

Appendix C

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: GSM/WCDMA Smartphone

Trade Mark: DOOGEE

Test Model: X50

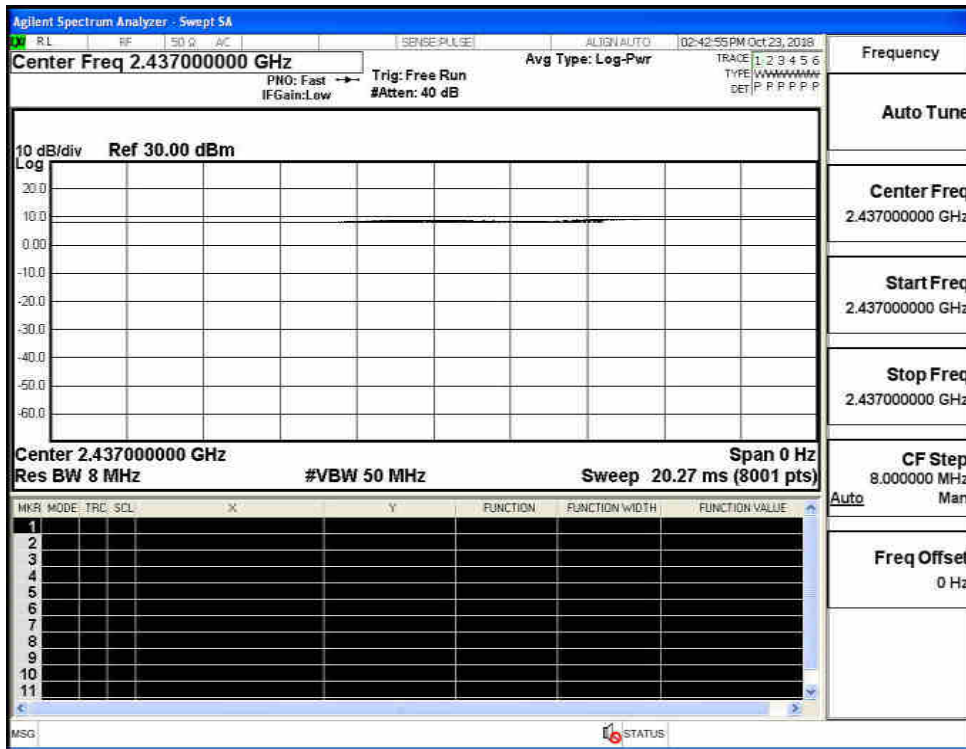
Environmental Conditions

Temperature:	24.6 ° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	WangChuang
Supervised by:	Jayden.Zhuo

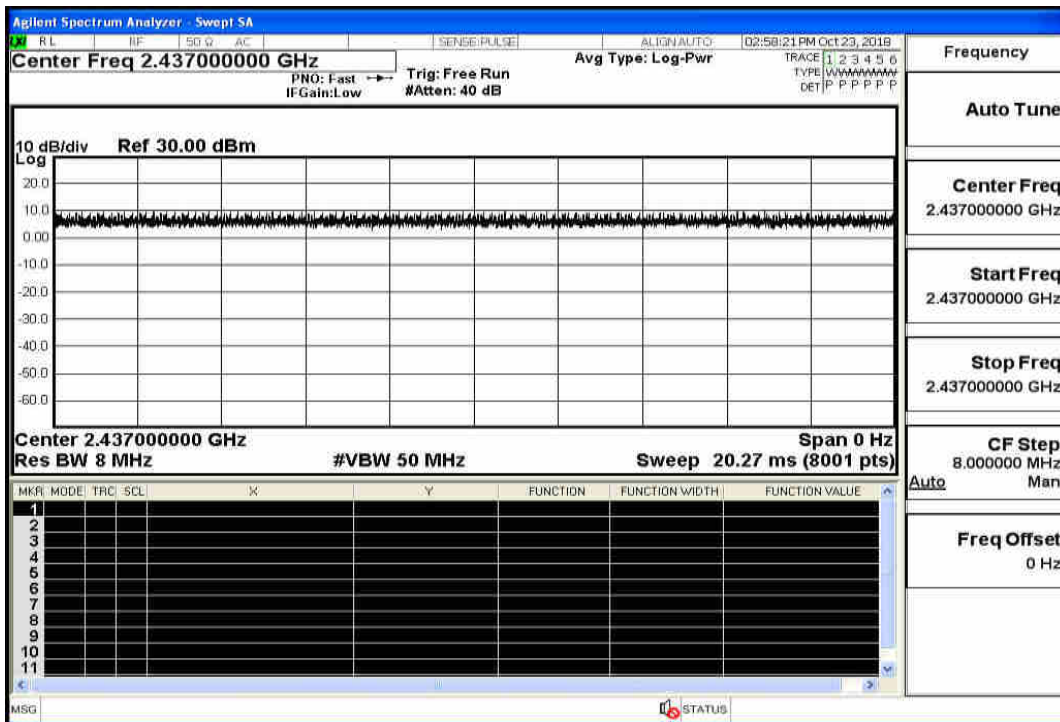
C.1 Duty Cycle

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

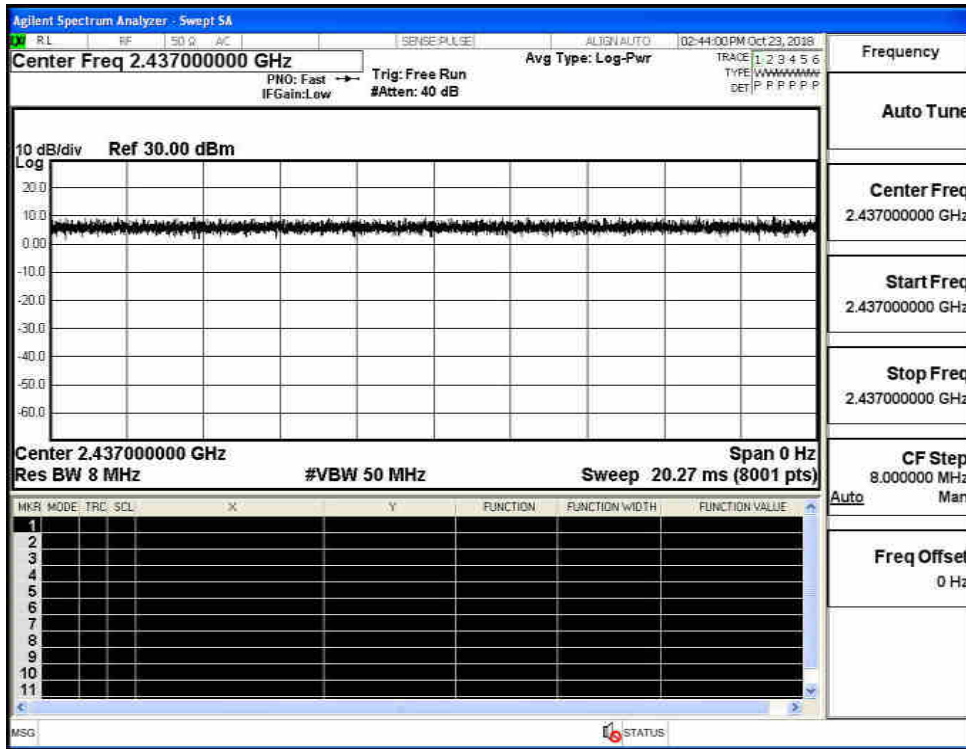
Duty Cycle_11B_2437_Ant1



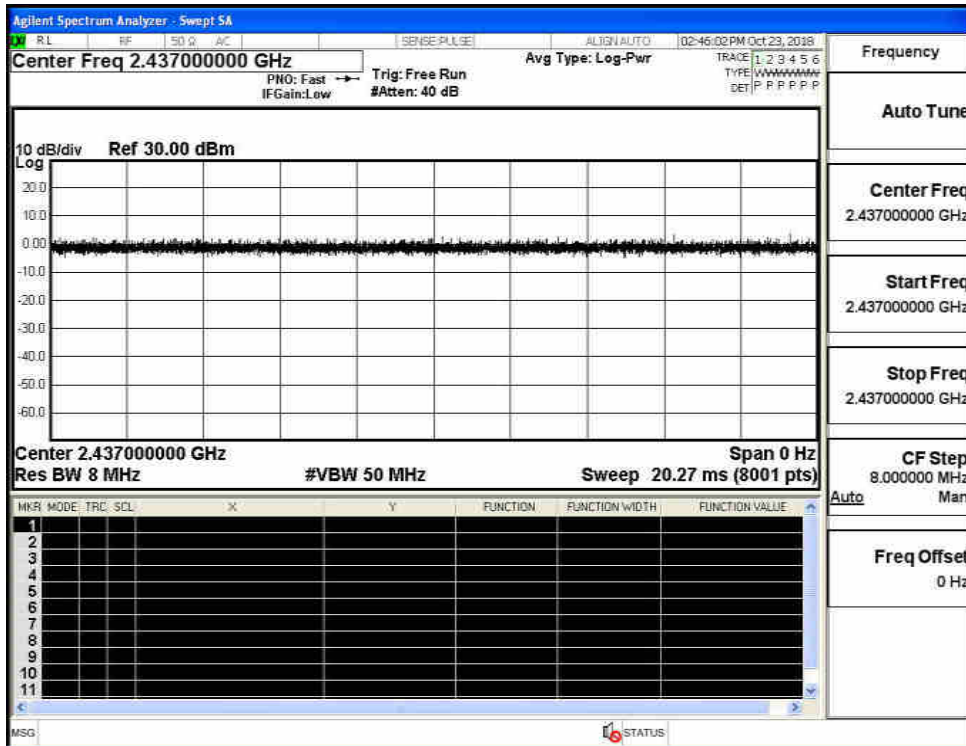
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1



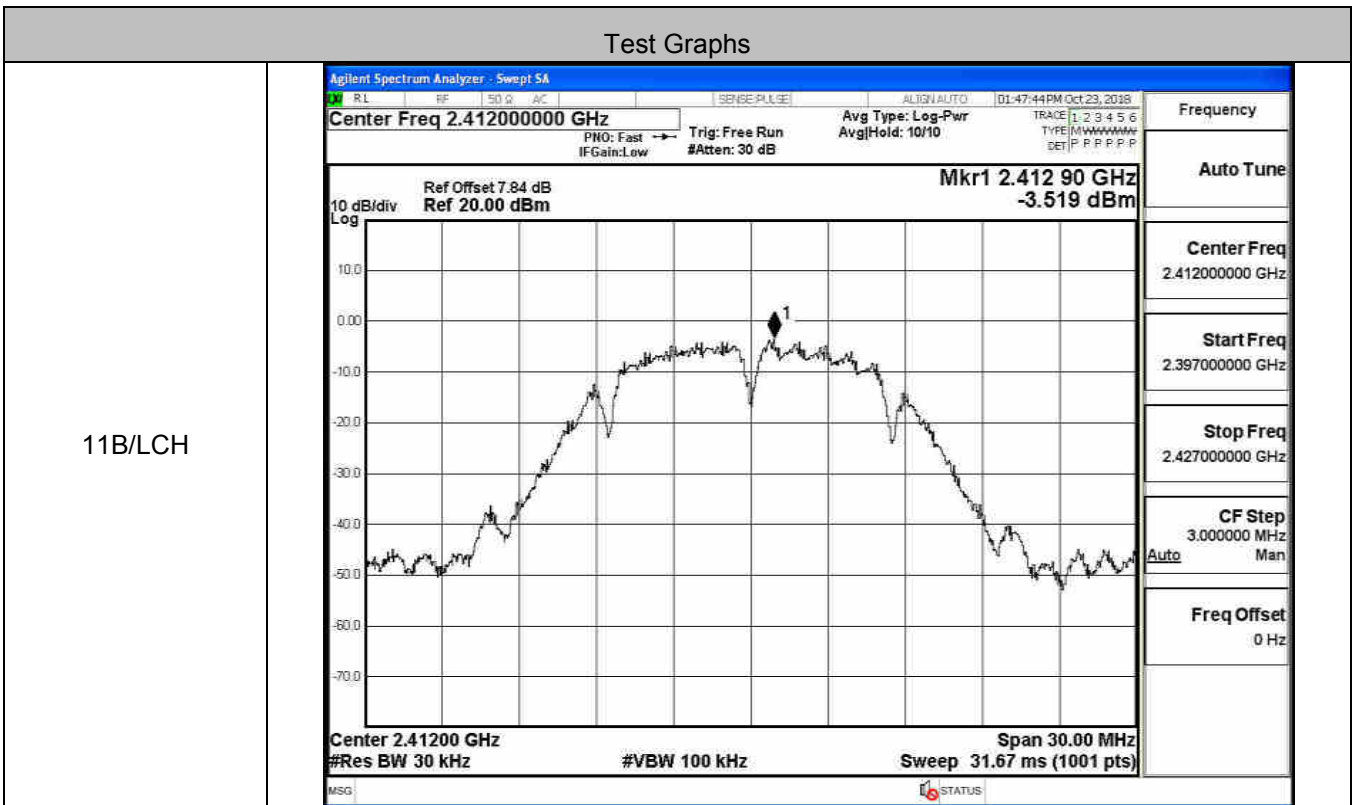
C.2 Maximum Conducted Output Power

Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	15.84	30	PASS
	MCH	16.92	30	PASS
	HCH	15.89	30	PASS
11G	LCH	17.46	30	PASS
	MCH	18.59	30	PASS
	HCH	18.12	30	PASS
11N20SISO	LCH	17.70	30	PASS
	MCH	18.46	30	PASS
	HCH	18.18	30	PASS
11N40SISO	LCH	17.84	30	PASS
	MCH	17.83	30	PASS
	HCH	17.03	30	PASS

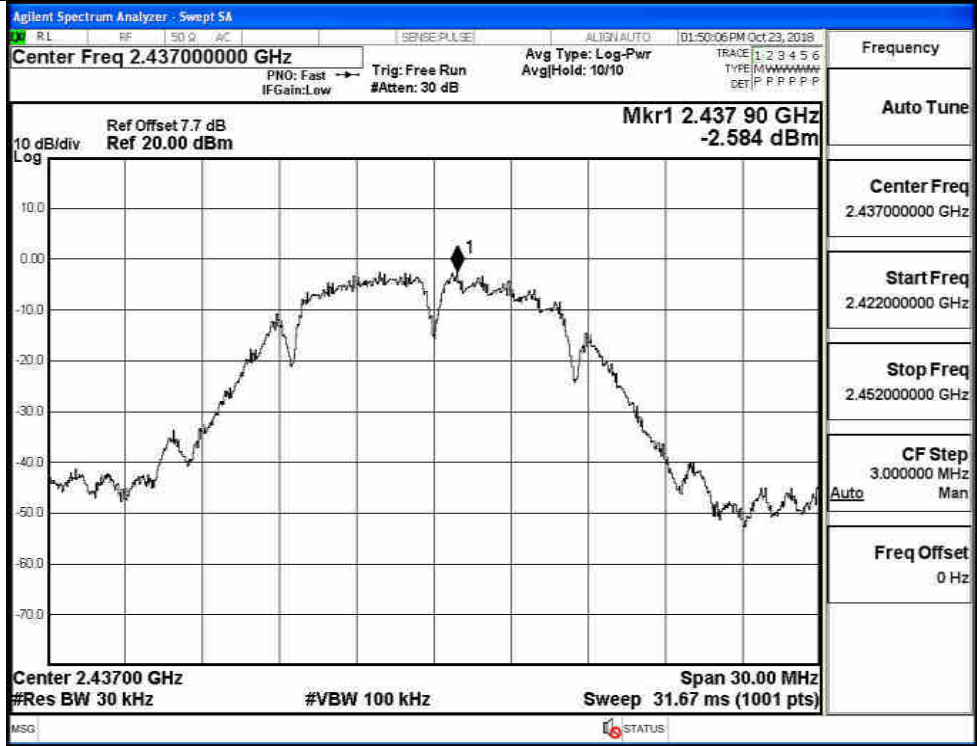
C.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/30KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-3.519	8	PASS
	MCH	-2.584	8	PASS
	HCH	-2.841	8	PASS
11G	LCH	-6.903	8	PASS
	MCH	-5.312	8	PASS
	HCH	-3.596	8	PASS
11N20SISO	LCH	-6.222	8	PASS
	MCH	-4.813	8	PASS
	HCH	-3.158	8	PASS
11N40SISO	LCH	-8.072	8	PASS
	MCH	-8.309	8	PASS
	HCH	-7.837	8	PASS

