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 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 maximumconducted output power shall be reduced by the amount in dB that the directional gain of theantenna exceeds 6dBi.

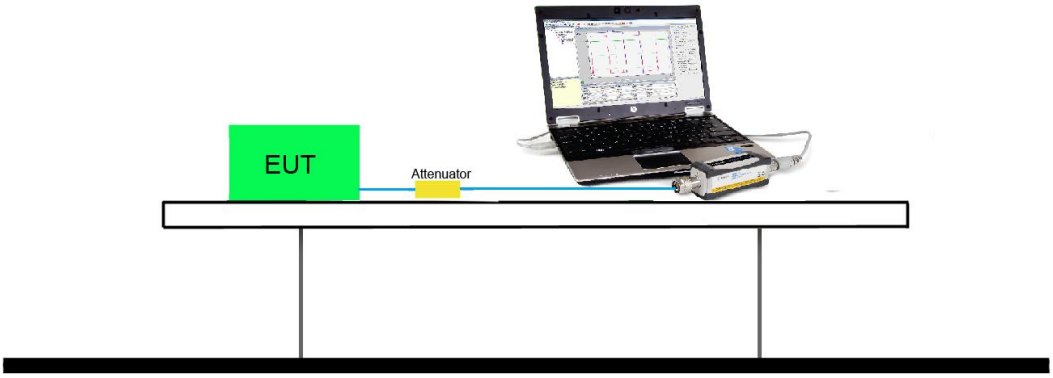
7.4.2.Test Procedure Used

KDB 789033D02v01r04 - 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.

7.4.4.Test Setup



7.4.5.TestResult

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 (AP-ANT-19):

Test Mode	Bandwidth	Channel	Frequency (MHz)	Data Rate/ MCS	Average Power (dBm)
802.11a	20	36	5180	6Mbps	15.55
				24Mbps	15.24
				54Mbps	14.96
802.11n	20	36	5180	MCS0	17.61
				MCS3	17.29
				MCS7	17.05
802.11n	40	38	5190	MCS0	15.70
				MCS3	15.36
				MCS7	15.05
802.11ac	20	36	5180	MCS0	16.61
				MCS4	16.28
				MCS8	16.05
802.11ac	40	38	5190	MCS0	16.12
				MCS4	15.86
				MCS9	15.48
802.11ac	80	42	5210	MCS0	14.54
				MCS4	14.22
				MCS9	14.01
802.11ac	80+80	42	5210	MCS0	15.73
				MCS4	15.43
				MCS9	15.18

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 (AP-ANT-19)	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	15.55	15.62	15.14	14.94	21.34	≤ 30.00	Pass
11a	6Mbps	44	5220	15.97	15.75	15.44	15.36	21.66	≤ 30.00	Pass
11a	6Mbps	48	5240	16.11	15.94	15.15	15.07	21.61	≤ 30.00	Pass
11a	6Mbps	149	5745	21.78	20.97	20.13	20.51	26.91	≤ 30.00	Pass
11a	6Mbps	157	5785	22.77	22.15	21.61	22.15	28.21	≤ 30.00	Pass
11a	6Mbps	165	5825	21.46	21.23	21.13	21.42	27.33	≤ 30.00	Pass
11n-HT20	MCS0	36	5180	17.61	17.02	15.77	16.03	22.69	≤ 30.00	Pass
11n-HT20	MCS0	44	5220	16.05	15.83	15.22	15.21	21.61	≤ 30.00	Pass
11n-HT20	MCS0	48	5240	17.13	16.92	15.62	15.57	22.39	≤ 30.00	Pass
11n-HT20	MCS0	149	5745	22.14	21.65	20.64	21.27	27.48	≤ 30.00	Pass
11n-HT20	MCS0	157	5785	23.11	22.68	22.06	22.40	28.60	≤ 30.00	Pass
11n-HT20	MCS0	165	5825	21.89	21.09	21.16	21.36	27.41	≤ 30.00	Pass
11n-HT40	MCS0	38	5190	15.70	15.53	14.96	15.04	21.34	≤ 30.00	Pass
11n-HT40	MCS0	46	5230	18.60	18.48	17.66	17.78	24.17	≤ 30.00	Pass
11n-HT40	MCS0	151	5755	21.93	21.17	20.51	20.83	27.16	≤ 30.00	Pass
11n-HT40	MCS0	159	5795	22.28	21.57	21.28	21.56	27.71	≤ 30.00	Pass
11ac-VHT20	MCS0	36	5180	16.61	16.53	15.94	16.04	22.31	≤ 30.00	Pass
11ac-VHT20	MCS0	44	5220	16.68	16.43	16.14	15.34	22.20	≤ 30.00	Pass
11ac-VHT20	MCS0	48	5240	16.39	16.27	15.67	15.78	22.06	≤ 30.00	Pass
11ac-VHT20	MCS0	149	5745	22.14	21.51	20.32	20.84	27.28	≤ 30.00	Pass
11ac-VHT20	MCS0	157	5785	23.31	22.66	22.11	22.53	28.69	≤ 30.00	Pass
11ac-VHT20	MCS0	165	5825	22.13	21.14	21.35	21.62	27.60	≤ 30.00	Pass
11ac-VHT40	MCS0	38	5190	16.12	15.77	15.46	15.39	21.72	≤ 30.00	Pass
11ac-VHT40	MCS0	46	5230	18.92	18.37	17.88	18.04	24.34	≤ 30.00	Pass
11ac-VHT40	MCS0	151	5755	22.28	21.36	20.58	20.96	27.36	≤ 30.00	Pass
11ac-VHT40	MCS0	159	5795	22.28	21.53	21.26	21.63	27.71	≤ 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
11ac-VHT80	MCS0	42	5210	14.54	14.21	13.69	12.90	19.90	≤ 30.00	Pass
11ac-VHT80	MCS0	155	5775	20.78	19.89	19.68	19.61	26.04	≤ 30.00	Pass
11ac-VHT80+80	MCS0	42	5210	15.73	14.31	--	--	18.09	≤ 30.00	Pass
11ac-VHT80+80	MCS0	42	5210	--	--	14.32	14.67	17.51	≤ 30.00	Pass
11ac-VHT80+80	MCS0	155	5775	22.04	21.27	--	--	24.68	≤ 30.00	Pass
11ac-VHT80+80	MCS0	155	5775	--	--	22.15	21.59	24.89	≤ 30.00	Pass

Note 1: The 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:

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

Note 3: Average Power Limit (dBm) = 30.00dBm.

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	36	5180	17.61	17.02	15.77	16.03	22.69	≤ 23.98	Pass
11n-HT20	MCS0	44	5220	16.05	15.83	15.22	15.21	21.61	≤ 23.98	Pass
11n-HT20	MCS0	48	5240	17.13	16.92	15.62	15.57	22.39	≤ 23.98	Pass
11n-HT20	MCS0	149	5745	18.61	17.85	16.83	17.35	23.73	≤ 23.98	Pass
11n-HT20	MCS0	157	5785	18.29	17.62	17.60	17.44	23.77	≤ 23.98	Pass
11n-HT20	MCS0	165	5825	17.86	17.31	17.15	17.56	23.50	≤ 23.98	Pass
11n-HT40	MCS0	38	5190	17.88	17.71	17.22	17.21	23.54	≤ 23.98	Pass
11n-HT40	MCS0	46	5230	17.83	17.46	16.84	17.16	23.36	≤ 23.98	Pass
11n-HT40	MCS0	151	5755	18.47	17.87	16.63	17.36	23.66	≤ 23.98	Pass
11n-HT40	MCS0	159	5795	18.34	17.55	17.25	17.42	23.68	≤ 23.98	Pass
11ac-VHT20	MCS0	36	5180	16.61	16.53	15.94	16.04	22.31	≤ 23.98	Pass
11ac-VHT20	MCS0	44	5220	16.68	16.43	16.14	15.34	22.20	≤ 23.98	Pass
11ac-VHT20	MCS0	48	5240	16.39	16.27	15.67	14.78	21.84	≤ 23.98	Pass
11ac-VHT20	MCS0	149	5745	18.66	17.78	16.76	17.35	23.71	≤ 23.98	Pass
11ac-VHT20	MCS0	157	5785	18.11	17.46	16.84	17.56	23.54	≤ 23.98	Pass
11ac-VHT20	MCS0	165	5825	18.14	17.51	17.79	17.85	23.85	≤ 23.98	Pass
11ac-VHT40	MCS0	38	5190	18.06	17.72	17.45	17.26	23.65	≤ 23.98	Pass
11ac-VHT40	MCS0	46	5230	18.49	17.74	17.69	17.16	23.82	≤ 23.98	Pass
11ac-VHT40	MCS0	151	5755	18.39	17.61	16.91	17.08	23.56	≤ 23.98	Pass
11ac-VHT40	MCS0	159	5795	18.24	17.14	17.20	17.13	23.47	≤ 23.98	Pass
11ac-VHT80	MCS0	42	5210	18.03	17.83	17.50	17.69	23.79	≤ 23.98	Pass
11ac-VHT80	MCS0	155	5775	18.23	17.39	16.84	17.01	23.42	≤ 23.98	Pass
11ac-VHT80+80	MCS0	42	5210	15.84	14.93	--	--	18.42	≤ 26.99	Pass
11ac-VHT80+80	MCS0	42	5210	--	--	14.78	14.82	17.81	≤ 26.99	Pass
11ac-VHT80+80	MCS0	155	5775	22.06	21.24	--	--	24.68	≤ 26.99	Pass
11ac-VHT80+80	MCS0	155	5775	--	--	22.13	21.62	24.89	≤ 26.99	Pass

Note 1: The 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:

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

Note 3: Average Power Limit (dBm) = 30dBm - (6.00dBi + 6.02dBi - 6.00dBi) =23.98dBm.

For 802.11ac-VHT80+80: Average Power Limit (dBm) = 30dBm - (6.00dBi + 3.01dBi - 6.00dBi) = 26.99dBm.

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 (AP-ANT-48)	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	17.41	17.29	16.74	16.65	23.06	≤ 27.50	Pass
11a	6Mbps	44	5220	17.55	17.28	16.76	16.70	23.11	≤ 27.50	Pass
11a	6Mbps	48	5240	17.16	16.96	16.28	16.31	22.72	≤ 27.50	Pass
11a	6Mbps	149	5745	21.65	21.47	20.63	21.01	27.23	≤ 27.50	Pass
11a	6Mbps	157	5785	21.37	21.15	20.61	21.15	27.10	≤ 27.50	Pass
11a	6Mbps	165	5825	21.38	20.85	20.73	21.22	27.07	≤ 27.50	Pass
11n-HT20	MCS0	36	5180	17.42	17.16	16.92	16.81	23.10	≤ 27.50	Pass
11n-HT20	MCS0	44	5220	17.67	17.25	16.73	16.59	23.10	≤ 27.50	Pass
11n-HT20	MCS0	48	5240	17.76	17.38	16.77	16.50	23.15	≤ 27.50	Pass
11n-HT20	MCS0	149	5745	21.64	21.04	20.64	20.87	27.08	≤ 27.50	Pass
11n-HT20	MCS0	157	5785	21.61	21.18	21.06	20.90	27.22	≤ 27.50	Pass
11n-HT20	MCS0	165	5825	21.35	21.09	21.16	20.89	27.15	≤ 27.50	Pass
11n-HT40	MCS0	38	5190	17.60	17.63	17.18	17.29	23.45	≤ 27.50	Pass
11n-HT40	MCS0	46	5230	20.35	19.97	19.26	19.44	25.80	≤ 27.50	Pass
11n-HT40	MCS0	151	5755	21.67	21.17	20.51	20.83	27.09	≤ 27.50	Pass
11n-HT40	MCS0	159	5795	21.78	21.07	20.78	21.06	27.21	≤ 27.50	Pass
11ac-VHT20	MCS0	36	5180	17.39	16.90	18.25	18.29	23.77	≤ 27.50	Pass
11ac-VHT20	MCS0	44	5220	17.62	17.24	16.65	16.62	23.07	≤ 27.50	Pass
11ac-VHT20	MCS0	48	5240	17.14	16.82	16.24	16.09	22.61	≤ 27.50	Pass
11ac-VHT20	MCS0	149	5745	21.54	21.01	20.32	20.76	26.95	≤ 27.50	Pass
11ac-VHT20	MCS0	157	5785	21.56	21.16	20.67	21.03	27.14	≤ 27.50	Pass
11ac-VHT20	MCS0	165	5825	21.63	20.87	20.89	21.02	27.13	≤ 27.50	Pass
11ac-VHT40	MCS0	38	5190	17.62	17.54	16.98	17.06	23.33	≤ 27.50	Pass
11ac-VHT40	MCS0	46	5230	19.85	19.44	18.77	18.91	25.28	≤ 27.50	Pass
11ac-VHT40	MCS0	151	5755	22.28	21.36	20.58	20.96	27.36	≤ 27.50	Pass
11ac-VHT40	MCS0	159	5795	21.78	21.03	20.76	21.13	27.21	≤ 27.50	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
11ac-VHT80	MCS0	42	5210	15.62	15.61	15.02	15.14	21.38	≤ 27.50	Pass
11ac-VHT80	MCS0	155	5775	22.29	21.19	20.81	21.04	27.39	≤ 27.50	Pass
11ac-VHT80+80	MCS0	42	5210	14.37	14.06	--	--	17.23	≤ 27.50	Pass
11ac-VHT80+80	MCS0	42	5210	--	--	14.90	13.77	17.38	≤ 27.50	Pass
11ac-VHT80+80	MCS0	155	5775	22.04	21.23	--	--	24.66	≤ 27.50	Pass
11ac-VHT80+80	MCS0	155	5775	--	--	22.07	21.52	24.81	≤ 27.50	Pass

Note 1: The 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:

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

Note 3: Average Power Limit (dBm) = 30dBm - (8.50dBi - 6.00dBi) =27.50dBm.

