

Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Smart Switch

Trade Mark: iCreation, Sunway, Shengwei

Test Model: XL-9176

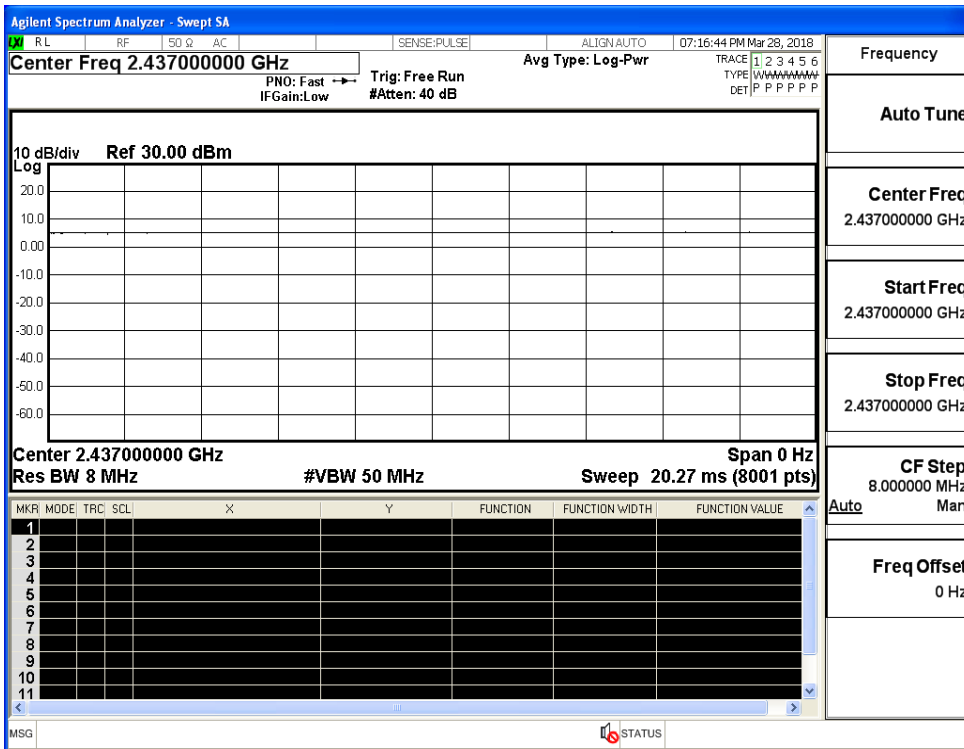
Environmental Conditions

Temperature:	22.9 ° C
Relative Humidity:	53.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Jayden Zhuo
Supervised by:	Dick Su

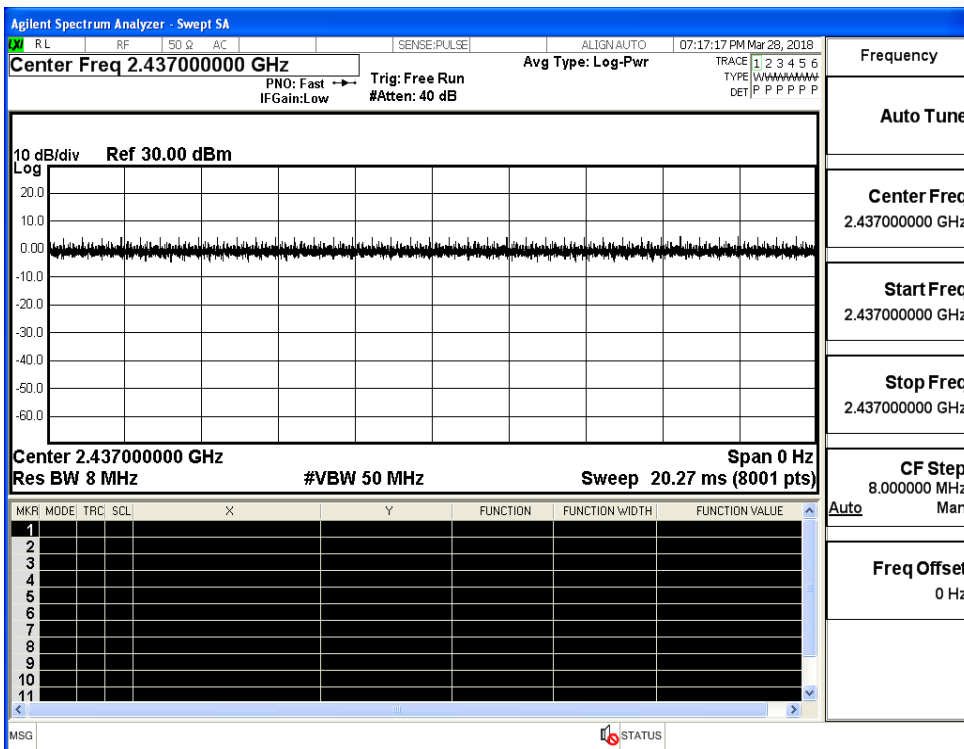
A.1 Duty Cycle

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

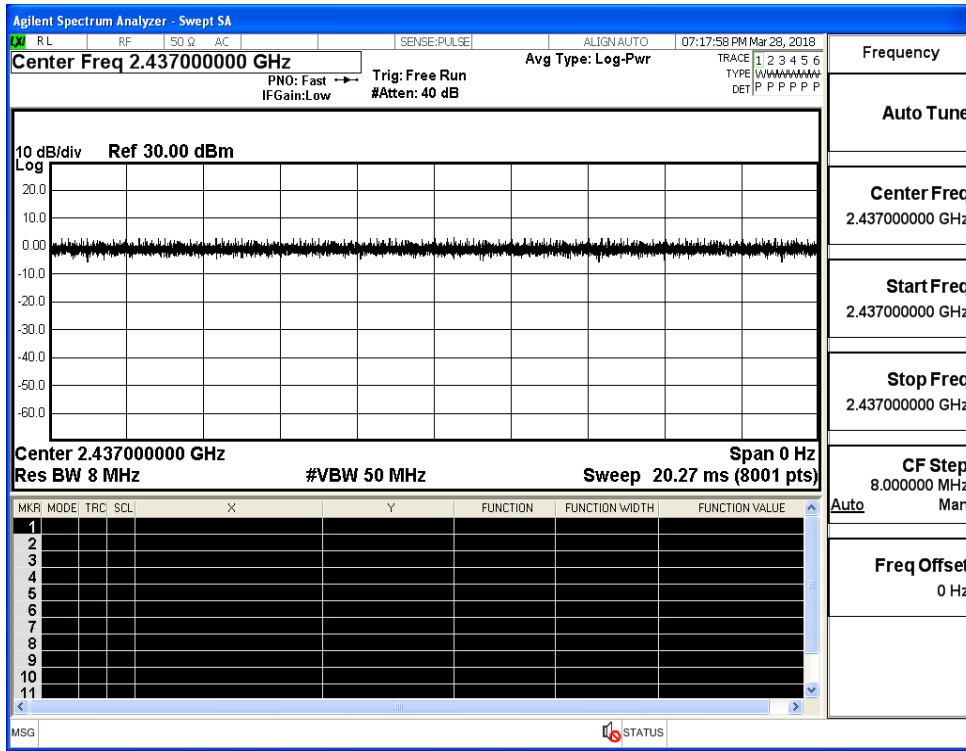
Duty Cycle_11B_2437_Ant1



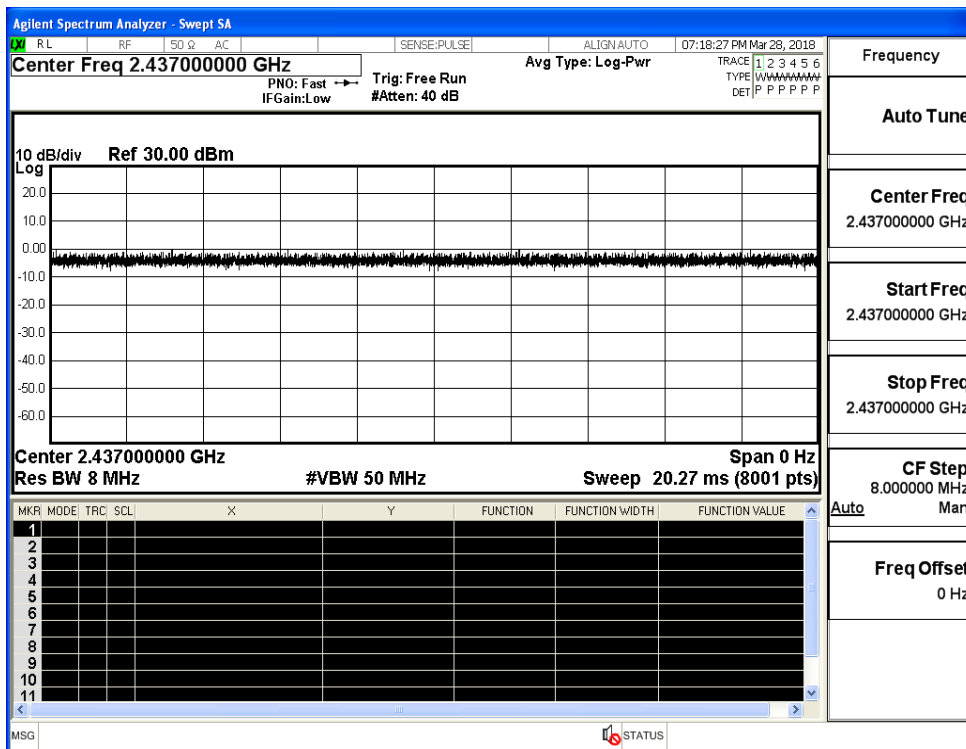
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1

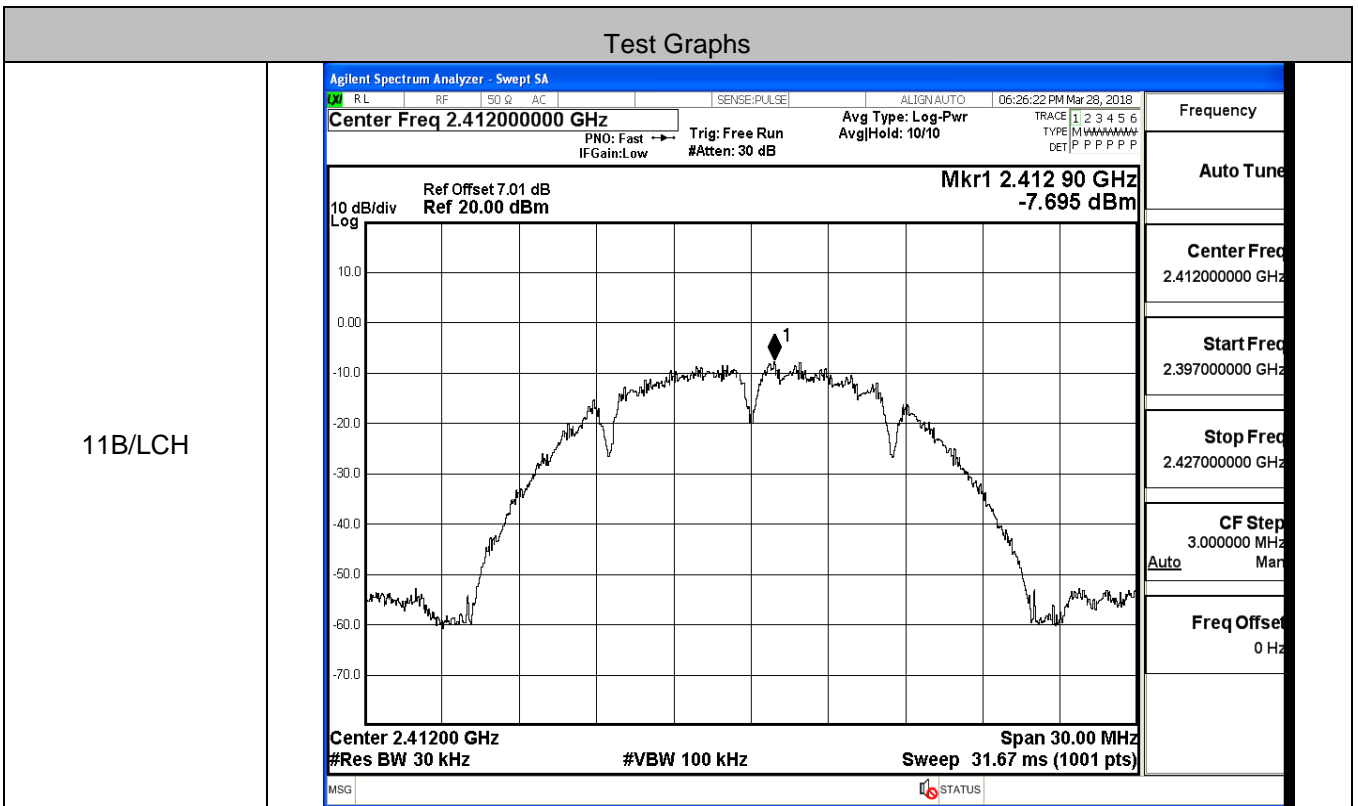


A.2 Maximum Conducted Output Power

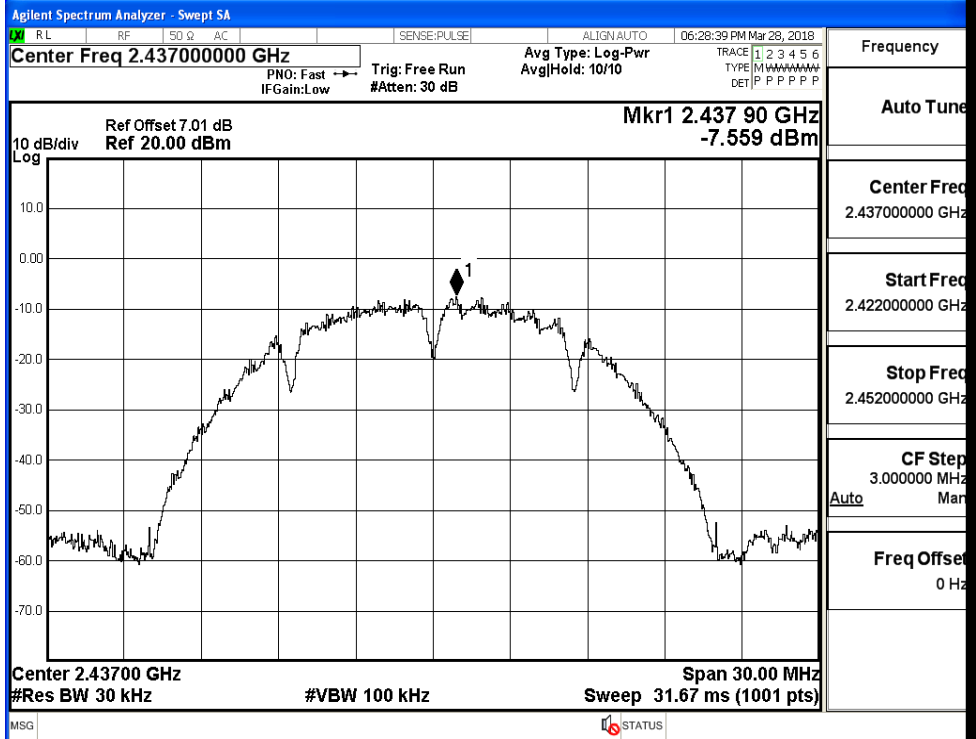
Mode	Channel	Meas.Level [dBm, Peak]	Meas.Level [dBm, Average]	Limit [dBm]	Verdict
11B	LCH	10.53	7.70	30	PASS
	MCH	10.77	7.95	30	PASS
	HCH	10.16	7.32	30	PASS
11G	LCH	11.60	5.13	30	PASS
	MCH	10.87	4.75	30	PASS
	HCH	10.14	4.36	30	PASS
11N20SISO	LCH	11.58	5.05	30	PASS
	MCH	11.35	4.61	30	PASS
	HCH	10.77	4.29	30	PASS
11N40SISO	LCH	11.46	4.53	30	PASS
	MCH	11.37	4.42	30	PASS
	HCH	11.51	4.69	30	PASS

A.3 Maximum Power Spectral Density

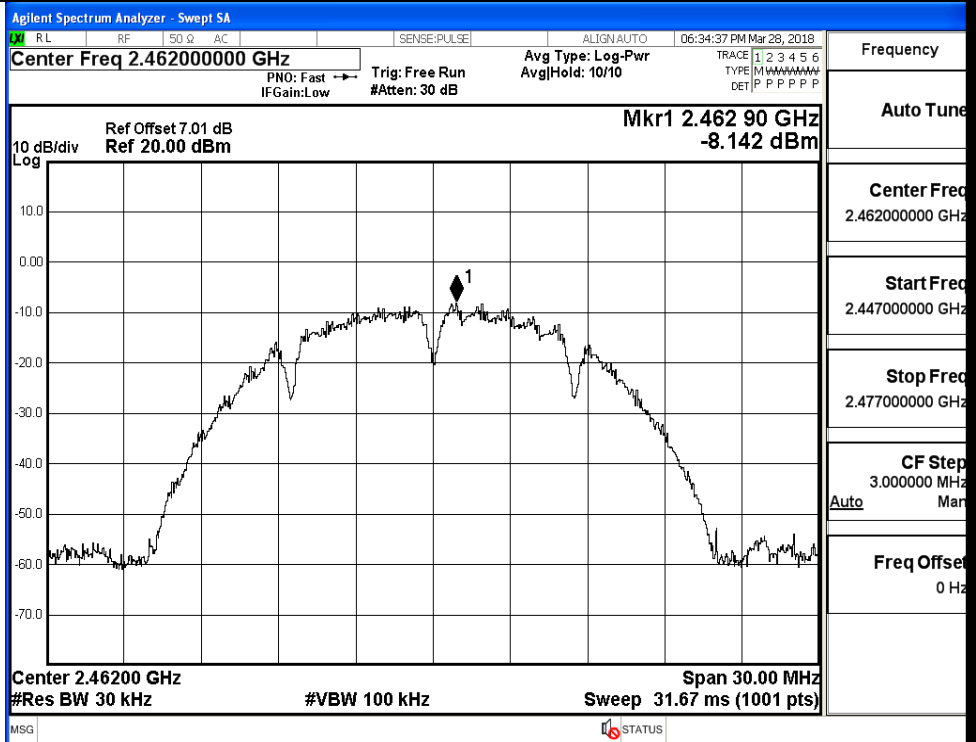
Mode	Channel	Meas.Level [dBm/30KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-7.695	8	PASS
	MCH	-7.559	8	PASS
	HCH	-8.142	8	PASS
11G	LCH	-13.071	8	PASS
	MCH	-13.531	8	PASS
	HCH	-14.632	8	PASS
11N20SISO	LCH	-13.482	8	PASS
	MCH	-12.972	8	PASS
	HCH	-13.599	8	PASS
11N40SISO	LCH	-16.466	8	PASS
	MCH	-16.643	8	PASS
	HCH	-16.463	8	PASS



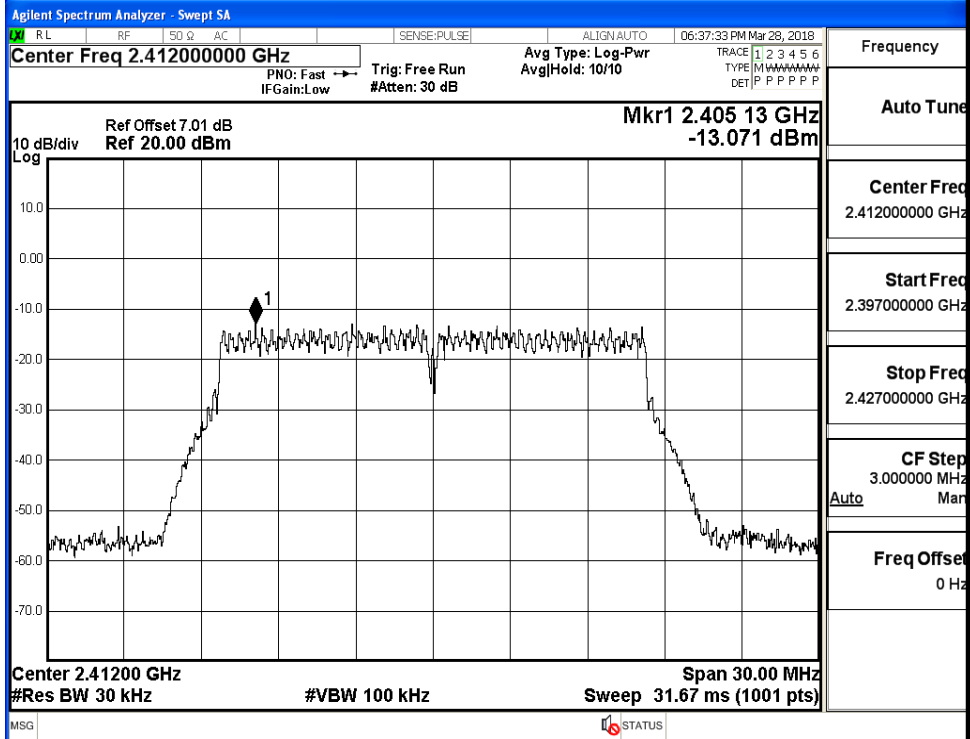
11B/MCH



11B/HCH

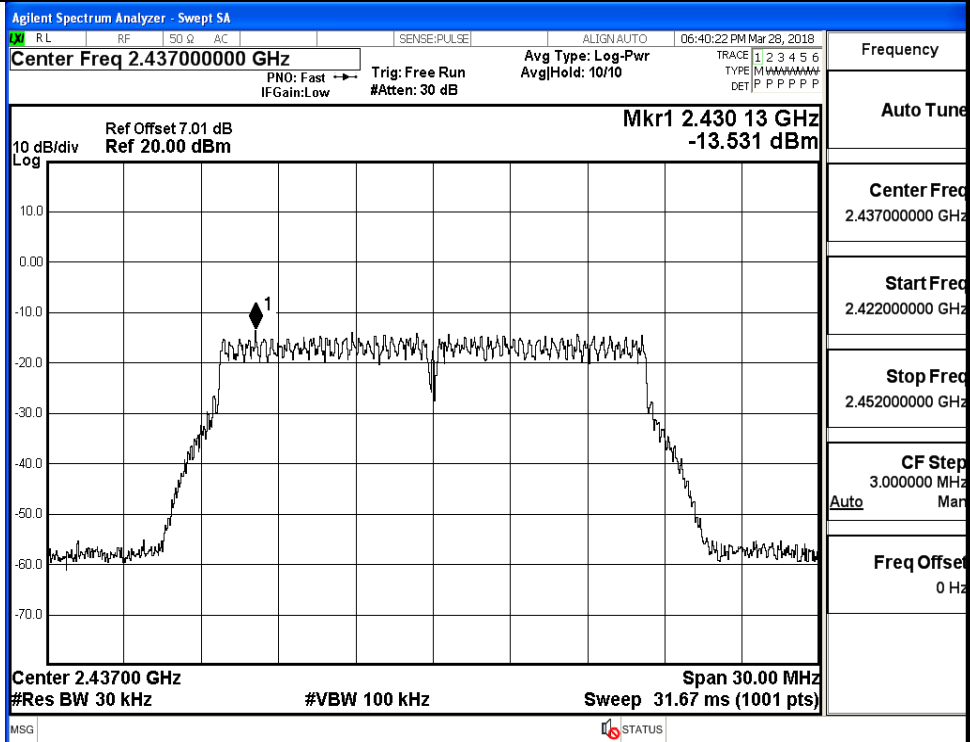


11G/LCH



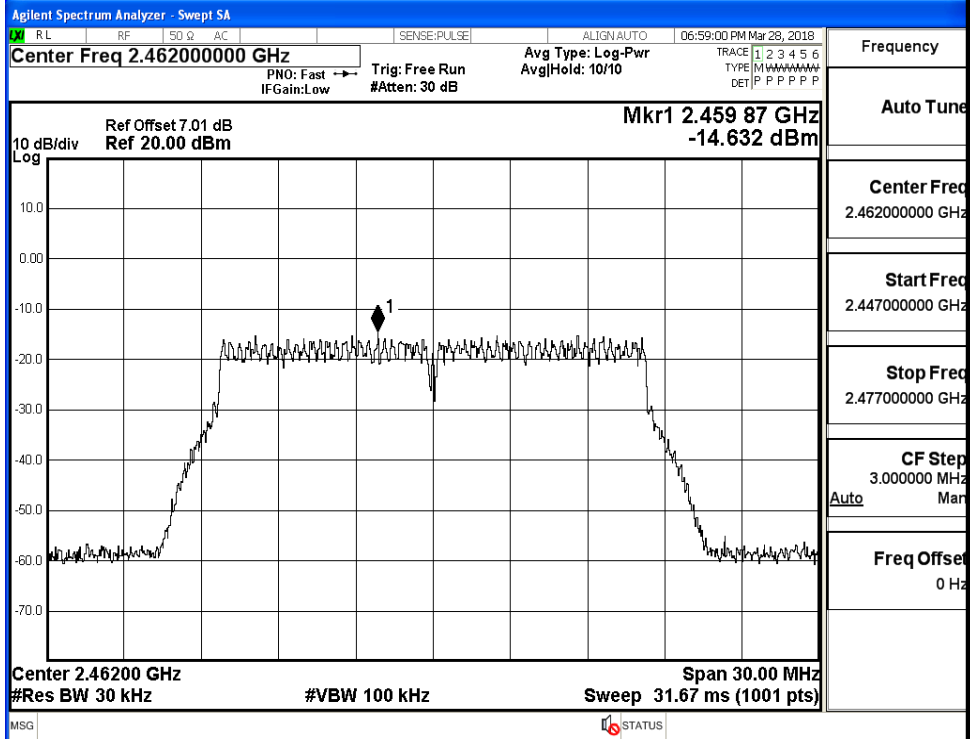
Frequency	
Auto Tune	
Center Freq	2.41200000 GHz
Start Freq	2.397000000 GHz
Stop Freq	2.427000000 GHz
CF Step	3.000000 MHz
Freq Offset	0 Hz

