Appendix E

RF Test Data for 5.8G WLAN (Conducted Measurement)

Product Name: VIM3
Trade Mark: Khadas
Test Model: VIM3 Pro

Environmental Conditions

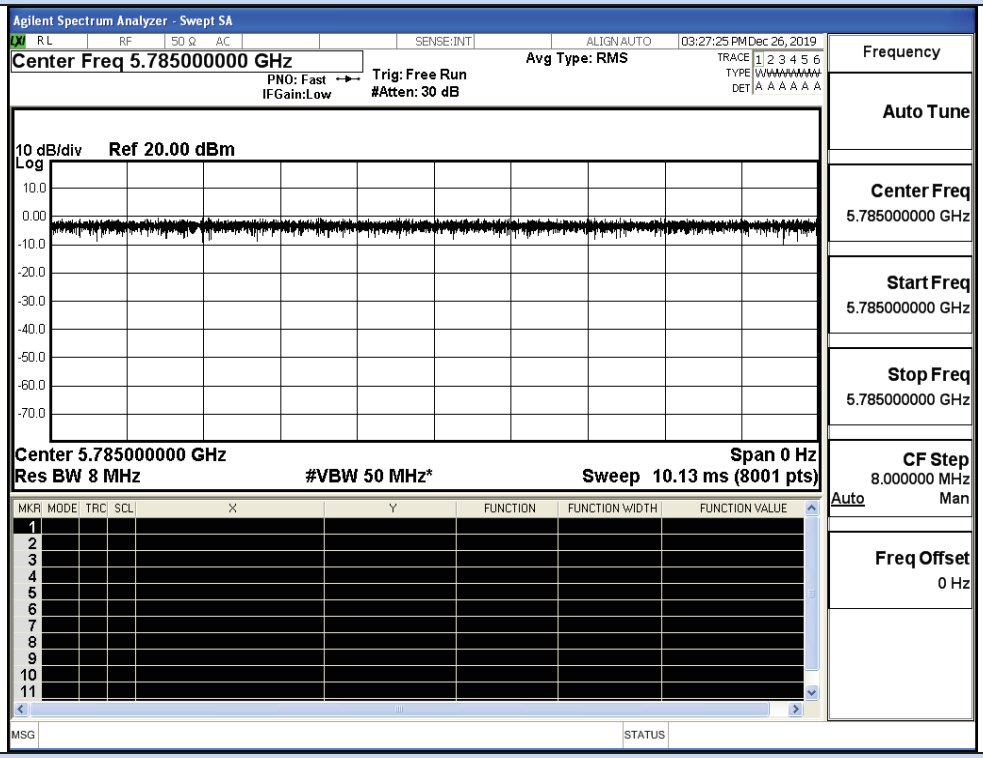
Temperature:	23.9 ° C
Relative Humidity:	54.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Qu Xin
Supervised by:	Wang Chuang

D.1 Duty Cycle

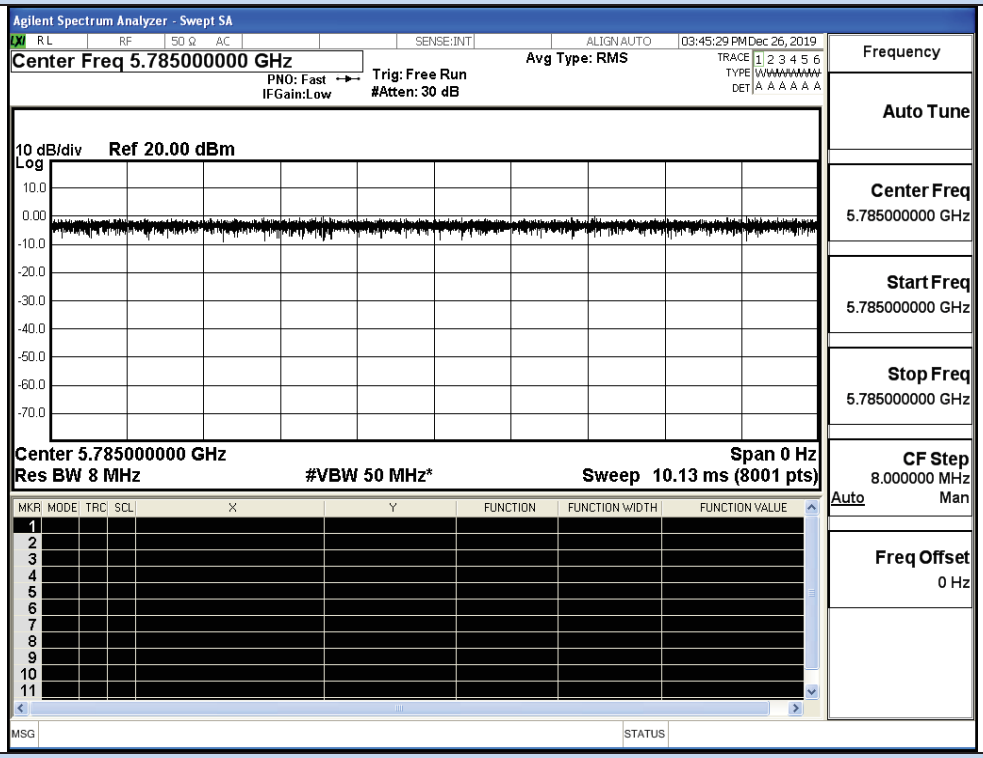
Ant0

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

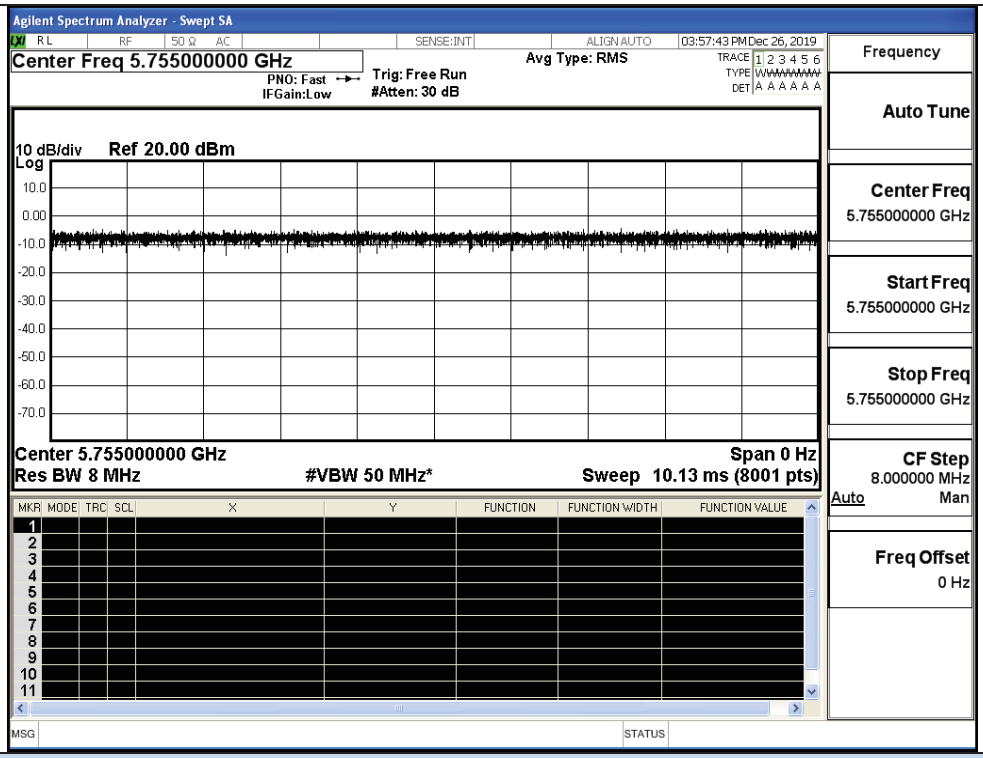
On Time and Duty Cycle



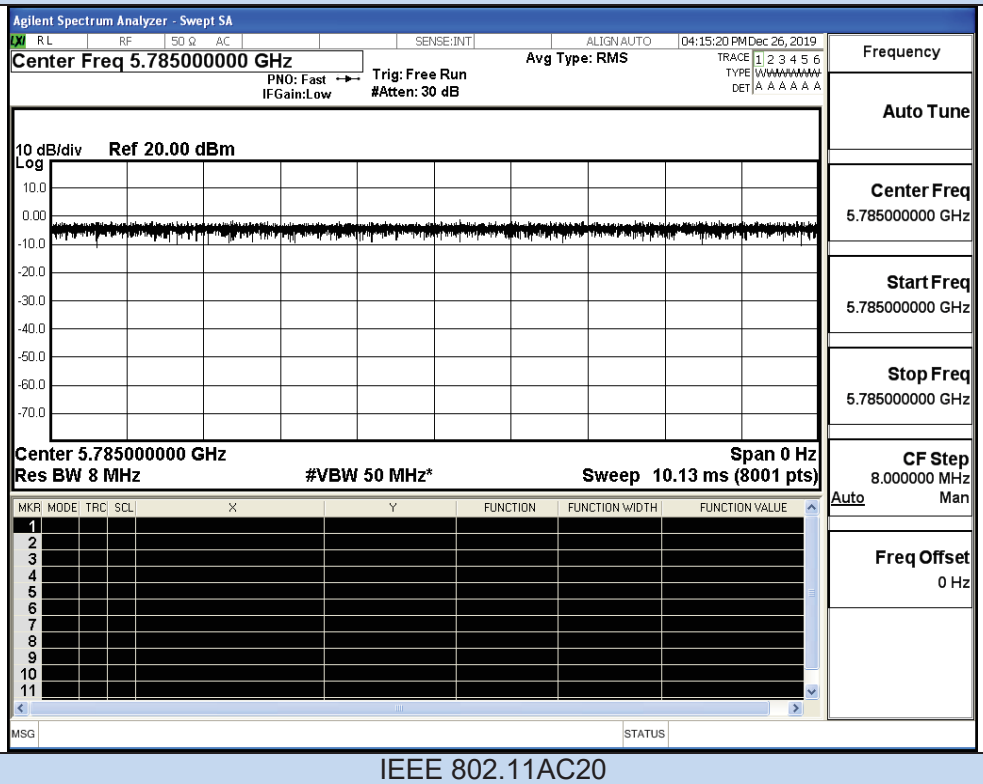
IEEE 802.11a



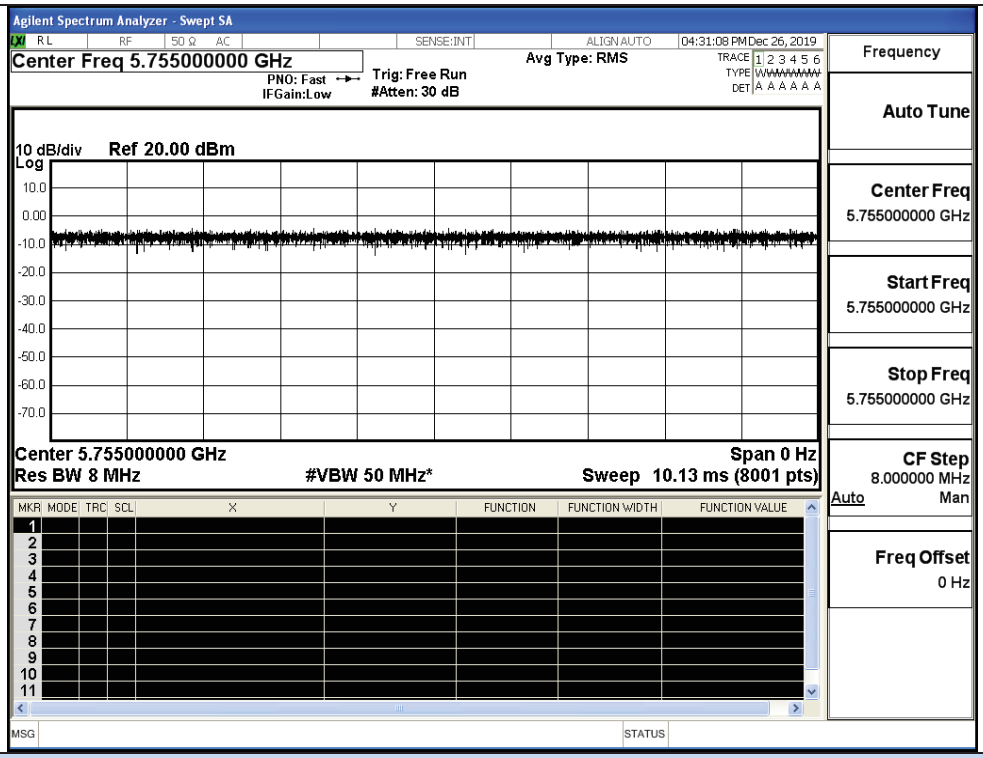
IEEE 802.11n HT20



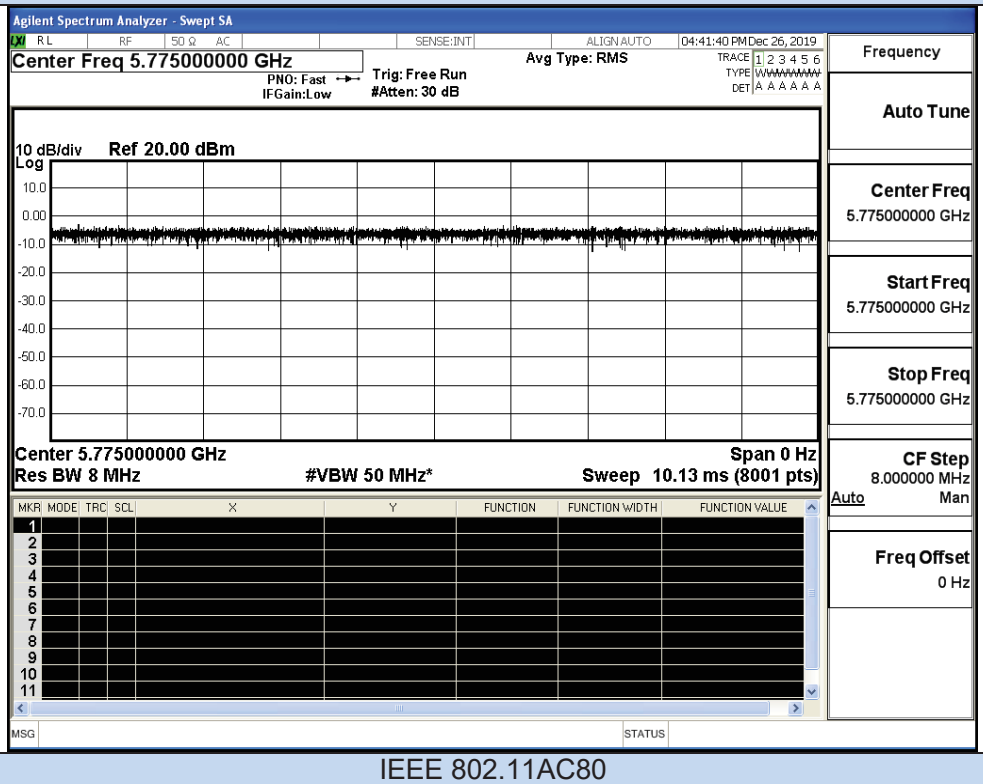
IEEE 802.11n HT40



IEEE 802.11AC20



IEEE 802.11AC40

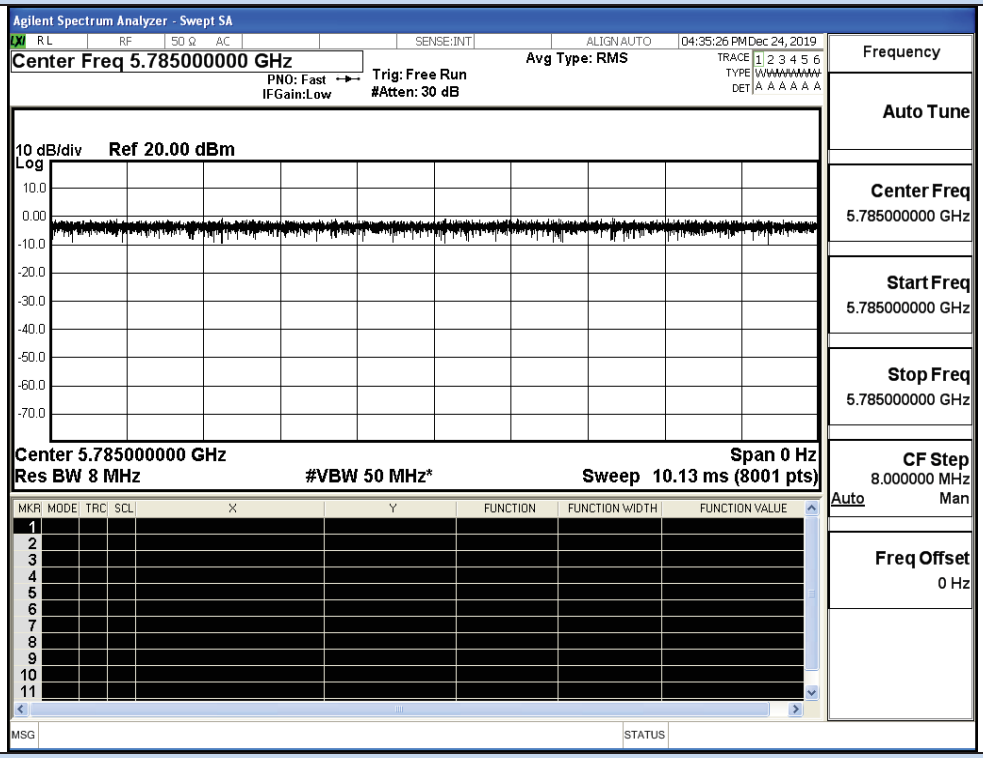


IEEE 802.11AC80

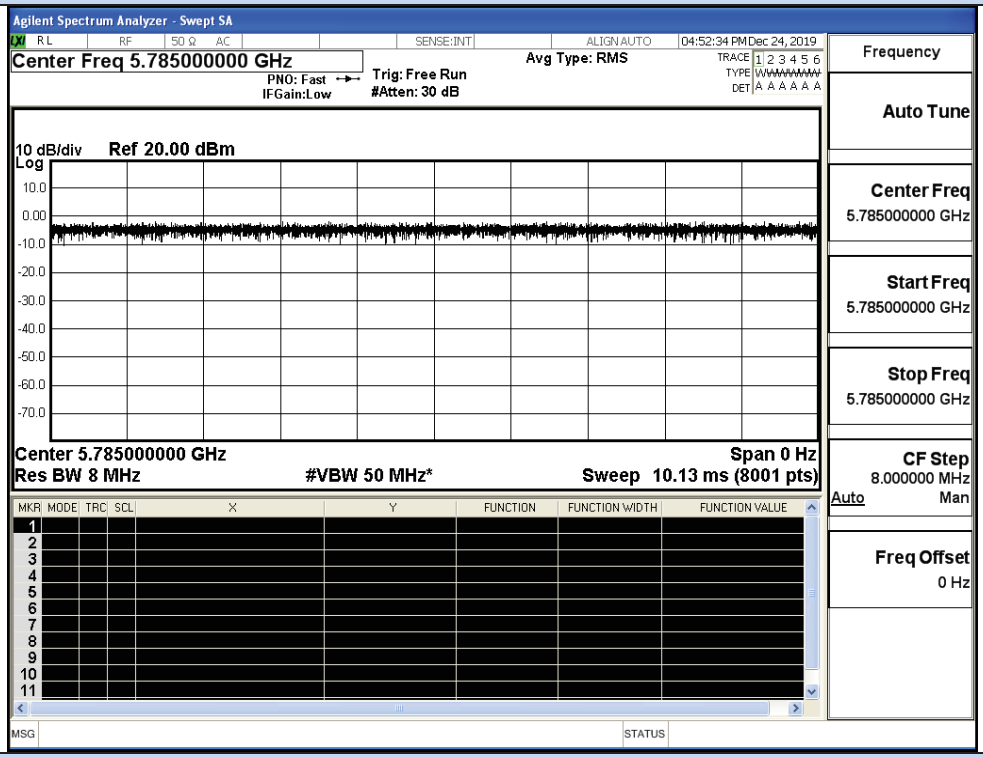
Ant1

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

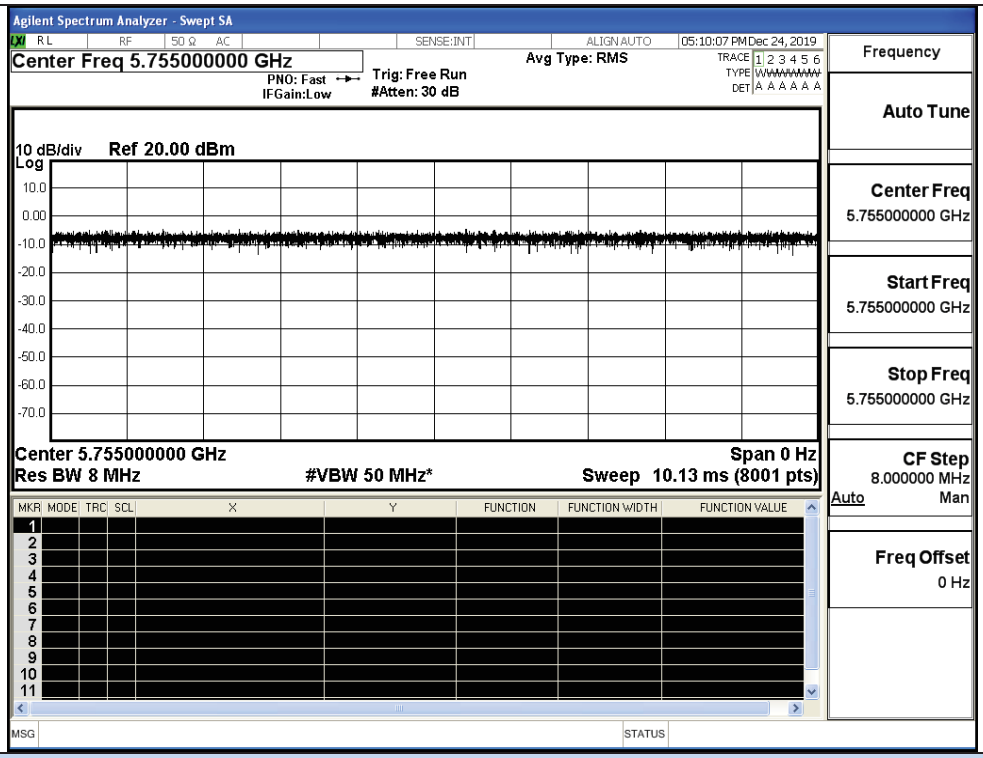
On Time and Duty Cycle



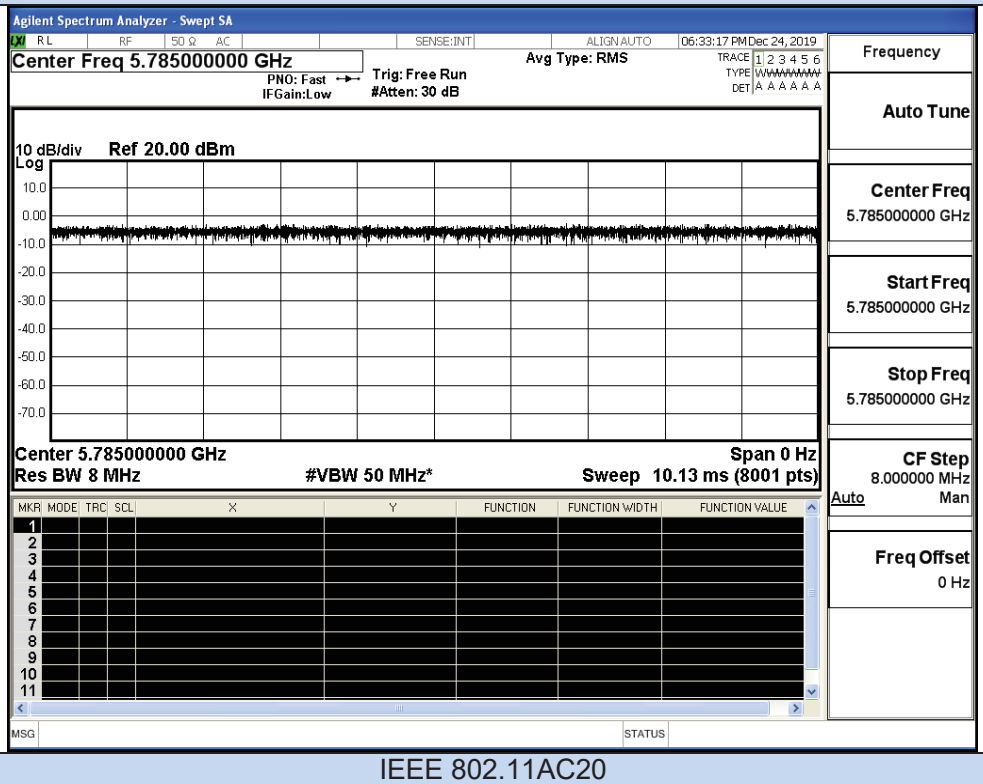
IEEE 802.11a



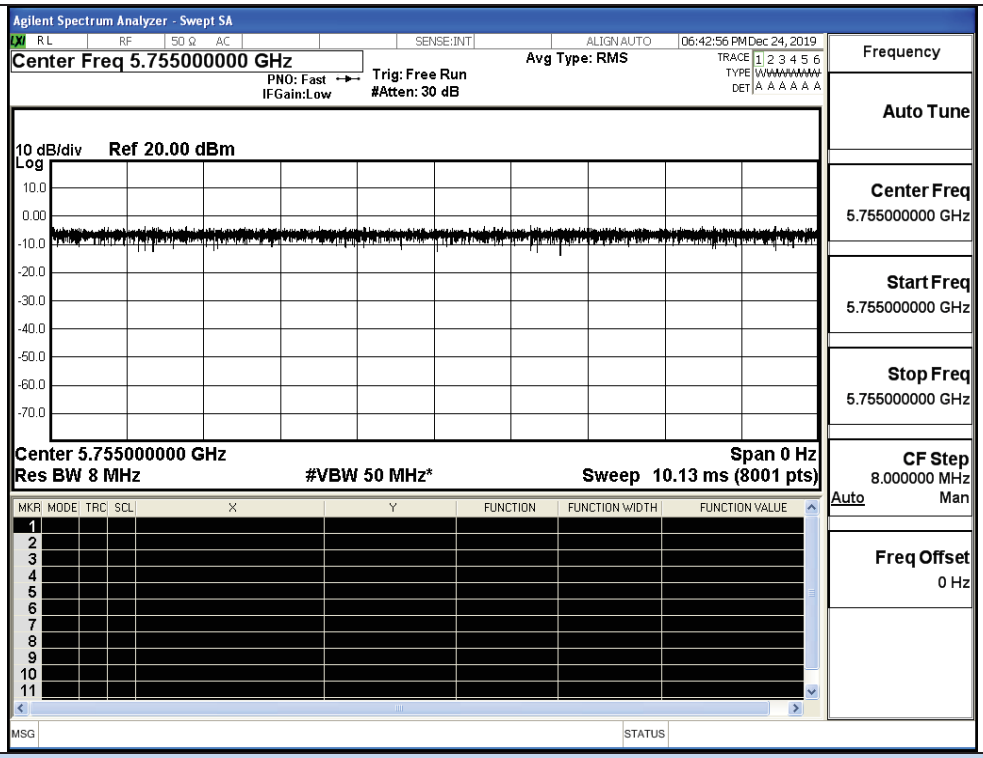
IEEE 802.11n HT20



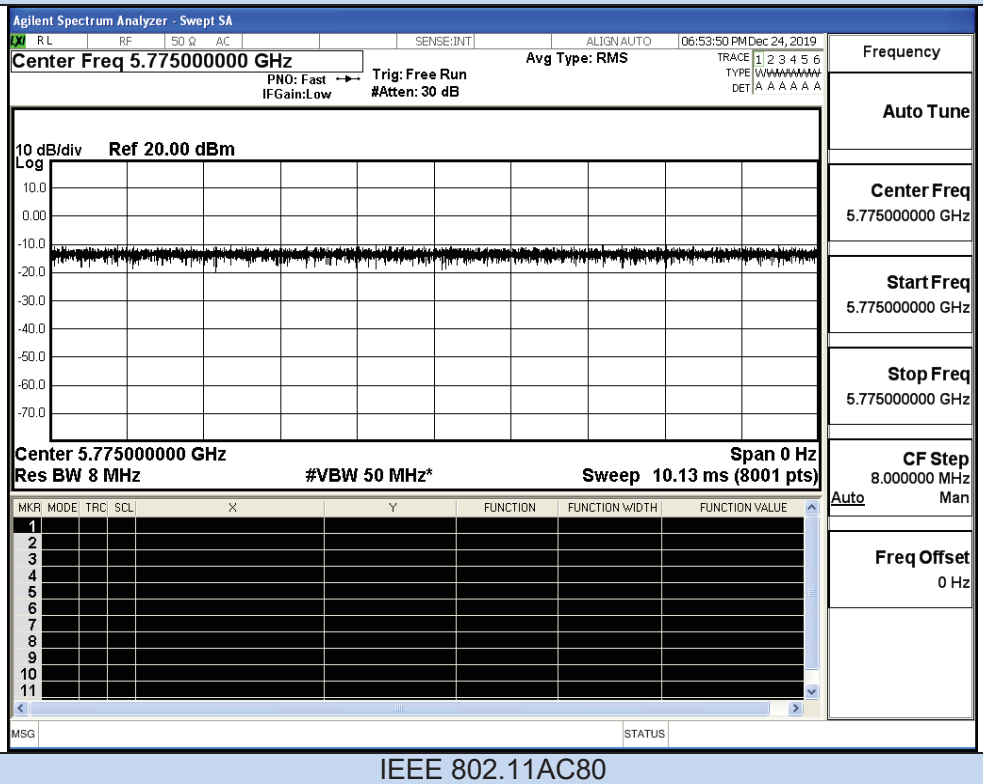
IEEE 802.11n HT40



IEEE 802.11AC20



IEEE 802.11AC40

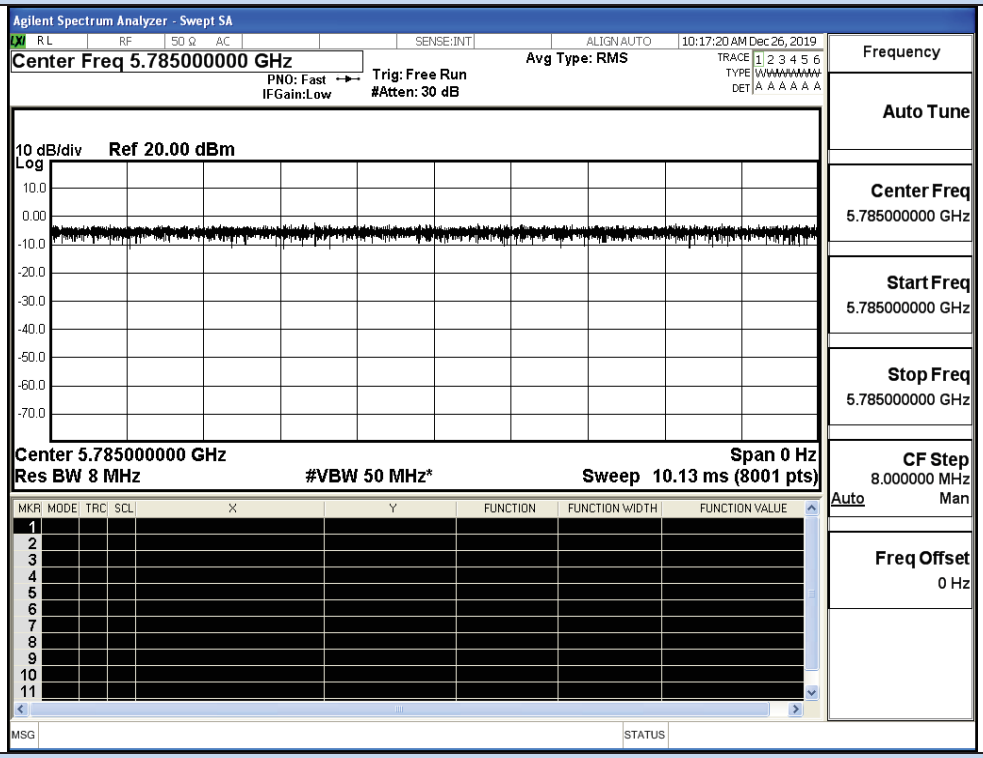


IEEE 802.11AC80

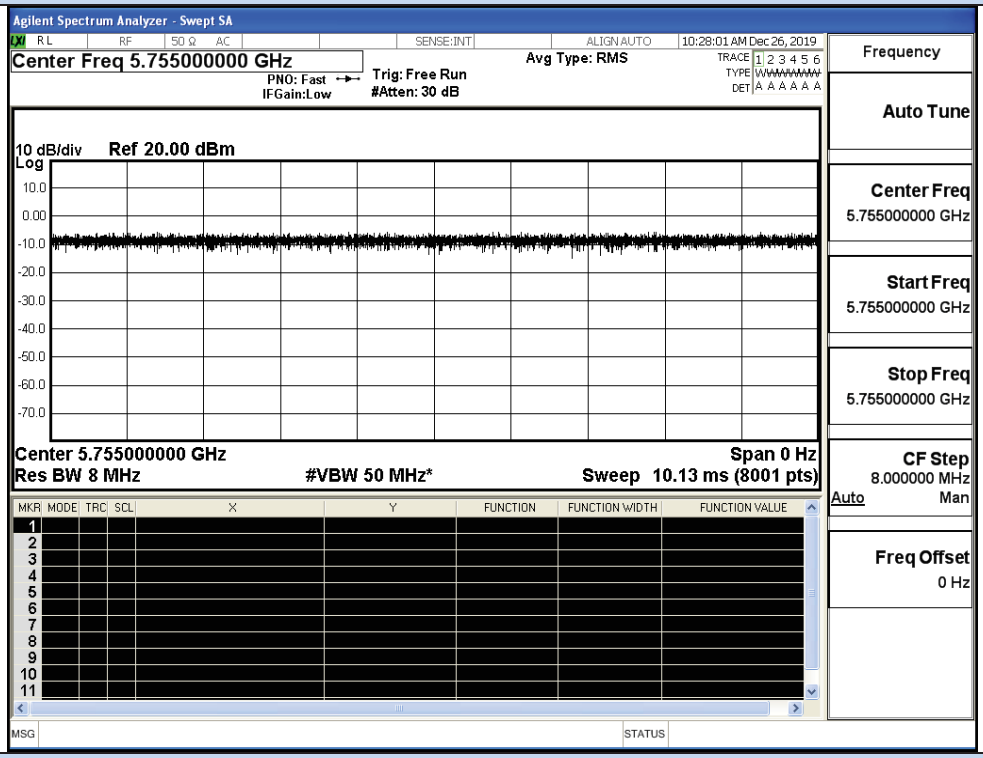
Ant0+1

Test Mode	Test Frequency (MHz)	Duty Cycle (%)	10log(1/x) Factor (dB)	1/B Minimum VBW(KHz)
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

