Appendix A

RF Test Data for 5.8G WLAN (Conducted Measurement)

Product Name: Smart aircraft

Trade Mark: FUNSNAP

Test Model: DIVA-01

Environmental Conditions

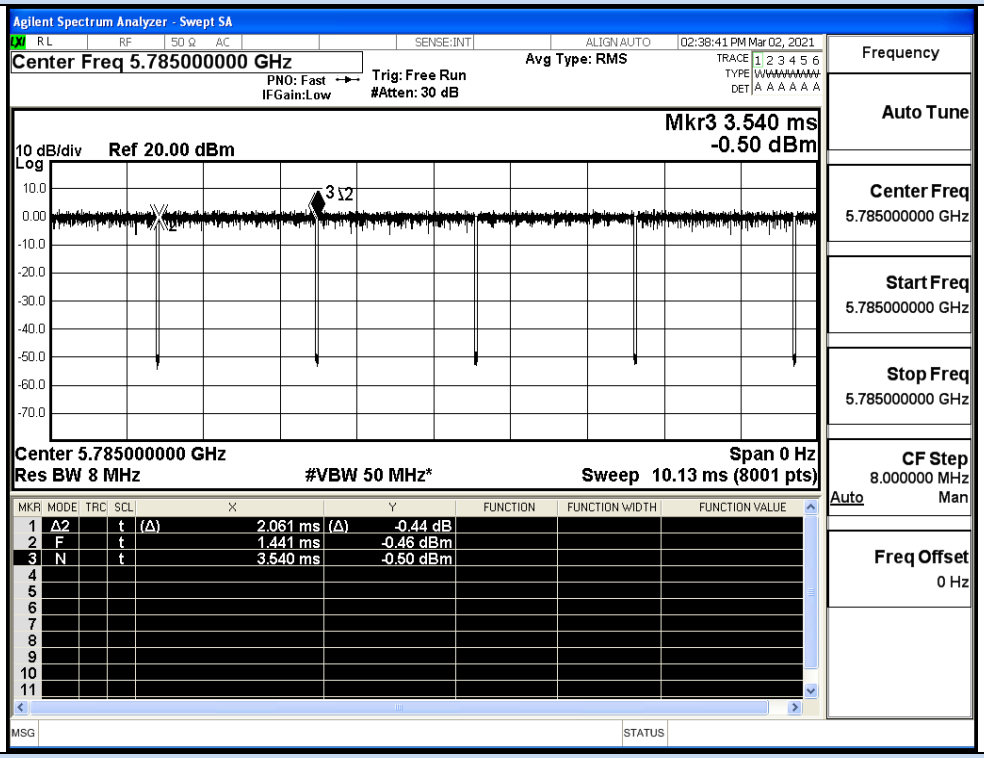
Temperature:	24.6° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Carl Fu
Supervised by:	Li Huan

A.1 Duty Cycle

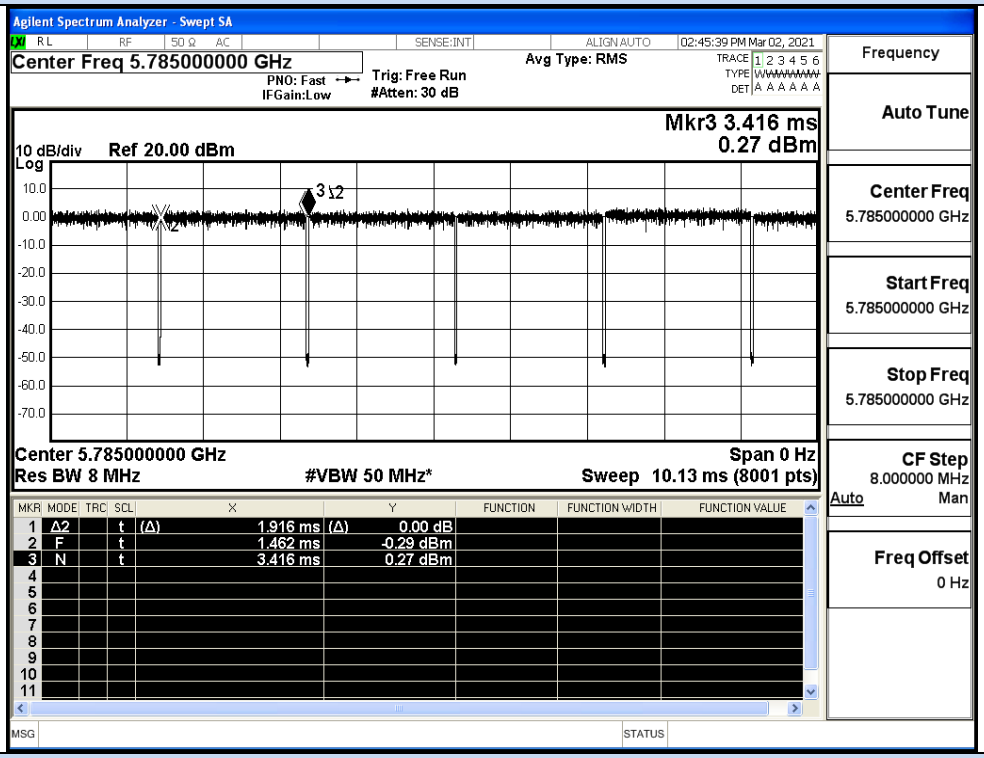
ANT0

Test Mode	Test Frequency (MHz)	Duty Cycle (%)	10log(1/x) Factor (dB)	1/B Minimum VBW(KHz)
11A	5785	98.19	0.08	0.01
11N20 SISO	5785	98.06	0.09	0.01

On Time and Duty Cycle



IEEE 802.11a

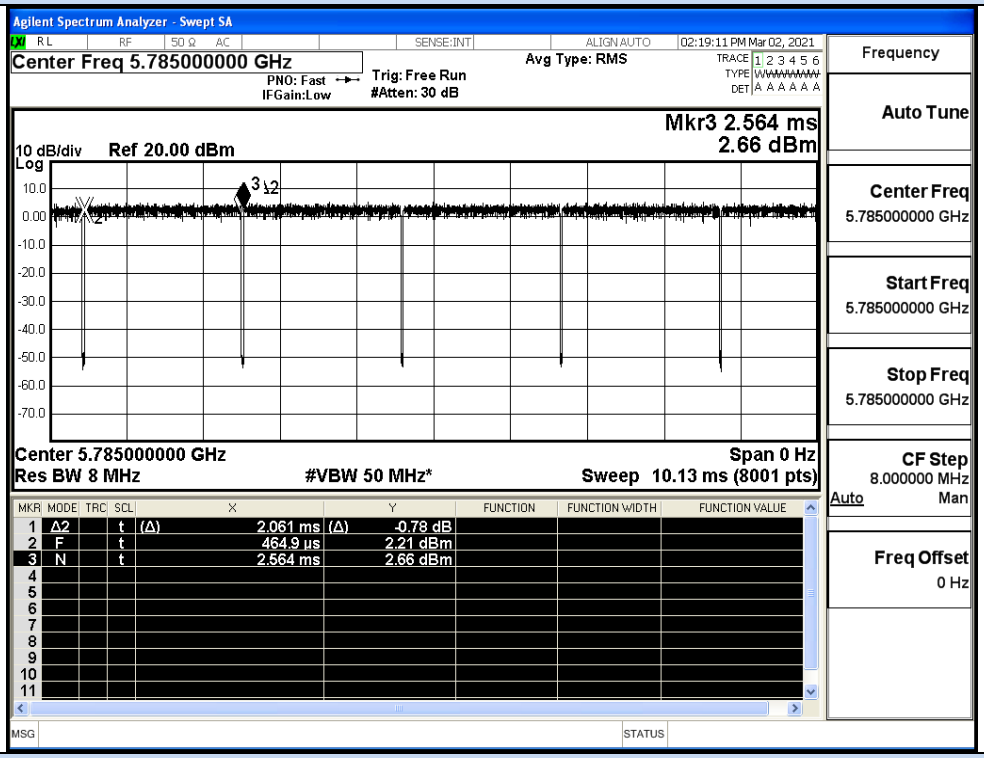


IEEE 802.11n HT20

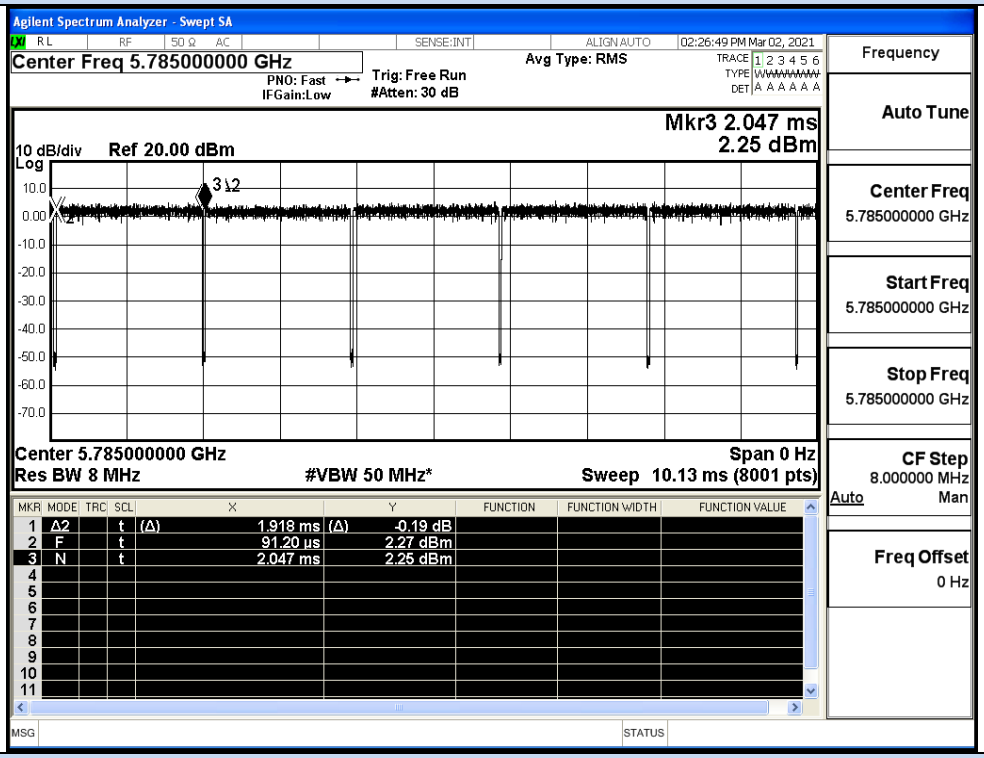
ANT1

Test Mode	Test Frequency (MHz)	Duty Cycle (%)	10log(1/x) Factor (dB)	1/B Minimum VBW(KHz)
11A	5785	98.19	0.08	0.01
11N20 SISO	5785	98.06	0.09	0.01

On Time and Duty Cycle



IEEE 802.11a



IEEE 802.11n HT20

A.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	12.53	0.06	12.59	30	Pass
	157	5785	12.89	0.08	12.97		Pass
	161	5805	13.09	0.05	13.14		Pass
11N20 SISO	149	5745	12.12	0.07	12.19	30	Pass
	157	5785	12.74	0.09	12.83		Pass
	161	5805	12.51	0.06	12.57		Pass

ANT1

Test Mode	Channel	Frequency (MHz)	AVG Conducted Power (dBm)	Duty Cycle Factor(dB)	Report Conducted Power(dBm)	Limit (dBm)	Verdict
11A	149	5745	13.63	0.06	13.69	30	Pass
	157	5785	13.36	0.08	13.44		Pass
	161	5805	13.54	0.05	13.59		Pass
11N20 SISO	149	5745	12.64	0.07	12.71	30	Pass
	157	5785	13.37	0.09	13.46		Pass
	161	5805	12.63	0.06	12.69		Pass

MIMO

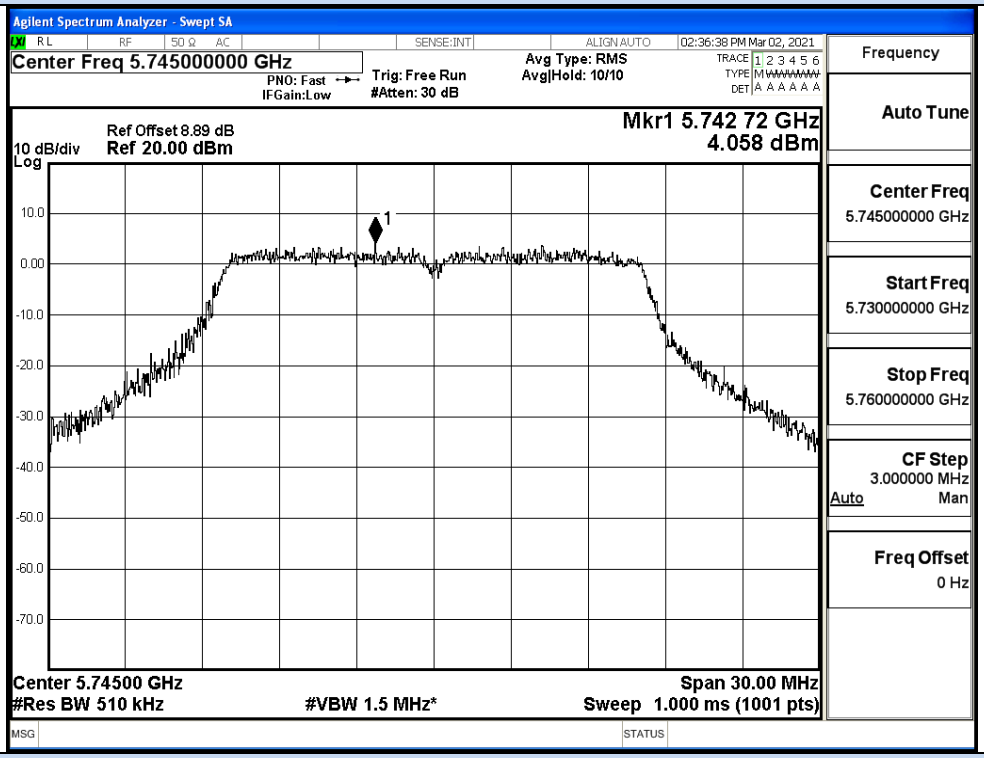
Test Mode	Channel	Frequency (MHz)	ANT 0 Report Conducted Power(dBm)	ANT 1 Report Conducted Power(dBm)	Report Conducted Power(dBm)	Limit (dBm)	Verdict
11N20	149	5745	12.19	12.71	15.47	29.73	Pass
	157	5785	12.83	13.46	16.17		Pass
	161	5805	12.57	12.69	15.64		Pass

