

Appendix D

RF Test Data for 5.2G WLAN (Conducted Measurement)

Product Name: 13.3 notebook

Trade Mark: N/A

Test Model: HTLB131NA58Z1EG

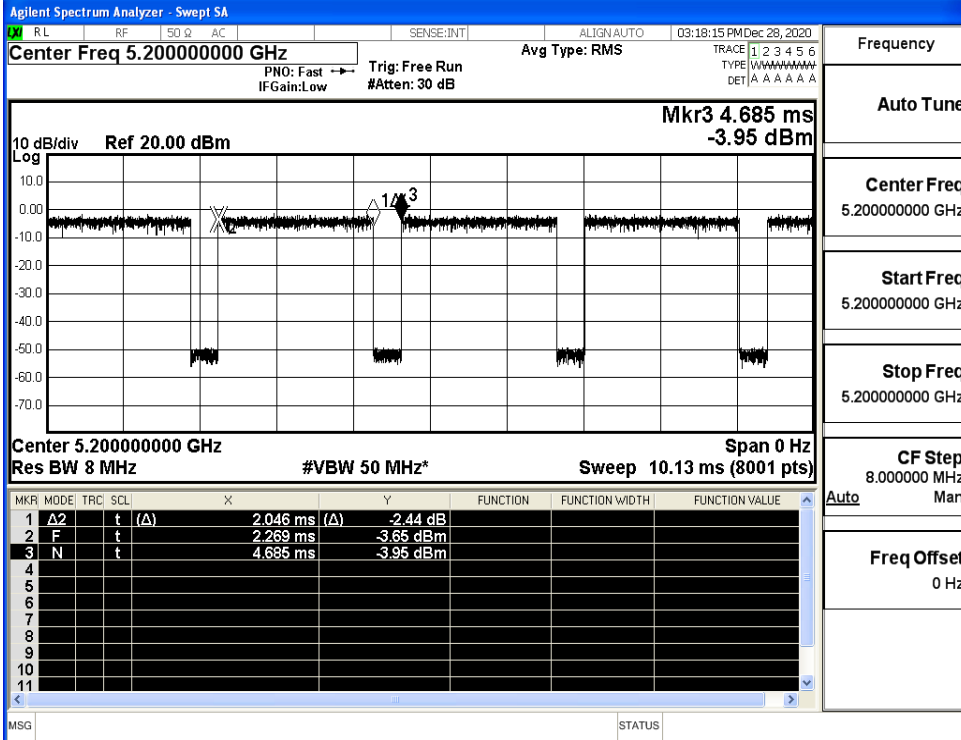
Environmental Conditions

Temperature:	23.2° C
Relative Humidity:	51.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Ken He
Supervised by:	Li Huan

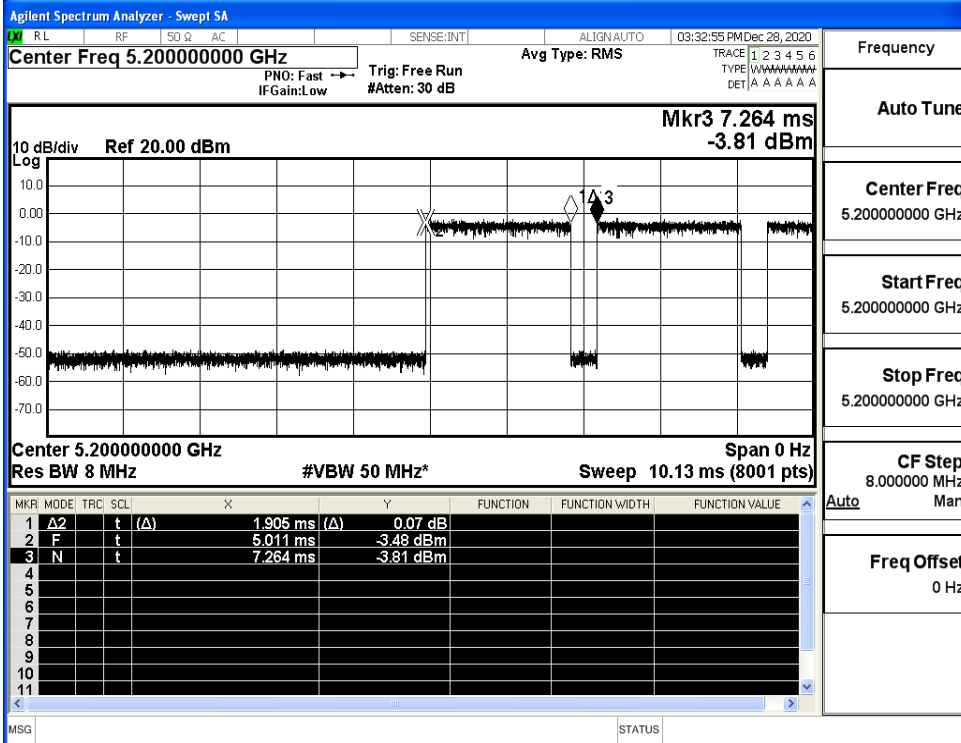
D.1 Duty Cycle

Test Mode	Test Frequency (MHz)	Duty Cycle (%)	10log(1/x) Factor (dB)	1/T Minimum VBW(KHz)
11A	5200	84.69	0.72	0.489
11N20 SISO	5200	84.55	0.73	0.525
11N40 SISO	5190	84.19	0.75	1.071
11AC20 SISO	5200	84.62	0.73	0.522
11AC40 SISO	5190	84.10	0.75	1.063
11AC80 SISO	5210	83.41	0.79	2.181

