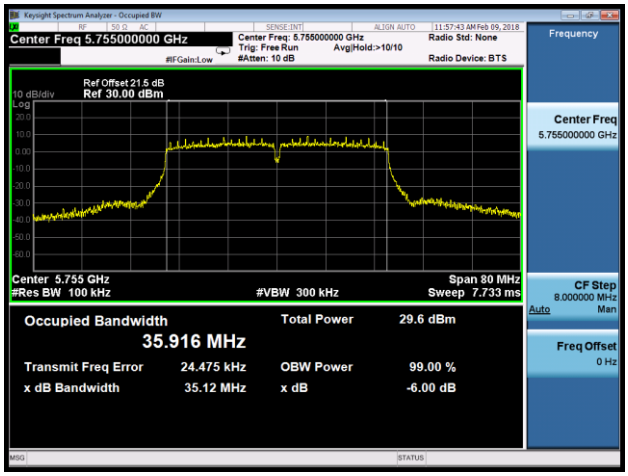


Channel 165 (5825MHz)

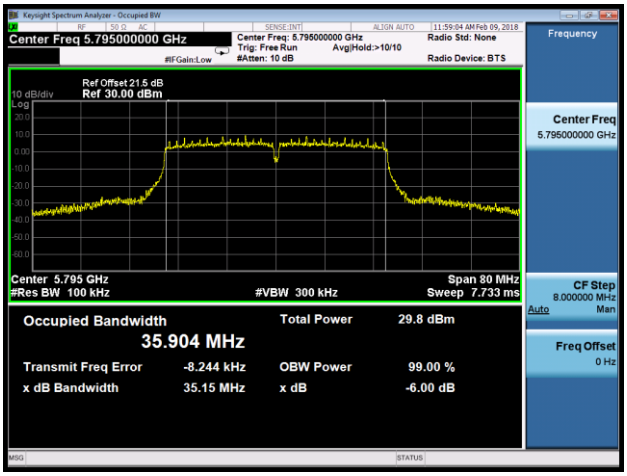


802.11ac-VHT40 6dB Bandwidth - Ant 0 / Ant 0 + 1 + 2 + 3

Channel 151 (5755MHz)

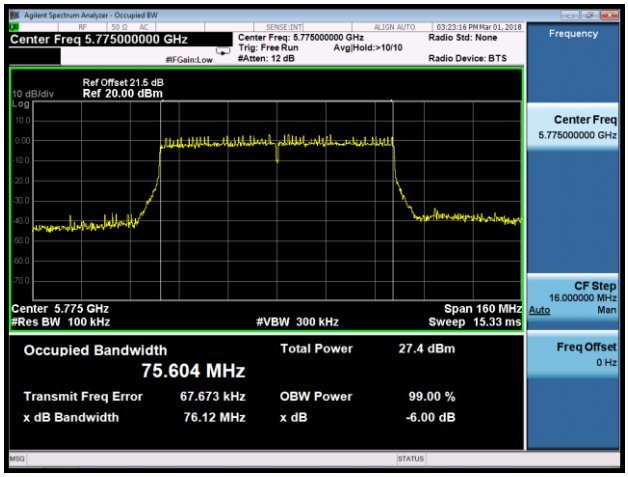


Channel 159 (5795MHz)



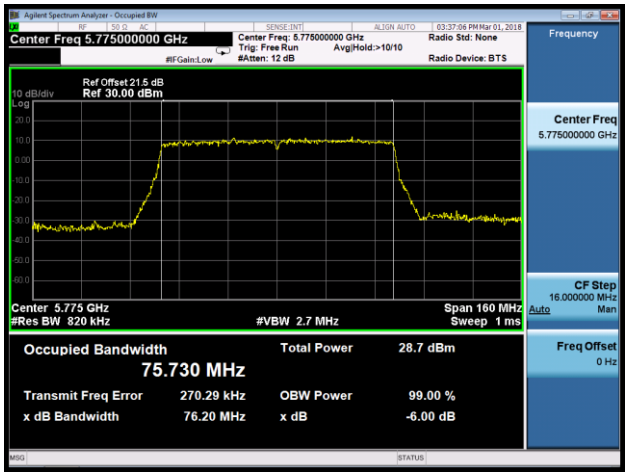
802.11ac-VHT80 6dB Bandwidth - Ant 0 / Ant 0 + 1 + 2 + 3

Channel 155 (5775MHz)



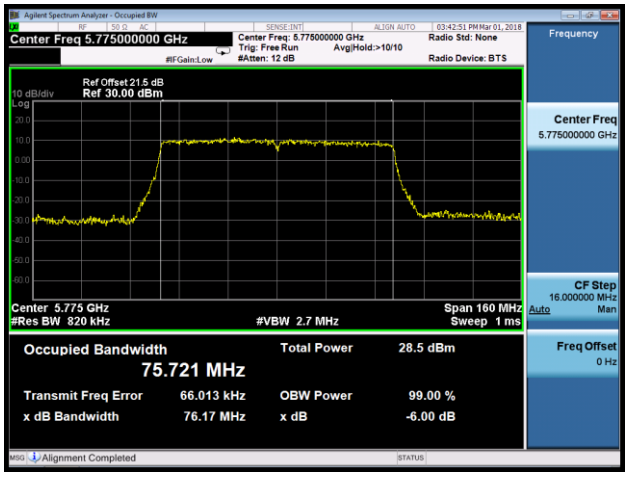
802.11ac-VHT80+80 Non-contiguous 6dB Bandwidth - Ant 0 / Ant 0 + 1 (Ant 0 + 1 + 2 + 3)

Channel 155 (5775MHz)



802.11ac-VHT80+80 Non-contiguous 6dB Bandwidth - Ant 3 / Ant 2 + 3 (Ant 0 + 1 + 2 + 3)

Channel 155 (5775MHz)



7.4. Output Power Measurement

7.4.1.Test Limit

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conductedoutput power over the frequency band of operation shall not exceed 1 W provided the maximumantenna gain does not exceed 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm).

If transmitting antennas of directional gain greater than 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

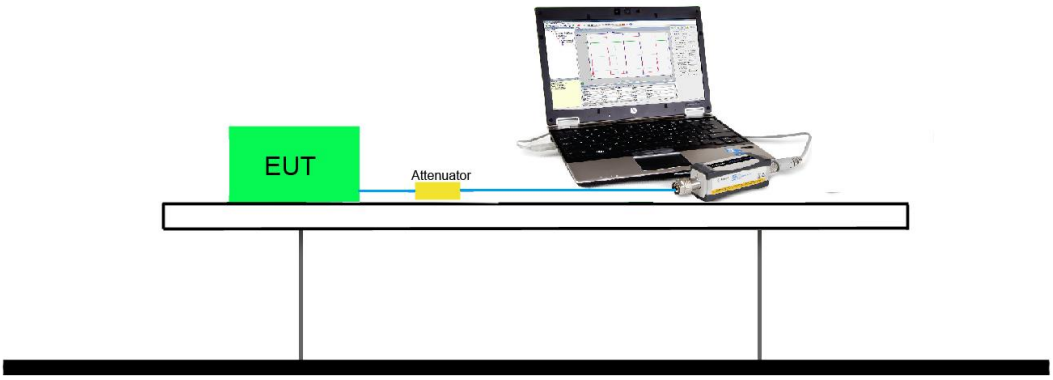
7.4.2.Test Procedure Used

KDB 789033 D02v02r01 - Section E) 3) b) Method PM-G

7.4.3.Test Setting

Average power measurements were perform only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

7.4.4.Test Setup



7.4.5.Test Result

Power output test was verified over all data rates of each mode shown as below table, and then choose the maximum power output (gray marker) for final test of each channel.

For Ant 0 / Ant 0 + 1 + 2 + 3 port of Omni Antenna (AP-ANT-20W) / CDD Mode:

Test Mode	Bandwidth	Channel	Frequency (MHz)	Data Rate/ MCS	Average Power (dBm)
802.11a	20	36	5180	6Mbps	19.40
				24Mbps	19.18
				54Mbps	18.96
802.11ac	20	36	5180	MCS0	20.13
				MCS4	19.91
				MCS8	19.75
802.11ac	40	38	5190	MCS0	14.73
				MCS4	14.52
				MCS9	14.31
802.11ac	80	42	5210	MCS0	11.88
				MCS4	11.62
				MCS9	11.43
802.11ac	80+80 Non-contiguous	42	5210	MCS0	14.71
				MCS4	14.57
				MCS9	14.38
802.11ac	80+80 Contiguous	42	5210	MCS0	15.17
				MCS4	14.97
				MCS9	14.75

Product	ACCESS POINT	Temperature	24°C
Test Engineer	Kevin Ker	Relative Humidity	59%
Test Site	SR2	Test Date	2018/01/30
Antenna Type	Omni Antenna (AP-ANT-20W)	Test Item	Output Power

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
Ant 0 + 1 + 2 + 3 (CDD Mode)										
11a	6Mbps	36	5180	19.40	18.95	19.01	19.02	25.12	≤ 30.00	Pass
11a	6Mbps	44	5220	19.94	19.46	19.70	19.57	25.69	≤ 30.00	Pass
11a	6Mbps	48	5240	20.01	19.52	19.52	19.54	25.67	≤ 30.00	Pass
11a	6Mbps	52	5260	13.97	13.60	13.41	13.58	19.67	≤ 23.89	Pass
11a	6Mbps	60	5300	14.26	13.96	13.71	14.06	20.02	≤ 23.89	Pass
11a	6Mbps	64	5320	14.40	13.79	13.62	13.56	19.88	≤ 23.89	Pass
11a	6Mbps	100	5500	13.22	12.72	12.64	12.88	18.89	≤ 23.89	Pass
11a	6Mbps	120	5600	13.20	12.70	12.75	13.02	18.94	≤ 23.89	Pass
11a	6Mbps	140	5700	13.40	12.54	12.82	13.17	19.02	≤ 23.89	Pass
11a	6Mbps	144	5720	13.90	13.13	13.30	13.65	19.53	≤ 23.89	Pass
11a	6Mbps	149	5745	22.30	21.54	22.06	22.04	28.01	≤ 30.00	Pass
11a	6Mbps	157	5785	22.39	21.73	22.02	22.10	28.09	≤ 30.00	Pass
11a	6Mbps	165	5825	22.38	21.78	22.00	21.97	28.06	≤ 30.00	Pass
11ac-VHT20	MCS0	36	5180	20.13	19.83	20.12	20.15	26.08	≤ 30.00	Pass
11ac-VHT20	MCS0	44	5220	20.29	19.80	20.02	20.06	26.07	≤ 30.00	Pass
11ac-VHT20	MCS0	48	5240	20.31	19.91	19.94	20.02	26.07	≤ 30.00	Pass
11ac-VHT20	MCS0	52	5260	14.17	13.89	13.78	14.09	20.01	≤ 23.98	Pass
11ac-VHT20	MCS0	60	5300	14.46	14.43	14.06	13.59	20.17	≤ 23.98	Pass
11ac-VHT20	MCS0	64	5320	14.66	14.23	14.07	14.15	20.30	≤ 23.98	Pass
11ac-VHT20	MCS0	100	5500	13.40	13.10	12.91	13.42	19.23	≤ 23.98	Pass
11ac-VHT20	MCS0	120	5600	13.51	13.03	13.06	13.42	19.28	≤ 23.98	Pass
11ac-VHT20	MCS0	140	5700	13.82	13.06	13.22	13.71	19.48	≤ 23.98	Pass
11ac-VHT20	MCS0	144	5720	13.72	13.09	13.20	13.62	19.44	≤ 23.98	Pass
11ac-VHT20	MCS0	149	5745	22.11	21.47	21.91	21.95	27.89	≤ 30.00	Pass
11ac-VHT20	MCS0	157	5785	22.24	21.63	21.90	22.01	27.97	≤ 30.00	Pass
11ac-VHT20	MCS0	165	5825	22.22	21.64	21.88	21.85	27.92	≤ 30.00	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
Ant 0 + 1 + 2 + 3 (CDD Mode)										
11ac-VHT40	MCS0	38	5190	14.73	14.37	14.03	14.54	20.45	≤ 30.00	Pass
11ac-VHT40	MCS0	46	5230	22.12	21.53	21.65	21.56	27.74	≤ 30.00	Pass
11ac-VHT40	MCS0	54	5270	16.81	16.54	16.43	16.41	22.57	≤ 23.98	Pass
11ac-VHT40	MCS0	62	5310	16.55	16.37	16.09	16.36	22.37	≤ 23.98	Pass
11ac-VHT40	MCS0	102	5510	16.89	16.13	16.14	16.32	22.40	≤ 23.98	Pass
11ac-VHT40	MCS0	118	5590	16.41	15.63	15.70	15.95	21.95	≤ 23.98	Pass
11ac-VHT40	MCS0	134	5670	16.54	15.60	15.91	15.77	21.99	≤ 23.98	Pass
11ac-VHT40	MCS0	142	5710	16.79	15.83	15.97	16.52	22.32	≤ 23.98	Pass
11ac-VHT40	MCS0	151	5755	22.13	21.35	21.74	21.92	27.81	≤ 30.00	Pass
11ac-VHT40	MCS0	159	5795	22.20	21.59	21.74	22.01	27.91	≤ 30.00	Pass
11ac-VHT80	MCS0	42	5210	11.88	11.26	11.16	11.80	17.56	≤ 30.00	Pass
11ac-VHT80	MCS0	58	5290	15.38	15.20	14.94	15.27	21.22	≤ 23.98	Pass
11ac-VHT80	MCS0	106	5530	13.93	13.54	13.68	13.47	19.68	≤ 23.98	Pass
11ac-VHT80	MCS0	122	5610	17.90	17.23	17.51	17.54	23.57	≤ 23.98	Pass
11ac-VHT80	MCS0	138	5690	18.10	17.19	17.67	17.54	23.66	≤ 23.98	Pass
11ac-VHT80	MCS0	155	5775	19.82	19.01	19.45	18.75	25.30	≤ 30.00	Pass
Non-contiguous 80+80 MHz mode fall within different UNII band										
11ac-VHT80+80	MCS0	42	5210	14.71	14.27	--	--	17.51	≤ 30.00	Pass
11ac-VHT80+80	MCS0	42	5210	--	--	13.75	14.66	17.24	≤ 30.00	Pass
11ac-VHT80+80	MCS0	58	5290	18.43	18.15	--	--	21.30	≤ 23.98	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	17.94	18.32	21.14	≤ 23.98	Pass
11ac-VHT80+80	MCS0	106	5530	15.84	15.33	--	--	18.60	≤ 23.98	Pass
11ac-VHT80+80	MCS0	106	5530	--	--	15.43	15.60	18.53	≤ 23.98	Pass
11ac-VHT80+80	MCS0	122	5610	20.65	20.37	--	--	23.52	≤ 23.98	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	20.31	20.62	23.48	≤ 23.98	Pass
11ac-VHT80+80	MCS0	138	5690	20.84	20.31	--	--	23.59	≤ 23.98	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	20.35	20.64	23.51	≤ 23.98	Pass
11ac-VHT80+80	MCS0	155	5775	21.18	20.53	--	--	23.88	≤ 30.00	Pass
11ac-VHT80+80	MCS0	155	5775	--	--	21.01	21.30	24.17	≤ 30.00	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
Non-contiguous 80+80MHz mode fall within same UNII band										
11ac-VHT80+80	MCS0	106	5530	16.43	15.80	--	--	22.17	≤ 23.98	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	15.97	16.35			
11ac-VHT80+80	MCS0	106	5530	--	--	17.44	17.72	23.63	≤ 23.98	Pass
11ac-VHT80+80	MCS0	138	5690	17.94	17.32	--	--			
11ac-VHT80+80 (Contiguous 80+80 MHz mode)										
11ac-VHT80+80	MCS0	42	5210	15.17	14.61	--	--	17.91	≤ 30.00	Pass
	MCS0	58	5290	--	--	14.53	14.73	17.64	≤ 23.98	Pass
11ac-VHT80+80	MCS0	106	5530	18.05	17.12	--	--	23.56	≤ 23.98	Pass
	MCS0	122	5610	--	--	17.46	17.49			

Note 1: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power /10})}$ + $10^{(\text{Ant 1 Average Power /10})}$ + $10^{(\text{Ant 2 Average Power /10})}$ + $10^{(\text{Ant 3 Average Power /10})}$}.

