

Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Multi Touch Screen/interactive Flat Panel Display

Trade Mark: iBoard, StarBoard

Test Model: TE-IT-65

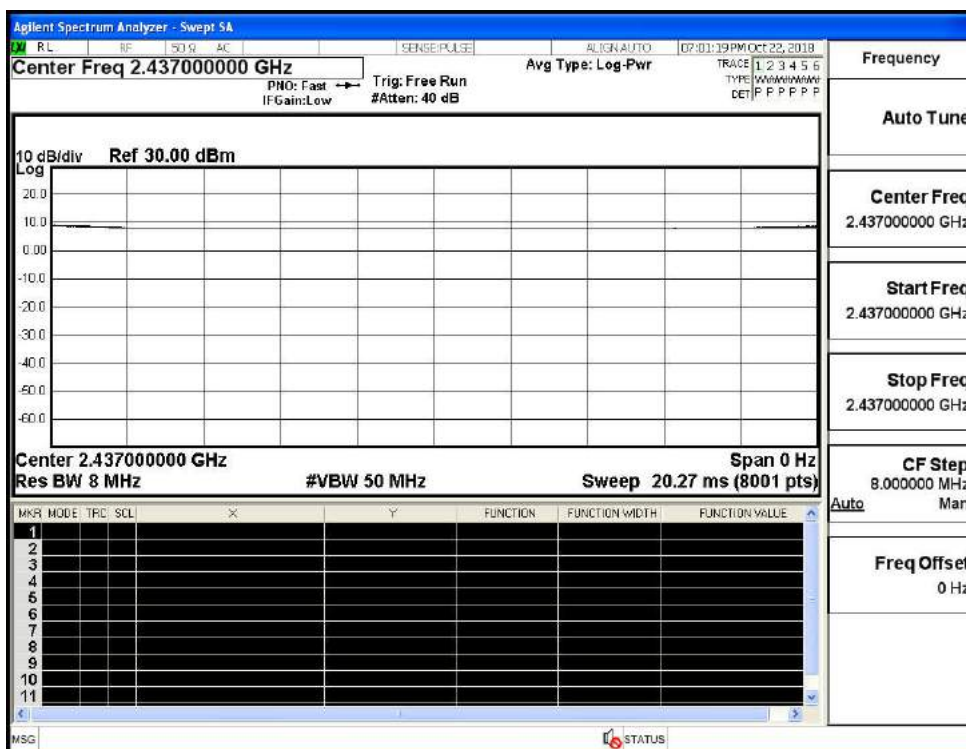
Environmental Conditions

Temperature:	23.7 ° C
Relative Humidity:	52.5%
ATM Pressure:	100.0 kPa
Test Engineer:	Wang Chuang
Supervised by:	Jayden.Zhuo

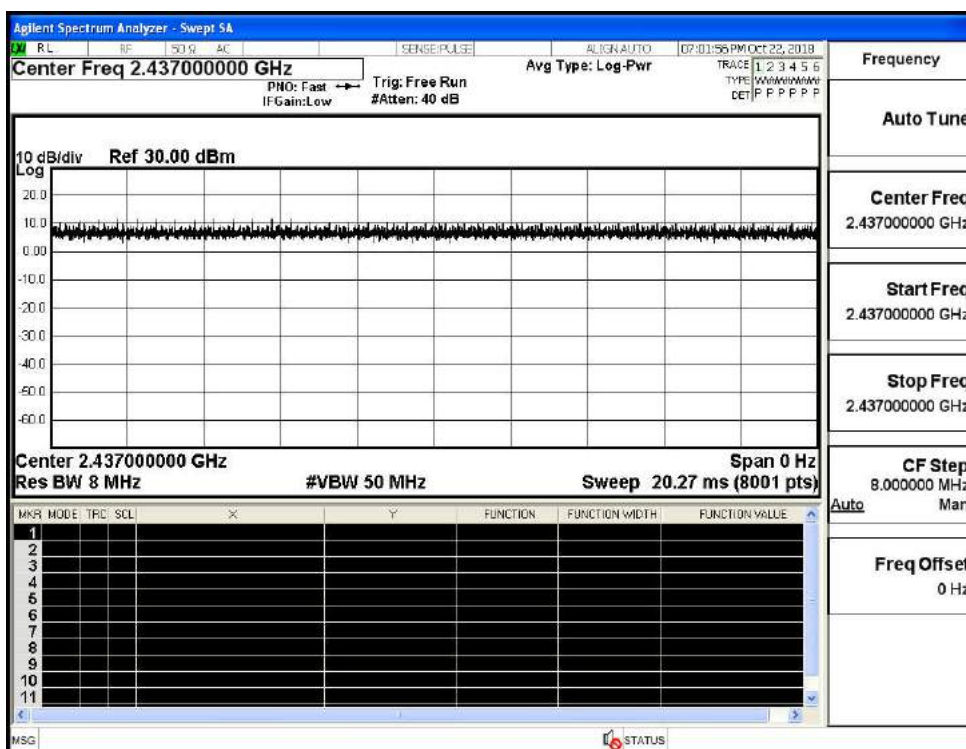
A.1 Duty Cycle

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

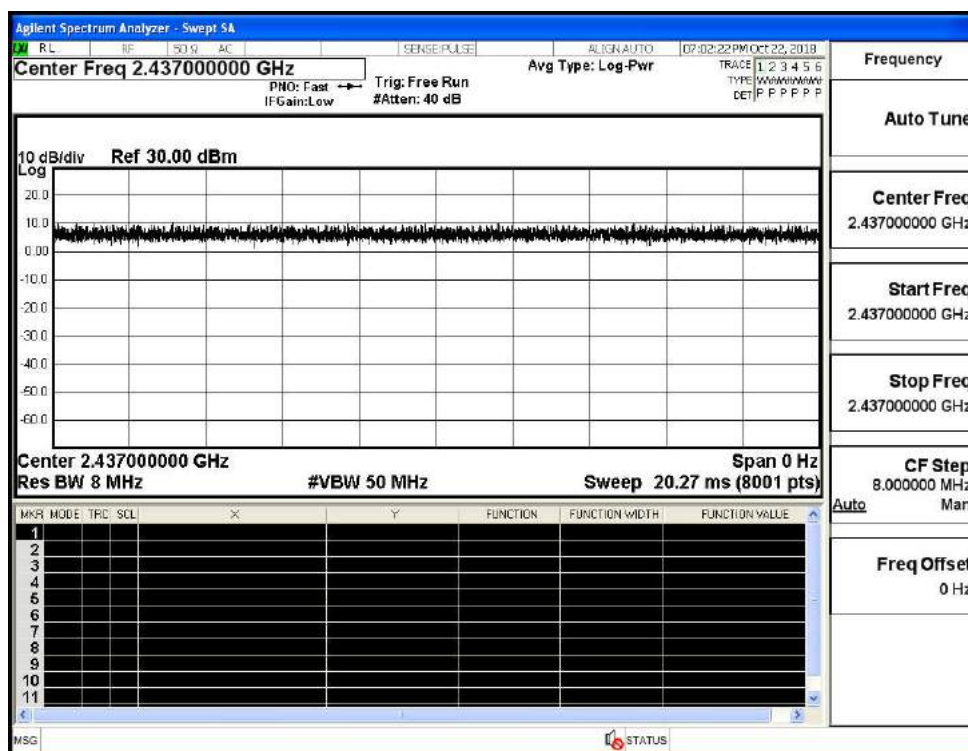
Duty Cycle_11B_2437_Ant1



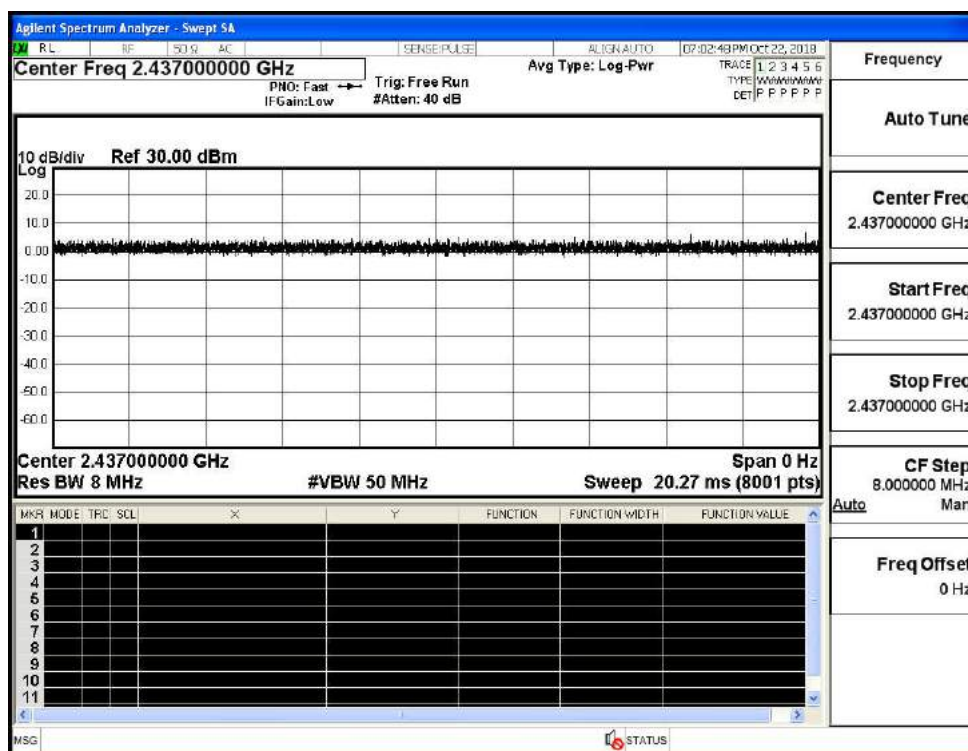
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1



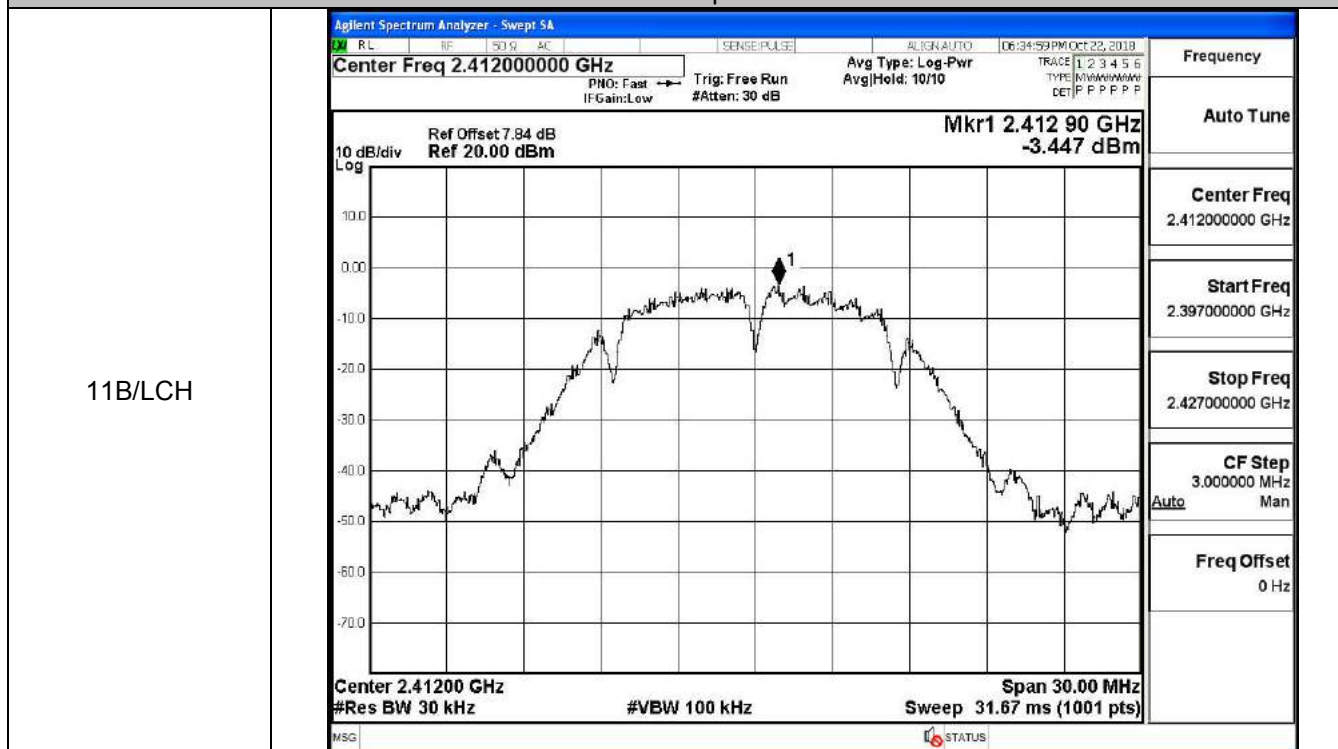
A.2 Maximum Conducted Output Power

Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	15.02	30	PASS
	MCH	15.86	30	PASS
	HCH	14.92	30	PASS
11G	LCH	17.70	30	PASS
	MCH	18.38	30	PASS
	HCH	17.85	30	PASS
11N20SISO	LCH	17.65	30	PASS
	MCH	18.16	30	PASS
	HCH	18.03	30	PASS
11N40SISO	LCH	15.70	30	PASS
	MCH	17.70	30	PASS
	HCH	14.22	30	PASS

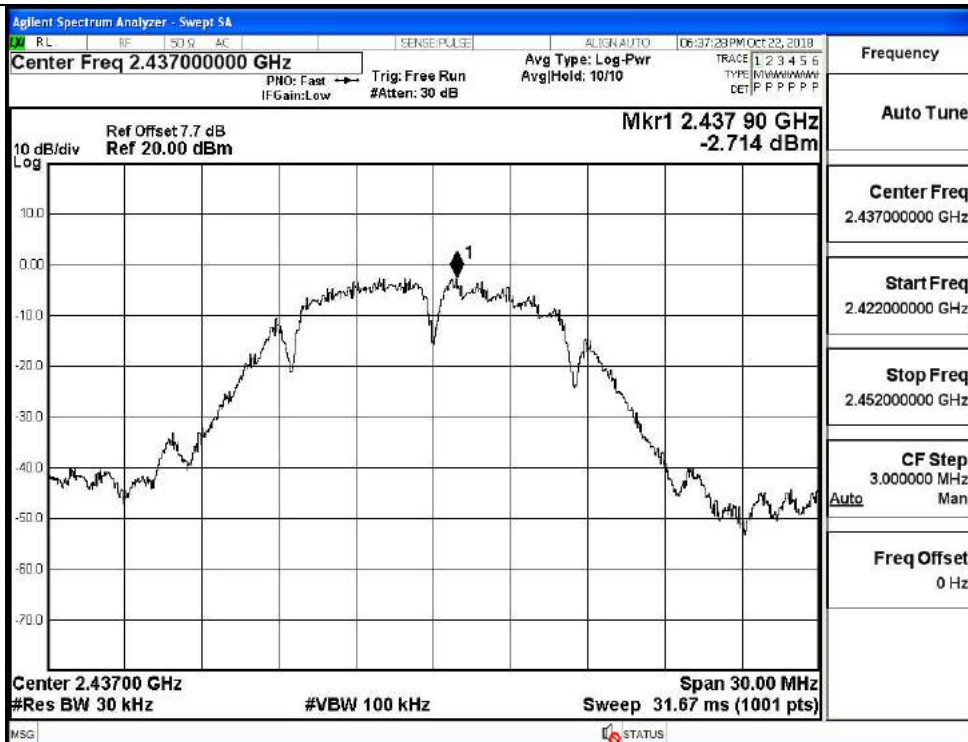
A.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/30KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-3.447	8	PASS
	MCH	-2.714	8	PASS
	HCH	-2.758	8	PASS
11G	LCH	-6.538	8	PASS
	MCH	-5.357	8	PASS
	HCH	-3.863	8	PASS
11N20SISO	LCH	-6.180	8	PASS
	MCH	-4.766	8	PASS
	HCH	-3.632	8	PASS
11N40SISO	LCH	-10.488	8	PASS
	MCH	-9.166	8	PASS
	HCH	-7.711	8	PASS

