Appendix A

RF Test Data for 5.2G WLAN (Conducted Measurement)

Product Name: wireless transmission system

Trade Mark: Hollyland

Test Model: Mars300

Environmental Conditions

Temperature:	24.5° C
Relative Humidity:	52.8%
ATM Pressure:	100.0 kPa
Test Engineer:	Tom Liu
Supervised by:	Jayden Zhuo

A.1 Duty Cycle

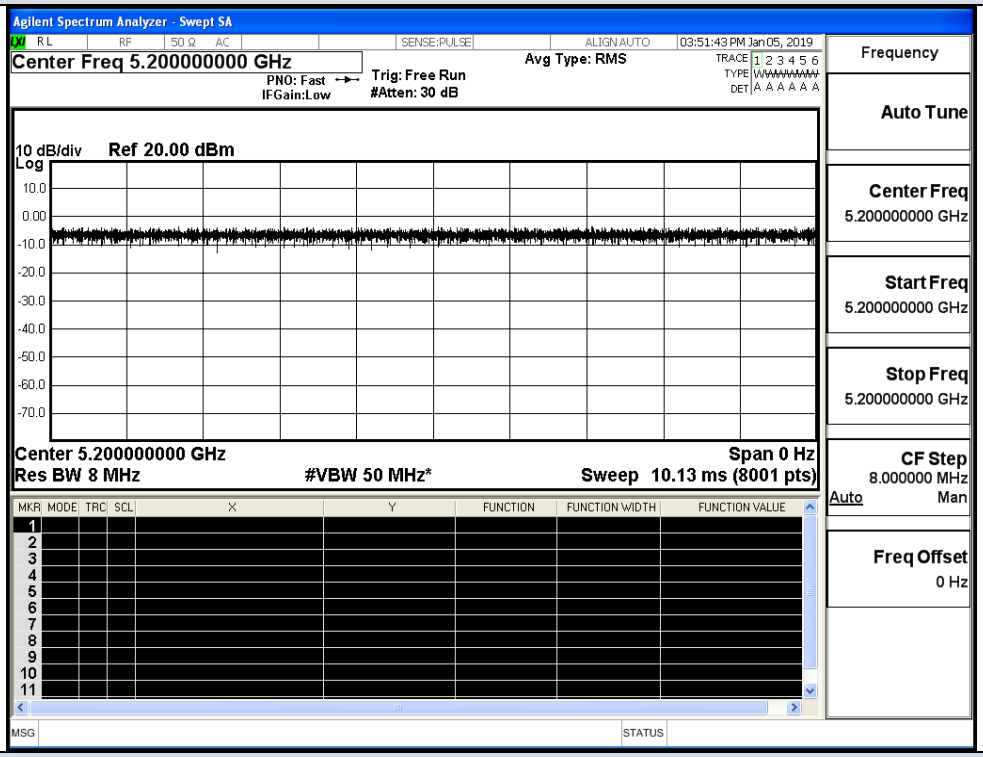
Antenna 0

Test Mode	Test Frequency (MHz)	Duty Cycle (%)	10log(1/x) Factor (dB)	1/B Minimum VBW (KHz)
11A	5200	100	0.00	0.01
11N20	5200	100	0.00	0.01
11N40	5190	100	0.00	0.01

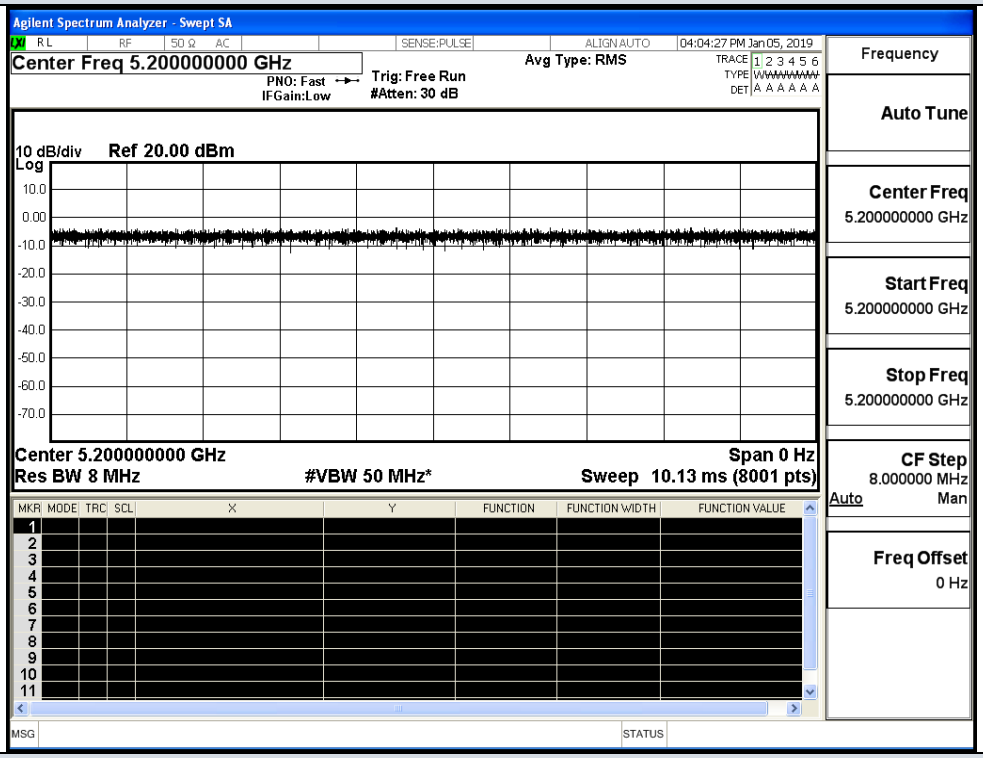
Antenna 1

Test Mode	Test Frequency (MHz)	Duty Cycle (%)	10log(1/x) Factor (dB)	1/B Minimum VBW (KHz)
11A	5200	100	0.00	0.01
11N20	5200	100	0.00	0.01
11N40	5190	100	0.00	0.01

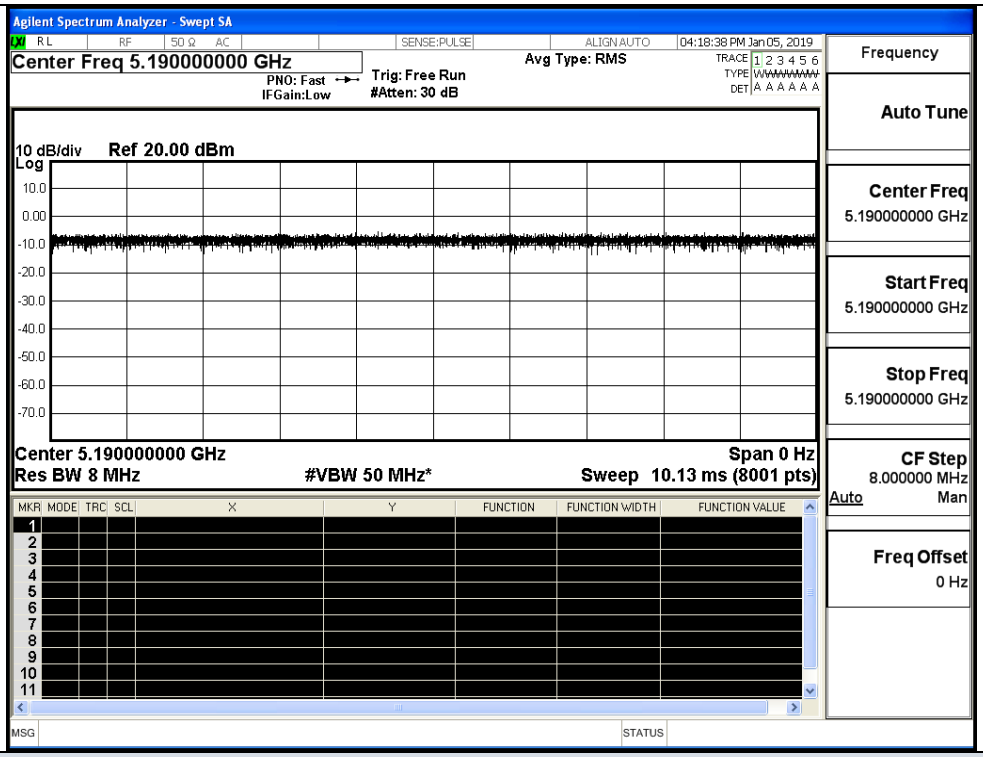
On Time and Duty Cycle_Ant0



IEEE 802.11a_Ant0

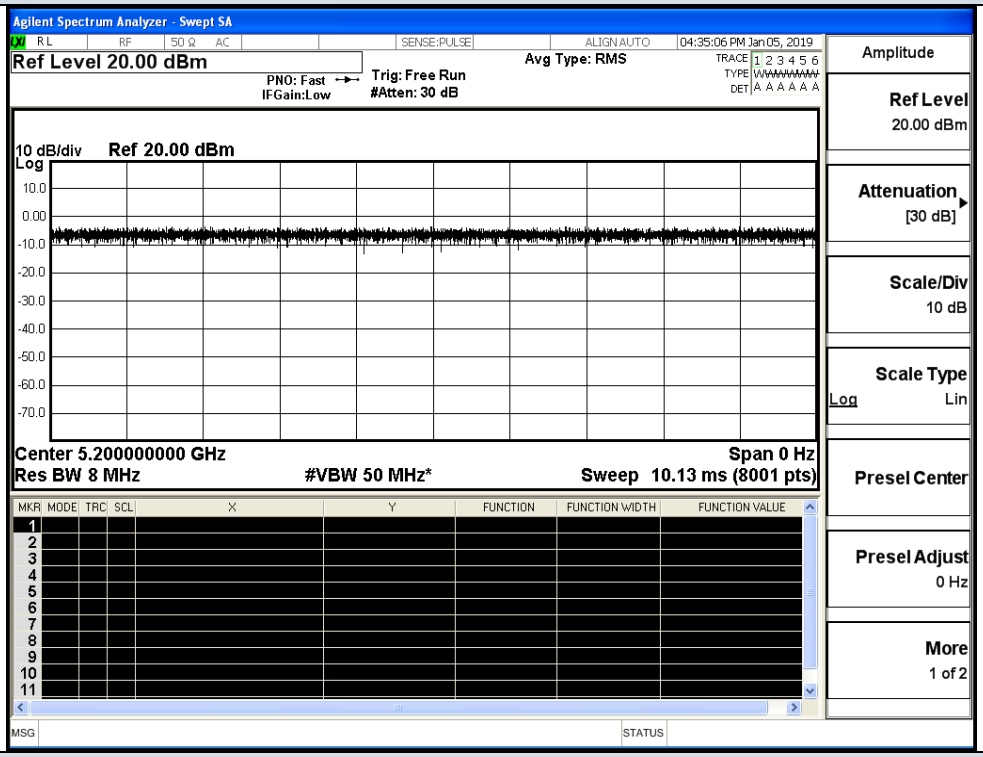


IEEE 802.11n HT20_Ant0

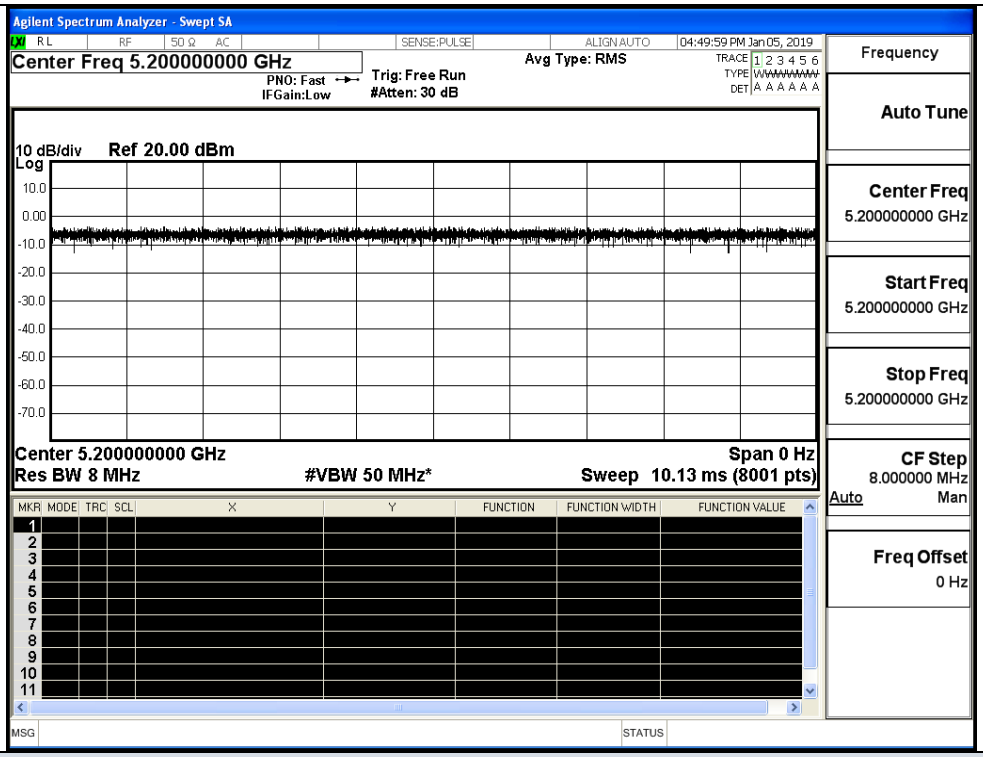


IEEE 802.11n HT40_Ant0

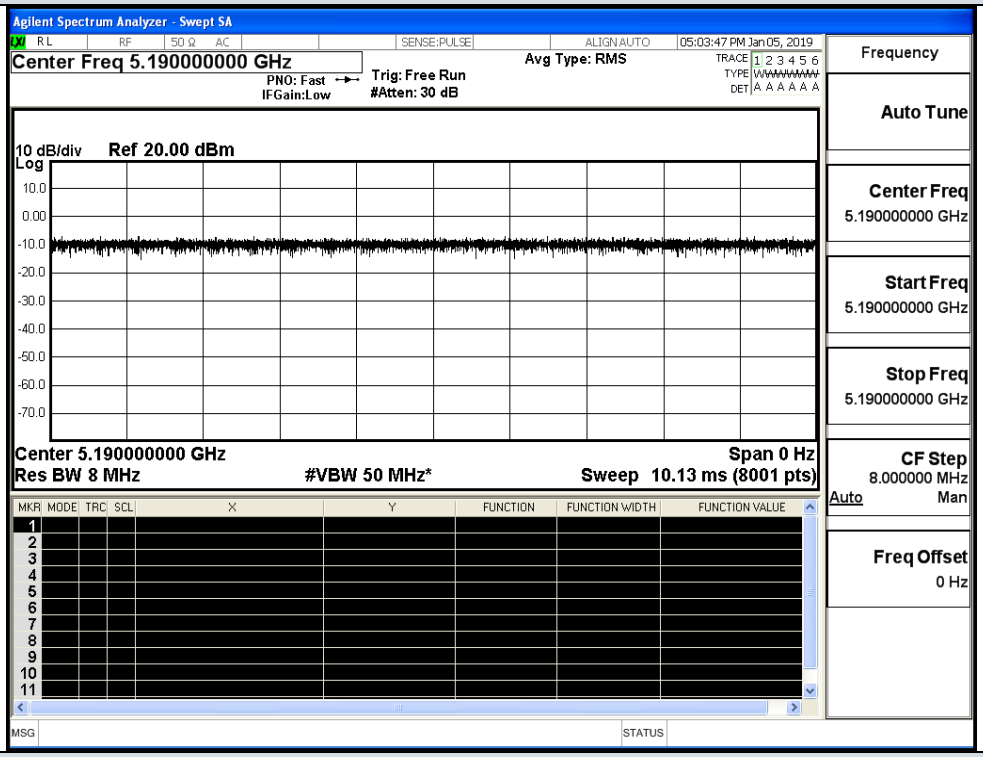
On Time and Duty Cycle_Ant1



IEEE 802.11a_Ant1



IEEE 802.11n HT20_Ant1



IEEE 802.11n HT40_Ant1

A.2 Maximum Conduct Output Power

Antenna 0

Test Mode	Channel	Frequency (MHz)	AVG Conducted Power (dBm)	Duty Cycle Factor (dB)	Report Conducted Power (dBm)	Limit (dBm)
IEEE 802.11a	36	5180	17.12	0	17.12	30
	40	5200	17.08	0	17.08	
	48	5240	17.98	0	17.98	
IEEE 802.11n HT20	36	5180	15.06	0	15.06	30
	40	5200	15.14	0	15.14	
	48	5240	15.26	0	15.26	
IEEE 802.11n HT40	38	5190	14.17	0	14.17	30
	46	5230	14.19	0	14.19	

Antenna 1

Test Mode	Channel	Frequency (MHz)	AVG Conducted Power (dBm)	Duty Cycle Factor (dB)	Report Conducted Power (dBm)	Limit (dBm)
IEEE 802.11a	36	5180	17.09	0	17.09	30
	40	5200	17.34	0	17.34	
	48	5240	17.37	0	17.37	
IEEE 802.11n HT20	36	5180	15.11	0	15.11	30
	40	5200	15.44	0	15.44	
	48	5240	15.47	0	15.47	
IEEE 802.11n HT40	38	5190	14.14	0	14.14	30
	46	5230	14.21	0	14.21	

Antenna 0+Antenna 1

Test Mode	Channel	Frequency (MHz)	AVG Conducted Power (dBm)			Duty Cycle Factor (dB)	Report Conducted Power(dBm)			Limit (dBm)
			Ant0	Ant1	Sum		Ant0	Ant1	Sum	
11N20	36	5180	15.06	15.11	18.10	0	15.06	15.11	18.10	30
	40	5200	15.14	15.44	18.30	0	15.14	15.44	18.30	
	48	5240	15.26	15.47	18.38	0	15.26	15.47	18.38	
11N40	38	5190	14.17	14.14	17.17	0	14.17	14.14	17.17	30
	46	5230	14.19	14.21	17.21	0	14.19	14.21	17.21	

A.3 Power Spectral Density

Antenna 0

Test Mode	Channel	Frequency (MHz)	Power Density (dBm/MHz)	Duty Cycle Factor(dB)	Report Power Density (dBm/MHz)	Limit (dBm/MHz)
IEEE 802.11a	36	5180	-1.120	0	-1.120	17
	40	5200	-1.128	0	-1.128	
	48	5240	-1.236	0	-1.236	
IEEE 802.11n HT20	36	5180	0.935	0	0.935	17
	40	5200	-1.080	0	-1.080	
	48	5240	-0.952	0	-0.952	
IEEE 802.11n HT40	38	5190	-2.367	0	-2.367	17
	46	5230	-2.539	0	-2.539	

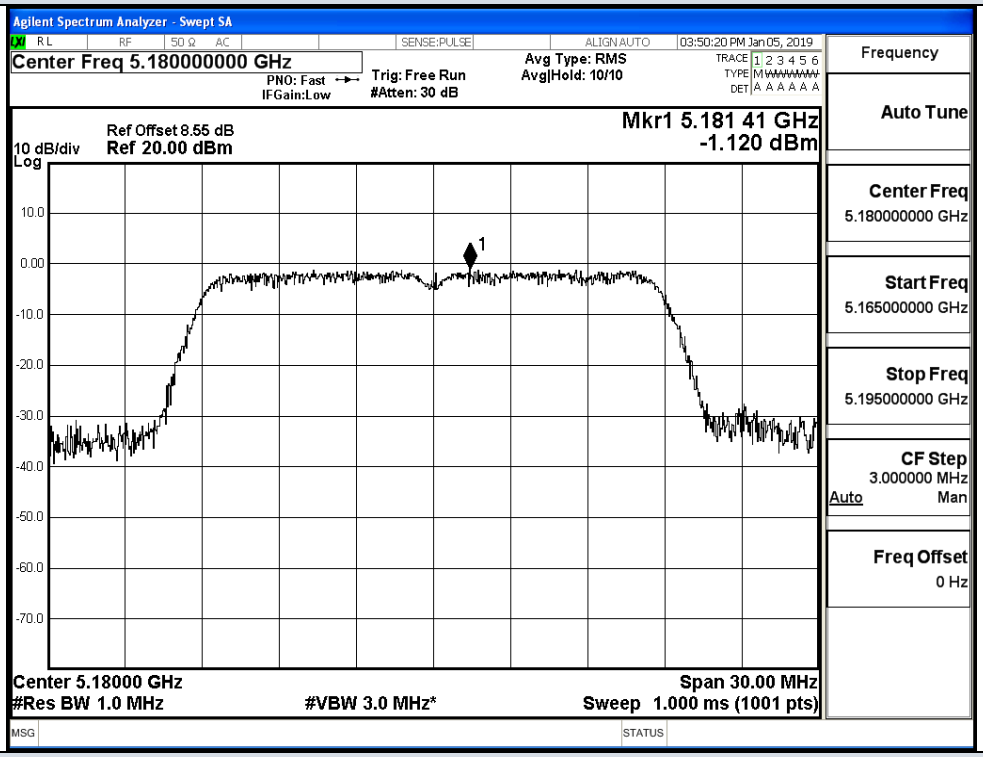
Antenna 1

Test Mode	Channel	Frequency (MHz)	Power Density (dBm/MHz)	Duty Cycle Factor(dB)	Report Power Density (dBm/MHz)	Limit (dBm/MHz)
IEEE 802.11a	36	5180	-1.200	0	-1.200	17
	40	5200	-1.020	0	-1.020	
	48	5240	-0.802	0	-0.802	
IEEE 802.11n HT20	36	5180	-1.177	0	-1.177	17
	40	5200	-0.491	0	-0.491	
	48	5240	-0.774	0	-0.774	
IEEE 802.11n HT40	38	5190	-3.536	0	-3.536	17
	46	5230	-2.539	0	-2.539	