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	36	5180	17.42	17.16	16.92	16.81	23.10	≤ 24.49	Pass
11n-HT20	MCS0	44	5220	17.67	17.25	16.73	16.59	23.10	≤ 24.49	Pass
11n-HT20	MCS0	48	5240	17.76	17.38	16.77	16.50	23.15	≤ 24.49	Pass
11n-HT20	MCS0	149	5745	19.06	18.27	17.25	17.58	24.12	≤ 24.49	Pass
11n-HT20	MCS0	157	5785	18.61	18.00	17.47	17.79	24.01	≤ 24.49	Pass
11n-HT20	MCS0	165	5825	18.33	17.65	17.82	17.98	23.97	≤ 24.49	Pass
11n-HT40	MCS0	38	5190	18.52	18.39	17.85	17.82	24.18	≤ 24.49	Pass
11n-HT40	MCS0	46	5230	18.31	18.00	17.53	17.65	23.90	≤ 24.49	Pass
11n-HT40	MCS0	151	5755	19.12	18.22	17.40	17.51	24.14	≤ 24.49	Pass
11n-HT40	MCS0	159	5795	18.82	17.91	17.79	17.96	24.16	≤ 24.49	Pass
11ac-VHT20	MCS0	36	5180	17.39	16.90	18.25	18.29	23.77	≤ 24.49	Pass
11ac-VHT20	MCS0	44	5220	17.62	17.24	16.65	16.62	23.07	≤ 24.49	Pass
11ac-VHT20	MCS0	48	5240	17.14	16.82	16.24	16.09	22.61	≤ 24.49	Pass
11ac-VHT20	MCS0	149	5745	19.03	18.24	17.35	17.75	24.16	≤ 24.49	Pass
11ac-VHT20	MCS0	157	5785	18.68	17.95	17.48	17.88	24.04	≤ 24.49	Pass
11ac-VHT20	MCS0	165	5825	18.36	17.62	17.52	18.01	23.91	≤ 24.49	Pass
11ac-VHT40	MCS0	38	5190	18.62	18.19	17.81	17.63	24.10	≤ 24.49	Pass
11ac-VHT40	MCS0	46	5230	18.86	18.45	17.94	17.93	24.33	≤ 24.49	Pass
11ac-VHT40	MCS0	151	5755	19.02	18.24	17.31	17.54	24.10	≤ 24.49	Pass
11ac-VHT40	MCS0	159	5795	18.71	17.81	17.38	17.74	23.96	≤ 24.49	Pass
11ac-VHT80	MCS0	42	5210	15.37	15.51	15.41	15.42	21.45	≤ 24.49	Pass
11ac-VHT80	MCS0	155	5775	18.95	17.91	17.63	17.64	24.09	≤ 24.49	Pass
11ac-VHT80+80	MCS0	42	5210	14.37	14.06	--	--	17.23	≤ 27.50	Pass
11ac-VHT80+80	MCS0	42	5210	--	--	14.90	13.77	17.38	≤ 27.50	Pass
11ac-VHT80+80	MCS0	155	5775	22.04	21.23	--	--	24.66	≤ 27.50	Pass
11ac-VHT80+80	MCS0	155	5775	--	--	22.07	21.52	24.81	≤ 27.50	Pass

Note 1: The 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:

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

Note 3: Average Power Limit (dBm) = 30dBm - (8.50dBi + 3.01dBi - 6.00dBi) =24.49dBm.

For 802.11ac-VHT80+80: Average Power Limit (dBm) = 30dBm - (8.50dBi - 6.00dBi) = 27.50dBm.

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.

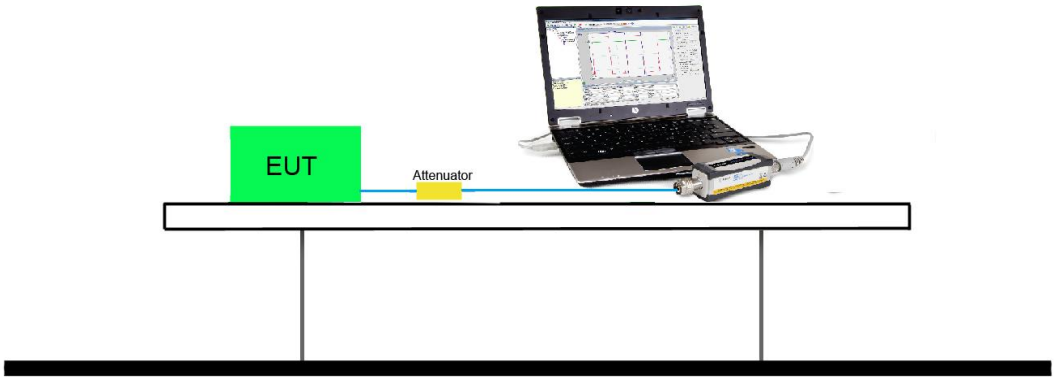
7.5.2.Test Procedure Used

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

A TPC mechanism is not required for systems operating in frequency band 5150 ~ 5250 MHz & 5725 ~ 5850 MHz.

7.6. Power Spectral Density Measurement

7.6.1.TestLimit

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 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 theantenna exceeds 6dBi.

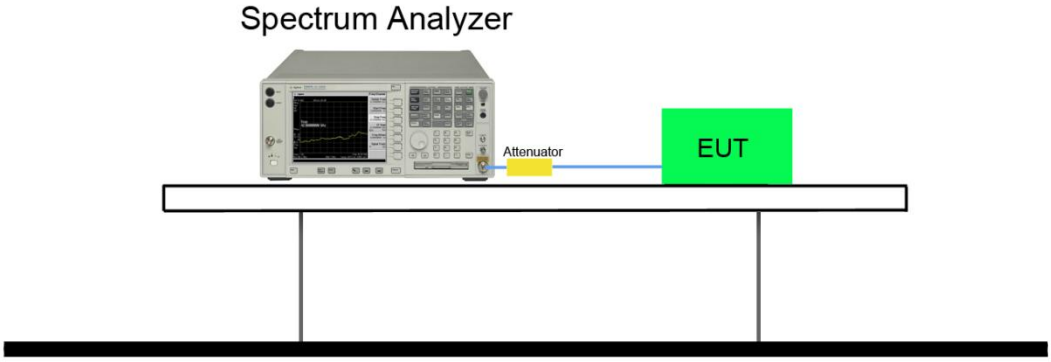
7.6.2.Test Procedure Used

KDB 789033 D02v02r01 - SectionF

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	2017/08/27
Test Item	Power Spectral Density (UNII-Band 1)		
Antenna Type	Omni Antenna (AP-ANT-19)		

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	4.59	4.81	3.83	4.27	97.18	10.54	≤ 10.98	Pass
11a	6Mbps	44	5220	5.08	4.61	4.18	4.06	97.18	10.65	≤ 10.98	Pass
11a	6Mbps	48	5240	4.85	4.63	3.54	4.13	97.18	10.46	≤ 10.98	Pass
11n-HT20	MCS0	36	5180	5.02	4.87	3.92	4.22	98.62	10.55	≤ 10.98	Pass
11n-HT20	MCS0	44	5220	4.80	4.74	4.08	4.09	98.62	10.46	≤ 10.98	Pass
11n-HT20	MCS0	48	5240	5.44	4.96	3.82	3.94	98.62	10.61	≤ 10.98	Pass
11n-HT40	MCS0	38	5190	2.36	2.41	2.08	1.75	96.02	8.35	≤ 10.98	Pass
11n-HT40	MCS0	46	5230	4.84	4.66	3.89	3.96	96.02	10.55	≤ 10.98	Pass
11ac-VHT20	MCS0	36	5180	4.85	4.59	4.11	4.19	98.23	10.47	≤ 10.98	Pass
11ac-VHT20	MCS0	44	5220	5.25	5.16	4.08	4.43	98.23	10.78	≤ 10.98	Pass
11ac-VHT20	MCS0	48	5240	5.26	5.12	3.54	4.16	98.23	10.60	≤ 10.98	Pass
11ac-VHT40	MCS0	38	5190	2.10	2.17	1.56	1.66	96.12	8.07	≤ 10.98	Pass
11ac-VHT40	MCS0	46	5230	4.74	4.75	3.60	4.19	96.12	10.54	≤ 10.98	Pass
11ac-VHT80	MCS0	42	5210	-2.55	-2.35	-3.25	-3.12	93.75	3.50	≤ 10.98	Pass
11ac-VHT80+80	MCS0	42	5210	-2.46	-2.38	--	--	93.75	0.87	≤ 13.99	Pass
11ac-VHT80+80	MCS0	42	5210	--	--	-2.69	-2.48	93.75	0.71	≤ 13.99	Pass

Note 1: When EUT duty cycle ≥ 98%, the 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%, the 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 802.11ac-VHT80+80:

Ant 0 & Ant 1: the 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: the 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).

Note 4: PSD Limit (dBm/MHz) = 17dBm/MHz - (6.00dBi + 6.02dBi - 6.00dBi) = 10.98dBm/MHz.

For 802.11ac-VHT80+80: PSD Limit (dBm/MHz) = 17dBm/MHz - (6.00dBi + 3.01dBi - 6.00dBi) = 13.99dBm/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	36	5180	5.02	4.87	3.92	4.22	98.62	10.55	≤ 10.98	Pass
11n-HT20	MCS0	44	5220	4.80	4.74	4.08	4.09	98.62	10.46	≤ 10.98	Pass
11n-HT20	MCS0	48	5240	5.44	4.96	3.82	3.94	98.62	10.61	≤ 10.98	Pass
11n-HT40	MCS0	38	5190	3.94	3.68	3.44	3.32	96.02	9.80	≤ 10.98	Pass
11n-HT40	MCS0	46	5230	3.63	3.72	2.71	2.53	96.02	9.38	≤ 10.98	Pass
11ac-VHT20	MCS0	36	5180	4.85	4.59	4.11	4.19	98.23	10.47	≤ 10.98	Pass
11ac-VHT20	MCS0	44	5220	5.25	5.16	4.08	4.43	98.23	10.78	≤ 10.98	Pass
11ac-VHT20	MCS0	48	5240	5.26	5.12	3.54	4.16	98.23	10.60	≤ 10.98	Pass
11ac-VHT40	MCS0	38	5190	3.72	3.83	3.01	3.20	96.12	9.65	≤ 10.98	Pass
11ac-VHT40	MCS0	46	5230	4.29	3.91	3.35	3.15	96.12	9.89	≤ 10.98	Pass
11ac-VHT80	MCS0	42	5210	0.62	0.29	-0.23	-0.20	93.75	6.44	≤ 10.98	Pass
11ac-VHT80+80	MCS0	42	5210	-1.36	-0.97	--	--	93.75	2.13	≤ 13.99	Pass
11ac-VHT80+80	MCS0	42	5210	--	--	-0.82	-0.69	93.75	2.54	≤ 13.99	Pass

Note 1: When EUT duty cycle ≥ 98%, the 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%, the 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 802.11ac-VHT80+80:

Ant 0 & Ant 1: the 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: the 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).

Note 4: PSD Limit (dBm/MHz) = 17dBm/MHz - (12.02dBi- 6.00dBi) = 10.98dBm/MHz.

For 802.11ac-VHT80+80: PSD Limit (dBm/MHz) = 17dBm/MHz - (6.00dBi + 3.01dBi - 6.00dBi) = 13.99dBm/MHz.

