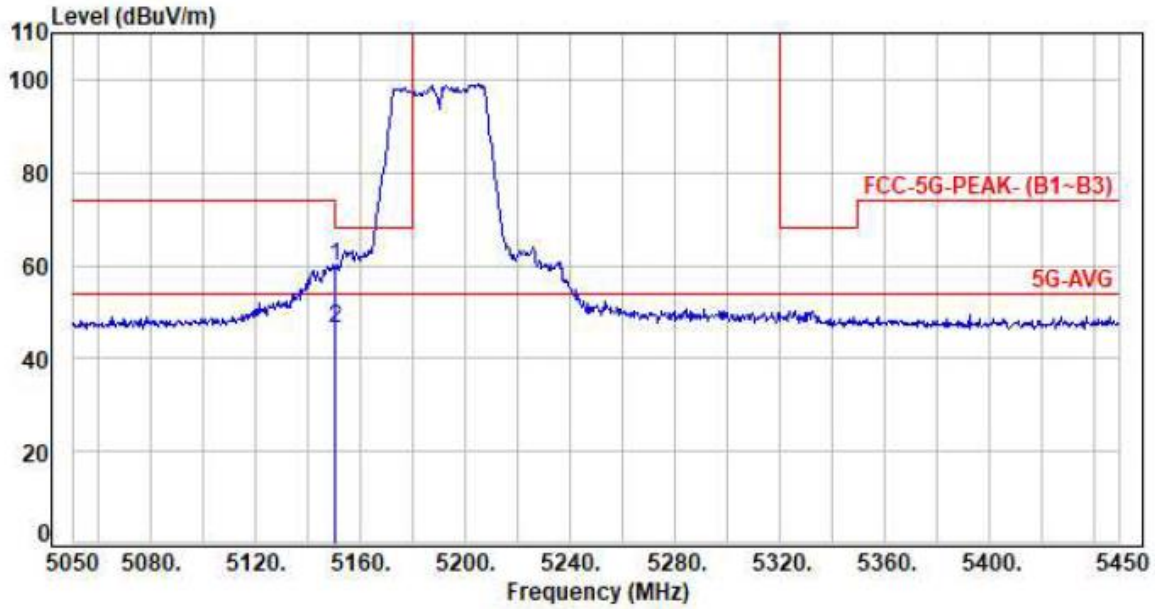
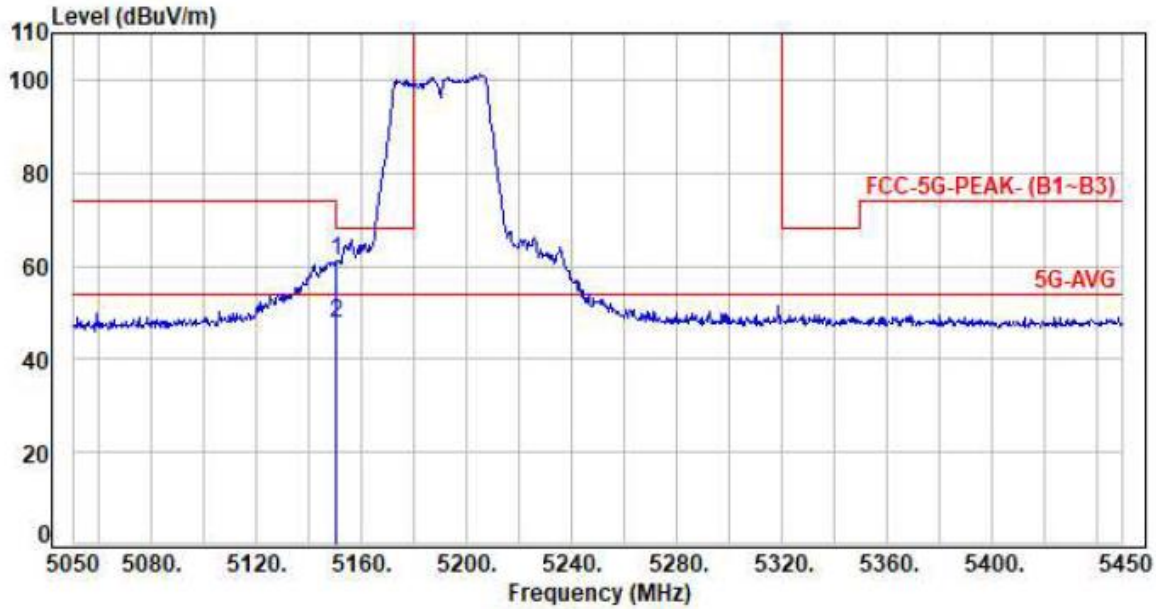
Power	AC120V/60Hz	Pol/Phase	VERTICAL
Test Mode	Mode 3, 802.11ac VHT40 CH38 UNII-1		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5150.00	2.53	57.21	59.74	74.00	-14.26	Peak	P
2	5150.00	2.53	43.92	46.45	54.00	-7.55	Average	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

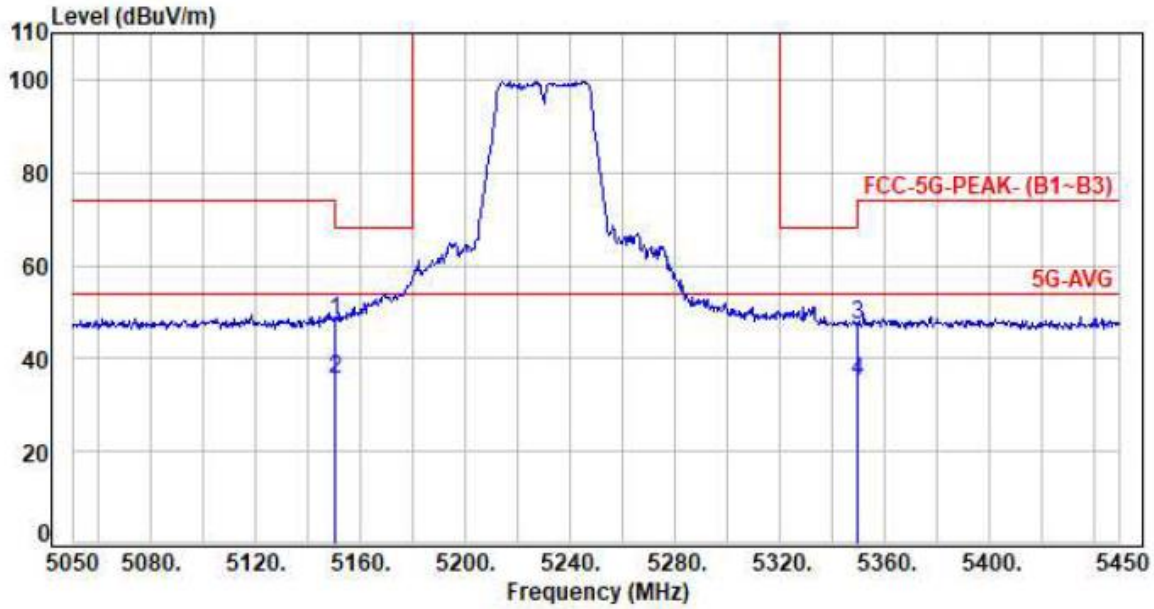
Power	AC120V/60Hz	Pol/Phase	HORIZONTAL
Test Mode	Mode 3, 802.11ac VHT40 CH38 UNII-1		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5150.00	2.53	58.45	60.98	74.00	-13.02	Peak	P
2	5150.00	2.53	45.05	47.58	54.00	-6.42	Average	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

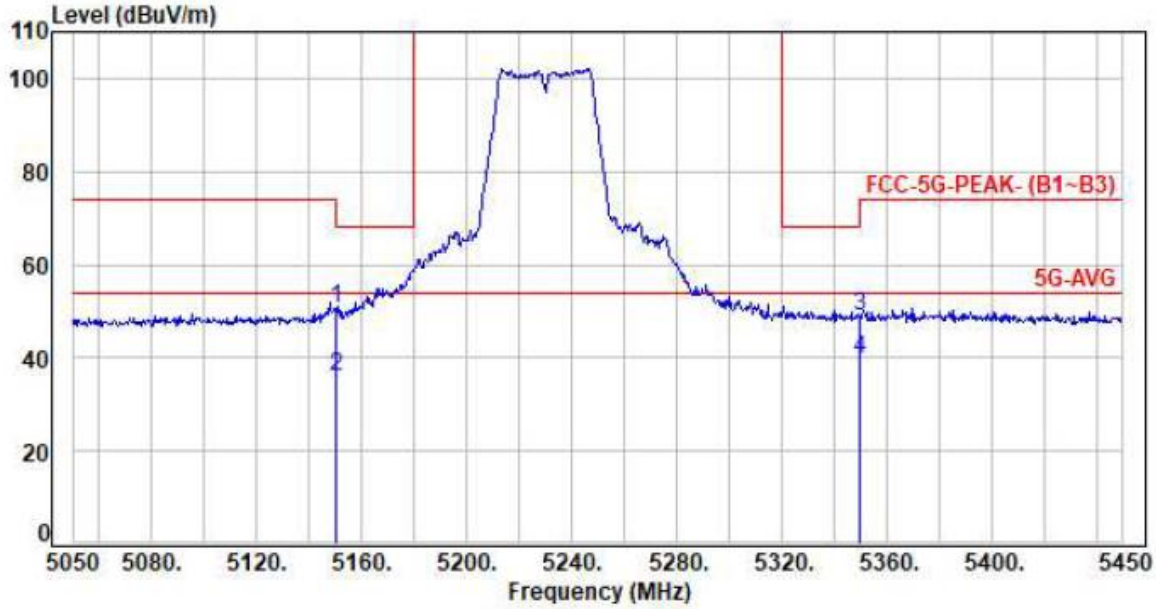
Power	AC120V/60Hz	Pol/Phase	VERTICAL
Test Mode	Mode 3, 802.11ac VHT40 CH46 UNII-1		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5150.00	2.53	45.56	48.09	74.00	-25.91	Peak	P
2	5150.00	2.53	33.22	35.75	54.00	-18.25	Average	P
3	5350.00	2.58	44.86	47.44	74.00	-26.56	Peak	P
4	5350.00	2.58	32.76	35.34	54.00	-18.66	Average	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

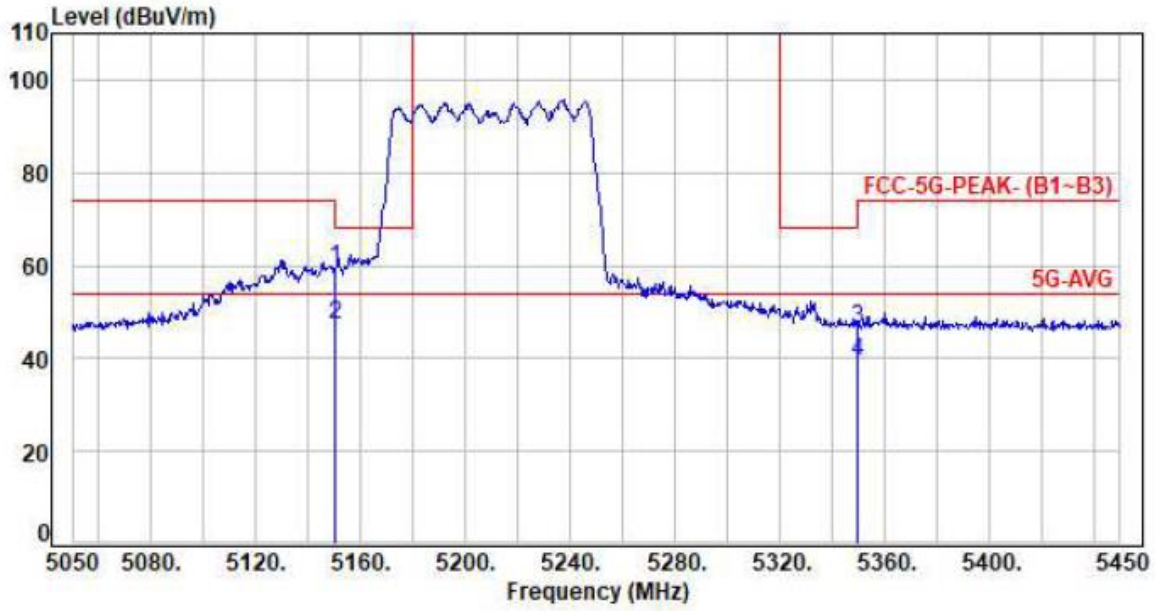
Power	AC120V/60Hz	Pol/Phase	HORIZONTAL
Test Mode	Mode 3, 802.11ac VHT40 CH46 UNII-1		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5150.00	2.53	47.95	50.48	74.00	-23.52	Peak	P
2	5150.00	2.53	33.38	35.91	54.00	-18.09	Average	P
3	5350.00	2.58	46.48	49.06	74.00	-24.94	Peak	P
4	5350.00	2.58	37.02	39.60	54.00	-14.40	Average	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

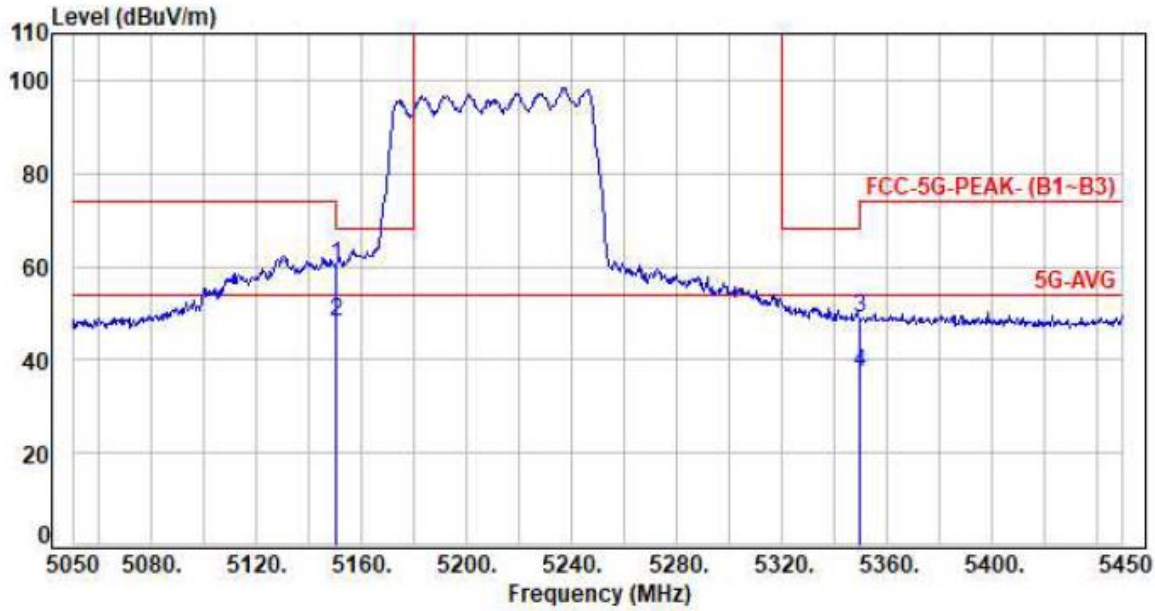
Power	AC120V/60Hz	Pol/Phase	VERTICAL
Test Mode	Mode 4, 802.11ac VHT80 CH42 UNII-1		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5150.00	2.53	56.98	59.51	74.00	-14.49	Peak	P
2	5150.00	2.53	44.55	47.08	54.00	-6.92	Average	P
3	5350.00	2.58	44.00	46.58	74.00	-27.42	Peak	P
4	5350.00	2.58	36.56	39.14	54.00	-14.86	Average	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