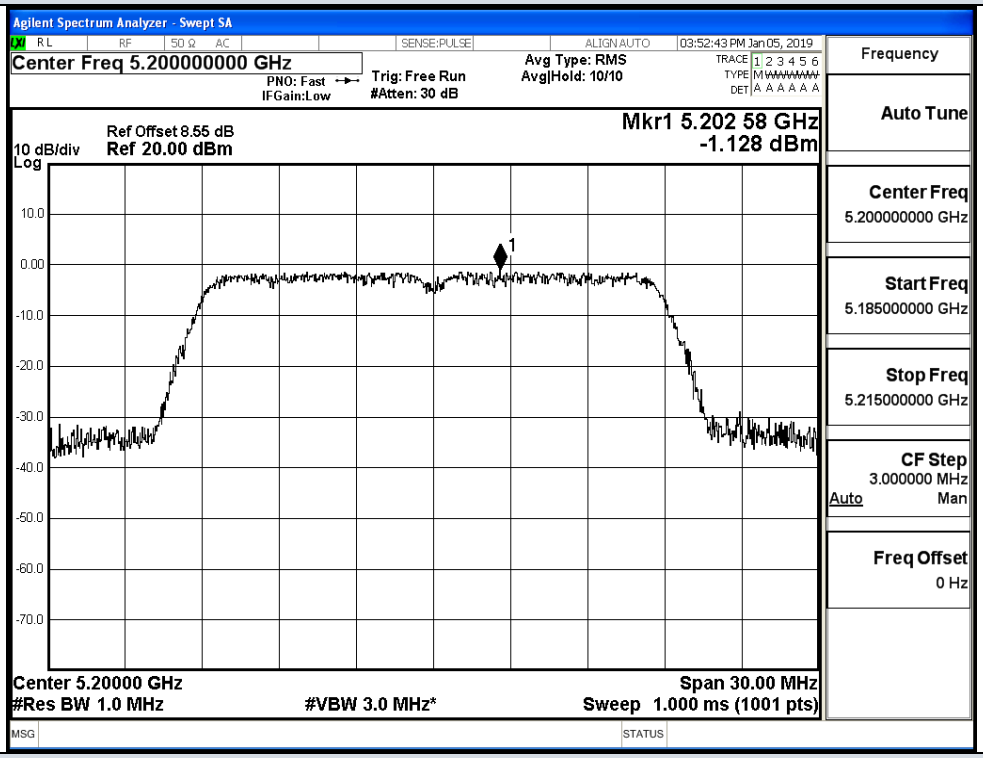
Antenna 0+Antenna 1

Test Mode	Channel	Frequency (MHz)	Power Density (dBm/MHz)			Duty Cycle Factor (dB)	Report Power Density (dBm/MHz)			Limit (dBm/MHz)
			Ant0	Ant1	Sum		Ant0	Ant1	Sum	
11N20	36	5180	0.935	-1.177	3.016	0	0.935	-1.177	3.016	17
	40	5200	-1.080	-0.491	2.235	0	-1.080	-0.491	2.235	
	48	5240	-0.952	-0.774	2.148	0	-0.952	-0.774	2.148	
11N40	38	5190	-2.367	-3.536	0.098	0	-2.367	-3.536	0.098	17
	46	5230	-2.539	-2.539	0.471	0	-2.539	-2.539	0.471	