Product	ACCESS POINT	Temperature	22°C
Test Engineer	Kevin Ker	Relative Humidity	54%
Test Site	SR2	Test Date	2017/08/27
Test Item	Power Spectral Density (UNII-Band 3)		
Antenna Type	Omni Antenna (AP-ANT-19)		

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	2.11	2.39	1.28	1.99	97.18	6.99	15.10	≤ 23.98	Pass
11a	6Mbps	157	5785	3.99	3.38	3.07	2.81	97.18	6.99	16.47	≤ 23.98	Pass
11a	6Mbps	165	5825	2.29	1.96	1.63	2.70	97.18	6.99	15.30	≤ 23.98	Pass
11n-HT20	MCS0	149	5745	2.69	2.20	1.58	1.36	98.62	6.99	15.00	≤ 23.98	Pass
11n-HT20	MCS0	157	5785	2.93	2.84	1.58	2.53	98.62	6.99	15.51	≤ 23.98	Pass
11n-HT20	MCS0	165	5825	1.69	1.43	1.32	1.80	98.62	6.99	14.57	≤ 23.98	Pass
11n-HT40	MCS0	151	5755	-0.98	-0.71	-2.52	-1.40	96.02	6.99	11.84	≤ 23.98	Pass
11n-HT40	MCS0	159	5795	-0.82	-1.10	-1.90	-0.46	96.02	6.99	12.15	≤ 23.98	Pass
11ac-VHT20	MCS0	149	5745	2.05	2.40	0.84	1.18	98.23	6.99	14.67	≤ 23.98	Pass
11ac-VHT20	MCS0	157	5785	3.34	2.93	2.14	2.48	98.23	6.99	15.76	≤ 23.98	Pass
11ac-VHT20	MCS0	165	5825	1.58	1.32	0.88	1.76	98.23	6.99	14.41	≤ 23.98	Pass
11ac-VHT40	MCS0	151	5755	-1.12	-1.17	-2.56	-1.48	96.12	6.99	11.64	≤ 23.98	Pass
11ac-VHT40	MCS0	159	5795	-1.01	-1.20	-1.71	-0.92	96.12	6.99	11.98	≤ 23.98	Pass
11ac-VHT80	MCS0	155	5775	-6.21	-6.60	-7.69	-6.76	93.75	6.99	6.51	≤ 23.98	Pass
11ac-VHT80+80	MCS0	155	5775	-5.66	-5.56	--	--	93.75	6.99	4.67	≤ 26.99	Pass
11ac-VHT80+80	MCS0	155	5775	--	--	-4.82	-5.90	93.75	6.99	4.95	≤ 26.99	Pass

Note 1: When EUT duty cycle ≥ 98%, the 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%, the 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: the 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: the 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 (dBm/500kHz) = 30dBm/500kHz - (6.00dBi + 6.02dBi - 6dBi) = 23.98dBm/500kHz.

For 802.11ac-VHT80+80: PSD Limit (dBm/500kHz) = 30dBm/500kHz - (6.00dBi + 3.01dBi - 6dBi) = 26.99dBm/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)												
11n-HT20	MCS0	149	5745	-1.27	-1.39	-2.86	-2.46	98.62	6.99	11.07	≤ 23.98	Pass
11n-HT20	MCS0	157	5785	-1.59	-1.92	-2.90	-2.05	98.62	6.99	10.92	≤ 23.98	Pass
11n-HT20	MCS0	165	5825	-2.15	-2.05	-2.88	-2.41	98.62	6.99	10.65	≤ 23.98	Pass
11n-HT40	MCS0	151	5755	-4.10	-4.74	-6.43	-5.36	96.02	6.99	8.11	≤ 23.98	Pass
11n-HT40	MCS0	159	5795	-4.83	-5.37	-6.13	-5.08	96.02	6.99	7.86	≤ 23.98	Pass
11ac-VHT20	MCS0	149	5745	-1.81	-2.03	-3.77	-3.25	98.23	6.99	10.37	≤ 23.98	Pass
11ac-VHT20	MCS0	157	5785	-2.09	-2.53	-3.03	-2.89	98.23	6.99	10.39	≤ 23.98	Pass
11ac-VHT20	MCS0	165	5825	-2.29	-2.47	-2.84	-2.22	98.23	6.99	10.56	≤ 23.98	Pass
11ac-VHT40	MCS0	151	5755	-4.57	-4.99	-6.25	-5.33	96.12	6.99	7.94	≤ 23.98	Pass
11ac-VHT40	MCS0	159	5795	-5.45	-5.47	-6.26	-5.55	96.12	6.99	7.51	≤ 23.98	Pass
11ac-VHT80	MCS0	155	5775	-8.39	-8.94	-9.52	-9.25	93.75	6.99	4.29	≤ 26.99	Pass
11ac-VHT80+80	MCS0	155	5775	-5.60	-6.13	--	--	93.75	6.99	4.42	≤ 26.99	Pass
11ac-VHT80+80	MCS0	155	5775	--	--	-5.61	-5.97	93.75	6.99	4.49	≤ 26.99	Pass

Note 1: When EUT duty cycle ≥ 98%, the 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%, the 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: the 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: the 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 (dBm/500kHz) = 30dBm/500kHz - (6.00dBi + 6.02dBi - 6dBi) = 23.98dBm/500kHz.

For 802.11ac-VHT80+80: PSD Limit (dBm/500kHz) = 30dBm/500kHz - (6.00dBi + 3.01dBi - 6dBi) = 26.99dBm/500kHz.

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)		
Antenna Type	Directional Antenna (AP-ANT-48)		

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	5.68	5.64	4.56	4.95	97.18	11.38	≤ 11.49	Pass
11a	6Mbps	44	5220	5.64	5.31	4.51	4.98	97.18	11.27	≤ 11.49	Pass
11a	6Mbps	48	5240	5.29	5.39	4.19	3.91	97.18	10.89	≤ 11.49	Pass
11n-HT20	MCS0	36	5180	5.52	5.54	4.68	3.98	98.62	11.00	≤ 11.49	Pass
11n-HT20	MCS0	44	5220	5.79	5.47	4.64	4.41	98.62	11.14	≤ 11.49	Pass
11n-HT20	MCS0	48	5240	5.58	5.53	5.04	4.78	98.62	11.27	≤ 11.49	Pass
11n-HT40	MCS0	38	5190	3.89	3.86	3.07	3.23	96.02	9.72	≤ 11.49	Pass
11n-HT40	MCS0	46	5230	5.71	5.35	3.65	3.42	96.02	10.85	≤ 11.49	Pass
11ac-VHT20	MCS0	36	5180	5.58	5.35	4.57	4.40	98.23	11.02	≤ 11.49	Pass
11ac-VHT20	MCS0	44	5220	5.65	5.50	4.17	4.38	98.23	10.99	≤ 11.49	Pass
11ac-VHT20	MCS0	48	5240	5.42	5.61	5.16	3.86	98.23	11.08	≤ 11.49	Pass
11ac-VHT40	MCS0	38	5190	3.91	3.88	2.98	3.22	96.12	9.71	≤ 11.49	Pass
11ac-VHT40	MCS0	46	5230	5.35	5.55	4.44	5.04	96.12	11.31	≤ 11.49	Pass
11ac-VHT80	MCS0	42	5210	-1.65	-1.64	-2.72	-2.47	93.75	4.21	≤ 11.49	Pass
11ac-VHT80+80	MCS0	42	5210	-3.29	-3.70	--	--	93.75	-0.20	≤ 14.50	Pass
11ac-VHT80+80	MCS0	42	5210	--	--	-3.32	-4.35	93.75	-0.51	≤ 14.50	Pass

Note 1: When EUT duty cycle ≥ 98%, the 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%, the 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 802.11ac-VHT80+80:

Ant 0 & Ant 1: the 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: the 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).

Note 4: PSD Limit (dBm/MHz) = 17dBm/MHz - (8.50dBi + 3.01dBi- 6.00dBi) = 11.49dBm/MHz.

For 802.11ac-VHT80+80: PSD Limit (dBm/MHz) = 17dBm/MHz - (8.50dBi - 6.00dBi) = 14.50dBm/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	36	5180	5.52	5.54	4.68	3.98	98.62	11.00	≤ 11.49	Pass
11n-HT20	MCS0	44	5220	5.79	5.47	4.64	4.41	98.62	11.14	≤ 11.49	Pass
11n-HT20	MCS0	48	5240	5.58	5.53	5.04	4.78	98.62	11.27	≤ 11.49	Pass
11n-HT40	MCS0	38	5190	4.75	4.69	4.02	4.25	96.02	10.64	≤ 11.49	Pass
11n-HT40	MCS0	46	5230	4.44	4.21	3.74	3.63	96.02	10.21	≤ 11.49	Pass
11ac-VHT20	MCS0	36	5180	5.58	5.35	4.57	4.40	98.23	11.02	≤ 11.49	Pass
11ac-VHT20	MCS0	44	5220	5.65	5.50	4.17	4.38	98.23	10.99	≤ 11.49	Pass
11ac-VHT20	MCS0	48	5240	5.42	5.61	5.16	3.86	98.23	11.08	≤ 11.49	Pass
11ac-VHT40	MCS0	38	5190	4.45	4.57	4.26	3.96	96.12	10.51	≤ 11.49	Pass
11ac-VHT40	MCS0	46	5230	4.99	4.90	4.27	3.99	96.12	10.75	≤ 11.49	Pass
11ac-VHT80	MCS0	42	5210	-1.76	-1.57	-1.76	-1.16	93.75	4.75	≤ 11.49	Pass
11ac-VHT80+80	MCS0	42	5210	-3.29	-3.70	--	--	93.75	-0.20	≤ 14.50	Pass
11ac-VHT80+80	MCS0	42	5210	--	--	-3.32	-4.35	93.75	-0.51	≤ 14.50	Pass

Note 1: When EUT duty cycle ≥ 98%, the 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%, the 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 802.11ac-VHT80+80:

Ant 0 & Ant 1: the 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: the 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).

Note 4: PSD Limit (dBm/MHz) = 17dBm/MHz - (8.50dBi + 3.01dBi- 6.00dBi) = 11.49dBm/MHz.

For 802.11ac-VHT80+80: PSD Limit (dBm/MHz) = 17dBm/MHz - (8.50dBi - 6.00dBi) = 14.50dBm/MHz.

Product	ACCESS POINT	Temperature	22°C
Test Engineer	Kevin Ker	Relative Humidity	54%
Test Site	SR2	Test Date	2017/08/27
Test Item	Power Spectral Density (UNII-Band 3)		
Antenna Type	Directional Antenna (AP-ANT-48)		

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	1.82	1.63	0.10	1.20	97.18	6.99	14.37	≤ 24.49	Pass
11a	6Mbps	157	5785	1.88	1.18	0.64	1.06	97.18	6.99	14.35	≤ 24.49	Pass
11a	6Mbps	165	5825	1.22	0.78	0.48	1.29	97.18	6.99	14.09	≤ 24.49	Pass
11n-HT20	MCS0	149	5745	1.32	1.00	-0.35	0.23	98.62	6.99	13.61	≤ 24.49	Pass
11n-HT20	MCS0	157	5785	1.70	1.49	0.40	0.72	98.62	6.99	14.12	≤ 24.49	Pass
11n-HT20	MCS0	165	5825	1.07	0.56	0.18	1.08	98.62	6.99	13.75	≤ 24.49	Pass
11n-HT40	MCS0	151	5755	-0.87	-1.02	-2.45	-1.51	96.02	6.99	11.77	≤ 24.49	Pass
11n-HT40	MCS0	159	5795	-0.53	-1.20	-1.85	-1.26	96.02	6.99	12.00	≤ 24.49	Pass
11ac-VHT20	MCS0	149	5745	2.05	1.83	0.15	0.70	98.23	6.99	14.26	≤ 24.49	Pass
11ac-VHT20	MCS0	157	5785	1.59	1.16	0.62	0.68	98.23	6.99	14.04	≤ 24.49	Pass
11ac-VHT20	MCS0	165	5825	1.13	0.59	0.03	0.73	98.23	6.99	13.65	≤ 24.49	Pass
11ac-VHT40	MCS0	151	5755	-0.36	-0.77	-2.18	-1.34	96.12	6.99	12.07	≤ 24.49	Pass
11ac-VHT40	MCS0	159	5795	-1.00	-1.14	-2.10	-1.28	96.12	6.99	11.82	≤ 24.49	Pass
11ac-VHT80	MCS0	155	5775	-3.78	-4.71	-5.57	-4.84	93.75	6.99	8.61	≤ 24.49	Pass
11ac-VHT80+80	MCS0	155	5775	-5.42	-6.12	--	--	93.75	6.99	4.52	≤ 27.50	Pass
11ac-VHT80+80	MCS0	155	5775	--	--	-4.93	-5.70	93.75	6.99	4.98	≤ 27.50	Pass

Note 1: When EUT duty cycle ≥ 98%, the 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) + Constant Factor.

Note 2: When EUT duty cycle < 98%, the 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) + Constant Factor + 10*log(1/Duty Cycle).

Note 3: For 802.11ac-VHT80+80:

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

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

Note 4: PSD Limit (dBm/500kHz) = 30dBm/500kHz - (11.51dBi - 6dBi) = 24.49dBm/500kHz.

