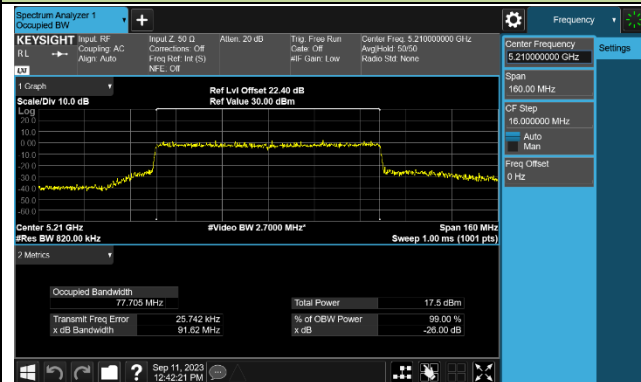
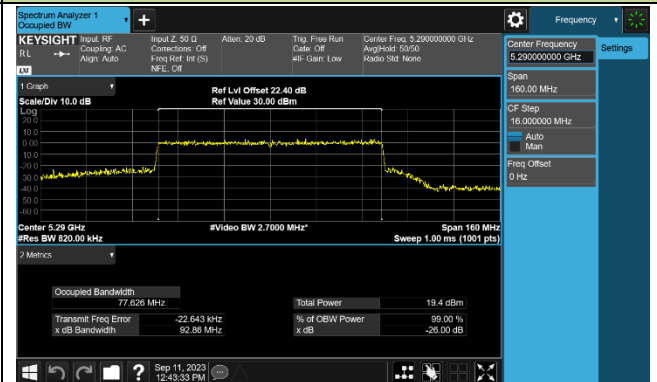


8802.11ax-HE80 26dB Bandwidth & 99% Bandwidth

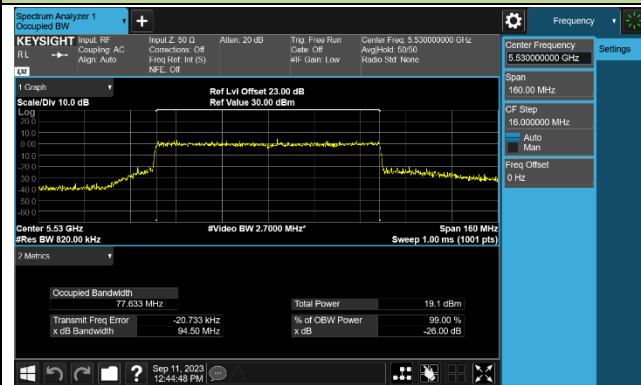
Channel 42 (5210MHz)



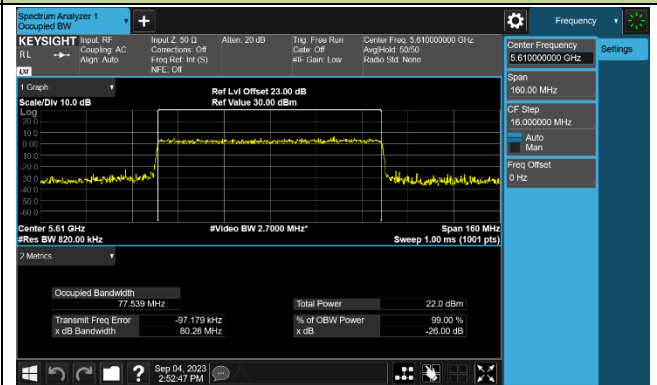
Channel 58 (5290MHz)



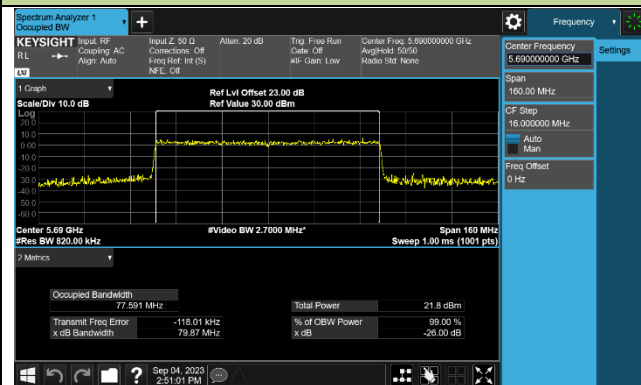
Channel 106 (5530MHz)



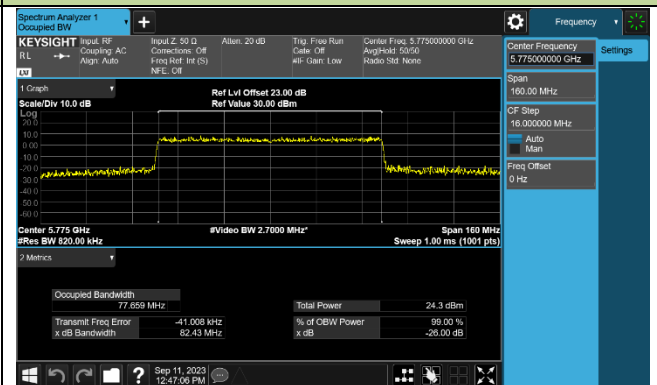
Channel 122 (5610MHz)



Channel 138 (5690MHz)

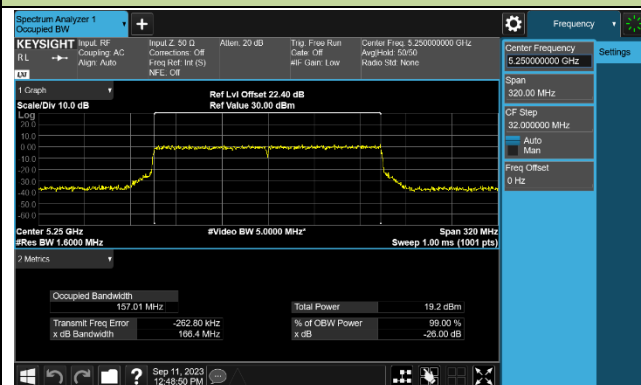


Channel 155 (5775MHz)

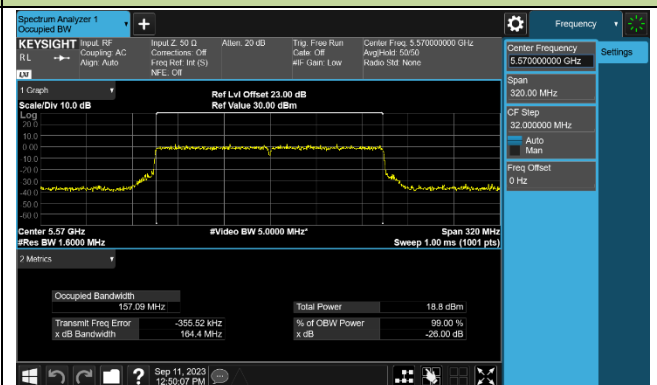


802.11ax-HE160 26dB Bandwidth & 99% Bandwidth

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.

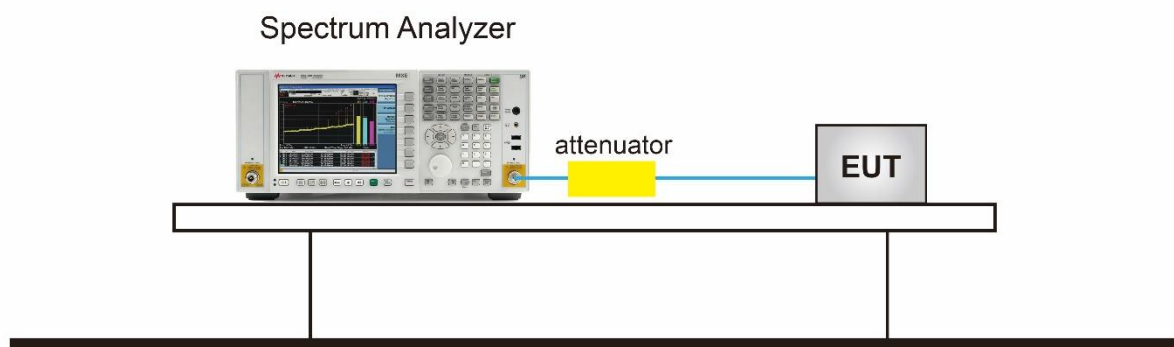
7.3.2. Test Procedure used

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 $3 \times$ 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



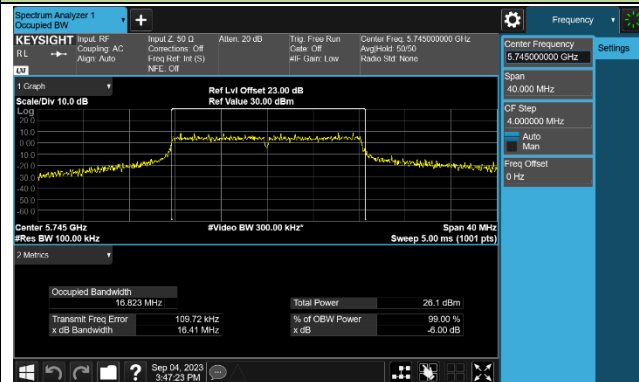
7.3.5.TestResult

Product	Omada 4G+ Cat6 AX3000 Gigabit VPN Router	Test Engineer	Xuan Yu
Test Site	SR6	Test Date	2023/09/04~2023/09/11

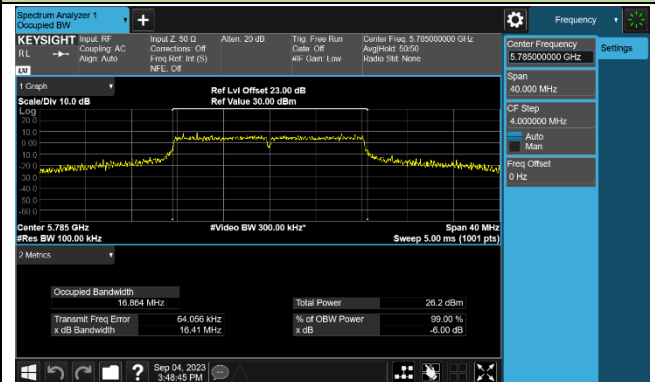
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
Ant 2						
802.11a	6Mbps	149	5745	16.41	≥ 0.5	Pass
802.11a	6Mbps	157	5785	16.41	≥ 0.5	Pass
802.11a	6Mbps	165	5825	16.41	≥ 0.5	Pass
802.11ac-VHT20	MCS0	149	5745	17.64	≥ 0.5	Pass
802.11ac-VHT20	MCS0	157	5785	17.66	≥ 0.5	Pass
802.11ac-VHT20	MCS0	165	5825	17.67	≥ 0.5	Pass
802.11ac-VHT40	MCS0	151	5755	36.43	≥ 0.5	Pass
802.11ac-VHT40	MCS0	159	5795	36.46	≥ 0.5	Pass
802.11ac-VHT80	MCS0	155	5775	76.51	≥ 0.5	Pass
802.11ax-HE20	MCS0	149	5745	18.76	≥ 0.5	Pass
802.11ax-HE20	MCS0	157	5785	18.64	≥ 0.5	Pass
802.11ax-HE20	MCS0	165	5825	18.86	≥ 0.5	Pass
802.11ax-HE40	MCS0	151	5755	38.08	≥ 0.5	Pass
802.11ax-HE40	MCS0	159	5795	38.06	≥ 0.5	Pass
802.11ax-HE80	MCS0	155	5775	77.92	≥ 0.5	Pass

802.11a 6dB Bandwidth

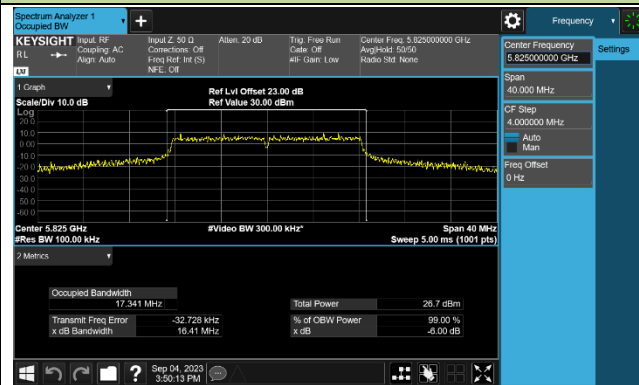
Channel 149 (5745MHz)



Channel 157 (5785MHz)

