

Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Wireless AP/CPE/Access Point/Bridge

Test Model: DIP9526K-H

Environmental Conditions

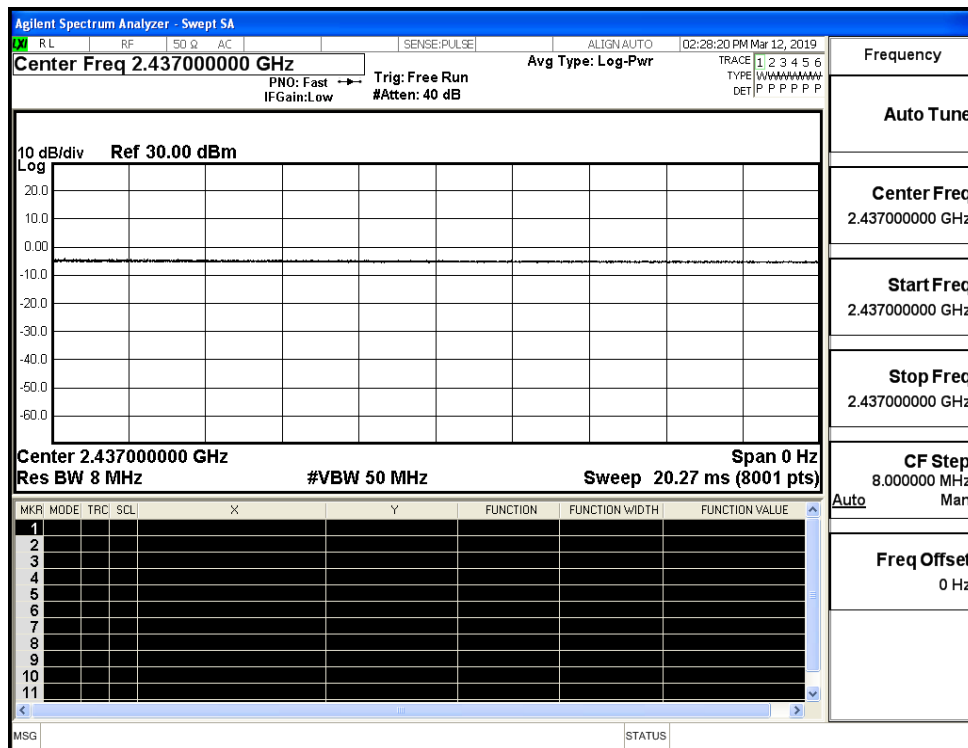
Temperature:	23.8 ° C
Relative Humidity:	52.8%
ATM Pressure:	100.0 kPa
Test Engineer:	Wang Chuang
Supervised by:	Tom Liu

A.1 Duty Cycle

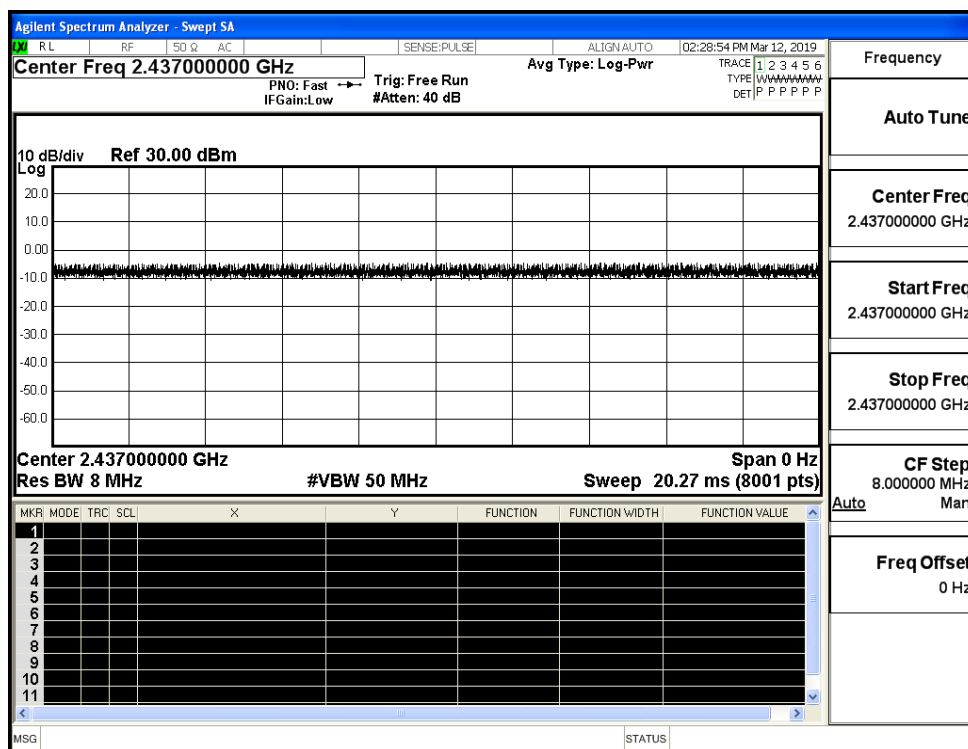
Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2437	Ant0	100	PASS
11G	2437	Ant0	100	PASS
11N20	2437	Ant0	100	PASS
11N40	2437	Ant0	100	PASS

Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2437	Ant1	100	PASS
11G	2437	Ant1	100	PASS
11N20	2437	Ant1	100	PASS
11N40	2437	Ant1	100	PASS

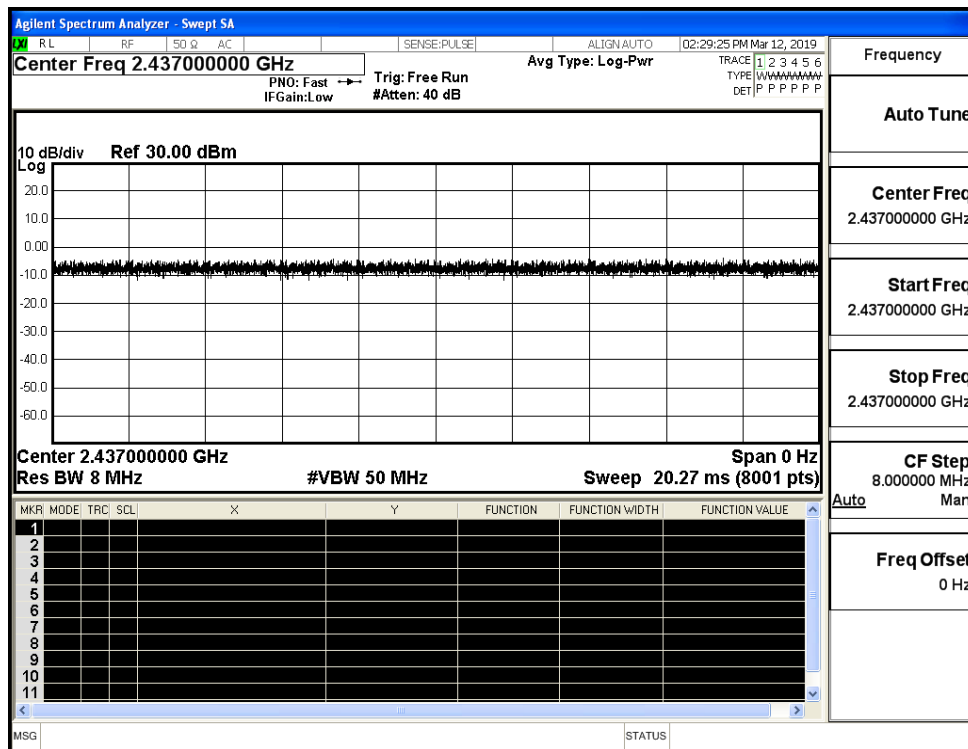
Duty Cycle_11B_2437_Ant0



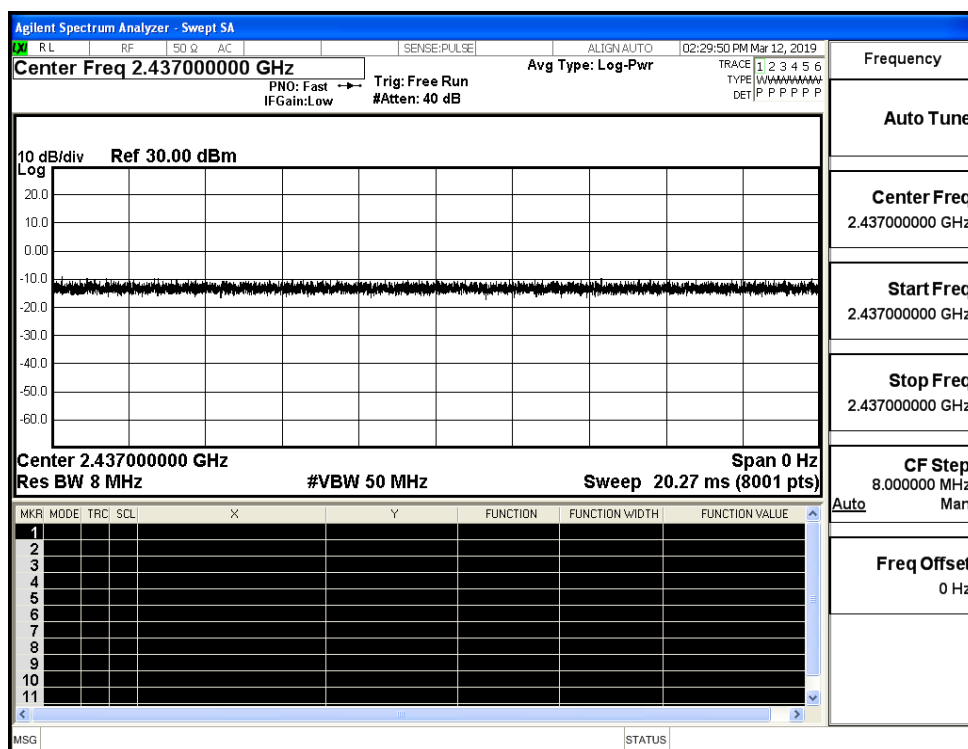
Duty Cycle_11G_2437_Ant0