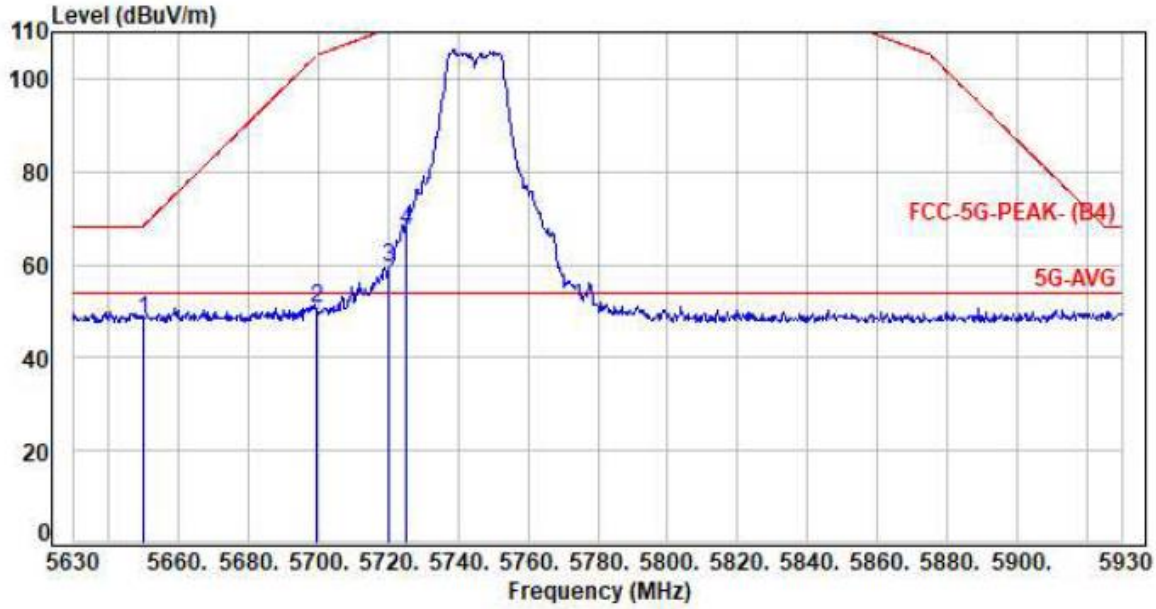
Power	AC120V/60Hz	Pol/Phase	HORIZONTAL
Test Mode	Mode 4, 802.11ac VHT80 CH42 UNII-1		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5150.00	2.53	57.84	60.37	74.00	-13.63	Peak	P
2	5150.00	2.53	45.48	48.01	54.00	-5.99	Average	P
3	5350.00	2.58	46.38	48.96	74.00	-25.04	Peak	P
4	5350.00	2.58	34.51	37.09	54.00	-16.91	Average	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

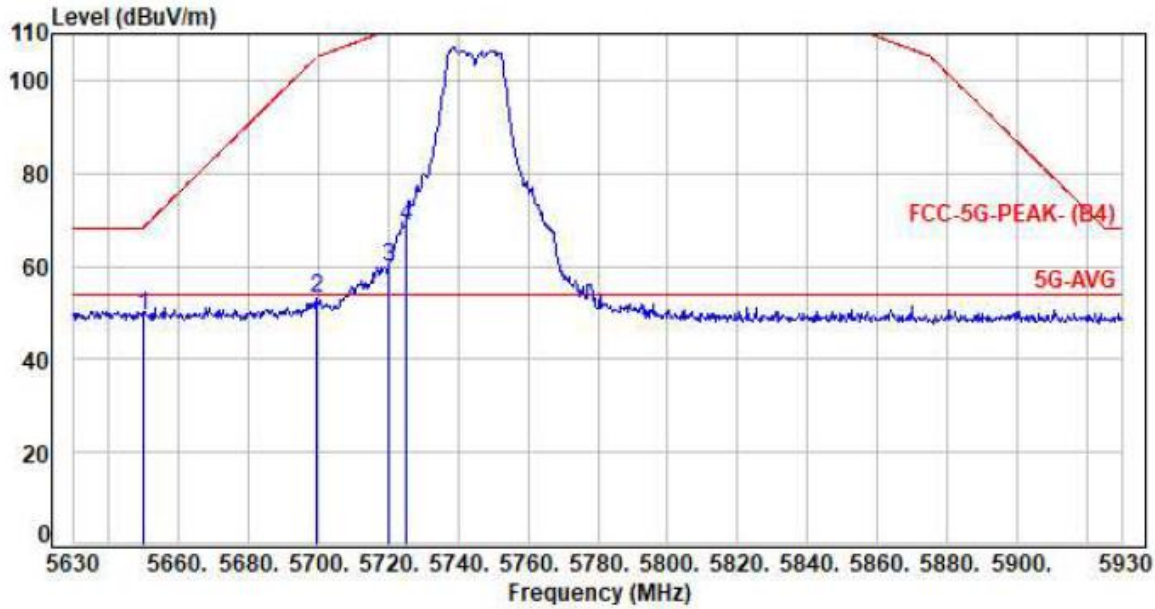
Power	AC120V/60Hz	Pol/Phase	VERTICAL
Test Mode	Mode 1, 802.11a CH149 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650.10	3.00	45.29	48.29	68.27	-19.98	Peak	P
2	5699.90	3.13	47.40	50.53	105.13	-54.60	Peak	P
3	5720.00	3.19	56.05	59.24	110.80	-51.56	Peak	P
4	5725.10	3.20	64.29	67.49	122.20	-54.71	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

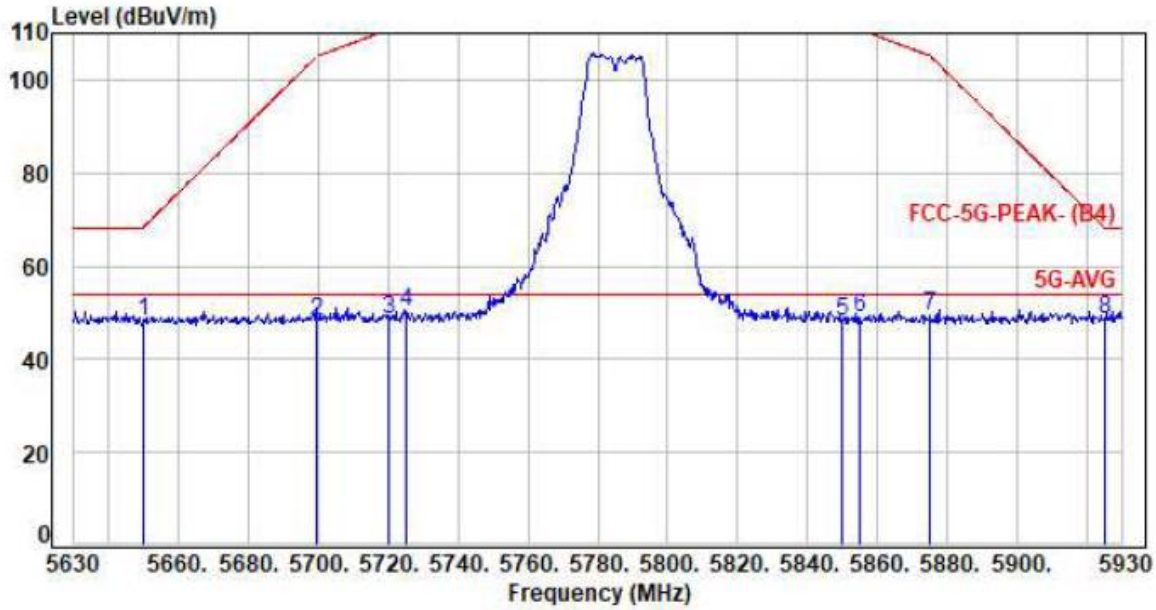
Power	AC120V/60Hz	Pol/Phase	HORIZONTAL
Test Mode	Mode 1, 802.11a CH149 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650.10	3.00	46.36	49.36	68.27	-18.91	Peak	P
2	5699.90	3.13	49.85	52.98	105.13	-52.15	Peak	P
3	5720.00	3.19	56.70	59.89	110.80	-50.91	Peak	P
4	5725.10	3.20	65.55	68.75	122.20	-53.45	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

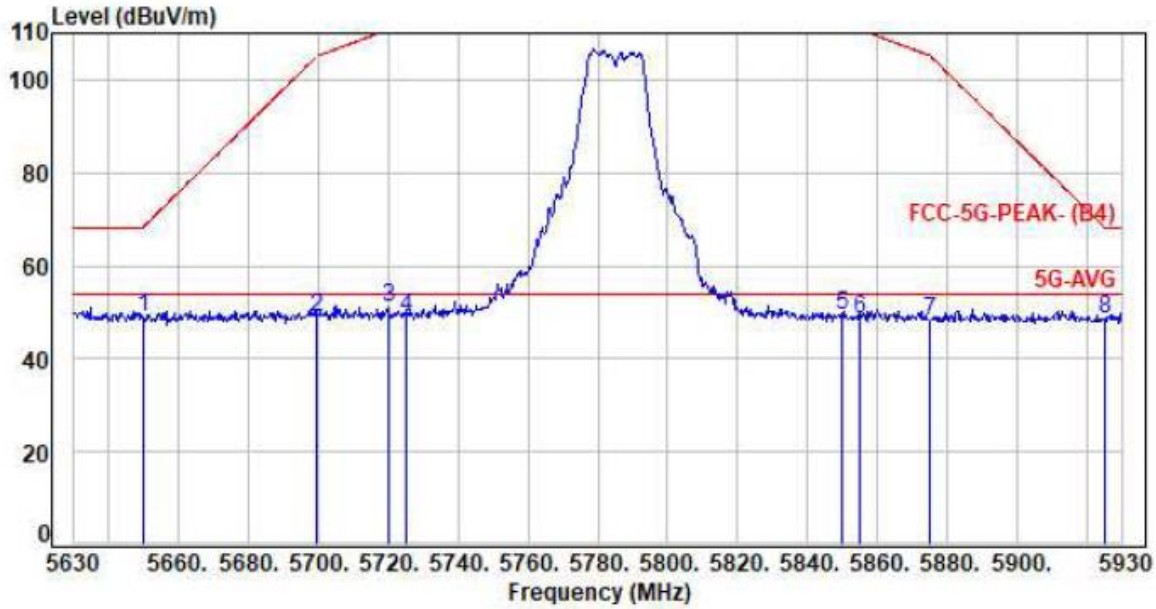
Power	AC120V/60Hz	Pol/Phase	VERTICAL
Test Mode	Mode 1, 802.11a CH157 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650.10	3.00	45.01	48.01	68.27	-20.26	Peak	P
2	5699.90	3.13	44.97	48.10	105.13	-57.03	Peak	P
3	5720.00	3.19	45.43	48.62	110.80	-62.18	Peak	P
4	5725.10	3.20	46.92	50.12	122.20	-72.08	Peak	P
5	5849.90	3.53	44.66	48.19	122.20	-74.01	Peak	P
6	5855.00	3.54	45.21	48.75	110.80	-62.05	Peak	P
7	5875.10	3.59	45.95	49.54	105.13	-55.59	Peak	P
8	5924.90	3.72	44.75	48.47	68.27	-19.80	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

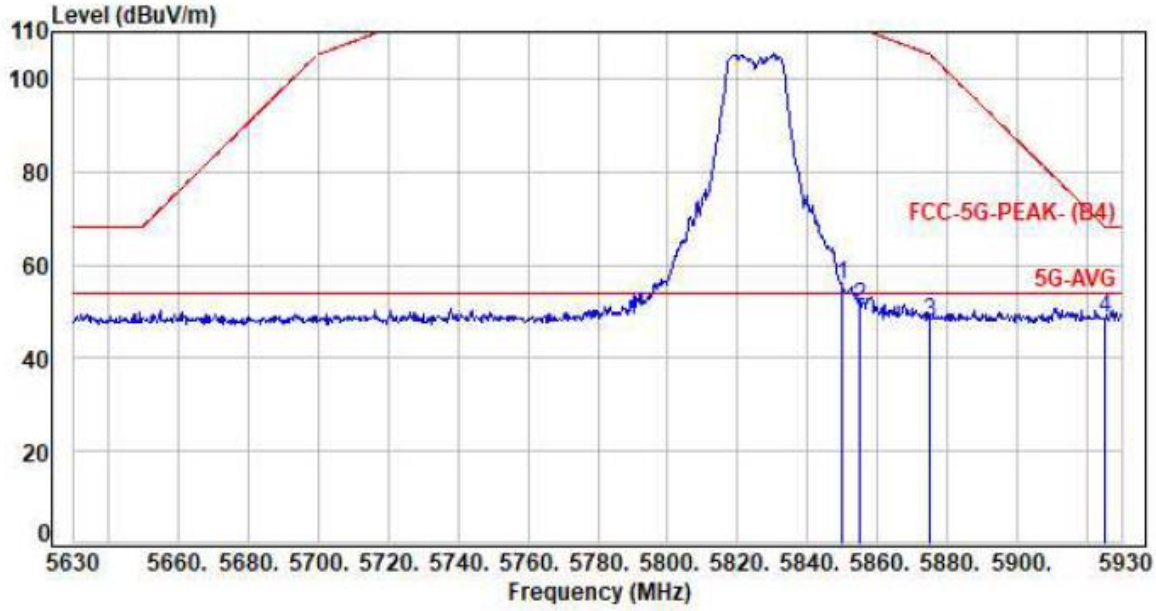
Power	AC120V/60Hz	Pol/Phase	HORIZONTAL
Test Mode	Mode 1, 802.11a CH157 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650.10	3.00	45.92	48.92	68.27	-19.35	Peak	P
2	5699.90	3.13	45.93	49.06	105.13	-56.07	Peak	P
3	5720.00	3.19	47.80	50.99	110.80	-59.81	Peak	P
4	5725.10	3.20	45.67	48.87	122.20	-73.33	Peak	P
5	5849.90	3.53	46.02	49.55	122.20	-72.65	Peak	P
6	5855.00	3.54	44.99	48.53	110.80	-62.27	Peak	P
7	5875.10	3.59	44.55	48.14	105.13	-56.99	Peak	P
8	5924.90	3.72	44.91	48.63	68.27	-19.64	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

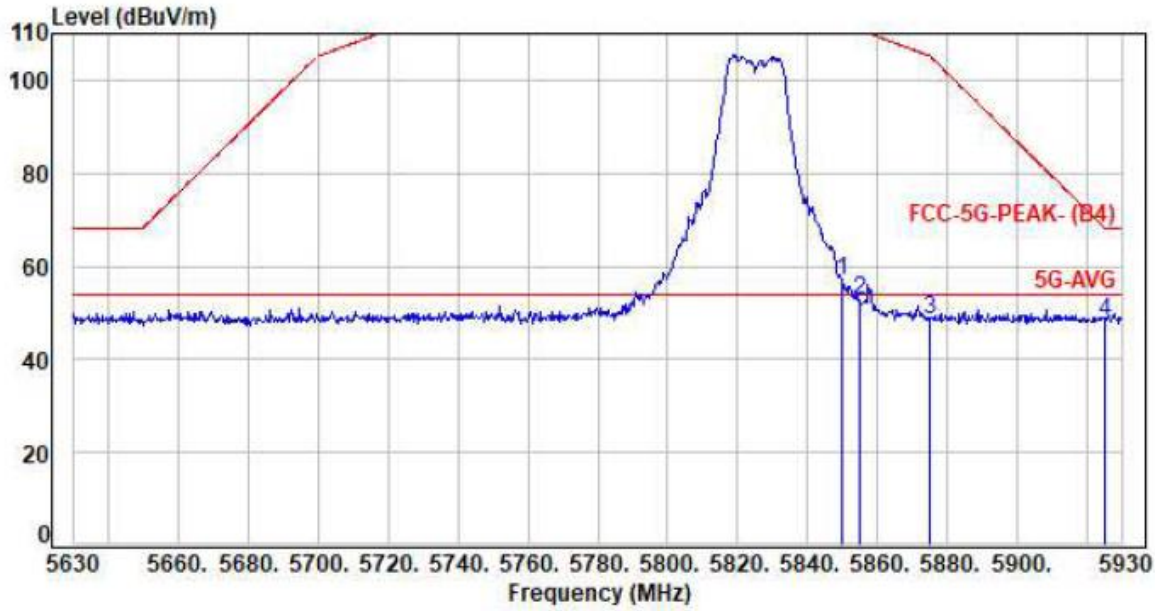
Power	AC120V/60Hz	Pol/Phase	VERTICAL
Test Mode	Mode 1, 802.11a CH165 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5849.90	3.53	52.29	55.82	122.20	-66.38	Peak	P
2	5855.00	3.54	47.65	51.19	110.80	-59.61	Peak	P
3	5875.10	3.59	44.29	47.88	105.13	-57.25	Peak	P
4	5924.90	3.72	44.85	48.57	68.27	-19.70	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