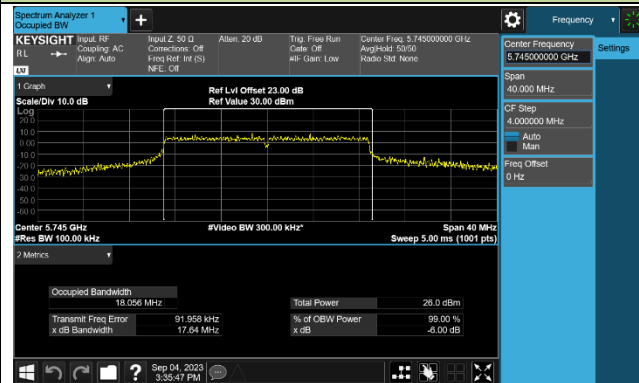


Channel 165 (5825MHz)

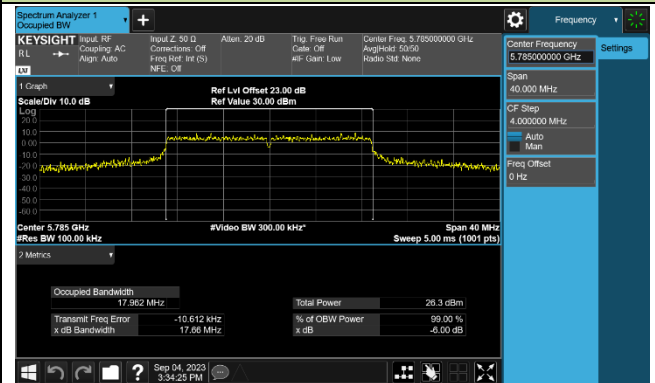


802.11ac-VHT20 6dB Bandwidth

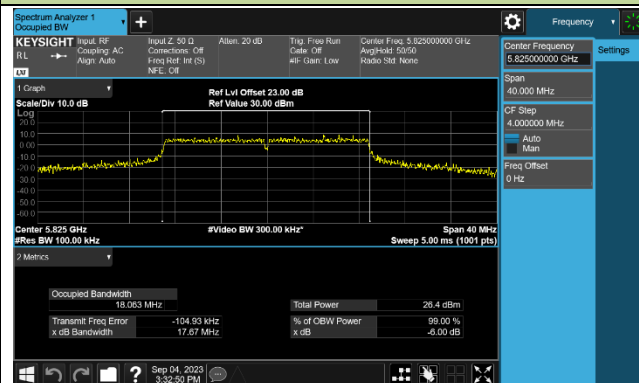
Channel 149 (5745MHz)



Channel 157 (5785MHz)

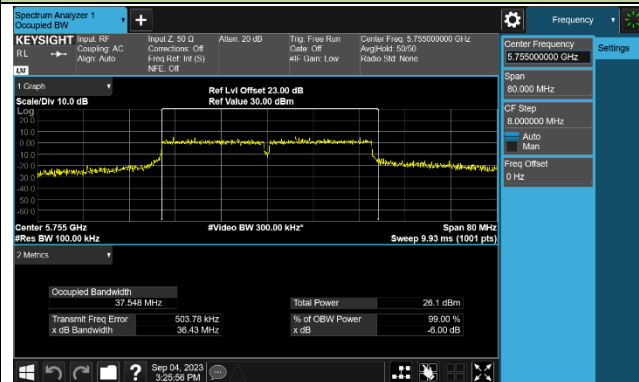


Channel 165 (5825MHz)

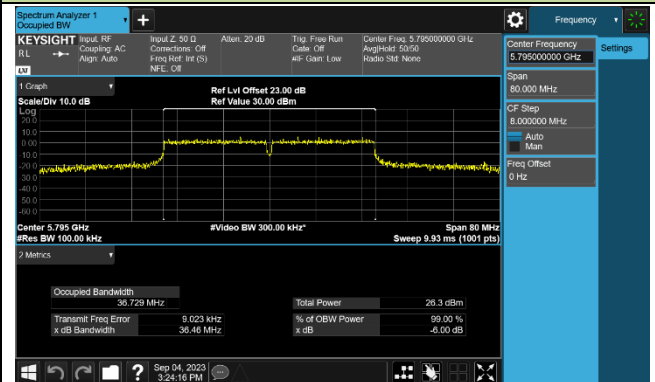


802.11ac-VHT40 6dB Bandwidth

Channel 151 (5755MHz)

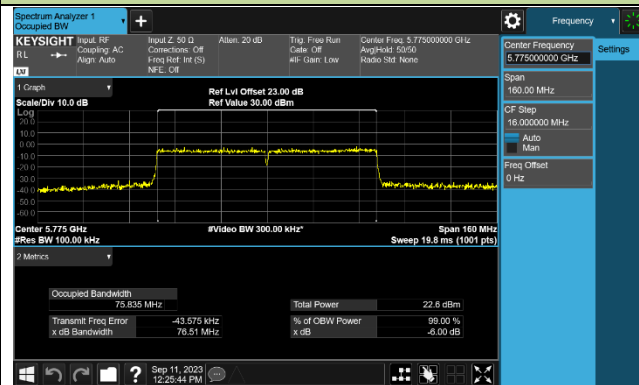


Channel 159 (5795MHz)



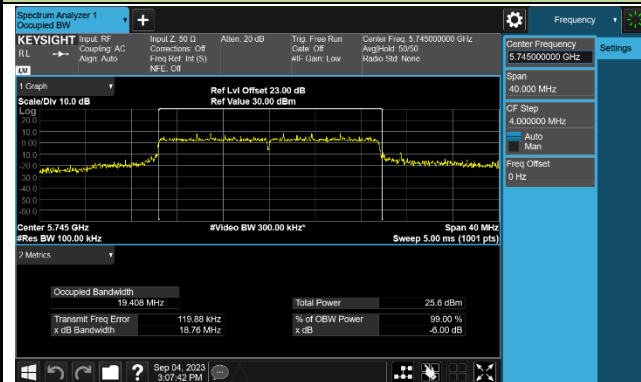
802.11ac-VHT80 6dB Bandwidth

Channel 155 (5775MHz)

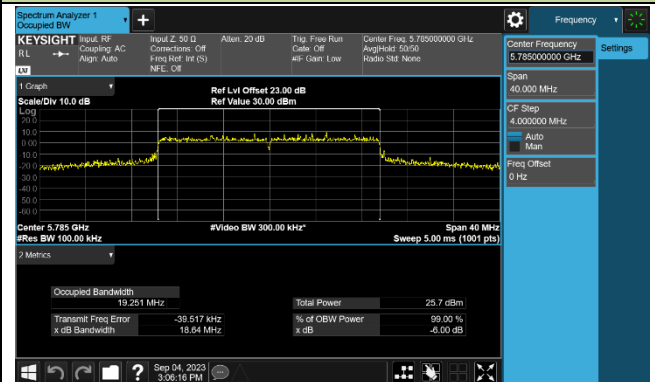


802.11ax-HE20 6dB Bandwidth

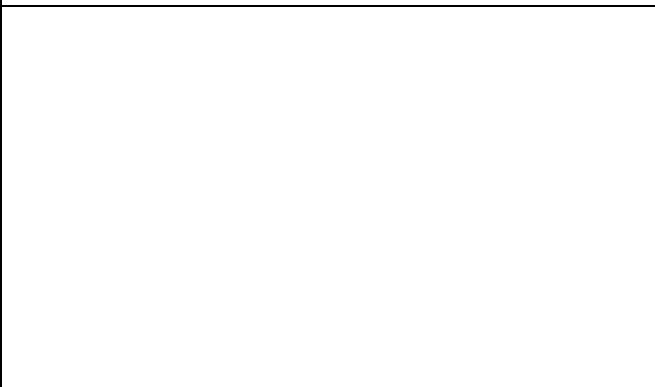
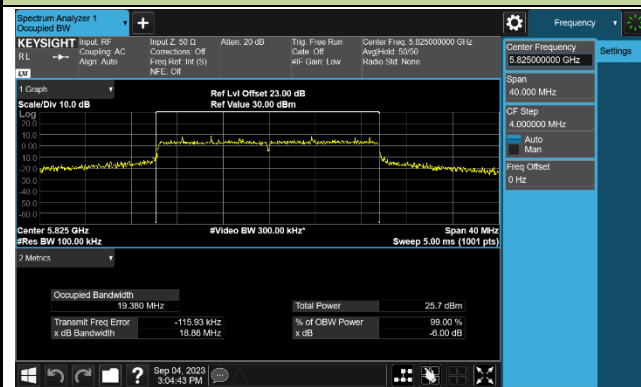
Channel 149 (5745MHz)



Channel 157 (5785MHz)

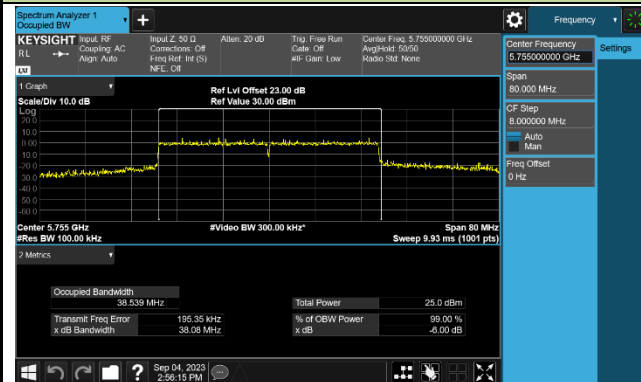


Channel 165 (5825MHz)

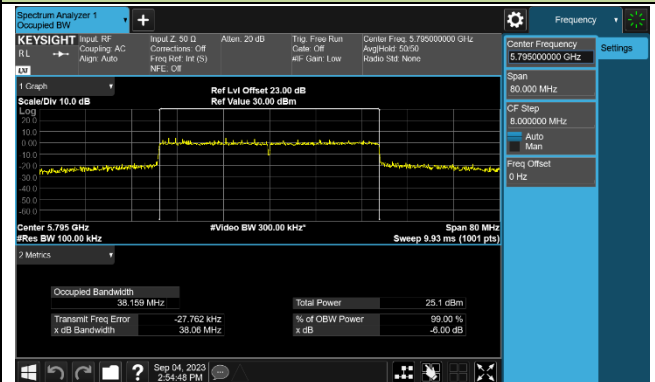


802.11ax-HE40 6dB Bandwidth

Channel 151 (5755MHz)

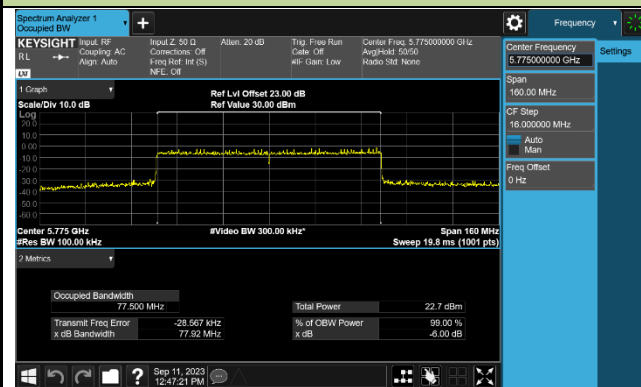


Channel 159 (5795MHz)



802.11ax-HE80 6dB Bandwidth

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.