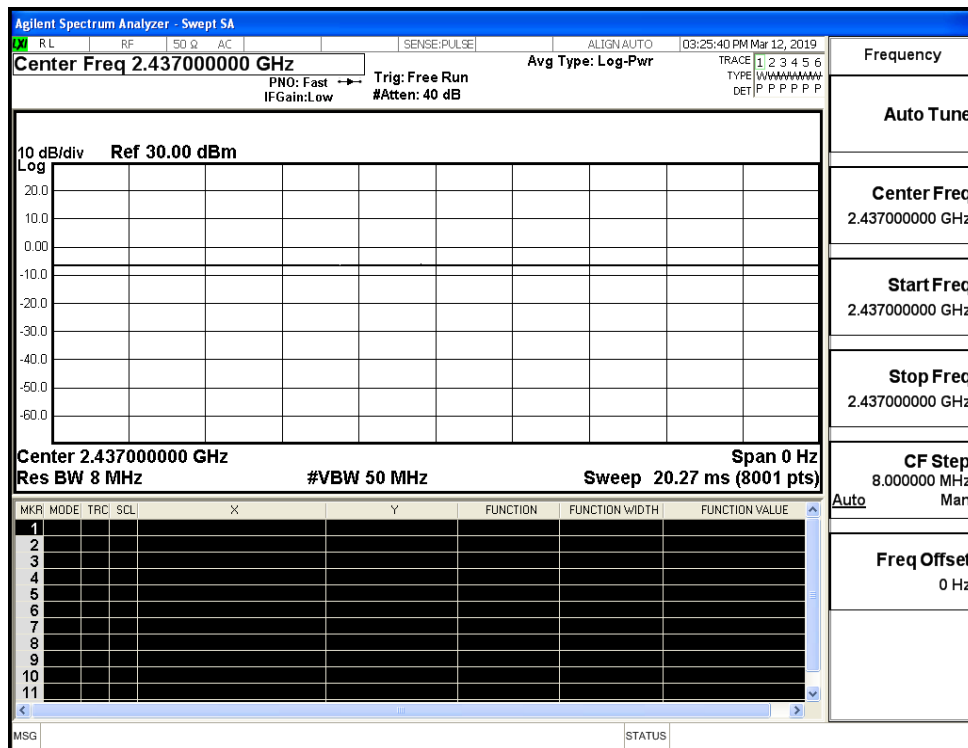
Duty Cycle_11N20_2437_Ant0



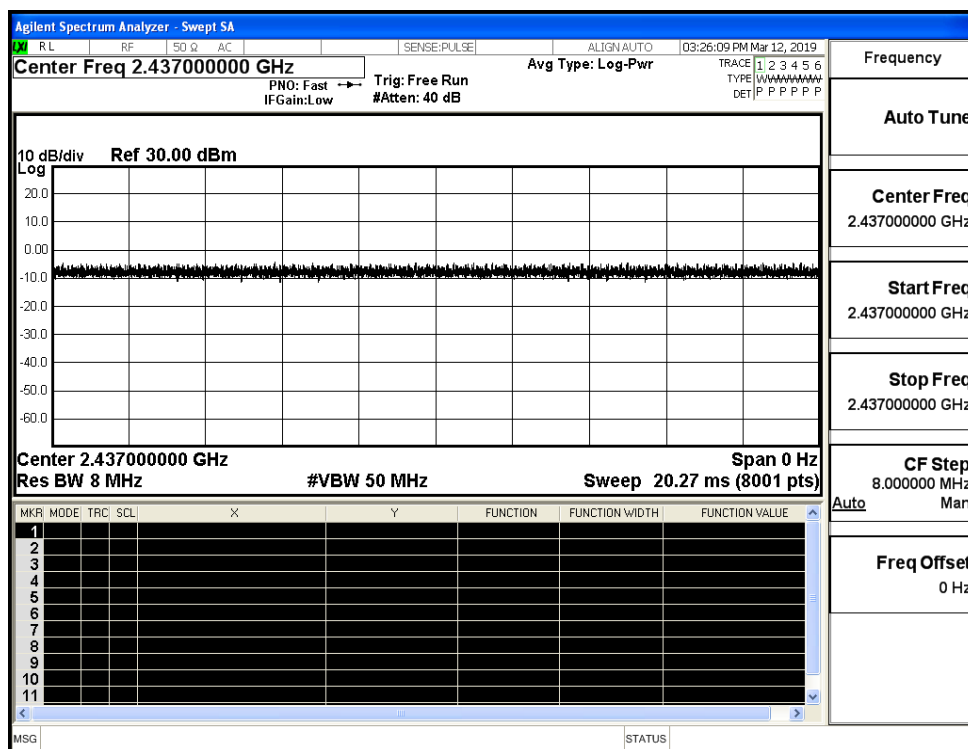
Duty Cycle_11N40_2437_Ant0



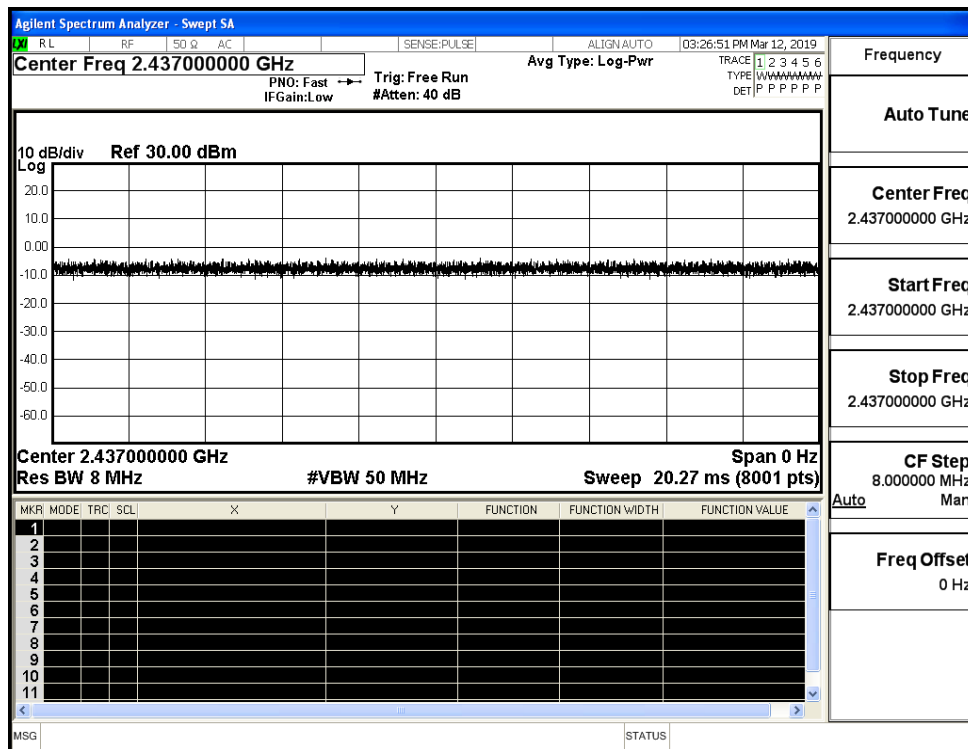
Duty Cycle_11B_2437_Ant1



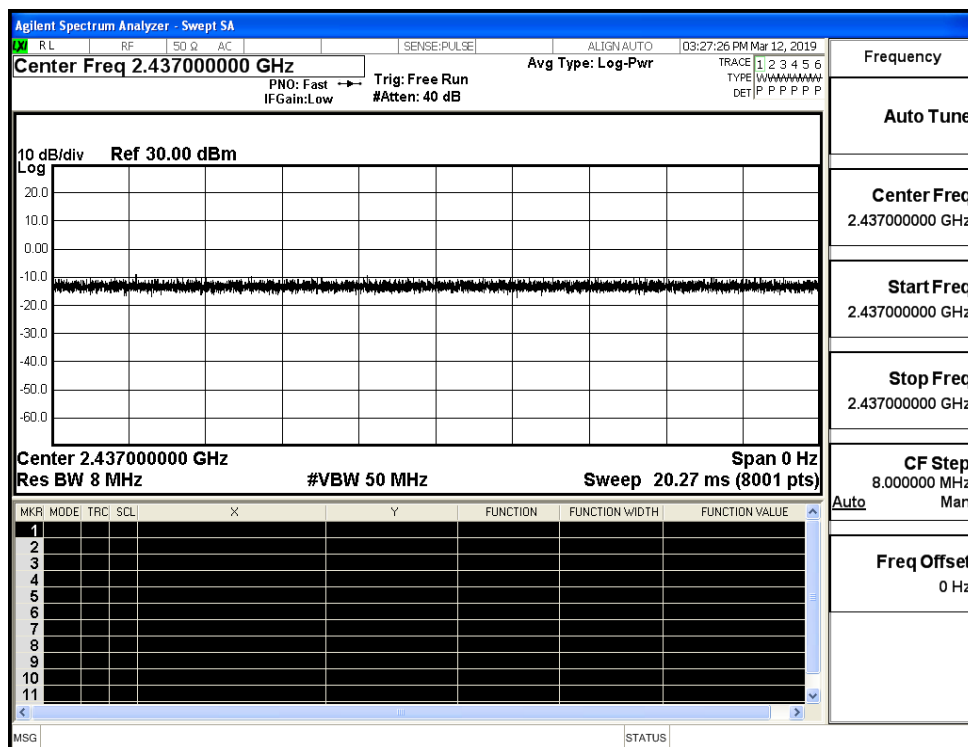
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20_2437_Ant1



Duty Cycle_11N40_2437_Ant1



A.2 Maximum Conducted Output Power

Mode	Channel	Meas.Level [dBm]			Limit [dBm]	Verdict
		Ant0	Ant1	Sum		
11B	LCH	0.63	0.66	/	24.00	PASS
	MCH	1.19	1.08	/	24.00	PASS
	HCH	0.77	0.69	/	24.00	PASS
11G	LCH	3.59	3.51	/	24.00	PASS
	MCH	4.34	4.03	/	24.00	PASS
	HCH	4.06	3.66	/	24.00	PASS
11N20	LCH	3.50	3.46	6.49	20.99	PASS
	MCH	4.30	4.27	7.30	20.99	PASS
	HCH	3.36	3.36	6.37	20.99	PASS
11N40	LCH	3.48	3.39	6.45	20.99	PASS
	MCH	3.42	3.36	6.40	20.99	PASS
	HCH	4.23	4.02	7.14	20.99	PASS

