Appendix E

RF Test Data for 5.8G WLAN (Conducted Measurement)

Product Name: Mini 802.11ac Wireless USB Adapter

Trade Mark: N/A

Test Model: 0611

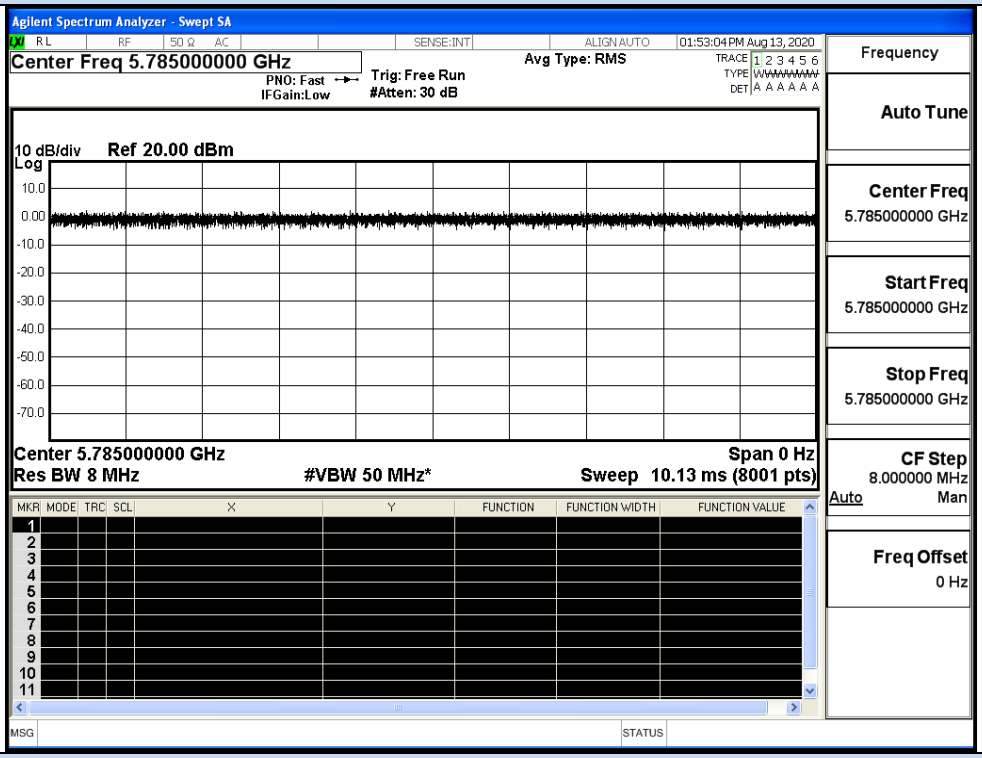
Environmental Conditions

Temperature:	24.2 ° C
Relative Humidity:	53.1%
ATM Pressure:	100.0 kPa
Test Engineer:	DIAAMOND.LU
Supervised by:	Tom.Liu

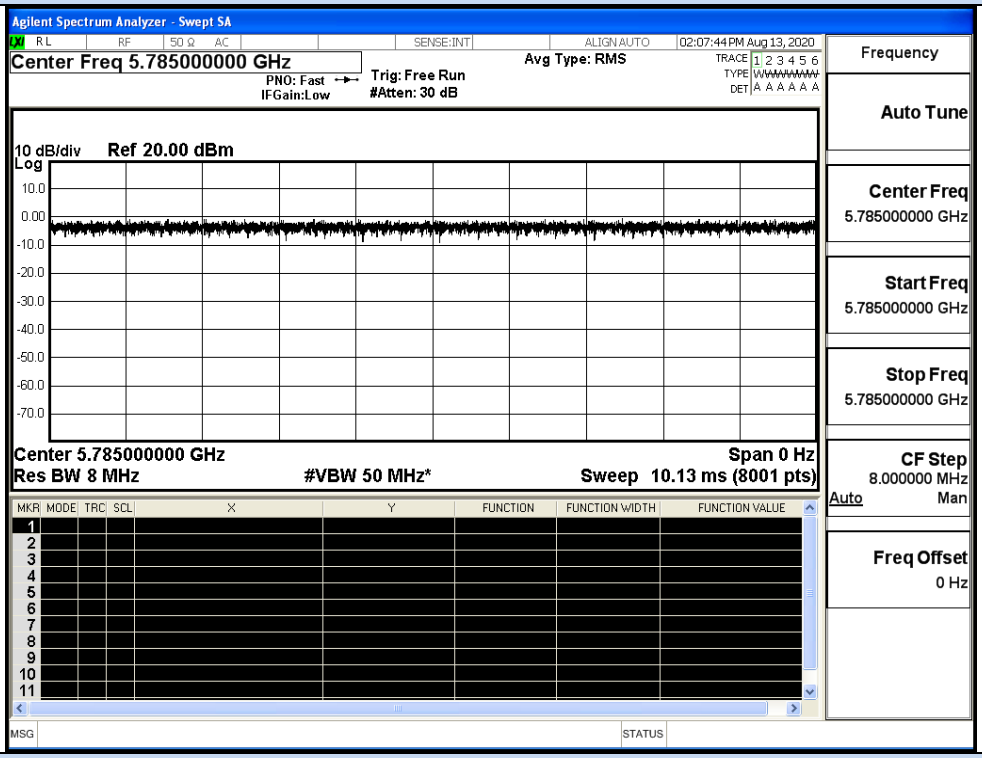
E.1 Duty Cycle

Test Mode	Test Frequency (MHz)	Duty Cycle (%)	10log(1/x) Factor (dB)	1/B Minimum VBW(KHz)
11A	5785	100	0.00	0.01
11N20 SISO	5785	100	0.00	0.01
11N40 SISO	5755	100	0.00	0.01
11AC20 SISO	5785	100	0.00	0.01
11AC40 SISO	5755	100	0.00	0.01
11AC80 SISO	5775	100	0.00	0.01

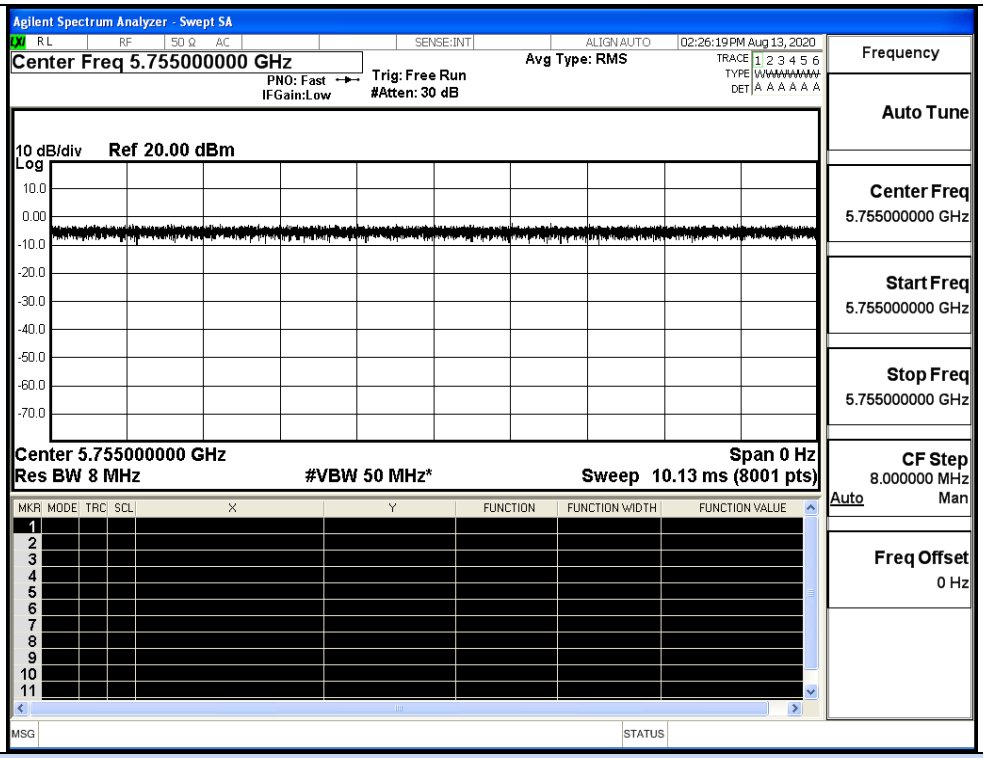
On Time and Duty Cycle



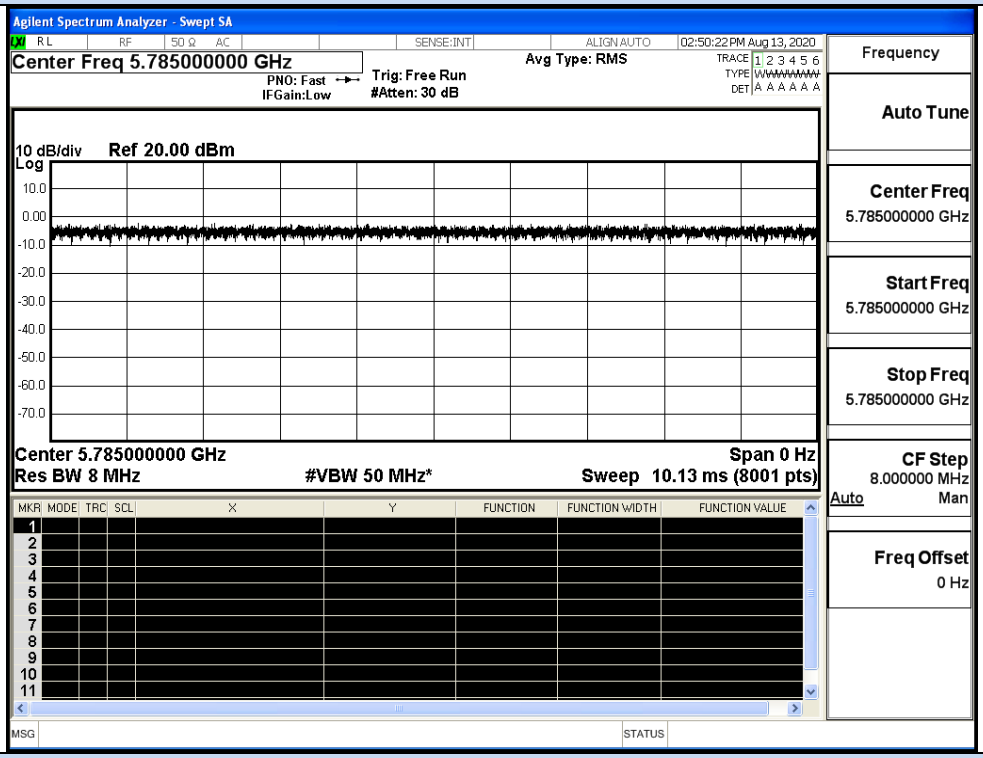
IEEE 802.11a



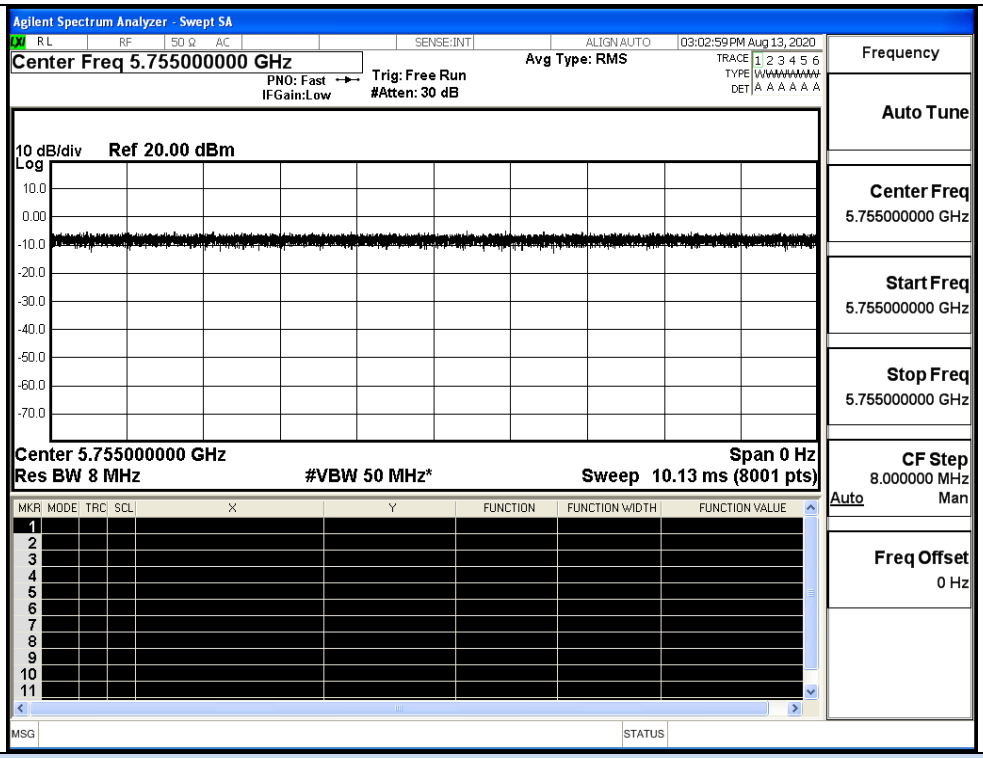
IEEE 802.11n HT20



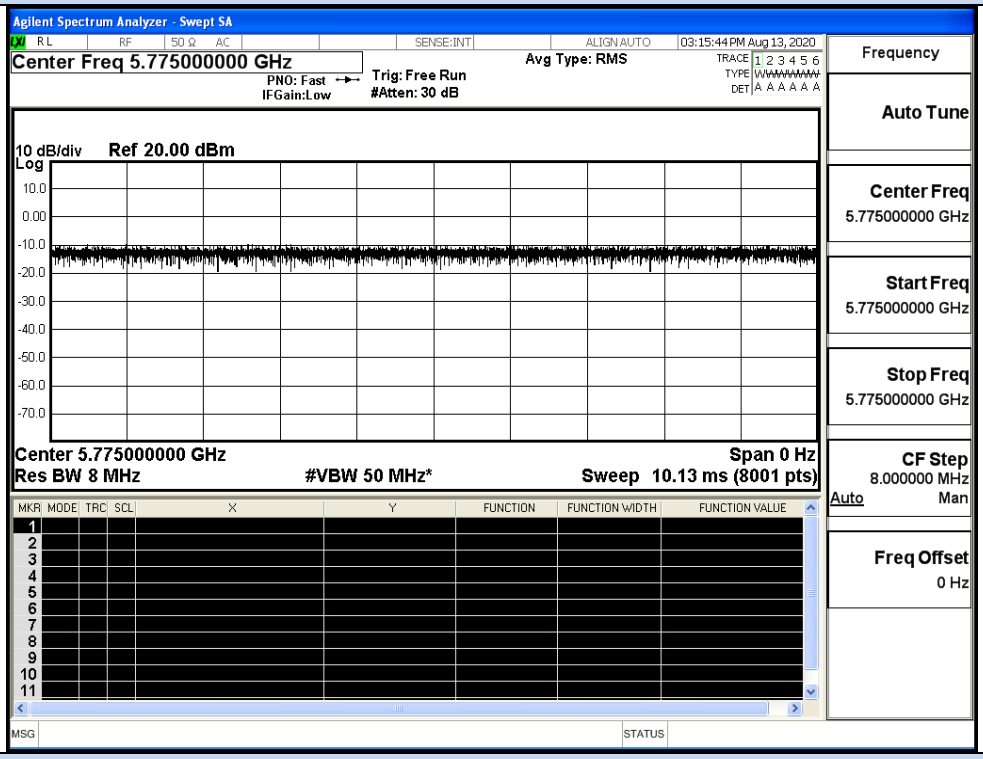
IEEE 802.11n HT40



IEEE 802.11AC20



IEEE 802.11AC40



IEEE 802.11AC80

E.2 Maximum Conduct Output Power

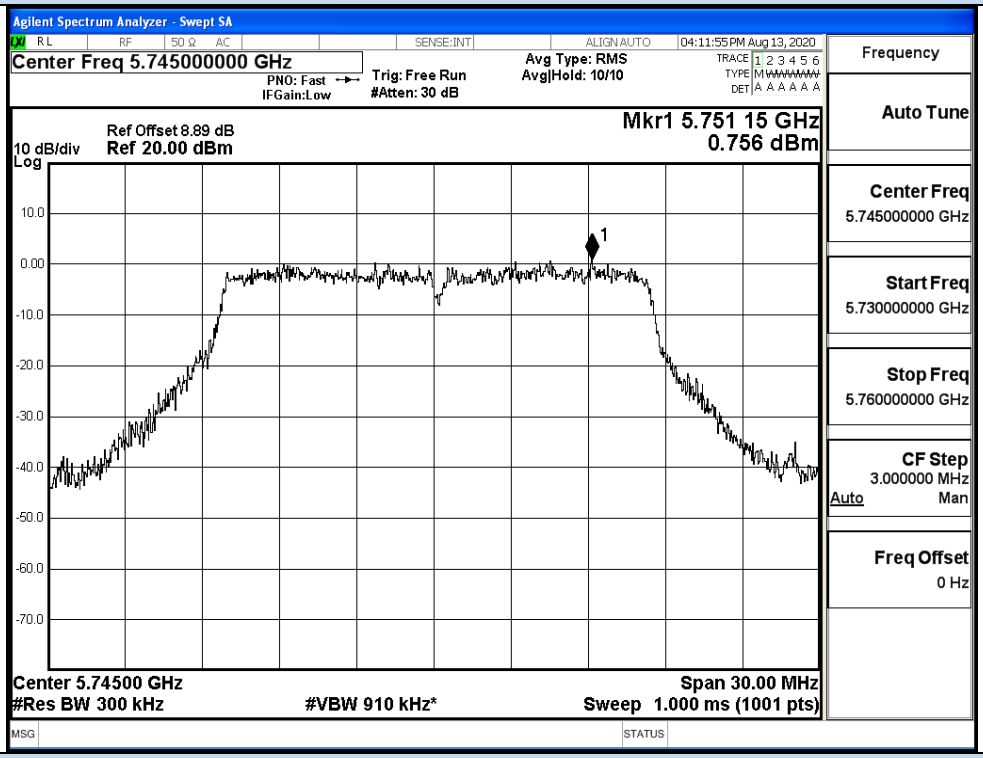
Test Mode	Channel	Frequency (MHz)	AVG Conducted Power (dBm)	Duty Cycle Factor(dB)	Report Conducted Power(dBm)	Limit (dBm)	Verdict
11A	149	5745	15.28	0	15.28	30	Pass
	157	5785	14.99	0	14.99		Pass
	165	5825	15.87	0	**15.87**		Pass
11N20 SISO	149	5745	15.14	0	15.14	30	Pass
	157	5785	15.59	0	15.59		Pass
	165	5825	15.57	0	15.57		Pass
11N40 SISO	151	5755	15.32	0	15.32	30	Pass
	159	5795	15.67	0	15.67		Pass
11AC20 SISO	149	5745	15.57	0	15.57	30	Pass
	157	5785	15.05	0	15.05		Pass
	165	5825	15.66	0	15.66		Pass
11AC40 SISO	151	5755	15.86	0	15.86	30	Pass
	159	5795	15.83	0	15.83		Pass
11AC80 SISO	155	5775	15.1	0	15.1	30	Pass

