

Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: WIFI Bulb

Trade Mark: N/A

Test Model: ZJ-WFBK-RGBWW

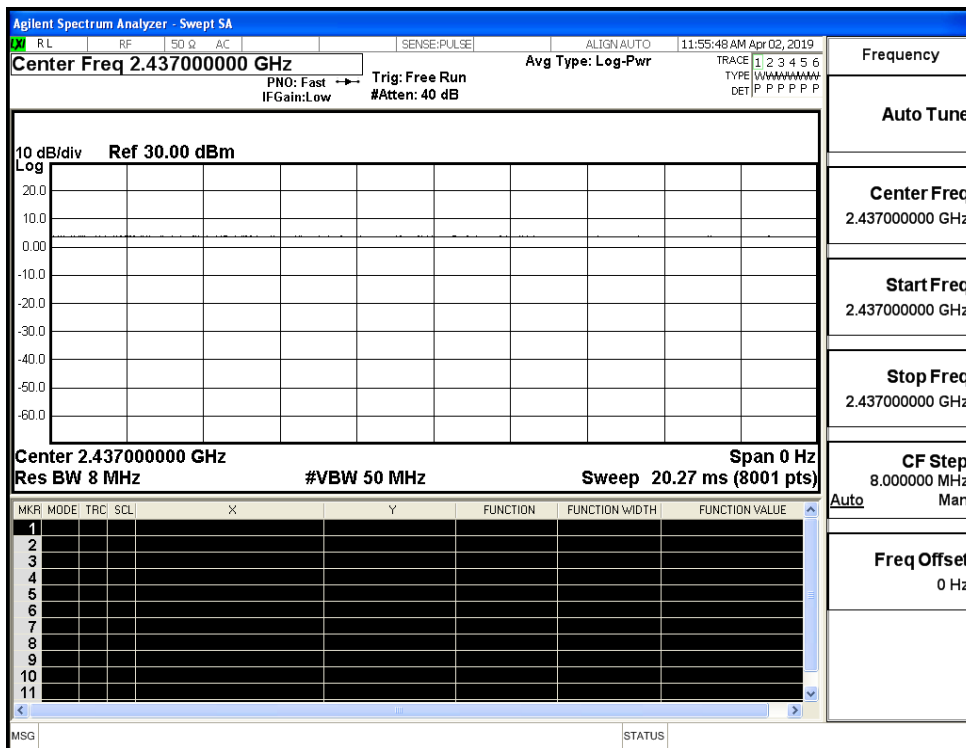
Environmental Conditions

Temperature:	23.5 ° C
Relative Humidity:	52.6%
ATM Pressure:	100.0 kPa
Test Engineer:	JERRY.Zeng
Supervised by:	Tom.Liu

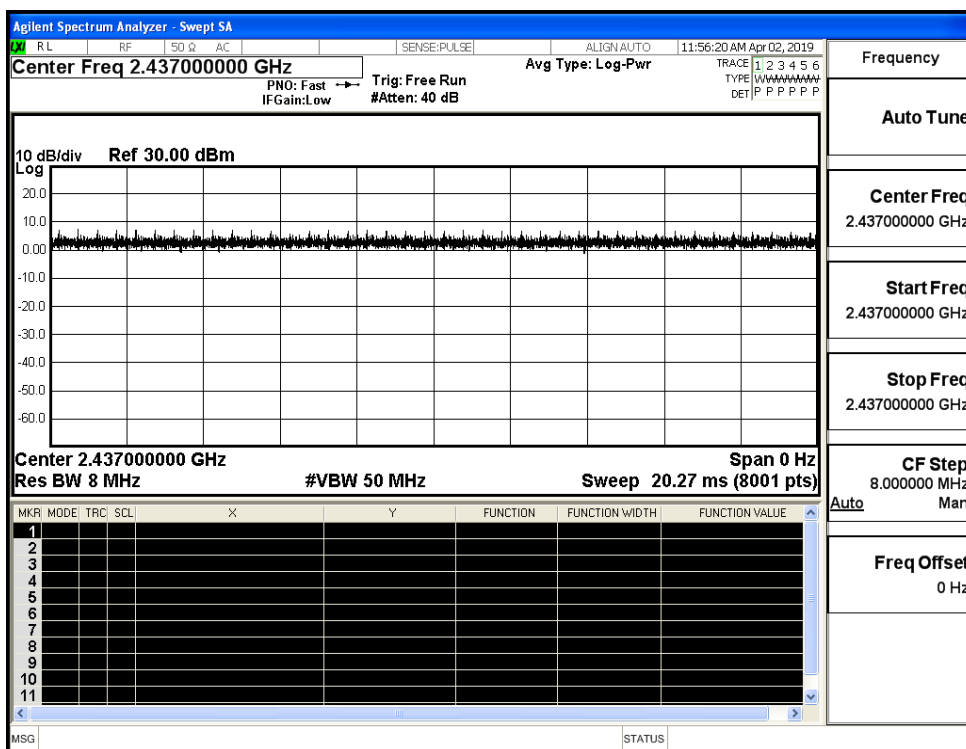
A.1 Duty Cycle

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

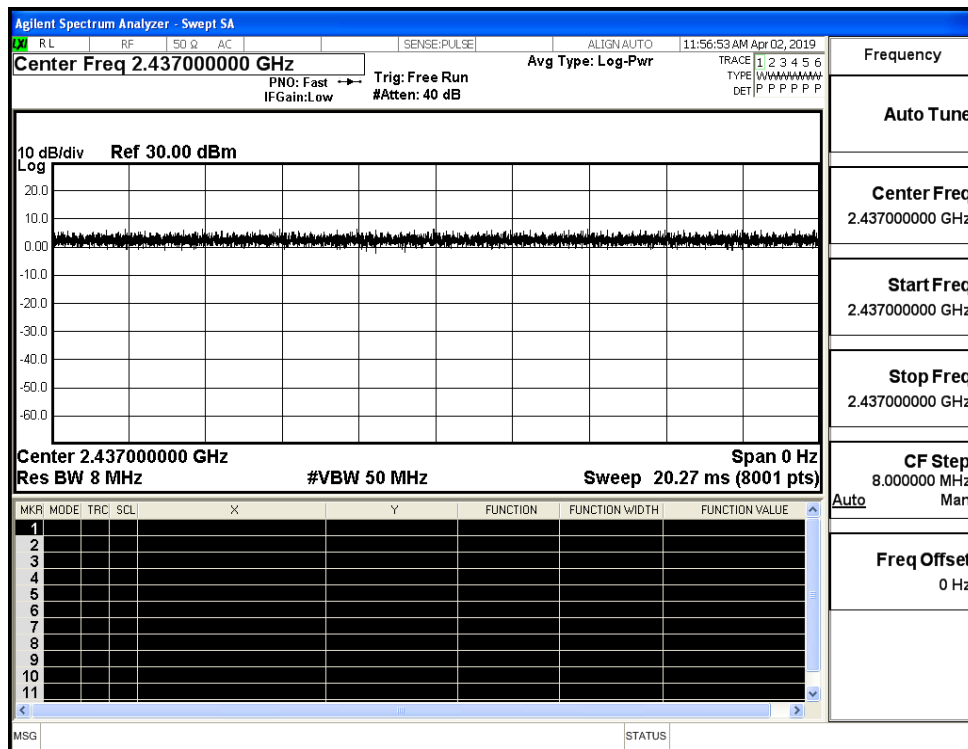
Duty Cycle_11B_2437_Ant1



Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



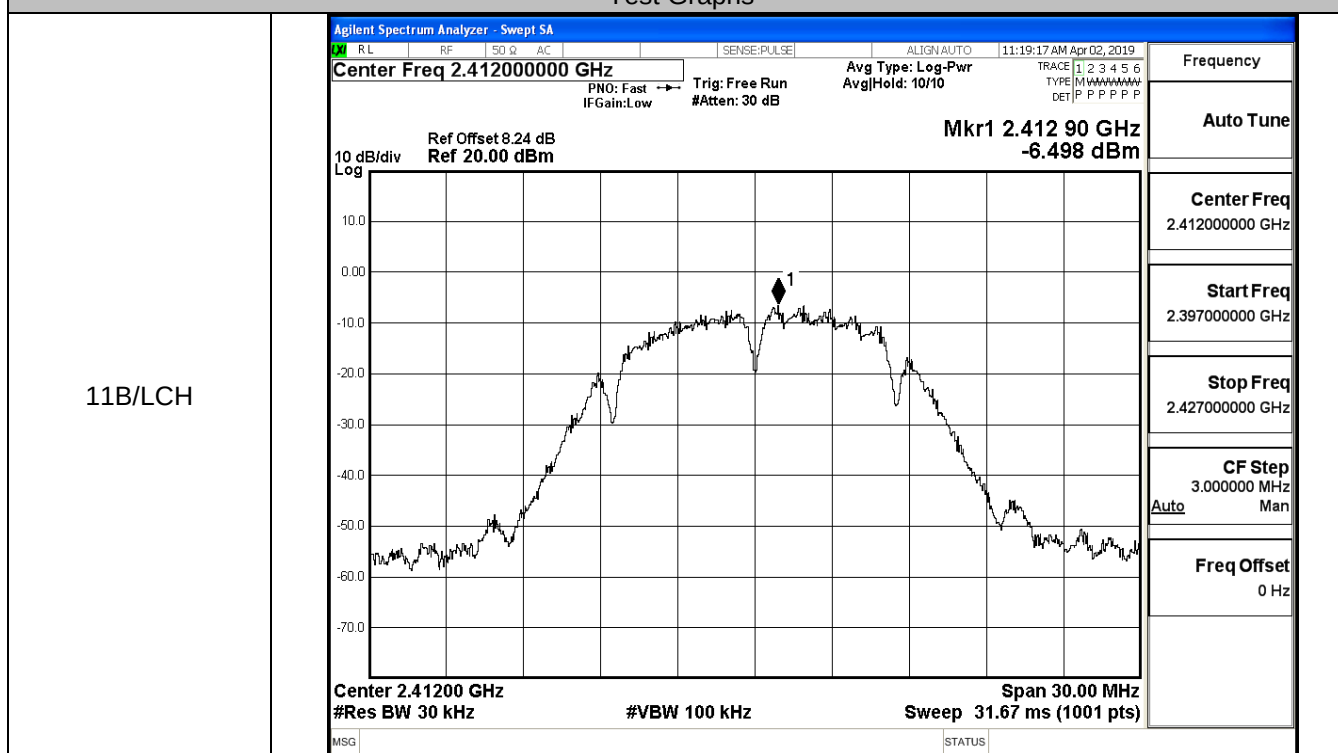
A.2 Maximum Conducted Output Power

Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	11.23	30	PASS
	MCH	11.38	30	PASS
	HCH	10.44	30	PASS
11G	LCH	13.49	30	PASS
	MCH	13.57	30	PASS
	HCH	13.00	30	PASS
11N20SISO	LCH	13.60	30	PASS
	MCH	13.34	30	PASS
	HCH	12.66	30	PASS

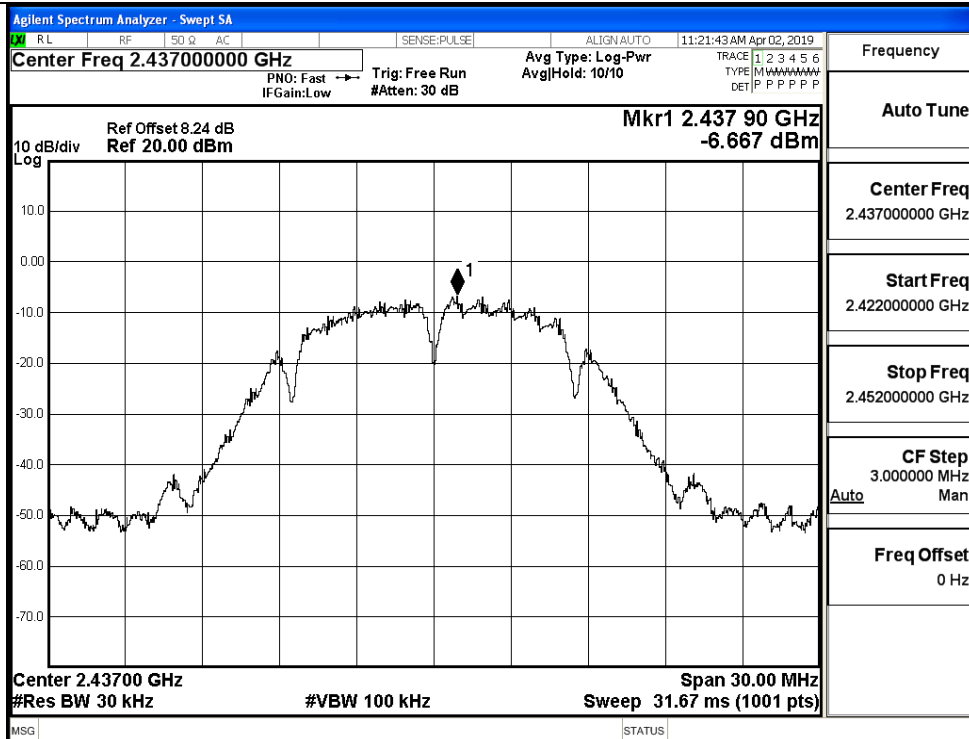
A.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/30KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-6.498	8	PASS
	MCH	-6.667	8	PASS
	HCH	-7.491	8	PASS
11G	LCH	-9.664	8	PASS
	MCH	-10.269	8	PASS
	HCH	-10.179	8	PASS
11N20SISO	LCH	-9.145	8	PASS
	MCH	-10.030	8	PASS
	HCH	-10.760	8	PASS