A.3 Power Spectral Density

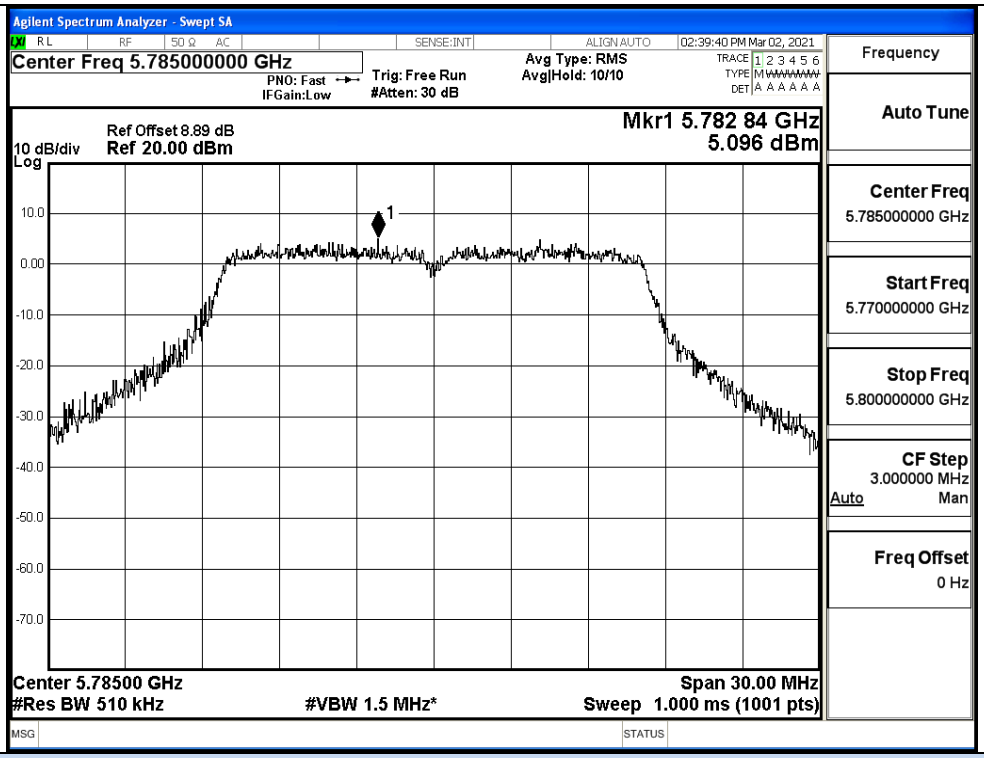
ANT0

Test Mode	Channel	Frequency (MHz)	Power Density (dBm/500KHz)	Duty Cycle Factor (dB)	RBW Factor (dB)	Report Power Density (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
11A	149	5745	4.06	0.06	0	4.12	30	Pass
	157	5785	5.10	0.08	0	5.18		Pass
	161	5805	5.43	0.05	0	5.48		Pass
11N20 SISO	149	5745	3.87	0.07	0	3.94	30	Pass
	157	5785	4.77	0.09	0	4.86		Pass
	161	5805	5.01	0.06	0	5.07		Pass