E.3 Power Spectral Density

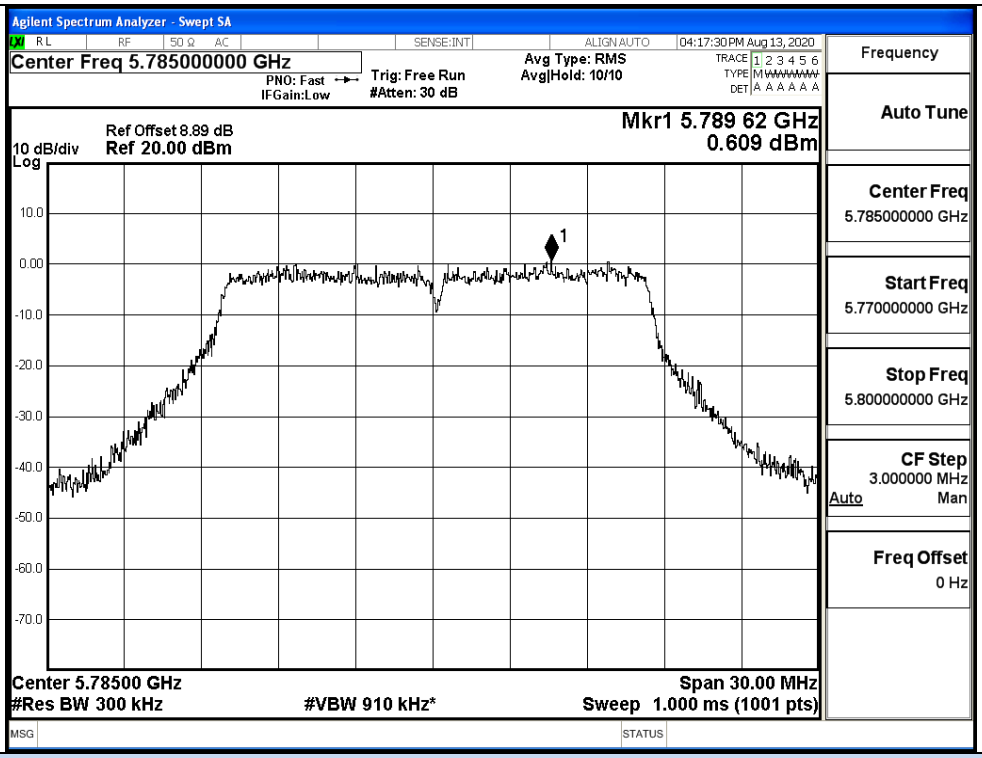
Test Mode	Channel	Frequency (MHz)	Power Density (dBm/300KHz)	Duty Cycle Factor (dB)	RBW Factor (dB)	Report Power Density (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
11A	149	5745	0.76	0	2.218	2.97	30	Pass
	157	5785	0.61	0	2.218	2.83		Pass
	165	5825	0.91	0	2.218	3.13		Pass
11N20 SISO	149	5745	-0.05	0	2.218	2.17	30	Pass
	157	5785	0.48	0	2.218	2.70		Pass
	165	5825	0.34	0	2.218	2.55		Pass
11N40 SISO	151	5755	-2.46	0	2.218	-0.24	30	Pass
	159	5795	-2.87	0	2.218	-0.65		Pass
11AC20 SISO	149	5745	0.68	0	2.218	2.90	30	Pass
	157	5785	0.83	0	2.218	3.04		Pass
	165	5825	0.11	0	2.218	2.33		Pass
11AC40 SISO	151	5755	-3.14	0	2.218	-0.93	30	Pass
	159	5795	-2.34	0	2.218	-0.13		Pass
11AC80 SISO	155	5775	-5.55	0	2.218	-3.33	30	Pass

Notes:10lg(500KHz/300KHz)=2.218

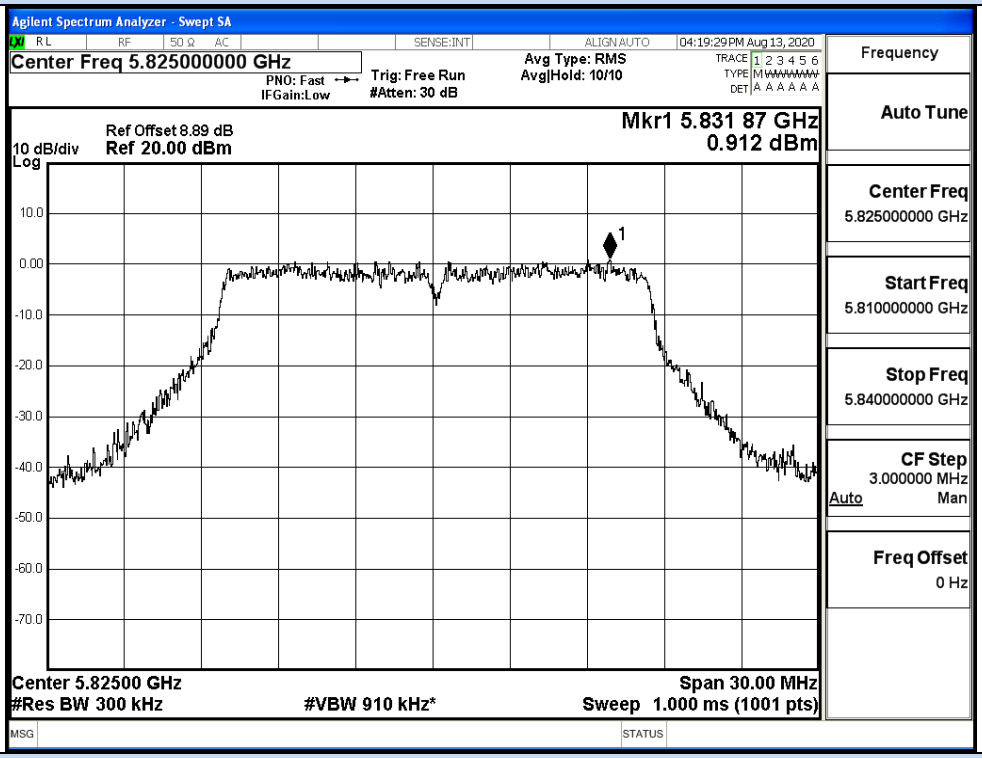
Power Spectral Density



IEEE 802.11a / Channel 149 / 5745MHz

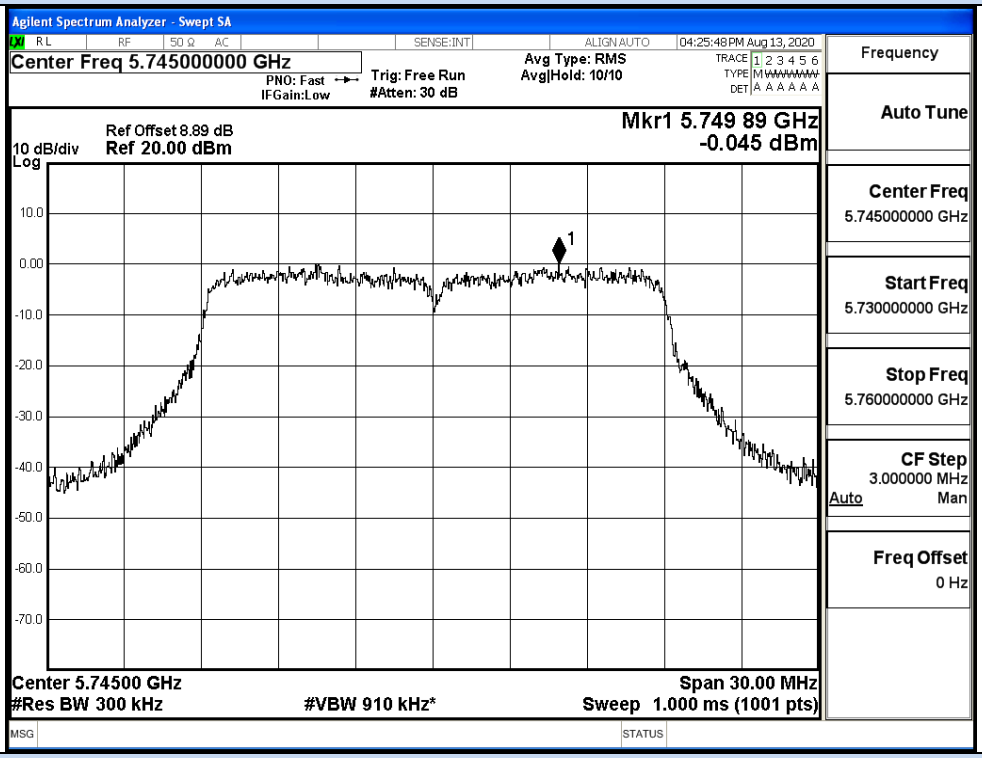


IEEE 802.11na / Channel 157 / 5785MHz

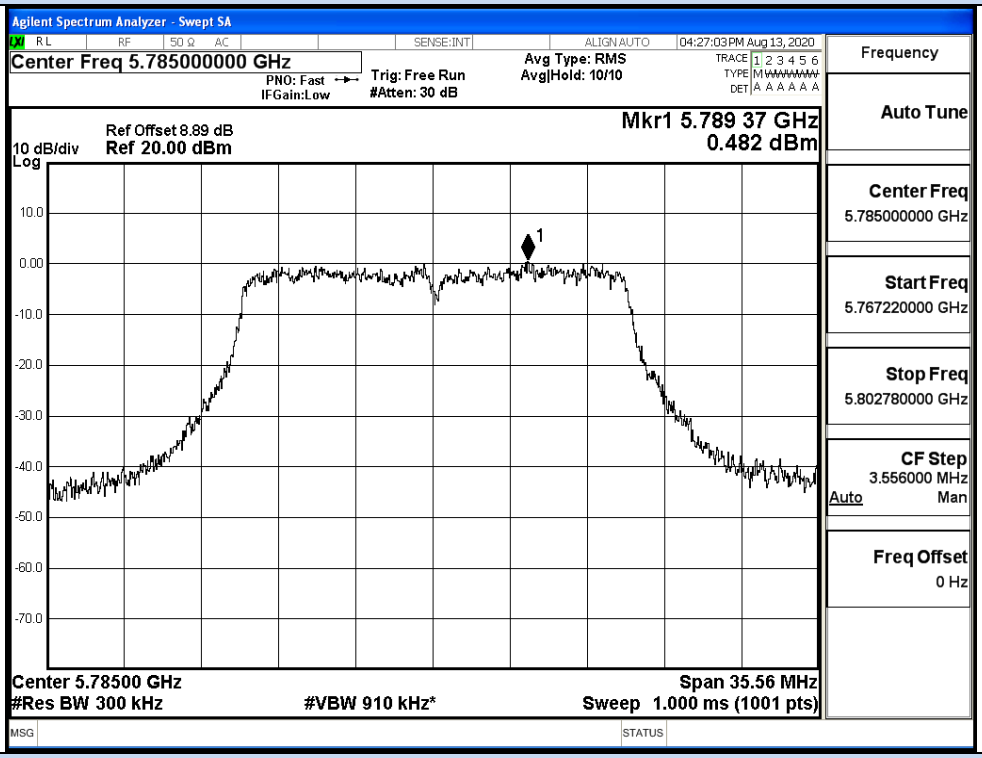


IEEE 802.11na / Channel 165 / 5825MHz

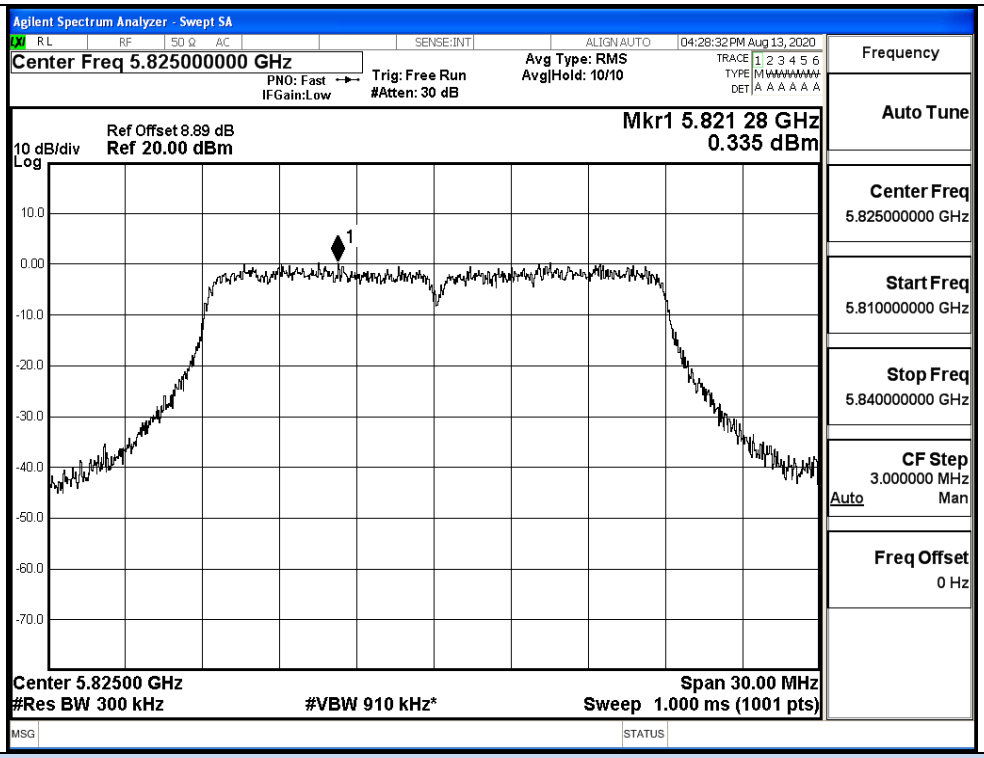
Power Spectral Density



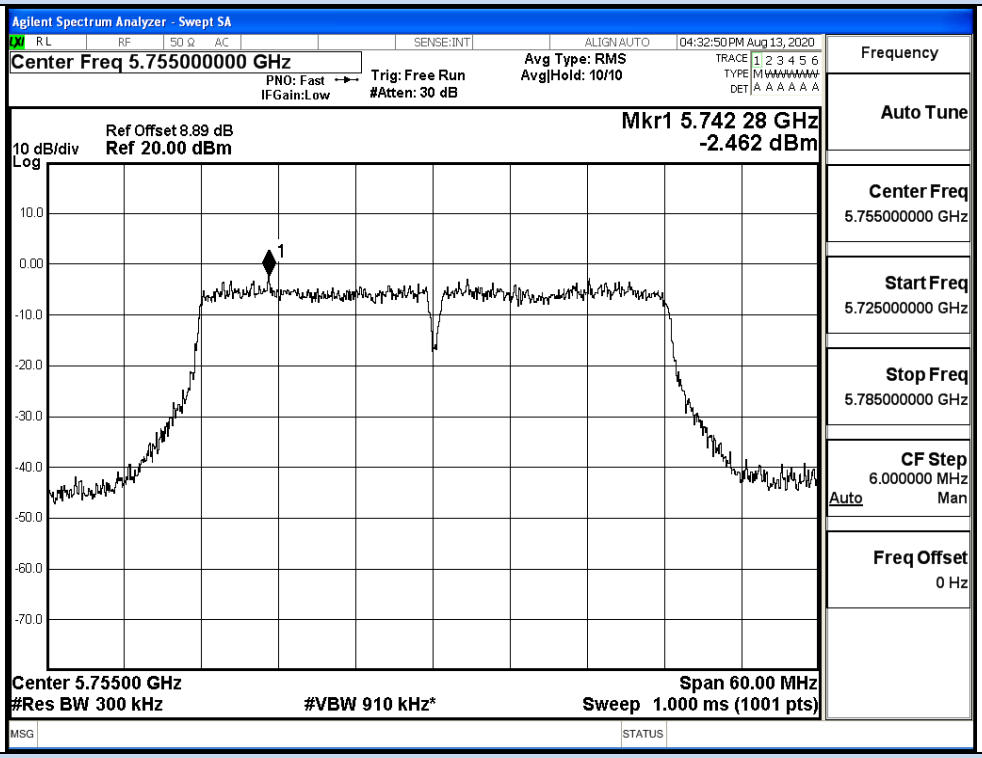
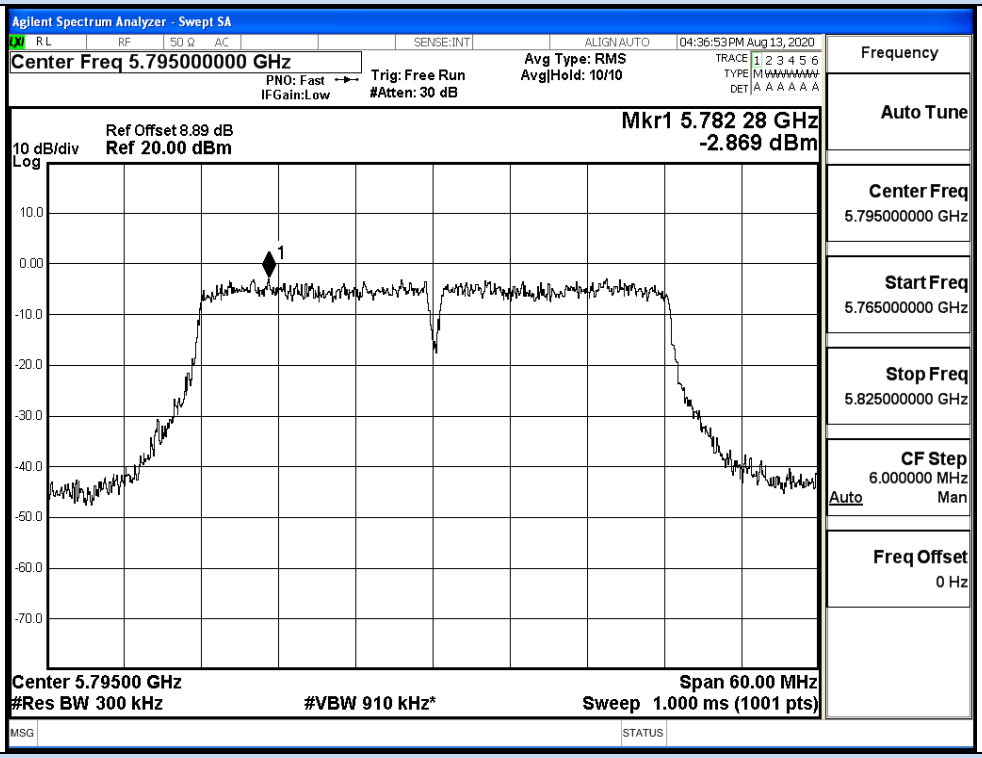
IEEE 802.11n20 / Channel 149 / 5745MHz