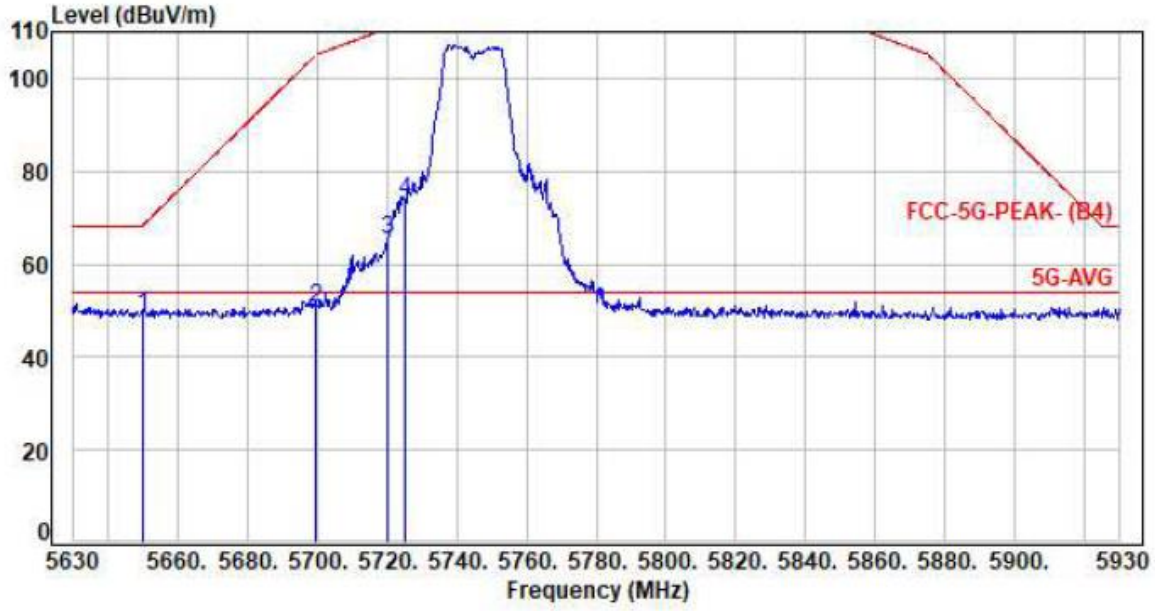
Power	AC120V/60Hz	Pol/Phase	HORIZONTAL
Test Mode	Mode 1, 802.11a CH165 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5849.90	3.53	53.49	57.02	122.20	-65.18	Peak	P
2	5855.00	3.54	49.29	52.83	110.80	-57.97	Peak	P
3	5875.10	3.59	44.94	48.53	105.13	-56.60	Peak	P
4	5924.90	3.72	44.57	48.29	68.27	-19.98	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

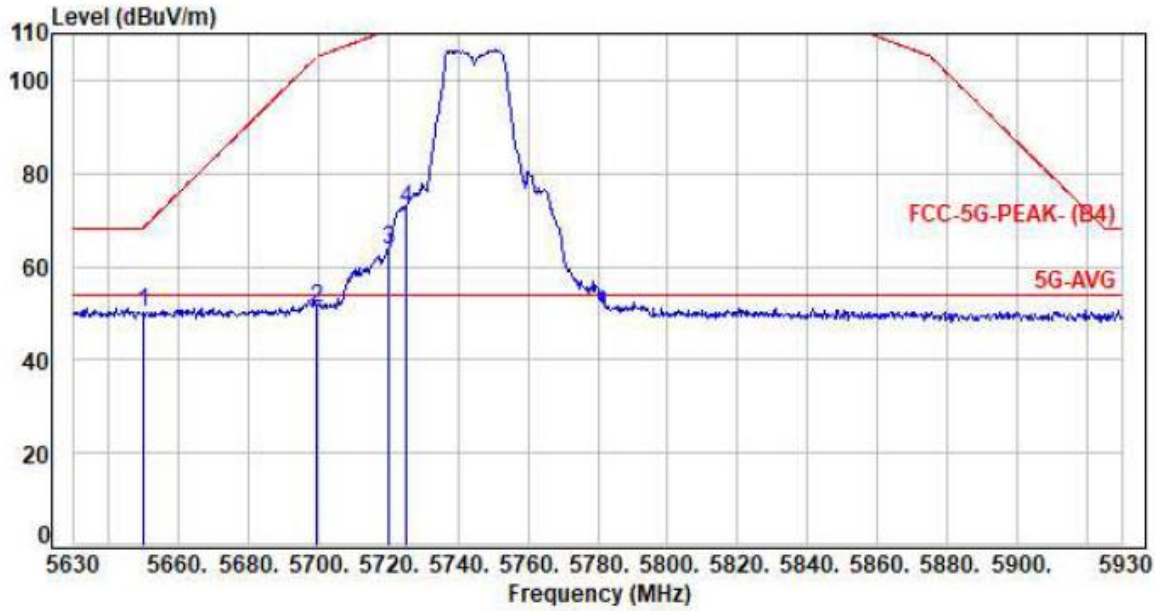
Power	AC120V/60Hz	Pol/Phase	VERTICAL
Test Mode	Mode 2, 802.11ac VHT20 CH149 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650.10	3.00	46.02	49.02	68.27	-19.25	Peak	P
2	5699.90	3.13	47.68	50.81	105.13	-54.32	Peak	P
3	5720.00	3.19	62.18	65.37	110.80	-45.43	Peak	P
4	5725.10	3.20	70.27	73.47	122.20	-48.73	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

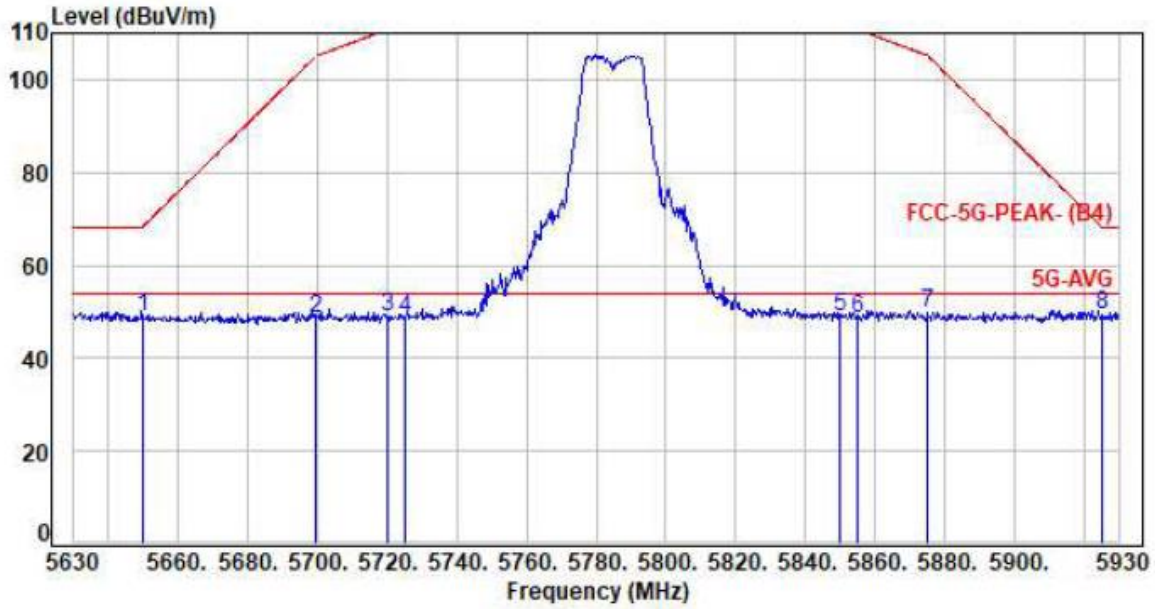
Power	AC120V/60Hz	Pol/Phase	HORIZONTAL
Test Mode	Mode 2, 802.11ac VHT20 CH149 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650.10	3.00	47.03	50.03	68.27	-18.24	Peak	P
2	5699.90	3.13	47.98	51.11	105.13	-54.02	Peak	P
3	5720.00	3.19	60.53	63.72	110.80	-47.08	Peak	P
4	5725.10	3.20	69.29	72.49	122.20	-49.71	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

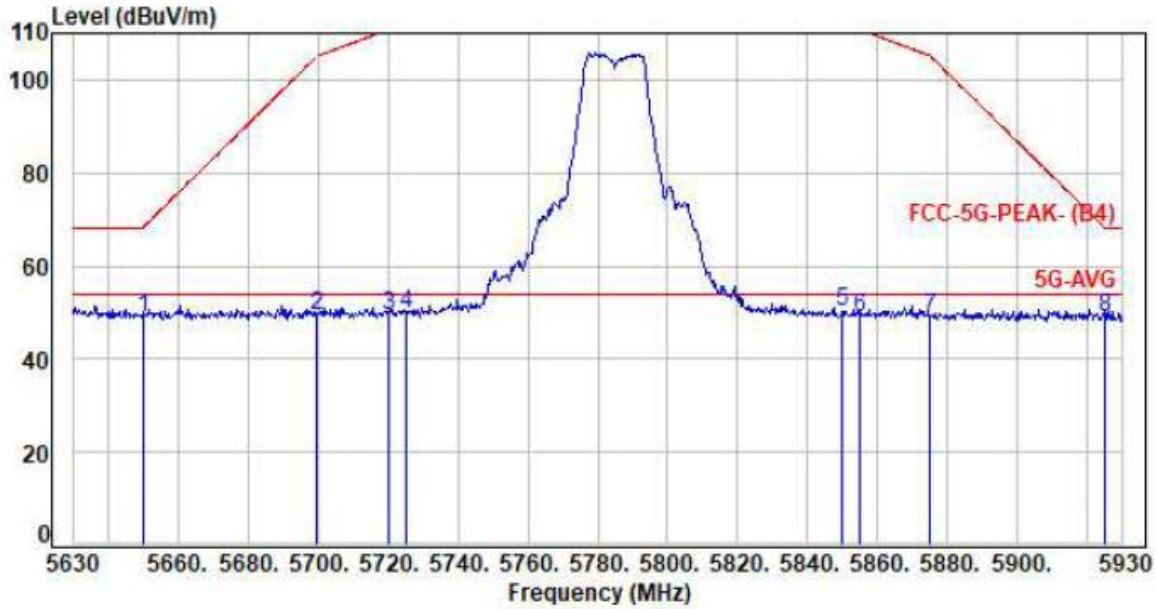
Power	AC120V/60Hz	Pol/Phase	VERTICAL
Test Mode	Mode 2, 802.11ac VHT20 CH157 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650.10	3.00	45.82	48.82	68.27	-19.45	Peak	P
2	5699.90	3.13	45.59	48.72	105.13	-56.41	Peak	P
3	5720.00	3.19	45.66	48.85	110.80	-61.95	Peak	P
4	5725.10	3.20	45.19	48.39	122.20	-73.81	Peak	P
5	5849.90	3.53	45.28	48.81	122.20	-73.39	Peak	P
6	5855.00	3.54	45.07	48.61	110.80	-62.19	Peak	P
7	5875.10	3.59	46.26	49.85	105.13	-55.28	Peak	P
8	5924.90	3.72	45.68	49.40	68.27	-18.87	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

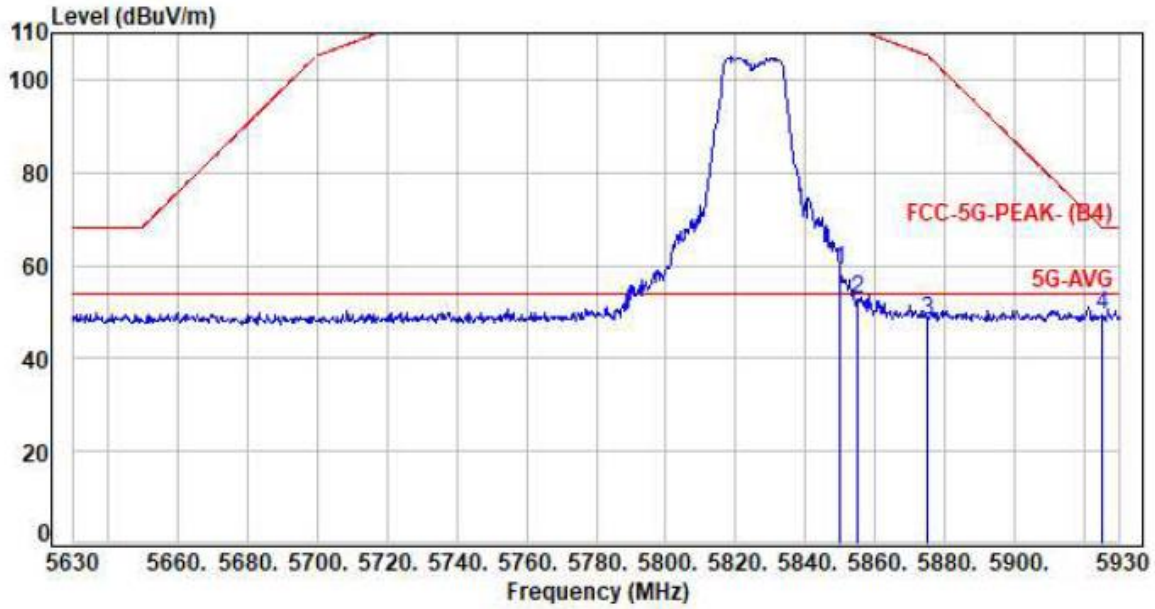
Power	AC120V/60Hz	Pol/Phase	HORIZONTAL
Test Mode	Mode 2, 802.11ac VHT20 CH157 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650.10	3.00	45.96	48.96	68.27	-19.31	Peak	P
2	5699.90	3.13	46.40	49.53	105.13	-55.60	Peak	P
3	5720.00	3.19	46.04	49.23	110.80	-61.57	Peak	P
4	5725.10	3.20	46.44	49.64	122.20	-72.56	Peak	P
5	5849.90	3.53	46.83	50.36	122.20	-71.84	Peak	P
6	5855.00	3.54	45.56	49.10	110.80	-61.70	Peak	P
7	5875.10	3.59	45.40	48.99	105.13	-56.14	Peak	P
8	5924.90	3.72	45.33	49.05	68.27	-19.22	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

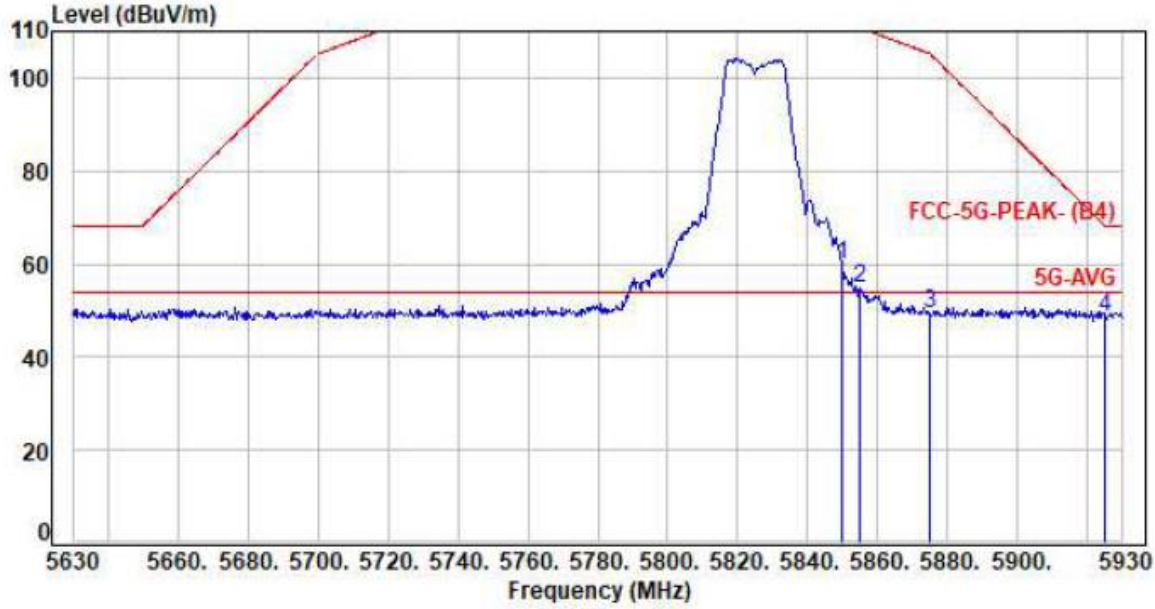
Power	AC120V/60Hz	Pol/Phase	VERTICAL
Test Mode	Mode 2, 802.11ac VHT20 CH165 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5849.90	3.53	55.43	58.96	122.20	-63.24	Peak	P
2	5855.00	3.54	49.03	52.57	110.80	-58.23	Peak	P
3	5875.10	3.59	44.70	48.29	105.13	-56.84	Peak	P
4	5924.90	3.72	45.78	49.50	68.27	-18.77	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