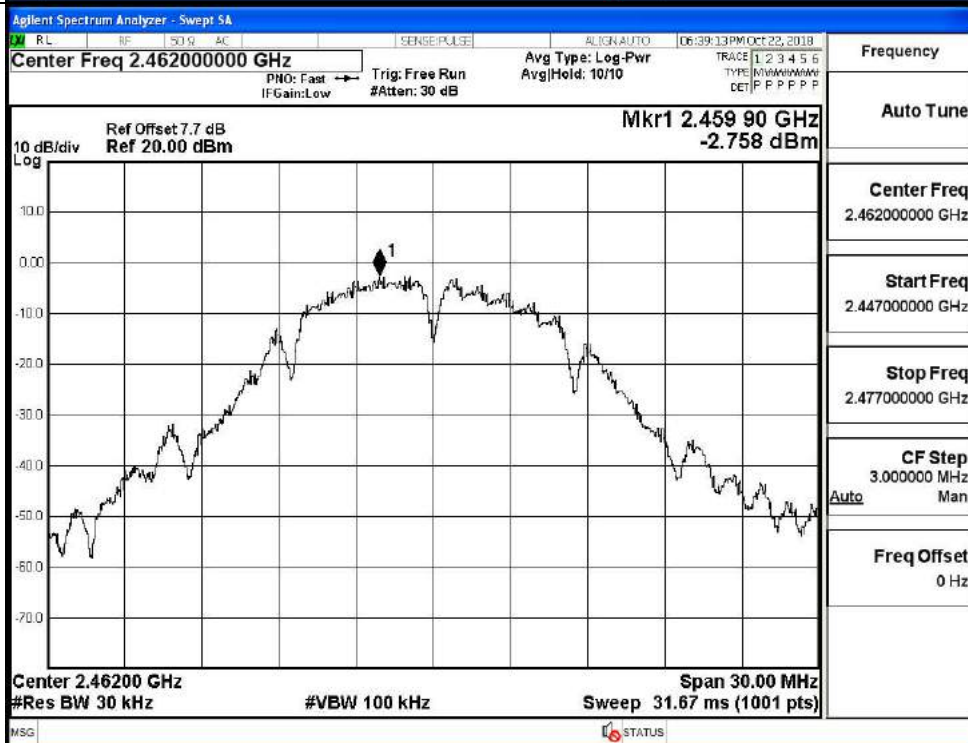
Test Graphs



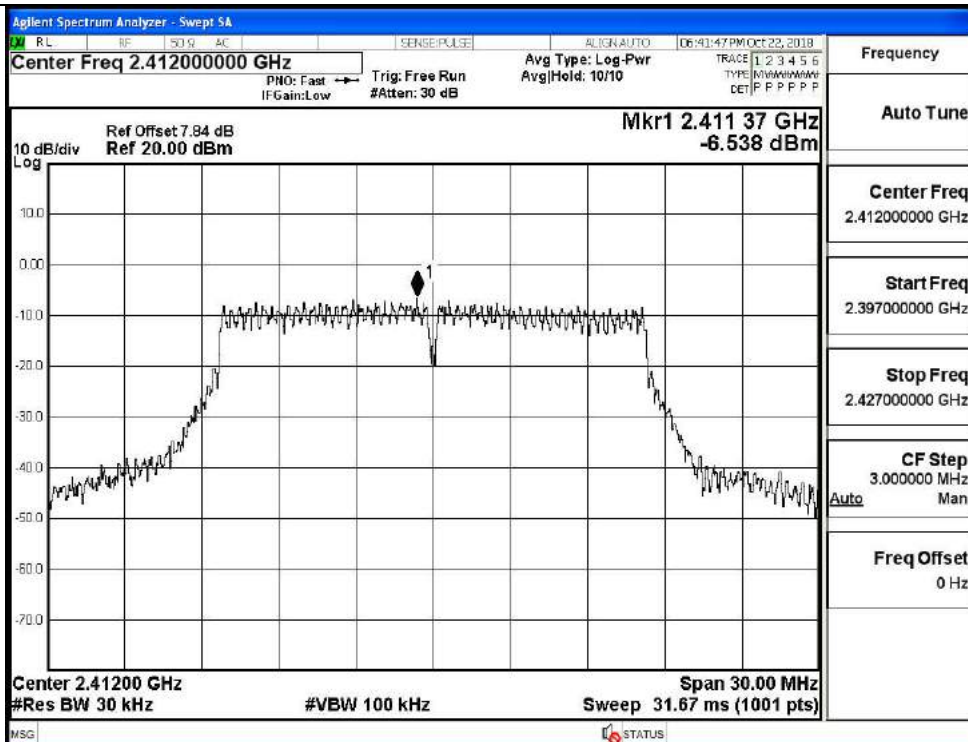
11B/MCH



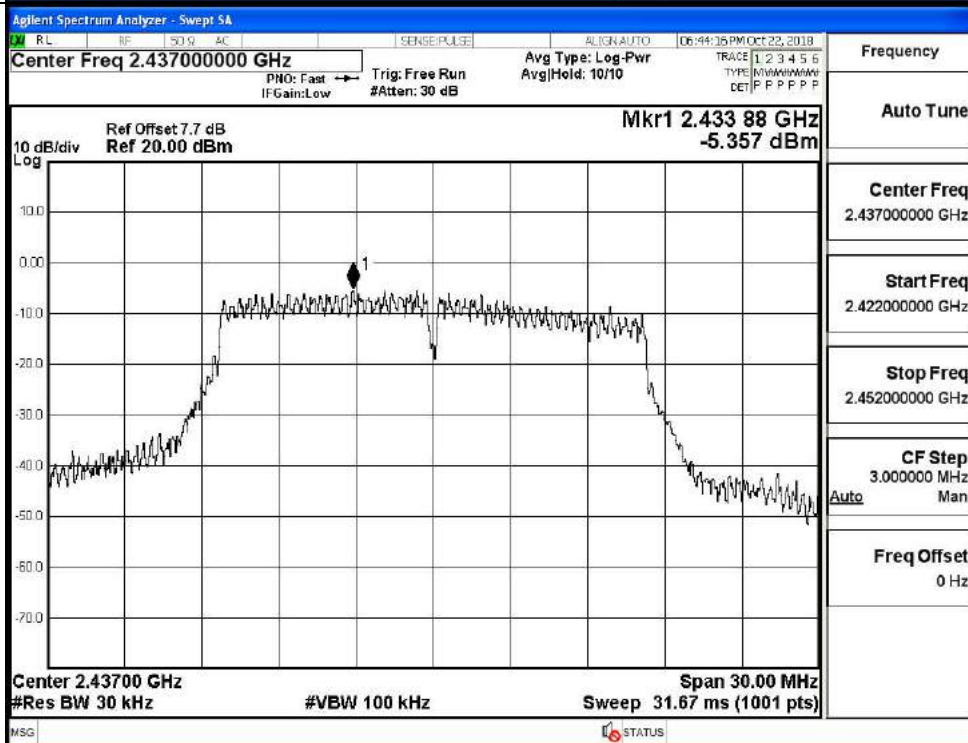
11B/HCH



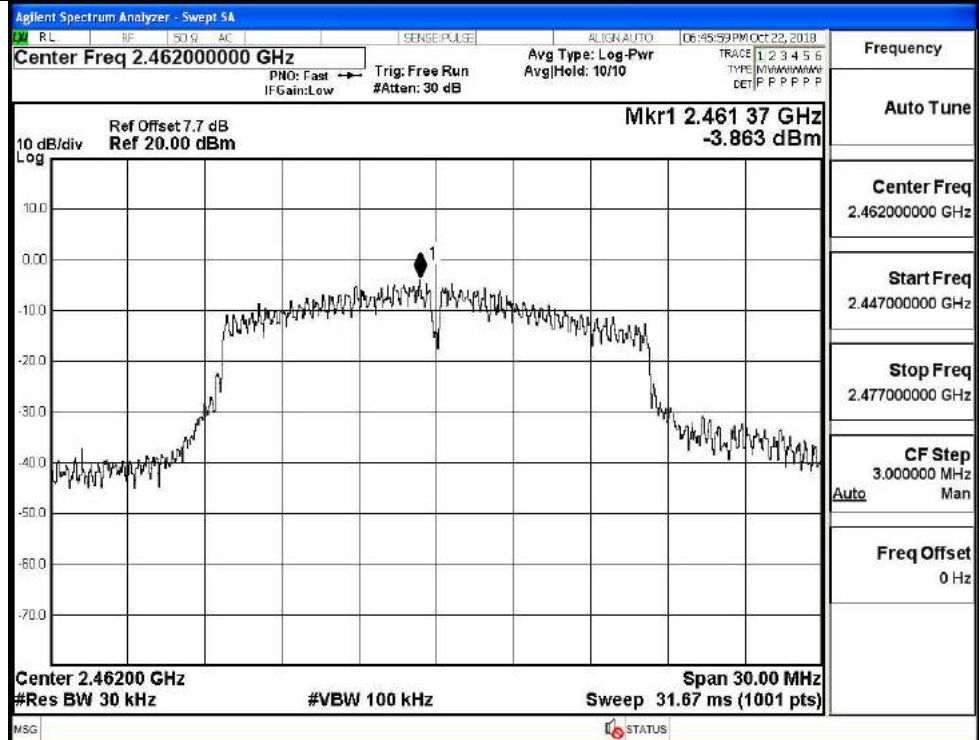
11G/LCH



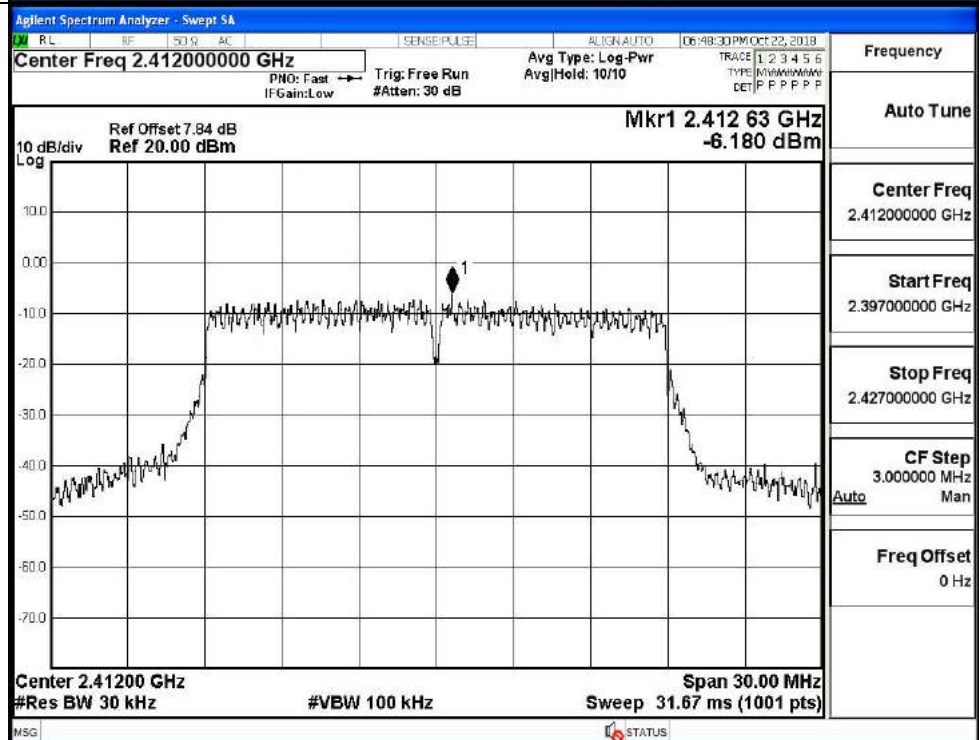
11G/MCH

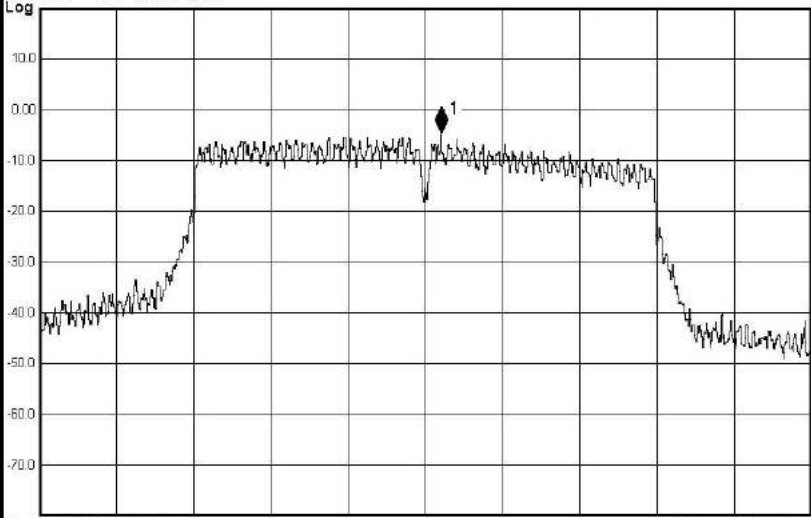
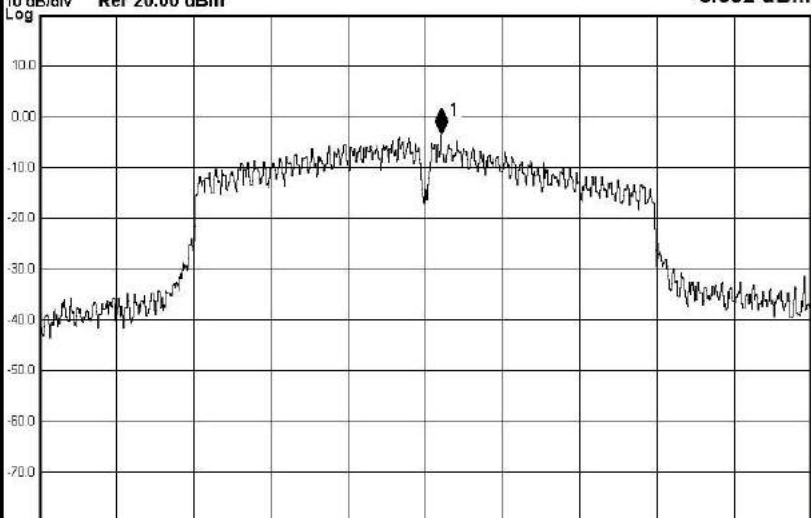


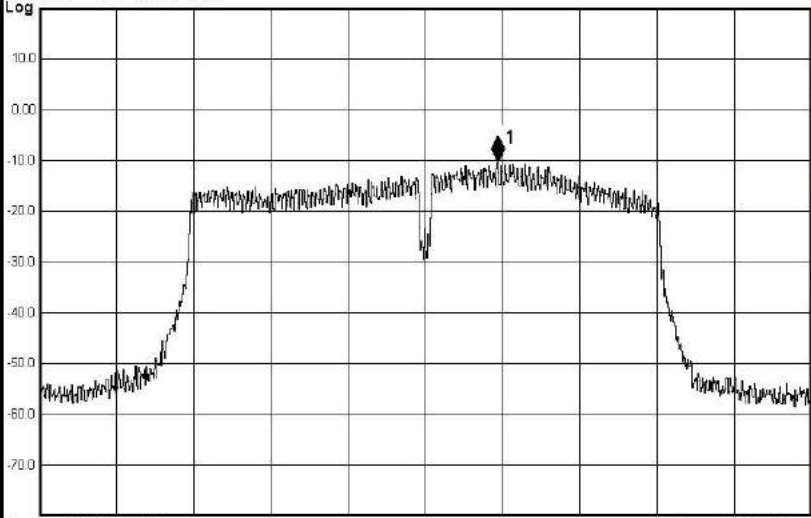
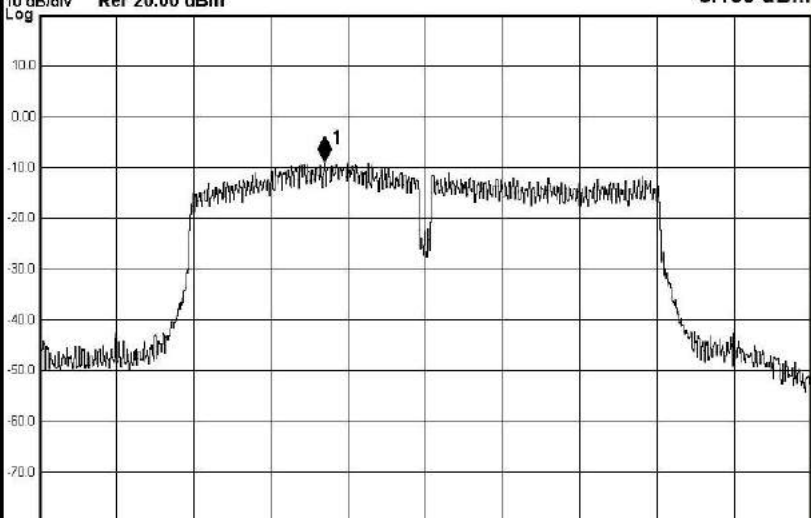
11G/HCH

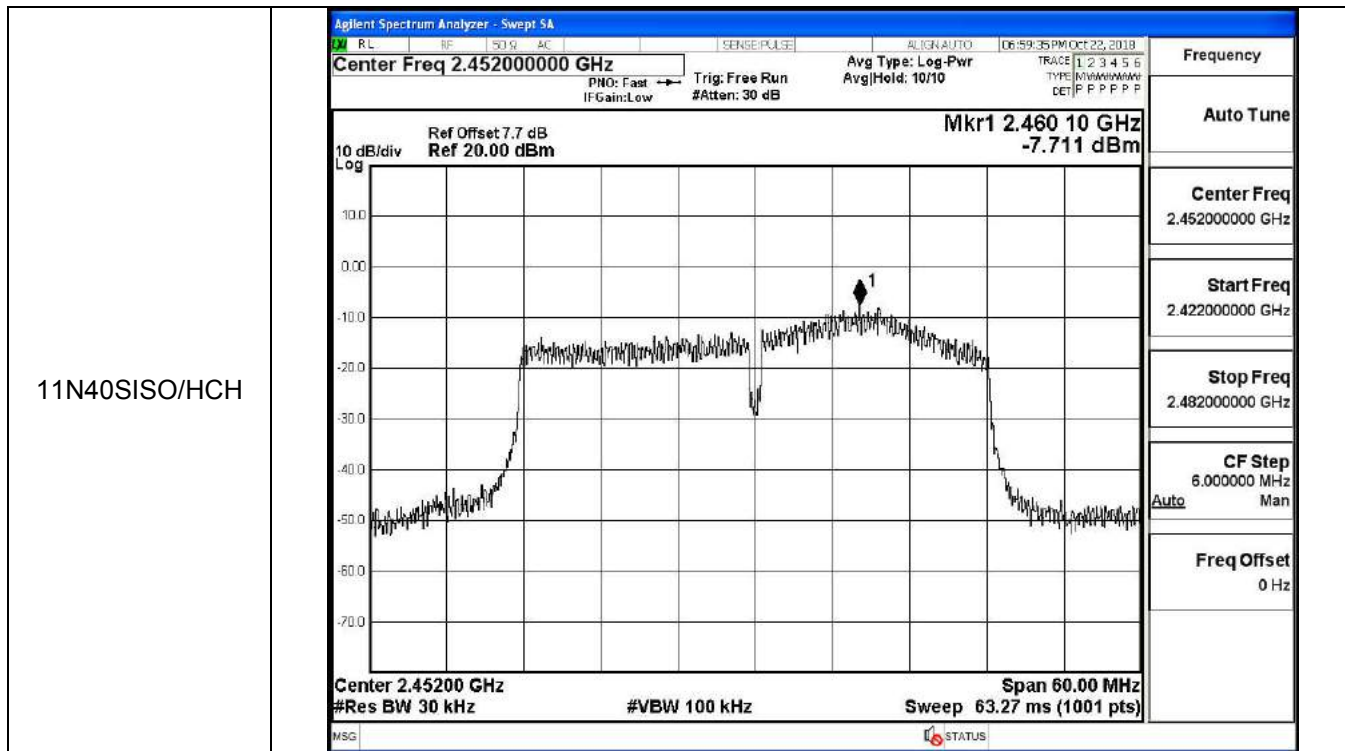


11N20SISO/LCH



11N20SISO/MCH	Agilent Spectrum Analyzer - Swept SA RL RF 50 Ω AC SENSE PULSE ALIGN AUTO 06:51:00 PM Oct 22, 2018 Center Freq 2.437000000 GHz PNO: Fast IF Gain: Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr Avg/Hold: 10/10 Ref Offset 7.7 dB Ref 20.00 dBm 10 dB/div Log Mkr1 2.437 63 GHz -4.766 dBm Center 2.43700 GHz #Res BW 30 kHz #VBW 100 kHz Span 30.00 MHz Sweep 31.67 ms (1001 pts) MSG STATUS  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
11N20SISO/HCH	Agilent Spectrum Analyzer - Swept SA RL RF 50 Ω AC SENSE PULSE ALIGN AUTO 06:52:54 PM Oct 22, 2018 Center Freq 2.462000000 GHz PNO: Fast IF Gain: Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr Avg/Hold: 10/10 Ref Offset 7.7 dB Ref 20.00 dBm 10 dB/div Log Mkr1 2.462 63 GHz -3.632 dBm Center 2.46200 GHz #Res BW 30 kHz #VBW 100 kHz Span 30.00 MHz Sweep 31.67 ms (1001 pts) MSG STATUS  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

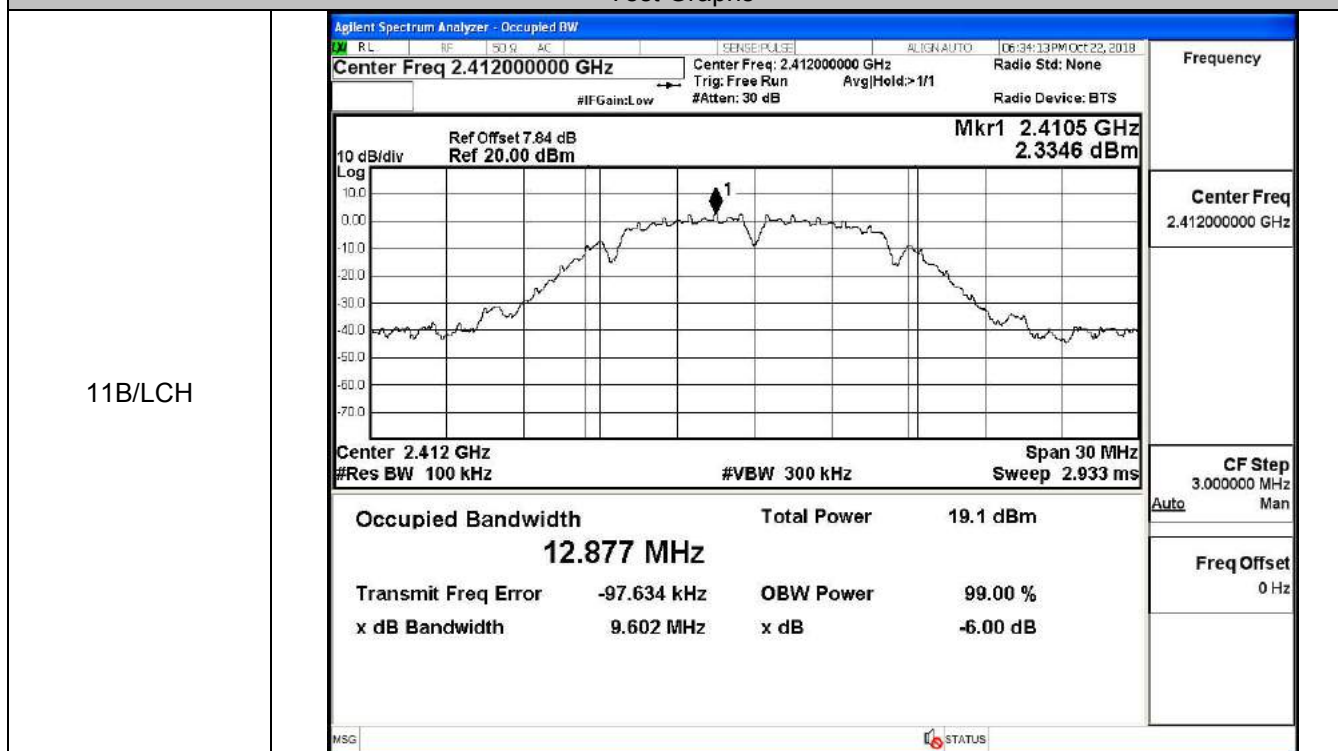
11N40SISO/LCH	Agilent Spectrum Analyzer - Swept SA RL RF 50.0 AC SENSE PULSE ALIGN AUTO 06:55:23 PM Oct 22, 2018 Center Freq 2.422000000 GHz PNO: Fast IF Gain: Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr Avg/Hold: 10/10 Ref Offset 7.7 dB Ref 20.00 dBm 10 dB/div Log Mkr1 2.427 64 GHz -10.488 dBm Center 2.42200 GHz #Res BW 30 kHz #VBW 100 kHz Span 60.00 MHz Sweep 63.27 ms (1001 pts) MSG STATUS  Frequency Auto Tune Center Freq 2.422000000 GHz Start Freq 2.392000000 GHz Stop Freq 2.452000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz
11N40SISO/MCH	Agilent Spectrum Analyzer - Swept SA RL RF 50.0 AC SENSE PULSE ALIGN AUTO 06:57:52 PM Oct 22, 2018 Center Freq 2.437000000 GHz PNO: Fast IF Gain: Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr Avg/Hold: 10/10 Ref Offset 7.7 dB Ref 20.00 dBm 10 dB/div Log Mkr1 2.429 20 GHz -9.166 dBm Center 2.43700 GHz #Res BW 30 kHz #VBW 100 kHz Span 60.00 MHz Sweep 63.27 ms (1001 pts) MSG STATUS  Frequency Auto Tune Center Freq 2.437000000 GHz Start Freq 2.407000000 GHz Stop Freq 2.467000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz



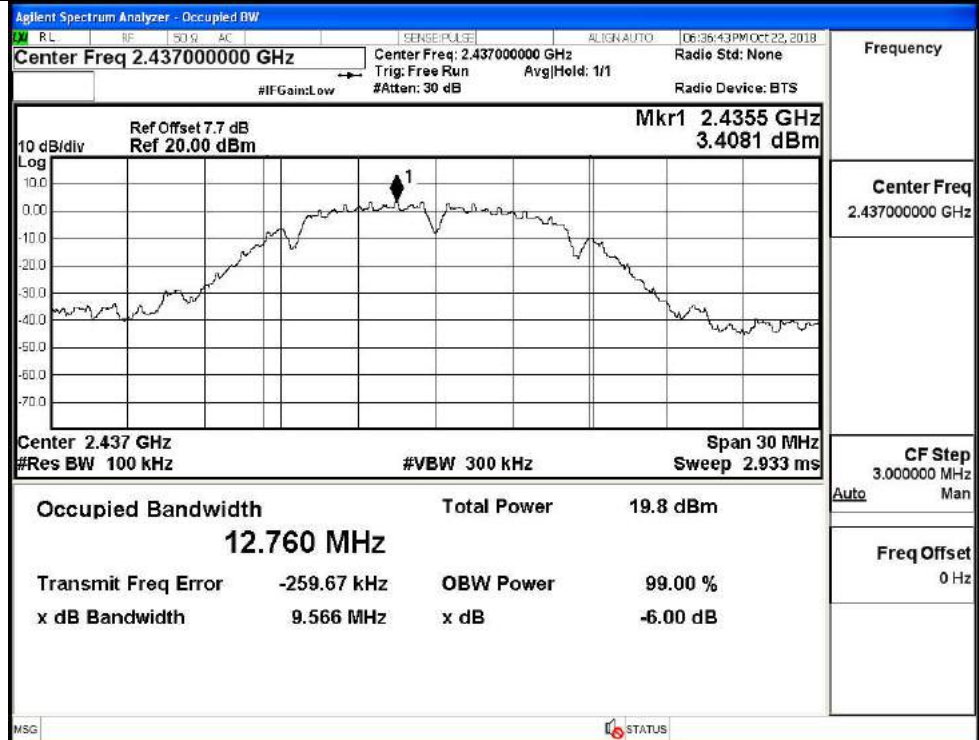
A.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	9.602	≥ 0.5	PASS
	MCH	9.566	≥ 0.5	PASS
	HCH	8.137	≥ 0.5	PASS
11G	LCH	16.58	≥ 0.5	PASS
	MCH	16.25	≥ 0.5	PASS
	HCH	12.31	≥ 0.5	PASS
11N20SISO	LCH	17.75	≥ 0.5	PASS
	MCH	17.34	≥ 0.5	PASS
	HCH	12.59	≥ 0.5	PASS
11N40SISO	LCH	35.10	≥ 0.5	PASS
	MCH	35.74	≥ 0.5	PASS
	HCH	17.89	≥ 0.5	PASS