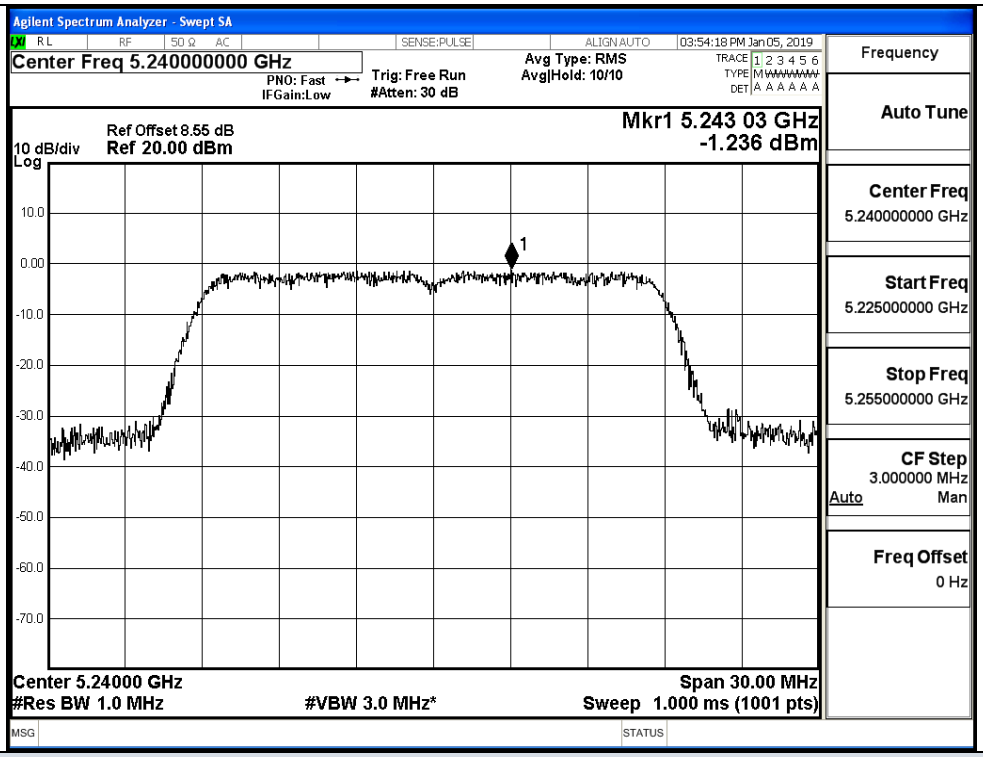
Power Spectral Density_Ant0



IEEE 802.11a / Channel 36 / 5180 MHz_Ant0

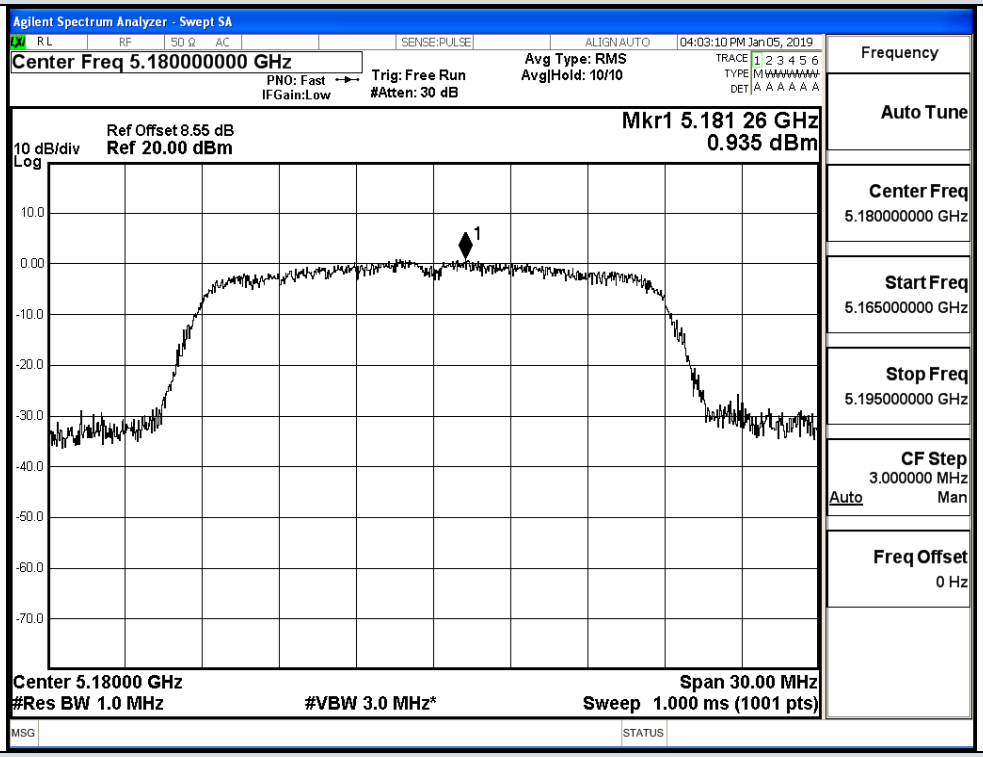


IEEE 802.11a / Channel 40 / 5200 MHz_Ant0

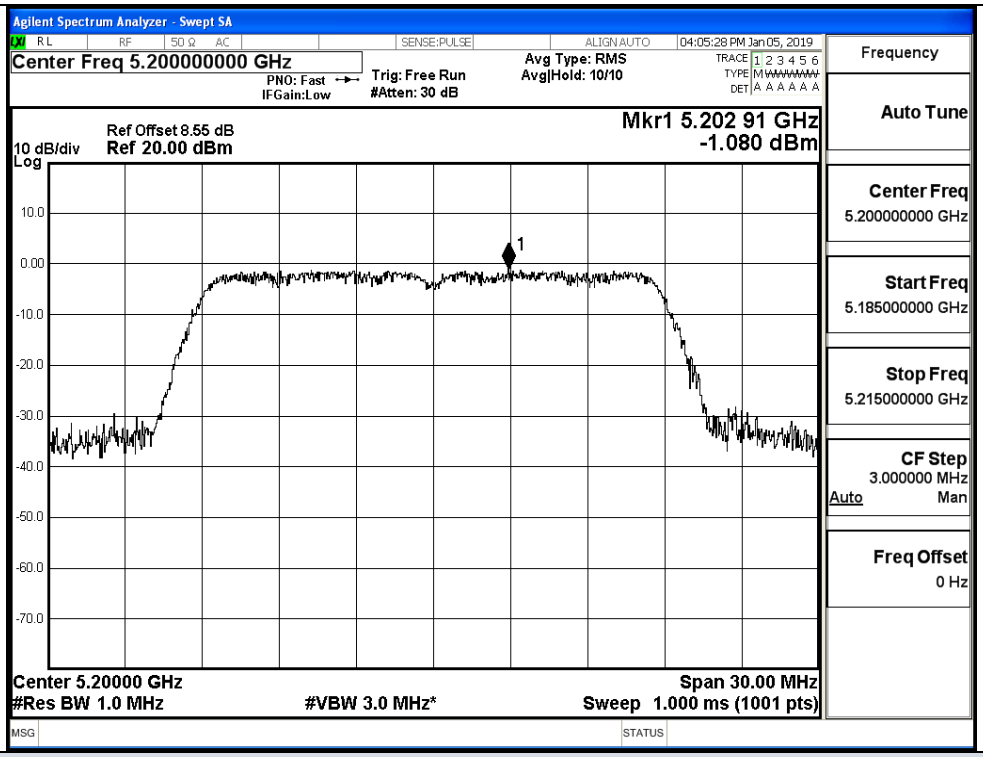


IEEE 802.11a / Channel 48 / 5240 MHz_Ant0

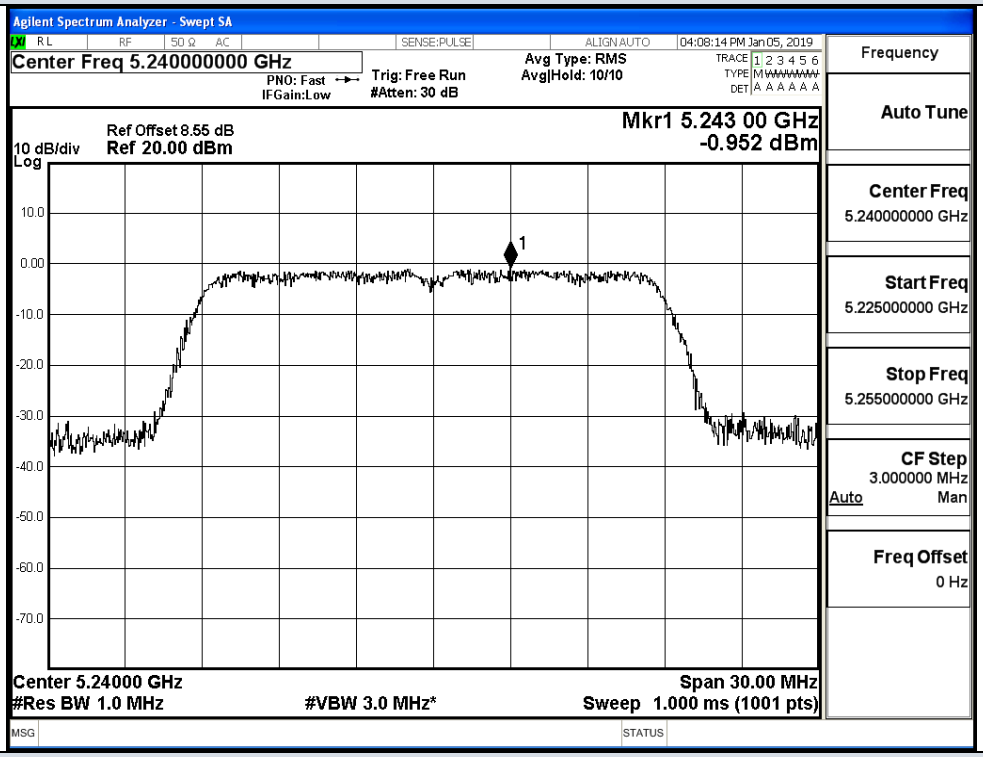
Power Spectral Density_Ant0



IEEE 802.11n HT20 / Channel 36 / 5180 MHz_Ant0

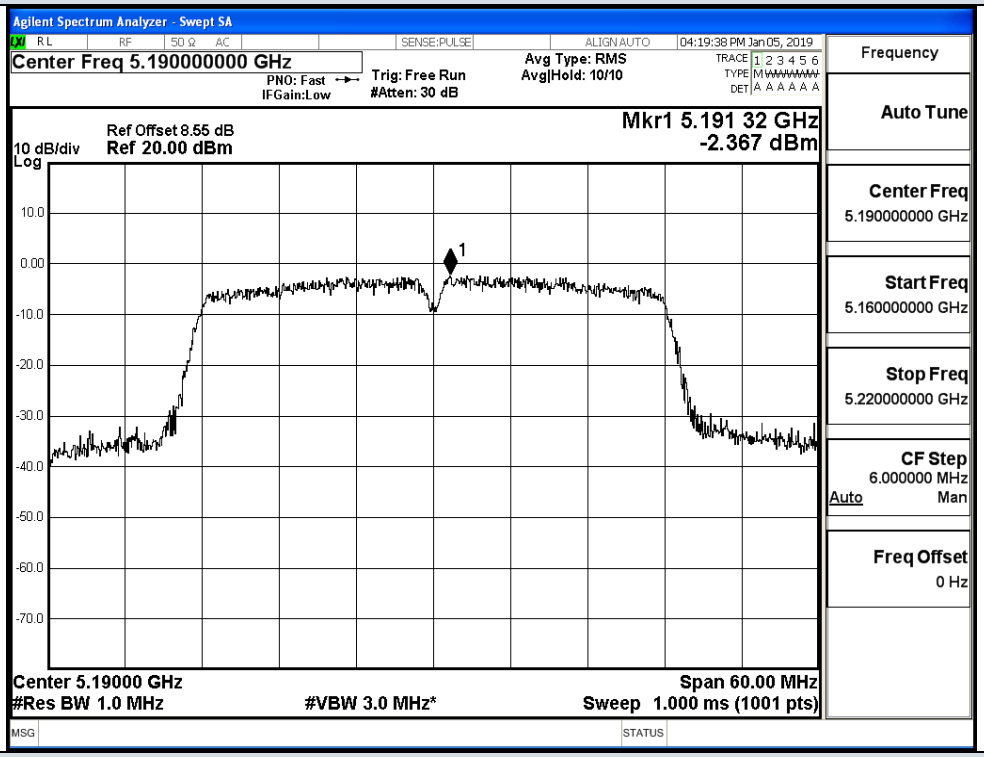


IEEE 802.11n HT20 / Channel 40 / 5200 MHz_Ant0

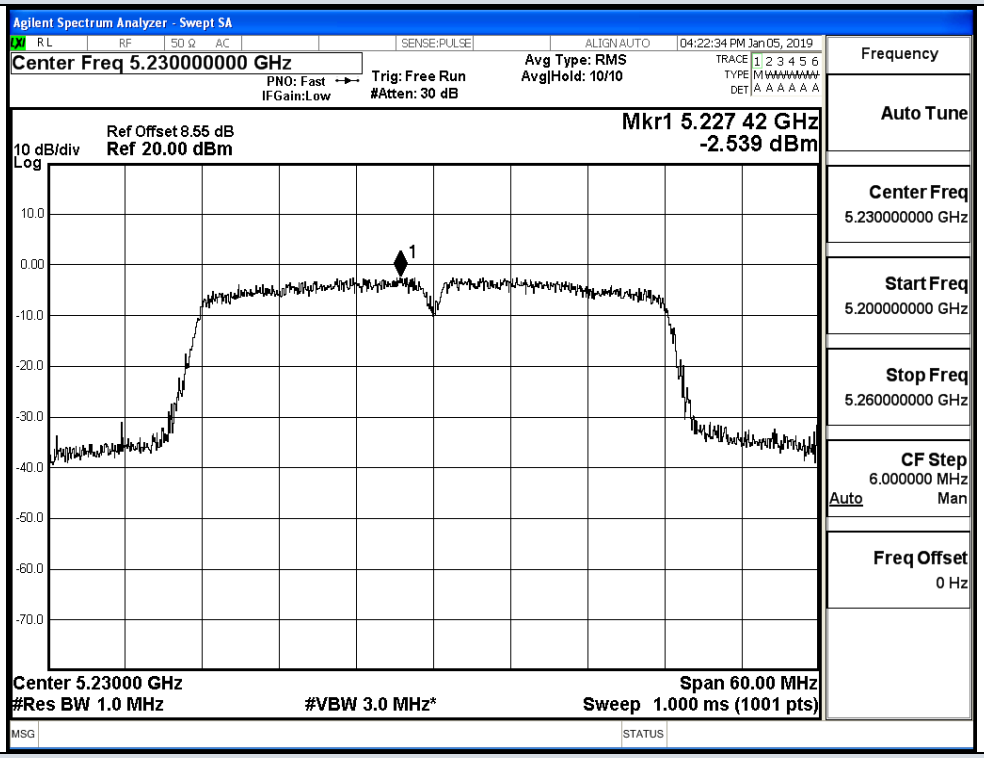


IEEE 802.11n HT20 / Channel 48 / 5240 MHz_Ant0

Power Spectral Density_Ant0

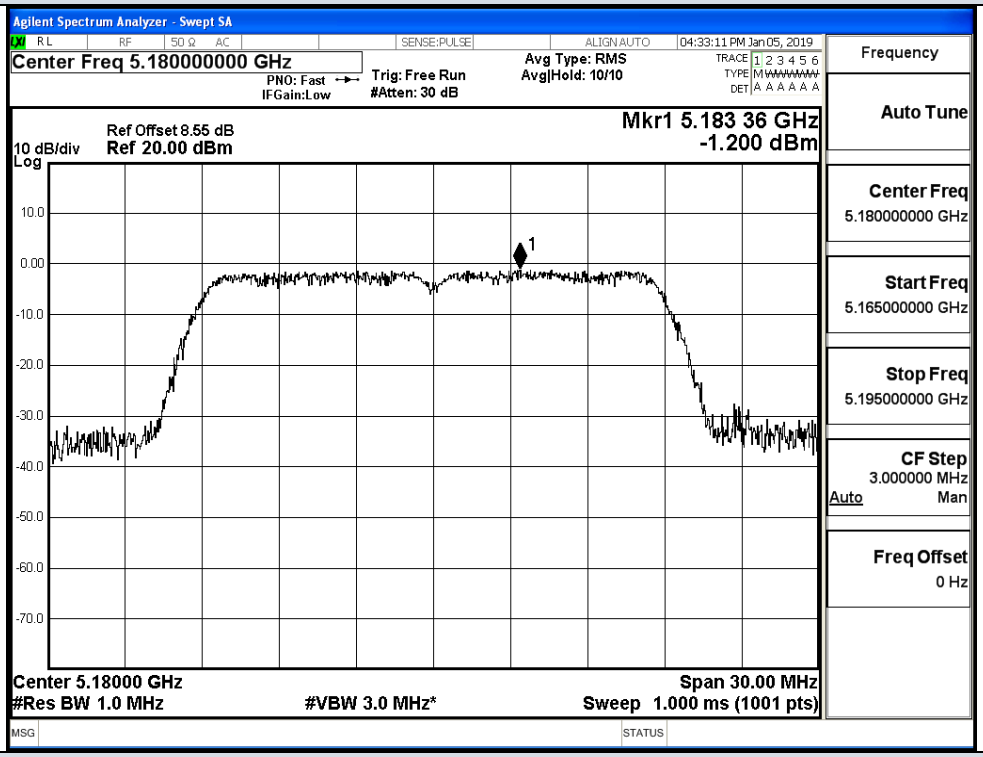


IEEE 802.11n HT40 / Channel 38 / 5190 MHz_Ant0

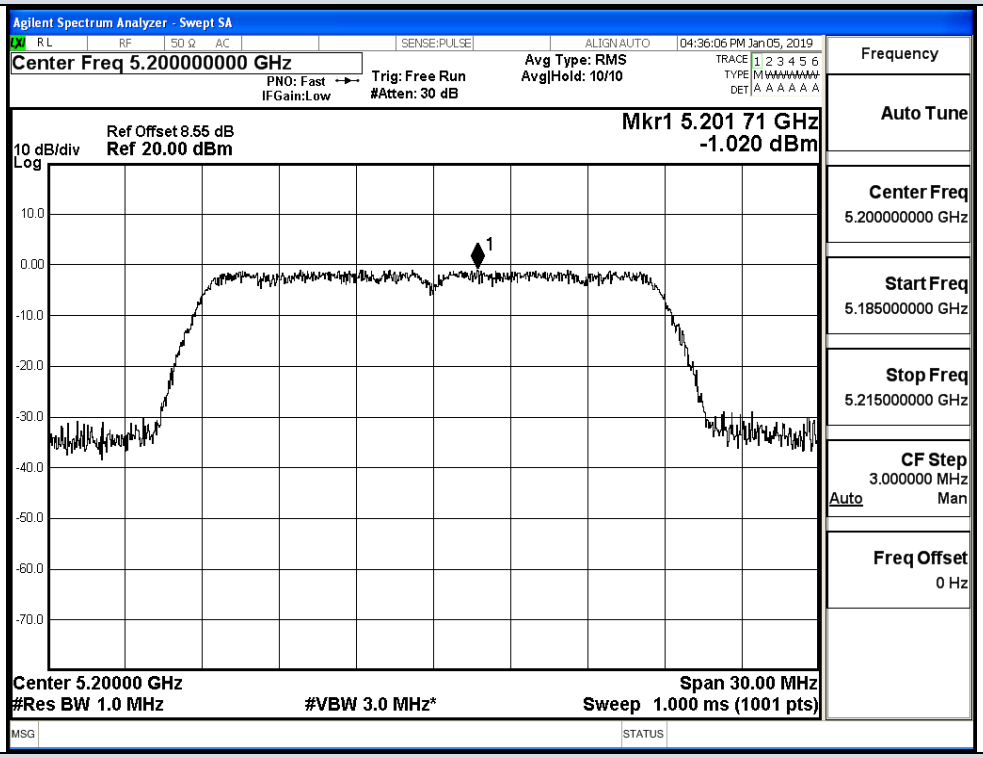


IEEE 802.11n HT40 / Channel 46 / 5230 MHz_Ant0

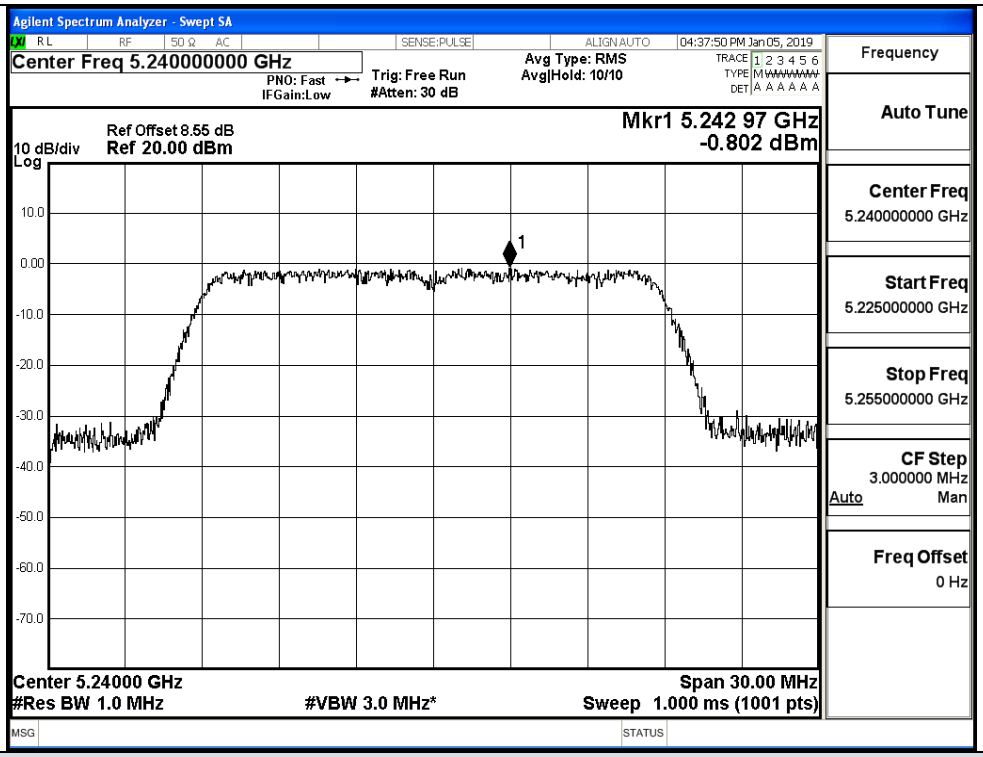
Power Spectral Density_Ant1



IEEE 802.11a / Channel 36 / 5180 MHz_Ant1

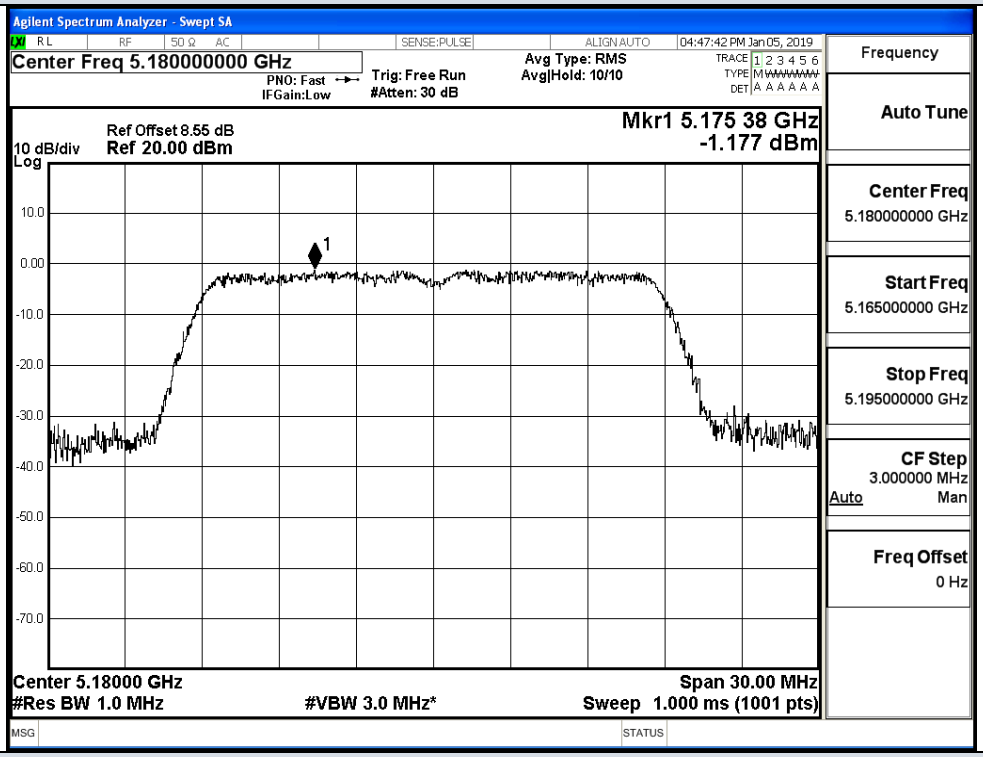


IEEE 802.11a / Channel 40 / 5200 MHz_Ant1

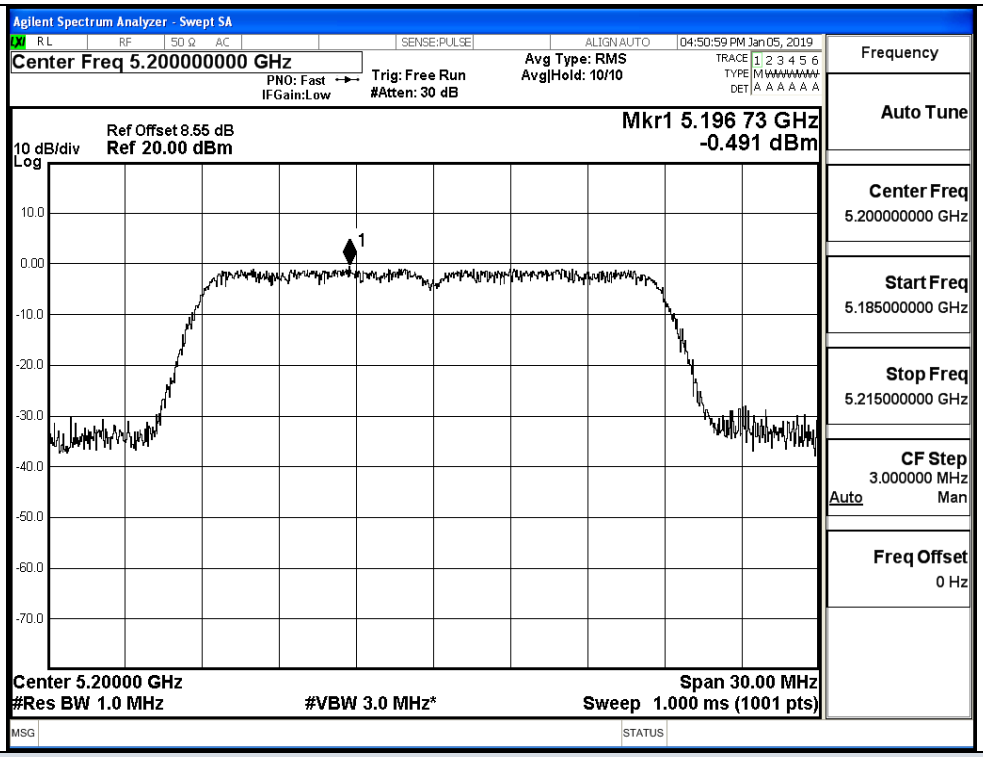


IEEE 802.11a / Channel 48 / 5240 MHz_Ant1

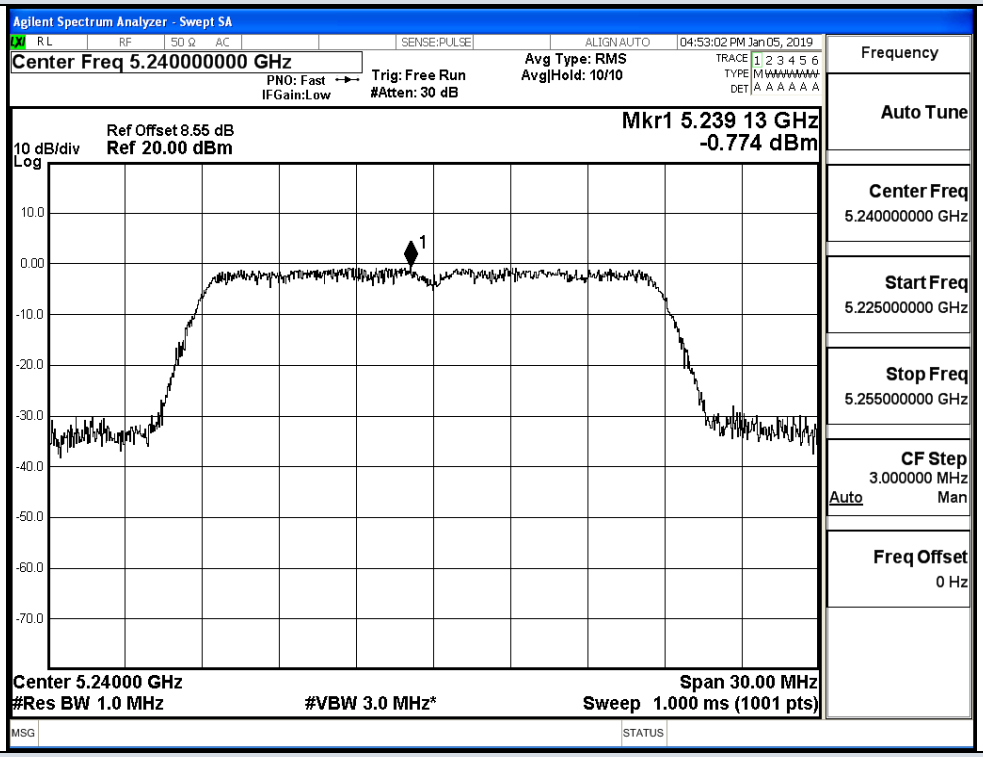
Power Spectral Density_Ant1



IEEE 802.11n HT20 / Channel 36 / 5180 MHz_Ant1

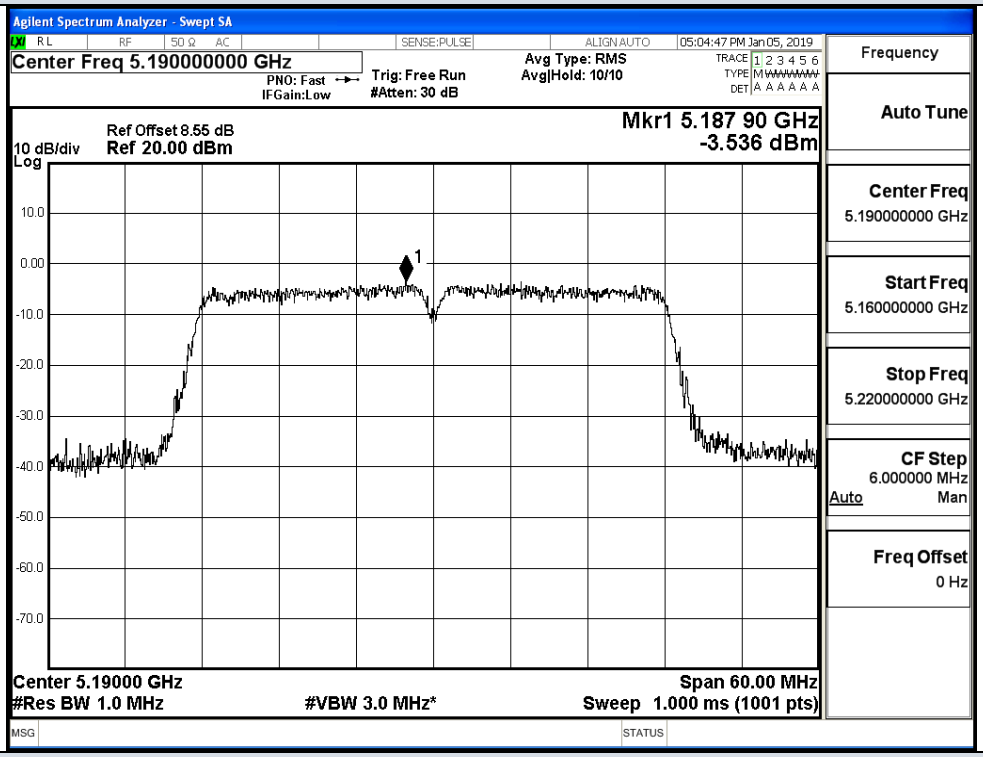


IEEE 802.11n HT20 / Channel 40 / 5200 MHz_Ant1

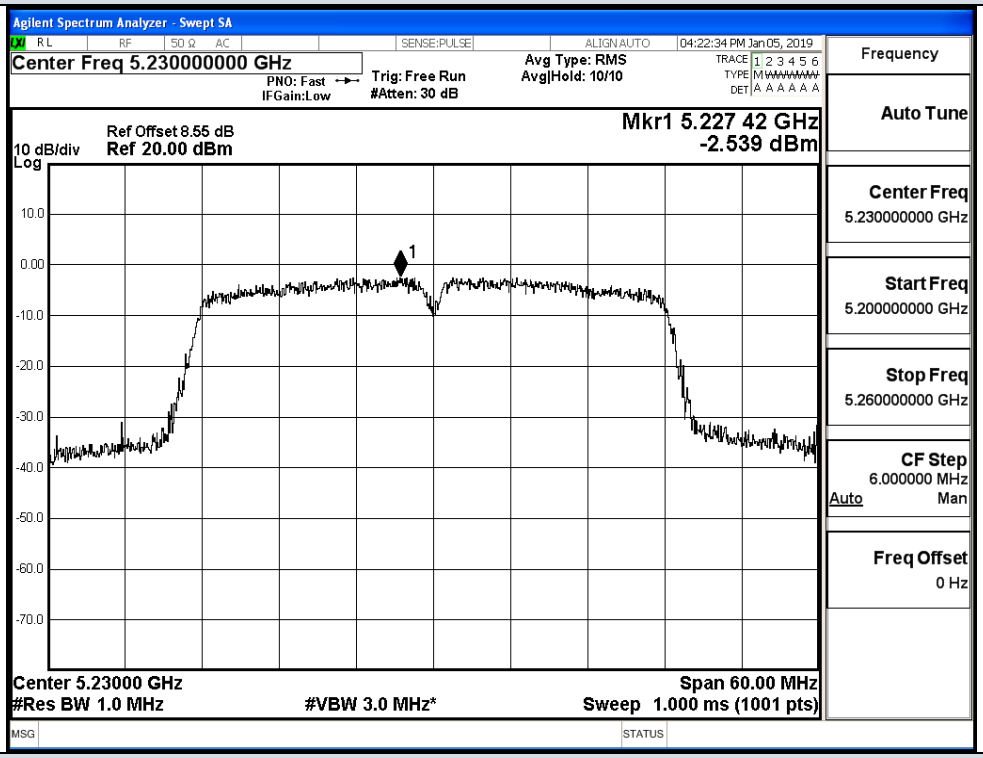


IEEE 802.11n HT20 / Channel 48 / 5240 MHz_Ant1

Power Spectral Density_Ant1



IEEE 802.11n HT40 / Channel 38 / 5190 MHz_Ant1



IEEE 802.11n HT40 / Channel 46 / 5230 MHz_Ant1

A.4 Emission Bandwidth

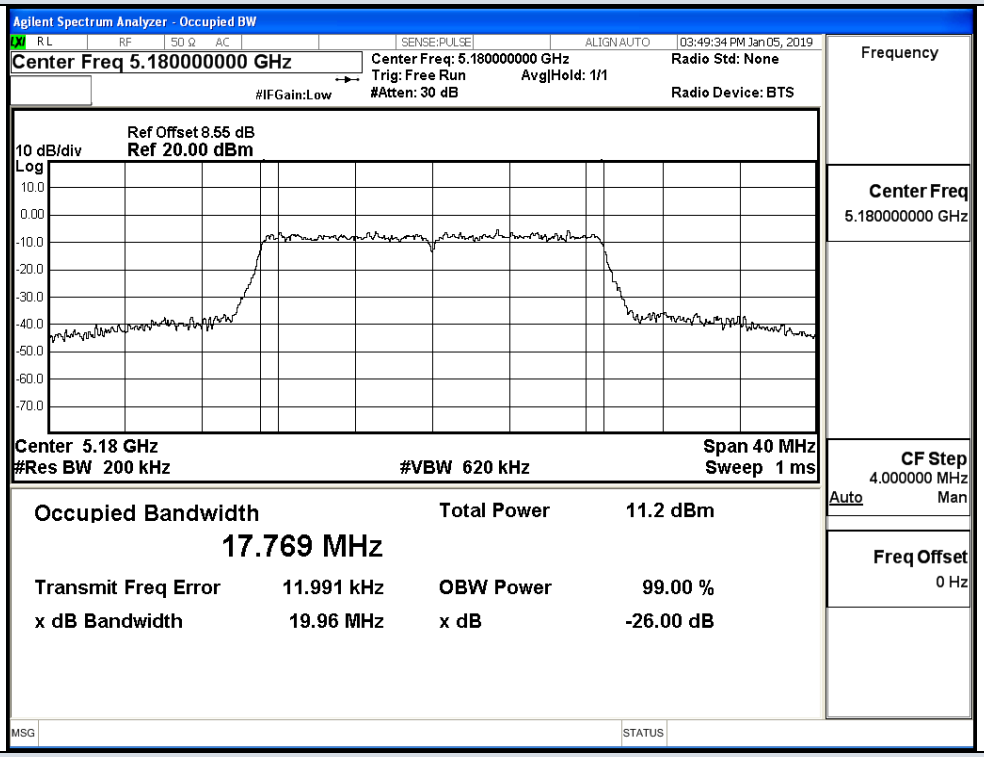
Antenna 0

Test Mode	Channel	Frequency (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)
IEEE 802.11a	36	5180	17.7699	19.960	No Limit
	40	5200	17.781	19.960	
	48	5240	17.783	19.960	
IEEE 802.11n HT20	36	5180	17.644	19.800	No Limit
	40	5200	17.764	19.920	
	48	5240	17.759	19.970	
IEEE 802.11n HT40	38	5190	35.920	39.810	No Limit
	46	5230	36.010	39.780	