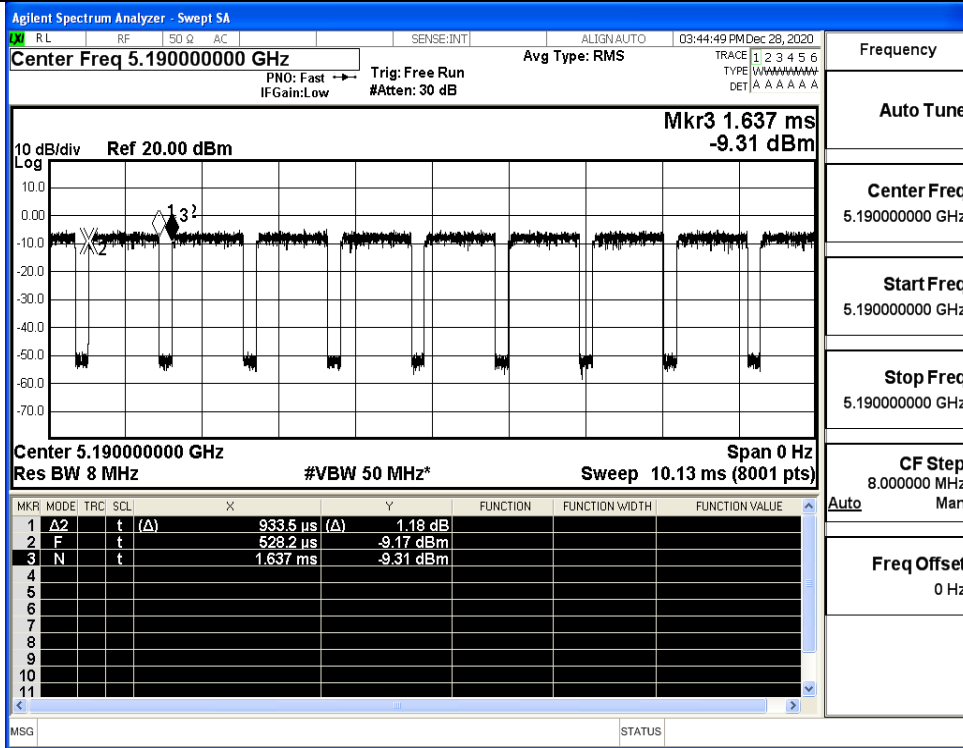
On Time and Duty Cycle



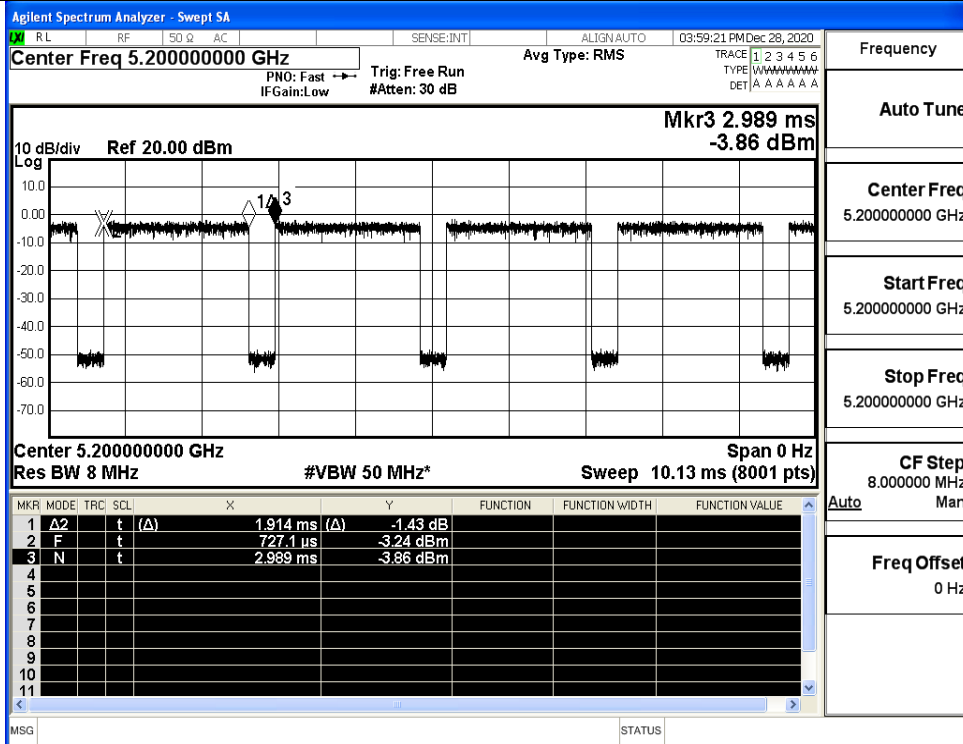
IEEE 802.11a



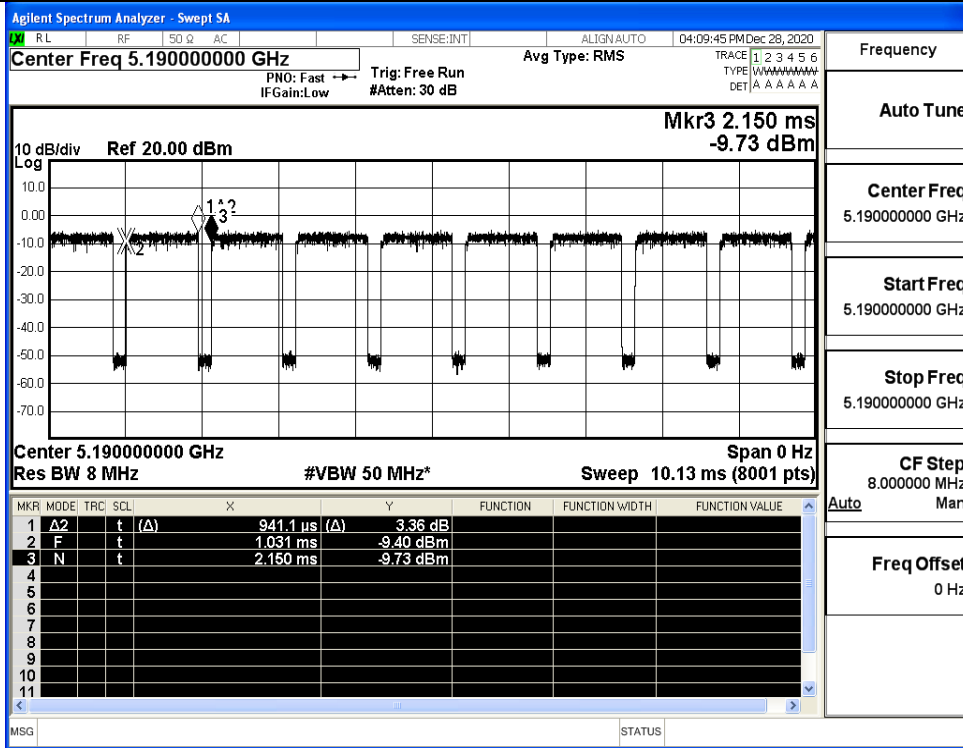
IEEE 802.11n HT20



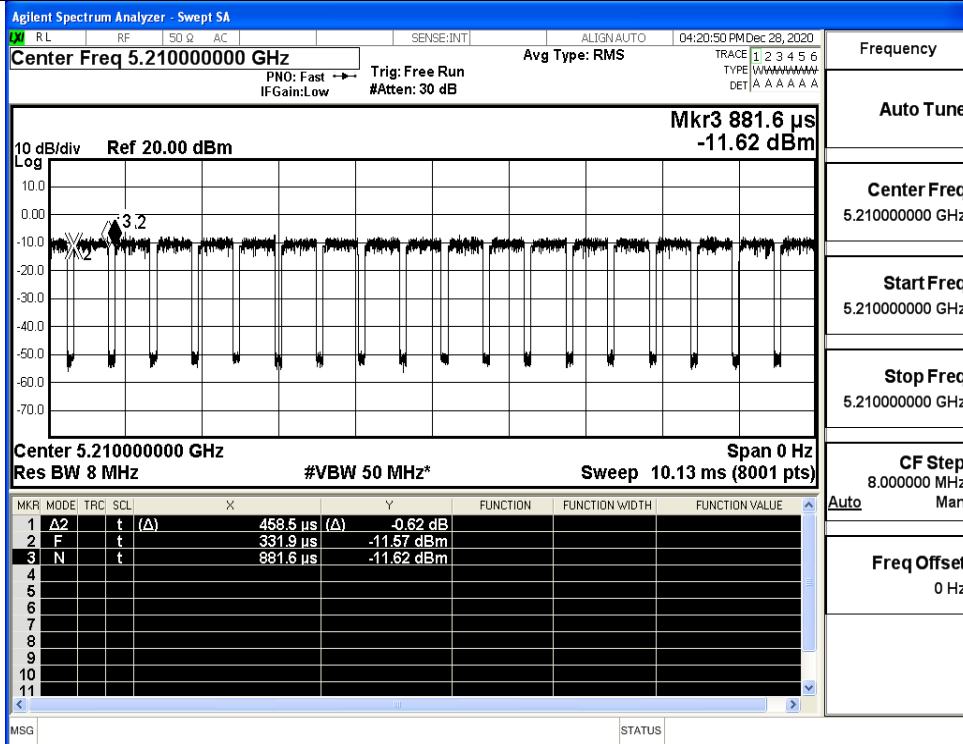
IEEE 802.11n HT40



IEEE 802.11AC20



IEEE 802.11 AC40



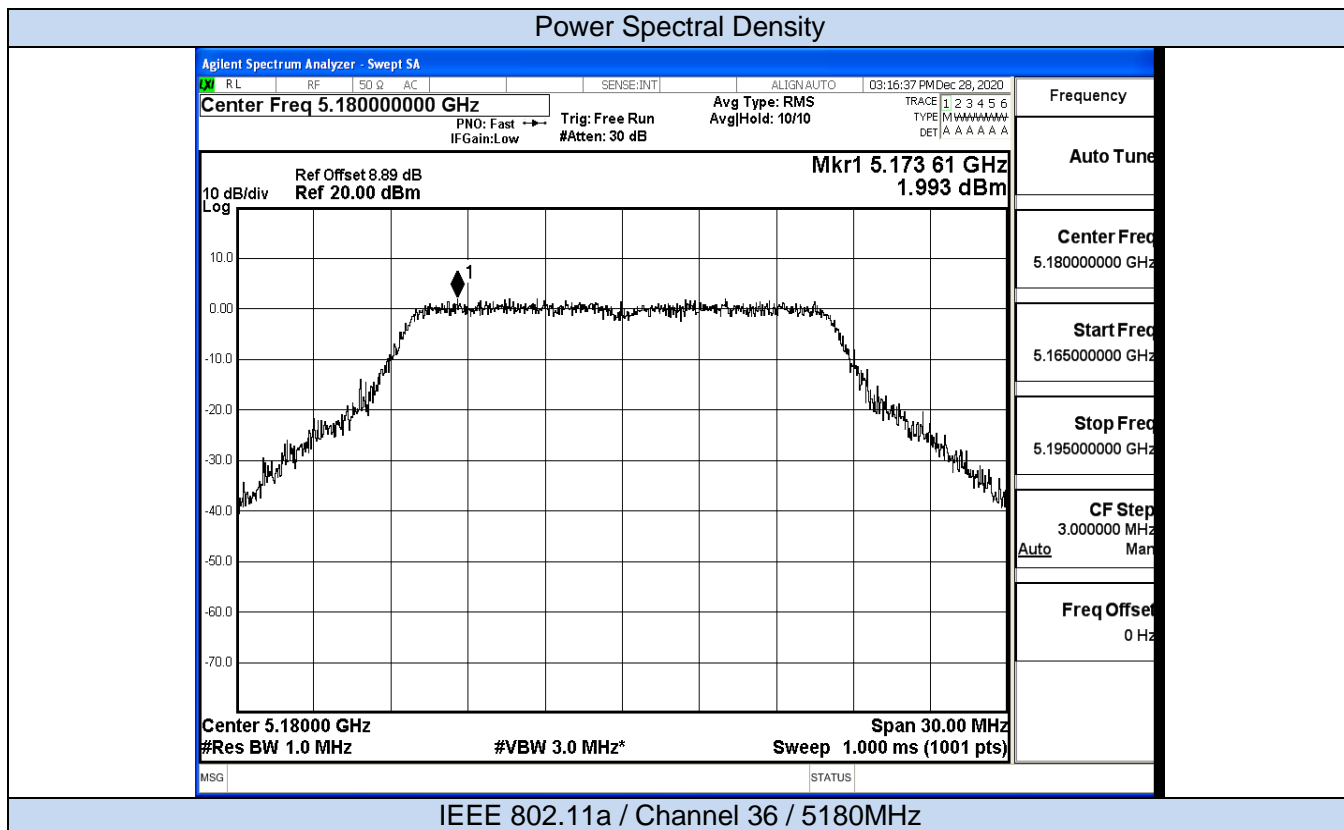
IEEE 802.11 AC80

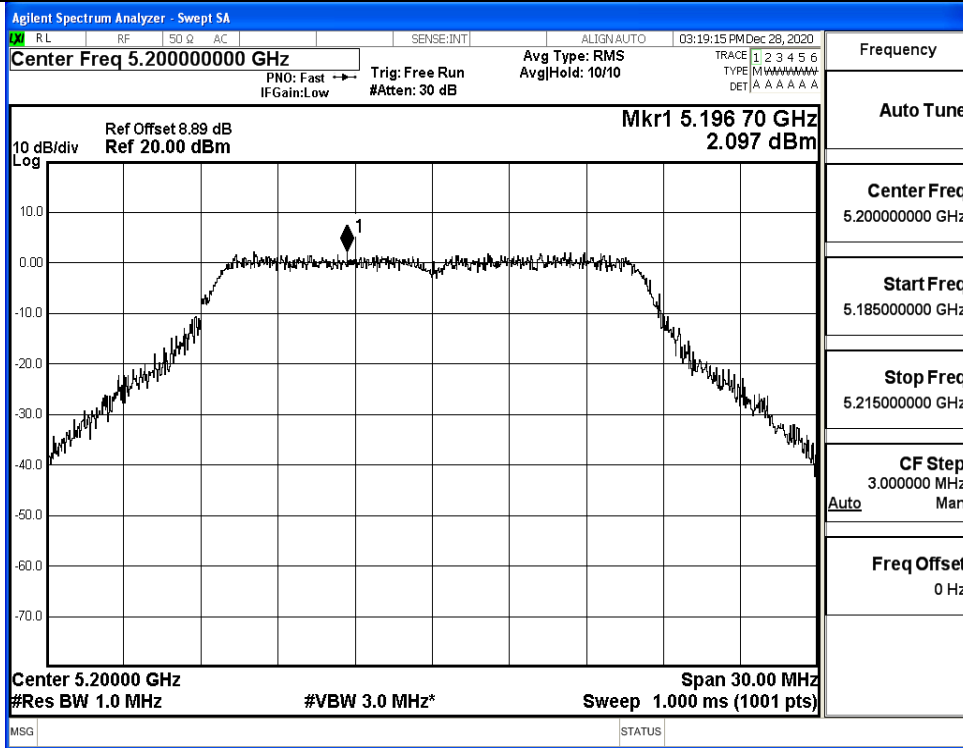
D.2 Maximum Conduct Output Power

Test Mode	Channel	Frequency (MHz)	AVG Conducted Power (dBm)	Duty Cycle Factor (dB)	Report Conducted Power(dBm)	Limit (dBm)	Verdict
11A	36	5180	12.43	0.72	13.15	24	Pass
	40	5200	12.44	0.72	13.16		Pass
	48	5240	12.44	0.72	13.16		Pass
11N20 SISO	36	5180	12.37	0.73	13.10	24	Pass
	40	5200	12.38	0.73	13.11		Pass
	48	5240	12.44	0.73	13.17		Pass
11N40 SISO	38	5190	12.89	0.75	13.64	24	Pass
	46	5230	13.09	0.75	13.84		Pass
11AC20 SISO	36	5180	12.56	0.73	13.29	24	Pass
	40	5200	12.7	0.73	13.43		Pass
	48	5240	12.73	0.73	13.46		Pass
11AC40 SISO	38	5190	12.99	0.75	13.74	24	Pass
	46	5230	13.08	0.75	13.83		Pass
11AC80 SISO	42	5210	12.96	0.79	13.75	24	Pass

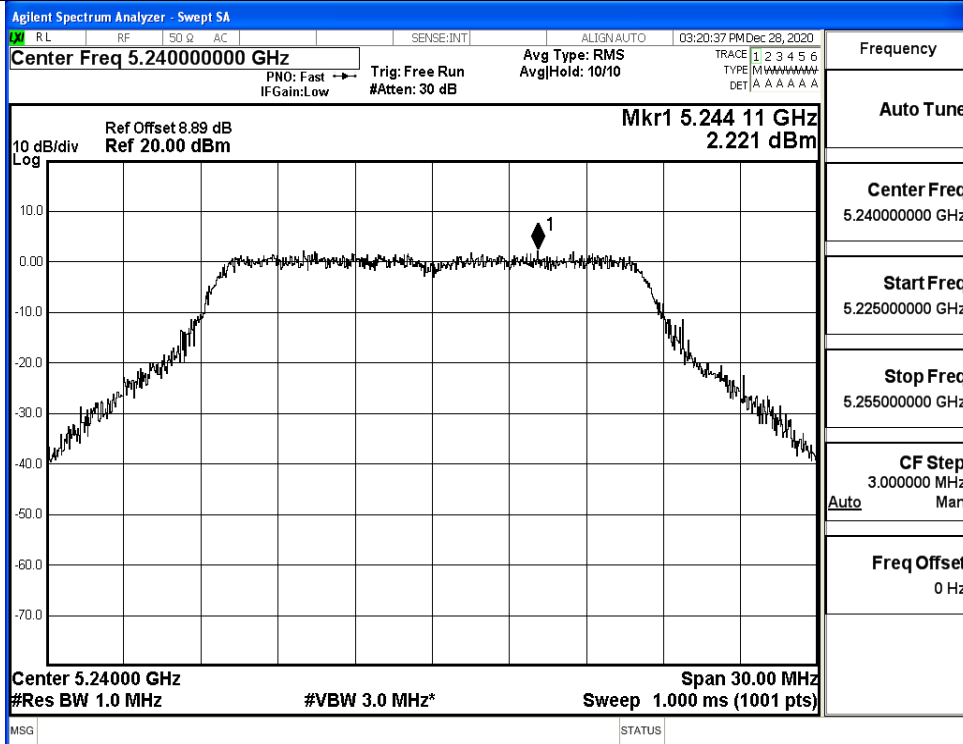
D.3 Power Spectral Density

Test Mode	Channel	Frequency (MHz)	Power Density (dBm/MHz)	Duty Cycle Factor(dB)	Report Power Density (dBm/MHz)	Limit (dBm/MHz)	Verdict
11A	36	5180	1.99	0.72	2.71	11	Pass
	40	5200	2.10	0.72	2.82		Pass
	48	5240	2.22	0.72	2.94		Pass
11N20 SISO	36	5180	1.93	0.73	2.66	11	Pass
	40	5200	1.52	0.73	2.25		Pass
	48	5240	1.68	0.73	2.41		Pass
11N40 SISO	38	5190	-0.43	0.75	0.32	11	Pass
	46	5230	-0.59	0.75	0.16		Pass
11AC20 SISO	36	5180	2.21	0.73	2.94	11	Pass
	40	5200	1.82	0.73	2.55		Pass
	48	5240	1.96	0.73	2.69		Pass
11AC40 SISO	38	5190	-0.58	0.75	0.17	11	Pass
	46	5230	-0.55	0.75	0.20		Pass
11AC80 SISO	42	5210	-3.34	0.79	-2.55	11	Pass