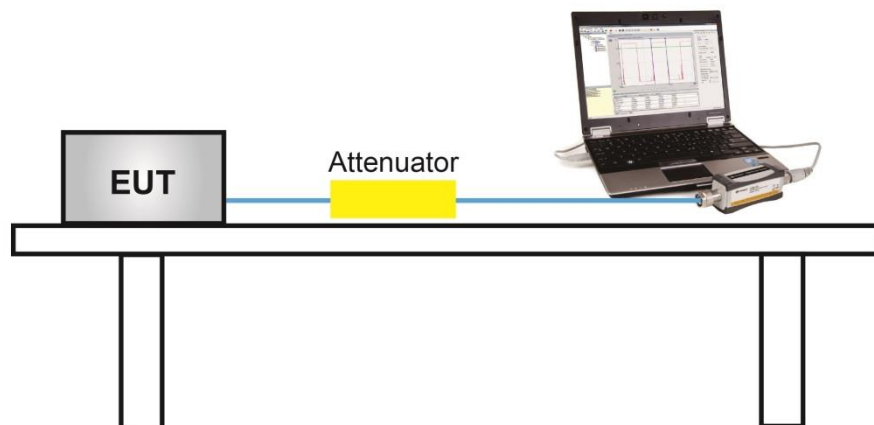
7.4.2. Test Procedure Used

KDB 789033D02v02r01- 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

Product	Omada 4G+ Cat6 AX3000 Gigabit VPN Router	Test Engineer	Xuan Yu
Test Site	SR6	Test Date	2023/08/24~2023/09/25
Test Mode	CDD Mode		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Ant 2 Average Power (dBm)	Total Average Power (dBm)	Power Limit (dBm)	Result
11a	6Mbps	36	5180	22.27	21.80	22.00	26.80	≤ 30.00	Pass
11a	6Mbps	44	5220	22.08	22.84	22.88	27.39	≤ 30.00	Pass
11a	6Mbps	48	5240	22.22	22.76	22.94	27.42	≤ 30.00	Pass
11a	6Mbps	52	5260	17.11	17.09	17.32	21.95	≤ 23.98	Pass
11a	6Mbps	60	5300	16.60	16.81	17.16	21.63	≤ 23.98	Pass
11a	6Mbps	64	5320	16.74	16.67	17.14	21.63	≤ 23.98	Pass
11a	6Mbps	100	5500	17.07	16.42	16.72	21.52	≤ 23.98	Pass
11a	6Mbps	116	5580	16.71	17.34	16.82	21.74	≤ 23.98	Pass
11a	6Mbps	140	5700	17.63	17.09	17.30	22.12	≤ 23.98	Pass
11a	6Mbps	144	5720	17.10	16.96	16.60	21.66	≤ 22.69	Pass
11a	6Mbps	149	5745	22.02	22.31	22.06	26.90	≤ 30.00	Pass
11a	6Mbps	157	5785	22.00	22.35	22.17	26.95	≤ 30.00	Pass
11a	6Mbps	165	5825	22.30	22.90	22.41	27.32	≤ 30.00	Pass
11ac-VHT20	MCS0	36	5180	22.63	22.20	22.12	27.09	≤ 30.00	Pass
11ac-VHT20	MCS0	40	5220	22.65	22.41	22.38	27.25	≤ 30.00	Pass
11ac-VHT20	MCS0	48	5240	22.60	22.18	22.40	27.17	≤ 30.00	Pass
11ac-VHT20	MCS0	52	5260	17.30	17.56	17.58	22.25	≤ 23.98	Pass
11ac-VHT20	MCS0	60	5300	17.04	17.01	17.33	21.90	≤ 23.98	Pass
11ac-VHT20	MCS0	64	5320	17.01	16.88	17.30	21.84	≤ 23.98	Pass
11ac-VHT20	MCS0	100	5500	17.22	16.75	16.94	21.75	≤ 23.98	Pass
11ac-VHT20	MCS0	116	5580	16.90	17.63	17.01	21.96	≤ 23.98	Pass
11ac-VHT20	MCS0	140	5700	17.73	17.00	17.66	22.25	≤ 23.98	Pass
11ac-VHT20	MCS0	144	5720	17.83	17.41	17.70	22.42	≤ 22.99	Pass
11ac-VHT20	MCS0	149	5745	22.25	22.54	22.17	27.09	≤ 30.00	Pass
11ac-VHT20	MCS0	157	5785	22.08	22.65	22.22	27.09	≤ 30.00	Pass
11ac-VHT20	MCS0	165	5825	22.09	22.57	22.13	27.04	≤ 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)	Total Average Power (dBm)	Power Limit (dBm)	Result
11ac-VHT40	MCS0	38	5190	19.58	18.85	18.81	23.87	≤ 30.00	Pass
11ac-VHT40	MCS0	46	5230	22.65	22.03	22.12	27.05	≤ 30.00	Pass
11ac-VHT40	MCS0	54	5270	19.11	18.86	19.33	23.88	≤ 23.98	Pass
11ac-VHT40	MCS0	62	5310	18.62	18.48	18.78	23.40	≤ 23.98	Pass
11ac-VHT40	MCS0	102	5510	19.22	18.76	18.81	23.71	≤ 23.98	Pass
11ac-VHT40	MCS0	110	5550	19.28	18.76	18.78	23.72	≤ 23.98	Pass
11ac-VHT40	MCS0	134	5670	18.91	18.83	19.03	23.70	≤ 23.98	Pass
11ac-VHT40	MCS0	142	5710	18.92	18.77	18.55	23.52	≤ 23.98	Pass
11ac-VHT40	MCS0	151	5755	22.55	22.85	22.46	27.39	≤ 30.00	Pass
11ac-VHT40	MCS0	159	5795	22.56	22.81	22.30	27.33	≤ 30.00	Pass
11ac-VHT80	MCS0	42	5210	14.00	13.40	13.61	18.45	≤ 30.00	Pass
11ac-VHT80	MCS0	58	5290	14.56	14.25	14.20	19.11	≤ 23.98	Pass
11ac-VHT80	MCS0	106	5530	15.45	15.04	15.11	19.97	≤ 23.98	Pass
11ac-VHT80	MCS0	122	5610	18.73	18.79	18.77	23.53	≤ 23.98	Pass
11ac-VHT80	MCS0	138	5690	18.91	18.89	19.08	23.73	≤ 23.98	Pass
11ac-VHT80	MCS0	155	5775	19.43	19.25	19.13	24.04	≤ 30.00	Pass
11ac-VHT160	MCS0	50	5250	14.75	14.26	14.45	19.26	≤ 23.98	Pass
11ac-VHT160	MCS0	114	5570	16.59	16.00	16.16	21.03	≤ 23.98	Pass
11ax-HE20	MCS0	36	5180	21.87	21.58	21.30	26.36	≤ 30.00	Pass
11ax-HE20	MCS0	40	5220	22.73	22.32	22.34	27.24	≤ 30.00	Pass
11ax-HE20	MCS0	48	5240	22.71	22.41	22.48	27.31	≤ 30.00	Pass
11ax-HE20	MCS0	52	5260	17.51	17.66	17.84	22.44	≤ 23.98	Pass
11ax-HE20	MCS0	60	5300	17.27	17.30	17.57	22.15	≤ 23.98	Pass
11ax-HE20	MCS0	64	5320	17.10	17.08	17.20	21.90	≤ 23.98	Pass
11ax-HE20	MCS0	100	5500	17.50	17.08	17.16	22.02	≤ 23.98	Pass
11ax-HE20	MCS0	116	5580	17.49	17.75	17.66	22.41	≤ 23.98	Pass
11ax-HE20	MCS0	140	5700	18.12	17.40	17.43	22.43	≤ 23.98	Pass
11ax-HE20	MCS0	144	5720	17.40	17.32	17.22	22.09	≤ 23.02	Pass
11ax-HE20	MCS0	149	5745	22.44	22.71	22.38	27.28	≤ 30.00	Pass
11ax-HE20	MCS0	157	5785	22.36	22.81	22.36	27.29	≤ 30.00	Pass
11ax-HE20	MCS0	165	5825	22.13	22.80	22.39	27.22	≤ 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)	Total Average Power (dBm)	Power Limit (dBm)	Result
11ax-HE40	MCS0	38	5190	19.30	18.75	18.55	23.65	≤ 30.00	Pass
11ax-HE40	MCS0	46	5230	22.93	22.31	22.38	27.32	≤ 30.00	Pass
11ax-HE40	MCS0	54	5270	19.00	19.07	19.19	23.86	≤ 23.98	Pass
11ax-HE40	MCS0	62	5310	18.96	18.93	19.07	23.76	≤ 23.98	Pass
11ax-HE40	MCS0	102	5510	18.90	18.49	18.58	23.43	≤ 23.98	Pass
11ax-HE40	MCS0	110	5550	19.06	18.56	18.58	23.51	≤ 23.98	Pass
11ax-HE40	MCS0	134	5670	18.62	18.67	18.94	23.52	≤ 23.98	Pass
11ax-HE40	MCS0	142	5710	18.78	18.59	18.47	23.39	≤ 23.98	Pass
11ax-HE40	MCS0	151	5755	22.36	22.63	22.22	27.18	≤ 30.00	Pass
11ax-HE40	MCS0	159	5795	22.15	22.73	22.11	27.11	≤ 30.00	Pass
11ax-HE80	MCS0	42	5210	13.65	13.22	13.21	18.14	≤ 30.00	Pass
11ax-HE80	MCS0	58	5290	14.85	14.69	14.65	19.50	≤ 23.98	Pass
11ax-HE80	MCS0	106	5530	15.45	15.00	14.93	19.90	≤ 23.98	Pass
11ax-HE80	MCS0	122	5610	18.52	18.85	18.48	23.39	≤ 23.98	Pass
11ax-HE80	MCS0	138	5690	18.81	18.45	18.87	23.49	≤ 23.98	Pass
11ax-HE80	MCS0	155	5775	20.25	20.30	19.97	24.95	≤ 30.00	Pass
11ax-HE160	MCS0	50	5250	15.84	15.27	15.36	20.27	≤ 23.98	Pass
11ax-HE160	MCS0	114	5570	15.90	15.43	15.39	20.35	≤ 23.98	Pass

Note 1:

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

Note 2:

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

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

For 802.11a Ch144 (5720MHz), Average Power Limit (dBm) = $11 + 10 \cdot \log(5\text{MHz} + \text{BW}_{26\text{dBc}}/2) = 22.69$ dBm.

For 802.11ac Ch144 (5720MHz), Average Power Limit (dBm) = $11 + 10 \cdot \log(5\text{MHz} + \text{BW}_{26\text{dBc}}/2) = 22.99$ dBm.

For 802.11ax Ch144 (5720MHz), Average Power Limit (dBm) = $11 + 10 \cdot \log(5\text{MHz} + \text{BW}_{26\text{dBc}}/2) = 23.02$ dBm.

Product	Omada 4G+ Cat6 AX3000 Gigabit VPN Router	Test Engineer	Xuan Yu
Test Site	SR6	Test Date	2023/08/24~2023/09/25
Test Mode	Beamforming Mode		

