

Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: WIFI Smart Lamp holder

Trade Mark: **SONOFF**
 Test Model: SlampherR2

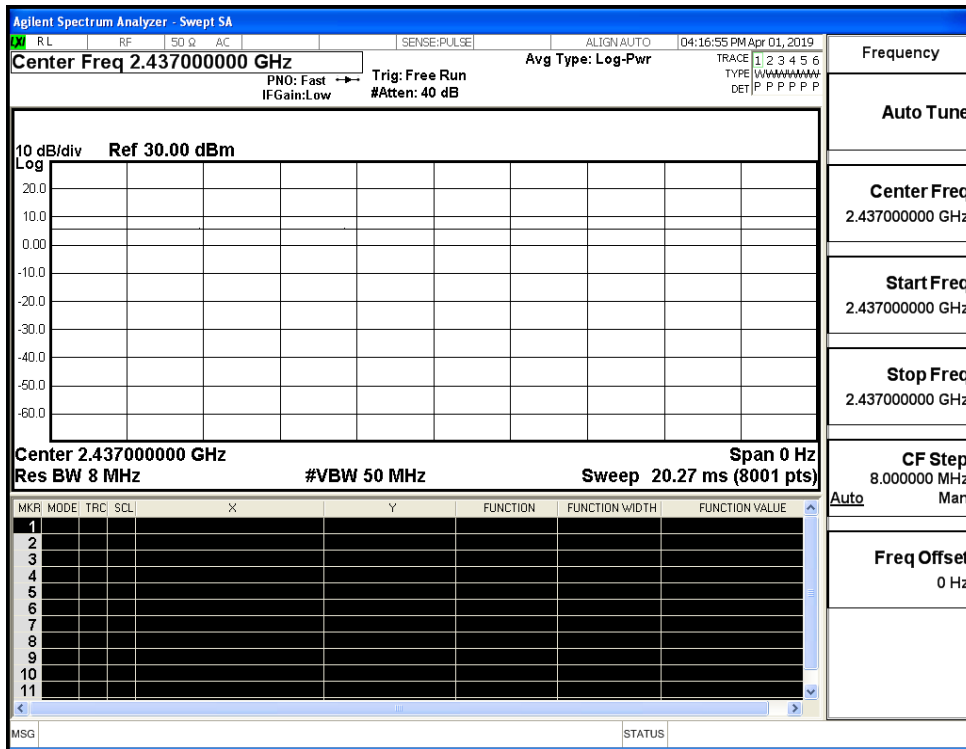
Environmental Conditions

Temperature:	24.4 ° C
Relative Humidity:	53.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina.Xu
Supervised by:	Tom.Liu

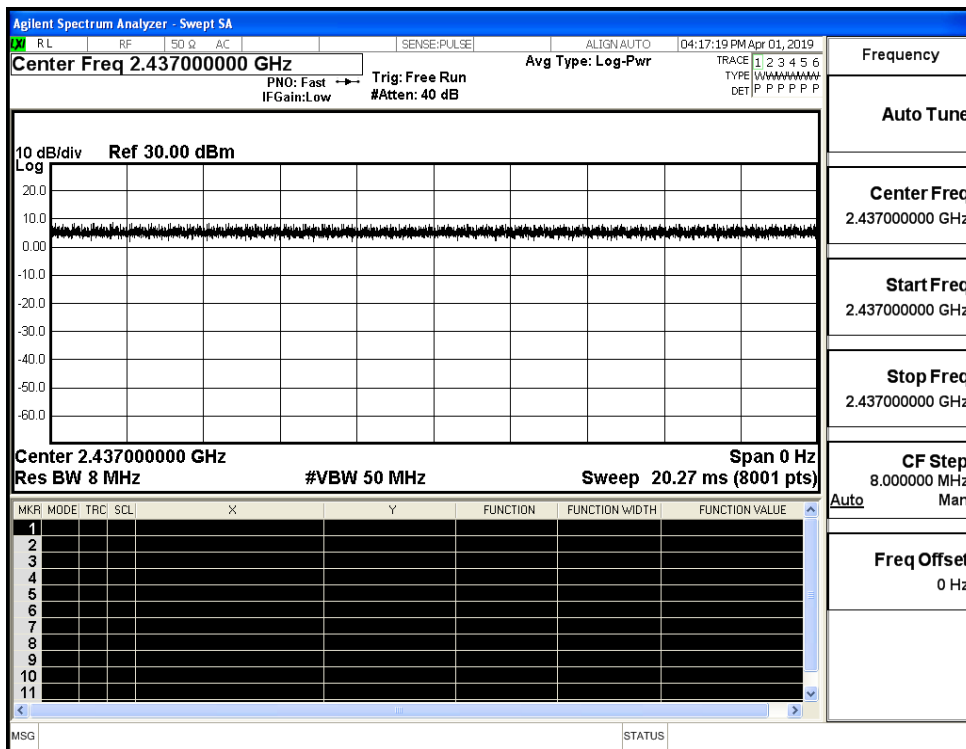
A.1 Duty Cycle

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

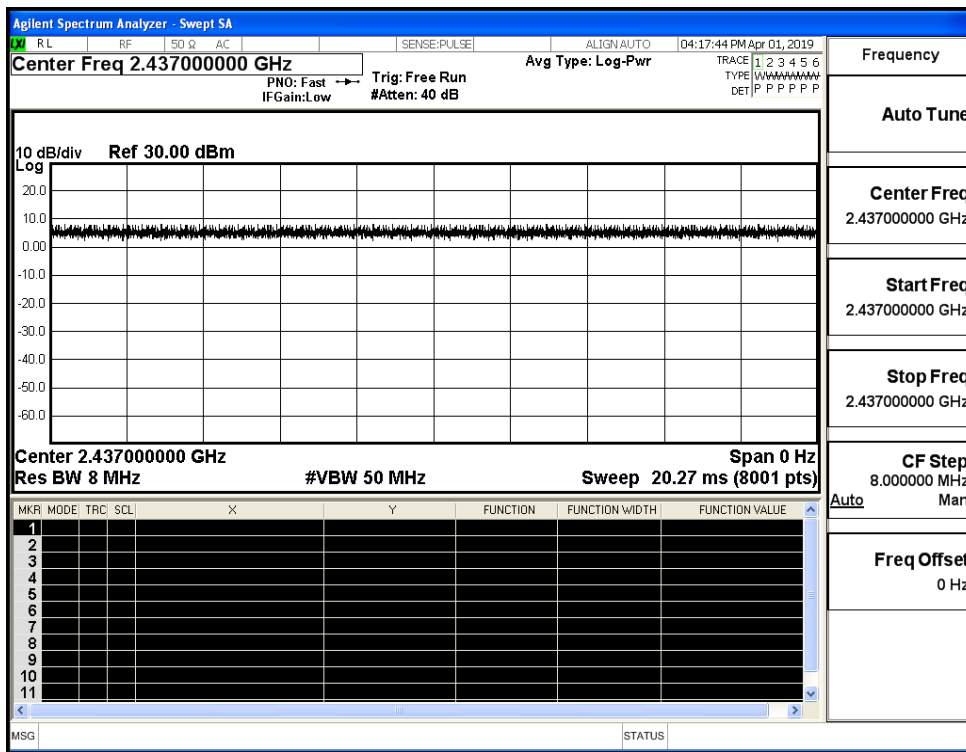
Duty Cycle_11B_2437_Ant1



Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1

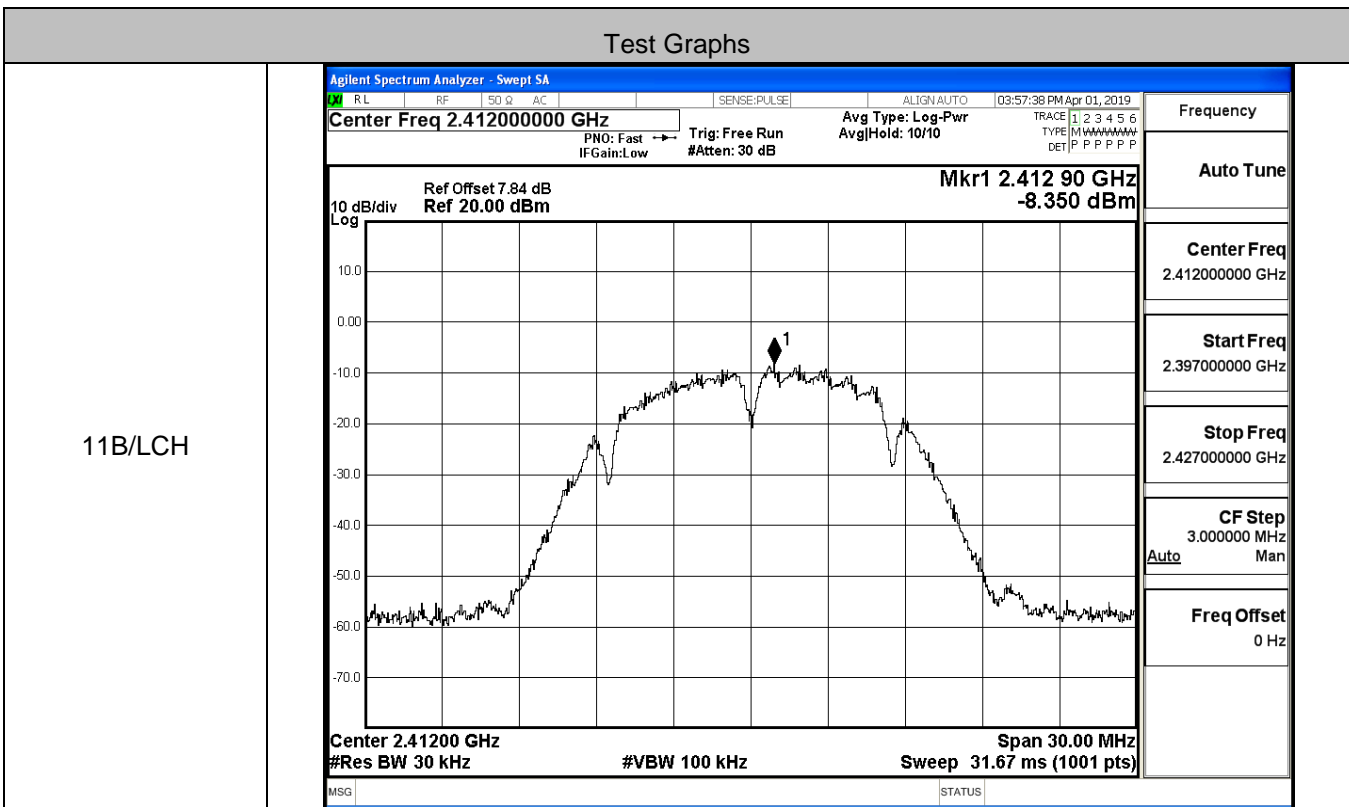


A.2 Maximum Conducted Output Power

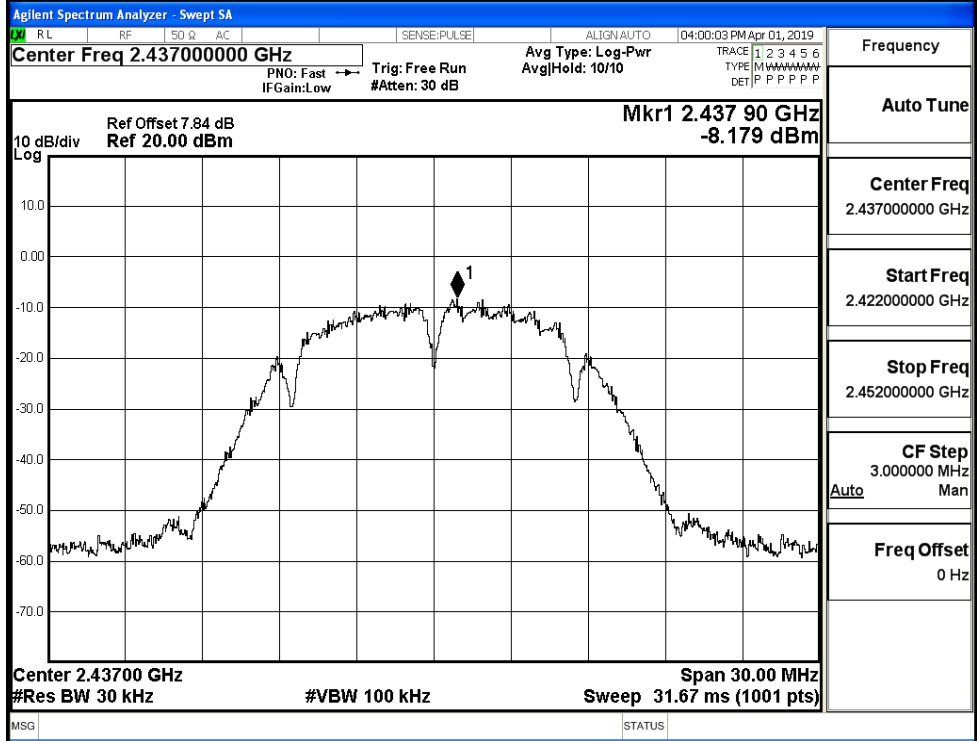
Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	9.43	30	PASS
	MCH	9.65	30	PASS
	HCH	10	30	PASS
11G	LCH	11.28	30	PASS
	MCH	10.9	30	PASS
	HCH	10.4	30	PASS
11N20SISO	LCH	11.32	30	PASS
	MCH	11.07	30	PASS
	HCH	10.75	30	PASS