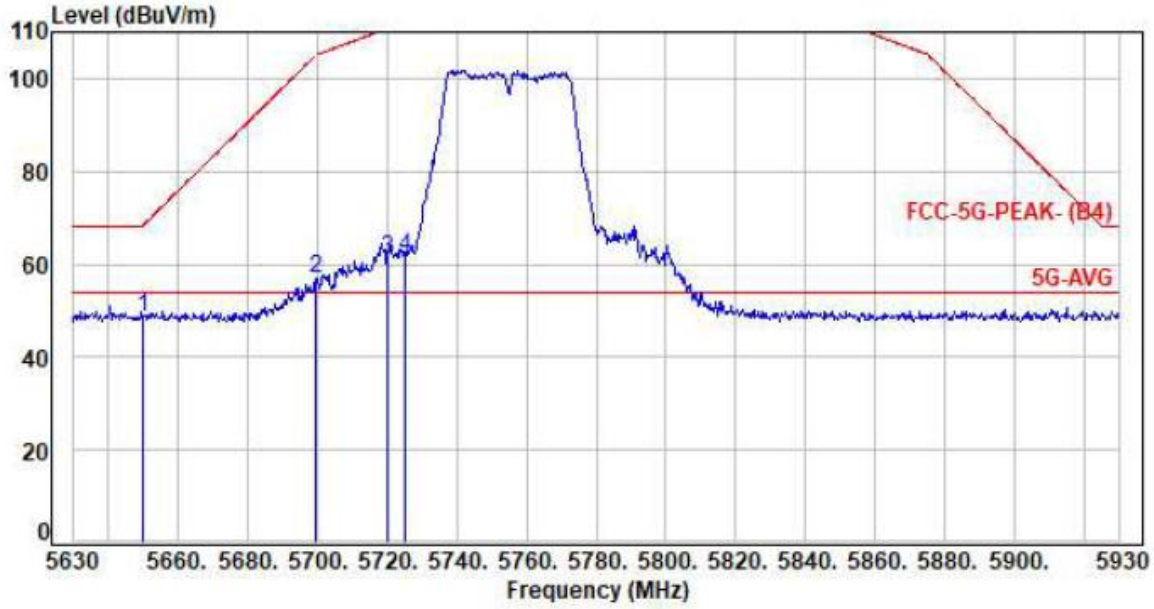
Power	AC120V/60Hz	Pol/Phase	HORIZONTAL
Test Mode	Mode 2, 802.11ac VHT20 CH165 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5849.90	3.53	56.45	59.98	122.20	-62.22	Peak	P
2	5855.00	3.54	51.27	54.81	110.80	-55.99	Peak	P
3	5875.10	3.59	45.94	49.53	105.13	-55.60	Peak	P
4	5924.90	3.72	44.80	48.52	68.27	-19.75	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

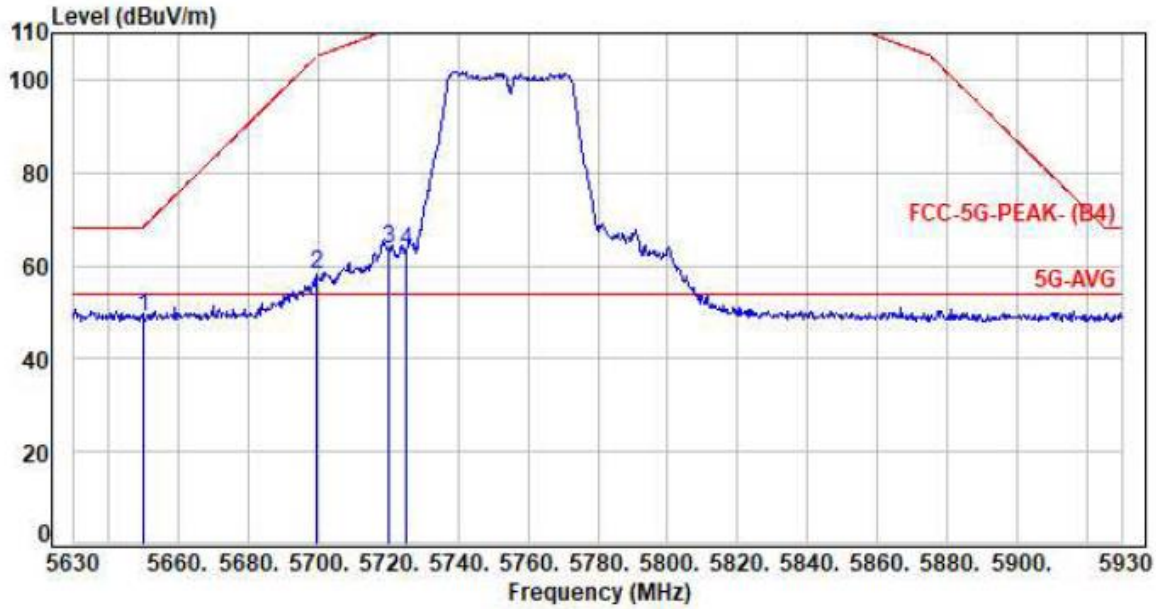
Power	AC120V/60Hz	Pol/Phase	VERTICAL
Test Mode	Mode 3, 802.11ac VHT40 CH151 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650.10	3.00	45.45	48.45	68.27	-19.82	Peak	P
2	5699.90	3.13	53.69	56.82	105.13	-48.31	Peak	P
3	5720.00	3.19	58.05	61.24	110.80	-49.56	Peak	P
4	5725.10	3.20	58.20	61.40	122.20	-60.80	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

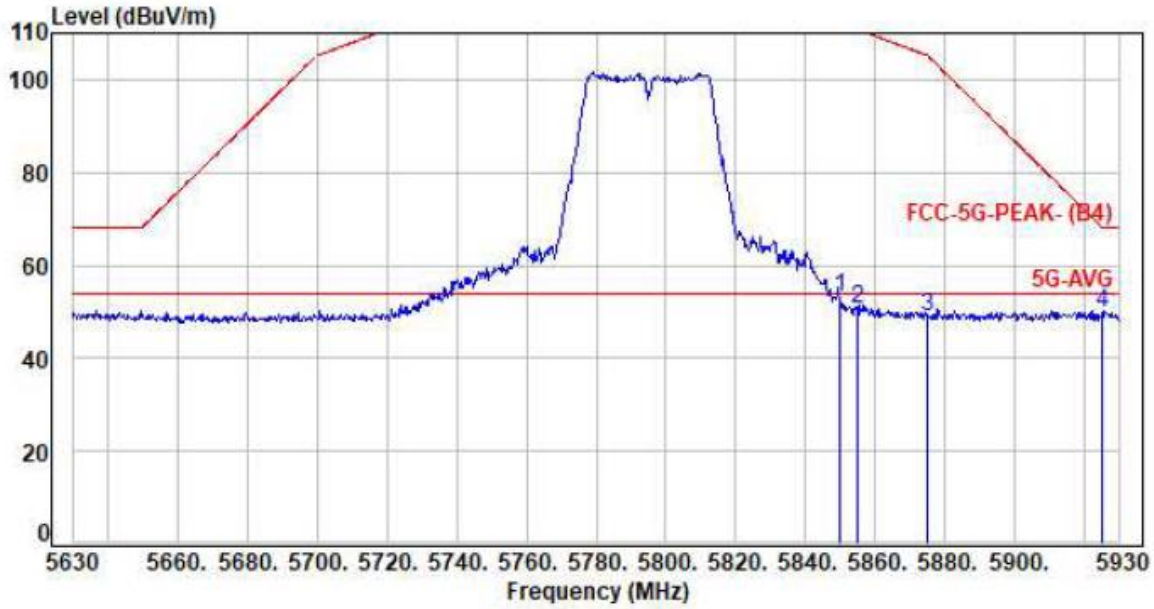
Power	AC120V/60Hz	Pol/Phase	HORIZONTAL
Test Mode	Mode 3, 802.11ac VHT40 CH151 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650.10	3.00	46.00	49.00	68.27	-19.27	Peak	P
2	5699.90	3.13	54.87	58.00	105.13	-47.13	Peak	P
3	5720.00	3.19	60.24	63.43	110.80	-47.37	Peak	P
4	5725.10	3.20	60.14	63.34	122.20	-58.86	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

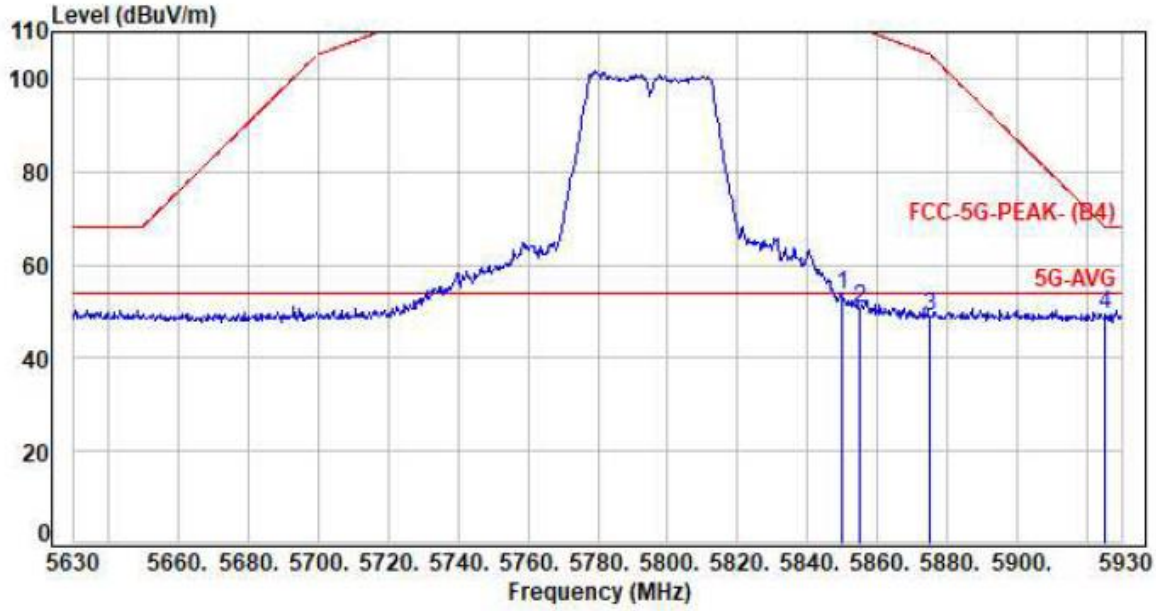
Power	AC120V/60Hz	Pol/Phase	VERTICAL
Test Mode	Mode 3, 802.11ac VHT40 CH159 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5849.90	3.53	49.45	52.98	122.20	-69.22	Peak	P
2	5855.00	3.54	47.09	50.63	110.80	-60.17	Peak	P
3	5875.10	3.59	45.23	48.82	105.13	-56.31	Peak	P
4	5924.90	3.72	45.88	49.60	68.27	-18.67	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

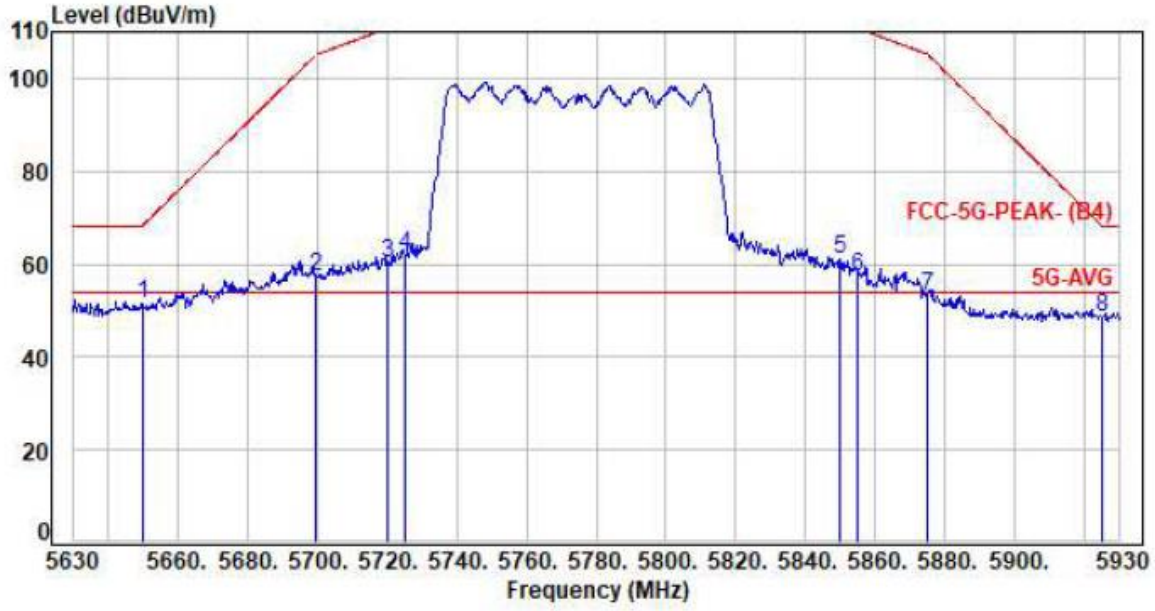
Power	AC120V/60Hz	Pol/Phase	HORIZONTAL
Test Mode	Mode 3, 802.11ac VHT40 CH159 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5849.90	3.53	49.81	53.34	122.20	-68.86	Peak	P
2	5855.00	3.54	47.26	50.80	110.80	-60.00	Peak	P
3	5875.10	3.59	45.50	49.09	105.13	-56.04	Peak	P
4	5924.90	3.72	45.48	49.20	68.27	-19.07	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

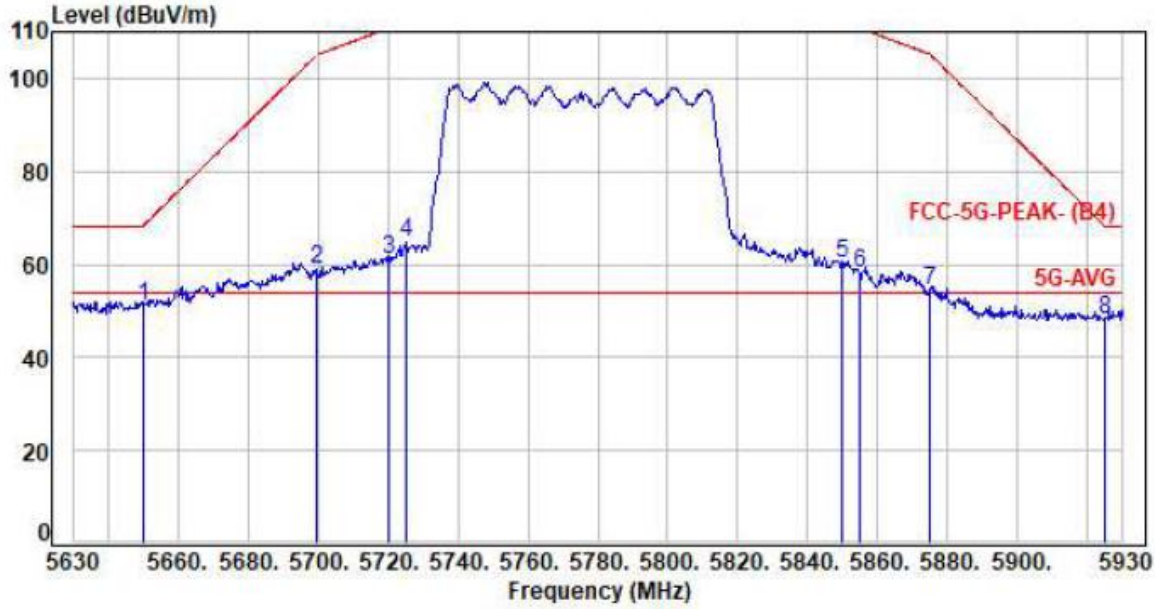
Power	AC120V/60Hz	Pol/Phase	VERTICAL
Test Mode	Mode 4, 802.11ac VHT80 CH155 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650.10	3.00	48.30	51.30	68.27	-16.97	Peak	P
2	5699.90	3.13	53.99	57.12	105.13	-48.01	Peak	P
3	5720.00	3.19	57.01	60.20	110.80	-50.60	Peak	P
4	5725.10	3.20	58.77	61.97	122.20	-60.23	Peak	P
5	5849.90	3.53	57.34	60.87	122.20	-61.33	Peak	P
6	5855.00	3.54	53.80	57.34	110.80	-53.46	Peak	P
7	5875.10	3.59	49.43	53.02	105.13	-52.11	Peak	P
8	5924.90	3.72	44.99	48.71	68.27	-19.56	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