Note 2: For 802.11ac-VHT80+80 mode fall within different UNII band:

Ant 0 & Ant 1: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power /10})}$ + $10^{(\text{Ant 1 Average Power /10})}$} (dBm)

Ant 2 & Ant 3: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 2 Average Power /10})}$ + $10^{(\text{Ant 3 Average Power /10})}$} (dBm)

For 802.11ac-VHT80+80 mode fall within same UNII band:

Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power /10})}$ + $10^{(\text{Ant 1 Average Power /10})}$ + $10^{(\text{Ant 2 Average Power /10})}$ + $10^{(\text{Ant 3 Average Power /10})}$}.

Note 3: For 802.11ac-VHT80+80 Contiguous Mode:

5210MHz fall within UNII-1: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power /10})}$ + $10^{(\text{Ant 1 Average Power /10})}$}.

5290MHz fall within UNII-2A: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 2 Average Power /10})}$ + $10^{(\text{Ant 3 Average Power /10})}$}.

5530MHz & 5610MHz Fall within UNII-2C: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power /10})}$ + $10^{(\text{Ant 1 Average Power /10})}$ + $10^{(\text{Ant 2 Average Power /10})}$ + $10^{(\text{Ant 3 Average Power /10})}$}.

Note 4: Average Power Limit Calculation as below:

For 5150-5250MHz & 5725-5850MHz: Limit (dBm) = 30.00dBm.

For 5250-5350MHz & 5470-5725MHz:

802.11a: Limit (dBm) = 11 + 10*log (19.47MHz) = 23.89dBm

802.11ac: Limit (dBm) = 23.98dBm.

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
Ant 0 + 1 + 2 + 3 (Beam-Forming Mode)										
11ac-VHT20	MCS0	36	5180	20.13	19.83	20.12	20.15	26.08	≤ 27.98	Pass
11ac-VHT20	MCS0	44	5220	20.29	19.80	20.02	20.06	26.07	≤ 27.98	Pass
11ac-VHT20	MCS0	48	5240	20.31	19.91	19.94	20.02	26.07	≤ 27.98	Pass
11ac-VHT20	MCS0	52	5260	14.17	13.89	13.78	14.09	20.01	≤ 21.96	Pass
11ac-VHT20	MCS0	60	5300	14.46	14.43	14.06	13.59	20.17	≤ 21.96	Pass
11ac-VHT20	MCS0	64	5320	14.66	14.23	14.07	14.15	20.30	≤ 21.96	Pass
11ac-VHT20	MCS0	100	5500	13.40	13.10	12.91	13.42	19.23	≤ 21.96	Pass
11ac-VHT20	MCS0	120	5600	13.51	13.03	13.06	13.42	19.28	≤ 21.96	Pass
11ac-VHT20	MCS0	140	5700	13.82	13.06	13.22	13.71	19.48	≤ 21.96	Pass
11ac-VHT20	MCS0	144	5720	13.72	13.09	13.20	13.62	19.44	≤ 21.96	Pass
11ac-VHT20	MCS0	149	5745	21.63	21.12	21.35	21.59	27.45	≤ 27.98	Pass
11ac-VHT20	MCS0	157	5785	21.70	21.16	21.37	21.68	27.50	≤ 27.98	Pass
11ac-VHT20	MCS0	165	5825	21.71	21.21	21.36	21.55	27.48	≤ 27.98	Pass
11ac-VHT40	MCS0	38	5190	21.10	20.82	21.03	20.78	26.96	≤ 27.98	Pass
11ac-VHT40	MCS0	46	5230	22.05	21.66	21.60	21.68	27.77	≤ 27.98	Pass
11ac-VHT40	MCS0	54	5270	15.87	15.62	15.42	15.67	21.67	≤ 21.96	Pass
11ac-VHT40	MCS0	62	5310	15.67	15.59	15.23	15.57	21.54	≤ 21.96	Pass
11ac-VHT40	MCS0	102	5510	15.87	15.31	15.21	15.52	21.51	≤ 21.96	Pass
11ac-VHT40	MCS0	118	5590	15.89	15.34	15.32	15.58	21.56	≤ 21.96	Pass
11ac-VHT40	MCS0	134	5670	15.94	15.24	15.54	15.48	21.58	≤ 21.96	Pass
11ac-VHT40	MCS0	142	5710	15.80	15.32	15.15	15.73	21.53	≤ 21.96	Pass
11ac-VHT40	MCS0	151	5755	21.70	21.13	21.19	21.62	27.44	≤ 27.98	Pass
11ac-VHT40	MCS0	159	5795	21.77	21.26	21.24	21.68	27.51	≤ 27.98	Pass
11ac-VHT80	MCS0	42	5210	18.76	18.57	18.66	18.29	24.59	≤ 27.98	Pass
11ac-VHT80	MCS0	58	5290	15.98	15.72	15.51	15.72	21.76	≤ 21.96	Pass
11ac-VHT80	MCS0	106	5530	16.06	15.50	15.42	15.64	21.68	≤ 21.96	Pass
11ac-VHT80	MCS0	122	5610	15.91	15.42	15.45	15.56	21.61	≤ 21.96	Pass
11ac-VHT80	MCS0	138	5690	16.08	15.33	15.60	15.51	21.66	≤ 21.96	Pass
11ac-VHT80	MCS0	155	5775	21.61	21.21	21.34	21.57	27.46	≤ 27.98	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
Non-contiguous 80+80 MHz mode fall within different UNII band										
11ac-VHT80+80	MCS0	42	5210	20.65	20.24	--	--	23.46	≤ 30.00	Pass
11ac-VHT80+80	MCS0	42	5210	--	--	22.33	22.10	25.23	≤ 30.00	Pass
11ac-VHT80+80	MCS0	58	5290	18.81	18.58	--	--	21.71	≤ 23.98	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	18.45	18.70	21.59	≤ 23.98	Pass
11ac-VHT80+80	MCS0	106	5530	18.78	18.21	--	--	21.51	≤ 23.98	Pass
11ac-VHT80+80	MCS0	106	5530	--	--	18.28	18.60	21.45	≤ 23.98	Pass
11ac-VHT80+80	MCS0	122	5610	18.62	18.23	--	--	21.44	≤ 23.98	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	18.34	18.54	21.45	≤ 23.98	Pass
11ac-VHT80+80	MCS0	138	5690	18.86	18.18	--	--	21.54	≤ 23.98	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	18.46	18.52	21.50	≤ 23.98	Pass
11ac-VHT80+80	MCS0	155	5775	22.20	21.66	--	--	24.95	≤ 30.00	Pass
11ac-VHT80+80	MCS0	155	5775	--	--	22.04	22.20	25.13	≤ 30.00	Pass
Non-contiguous 80+80 MHz mode fall within same UNII band										
11ac-VHT80+80	MCS0	106	5530	15.90	15.49	--	--	21.67	≤ 23.98	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	15.60	15.60			
11ac-VHT80+80	MCS0	106	5530	--	--	15.35	15.61	21.59	≤ 23.98	Pass
11ac-VHT80+80	MCS0	138	5690	15.94	15.33	--	--			

Note 1: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power /10})}$ + $10^{(\text{Ant 1 Average Power /10})}$ + $10^{(\text{Ant 2 Average Power /10})}$ + $10^{(\text{Ant 3 Average Power /10})}$}.

Note 2: For 802.11ac-VHT80+80 mode fall within different UNII band:

Ant 0 & Ant 1: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power /10})}$ + $10^{(\text{Ant 1 Average Power /10})}$} (dBm)

Ant 2 & Ant 3: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 2 Average Power /10})}$ + $10^{(\text{Ant 3 Average Power /10})}$} (dBm)

For 802.11ac-VHT80+80 mode fall within same UNII band:

Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power /10})}$ + $10^{(\text{Ant 1 Average Power /10})}$ + $10^{(\text{Ant 2 Average Power /10})}$ + $10^{(\text{Ant 3 Average Power /10})}$}.

Note 3: Average Power Limit Calculation as below:

For 5150-5250MHz & 5725-5850MHz:

802.11ac-VHT20/ac-VHT40/ac-VHT80: Limit (dBm) = 30dBm - (2dBi + 6.02dBi - 6dBi) = 27.98 dBm

802.11ac-VHT80+80: Limit (dBm) = 30.00 dBm

For 5250-5350MHz & 5470-5725MHz:

802.11ac-VHT20/ac-VHT40/ac-VHT80: Limit (dBm) = 23.98dBm - (2dBi + 6.02dBi - 6dBi) = 21.96 dBm.

802.11ac-VHT80+80: Limit (dBm) = 23.98 dBm.

Product	ACCESS POINT	Temperature	24°C
Test Engineer	Kevin Ker	Relative Humidity	59%
Test Site	SR2	Test Date	2018/01/31
Antenna Type	Directional Antenna (ANT-4x4-5314)	Test Item	Output Power

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
Ant 0 + 1 + 2 + 3 (CDD Mode)										
11a	6Mbps	36	5180	11.29	10.75	10.96	10.83	16.98	≤ 22.00	Pass
11a	6Mbps	44	5220	11.35	10.82	10.97	10.85	17.02	≤ 22.00	Pass
11a	6Mbps	48	5240	11.23	10.87	10.78	10.85	16.96	≤ 22.00	Pass
11a	6Mbps	52	5260	4.58	4.34	4.06	4.09	10.29	≤ 15.89	Pass
11a	6Mbps	60	5300	4.29	4.19	3.76	4.05	10.10	≤ 15.89	Pass
11a	6Mbps	64	5320	4.75	4.47	4.18	4.37	10.47	≤ 15.89	Pass
11a	6Mbps	100	5500	4.13	3.83	3.60	4.01	9.92	≤ 15.89	Pass
11a	6Mbps	120	5600	4.18	3.86	3.44	4.02	9.90	≤ 15.89	Pass
11a	6Mbps	140	5700	4.83	4.22	4.20	4.46	10.46	≤ 15.89	Pass
11a	6Mbps	144	5720	5.23	4.70	4.70	4.87	10.90	≤ 15.89	Pass
11a	6Mbps	149	5745	15.78	15.53	15.36	15.57	21.58	≤ 22.00	Pass
11a	6Mbps	157	5785	15.74	15.38	15.42	15.61	21.56	≤ 22.00	Pass
11a	6Mbps	165	5825	14.75	14.23	14.31	14.31	20.43	≤ 22.00	Pass
11ac-VHT20	MCS0	36	5180	11.48	10.85	11.20	11.03	17.17	≤ 22.00	Pass
11ac-VHT20	MCS0	44	5220	11.02	10.47	10.76	10.65	16.75	≤ 22.00	Pass
11ac-VHT20	MCS0	48	5240	10.92	10.49	10.49	10.63	16.66	≤ 22.00	Pass
11ac-VHT20	MCS0	52	5260	4.91	4.45	4.38	4.40	10.56	≤ 15.98	Pass
11ac-VHT20	MCS0	60	5300	4.71	4.46	4.08	4.43	10.45	≤ 15.98	Pass
11ac-VHT20	MCS0	64	5320	5.06	4.80	4.37	4.66	10.75	≤ 15.98	Pass
11ac-VHT20	MCS0	100	5500	4.43	4.04	3.87	4.24	10.17	≤ 15.98	Pass
11ac-VHT20	MCS0	120	5600	4.48	4.06	3.65	4.29	10.15	≤ 15.98	Pass
11ac-VHT20	MCS0	140	5700	5.21	4.25	4.45	4.80	10.71	≤ 15.98	Pass
11ac-VHT20	MCS0	144	5720	5.13	4.47	4.52	4.68	10.73	≤ 15.98	Pass
11ac-VHT20	MCS0	149	5745	16.03	15.67	15.65	15.87	21.83	≤ 22.00	Pass
11ac-VHT20	MCS0	157	5785	15.92	15.48	15.64	15.90	21.76	≤ 22.00	Pass
11ac-VHT20	MCS0	165	5825	14.58	14.08	14.18	14.21	20.29	≤ 22.00	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
Ant 0 + 1 + 2 + 3 (CDD Mode)										
11ac-VHT40	MCS0	38	5190	11.96	11.48	11.65	11.61	17.70	≤ 22.00	Pass
11ac-VHT40	MCS0	46	5230	13.59	13.87	13.12	13.23	19.48	≤ 22.00	Pass
11ac-VHT40	MCS0	54	5270	7.21	7.19	6.87	6.96	13.08	≤ 15.98	Pass
11ac-VHT40	MCS0	62	5310	7.15	7.16	6.61	6.91	12.98	≤ 15.98	Pass
11ac-VHT40	MCS0	102	5510	7.03	6.74	6.48	6.63	12.75	≤ 15.98	Pass
11ac-VHT40	MCS0	118	5590	7.17	6.67	6.52	6.84	12.83	≤ 15.98	Pass
11ac-VHT40	MCS0	134	5670	7.82	7.19	7.16	7.28	13.39	≤ 15.98	Pass
11ac-VHT40	MCS0	142	5710	7.63	7.01	7.10	7.22	13.27	≤ 15.98	Pass
11ac-VHT40	MCS0	151	5755	16.03	15.48	15.58	15.81	21.75	≤ 22.00	Pass
11ac-VHT40	MCS0	159	5795	16.08	15.55	15.72	15.79	21.81	≤ 22.00	Pass
11ac-VHT80	MCS0	42	5210	9.04	8.61	8.69	8.47	14.73	≤ 22.00	Pass
11ac-VHT80	MCS0	58	5290	10.01	9.65	9.48	9.65	15.72	≤ 15.98	Pass
11ac-VHT80	MCS0	106	5530	9.92	9.63	9.26	9.54	15.61	≤ 15.98	Pass
11ac-VHT80	MCS0	122	5610	10.02	9.72	9.12	9.57	15.64	≤ 15.98	Pass
11ac-VHT80	MCS0	138	5690	10.17	9.53	9.40	9.39	15.66	≤ 15.98	Pass
11ac-VHT80	MCS0	155	5775	15.05	14.62	14.74	14.66	20.79	≤ 22.00	Pass
Non-contiguous 80+80 MHz mode fall within different UNII band										
11ac-VHT80+80	MCS0	42	5210	12.98	12.42	--	--	15.72	≤ 22.00	Pass
11ac-VHT80+80	MCS0	42	5210	--	--	13.50	12.64	16.10	≤ 22.00	Pass
11ac-VHT80+80	MCS0	58	5290	13.09	12.49	--	--	15.81	≤ 15.98	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	12.38	12.85	15.63	≤ 15.98	Pass
11ac-VHT80+80	MCS0	106	5530	12.93	12.39	--	--	15.68	≤ 15.98	Pass
11ac-VHT80+80	MCS0	106	5530	--	--	12.22	12.57	15.41	≤ 15.98	Pass
11ac-VHT80+80	MCS0	122	5610	12.80	12.48	--	--	15.65	≤ 15.98	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	12.19	12.57	15.39	≤ 15.98	Pass
11ac-VHT80+80	MCS0	138	5690	12.97	12.35	--	--	15.68	≤ 15.98	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	12.54	12.41	15.49	≤ 15.98	Pass
11ac-VHT80+80	MCS0	155	5775	17.80	17.32	--	--	20.58	≤ 22.00	Pass
11ac-VHT80+80	MCS0	155	5775	--	--	18.78	18.77	21.79	≤ 22.00	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
Non-contiguous 80+80 MHz mode fall within same UNII band										
11ac-VHT80+80	MCS0	106	5530	9.87	9.33	--	--	15.48	≤ 15.98	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	9.35	9.28			
11ac-VHT80+80	MCS0	106	5530	--	--	9.17	9.42	15.50	≤ 15.98	Pass
11ac-VHT80+80	MCS0	138	5690	9.98	9.32	--	--			
11ac-VHT80+80 (Contiguous 80+80 MHz mode)										
11ac-VHT80+80	MCS0	42	5210	11.26	10.54	--	--	13.93	≤ 22.00	Pass
	MCS0	58	5290	--	--	10.32	10.72	13.53	≤ 15.98	Pass
11ac-VHT80+80	MCS0	106	5530	9.75	9.36	--	--	15.40	≤ 15.98	Pass
	MCS0	122	5610	--	--	8.97	9.39			

Note 1: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power /10})}$ + $10^{(\text{Ant 1 Average Power /10})}$ + $10^{(\text{Ant 2 Average Power /10})}$ +$10^{(\text{Ant 3 Average Power /10})}$}.

