

8802.11ax-HE80 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1

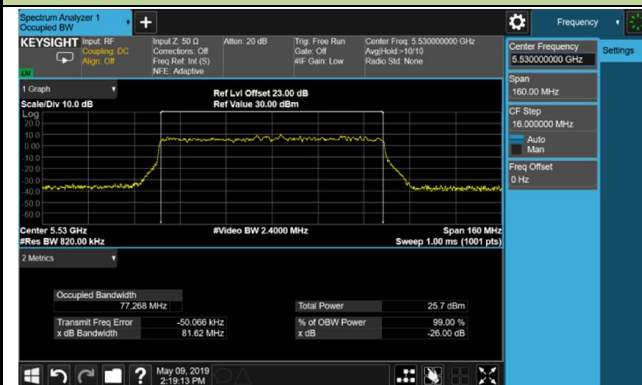
Channel 42 (5210MHz)



Channel 58 (5290MHz)



Channel 106 (5530MHz)



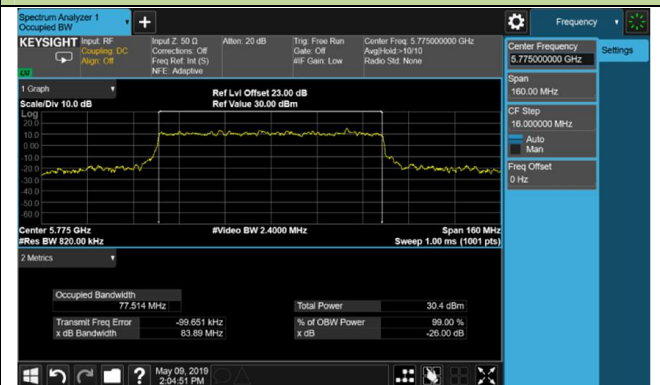
Channel 122 (5610MHz)



Channel 138 (5690MHz)

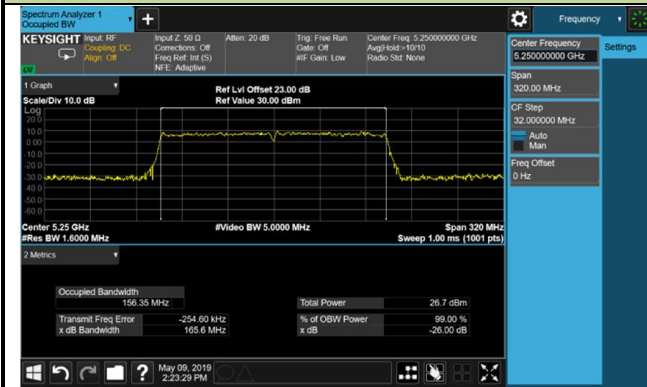


Channel 155 (5775MHz)

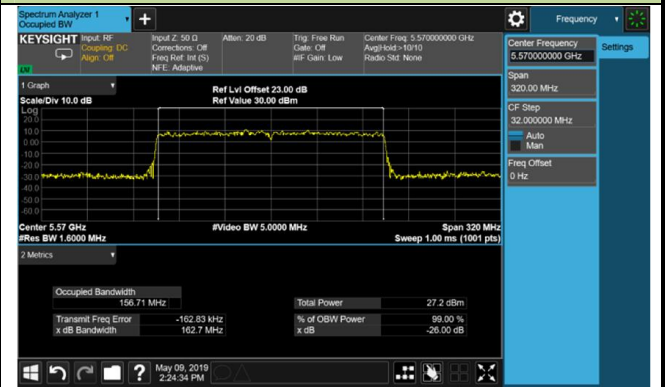


802.11ax-HE160 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1

Channel 50 (5250MHz)



Channel 114 (5570MHz)



7.3. 6dB Bandwidth Measurement

7.3.1. Test Limit

The minimum 6dB bandwidth shall be at least 500 kHz.

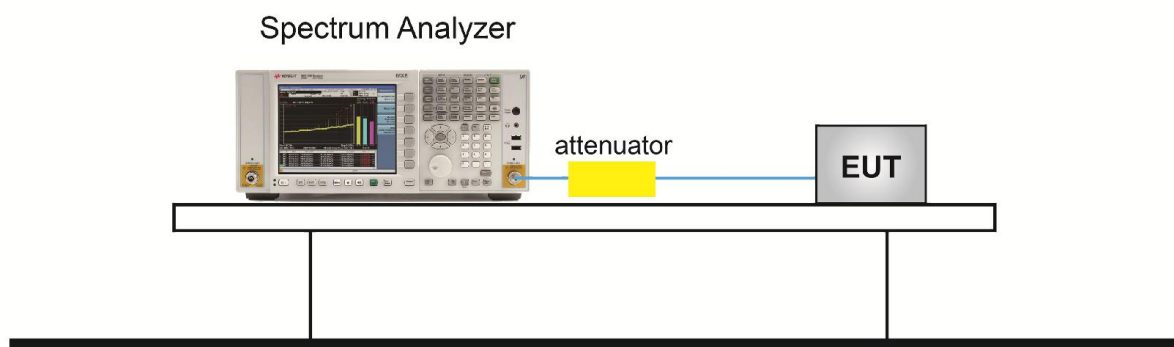
7.3.2. Test Procedure used

KDB 789033 D02v02r01 - Section C.2

7.3.3. Test Setting

1. Set center frequency to the nominal EUT channel center frequency.
2. RBW = 100 kHz.
3. VBW $\geq 3 \times$ RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.3.4. Test Setup



7.3.5. Test Result

Product	AX3000 Gigabit Wi-Fi 6 Router	Temperature	24°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	SR1	Test Date	2019/05/13

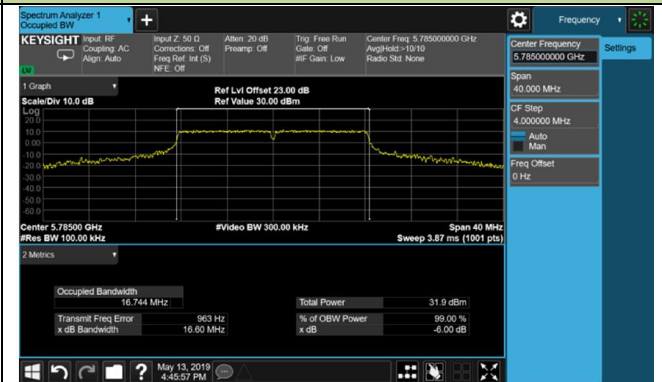
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11a	6Mbps	149	5745	16.60	≥ 0.5	Pass
802.11a	6Mbps	157	5785	16.60	≥ 0.5	Pass
802.11a	6Mbps	165	5825	16.57	≥ 0.5	Pass
802.11n-HT20	MCS8	149	5745	17.87	≥ 0.5	Pass
802.11n-HT20	MCS8	157	5785	17.86	≥ 0.5	Pass
802.11n-HT20	MCS8	165	5825	17.86	≥ 0.5	Pass
802.11n-HT40	MCS8	149	5755	36.64	≥ 0.5	Pass
802.11n-HT40	MCS8	157	5795	36.63	≥ 0.5	Pass
802.11ac-VHT20	NSS2MCS0	149	5745	17.86	≥ 0.5	Pass
802.11ac-VHT20	NSS2MCS0	157	5785	17.87	≥ 0.5	Pass
802.11ac-VHT20	NSS2MCS0	165	5825	17.80	≥ 0.5	Pass
802.11ac-VHT40	NSS2MCS0	151	5755	36.61	≥ 0.5	Pass
802.11ac-VHT40	NSS2MCS0	159	5795	36.60	≥ 0.5	Pass
802.11ac-VHT80	NSS2MCS0	155	5775	76.68	≥ 0.5	Pass
802.11ax-HE20	NSS2MCS0	149	5745	19.16	≥ 0.5	Pass
802.11ax-HE20	NSS2MCS0	157	5785	19.08	≥ 0.5	Pass
802.11ax-HE20	NSS2MCS0	165	5825	19.11	≥ 0.5	Pass
802.11ax-HE40	NSS2MCS0	151	5755	38.22	≥ 0.5	Pass
802.11ax-HE40	NSS2MCS0	159	5795	38.12	≥ 0.5	Pass
802.11ax-HE80	NSS2MCS0	155	5775	78.21	≥ 0.5	Pass

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

Channel 149 (5745MHz)



Channel 157 (5785MHz)

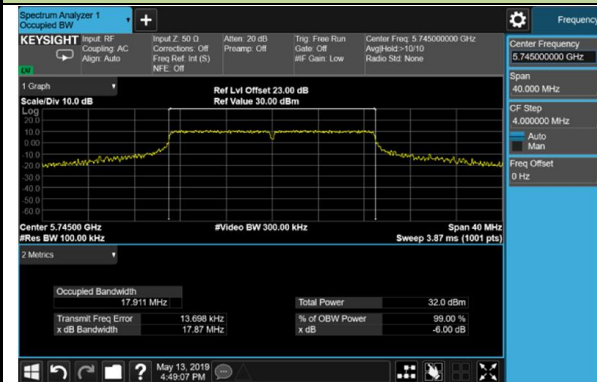


Channel 165 (5825MHz)

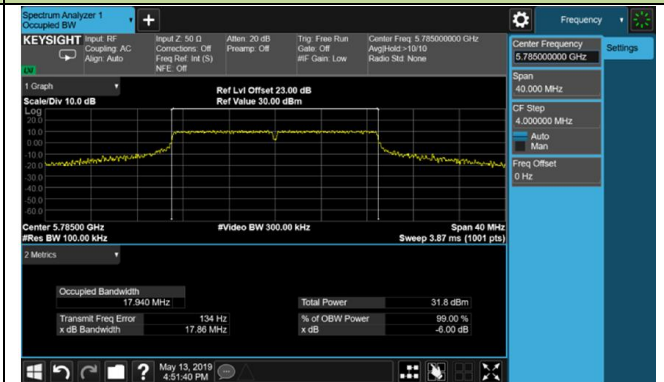


802.11n-HT20 6dB Bandwidth - Ant 0 / Ant 0 + 1

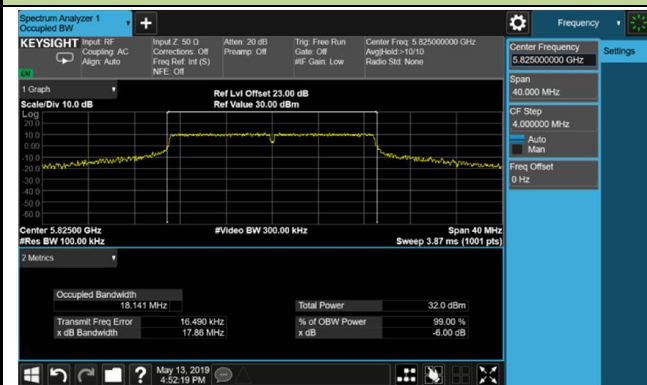
Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)

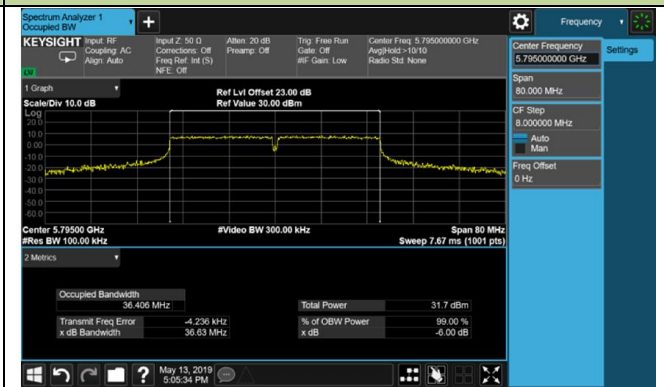


802.11n-HT40 6dB Bandwidth - Ant 0 / Ant 0 + 1

Channel 149 (5755MHz)

