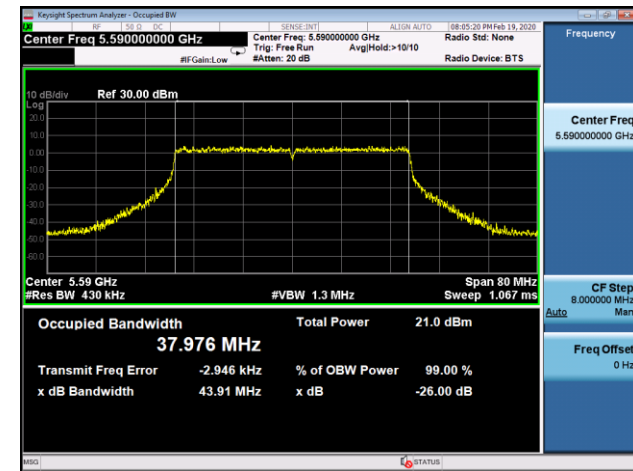
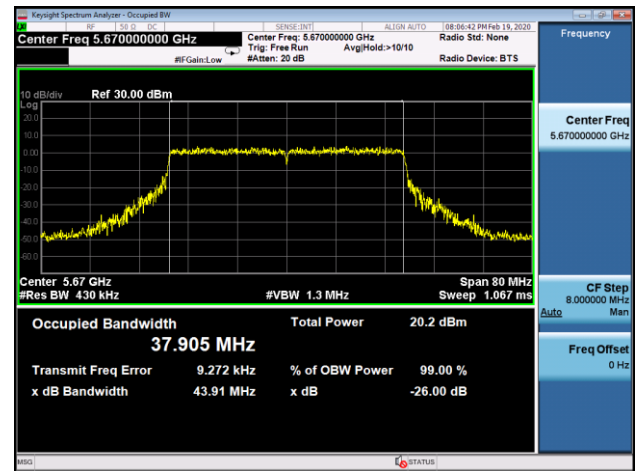


802.11ax-HE40 26dB Bandwidth - Ant 3 / Ant 0 + 1 + 2 + 3

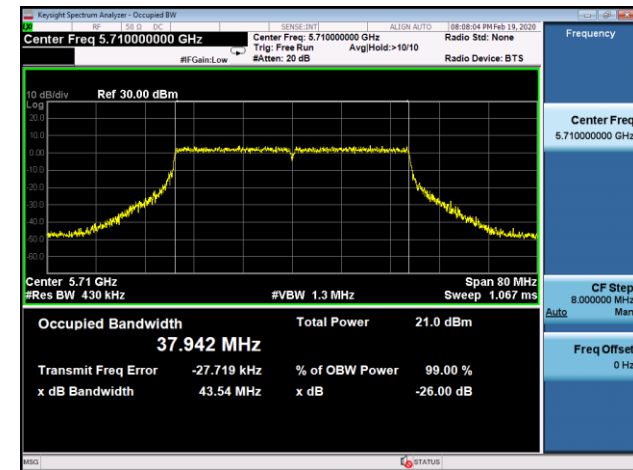
Channel 118 (5590MHz)



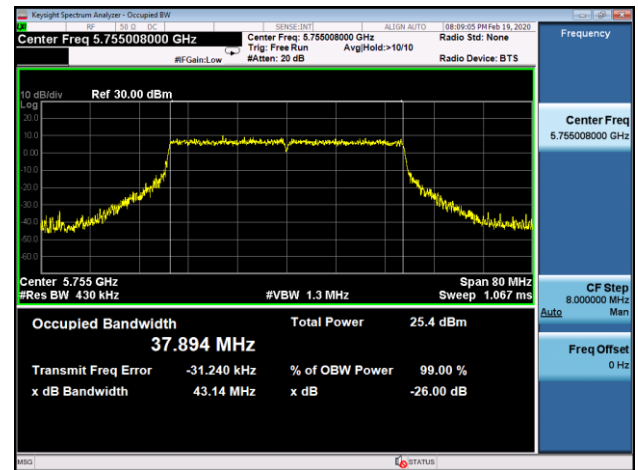
Channel 134 (5670MHz)



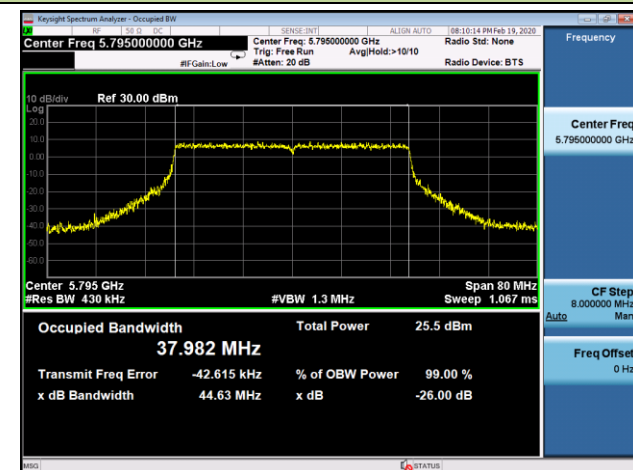
Channel 142 (5710MHz)



Channel 151 (5755MHz)

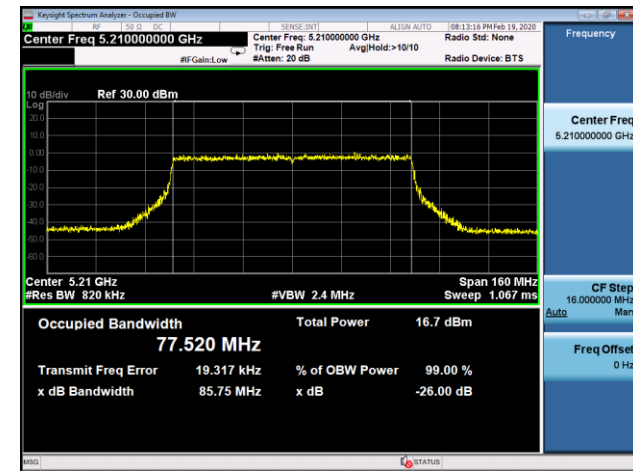


Channel 159 (5795MHz)

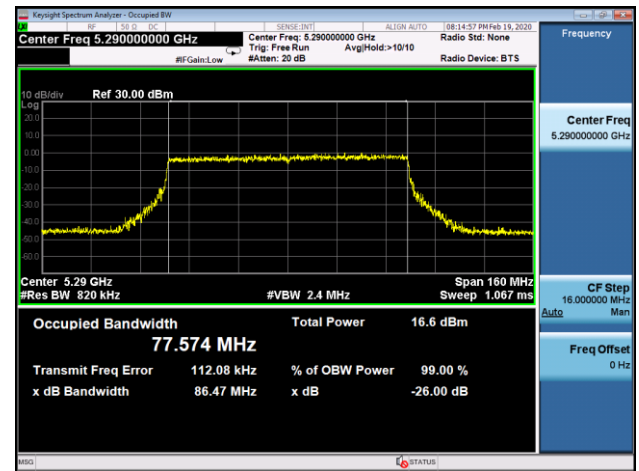


802.11ax-HE80 26dB Bandwidth - Ant 3 / Ant 0 + 1 + 2 + 3

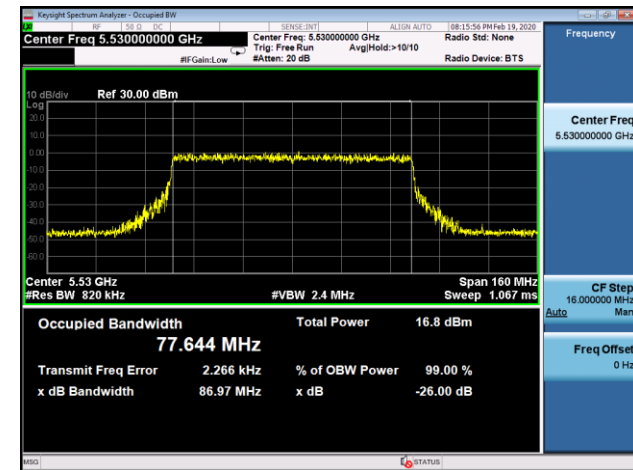
Channel 42 (5210MHz)



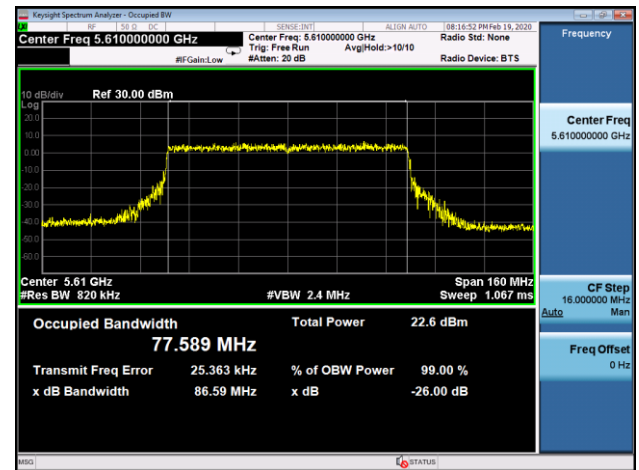
Channel 58 (5290MHz)



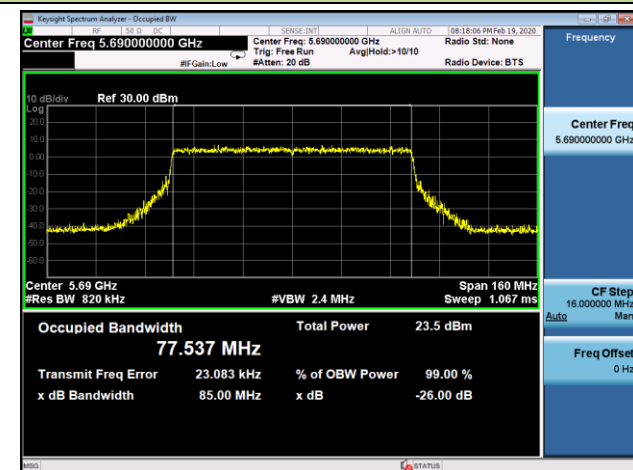
Channel 106 (5530MHz)



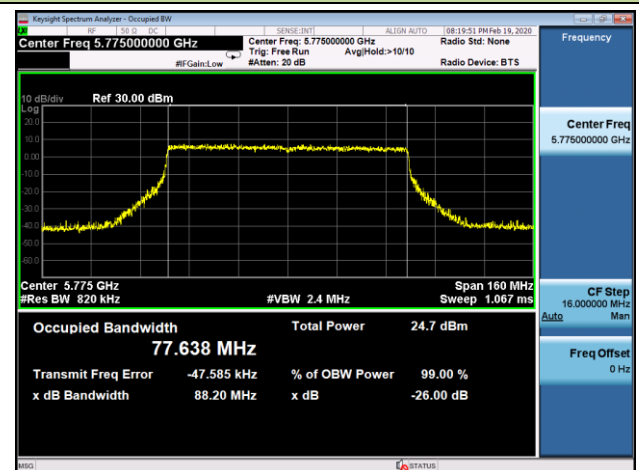
Channel 122 (5610MHz)



Channel 138 (5690MHz)

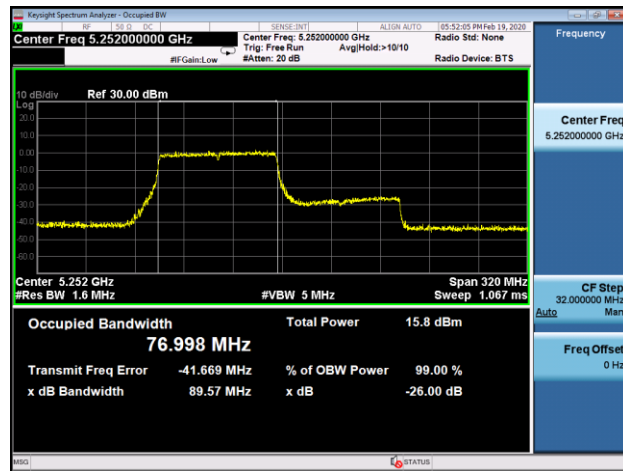


Channel 155 (5775MHz)

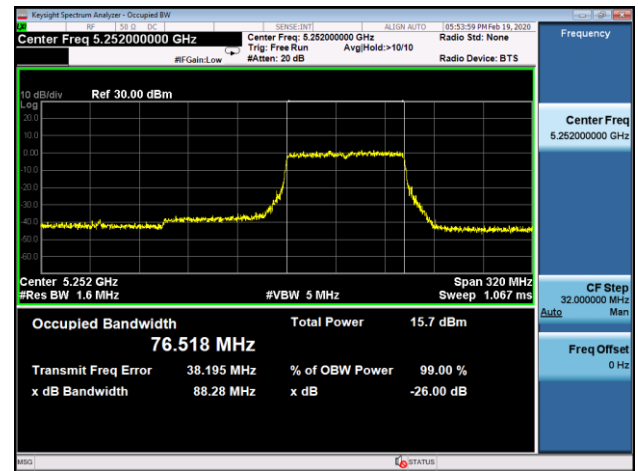


802.11ac-VHT80+80 26dB Bandwidth - Ant 0 / Ant 0 + 1 & Ant 2 / Ant 2 + 3

Channel 42 (5210MHz)



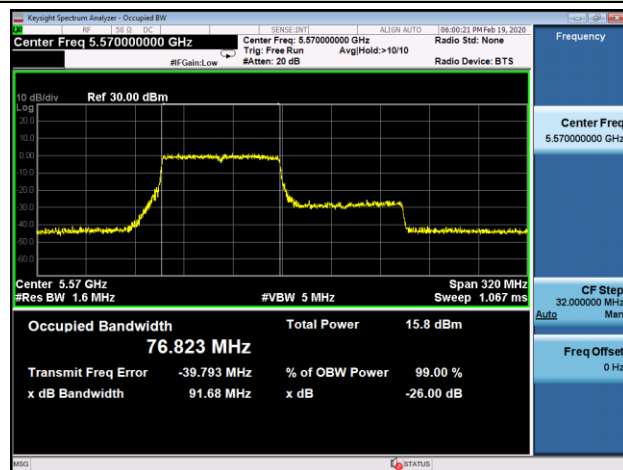
Channel 58 (5290MHz)