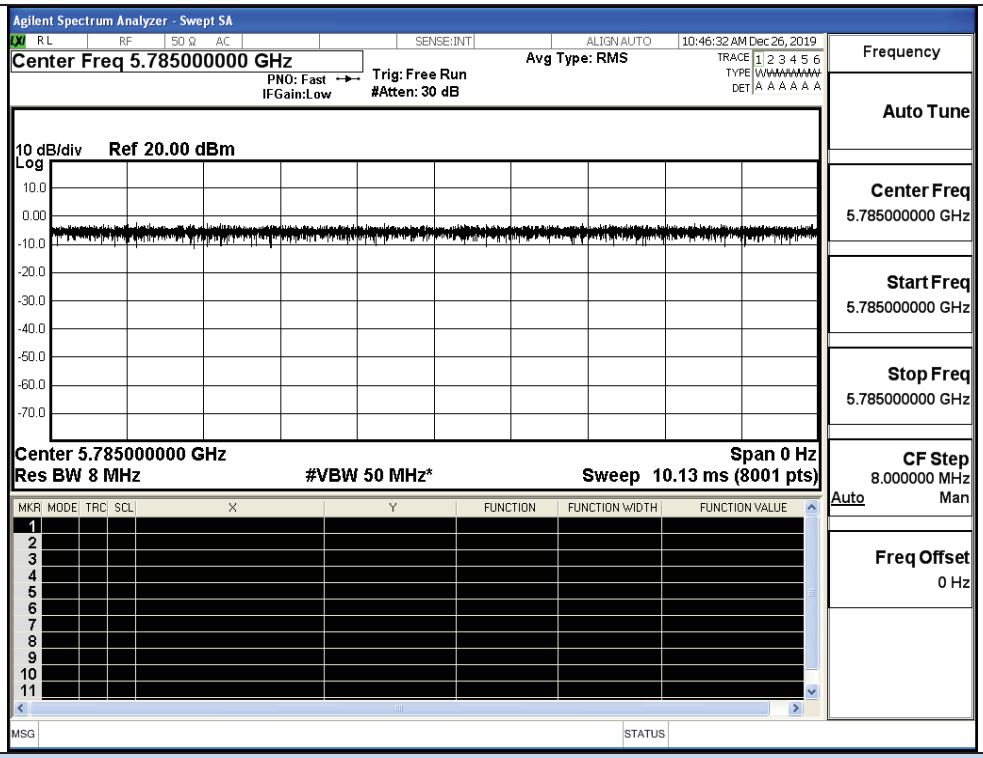
On Time and Duty Cycle



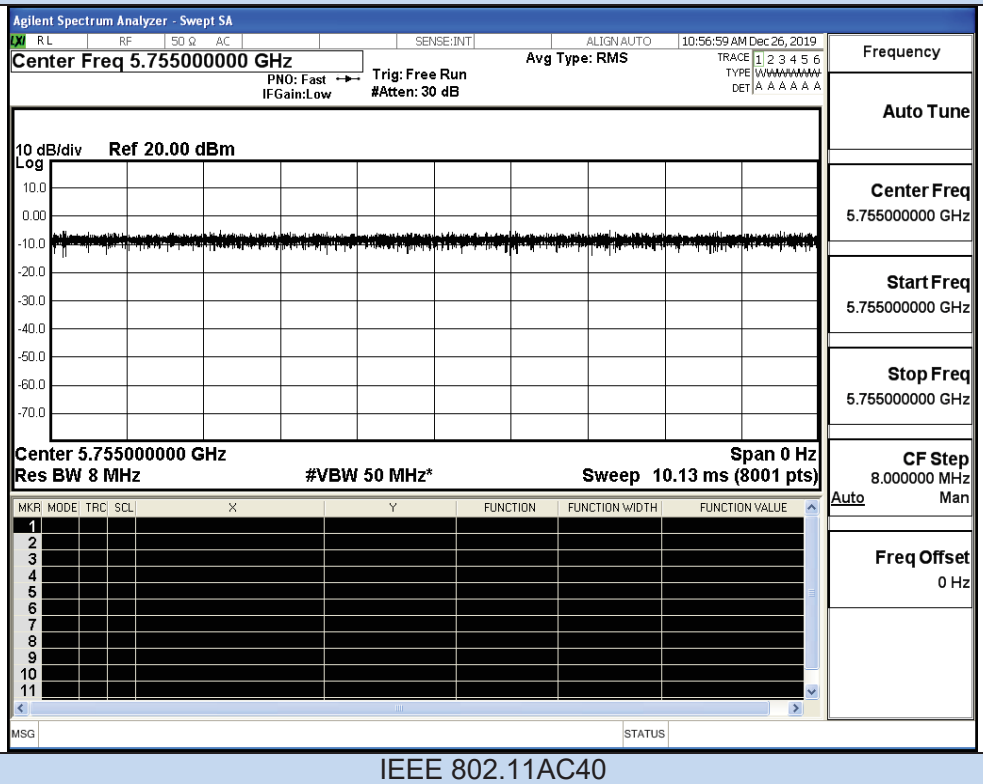
IEEE 802.11n HT20



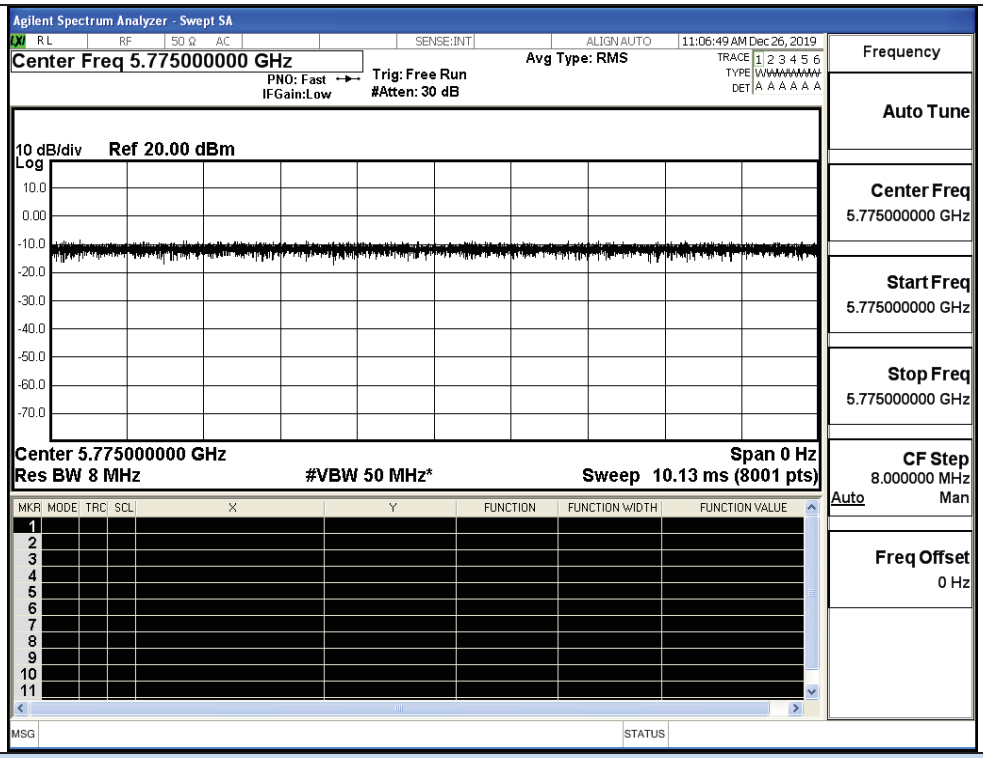
IEEE 802.11n HT40



IEEE 802.11AC20



IEEE 802.11AC40



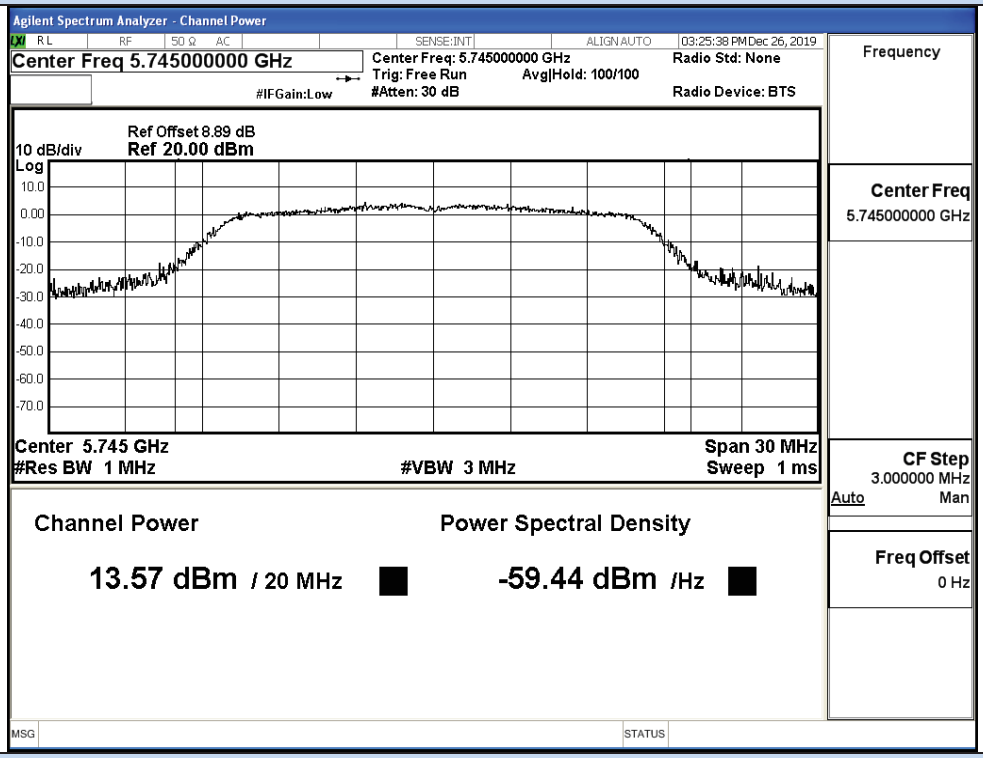
IEEE 802.11AC80

D.2 Maximum Conduct Output Power

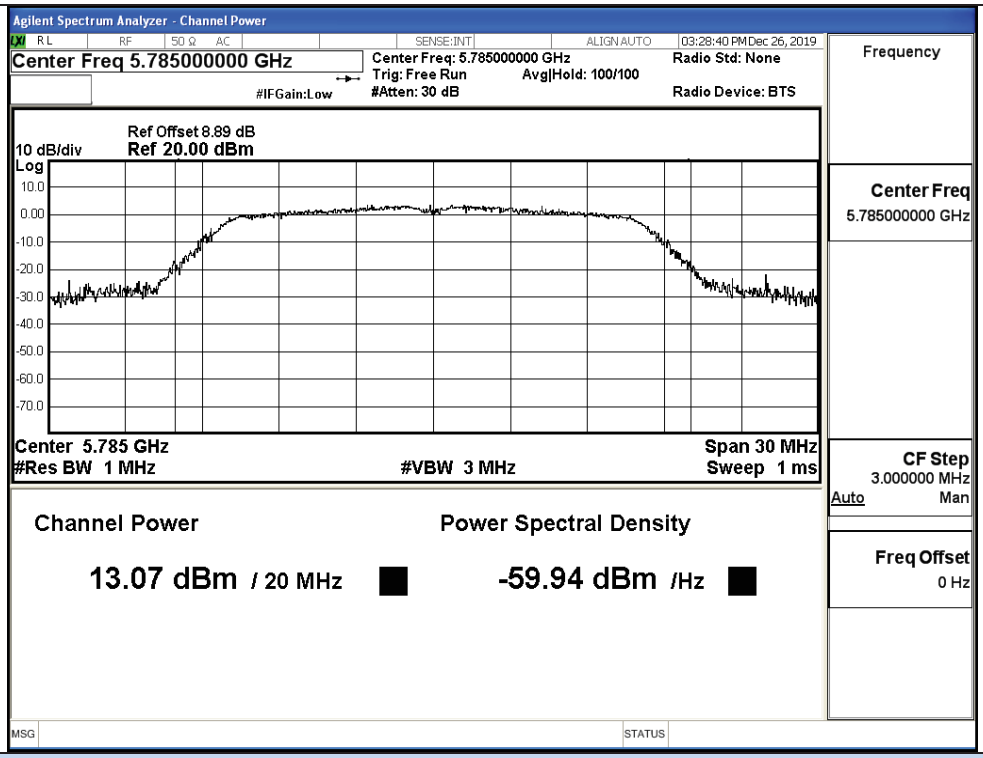
Ant0

Test Mode	Channel	Frequency (MHz)	AVG Conducted Power (dBm)	Duty Cycle Factor(dB)	Report Conducted Power(dBm)	Limit (dBm)	Verdict
11A	149	5745	13.57	0	13.57	30	Pass
	157	5785	13.07	0	13.07		Pass
	165	5825	13.18	0	13.18		Pass
11N20 SISO	149	5745	11.65	0	11.65	30	Pass
	157	5785	11.69	0	11.69		Pass
	165	5825	11.17	0	11.17		Pass
11N40 SISO	151	5755	11.44	0	11.44	30	Pass
	159	5795	11.43	0	11.43		Pass
11AC20 SISO	149	5745	11.6	0	11.6	30	Pass
	157	5785	11.47	0	11.47		Pass
	165	5825	11.27	0	11.27		Pass
11AC40 SISO	151	5755	9.41	0	9.41	30	Pass
	159	5795	9.01	0	9.01		Pass
11AC80 SISO	155	5775	9.17	0	9.17	30	Pass