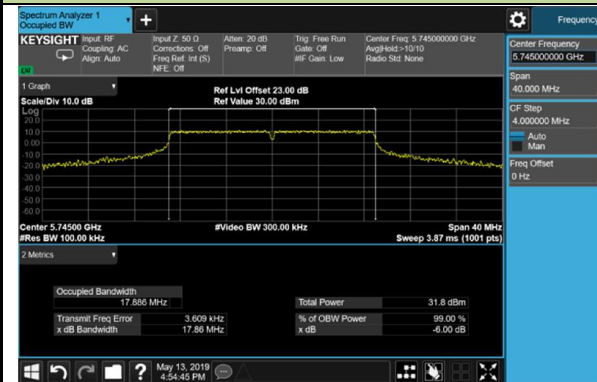


Channel 157 (5795MHz)

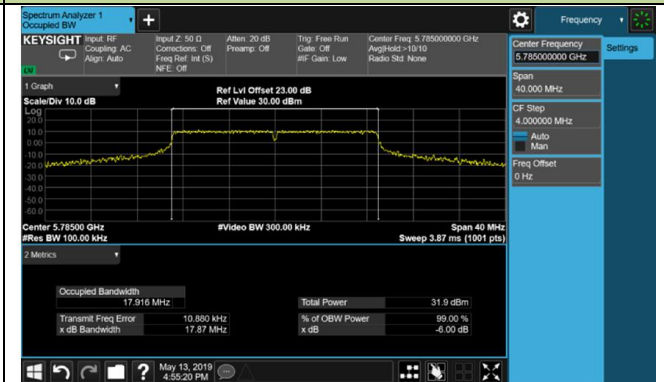


802.11ac-VHT20 6dB Bandwidth - Ant 0 / Ant 0 + 1

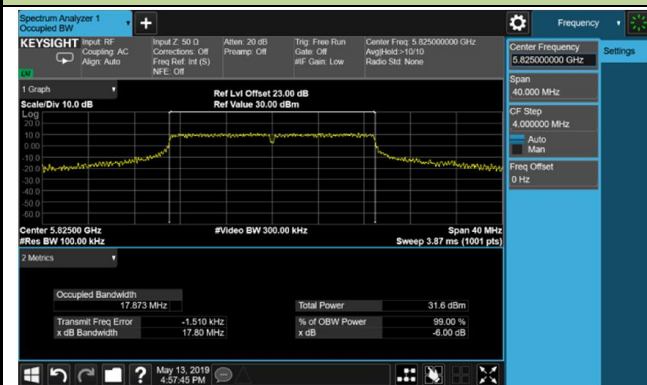
Channel 149 (5745MHz)



Channel 157 (5785MHz)

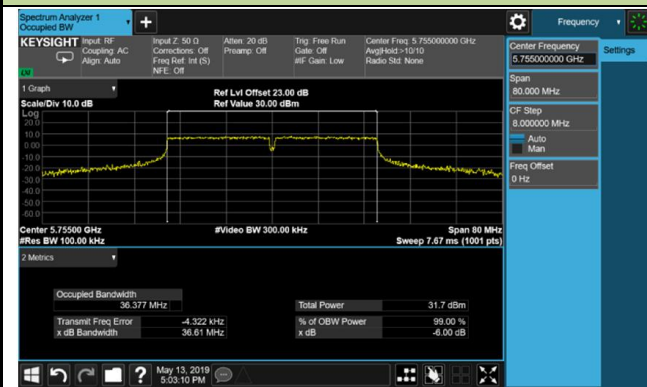


Channel 165 (5825MHz)

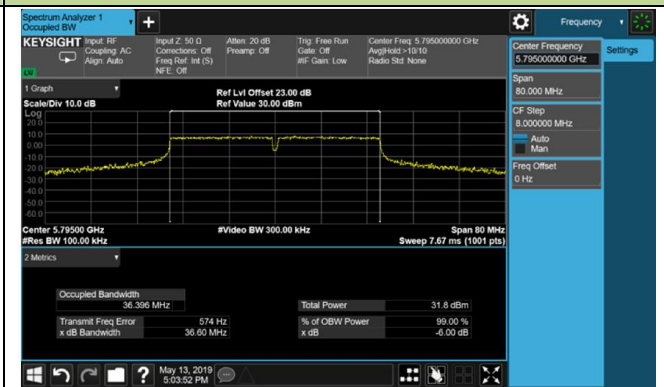


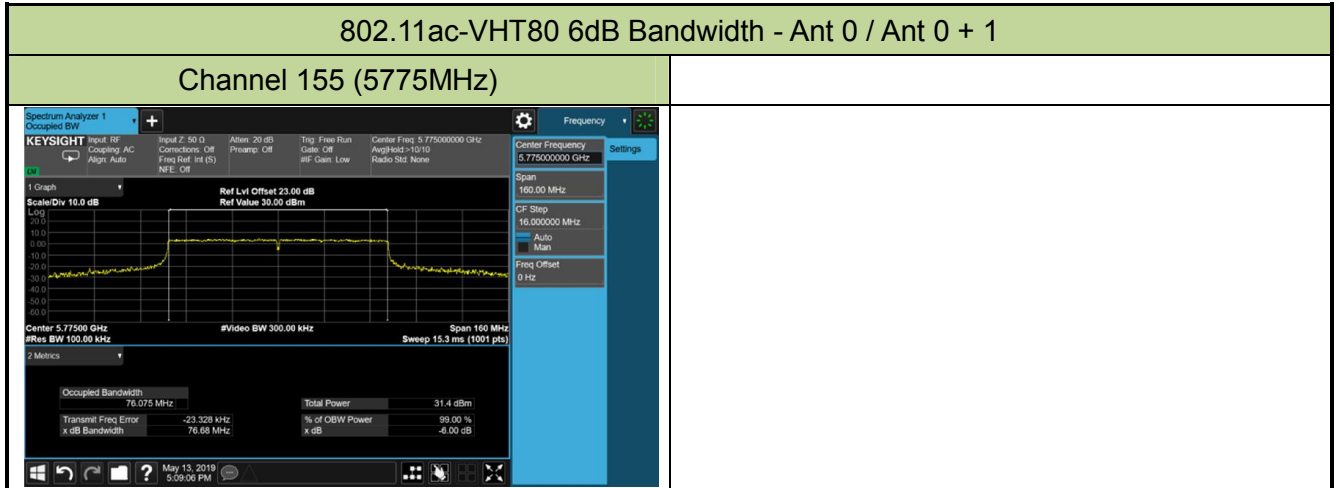
802.11ac-VHT40 6dB Bandwidth - Ant 0 / Ant 0 + 1

Channel 151 (5755MHz)



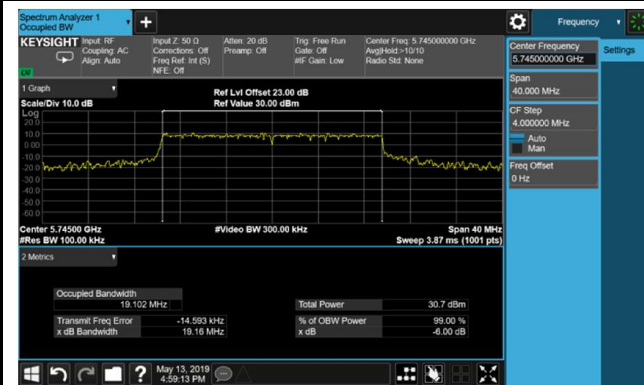
Channel 159 (5795MHz)



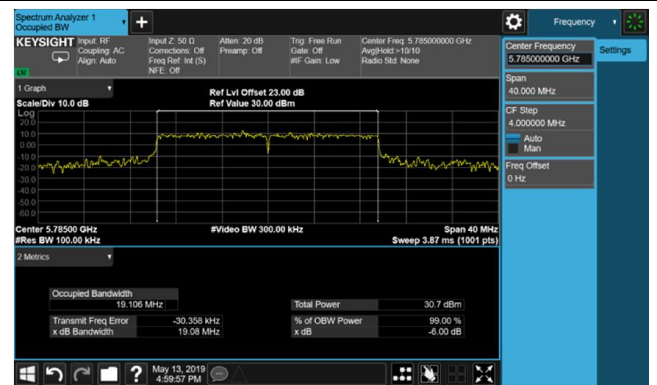


802.11ax-HE20 6dB Bandwidth - Ant 0 / Ant 0 + 1

Channel 149 (5745MHz)



Channel 157 (5785MHz)

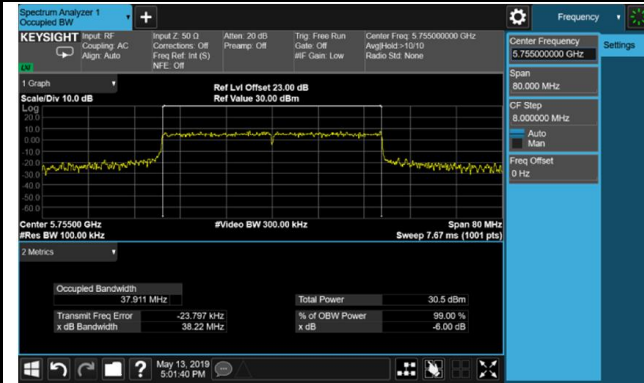


Channel 165 (5825MHz)

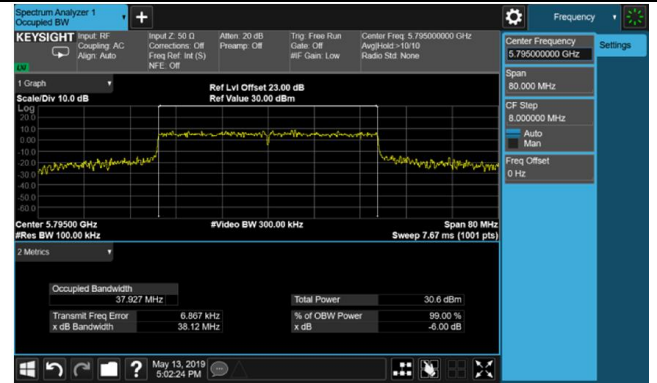


802.11ax-HE40 6dB Bandwidth - Ant 0 / Ant 0 + 1

Channel 151 (5755MHz)

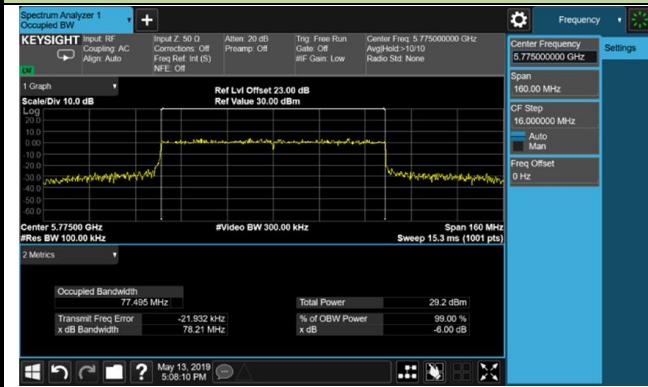


Channel 159 (5795MHz)



802.11ax-HE80 6dB Bandwidth - Ant 0 / Ant 0 + 1

Channel 155 (5775MHz)



7.4. Output Power Measurement

7.4.1. Test Limit

For the band 5.15 - 5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.