A.3 Maximum Power Spectral Density

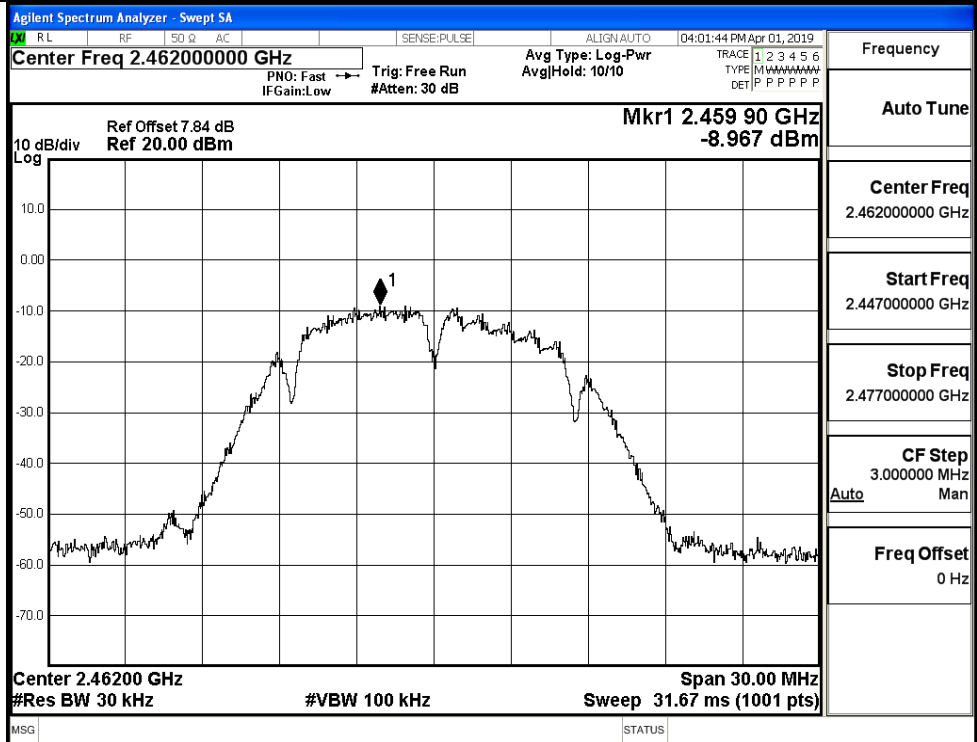
Mode	Channel	Meas.Level [dBm/30KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-8.350	8	PASS
	MCH	-8.179	8	PASS
	HCH	-8.967	8	PASS
11G	LCH	-12.426	8	PASS
	MCH	-13.325	8	PASS
	HCH	-13.210	8	PASS
11N20SISO	LCH	-12.806	8	PASS
	MCH	-13.546	8	PASS
	HCH	-13.006	8	PASS



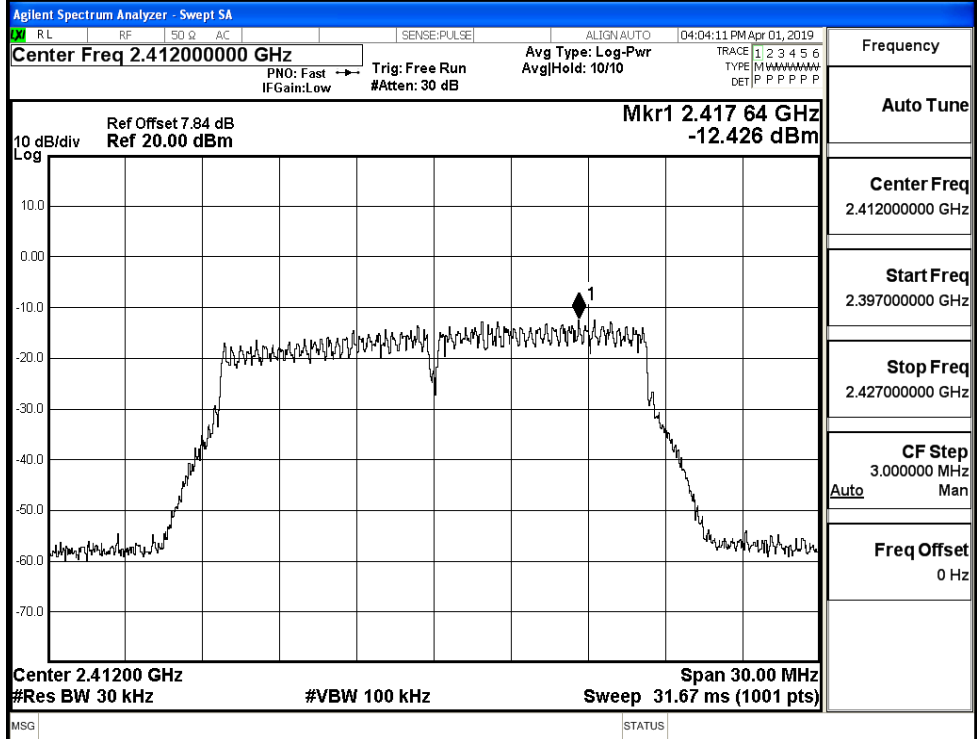
11B/MCH



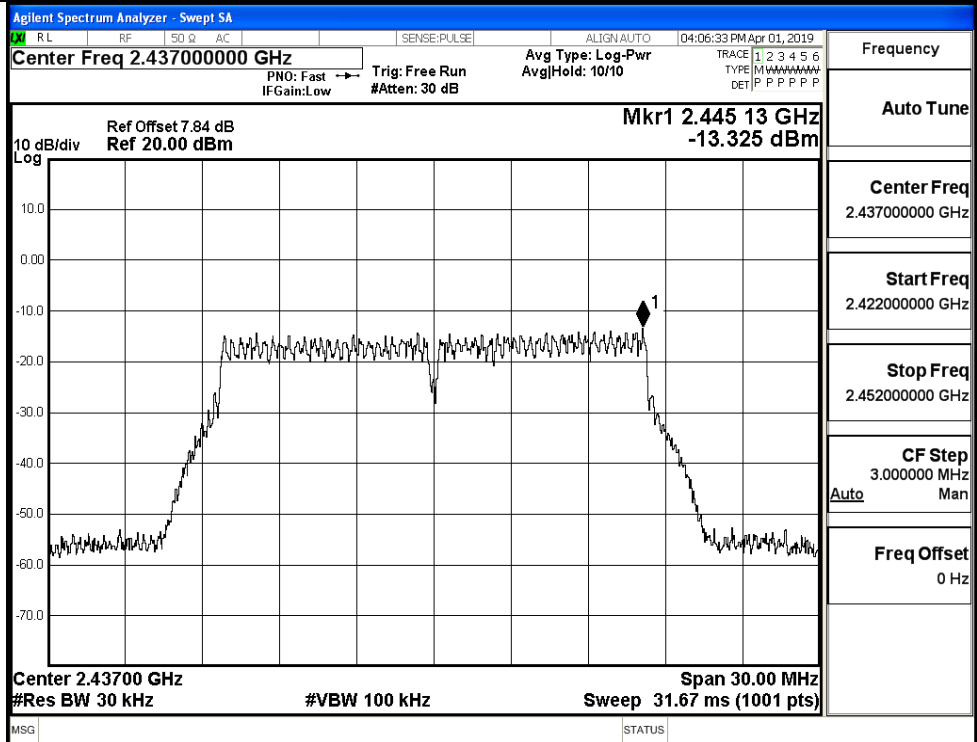
11B/HCH



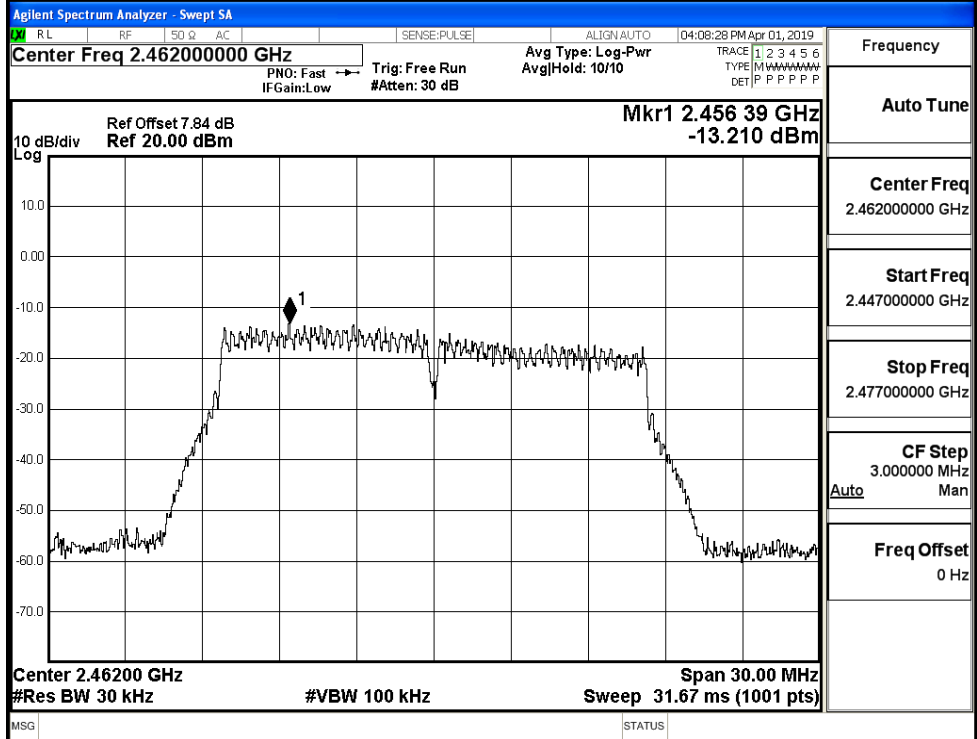
11G/LCH



11G/MCH

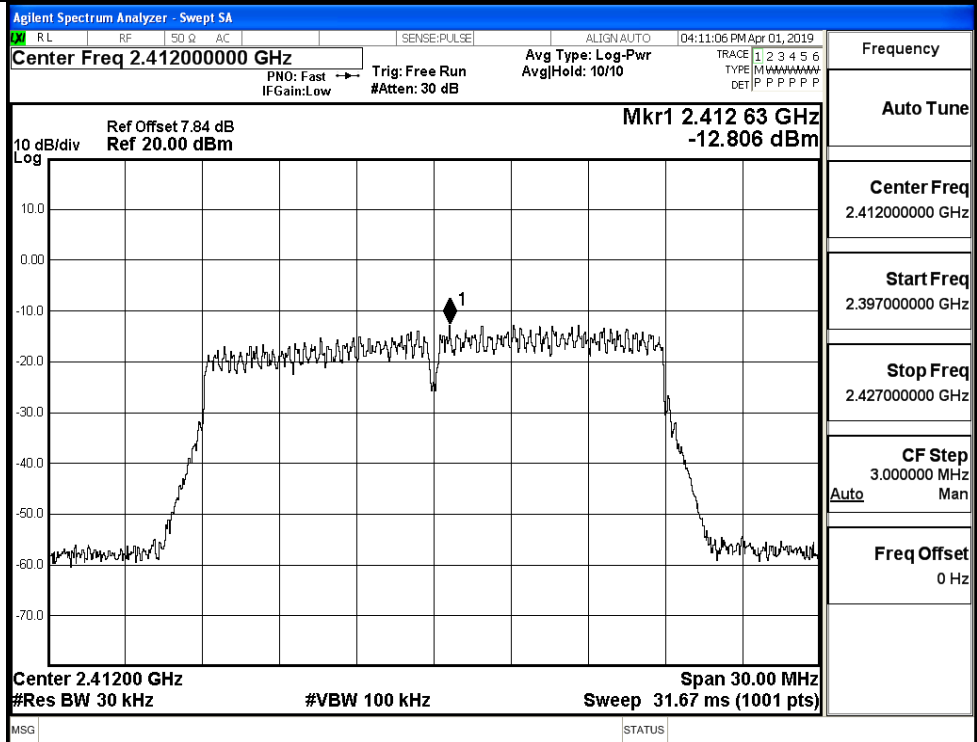


11G/HCH

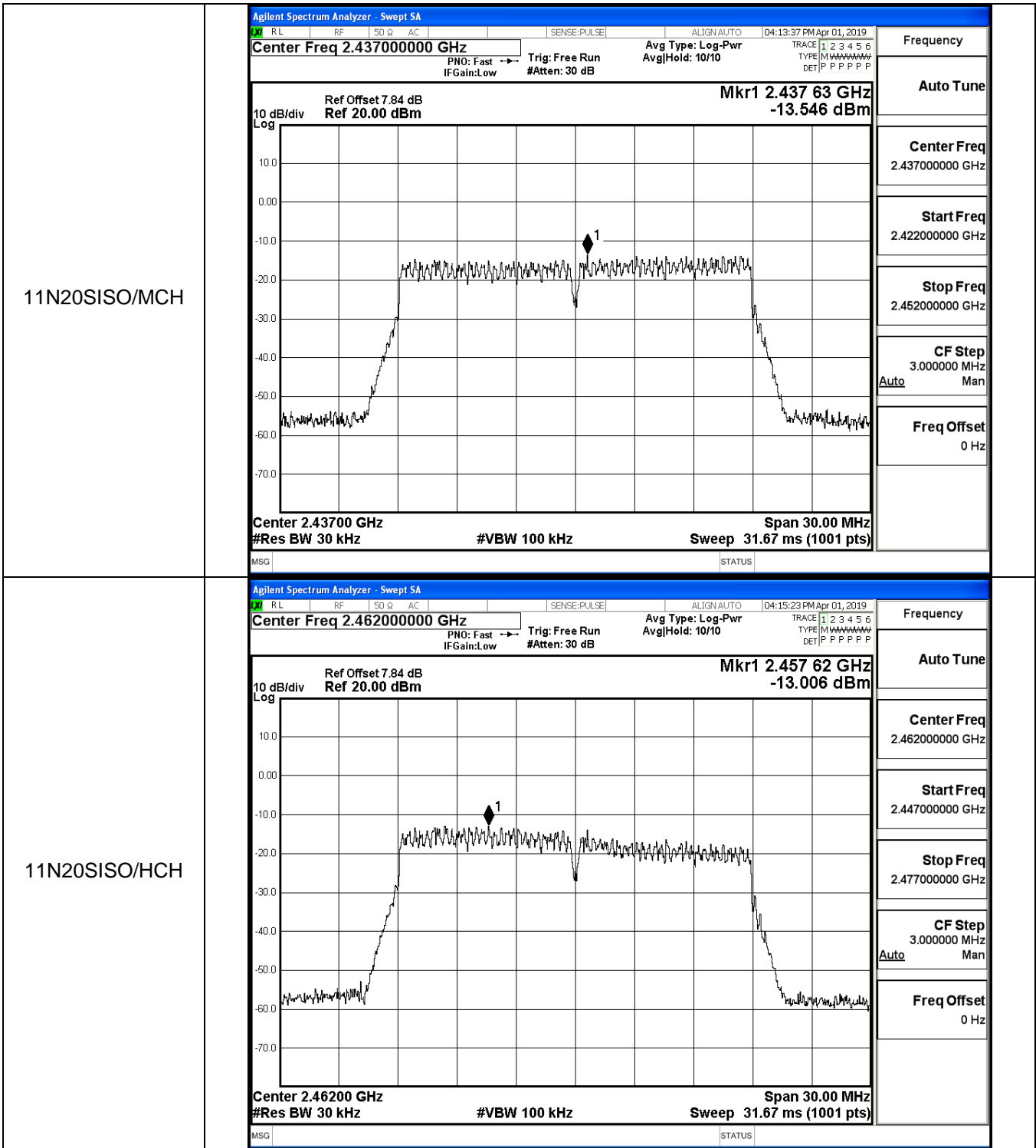


Frequency
Auto Tune
Center Freq 2.46200000 GHz
Start Freq 2.447000000 GHz
Stop Freq 2.477000000 GHz
CF Step 3.000000 MHz Auto Man
Freq Offset 0 Hz

