

## Appendix A

### RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: IR510 Nano Series

Trade Mark: Guide

Test Model: IR510 N1 WiFi

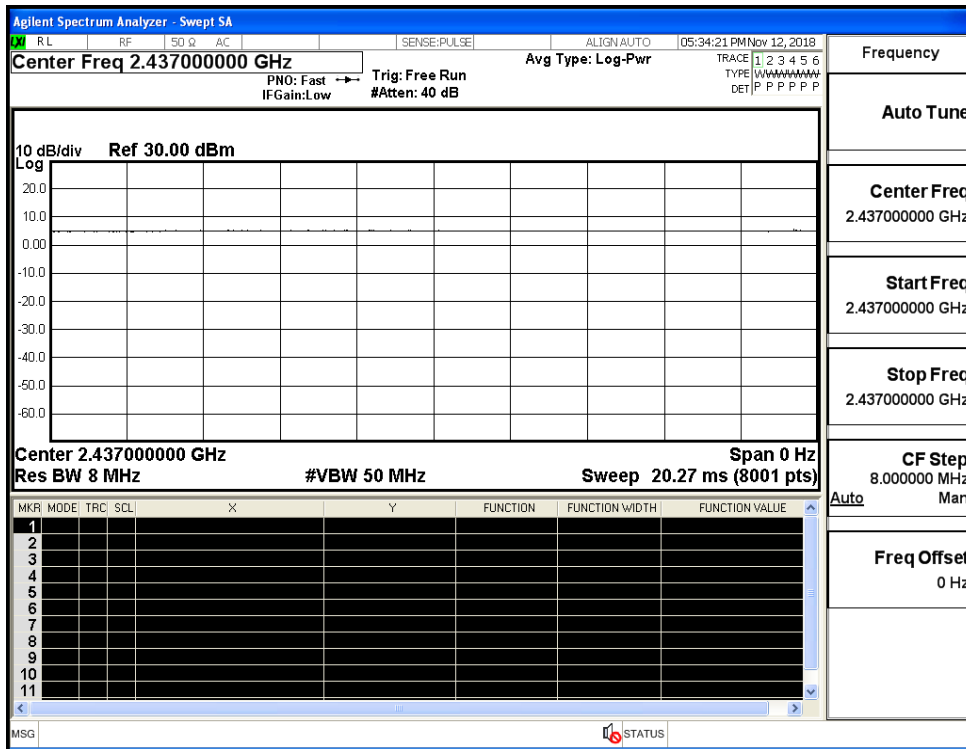
#### Environmental Conditions

Temperature:	24.5 ° C
Relative Humidity:	54.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina.Xu
Supervised by:	Jayden.Zhuo

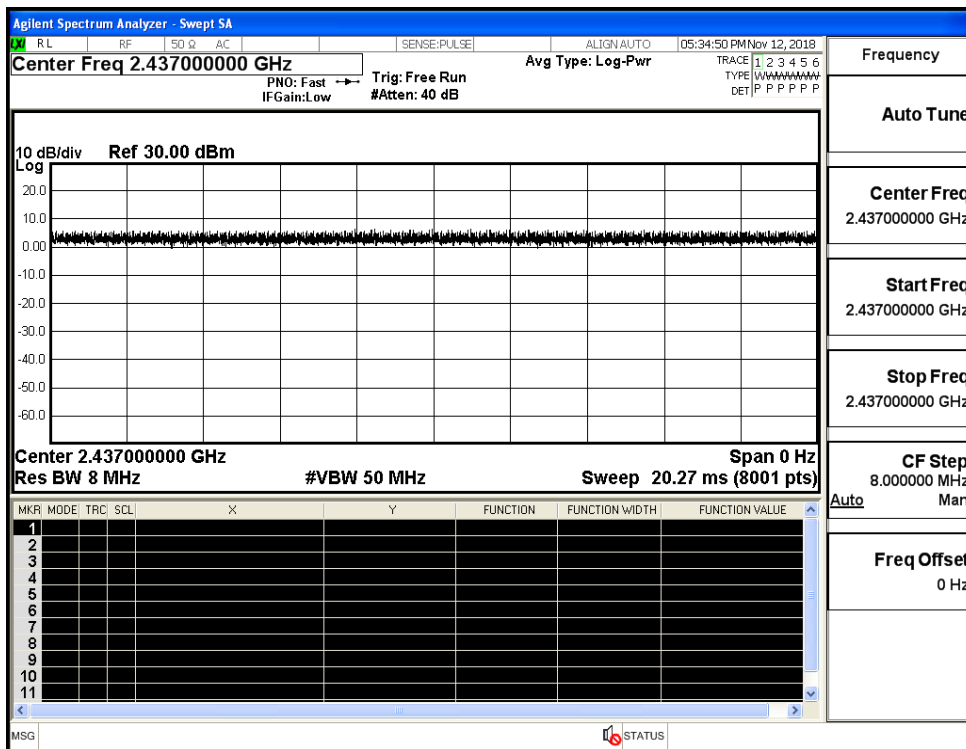
#### A.1 Duty Cycle

Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2437	Ant1	100	PASS
11G	2437	Ant1	100	PASS
11N20SISO	2437	Ant1	100	PASS
11N40SISO	2437	Ant1	100	PASS

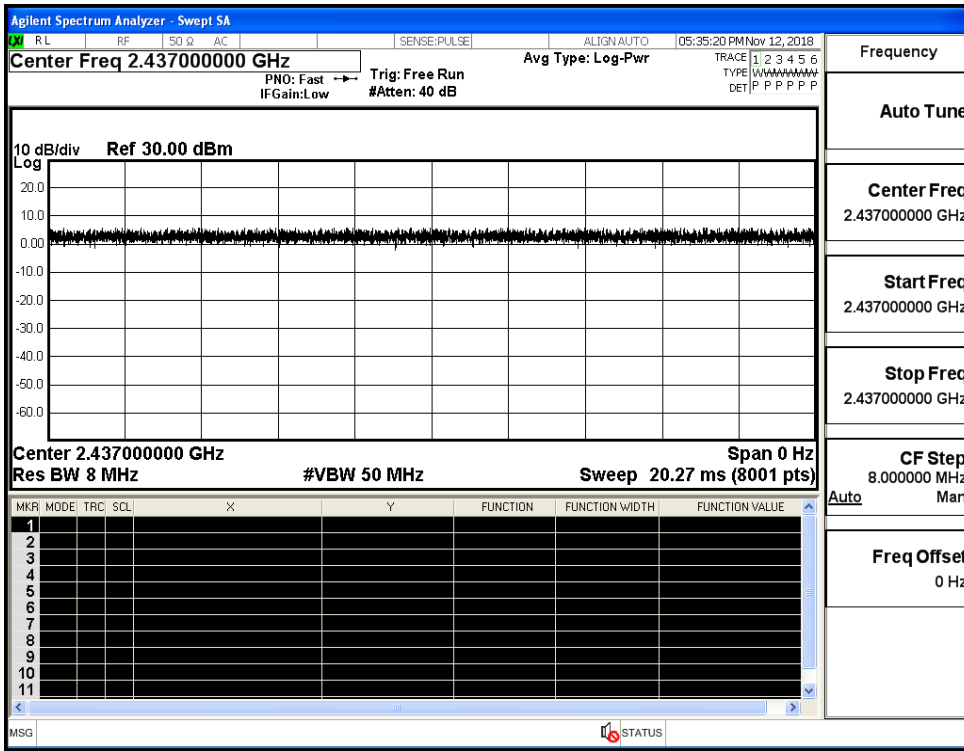
Duty Cycle\_11B\_2437\_Ant1



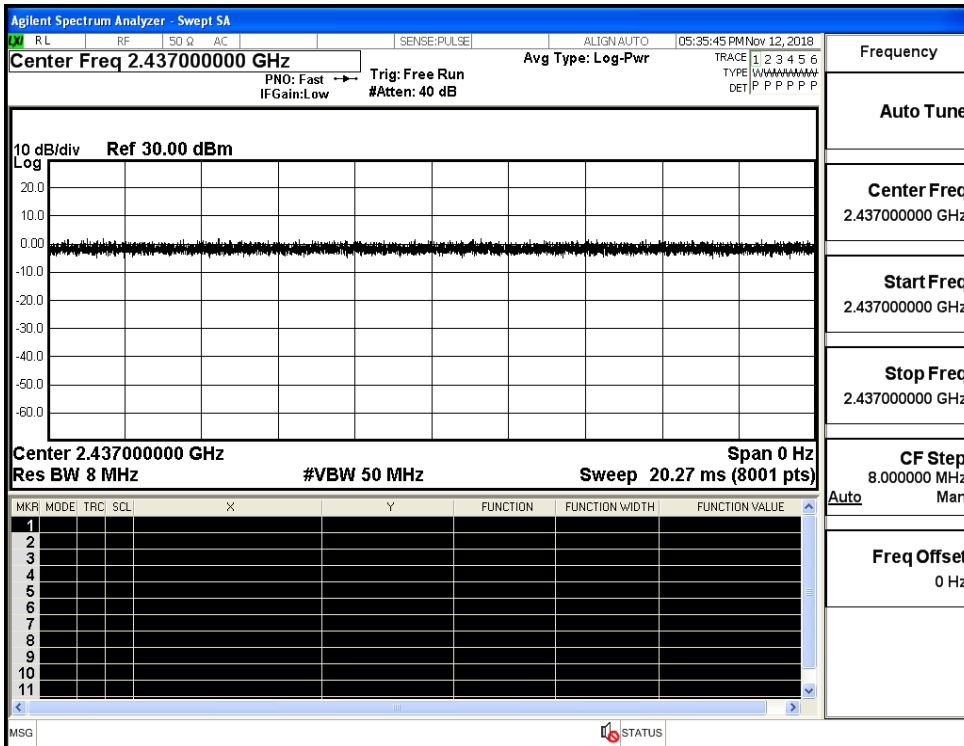
Duty Cycle\_11G\_2437\_Ant1



Duty Cycle\_11N20SISO\_2437\_Ant1



Duty Cycle\_11N40SISO\_2437\_Ant1

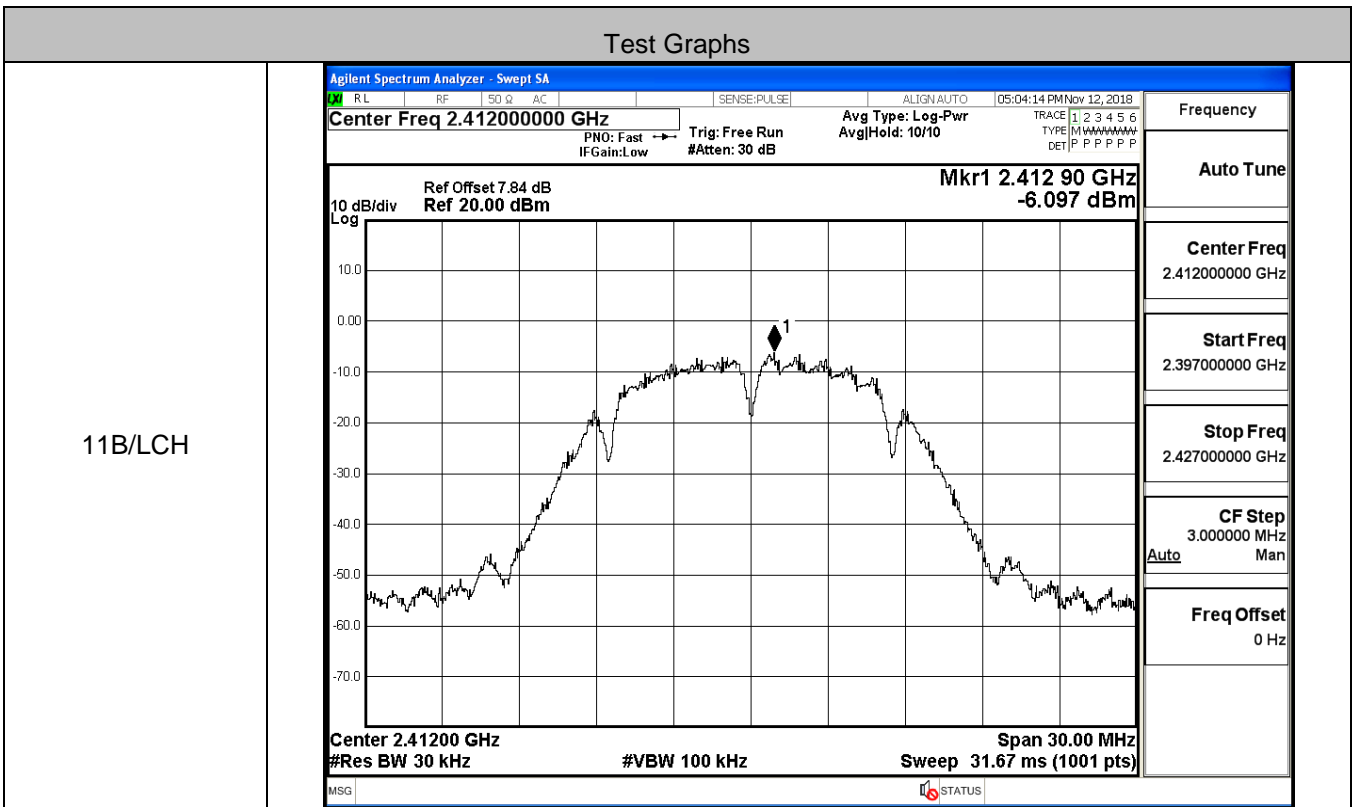


**A.2 Maximum Conducted Output Power**

Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	11.65	30	PASS
	MCH	11.63	30	PASS
	HCH	11.11	30	PASS
11G	LCH	11.30	30	PASS
	MCH	11.17	30	PASS
	HCH	11.42	30	PASS
11N20SISO	LCH	11.34	30	PASS
	MCH	11.37	30	PASS
	HCH	11.33	30	PASS
11N40SISO	LCH	11.26	30	PASS
	MCH	11.56	30	PASS
	HCH	11.25	30	PASS

### A.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/30KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-6.097	8	PASS
	MCH	-6.214	8	PASS
	HCH	-6.884	8	PASS
11G	LCH	-11.416	8	PASS
	MCH	-11.494	8	PASS
	HCH	-11.664	8	PASS
11N20SISO	LCH	-10.777	8	PASS
	MCH	-9.630	8	PASS
	HCH	-9.937	8	PASS
11N40SISO	LCH	-13.764	8	PASS
	MCH	-13.956	8	PASS
	HCH	-14.024	8	PASS

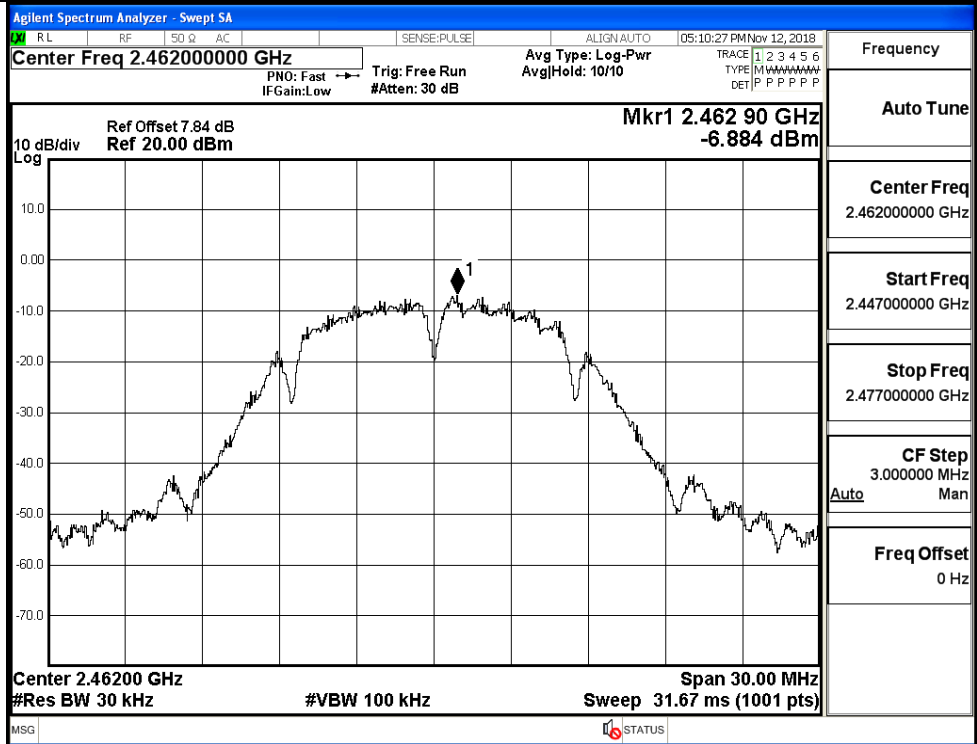


11B/MCH



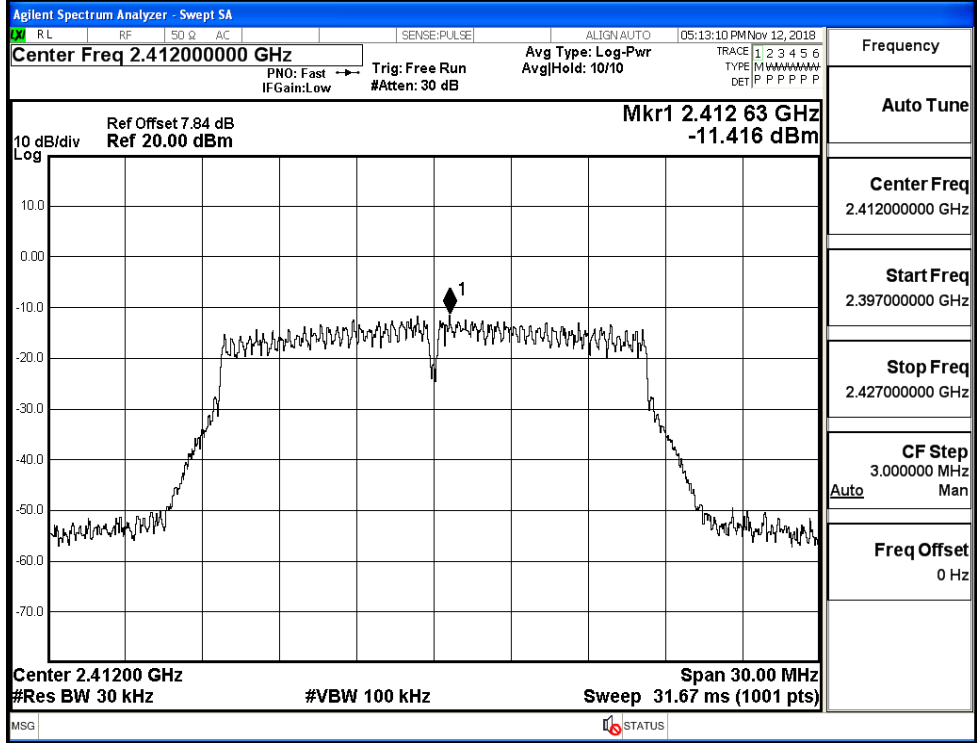
Frequency	
Auto Tune	
Center Freq	2.437000000 GHz
Start Freq	2.422000000 GHz
Stop Freq	2.452000000 GHz
CF Step	3.000000 MHz Auto Man
Freq Offset	0 Hz

11B/HCH

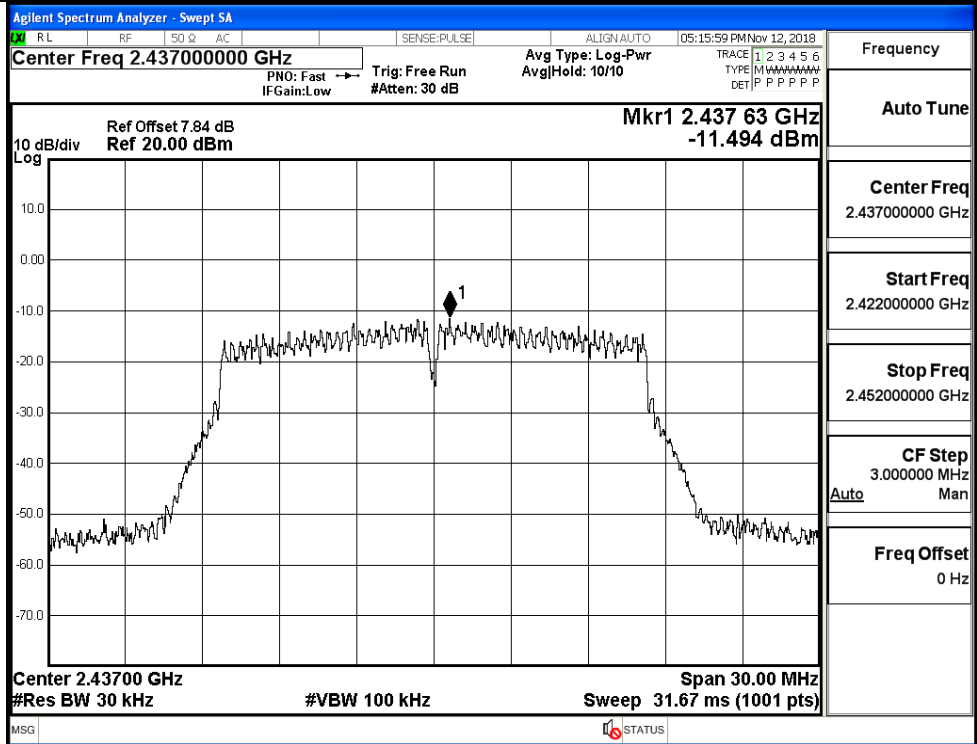


Frequency	
Auto Tune	
Center Freq	2.462000000 GHz
Start Freq	2.447000000 GHz
Stop Freq	2.477000000 GHz
CF Step	3.000000 MHz Auto Man
Freq Offset	0 Hz