Note 2: For 802.11ac-VHT80+80 mode fall within different UNII band:

Ant 0 & Ant 1: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power /10})}$ + $10^{(\text{Ant 1 Average Power /10})}$} (dBm)

Ant 2 & Ant 3: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 2 Average Power /10})}$ + $10^{(\text{Ant 3 Average Power /10})}$} (dBm)

For 802.11ac-VHT80+80 mode fall within same UNII band:

Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power /10})}$ + $10^{(\text{Ant 1 Average Power /10})}$ + $10^{(\text{Ant 2 Average Power /10})}$ + $10^{(\text{Ant 3 Average Power /10})}$}.

Note 3: For 802.11ac-VHT80+80 Contiguous Mode:

5210MHz fall within UNII-1: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power /10})}$ + $10^{(\text{Ant 1 Average Power /10})}$}.

5290MHz fall within UNII-2A: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 2 Average Power /10})}$ + $10^{(\text{Ant 3 Average Power /10})}$}.

5530MHz & 5610MHz Fall within UNII-2C: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power /10})}$ + $10^{(\text{Ant 1 Average Power /10})}$ + $10^{(\text{Ant 2 Average Power /10})}$ + $10^{(\text{Ant 3 Average Power /10})}$}.

Note 4: Average Power Limit Calculation as below:

For 5150-5250MHz & 5725-5850MHz: Limit (dBm) = 30.00dBm - (14dBi - 6dBi) = 22.00 dBm.

For 5250-5350MHz & 5470-5725MHz:

802.11a: Limit (dBm) = [11 + 10*log (19.47MHz)] - (14dBi - 6dBi) = 15.89dBm

802.11ac: Limit (dBm) = 23.98dBm - (14dBi - 6dBi) = 15.98dBm.

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
Ant 0 + 1 + 2 + 3 (Beam-Forming Mode)										
11ac-VHT20	MCS0	36	5180	11.48	10.85	11.20	11.03	17.17	≤ 18.99	Pass
11ac-VHT20	MCS0	44	5220	11.02	10.47	10.76	10.65	16.75	≤ 18.99	Pass
11ac-VHT20	MCS0	48	5240	10.92	10.49	10.49	10.63	16.66	≤ 18.99	Pass
11ac-VHT20	MCS0	52	5260	4.91	4.45	4.38	4.40	10.56	≤ 12.97	Pass
11ac-VHT20	MCS0	60	5300	4.71	4.46	4.08	4.43	10.45	≤ 12.97	Pass
11ac-VHT20	MCS0	64	5320	5.06	4.80	4.37	4.66	10.75	≤ 12.97	Pass
11ac-VHT20	MCS0	100	5500	4.43	4.04	3.87	4.24	10.17	≤ 12.97	Pass
11ac-VHT20	MCS0	120	5600	4.48	4.06	3.65	4.29	10.15	≤ 12.97	Pass
11ac-VHT20	MCS0	140	5700	5.21	4.25	4.45	4.80	10.71	≤ 12.97	Pass
11ac-VHT20	MCS0	144	5720	5.13	4.47	4.52	4.68	10.73	≤ 12.97	Pass
11ac-VHT20	MCS0	149	5745	12.69	12.13	12.36	12.42	18.43	≤ 18.99	Pass
11ac-VHT20	MCS0	157	5785	12.60	12.23	12.35	12.53	18.45	≤ 18.99	Pass
11ac-VHT20	MCS0	165	5825	12.71	12.17	12.40	12.46	18.46	≤ 18.99	Pass
11ac-VHT40	MCS0	38	5190	11.96	11.48	11.65	11.61	17.70	≤ 18.99	Pass
11ac-VHT40	MCS0	46	5230	13.04	13.32	12.60	12.68	18.94	≤ 18.99	Pass
11ac-VHT40	MCS0	54	5270	7.13	7.15	6.61	6.73	12.93	≤ 12.97	Pass
11ac-VHT40	MCS0	62	5310	7.11	7.13	6.63	6.81	12.95	≤ 12.97	Pass
11ac-VHT40	MCS0	102	5510	7.03	6.74	6.48	6.63	12.75	≤ 12.97	Pass
11ac-VHT40	MCS0	118	5590	7.17	6.67	6.52	6.84	12.83	≤ 12.97	Pass
11ac-VHT40	MCS0	134	5670	7.31	6.63	6.58	6.68	12.83	≤ 12.97	Pass
11ac-VHT40	MCS0	142	5710	7.12	6.47	6.54	6.71	12.74	≤ 12.97	Pass
11ac-VHT40	MCS0	151	5755	13.21	12.64	12.70	12.89	18.89	≤ 18.99	Pass
11ac-VHT40	MCS0	159	5795	12.73	12.22	12.26	12.45	18.44	≤ 18.99	Pass
11ac-VHT80	MCS0	42	5210	12.98	12.44	12.48	12.54	18.64	≤ 18.99	Pass
11ac-VHT80	MCS0	58	5290	6.72	6.31	6.18	6.24	12.39	≤ 12.97	Pass
11ac-VHT80	MCS0	106	5530	7.05	6.50	6.26	6.55	12.62	≤ 12.97	Pass
11ac-VHT80	MCS0	122	5610	6.94	6.52	6.10	6.62	12.58	≤ 12.97	Pass
11ac-VHT80	MCS0	138	5690	7.15	6.42	6.32	6.43	12.61	≤ 12.97	Pass
11ac-VHT80	MCS0	155	5775	12.83	12.46	12.48	12.53	18.60	≤ 18.99	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
Non-contiguous 80+80 MHz mode fall within different UNII band										
11ac-VHT80+80	MCS0	42	5210	12.98	12.42	--	--	15.72	≤ 22.00	Pass
11ac-VHT80+80	MCS0	42	5210	--	--	13.50	12.64	16.10	≤ 22.00	Pass
11ac-VHT80+80	MCS0	58	5290	13.09	12.49	--	--	15.81	≤ 15.98	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	12.38	12.85	15.63	≤ 15.98	Pass
11ac-VHT80+80	MCS0	106	5530	12.93	12.39	--	--	15.68	≤ 15.98	Pass
11ac-VHT80+80	MCS0	106	5530	--	--	12.22	12.57	15.41	≤ 15.98	Pass
11ac-VHT80+80	MCS0	122	5610	12.80	12.48	--	--	15.65	≤ 15.98	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	12.19	12.57	15.39	≤ 15.98	Pass
11ac-VHT80+80	MCS0	138	5690	12.97	12.35	--	--	15.68	≤ 15.98	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	12.54	12.41	15.49	≤ 15.98	Pass
11ac-VHT80+80	MCS0	155	5775	17.80	17.32	--	--	20.58	≤ 22.00	Pass
11ac-VHT80+80	MCS0	155	5775	--	--	18.78	18.77	21.79	≤ 22.00	Pass
Non-contiguous 80+80 MHz mode fall within same UNII band										
11ac-VHT80+80	MCS0	106	5530	9.87	9.33	--	--	15.48	≤ 15.98	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	9.35	9.28			
11ac-VHT80+80	MCS0	106	5530	--	--	9.17	9.42	15.50	≤ 15.98	Pass
11ac-VHT80+80	MCS0	138	5690	9.98	9.32	--	--			

Note 1: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power /10})}$ + $10^{(\text{Ant 1 Average Power /10})}$ + $10^{(\text{Ant 2 Average Power /10})}$ +$10^{(\text{Ant 3 Average Power /10})}$}.

Note 2: For 802.11ac-VHT80+80 mode fall within different UNII band:

Ant 0 & Ant 1: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power /10})}$ + $10^{(\text{Ant 1 Average Power /10})}$} (dBm)

Ant 2 & Ant 3: Total Average Power (dBm) = 10*log {$10^{(\text{Ant 2 Average Power /10})}$ + $10^{(\text{Ant 3 Average Power /10})}$} (dBm)

For 802.11ac-VHT80+80 mode fall within same UNII band:

Total Average Power (dBm) = 10*log {$10^{(\text{Ant 0 Average Power /10})}$ + $10^{(\text{Ant 1 Average Power /10})}$ + $10^{(\text{Ant 2 Average Power /10})}$ + $10^{(\text{Ant 3 Average Power /10})}$}.

Note 3: Average Power Limit Calculation as below:

For 5150-5250MHz, 5725-5850MHz:

802.11ac-VHT20/ac-VHT40/ac-VHT80: Limit (dBm) = 30dBm - (14dBi +3.01dBi - 6dBi) = 18.99dBm.

802.11ac-VHT80+80: Limit (dBm) = 30dBm - (14dBi - 6dBi) = 22.00dBm.

For 5250-5350MHz, 5470-5725MHz:

802.11ac-VHT20/ac-VHT40/ac-VHT80: Limit (dBm) = 23.98dBm - (14dBi + 3.01dBi - 6dBi) = 12.97dBm.

802.11ac-VHT80+80: Limit (dBm) = 23.98dBm - (14dBi - 6dBi) = 15.98dBm.

7.5. Transmit Power Control

7.5.1.Test Limit

The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm.

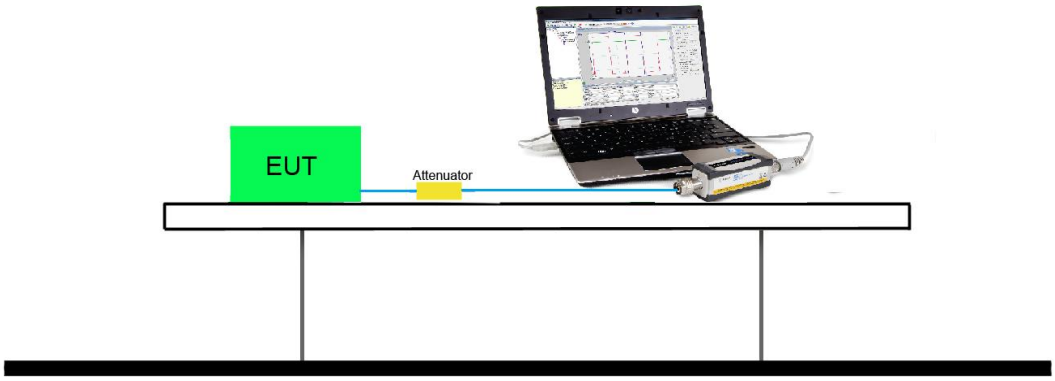
7.5.2.Test Procedure Used

KDB 789033 D02v01- Section E) 3) b) Method PM-G

7.5.3.Test Setting

Average power measurements were perform only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

7.5.4.Test Setup



7.5.5.Test Result

It gets addressed in the operational description.

7.6. Power Spectral Density Measurement

7.6.1.Test Limit

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.

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.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

If transmitting antennas of directional gain greater than 6dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

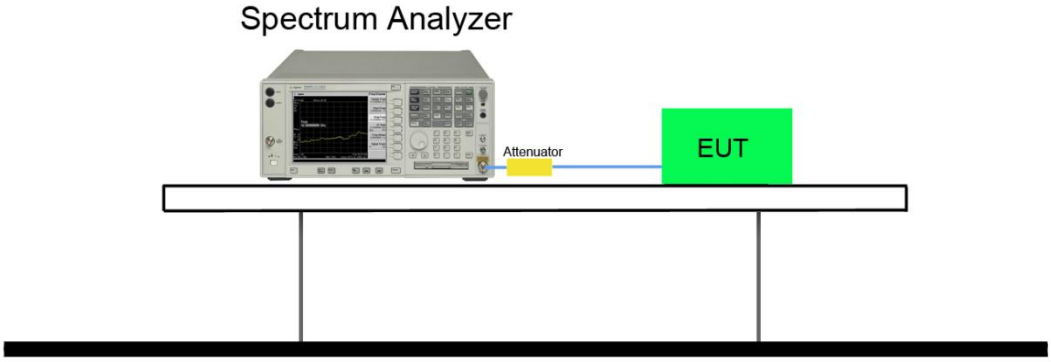
7.6.2.Test Procedure Used

KDB 789033 D02v02r01 - Section F

7.6.3.Test Setting

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire 26dB EBW of the signal.
3. RBW = 1MHz, if measurement bandwidth of Maximum PSD is specified in 500 kHz, RBW = 100 kHz
4. VBW = 3MHz
5. Number of sweep points ≥ 2 × (span / RBW)
6. Detector = power averaging (Average)
7. Sweep time = auto
8. Trigger = free run
9. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
10. Add 10*log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add 10*log(1/0.25) = 6 dB if the duty cycle is 25 percent.
11. When the measurement bandwidth of Maximum PSD is specified in 500 kHz, add a constant factor 10*log(500kHz/100kHz) = 6.99 dB to the measured result.

