



Annex D

WLAN 802.11a/n/ac Test Result

Model No.: APEX0374

1. 26dB Bandwidth Measurement Test Result

Product	ACCESS POINT	Temperature	24°C
Test Engineer	Kevin Ker	Relative Humidity	59%
Test Site	SR2	Test Date	2017/08/29

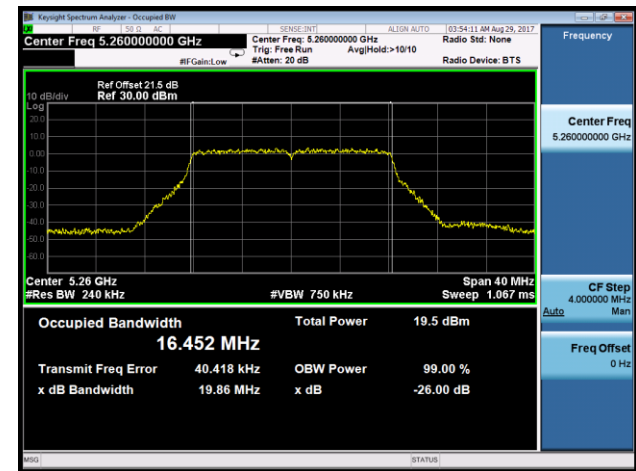
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Ant 0 / Ant 0 + 1 + 2 + 3					
802.11a	6Mbps	52	5260	19.86	16.45
802.11a	6Mbps	60	5300	19.65	16.43
802.11a	6Mbps	64	5320	19.38	16.43
802.11a	6Mbps	100	5500	19.33	16.42
802.11a	6Mbps	120	5600	19.59	16.42
802.11a	6Mbps	140	5700	19.36	16.42
802.11a	6Mbps	144	5720	19.35	16.43
802.11n-HT20	MCS0	52	5260	20.49	17.63
802.11n-HT20	MCS0	60	5300	20.51	17.62
802.11n-HT20	MCS0	64	5320	20.32	17.61
802.11n-HT20	MCS0	100	5500	20.65	17.59
802.11n-HT20	MCS0	120	5600	20.61	17.61
802.11n-HT20	MCS0	140	5700	20.36	17.61
802.11n-HT20	MCS0	144	5720	20.51	17.60
802.11n-HT40	MCS0	54	5270	39.46	35.94
802.11n-HT40	MCS0	62	5310	39.16	35.95
802.11n-HT40	MCS0	102	5510	39.18	35.97
802.11n-HT40	MCS0	118	5590	39.74	35.96
802.11n-HT40	MCS0	134	5670	39.48	35.96
802.11n-HT40	MCS0	142	5710	39.41	35.93



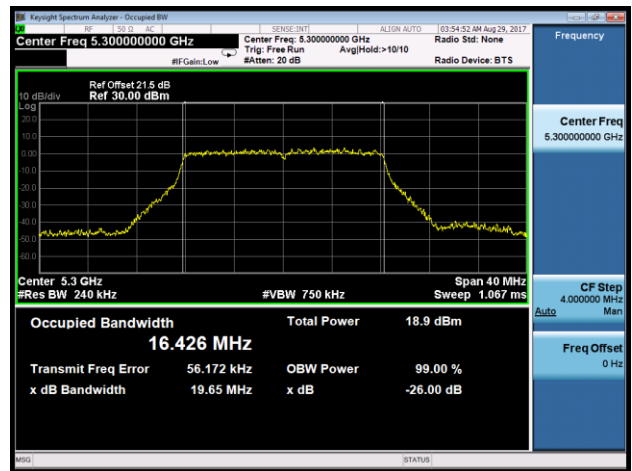
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)										
802.11ac-VHT20	MCS0	52	5260	20.43	17.62										
802.11ac-VHT20	MCS0	60	5300	20.32	17.61										
802.11ac-VHT20	MCS0	64	5320	20.71	17.64										
802.11ac-VHT20	MCS0	100	5500	20.10	17.60										
802.11ac-VHT20	MCS0	120	5600	20.44	17.64										
802.11ac-VHT20	MCS0	140	5700	20.64	17.60										
802.11ac-VHT20	MCS0	144	5720	20.36	17.62										
802.11ac-VHT40	MCS0	54	5270	39.24	35.88										
802.11ac-VHT40	MCS0	62	5310	39.41	35.88										
802.11ac-VHT40	MCS0	102	5510	39.94	35.96										
802.11ac-VHT40	MCS0	118	5590	39.61	35.96										
802.11ac-VHT40	MCS0	134	5670	39.22	35.97										
802.11ac-VHT40	MCS0	142	5710	39.47	35.95										
802.11ac-VHT80	MCS0	58	5290	82.78	75.70										
802.11ac-VHT80	MCS0	106	5530	83.24	75.84										
802.11ac-VHT80	MCS0	122	5610	82.17	75.76										
802.11ac-VHT80	MCS0	138	5690	82.17	75.73										
Ant 0 / Ant 0 + 1 (Ant 0 + 1 + 2 + 3)															
802.11ac-VHT80+80	MCS0	58	5290	84.11	75.88										
802.11ac-VHT80+80	MCS0	106	5530	84.25	76.00										
802.11ac-VHT80+80	MCS0	122	5610	84.06	76.00										
802.11ac-VHT80+80	MCS0	138	5690	84.48	75.88										
Ant 3 / Ant 2 + 3 (Ant 0 + 1 + 2 + 3)															
802.11ac-VHT80+80	MCS0	58	5290	83.48	75.94										
802.11ac-VHT80+80	MCS0	106	5530	81.96	75.55										
802.11ac-VHT80+80	MCS0	122	5610	82.07	75.58										
802.11ac-VHT80+80	MCS0	138	5690	82.92	75.65										
Ant 0 + 1 + 2 + 3															
802.11ac-VHT80+80 Contiguous	MCS0	42	5210	163.22	155.66										
		58	5290			802.11ac-VHT80+80 Contiguous	MCS0	106	5530	163.47	155.81	122	5610	Note: The detail calculation see page 14.	
802.11ac-VHT80+80 Contiguous	MCS0	106	5530	163.47	155.81										
		122	5610												
Note: The detail calculation see page 14.															

802.11a 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1 + 2 + 3

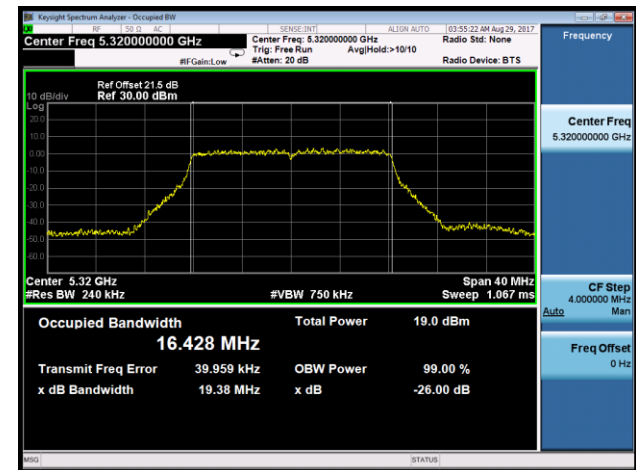
Channel 52 (5260MHz)



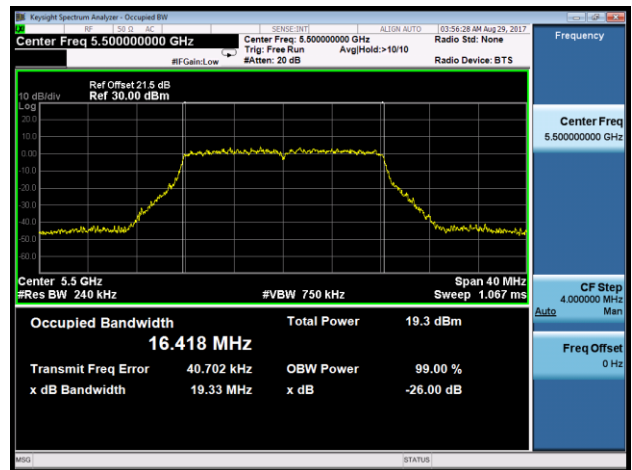
Channel 60 (5300MHz)



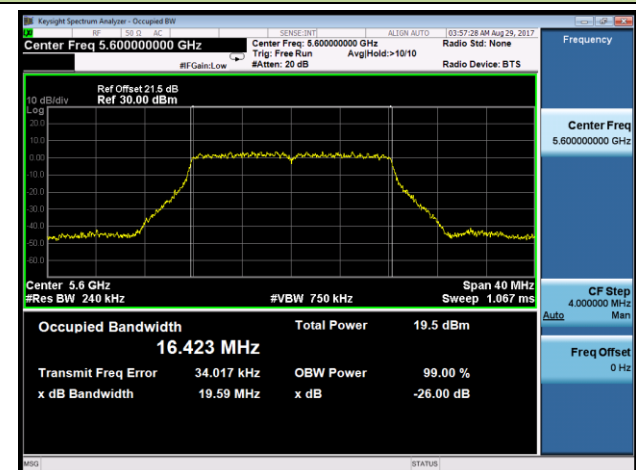
Channel 64 (5320MHz)



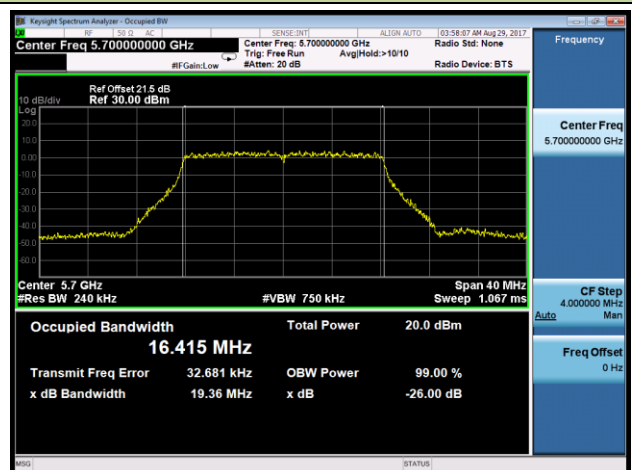
Channel 100 (5500MHz)



Channel 100 (5600MHz)

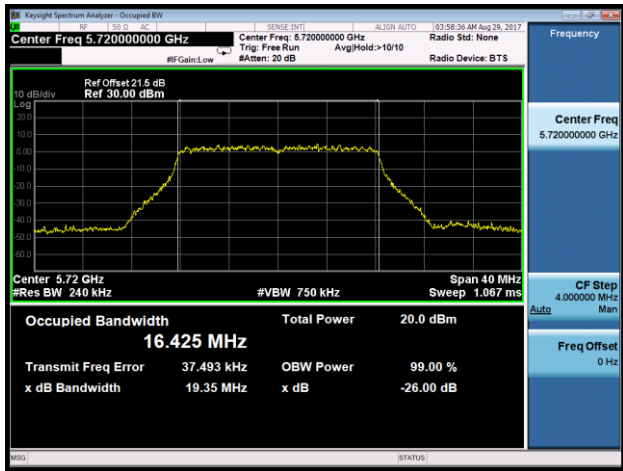


Channel 140 (5700MHz)



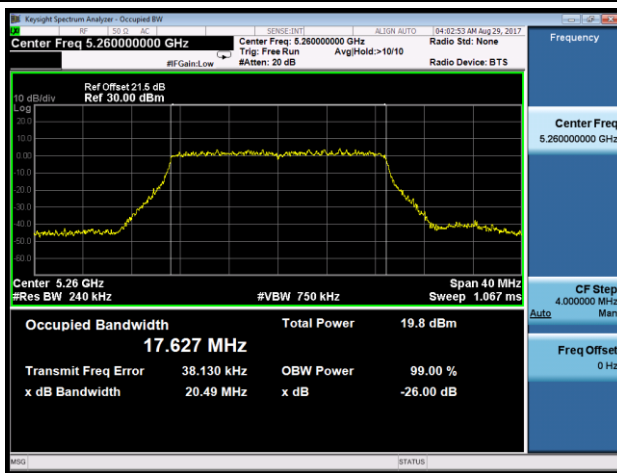
802.11a 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1 + 2 + 3

Channel 144 (5720MHz)

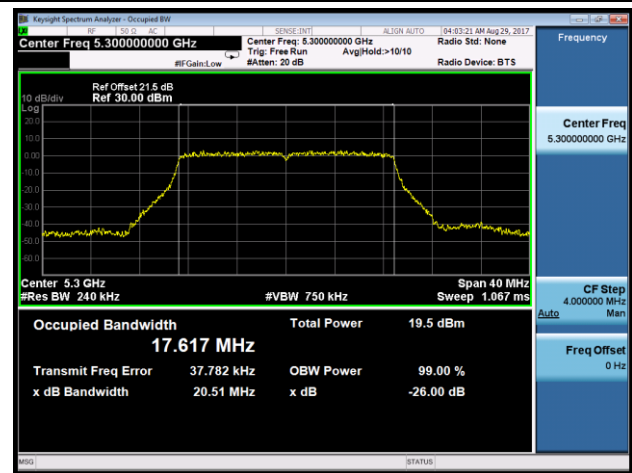


802.11n-HT20 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1 + 2 + 3

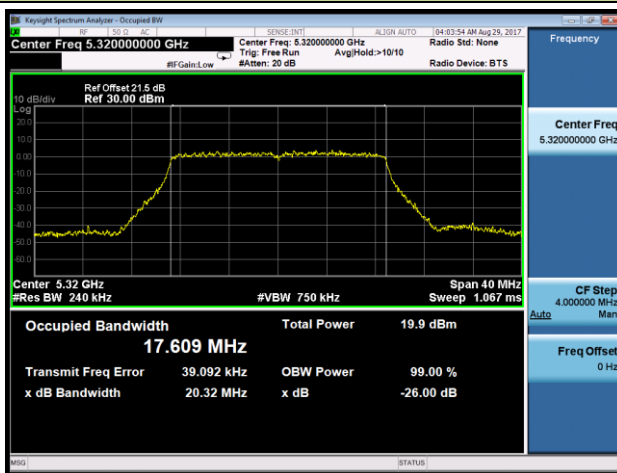
Channel 52 (5260MHz)