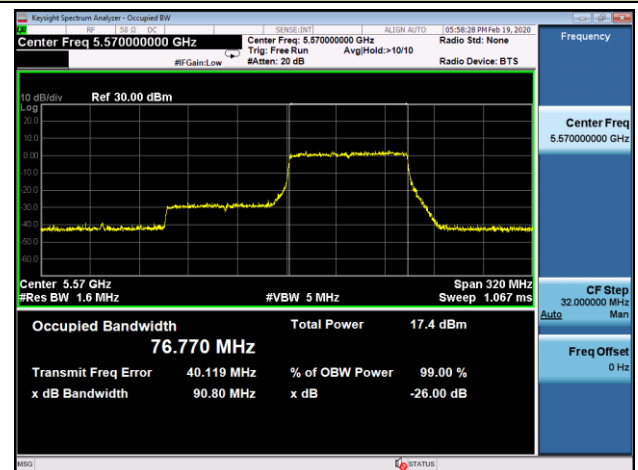
Note: 26dB OCW = $[5290 + (88.28/2)] - [5210 - (89.57/2)] = 168.93\text{MHz}$

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

Channel 106(5530MHz)



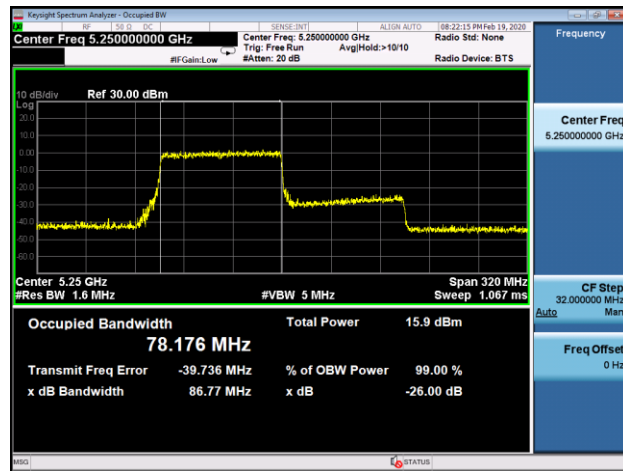
Channel 122 (5610MHz)



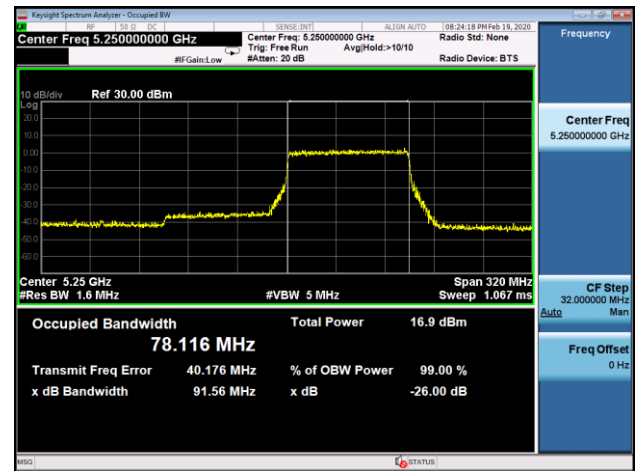
Note: 26dB OCW = $[5610 + (90.80/2)] - [5530 - (91.68/2)] = 171.24 \text{ MHz}$

802.11ax-HE80+80 26dB Bandwidth - Ant 0 / Ant 0 + 1 & Ant 2 / Ant 2 + 3

Channel 42 (5210MHz)



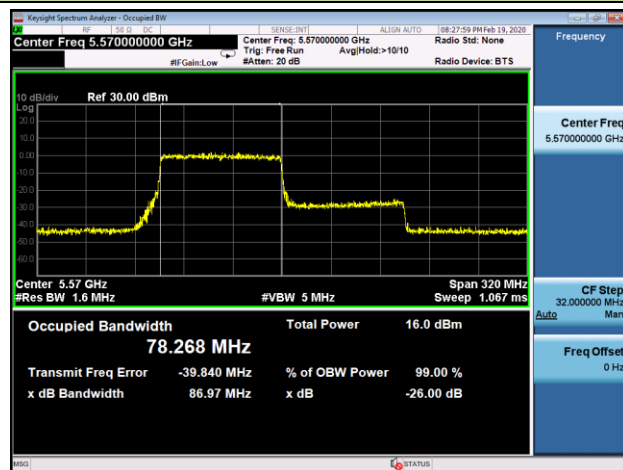
Channel 58 (5290MHz)



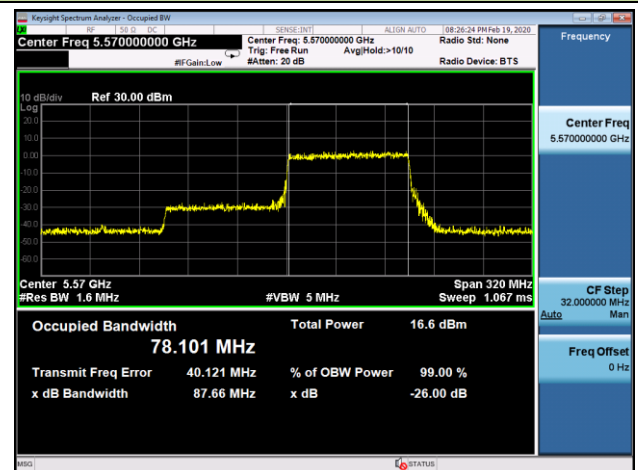
Note: 26dB OCW = $[5290 + (91.56/2)] - [5210 - (86.77/2)] = 169.17$ MHz

802.11ax-HE80+80 26dB Bandwidth - Ant 0 / Ant 0 + 1 & Ant 2 / Ant 2 + 3

Channel 106 (5530MHz)



Channel 122 (5610MHz)



Note: 26dB OCW = $[5610 + (87.66/2)] - [5530 - (86.97/2)] = 167.32$ MHz

7.3. 6dB Bandwidth Measurement

7.3.1.Test Limit

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

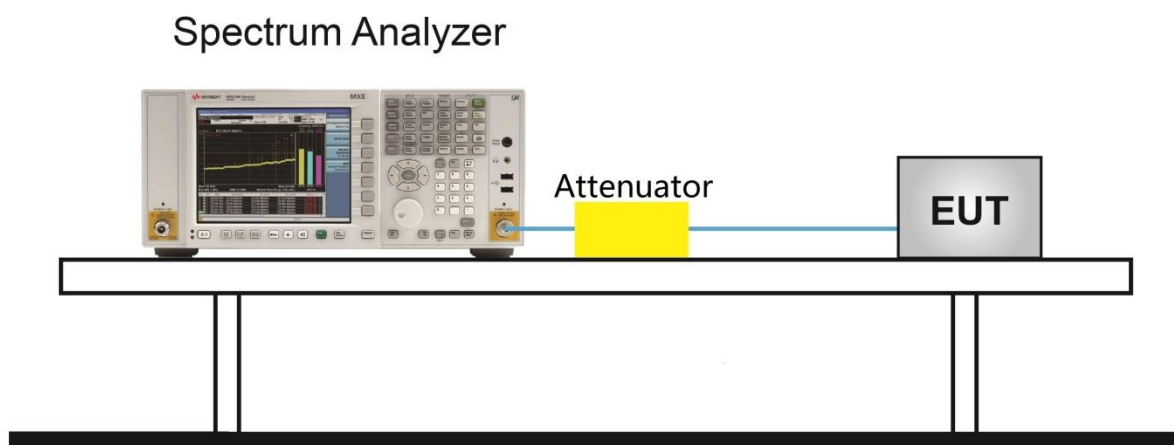
7.3.2.Test ProcedureUsed

KDB 789033 D02v02r01 - Section C.2

7.3.3.TestSetting

1. Set center frequency to the nominal EUT channel center frequency.
2. RBW = 100 kHz.
3. VBW $\geq$ 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



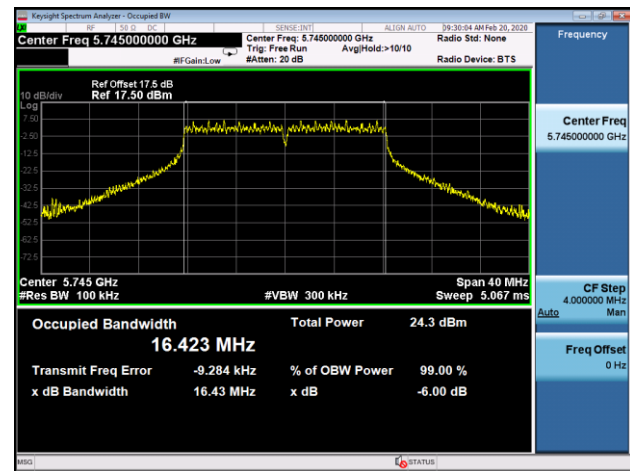
7.3.5.TestResult

Product	Wireless Access Point	Temperature	23°C
Test Engineer	Flag Yang	Relative Humidity	52%
Test Site	TR3	Test Date	2020/02/20

Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
Ant 3 / Ant 0 + 1 + 2 + 3						
802.11a	6Mbps	149	5745	16.43	≥0.5	Pass
802.11a	6Mbps	157	5785	16.46	≥0.5	Pass
802.11a	6Mbps	165	5825	16.47	≥0.5	Pass
802.11ac-VHT20	MCS0	149	5745	17.70	≥0.5	Pass
802.11ac-VHT20	MCS0	157	5785	17.75	≥0.5	Pass
802.11ac-VHT20	MCS0	165	5825	17.69	≥0.5	Pass
802.11ac-VHT40	MCS0	151	5755	36.45	≥0.5	Pass
802.11ac-VHT40	MCS0	159	5795	36.43	≥0.5	Pass
802.11ac-VHT80	MCS0	155	5775	76.46	≥0.5	Pass
802.11ax-HE20	MCS0	149	5745	19.10	≥0.5	Pass
802.11ax-HE20	MCS0	157	5785	19.06	≥0.5	Pass
802.11ax-HE20	MCS0	165	5825	19.10	≥0.5	Pass
802.11ax-HE40	MCS0	151	5755	38.15	≥0.5	Pass
802.11ax-HE40	MCS0	159	5795	38.15	≥0.5	Pass
802.11ax-HE80	MCS0	155	5775	78.05	≥0.5	Pass

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

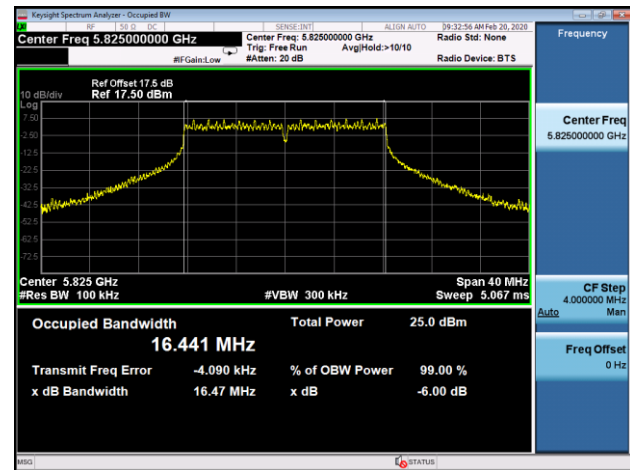
Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)



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

Channel 149 (5745MHz)



Channel 157 (5785MHz)

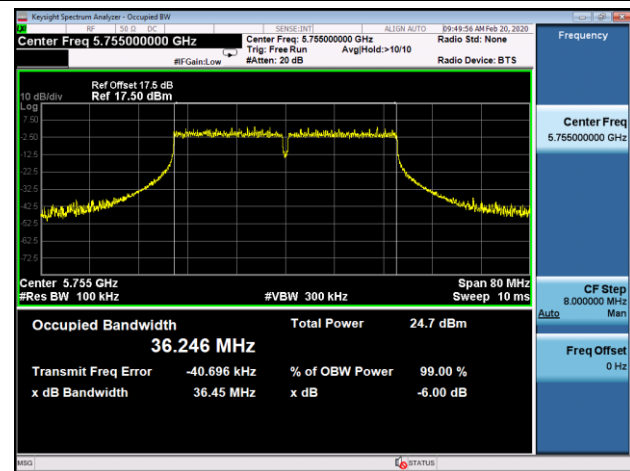


Channel 165 (5825MHz)

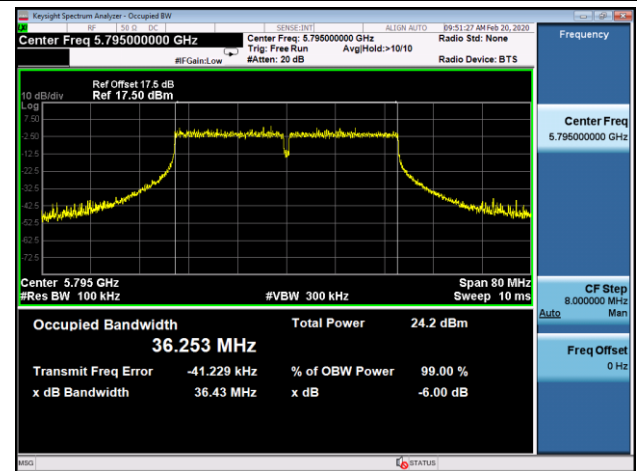


802.11ac-VHT40 6dB Bandwidth - Ant 3 / Ant 0 + 1 + 2 + 3

Channel 151 (5755MHz)

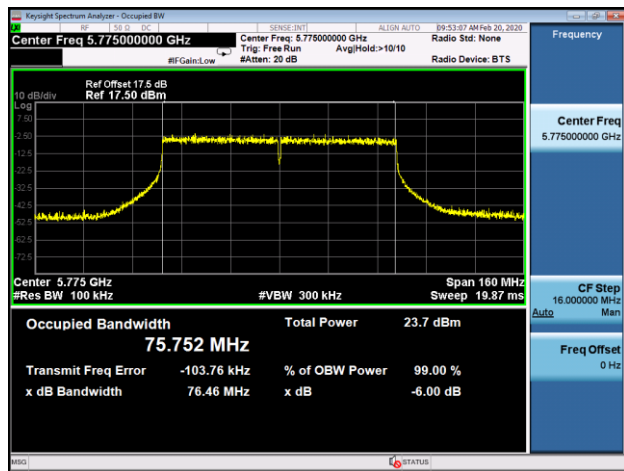


Channel 159 (5795MHz)