For 802.11ac-VHT80+80: PSD Limit (dBm/500kHz) = 30dBm/500kHz - (8.50dBi - 6dBi) = 27.50dBm/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)												
11n-HT20	MCS0	149	5745	-1.08	-1.64	-2.74	-1.98	98.62	6.99	11.19	≤ 24.49	Pass
11n-HT20	MCS0	157	5785	-1.41	-1.57	-2.40	-1.99	98.62	6.99	11.18	≤ 24.49	Pass
11n-HT20	MCS0	165	5825	-1.84	-2.21	-2.11	-1.92	98.62	6.99	10.99	≤ 24.49	Pass
11n-HT40	MCS0	151	5755	-3.59	-3.76	-5.21	-4.53	96.02	6.99	8.96	≤ 24.49	Pass
11n-HT40	MCS0	159	5795	-3.59	-4.52	-5.05	-4.42	96.02	6.99	8.82	≤ 24.49	Pass
11ac-VHT20	MCS0	149	5745	-0.68	-1.48	-2.64	-2.19	98.23	6.99	11.33	≤ 24.49	Pass
11ac-VHT20	MCS0	157	5785	-1.29	-1.69	-2.66	-1.73	98.23	6.99	11.20	≤ 24.49	Pass
11ac-VHT20	MCS0	165	5825	-1.75	-1.87	-2.72	-2.02	98.23	6.99	10.94	≤ 24.49	Pass
11ac-VHT40	MCS0	151	5755	-3.80	-3.85	-5.37	-4.86	96.12	6.99	8.76	≤ 24.49	Pass
11ac-VHT40	MCS0	159	5795	-4.27	-4.58	-5.20	-4.56	96.12	6.99	8.54	≤ 24.49	Pass
11ac-VHT80	MCS0	155	5775	-7.28	-7.31	-8.73	-7.81	93.75	6.99	5.55	≤ 24.49	Pass
11ac-VHT80+80	MCS0	155	5775	-5.42	-6.12	--	--	93.75	6.99	4.52	≤ 27.50	Pass
11ac-VHT80+80	MCS0	155	5775	--	--	-4.93	-5.70	93.75	6.99	4.98	≤ 27.50	Pass

Note 1: When EUT duty cycle ≥ 98%, the 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%, the 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: the 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: the 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).

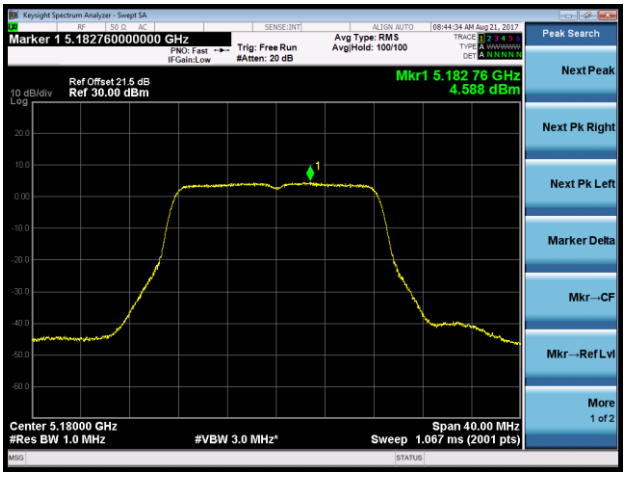
Note 4: PSD Limit (dBm/500kHz) = 30dBm/500kHz - (8.50dBi + 3.01dBi - 6dBi) = 24.49dBm/500kHz.

For 802.11ac-VHT80+80: PSD Limit (dBm/500kHz) = 30dBm/500kHz - (8.50dBi - 6dBi) = 27.50dBm/500kHz.

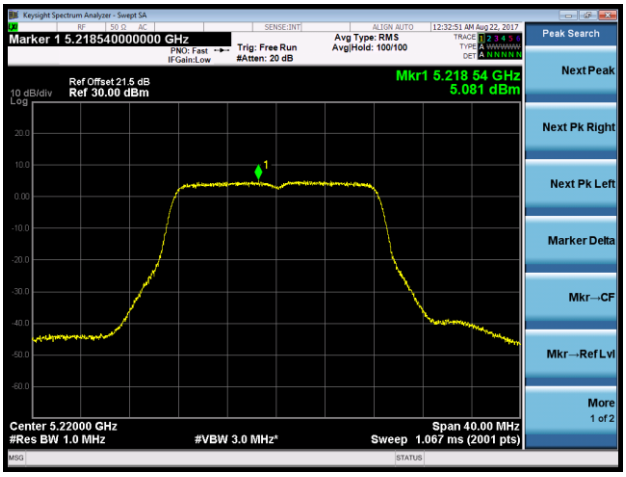
Product	ACCESS POINT	Temperature	22°C
Test Engineer	Kevin Ker	Test Date	2017/08/21
Antenna Type	Omni Antenna (AP-ANT-19)		

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

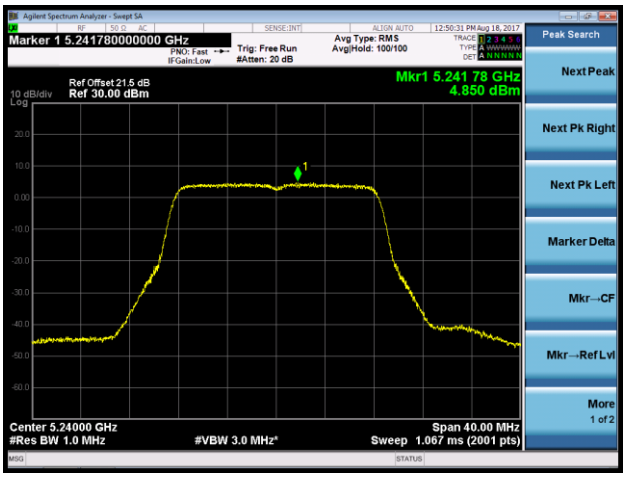
Channel 36 (5180MHz)



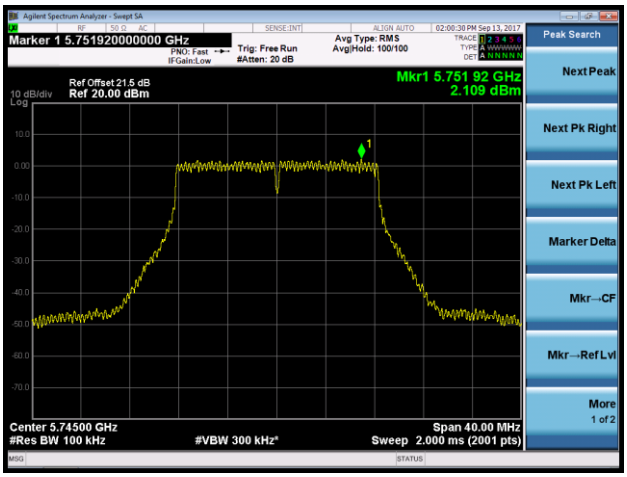
Channel 44 (5220MHz)



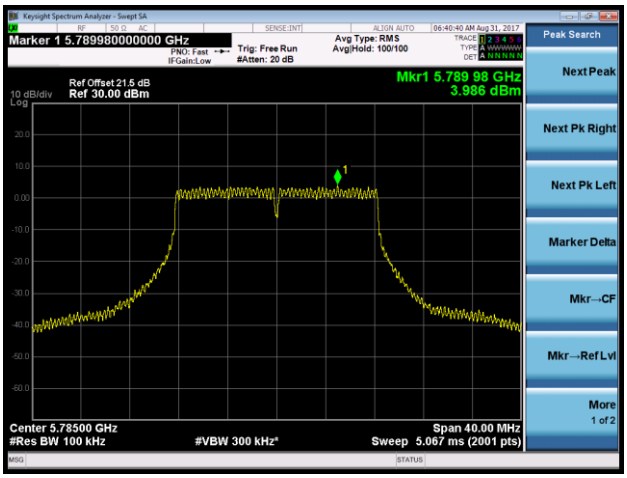
Channel 48 (5240MHz)



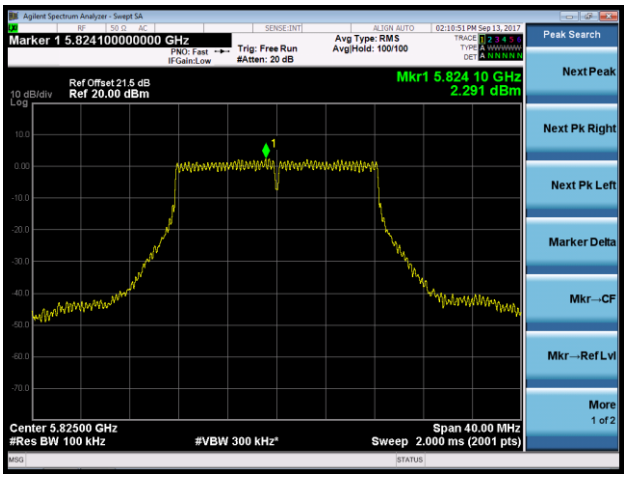
Channel 149 (5745MHz)



Channel 157 (5785MHz)

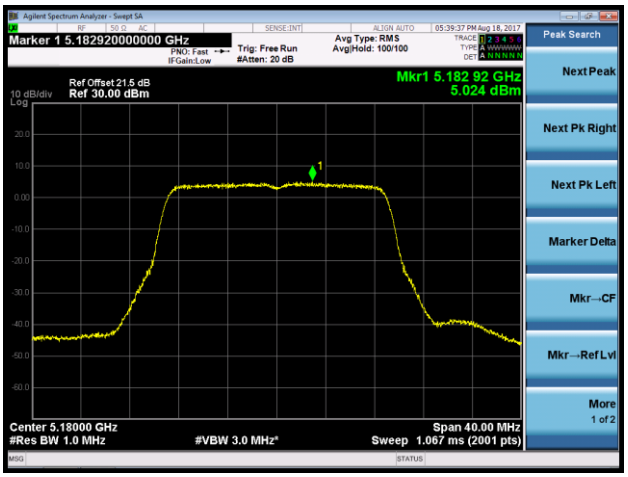


Channel 165 (5825MHz)

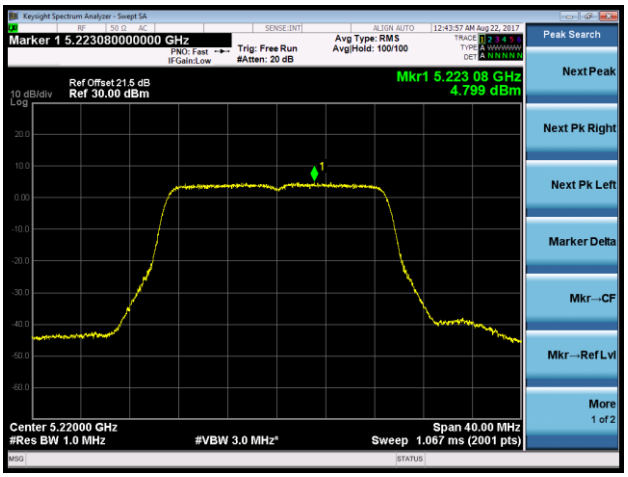


802.11n-HT20 Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3 (CDD Mode)

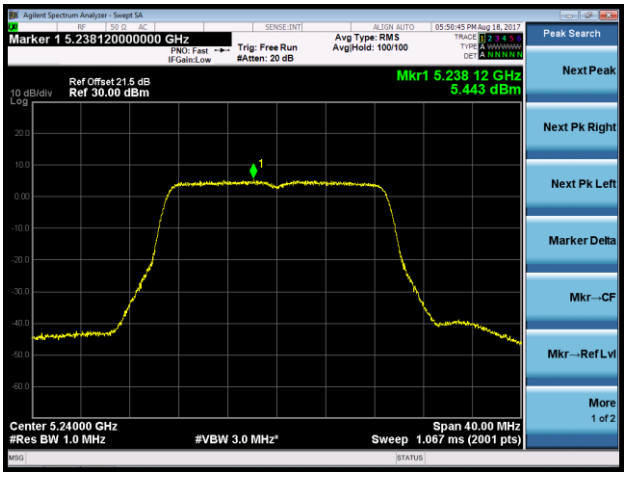
Channel 36 (5180MHz)



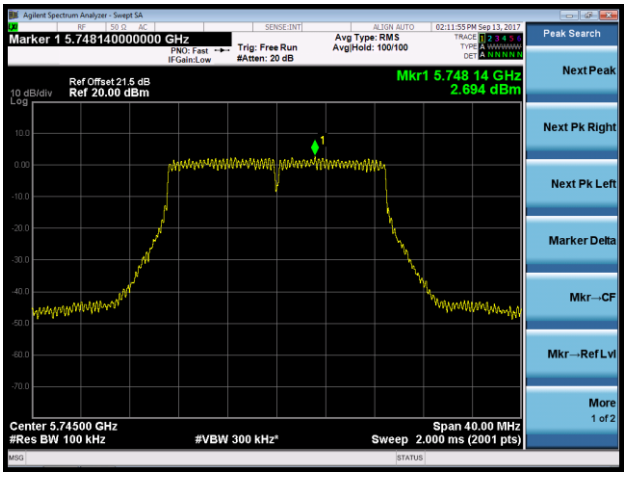
Channel 44 (5220MHz)