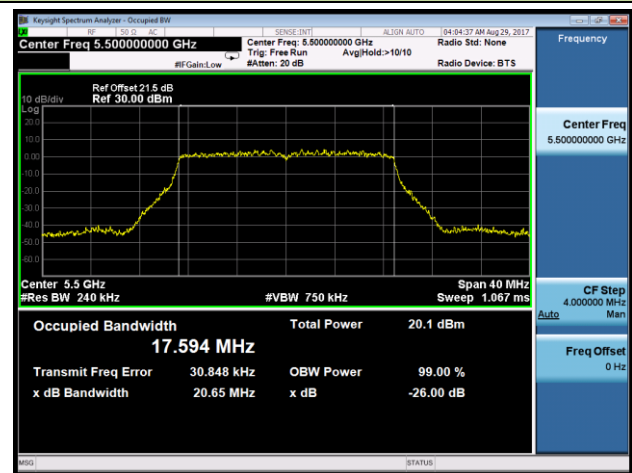
Channel 60 (5300MHz)



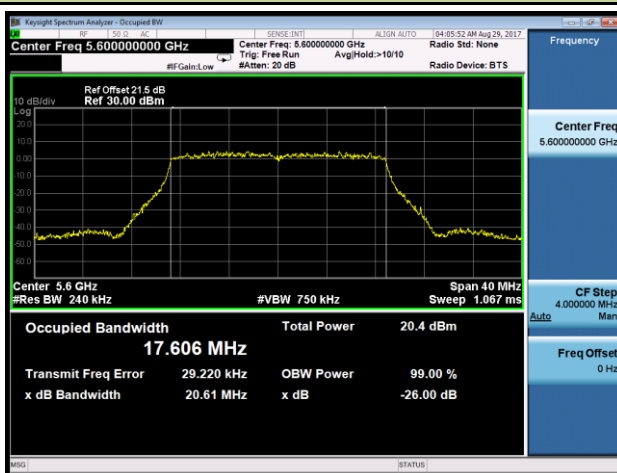
Channel 64 (5320MHz)



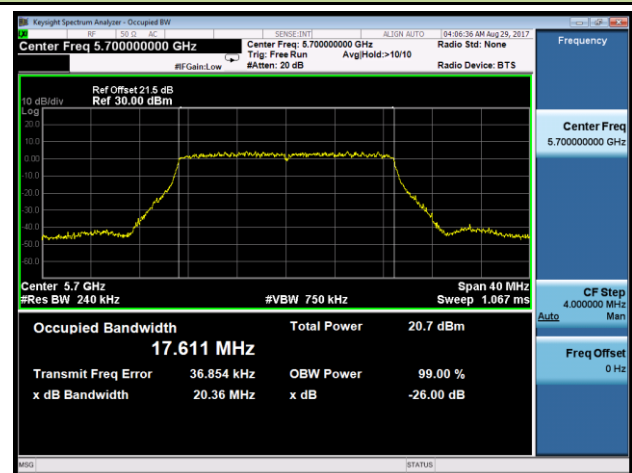
Channel 100 (5500MHz)



Channel 120 (5600MHz)



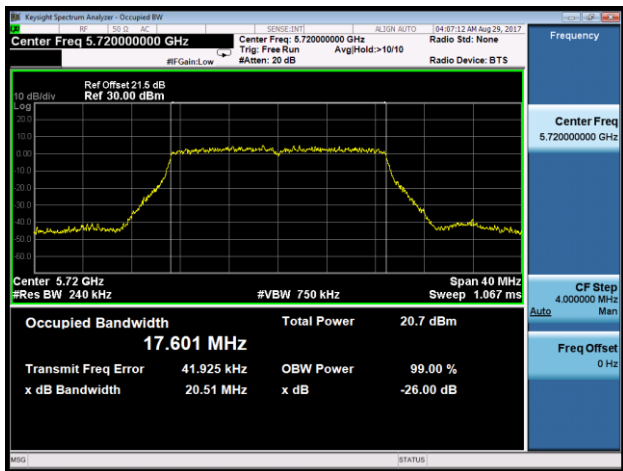
Channel 140 (5700MHz)





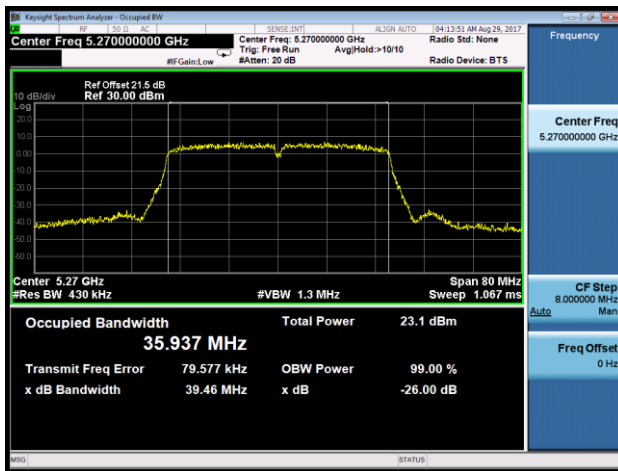
802.11n-HT20 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1 + 2 + 3

Channel 144 (5720MHz)

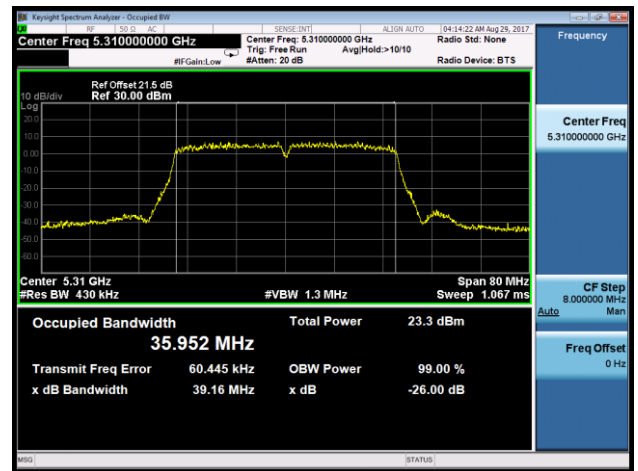


802.11n-HT40 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1 + 2 + 3

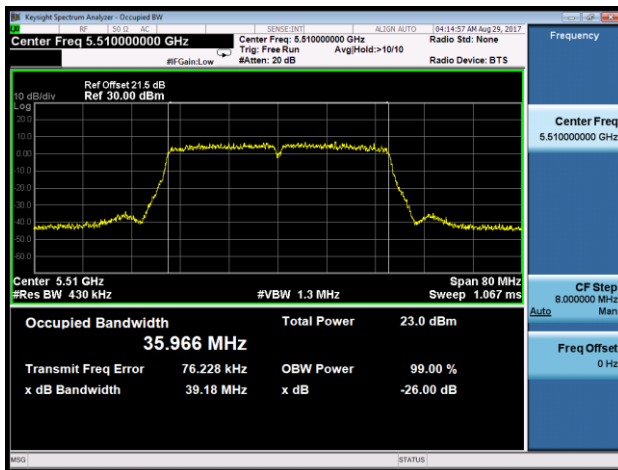
Channel 54 (5270MHz)



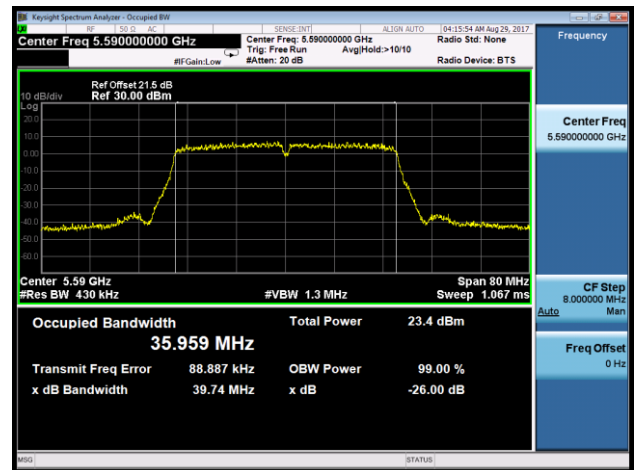
Channel 62 (5310MHz)



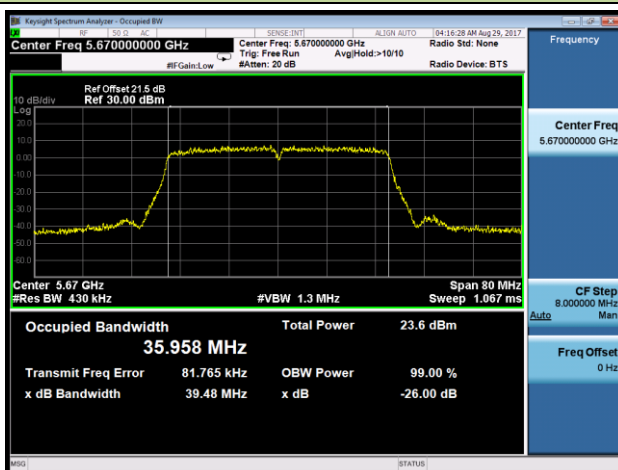
Channel 102 (5510MHz)



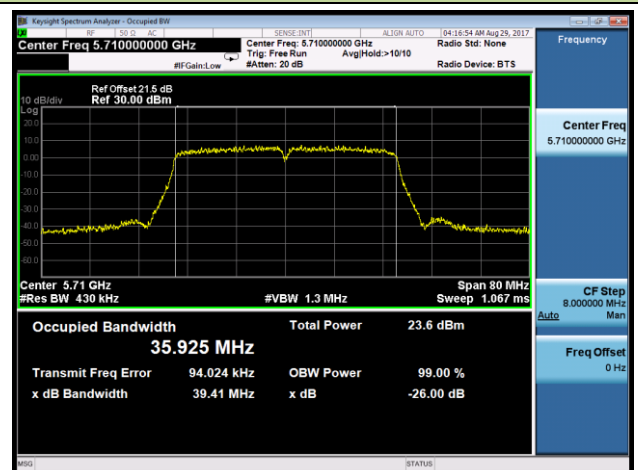
Channel 118 (5590MHz)



Channel 134 (5670MHz)

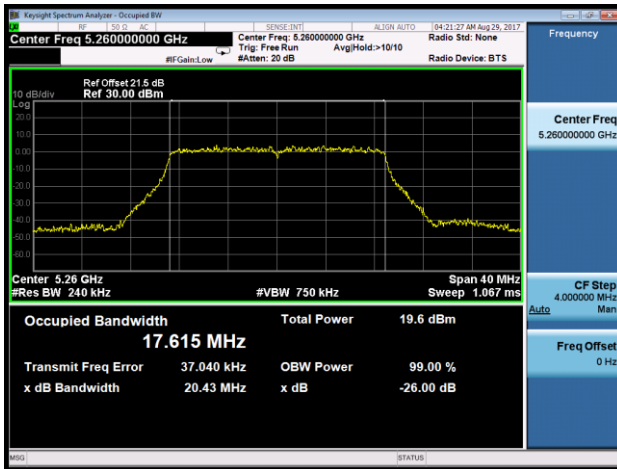


Channel 142 (5710MHz)

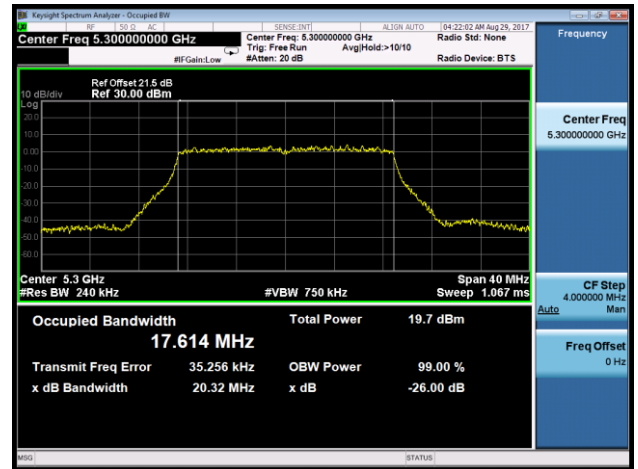


802.11ac-VHT20 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1 + 2 + 3

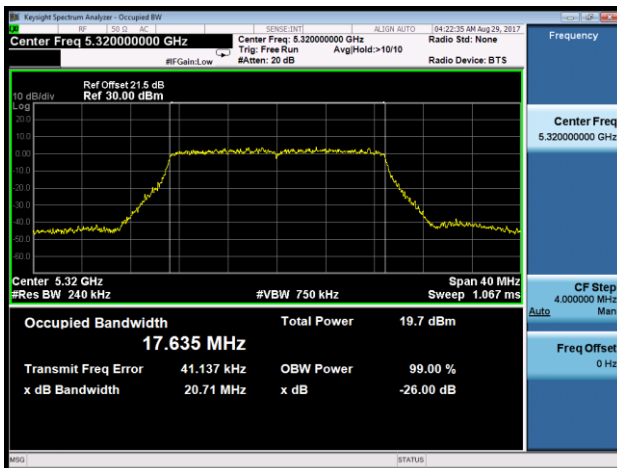
Channel 52 (5260MHz)