Test Mode	Data Rate/MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Ant 2 Average Power (dBm)	Total Average Power (dBm)	Power Limit (dBm)	Result
11ac-VHT20	MCS0	36	5180	22.63	22.20	22.12	27.09	≤ 28.23	Pass
11ac-VHT20	MCS0	40	5220	22.65	22.41	22.38	27.25	≤ 28.23	Pass
11ac-VHT20	MCS0	48	5240	22.60	22.18	22.40	27.17	≤ 28.23	Pass
11ac-VHT20	MCS0	52	5260	16.80	17.00	17.04	21.72	≤ 22.21	Pass
11ac-VHT20	MCS0	60	5300	17.04	17.01	17.33	21.90	≤ 22.21	Pass
11ac-VHT20	MCS0	64	5320	17.01	16.88	17.30	21.84	≤ 22.21	Pass
11ac-VHT20	MCS0	100	5500	17.22	16.75	16.94	21.75	≤ 22.21	Pass
11ac-VHT20	MCS0	116	5580	16.90	17.63	17.01	21.96	≤ 22.21	Pass
11ac-VHT20	MCS0	140	5700	17.50	16.90	16.97	21.90	≤ 22.21	Pass
11ac-VHT20	MCS0	144	5720	16.45	16.36	16.33	21.15	≤ 21.21	Pass
11ac-VHT20	MCS0	149	5745	22.25	22.54	22.17	27.09	≤ 28.23	Pass
11ac-VHT20	MCS0	157	5785	22.08	22.65	22.22	27.09	≤ 28.23	Pass
11ac-VHT20	MCS0	165	5825	22.09	22.57	22.13	27.04	≤ 28.23	Pass
11ac-VHT40	MCS0	38	5190	19.58	18.85	18.81	23.87	≤ 28.23	Pass
11ac-VHT40	MCS0	46	5230	22.65	22.03	22.12	27.05	≤ 28.23	Pass
11ac-VHT40	MCS0	54	5270	17.03	17.15	17.32	21.94	≤ 22.21	Pass
11ac-VHT40	MCS0	62	5310	16.94	17.12	17.24	21.87	≤ 22.21	Pass
11ac-VHT40	MCS0	102	5510	17.14	16.80	16.85	21.70	≤ 22.21	Pass
11ac-VHT40	MCS0	110	5550	17.23	16.98	16.82	21.78	≤ 22.21	Pass
11ac-VHT40	MCS0	134	5670	17.02	16.88	17.35	21.86	≤ 22.21	Pass
11ac-VHT40	MCS0	142	5710	17.16	17.03	17.04	21.85	≤ 22.21	Pass
11ac-VHT40	MCS0	151	5755	22.55	22.85	22.46	27.39	≤ 28.23	Pass
11ac-VHT40	MCS0	159	5795	22.56	22.81	22.30	27.33	≤ 28.23	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)	Total Average Power (dBm)	Power Limit (dBm)	Result
11ac-VHT80	MCS0	42	5210	14.00	13.40	13.61	18.45	≤ 28.23	Pass
11ac-VHT80	MCS0	58	5290	14.56	14.25	14.20	19.11	≤ 22.21	Pass
11ac-VHT80	MCS0	106	5530	15.45	15.04	15.11	19.97	≤ 22.21	Pass
11ac-VHT80	MCS0	122	5610	17.40	17.35	17.43	22.16	≤ 22.21	Pass
11ac-VHT80	MCS0	138	5690	17.28	17.04	17.59	22.08	≤ 22.21	Pass
11ac-VHT80	MCS0	155	5775	19.43	19.25	19.13	24.04	≤ 28.23	Pass
11ac-VHT160	MCS0	50	5250	14.75	14.26	14.45	19.26	≤ 22.21	Pass
11ac-VHT160	MCS0	114	5570	16.59	16.00	16.16	21.03	≤ 22.21	Pass
11ax-HE20	MCS0	36	5180	21.87	21.58	21.30	26.36	≤ 28.23	Pass
11ax-HE20	MCS0	40	5220	22.73	22.32	22.34	27.24	≤ 28.23	Pass
11ax-HE20	MCS0	48	5240	22.71	22.41	22.48	27.31	≤ 28.23	Pass
11ax-HE20	MCS0	52	5260	16.85	17.11	17.25	21.84	≤ 22.21	Pass
11ax-HE20	MCS0	60	5300	17.27	17.30	17.57	22.15	≤ 22.21	Pass
11ax-HE20	MCS0	64	5320	17.10	17.08	17.20	21.90	≤ 22.21	Pass
11ax-HE20	MCS0	100	5500	17.50	17.08	17.16	22.02	≤ 22.21	Pass
11ax-HE20	MCS0	116	5580	17.00	17.34	17.21	21.96	≤ 22.21	Pass
11ax-HE20	MCS0	140	5700	17.18	16.89	16.99	21.79	≤ 22.21	Pass
11ax-HE20	MCS0	144	5720	16.01	16.03	16.45	20.94	≤ 21.25	Pass
11ax-HE20	MCS0	149	5745	22.44	22.71	22.38	27.28	≤ 28.23	Pass
11ax-HE20	MCS0	157	5785	22.36	22.81	22.36	27.29	≤ 28.23	Pass
11ax-HE20	MCS0	165	5825	22.13	22.80	22.39	27.22	≤ 28.23	Pass
11ax-HE40	MCS0	38	5190	19.30	18.75	18.55	23.65	≤ 28.23	Pass
11ax-HE40	MCS0	46	5230	22.93	22.31	22.38	27.32	≤ 28.23	Pass
11ax-HE40	MCS0	54	5270	16.98	17.01	17.18	21.83	≤ 22.21	Pass
11ax-HE40	MCS0	62	5310	17.22	17.01	17.58	22.05	≤ 22.21	Pass
11ax-HE40	MCS0	102	5510	17.41	17.13	17.05	21.97	≤ 22.21	Pass
11ax-HE40	MCS0	110	5550	17.12	17.10	16.83	21.79	≤ 22.21	Pass
11ax-HE40	MCS0	134	5670	16.98	16.83	17.25	21.79	≤ 22.21	Pass
11ax-HE40	MCS0	142	5710	17.14	16.98	16.97	21.80	≤ 22.21	Pass
11ax-HE40	MCS0	151	5755	22.36	22.63	22.22	27.18	≤ 28.23	Pass
11ax-HE40	MCS0	159	5795	22.15	22.73	22.11	27.11	≤ 28.23	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)	Total Average Power (dBm)	Power Limit (dBm)	Result
11ax-HE80	MCS0	42	5210	13.65	13.22	13.21	18.14	≤ 28.23	Pass
11ax-HE80	MCS0	58	5290	14.85	14.69	14.65	19.50	≤ 22.21	Pass
11ax-HE80	MCS0	106	5530	15.45	15.00	14.93	19.90	≤ 22.21	Pass
11ax-HE80	MCS0	122	5610	16.80	17.11	17.12	21.78	≤ 22.21	Pass
11ax-HE80	MCS0	138	5690	16.78	16.88	17.63	21.88	≤ 22.21	Pass
11ax-HE80	MCS0	155	5775	20.25	20.30	19.97	24.95	≤ 28.23	Pass
11ax-HE160	MCS0	50	5250	15.84	15.27	15.36	20.27	≤ 22.21	Pass
11ax-HE160	MCS0	114	5570	15.90	15.43	15.39	20.35	≤ 22.21	Pass

Note 1:

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

Note 2:

For 5125 - 5250MHz Band: Average Power Limit (dBm) = 30 - (7.77- 6) = 28.23dBm

For 5250 - 5350MHz and 5470 - 5725MHz Band: Average Power Limit (dBm) = 23.98 - (7.77- 6) = 22.11dBm.

For 5725 - 5850MHz Band: Average Power Limit (dBm) = 30- (7.77- 6) = 28.23dBm.

For 802.11ac ch144 (5720MHz), Average Power Limit (dBm) = $11 + 10 \cdot \log(5\text{MHz} + \text{BW}_{26\text{dBc}}/2) - (7.77- 6) = 21.21 \text{ dBm}$.

For 802.11ax ch144 (5720MHz), Average Power Limit (dBm) = $11 + 10 \cdot \log(5\text{MHz} + \text{BW}_{26\text{dBc}}/2) - (7.77- 6) = 21.25 \text{ dBm}$.

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.

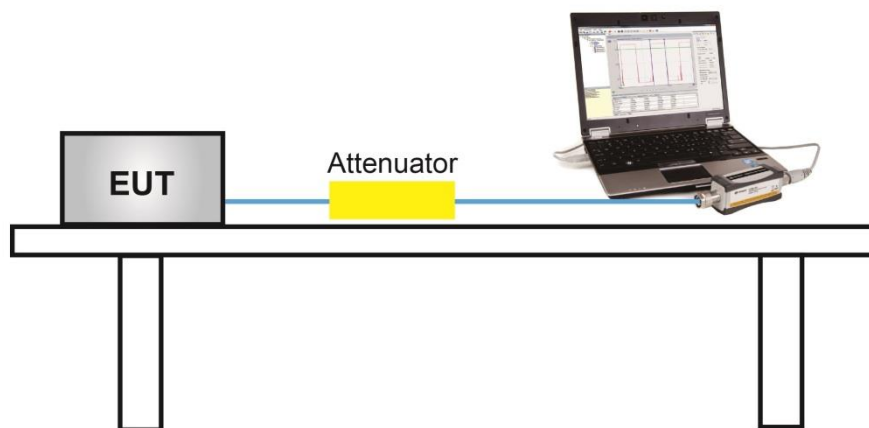
7.5.2. Test Procedure Used

KDB 789033 D02v02r01- 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

Device supports TPC mechanism, details refer to the operational description.

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.

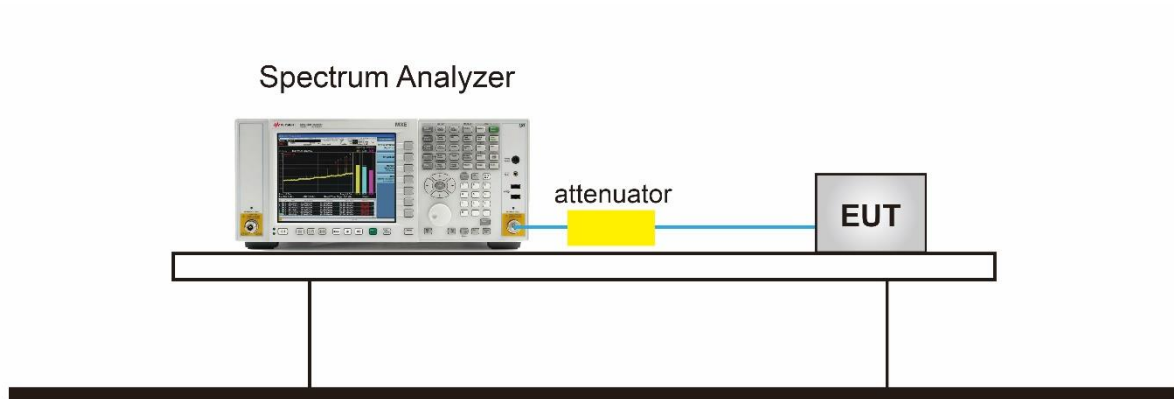
7.6.2. Test Procedure Used

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 = 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	Omada 4G+ Cat6 AX3000 Gigabit VPN Router	Test Engineer	Xuan Yu
Test Site	SR6	Test Date	2023/08/24 ~ 2023/09/25
Mode	Power Spectral Density (U-NII- 1/-2a / -2c) CDD Mode		