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

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

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

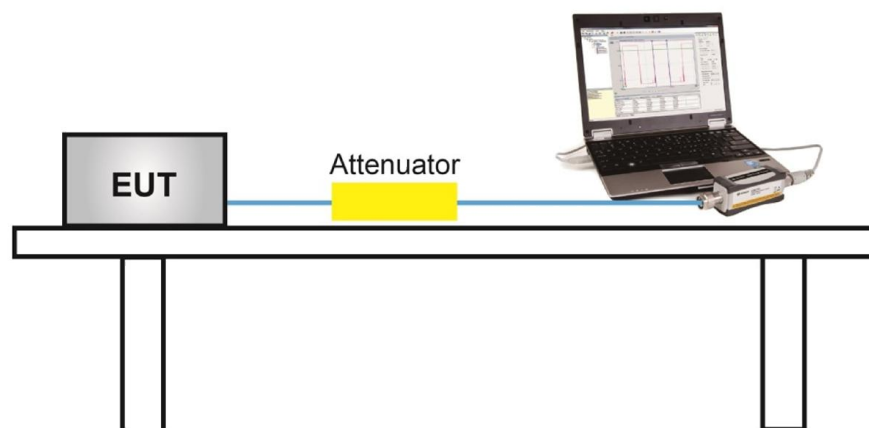
7.4.2. Test Procedure Used

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

7.4.3. Test Setting

Average power measurements were performed 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. 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 (grey marker) for final test of each channel.

Pre-Test RF Output Power at various data rates for Ant 0 port.

Ant 0 / Ant 0+1 - 802.11a - Channel 36 (5180MHz)								
Date Rate(Mbps)	6	9	12	18	24	36	48	54
Power (dBm)	25.35	25.31	25.25	25.19	25.12	25.05	24.96	24.87

Ant 0 / Ant 0+1 - 802.11n-HT20 - Channel 36 (5180MHz)								
Date Rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Power (dBm)	25.55	25.48	25.39	25.21	25.15	25.09	25.00	24.83

Ant 0 / Ant 0+1 - 802.11n-HT40 - Channel 38 (5190MHz)								
Date Rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Power (dBm)	22.70	22.58	22.43	22.30	22.13	22.01	21.96	21.73

Ant 0 / Ant 0+1 - 802.11ac-VHT20 - Channel 36 (5180MHz)									
Date Rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
Power (dBm)	25.36	25.22	25.15	25.10	25.03	24.97	24.83	24.75	24.66

Ant 0 / Ant 0+1 - 802.11ac-VHT40 - Channel 38 (5190MHz)										
Date Rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
Power (dBm)	22.55	22.34	22.36	22.14	22.05	22.00	21.87	21.80	21.71	21.67

Ant 0 / Ant 0+1 - 802.11ac-VHT80 - Channel 42 (5210MHz)										
Date Rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
Power (dBm)	22.40	22.31	22.26	22.10	22.04	21.90	21.79	21.63	21.60	21.52

Ant 0 / Ant 0+1 - 802.11ac-VHT160 - Channel 50 (5250MHz)										
Date Rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
Power (dBm)	20.43	20.33	20.21	20.17	20.11	20.00	19.93	19.84	19.79	19.68

Ant 0 / Ant 0+1 - 802.11ax-HE20 - Channel 36 (5180MHz)												
Date Rate	MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	MCS 9	MCS 10	MCS 11
Power (dBm)	25.84	25.75	25.67	25.61	25.54	25.48	25.41	25.33	25.24	25.18	25.09	25.00

Ant 0 / Ant 0+1 - 802.11ax-HE40 - Channel 38 (5190MHz)												
Date Rate	MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	MCS 9	MCS 10	MCS 11
Power (dBm)	23.56	23.51	23.40	23.32	23.21	23.16	23.04	22.91	22.84	22.76	22.67	22.55

Ant 0 / Ant 0+1 - 802.11ax-HE80 - Channel 42 (5210MHz)												
Date Rate	MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	MCS 9	MCS 10	MCS 11
Power (dBm)	22.28	22.14	22.05	21.96	21.87	21.79	21.70	21.65	21.58	21.56	21.48	21.43

Ant 0 / Ant 0+1 - 802.11ax-VHT160 - Channel 50 (5250MHz)												
Date Rate	MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7	MCS 8	MCS 9	MCS 10	MCS 11
Power (dBm)	20.16	20.11	20.06	19.95	19.86	19.81	19.76	19.75	19.68	19.60	19.54	19.50

Note: All modes of operation and data rates were investigated, so all RF test requirements shall be executed at low data rates.

Product	AX3000 Gigabit Wi-Fi 6 Router	Temperature	23 ~ 25°C
Test Engineer	Kevin Ker	Relative Humidity	46 ~ 56%
Test Site	SR1	Test Date	2019/05/09 ~ 2019/05/21

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
11a	6Mbps	36	5180	25.35	25.13	28.25	≤ 30.00	Pass
11a	6Mbps	44	5220	25.91	26.13	29.03	≤ 30.00	Pass
11a	6Mbps	48	5240	25.93	26.23	29.09	≤ 30.00	Pass
11a	6Mbps	52	5260	18.73	19.28	22.02	≤ 23.98	Pass
11a	6Mbps	60	5300	18.05	18.68	21.39	≤ 23.98	Pass
11a	6Mbps	64	5320	18.91	19.12	22.03	≤ 23.98	Pass
11a	6Mbps	100	5500	19.02	19.15	22.10	≤ 23.98	Pass
11a	6Mbps	120	5600	19.39	18.68	22.06	≤ 23.98	Pass
11a	6Mbps	140	5700	19.38	19.41	22.41	≤ 23.98	Pass
11a	6Mbps	144	5720	18.40	17.84	21.14	≤ 23.98	Pass
11a	6Mbps	149	5745	25.78	25.08	28.45	≤ 30.00	Pass
11a	6Mbps	157	5785	26.21	25.93	29.08	≤ 30.00	Pass
11a	6Mbps	165	5825	25.58	25.03	28.32	≤ 30.00	Pass
11n-HT20	MCS0	36	5180	25.55	25.30	28.44	≤ 30.00	Pass
11n-HT20	MCS0	40	5220	26.05	26.25	29.16	≤ 30.00	Pass
11n-HT20	MCS0	48	5240	24.65	24.63	27.65	≤ 30.00	Pass
11n-HT20	MCS0	52	5260	18.53	18.99	21.78	≤ 23.98	Pass
11n-HT20	MCS0	60	5300	18.62	19.05	21.85	≤ 23.98	Pass
11n-HT20	MCS0	64	5320	18.26	18.91	21.61	≤ 23.98	Pass
11n-HT20	MCS0	100	5500	18.88	19.34	22.13	≤ 23.98	Pass
11n-HT20	MCS0	120	5600	19.98	19.43	22.72	≤ 23.98	Pass
11n-HT20	MCS0	140	5700	18.56	18.36	21.47	≤ 23.98	Pass
11n-HT20	MCS0	144	5720	18.47	18.02	21.26	≤ 23.98	Pass
11n-HT20	MCS0	149	5745	25.77	24.84	28.34	≤ 30.00	Pass
11n-HT20	MCS0	157	5785	25.71	25.13	28.44	≤ 30.00	Pass
11n-HT20	MCS0	165	5825	25.51	25.18	28.36	≤ 30.00	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
11n-HT40	MCS0	38	5190	22.70	22.93	25.83	≤ 30.00	Pass
11n-HT40	MCS0	46	5230	26.12	26.42	29.28	≤ 30.00	Pass
11n-HT40	MCS0	54	5270	19.92	20.76	23.37	≤ 23.98	Pass
11n-HT40	MCS0	62	5310	20.27	20.14	23.22	≤ 23.98	Pass
11n-HT40	MCS0	102	5510	20.75	20.48	23.63	≤ 23.98	Pass
11n-HT40	MCS0	118	5590	20.72	19.84	23.31	≤ 23.98	Pass
11n-HT40	MCS0	134	5670	20.07	20.55	23.33	≤ 23.98	Pass
11n-HT40	MCS0	142	5710	20.33	20.57	23.46	≤ 23.98	Pass
11n-HT40	MCS0	151	5755	25.64	25.72	28.69	≤ 30.00	Pass
11n-HT40	MCS0	159	5795	25.56	25.81	28.70	≤ 30.00	Pass
11ac-VHT20	MCS0	36	5180	25.36	25.94	28.67	≤ 30.00	Pass
11ac-VHT20	MCS0	40	5220	24.57	24.84	27.72	≤ 30.00	Pass
11ac-VHT20	MCS0	48	5240	26.43	26.95	29.71	≤ 30.00	Pass
11ac-VHT20	MCS0	52	5260	18.60	19.17	21.90	≤ 23.98	Pass
11ac-VHT20	MCS0	60	5300	19.07	19.72	22.42	≤ 23.98	Pass
11ac-VHT20	MCS0	64	5320	19.02	19.44	22.25	≤ 23.98	Pass
11ac-VHT20	MCS0	100	5500	20.50	20.88	23.70	≤ 23.98	Pass
11ac-VHT20	MCS0	120	5600	19.17	19.39	22.29	≤ 23.98	Pass
11ac-VHT20	MCS0	140	5700	18.95	19.19	22.08	≤ 23.98	Pass
11ac-VHT20	MCS0	144	5720	19.23	19.17	22.21	≤ 23.98	Pass
11ac-VHT20	MCS0	149	5745	26.11	25.86	29.00	≤ 30.00	Pass
11ac-VHT20	MCS0	157	5785	25.95	25.79	28.88	≤ 30.00	Pass
11ac-VHT20	MCS0	165	5825	26.16	25.87	29.03	≤ 30.00	Pass
11ac-VHT40	MCS0	38	5190	22.55	22.82	25.70	≤ 30.00	Pass
11ac-VHT40	MCS0	46	5230	25.03	25.51	28.29	≤ 30.00	Pass
11ac-VHT40	MCS0	54	5270	19.71	20.32	23.04	≤ 23.98	Pass
11ac-VHT40	MCS0	62	5310	20.31	20.74	23.54	≤ 23.98	Pass
11ac-VHT40	MCS0	102	5510	20.28	20.65	23.48	≤ 23.98	Pass
11ac-VHT40	MCS0	118	5590	20.29	20.37	23.34	≤ 23.98	Pass
11ac-VHT40	MCS0	134	5670	20.40	20.51	23.47	≤ 23.98	Pass
11ac-VHT40	MCS0	142	5710	20.10	20.42	23.27	≤ 23.98	Pass
11ac-VHT40	MCS0	151	5755	26.28	25.97	29.14	≤ 30.00	Pass
11ac-VHT40	MCS0	159	5795	25.83	25.62	28.74	≤ 30.00	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
11ac-VHT80	MCS0	42	5210	22.40	22.62	25.52	≤ 30.00	Pass
11ac-VHT80	MCS0	58	5290	20.67	20.75	23.72	≤ 23.98	Pass
11ac-VHT80	MCS0	106	5530	20.51	20.11	23.32	≤ 23.98	Pass
11ac-VHT80	MCS0	122	5610	19.92	20.12	23.03	≤ 23.98	Pass
11ac-VHT80	MCS0	138	5690	20.31	21.14	23.76	≤ 23.98	Pass
11ac-VHT80	MCS0	155	5775	24.85	25.46	28.18	≤ 30.00	Pass
11ac-VHT160	MCS0	50	5250	20.43	21.08	23.78	≤ 23.98	Pass
11ac-VHT160	MCS0	114	5570	20.63	20.80	23.73	≤ 23.98	Pass
11ax-HE20	MCS0	36	5180	25.84	25.63	28.75	≤ 30.00	Pass
11ax-HE20	MCS0	40	5220	24.07	24.66	27.39	≤ 30.00	Pass
11ax-HE20	MCS0	48	5240	25.16	25.08	28.13	≤ 30.00	Pass
11ax-HE20	MCS0	52	5260	19.95	20.58	23.29	≤ 23.98	Pass
11ax-HE20	MCS0	60	5300	19.79	20.12	22.97	≤ 23.98	Pass
11ax-HE20	MCS0	64	5320	20.20	19.74	22.99	≤ 23.98	Pass
11ax-HE20	MCS0	100	5500	20.89	20.67	23.79	≤ 23.98	Pass
11ax-HE20	MCS0	120	5600	19.42	18.75	22.11	≤ 23.98	Pass
11ax-HE20	MCS0	140	5700	19.49	19.11	22.31	≤ 23.98	Pass
11ax-HE20	MCS0	144	5720	19.31	18.67	22.01	≤ 23.98	Pass
11ax-HE20	MCS0	149	5745	25.52	26.36	28.97	≤ 30.00	Pass
11ax-HE20	MCS0	157	5785	26.34	26.05	29.21	≤ 30.00	Pass
11ax-HE20	MCS0	165	5825	26.30	25.94	29.13	≤ 30.00	Pass
11ax-HE40	MCS0	38	5190	23.56	23.72	26.65	≤ 30.00	Pass
11ax-HE40	MCS0	46	5230	25.45	25.33	28.40	≤ 30.00	Pass
11ax-HE40	MCS0	54	5270	19.63	19.62	22.64	≤ 23.98	Pass
11ax-HE40	MCS0	62	5310	20.71	21.00	23.87	≤ 23.98	Pass
11ax-HE40	MCS0	102	5510	20.67	20.19	23.45	≤ 23.98	Pass
11ax-HE40	MCS0	118	5590	20.77	20.33	23.57	≤ 23.98	Pass
11ax-HE40	MCS0	134	5670	20.49	21.12	23.83	≤ 23.98	Pass
11ax-HE40	MCS0	142	5710	20.20	20.81	23.53	≤ 23.98	Pass
11ax-HE40	MCS0	151	5755	26.18	26.06	29.13	≤ 30.00	Pass
11ax-HE40	MCS0	159	5795	25.96	26.20	29.09	≤ 30.00	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
11ax-HE80	MCS0	42	5210	22.28	23.10	25.72	≤ 30.00	Pass
11ax-HE80	MCS0	58	5290	20.95	20.53	23.76	≤ 23.98	Pass
11ax-HE80	MCS0	106	5530	20.56	20.11	23.35	≤ 23.98	Pass
11ax-HE80	MCS0	122	5610	19.94	20.06	23.01	≤ 23.98	Pass
11ax-HE80	MCS0	138	5690	20.15	21.06	23.64	≤ 23.98	Pass
11ax-HE80	MCS0	155	5775	24.43	24.96	27.71	≤ 30.00	Pass
11ax-HE160	MCS0	50	5250	20.16	20.06	23.12	≤ 23.98	Pass
11ax-HE160	MCS0	114	5570	20.67	20.70	23.70	≤ 23.98	Pass