A.3 Maximum Power Spectral Density

Ant0

Mode	Channel	Meas.Level [dBm/30KHz]	Convert Factor	Result [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-15.349	-10	-25.349	2.00	PASS
	MCH	-14.046	-10	-24.046	2.00	PASS
	HCH	-10.938	-10	-20.938	2.00	PASS
11G	LCH	-21.350	-10	-31.350	2.00	PASS
	MCH	-19.533	-10	-29.533	2.00	PASS
	HCH	-18.048	-10	-28.048	2.00	PASS
11N20	LCH	-20.447	-10	-30.447	2.00	PASS
	MCH	-18.405	-10	-28.405	2.00	PASS
	HCH	-18.308	-10	-28.308	2.00	PASS
11N40	LCH	-21.661	-10	-31.661	2.00	PASS
	MCH	-22.307	-10	-32.307	2.00	PASS
	HCH	-20.479	-10	-30.479	2.00	PASS

***Note: The Convert Factor = $10 \cdot \log(3\text{KHz}/30\text{KHz}) = -10$

Ant1

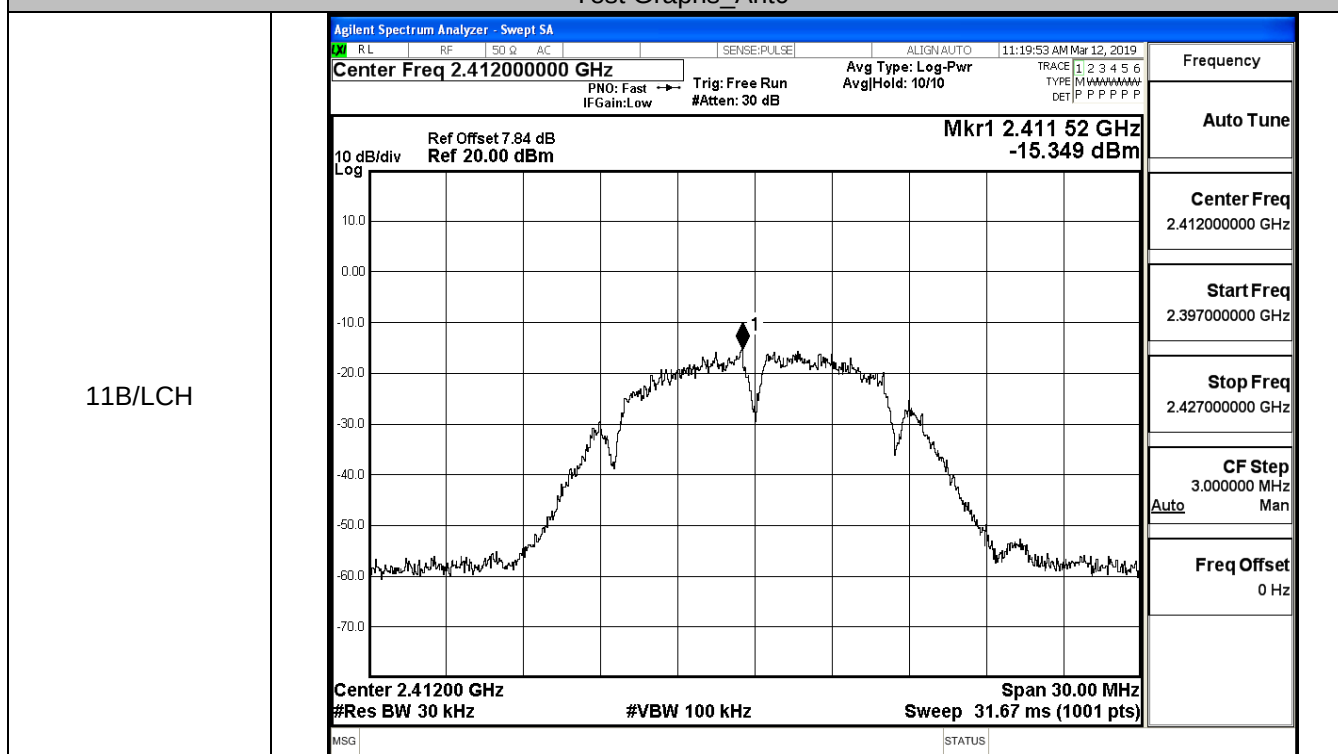
Mode	Channel	Meas.Level [dBm/30KHz]	Convert Factor	Result [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-13.827	-10	-23.827	2.00	PASS
	MCH	-13.662	-10	-23.662	2.00	PASS
	HCH	-14.870	-10	-24.870	2.00	PASS
11G	LCH	-20.915	-10	-30.915	2.00	PASS
	MCH	-19.724	-10	-29.724	2.00	PASS
	HCH	-18.873	-10	-28.873	2.00	PASS
11N20	LCH	-20.717	-10	-30.717	2.00	PASS
	MCH	-18.764	-10	-28.764	2.00	PASS
	HCH	-18.319	-10	-28.319	2.00	PASS
11N40	LCH	-21.752	-10	-31.752	2.00	PASS
	MCH	-21.923	-10	-31.923	2.00	PASS
	HCH	-20.625	-10	-30.625	2.00	PASS