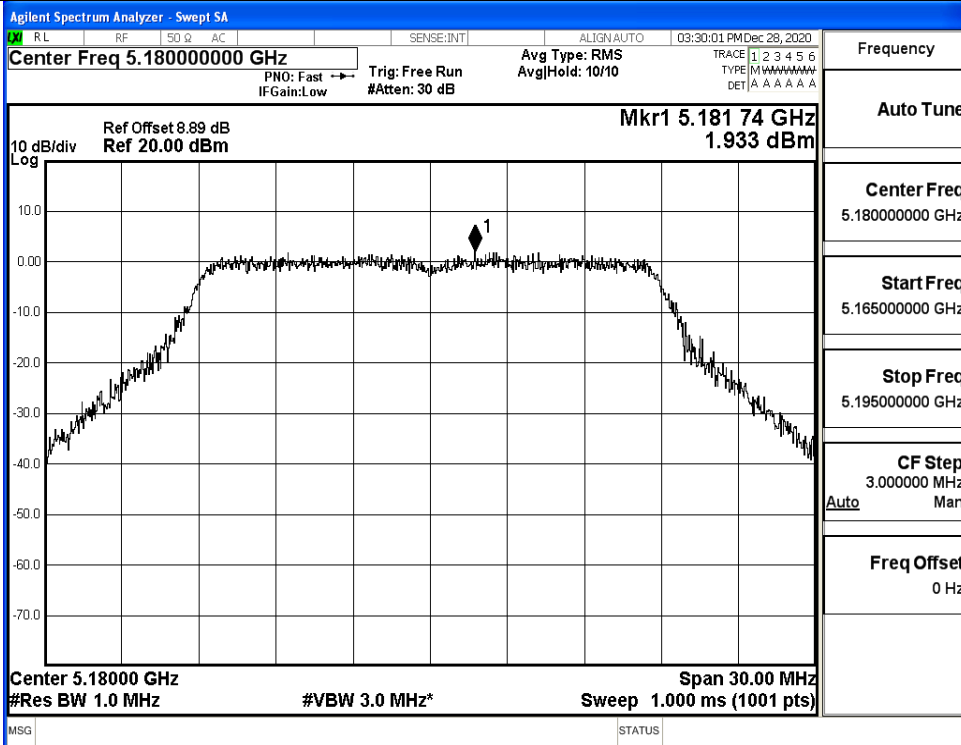


IEEE 802.11na / Channel 40 / 5200MHz

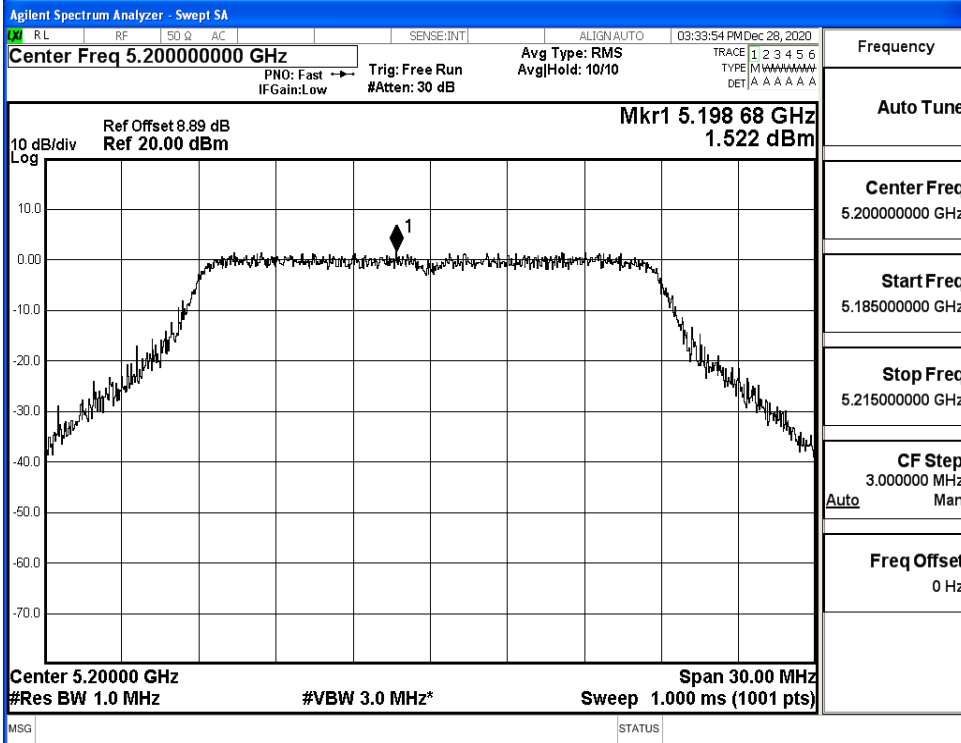


IEEE 802.11na / Channel 48 / 5240MHz

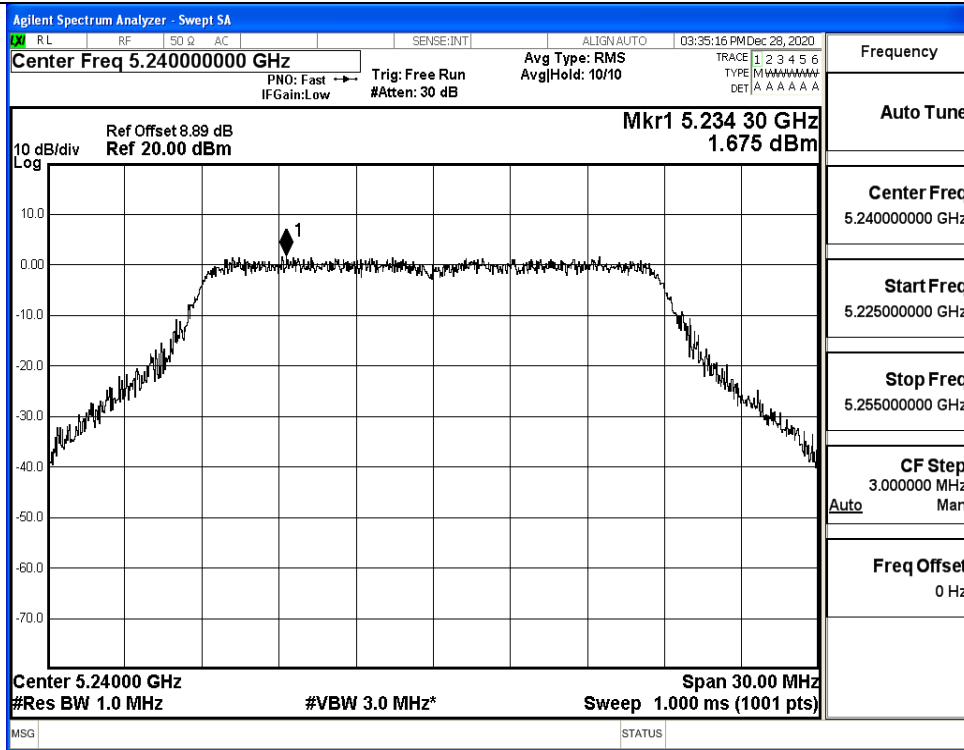
Power Spectral Density



IEEE 802.11n20 / Channel 36 / 5180MHz

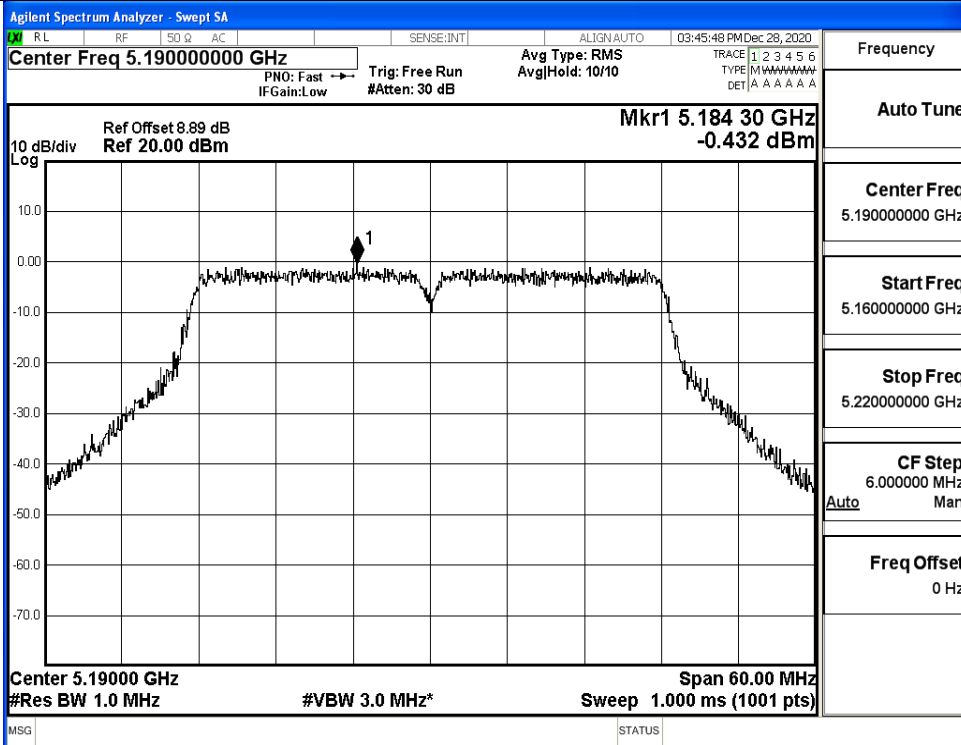


IEEE 802.11n20 / Channel 40 / 5200MHz

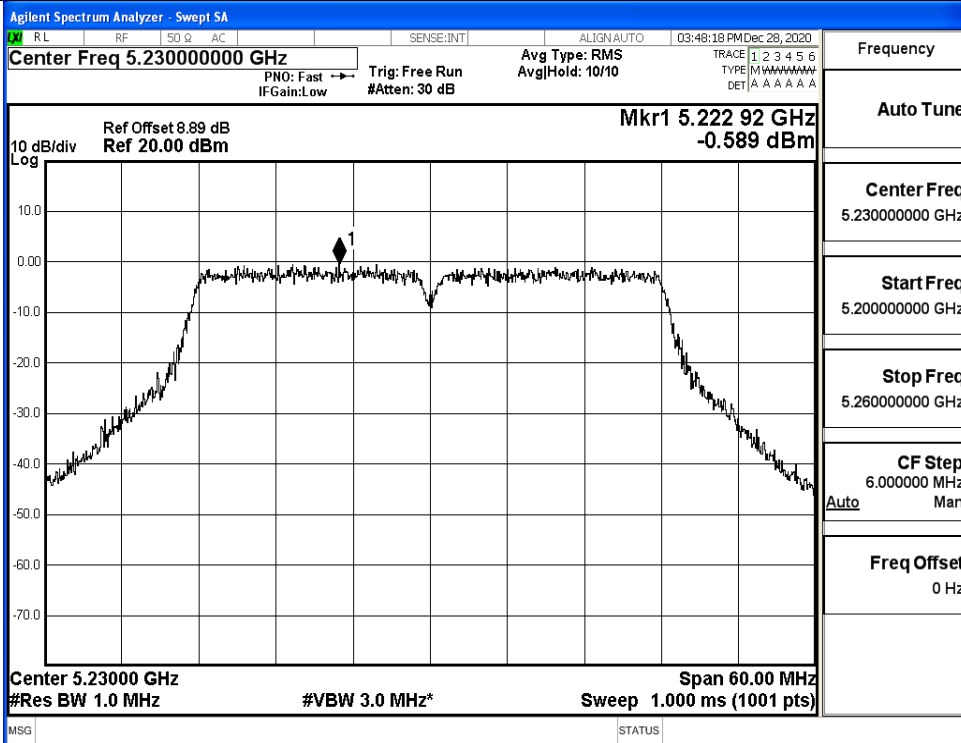


IEEE 802.11n20 / Channel 48 / 5240MHz

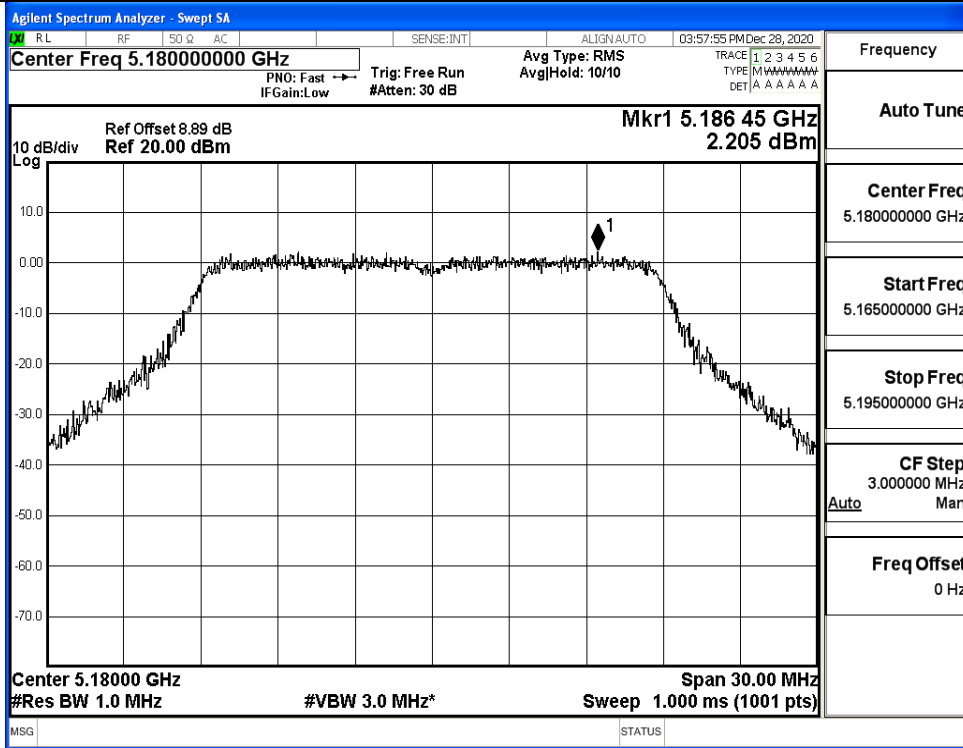
Power Spectral Density



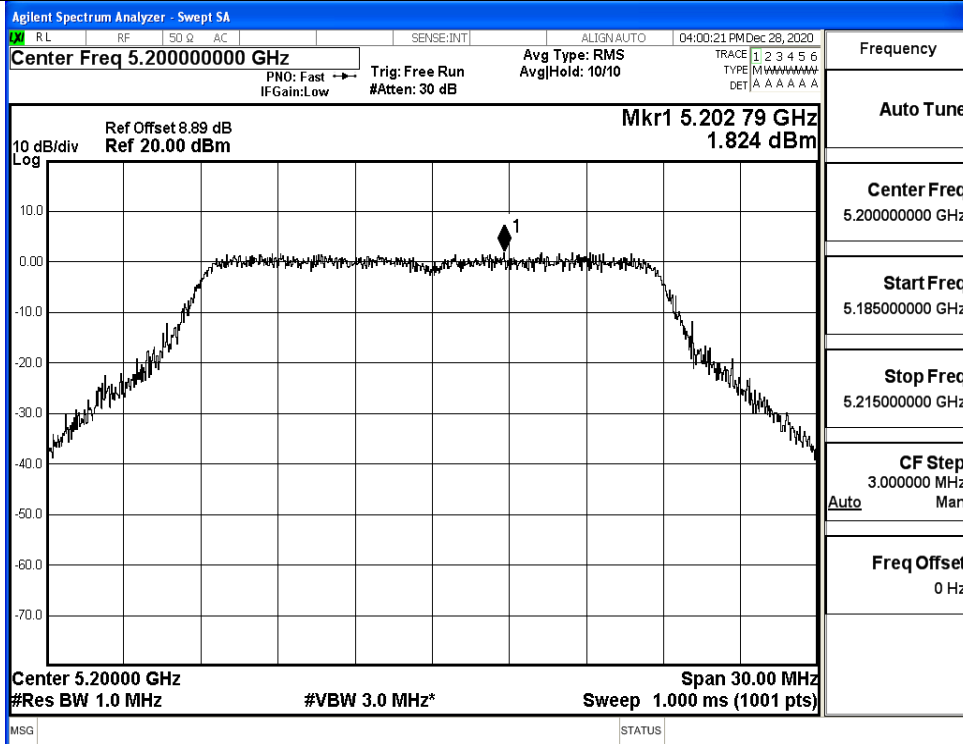
IEEE 802.11n40 / Channel 38 / 5190MHz



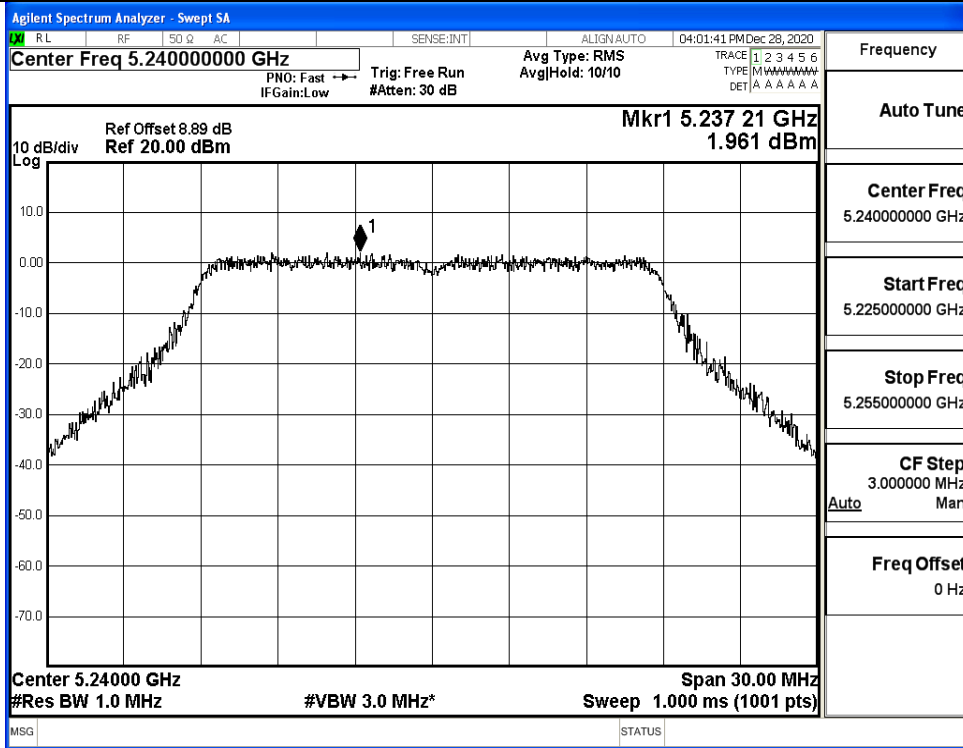
IEEE 802.11n40 / Channel 46 / 5230MHz



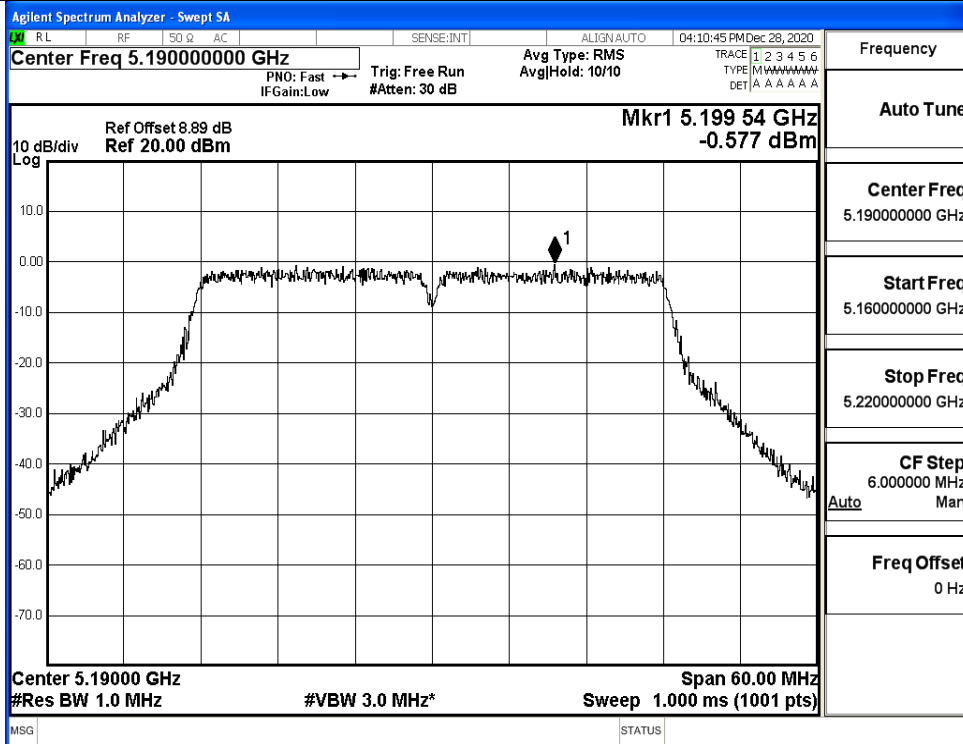
IEEE 802.11ac20 / Channel 36 / 5180MHz



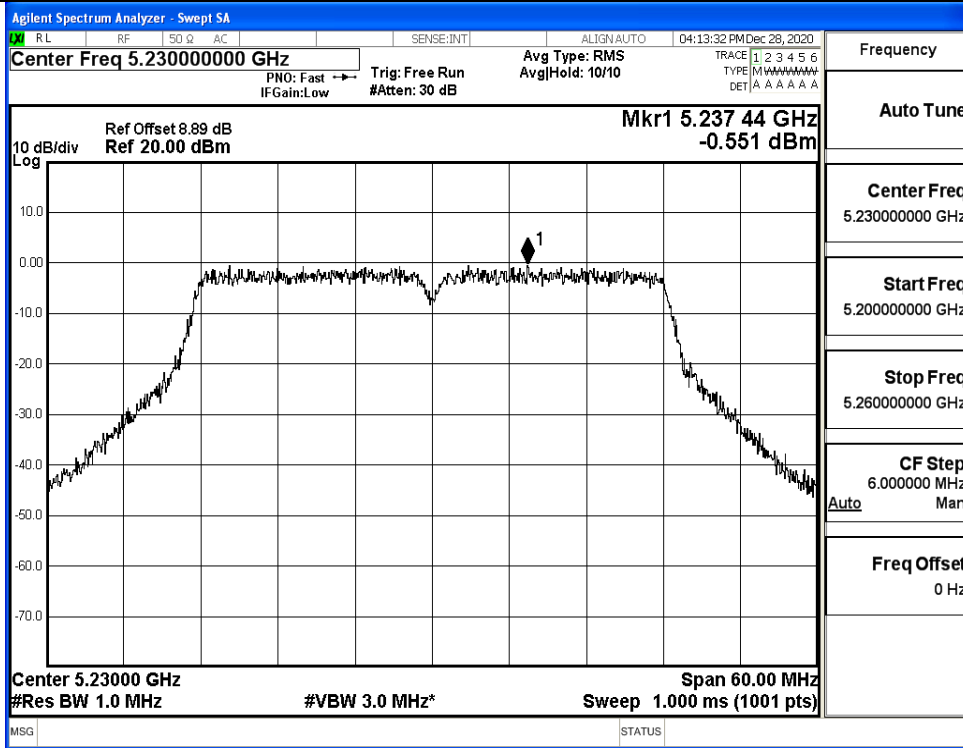
IEEE 802.11ac20 / Channel 40 / 5200MHz