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 Auto Man
Freq Offset 0 Hz



A.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	8.868	≥0.5	PASS
	MCH	9.171	≥0.5	PASS
	HCH	8.567	≥0.5	PASS
11G	LCH	16.47	≥0.5	PASS
	MCH	16.62	≥0.5	PASS

	HCH	16.48	≥ 0.5	PASS
11N20SISO	LCH	17.70	≥ 0.5	PASS
	MCH	17.82	≥ 0.5	PASS
	HCH	17.31	≥ 0.5	PASS

Test Graphs

11B/LCH

Agilent Spectrum Analyzer - Occupied BW

Center Freq 2.41200000 GHz

Center Freq: 2.412000000 GHz
Trig: Free Run
#Atten: 30 dB

Radio Std: None
Radio Device: BTS

Ref Offset 7.84 dB
Ref 20.00 dBm

Mkr1 2.4135 GHz
-3.0260 dBm

Center 2.412 GHz
#Res BW 100 kHz

Span 30 MHz
Sweep 2.933 ms

#VBW 300 kHz

Occupied Bandwidth	Total Power	13.4 dBm
12.071 MHz		
Transmit Freq Error	264.82 kHz	OBW Power
x dB Bandwidth	8.868 MHz	x dB
		-6.00 dB

Frequency

Center Freq
2.412000000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11B/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 7.84 dB
Ref 20.00 dBm

Mkr1 2.43649 GHz
-2.9936 dBm

Center 2.437 GHz
#Res BW 100 kHz

Span 30 MHz
Sweep 2.933 ms

#VBW 300 kHz

Occupied Bandwidth	Total Power	13.7 dBm
12.421 MHz		
Transmit Freq Error	68.905 kHz	OBW Power
x dB Bandwidth	9.171 MHz	x dB
		-6.00 dB

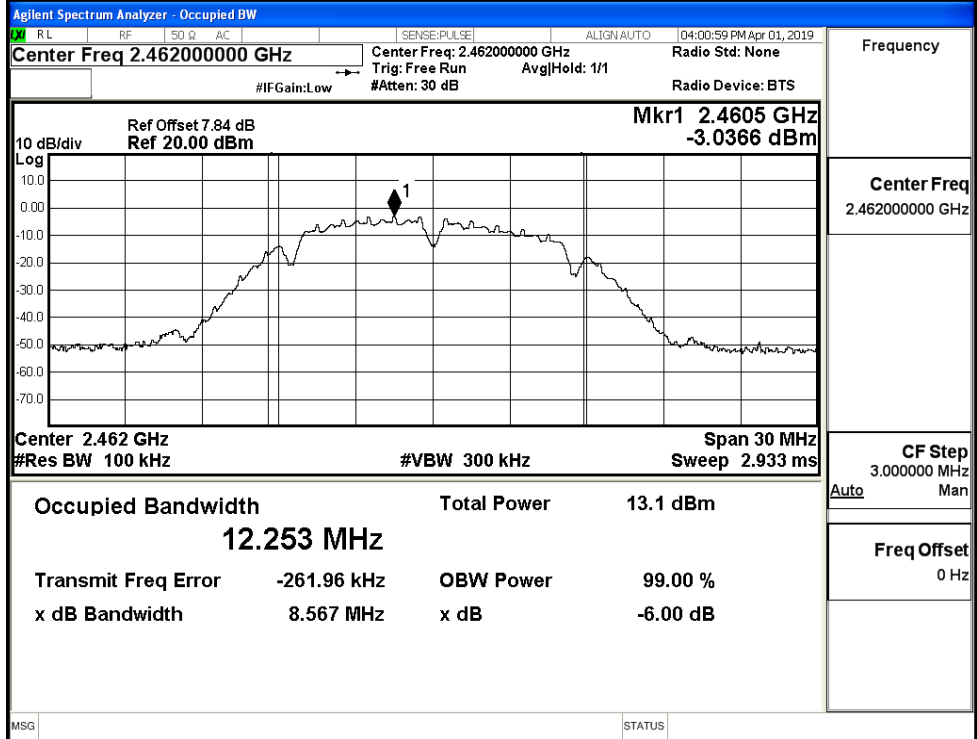
Frequency

Center Freq
2.437000000 GHz

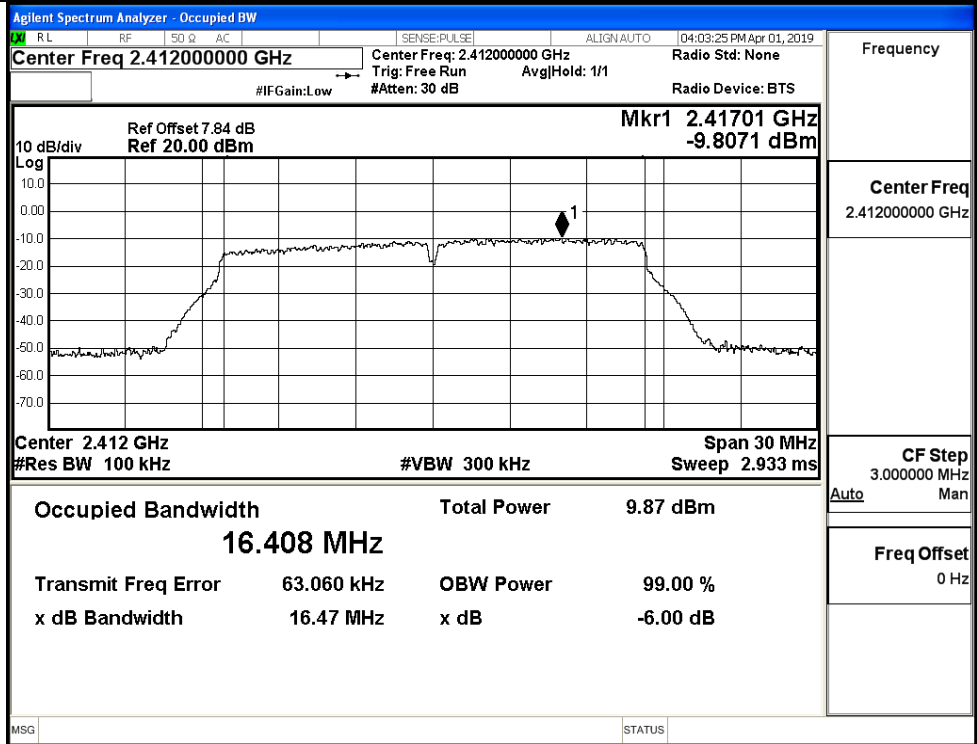
CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

