

Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Smart Plug

Trade Mark: iCreation, Sunway, Shengwei

Test Model: XL-9062

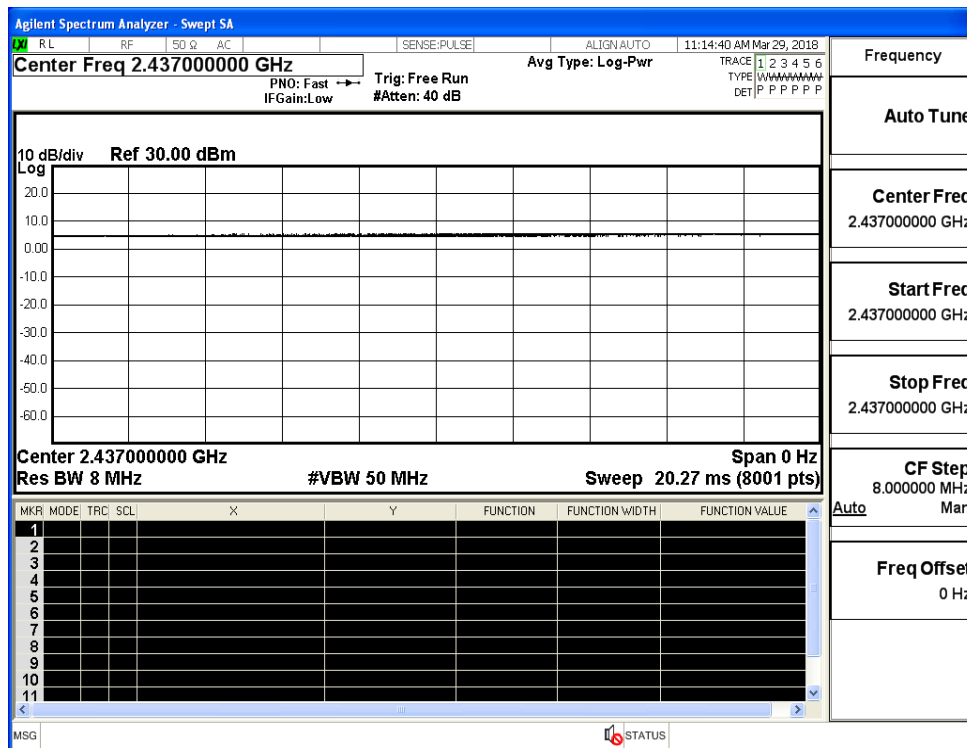
Environmental Conditions

Temperature:	21.3 ° C
Relative Humidity:	52.8%
ATM Pressure:	100.0 kPa
Test Engineer:	Jayden.Zhuo
Supervised by:	Dick.Su

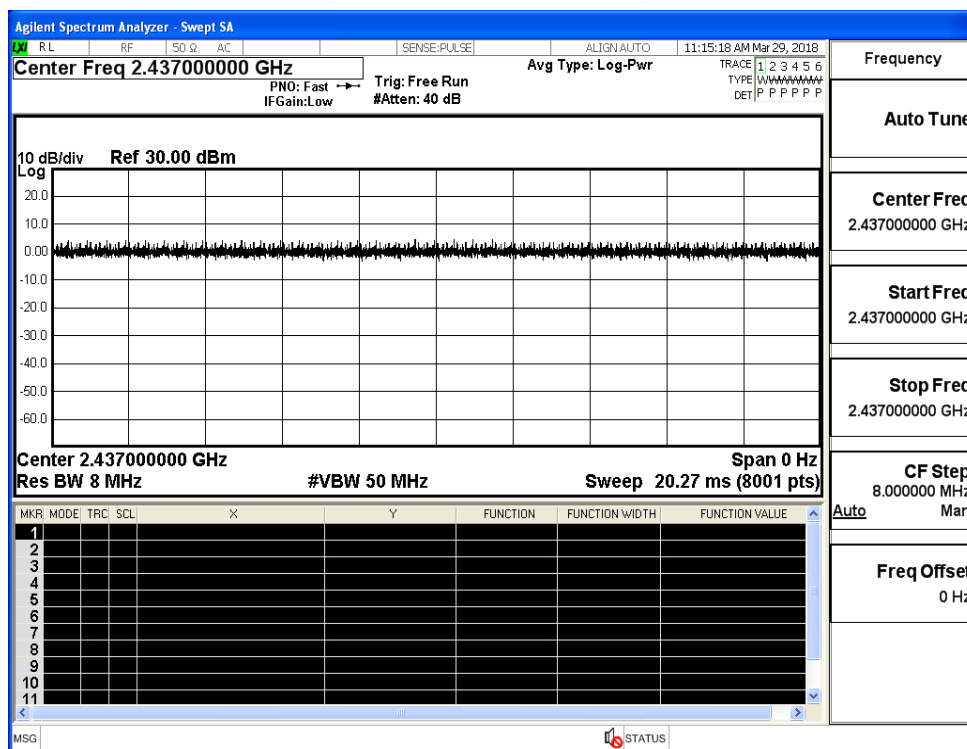
A.1 Duty Cycle

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

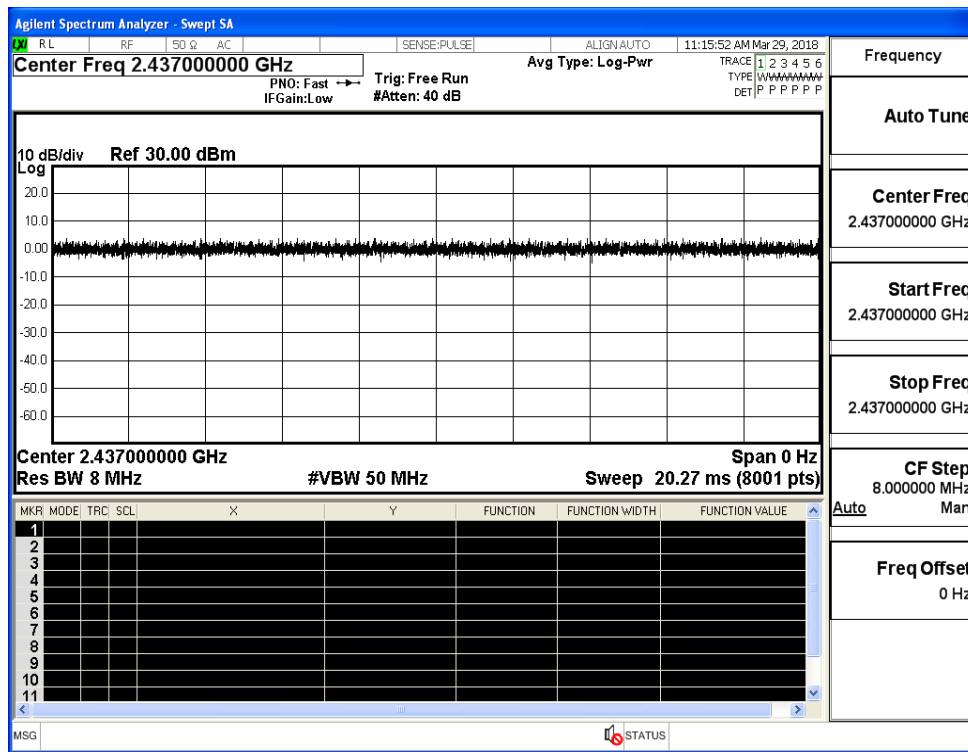
Duty Cycle_11B_2437_Ant1



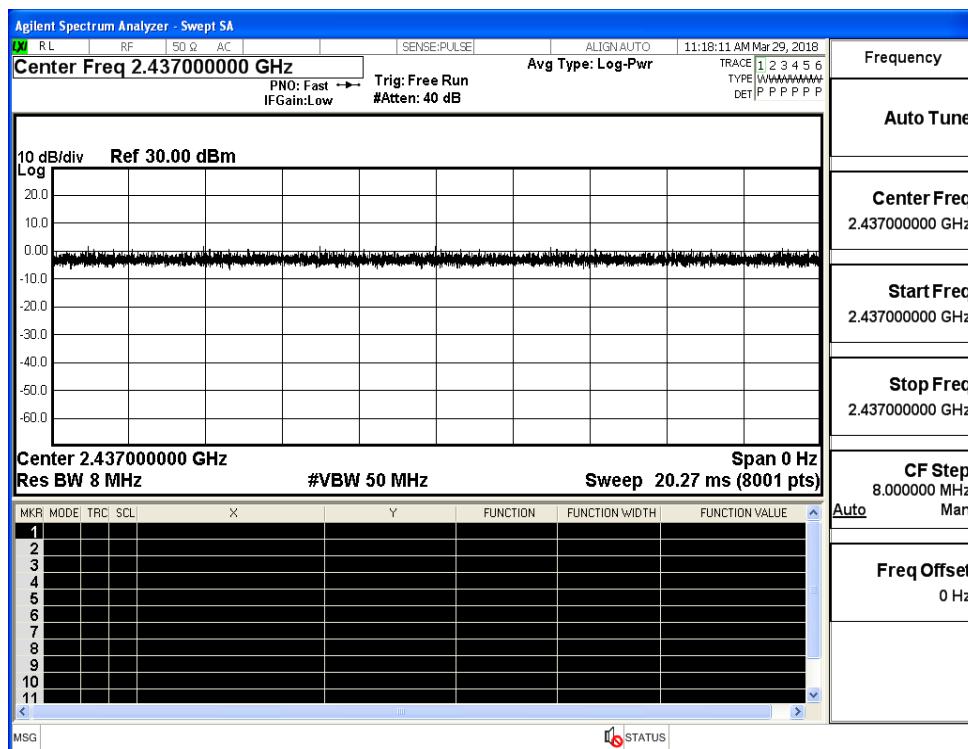
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1



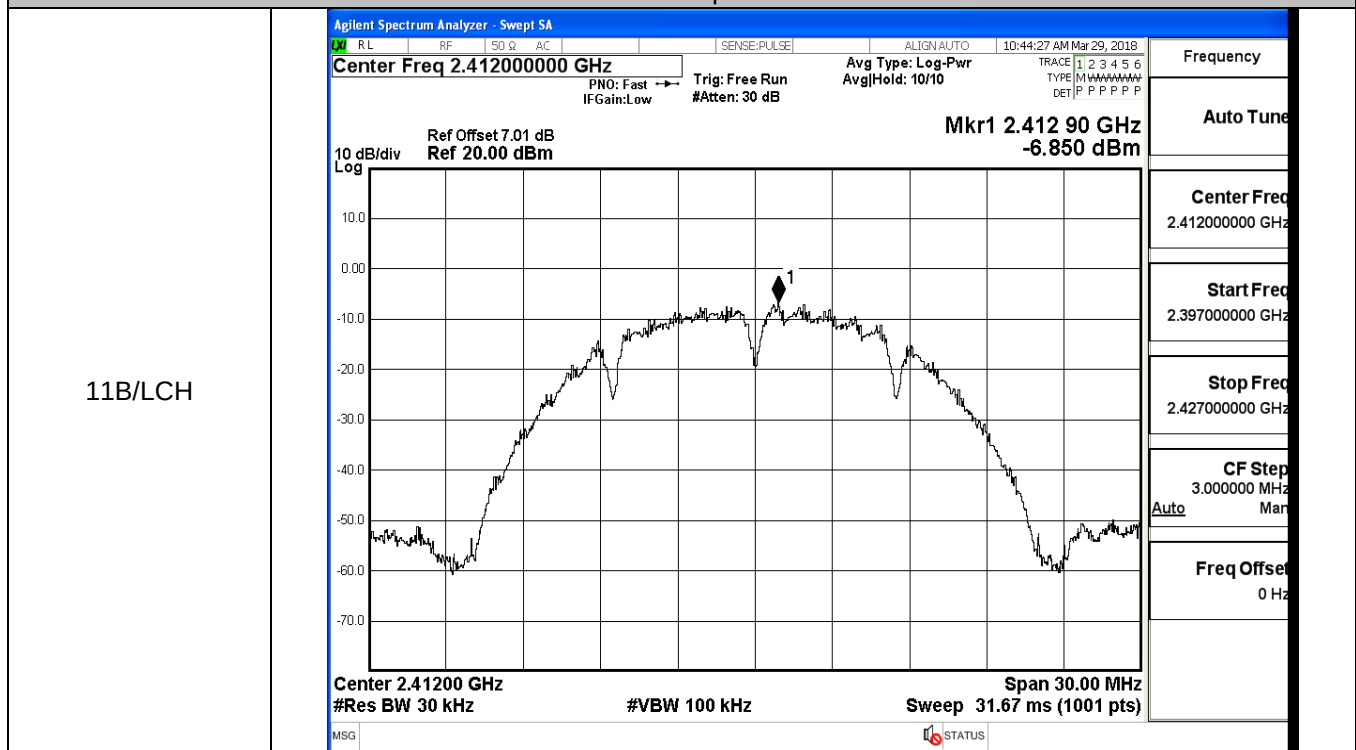
A.2 Maximum Conducted Output Power

Mode	Channel	Meas.Level [dBm, Peak]	Meas.Level [dBm, Average]	Limit [dBm]	Verdict
11B	LCH	11.44	8.69	30	PASS
	MCH	11.22	8.39	30	PASS
	HCH	11.07	8.32	30	PASS
11G	LCH	12.65	6.36	30	PASS
	MCH	11.93	5.74	30	PASS
	HCH	11.44	5.24	30	PASS
11N20SISO	LCH	12.34	6.11	30	PASS
	MCH	12.31	6.08	30	PASS
	HCH	11.65	5.44	30	PASS
11N40SISO	LCH	12.49	5.78	30	PASS
	MCH	12.09	5.34	30	PASS
	HCH	12.20	5.37	30	PASS

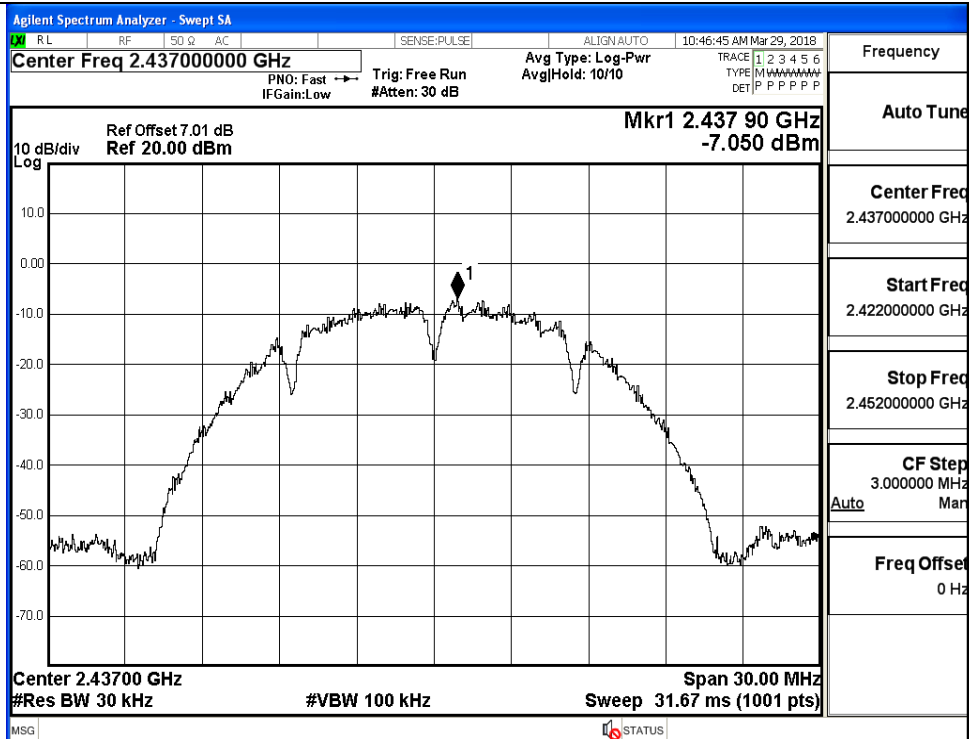
A.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/30KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-6.850	8	PASS
	MCH	-7.050	8	PASS
	HCH	-7.537	8	PASS
11G	LCH	-11.936	8	PASS
	MCH	-12.418	8	PASS
	HCH	-13.285	8	PASS
11N20SISO	LCH	-12.159	8	PASS
	MCH	-11.960	8	PASS
	HCH	-12.736	8	PASS
11N40SISO	LCH	-15.690	8	PASS
	MCH	-15.906	8	PASS
	HCH	-16.048	8	PASS