Test Graphs



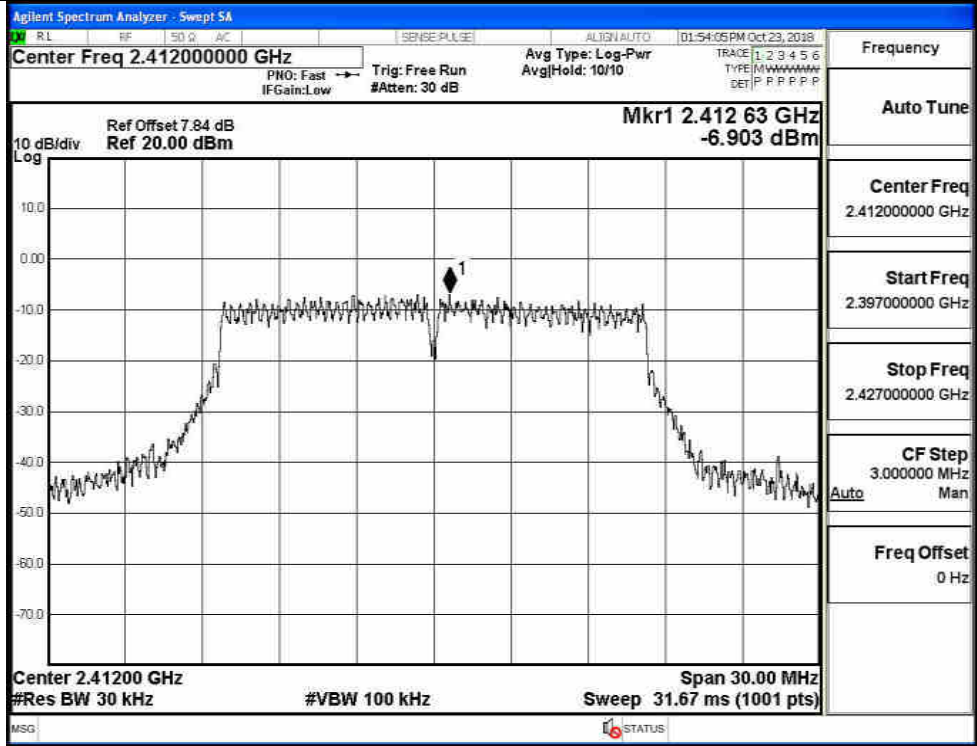
11B/MCH



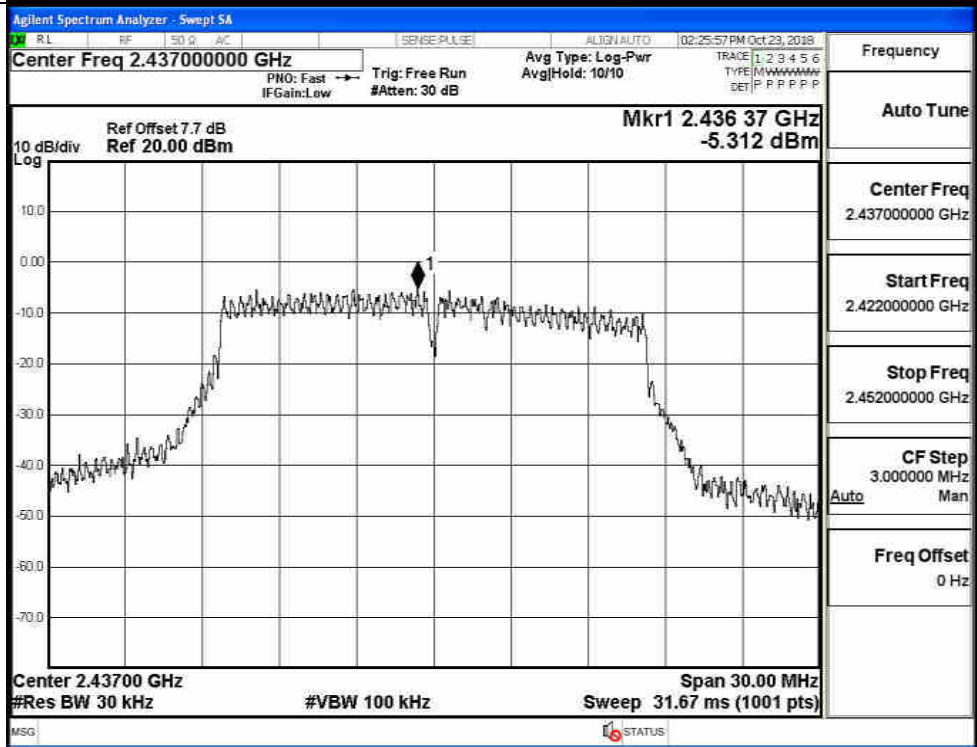
11B/HCH



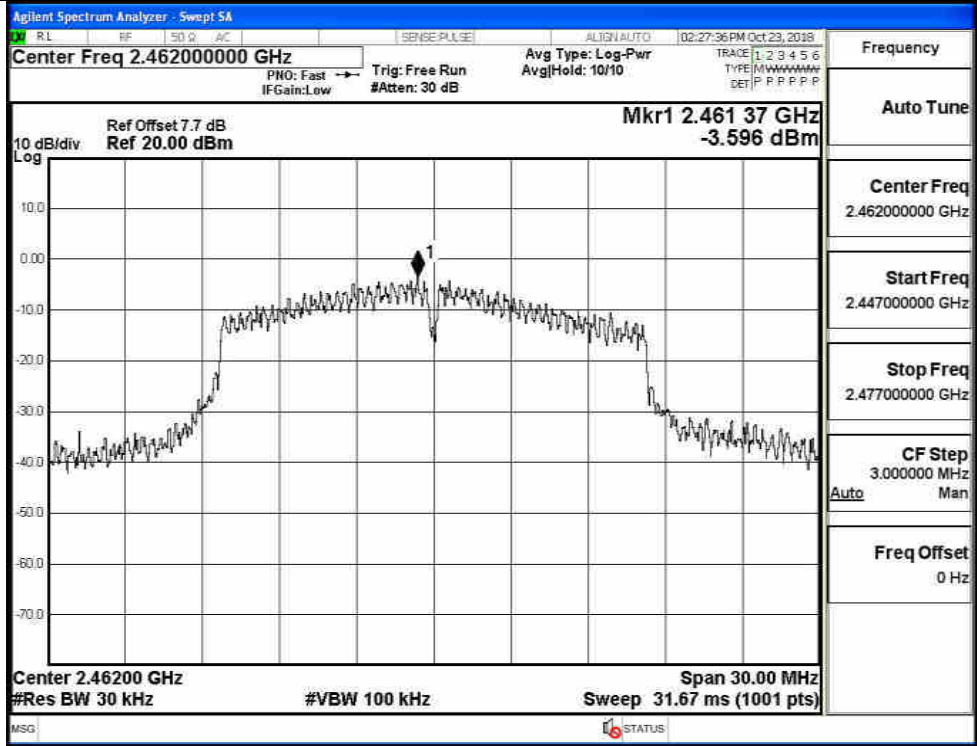
11G/LCH



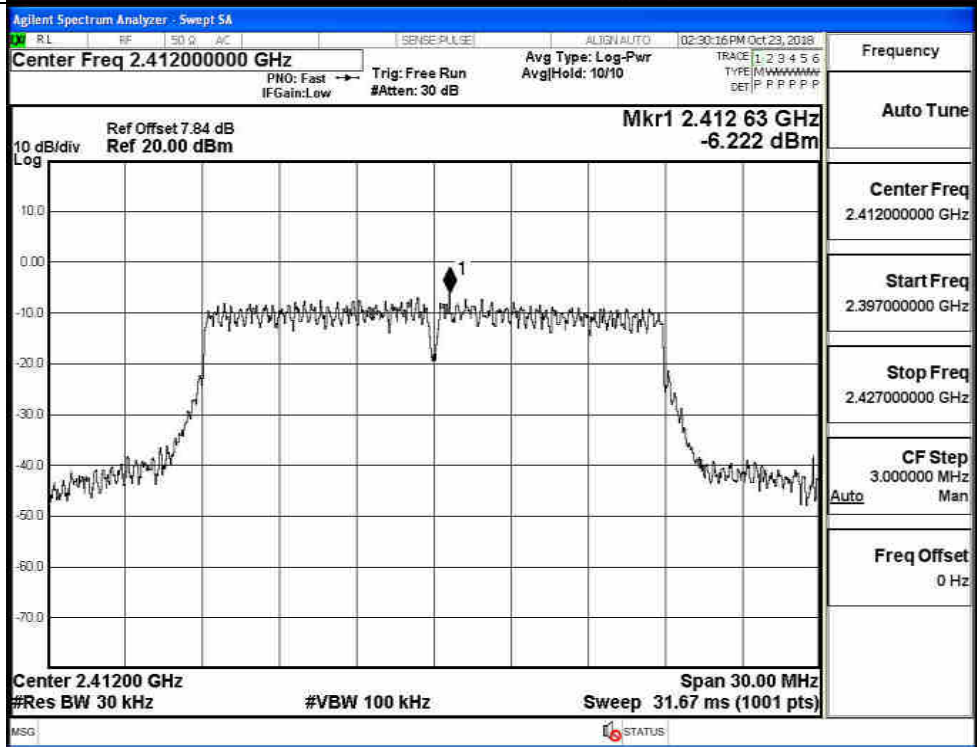
11G/MCH



11G/HCH



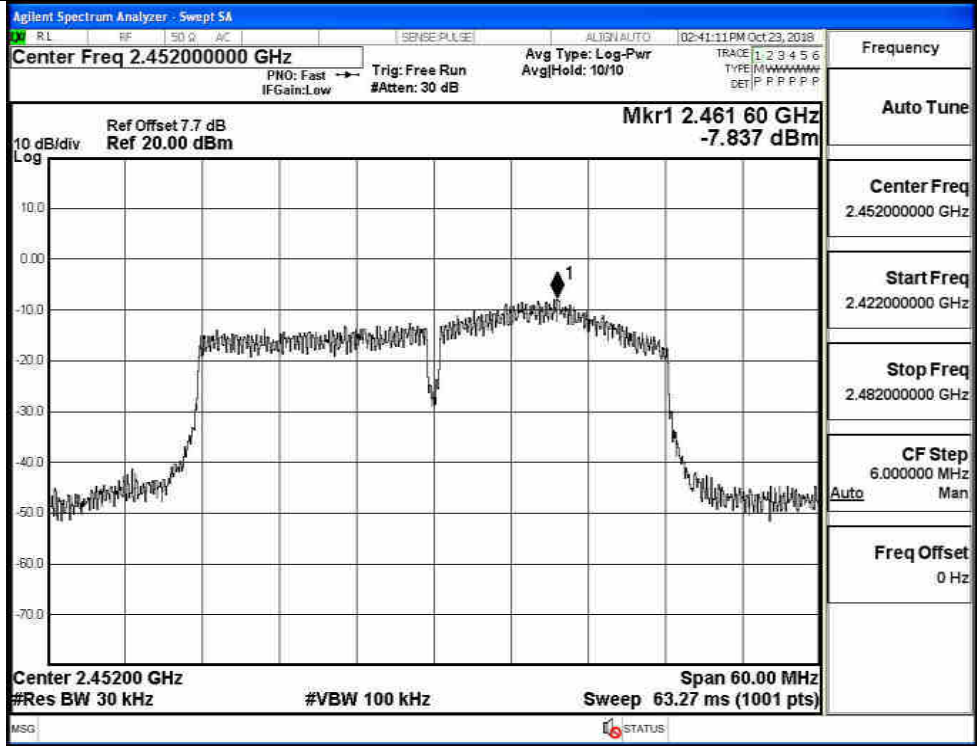
11N20SISO/LCH



<p>11N20SISO/MCH</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.43700000 GHz</p> <p>Mkr1 2.437 63 GHz -4.813 dBm</p> <p>10 dB/div Log</p> <p>Ref Offset 7.7 dB Ref 20.00 dBm</p> <p>Center 2.43700 GHz #Res BW 30 kHz #VBW 100 kHz Sweep 31.67 ms (1001 pts)</p> <p>Span 30.00 MHz</p>	<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.437000000 GHz</p> <p>Start Freq 2.422000000 GHz</p> <p>Stop Freq 2.452000000 GHz</p> <p>CF Step 3.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>
<p>11N20SISO/HCH</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.46200000 GHz</p> <p>Mkr1 2.462 63 GHz -3.158 dBm</p> <p>10 dB/div Log</p> <p>Ref Offset 7.7 dB Ref 20.00 dBm</p> <p>Center 2.46200 GHz #Res BW 30 kHz #VBW 100 kHz Sweep 31.67 ms (1001 pts)</p> <p>Span 30.00 MHz</p>	<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.462000000 GHz</p> <p>Start Freq 2.447000000 GHz</p> <p>Stop Freq 2.477000000 GHz</p> <p>CF Step 3.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>

<p>11N40SISO/LCH</p>		<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.422000000 GHz</p> <p>Start Freq 2.392000000 GHz</p> <p>Stop Freq 2.452000000 GHz</p> <p>CF Step 6.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>
<p>11N40SISO/MCH</p>		<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.437000000 GHz</p> <p>Start Freq 2.407000000 GHz</p> <p>Stop Freq 2.467000000 GHz</p> <p>CF Step 6.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>

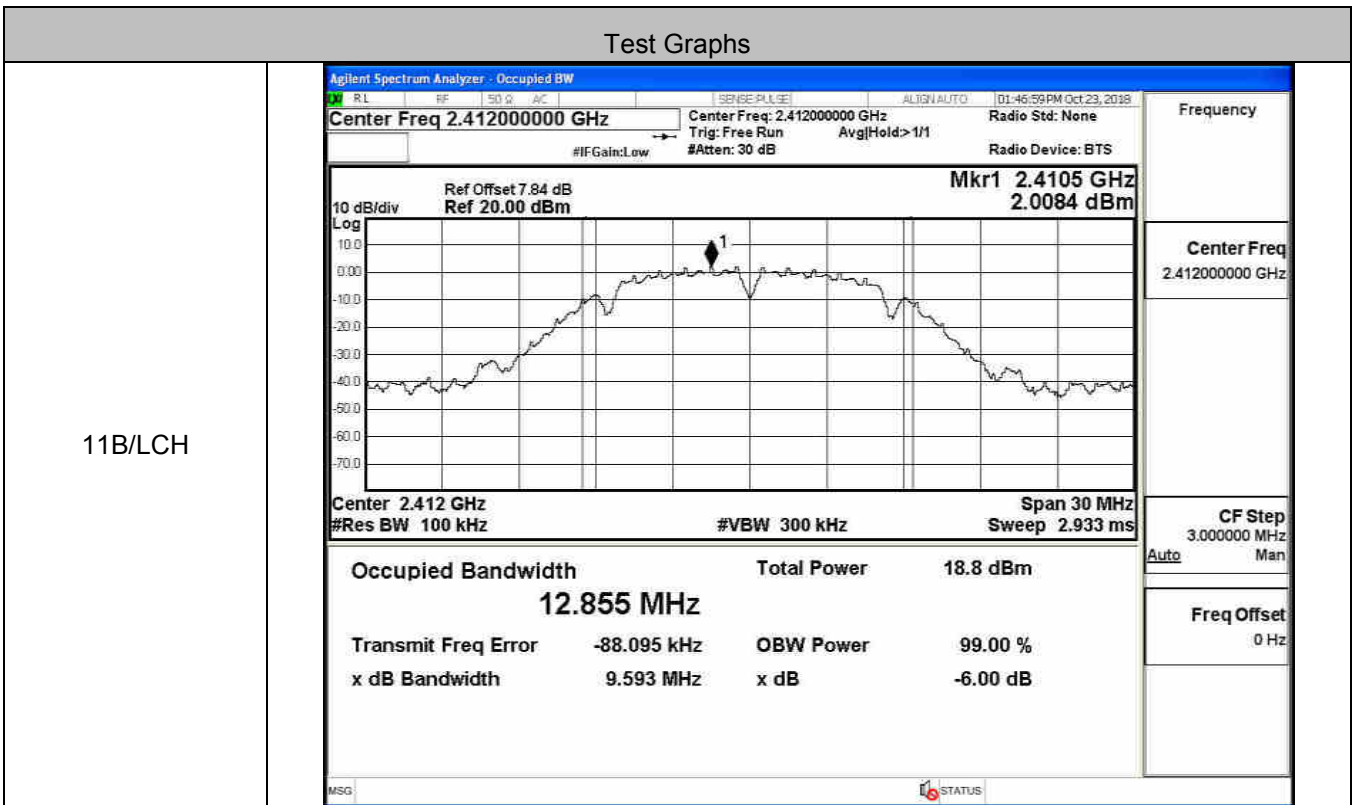
11N40SISO/HCH



C.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	9.593	≥0.5	PASS
	MCH	9.564	≥0.5	PASS
	HCH	8.136	≥0.5	PASS
11G	LCH	16.58	≥0.5	PASS
	MCH	16.44	≥0.5	PASS
	HCH	12.28	≥0.5	PASS
11N20SISO	LCH	17.82	≥0.5	PASS
	MCH	17.32	≥0.5	PASS
	HCH	10.86	≥0.5	PASS
11N40SISO	LCH	35.08	≥0.5	PASS
	MCH	35.93	≥0.5	PASS
	HCH	31.41	≥0.5	PASS