Test Graphs



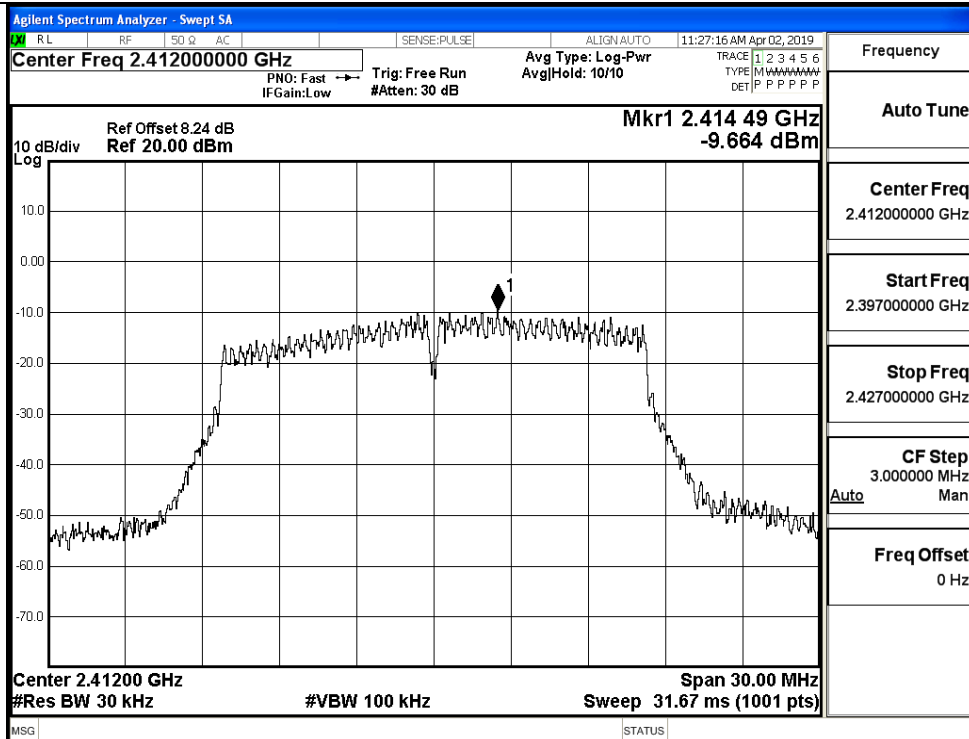
11B/MCH



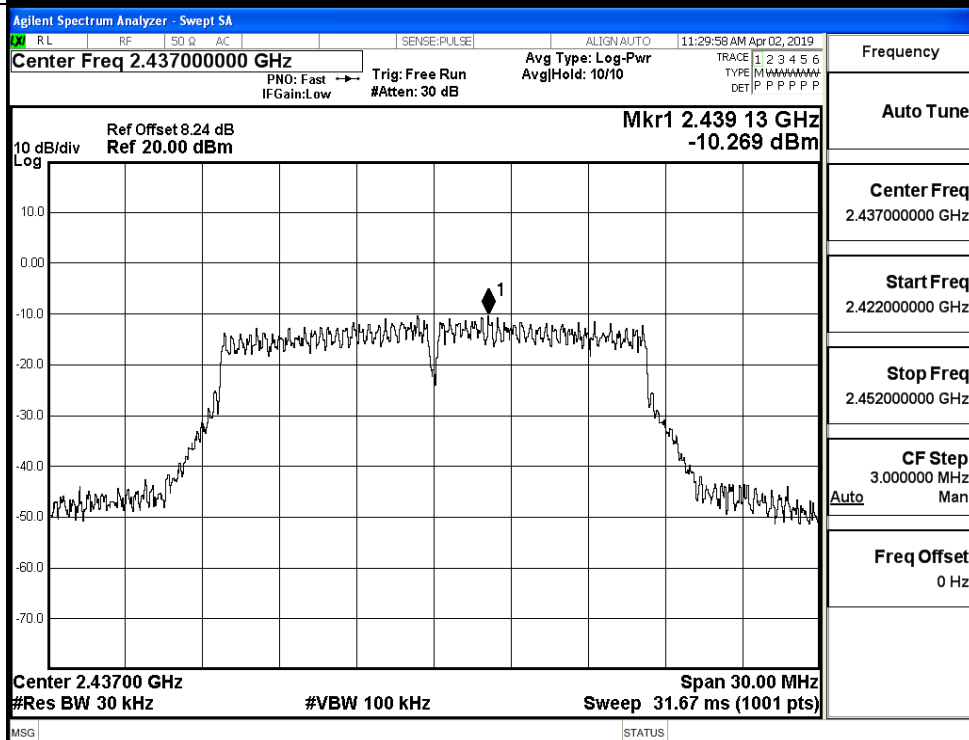
11B/HCH



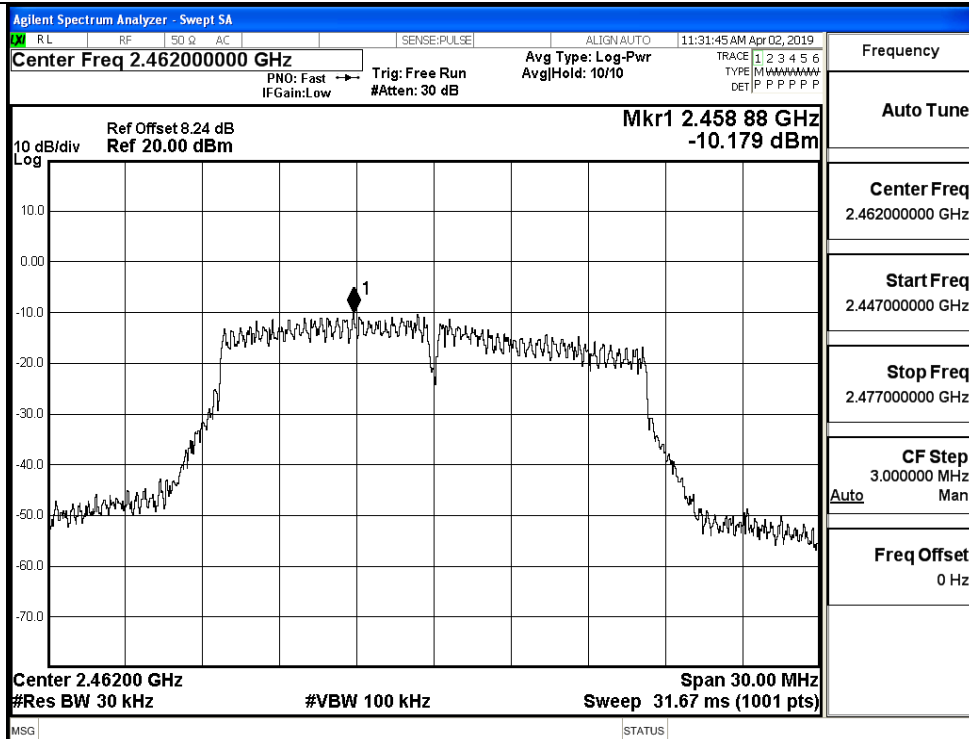
11G/LCH



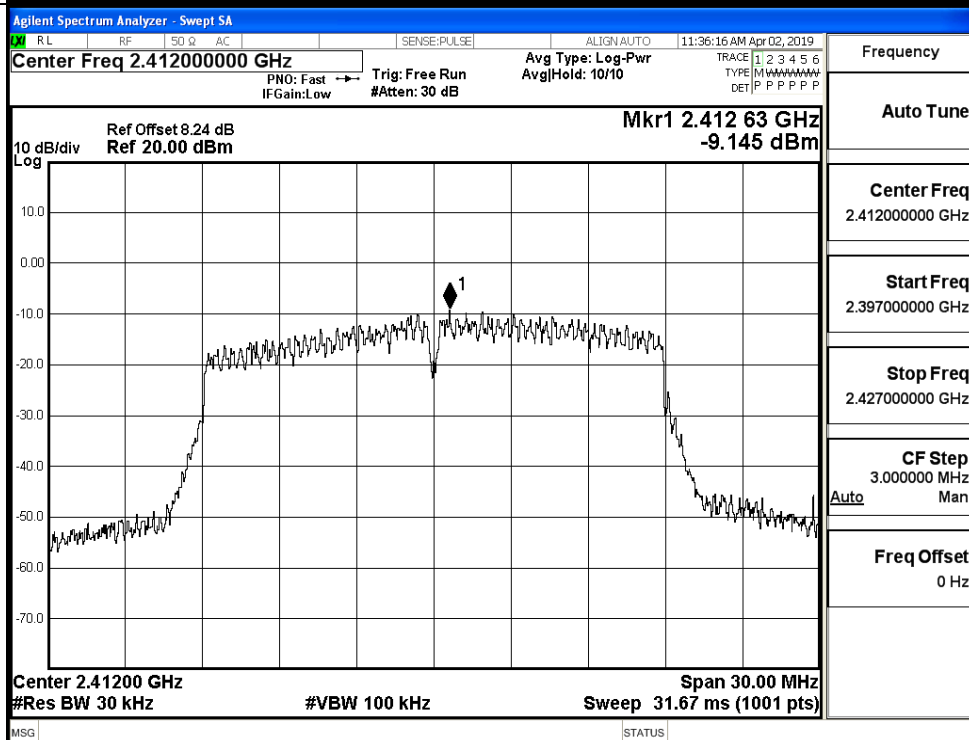
11G/MCH



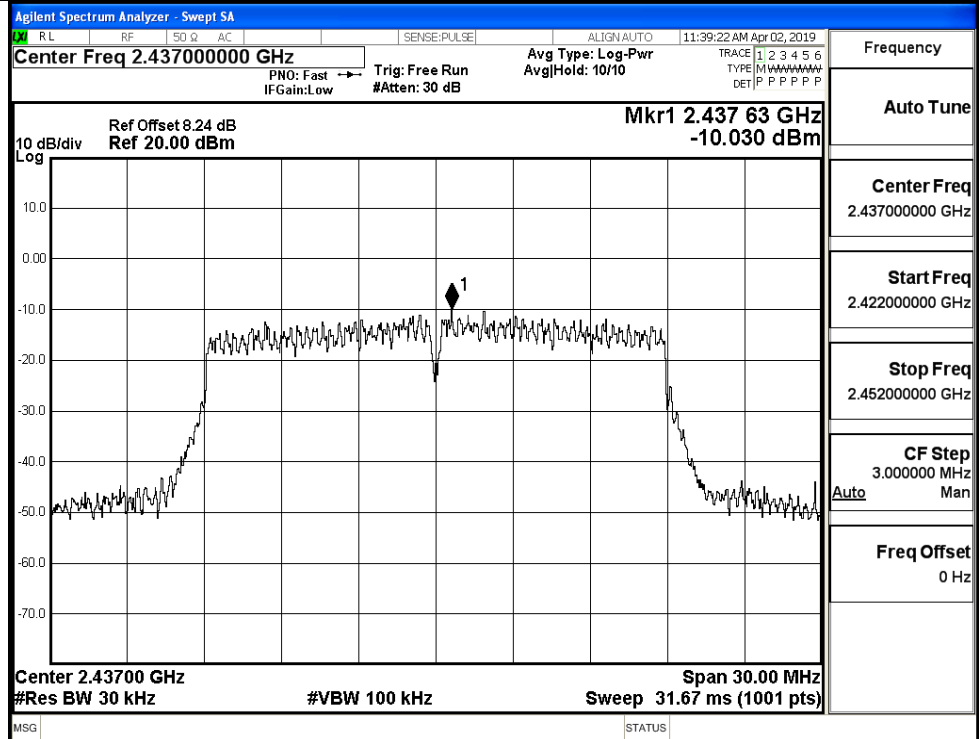
11G/HCH



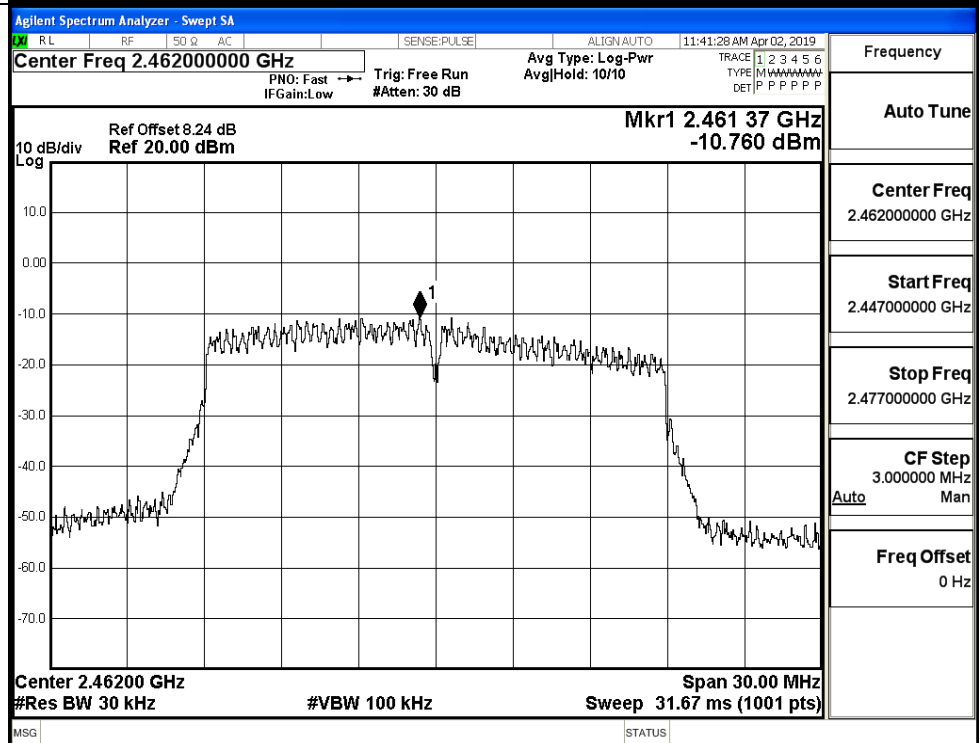
11N20SISO/LCH



11N20SISO/MCH

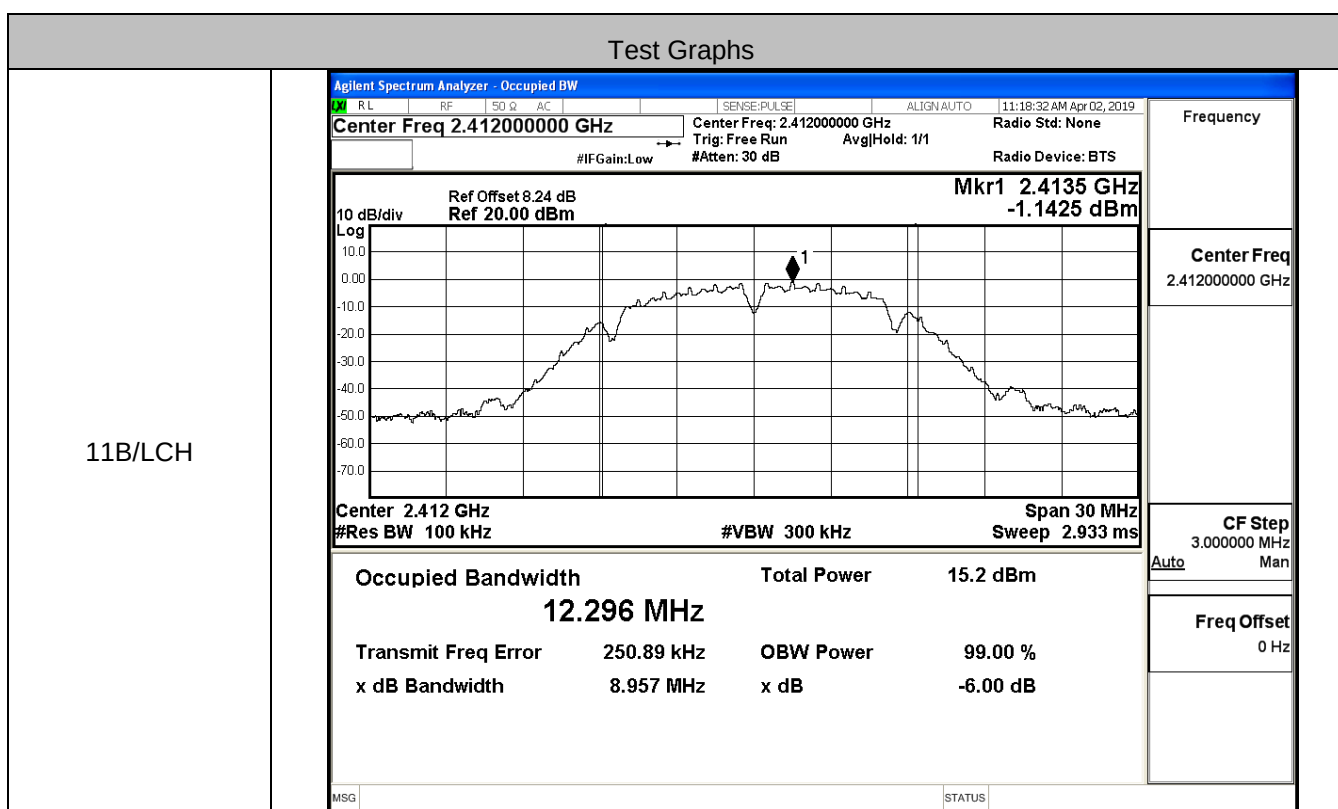


11N20SISO/HCH

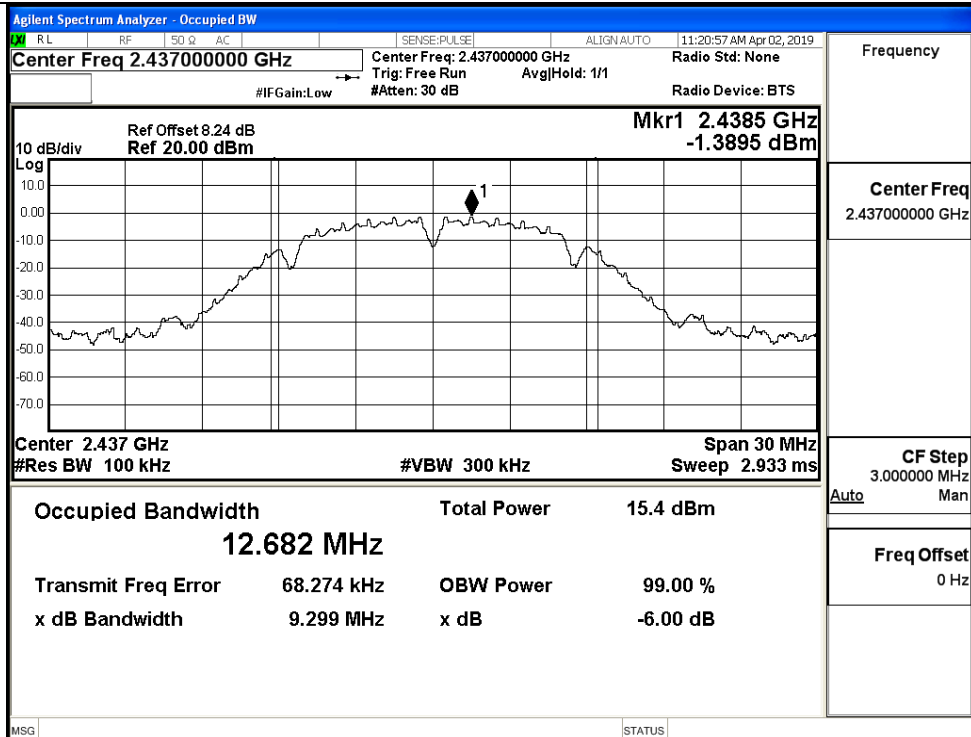


A.4 6dB Bandwidth

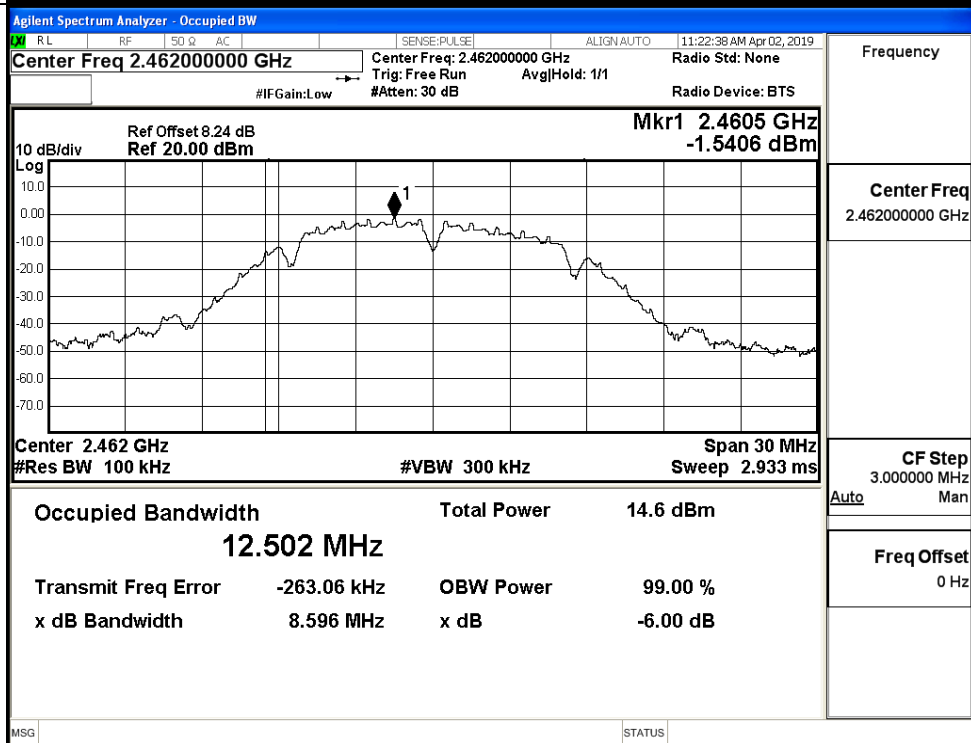
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	8.957	≥ 0.5	PASS
	MCH	9.299	≥ 0.5	PASS
	HCH	8.596	≥ 0.5	PASS
11G	LCH	15.14	≥ 0.5	PASS
	MCH	16.49	≥ 0.5	PASS
	HCH	14.87	≥ 0.5	PASS
11N20SISO	LCH	16.02	≥ 0.5	PASS
	MCH	17.71	≥ 0.5	PASS
	HCH	14.73	≥ 0.5	PASS