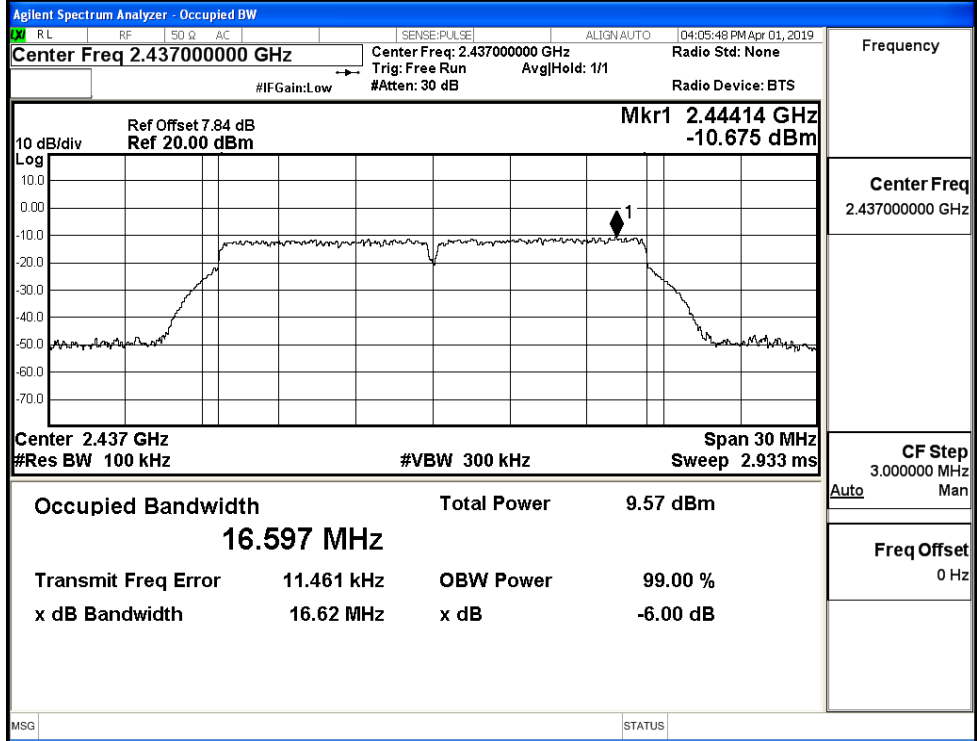
11B/HCH



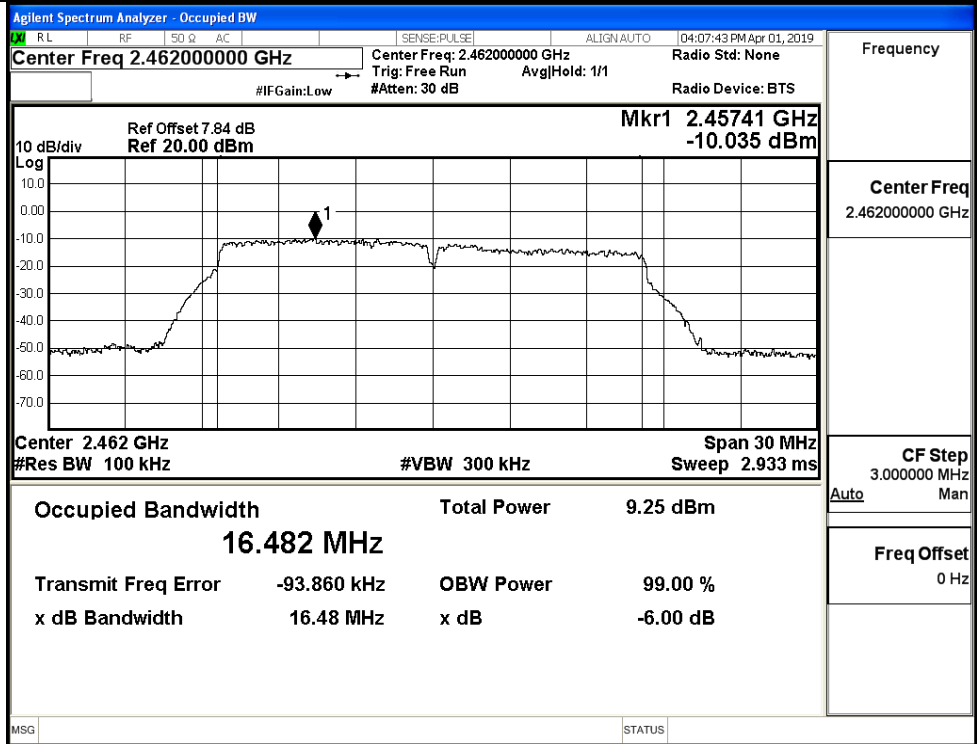
11G/LCH



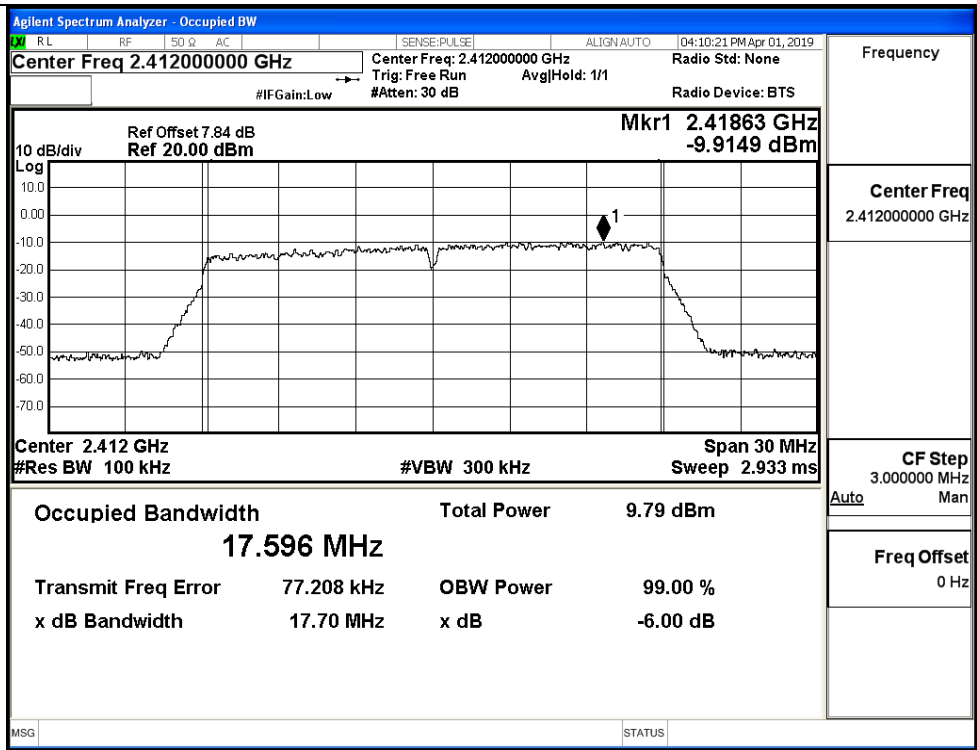
11G/MCH



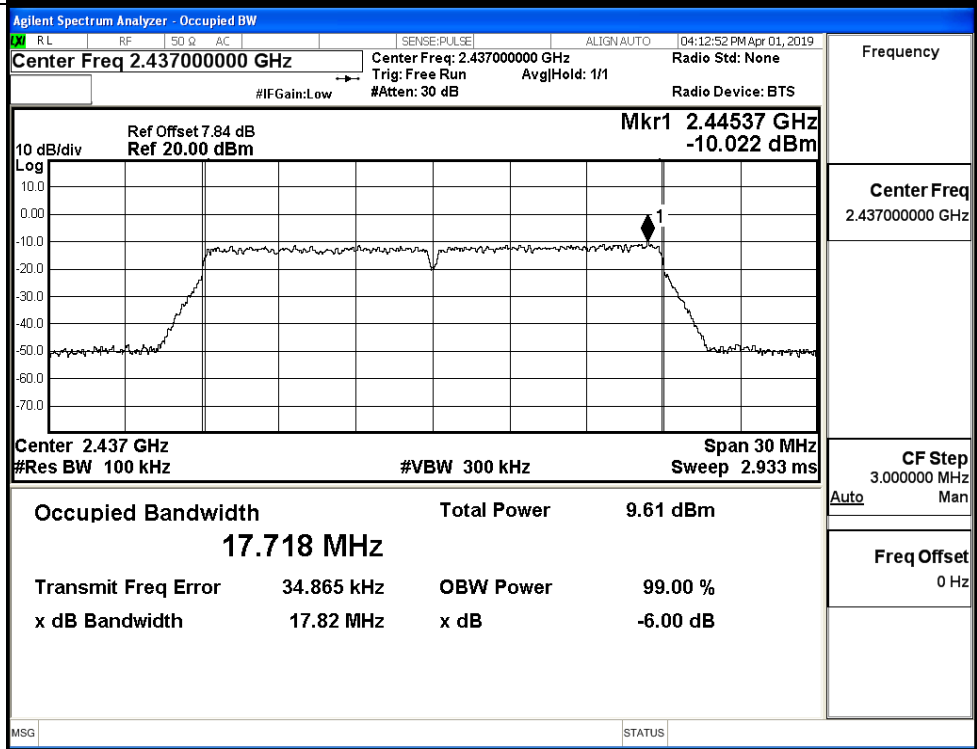
11G/HCH



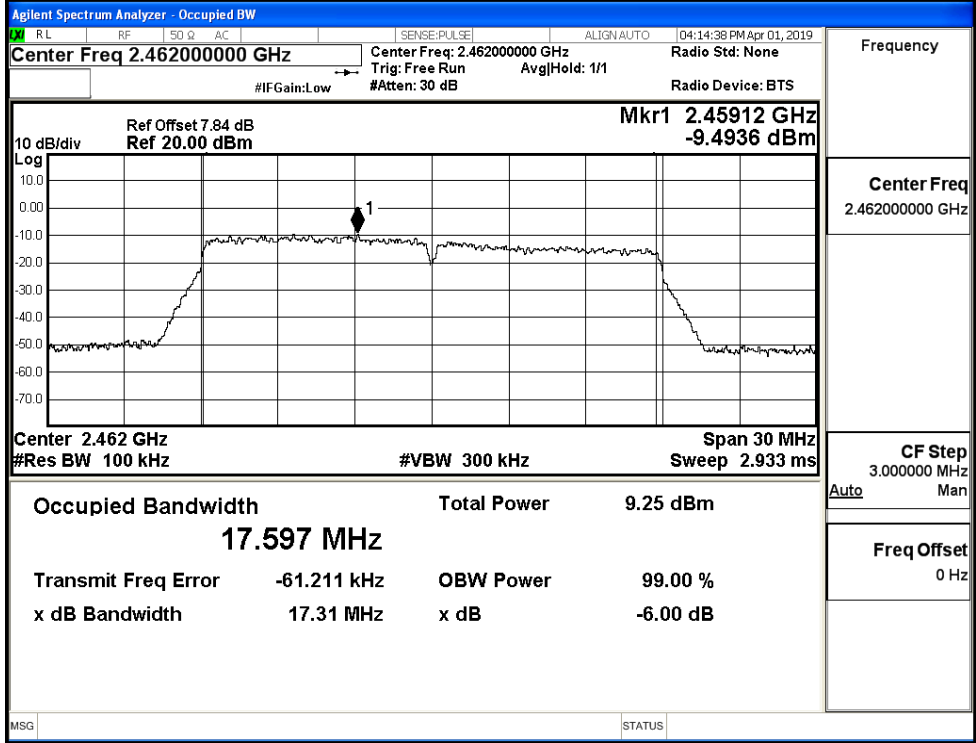
11N20SISO/LCH



11N20SISO/MCH



11N20SISO/HCH

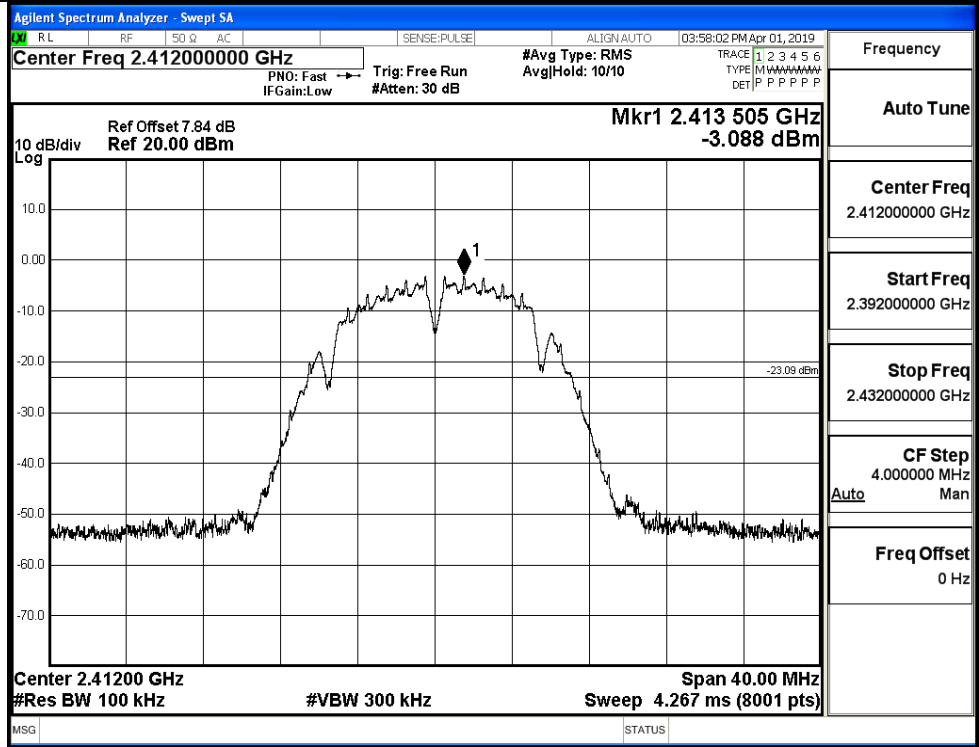


A.5 RF Conducted Spurious Emissions

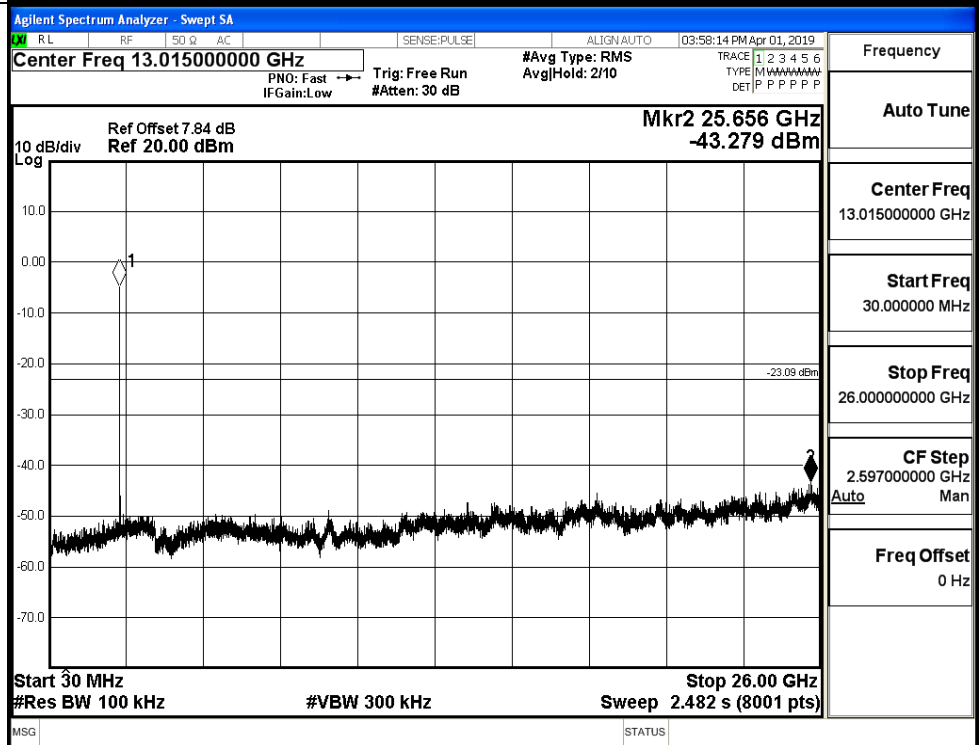
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-3.088	-43.279	-23.088	PASS
	MCH	-3.081	-43.366	-23.081	PASS
	HCH	-3.195	-43.491	-23.195	PASS
11G	LCH	-9.855	-44.384	-29.855	PASS
	MCH	-10.751	-44.181	-30.751	PASS
	HCH	-10.185	-44.562	-30.185	PASS
11N20 SISO	LCH	-9.892	-43.612	-29.892	PASS
	MCH	-10.203	-44.055	-30.203	PASS
	HCH	-9.496	-43.828	-29.496	PASS