Power	AC120V/60Hz	Pol/Phase	HORIZONTAL
Test Mode	Mode 4, 802.11ac VHT80 CH155 UNII-3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650.10	3.00	48.10	51.10	68.27	-17.17	Peak	P
2	5699.90	3.13	55.88	59.01	105.13	-46.12	Peak	P
3	5720.00	3.19	57.91	61.10	110.80	-49.70	Peak	P
4	5725.10	3.20	61.78	64.98	122.20	-57.22	Peak	P
5	5849.90	3.53	56.82	60.35	122.20	-61.85	Peak	P
6	5855.00	3.54	54.50	58.04	110.80	-52.76	Peak	P
7	5875.10	3.59	50.88	54.47	105.13	-50.66	Peak	P
8	5924.90	3.72	44.37	48.09	68.27	-20.18	Peak	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

7. On Time, Duty Cycle and Measurement methods

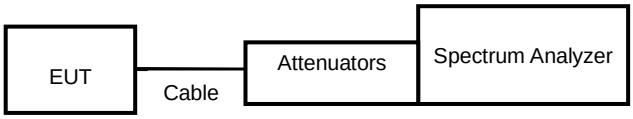
7.1. Test Limit

None; for reporting purposes only.

7.2. Test Procedure

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.3. Test Setup Layout



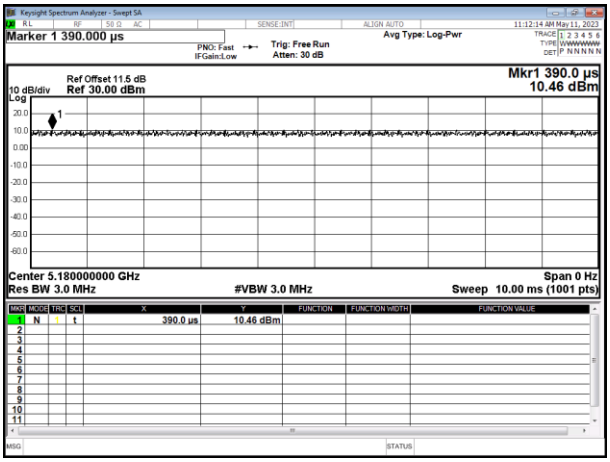
7.4. Test Result and Data

Modulation Mode	On Time (msec)	Period Time (msec)	Duty Cycle (%)
802.11a	100.00	100.00	100.00%
802.11ac VHT20	100.00	100.00	100.00%
802.11ac VHT40	100.00	100.00	100.00%
802.11ac VHT80	100.00	100.00	100.00%

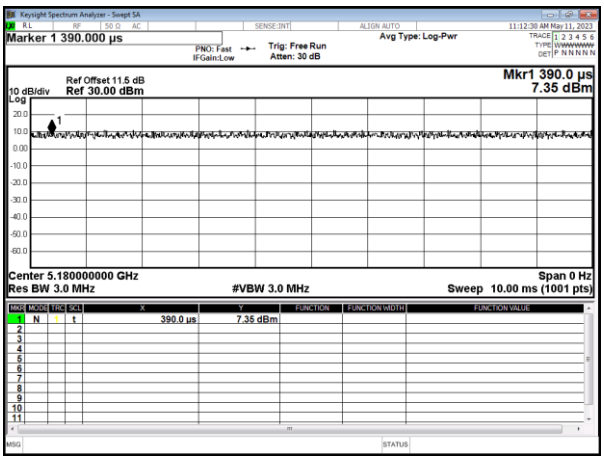
7.5. Measurement Methods

26 dB and 6dB Emission BW	KDB 789033 v02r01, Section C
99% Occupied BW	KDB 789033 v02r01, Section D
Conducted Output Power	KDB 789033 v02r01, Section E.2.d and E.3.b (Method PM-G)
Power Spectral Density	KDB 789033 v02r01, Section F
Unwanted emissions in restricted bands	KDB 789033 v02r01, Sections G and H
Unwanted emissions in non-restricted bands	KDB 789033 v02r01, Sections G and H

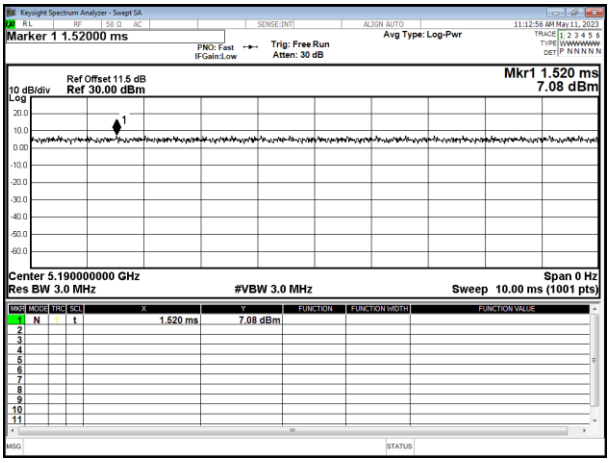
Modulation Type: 802.11a (6Mbps)



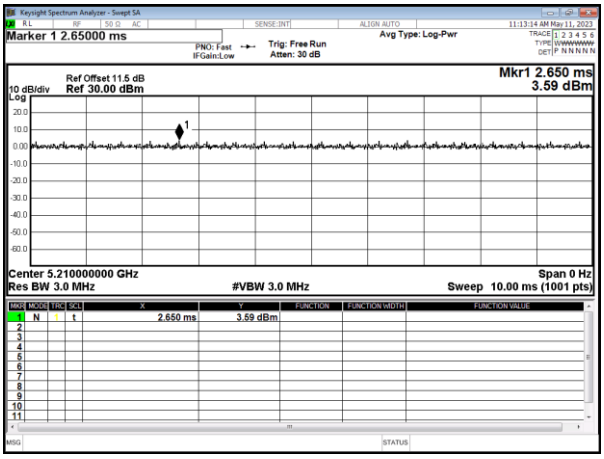
Modulation Type: 802.11ac VHT20 (6.5Mbps)



Modulation Type: 802.11ac VHT40 (13.5Mbps)



Modulation Type: 802.11ac VHT80 (29.3Mbps)



8. 6dB Bandwidth & 99% Occupied Bandwidth

8.1. Test Limit

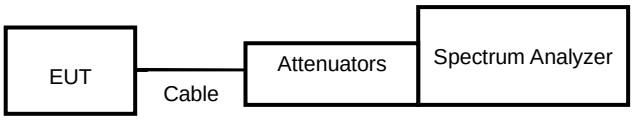
FCC §15.407

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

8.2. Test Procedure

Reference to 789033 v02r01 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW set to100KHz, the VBW >= 3 x RBW, peak detector and max hold.

8.3. Test Setup Layout



8.4. Test Result and Data (6dB Bandwidth)

In the 5.8GHz Band

Mode	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
802.11a	149	5745	16.56	0.50
	157	5785	16.60	0.50
	165	5825	16.58	0.50
802.11ac VHT20	149	5745	17.82	0.50
	157	5785	17.78	0.50
	165	5825	17.85	0.50
802.11ac VHT40	151	5755	36.58	0.50
	159	5795	36.54	0.50
802.11ac VHT80	155	5775	76.51	0.50

8.5. Test Result and Data (99% Occupied Bandwidth)

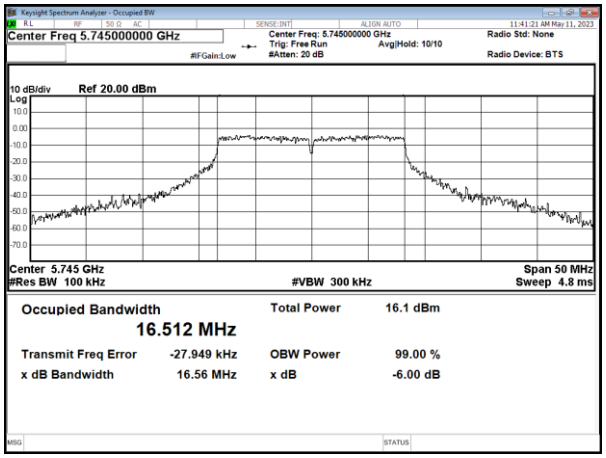
In the 5.8GHz Band

Mode	Channel	Frequency (MHz)	99% Bandwidth (MHz)
802.11a	149	5745	16.83
	157	5785	16.83
	165	5825	16.72
802.11ac VHT20	149	5745	17.96
	157	5785	17.94
	165	5825	17.88
802.11ac VHT40	151	5755	36.47
	159	5795	36.52
802.11ac VHT80	155	5775	75.85

6dB Bandwidth

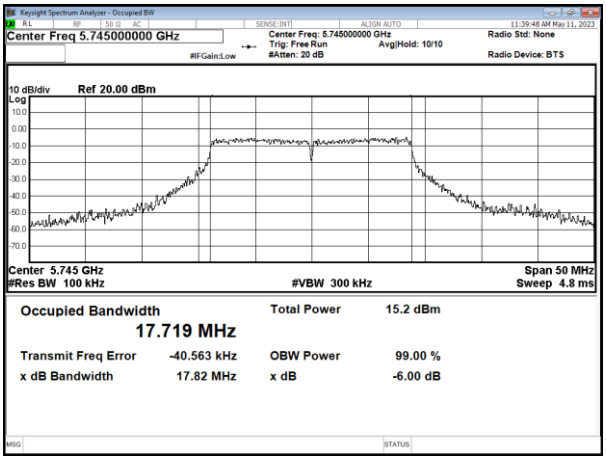
Modulation Type: 802.11a (6Mbps)

CH149

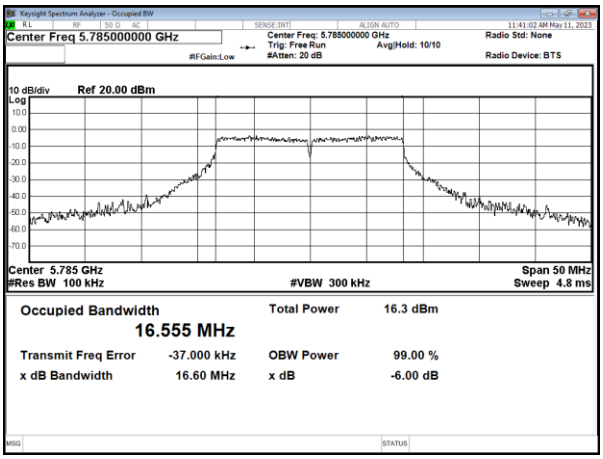


Modulation Type: 802.11ac, VHT20 (6.5Mbps)

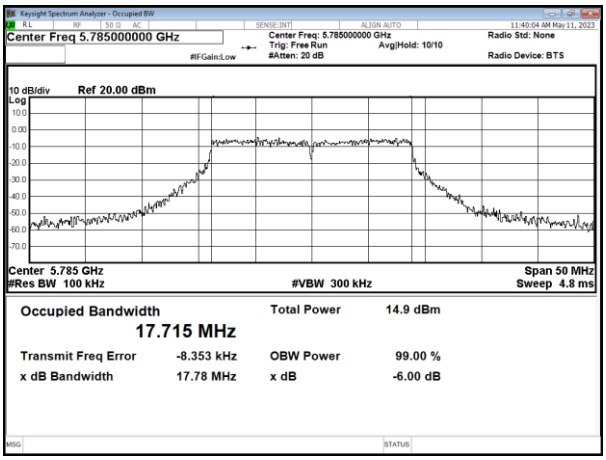
CH149



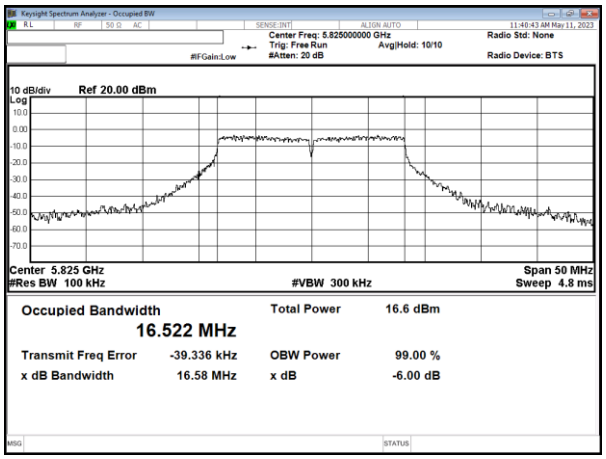
CH157



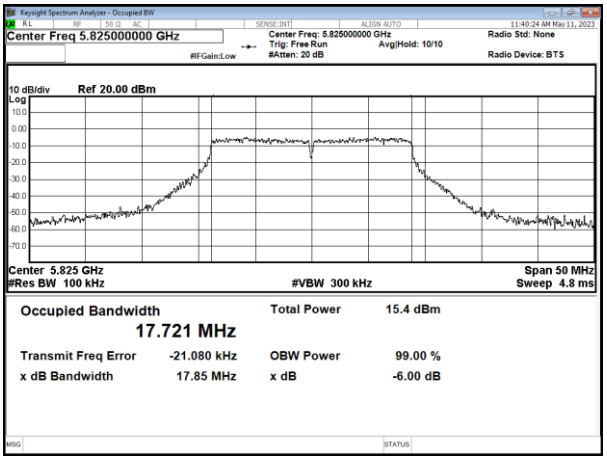
CH157



CH165



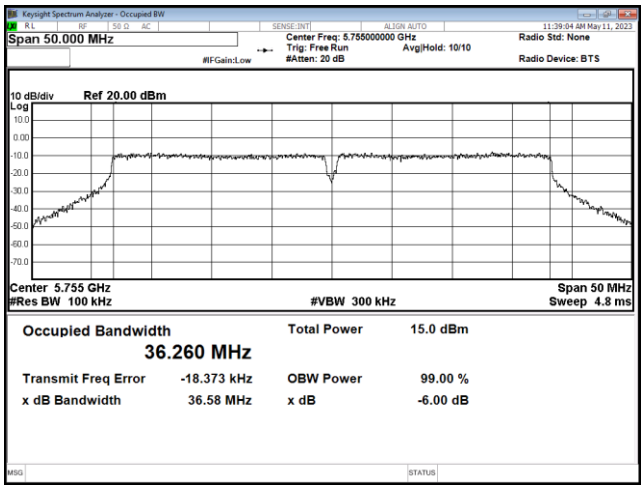
CH165



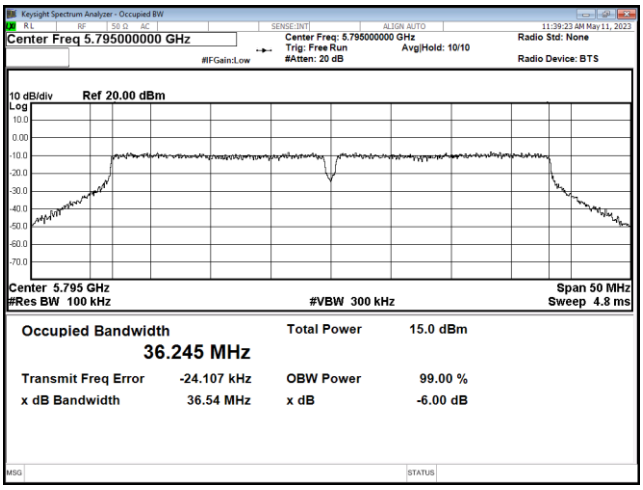
6dB Bandwidth

Modulation Type: 802.11ac, VHT40 (13.5Mbps)