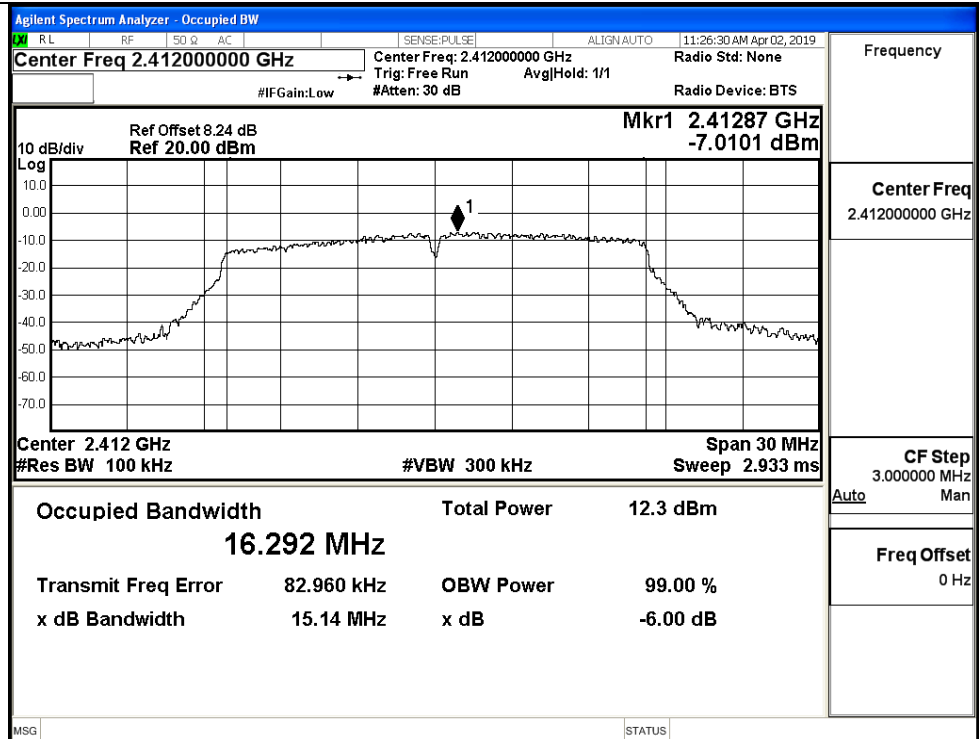
11B/MCH



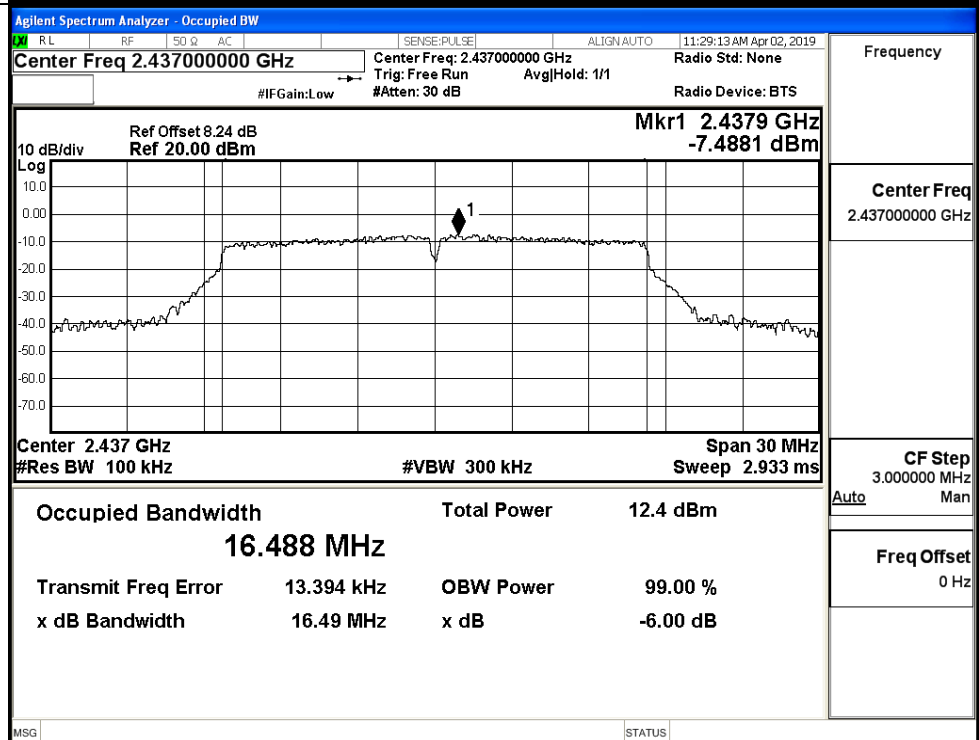
11B/HCH



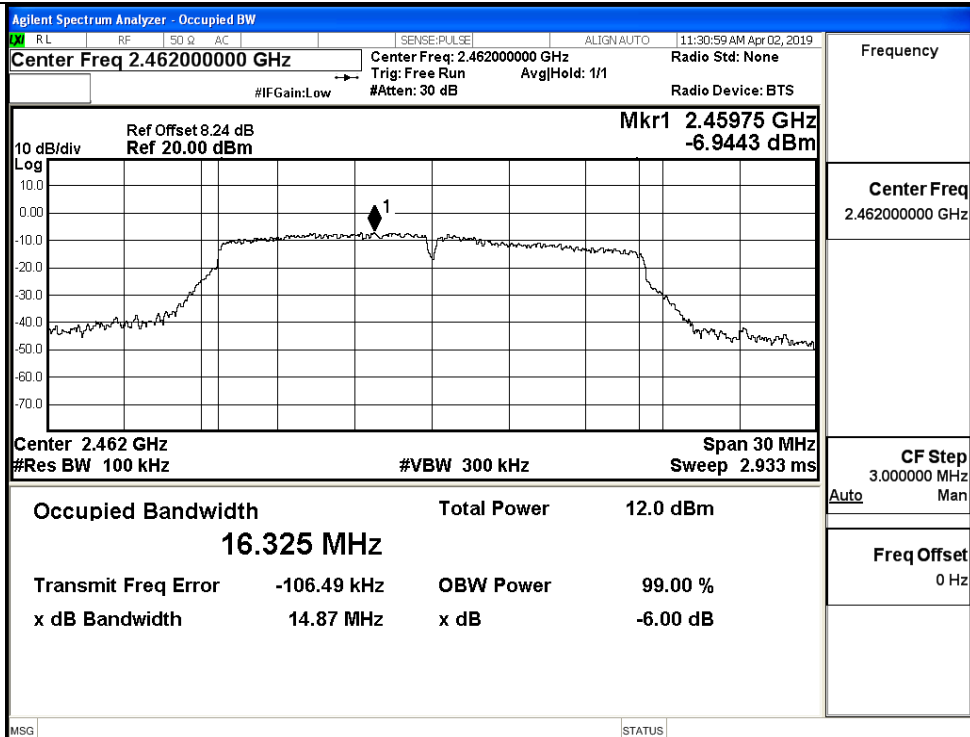
11G/LCH



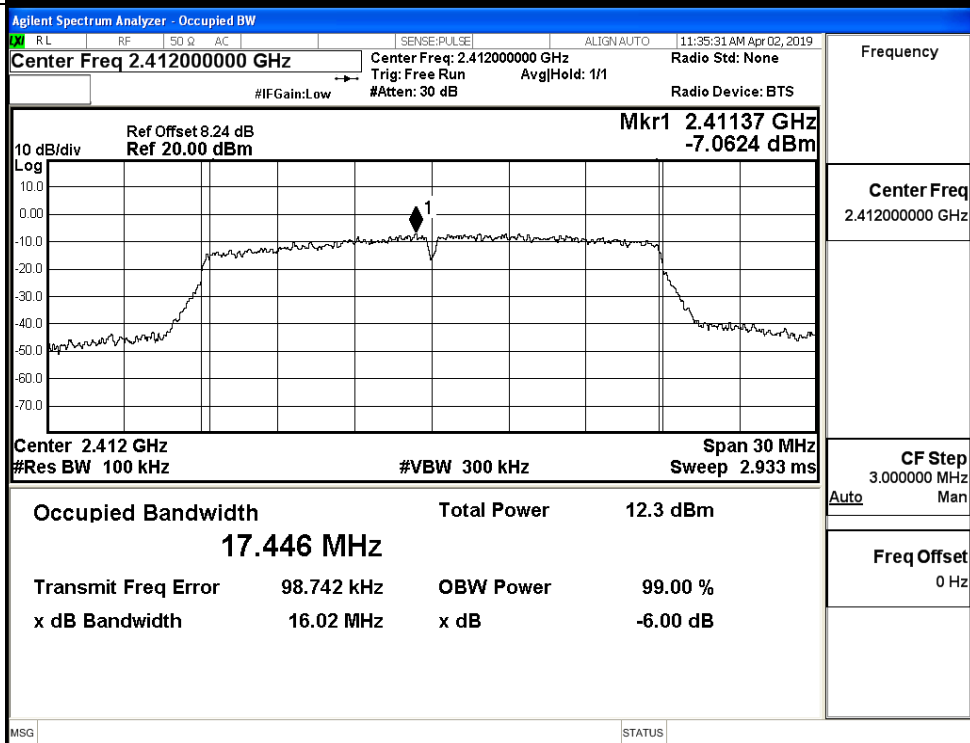
11G/MCH



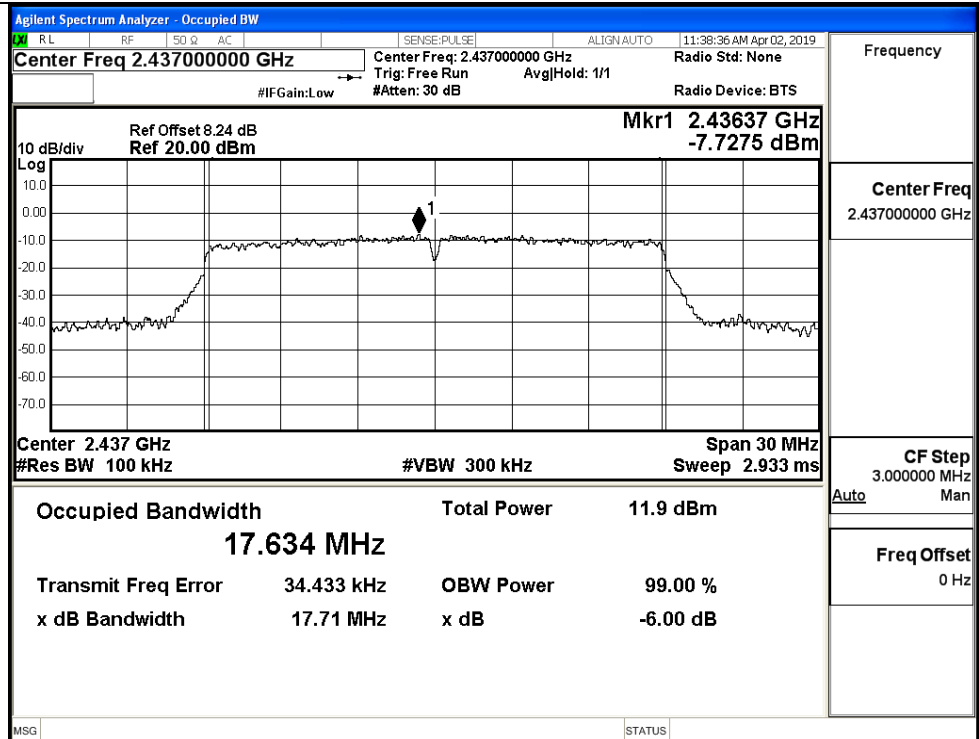
11G/HCH



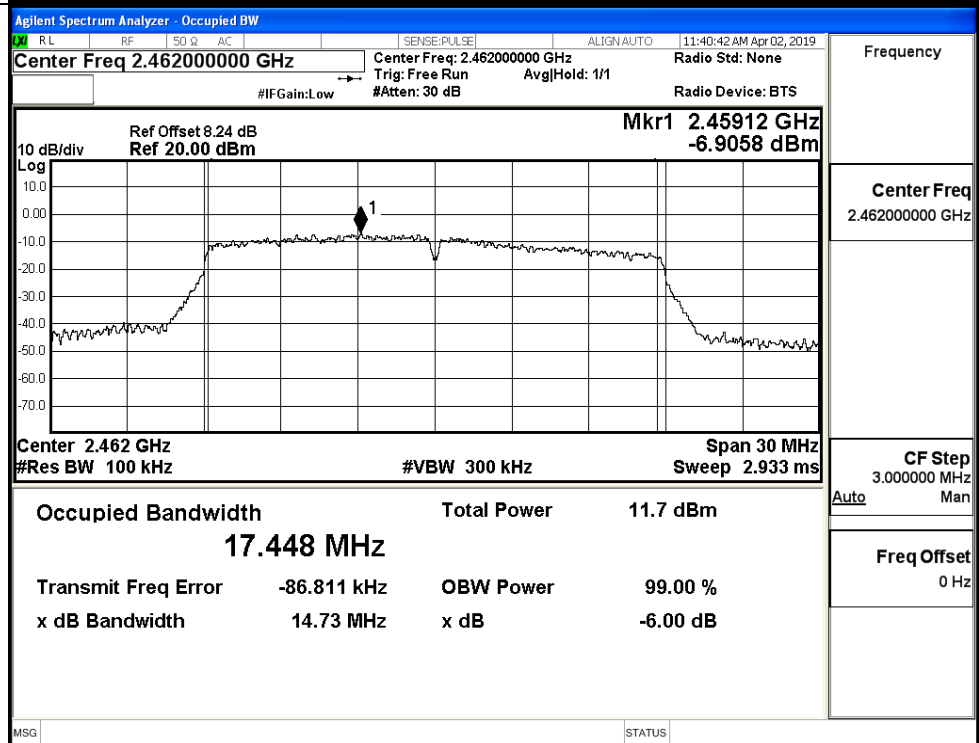
11N20SISO/LCH



11N20SISO/MCH



11N20SISO/HCH

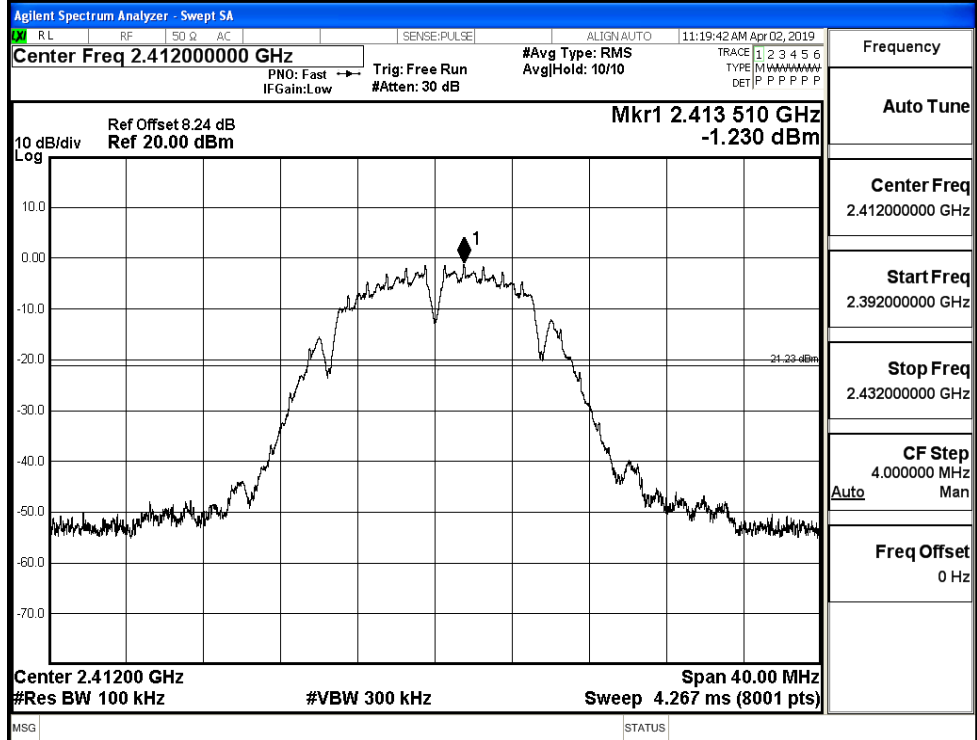


A.5 RF Conducted Spurious Emissions

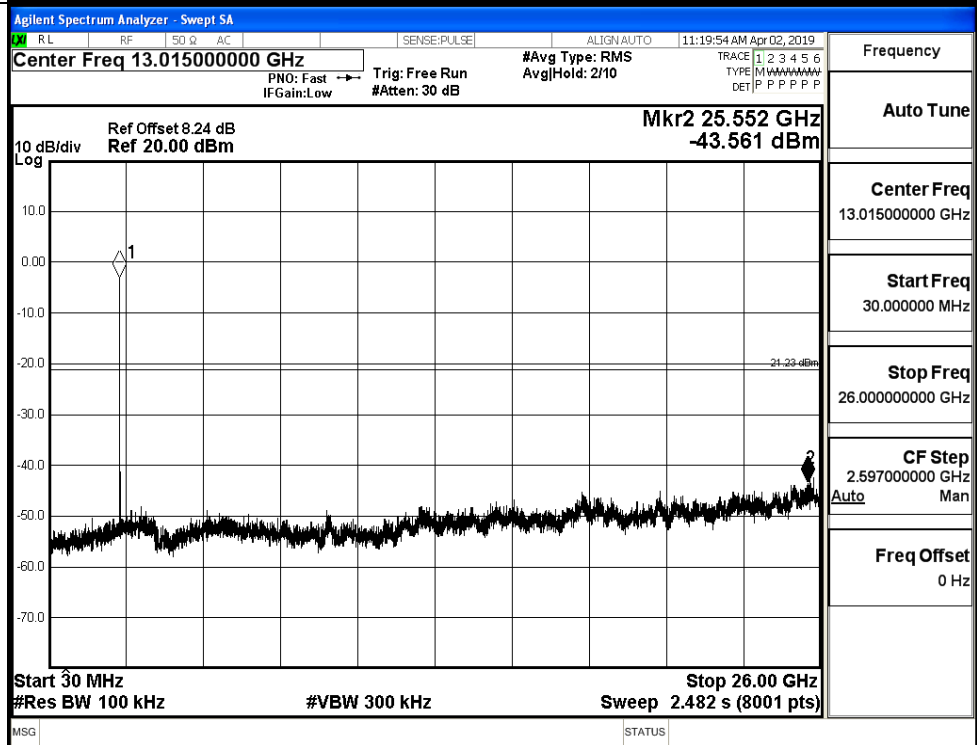
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-1.23	-43.561	-21.230	PASS
	MCH	-1.504	-42.982	-21.504	PASS
	HCH	-1.575	-43.856	-21.575	PASS
11G	LCH	-7.037	-41.893	-27.037	PASS
	MCH	-7.605	-43.759	-27.605	PASS
	HCH	-7.337	-43.774	-27.337	PASS
11N20SISO	LCH	-7.22	-44.189	-27.220	PASS
	MCH	-8.018	-43.614	-28.018	PASS
	HCH	-6.781	-43.323	-26.781	PASS