11B_LCH_Graphs

Pref/11B/LCH

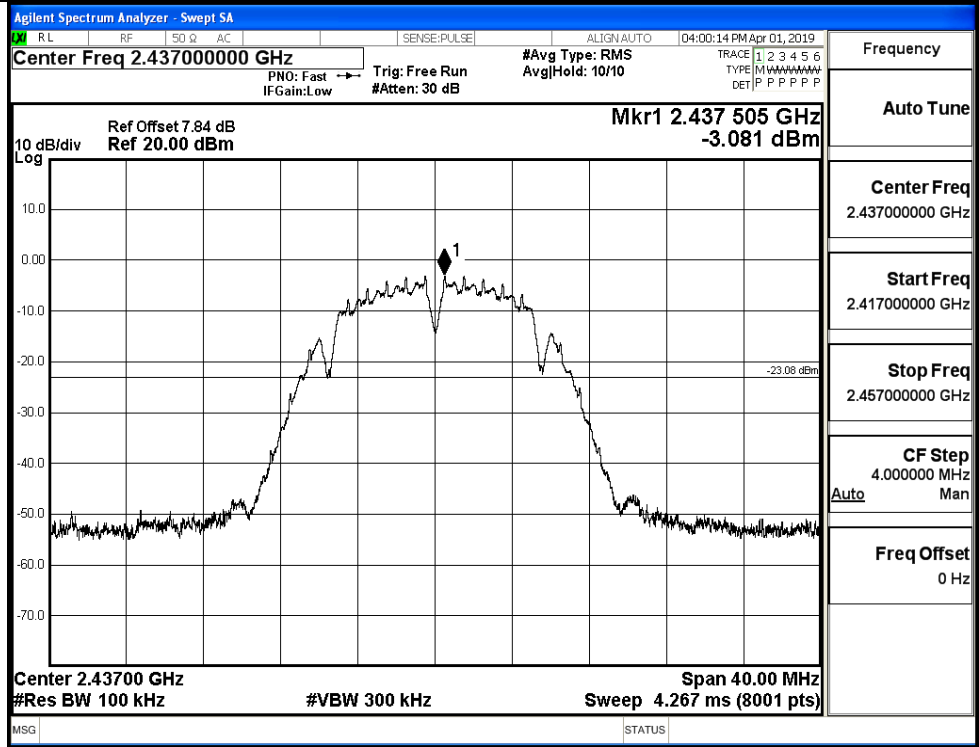


Puw/11B/LCH

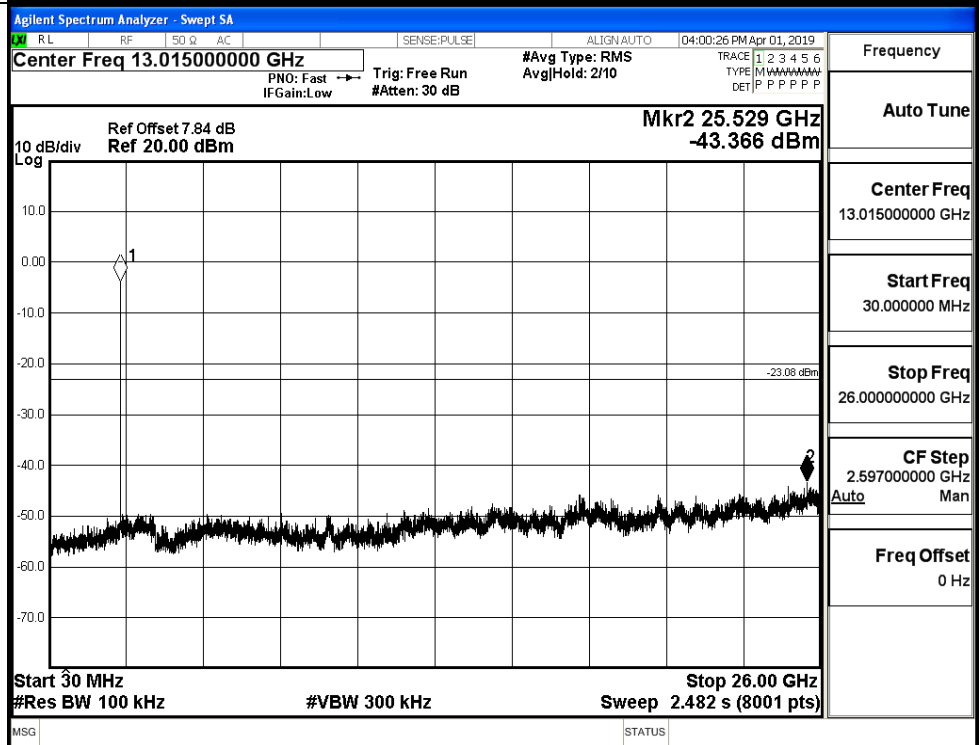


11B_MCH_Graphs

Pref/11B/MCH

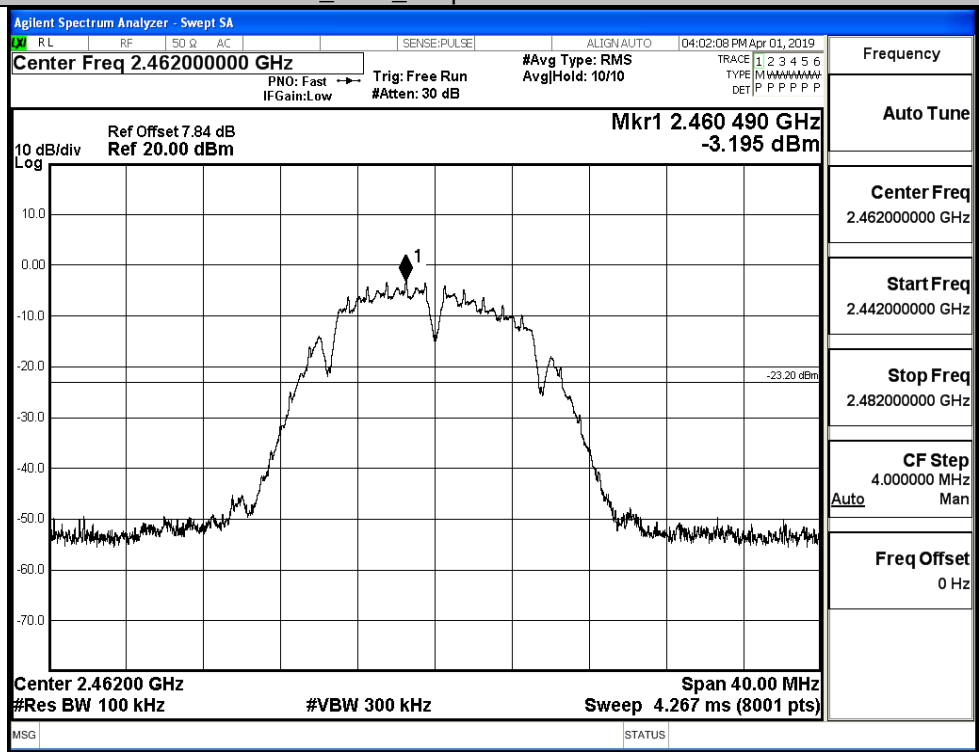


Puw/11B/MCH

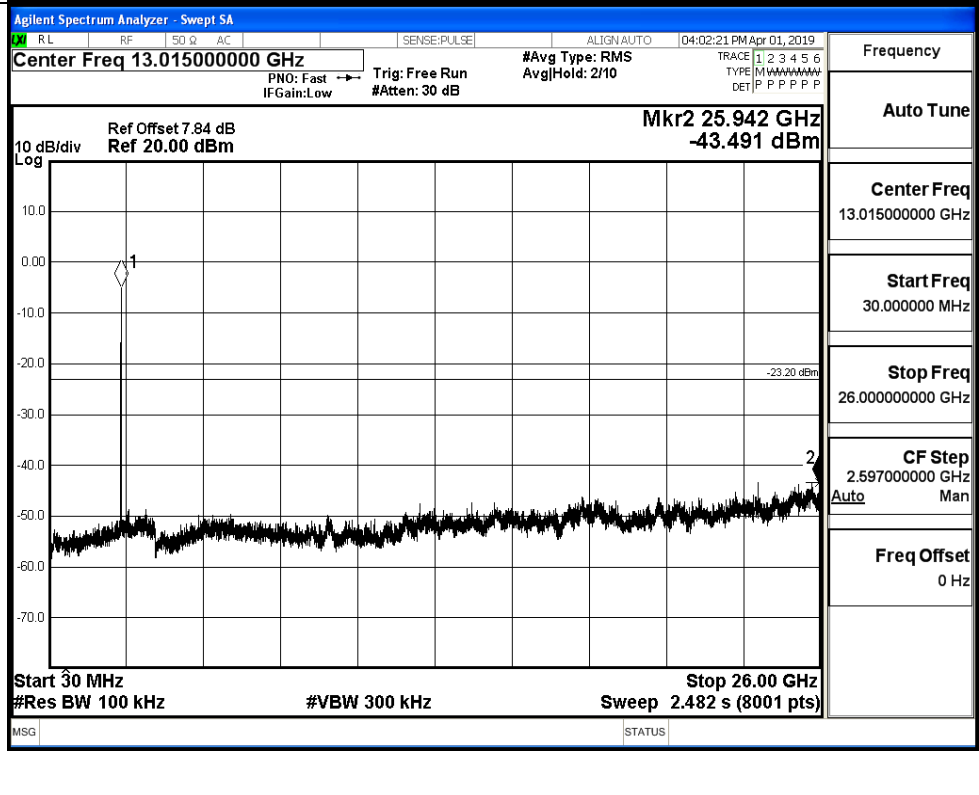


11B_HCH_Graphs

Pref/11B/HCH

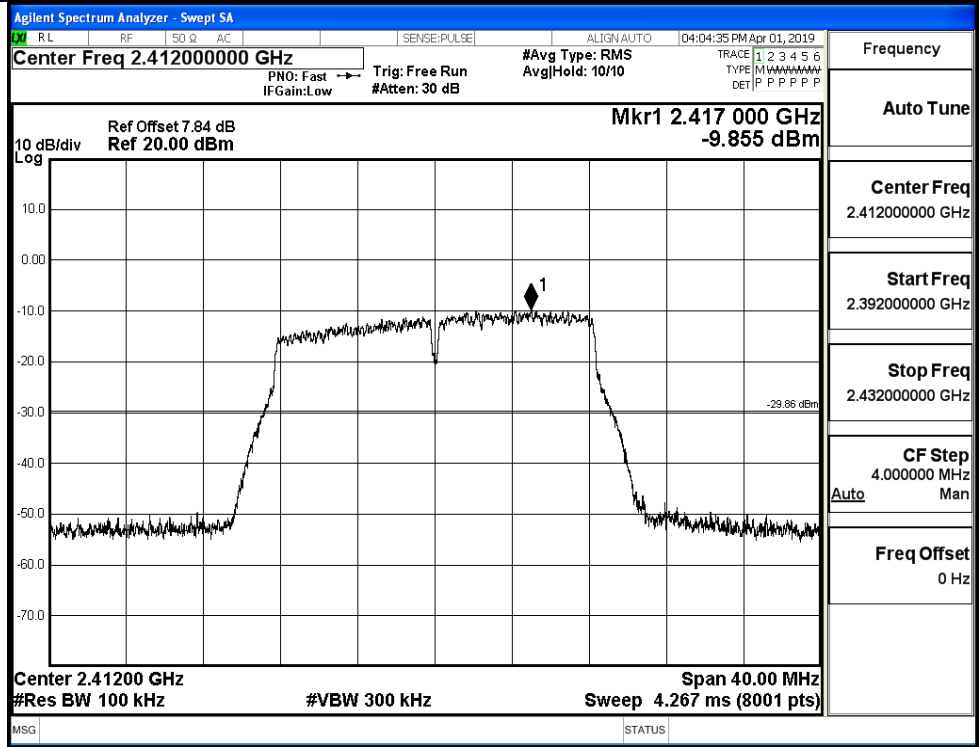


Puw/11B/HCH

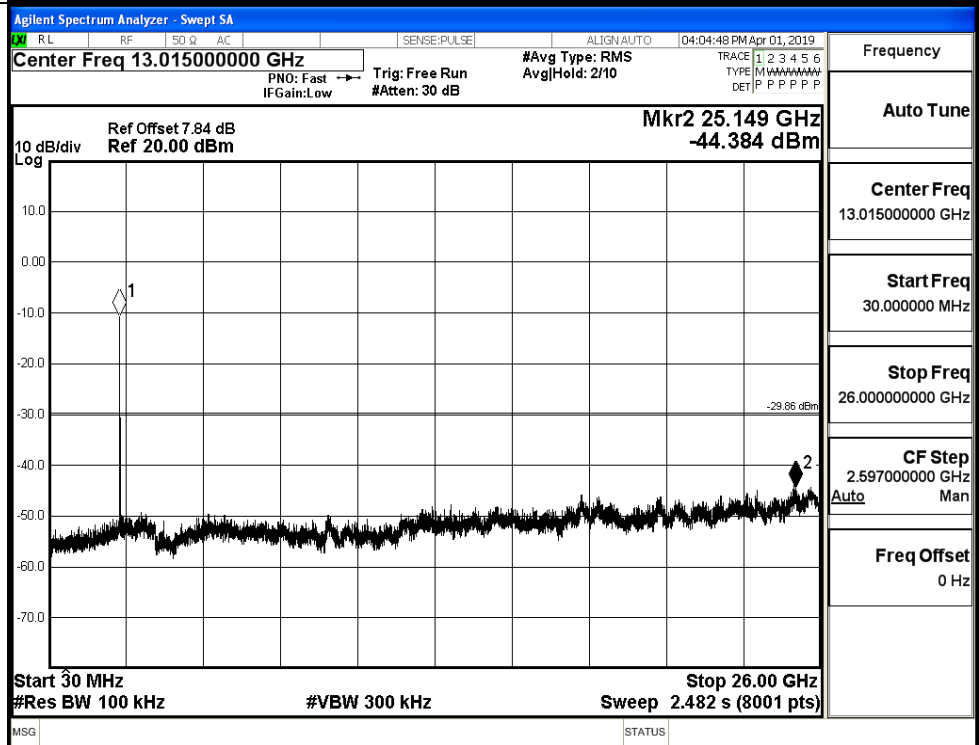


11G_LCH_Graphs

Pref/11G/LCH

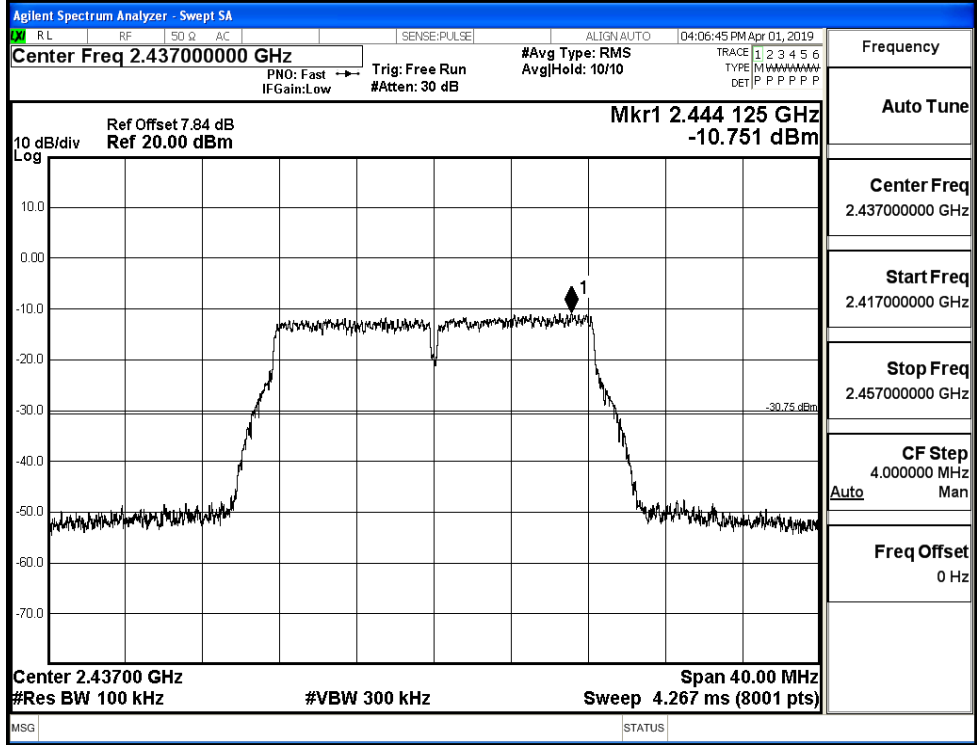