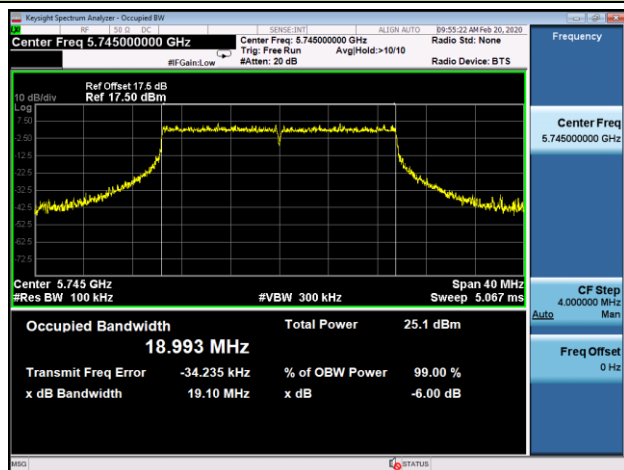
802.11ac-VHT80 6dB Bandwidth - Ant 3 / Ant 0 + 1 + 2 + 3

Channel 155 (5775MHz)

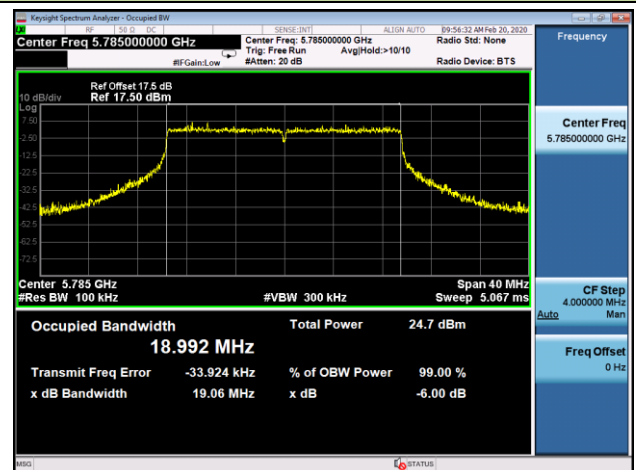


802.11ax-HE20 6dB Bandwidth - Ant 3 / Ant 0 + 1 + 2 + 3

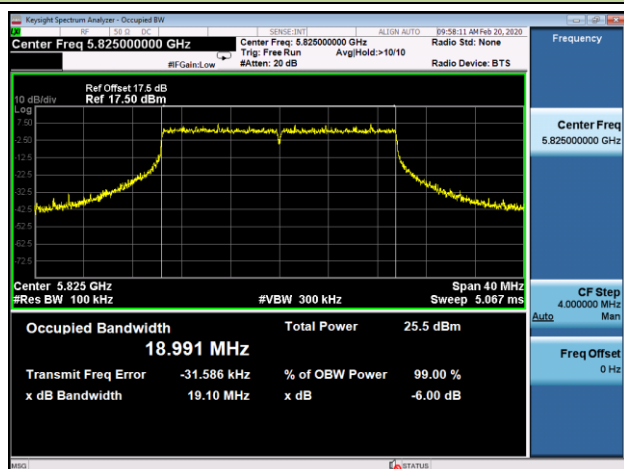
Channel 149 (5745MHz)



Channel 157 (5785MHz)

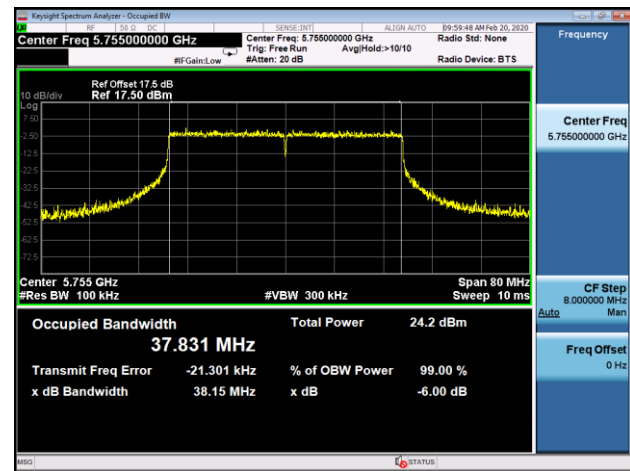


Channel 165 (5825MHz)



802.11ax-HE40 6dB Bandwidth - Ant 3 / Ant 0 + 1 + 2 + 3

Channel 151 (5755MHz)

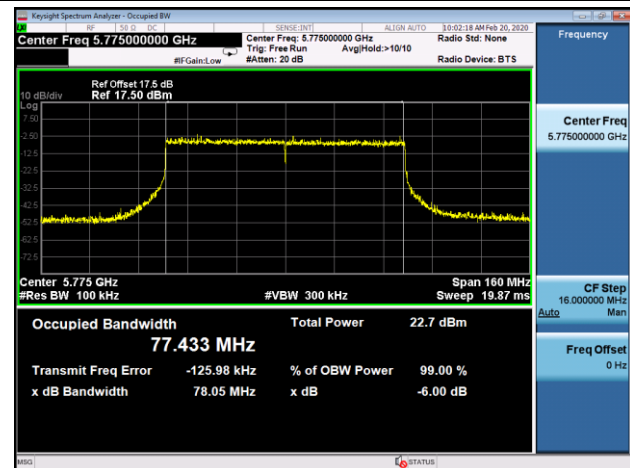


Channel 159 (5795MHz)



802.11ax-HE80 6dB Bandwidth - Ant 3 / Ant 0 + 1 + 2 + 3

Channel 155 (5775MHz)



7.4. Output Power Measurement

7.4.1. Test Limit

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm).

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 (23.98dBm) or 11dBm +10 log (26dB BW).

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

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

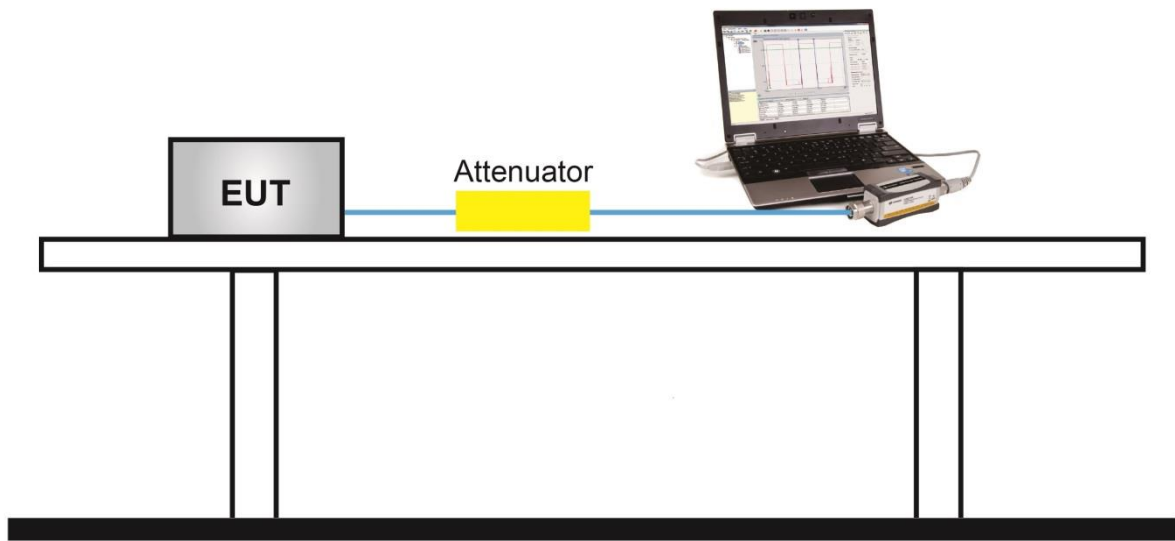
7.4.2. Test Procedure Used

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

7.4.3. Test Setting

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

7.4.4.Test Setup



7.4.5.Test Result

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

Output power at various data rates

Ant 0/ Ant 0+1+2+3 - 802.11a - Channel 36 (5180MHz)			
Date Rate (Mbps)	6	24	54
Power (dBm)	15.75	15.25	14.79

Ant 0/ Ant 0+1+2+3 - 802.11ac-VHT20 - Channel 36 (5180MHz)			
Date Rate (Mbps)	MCS0	MCS4	MCS8
Power (dBm)	14.59	14.87	15.26

Ant 0/ Ant 0+1+2+3 - 802.11ac-VHT40 - Channel 38 (5190MHz)			
Date Rate (Mbps)	MCS0	MCS5	MCS9
Power (dBm)	9.46	9.24	8.84

Ant 0/ Ant 0+1+2+3 - 802.11ac-VHT80 - Channel 42 (5210MHz)			
Date Rate (Mbps)	MCS0	MCS5	MCS9
Power (dBm)	9.20	8.94	8.65

Ant 0/ Ant 0+1+2+3 - 802.11ax-HE20 - Channel 36 (5180MHz)			
Date Rate (Mbps)	MCS0	MCS6	MCS11
Power (dBm)	16.06	16.32	16.42

Ant 0/ Ant 0+1+2+3 - 802.11ax-HE40 - Channel 38 (5190MHz)			
Date Rate (Mbps)	MCS0	MCS6	MCS11
Power (dBm)	9.76	9.55	9.18

Ant 0/ Ant 0+1+2+3 - 802.11ax-HE80 - Channel 42 (5210MHz)			
Date Rate (Mbps)	MCS0	MCS6	MCS11
Power (dBm)	8.91	8.67	8.34

Product	Wireless Access Point	Temperature	24°C
Test Engineer	Snake Ni	Relative Humidity	56%
Test Site	TR3	Test Date	2020/02/16

For Wireless Access Point configured external Wi-Fi Antenna:

Test Mode	Data Rate/MCS	Channel No.	Freq. (MHz)	Ant0 Average Power (dBm)	Ant1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
11a	6Mbps	36	5180	15.75	16.69	16.55	16.32	22.36	≤30.00	Pass
11a	6Mbps	44	5220	16.20	16.05	16.23	16.08	22.16	≤30.00	Pass
11a	6Mbps	48	5240	15.68	16.26	16.68	16.27	22.26	≤30.00	Pass
11a	6Mbps	52	5260	7.28	8.25	8.06	9.12	14.25	≤ 23.98	Pass
11a	6Mbps	60	5300	7.81	8.40	8.38	9.94	14.73	≤ 23.98	Pass
11a	6Mbps	64	5320	8.20	8.56	8.65	9.80	14.87	≤ 23.98	Pass
11a	6Mbps	100	5500	8.03	8.52	8.70	8.90	14.57	≤ 23.98	Pass
11a	6Mbps	120	5600	8.06	8.45	8.44	9.18	14.57	≤ 23.98	Pass
11a	6Mbps	140	5700	7.73	8.49	8.40	8.93	14.43	≤ 23.98	Pass
11a	6Mbps	144	5720	8.68	9.42	9.58	9.28	15.27	≤ 23.98	Pass
11a	6Mbps	149	5745	16.55	16.92	17.80	17.13	23.14	≤ 30.00	Pass
11a	6Mbps	157	5785	16.65	17.85	17.82	17.62	23.53	≤30.00	Pass
11a	6Mbps	165	5825	17.52	17.85	17.90	17.68	23.76	≤30.00	Pass
11ac-VHT20	MCS0	36	5180	15.26	15.56	15.60	15.22	21.43	≤30.00	Pass
11ac-VHT20	MCS0	44	5220	15.25	15.25	15.61	15.57	21.44	≤30.00	Pass
11ac-VHT20	MCS0	48	5240	16.21	16.38	16.73	16.92	22.59	≤30.00	Pass
11ac-VHT20	MCS0	52	5260	9.72	10.42	10.21	11.42	16.51	≤ 23.98	Pass
11ac-VHT20	MCS0	60	5300	9.72	10.36	10.38	11.90	16.69	≤ 23.98	Pass
11ac-VHT20	MCS0	64	5320	9.91	10.33	10.65	11.81	16.75	≤ 23.98	Pass
11ac-VHT20	MCS0	100	5500	10.65	10.26	9.78	10.73	16.39	≤ 23.98	Pass
11ac-VHT20	MCS0	120	5600	10.04	10.44	10.37	11.37	16.60	≤ 23.98	Pass
11ac-VHT20	MCS0	140	5700	9.55	10.56	10.15	10.72	16.29	≤ 23.98	Pass
11ac-VHT20	MCS0	144	5720	9.95	10.15	10.21	10.71	16.28	≤ 23.98	Pass
11ac-VHT20	MCS0	149	5745	17.32	17.98	17.53	17.91	23.71	≤30.00	Pass
11ac-VHT20	MCS0	157	5785	17.02	17.73	17.75	17.64	23.57	≤30.00	Pass
11ac-VHT20	MCS0	165	5825	17.61	17.97	17.94	17.51	23.78	≤30.00	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant0 Average Power (dBm)	Ant1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
11ac-VHT40	MCS0	38	5190	9.46	9.65	9.54	9.54	15.57	≤30.00	Pass
11ac-VHT40	MCS0	46	5230	17.78	17.82	18.26	18.25	24.05	≤30.00	Pass
11ac-VHT40	MCS0	54	5270	12.90	12.44	12.57	10.25	18.18	≤23.98	Pass
11ac-VHT40	MCS0	62	5310	9.24	9.21	9.39	11.12	15.84	≤23.98	Pass
11ac-VHT40	MCS0	102	5510	9.22	9.45	9.75	10.22	15.70	≤23.98	Pass
11ac-VHT40	MCS0	118	5590	13.14	13.44	13.92	13.85	19.62	≤23.98	Pass
11ac-VHT40	MCS0	134	5670	13.24	13.85	13.86	14.53	19.91	≤23.98	Pass
11ac-VHT40	MCS0	142	5710	12.49	12.37	12.55	12.63	18.53	≤23.98	Pass
11ac-VHT40	MCS0	151	5755	17.71	17.84	17.63	17.75	23.75	≤30.00	Pass
11ac-VHT40	MCS0	159	5795	17.32	17.99	17.76	17.85	23.76	≤30.00	Pass
11ac-VHT80	MCS0	42	5210	9.20	8.75	9.86	9.12	15.27	≤30.00	Pass
11ac-VHT80	MCS0	58	5290	9.07	9.68	9.65	11.18	15.99	≤23.98	Pass
11ac-VHT80	MCS0	106	5530	8.86	9.78	9.39	9.13	15.32	≤23.98	Pass
11ac-VHT80	MCS0	122	5610	13.61	15.19	15.28	15.64	21.02	≤23.98	Pass
11ac-VHT80	MCS0	138	5690	15.48	14.71	16.17	15.31	21.47	≤23.98	Pass
11ac-VHT80	MCS0	155	5775	17.25	17.82	17.65	17.75	23.64	≤30.00	Pass
11ac-VHT80+80	MCS0	42	5210	8.95	8.41	--	--	11.70	≤ 30.00	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	7.12	9.14	11.26	≤ 23.98	Pass
11ac-VHT80+80	MCS0	106	5530	9.40	9.64	--	--	15.95	≤23.98	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	10.03	10.57			