Note 1:

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

Note 2:

For 5250 - 5350MHz and 5470 - 5725MHz Bands: Average Power Limit (dBm) = 23.98 dBm.

For 5150 - 5250MHz and 5725 - 5850MHz Bands: Average Power Limit (dBm) = 30 dBm.

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.

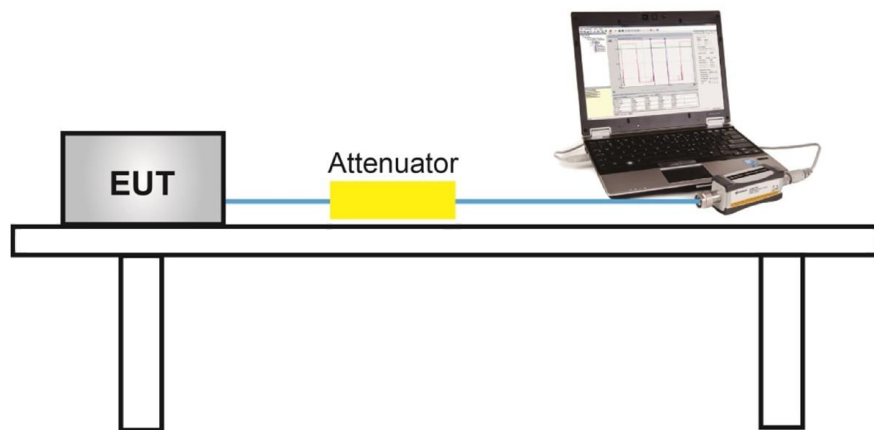
7.5.2. Test Procedure Used

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

7.5.3. Test Setting

Average power measurements were performed 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 with an e.i.r.p. of less than 500 mW.

7.6. Power Spectral Density Measurement

7.6.1. Test Limit

For the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

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

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

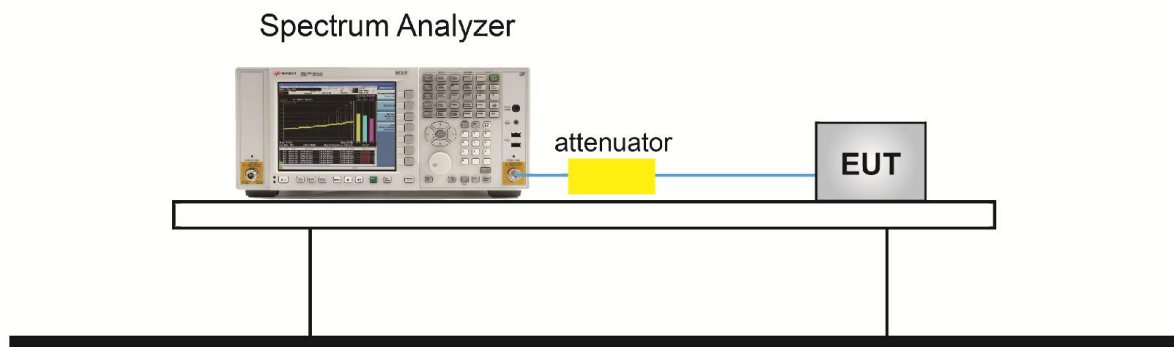
7.6.2. Test Procedure Used

KDB 789033 D02v02r01 - Section F

7.6.3. Test Setting

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire 26dB EBW of the signal.
3. RBW = 1MHz, if measurement bandwidth of Maximum PSD is specified in 500 kHz,
RBW = 100 kHz
4. VBW = 3MHz
5. Number of sweep points $\geq 2 \times (\text{span} / \text{RBW})$
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 $10 \cdot \log(1/x)$, 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 $10 \cdot \log(1/0.25) = 6$ 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 $10 \cdot \log(500\text{kHz}/100\text{kHz}) = 6.99$ dB to the measured result.

7.6.4. Test Setup



7.6.5. Test Result

Product	AX3000 Gigabit Wi-Fi 6 Router	Temperature	23 ~ 25°C
Test Engineer	Kevin Ker	Relative Humidity	40 ~ 56%
Test Site	SR1	Test Date	2019/05/05 ~ 2019/05/13