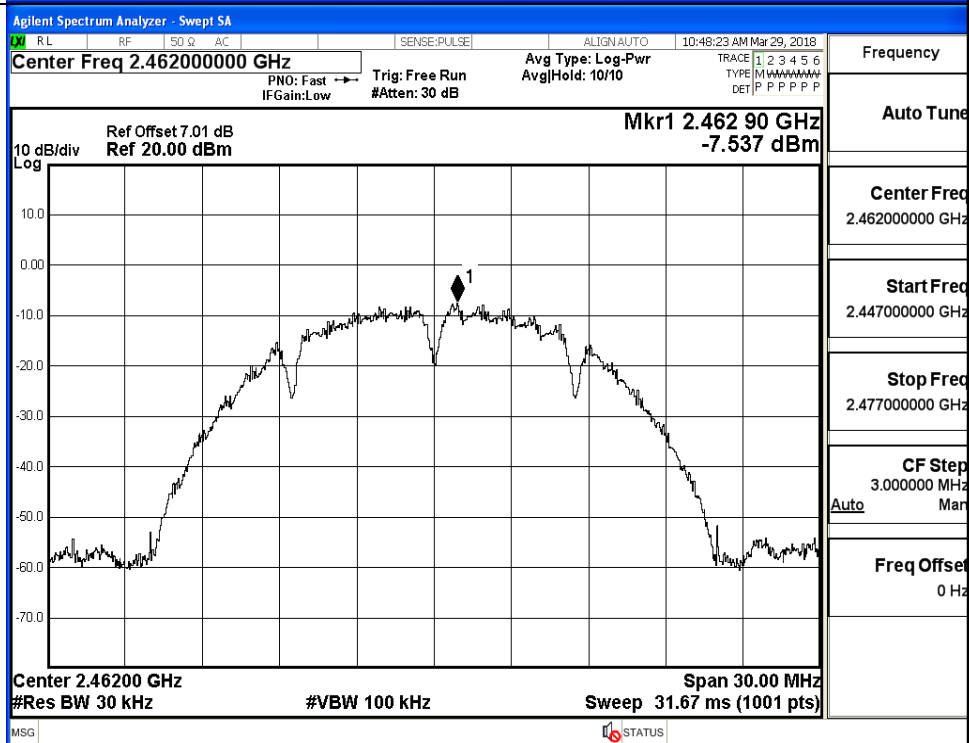
Test Graphs



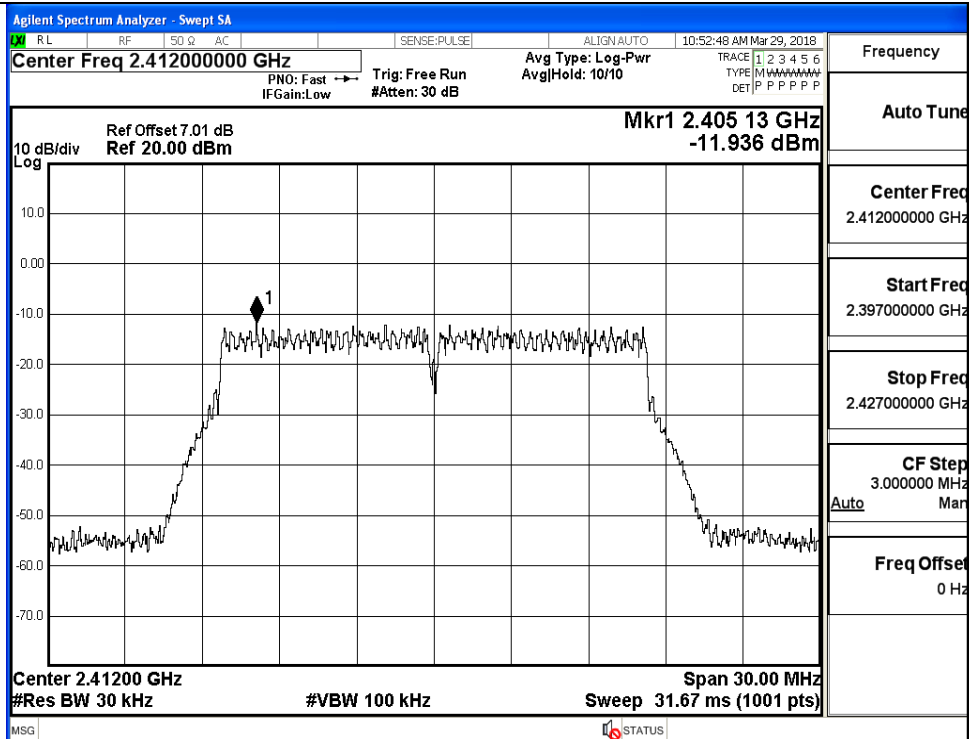
11B/MCH



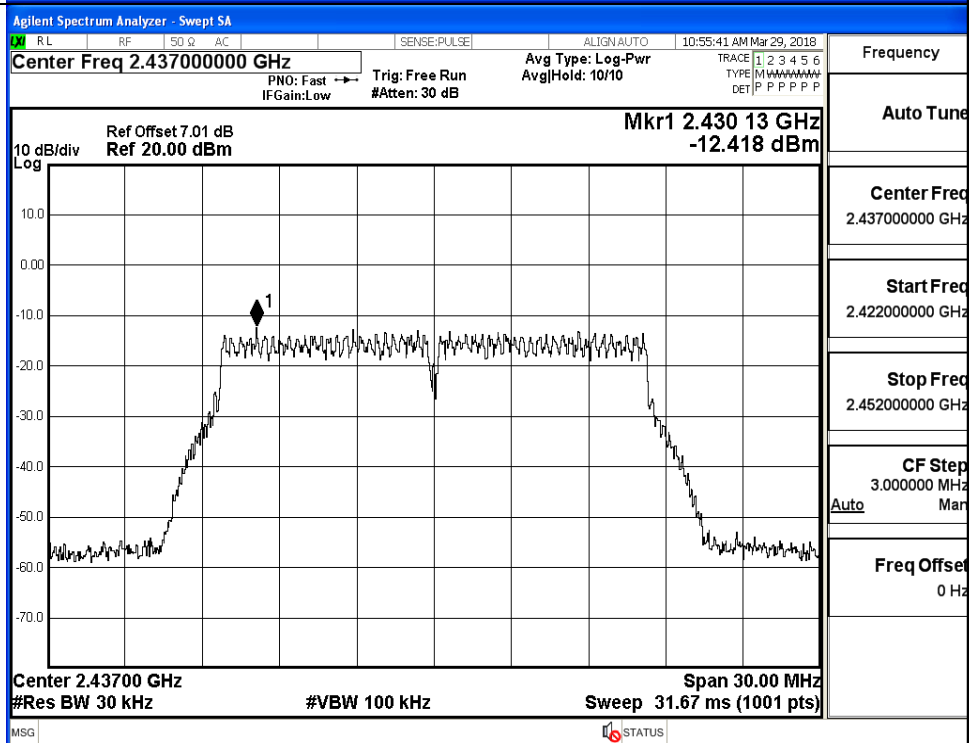
11B/HCH



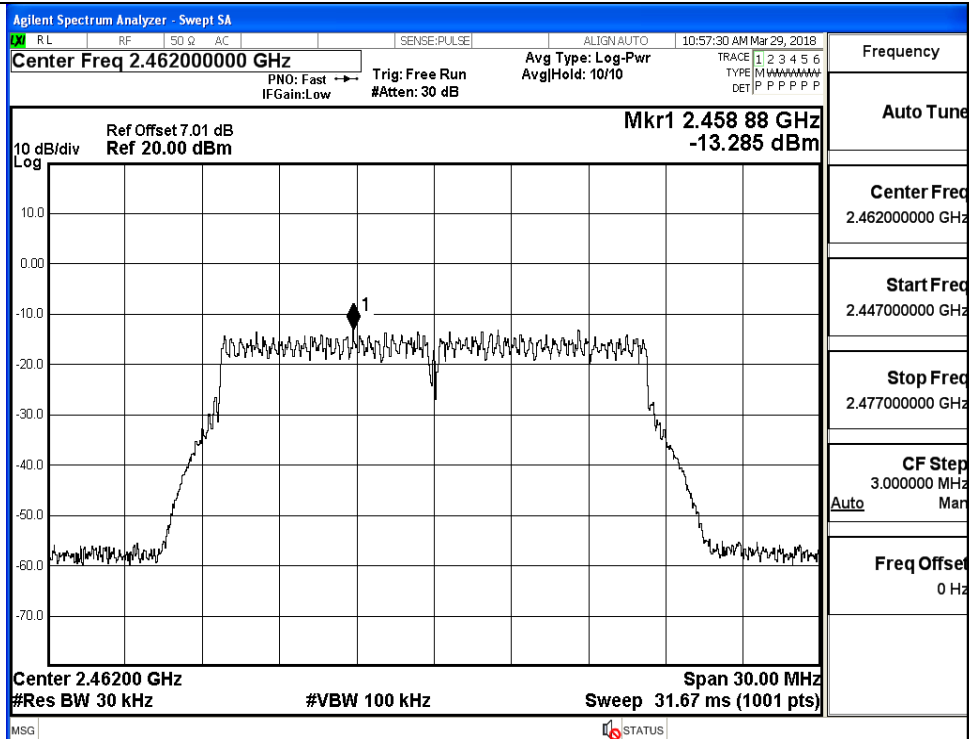
11G/LCH



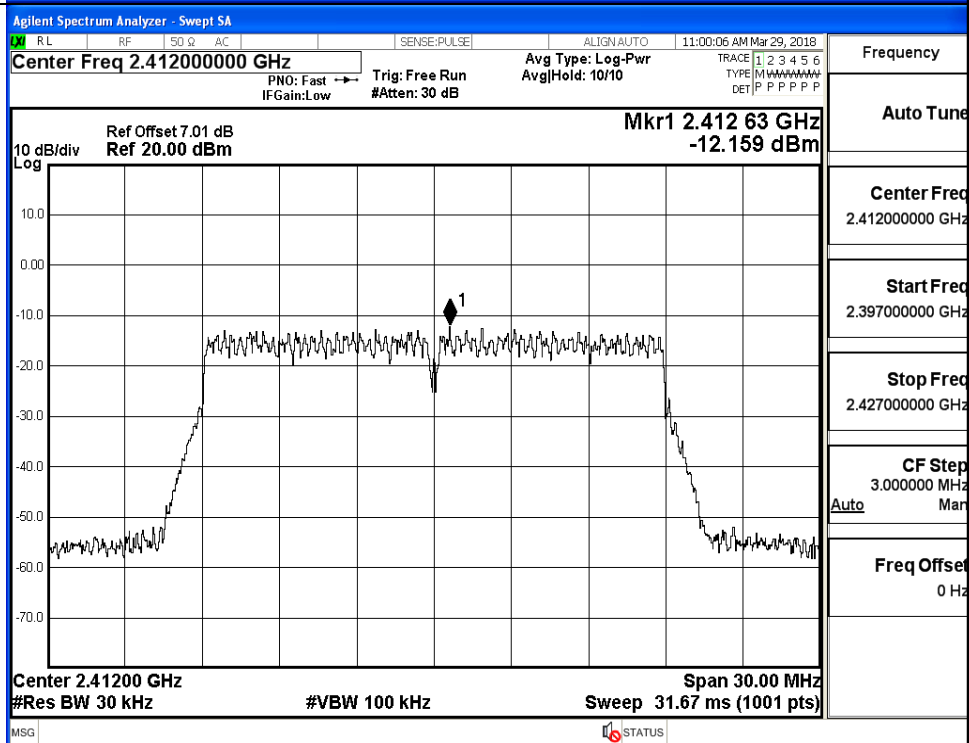
11G/MCH



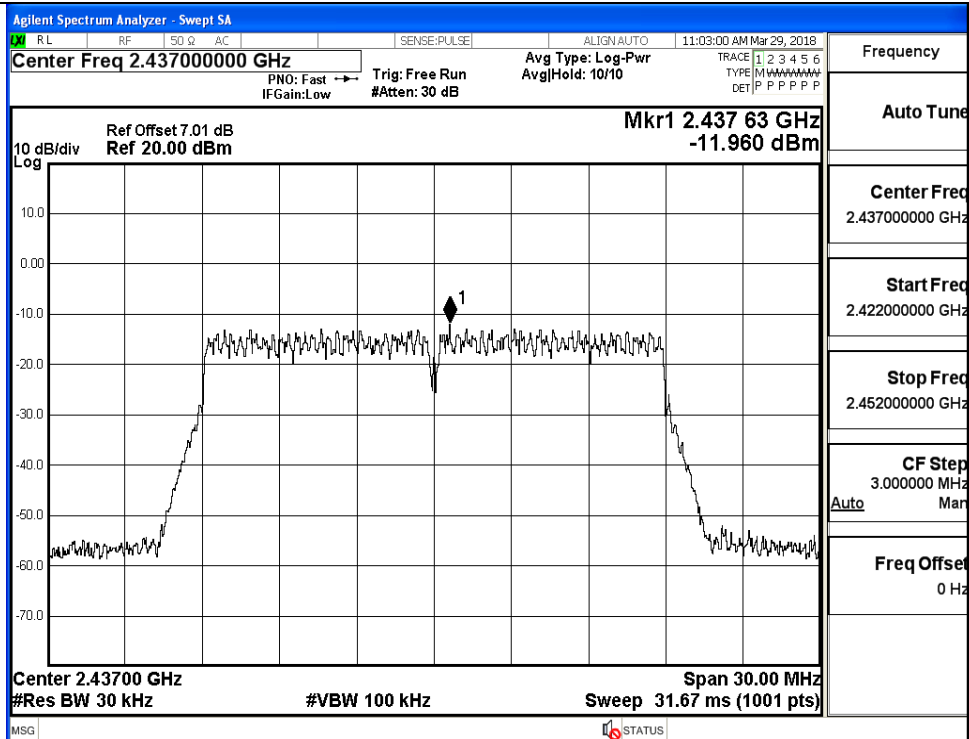
11G/HCH



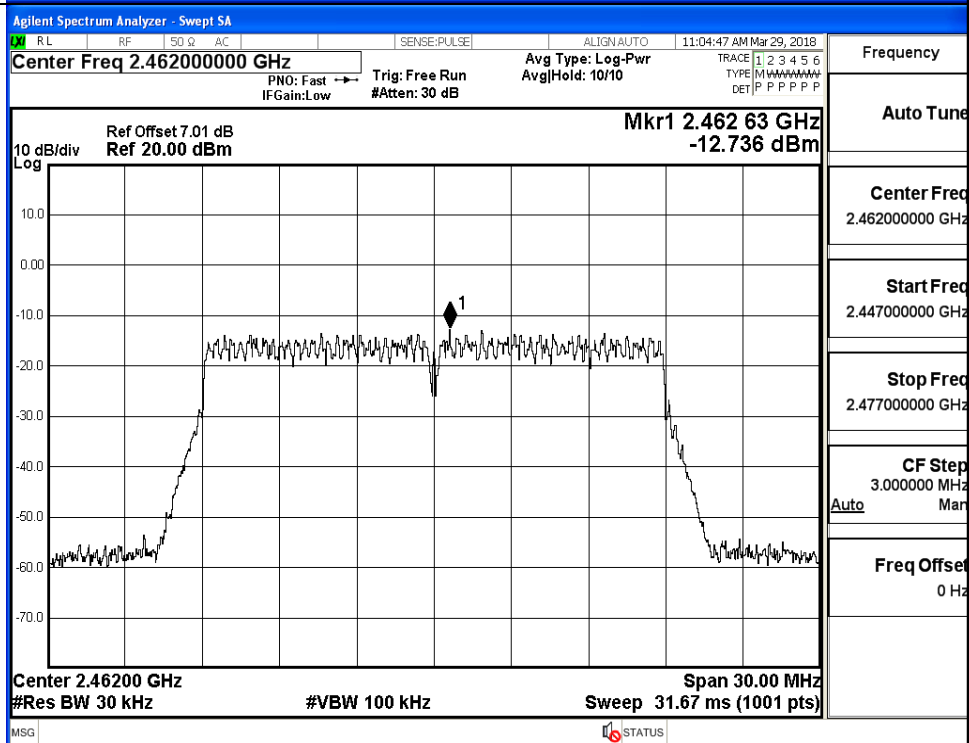
11N20SISO/LCH



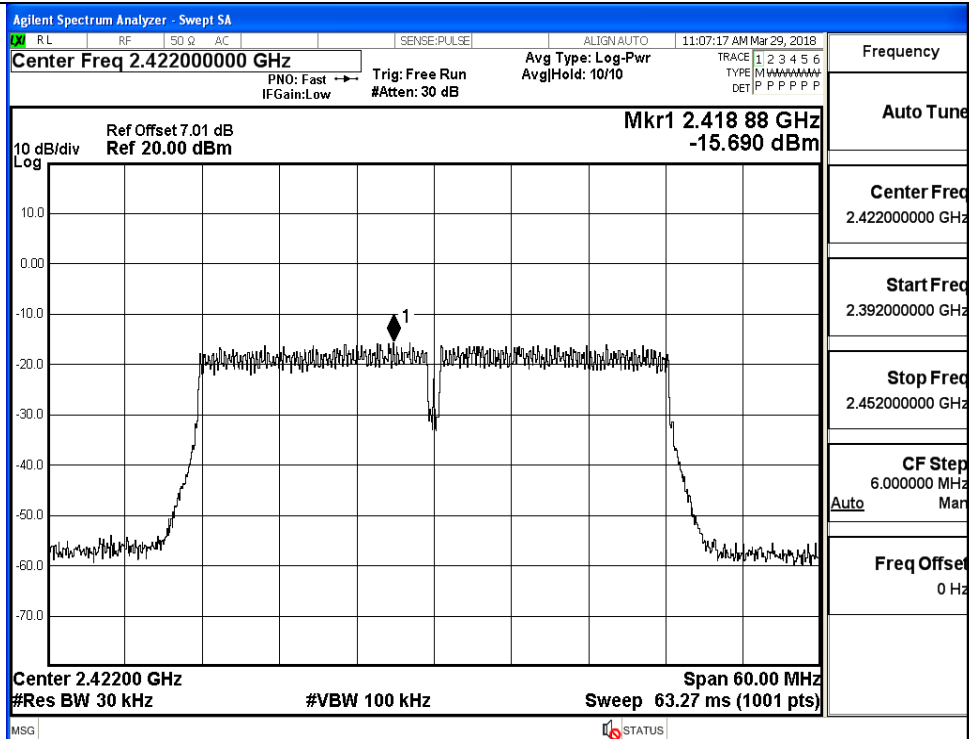
11N20SISO/MCH



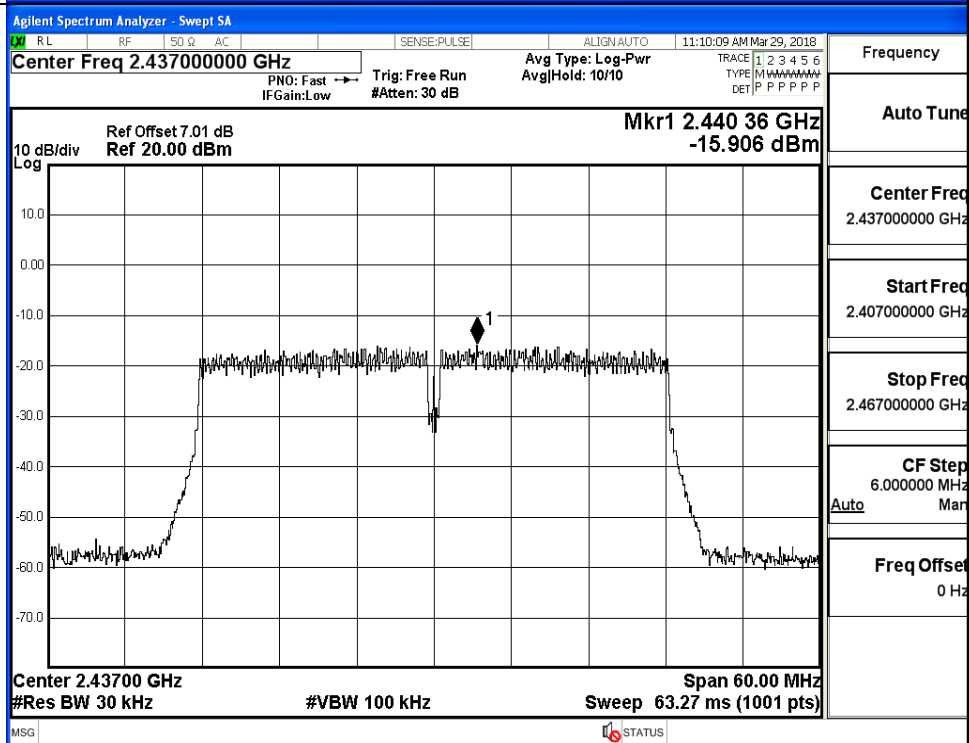
11N20SISO/HCH



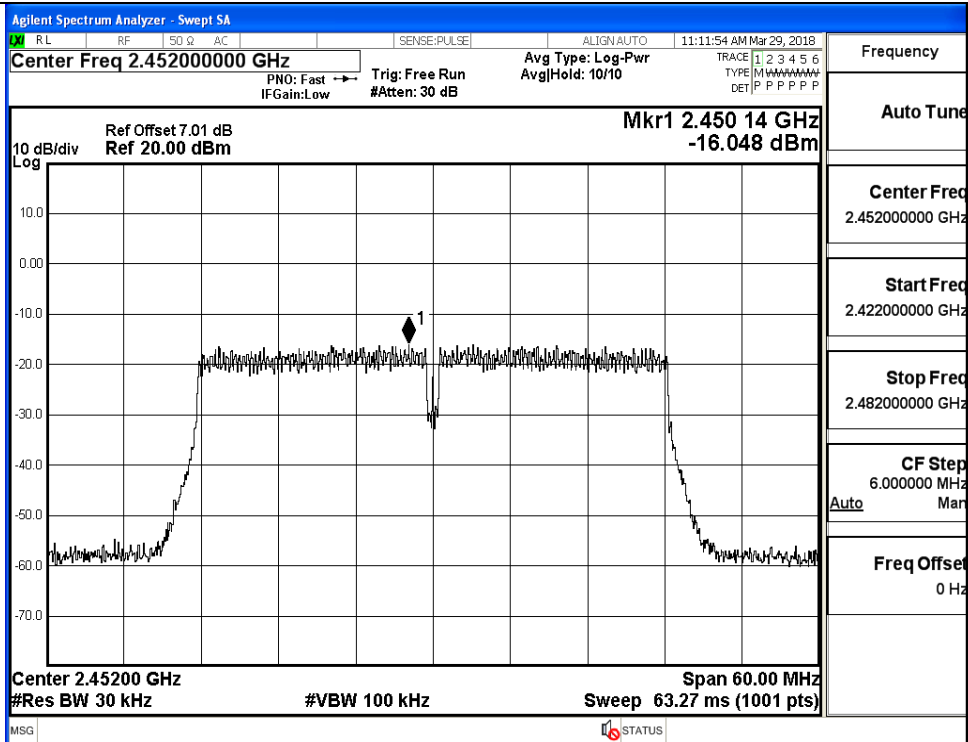
11N40SISO/LCH



11N40SISO/MCH



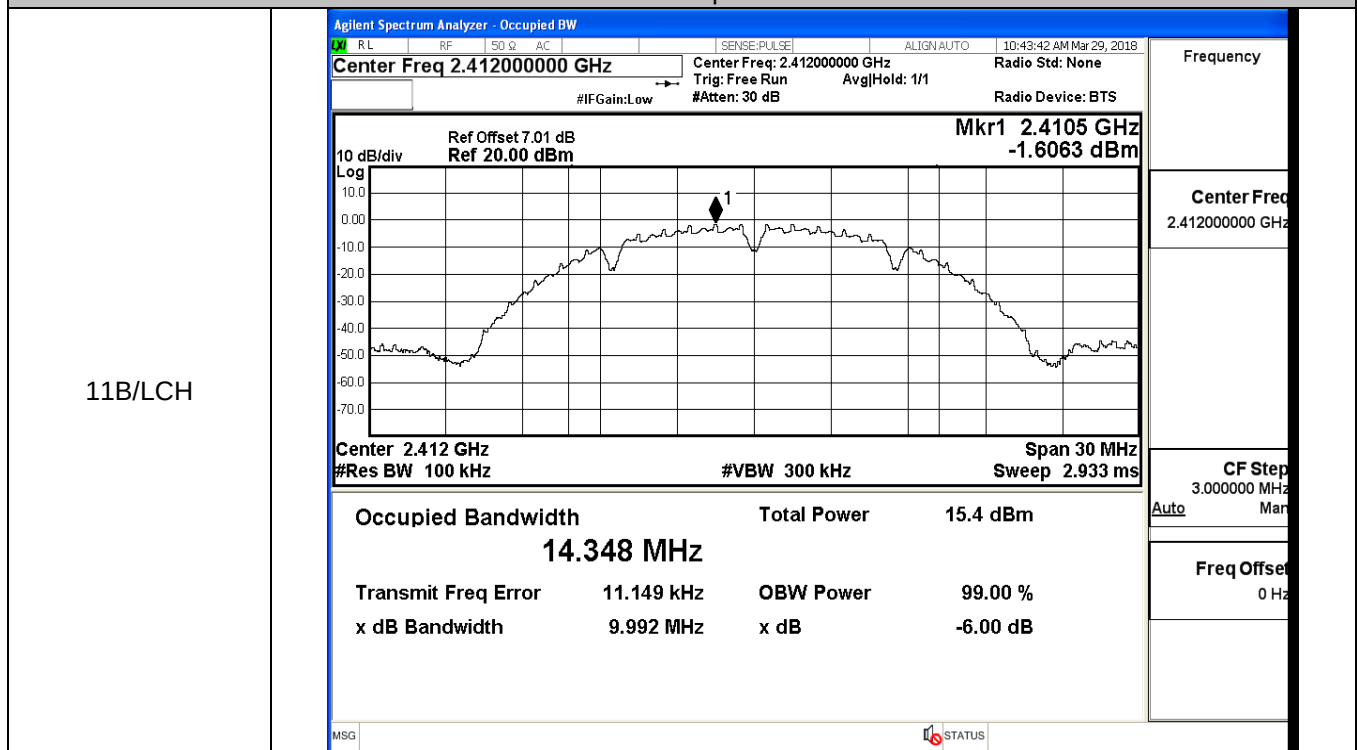
11N40SISO/HCH



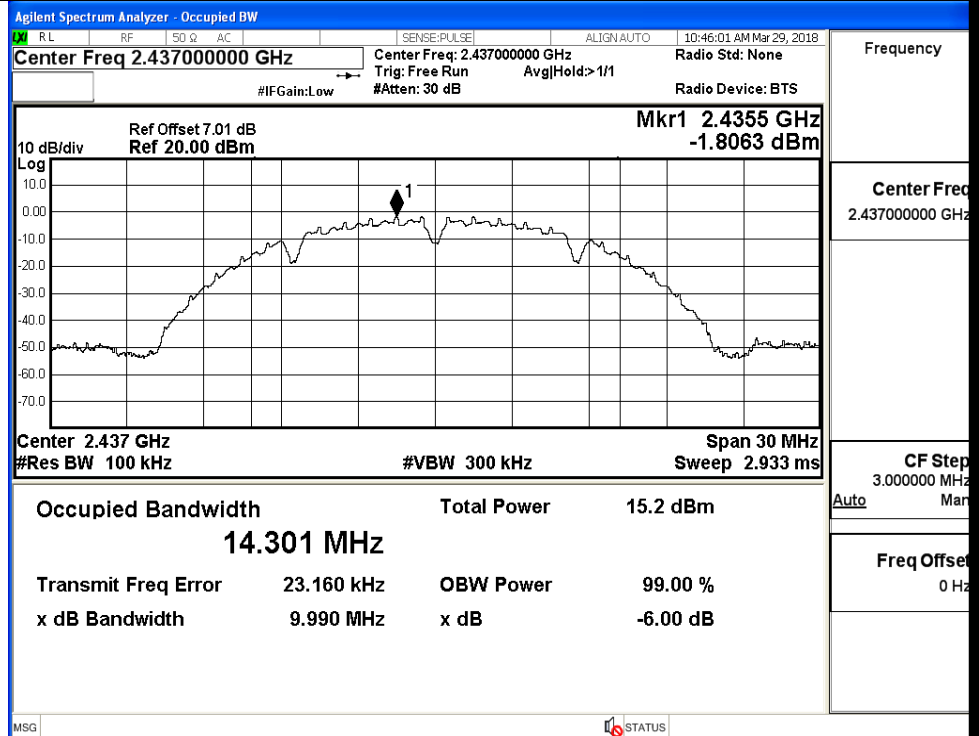
A.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	9.992	≥ 0.5	PASS
	MCH	9.990	≥ 0.5	PASS
	HCH	9.989	≥ 0.5	PASS
11G	LCH	16.61	≥ 0.5	PASS
	MCH	16.61	≥ 0.5	PASS
	HCH	16.60	≥ 0.5	PASS
11N20SISO	LCH	17.83	≥ 0.5	PASS
	MCH	17.83	≥ 0.5	PASS
	HCH	17.82	≥ 0.5	PASS
11N40SISO	LCH	36.49	≥ 0.5	PASS
	MCH	36.47	≥ 0.5	PASS
	HCH	36.47	≥ 0.5	PASS