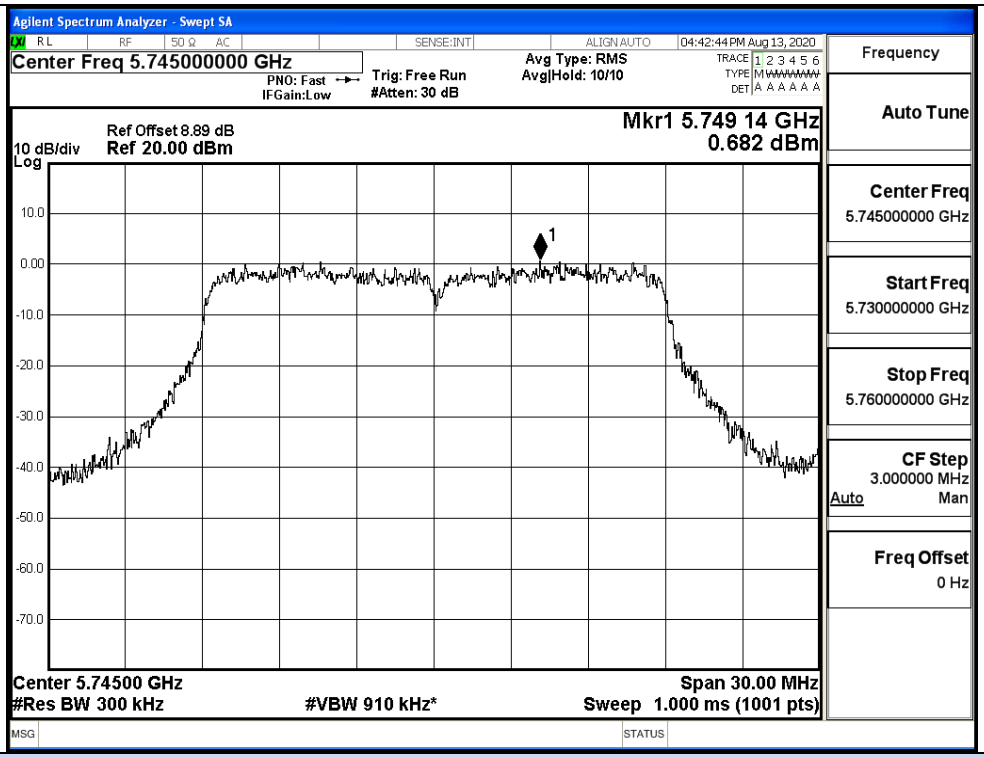


IEEE 802.11n20 / Channel 157 / 5785MHz

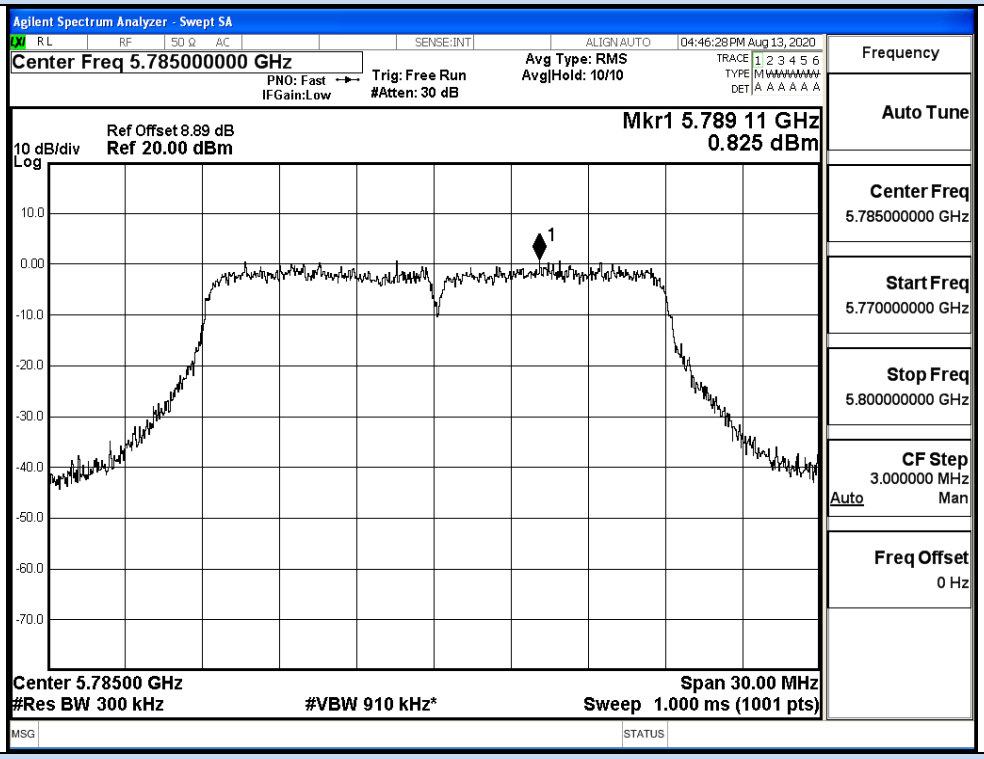


IEEE 802.11n20 / Channel 165 / 5825MHz

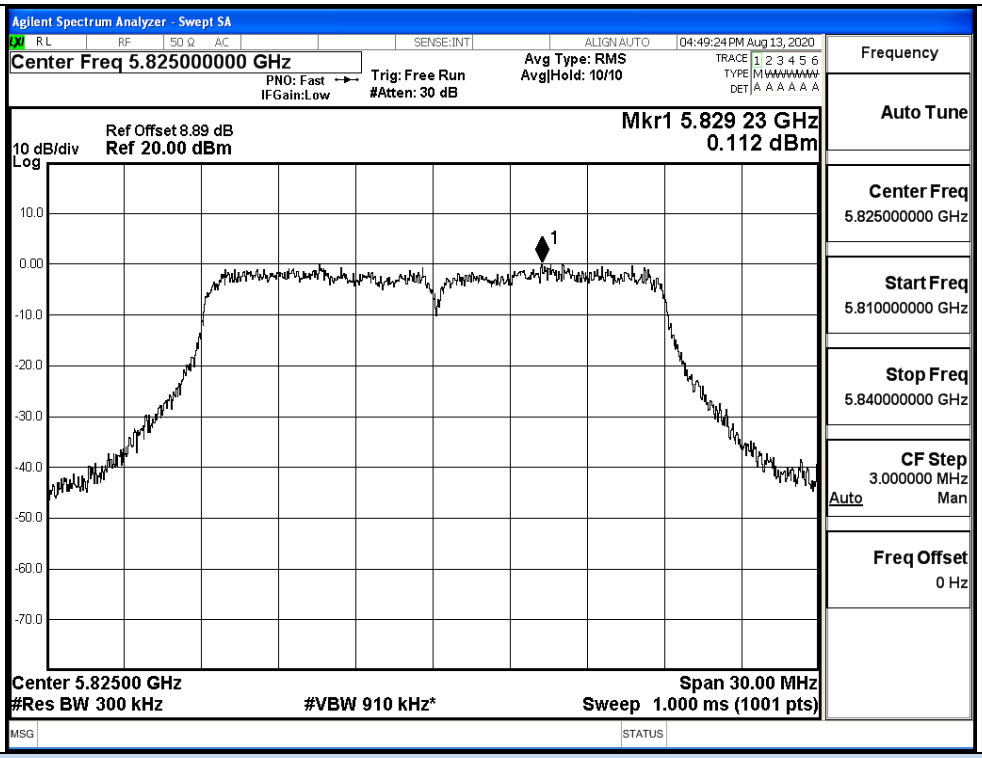
Power Spectral Density

IEEE 802.11n40 / Channel 151 / 5755MHz

IEEE 802.11n40 / Channel 159 / 5795MHz



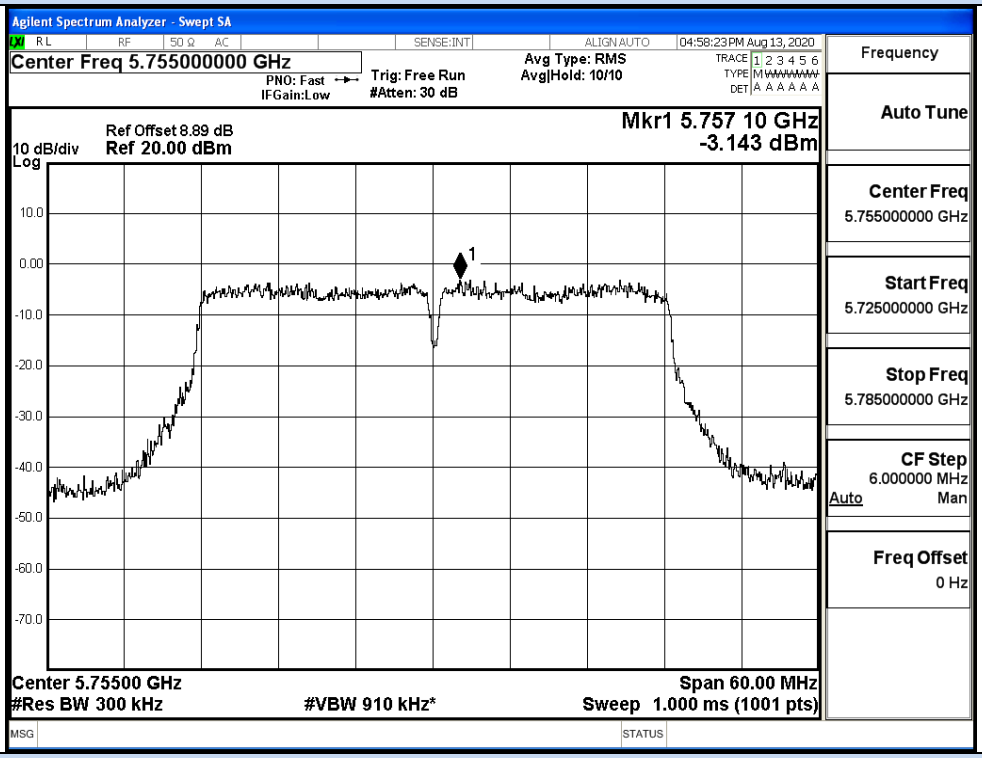
IEEE 802.11ac20 / Channel 149 / 5745MHz



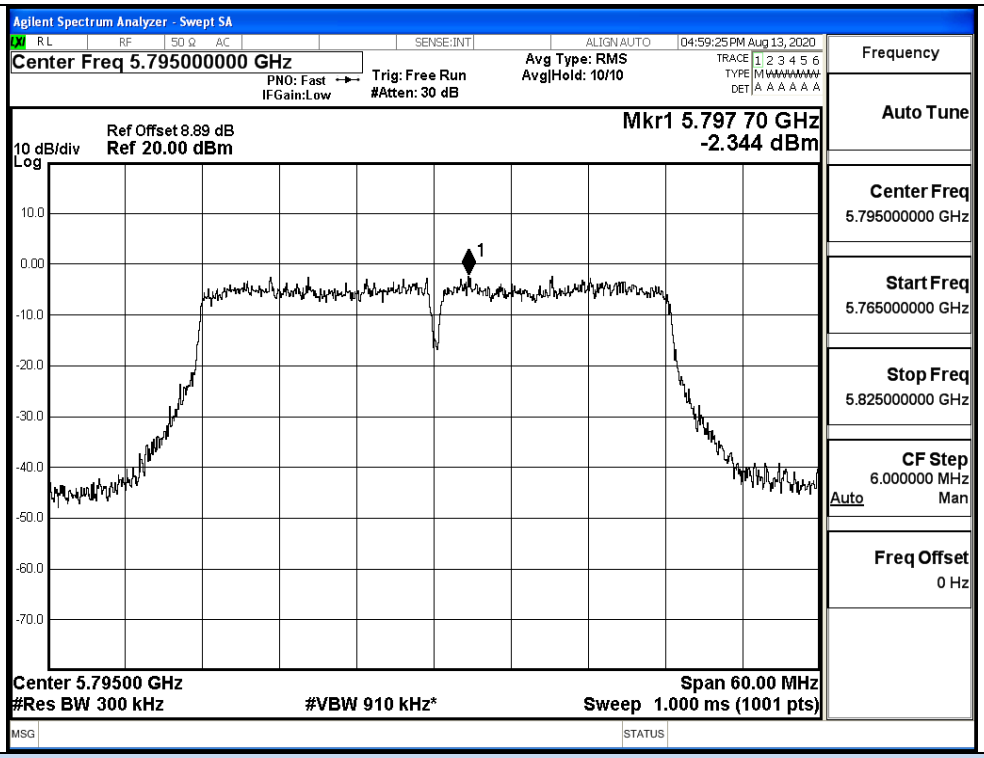
IEEE 802.11ac20 / Channel 157 / 5785MHz



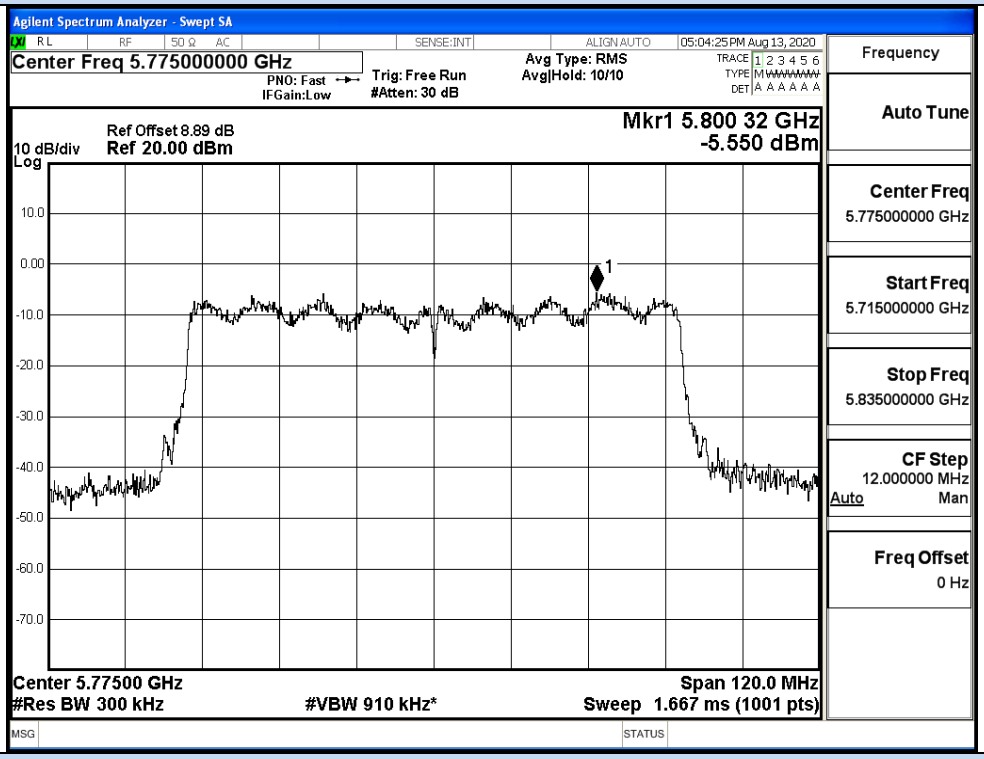
IEEE 802.11ac20 / Channel 165 / 5825MHz



IEEE 802.11ac40 / Channel 151 / 5755MHz



IEEE 802.11ac40 / Channel 159 / 5795MHz

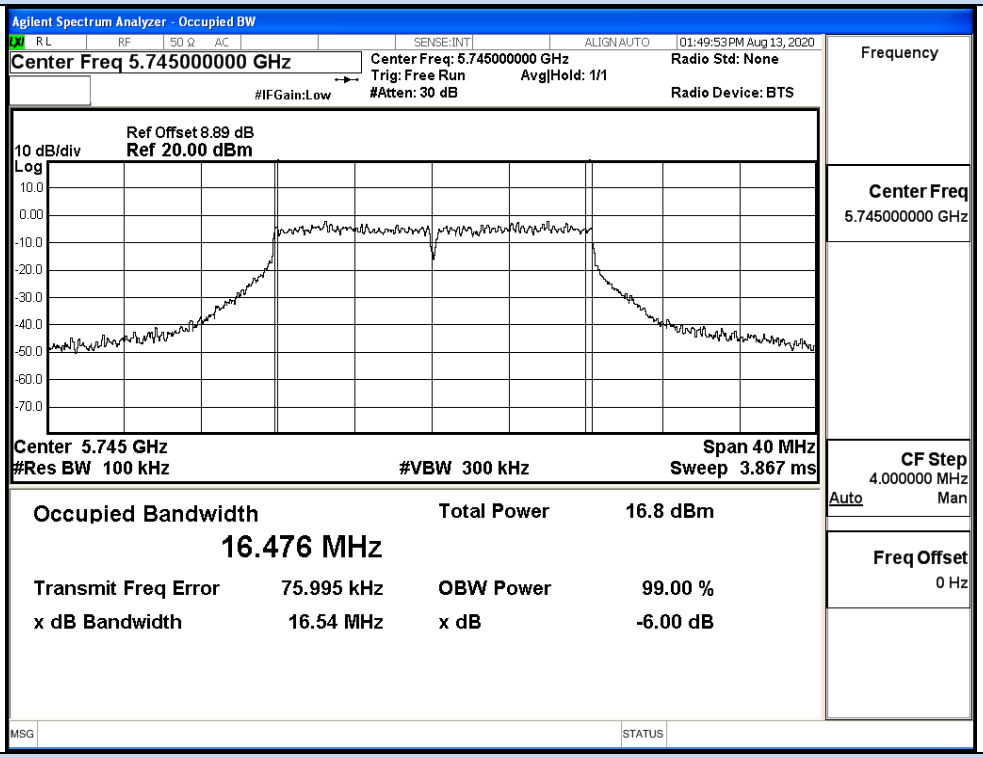


IEEE 802.11ac80 / Channel 155/ 5775MHz

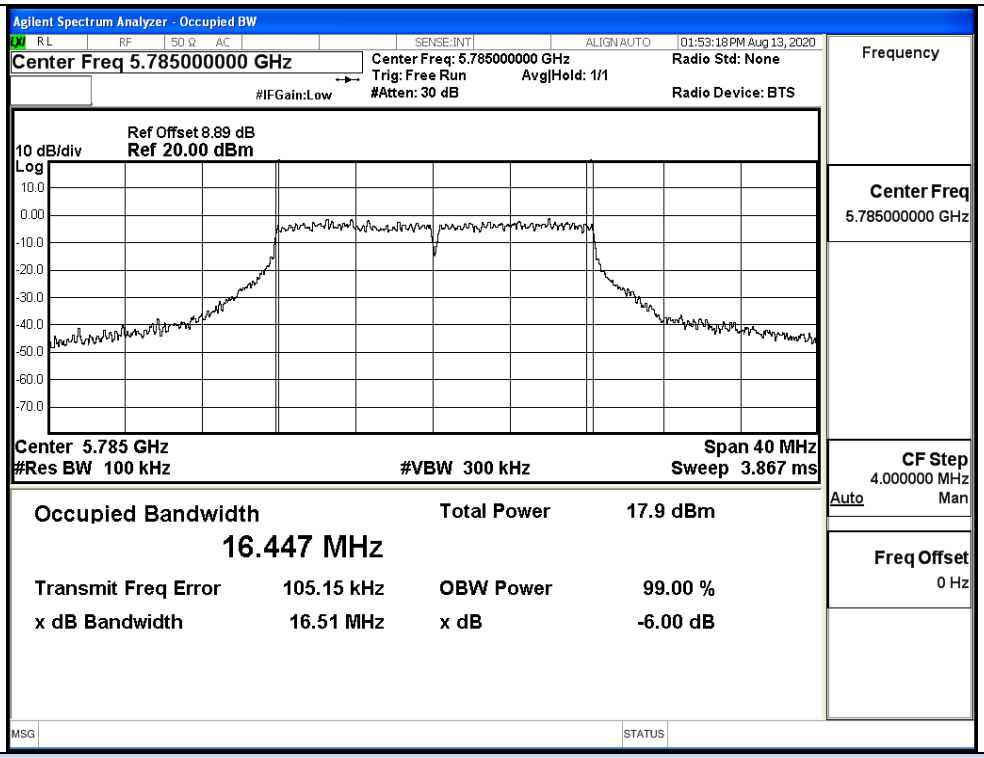
E.4 Emission Bandwidth

Test Mode	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Verdict
11A	149	5745	16.54	16.528	>=0.5	Pass
	157	5785	16.51	16.520		Pass
	165	5825	16.56	16.531		Pass
11N20 SISO	149	5745	17.77	17.630	>=0.5	Pass
	157	5785	17.78	17.635		Pass
	165	5825	17.74	17.678		Pass
11N40 SISO	151	5755	36.51	36.218	>=0.5	Pass
	159	5795	36.52	36.220		Pass
11AC20S ISO	149	5745	17.79	17.648	>=0.5	Pass
	157	5785	17.80	17.652		Pass
	165	5825	17.81	17.681		Pass
11AC40S ISO	151	5755	36.51	36.201	>=0.5	Pass
	159	5795	36.52	36.173		Pass
11AC80S ISO	155	5775	76.49	75.720	>=0.5	Pass