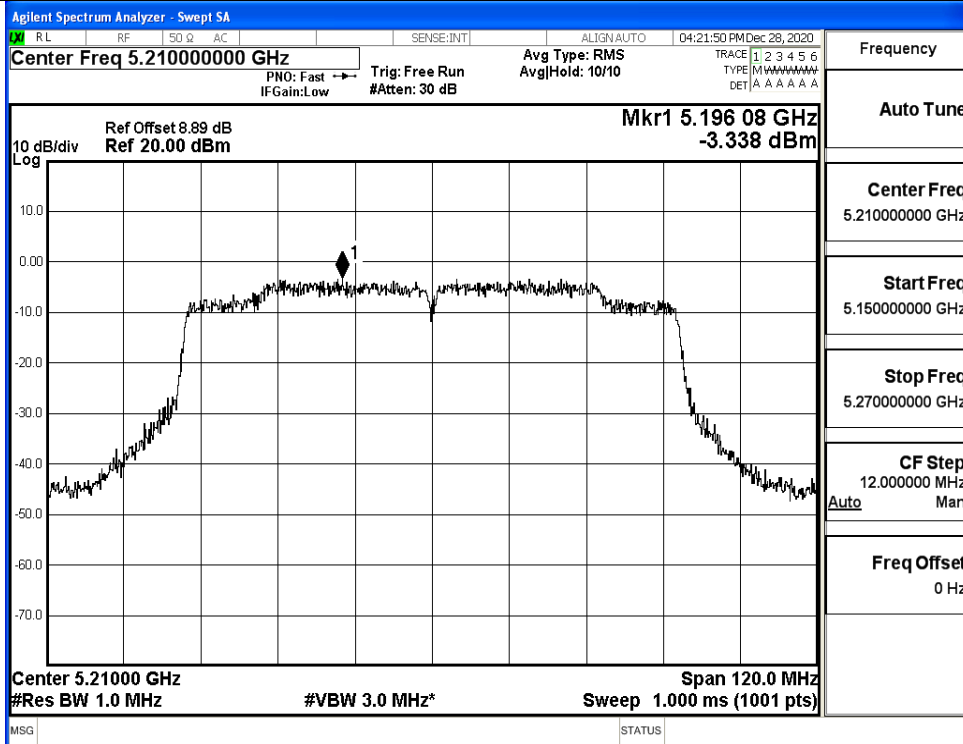
IEEE 802.11ac20 / Channel 48 / 5240MHz



IEEE 802.11ac40 / Channel 38 / 5190MHz



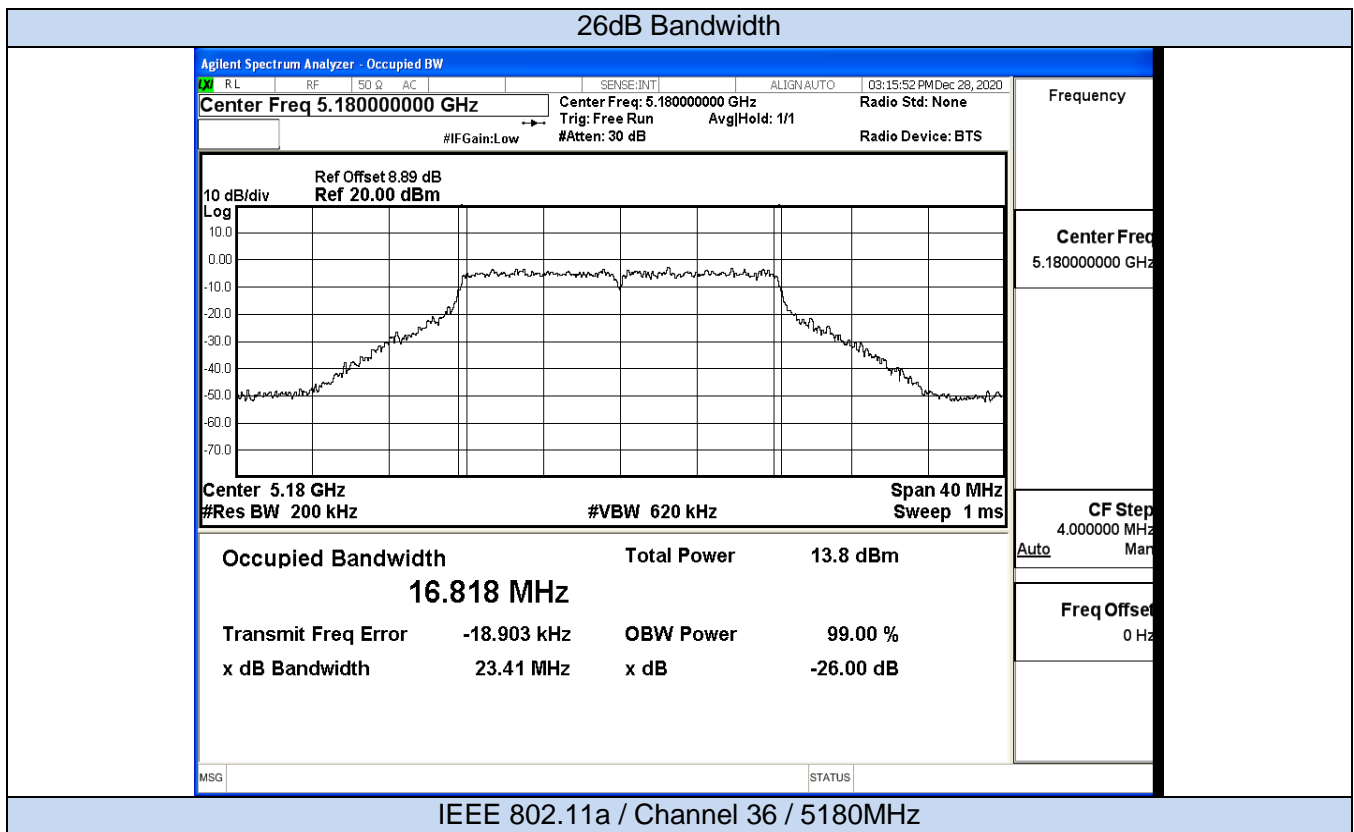
IEEE 802.11ac40 / Channel 46 / 5230MHz

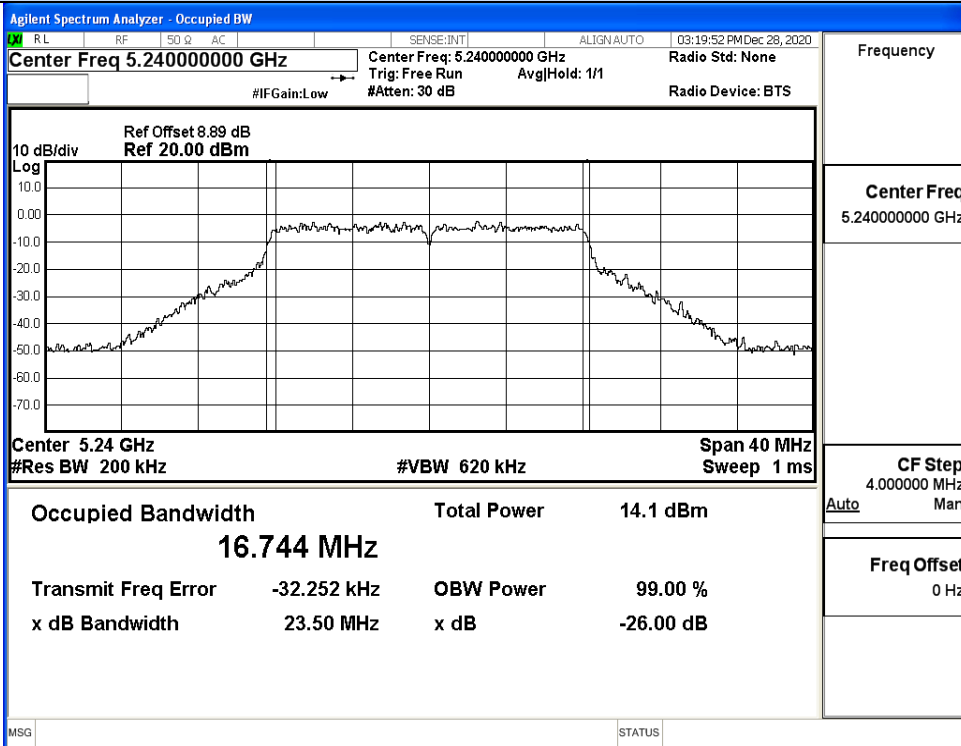
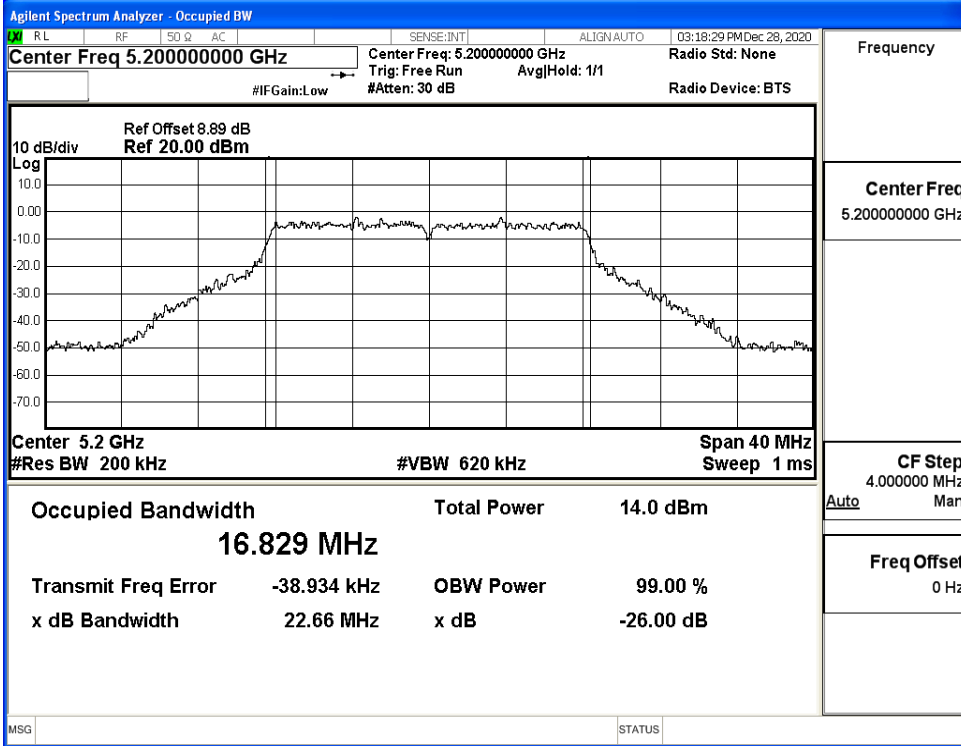


IEEE 802.11ac80 / Channel 42 / 5210MHz

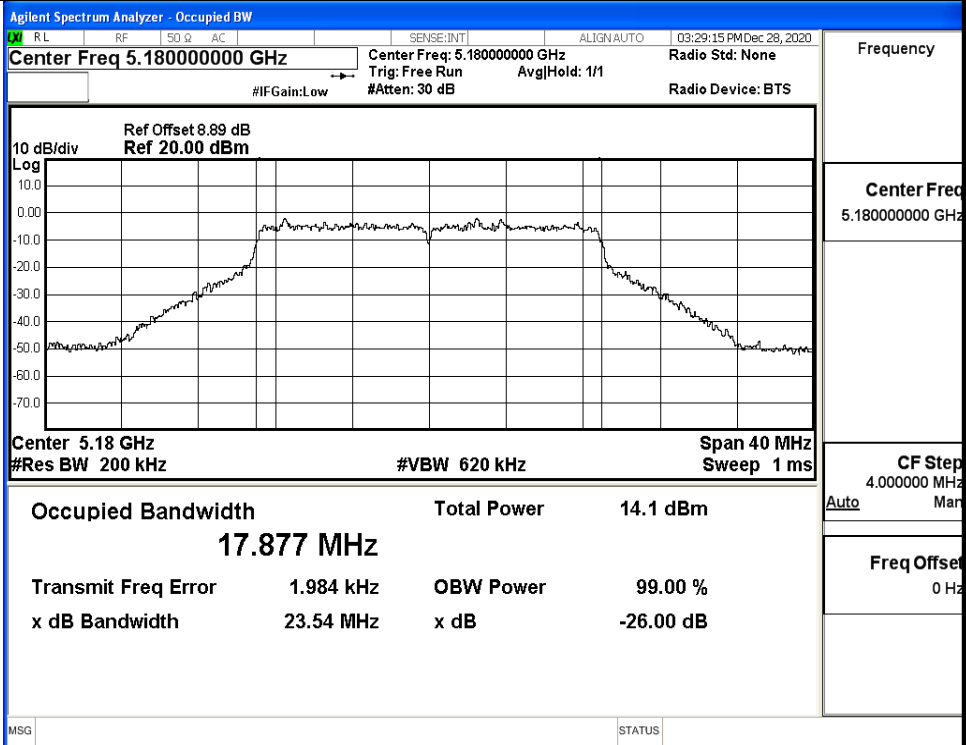
D.4 Emission Bandwidth

Test Mode	Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
11A	36	5180	23.41	No Limit	Pass
	40	5200	22.66		Pass
	48	5240	23.50		Pass
11N20 SISO	36	5180	23.54	No Limit	Pass
	40	5200	22.91		Pass
	48	5240	23.28		Pass
11N40 SISO	38	5190	44.88	No Limit	Pass
	46	5230	44.90		Pass
11AC20 SISO	36	5180	22.77	No Limi	Pass
	40	5200	23.85		Pass
	48	5240	23.00		Pass
11AC40 SISO	38	5190	43.49	No Limi	Pass
	46	5230	44.90		Pass
11AC80 SISO	42	5210	82.55	No Limi	Pass