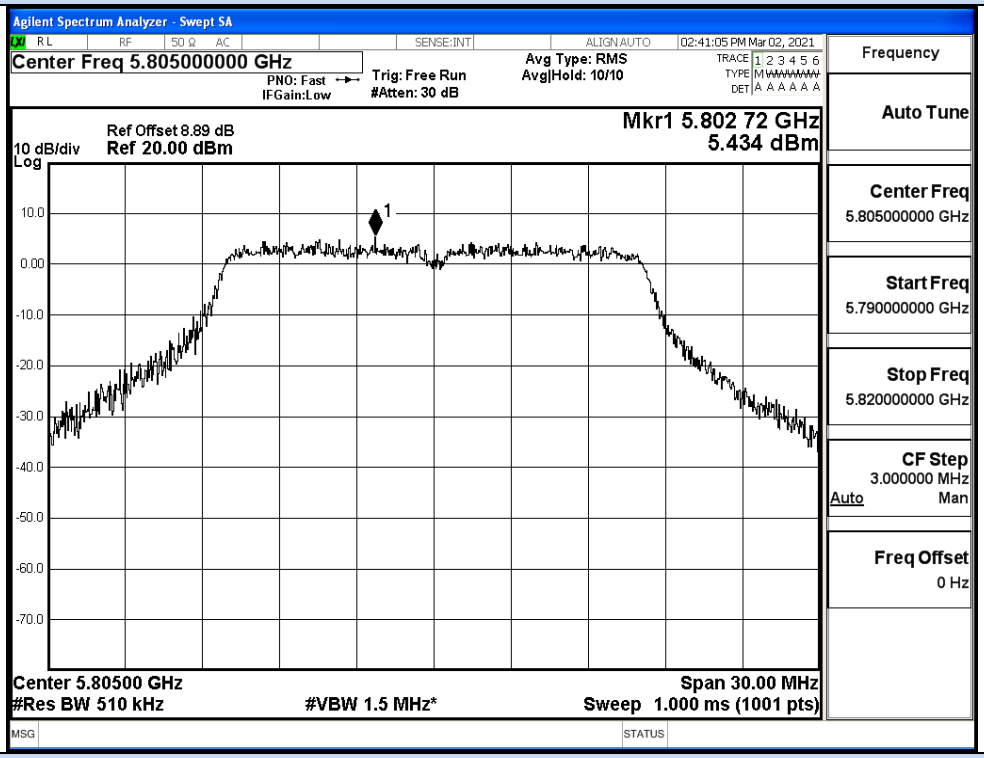
Power Spectral Density



IEEE 802.11a / Channel 149 / 5745MHz

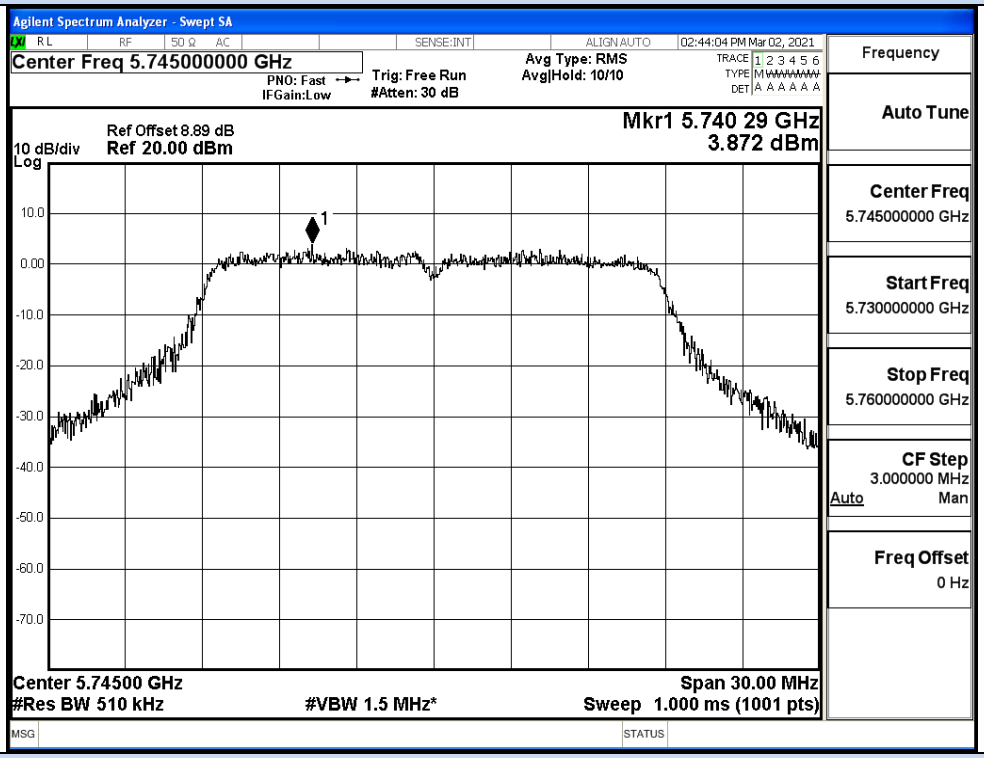


IEEE 802.11na / Channel 157 / 5785MHz

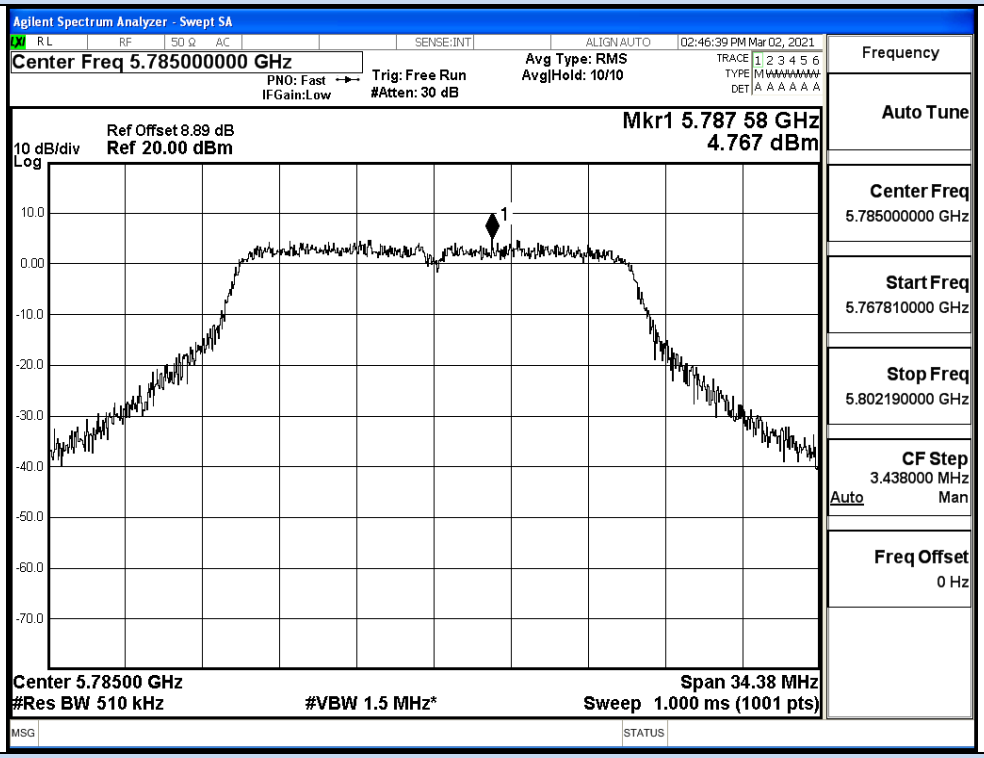


IEEE 802.11na / Channel 165 / 5805MHz

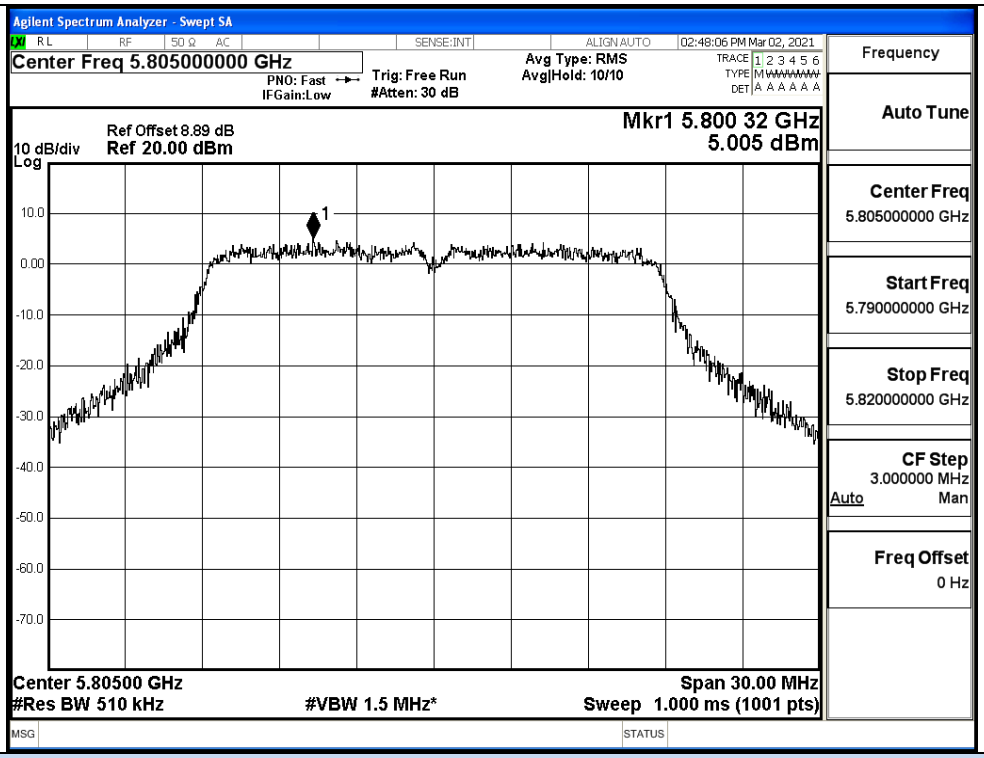
Power Spectral Density



IEEE 802.11n20 / Channel 149 / 5745MHz



IEEE 802.11n20 / Channel 157 / 5785MHz

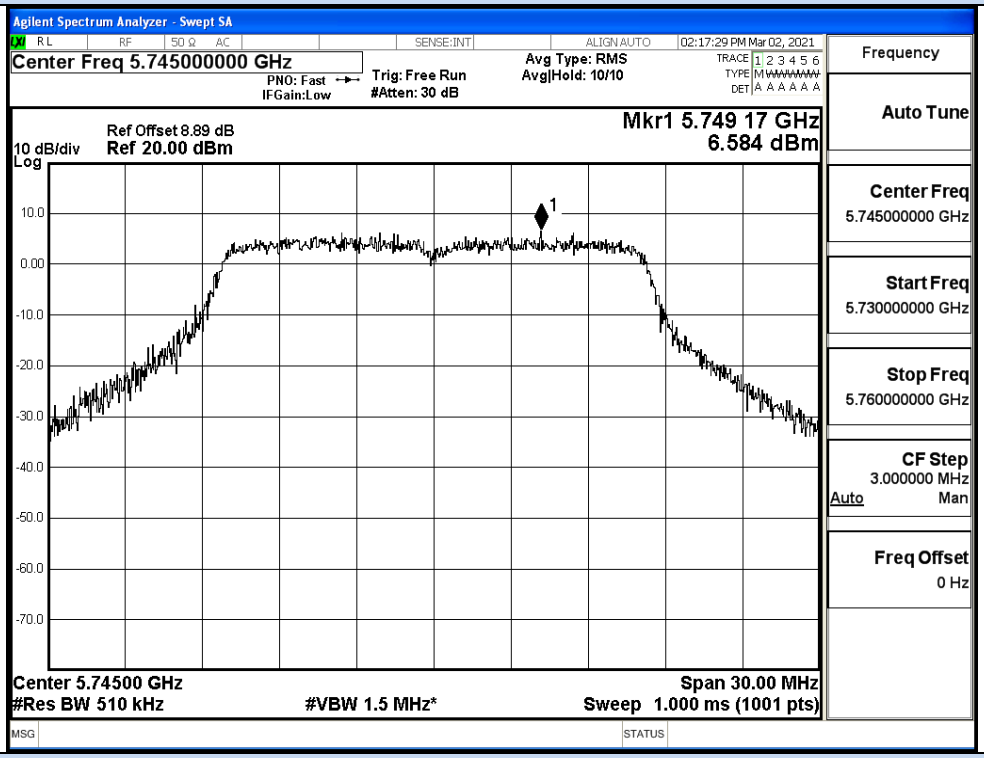


IEEE 802.11n20 / Channel 165 / 5805MHz

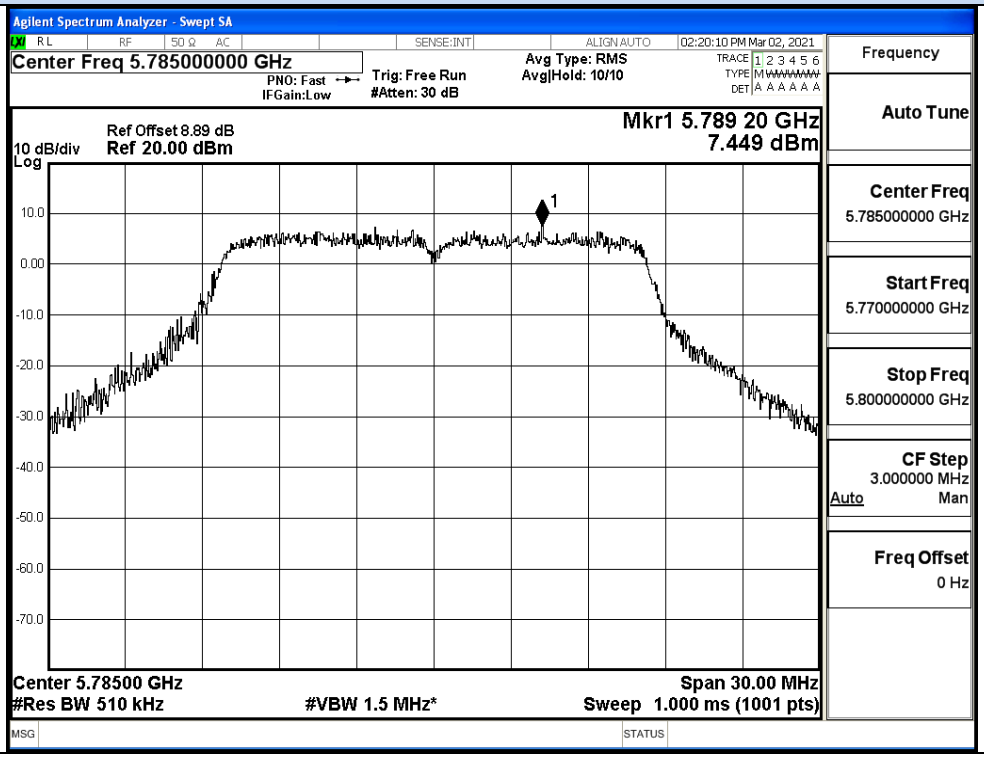
ANT1

Test Mode	Channel	Frequency (MHz)	Power Density (dBm/500KHz)	Duty Cycle Factor (dB)	RBW Factor (dB)	Report Power Density (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
11A	149	5745	6.58	0.06	0	6.64	30	Pass
	157	5785	7.45	0.08	0	7.53		Pass
	161	5805	7.02	0.05	0	7.07		Pass
11N20 SISO	149	5745	5.58	0.07	0	5.65	30	Pass
	157	5785	6.58	0.09	0	6.67		Pass
	161	5805	7.29	0.06	0	7.35		Pass

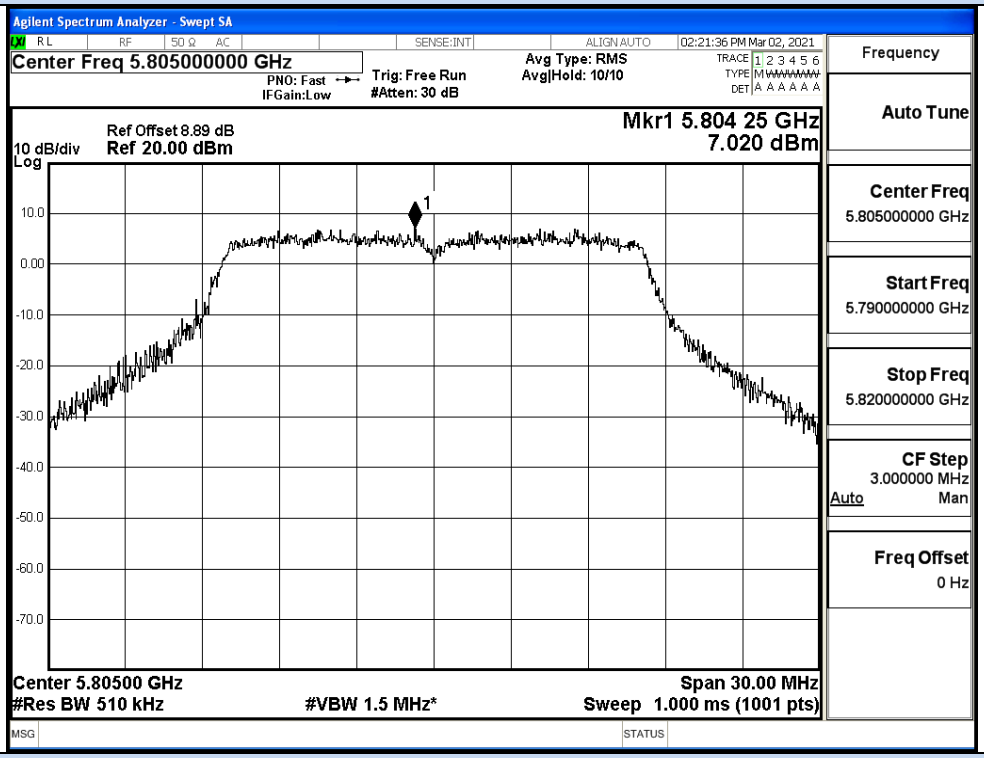
Power Spectral Density



IEEE 802.11a / Channel 149 / 5745MHz

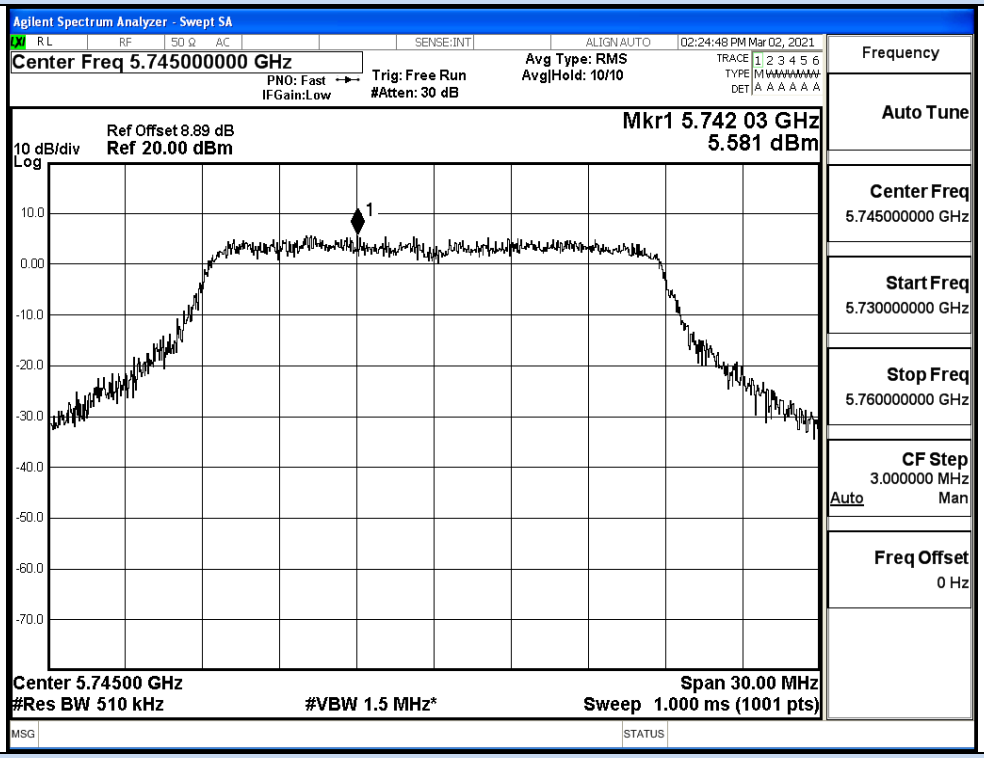


IEEE 802.11na / Channel 157 / 5785MHz

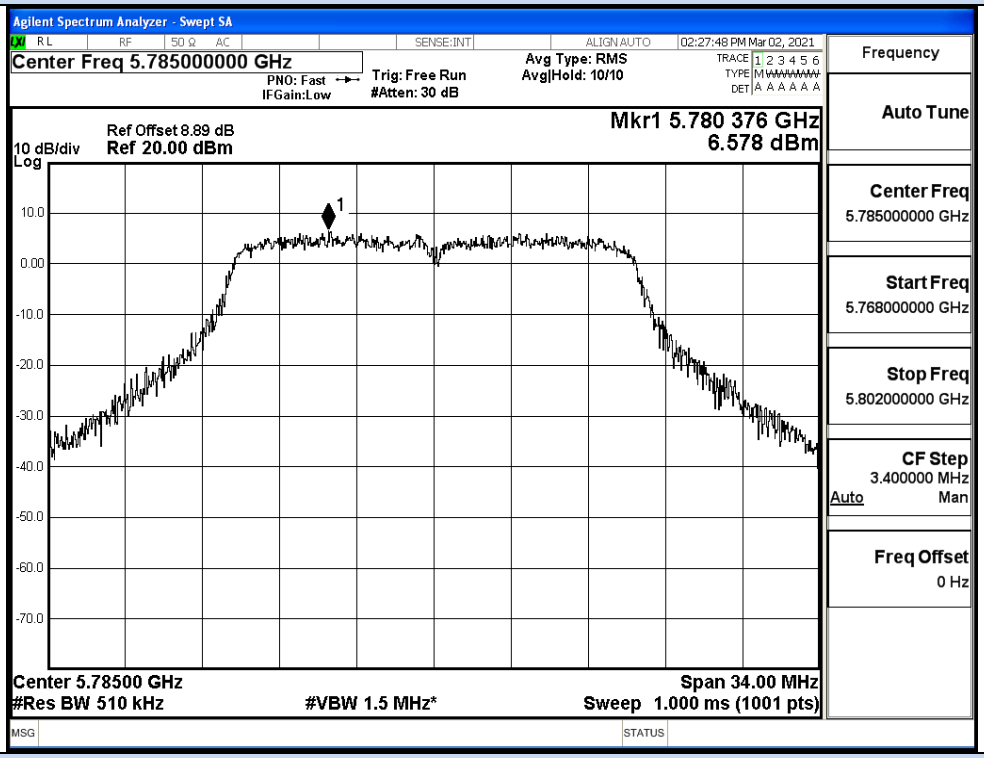


IEEE 802.11na / Channel 165 / 5805MHz

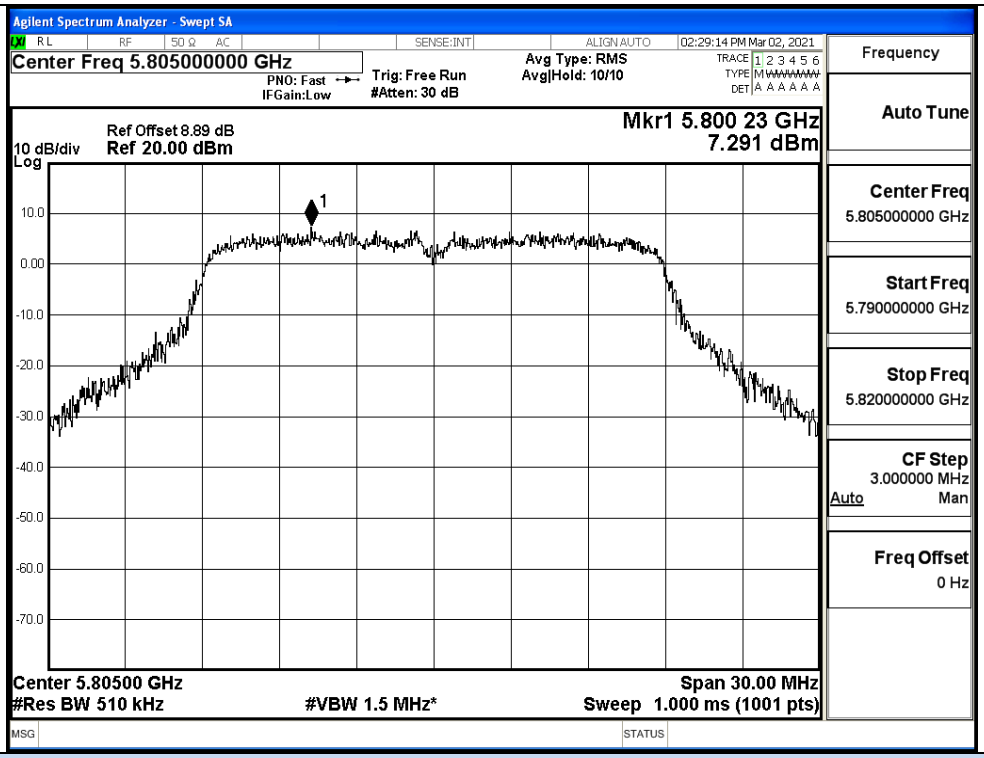
Power Spectral Density



IEEE 802.11n20 / Channel 149 / 5745MHz



IEEE 802.11n20 / Channel 157 / 5785MHz



IEEE 802.11n20 / Channel 165 / 5805MHz

MIMO

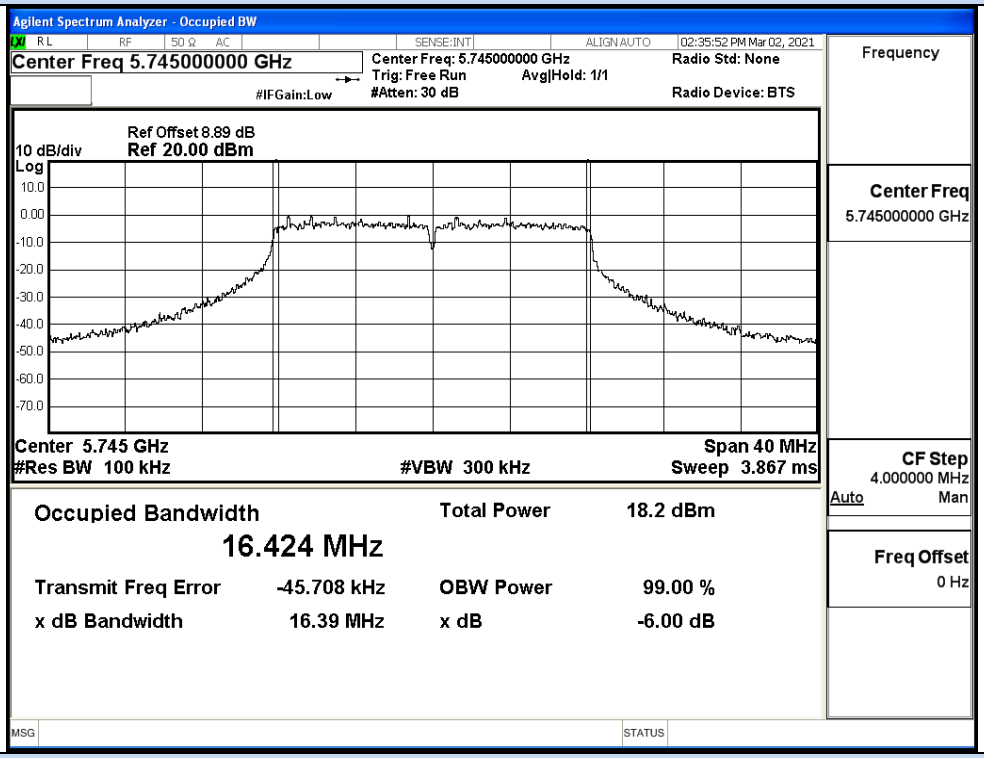
Test Mode	Channel	Frequency (MHz)	ANT 0 Power Density (dBm/500KHz)	ANT 1 Power Density (dBm/500KHz)	MIMO Power Density (dBm/500KHz)	Duty Cycle Factor (dB)	RBW Factor (dB)	Report Power Density (dBm/500KHz)	Report Power Density (dBm/500 KHz)	Verdict
11N20	149	5745	3.87	5.58	7.82	0.08	0	7.9	29.73	Pass
	157	5785	4.77	6.58	8.78	0.05	0	8.83		Pass
	161	5805	5.01	7.29	9.31	0.07	0	9.38		Pass