CH151

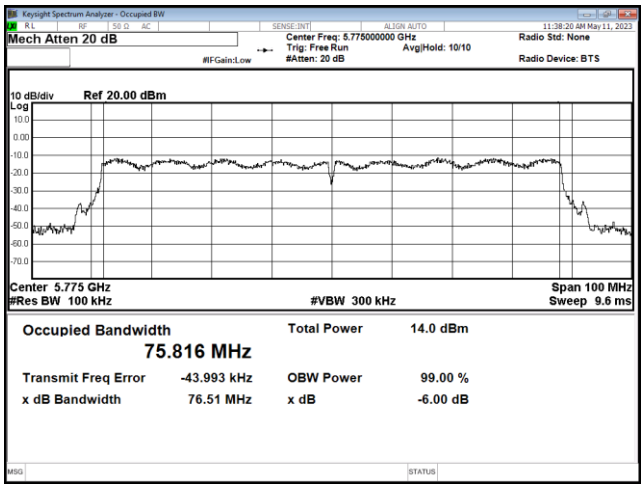


CH159



Modulation Type: 802.11ac, VHT80 (29.3Mbps)

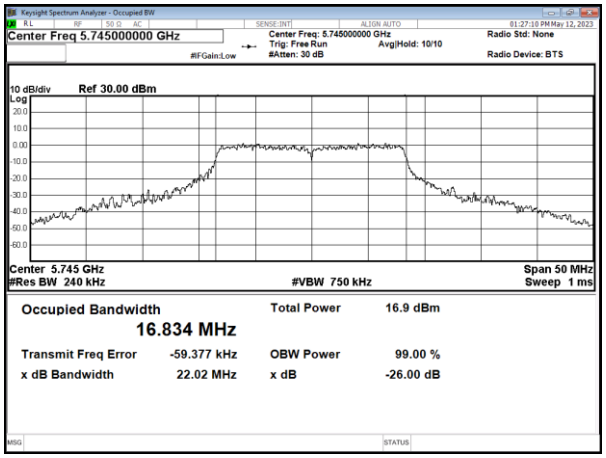
CH155



99% Occupied Bandwidth

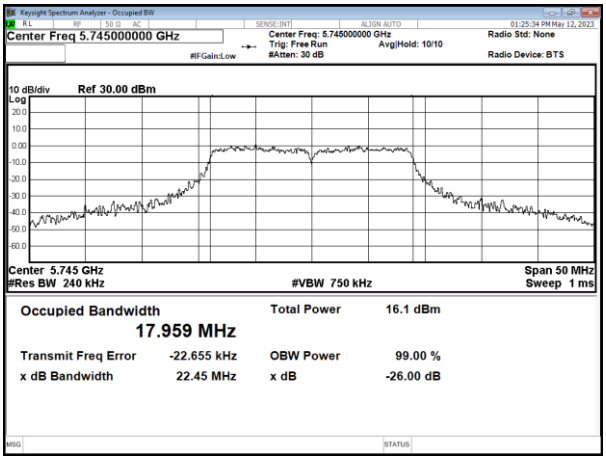
Modulation Type: 802.11a (6Mbps)

CH149



Modulation Type: 802.11ac, VHT20 (6.5Mbps)

CH149



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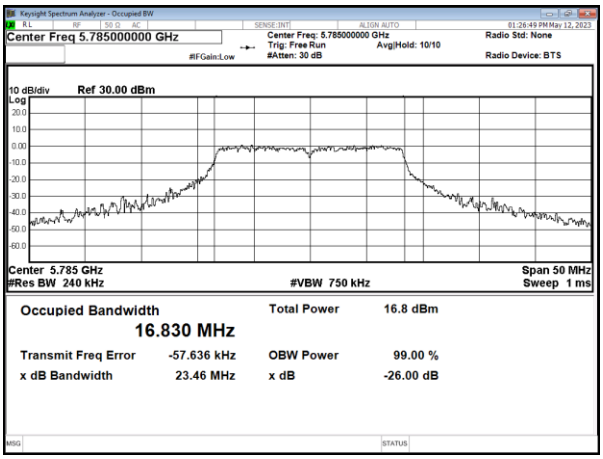

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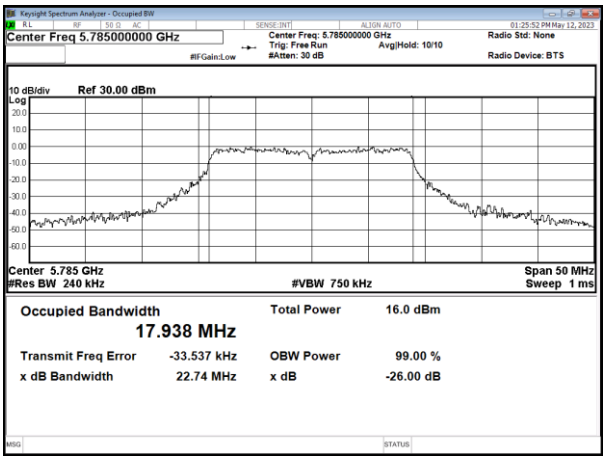

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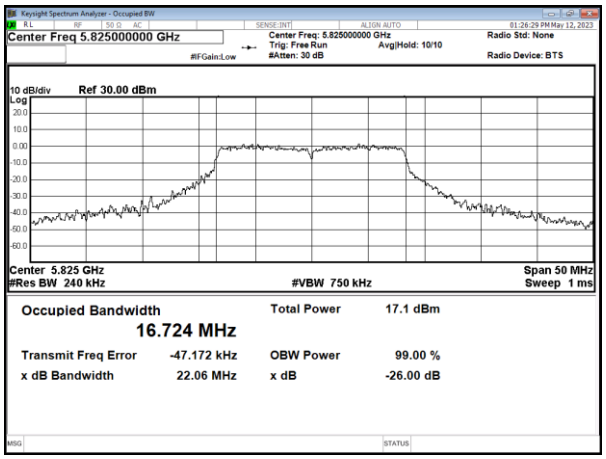
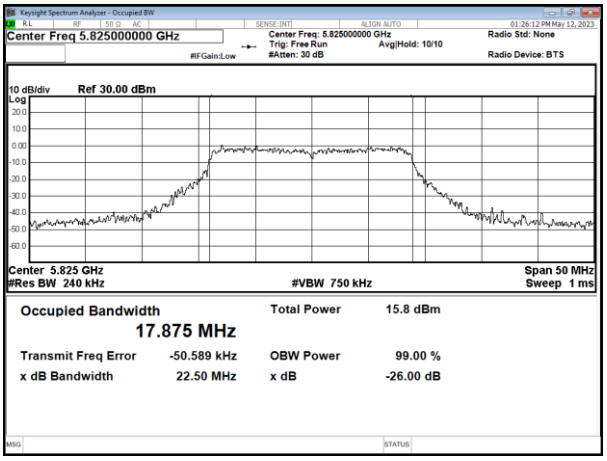
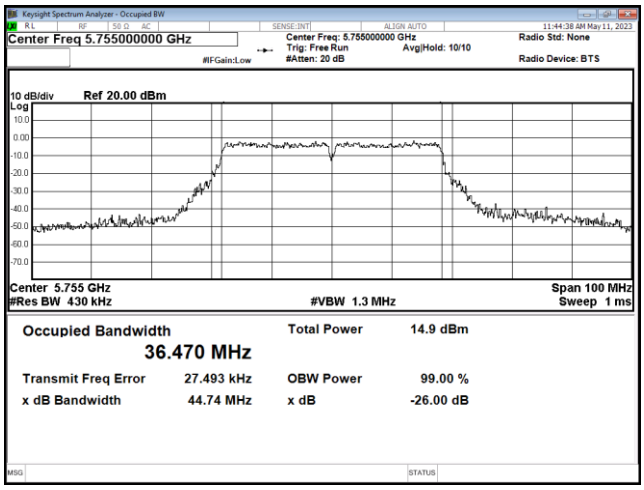


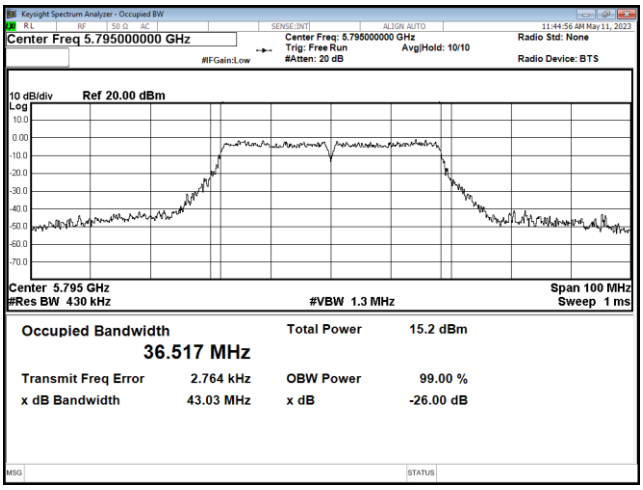
CH165



99% Occupied Bandwidth
Modulation Type: 802.11ac, VHT40 (13.5Mbps)
CH151

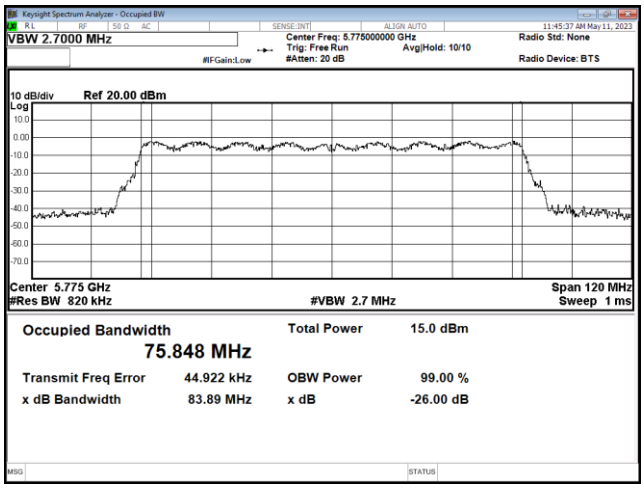


CH159



Modulation Type: 802.11ac, VHT80 (29.3Mbps)

CH155



9. 26dB Bandwidth & 99% Occupied Bandwidth

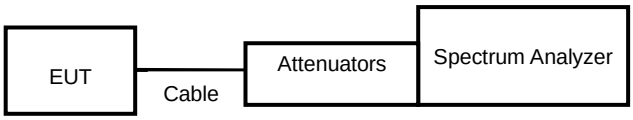
9.1. Test Limit

None; for reporting purposes only.

9.2. Test Procedure

Reference to 789033 v02r01 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW = approximately 1% of the emission bandwidth, the VBW >= 3 x RBW, peak detector and max hold.

9.3. Test Setup Layout



9.4. Test Result and Data (26dB Bandwidth)

In the 5.2G Band

Mode	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
802.11a	36	5180	21.89
	44	5220	25.33
	48	5240	23.41
802.11ac VHT20	36	5180	22.43
	44	5220	22.61
	48	5240	21.93
802.11ac VHT40	38	5190	44.04
	46	5230	43.22
802.11ac VHT80	42	5210	83.23

9.5. Test Result and Data (99% Occupied Bandwidth)

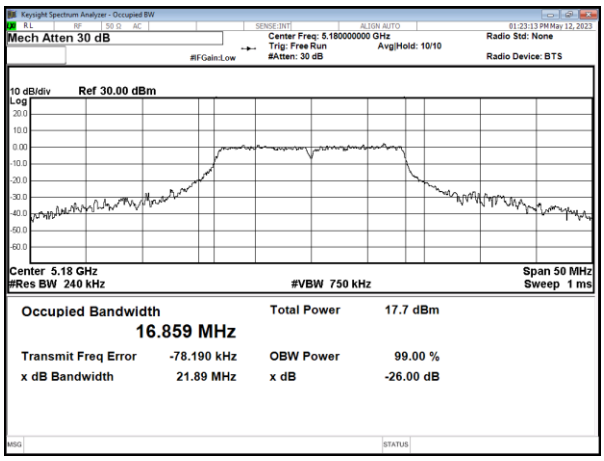
In the 5.2G Band

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
802.11a	36	5180	16.859
	44	5220	16.788
	48	5240	16.794
802.11ac VHT20	36	5180	17.943
	44	5220	17.948
	48	5240	17.938
802.11ac VHT40	38	5190	36.508
	46	5230	36.464
802.11ac VHT80	42	5210	75.998

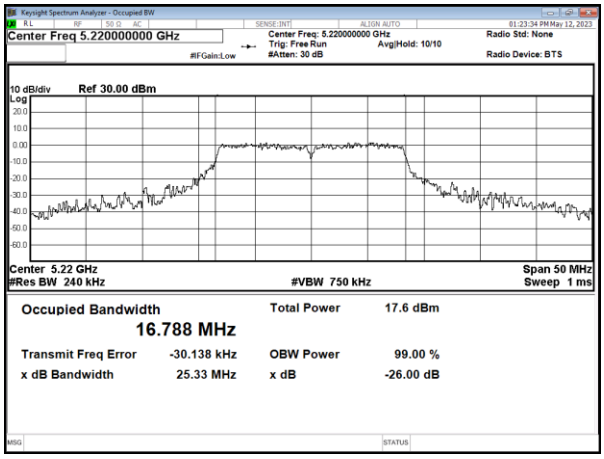
26dB Bandwidth &99% Occupied Bandwidth, UNII-1

Modulation Standard: 802.11a (6Mbps)

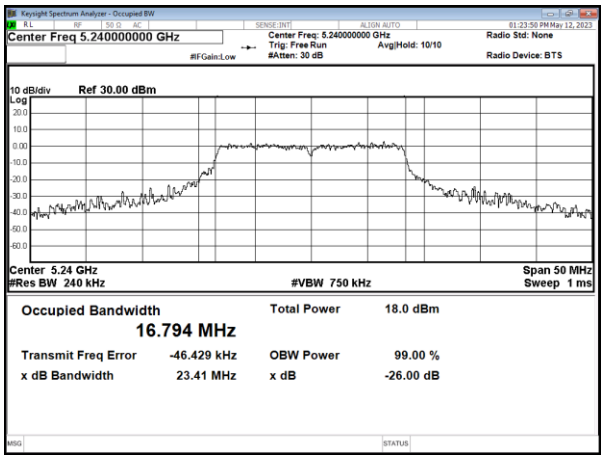
CH36



CH44

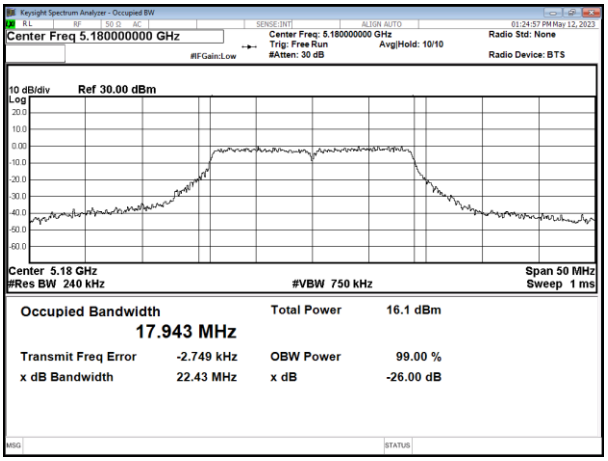


CH48

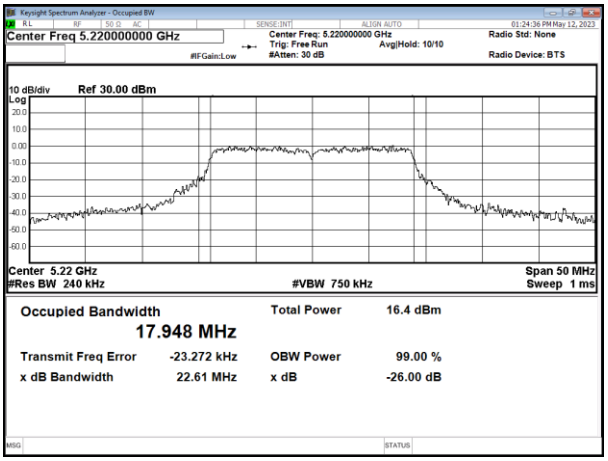


Modulation Standard: 802.11ac VHT20 (6.5Mbps)