Test Graphs



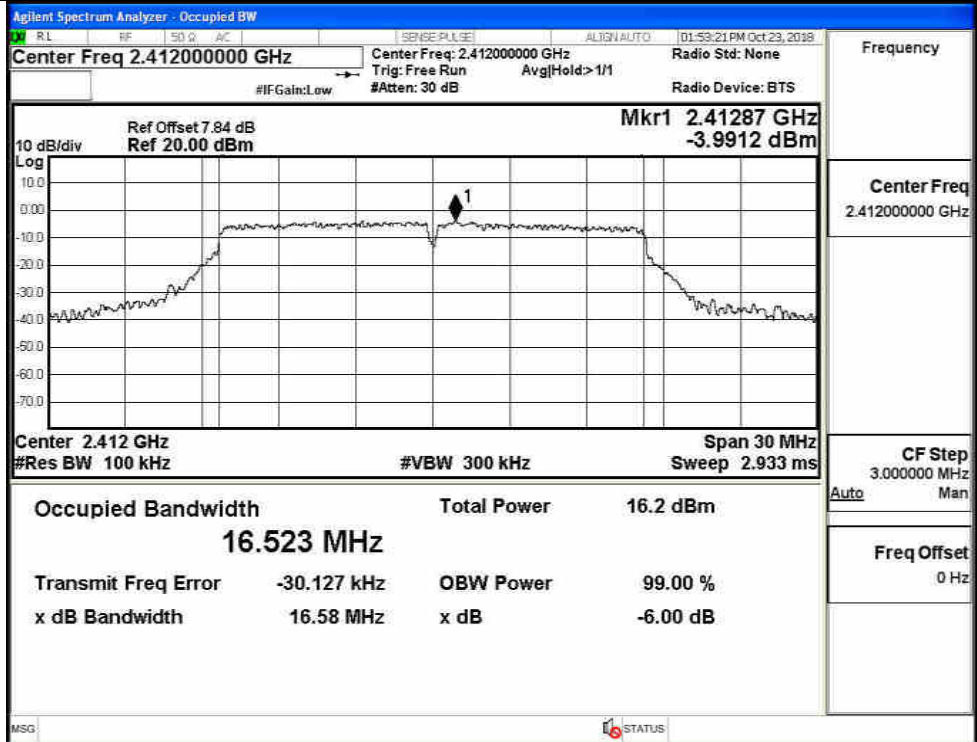
11B/MCH



11B/HCH



11G/LCH



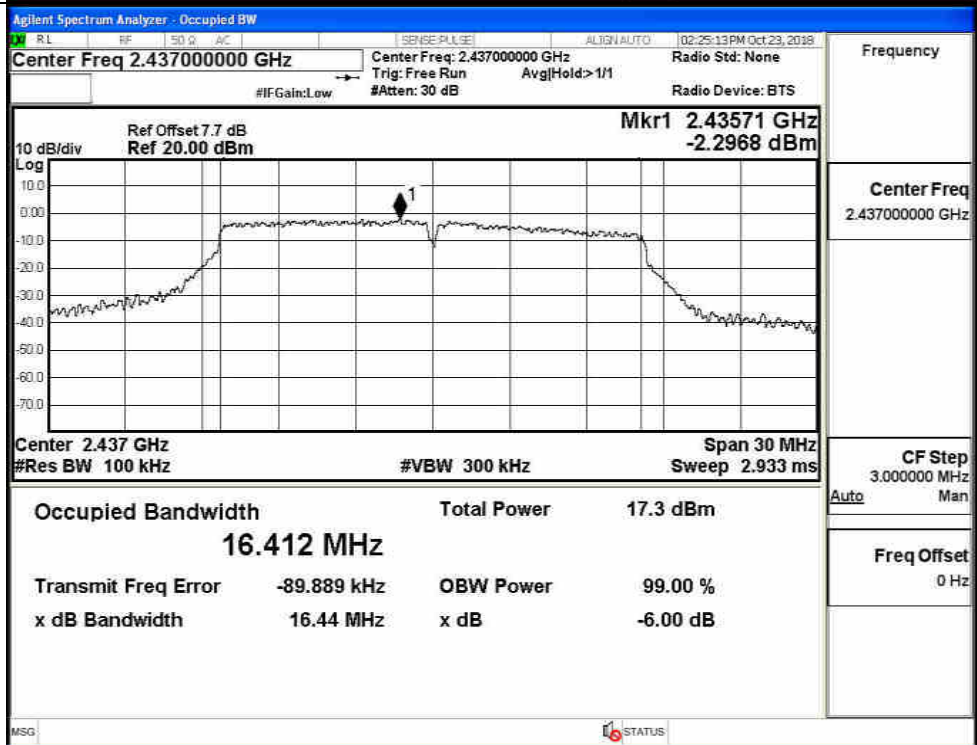
Frequency

Center Freq
2.41200000 GHz

CF Step
3.000000 MHz

Freq Offset
0 Hz

11G/MCH



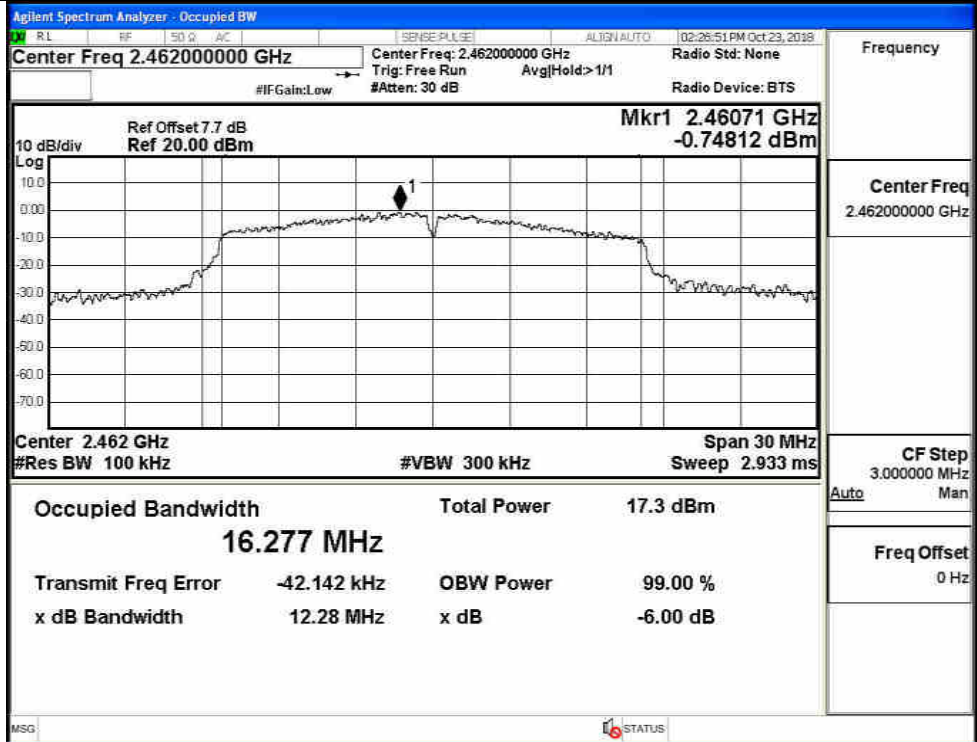
Frequency

Center Freq
2.43700000 GHz

CF Step
3.000000 MHz

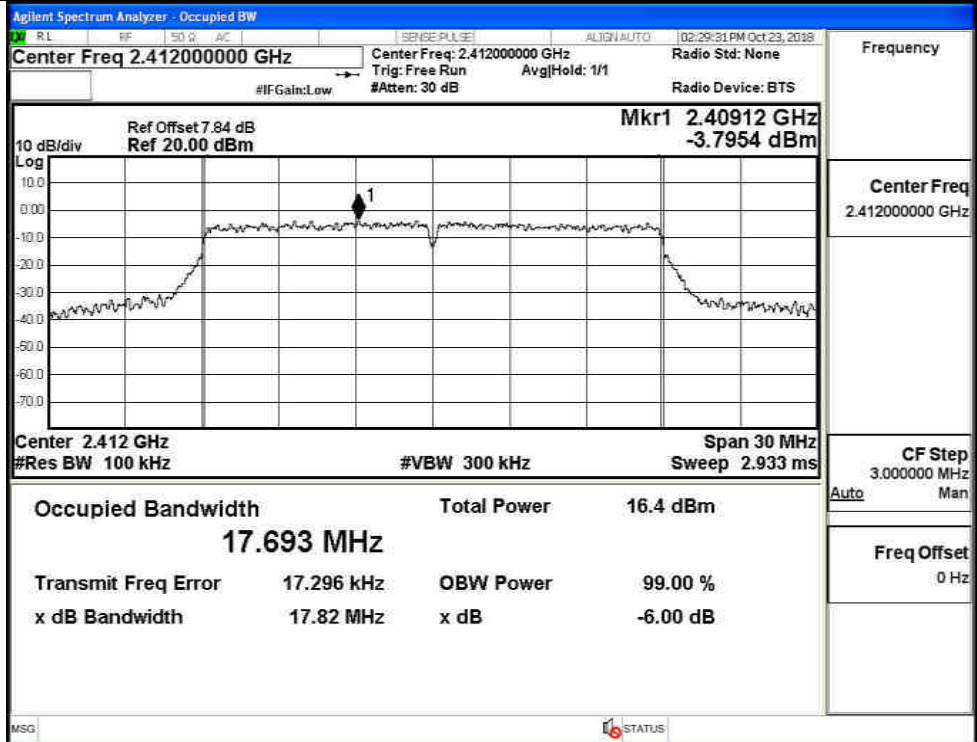
Freq Offset
0 Hz

11G/HCH



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

11N20SISO/LCH

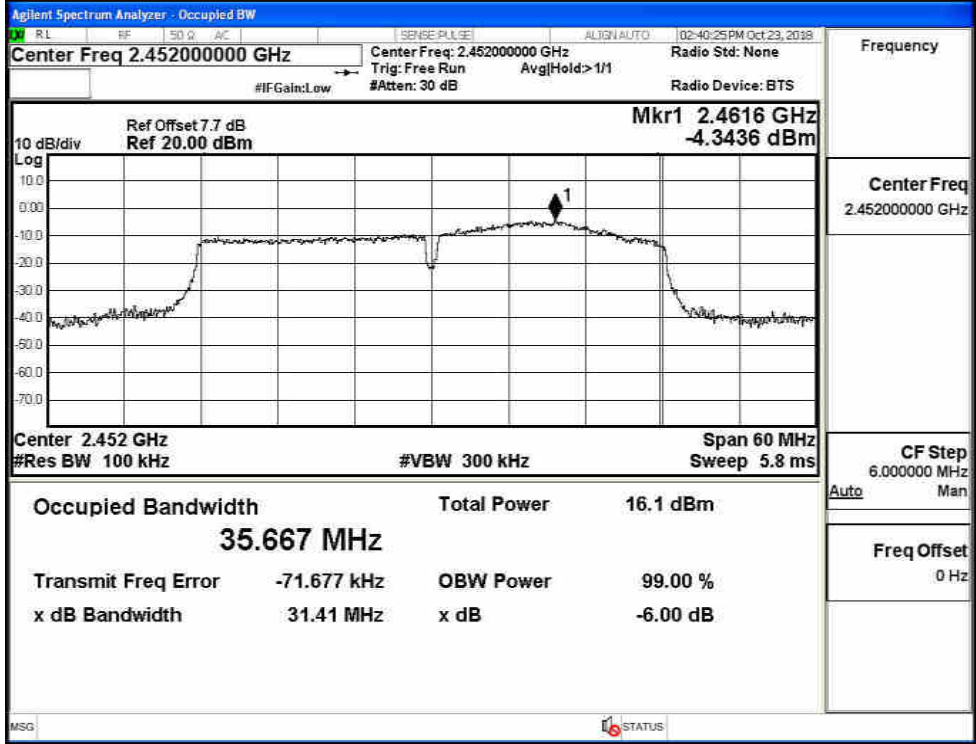


Frequency	
Center Freq	2.41200000 GHz
CF Step	3.000000 MHz
	Auto Man
Freq Offset	0 Hz

<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 Avg Hold: 1/1</p> <p>Radio Std: None Radio Device: BTS</p> <p>Ref Offset 7.7 dB Ref 20.00 dBm</p> <p>Mkr1 2.43163 GHz -1.8380 dBm</p> <p>10 dB/div Log</p> <p>Center 2.437 GHz #Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.589 MHz</p> <p>Total Power 17.6 dBm</p> <p>Transmit Freq Error -69.041 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 17.32 MHz</p> <p>x dB -6.00 dB</p> <p>MSG STATUS</p>	<p>Frequency</p> <p>Center Freq 2.43700000 GHz</p> <p>CF Step 3.000000 MHz</p> <p>Auto Man</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 Avg Hold: 1/1</p> <p>Radio Std: None Radio Device: BTS</p> <p>Ref Offset 7.7 dB Ref 20.00 dBm</p> <p>Mkr1 2.46137 GHz -0.30514 dBm</p> <p>10 dB/div Log</p> <p>Center 2.462 GHz #Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.455 MHz</p> <p>Total Power 17.5 dBm</p> <p>Transmit Freq Error -27.738 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 10.86 MHz</p> <p>x dB -6.00 dB</p> <p>MSG STATUS</p>	<p>Frequency</p> <p>Center Freq 2.46200000 GHz</p> <p>CF Step 3.000000 MHz</p> <p>Auto Man</p> <p>Freq Offset 0 Hz</p>

<p>11N40SISO/LCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.42200000 GHz</p> <p>Center Freq: 2.42200000 GHz Trig: Free Run Avg/Hold: 1/1 Radio Std: None Radio Device: BTS</p> <p>10 dB/div Ref Offset 7.7 dB Ref 20.00 dBm</p> <p>Mkr1 2.42842 GHz -4.9674 dBm</p> <p>Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms</p> <p>Occupied Bandwidth 35.714 MHz Total Power 16.7 dBm</p> <p>Transmit Freq Error -58.327 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 35.08 MHz x dB -6.00 dB</p>	<p>Frequency</p> <p>Center Freq 2.42200000 GHz</p> <p>CF Step 6.000000 MHz</p> <p>Freq Offset 0 Hz</p>
<p>11N40SISO/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 Avg/Hold: 1/1 Radio Std: None Radio Device: BTS</p> <p>10 dB/div Ref Offset 7.7 dB Ref 20.00 dBm</p> <p>Mkr1 2.43034 GHz -5.5532 dBm</p> <p>Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms</p> <p>Occupied Bandwidth 35.895 MHz Total Power 16.5 dBm</p> <p>Transmit Freq Error 90.470 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 35.93 MHz x dB -6.00 dB</p>	<p>Frequency</p> <p>Center Freq 2.43700000 GHz</p> <p>CF Step 6.000000 MHz</p> <p>Freq Offset 0 Hz</p>

11N40SISO/HCH



C.5 RF Conducted Spurious Emissions

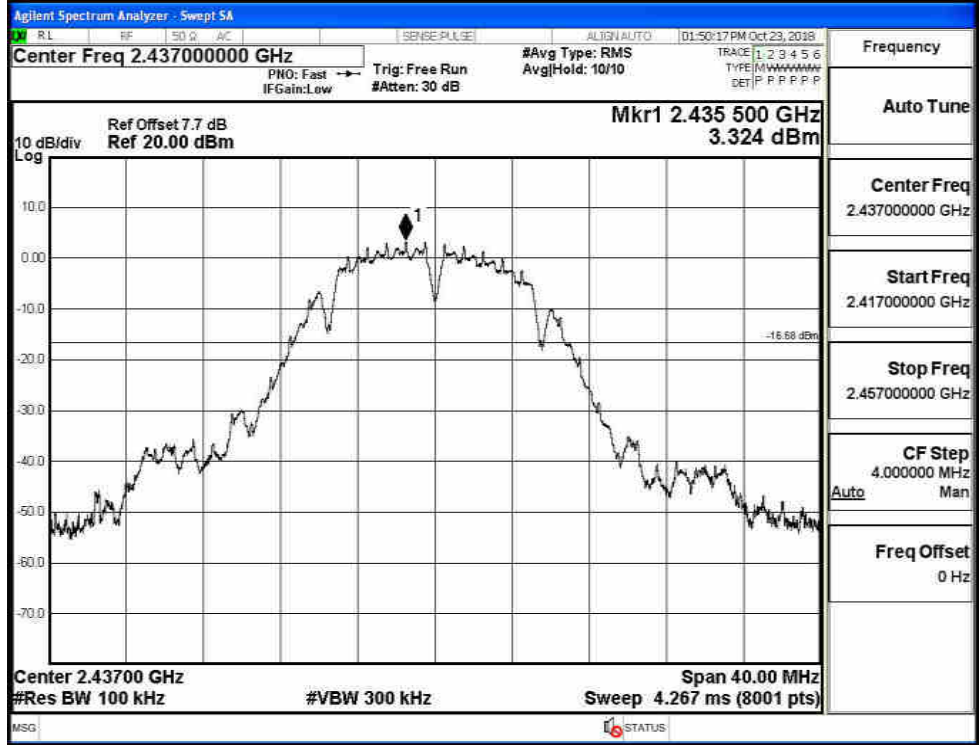
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	1.869	-43.074	-18.131	PASS
	MCH	3.324	-44.405	-16.676	PASS
	HCH	3.093	-44.202	-16.907	PASS
11G	LCH	-4.01	-43.507	-24.010	PASS
	MCH	-2.379	-43.915	-22.379	PASS
	HCH	-0.919	-43.094	-20.919	PASS
11N20 SISO	LCH	-3.626	-39.545	-23.626	PASS
	MCH	-2.004	-44.036	-22.004	PASS
	HCH	-0.569	-44.022	-20.569	PASS
11N40 SISO	LCH	-5.442	-44.514	-25.442	PASS
	MCH	-5.487	-43.917	-25.487	PASS
	HCH	-4.472	-42.982	-24.472	PASS

11B_LCH_Graphs

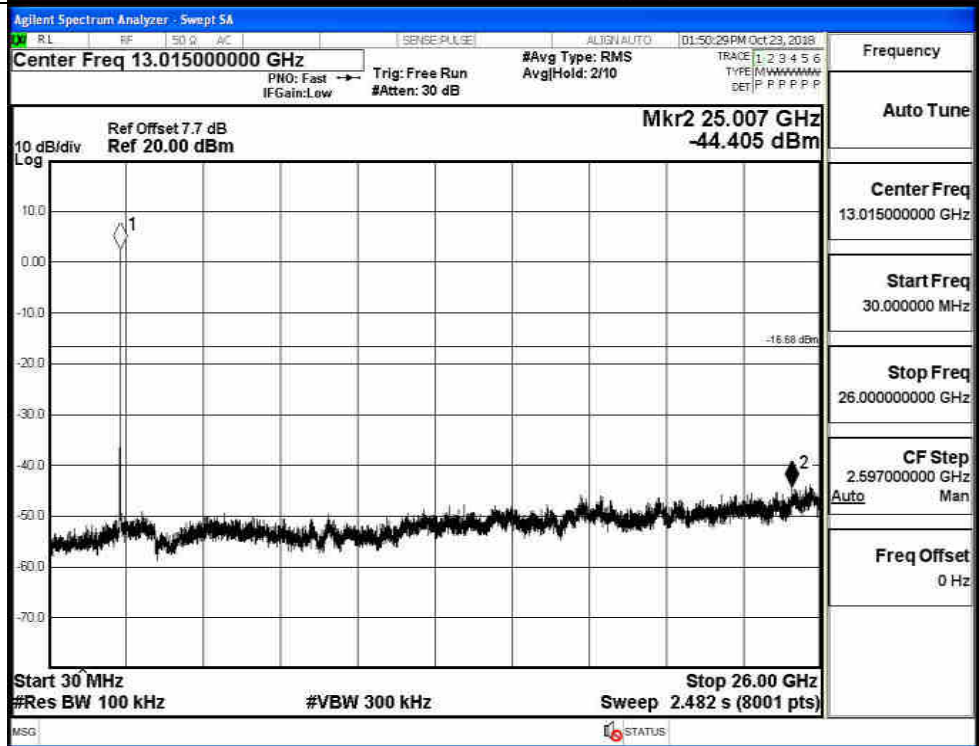
<p>Pref/11B/LCH</p>		<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.412000000 GHz</p> <p>Start Freq 2.392000000 GHz</p> <p>Stop Freq 2.432000000 GHz</p> <p>CF Step 4.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>
<p>Puw/11B/LCH</p>		<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 13.015000000 GHz</p> <p>Start Freq 30.000000 MHz</p> <p>Stop Freq 26.000000000 GHz</p> <p>CF Step 2.597000000 GHz Auto Man</p> <p>Freq Offset 0 Hz</p>