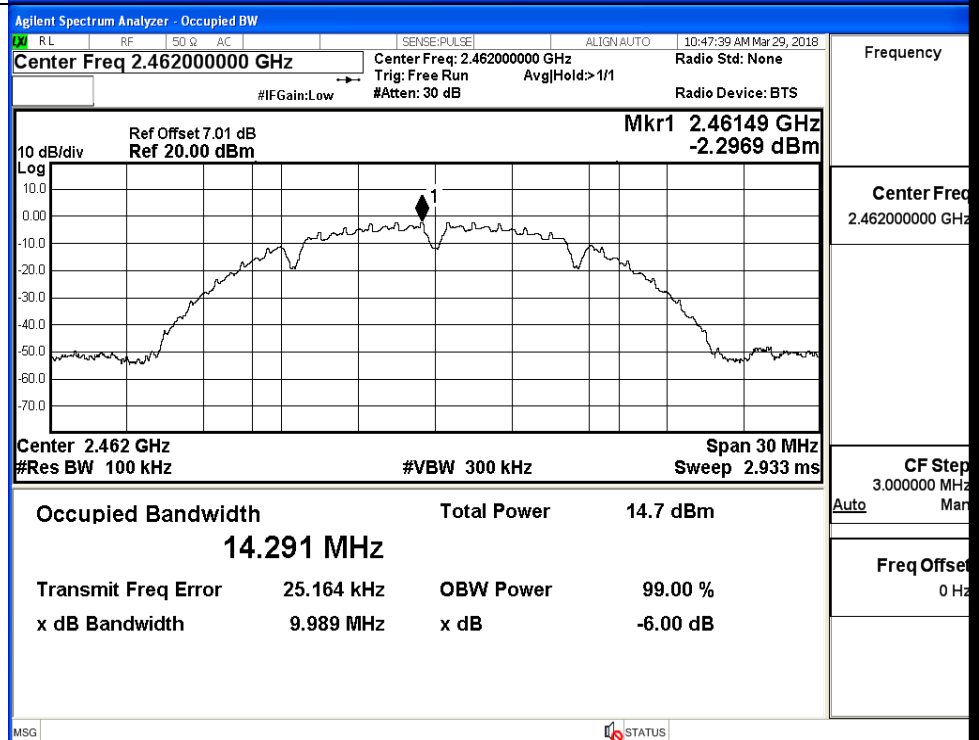
Test Graphs



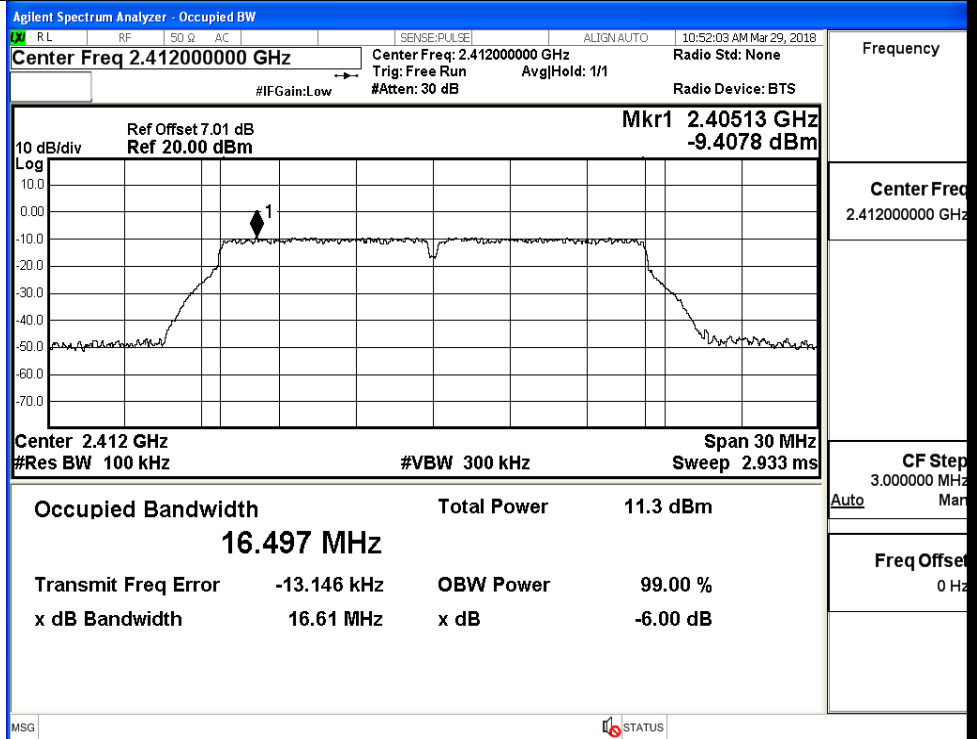
11B/MCH



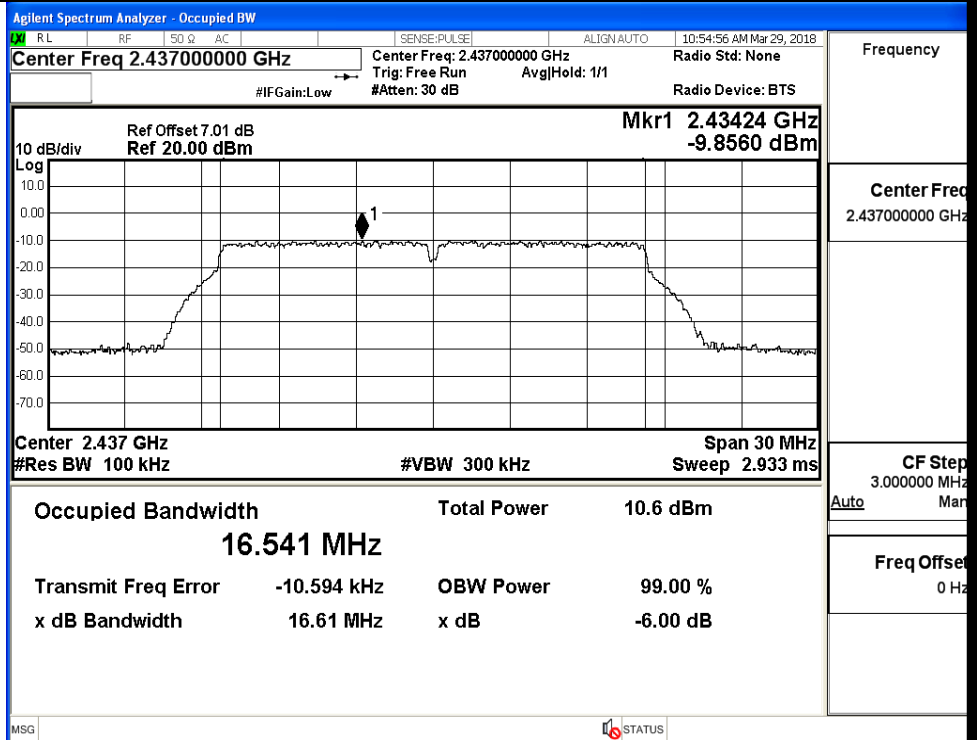
11B/HCH



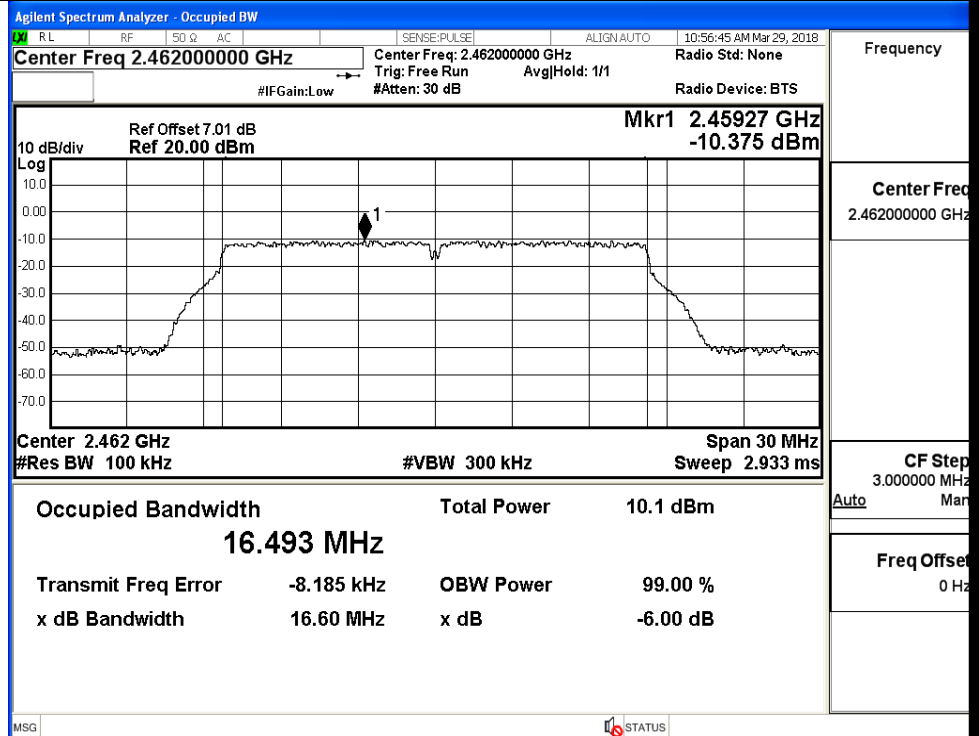
11G/LCH



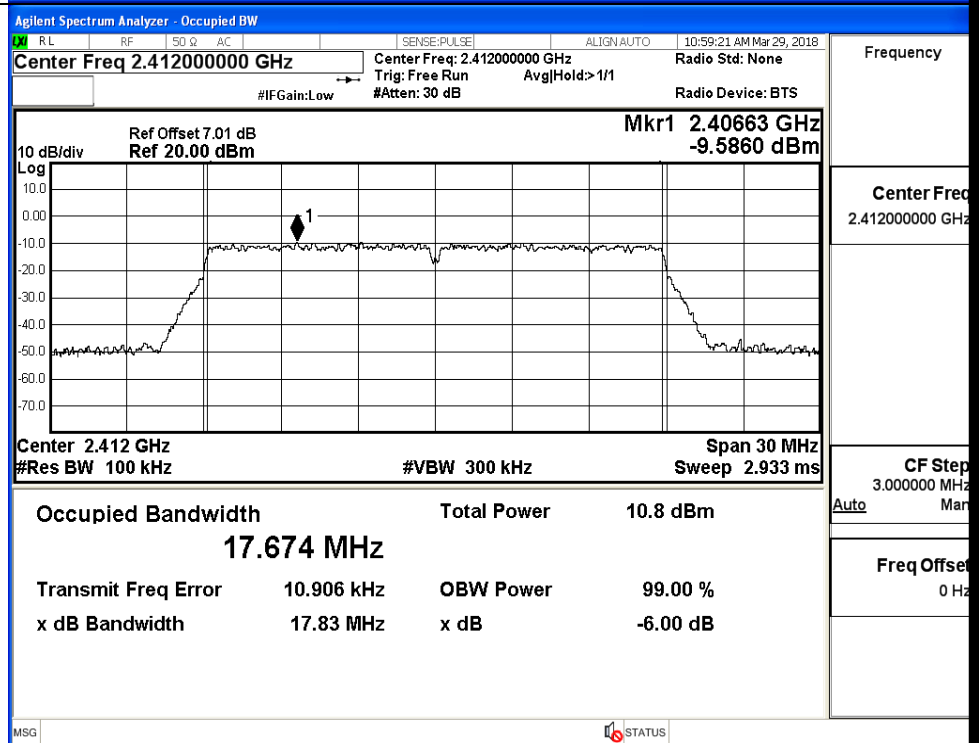
11G/MCH



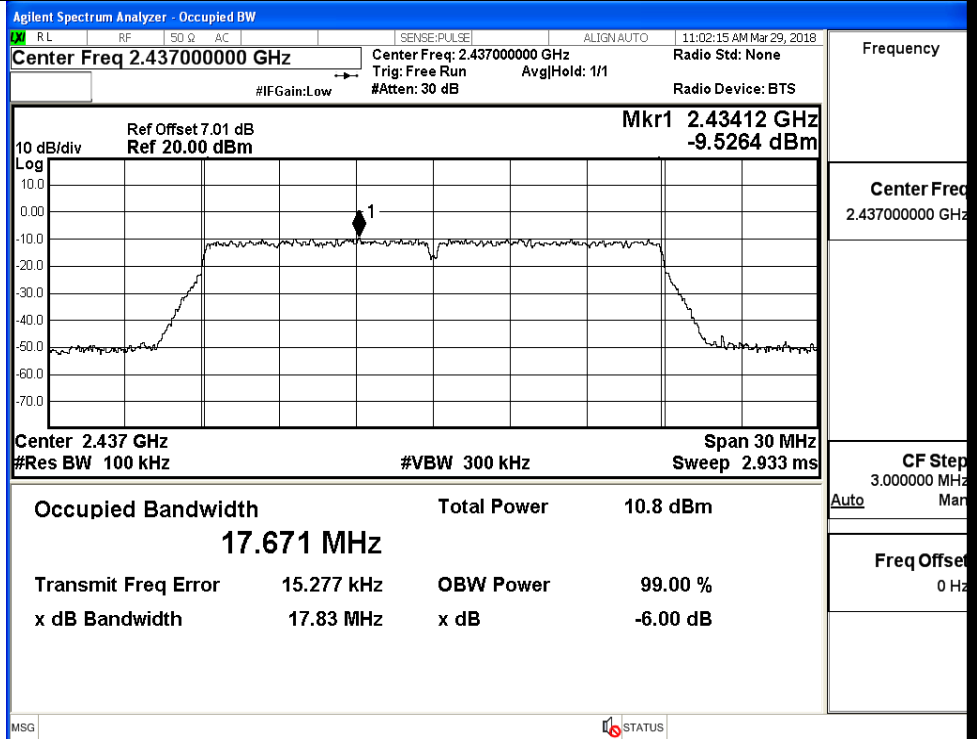
11G/HCH



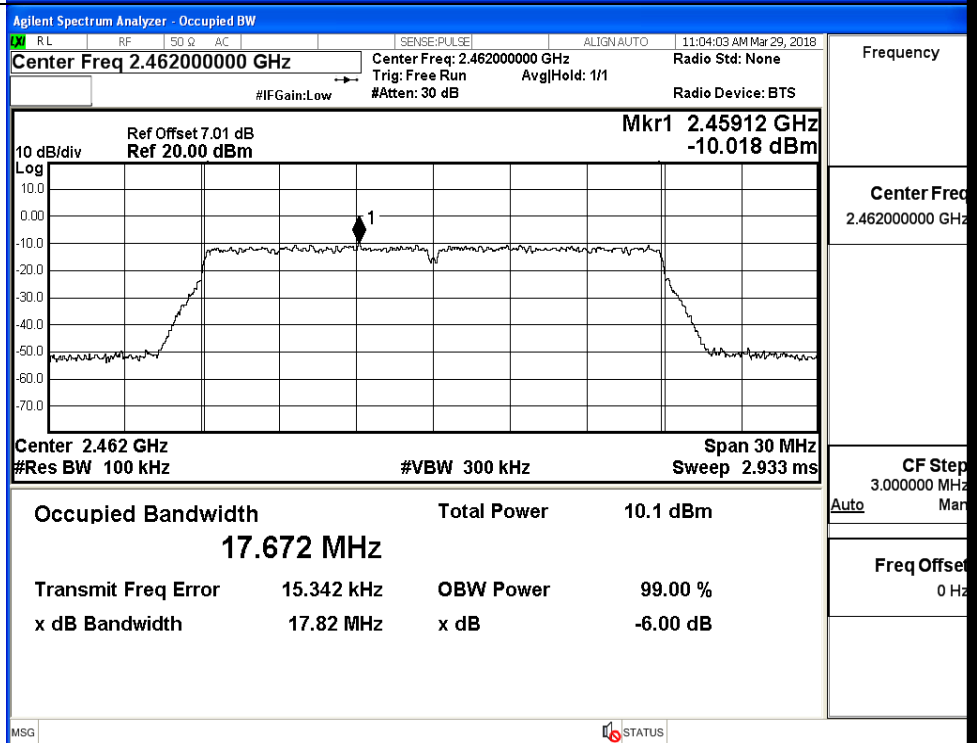
11N20SISO/LCH



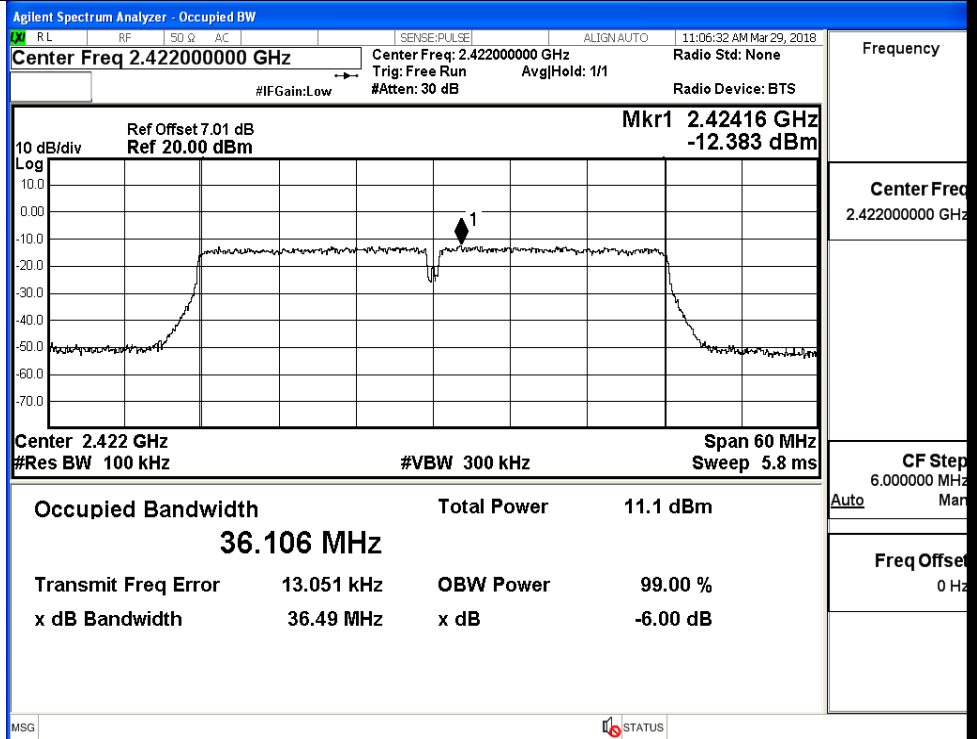
11N20SISO/MCH



11N20SISO/HCH



11N40SISO/LCH



Frequency

Center Freq
2.422000000 GHzCF Step
6.000000 MHz

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 7.01 dB
Ref 20.00 dBm

Mkr1 2.4391 GHz
-12.626 dBm

10 dB/div
Log

Center 2.437 GHz
#Res BW 100 kHz

#VBW 300 kHz

Span 60 MHz
Sweep 5.8 ms

Occupied Bandwidth

Total Power 10.7 dBm

36.099 MHz

Transmit Freq Error 21.146 kHz

OBW Power 99.00 %

x dB Bandwidth 36.47 MHz

x dB -6.00 dB

MSG STATUS

Frequency

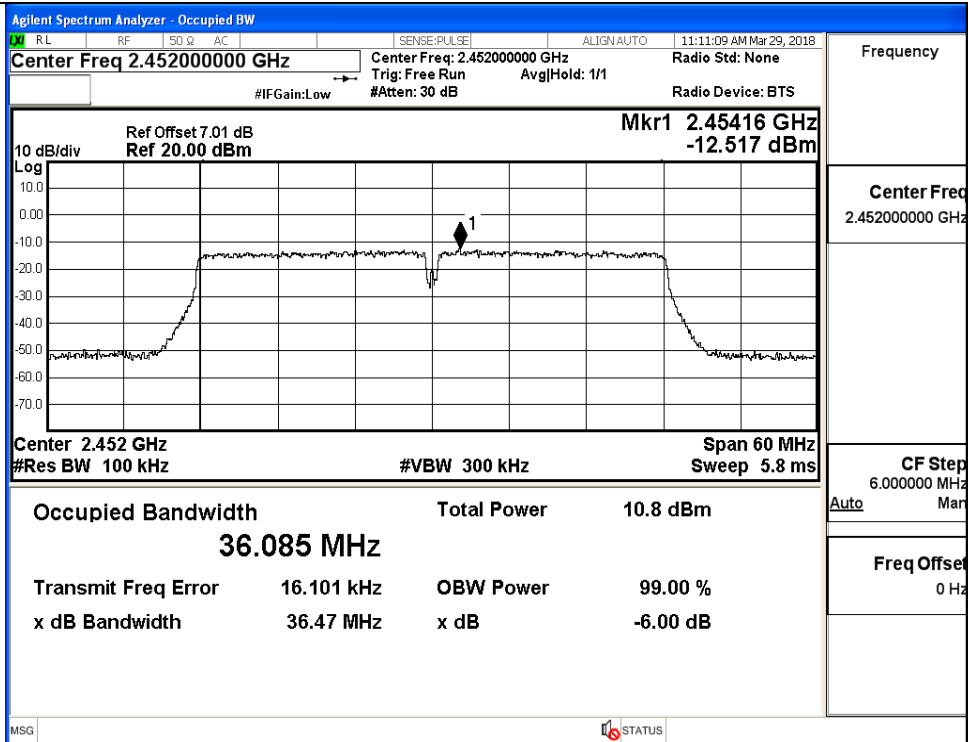
Center Freq
2.437000000 GHz

CF Step
6.000000 MHz

Freq Offset
0 Hz

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11N40SISO/HCH

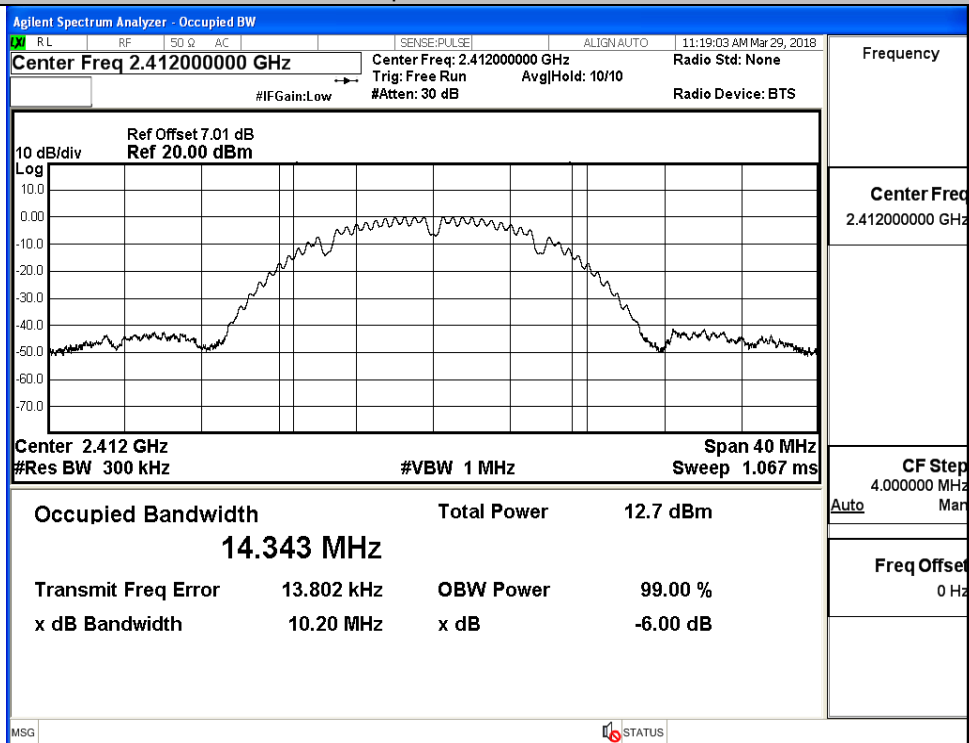


A.5 Occupied Bandwidth

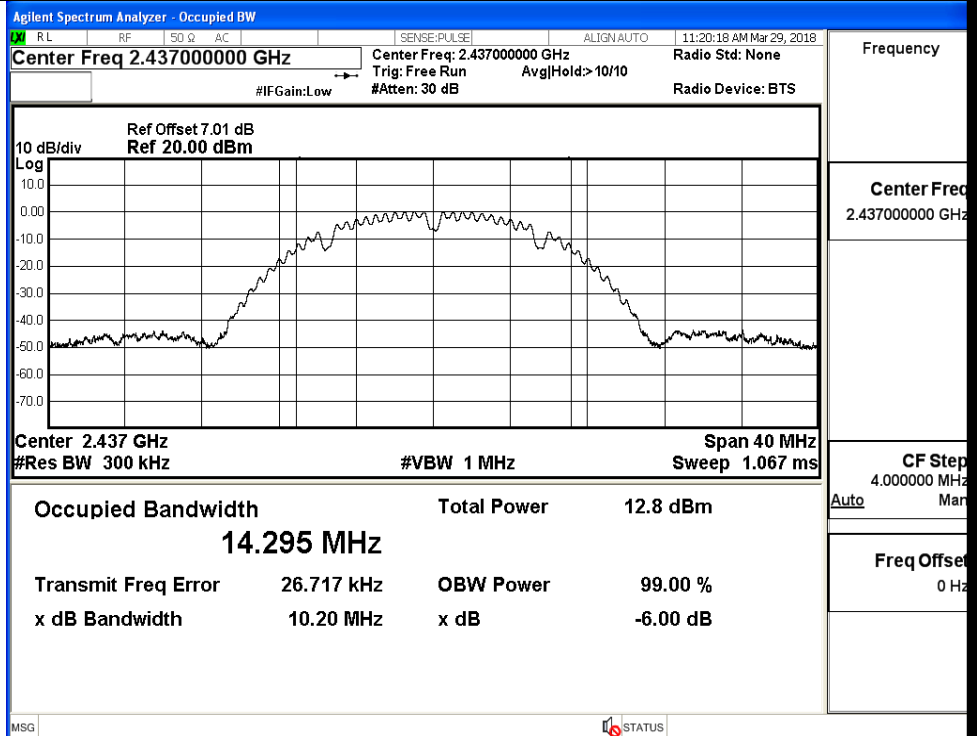
Mode	Channel	Occupied Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	14.343	Not Specified	PASS
	MCH	14.295	Not Specified	PASS
	HCH	14.286	Not Specified	PASS
11G	LCH	17.043	Not Specified	PASS
	MCH	16.924	Not Specified	PASS
	HCH	16.911	Not Specified	PASS
11N20SISO	LCH	17.785	Not Specified	PASS
	MCH	17.653	Not Specified	PASS
	HCH	17.783	Not Specified	PASS
11N40SISO	LCH	36.237	Not Specified	PASS
	MCH	36.189	Not Specified	PASS
	HCH	36.225	Not Specified	PASS