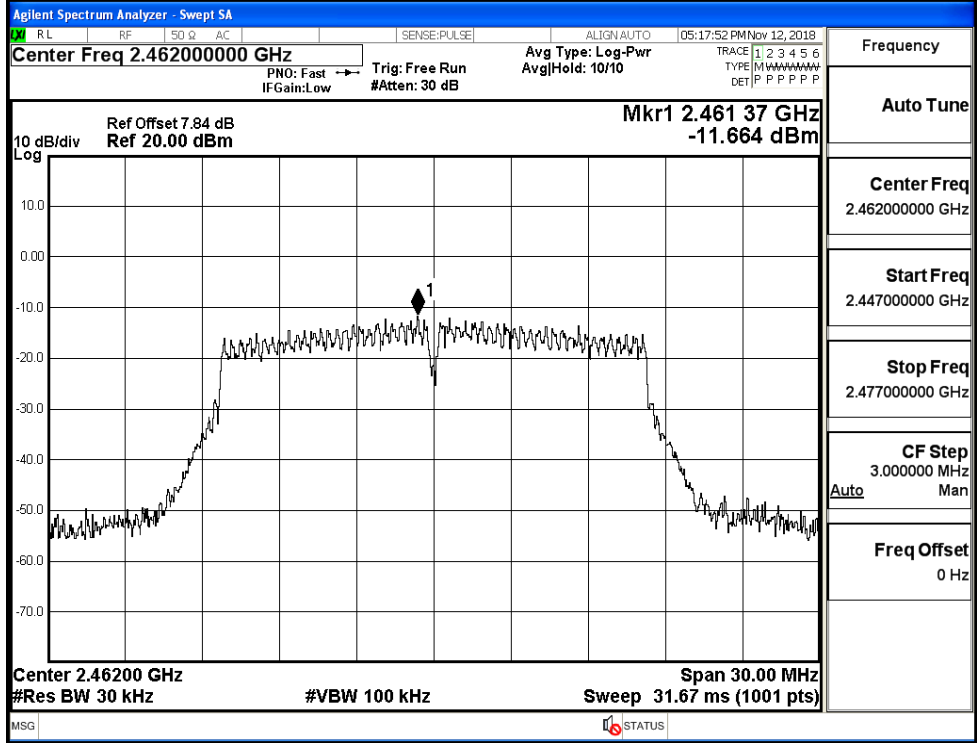
11G/LCH



11G/MCH

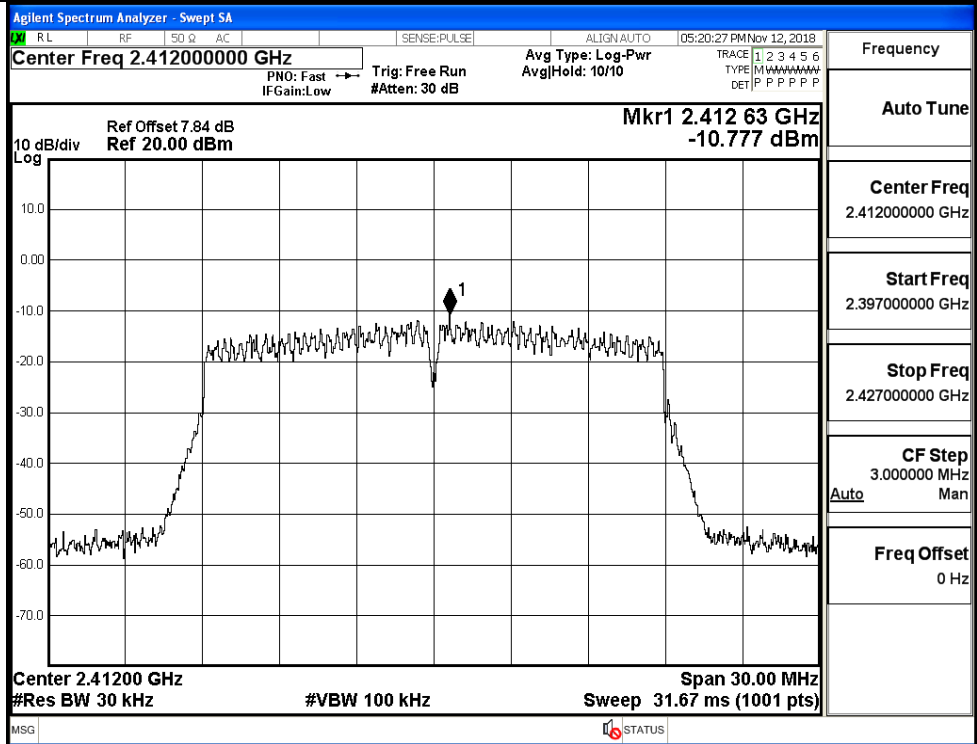


11G/HCH



Frequency
Auto Tune
Center Freq 2.46200000 GHz
Start Freq 2.447000000 GHz
Stop Freq 2.477000000 GHz
CF Step 3.000000 MHz Auto Man
Freq Offset 0 Hz

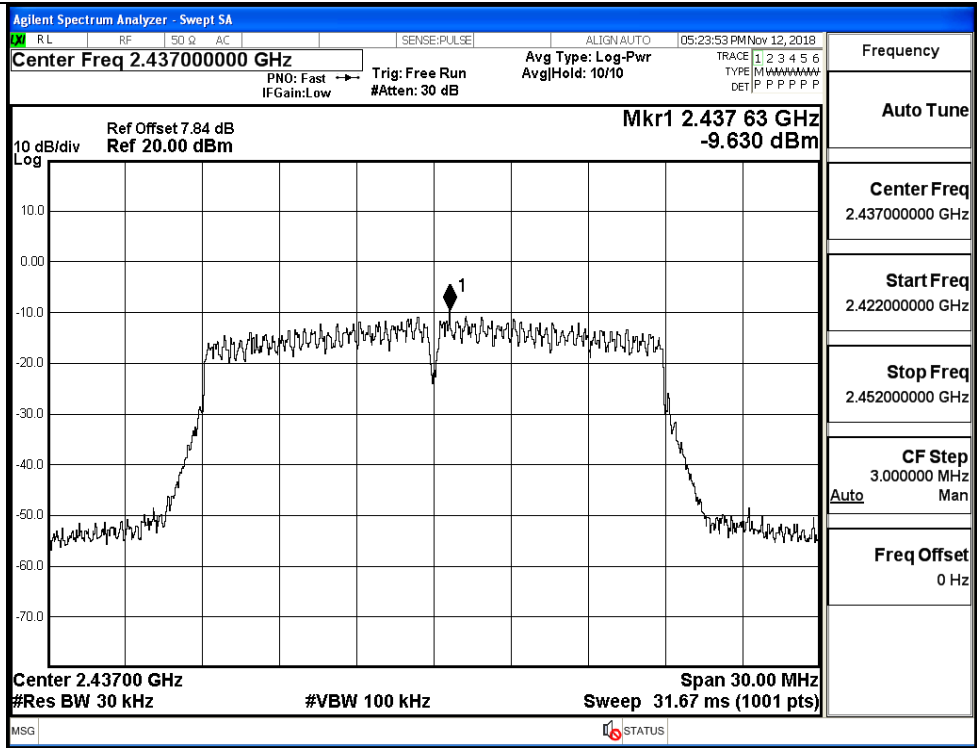
11N20SISO/LCH



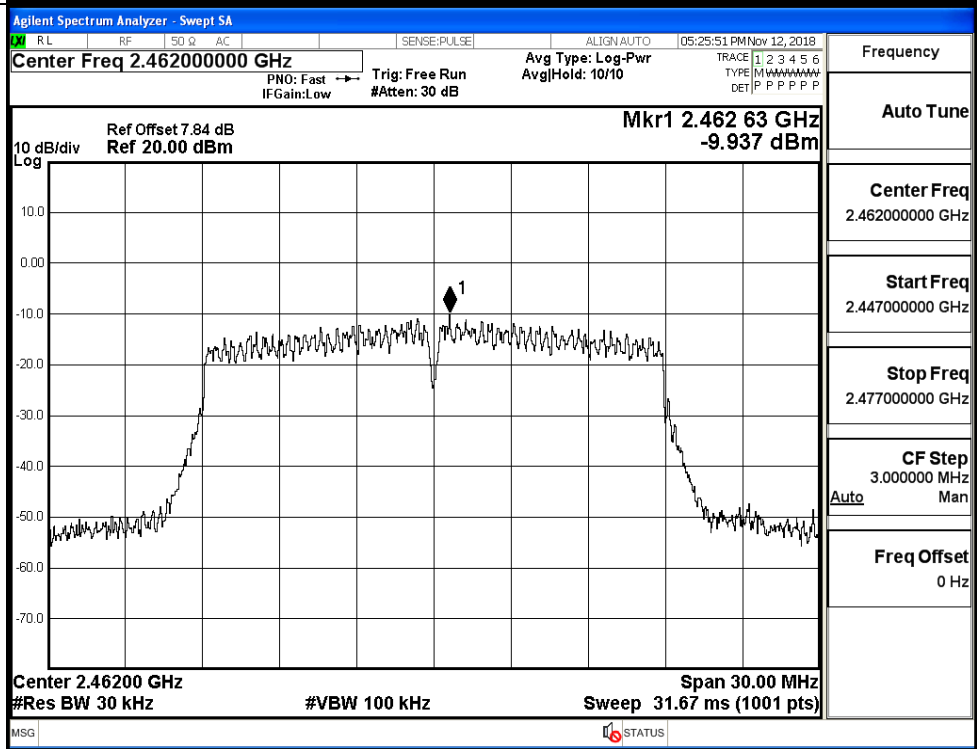
Frequency
Auto Tune
Center Freq 2.412000000 GHz
Start Freq 2.397000000 GHz
Stop Freq 2.427000000 GHz
CF Step 3.000000 MHz Auto Man
Freq Offset 0 Hz



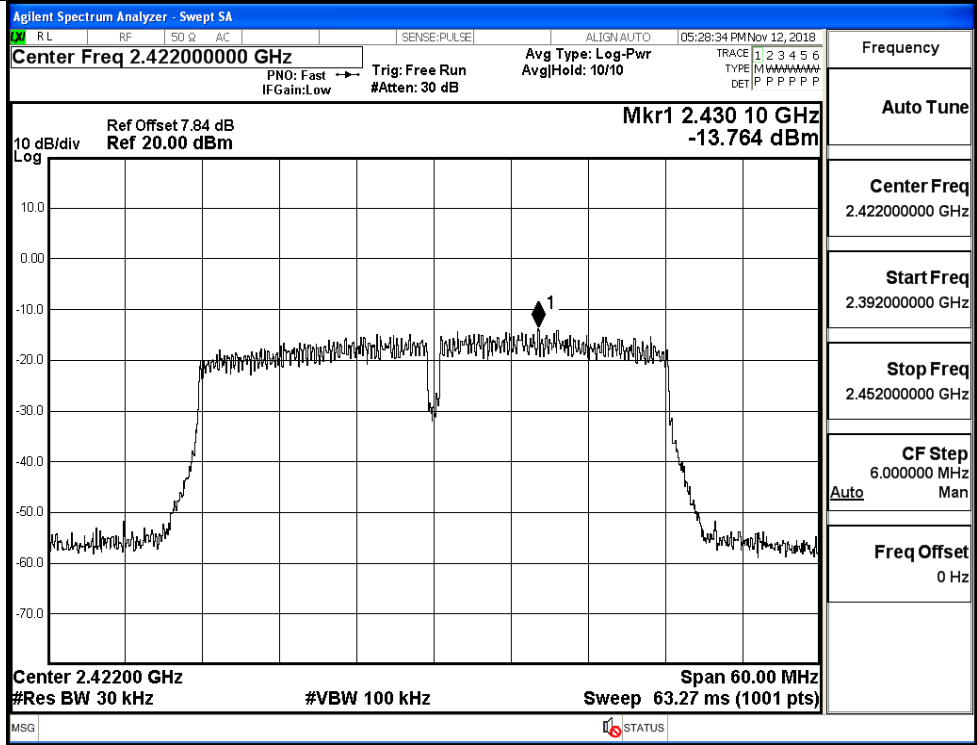
11N20SISO/MCH



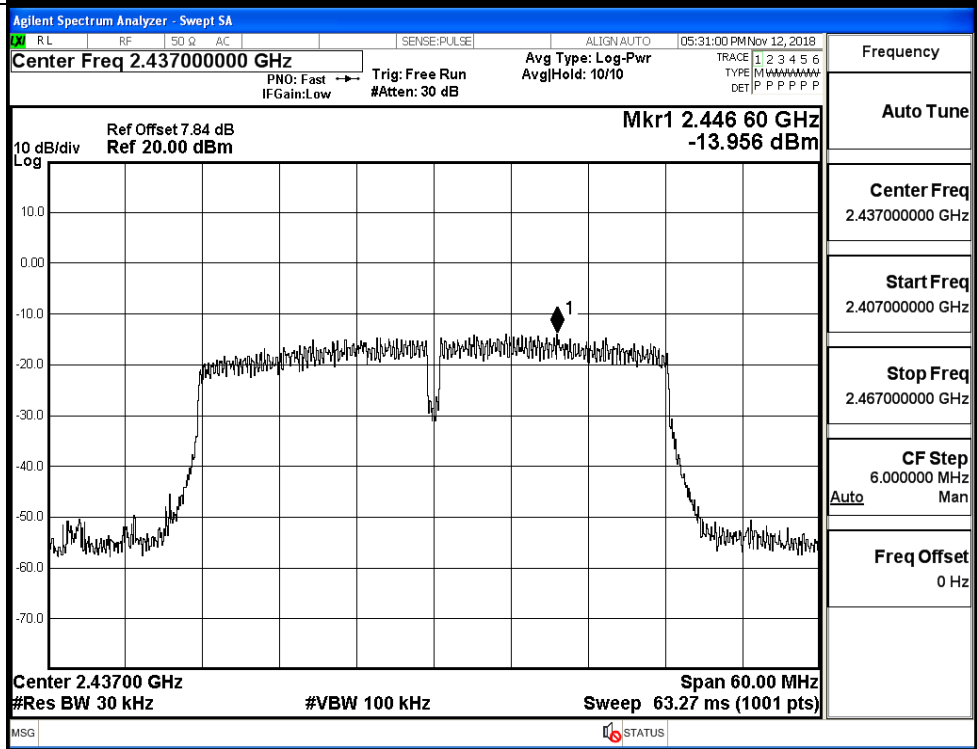
11N20SISO/HCH



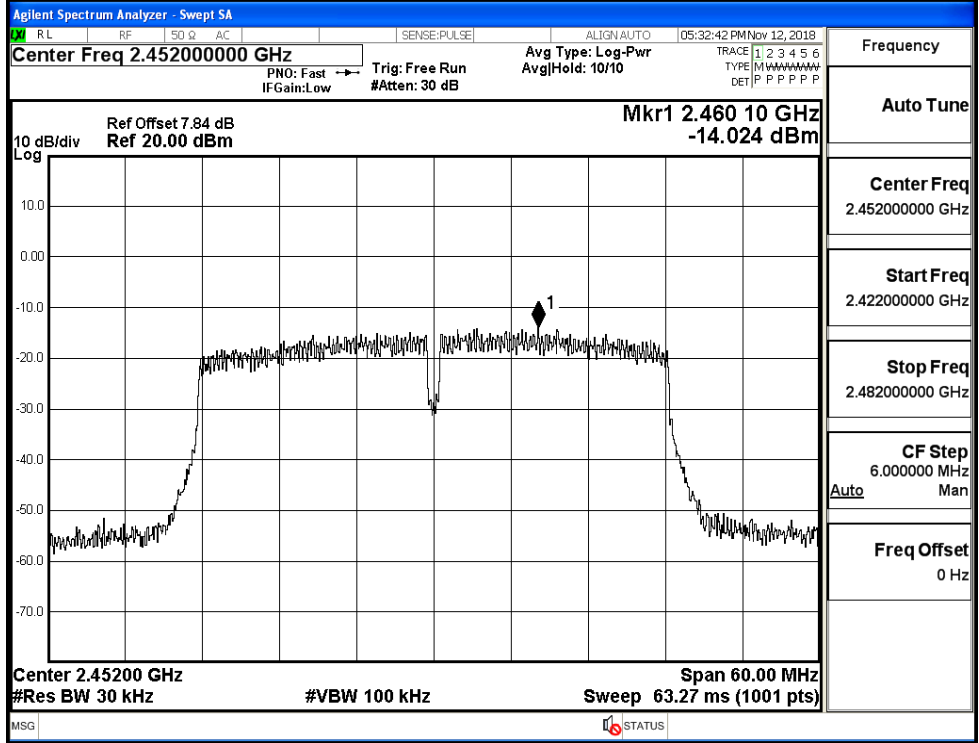
11N40SISO/LCH



11N40SISO/MCH

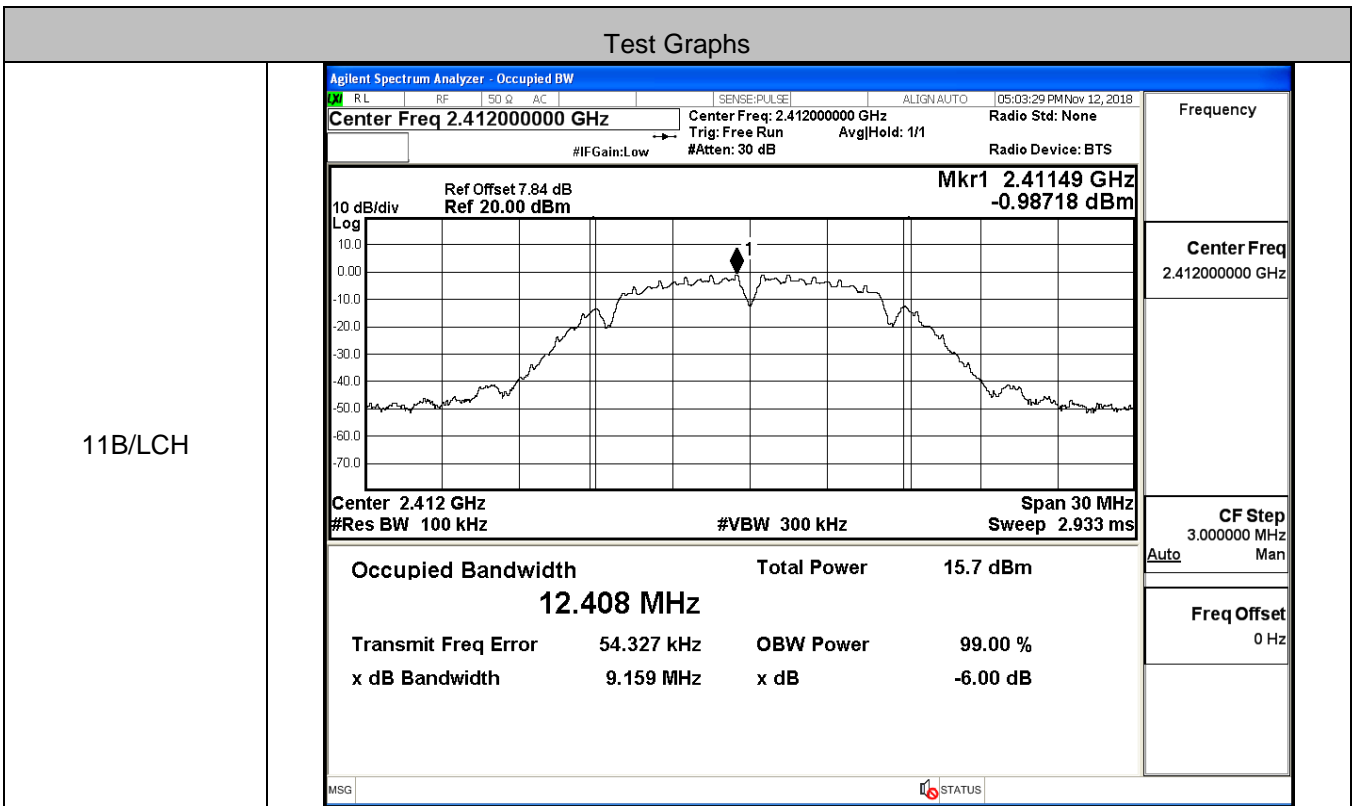


11N40SISO/HCH

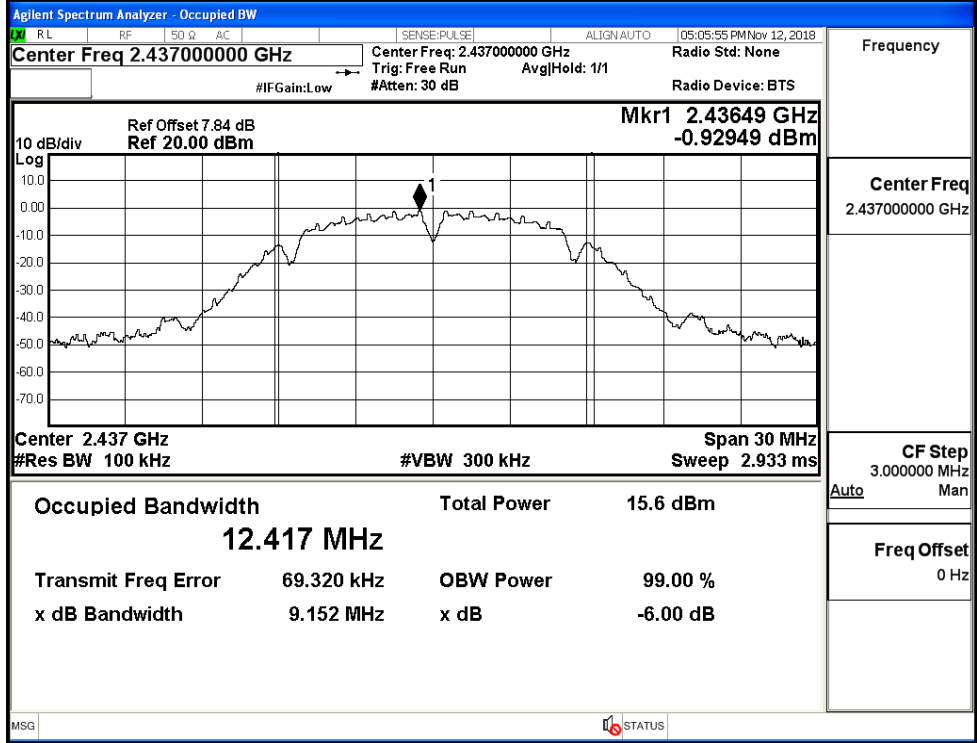


**A.4 6dB Bandwidth**

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	9.159	≥0.5	PASS
	MCH	9.152	≥0.5	PASS
	HCH	9.150	≥0.5	PASS
11G	LCH	16.40	≥0.5	PASS
	MCH	16.43	≥0.5	PASS
	HCH	16.40	≥0.5	PASS
11N20SISO	LCH	17.63	≥0.5	PASS
	MCH	17.61	≥0.5	PASS
	HCH	17.61	≥0.5	PASS
11N40SISO	LCH	36.12	≥0.5	PASS
	MCH	36.03	≥0.5	PASS
	HCH	36.00	≥0.5	PASS