11G/MCH



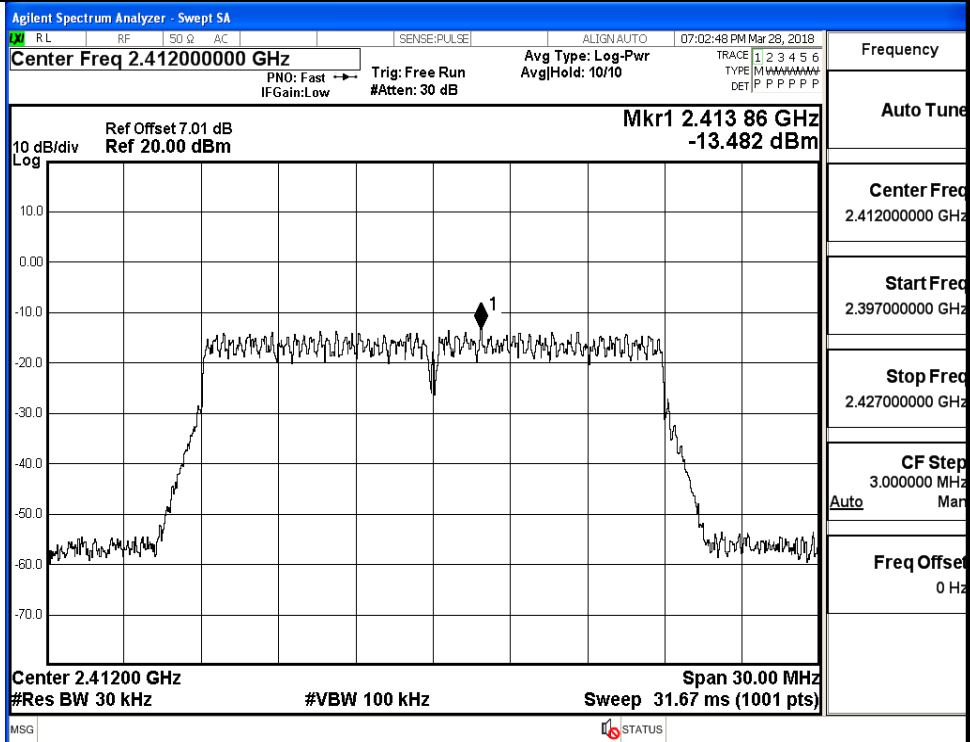
Frequency	
Auto Tune	
Center Freq	2.437000000 GHz
Start Freq	2.422000000 GHz
Stop Freq	2.452000000 GHz
CF Step	3.000000 MHz
Freq Offset	0 Hz

11G/HCH

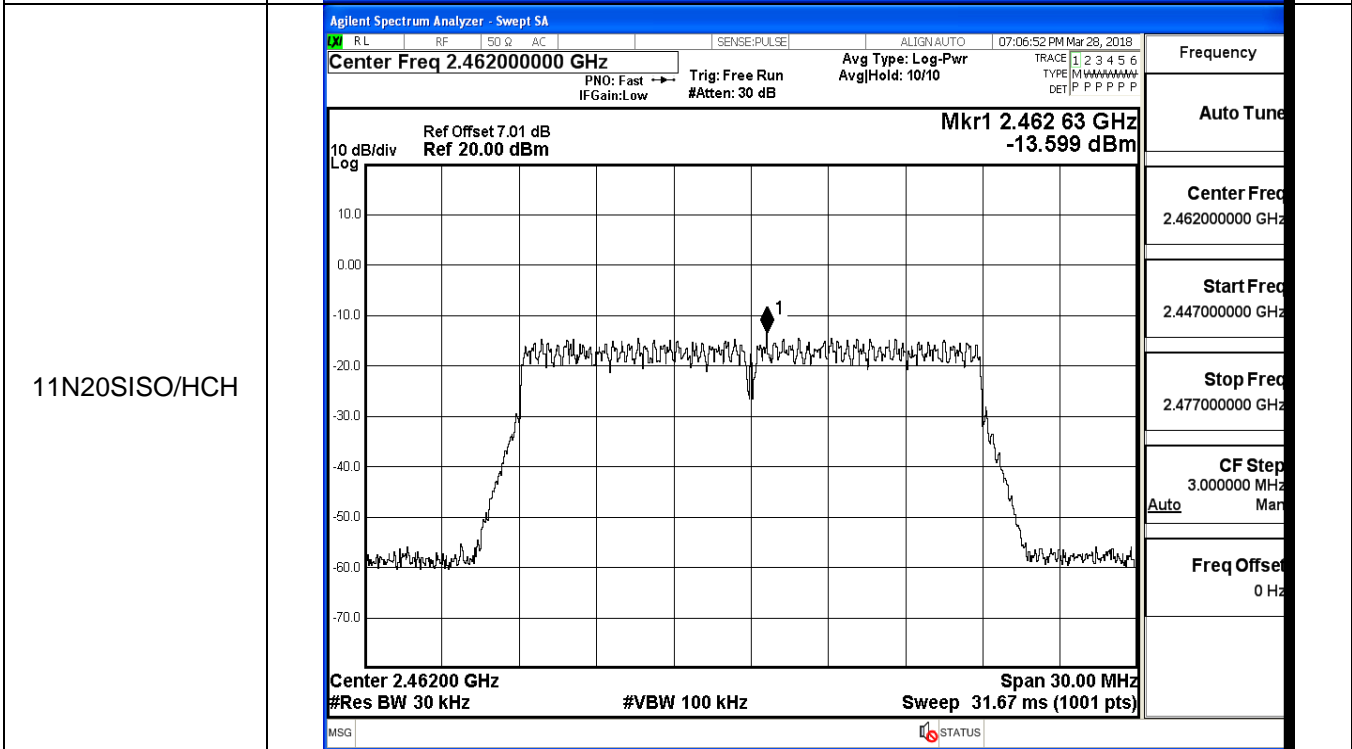
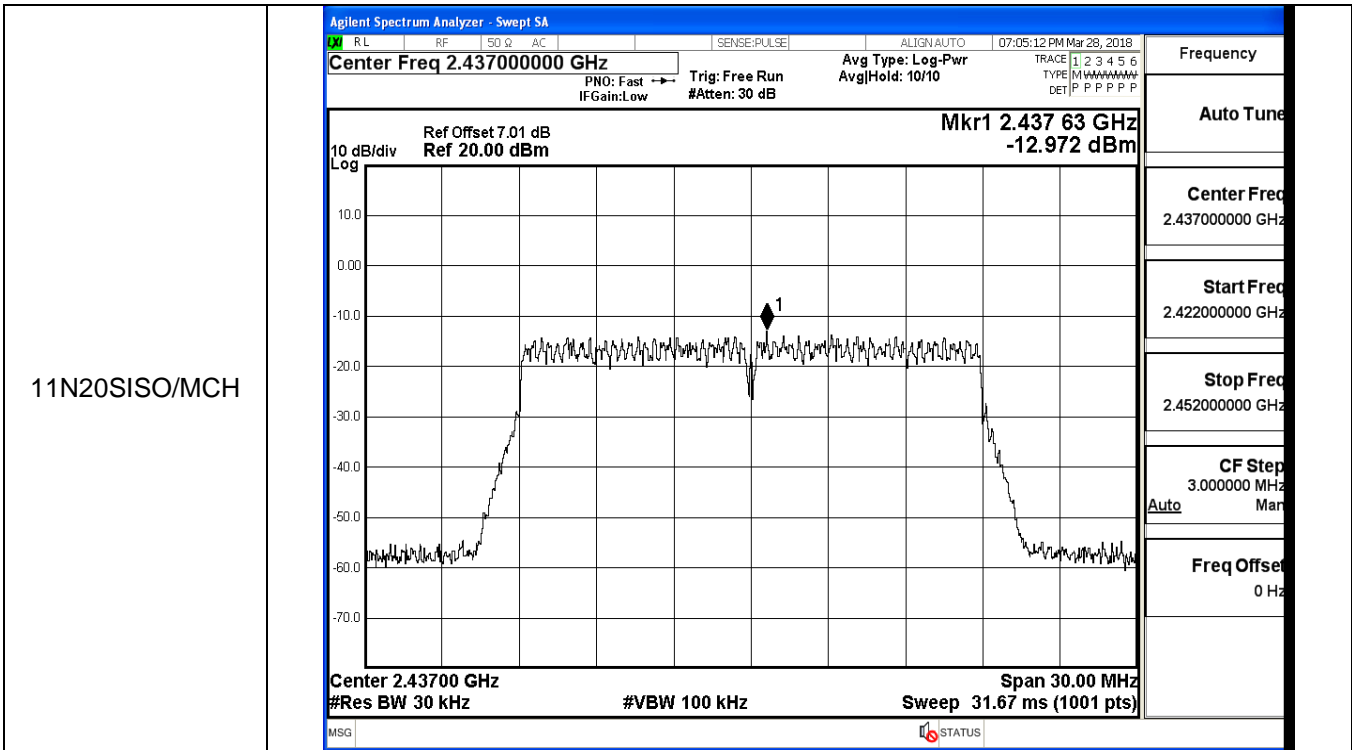


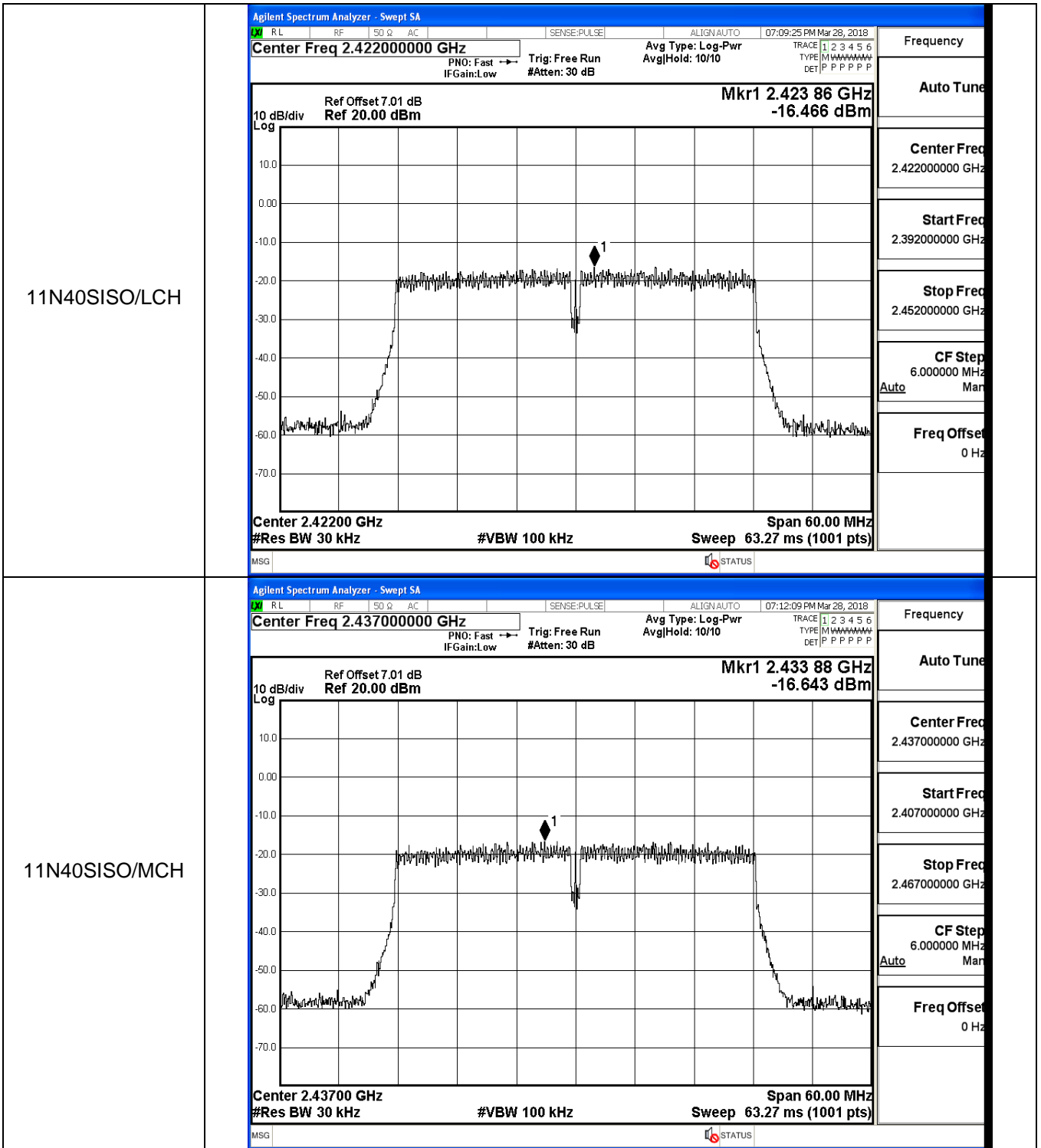
Frequency	
Auto Tune	
Center Freq	2.46200000 GHz
Start Freq	2.447000000 GHz
Stop Freq	2.477000000 GHz
CF Step	3.000000 MHz
Freq Offset	0 Hz

11N20SISO/LCH

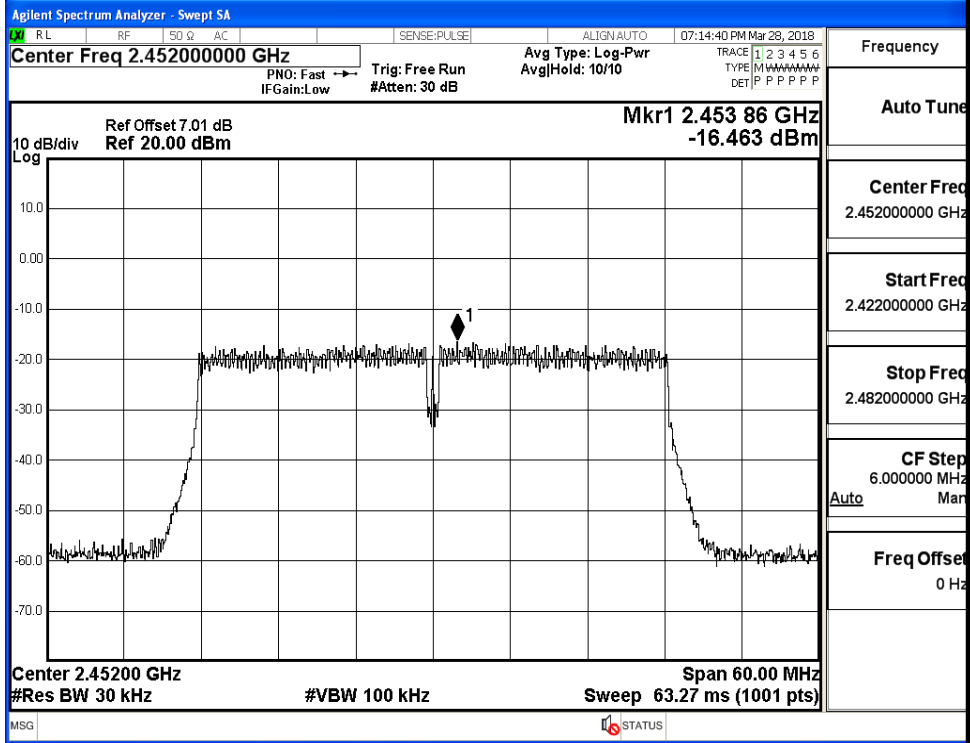


Frequency	
Auto Tune	
Center Freq	2.41200000 GHz
Start Freq	2.397000000 GHz
Stop Freq	2.427000000 GHz
CF Step	3.000000 MHz
Freq Offset	0 Hz



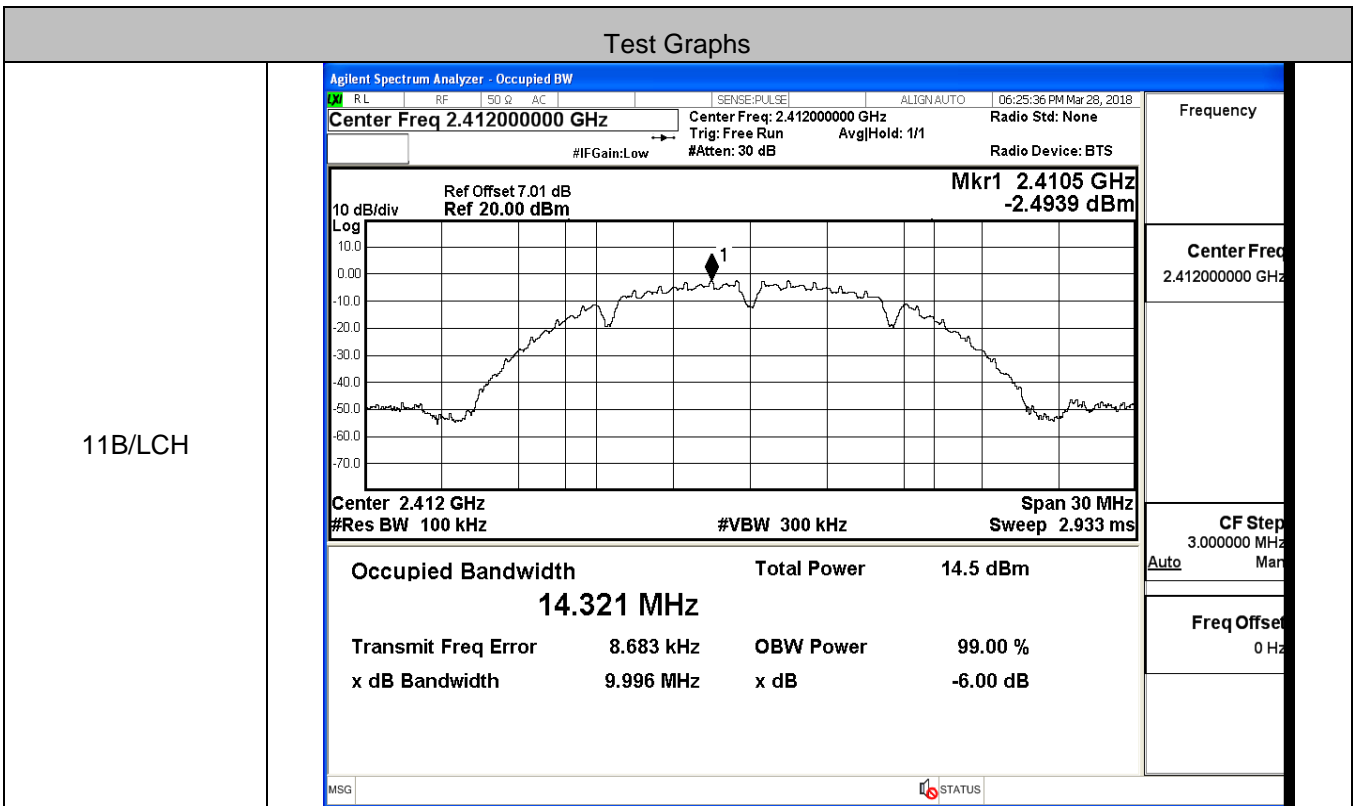


11N40SISO/HCH

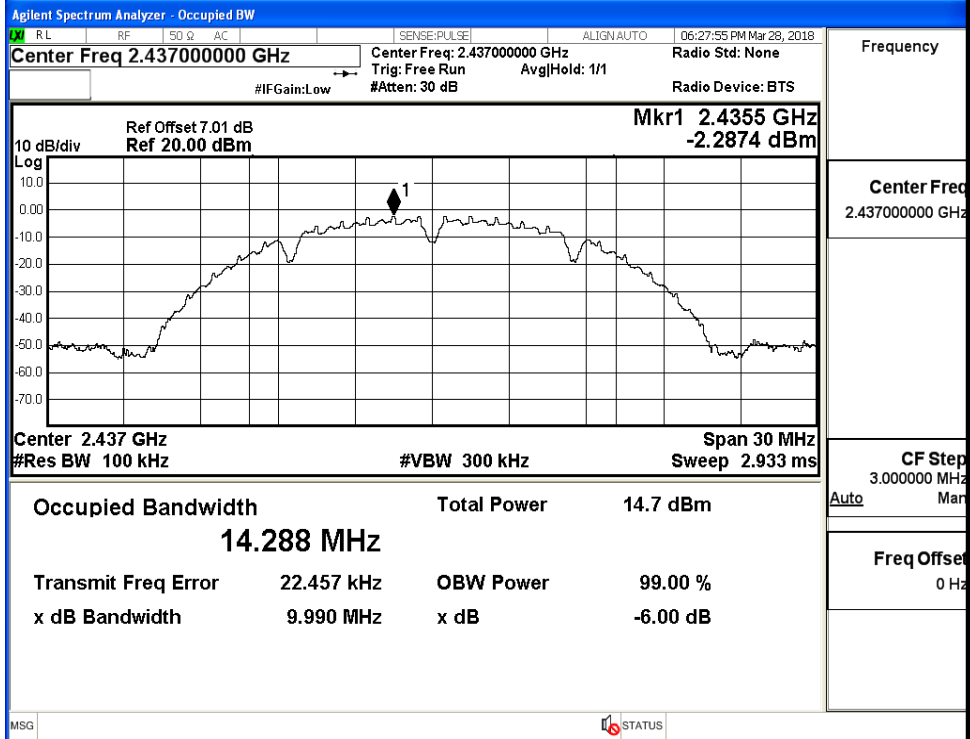


A.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	9.996	≥0.5	PASS
	MCH	9.990	≥0.5	PASS
	HCH	9.986	≥0.5	PASS
11G	LCH	16.61	≥0.5	PASS
	MCH	16.61	≥0.5	PASS
	HCH	16.60	≥0.5	PASS
11N20SISO	LCH	17.84	≥0.5	PASS
	MCH	17.81	≥0.5	PASS
	HCH	17.82	≥0.5	PASS
11N40SISO	LCH	36.52	≥0.5	PASS
	MCH	36.50	≥0.5	PASS
	HCH	36.48	≥0.5	PASS



11B/MCH



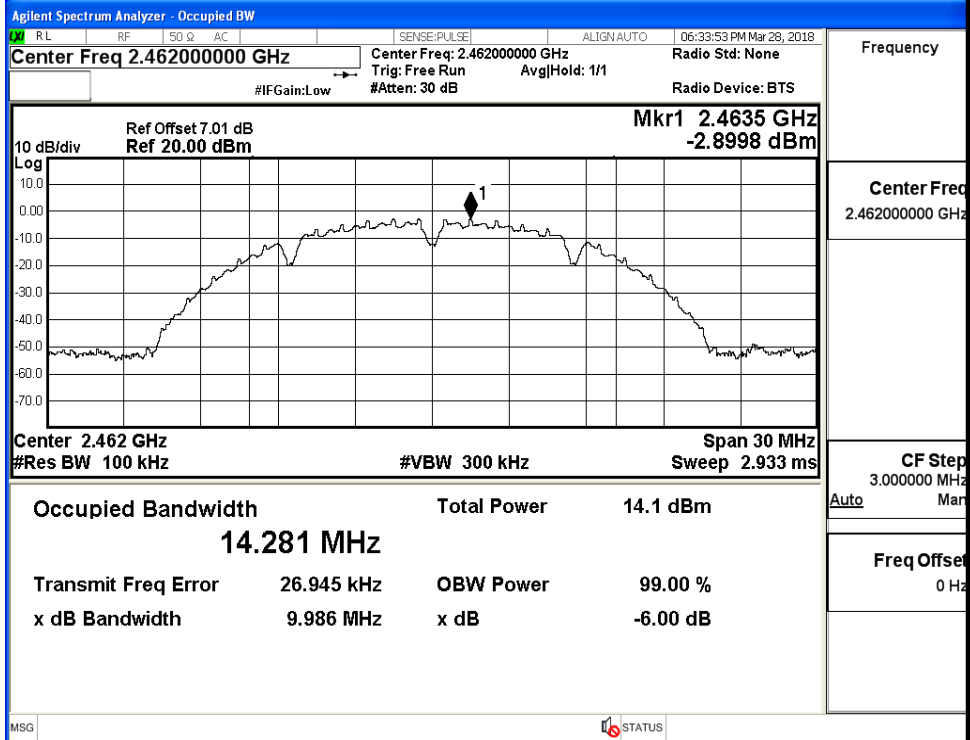
Frequency
2.43700000 GHz

Center Freq
2.43700000 GHz

CF Step
3.000000 MHz

Freq Offset
0 Hz

11B/HCH



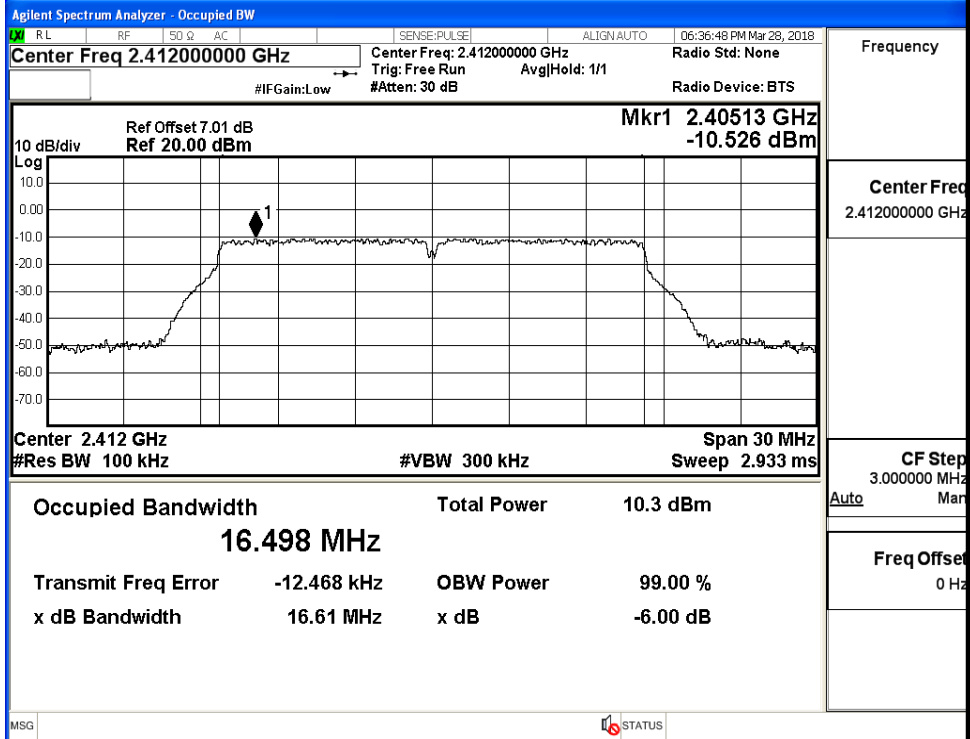
Frequency
2.46200000 GHz

Center Freq
2.46200000 GHz

CF Step
3.000000 MHz

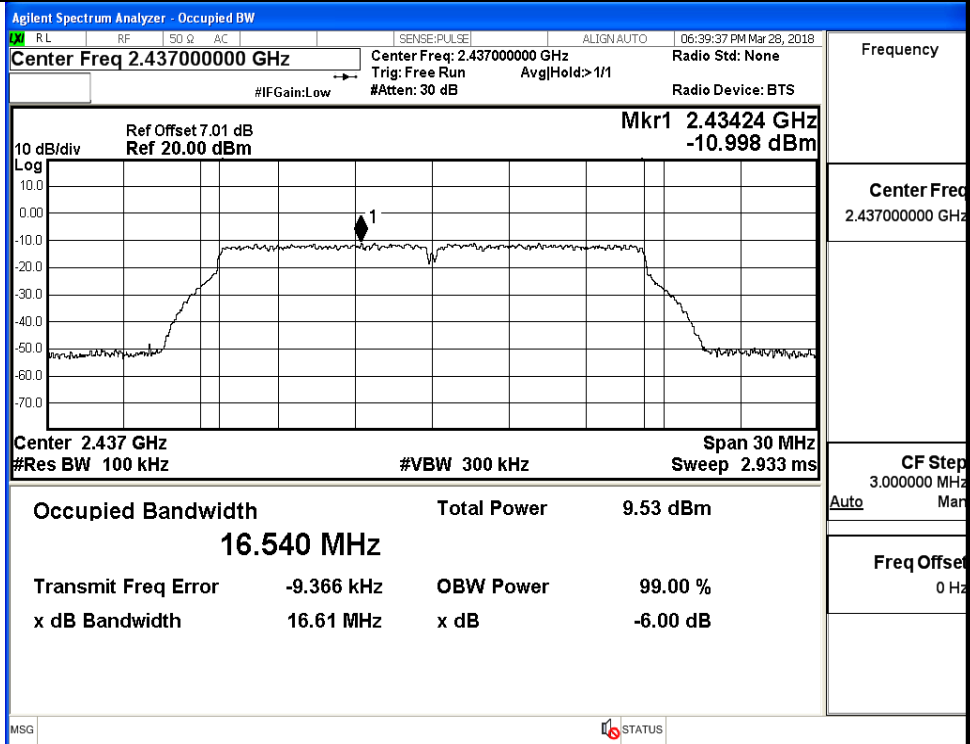
Freq Offset
0 Hz

11G/LCH



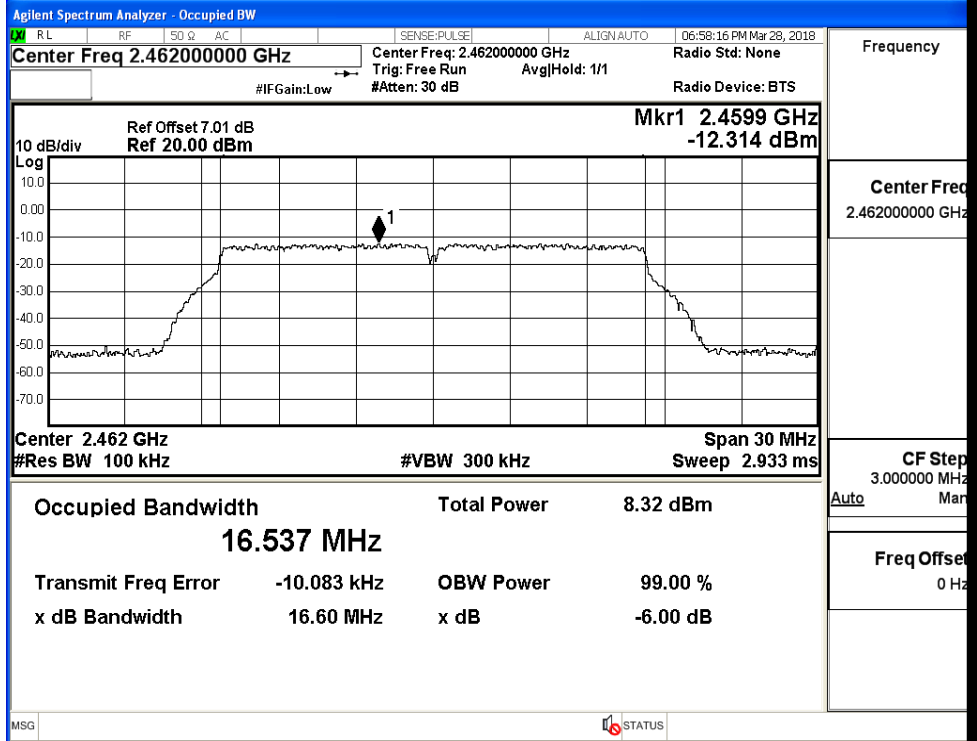
Frequency	2.41200000 GHz
Center Freq	2.41200000 GHz
CF Step	3.000000 MHz
Freq Offset	0 Hz