11B LCH Graphs

Pref/11B/LCH

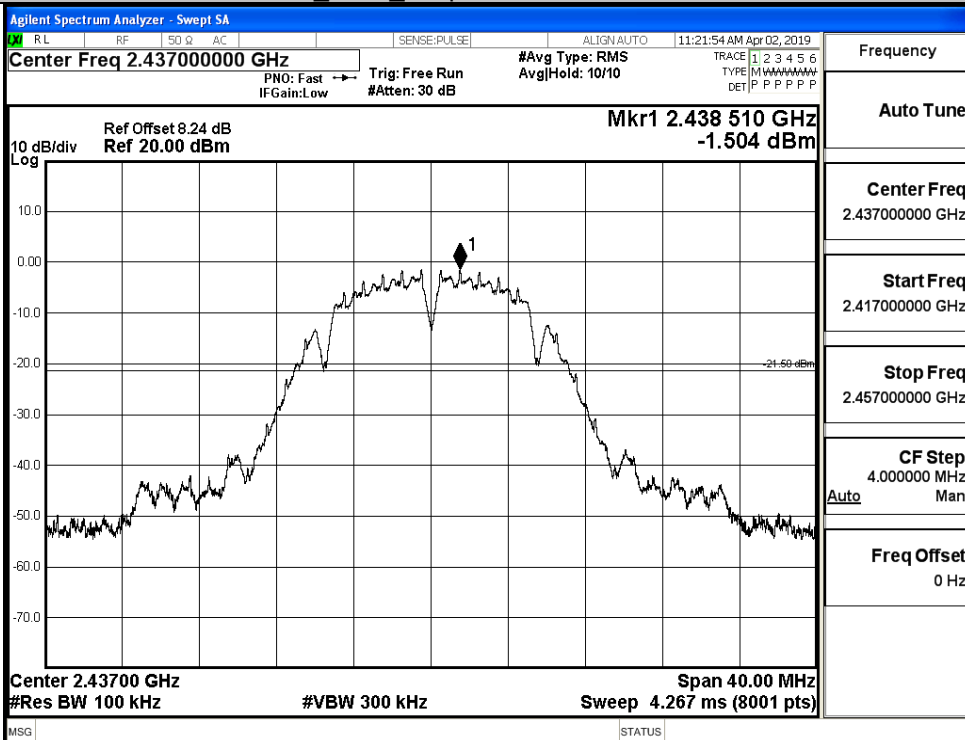


Puw/11B/LCH

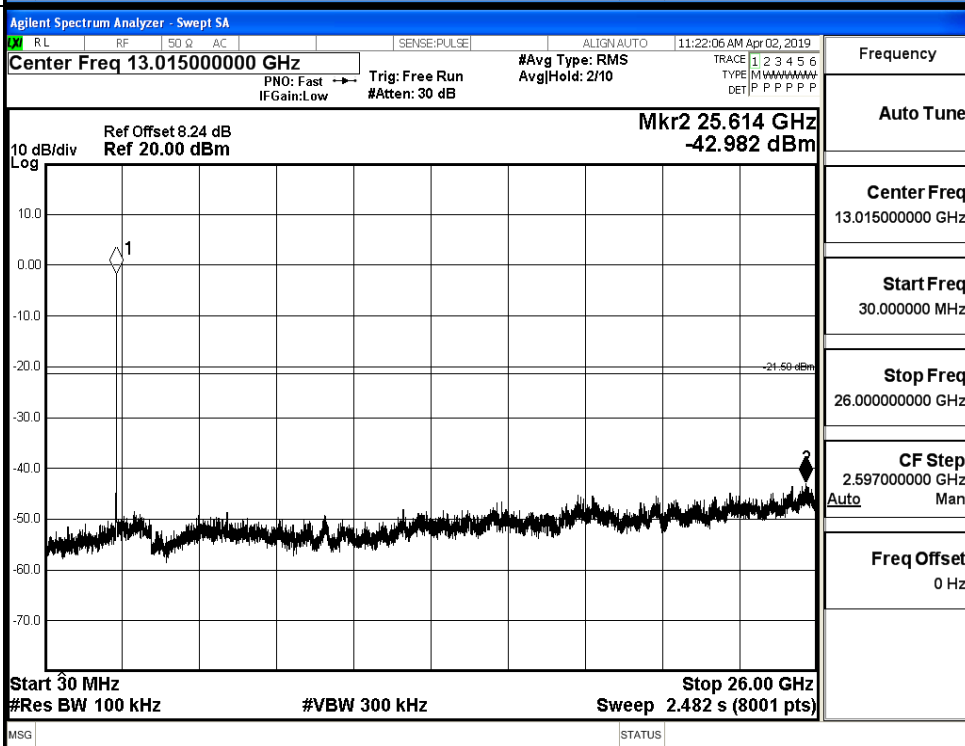


11B MCH Graphs

Pref/11B/MCH

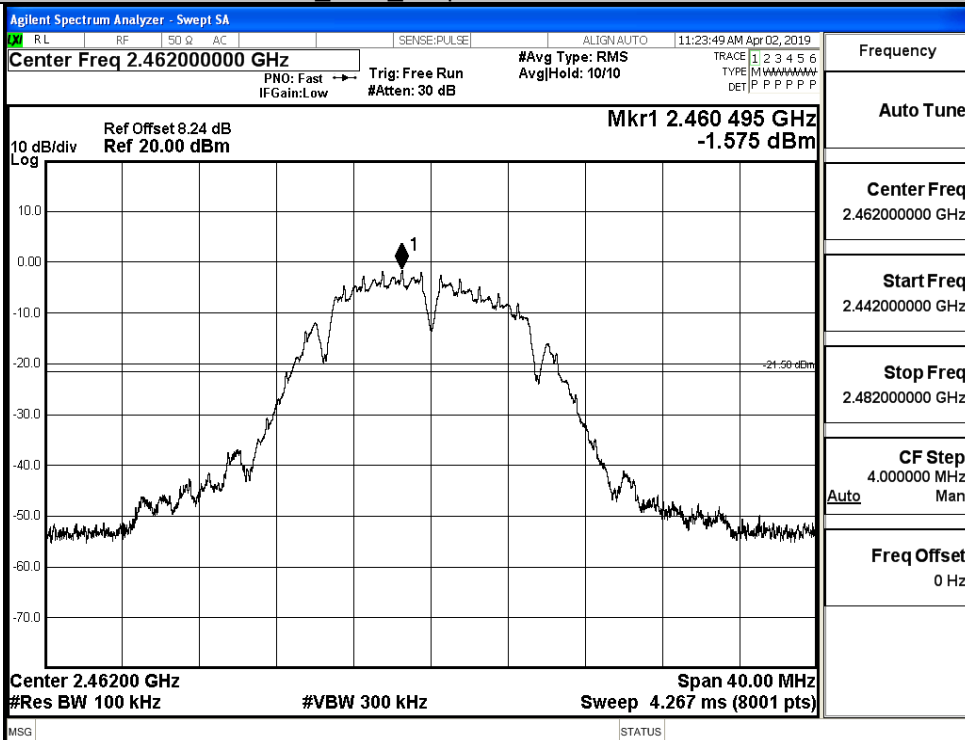


Puw/11B/MCH

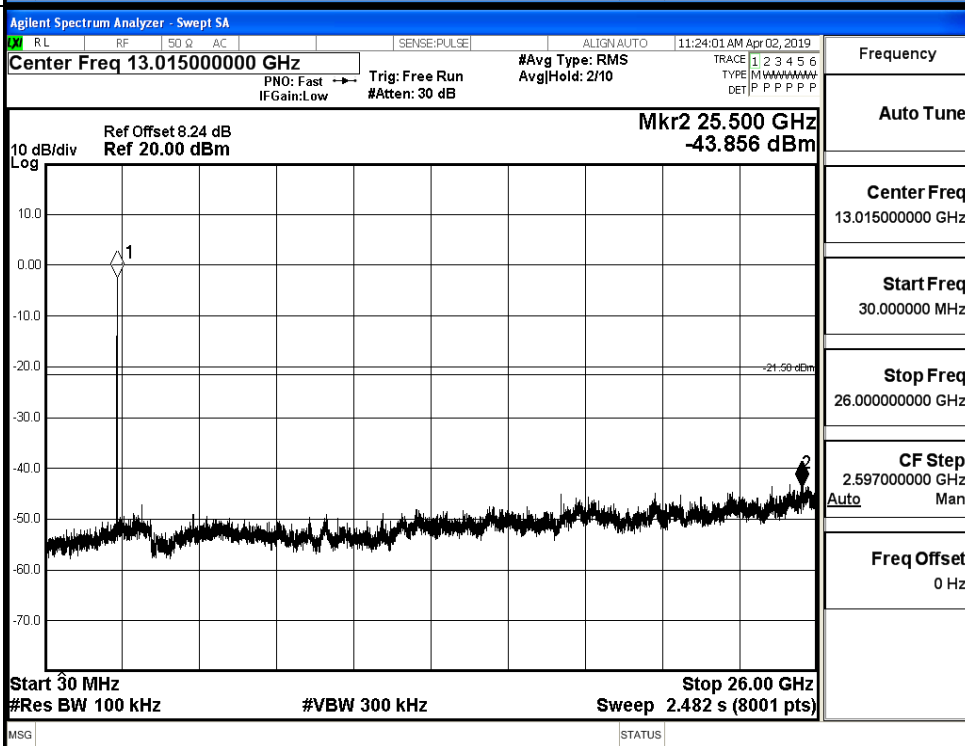


11B HCH Graphs

Pref/11B/HCH

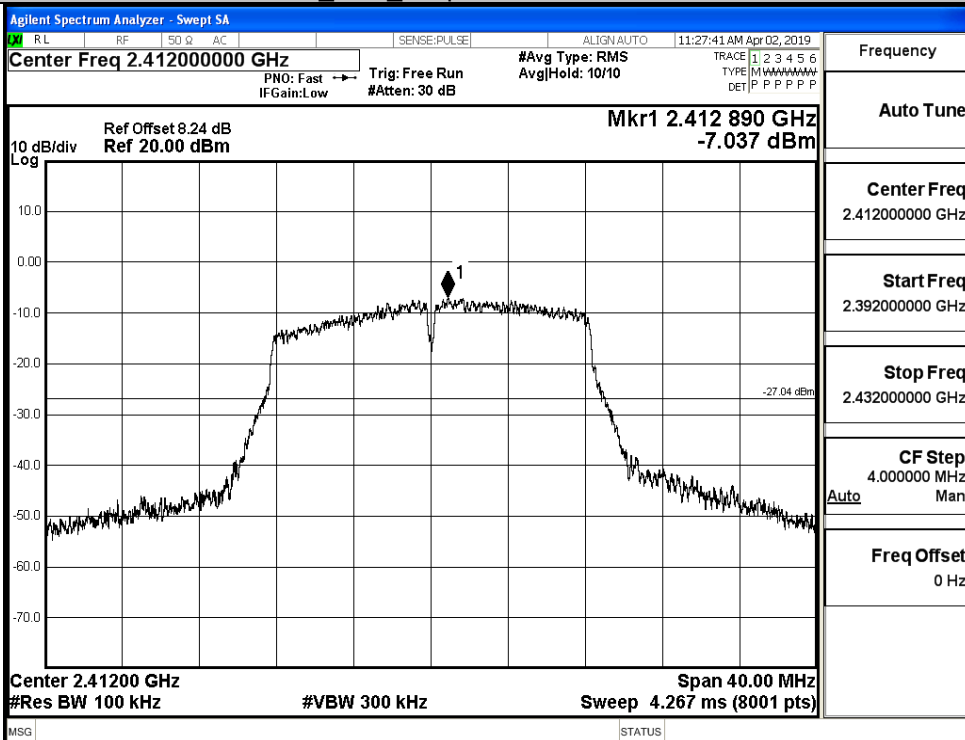


Puw/11B/HCH

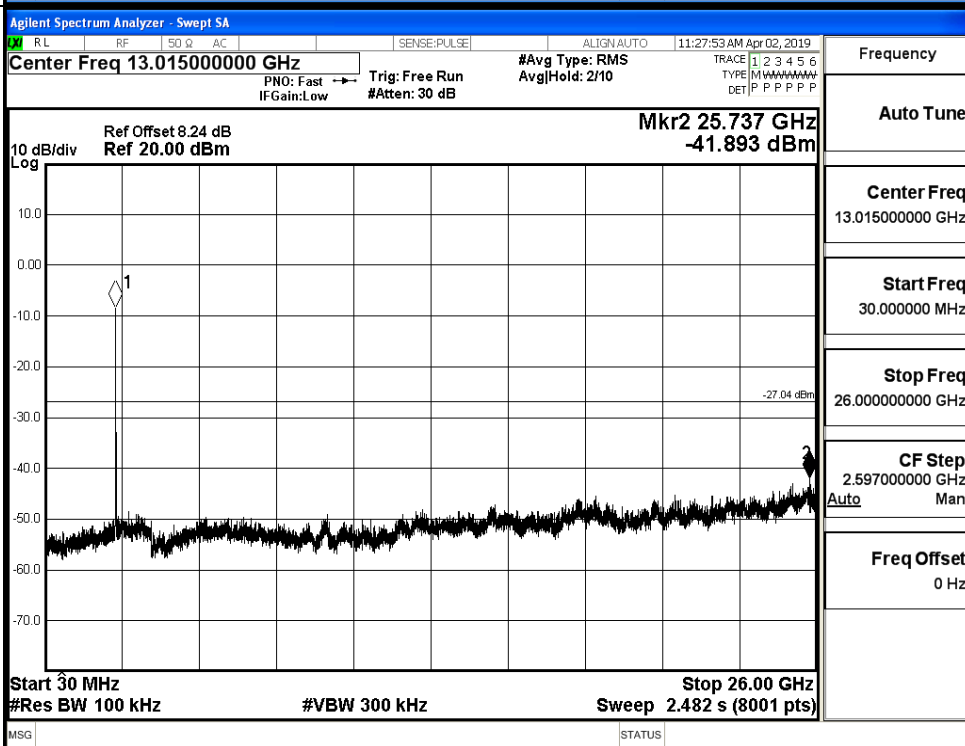


11G LCH Graphs

Pref/11G/LCH

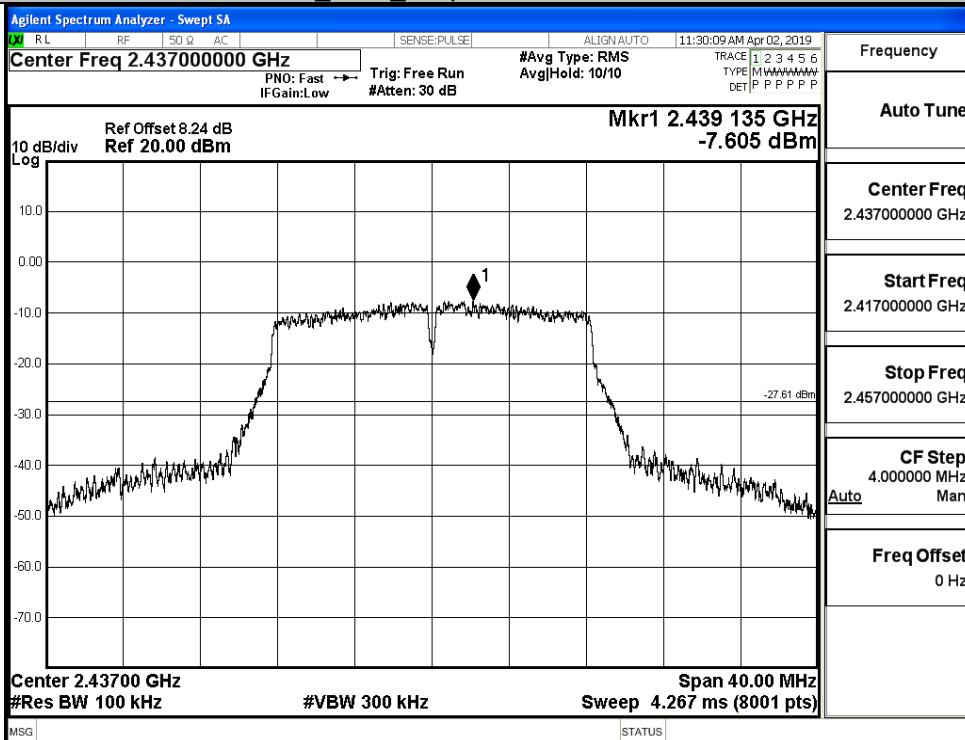


Puw/11G/LCH