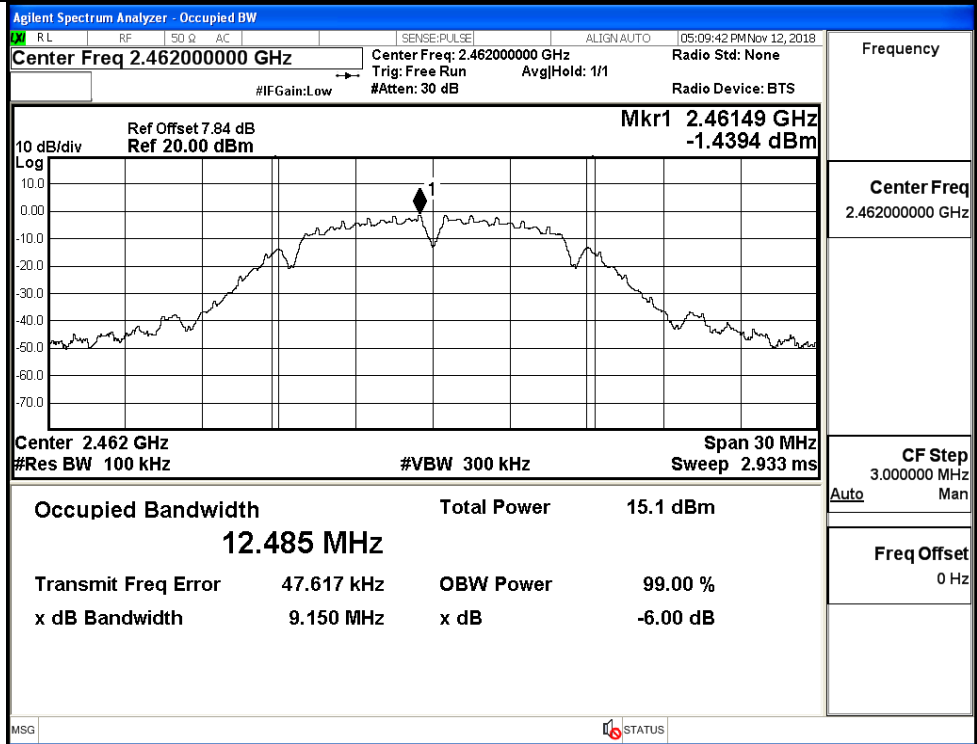


11B/MCH



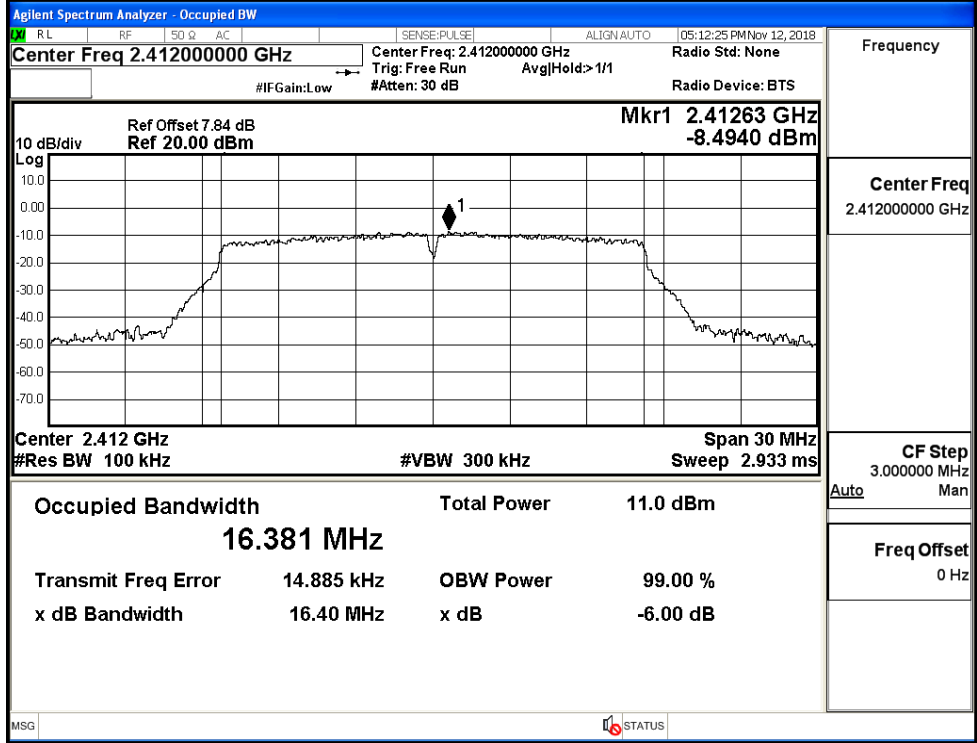
Frequency	2.43700000 GHz
Center Freq	2.43700000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11B/HCH



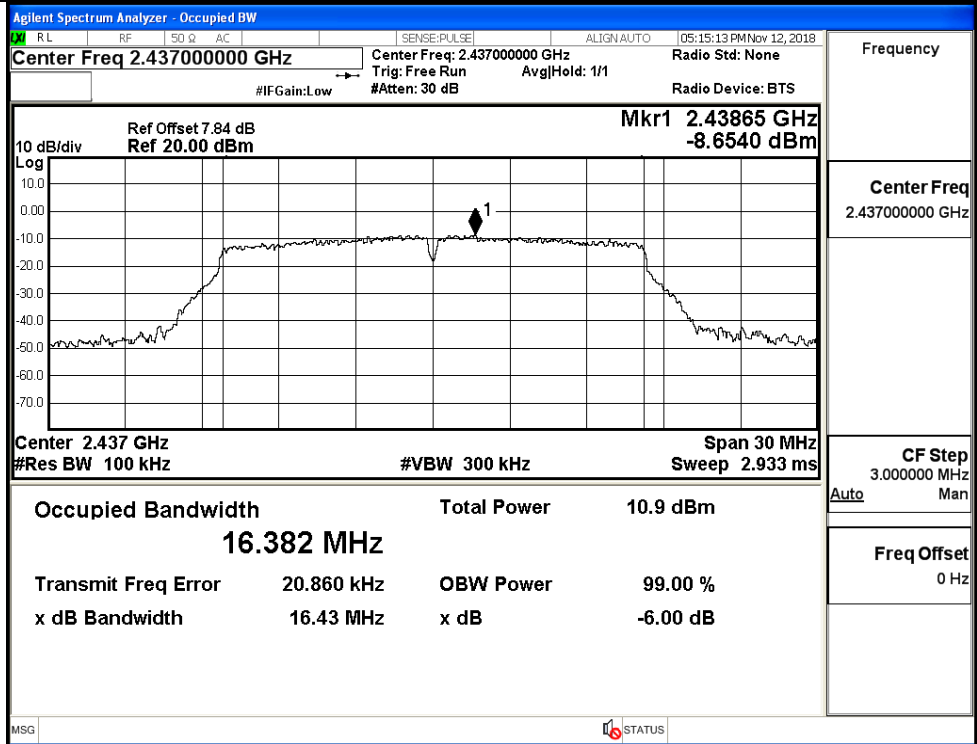
Frequency	2.46200000 GHz
Center Freq	2.46200000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11G/LCH



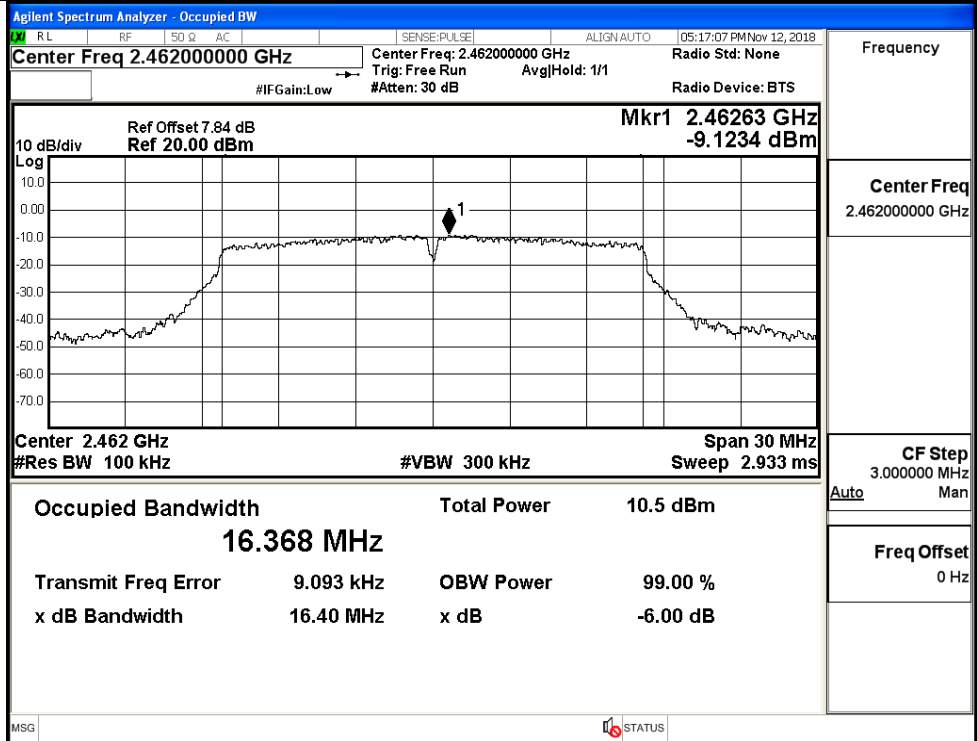
Frequency	2.41200000 GHz
Center Freq	2.41200000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11G/MCH

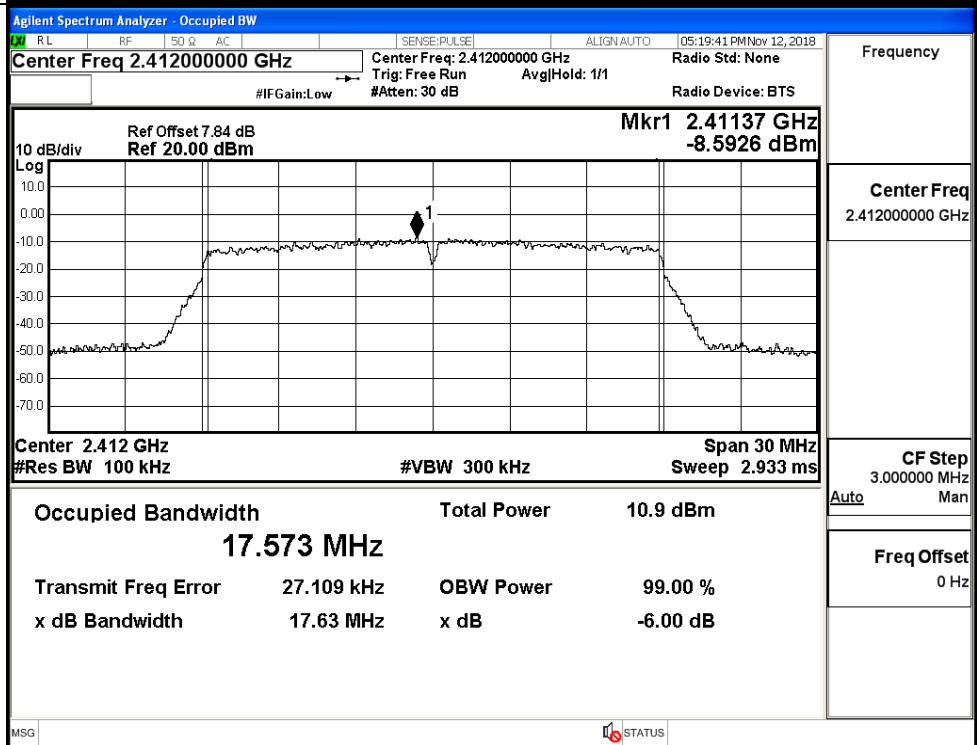


Frequency	2.43700000 GHz
Center Freq	2.43700000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