7.6.4.Test Setup



7.6.5.Test Result

Product	ACCESS POINT	Temperature	24°C
Test Engineer	Kevin Ker	Relative Humidity	59%
Test Site	SR2	Test Date	2018/02/08
Test Item	Power Spectral Density (UNII-Band 1 & UNII-2A & UNII-2C)		
Antenna Type	Omni Antenna (AP-ANT-20W)		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Ant 3 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 0 + 1 + 2 + 3 (CDD Mode)											
11a	6Mbps	36	5180	8.45	8.20	8.20	8.29	97.18	14.43	≤ 14.98	Pass
11a	6Mbps	44	5220	8.76	8.25	8.61	8.61	97.18	14.71	≤ 14.98	Pass
11a	6Mbps	48	5240	8.72	8.43	8.24	8.33	97.18	14.58	≤ 14.98	Pass
11a	6Mbps	52	5260	2.56	2.74	2.27	2.32	97.18	8.62	≤ 8.98	Pass
11a	6Mbps	60	5300	2.74	2.66	2.55	2.67	97.18	8.80	≤ 8.98	Pass
11a	6Mbps	64	5320	2.87	2.43	2.50	2.22	97.18	8.66	≤ 8.98	Pass
11a	6Mbps	100	5500	2.21	2.70	1.90	2.34	97.18	8.44	≤ 8.98	Pass
11a	6Mbps	120	5600	2.33	2.77	2.30	2.78	97.18	8.70	≤ 8.98	Pass
11a	6Mbps	140	5700	2.12	2.13	2.11	2.74	97.18	8.43	≤ 8.98	Pass
11a	6Mbps	144	5720	2.94	2.63	2.29	2.94	97.18	8.85	≤ 8.98	Pass
11ac-VHT20	MCS0	36	5180	8.90	8.34	8.59	8.82	98.23	14.69	≤ 14.98	Pass
11ac-VHT20	MCS0	44	5220	8.71	8.41	8.61	8.55	98.23	14.59	≤ 14.98	Pass
11ac-VHT20	MCS0	48	5240	8.90	8.56	8.57	8.57	98.23	14.67	≤ 14.98	Pass
11ac-VHT20	MCS0	52	5260	2.50	2.49	2.16	2.60	98.23	8.46	≤ 8.98	Pass
11ac-VHT20	MCS0	60	5300	2.93	2.56	2.31	2.78	98.23	8.67	≤ 8.98	Pass
11ac-VHT20	MCS0	64	5320	2.89	2.48	2.63	2.33	98.23	8.61	≤ 8.98	Pass
11ac-VHT20	MCS0	100	5500	2.29	2.33	2.16	2.66	98.23	8.38	≤ 8.98	Pass
11ac-VHT20	MCS0	120	5600	2.27	2.72	2.26	2.70	98.23	8.51	≤ 8.98	Pass
11ac-VHT20	MCS0	140	5700	2.32	2.25	2.12	2.73	98.23	8.38	≤ 8.98	Pass
11ac-VHT20	MCS0	144	5720	2.49	2.32	2.07	2.79	98.23	8.45	≤ 8.98	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Ant 3 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 0 + 1 + 2 + 3 (CDD Mode)											
11ac-VHT40	MCS0	38	5190	0.62	0.58	0.17	0.37	96.12	6.63	≤ 14.98	Pass
11ac-VHT40	MCS0	46	5230	7.76	7.61	7.19	7.20	96.12	13.64	≤ 14.98	Pass
11ac-VHT40	MCS0	54	5270	2.31	2.09	2.11	2.14	96.12	8.36	≤ 8.98	Pass
11ac-VHT40	MCS0	62	5310	2.10	2.07	1.87	1.82	96.12	8.16	≤ 8.98	Pass
11ac-VHT40	MCS0	102	5510	2.86	2.57	2.40	2.81	96.12	8.86	≤ 8.98	Pass
11ac-VHT40	MCS0	118	5590	2.84	2.82	2.14	2.57	96.12	8.79	≤ 8.98	Pass
11ac-VHT40	MCS0	134	5670	2.52	2.22	2.31	2.20	96.12	8.51	≤ 8.98	Pass
11ac-VHT40	MCS0	142	5710	2.65	2.20	2.15	2.65	96.12	8.61	≤ 8.98	Pass
11ac-VHT80	MCS0	42	5210	-5.05	-5.64	-5.73	-5.40	93.75	0.86	≤ 14.98	Pass
11ac-VHT80	MCS0	58	5290	-1.68	-1.87	-1.97	-1.42	93.75	4.57	≤ 8.98	Pass
11ac-VHT80	MCS0	106	5530	-2.61	-2.39	-2.46	-2.81	93.75	3.74	≤ 8.98	Pass
11ac-VHT80	MCS0	122	5610	0.61	0.34	0.08	0.63	93.75	6.72	≤ 8.98	Pass
11ac-VHT80	MCS0	138	5690	0.60	0.19	0.08	0.26	93.75	6.59	≤ 8.98	Pass
Non-contiguous 80+80 MHz mode fall within different UNII band											
11ac-VHT80+80	MCS0	42	5210	-2.37	-2.75	--	--	93.75	0.73	≤ 17.00	Pass
11ac-VHT80+80	MCS0	42	5210	--	--	-2.21	-1.91	93.75	1.23	≤ 17.00	Pass
11ac-VHT80+80	MCS0	58	5290	1.38	1.32	--	--	93.75	4.64	≤ 11.00	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	1.03	1.36	93.75	4.49	≤ 11.00	Pass
11ac-VHT80+80	MCS0	106	5530	-0.82	-0.72	--	--	93.75	2.52	≤ 11.00	Pass
11ac-VHT80+80	MCS0	106	5530	--	--	-0.19	-0.71	93.75	2.85	≤ 11.00	Pass
11ac-VHT80+80	MCS0	122	5610	3.47	3.71	--	--	93.75	6.88	≤ 11.00	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	2.89	3.83	93.75	6.68	≤ 11.00	Pass
11ac-VHT80+80	MCS0	138	5690	3.62	3.59	--	--	93.75	6.90	≤ 11.00	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	2.96	3.74	93.75	6.66	≤ 11.00	Pass
Non-contiguous 80+80 MHz mode fall within same UNII band											
11ac-VHT80+80	MCS0	106	5530	-0.28	-0.35	--	--	93.75	5.72	≤ 11.00	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	-0.93	-0.82				
11ac-VHT80+80	MCS0	106	5530	--	--	-0.06	0.25	93.75	6.48	≤ 11.00	Pass
11ac-VHT80+80	MCS0	138	5690	0.61	-0.11	--	--				

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Ant 3 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Contiguous 80+80 MHz mode											
11ac-VHT80+80	MCS0	42	5210	-1.88	-2.02	--	--	96.71	1.21	≤ 17.00	Pass
	MCS0	58	5290	--	--	-2.44	-2.22	96.71	0.83	≤ 11.00	Pass
11ac-VHT80+80	MCS0	106	5530	0.44	0.19	--	--	96.71	6.54	≤ 11.00	Pass
	MCS0	122	5610	--	--	0.21	0.64				

Note 1: When EUT duty cycle ≥ 98%, Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD/10})}$ + $10^{(\text{Ant 1 PSD/10})}$ + $10^{(\text{Ant 2 PSD/10})}$ + $10^{(\text{Ant 3 PSD/10})}$} (dBm/MHz).

Note 2: When EUT duty cycle < 98%, Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD/10})}$ + $10^{(\text{Ant 1 PSD/10})}$ + $10^{(\text{Ant 2 PSD/10})}$ + $10^{(\text{Ant 3 PSD/10})}$} (dBm/MHz) + 10*log (1/Duty Cycle).

Note 3: For Non-contiguous 80+80 MHz mode fall within different UNII band:

Ant 0 & Ant 1: Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD/10})}$ + $10^{(\text{Ant 1 PSD/10})}$} (dBm/MHz) + 10*log (1/Duty Cycle).

Ant 2 & Ant 3: Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 2 PSD/10})}$ + $10^{(\text{Ant 3 PSD/10})}$} (dBm/MHz) + 10*log (1/Duty Cycle).

For Non-contiguous 80+80 MHz mode fall within same UNII band:

Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD/10})}$ + $10^{(\text{Ant 1 PSD/10})}$ + $10^{(\text{Ant 2 PSD/10})}$ + $10^{(\text{Ant 3 PSD/10})}$} (dBm/MHz) + 10*log (1/Duty Cycle).

Note 4: For 802.11ac-VHT80+80 Contiguous Mode:

5210MHz Fall within UNII-1:

Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD/10})}$ + $10^{(\text{Ant 1 PSD/10})}$} (dBm/MHz) + 10*log (1/Duty Cycle).

5290MHz Fall within UNII-2A:

Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 2 PSD/10})}$ + $10^{(\text{Ant 3 PSD/10})}$} (dBm/MHz) + 10*log (1/Duty Cycle).

5530MHz & 5610MHz Fall within UNII-2C:

Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD/10})}$ + $10^{(\text{Ant 1 PSD/10})}$ + $10^{(\text{Ant 2 PSD/10})}$ + $10^{(\text{Ant 3 PSD/10})}$} (dBm/MHz) + 10*log (1/Duty Cycle).

Note 5: PSD Limit Calculation as below:

For 5150-5250MHz:

802.11a/ac-VHT20/ac-VHT40/ac-VHT80: Limit (dBm/MHz) = 17dBm/MHz - (8.02dBi - 6dBi) = 14.98 dBm/MHz.

802.11ac-VHT80+80: Limit (dBm/MHz) = 17.00 dBm/MHz.

For 5250-5350MHz & 5470-5725MHz:

802.11a/ac-VHT20/ac-VHT40/ac-VHT80: Limit (dBm/MHz) = 11dBm/MHz - (8.02dBi - 6dBi) = 8.98 dBm/MHz.

802.11ac-VHT80+80: Limit (dBm/MHz) = 11.00 dBm/MHz.

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Ant 3 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 0 + 1 + 2 + 3 (Beam-Forming Mode)											
11ac-VHT20	MCS0	36	5180	8.90	8.34	8.59	8.82	98.23	14.69	≤ 14.98	Pass
11ac-VHT20	MCS0	44	5220	8.71	8.41	8.61	8.55	98.23	14.59	≤ 14.98	Pass
11ac-VHT20	MCS0	48	5240	8.90	8.56	8.57	8.57	98.23	14.67	≤ 14.98	Pass
11ac-VHT20	MCS0	52	5260	2.50	2.49	2.16	2.60	98.23	8.46	≤ 8.98	Pass
11ac-VHT20	MCS0	60	5300	2.93	2.56	2.31	2.78	98.23	8.67	≤ 8.98	Pass
11ac-VHT20	MCS0	64	5320	2.89	2.48	2.63	2.33	98.23	8.61	≤ 8.98	Pass
11ac-VHT20	MCS0	100	5500	2.29	2.33	2.16	2.66	98.23	8.38	≤ 8.98	Pass
11ac-VHT20	MCS0	120	5600	2.27	2.72	2.26	2.70	98.23	8.51	≤ 8.98	Pass
11ac-VHT20	MCS0	140	5700	2.32	2.25	2.12	2.73	98.23	8.38	≤ 8.98	Pass
11ac-VHT20	MCS0	144	5720	2.49	2.32	2.07	2.79	98.23	8.45	≤ 8.98	Pass
11ac-VHT40	MCS0	38	5190	6.91	6.55	7.05	6.61	96.12	12.98	≤ 14.98	Pass
11ac-VHT40	MCS0	46	5230	7.99	7.21	7.29	7.28	96.12	13.65	≤ 14.98	Pass
11ac-VHT40	MCS0	54	5270	1.46	1.26	0.94	1.01	96.12	7.36	≤ 8.98	Pass
11ac-VHT40	MCS0	62	5310	1.33	1.13	0.90	1.07	96.12	7.30	≤ 8.98	Pass
11ac-VHT40	MCS0	102	5510	1.80	1.60	1.28	1.59	96.12	7.76	≤ 8.98	Pass
11ac-VHT40	MCS0	118	5590	1.98	1.88	1.72	1.99	96.12	8.09	≤ 8.98	Pass
11ac-VHT40	MCS0	134	5670	1.88	1.56	1.72	1.85	96.12	7.95	≤ 8.98	Pass
11ac-VHT40	MCS0	142	5710	1.76	1.31	1.07	1.94	96.12	7.73	≤ 8.98	Pass
11ac-VHT80	MCS0	42	5210	1.22	1.12	0.91	0.52	93.75	7.25	≤ 14.98	Pass
11ac-VHT80	MCS0	58	5290	2.26	-2.16	-2.58	-2.48	93.75	5.61	≤ 8.98	Pass
11ac-VHT80	MCS0	106	5530	-1.57	-1.61	-2.38	-1.81	93.75	4.47	≤ 8.98	Pass
11ac-VHT80	MCS0	122	5610	-1.42	-1.53	-1.96	-1.64	93.75	4.67	≤ 8.98	Pass
11ac-VHT80	MCS0	138	5690	-1.17	-1.74	-1.92	-1.84	93.75	4.64	≤ 8.98	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Ant 3 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Non-contiguous 80+80 MHz mode fall within different UNII band											
11ac-VHT80+80	MCS0	42	5210	3.29	2.77	--	--	93.75	6.33	≤ 17.00	Pass
11ac-VHT80+80	MCS0	42	5210	--	--	4.99	4.56	93.75	8.07	≤ 17.00	Pass
11ac-VHT80+80	MCS0	58	5290	1.12	0.86	--	--	93.75	4.28	≤ 11.00	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	0.80	1.10	93.75	4.24	≤ 11.00	Pass
11ac-VHT80+80	MCS0	106	5530	1.32	1.12	--	--	93.75	4.51	≤ 11.00	Pass
11ac-VHT80+80	MCS0	106	5530	--	--	1.13	1.44	93.75	4.58	≤ 11.00	Pass
11ac-VHT80+80	MCS0	122	5610	1.68	1.47	--	--	93.75	4.87	≤ 11.00	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	1.09	1.74	93.75	4.72	≤ 11.00	Pass
11ac-VHT80+80	MCS0	138	5690	1.49	1.00	--	--	93.75	4.54	≤ 11.00	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	1.33	1.48	93.75	4.70	≤ 11.00	Pass
Non-contiguous 80+80 MHz mode fall within same UNII band											
11ac-VHT80+80	MCS0	106	5530	-1.77	-2.09	--	--	93.75	4.56	≤ 11.00	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	-1.84	-1.31				
11ac-VHT80+80	MCS0	106	5530	--	--	-2.52	-1.68	93.75	4.41	≤ 11.00	Pass
11ac-VHT80+80	MCS0	138	5690	-1.60	-1.82	--	--				

Note 1: When EUT duty cycle ≥ 98%, Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$ + $10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/MHz).

Note 2: When EUT duty cycle < 98%, Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$ + $10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/MHz) + 10*log (1/Duty Cycle).

Note 3: For Non-contiguous 80+80 MHz mode fall within different UNII band:

Ant 0 & Ant 1: Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$} (dBm/MHz) + 10*log (1/Duty Cycle).

Ant 2 & Ant 3: Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/MHz) + 10*log (1/Duty Cycle).

For Non-contiguous 80+80 MHz mode fall within same UNII band:

Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$ + $10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/MHz) + 10*log (1/Duty Cycle).

Note 4: PSD Limit Calculation as below:

For 5150-5250MHz:

802.11ac-VHT20/ac-VHT40/ac-VHT80: Limit (dBm/MHz) = 17dBm/MHz - (8.02dBi - 6dBi) = 14.98 dBm/MHz.

802.11ac-VHT80+80: Limit (dBm/MHz) = 17.00 dBm/MHz.