11B_MCH_Graphs

Pref/11B/MCH

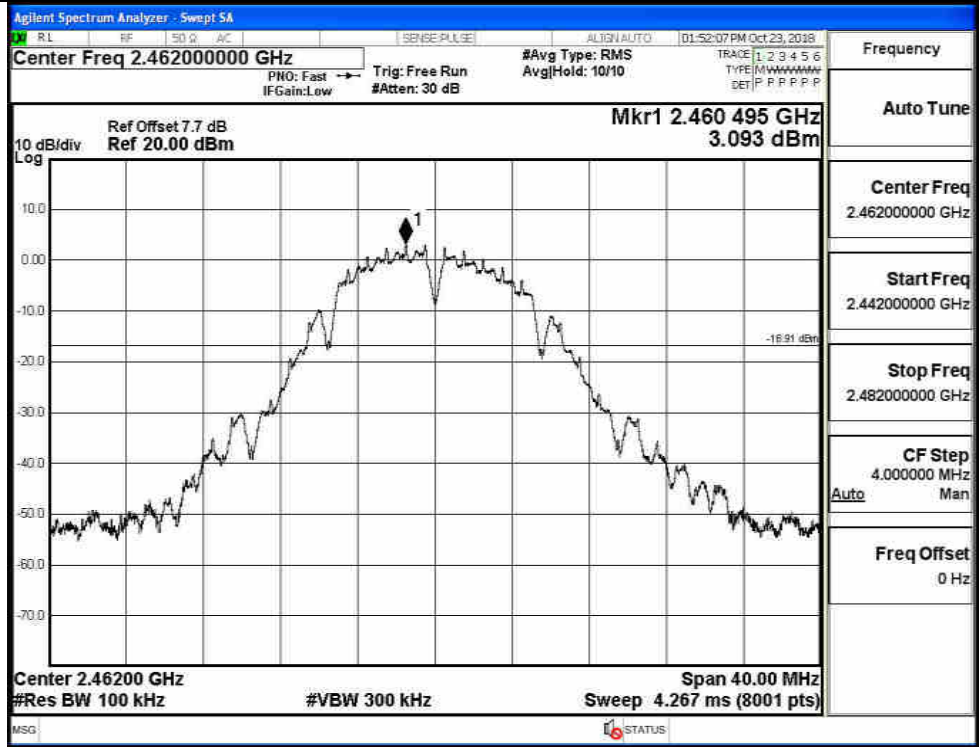


Puw/11B/MCH

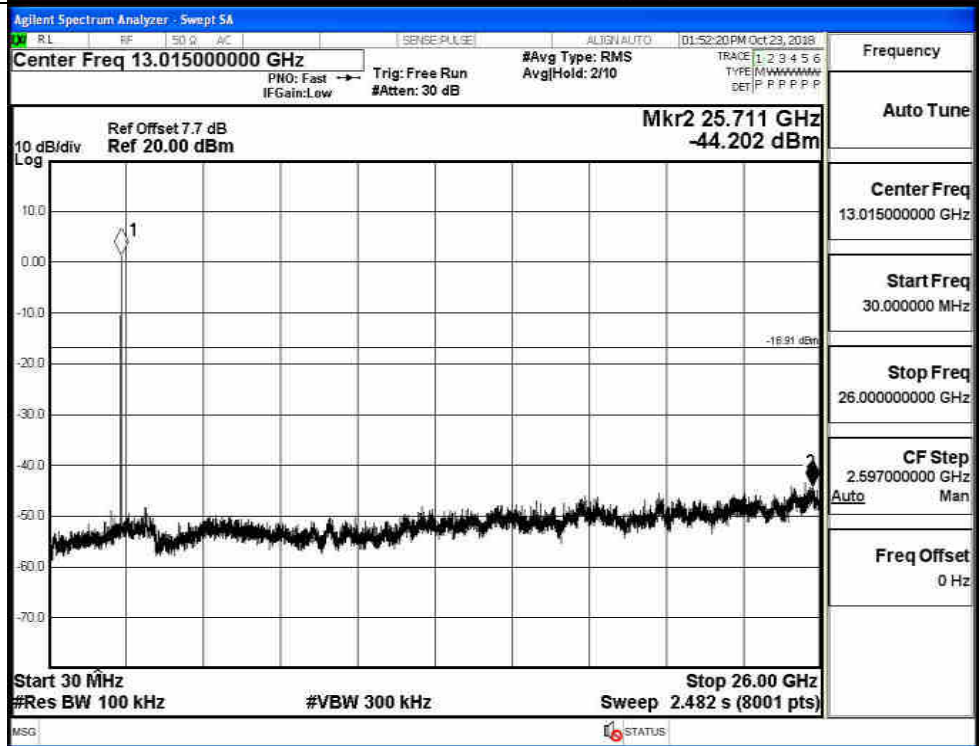


11B HCH Graphs

Pref/11B/HCH

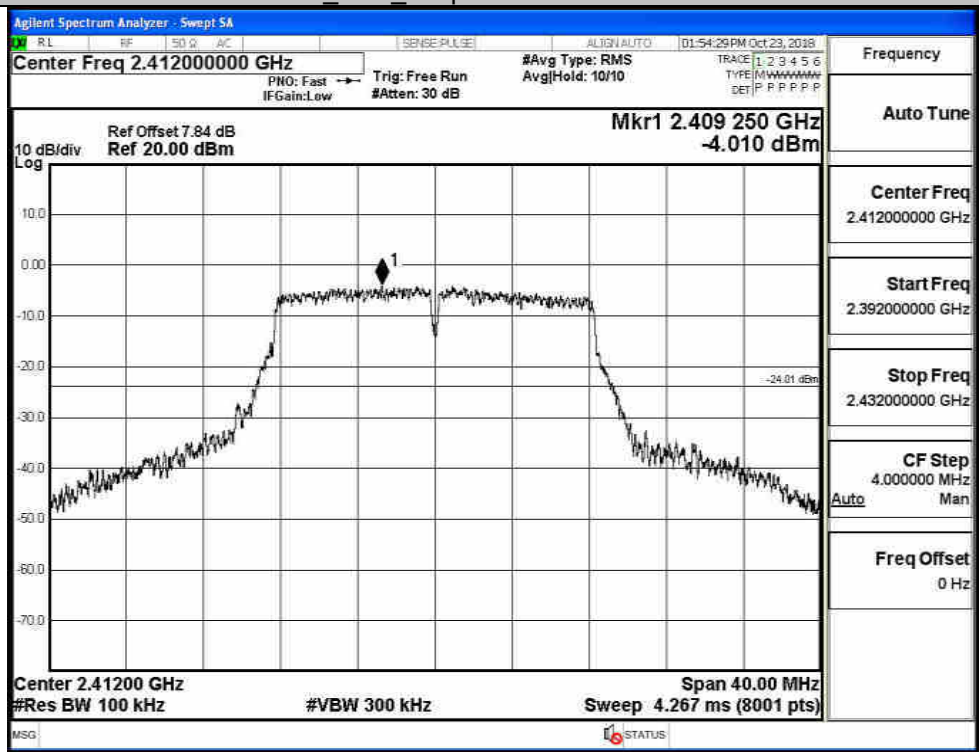


Puw/11B/HCH

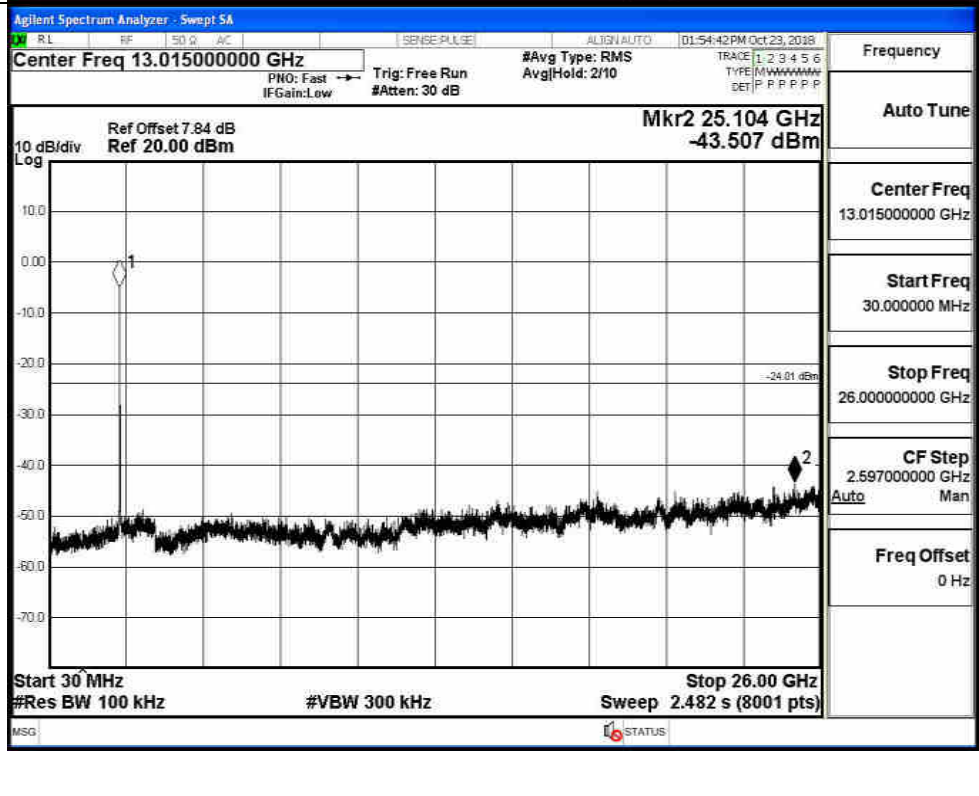


11G_LCH_Graphs

Pref/11G/LCH

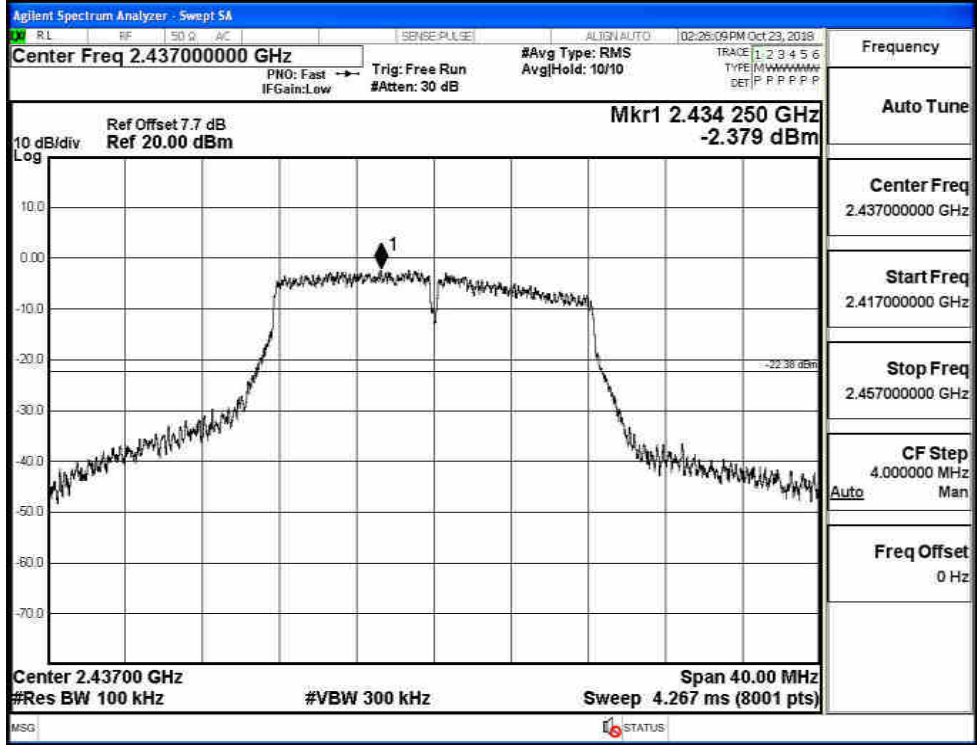


Puw/11G/LCH

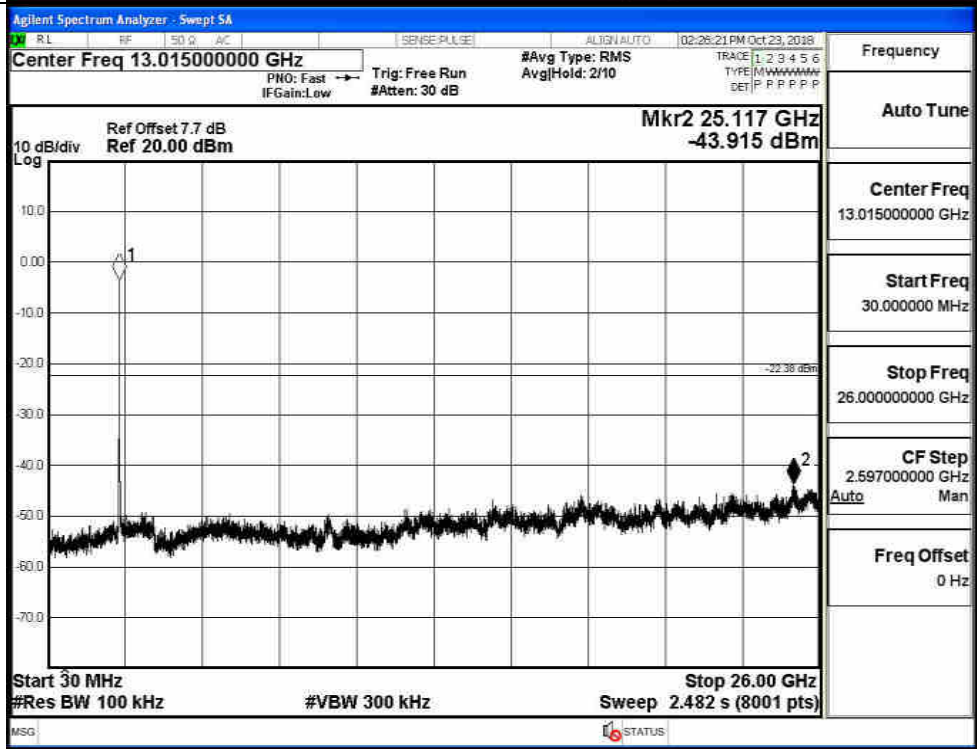


11G MCH Graphs

Pref/11G/MCH

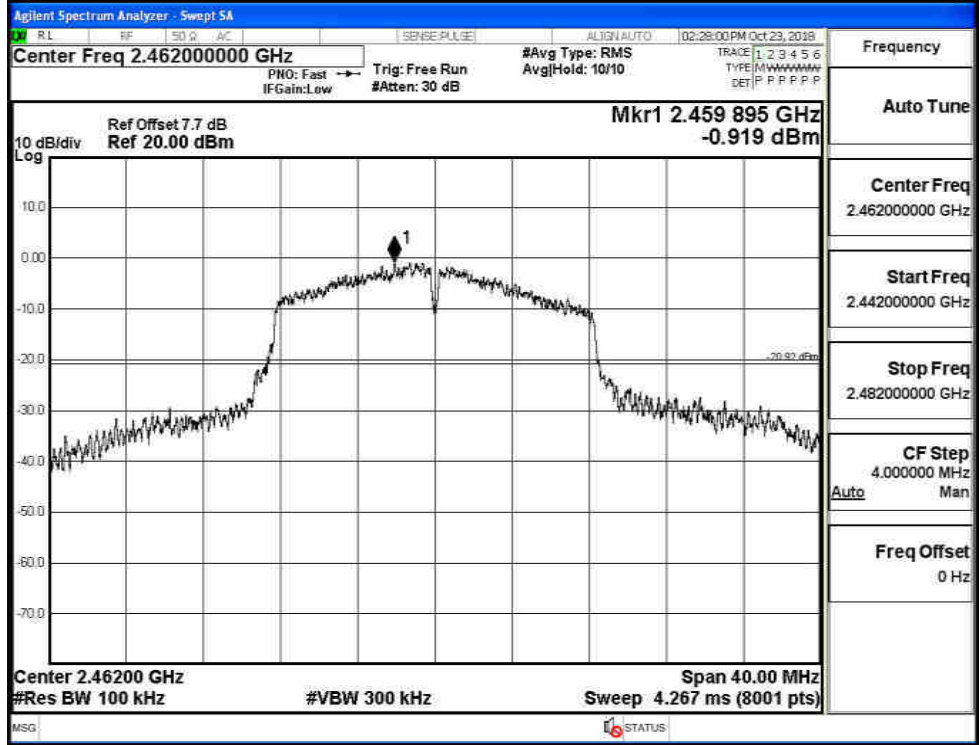


Puw/11G/MCH

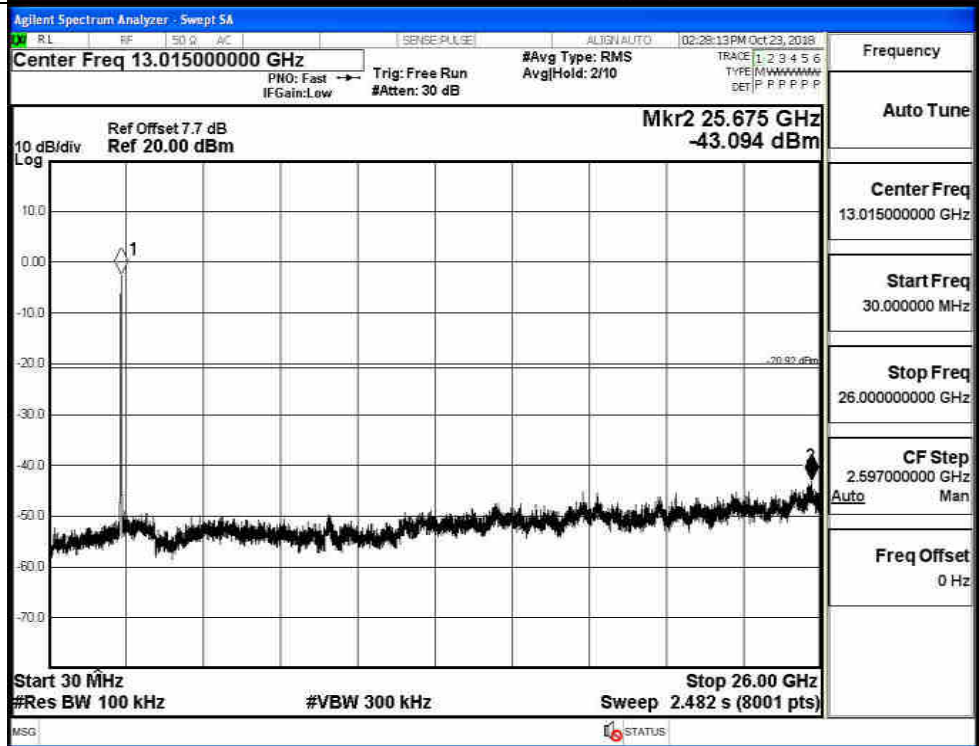


11G HCH Graphs

Pref/11G/HCH

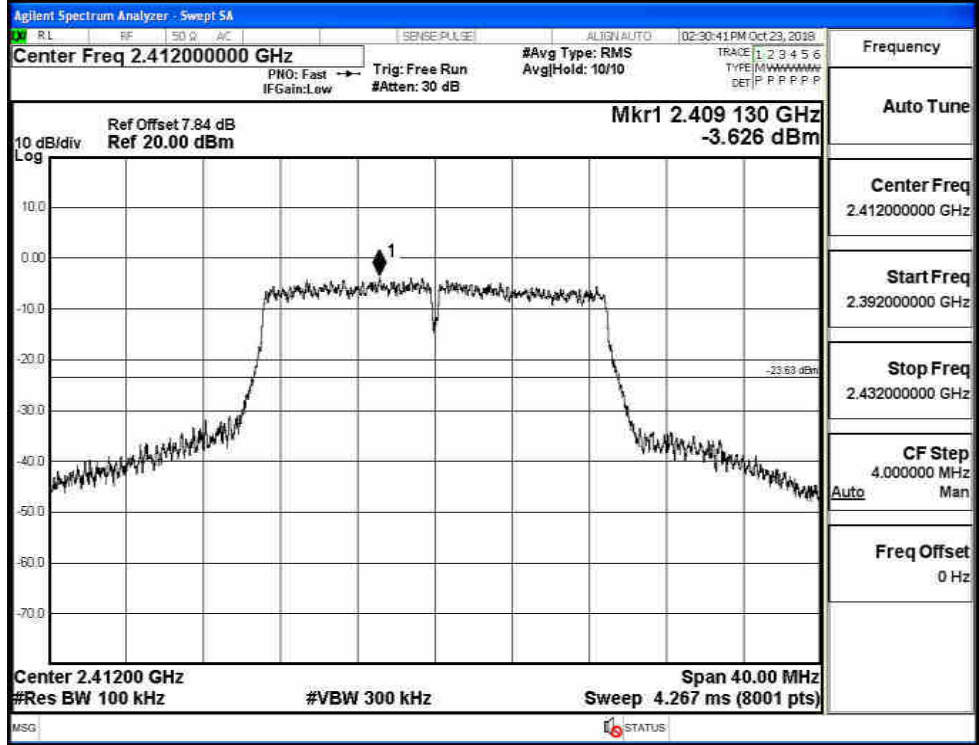


Puw/11G/HCH

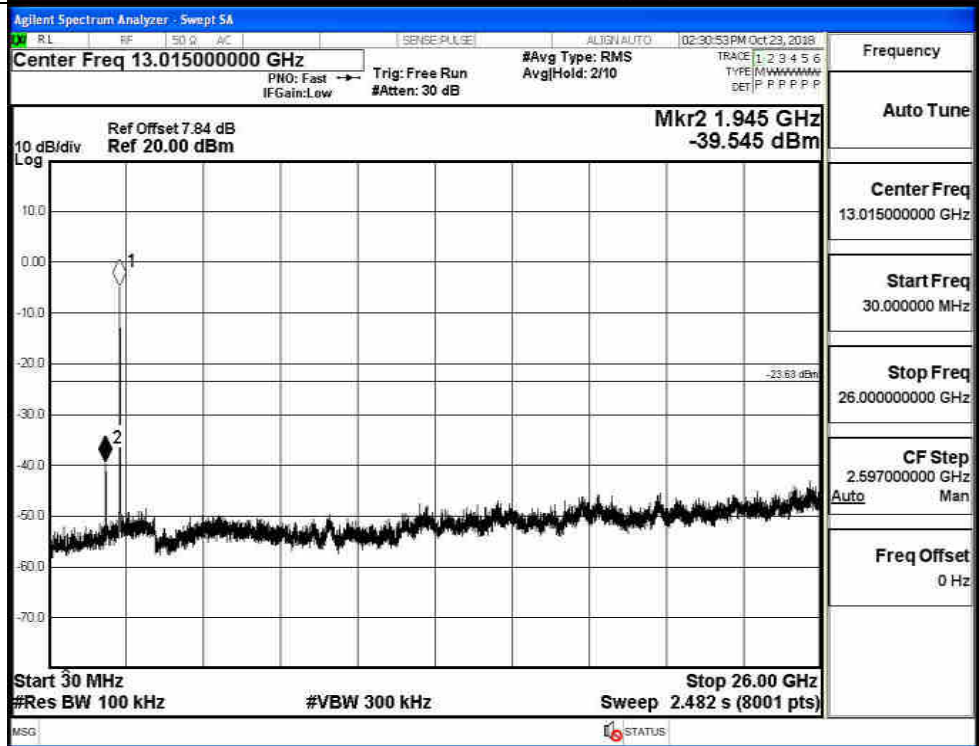


11N20SISO_LCH_Graphs

Pref/11N20SISO
O/LCH

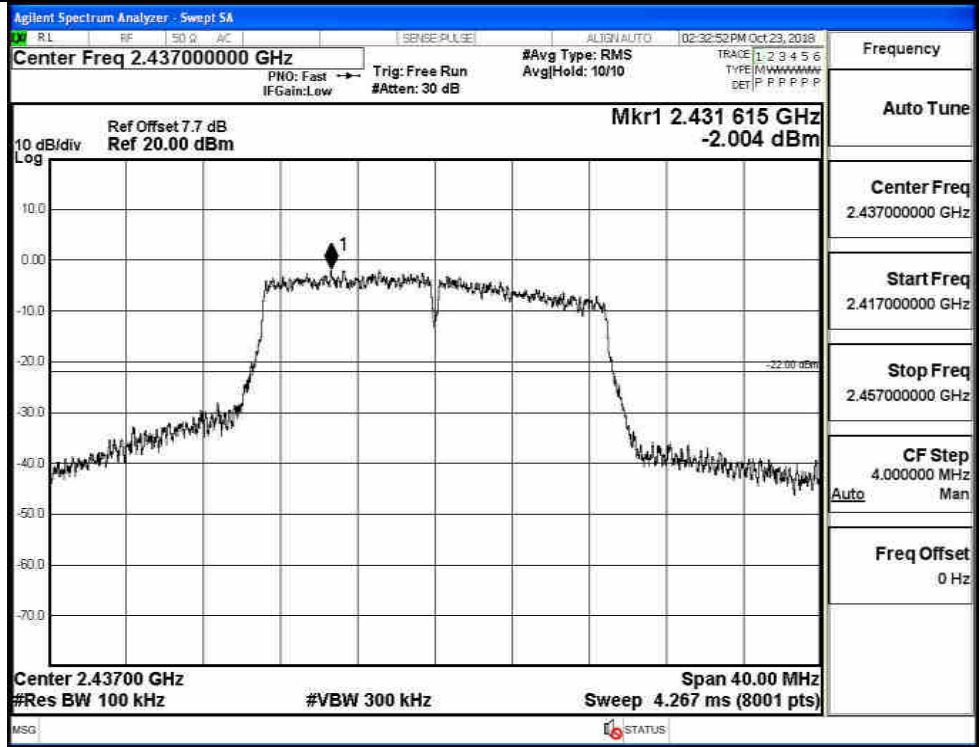


Puw/11N20
SISO/LCH

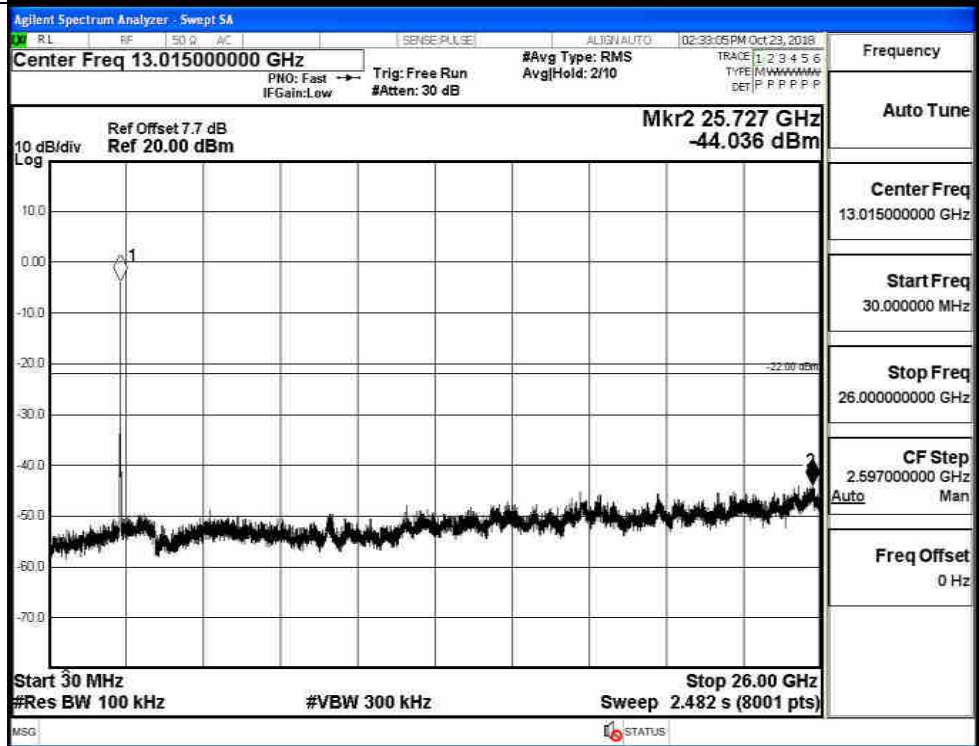


11N20SISO_MCH_Graphs

Pref/11N20
SISO/MCH

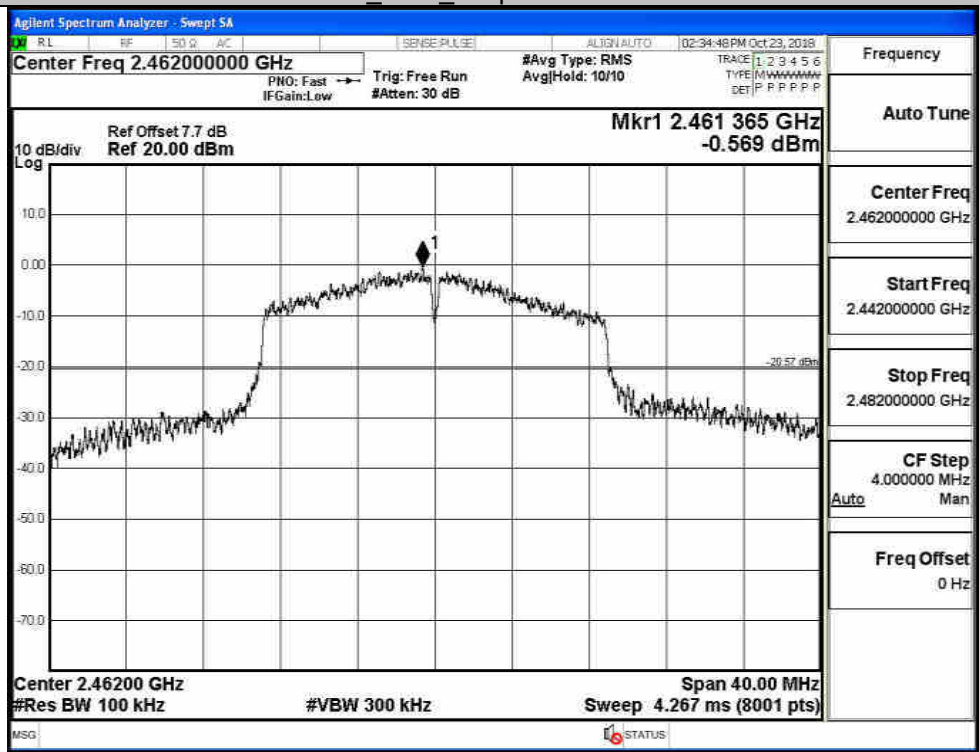


Puw/11N20
SISO/MCH

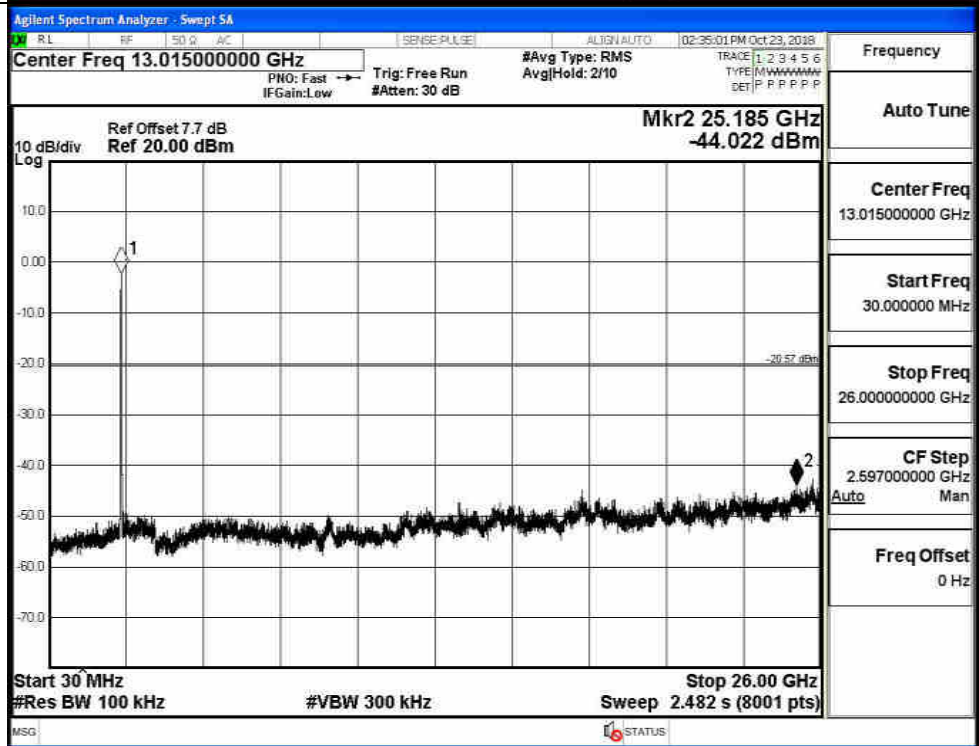


11N20SISO HCH_Graphs

Pref/11N20
SISO/HCH

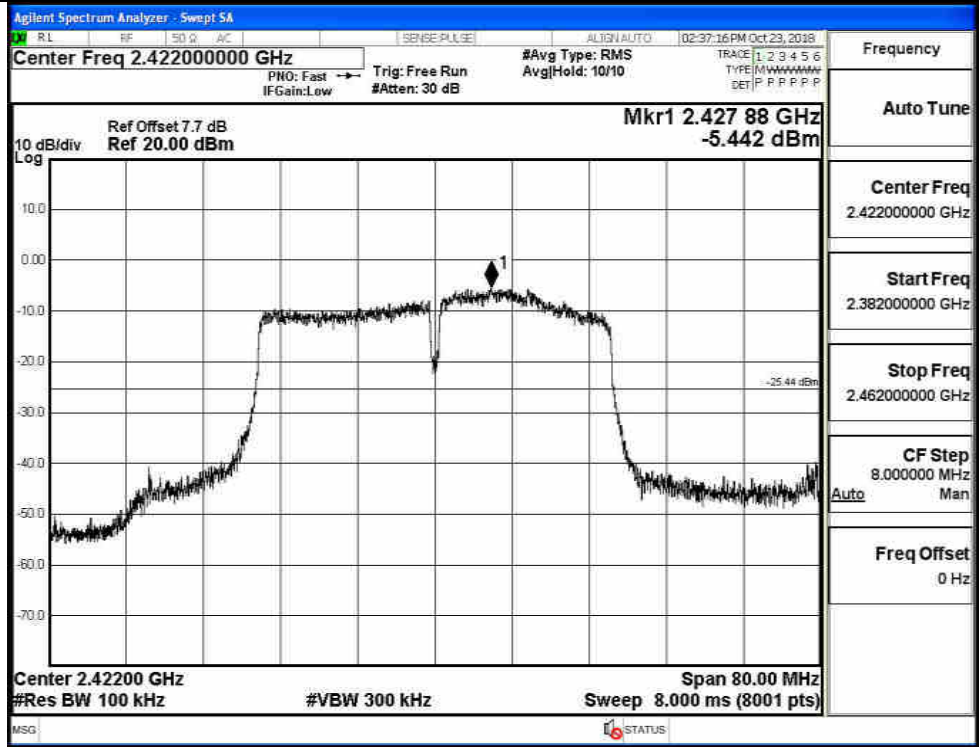


Puw/11N20