Puw/11G/LCH

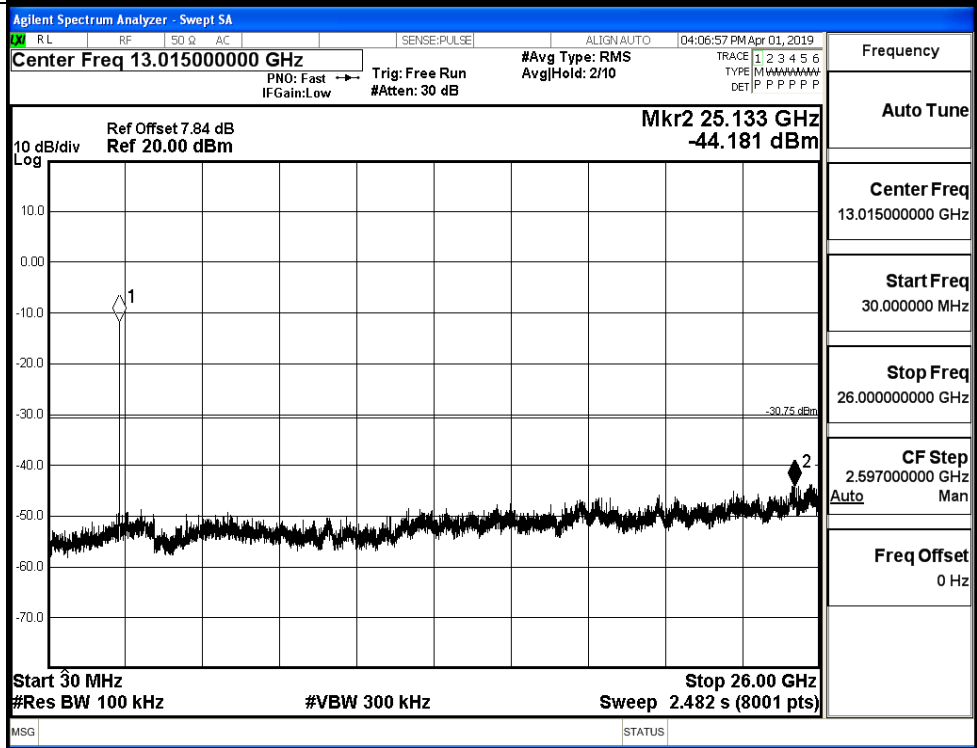


11G_MCH_Graphs

Pref/11G/MCH

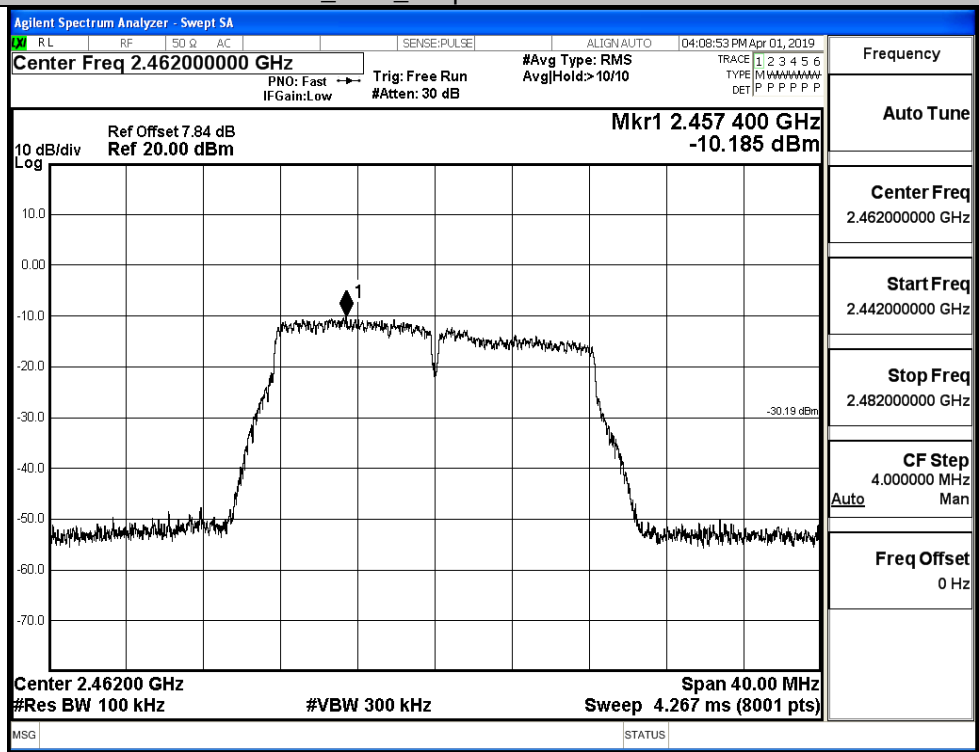


Puw/11G/MCH

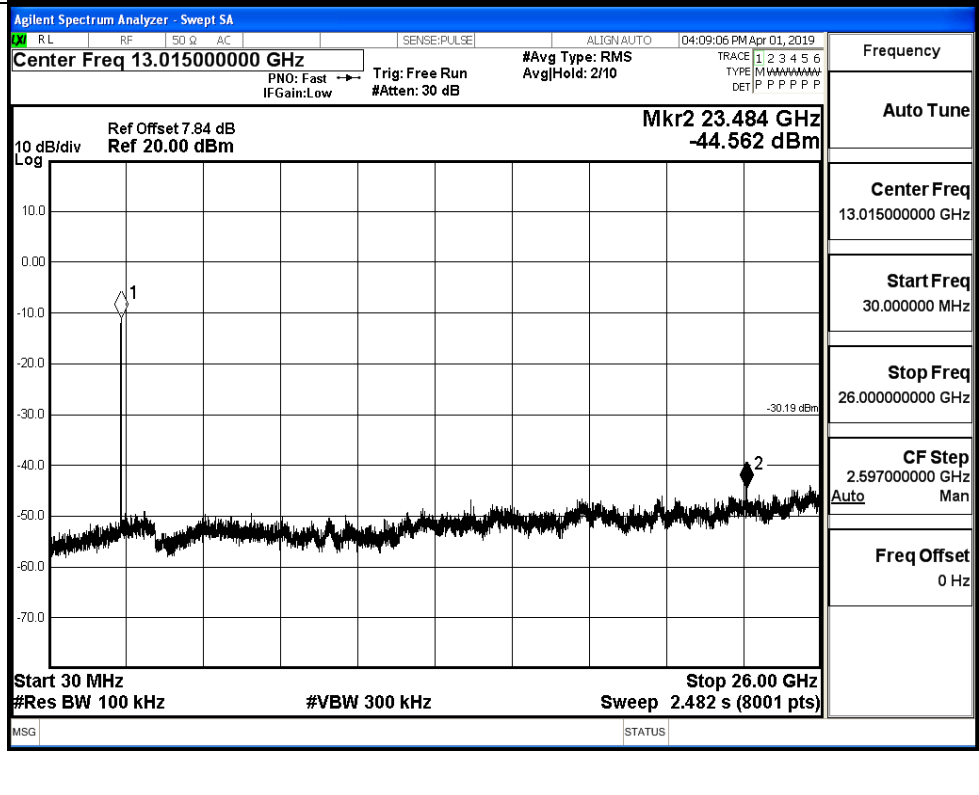


11G_HCH_Graphs

Pref/11G/HCH

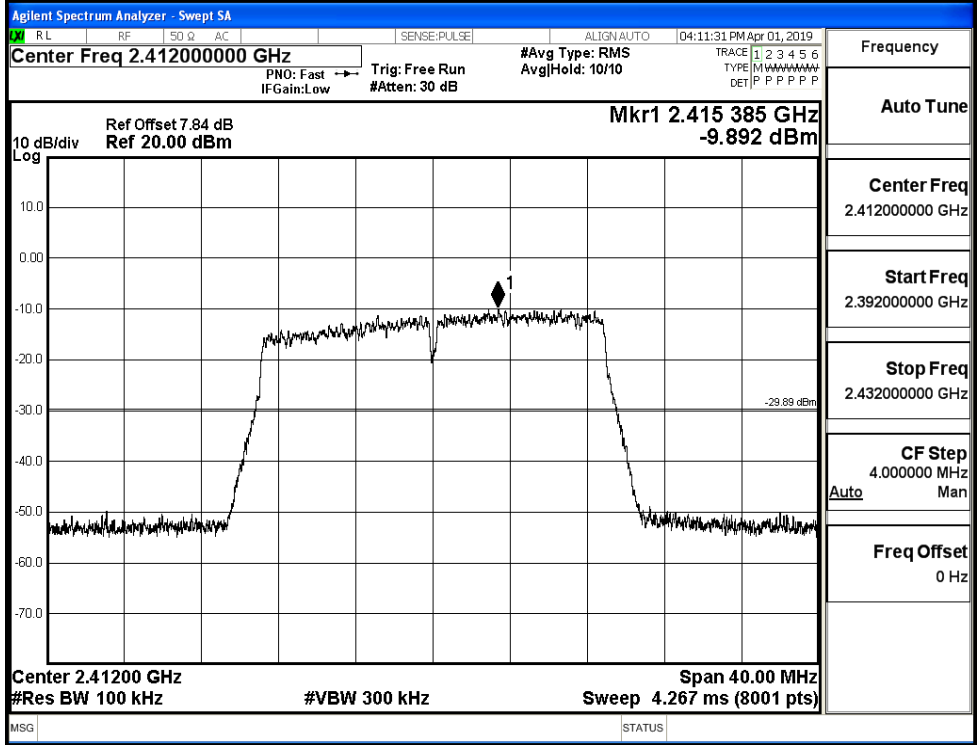


Puw/11G/HCH

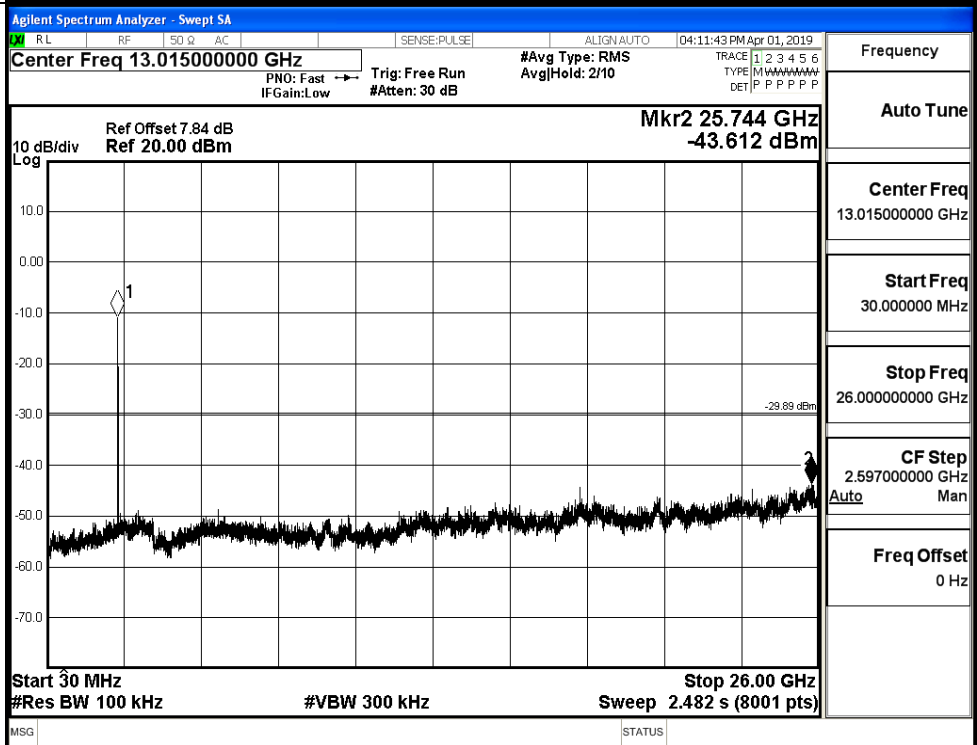


11N20SISO_LCH_Graphs

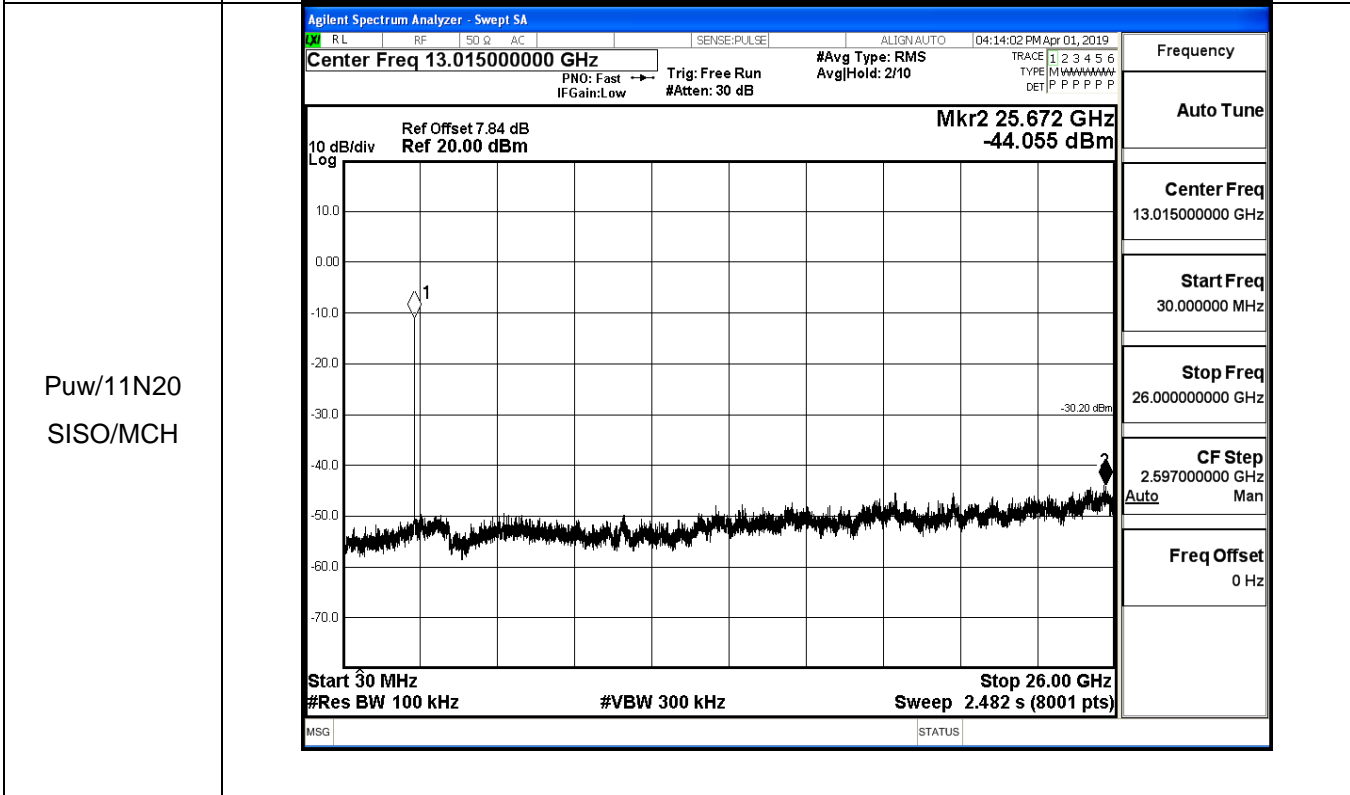
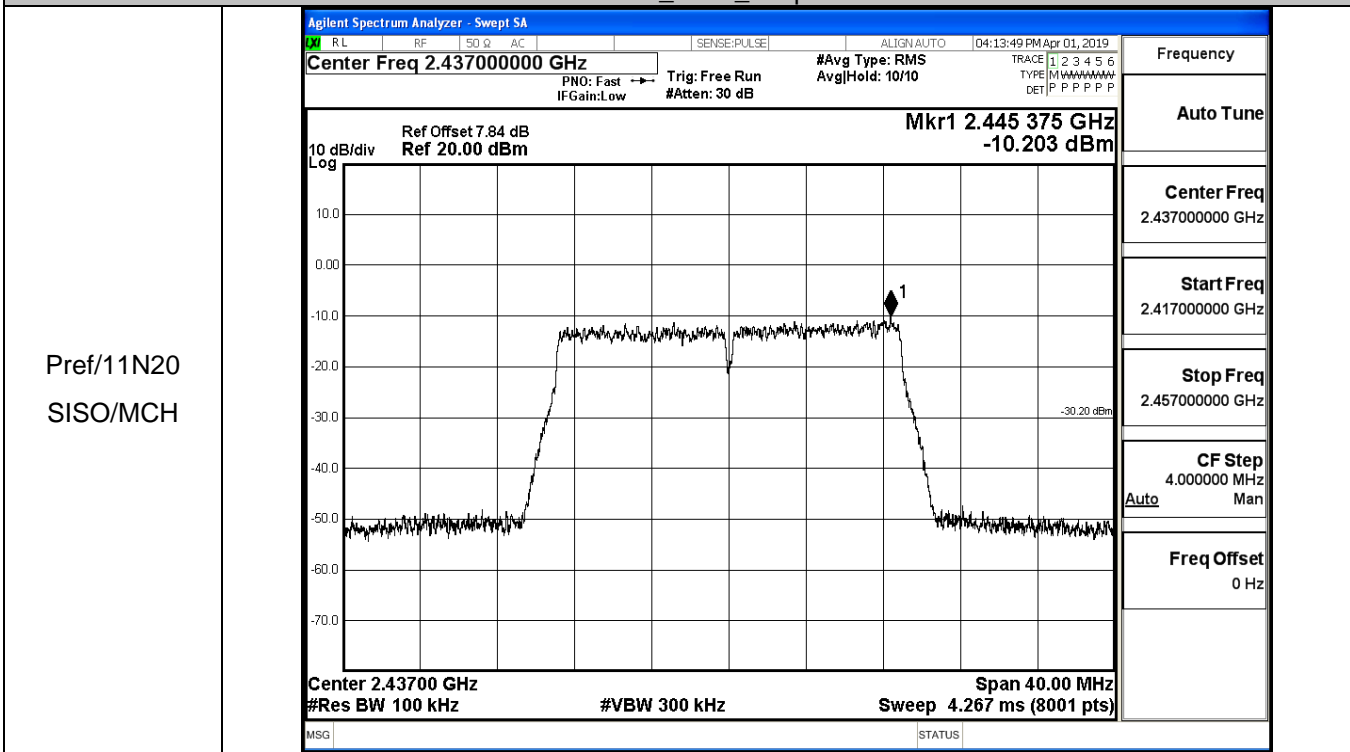
Pref/11N20SIS
O/LCH