For 5250-5350MHz & 5470-5725MHz:

802.11ac-VHT20/ac-VHT40/ac-VHT80: Limit (dBm/MHz) = 11dBm/MHz - (8.02dBi - 6dBi) = 8.98 dBm/MHz.

802.11ac-VHT80+80: Limit (dBm/MHz) = 11.00 dBm/MHz.

Product	ACCESS POINT	Temperature	22°C
Test Engineer	Kevin Ker	Relative Humidity	54%
Test Site	SR2	Test Date	2018/02/08
Test Item	Power Spectral Density (UNII-Band 3)		
Antenna Type	Omin Antenna (AP-ANT-20W)		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ 100kHz)	Ant 1 PSD (dBm/ 100kHz)	Ant 2 PSD (dBm/ 100kHz)	Ant 3 PSD (dBm/ 100kHz)	Duty Cycle (%)	Constant Factor	Total PSD (dBm/ 500kHz)	Limit (dBm/ 500kHz)	Result
Ant 0 + 1 + 2 + 3 (CDD Mode)												
11a	6Mbps	149	5745	2.01	1.76	2.03	1.95	97.18	6.99	15.07	≤ 27.98	Pass
11a	6Mbps	157	5785	2.21	1.94	2.27	2.31	97.18	6.99	15.32	≤ 27.98	Pass
11a	6Mbps	165	5825	2.58	1.64	1.73	2.37	97.18	6.99	15.23	≤ 27.98	Pass
11ac-VHT20	MCS0	149	5745	1.98	1.29	2.16	1.76	98.23	6.99	14.82	≤ 27.98	Pass
11ac-VHT20	MCS0	157	5785	2.11	1.38	2.55	1.91	98.23	6.99	15.02	≤ 27.98	Pass
11ac-VHT20	MCS0	165	5825	1.84	1.86	1.68	1.77	98.23	6.99	14.80	≤ 27.98	Pass
11ac-VHT40	MCS0	151	5755	-0.81	-1.24	-1.18	-0.82	96.12	6.99	12.17	≤ 27.98	Pass
11ac-VHT40	MCS0	159	5795	-0.79	-0.99	-1.26	-1.05	96.12	6.99	12.16	≤ 27.98	Pass
11ac-VHT80	MCS0	155	5775	2.83	2.42	2.88	2.70	93.75	6.99	16.00	≤ 27.98	Pass
11ac-VHT80+80	MCS0	155	5775	4.28	4.10	--	--	93.75	6.99	14.47	≤ 30.00	Pass
11ac-VHT80+80	MCS0	155	5775	--	--	4.02	4.60	93.75	6.99	14.60	≤ 30.00	Pass

Note 1: When EUT duty cycle ≥ 98%, Total PSD (dBm/500kHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$ + $10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/100kHz) + Constant Factor.

Note 2: When EUT duty cycle < 98%, Total PSD (dBm/500kHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$ + $10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/100kHz) + Constant Factor + 10*log (1/Duty Cycle).

Note 3: For 802.11ac-VHT80+80:

Ant 0 & Ant 1: Total PSD (dBm/500kHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$} (dBm/100kHz) + Constant Factor + 10*log (1/Duty Cycle).

Ant 2 & Ant 3: Total PSD (dBm/500kHz) = 10*log {$10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/100kHz) + Constant Factor + 10*log (1/Duty Cycle).

Note 4: PSD Limit Calculation as below:

For 802.11a/ac-VHT20/ac-VHT40/ac-VHT80: Limit (dBm/500kHz) = 30dBm/500kHz - (8.02dBi - 6dBi) = 27.98 dBm/500kHz.

For 802.11ac-VHT80+80: Limit (dBm/500kHz) = 30.00 dBm/500kHz.

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ 100kHz)	Ant 1 PSD (dBm/ 100kHz)	Ant 2 PSD (dBm/ 100kHz)	Ant 3 PSD (dBm/ 100kHz)	Duty Cycle (%)	Constant Factor	Total PSD (dBm/ 500kHz)	Limit (dBm/ 500kHz)	Result
Ant 0 + 1 + 2 + 3 (Beam-Forming Mode)												
11ac-VHT20	MCS0	149	5745	1.82	0.96	1.57	1.37	98.23	6.99	14.45	≤ 27.98	Pass
11ac-VHT20	MCS0	157	5785	1.68	0.80	1.29	1.89	98.23	6.99	14.44	≤ 27.98	Pass
11ac-VHT20	MCS0	165	5825	1.25	0.82	1.35	1.68	98.23	6.99	14.30	≤ 27.98	Pass
11ac-VHT40	MCS0	151	5755	-0.97	-1.21	-1.35	-0.69	96.12	6.99	12.13	≤ 27.98	Pass
11ac-VHT40	MCS0	159	5795	-0.64	-1.07	-1.18	-0.85	96.12	6.99	12.25	≤ 27.98	Pass
11ac-VHT80	MCS0	155	5775	-4.65	-4.91	-5.20	-4.55	93.75	6.99	8.47	≤ 27.98	Pass
11ac-VHT80+80	MCS0	155	5775	-4.07	-4.82	--	--	93.75	6.99	5.85	≤ 30.00	Pass
11ac-VHT80+80	MCS0	155	5775	--	--	-3.93	-3.87	93.75	6.99	6.38	≤ 30.00	Pass

Note 1: When EUT duty cycle ≥ 98%, Total PSD (dBm/500kHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$ + $10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/100kHz) + Constant Factor.

Note 2: When EUT duty cycle < 98%, Total PSD (dBm/500kHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$ + $10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/100kHz) + Constant Factor + 10*log (1/Duty Cycle).

Note 3: For 802.11ac-VHT80+80:

Ant 0 & Ant 1: Total PSD (dBm/500kHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$} (dBm/100kHz) + Constant Factor + 10*log (1/Duty Cycle).

Ant 2 & Ant 3: Total PSD (dBm/500kHz) = 10*log {$10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/100kHz) + Constant Factor + 10*log (1/Duty Cycle).

Note 4: PSD Limit Calculation as below:

For 802.11ac-VHT20/ac-VHT40/ac-VHT80: Limit (dBm/500kHz) = 30dBm/500kHz - (8.02dBi - 6dBi) = 27.98dBm/500kHz.

For 802.11ac-VHT80+80: Limit (dBm/500kHz) = 30.00dBm/500kHz.

Product	ACCESS POINT	Temperature	24°C
Test Engineer	Kevin Ker	Relative Humidity	59%
Test Site	SR2	Test Date	2018/02/08
Test Item	Power Spectral Density (UNII-Band 1 & UNII-2A & UNII-2C)		
Antenna Type	Directional Antenna (ANT-4x4-5314)		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Ant 3 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 0 + 1 + 2 + 3 (CDD Mode)											
11a	6Mbps	36	5180	-0.45	-0.73	-0.66	-0.50	97.18	5.56	≤ 5.99	Pass
11a	6Mbps	44	5220	-0.25	-0.35	-0.26	-0.19	97.18	5.88	≤ 5.99	Pass
11a	6Mbps	48	5240	-0.37	-0.40	-0.68	-0.64	97.18	5.62	≤ 5.99	Pass
11a	6Mbps	52	5260	-6.21	-6.28	-6.76	-6.51	97.18	-0.29	≤ -0.01	Pass
11a	6Mbps	60	5300	-6.63	-6.36	-7.15	-6.51	97.18	-0.51	≤ -0.01	Pass
11a	6Mbps	64	5320	-6.44	-6.57	-6.44	-6.66	97.18	-0.38	≤ -0.01	Pass
11a	6Mbps	100	5500	-6.74	-6.61	-6.93	-6.47	97.18	-0.54	≤ -0.01	Pass
11a	6Mbps	120	5600	-6.60	-6.40	-6.96	-6.36	97.18	-0.43	≤ -0.01	Pass
11a	6Mbps	140	5700	-6.44	-6.53	-7.05	-6.77	97.18	-0.55	≤ -0.01	Pass
11a	6Mbps	144	5720	-6.20	-6.45	-6.52	-6.09	97.18	-0.17	≤ -0.01	Pass
11ac-VHT20	MCS0	36	5180	-0.08	-0.37	-0.16	-0.19	98.62	5.82	≤ 5.99	Pass
11ac-VHT20	MCS0	44	5220	-0.24	-0.42	-0.40	-0.33	98.62	5.67	≤ 5.99	Pass
11ac-VHT20	MCS0	48	5240	-0.17	-0.39	-0.55	-0.29	98.62	5.67	≤ 5.99	Pass
11ac-VHT20	MCS0	52	5260	-6.12	-6.23	-6.46	-6.33	98.62	-0.26	≤ -0.01	Pass
11ac-VHT20	MCS0	60	5300	-6.29	-6.62	-6.80	-6.69	98.62	-0.58	≤ -0.01	Pass
11ac-VHT20	MCS0	64	5320	-6.23	-6.18	-6.37	-6.38	98.62	-0.27	≤ -0.01	Pass
11ac-VHT20	MCS0	100	5500	-6.28	-6.23	-6.73	-6.16	98.62	-0.32	≤ -0.01	Pass
11ac-VHT20	MCS0	120	5600	-6.26	-6.07	-6.65	-6.21	98.62	-0.27	≤ -0.01	Pass
11ac-VHT20	MCS0	140	5700	-6.26	-6.24	-6.71	-6.30	98.62	-0.35	≤ -0.01	Pass
11ac-VHT20	MCS0	144	5720	-6.26	-6.58	-6.79	-6.32	98.62	-0.46	≤ -0.01	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Ant 3 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 0 + 1 + 2 + 3 (CDD Mode)											
11ac-VHT40	MCS0	38	5190	-2.17	-2.48	-2.25	-2.83	96.12	3.77	≤ 5.99	Pass
11ac-VHT40	MCS0	46	5230	-0.15	-0.87	-0.44	-0.47	96.12	5.72	≤ 5.99	Pass
11ac-VHT40	MCS0	54	5270	-6.31	-6.54	-6.86	-6.75	96.12	-0.42	≤ -0.01	Pass
11ac-VHT40	MCS0	62	5310	-6.66	-6.55	-7.20	-6.74	96.12	-0.59	≤ -0.01	Pass
11ac-VHT40	MCS0	102	5510	-6.16	-6.31	-6.98	-6.32	96.12	-0.24	≤ -0.01	Pass
11ac-VHT40	MCS0	118	5590	-6.51	-6.14	-6.85	-6.59	96.12	-0.32	≤ -0.01	Pass
11ac-VHT40	MCS0	134	5670	-6.50	-6.27	-7.18	-6.79	96.12	-0.48	≤ -0.01	Pass
11ac-VHT40	MCS0	142	5710	-6.50	-6.83	-7.17	-6.49	96.12	-0.55	≤ -0.01	Pass
11ac-VHT80	MCS0	42	5210	-8.12	-8.35	-8.46	-8.77	93.75	-2.12	≤ 5.99	Pass
11ac-VHT80	MCS0	58	5290	-7.55	-7.48	-7.84	-7.56	93.75	-1.30	≤ -0.01	Pass
11ac-VHT80	MCS0	106	5530	-6.81	-6.93	-7.75	-6.76	93.75	-0.74	≤ -0.01	Pass
11ac-VHT80	MCS0	122	5610	-7.52	-7.41	-8.42	-7.41	93.75	-1.37	≤ -0.01	Pass
11ac-VHT80	MCS0	138	5690	-7.35	-7.72	-7.96	-7.85	93.75	-1.41	≤ -0.01	Pass
Non-contiguous 80+80 MHz mode fall within different UNII band											
11ac-VHT80+80	MCS0	42	5210	-4.73	-4.93	--	--	93.75	-1.54	≤ 9.00	Pass
11ac-VHT80+80	MCS0	42	5210	--	--	-4.06	-4.88	93.75	-1.16	≤ 9.00	Pass
11ac-VHT80+80	MCS0	58	5290	-4.28	-4.46	--	--	93.75	-1.08	≤ 3.00	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	-4.96	-4.39	93.75	-1.38	≤ 3.00	Pass
11ac-VHT80+80	MCS0	106	5530	-3.88	-3.88	--	--	93.75	-0.59	≤ 3.00	Pass
11ac-VHT80+80	MCS0	106	5530	--	--	-4.75	-3.62	93.75	-0.86	≤ 3.00	Pass
11ac-VHT80+80	MCS0	122	5610	-4.78	-4.84	--	--	93.75	-1.52	≤ 3.00	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	-4.86	-4.00	93.75	-1.12	≤ 3.00	Pass
11ac-VHT80+80	MCS0	138	5690	-4.66	-4.72	--	--	93.75	-1.40	≤ 3.00	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	-4.97	-4.39	93.75	-1.38	≤ 3.00	Pass
Non-contiguous 80+80 MHz mode fall within same UNII band											
11ac-VHT80+80	MCS0	106	5530	-7.05	-6.83	--	--	93.75	-1.23	≤ 3.00	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	-8.48	-7.97				
11ac-VHT80+80	MCS0	106	5530	--	--	-7.69	-7.07	93.75	-1.26	≤ 3.00	Pass
11ac-VHT80+80	MCS0	138	5690	-7.54	-7.99	--	--				

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Ant 3 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
11ac-VHT80+80 (Contiguous 80+80 MHz mode)											
11ac-VHT80+80	MCS0	42	5210	-6.79	-6.50	--	--	96.71	-3.49	≤ 9.00	Pass
	MCS0	58	5290	--	--	-7.23	-7.22	96.71	-4.07	≤ 3.00	Pass
11ac-VHT80+80	MCS0	106	5530	-7.11	-6.61	--	--	96.71	-1.17	≤ 3.00	Pass
	MCS0	122	5610	--	--	-8.43	-7.40				

Note 1: When EUT duty cycle ≥ 98%, Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD/10})}$ + $10^{(\text{Ant 1 PSD/10})}$ + $10^{(\text{Ant 2 PSD/10})}$ + $10^{(\text{Ant 3 PSD/10})}$} (dBm/MHz).

Note 2: When EUT duty cycle < 98%, Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD/10})}$ + $10^{(\text{Ant 1 PSD/10})}$ + $10^{(\text{Ant 2 PSD/10})}$ + $10^{(\text{Ant 3 PSD/10})}$} (dBm/MHz) + 10*log (1/Duty Cycle).

Note 3: For Non-contiguous 80+80 MHz mode fall within different UNII band:

Ant 0 & Ant 1: Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD/10})}$ + $10^{(\text{Ant 1 PSD/10})}$} (dBm/MHz) + 10*log (1/Duty Cycle).

Ant 2 & Ant 3: Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 2 PSD/10})}$ + $10^{(\text{Ant 3 PSD/10})}$} (dBm/MHz) + 10*log (1/Duty Cycle).

For Non-contiguous 80+80 MHz mode fall within same UNII band:

Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD/10})}$ + $10^{(\text{Ant 1 PSD/10})}$ + $10^{(\text{Ant 2 PSD/10})}$ + $10^{(\text{Ant 3 PSD/10})}$} (dBm/MHz) + 10*log (1/Duty Cycle).

Note 4: For 802.11ac-VHT80+80 Contiguous Mode:

5210MHz Fall within UNII-1:

Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD/10})}$ + $10^{(\text{Ant 1 PSD/10})}$} + 10*log (1/Duty Cycle).