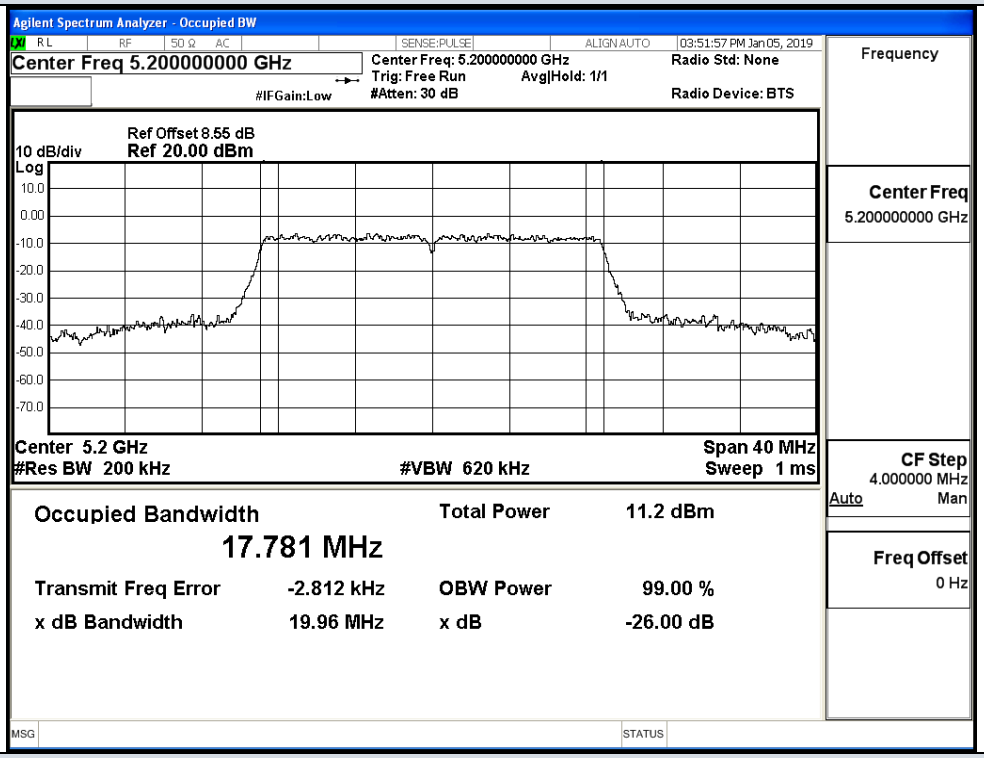
Antenna 1

Test Mode	Channel	Frequency (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)
IEEE 802.11a	36	5180	17.778	20.120	No Limit
	40	5200	17.774	19.790	
	48	5240	17.779	19.950	
IEEE 802.11n HT20	36	5180	17.761	20.000	No Limit
	40	5200	17.748	19.880	
	48	5240	17.771	19.870	
IEEE 802.11n HT40	38	5190	36.201	40.320	No Limit
	46	5230	36.010	39.780	