SISO/HCH

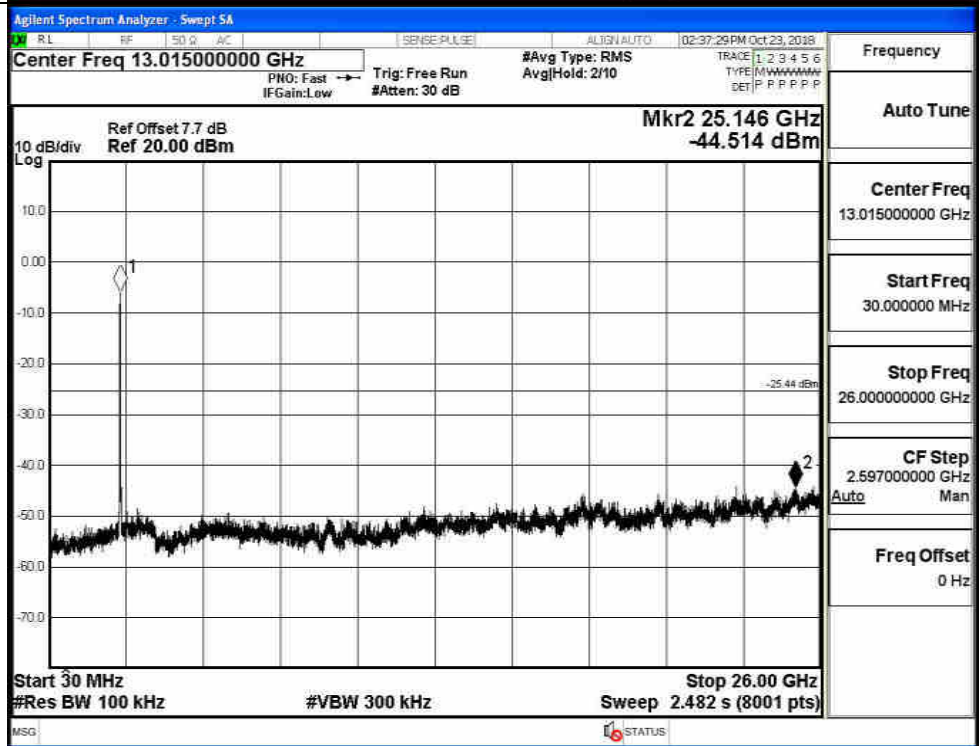


11N40SISO_LCH_Graphs

Pref/11N40
SISO/LCH



Puw/11N40
SISO/LCH



11N40SISO_MCH_Graphs

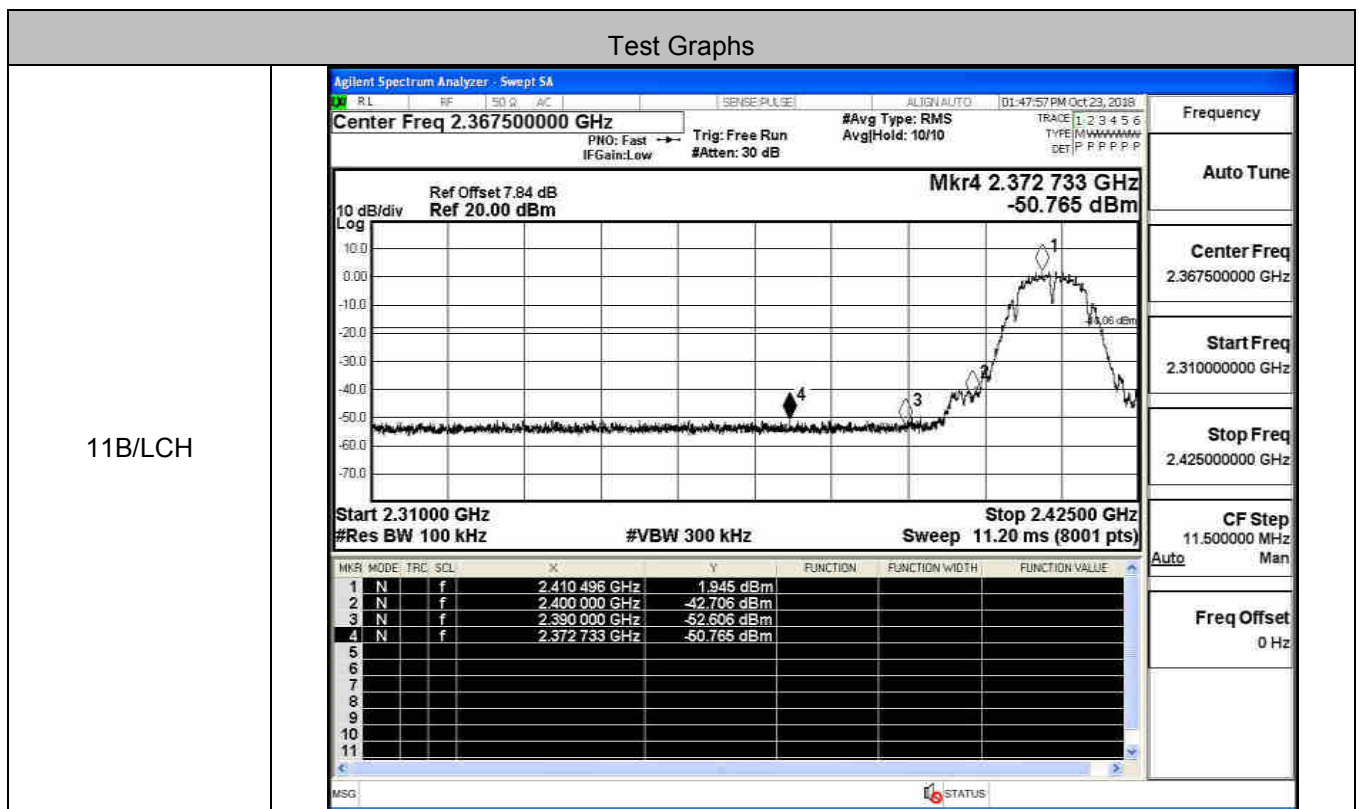
<p>Pref/11N40 SISO/MCH</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.43700000 GHz</p> <p>Mkr1 2.430 36 GHz -5.487 dBm</p> <p>Center 2.43700 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 8.000 ms (8001 pts)</p>	<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.437000000 GHz</p> <p>Start Freq 2.397000000 GHz</p> <p>Stop Freq 2.477000000 GHz</p> <p>CF Step 8.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>
<p>Puw/11N40 SISO/MCH</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 13.01500000 GHz</p> <p>Mkr2 25.740 GHz -43.917 dBm</p> <p>Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.482 s (8001 pts)</p>	<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 13.015000000 GHz</p> <p>Start Freq 30.000000 MHz</p> <p>Stop Freq 26.000000000 GHz</p> <p>CF Step 2.597000000 GHz Auto Man</p> <p>Freq Offset 0 Hz</p>