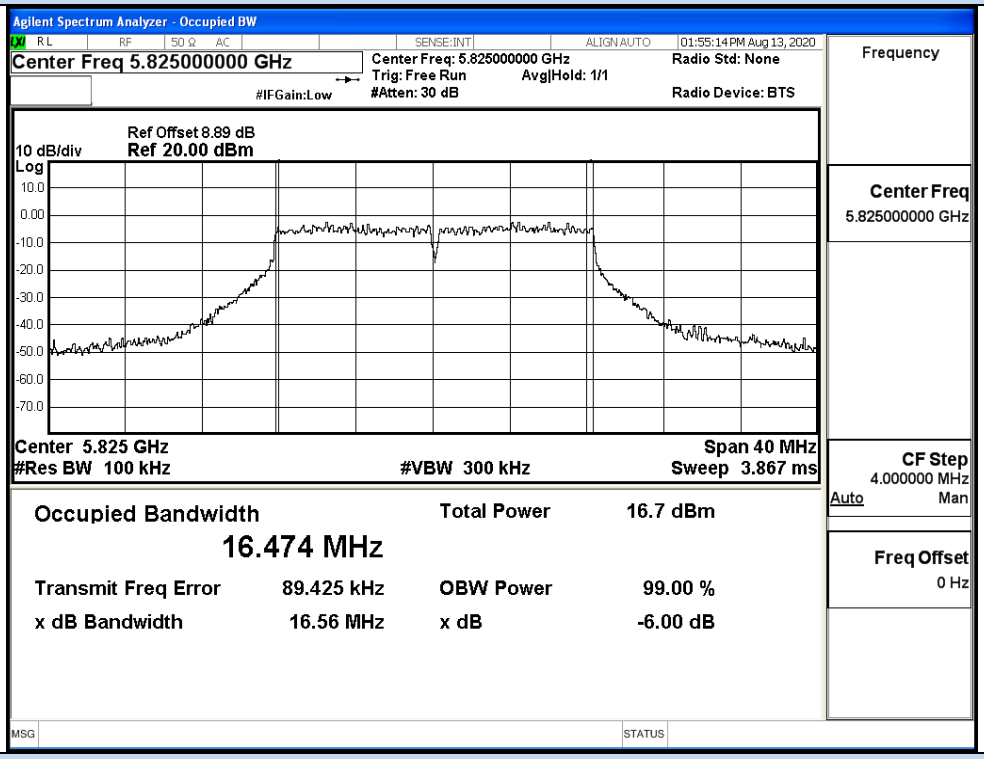
6dB Bandwidth



IEEE 802.11a / Channel 149 / 5745MHz

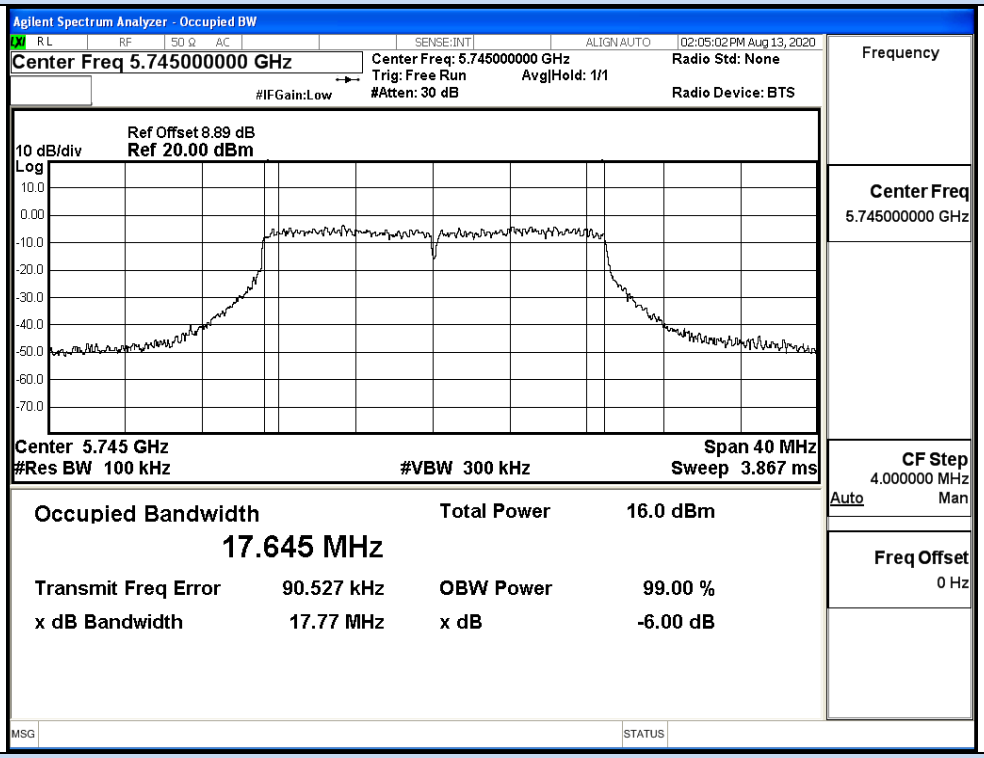


IEEE 802.11a / Channel 157 / 5785MHz

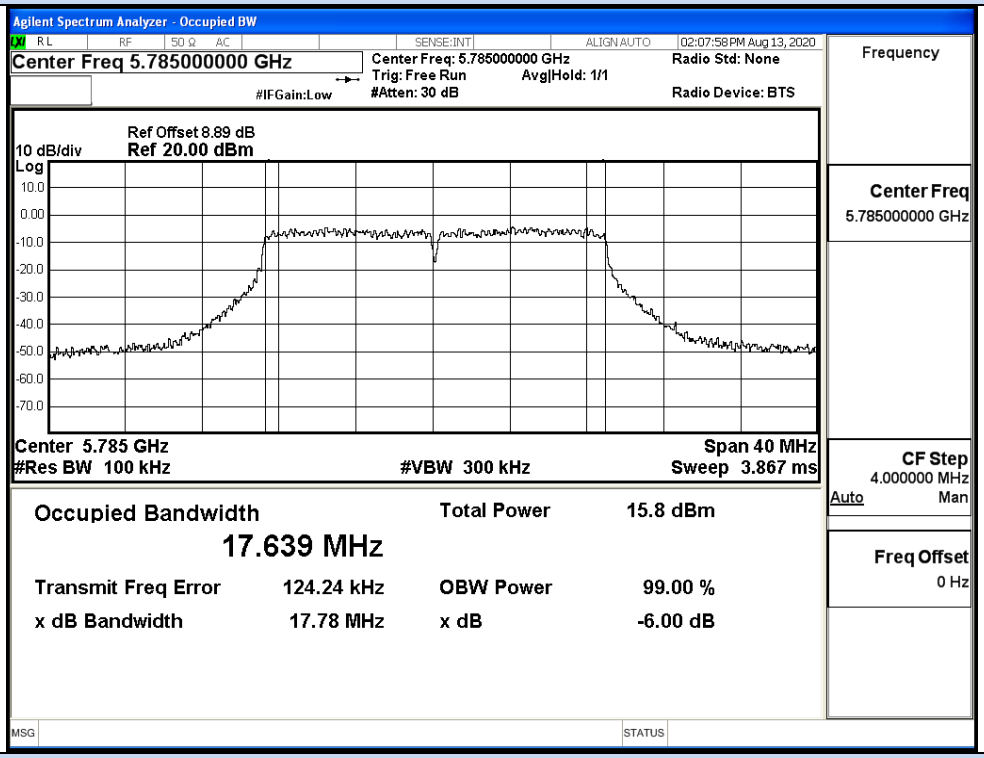


IEEE 802.11a / Channel 165 / 5825MHz

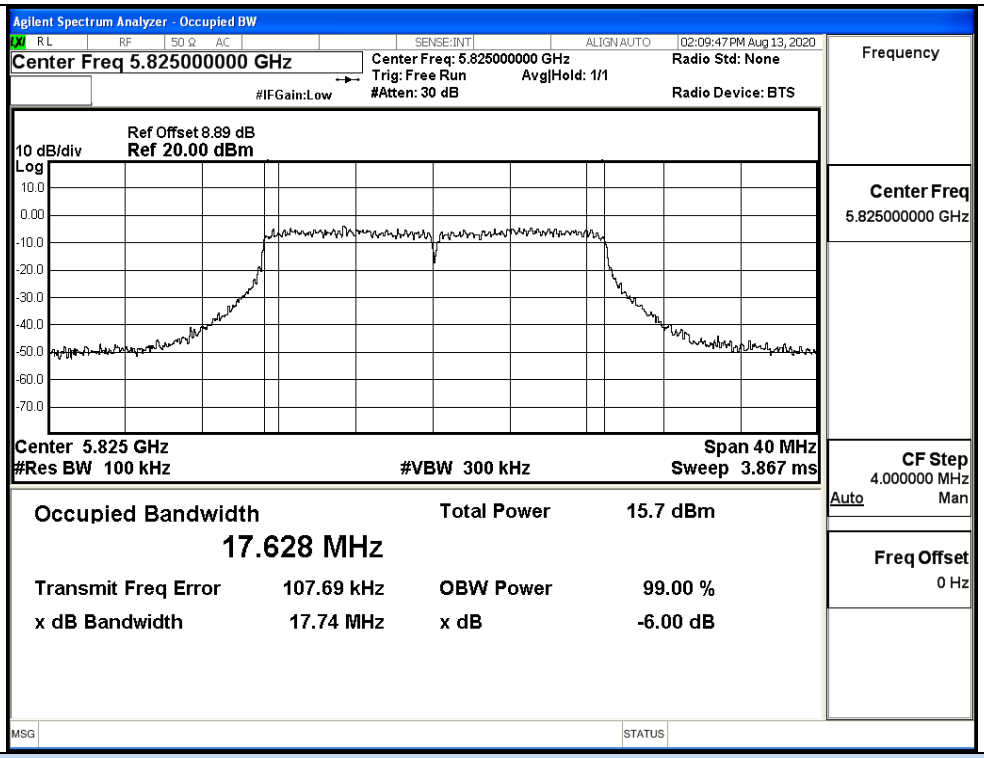
6dB Bandwidth



IEEE 802.11n20 / Channel 149 / 5745MHz

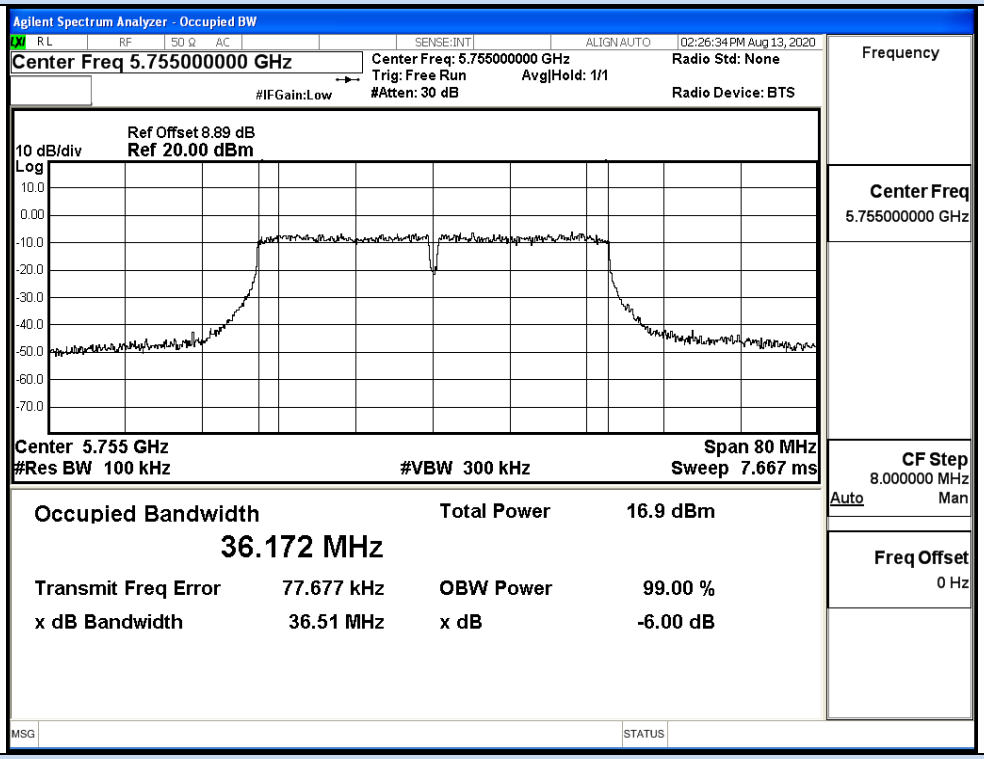


IEEE 802.11n20 / Channel 157 / 5785MHz

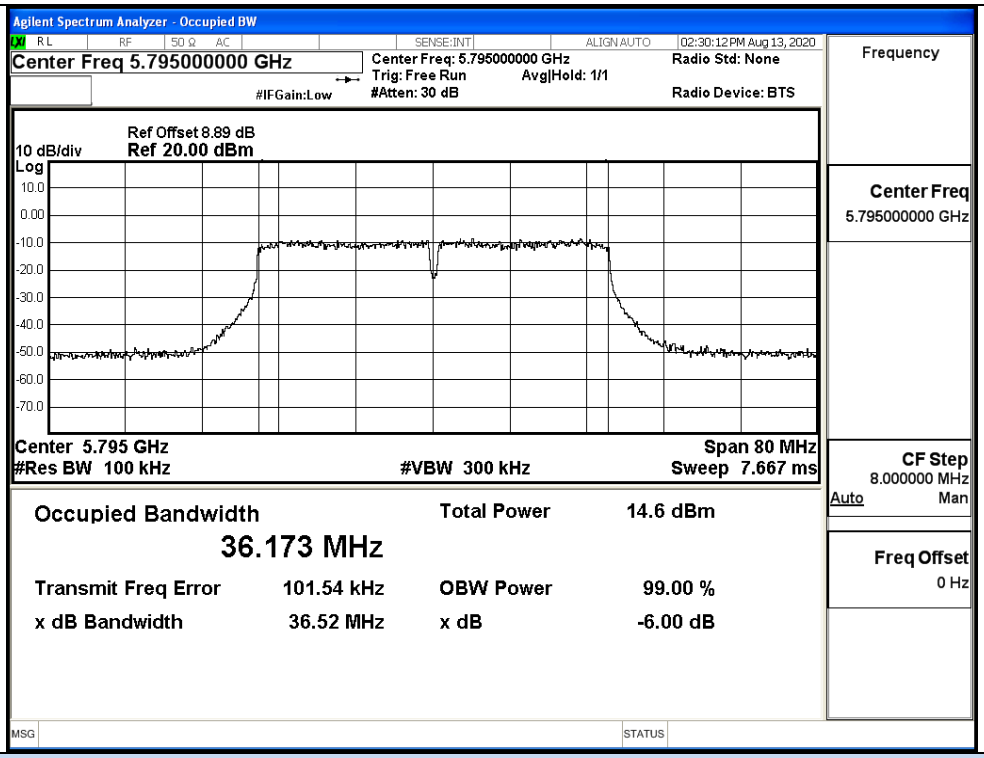


IEEE 802.11n20 / Channel 165 / 5825MHz

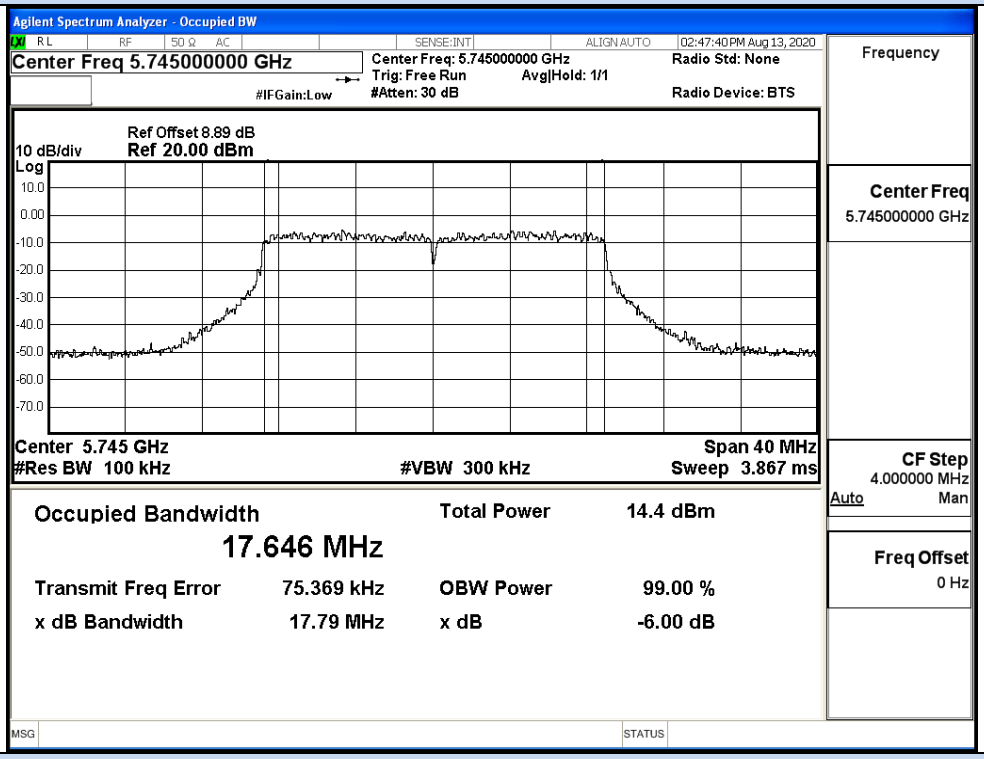
6dB Bandwidth



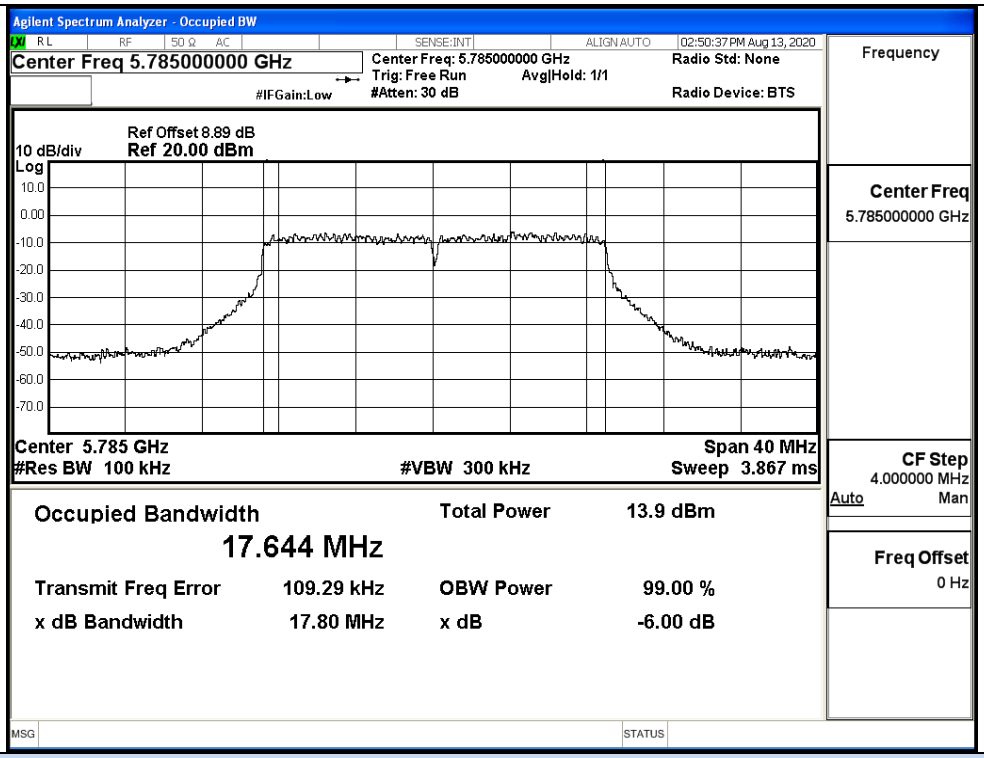
IEEE 802.11n40 / Channel 151 / 5755MHz



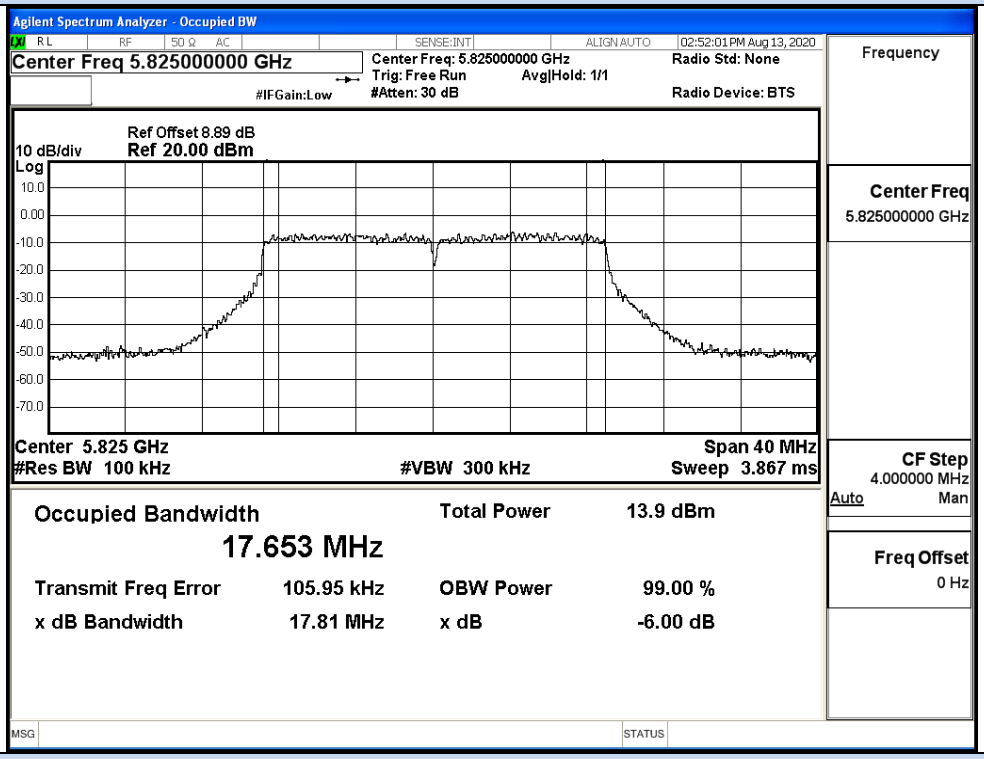
IEEE 802.11n40 / Channel 159 / 5795MHz



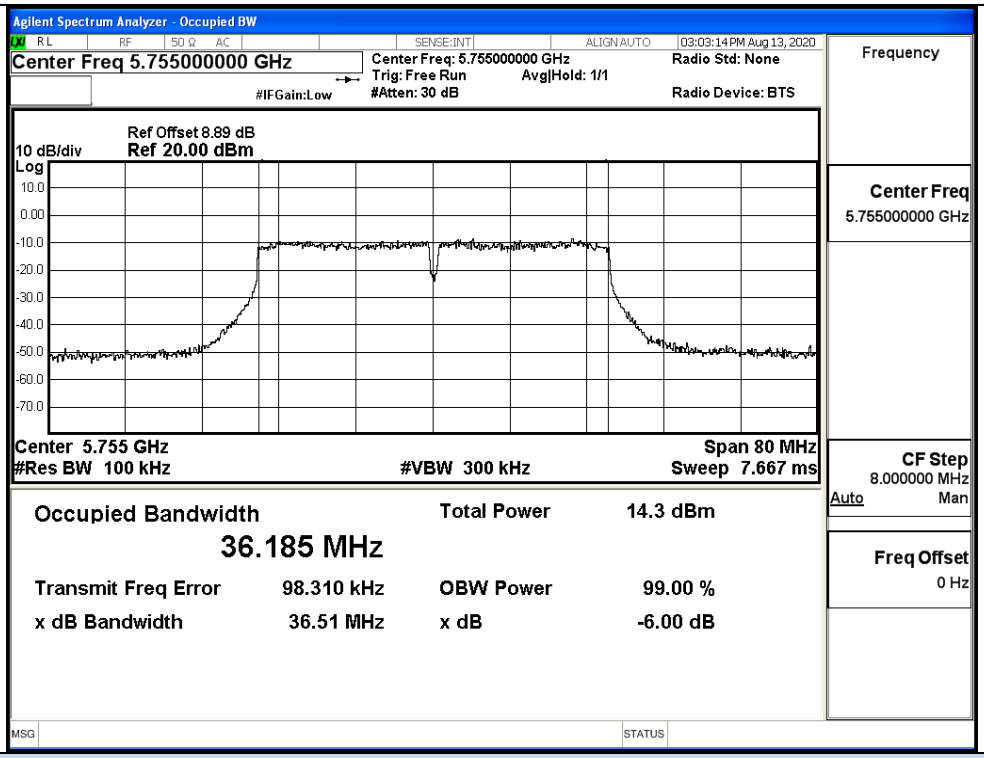
IEEE 802.11ac20 / Channel 149 / 5745MHz



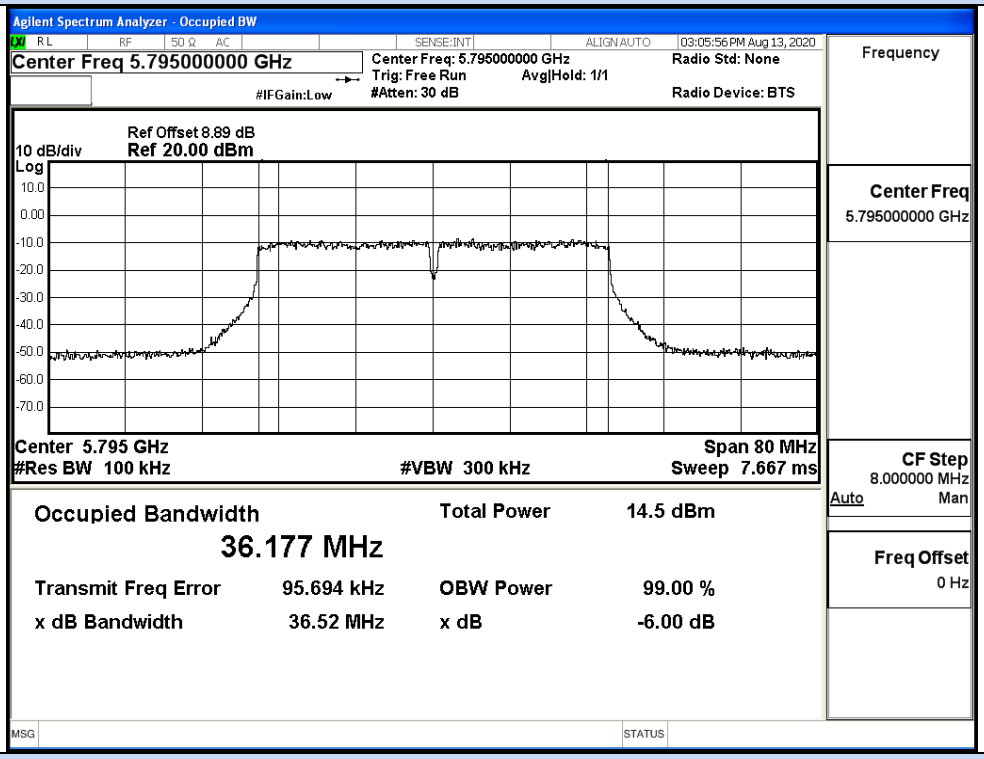
IEEE 802.11ac20 / Channel 157/ 5785MHz



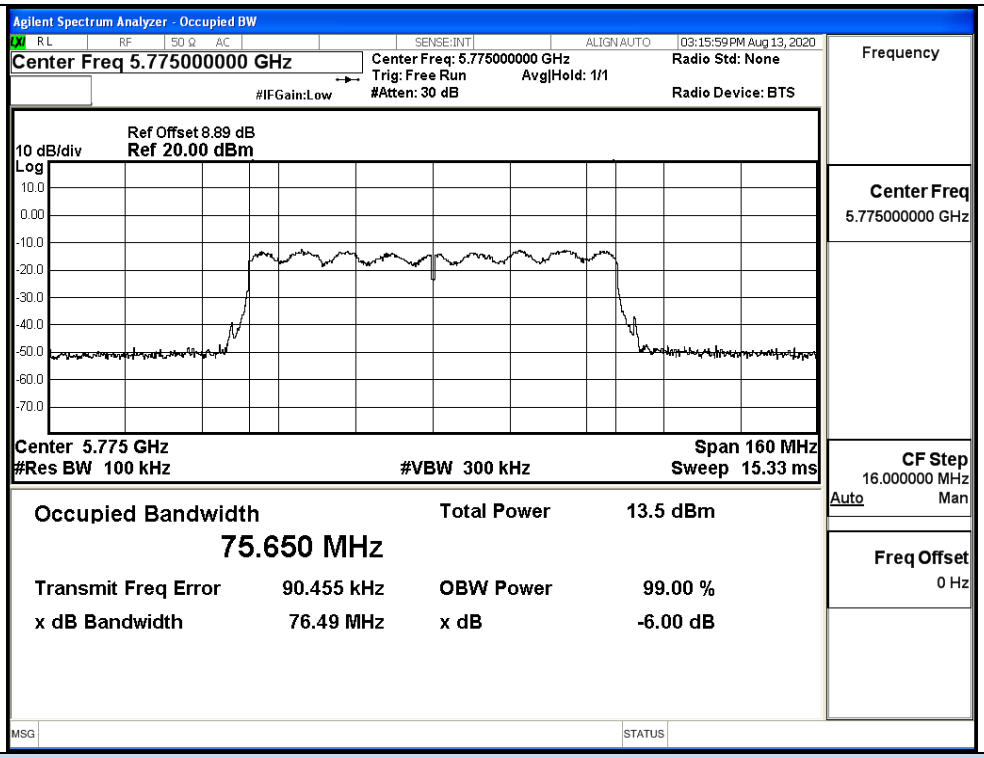
IEEE 802.11ac20 / Channel 165 / 5825MHz



IEEE 802.11ac40 / Channel 151 / 5755MHz



IEEE 802.11ac40 / Channel 159 / 5795MHz



IEEE 802.11ac80 / Channel 155 / 5775MHz

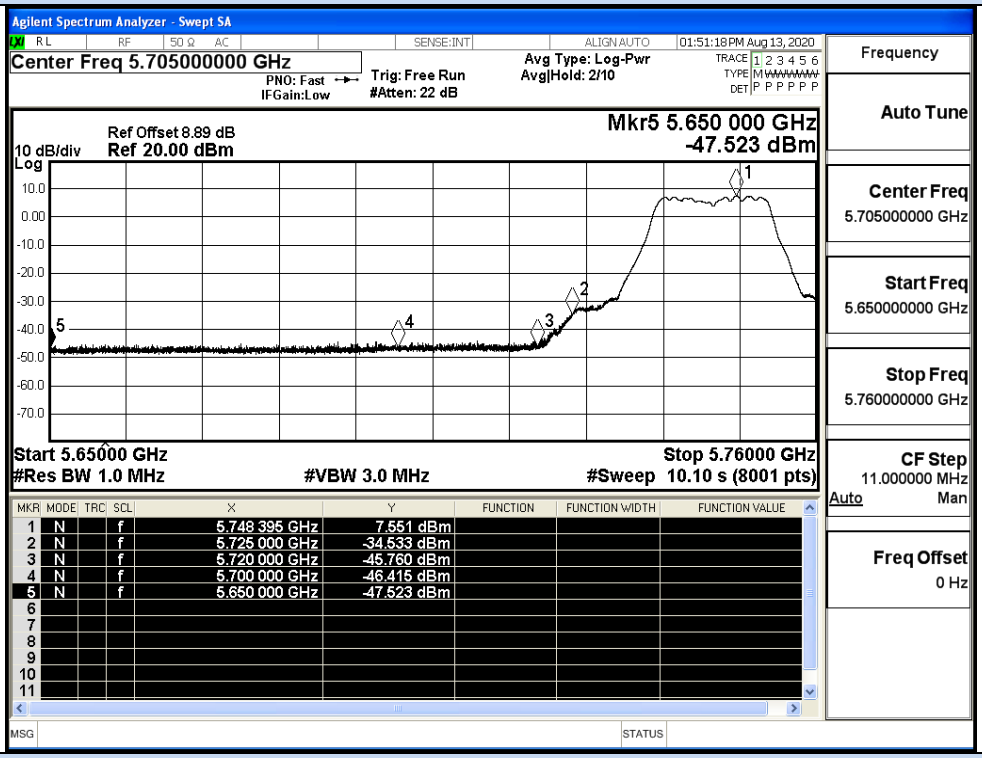
E.5 Undesirable Emissions Measurement

Test Mode	Channel	Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	EIRP (dBm/MHz)	Detector	Limit (dBm/MHz)	Verdict
11A	149	5650.0	-47.52	2.00	-45.52	Peak	27.0	Pass
		5650.0	-59.72	2.00	-57.72	Average	27.0	Pass
		5700.0	-46.42	2.00	-44.42	Peak	15.6	Pass
		5700.0	-58.60	2.00	-56.60	Average	15.6	Pass
		5720.0	-45.76	2.00	-43.76	Peak	10.0	Pass
		5720.0	-58.29	2.00	-56.29	Average	10.0	Pass
		5725.0	-34.53	2.00	-32.53	Peak	-27.0	Pass
		5725.0	-53.93	2.00	-51.93	Average	-27.0	Pass
	165	5850.0	-44.73	2.00	-42.73	Peak	-27.0	Pass
		5850.0	-58.00	2.00	-56.00	Average	-27.0	Pass
		5855.0	-46.05	2.00	-44.05	Peak	10.0	Pass
		5855.0	-58.51	2.00	-56.51	Average	10.0	Pass
		5875.0	-47.65	2.00	-45.65	Peak	15.6	Pass
		5875.0	-59.18	2.00	-57.18	Average	15.6	Pass
		5925.0	-47.19	2.00	-45.19	Peak	27.0	Pass
		5925.0	-59.78	2.00	-57.78	Average	27.0	Pass
11N20 SISO	149	5650.0	-47.95	2.00	-45.95	Peak	27.0	Pass