Test Mode	Data Rate /MCS	Ch. No.	Freq. (MHz)	Ant 0 PSD (dBm/MHz)	Ant 1 PSD (dBm/MHz)	Ant 2 PSD (dBm/MHz)	Duty Cycle (%)	Total PSD (dBm/MHz)	PSD Limit (dBm/MHz)	Result
11a	6Mbps	36	5180	9.990	9.976	9.977	96.34%	14.914	≤ 15.23	Pass
11a	6Mbps	44	5220	9.256	10.016	10.102	96.34%	14.741	≤ 15.23	Pass
11a	6Mbps	48	5240	9.461	10.253	10.178	96.34%	14.912	≤ 15.23	Pass
11a	6Mbps	52	5260	3.877	4.030	4.308	96.34%	9.008	≤ 9.23	Pass
11a	6Mbps	60	5300	3.627	3.802	4.256	96.34%	8.836	≤ 9.23	Pass
11a	6Mbps	64	5320	3.960	3.829	4.367	96.34%	8.991	≤ 9.23	Pass
11a	6Mbps	100	5500	4.106	3.766	4.130	96.34%	8.937	≤ 9.23	Pass
11a	6Mbps	116	5580	3.666	4.011	4.167	96.34%	8.886	≤ 9.23	Pass
11a	6Mbps	140	5700	4.147	3.800	4.130	96.34%	8.962	≤ 9.23	Pass
11a	6Mbps	144	5720	3.924	3.639	4.005	96.34%	8.792	≤ 9.23	Pass
11ac-VHT20	MCS0	36	5180	10.018	9.549	9.573	95.62%	14.684	≤ 15.23	Pass
11ac-VHT20	MCS0	40	5220	9.384	9.601	10.070	95.62%	14.660	≤ 15.23	Pass
11ac-VHT20	MCS0	48	5240	9.194	9.826	9.885	95.62%	14.612	≤ 15.23	Pass
11ac-VHT20	MCS0	52	5260	3.776	3.913	4.456	95.62%	9.024	≤ 9.23	Pass
11ac-VHT20	MCS0	60	5300	3.897	4.049	4.097	95.62%	8.981	≤ 9.23	Pass
11ac-VHT20	MCS0	64	5320	3.871	3.835	4.122	95.62%	8.910	≤ 9.23	Pass
11ac-VHT20	MCS0	100	5500	4.276	3.575	3.642	95.62%	8.808	≤ 9.23	Pass
11ac-VHT20	MCS0	116	5580	3.779	4.022	3.786	95.62%	8.830	≤ 9.23	Pass
11ac-VHT20	MCS0	140	5700	4.199	4.028	3.889	95.62%	9.006	≤ 9.23	Pass
11ac-VHT20	MCS0	144	5720	4.466	3.960	4.025	95.62%	9.122	≤ 9.23	Pass
11ac-VHT40	MCS0	38	5190	3.874	3.621	3.558	97.22%	8.580	≤ 15.23	Pass
11ac-VHT40	MCS0	46	5230	6.531	6.639	6.763	97.22%	11.539	≤ 15.23	Pass
11ac-VHT40	MCS0	54	5270	3.824	4.167	4.334	97.22%	9.007	≤ 9.23	Pass
11ac-VHT40	MCS0	62	5310	3.411	3.611	4.034	97.22%	8.587	≤ 9.23	Pass
11ac-VHT40	MCS0	102	5510	3.623	3.455	3.416	97.22%	8.393	≤ 9.23	Pass
11ac-VHT40	MCS0	110	5550	2.849	3.335	3.512	97.22%	8.135	≤ 9.23	Pass
11ac-VHT40	MCS0	134	5670	3.605	3.417	3.641	97.22%	8.449	≤ 9.23	Pass
11ac-VHT40	MCS0	142	5710	2.811	3.601	3.414	97.22%	8.182	≤ 9.23	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)	Duty Cycle (%)	Total PSD (dBm/MHz)	PSD Limit (dBm/MHz)	Result
11ac-VHT80	MCS0	42	5210	-4.584	-4.823	-4.861	95.26%	0.228	≤ 15.23	Pass
11ac-VHT80	MCS0	58	5290	-3.777	-3.480	-3.542	95.26%	1.384	≤ 9.23	Pass
11ac-VHT80	MCS0	106	5530	-2.857	-3.158	-3.245	95.26%	1.899	≤ 9.23	Pass
11ac-VHT80	MCS0	122	5610	-0.181	0.399	0.551	95.26%	5.250	≤ 9.23	Pass
11ac-VHT80	MCS0	138	5690	-0.209	0.206	0.729	95.26%	5.241	≤ 9.23	Pass
11ac-VHT160	MCS0	50	5250	-6.686	-7.380	-7.021	96.06%	-2.074	≤ 9.23	Pass
11ac-VHT160	MCS0	114	5570	-4.880	-5.314	-5.291	96.06%	-0.211	≤ 9.23	Pass
11ax-HE20	MCS0	36	5180	9.302	8.985	9.137	95.29%	14.124	≤ 15.23	Pass
11ax-HE20	MCS0	44	5220	9.226	9.643	9.617	95.29%	14.480	≤ 15.23	Pass
11ax-HE20	MCS0	48	5240	9.363	10.072	9.810	95.29%	14.739	≤ 15.23	Pass
11ax-HE20	MCS0	52	5260	3.811	3.787	4.186	95.29%	8.913	≤ 9.23	Pass
11ax-HE20	MCS0	60	5300	3.989	3.690	4.090	95.29%	8.907	≤ 9.23	Pass
11ax-HE20	MCS0	64	5320	4.145	3.770	4.127	95.29%	8.998	≤ 9.23	Pass
11ax-HE20	MCS0	100	5500	3.853	3.542	3.807	95.29%	8.717	≤ 9.23	Pass
11ax-HE20	MCS0	116	5580	4.119	4.036	4.270	95.29%	9.123	≤ 9.23	Pass
11ax-HE20	MCS0	140	5700	3.871	3.554	4.064	95.29%	8.815	≤ 9.23	Pass
11ax-HE20	MCS0	144	5720	4.189	3.844	3.807	95.29%	8.931	≤ 9.23	Pass
11ax-HE40	MCS0	38	5190	3.557	3.005	3.343	96.31%	8.242	≤ 15.23	Pass
11ax-HE40	MCS0	46	5230	6.685	6.727	6.549	96.31%	11.589	≤ 15.23	Pass
11ax-HE40	MCS0	54	5270	3.293	3.854	3.736	96.31%	8.569	≤ 9.23	Pass
11ax-HE40	MCS0	62	5310	3.723	3.664	4.143	96.31%	8.783	≤ 9.23	Pass
11ax-HE40	MCS0	102	5510	3.280	2.695	2.985	96.31%	7.928	≤ 9.23	Pass
11ax-HE40	MCS0	110	5550	2.917	3.287	2.863	96.31%	7.961	≤ 9.23	Pass
11ax-HE40	MCS0	134	5670	3.028	2.743	3.408	96.31%	8.003	≤ 9.23	Pass
11ax-HE40	MCS0	142	5710	2.254	3.477	2.458	96.31%	7.698	≤ 9.23	Pass
11ax-HE80	MCS0	42	5210	-4.549	-5.251	-4.676	95.55%	0.154	≤ 15.23	Pass
11ax-HE80	MCS0	58	5290	-3.564	-3.526	-3.188	95.55%	1.546	≤ 9.23	Pass
11ax-HE80	MCS0	106	5530	-3.021	-3.600	-3.235	95.55%	1.690	≤ 9.23	Pass
11ax-HE80	MCS0	122	5610	-0.004	0.392	-0.105	95.55%	5.069	≤ 9.23	Pass
11ax-HE80	MCS0	122	5690	-0.533	-0.097	-0.461	95.55%	4.609	≤ 9.23	Pass
11ax-HE160	MCS0	50	5250	-5.740	-6.201	-5.356	95.62%	-0.786	≤ 9.23	Pass
11ax-HE160	MCS0	114	5570	-5.771	-6.363	-6.545	95.62%	-1.248	≤ 9.23	Pass

Note 1:When EUT duty cycle ≥ 98%,

the total PSD (dBm/MHz) = $10 \cdot \log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)} + 10^{(\text{Ant 2 PSD}/10)}\}$ (dBm/MHz).

When EUT duty cycle < 98%,

the total PSD (dBm/MHz) = $10 \cdot \log \{ 10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)} + 10^{(\text{Ant 2 PSD}/10)} \} + 10 \cdot \log (1/\text{Duty Cycle})$ (dBm/MHz).

Note 2:

For 5150 - 5250MHz Band: PSD Limit (dBm/MHz) = $17 - (7.77 - 6) = 15.23$ dBm/MHz.

For 5250 - 5350MHz and 5470 - 5725MHz Band: PSD Limit (dBm/MHz) = $11 - (7.77 - 6) = 9.23$ dBm/MHz.

Product	Omada 4G+ Cat6 AX3000 Gigabit VPN Router	Test Engineer	Xuan Yu
Test Site	SR6	Test Date	2023/08/24 ~ 2023/09/25
Test Item	Power Spectral Density (U-NII-3) CDD Mode		

Test Mode	Data Rate/ MCS	Ch. No.	Freq. (MHz)	Ant 0 PSD (dBm/510 KHz)	Ant 1 PSD (dBm/510 KHz)	Ant 2 PSD (dBm/510 KHz)	Duty Cycle (%)	Total PSD (dBm/ 510kHz)	Limit (dBm/ 500kHz)	Result
11a	6Mbps	149	5745	6.206	7.140	7.388	96.34%	11.874	≤ 28.23	Pass
11a	6Mbps	157	5785	6.551	7.592	7.337	96.34%	12.115	≤ 28.23	Pass
11a	6Mbps	165	5825	7.233	8.077	8.037	96.34%	12.733	≤ 28.23	Pass
11ac-VHT20	MCS0	149	5745	6.594	7.066	6.825	95.62%	11.798	≤ 28.23	Pass
11ac-VHT20	MCS0	157	5785	6.292	7.244	7.073	95.62%	11.855	≤ 28.23	Pass
11ac-VHT20	MCS0	165	5825	6.568	7.443	7.059	95.62%	12.004	≤ 28.23	Pass
11ac-VHT40	MCS0	151	5755	3.854	4.724	4.210	97.22%	9.171	≤ 28.23	Pass
11ac-VHT40	MCS0	159	5795	3.926	4.914	4.266	97.22%	9.282	≤ 28.23	Pass
11ac-VHT80	MCS0	155	5775	-1.881	-1.292	-1.655	95.26%	3.380	≤ 28.23	Pass
11ax-HE20	MCS0	149	5745	5.598	7.389	6.423	95.29%	11.513	≤ 28.23	Pass
11ax-HE20	MCS0	157	5785	5.837	7.383	6.374	95.29%	11.560	≤ 28.23	Pass
11ax-HE20	MCS0	165	5825	6.036	7.666	6.783	95.29%	11.860	≤ 28.23	Pass
11ax-HE40	MCS0	151	5755	2.951	4.272	3.076	96.31%	8.409	≤ 28.23	Pass
11ax-HE40	MCS0	159	5795	3.150	4.643	3.503	96.31%	8.748	≤ 28.23	Pass
11ax-HE80	MCS0	155	5775	-1.087	-0.742	-0.454	95.55%	4.216	≤ 28.23	Pass

Note 1: When EUT duty cycle ≥ 98%,

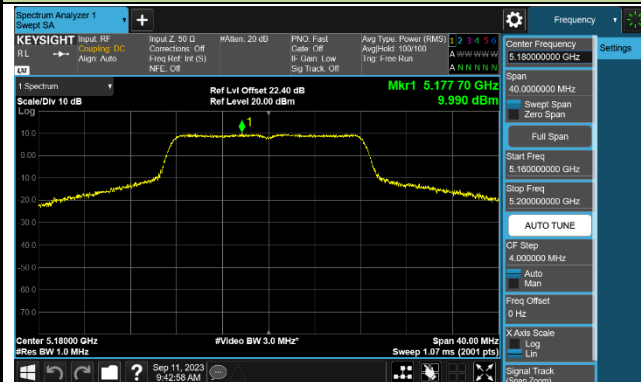
the total PSD (dBm/510kHz) = $10 \cdot \log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)} + 10^{(\text{Ant 2 PSD}/10)}\}$ (dBm/510kHz).

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

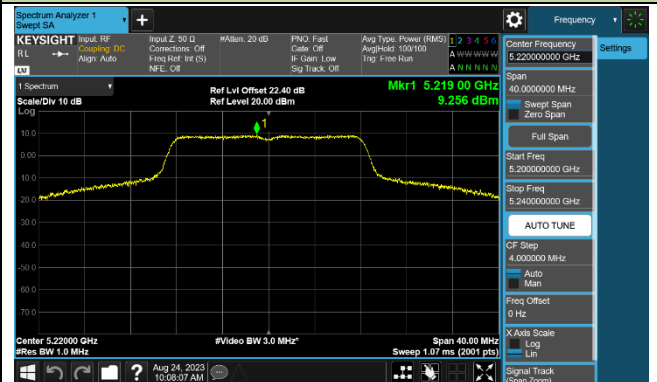
Note 2: PSD Limit (dBm/500kHz) = 30 - (7.77 - 6) = 28.23 (dBm/500kHz).

802.11a Power Spectral Density - Ant 0

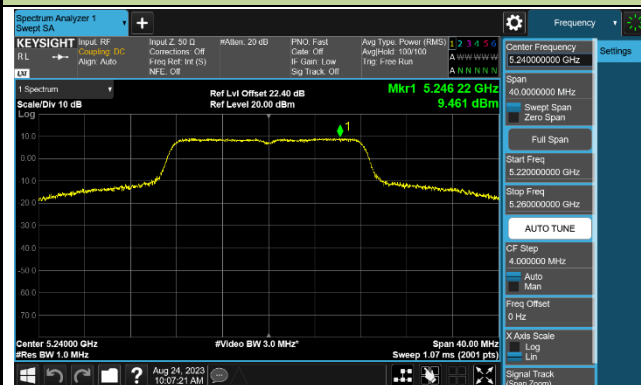
Channel 36 (5180MHz)



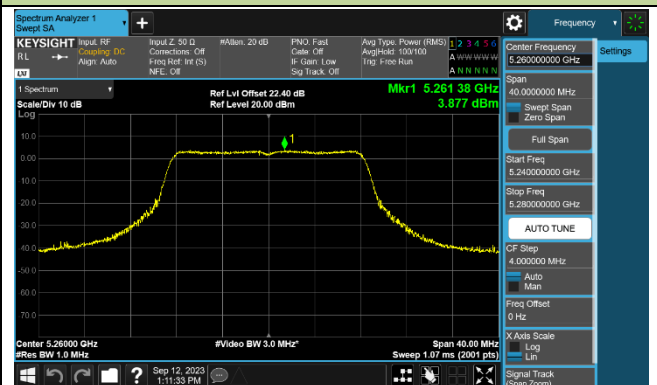
Channel 44 (5220MHz)



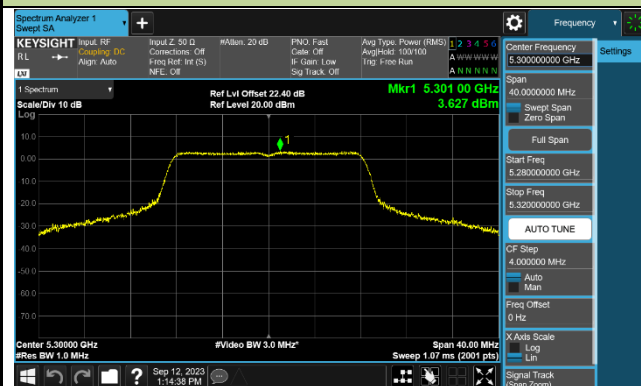
Channel 48 (5240MHz)



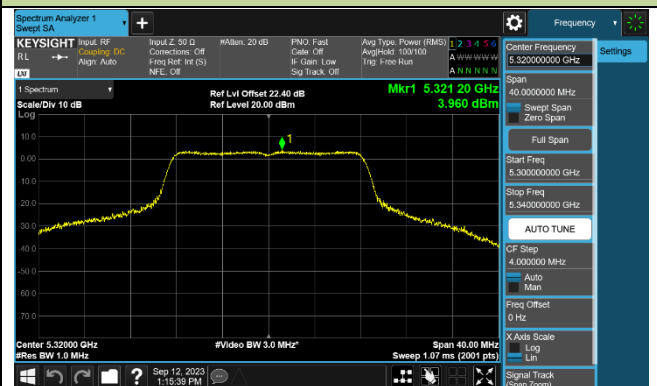
Channel 52 (5260MHz)