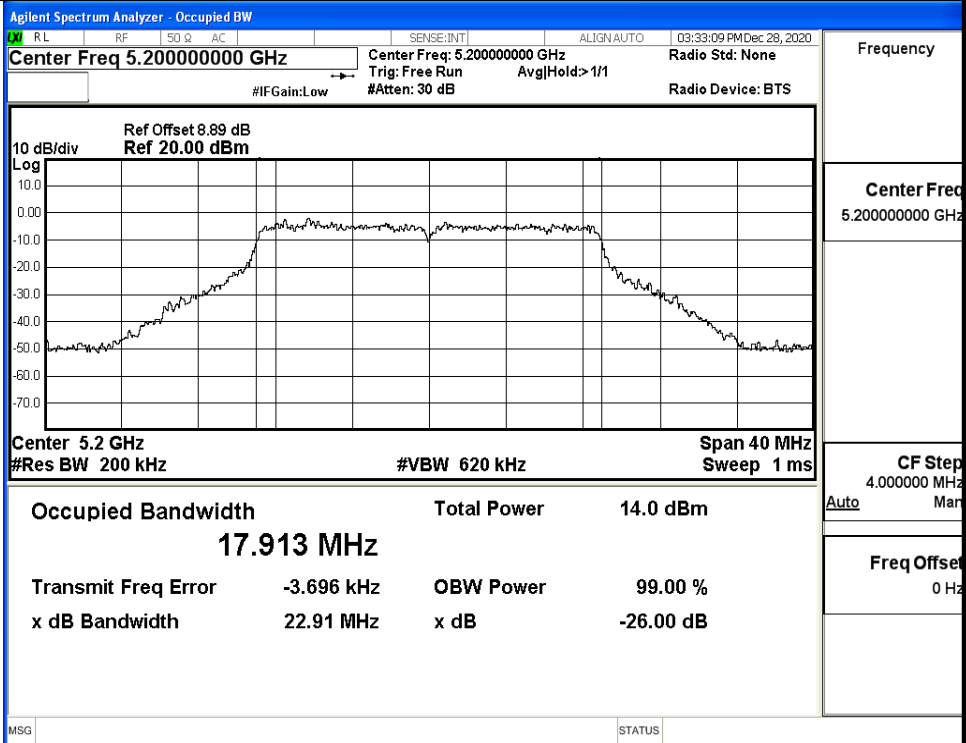




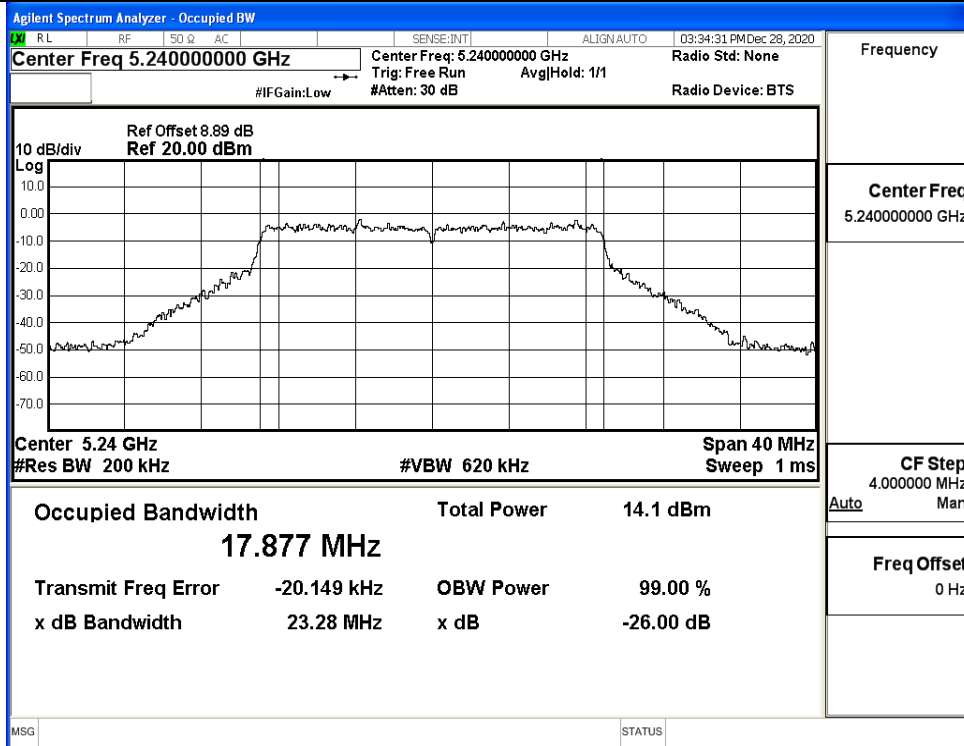
26dB Bandwidth



IEEE 802.11n20 / Channel 36 / 5180MHz

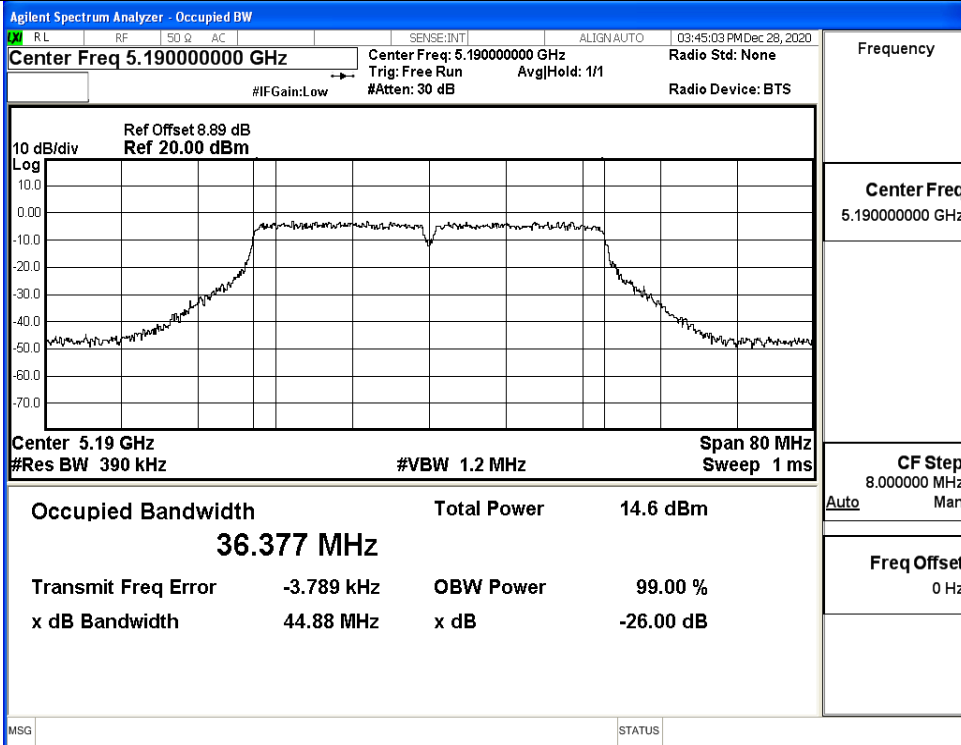


IEEE 802.11n20 / Channel 40 / 5200MHz

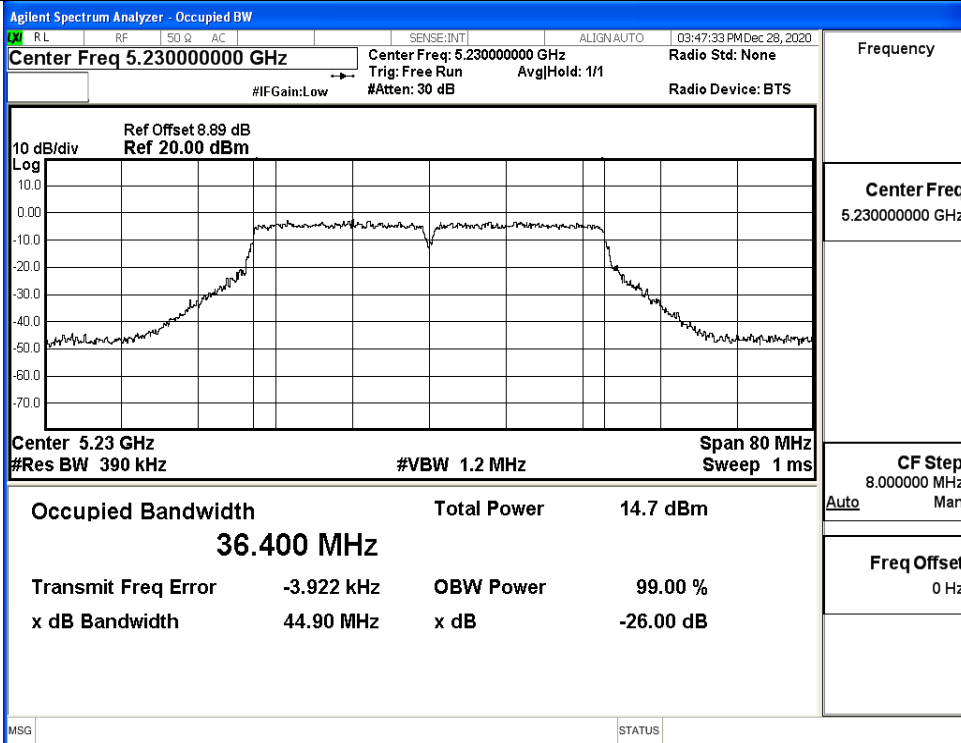


IEEE 802.11n20 / Channel 48 / 5240MHz

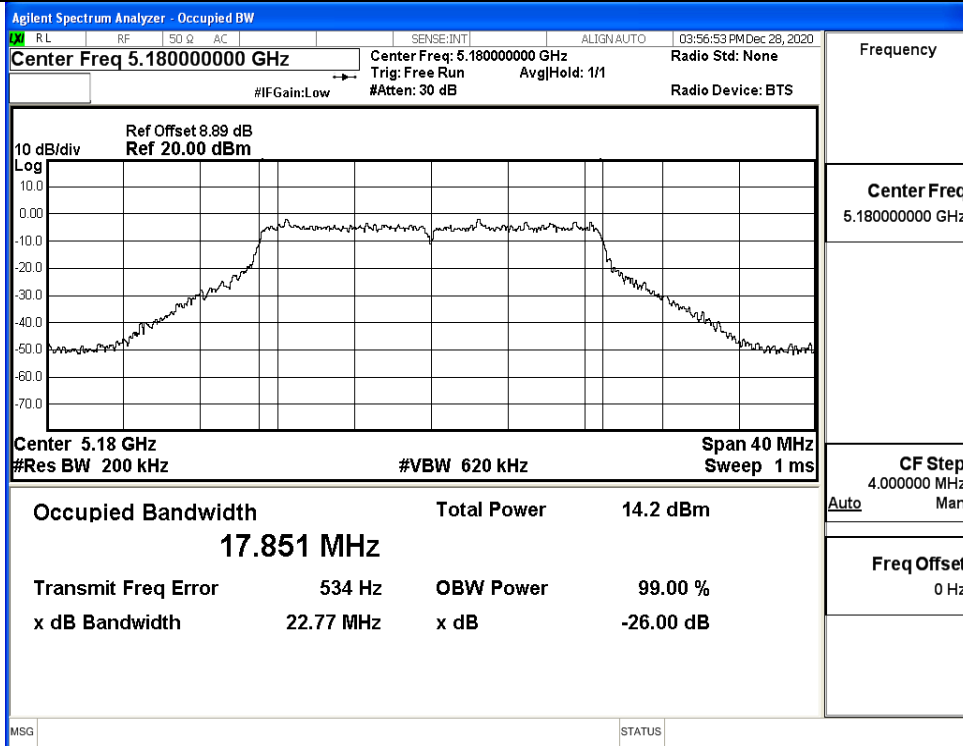
26dB Bandwidth



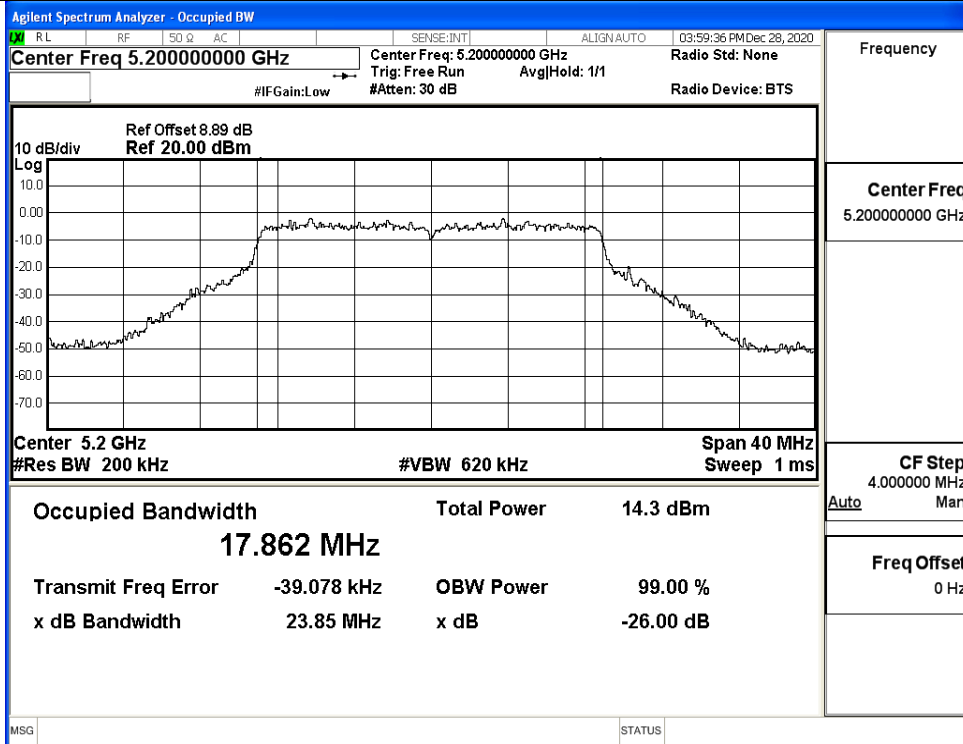
IEEE 802.11n40 / Channel 38 / 5190MHz



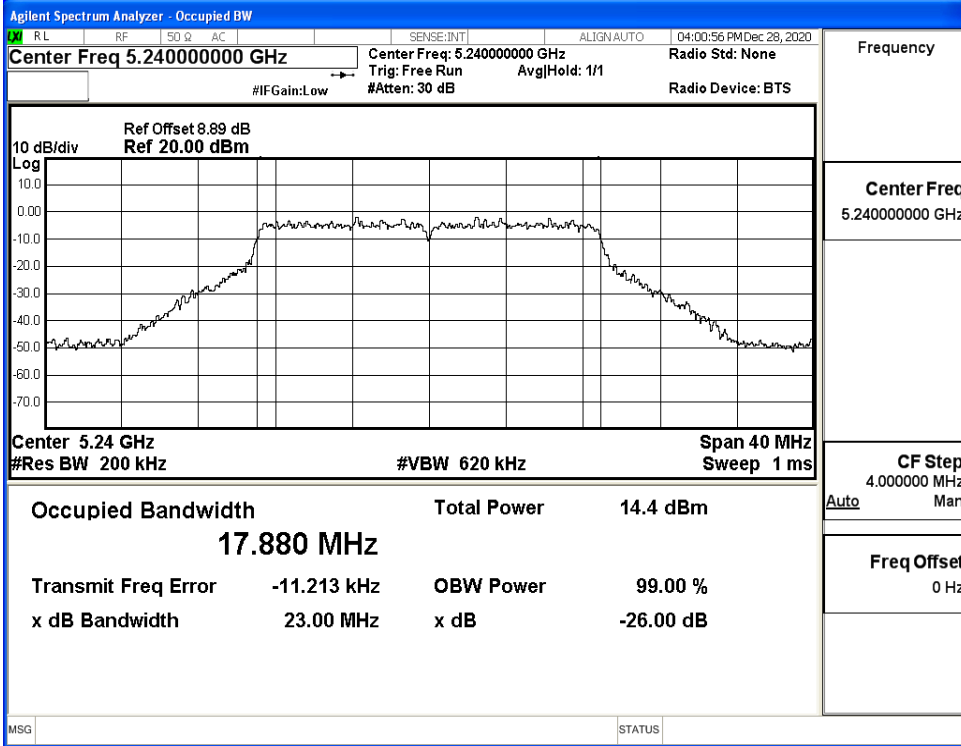
IEEE 802.11n40 / Channel 46 / 5230MHz



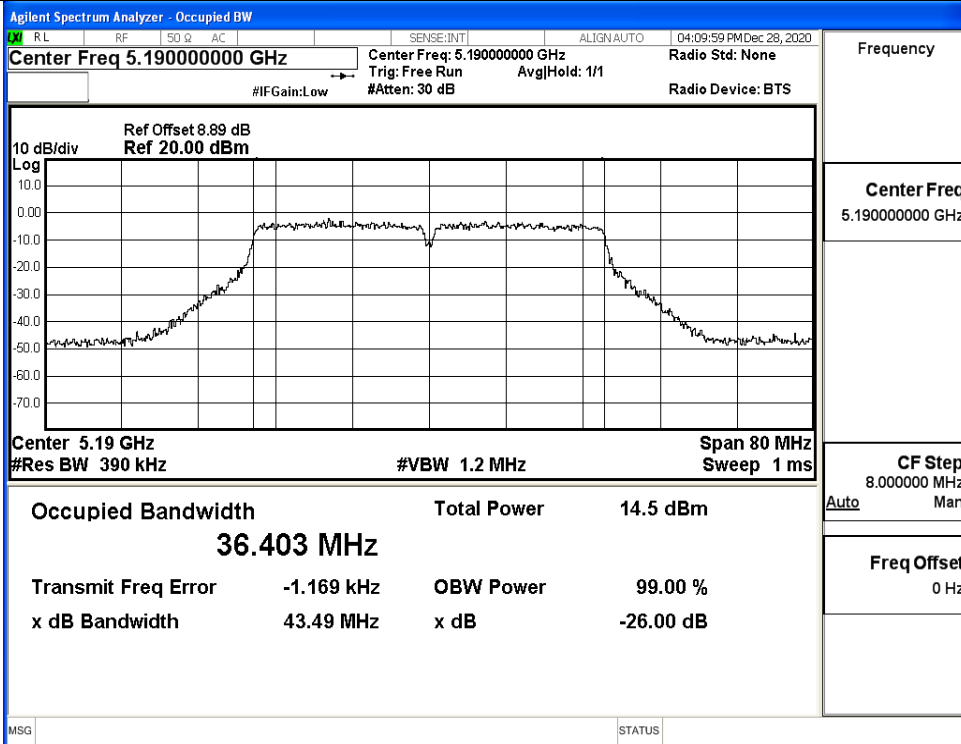
IEEE 802.11ac20 / Channel 36 / 5180MHz



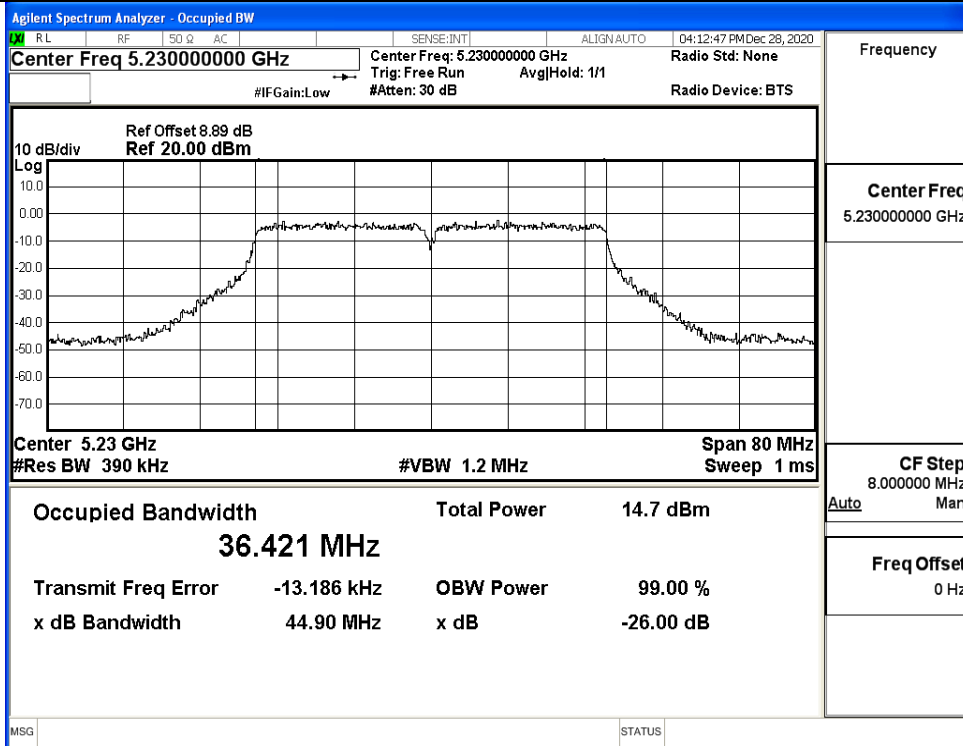
IEEE 802.11ac20 / Channel 40 / 5200MHz



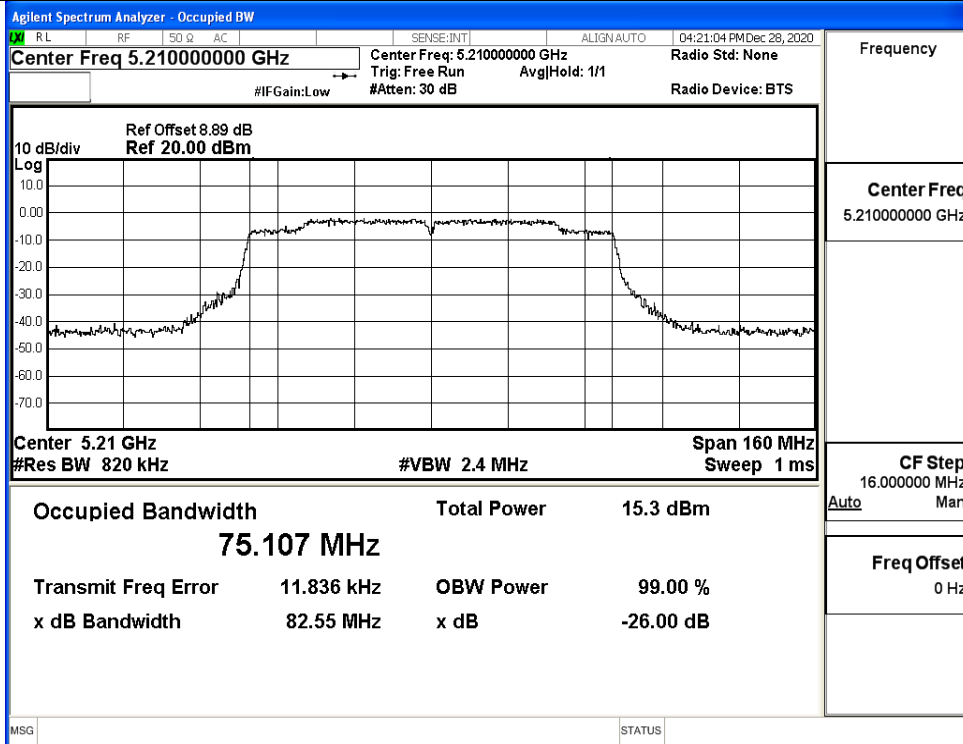
IEEE 802.11ac20 / Channel 48 / 5240MHz



IEEE 802.11ac40 / Channel 38 / 5190MHz



IEEE 802.11ac40 / Channel 46 / 5230MHz

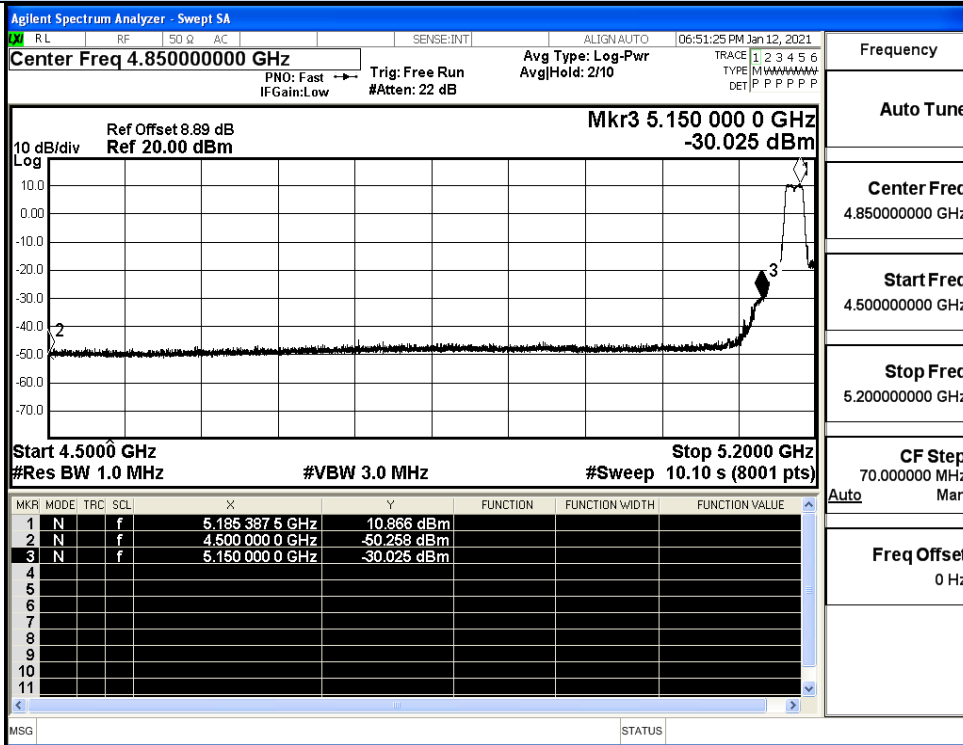


IEEE 802.11ac80 / Channel 42 / 5210MHz

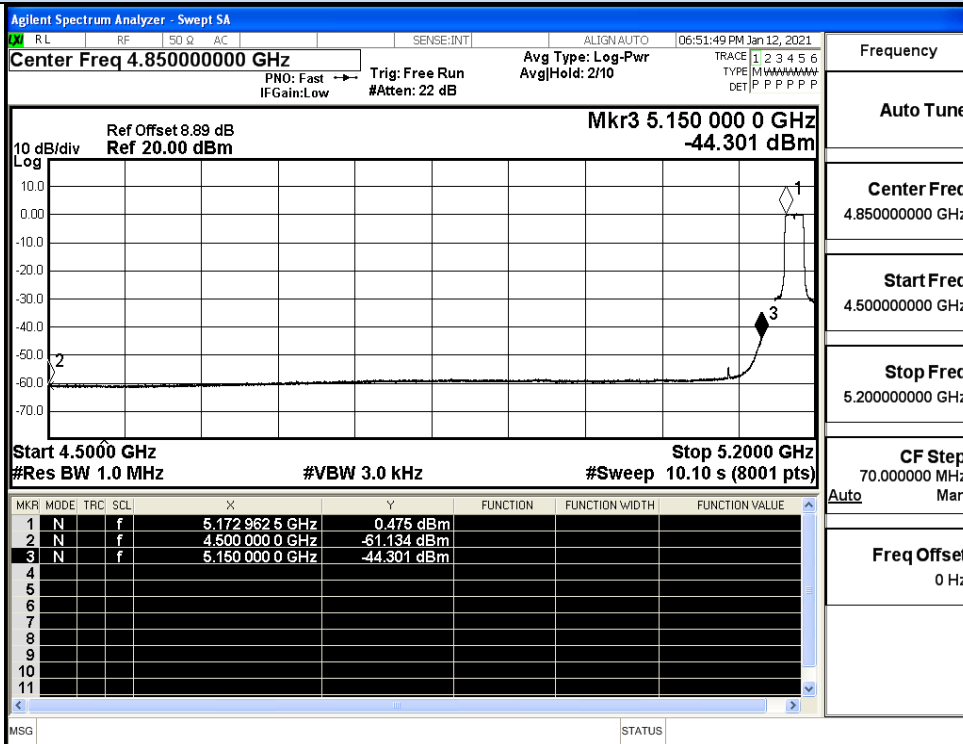
D.5 Undesirable Emissions Measurement

Test Mode	Channel	Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Ground Reflection Factor (dB)	Covert Radiated E Level At 3m (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
11A	36	4500.0	-50.26	2.00	0	46.97	Peak	68.20	Pass
		4500.0	-61.13	2.00	0	36.10	Average	54.00	Pass
		5150.0	-30.03	2.00	0	67.20	Peak	68.20	Pass
		5150.0	-44.30	2.00	0	52.93	Average	54.00	Pass
	48	5350.0	-47.83	2.00	0	49.40	Peak	68.20	Pass
		5350.0	-59.27	2.00	0	37.96	Average	54.00	Pass
		5460.0	-47.36	2.00	0	49.87	Peak	68.20	Pass
		5460.0	-59.39	2.00	0	37.84	Average	54.00	Pass
11N20 SISO	36	4500.0	-49.35	2.00	0	47.88	Peak	68.20	Pass
		4500.0	-61.24	2.00	0	35.99	Average	54.00	Pass
		5150.0	-44.95	2.00	0	52.28	Peak	68.20	Pass
		5150.0	-56.35	2.00	0	40.88	Average	54.00	Pass
	48	5350.0	-48.36	2.00	0	48.87	Peak	68.20	Pass
		5350.0	-59.44	2.00	0	37.79	Average	54.00	Pass
		5460.0	-47.98	2.00	0	49.25	Peak	68.20	Pass
		5460.0	-59.63	2.00	0	37.60	Average	54.00	Pass
11N40 SISO	38	4500.0	-49.47	2.00	0	47.76	Peak	68.20	Pass
		4500.0	-60.98	2.00	0	36.25	Average	54.00	Pass
		5150.0	-41.33	2.00	0	55.90	Peak	68.20	Pass
		5150.0	-53.53	2.00	0	43.70	Average	54.00	Pass
	46	5350.0	-47.73	2.00	0	49.50	Peak	68.20	Pass
		5350.0	-58.95	2.00	0	38.28	Average	54.00	Pass
		5460.0	-46.91	2.00	0	50.32	Peak	68.20	Pass
		5460.0	-58.49	2.00	0	38.74	Average	54.00	Pass
11AC20 SISO	36	4500.0	-49.34	2.00	0	47.89	Peak	68.20	Pass
		4500.0	-61.12	2.00	0	36.11	Average	54.00	Pass
		5150.0	-43.44	2.00	0	53.79	Peak	68.20	Pass
		5150.0	-56.01	2.00	0	41.22	Average	54.00	Pass
	48	4500.0	-49.34	2.00	0	47.89	Peak	68.20	Pass
		4500.0	-61.12	2.00	0	36.11	Average	54.00	Pass
		5150.0	-43.44	2.00	0	53.79	Peak	68.20	Pass
		5150.0	-56.01	2.00	0	41.22	Average	54.00	Pass
11AC40 SISO	38	4500.0	-49.46	2.00	0	47.77	Peak	68.20	Pass
		4500.0	-61.18	2.00	0	36.05	Average	54.00	Pass
		5150.0	-40.79	2.00	0	56.44	Peak	68.20	Pass
		5150.0	-52.94	2.00	0	44.29	Average	54.00	Pass
	46	5350.0	-47.12	2.00	0	50.11	Peak	68.20	Pass
		5350.0	-58.81	2.00	0	38.42	Average	54.00	Pass
		5460.0	-46.95	2.00	0	50.28	Peak	68.20	Pass
		5460.0	-58.41	2.00	0	38.82	Average	54.00	Pass
11AC80 SISO	42	4500.0	-50.27	2.00	0	46.96	Peak	68.20	Pass
		4500.0	-60.99	2.00	0	36.24	Average	54.00	Pass
		5150.0	-42.14	2.00	0	55.09	Peak	68.20	Pass
		5150.0	-52.92	2.00	0	44.31	Average	54.00	Pass
		5350.0	-46.43	2.00	0	50.80	Peak	68.20	Pass
		5350.0	-57.87	2.00	0	39.36	Average	54.00	Pass
		5460.0	-46.81	2.00	0	50.42	Peak	68.20	Pass
		5460.0	-57.85	2.00	0	39.38	Average	54.00	Pass