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant0 Average Power (dBm)	Ant1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
11ax-HE20	MCS0	36	5180	16.42	17.01	17.23	16.75	22.88	≤30.00	Pass
11ax-HE20	MCS0	44	5220	16.63	16.65	17.49	17.11	23.01	≤30.00	Pass
11ax-HE20	MCS0	48	5240	16.35	16.58	17.22	17.35	22.92	≤30.00	Pass
11ax-HE20	MCS0	52	5260	10.43	11.45	10.96	11.85	17.23	≤23.98	Pass
11ax-HE20	MCS0	60	5300	10.76	11.34	11.47	12.65	17.63	≤23.98	Pass
11ax-HE20	MCS0	64	5320	11.16	11.56	11.45	12.69	17.78	≤23.98	Pass
11ax-HE20	MCS0	100	5500	11.21	11.27	11.55	11.83	17.49	≤23.98	Pass
11ax-HE20	MCS0	120	5600	10.87	11.48	11.25	12.32	17.53	≤23.98	Pass
11ax-HE20	MCS0	140	5700	10.75	11.18	11.23	11.66	17.24	≤23.98	Pass
11ax-HE20	MCS0	144	5720	10.76	11.08	11.12	11.64	17.18	≤23.98	Pass
11ax-HE20	MCS0	149	5745	17.42	17.72	17.78	17.96	23.74	≤30.00	Pass
11ax-HE20	MCS0	157	5785	17.34	17.93	17.73	17.88	23.75	≤30.00	Pass
11ax-HE20	MCS0	165	5825	17.56	17.95	17.81	17.62	23.76	≤30.00	Pass
11ax-HE40	MCS0	38	5190	9.76	10.61	10.05	10.13	16.17	≤30.00	Pass
11ax-HE40	MCS0	46	5230	18.21	18.15	18.81	18.53	24.45	≤30.00	Pass
11ax-HE40	MCS0	54	5270	12.95	13.83	13.75	14.42	19.79	≤23.98	Pass
11ax-HE40	MCS0	62	5310	9.13	9.72	9.75	11.22	16.05	≤23.98	Pass
11ax-HE40	MCS0	102	5510	10.05	10.32	10.43	10.47	16.34	≤23.98	Pass
11ax-HE40	MCS0	118	5590	13.33	13.73	13.86	14.57	19.92	≤23.98	Pass
11ax-HE40	MCS0	134	5670	13.42	13.60	13.90	14.23	19.82	≤23.98	Pass
11ax-HE40	MCS0	142	5710	13.25	13.73	13.63	14.21	19.74	≤23.98	Pass
11ax-HE40	MCS0	151	5755	17.45	17.38	17.47	17.47	23.46	≤30.00	Pass
11ax-HE40	MCS0	159	5795	17.83	17.85	17.52	17.62	23.73	≤30.00	Pass
11ax-HE80	MCS0	42	5210	8.91	9.94	9.75	9.60	15.59	≤30.00	Pass
11ax-HE80	MCS0	58	5290	9.02	9.52	9.61	10.97	15.86	≤23.98	Pass
11ax-HE80	MCS0	106	5530	10.27	10.77	10.93	10.94	16.76	≤23.98	Pass
11ax-HE80	MCS0	122	5610	15.77	16.32	16.88	17.25	22.61	≤23.98	Pass
11ax-HE80	MCS0	138	5690	16.06	16.45	16.62	17.12	22.60	≤23.98	Pass
11ax-HE80	MCS0	155	5775	16.61	17.30	17.21	17.04	23.07	≤30.00	Pass

Test Mode	Data Rate/MCS	Channel No.	Freq. (MHz)	Ant0 Average Power (dBm)	Ant1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
11ax-HE80+80	MCS0	42	5210	9.51	10.38	--	--	12.98	≤30.00	Pass
11ax-HE80+80	MCS0	58	5290	--	--	9.98	11.47	13.80	≤23.98	Pass
11ax-HE80+80	MCS0	106	5530	8.72	9.24	--	--	15.28	≤23.98	Pass
11ax-HE80+80	MCS0	122	5610	--	--	9.42	9.60			

Note1: Total Average Power (dBm) = $10 \cdot \log \{10^{(\text{Ant 0 Average Power}/10)} + 10^{(\text{Ant 1 Average Power}/10)} + 10^{(\text{Ant 2 Average Power}/10)} + 10^{(\text{Ant 3 Average Power}/10)}\}$ (dBm).

Note 2: For 802.11ac-VHT80+80/802.11ax-HE80+80 Contiguous Mode:

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

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

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

Product	Wireless Access Point	Temperature	24°C
Test Engineer	Snake Ni	Relative Humidity	56%
Test Site	TR3	Test Date	2020/02/16

For Wireless Access Point configured internal Wi-Fi Antenna:

Test Mode	Data Rate/MCS	Channel No.	Freq. (MHz)	Ant0 Average Power (dBm)	Ant1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
11a	6Mbps	36	5180	12.65	12.90	13.59	13.46	19.19	≤29.00	Pass
11a	6Mbps	44	5220	12.84	12.91	13.72	13.42	19.26	≤29.00	Pass
11a	6Mbps	48	5240	13.10	13.29	13.16	13.53	19.29	≤29.00	Pass
11a	6Mbps	52	5260	8.29	8.29	8.03	9.13	14.48	≤22.98	Pass
11a	6Mbps	60	5300	8.02	8.32	7.74	9.19	14.37	≤22.98	Pass
11a	6Mbps	64	5320	8.07	8.27	8.04	9.22	14.45	≤22.98	Pass
11a	6Mbps	100	5500	8.29	8.86	8.16	8.12	14.39	≤22.98	Pass
11a	6Mbps	120	5600	8.08	8.51	8.11	8.28	14.27	≤22.98	Pass
11a	6Mbps	140	5700	8.23	8.96	8.07	8.42	14.45	≤22.98	Pass
11a	6Mbps	144	5720	8.35	8.73	8.15	8.35	14.42	≤22.98	Pass
11a	6Mbps	149	5745	17.76	17.92	17.41	17.93	23.78	≤29.00	Pass
11a	6Mbps	157	5785	17.49	17.52	17.95	17.94	23.75	≤29.00	Pass
11a	6Mbps	165	5825	17.31	17.36	17.67	17.95	23.60	≤29.00	Pass
11ac-VHT20	MCS0	36	5180	14.30	14.78	15.14	14.65	20.75	≤29.00	Pass
11ac-VHT20	MCS0	44	5220	14.37	14.84	15.06	15.01	20.85	≤29.00	Pass
11ac-VHT20	MCS0	48	5240	14.29	14.64	14.95	15.31	20.83	≤29.00	Pass
11ac-VHT20	MCS0	52	5260	8.76	9.19	9.26	10.48	15.49	≤22.98	Pass
11ac-VHT20	MCS0	60	5300	8.45	8.71	9.21	10.85	15.43	≤22.98	Pass
11ac-VHT20	MCS0	64	5320	8.36	9.06	8.94	10.68	15.37	≤22.98	Pass
11ac-VHT20	MCS0	100	5500	8.76	9.54	9.56	9.36	15.34	≤22.98	Pass
11ac-VHT20	MCS0	120	5600	8.04	9.03	8.82	9.35	14.86	≤22.98	Pass
11ac-VHT20	MCS0	140	5700	8.21	9.07	8.65	8.95	14.75	≤22.98	Pass
11ac-VHT20	MCS0	144	5720	8.26	9.15	8.90	9.13	14.90	≤22.98	Pass
11ac-VHT20	MCS0	149	5745	17.36	18.13	17.85	17.94	23.85	≤29.00	Pass
11ac-VHT20	MCS0	157	5785	17.48	17.82	17.97	17.91	23.82	≤29.00	Pass
11ac-VHT20	MCS0	165	5825	17.75	17.84	17.92	17.92	23.88	≤29.00	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant0 Average Power (dBm)	Ant1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
11ac-VHT40	MCS0	38	5190	14.26	14.68	15.08	14.59	20.68	≤29.00	Pass
11ac-VHT40	MCS0	46	5230	17.22	17.58	17.95	18.07	23.74	≤29.00	Pass
11ac-VHT40	MCS0	54	5270	11.64	12.28	12.59	13.51	18.58	≤22.98	Pass
11ac-VHT40	MCS0	62	5310	11.49	11.96	12.35	13.59	18.44	≤22.98	Pass
11ac-VHT40	MCS0	102	5510	11.68	12.59	12.60	12.37	18.35	≤22.98	Pass
11ac-VHT40	MCS0	118	5590	11.58	12.51	12.45	12.80	18.38	≤22.98	Pass
11ac-VHT40	MCS0	134	5670	11.30	12.03	11.98	12.25	17.92	≤22.98	Pass
11ac-VHT40	MCS0	142	5710	11.61	11.97	12.09	12.18	17.99	≤22.98	Pass
11ac-VHT40	MCS0	151	5755	17.07	17.60	17.29	17.93	23.51	≤29.00	Pass
11ac-VHT40	MCS0	159	5795	17.27	17.52	17.61	17.82	23.58	≤29.00	Pass
11ac-VHT80	MCS0	42	5210	13.50	14.05	14.52	14.44	20.17	≤29.00	Pass
11ac-VHT80	MCS0	58	5290	13.98	14.46	14.83	16.28	21.00	≤22.98	Pass
11ac-VHT80	MCS0	106	5530	14.84	15.60	15.73	15.41	21.43	≤22.98	Pass
11ac-VHT80	MCS0	122	5610	14.82	15.12	15.43	15.86	21.35	≤22.98	Pass
11ac-VHT80	MCS0	138	5690	14.91	15.50	15.41	15.74	21.42	≤22.98	Pass
11ac-VHT80	MCS0	155	5775	17.15	17.35	17.38	17.65	23.41	≤29.00	Pass
11ac-VHT80+80	MCS0	42	5210	13.46	14.04	--	--	16.77	≤29.00	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	13.81	15.32	17.64	≤22.98	Pass
11ac-VHT80+80	MCS0	106	5530	14.47	15.03	--	--	21.00	≤22.98	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	14.85	15.50			

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant0 Average Power (dBm)	Ant1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
11ax-HE20	MCS0	36	5180	17.03	17.65	17.92	18.03	23.70	≤29.00	Pass
11ax-HE20	MCS0	44	5220	17.13	17.61	17.97	17.92	23.69	≤29.00	Pass
11ax-HE20	MCS0	48	5240	17.03	17.45	17.67	18.31	23.66	≤29.00	Pass
11ax-HE20	MCS0	52	5260	9.23	9.38	9.58	11.04	15.89	≤22.98	Pass
11ax-HE20	MCS0	60	5300	9.07	9.16	9.29	11.38	15.86	≤22.98	Pass
11ax-HE20	MCS0	64	5320	8.74	9.17	9.33	11.05	15.69	≤22.98	Pass
11ax-HE20	MCS0	100	5500	9.10	9.86	9.84	9.76	15.67	≤22.98	Pass
11ax-HE20	MCS0	120	5600	8.92	9.88	9.76	10.12	15.71	≤22.98	Pass
11ax-HE20	MCS0	140	5700	9.11	9.95	9.51	9.90	15.65	≤22.98	Pass
11ax-HE20	MCS0	144	5720	9.26	10.11	9.80	10.16	15.87	≤22.98	Pass
11ax-HE20	MCS0	149	5745	17.01	17.54	17.42	17.93	23.51	≤29.00	Pass
11ax-HE20	MCS0	157	5785	17.25	17.22	17.15	17.66	23.35	≤29.00	Pass
11ax-HE20	MCS0	165	5825	17.43	17.64	17.82	17.93	23.73	≤29.00	Pass
11ax-HE40	MCS0	38	5190	13.85	14.69	14.93	14.37	20.50	≤29.00	Pass
11ax-HE40	MCS0	46	5230	17.10	17.48	17.91	17.91	23.63	≤29.00	Pass
11ax-HE40	MCS0	54	5270	12.06	12.61	12.97	13.84	18.94	≤22.98	Pass
11ax-HE40	MCS0	62	5310	11.93	12.39	12.77	13.97	18.85	≤22.98	Pass
11ax-HE40	MCS0	102	5510	12.18	12.94	12.97	12.63	18.71	≤22.98	Pass
11ax-HE40	MCS0	118	5590	12.02	12.78	12.79	13.09	18.71	≤22.98	Pass
11ax-HE40	MCS0	134	5670	12.22	12.81	12.88	13.16	18.80	≤22.98	Pass
11ax-HE40	MCS0	142	5710	12.45	12.82	12.90	13.05	18.83	≤22.98	Pass
11ax-HE40	MCS0	151	5755	17.11	17.62	17.12	17.67	23.41	≤29.00	Pass
11ax-HE40	MCS0	159	5795	17.05	17.55	17.27	17.74	23.43	≤29.00	Pass
11ax-HE80	MCS0	42	5210	13.81	14.34	14.83	14.51	20.41	≤29.00	Pass
11ax-HE80	MCS0	58	5290	13.92	14.33	14.71	15.93	20.81	≤22.98	Pass
11ax-HE80	MCS0	106	5530	14.26	14.72	14.93	14.65	20.67	≤22.98	Pass
11ax-HE80	MCS0	122	5610	15.12	15.32	15.67	16.14	21.60	≤22.98	Pass
11ax-HE80	MCS0	138	5690	15.11	15.75	15.74	16.05	21.70	≤22.98	Pass
11ax-HE80	MCS0	155	5775	17.05	17.15	17.12	17.42	23.21	≤29.00	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant0 Average Power (dBm)	Ant1 Average Power (dBm)	Ant 2 Average Power (dBm)	Ant 3 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
11ax-HE80+80	MCS0	42	5210	13.63	14.19	--	--	16.93	≤29.00	Pass
11ax-HE80+80	MCS0	58	5290	--	--	14.18	15.53	17.92	≤22.98	Pass
11ax-HE80+80	MCS0	106	5530	14.12	14.51	--	--	20.65	≤22.98	Pass
11ax-HE80+80	MCS0	122	5610	--	--	14.56	15.25			

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

Note 2: For 802.11ac-VHT80+80/802.11ax-HE80+80 Contiguous Mode:

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

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

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

Note 3: Average Power Limit Calculation as below:

For 5150-5250MHz

UNII-Band 1: 30dBm/MHz - (7dBi - 6dBi) = 29.00dBm/MHz.

UNII-Band 2A & 2C: 23.98dBm/MHz - (7dBi - 6dBi) = 22.98dBm/MHz.