Channel 60 (5300MHz)



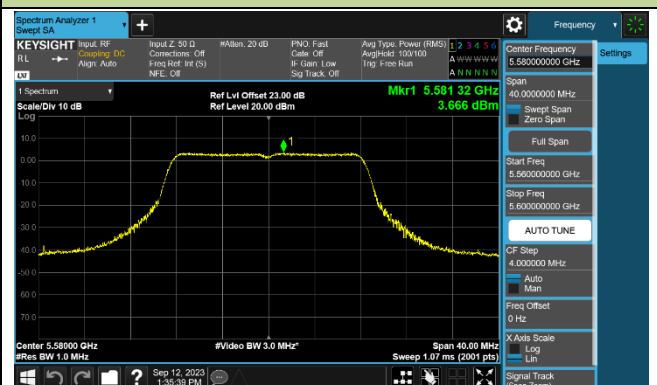
Channel 64 (5320MHz)

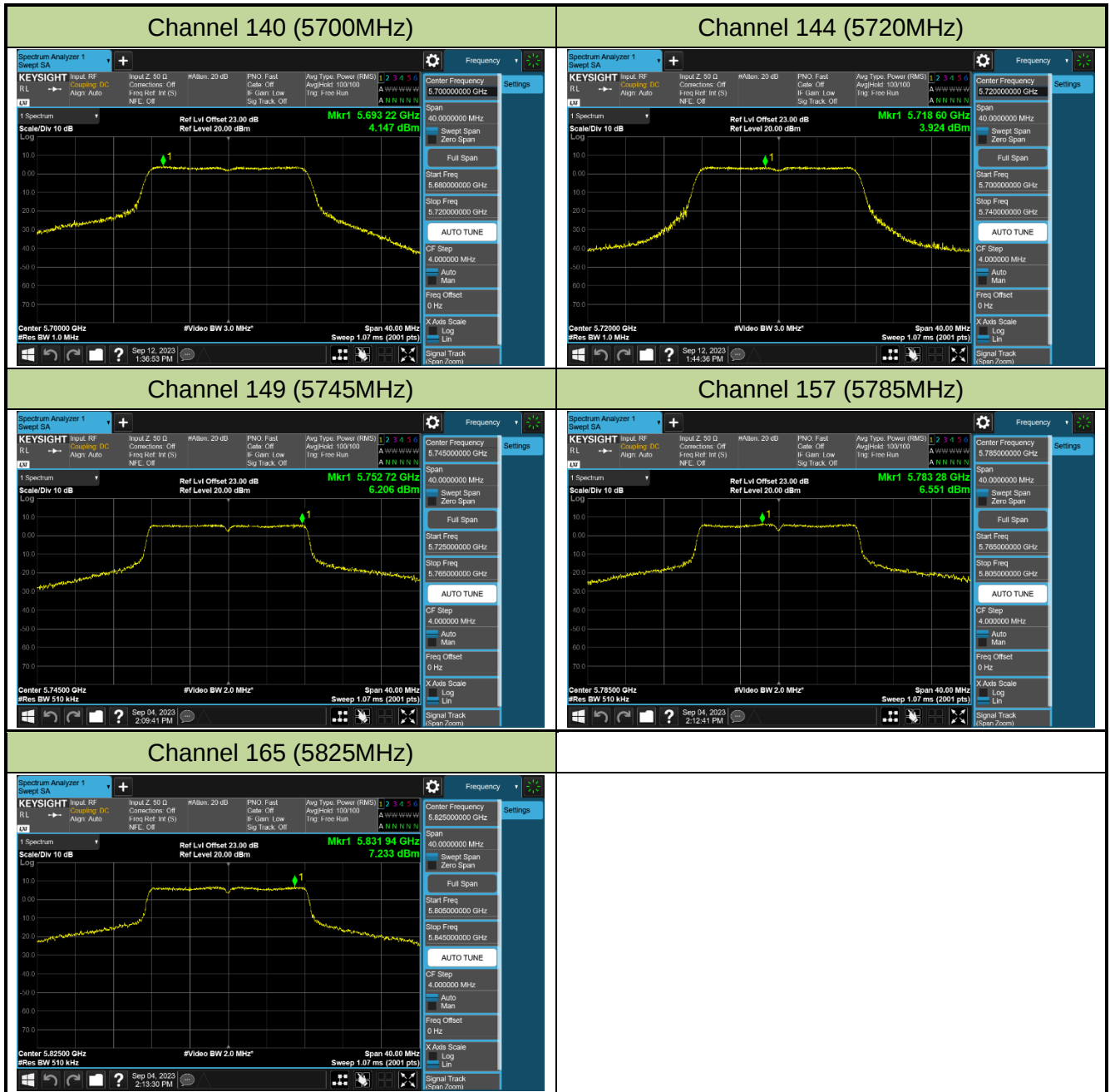


Channel 100 (5500MHz)



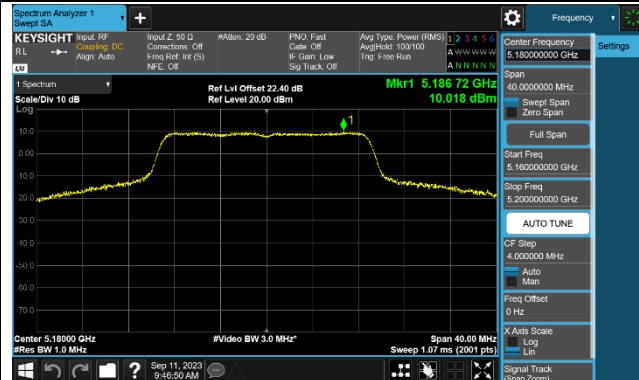
Channel 116 (5580MHz)



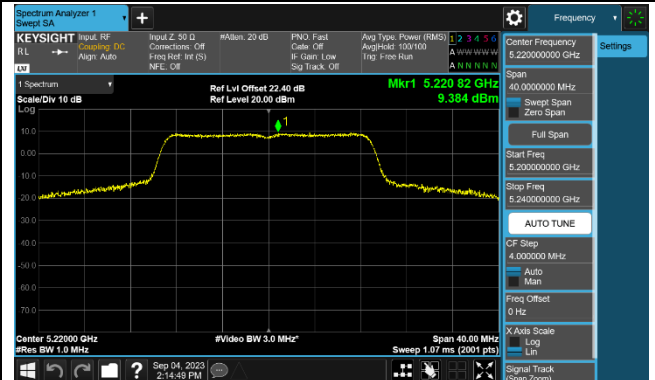


802.11ac-VHT20 Power Spectral Density - Ant 0

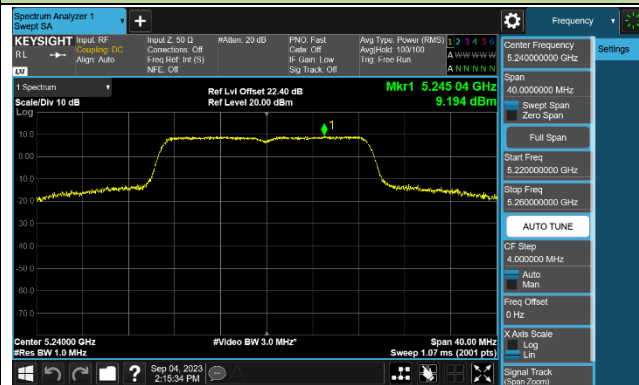
Channel 36 (5180MHz)



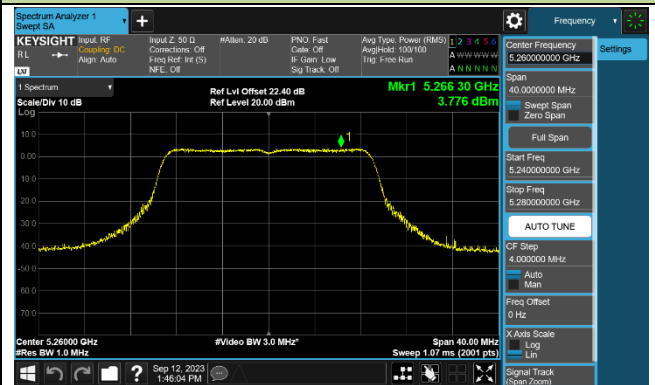
Channel 44 (5220MHz)



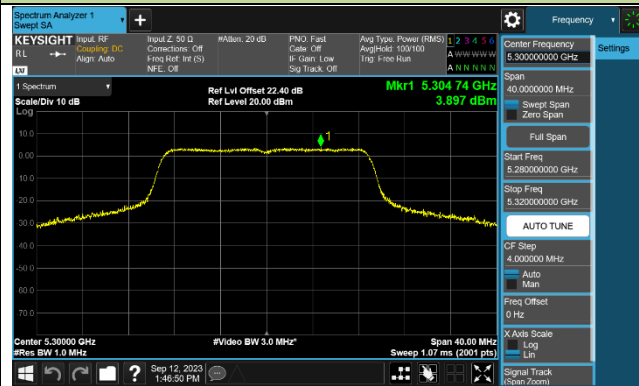
Channel 48 (5240MHz)



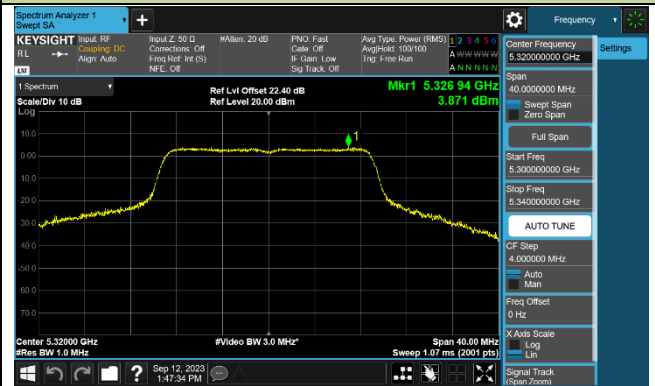
Channel 52 (5260MHz)



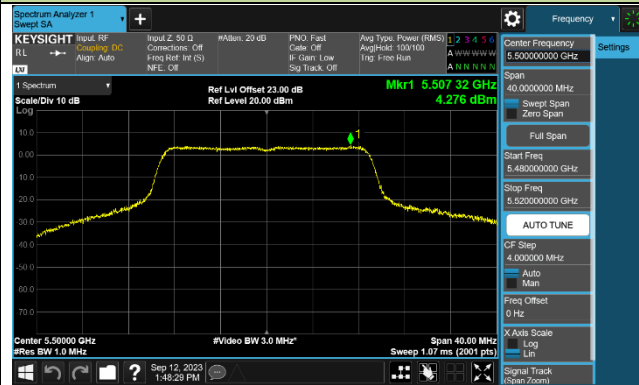
Channel 60 (5300MHz)



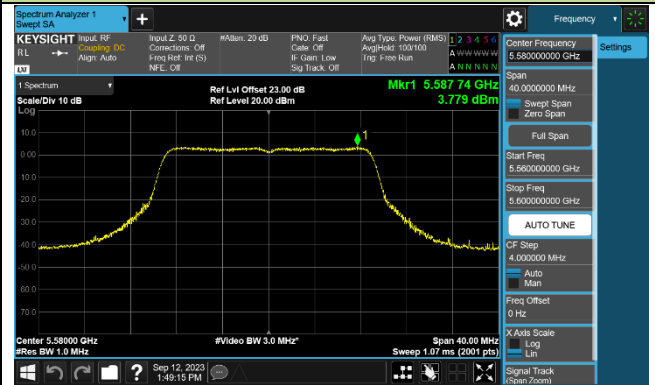
Channel 64 (5320MHz)