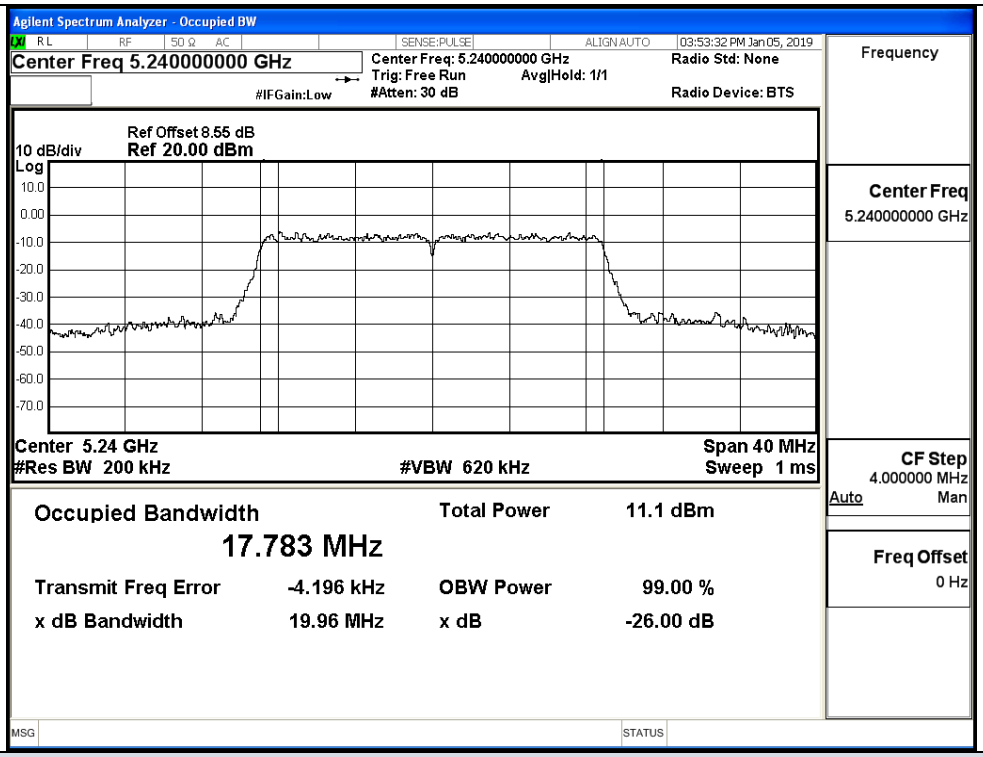
99% and 26dB Bandwidth_Ant0



IEEE 802.11a / Channel 36 / 5180 MHz_Ant0

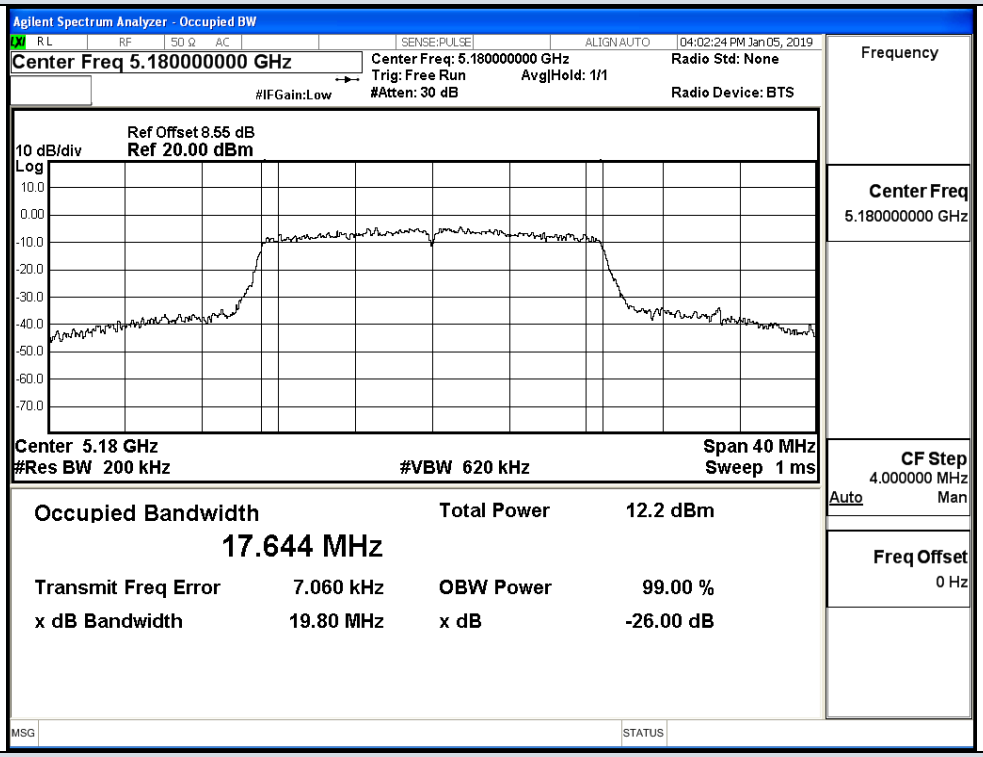


IEEE 802.11a / Channel 40 / 5200 MHz_Ant0

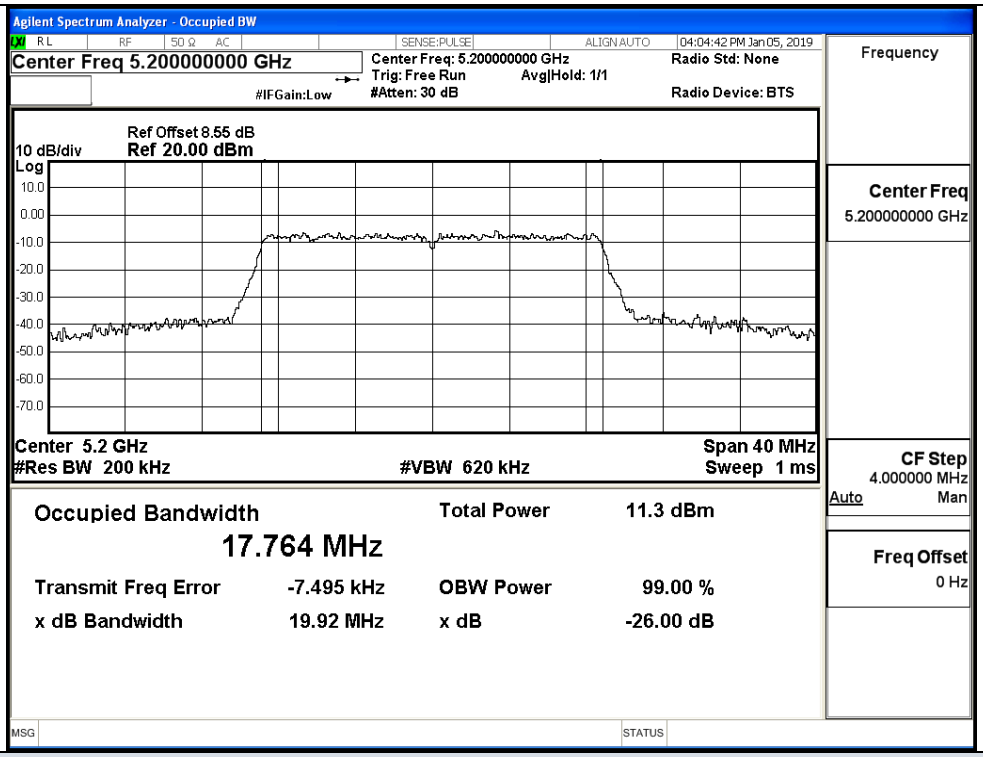


IEEE 802.11a / Channel 48 / 5240 MHz_Ant0

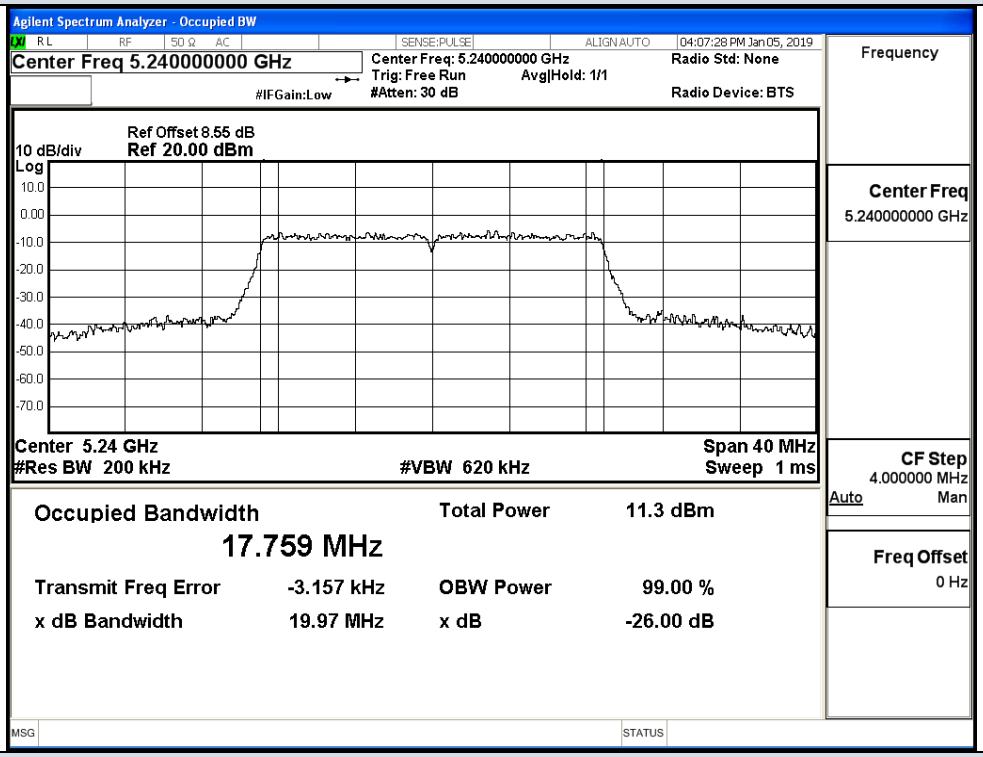
99% and 26dB Bandwidth_Ant0



IEEE 802.11n HT20 / Channel 36 / 5180 MHz_Ant0

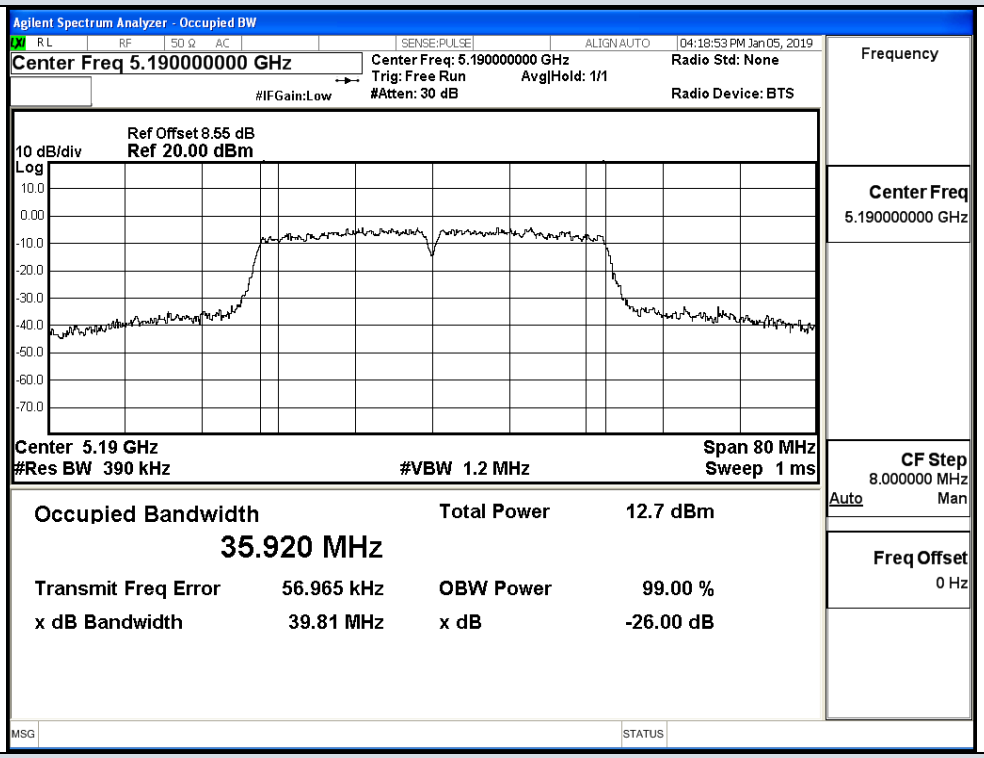


IEEE 802.11n HT20 / Channel 40 / 5200 MHz_Ant0

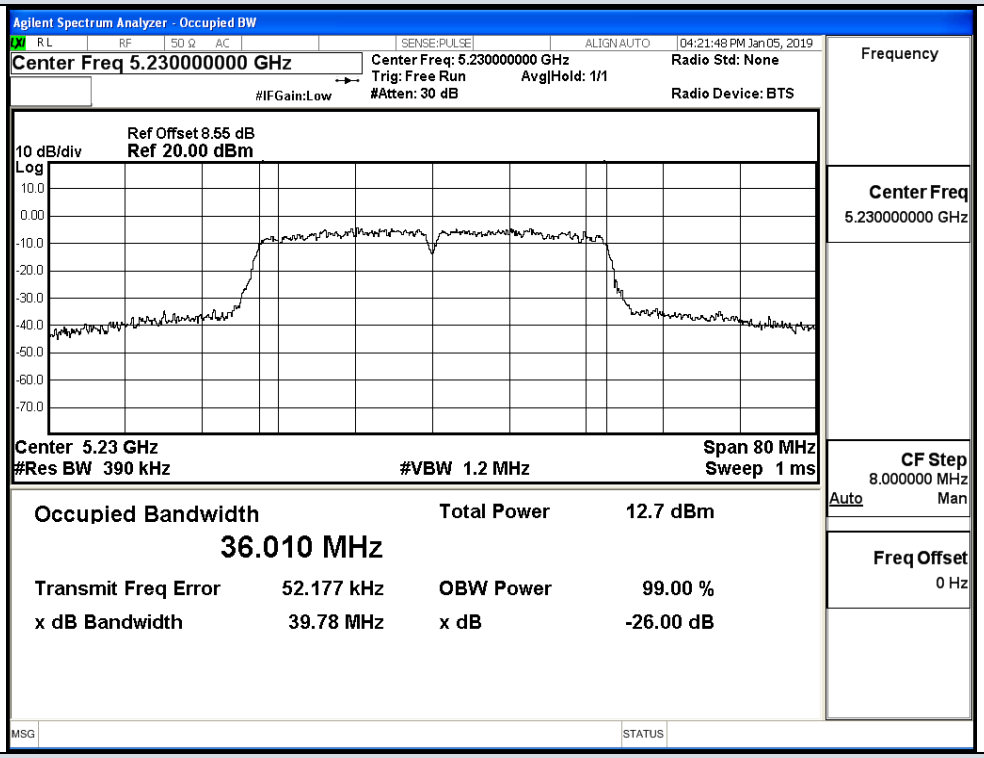


IEEE 802.11n HT20 / Channel 48 / 5240 MHz_Ant0

99% and 26dB Bandwidth_Ant0

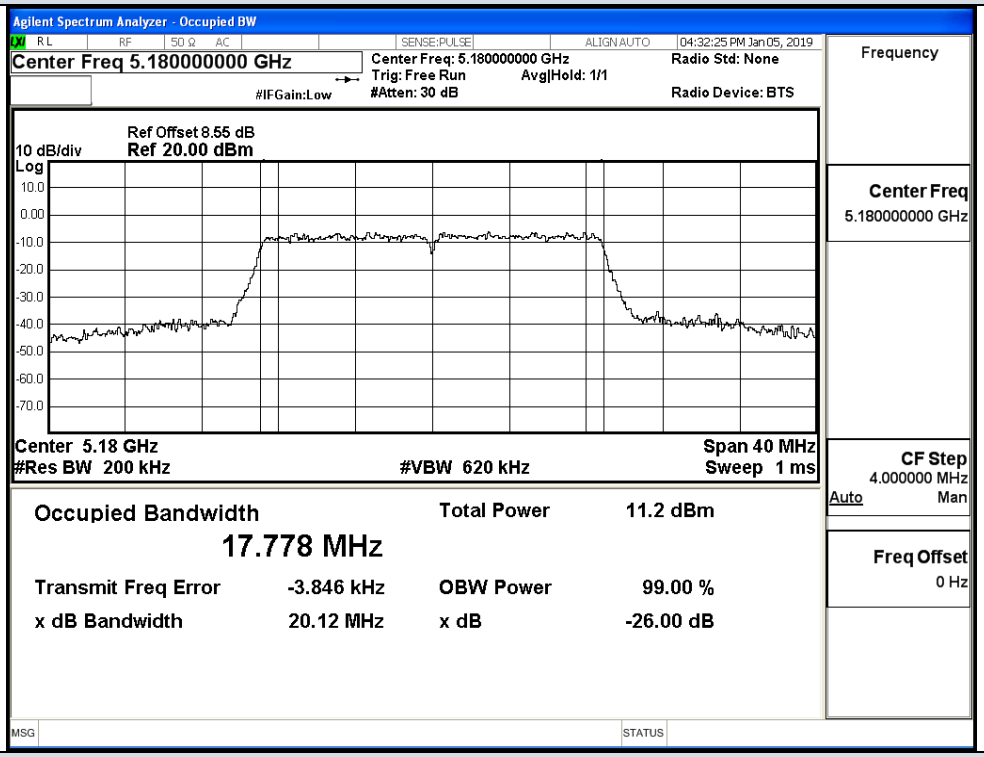


IEEE 802.11n HT40 / Channel 38 / 5190 MHz_Ant0

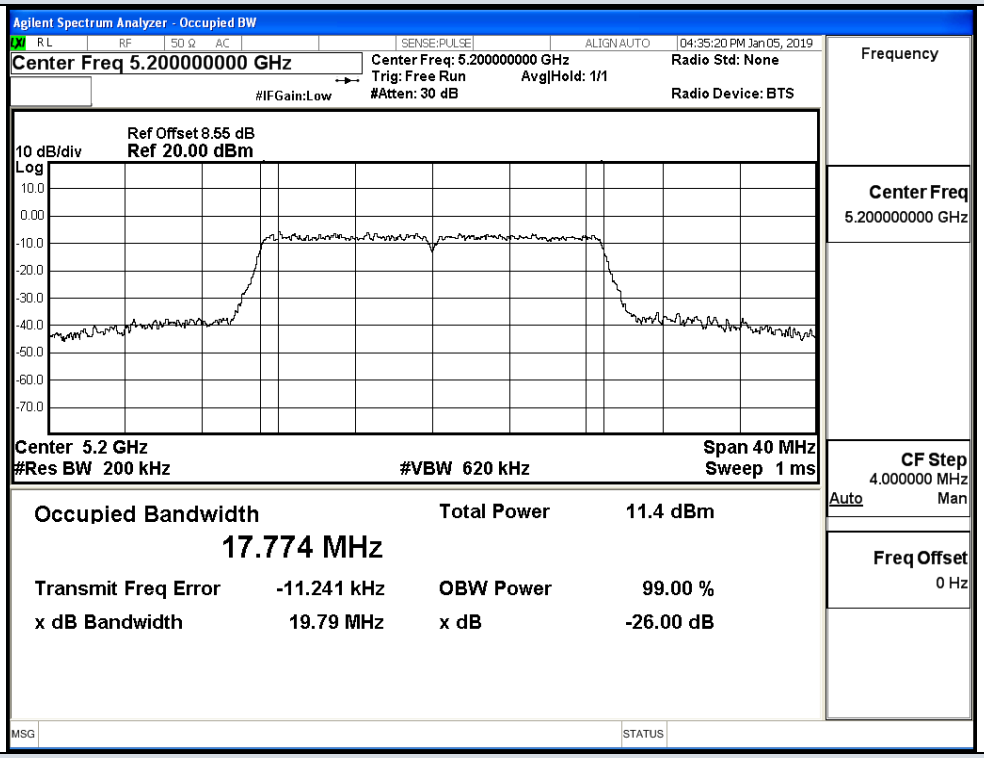


IEEE 802.11n HT40 / Channel 46 / 5230 MHz_Ant0

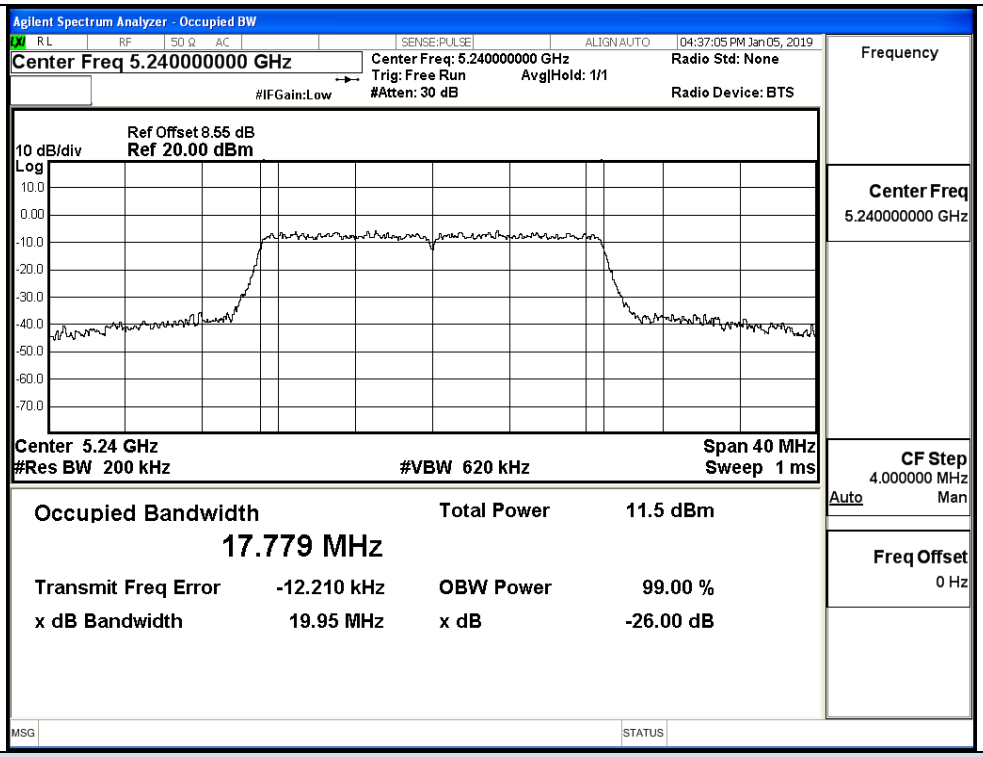
99% and 26dB Bandwidth_Ant1



IEEE 802.11a / Channel 36 / 5180 MHz_Ant1

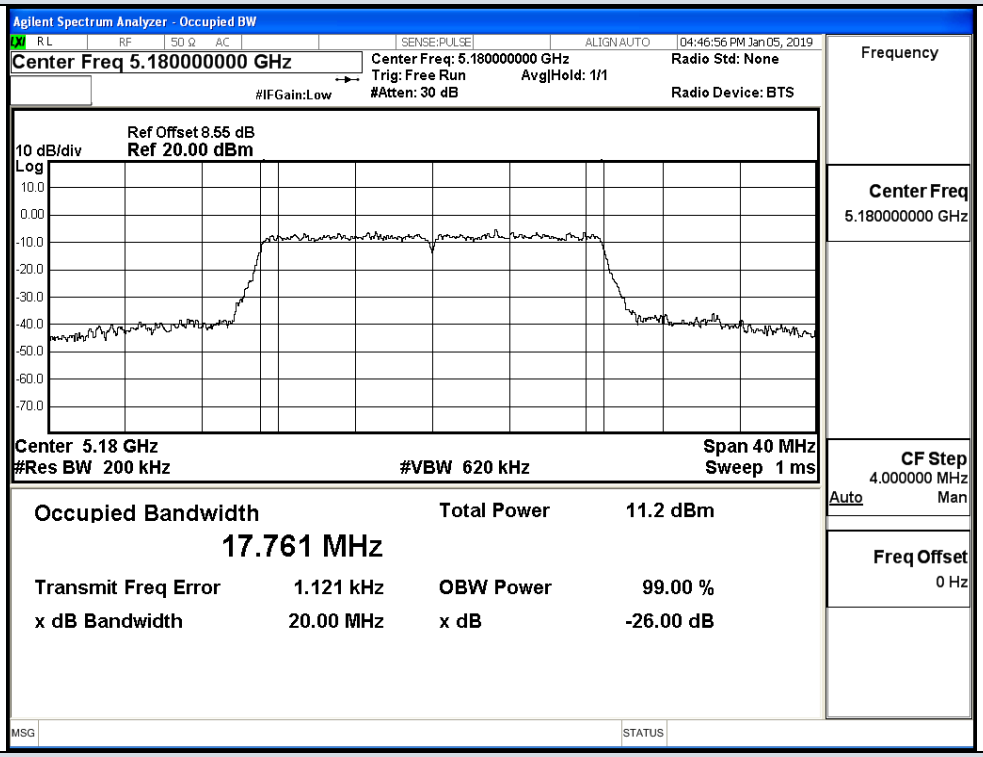


IEEE 802.11a / Channel 40 / 5200 MHz_Ant1

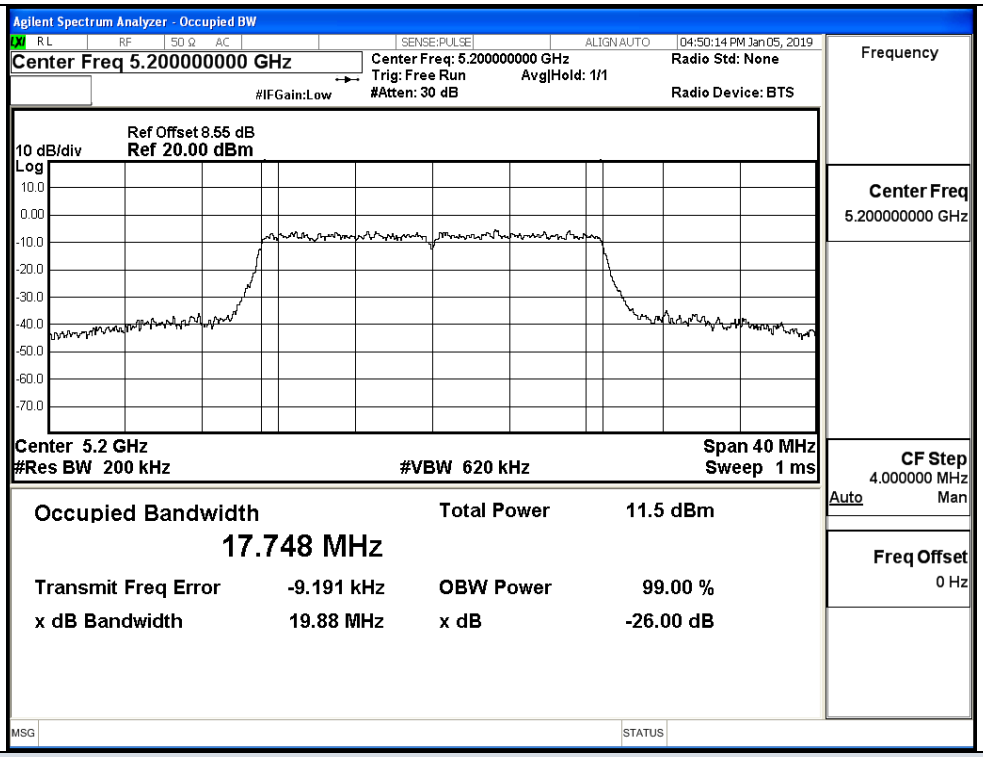


IEEE 802.11a / Channel 48 / 5240 MHz_Ant1

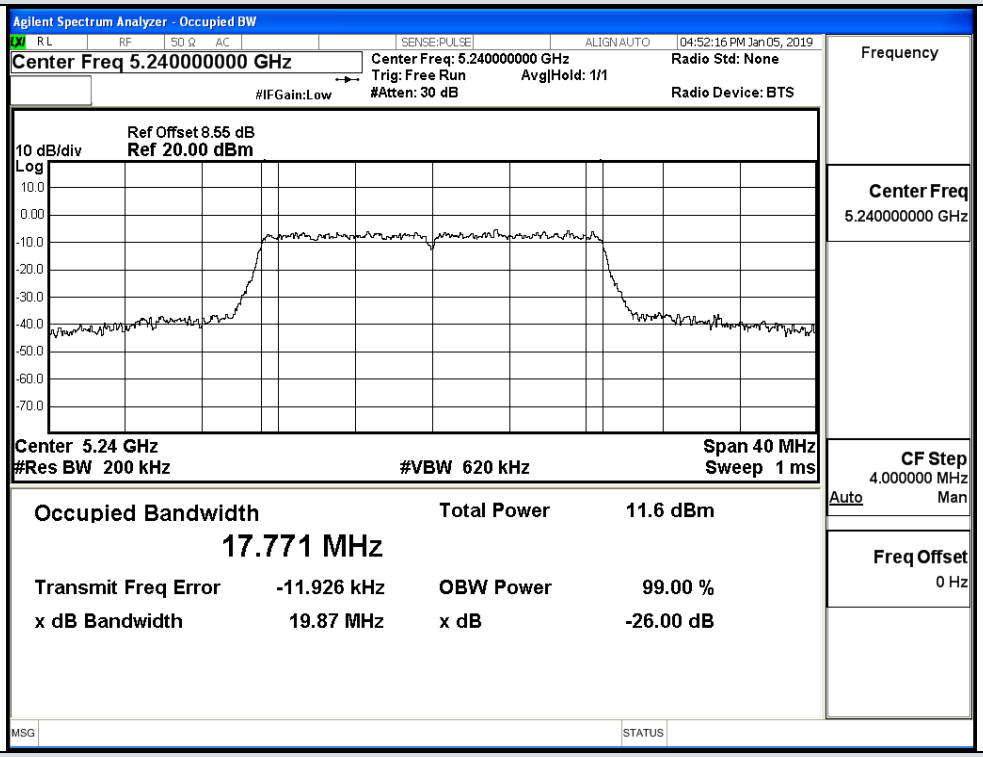
99% and 26dB Bandwidth_Ant1



IEEE 802.11n HT20 / Channel 36 / 5180 MHz_Ant1

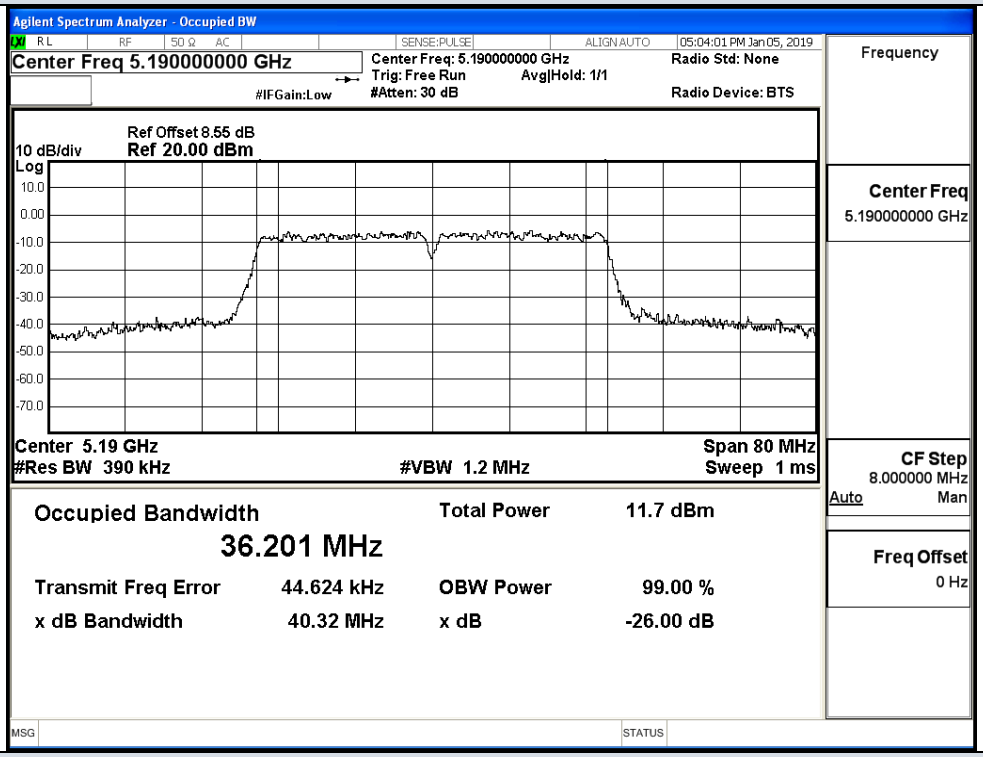


IEEE 802.11n HT20 / Channel 40 / 5200 MHz_Ant1

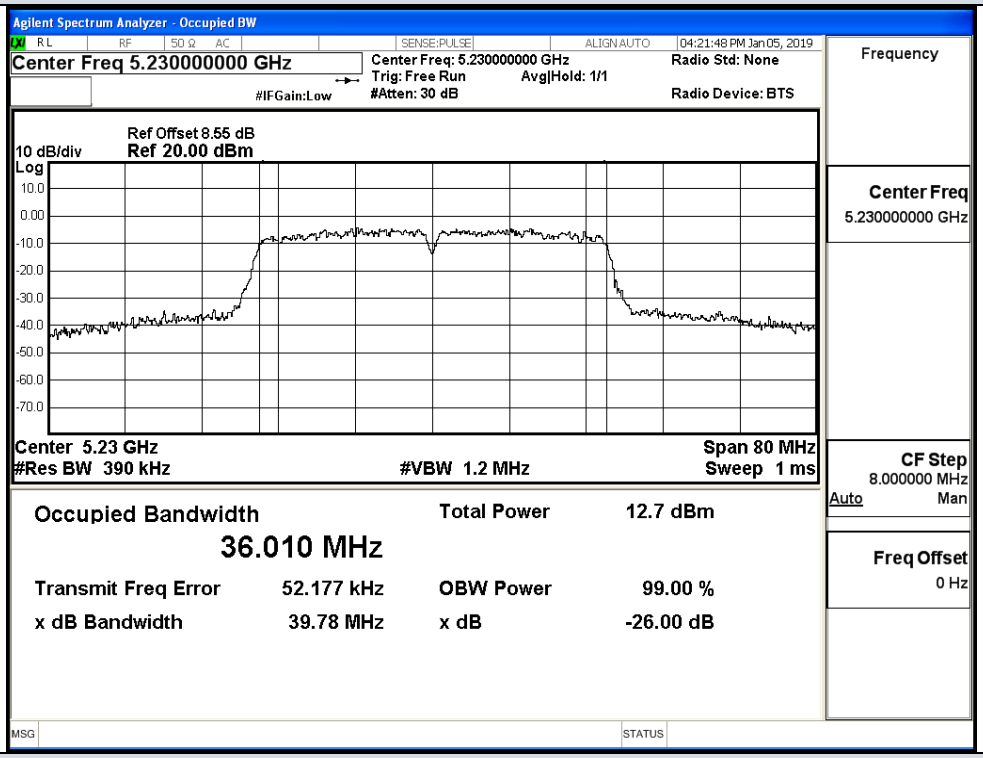


IEEE 802.11n HT20 / Channel 48 / 5240 MHz_Ant1

99% and 26dB Bandwidth_Ant1



IEEE 802.11n HT40 / Channel 38 / 5190 MHz_Ant1



IEEE 802.11n HT40 / Channel 46 / 5230 MHz_Ant1

A.5 Undesirable Emissions Measurement

Antenna 0

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)
IEEE 802.11a	36	4500.0	-49.789	2.00	0	47.439	Peak	68.20
		4500.0	-60.869	2.00	0	36.359	Average	54.00
		5150.0	-47.689	2.00	0	49.539	Peak	68.20
		5150.0	-56.636	2.00	0	40.592	Average	54.00
	48	5350.0	-49.378	2.00	0	47.850	Peak	68.20
		5350.0	-60.031	2.00	0	37.197	Average	54.00
		5460.0	-50.108	2.00	0	47.120	Peak	68.20
		5460.0	-60.885	2.00	0	36.343	Average	54.00
IEEE 802.11n HT20	36	4500.0	-50.797	2.00	0	46.431	Peak	68.20
		4500.0	-60.659	2.00	0	36.569	Average	54.00
		5150.0	-44.321	2.00	0	52.907	Peak	68.20
		5150.0	-55.562	2.00	0	41.666	Average	54.00
	48	5350.0	-49.233	2.00	0	47.995	Peak	68.20
		5350.0	-59.923	2.00	0	37.305	Average	54.00
		5460.0	-50.673	2.00	0	46.555	Peak	68.20
		5460.0	-60.821	2.00	0	36.407	Average	54.00
IEEE 802.11n HT40	38	4500.0	-50.972	2.00	0	46.256	Peak	68.20
		4500.0	-60.608	2.00	0	36.620	Average	54.00
		5150.0	-34.977	2.00	0	62.251	Peak	68.20
		5150.0	-49.180	2.00	0	48.048	Average	54.00
	46	5350.0	-48.911	2.00	0	48.317	Peak	68.20
		5350.0	-59.172	2.00	0	38.056	Average	54.00
		5460.0	-50.067	2.00	0	47.161	Peak	68.20
		5460.0	-60.139	2.00	0	37.089	Average	54.00