***Note: The Convert Factor = $10 \cdot \log(3\text{KHz}/30\text{KHz}) = -10$

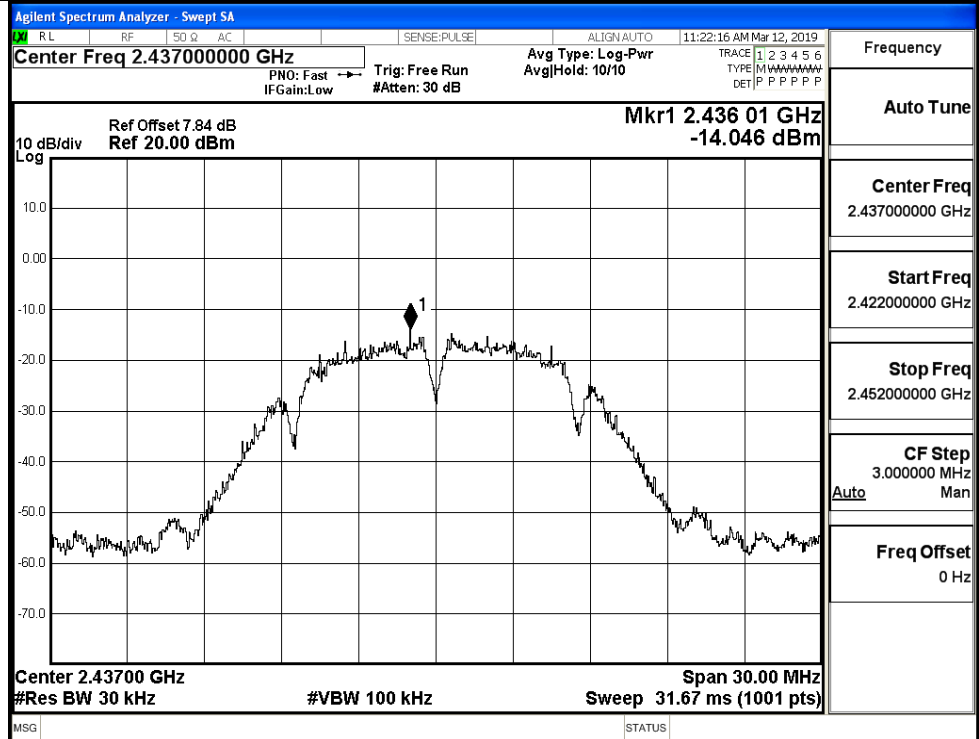
Combined Ant0 and Ant1

Mode	Channel	Result [dBm/3KHz]			Limit [dBm/3KHz]	Verdict
		Ant0	Ant1	Sum		
11N20	LCH	-30.447	-30.717	-27.570	-1.01	PASS
	MCH	-28.405	-28.764	-25.570	-1.01	PASS
	HCH	-28.308	-28.319	-25.303	-1.01	PASS
11N40	LCH	-31.661	-31.752	-28.696	-1.01	PASS
	MCH	-32.307	-31.923	-29.100	-1.01	PASS
	HCH	-30.479	-30.625	-27.541	-1.01	PASS