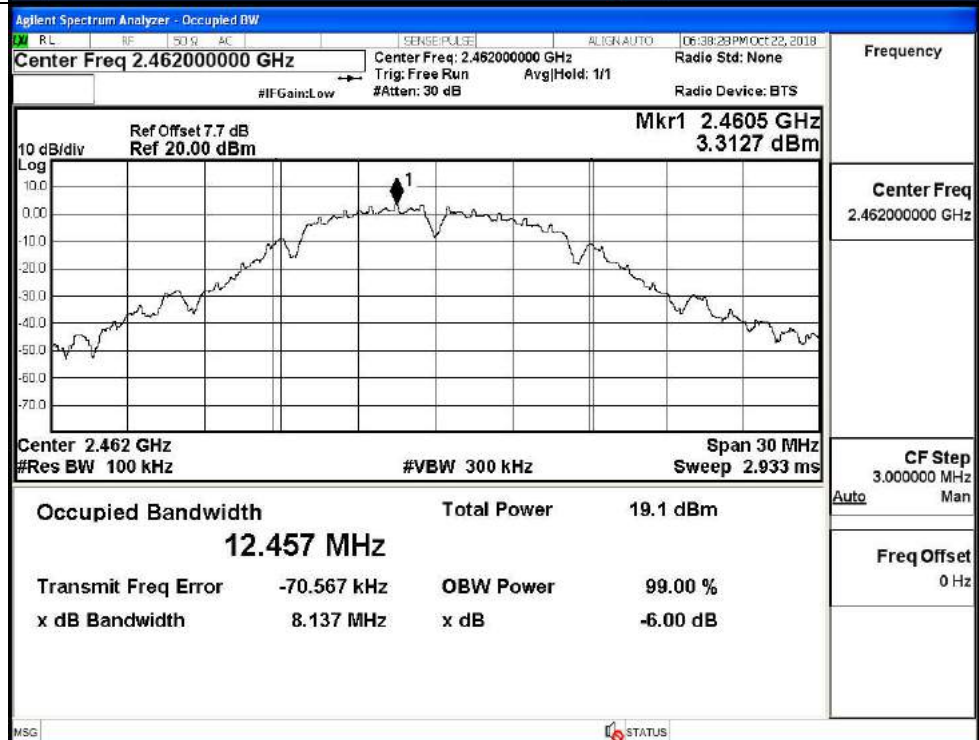
Test Graphs



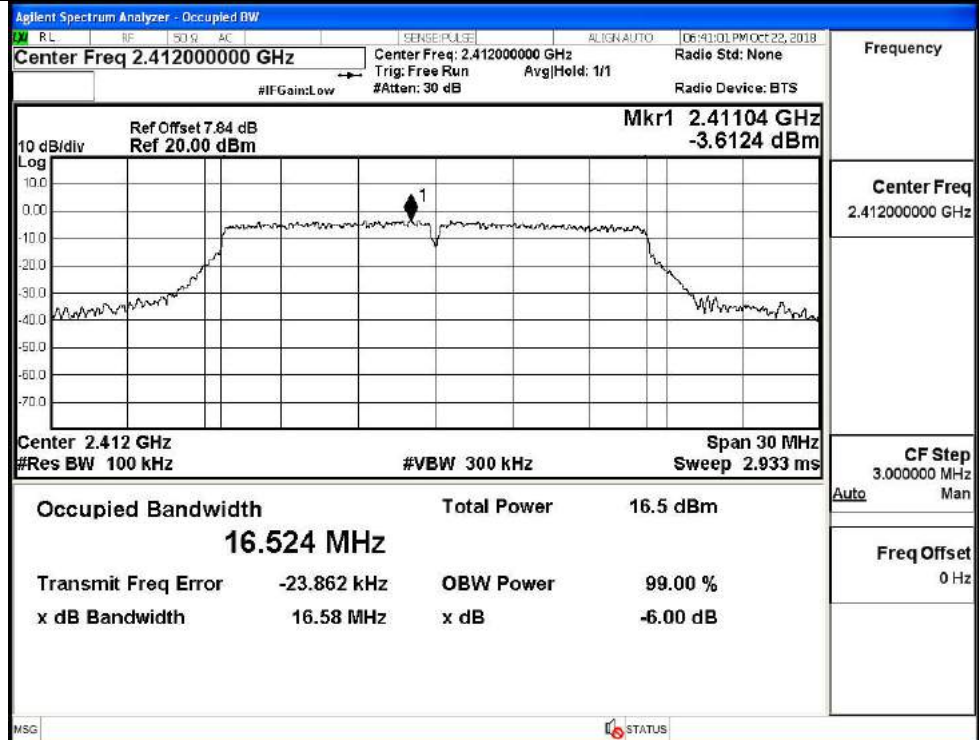
11B/MCH



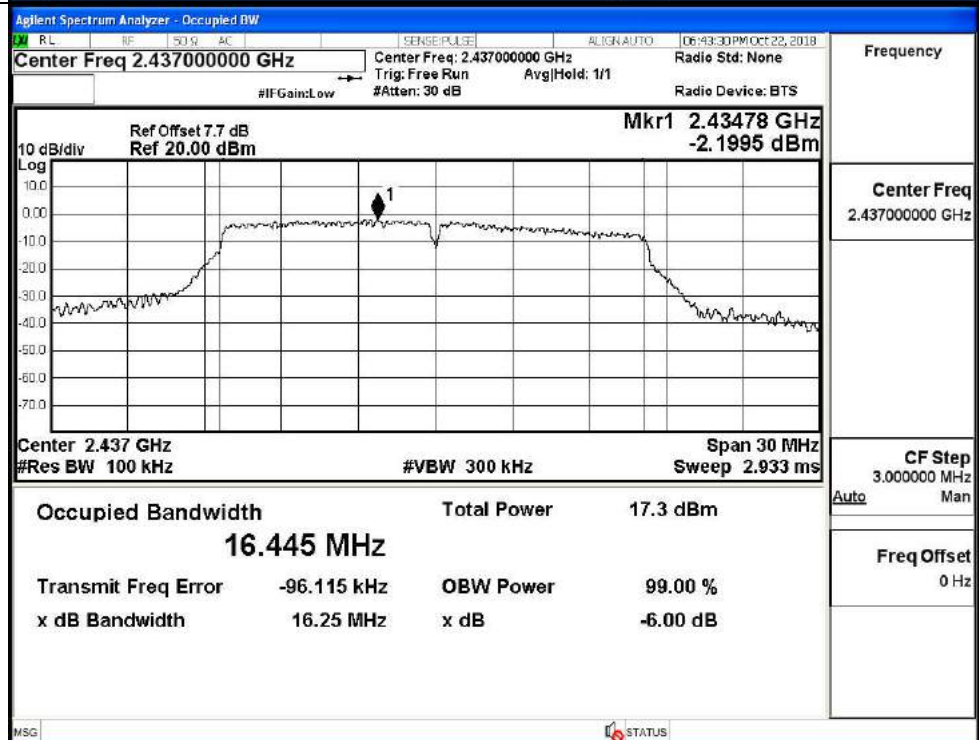
11B/HCH



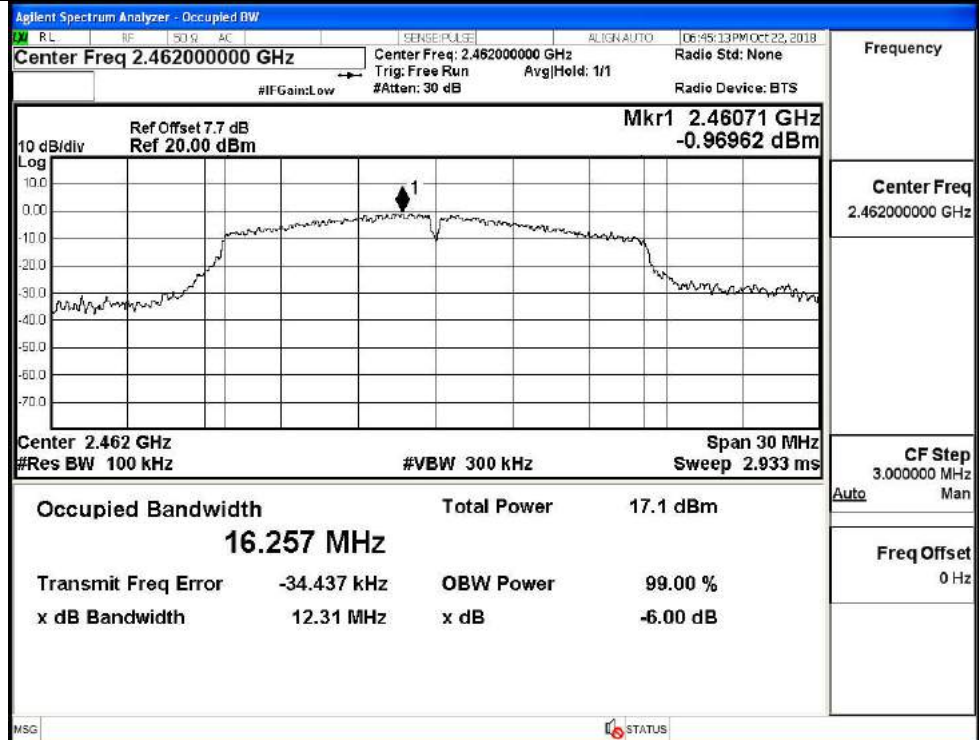
11G/LCH



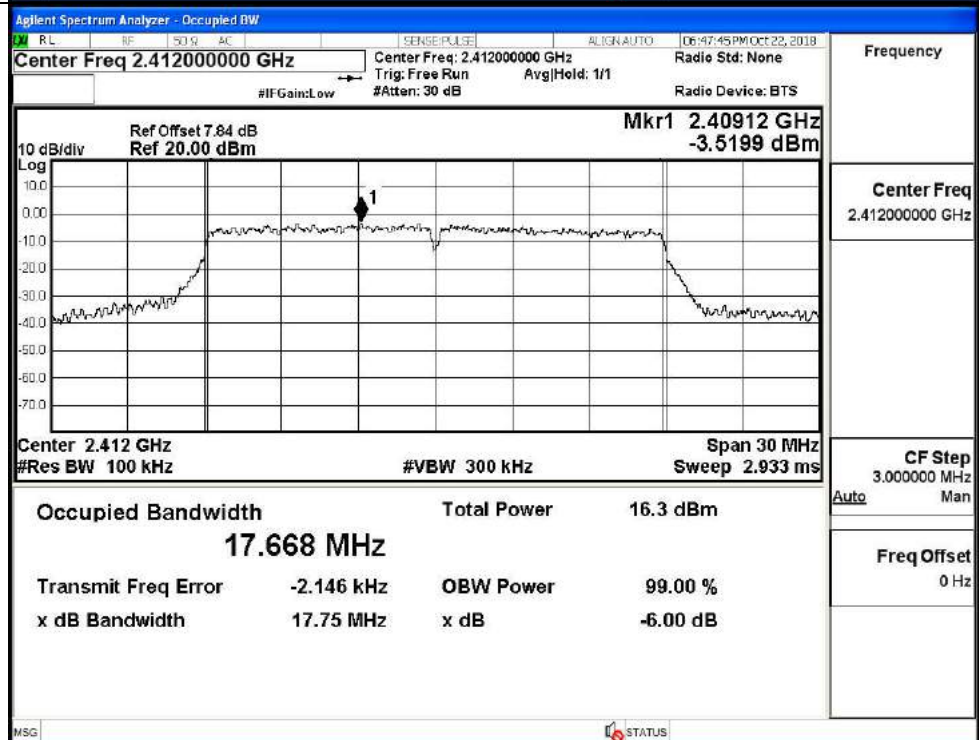
11G/MCH

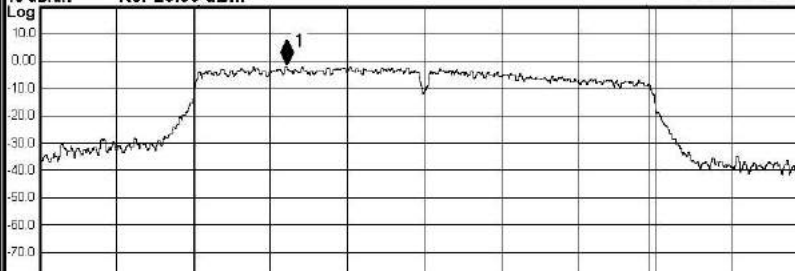
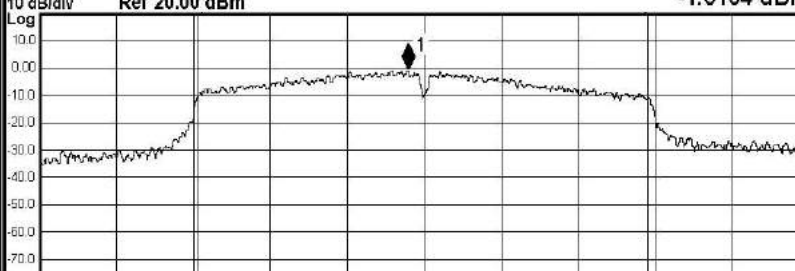


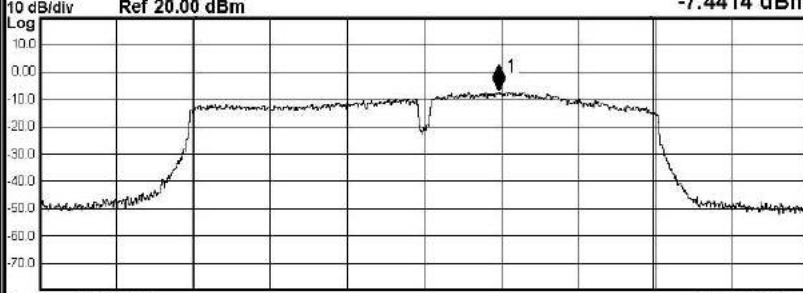
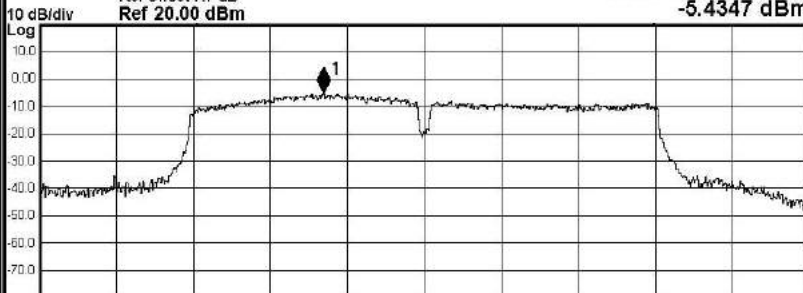
11G/HCH

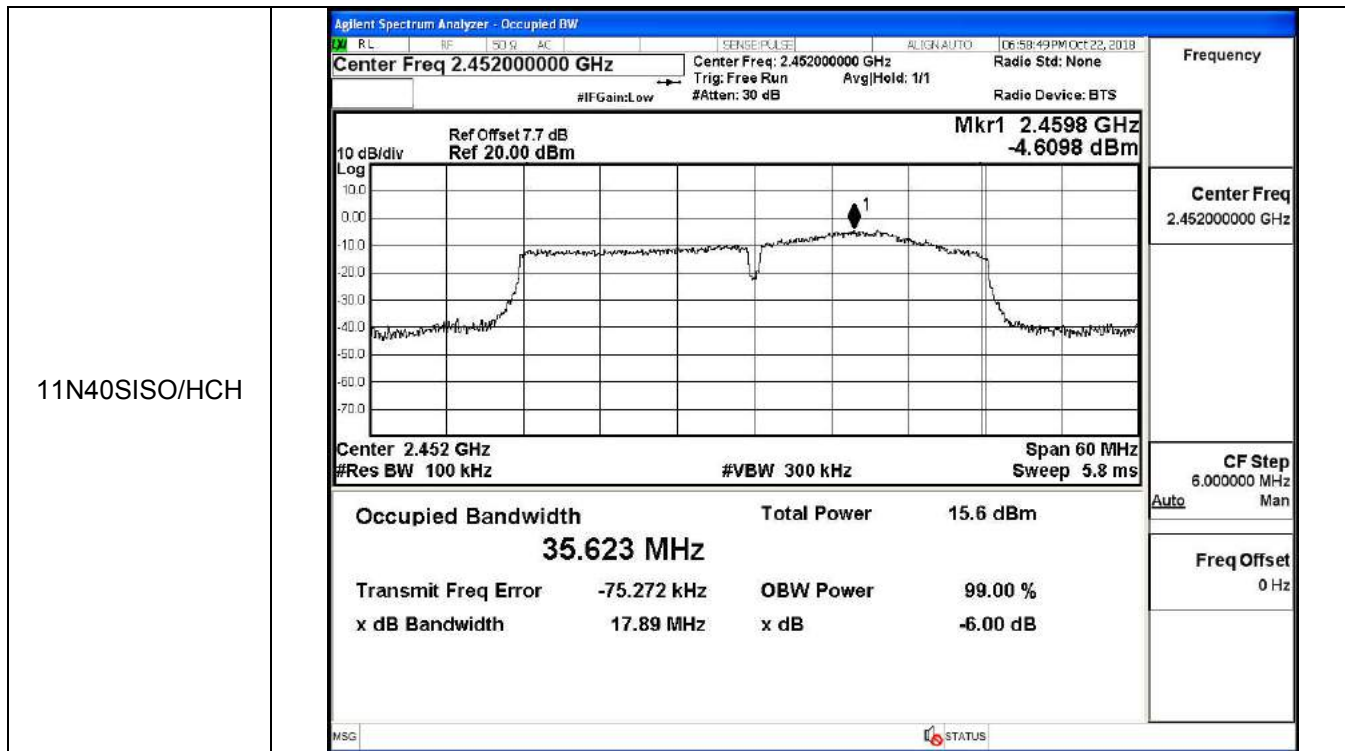


11N20SISO/LCH



11N20SISO/MCH	Agilent Spectrum Analyzer - Occupied BW Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Trig: Free Run Avg/Hold: 1/1 Radio Std: None Radio Device: BTS Ref Offset 7.7 dB Ref 20.00 dBm Mkr1 2.43163 GHz -2.0201 dBm  Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.595 MHz Total Power 17.4 dBm Transmit Freq Error -70.672 kHz OBW Power 99.00 % x dB Bandwidth 17.34 MHz x dB -6.00 dB MSG STATUS	Frequency Center Freq 2.437000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz
11N20SISO/HCH	Agilent Spectrum Analyzer - Occupied BW Center Freq 2.462000000 GHz Center Freq: 2.462000000 GHz Trig: Free Run Avg/Hold: 1/1 Radio Std: None Radio Device: BTS Ref Offset 7.7 dB Ref 20.00 dBm Mkr1 2.46137 GHz -1.0104 dBm  Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.418 MHz Total Power 17.1 dBm Transmit Freq Error -20.353 kHz OBW Power 99.00 % x dB Bandwidth 12.59 MHz x dB -6.00 dB MSG STATUS	Frequency Center Freq 2.462000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz

11N40SISO/LCH	Agilent Spectrum Analyzer - Occupied BW Center Freq 2.422000000 GHz Center Freq: 2.422000000 GHz Trig: Free Run #Atten: 30 dB Radio Std: None Radio Device: BTS Ref Offset 7.7 dB Ref 20.00 dBm Mkr1 2.42782 GHz -7.4414 dBm  Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 35.743 MHz Total Power 14.3 dBm Transmit Freq Error -64.545 kHz OBW Power 99.00 % x dB Bandwidth 35.10 MHz x dB -6.00 dB MSG STATUS	Frequency Center Freq 2.422000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz
11N40SISO/MCH	Agilent Spectrum Analyzer - Occupied BW Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Trig: Free Run #Atten: 30 dB Radio Std: None Radio Device: BTS Ref Offset 7.7 dB Ref 20.00 dBm Mkr1 2.42914 GHz -5.4347 dBm  Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 35.924 MHz Total Power 16.4 dBm Transmit Freq Error 83.809 kHz OBW Power 99.00 % x dB Bandwidth 35.74 MHz x dB -6.00 dB MSG STATUS	Frequency Center Freq 2.437000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz