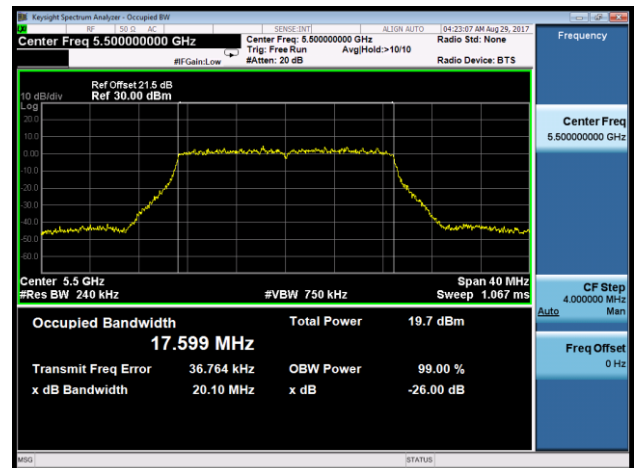
Channel 60 (5300MHz)



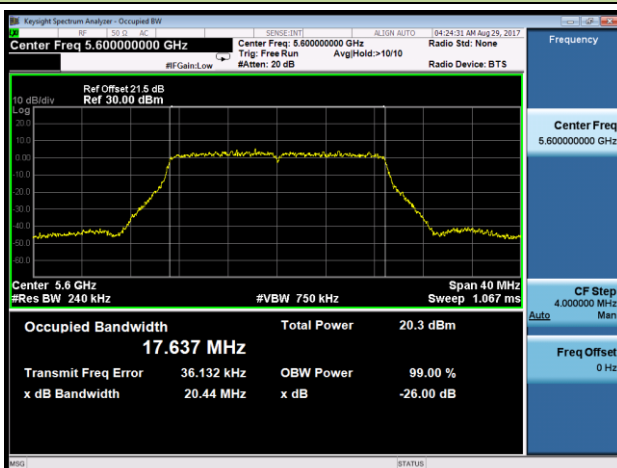
Channel 64 (5320MHz)



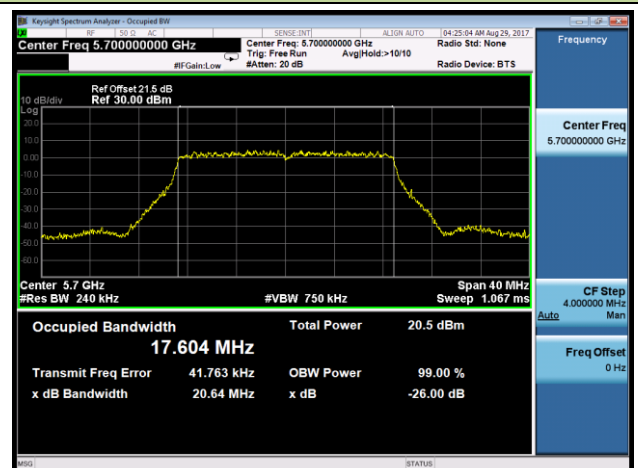
Channel 100 (5500MHz)



Channel 120 (5600MHz)

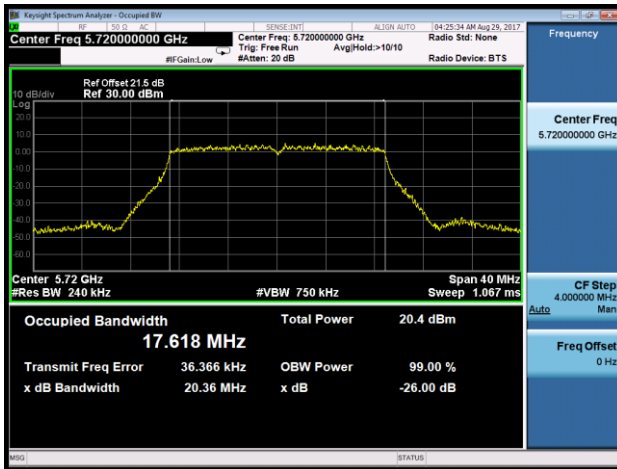


Channel 140 (5700MHz)



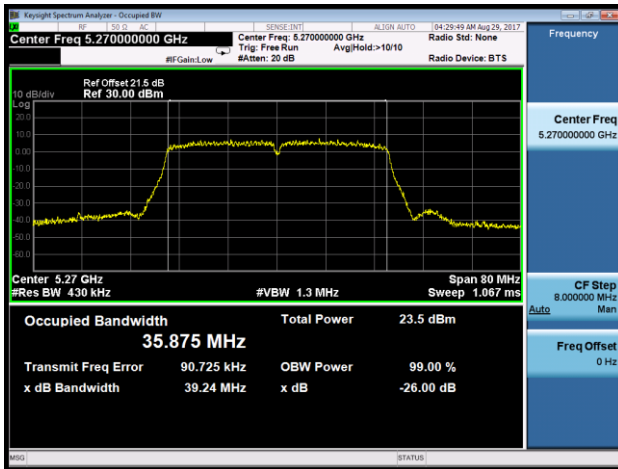
802.11ac-VHT20 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1 + 2 + 3

Channel 144 (5720MHz)

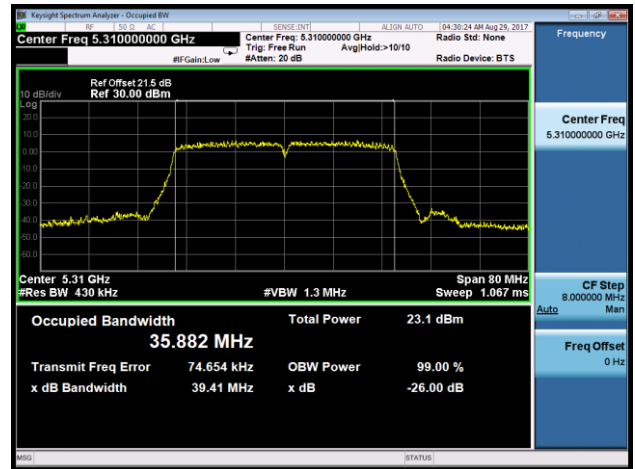


802.11ac-VHT40 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1 + 2 + 3

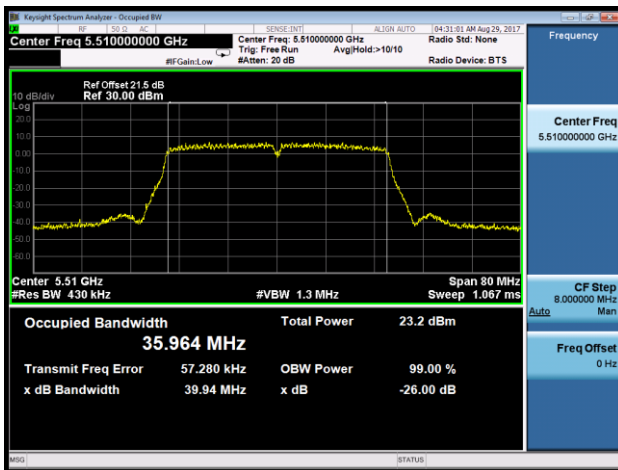
Channel 54 (5270MHz)



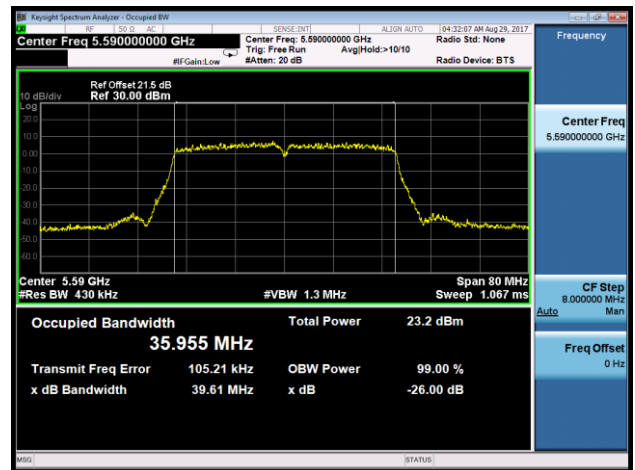
Channel 62 (5310MHz)



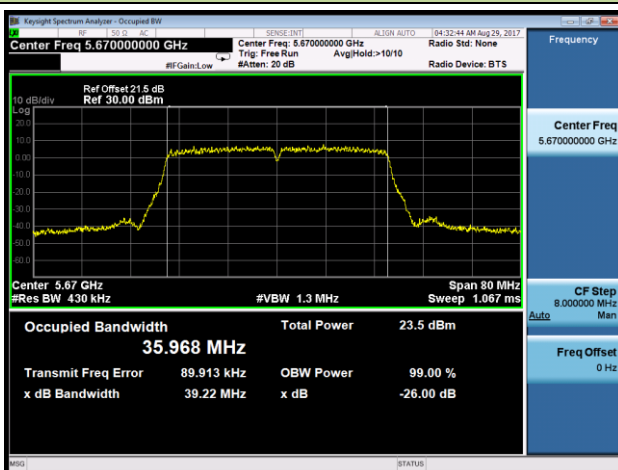
Channel 102 (5510MHz)



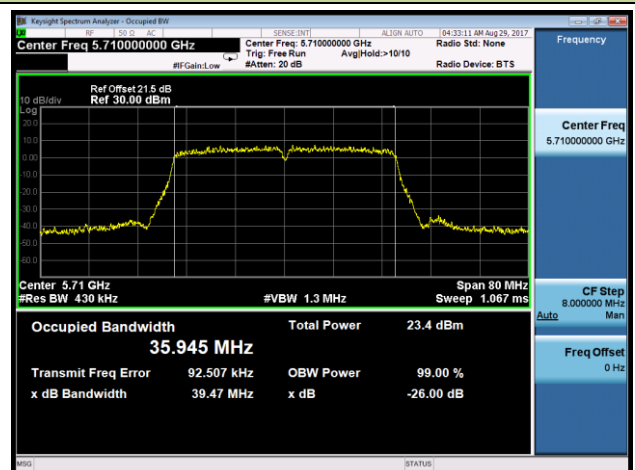
Channel 118 (5590MHz)



Channel 134 (5670MHz)

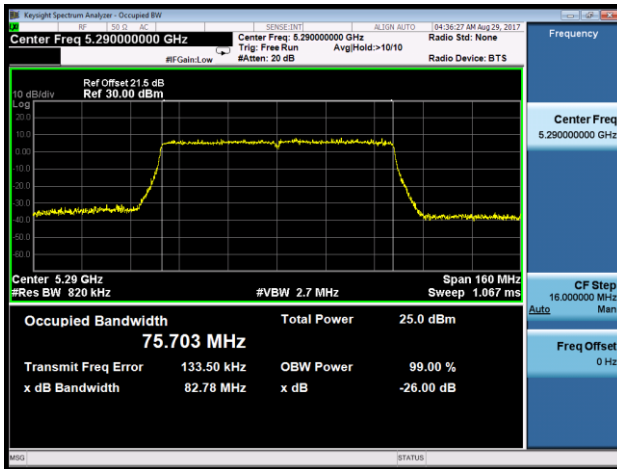


Channel 142 (5710MHz)

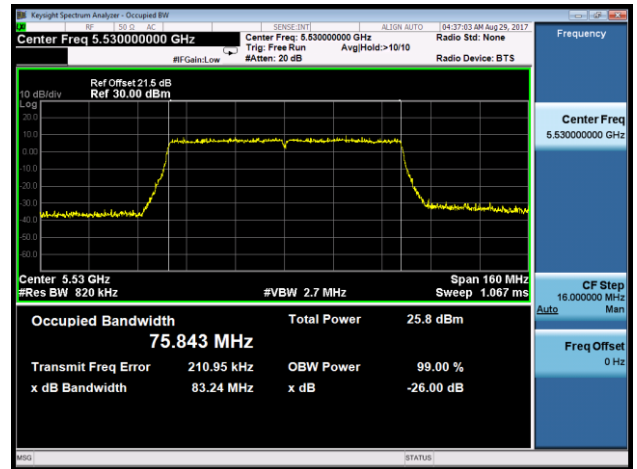


802.11ac-VHT80 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1 + 2 + 3

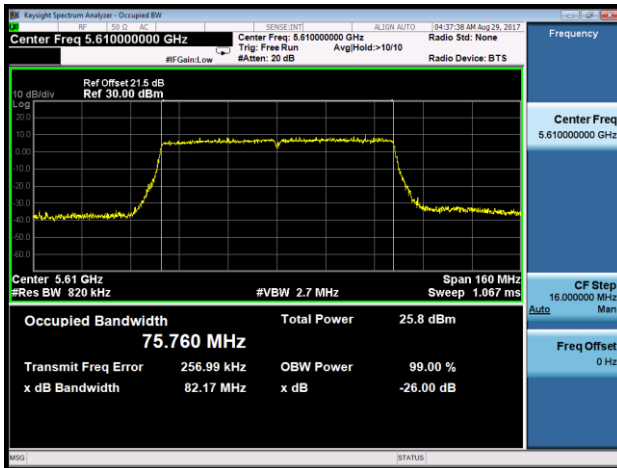
Channel 58 (5290MHz)



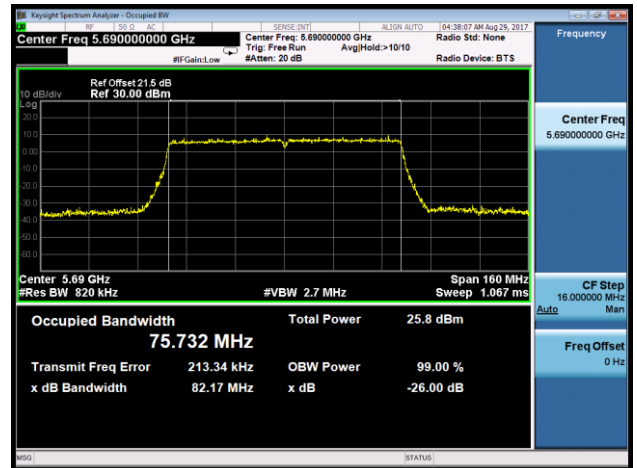
Channel 106 (5530MHz)