11G/MCH



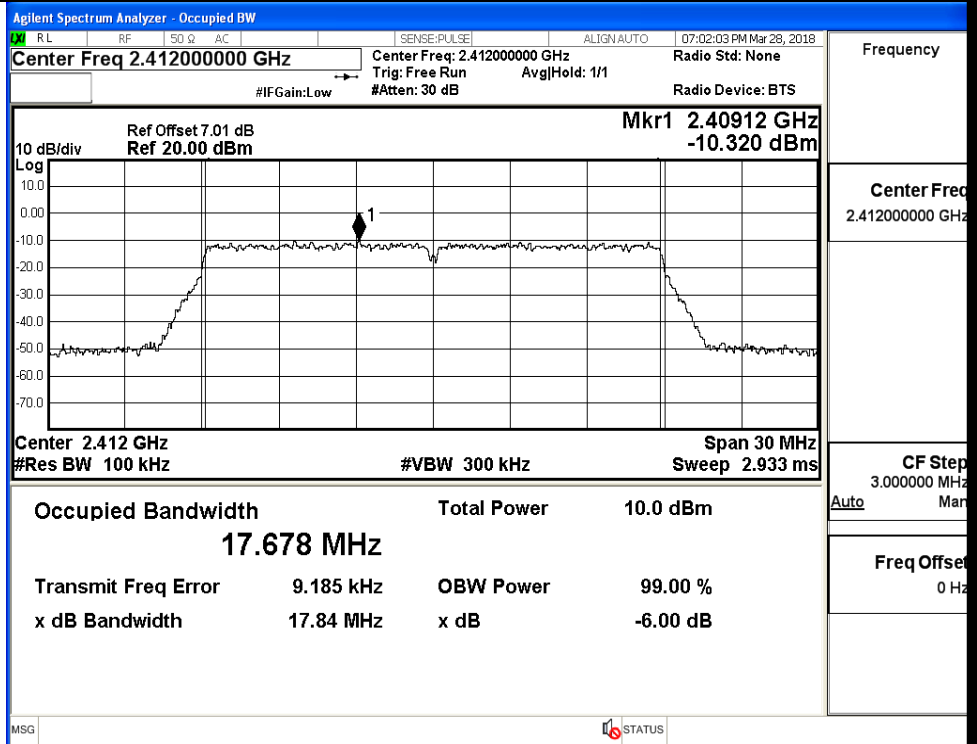
Frequency	2.43700000 GHz
Center Freq	2.43700000 GHz
CF Step	3.000000 MHz
Freq Offset	0 Hz

11G/HCH

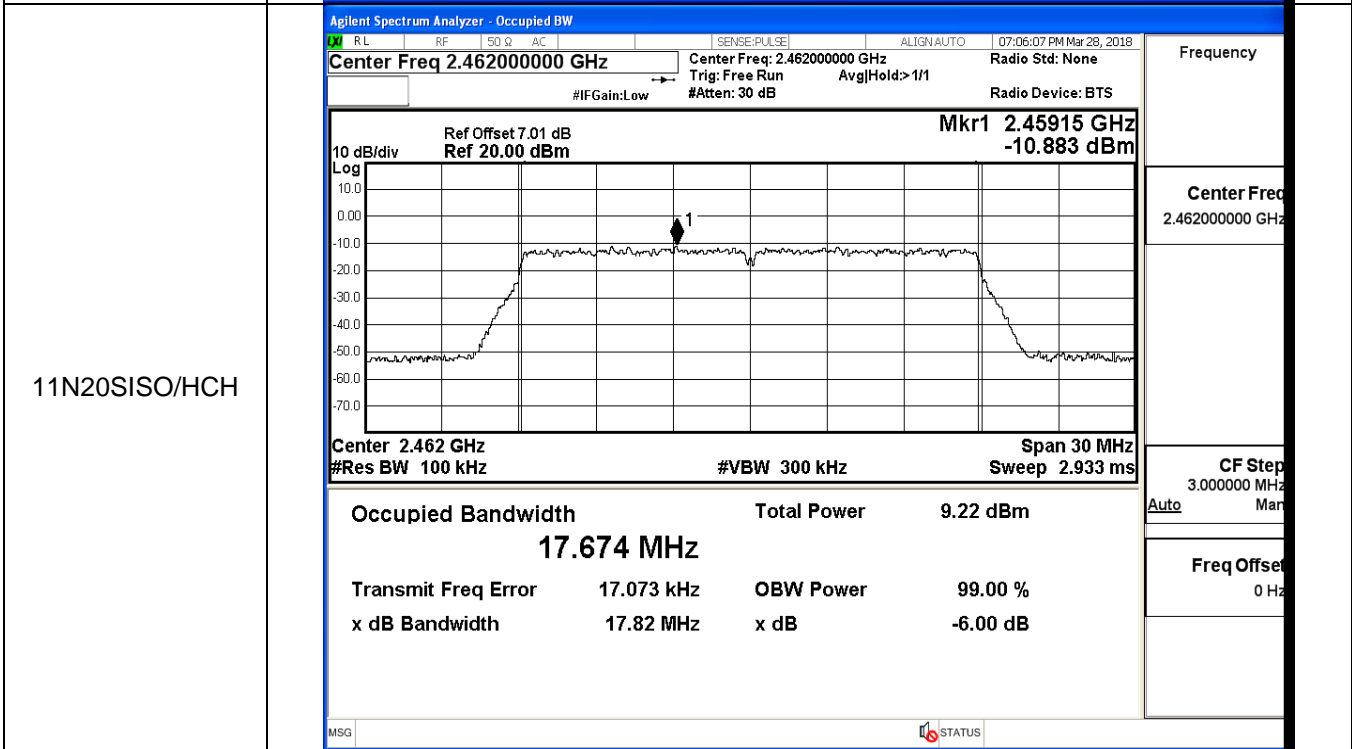
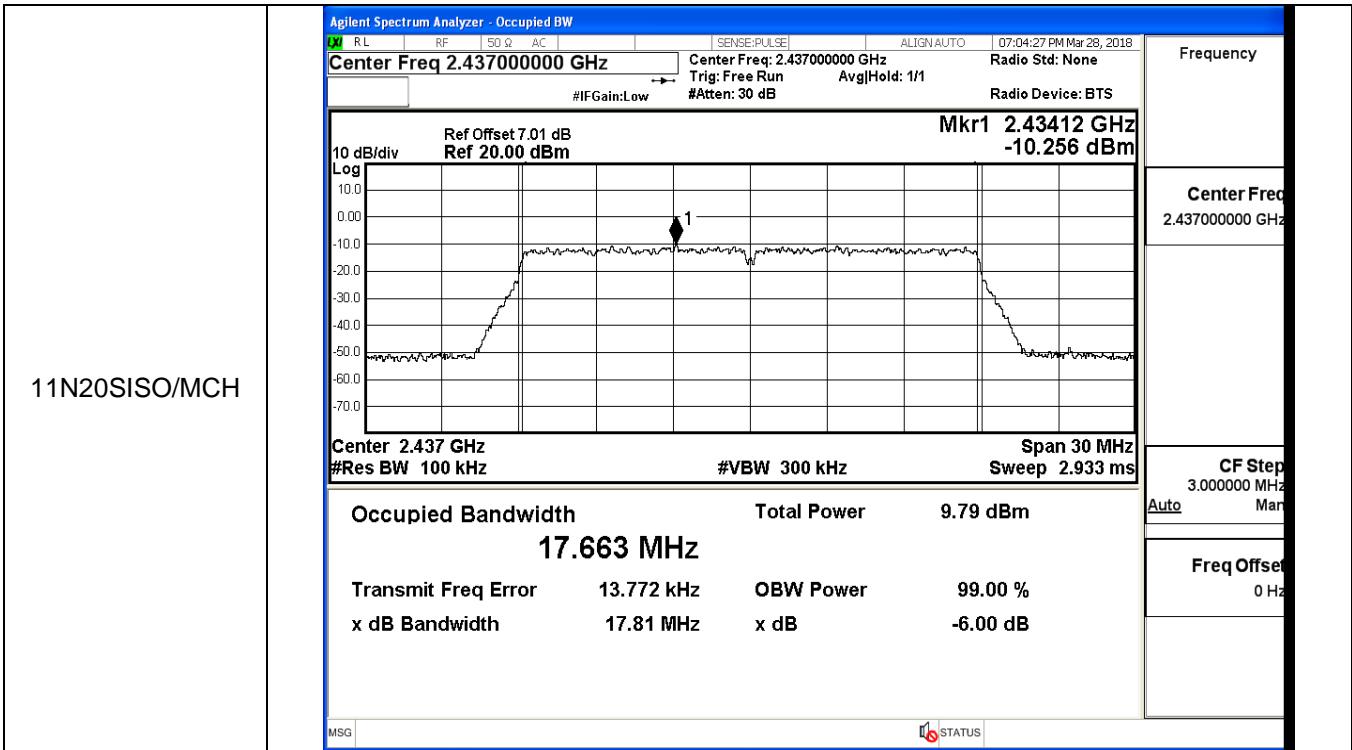


Frequency	2.46200000 GHz
Center Freq	2.46200000 GHz
CF Step	3.000000 MHz
Freq Offset	0 Hz

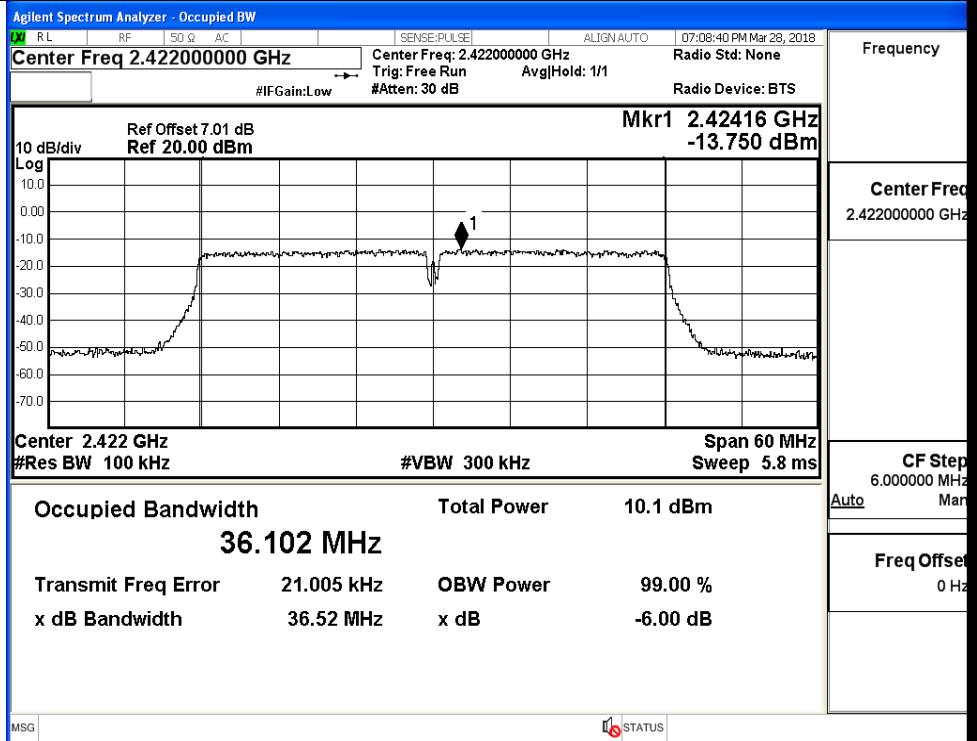
11N20SISO/LCH



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

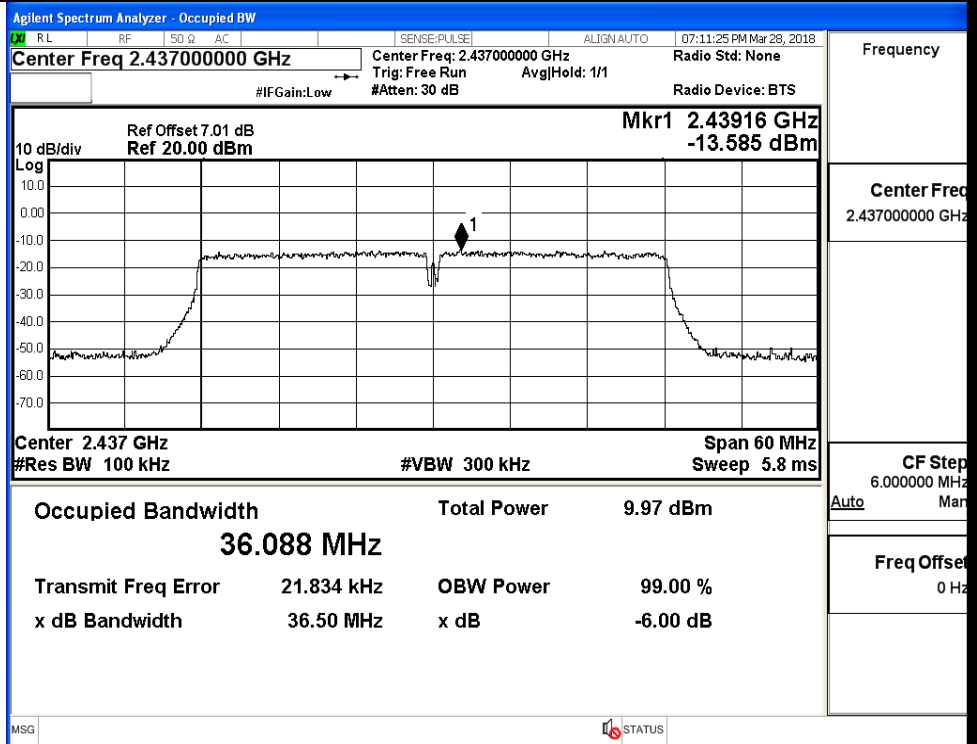


11N40SISO/LCH



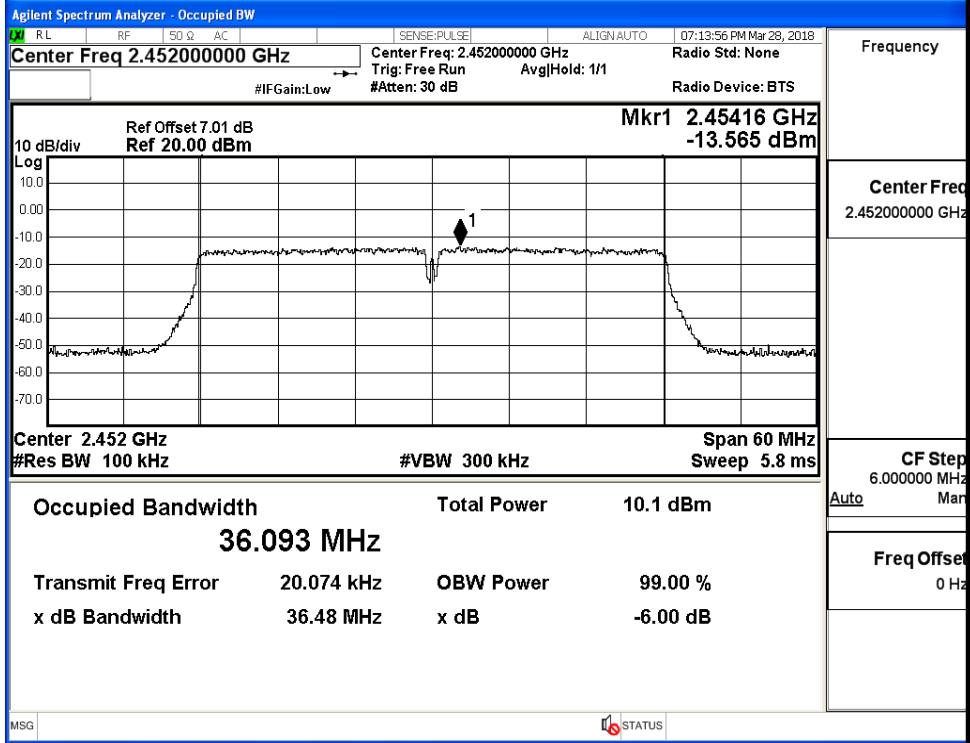
Frequency	2.42200000 GHz
Center Freq	2.42200000 GHz
CF Step	6.000000 MHz
Freq Offset	0 Hz

11N40SISO/MCH



Frequency	2.43700000 GHz
Center Freq	2.43700000 GHz
CF Step	6.000000 MHz
Freq Offset	0 Hz

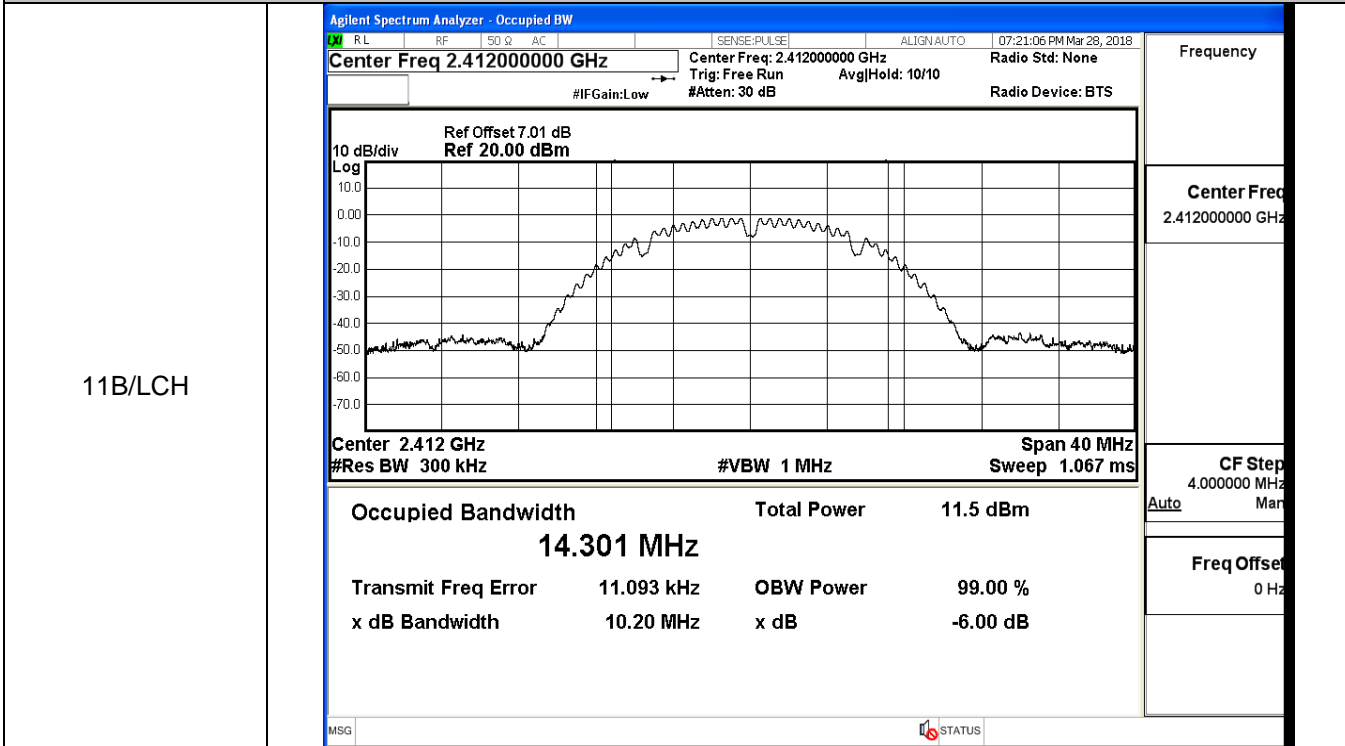
11N40SISO/HCH



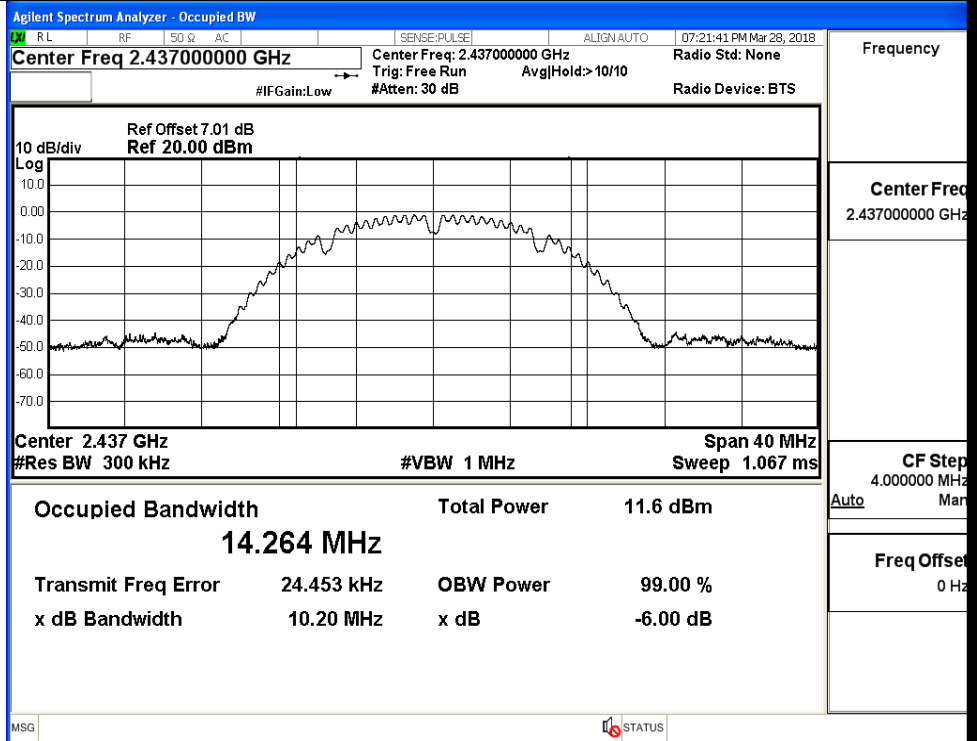
A.5 Occupied Bandwidth

Mode	Channel	Occupied Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	14.301	Not Specified	PASS
	MCH	14.264	Not Specified	PASS
	HCH	14.264	Not Specified	PASS
11G	LCH	17.063	Not Specified	PASS
	MCH	16.919	Not Specified	PASS
	HCH	16.925	Not Specified	PASS
11N20SISO	LCH	17.778	Not Specified	PASS
	MCH	17.781	Not Specified	PASS
	HCH	17.789	Not Specified	PASS
11N40SISO	LCH	36.239	Not Specified	PASS
	MCH	36.221	Not Specified	PASS
	HCH	36.221	Not Specified	PASS