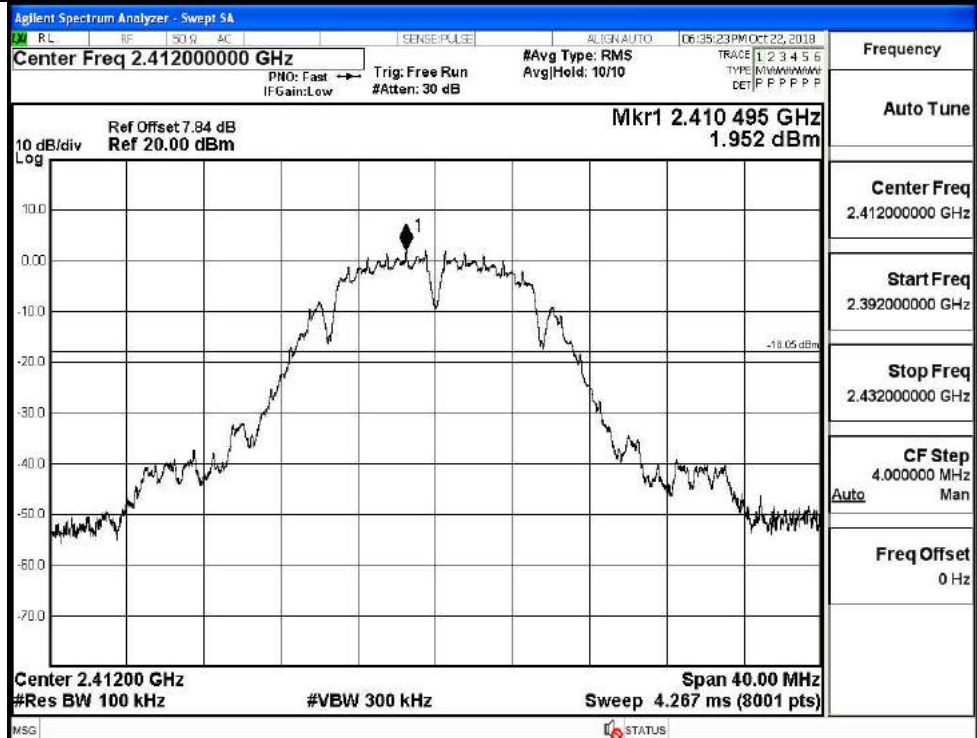


A.5 RF Conducted Spurious Emissions

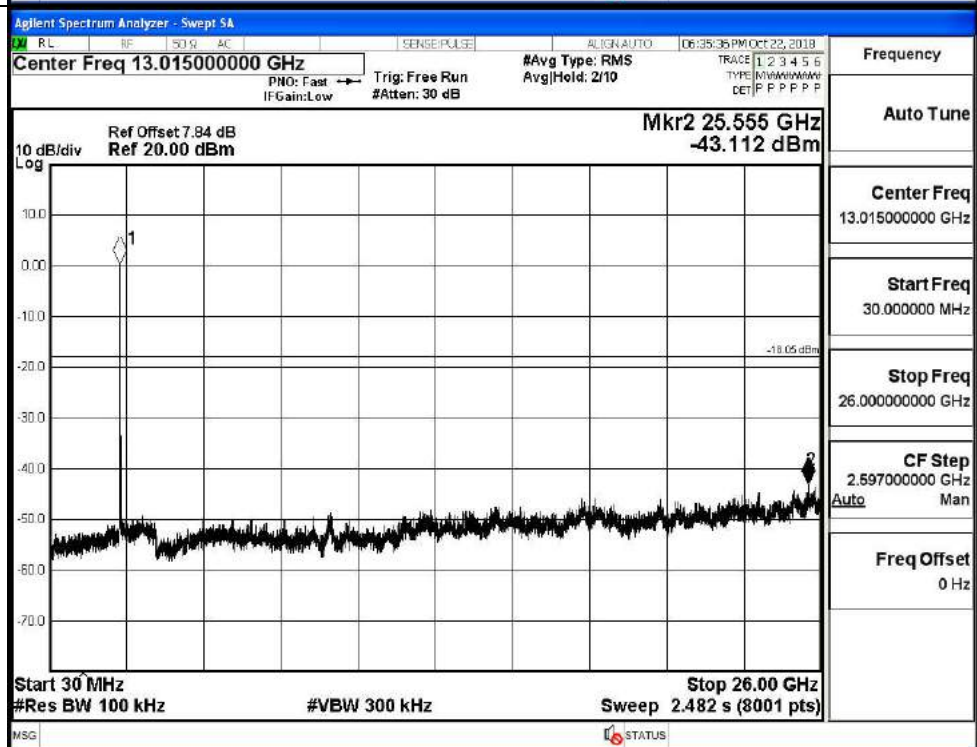
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	1.952	-43.112	-18.048	PASS
	MCH	3.215	-44.490	-16.785	PASS
	HCH	3.328	-44.263	-16.672	PASS
11G	LCH	-3.822	-44.094	-23.822	PASS
	MCH	-2.405	-42.959	-22.405	PASS
	HCH	-1.464	-44.289	-21.464	PASS
11N20 SISO	LCH	-3.659	-42.744	-23.659	PASS
	MCH	-1.846	-44.330	-21.846	PASS
	HCH	-0.898	-44.193	-20.898	PASS
11N40 SISO	LCH	-7.559	-44.324	-27.559	PASS
	MCH	-5.513	-44.817	-25.513	PASS
	HCH	-5.551	-44.404	-25.551	PASS