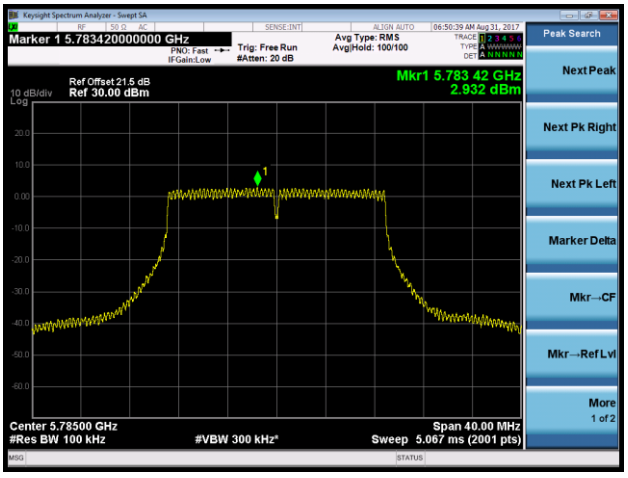
Channel 48 (5240MHz)



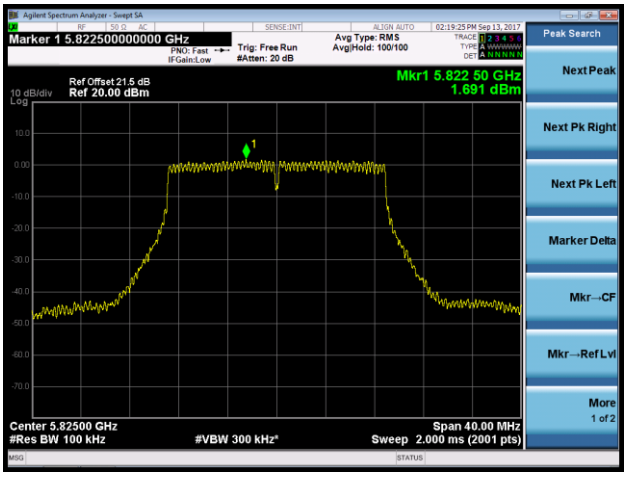
Channel 149 (5745MHz)



Channel 157 (5785MHz)

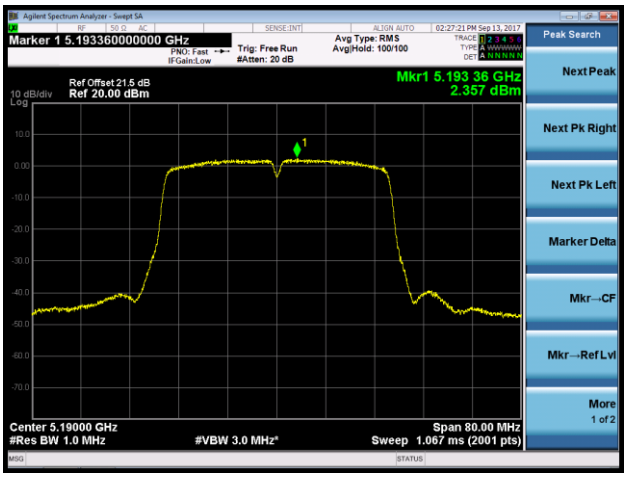


Channel 165 (5825MHz)

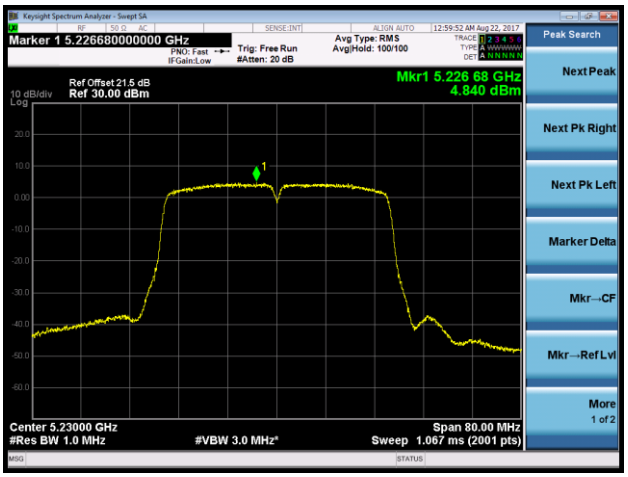


802.11n-HT40 Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3 (CDD Mode)

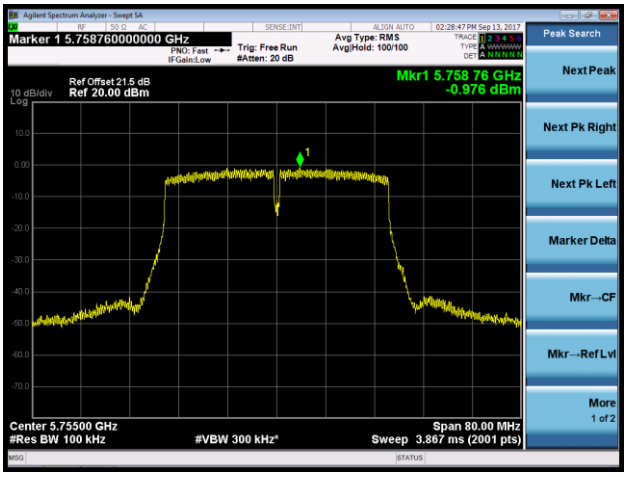
Channel 38 (5190MHz)



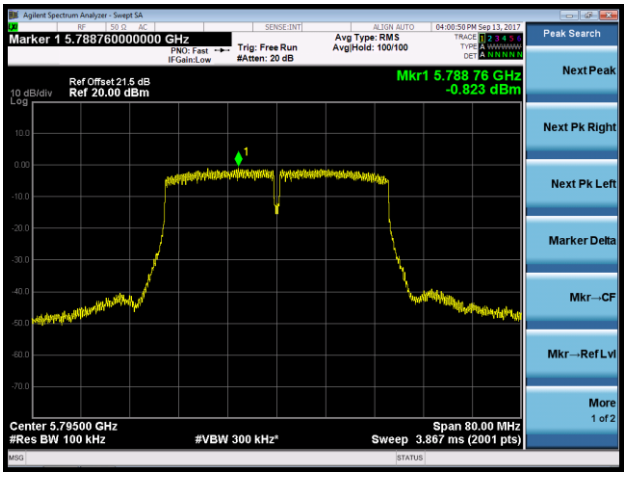
Channel 46 (5230MHz)



Channel 151 (5755MHz)

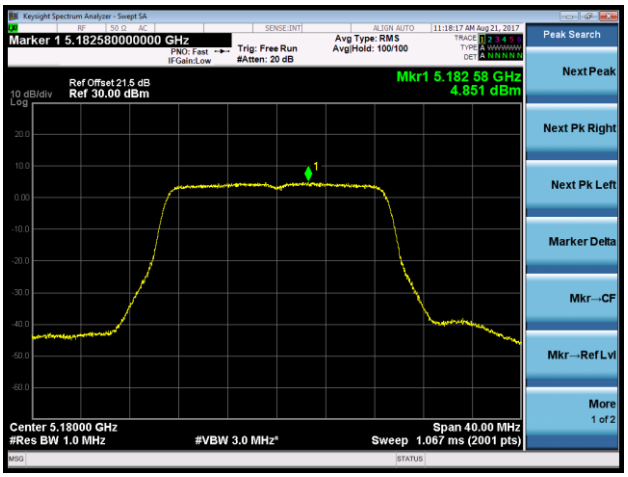


Channel 159 (5795MHz)

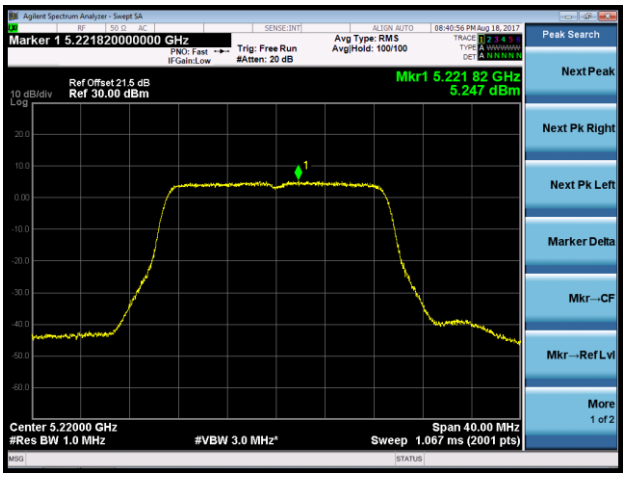


802.11ac-VHT20 Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3 (CDD Mode)

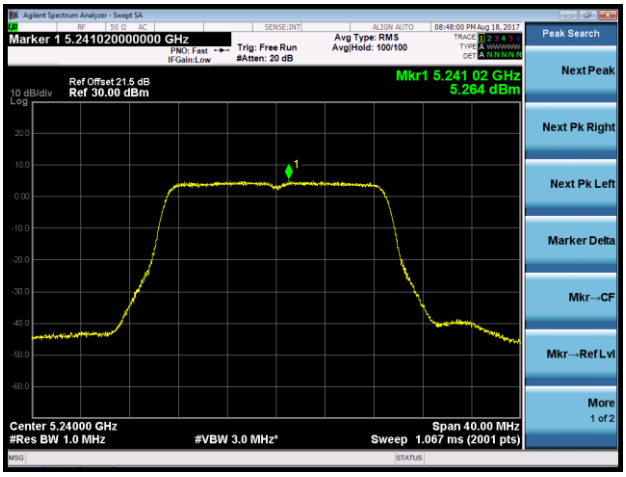
Channel 36 (5180MHz)



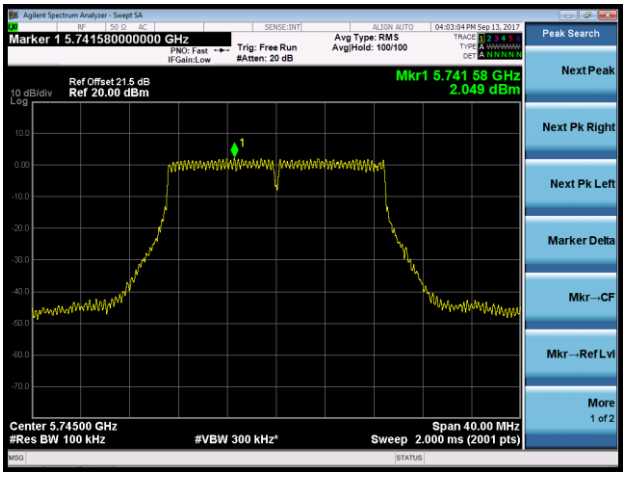
Channel 44 (5220MHz)



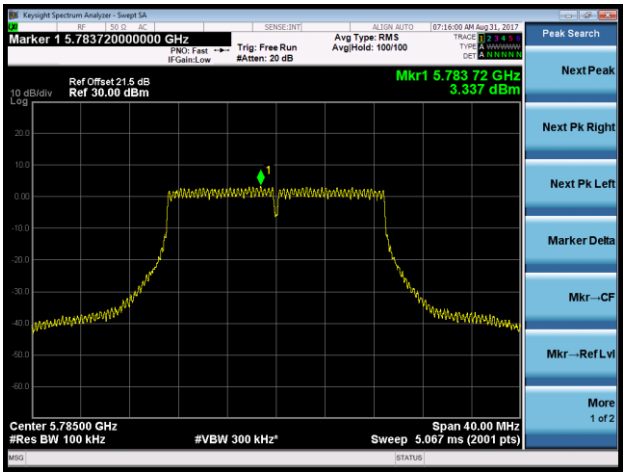
Channel 48 (5240MHz)



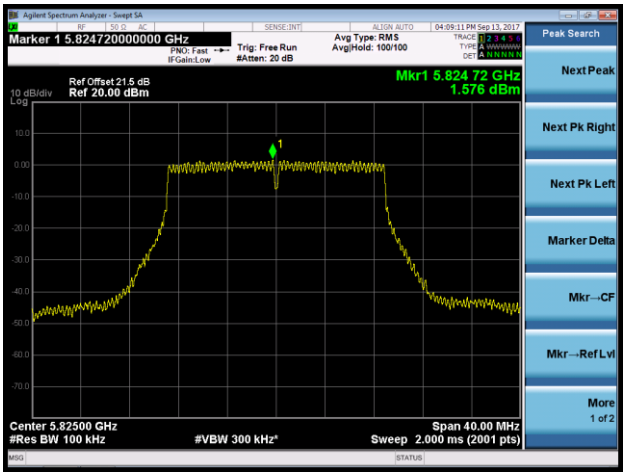
Channel 149 (5745MHz)



Channel 157 (5785MHz)