UNII-Band 3: 30dBm/MHz - (7dBi - 6dBi) = 29.00dBm/MHz.

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.

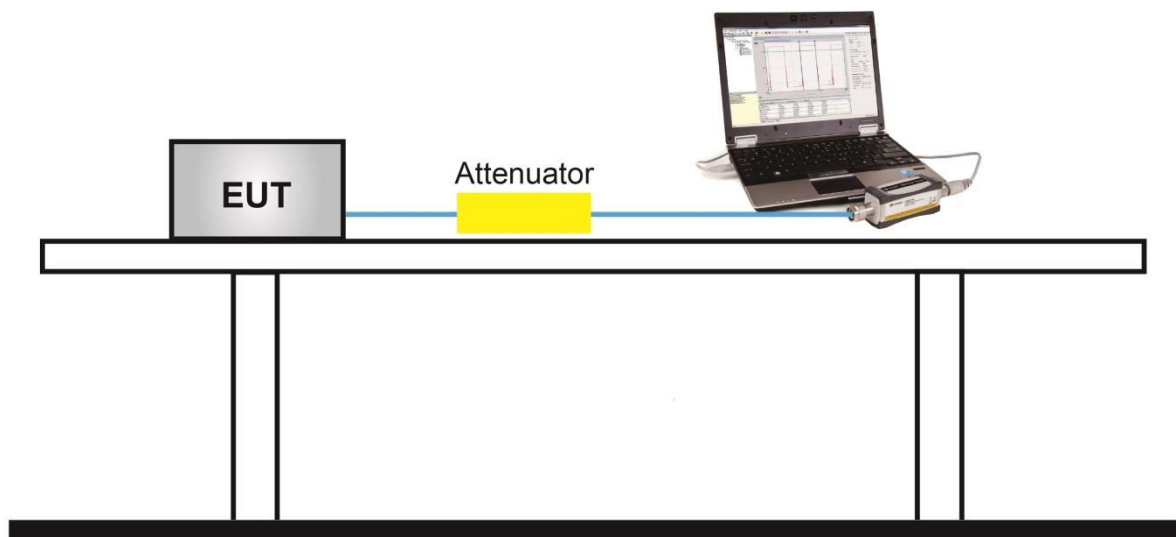
7.5.2.Test Procedure Used

KDB 789033D02v02r01- 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 wideband gated RF 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.TestResult

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.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 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

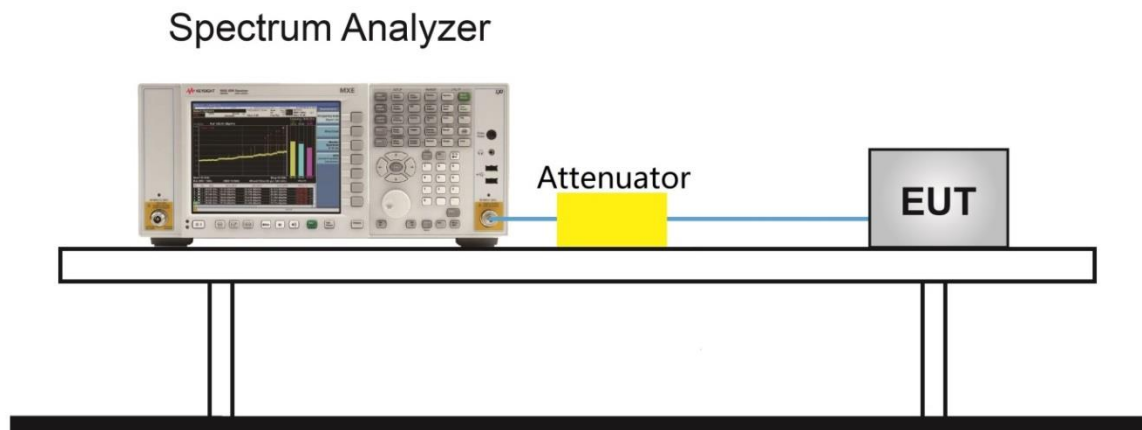
KDB 789033 D02v02r01 - Section F

7.6.3.Test Setting

1. Analyzer was set to the center frequency of the U-NII 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 = 510 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.

7.6.4.Test Setup



7.6.5.Test Result

Product	Wireless Access Point	Temperature	23°C
Test Engineer	Snake Ni	Relative Humidity	52%
Test Site	TR3	Test Date	2020/02/17 ~ 2020/02/19
Test Item	Power Spectral Density (UNII-Band 1 & 2A & 2C) For Wireless Access Point configured external Wi-Fi Antenna		

Test Mode	Data Rate/ MCS	Ch. 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
11a	6Mbps	36	5180	4.29	4.63	4.52	3.65	68.16	11.97	≤11.98	Pass
11a	6Mbps	44	5220	4.28	3.97	3.87	4.81	68.16	11.93	≤11.98	Pass
11a	6Mbps	48	5240	3.49	4.26	4.11	3.94	68.16	11.64	≤11.98	Pass
11a	6Mbps	52	5260	-2.36	-1.59	-2.10	-1.56	68.16	5.80	≤5.98	Pass
11a	6Mbps	60	5300	-2.23	-1.86	-1.47	-1.85	68.16	5.84	≤5.98	Pass
11a	6Mbps	64	5320	-2.17	-2.05	-1.88	-1.43	68.16	5.81	≤5.98	Pass
11a	6Mbps	100	5500	-2.52	-2.14	-1.88	-1.67	68.16	5.64	≤5.98	Pass
11a	6Mbps	120	5600	-2.23	-2.02	-1.56	-1.30	68.16	5.92	≤5.98	Pass
11a	6Mbps	140	5700	-2.28	-1.84	-1.50	-1.74	68.16	5.85	≤5.98	Pass
11a	6Mbps	144	5720	-2.15	-1.57	-1.83	-1.68	68.16	5.88	≤5.98	Pass
11ac-VHT20	MCS0	36	5180	5.66	5.54	5.24	5.71	91.03	11.97	≤11.98	Pass
11ac-VHT20	MCS0	44	5220	5.41	5.24	5.80	5.42	91.03	11.90	≤11.98	Pass
11ac-VHT20	MCS0	48	5240	5.21	5.52	5.11	5.86	91.03	11.86	≤11.98	Pass
11ac-VHT20	MCS0	52	5260	-1.31	-0.68	-1.24	-0.17	91.03	5.60	≤5.98	Pass
11ac-VHT20	MCS0	60	5300	-1.23	-1.13	-1.19	0.36	91.03	5.68	≤5.98	Pass
11ac-VHT20	MCS0	64	5320	-1.23	-0.72	-1.05	0.30	91.03	5.80	≤5.98	Pass
11ac-VHT20	MCS0	100	5500	-1.28	-1.00	-1.24	-0.94	91.03	5.32	≤5.98	Pass
11ac-VHT20	MCS0	120	5600	-1.31	-0.39	-0.84	-0.40	91.03	5.71	≤5.98	Pass
11ac-VHT20	MCS0	140	5700	-1.32	-0.45	-0.47	-0.86	91.03	5.67	≤5.98	Pass
11ac-VHT20	MCS0	144	5720	-0.70	-0.40	-0.75	-0.39	91.03	5.87	≤5.98	Pass

Test Mode	Data Rate/ MCS	Ch. No.	Freq. (MHz)	Ant 0 PSD (dBm/MHz)	Ant 1 PSD (dBm/MHz)	Ant 2 PSD (dBm/MHz)	Ant 3 PSD (dBm/MHz)	Duty Cycle (%)	Total PSD (dBm/MHz)	PSD Limit (dBm/MHz)	Result
11ac-VHT40	MCS0	38	5190	-3.62	-3.43	-3.44	-3.74	94.14	2.73	≤11.98	Pass
11ac-VHT40	MCS0	46	5230	3.44	3.63	3.94	4.02	94.14	10.05	≤11.98	Pass
11ac-VHT40	MCS0	54	5270	-1.02	-0.60	-0.54	0.11	94.14	5.79	≤5.98	Pass
11ac-VHT40	MCS0	62	5310	-1.70	-0.41	-0.62	0.83	94.14	5.90	≤5.98	Pass
11ac-VHT40	MCS0	102	5510	-0.71	-0.61	-0.37	-0.28	94.14	5.79	≤5.98	Pass
11ac-VHT40	MCS0	118	5590	-0.57	-0.76	-0.34	0.05	94.14	5.89	≤5.98	Pass
11ac-VHT40	MCS0	134	5670	-0.50	0.14	-0.71	-0.25	94.14	5.96	≤5.98	Pass
11ac-VHT40	MCS0	142	5710	-0.38	-0.53	-0.62	-0.29	94.14	5.83	≤5.98	Pass
11ac-VHT80	MCS0	42	5210	-7.89	-7.48	-7.50	-7.48	91.03	-1.16	≤11.98	Pass
11ac-VHT80	MCS0	58	5290	-1.56	-1.15	-1.25	0.38	91.03	5.60	≤5.98	Pass
11ac-VHT80	MCS0	106	5530	-1.40	-1.09	-1.12	-0.70	91.03	5.36	≤5.98	Pass
11ac-VHT80	MCS0	122	5610	-1.59	-0.77	-0.69	-0.14	91.03	5.66	≤5.98	Pass
11ac-VHT80	MCS0	138	5690	-1.53	-0.50	-0.79	0.05	91.03	5.77	≤5.98	Pass
11ac-VHT80+80	MCS0	42	5210	-8.24	-7.74	--	--	91.03	-4.56	≤11.98	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	-7.87	-5.69	91.03	-3.23	≤5.98	Pass
11ac-VHT80+80	MCS0	106	5530	-7.62	-7.51	--	--	91.03	-0.69	≤5.98	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	-6.74	-6.70	91.03			
11ax-HE20	MCS0	36	5180	5.12	5.52	5.84	5.03	97.35	11.53	≤11.98	Pass
11ax-HE20	MCS0	44	5220	5.33	5.37	6.17	5.67	97.35	11.78	≤11.98	Pass
11ax-HE20	MCS0	48	5240	5.31	5.48	5.98	5.83	97.35	11.80	≤11.98	Pass
11ax-HE20	MCS0	52	5260	-0.61	-0.13	-0.29	0.27	97.35	5.96	≤5.98	Pass
11ax-HE20	MCS0	60	5300	-0.52	-0.05	-0.37	0.10	97.35	5.93	≤5.98	Pass
11ax-HE20	MCS0	64	5320	-0.51	-0.28	-0.24	0.17	97.35	5.93	≤5.98	Pass
11ax-HE20	MCS0	100	5500	-0.66	-0.20	-0.39	-0.24	97.35	5.77	≤5.98	Pass
11ax-HE20	MCS0	120	5600	-0.43	0.11	-0.24	-0.44	97.35	5.89	≤5.98	Pass
11ax-HE20	MCS0	140	5700	-0.44	-0.32	-0.16	-0.13	97.35	5.88	≤5.98	Pass
11ax-HE20	MCS0	144	5720	-0.24	-0.36	-0.26	-0.13	97.35	5.89	≤5.98	Pass

Test Mode	Data Rate/ MCS	Ch. 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
11ax-HE40	MCS0	38	5190	-4.53	-4.10	-4.42	-4.56	96.83	1.76	≤11.98	Pass
11ax-HE40	MCS0	46	5230	3.71	4.02	4.18	4.28	96.83	10.21	≤11.98	Pass
11ax-HE40	MCS0	54	5270	-1.18	-0.82	-0.97	0.34	96.83	5.54	≤5.98	Pass
11ax-HE40	MCS0	62	5310	-1.11	-0.84	-0.63	0.20	96.83	5.60	≤5.98	Pass
11ax-HE40	MCS0	102	5510	-1.05	-0.56	-0.59	-0.81	96.83	5.41	≤5.98	Pass
11ax-HE40	MCS0	118	5590	-0.75	-0.23	-0.48	0.09	96.83	5.83	≤5.98	Pass
11ax-HE40	MCS0	134	5670	-1.65	-0.07	-1.08	-0.94	96.83	5.26	≤5.98	Pass
11ax-HE40	MCS0	142	5710	-0.67	-0.32	-0.41	0.14	96.83	5.86	≤5.98	Pass
11ax-HE80	MCS0	42	5210	-8.36	-7.68	-7.70	-7.33	96.83	-1.59	≤11.98	Pass
11ax-HE80	MCS0	58	5290	-1.36	-1.02	-1.03	0.45	96.83	5.48	≤5.98	Pass
11ax-HE80	MCS0	106	5530	-1.05	-0.79	-0.52	-0.35	96.83	5.49	≤5.98	Pass
11ax-HE80	MCS0	122	5610	-1.35	-0.64	-0.12	-0.05	96.83	5.65	≤5.98	Pass
11ax-HE80	MCS0	138	5690	-1.25	-0.62	-0.58	0.36	96.83	5.68	≤5.98	Pass
11ax-HE80+80	MCS0	42	5210	-7.84	-7.21	--	--	96.83	-4.10	≤11.98	Pass
11ax-HE80+80	MCS0	58	5290	--	--	-7.41	-5.65	96.83	-3.02	≤5.98	Pass
11ax-HE80+80	MCS0	106	5530	-8.84	-8.50	--	--	96.83	-1.77	≤5.98	Pass
11ax-HE80+80	MCS0	122	5610	--	--	-7.39	-7.22	96.83			

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+80/802.11ax-HE80+80 Contiguous Mode:

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

5290MHz fall within UNII-2A: Total PSD (dBm/MHz) = $10 \cdot \log \{10^{(\text{Ant 2 PSD}/10)} + 10^{(\text{Ant 3 PSD}/10)}\}$ (dBm/MHz) + $10 \cdot \log (1/\text{Duty Cycle})$.

5530MHz & 5610MHz fall within UNII-2C: 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 4: For UNII-Band 1: PSD Limit = 17dBm/MHz - (11.02dBi - 6dBi) = 11.98dBm/MHz.

For UNII-Band 2A & 2C: PSD Limit = 11dBm/MHz - (11.02dBi - 6dBi) = 5.98dBm/MHz.