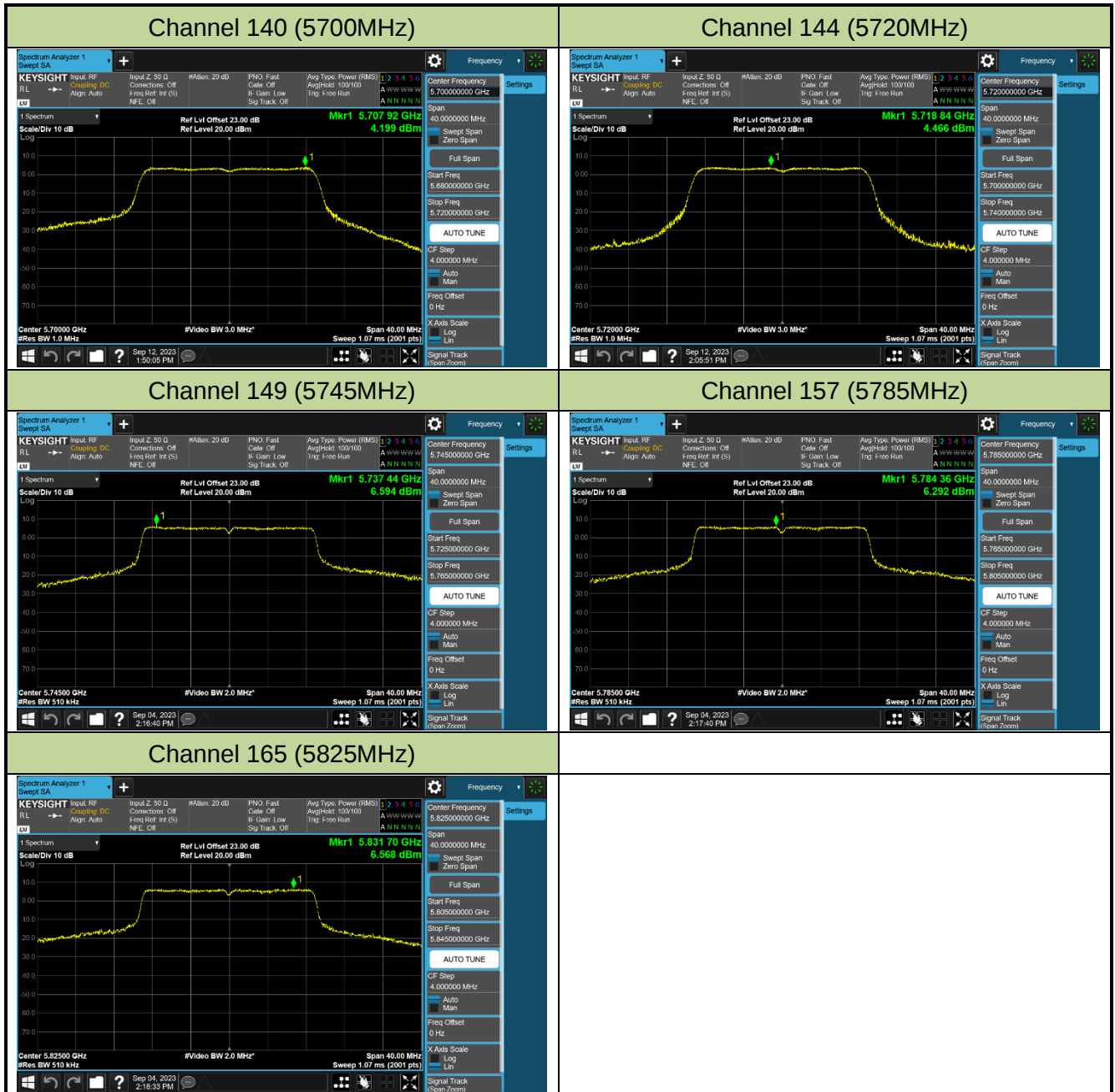


Channel 100 (5500MHz)



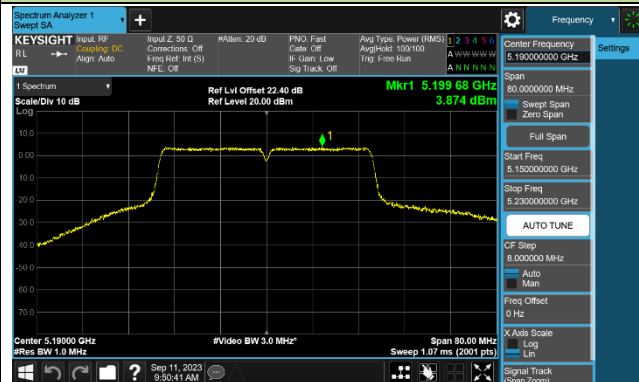
Channel 116 (5580MHz)



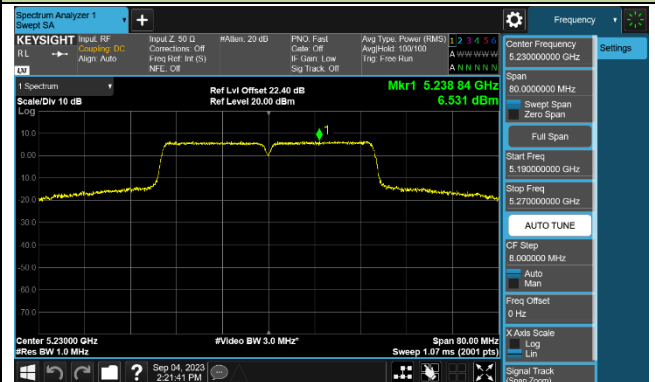


802.11ac-VHT40 Power Spectral Density - Ant 0

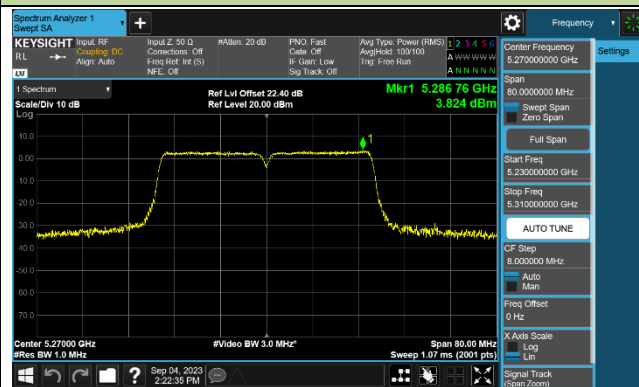
Channel 38 (5190MHz)



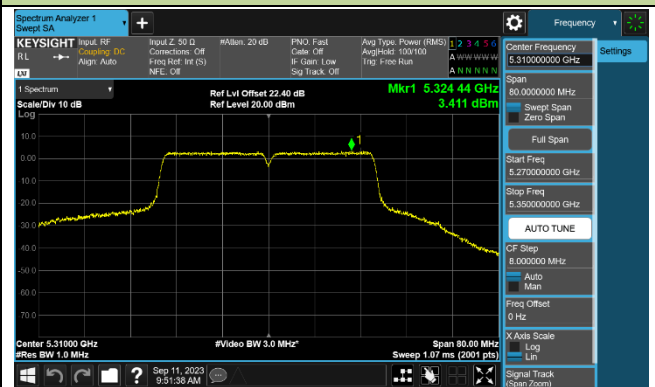
Channel 46 (5230MHz)



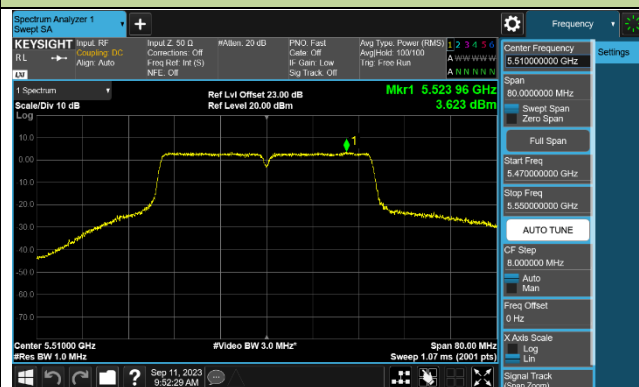
Channel 54 (5270MHz)



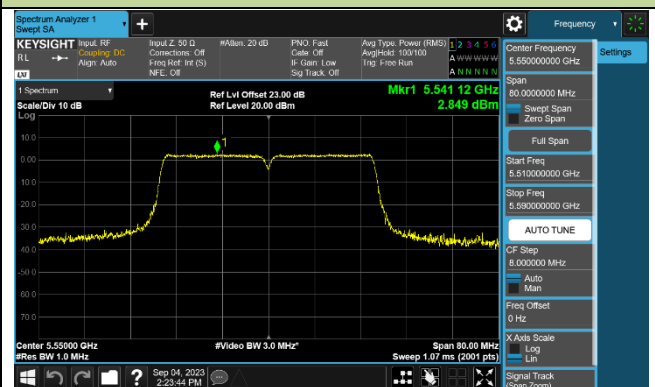
Channel 62 (5310MHz)



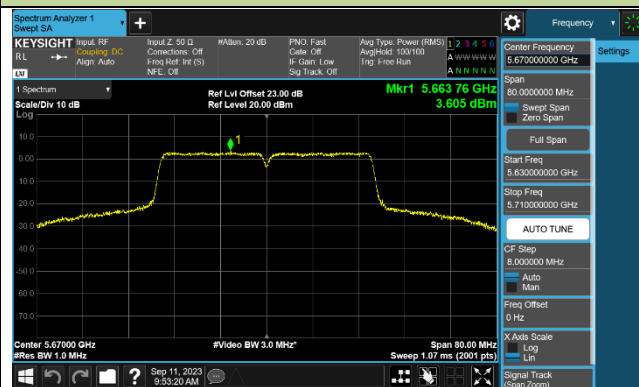
Channel 102 (5510MHz)



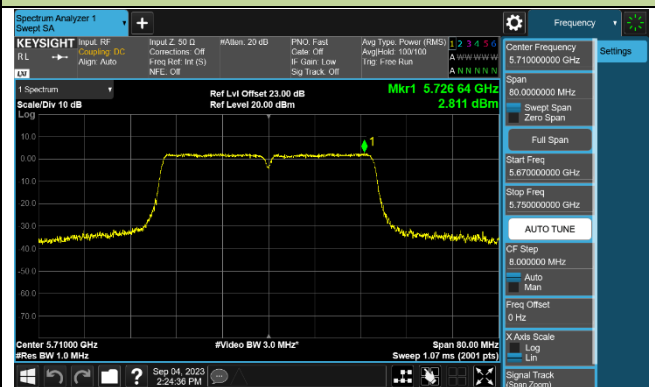
Channel 110 (5550MHz)

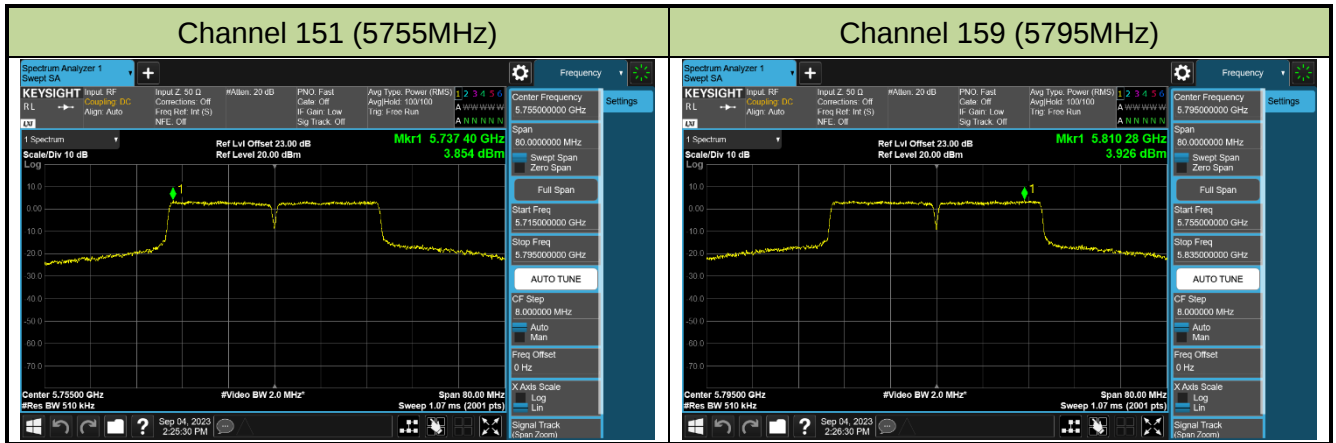


Channel 134 (5670MHz)



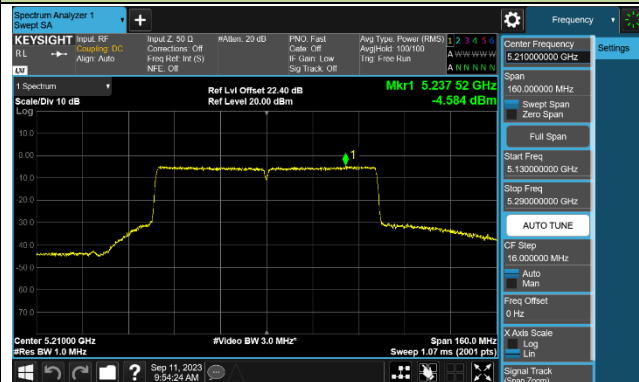
Channel 142 (5710MHz)