Test Mode	Data Rate /MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/MHz)	Ant 1 PSD (dBm/MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/MHz)	Result
11a	6Mbps	36	5180	13.39	13.70	100.00	16.56	≤ 16.99	Pass
11a	6Mbps	44	5220	13.81	13.54	100.00	16.69	≤ 16.99	Pass
11a	6Mbps	48	5240	13.23	13.60	100.00	16.43	≤ 16.99	Pass
11a	6Mbps	52	5260	6.19	6.64	100.00	9.43	≤ 10.99	Pass
11a	6Mbps	60	5300	7.57	7.28	100.00	10.44	≤ 10.99	Pass
11a	6Mbps	64	5320	6.88	7.25	100.00	10.08	≤ 10.99	Pass
11a	6Mbps	100	5500	7.82	7.54	100.00	10.69	≤ 10.99	Pass
11a	6Mbps	120	5600	7.61	7.67	100.00	10.65	≤ 10.99	Pass
11a	6Mbps	140	5700	7.09	7.31	100.00	10.21	≤ 10.99	Pass
11a	6Mbps	144	5720	7.63	7.03	100.00	10.35	≤ 10.99	Pass
11n-HT20	MCS0	36	5180	13.62	13.49	100.00	16.57	≤ 16.99	Pass
11n-HT20	MCS0	44	5220	13.82	13.85	100.00	16.85	≤ 16.99	Pass
11n-HT20	MCS0	48	5240	13.41	13.65	100.00	16.54	≤ 16.99	Pass
11n-HT20	MCS0	52	5260	7.39	7.75	100.00	10.58	≤ 10.99	Pass
11n-HT20	MCS0	60	5300	7.21	6.37	100.00	9.82	≤ 10.99	Pass
11n-HT20	MCS0	64	5320	6.17	6.56	100.00	9.38	≤ 10.99	Pass
11n-HT20	MCS0	100	5500	7.65	7.34	100.00	10.51	≤ 10.99	Pass
11n-HT20	MCS0	120	5600	8.29	7.60	100.00	10.97	≤ 10.99	Pass
11n-HT20	MCS0	140	5700	7.31	7.53	100.00	10.43	≤ 10.99	Pass
11n-HT20	MCS0	144	5720	7.78	7.22	100.00	10.52	≤ 10.99	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/MHz)	Ant 1 PSD (dBm/MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/MHz)	Result
11n-HT40	MCS0	38	5190	8.25	8.89	100.00	11.59	≤ 16.99	Pass
11n-HT40	MCS0	46	5230	11.42	12.01	100.00	14.74	≤ 16.99	Pass
11n-HT40	MCS0	54	5270	5.63	5.32	100.00	8.49	≤ 10.99	Pass
11n-HT40	MCS0	62	5310	5.15	5.65	100.00	8.42	≤ 10.99	Pass
11n-HT40	MCS0	102	5510	6.36	5.70	100.00	9.05	≤ 10.99	Pass
11n-HT40	MCS0	118	5590	4.43	3.68	100.00	7.08	≤ 10.99	Pass
11n-HT40	MCS0	134	5670	3.93	4.70	100.00	7.34	≤ 10.99	Pass
11n-HT40	MCS0	142	5710	4.54	5.12	100.00	7.85	≤ 10.99	Pass
11ac-VHT20	MCS0	36	5180	12.14	11.00	100.00	14.62	≤ 16.99	Pass
11ac-VHT20	MCS0	44	5220	13.66	13.95	100.00	16.82	≤ 16.99	Pass
11ac-VHT20	MCS0	48	5240	13.77	13.72	100.00	16.76	≤ 16.99	Pass
11ac-VHT20	MCS0	52	5260	7.28	8.37	100.00	10.87	≤ 10.99	Pass
11ac-VHT20	MCS0	60	5300	7.00	7.68	100.00	10.36	≤ 10.99	Pass
11ac-VHT20	MCS0	64	5320	7.47	7.46	100.00	10.48	≤ 10.99	Pass
11ac-VHT20	MCS0	100	5500	7.63	7.53	100.00	10.59	≤ 10.99	Pass
11ac-VHT20	MCS0	120	5600	7.94	7.39	100.00	10.68	≤ 10.99	Pass
11ac-VHT20	MCS0	140	5700	7.27	7.52	100.00	10.41	≤ 10.99	Pass
11ac-VHT20	MCS0	144	5720	7.92	7.71	100.00	10.83	≤ 10.99	Pass
11ac-VHT40	MCS0	38	5190	7.59	8.02	100.00	10.82	≤ 16.99	Pass
11ac-VHT40	MCS0	46	5230	11.72	11.75	100.00	14.75	≤ 16.99	Pass
11ac-VHT40	MCS0	54	5270	4.23	4.23	100.00	7.24	≤ 10.99	Pass
11ac-VHT40	MCS0	62	5310	5.68	6.36	100.00	9.04	≤ 10.99	Pass
11ac-VHT40	MCS0	102	5510	5.72	5.36	100.00	8.55	≤ 10.99	Pass
11ac-VHT40	MCS0	118	5590	5.57	5.08	100.00	8.34	≤ 10.99	Pass
11ac-VHT40	MCS0	134	5670	5.28	5.62	100.00	8.46	≤ 10.99	Pass
11ac-VHT40	MCS0	142	5710	4.04	4.96	100.00	7.53	≤ 10.99	Pass
11ac-VHT80	MCS0	42	5210	4.48	4.70	100.00	7.60	≤ 16.99	Pass
11ac-VHT80	MCS0	58	5290	3.00	2.89	100.00	5.96	≤ 10.99	Pass
11ac-VHT80	MCS0	106	5530	2.23	1.29	100.00	4.80	≤ 10.99	Pass
11ac-VHT80	MCS0	122	5610	1.98	2.06	100.00	5.03	≤ 10.99	Pass
11ac-VHT80	MCS0	138	5690	2.42	3.07	100.00	5.77	≤ 10.99	Pass
11ac-VHT160	MCS0	50	5250	-0.54	-1.03	100.00	2.23	≤ 10.99	Pass
11ac-VHT160	MCS0	114	5570	-0.17	-0.25	100.00	2.80	≤ 10.99	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/MHz)	Ant 1 PSD (dBm/MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/MHz)	Result
11ax-HE20	MCS0	36	5180	13.26	13.09	100.00	16.19	≤ 16.99	Pass
11ax-HE20	MCS0	44	5220	13.25	13.81	100.00	16.55	≤ 16.99	Pass
11ax-HE20	MCS0	48	5240	13.75	13.97	100.00	16.87	≤ 16.99	Pass
11ax-HE20	MCS0	52	5260	7.30	7.38	100.00	10.35	≤ 10.99	Pass
11ax-HE20	MCS0	60	5300	6.72	6.76	100.00	9.75	≤ 10.99	Pass
11ax-HE20	MCS0	64	5320	6.18	6.28	100.00	9.24	≤ 10.99	Pass
11ax-HE20	MCS0	100	5500	6.52	6.13	100.00	9.34	≤ 10.99	Pass
11ax-HE20	MCS0	120	5600	7.16	7.69	100.00	10.44	≤ 10.99	Pass
11ax-HE20	MCS0	140	5700	7.33	7.48	100.00	10.42	≤ 10.99	Pass
11ax-HE20	MCS0	144	5720	7.52	7.28	100.00	10.41	≤ 10.99	Pass
11ax-HE40	MCS0	38	5190	7.84	8.65	100.00	11.27	≤ 16.99	Pass
11ax-HE40	MCS0	46	5230	12.18	12.27	100.00	15.24	≤ 16.99	Pass
11ax-HE40	MCS0	54	5270	5.82	5.83	100.00	8.84	≤ 10.99	Pass
11ax-HE40	MCS0	62	5310	5.47	6.79	100.00	9.19	≤ 10.99	Pass
11ax-HE40	MCS0	102	5510	5.14	4.86	100.00	8.01	≤ 10.99	Pass
11ax-HE40	MCS0	118	5590	5.64	5.18	100.00	8.43	≤ 10.99	Pass
11ax-HE40	MCS0	134	5670	4.64	4.87	100.00	7.77	≤ 10.99	Pass
11ax-HE40	MCS0	142	5710	4.71	5.35	100.00	8.05	≤ 10.99	Pass
11ax-HE80	MCS0	42	5210	5.03	4.38	100.00	7.73	≤ 16.99	Pass
11ax-HE80	MCS0	58	5290	3.19	2.67	100.00	5.95	≤ 10.99	Pass
11ax-HE80	MCS0	106	5530	3.30	2.54	100.00	5.95	≤ 10.99	Pass
11ax-HE80	MCS0	122	5610	2.26	1.98	100.00	5.13	≤ 10.99	Pass
11ax-HE80	MCS0	122	5690	1.85	2.35	100.00	5.12	≤ 10.99	Pass
11ax-HE160	MCS0	50	5250	-0.53	-0.79	100.00	2.35	≤ 10.99	Pass
11ax-HE160	MCS0	114	5570	0.22	-0.01	100.00	3.12	≤ 10.99	Pass

Note 1:

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

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

Note 2:

For 5150 - 5250MHz Bands: PSD Limit (dBm/MHz) = 17 - (6.01 - 6) = 16.99dBm/MHz.

For 5250 - 5725MHz Bands: PSD Limit (dBm/MHz) = 11 - (6.01 - 6) = 10.99dBm/MHz.

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ 100kHz)	Ant 1 PSD (dBm/ 100kHz)	Duty Cycle (%)	Constant Factor (dB)	Total PSD (dBm/ 500kHz)	Limit (dBm/ 500kHz)	Result
11a	6Mbps	149	5745	5.00	4.58	100.00	6.99	14.80	≤ 29.99	Pass
11a	6Mbps	157	5785	5.41	4.79	100.00	6.99	15.11	≤ 29.99	Pass
11a	6Mbps	165	5825	5.21	4.70	100.00	6.99	14.96	≤ 29.99	Pass
11n-HT20	MCS0	149	5745	5.10	4.82	100.00	6.99	14.96	≤ 29.99	Pass
11n-HT20	MCS0	157	5785	5.23	5.15	100.00	6.99	15.19	≤ 29.99	Pass
11n-HT20	MCS0	165	5825	5.14	5.12	100.00	6.99	15.13	≤ 29.99	Pass
11n-HT40	MCS0	151	5755	1.22	0.80	100.00	6.99	11.02	≤ 29.99	Pass
11n-HT40	MCS0	159	5795	1.48	1.03	100.00	6.99	11.26	≤ 29.99	Pass
11ac-VHT20	MCS0	149	5745	4.83	4.19	100.00	6.99	14.52	≤ 29.99	Pass
11ac-VHT20	MCS0	157	5785	4.96	4.47	100.00	6.99	14.72	≤ 29.99	Pass
11ac-VHT20	MCS0	165	5825	4.73	4.76	100.00	6.99	14.75	≤ 29.99	Pass
11ac-VHT40	MCS0	151	5755	0.98	0.53	100.00	6.99	10.76	≤ 29.99	Pass
11ac-VHT40	MCS0	159	5795	1.28	1.05	100.00	6.99	11.17	≤ 29.99	Pass
11ac-VHT80	MCS0	155	5775	-2.47	-2.36	100.00	6.99	7.59	≤ 29.99	Pass
11ax-HE20	MCS0	149	5745	6.03	6.11	100.00	6.99	16.07	≤ 29.99	Pass
11ax-HE20	MCS0	157	5785	6.33	6.16	100.00	6.99	16.25	≤ 29.99	Pass
11ax-HE20	MCS0	165	5825	5.97	6.14	100.00	6.99	16.06	≤ 29.99	Pass
11ax-HE40	MCS0	151	5755	2.56	2.08	100.00	6.99	12.33	≤ 29.99	Pass
11ax-HE40	MCS0	159	5795	2.57	3.07	100.00	6.99	12.83	≤ 29.99	Pass
11ax-HE80	MCS0	155	5775	-2.06	-1.77	100.00	6.99	8.09	≤ 29.99	Pass

Note 1:

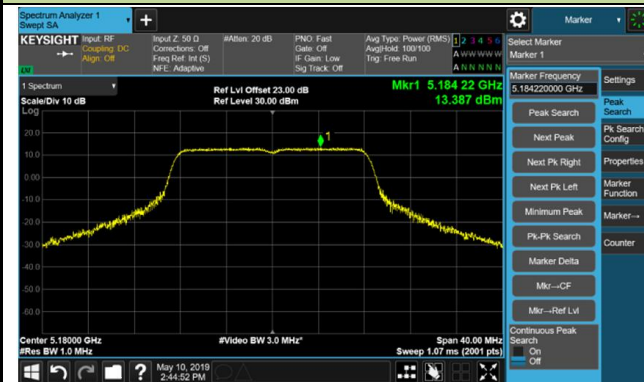
When EUT duty cycle ≥ 98%, the total PSD (dBm/500kHz) = $10 \cdot \log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}\}$ (dBm/100kHz) + Constant Factor (dB).

When EUT duty cycle < 98%, the total PSD (dBm/500kHz) = $10 \cdot \log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}\}$ (dBm/100kHz) + Constant Factor (dB) + $10 \cdot \log (1/\text{Duty Cycle})$.

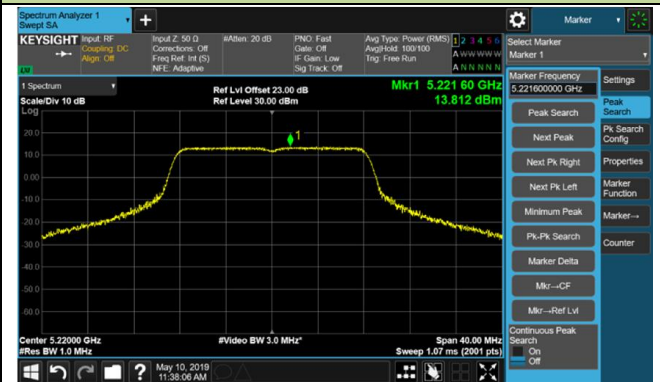
Note 2: PSD Limit (dBm/500kHz) = 30 - (6.01 - 6) = 29.99dBm/500kHz.