11B LCH Graphs

Pref/11B/LCH

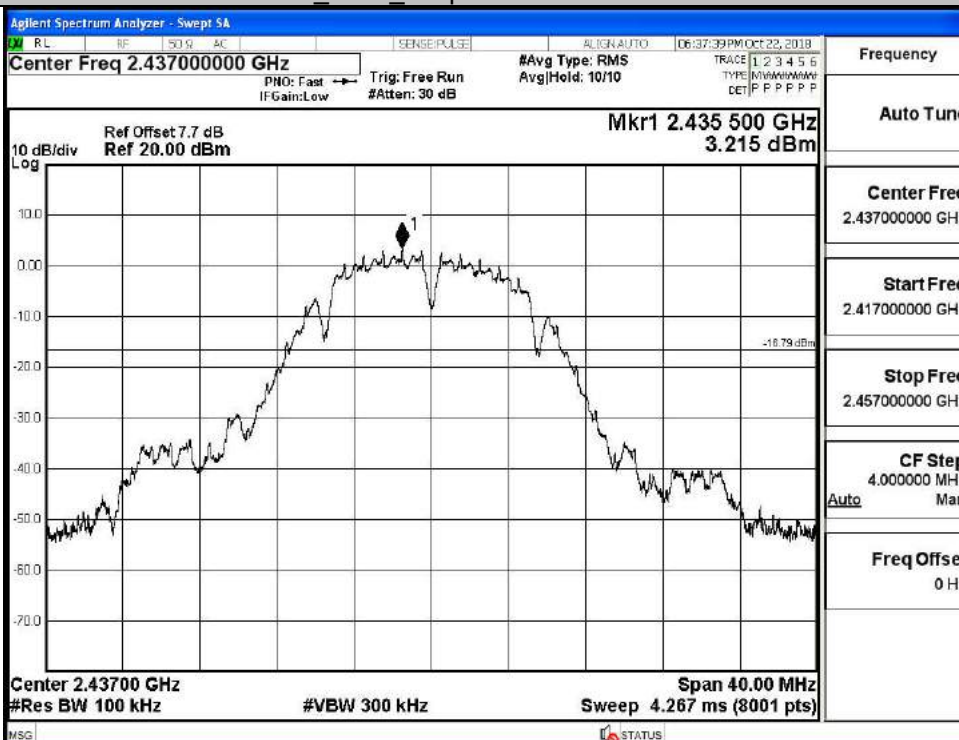


Puw/11B/LCH

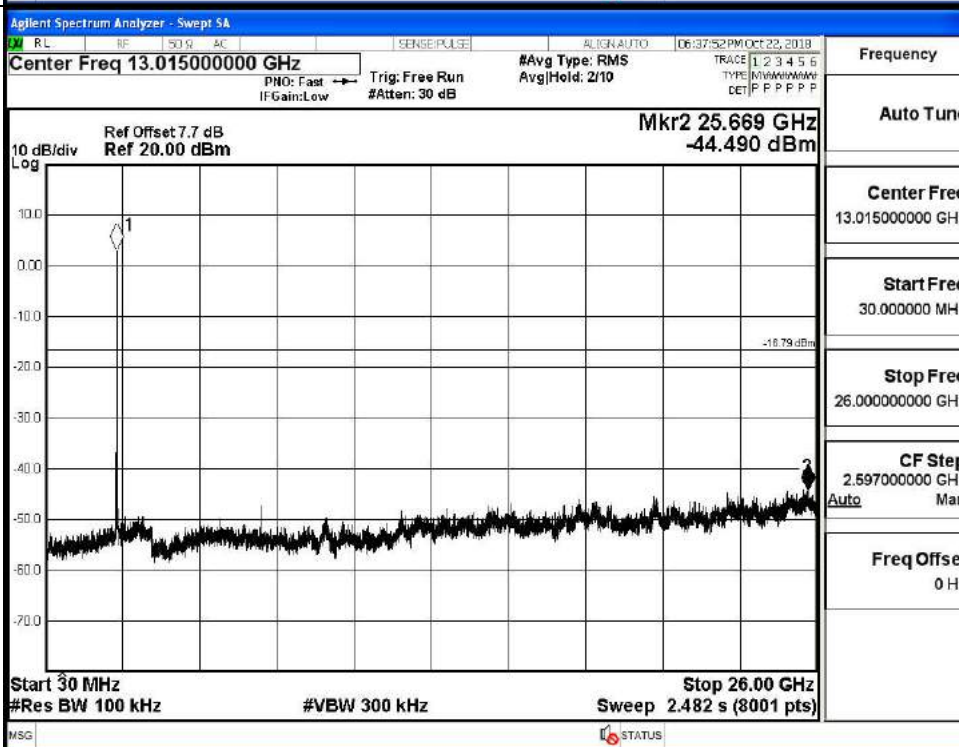


11B_MCH_Graphs

Pref/11B/MCH

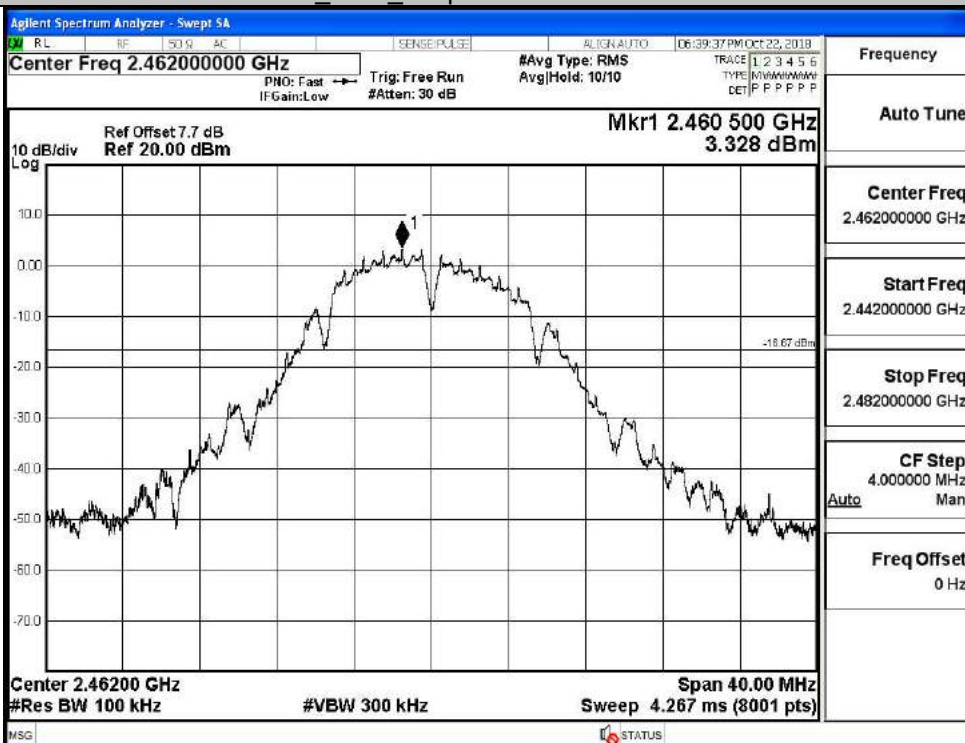


Puw/11B/MCH

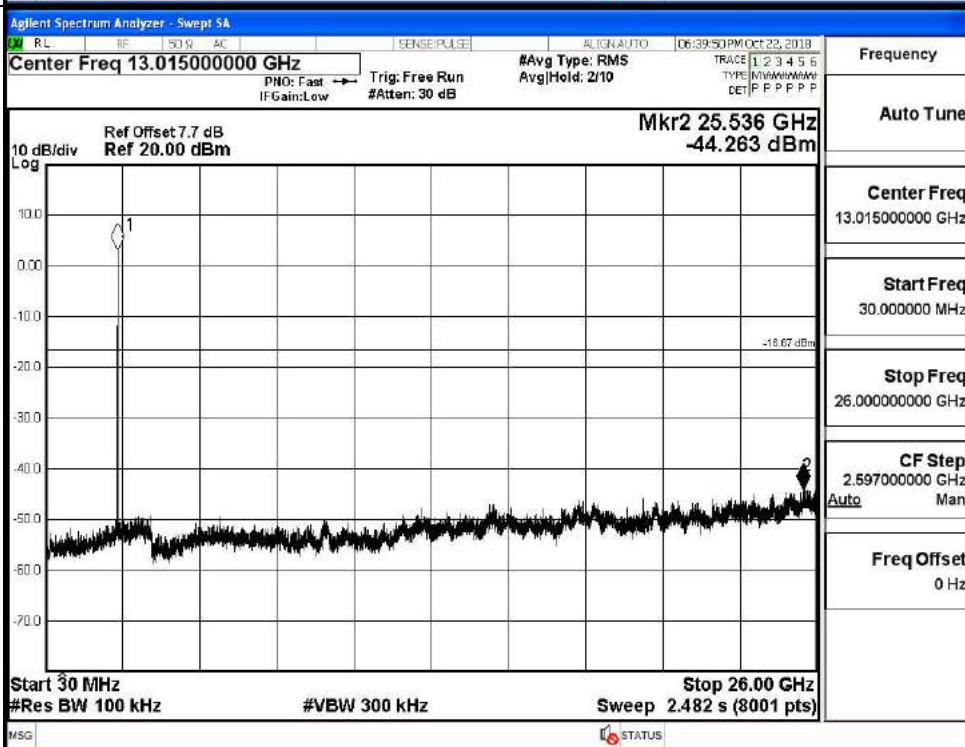


11B_HCH_Graphs

Pref/11B/HCH

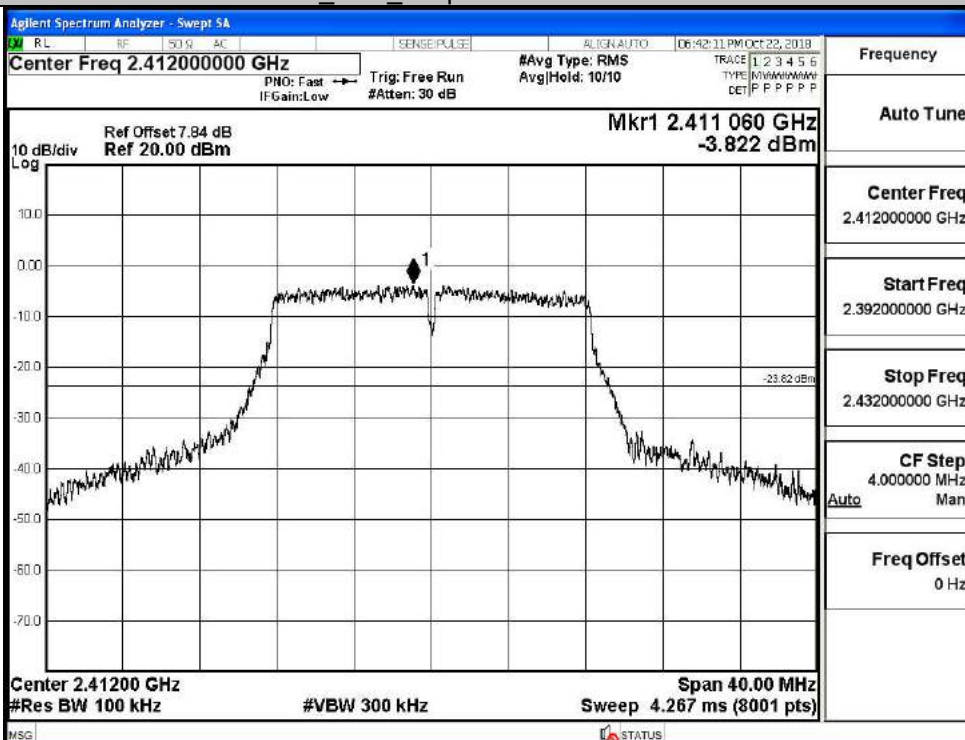


Puw/11B/HCH

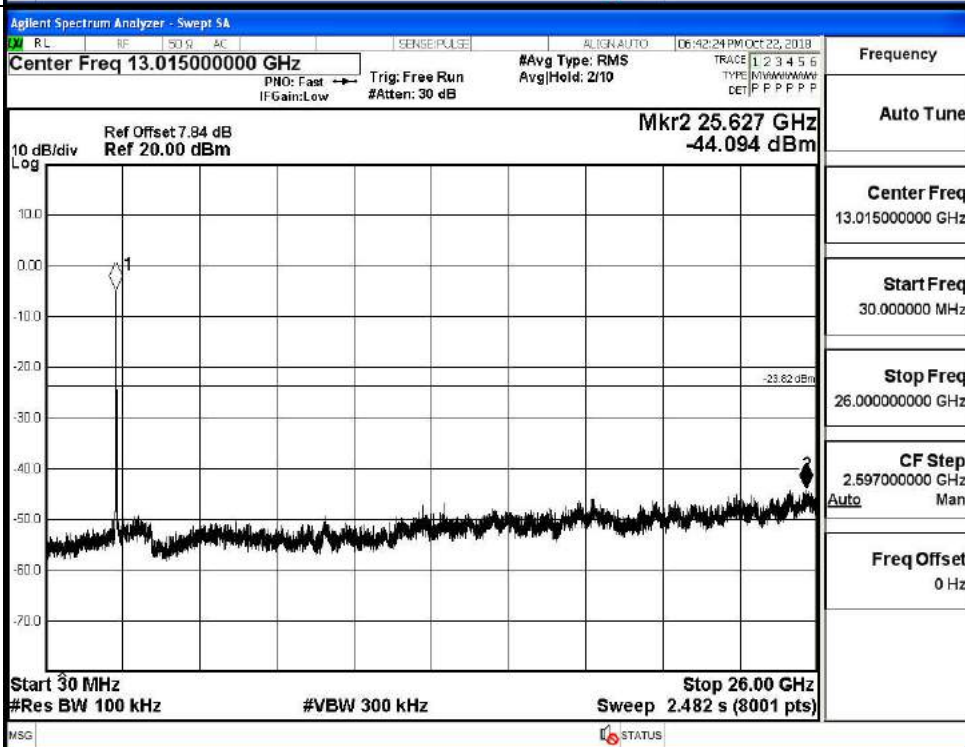


11G_LCH_Graphs

Pref/11G/LCH

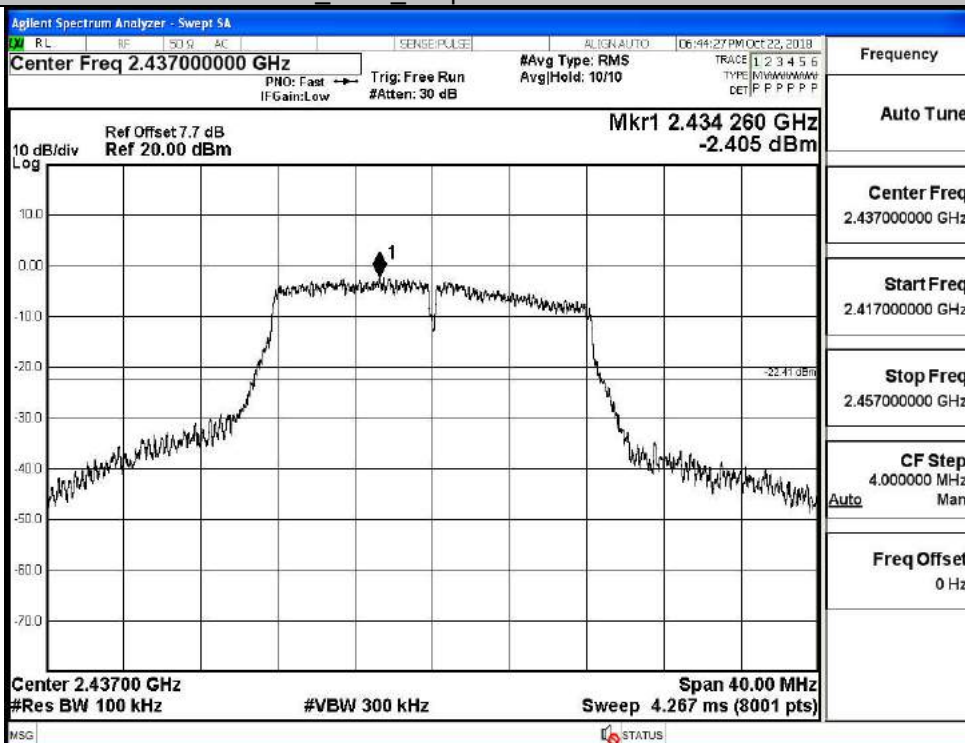


Puw/11G/LCH

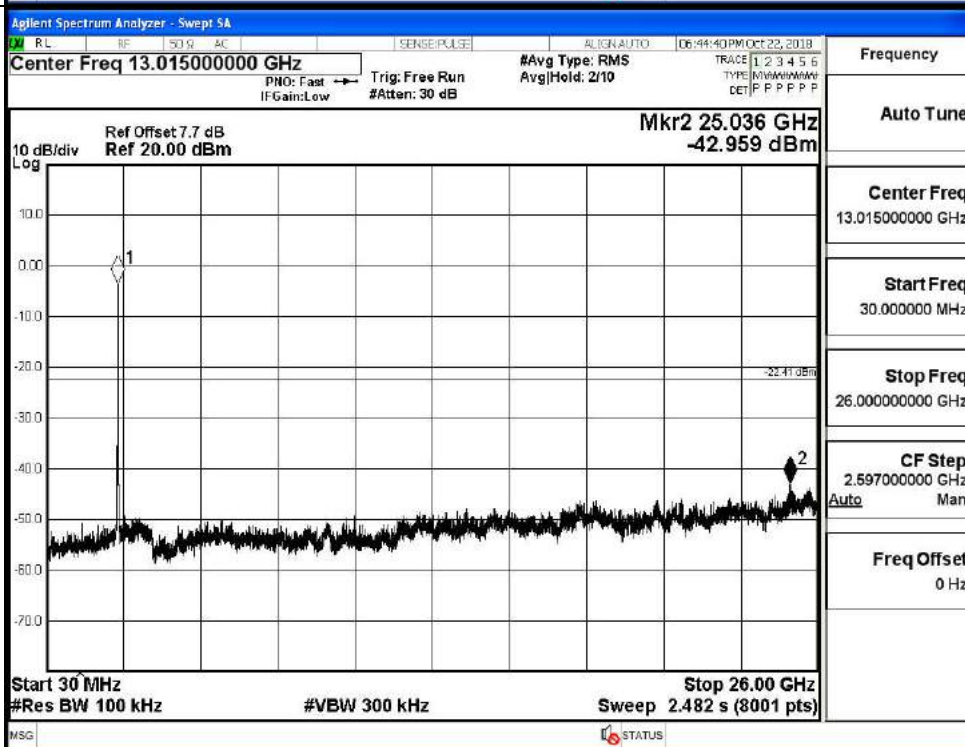


11G_MCH_Graphs

Pref/11G/MCH

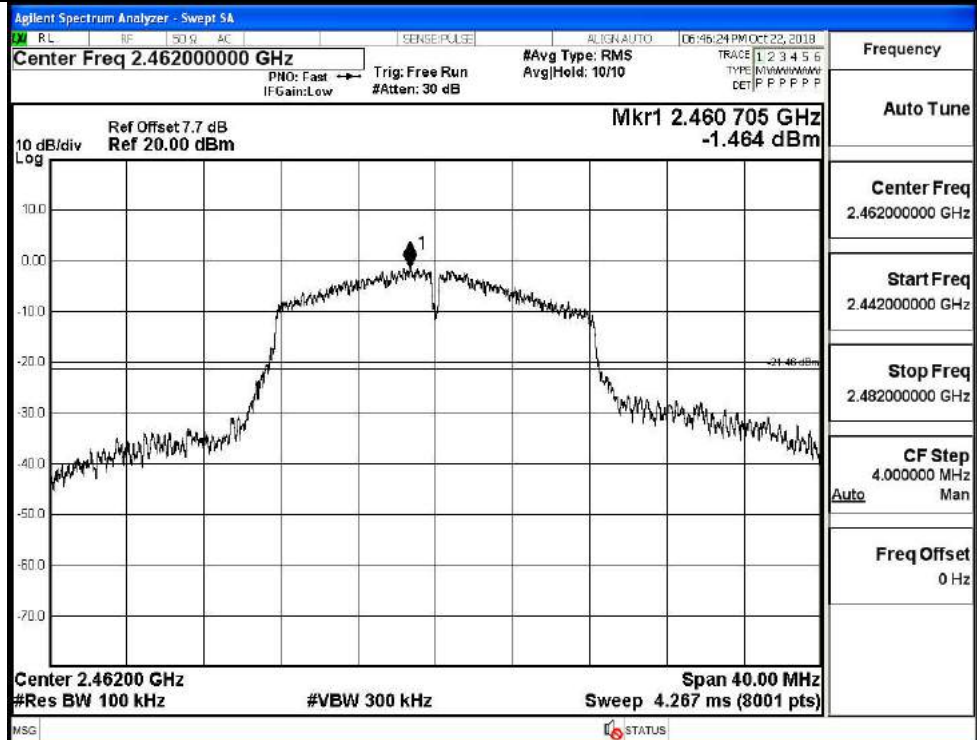


Puw/11G/MCH

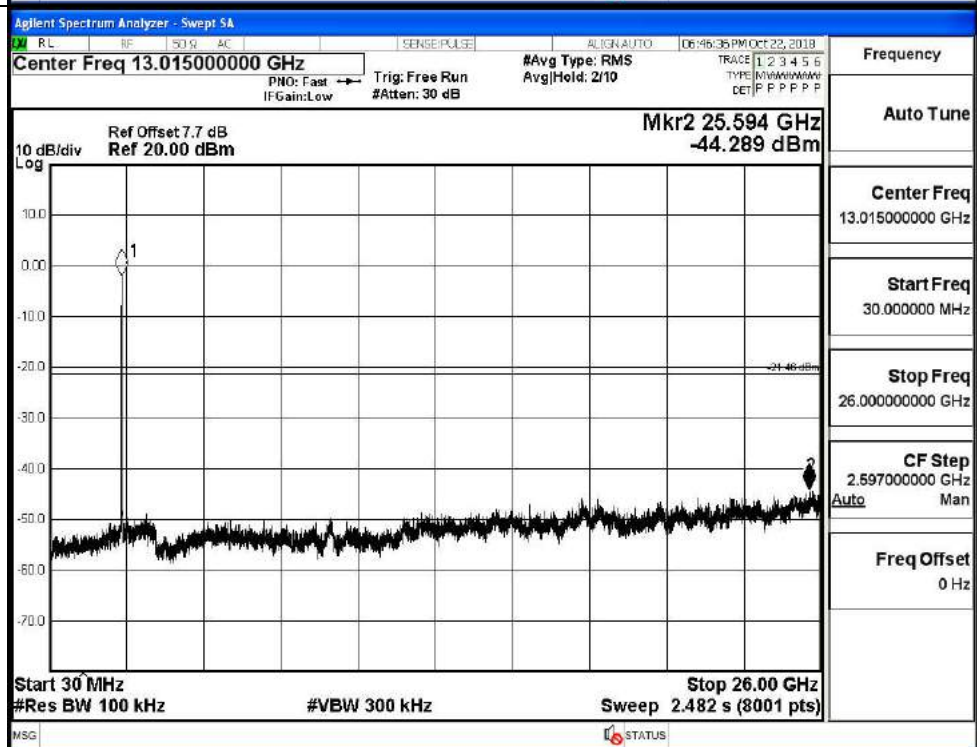


11G HCH Graphs

Pref/11G/HCH

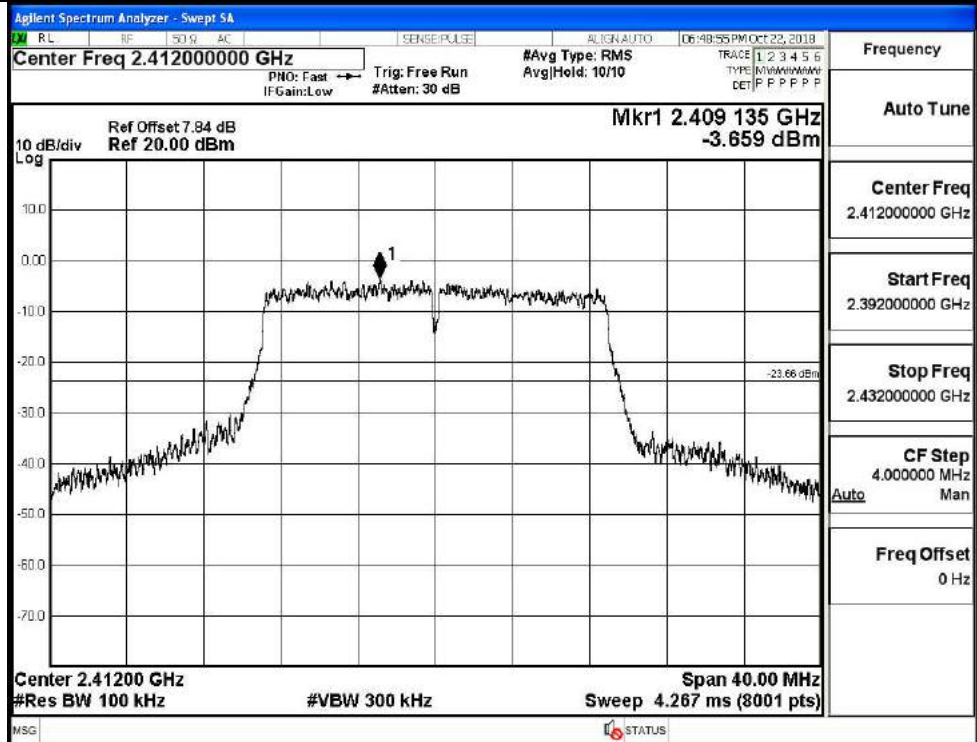


Puw/11G/HCH

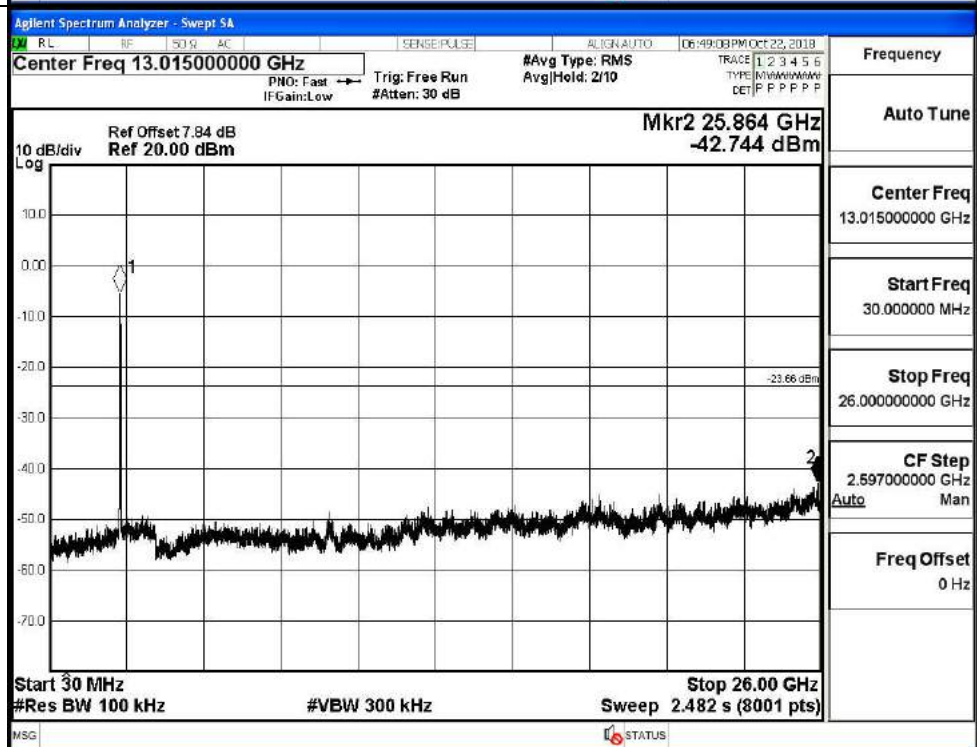


11N20SISO LCH_Graphs

Pref/11N20SIS
O/LCH

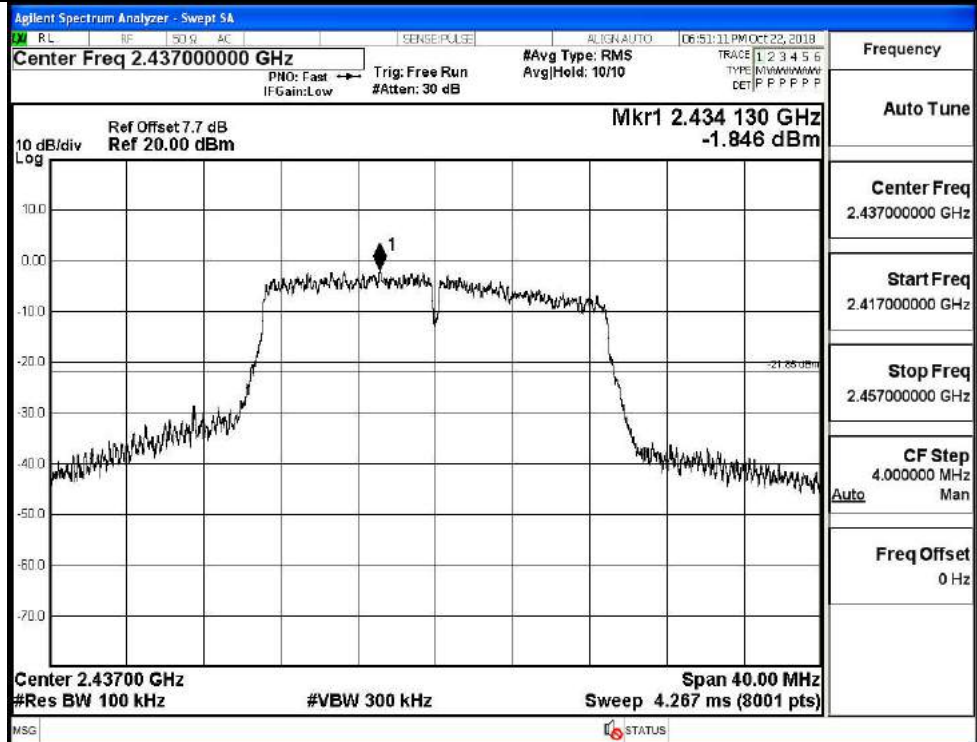


Puw/11N20
SISO/LCH

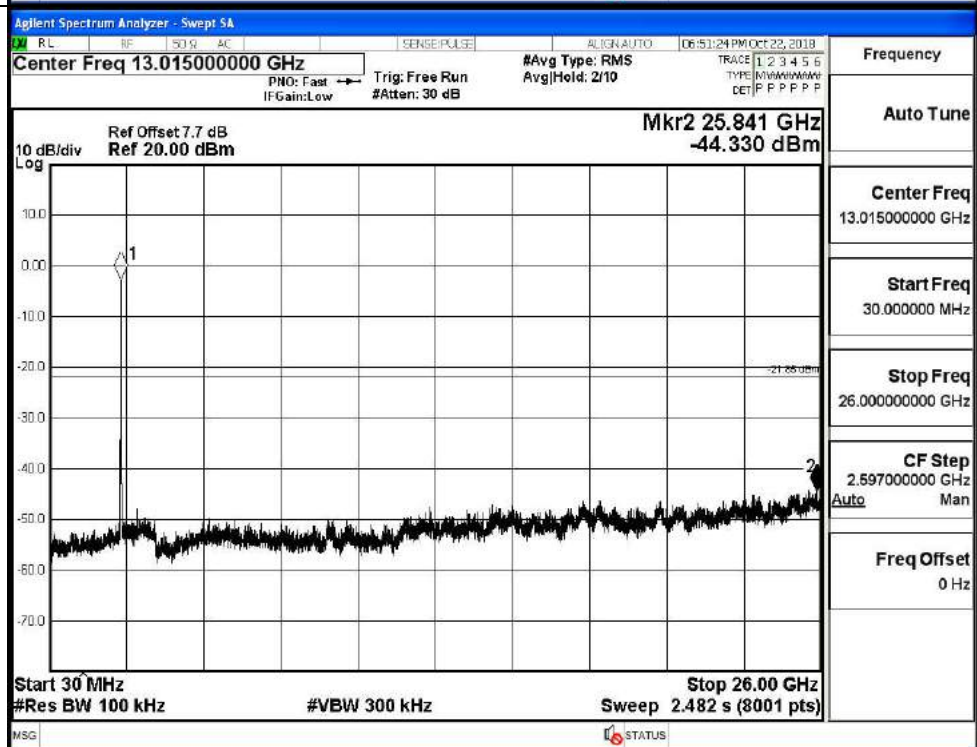


11N20SISO_MCH_Graphs

Pref/11N20
SISO/MCH

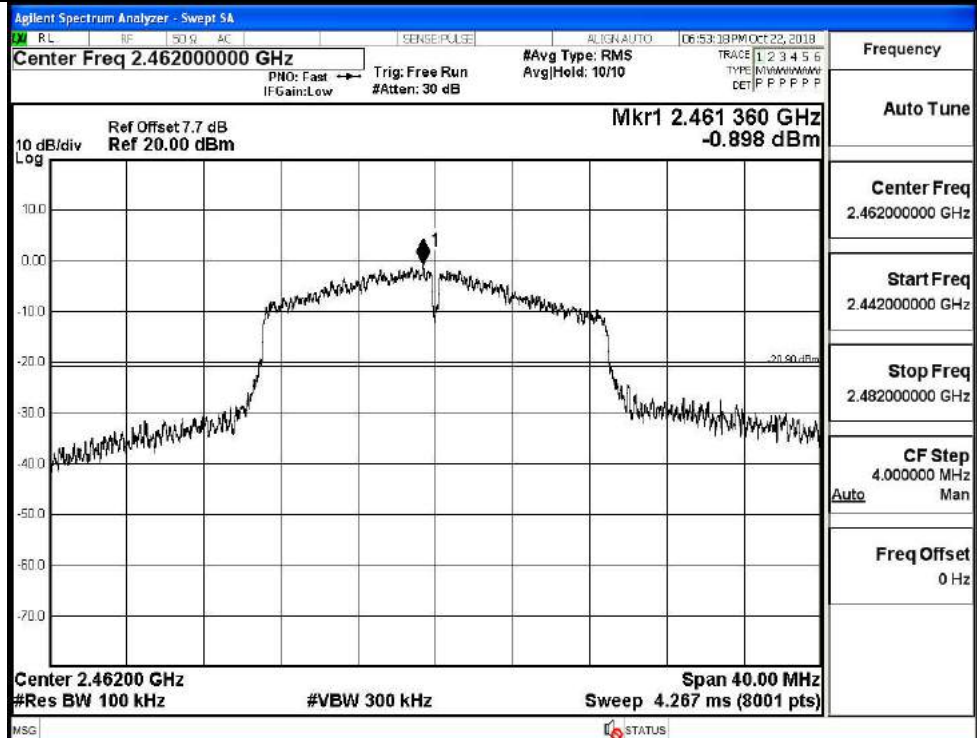


Puw/11N20
SISO/MCH