5290MHz Fall within UNII-2A:

Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 2 PSD/10})}$ + $10^{(\text{Ant 3 PSD/10})}$} + 10*log (1/Duty Cycle).

5530MHz & 5610MHz Fall within UNII-2C:

Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD/10})}$ + $10^{(\text{Ant 1 PSD/10})}$ + $10^{(\text{Ant 2 PSD/10})}$ + $10^{(\text{Ant 3 PSD/10})}$} + 10*log (1/Duty Cycle).

Note 5: PSD Limit Calculation as below:

For 5150-5250MHz:

802.11a/ac-VHT20/ac-VHT40/ac-VHT80: Limit (dBm/MHz) = 17dBm/MHz - (17.01dBi - 6dBi) = 5.99 dBm/MHz.

802.11ac-VHT80+80: Limit (dBm/MHz) = 17dBm/MHz - (14dBi - 6dBi) = 9.00 dBm/MHz.

For 5250-5350MHz & 5470-5725MHz:

802.11a/ac-VHT20/ac-VHT40/ac-VHT80: Limit (dBm/MHz) = 11dBm/MHz - (17.01dBi - 6dBi) = -0.01 dBm/MHz.

802.11ac-VHT80+80: Limit (dBm/MHz) = 11dBm/MHz - (14dBi - 6dBi) = 3.00 dBm/MHz.

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Ant 3 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 0 + 1 + 2 + 3 (Beam-Forming Mode)											
11ac-VHT20	MCS0	36	5180	-0.08	-0.37	-0.16	-0.19	98.23	5.82	≤ 5.99	Pass
11ac-VHT20	MCS0	44	5220	-0.24	-0.42	-0.40	-0.33	98.23	5.67	≤ 5.99	Pass
11ac-VHT20	MCS0	48	5240	-0.17	-0.39	-0.55	-0.29	98.23	5.67	≤ 5.99	Pass
11ac-VHT20	MCS0	52	5260	-6.12	-6.23	-6.46	-6.33	98.23	-0.26	≤ -0.01	Pass
11ac-VHT20	MCS0	60	5300	-6.29	-6.62	-6.80	-6.69	98.23	-0.58	≤ -0.01	Pass
11ac-VHT20	MCS0	64	5320	-6.23	-6.18	-6.37	-6.38	98.23	-0.27	≤ -0.01	Pass
11ac-VHT20	MCS0	100	5500	-6.28	-6.23	-6.73	-6.16	98.23	-0.32	≤ -0.01	Pass
11ac-VHT20	MCS0	120	5600	-6.26	-6.07	-6.65	-6.21	98.23	-0.27	≤ -0.01	Pass
11ac-VHT20	MCS0	140	5700	-6.26	-6.24	-6.71	-6.30	98.23	-0.35	≤ -0.01	Pass
11ac-VHT20	MCS0	144	5720	-6.26	-6.58	-6.79	-6.32	98.23	-0.46	≤ -0.01	Pass
11ac-VHT40	MCS0	38	5190	-2.17	-2.48	-2.25	-2.83	96.12	3.77	≤ 5.99	Pass
11ac-VHT40	MCS0	46	5230	-0.15	-0.87	-0.44	-0.47	96.12	5.72	≤ 5.99	Pass
11ac-VHT40	MCS0	54	5270	-6.31	-6.54	-6.86	-6.75	96.12	-0.42	≤ -0.01	Pass
11ac-VHT40	MCS0	62	5310	-6.66	-6.55	-7.20	-6.74	96.12	-0.59	≤ -0.01	Pass
11ac-VHT40	MCS0	102	5510	-6.16	-6.31	-6.98	-6.32	96.12	-0.24	≤ -0.01	Pass
11ac-VHT40	MCS0	118	5590	-6.51	-6.14	-6.85	-6.59	96.12	-0.32	≤ -0.01	Pass
11ac-VHT40	MCS0	134	5670	-6.50	-6.27	-7.18	-6.79	96.12	-0.48	≤ -0.01	Pass
11ac-VHT40	MCS0	142	5710	-6.50	-6.83	-7.17	-6.49	96.12	-0.55	≤ -0.01	Pass
11ac-VHT80	MCS0	42	5210	-4.34	-4.94	-5.03	-4.85	93.75	1.52	≤ 5.99	Pass
11ac-VHT80	MCS0	58	5290	-10.87	-10.94	-11.51	-11.38	93.75	-4.87	≤ -0.01	Pass
11ac-VHT80	MCS0	106	5530	-10.07	-10.08	-11.07	-10.11	93.75	-4.01	≤ -0.01	Pass
11ac-VHT80	MCS0	122	5610	-10.72	-10.74	-11.42	-10.55	93.75	-4.54	≤ -0.01	Pass
11ac-VHT80	MCS0	138	5690	-10.86	-11.16	-11.44	-10.86	93.75	-4.77	≤ -0.01	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Ant 3 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Non-contiguous 80+80 MHz mode fall within different UNII band											
11ac-VHT80+80	MCS0	42	5210	-4.73	-4.93	--	--	93.75	-1.54	≤ 9.00	Pass
11ac-VHT80+80	MCS0	42	5210	--	--	-4.06	-4.88	93.75	-1.16	≤ 9.00	Pass
11ac-VHT80+80	MCS0	58	5290	-4.28	-4.46	--	--	93.75	-1.08	≤ 3.00	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	-4.96	-4.39	93.75	-1.38	≤ 3.00	Pass
11ac-VHT80+80	MCS0	106	5530	-3.88	-3.88	--	--	93.75	-0.59	≤ 3.00	Pass
11ac-VHT80+80	MCS0	106	5530	--	--	-4.75	-3.62	93.75	-0.86	≤ 3.00	Pass
11ac-VHT80+80	MCS0	122	5610	-4.78	-4.84	--	--	93.75	-1.52	≤ 3.00	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	-4.86	-4.00	93.75	-1.12	≤ 3.00	Pass
11ac-VHT80+80	MCS0	138	5690	-4.66	-4.72	--	--	93.75	-1.40	≤ 3.00	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	-4.97	-4.39	93.75	-1.38	≤ 3.00	Pass
Non-contiguous 80+80 MHz mode fall within same UNII band											
11ac-VHT80+80	MCS0	106	5530	-7.05	-6.83	--	--	93.75	-1.23	≤ 3.00	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	-8.48	-7.97				
11ac-VHT80+80	MCS0	106	5530	--	--	-7.69	-7.07	93.75	-1.26	≤ 3.00	Pass
11ac-VHT80+80	MCS0	138	5690	-7.54	-7.99	--	--				

Note 1: When EUT duty cycle ≥ 98%, Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$ + $10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/MHz).

Note 2: When EUT duty cycle < 98%, Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$ + $10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/MHz) + 10*log (1/Duty Cycle).

Note 3: For Non-contiguous 80+80 MHz mode fall within different UNII band:

Ant 0 & Ant 1: Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$} (dBm/MHz) + 10*log (1/Duty Cycle).

Ant 2 & Ant 3: Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/MHz) + 10*log (1/Duty Cycle).

For Non-contiguous 80+80 MHz mode fall within same UNII band:

Total PSD (dBm/MHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$ + $10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/MHz) + 10*log (1/Duty Cycle).

Note 4: PSD Limit Calculation as below:

For 5150-5250MHz:

802.11a/ac-VHT20/ac-VHT40/ac-VHT80: Limit (dBm/MHz) = 17dBm/MHz - (17.01dBi - 6dBi) = 5.99dBm/MHz.

802.11ac-VHT80+80: Limit (dBm/MHz) = 17dBm/MHz - (14dBi - 6dBi) = 9.00dBm/MHz.

For 5250-5350MHz & 5470-5725MHz:

802.11a/ac-VHT20/ac-VHT40/ac-VHT80: Limit (dBm/MHz) = 11dBm/MHz - (17.01dBi - 6dBi) = -0.01dBm/MHz.

802.11ac-VHT80+80: Limit (dBm/MHz) = 11dBm/MHz - (14dBi - 6dBi) = 3.00dBm/MHz.

Product	ACCESS POINT	Temperature	22°C
Test Engineer	Kevin Ker	Relative Humidity	54%
Test Site	SR2	Test Date	2018/02/08
Test Item	Power Spectral Density (UNII-Band 3)		
Antenna Type	Directional Antenna (ANT-4x4-5314)		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ 100kHz)	Ant 1 PSD (dBm/ 100kHz)	Ant 2 PSD (dBm/ 100kHz)	Ant 3 PSD (dBm/ 100kHz)	Duty Cycle (%)	Constant Factor	Total PSD (dBm/ 500kHz)	Limit (dBm/ 500kHz)	Result
Ant 0 + 1 + 2 + 3 (CDD Mode)												
11a	6Mbps	149	5745	-4.27	-4.42	-4.42	-4.40	97.18	6.99	8.76	≤ 18.99	Pass
11a	6Mbps	157	5785	-4.14	-4.45	-4.48	-4.28	97.18	6.99	8.80	≤ 18.99	Pass
11a	6Mbps	165	5825	-5.32	-5.36	-5.42	-5.19	97.18	6.99	7.81	≤ 18.99	Pass
11ac-VHT20	MCS0	149	5745	-3.94	-4.37	-4.70	-4.45	98.23	6.99	8.65	≤ 18.99	Pass
11ac-VHT20	MCS0	157	5785	-4.42	-4.39	-4.19	-4.28	98.23	6.99	8.69	≤ 18.99	Pass
11ac-VHT20	MCS0	165	5825	-5.53	-5.60	-5.61	-5.49	98.23	6.99	7.45	≤ 18.99	Pass
11ac-VHT40	MCS0	151	5755	-7.18	-7.12	-7.37	-6.97	96.12	6.99	6.02	≤ 18.99	Pass
11ac-VHT40	MCS0	159	5795	-7.00	-7.07	-7.25	-6.64	96.12	6.99	6.20	≤ 18.99	Pass
11ac-VHT80	MCS0	155	5775	-11.44	-11.44	-11.76	-11.40	93.75	6.99	1.78	≤ 18.99	Pass
11ac-VHT80+80	MCS0	155	5775	-9.10	-9.61	--	--	93.75	6.99	0.93	≤ 22.00	Pass
11ac-VHT80+80	MCS0	155	5775	--	--	-7.72	-7.12	93.75	6.99	2.87	≤ 22.00	Pass

Note 1: When EUT duty cycle ≥ 98%, Total PSD (dBm/500kHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$ + $10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/100kHz) + Constant Factor.

Note 2: When EUT duty cycle < 98%, Total PSD (dBm/500kHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$ + $10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/100kHz) + Constant Factor + 10*log (1/Duty Cycle).

Note 3: For 802.11ac-VHT80+80:

Ant 0 & Ant 1: Total PSD (dBm/500kHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$} (dBm/100kHz) + Constant Factor + 10*log (1/Duty Cycle).

Ant 2 & Ant 3: Total PSD (dBm/500kHz) = 10*log {$10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/100kHz) + Constant Factor + 10*log (1/Duty Cycle).

Note 4: PSD Limit Calculation as below:

For 802.11a/ac-VHT20/ac-VHT40/ac-VHT80: Limit (dBm/500kHz) = 30dBm/500kHz - (17.01dBi - 6dBi) = 18.99 dBm/500kHz.

For 802.11ac-VHT80+80: Limit (dBm/500kHz) = 30dBm/500kHz - (14dBi - 6dBi) = 22.00 dBm/500kHz.

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ 100kHz)	Ant 1 PSD (dBm/ 100kHz)	Ant 2 PSD (dBm/ 100kHz)	Ant 3 PSD (dBm/ 100kHz)	Duty Cycle (%)	Constant Factor	Total PSD (dBm/ 500kHz)	Limit (dBm/ 500kHz)	Result
Ant 0 + 1 + 2 + 3 (Beam-Forming Mode)												
11ac-VHT20	MCS0	149	5745	-7.90	-8.03	-8.07	-7.67	98.23	6.99	5.10	≤ 18.99	Pass
11ac-VHT20	MCS0	157	5785	-7.63	-7.87	-7.74	-7.78	98.23	6.99	5.26	≤ 18.99	Pass
11ac-VHT20	MCS0	165	5825	-7.61	-7.90	-7.49	-7.28	98.23	6.99	5.45	≤ 18.99	Pass
11ac-VHT40	MCS0	151	5755	-10.27	-10.02	-10.50	-9.81	96.12	6.99	3.04	≤ 18.99	Pass
11ac-VHT40	MCS0	159	5795	-10.60	-10.44	-10.75	-10.43	96.12	6.99	2.63	≤ 18.99	Pass
11ac-VHT80	MCS0	155	5775	-13.84	-14.12	-14.49	-13.58	93.75	6.99	-0.70	≤ 18.99	Pass
11ac-VHT80+80	MCS0	155	5775	-9.10	-9.61	--	--	93.75	6.99	0.93	≤ 22.00	Pass
11ac-VHT80+80	MCS0	155	5775	--	--	-7.72	-7.12	93.75	6.99	2.87	≤ 22.00	Pass

Note 1: When EUT duty cycle ≥ 98%, Total PSD (dBm/500kHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$ + $10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/100kHz) + Constant Factor.

Note 2: When EUT duty cycle < 98%, Total PSD (dBm/500kHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$ + $10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/100kHz) + Constant Factor + 10*log (1/Duty Cycle).

Note 3: For 802.11ac-VHT80+80:

Ant 0 & Ant 1: Total PSD (dBm/500kHz) = 10*log {$10^{(\text{Ant 0 PSD}/10)}$ + $10^{(\text{Ant 1 PSD}/10)}$} (dBm/100kHz) + Constant Factor + 10*log (1/Duty Cycle).

Ant 2 & Ant 3: Total PSD (dBm/500kHz) = 10*log {$10^{(\text{Ant 2 PSD}/10)}$ + $10^{(\text{Ant 3 PSD}/10)}$} (dBm/100kHz) + Constant Factor + 10*log (1/Duty Cycle).

Note 4: PSD Limit Calculation as below:

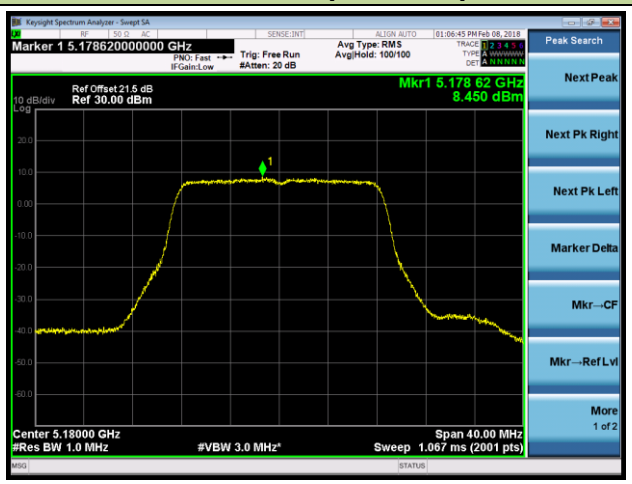
For 802.11a/ac-VHT20/ac-VHT40/ac-VHT80: Limit (dBm/500kHz) = 30dBm/500kHz - (17.01dBi - 6dBi) = 18.99dBm/500kHz.