Channel 122 (5610MHz)

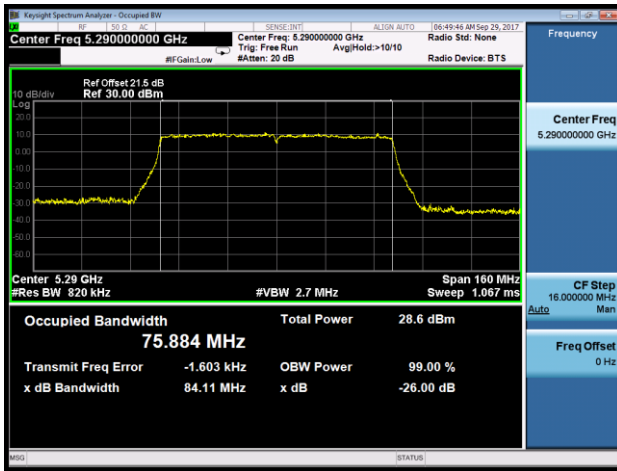


Channel 138 (5690MHz)

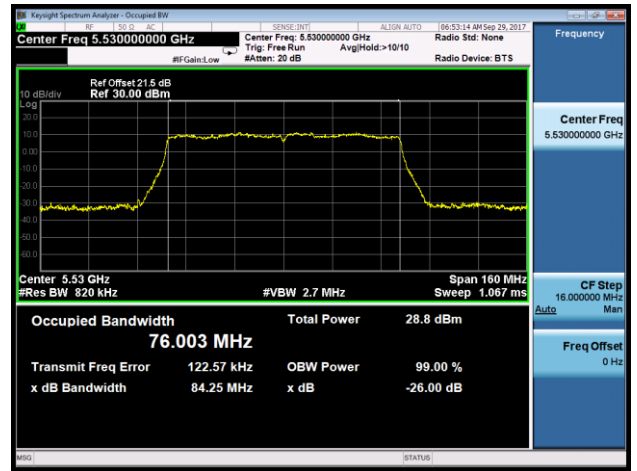


802.11ac-VHT80+80 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1 (Ant 0 + 1 + 2 + 3)

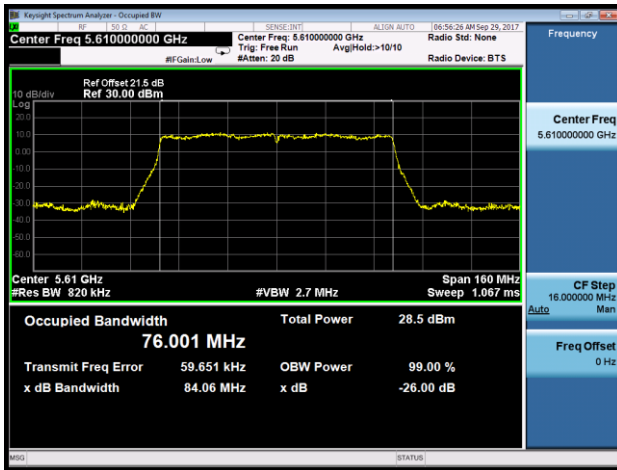
Channel 58 (5290MHz)



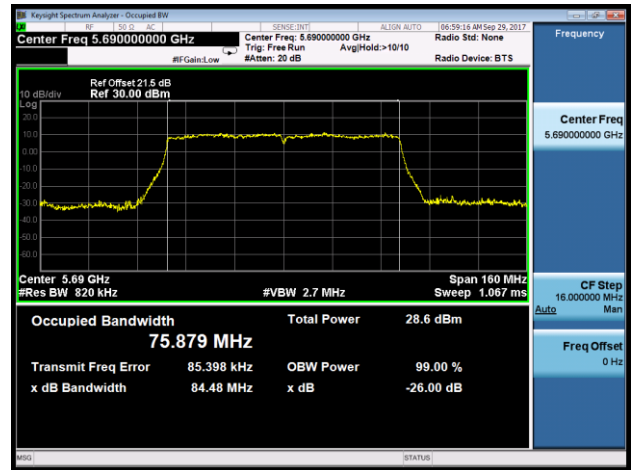
Channel 106 (5530MHz)



Channel 122 (5610MHz)

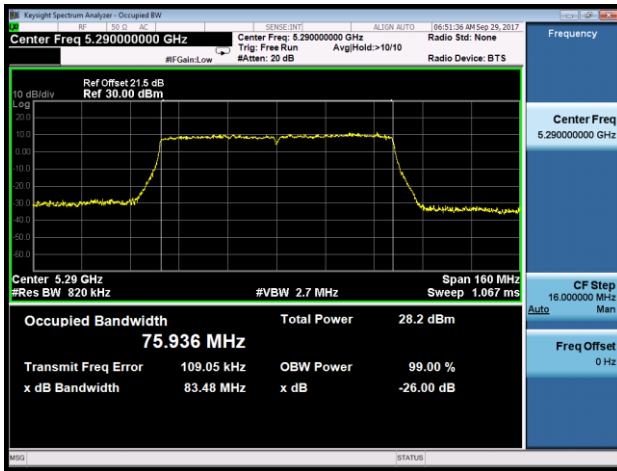


Channel 138 (5690MHz)

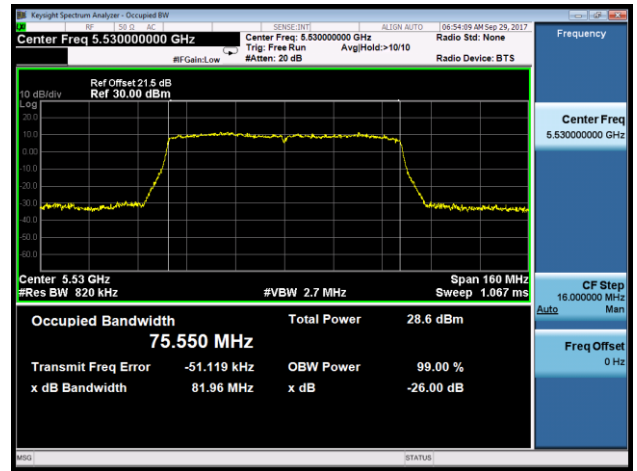


802.11ac-VHT80+80 26dB Bandwidth & 99% Bandwidth - Ant 3 / Ant 2 + 3 (Ant 0 + 1 + 2 + 3)

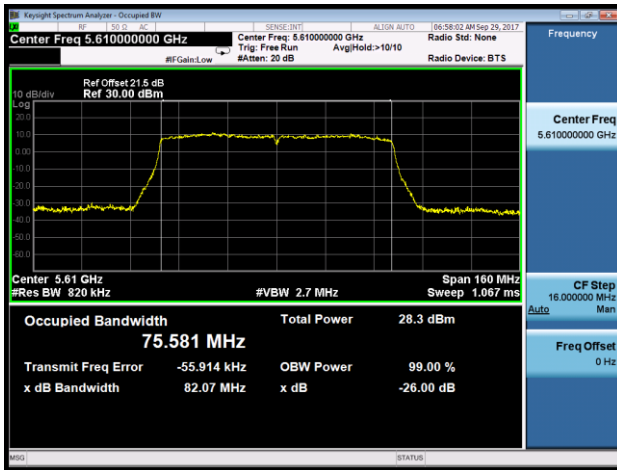
Channel 58 (5290MHz)



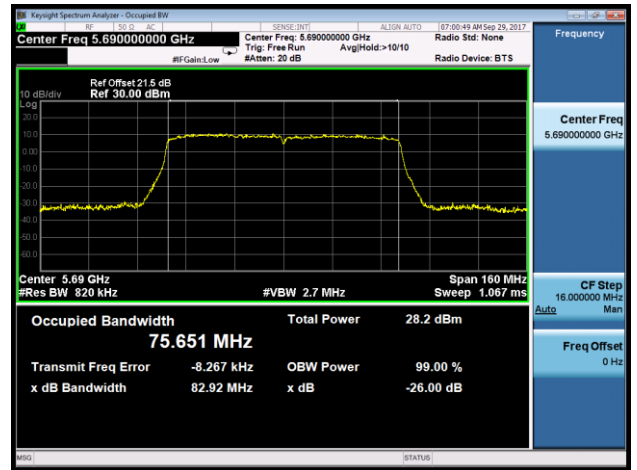
Channel 106 (5530MHz)



Channel 122 (5610MHz)



Channel 138 (5690MHz)





2. Output Power Measurement 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 (yellow marker) for final test of each channel.

For Ant 0 / Ant 0 + 1 + 2 + 3 port of Omni Antenna (ANT-2x2-5005):

Test Mode	Bandwidth	Channel	Frequency (MHz)	Data Rate/ MCS	Average Power (dBm)
802.11a	20	64	5320	6Mbps	13.18
				24Mbps	12.85
				54Mbps	12.63
802.11n	20	64	5320	MCS0	14.16
				MCS3	14.02
				MCS7	13.85
802.11n	40	62	5310	MCS0	16.47
				MCS3	16.21
				MCS7	15.98
802.11ac	20	64	5320	MCS0	13.98
				MCS4	13.75
				MCS8	13.51
802.11ac	40	62	5310	MCS0	16.40
				MCS4	16.12
				MCS9	15.78
802.11ac	80	58	5290	MCS0	17.54
				MCS4	17.24
				MCS9	17.03
802.11ac	80+80 Non-contiguous	58	5290	MCS0	20.72
				MCS4	20.56
				MCS9	20.15
802.11ac	80+80 Contiguous	42	5210	MCS0	17.76
				MCS4	17.53
				MCS9	17.32



Product	ACCESS POINT	Temperature	24°C
Test Engineer	Kevin Ker	Relative Humidity	59%
Test Site	SR2	Test Date	2017/08/15
Antenna Type	Omni Antenna (ANT-2x2-5005)	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	52	5260	13.56	13.53	13.92	13.78	19.72	≤ 23.98	Pass
11a	6Mbps	60	5300	13.08	13.25	13.58	13.48	19.37	≤ 23.98	Pass
11a	6Mbps	64	5320	13.18	13.21	13.52	13.44	19.36	≤ 23.98	Pass
11a	6Mbps	100	5500	12.86	13.02	13.24	13.19	19.10	≤ 23.98	Pass
11a	6Mbps	120	5600	12.96	13.04	13.36	13.24	19.17	≤ 23.98	Pass
11a	6Mbps	140	5700	13.11	13.01	13.45	13.53	19.30	≤ 23.98	Pass
11a	6Mbps	144	5720	13.16	13.02	13.36	13.49	19.28	≤ 23.98	Pass
11n-HT20	MCS0	52	5260	14.03	14.21	14.49	14.32	20.29	≤ 23.98	Pass
11n-HT20	MCS0	60	5300	14.05	14.15	14.44	14.39	20.28	≤ 23.98	Pass
11n-HT20	MCS0	64	5320	14.16	14.02	14.52	14.37	20.29	≤ 23.98	Pass
11n-HT20	MCS0	100	5500	13.62	13.68	13.95	13.85	19.80	≤ 23.98	Pass
11n-HT20	MCS0	120	5600	13.75	13.54	13.91	13.82	19.78	≤ 23.98	Pass
11n-HT20	MCS0	140	5700	13.36	13.42	13.86	13.79	19.63	≤ 23.98	Pass
11n-HT20	MCS0	144	5720	13.41	13.56	13.91	13.82	19.70	≤ 23.98	Pass
11n-HT40	MCS0	54	5270	16.49	16.58	16.97	16.85	22.75	≤ 23.98	Pass
11n-HT40	MCS0	62	5310	16.47	16.53	16.92	16.84	22.71	≤ 23.98	Pass
11n-HT40	MCS0	102	5510	15.68	15.78	16.15	16.00	21.93	≤ 23.98	Pass
11n-HT40	MCS0	118	5590	15.59	15.73	16.17	16.05	21.91	≤ 23.98	Pass
11n-HT40	MCS0	134	5670	15.89	15.91	16.49	16.35	22.19	≤ 23.98	Pass
11n-HT40	MCS0	142	5710	15.71	15.88	16.52	16.38	22.16	≤ 23.98	Pass
11ac-VHT20	MCS0	52	5260	14.01	14.17	14.29	14.19	20.19	≤ 23.98	Pass
11ac-VHT20	MCS0	60	5300	14.00	14.02	14.28	14.25	20.16	≤ 23.98	Pass
11ac-VHT20	MCS0	64	5320	13.98	13.92	14.47	14.35	20.21	≤ 23.98	Pass
11ac-VHT20	MCS0	100	5500	13.59	13.59	13.84	13.82	19.73	≤ 23.98	Pass
11ac-VHT20	MCS0	120	5600	13.62	13.42	13.75	13.73	19.65	≤ 23.98	Pass
11ac-VHT20	MCS0	140	5700	13.35	13.37	13.75	13.71	19.57	≤ 23.98	Pass
11ac-VHT20	MCS0	144	5720	13.31	13.55	13.75	13.73	19.61	≤ 23.98	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
Ant 0 + 1 + 2 + 3 (CDD Mode)										
11ac-VHT40	MCS0	54	5270	16.48	16.41	16.80	16.79	22.64	≤ 23.98	Pass
11ac-VHT40	MCS0	62	5310	16.40	16.48	16.88	16.78	22.66	≤ 23.98	Pass
11ac-VHT40	MCS0	102	5510	15.66	15.66	16.11	15.90	21.86	≤ 23.98	Pass
11ac-VHT40	MCS0	118	5590	15.56	15.63	16.03	15.87	21.80	≤ 23.98	Pass
11ac-VHT40	MCS0	134	5670	15.82	15.80	16.40	16.20	22.08	≤ 23.98	Pass
11ac-VHT40	MCS0	142	5710	15.55	15.78	16.40	16.33	22.05	≤ 23.98	Pass
11ac-VHT80	MCS0	58	5290	17.54	17.30	17.76	17.36	23.51	≤ 23.98	Pass
11ac-VHT80	MCS0	106	5530	17.55	17.35	17.81	17.39	23.55	≤ 23.98	Pass
11ac-VHT80	MCS0	122	5610	17.61	17.42	17.85	17.44	23.60	≤ 23.98	Pass
11ac-VHT80	MCS0	138	5690	17.42	17.36	17.86	17.45	23.55	≤ 23.98	Pass
Non-contiguous 80+80 MHz mode fall within different UNII band										
11ac-VHT80+80	MCS0	58	5290	20.72	20.94	--	--	23.84	≤ 23.98	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	20.59	20.95	23.78	≤ 23.98	Pass
11ac-VHT80+80	MCS0	106	5530	20.80	20.86	--	--	23.84	≤ 23.98	Pass
11ac-VHT80+80	MCS0	106	5530	--	--	20.81	20.75	23.79	≤ 23.98	Pass
11ac-VHT80+80	MCS0	122	5610	20.52	20.90	--	--	23.72	≤ 23.98	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	20.51	20.48	23.51	≤ 23.98	Pass
11ac-VHT80+80	MCS0	138	5690	20.86	20.89	--	--	23.89	≤ 23.98	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	20.50	20.56	23.54	≤ 23.98	Pass
Non-contiguous 80+80 MHz mode fall within same UNII band										
11ac-VHT80+80	MCS0	106	5530	17.86	17.75	--	--	23.79	≤ 23.98	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	17.76	17.70			
11ac-VHT80+80	MCS0	106	5530	--	--	17.78	17.58	23.63	≤ 23.98	Pass
11ac-VHT80+80	MCS0	138	5690	17.39	17.68	--	--			