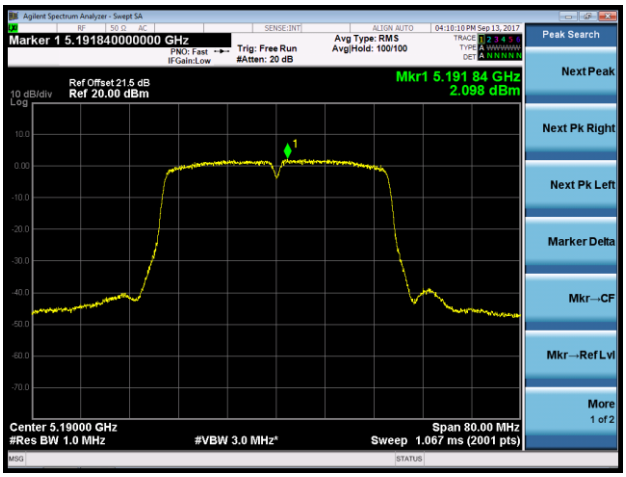


Channel 165 (5825MHz)



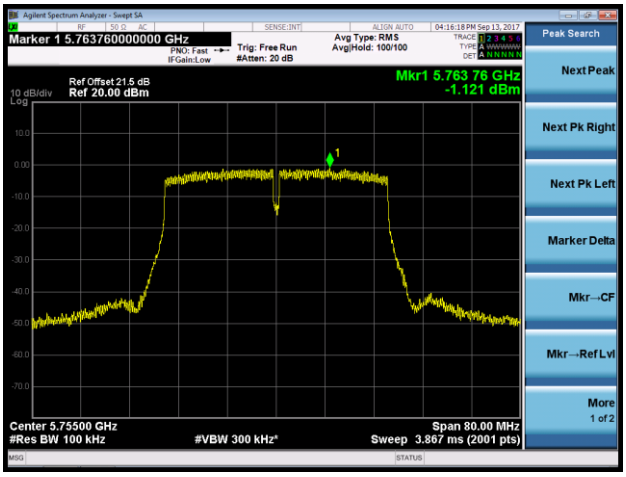
802.11ac-VHT40 Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3 (CDD Mode)

Channel 38 (5190MHz)

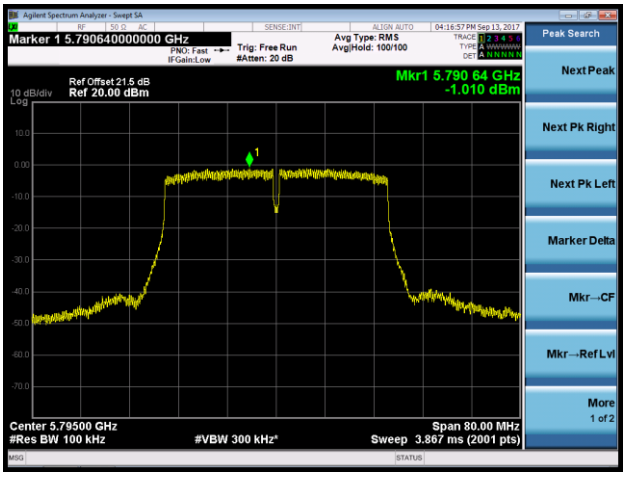


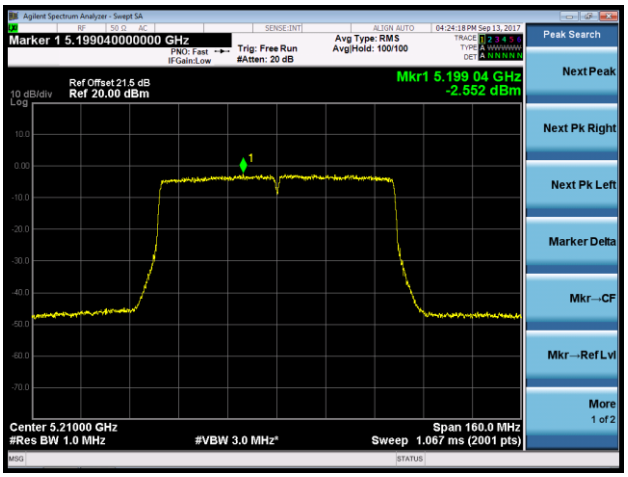
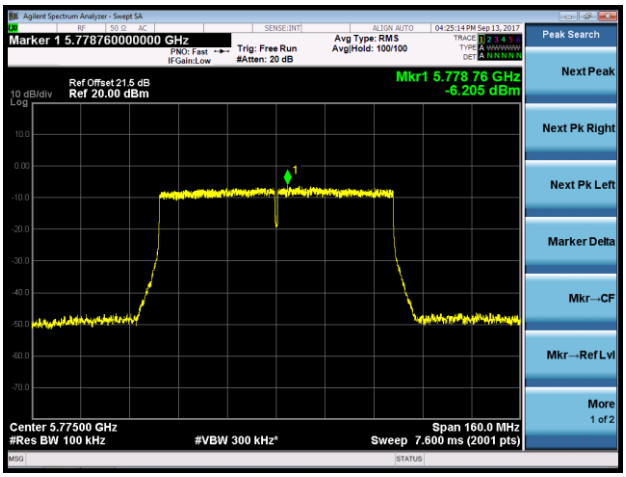
Channel 46 (5230MHz)

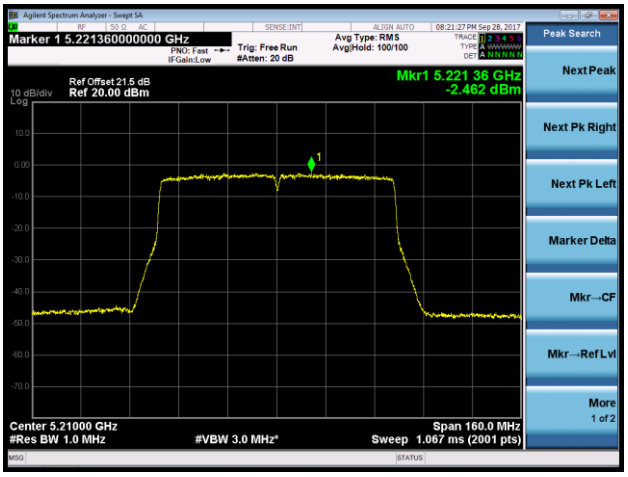
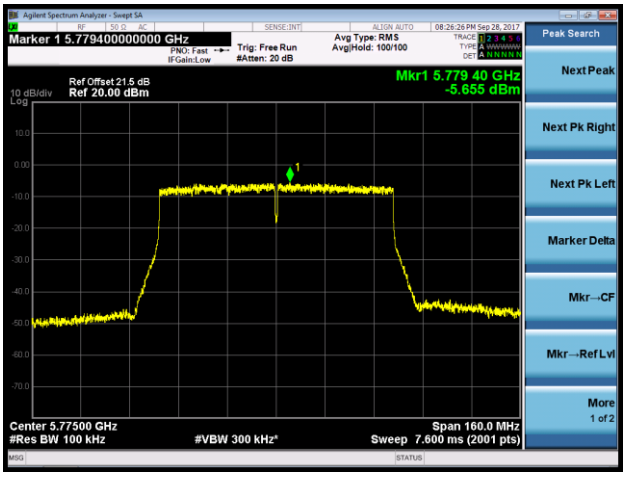
Channel 151 (5755MHz)



Channel 159 (5795MHz)

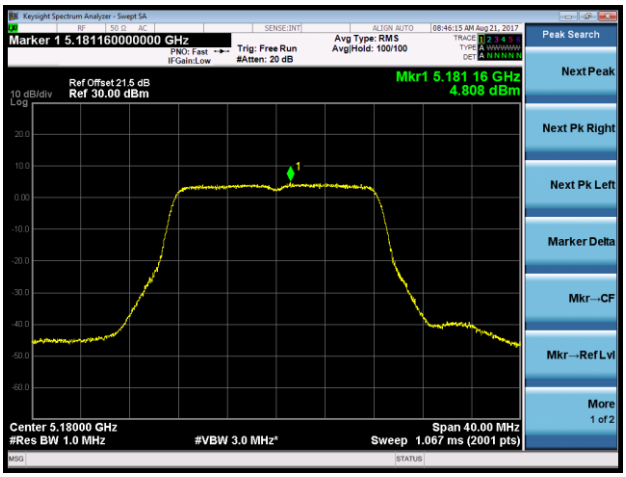


802.11ac-VHT80 Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3 (CDD Mode)	
Channel 42 (5210MHz)	**Channel 155 (5775MHz)**
	

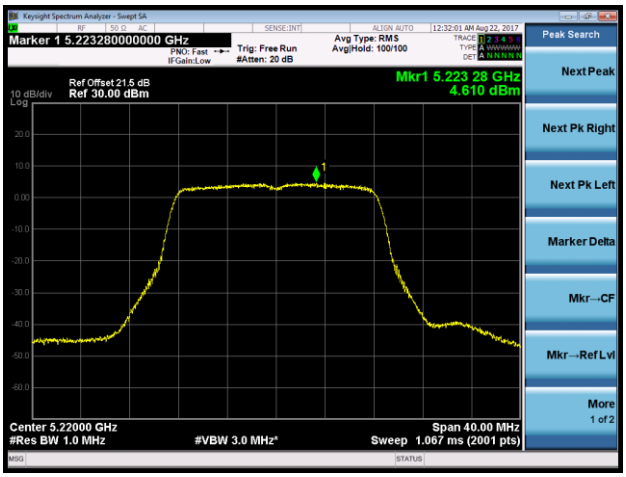
802.11ac-VHT80+80 Power Spectral Density - Ant 0 / Ant 0 + 1 (Ant 0 + 1 + 2 + 3) (CDD Mode)	
Channel 42 (5210MHz)	**Channel 155 (5775MHz)**
	

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

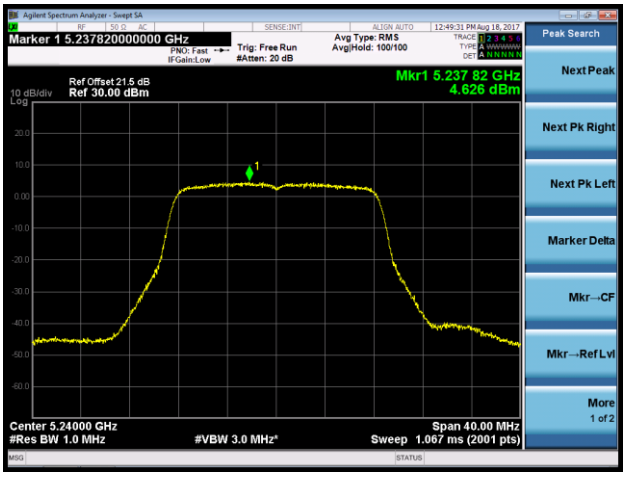
Channel 36 (5180MHz)



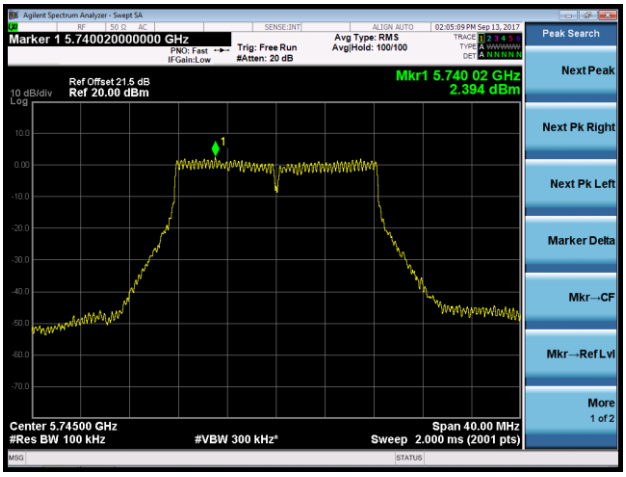
Channel 44 (5220MHz)



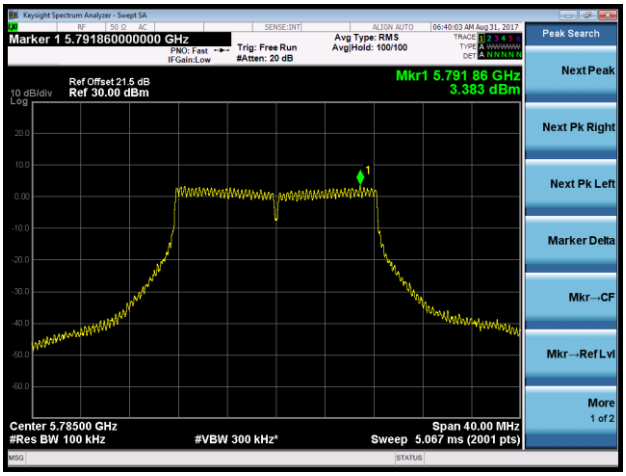
Channel 48 (5240MHz)