A.4 Emission Bandwidth

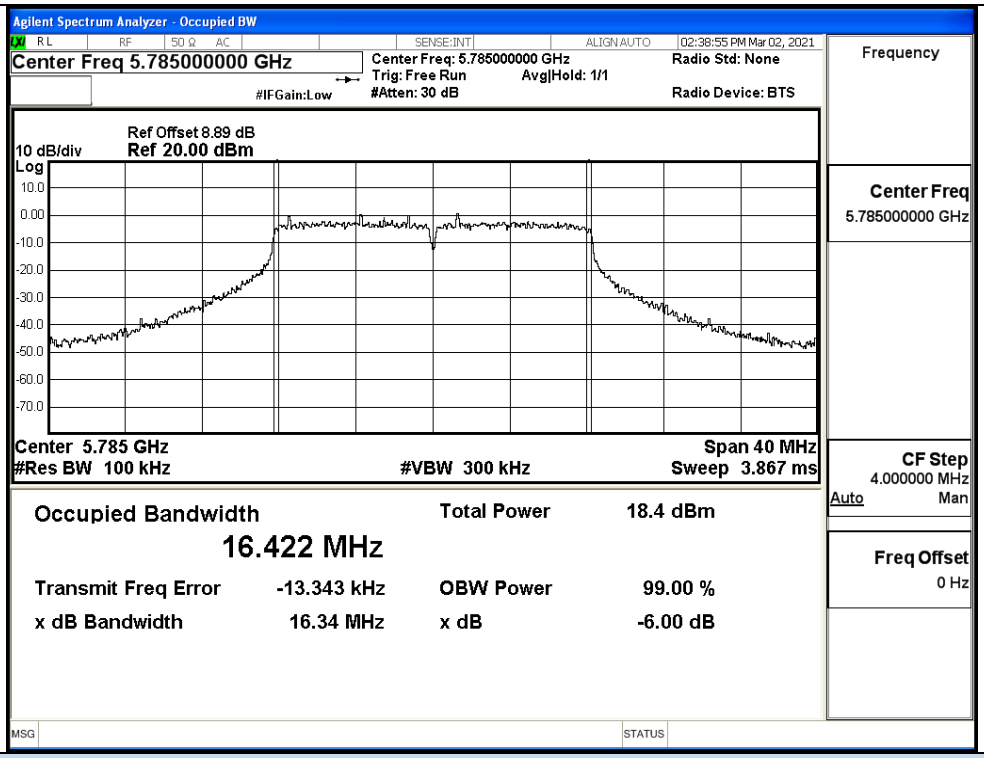
ANT0

Test Mode	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Verdict
11A	149	5745	16.39	16.424	>=0.5	Pass
	157	5785	16.34	16.422		Pass
	161	5805	16.38	16.430		Pass
11N20 SISO	149	5745	17.19	17.635	>=0.5	Pass
	157	5785	17.19	17.635		Pass
	161	5805	16.98	17.623		Pass