		5650.0	-59.76	2.00	-57.76	Average	27.0	Pass
		5700.0	-47.11	2.00	-45.11	Peak	15.6	Pass
		5700.0	-58.30	2.00	-56.30	Average	15.6	Pass
		5720.0	-45.21	2.00	-43.21	Peak	10.0	Pass
		5720.0	-59.11	2.00	-57.11	Average	10.0	Pass
		5725.0	-40.08	2.00	-38.08	Peak	-27.0	Pass
		5725.0	-55.05	2.00	-53.05	Average	-27.0	Pass
	165	5850.0	-45.20	2.00	-43.20	Peak	-27.0	Pass
		5850.0	-57.70	2.00	-55.70	Average	-27.0	Pass
		5855.0	-45.85	2.00	-43.85	Peak	10.0	Pass
		5855.0	-58.61	2.00	-56.61	Average	10.0	Pass
		5875.0	-47.52	2.00	-45.52	Peak	15.6	Pass
		5875.0	-59.14	2.00	-57.14	Average	15.6	Pass
		5925.0	-46.44	2.00	-44.44	Peak	27.0	Pass
		5925.0	-59.82	2.00	-57.82	Average	27.0	Pass

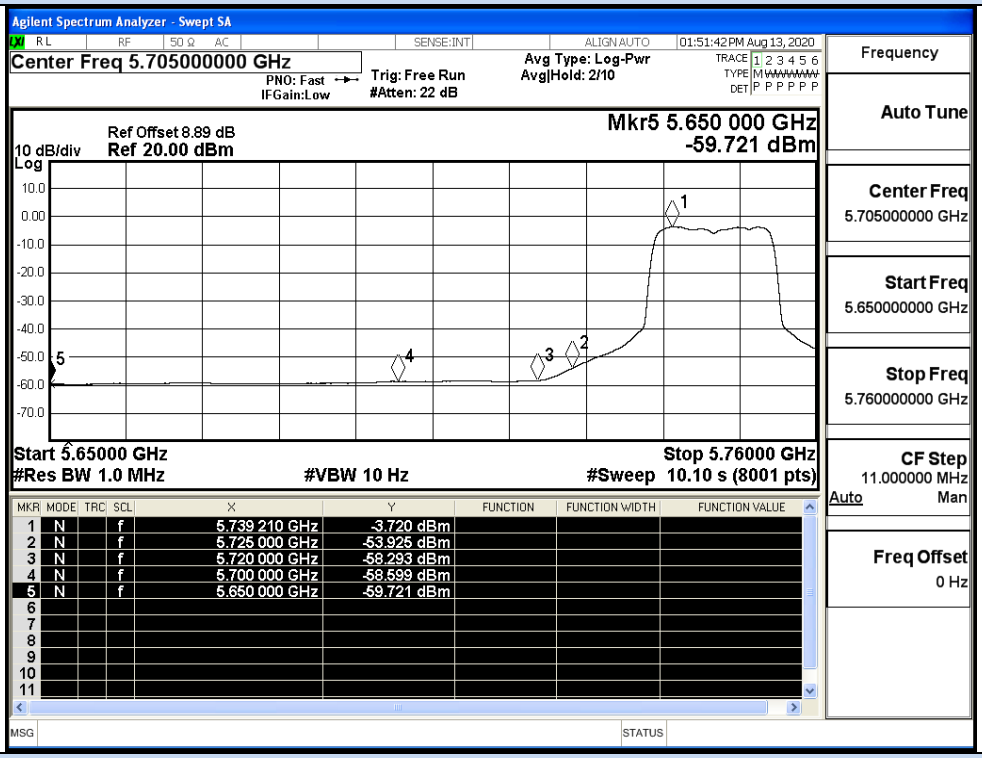
Test Mode	Channel	Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	EIRP (dBm/MHz)	Detector	Limit (dBm/MHz)	Verdict
11N40 SISO	151	5650.0	-47.45	2.00	-45.45	Peak	27.0	Pass
		5650.0	-59.59	2.00	-57.59	Average	27.0	Pass
		5700.0	-47.38	2.00	-45.38	Peak	15.6	Pass
		5700.0	-59.02	2.00	-57.02	Average	15.6	Pass
		5720.0	-43.84	2.00	-41.84	Peak	10.0	Pass
		5720.0	-56.57	2.00	-54.57	Average	10.0	Pass
		5725.0	-42.20	2.00	-40.20	Peak	-27.0	Pass
		5725.0	-56.10	2.00	-54.10	Average	-27.0	Pass
	159	5850.0	-46.27	2.00	-44.27	Peak	-27.0	Pass
		5850.0	-58.58	2.00	-56.58	Average	-27.0	Pass
		5855.0	-47.20	2.00	-45.20	Peak	10.0	Pass
		5855.0	-58.67	2.00	-56.67	Average	10.0	Pass
		5875.0	-47.02	2.00	-45.02	Peak	15.6	Pass
		5875.0	-58.86	2.00	-56.86	Average	15.6	Pass
		5925.0	-46.36	2.00	-44.36	Peak	27.0	Pass
		5925.0	-59.51	2.00	-57.51	Average	27.0	Pass
11AC20 SISO	149	5650.0	-47.12	2.00	-45.12	Peak	27.0	Pass
		5650.0	-59.80	2.00	-57.80	Average	27.0	Pass
		5700.0	-47.09	2.00	-45.09	Peak	15.6	Pass
		5700.0	-58.58	2.00	-56.58	Average	15.6	Pass
		5720.0	-45.92	2.00	-43.92	Peak	10.0	Pass
		5720.0	-59.16	2.00	-57.16	Average	10.0	Pass
		5725.0	-43.96	2.00	-41.96	Peak	-27.0	Pass
		5725.0	-57.32	2.00	-55.32	Average	-27.0	Pass
	165	5850.0	-46.74	2.00	-44.74	Peak	-27.0	Pass
		5850.0	-58.22	2.00	-56.22	Average	-27.0	Pass
		5855.0	-45.95	2.00	-43.95	Peak	10.0	Pass