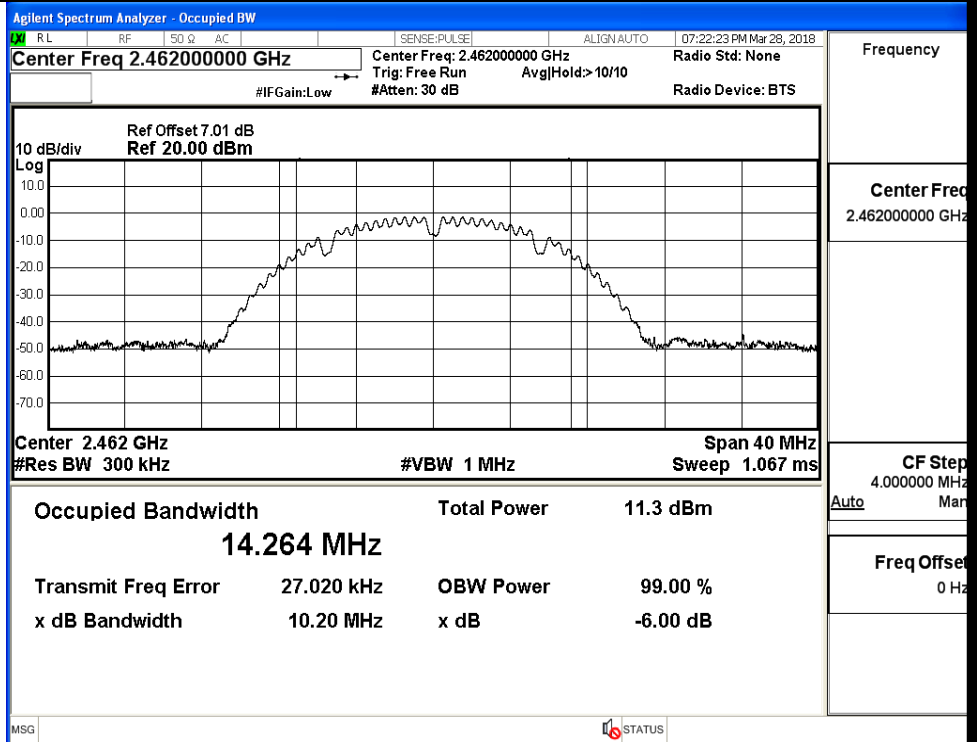
Test Graphs



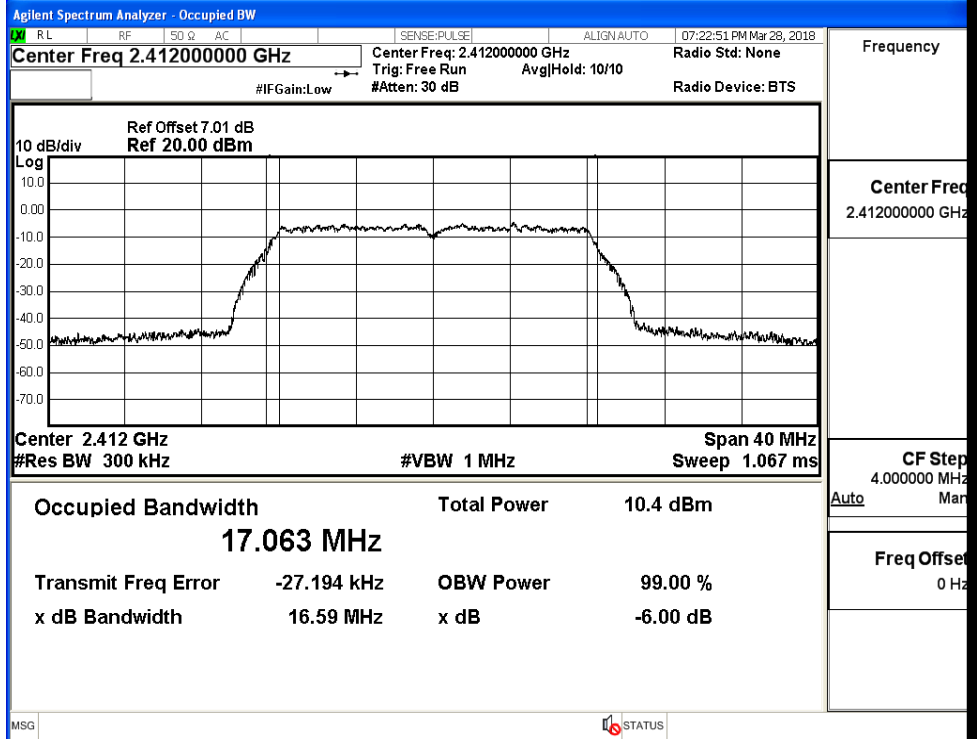
11B/MCH



11B/HCH

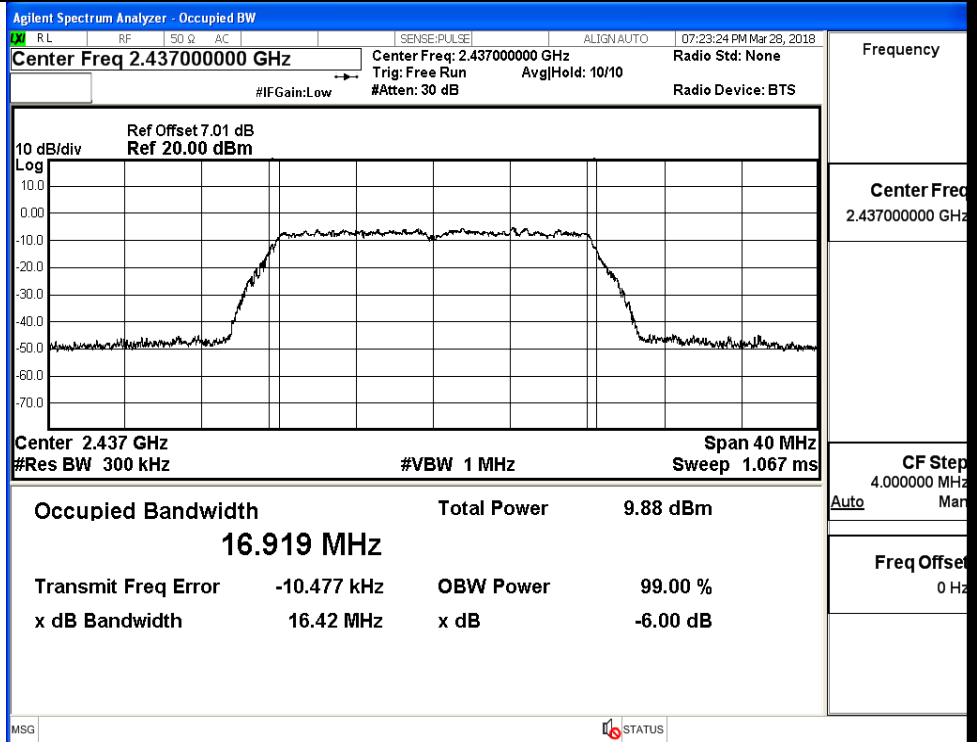


11G/LCH



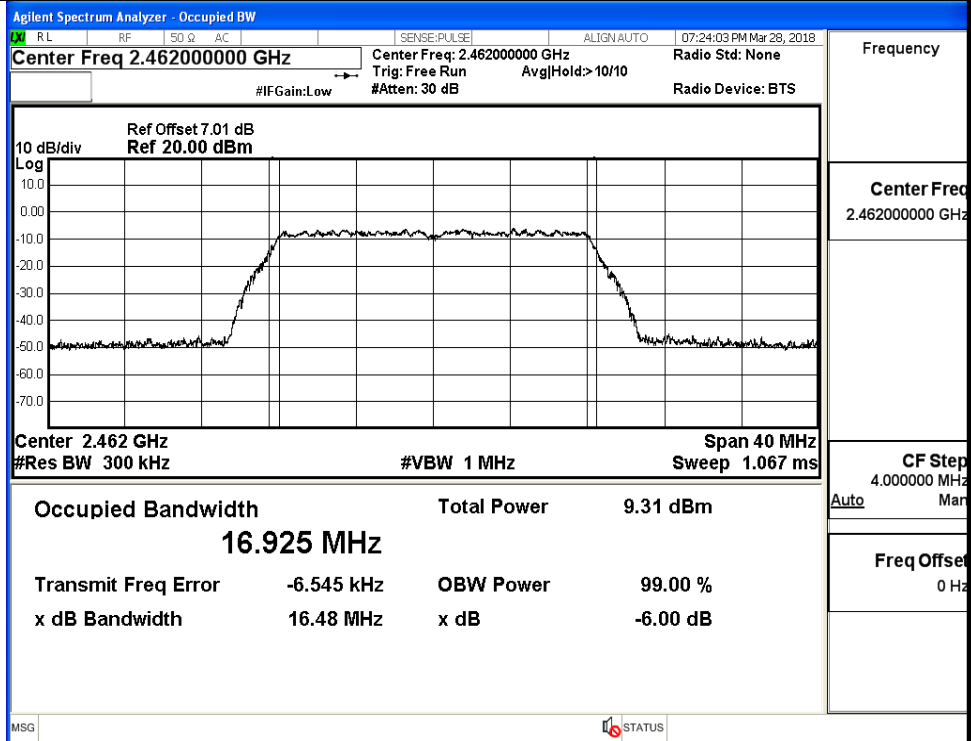
Frequency	2.41200000 GHz
Center Freq	2.41200000 GHz
CF Step	4.000000 MHz
Freq Offset	0 Hz

11G/MCH



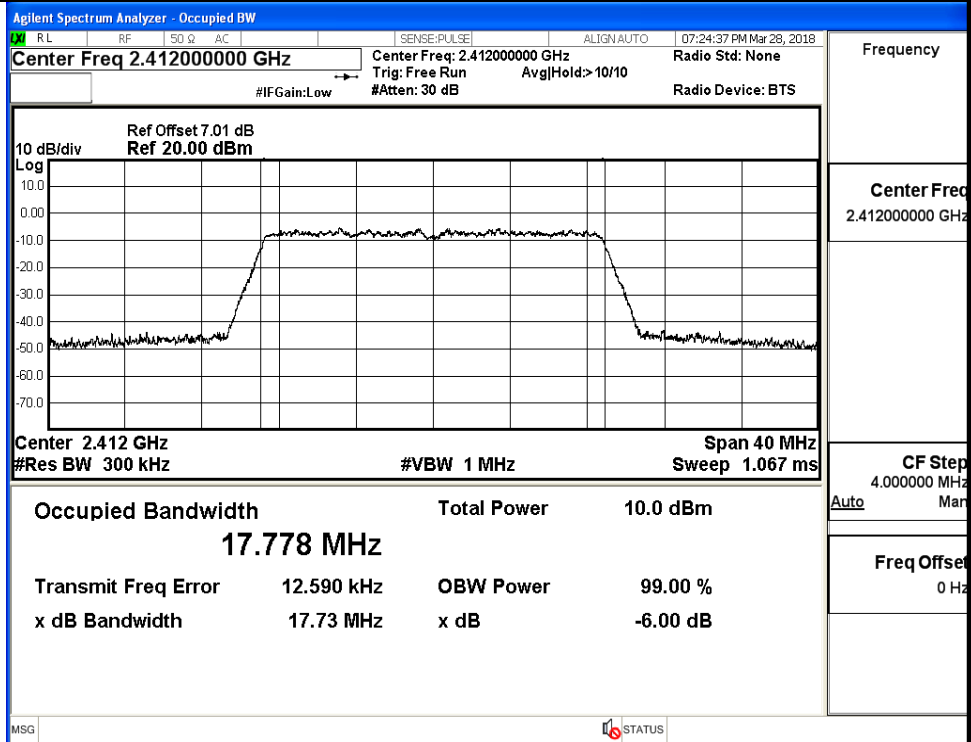
Frequency	2.43700000 GHz
Center Freq	2.43700000 GHz
CF Step	4.000000 MHz
Freq Offset	0 Hz

11G/HCH



Frequency	2.46200000 GHz
Center Freq	2.46200000 GHz
CF Step	4.000000 MHz
Freq Offset	0 Hz

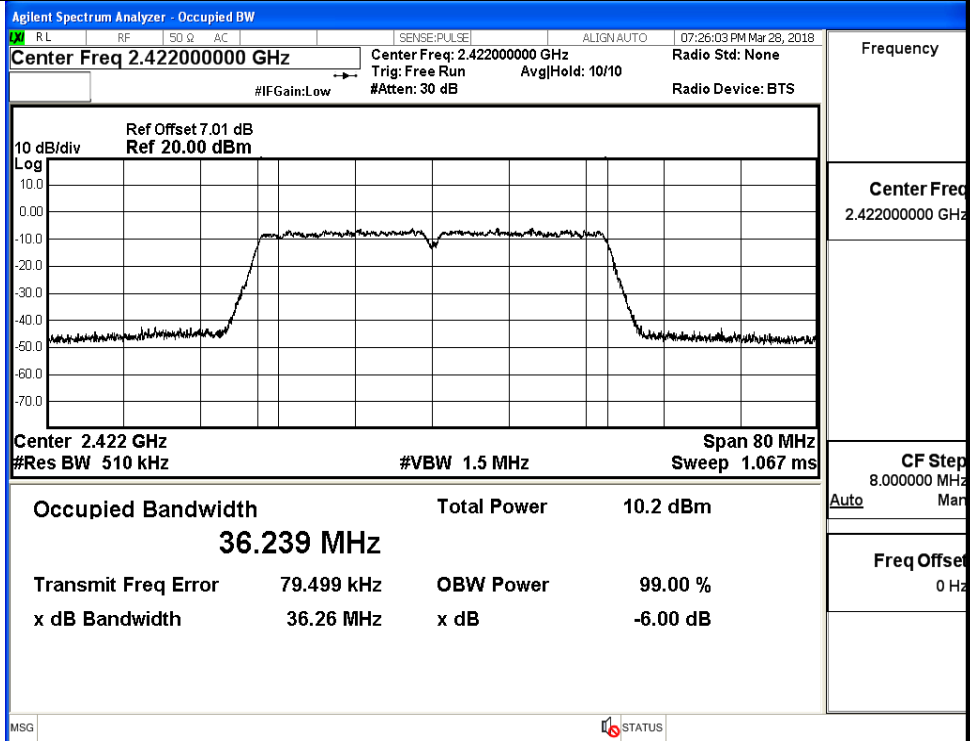
11N20SISO/LCH



Frequency	2.41200000 GHz
Center Freq	2.41200000 GHz
CF Step	4.000000 MHz
Freq Offset	0 Hz

<p>11N20SISO/MCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.43700000 GHz</p> <p>Center Freq: 2.43700000 GHz Trig: Free Run #IFGain:Low #Atten: 30 dB</p> <p>Ref Offset 7.01 dB Ref 20.00 dBm</p> <p>10 dB/div Log</p> <p>Center 2.437 GHz #Res BW 300 kHz</p> <p>Span 40 MHz Sweep 1.067 ms</p> <p>Occupied Bandwidth 17.781 MHz</p> <p>Total Power 9.50 dBm</p> <p>Transmit Freq Error 23.722 kHz</p> <p>x dB Bandwidth 17.70 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -6.00 dB</p> <p>Center Freq: 2.43700000 GHz</p> <p>CF Step: 4.000000 MHz</p> <p>Freq Offset: 0 Hz</p>
<p>11N20SISO/HCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.46200000 GHz</p> <p>Center Freq: 2.46200000 GHz Trig: Free Run #IFGain:Low #Atten: 30 dB</p> <p>Ref Offset 7.01 dB Ref 20.00 dBm</p> <p>10 dB/div Log</p> <p>Center 2.462 GHz #Res BW 300 kHz</p> <p>Span 40 MHz Sweep 1.067 ms</p> <p>Occupied Bandwidth 17.789 MHz</p> <p>Total Power 9.20 dBm</p> <p>Transmit Freq Error 28.441 kHz</p> <p>x dB Bandwidth 17.69 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -6.00 dB</p> <p>Center Freq: 2.46200000 GHz</p> <p>CF Step: 4.000000 MHz</p> <p>Freq Offset: 0 Hz</p>

11N40SISO/LCH



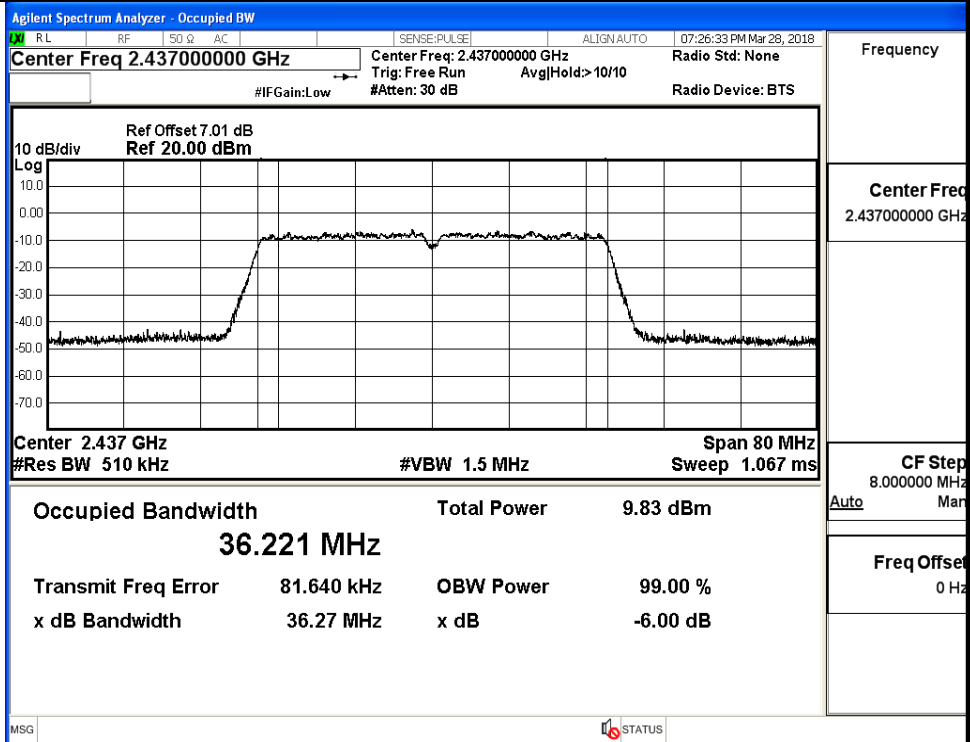
Frequency

Center Freq
2.42200000 GHz

CF Step
8.000000 MHz

Freq Offset
0 Hz

11N40SISO/MCH



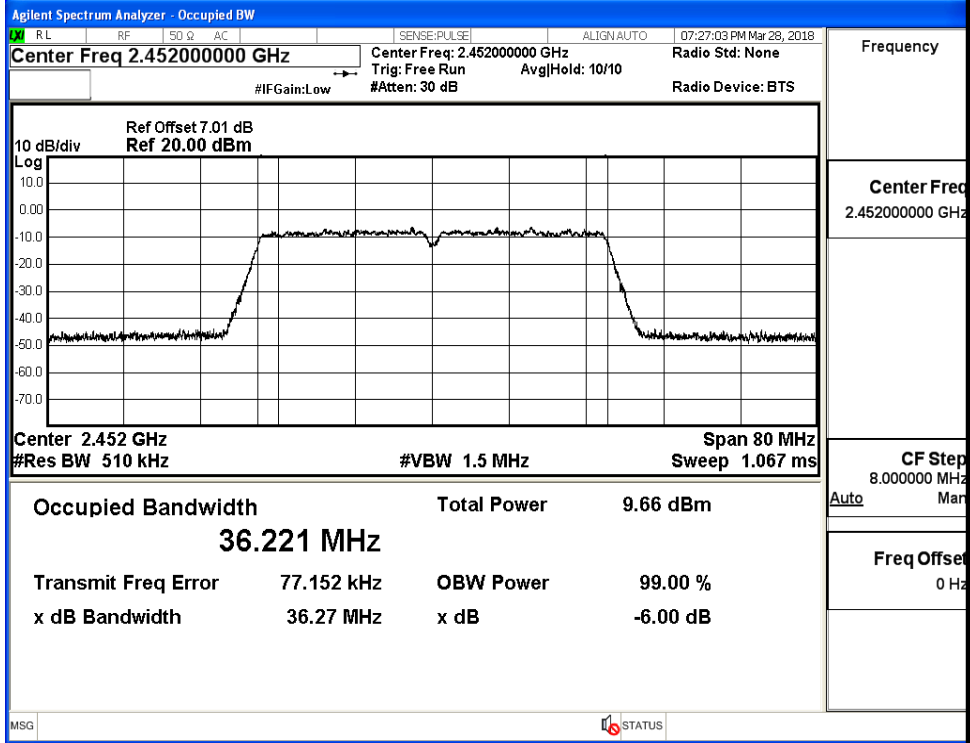
Frequency

Center Freq
2.43700000 GHz

CF Step
8.000000 MHz

Freq Offset
0 Hz

11N40SISO/HCH

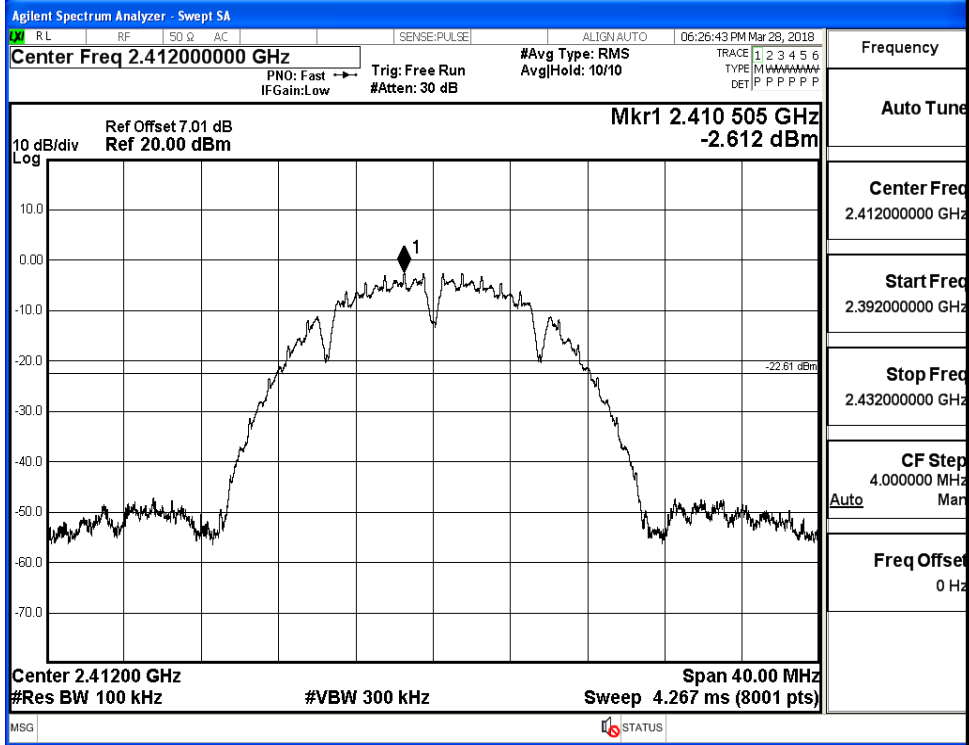


A.6 RF Conducted Spurious Emissions

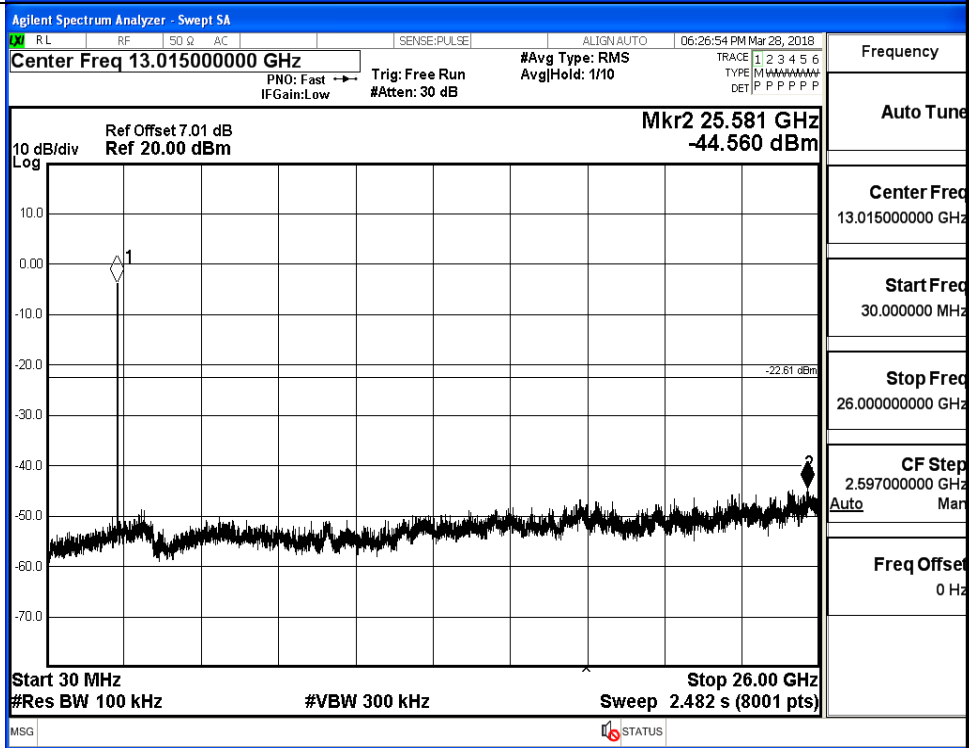
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-2.612	-44.560	-22.612	PASS
	MCH	-2.366	-43.436	-22.366	PASS
	HCH	-2.971	-44.692	-22.971	PASS
11G	LCH	-10.376	-43.265	-30.376	PASS
	MCH	-11.136	-44.796	-31.136	PASS
	HCH	-12.34	-45.064	-32.340	PASS
11N20 SISO	LCH	-10.264	-44.259	-30.264	PASS
	MCH	-10.32	-44.184	-30.320	PASS
	HCH	-10.968	-45.233	-30.968	PASS
11N40 SISO	LCH	-13.26	-44.158	-33.260	PASS
	MCH	-13.784	-43.102	-33.784	PASS
	HCH	-13.292	-44.306	-33.292	PASS