Product	Wireless Access Point	Temperature	23°C
Test Engineer	Snake Ni	Relative Humidity	52%
Test Site	TR3	Test Date	2020/08/06
Test Item	Power Spectral Density (UNII-Band 3) For Wireless Access Point configured external Wi-Fi Antenna		

Test Mode	Data Rate/MCS	Ch. No.	Freq. (MHz)	Ant 0 PSD (dBm/510kHz)	Ant 1 PSD (dBm/510kHz)	Ant 2 PSD (dBm/510kHz)	Ant 3 PSD (dBm/510kHz)	Duty Cycle (%)	Total PSD(dBm/510kHz)	PSD Limit (dBm/500kHz)	Result
11a	6Mbps	149	5745	4.65	4.14	4.84	5.34	68.16	12.44	≤24.98	Pass
11a	6Mbps	157	5785	4.91	4.46	5.14	4.90	68.16	12.54	≤24.98	Pass
11a	6Mbps	165	5825	4.97	5.09	5.66	5.40	68.16	12.97	≤24.98	Pass
11ac-VHT20	MCS0	149	5745	5.36	5.26	6.09	6.39	91.03	12.23	≤24.98	Pass
11ac-VHT20	MCS0	157	5785	5.88	5.84	6.32	6.07	91.03	12.46	≤24.98	Pass
11ac-VHT20	MCS0	165	5825	6.20	6.26	6.87	6.47	91.03	12.88	≤24.98	Pass
11ac-VHT40	MCS0	151	5755	2.67	2.29	2.74	3.23	94.14	9.03	≤24.98	Pass
11ac-VHT40	MCS0	159	5795	3.03	3.10	3.39	3.38	94.14	9.51	≤24.98	Pass
11ac-VHT80	MCS0	155	5775	-0.29	-0.58	-0.05	0.29	91.03	6.28	≤24.98	Pass
11ax-HE20	MCS0	149	5745	5.90	5.61	5.94	6.66	97.35	12.18	≤24.98	Pass
11ax-HE20	MCS0	157	5785	6.27	6.04	6.25	6.62	97.35	12.44	≤24.98	Pass
11ax-HE20	MCS0	165	5825	6.02	6.21	7.41	6.70	97.35	12.76	≤24.98	Pass
11ax-HE40	MCS0	151	5755	3.00	2.90	3.50	3.71	96.83	9.45	≤24.98	Pass
11ax-HE40	MCS0	159	5795	3.26	3.26	3.93	3.70	96.83	9.71	≤24.98	Pass
11ax-HE80	MCS0	155	5775	-1.23	-1.20	-0.29	-0.52	96.83	5.37	≤24.98	Pass

Note 1: When EUT duty cycle ≥ 98%, Total PSD (dBm/510kHz) = $10 \cdot \log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)} + 10^{(\text{Ant 2 PSD}/10)} + 10^{(\text{Ant 3 PSD}/10)}\}$ (dBm/510kHz).

Note 2: When EUT duty cycle < 98%, Total PSD (dBm/510kHz) = $10 \cdot \log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)} + 10^{(\text{Ant 2 PSD}/10)} + 10^{(\text{Ant 3 PSD}/10)}\}$ (dBm/510kHz) + $10 \cdot \log (1/\text{Duty Cycle})$.

Note 3: PSD Limit: 30dBm/500kHz - (11.02dBi - 6dBi) = 24.98dBm/500kHz.

Product	Wireless Access Point	Temperature	23°C
Test Engineer	Snake Ni	Relative Humidity	52%
Test Site	TR3	Test Date	2020/02/17 ~ 2020/03/24
Test Item	Power Spectral Density (UNII-Band 1 & 2A & 2C) For Wireless Access Point configured internal Wi-Fi Antenna		

Test Mode	Data Rate/ MCS	Ch. 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
11a	6Mbps	36	5180	1.22	2.15	2.56	1.35	68.16	9.54	≤9.98	Pass
11a	6Mbps	44	5220	1.09	2.26	1.77	2.12	68.16	9.52	≤9.98	Pass
11a	6Mbps	48	5240	1.22	1.49	1.82	2.29	68.16	9.41	≤9.98	Pass
11a	6Mbps	52	5260	-5.06	-3.81	-4.13	-3.22	68.16	3.68	≤3.98	Pass
11a	6Mbps	60	5300	-4.88	-4.36	-4.65	-2.88	68.16	3.57	≤3.98	Pass
11a	6Mbps	64	5320	-5.21	-4.49	-4.58	-3.41	68.16	3.31	≤3.98	Pass
11a	6Mbps	100	5500	-4.60	-4.23	-4.03	-4.63	68.16	3.32	≤3.98	Pass
11a	6Mbps	120	5600	-4.89	-3.66	-3.67	-3.83	68.16	3.70	≤3.98	Pass
11a	6Mbps	140	5700	-4.69	-4.01	-4.26	-4.15	68.16	3.41	≤3.98	Pass
11a	6Mbps	144	5720	-4.72	-3.21	-4.08	-3.96	68.16	3.73	≤3.98	Pass
11ac-VHT20	MCS0	36	5180	2.81	3.68	3.83	3.49	91.03	9.90	≤9.98	Pass
11ac-VHT20	MCS0	44	5220	2.86	3.35	3.81	3.78	91.03	9.90	≤9.98	Pass
11ac-VHT20	MCS0	48	5240	2.74	3.44	3.51	4.26	91.03	9.95	≤9.98	Pass
11ac-VHT20	MCS0	52	5260	-3.35	-2.80	-2.49	-1.72	91.03	3.88	≤3.98	Pass
11ac-VHT20	MCS0	60	5300	-3.39	-3.00	-2.95	-1.24	91.03	3.87	≤3.98	Pass
11ac-VHT20	MCS0	64	5320	-3.57	-2.92	-2.50	-1.26	91.03	3.95	≤3.98	Pass
11ac-VHT20	MCS0	100	5500	-3.09	-2.47	-2.38	-2.74	91.03	3.77	≤3.98	Pass
11ac-VHT20	MCS0	120	5600	-3.44	-2.56	-2.64	-2.32	91.03	3.71	≤3.98	Pass
11ac-VHT20	MCS0	140	5700	-3.33	-2.95	-2.64	-2.52	91.03	3.58	≤3.98	Pass
11ac-VHT20	MCS0	144	5720	-3.43	-2.65	-2.84	-2.56	91.03	3.57	≤3.98	Pass

Test Mode	Data Rate/ MCS	Ch. No.	Freq. (MHz)	Ant 0 PSD (dBm/MHz)	Ant 1 PSD (dBm/MHz)	Ant 2 PSD (dBm/MHz)	Ant 3 PSD (dBm/MHz)	Duty Cycle (%)	Total PSD (dBm/MHz)	PSD Limit (dBm/MHz)	Result
11ac-VHT40	MCS0	38	5190	-0.21	0.26	0.40	0.14	94.14	6.44	≤9.98	Pass
11ac-VHT40	MCS0	46	5230	3.08	3.34	3.49	3.86	94.14	9.73	≤9.98	Pass
11ac-VHT40	MCS0	54	5270	-3.20	-2.31	-2.27	-3.06	94.14	3.59	≤3.98	Pass
11ac-VHT40	MCS0	62	5310	-3.57	-2.89	-2.19	-1.34	94.14	3.87	≤3.98	Pass
11ac-VHT40	MCS0	102	5510	-2.93	-2.23	-2.42	-2.90	94.14	3.68	≤3.98	Pass
11ac-VHT40	MCS0	118	5590	-3.23	-2.25	-2.08	-1.98	94.14	3.93	≤3.98	Pass
11ac-VHT40	MCS0	134	5670	-3.37	-2.46	-2.64	-2.51	94.14	3.55	≤3.98	Pass
11ac-VHT40	MCS0	142	5710	-3.34	-2.94	-2.66	-2.50	94.14	3.44	≤3.98	Pass
11ac-VHT80	MCS0	42	5210	-4.23	-3.51	-3.12	-3.33	91.03	2.90	≤9.98	Pass
11ac-VHT80	MCS0	58	5290	-3.29	-2.93	-2.65	-1.73	91.03	3.82	≤3.98	Pass
11ac-VHT80	MCS0	106	5530	-3.20	-2.75	-2.86	-2.85	91.03	3.52	≤3.98	Pass
11ac-VHT80	MCS0	122	5610	-3.18	-2.65	-2.52	-2.32	91.03	3.78	≤3.98	Pass
11ac-VHT80	MCS0	138	5690	-2.95	-2.52	-2.65	-2.27	91.03	3.84	≤3.98	Pass
11ac-VHT80+80	MCS0	42	5210	-4.26	-4.11	--	--	91.03	-0.77	≤9.98	Pass
11ac-VHT80+80	MCS0	58	5290	--	--	-3.70	-2.56	91.03	0.33	≤3.98	Pass
11ac-VHT80+80	MCS0	106	5530	-3.59	-2.76	--	--	91.03	3.60	≤3.98	Pass
11ac-VHT80+80	MCS0	122	5610	--	--	-2.96	-2.13	91.03			
11ax-HE20	MCS0	36	5180	3.20	3.61	4.20	3.68	97.35	9.82	≤9.98	Pass
11ax-HE20	MCS0	44	5220	3.04	3.66	4.21	3.98	97.35	9.88	≤9.98	Pass
11ax-HE20	MCS0	48	5240	3.24	3.51	3.81	4.36	97.35	9.89	≤9.98	Pass
11ax-HE20	MCS0	52	5260	-3.37	-2.99	-2.70	-1.87	97.35	3.44	≤3.98	Pass
11ax-HE20	MCS0	60	5300	-3.72	-2.98	-2.83	-1.01	97.35	3.62	≤3.98	Pass
11ax-HE20	MCS0	64	5320	-3.23	-3.12	-2.57	-1.30	97.35	3.66	≤3.98	Pass
11ax-HE20	MCS0	100	5500	-3.10	-2.35	-2.27	-2.82	97.35	3.52	≤3.98	Pass
11ax-HE20	MCS0	120	5600	-3.21	-2.37	-1.92	-2.05	97.35	3.77	≤3.98	Pass
11ax-HE20	MCS0	140	5700	-3.03	-2.20	-2.24	-2.21	97.35	3.73	≤3.98	Pass
11ax-HE20	MCS0	144	5720	-2.85	-2.15	-2.20	-2.11	97.35	3.82	≤3.98	Pass

Test Mode	Data Rate/ MCS	Ch. 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
11ax-HE40	MCS0	38	5190	-0.56	-0.10	0.21	-0.04	96.83	6.05	≤9.98	Pass
11ax-HE40	MCS0	46	5230	2.65	3.41	3.37	3.67	96.83	9.45	≤9.98	Pass
11ax-HE40	MCS0	54	5270	-3.40	-2.86	-2.24	-1.87	96.83	3.61	≤3.98	Pass
11ax-HE40	MCS0	62	5310	-3.38	-2.78	-2.50	-1.75	96.83	3.60	≤3.98	Pass
11ax-HE40	MCS0	102	5510	-3.25	-2.37	-2.46	-2.50	96.83	3.53	≤3.98	Pass
11ax-HE40	MCS0	118	5590	-3.22	-2.38	-2.19	-2.44	96.83	3.62	≤3.98	Pass
11ax-HE40	MCS0	134	5670	-3.03	-2.18	-2.08	-1.78	96.83	3.92	≤3.98	Pass
11ax-HE40	MCS0	142	5710	-2.94	-2.22	-1.93	-1.90	96.83	3.93	≤3.98	Pass
11ax-HE80	MCS0	42	5210	-3.88	-3.16	-2.92	-3.05	96.83	2.92	≤9.98	Pass
11ax-HE80	MCS0	58	5290	-3.40	-2.66	-2.38	-1.17	96.83	3.84	≤3.98	Pass
11ax-HE80	MCS0	106	5530	-2.71	-2.37	-2.37	-2.63	96.83	3.64	≤3.98	Pass
11ax-HE80	MCS0	122	5610	-2.77	-2.23	-2.10	-2.05	96.83	3.88	≤3.98	Pass
11ax-HE80	MCS0	138	5690	-2.88	-2.25	-1.97	-1.93	96.83	3.92	≤3.98	Pass
11ax-HE80+80	MCS0	42	5210	-4.05	-3.48	--	--	96.83	-0.60	≤9.98	Pass
11ax-HE80+80	MCS0	58	5290	--	--	-3.87	-2.04	96.83	0.29	≤3.98	Pass
11ax-HE80+80	MCS0	106	5530	-3.34	-2.45	--	--	96.83	3.59	≤3.98	Pass
11ax-HE80+80	MCS0	122	5610	--	--	-2.56	-2.04	96.83			

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+80/802.11ax-HE80+80 Contiguous Mode:

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

5290MHz fall within UNII-2A: Total PSD (dBm/MHz) = $10 \cdot \log \{10^{(\text{Ant 2 PSD}/10)} + 10^{(\text{Ant 3 PSD}/10)}\}$ (dBm/MHz) + $10 \cdot \log (1/\text{Duty Cycle})$.

5530MHz & 5610MHz fall within UNII-2C: 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 4: For UNII-Band 1: PSD Limit = 17dBm/MHz - (13.02dBi - 6dBi) = 11.98dBm/MHz.

For UNII-Band 2A & 2C: PSD Limit = 11dBm/MHz - (13.02dBi - 6dBi) = 3.98dBm/MHz.

Product	Wireless Access Point	Temperature	23°C
Test Engineer	Snake Ni	Relative Humidity	52%
Test Site	TR3	Test Date	2020/02/17 ~ 2020/03/24
Test Item	Power Spectral Density (UNII-Band 3) For Wireless Access Point configured internal Wi-Fi Antenna		

Test Mode	Data Rate/MCS	Ch. No.	Freq. (MHz)	Ant 0 PSD (dBm/510kHz)	Ant 1 PSD (dBm/510kHz)	Ant 2 PSD (dBm/510kHz)	Ant 3 PSD (dBm/510kHz)	Duty Cycle (%)	Total PSD (dBm/510kHz)	PSD Limit (dBm/500kHz)	Result
11a	6Mbps	149	5745	3.02	2.76	2.76	3.55	68.16	10.72	≤22.98	Pass
11a	6Mbps	157	5785	3.04	2.97	3.25	3.26	68.16	10.82	≤22.98	Pass
11a	6Mbps	165	5825	3.25	2.94	3.69	3.68	68.16	11.09	≤22.98	Pass
11ac-VHT20	MCS0	149	5745	3.49	2.82	3.43	3.99	91.03	9.88	≤22.98	Pass
11ac-VHT20	MCS0	157	5785	3.79	3.00	3.77	3.78	91.03	10.03	≤22.98	Pass
11ac-VHT20	MCS0	165	5825	4.15	3.52	4.30	4.17	91.03	10.47	≤22.98	Pass
11ac-VHT40	MCS0	151	5755	-0.24	-0.39	-0.25	0.48	94.14	6.19	≤22.98	Pass
11ac-VHT40	MCS0	159	5795	0.40	-0.08	0.44	0.65	94.14	6.64	≤22.98	Pass
11ac-VHT80	MCS0	155	5775	-3.33	-3.50	-3.33	-2.96	91.03	3.15	≤22.98	Pass
11ax-HE20	MCS0	149	5745	2.76	2.52	2.70	3.45	97.35	9.01	≤22.98	Pass
11ax-HE20	MCS0	157	5785	3.33	2.70	3.38	3.11	97.35	9.28	≤22.98	Pass
11ax-HE20	MCS0	165	5825	3.19	3.15	3.70	3.36	97.35	9.49	≤22.98	Pass
11ax-HE40	MCS0	151	5755	-0.27	-0.71	-0.54	0.15	96.83	5.83	≤22.98	Pass
11ax-HE40	MCS0	159	5795	0.26	-0.41	0.44	0.59	96.83	6.39	≤22.98	Pass
11ax-HE80	MCS0	155	5775	-3.24	-3.99	-2.89	-3.09	96.83	2.88	≤22.98	Pass

Note 1: When EUT duty cycle ≥ 98%, Total PSD (dBm/510kHz) = $10 \cdot \log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)} + 10^{(\text{Ant 2 PSD}/10)} + 10^{(\text{Ant 3 PSD}/10)}\}$ (dBm/510kHz).