Mode	Channel No.	Test Frequency (MHz)	Data Rate/MCS	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)	Max EIRP (dBm)	EIRP Limit (dBm)	Result
11ac-VHT80+80 (Contiguous mode)												
11ac-VHT 80+80	42	5210	MCS0	17.76	17.22	--	--	20.51	≤ 30.00	20.51	≤ 21.00	Pass
	58	5290	MCS0	--	--	18.09	17.55	20.84	≤ 23.98	--	--	Pass
11ac-VHT 80+80	106	5530	MCS0	17.74	17.67	--	--	23.63	≤ 23.98	--	--	Pass
	122	5610	MCS0	--	--	17.50	17.52					

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

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

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

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

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

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

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

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

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

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

Note 4: Max EIRP (dBm) = Total Average Power (dBm) + 30 Degree Antenna Gain (dBi), 30 Degree Antenna Gain (dBi) = 0 dBi.

Note 5: Average Power Limit Calculation as below:

For 5150-5250MHz: Limit = 30.00dBm.

For 5250-5350MHz & 5470-5725MHz: Limit = 23.98dBm.

EIRP Limit Calculation as below:

For 5150-5250MHz: Limit = 21.00dBm.



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)										
11n-HT20	MCS0	52	5260	14.03	14.21	14.49	14.32	20.29	≤ 21.98	Pass
11n-HT20	MCS0	60	5300	14.05	14.15	14.44	14.39	20.28	≤ 21.98	Pass
11n-HT20	MCS0	64	5320	14.16	14.02	14.52	14.37	20.29	≤ 21.98	Pass
11n-HT20	MCS0	100	5500	13.62	13.68	13.95	13.85	19.80	≤ 21.98	Pass
11n-HT20	MCS0	120	5600	13.75	13.54	13.91	13.82	19.78	≤ 21.98	Pass
11n-HT20	MCS0	140	5700	13.36	13.42	13.86	13.79	19.63	≤ 21.98	Pass
11n-HT20	MCS0	144	5720	13.41	13.56	13.91	13.82	19.70	≤ 21.98	Pass
11n-HT40	MCS0	54	5270	15.68	15.53	15.59	15.59	21.62	≤ 21.98	Pass
11n-HT40	MCS0	62	5310	15.66	15.63	15.62	15.56	21.64	≤ 21.98	Pass
11n-HT40	MCS0	102	5510	15.59	15.39	15.39	15.49	21.49	≤ 21.98	Pass
11n-HT40	MCS0	118	5590	15.63	15.37	15.62	15.44	21.54	≤ 21.98	Pass
11n-HT40	MCS0	134	5670	15.31	15.21	16.63	15.53	21.73	≤ 21.98	Pass
11n-HT40	MCS0	142	5710	15.10	15.47	15.57	15.54	21.44	≤ 21.98	Pass
11ac-VHT20	MCS0	52	5260	14.01	14.17	14.29	14.19	20.19	≤ 21.98	Pass
11ac-VHT20	MCS0	60	5300	14.00	14.02	14.28	14.25	20.16	≤ 21.98	Pass
11ac-VHT20	MCS0	64	5320	13.98	13.92	14.47	14.35	20.21	≤ 21.98	Pass
11ac-VHT20	MCS0	100	5500	13.59	13.59	13.84	13.82	19.73	≤ 21.98	Pass
11ac-VHT20	MCS0	120	5600	13.62	13.42	13.75	13.73	19.65	≤ 21.98	Pass
11ac-VHT20	MCS0	140	5700	13.35	13.37	13.75	13.71	19.57	≤ 21.98	Pass
11ac-VHT20	MCS0	144	5720	13.31	13.55	13.75	13.73	19.61	≤ 21.98	Pass
11ac-VHT40	MCS0	54	5270	15.68	15.52	15.49	15.49	21.57	≤ 21.98	Pass
11ac-VHT40	MCS0	62	5310	15.59	15.71	15.51	15.47	21.59	≤ 21.98	Pass
11ac-VHT40	MCS0	102	5510	15.66	15.66	16.11	15.90	21.86	≤ 21.98	Pass
11ac-VHT40	MCS0	110	5550	15.60	15.52	16.02	15.87	21.78	≤ 21.98	Pass
11ac-VHT40	MCS0	118	5590	15.56	15.63	16.03	15.87	21.80	≤ 21.98	Pass
11ac-VHT40	MCS0	134	5670	15.48	15.27	15.58	15.32	21.43	≤ 21.98	Pass
11ac-VHT40	MCS0	142	5710	15.52	15.89	15.96	15.89	21.84	≤ 21.98	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
Ant 0 + 1 + 2 + 3 (Beam-Forming Mode)										
11ac-VHT80	MCS0	58	5290	15.79	15.77	15.73	15.78	21.79	≤ 21.98	Pass
11ac-VHT80	MCS0	106	5530	15.69	15.70	15.68	15.53	21.67	≤ 21.98	Pass
11ac-VHT80	MCS0	122	5610	15.56	15.44	15.75	15.63	21.62	≤ 21.98	Pass
11ac-VHT80	MCS0	138	5690	15.51	15.38	15.77	15.57	21.58	≤ 21.98	Pass
Non-contiguous 80+80 MHz mode fall within different UNII band										
11ac-VHT80+80	MCS0	58	5290	20.72	20.94	--	--	23.84	≤ 23.98	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	20.59	20.95	23.78	≤ 23.98	Pass
11ac-VHT80+80	MCS0	106	5530	20.80	20.86	--	--	23.84	≤ 23.98	Pass
11ac-VHT80+80	MCS0	106	5530	--	--	20.81	20.75	23.79	≤ 23.98	Pass
11ac-VHT80+80	MCS0	122	5610	20.52	20.90	--	--	23.72	≤ 23.98	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	20.51	20.48	23.51	≤ 23.98	Pass
11ac-VHT80+80	MCS0	138	5690	20.86	20.89	--	--	23.89	≤ 23.98	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	20.50	20.56	23.54	≤ 23.98	Pass
Non-contiguous 80+80 MHz mode fall within same UNII band										
11ac-VHT80+80	MCS0	106	5530	17.86	17.75	--	--	23.79	≤ 23.98	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	17.76	17.70			
11ac-VHT80+80	MCS0	106	5530	--	--	17.78	17.58	23.63	≤ 23.98	Pass
11ac-VHT80+80	MCS0	138	5690	17.39	17.68	--	--			

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

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

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

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

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

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

Note 3: Average Power Limit Calculation as below:

For 5250-5350MHz & 5470-5725MHz:

802.11n-HT20/n-HT40/ac-VHT20/ac-VHT40/ac-VHT80:

Limit = 23.98dBm - (5 dBi + 3 dBi - 6 dBi) = 21.98 dBm.

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



Product	ACCESS POINT	Temperature	24°C
Test Engineer	Kevin Ker	Relative Humidity	59%
Test Site	SR2	Test Date	2017/08/15
Antenna Type	Directional Antenna (MT-484052/NVH)	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	52	5260	3.25	3.12	3.84	3.91	9.56	≤ 13.98	Pass
11a	6Mbps	60	5300	3.44	3.10	3.45	3.25	9.33	≤ 13.98	Pass
11a	6Mbps	64	5320	3.30	2.95	3.32	3.42	9.27	≤ 13.98	Pass
11a	6Mbps	100	5500	3.14	3.04	3.18	3.17	9.15	≤ 13.98	Pass
11a	6Mbps	120	5600	3.18	3.02	3.21	3.27	9.19	≤ 13.98	Pass
11a	6Mbps	140	5700	3.30	3.15	3.32	3.40	9.31	≤ 13.98	Pass
11a	6Mbps	144	5720	3.21	3.12	3.02	3.30	9.18	≤ 13.98	Pass
11n-HT20	MCS0	52	5260	3.74	3.69	3.99	3.81	9.83	≤ 13.98	Pass
11n-HT20	MCS0	60	5300	3.78	3.45	3.93	3.37	9.66	≤ 13.98	Pass
11n-HT20	MCS0	64	5320	3.66	3.51	3.85	3.45	9.64	≤ 13.98	Pass
11n-HT20	MCS0	100	5500	3.56	3.21	3.39	3.17	9.36	≤ 13.98	Pass
11n-HT20	MCS0	120	5600	2.63	2.70	2.97	2.84	8.81	≤ 13.98	Pass
11n-HT20	MCS0	140	5700	3.30	3.22	3.68	3.38	9.42	≤ 13.98	Pass
11n-HT20	MCS0	144	5720	3.20	3.16	3.63	2.90	9.25	≤ 13.98	Pass
11n-HT40	MCS0	54	5270	6.68	6.76	6.89	6.55	12.74	≤ 13.98	Pass
11n-HT40	MCS0	62	5310	6.65	6.40	6.52	5.91	12.40	≤ 13.98	Pass
11n-HT40	MCS0	102	5510	6.97	6.41	6.36	6.12	12.50	≤ 13.98	Pass
11n-HT40	MCS0	118	5590	6.83	6.63	7.15	6.19	12.73	≤ 13.98	Pass
11n-HT40	MCS0	134	5670	6.08	5.89	6.11	5.94	12.03	≤ 13.98	Pass
11n-HT40	MCS0	142	5710	5.86	6.07	6.05	5.97	12.01	≤ 13.98	Pass
11ac-VHT20	MCS0	52	5260	3.58	3.76	3.65	3.67	9.69	≤ 13.98	Pass
11ac-VHT20	MCS0	60	5300	3.41	3.73	3.64	3.60	9.62	≤ 13.98	Pass
11ac-VHT20	MCS0	64	5320	3.35	3.55	3.62	3.48	9.52	≤ 13.98	Pass
11ac-VHT20	MCS0	100	5500	3.22	3.27	3.32	3.35	9.31	≤ 13.98	Pass
11ac-VHT20	MCS0	120	5600	3.12	3.24	3.33	3.50	9.32	≤ 13.98	Pass
11ac-VHT20	MCS0	140	5700	3.16	3.45	3.54	3.35	9.40	≤ 13.98	Pass
11ac-VHT20	MCS0	144	5720	3.03	3.26	3.40	3.46	9.31	≤ 13.98	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
Ant 0 + 1 + 2 + 3 (CDD Mode)										
11ac-VHT40	MCS0	54	5270	6.59	6.78	6.66	6.69	12.70	≤ 13.98	Pass
11ac-VHT40	MCS0	62	5310	6.69	6.83	6.63	6.67	12.73	≤ 13.98	Pass
11ac-VHT40	MCS0	102	5510	6.14	5.95	5.86	5.83	11.97	≤ 13.98	Pass
11ac-VHT40	MCS0	118	5590	5.93	6.03	6.05	5.91	12.00	≤ 13.98	Pass
11ac-VHT40	MCS0	134	5670	5.90	5.92	6.07	5.78	11.94	≤ 13.98	Pass
11ac-VHT40	MCS0	142	5710	5.71	5.85	6.13	6.01	11.95	≤ 13.98	Pass
11ac-VHT80	MCS0	58	5290	7.42	7.32	7.60	7.17	13.40	≤ 13.98	Pass
11ac-VHT80	MCS0	106	5530	7.65	7.79	7.78	7.51	13.70	≤ 13.98	Pass
11ac-VHT80	MCS0	122	5610	7.65	7.31	7.65	7.43	13.53	≤ 13.98	Pass
11ac-VHT80	MCS0	138	5690	7.41	7.19	7.60	7.01	13.33	≤ 13.98	Pass
Non-contiguous 80+80 MHz mode fall within different UNII band										
11ac-VHT80+80	MCS0	58	5290	10.61	10.54	--	--	13.59	≤ 13.98	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	10.50	10.92	13.73	≤ 13.98	Pass
11ac-VHT80+80	MCS0	106	5530	10.92	10.73	--	--	13.84	≤ 13.98	Pass
11ac-VHT80+80	MCS0	106	5530	--	--	10.89	10.83	13.87	≤ 13.98	Pass
11ac-VHT80+80	MCS0	122	5610	10.72	10.77	--	--	13.76	≤ 13.98	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	10.69	10.76	13.74	≤ 13.98	Pass
11ac-VHT80+80	MCS0	138	5690	10.98	10.70	--	--	13.85	≤ 13.98	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	10.67	10.87	13.78	≤ 13.98	Pass
Non-contiguous 80+80 MHz mode fall within same UNII band										
11ac-VHT80+80	MCS0	106	5530	7.90	7.82	--	--	13.82	≤ 13.98	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	7.79	7.69			
11ac-VHT80+80	MCS0	106	5530	--	--	7.59	7.66	13.66	≤ 13.98	Pass
11ac-VHT80+80	MCS0	138	5690	7.63	7.68	--	--			



Mode	Channel No.	Test Frequency (MHz)	Data Rate/MCS	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)	Max EIRP (dBm)	EIRP Limit (dBm)	Result
11ac-VHT80+80 (Contiguous Mode)												
11ac-VHT 80+80	42	5210	MCS0	10.98	10.45	--	--	13.73	≤ 20.00	19.73	≤ 21.00	Pass
11ac-VHT 80+80	58	5290	MCS0	--	--	11.21	10.56	13.91	≤ 13.98	--	--	Pass
11ac-VHT 80+80	106	5530	MCS0	7.76	7.81	--	--	13.68	≤ 13.98	--	--	Pass
11ac-VHT 80+80	122	5610	MCS0	--	--	7.51	7.54					

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

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

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

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

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

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

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

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

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

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

Note 4: Max EIRP (dBm) = Total Average Power (dBm) + 30 Degree Antenna Gain (dBi), 30 Degree Antenna Gain (dBi) = 6 dBi.