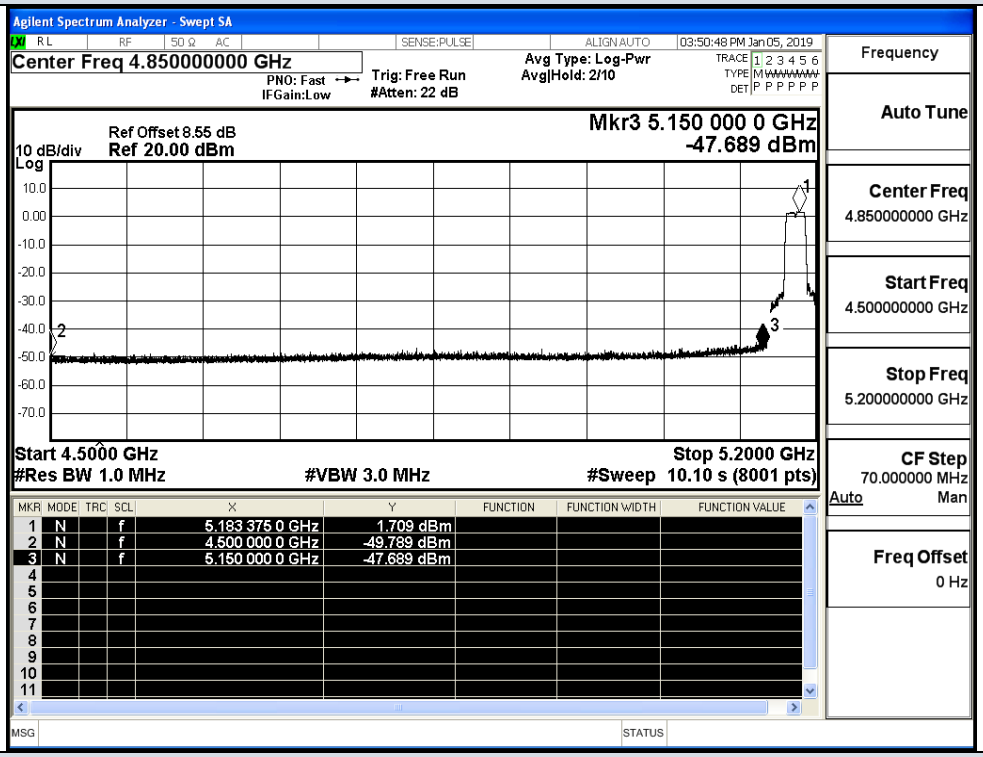
Antenna 1

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)
IEEE 802.11a	36	4500.0	-50.837	2.00	0	46.391	Peak	68.20
		4500.0	-60.638	2.00	0	36.590	Average	54.00
		5150.0	-46.315	2.00	0	50.913	Peak	68.20
		5150.0	-56.575	2.00	0	40.653	Average	54.00
	48	5350.0	-49.373	2.00	0	47.855	Peak	68.20
		5350.0	-59.913	2.00	0	37.315	Average	54.00
		5460.0	-50.047	2.00	0	47.181	Peak	68.20
		5460.0	-60.721	2.00	0	36.507	Average	54.00
IEEE 802.11n HT20	36	4500.0	-50.261	2.00	0	46.967	Peak	68.20
		4500.0	-60.607	2.00	0	36.621	Average	54.00
		5150.0	-45.972	2.00	0	51.256	Peak	68.20
		5150.0	-56.505	2.00	0	40.723	Average	54.00
	48	5350.0	-48.763	2.00	0	48.465	Peak	68.20
		5350.0	-59.872	2.00	0	37.356	Average	54.00
		5460.0	-50.478	2.00	0	46.750	Peak	68.20
		5460.0	-60.761	2.00	0	36.467	Average	54.00
IEEE 802.11n HT40	38	4500.0	-49.768	2.00	0	47.460	Peak	68.20
		4500.0	-60.629	2.00	0	36.599	Average	54.00
		5150.0	-36.736	2.00	0	60.492	Peak	68.20
		5150.0	-50.929	2.00	0	46.299	Average	54.00
	46	5350.0	-48.911	2.00	0	48.317	Peak	68.20
		5350.0	-59.172	2.00	0	38.056	Average	54.00
		5460.0	-50.067	2.00	0	47.161	Peak	68.20
		5460.0	-60.139	2.00	0	37.089	Average	54.00

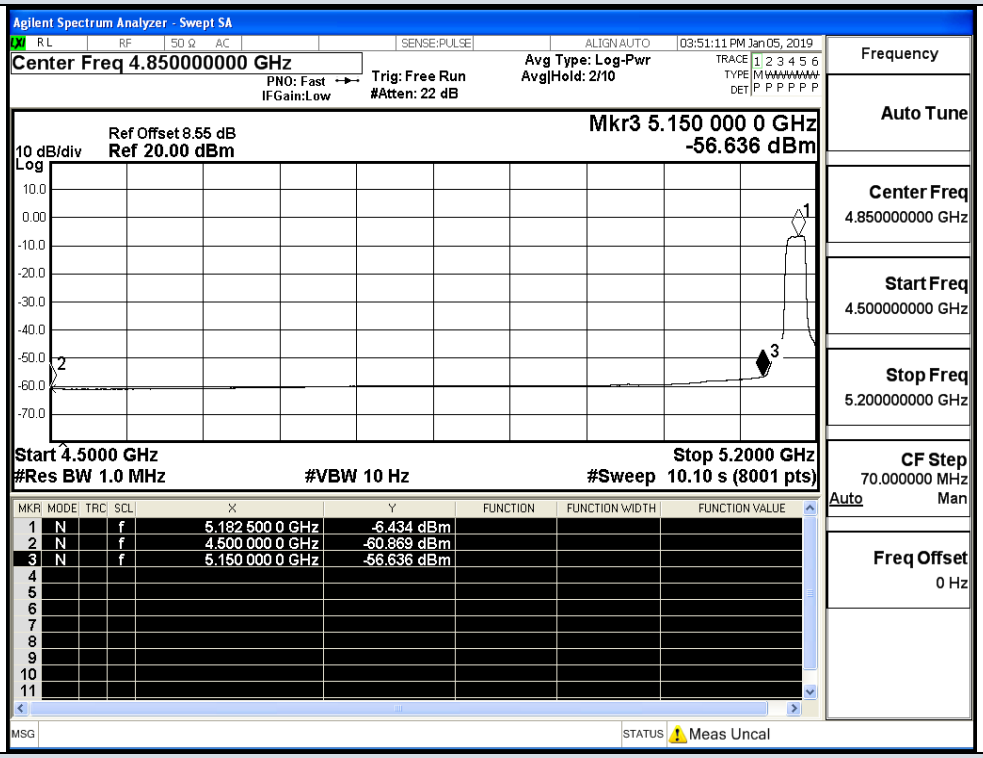
Antenna 0+Antenna 1

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)
			Ant0	Ant1	Sum					
11N20	36	4500.0	-50.797	-50.26	-47.510	5.01	0	52.728	Peak	68.20
		4500.0	-60.659	-60.61	-57.624	5.01	0	42.614	Average	54.00
		5150.0	-44.321	-45.97	-42.057	5.01	0	58.181	Peak	68.20
		5150.0	-55.562	-56.51	-53.000	5.01	0	47.238	Average	54.00
	48	5350.0	-49.233	-48.76	-45.980	5.01	0	54.258	Peak	68.20
		5350.0	-59.923	-59.87	-56.886	5.01	0	43.352	Average	54.00
		5460.0	-50.673	-50.48	-47.565	5.01	0	52.673	Peak	68.20
		5460.0	-60.821	-60.76	-57.780	5.01	0	42.458	Average	54.00
11N40	38	4500.0	-50.972	-49.77	-47.319	5.01	0	52.919	Peak	68.20
		4500.0	-60.608	-60.63	-57.609	5.01	0	42.629	Average	54.00
		5150.0	-34.977	-36.74	-32.759	5.01	0	67.479	Peak	68.20
		5150.0	-49.180	-50.93	-46.957	5.01	0	53.281	Average	54.00
	46	5350.0	-48.911	-48.87	-45.880	5.01	0	54.358	Peak	68.20
		5350.0	-59.172	-60.44	-56.750	5.01	0	43.488	Average	54.00
		5460.0	-50.067	-50.60	-47.315	5.01	0	52.923	Peak	68.20
		5460.0	-60.139	-60.63	-57.367	5.01	0	42.871	Average	54.00