Puw/11N20
SISO/LCH

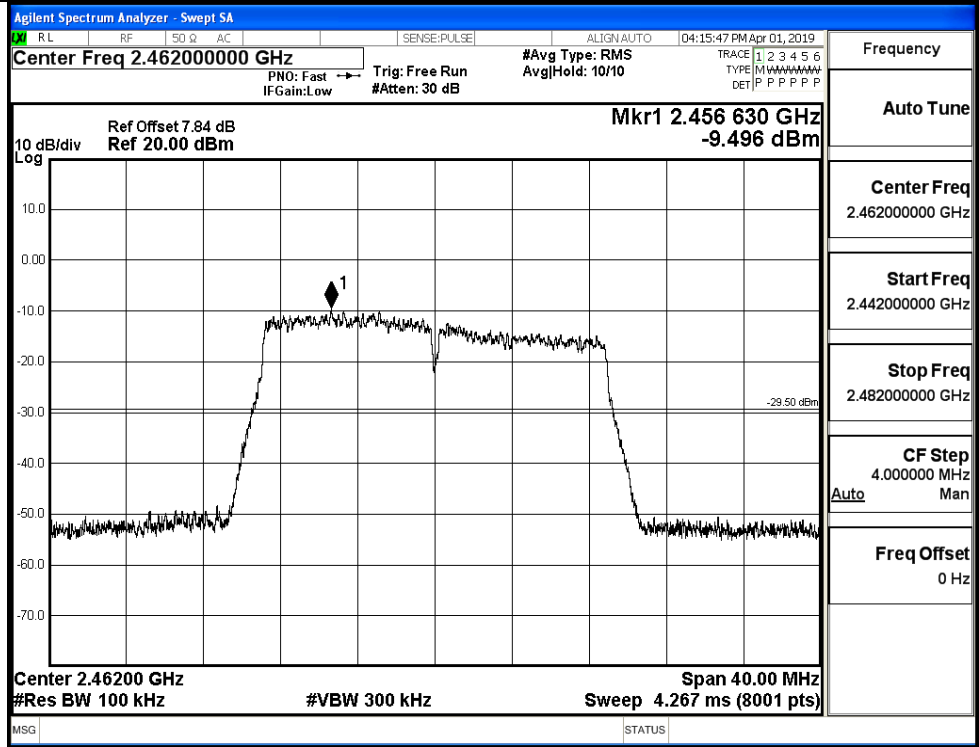


11N20SISO_MCH_Graphs

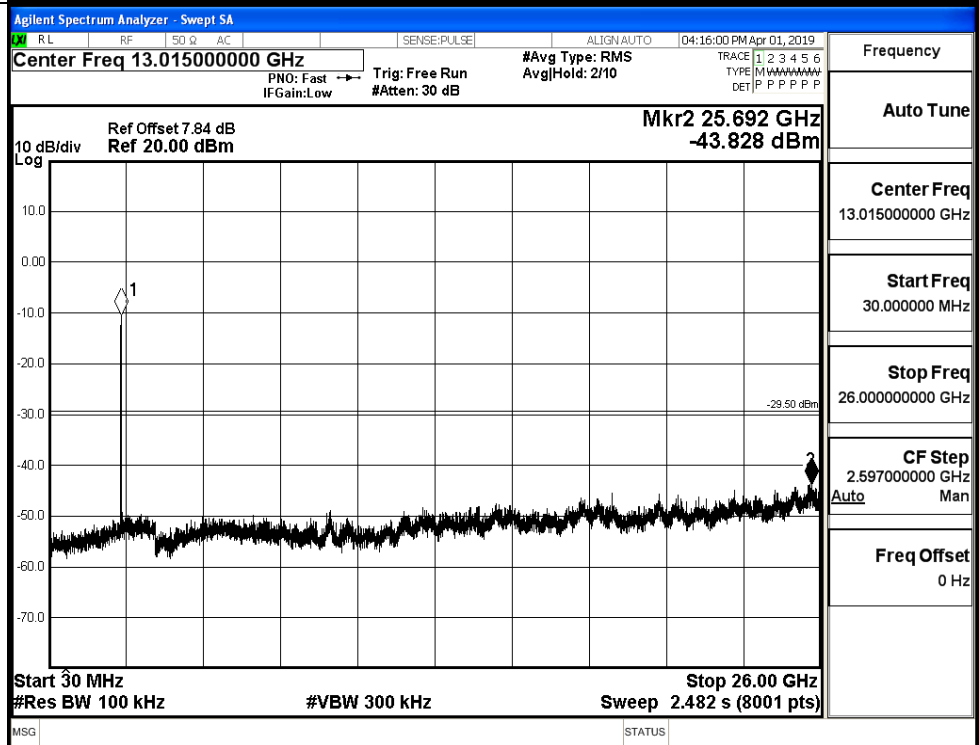


11N20SISO_HCH_Graphs

Pref/11N20
SISO/HCH

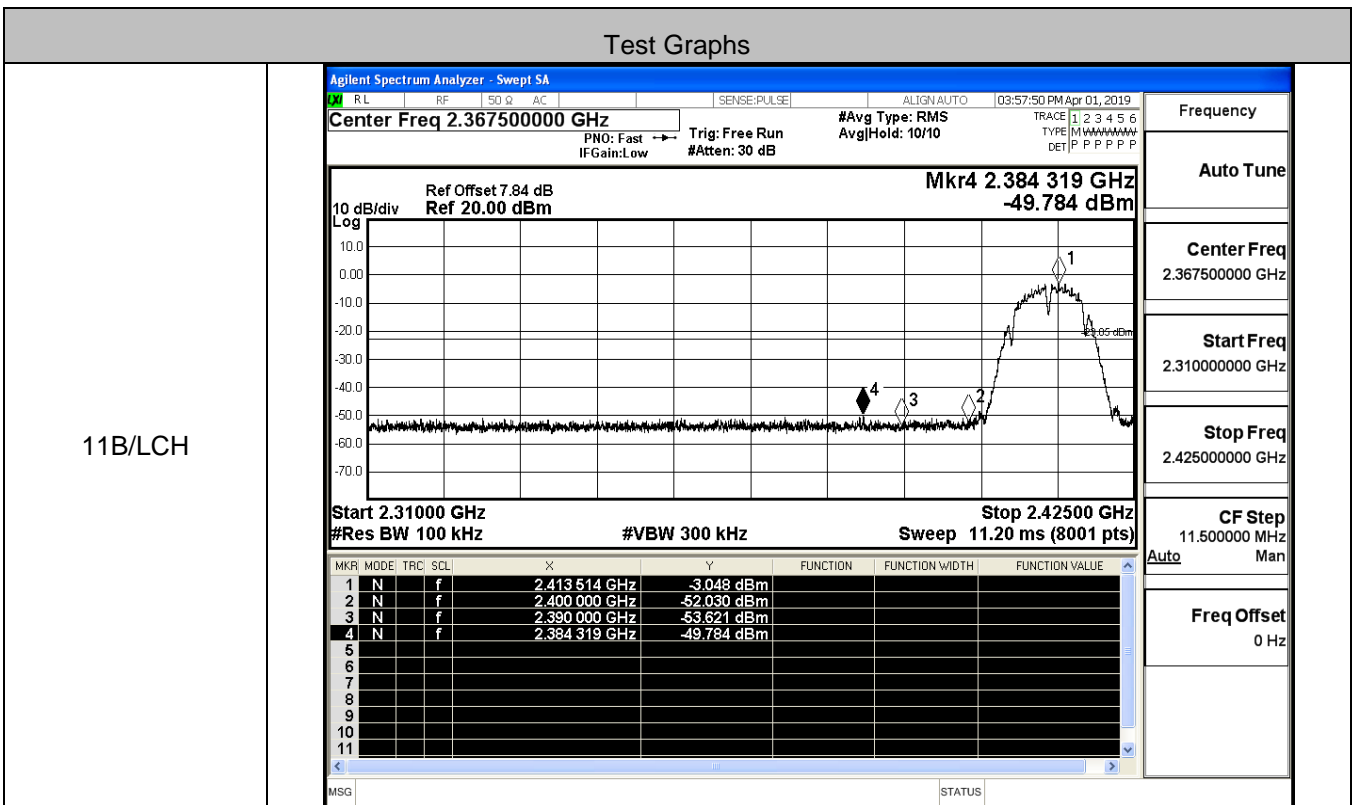


Puw/11N20
SISO/HCH

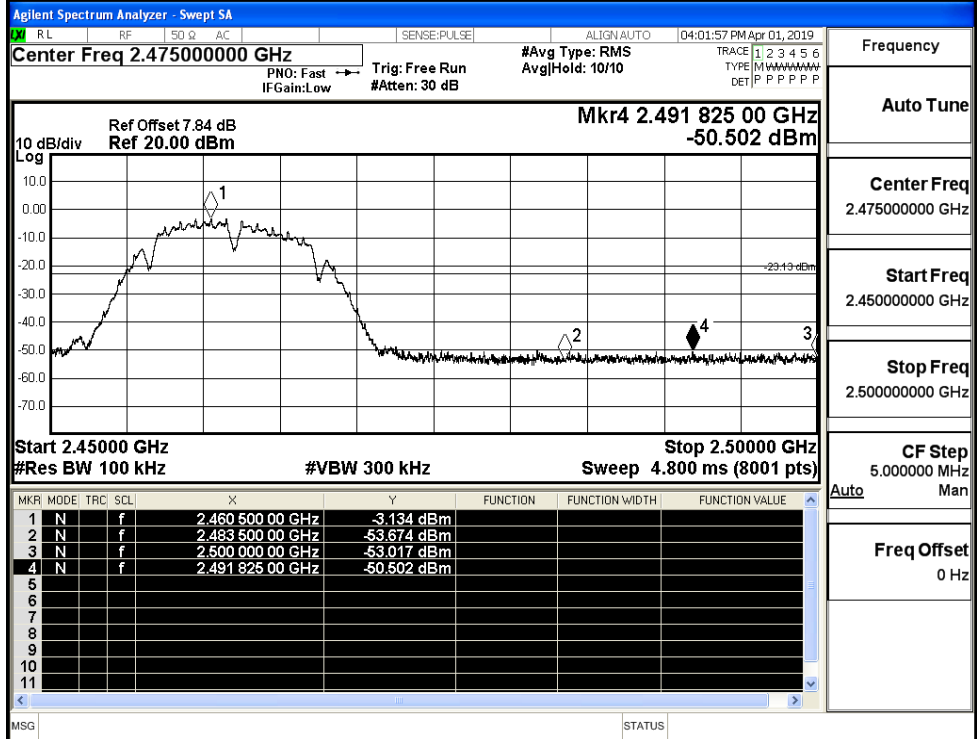


A.6 Band-edge for RF Conducted Emissions

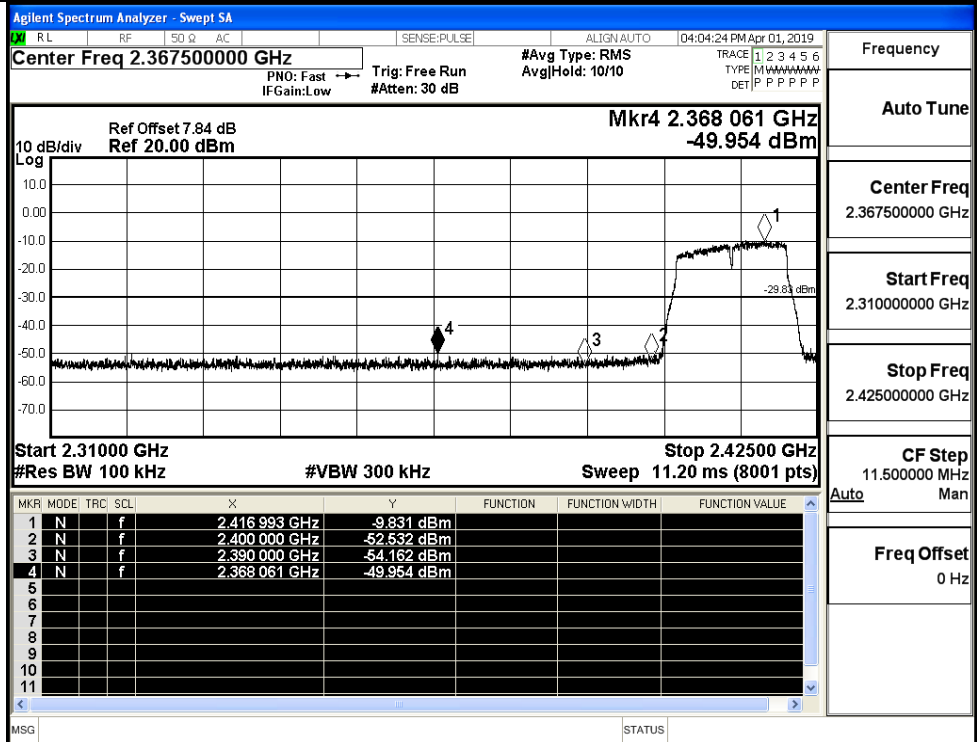
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-3.048	-49.784	-23.05	PASS
	HCH	-3.134	-50.502	-23.13	PASS
11G	LCH	-9.831	-49.954	-29.83	PASS
	HCH	-10.166	-50.001	-30.17	PASS
11N20SISO	LCH	-10.232	-50.383	-30.23	PASS
	HCH	-9.607	-49.862	-29.61	PASS



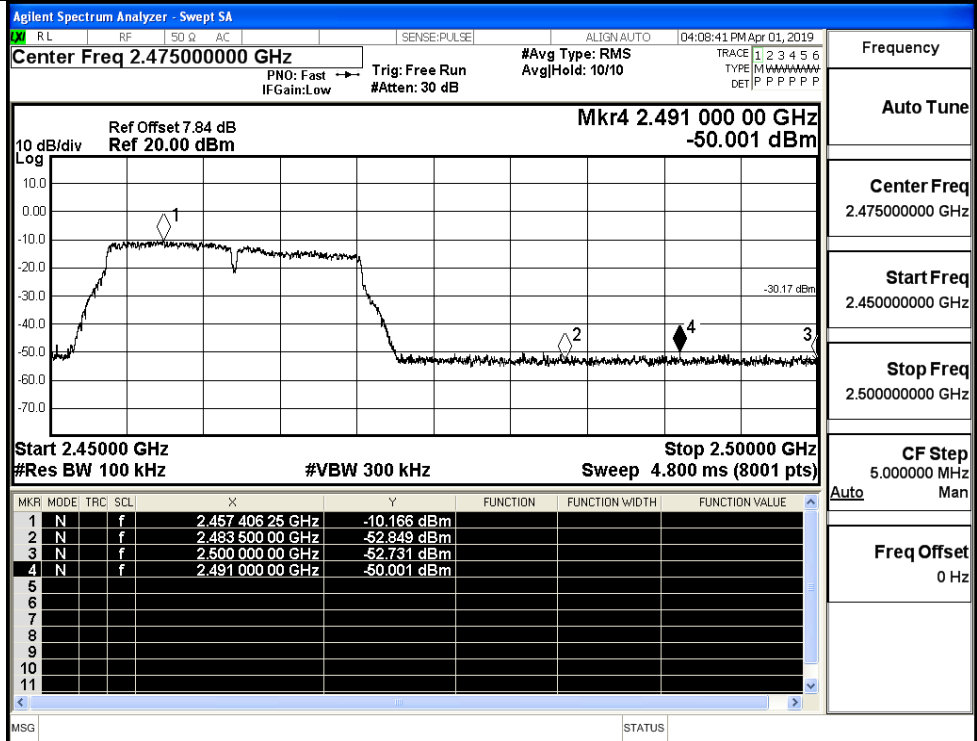
11B/HCH



11G/LCH

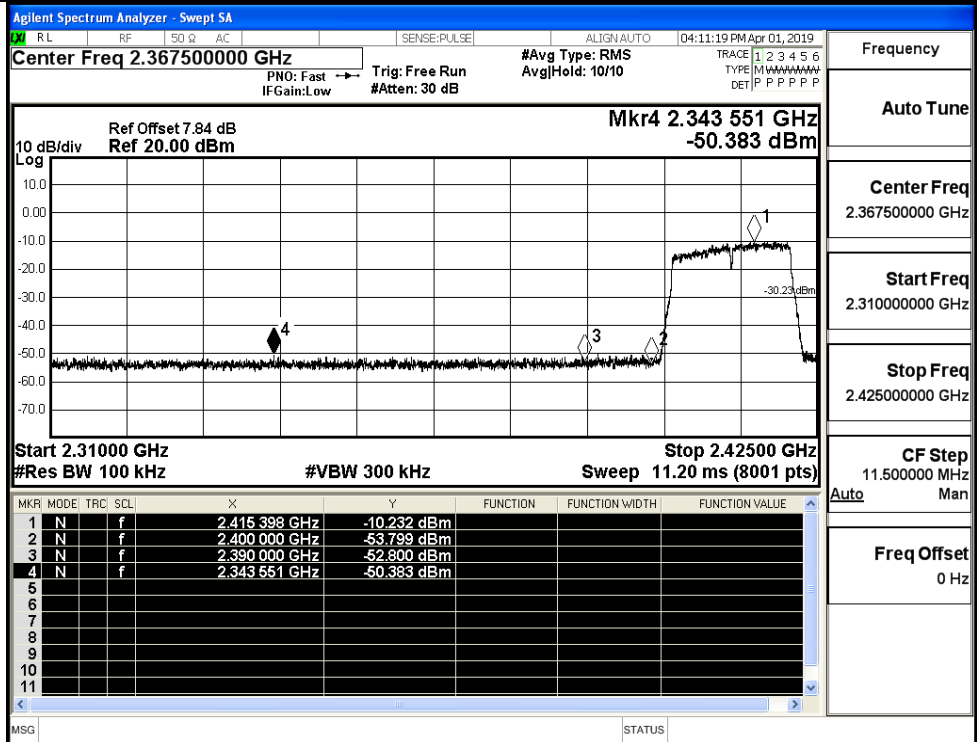


11G/HCH

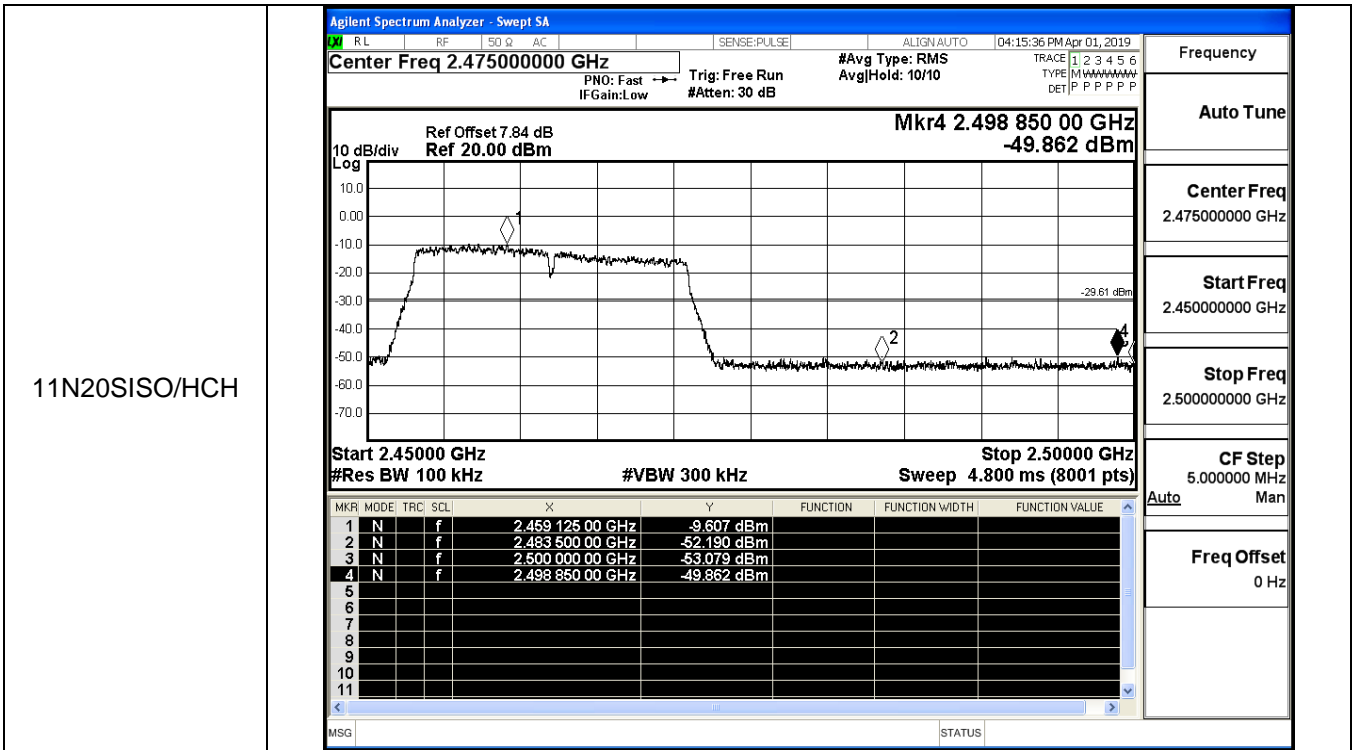


Frequency	2.475000000 GHz
Auto Tune	
Center Freq	2.475000000 GHz
Start Freq	2.450000000 GHz
Stop Freq	2.500000000 GHz
CF Step	5.000000 MHz
Freq Offset	0 Hz

11N20SISO/LCH



Frequency	2.367500000 GHz
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



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	-44.42	2.0	0	52.84	PEAK	74	PASS