Note 5: Average Power Limit Calculation as below:

For 5150-5250MHz: Limit = 30.00dBm - (16dBi - 6dBi) = 20.00 dBm.

For 5250-5350MHz & 5470-5725MHz: Limit = 23.98dBm - (16dBi - 6dBi) = 13.98 dBm.

EIRP Limit Calculation as below:

For 5150-5250MHz: Limit = 21.00 dBm.



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)										
11n-HT20	MCS0	52	5260	3.74	3.69	3.99	3.81	9.83	≤ 10.98	Pass
11n-HT20	MCS0	60	5300	3.78	3.45	3.93	3.37	9.66	≤ 10.98	Pass
11n-HT20	MCS0	64	5320	3.66	3.51	3.85	3.45	9.64	≤ 10.98	Pass
11n-HT20	MCS0	100	5500	3.56	3.21	3.39	3.17	9.36	≤ 10.98	Pass
11n-HT20	MCS0	120	5600	2.63	2.70	2.97	2.84	8.81	≤ 10.98	Pass
11n-HT20	MCS0	140	5700	3.30	3.22	3.68	3.38	9.42	≤ 10.98	Pass
11n-HT20	MCS0	144	5720	3.20	3.16	3.63	2.90	9.25	≤ 10.98	Pass
11n-HT40	MCS0	54	5270	4.47	4.46	4.49	4.45	10.49	≤ 10.98	Pass
11n-HT40	MCS0	62	5310	4.84	4.47	4.37	4.40	10.54	≤ 10.98	Pass
11n-HT40	MCS0	102	5510	4.85	4.89	4.58	4.76	10.79	≤ 10.98	Pass
11n-HT40	MCS0	118	5590	4.61	4.59	4.79	4.69	10.69	≤ 10.98	Pass
11n-HT40	MCS0	134	5670	4.78	4.66	4.81	4.72	10.76	≤ 10.98	Pass
11n-HT40	MCS0	142	5710	4.54	4.72	4.74	4.79	10.72	≤ 10.98	Pass
11ac-VHT20	MCS0	52	5260	3.58	3.76	3.65	3.67	9.69	≤ 10.98	Pass
11ac-VHT20	MCS0	60	5300	3.41	3.73	3.64	3.60	9.62	≤ 10.98	Pass
11ac-VHT20	MCS0	64	5320	3.35	3.55	3.62	3.48	9.52	≤ 10.98	Pass
11ac-VHT20	MCS0	100	5500	3.22	3.27	3.32	3.35	9.31	≤ 10.98	Pass
11ac-VHT20	MCS0	120	5600	3.12	3.24	3.33	3.50	9.32	≤ 10.98	Pass
11ac-VHT20	MCS0	140	5700	3.16	3.45	3.54	3.35	9.40	≤ 10.98	Pass
11ac-VHT20	MCS0	144	5720	3.03	3.26	3.40	3.46	9.31	≤ 10.98	Pass
11ac-VHT40	MCS0	54	5270	4.72	4.62	4.51	4.53	10.62	≤ 10.98	Pass
11ac-VHT40	MCS0	62	5310	4.64	4.58	4.32	4.53	10.54	≤ 10.98	Pass
11ac-VHT40	MCS0	102	5510	4.70	4.48	4.32	4.26	10.46	≤ 10.98	Pass
11ac-VHT40	MCS0	118	5590	4.58	4.43	4.57	4.66	10.58	≤ 10.98	Pass
11ac-VHT40	MCS0	134	5670	4.36	4.43	4.50	4.57	10.49	≤ 10.98	Pass
11ac-VHT40	MCS0	142	5710	4.52	4.57	4.59	4.62	10.60	≤ 10.98	Pass
11ac-VHT80	MCS0	58	5290	4.45	4.61	4.35	4.41	10.48	≤ 10.98	Pass
11ac-VHT80	MCS0	106	5530	4.75	4.71	4.67	4.81	10.76	≤ 10.98	Pass
11ac-VHT80	MCS0	122	5610	4.66	4.69	4.56	4.77	10.69	≤ 10.98	Pass
11ac-VHT80	MCS0	138	5690	4.65	4.73	4.80	4.71	10.74	≤ 10.98	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
Ant 0 + 1 + 2 + 3 (Beam-Forming Mode)										
Non-contiguous 80+80 MHz mode fall within different UNII band										
11ac-VHT80+80	MCS0	58	5290	10.61	10.54	--	--	13.59	≤ 13.98	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	10.50	10.92	13.73	≤ 13.98	Pass
11ac-VHT80+80	MCS0	106	5530	10.92	10.73	--	--	13.84	≤ 13.98	Pass
11ac-VHT80+80	MCS0	106	5530	--	--	10.89	10.83	13.87	≤ 13.98	Pass
11ac-VHT80+80	MCS0	122	5610	10.72	10.77	--	--	13.76	≤ 13.98	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	10.69	10.76	13.74	≤ 13.98	Pass
11ac-VHT80+80	MCS0	138	5690	10.98	10.70	--	--	13.85	≤ 13.98	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	10.67	10.87	13.78	≤ 13.98	Pass
Non-contiguous 80+80 MHz mode fall within same UNII band										
11ac-VHT80+80	MCS0	106	5530	7.90	7.82	--	--	13.82	≤ 13.98	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	7.79	7.69			
11ac-VHT80+80	MCS0	106	5530	--	--	7.59	7.66	13.66	≤ 13.98	Pass
11ac-VHT80+80	MCS0	138	5690	7.63	7.68	--	--			

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

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

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

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

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

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

Note 3: Average Power Limit Calculation as below:

For 5250-5350MHz, 5470-5725MHz:

802.11n-HT20/n-HT40/ac-VHT20/ac-VHT40/ac-VHT80:

Limit = 23.98dBm - (16dBi + 3dBi - 6dBi) = 10.98dBm.

802.11ac-VHT80+80: Limit = 23.98dBm - (16dBi - 6dBi) = 13.98dBm.



3. Power Spectral Density Measurement Test Result

Product	ACCESS POINT	Temperature	24°C
Test Engineer	Kevin Ker	Relative Humidity	59%
Test Site	SR2	Test Date	2017/08/27
Test Item	Power Spectral Density (UNII-Band 1 & UNII-2A & UNII-2C)		
Antenna Type	Omin Antenna (ANT-2x2-5005)		

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	52	5260	2.67	2.90	2.63	2.52	97.08	8.83	≤ 8.99	Pass
11a	6Mbps	60	5300	2.64	2.49	2.62	2.09	97.08	8.61	≤ 8.99	Pass
11a	6Mbps	64	5320	2.32	2.34	2.19	1.95	97.08	8.35	≤ 8.99	Pass
11a	6Mbps	100	5500	1.97	2.40	2.42	2.26	97.08	8.42	≤ 8.99	Pass
11a	6Mbps	120	5600	1.70	2.98	2.23	2.04	97.08	8.41	≤ 8.99	Pass
11a	6Mbps	140	5700	2.34	3.10	2.50	2.64	97.08	8.80	≤ 8.99	Pass
11a	6Mbps	144	5720	2.24	3.11	2.43	2.92	97.08	8.84	≤ 8.99	Pass
11n-HT20	MCS0	52	5260	2.05	2.39	2.64	2.20	98.80	8.35	≤ 8.99	Pass
11n-HT20	MCS0	60	5300	2.25	2.40	2.63	2.64	98.80	8.50	≤ 8.99	Pass
11n-HT20	MCS0	64	5320	2.27	2.91	2.80	2.54	98.80	8.66	≤ 8.99	Pass
11n-HT20	MCS0	100	5500	2.06	3.15	3.02	2.71	98.80	8.78	≤ 8.99	Pass
11n-HT20	MCS0	120	5600	2.02	2.58	3.30	2.92	98.80	8.75	≤ 8.99	Pass
11n-HT20	MCS0	140	5700	2.29	2.02	2.76	2.71	98.80	8.48	≤ 8.99	Pass
11n-HT20	MCS0	144	5720	1.92	2.50	2.33	2.32	98.80	8.29	≤ 8.99	Pass
11n-HT40	MCS0	54	5270	2.29	3.44	2.65	2.34	96.95	8.86	≤ 8.99	Pass
11n-HT40	MCS0	62	5310	2.24	2.62	2.62	2.36	96.95	8.62	≤ 8.99	Pass
11n-HT40	MCS0	102	5510	2.64	2.41	2.48	2.17	96.95	8.58	≤ 8.99	Pass
11n-HT40	MCS0	118	5590	2.05	2.98	2.29	2.29	96.95	8.57	≤ 8.99	Pass
11n-HT40	MCS0	134	5670	2.18	2.40	2.24	2.14	96.95	8.40	≤ 8.99	Pass
11n-HT40	MCS0	142	5710	2.11	2.21	2.18	2.88	96.95	8.51	≤ 8.99	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-VHT20	MCS0	52	5260	2.20	2.54	3.20	2.80	98.80	8.72	≤ 8.99	Pass
11ac-VHT20	MCS0	60	5300	2.42	2.60	3.01	2.87	98.80	8.75	≤ 8.99	Pass
11ac-VHT20	MCS0	64	5320	2.11	2.49	2.64	2.74	98.80	8.52	≤ 8.99	Pass
11ac-VHT20	MCS0	100	5500	2.36	2.46	3.27	2.78	98.80	8.75	≤ 8.99	Pass
11ac-VHT20	MCS0	120	5600	2.32	2.58	2.77	2.72	98.80	8.62	≤ 8.99	Pass
11ac-VHT20	MCS0	140	5700	2.03	3.27	2.39	2.68	98.80	8.64	≤ 8.99	Pass
11ac-VHT20	MCS0	144	5720	2.01	2.59	2.77	2.34	98.80	8.46	≤ 8.99	Pass
11ac-VHT40	MCS0	54	5270	2.02	3.01	3.32	2.50	96.98	8.89	≤ 8.99	Pass
11ac-VHT40	MCS0	62	5310	2.16	2.62	2.70	2.20	96.98	8.58	≤ 8.99	Pass
11ac-VHT40	MCS0	102	5510	2.13	2.32	2.60	2.17	96.98	8.46	≤ 8.99	Pass
11ac-VHT40	MCS0	118	5590	2.07	3.19	2.53	2.47	96.98	8.74	≤ 8.99	Pass
11ac-VHT40	MCS0	134	5670	1.98	2.68	2.51	2.49	96.98	8.58	≤ 8.99	Pass
11ac-VHT40	MCS0	142	5710	1.76	2.32	2.22	2.45	96.98	8.35	≤ 8.99	Pass
11ac-VHT80	MCS0	58	5290	-0.11	-0.28	-0.45	-0.57	94.67	5.91	≤ 8.99	Pass
11ac-VHT80	MCS0	106	5530	0.52	0.94	0.45	0.48	94.67	6.86	≤ 8.99	Pass
11ac-VHT80	MCS0	122	5610	0.08	0.28	0.23	0.07	94.67	6.42	≤ 8.99	Pass
11ac-VHT80	MCS0	138	5690	-0.24	-0.02	0.29	0.23	94.67	6.33	≤ 8.99	Pass
Non-contiguous 80+80 MHz mode fall within different UNII band											
11ac-VHT80+80	MCS0	58	5290	3.06	3.25	--	--	94.67	6.40	≤ 11.00	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	2.35	2.81	94.67	5.83	≤ 11.00	Pass
11ac-VHT80+80	MCS0	106	5530	3.67	3.46	--	--	94.67	6.81	≤ 11.00	Pass
11ac-VHT80+80	MCS0	106	5530	--	--	3.15	3.45	94.67	6.55	≤ 11.00	Pass
11ac-VHT80+80	MCS0	122	5610	2.43	3.20	--	--	94.67	6.08	≤ 11.00	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	2.13	2.53	94.67	5.58	≤ 11.00	Pass
11ac-VHT80+80	MCS0	138	5690	2.61	2.66	--	--	94.67	5.88	≤ 11.00	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	2.20	2.42	94.67	5.56	≤ 11.00	Pass
Non-contiguous 80+80 MHz mode fall within same UNII band											
11ac-VHT80+80	MCS0	106	5530	1.06	1.51	--	--	94.67	7.18	≤ 11.00	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	0.23	0.79				
11ac-VHT80+80	MCS0	106	5530	--	--	0.90	1.55	94.67	7.01	≤ 11.00	Pass
11ac-VHT80+80	MCS0	138	5690	0.08	0.32	--	--				



Mode	Channel No.	Test Frequency (MHz)	Data Rate/MCS	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 Mode)											
11ac-VHT	42	5210	MCS0	0.43	1.64	--	--	97.17	4.21	≤ 14.99	Pass
80+80	58	5290	MCS0	--	--	1.01	1.29	97.17	4.29	≤ 8.99	Pass
11ac-VHT	106	5530	MCS0	0.03	0.50	--	--	97.17	6.47	≤ 8.99	Pass
80+80	122	5610	MCS0	--	--	0.06	0.68				

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

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

Note 3: For 802.11ac-VHT80+80:

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

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

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

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

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

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

Note 5: PSD Limit Calculation as below:

For 5150-5250MHz: 17dBm/MHz - (8.01dBi - 6dBi) = 14.99 dBm/MHz.