Undesirable Emissions Measurement

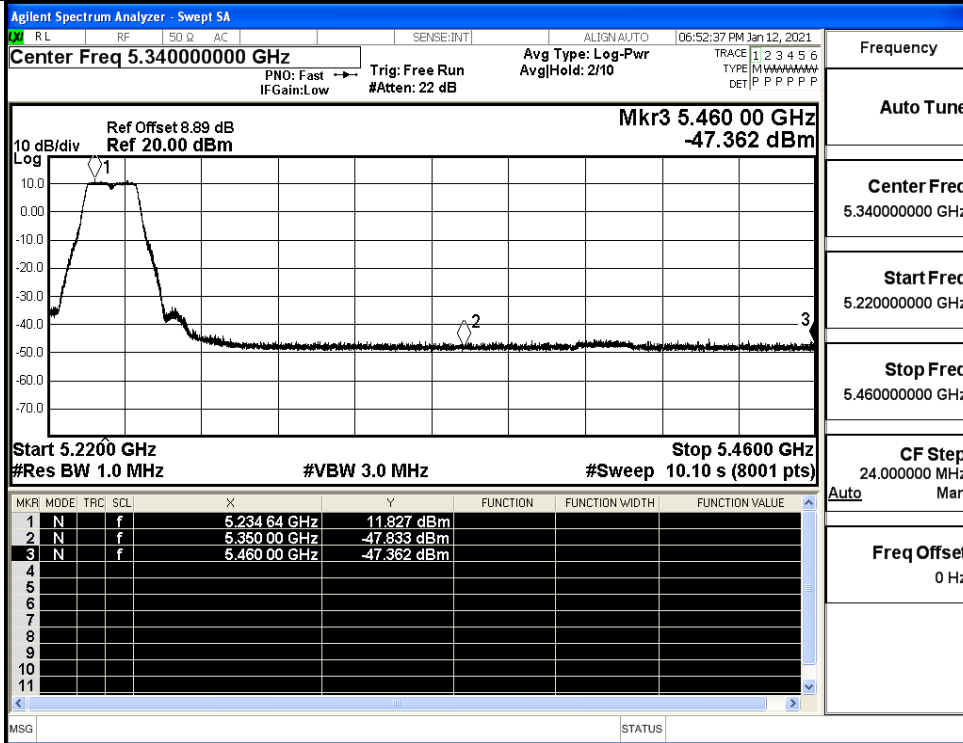


IEEE 802.11a / Channel 36 / 5180MHz / Peak

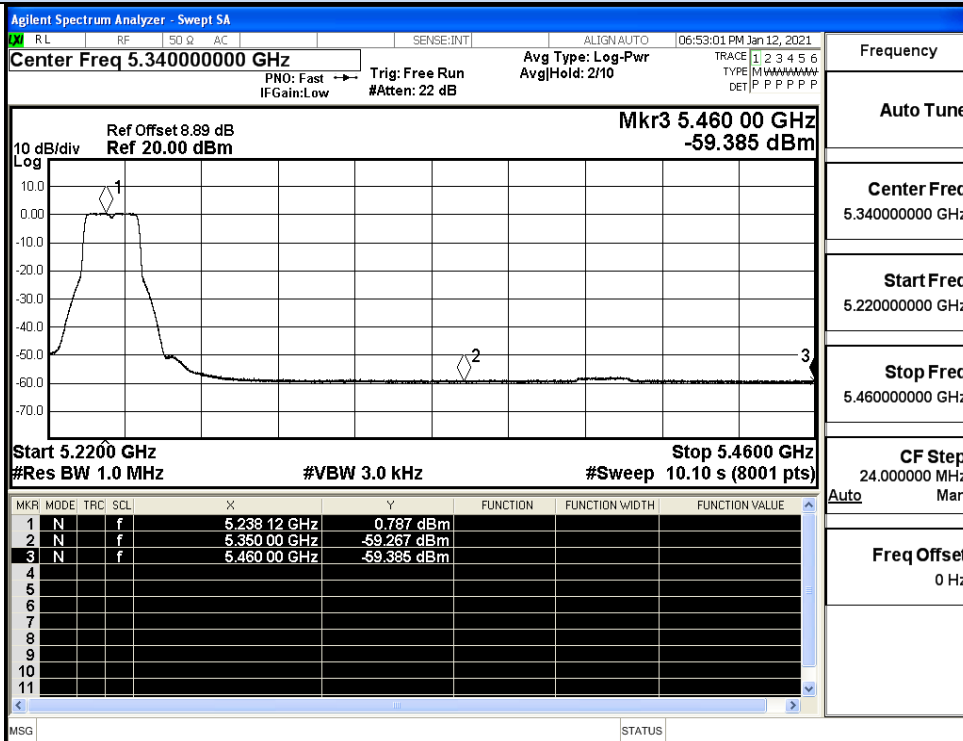


IEEE 802.11a / Channel 36 / 5180MHz / Average

Undesirable Emissions Measurement

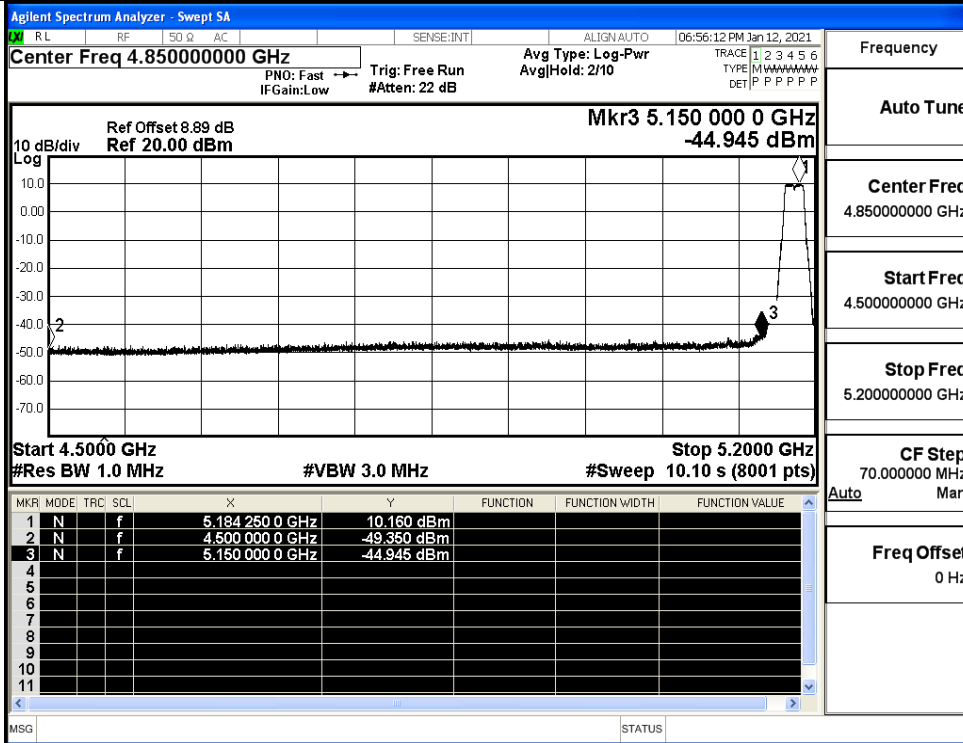


IEEE 802.11a / Channel 48 / 5240MHz / Peak

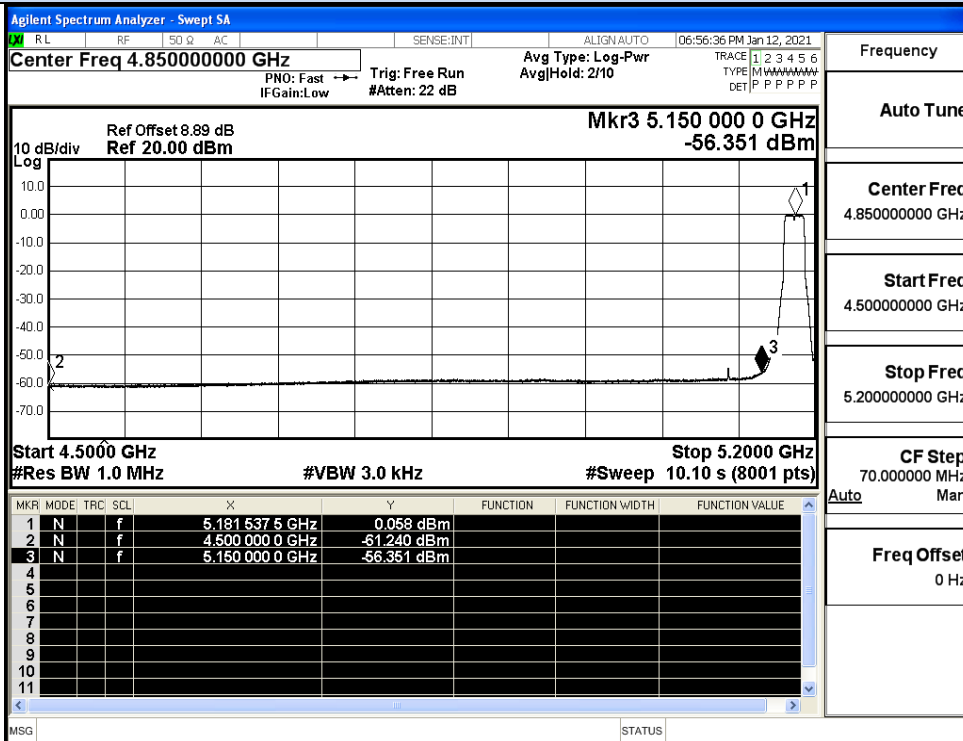


IEEE 802.11a / Channel 48 / 5240MHz / Average

Undesirable Emissions Measurement

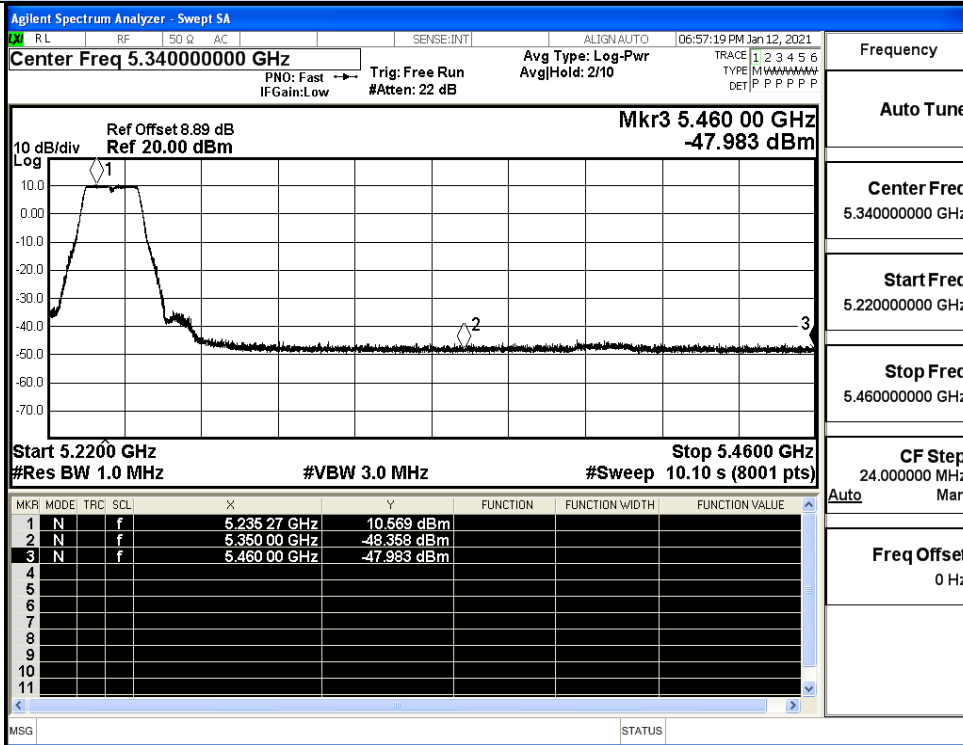


IEEE 802.11n20 / Channel 36 / 5180MHz / Peak

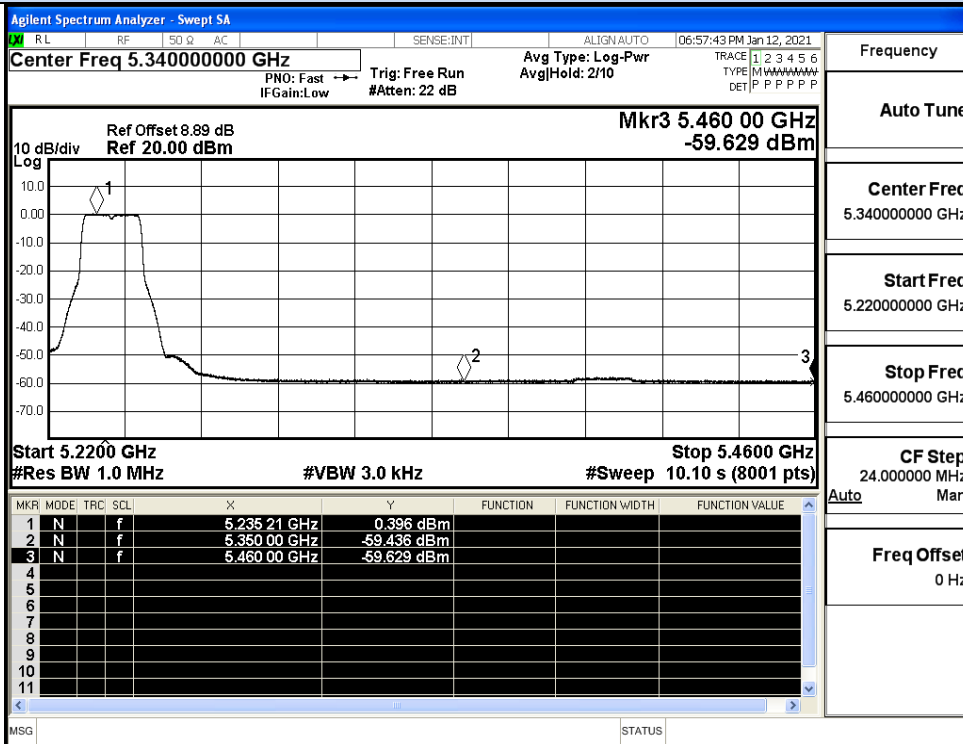


IEEE 802.11n20 / Channel 36 / 5180MHz / Average

Undesirable Emissions Measurement

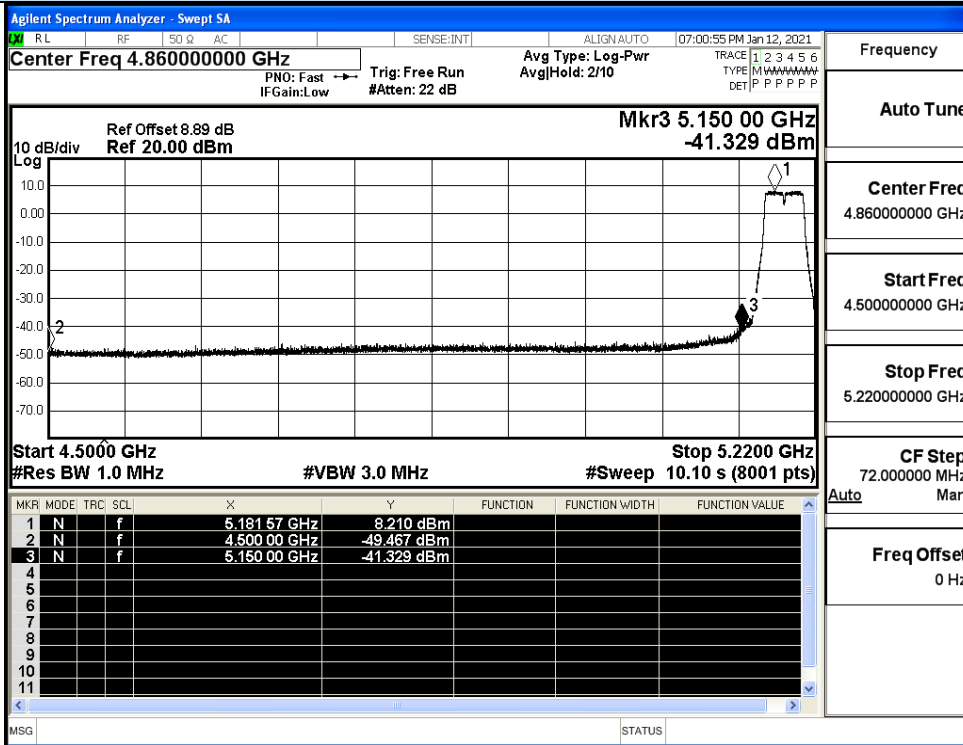


IEEE 802.11n20 / Channel 48 / 5240MHz / Peak