Test Graphs

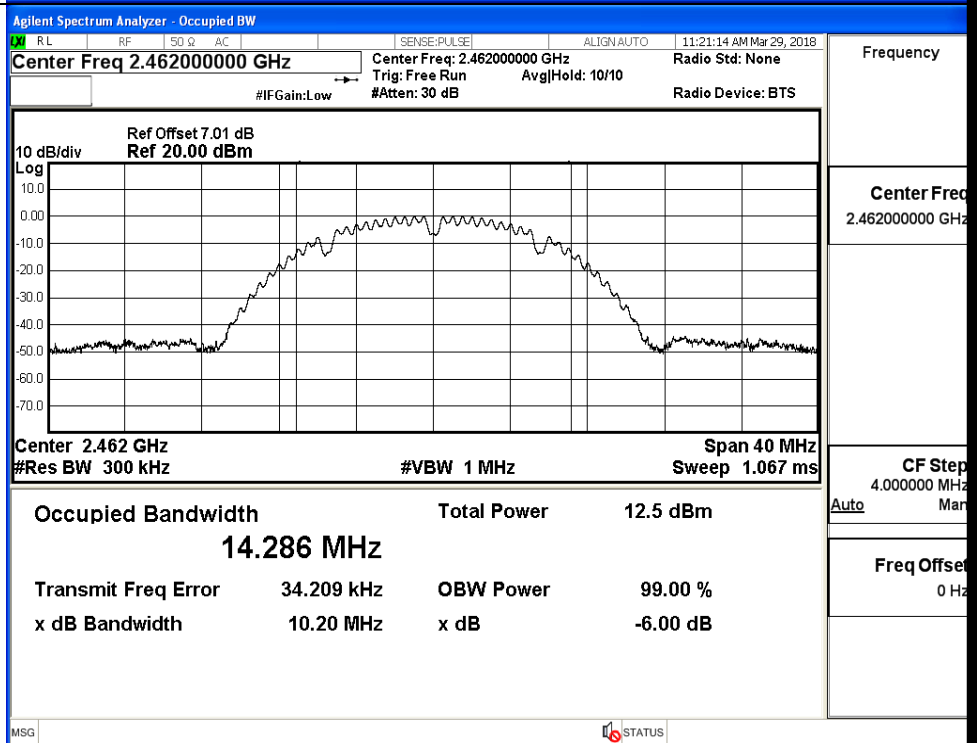
11B/LCH



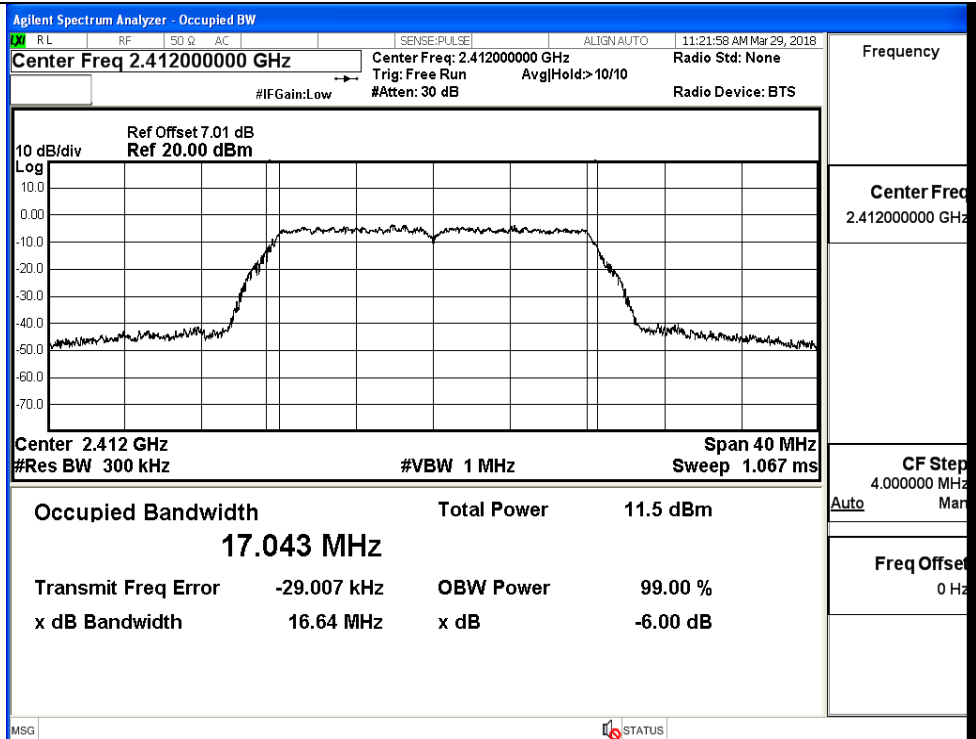
11B/MCH



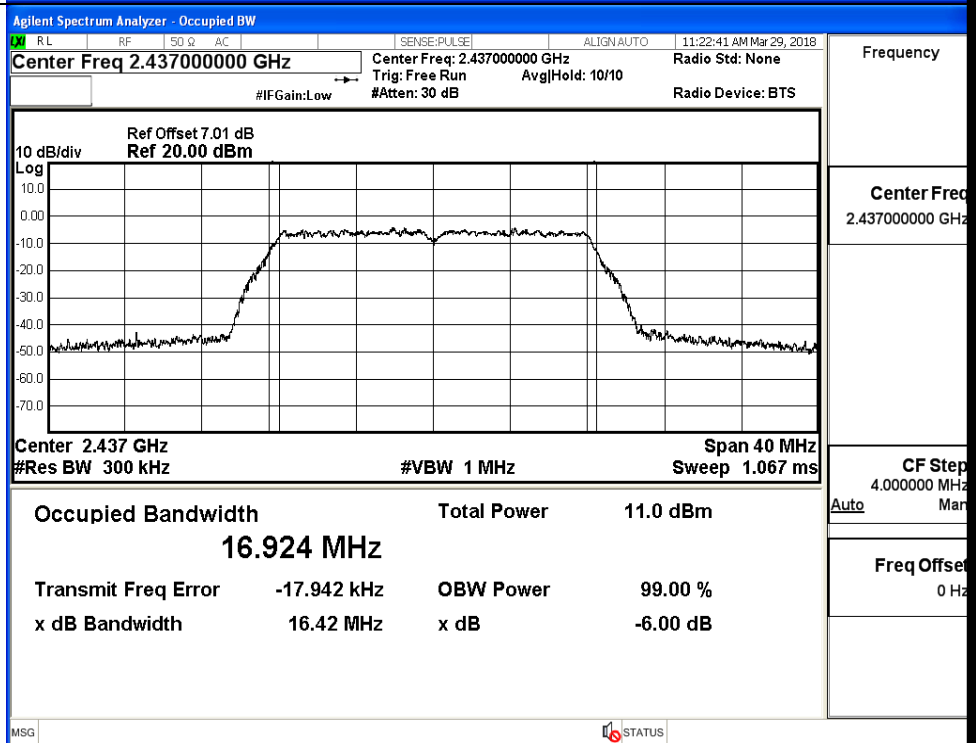
11B/HCH



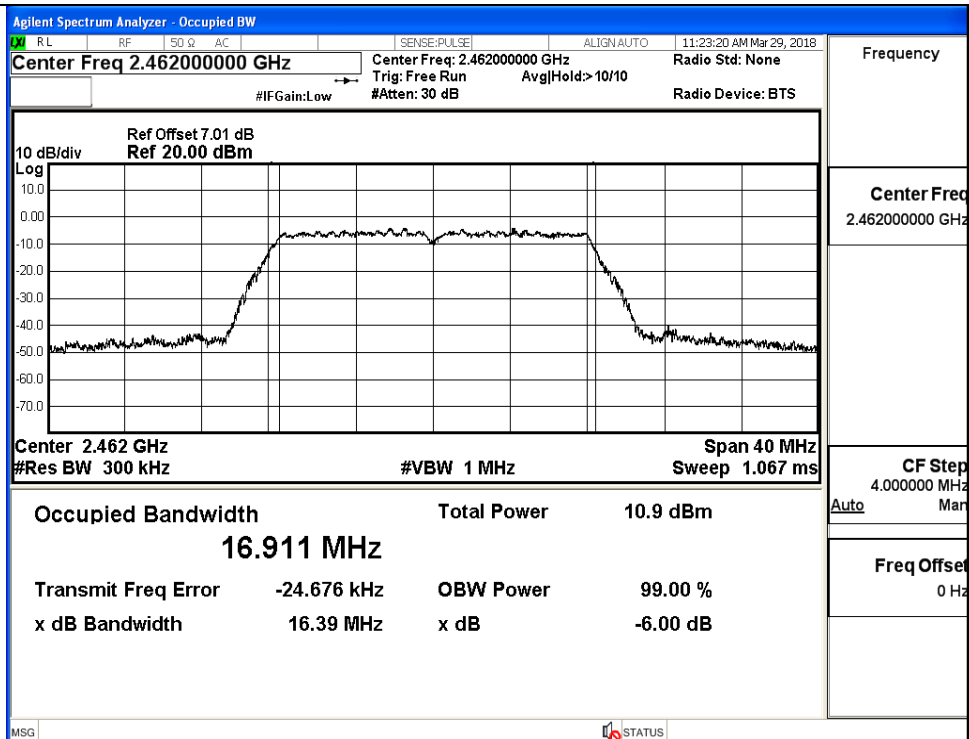
11G/LCH



11G/MCH



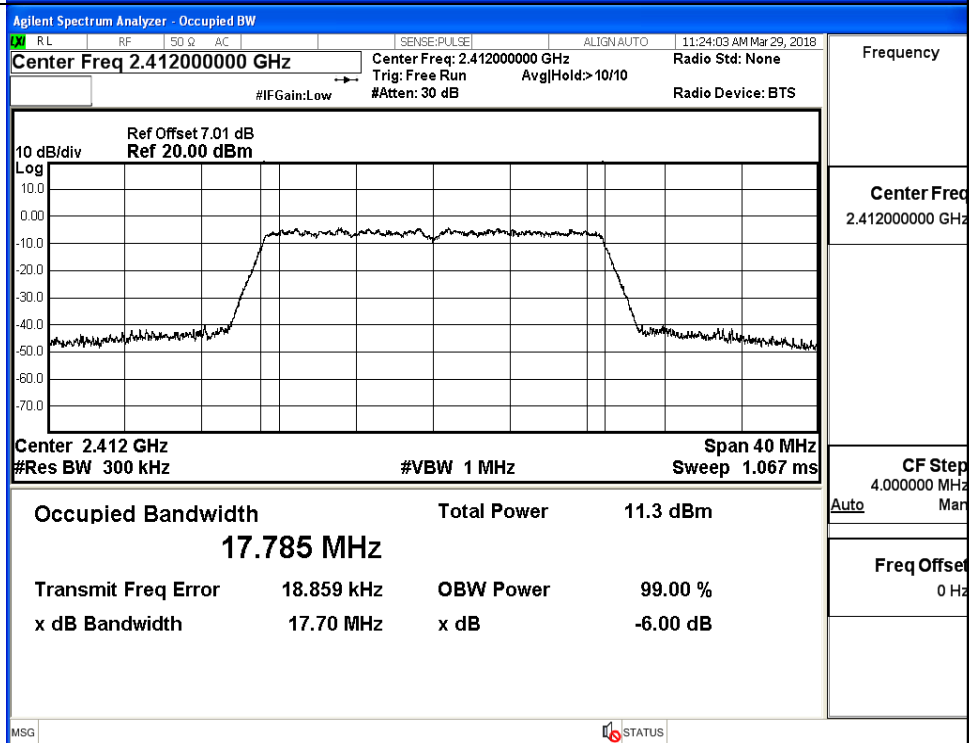
11G/HCH



Frequency

Center Freq
2.462000000 GHzCF Step
4.000000 MHz
Auto ManFreq Offset
0 Hz

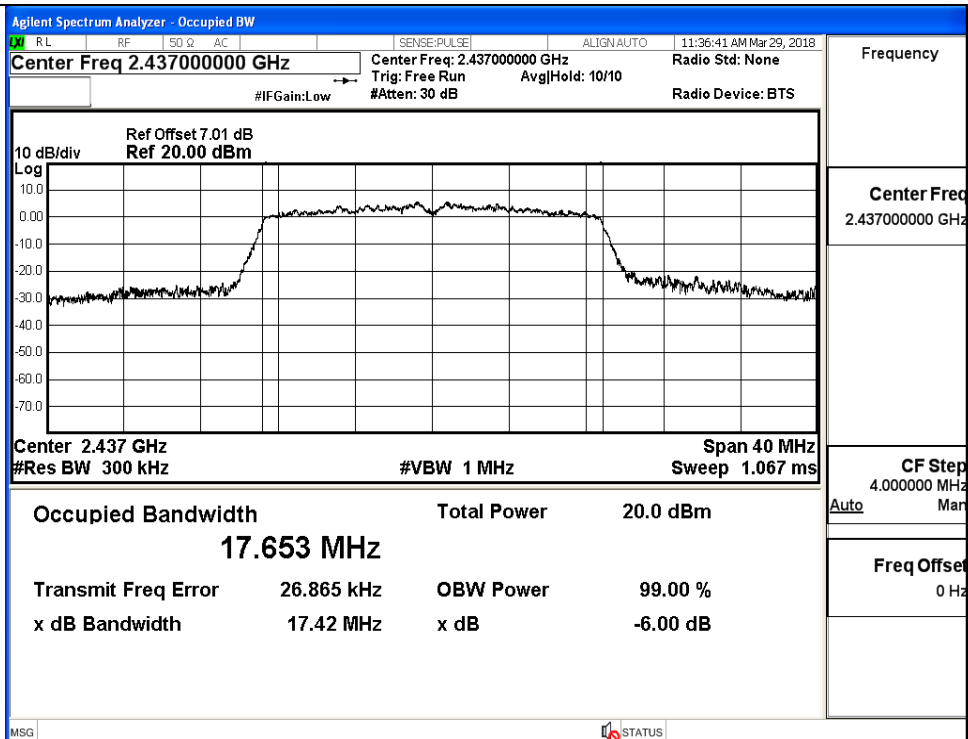
11N20SISO/LCH



Frequency

Center Freq
2.412000000 GHzCF Step
4.000000 MHz
Auto ManFreq Offset
0 Hz

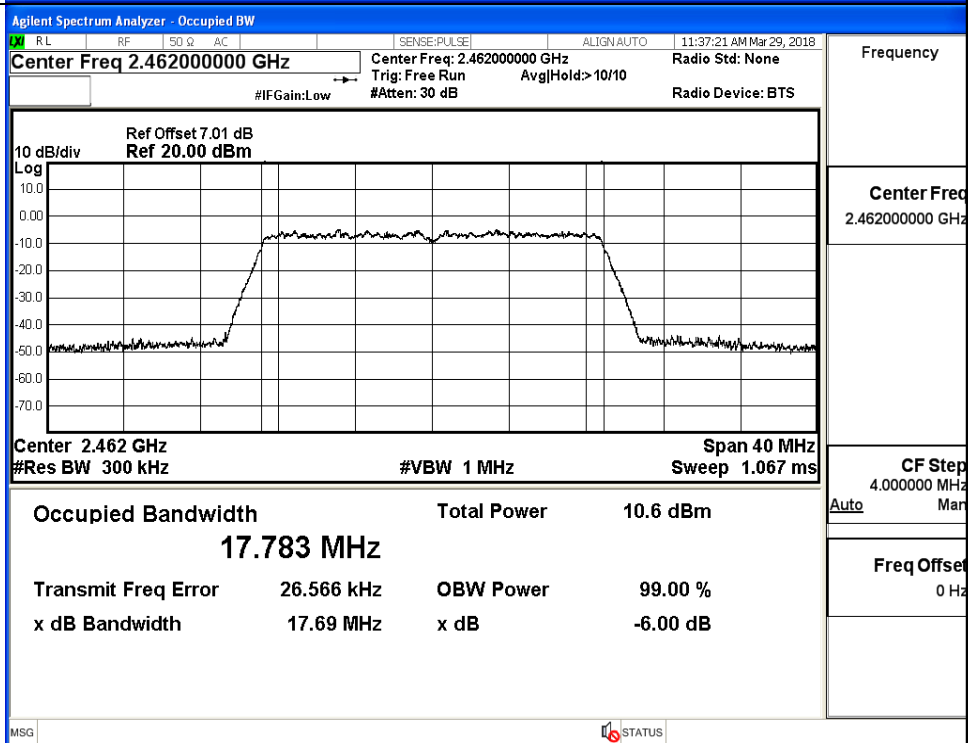
11N20SISO/MCH



Frequency

Center Freq
2.437000000 GHzCF Step
4.000000 MHz
Auto ManFreq Offset
0 Hz

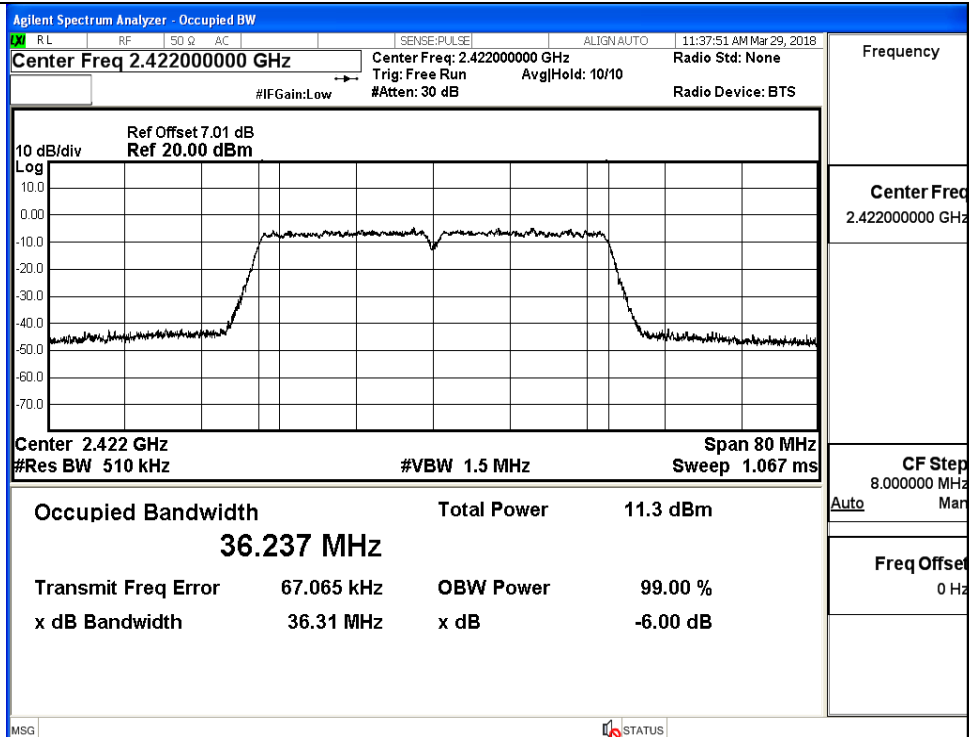
11N20SISO/HCH



Frequency

Center Freq
2.462000000 GHzCF Step
4.000000 MHz
Auto ManFreq Offset
0 Hz

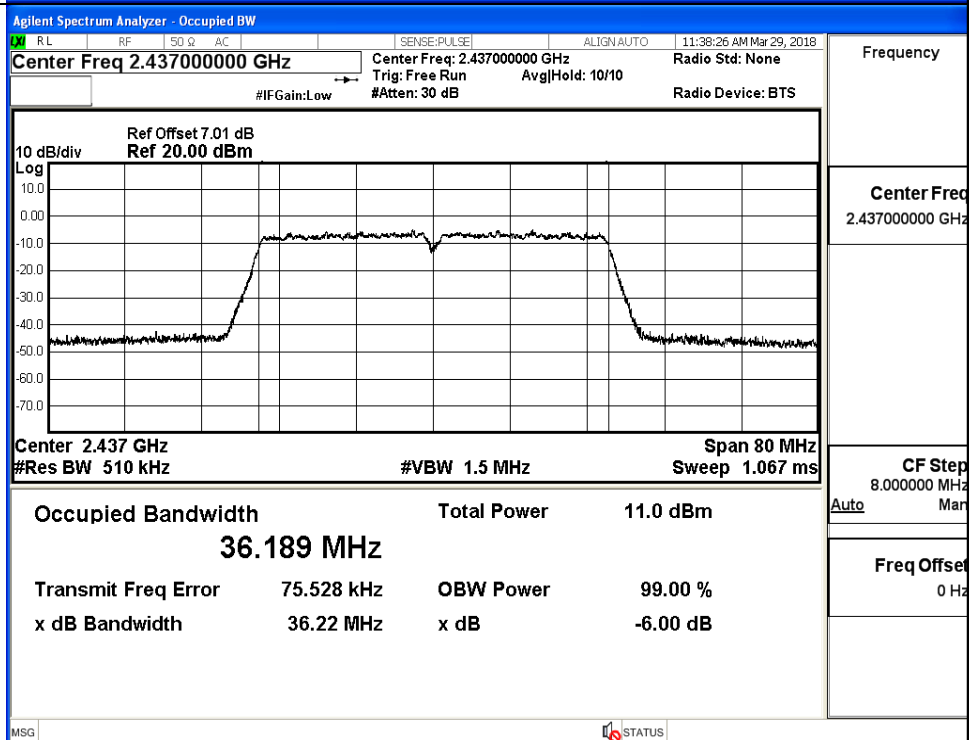
11N40SISO/LCH



Frequency

Center Freq
2.422000000 GHzCF Step
8.000000 MHz
Auto ManFreq Offset
0 Hz

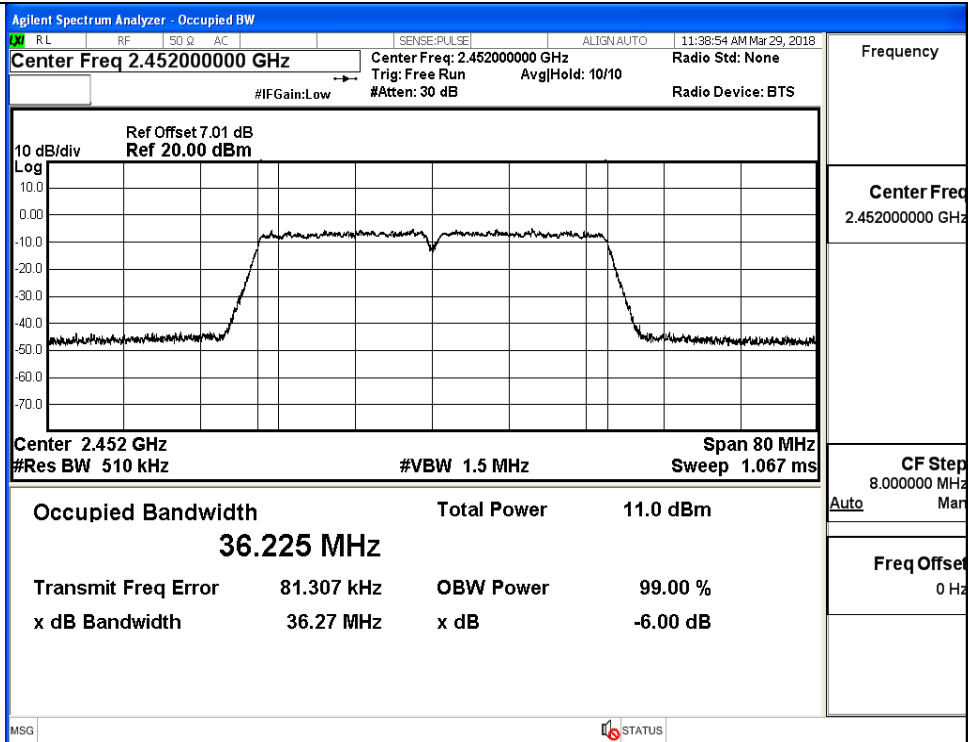
11N40SISO/MCH



Frequency

Center Freq
2.437000000 GHzCF Step
8.000000 MHz
Auto ManFreq Offset
0 Hz

11N40SISO/HCH

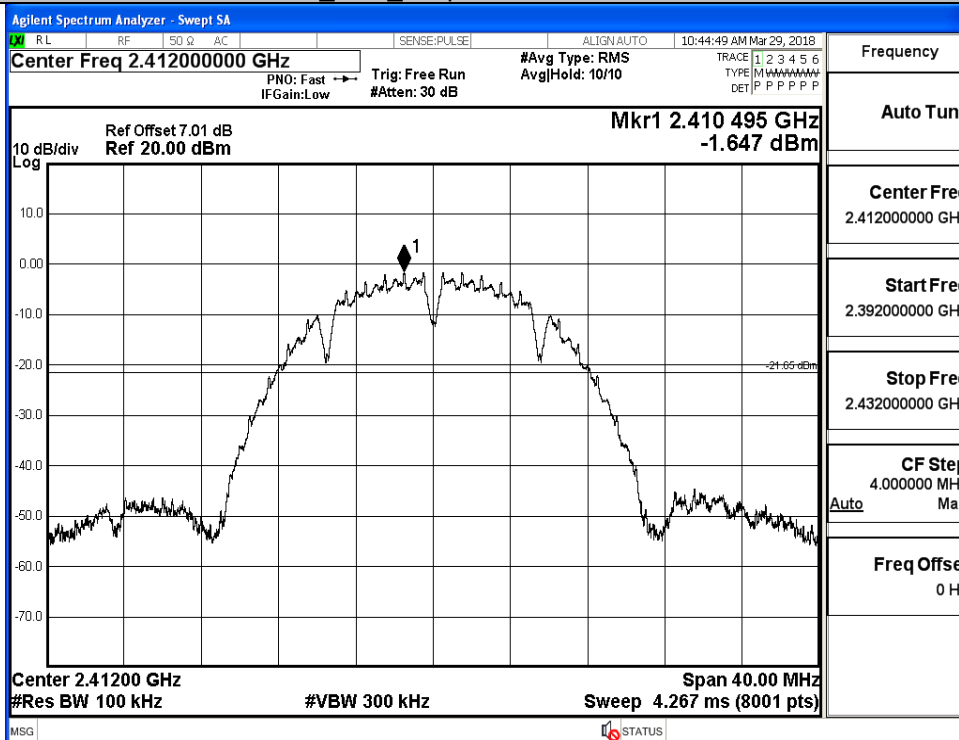


A.6 RF Conducted Spurious Emissions

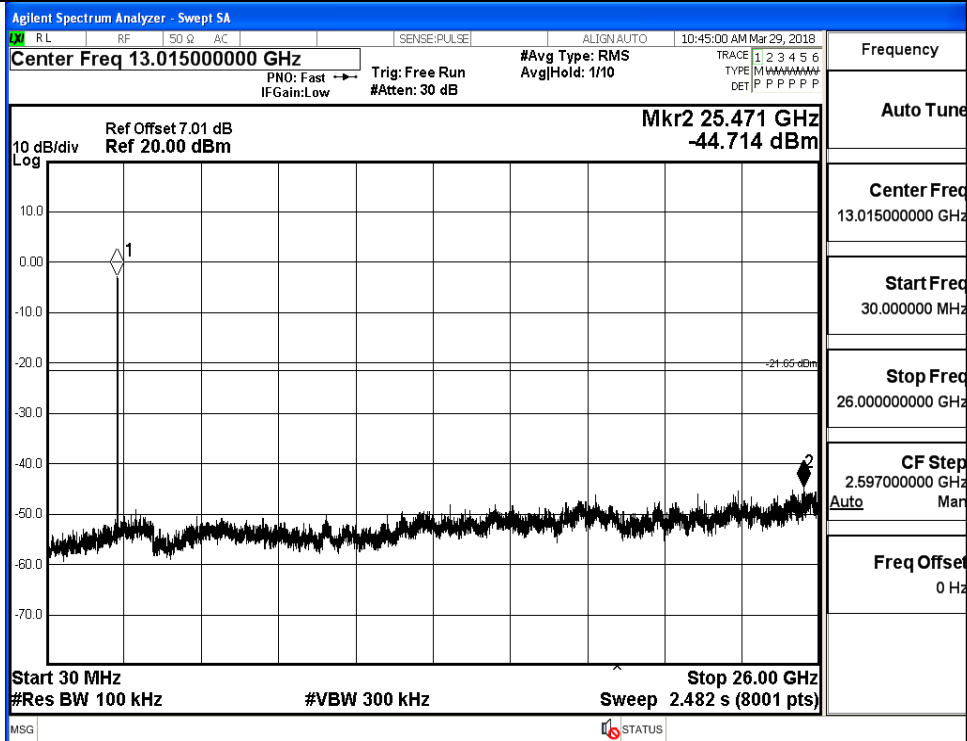
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-1.647	-44.714	-21.647	PASS
	MCH	-1.831	-44.632	-21.831	PASS
	HCH	-2.349	-44.494	-22.349	PASS
11G	LCH	-9.272	-44.101	-29.272	PASS
	MCH	-9.911	-44.840	-29.911	PASS
	HCH	-10.599	-44.908	-30.599	PASS
11N20 SISO	LCH	-9.456	-44.176	-29.456	PASS
	MCH	-9.555	-45.167	-29.555	PASS
	HCH	-10.282	-45.403	-30.282	PASS
11N40 SISO	LCH	-12.634	-45.047	-32.634	PASS
	MCH	-12.895	-44.789	-32.895	PASS
	HCH	-13.17	-44.353	-33.170	PASS