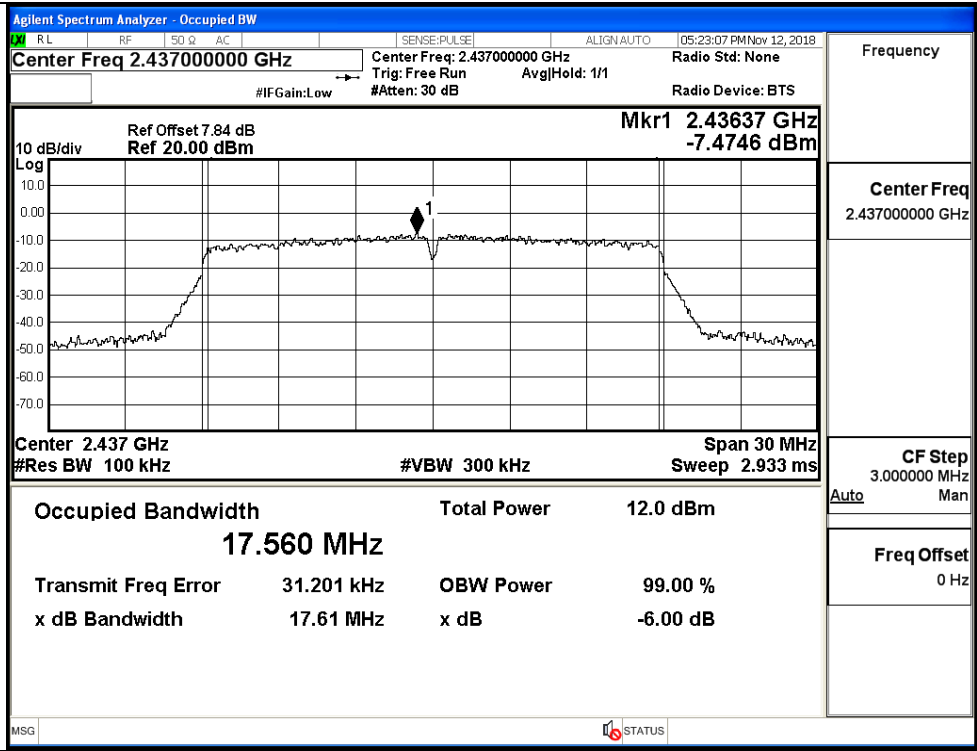
11G/HCH



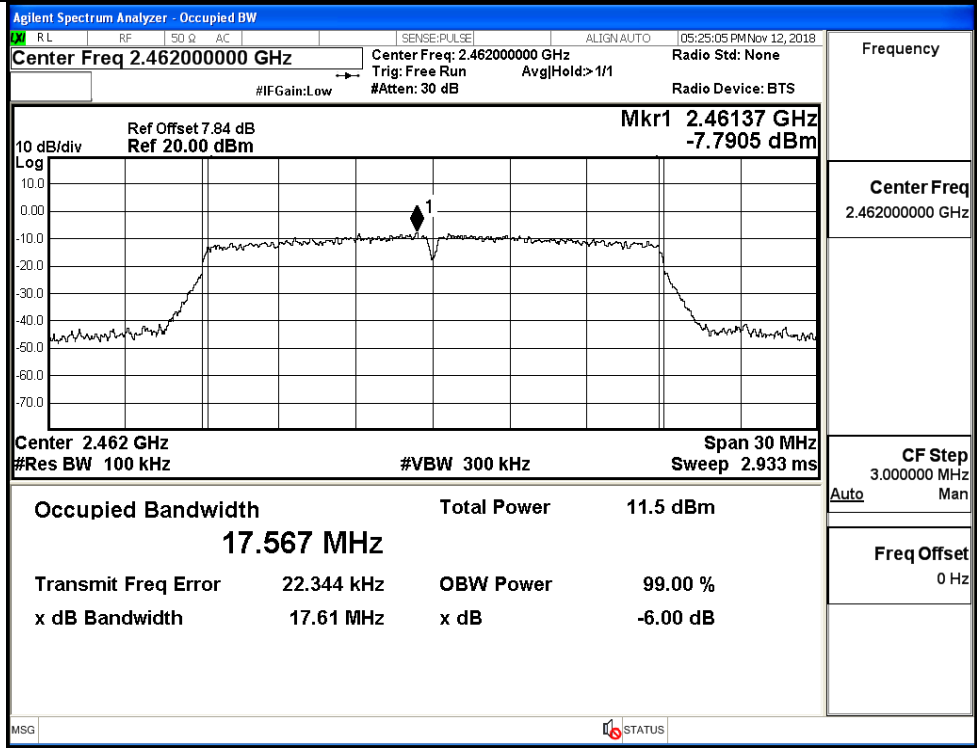
11N20SISO/LCH



11N20SISO/MCH

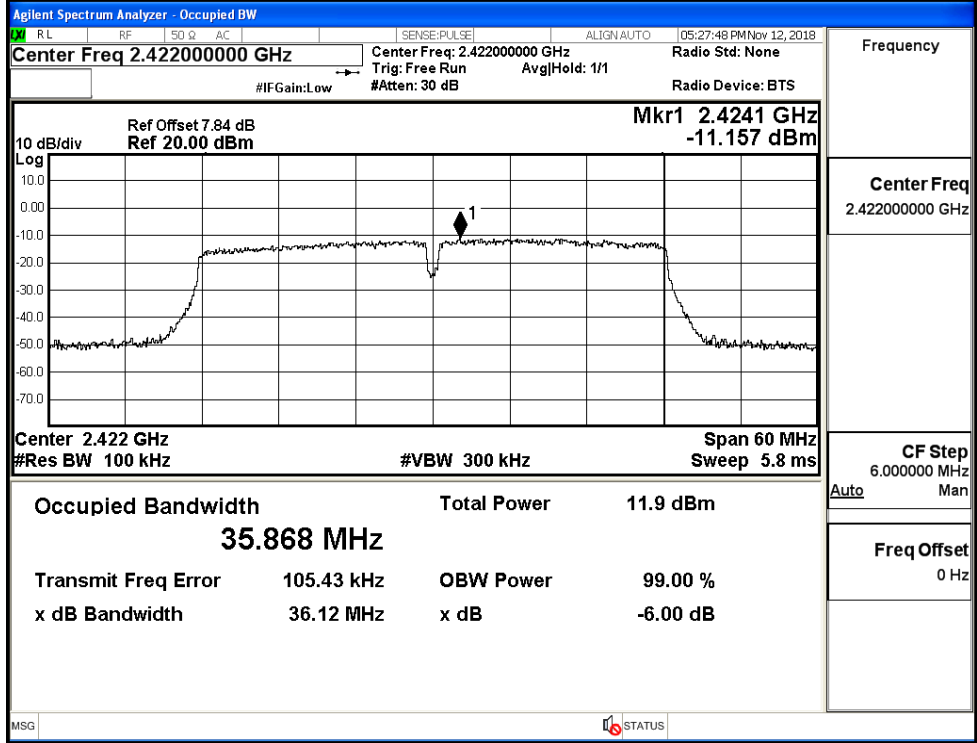


11N20SISO/HCH

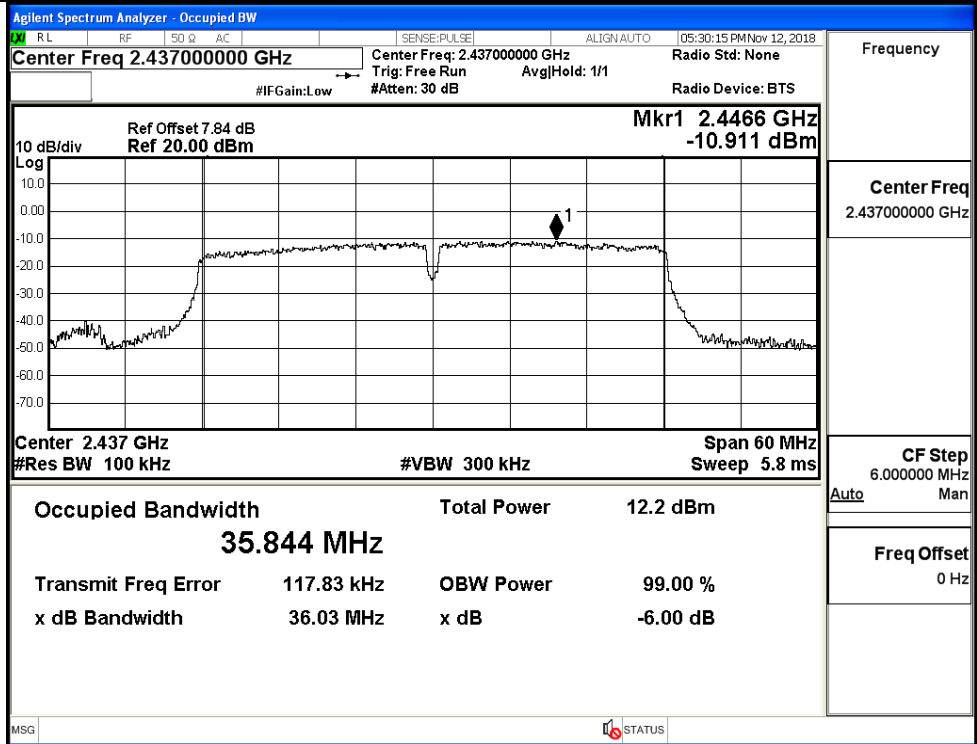




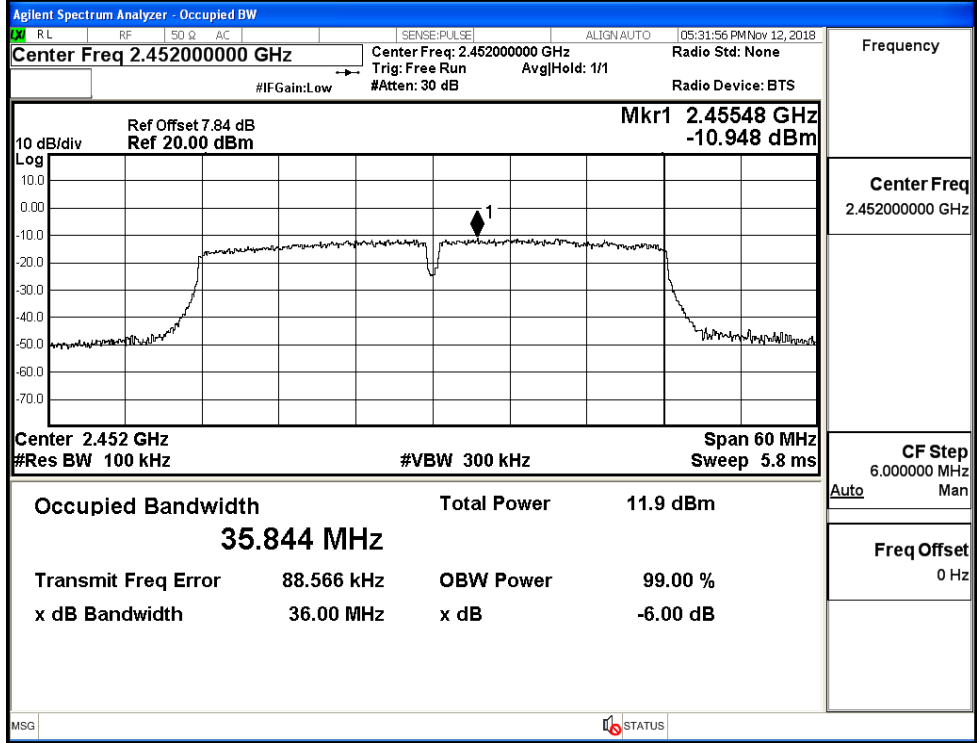
11N40SISO/LCH



11N40SISO/MCH



11N40SISO/HCH

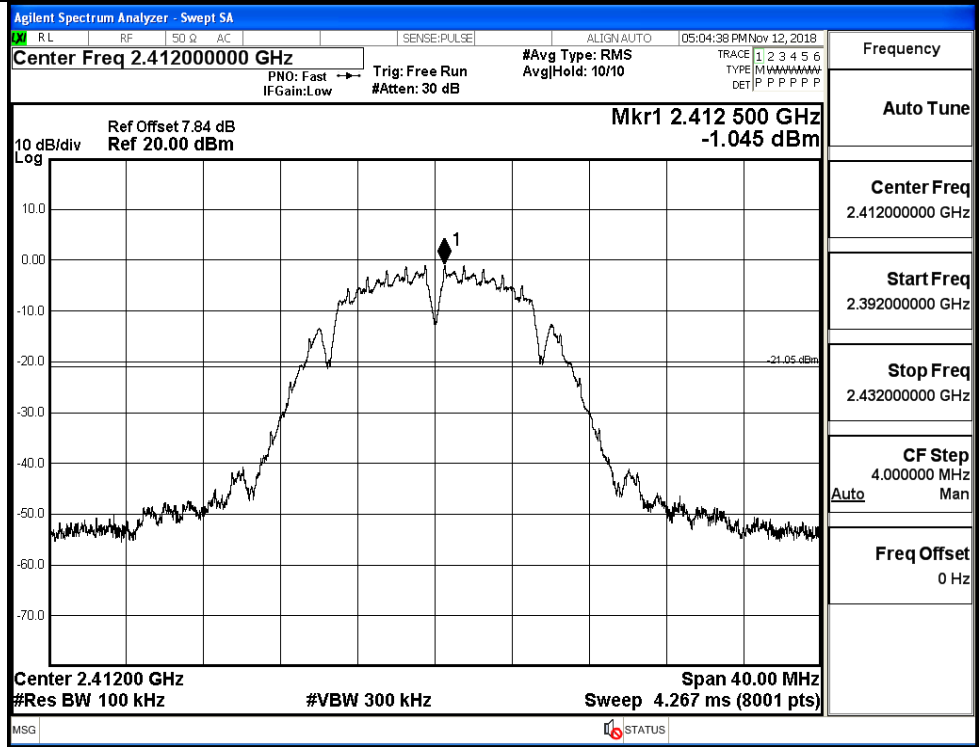


**A.5 RF Conducted Spurious Emissions**

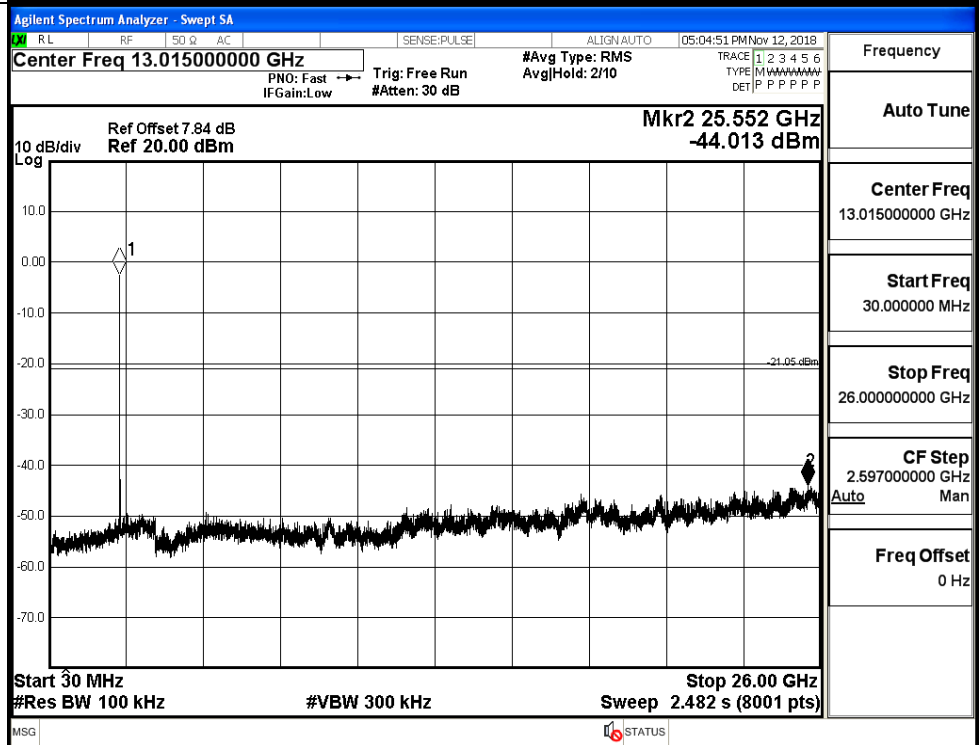
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-1.045	-44.013	-21.045	PASS
	MCH	-1.005	-42.871	-21.005	PASS
	HCH	-1.653	-43.131	-21.653	PASS
11G	LCH	-8.644	-31.494	-28.644	PASS
	MCH	-8.818	-44.033	-28.818	PASS
	HCH	-9.299	-42.508	-29.299	PASS
11N20SISO	LCH	-8.767	-43.840	-28.767	PASS
	MCH	-7.638	-43.659	-27.638	PASS
	HCH	-8.094	-42.879	-28.094	PASS
11N40SISO	LCH	-11.069	-43.869	-31.069	PASS
	MCH	-10.992	-44.326	-30.992	PASS
	HCH	-11.055	-44.620	-31.055	PASS