11B_LCH_Graphs

Pref/11B/LCH

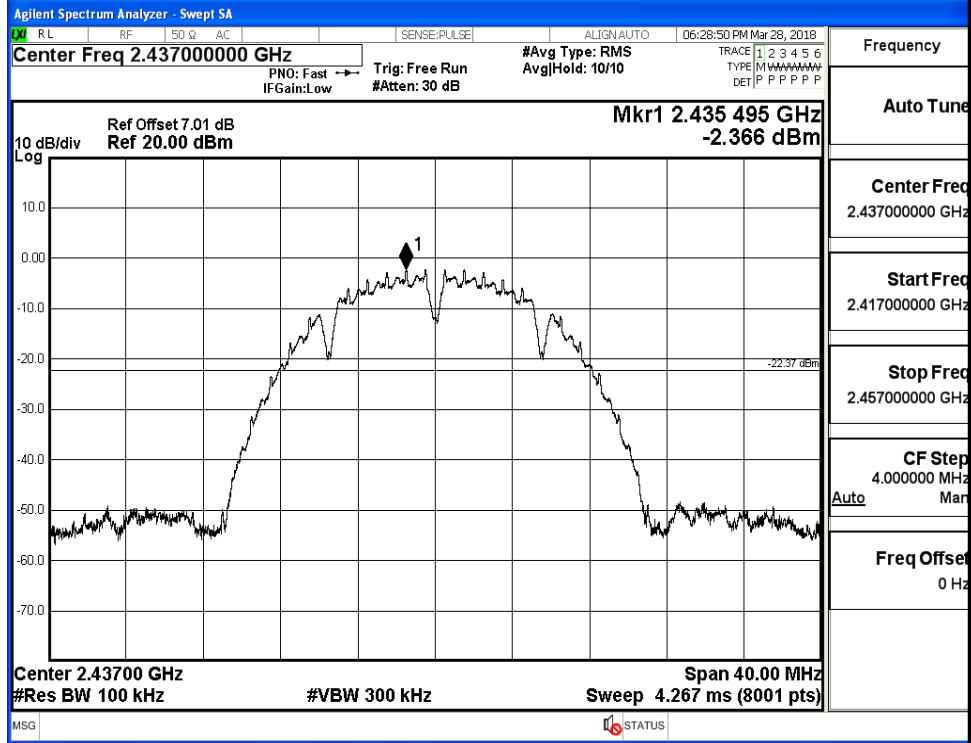


Puw/11B/LCH

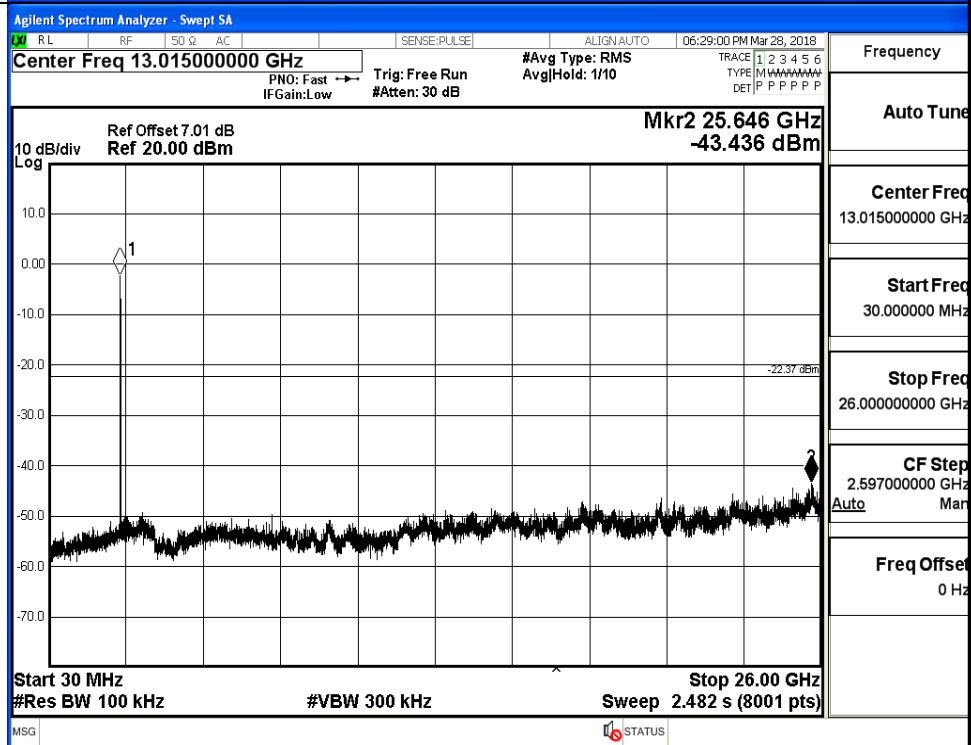


11B_MCH_Graphs

Pref/11B/MCH

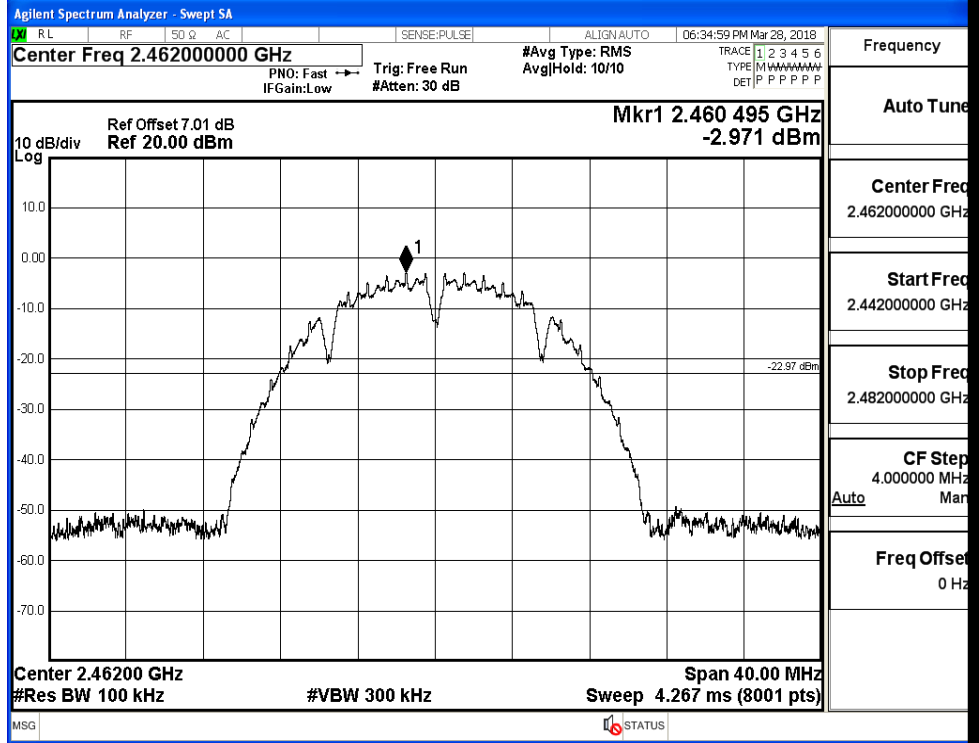


Puw/11B/MCH

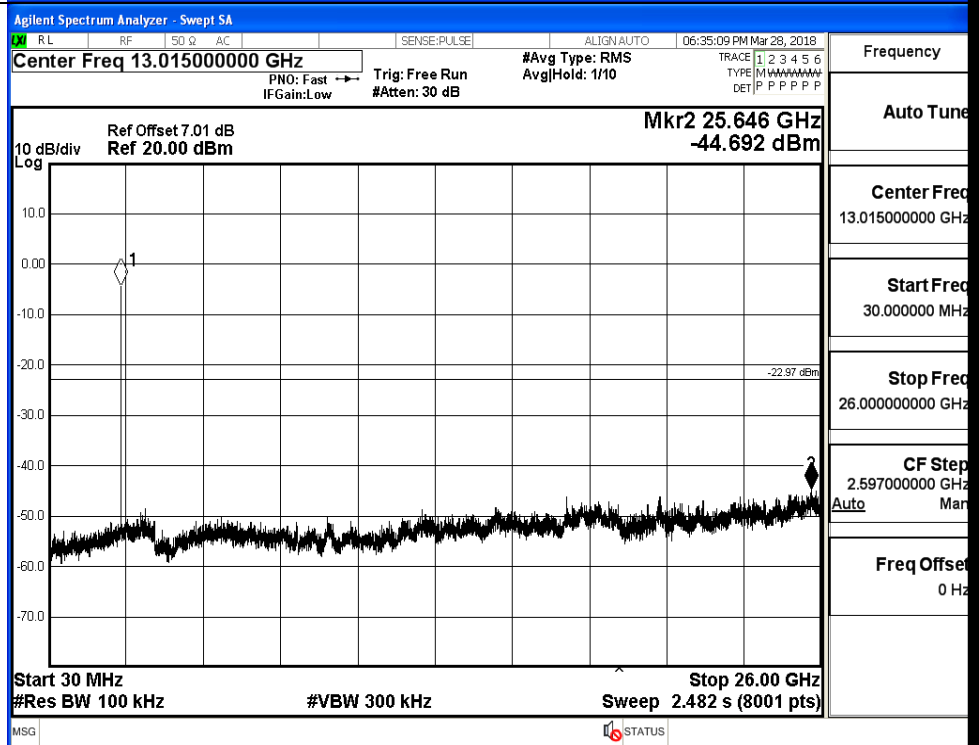


11B_HCH_Graphs

Pref/11B/HCH

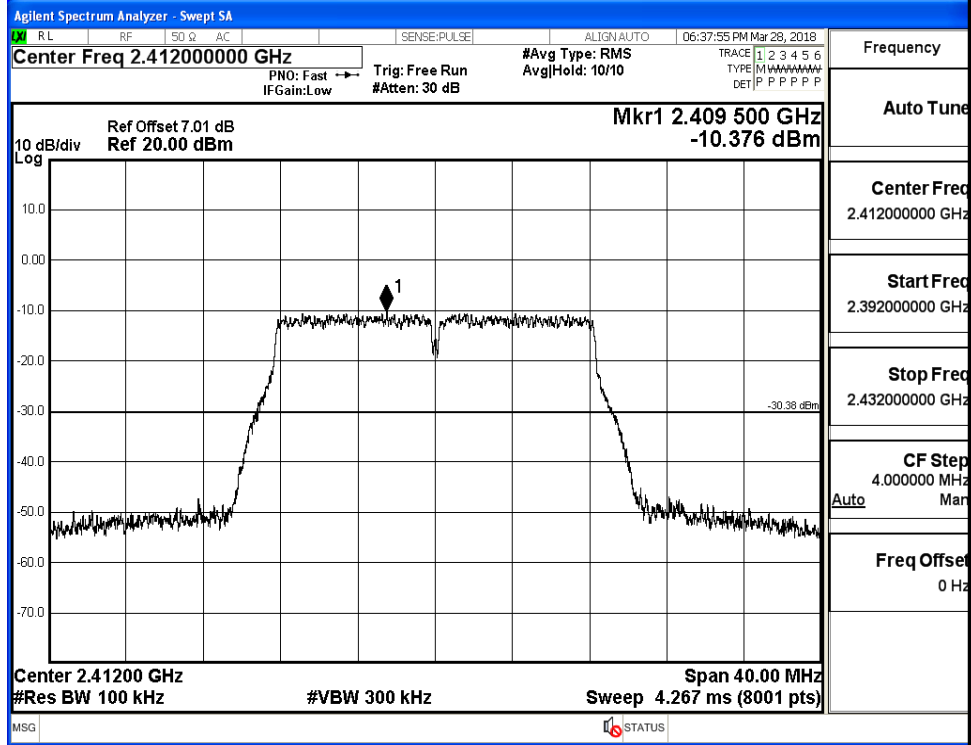


Puw/11B/HCH

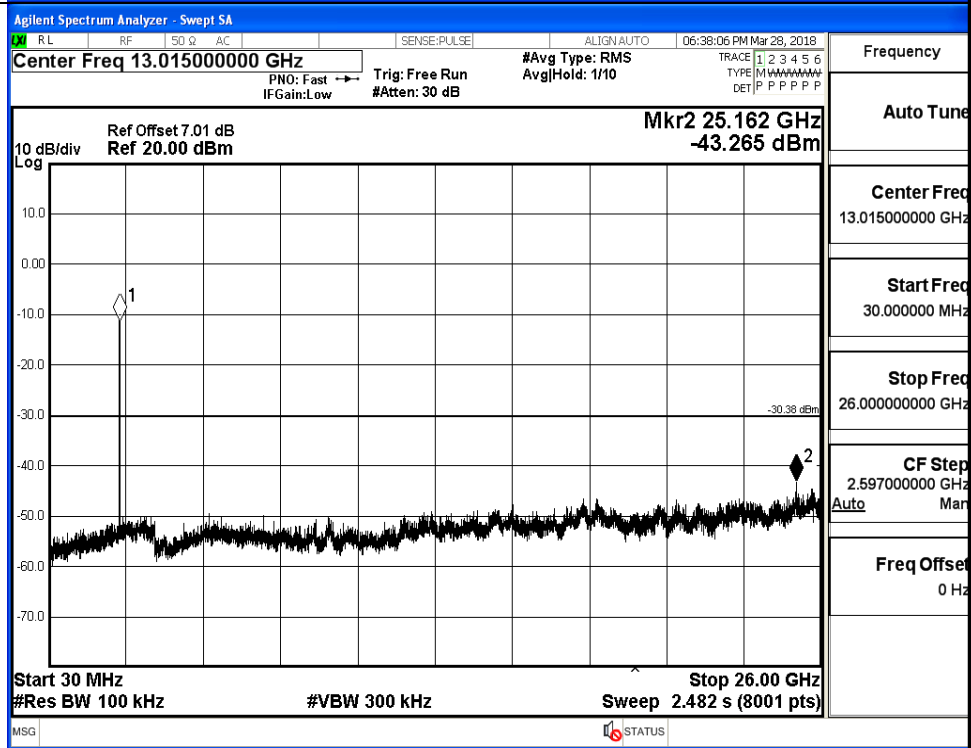


11G_LCH_Graphs

Pref/11G/LCH

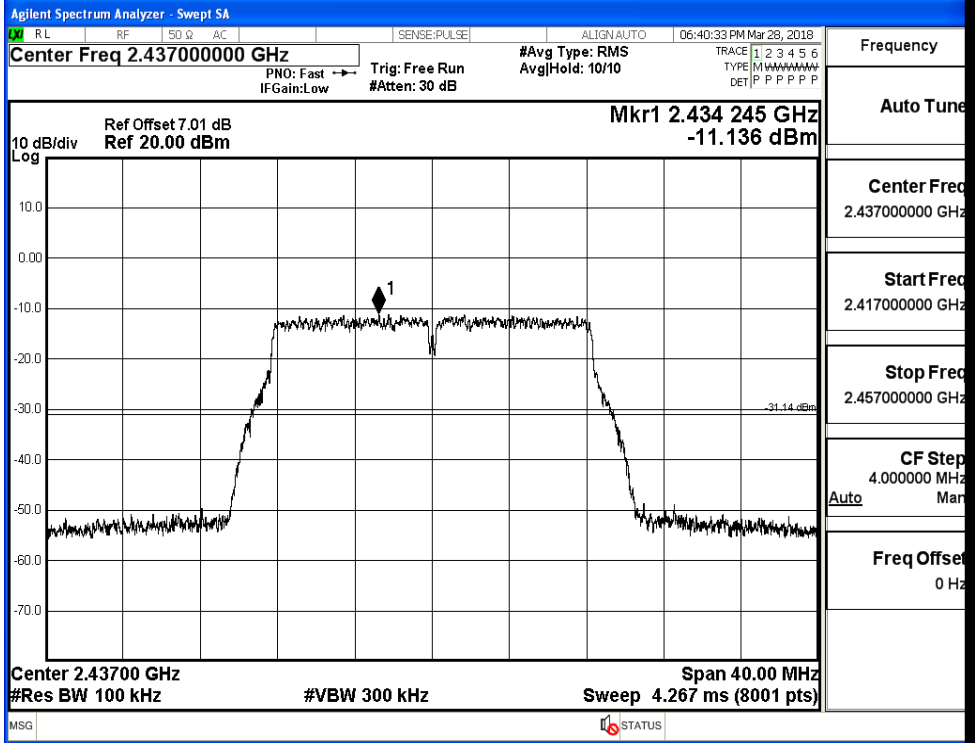


Puw/11G/LCH

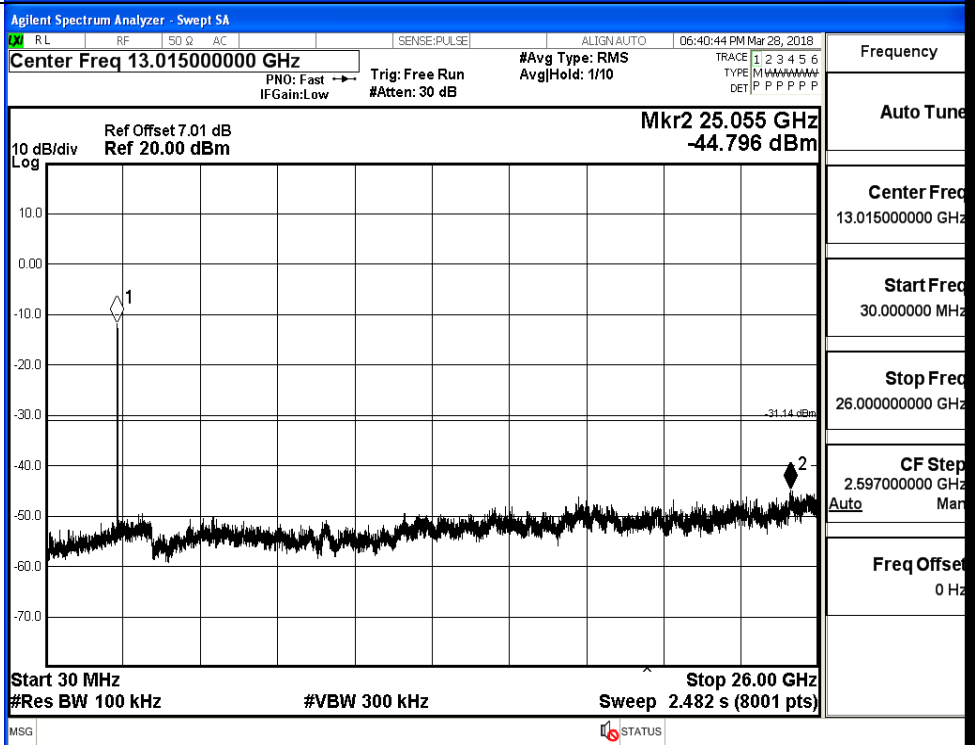


11G_MCH_Graphs

Pref/11G/MCH

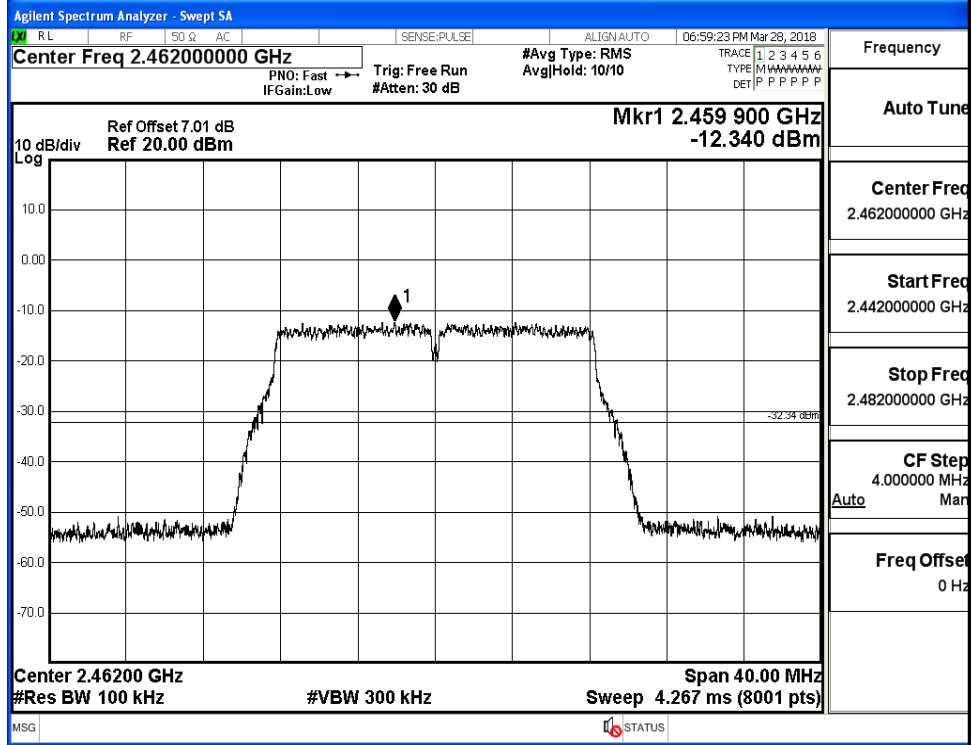


Puw/11G/MCH

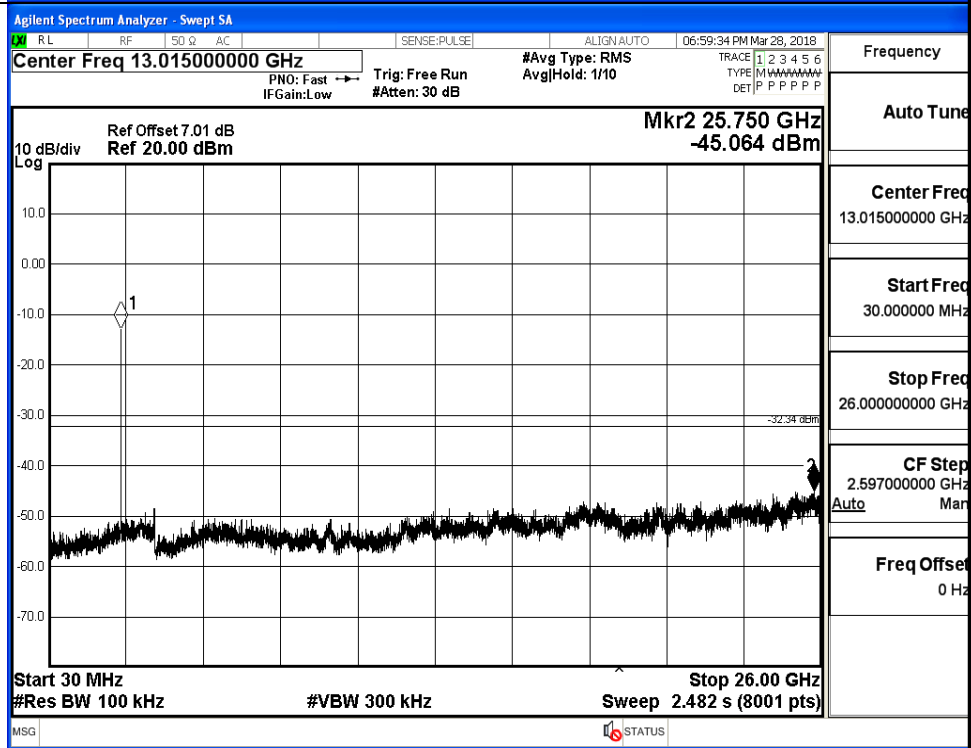


11G_HCH_Graphs

Pref/11G/HCH

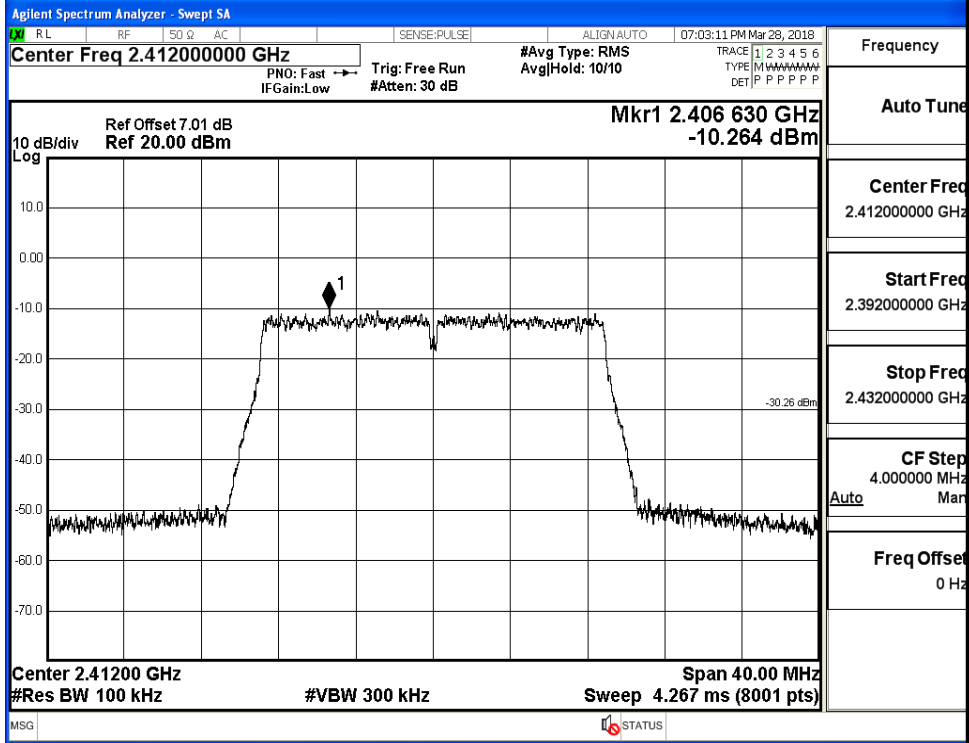


Puw/11G/HCH



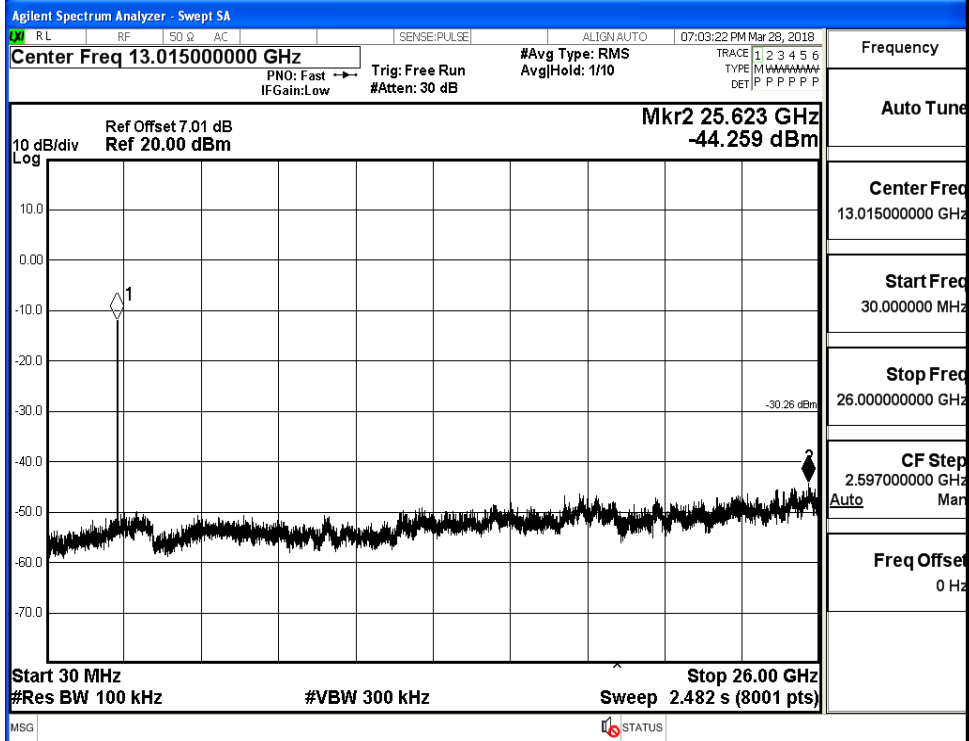
11N20SISO_LCH_Graphs

Pref/11N20SIS
O/LCH



Frequency	
Auto Tune	
Center Freq	2.41200000 GHz
Start Freq	2.392000000 GHz
Stop Freq	2.432000000 GHz
CF Step	4.000000 MHz
Freq Offset	0 Hz