802.11a Power Spectral Density - Ant 0 / Ant 0 + 1

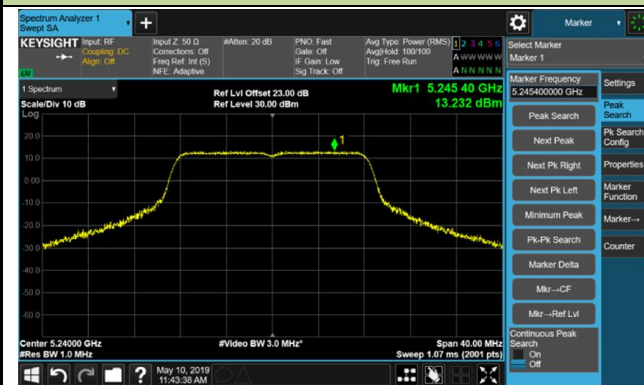
Channel 36 (5180MHz)



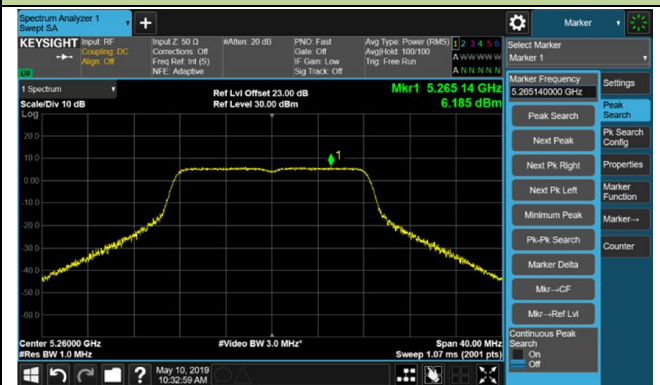
Channel 44 (5220MHz)



Channel 48 (5240MHz)



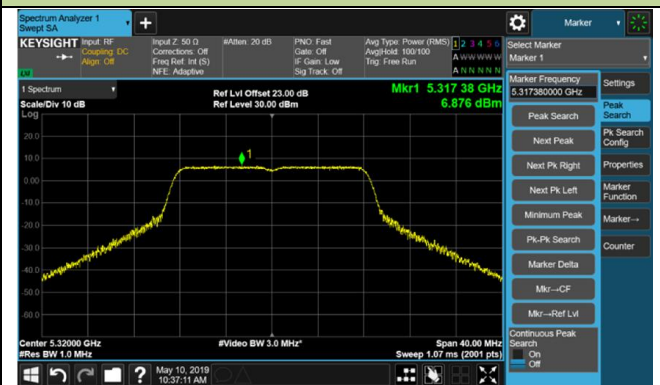
Channel 52 (5260MHz)



Channel 60 (5300MHz)



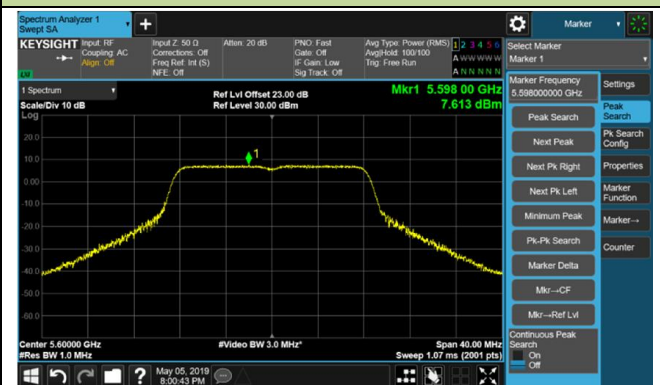
Channel 64 (5320MHz)

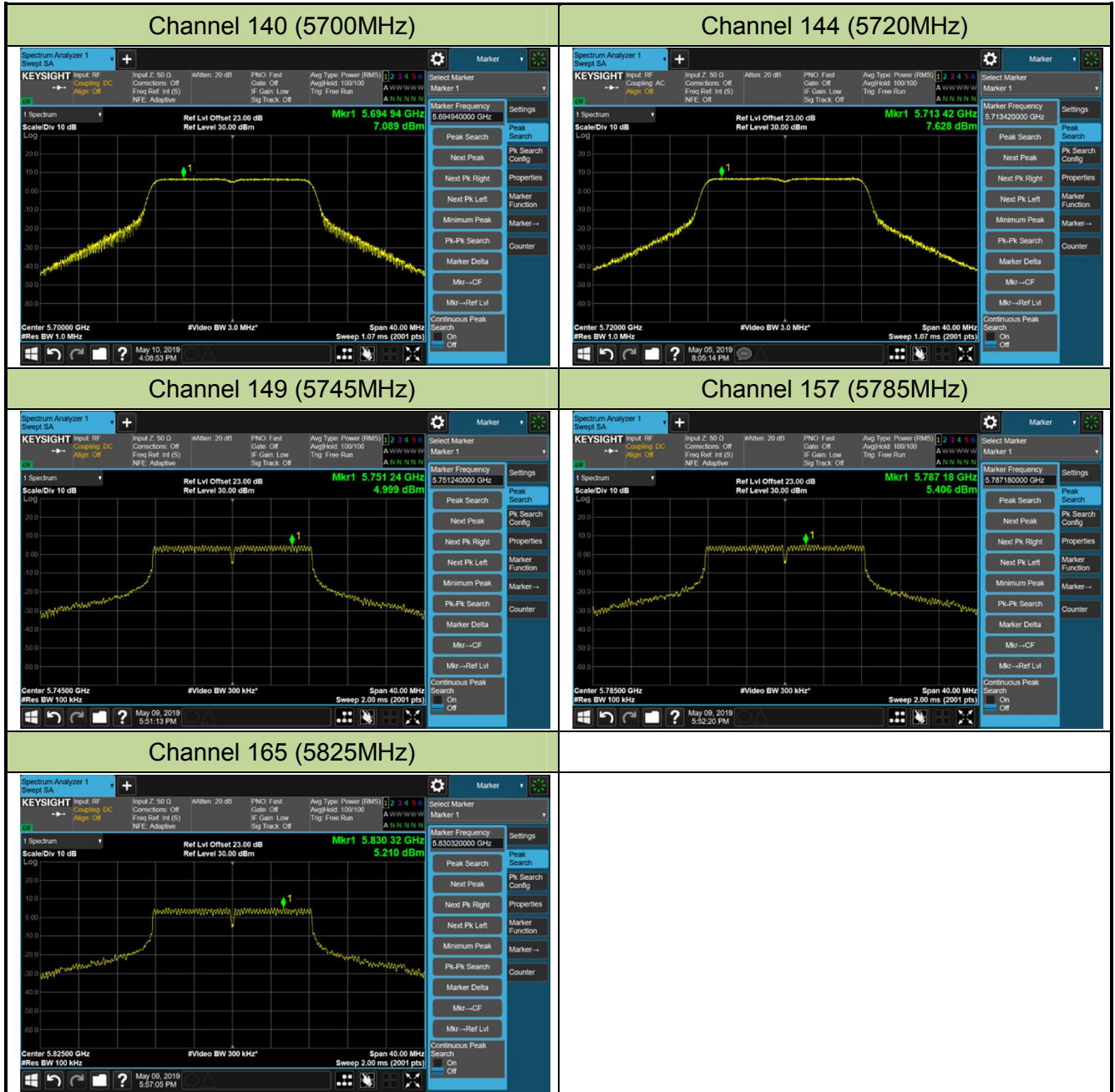


Channel 100 (5500MHz)



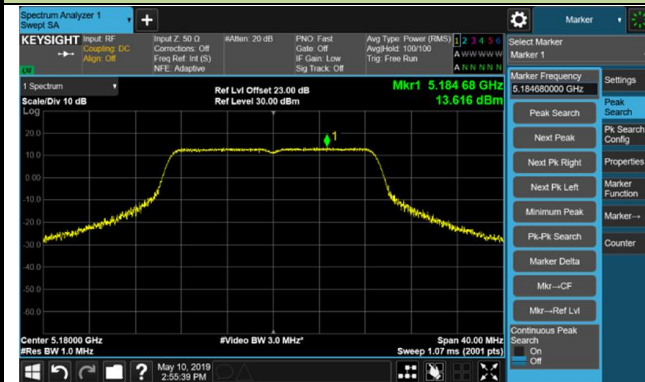
Channel 120 (5600MHz)





802.11n-HT20 Power Spectral Density - Ant 0 / Ant 0 + 1

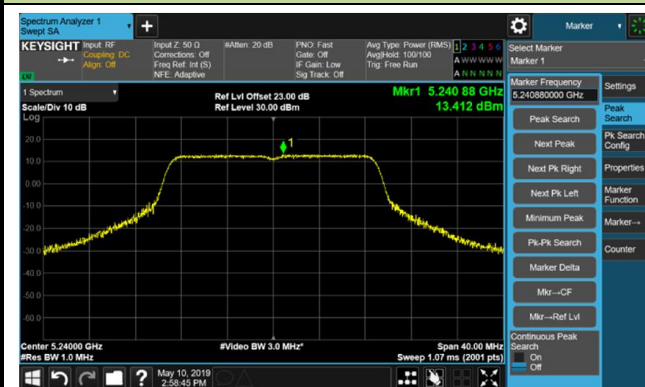
Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)



Channel 52 (5260MHz)



Channel 60 (5300MHz)



Channel 64 (5320MHz)

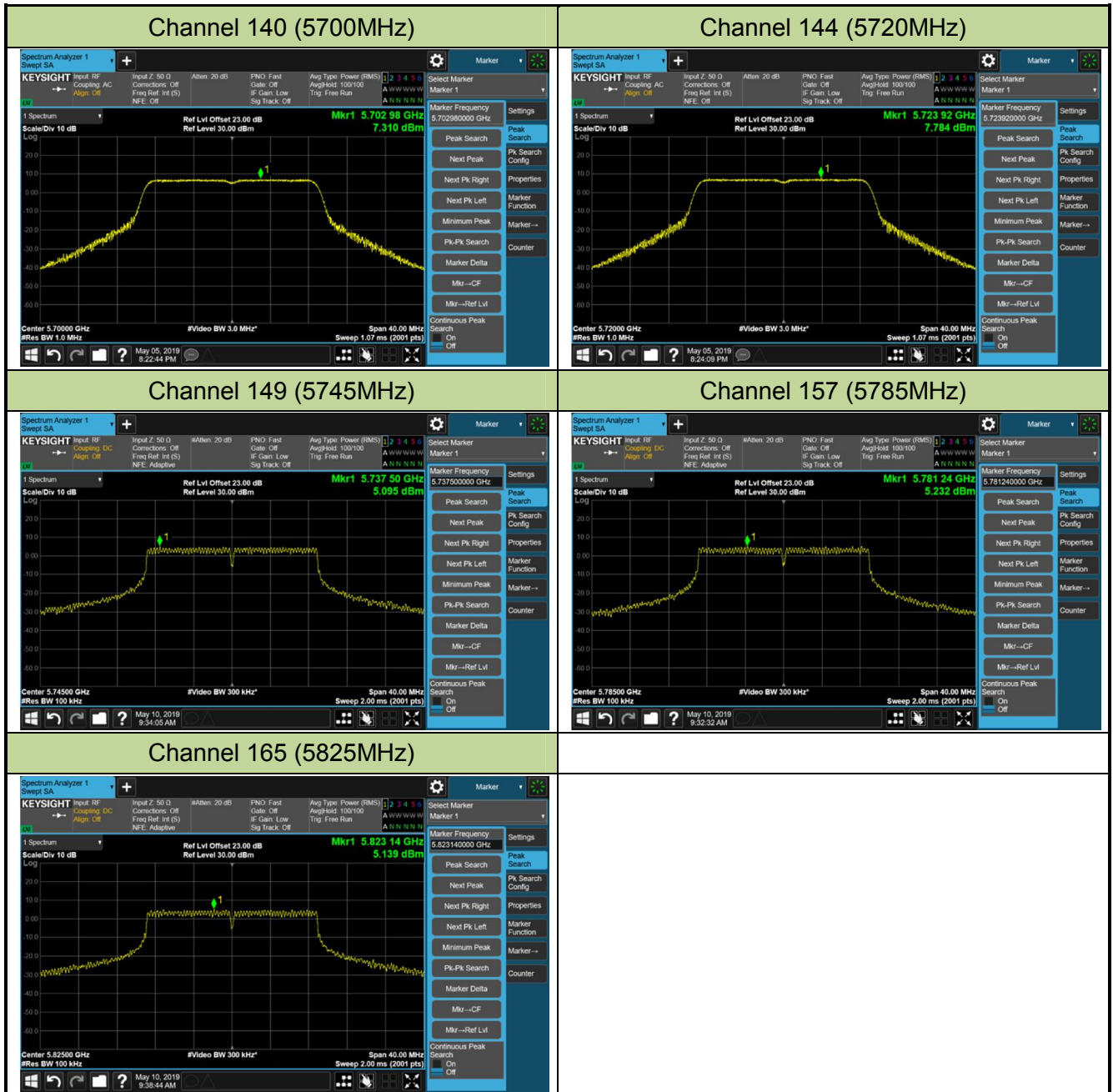


Channel 100 (5500MHz)