11B LCH Graphs

Pref/11B/LCH

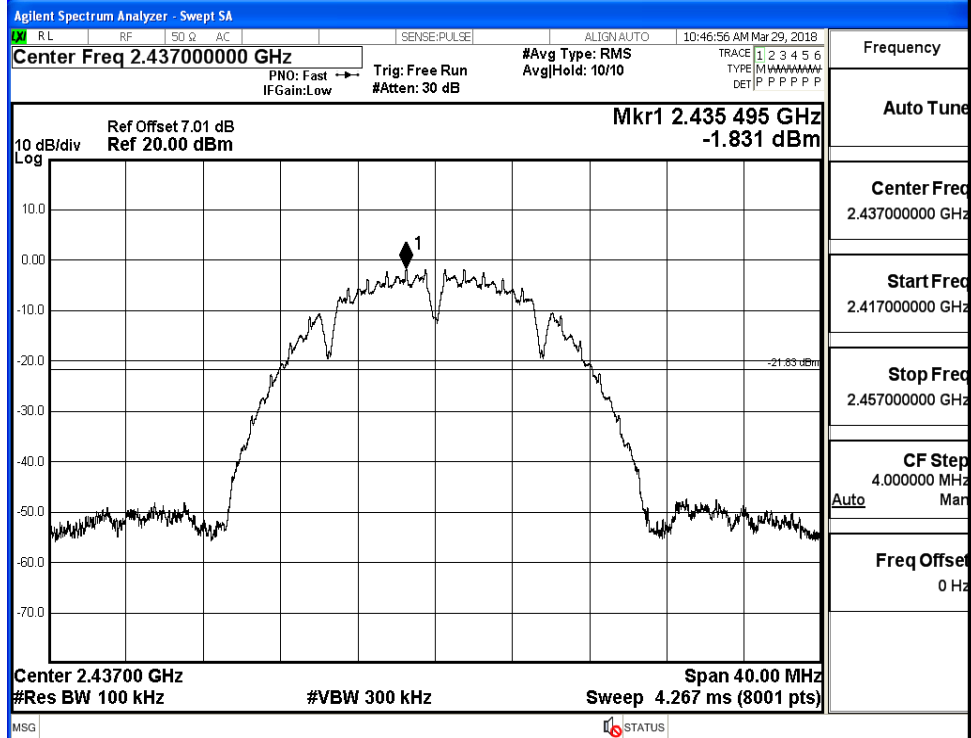


Puw/11B/LCH

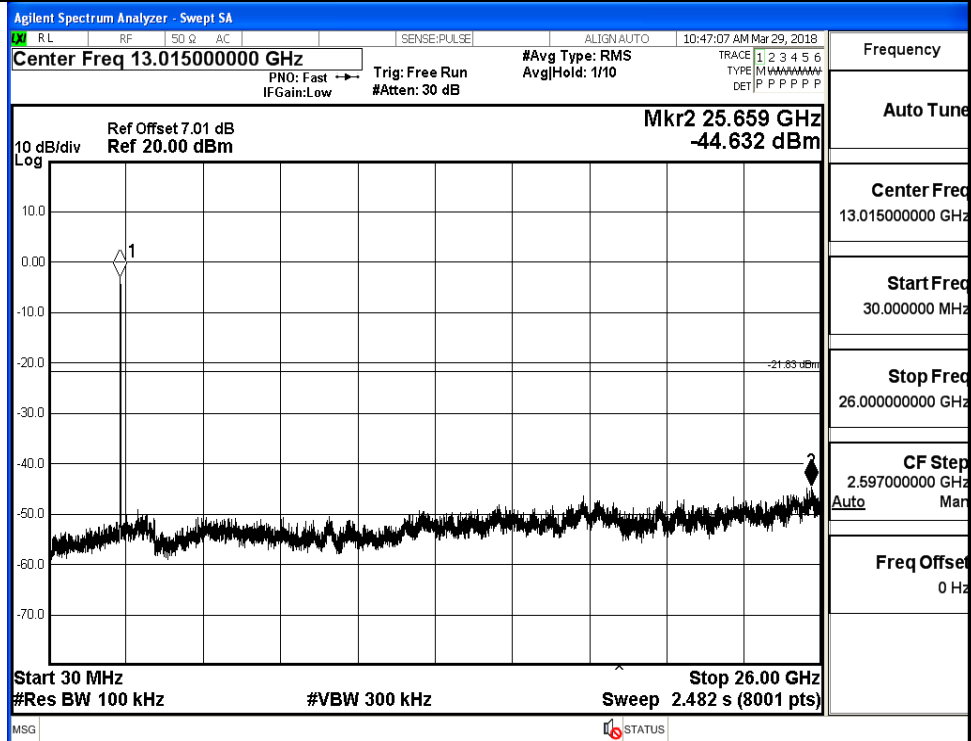


11B_MCH_Graphs

Pref/11B/MCH

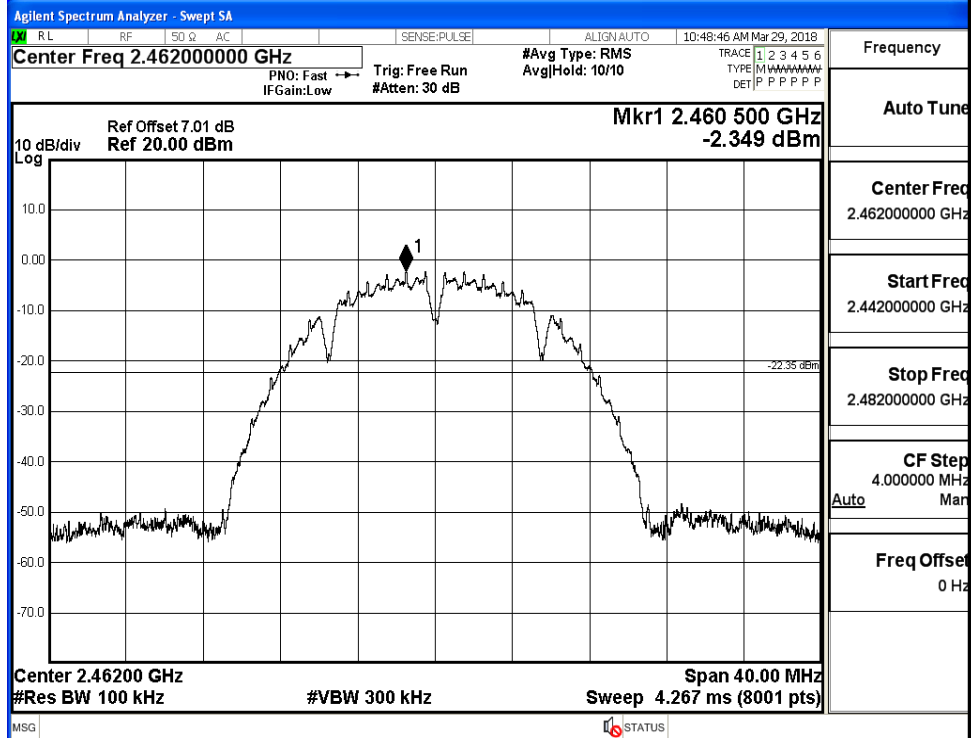


Puw/11B/MCH

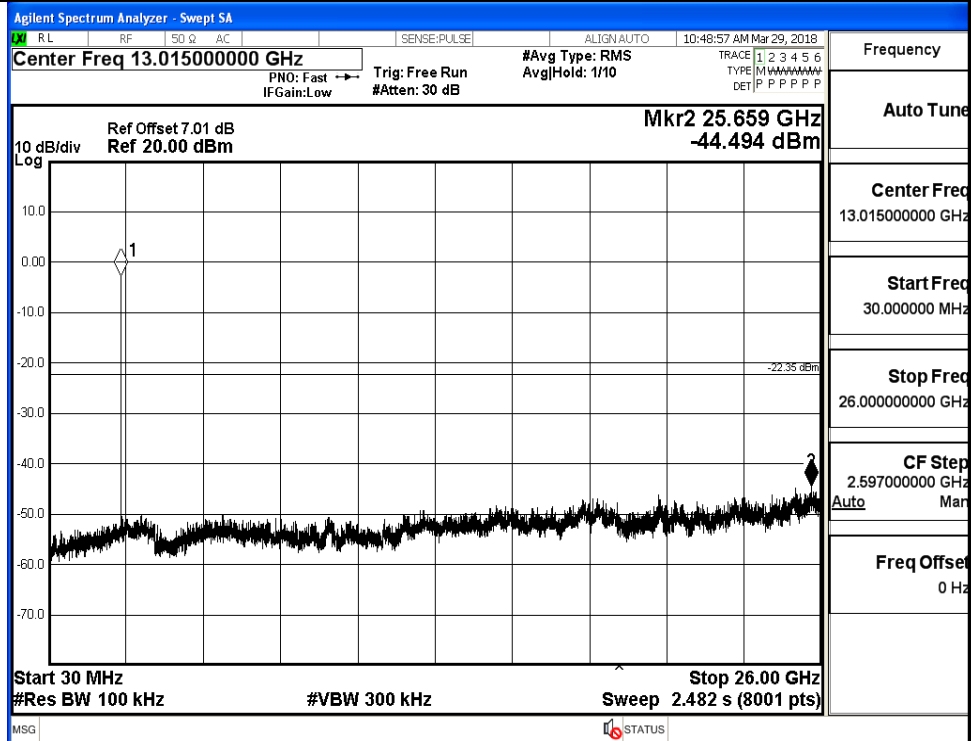


11B HCH Graphs

Pref/11B/HCH

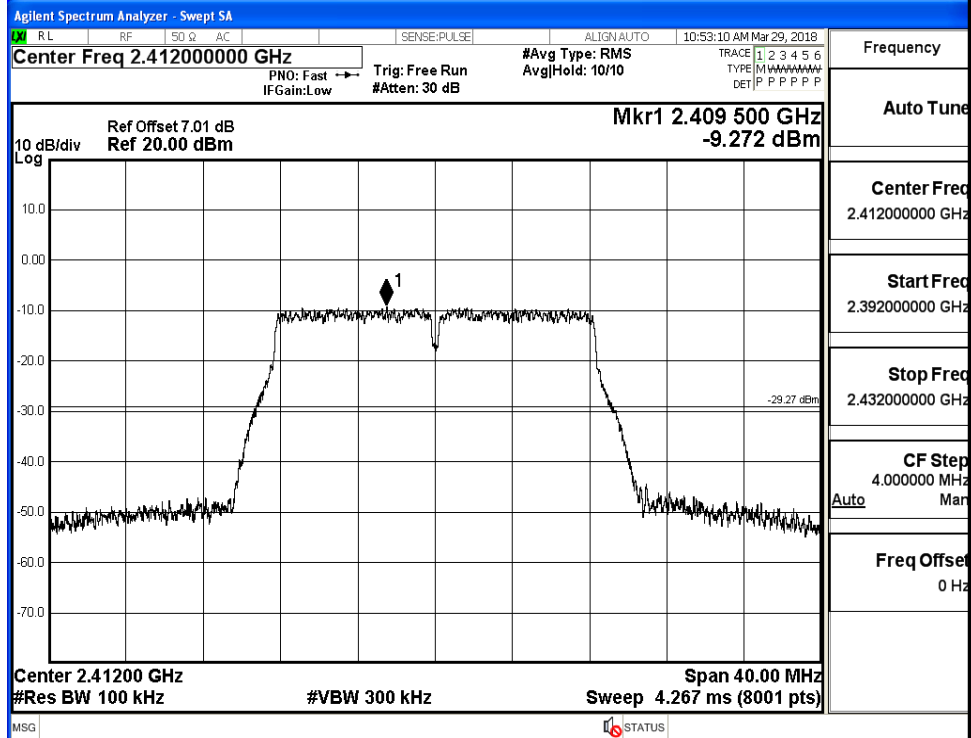


Puw/11B/HCH

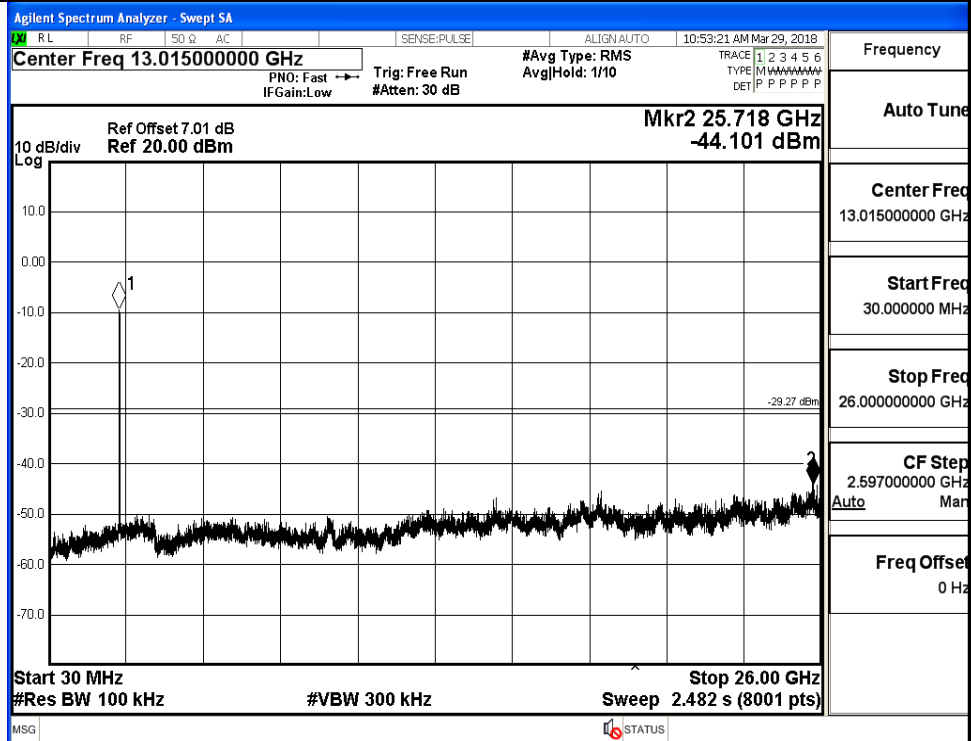


11G_LCH_Graphs

Pref/11G/LCH

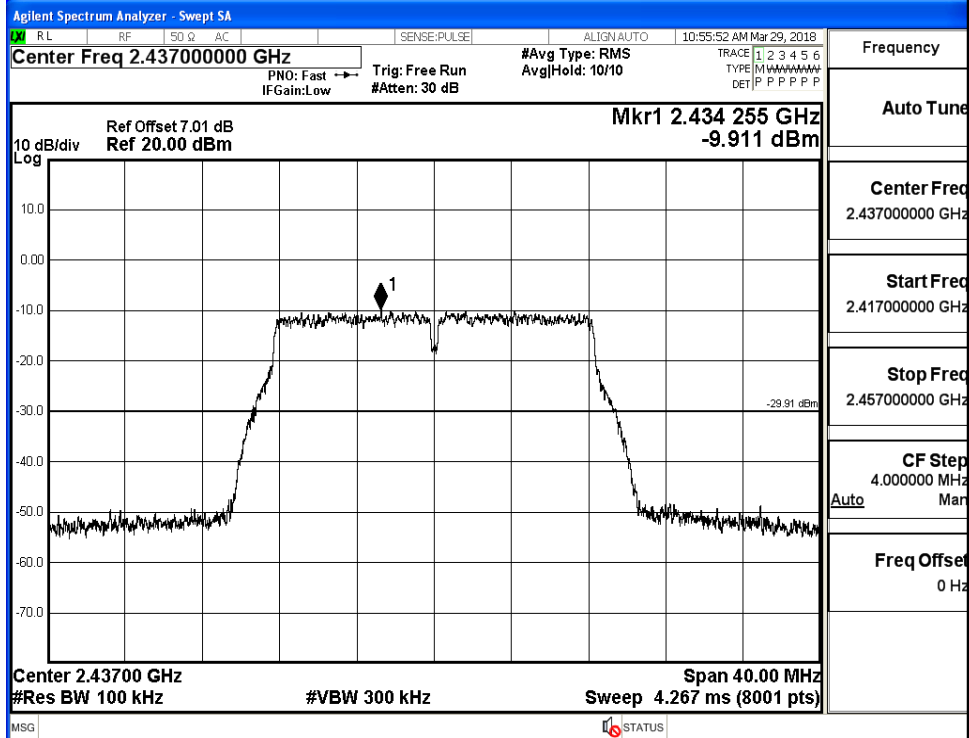


Puw/11G/LCH

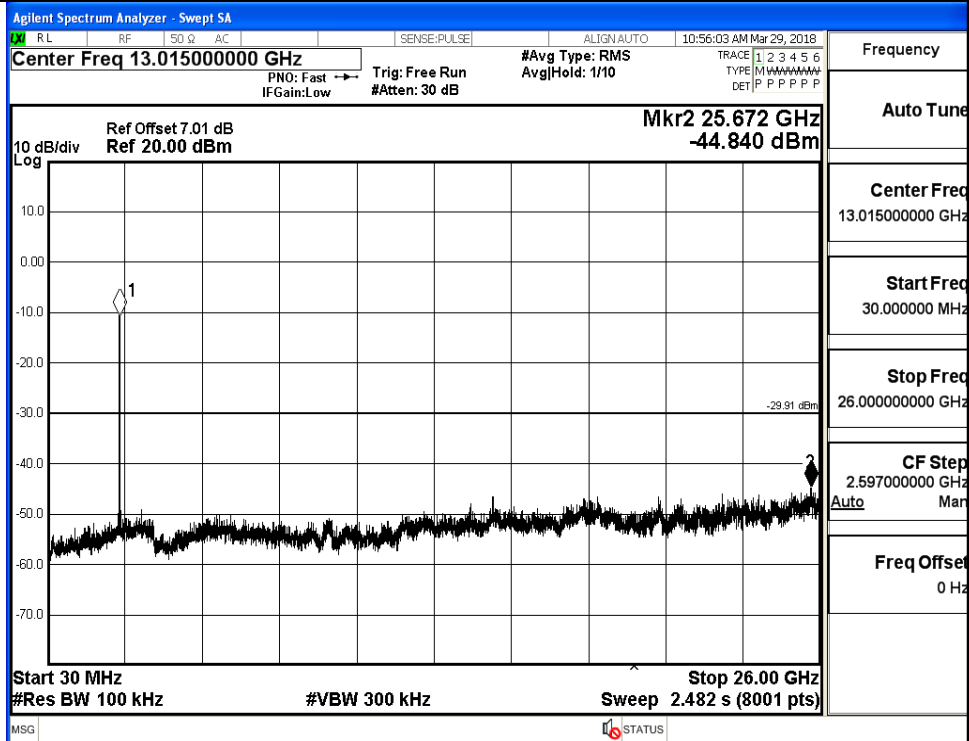


11G_MCH_Graphs

Pref/11G/MCH

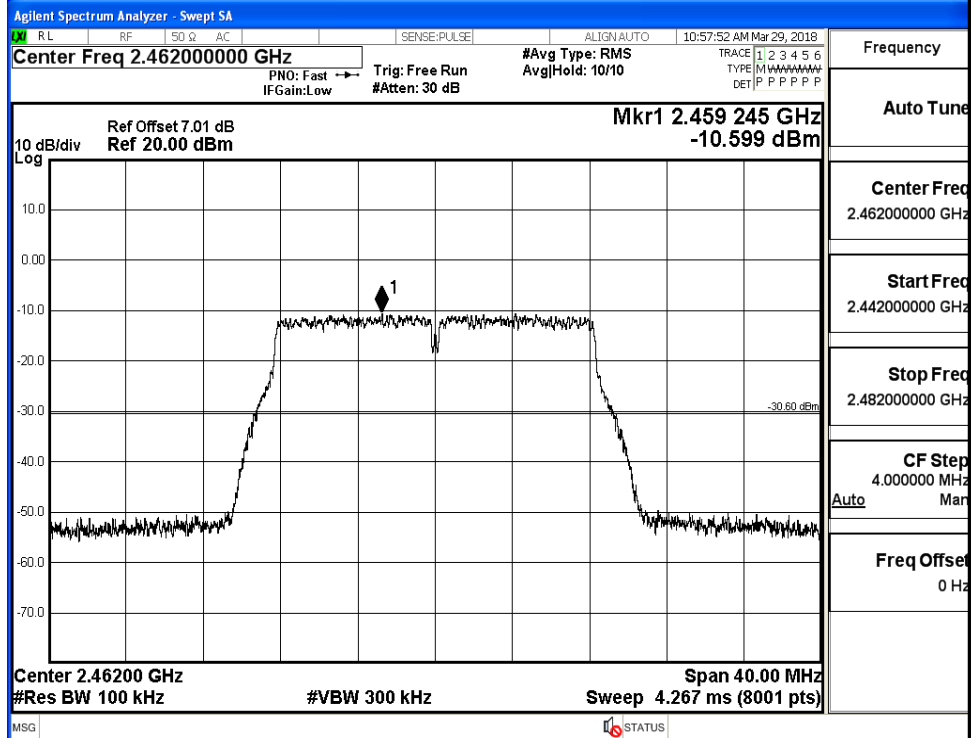


Puw/11G/MCH

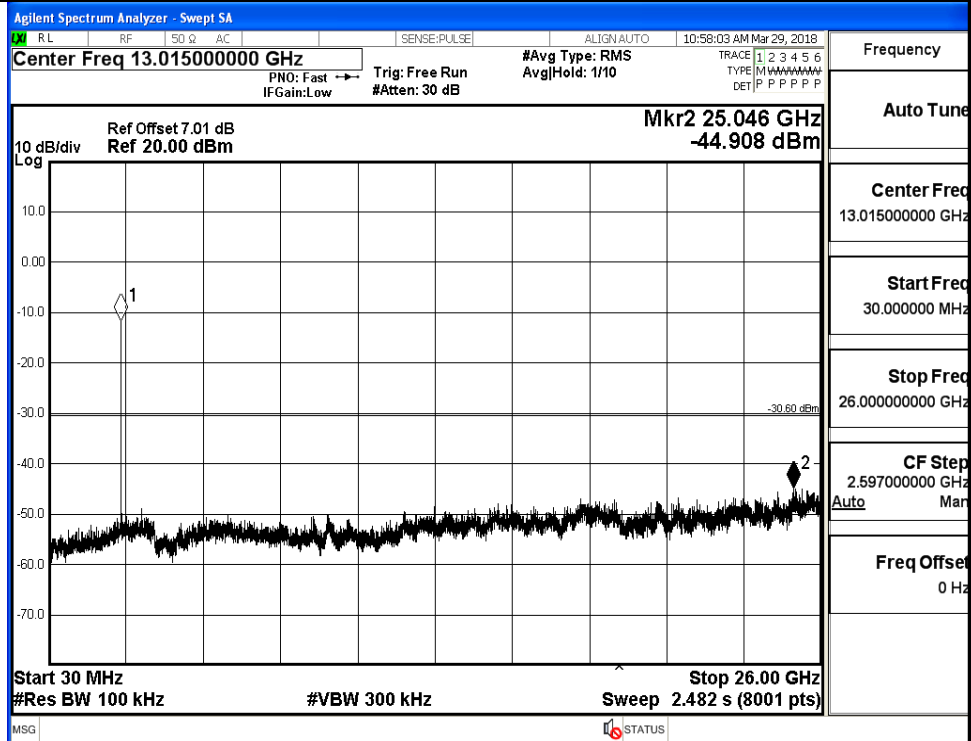


11G HCH Graphs

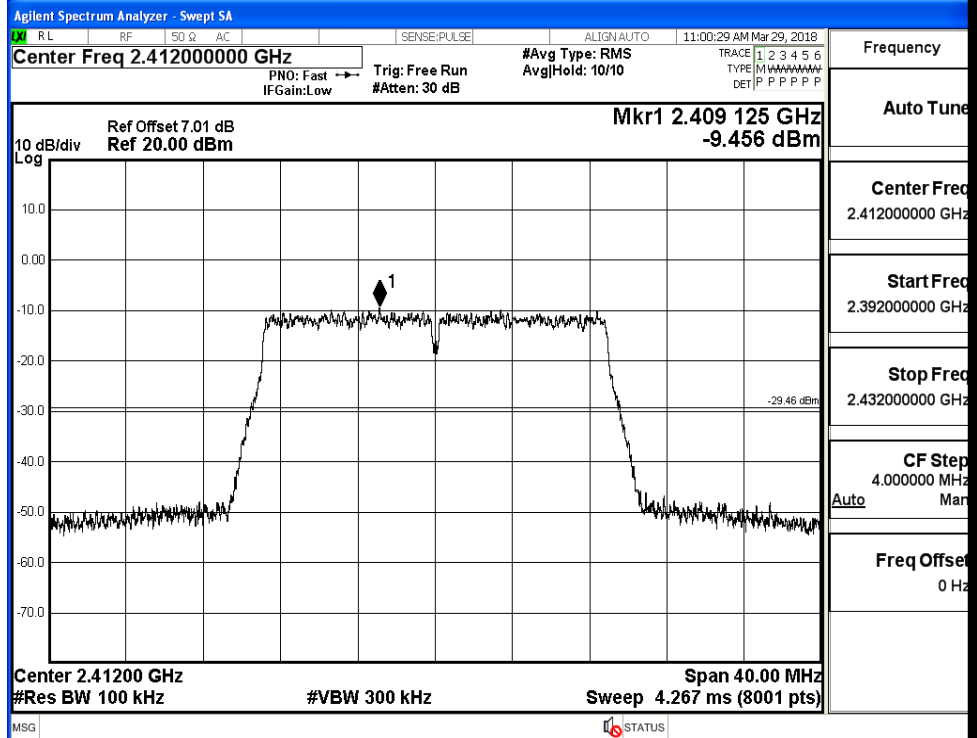
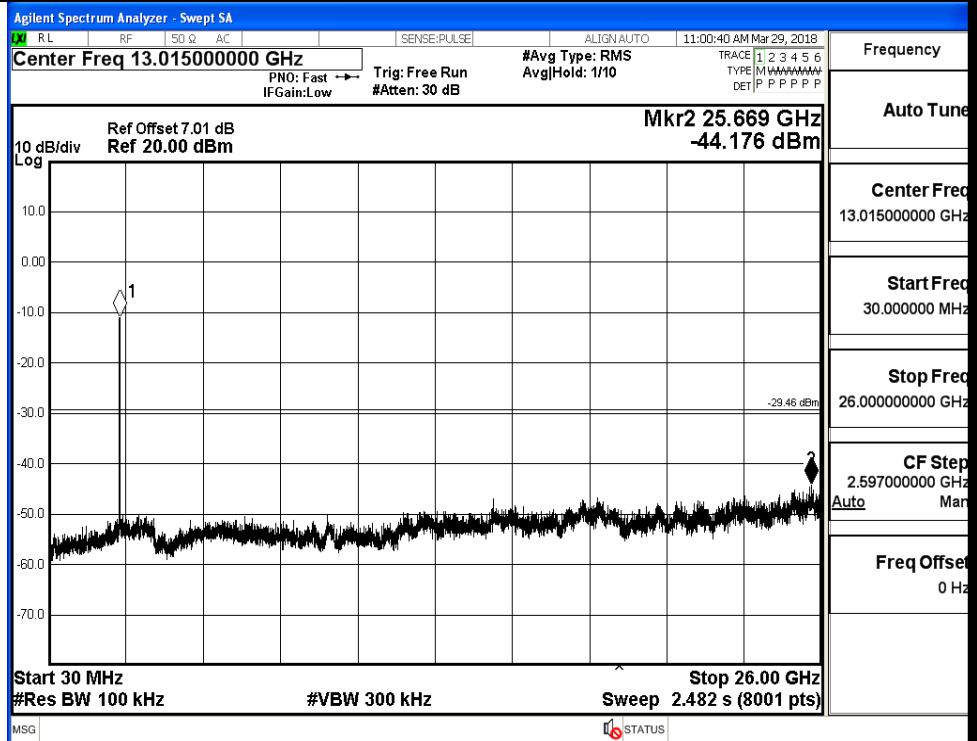
Pref/11G/HCH