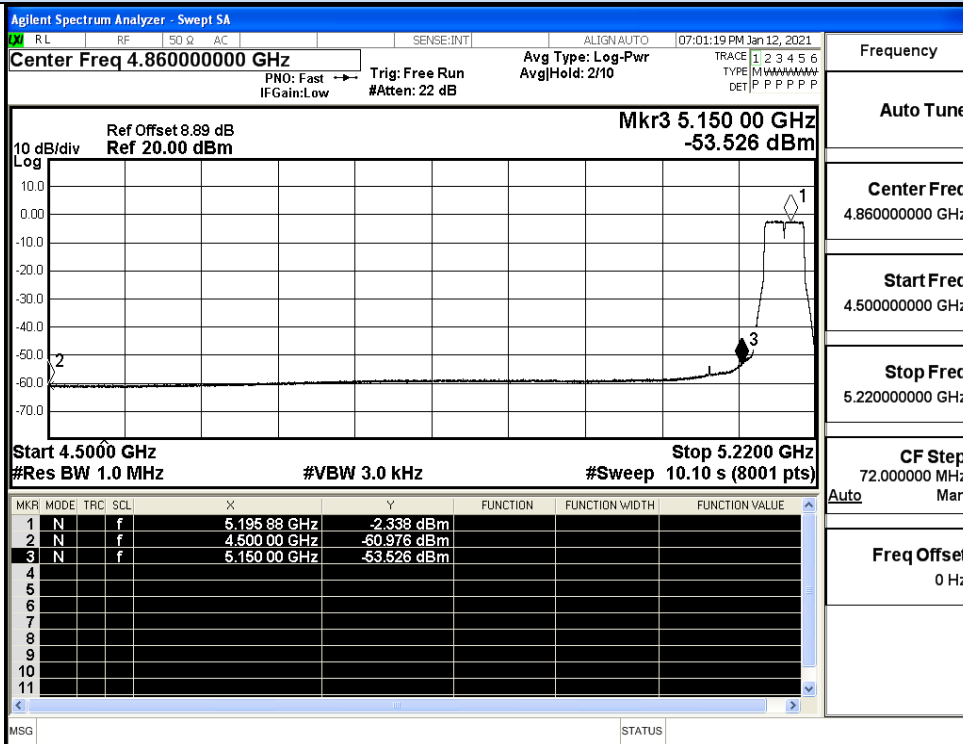


IEEE 802.11n20 / Channel 48 / 5240MHz / Average

Undesirable Emissions Measurement

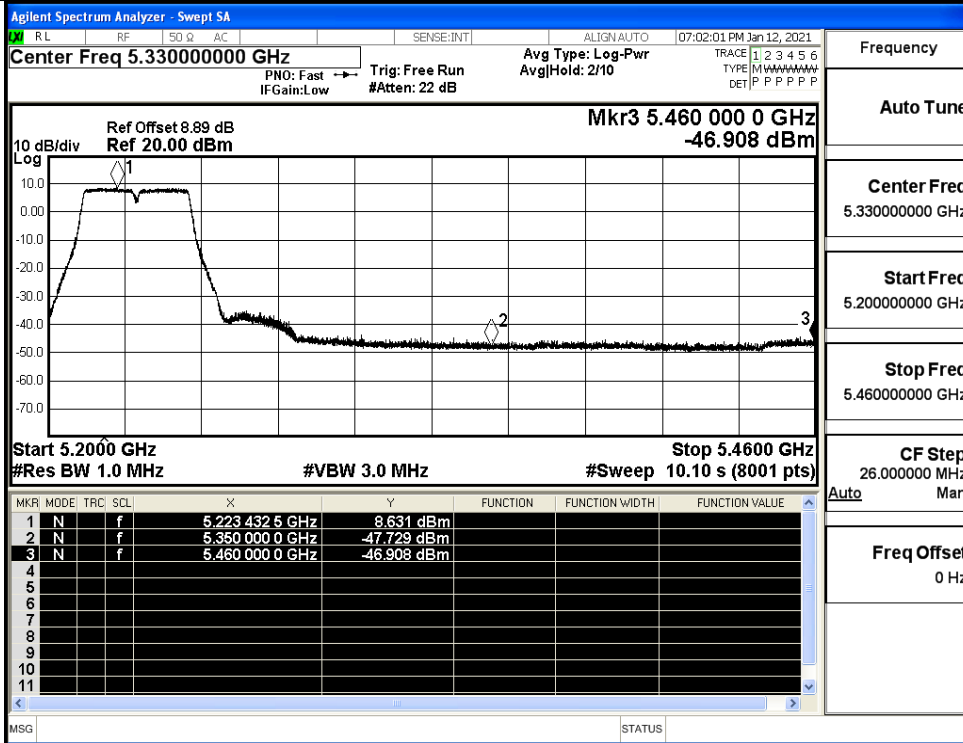


IEEE 802.11n40 / Channel 38 / 5190MHz / Peak

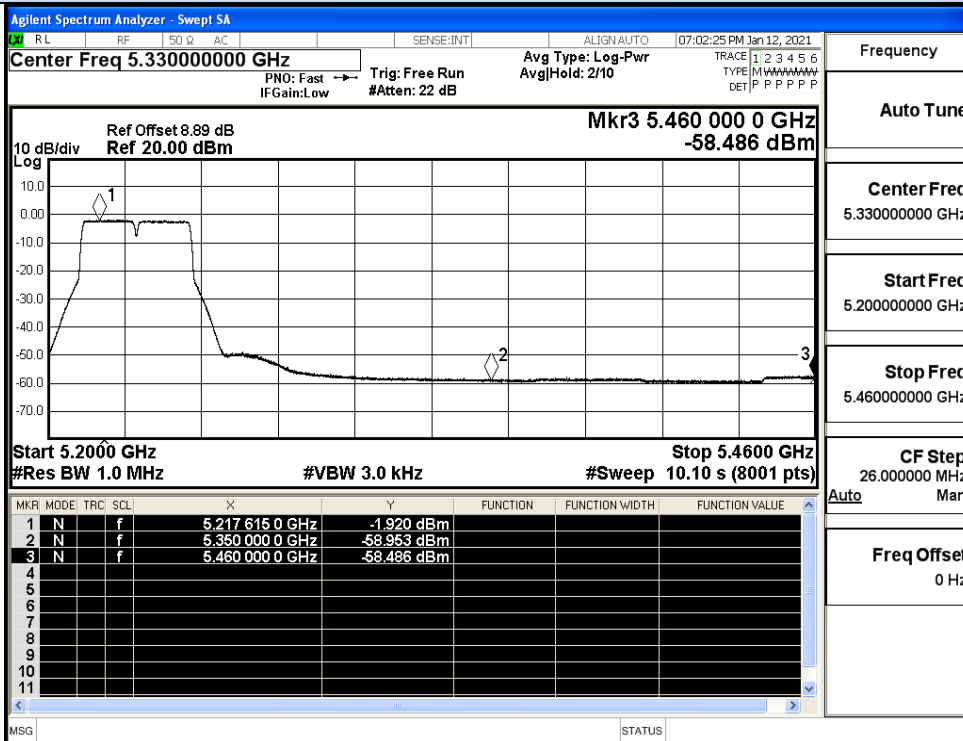


IEEE 802.11n40 / Channel 38 / 5190MHz / Average

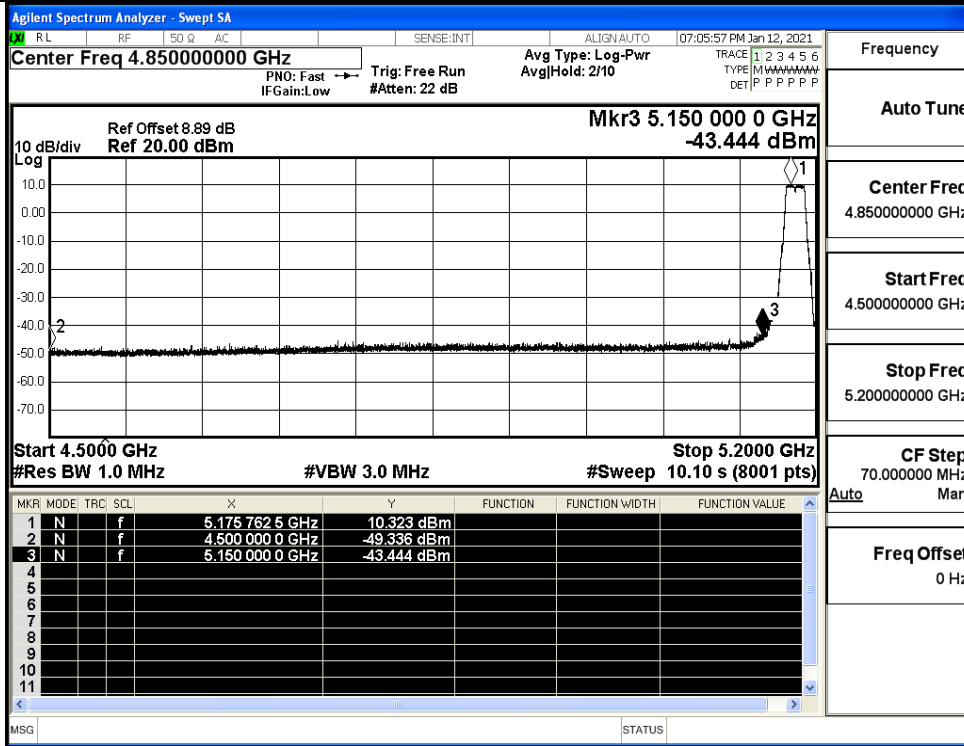
Undesirable Emissions Measurement



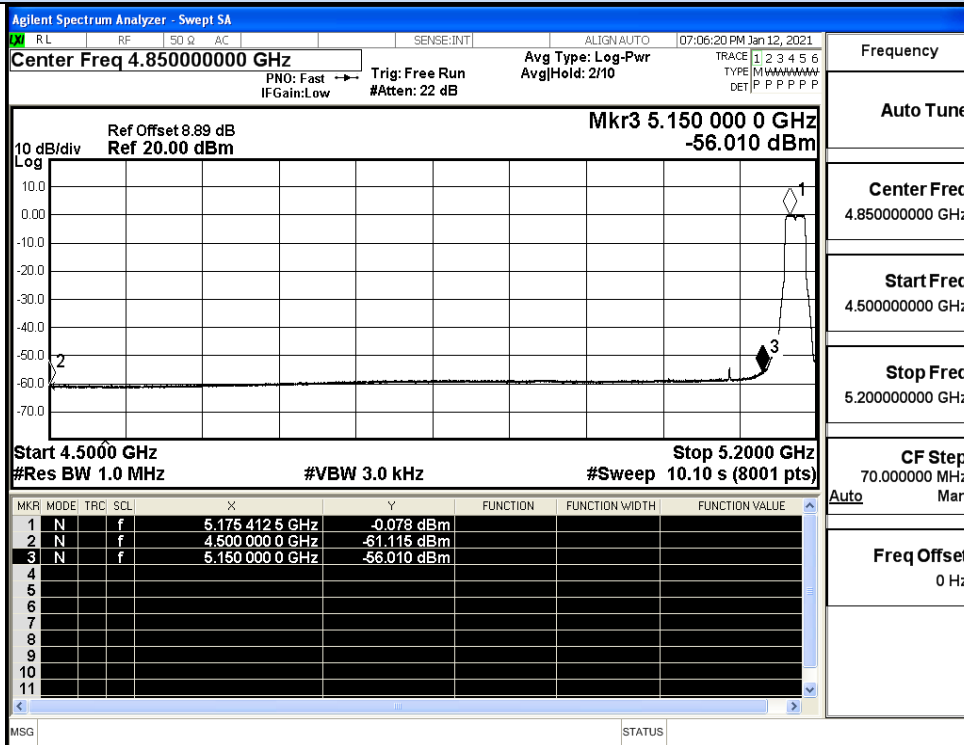
IEEE 802.11n40 / Channel 46 / 5230MHz / Peak



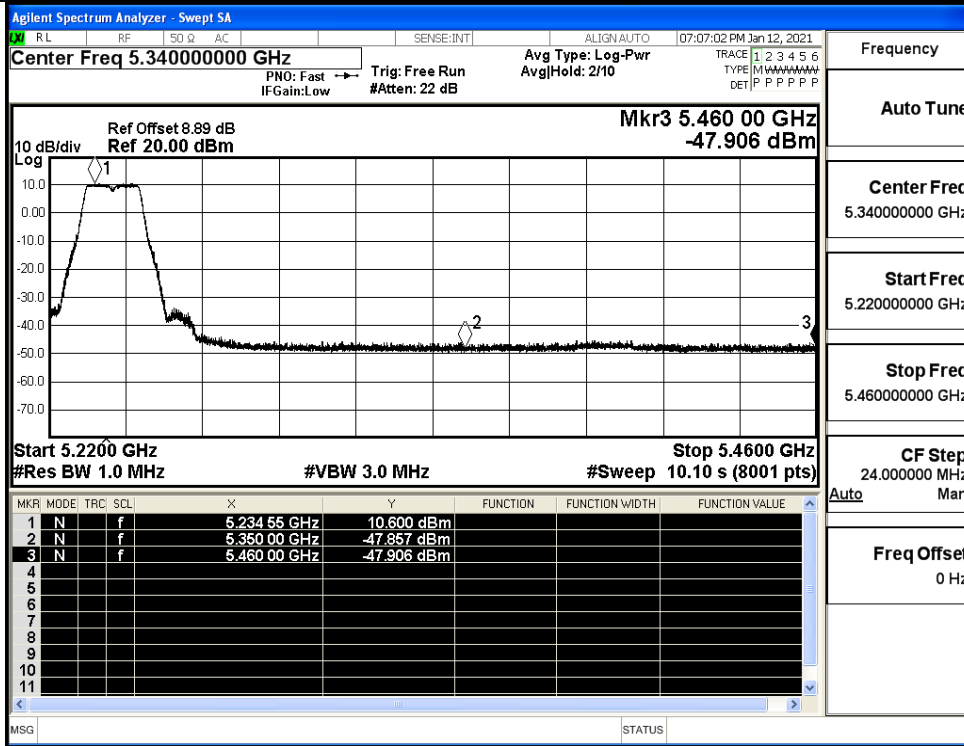
IEEE 802.11n40 / Channel 46 / 5230MHz / Average



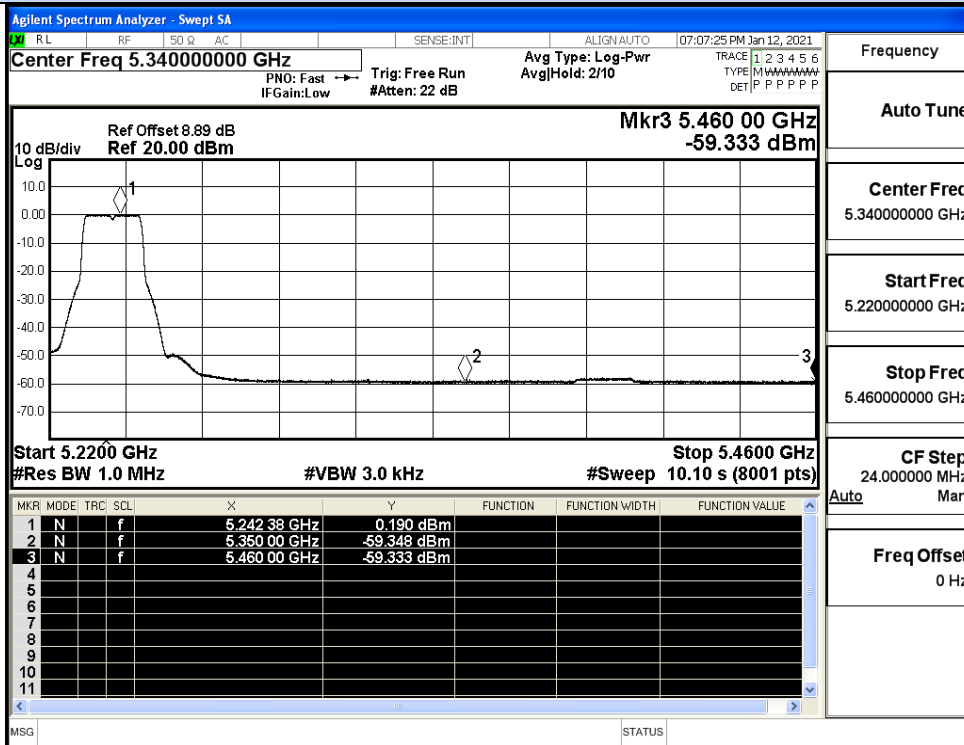
IEEE 802.11ac20 / Channel 36 / 5180MHz / Peak



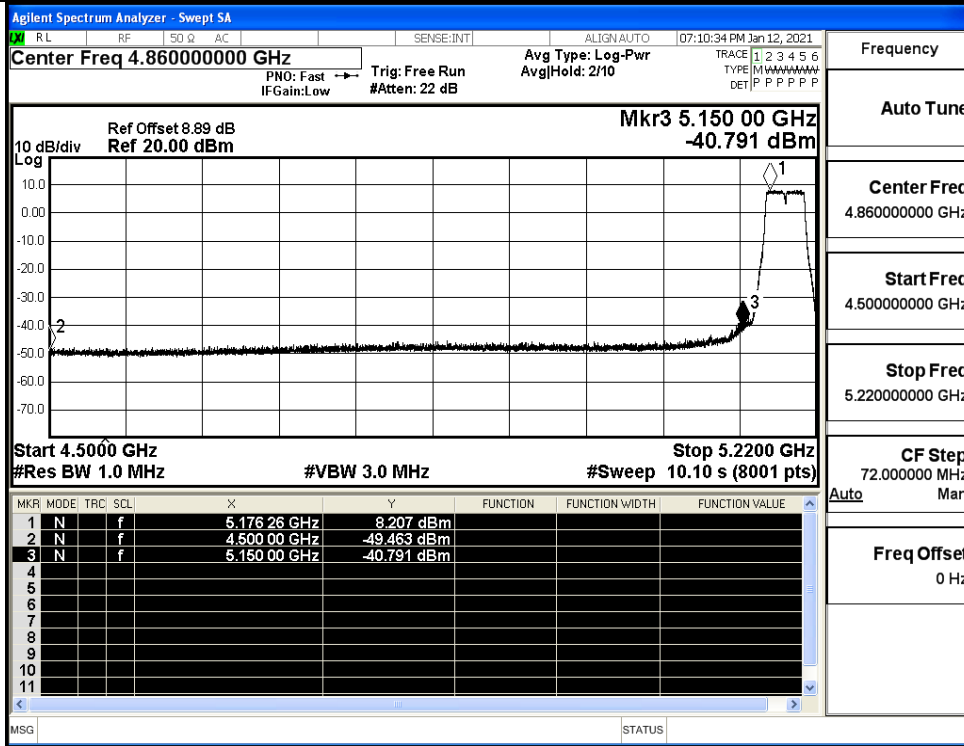
IEEE 802.11ac20 / Channel 36 / 5180MHz / Average