11N40SISO HCH_Graphs

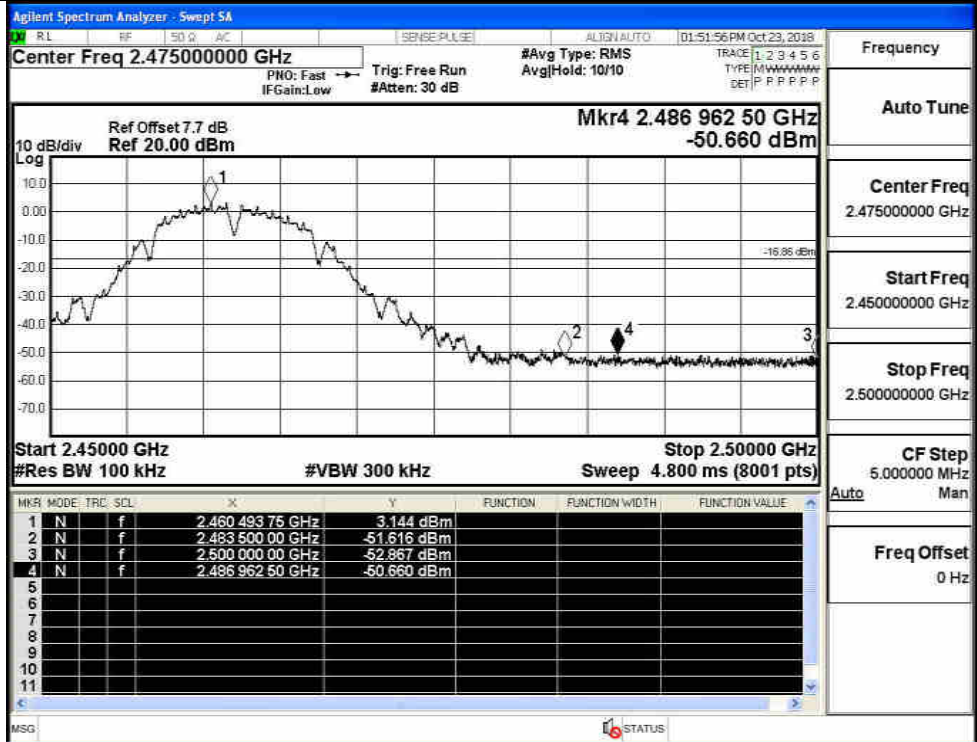
<p>Pref/11N40 SISO/HCH</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.45200000 GHz</p> <p>Mkr1 2.46162 GHz -4.472 dBm</p> <p>Center 2.45200 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 8.000 ms (8001 pts)</p>	<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.452000000 GHz</p> <p>Start Freq 2.412000000 GHz</p> <p>Stop Freq 2.492000000 GHz</p> <p>CF Step 8.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>
<p>Puw/11N40 SISO/HCH</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 13.01500000 GHz</p> <p>Mkr2 25.649 GHz -42.982 dBm</p> <p>Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.482 s (8001 pts)</p>	<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 13.015000000 GHz</p> <p>Start Freq 30.000000 MHz</p> <p>Stop Freq 26.000000000 GHz</p> <p>CF Step 2.597000000 GHz Auto Man</p> <p>Freq Offset 0 Hz</p>

C.6 Band-edge for RF Conducted Emissions

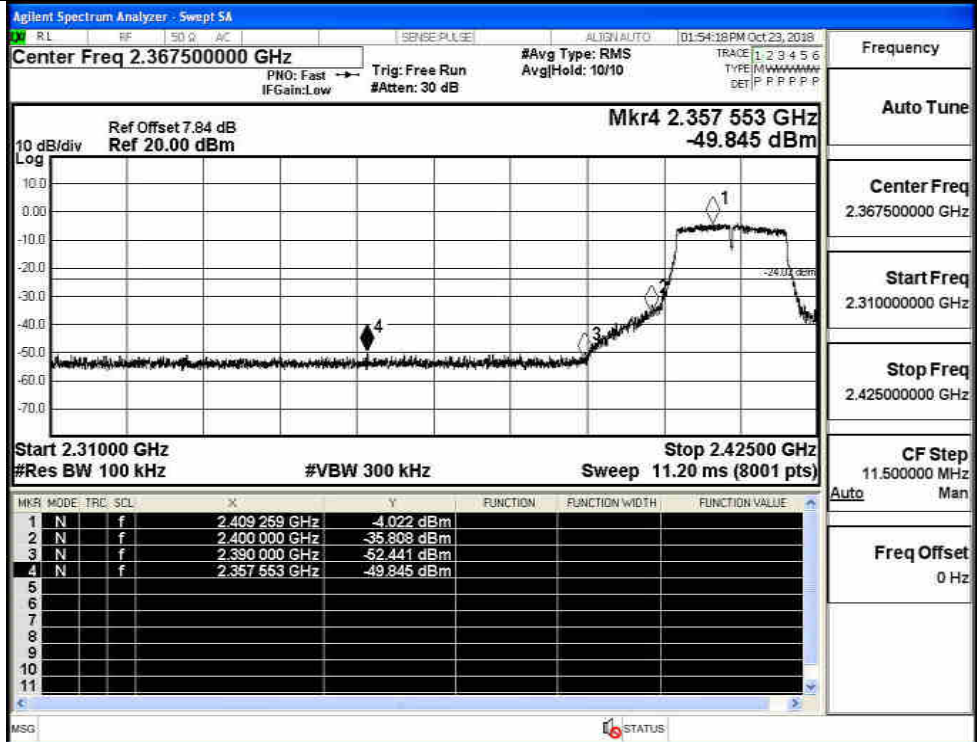
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	1.945	-50.765	-18.06	PASS
	HCH	3.144	-50.660	-16.86	PASS
11G	LCH	-4.022	-49.845	-24.02	PASS
	HCH	-0.800	-38.612	-20.8	PASS
11N20SISO	LCH	-3.606	-50.524	-23.61	PASS
	HCH	-0.580	-33.681	-20.58	PASS
11N40SISO	LCH	-5.056	-49.534	-25.06	PASS
	HCH	-4.609	-40.468	-24.61	PASS



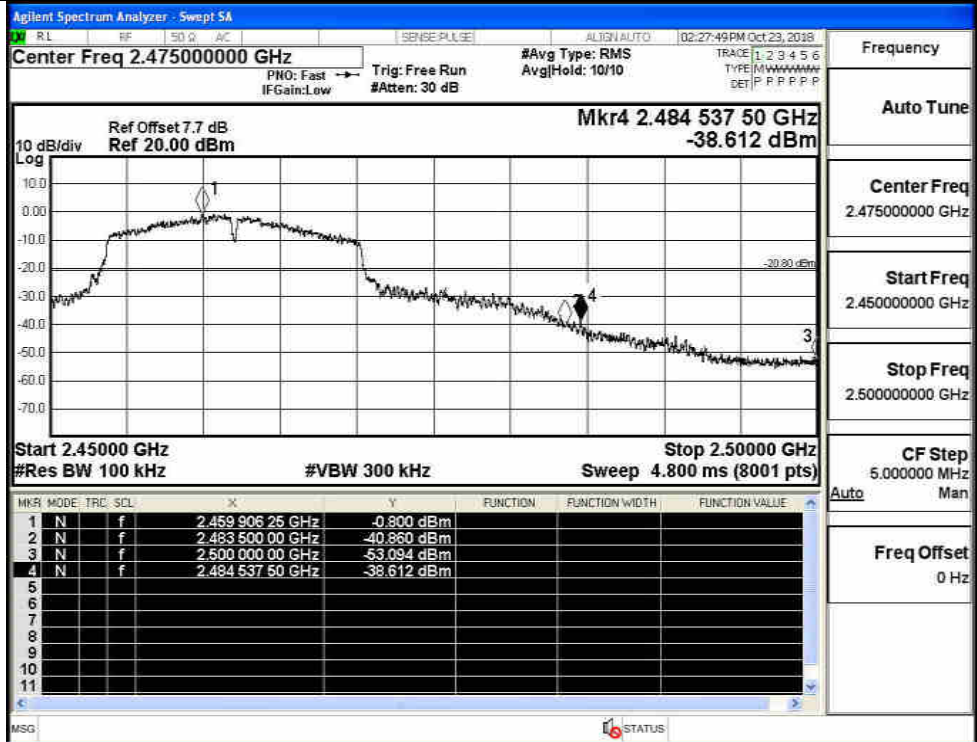
11B/HCH



11G/LCH

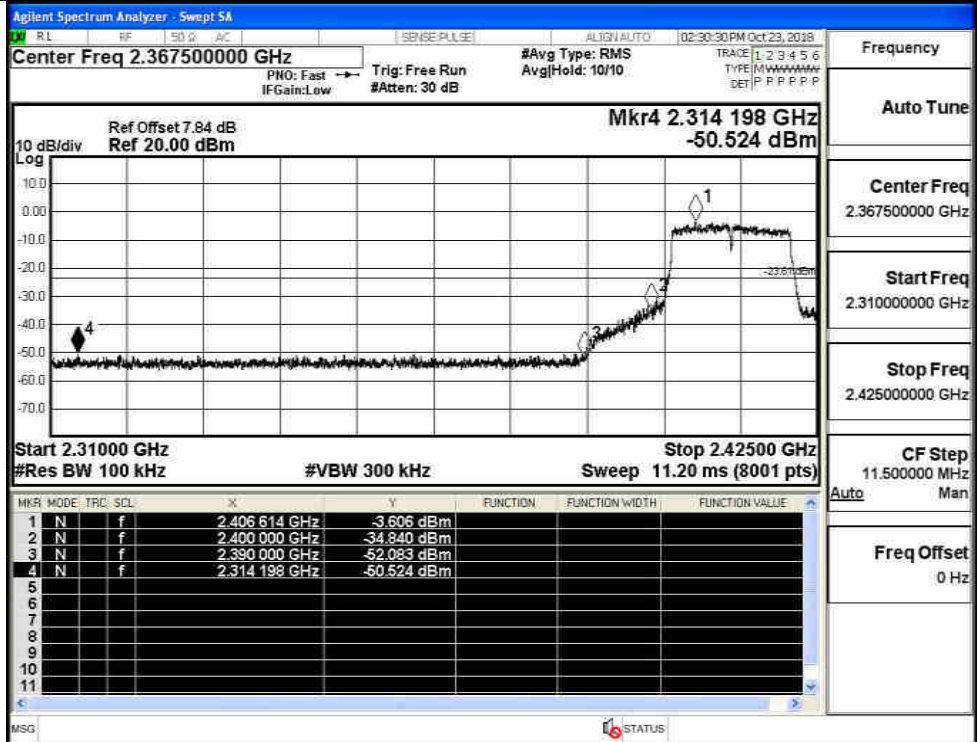


11G/HCH



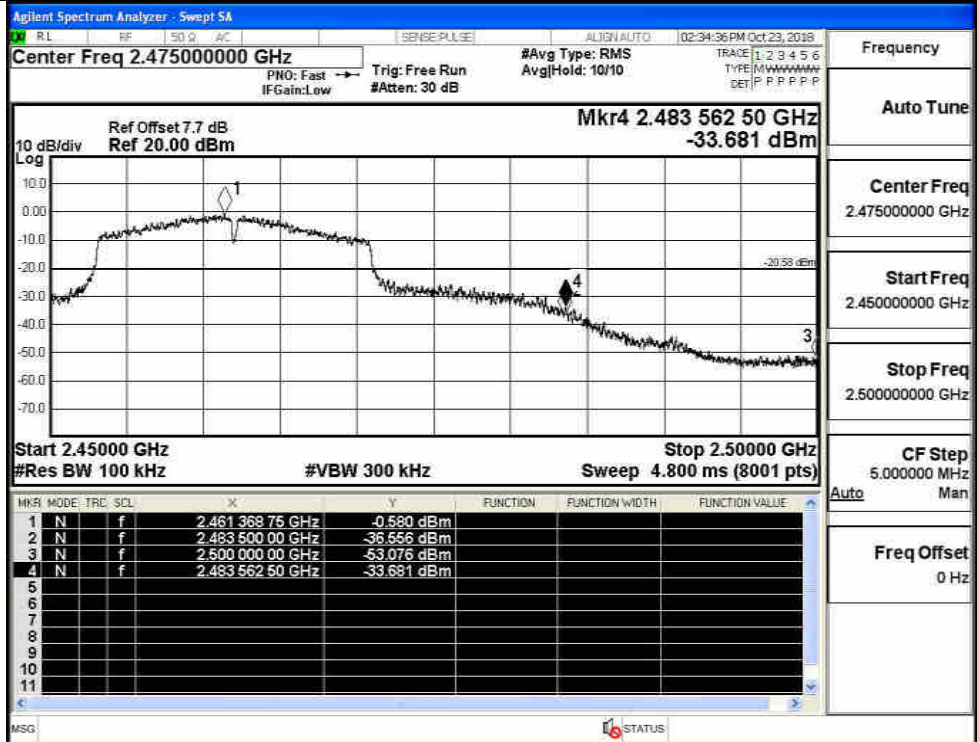
Frequency	2.47500000 GHz
Auto Tune	
Center Freq	2.47500000 GHz
Start Freq	2.45000000 GHz
Stop Freq	2.50000000 GHz
CF Step	5.000000 MHz
Freq Offset	0 Hz

11N20SISO/LCH

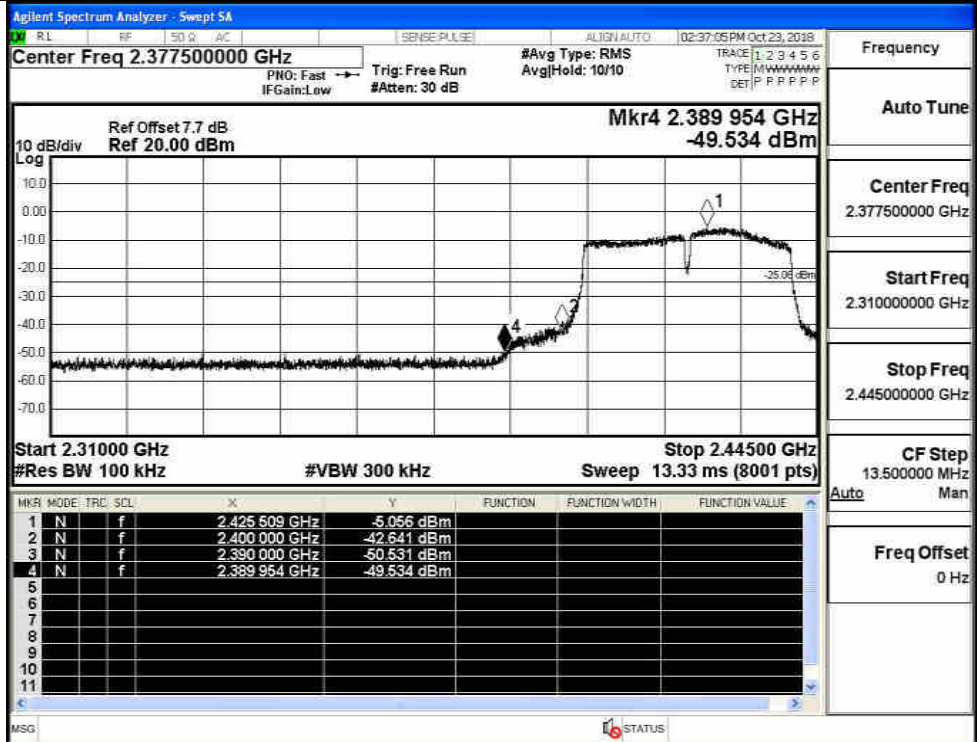


Frequency	2.36750000 GHz
Auto Tune	
Center Freq	2.36750000 GHz
Start Freq	2.31000000 GHz
Stop Freq	2.42500000 GHz
CF Step	11.500000 MHz
Freq Offset	0 Hz