For 5250-5350MHz & 5470-5725MHz

802.11a/n-HT20/n-HT40/ac-VHT20/ac-VHT40/ac-VHT80:

Limit = 11dBm/MHz - (8.01dBi - 6dBi) = 8.99 dBm/MHz.

802.11ac-VHT80+80: Limit = 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)											
11n-HT20	MCS0	52	5260	2.05	2.39	2.64	2.20	98.80	8.35	≤ 9.00	Pass
11n-HT20	MCS0	60	5300	2.25	2.40	2.63	2.64	98.80	8.50	≤ 9.00	Pass
11n-HT20	MCS0	64	5320	2.27	2.91	2.80	2.54	98.80	8.66	≤ 9.00	Pass
11n-HT20	MCS0	100	5500	2.06	3.15	3.02	2.71	98.80	8.78	≤ 9.00	Pass
11n-HT20	MCS0	120	5600	2.02	2.58	3.30	2.92	98.80	8.75	≤ 9.00	Pass
11n-HT20	MCS0	140	5700	2.29	2.02	2.76	2.71	98.80	8.48	≤ 9.00	Pass
11n-HT20	MCS0	144	5720	1.92	2.50	2.33	2.32	98.80	8.29	≤ 9.00	Pass
11n-HT40	MCS0	54	5270	1.11	1.68	1.39	1.49	96.95	7.58	≤ 9.00	Pass
11n-HT40	MCS0	62	5310	0.97	1.50	1.47	1.24	96.95	7.46	≤ 9.00	Pass
11n-HT40	MCS0	102	5510	1.72	1.80	1.37	1.92	96.95	7.86	≤ 9.00	Pass
11n-HT40	MCS0	118	5590	1.62	2.15	1.76	2.14	96.95	8.08	≤ 9.00	Pass
11n-HT40	MCS0	134	5670	1.17	2.02	1.66	1.90	96.95	7.85	≤ 9.00	Pass
11n-HT40	MCS0	142	5710	1.27	1.75	1.63	1.91	96.95	7.80	≤ 9.00	Pass
11ac-VHT20	MCS0	52	5260	2.20	2.54	3.20	2.80	98.80	8.72	≤ 9.00	Pass
11ac-VHT20	MCS0	60	5300	2.42	2.60	3.01	2.87	98.80	8.75	≤ 9.00	Pass
11ac-VHT20	MCS0	64	5320	2.11	2.49	2.64	2.74	98.80	8.52	≤ 9.00	Pass
11ac-VHT20	MCS0	100	5500	2.36	2.46	3.27	2.78	98.80	8.75	≤ 9.00	Pass
11ac-VHT20	MCS0	120	5600	2.32	2.58	2.77	2.72	98.80	8.62	≤ 9.00	Pass
11ac-VHT20	MCS0	140	5700	2.03	3.27	2.39	2.69	98.80	8.64	≤ 9.00	Pass
11ac-VHT20	MCS0	144	5720	2.01	2.59	2.77	2.34	98.80	8.46	≤ 9.00	Pass
11ac-VHT40	MCS0	54	5270	1.11	0.95	1.15	1.43	96.98	7.32	≤ 9.00	Pass
11ac-VHT40	MCS0	62	5310	0.94	1.15	1.13	0.91	96.98	7.19	≤ 9.00	Pass
11ac-VHT40	MCS0	102	5510	2.13	2.32	2.60	2.17	96.98	8.46	≤ 9.00	Pass
11ac-VHT40	MCS0	118	5590	2.07	3.19	2.53	2.47	96.98	8.74	≤ 9.00	Pass
11ac-VHT40	MCS0	134	5670	1.13	1.57	1.74	2.49	96.98	7.91	≤ 9.00	Pass
11ac-VHT40	MCS0	142	5710	1.85	2.19	2.21	2.22	96.98	8.27	≤ 9.00	Pass
11ac-VHT80	MCS0	58	5290	-2.10	-2.23	-2.28	-2.06	94.67	4.09	≤ 9.00	Pass
11ac-VHT80	MCS0	106	5530	-2.15	-1.40	-1.70	-1.34	94.67	4.62	≤ 9.00	Pass
11ac-VHT80	MCS0	122	5610	-1.86	-1.59	-1.52	-1.17	94.67	4.73	≤ 9.00	Pass
11ac-VHT80	MCS0	138	5690	-2.35	-1.90	-1.55	-1.41	94.67	4.47	≤ 9.00	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 (Beam-Forming Mode)											
Non-contiguous 80+80 MHz mode fall within different UNII band											
11ac-VHT80+80	MCS0	58	5290	3.06	3.25	--	--	94.67	6.40	≤ 11.00	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	2.35	2.81	94.67	5.83	≤ 11.00	Pass
11ac-VHT80+80	MCS0	106	5530	3.67	3.46	--	--	94.67	6.81	≤ 11.00	Pass
11ac-VHT80+80	MCS0	106	5530	--	--	3.15	3.45	94.67	6.55	≤ 11.00	Pass
11ac-VHT80+80	MCS0	122	5610	2.43	3.20	--	--	94.67	6.08	≤ 11.00	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	2.13	2.53	94.67	5.58	≤ 11.00	Pass
11ac-VHT80+80	MCS0	138	5690	2.61	2.66	--	--	94.67	5.88	≤ 11.00	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	2.20	2.42	94.67	5.56	≤ 11.00	Pass
Non-contiguous 80+80 MHz mode fall within same UNII band											
11ac-VHT80+80	MCS0	106	5530	1.06	1.51	--	--	94.67	7.18	≤ 11.00	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	0.23	0.79				
11ac-VHT80+80	MCS0	106	5530	--	--	0.90	1.55	94.67	7.01	≤ 11.00	Pass
11ac-VHT80+80	MCS0	138	5690	0.08	0.32	--	--				

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

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

Note 3: For 802.11ac-VHT80+80:

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

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

Note 4: PSD Limit Calculation as below:

For 5250-5350MHz, 5470-5725MHz

802.11n-HT20/n-HT40/ac-VHT20/ac-VHT40/ac-VHT80:

Limit = 11dBm/MHz - (8dBi - 6dBi) = 9.00 dBm/MHz.

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



Product	ACCESS POINT	Temperature	24°C
Test Engineer	Kevin Ker	Relative Humidity	59%
Test Site	SR2	Test Date	2017/08/27
Test Item	Power Spectral Density (UNII-Band 1 & UNII-2A & UNII-2C)		
Antenna Type	Directional Antenna (MT-484052/NVH)		

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	52	5260	-7.98	-8.38	-8.37	-8.00	97.08	-2.03	≤ -2.01	Pass
11a	6Mbps	60	5300	-8.26	-8.31	-8.26	-8.36	97.08	-2.15	≤ -2.01	Pass
11a	6Mbps	64	5320	-8.31	-8.52	-8.25	-8.36	97.08	-2.21	≤ -2.01	Pass
11a	6Mbps	100	5500	-8.55	-8.68	-8.58	-8.37	97.08	-2.39	≤ -2.01	Pass
11a	6Mbps	120	5600	-8.83	-8.06	-8.22	-7.94	97.08	-2.10	≤ -2.01	Pass
11a	6Mbps	140	5700	-8.33	-8.56	-8.77	-8.50	97.08	-2.39	≤ -2.01	Pass
11a	6Mbps	144	5720	-8.73	-8.45	-8.49	-8.12	97.08	-2.29	≤ -2.01	Pass
11n-HT20	MCS0	52	5260	-8.36	-8.53	-8.78	-8.57	98.80	-2.54	≤ -2.01	Pass
11n-HT20	MCS0	60	5300	-8.87	-8.99	-8.17	-8.52	98.80	-2.60	≤ -2.01	Pass
11n-HT20	MCS0	64	5320	-8.69	-8.94	-8.90	-8.89	98.80	-2.83	≤ -2.01	Pass
11n-HT20	MCS0	100	5500	-8.74	-8.69	-8.41	-8.02	98.80	-2.43	≤ -2.01	Pass
11n-HT20	MCS0	120	5600	-8.86	-8.47	-8.88	-8.25	98.80	-2.59	≤ -2.01	Pass
11n-HT20	MCS0	140	5700	-8.95	-8.41	-8.49	-8.41	98.80	-2.54	≤ -2.01	Pass
11n-HT20	MCS0	144	5720	-8.73	-8.29	-8.44	-8.50	98.80	-2.47	≤ -2.01	Pass
11n-HT40	MCS0	54	5270	-8.56	-8.42	-8.38	-8.60	96.95	-2.33	≤ -2.01	Pass
11n-HT40	MCS0	62	5310	-8.54	-8.33	-8.21	-8.33	96.95	-2.20	≤ -2.01	Pass
11n-HT40	MCS0	102	5510	-8.90	-8.53	-8.70	-8.39	96.95	-2.47	≤ -2.01	Pass
11n-HT40	MCS0	118	5590	-8.71	-8.15	-8.20	-8.25	96.95	-2.17	≤ -2.01	Pass
11n-HT40	MCS0	134	5670	-8.64	-8.46	-8.53	-8.83	96.95	-2.46	≤ -2.01	Pass
11n-HT40	MCS0	142	5710	-8.72	-8.08	-8.40	-8.54	96.95	-2.27	≤ -2.01	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-VHT20	MCS0	52	5260	-8.94	-8.73	-8.73	-8.25	98.80	-2.63	≤ -2.01	Pass
11ac-VHT20	MCS0	60	5300	-8.86	-8.64	-8.42	-8.29	98.80	-2.53	≤ -2.01	Pass
11ac-VHT20	MCS0	64	5320	-8.76	-8.96	-8.14	-8.70	98.80	-2.61	≤ -2.01	Pass
11ac-VHT20	MCS0	100	5500	-8.78	-8.39	-8.43	-8.14	98.80	-2.41	≤ -2.01	Pass
11ac-VHT20	MCS0	120	5600	-8.81	-8.07	-8.25	-7.77	98.80	-2.19	≤ -2.01	Pass
11ac-VHT20	MCS0	140	5700	-8.67	-8.28	-8.35	-8.52	98.80	-2.43	≤ -2.01	Pass
11ac-VHT20	MCS0	144	5720	-8.20	-8.56	-8.46	-8.37	98.80	-2.37	≤ -2.01	Pass
11ac-VHT40	MCS0	54	5270	-8.77	-8.56	-8.33	-8.46	96.98	-2.37	≤ -2.01	Pass
11ac-VHT40	MCS0	62	5310	-8.68	-8.57	-8.12	-8.58	96.98	-2.33	≤ -2.01	Pass
11ac-VHT40	MCS0	102	5510	-8.63	-8.26	-8.45	-8.57	96.98	-2.32	≤ -2.01	Pass
11ac-VHT40	MCS0	118	5590	-8.09	-8.22	-8.52	-8.25	96.98	-2.11	≤ -2.01	Pass
11ac-VHT40	MCS0	134	5670	-8.84	-8.13	-8.57	-8.45	96.98	-2.34	≤ -2.01	Pass
11ac-VHT40	MCS0	142	5710	-8.89	-8.48	-8.48	-8.54	96.98	-2.44	≤ -2.01	Pass
11ac-VHT80	MCS0	58	5290	-8.50	-8.46	-8.43	-8.85	94.67	-2.30	≤ -2.01	Pass
11ac-VHT80	MCS0	106	5530	-8.86	-8.23	-8.63	-8.62	94.67	-2.32	≤ -2.01	Pass
11ac-VHT80	MCS0	122	5610	-8.43	-8.30	-8.26	-8.57	94.67	-2.13	≤ -2.01	Pass
11ac-VHT80	MCS0	138	5690	-8.85	-8.69	-8.15	-8.23	94.67	-2.21	≤ -2.01	Pass
Non-contiguous 80+80 MHz mode fall within different UNII band											
11ac-VHT80+80	MCS0	58	5290	-7.88	-7.44	--	--	94.67	-4.41	≤ 1.00	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	-7.90	-7.60	94.67	-4.50	≤ 1.00	Pass
11ac-VHT80+80	MCS0	106	5530	-6.98	-6.32	--	--	94.67	-3.39	≤ 1.00	Pass
11ac-VHT80+80	MCS0	106	5530	--	--	-7.11	-7.07	94.67	-3.84	≤ 1.00	Pass
11ac-VHT80+80	MCS0	122	5610	-7.36	-7.03	--	--	94.67	-3.94	≤ 1.00	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	-7.73	-7.21	94.67	-4.21	≤ 1.00	Pass
11ac-VHT80+80	MCS0	138	5690	-7.67	-7.92	--	--	94.67	-4.55	≤ 1.00	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	-7.55	-8.18	94.67	-4.61	≤ 1.00	Pass
Non-contiguous 80+80 MHz mode fall within same UNII band											
11ac-VHT80+80	MCS0	106	5530	-8.87	-8.49	--	--	94.67	-2.90	≤ 1.00	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	-9.67	-9.73				
11ac-VHT80+80	MCS0	106	5530	--	--	-9.39	-8.77	94.67	-3.14	≤ 1.00	Pass
11ac-VHT80+80	MCS0	138	5690	-10.11	-9.41	--	--				



Mode	Channel No.	Test Frequency (MHz)	Data Rate/MCS	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-VHT 80+80	42	5210	MCS0	-5.84	-5.20	--	--	97.17	-2.37	≤ 3.99	Pass
11ac-VHT 80+80	58	5290	MCS0	--	--	-5.83	-5.37	97.17	-2.46	≤ -2.01	Pass
11ac-VHT 80+80	106	5530	MCS0	-9.46	-9.32	--	--	97.17	-3.45	≤ -2.01	Pass
11ac-VHT 80+80	122	5610	MCS0	--	--	-10.08	-9.55				

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

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

Note 3: For 802.11ac-VHT80+80:

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

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

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

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

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

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

Note 5: PSD Limit Calculation as below:

For 5150-5250MHz: 17dBm/MHz - (19.01dBi - 6dBi) = 3.99 dBm/MHz.