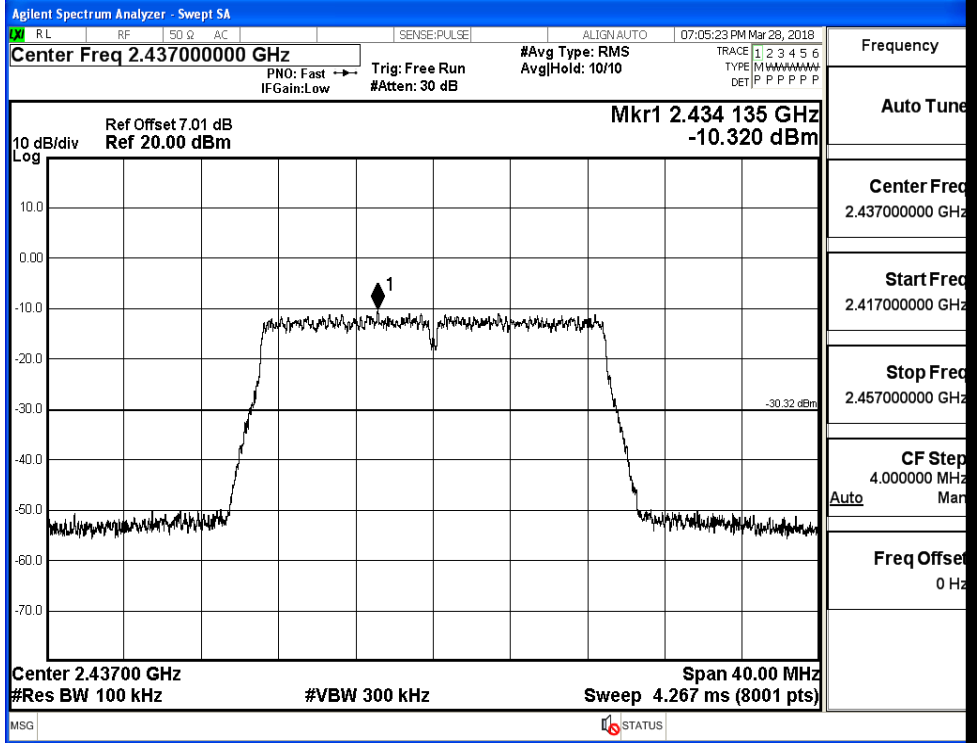
Puw/11N20
SISO/LCH



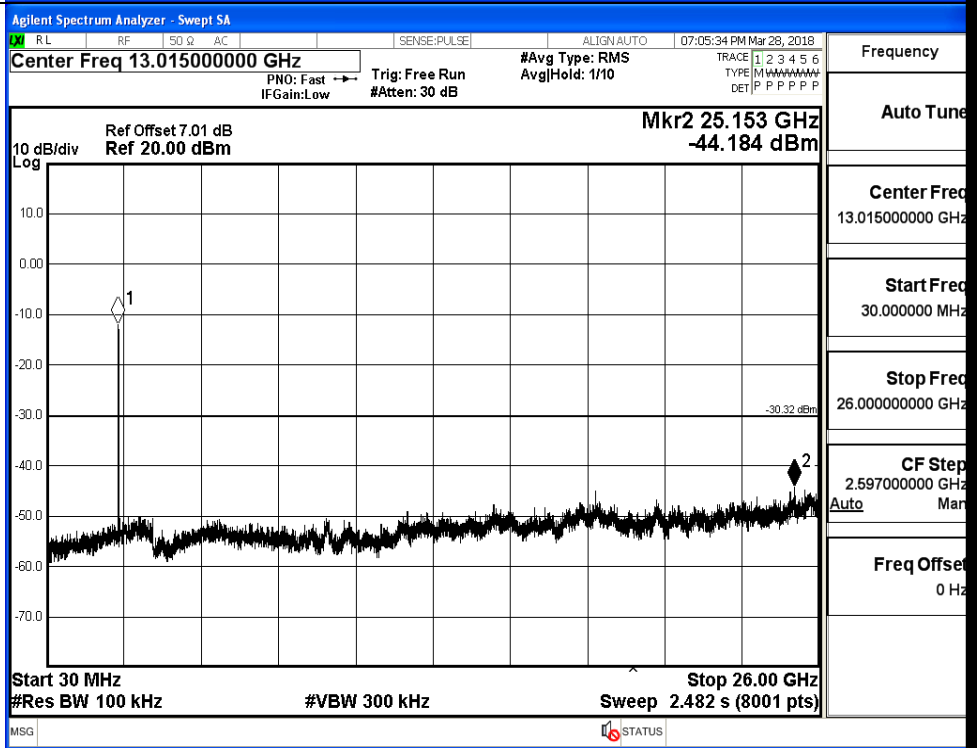
Frequency	
Auto Tune	
Center Freq	13.01500000 GHz
Start Freq	30.000000 MHz
Stop Freq	26.000000000 GHz
CF Step	2.597000000 GHz
Freq Offset	0 Hz

11N20SISO_MCH_Graphs

Pref/11N20
SISO/MCH

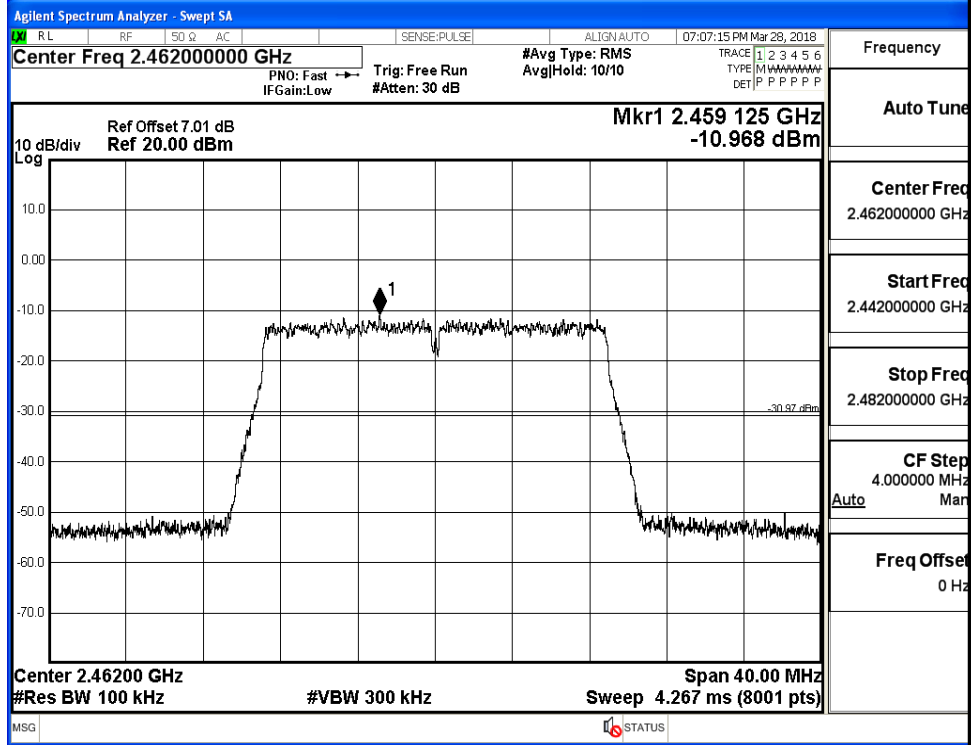


Puw/11N20
SISO/MCH

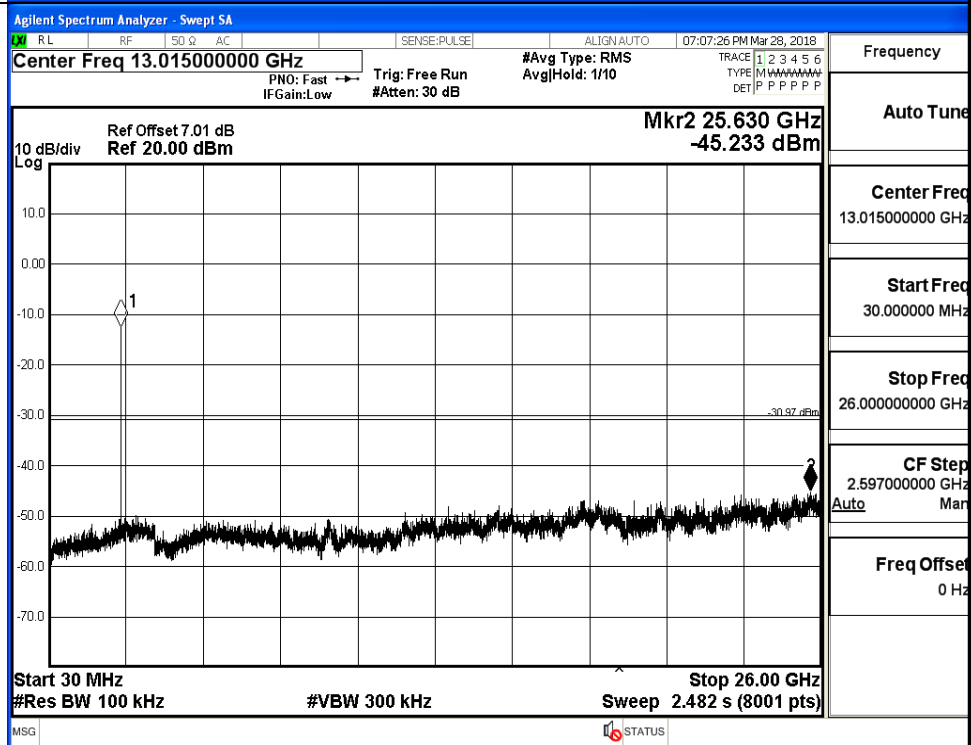


11N20SISO_HCH_Graphs

Pref/11N20
SISO/HCH

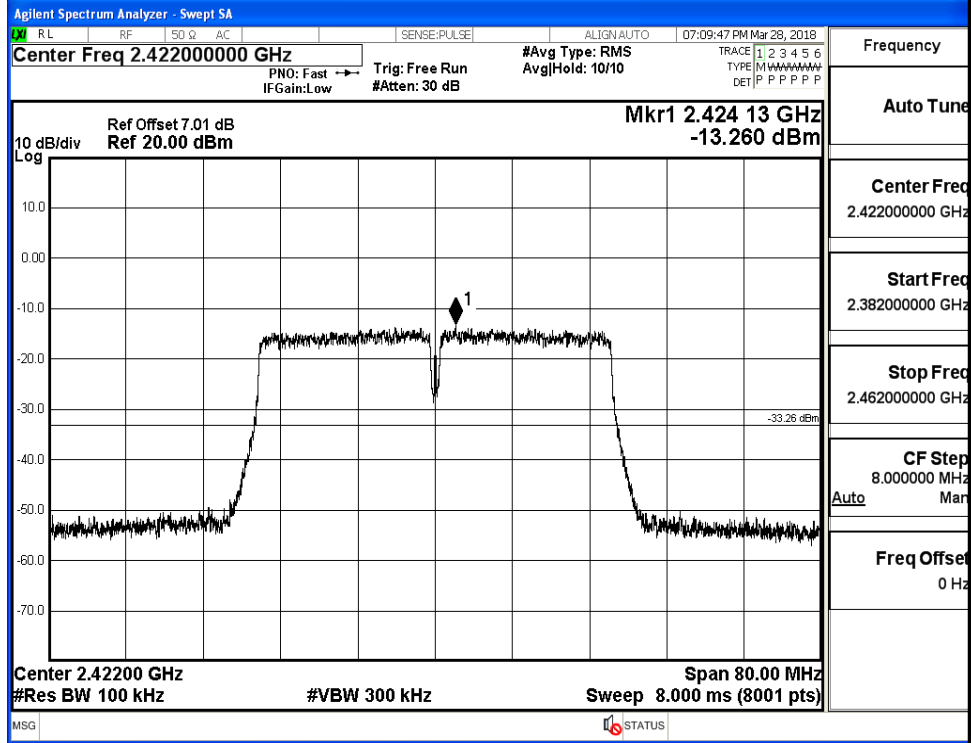


Puw/11N20
SISO/HCH

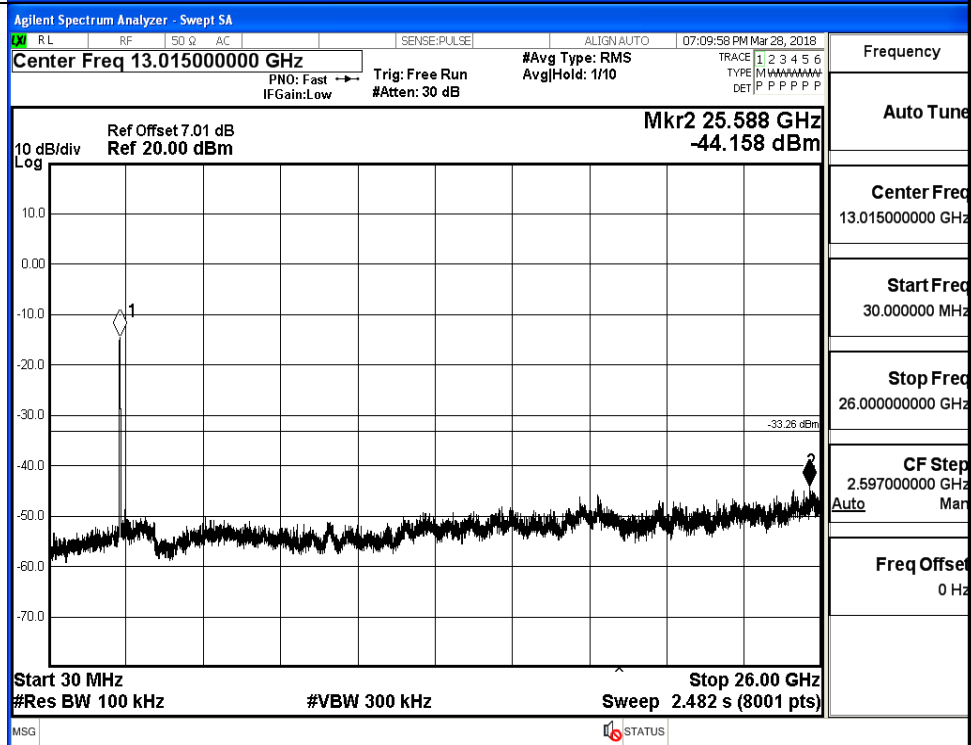


11N40SISO_LCH_Graphs

Pref/11N40
SISO/LCH

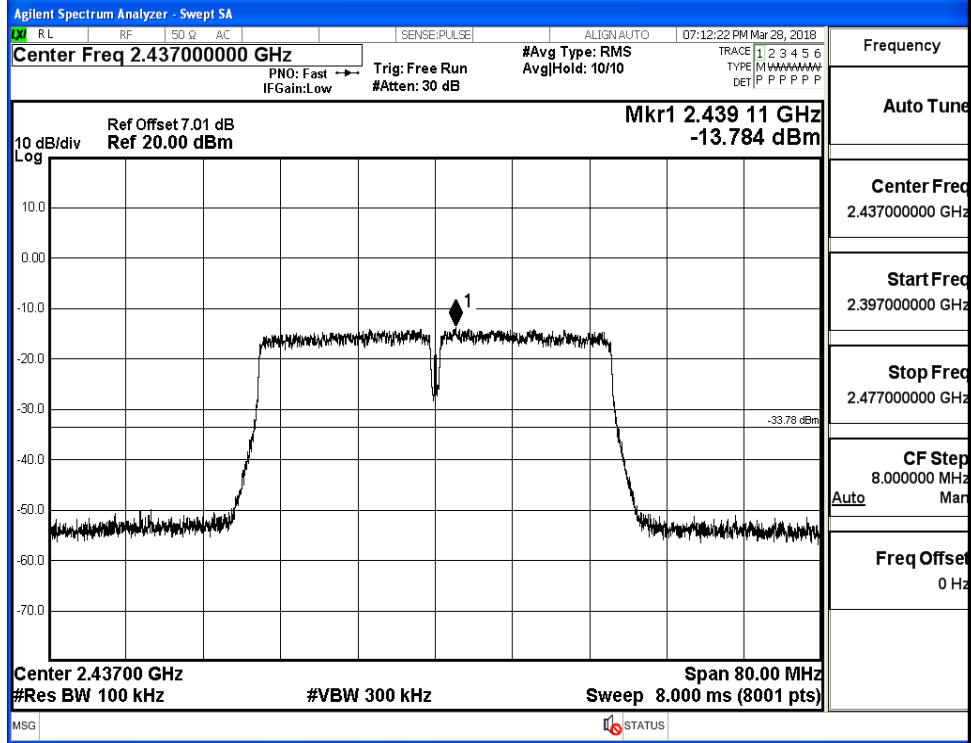


Puw/11N40
SISO/LCH

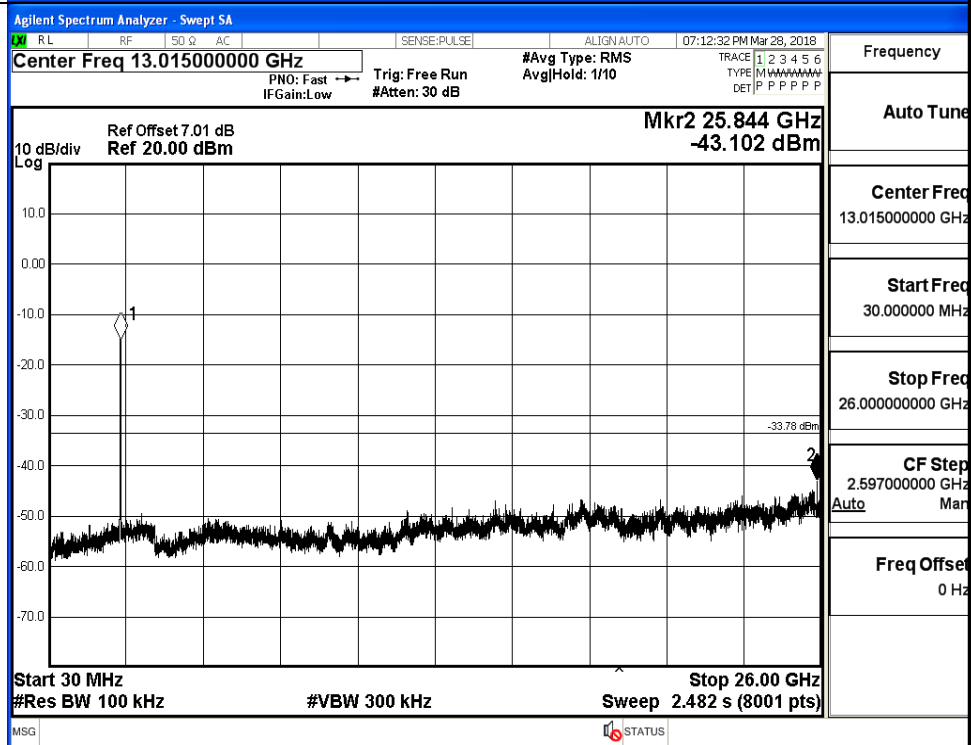


11N40SISO_MCH_Graphs

Pref/11N40
SISO/MCH

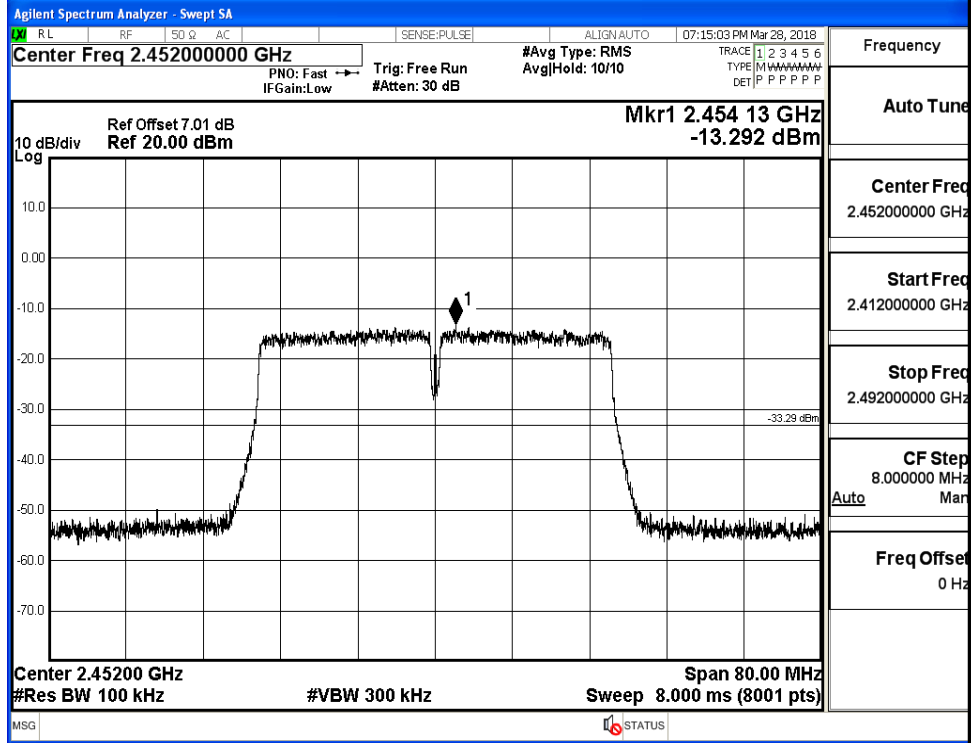


Puw/11N40
SISO/MCH

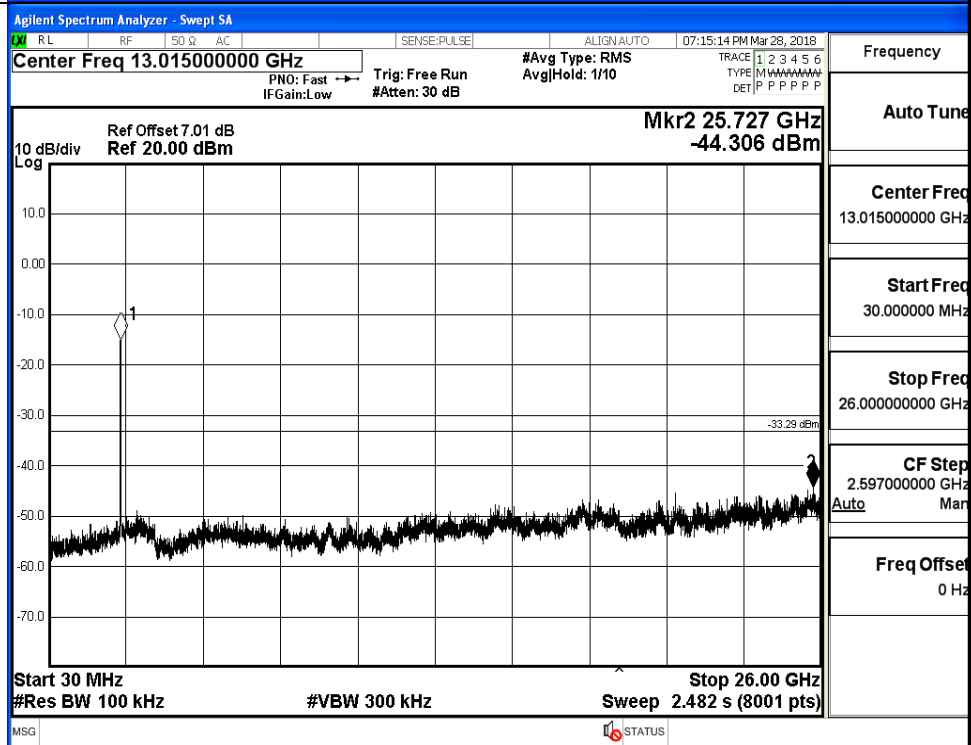


11N40SISO_HCH_Graphs

Pref/11N40
SISO/HCH

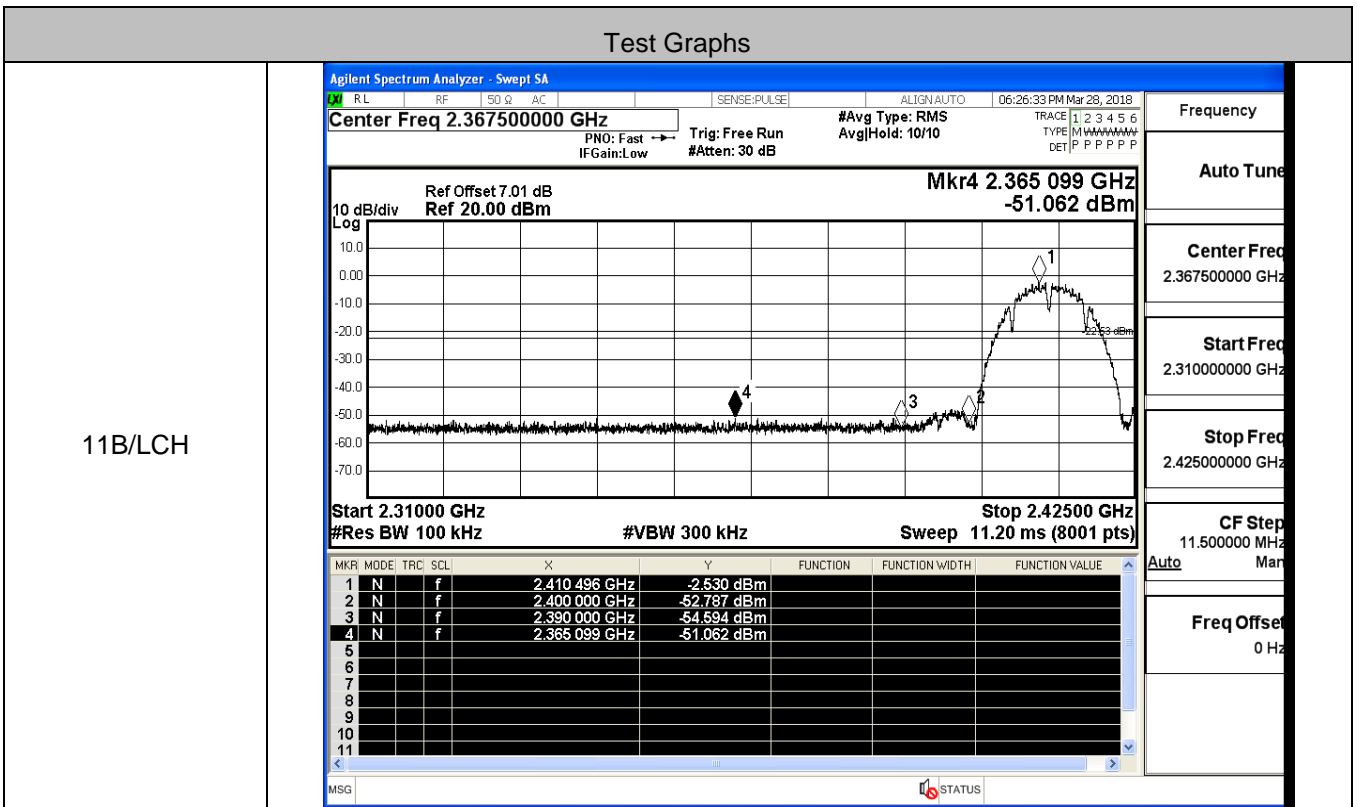


Puw/11N40
SISO/HCH

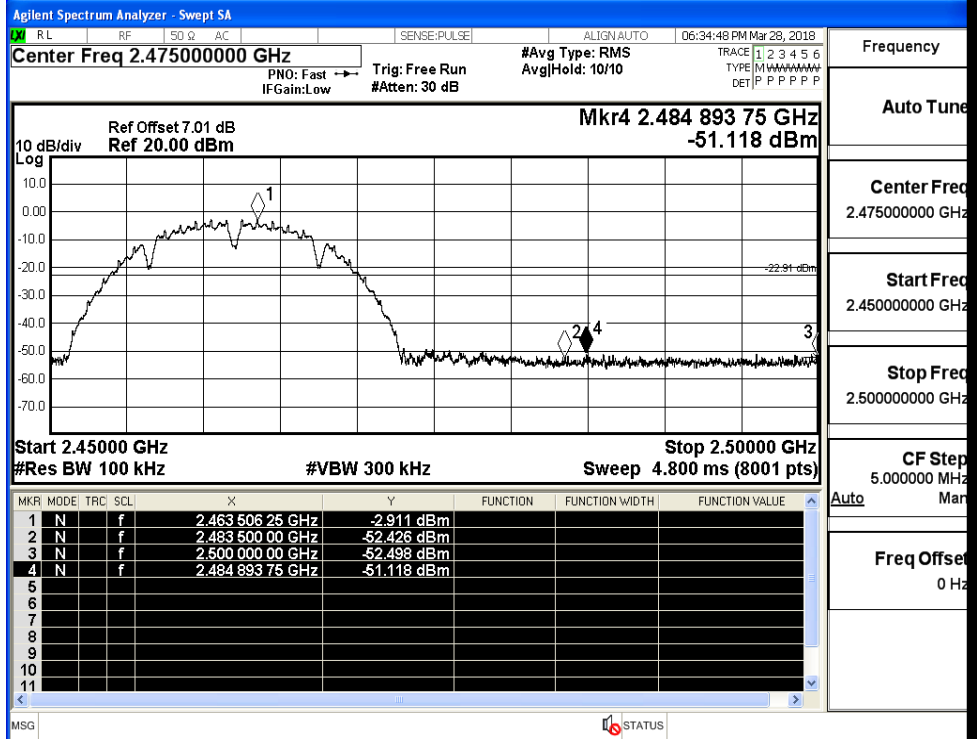


A.7 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-2.530	-51.062	-22.53	PASS
	HCH	-2.911	-51.118	-22.91	PASS
11G	LCH	-10.322	-51.606	-30.32	PASS
	HCH	-12.313	-50.405	-32.31	PASS
11N20SISO	LCH	-10.381	-50.839	-30.38	PASS
	HCH	-11.396	-51.017	-31.4	PASS
11N40SISO	LCH	-13.282	-49.944	-33.28	PASS
	HCH	-13.757	-51.070	-33.76	PASS