11B\_LCH\_Graphs

Pref/11B/LCH

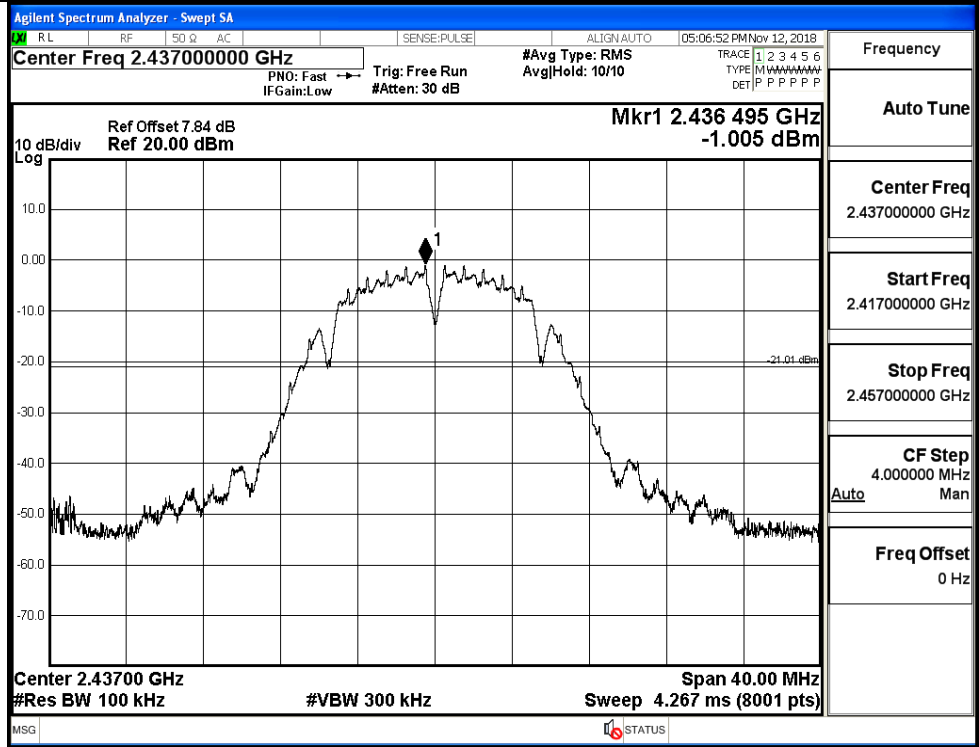


Puw/11B/LCH

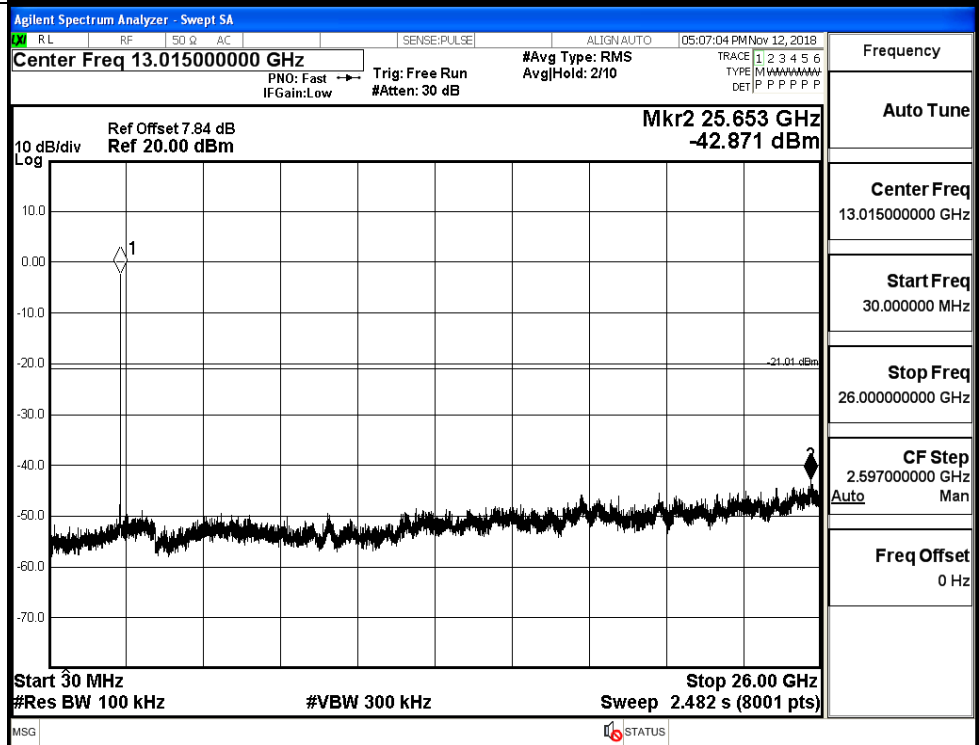


11B\_MCH\_Graphs

Pref/11B/MCH

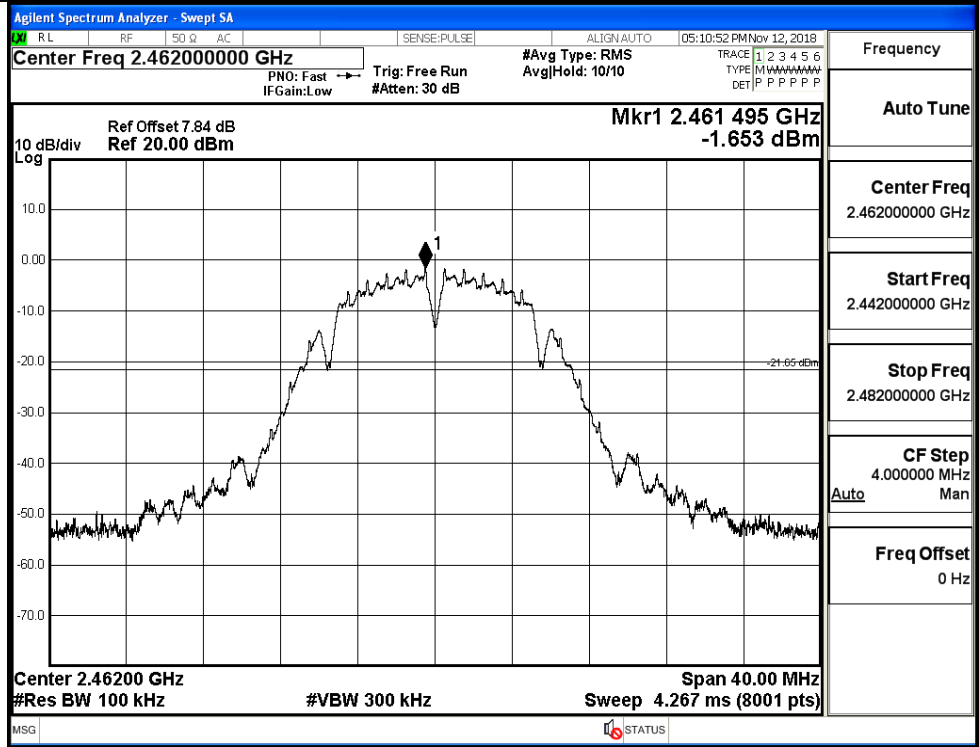


Puw/11B/MCH

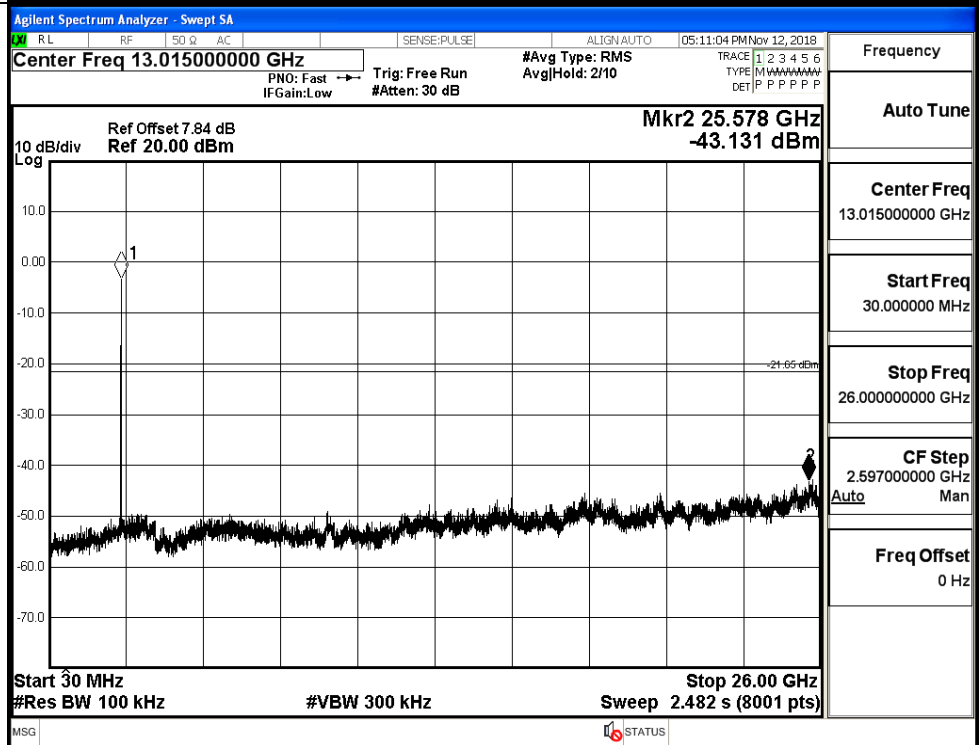


11B\_HCH\_Graphs

Pref/11B/HCH

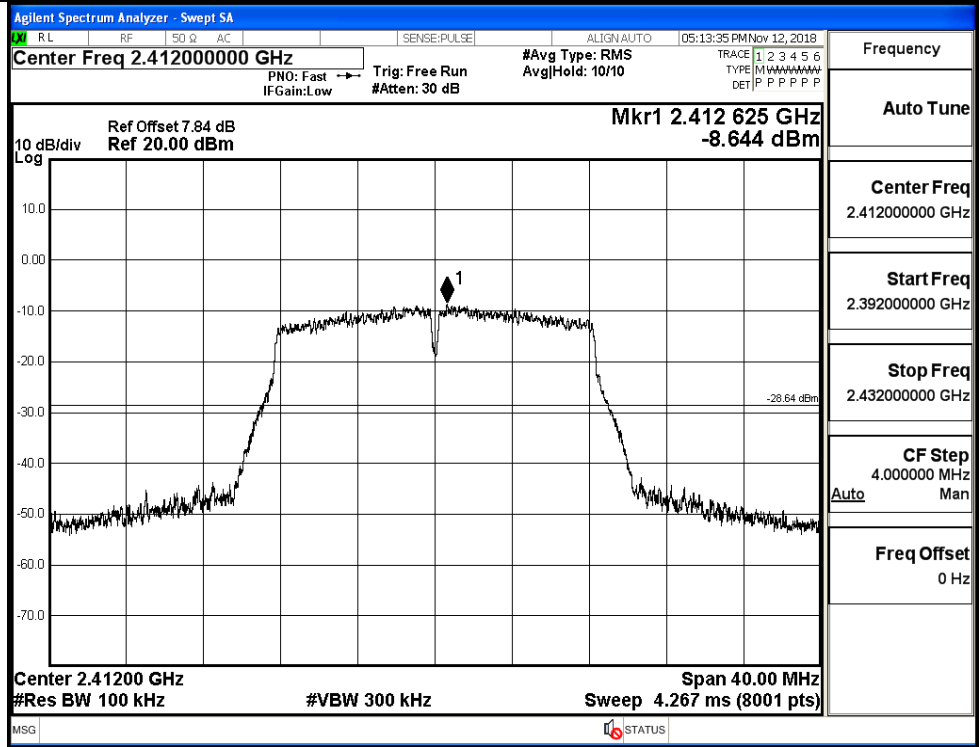


Puw/11B/HCH

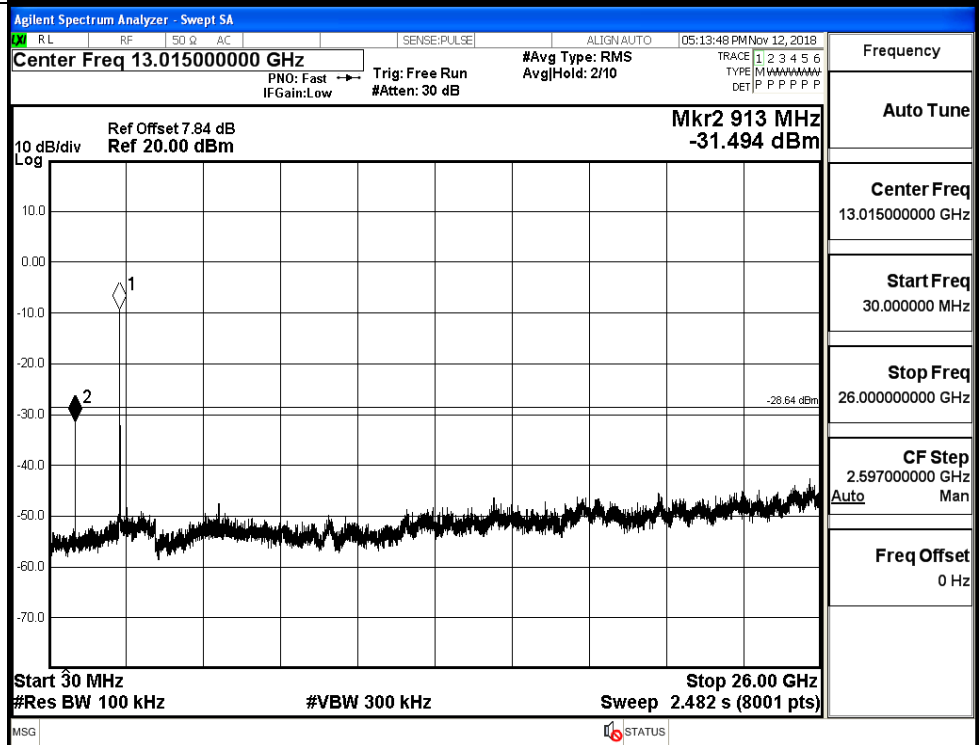


11G\_LCH\_Graphs

Pref/11G/LCH

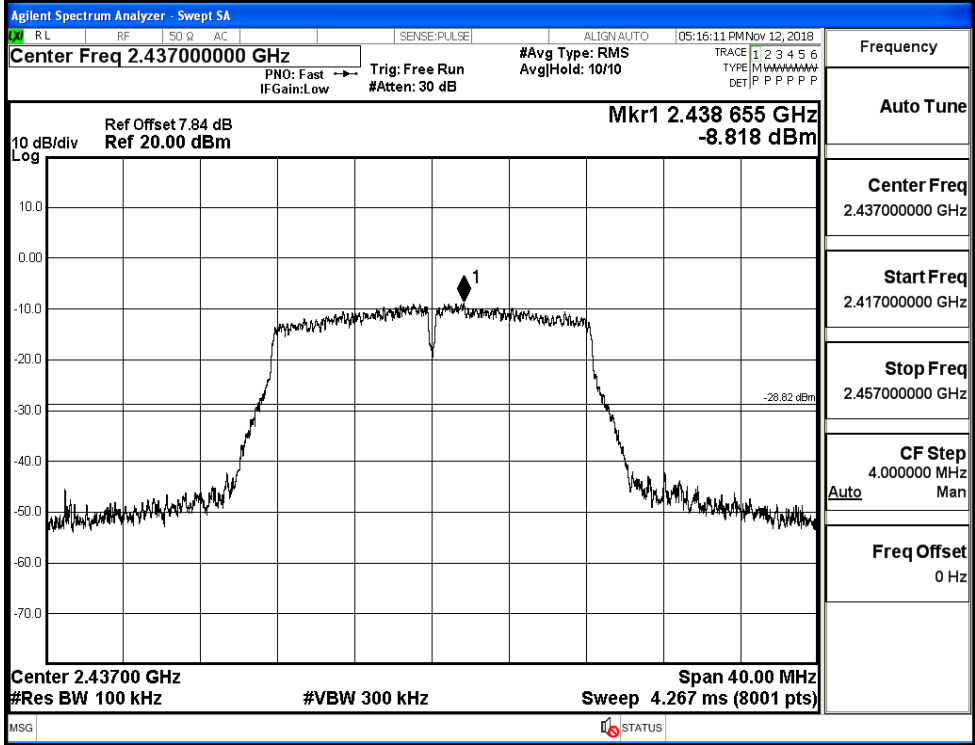


Puw/11G/LCH

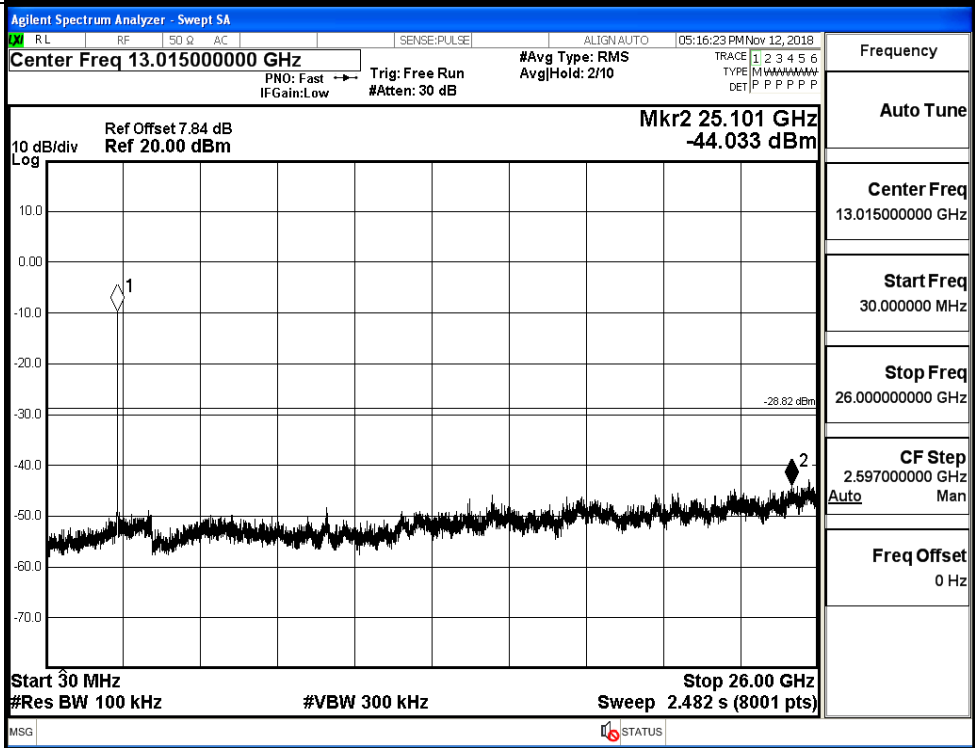


11G\_MCH\_Graphs

Pref/11G/MCH



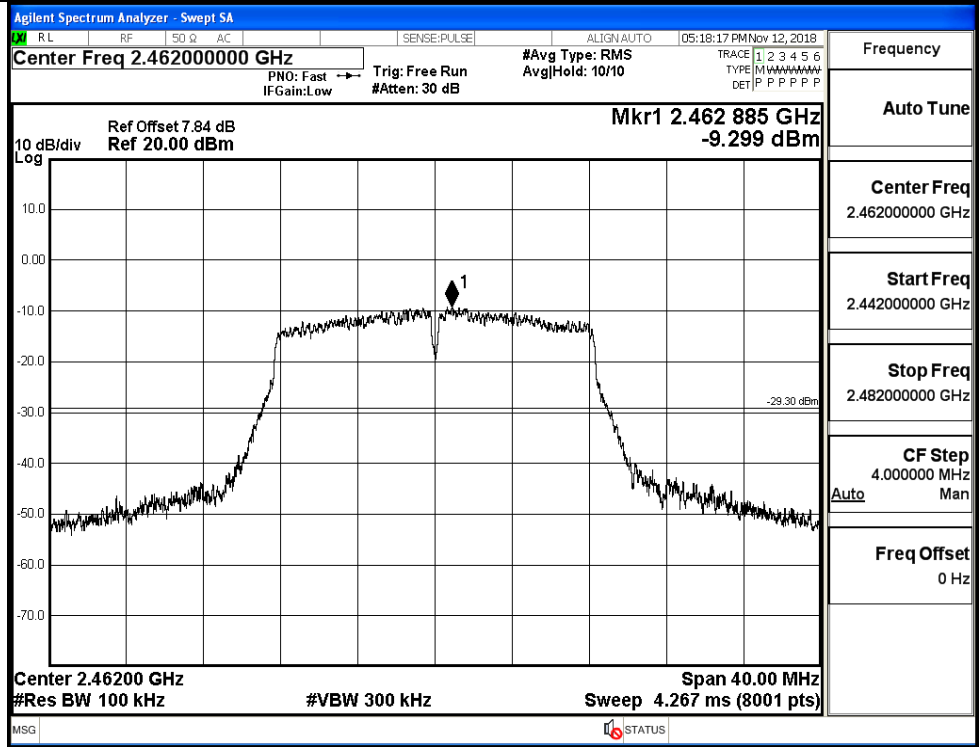
Puw/11G/MCH



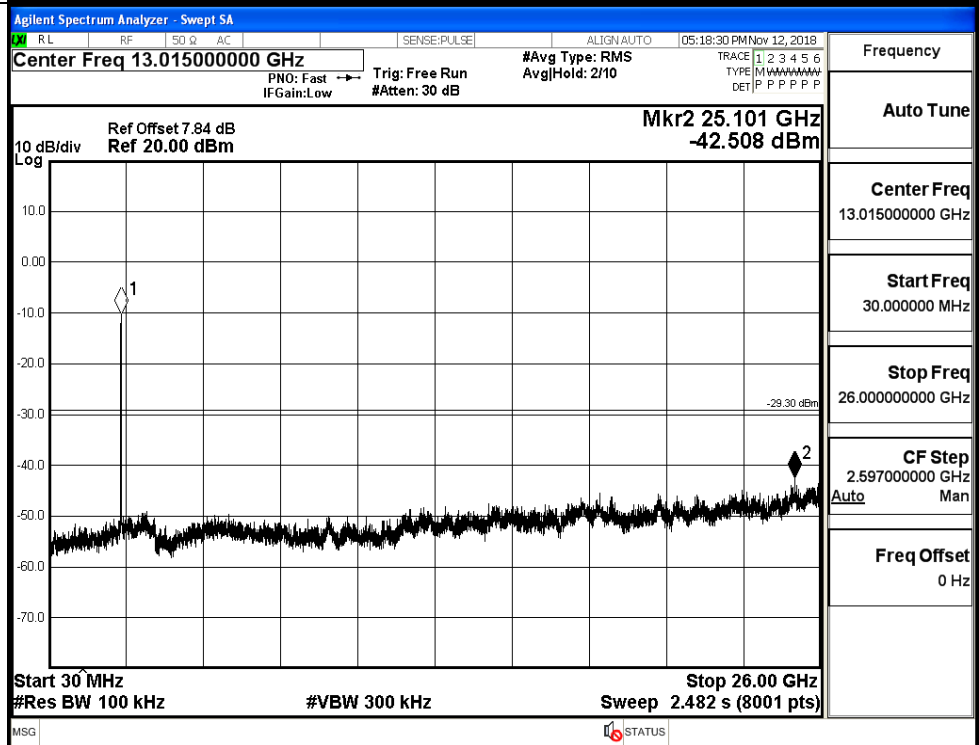


11G\_HCH\_Graphs

Pref/11G/HCH

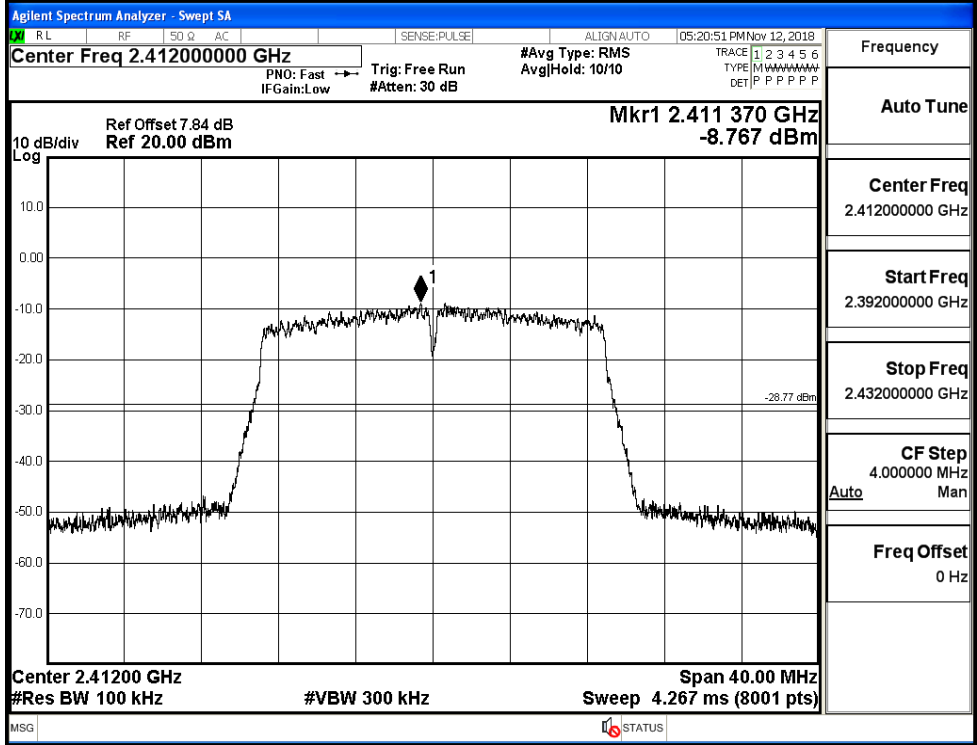


Puw/11G/HCH

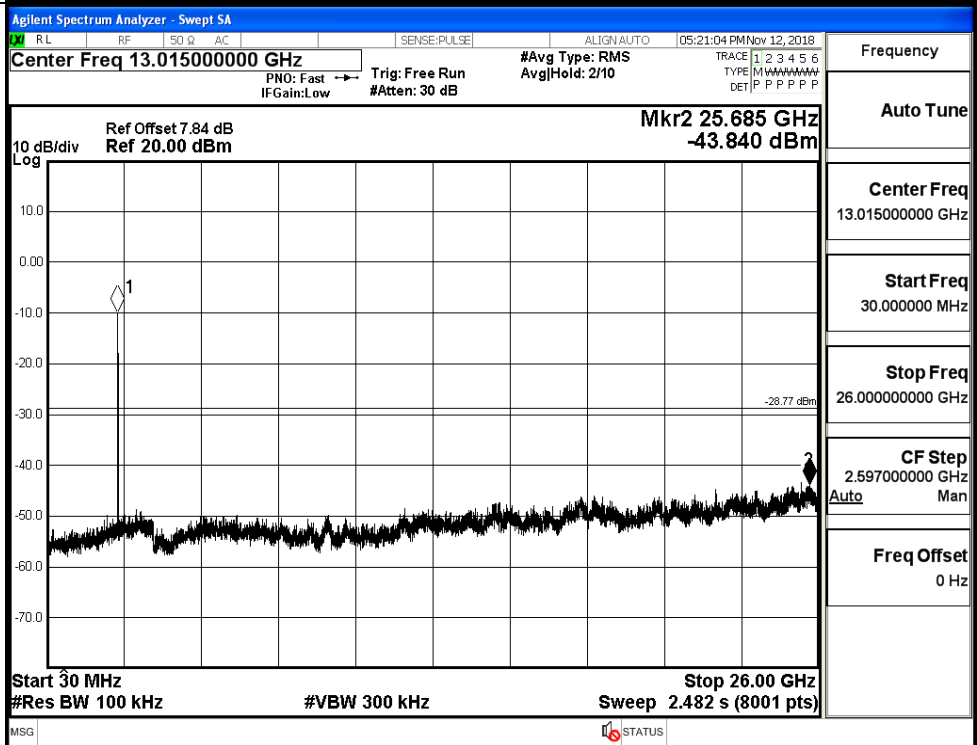


11N20SISO\_LCH\_Graphs

Pref/11N20SIS  
O/LCH

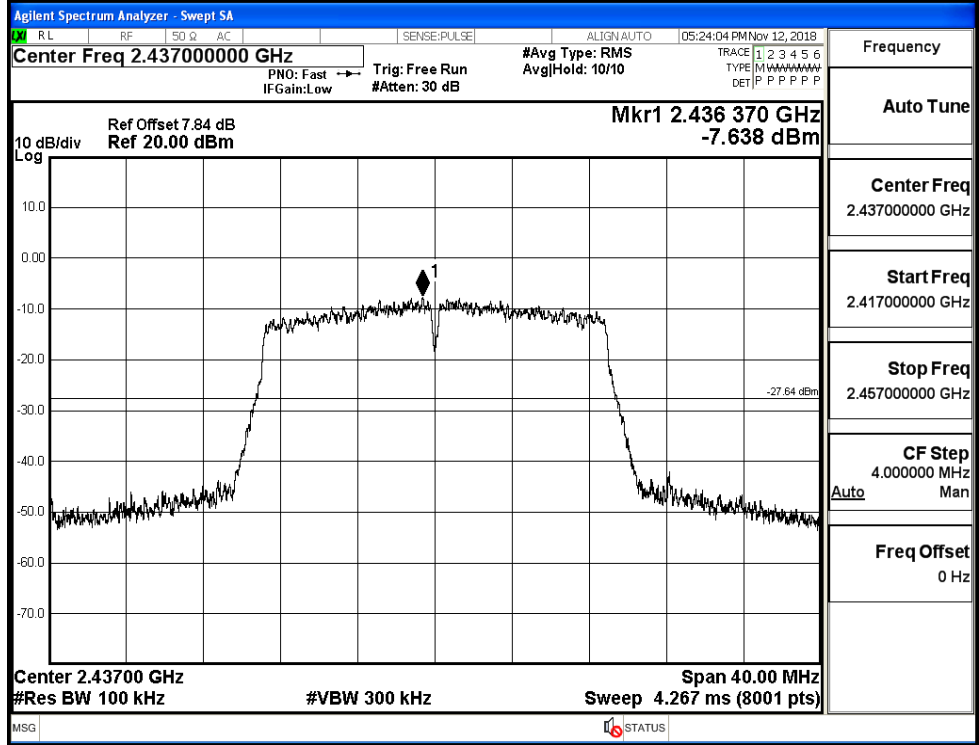


Puw/11N20  
SISO/LCH

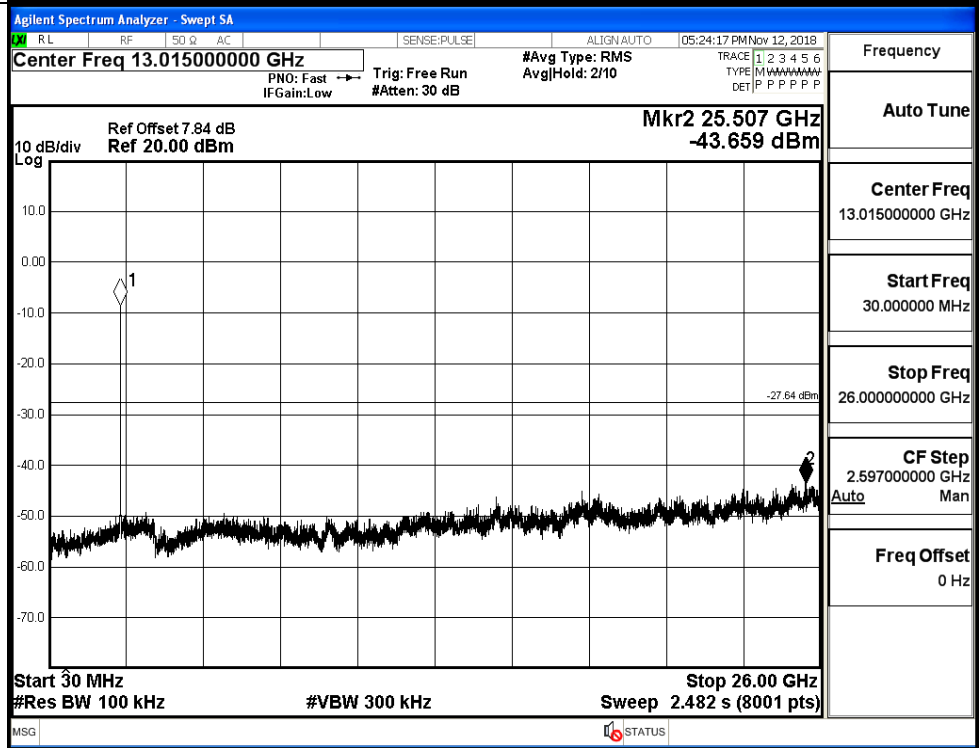


11N20SISO\_MCH\_Graphs

Pref/11N20  
SISO/MCH

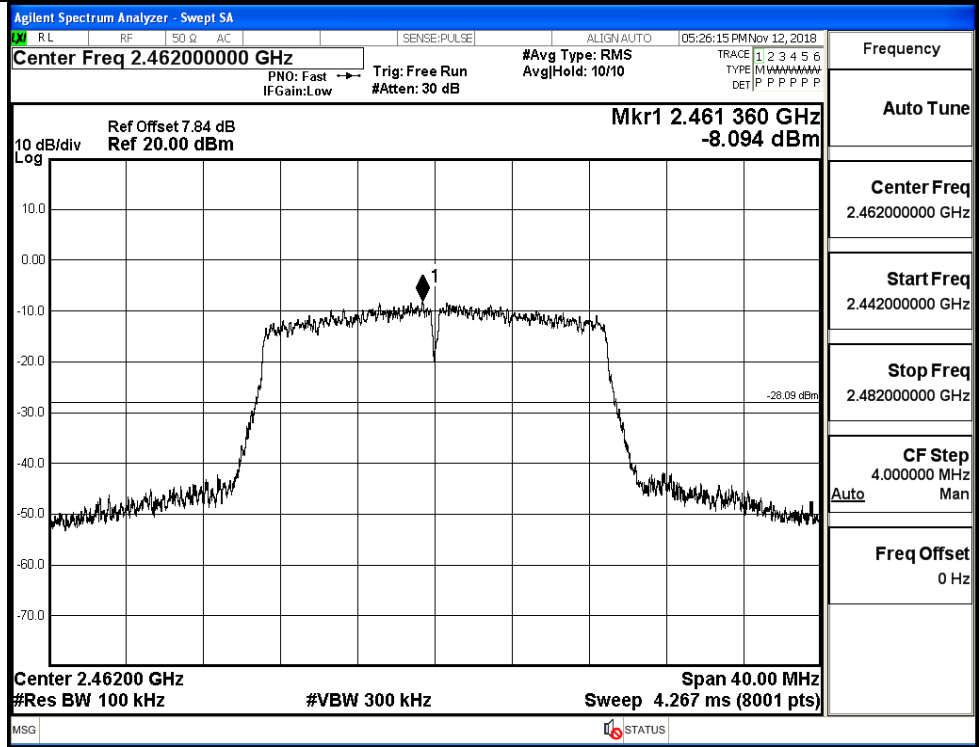


Puw/11N20  
SISO/MCH

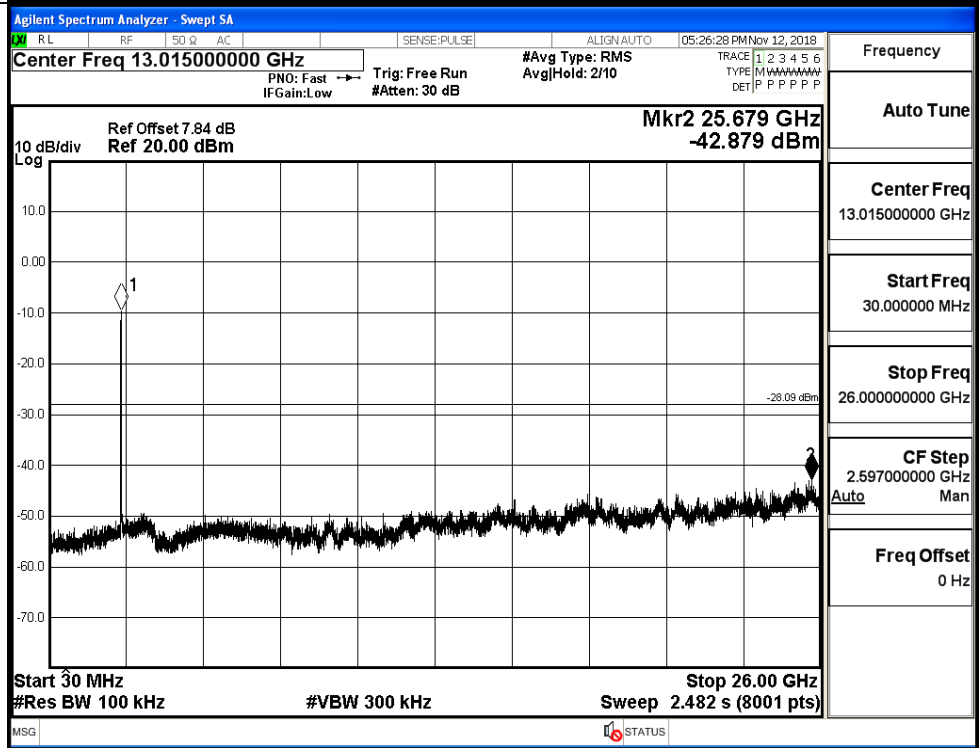


11N20SISO\_HCH\_Graphs

Pref/11N20  
SISO/HCH

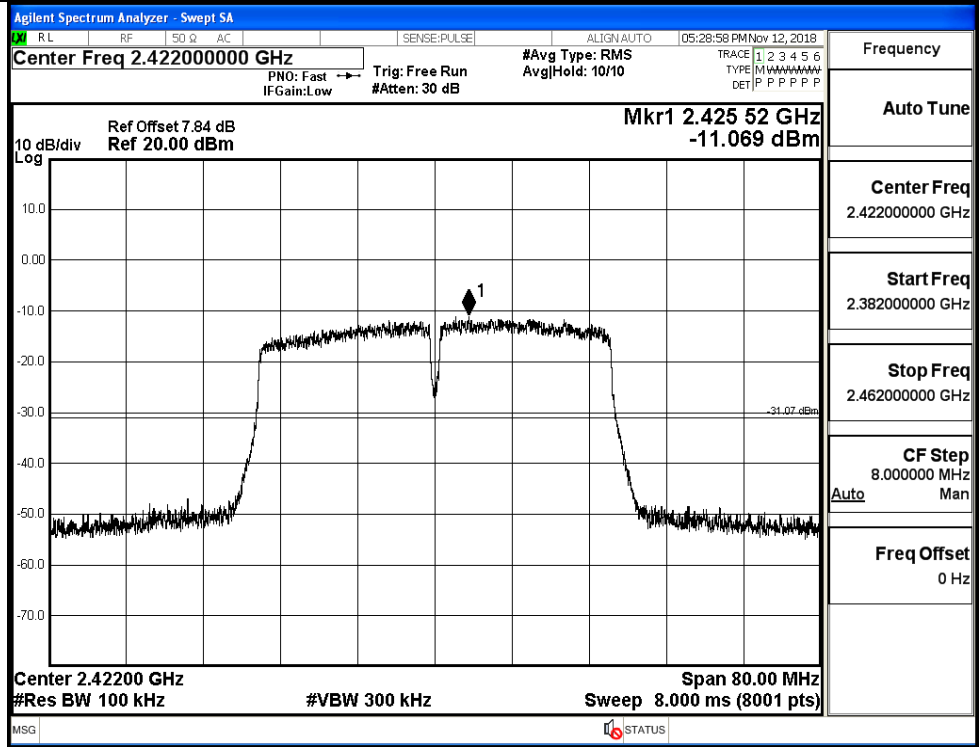


Puw/11N20  
SISO/HCH

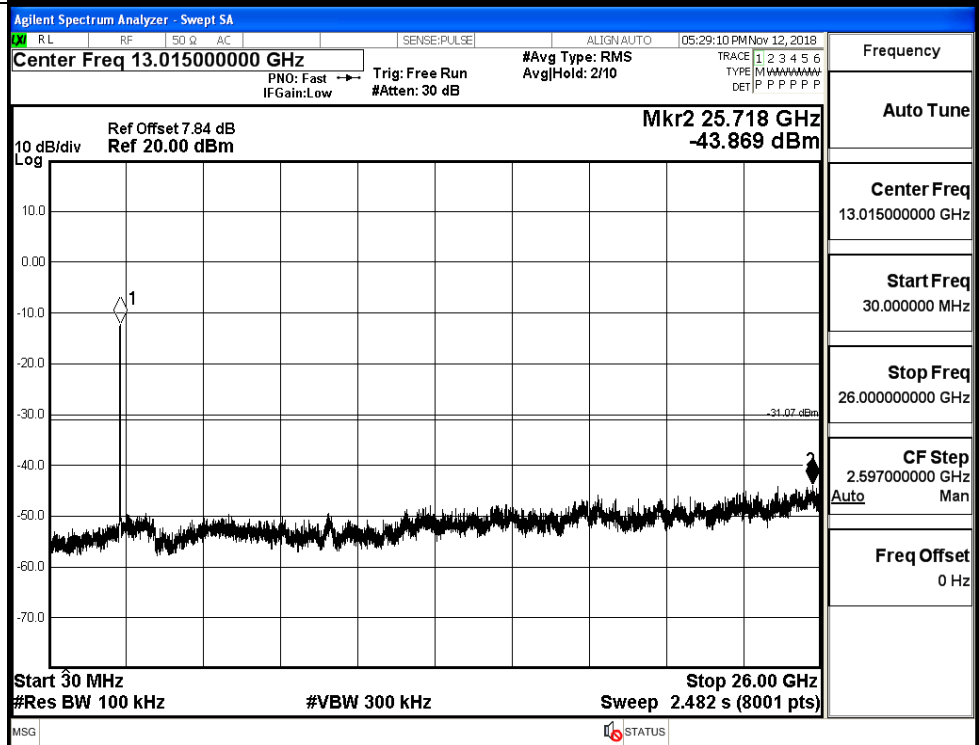


11N40SISO\_LCH\_Graphs

Pref/11N40  
SISO/LCH

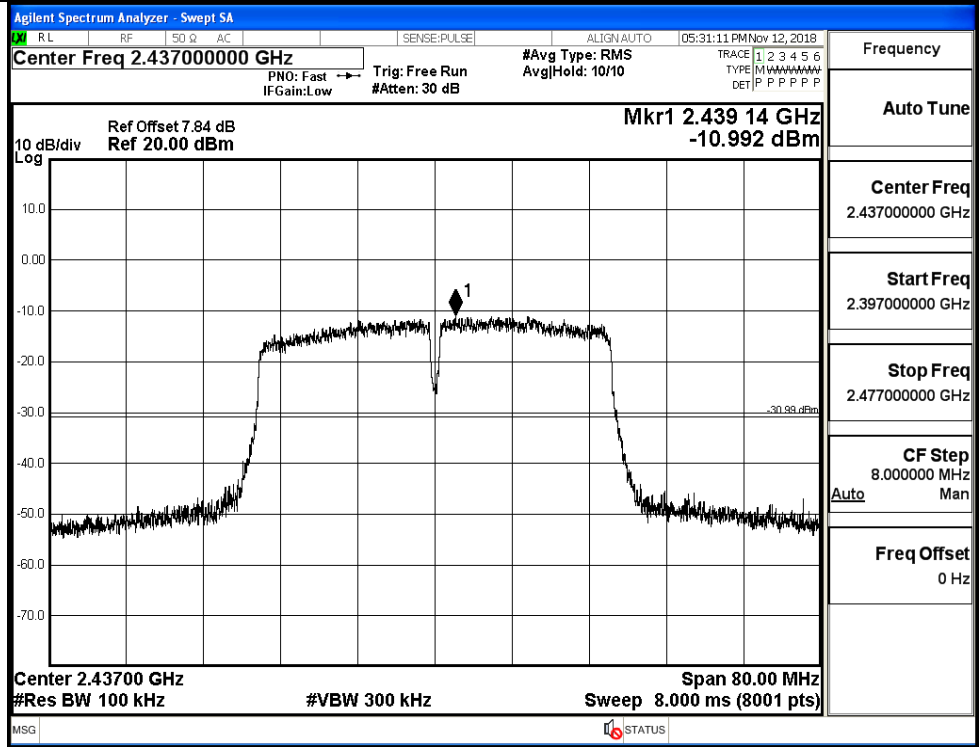


Puw/11N40  