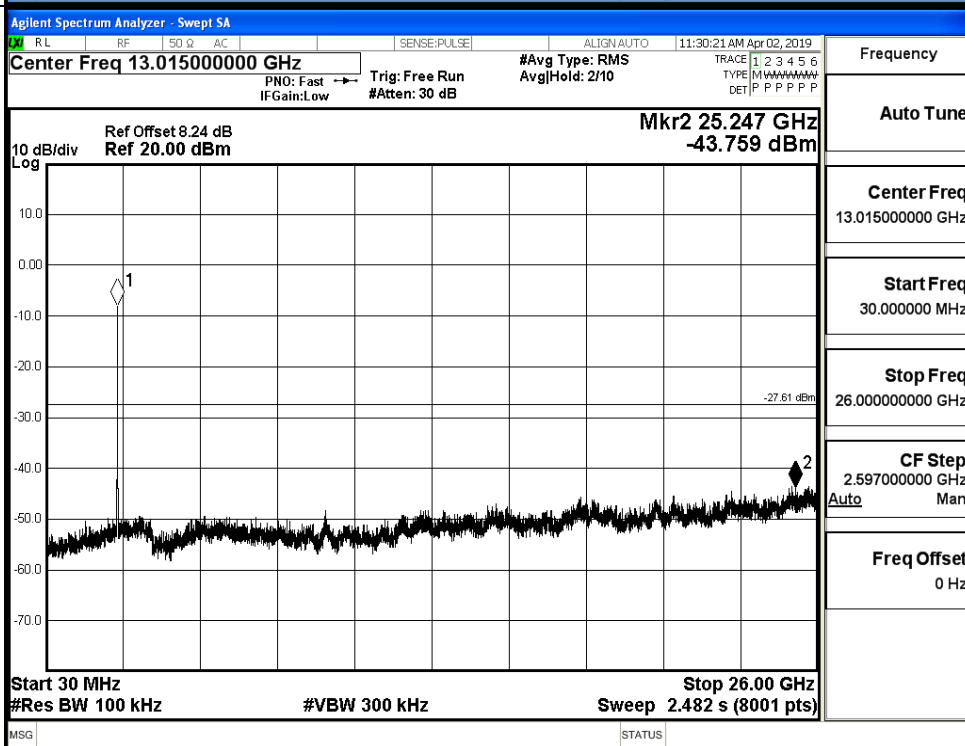


11G MCH Graphs

Pref/11G/MCH

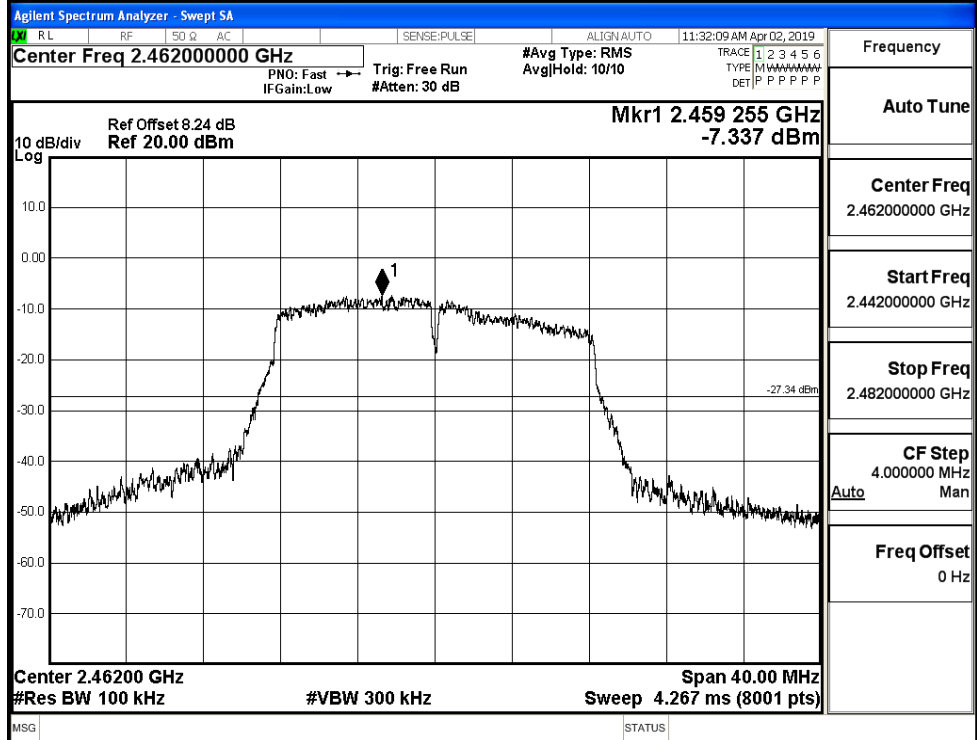


Puw/11G/MCH

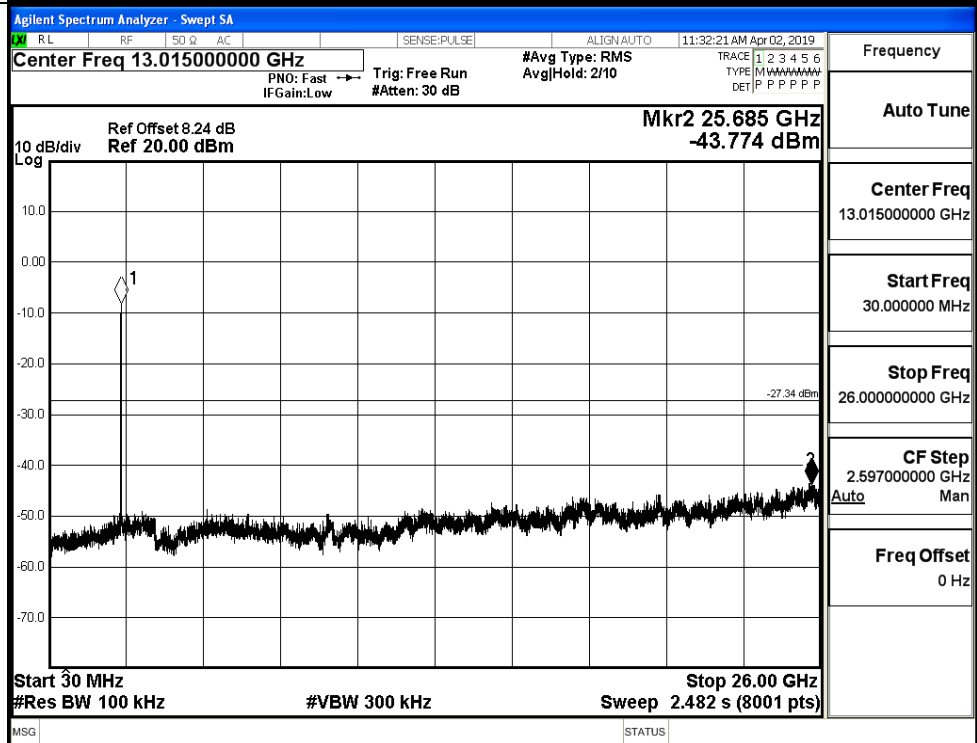


11G HCH Graphs

Pref/11G/HCH

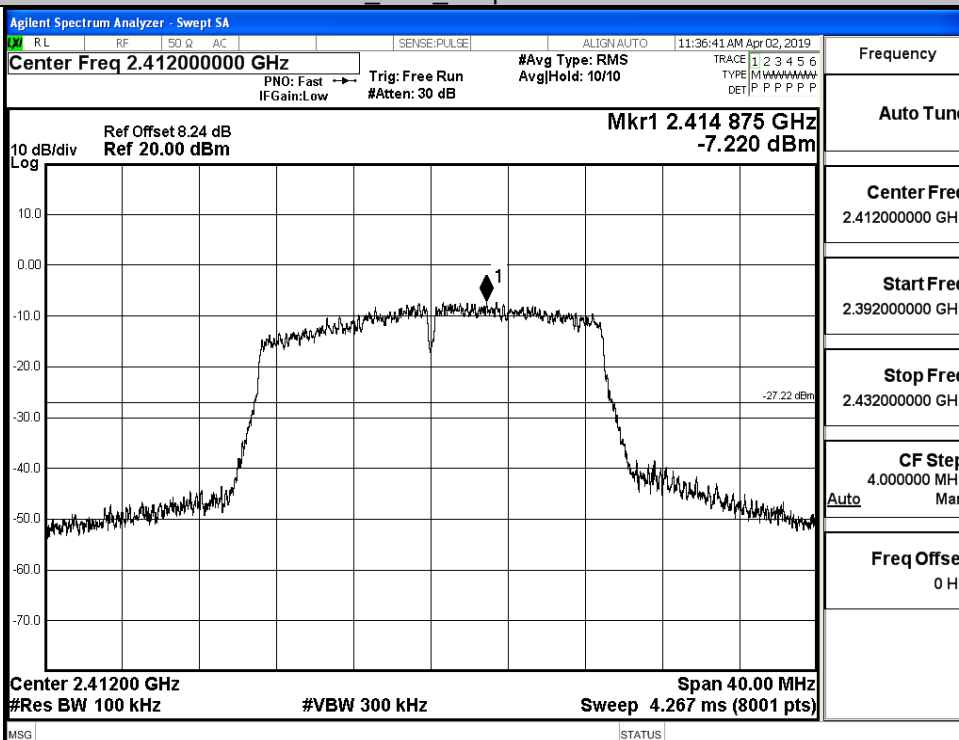


Puw/11G/HCH

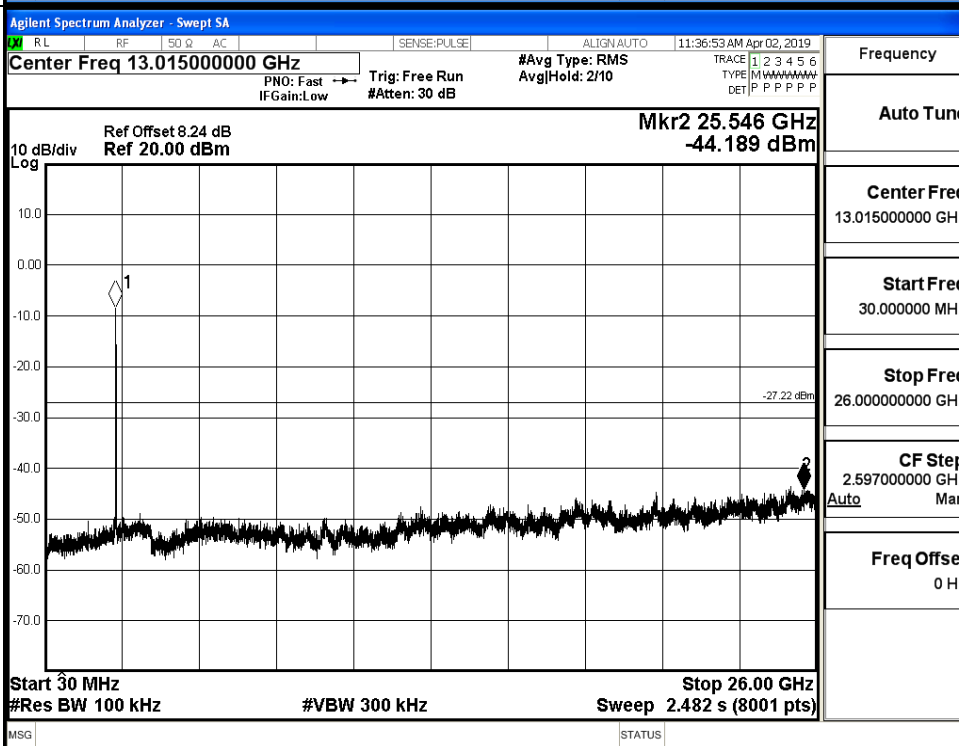


11N20SISO LCH Graphs

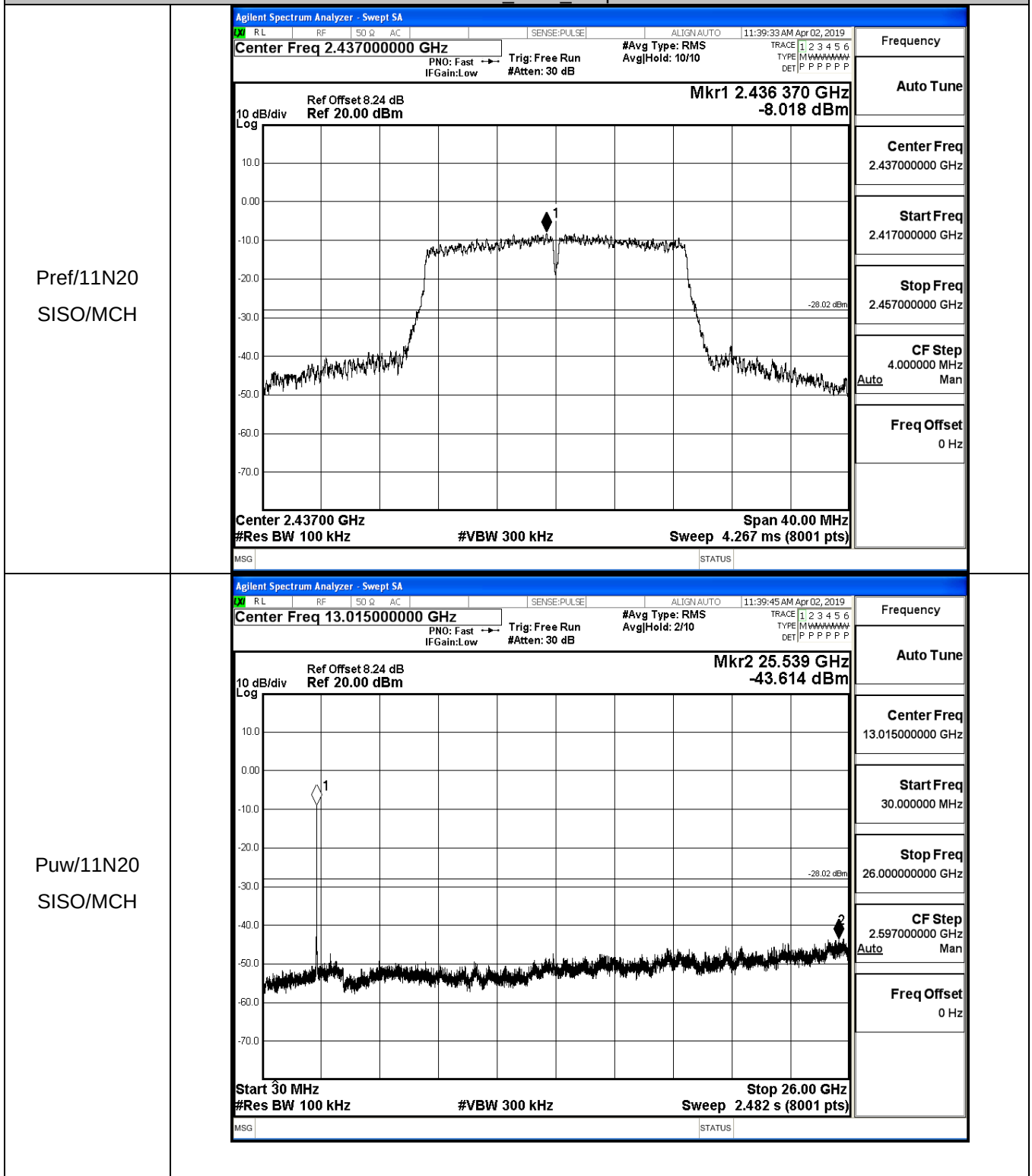
Pref/11N20SIS
O/LCH



Puw/11N20
SISO/LCH

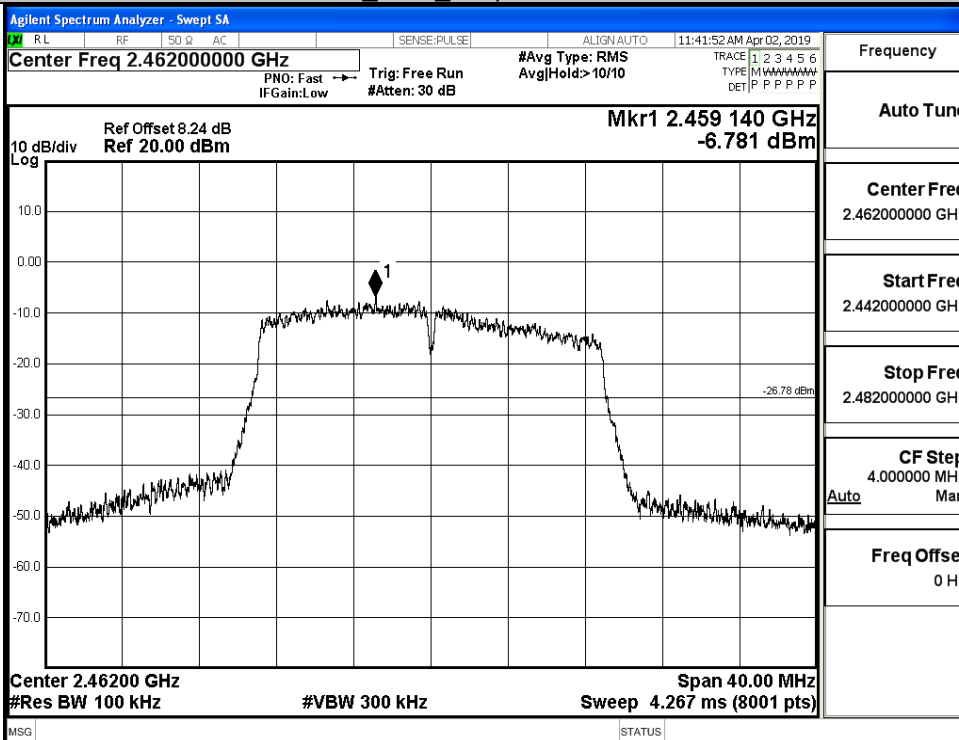


11N20SISO_MCH_Graphs

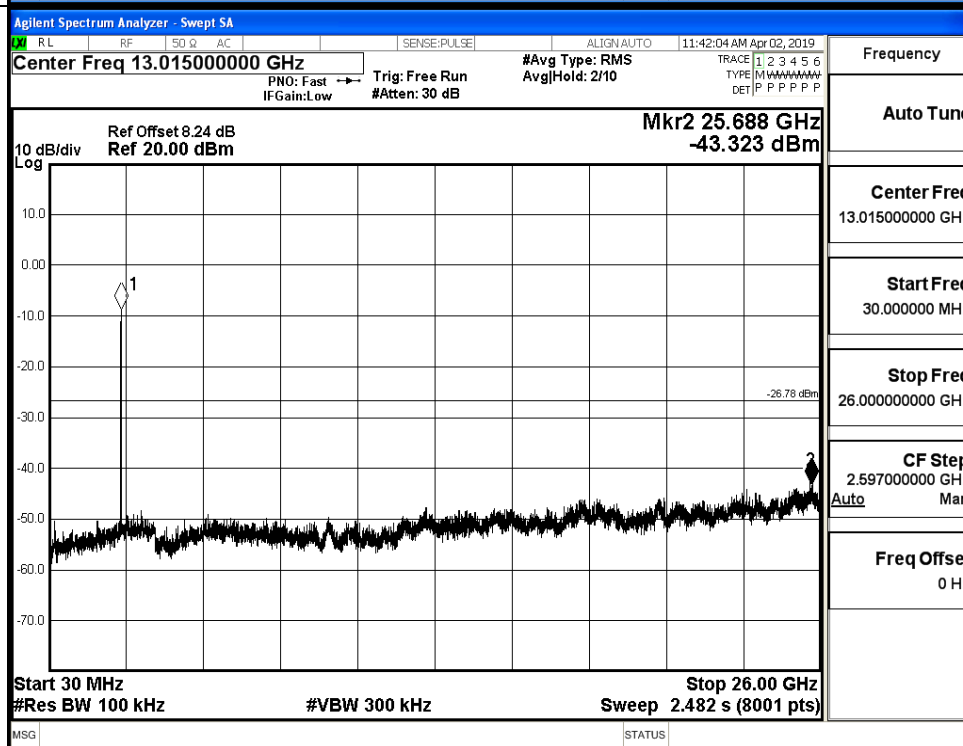