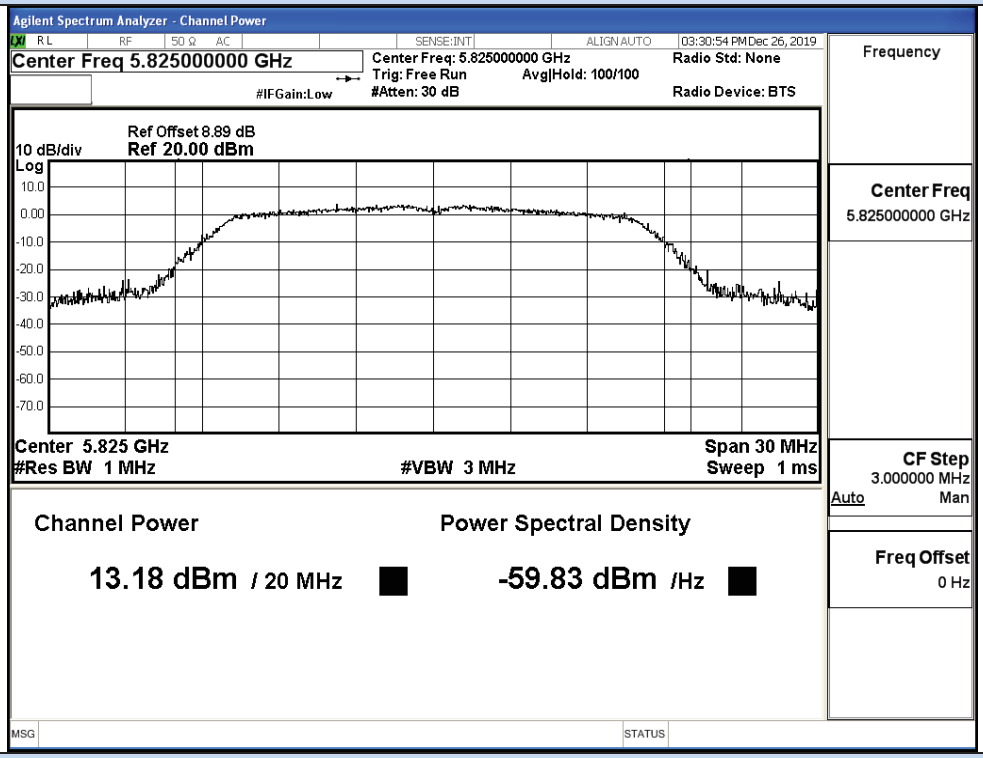
Maximum Conducted Output Power



IEEE 802.11a / Channel 149 / 5745MHz

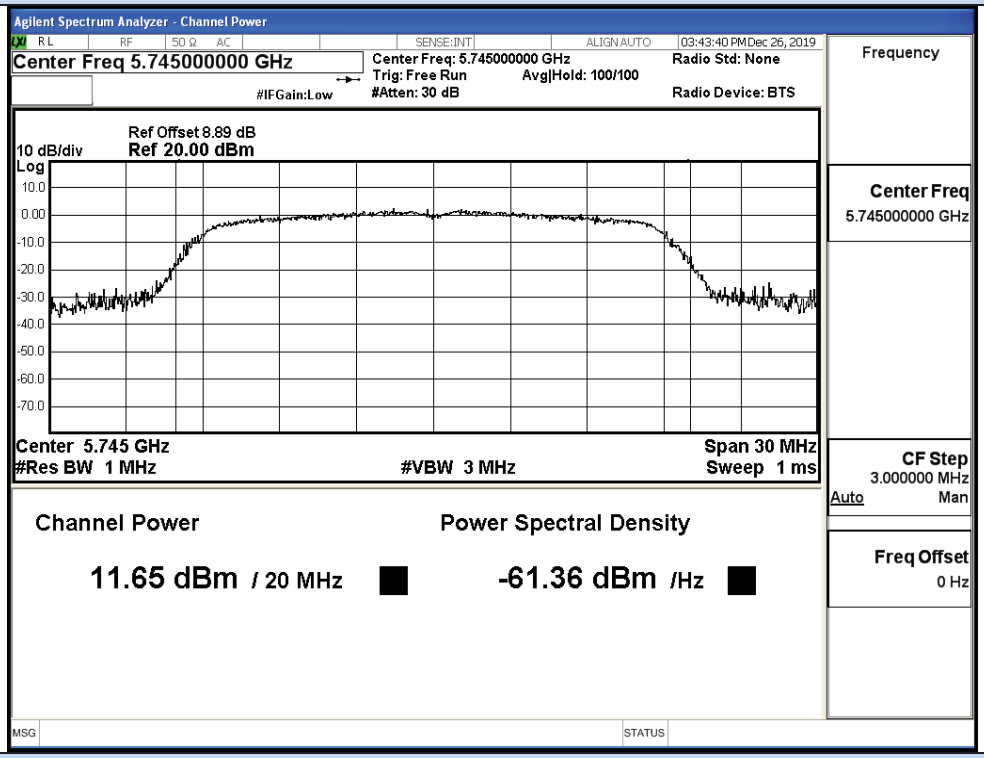


IEEE 802.11a / Channel 157 / 5785MHz

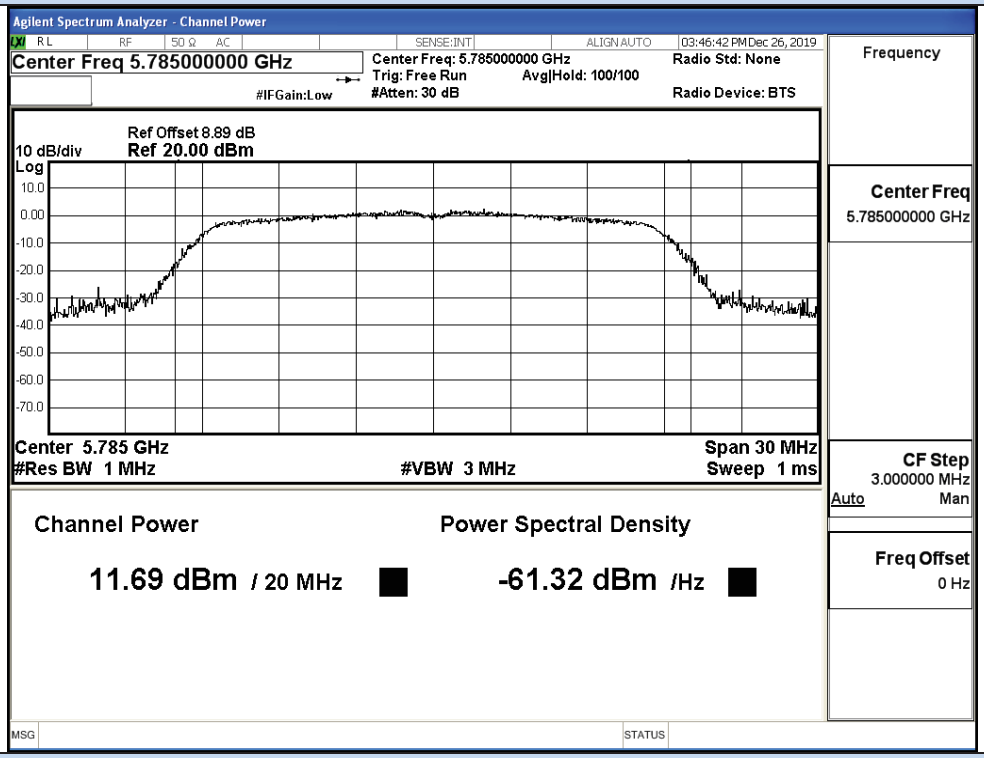


IEEE 802.11a / Channel 165 / 5825MHz

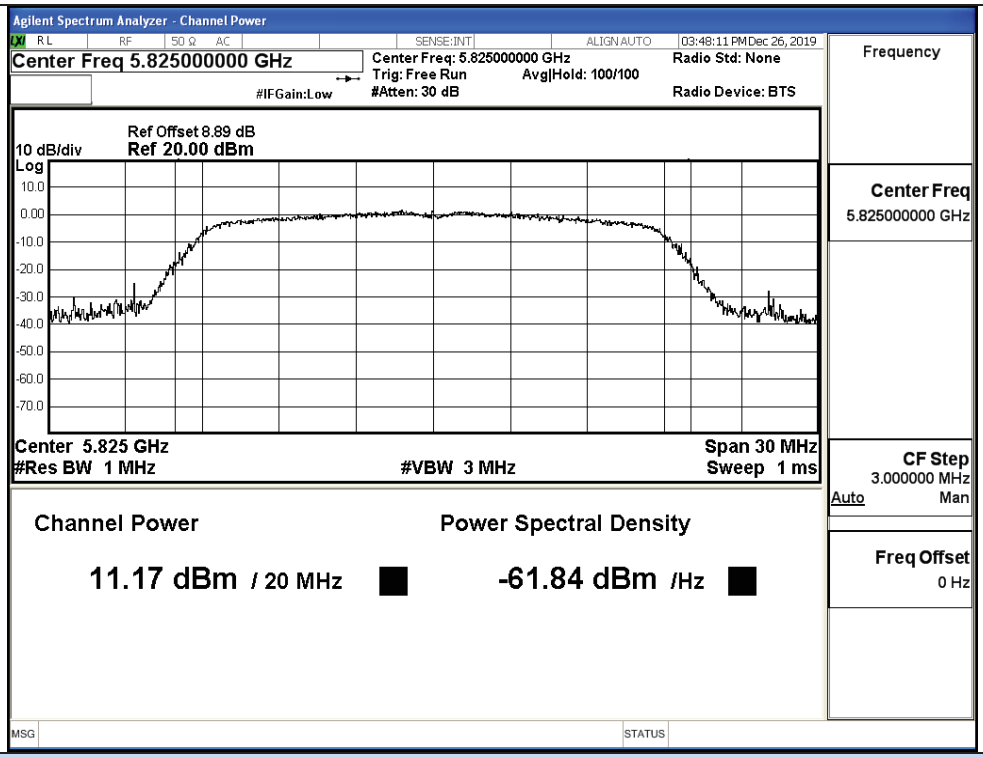
Maximum Conducted Output Power



IEEE 802.11n20 / Channel 149 / 5745MHz

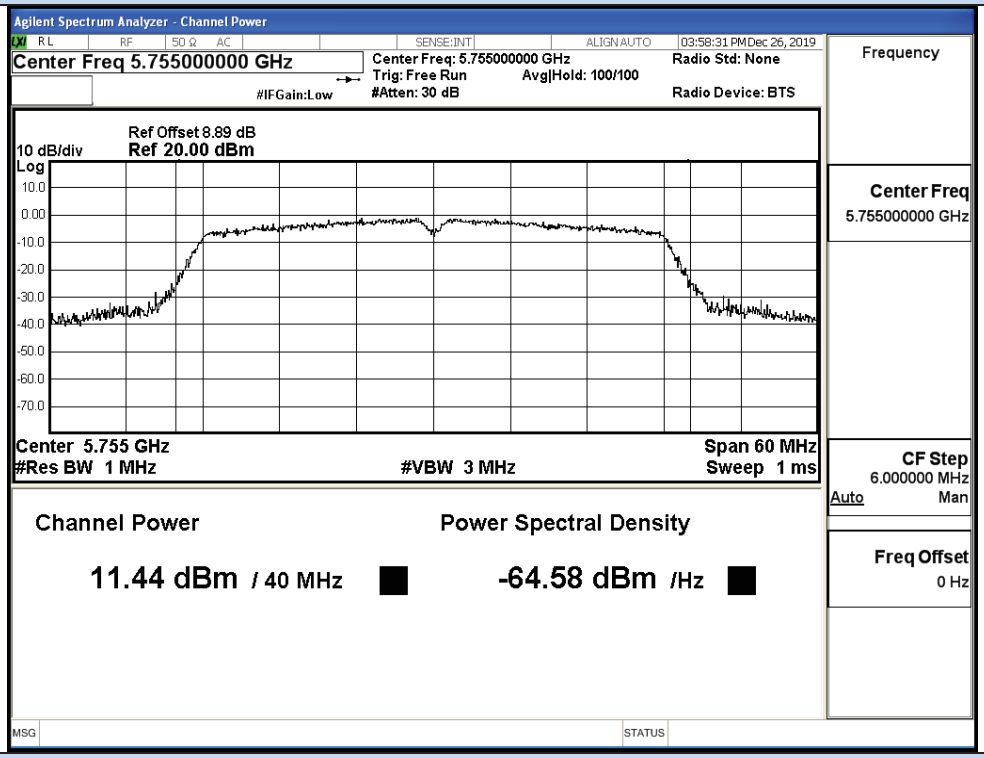


IEEE 802.11n20 / Channel 157 / 5785MHz

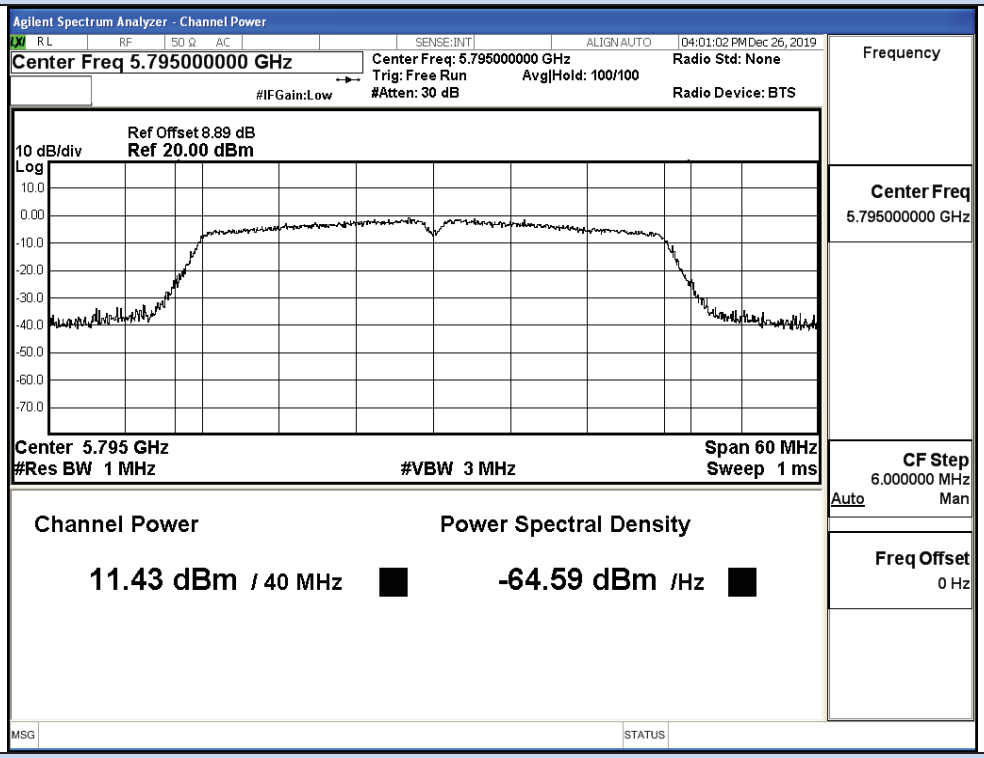


IEEE 802.11n20 / Channel 165 / 5825MHz

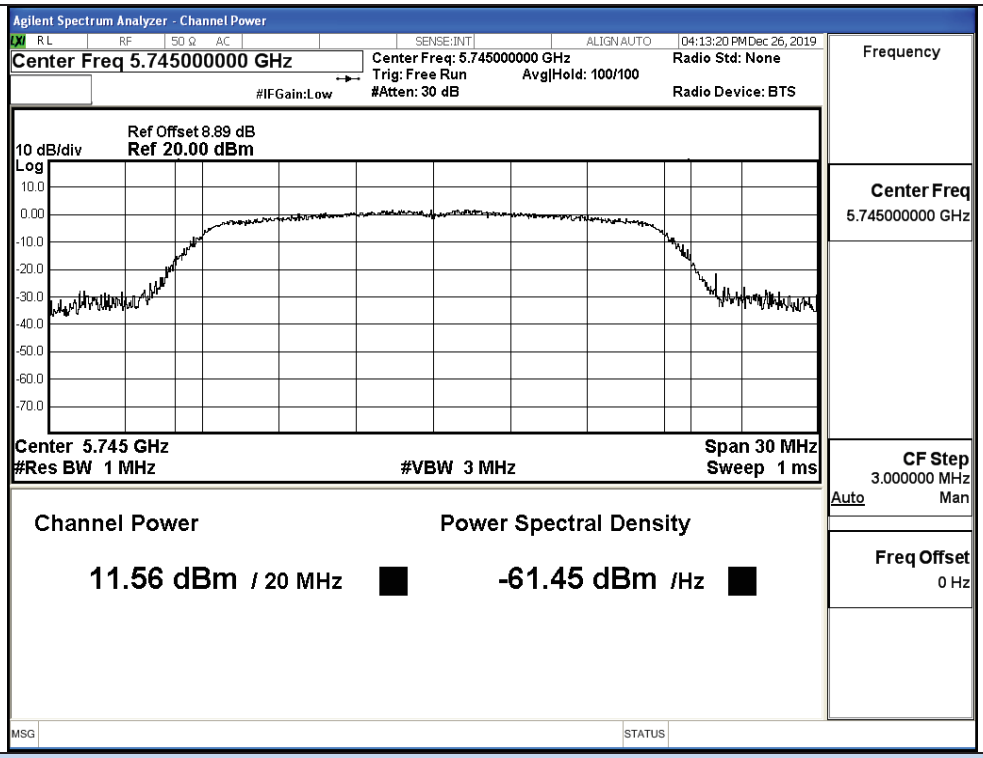
Maximum Conducted Output Power



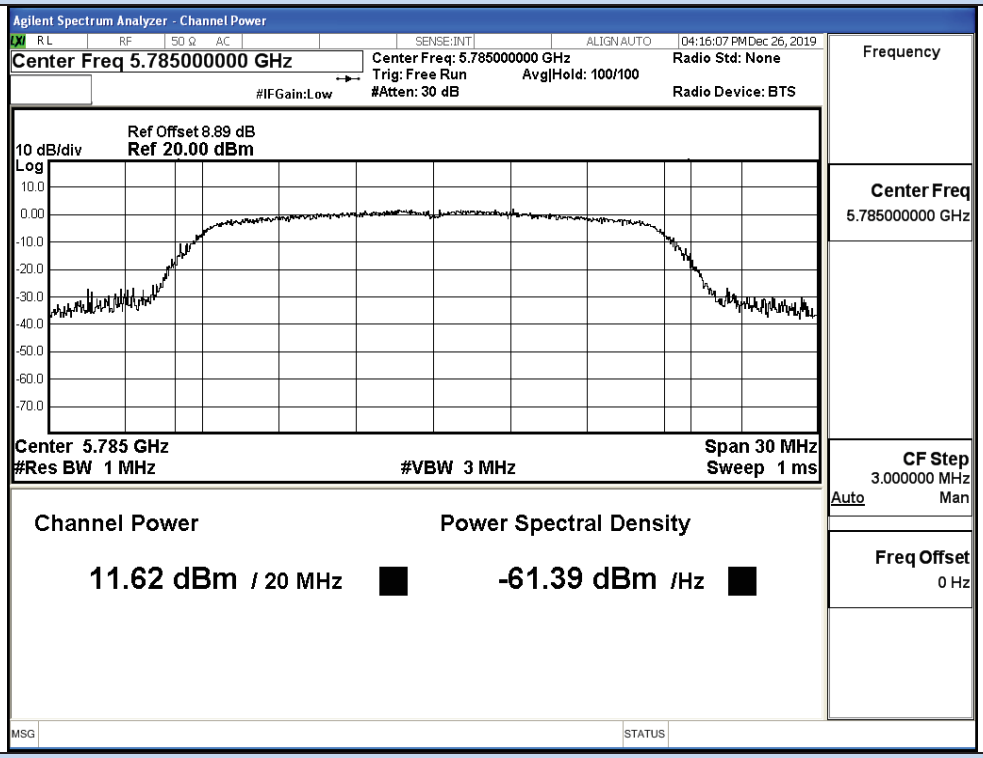
IEEE 802.11n40 / Channel 151 / 5755MHz



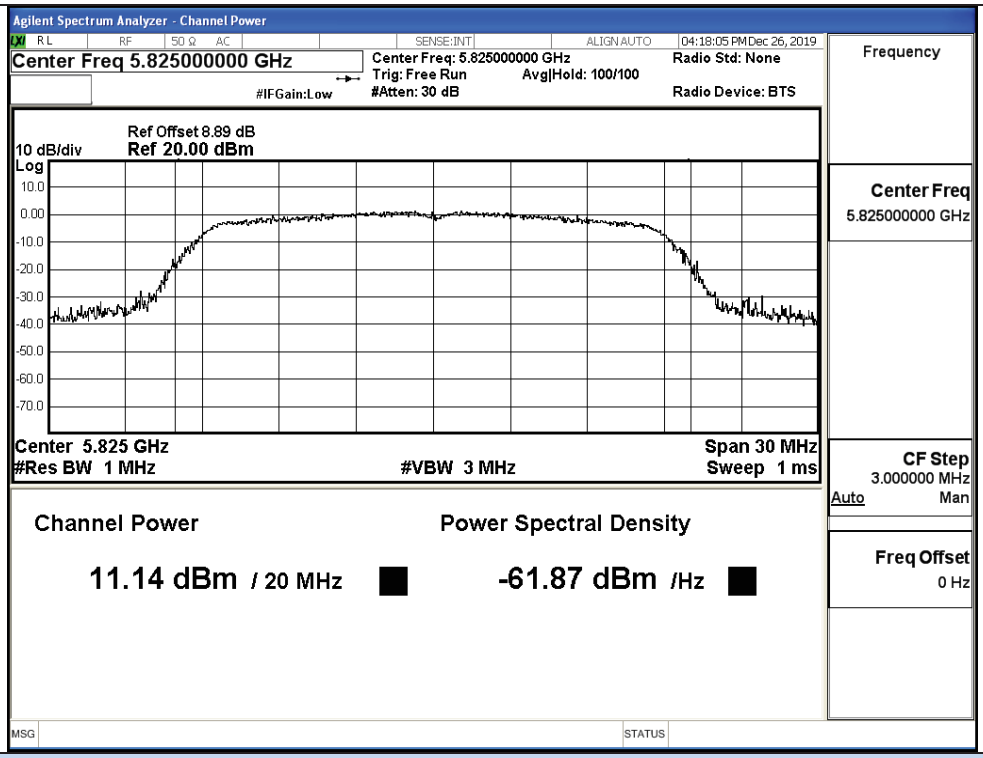
IEEE 802.11n40 / Channel 159 / 5795MHz



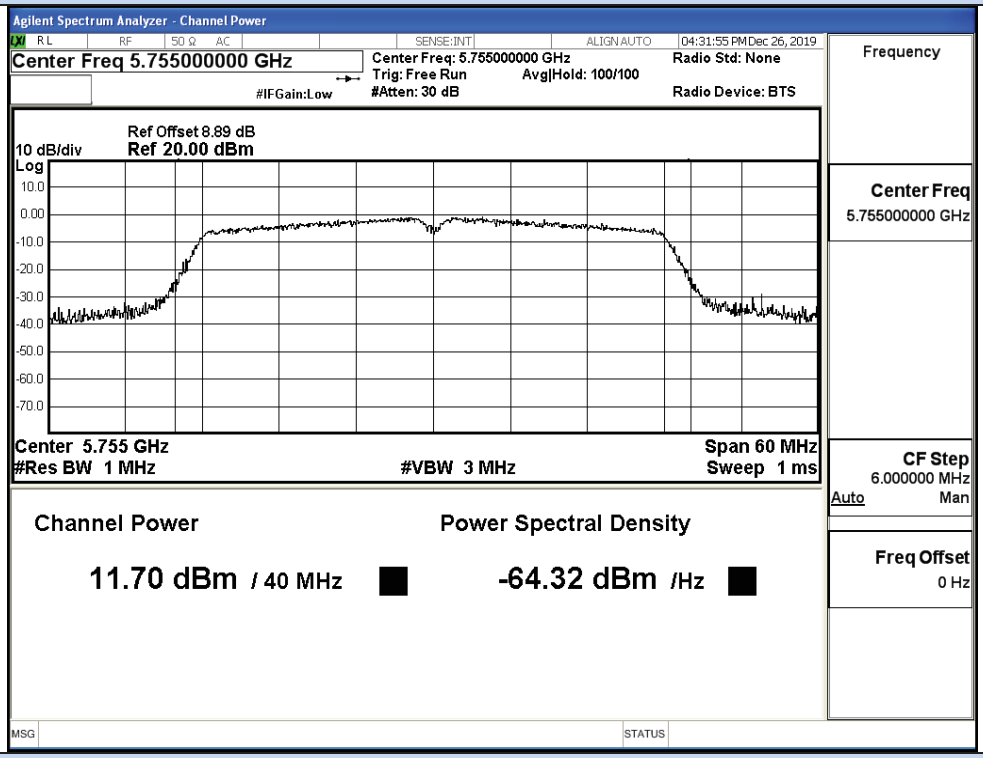
IEEE 802.11ac20 / Channel 149 / 5745MHz



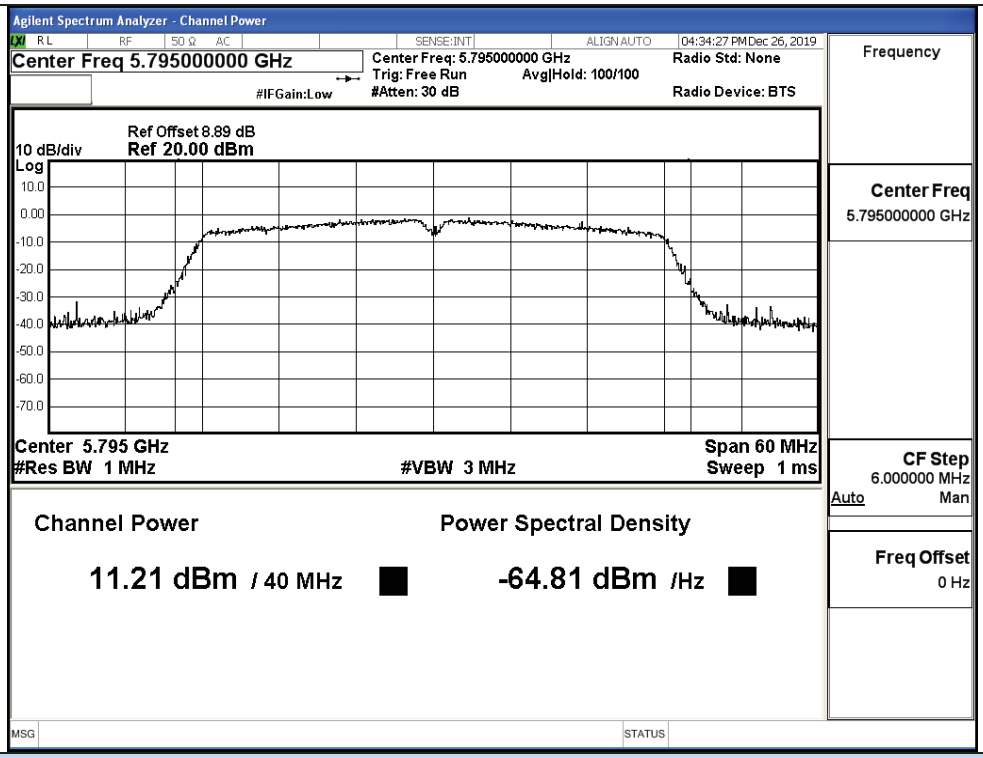
IEEE 802.11ac20 / Channel 157 / 5785MHz



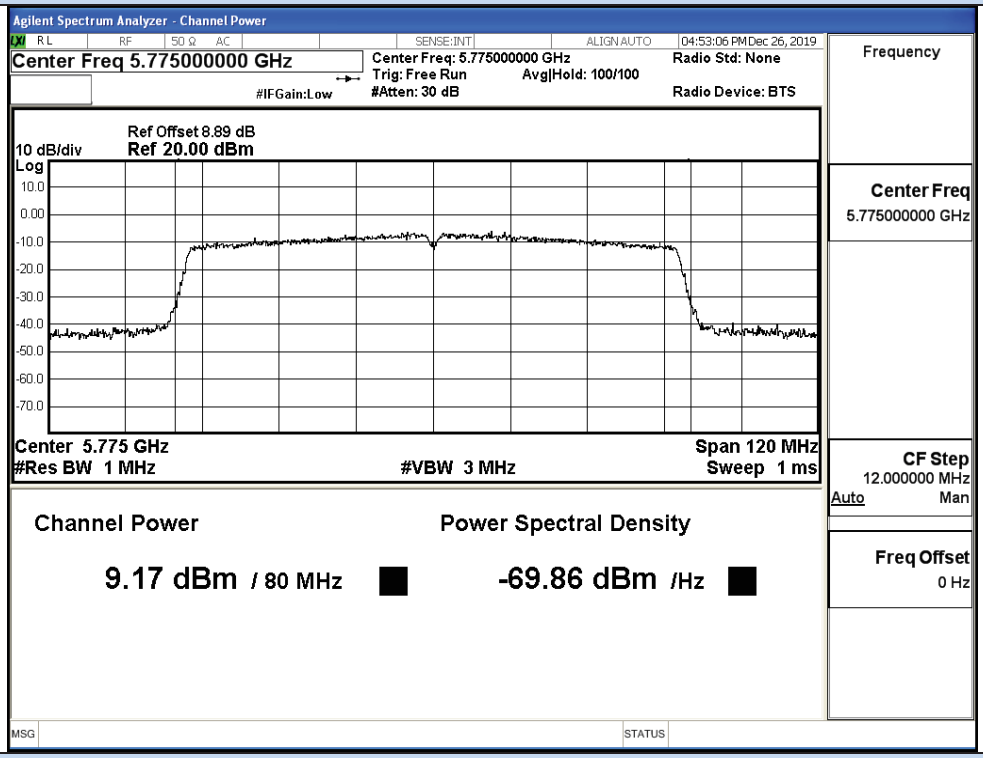
IEEE 802.11ac20 / Channel 165/ 5825MHz



IEEE 802.11ac40 / Channel 151 / 5755MHz



IEEE 802.11ac40 / Channel 159 / 5795MHz

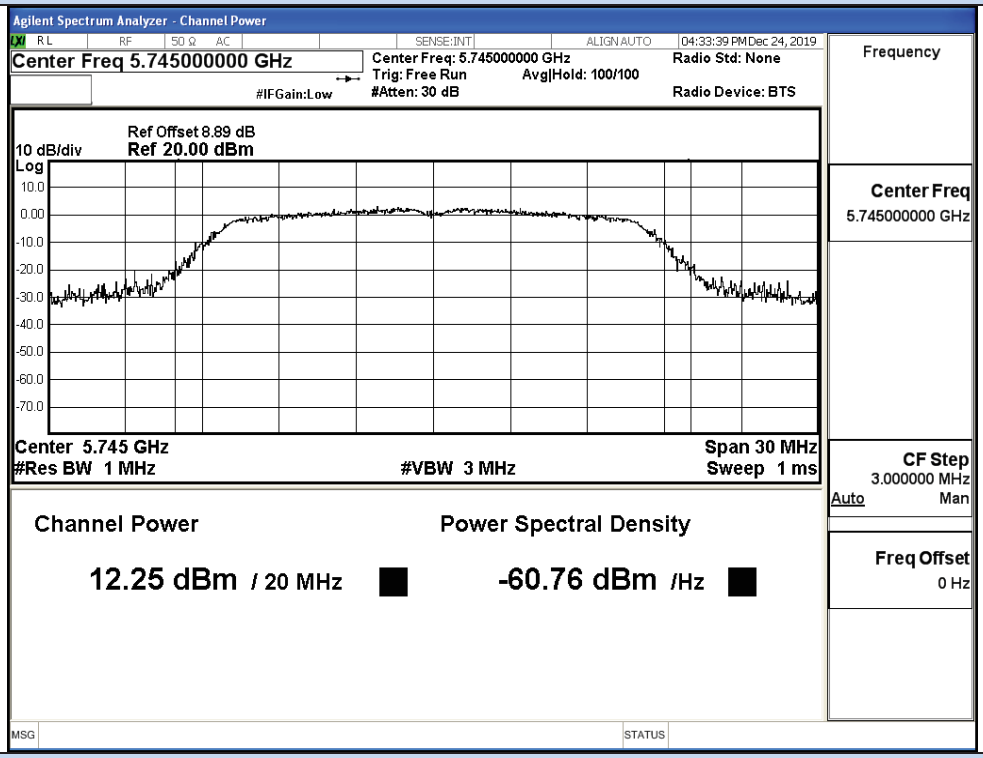


IEEE 802.11ac80 / Channel 155 / 5775MHz

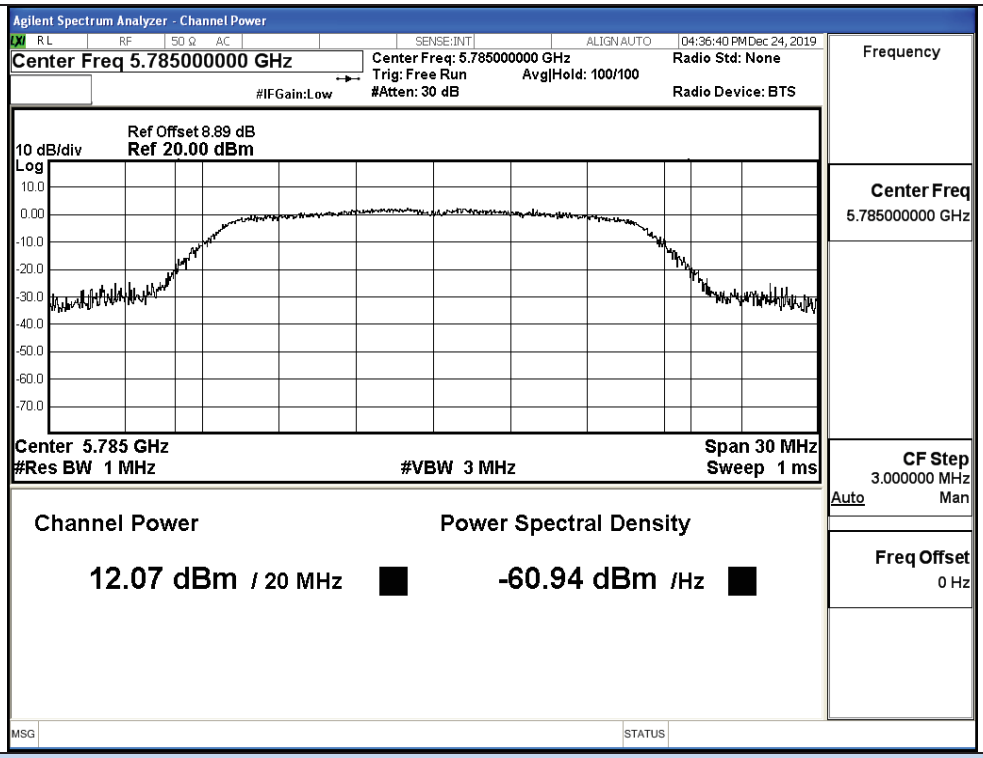
Ant1

Test Mode	Channel	Frequency (MHz)	AVG Conducted Power (dBm)	Duty Cycle Factor(dB)	Report Conducted Power(dBm)	Limit (dBm)	Verdict
11A	149	5745	12.25	0	12.25	30	Pass
	157	5785	12.07	0	12.07		Pass
	165	5825	12.01	0	12.01		Pass
11N20 SISO	149	5745	11.34	0	11.34	30	Pass
	157	5785	11.15	0	11.15		Pass
	165	5825	11	0	11		Pass
11N40 SISO	151	5755	11.41	0	11.41	30	Pass
	159	5795	11.21	0	11.21		Pass
11AC20 SISO	149	5745	11.18	0	12.62	30	Pass
	157	5785	11.29	0	10.38		Pass
	165	5825	11.22	0	10.06		Pass
11AC40 SISO	151	5755	8.21	0	8.21	30	Pass
	159	5795	6.74	0	6.74		Pass
11AC80 SISO	155	5775	8.69	0	8.69	30	Pass

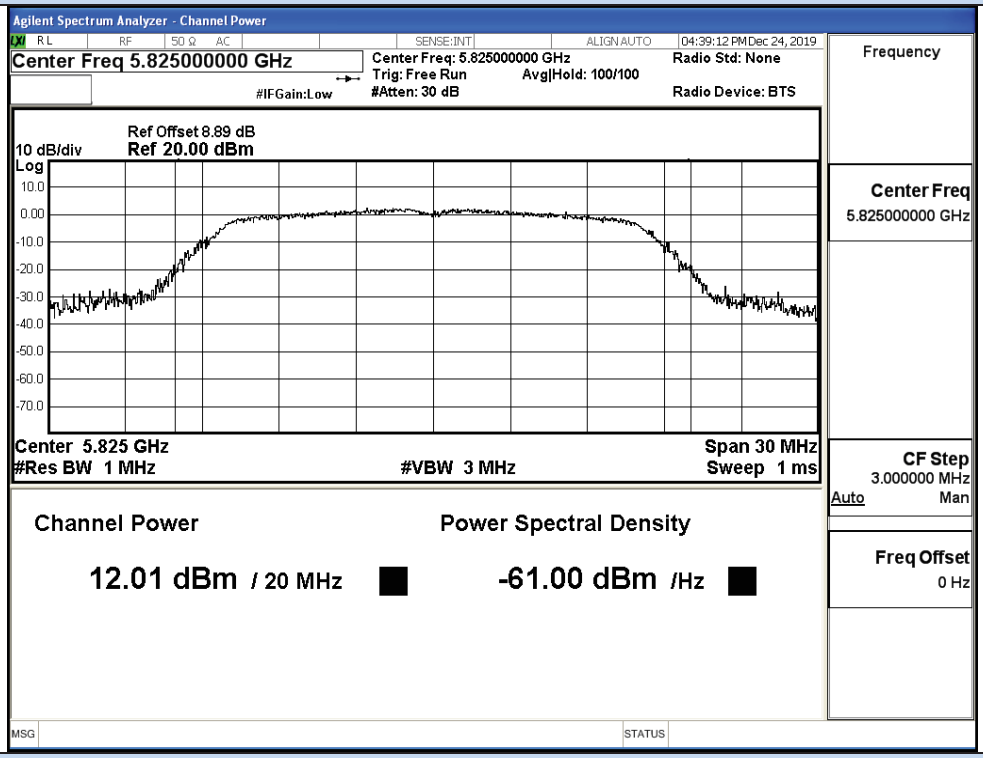