SISO/LCH

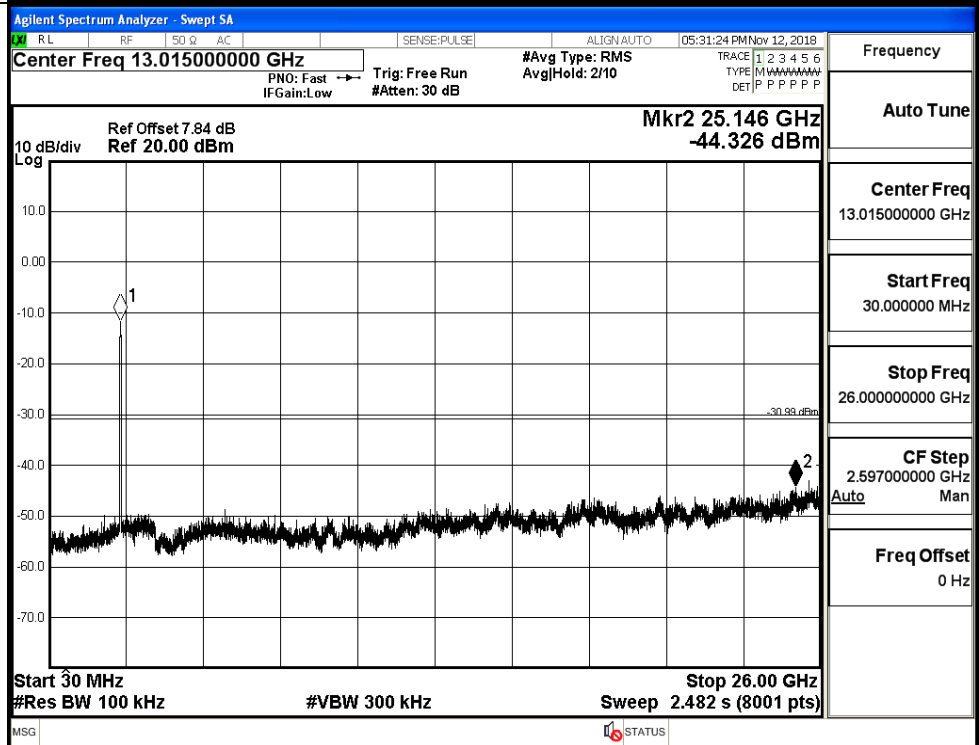


11N40SISO\_MCH\_Graphs

Pref/11N40  
SISO/MCH

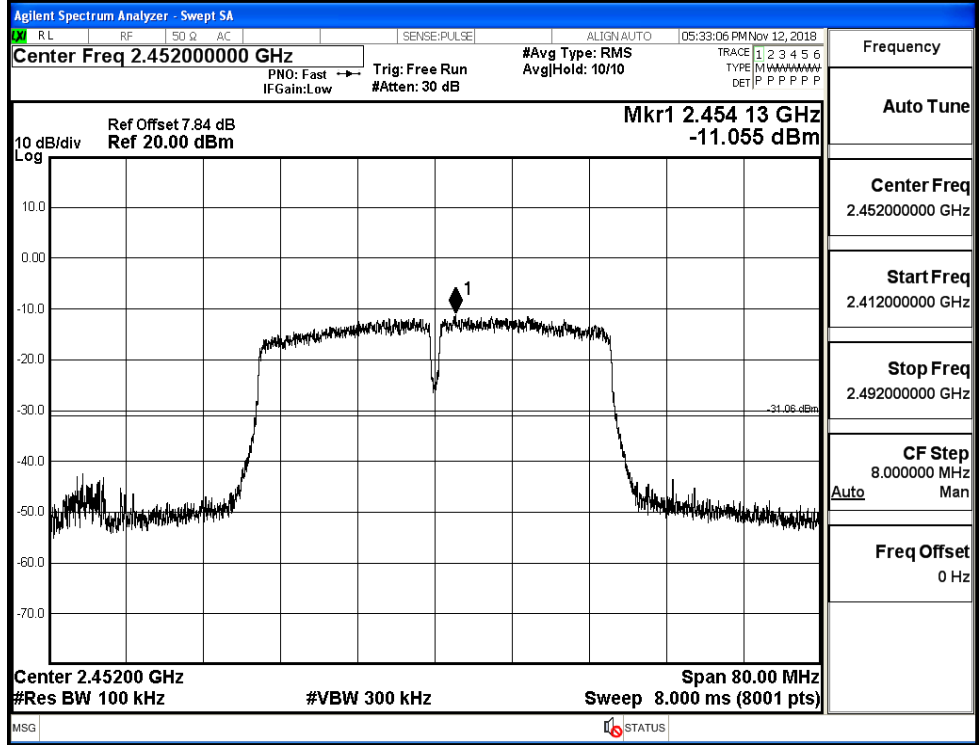


Puw/11N40  
SISO/MCH

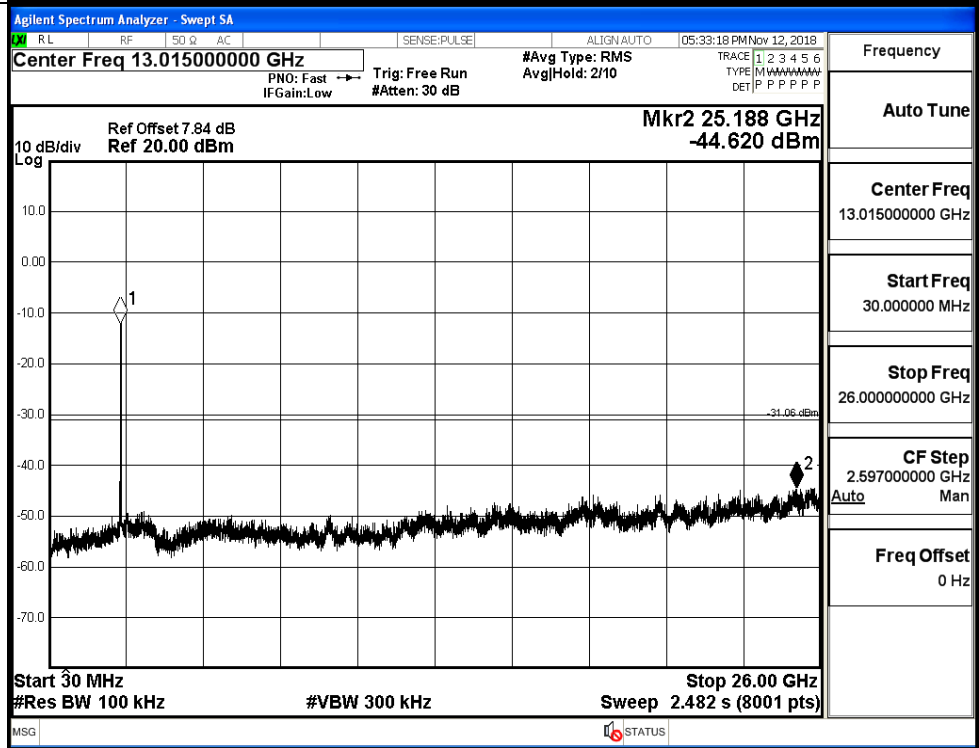


11N40SISO\_HCH\_Graphs

Pref/11N40  
SISO/HCH

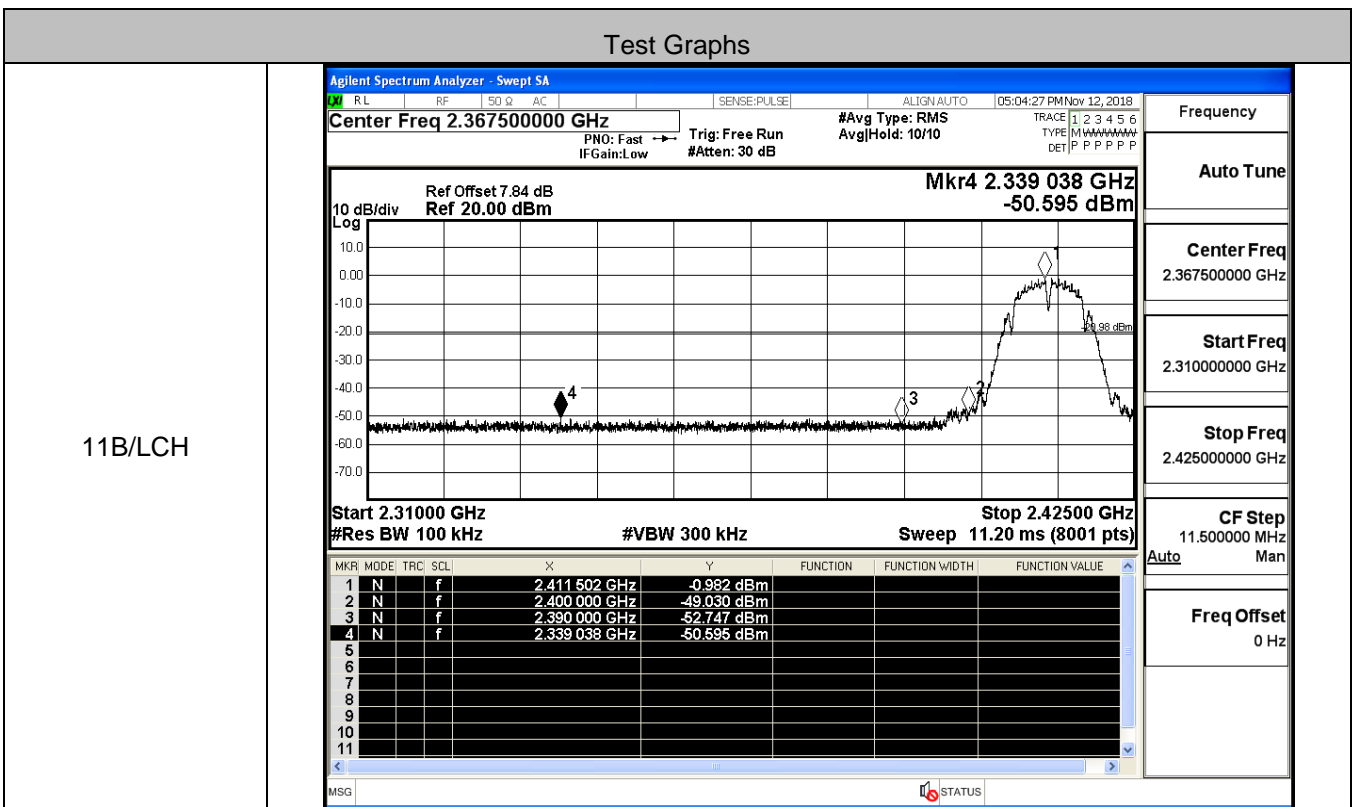


Puw/11N40  
SISO/HCH



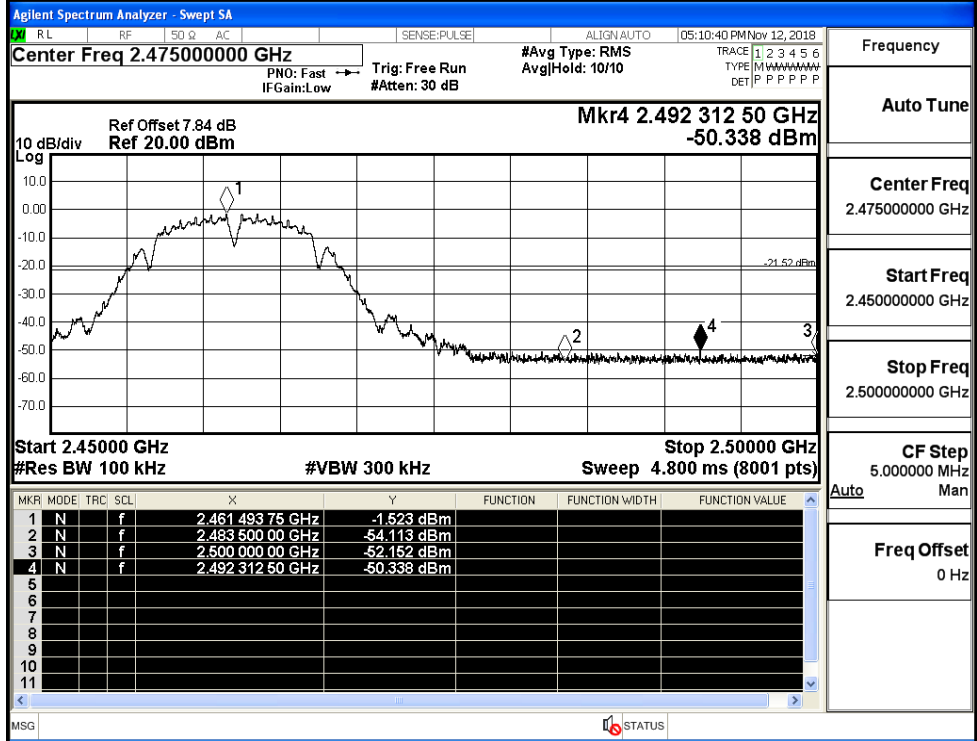
### A.6 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-0.982	-50.595	-20.98	PASS
	HCH	-1.523	-50.338	-21.52	PASS
11G	LCH	-8.930	-49.831	-28.93	PASS
	HCH	-9.216	-49.875	-29.22	PASS
11N20SISO	LCH	-8.647	-50.493	-28.65	PASS
	HCH	-8.043	-49.247	-28.04	PASS
11N40SISO	LCH	-11.503	-49.104	-31.5	PASS
	HCH	-11.477	-46.869	-31.48	PASS





11B/HCH



Frequency

Auto Tune

Center Freq  
2.47500000 GHz

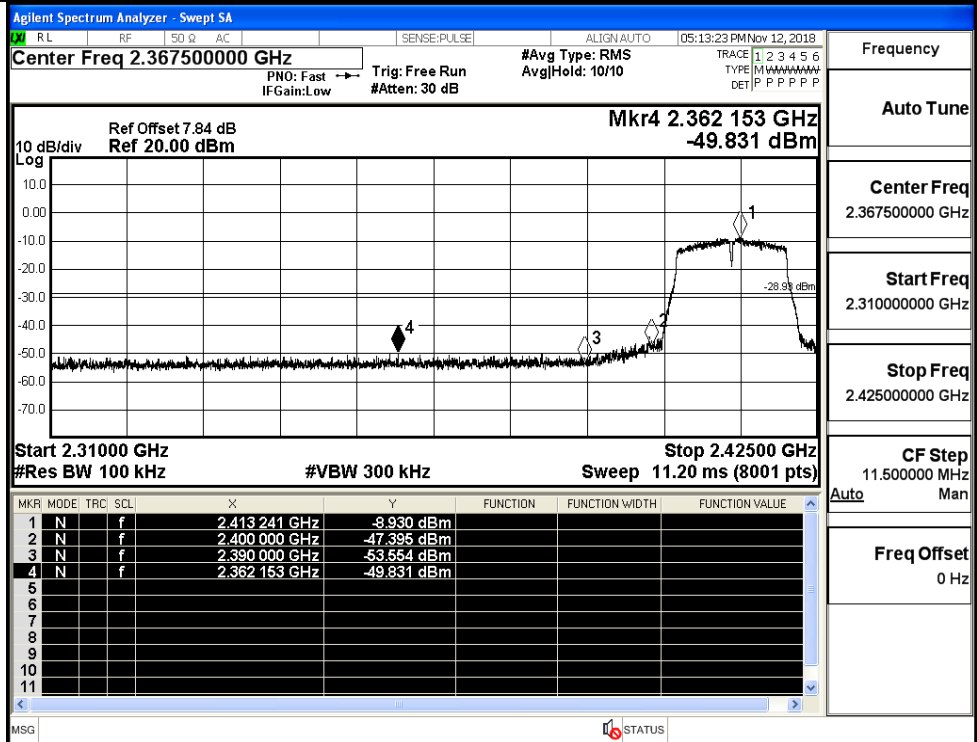
Start Freq  
2.45000000 GHz

Stop Freq  
2.50000000 GHz

CF Step  
5.000000 MHz

Freq Offset  
0 Hz

11G/LCH



Frequency

Auto Tune

Center Freq  
2.36750000 GHz

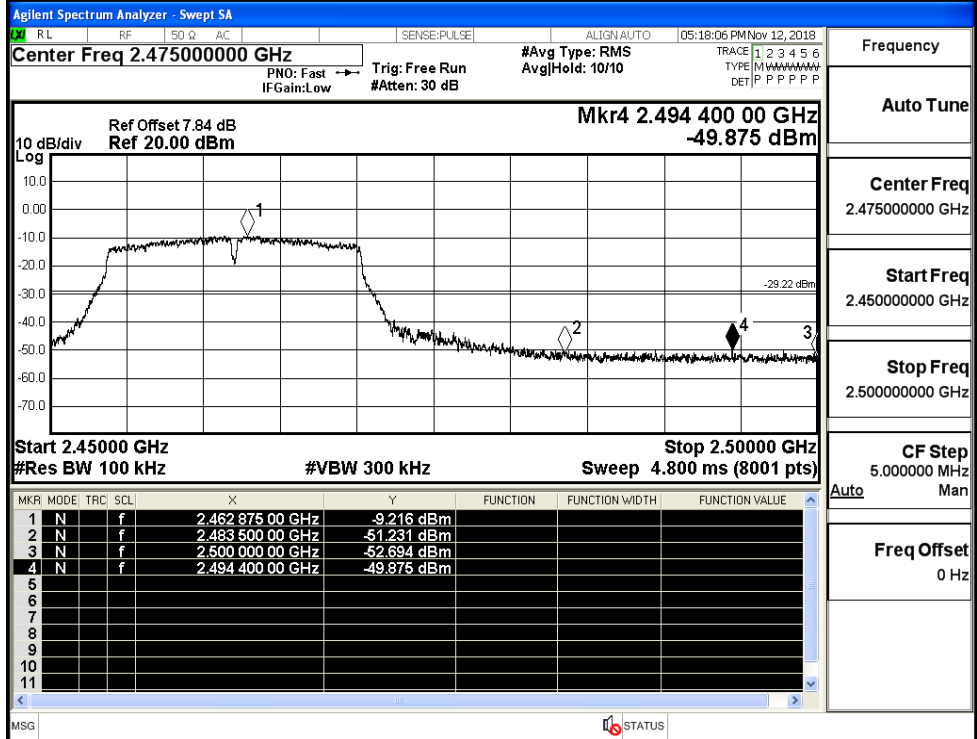
Start Freq  
2.31000000 GHz

Stop Freq  
2.42500000 GHz

CF Step  
11.500000 MHz

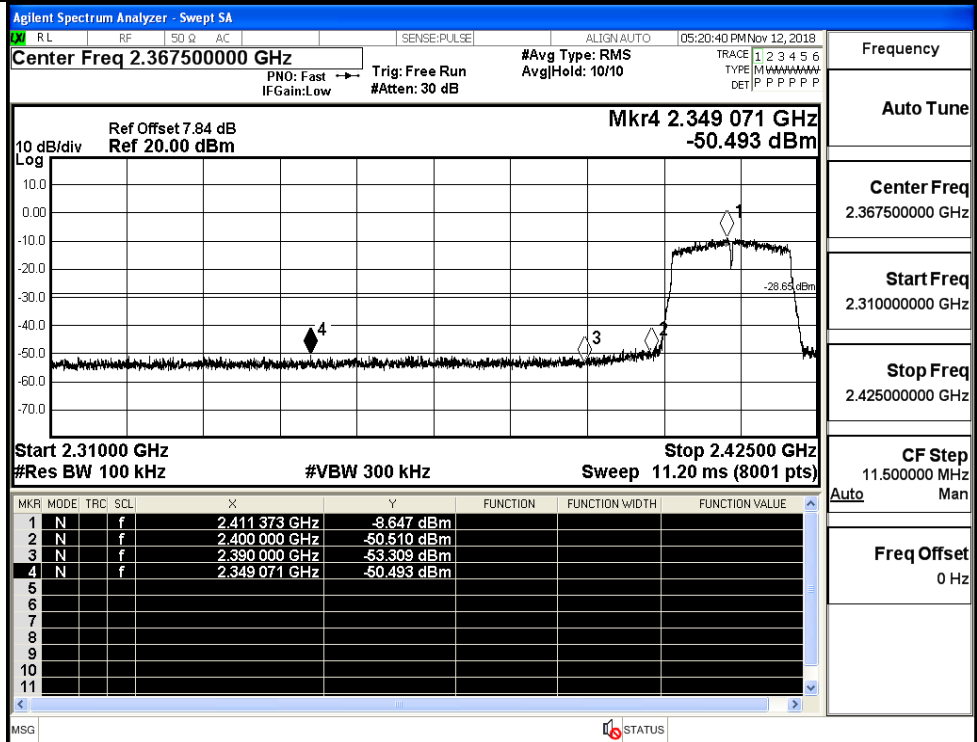
Freq Offset  
0 Hz

11G/HCH



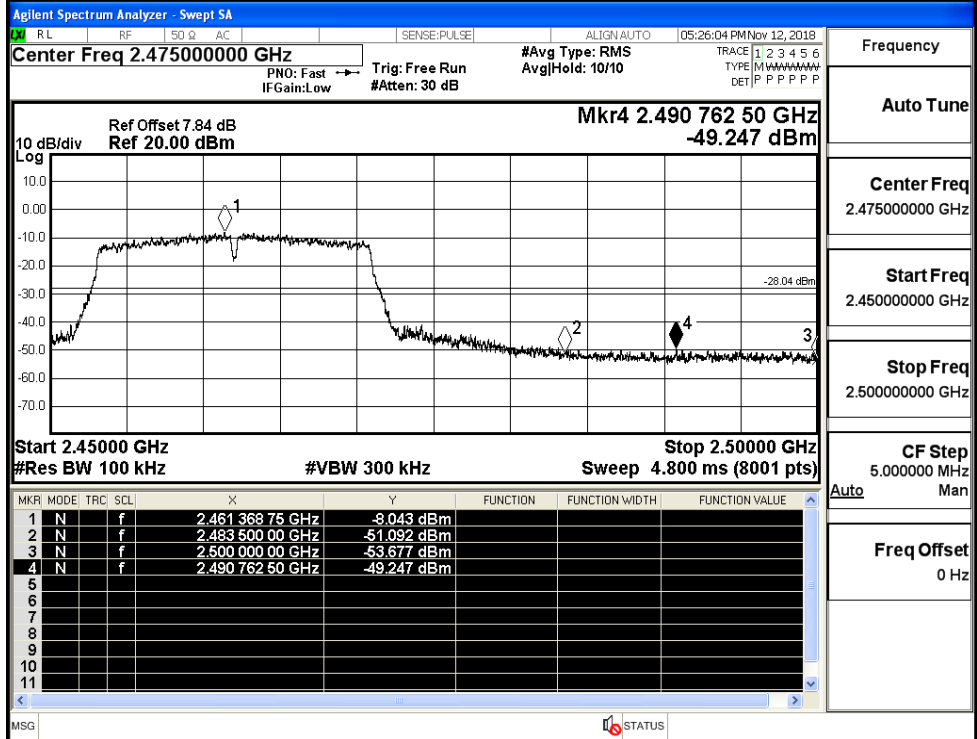
Frequency	
Auto Tune	
Center Freq	2.47500000 GHz
Start Freq	2.45000000 GHz
Stop Freq	2.50000000 GHz
CF Step	5.000000 MHz
Freq Offset	0 Hz