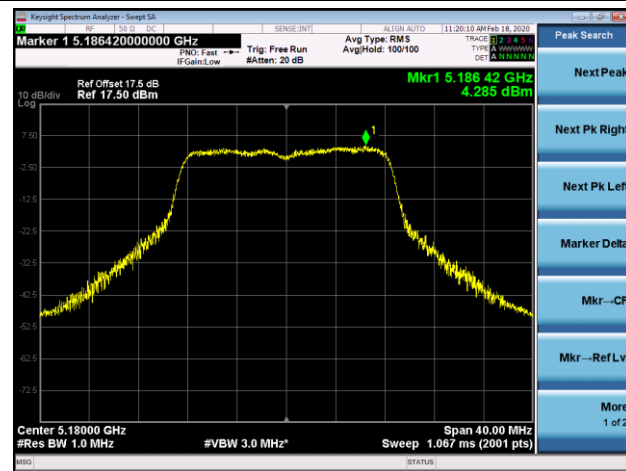
Note 2: When EUT duty cycle < 98%, Total PSD (dBm/510kHz) = $10 \cdot \log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)} + 10^{(\text{Ant 2 PSD}/10)} + 10^{(\text{Ant 3 PSD}/10)}\}$ (dBm/510kHz) + $10 \cdot \log (1/\text{Duty Cycle})$.

Note 3: PSD Limit: 30dBm/500kHz - (13.02dBi - 6dBi) = 22.98dBm/500kHz.

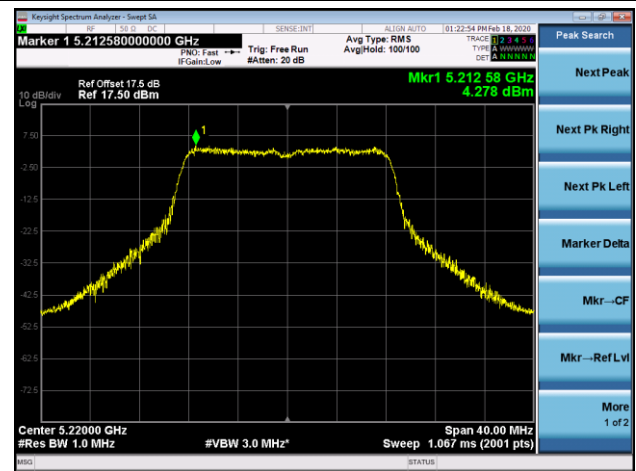
External Antenna Configuration

802.11a Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3

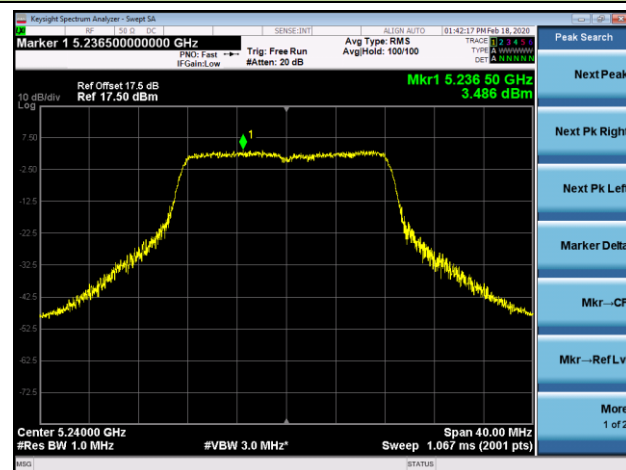
Channel 36 (5180MHz)



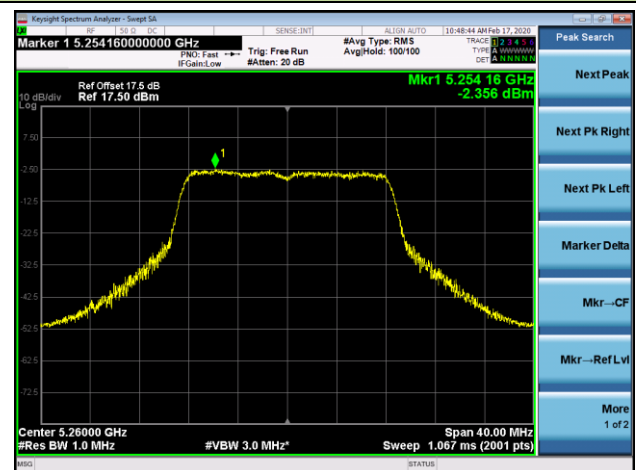
Channel 44 (5220MHz)



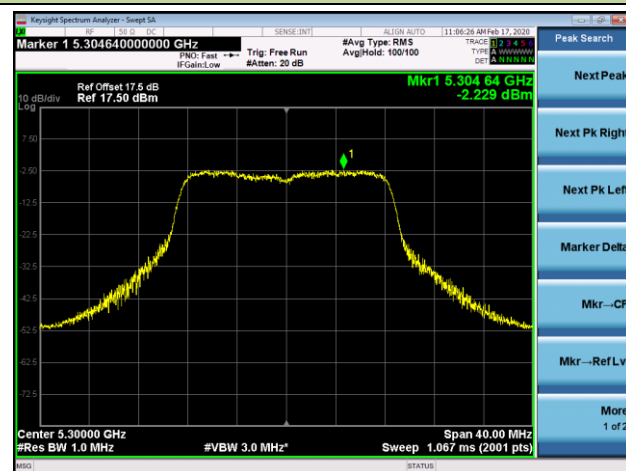
Channel 48 (5240MHz)



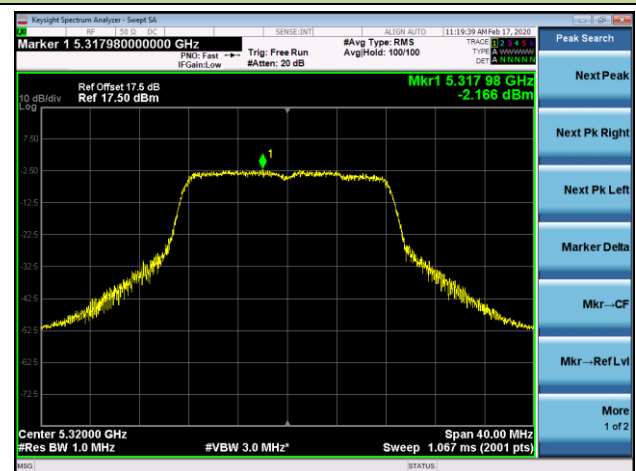
Channel 52 (5260MHz)



Channel 60 (5300MHz)

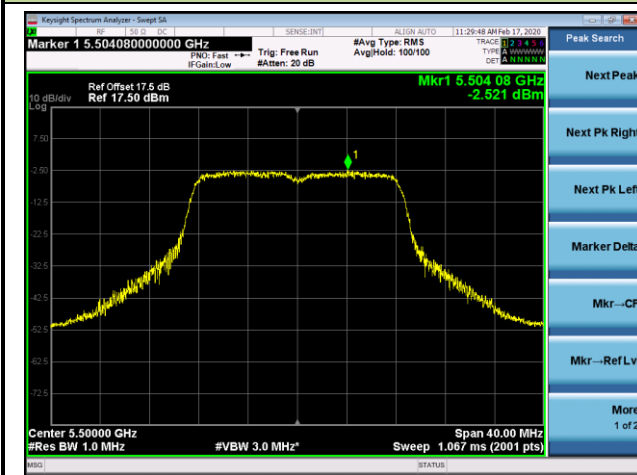


Channel 64 (5320MHz)

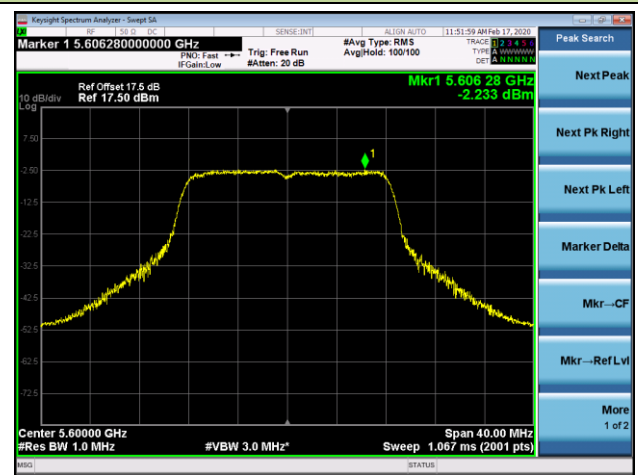


802.11a Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3

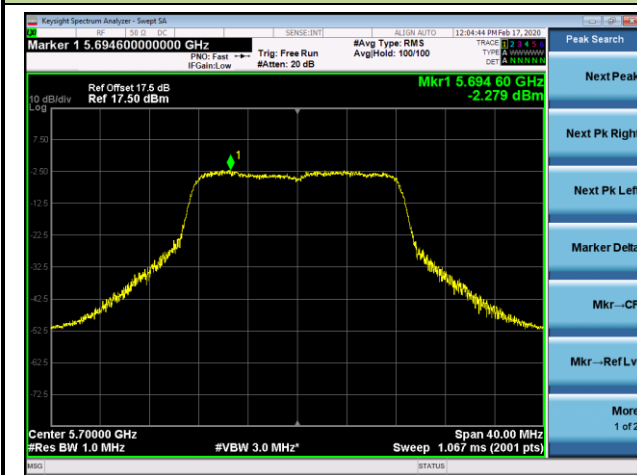
Channel 100 (5500MHz)



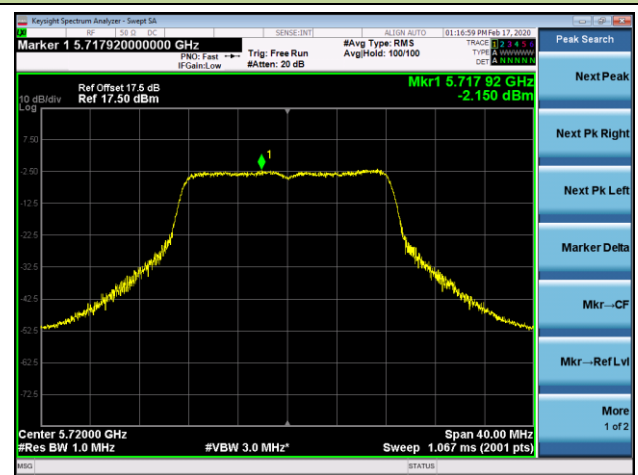
Channel 120 (5600MHz)



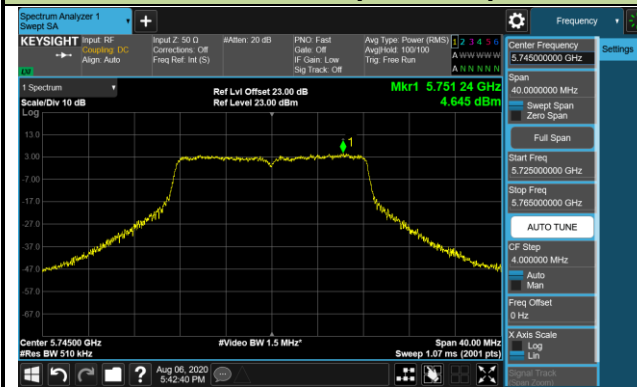
Channel 140 (5700MHz)



Channel 144 (5720MHz)

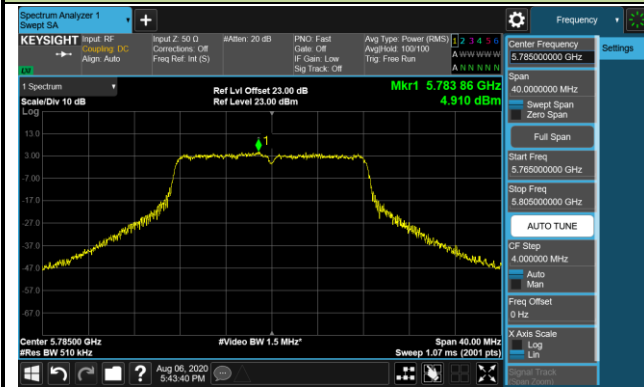


Channel 149 (5745MHz)

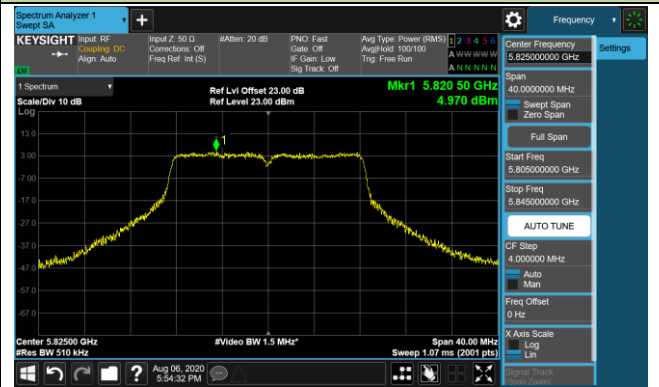


802.11a Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3

Channel 157 (5785MHz)

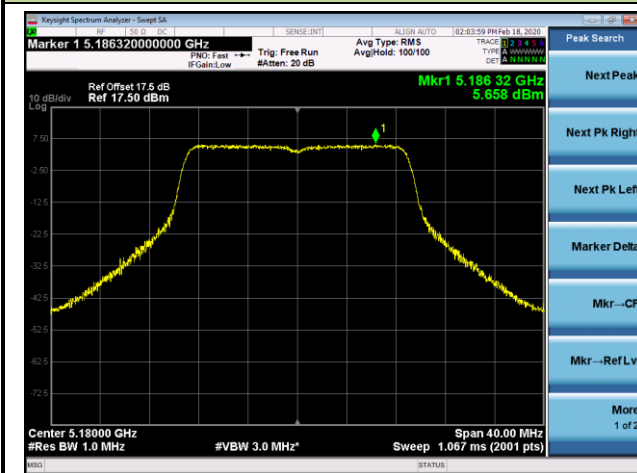


Channel 165 (5825MHz)