		5855.0	-58.69	2.00	-56.69	Average	10.0	Pass
		5875.0	-46.89	2.00	-44.89	Peak	15.6	Pass
		5875.0	-59.18	2.00	-57.18	Average	15.6	Pass
		5925.0	-47.46	2.00	-45.46	Peak	27.0	Pass
		5925.0	-59.82	2.00	-57.82	Average	27.0	Pass
11AC40 SISO	151	5650.0	-46.99	2.00	-44.99	Peak	27.0	Pass
		5650.0	-59.67	2.00	-57.67	Average	27.0	Pass
		5700.0	-46.98	2.00	-44.98	Peak	15.6	Pass
		5700.0	-59.17	2.00	-57.17	Average	15.6	Pass
		5720.0	-43.74	2.00	-41.74	Peak	10.0	Pass
		5720.0	-56.98	2.00	-54.98	Average	10.0	Pass
		5725.0	-43.48	2.00	-41.48	Peak	-27.0	Pass
		5725.0	-56.48	2.00	-54.48	Average	-27.0	Pass
	159	5850.0	-46.05	2.00	-44.05	Peak	-27.0	Pass
		5850.0	-58.50	2.00	-56.50	Average	-27.0	Pass
		5855.0	-47.66	2.00	-45.66	Peak	10.0	Pass
		5855.0	-58.61	2.00	-56.61	Average	10.0	Pass
		5875.0	-46.84	2.00	-44.84	Peak	15.6	Pass
		5875.0	-58.75	2.00	-56.75	Average	15.6	Pass
		5925.0	-47.46	2.00	-45.46	Peak	27.0	Pass
		5925.0	-59.38	2.00	-57.38	Average	27.0	Pass
11AC80 SISO	155	5725.0	-44.59	2.00	-42.59	Peak	-27	Pass
		5725.0	-56.38	2.00	-54.38	Average	10	Pass
		5700.0	-48.29	2.00	-46.29	Peak	15.6	Pass
		5700.0	-57.82	2.00	-55.82	Average	27	Pass
		5720.0	-45.85	2.00	-43.85	Peak	-27	Pass
		5720.0	-56.64	2.00	-54.64	Average	10	Pass
		5650.0	-47.74	2.00	-45.74	Peak	15.6	Pass
		5650.0	-59.73	2.00	-57.73	Average	27	Pass
		5850.0	-43.21	2.00	-41.21	Peak	-27	Pass
		5850.0	-43.64	2.00	-41.64	Average	10	Pass
		5875.0	-46.43	2.00	-44.43	Peak	15.6	Pass
		5875.0	-46.78	2.00	-44.78	Average	27	Pass
		5855.0	-55.59	2.00	-53.59	Peak	-27	Pass
		5855.0	-56.14	2.00	-54.14	Average	10	Pass
		5925.0	-58.02	2.00	-56.02	Peak	15.6	Pass
		5925.0	-59.25	2.00	-57.25	Average	27	Pass