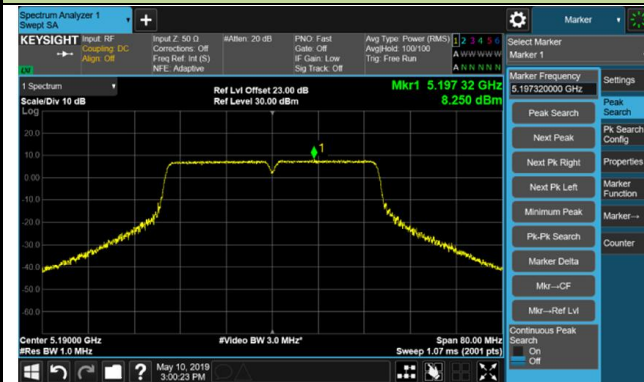
Channel 120 (5600MHz)





802.11n-HT40 Power Spectral Density - Ant 0 / Ant 0 + 1

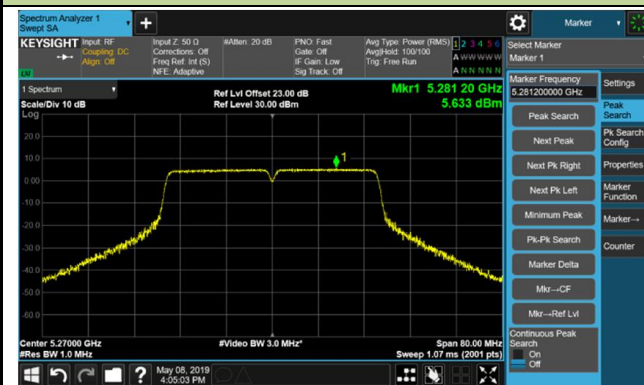
Channel 38 (5190MHz)



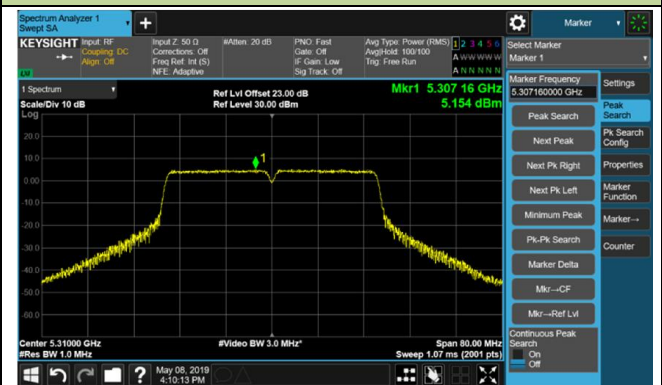
Channel 46 (5230MHz)



Channel 54 (5270MHz)



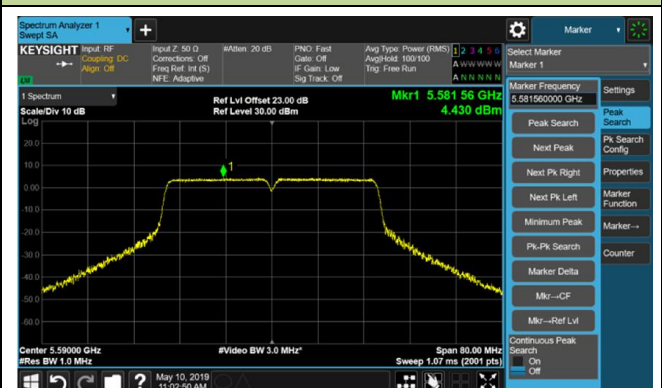
Channel 62 (5310MHz)



Channel 102 (5510MHz)



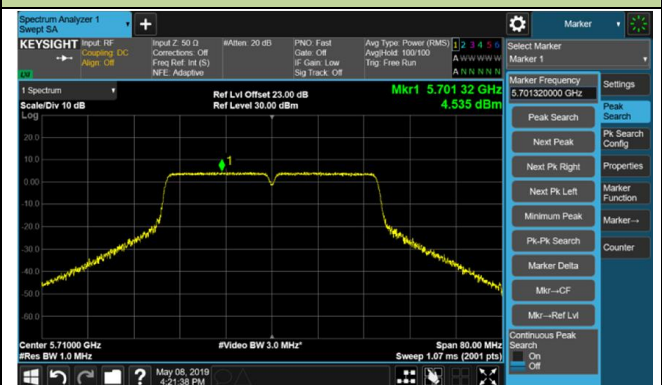
Channel 118 (5590MHz)

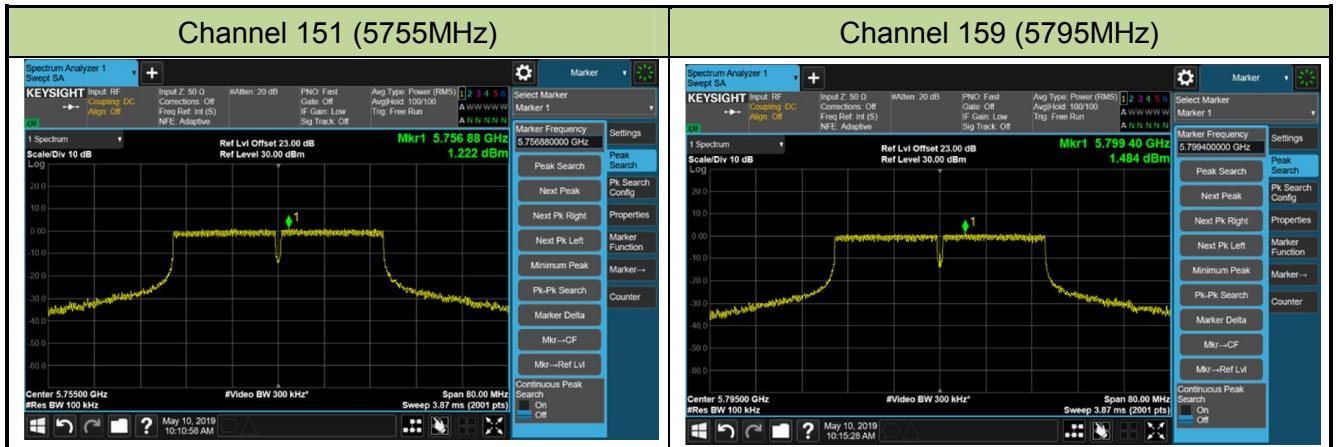


Channel 134 (5670MHz)



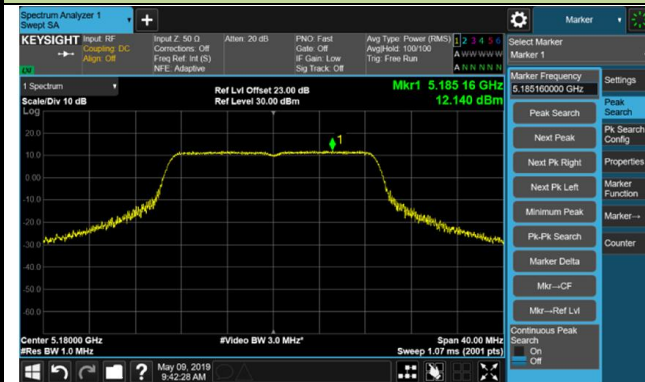
Channel 142 (5710MHz)



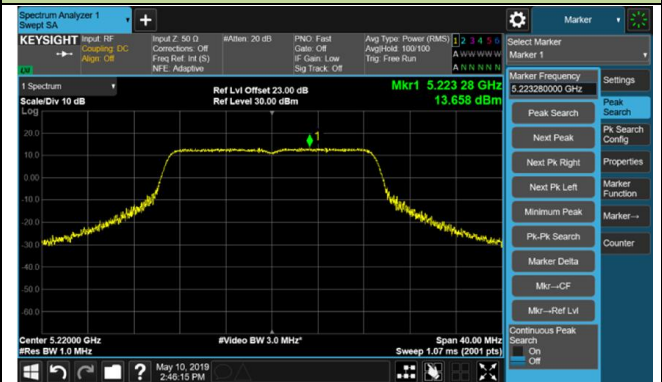


802.11ac-VHT20 Power Spectral Density - Ant 0 / Ant 0 + 1

Channel 36 (5180MHz)



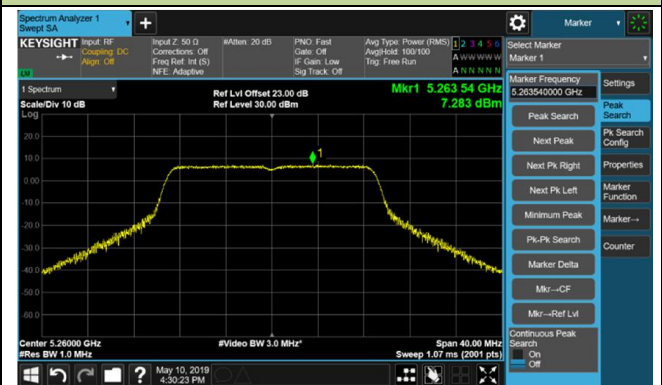
Channel 44 (5220MHz)



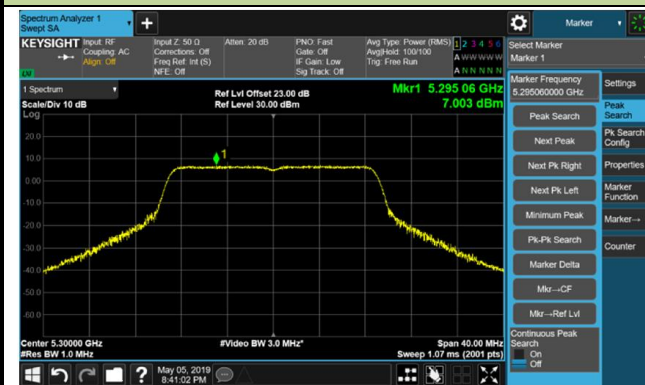
Channel 48 (5240MHz)



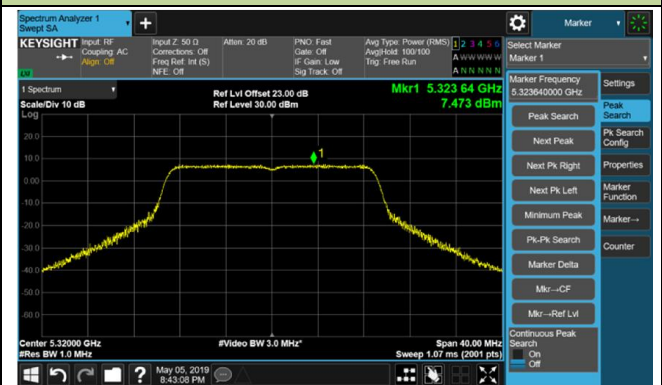
Channel 52 (5260MHz)