Maximum Conducted Output Power



IEEE 802.11a / Channel 149 / 5745MHz

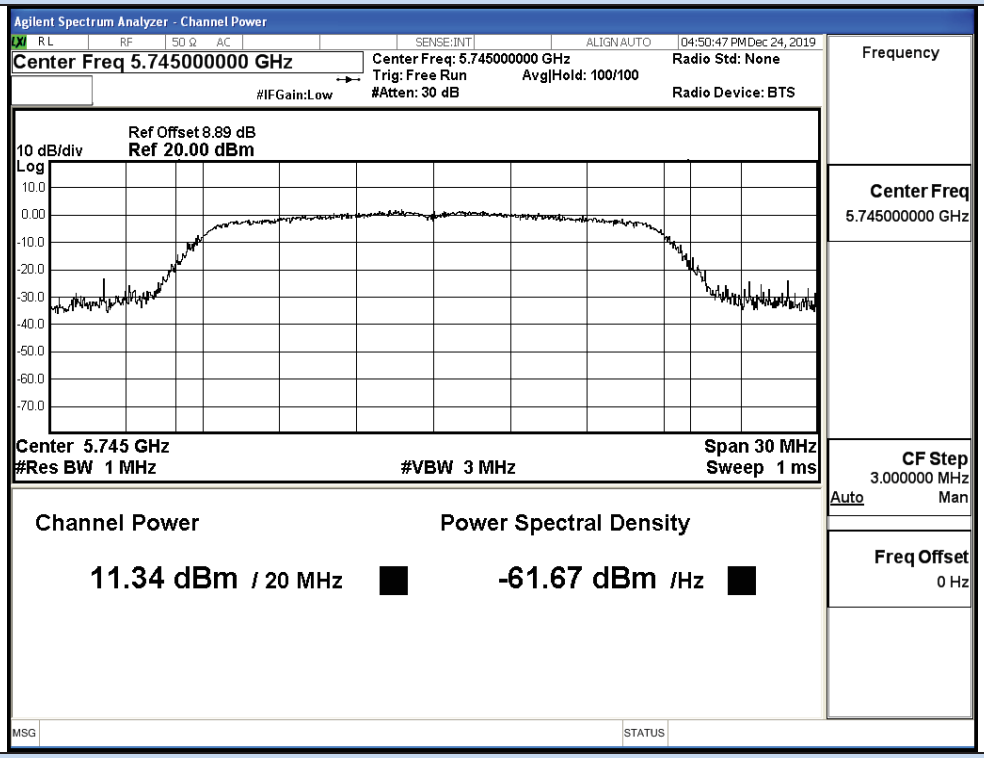


IEEE 802.11a / Channel 157 / 5785MHz

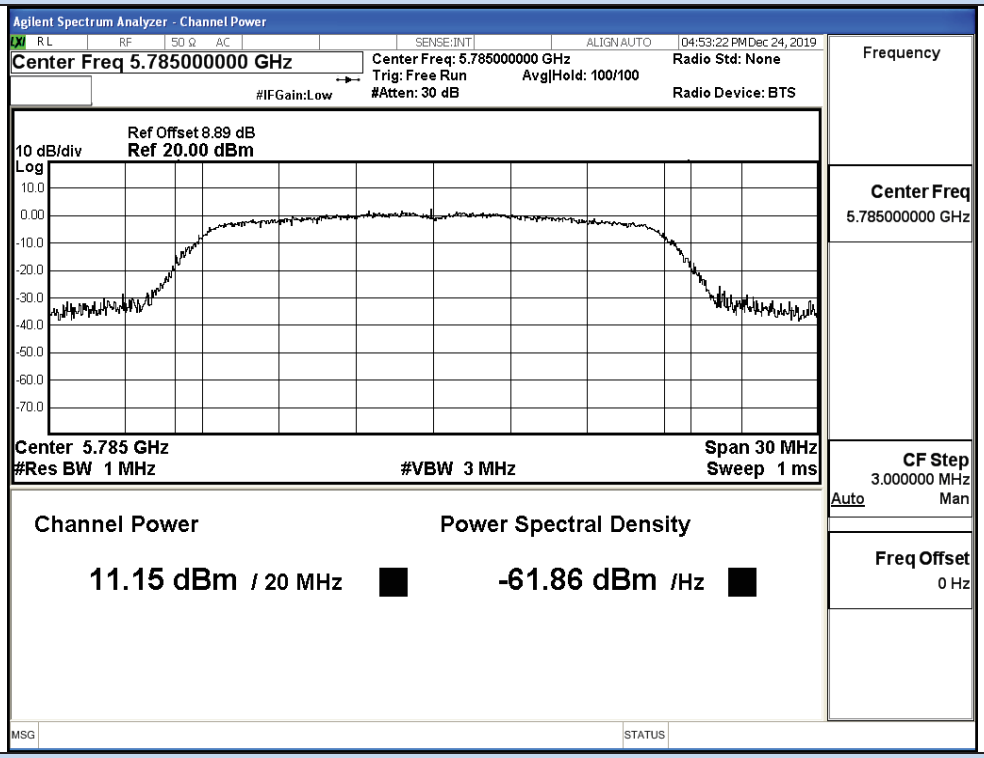


IEEE 802.11a / Channel 165 / 5825MHz

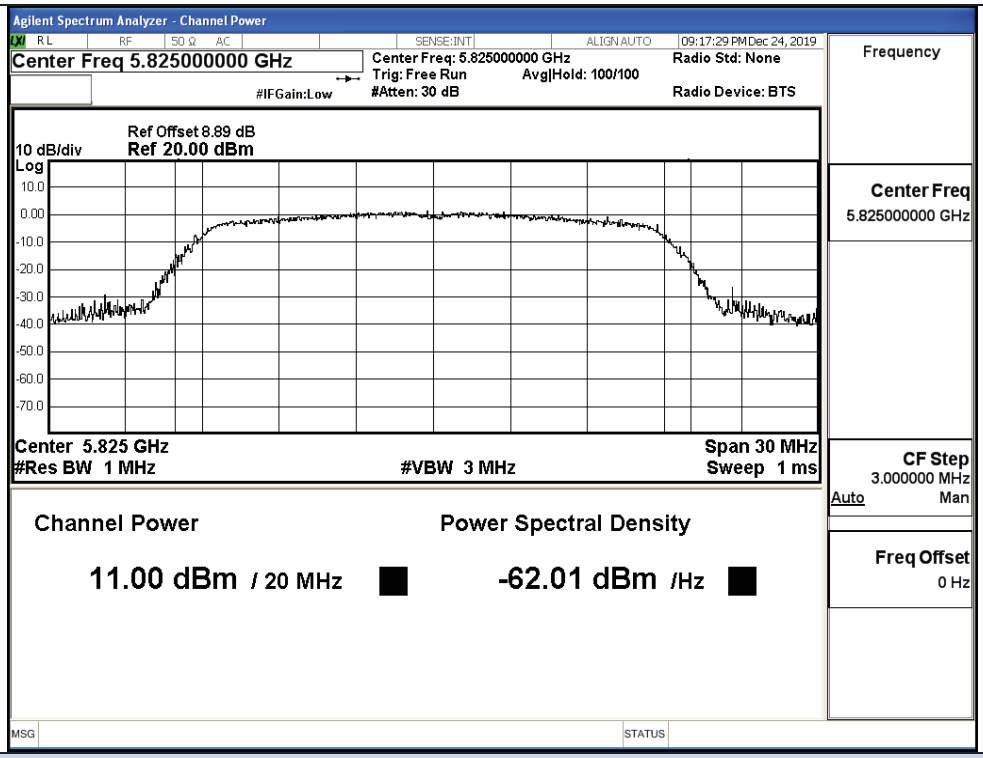
Maximum Conducted Output Power



IEEE 802.11n20 / Channel 149 / 5745MHz

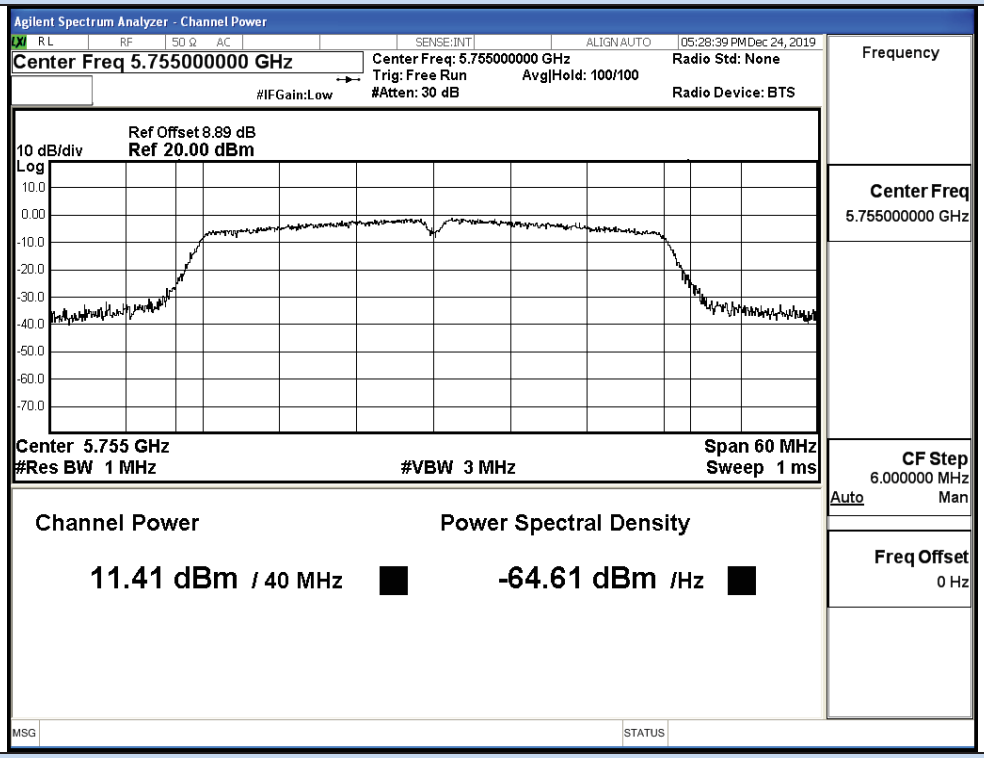


IEEE 802.11n20 / Channel 157 / 5785MHz

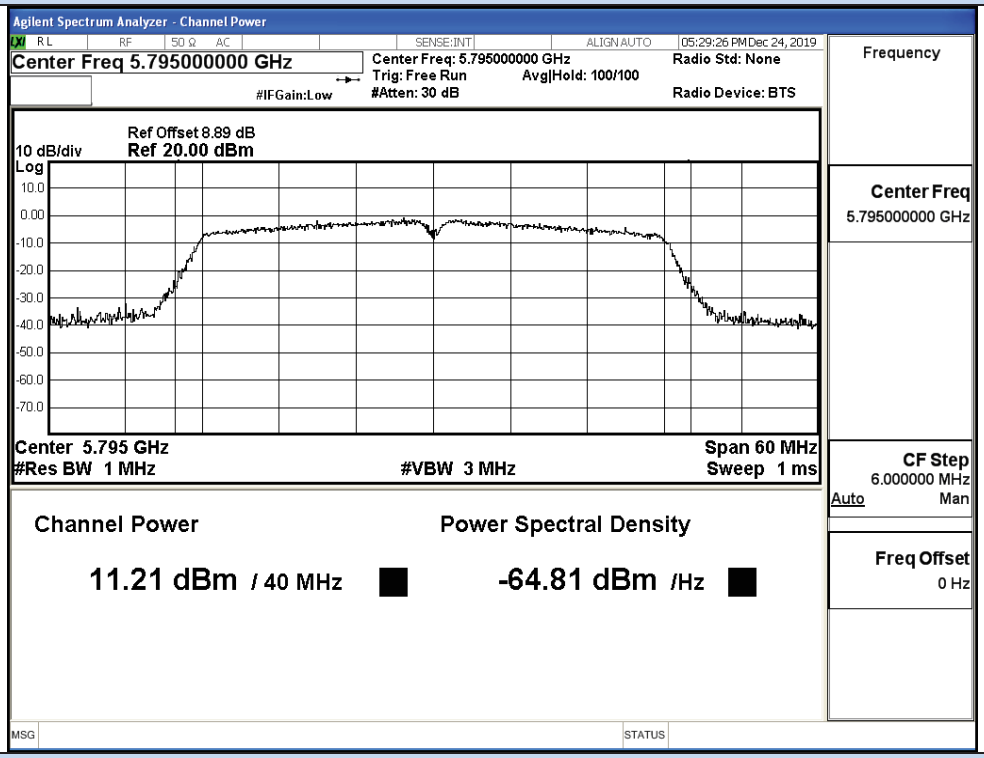


IEEE 802.11n20 / Channel 165 / 5825MHz

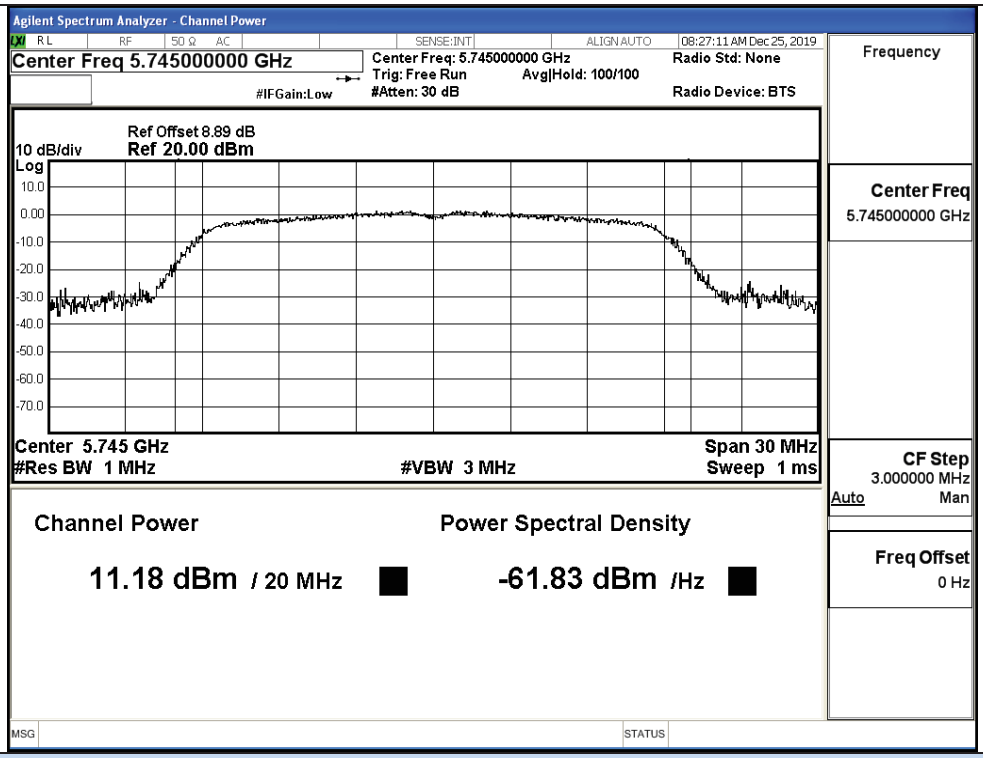
Maximum Conducted Output Power



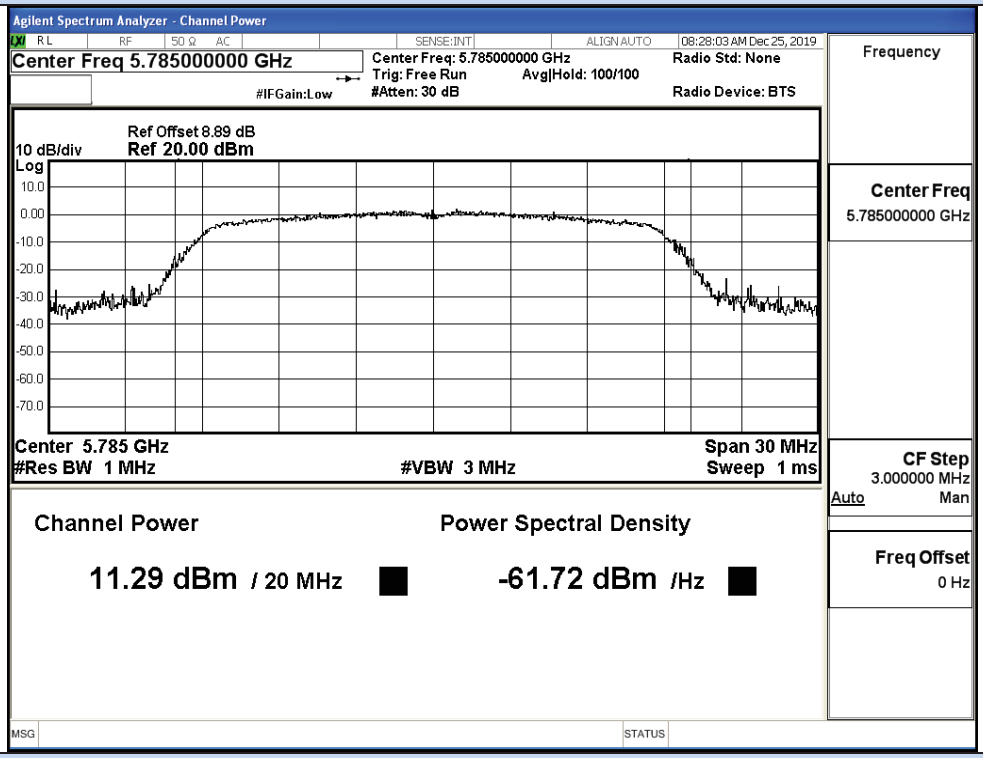
IEEE 802.11n40 / Channel 151 / 5755MHz



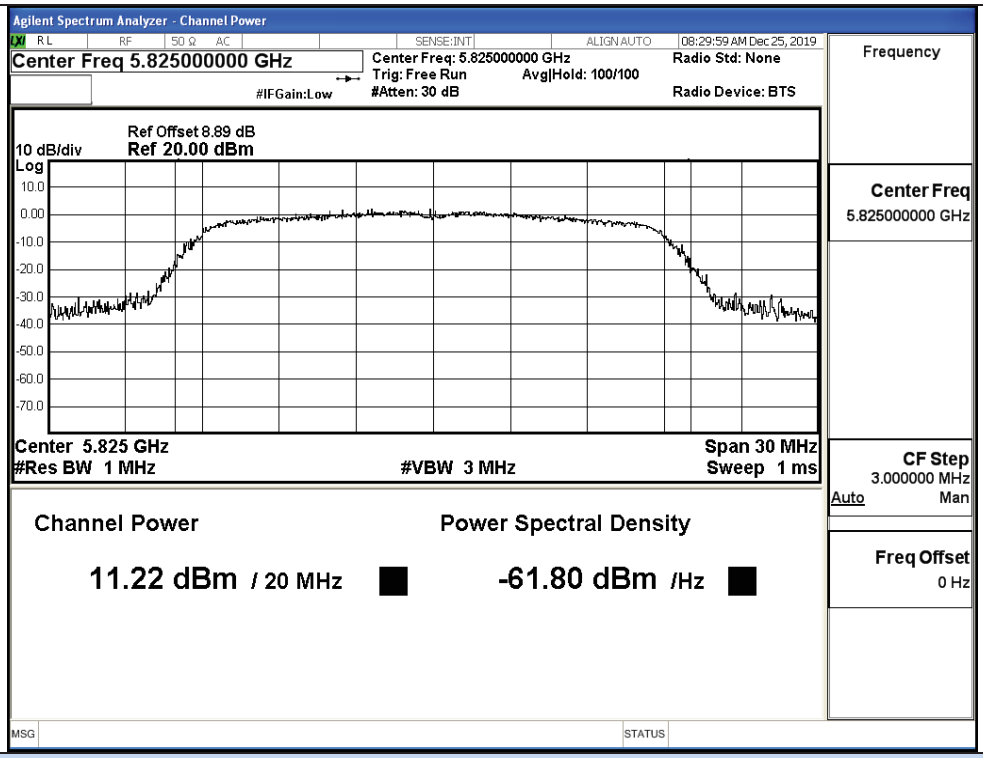
IEEE 802.11n40 / Channel 159 / 5795MHz



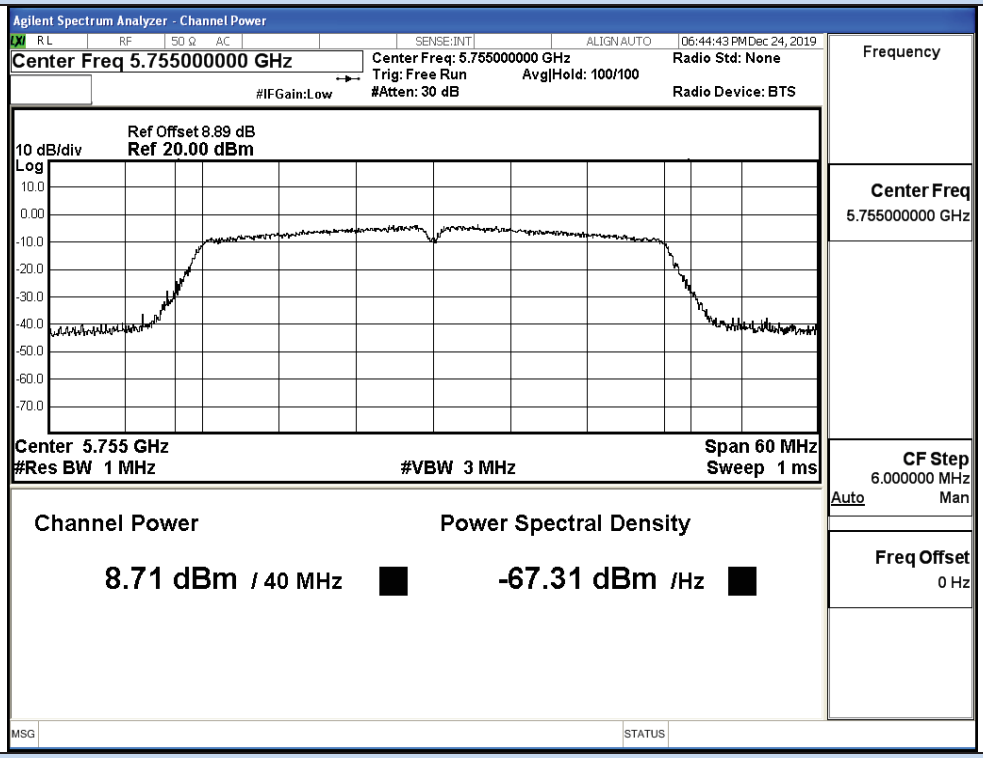
IEEE 802.11ac20 / Channel 149 / 5745MHz



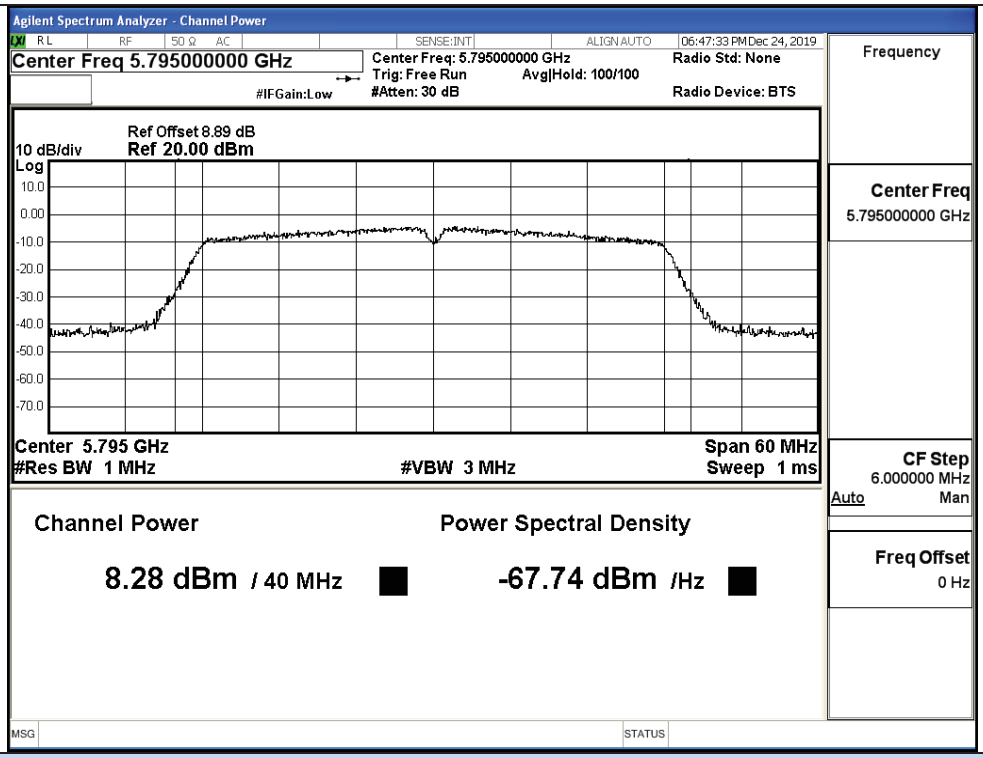
IEEE 802.11ac20 / Channel 157 / 5785MHz



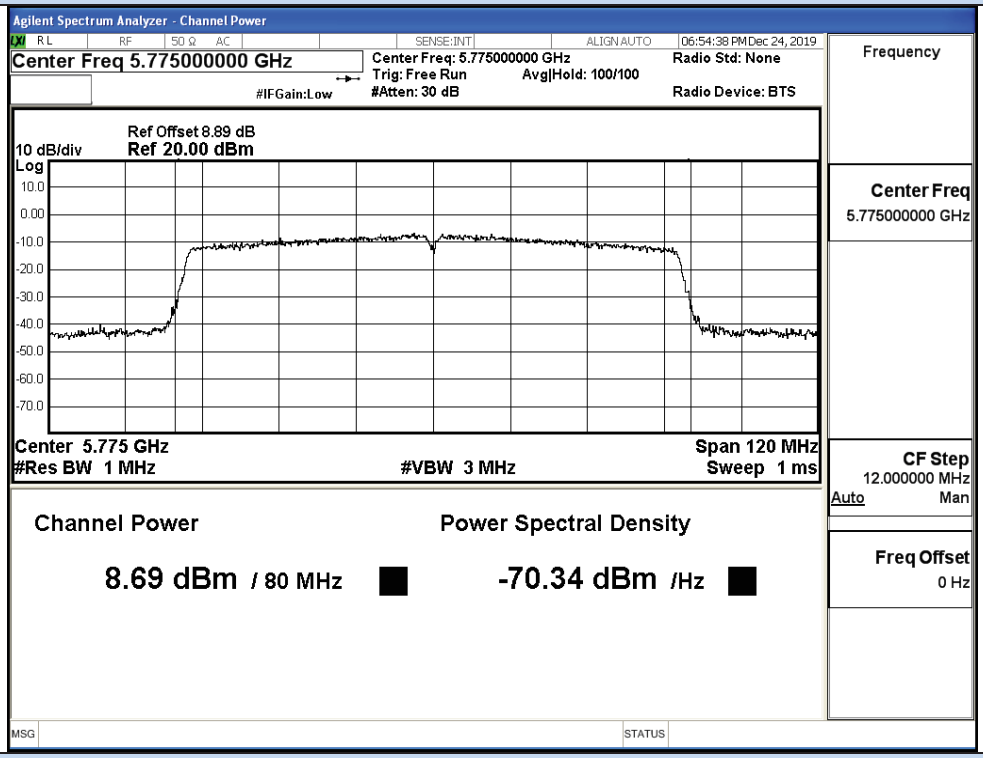
IEEE 802.11ac20 / Channel 165/ 5825MHz



IEEE 802.11ac40 / Channel 151 / 5755MHz



IEEE 802.11ac40 / Channel 159 / 5795MHz



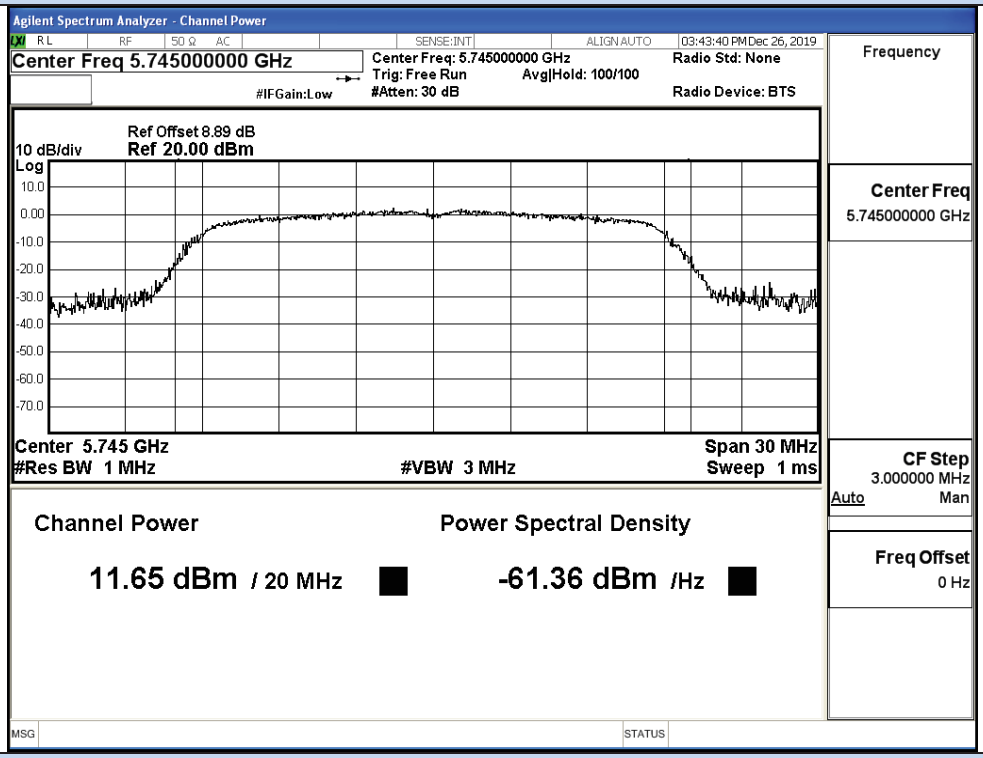
IEEE 802.11ac80 / Channel 155 / 5775MHz

Ant0+1

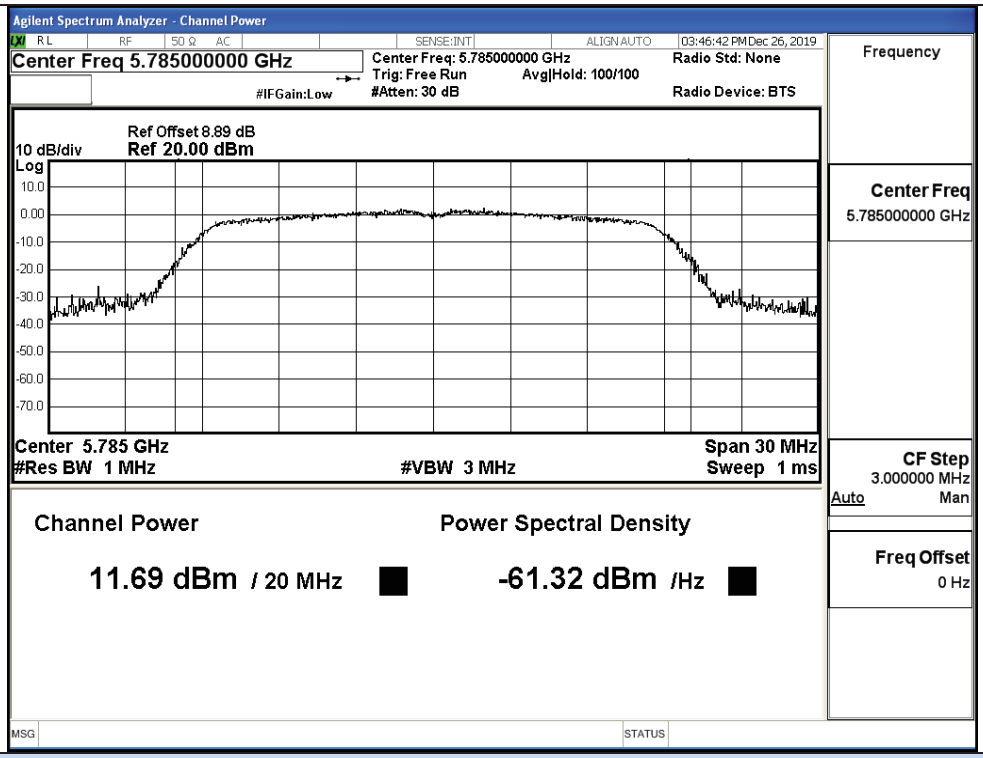
Test Mode	Channel	Frequency (MHz)	ANT 0 AVG Conducted Power (dBm)	ANT 1 AVG Conducted Power (dBm)	ANT 0+1 AVG Conducted Power (dBm)	Duty Cycle Factor(dB)	Report Conducted Power(dBm)	Limit (dBm)	Verdict
11N20 SISO	149	5745	11.65	11.34	14.51	0	14.51	30	Pass
	157	5785	11.69	11.15	14.44	0	14.44		Pass
	165	5825	11.17	11	14.10	0	14.10		Pass
11N40 SISO	151	5755	11.44	11.41	14.44	0	14.44	30	Pass
	159	5795	11.43	11.21	14.33	0	14.33		Pass
11AC20 SISO	149	5745	11.6	11.18	14.41	0	14.41	30	Pass
	157	5785	11.47	11.29	14.39	0	14.39		Pass
	165	5825	11.27	11.22	14.26	0	14.26		Pass
11AC40 SISO	151	5755	9.41	8.21	11.86	0	11.86	30	Pass
	159	5795	9.01	6.74	11.03	0	11.03		Pass
11AC80 SISO	155	5775	9.17	8.69	11.95	0	11.95	30	Pass