11N20SISO HCH Graphs

Pref/11N20
SISO/HCH

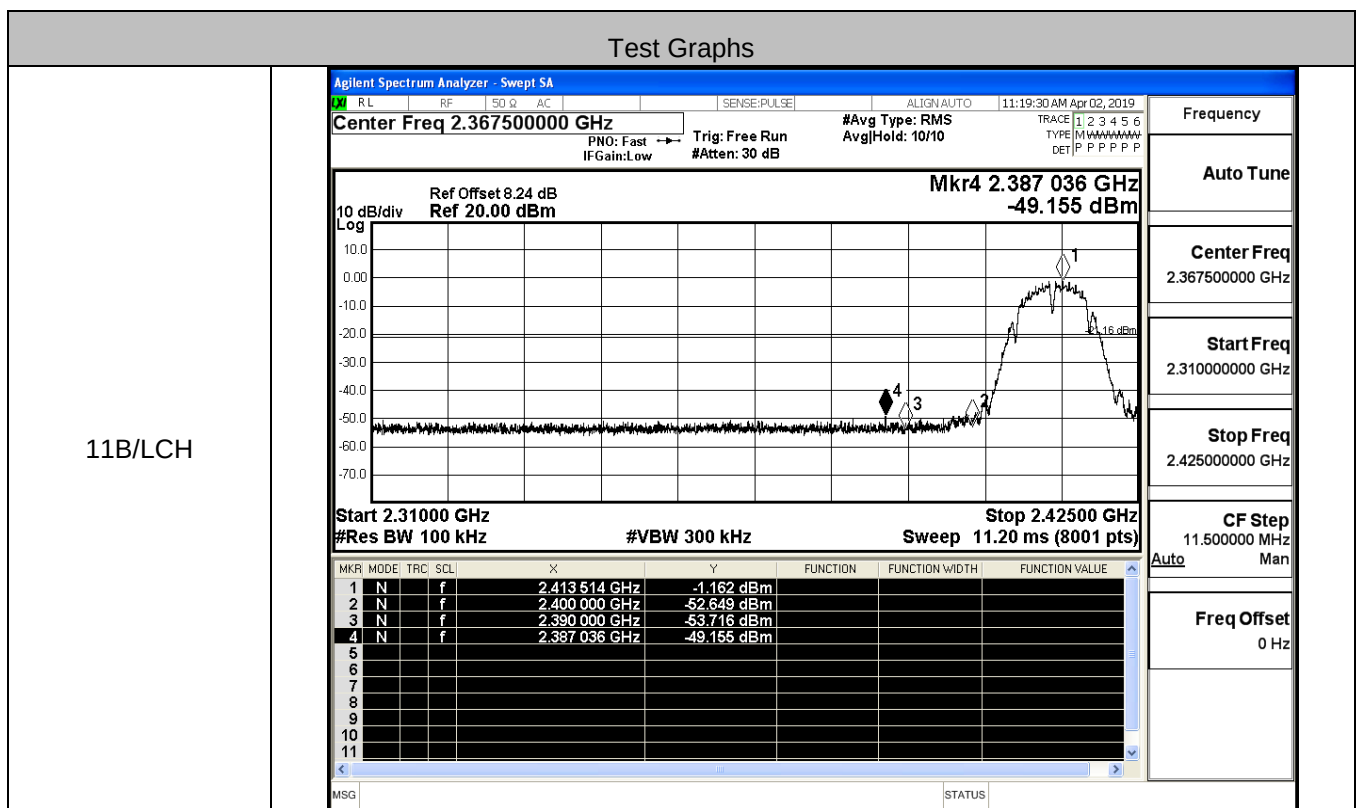


Puw/11N20
SISO/HCH

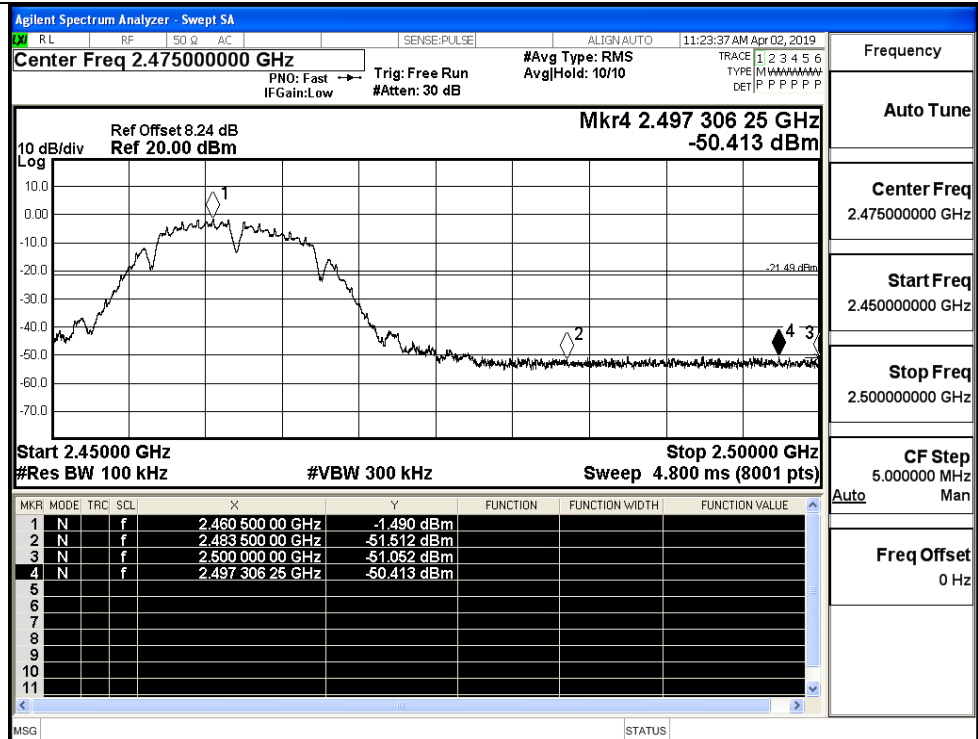


A.6 Band-edge for RF Conducted Emissions

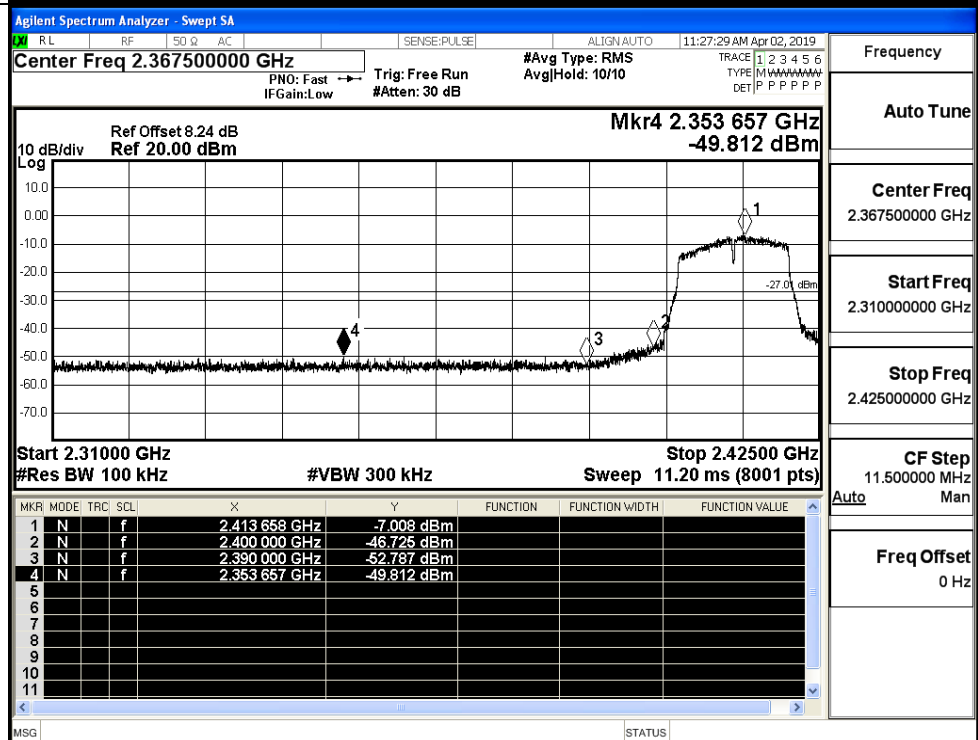
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-1.162	-49.155	-21.16	PASS
	HCH	-1.490	-50.413	-21.49	PASS
11G	LCH	-7.008	-49.812	-27.01	PASS
	HCH	-7.237	-49.306	-27.24	PASS
11N20SISO	LCH	-7.288	-50.180	-27.29	PASS
	HCH	-7.119	-49.365	-27.12	PASS