For 5250-5350MHz, 5470-5725MHz

802.11a/n-HT20/n-HT40/ac-VHT20/ac-VHT40/ac-VHT80:

11dBm/MHz - (19.01dBi - 6dBi) = -2.01dBm/MHz.

802.11ac-VHT80+80: 11dBm/MHz - (16dBi - 6dBi) = 1.00 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)											
11n-HT20	MCS0	52	5260	-8.36	-8.53	-8.78	-8.57	98.80	-2.54	≤ -2.00	Pass
11n-HT20	MCS0	60	5300	-8.87	-8.99	-8.17	-8.52	98.80	-2.60	≤ -2.00	Pass
11n-HT20	MCS0	64	5320	-8.69	-8.94	-8.90	-8.89	98.80	-2.83	≤ -2.00	Pass
11n-HT20	MCS0	100	5500	-8.74	-8.69	-8.41	-8.02	98.80	-2.43	≤ -2.00	Pass
11n-HT20	MCS0	120	5600	-8.86	-8.47	-8.88	-8.25	98.80	-2.59	≤ -2.00	Pass
11n-HT20	MCS0	140	5700	-8.95	-8.41	-8.49	-8.41	98.80	-2.54	≤ -2.00	Pass
11n-HT20	MCS0	144	5720	-8.73	-8.29	-8.44	-8.50	98.80	-2.47	≤ -2.00	Pass
11n-HT40	MCS0	54	5270	-9.50	-9.15	-9.19	-9.41	96.95	-3.15	≤ -2.00	Pass
11n-HT40	MCS0	62	5310	-9.50	-9.20	-9.43	-9.57	96.95	-3.27	≤ -2.00	Pass
11n-HT40	MCS0	102	5510	-8.53	-7.89	-8.93	-8.60	96.95	-2.32	≤ -2.00	Pass
11n-HT40	MCS0	118	5590	-8.49	-7.99	-8.63	-8.14	96.95	-2.15	≤ -2.00	Pass
11n-HT40	MCS0	134	5670	-8.62	-8.40	-8.69	-8.55	96.95	-2.41	≤ -2.00	Pass
11n-HT40	MCS0	142	5710	-8.93	-8.69	-8.76	-8.68	96.95	-2.61	≤ -2.00	Pass
11ac-VHT20	MCS0	52	5260	-8.94	-8.73	-8.73	-8.25	98.80	-2.63	≤ -2.00	Pass
11ac-VHT20	MCS0	60	5300	-8.86	-8.64	-8.42	-8.29	98.80	-2.53	≤ -2.00	Pass
11ac-VHT20	MCS0	64	5320	-8.76	-8.96	-8.14	-8.70	98.80	-2.61	≤ -2.00	Pass
11ac-VHT20	MCS0	100	5500	-8.78	-8.39	-8.43	-8.14	98.80	-2.41	≤ -2.00	Pass
11ac-VHT20	MCS0	120	5600	-8.81	-8.07	-8.25	-7.77	98.80	-2.19	≤ -2.00	Pass
11ac-VHT20	MCS0	140	5700	-8.67	-8.28	-8.35	-8.52	98.80	-2.43	≤ -2.00	Pass
11ac-VHT20	MCS0	144	5720	-8.20	-8.56	-8.46	-8.37	98.80	-2.37	≤ -2.00	Pass
11ac-VHT40	MCS0	54	5270	-10.05	-10.07	-9.59	-9.71	96.98	-3.70	≤ -2.00	Pass
11ac-VHT40	MCS0	62	5310	-9.95	-9.97	-9.94	-10.17	96.98	-3.85	≤ -2.00	Pass
11ac-VHT40	MCS0	102	5510	-9.51	-9.21	-9.84	-9.38	96.98	-3.33	≤ -2.00	Pass
11ac-VHT40	MCS0	118	5590	-9.54	-8.80	-9.41	-9.22	96.98	-3.08	≤ -2.00	Pass
11ac-VHT40	MCS0	134	5670	-9.92	-9.25	-9.92	-9.82	96.98	-3.56	≤ -2.00	Pass
11ac-VHT40	MCS0	142	5710	-9.72	-9.42	-9.71	-9.68	96.98	-3.48	≤ -2.00	Pass
11ac-VHT80	MCS0	58	5290	-13.73	-13.31	-13.51	-13.60	94.67	-7.28	≤ -2.00	Pass
11ac-VHT80	MCS0	106	5530	-13.04	-12.44	-13.22	-12.89	94.67	-6.63	≤ -2.00	Pass
11ac-VHT80	MCS0	122	5610	-12.86	-12.51	-12.67	-12.67	94.67	-6.42	≤ -2.00	Pass
11ac-VHT80	MCS0	138	5690	-13.26	-12.73	-12.57	-13.15	94.67	-6.66	≤ -2.00	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 (Beam-Forming Mode)											
Non-contiguous 80+80 MHz mode fall within different UNII band											
11ac-VHT80+80	MCS0	58	5290	--	--	-7.90	-7.60	94.67	-4.50	≤ 1.00	Pass
11ac-VHT80+80	MCS0	106	5530	-6.98	-6.32	--	--	94.67	-3.39	≤ 1.00	Pass
11ac-VHT80+80	MCS0	106	5530	--	--	-7.11	-7.07	94.67	-3.84	≤ 1.00	Pass
11ac-VHT80+80	MCS0	122	5610	-7.36	-7.03	--	--	94.67	-3.94	≤ 1.00	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	-7.73	-7.21	94.67	-4.21	≤ 1.00	Pass
11ac-VHT80+80	MCS0	138	5690	-7.67	-7.92	--	--	94.67	-4.55	≤ 1.00	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	-7.55	-8.18	94.67	-4.61	≤ 1.00	Pass
Non-contiguous 80+80 MHz mode fall within same UNII band											
11ac-VHT80+80	MCS0	106	5530	-8.87	-8.49	--	--	94.67	-2.90	≤ 1.00	Pass
11ac-VHT80+80	MCS0	138	5690	--	--	-9.67	-9.73				
11ac-VHT80+80	MCS0	106	5530	--	--	-9.39	-8.77	94.67	-3.14	≤ 1.00	Pass
11ac-VHT80+80	MCS0	138	5690	-10.11	-9.41	--	--				

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

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

Note 3: For 802.11ac-VHT80+80:

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

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

Note 4: PSD Limit Calculation as below:

For 5250-5350MHz, 5470-5725MHz

802.11a/n-HT20/n-HT40/ac-VHT20/ac-VHT40/ac-VHT80:

11dBm/MHz - (19dBi - 6dBi) = -2.00 dBm/MHz.

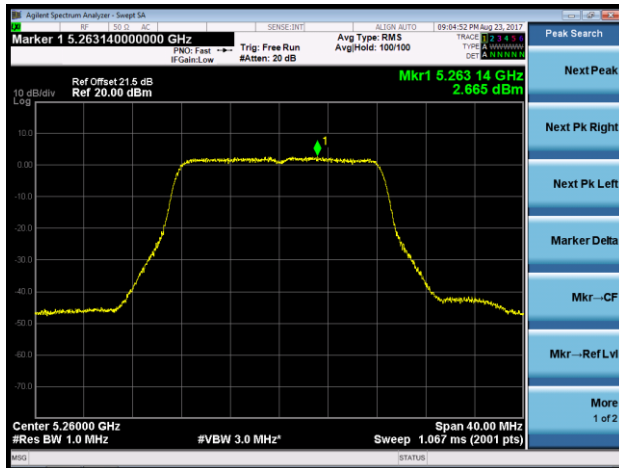
802.11ac-VHT80+80: 11dBm/MHz - (16dBi - 6dBi) = 1.00 dBm/MHz.



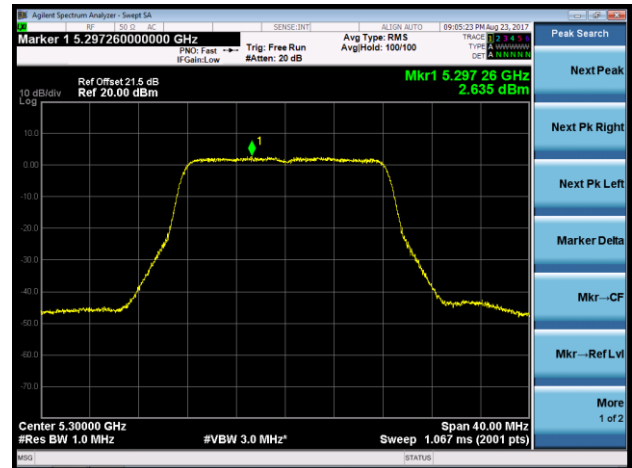
Product	ACCESS POINT	Temperature	22°C
Test Engineer	Kevin Ker	Test Date	2017/08/17
Antenna Type	Omin Antenna (ANT-2x2-5005)		

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

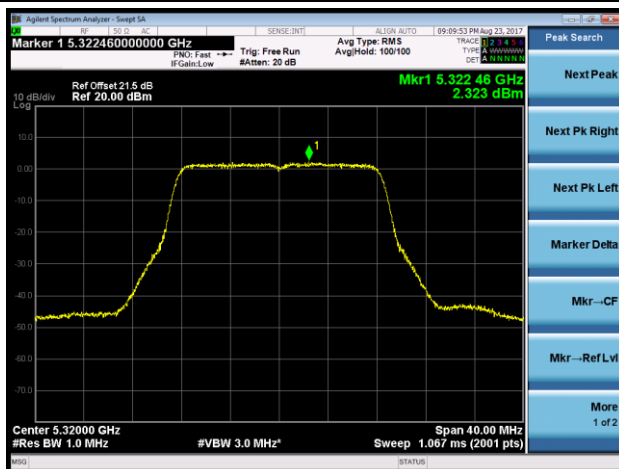
Channel 52 (5260MHz)



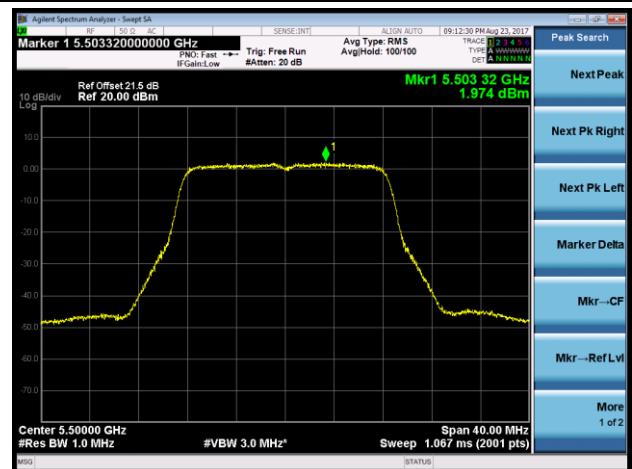
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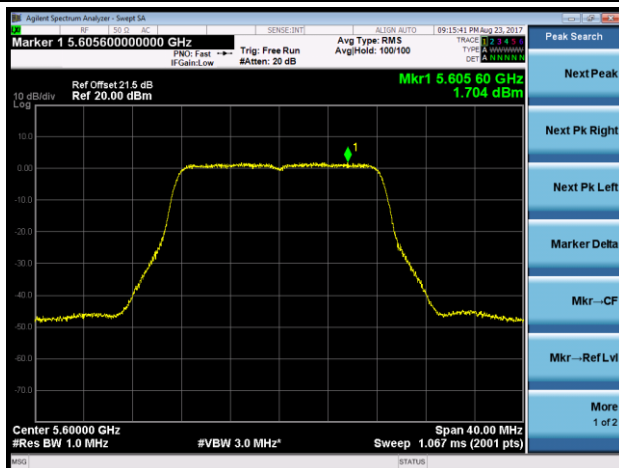
Channel 64 (5320MHz)



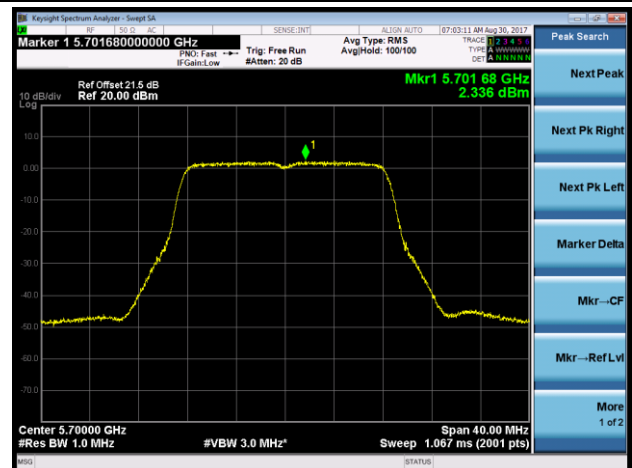
Channel 100 (5500MHz)



Channel 120 (5600MHz)



Channel 140 (5700MHz)



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

Channel 144 (5720MHz)