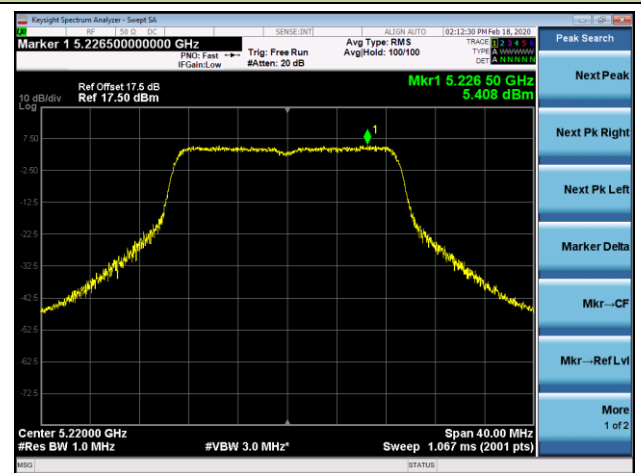


802.11ac-VHT20 Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3

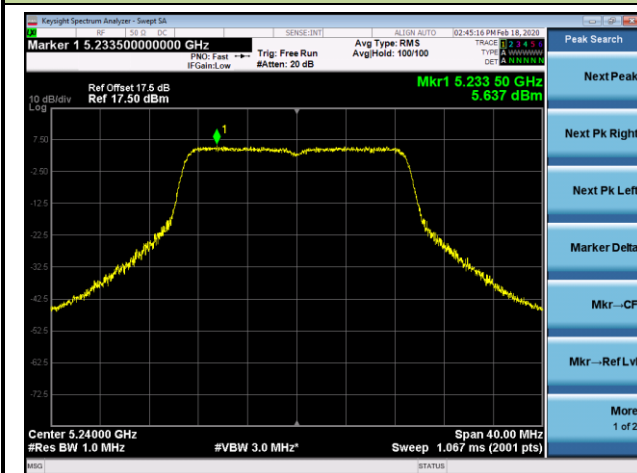
Channel 36 (5180MHz)



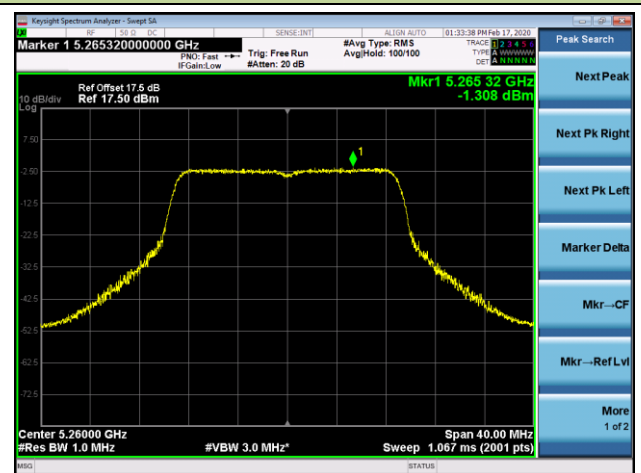
Channel 44 (5220MHz)



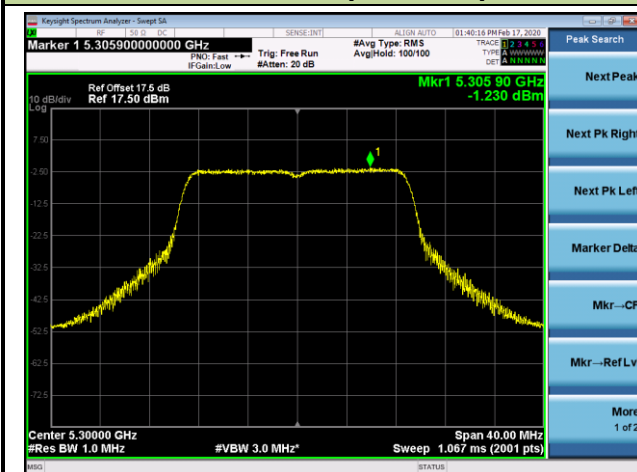
Channel 48 (5240MHz)



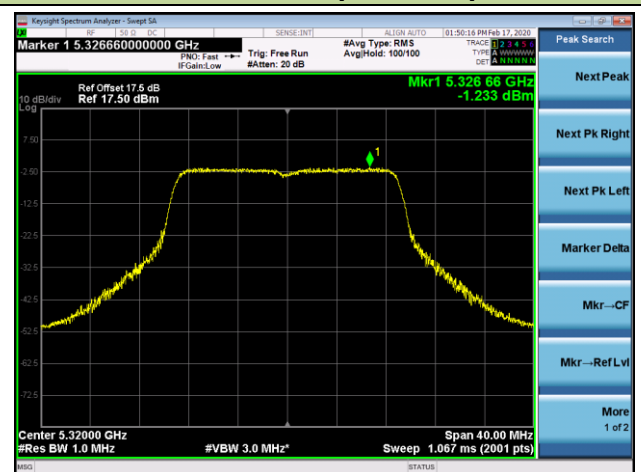
Channel 52 (5260MHz)



Channel 60 (5300MHz)

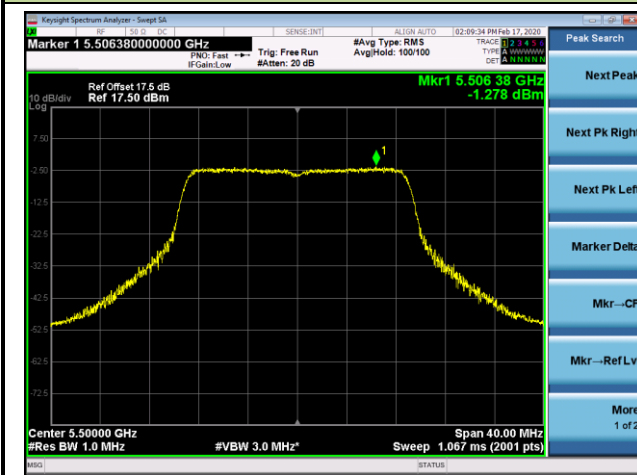


Channel 64 (5320MHz)

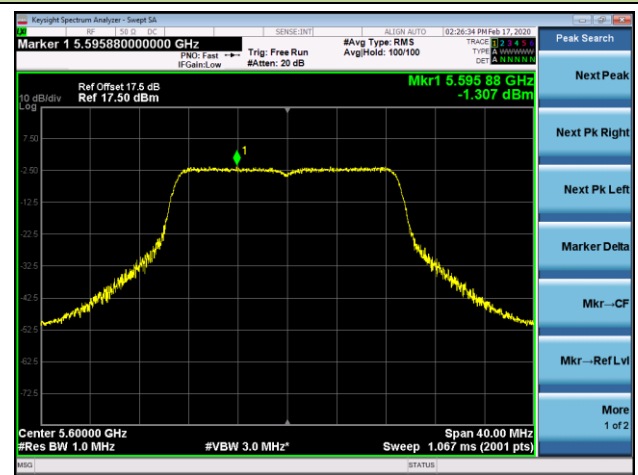


802.11ac-VHT20 Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3

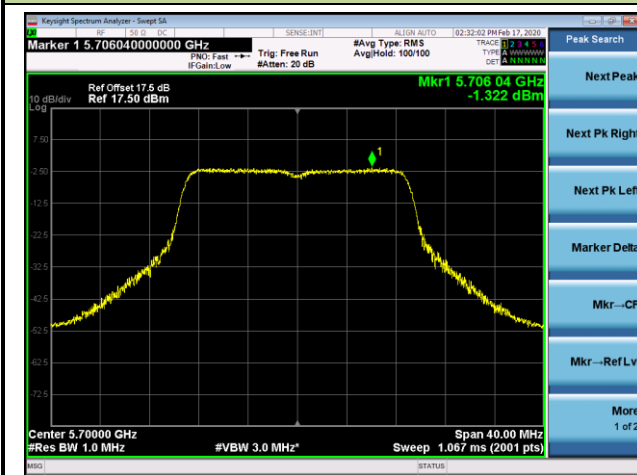
Channel 100 (5500MHz)



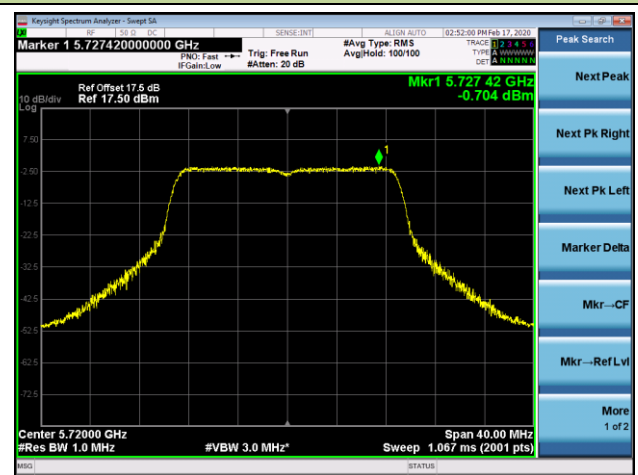
Channel 120 (5600MHz)



Channel 140 (5700MHz)



Channel 144 (5720MHz)



Channel 149 (5745MHz)

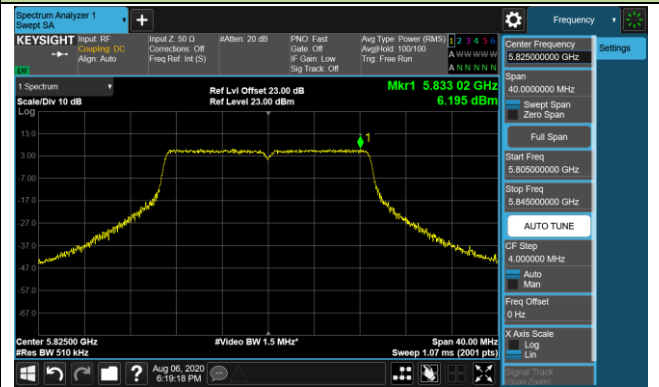


802.11ac-VHT20 Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3

Channel 157 (5785MHz)

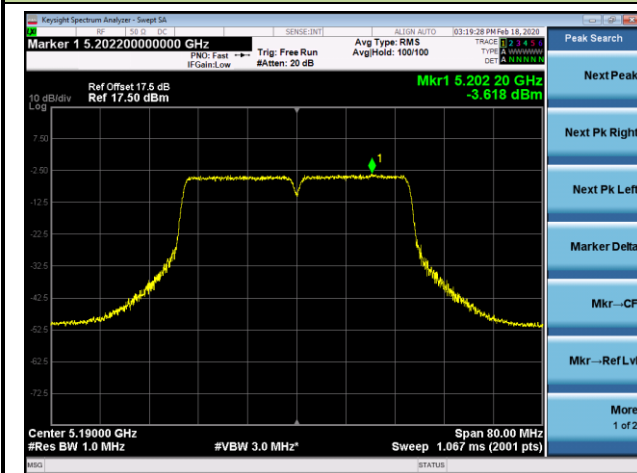


Channel 165 (5825MHz)

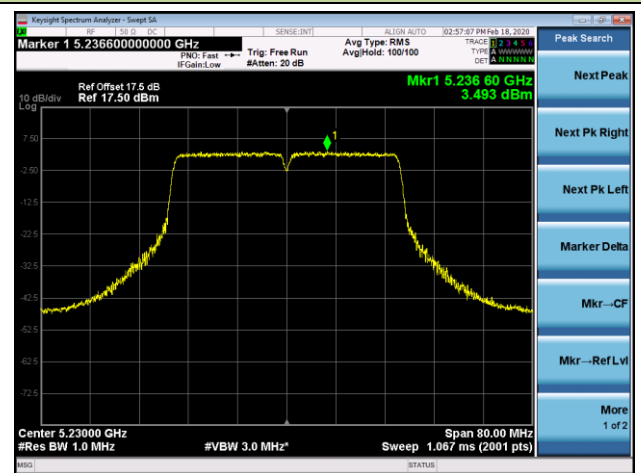


802.11ac-VHT40 Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3

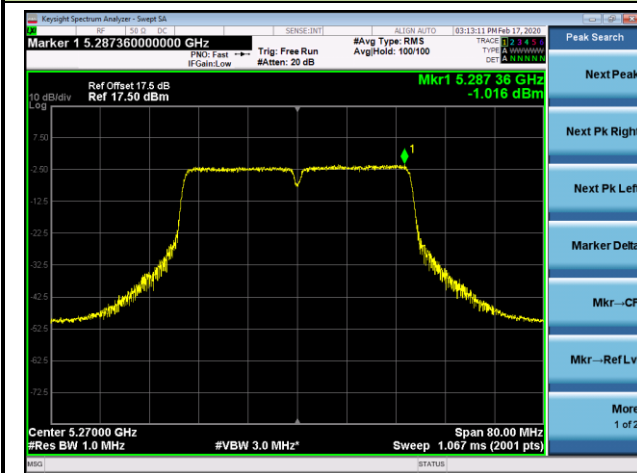
Channel 38 (5190MHz)



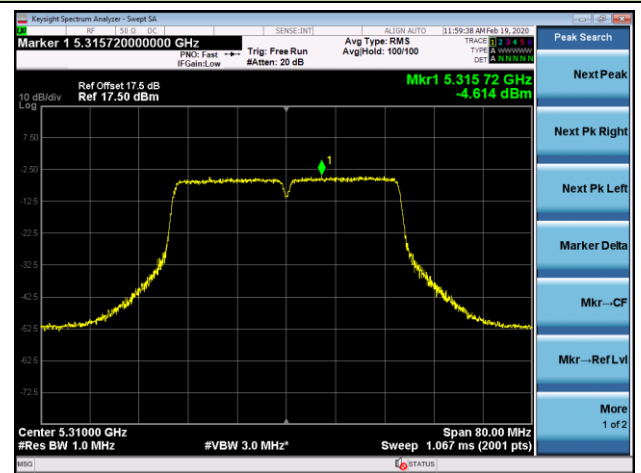
Channel 46 (5230MHz)



Channel 54 (5270MHz)



Channel 62 (5310MHz)



Channel 102 (5510MHz)