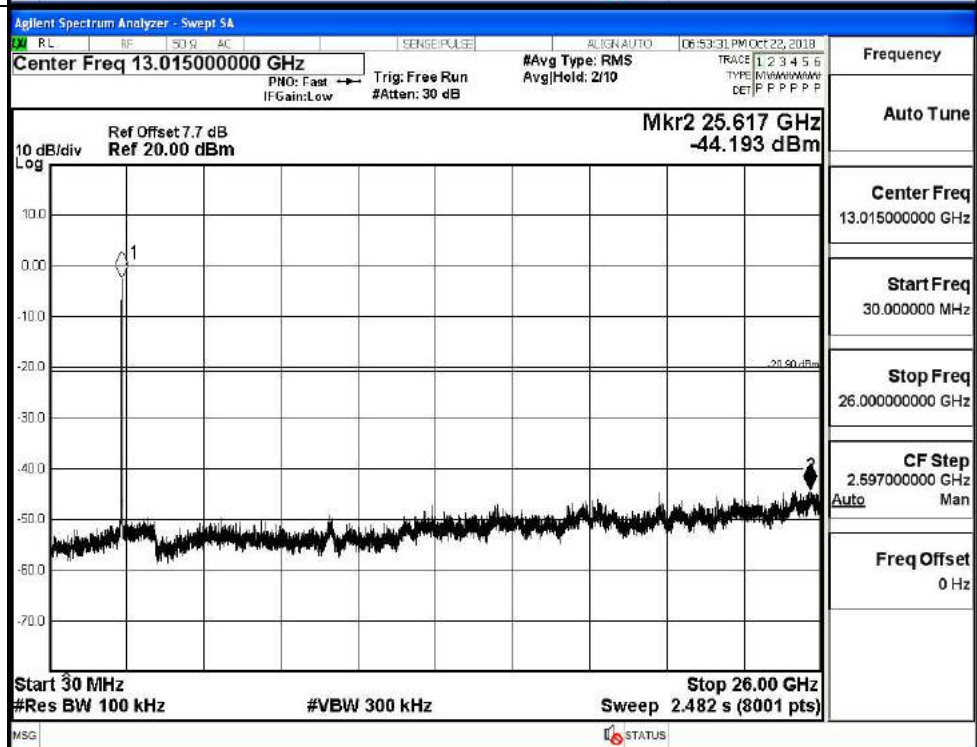


11N20SISO_HCH_Graphs

Pref/11N20
SISO/HCH

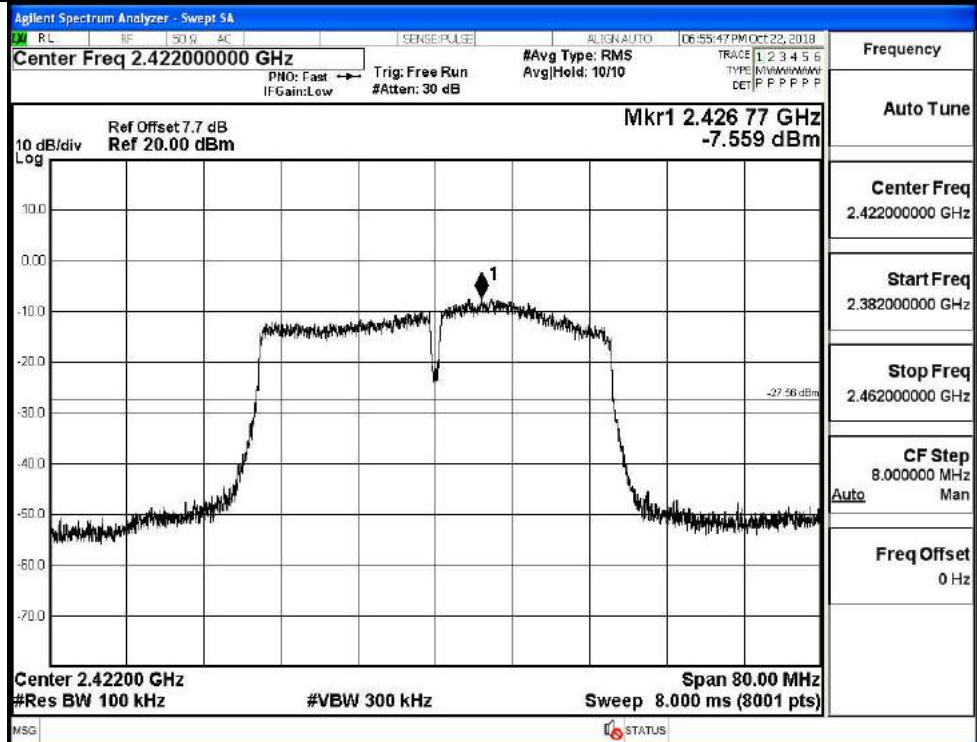


Puw/11N20
SISO/HCH

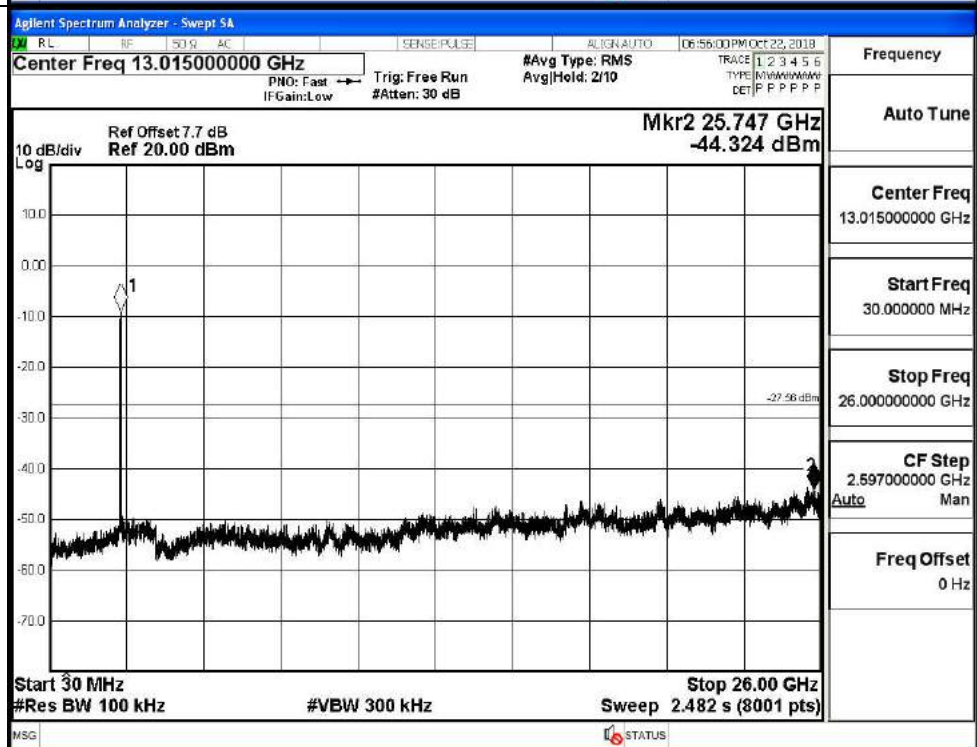


11N40SISO_LCH_Graphs

Pref/11N40
SISO/LCH

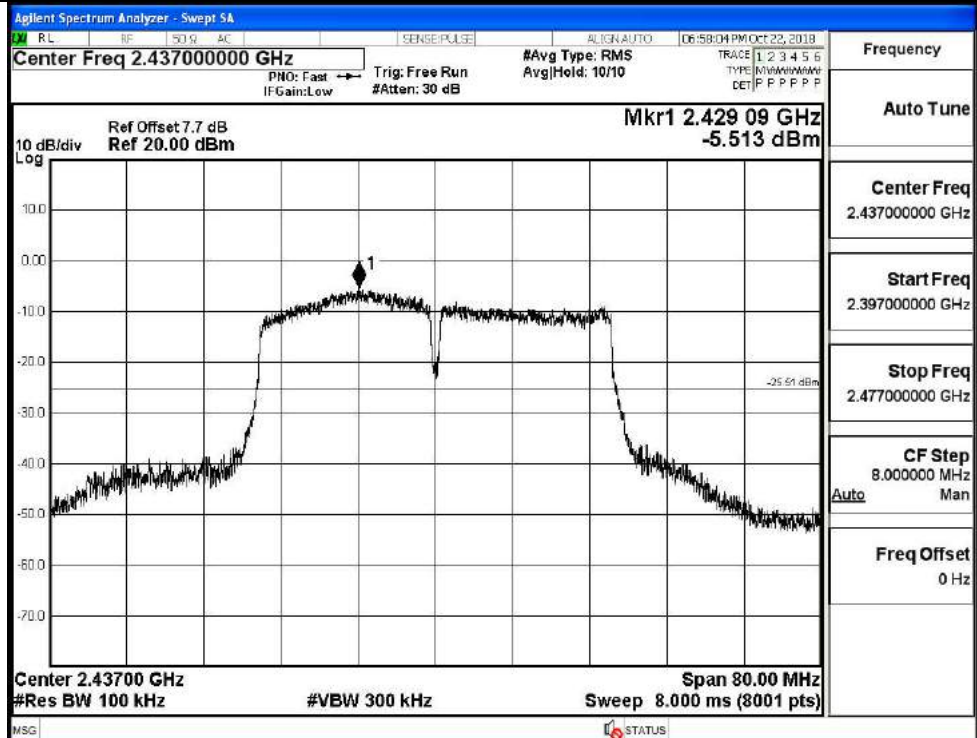


Puw/11N40
SISO/LCH

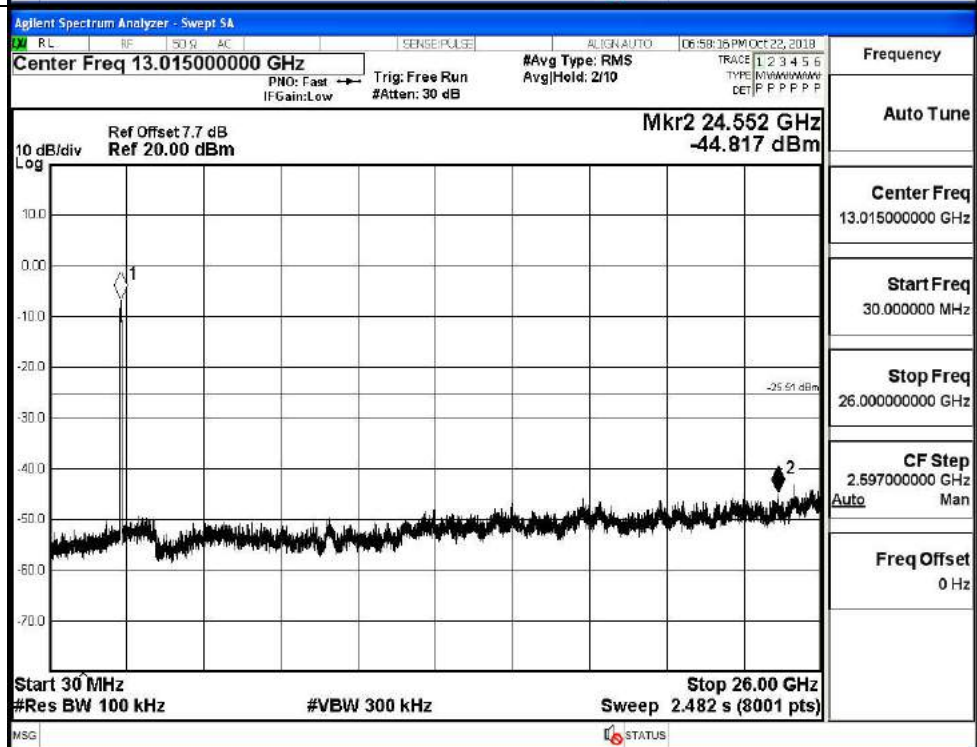


11N40SISO_MCH_Graphs

Pref/11N40
SISO/MCH

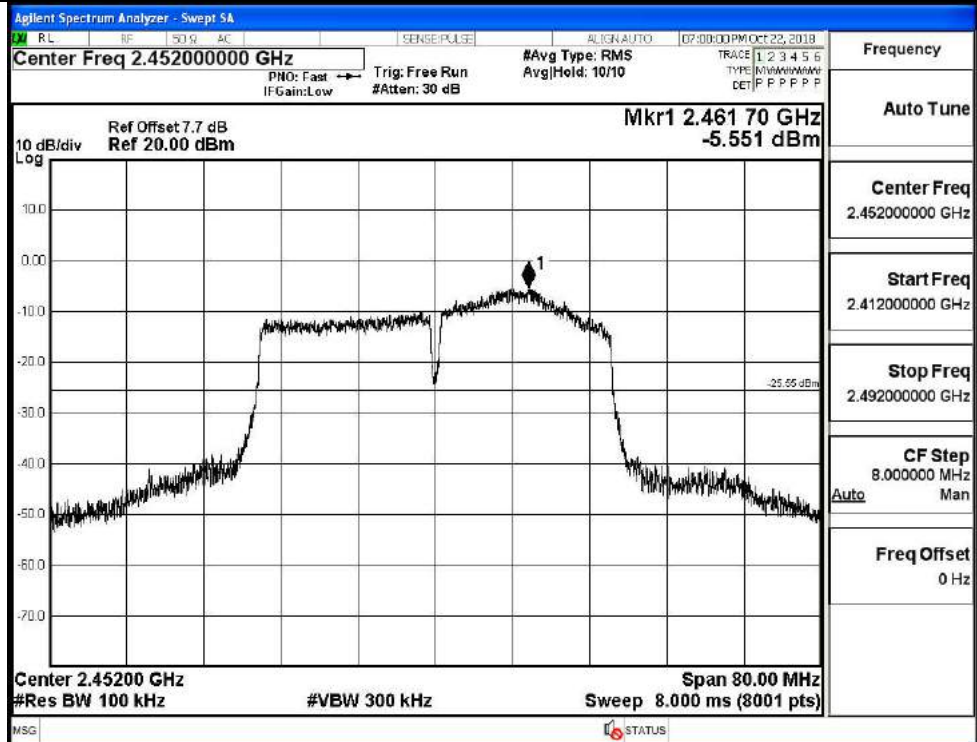


Puw/11N40
SISO/MCH

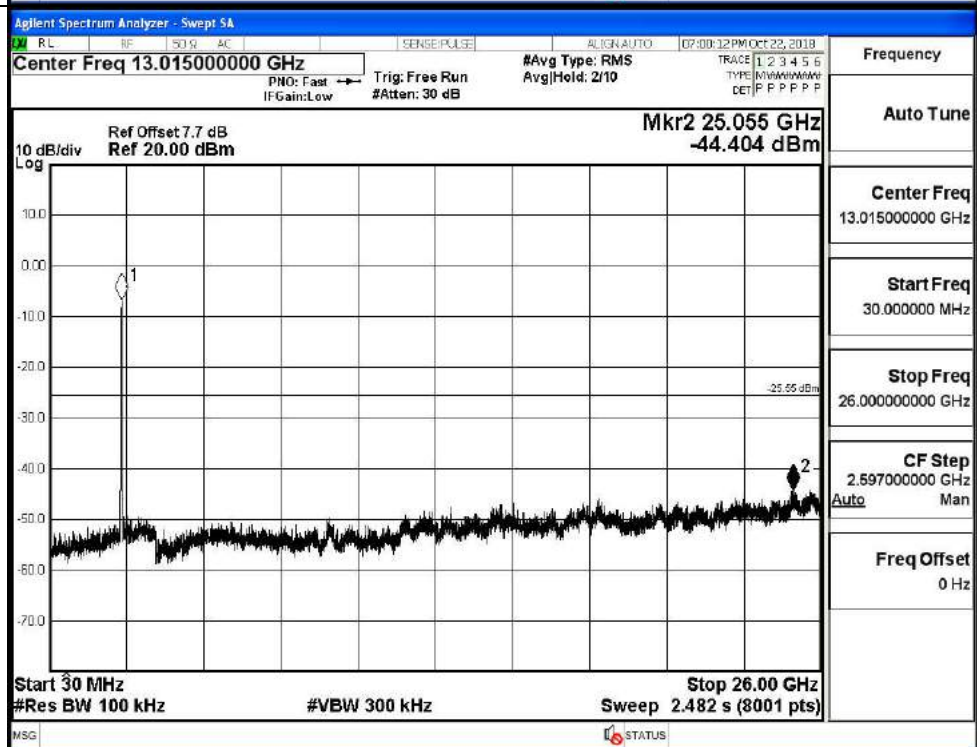


11N40SISO_HCH_Graphs

Pref/11N40
SISO/HCH

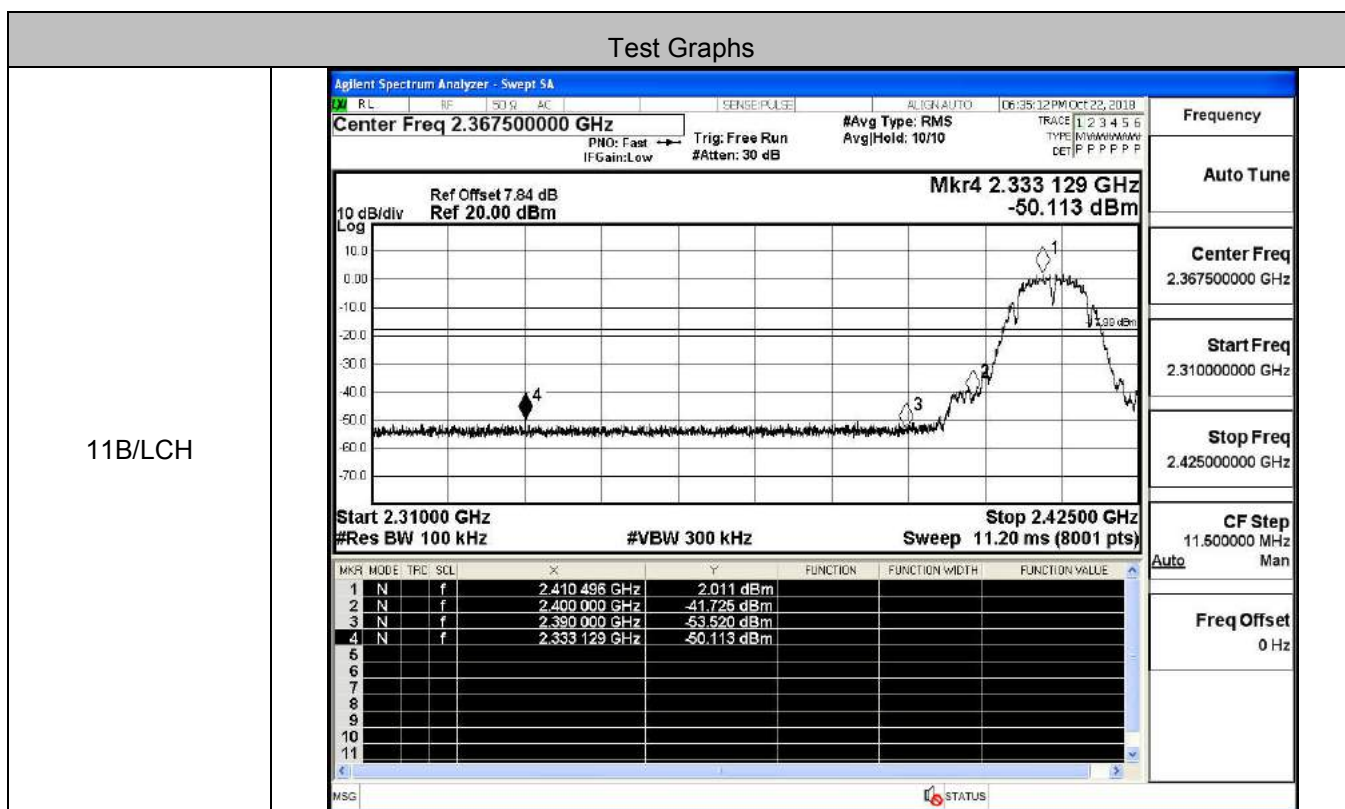


Puw/11N40
SISO/HCH

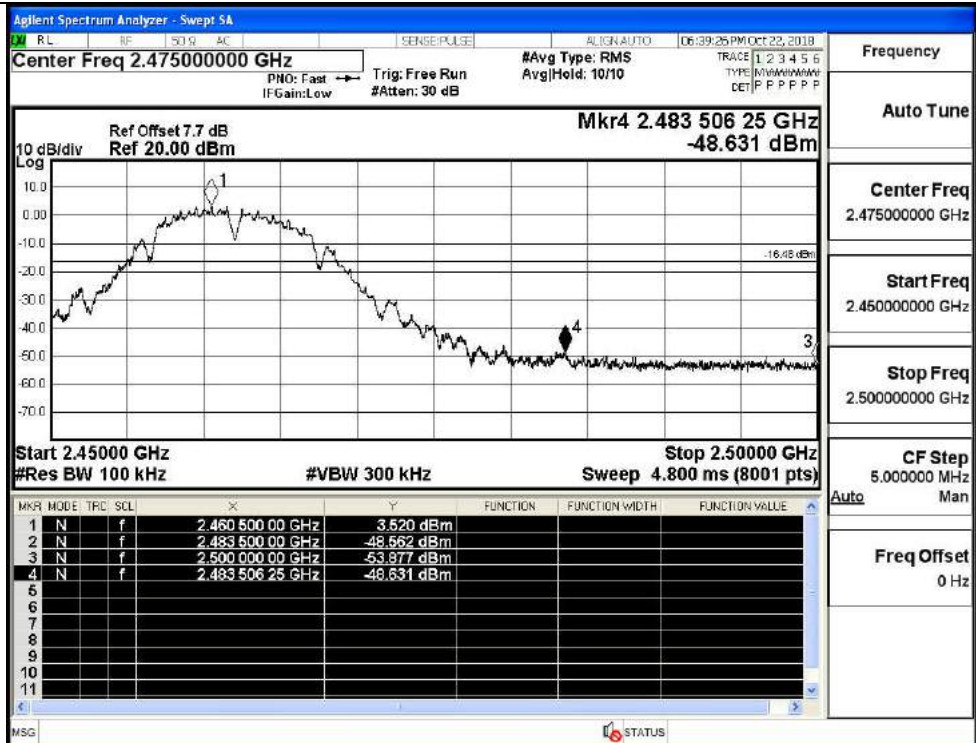


A.6 Band-edge for RF Conducted Emissions

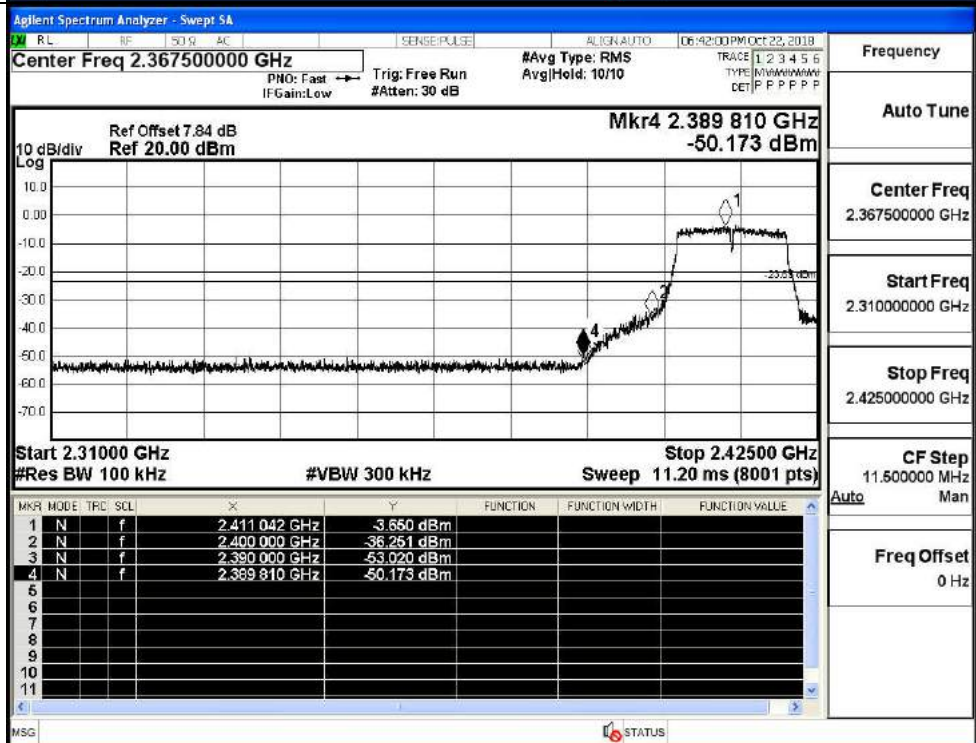
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	2.011	-50.113	-17.99	PASS
	HCH	3.520	-48.631	-16.48	PASS
11G	LCH	-3.650	-50.173	-23.65	PASS
	HCH	-1.682	-39.969	-21.68	PASS
11N20SISO	LCH	-3.608	-49.709	-23.61	PASS
	HCH	-0.922	-36.134	-20.92	PASS
11N40SISO	LCH	-7.856	-50.790	-27.86	PASS
	HCH	-5.132	-43.244	-25.13	PASS