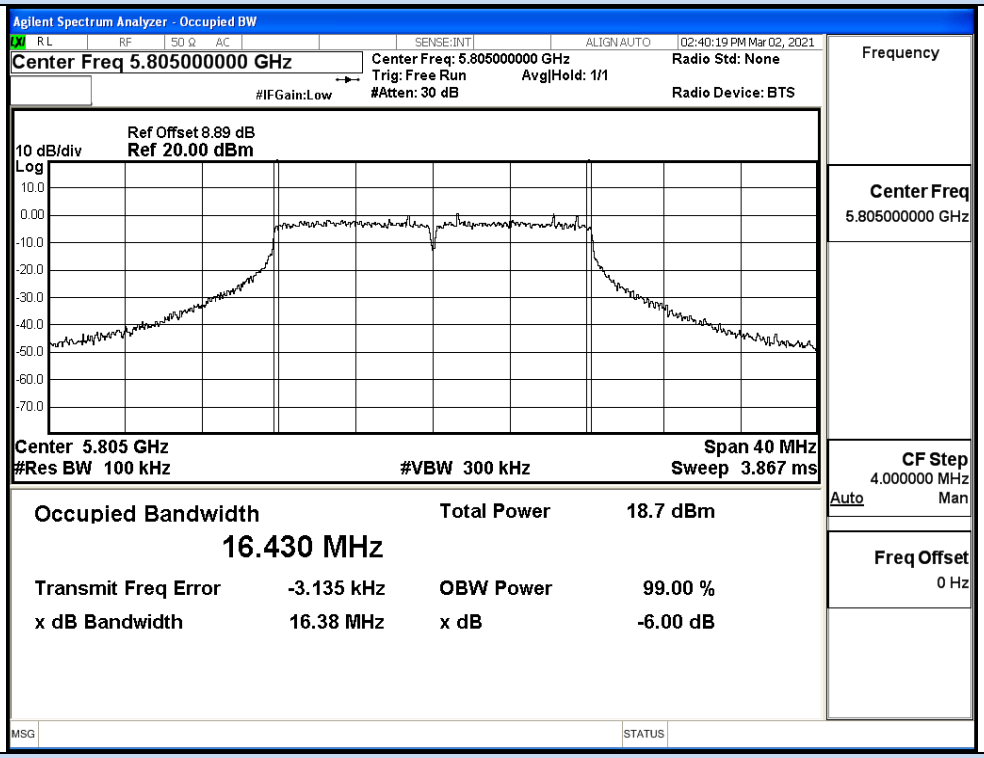
6dB Bandwidth



IEEE 802.11a / Channel 149 / 5745MHz

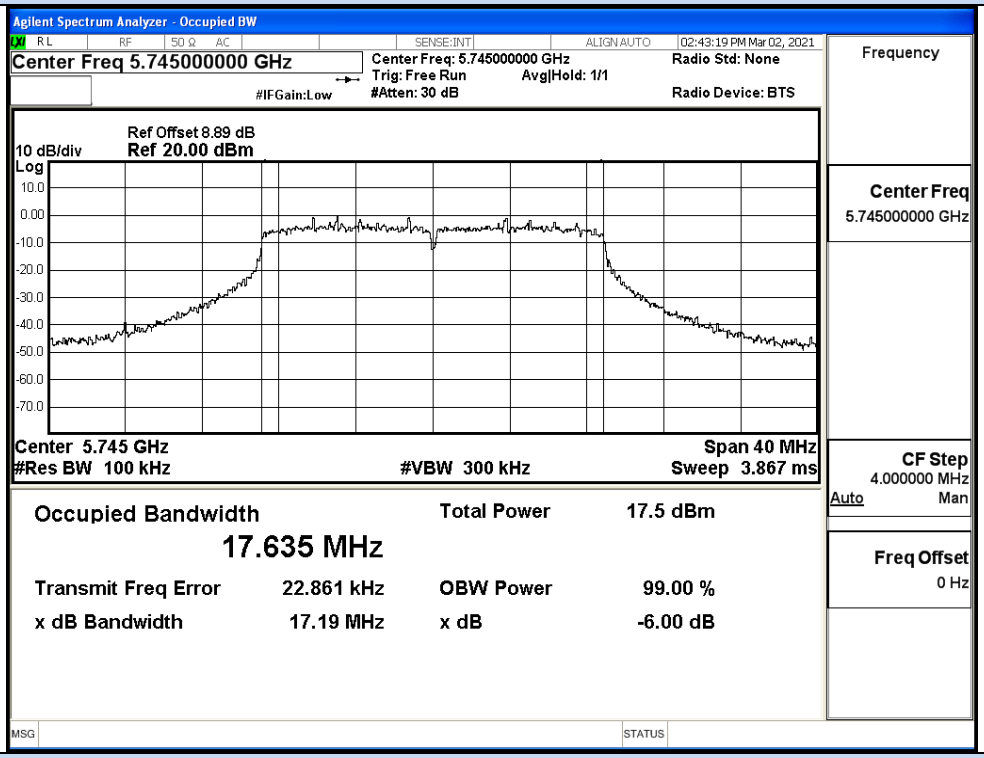


IEEE 802.11a / Channel 157 / 5785MHz

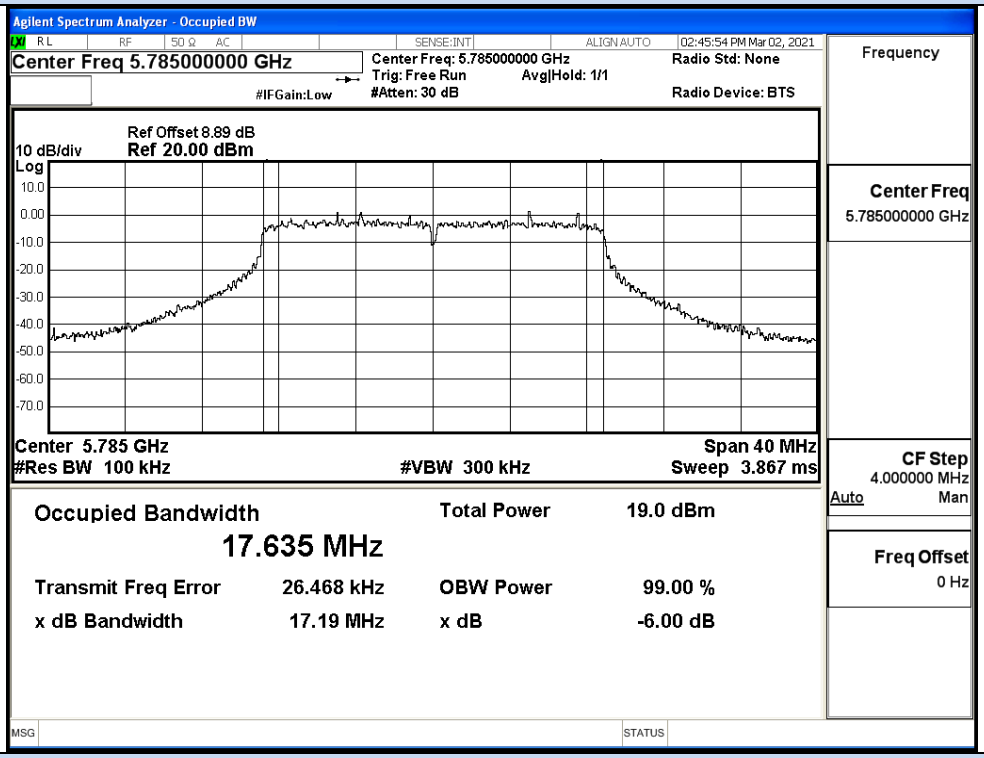


IEEE 802.11a / Channel 165 / 5805MHz

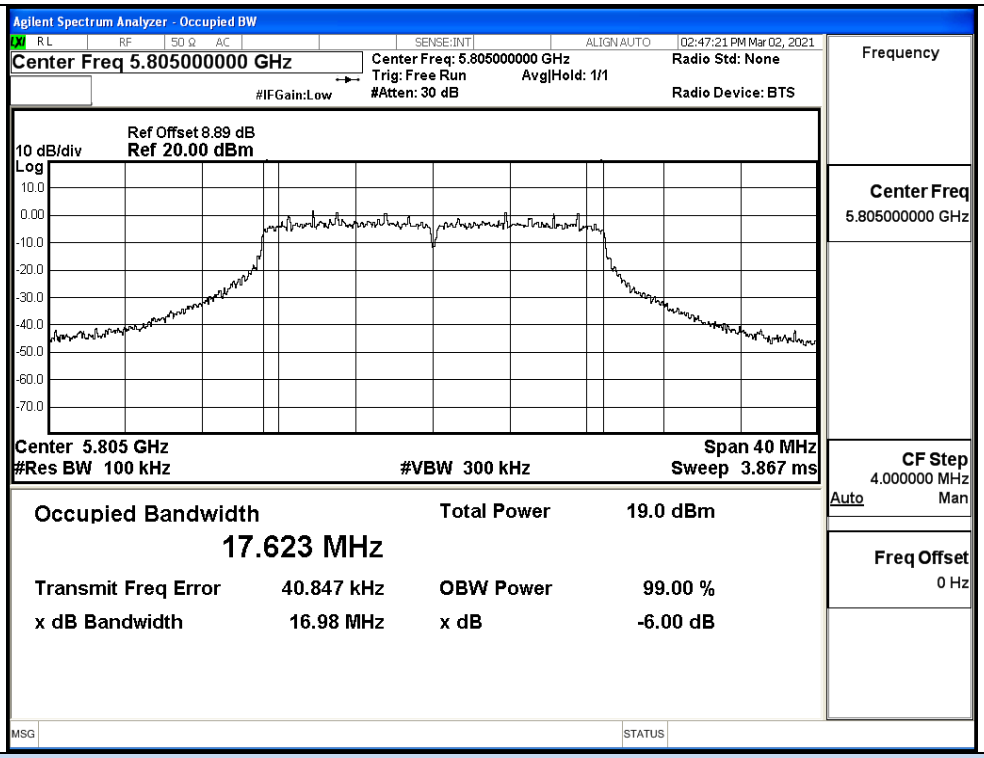
6dB Bandwidth



IEEE 802.11n20 / Channel 149 / 5745MHz



IEEE 802.11n20 / Channel 157 / 5785MHz

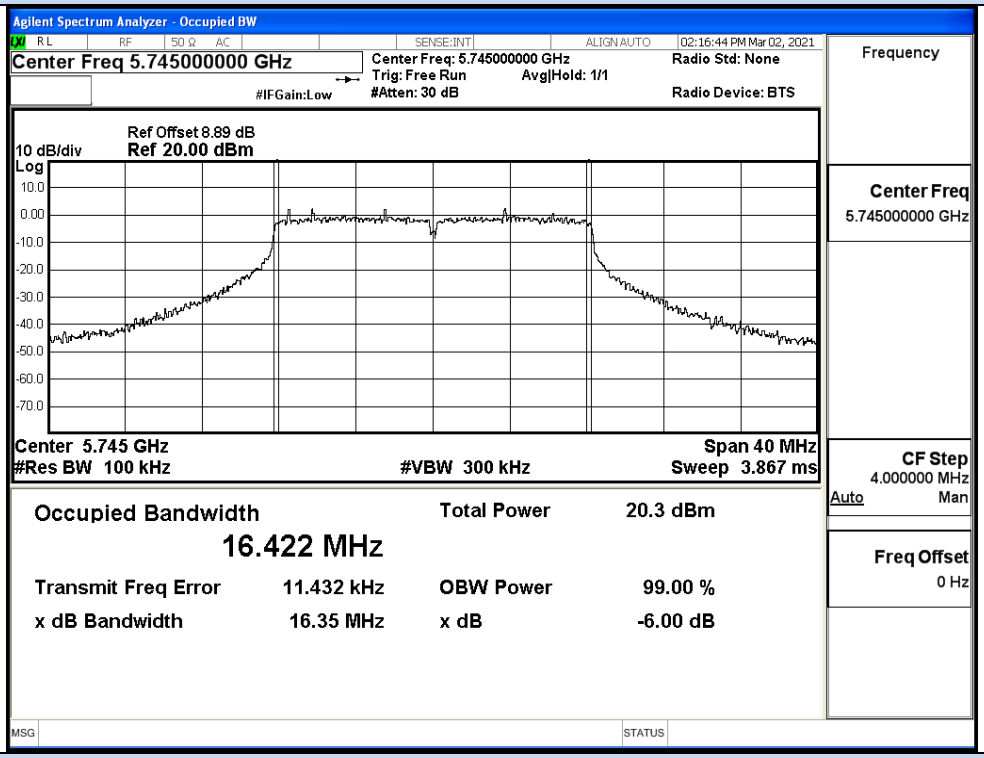


IEEE 802.11n20 / Channel 165 / 5805MHz

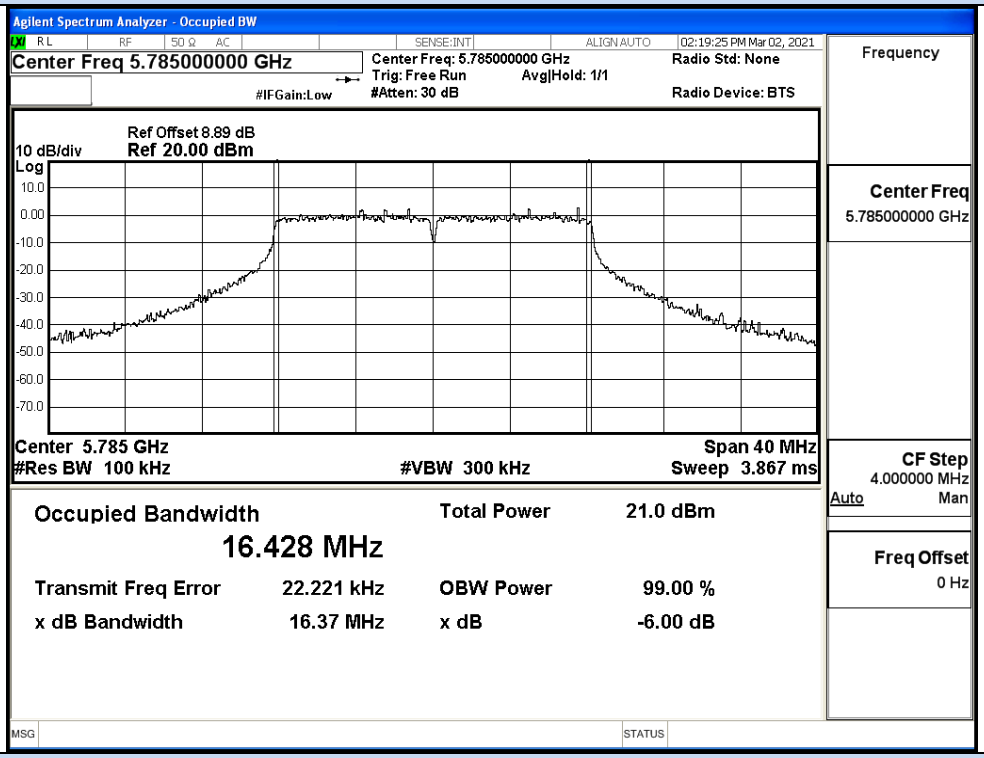
ANT1

Test Mode	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Verdict
11A	149	5745	16.35	16.422	>=0.5	Pass
	157	5785	16.37	16.428		Pass
	161	5805	16.33	16.438		Pass
11N20 SISO	149	5745	17.09	17.625	>=0.5	Pass
	157	5785	17.00	17.626		Pass
	161	5805	17.09	17.634		Pass