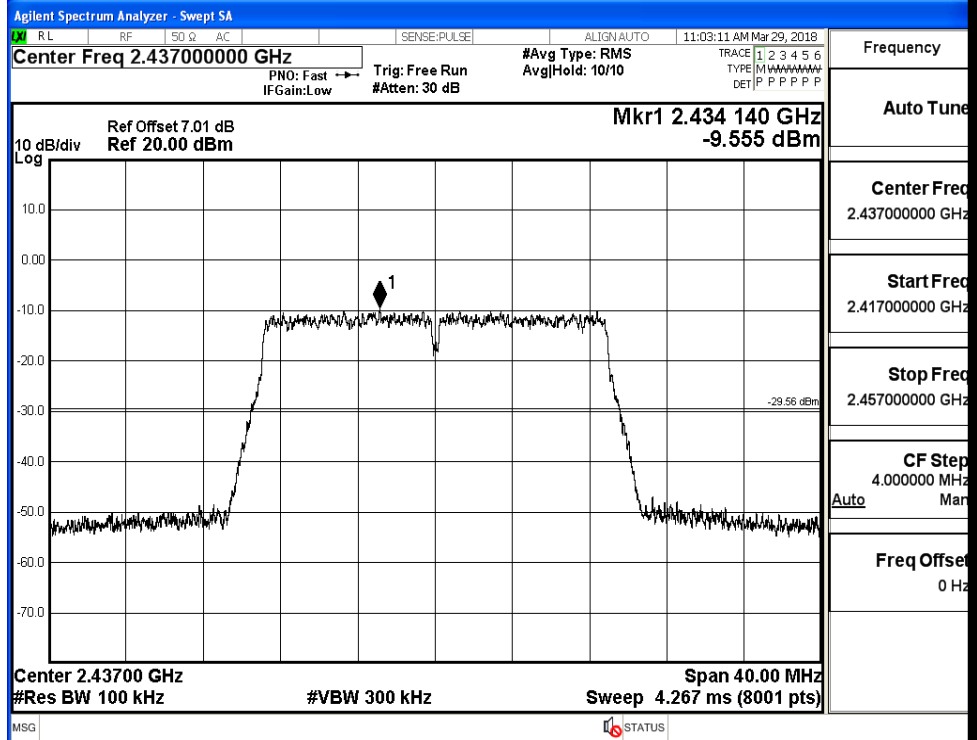
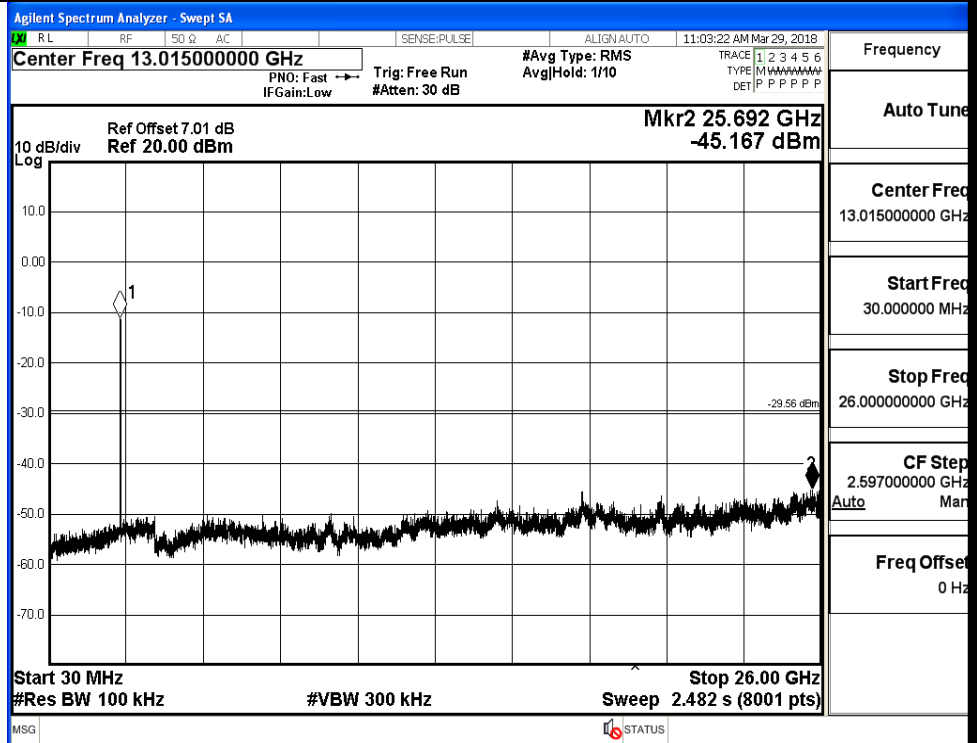
Puw/11G/HCH



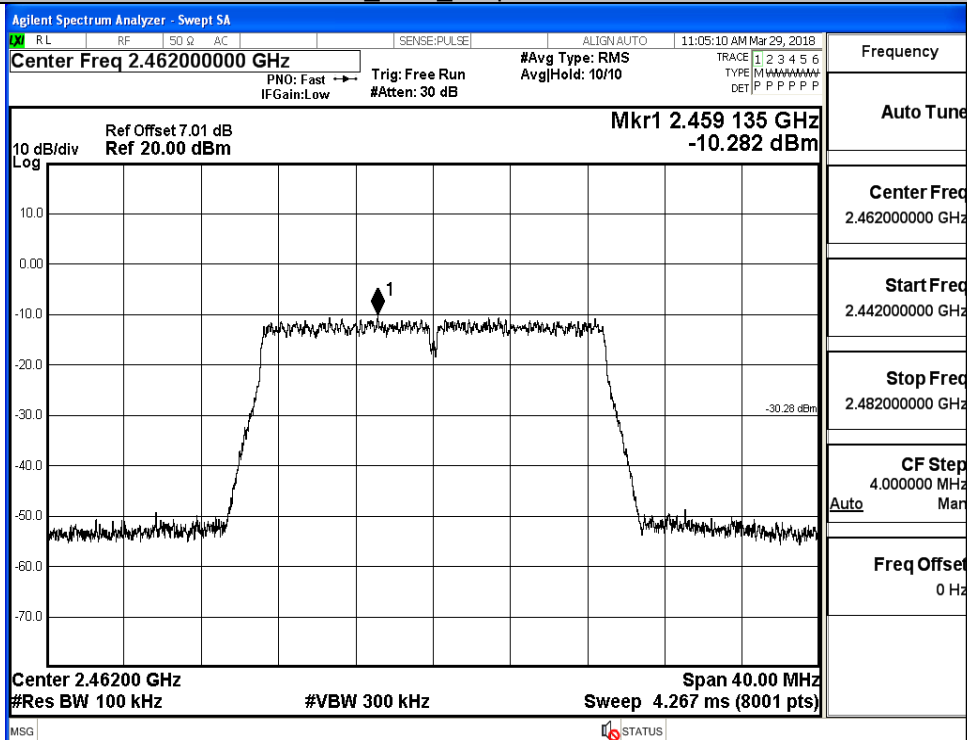
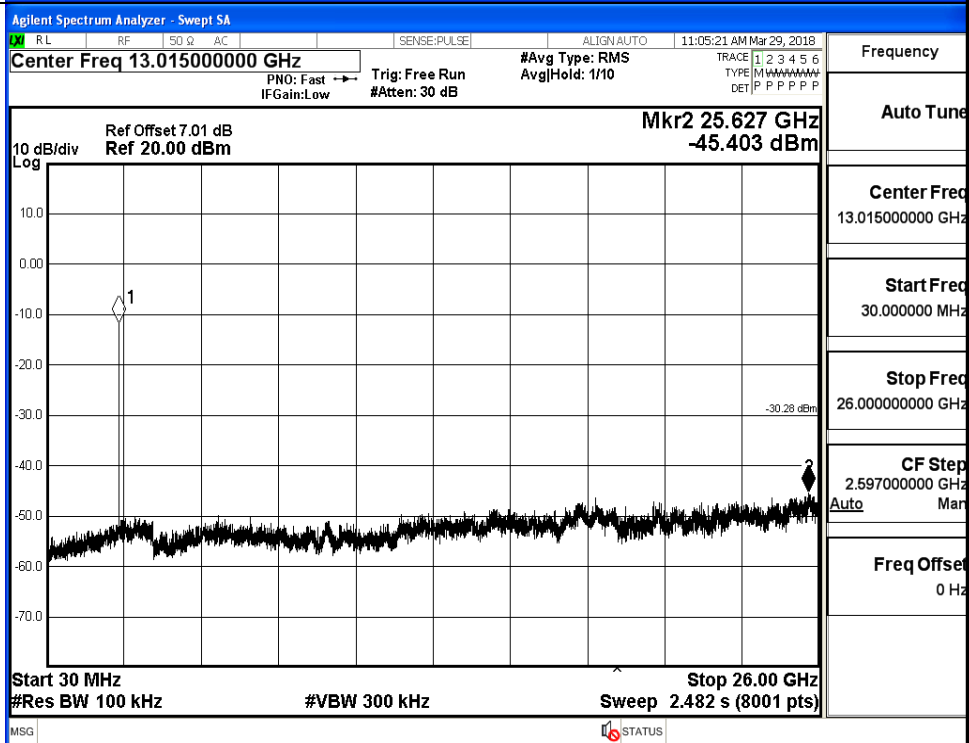
11N20SISO_LCH_Graphs

Pref/11N20SIS
O/LCHPuw/11N20
SISO/LCH

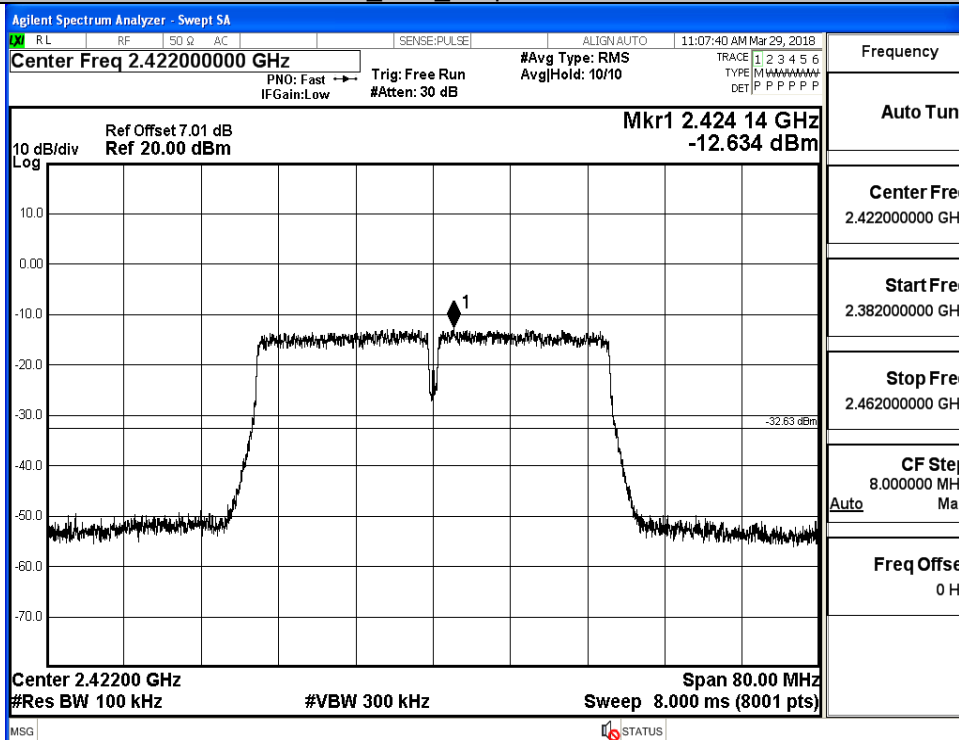
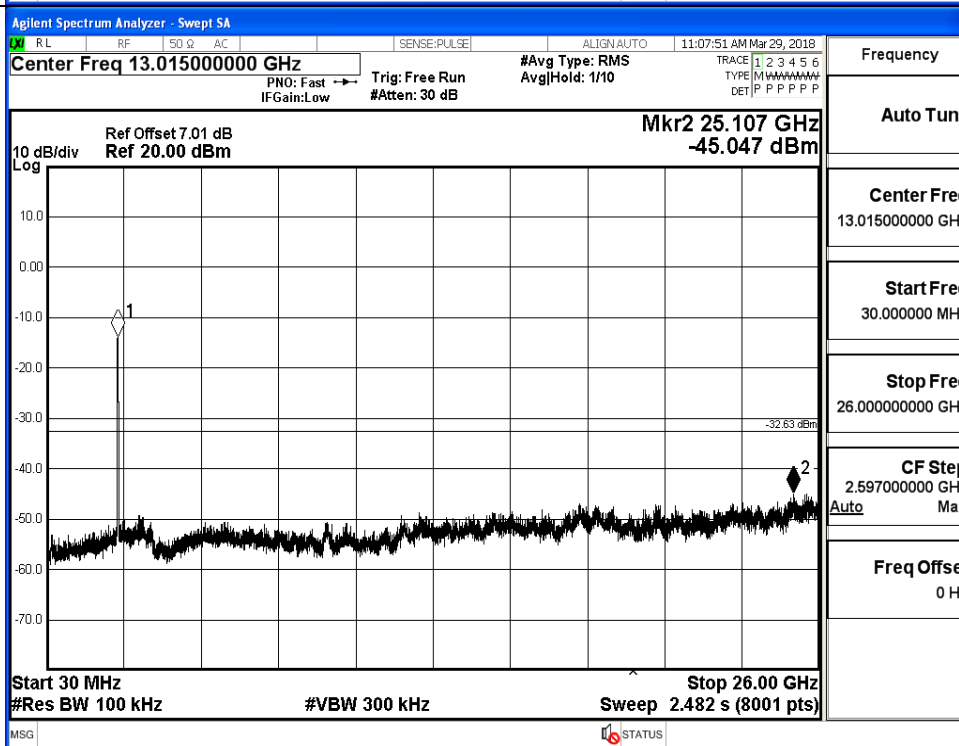
11N20SISO_MCH_Graphs

Pref/11N20
SISO/MCHPuw/11N20
SISO/MCH

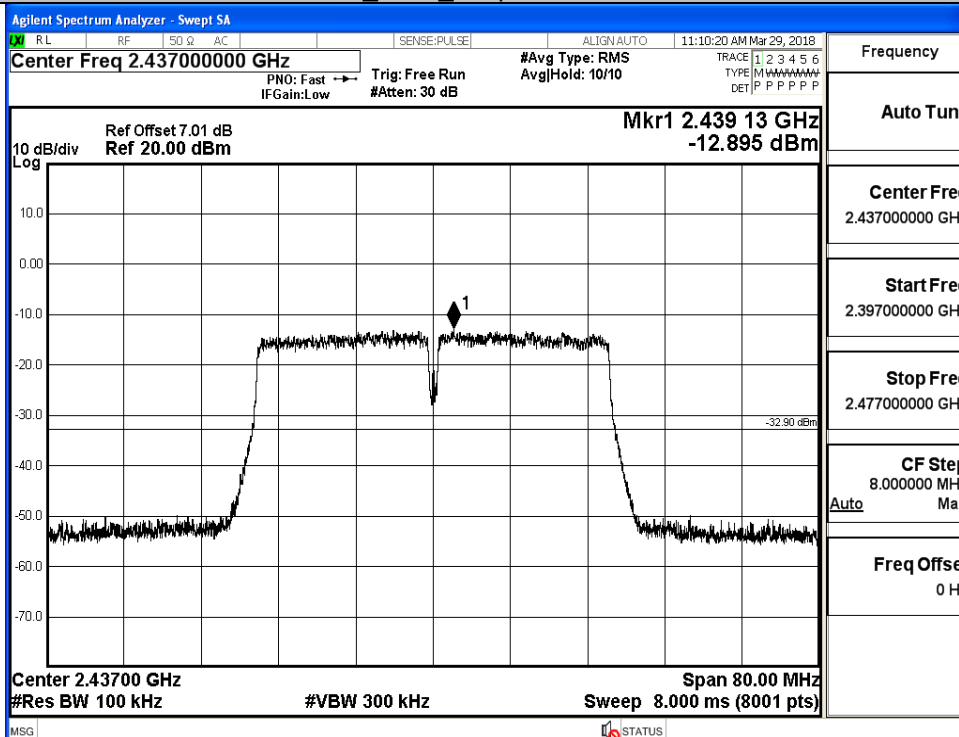
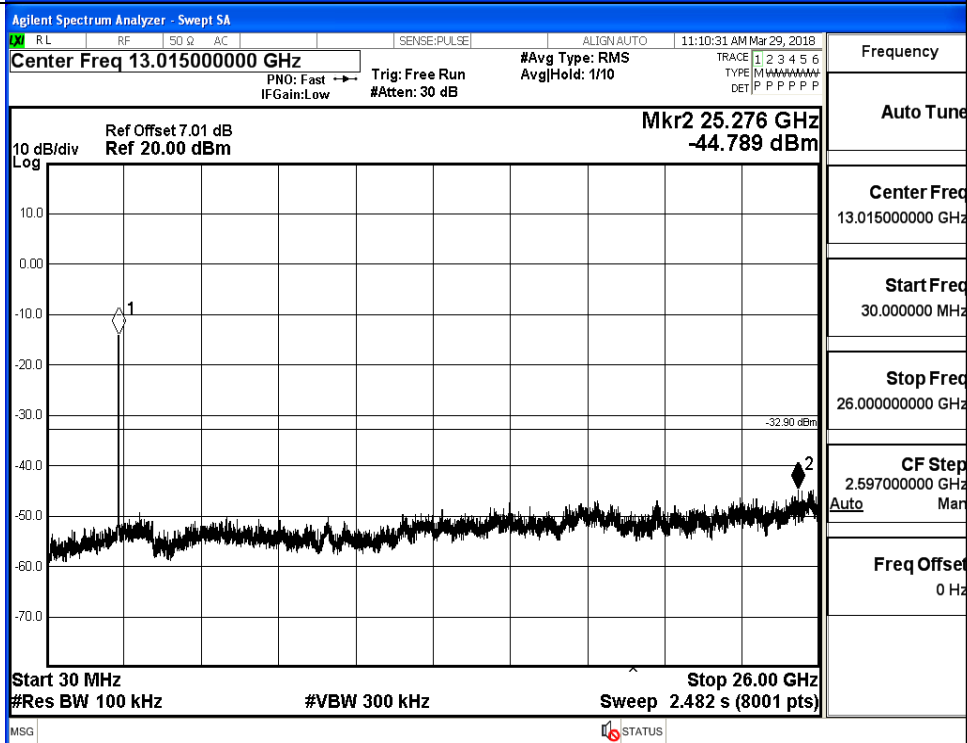
11N20SISO_HCH_Graphs

Pref/11N20
SISO/HCHPuw/11N20
SISO/HCH

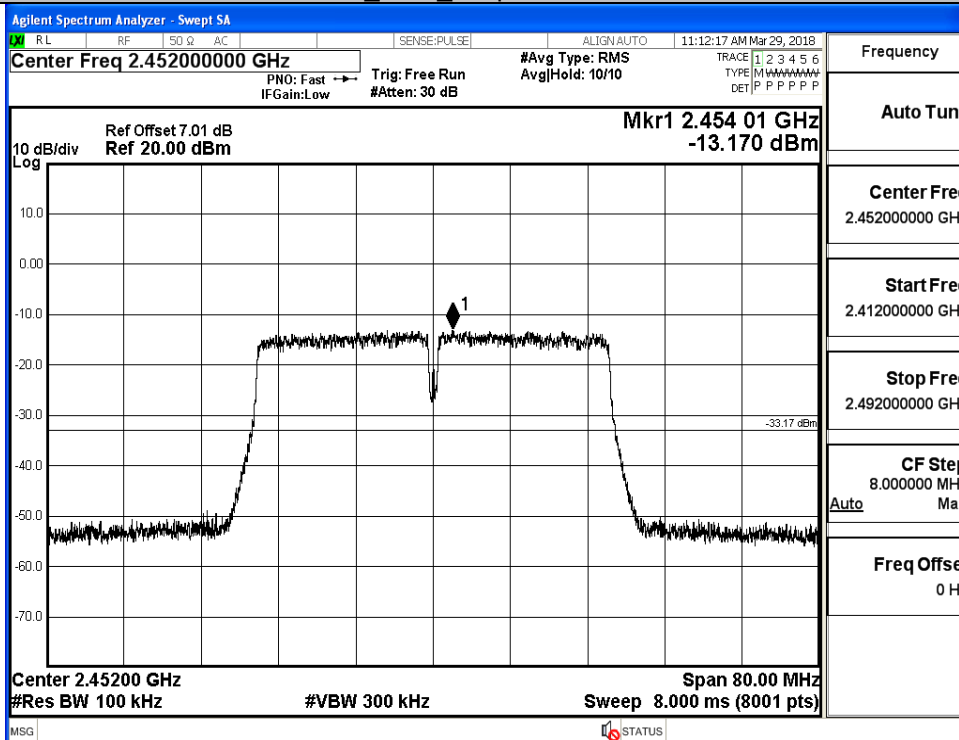
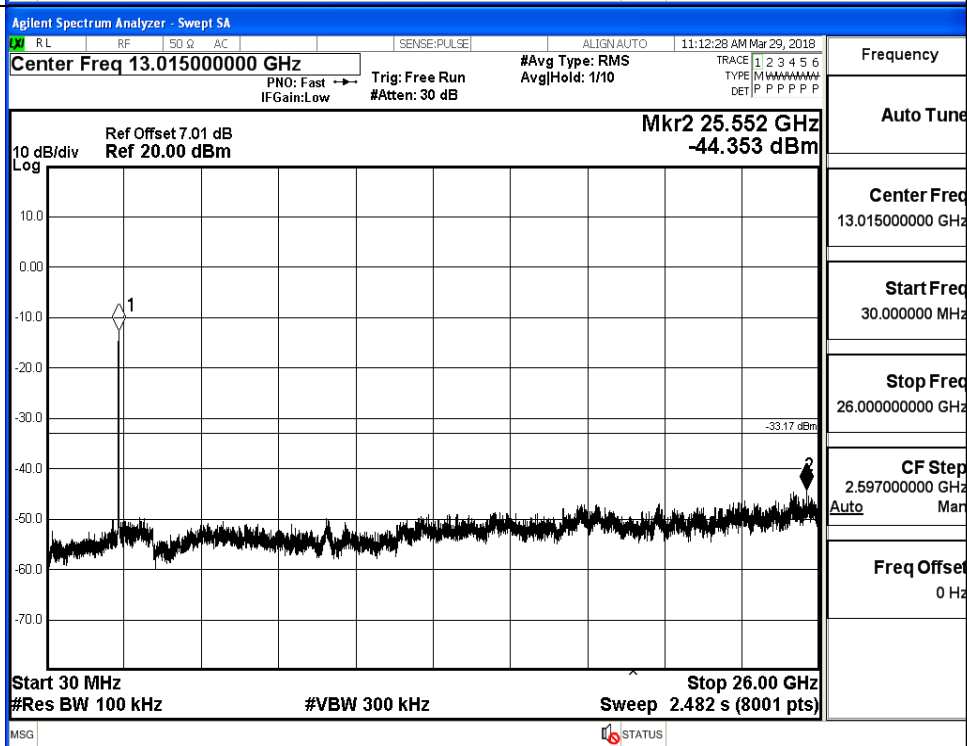
11N40SISO_LCH_Graphs

Pref/11N40
SISO/LCHPuw/11N40
SISO/LCH

11N40SISO_MCH_Graphs

Pref/11N40
SISO/MCHPuw/11N40
SISO/MCH

11N40SISO_HCH_Graphs

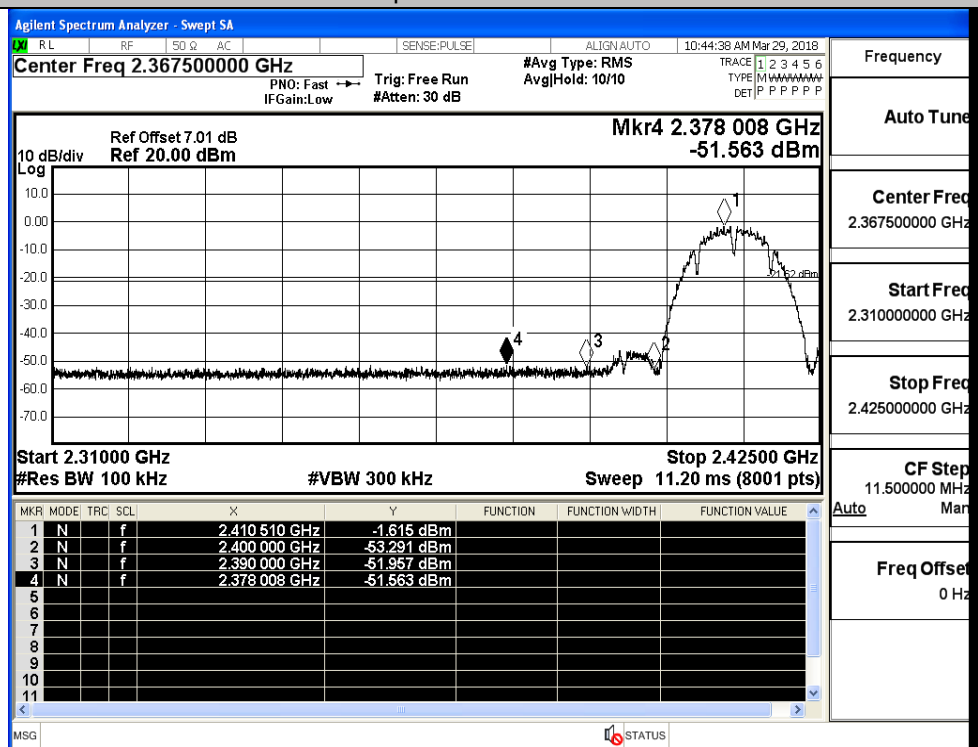
Pref/11N40
SISO/HCHPuw/11N40
SISO/HCH

A.7 Band-edge for RF Conducted Emissions

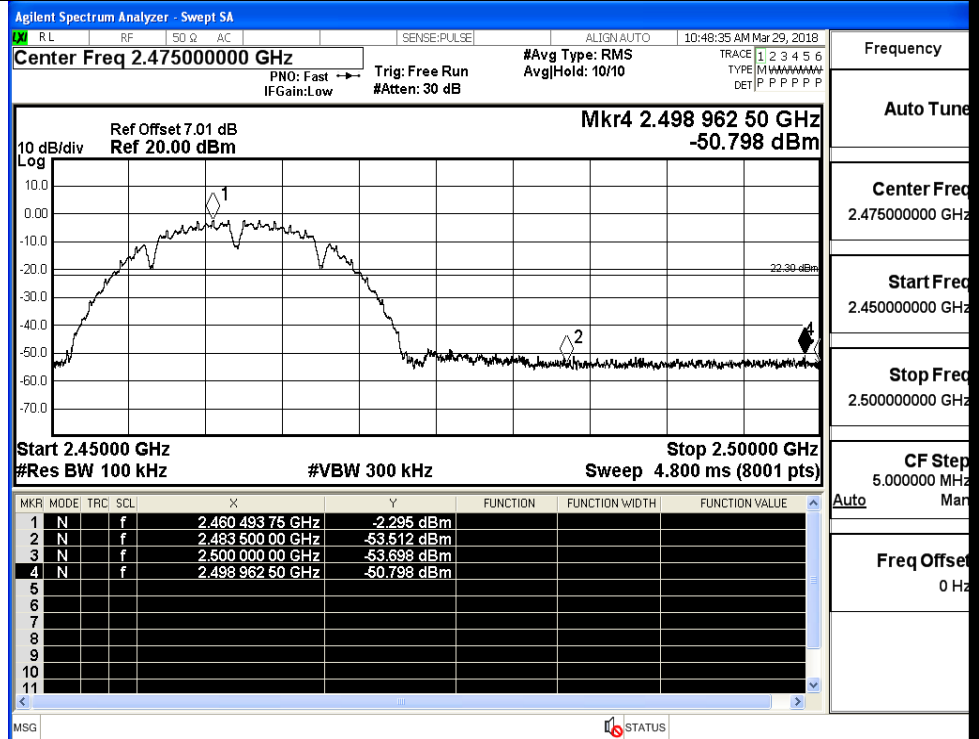
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-1.615	-51.563	-21.62	PASS
	HCH	-2.295	-50.798	-22.3	PASS
11G	LCH	-9.234	-51.137	-29.23	PASS
	HCH	-10.552	-51.047	-30.55	PASS
11N20SISO	LCH	-9.573	-50.604	-29.57	PASS
	HCH	-10.056	-51.224	-30.06	PASS
11N40SISO	LCH	-12.455	-49.840	-32.46	PASS
	HCH	-12.535	-50.959	-32.54	PASS