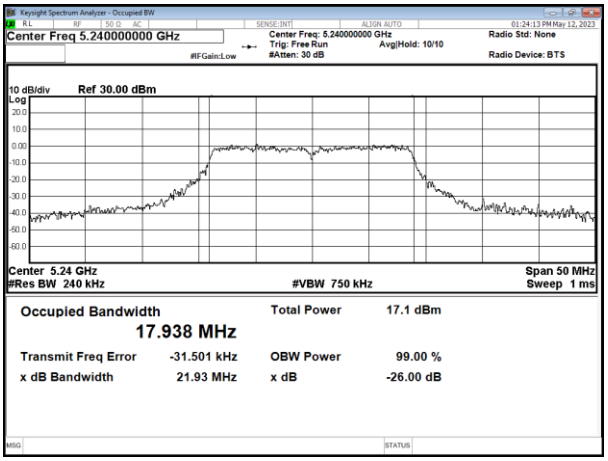
CH36



CH44



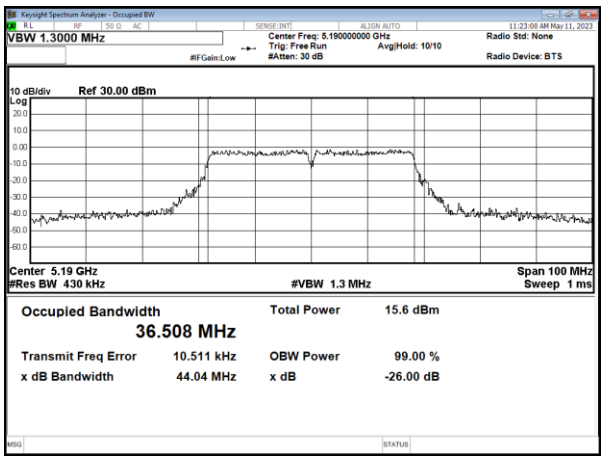
CH48



26dB Bandwidth &99% Occupied Bandwidth, UNII-1

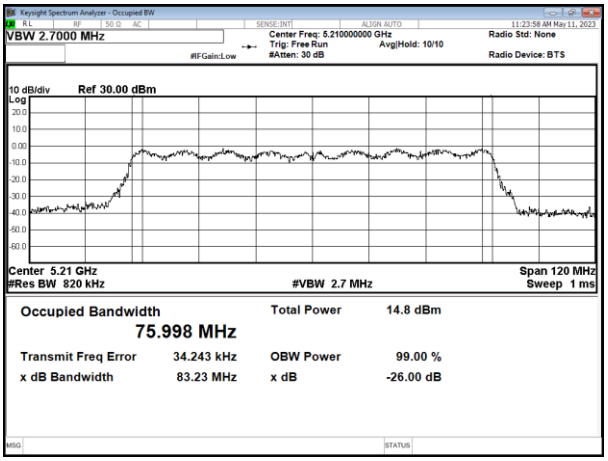
Modulation Standard: 802.11ac VHT40 (13.5Mbps)

CH38

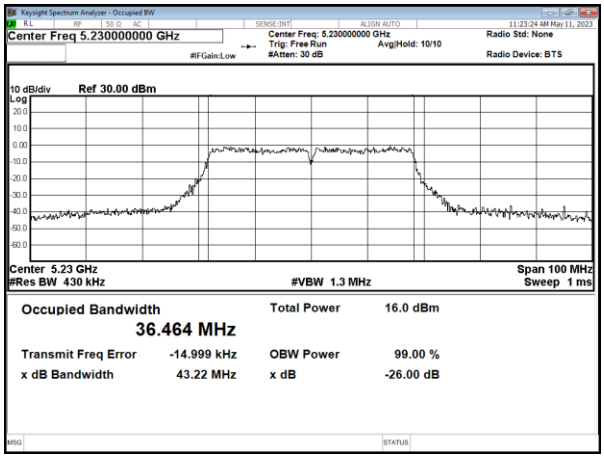


Modulation Standard: 802.11ac VHT80 (29.3Mbps)

CH42



CH46



10. Average Power

10.1. Test Limit

Output Power:

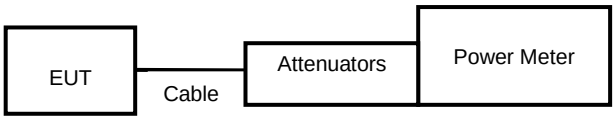
Frequency Band			Limit
☒	5.15~5.25GHz		
	Operating Mode		
	☐	Outdoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30degrees as measured from the horizon must not exceed125 mW (21 dBm).
	☐	Indoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
	☐	Fixed point-to-point access points	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.
	☒	client devices	The maximum conducted output power over the frequency band of operation shall not exceed 250 mW (24dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Frequency Band		Limit
☐	5.25-5.35 GHz	The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
☐	5.470-5.725 GHz	
☒	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 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

10.2.Test Procedure

The transmitter output is connected to a power meter.
The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

10.3.Test Setup Layout



10.4.Test Result and Data

In the 5.2G Band

Modulation Type	Data Rate	Setting	Channel	Frequency (MHz)	Avg Power Output (dBm)	Total Power (dBm)	Total Power (mW)	Power Limit (dBm)
11a	6 Mbps	45	36	5180	10.140	10.140	10.328	24.00
11a	6 Mbps	45	44	5220	10.730	10.730	11.830	24.00
11a	6 Mbps	45	48	5240	11.310	11.310	13.521	24.00
11n HT20	MCS 0	43	36	5180	9.040	9.040	8.017	24.00
11n HT20	MCS 0	43	44	5220	9.930	9.930	9.840	24.00
11n HT20	MCS 0	43	48	5240	10.020	10.020	10.046	24.00
11n HT40	MCS 0	42	38	5190	10.070	10.070	10.162	24.00
11n HT40	MCS 0	42	46	5230	10.130	10.130	10.304	24.00
11ac VHT20	NSS1-MCS0	43	36	5180	9.540	9.540	8.995	24.00
11ac VHT20	NSS1-MCS0	43	44	5220	10.160	10.160	10.375	24.00
11ac VHT20	NSS1-MCS0	43	48	5240	10.210	10.210	10.495	24.00
11ac VHT40	NSS1-MCS0	42	38	5190	10.210	10.210	10.495	24.00
11ac VHT40	NSS1-MCS0	42	46	5230	10.370	10.370	10.889	24.00
11ac VHT80	NSS1-MCS0	40	42	5210	8.570	8.570	7.194	24.00

In the 5.8G Band

Modulation Type	Data Rate	Setting	Channel	Frequency (MHz)	Avg Power Output (dBm)	Total Power (dBm)	Total Power (mW)	Power Limit (dBm)
11a	6 Mbps	45	149	5745	10.420	10.420	11.015	30.00
11a	6 Mbps	45	157	5785	10.650	10.650	11.614	30.00
11a	6 Mbps	45	165	5825	10.820	10.820	12.078	30.00
11n HT20	MCS 0	43	149	5745	9.120	9.120	8.166	30.00
11n HT20	MCS 0	43	157	5785	9.350	9.350	8.610	30.00
11n HT20	MCS 0	43	165	5825	9.460	9.460	8.831	30.00
11n HT40	MCS 0	42	151	5755	9.080	9.080	8.091	30.00
11n HT40	MCS 0	42	159	5795	9.270	9.270	8.453	30.00
11ac VHT20	NSS1-MCS0	43	149	5745	9.580	9.580	9.078	30.00
11ac VHT20	NSS1-MCS0	43	157	5785	9.700	9.700	9.333	30.00
11ac VHT20	NSS1-MCS0	43	165	5825	9.920	9.920	9.817	30.00
11ac VHT40	NSS1-MCS0	42	151	5755	9.430	9.430	8.770	30.00
11ac VHT40	NSS1-MCS0	42	159	5795	9.650	9.650	9.226	30.00
11ac VHT80	NSS1-MCS0	40	155	5775	8.640	8.640	7.311	30.00

11. Maximum Power Spectral Density

11.1. Test Limit

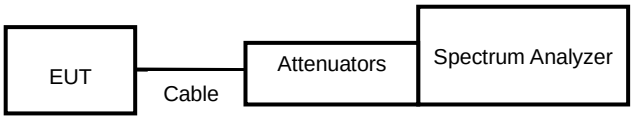
PSD:

Frequency Band			Limit
☒	5.15~5.25GHz		
	Operating Mode		
	☐	Outdoor access point	17 dBm/MHz
	☐	Indoor access point	17 dBm/MHz
	☐	Fixed point-to-point access points	17 dBm/MHz
	☒	client devices	11 dBm/MHz
☐	5.250~5.350 GHz		11 dBm/MHz
☐	5.470~5.725 GHz		11 dBm/MHz
☒	5.725~5.85 GHz		30 dBm/500kHz

11.2. Test Procedure

Reference to KDB789033 v02r01 General UNII Test Procedures New Rules.

11.3. Test Setup Layout



11.4. Test Result and Data

In the 5.2G Band

Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)	Sum chain (dBm)	Duty Cycle CF(dB)	Total Corr'd PPSD (dBm/MHz)	PPSD Limit (dBm/MHz)
11a	36	5180	-0.708	-0.71	0.00	-0.71	11.00
11a	44	5220	0.021	0.02	0.00	0.02	11.00
11a	48	5240	0.072	0.07	0.00	0.07	11.00
11ac VHT20	36	5180	-1.560	-1.56	0.00	-1.56	11.00
11ac VHT20	44	5220	-1.253	-1.25	0.00	-1.25	11.00
11ac VHT20	48	5240	-1.217	-1.22	0.00	-1.22	11.00
11ac VHT40	38	5190	-4.207	-4.21	0.00	-4.21	11.00
11ac VHT40	46	5230	-4.171	-4.17	0.00	-4.17	11.00
11ac VHT80	42	5210	-7.902	-7.90	0.00	-7.90	11.00

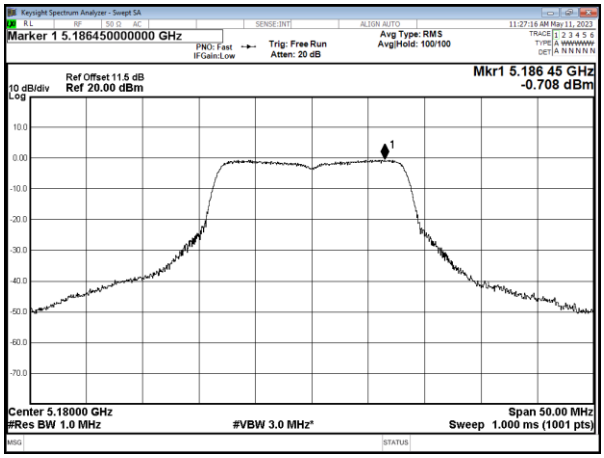
In the 5.8G Band

Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)	Sum chain (dBm)	Duty Cycle CF(dB)	10log(500KHz/RBW) CF (dB)	Total Corr'd PPSD (dBm/500kHz)	PPSD Limit (dBm/500kHz)
11a	149	5745	-0.406	-0.41	0.00	-3.01	-3.42	30.00
11a	157	5785	-0.359	-0.36	0.00	-3.01	-3.37	30.00
11a	165	5825	-0.068	-0.07	0.00	-3.01	-3.08	30.00
11ac VHT20	149	5745	-1.734	-1.73	0.00	-3.01	-4.74	30.00
11ac VHT20	157	5785	-1.601	-1.60	0.00	-3.01	-4.61	30.00
11ac VHT20	165	5825	-1.283	-1.28	0.00	-3.01	-4.29	30.00
11ac VHT40	151	5755	-4.929	-4.93	0.00	-3.01	-7.94	30.00
11ac VHT40	159	5795	-4.576	-4.58	0.00	-3.01	-7.59	30.00
11ac VHT80	155	5775	-7.953	-7.95	0.00	-3.01	-10.96	30.00

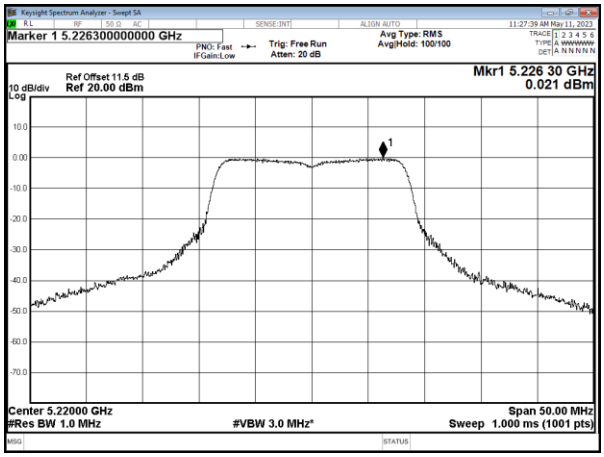
5.2G, UNII-1

Modulation Standard: 802.11a (6Mbps)

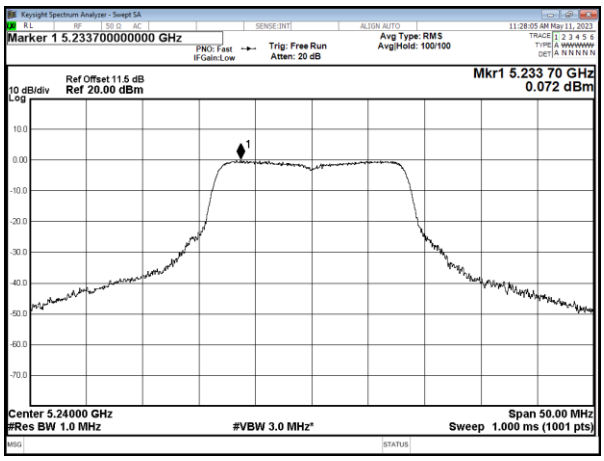
CH36



CH44

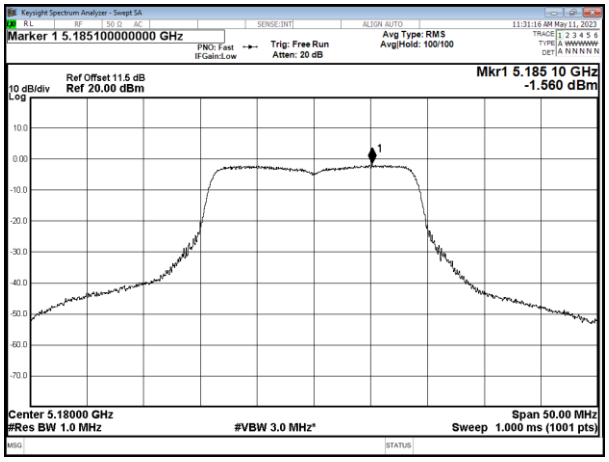


CH48



Modulation Standard: 802.11ac VHT20 (6.5Mbps)

CH36



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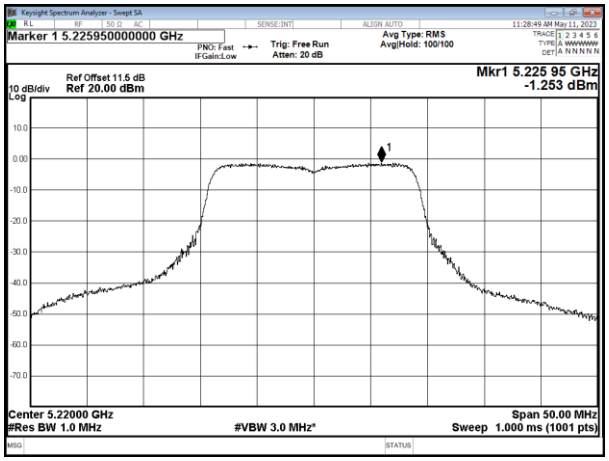