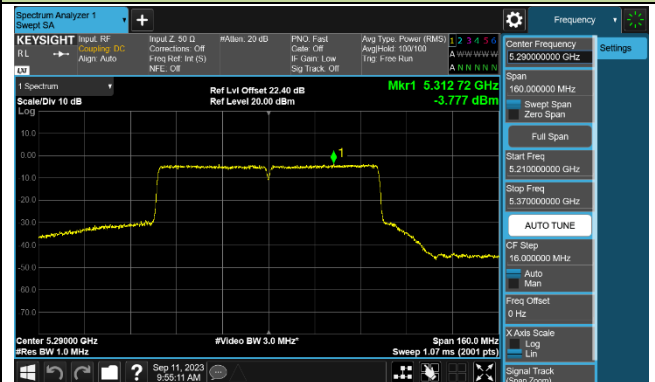


802.11ac-VHT80 Power Spectral Density - Ant 0

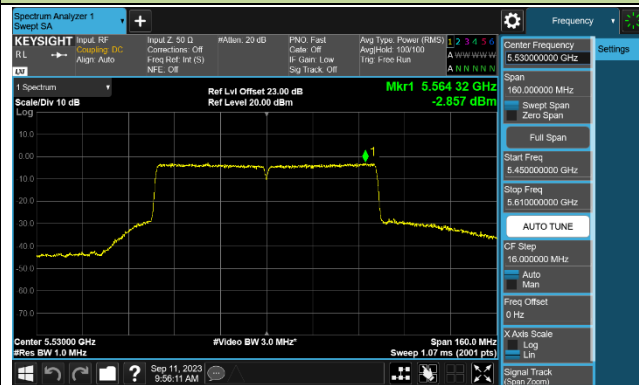
Channel 42 (5210MHz)



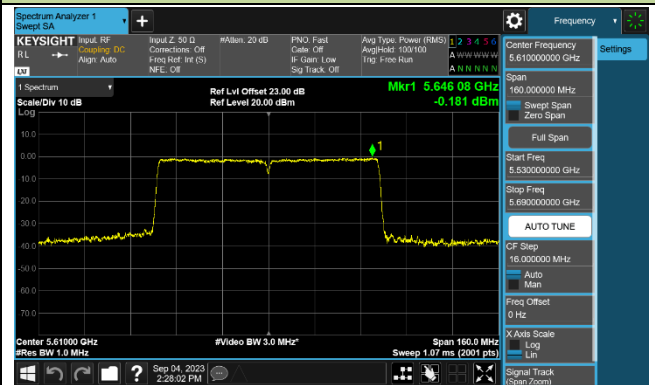
Channel 58 (5290MHz)



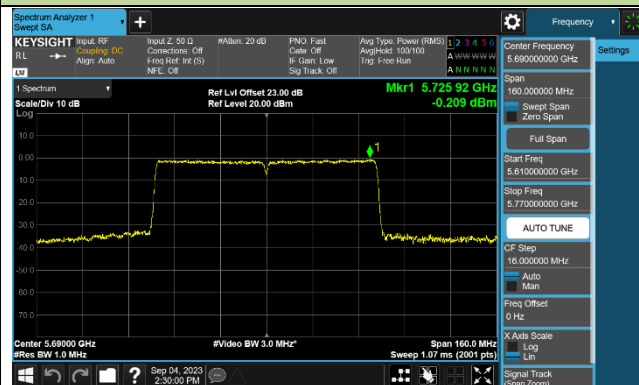
Channel 106 (5530MHz)



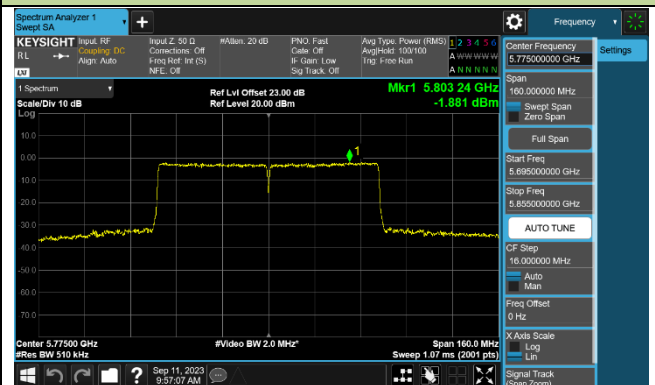
Channel 122 (5610MHz)



Channel 138 (5690MHz)

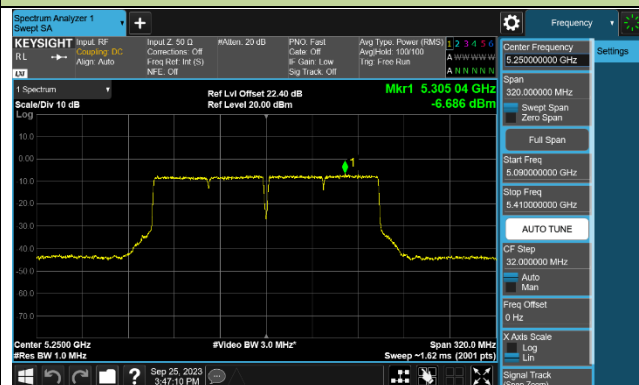


Channel 155 (5775MHz)

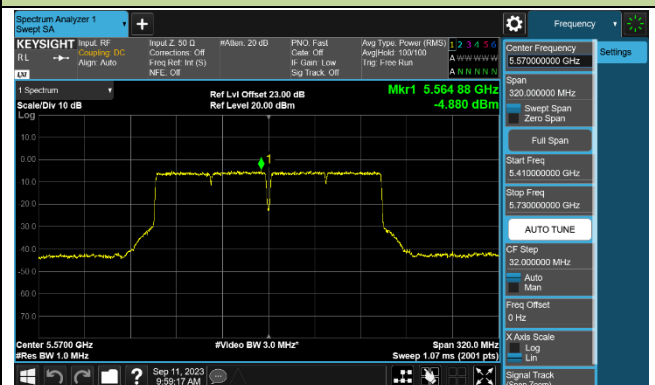


802.11ac-VHT160 Power Spectral Density - Ant 0

Channel 50 (5250MHz)

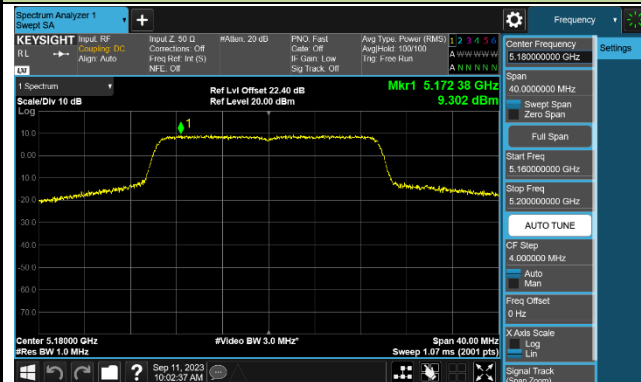


Channel 114 (5570MHz)

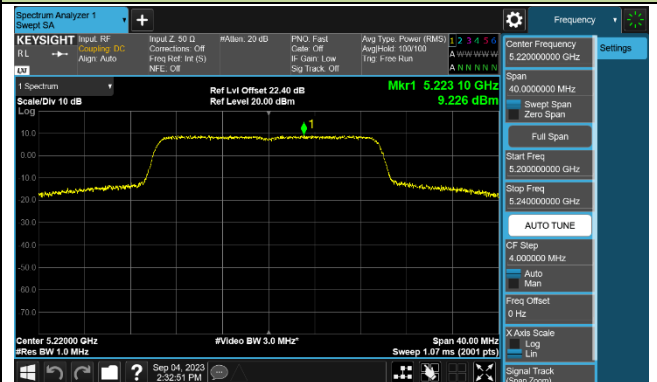


802.11ax-HE20 Power Spectral Density - Ant 0

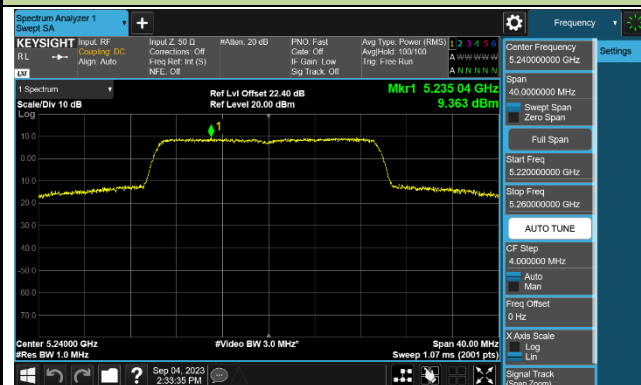
Channel 36 (5180MHz)



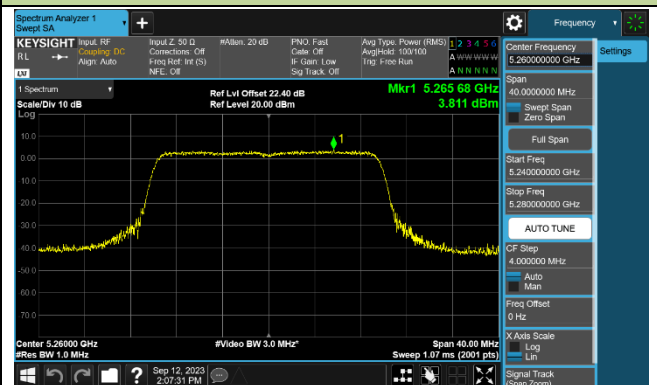
Channel 44 (5220MHz)



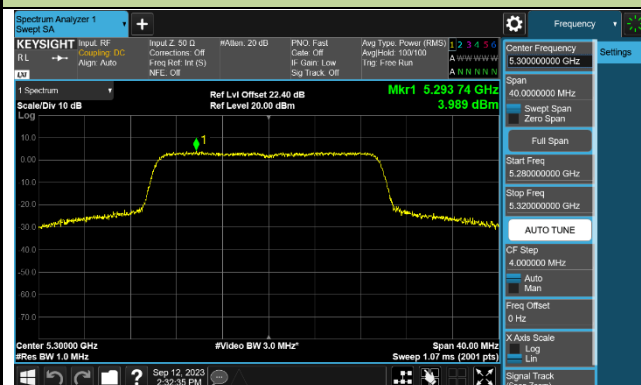
Channel 48 (5240MHz)



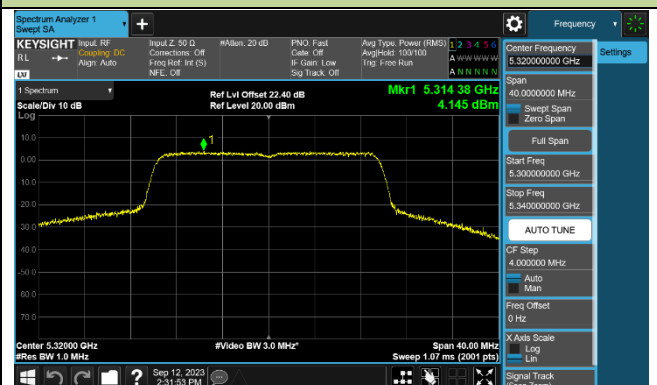
Channel 52 (5260MHz)



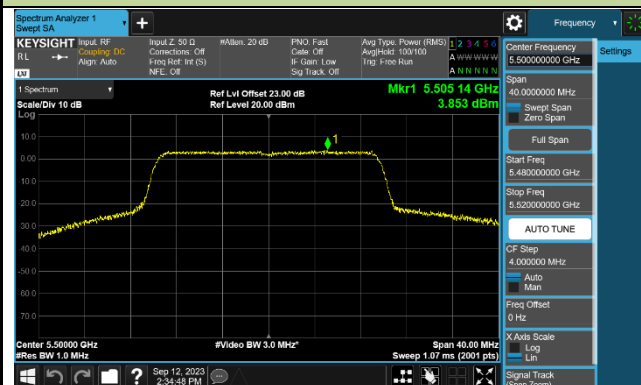
Channel 60 (5300MHz)



Channel 64 (5320MHz)



Channel 100 (5500MHz)



Channel 116 (5580MHz)