Undesirable Emissions Measurement_Ant0

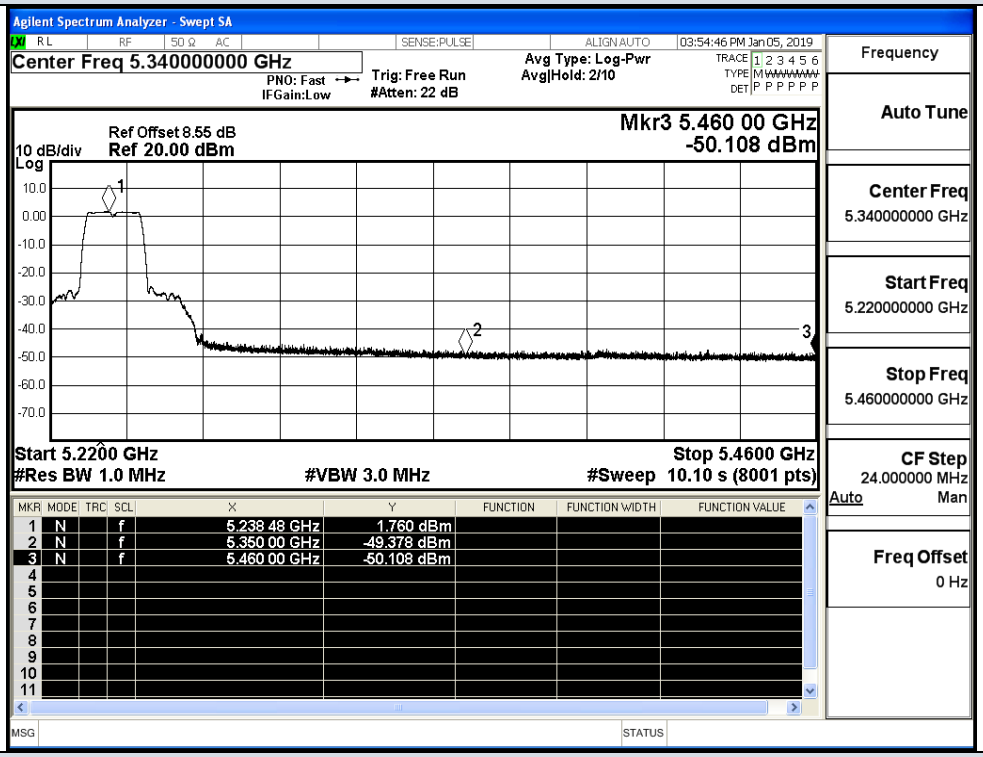


IEEE 802.11a / Channel 36 / 5180 MHz / Peak_Ant0

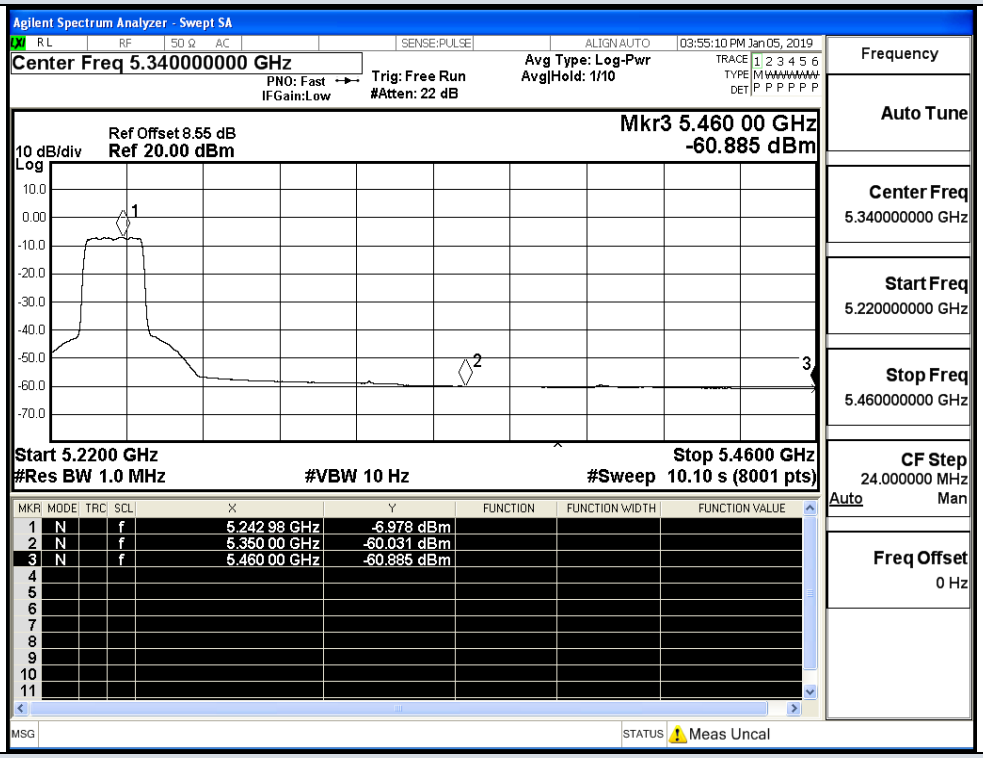


IEEE 802.11a / Channel 36 / 5180 MHz / Average_Ant0

Undesirable Emissions Measurement_Ant0

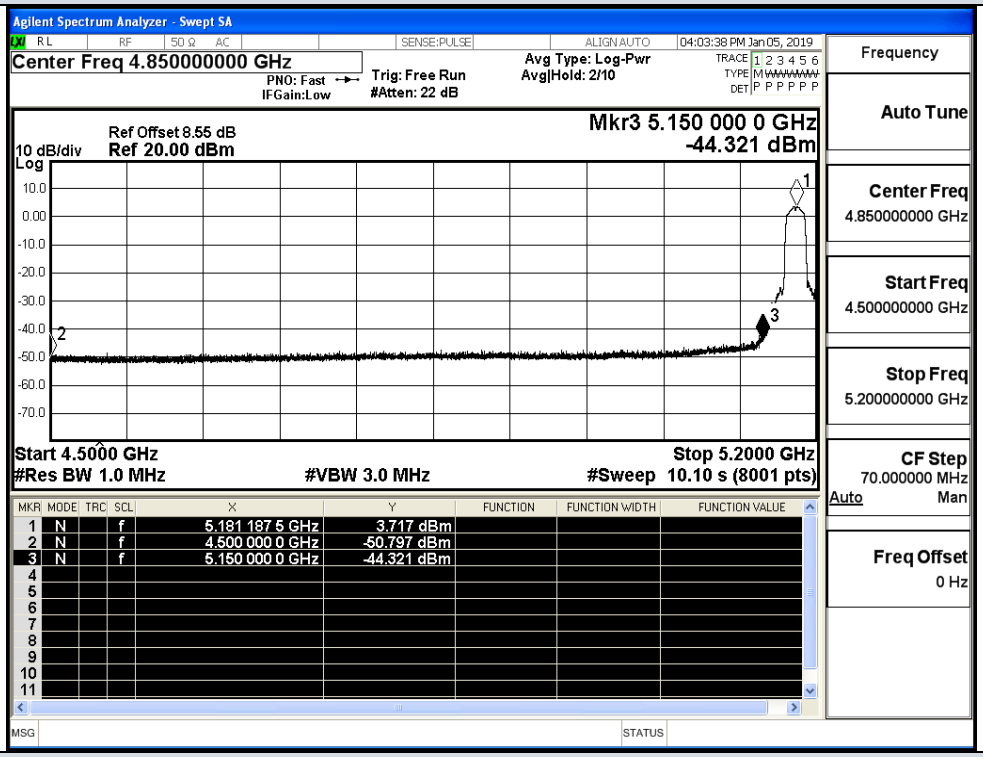


IEEE 802.11a / Channel 48 / 5240 MHz / Peak_Ant0

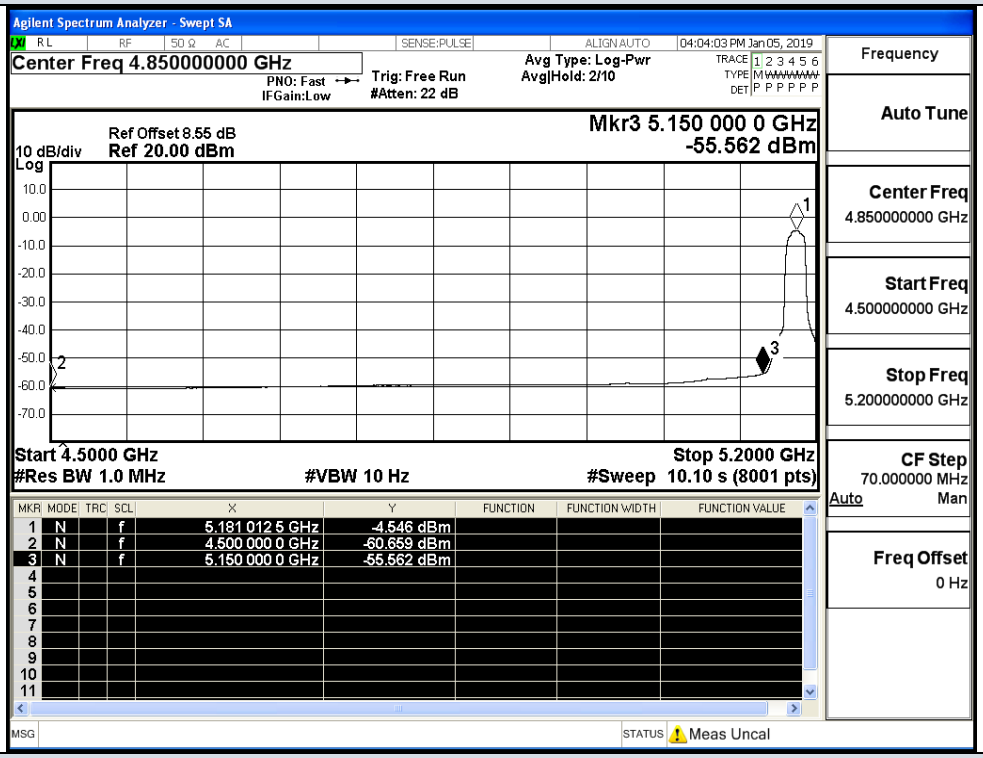


IEEE 802.11a / Channel 48 / 5240 MHz / Average_Ant0

Undesirable Emissions Measurement_Ant0

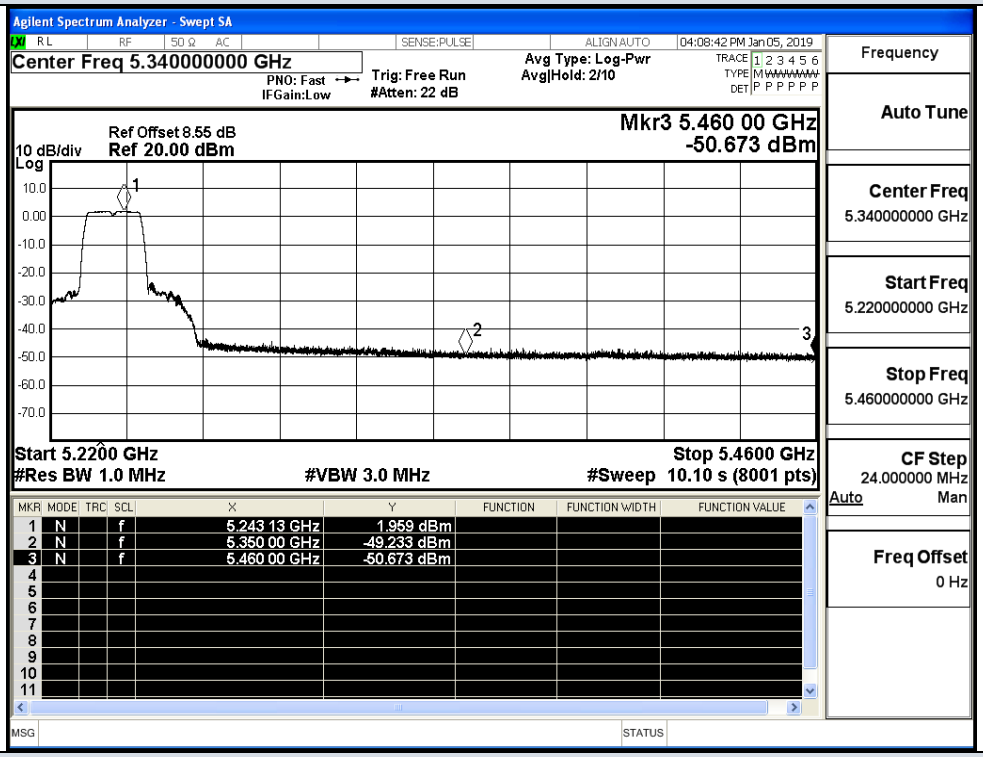


IEEE 802.11n HT20 / Channel 36 / 5180 MHz / Peak_Ant0

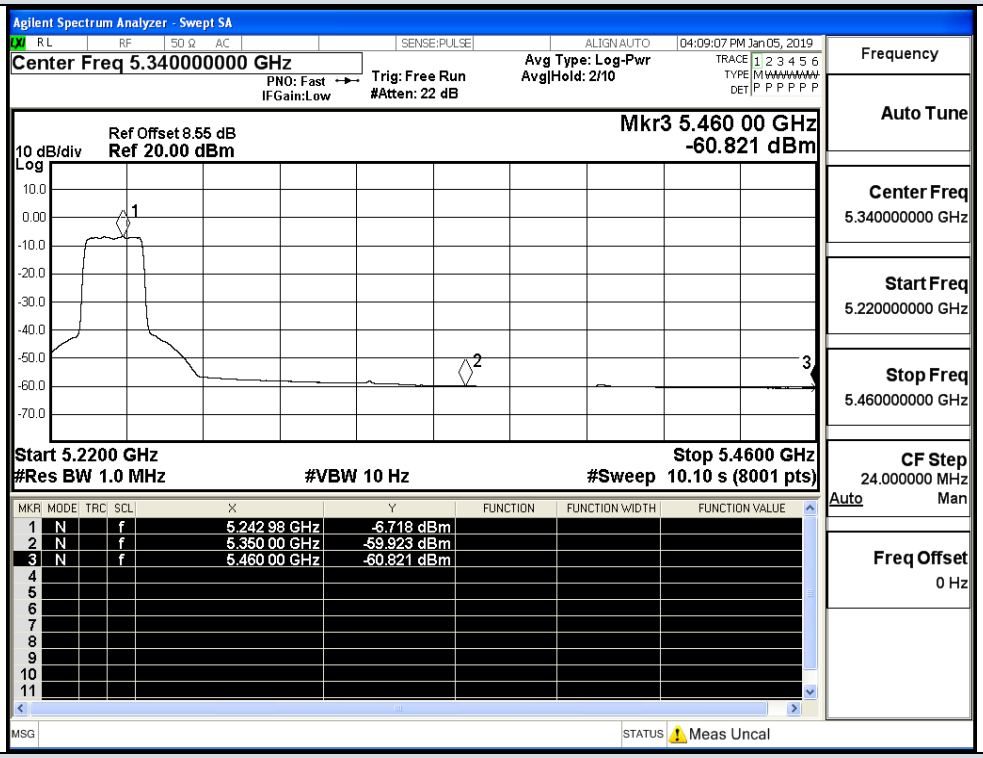


IEEE 802.11n HT20 / Channel 36 / 5180 MHz / Average_Ant0

Undesirable Emissions Measurement_Ant0

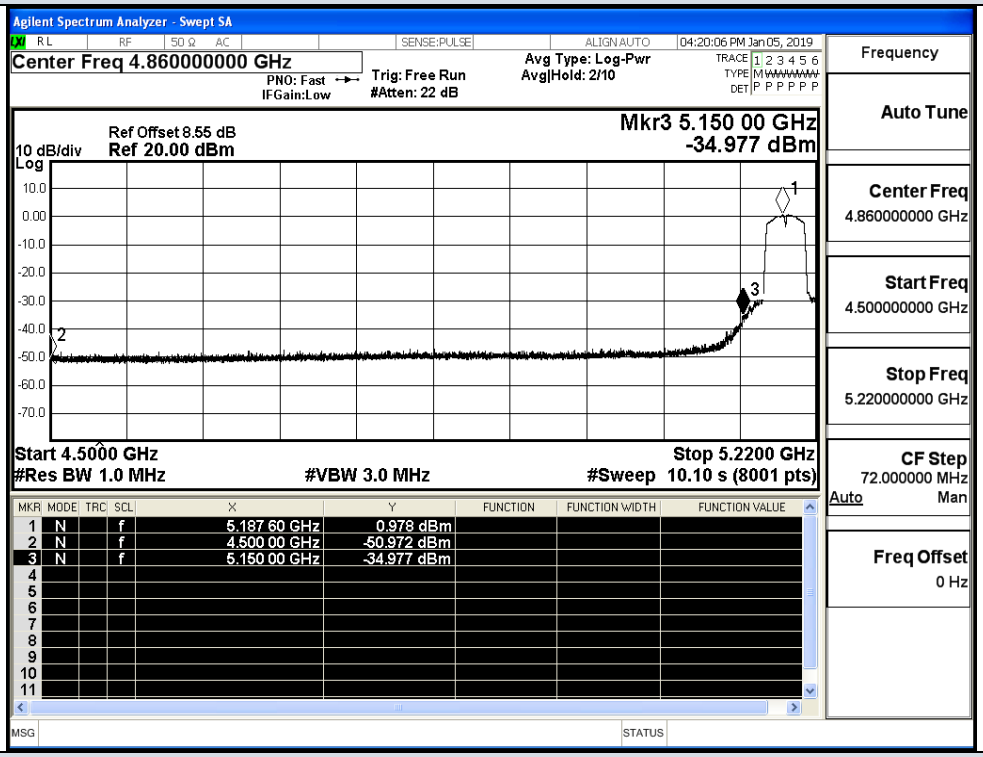


IEEE 802.11n HT20 / Channel 48 / 5240 MHz / Peak_Ant0

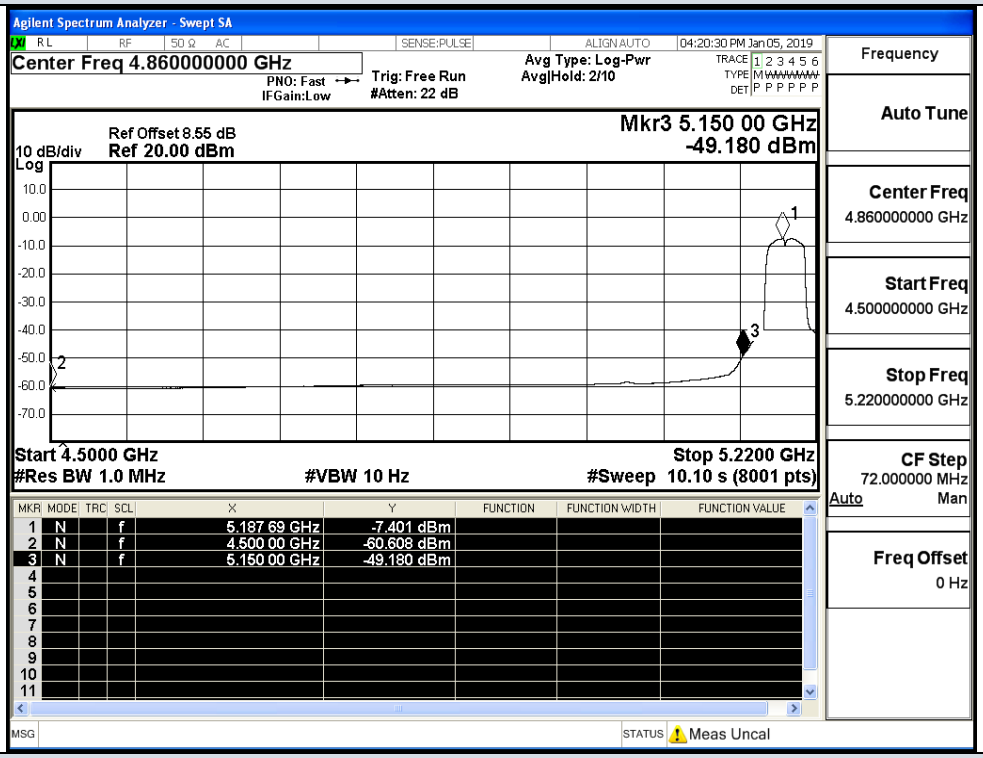


IEEE 802.11n HT20 / Channel 48 / 5240 MHz / Average_Ant0

Undesirable Emissions Measurement_Ant0

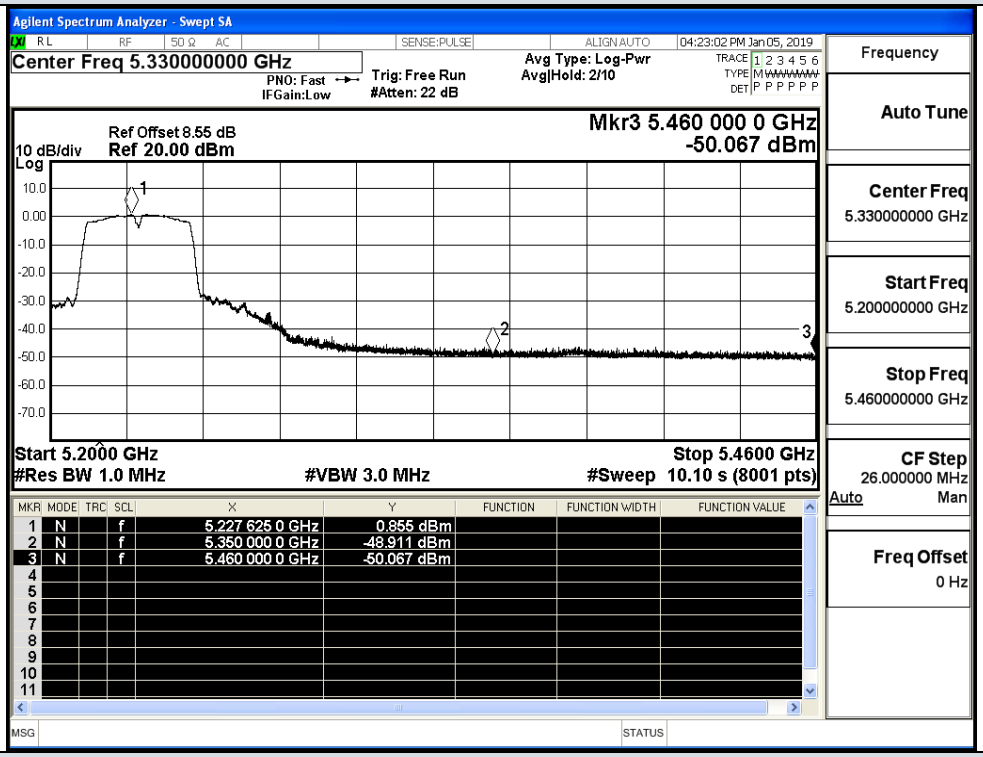


IEEE 802.11n HT40 / Channel 38 / 5190 MHz / Peak_Ant0

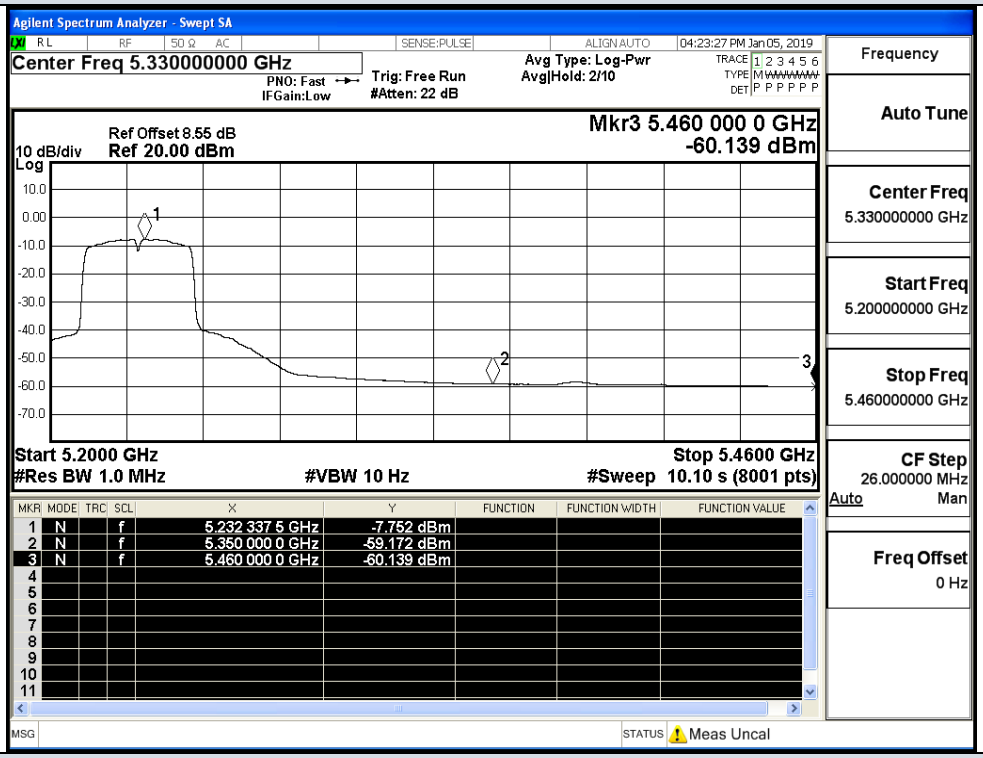


IEEE 802.11n HT40 / Channel 38 / 5190 MHz / Average_Ant0

Undesirable Emissions Measurement_Ant0

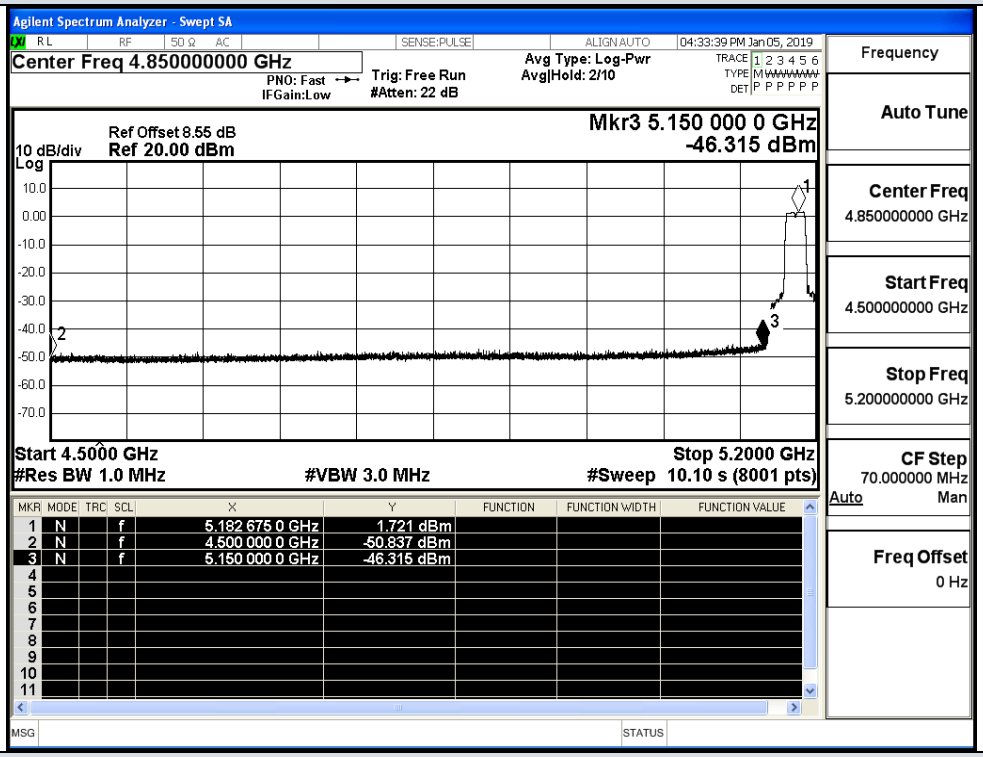


IEEE 802.11n HT40 / Channel 46 / 5230 MHz / Peak_Ant0

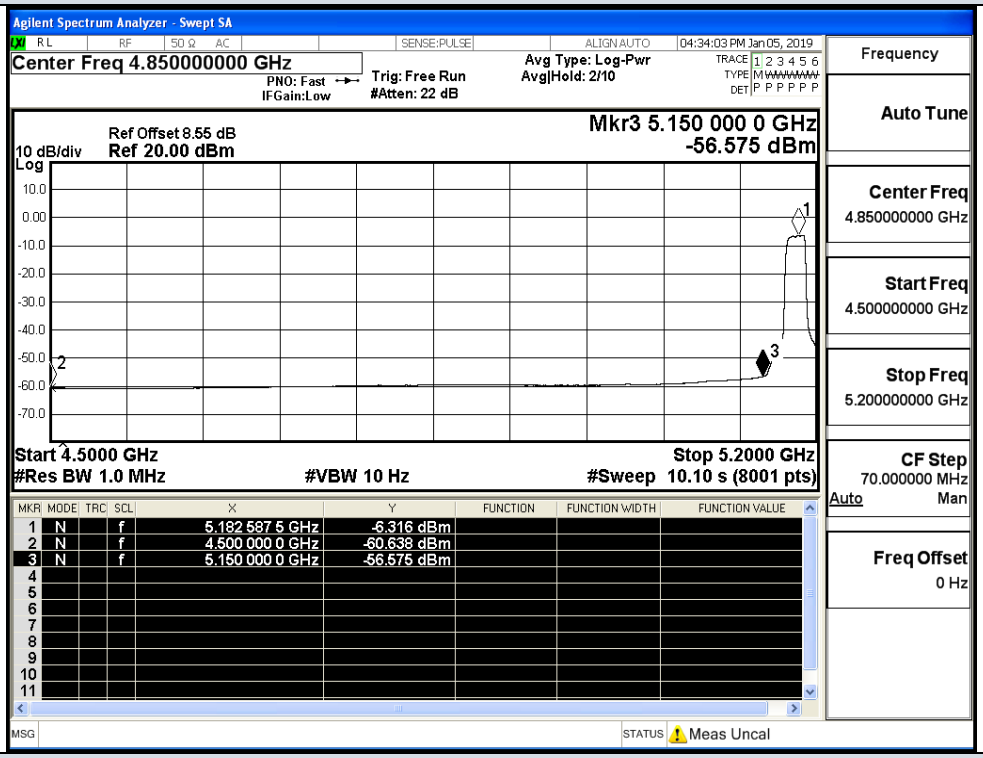