Undesirable Emissions Measurement

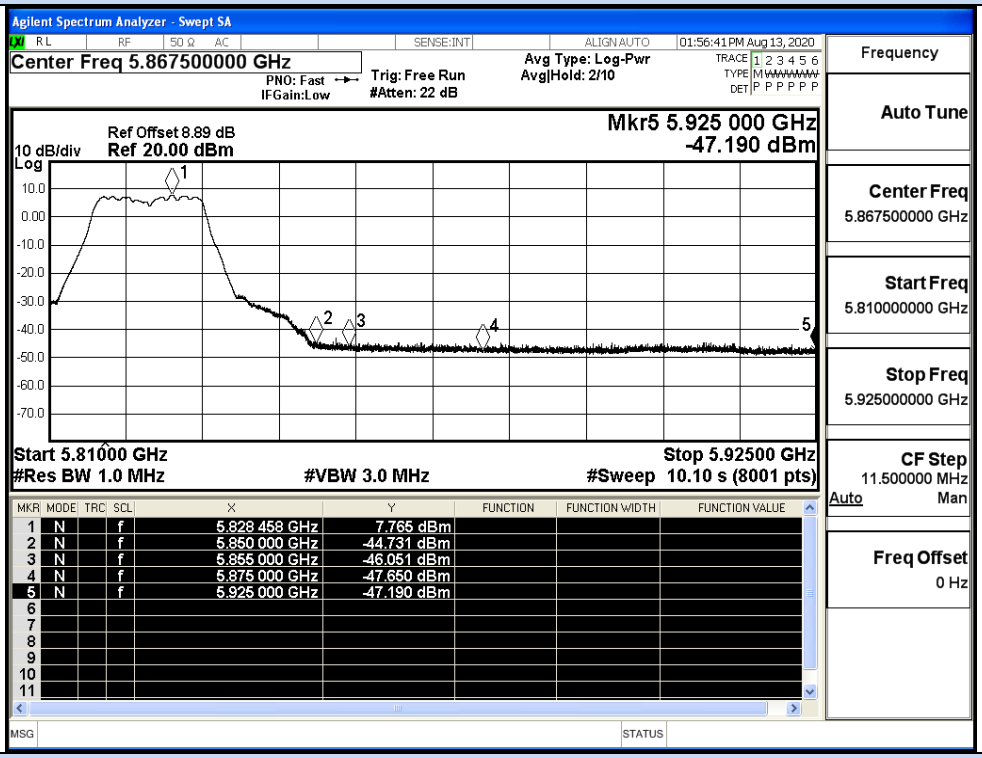


IEEE 802.11a / Channel 149 / 5745MHz / Peak

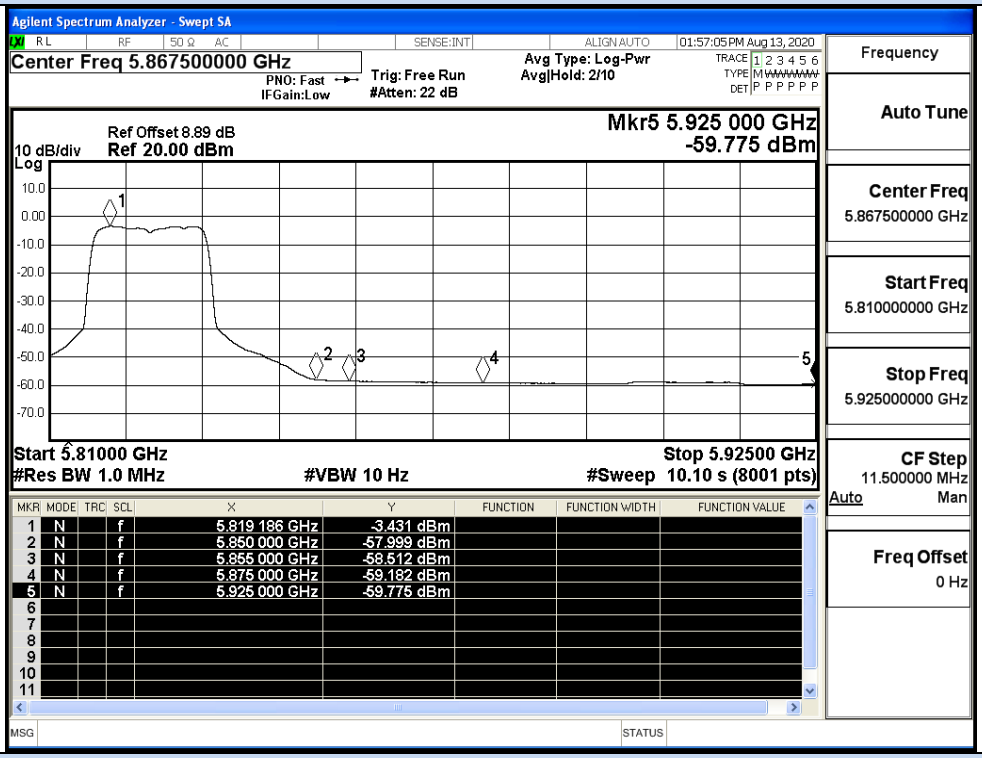


IEEE 802.11a / Channel 148 / 5745MHz / Average

Undesirable Emissions Measurement

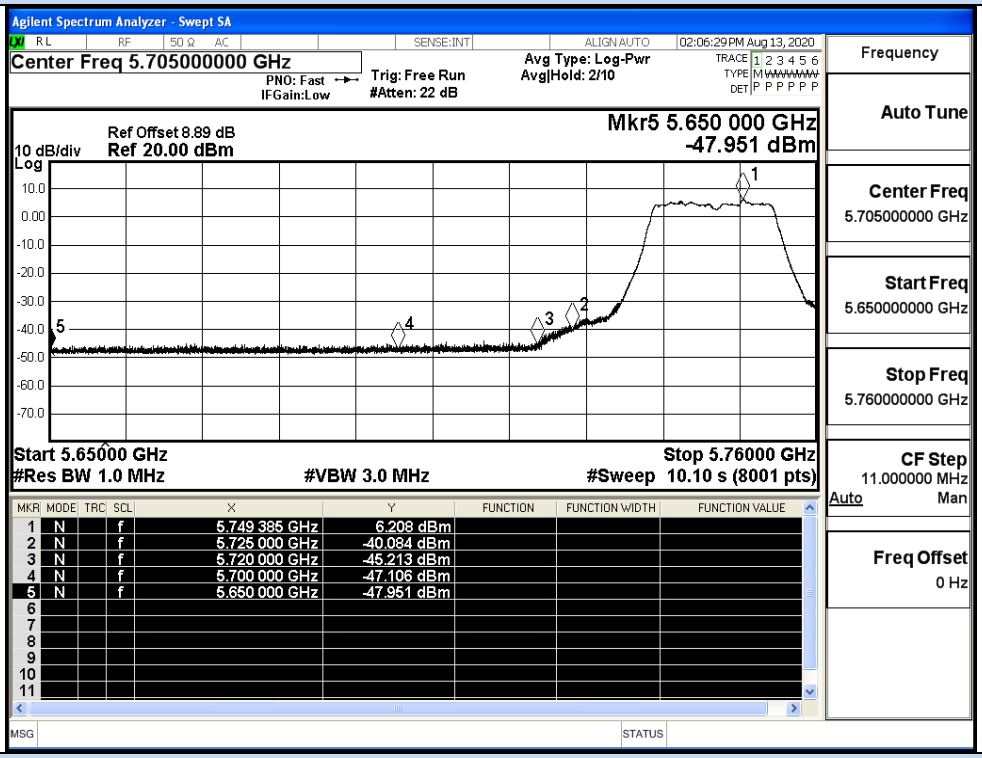


IEEE 802.11a / Channel 165 / 5825MHz / Peak

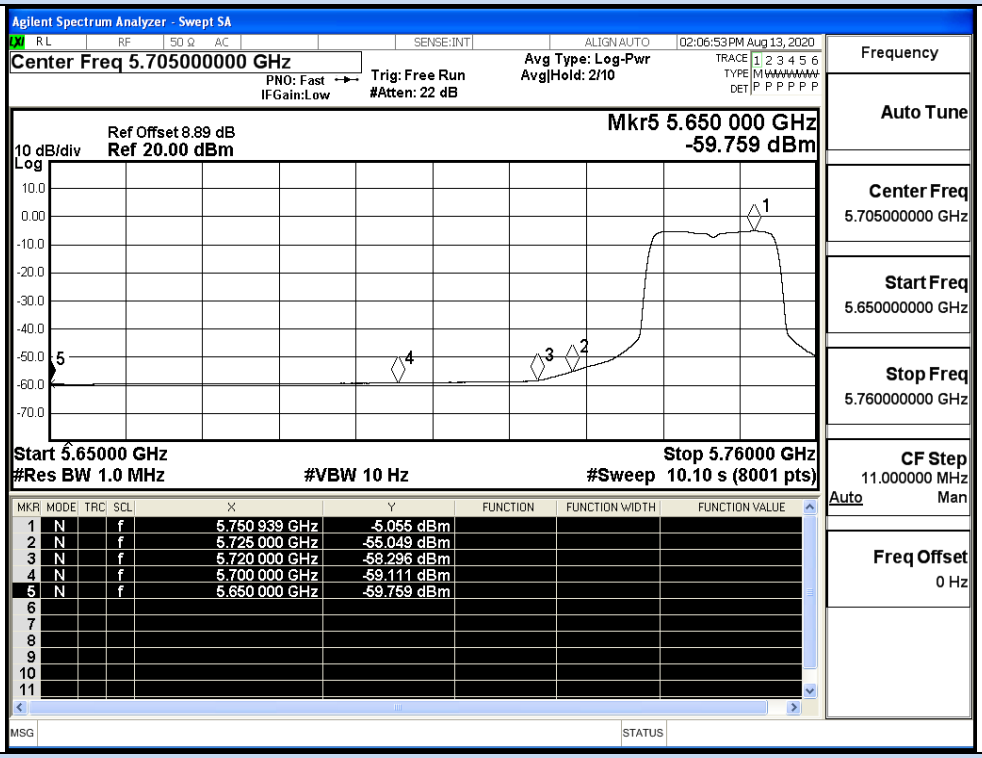


IEEE 802.11a / Channel 165 / 5825MHz / Average

Undesirable Emissions Measurement

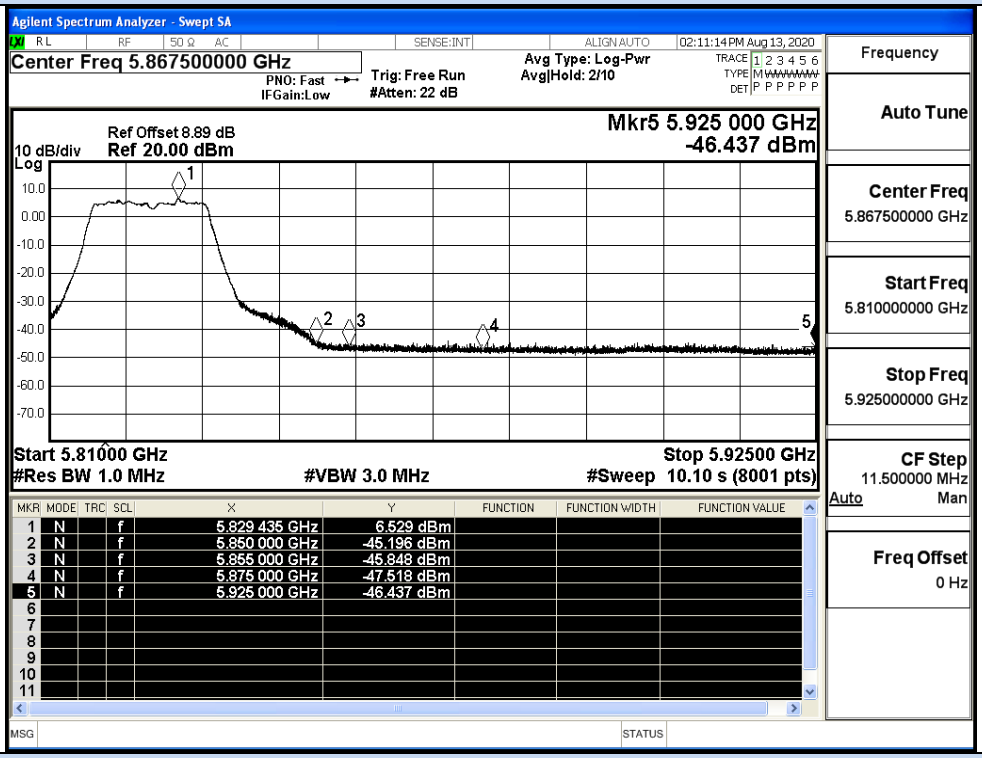


IEEE 802.11n20 / Channel 149 / 5745MHz / Peak

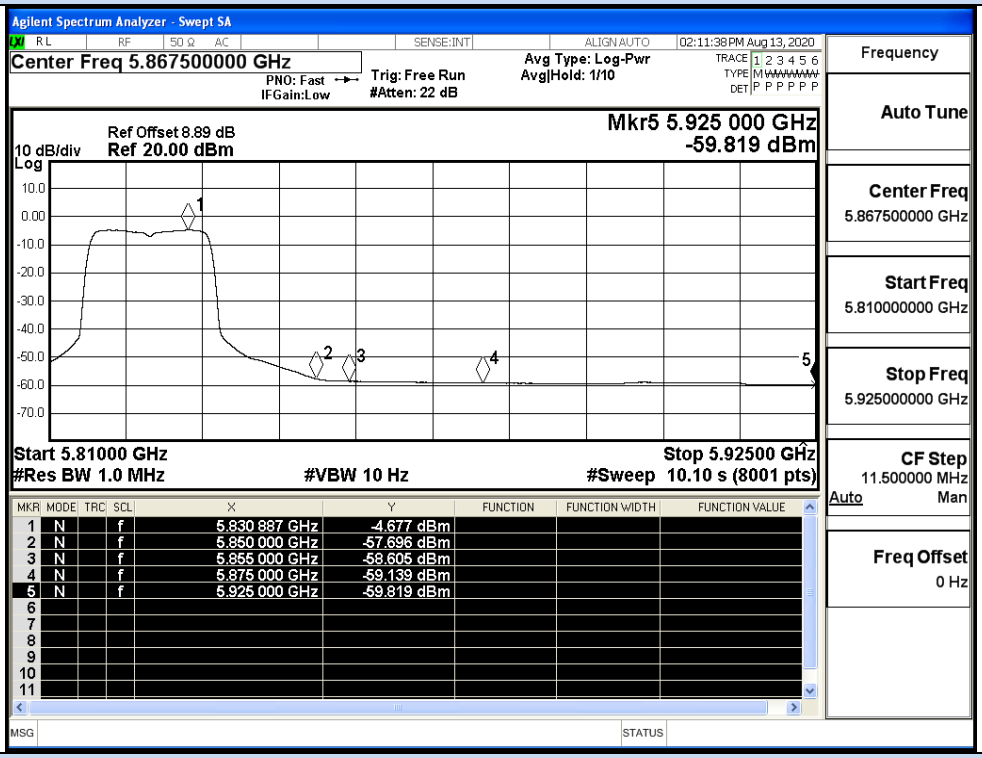


IEEE 802.11n20 / Channel 149 / 5745MHz / Average

Undesirable Emissions Measurement

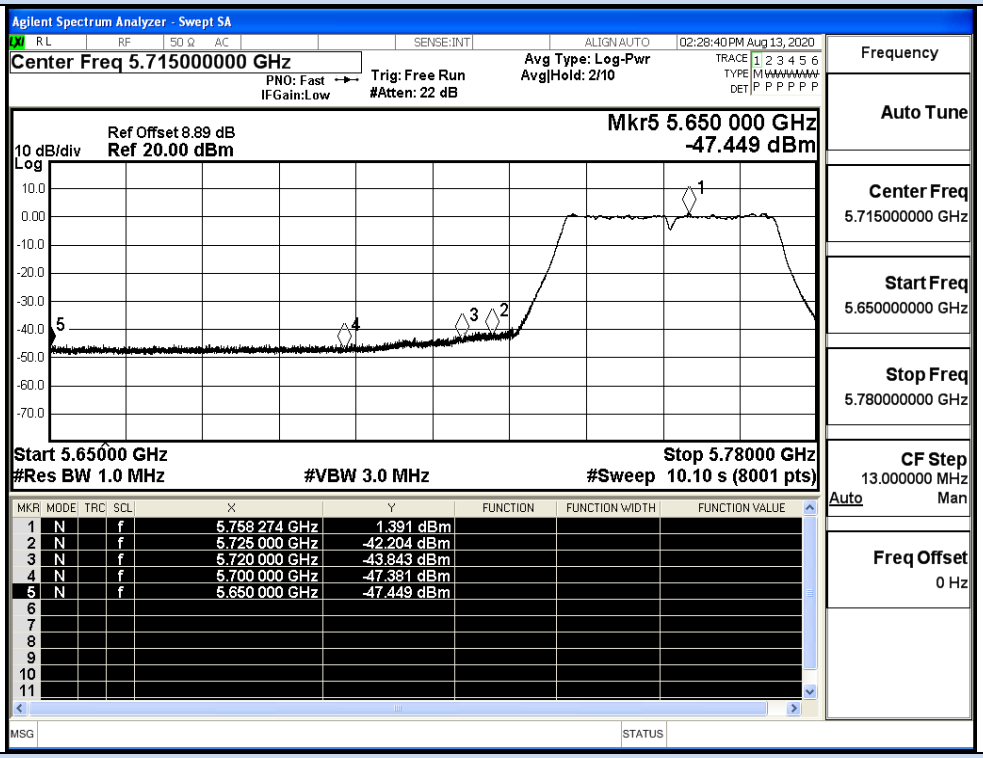


IEEE 802.11n20 / Channel 165 / 5825MHz / Peak

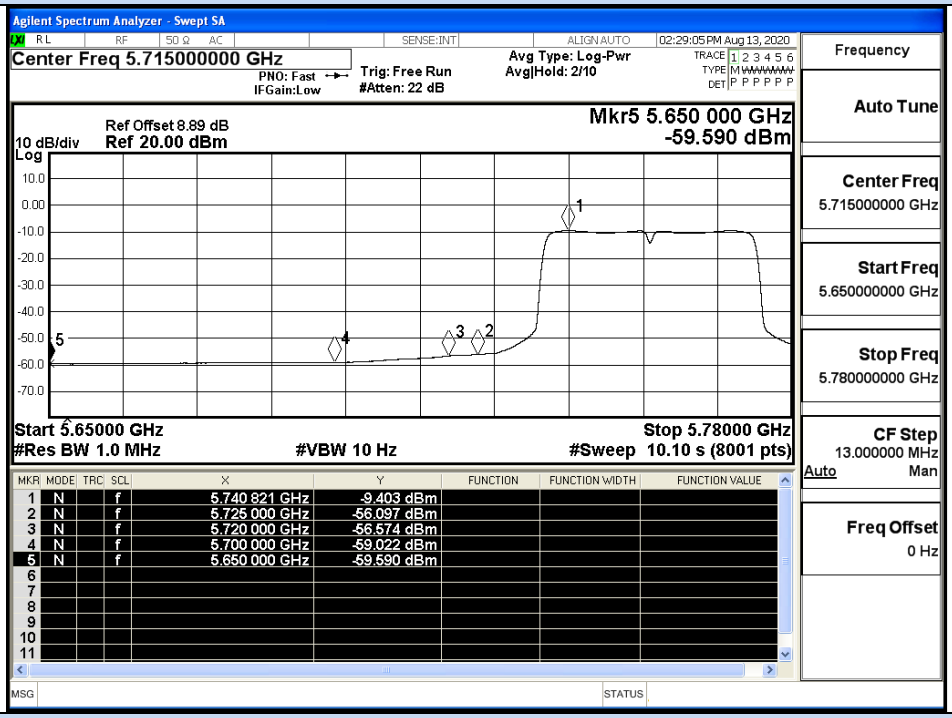


IEEE 802.11n20 / Channel 165 / 5825MHz / Average

Undesirable Emissions Measurement

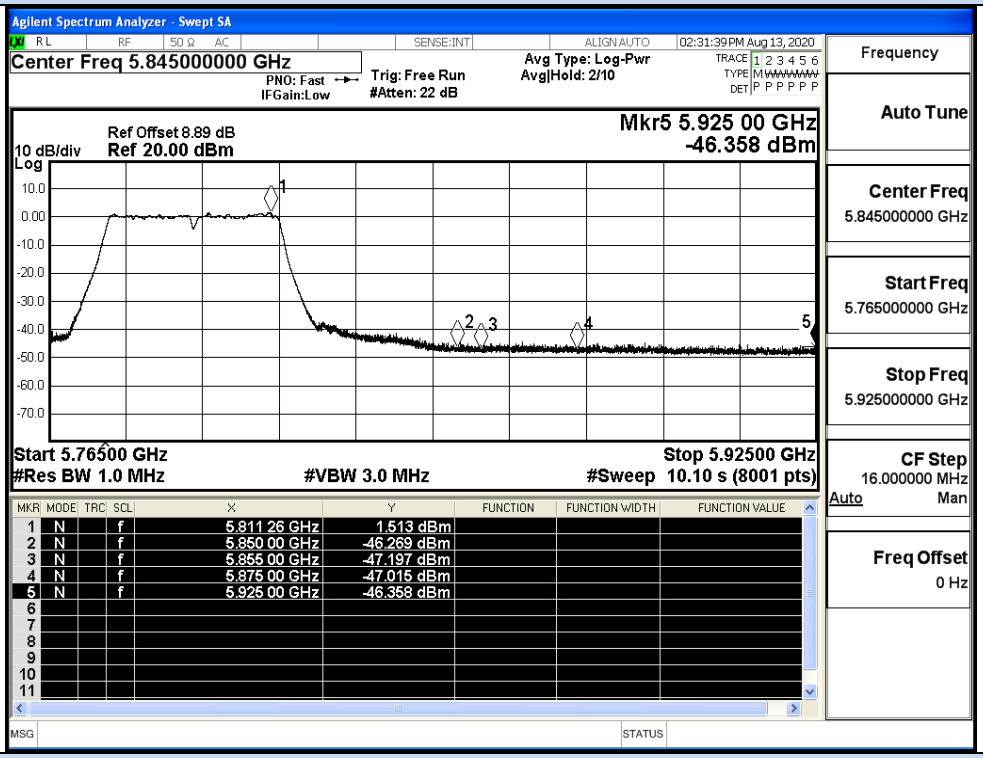


IEEE 802.11n40 / Channel 151 / 5755MHz / Peak

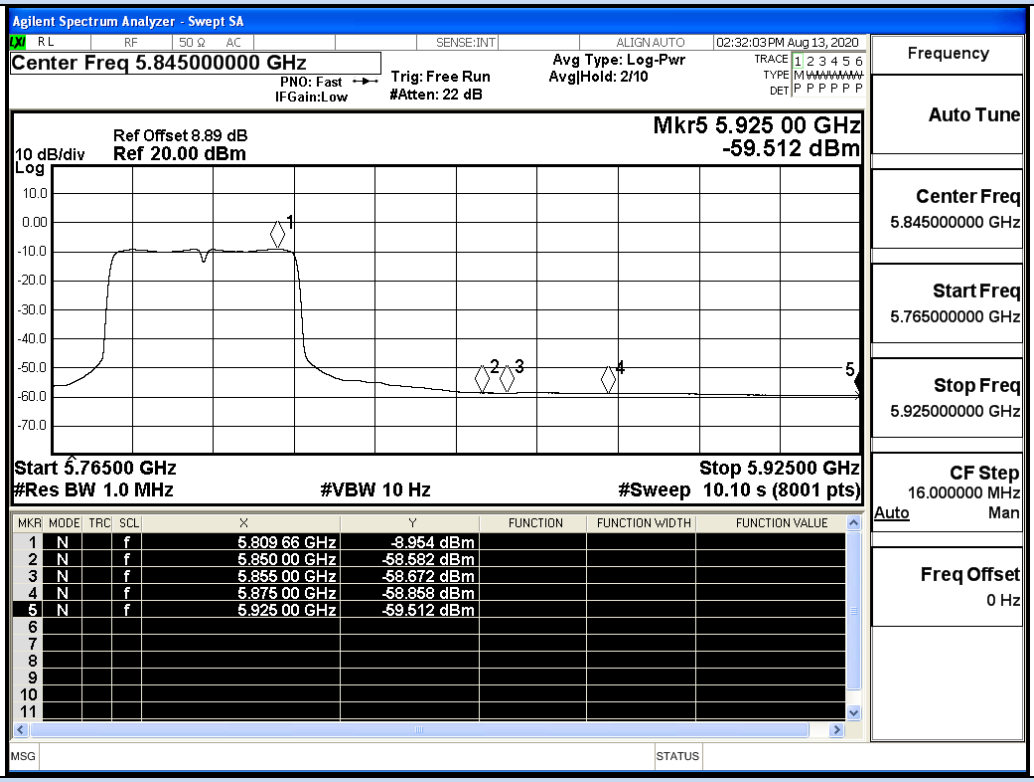


IEEE 802.11n40 / Channel 151 / 5755MHz / Average

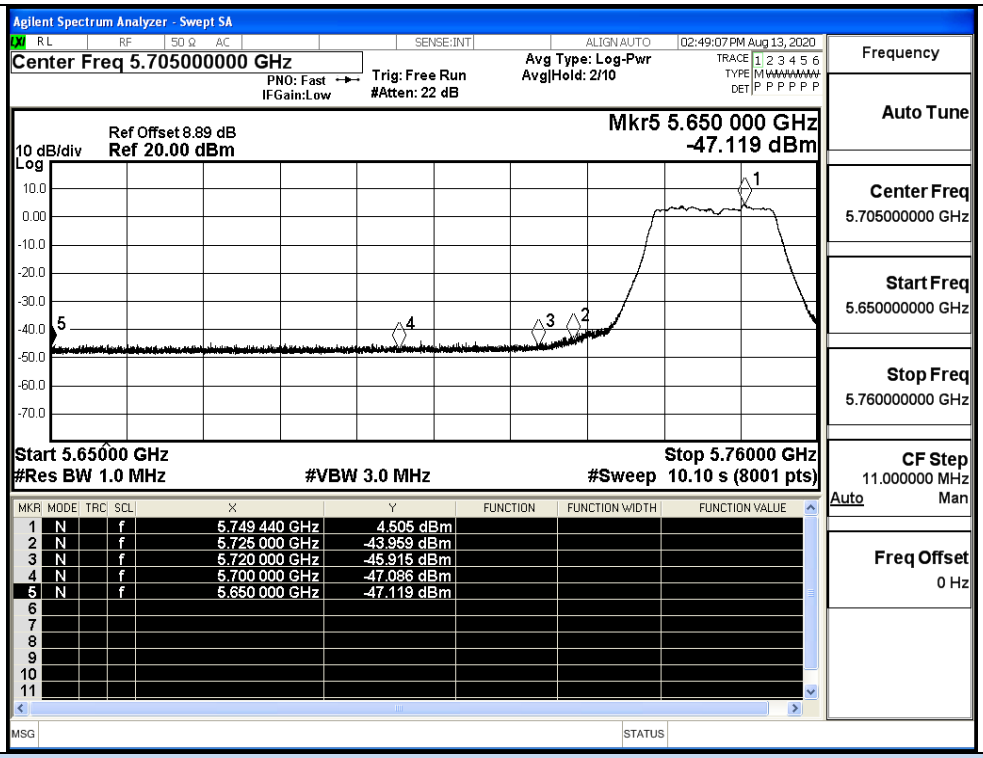
Undesirable Emissions Measurement



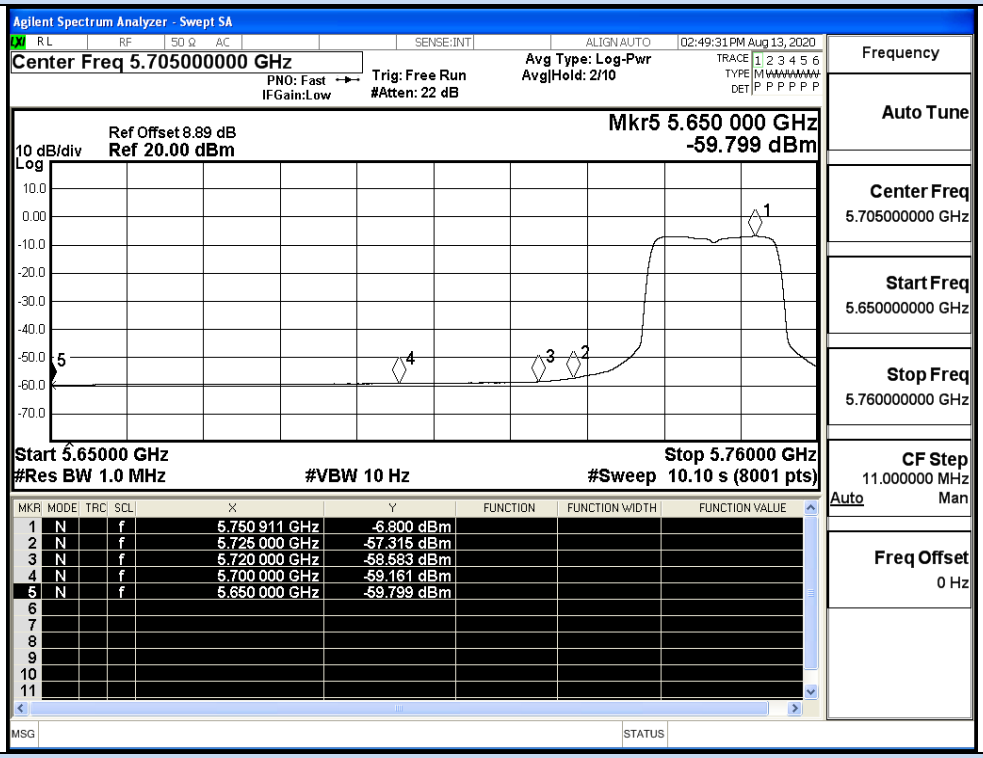
IEEE 802.11n40 / Channel 159 / 5795MHz / Peak



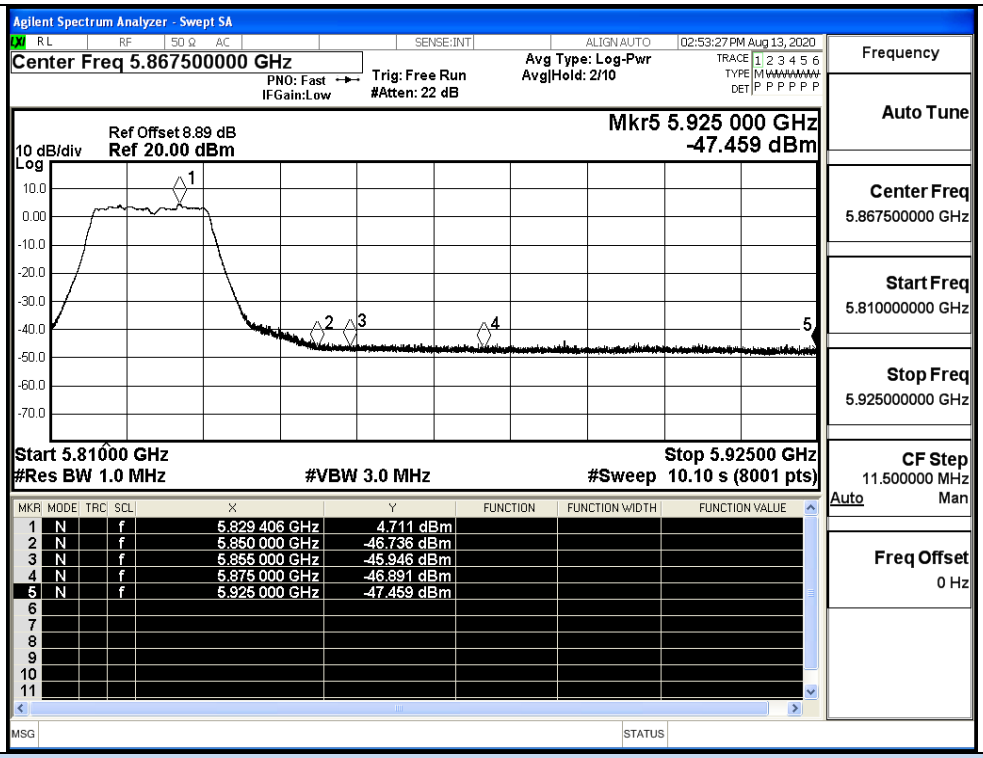
IEEE 802.11n40 / Channel 159 / 5795MHz / Average



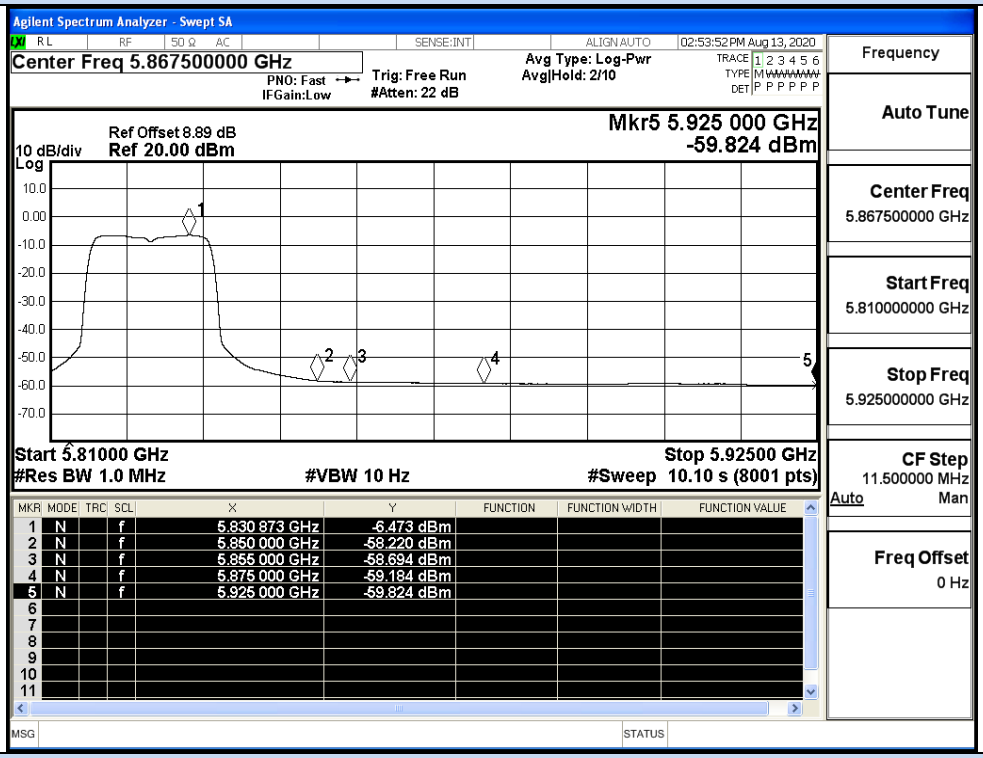
IEEE 802.11ac20 / Channel 149 / 5745MHz / Peak