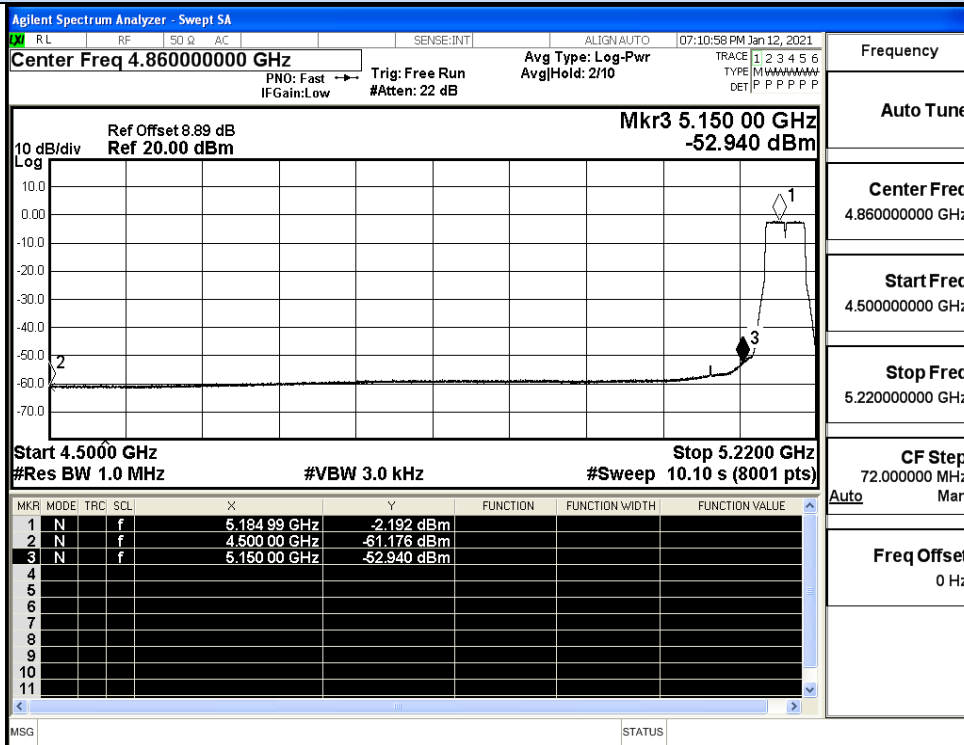
IEEE 802.11ac20 / Channel 48 / 5240MHz / Peak



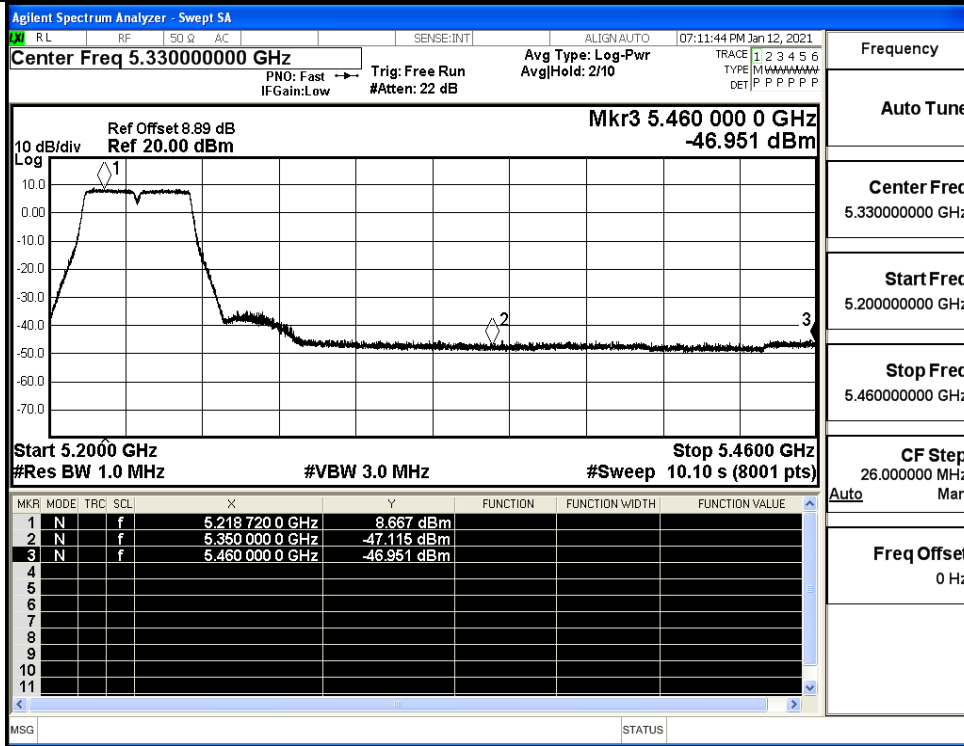
IEEE 802.11ac20 / Channel 48 / 5240MHz / Average



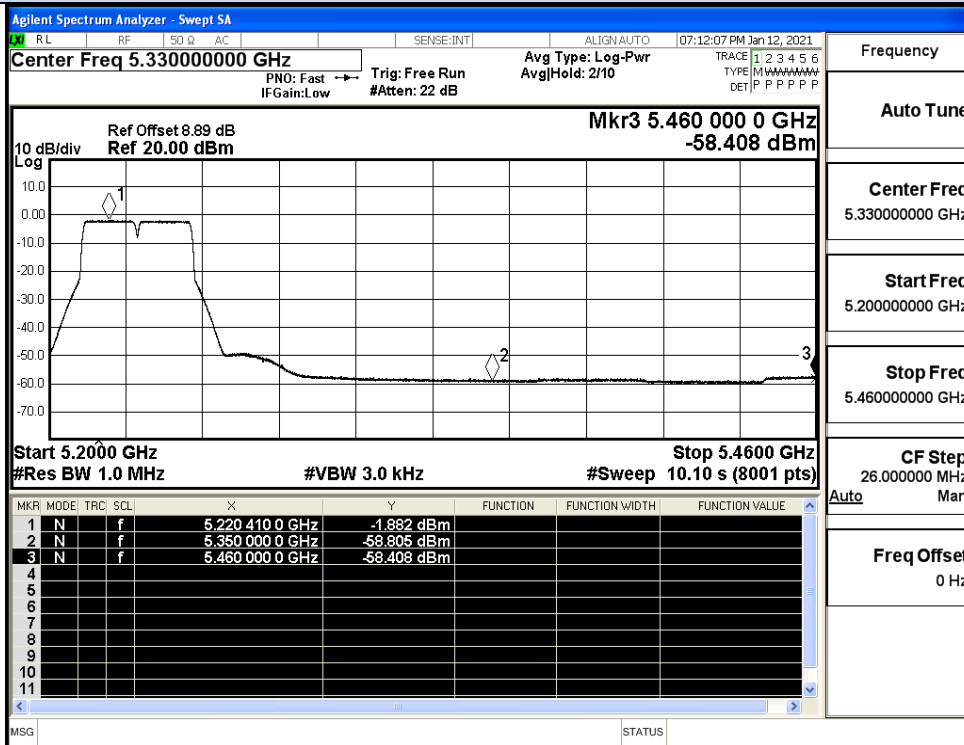
IEEE 802.11ac40 / Channel 38/ 5190MHz / Peak



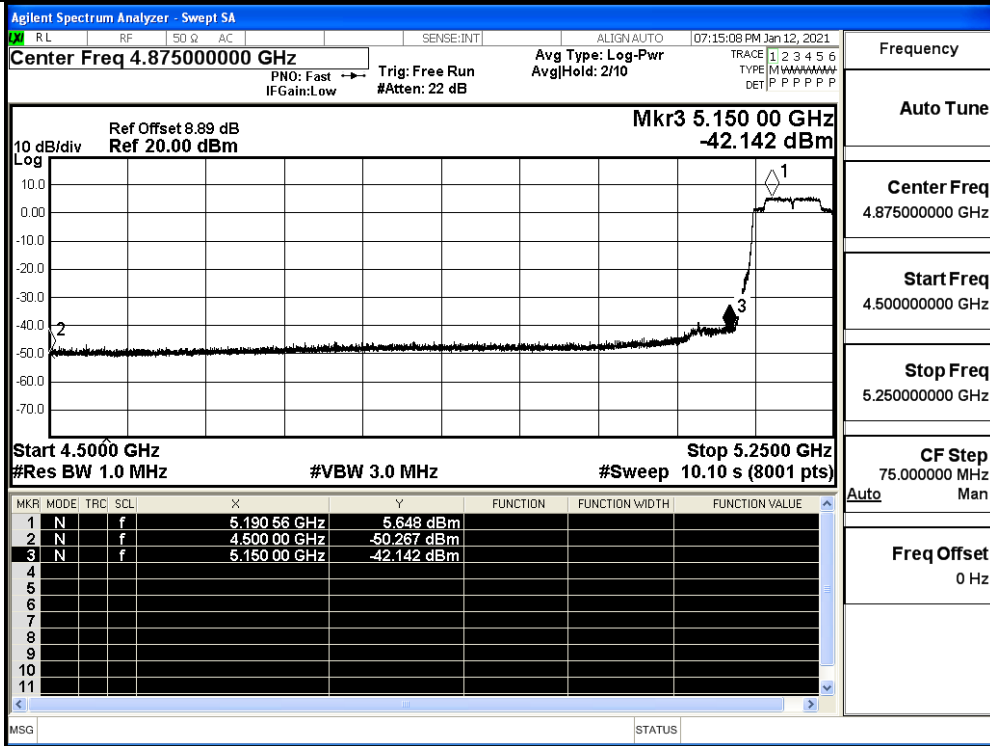
IEEE 802.11ac40 / Channel 38 / 5190MHz / Average



IEEE 802.11ac40 / Channel 46/ 5230MHz / Peak

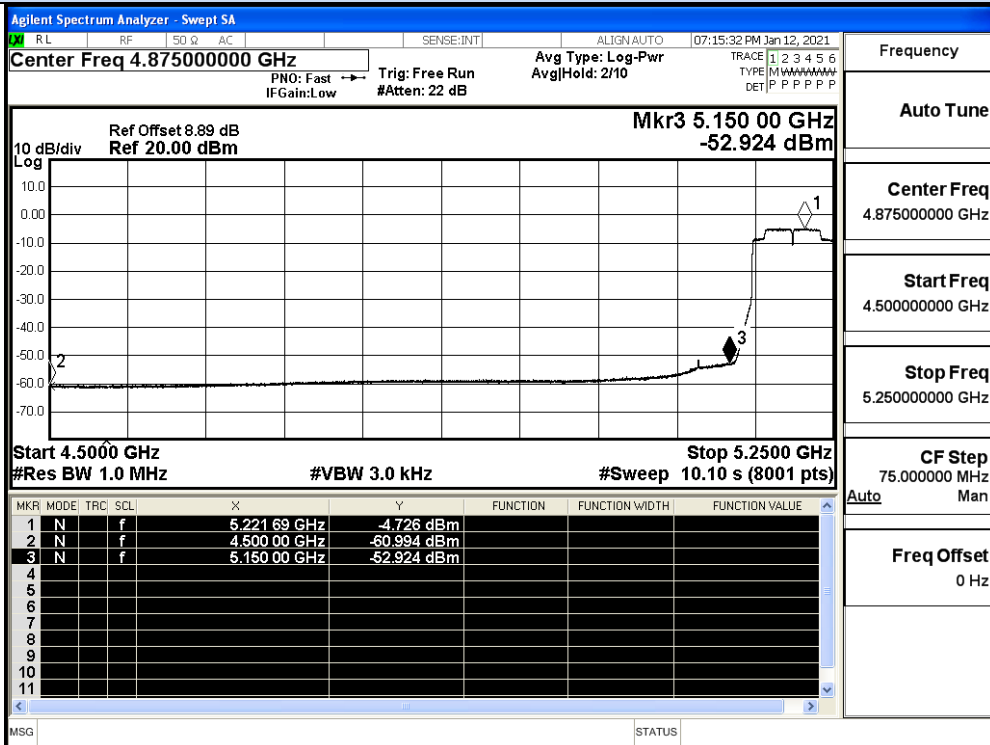


IEEE 802.11ac40 / Channel 46 / 5230MHz / Average



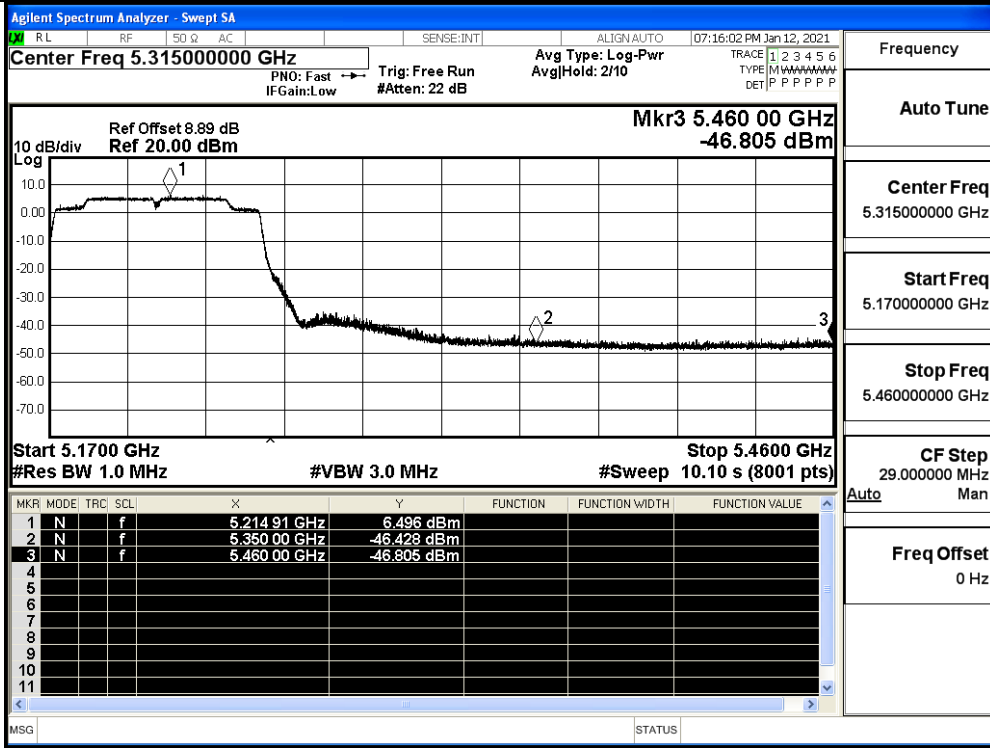
Frequency	
Auto Tune	
Center Freq	4.875000000 GHz
Start Freq	4.500000000 GHz
Stop Freq	5.250000000 GHz
CF Step	75.000000 MHz
Auto	Man
Freq Offset	0 Hz

IEEE 802.11ac80 / Channel 42 / 5210MHz / Peak

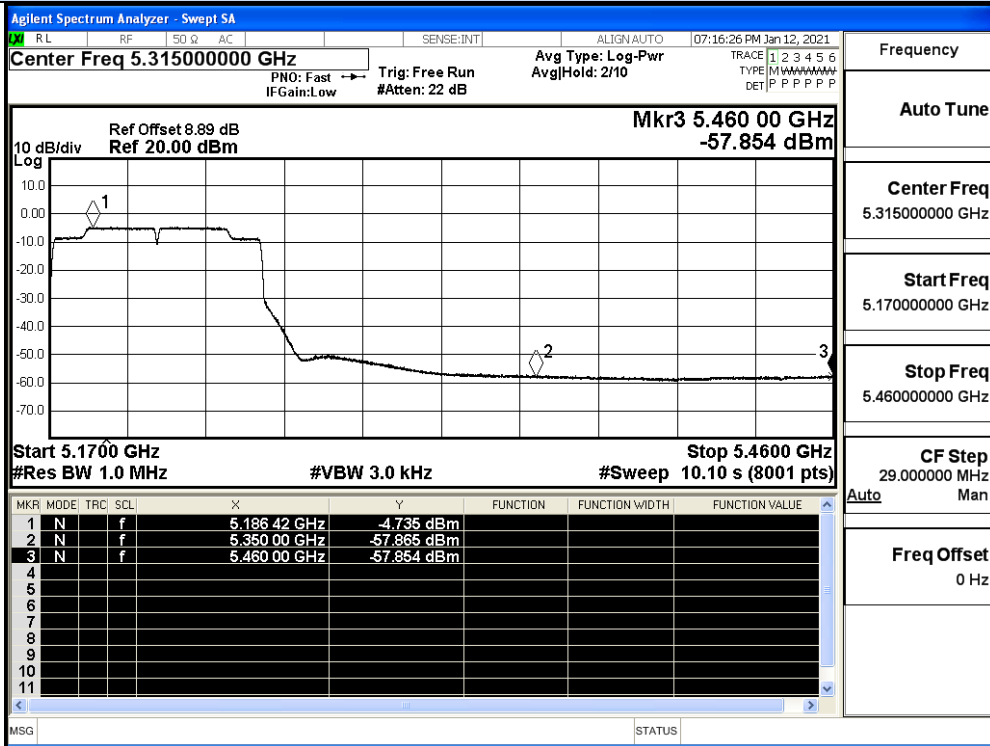


Frequency	
Auto Tune	
Center Freq	4.875000000 GHz
Start Freq	4.500000000 GHz
Stop Freq	5.250000000 GHz
CF Step	75.000000 MHz
Auto	Man
Freq Offset	0 Hz

IEEE 802.11ac80 / Channel 42 / 5210MHz / Average



IEEE 802.11ac80 / Channel 42 / 5210MHz / Peak



IEEE 802.11ac80 / Channel 42 / 5210MHz / Average