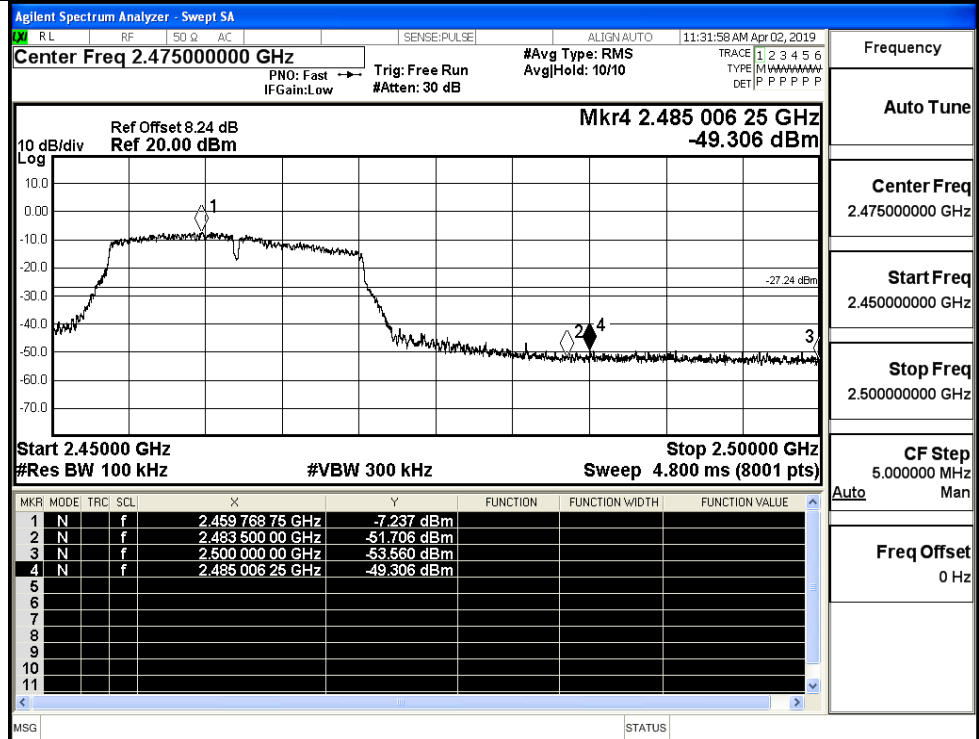
11B/HCH



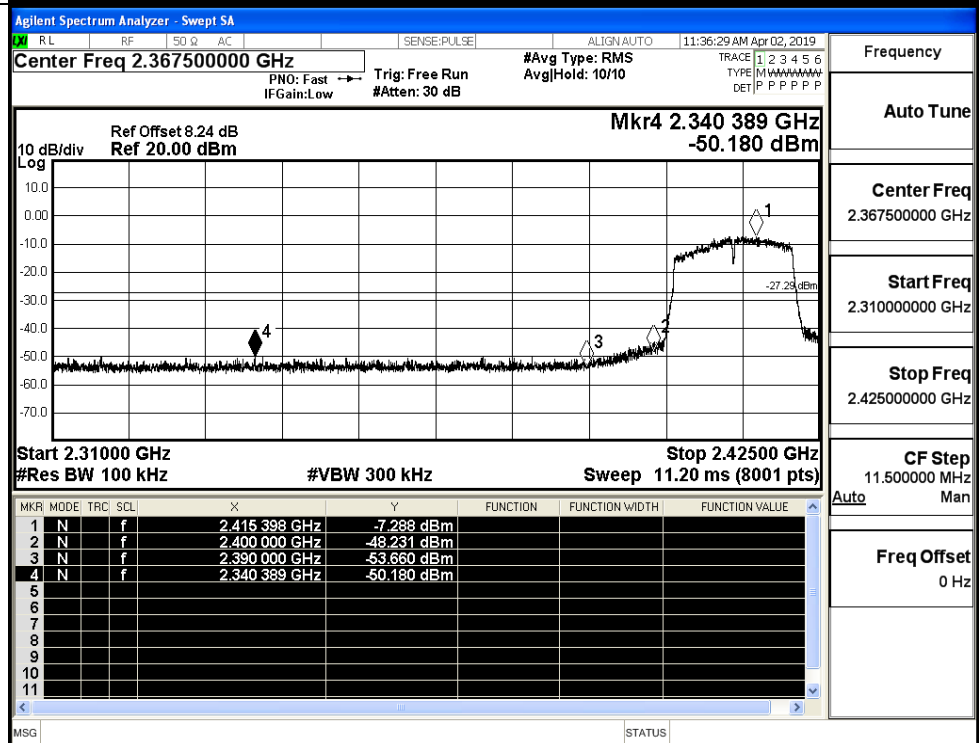
11G/LCH



11G/HCH



11N20SISO/LCH



Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:PULSE ALIGN:AUTO 11:41:41 AM Apr 02, 2019

Center Freq 2.475000000 GHz PNO: Fast Trg: Free Run #Avg Type: RMS Avg/Hold: 10/10 TYPE: M W X Y Z DET: P P P P P P P

IF Gain: Low #Atten: 30 dB

Ref Offset 8.24 dB Mkr4 2.485 268 75 GHz
Ref 20.00 dBm -49.365 dBm

10 dB/div Log

Start 2.45000 GHz Stop 2.50000 GHz
#Res BW 100 kHz #VBW 300 kHz Sweep 4.800 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.459 131 25 GHz	-7.119 dBm			
2	N		f	2.483 500 00 GHz	-52.123 dBm			
3	N		f	2.500 000 00 GHz	-52.968 dBm			
4	N		f	2.485 268 75 GHz	-49.365 dBm			
5								
6								
7								
8								
9								
10								
11								

MSG STATUS

Auto Tune

Center Freq 2.475000000 GHz

Start Freq 2.450000000 GHz

Stop Freq 2.500000000 GHz

CF Step 5.000000 MHz

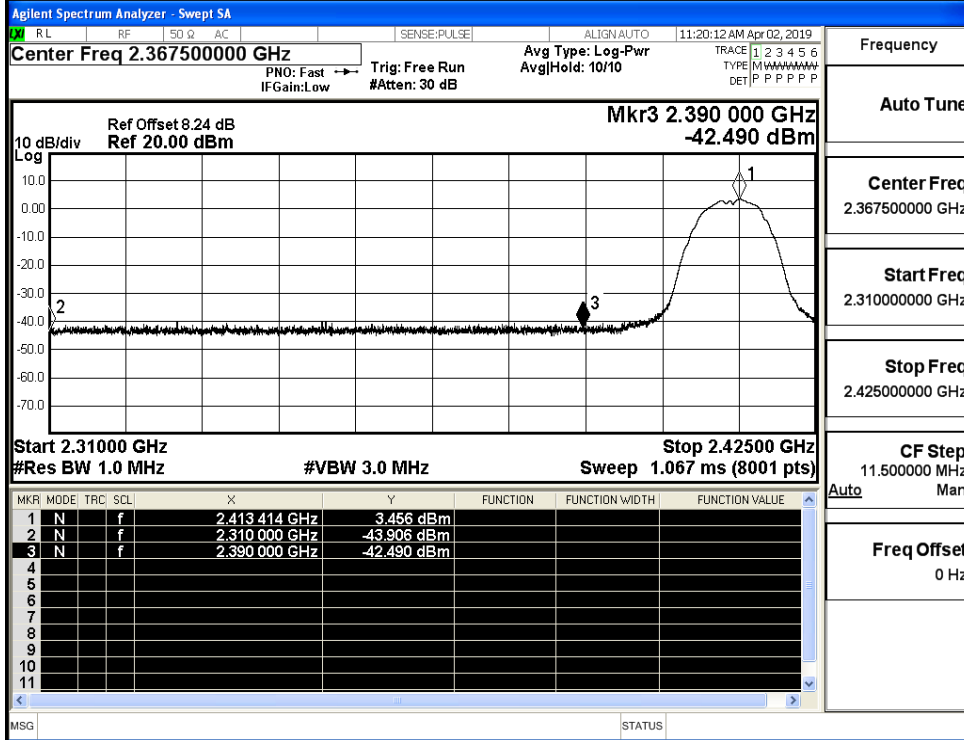
Auto Man

Freq Offset 0 Hz

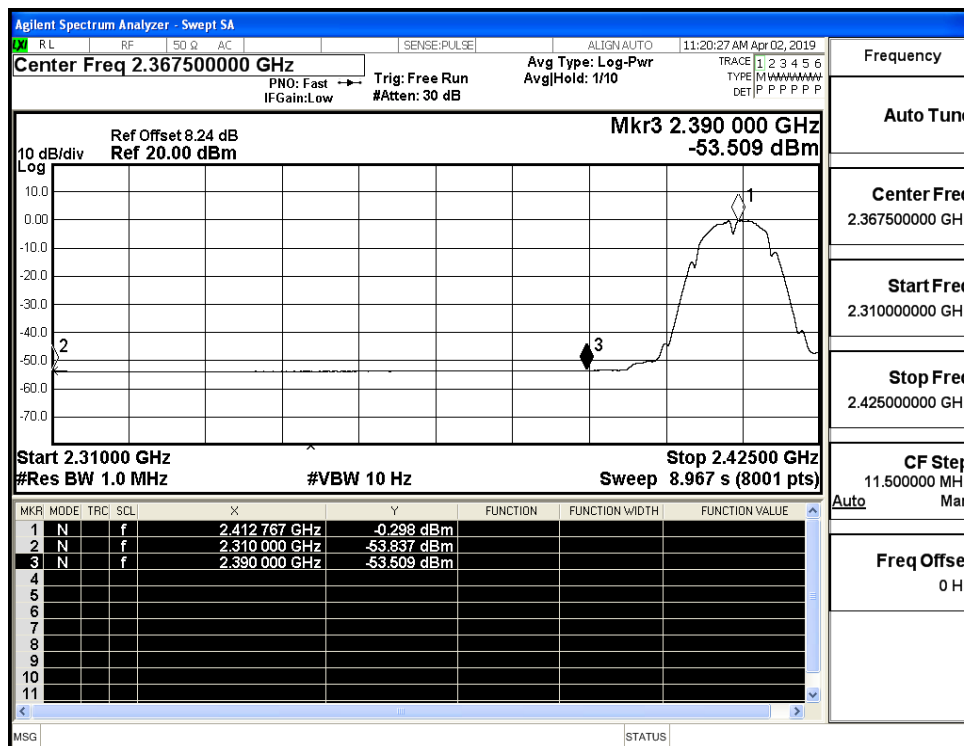
A.7 Restrict-band band-edge measurements

Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-43.91	2.0	0	53.35	PEAK	74	PASS
	2412	Ant1	2310.0	-53.84	2.0	0	43.42	AV	54	PASS
	2412	Ant1	2390.0	-42.49	2.0	0	54.77	PEAK	74	PASS
	2412	Ant1	2390.0	-53.51	2.0	0	43.75	AV	54	PASS
	2462	Ant1	2483.5	-41.26	2.0	0	55.99	PEAK	74	PASS
	2462	Ant1	2483.5	-53.12	2.0	0	44.14	AV	54	PASS
	2462	Ant1	2500.0	-41.82	2.0	0	55.44	PEAK	74	PASS
	2462	Ant1	2500.0	-53.17	2.0	0	44.09	AV	54	PASS
11G	2412	Ant1	2310.0	-41.43	2.0	0	55.83	PEAK	74	PASS
	2412	Ant1	2310.0	-53.85	2.0	0	43.41	AV	54	PASS
	2412	Ant1	2390.0	-41.45	2.0	0	55.80	PEAK	74	PASS
	2412	Ant1	2390.0	-53.18	2.0	0	44.08	AV	54	PASS
	2462	Ant1	2483.5	-41.90	2.0	0	55.36	PEAK	74	PASS
	2462	Ant1	2483.5	-52.35	2.0	0	44.91	AV	54	PASS
	2462	Ant1	2500.0	-42.13	2.0	0	55.13	PEAK	74	PASS
	2462	Ant1	2500.0	-53.10	2.0	0	44.16	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-43.76	2.0	0	53.50	PEAK	74	PASS
	2412	Ant1	2310.0	-53.86	2.0	0	43.40	AV	54	PASS
	2412	Ant1	2390.0	-43.30	2.0	0	53.96	PEAK	74	PASS
	2412	Ant1	2390.0	-53.00	2.0	0	44.26	AV	54	PASS
	2462	Ant1	2483.5	-41.61	2.0	0	55.64	PEAK	74	PASS
	2462	Ant1	2483.5	-52.30	2.0	0	44.96	AV	54	PASS
	2462	Ant1	2500.0	-41.81	2.0	0	55.45	PEAK	74	PASS
	2462	Ant1	2500.0	-53.10	2.0	0	44.15	AV	54	PASS

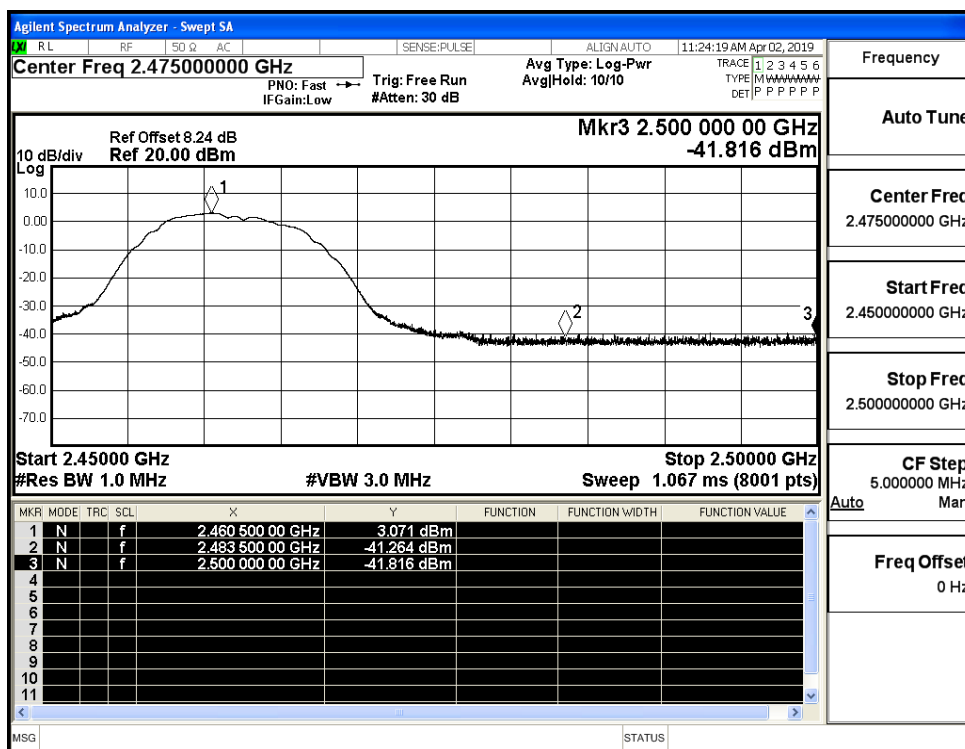
Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



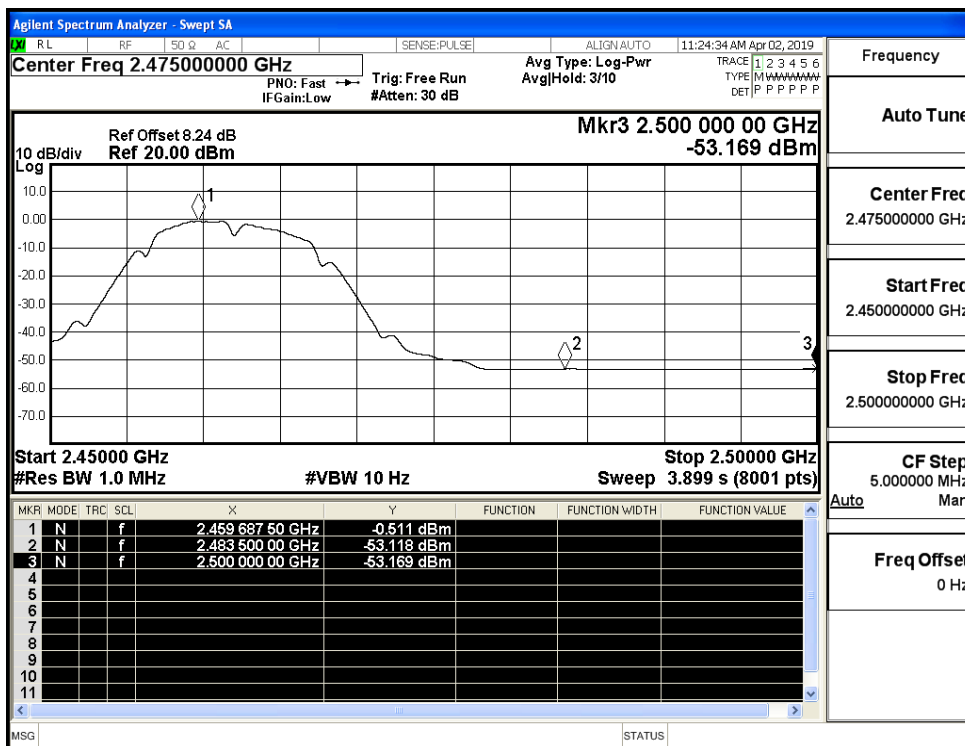
Restrict-band band-edge measurements_11B_2412_Ant1_AV