Test Graphs

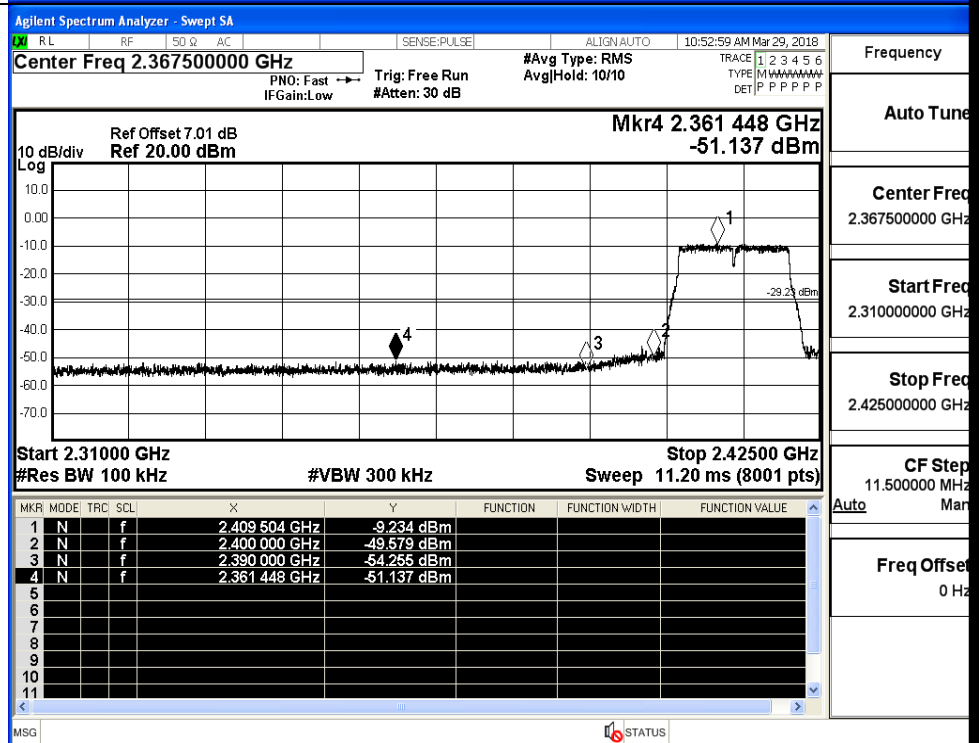
11B/LCH



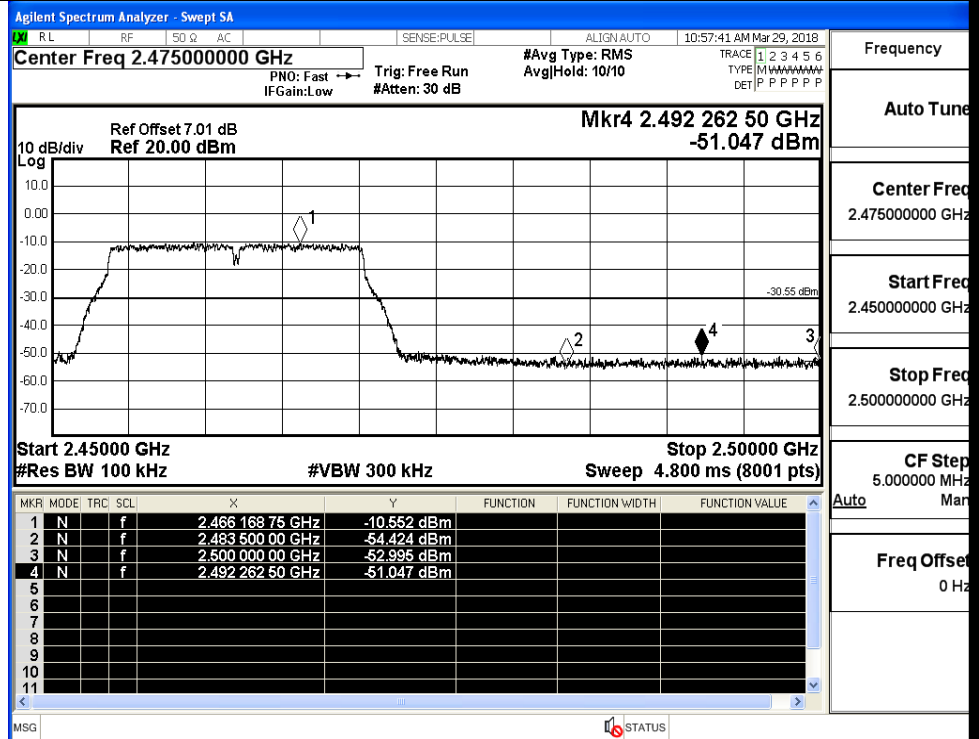
11B/HCH



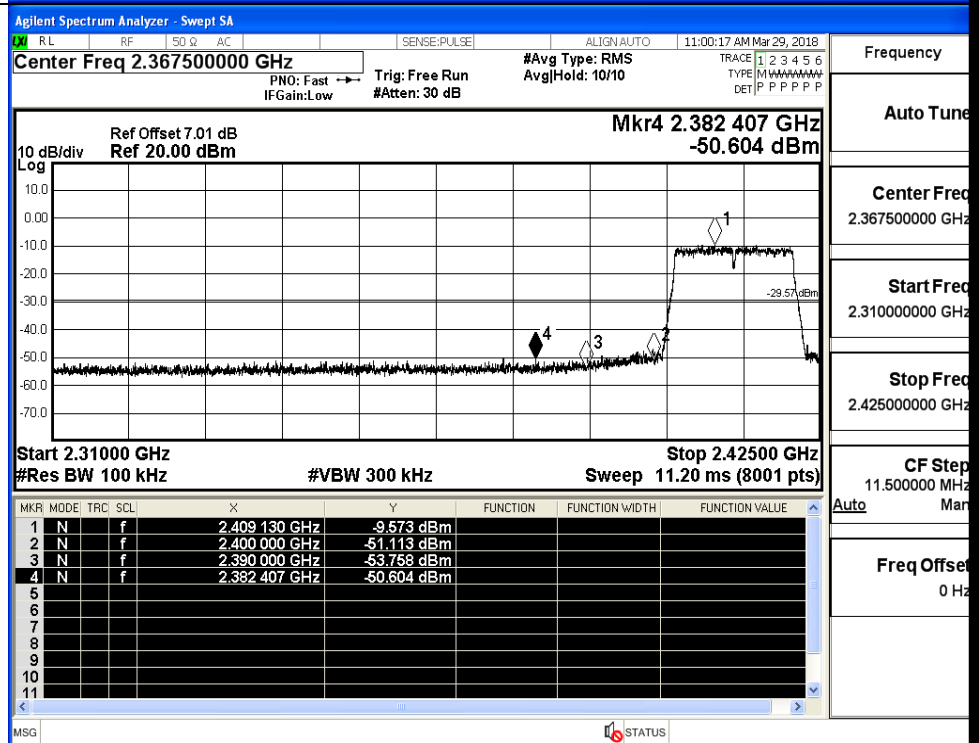
11G/LCH



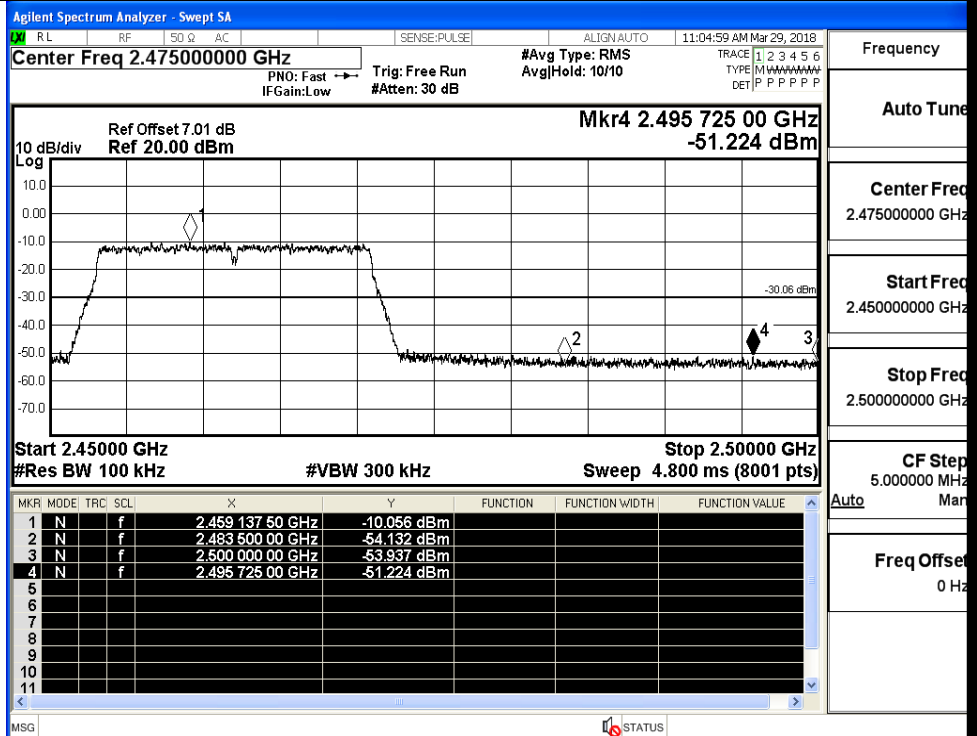
11G/HCH



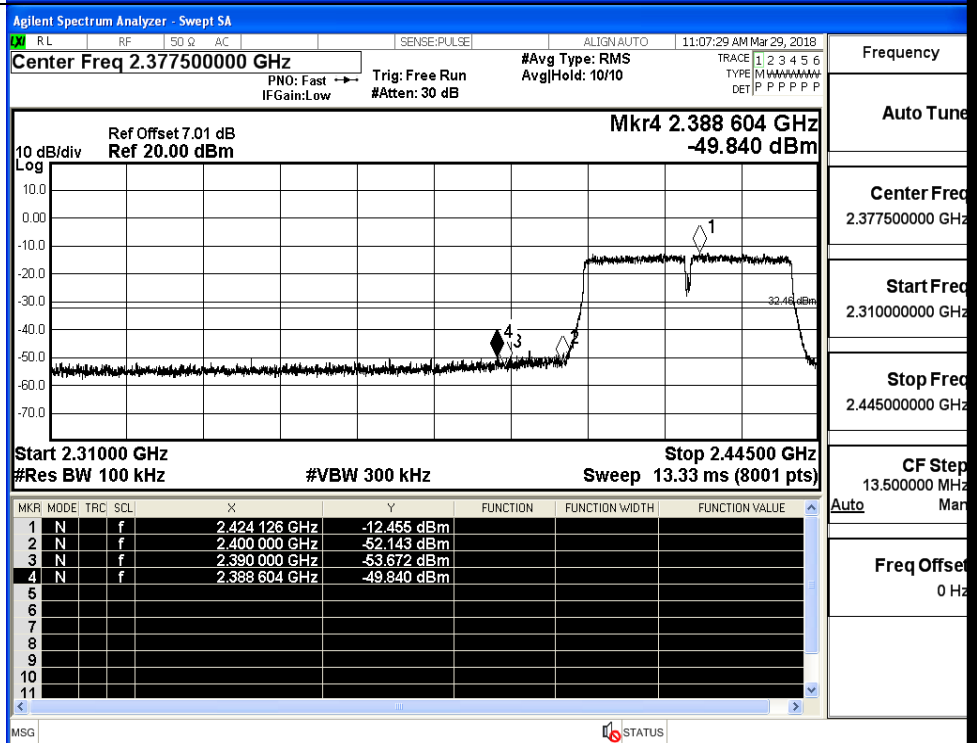
11N20SISO/LCH



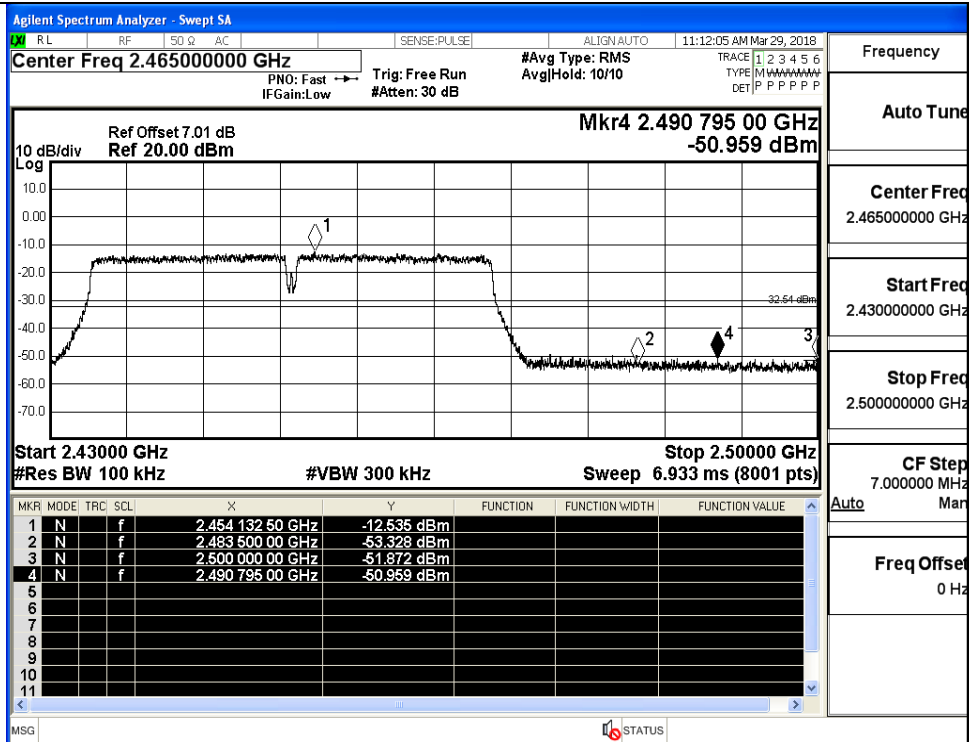
11N20SISO/HCH



11N40SISO/LCH



11N40SISO/HCH

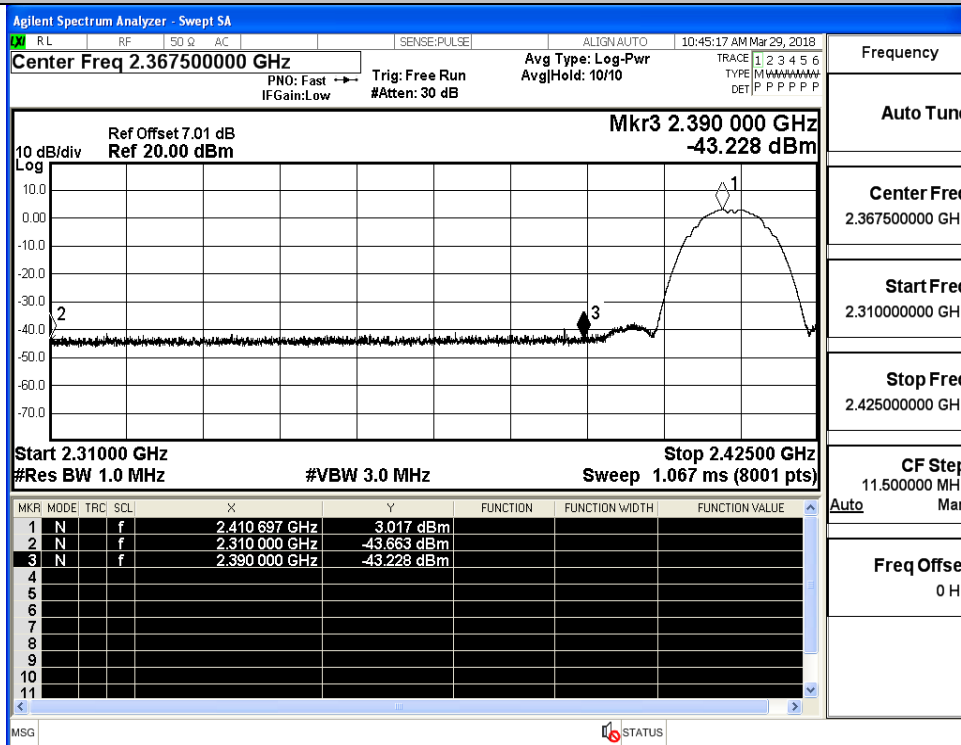


A.8 Restrict-band band-edge measurements

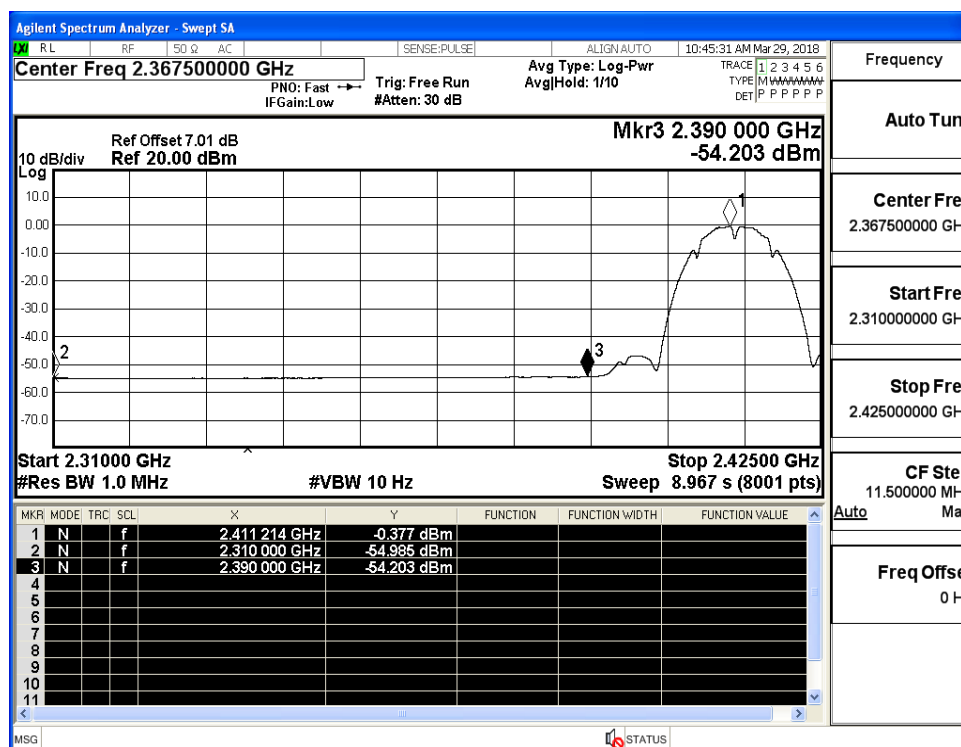
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-43.66	2.0	0	53.60	PEAK	74	PASS
	2412	Ant1	2310.0	-54.99	2.0	0	42.27	AV	54	PASS
	2412	Ant1	2390.0	-43.23	2.0	0	54.03	PEAK	74	PASS
	2412	Ant1	2390.0	-54.20	2.0	0	43.06	AV	54	PASS
	2462	Ant1	2483.5	-44.17	2.0	0	53.09	PEAK	74	PASS
	2462	Ant1	2483.5	-54.31	2.0	0	42.95	AV	54	PASS
	2462	Ant1	2500.0	-43.75	2.0	0	53.51	PEAK	74	PASS
	2462	Ant1	2500.0	-54.33	2.0	0	42.93	AV	54	PASS
11G	2412	Ant1	2310.0	-45.08	2.0	0	52.18	PEAK	74	PASS
	2412	Ant1	2310.0	-54.95	2.0	0	42.31	AV	54	PASS
	2412	Ant1	2390.0	-43.09	2.0	0	54.17	PEAK	74	PASS
	2412	Ant1	2390.0	-53.63	2.0	0	43.63	AV	54	PASS
	2462	Ant1	2483.5	-41.89	2.0	0	55.37	PEAK	74	PASS
	2462	Ant1	2483.5	-54.01	2.0	0	43.25	AV	54	PASS
	2462	Ant1	2500.0	-44.32	2.0	0	52.94	PEAK	74	PASS
	2462	Ant1	2500.0	-54.12	2.0	0	43.14	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-43.12	2.0	0	54.14	PEAK	74	PASS
	2412	Ant1	2310.0	-54.92	2.0	0	42.34	AV	54	PASS
	2412	Ant1	2390.0	-41.43	2.0	0	55.83	PEAK	74	PASS
	2412	Ant1	2390.0	-53.33	2.0	0	43.93	AV	54	PASS
	2462	Ant1	2483.5	-43.64	2.0	0	53.62	PEAK	74	PASS
	2462	Ant1	2483.5	-53.92	2.0	0	43.34	AV	54	PASS
	2462	Ant1	2500.0	-44.28	2.0	0	52.98	PEAK	74	PASS
	2462	Ant1	2500.0	-54.12	2.0	0	43.14	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-44.57	2.0	0	52.69	PEAK	74	PASS
	2422	Ant1	2310.0	-54.97	2.0	0	42.29	AV	54	PASS
	2422	Ant1	2390.0	-42.11	2.0	0	55.15	PEAK	74	PASS

	2422	Ant1	2390.0	-52.66	2.0	0	44.60	AV	54	PASS
	2452	Ant1	2483.5	-42.65	2.0	0	54.61	PEAK	74	PASS
	2452	Ant1	2483.5	-53.59	2.0	0	43.67	AV	54	PASS
	2452	Ant1	2500.0	-43.70	2.0	0	53.56	PEAK	74	PASS
	2452	Ant1	2500.0	-53.95	2.0	0	43.31	AV	54	PASS

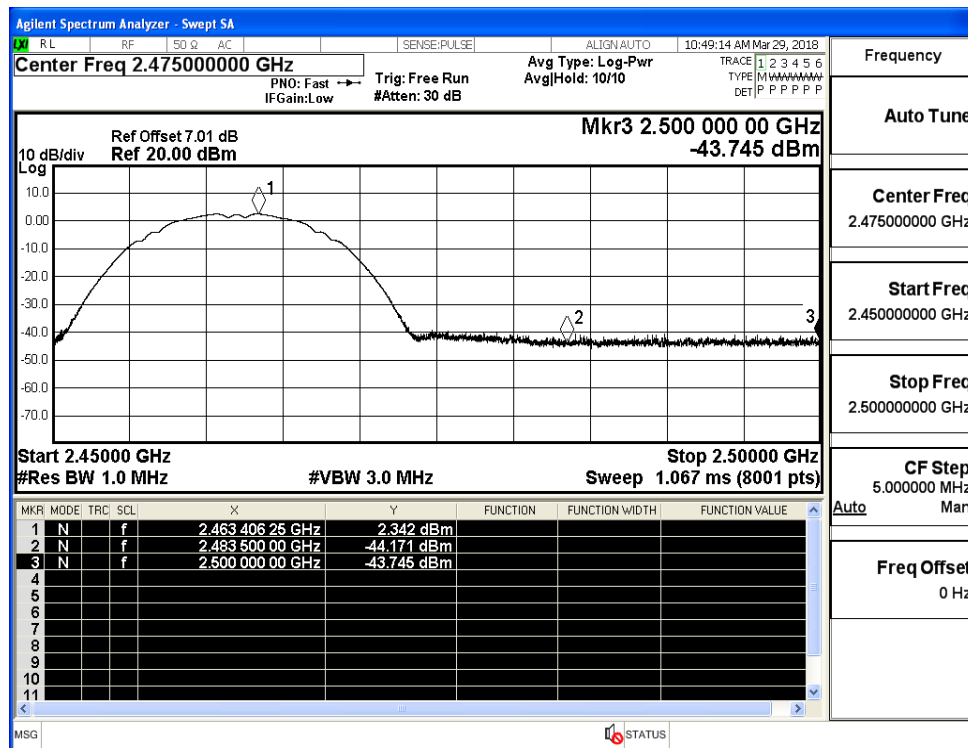
Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



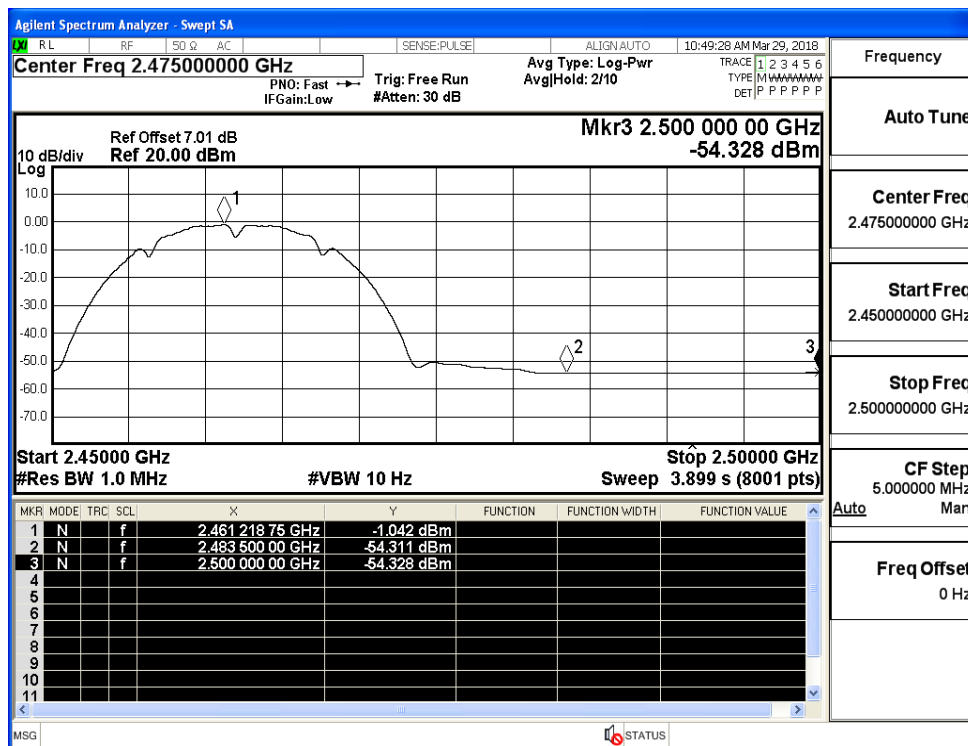
Restrict-band band-edge measurements_11B_2412_Ant1_AV