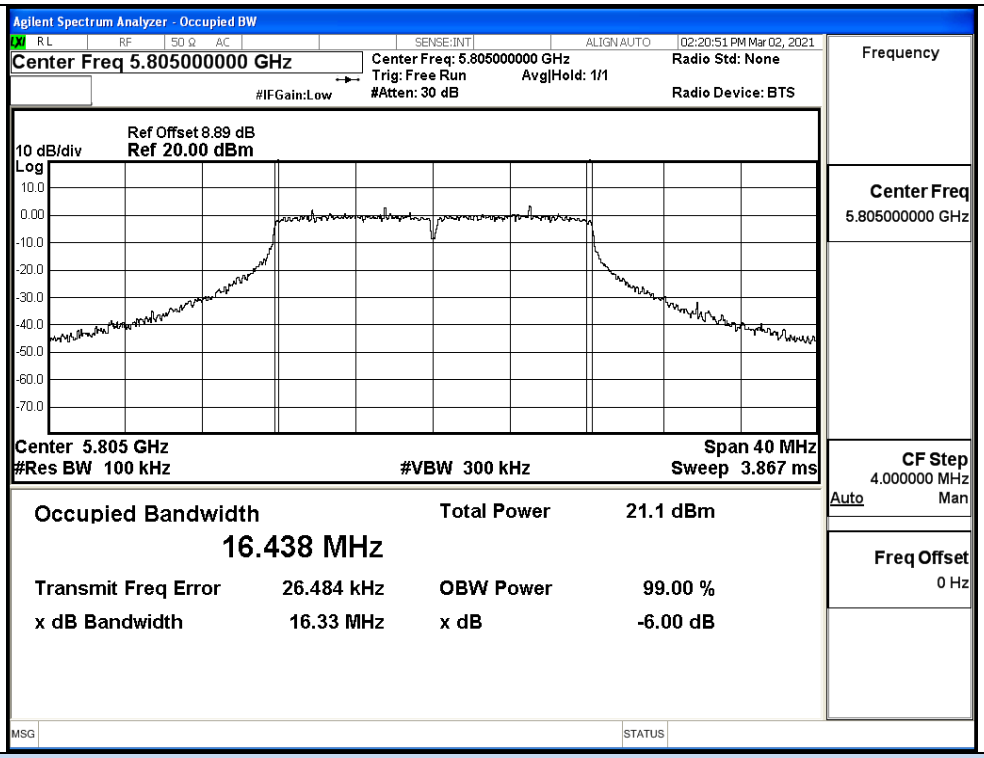
6dB Bandwidth



IEEE 802.11a / Channel 149 / 5745MHz

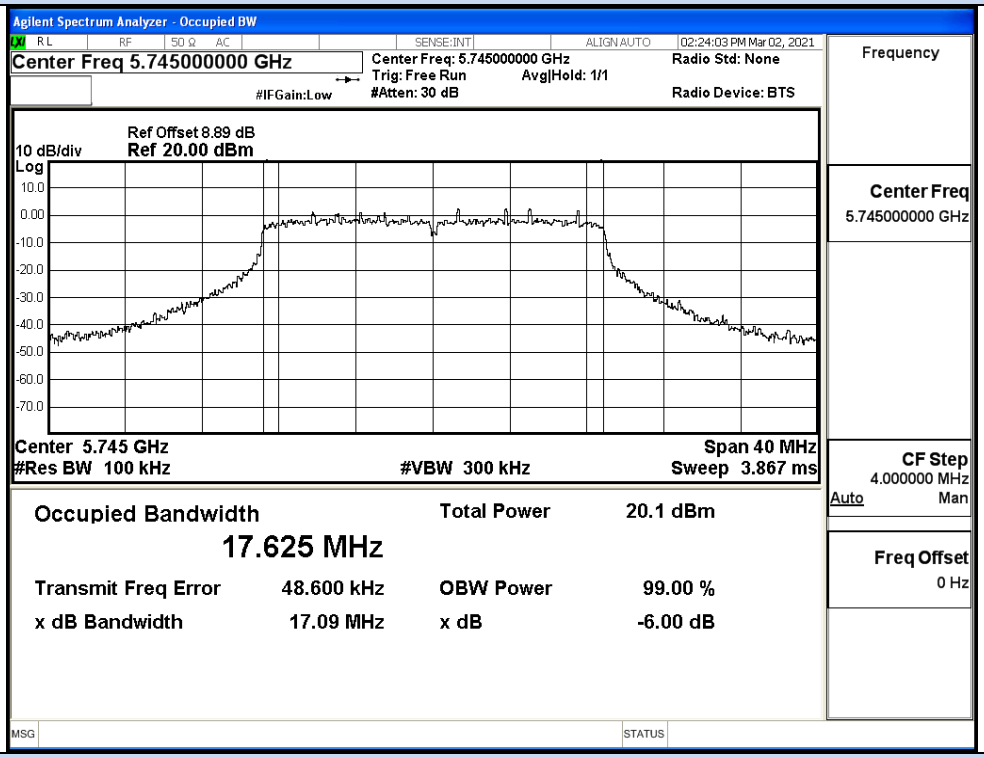


IEEE 802.11a / Channel 157 / 5785MHz

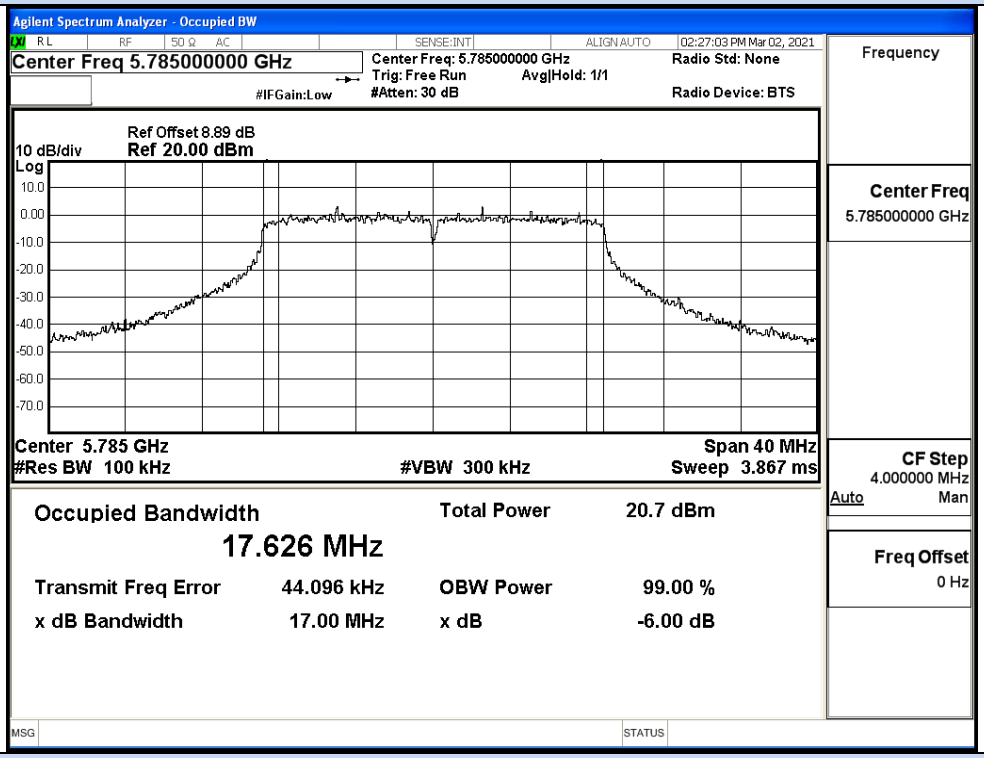


IEEE 802.11a / Channel 165 / 5805MHz

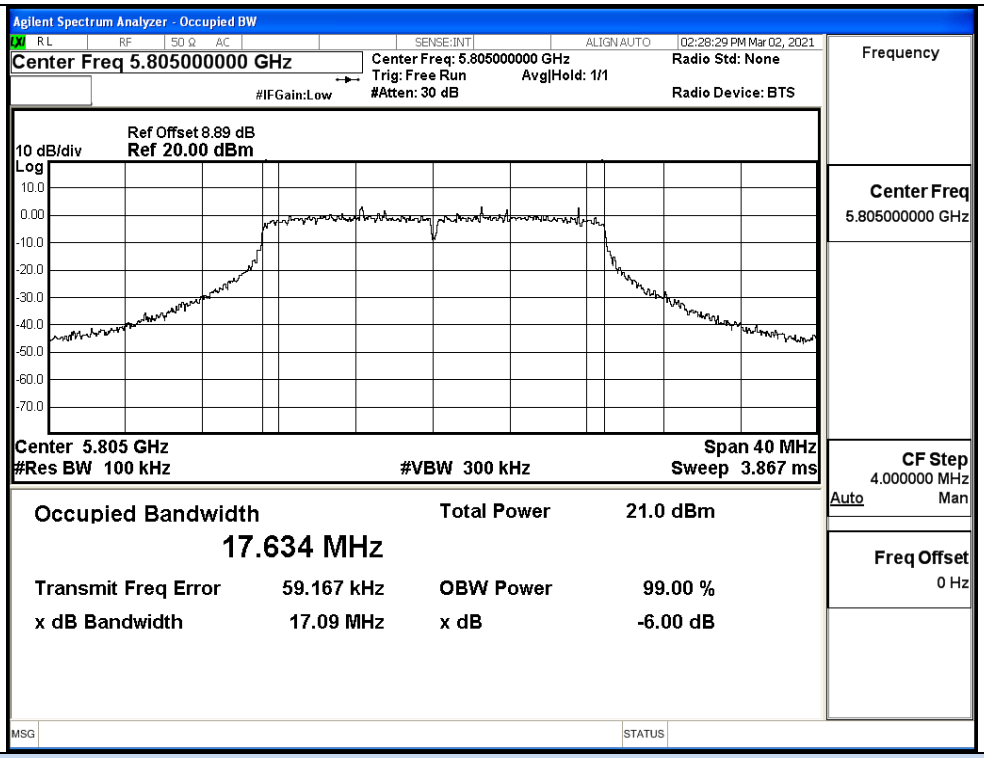
6dB Bandwidth



IEEE 802.11n20 / Channel 149 / 5745MHz



IEEE 802.11n20 / Channel 157 / 5785MHz



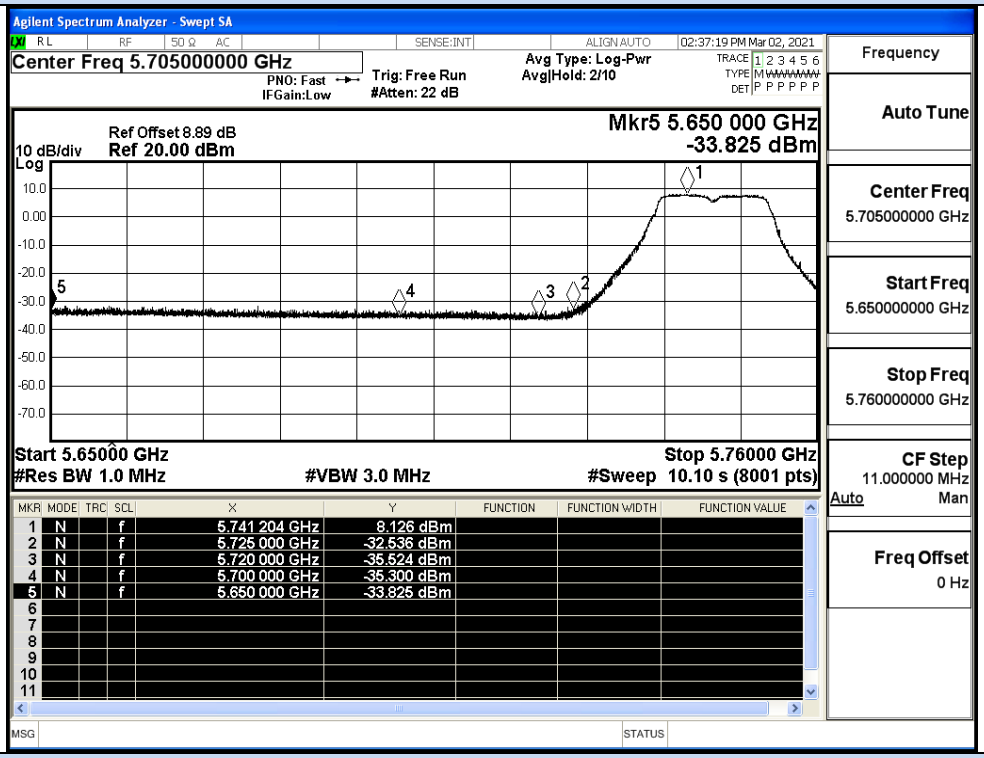
IEEE 802.11n20 / Channel 165 / 5805MHz

A.5 Undesirable Emissions Measurement

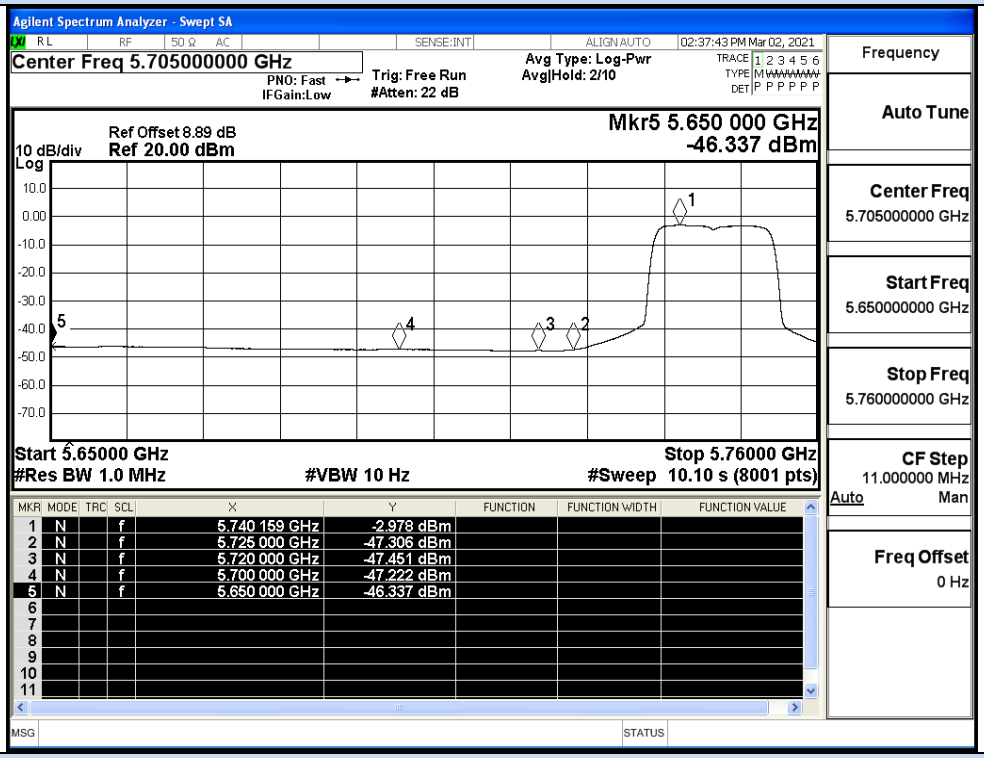
ANT0

Test Mode	Channel	Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	EIRP (dBm/MHz)	Detector	Limit (dBm/MHz)	Verdict
11A	149	5650.0	-33.83	3.28	-30.55	Peak	-27.0	Pass
		5650.0	-46.34	3.28	-43.06	Average	-27.0	Pass
		5700.0	-35.30	3.28	-32.02	Peak	10	Pass
		5700.0	-47.22	3.28	-43.94	Average	10	Pass
		5720.0	-35.52	3.28	-32.24	Peak	15.6	Pass
		5720.0	-47.45	3.28	-44.17	Average	15.6	Pass
		5725.0	-32.54	3.28	-29.26	Peak	27.0	Pass
		5725.0	-47.31	3.28	-44.03	Average	27.0	Pass
	161	5850.0	-36.57	3.28	-33.29	Peak	27.0	Pass
		5850.0	-48.69	3.28	-45.41	Average	27.0	Pass
		5855.0	-37.04	3.28	-33.76	Peak	15.6	Pass
		5855.0	-48.92	3.28	-45.64	Average	15.6	Pass
		5875.0	-38.33	3.28	-35.05	Peak	10	Pass
		5875.0	-49.42	3.28	-46.14	Average	10	Pass
		5925.0	-36.86	3.28	-33.58	Peak	-27.0	Pass
		5925.0	-50.04	3.28	-46.76	Average	-27.0	Pass
11N20 SISO	149	5650.0	-36.65	3.28	-33.37	Peak	-27.0	Pass
		5650.0	-47.71	3.28	-44.43	Average	-27.0	Pass
		5700.0	-36.68	3.28	-33.4	Peak	10	Pass
		5700.0	-48.87	3.28	-45.59	Average	10	Pass
		5720.0	-36.12	3.28	-32.84	Peak	15.6	Pass
		5720.0	-48.60	3.28	-45.32	Average	15.6	Pass
		5725.0	-34.00	3.28	-30.72	Peak	27.0	Pass
		5725.0	-48.10	3.28	-44.82	Average	27.0	Pass
	161	5850.0	-37.20	3.28	-33.92	Peak	27.0	Pass
		5850.0	-49.13	3.28	-45.85	Average	27.0	Pass
		5855.0	-37.90	3.28	-34.62	Peak	15.6	Pass
		5855.0	-49.39	3.28	-46.11	Average	15.6	Pass
		5875.0	-37.73	3.28	-34.45	Peak	10	Pass
		5875.0	-49.89	3.28	-46.61	Average	10	Pass
		5925.0	-38.61	3.28	-35.33	Peak	-27.0	Pass
		5925.0	-50.52	3.28	-47.24	Average	-27.0	Pass