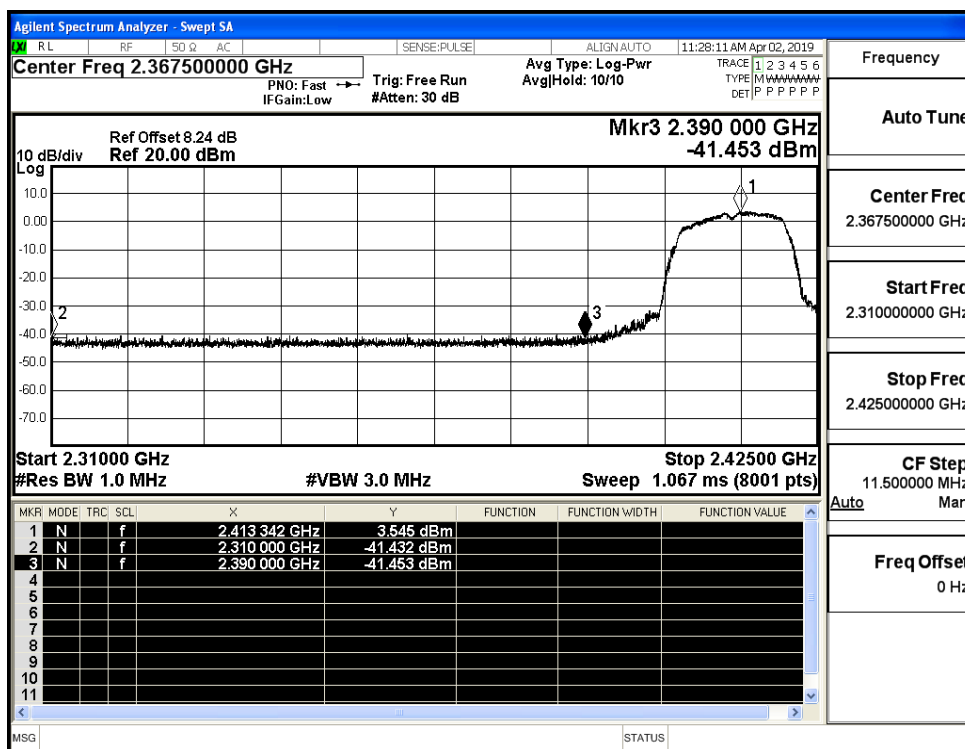
Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



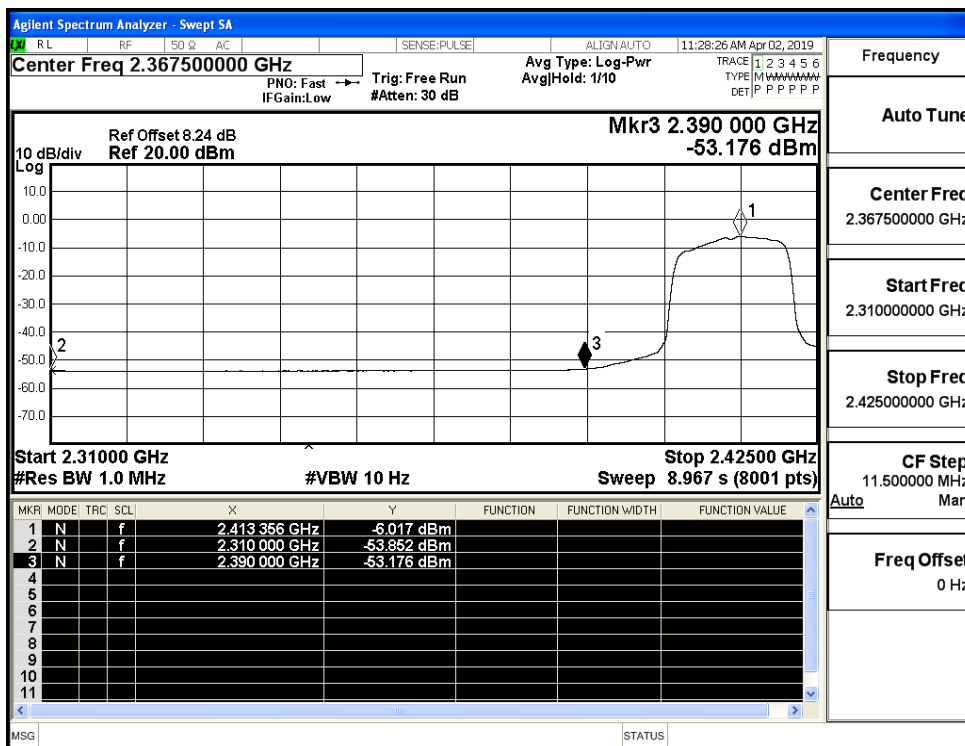
Restrict-band band-edge measurements_11B_2462_Ant1_AV



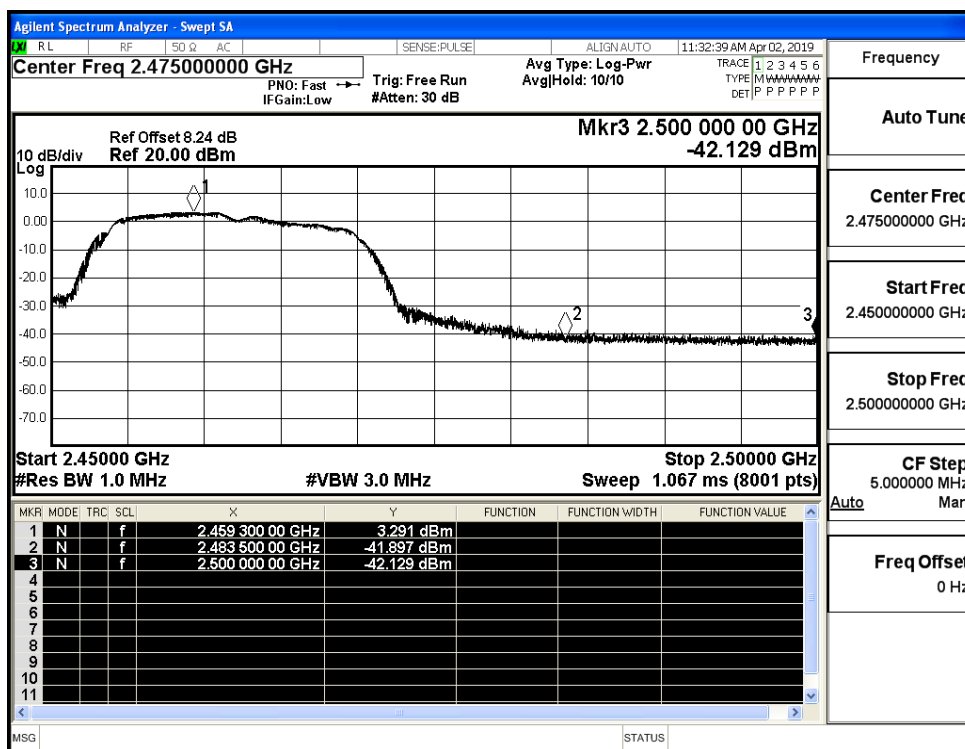
Restrict-band band-edge measurements_11G_2412_Ant1_PEAK



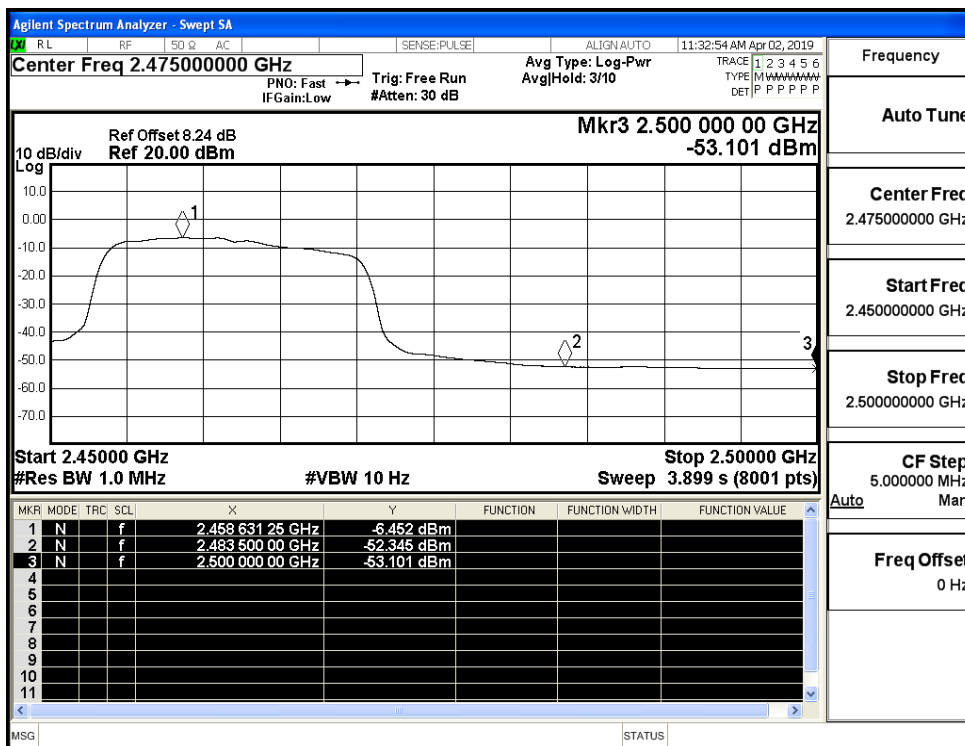
Restrict-band band-edge measurements_11G_2412_Ant1_AV



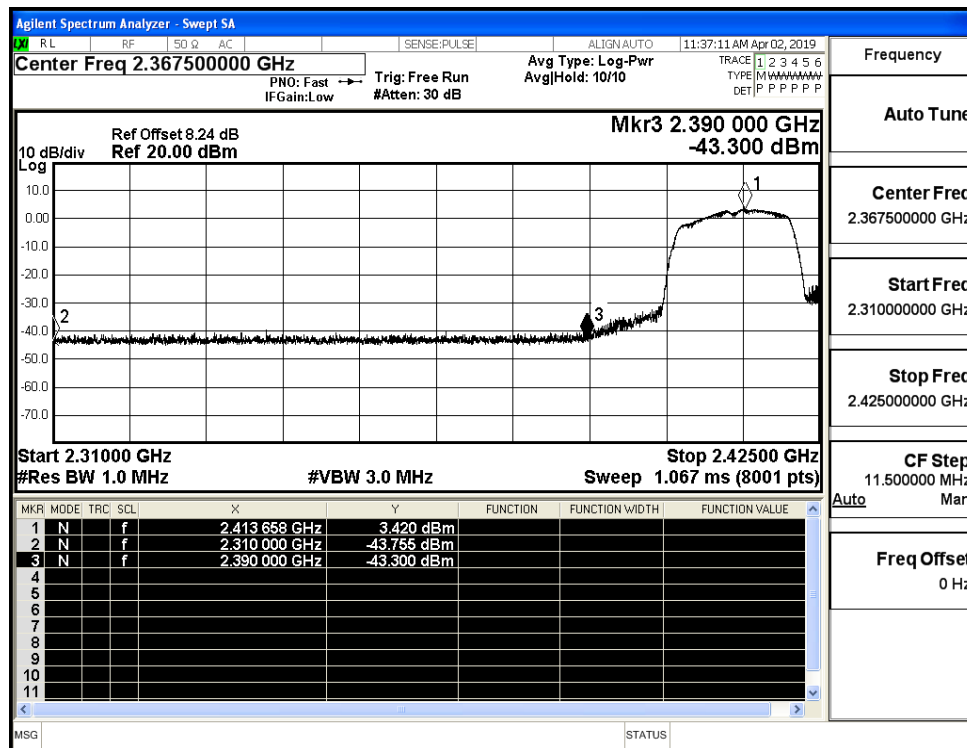
Restrict-band band-edge measurements_11G_2462_Ant1_PEAK



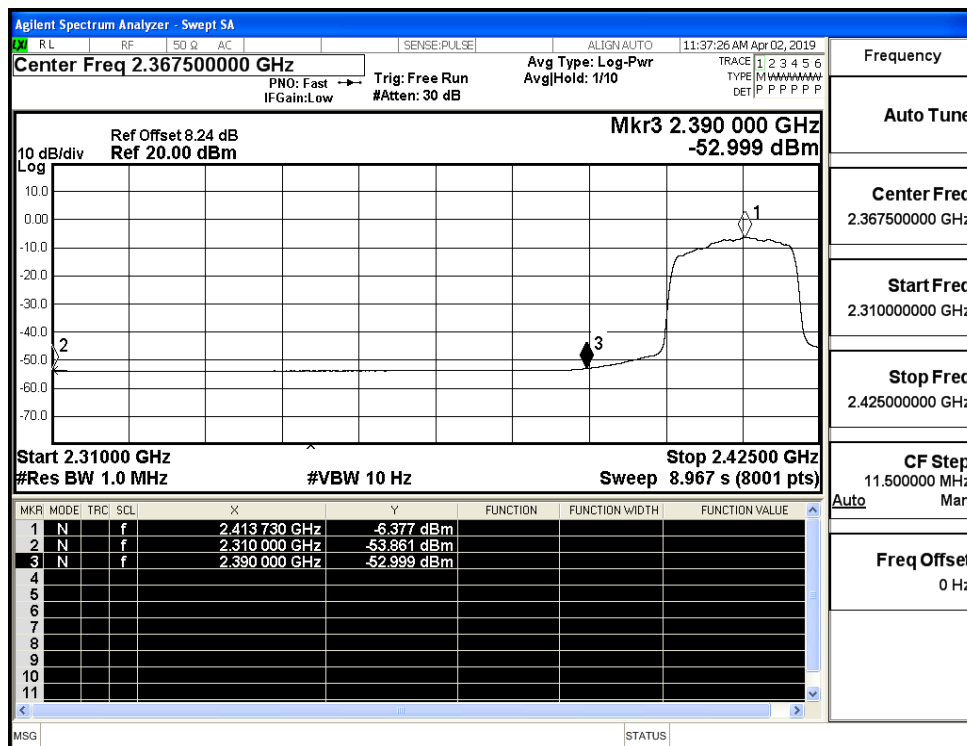
Restrict-band band-edge measurements_11G_2462_Ant1_AV



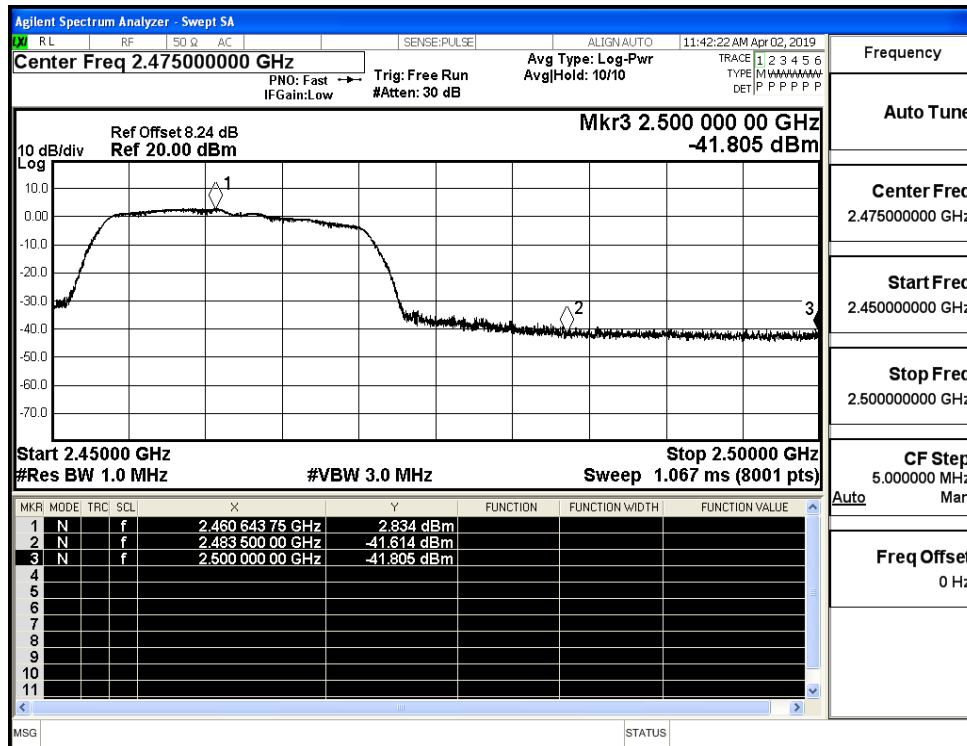
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK



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