IEEE 802.11n HT40 / Channel 46 / 5230MHz / Average_Ant0

Undesirable Emissions Measurement_Ant1

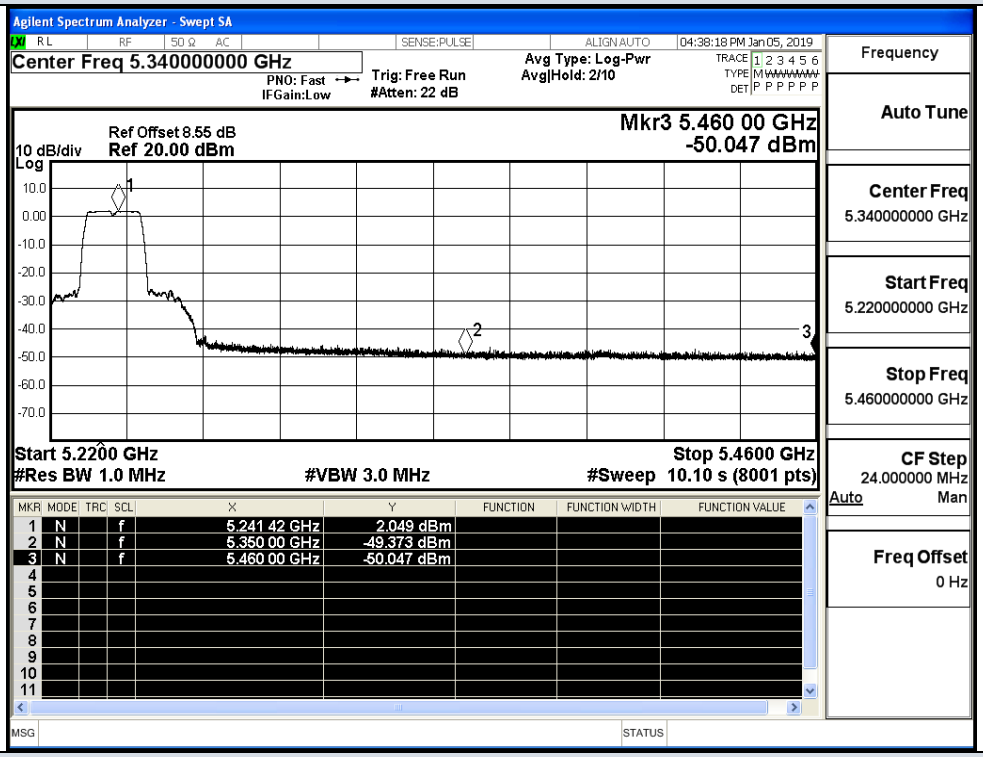


IEEE 802.11a / Channel 36 / 5180 MHz / Peak_Ant1

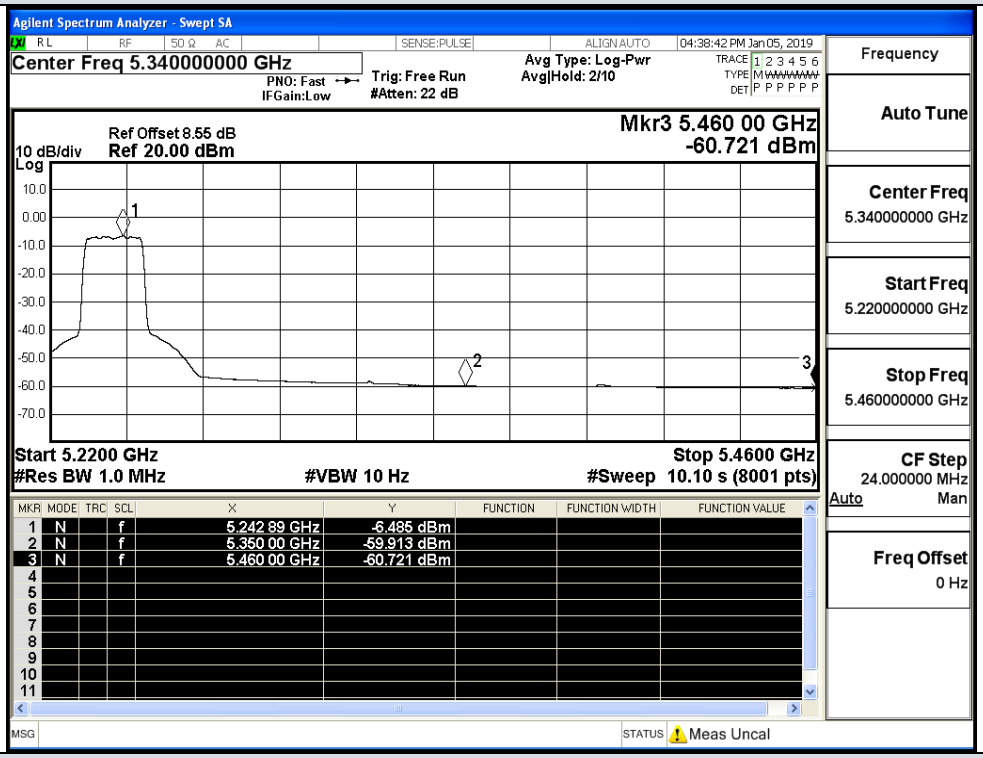


IEEE 802.11a / Channel 36 / 5180 MHz / Average_Ant1

Undesirable Emissions Measurement_Ant1

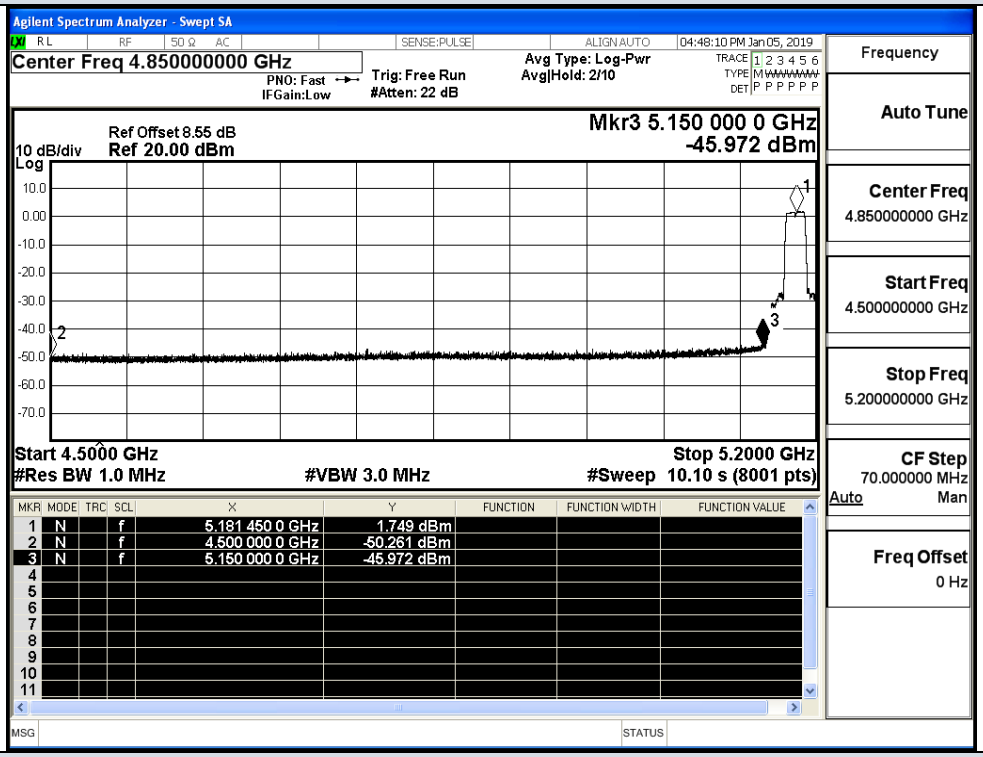


IEEE 802.11a / Channel 48 / 5240 MHz / Peak_Ant1

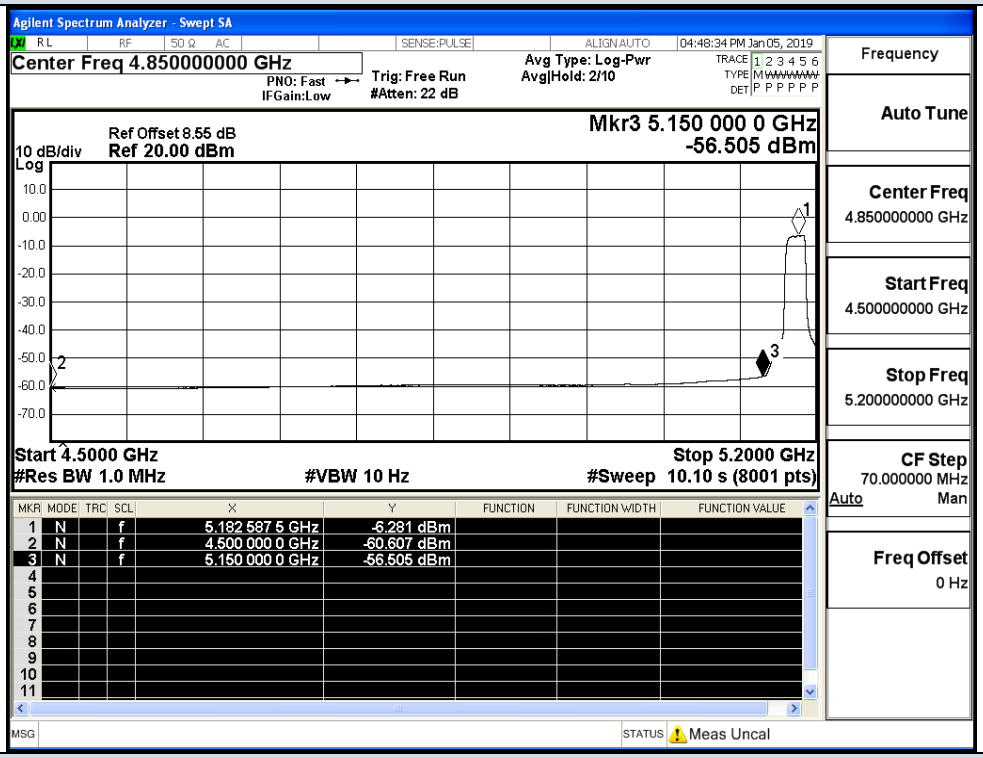


IEEE 802.11a / Channel 48 / 5240 MHz / Average_Ant1

Undesirable Emissions Measurement_Ant1

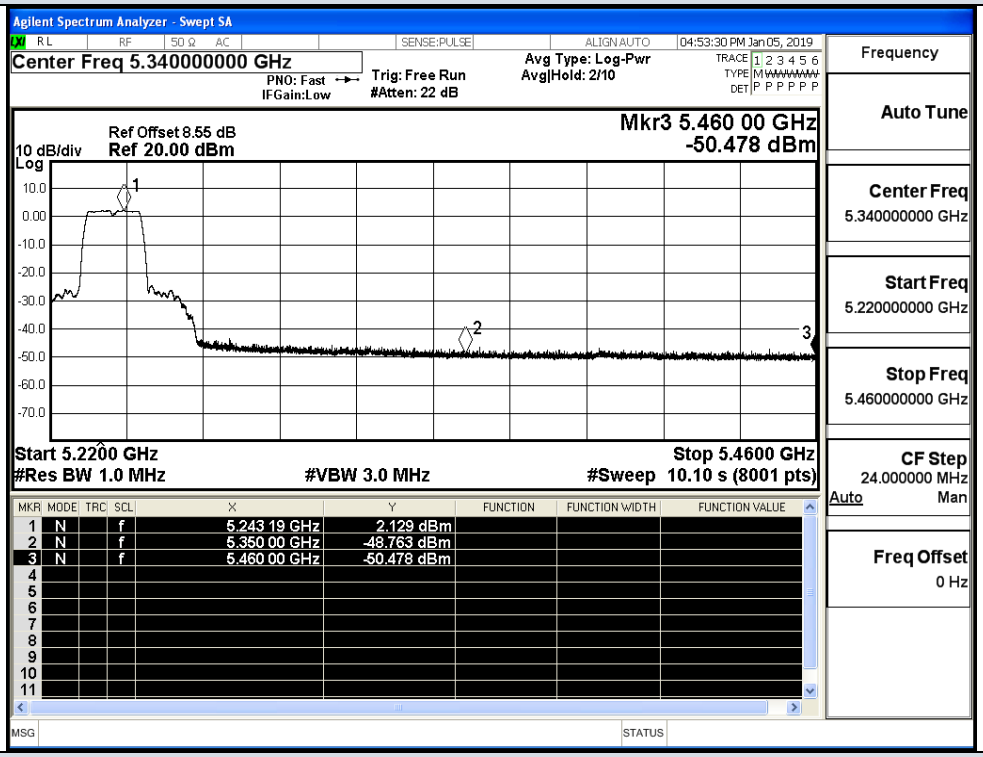


IEEE 802.11n HT20 / Channel 36 / 5180 MHz / Peak_Ant1

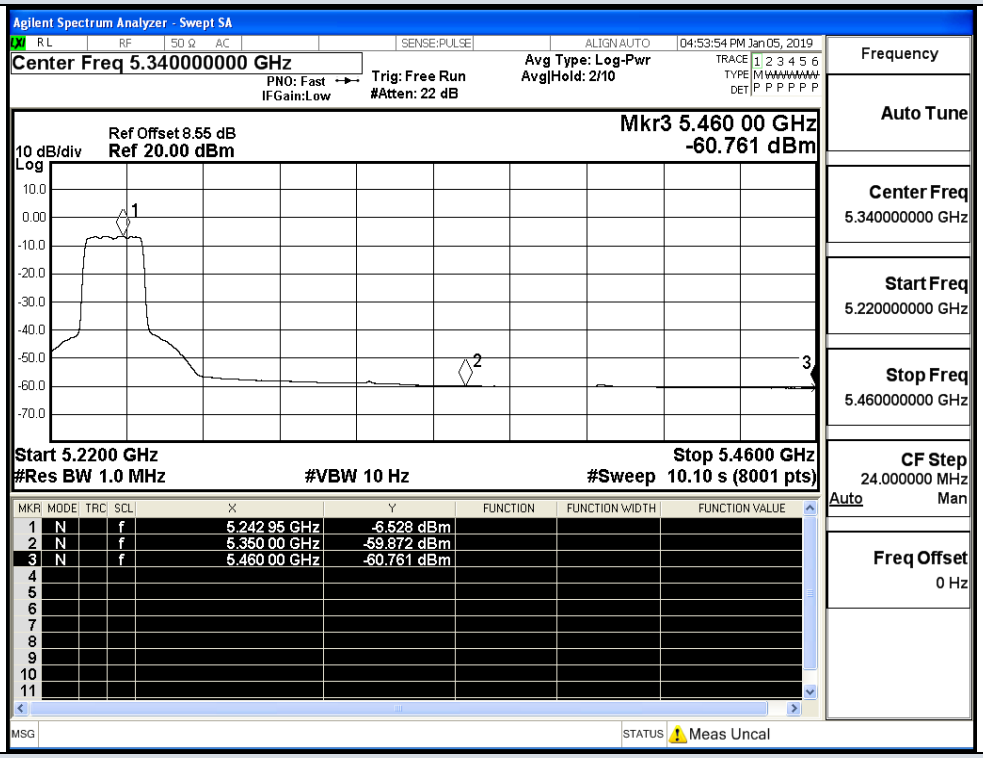


IEEE 802.11n HT20 / Channel 36 / 5180 MHz / Average_Ant1

Undesirable Emissions Measurement_Ant1

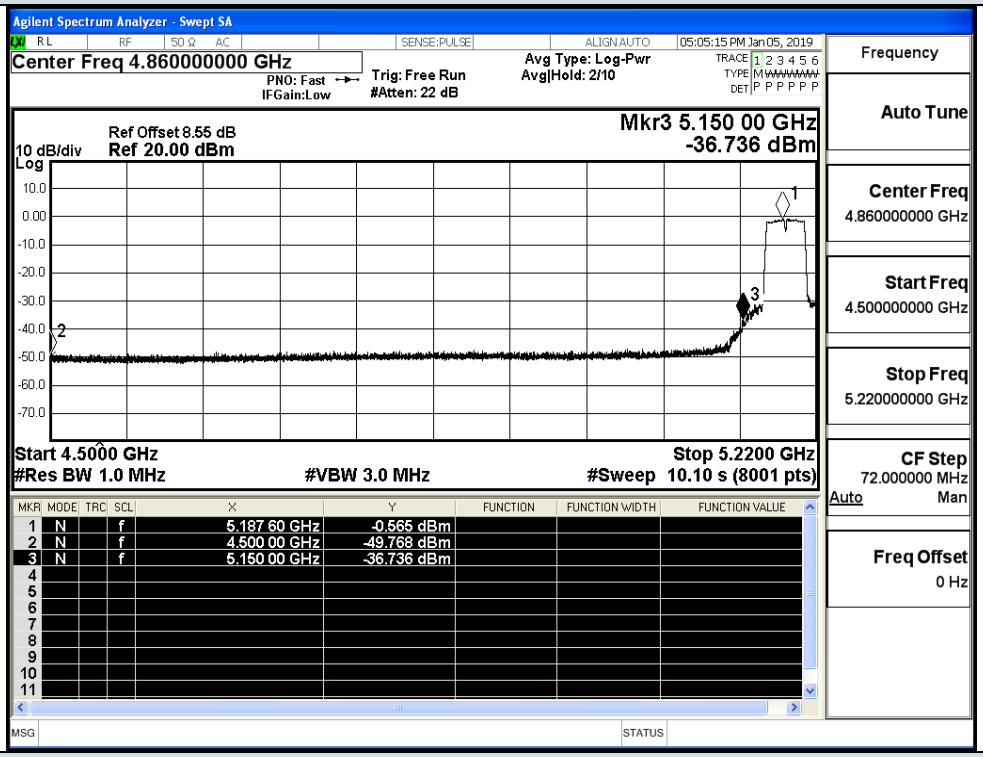


IEEE 802.11n HT20 / Channel 48 / 5240 MHz / Peak_Ant1

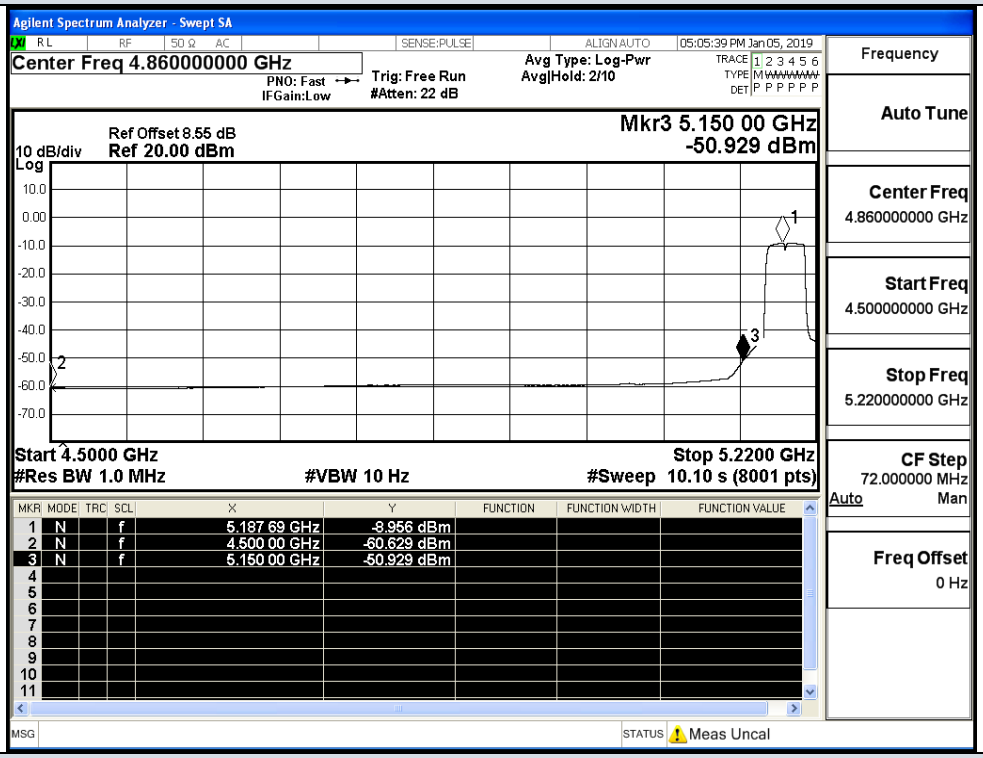


IEEE 802.11n HT20 / Channel 48 / 5240 MHz / Average_Ant1

Undesirable Emissions Measurement_Ant1

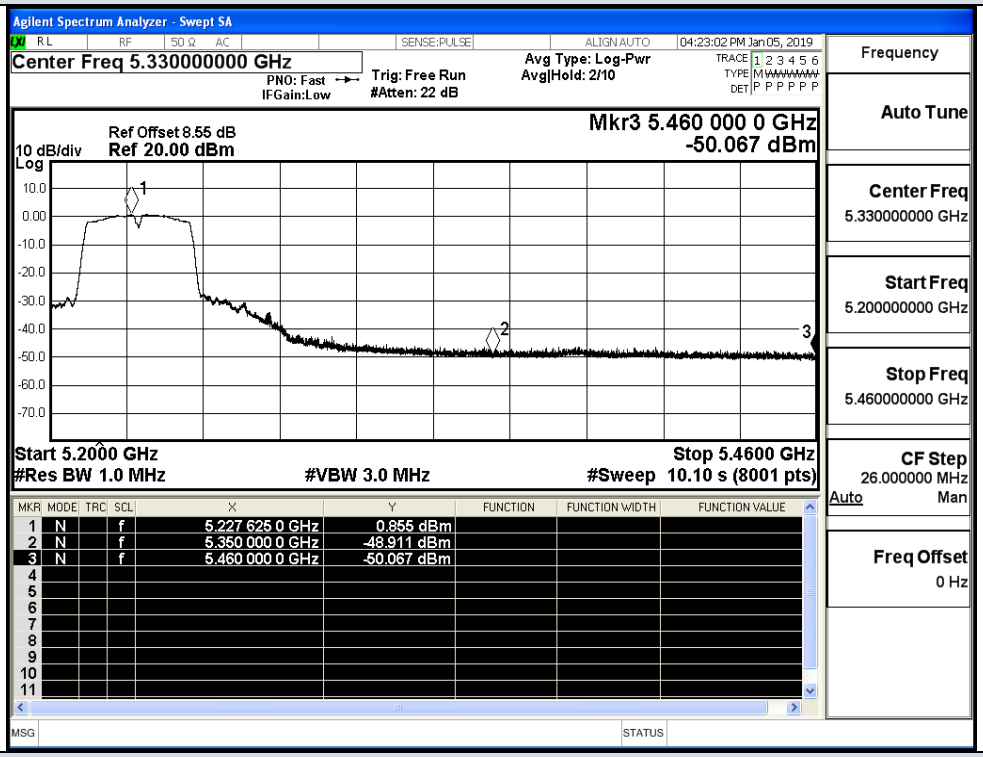


IEEE 802.11n HT40 / Channel 38 / 5190 MHz / Peak_Ant1

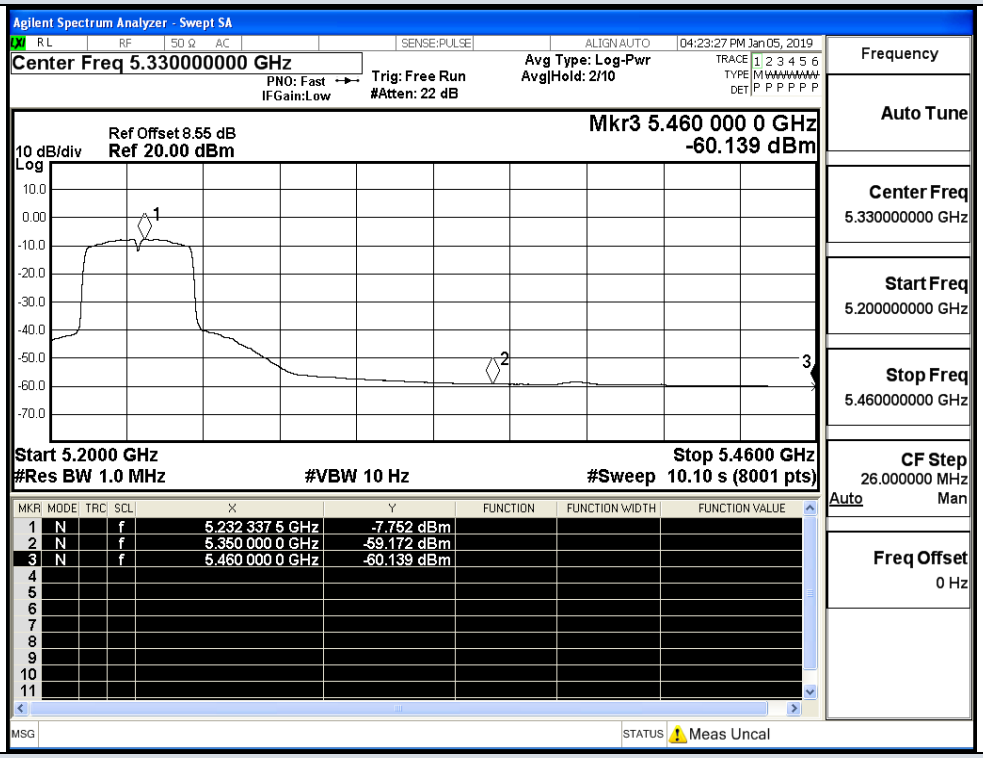


IEEE 802.11n HT40 / Channel 38 / 5190 MHz / Average_Ant1

Undesirable Emissions Measurement_Ant1



IEEE 802.11n HT40 / Channel 46 / 5230 MHz / Peak_Ant1



IEEE 802.11n HT40 / Channel 46 / 5230 MHz / Average_Ant1