11B/HCH



Frequency

Auto Tune

Center Freq
2.475000000 GHz

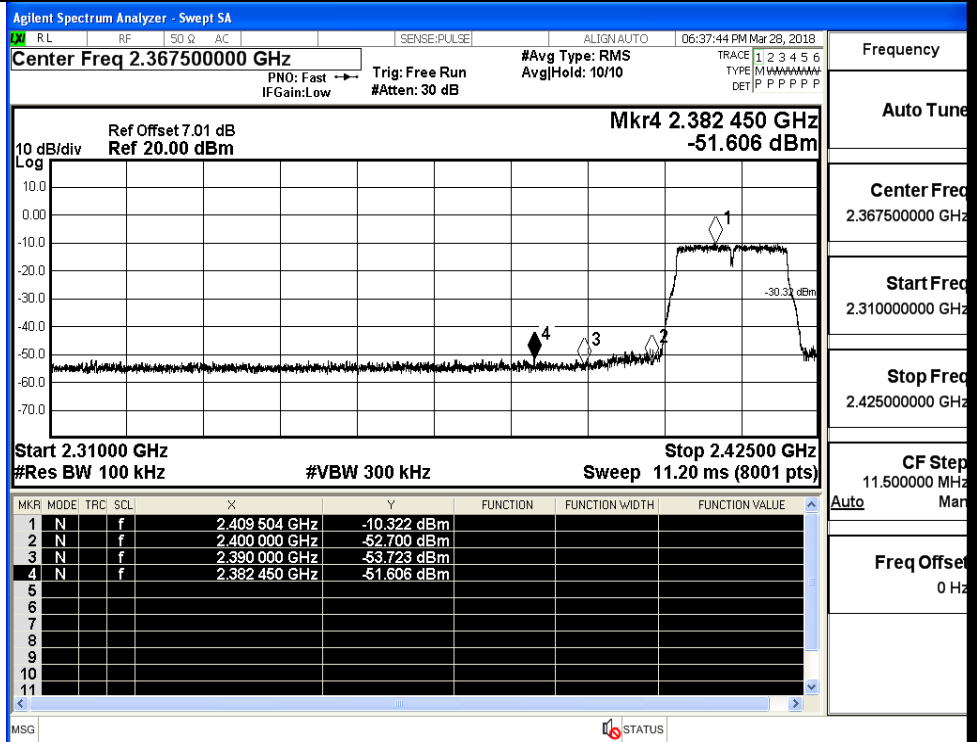
Start Freq
2.450000000 GHz

Stop Freq
2.500000000 GHz

CF Step
5.000000 MHz

Freq Offset
0 Hz

11G/LCH



Frequency

Auto Tune

Center Freq
2.367500000 GHz

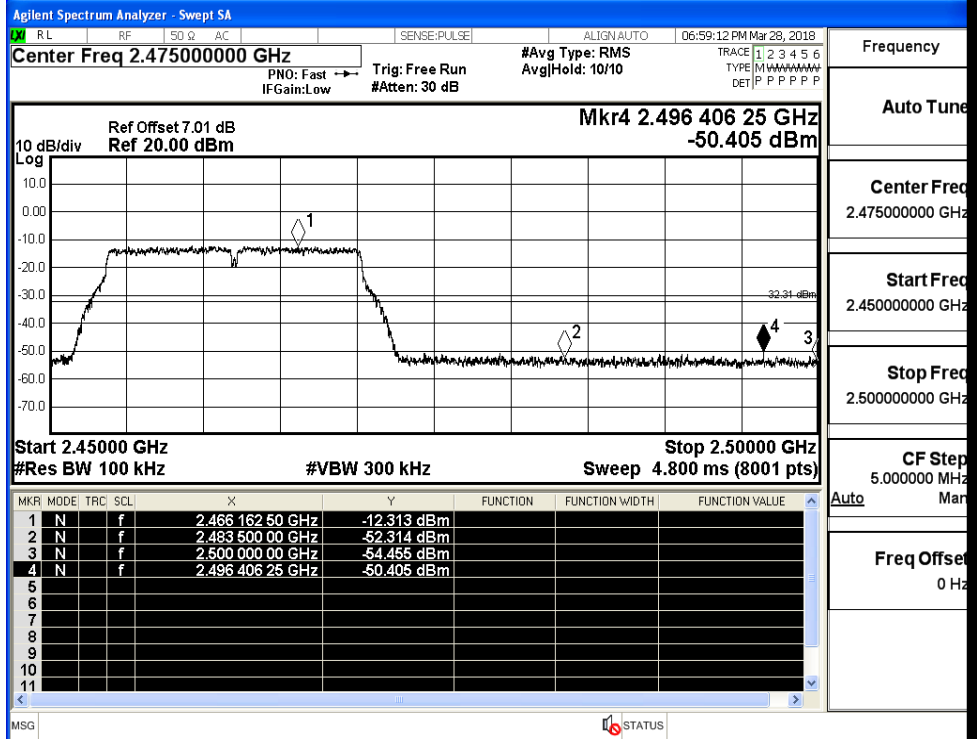
Start Freq
2.310000000 GHz

Stop Freq
2.425000000 GHz

CF Step
11.500000 MHz

Freq Offset
0 Hz

11G/HCH



Frequency

Auto Tune

Center Freq
2.475000000 GHz

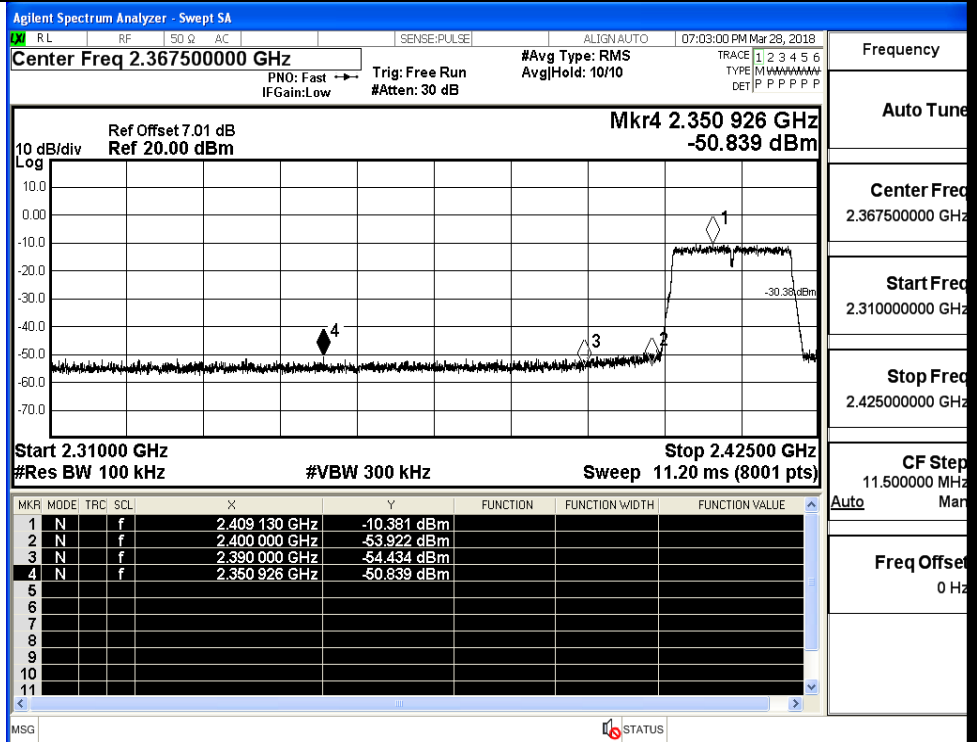
Start Freq
2.450000000 GHz

Stop Freq
2.500000000 GHz

CF Step
5.000000 MHz

Freq Offset
0 Hz

11N20SISO/LCH



Frequency

Auto Tune

Center Freq
2.367500000 GHz

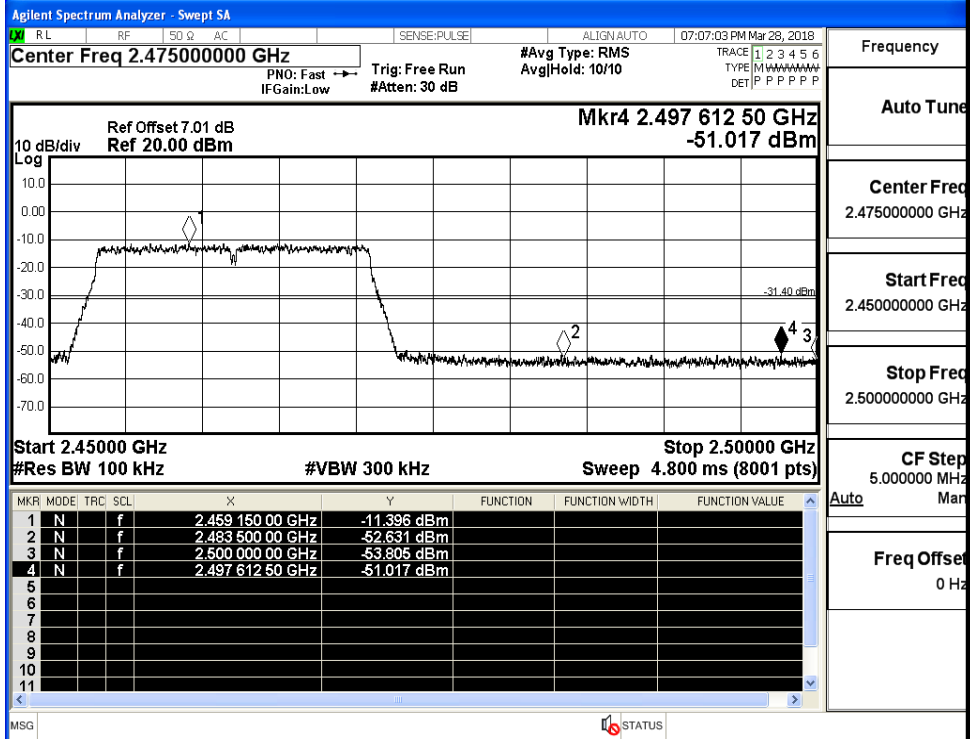
Start Freq
2.310000000 GHz

Stop Freq
2.425000000 GHz

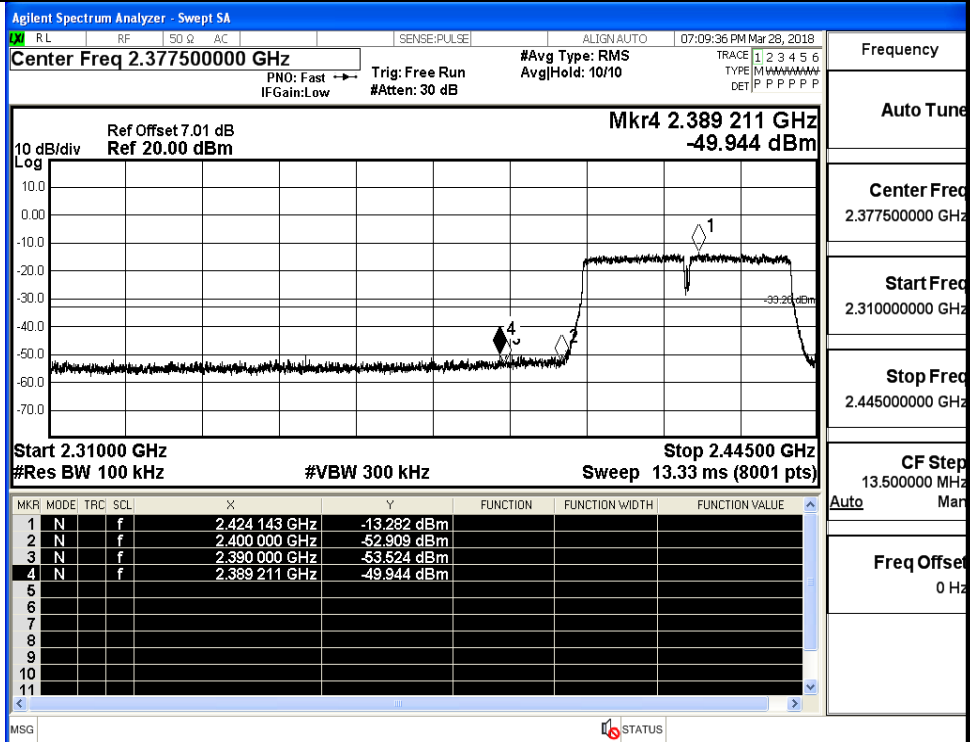
CF Step
11.500000 MHz

Freq Offset
0 Hz

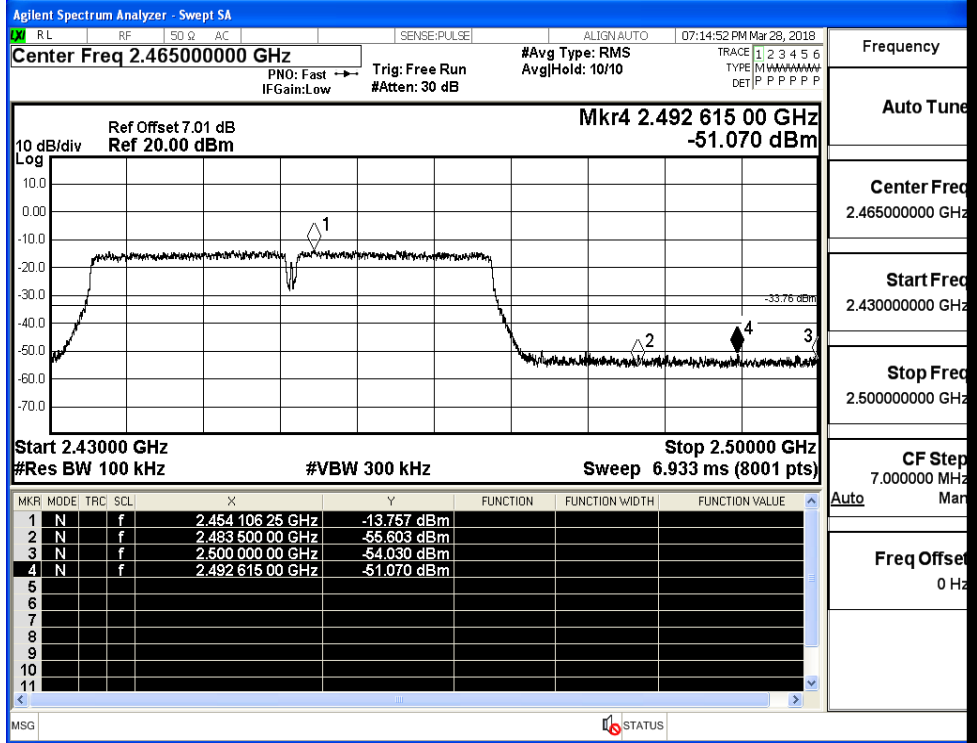
11N20SISO/HCH



11N40SISO/LCH



11N40SISO/HCH



Frequency

Auto Tune

Center Freq
2.465000000 GHz

Start Freq
2.430000000 GHz

Stop Freq
2.500000000 GHz

CF Step
7.000000 MHz

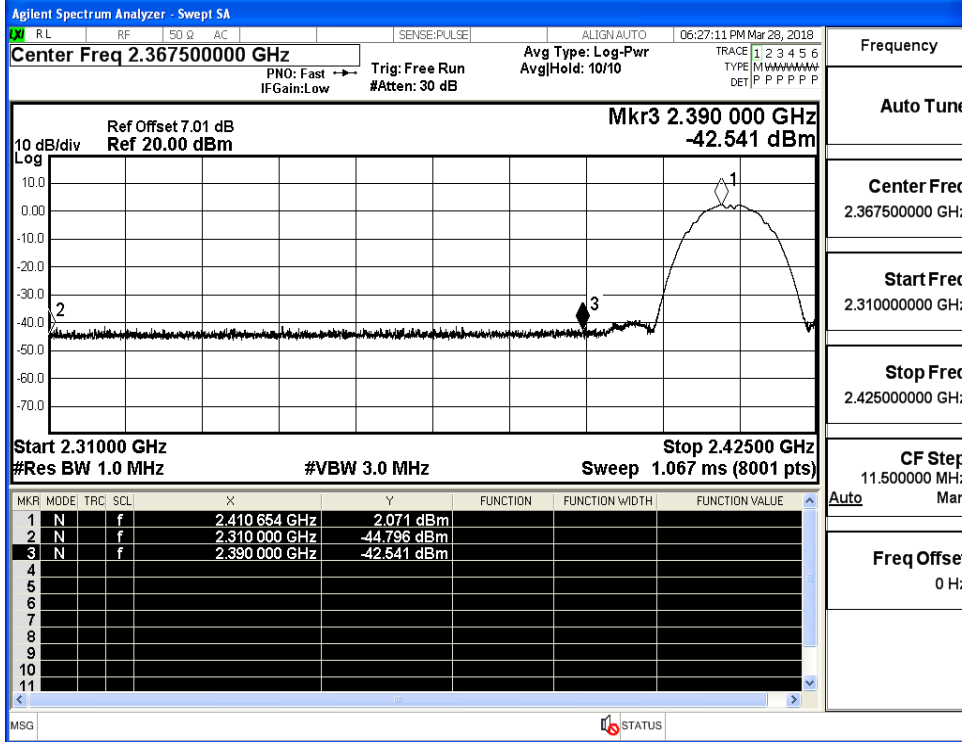
Freq Offset
0 Hz

A.8 Restrict-band band-edge measurements

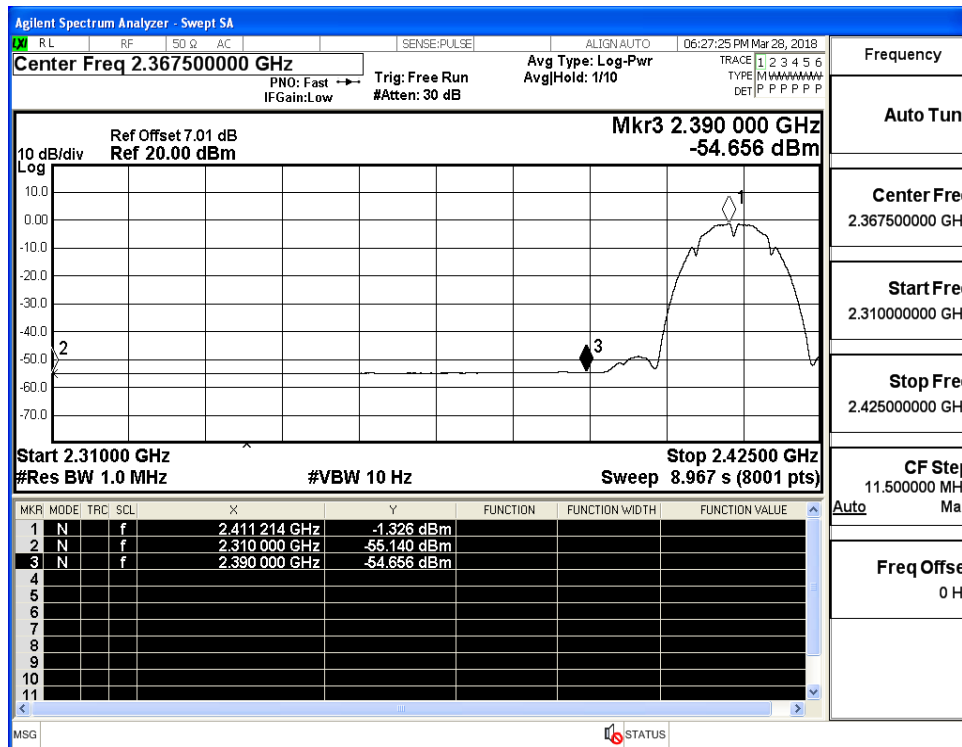
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-44.80	2.0	0	52.46	PEAK	74	PASS
	2412	Ant1	2310.0	-55.14	2.0	0	42.12	AV	54	PASS
	2412	Ant1	2390.0	-42.54	2.0	0	54.72	PEAK	74	PASS
	2412	Ant1	2390.0	-54.66	2.0	0	42.60	AV	54	PASS
	2462	Ant1	2483.5	-44.24	2.0	0	53.02	PEAK	74	PASS
	2462	Ant1	2483.5	-54.52	2.0	0	42.74	AV	54	PASS
	2462	Ant1	2500.0	-44.89	2.0	0	52.37	PEAK	74	PASS
	2462	Ant1	2500.0	-54.38	2.0	0	42.88	AV	54	PASS
11G	2412	Ant1	2310.0	-45.52	2.0	0	51.74	PEAK	74	PASS
	2412	Ant1	2310.0	-55.10	2.0	0	42.16	AV	54	PASS
	2412	Ant1	2390.0	-42.66	2.0	0	54.60	PEAK	74	PASS
	2412	Ant1	2390.0	-54.22	2.0	0	43.04	AV	54	PASS
	2462	Ant1	2483.5	-43.74	2.0	0	53.52	PEAK	74	PASS
	2462	Ant1	2483.5	-54.29	2.0	0	42.97	AV	54	PASS
	2462	Ant1	2500.0	-42.88	2.0	0	54.38	PEAK	74	PASS
	2462	Ant1	2500.0	-54.31	2.0	0	42.95	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-45.05	2.0	0	52.21	PEAK	74	PASS
	2412	Ant1	2310.0	-55.16	2.0	0	42.10	AV	54	PASS
	2412	Ant1	2390.0	-43.92	2.0	0	53.34	PEAK	74	PASS
	2412	Ant1	2390.0	-54.01	2.0	0	43.25	AV	54	PASS
	2462	Ant1	2483.5	-42.94	2.0	0	54.32	PEAK	74	PASS
	2462	Ant1	2483.5	-54.16	2.0	0	43.10	AV	54	PASS
	2462	Ant1	2500.0	-44.26	2.0	0	53.00	PEAK	74	PASS
	2462	Ant1	2500.0	-54.27	2.0	0	42.99	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-43.68	2.0	0	53.58	PEAK	74	PASS
	2422	Ant1	2310.0	-55.12	2.0	0	42.14	AV	54	PASS
	2422	Ant1	2390.0	-42.54	2.0	0	54.72	PEAK	74	PASS

	2422	Ant1	2390.0	-53.51	2.0	0	43.75	AV	54	PASS
	2452	Ant1	2483.5	-43.70	2.0	0	53.56	PEAK	74	PASS
	2452	Ant1	2483.5	-54.12	2.0	0	43.14	AV	54	PASS
	2452	Ant1	2500.0	-44.45	2.0	0	52.81	PEAK	74	PASS
	2452	Ant1	2500.0	-54.33	2.0	0	42.93	AV	54	PASS

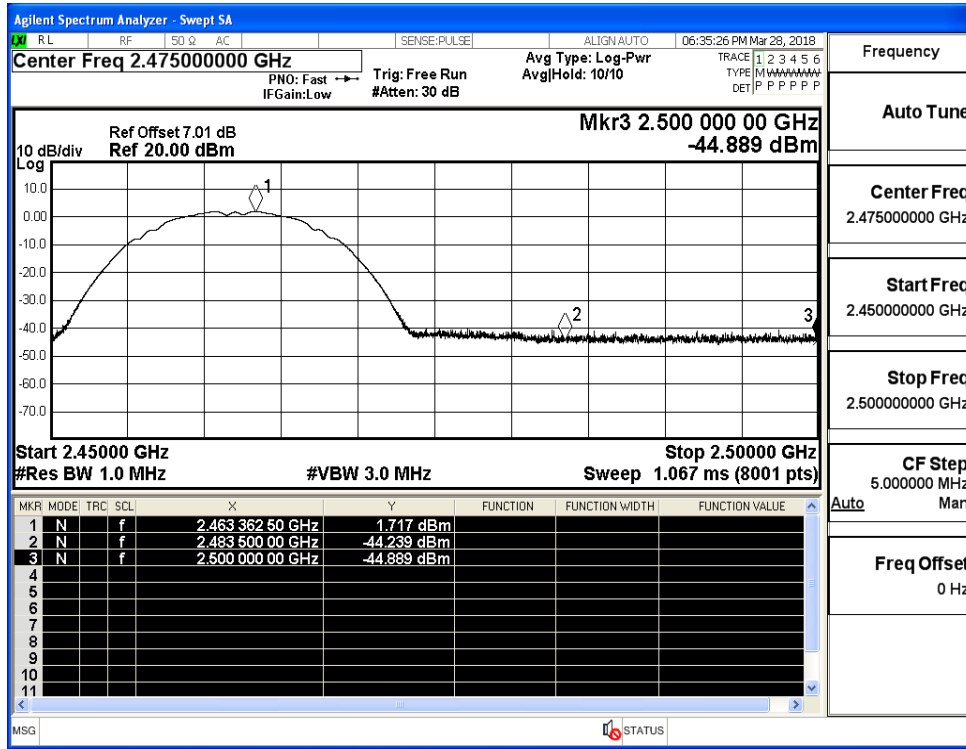
Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