Undesirable Emissions Measurement

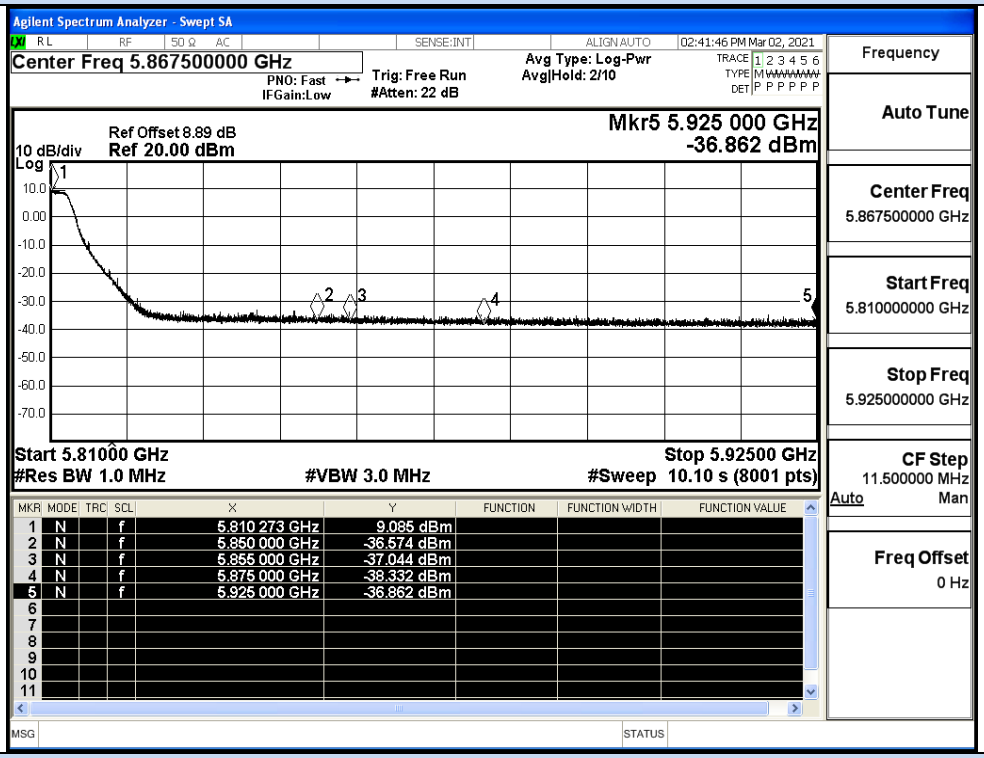


IEEE 802.11a / Channel 149 / 5745MHz / Peak

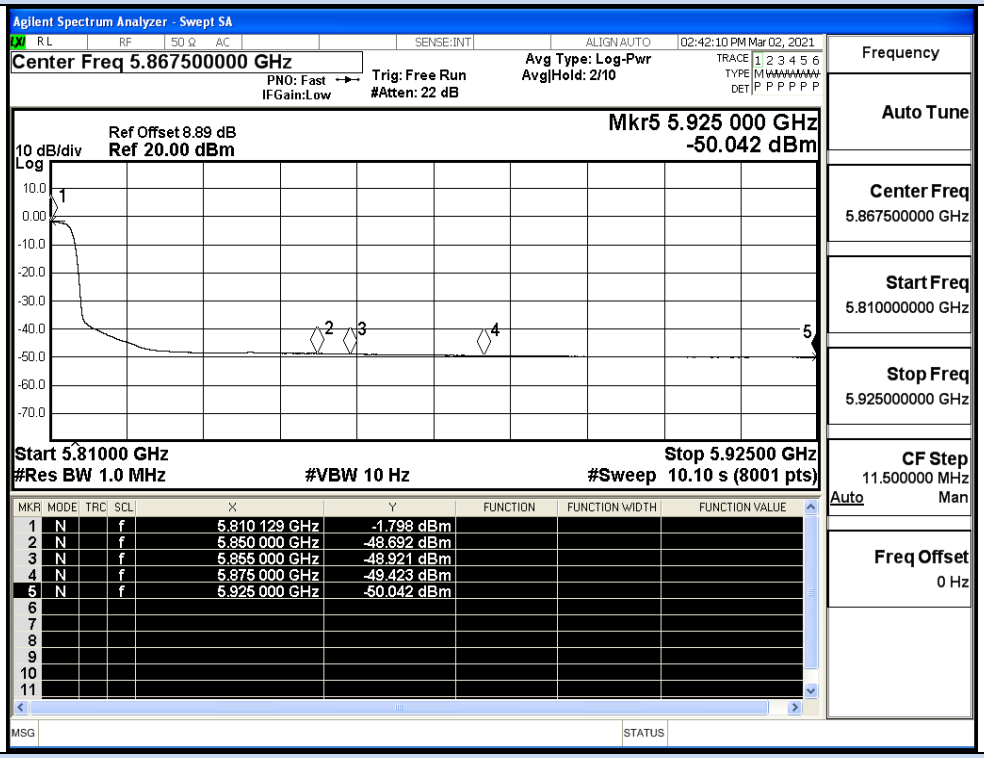


IEEE 802.11a / Channel 148 / 5745MHz / Average

Undesirable Emissions Measurement

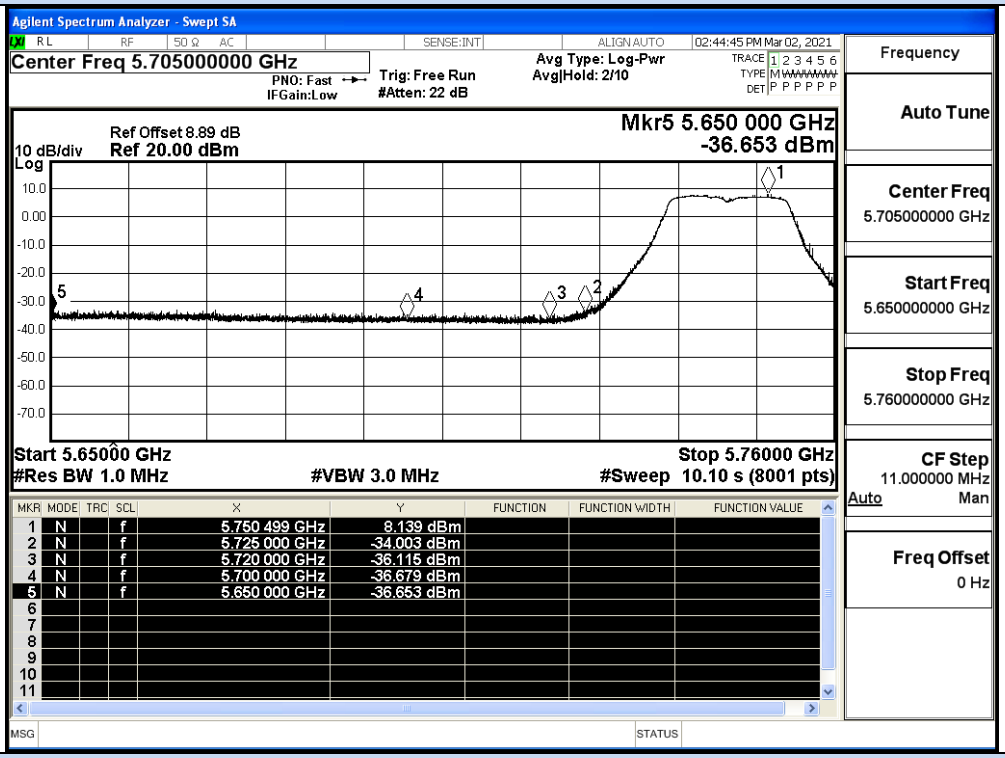


IEEE 802.11a / Channel 165 / 5805MHz / Peak

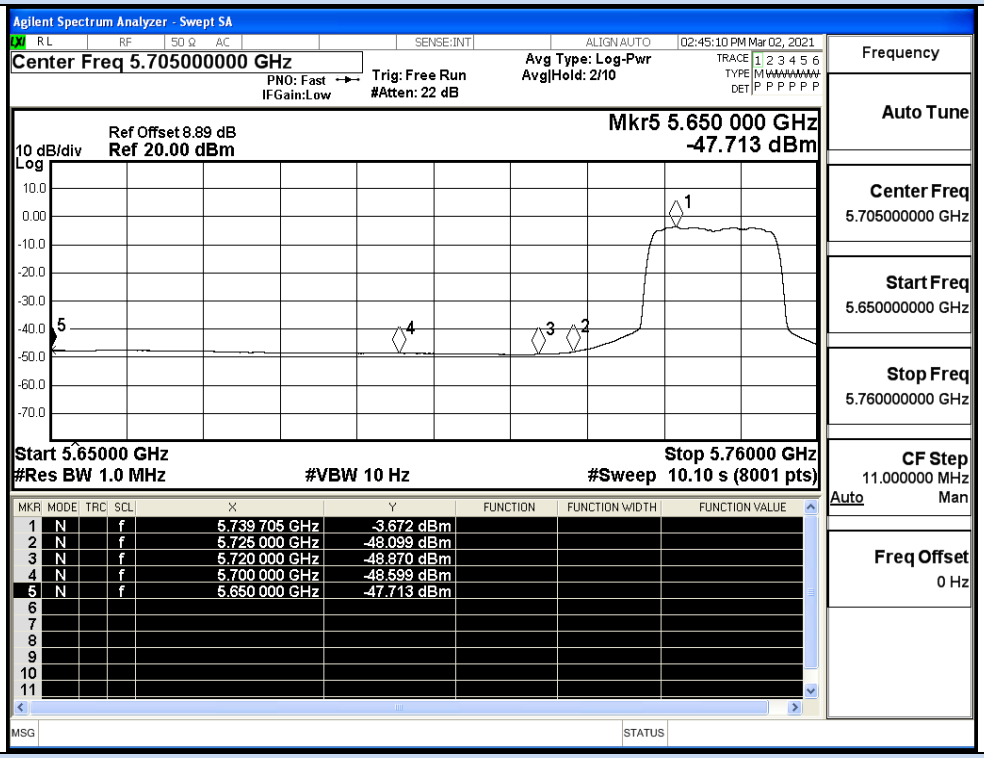


IEEE 802.11a / Channel 165 / 5805MHz / Average

Undesirable Emissions Measurement

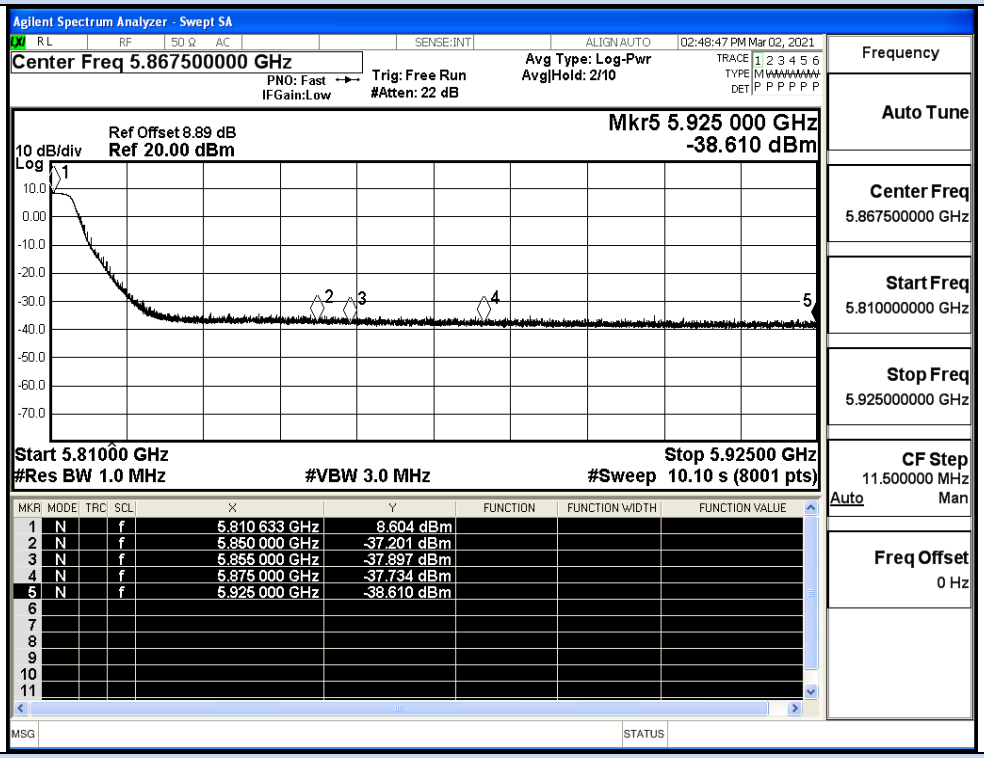


IEEE 802.11n20 / Channel 149 / 5745MHz / Peak

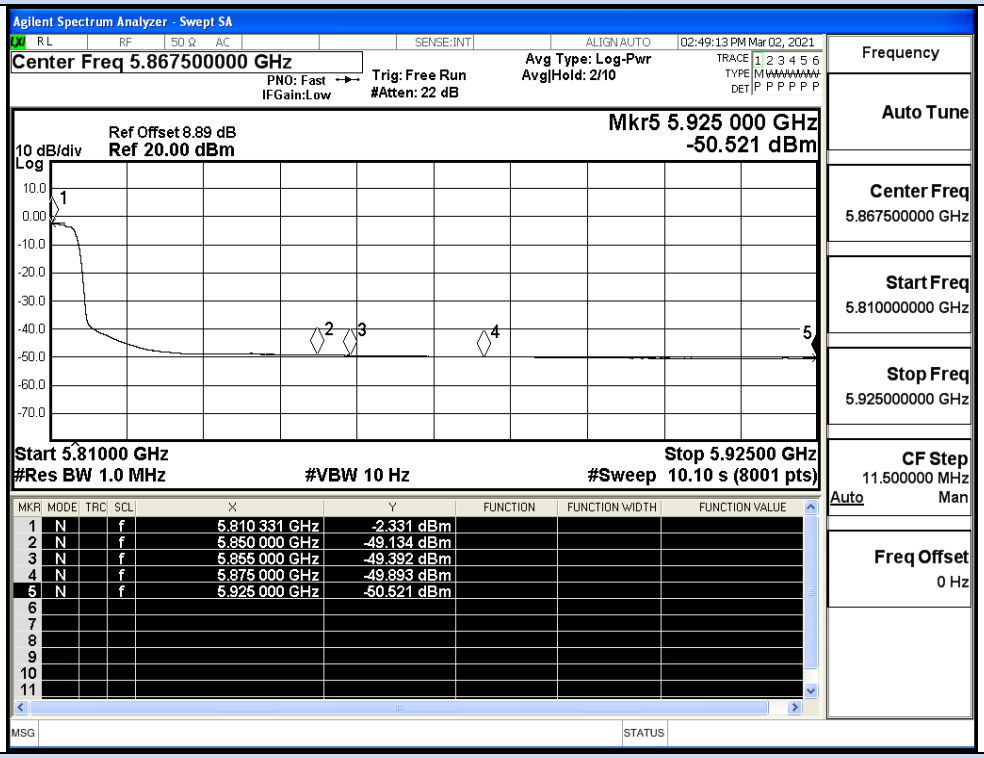


IEEE 802.11n20 / Channel 149 / 5745MHz / Average

Undesirable Emissions Measurement



IEEE 802.11n20 / Channel 165 / 5805MHz / Peak

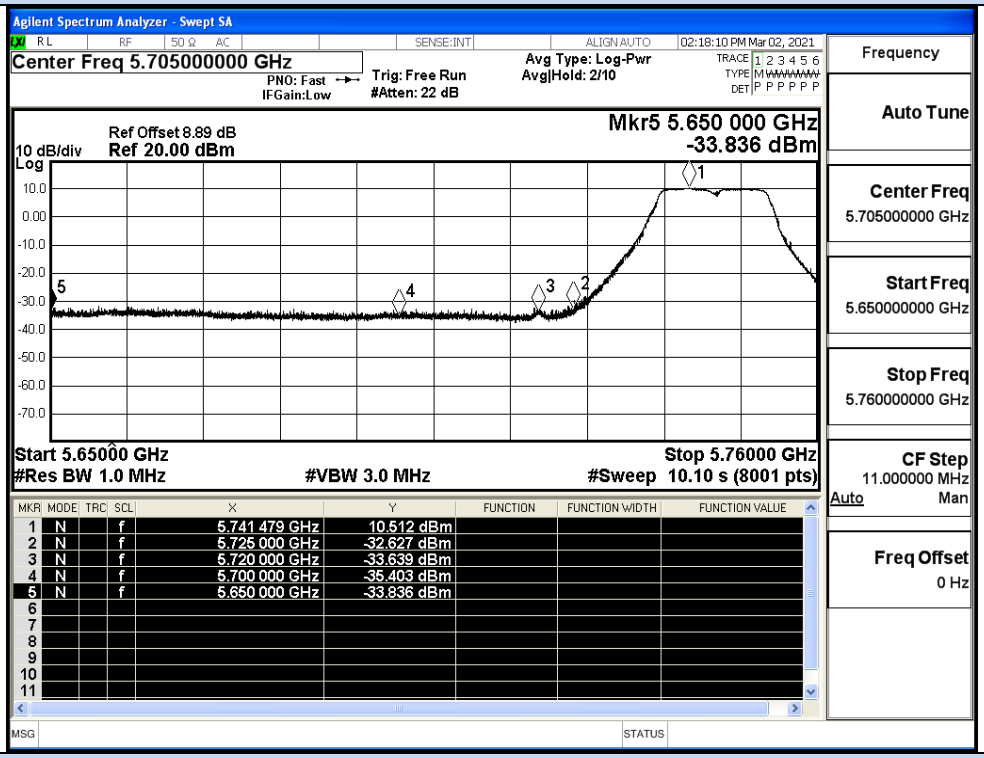


IEEE 802.11n20 / Channel 165 / 5805MHz / Average

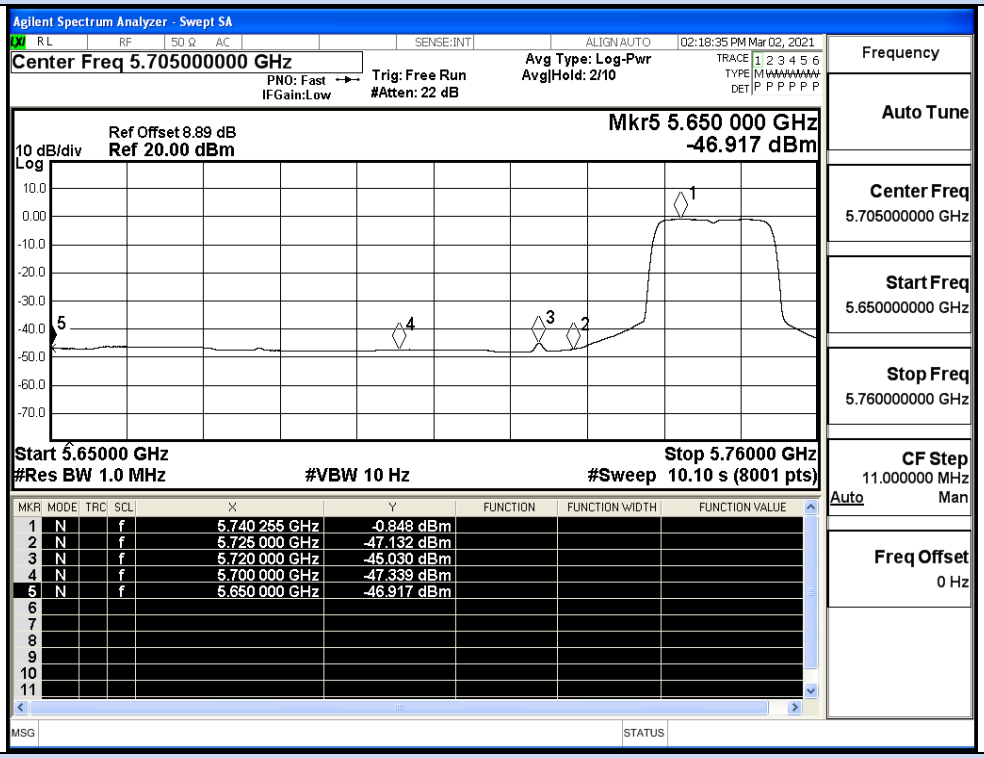
ANT1

Test Mode	Channel	Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	EIRP (dBm/MHz)	Detector	Limit (dBm/MHz)	Verdict
11A	149	5650.0	-33.84	3.24	-30.6	Peak	-27.0	Pass
		5650.0	-46.92	3.24	-43.68	Average	-27.0	Pass
		5700.0	-35.40	3.24	-32.16	Peak	10	Pass
		5700.0	-47.34	3.24	-44.1	Average	10	Pass
		5720.0	-33.64	3.24	-30.4	Peak	15.6	Pass
		5720.0	-45.03	3.24	-41.79	Average	15.6	Pass
		5725.0	-32.63	3.24	-29.39	Peak	27.0	Pass
		5725.0	-47.13	3.24	-43.89	Average	27.0	Pass
	161	5850.0	-37.52	3.24	-34.28	Peak	27.0	Pass
		5850.0	-48.99	3.24	-45.75	Average	27.0	Pass
		5855.0	-37.83	3.24	-34.59	Peak	15.6	Pass
		5855.0	-49.33	3.24	-46.09	Average	15.6	Pass
		5875.0	-38.09	3.24	-34.85	Peak	10	Pass
		5875.0	-49.67	3.24	-46.43	Average	10	Pass
		5925.0	-35.73	3.24	-32.49	Peak	-27.0	Pass
		5925.0	-49.99	3.24	-46.75	Average	-27.0	Pass
11N20 SISO	149	5650.0	-36.10	3.24	-32.86	Peak	-27.0	Pass
		5650.0	-47.38	3.24	-44.14	Average	-27.0	Pass
		5700.0	-36.19	3.24	-32.95	Peak	10	Pass
		5700.0	-47.60	3.24	-44.36	Average	10	Pass
		5720.0	-36.09	3.24	-32.85	Peak	15.6	Pass
		5720.0	-47.90	3.24	-44.66	Average	15.6	Pass
		5725.0	-32.08	3.24	-28.84	Peak	27.0	Pass
		5725.0	-46.97	3.24	-43.73	Average	27.0	Pass
	161	5850.0	-37.51	3.24	-34.27	Peak	27.0	Pass
		5850.0	-49.18	3.24	-45.94	Average	27.0	Pass
		5855.0	-37.93	3.24	-34.69	Peak	15.6	Pass
		5855.0	-49.69	3.24	-46.45	Average	15.6	Pass
		5875.0	-38.11	3.24	-34.87	Peak	10	Pass
		5875.0	-49.99	3.24	-46.75	Average	10	Pass
		5925.0	-38.53	3.24	-35.29	Peak	-27.0	Pass
		5925.0	-50.35	3.24	-47.11	Average	-27.0	Pass