For 802.11ac-VHT80+80: Limit (dBm/500kHz) = 30dBm/500kHz - (14dBi - 6dBi) = 22.00dBm/500kHz.

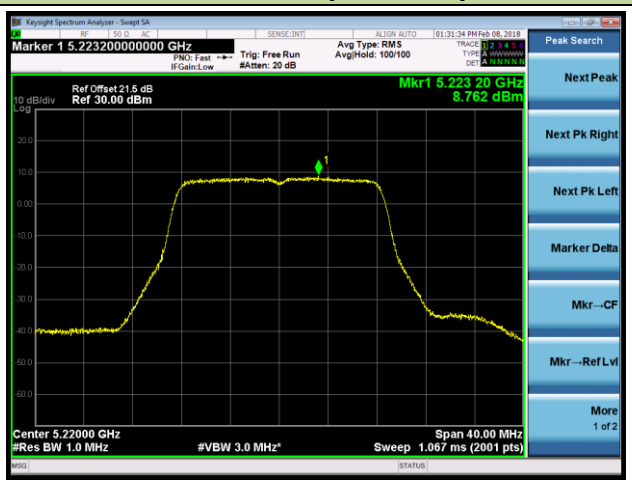
Product	ACCESS POINT	Temperature	22°C
Test Engineer	Kevin Ker	Test Date	2018/02/08
Antenna Type	Omni Antenna (AP-ANT-20W)		

802.11a Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3 (CDD Mode)

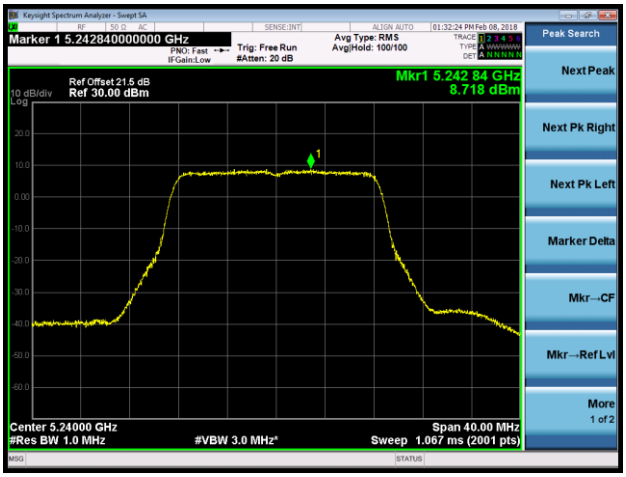
Channel 36 (5180MHz)



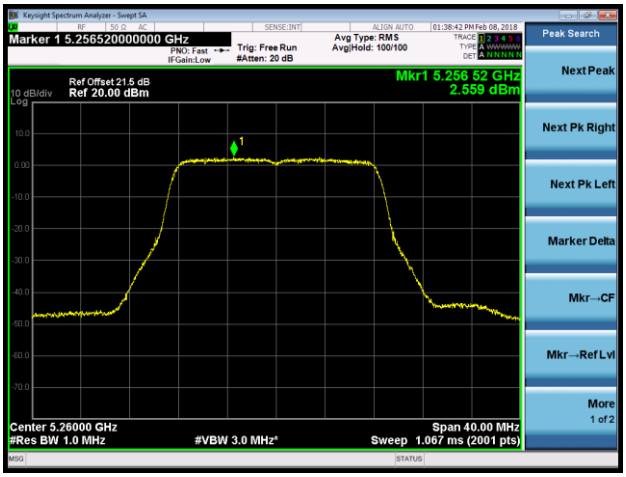
Channel 44 (5220MHz)



Channel 48 (5240MHz)



Channel 52 (5260MHz)

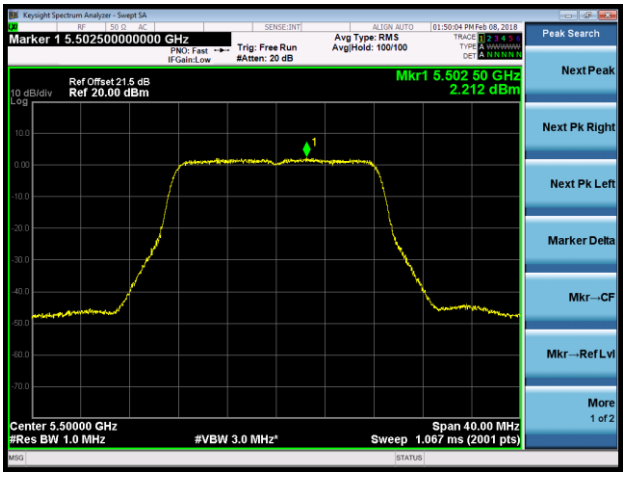


Channel 60 (5300MHz)

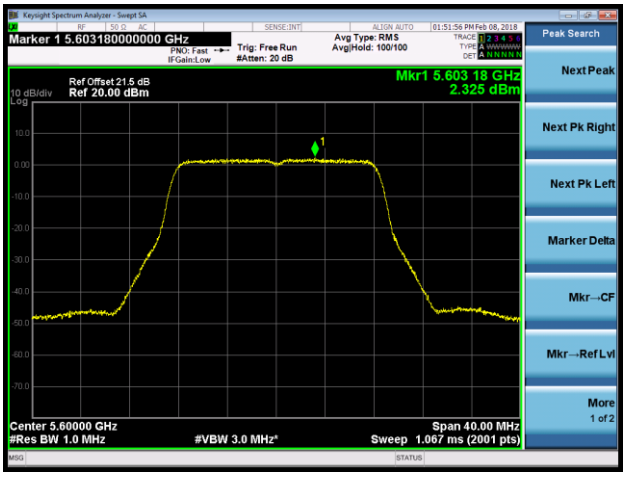
Channel 64 (5320MHz)

802.11a Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3 (CDD Mode)

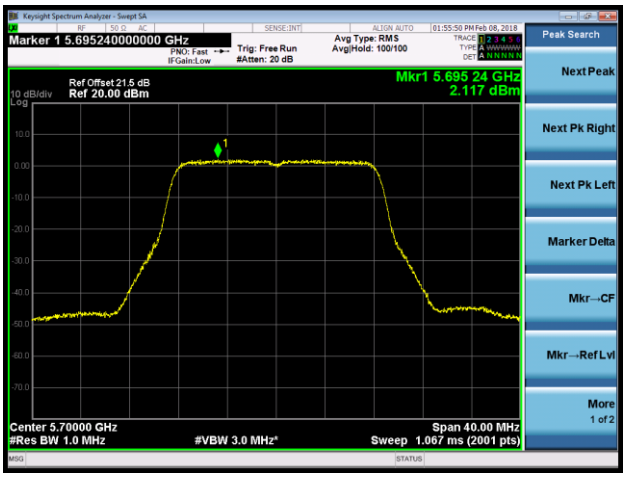
Channel 100 (5500MHz)



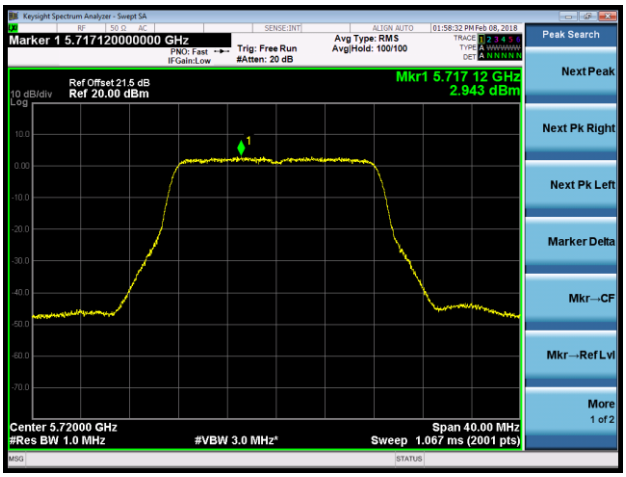
Channel 120 (5600MHz)



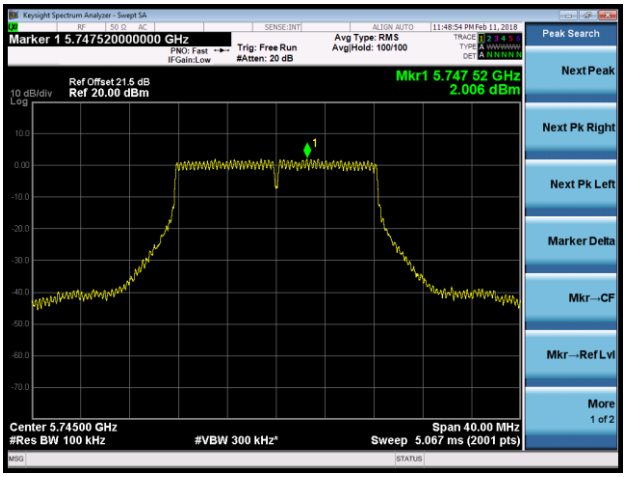
Channel 140 (5700MHz)



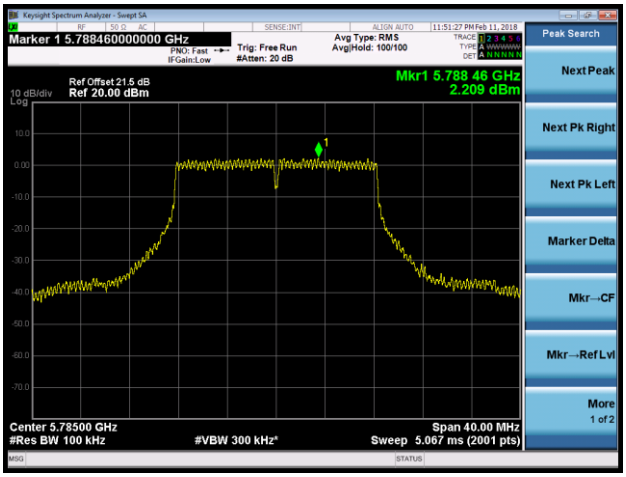
Channel 144 (5720MHz)

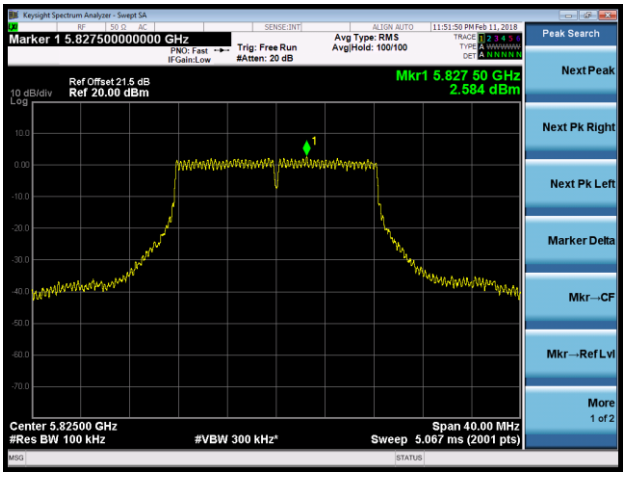


Channel 149 (5745MHz)



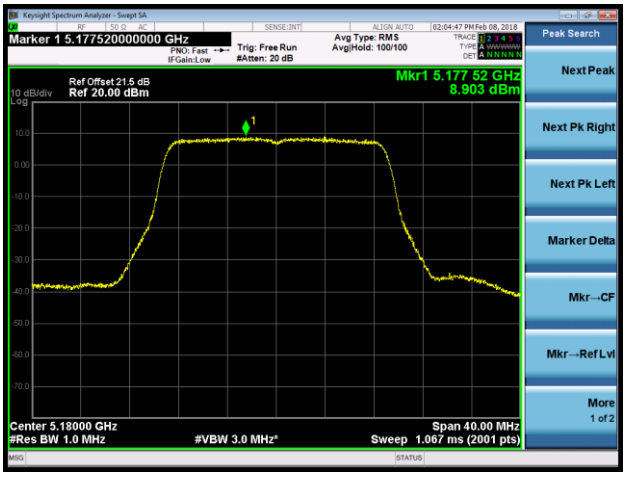
Channel 157 (5785MHz)



802.11a Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3 (CDD Mode)	
Channel 165 (5825MHz)	
	

802.11ac-VHT20 Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3 (CDD Mode)

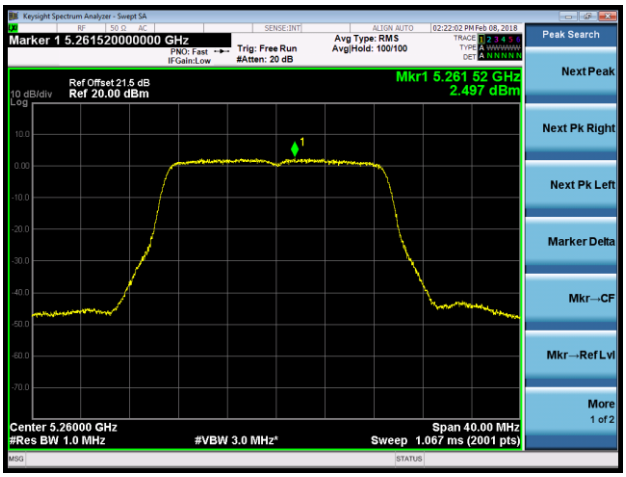
Channel 36 (5180MHz)



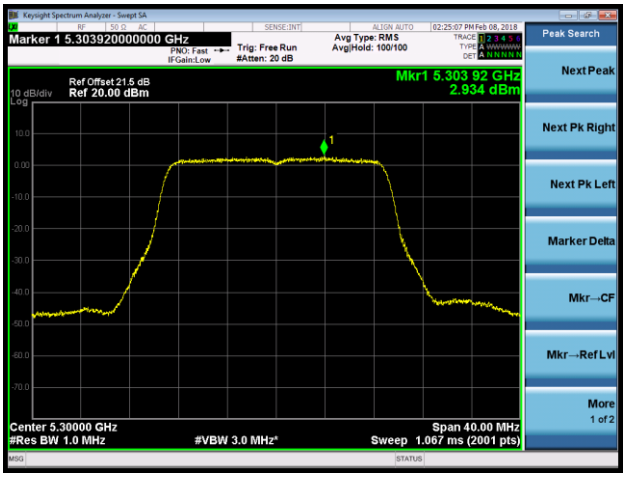
Channel 44 (5220MHz)

Channel 48 (5240MHz)

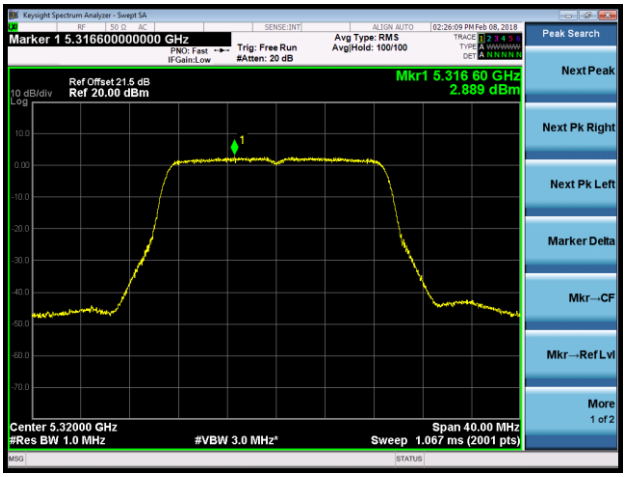
Channel 52 (5260MHz)