ANT 0

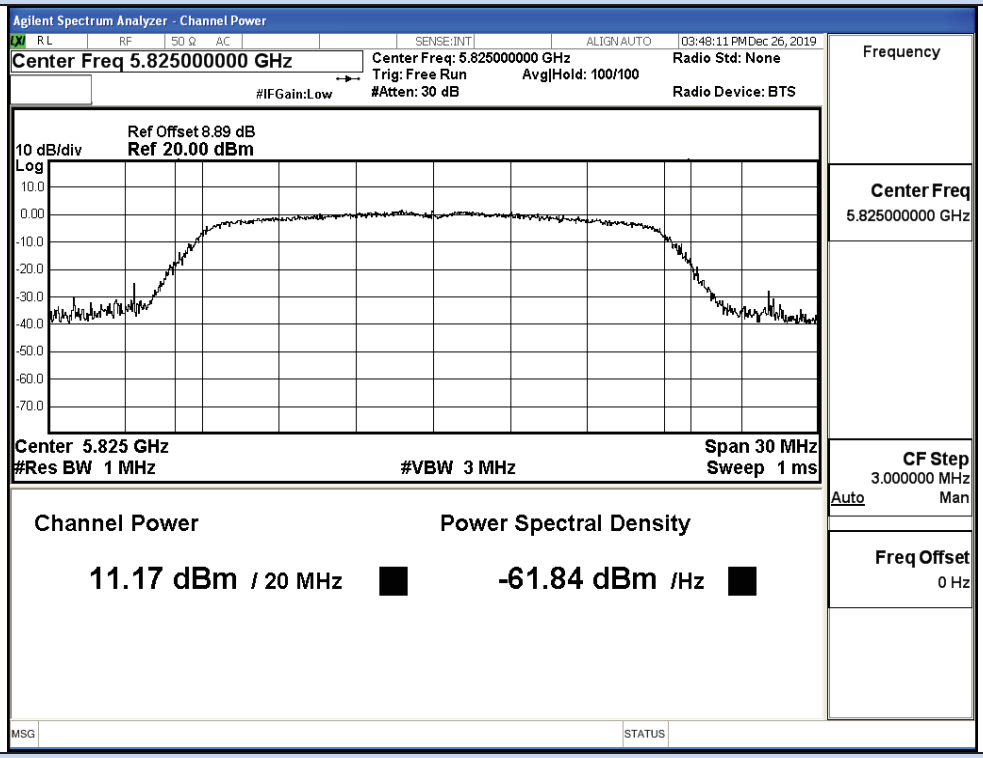
Maximum Conducted Output Power



IEEE 802.11n20 / Channel 149 / 5745MHz

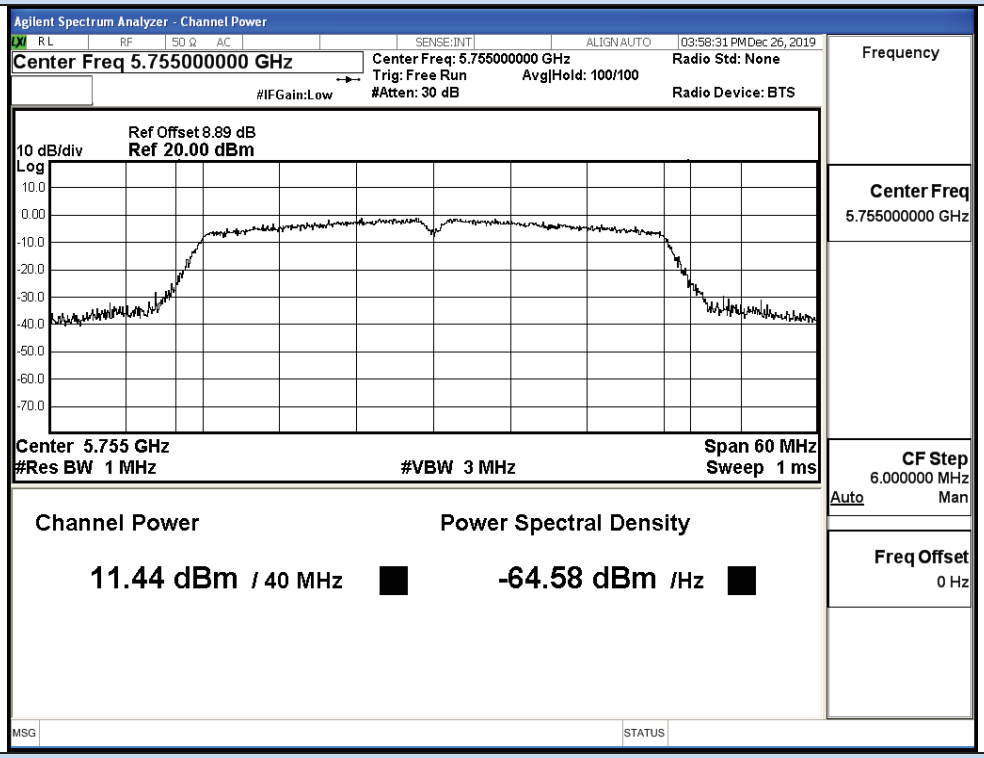


IEEE 802.11n20 / Channel 157 / 5785MHz

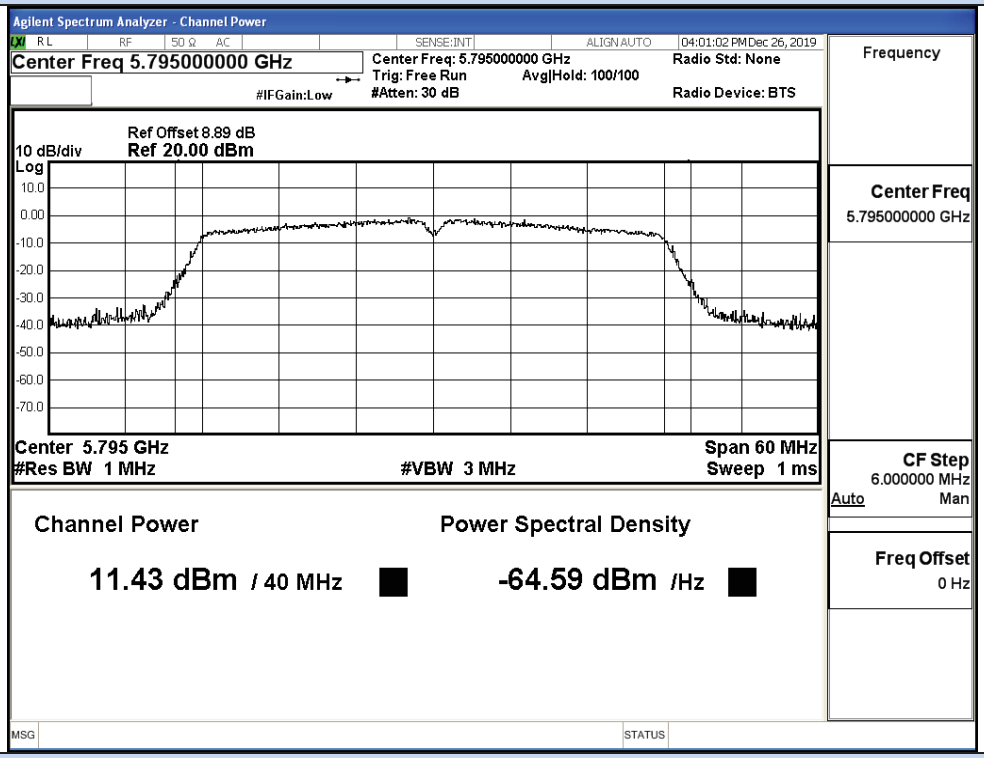


IEEE 802.11n20 / Channel 165 / 5825MHz

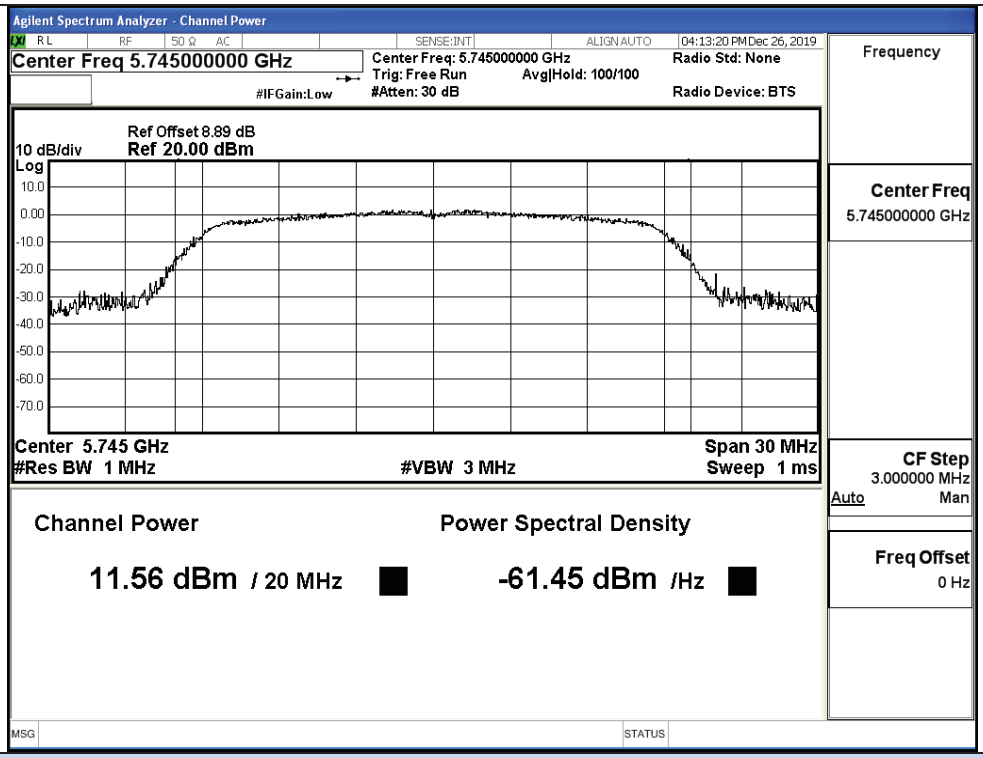
Maximum Conducted Output Power



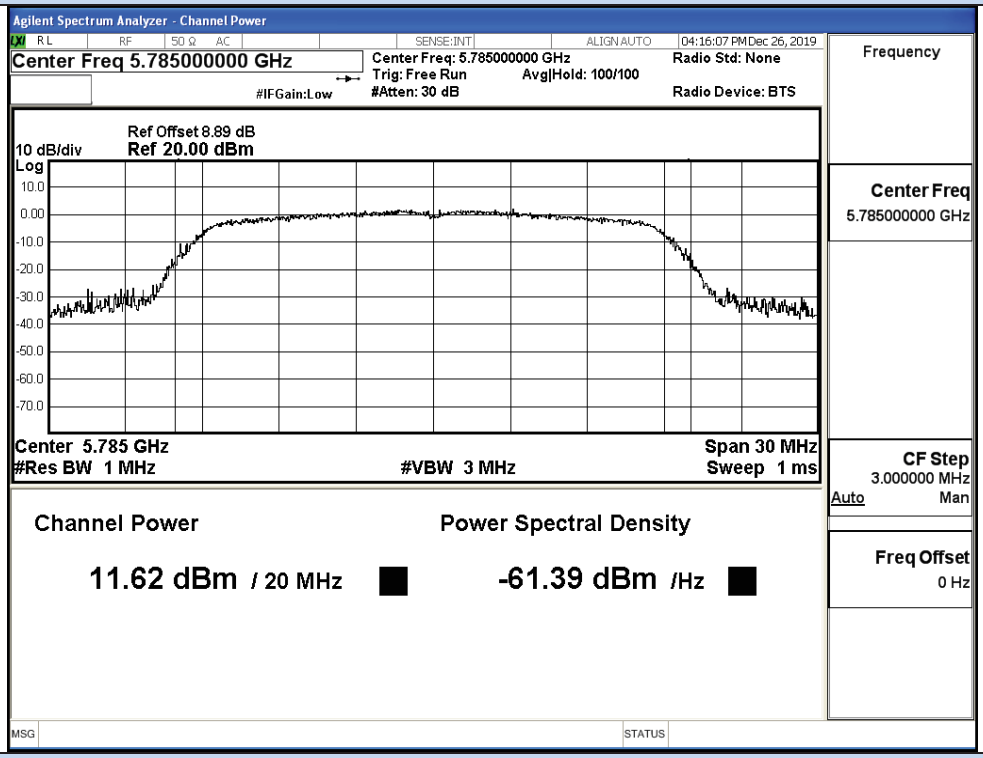
IEEE 802.11n40 / Channel 151 / 5755MHz



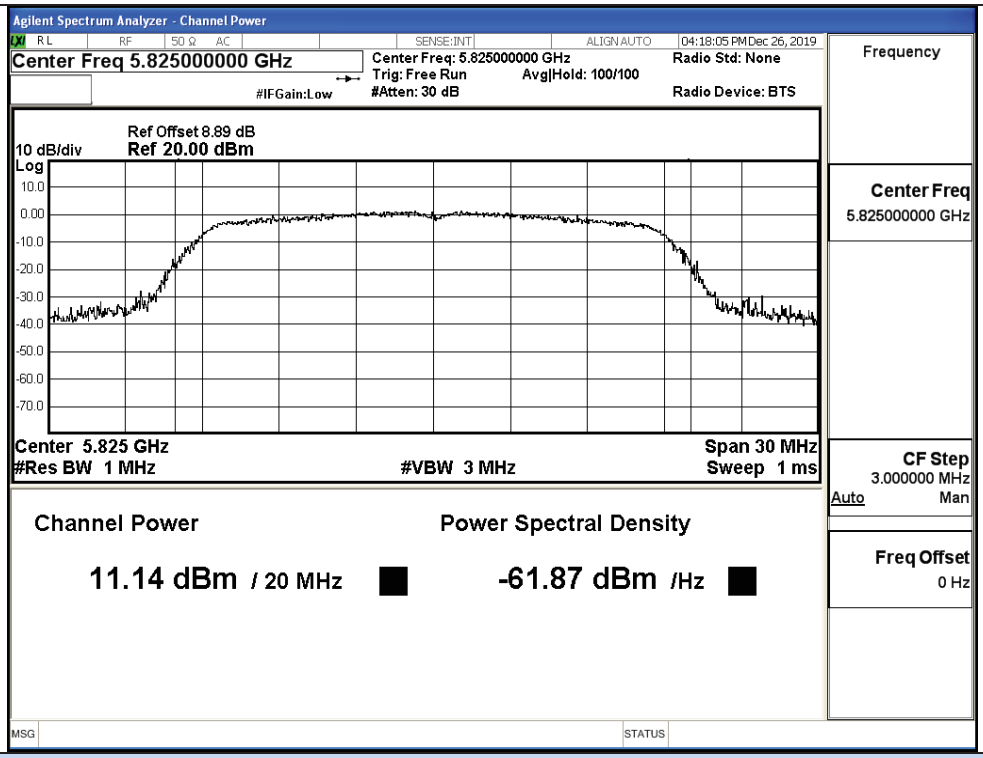
IEEE 802.11n40 / Channel 159 / 5795MHz



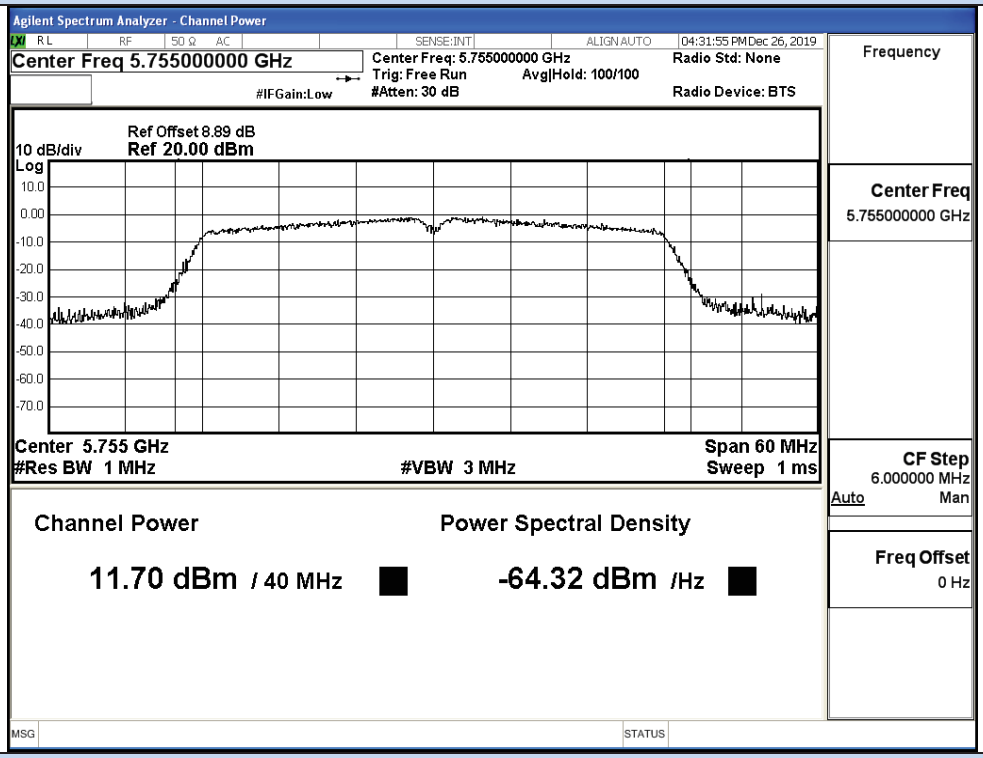
IEEE 802.11ac20 / Channel 149 / 5745MHz



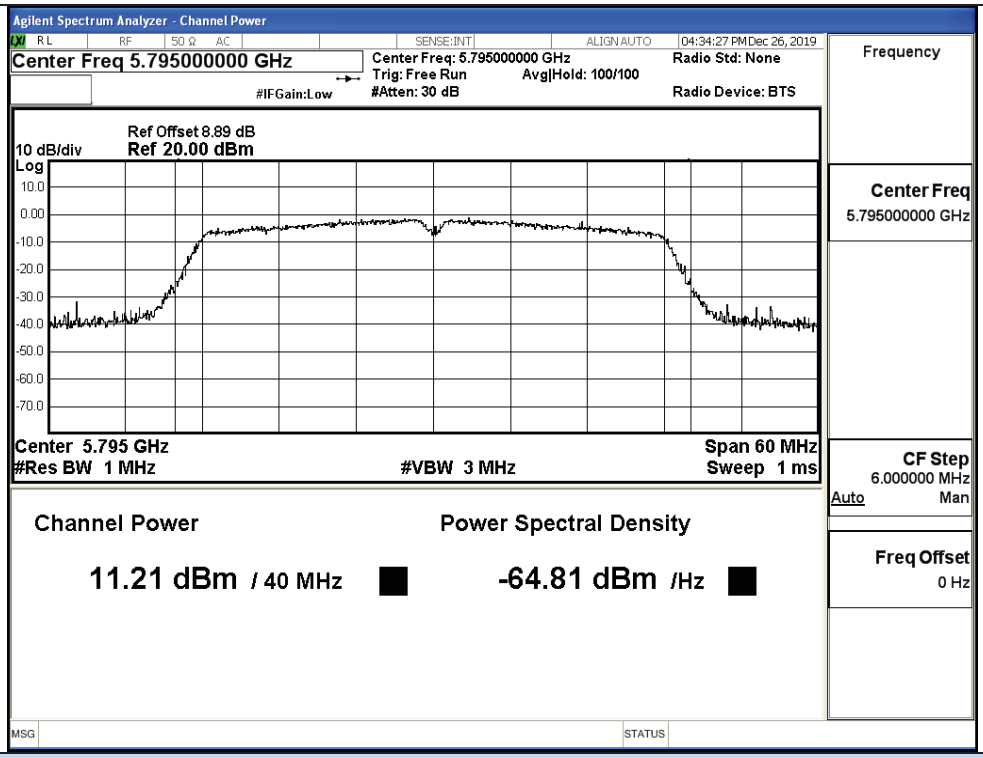
IEEE 802.11ac20 / Channel 157 / 5785MHz



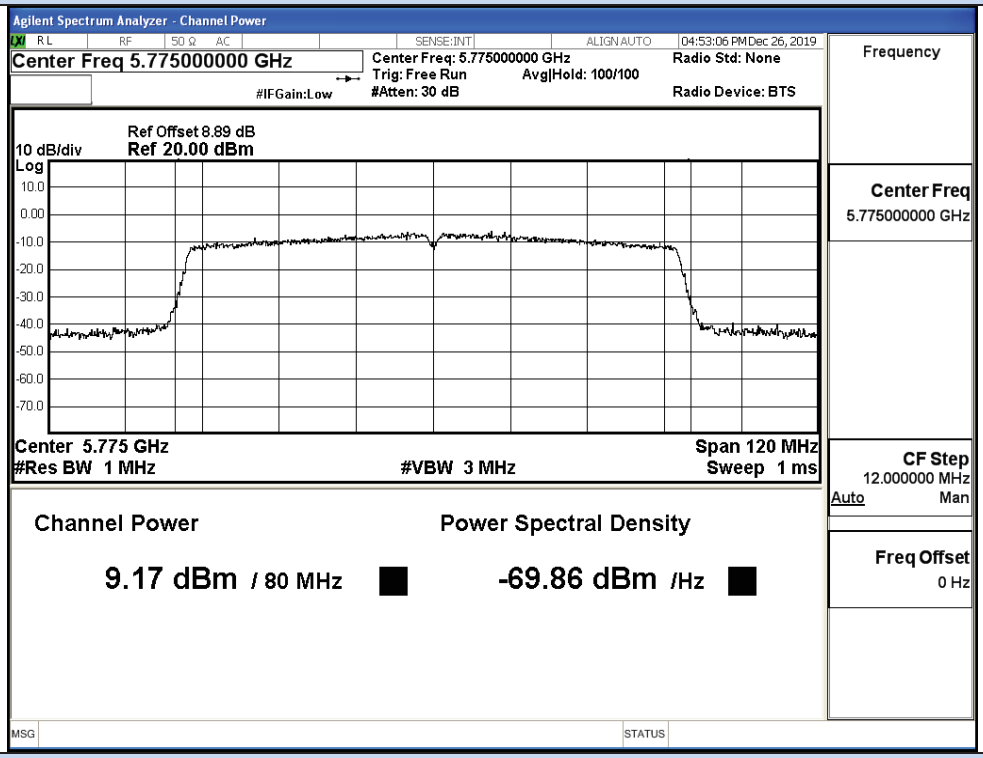
IEEE 802.11ac20 / Channel 165/ 5825MHz



IEEE 802.11ac40 / Channel 151 / 5755MHz



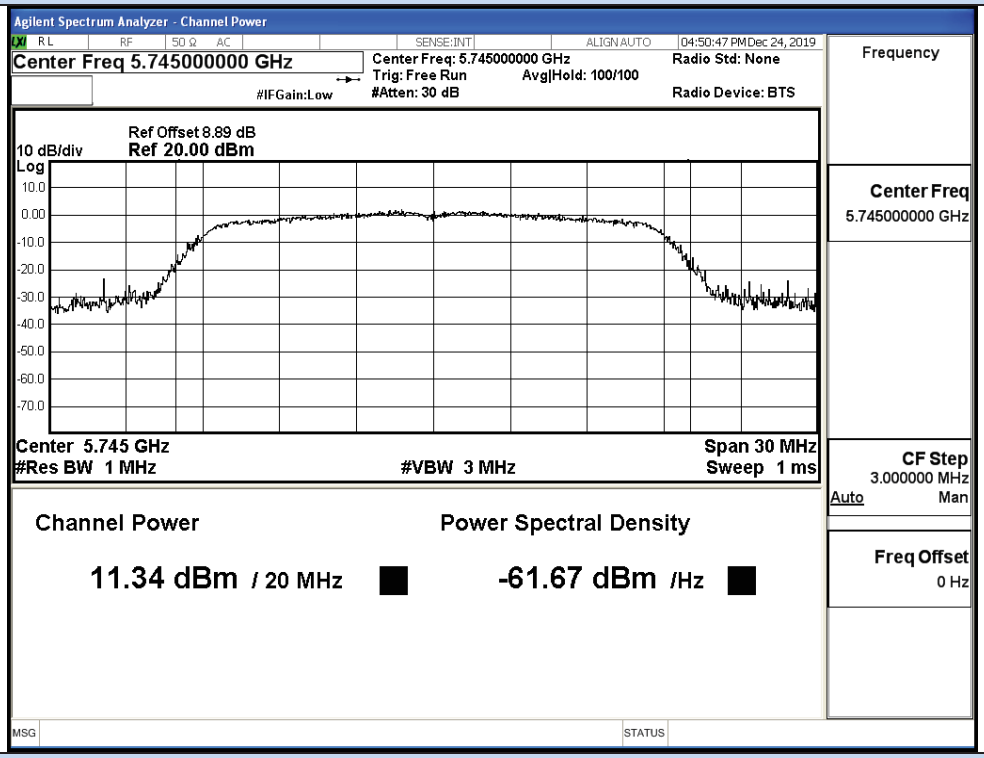
IEEE 802.11ac40 / Channel 159 / 5795MHz



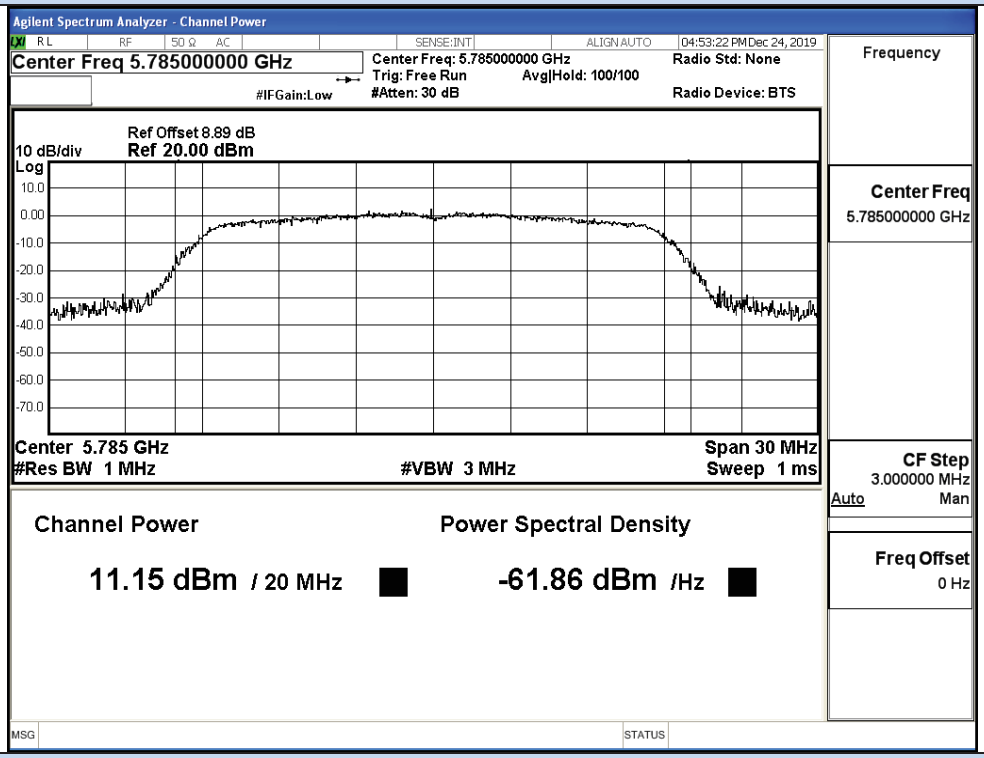
IEEE 802.11ac80 / Channel 155 / 5775MHz

ANT 1

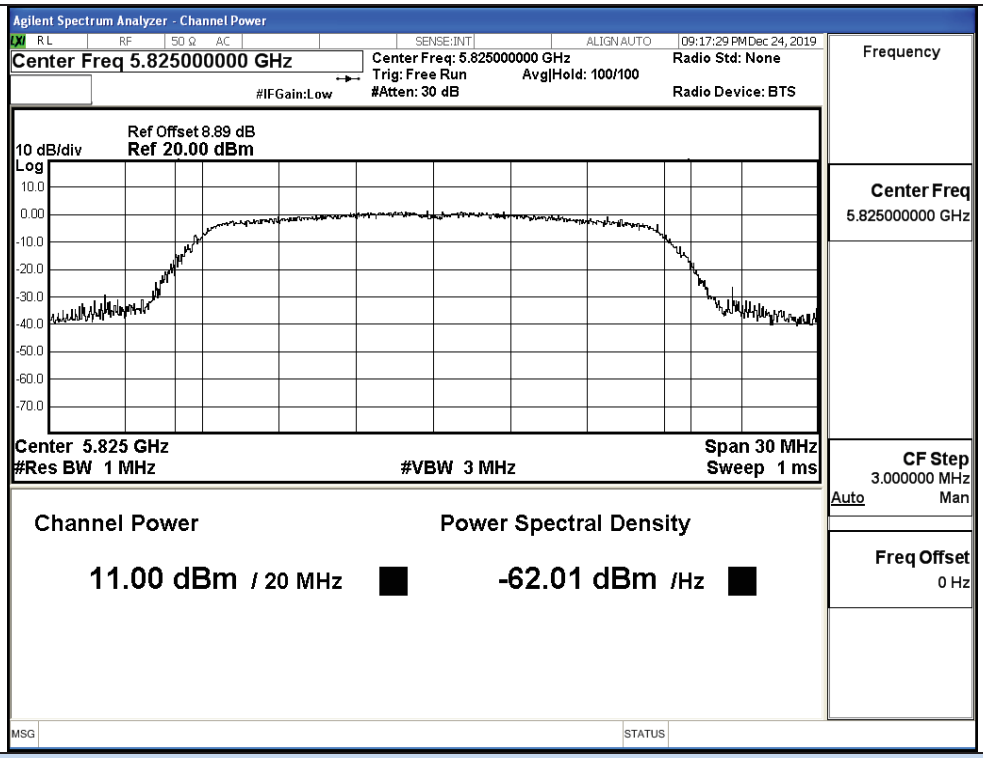
Maximum Conducted Output Power



IEEE 802.11n20 / Channel 149 / 5745MHz

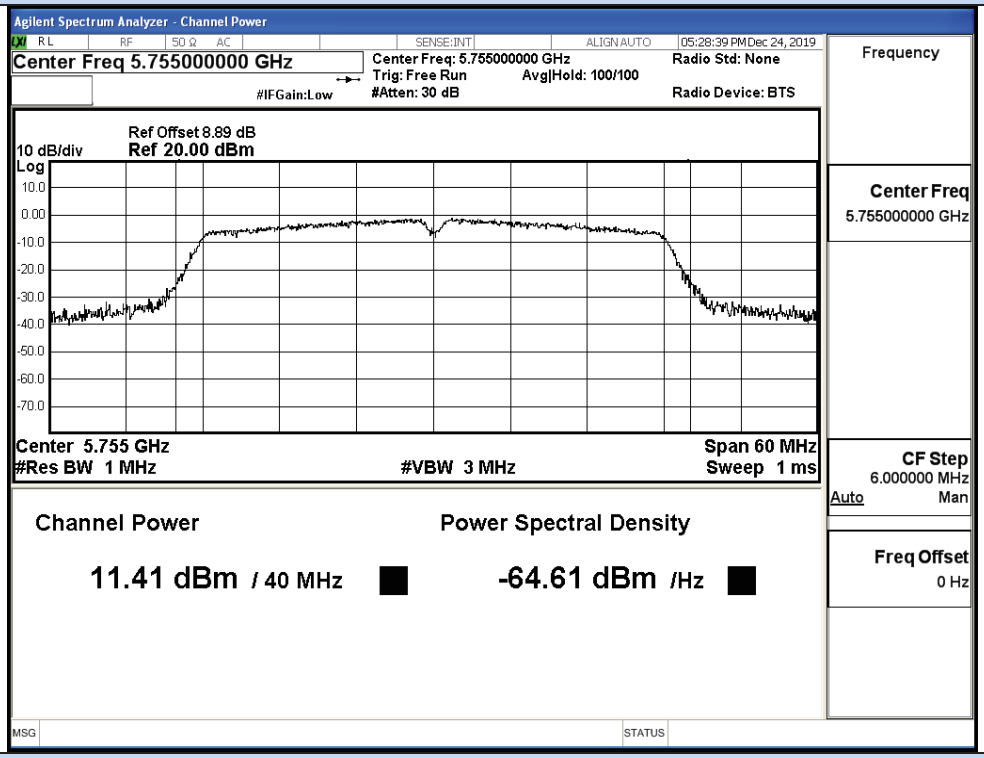


IEEE 802.11n20 / Channel 157 / 5785MHz

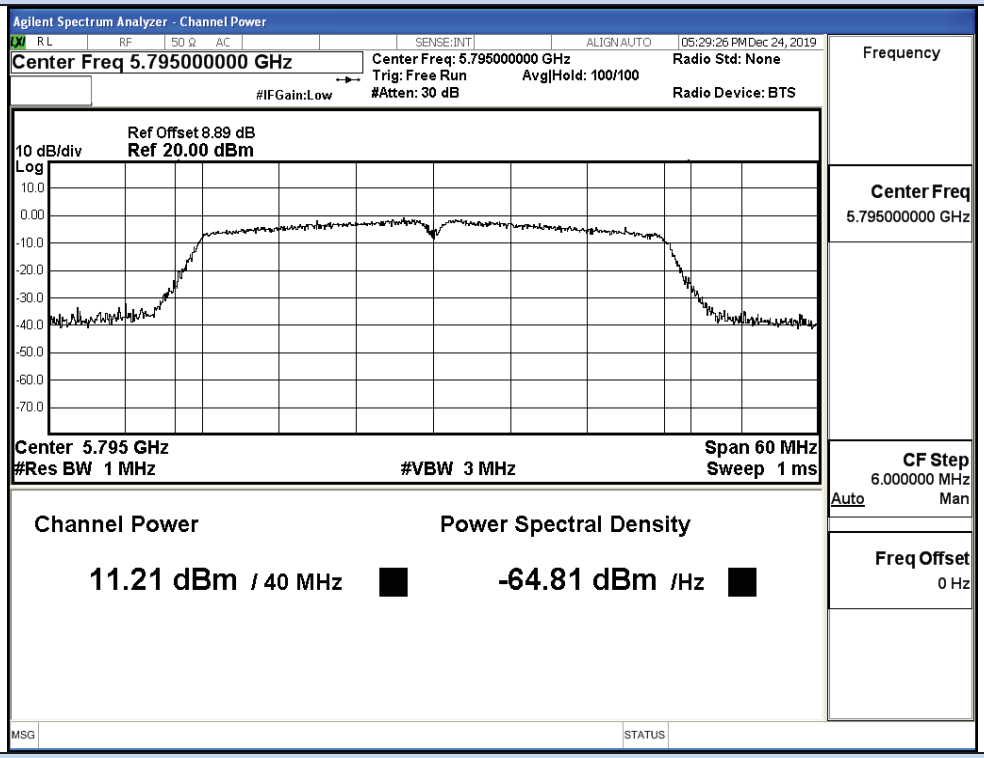


IEEE 802.11n20 / Channel 165 / 5825MHz

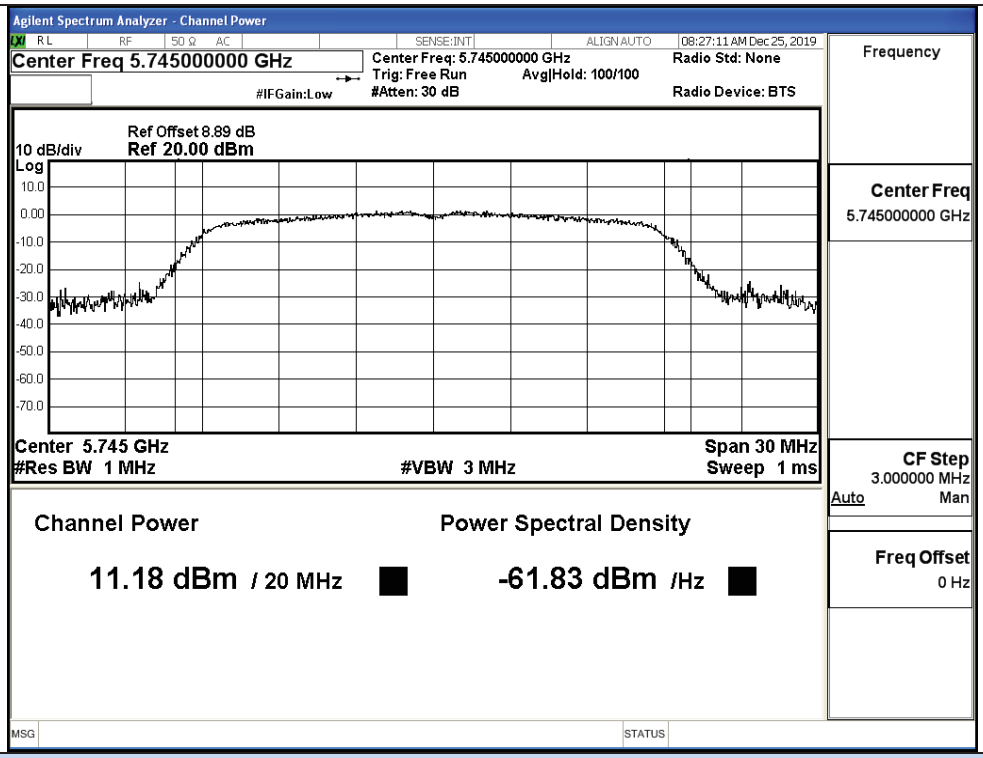
Maximum Conducted Output Power



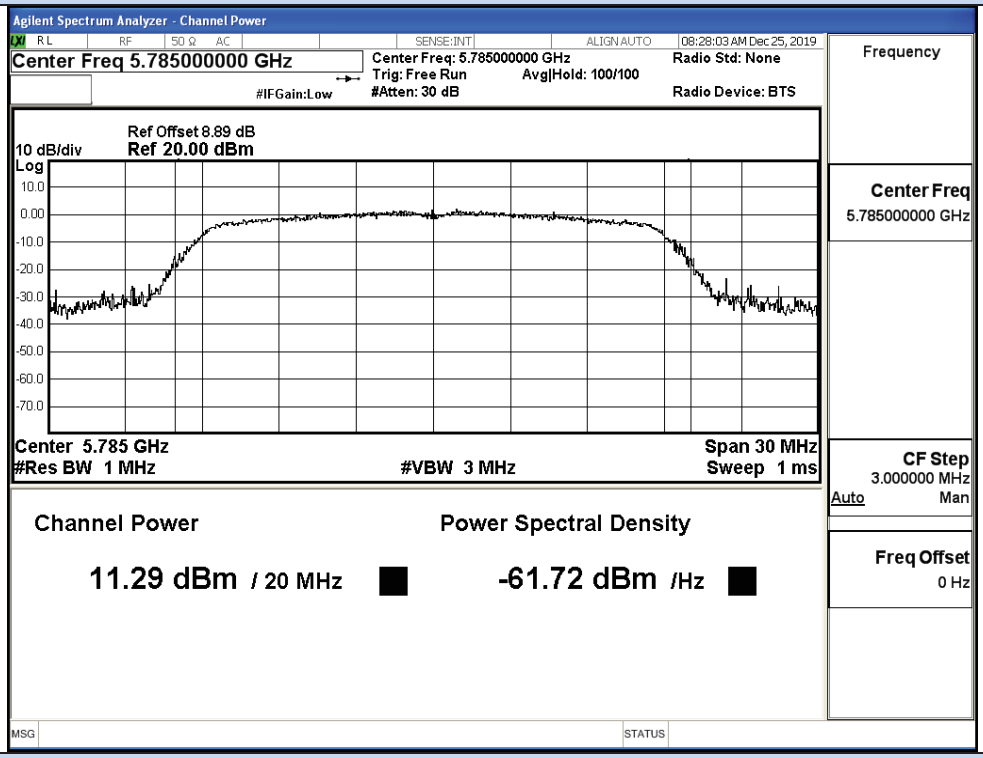
IEEE 802.11n40 / Channel 151 / 5755MHz



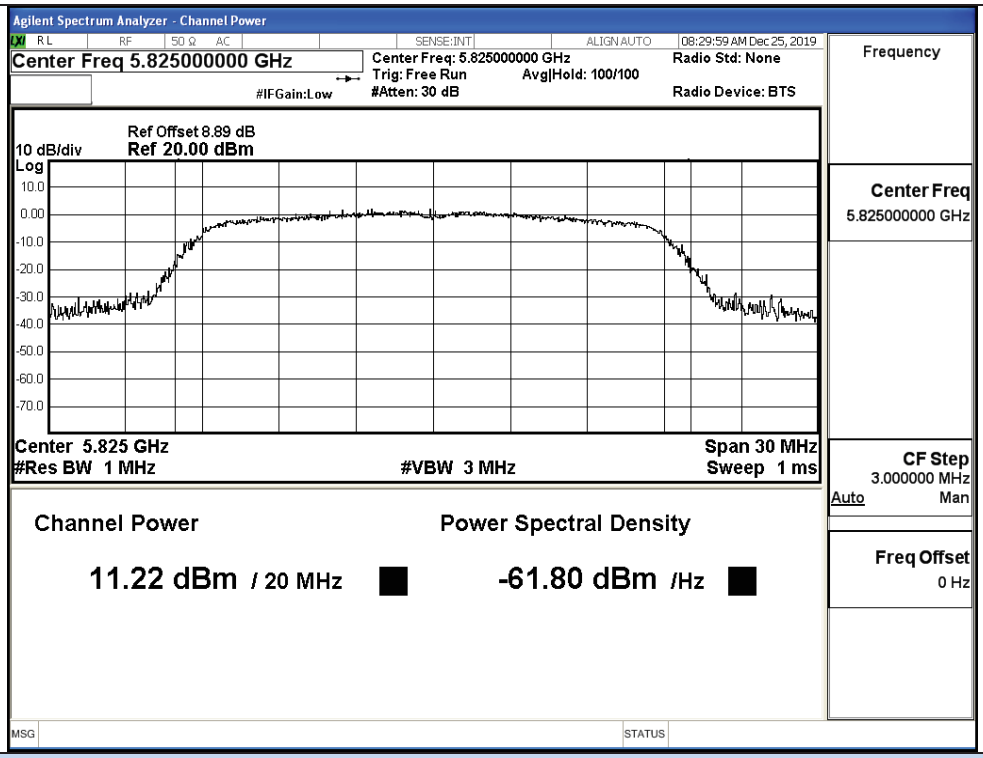
IEEE 802.11n40 / Channel 159 / 5795MHz



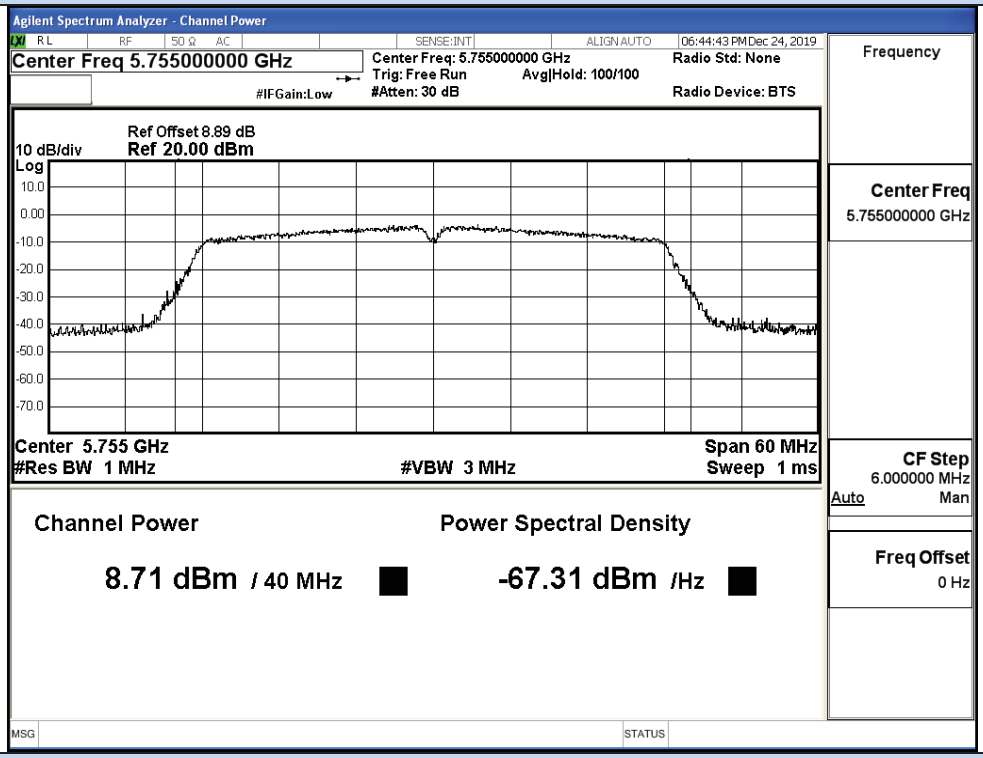
IEEE 802.11ac20 / Channel 149 / 5745MHz



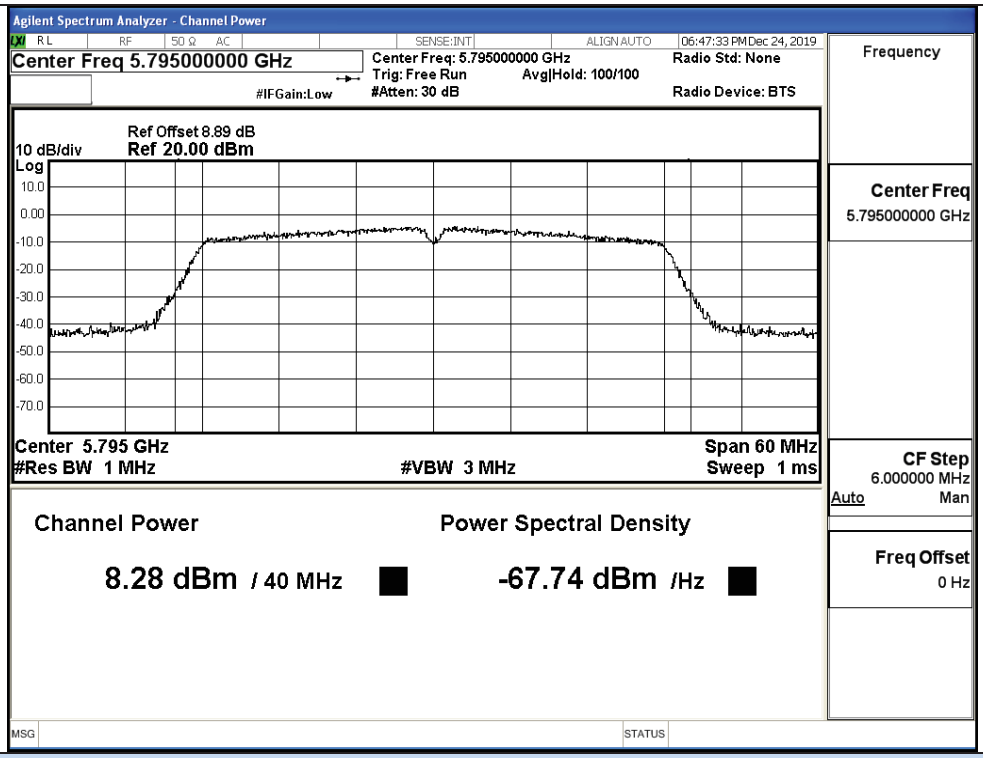
IEEE 802.11ac20 / Channel 157 / 5785MHz



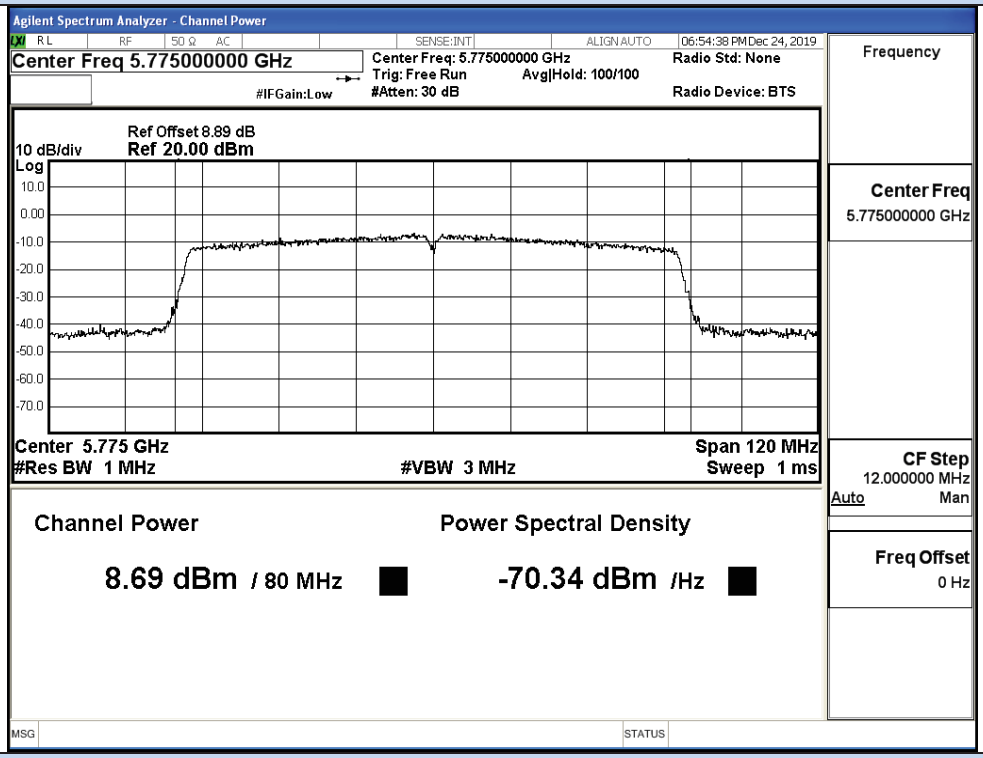
IEEE 802.11ac20 / Channel 165/ 5825MHz



IEEE 802.11ac40 / Channel 151 / 5755MHz



IEEE 802.11ac40 / Channel 159 / 5795MHz



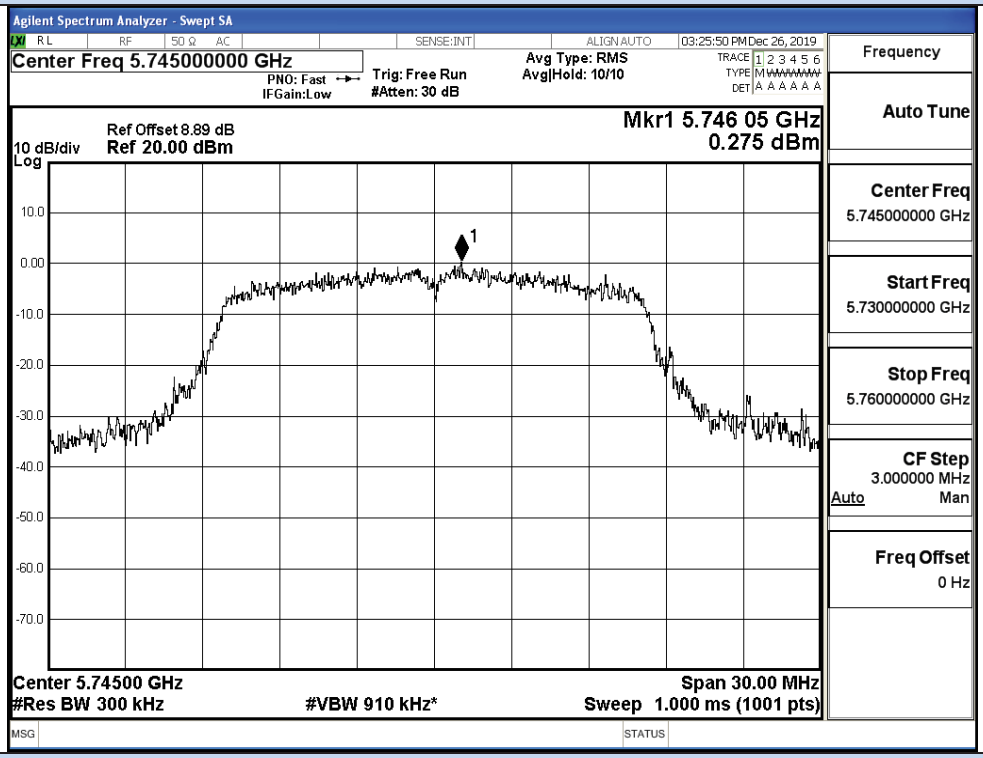
IEEE 802.11ac80 / Channel 155 / 5775MHz

D.3 Power Spectral Density

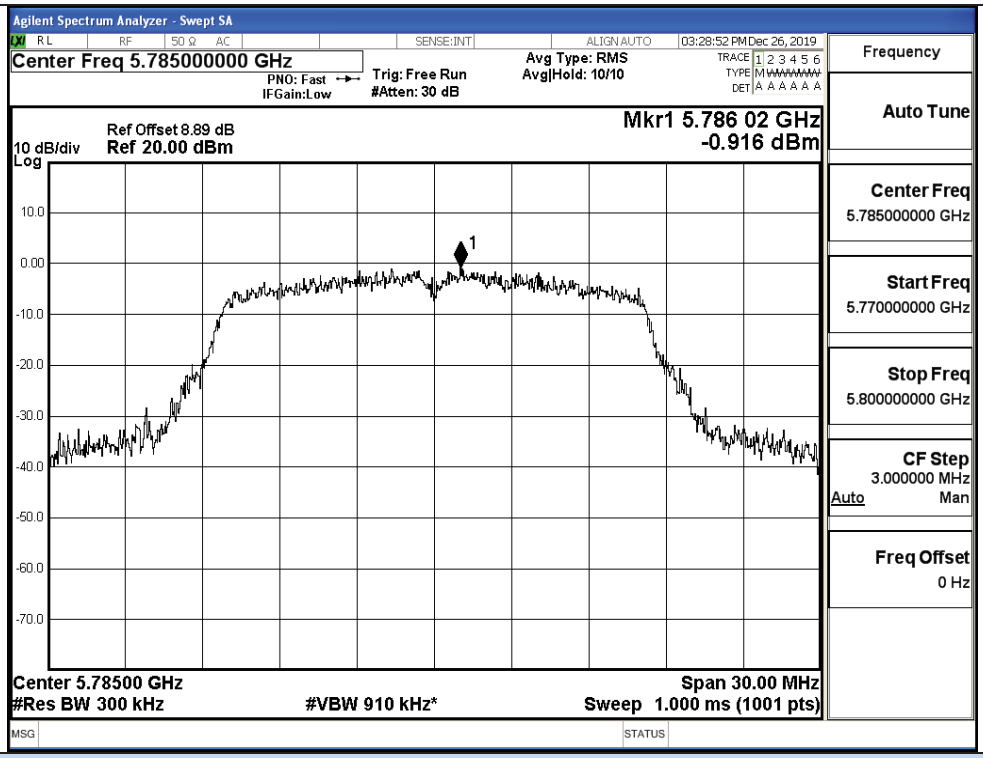
Ant0

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	0.28	0	2.218	2.49	30	Pass
	157	5785	-0.92	0	2.218	1.30		Pass
	165	5825	-0.41	0	2.218	1.81		Pass
11N20 SISO	149	5745	-1.73	0	2.218	0.49	30	Pass
	157	5785	-2.12	0	2.218	0.10		Pass
	165	5825	-2.96	0	2.218	-0.74		Pass
11N40 SISO	151	5755	-4.84	0	2.218	-2.62	30	Pass
	159	5795	-5.06	0	2.218	-2.84		Pass
11AC20 SISO	149	5745	-1.51	0	2.218	0.71	30	Pass
	157	5785	-2.32	0	2.218	-0.10		Pass
	165	5825	-2.49	0	2.218	-0.27		Pass
11AC40 SISO	151	5755	-4.45	0	2.218	-2.24	30	Pass
	159	5795	-5.55	0	2.218	-3.33		Pass
11AC80 SISO	155	5775	-8.20	0	2.218	-5.99	30	Pass