Channel 60 (5300MHz)



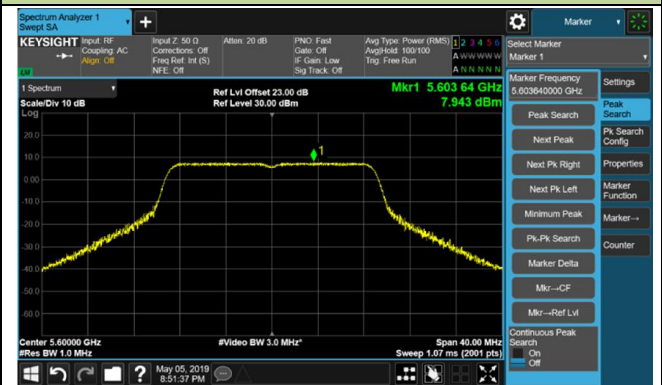
Channel 64 (5320MHz)

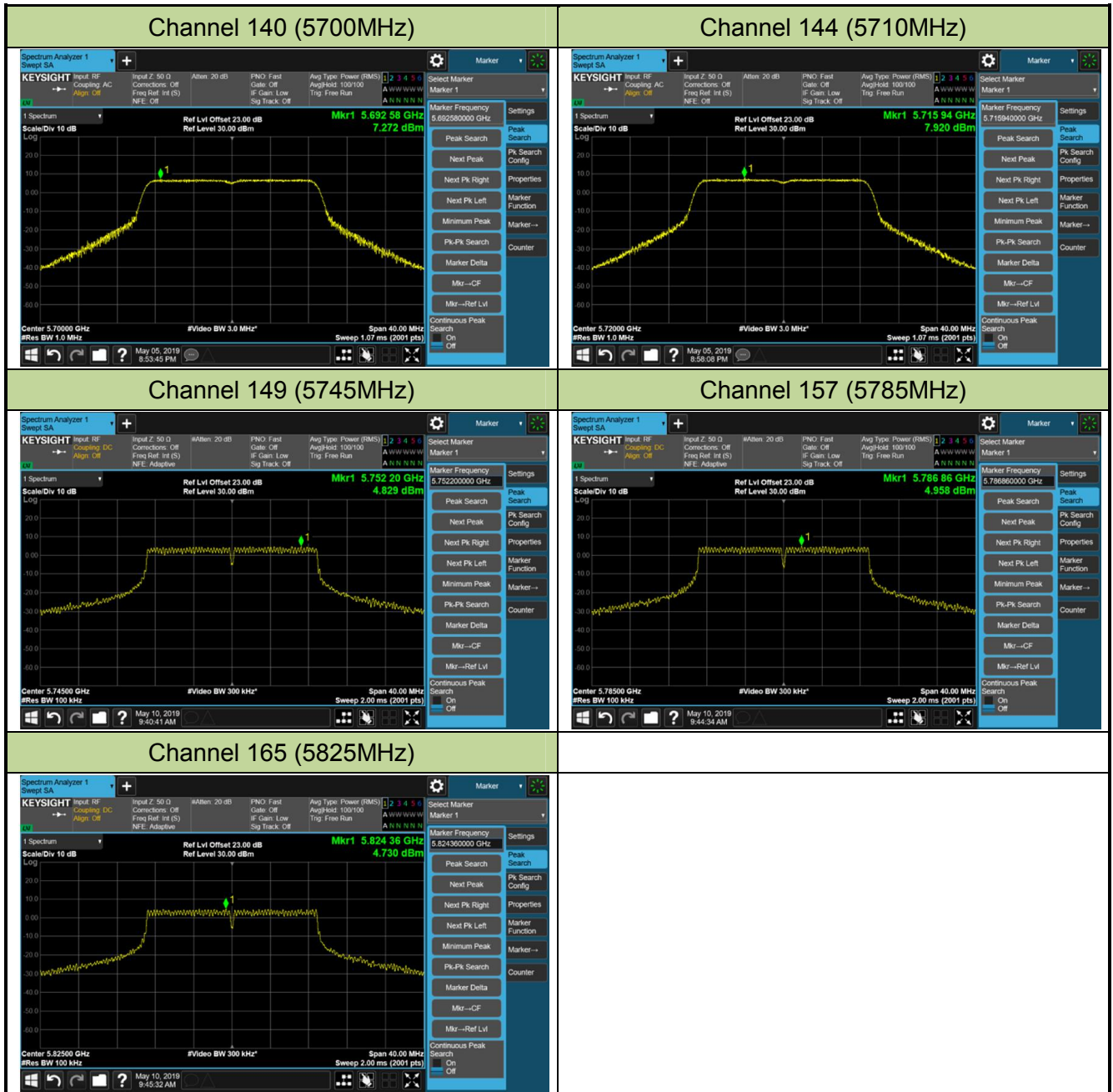


Channel 100 (5500MHz)



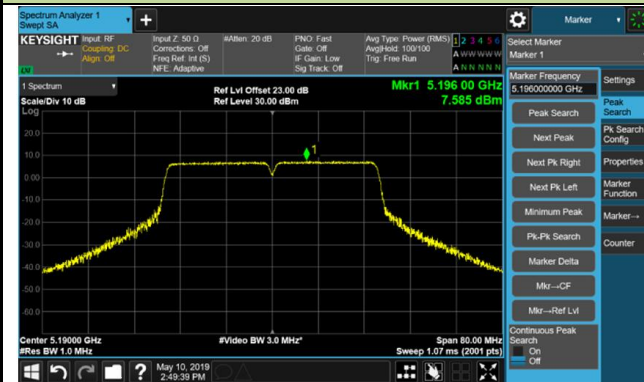
Channel 120 (5600MHz)





802.11ac-VHT40 Power Spectral Density - Ant 0 / Ant 0 + 1

Channel 38 (5190MHz)



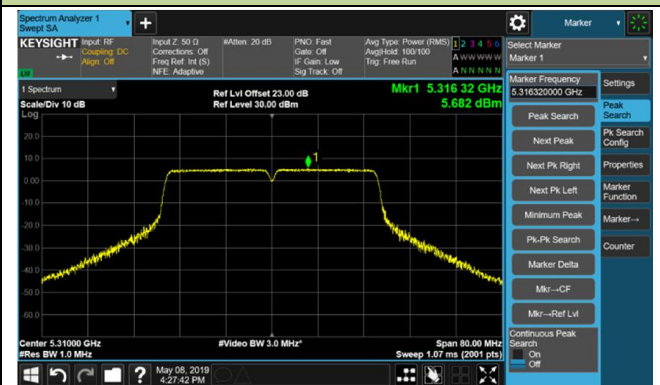
Channel 46 (5230MHz)



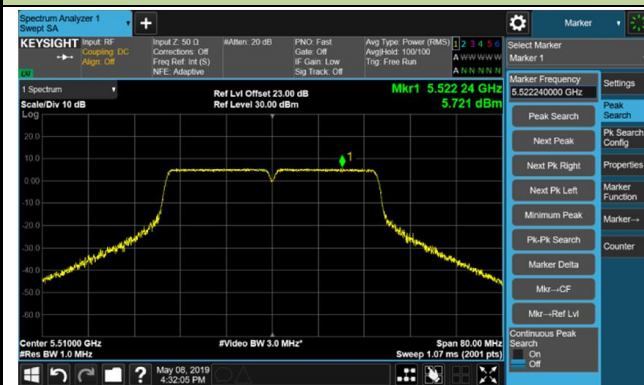
Channel 54 (5270MHz)



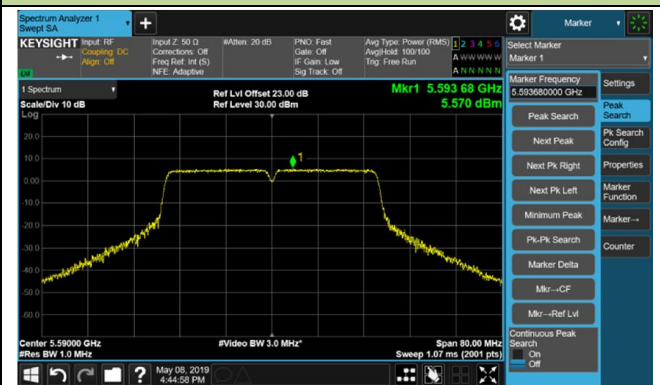
Channel 62 (5310MHz)



Channel 102 (5510MHz)



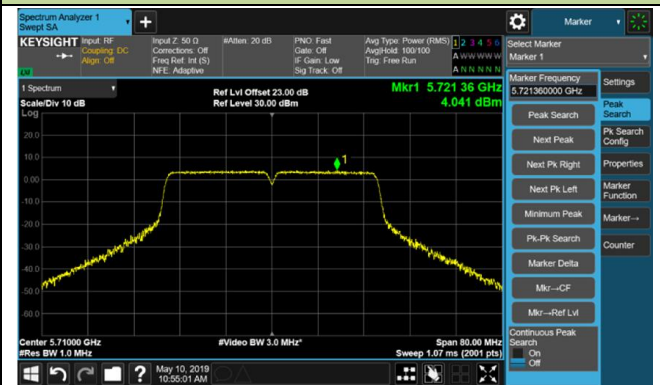
Channel 118 (5590MHz)



Channel 134 (5670MHz)



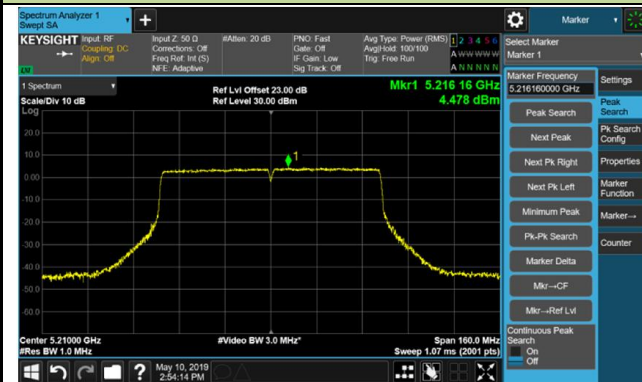
Channel 142 (5710MHz)





802.11ac-VHT80 Power Spectral Density - Ant 0 / Ant 0 + 1

Channel 42 (5210MHz)



Channel 58 (5290MHz)



Channel 106 (5530MHz)



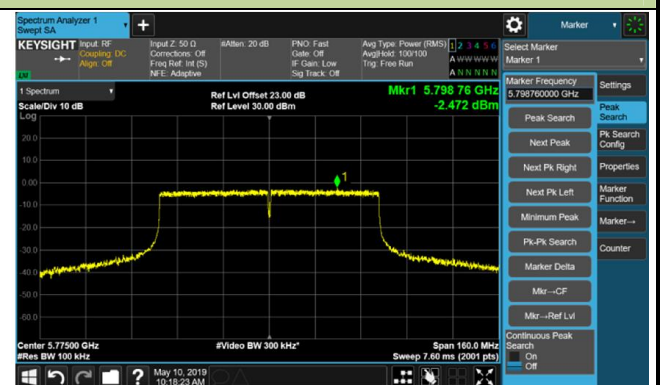
Channel 122 (5610MHz)



Channel 138 (5690MHz)



Channel 155 (5775MHz)



802.11ac-VHT160 Power Spectral Density - Ant 0 / Ant 0 + 1

Channel 50 (5250MHz)



Channel 114 (5570MHz)