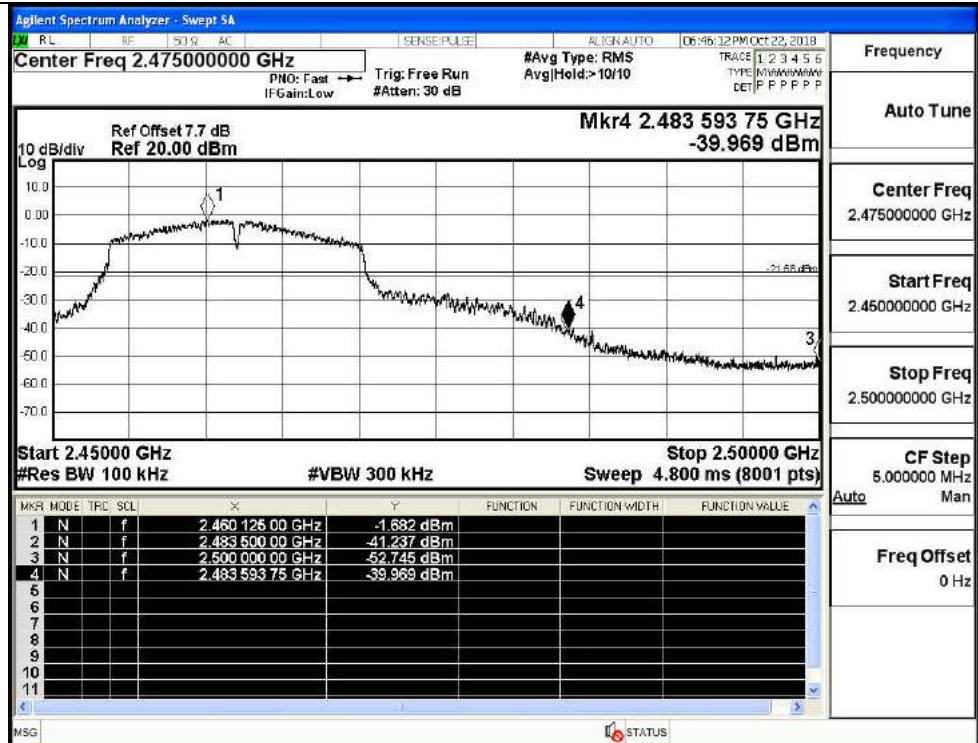
11B/HCH



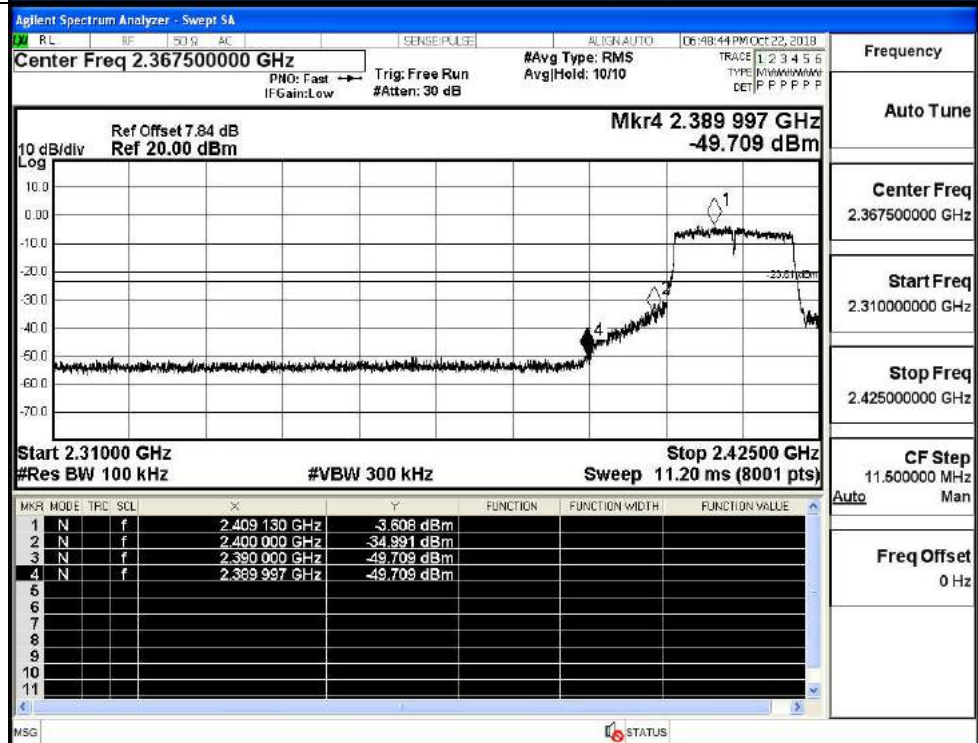
11G/LCH



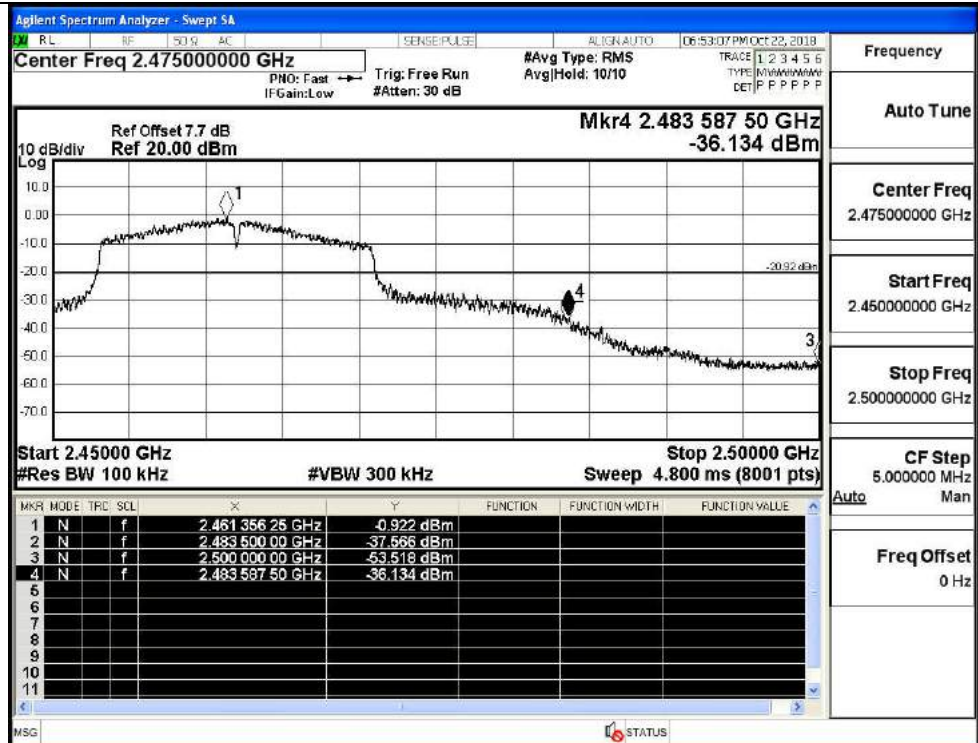
11G/HCH



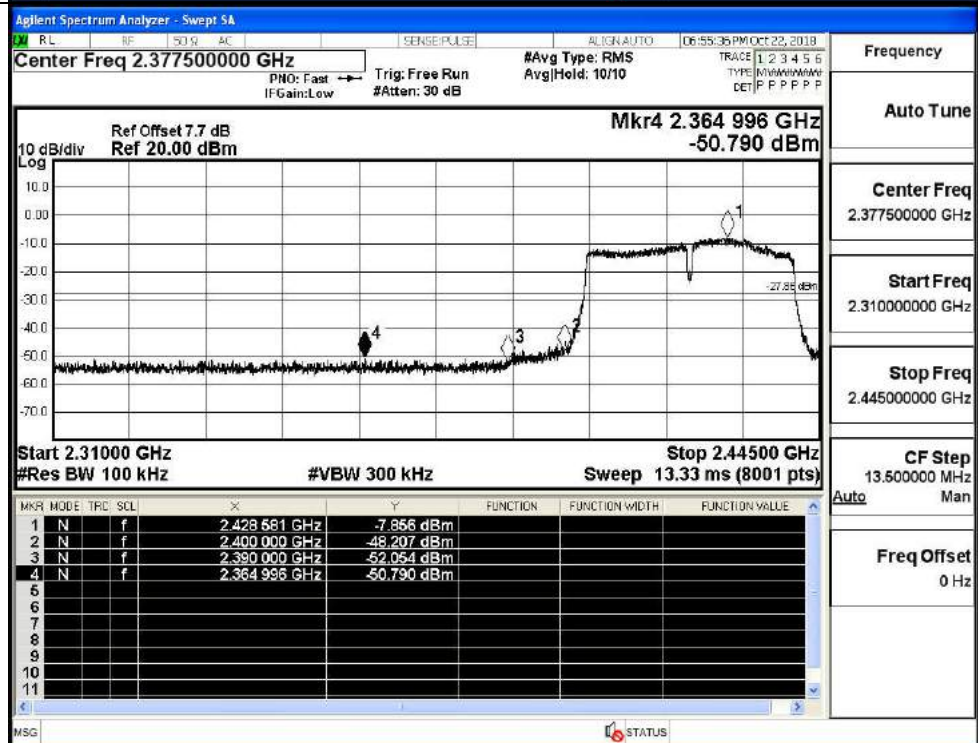
11N20SISO/LCH



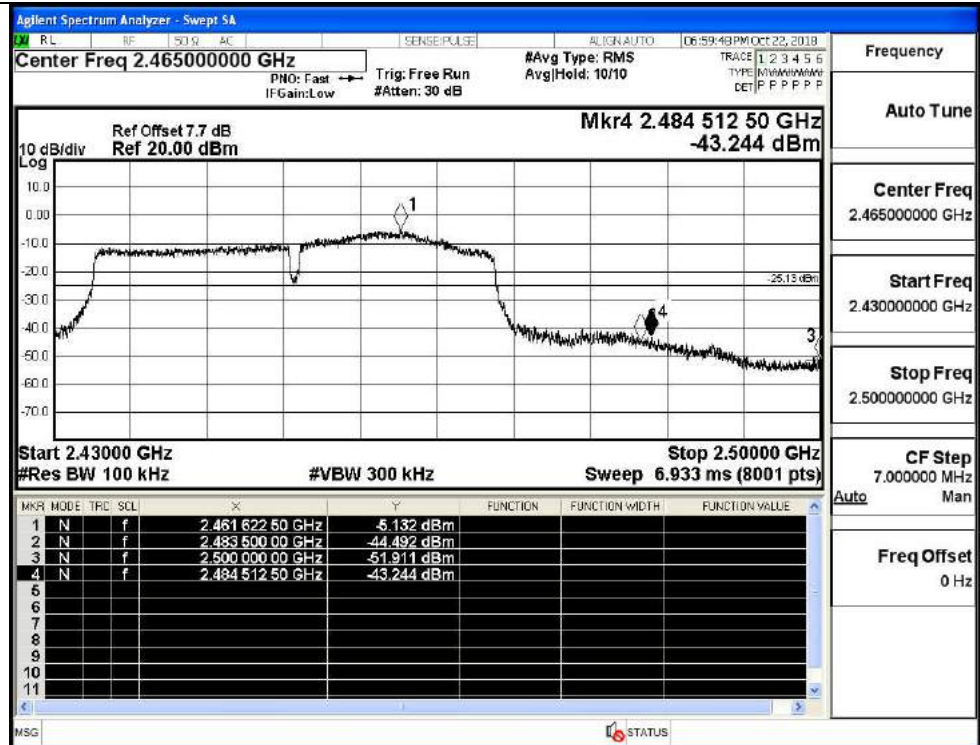
11N20SISO/HCH



11N40SISO/LCH



11N40SISO/HCH

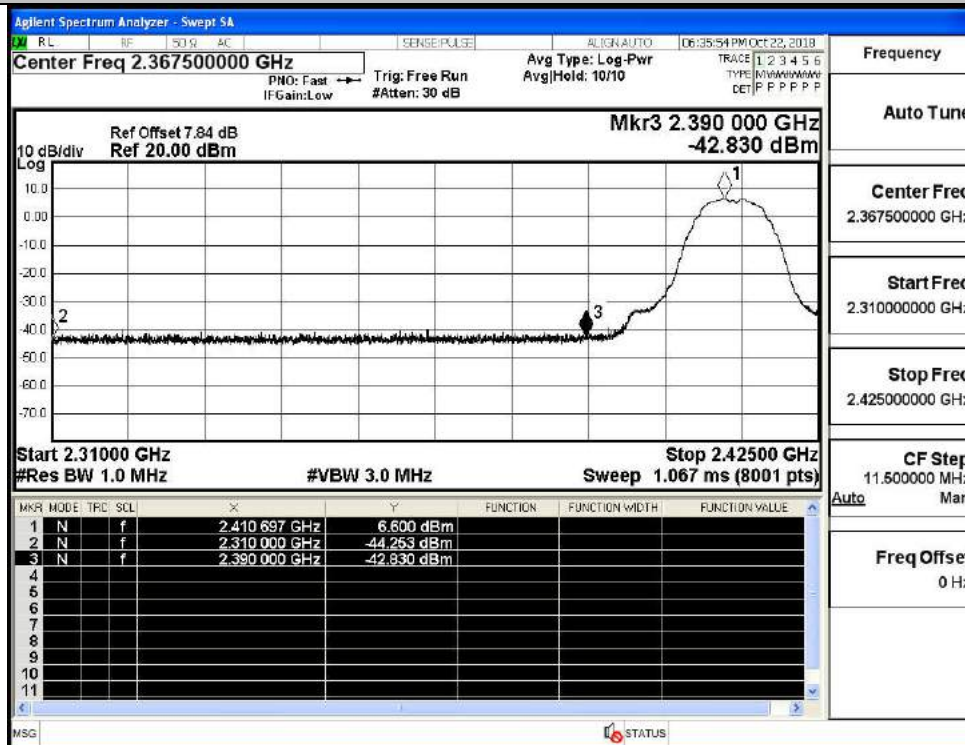


A.7 Restrict-band band-edge measurements

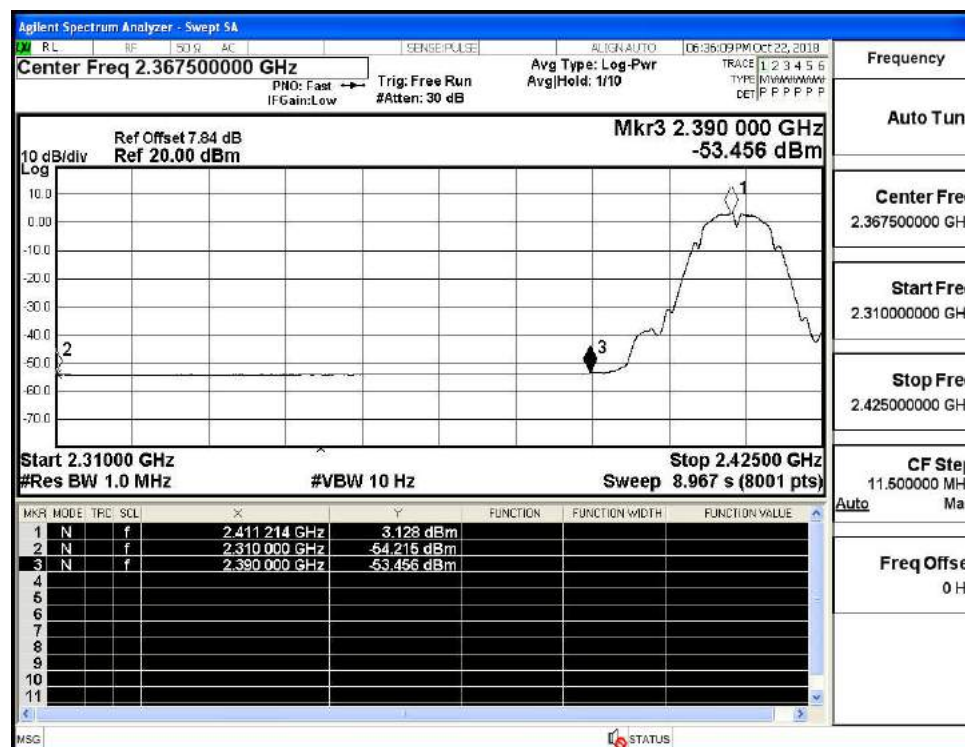
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-44.25	2.5	0	53.48	PEAK	74	PASS
	2412	Ant1	2310.0	-54.22	2.5	0	43.51	AV	54	PASS
	2412	Ant1	2390.0	-42.83	2.5	0	54.90	PEAK	74	PASS
	2412	Ant1	2390.0	-53.46	2.5	0	44.27	AV	54	PASS
	2462	Ant1	2483.5	-40.52	2.5	0	57.21	PEAK	74	PASS
	2462	Ant1	2483.5	-50.83	2.5	0	46.90	AV	54	PASS
	2462	Ant1	2500.0	-43.75	2.5	0	53.98	PEAK	74	PASS
	2462	Ant1	2500.0	-53.59	2.5	0	44.14	AV	54	PASS
11G	2412	Ant1	2310.0	-42.86	2.5	0	54.87	PEAK	74	PASS
	2412	Ant1	2310.0	-54.12	2.5	0	43.61	AV	54	PASS
	2412	Ant1	2390.0	-40.16	2.5	0	57.57	PEAK	74	PASS
	2412	Ant1	2390.0	-52.27	2.5	0	45.46	AV	54	PASS
	2462	Ant1	2483.5	-28.20	2.5	0	69.53	PEAK	74	PASS
	2462	Ant1	2483.5	-42.60	2.5	0	55.13	AV	54	PASS
	2462	Ant1	2500.0	-43.61	2.5	0	54.12	PEAK	74	PASS
	2462	Ant1	2500.0	-53.69	2.5	0	44.04	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-43.85	2.5	0	53.88	PEAK	74	PASS
	2412	Ant1	2310.0	-54.14	2.5	0	43.59	AV	54	PASS
	2412	Ant1	2390.0	-35.94	2.5	0	61.79	PEAK	74	PASS
	2412	Ant1	2390.0	-51.34	2.5	0	46.39	AV	54	PASS
	2462	Ant1	2483.5	-31.71	2.5	0	66.02	PEAK	74	PASS
	2462	Ant1	2483.5	-49.74	2.5	0	47.99	AV	54	PASS
	2462	Ant1	2500.0	-42.62	2.5	0	55.11	PEAK	74	PASS
	2462	Ant1	2500.0	-53.67	2.5	0	44.06	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-44.93	2.5	0	52.80	PEAK	74	PASS
	2422	Ant1	2310.0	-54.28	2.5	0	43.45	AV	54	PASS

	2422	Ant1	2390.0	-43.15	2.5	0	54.58	PEAK	74	PASS
	2422	Ant1	2390.0	-53.62	2.5	0	44.11	AV	54	PASS
	2452	Ant1	2483.5	-32.37	2.5	0	65.36	PEAK	74	PASS
	2452	Ant1	2483.5	-45.25	2.5	0	52.48	AV	54	PASS
	2452	Ant1	2500.0	-41.26	2.5	0	56.47	PEAK	74	PASS
	2452	Ant1	2500.0	-53.69	2.5	0	44.04	AV	54	PASS

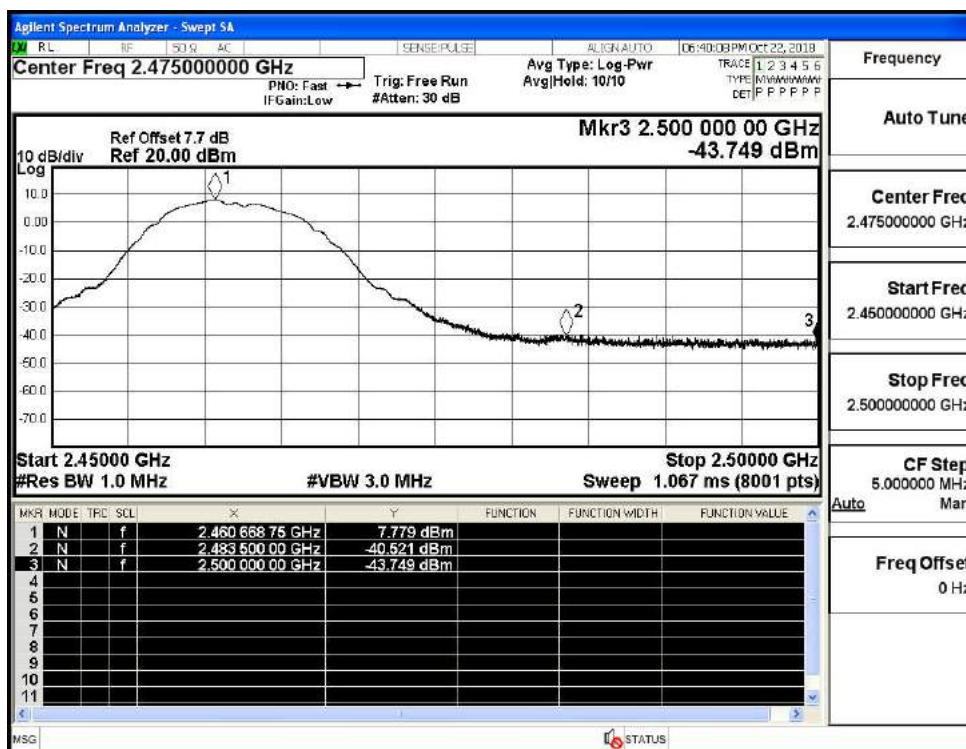
Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



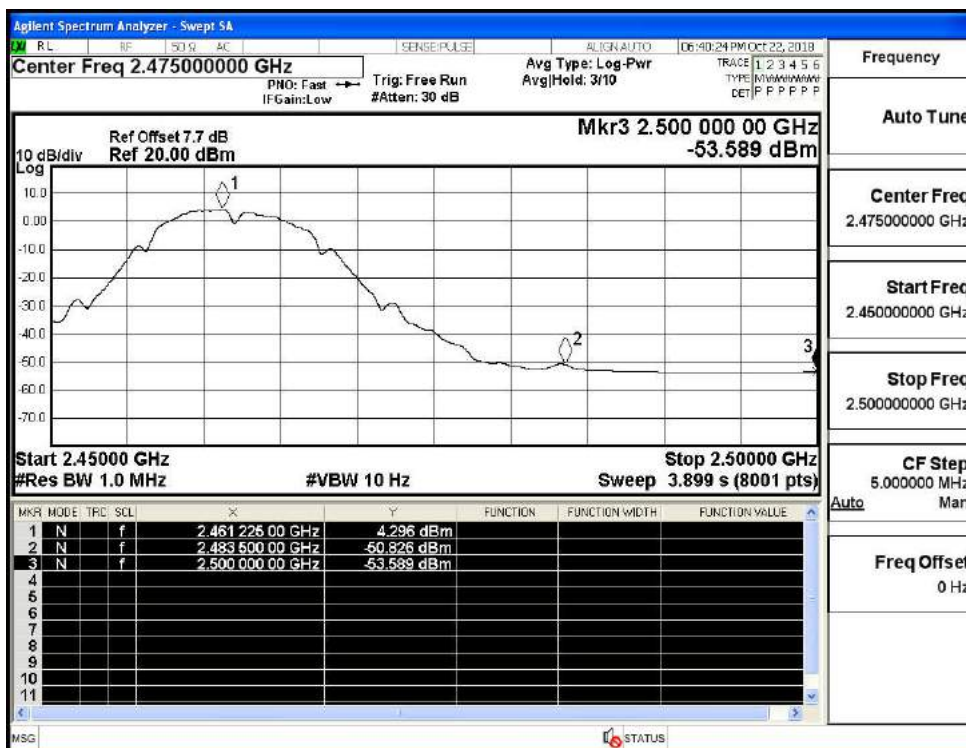
Restrict-band band-edge measurements_11B_2412_Ant1_AV



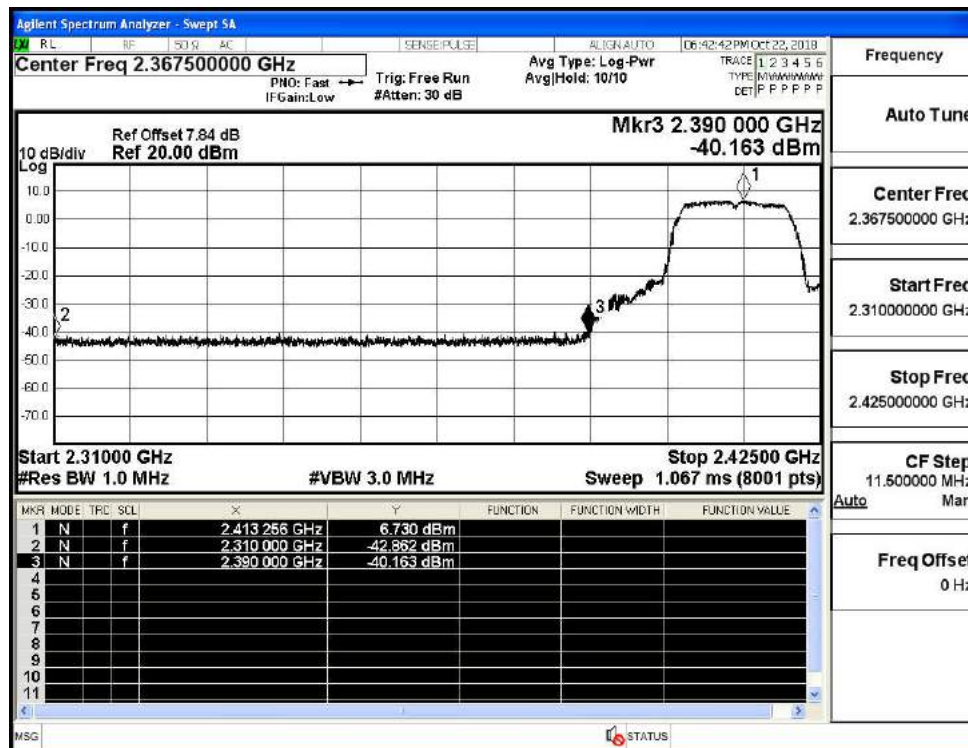
Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