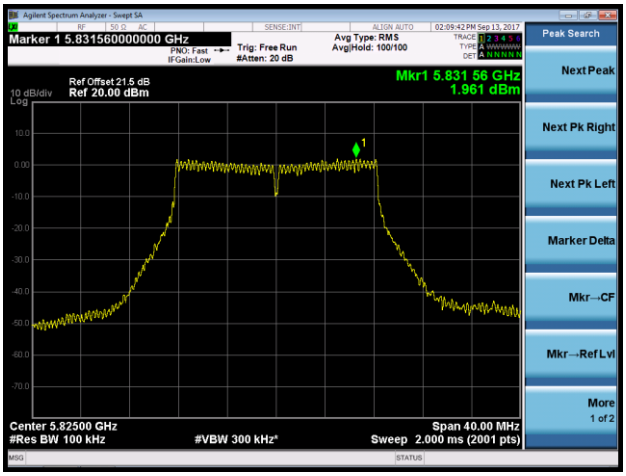
Channel 149 (5745MHz)



Channel 157 (5785MHz)

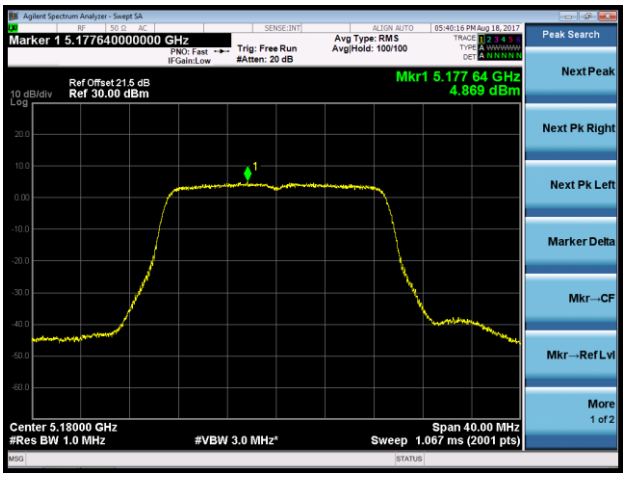


Channel 165 (5825MHz)

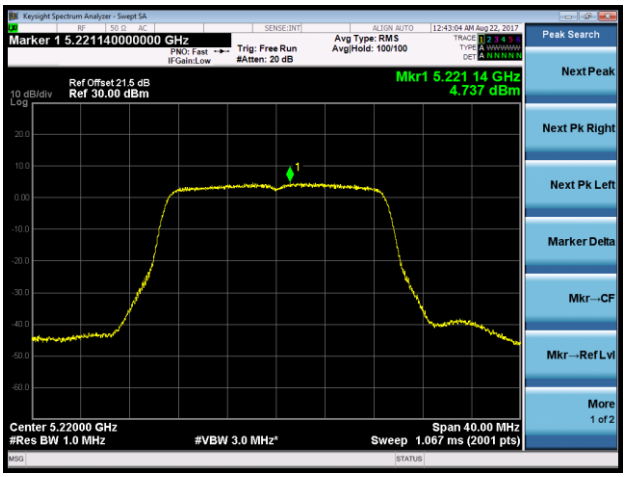


802.11n-HT20 Power Spectral Density - Ant 1 / Ant 0 + 1 + 2 + 3 (CDD Mode)

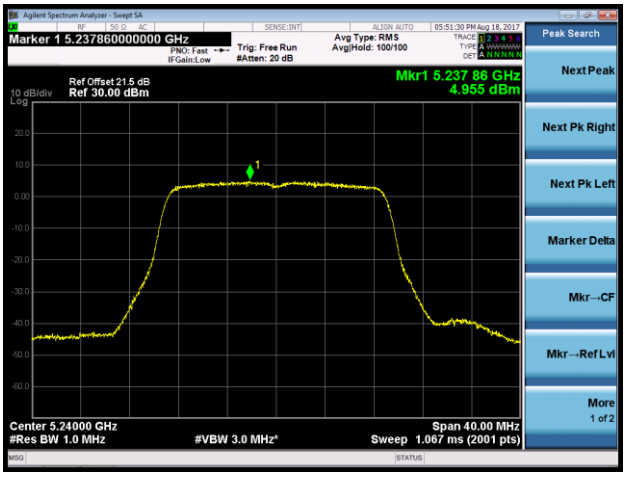
Channel 36 (5180MHz)



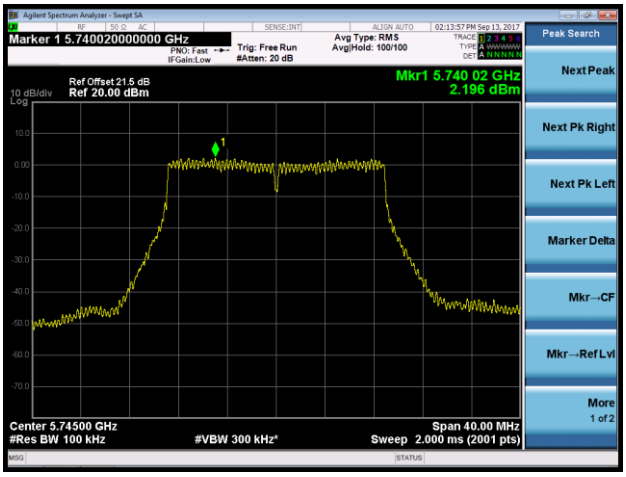
Channel 44 (5220MHz)



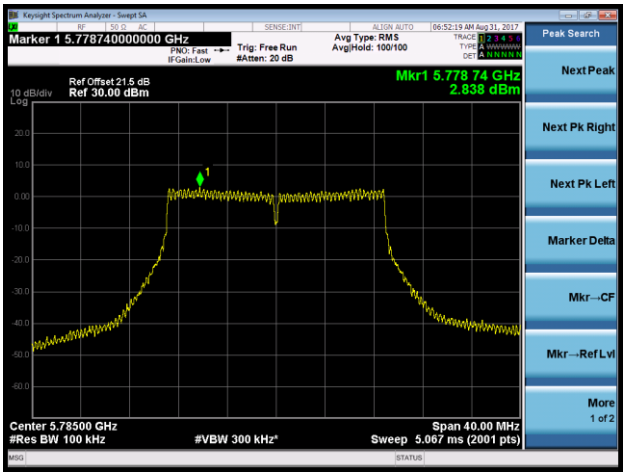
Channel 48 (5240MHz)



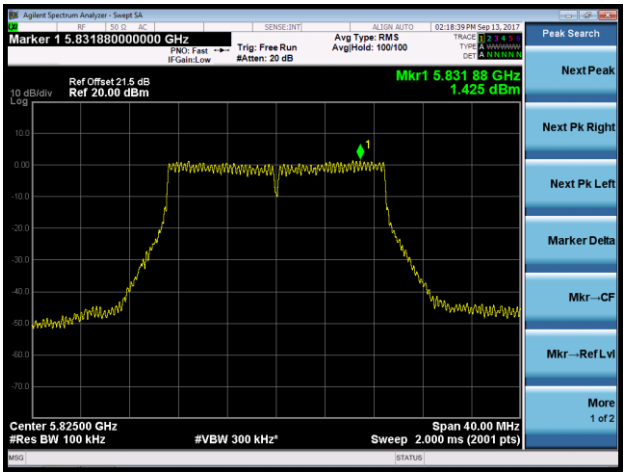
Channel 52 (5260MHz)



Channel 157 (5785MHz)

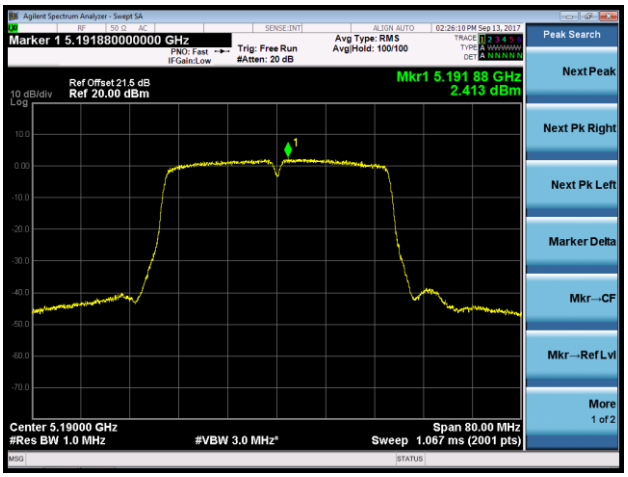


Channel 165 (5825MHz)

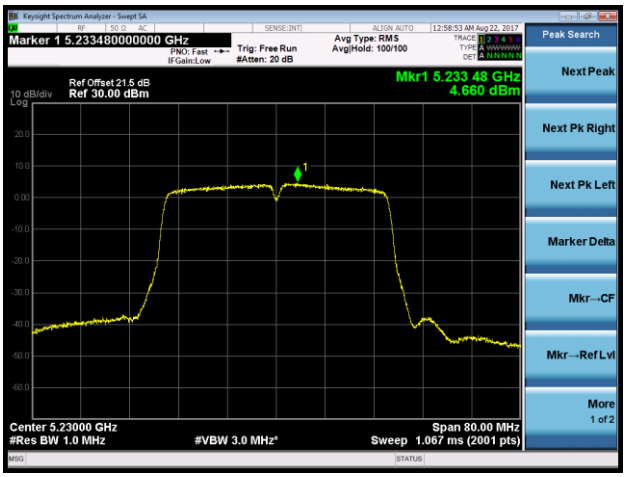


802.11n-HT40 Power Spectral Density - Ant 1 / Ant 0 + 1 + 2 + 3 (CDD Mode)

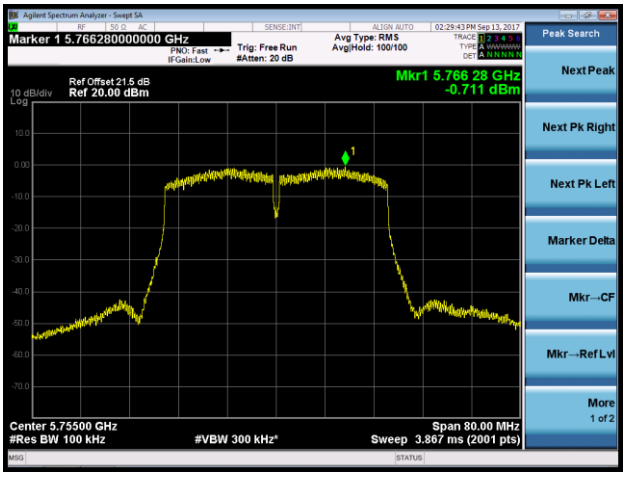
Channel 38 (5190MHz)



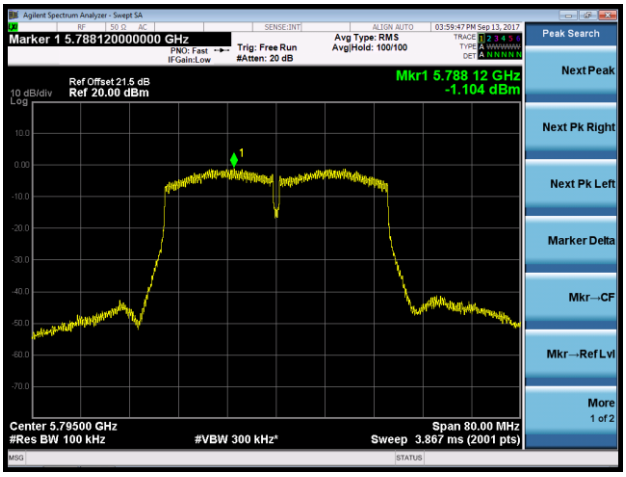
Channel 46 (5230MHz)



Channel 151 (5755MHz)

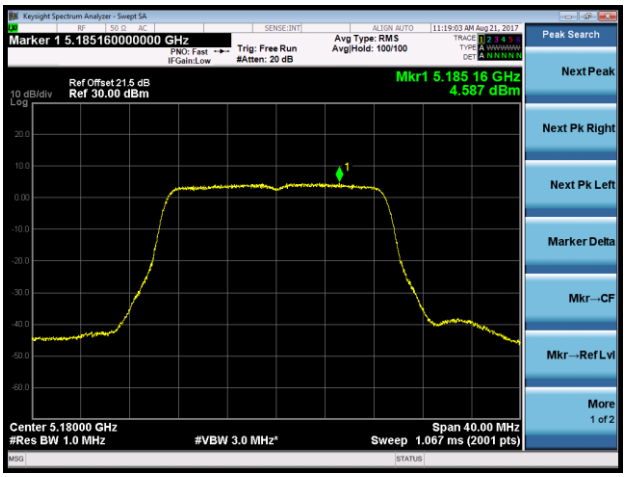


Channel 159 (5795MHz)