Undesirable Emissions Measurement

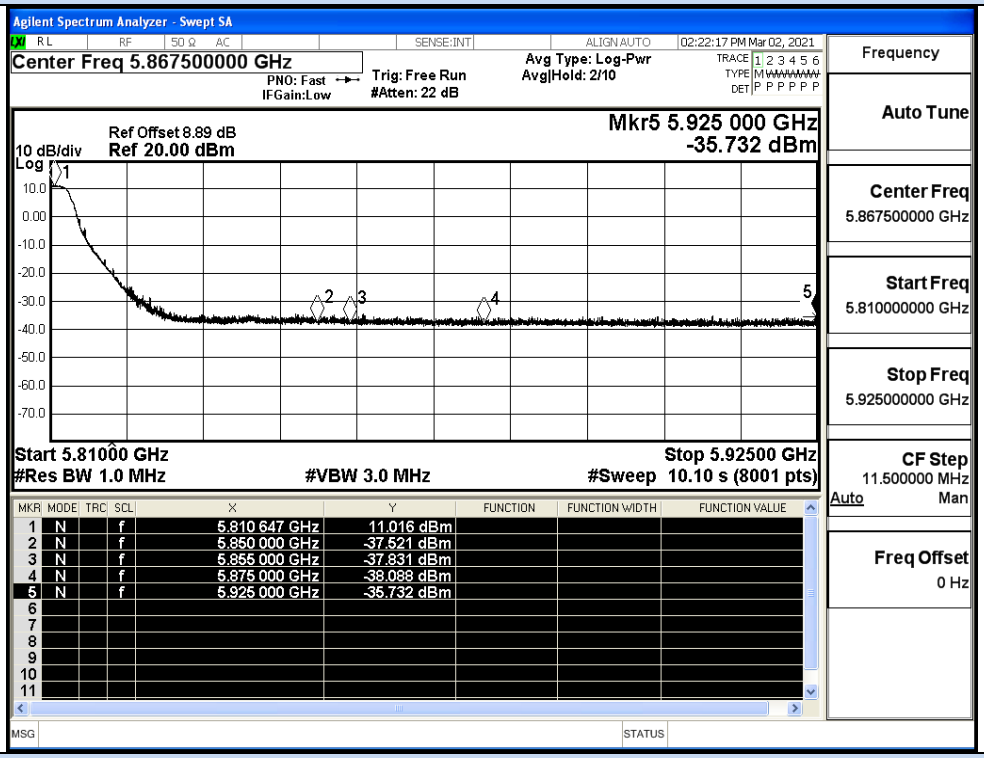


IEEE 802.11a / Channel 149 / 5745MHz / Peak

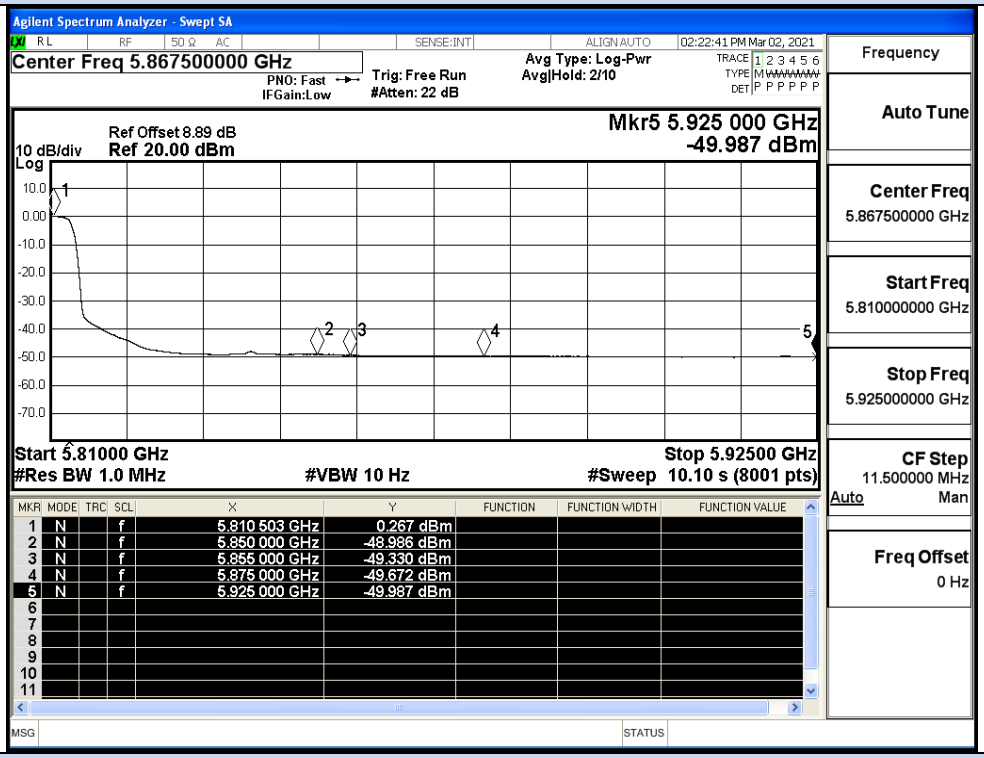


IEEE 802.11a / Channel 148 / 5745MHz / Average

Undesirable Emissions Measurement

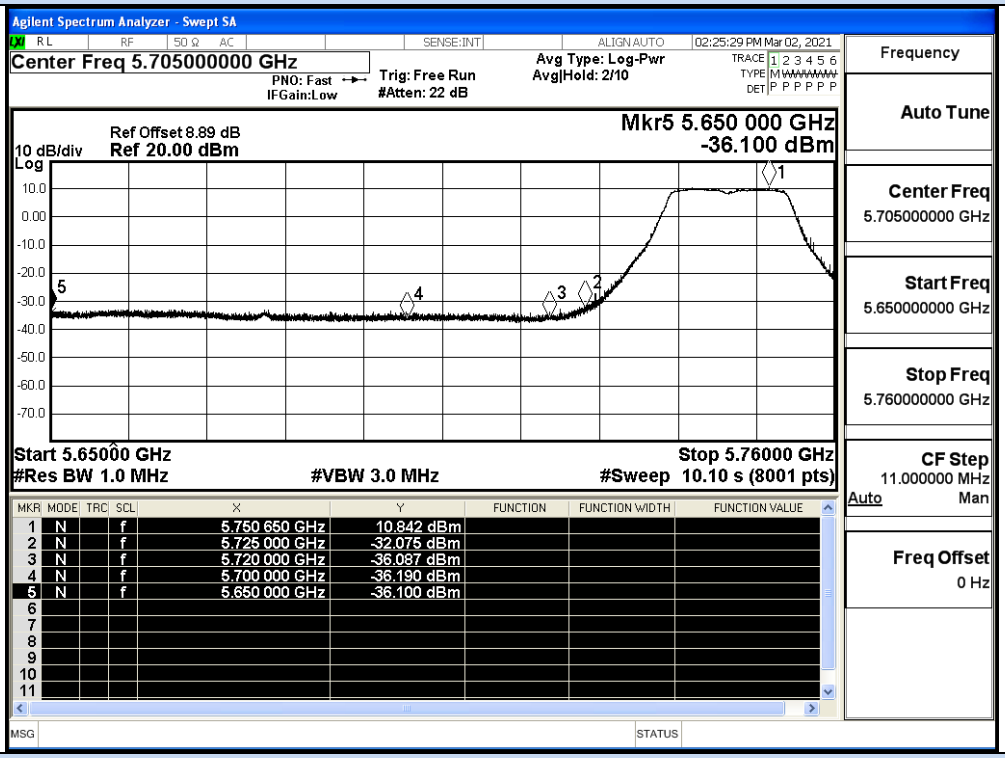


IEEE 802.11a / Channel 165 / 5805MHz / Peak

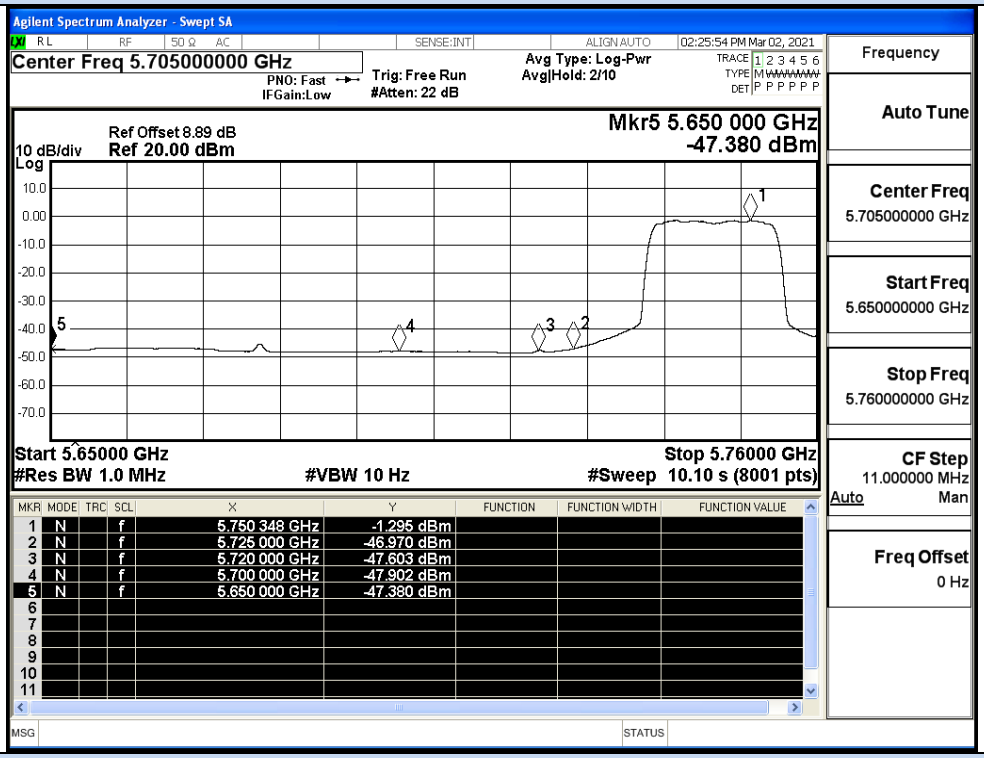


IEEE 802.11a / Channel 165 / 5805MHz / Average

Undesirable Emissions Measurement

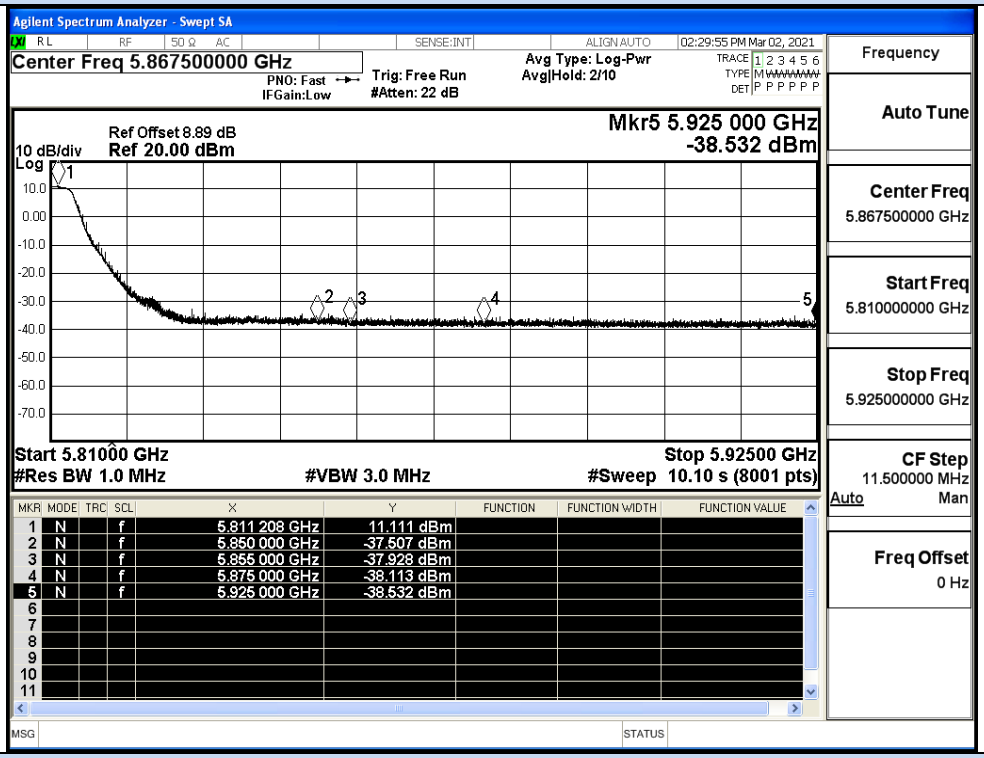


IEEE 802.11n20 / Channel 149 / 5745MHz / Peak

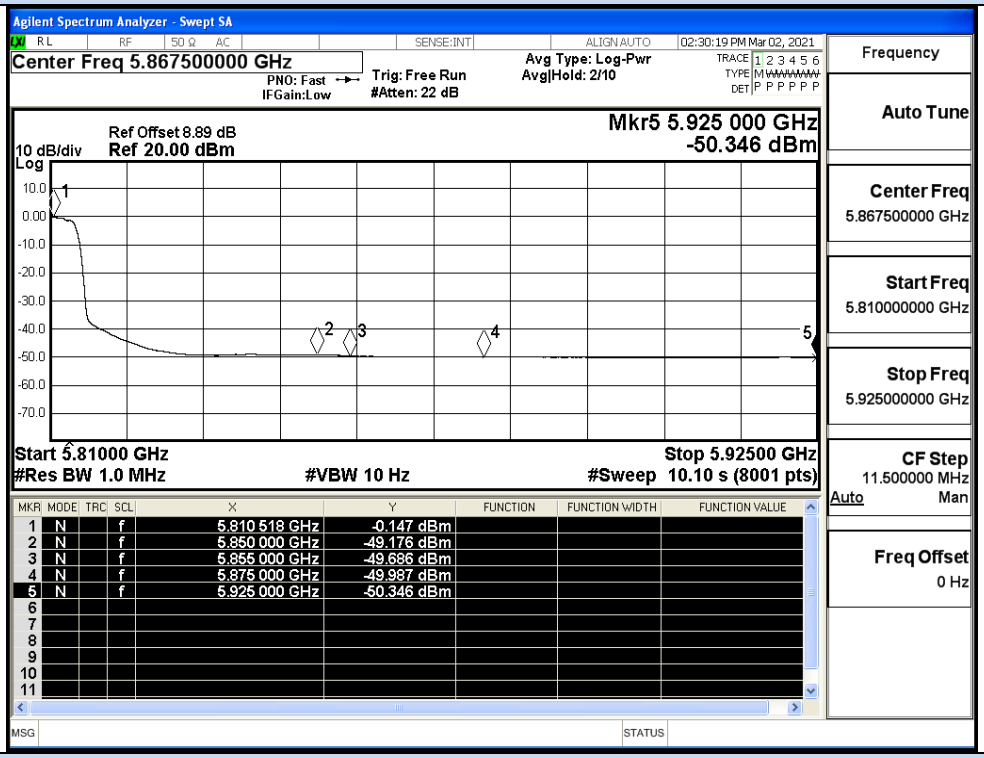


IEEE 802.11n20 / Channel 149 / 5745MHz / Average

Undesirable Emissions Measurement



IEEE 802.11n20 / Channel 165 / 5805MHz / Peak



IEEE 802.11n20 / Channel 165 / 5805MHz / Average

MIMO

Test Mode	Channel	Frequency (MHz)	ANT 0 Conducted Power (dBm)	ANT 1 Conducted Power (dBm)	MIMO Conducted Power (dBm)	Antenna Gain (dBi)	EIRP (dBm/MHz)	Detector	Limit (dBm/MHz)	Verdict
11N20	149	5650.0	-36.65	-36.10	-33.36	6.27	-27.09	Peak	-27.0	Pass
		5650.0	-47.71	-47.38	-44.53	6.27	-38.26	Average	-27.0	Pass
		5700.0	-36.68	-36.19	-33.42	6.27	-27.15	Peak	10	Pass
		5700.0	-48.87	-47.60	-45.18	6.27	-38.91	Average	10	Pass
		5720.0	-36.12	-36.09	-33.09	6.27	-26.82	Peak	15.6	Pass
		5720.0	-48.60	-47.90	-45.23	6.27	-38.96	Average	15.6	Pass
		5725.0	-34.00	-32.08	-29.92	6.27	-23.65	Peak	27.0	Pass
		5725.0	-48.10	-46.97	-44.49	6.27	-38.22	Average	27.0	Pass
	165	5850.0	-37.20	-37.51	-34.34	6.27	-28.07	Peak	27.0	Pass
		5850.0	-49.13	-49.18	-46.14	6.27	-39.87	Average	27.0	Pass
		5855.0	-37.90	-37.93	-34.90	6.27	-28.63	Peak	15.6	Pass
		5855.0	-49.39	-49.69	-46.53	6.27	-40.26	Average	15.6	Pass
		5875.0	-37.73	-38.11	-34.91	6.27	-28.64	Peak	10	Pass
		5875.0	-49.89	-49.99	-46.93	6.27	-40.66	Average	10	Pass
		5925.0	-38.61	-38.53	-35.56	6.27	-29.29	Peak	-27.0	Pass
		5925.0	-50.52	-50.35	-47.42	6.27	-41.15	Average	-27.0	Pass

EIRP(dBm/MHz)= Conducted Power (dBm) + Antenna Gain (dBi)

The upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands or 2 dBi, whichever is greater