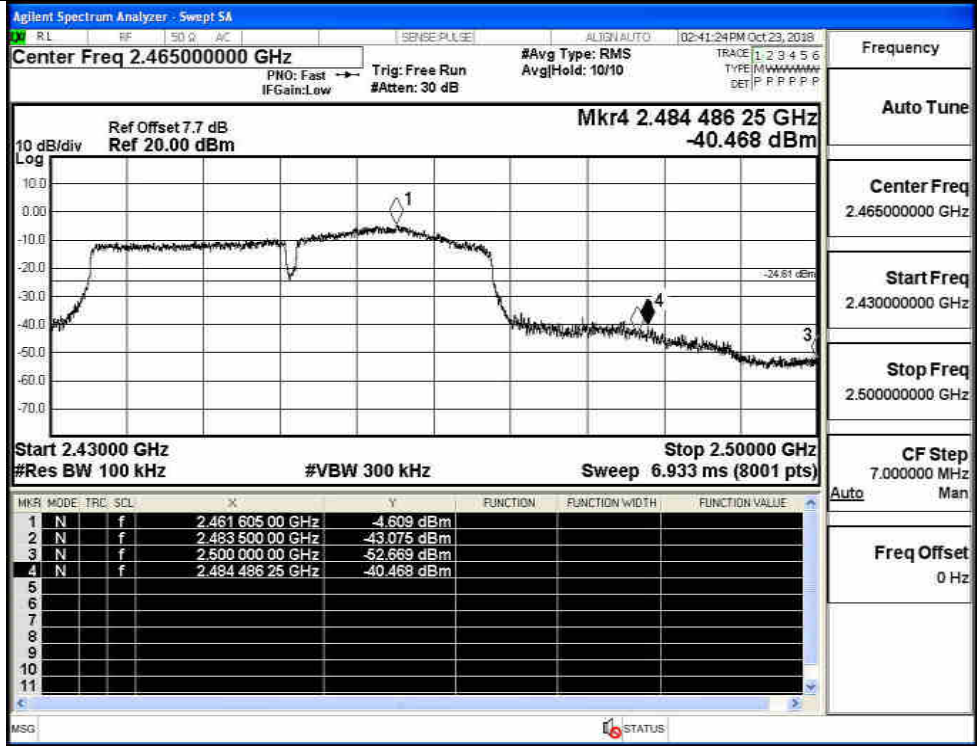
11N20SISO/HCH



11N40SISO/LCH



11N40SISO/HCH

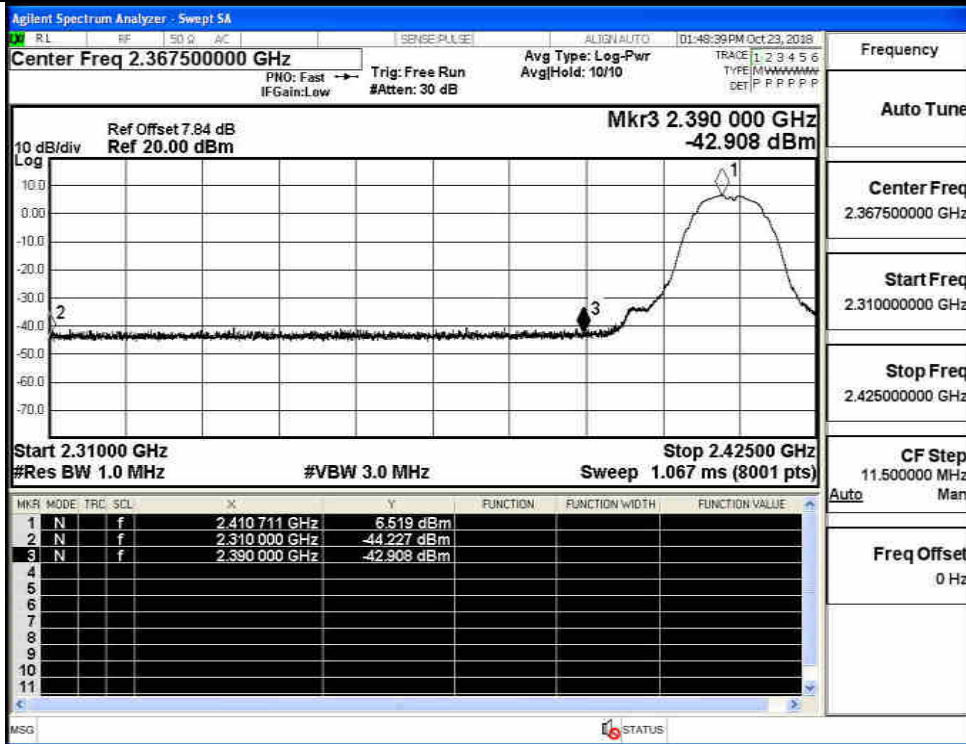


C.7 Restrict-band band-edge measurements

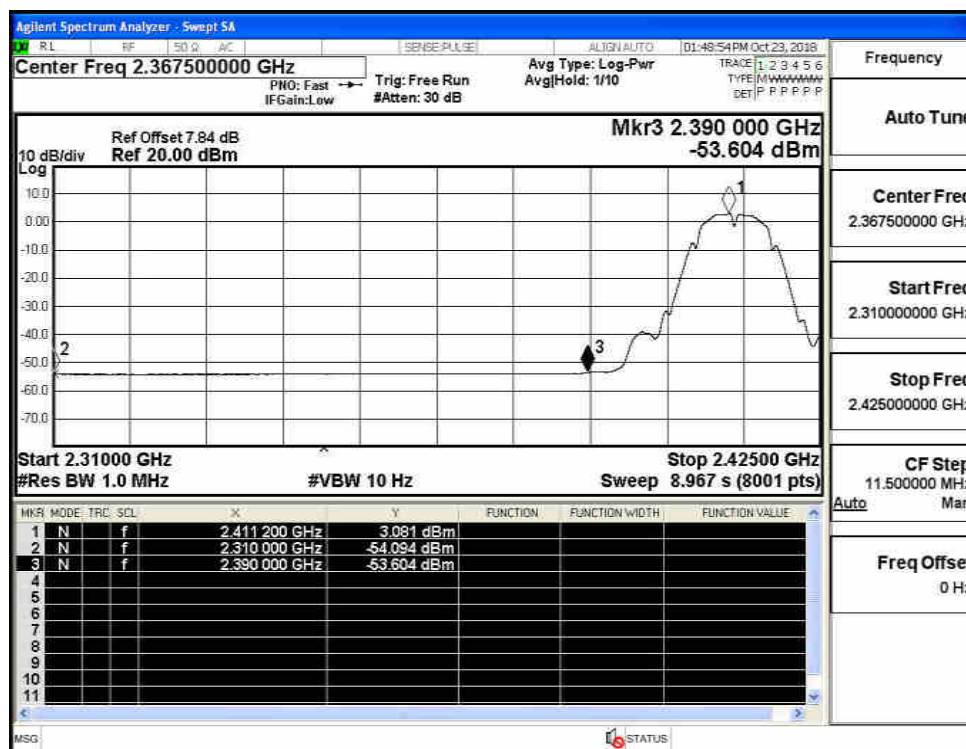
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBu V/m]	Verdict
11B	2412	Ant1	2310.0	-44.23	2.0	0	53.00	PEAK	74	PASS
	2412	Ant1	2310.0	-54.09	2.0	0	43.14	AV	54	PASS
	2412	Ant1	2390.0	-42.91	2.0	0	54.32	PEAK	74	PASS
	2412	Ant1	2390.0	-53.60	2.0	0	43.63	AV	54	PASS
	2462	Ant1	2483.5	-42.41	2.0	0	54.82	PEAK	74	PASS
	2462	Ant1	2483.5	-51.23	2.0	0	46.00	AV	54	PASS
	2462	Ant1	2500.0	-43.68	2.0	0	53.55	PEAK	74	PASS
	2462	Ant1	2500.0	-53.65	2.0	0	43.58	AV	54	PASS
11G	2412	Ant1	2310.0	-43.70	2.0	0	53.53	PEAK	74	PASS
	2412	Ant1	2310.0	-54.14	2.0	0	43.09	AV	54	PASS
	2412	Ant1	2390.0	-38.44	2.0	0	58.79	PEAK	74	PASS
	2412	Ant1	2390.0	-52.47	2.0	0	44.76	AV	54	PASS
	2462	Ant1	2483.5	-27.42	2.0	0	69.81	PEAK	74	PASS
	2462	Ant1	2483.5	-40.20	2.0	0	57.03	AV	54	PASS
	2462	Ant1	2500.0	-44.17	2.0	0	53.06	PEAK	74	PASS
	2462	Ant1	2500.0	-53.66	2.0	0	43.57	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-44.30	2.0	0	52.93	PEAK	74	PASS
	2412	Ant1	2310.0	-54.16	2.0	0	43.07	AV	54	PASS
	2412	Ant1	2390.0	-38.26	2.0	0	58.97	PEAK	74	PASS
	2412	Ant1	2390.0	-51.82	2.0	0	45.41	AV	54	PASS
	2462	Ant1	2483.5	-32.94	2.0	0	64.29	PEAK	74	PASS
	2462	Ant1	2483.5	-49.47	2.0	0	47.76	AV	54	PASS
	2462	Ant1	2500.0	-43.61	2.0	0	53.62	PEAK	74	PASS
	2462	Ant1	2500.0	-53.63	2.0	0	43.60	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-43.32	2.0	0	53.91	PEAK	74	PASS
	2422	Ant1	2310.0	-54.26	2.0	0	42.97	AV	54	PASS

	2422	Ant1	2390.0	-38.20	2.0	0	59.03	PEAK	74	PASS
	2422	Ant1	2390.0	-50.85	2.0	0	46.38	AV	54	PASS
	2452	Ant1	2483.5	-31.76	2.0	0	65.47	PEAK	74	PASS
	2452	Ant1	2483.5	-43.46	2.0	0	53.77	AV	54	PASS
	2452	Ant1	2500.0	-41.33	2.0	0	55.90	PEAK	74	PASS
	2452	Ant1	2500.0	-53.70	2.0	0	43.53	AV	54	PASS

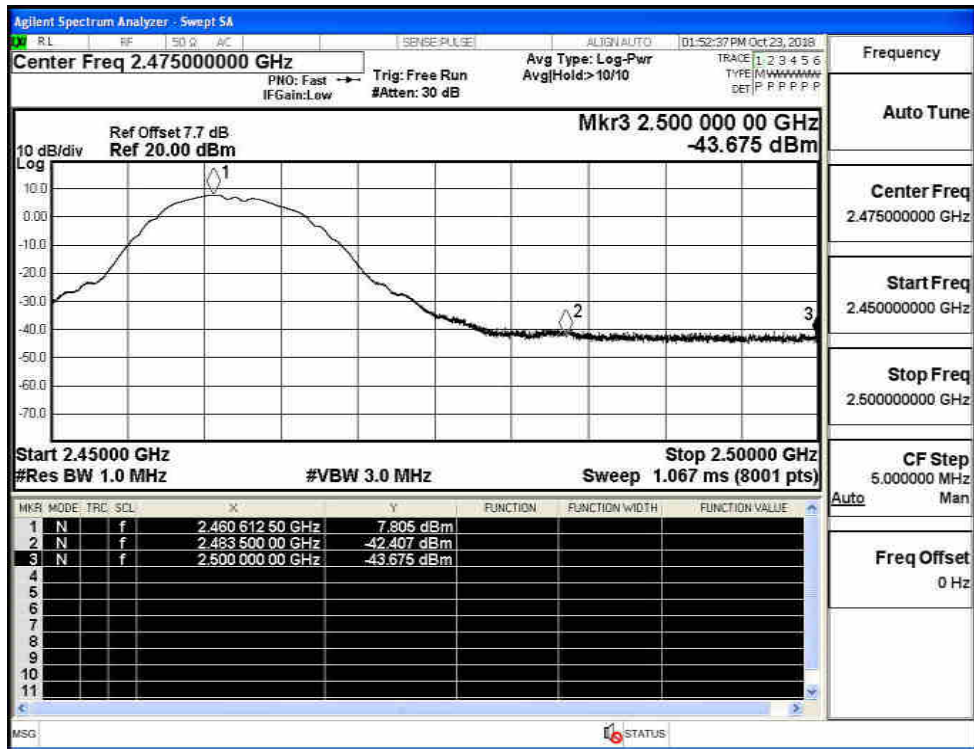
Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



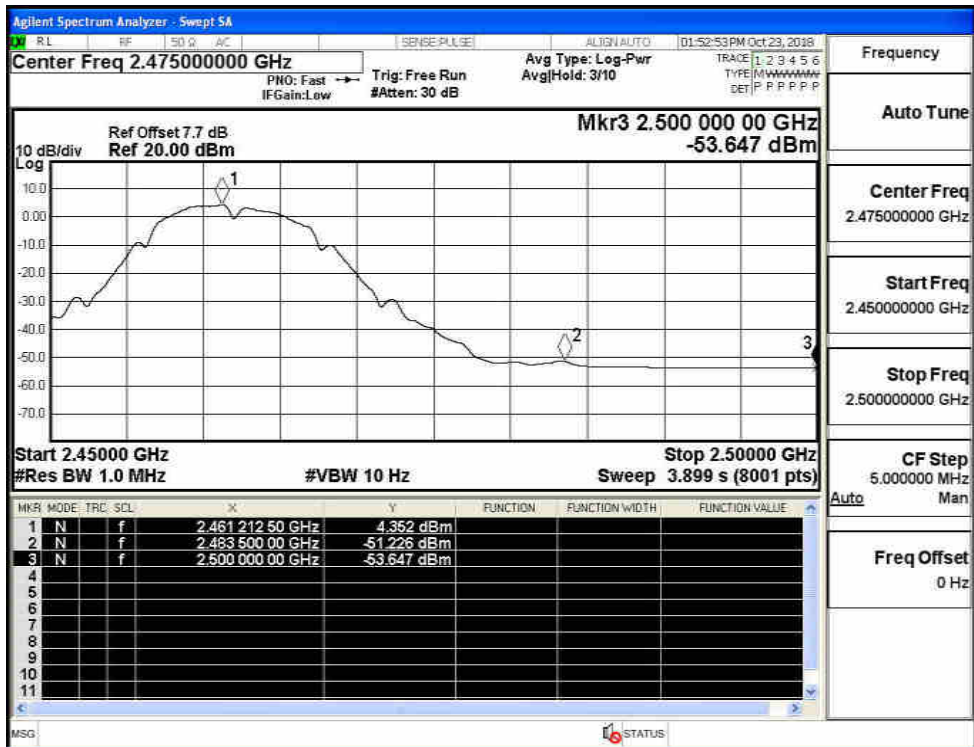
Restrict-band band-edge measurements_11B_2412_Ant1_AV



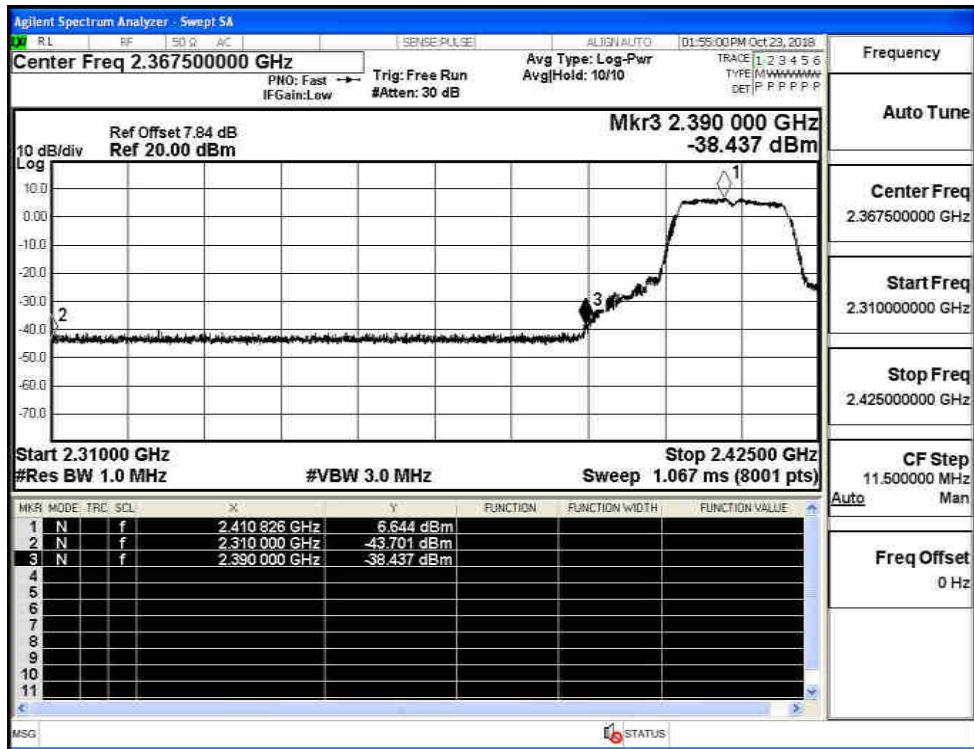
Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



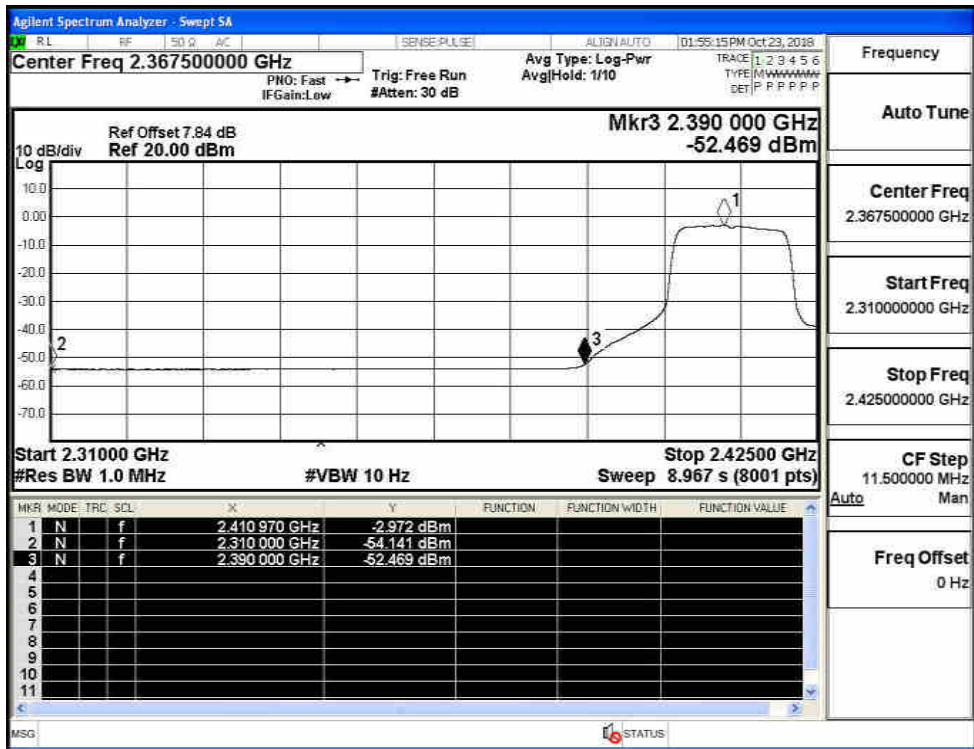
Restrict-band band-edge measurements_11B_2462_Ant1_AV



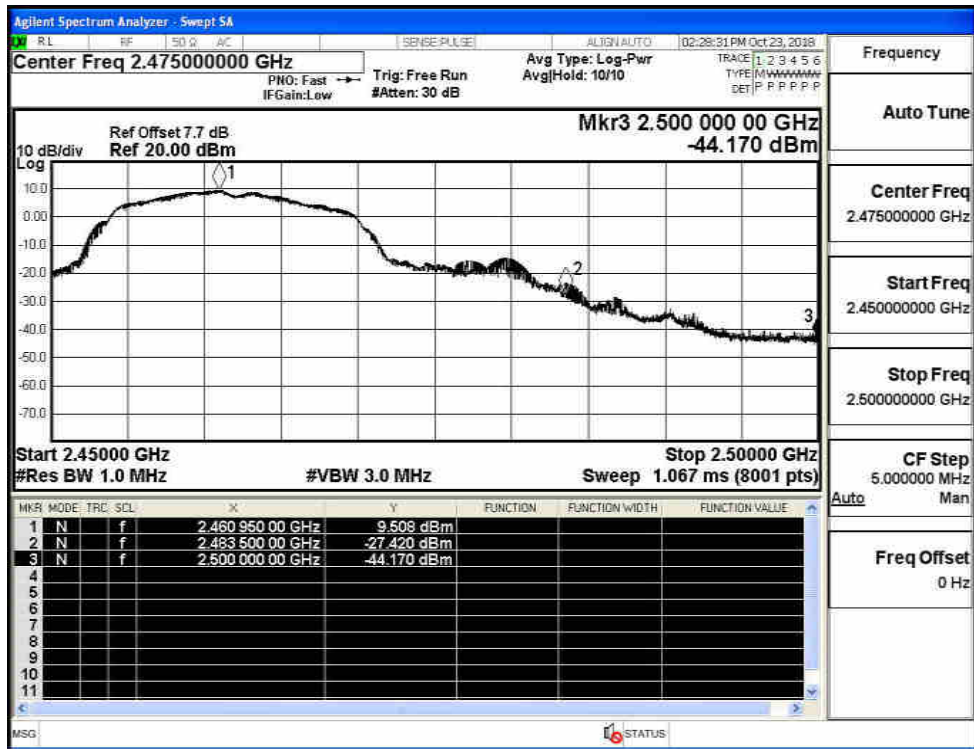
Restrict-band band-edge measurements_11G_2412_Ant1_PEAK