11N20SISO/LCH



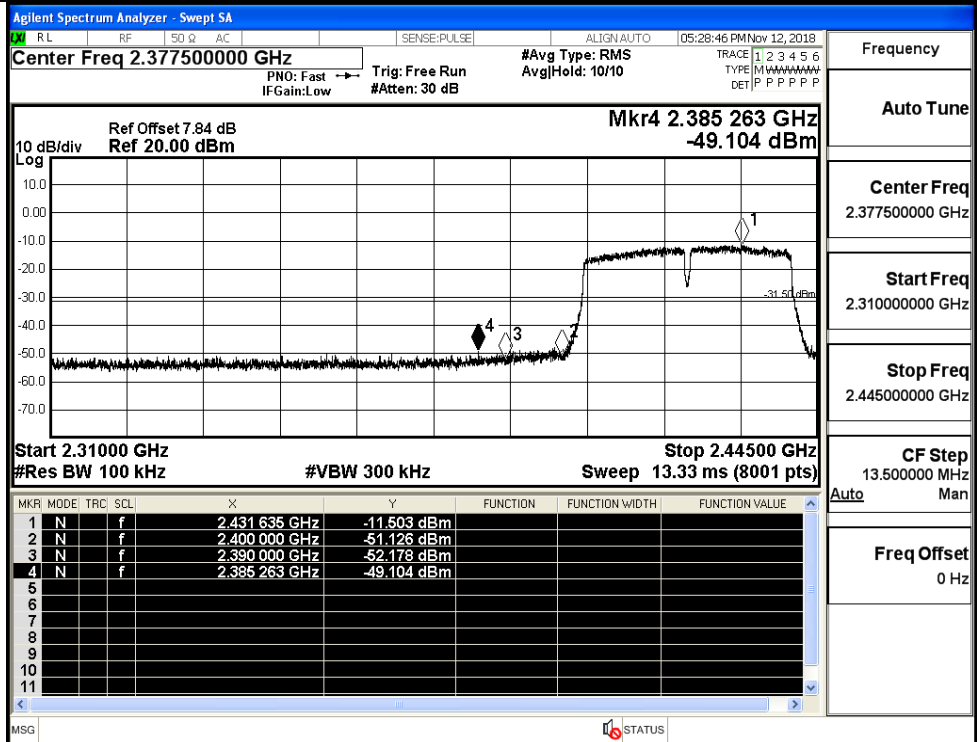
Frequency	
Auto Tune	
Center Freq	2.36750000 GHz
Start Freq	2.31000000 GHz
Stop Freq	2.42500000 GHz
CF Step	11.500000 MHz
Freq Offset	0 Hz

11N20SISO/HCH



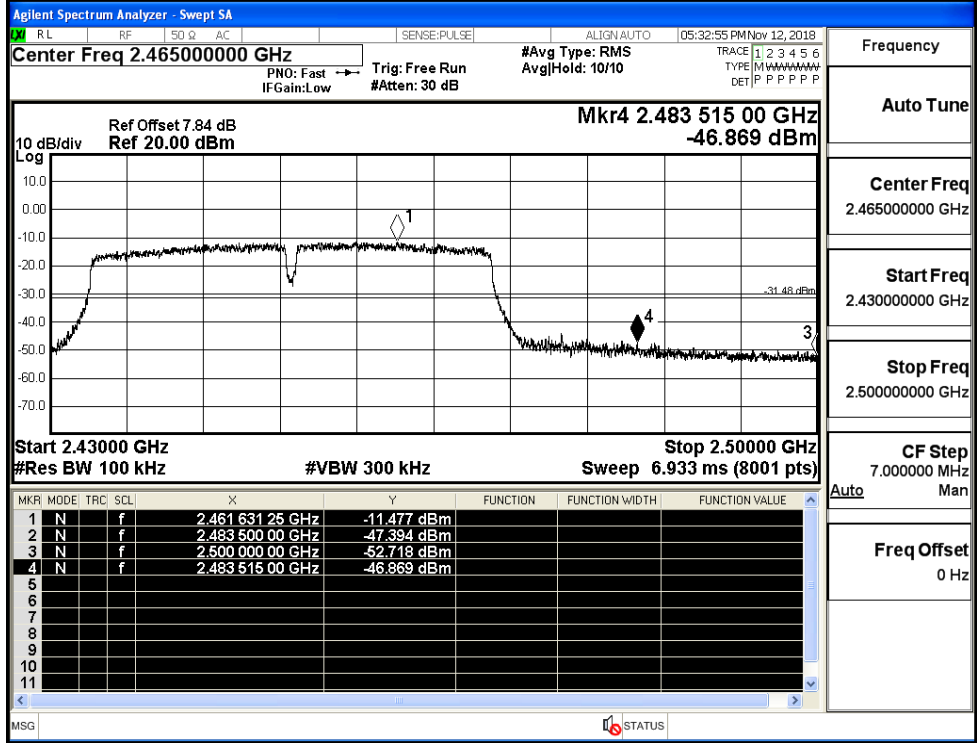
Frequency	2.475000000 GHz
Auto Tune	
Center Freq	2.475000000 GHz
Start Freq	2.450000000 GHz
Stop Freq	2.500000000 GHz
CF Step	5.000000 MHz
Freq Offset	0 Hz

11N40SISO/LCH



Frequency	2.377500000 GHz
Auto Tune	
Center Freq	2.377500000 GHz
Start Freq	2.310000000 GHz
Stop Freq	2.445000000 GHz
CF Step	13.500000 MHz
Freq Offset	0 Hz

11N40SISO/HCH

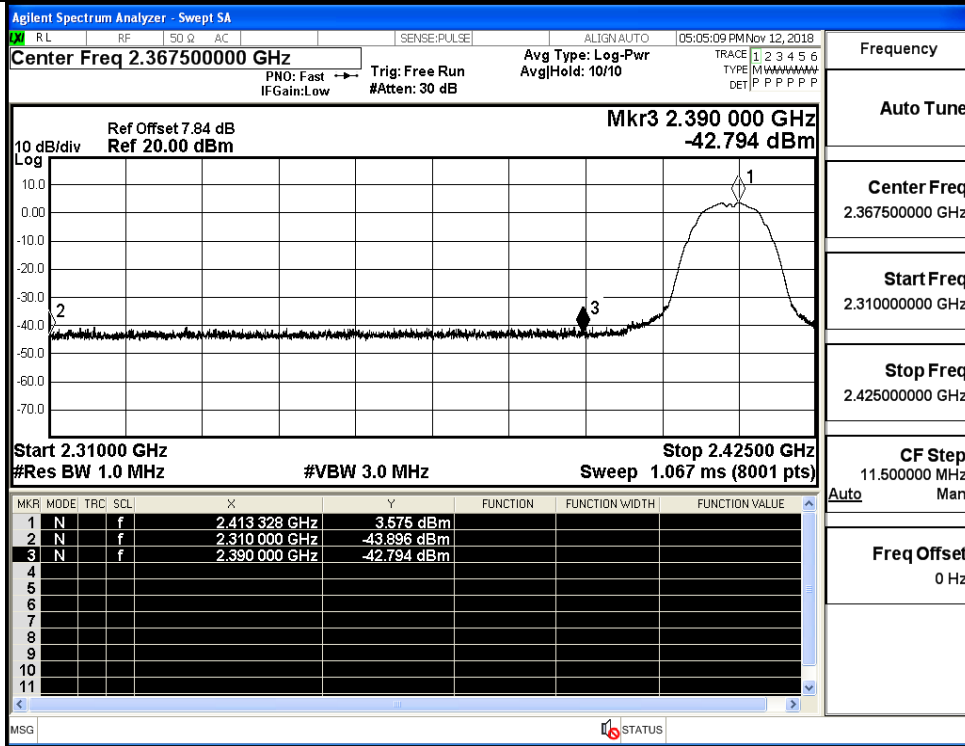


## A.7 Restrict-band band-edge measurements

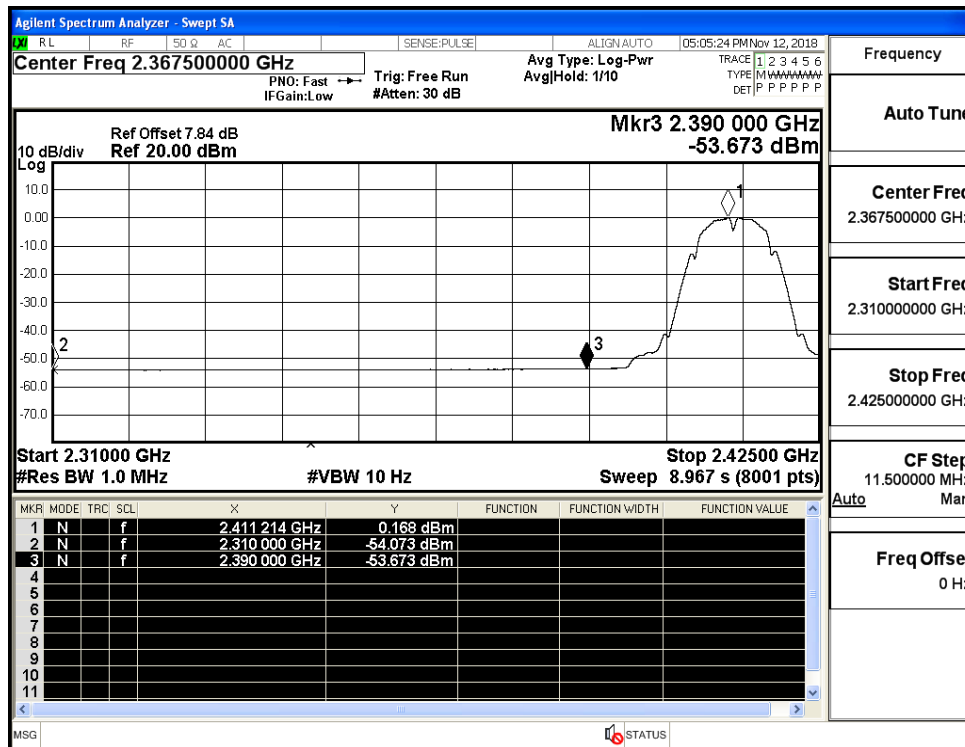
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-43.896	3.0	0	54.332	PEAK	74	PASS
	2412	Ant1	2310.0	-54.073	3.0	0	44.155	AV	54	PASS
	2412	Ant1	2390.0	-42.794	3.0	0	55.434	PEAK	74	PASS
	2412	Ant1	2390.0	-53.673	3.0	0	44.555	AV	54	PASS
	2462	Ant1	2483.5	-42.613	3.0	0	55.615	PEAK	74	PASS
	2462	Ant1	2483.5	-53.190	3.0	0	45.038	AV	54	PASS
	2462	Ant1	2500.0	-42.801	3.0	0	55.427	PEAK	74	PASS
	2462	Ant1	2500.0	-53.409	3.0	0	44.819	AV	54	PASS
11G	2412	Ant1	2310.0	-42.964	3.0	0	55.264	PEAK	74	PASS
	2412	Ant1	2310.0	-54.023	3.0	0	44.205	AV	54	PASS
	2412	Ant1	2390.0	-41.958	3.0	0	56.270	PEAK	74	PASS
	2412	Ant1	2390.0	-53.127	3.0	0	45.101	AV	54	PASS
	2462	Ant1	2483.5	-40.470	3.0	0	57.758	PEAK	74	PASS
	2462	Ant1	2483.5	-52.512	3.0	0	45.716	AV	54	PASS
	2462	Ant1	2500.0	-42.442	3.0	0	55.786	PEAK	74	PASS
	2462	Ant1	2500.0	-53.011	3.0	0	45.217	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-43.140	3.0	0	55.088	PEAK	74	PASS
	2412	Ant1	2310.0	-54.026	3.0	0	44.202	AV	54	PASS
	2412	Ant1	2390.0	-42.130	3.0	0	56.098	PEAK	74	PASS
	2412	Ant1	2390.0	-53.206	3.0	0	45.022	AV	54	PASS
	2462	Ant1	2483.5	-41.328	3.0	0	56.900	PEAK	74	PASS
	2462	Ant1	2483.5	-52.091	3.0	0	46.137	AV	54	PASS
	2462	Ant1	2500.0	-43.376	3.0	0	54.852	PEAK	74	PASS
	2462	Ant1	2500.0	-52.997	3.0	0	45.231	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-43.867	3.0	0	54.361	PEAK	74	PASS
	2422	Ant1	2310.0	-54.053	3.0	0	44.175	AV	54	PASS

	2422	Ant1	2390.0	-40.747	3.0	0	57.481	PEAK	74	PASS
	2422	Ant1	2390.0	-52.283	3.0	0	45.945	AV	54	PASS
	2452	Ant1	2483.5	-36.545	3.0	0	61.683	PEAK	74	PASS
	2452	Ant1	2483.5	-50.835	3.0	0	47.393	AV	54	PASS
	2452	Ant1	2500.0	-41.914	3.0	0	56.314	PEAK	74	PASS
	2452	Ant1	2500.0	-52.783	3.0	0	45.445	AV	54	PASS

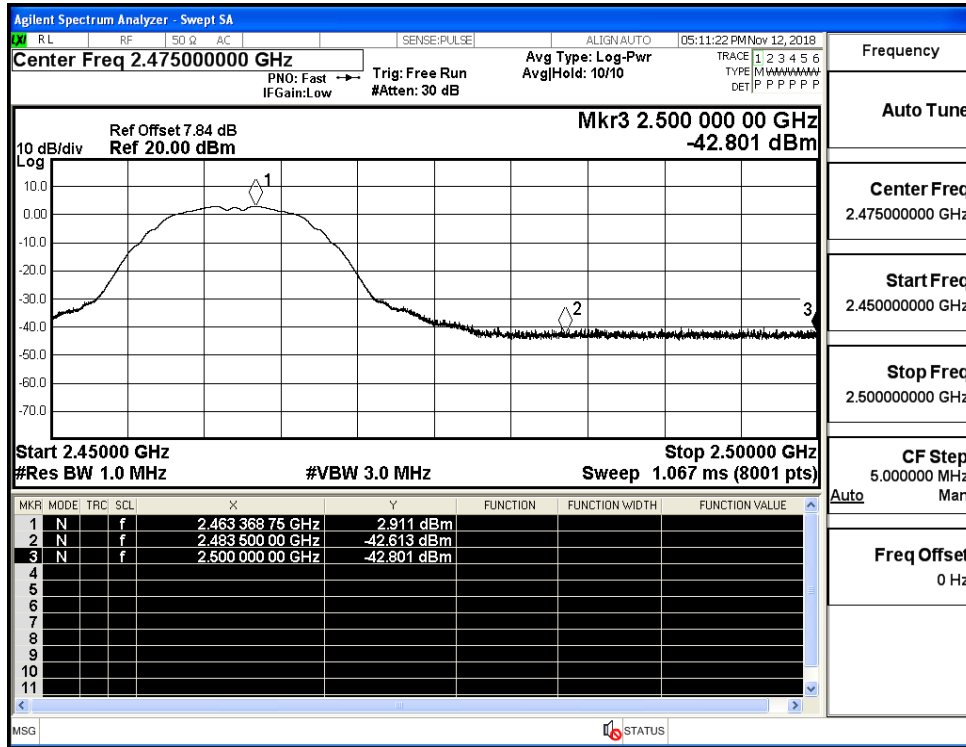
Restrict-band band-edge measurements\_11B\_2412\_Ant1\_PEAK



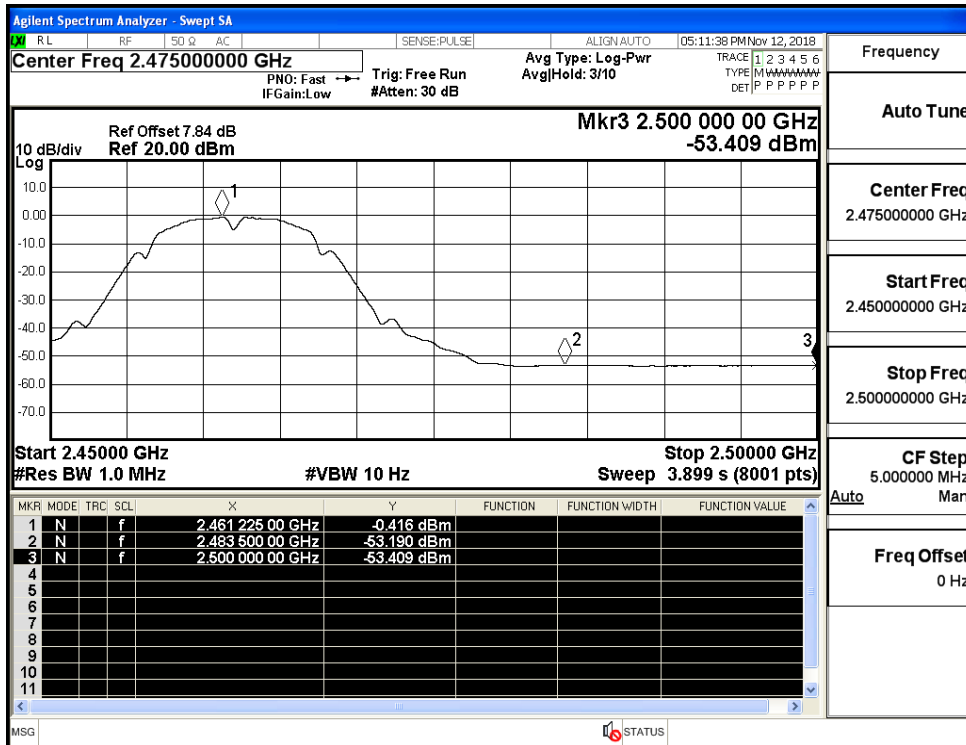
Restrict-band band-edge measurements\_11B\_2412\_Ant1\_AV