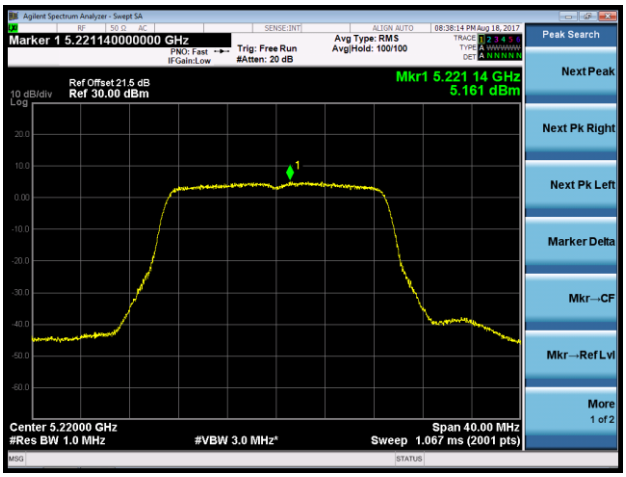


802.11ac-VHT20 Power Spectral Density - Ant 1 / Ant 0 + 1 + 2 + 3 (CDD Mode)

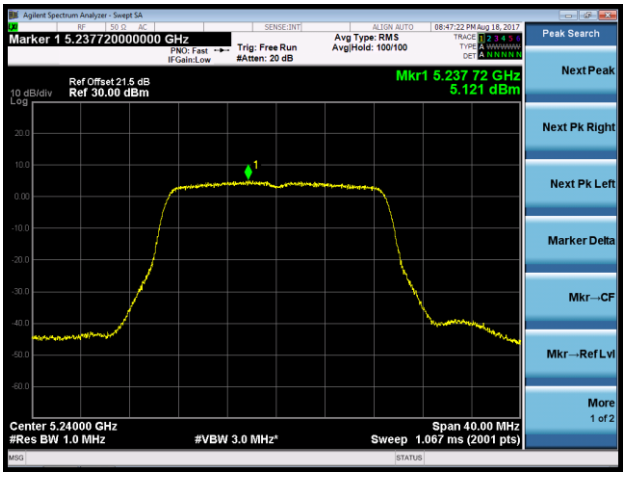
Channel 36 (5180MHz)



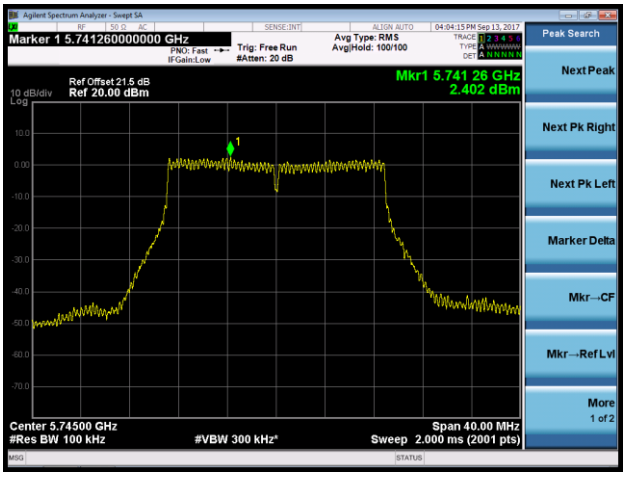
Channel 44 (5220MHz)



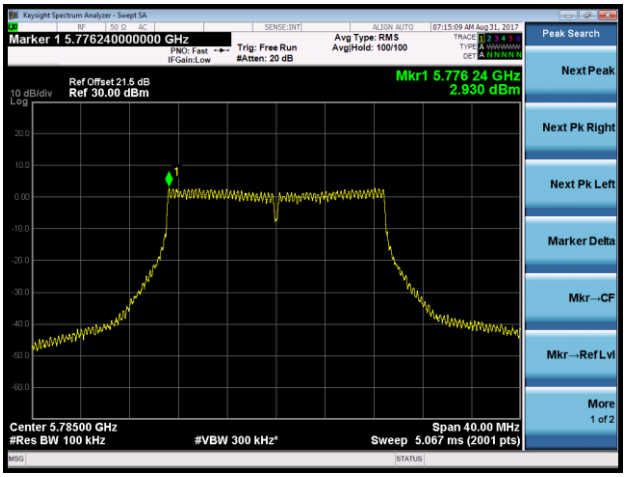
Channel 48 (5240MHz)



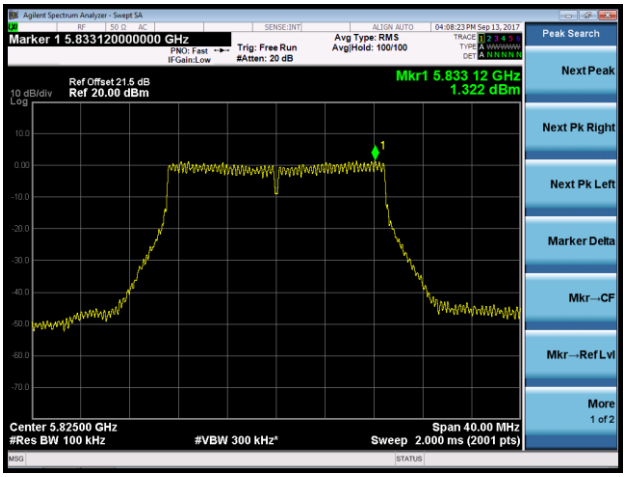
Channel 149 (5745MHz)



Channel 157 (5785MHz)

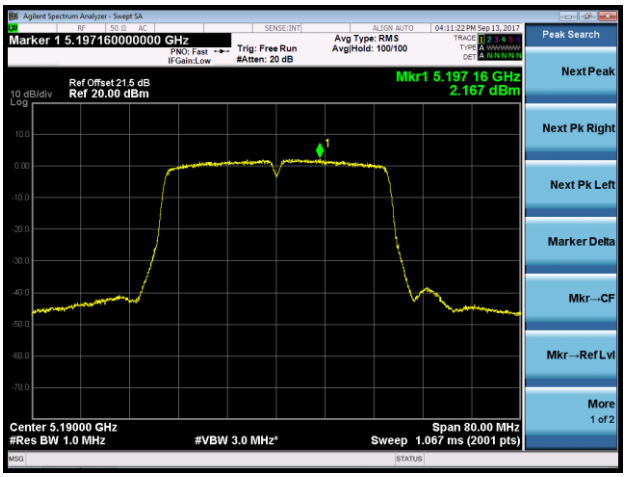


Channel 165 (5825MHz)



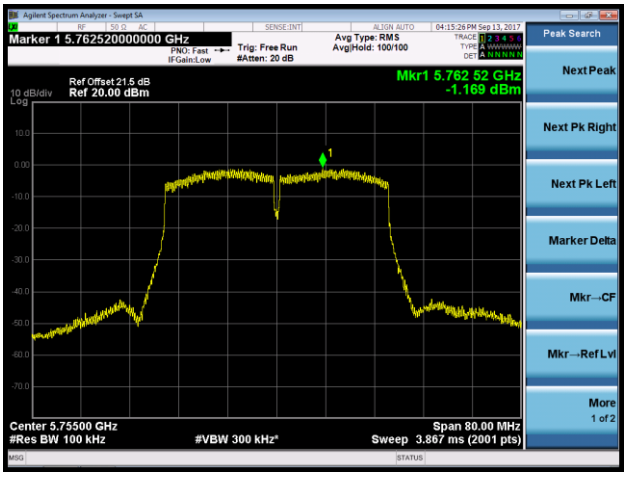
802.11ac-VHT40 Power Spectral Density - Ant 1 / Ant 0 + 1 + 2 + 3 (CDD Mode)

Channel 38 (5190MHz)

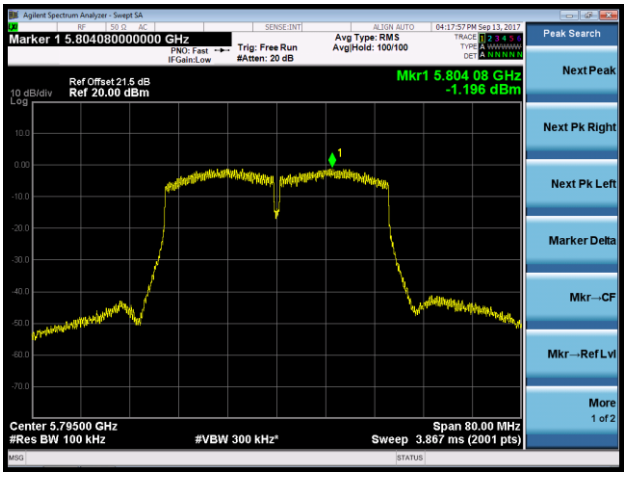


Channel 46 (5230MHz)

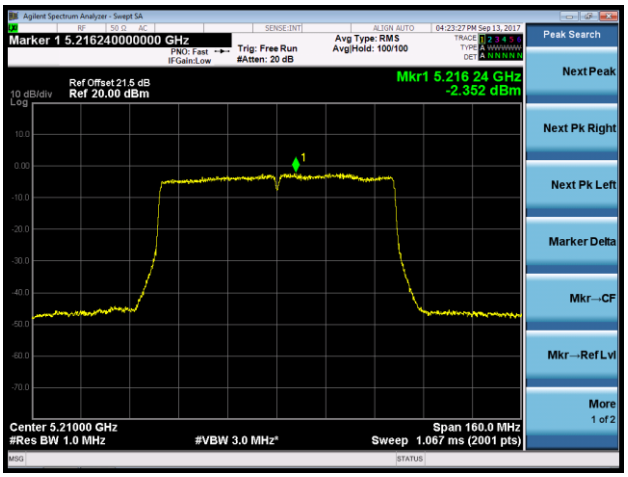
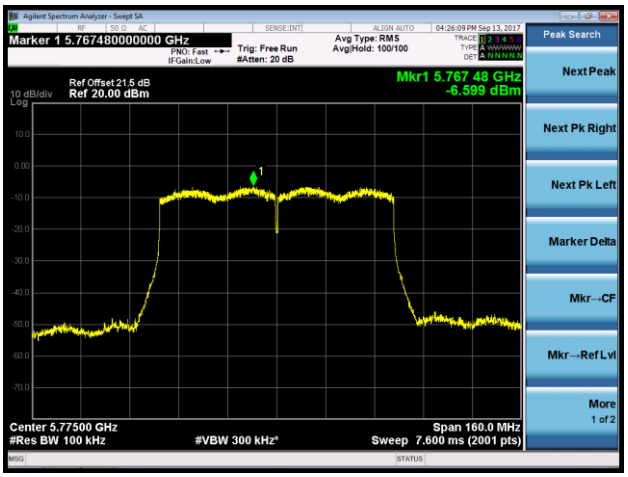
Channel 151 (5755MHz)

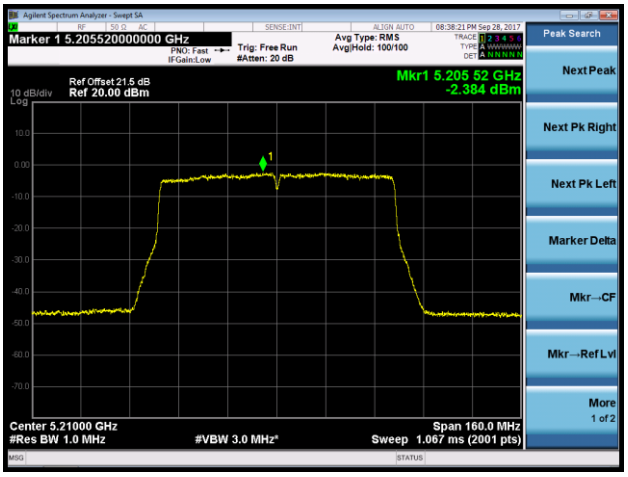
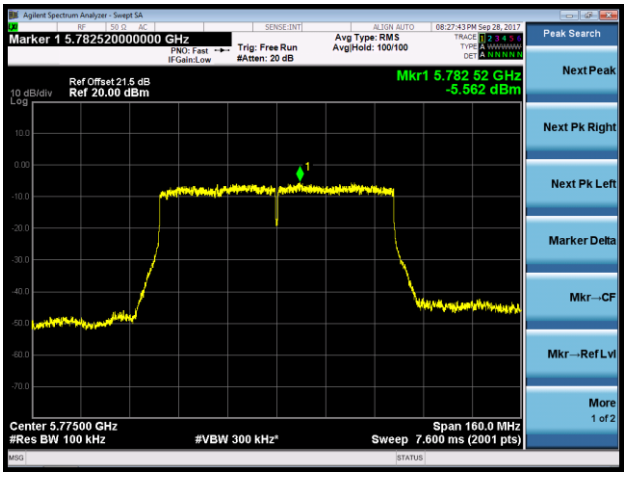


Channel 159 (5795MHz)



802.11ac-VHT80 Power Spectral Density - Ant 1 / Ant 0 + 1 + 2 + 3 (CDD Mode)

Channel 42 (5210MHz)	Channel 155 (5775MHz)
	

802.11ac-VHT80+80 Power Spectral Density - Ant 1 / Ant 0 + 1 (Ant 0 + 1 + 2 + 3) (CDD Mode)

Channel 42 (5210MHz)	Channel 155 (5775MHz)