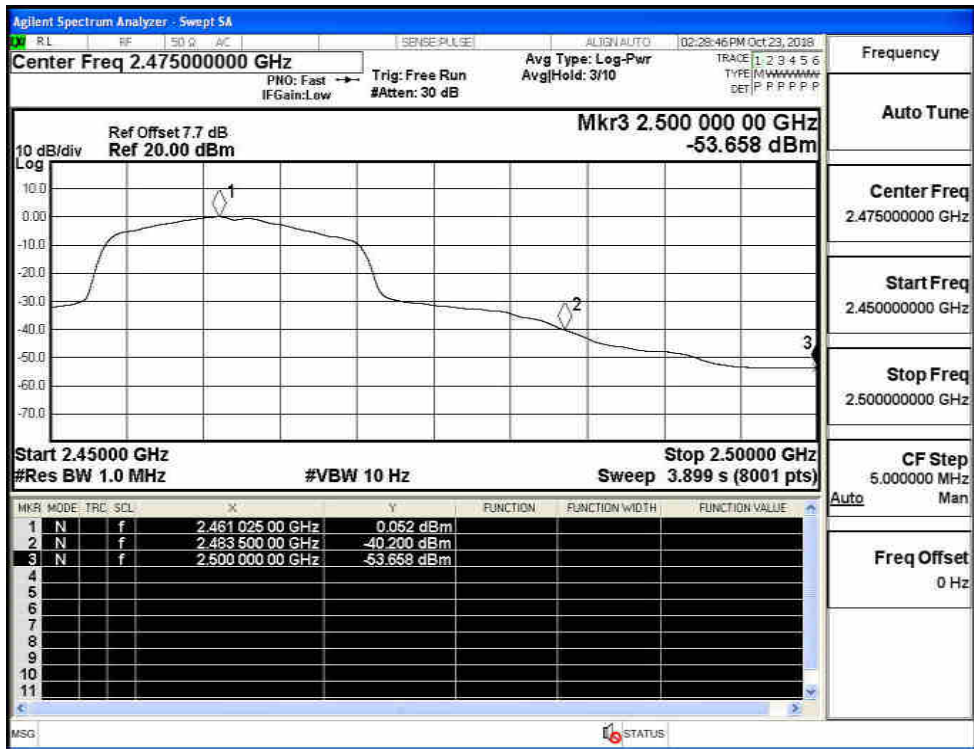
Restrict-band band-edge measurements_11G_2412_Ant1_AV



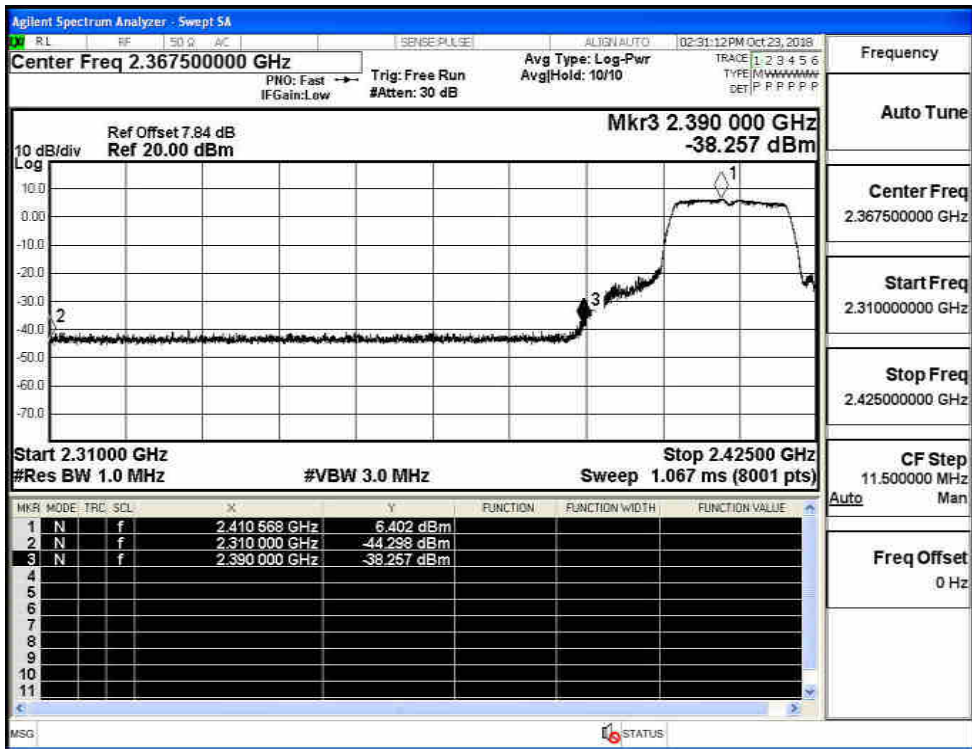
Restrict-band band-edge measurements_11G_2462_Ant1_PEAK



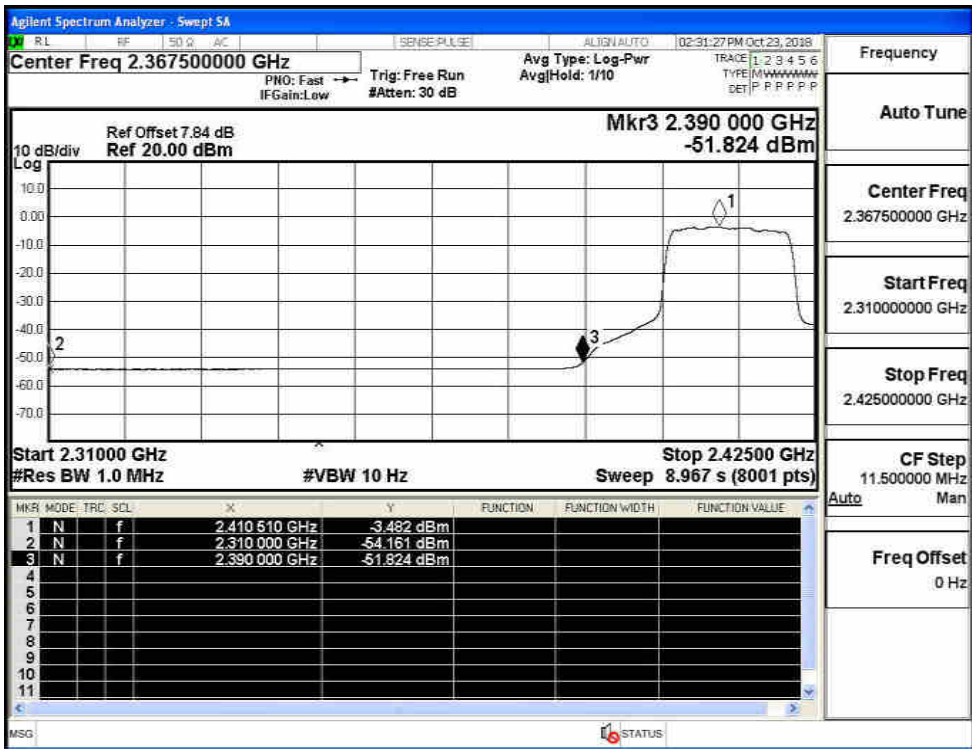
Restrict-band band-edge measurements_11G_2462_Ant1_AV



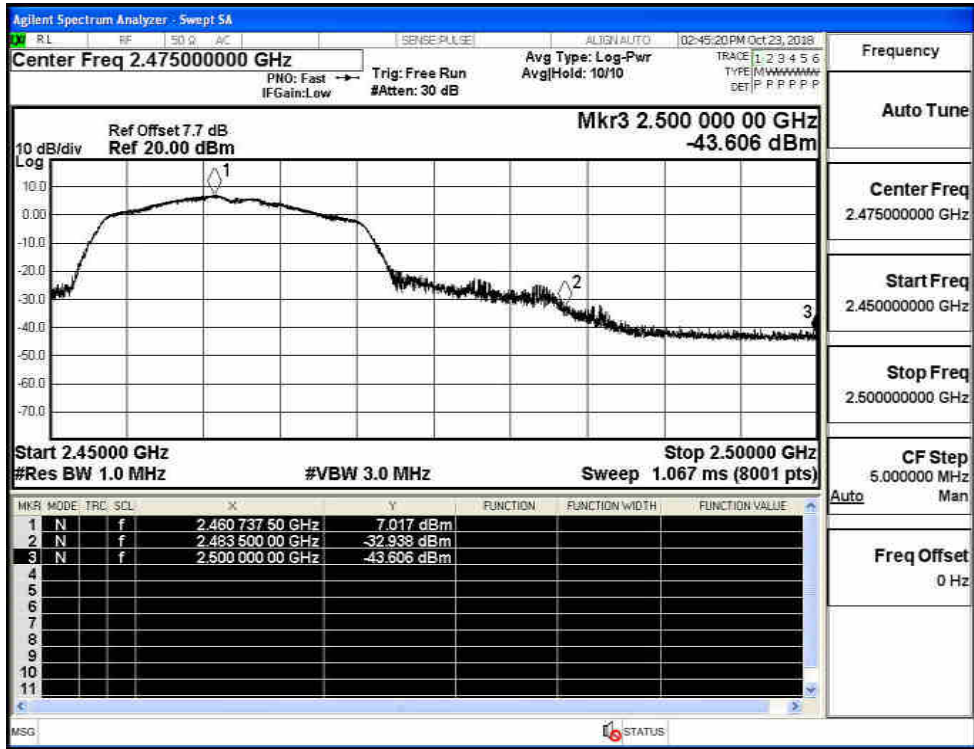
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK



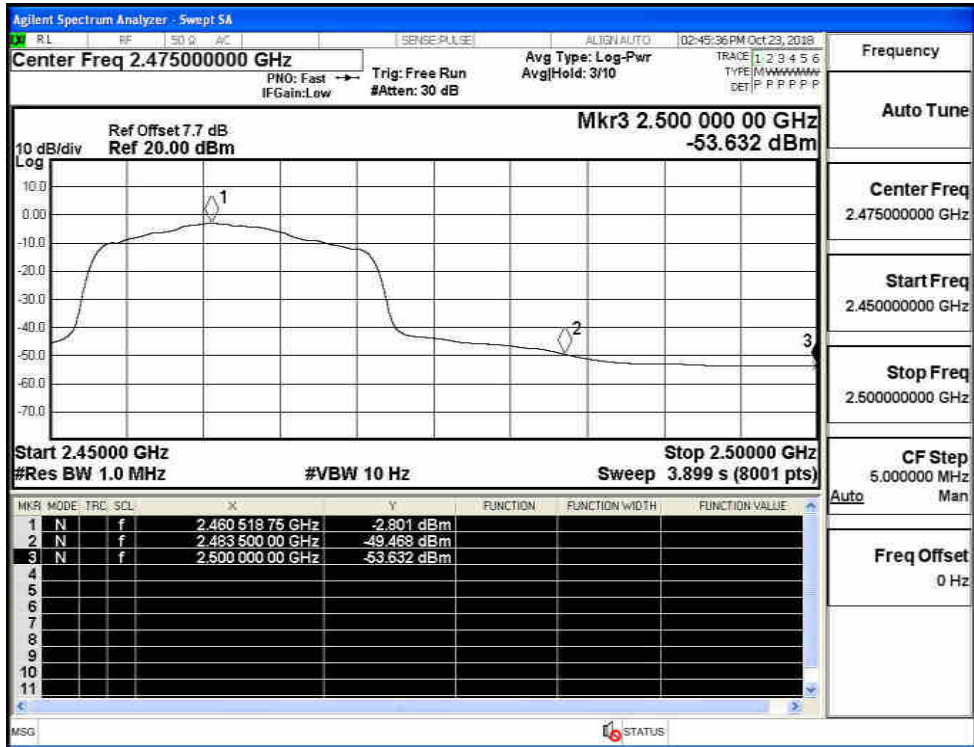
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_AV



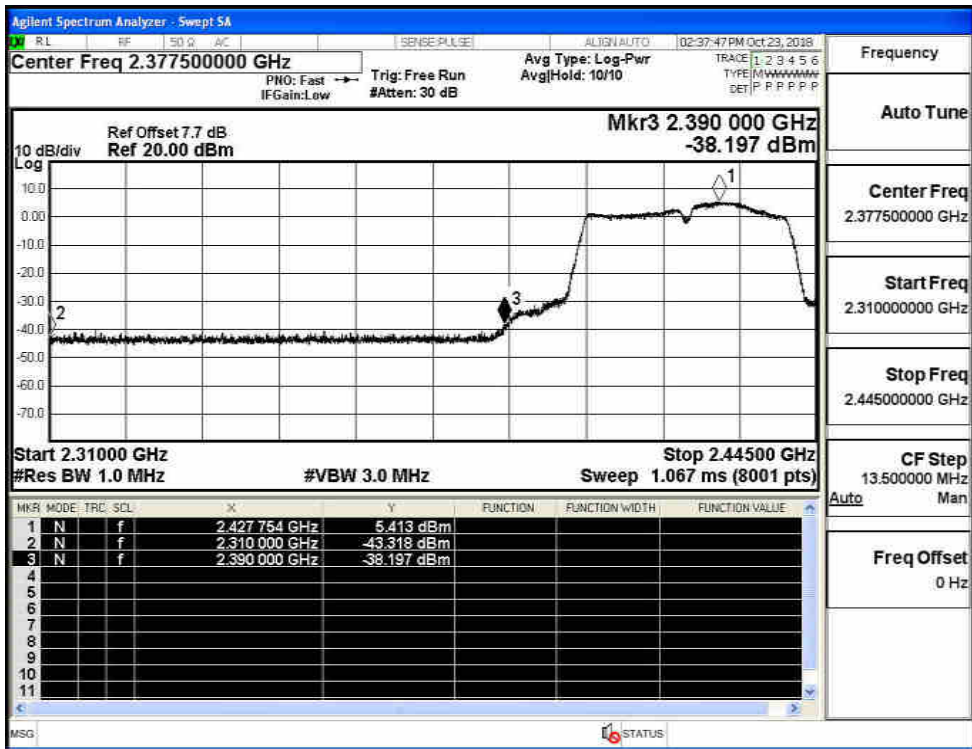
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_PEAK



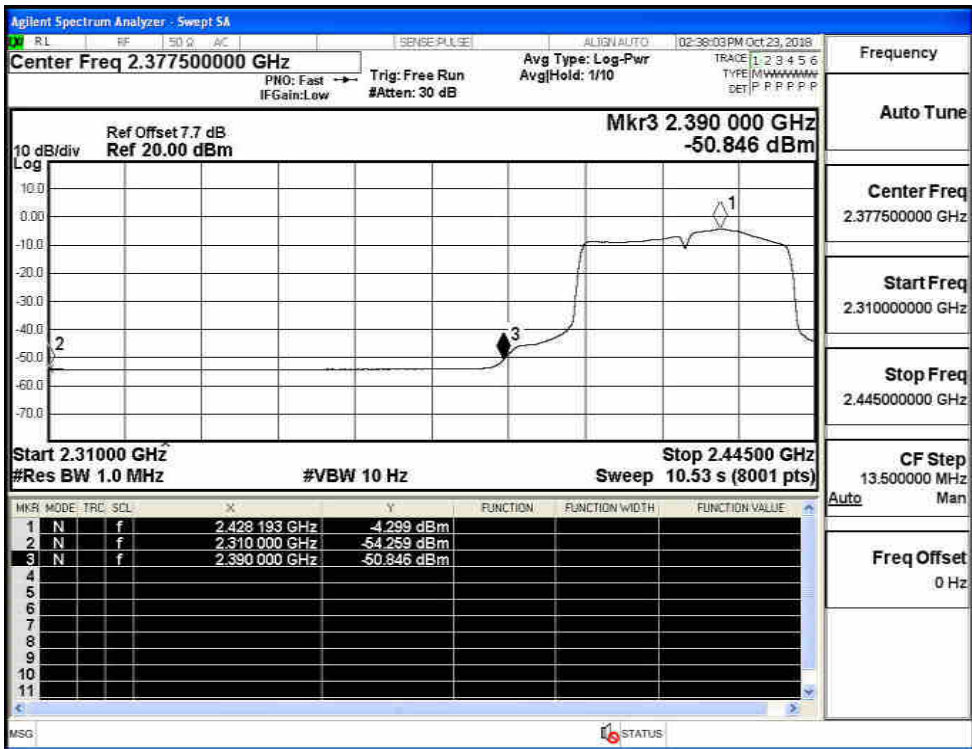
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_AV



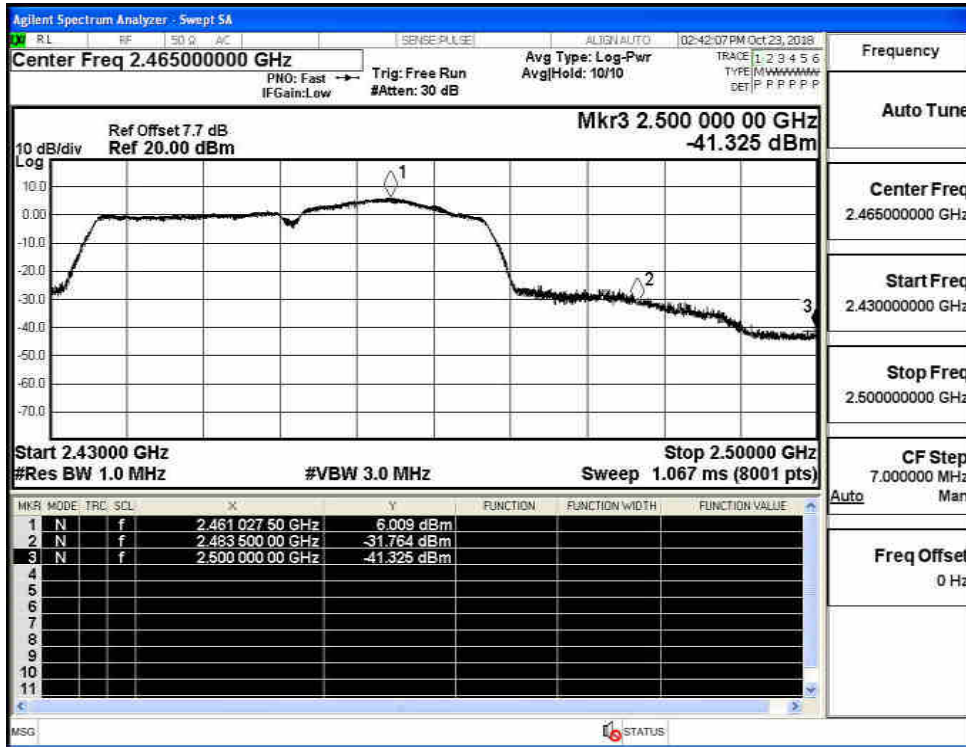
Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



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