Channel 60 (5300MHz)

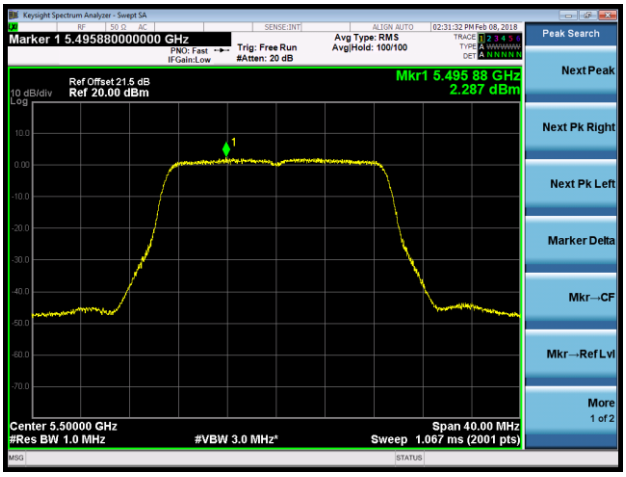


Channel 64 (5320MHz)

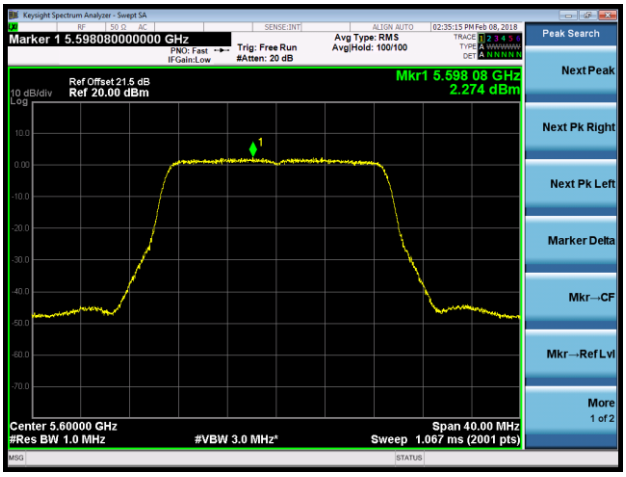


802.11ac-VHT20 Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3 (CDD Mode)

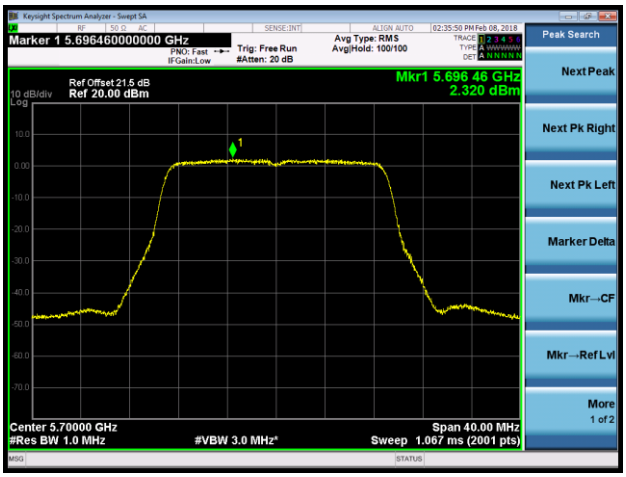
Channel 100 (5500MHz)



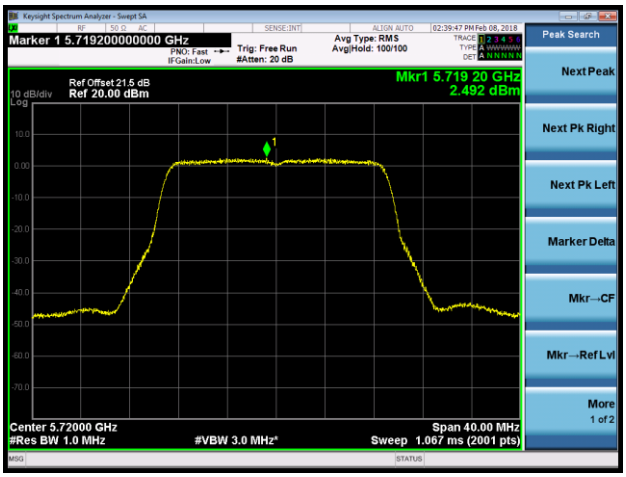
Channel 120 (5600MHz)



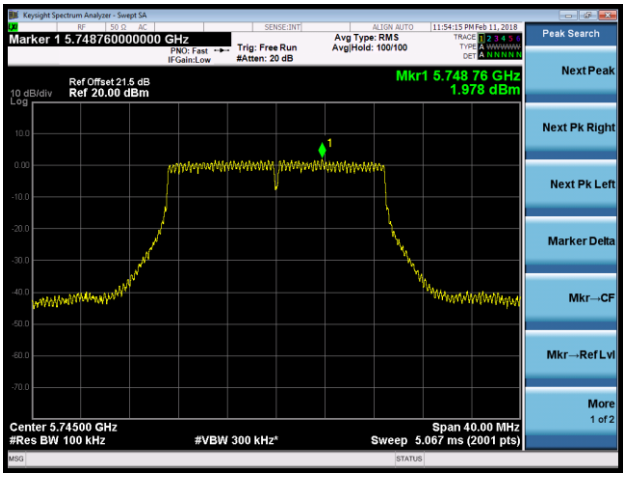
Channel 140 (5700MHz)



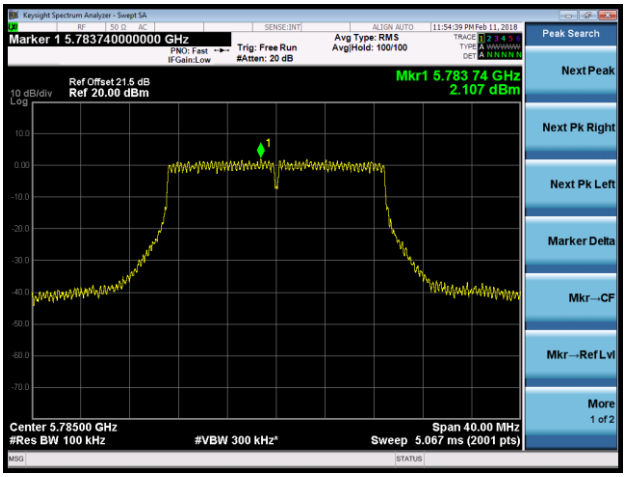
Channel 144 (5720MHz)

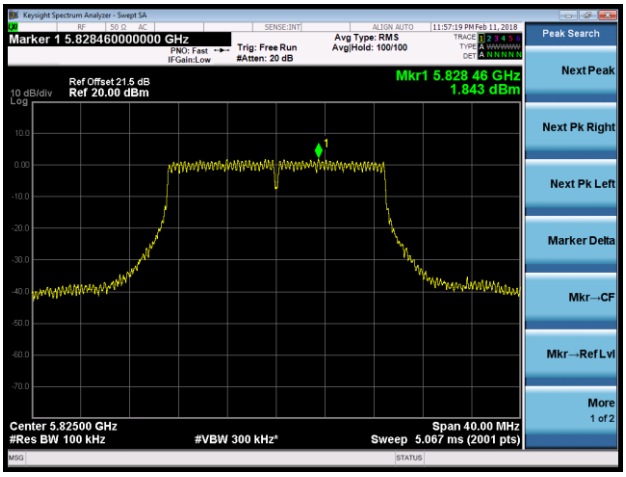


Channel 149 (5745MHz)



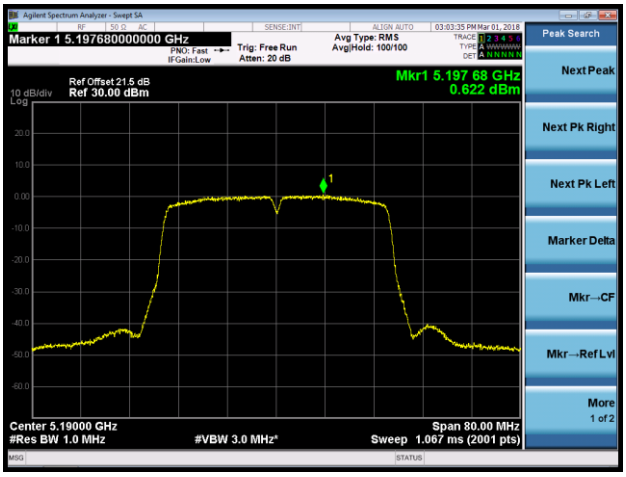
Channel 157 (5785MHz)



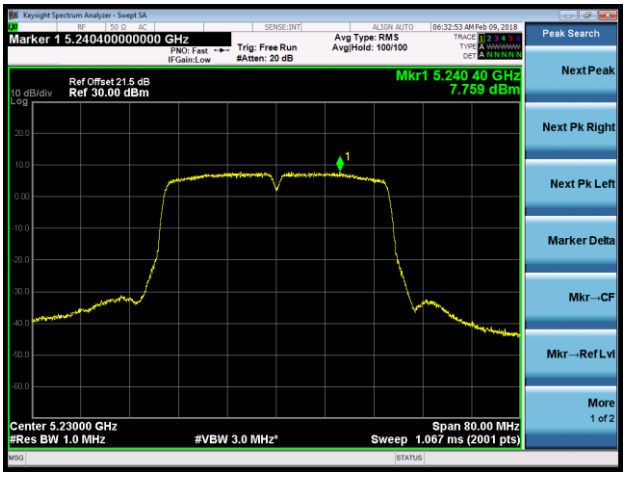
802.11ac-VHT20 Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3 (CDD Mode)	
Channel 165 (5825MHz)	
	

802.11ac-VHT40 Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3 (CDD Mode)

Channel 38 (5190MHz)



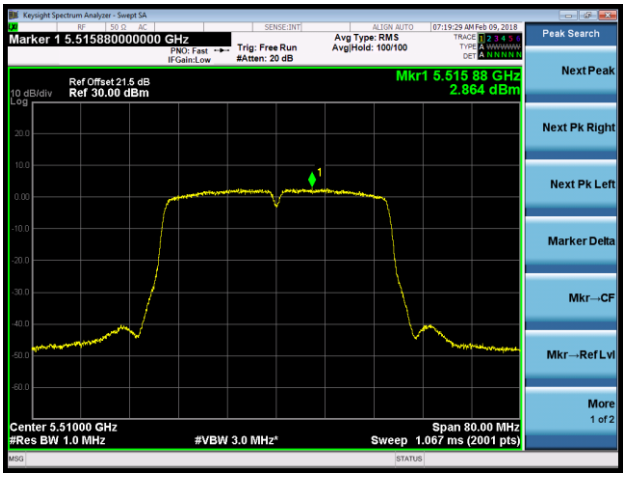
Channel 46 (5230MHz)



Channel 54 (5270MHz)

Channel 62 (5310MHz)

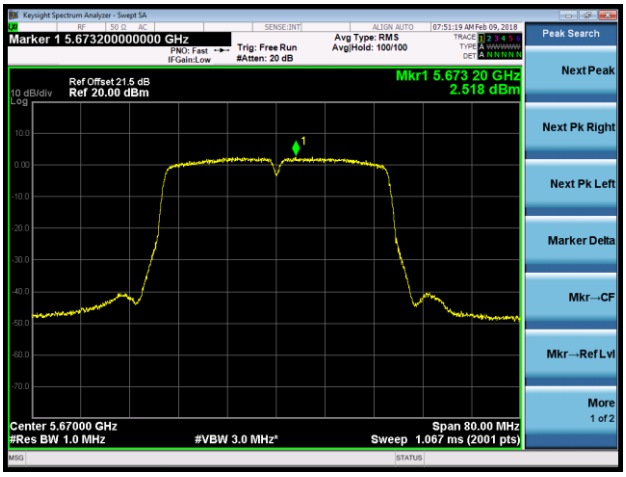
Channel 102 (5510MHz)



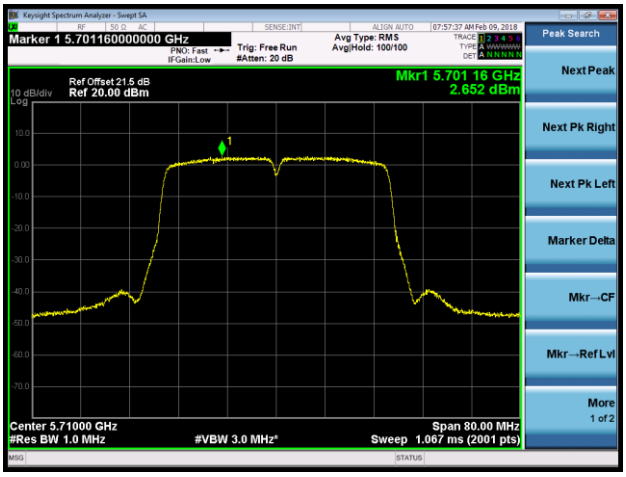
Channel 118 (5590MHz)

802.11ac-VHT40 Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3 (CDD Mode)

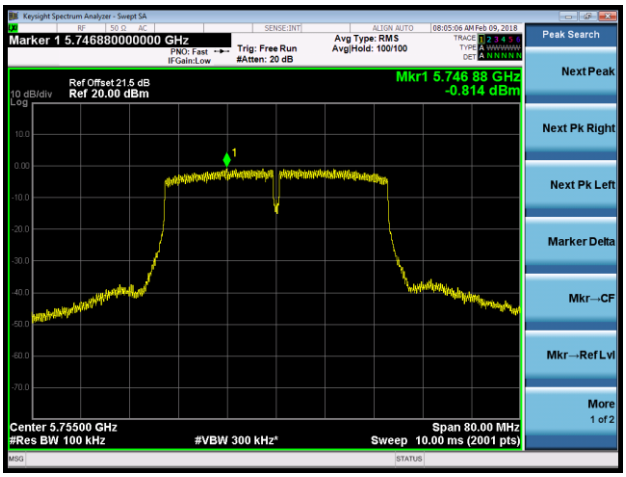
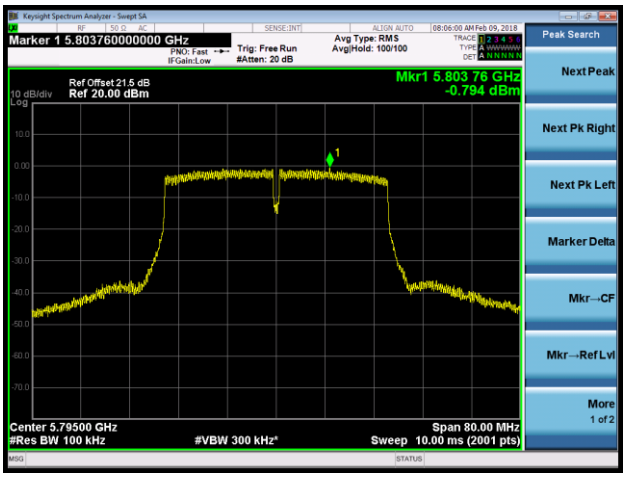
Channel 134 (5670MHz)



Channel 142 (5710MHz)



Channel 151 (5755MHz)



Channel 159 (5795MHz)