	2412	Ant1	2310.0	-54.12	2.0	0	43.13	AV	54	PASS
	2412	Ant1	2390.0	-43.40	2.0	0	53.85	PEAK	74	PASS
	2412	Ant1	2390.0	-53.88	2.0	0	43.38	AV	54	PASS
	2462	Ant1	2483.5	-43.54	2.0	0	53.72	PEAK	74	PASS
	2462	Ant1	2483.5	-53.62	2.0	0	43.64	AV	54	PASS
	2462	Ant1	2500.0	-43.25	2.0	0	54.00	PEAK	74	PASS
	2462	Ant1	2500.0	-53.51	2.0	0	43.75	AV	54	PASS
11G	2412	Ant1	2310.0	-43.99	2.0	0	53.27	PEAK	74	PASS
	2412	Ant1	2310.0	-54.13	2.0	0	43.13	AV	54	PASS
	2412	Ant1	2390.0	-42.56	2.0	0	54.69	PEAK	74	PASS
	2412	Ant1	2390.0	-53.72	2.0	0	43.54	AV	54	PASS
	2462	Ant1	2483.5	-42.81	2.0	0	54.44	PEAK	74	PASS
	2462	Ant1	2483.5	-53.47	2.0	0	43.78	AV	54	PASS

	2462	Ant1	2500.0	-42.70	2.0	0	54.56	PEAK	74	PASS
	2462	Ant1	2500.0	-53.48	2.0	0	43.77	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-42.67	2.0	0	54.59	PEAK	74	PASS
	2412	Ant1	2310.0	-54.16	2.0	0	43.10	AV	54	PASS
	2412	Ant1	2390.0	-42.44	2.0	0	54.81	PEAK	74	PASS
	2412	Ant1	2390.0	-53.67	2.0	0	43.59	AV	54	PASS
	2462	Ant1	2483.5	-43.30	2.0	0	53.96	PEAK	74	PASS
	2462	Ant1	2483.5	-53.40	2.0	0	43.86	AV	54	PASS
	2462	Ant1	2500.0	-42.96	2.0	0	54.30	PEAK	74	PASS
	2462	Ant1	2500.0	-53.51	2.0	0	43.75	AV	54	PASS