Restrict-band band-edge measurements\_11B\_2462\_Ant1\_PEAK

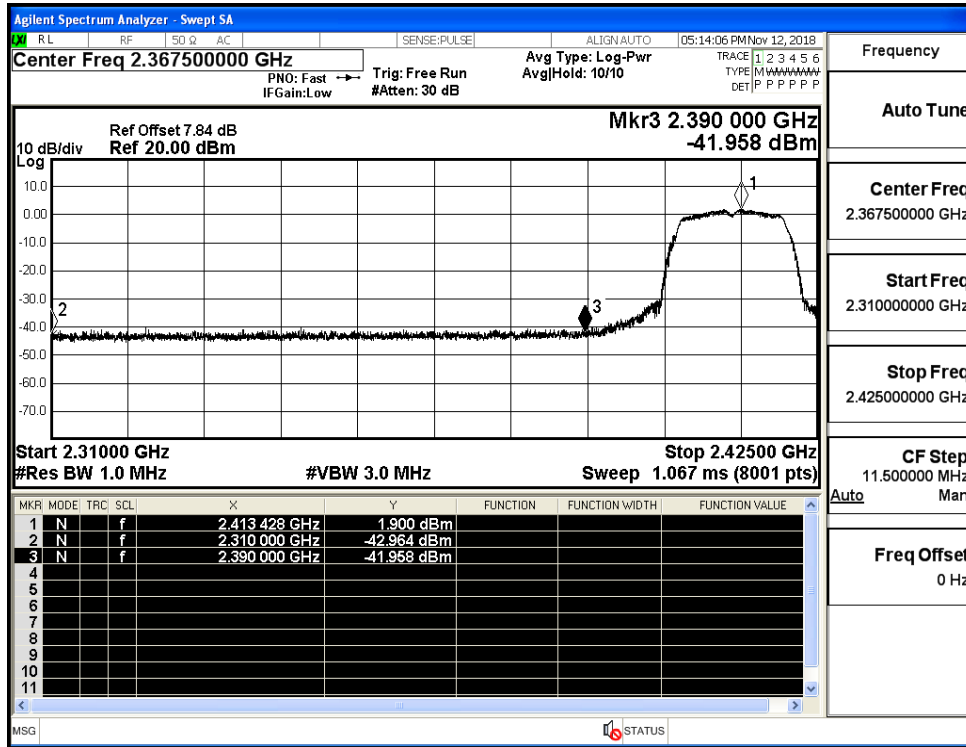


Restrict-band band-edge measurements\_11B\_2462\_Ant1\_AV

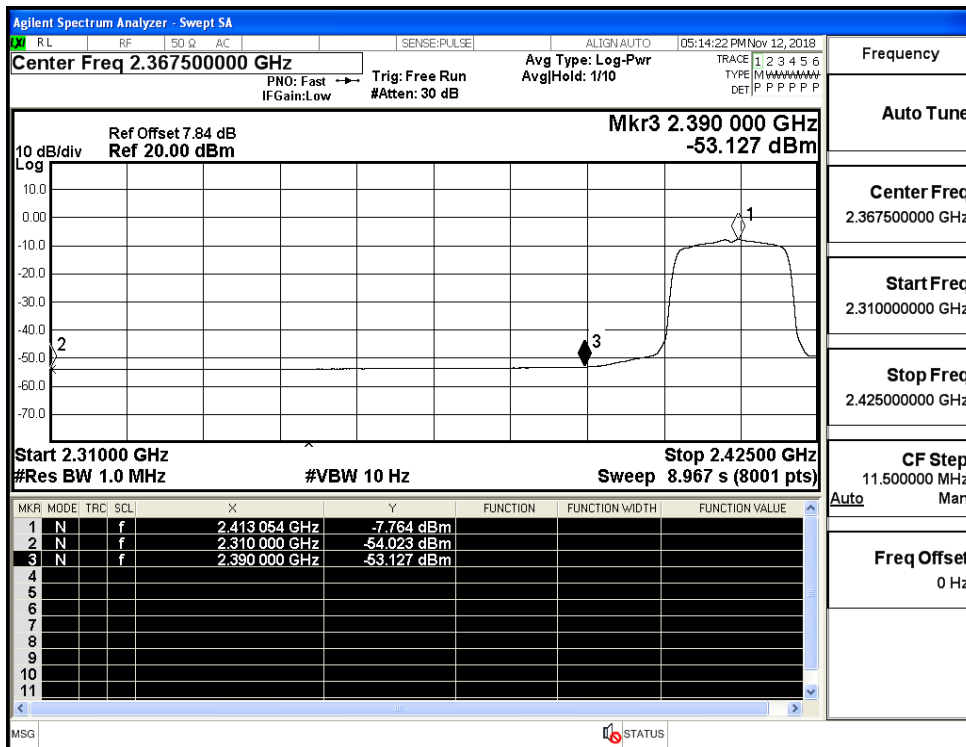




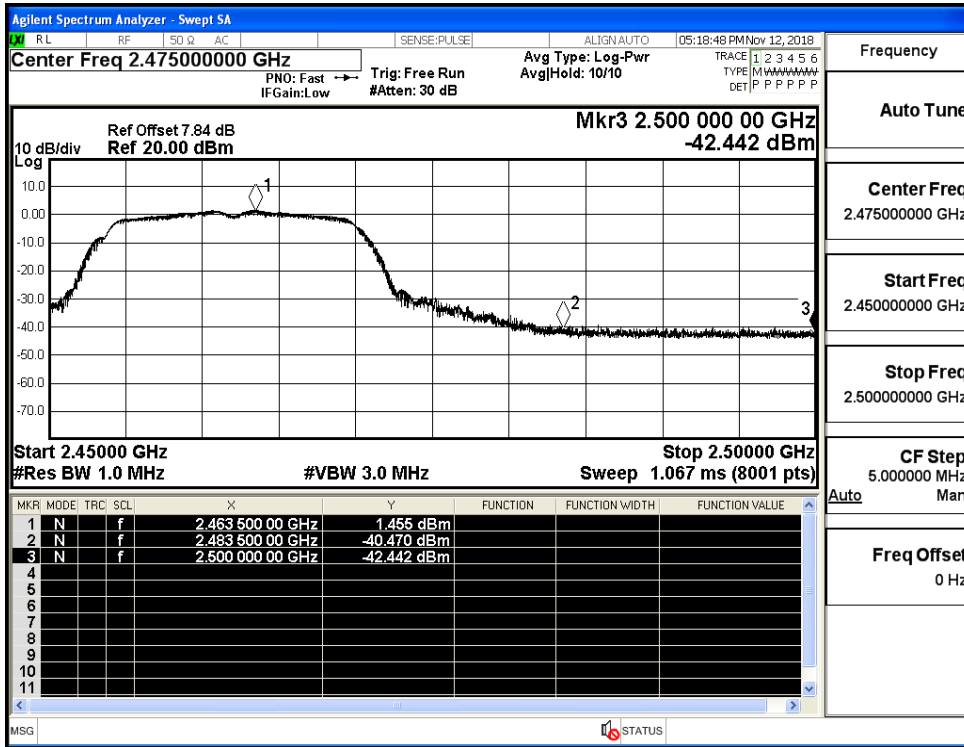
Restrict-band band-edge measurements\_11G\_2412\_Ant1\_PEAK



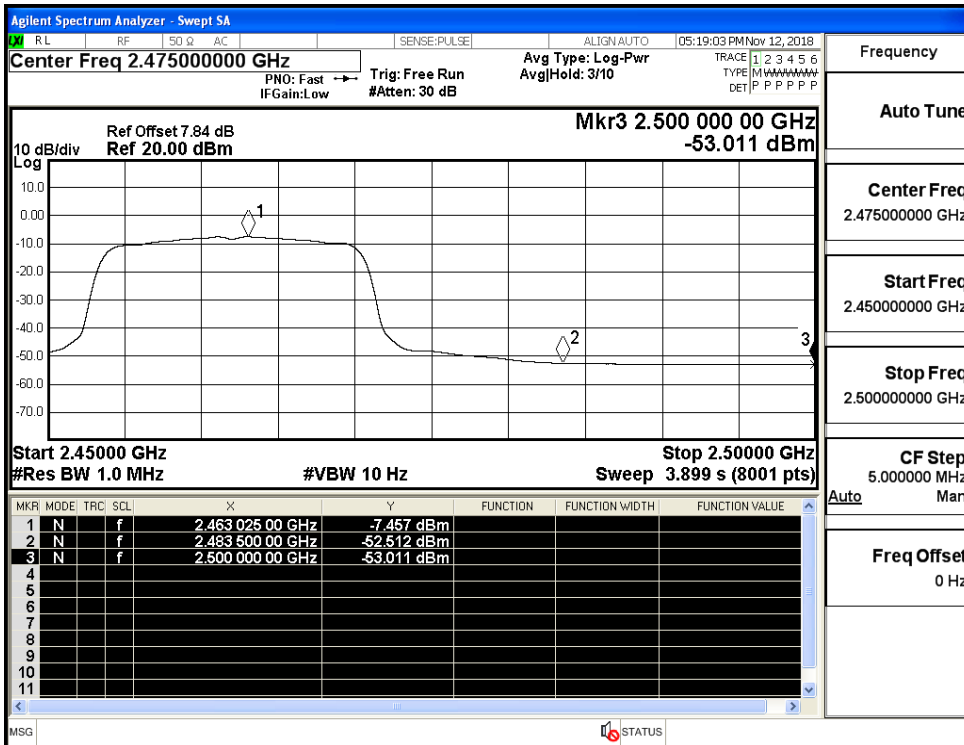
Restrict-band band-edge measurements\_11G\_2412\_Ant1\_AV



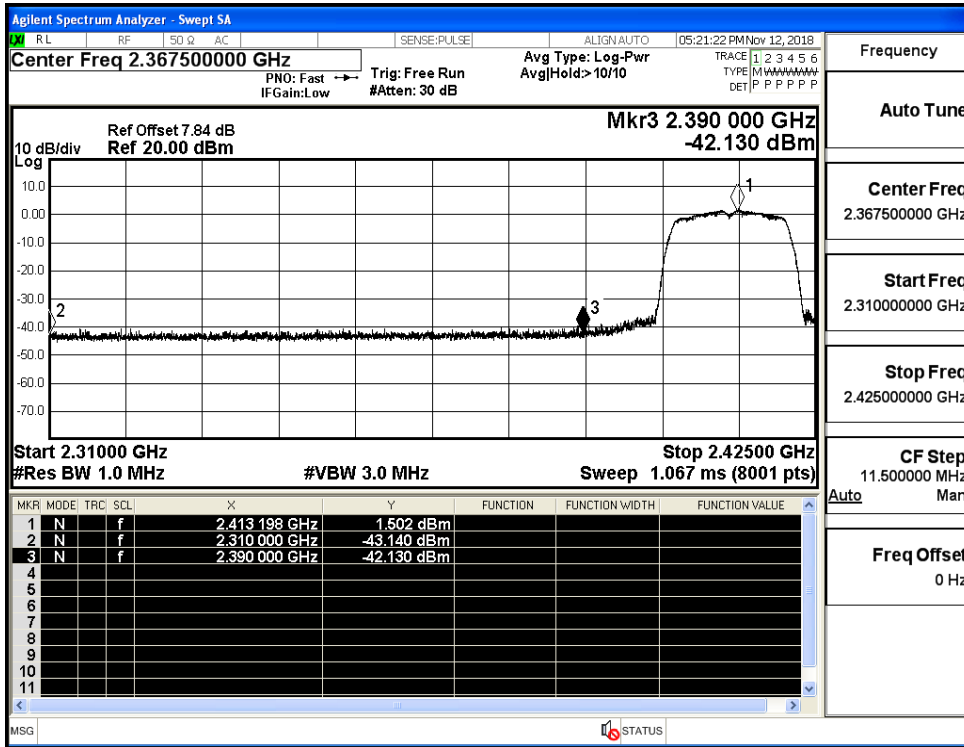
Restrict-band band-edge measurements\_11G\_2462\_Ant1\_PEAK



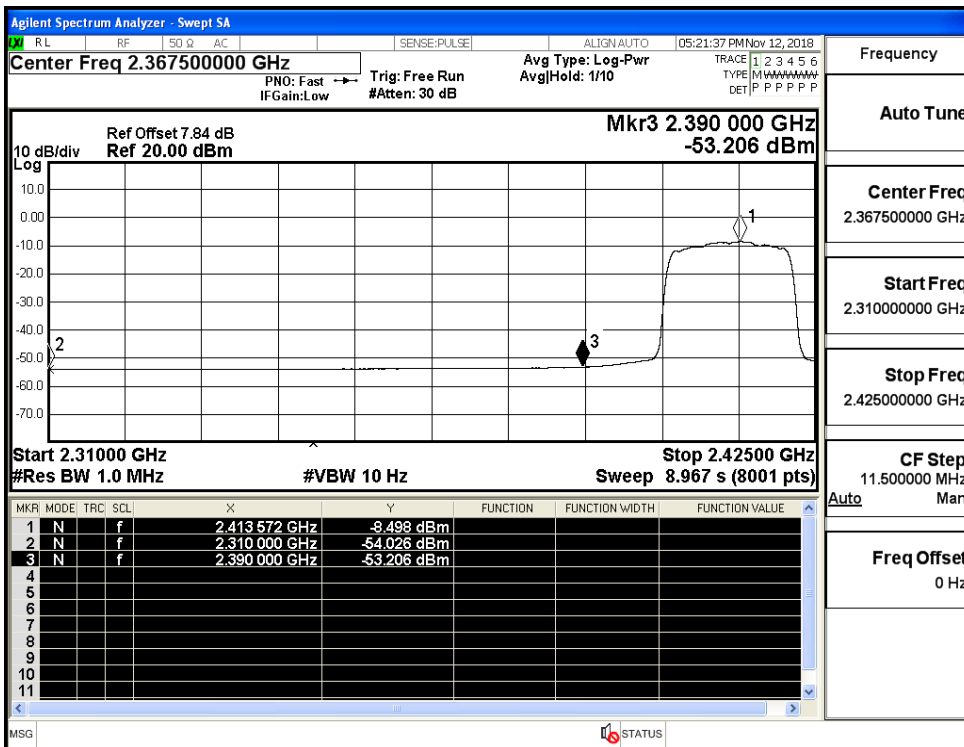
Restrict-band band-edge measurements\_11G\_2462\_Ant1\_AV



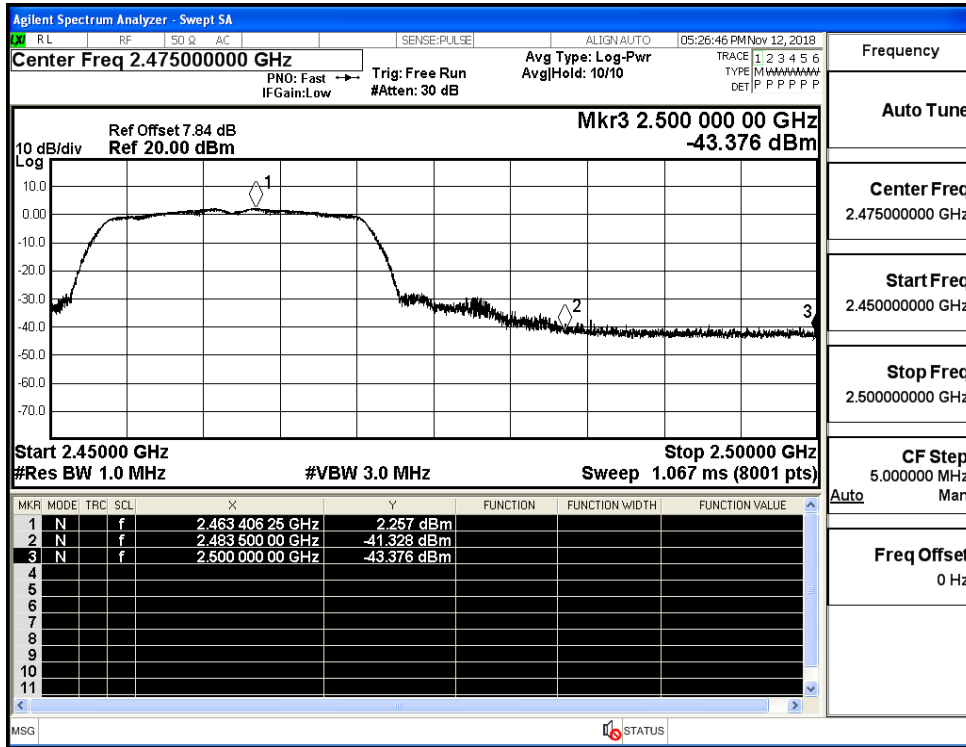
Restrict-band band-edge measurements\_11N20SISO\_2412\_Ant1\_PEAK



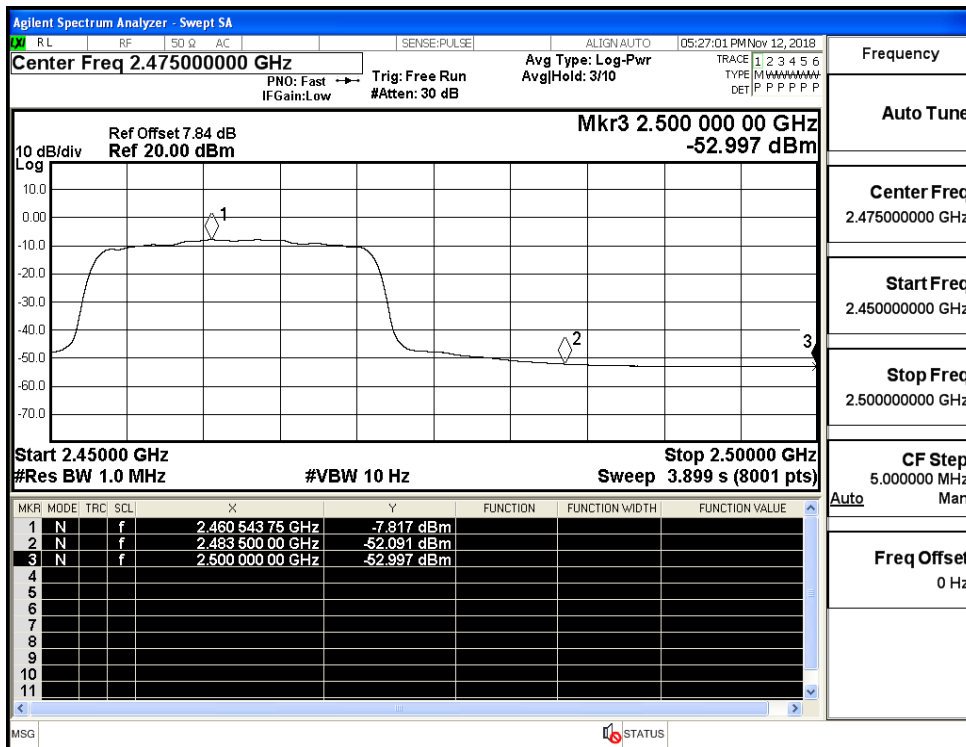
Restrict-band band-edge measurements\_11N20SISO\_2412\_Ant1\_AV



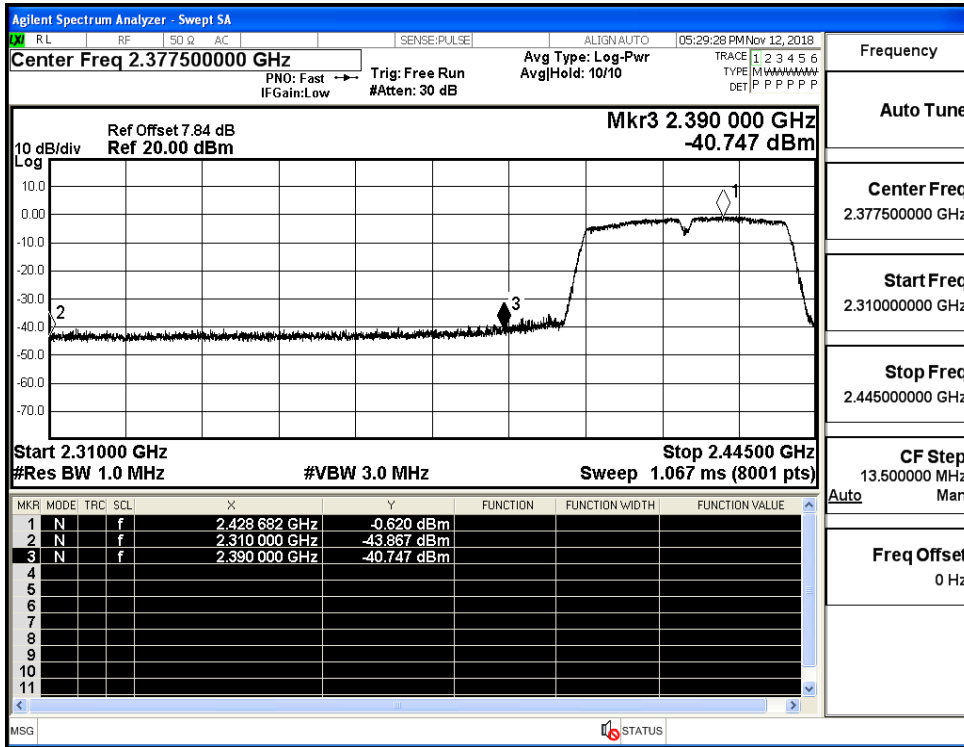
Restrict-band band-edge measurements\_11N20SISO\_2462\_Ant1\_PEAK



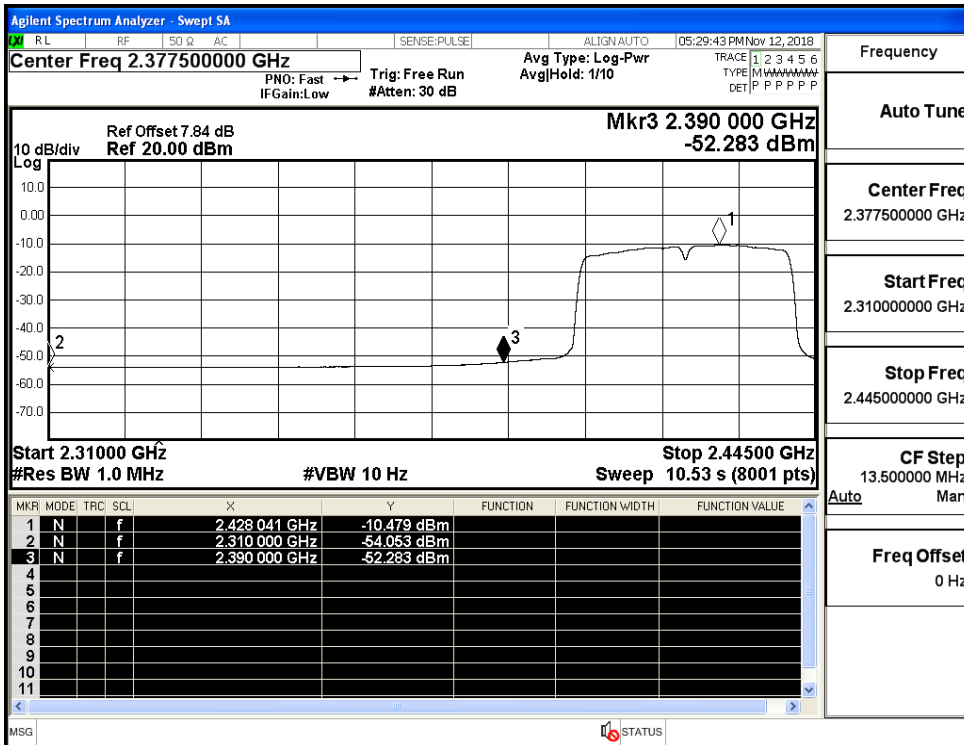
Restrict-band band-edge measurements\_11N20SISO\_2462\_Ant1\_AV



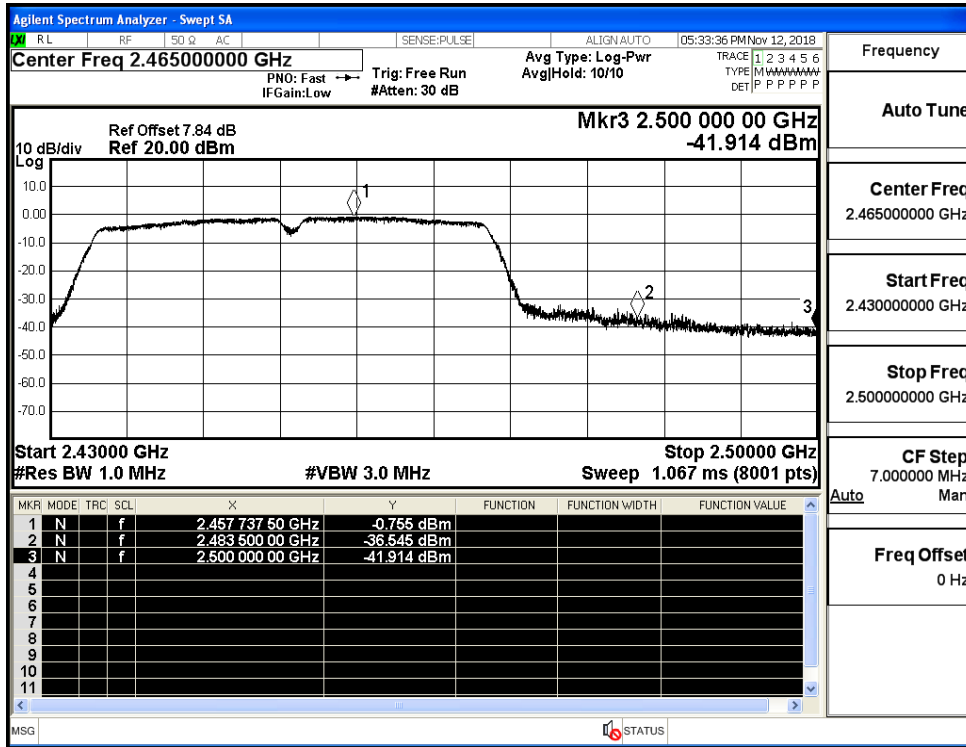
Restrict-band band-edge measurements\_11N40SISO\_2422\_Ant1\_PEAK



Restrict-band band-edge measurements\_11N40SISO\_2422\_Ant1\_AV



Restrict-band band-edge measurements\_11N40SISO\_2452\_Ant1\_PEAK



Restrict-band band-edge measurements\_11N40SISO\_2452\_Ant1\_AV