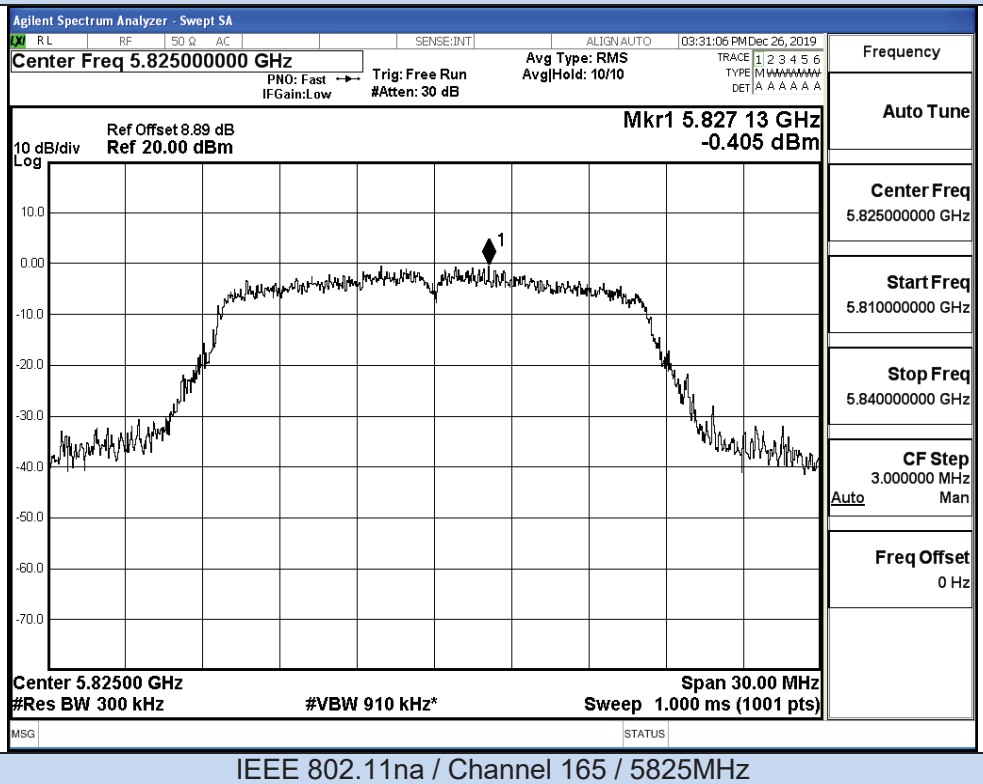
Power Spectral Density



IEEE 802.11a / Channel 149 / 5745MHz

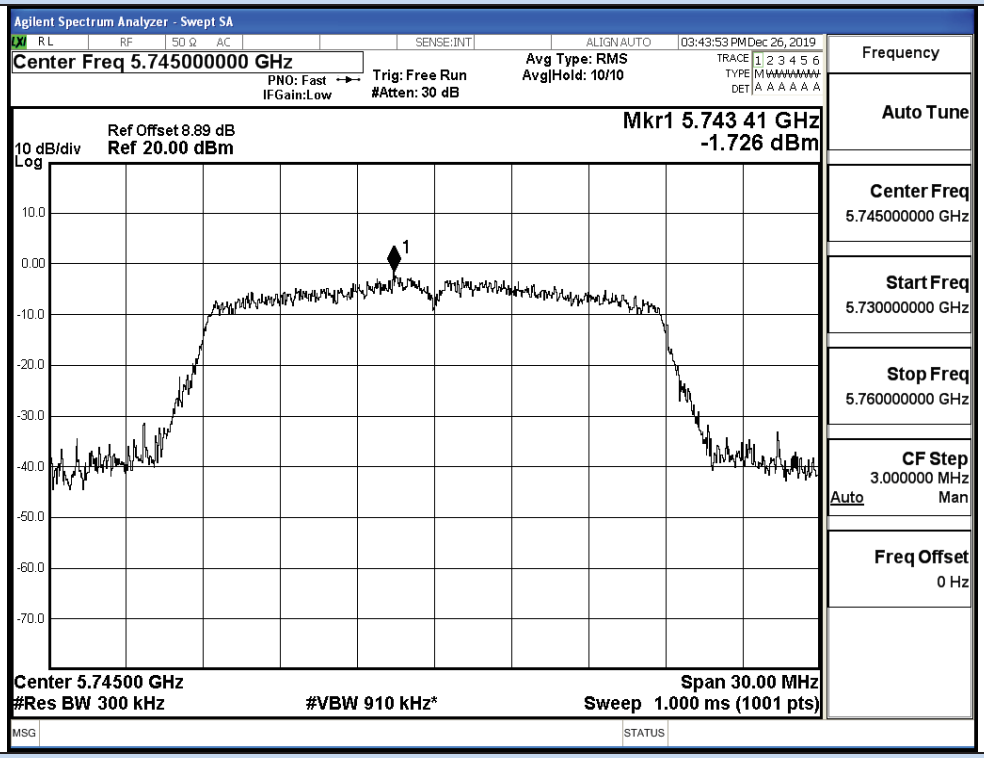


IEEE 802.11na / Channel 157 / 5785MHz

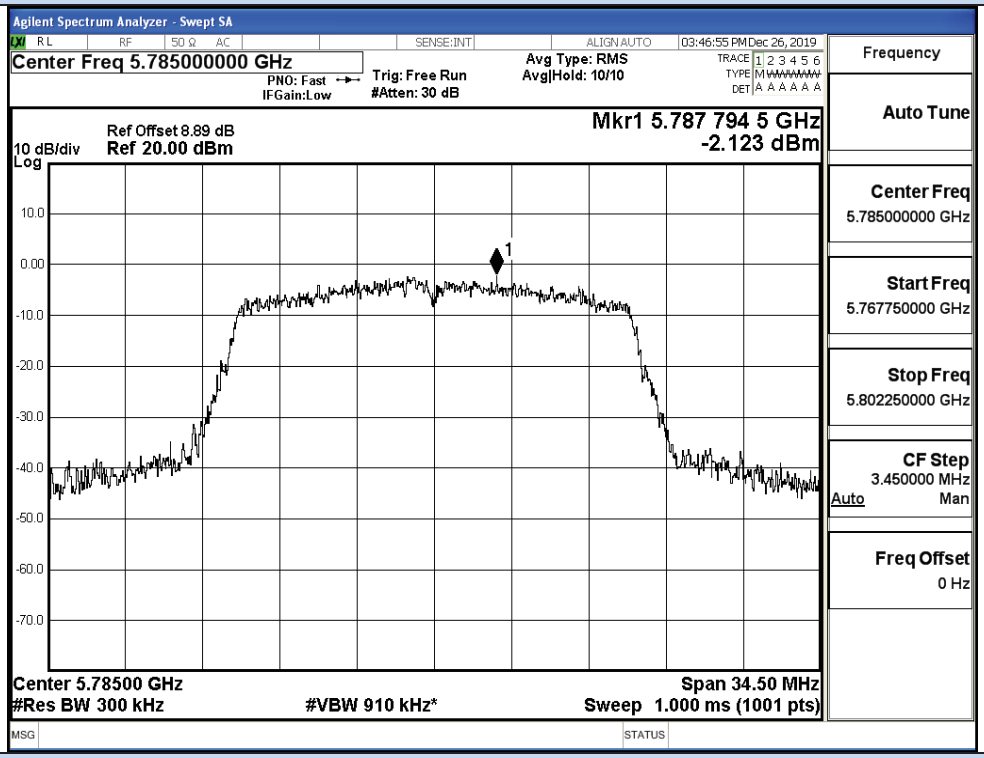


IEEE 802.11na / Channel 165 / 5825MHz

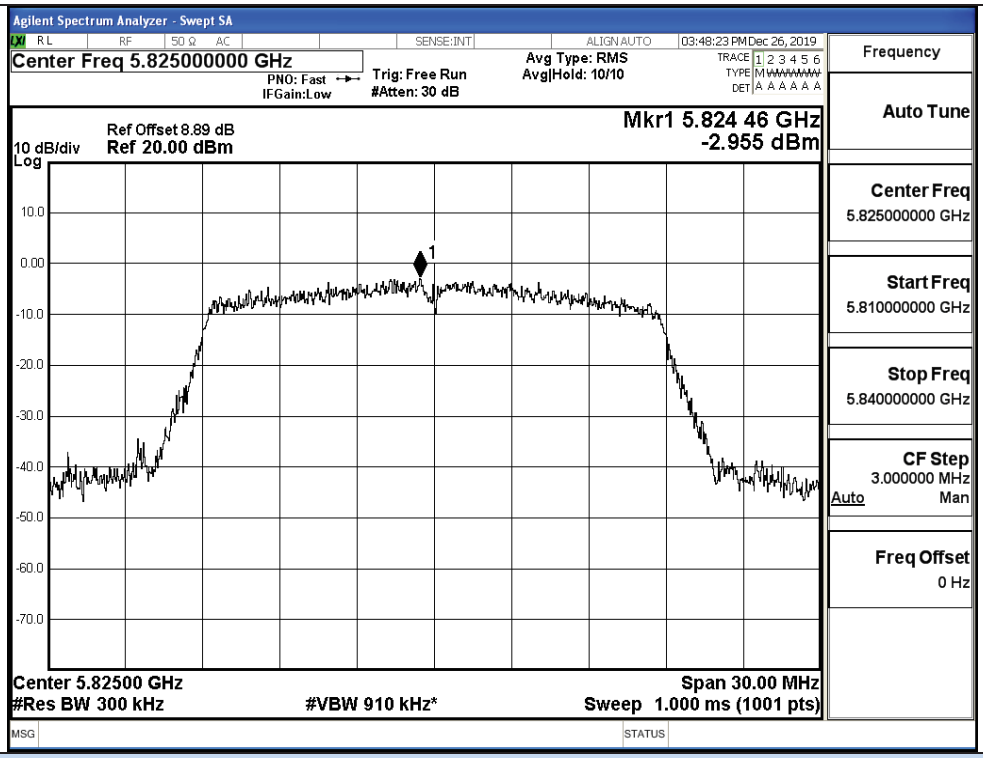
Power Spectral Density



IEEE 802.11n20 / Channel 149 / 5745MHz

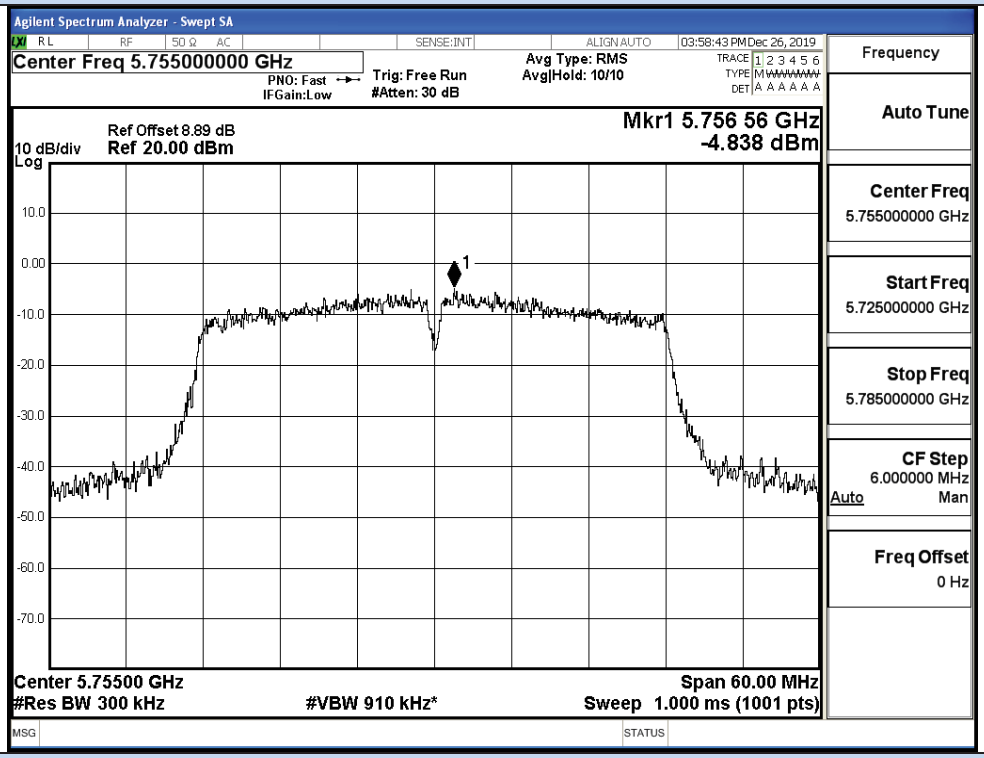


IEEE 802.11n20 / Channel 157 / 5785MHz

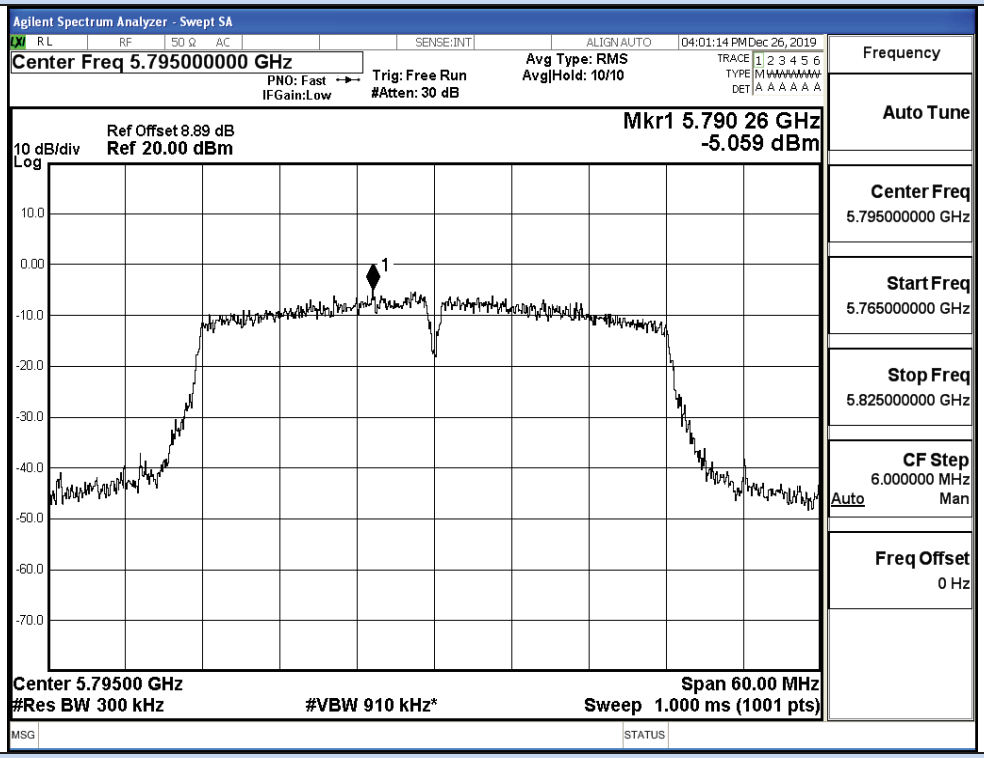


IEEE 802.11n20 / Channel 165 / 5825MHz

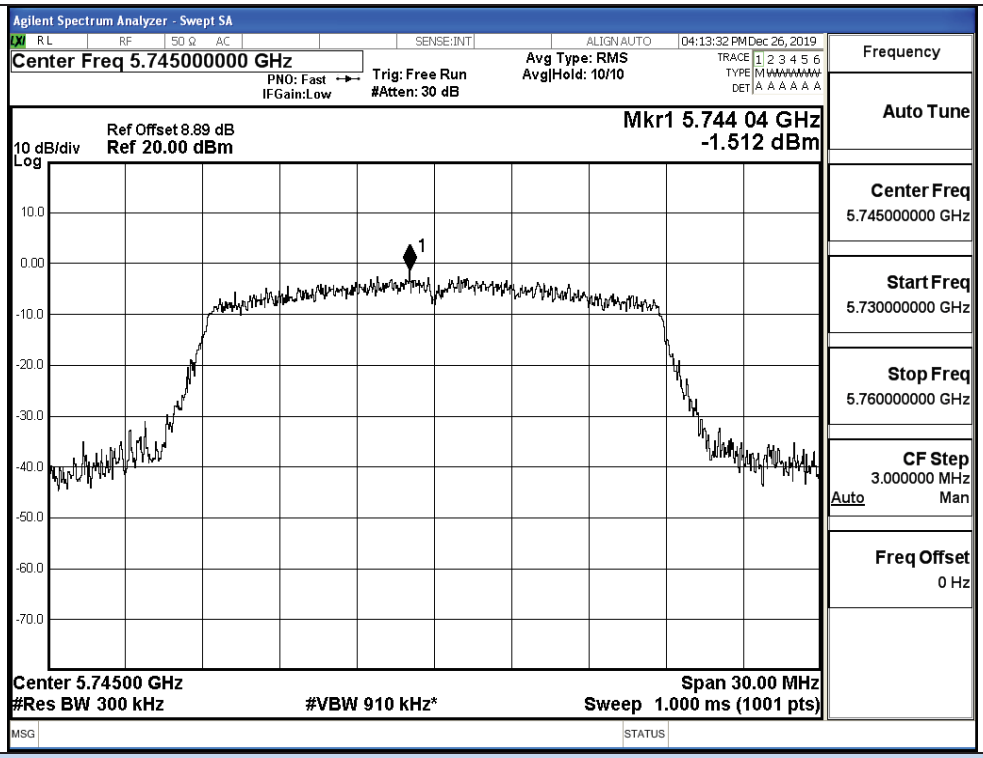
Power Spectral Density



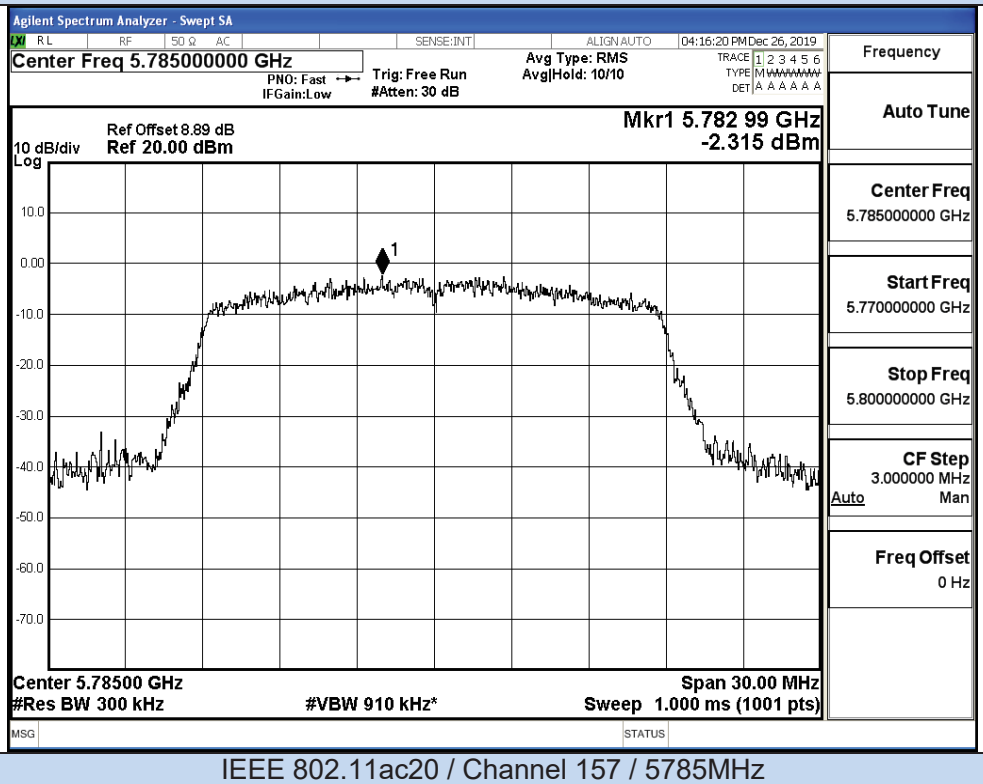
IEEE 802.11n40 / Channel 151 / 5755MHz



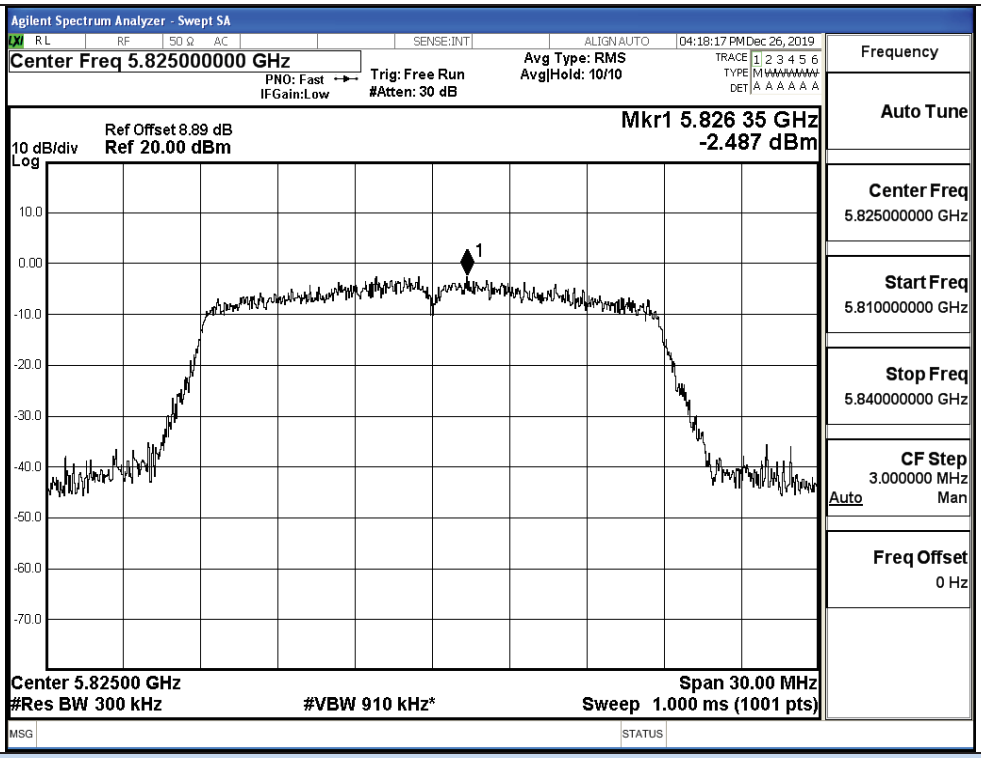
IEEE 802.11n40 / Channel 159 / 5795MHz



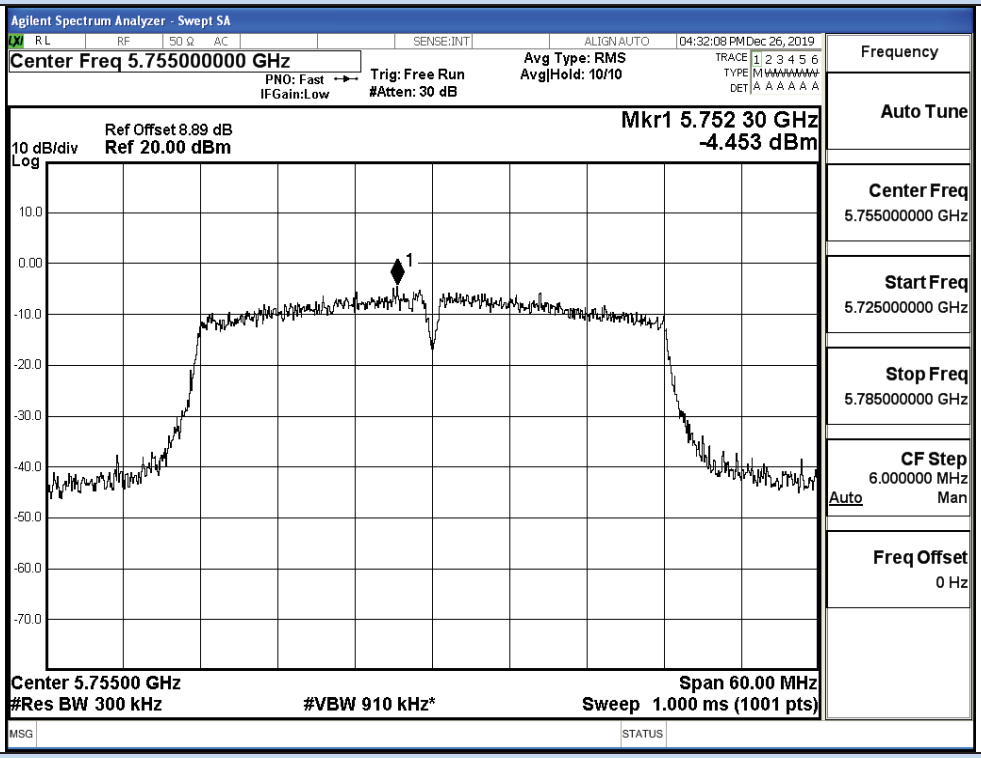
IEEE 802.11ac20 / Channel 149 / 5745MHz



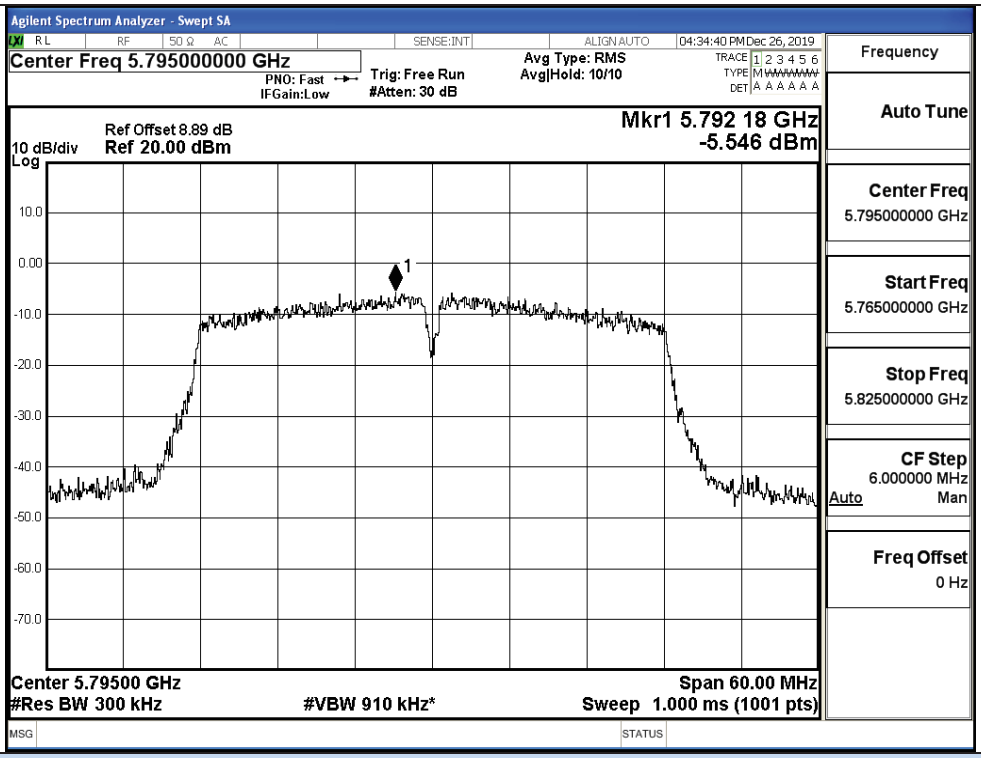
IEEE 802.11ac20 / Channel 157 / 5785MHz



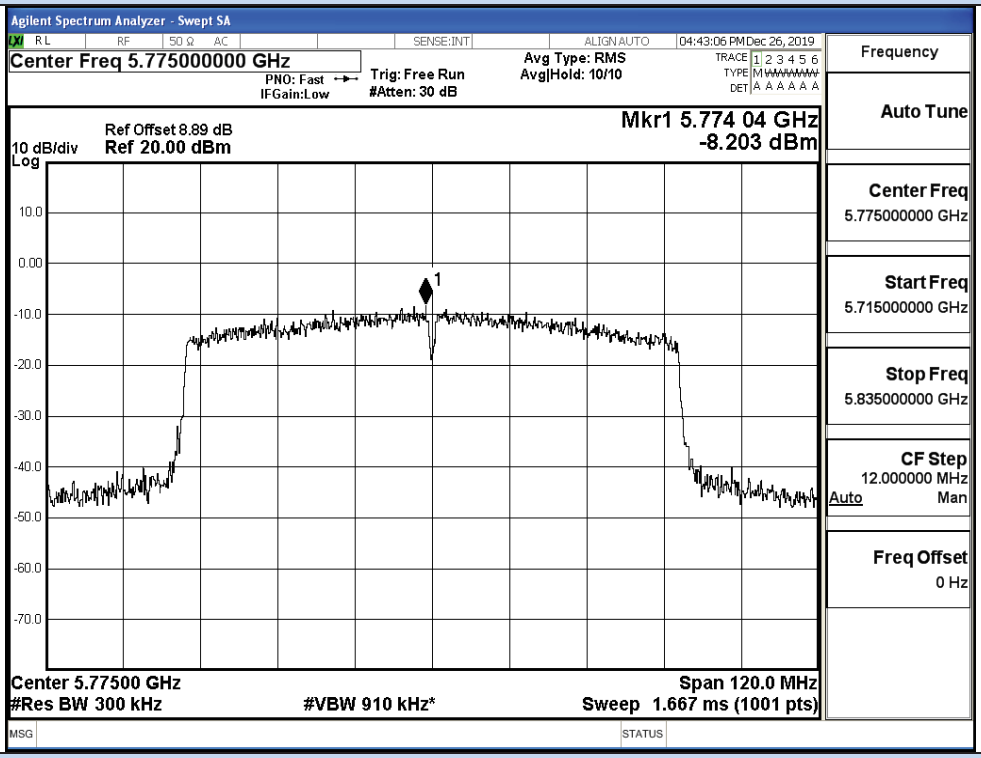
IEEE 802.11ac20 / Channel 165 / 5825MHz



IEEE 802.11ac40 / Channel 151 / 5755MHz



IEEE 802.11ac40 / Channel 159 / 5795MHz

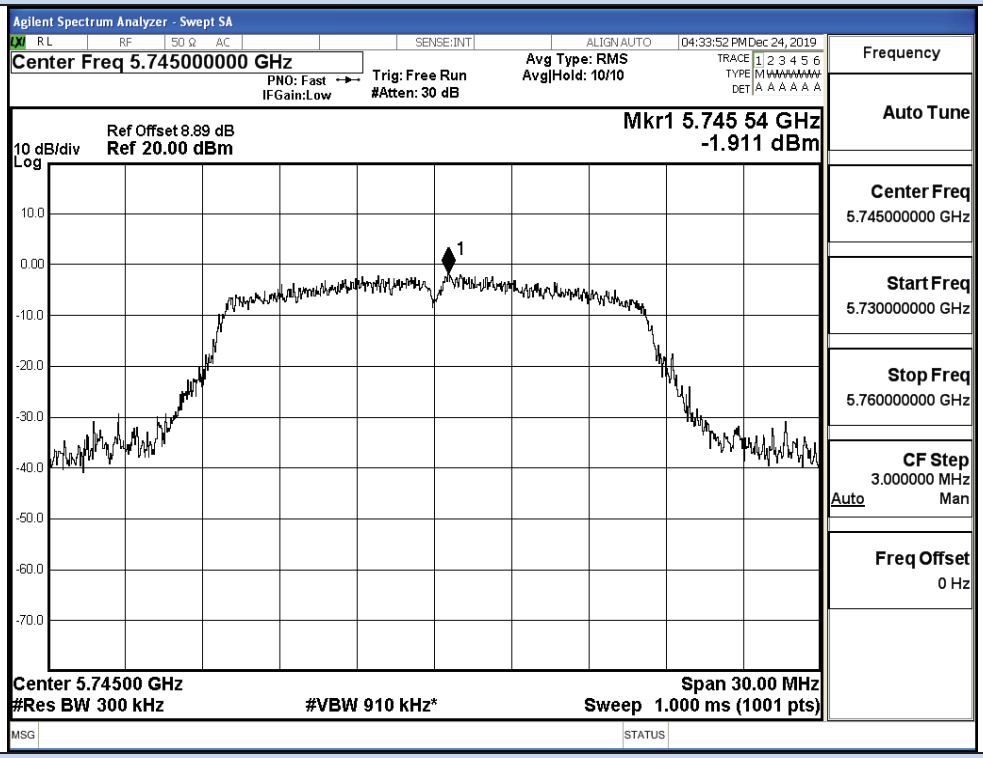


IEEE 802.11ac80 / Channel 155/ 5775MHz

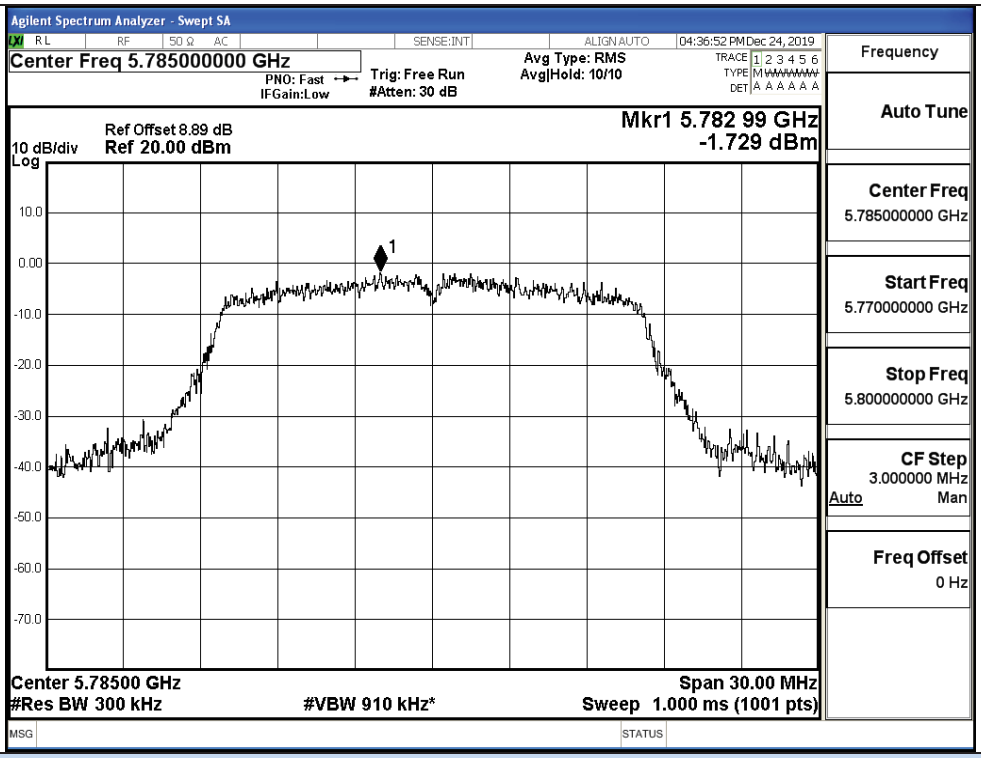
Ant1

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	-1.91	0	2.218	0.31	30	Pass
	157	5785	-1.73	0	2.218	0.49		Pass
	165	5825	-1.09	0	2.218	1.12		Pass
11N20 SISO	149	5745	-2.57	0	2.218	-0.35	30	Pass
	157	5785	-2.09	0	2.218	0.12		Pass
	165	5825	-3.95	0	2.218	-1.73		Pass
11N40 SISO	151	5755	-5.83	0	2.218	-3.61	30	Pass
	159	5795	-5.72	0	2.218	-3.50		Pass
11AC20 SISO	149	5745	-2.64	0	2.218	-0.43	30	Pass
	157	5785	-3.44	0	2.218	-1.23		Pass
	165	5825	-3.19	0	2.218	-0.97		Pass
11AC40 SISO	151	5755	-7.65	0	2.218	-5.43	30	Pass
	159	5795	-8.67	0	2.218	-6.45		Pass
11AC80 SISO	155	5775	-12.50	0	2.218	-10.28	30	Pass