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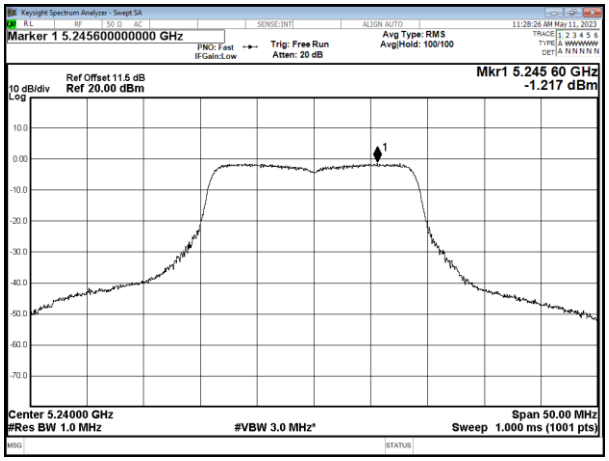
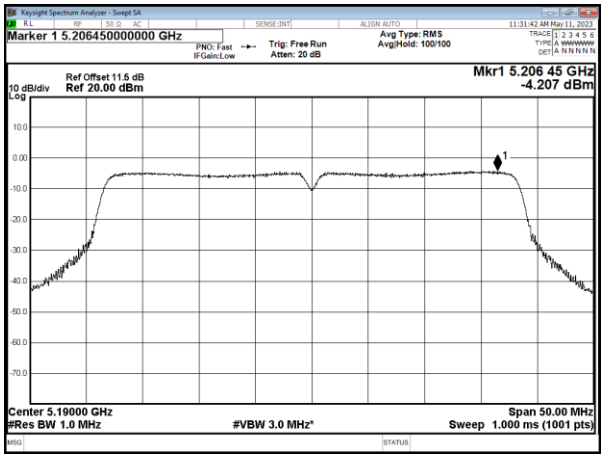
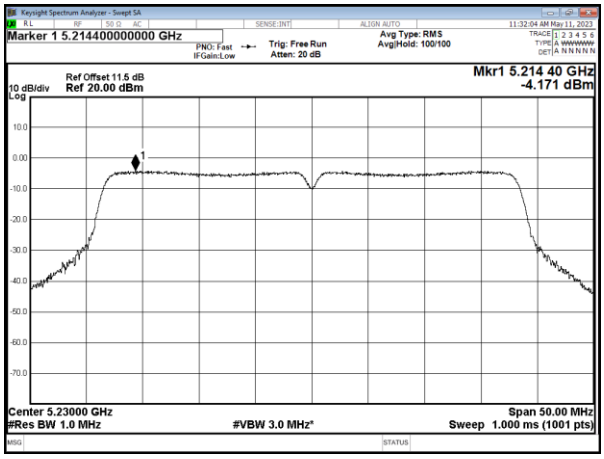


Modulation Standard: 802.11ac VHT40 (13.5Mbps)

CH38

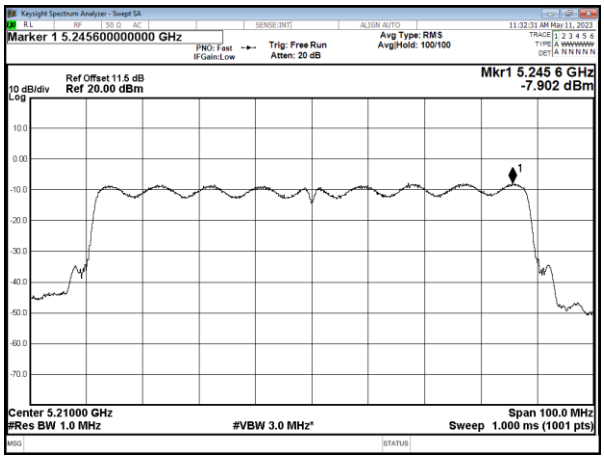


CH46



Modulation Standard: 802.11ac VHT80 (29.3Mbps)

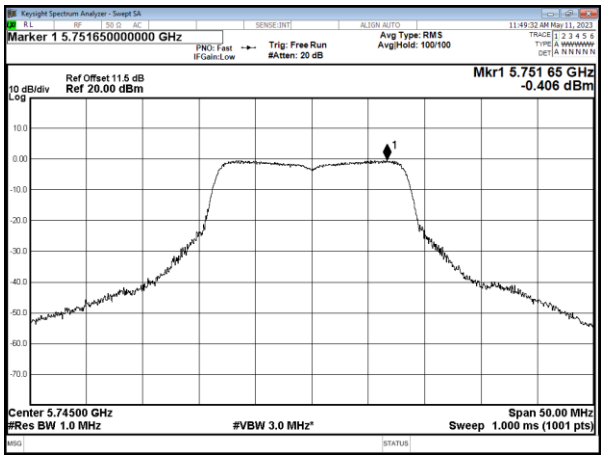
CH42



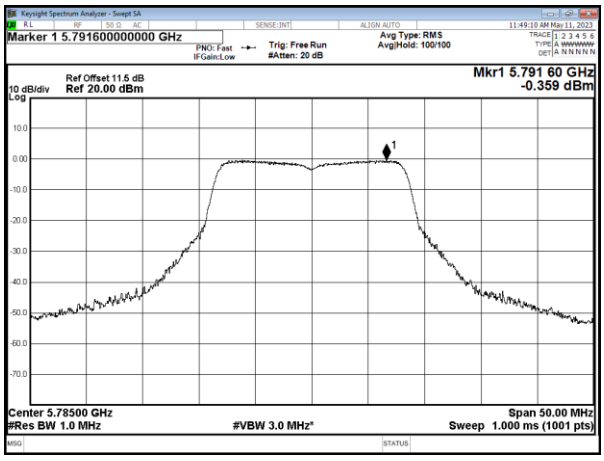
5.8G, UNII-3

Modulation Standard: 802.11a (6Mbps)

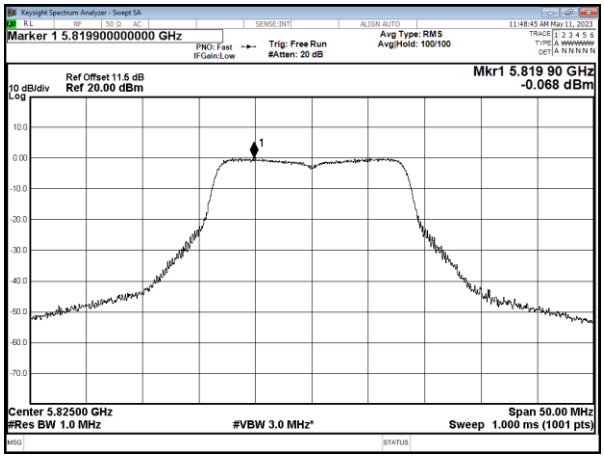
CH149



CH157

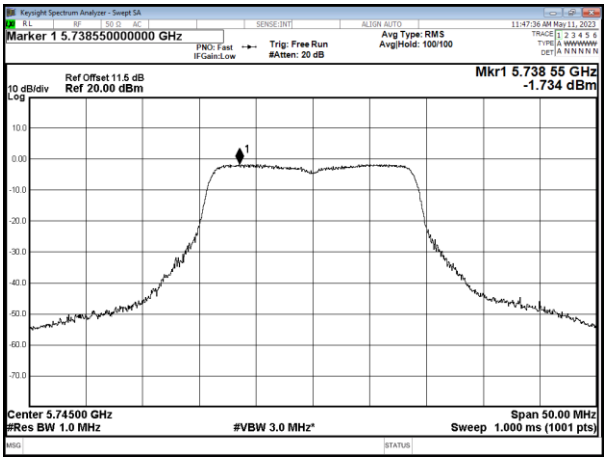


CH165

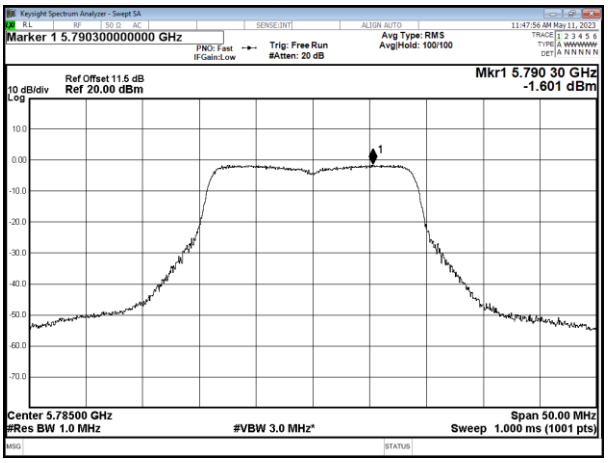


Modulation Standard: 802.11ac VHT20 (6.5Mbps)

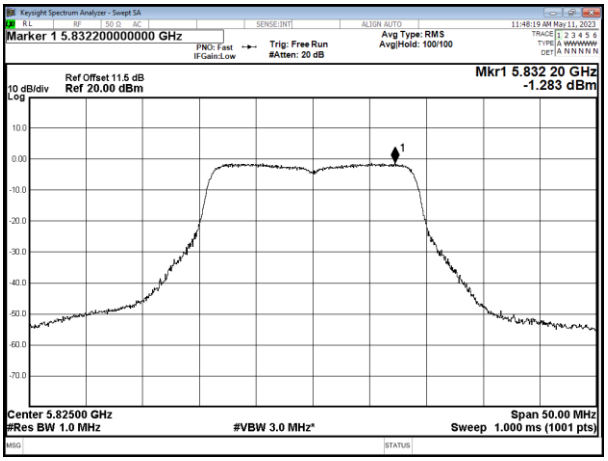
CH149



CH157

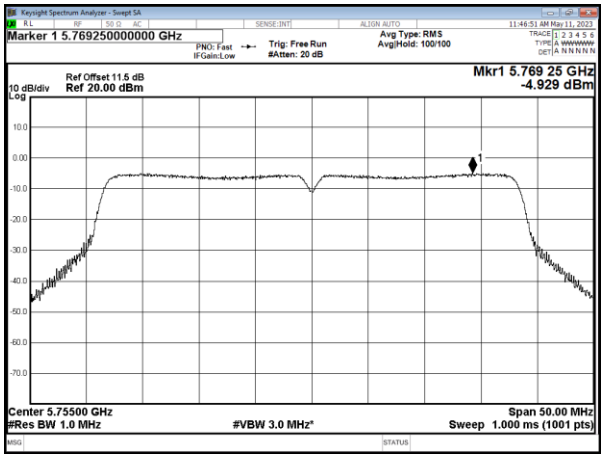


CH165

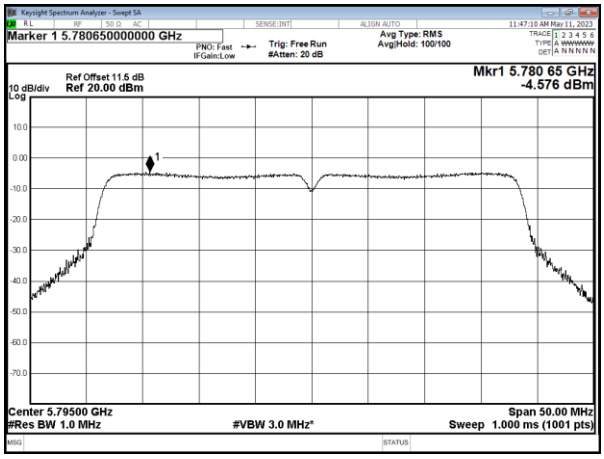


Modulation Standard: 802.11ac VHT40 (13.5Mbps)

CH151

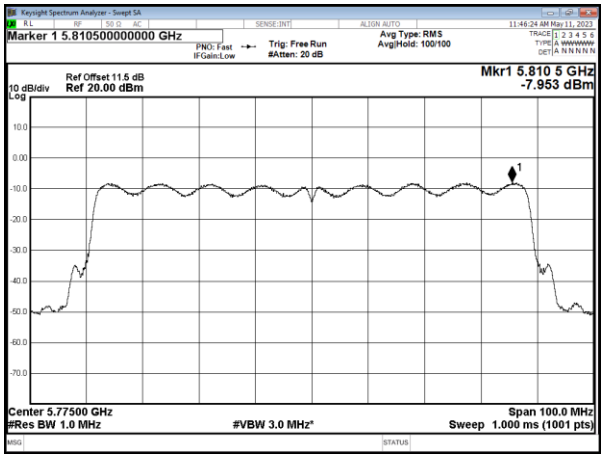


CH159



Modulation Standard: 802.11ac VHT80 (29.3Mbps)

CH155

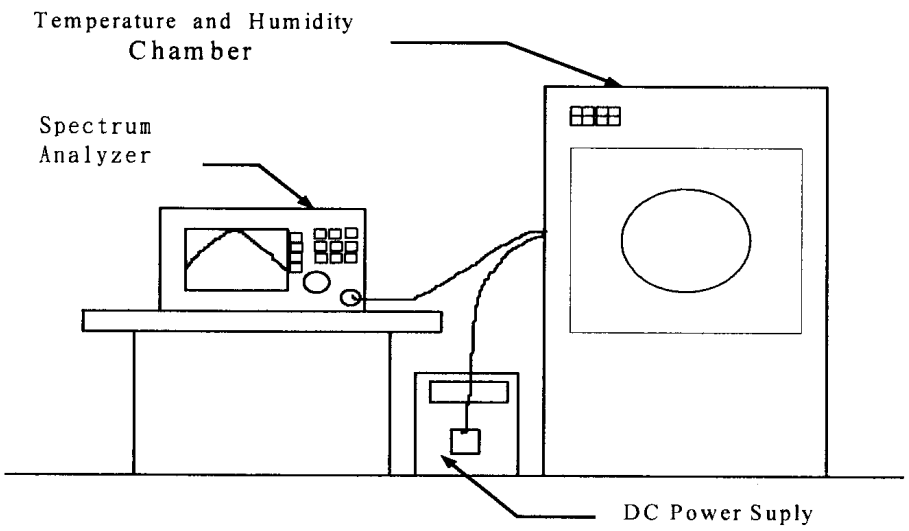


12. Frequency Stability

12.1.Test Procedure

1. The EUT was placed inside the Temperature and Humidity chamber.
2. The transmitter output was connected to spectrum analyzer.
3. Turn the EUT on and couple its output to a spectrum analyzer.
4. Turn the EUT off and set the chamber to the highest temperature specified.
5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
6. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
7. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

12.2.Test Setup Layout



12.3.Test Result and Data

Operating frequency: 5180 MHz							
Temp	Power supply	2 minute		5 minute		10 minute	
(℃)	(V)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
35	132	5179.9659	-0.000658	5179.9657	-0.000662	5179.9654	-0.000668
	120	5179.966	-0.000656	5179.9658	-0.000660	5179.9656	-0.000664
	108	5179.9662	-0.000653	5179.966	-0.000656	5179.9659	-0.000658
20	132	5179.9664	-0.000649	5179.9663	-0.000651	5179.9661	-0.000654
	120	5179.9668	-0.000641	5179.9667	-0.000643	5179.9664	-0.000649
	108	5179.9669	-0.000639	5179.9668	-0.000641	5179.9665	-0.000647
10	132	5179.9671	-0.000635	5179.9668	-0.000641	5179.9666	-0.000645
	120	5179.9672	-0.000633	5179.967	-0.000637	5179.9668	-0.000641
	108	5179.9671	-0.000635	5179.9669	-0.000639	5179.9667	-0.000643
0	132	5179.9674	-0.000629	5179.9672	-0.000633	5179.967	-0.000637
	120	5179.9676	-0.000625	5179.9674	-0.000629	5179.9671	-0.000635
	108	5179.9678	-0.000622	5179.9676	-0.000625	5179.9675	-0.000627

Limit:
Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

----------End of the report ----------