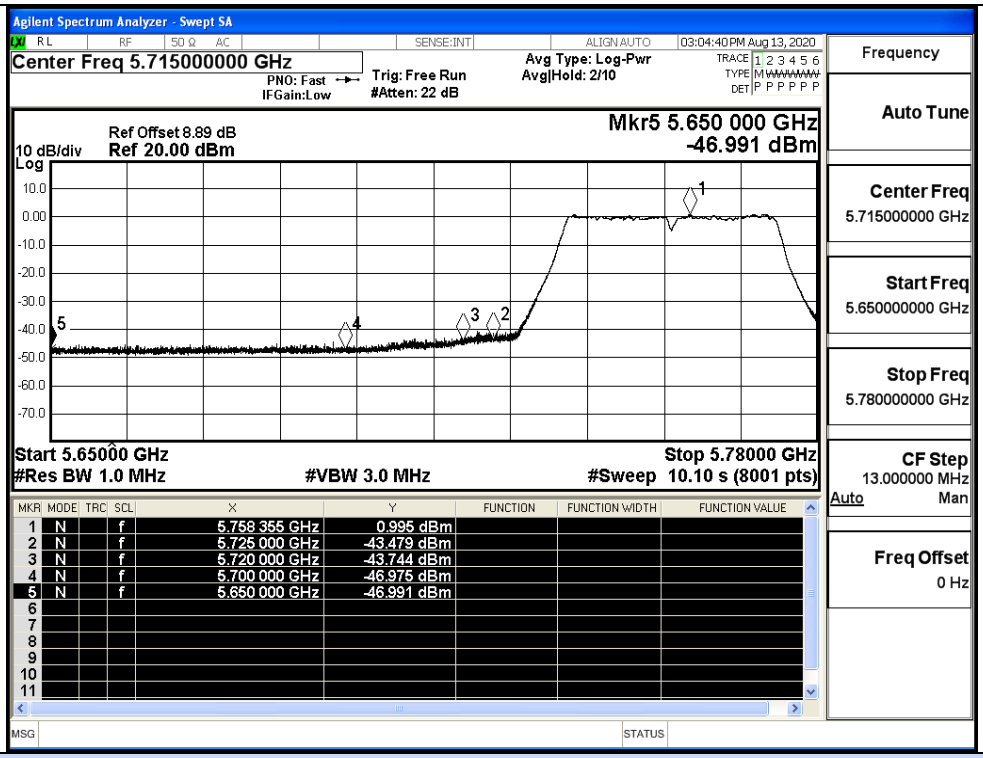
IEEE 802.11ac20 / Channel 149 / 5745MHz / Average



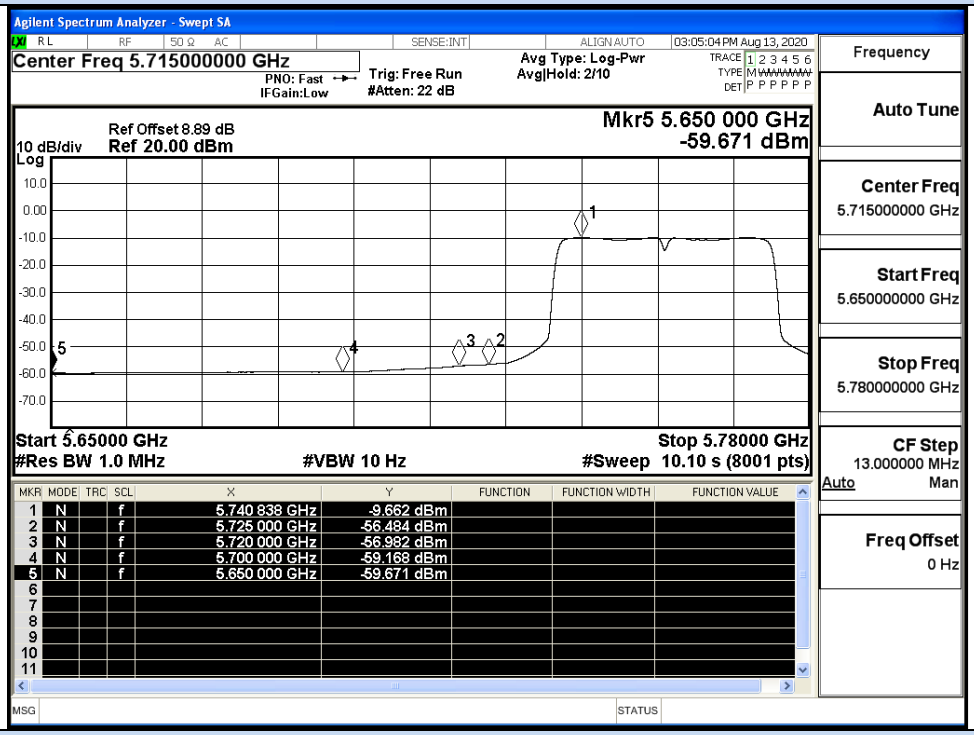
IEEE 802.11ac20 / Channel 165 / 5825MHz / Peak



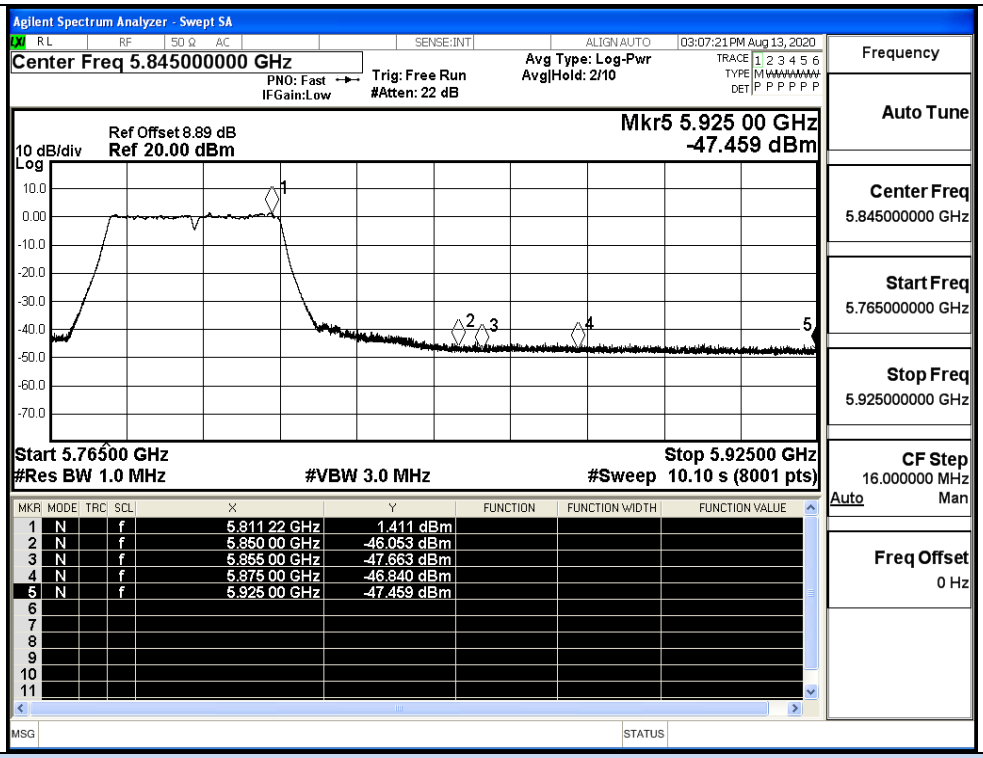
IEEE 802.11ac20 / Channel 165 / 5825MHz / Average



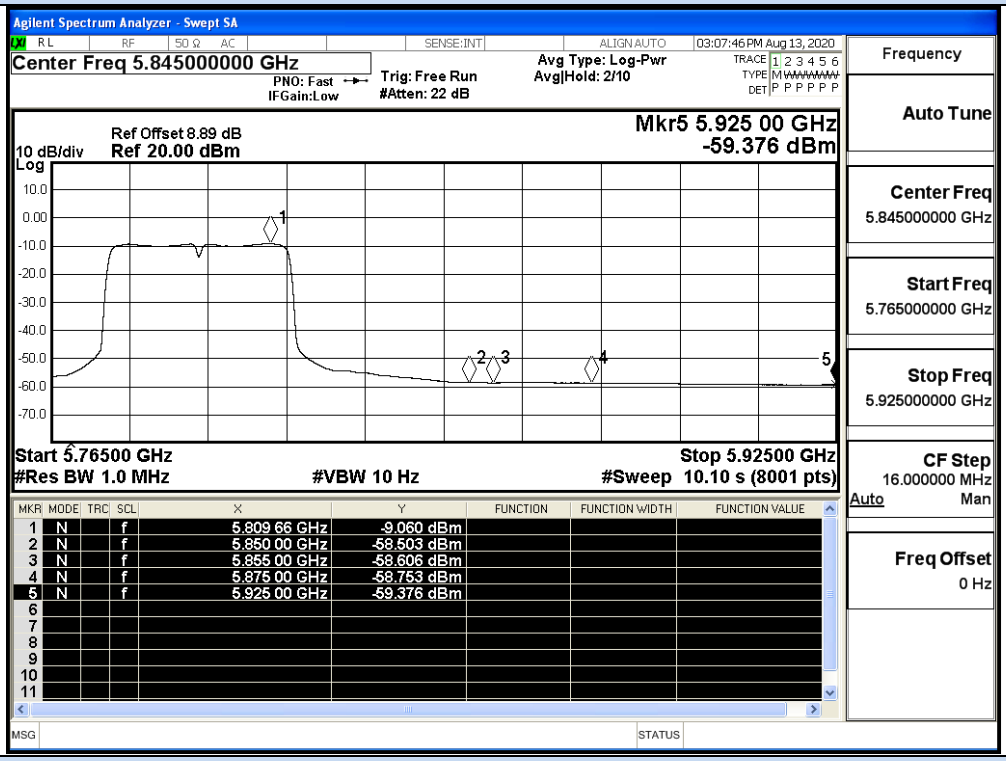
IEEE 802.11ac40 / Channel 151 / 5755MHz / Peak



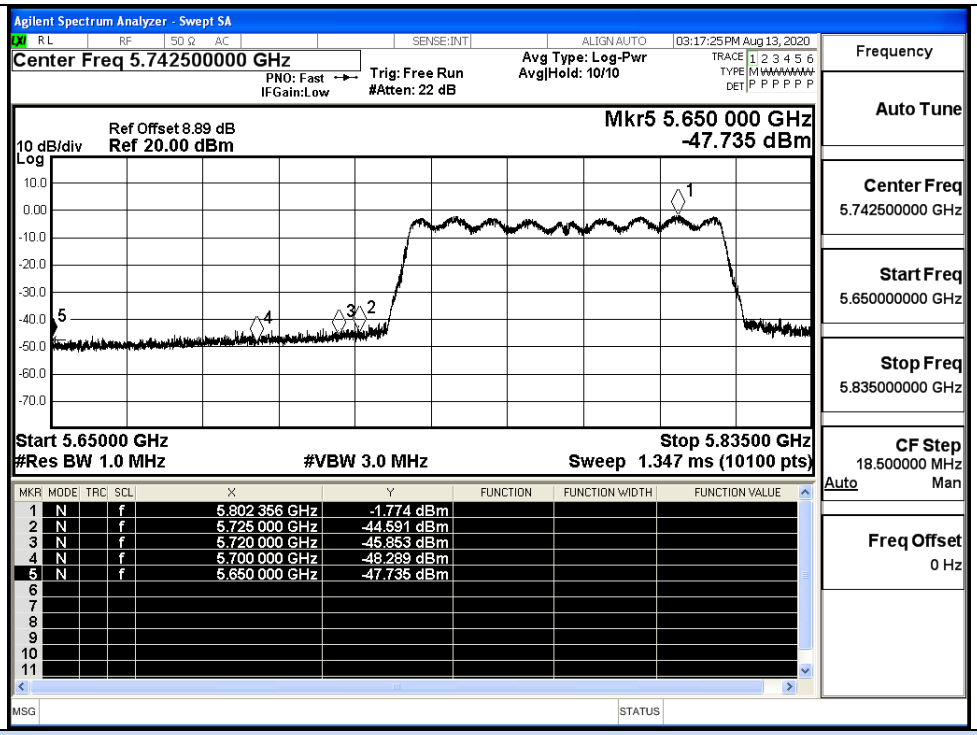
IEEE 802.11ac40 / Channel 151 / 5755MHz / Average



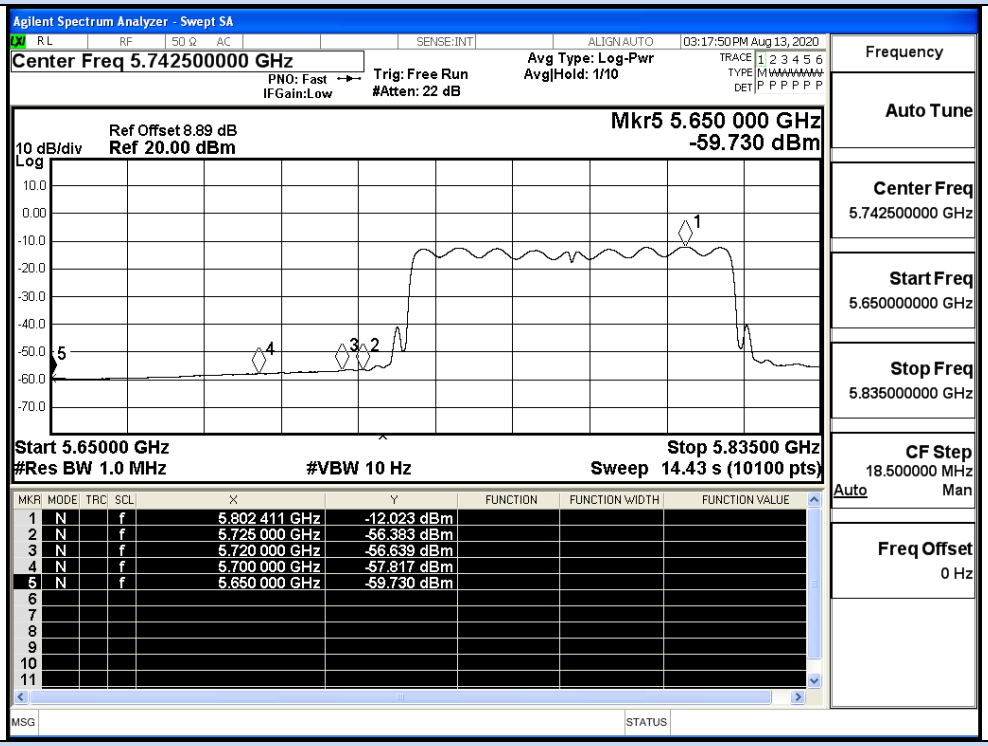
IEEE 802.11ac40 / Channel 159 / 5795MHz / Peak



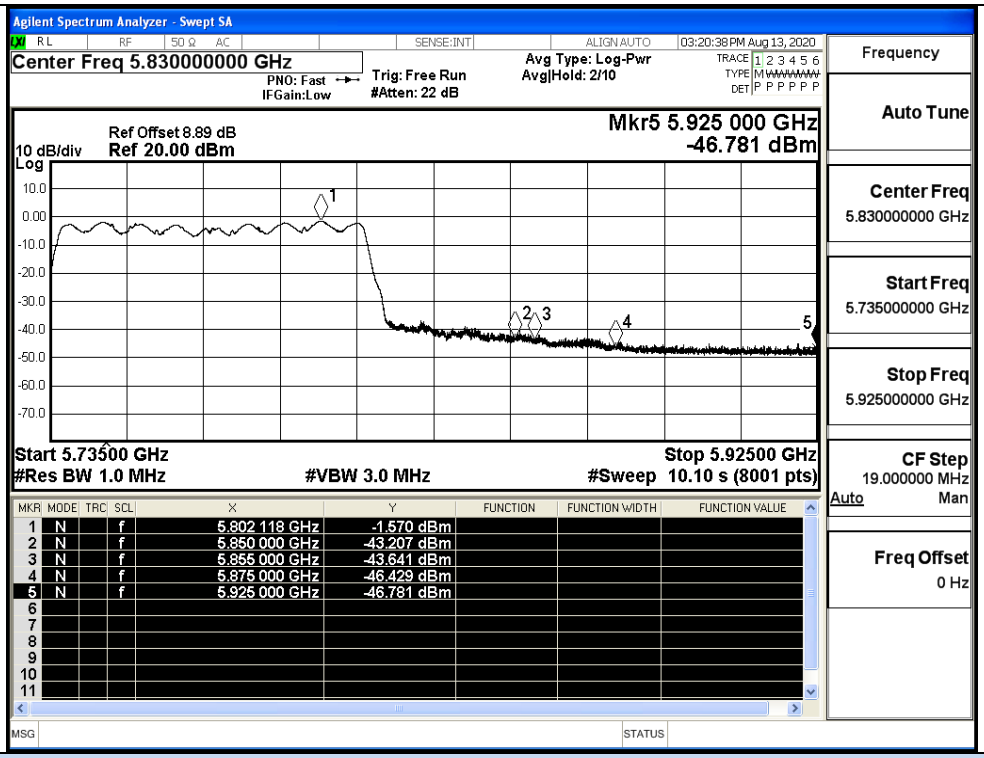
IEEE 802.11ac40 / Channel 159 / 5795MHz / Average



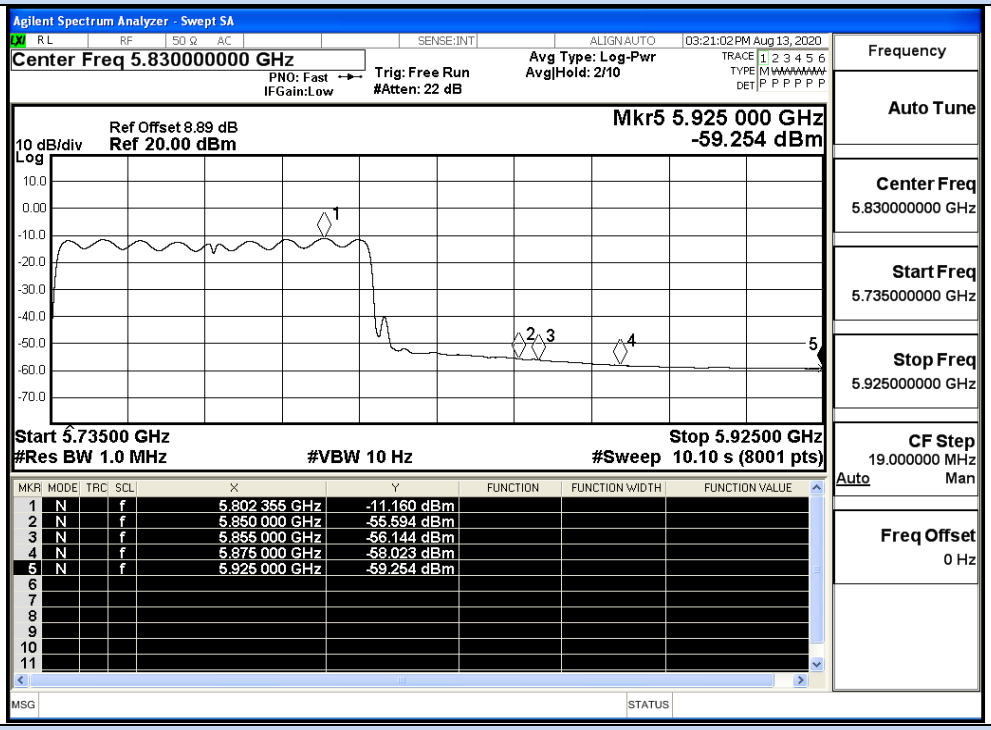
IEEE 802.11ac80 / Channel 155 / 5775MHz / Peak



IEEE 802.11ac80 / Channel 155 / 5775MHz / Average



IEEE 802.11ac80 / Channel 155/ 5775MHz / Peak



IEEE 802.11ac80 / Channel 155 / 5775MHz / Average