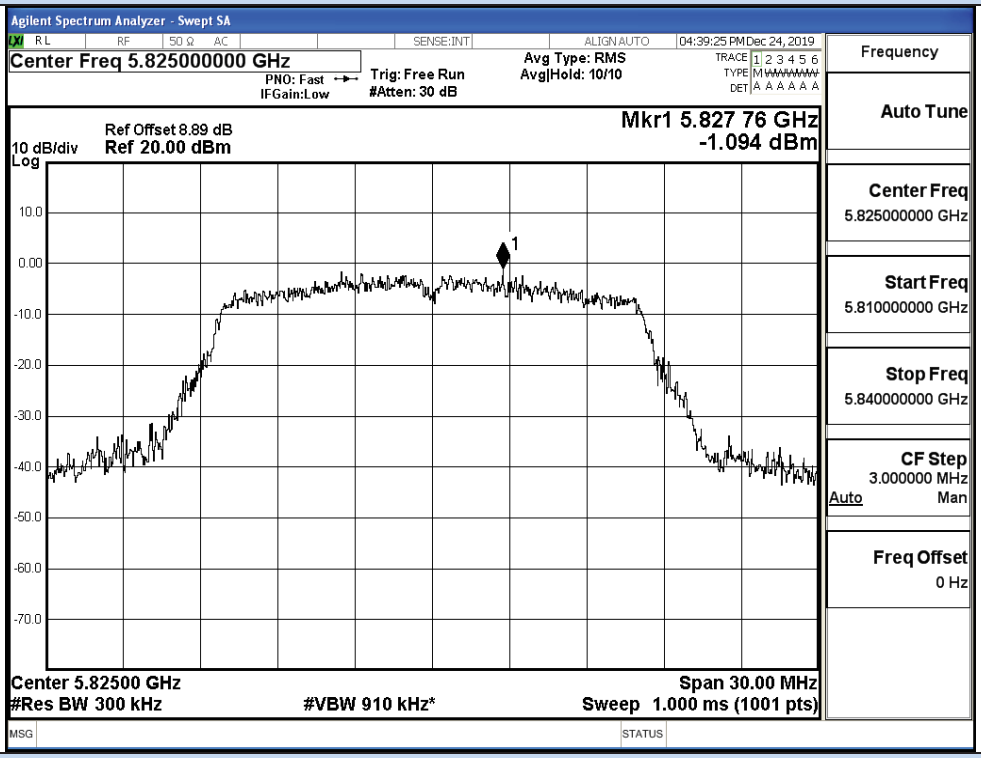
Power Spectral Density



IEEE 802.11a / Channel 149 / 5745MHz

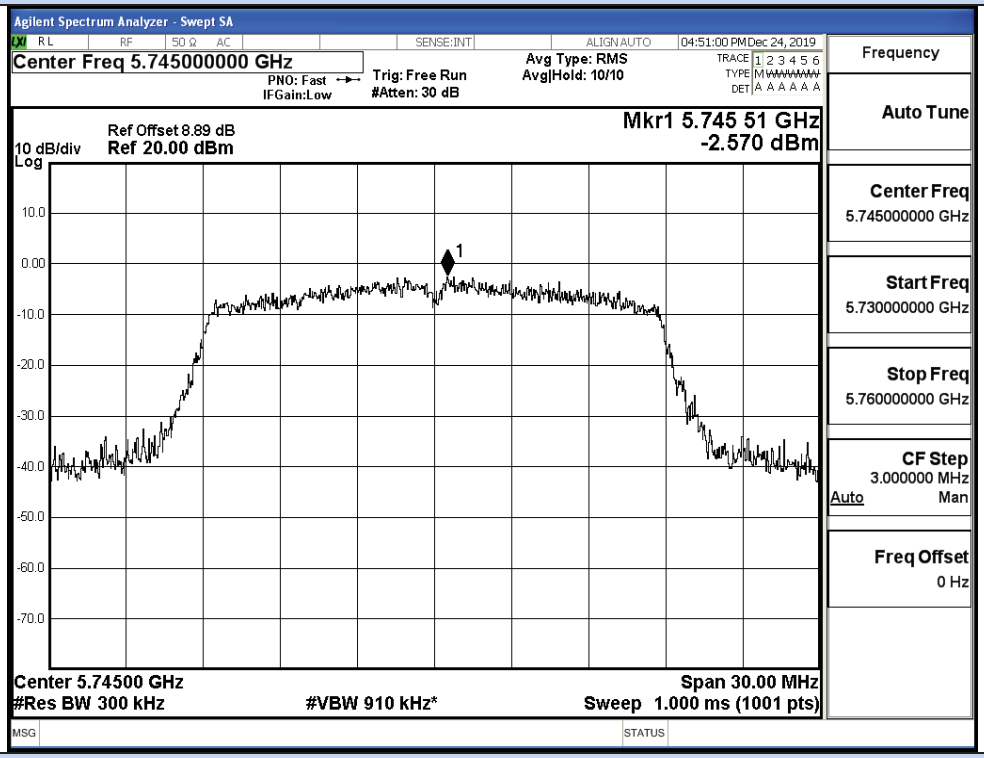


IEEE 802.11na / Channel 157 / 5785MHz

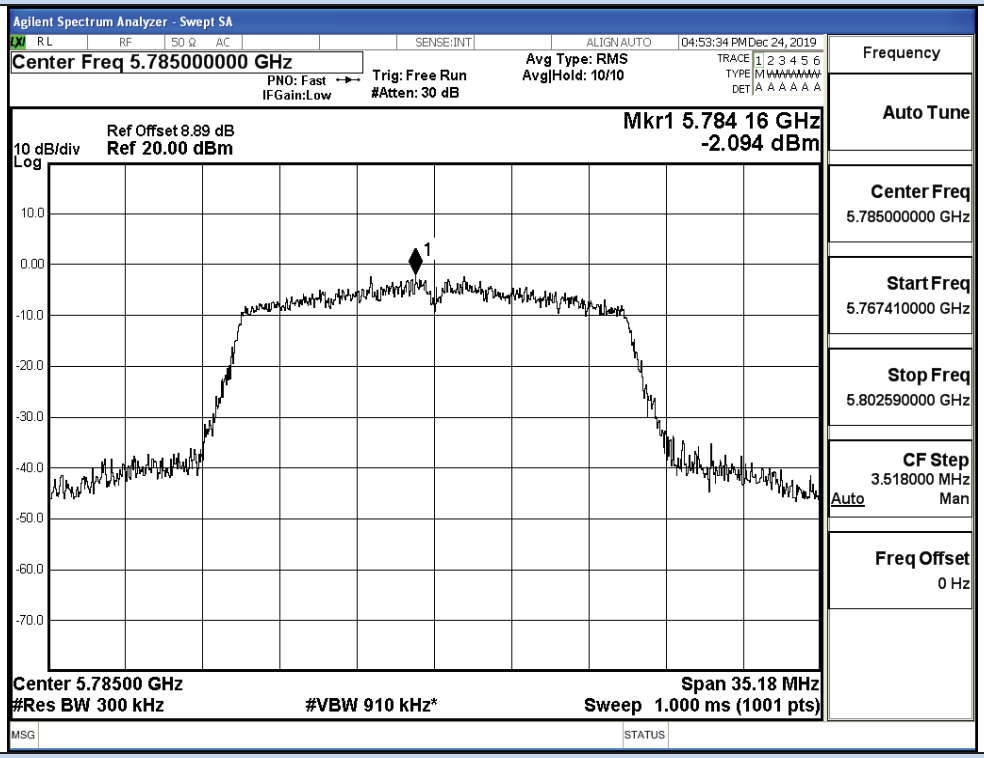


IEEE 802.11na / Channel 165 / 5825MHz

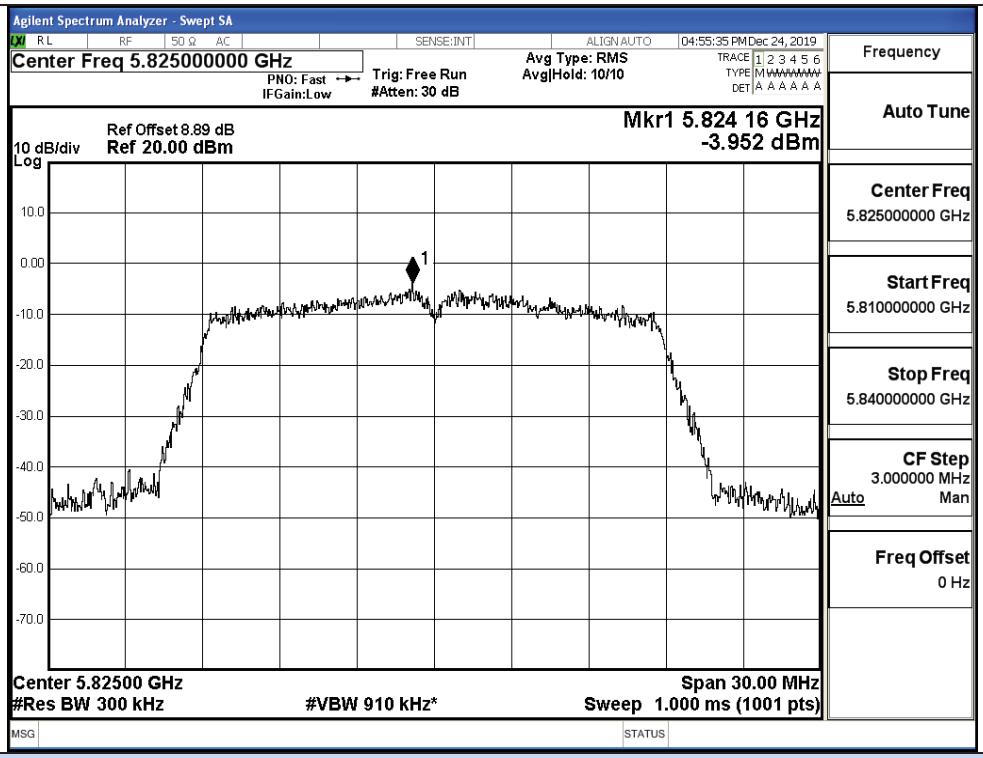
Power Spectral Density



IEEE 802.11n20 / Channel 149 / 5745MHz

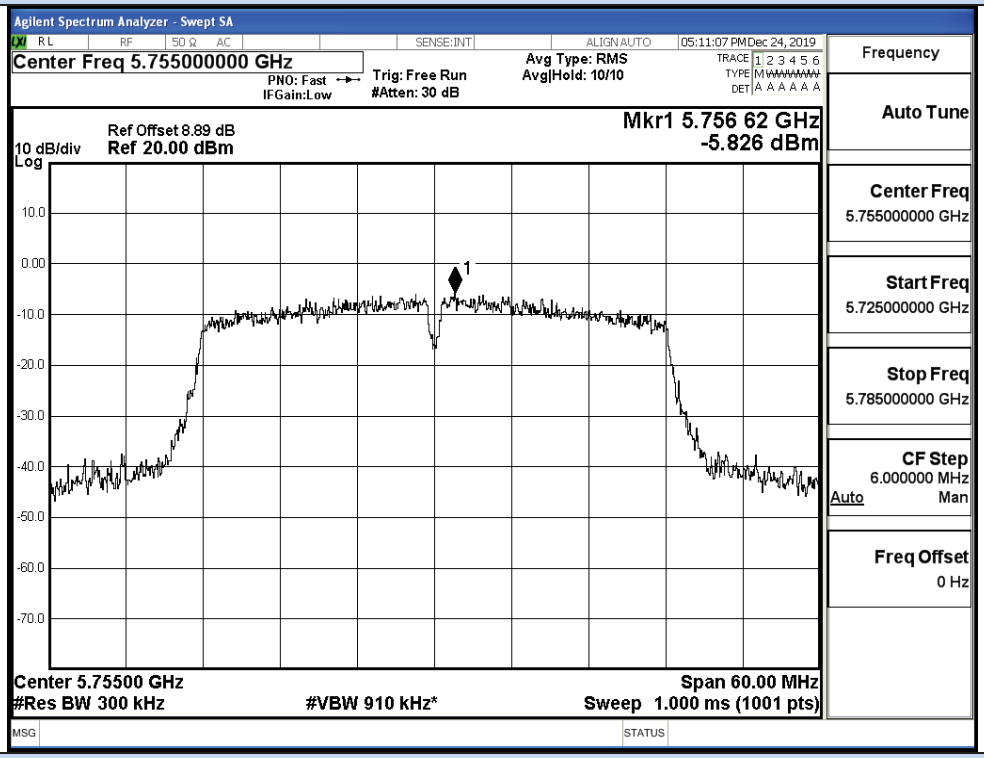


IEEE 802.11n20 / Channel 157 / 5785MHz

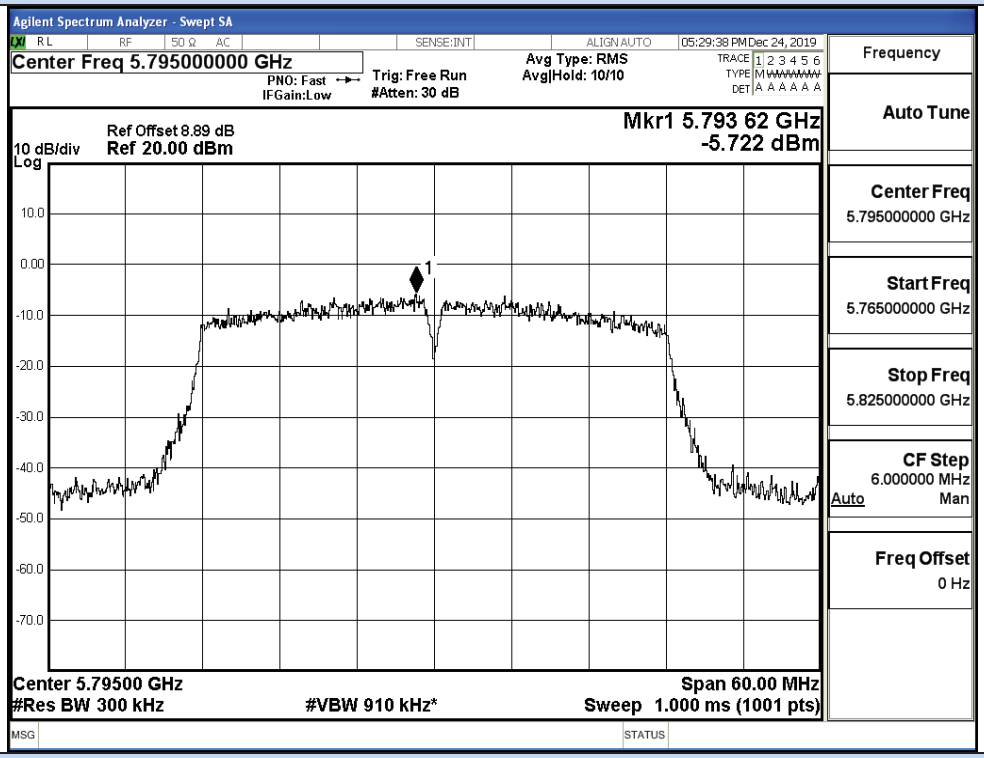


IEEE 802.11n20 / Channel 165 / 5825MHz

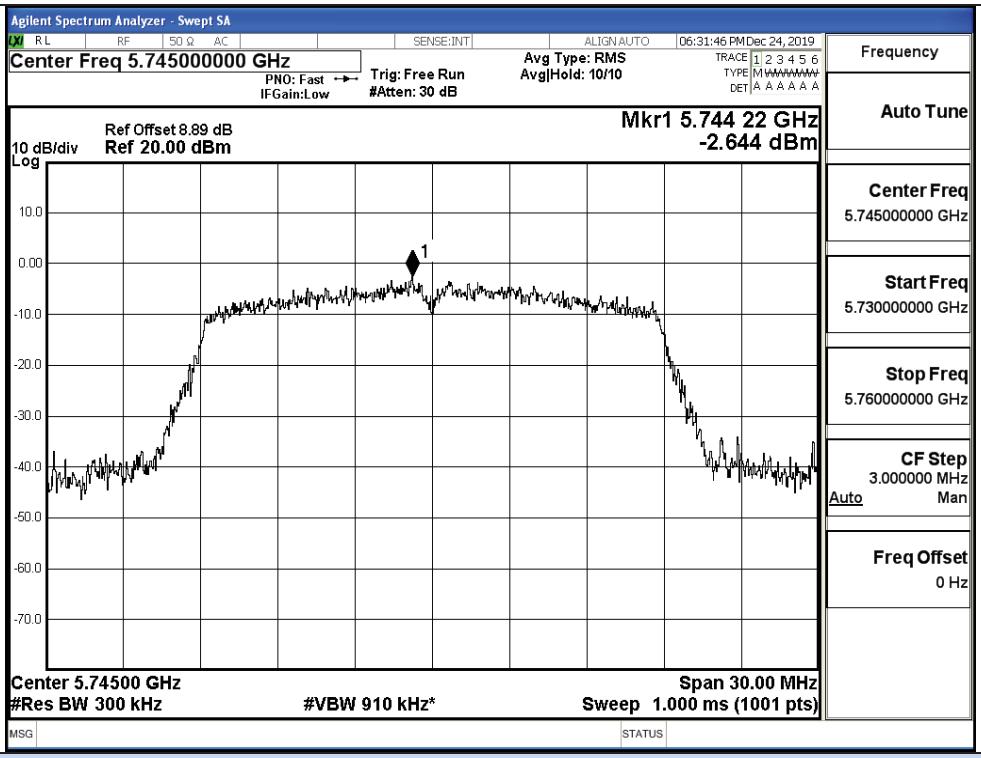
Power Spectral Density



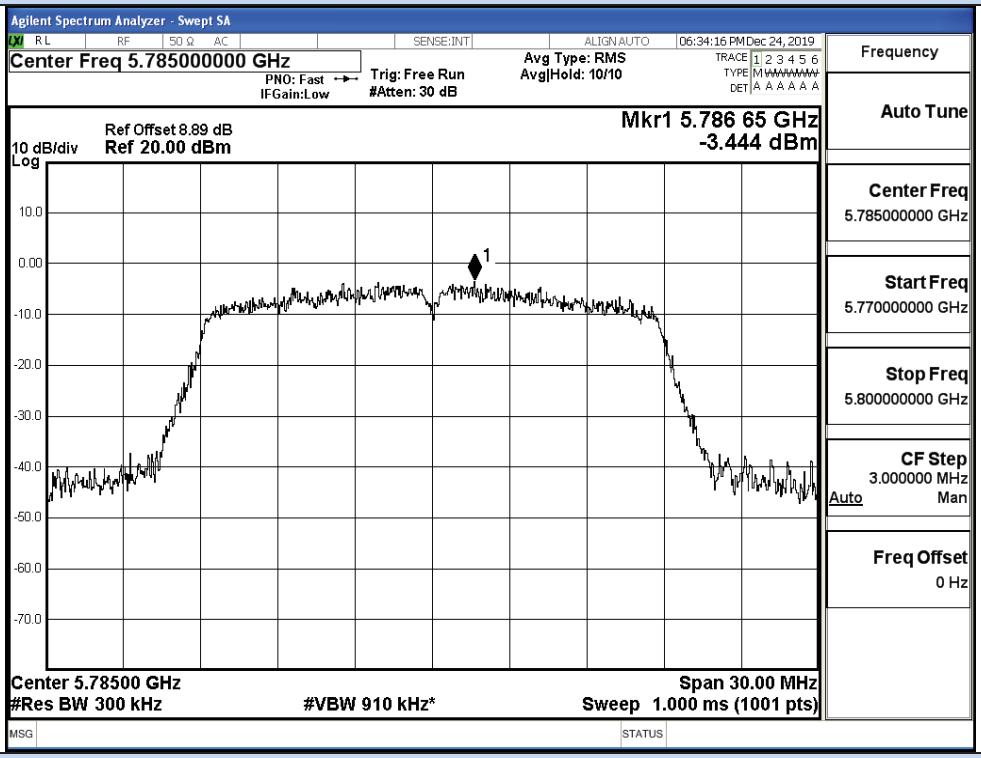
IEEE 802.11n40 / Channel 151 / 5755MHz



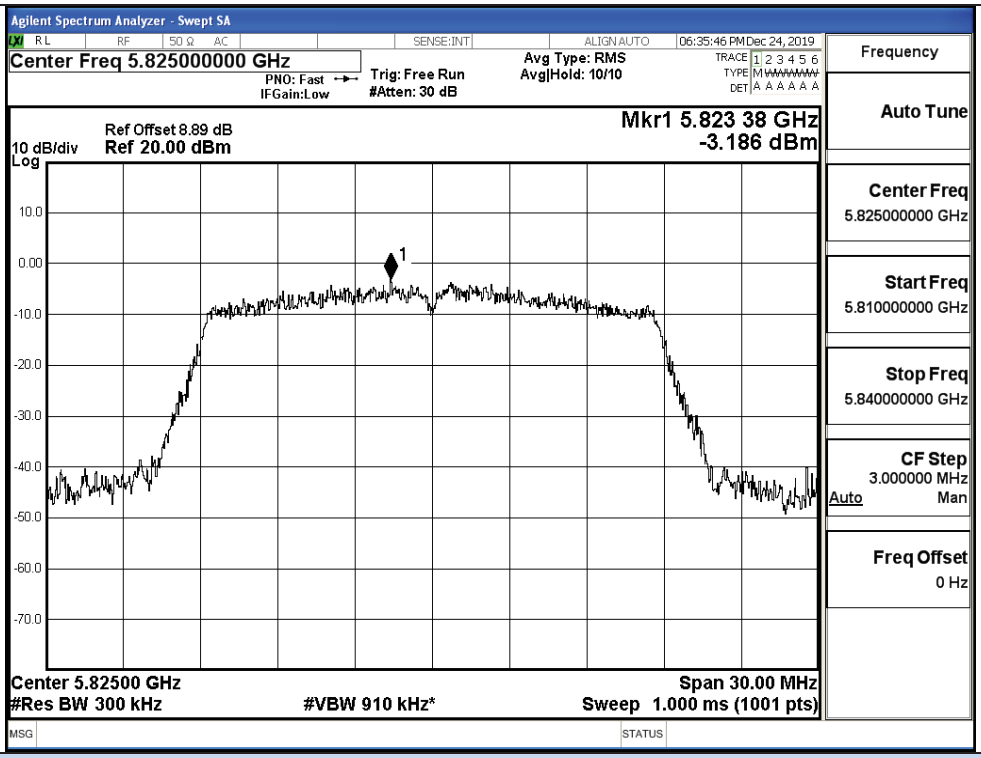
IEEE 802.11n40 / Channel 159 / 5795MHz



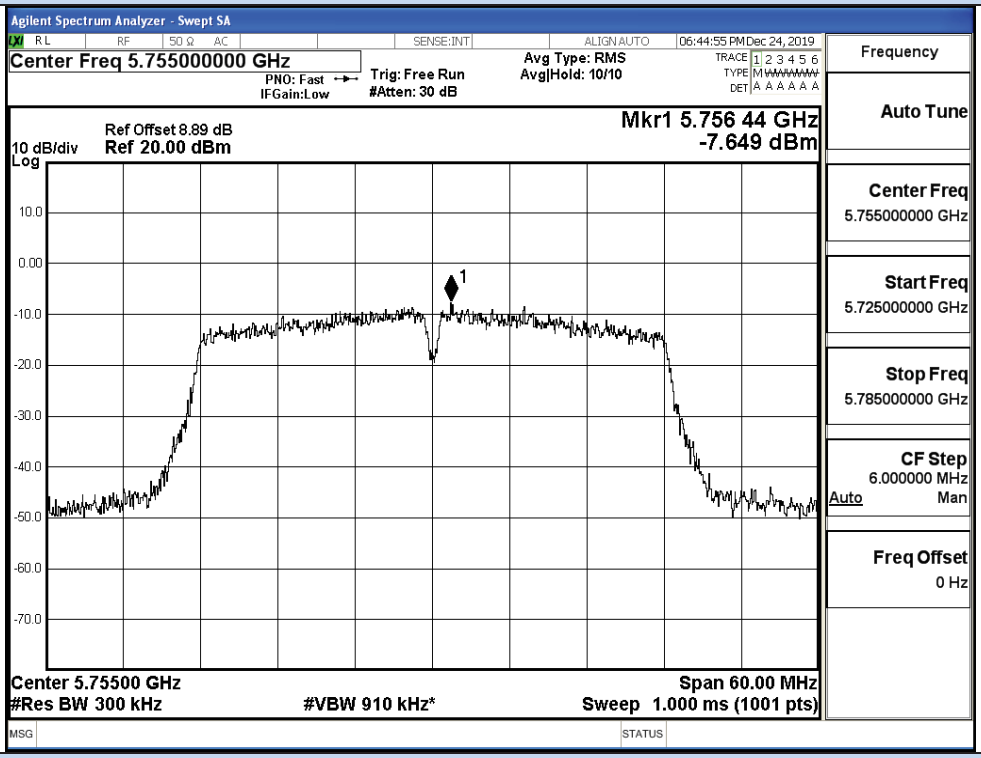
IEEE 802.11ac20 / Channel 149 / 5745MHz



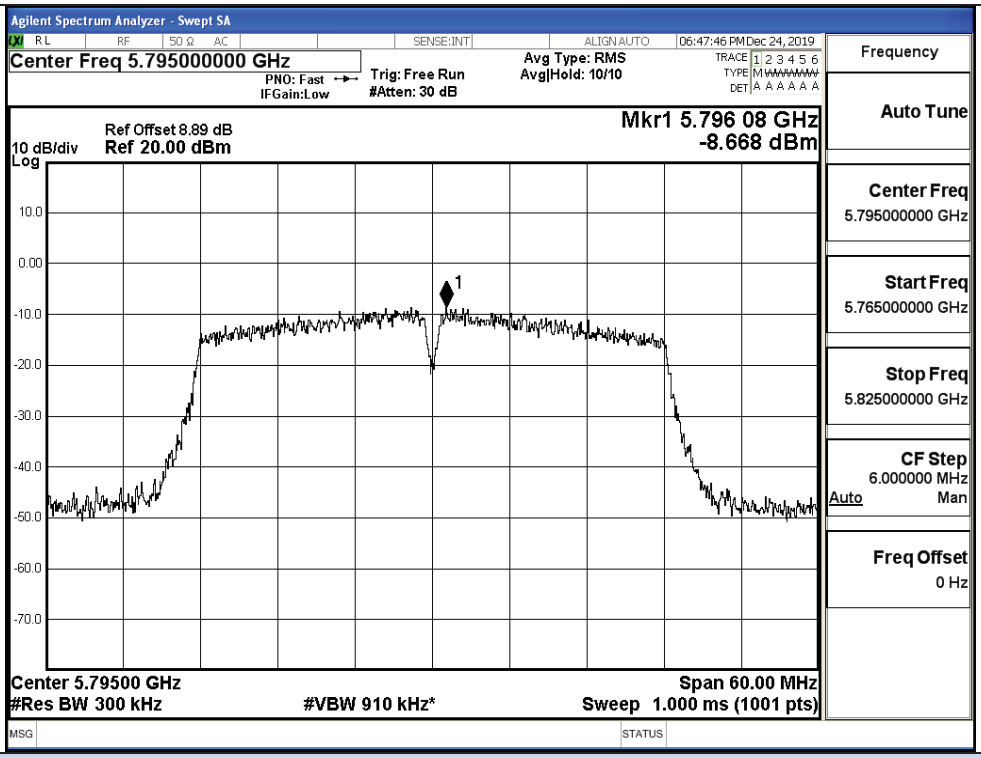
IEEE 802.11ac20 / Channel 157 / 5785MHz



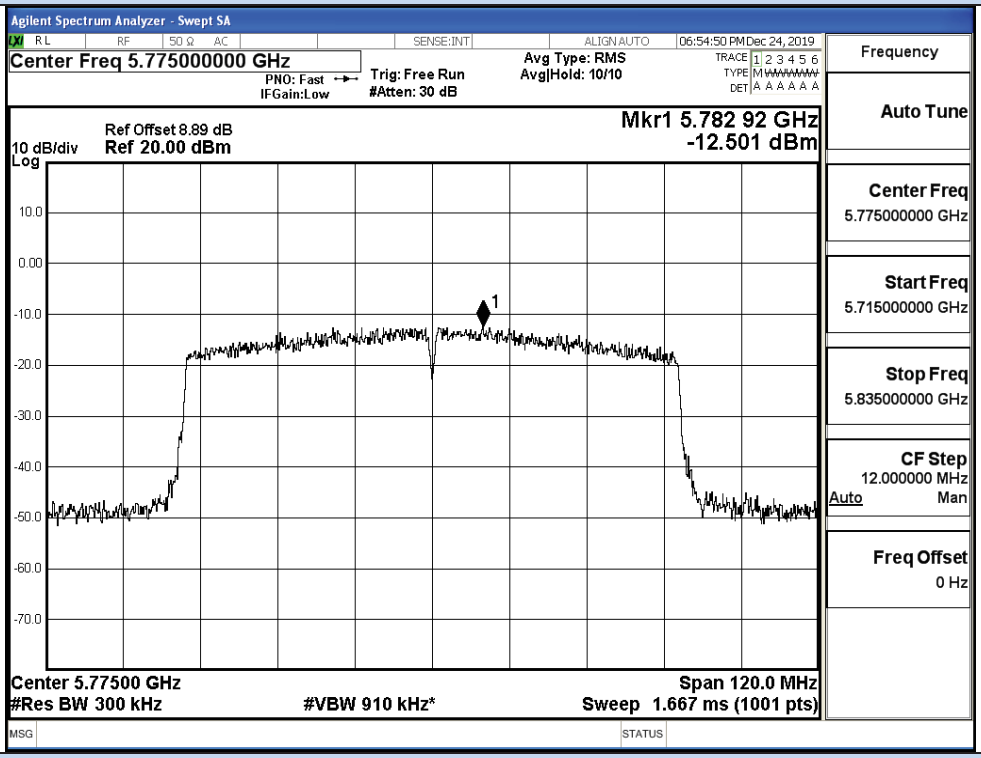
IEEE 802.11ac20 / Channel 165 / 5825MHz



IEEE 802.11ac40 / Channel 151 / 5755MHz



IEEE 802.11ac40 / Channel 159 / 5795MHz



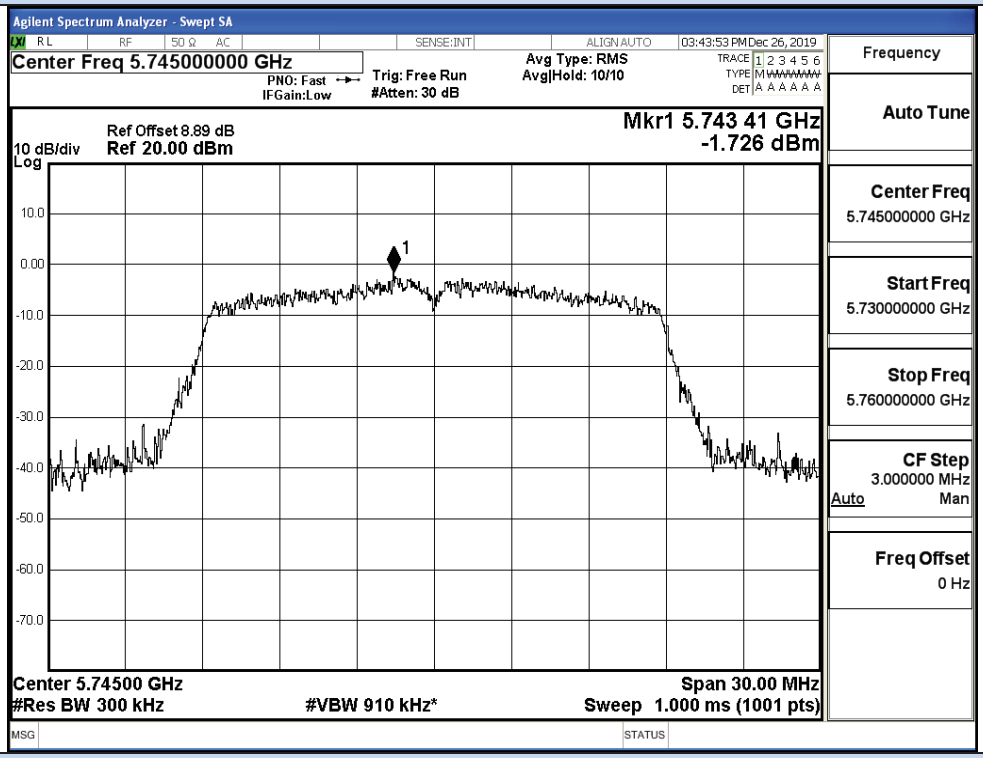
IEEE 802.11ac80 / Channel 155/ 5775MHz

Ant0+1

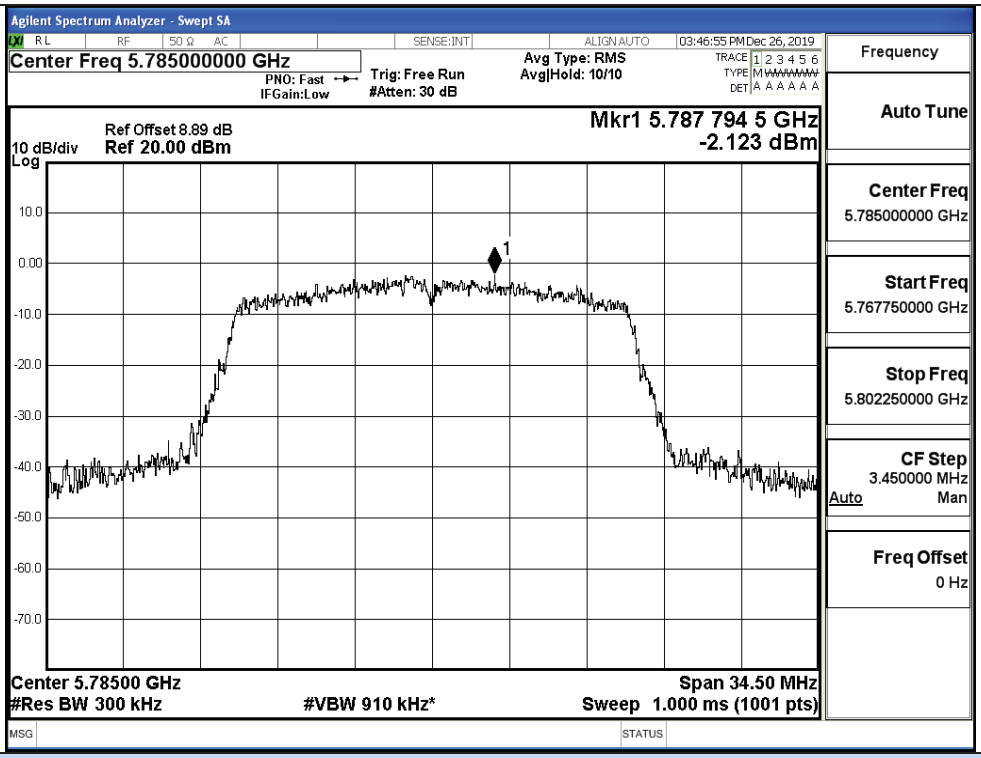
Test Mode	Channel	Frequency (MHz)	ANT 0 Power Density (dBm/300KHz)	ANT 1 Power Density (dBm/300KHz)	ANT 0+1 Power Density (dBm/300KHz)	Duty Cycle Factor (dB)	RBW Factor (dB)	Report Power Density (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
11N20 SISO	149	5745	-1.73	-2.57	0.88	0	2.218	3.10	30	Pass
	157	5785	-2.12	-2.09	0.90	0	2.218	3.12		Pass
	165	5825	-2.96	-3.95	-0.42	0	2.218	1.80		Pass
11N40 SISO	151	5755	-4.84	-5.83	-2.30	0	2.218	-0.08	30	Pass
	159	5795	-5.06	-5.72	-2.37	0	2.218	-0.15		Pass
11AC20 SISO	149	5745	-1.51	-2.64	0.97	0	2.218	3.19	30	Pass
	157	5785	-2.32	-3.44	0.16	0	2.218	2.38		Pass
	165	5825	-2.49	-3.19	0.18	0	2.218	2.40		Pass
11AC40 SISO	151	5755	-4.45	-7.65	-2.76	0	2.218	-0.54	30	Pass
	159	5795	-5.55	-8.67	-3.83	0	2.218	-1.61		Pass
11AC80 SISO	155	5775	-8.20	-12.50	-6.84	0	2.218	-4.62	30	Pass