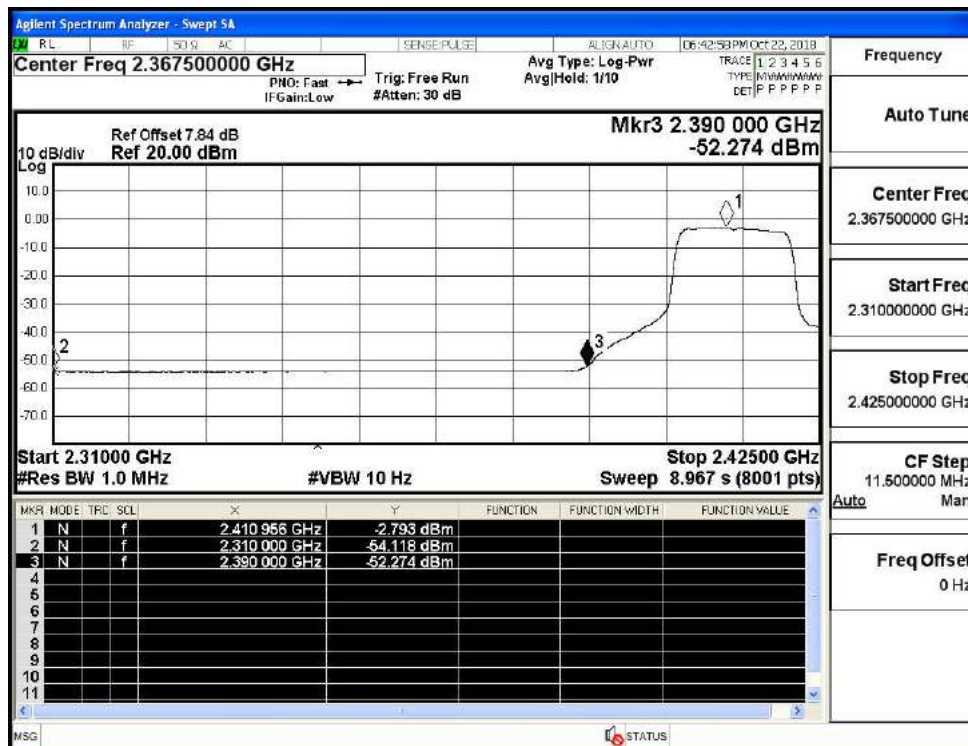
Restrict-band band-edge measurements_11B_2462_Ant1_AV



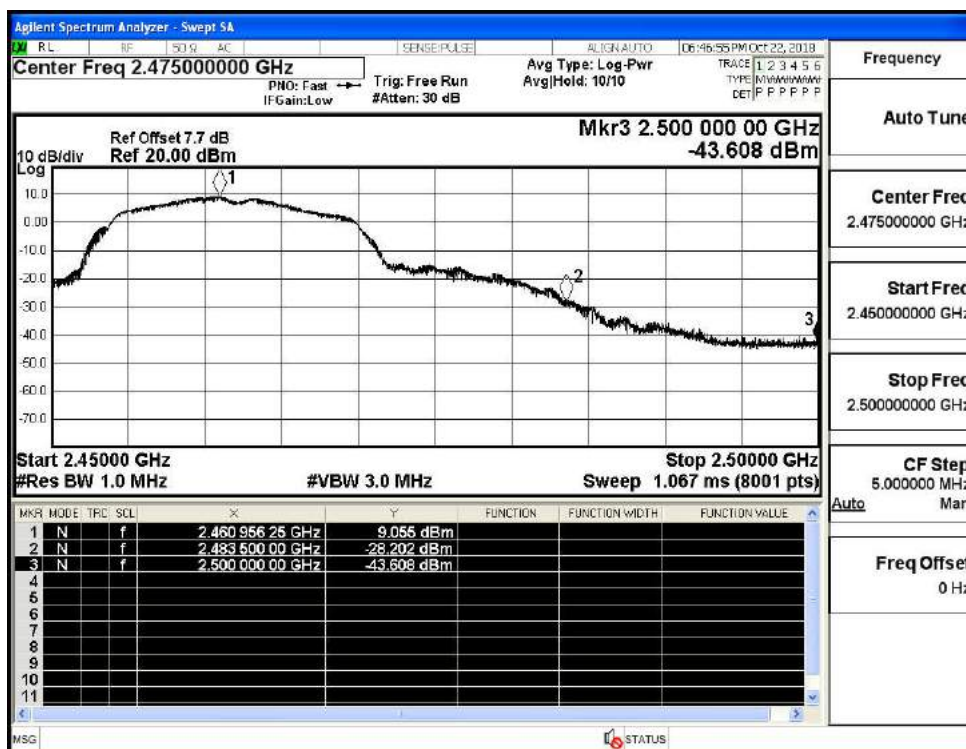
Restrict-band band-edge measurements_11G_2412_Ant1_PEAK



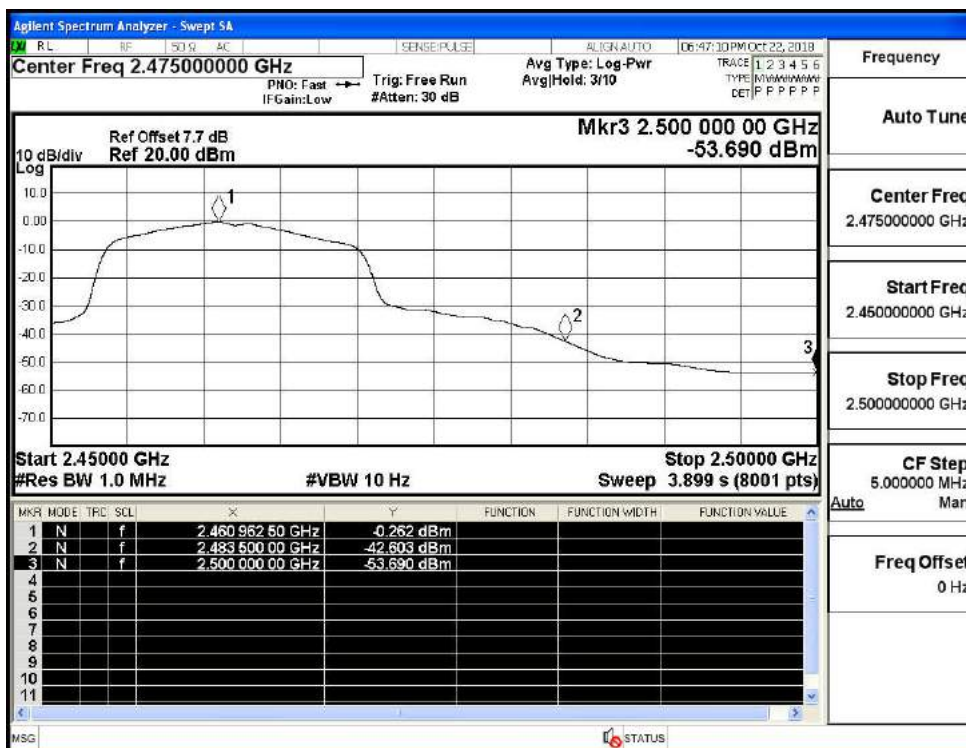
Restrict-band band-edge measurements_11G_2412_Ant1_AV



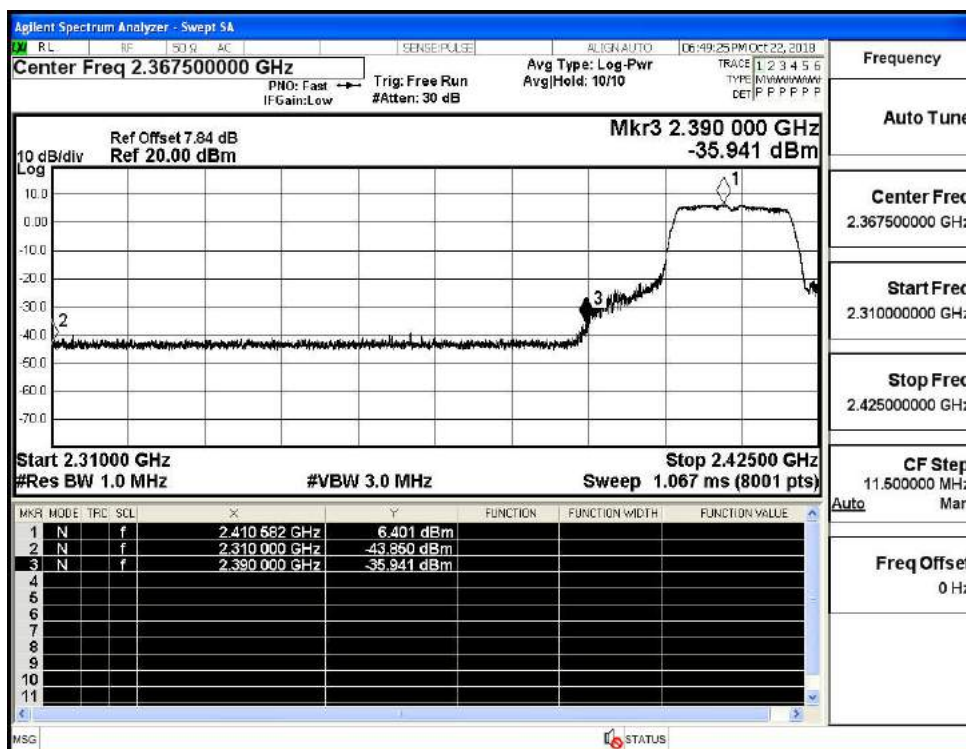
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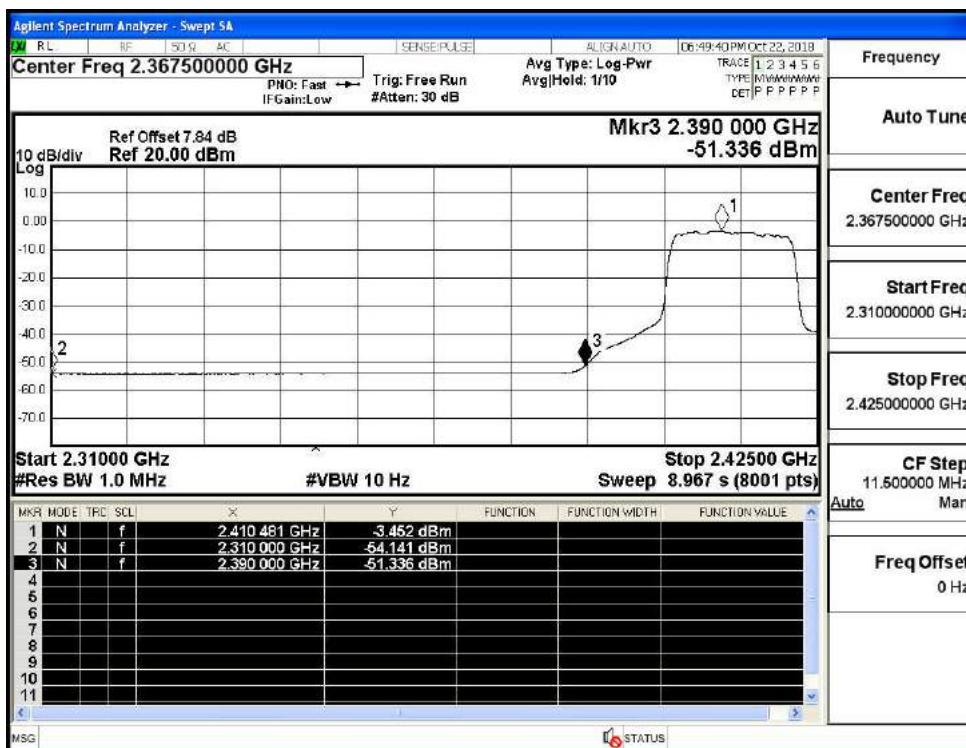
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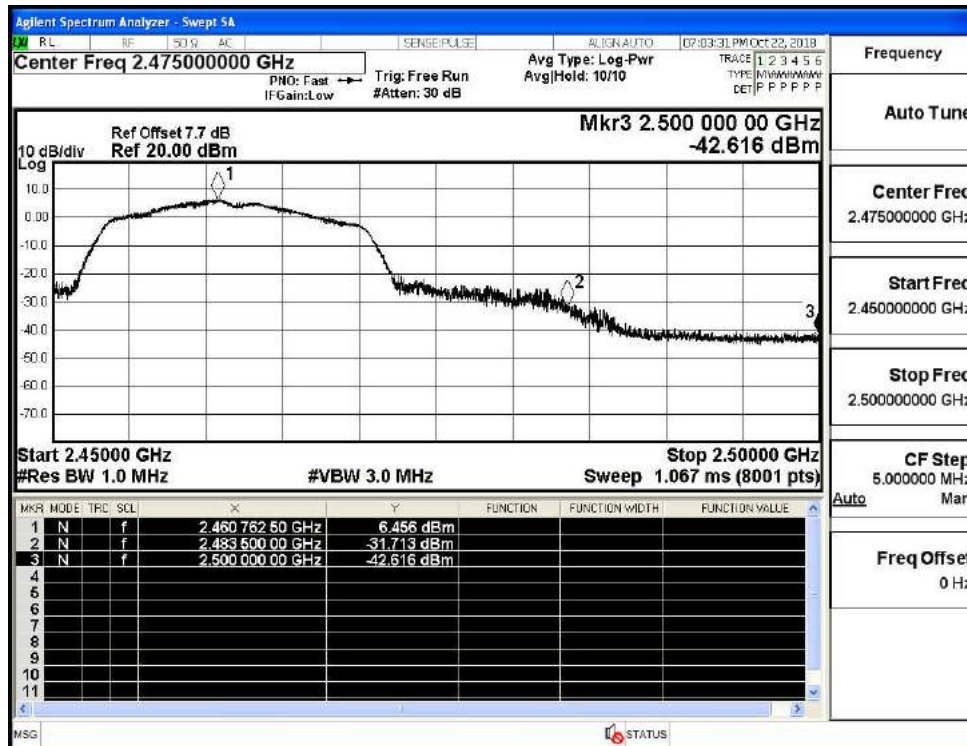
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK



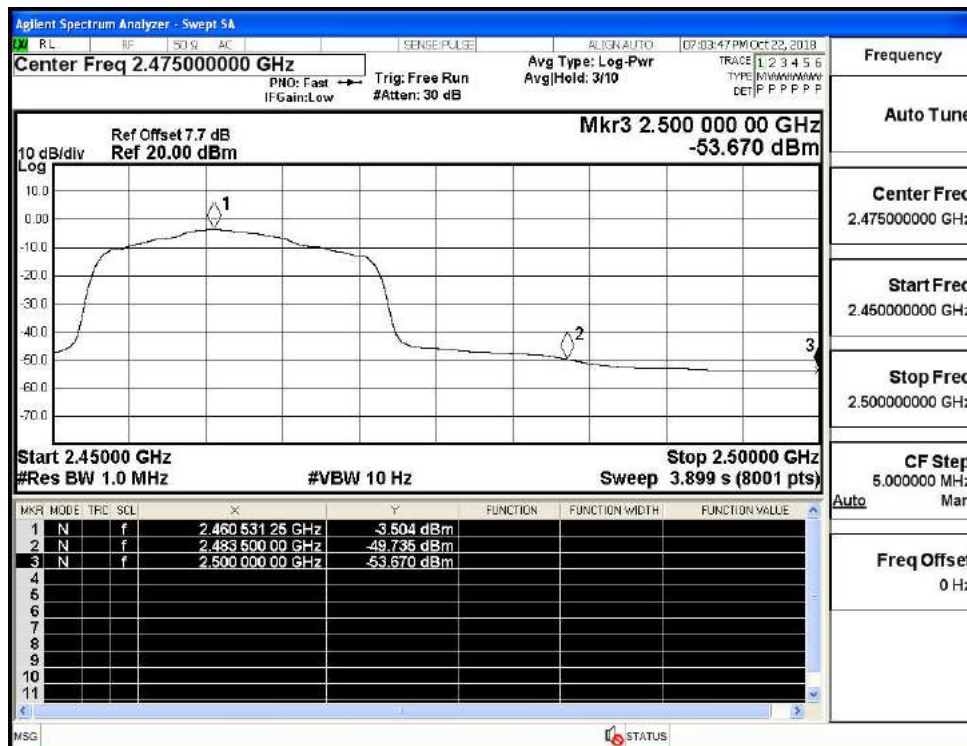
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_AV



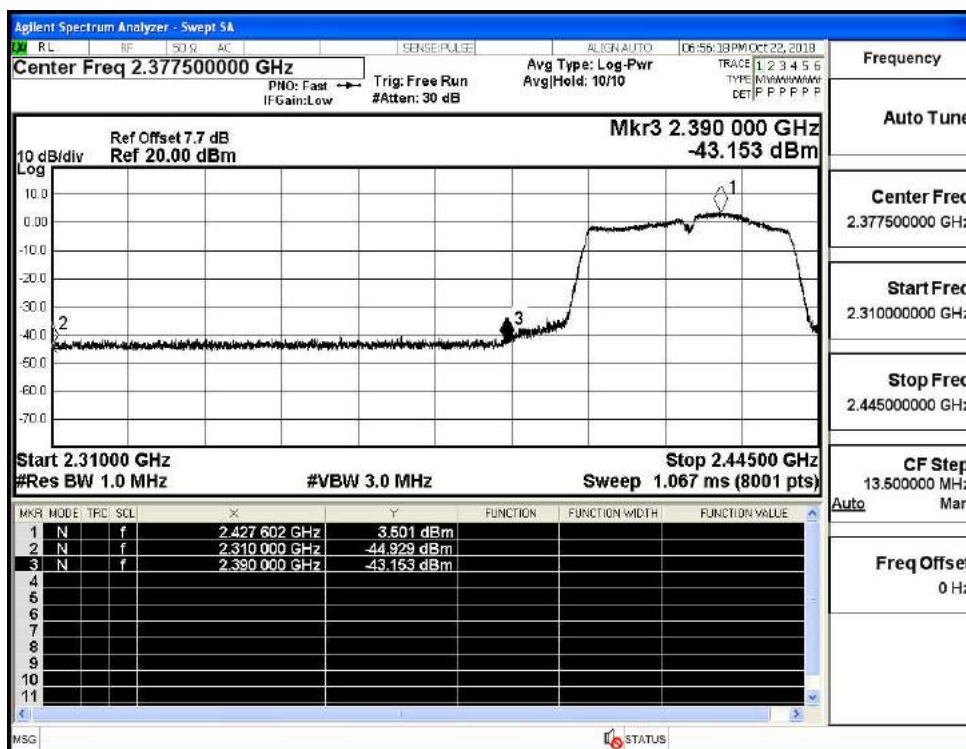
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_PEAK



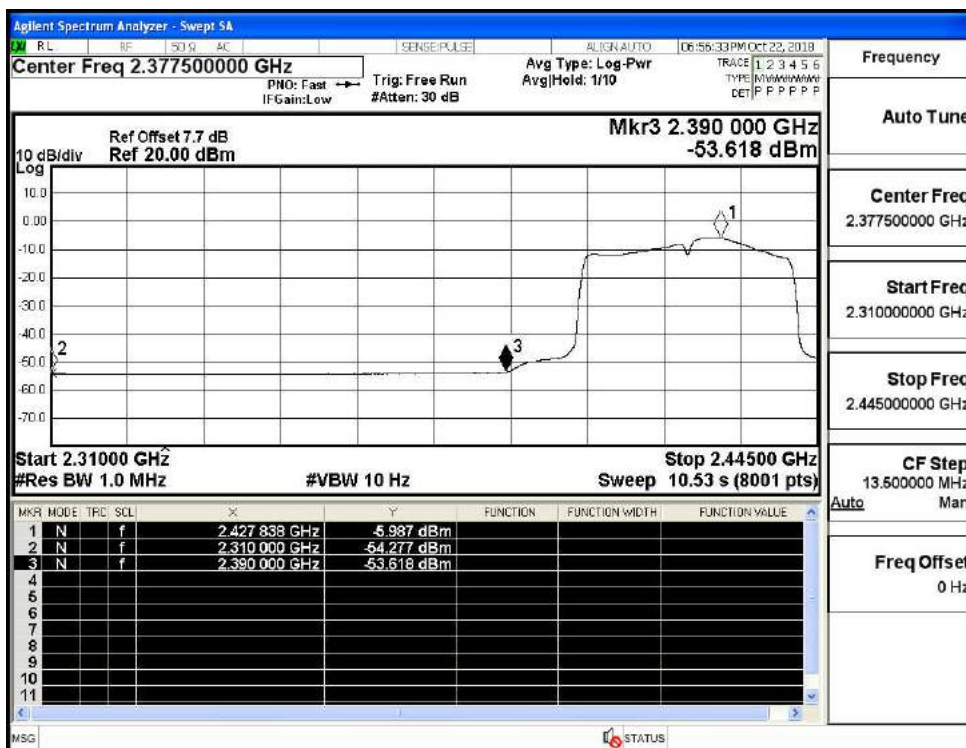
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_AV



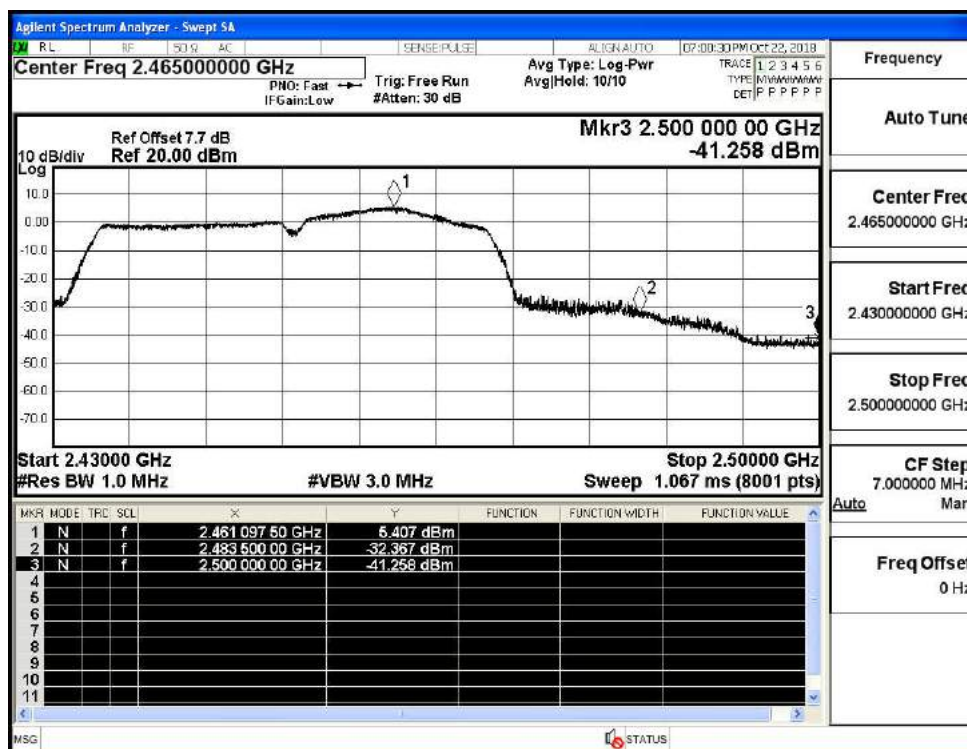
Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



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