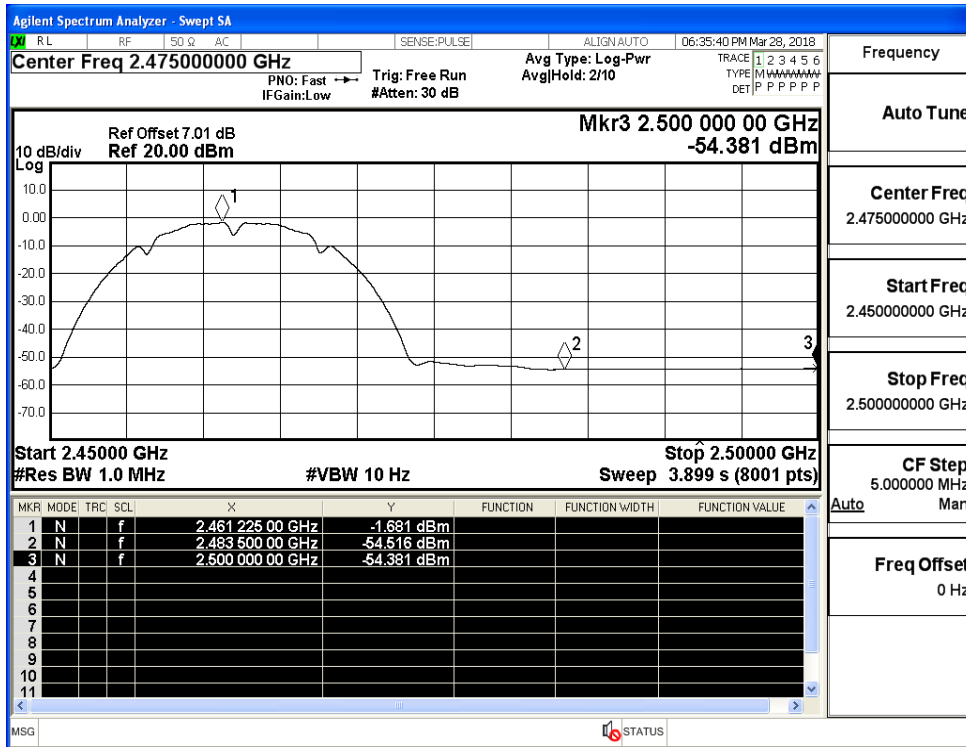
Restrict-band band-edge measurements_11B_2412_Ant1_AV



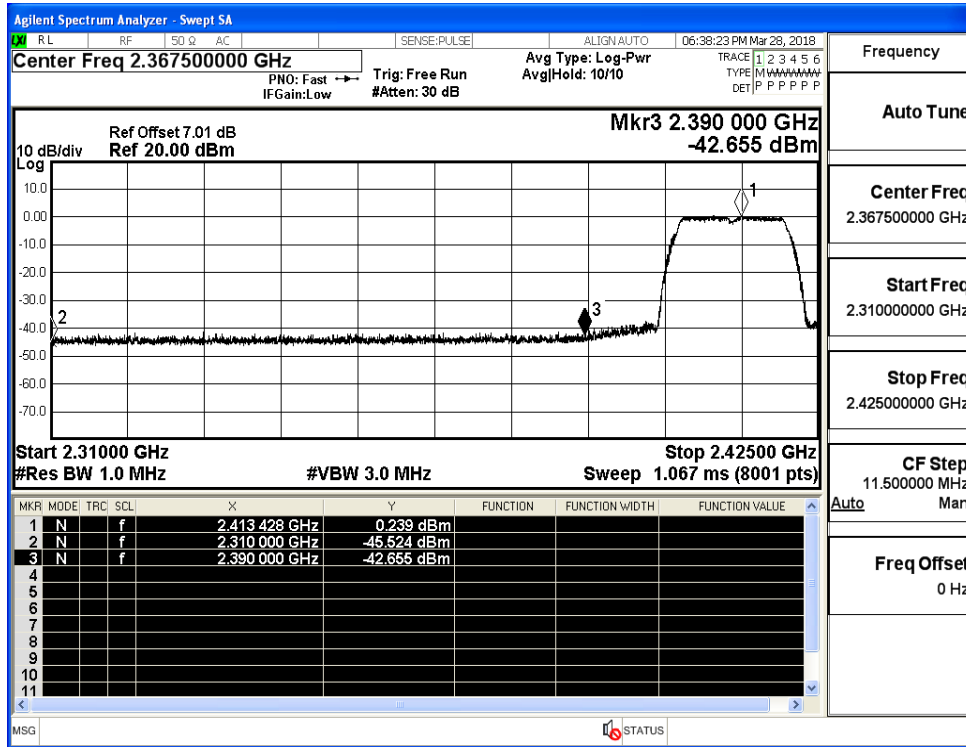
Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



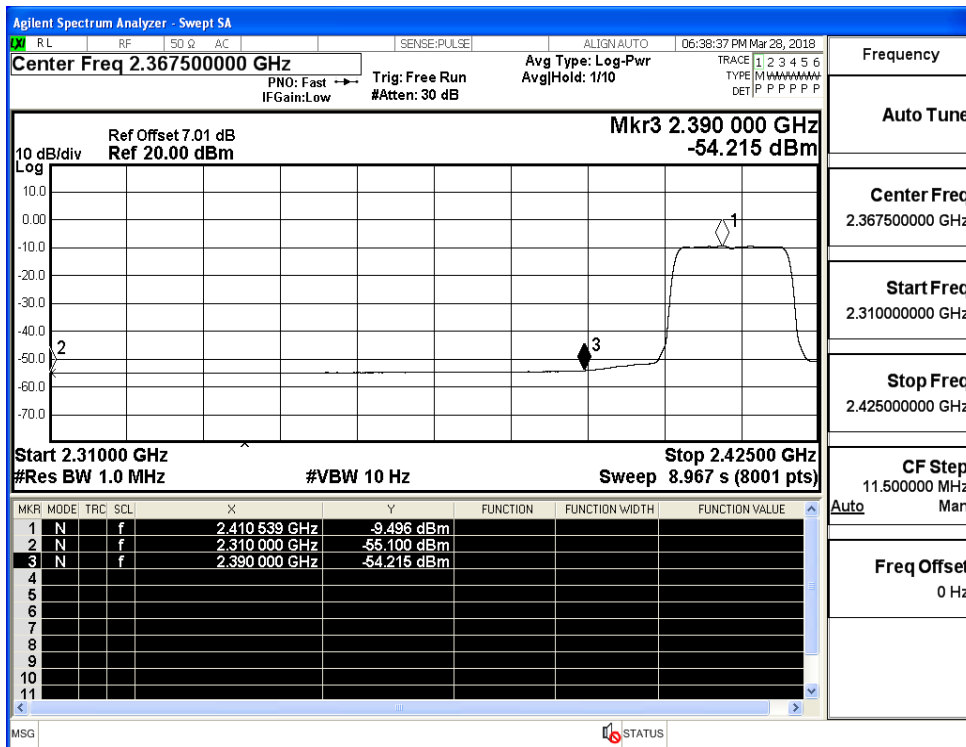
Restrict-band band-edge measurements_11B_2462_Ant1_AV



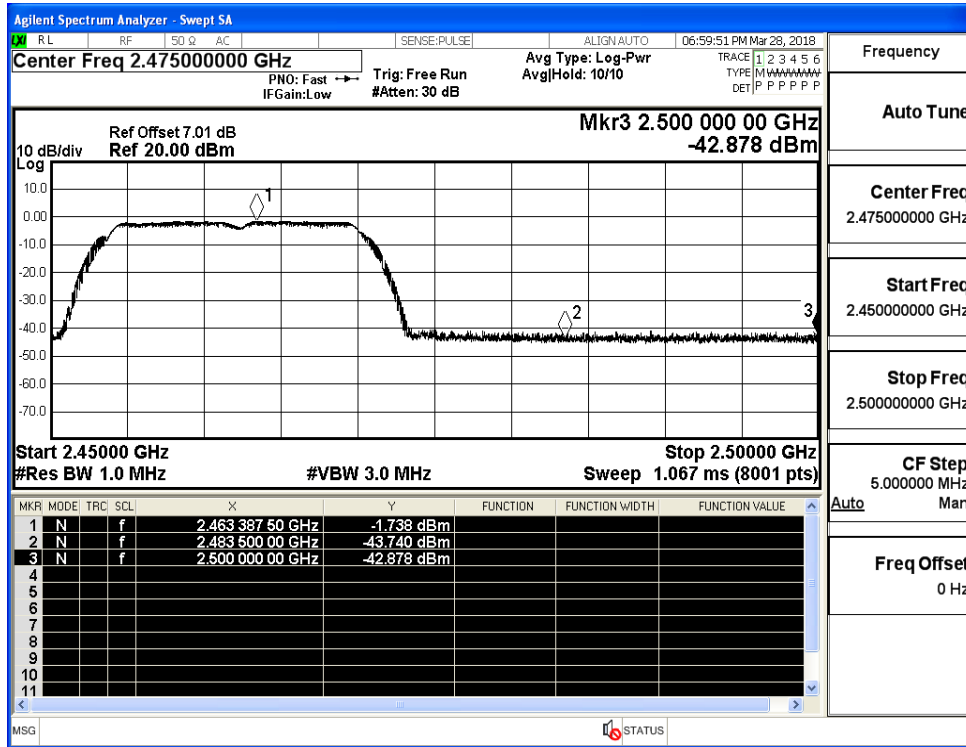
Restrict-band band-edge measurements_11G_2412_Ant1_PEAK



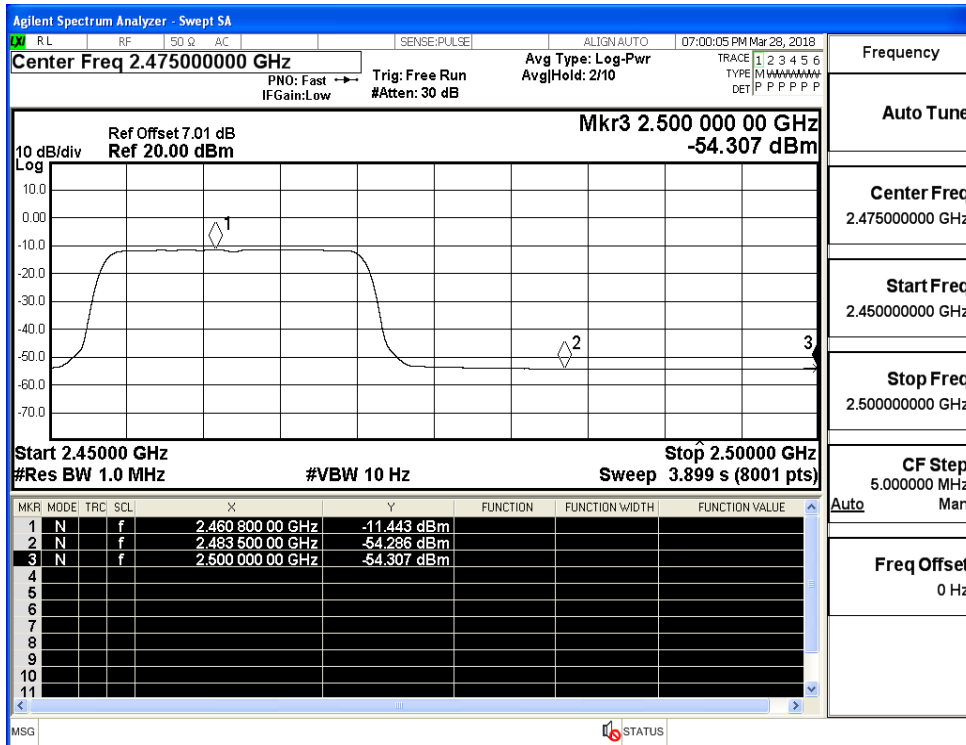
Restrict-band band-edge measurements_11G_2412_Ant1_AV



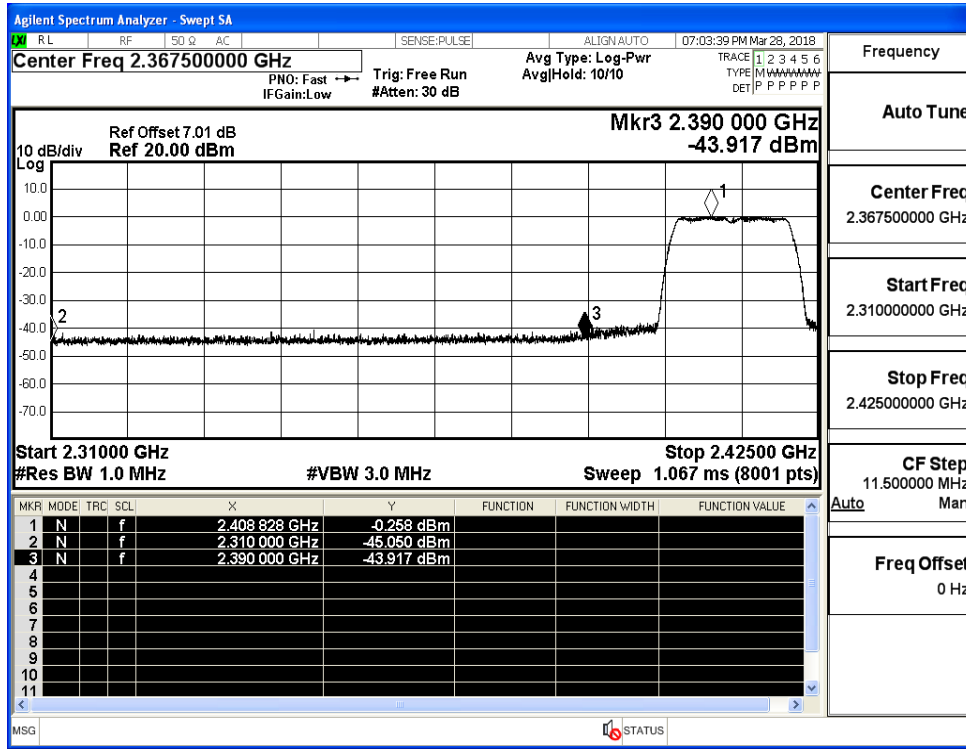
Restrict-band band-edge measurements_11G_2462_Ant1_PEAK



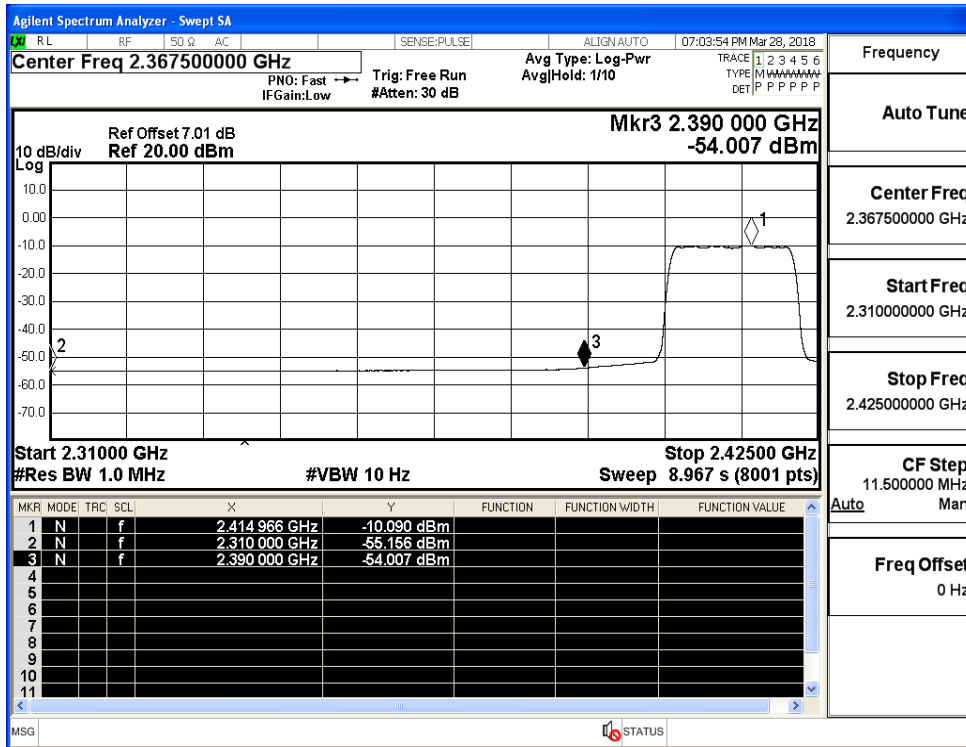
Restrict-band band-edge measurements_11G_2462_Ant1_AV



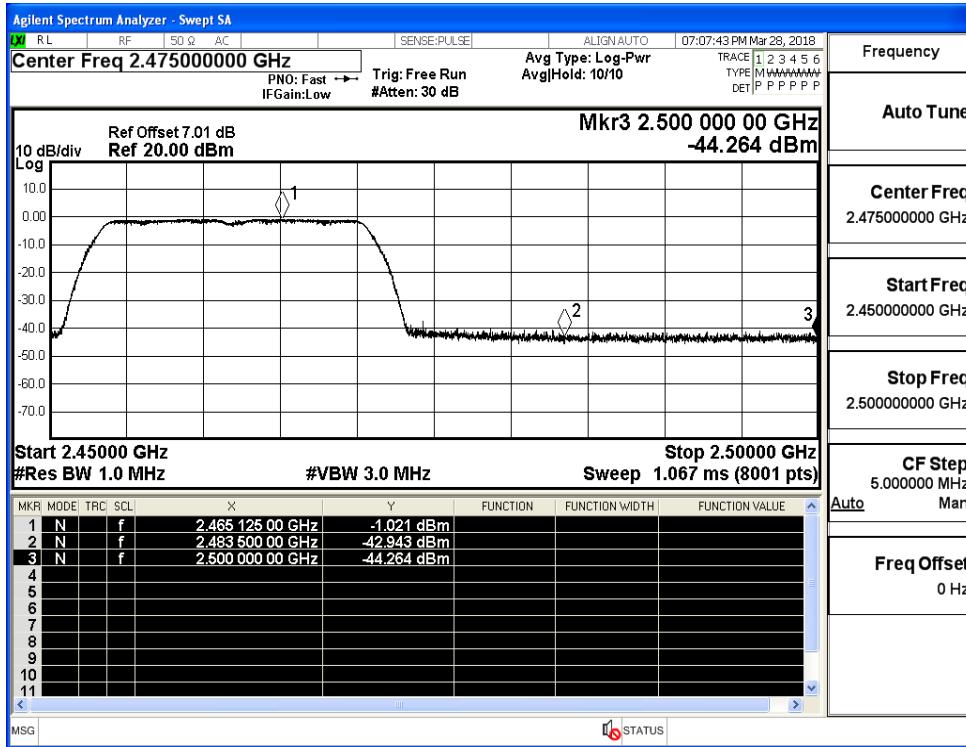
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK



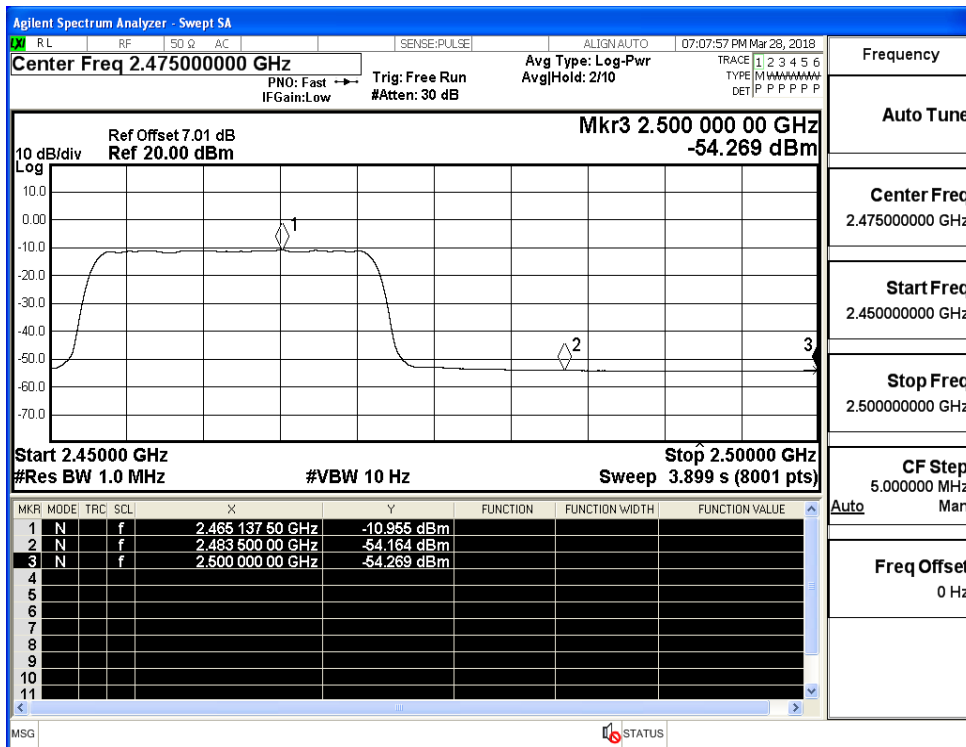
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_AV



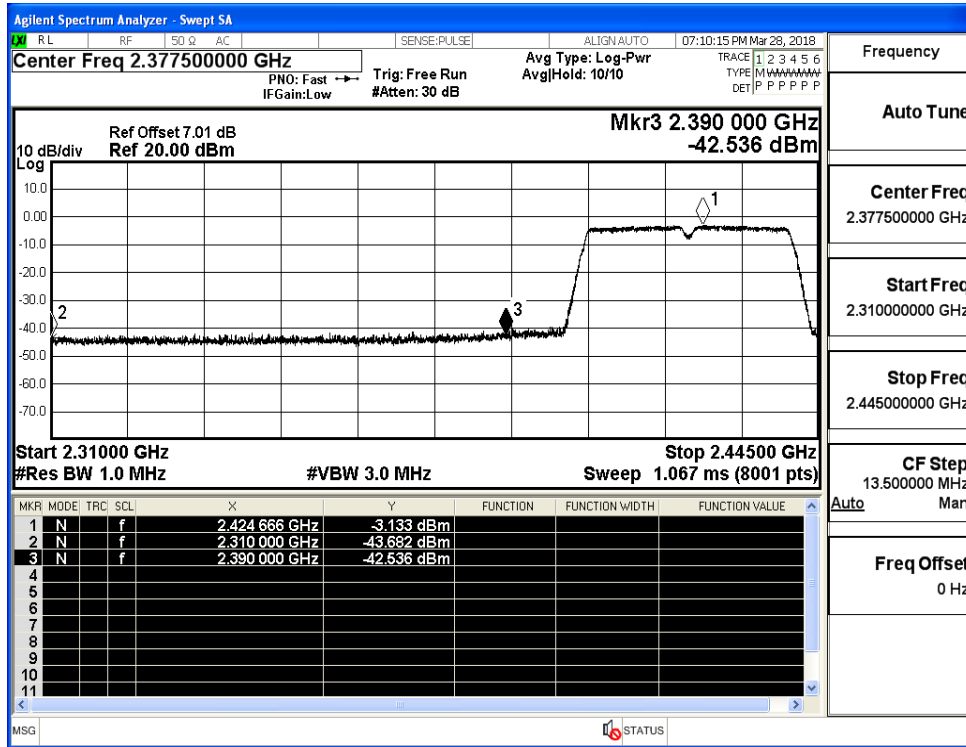
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_PEAK



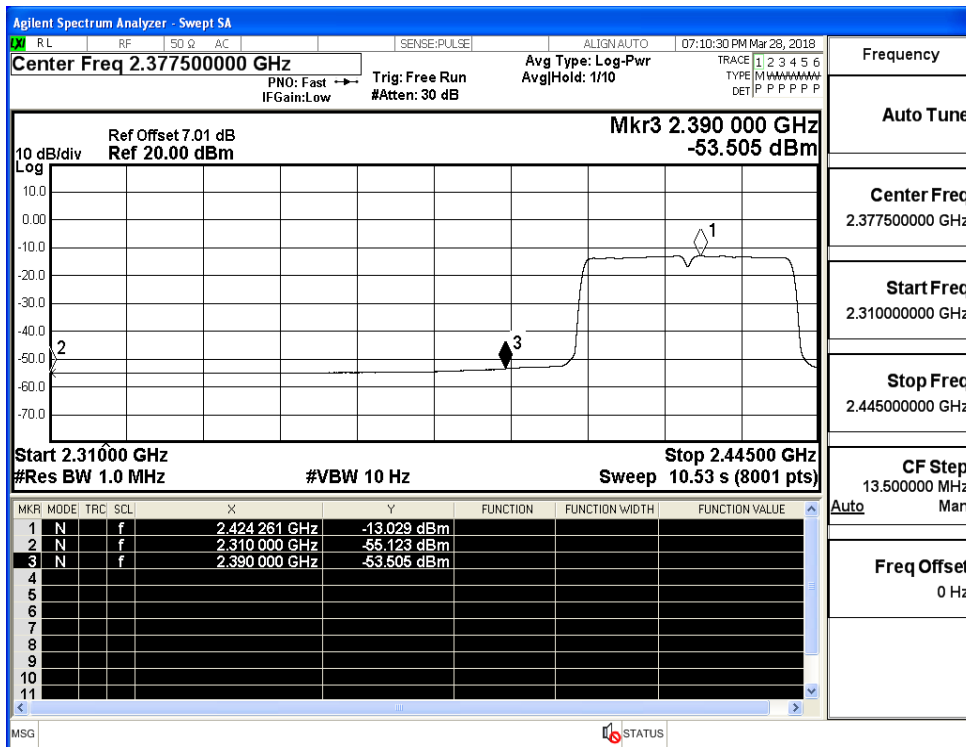
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_AV



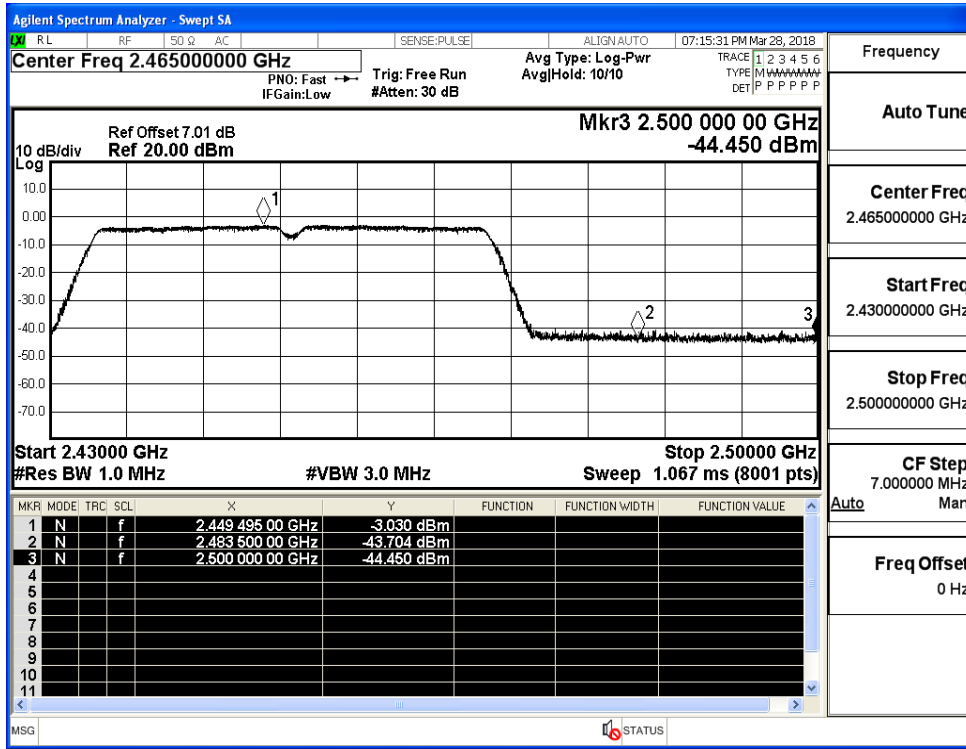
Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



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