ANT 0

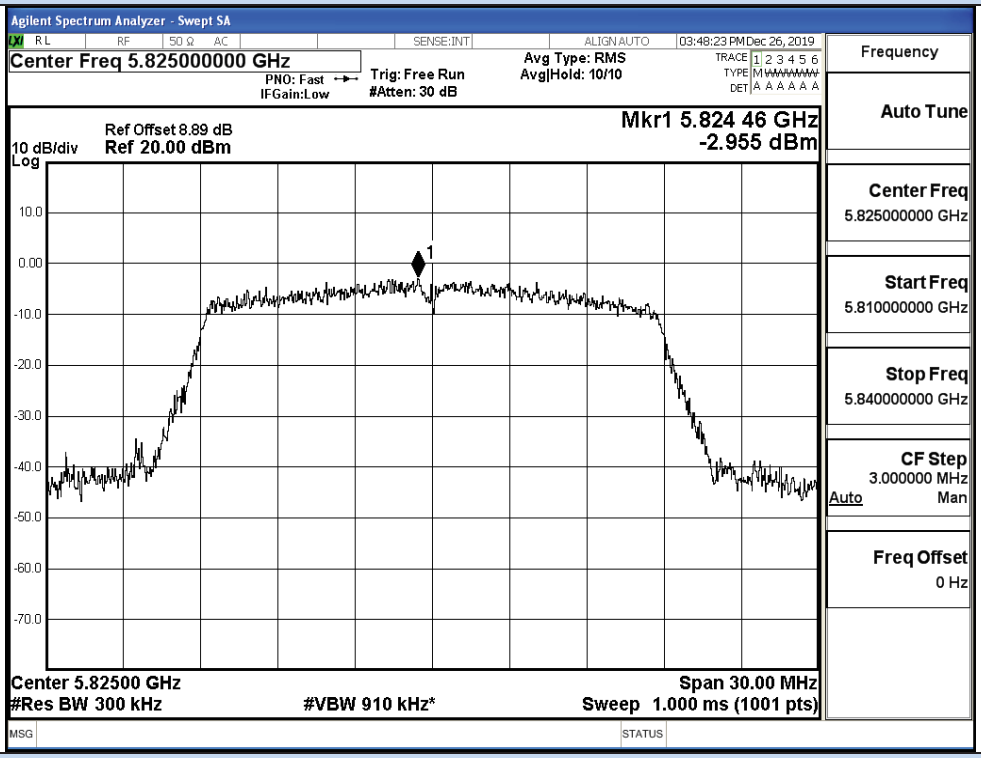
Power Spectral Density



IEEE 802.11n20 / Channel 149 / 5745MHz

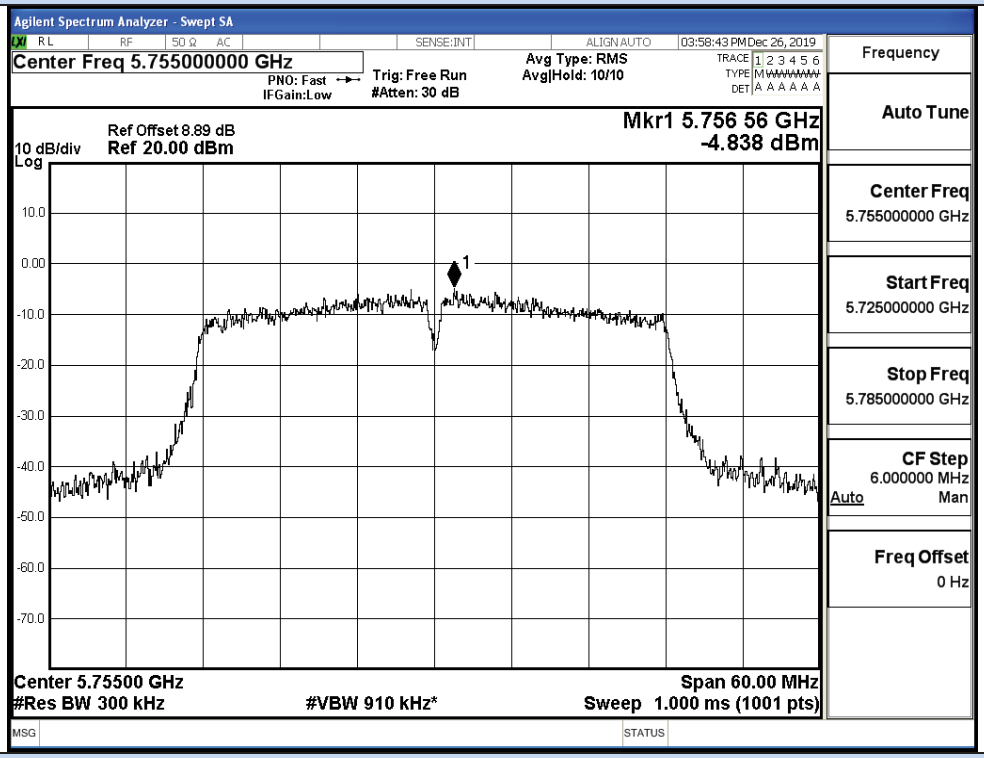


IEEE 802.11n20 / Channel 157 / 5785MHz

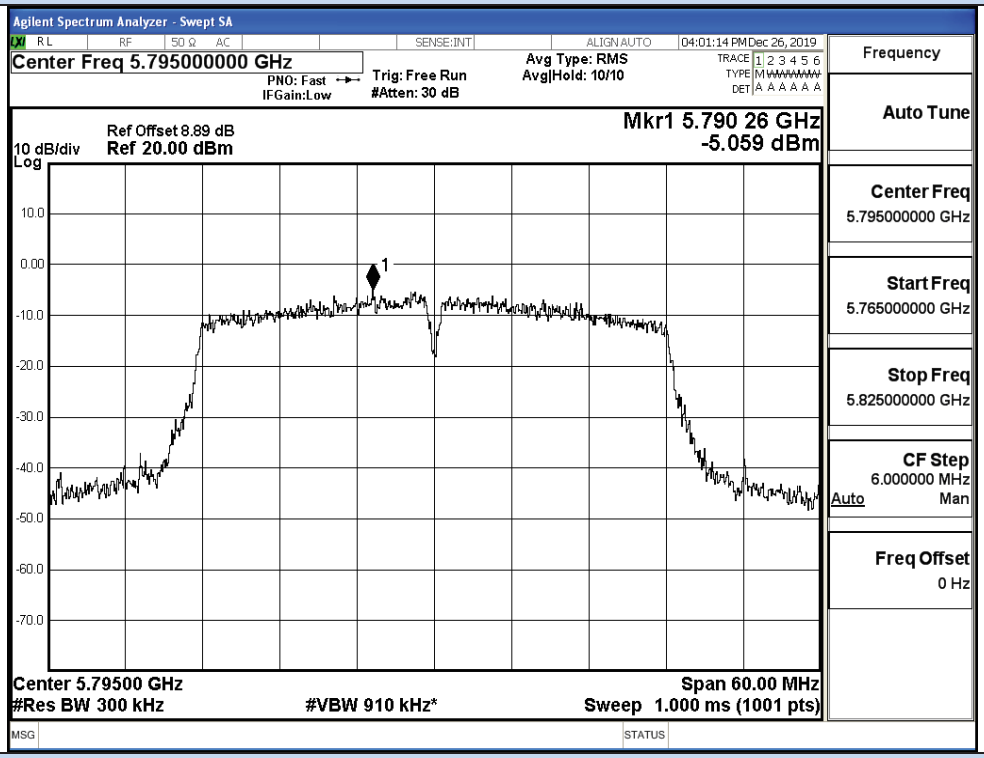


IEEE 802.11n20 / Channel 165 / 5825MHz

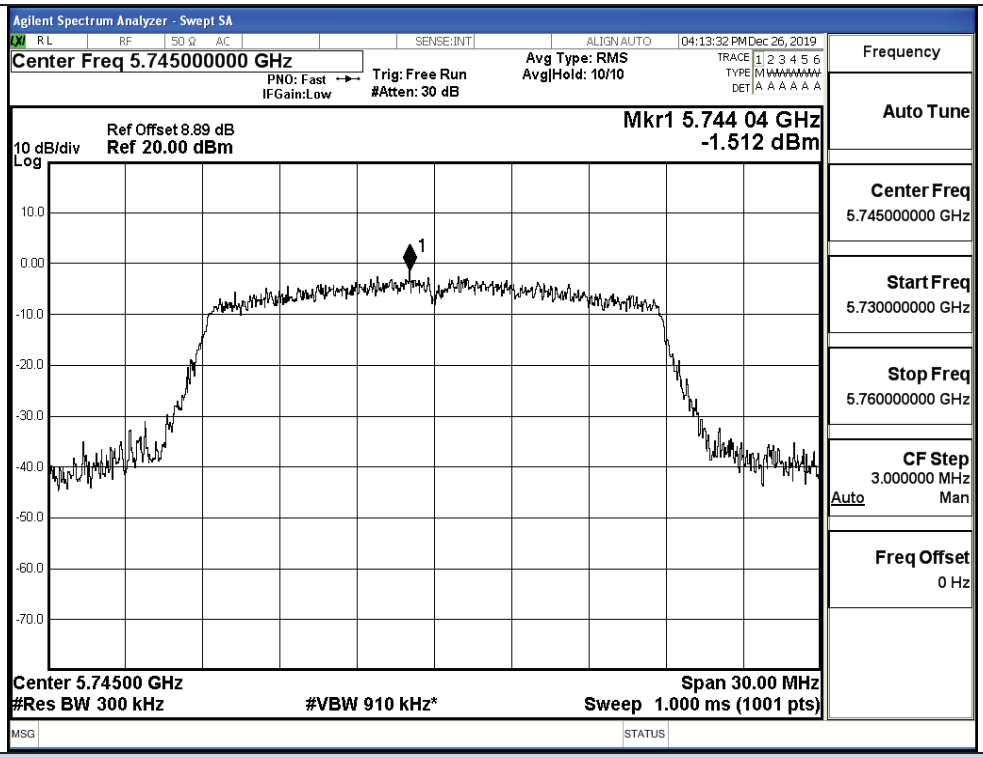
Power Spectral Density



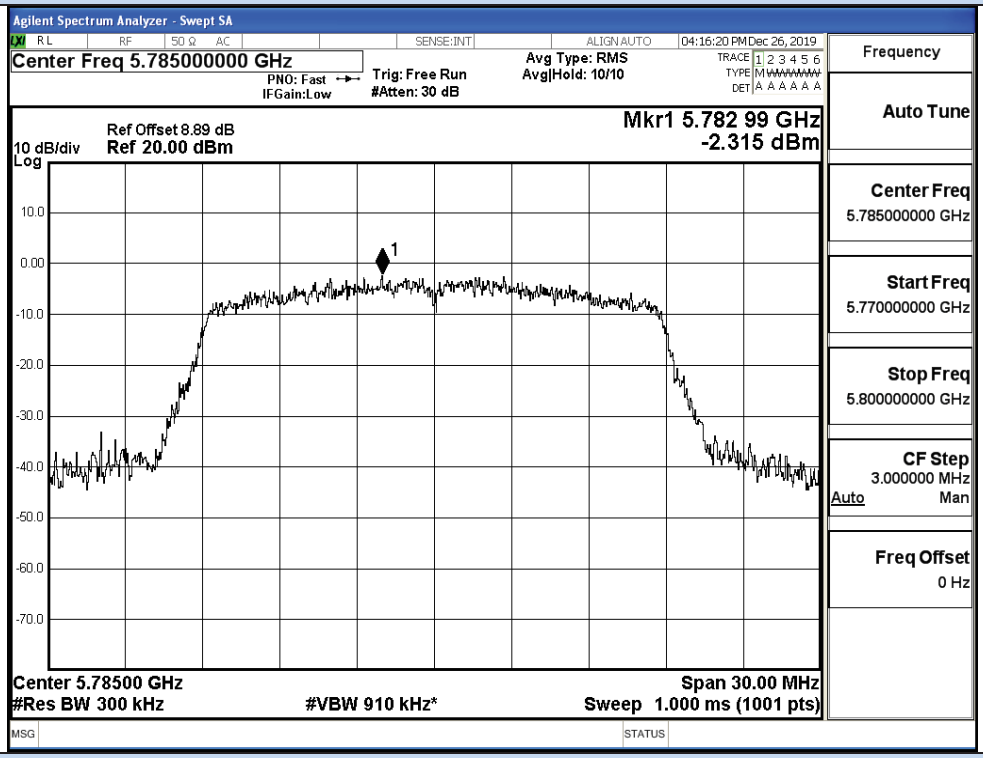
IEEE 802.11n40 / Channel 151 / 5755MHz



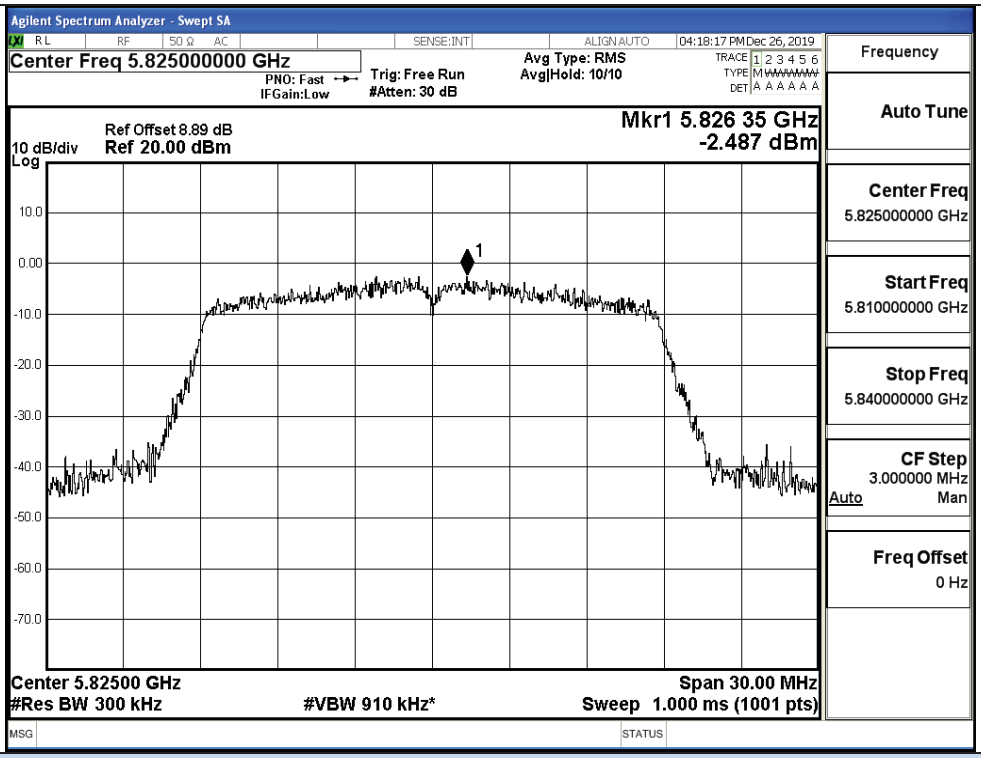
IEEE 802.11n40 / Channel 159 / 5795MHz



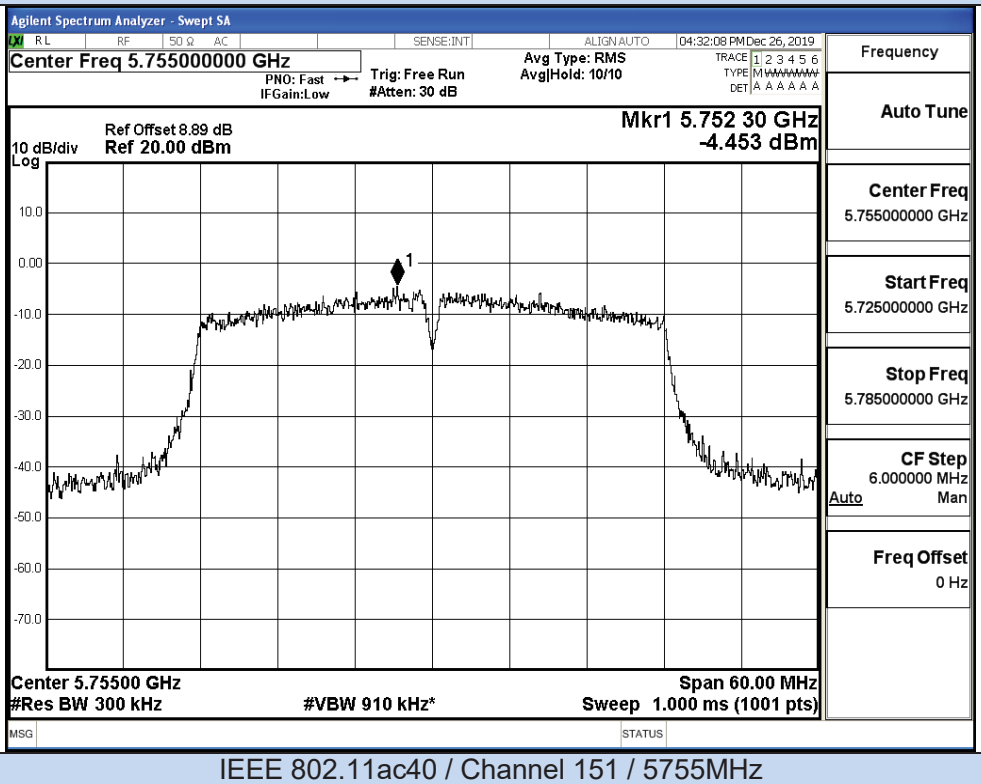
IEEE 802.11ac20 / Channel 149 / 5745MHz



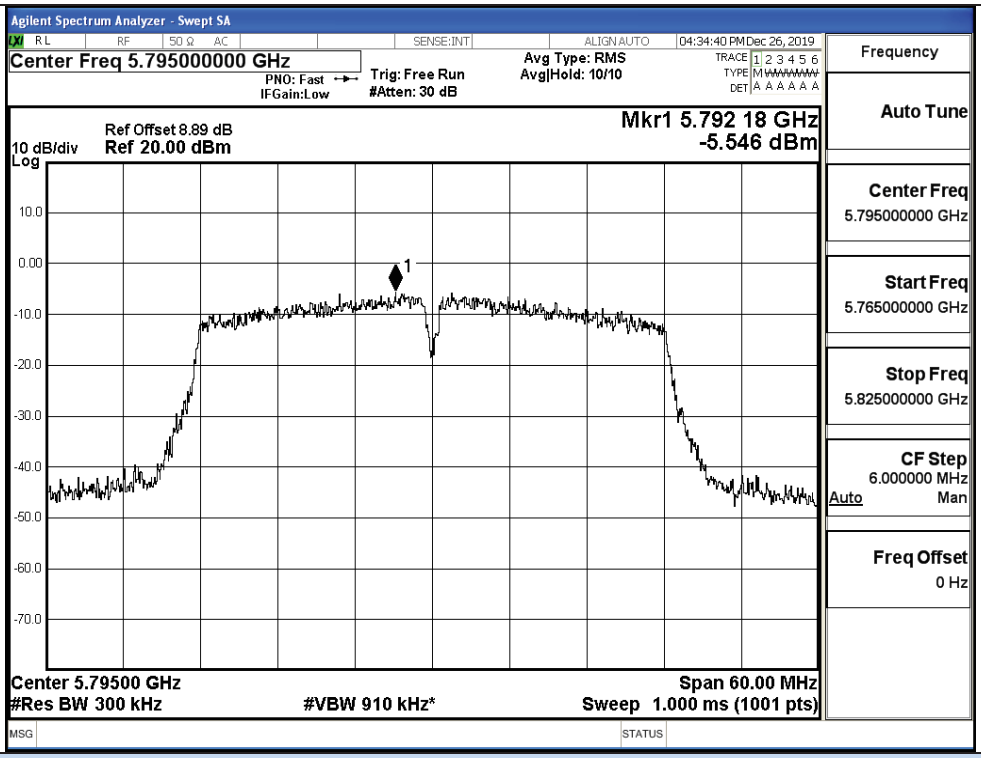
IEEE 802.11ac20 / Channel 157 / 5785MHz



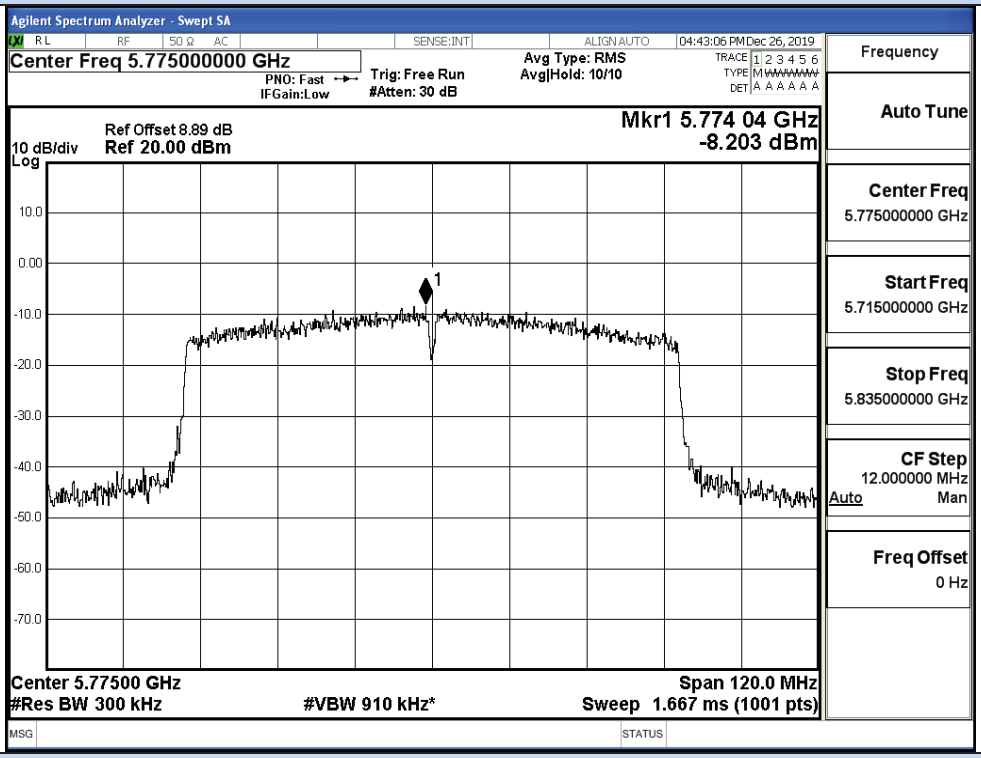
IEEE 802.11ac20 / Channel 165 / 5825MHz



IEEE 802.11ac40 / Channel 151 / 5755MHz



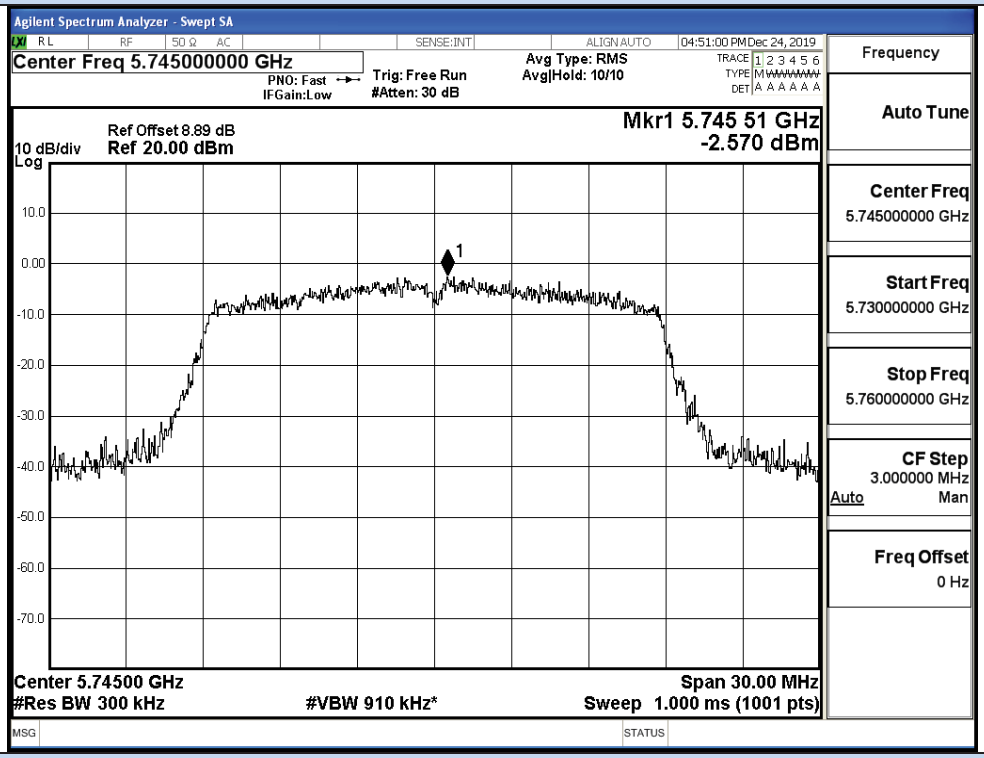
IEEE 802.11ac40 / Channel 159 / 5795MHz



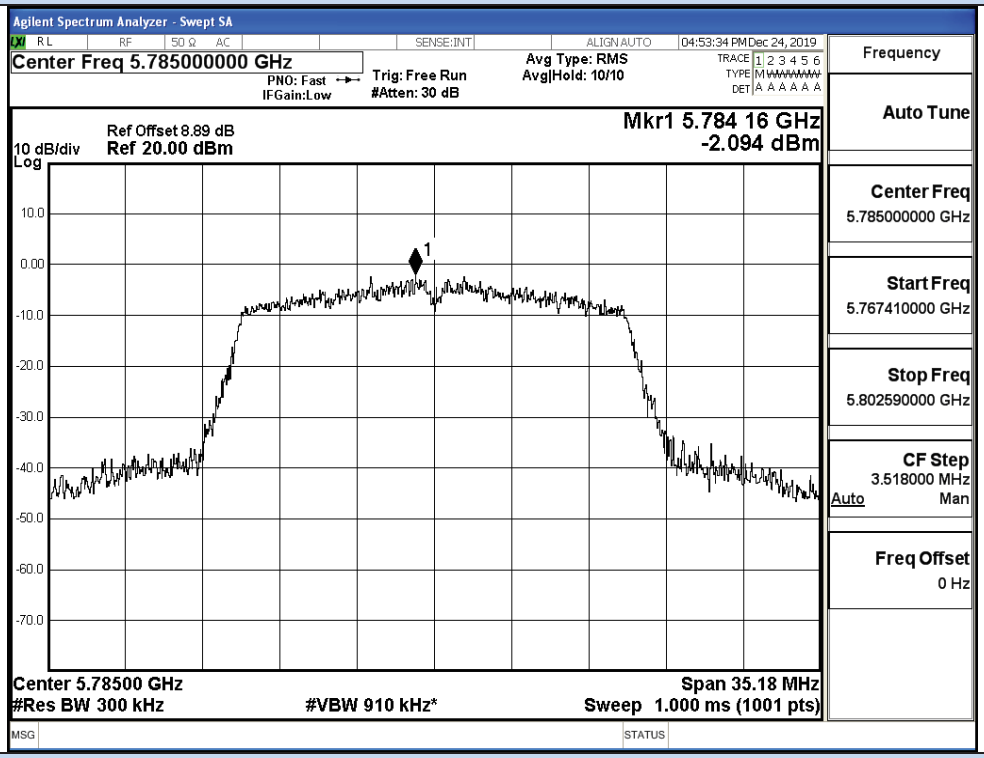
IEEE 802.11ac80 / Channel 155/ 5775MHz

ANT 1

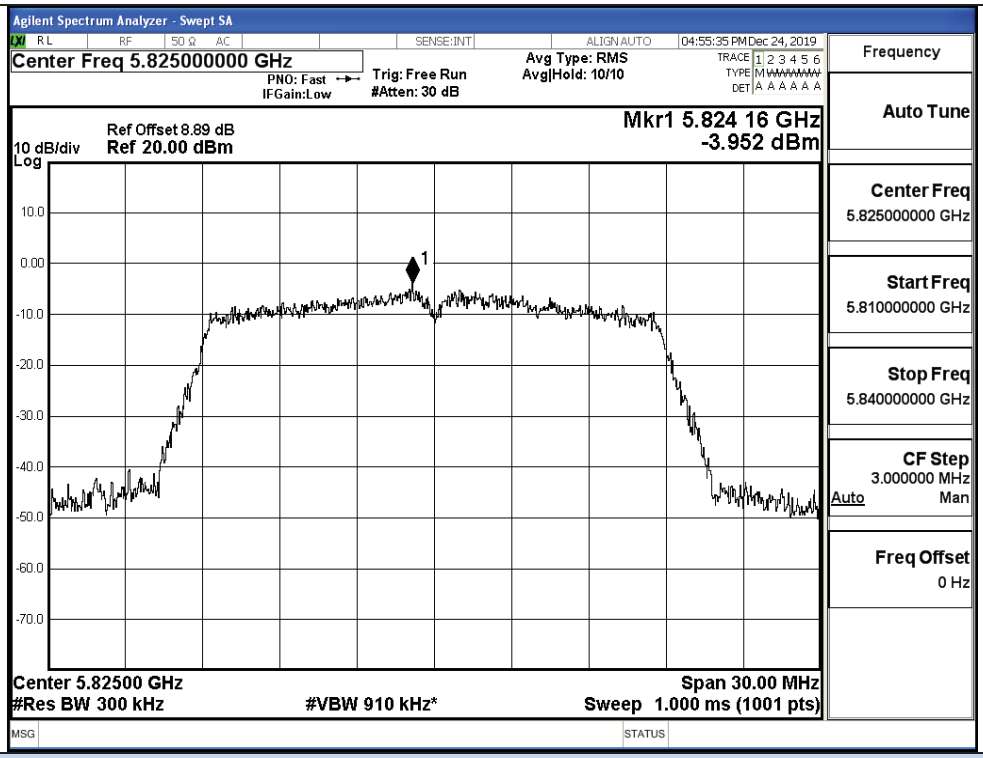
Power Spectral Density



IEEE 802.11n20 / Channel 149 / 5745MHz

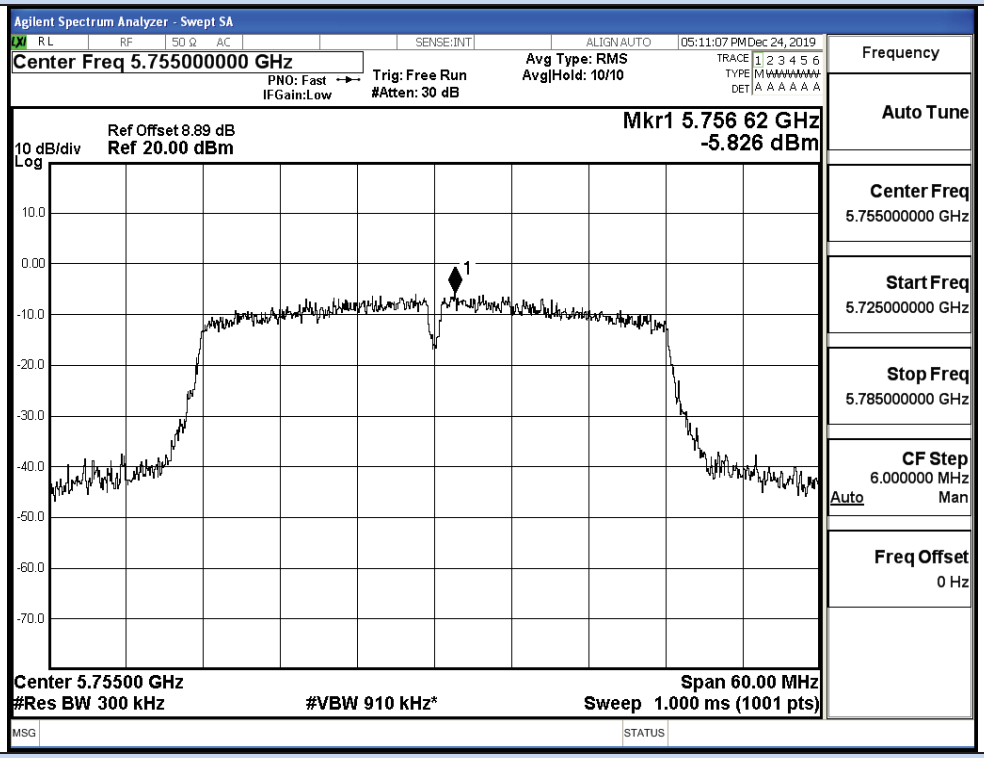


IEEE 802.11n20 / Channel 157 / 5785MHz

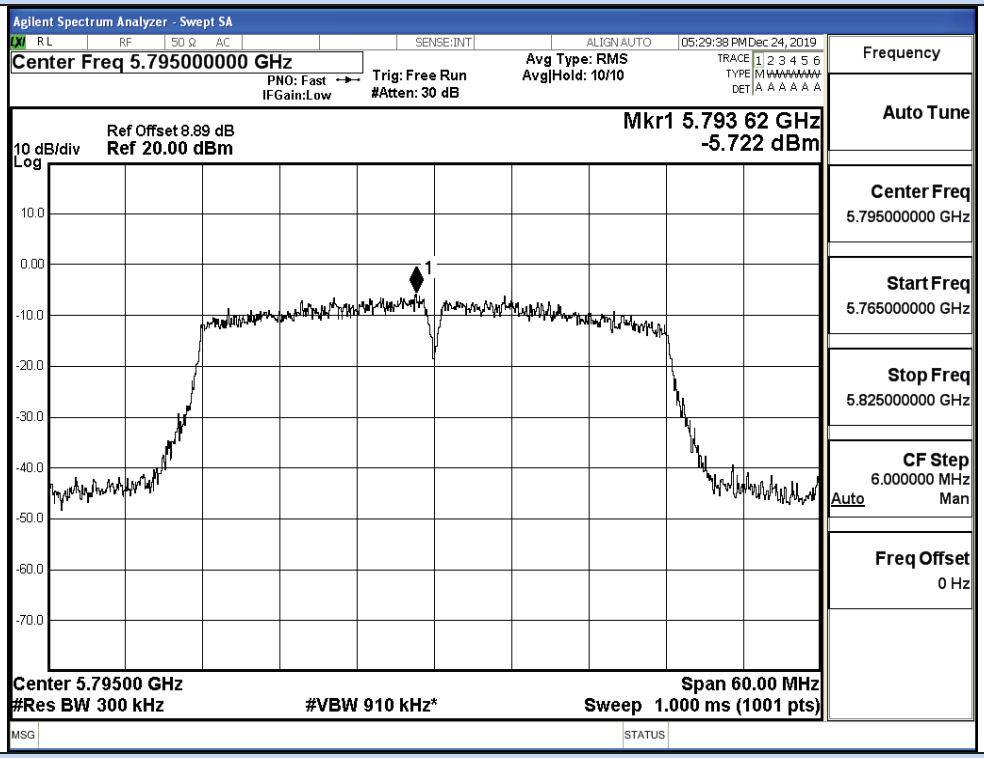


IEEE 802.11n20 / Channel 165 / 5825MHz

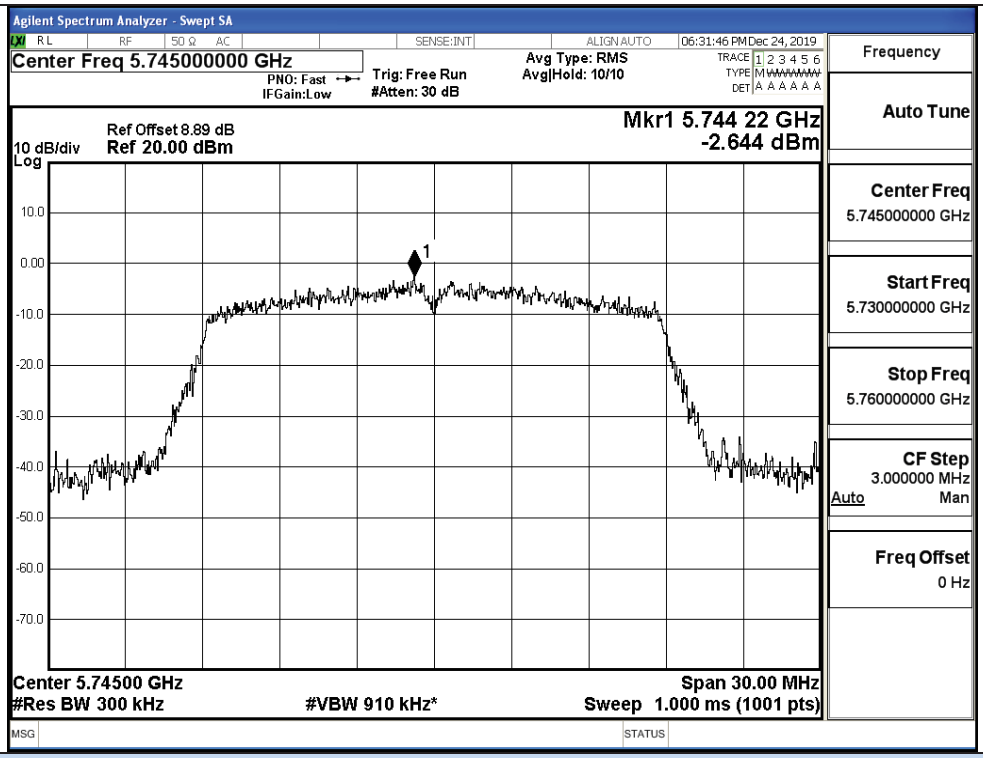
Power Spectral Density



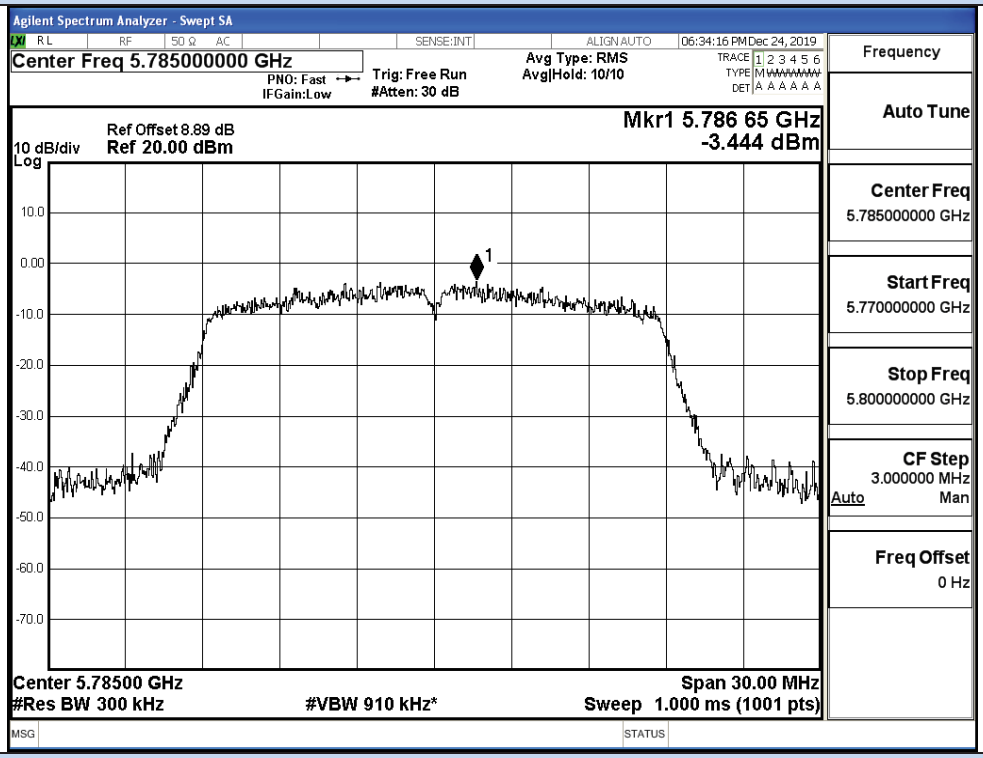
IEEE 802.11n40 / Channel 151 / 5755MHz



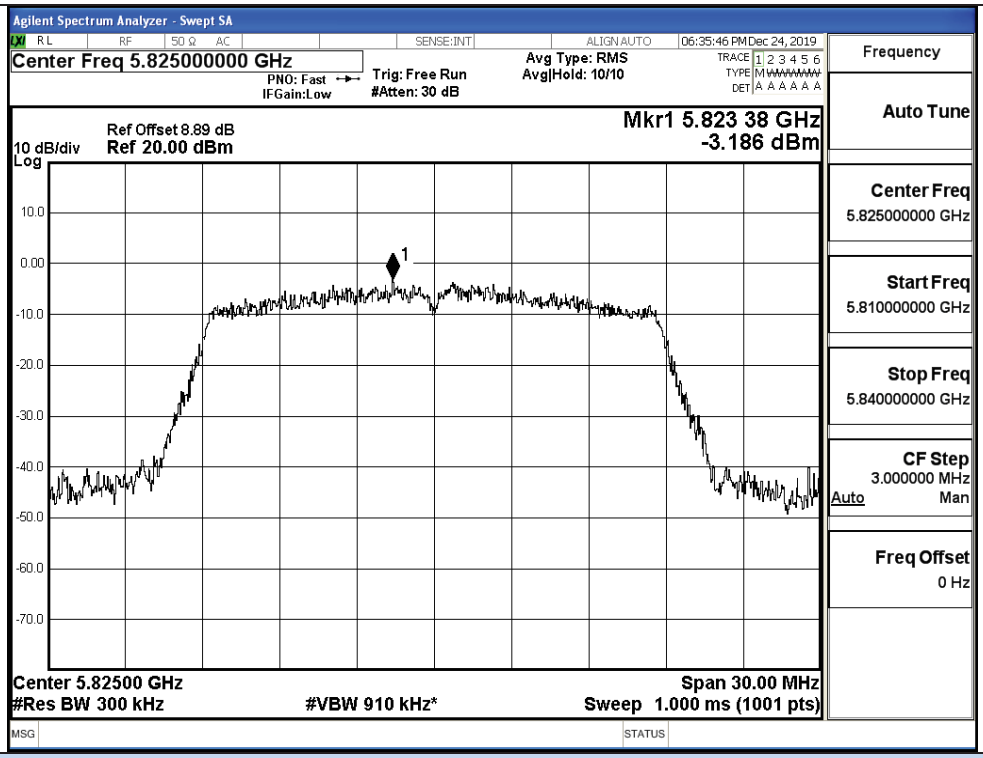
IEEE 802.11n40 / Channel 159 / 5795MHz



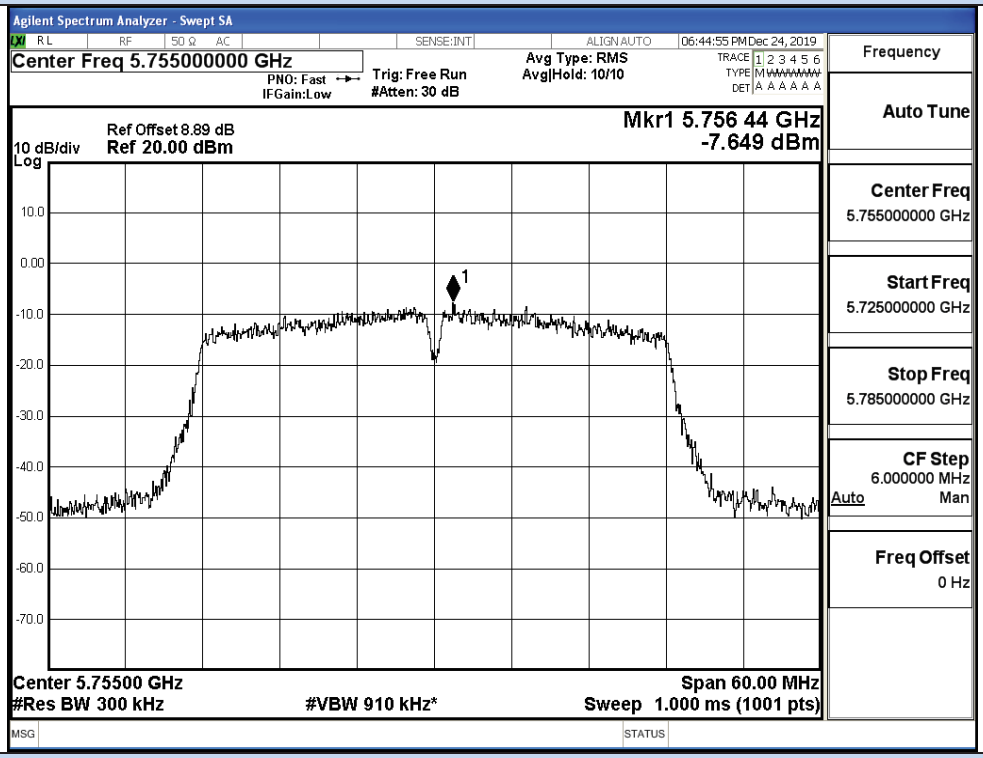
IEEE 802.11ac20 / Channel 149 / 5745MHz



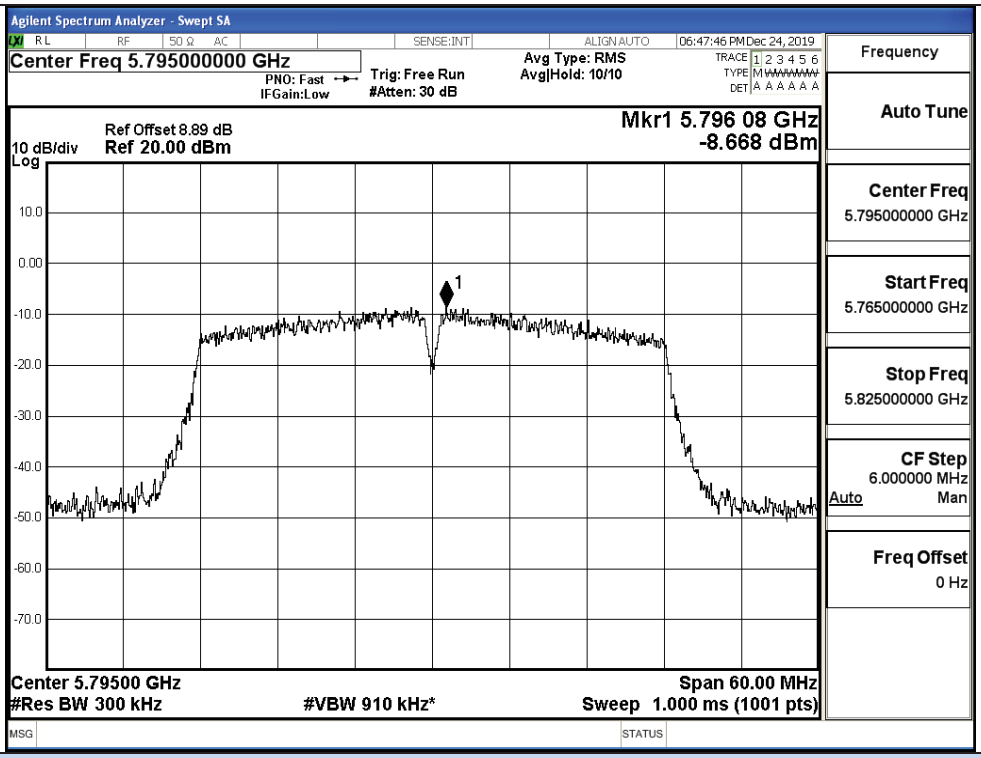
IEEE 802.11ac20 / Channel 157 / 5785MHz



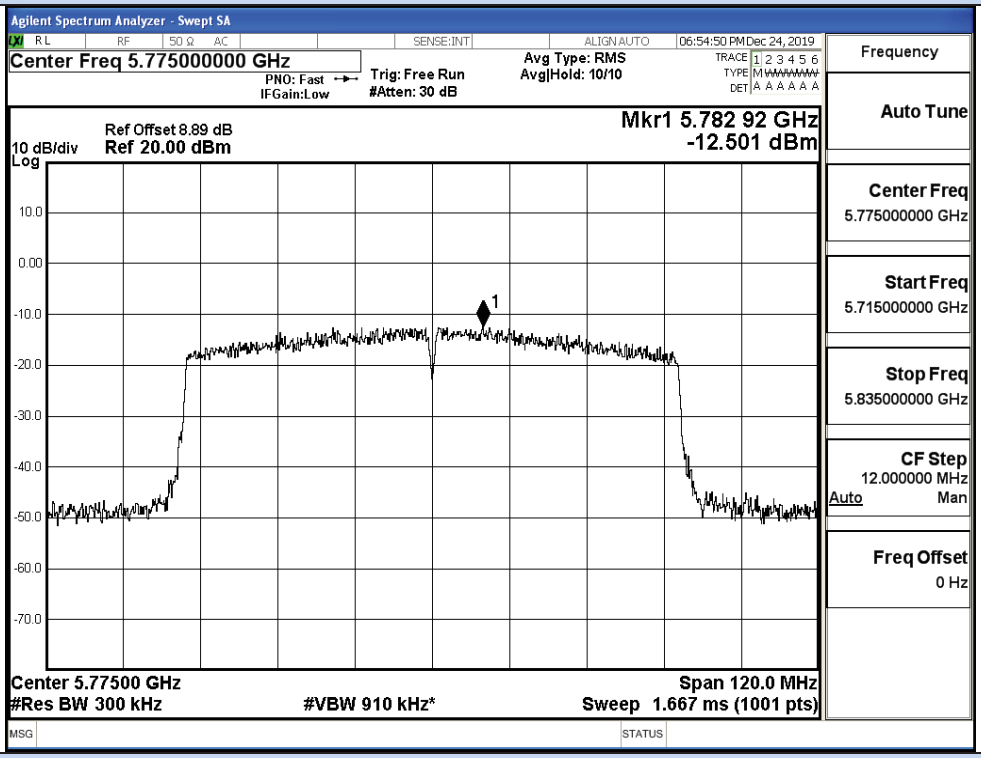
IEEE 802.11ac20 / Channel 165 / 5825MHz



IEEE 802.11ac40 / Channel 151 / 5755MHz



IEEE 802.11ac40 / Channel 159 / 5795MHz



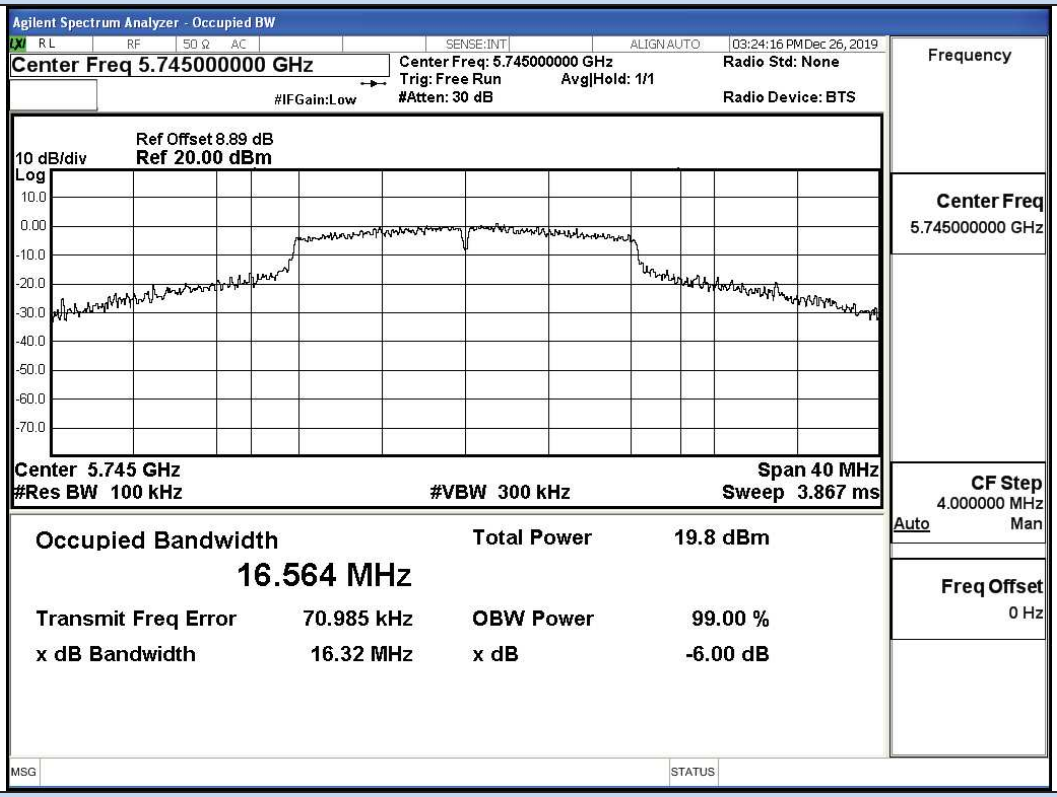
IEEE 802.11ac80 / Channel 155/ 5775MHz

D.4 Emission Bandwidth

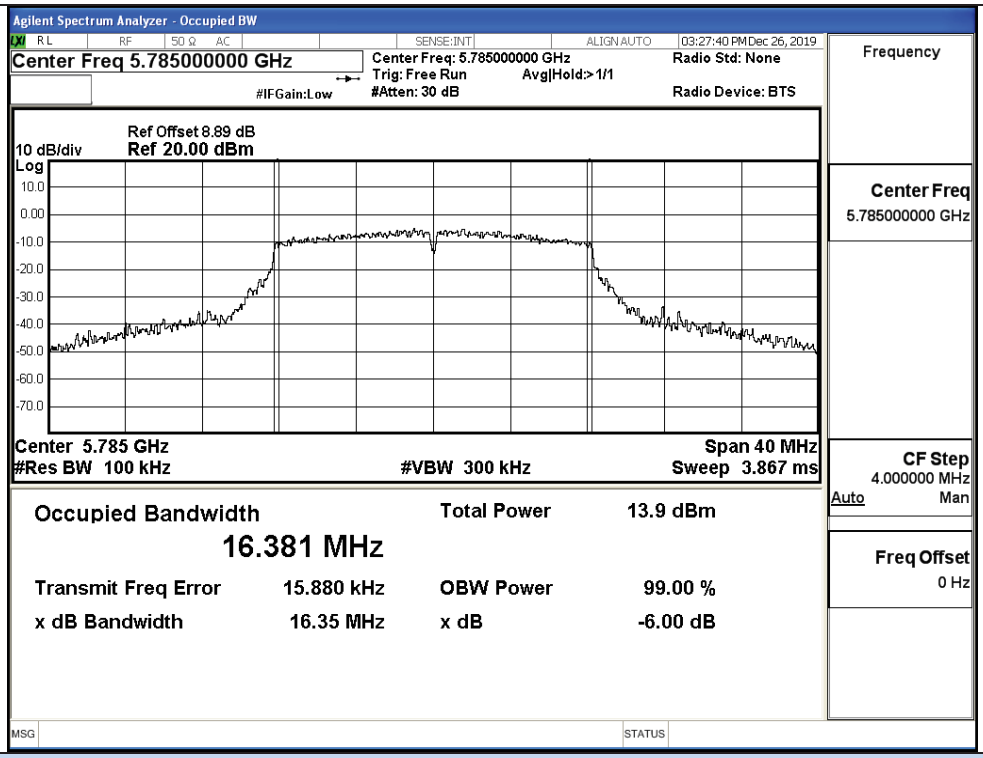
Ant0

Test Mode	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	99% Bandwidth (MHz)	Verdict
11A	149	5745	16.32	>=0.5	16.564	Pass
	157	5785	16.35		16.381	Pass
	165	5825	16.36		16.376	Pass
11N20 SISO	149	5745	17.57	>=0.5	17.573	Pass
	157	5785	17.25		17.546	Pass
	165	5825	17.61		17.536	Pass
11N40 SISO	151	5755	35.00	>=0.5	35.931	Pass
	159	5795	35.93		35.862	Pass
11AC20S ISO	149	5745	17.58	>=0.5	17.538	Pass
	157	5785	17.62		17.557	Pass
	165	5825	16.72		16.544	Pass
11AC40S ISO	151	5755	35.51	>=0.5	35.900	Pass
	159	5795	35.16		35.883	Pass
11AC80S ISO	155	5775	76.33	>=0.5	75.835	Pass

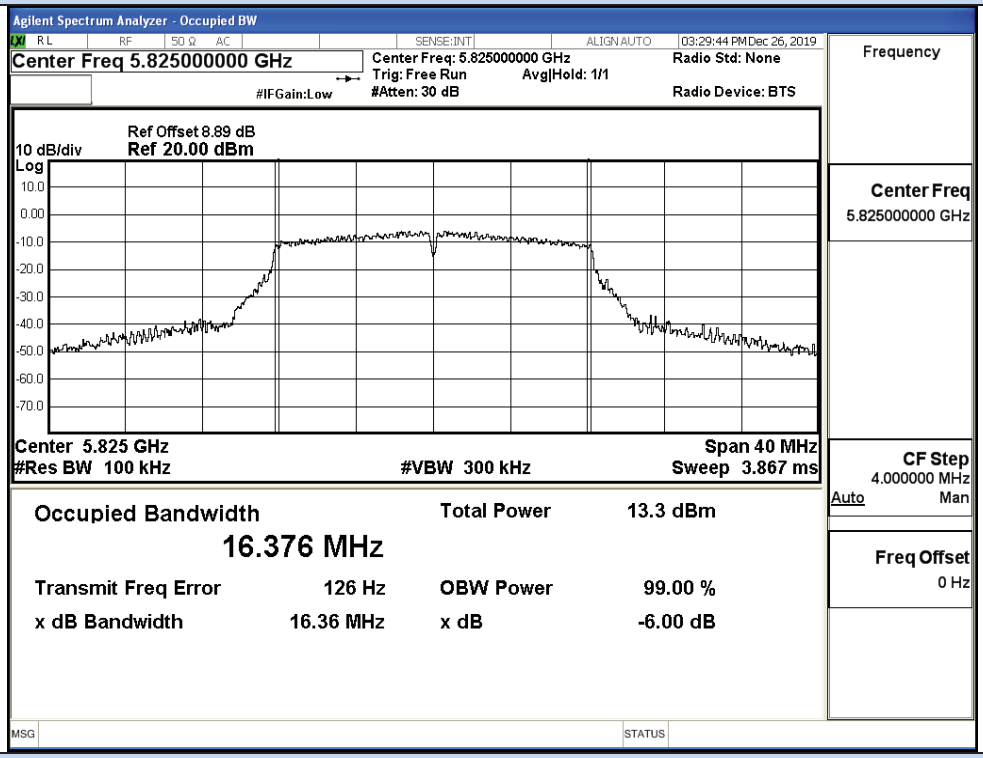
6dB Bandwidth



IEEE 802.11a / Channel 149 / 5745MHz



IEEE 802.11a / Channel 157 / 5785MHz



IEEE 802.11a / Channel 165 / 5825MHz