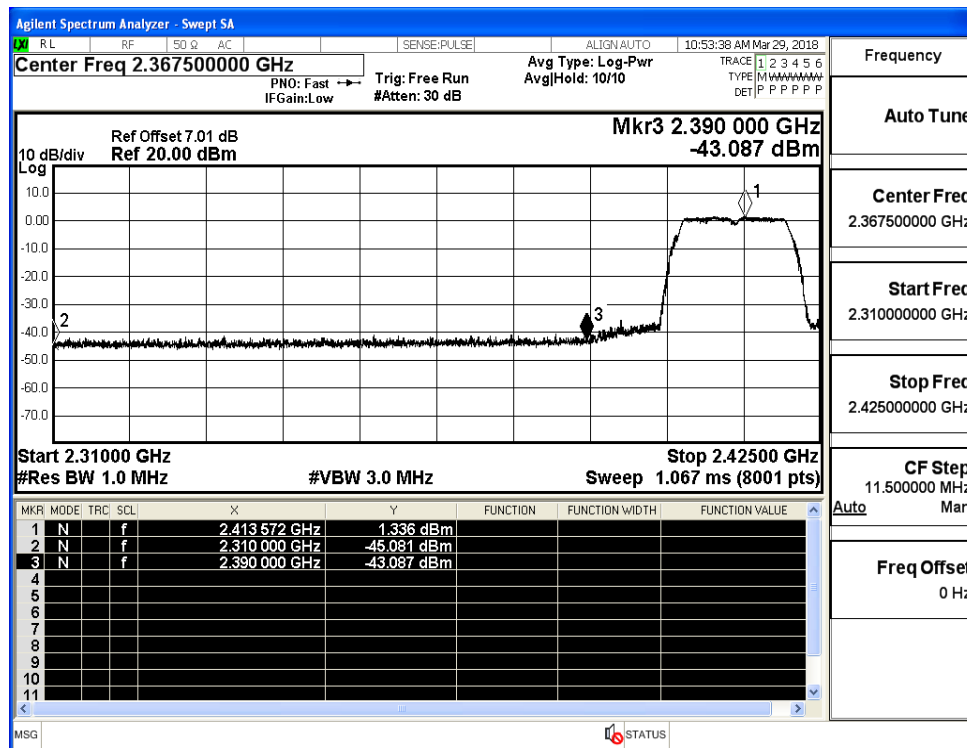
Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



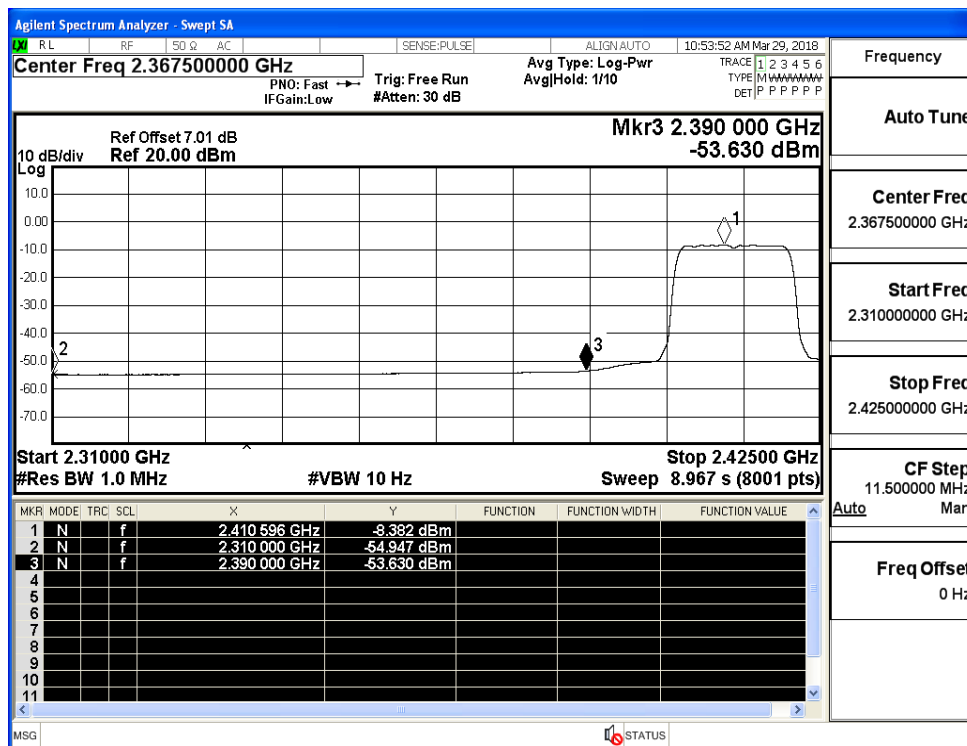
Restrict-band band-edge measurements_11B_2462_Ant1_AV



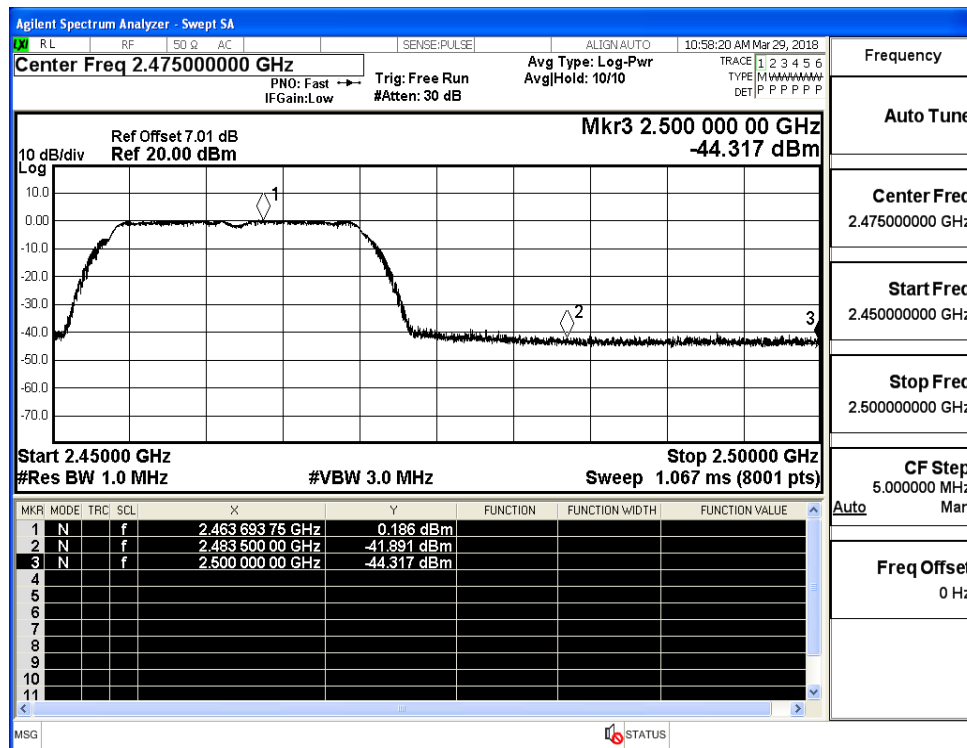
Restrict-band band-edge measurements_11G_2412_Ant1_PEAK



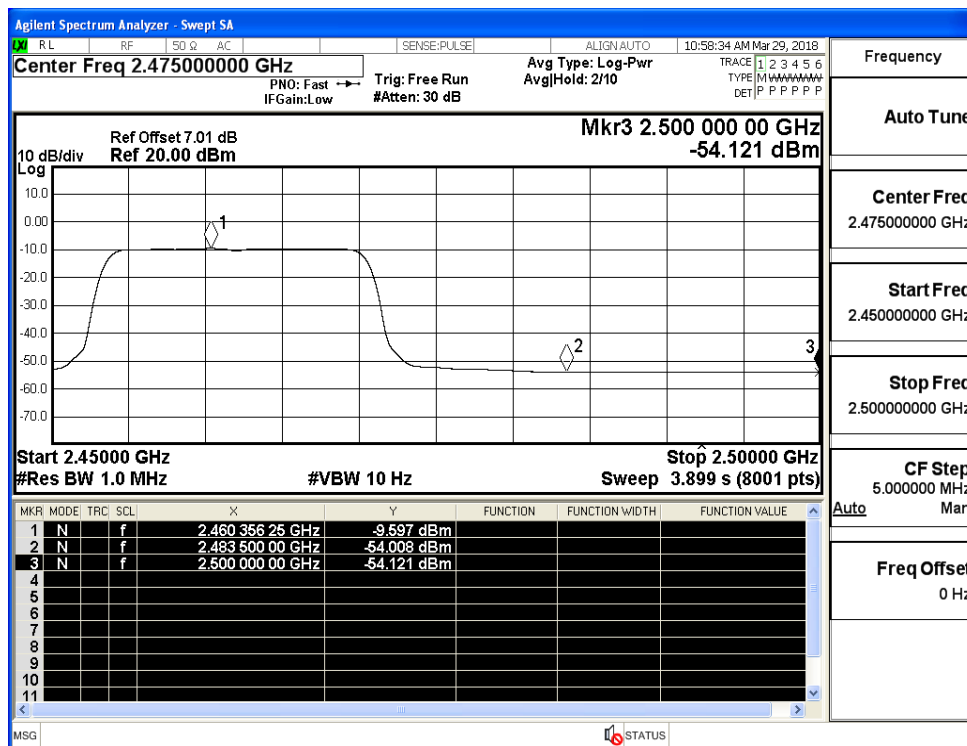
Restrict-band band-edge measurements_11G_2412_Ant1_AV



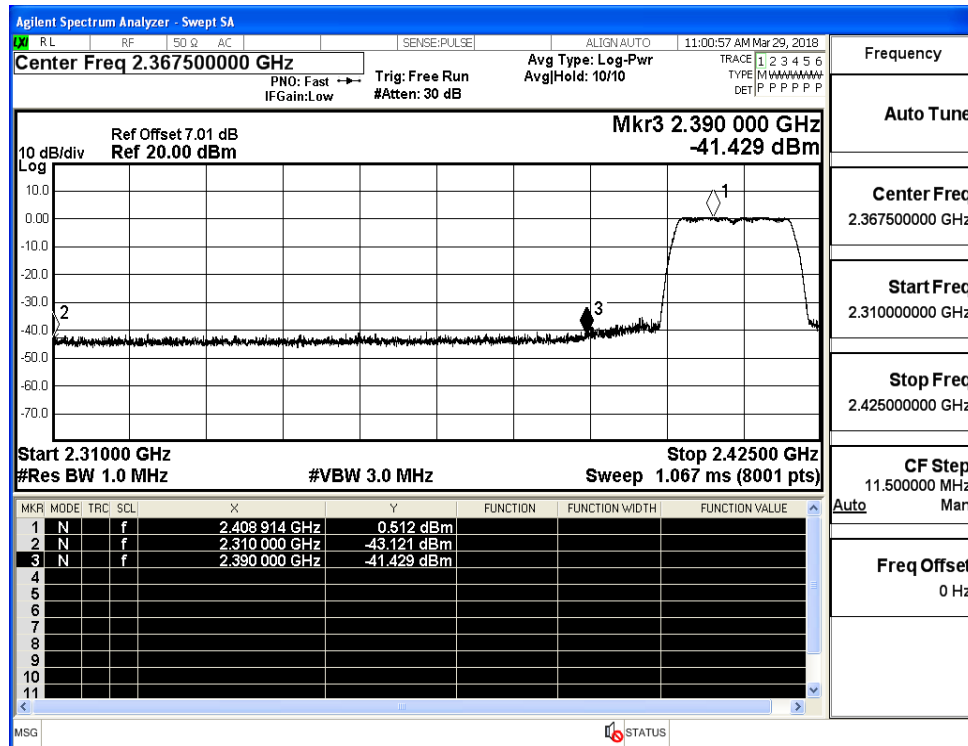
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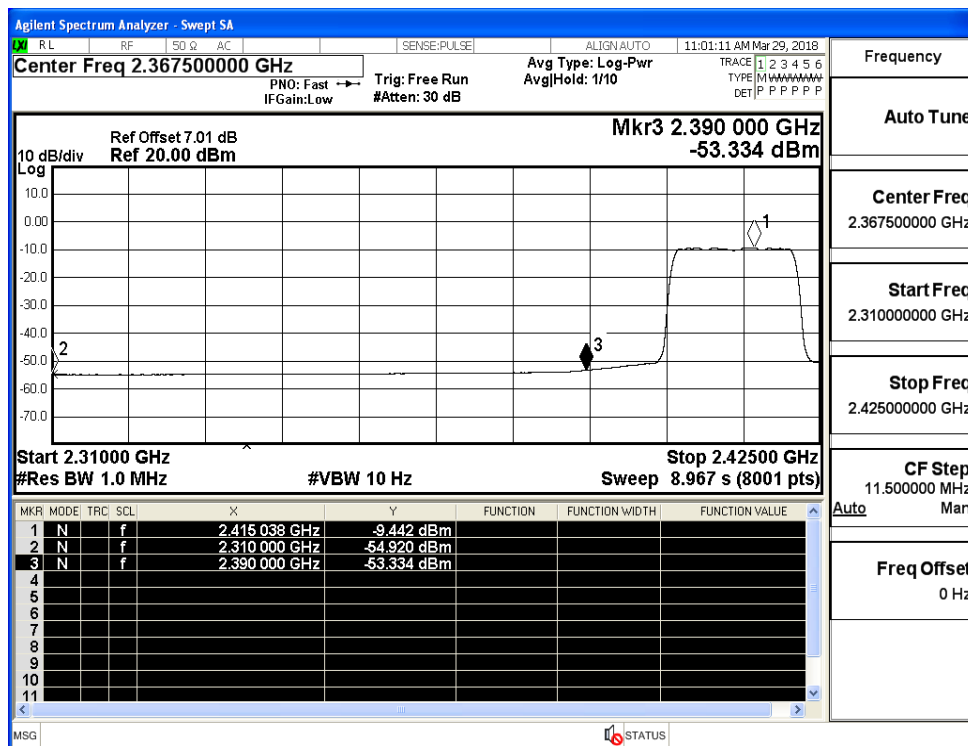
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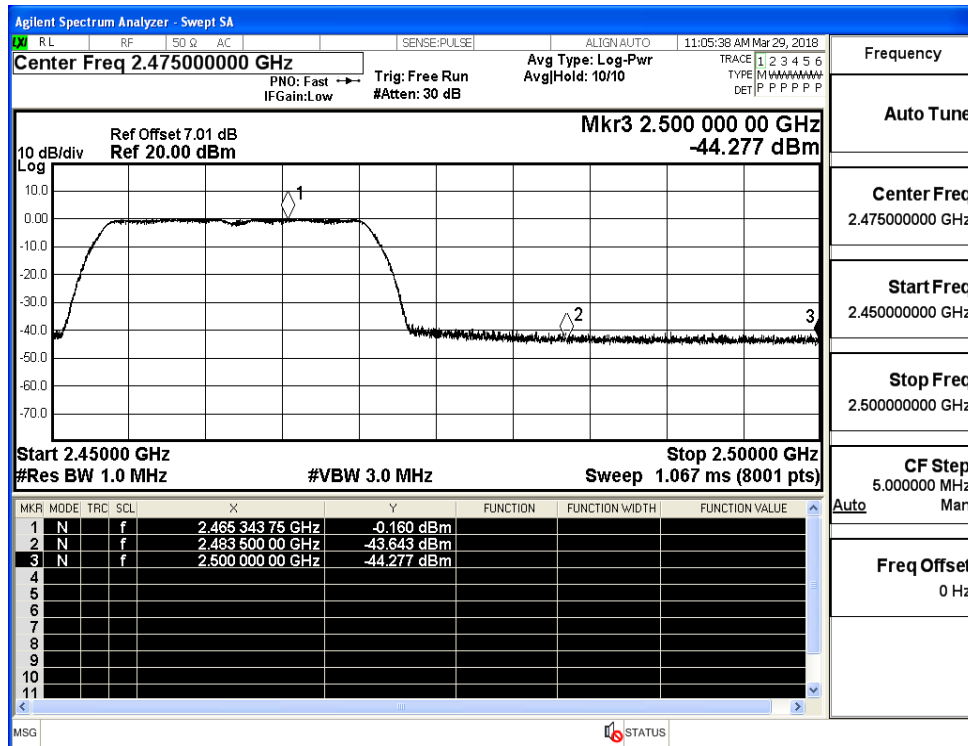
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK



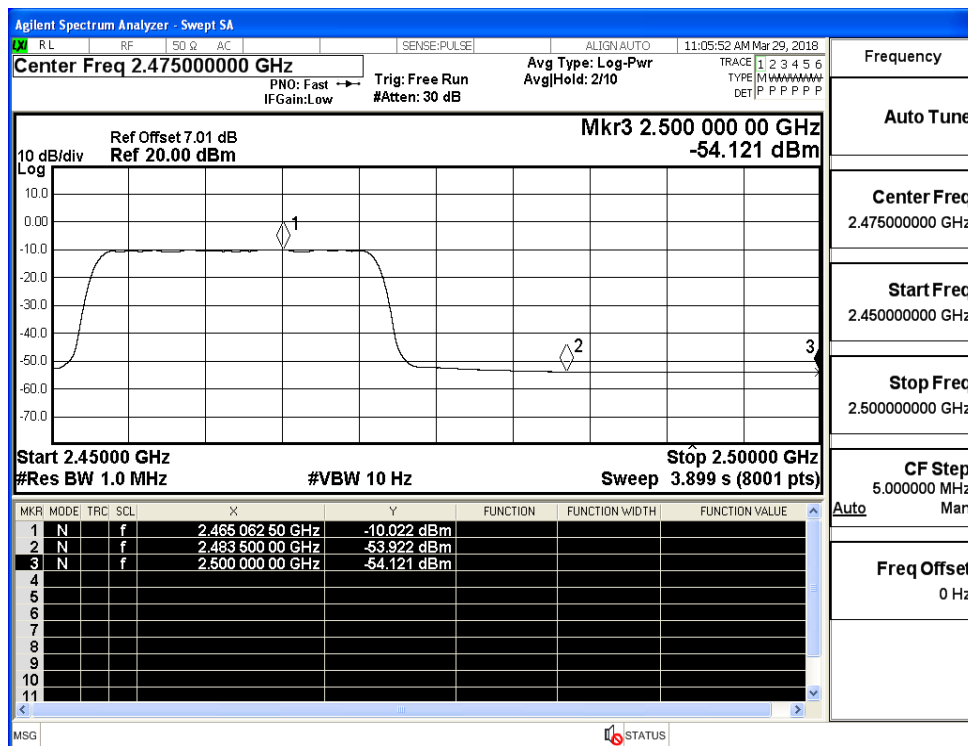
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_AV



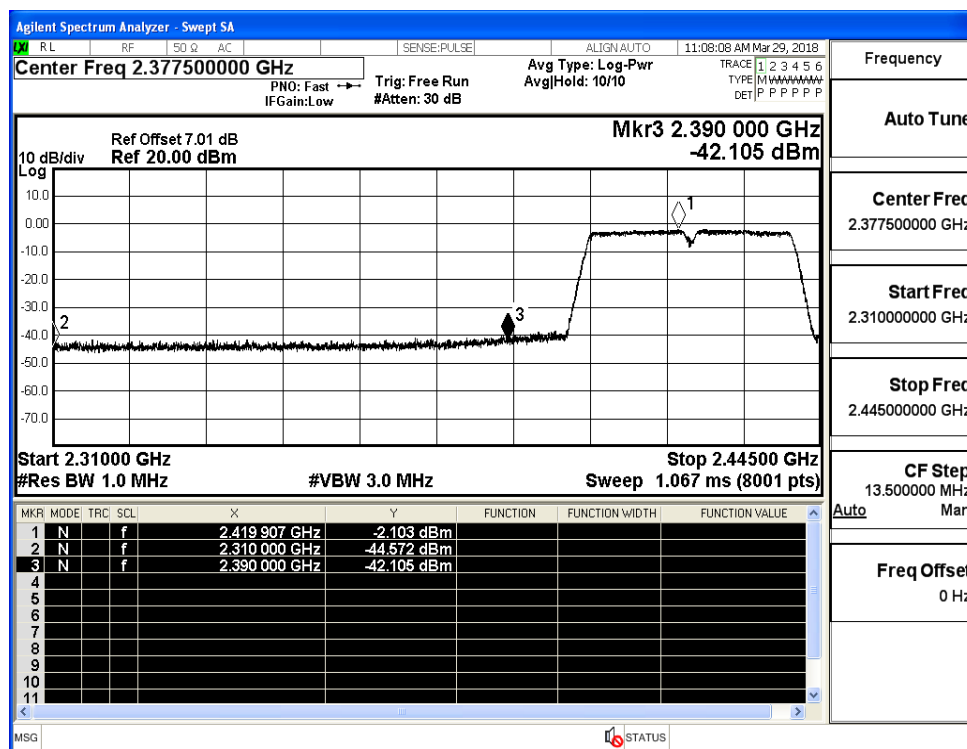
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_PEAK



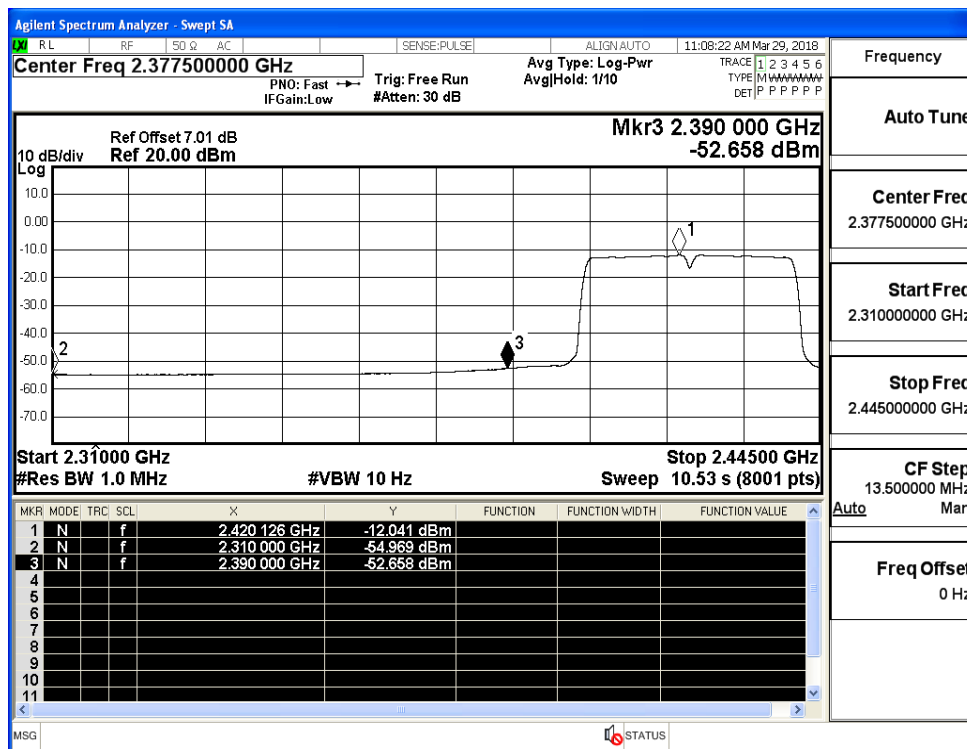
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_AV



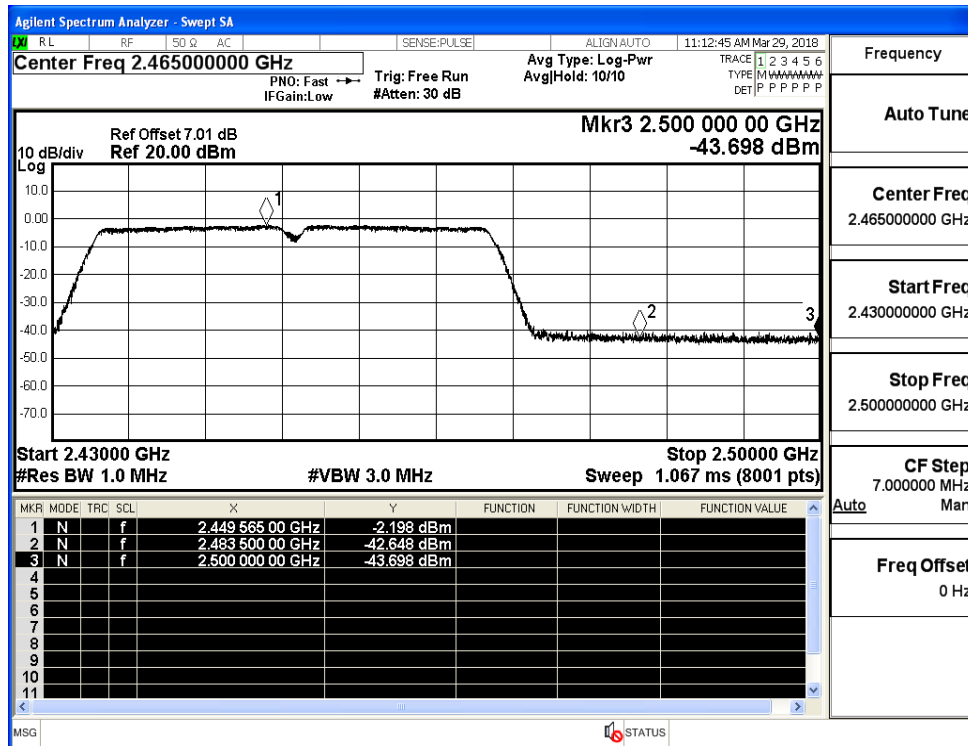
Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



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