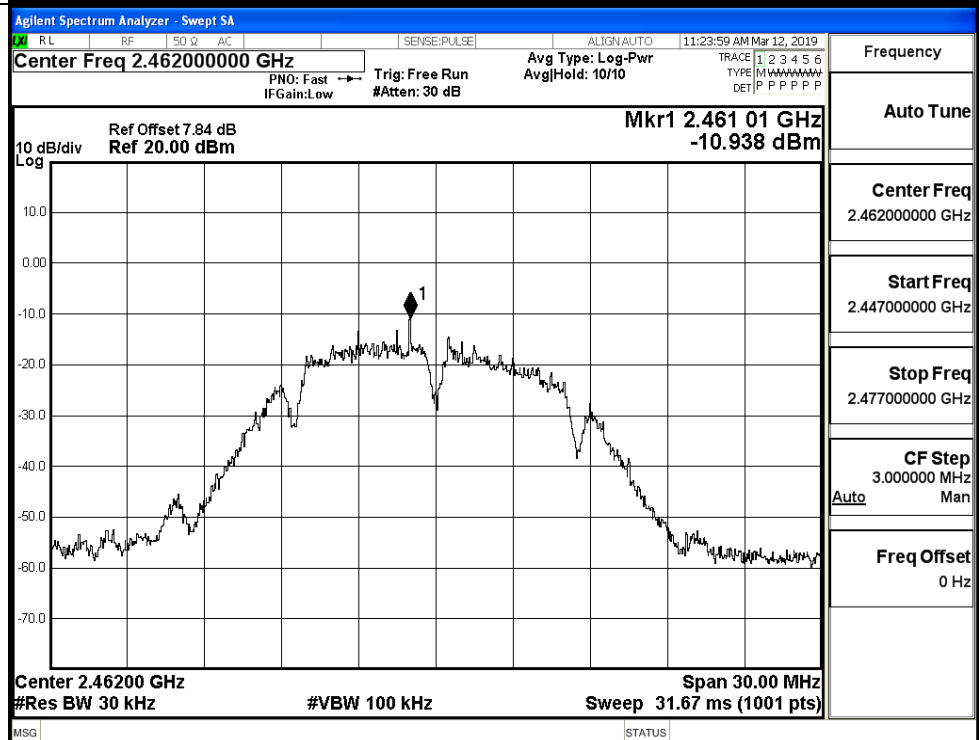
Test Graphs_Ant0



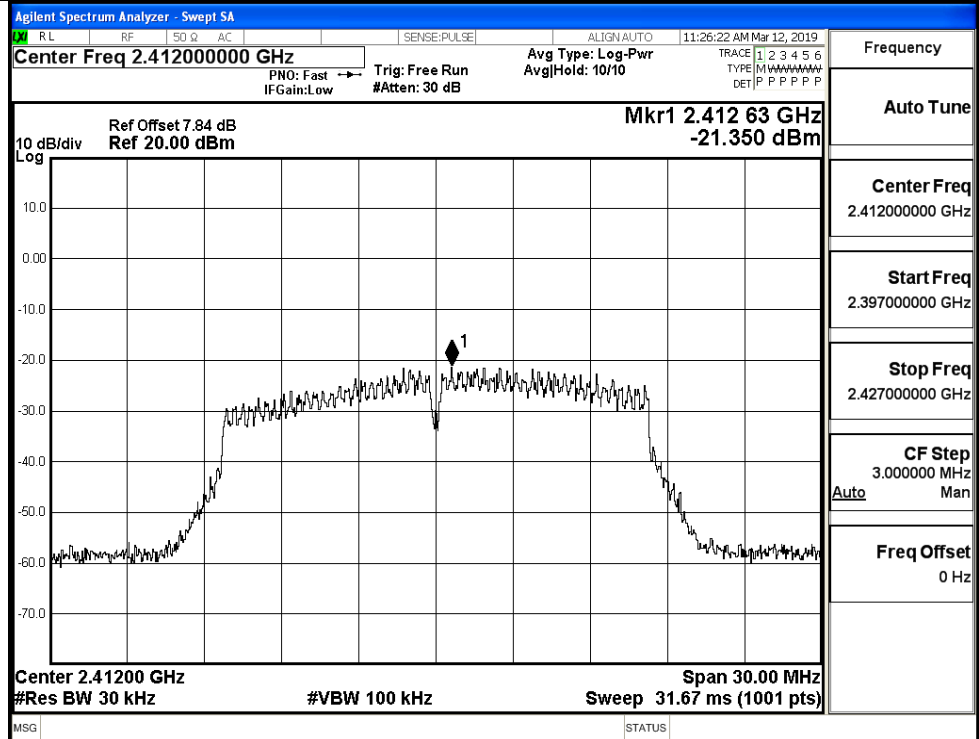
11B/MCH



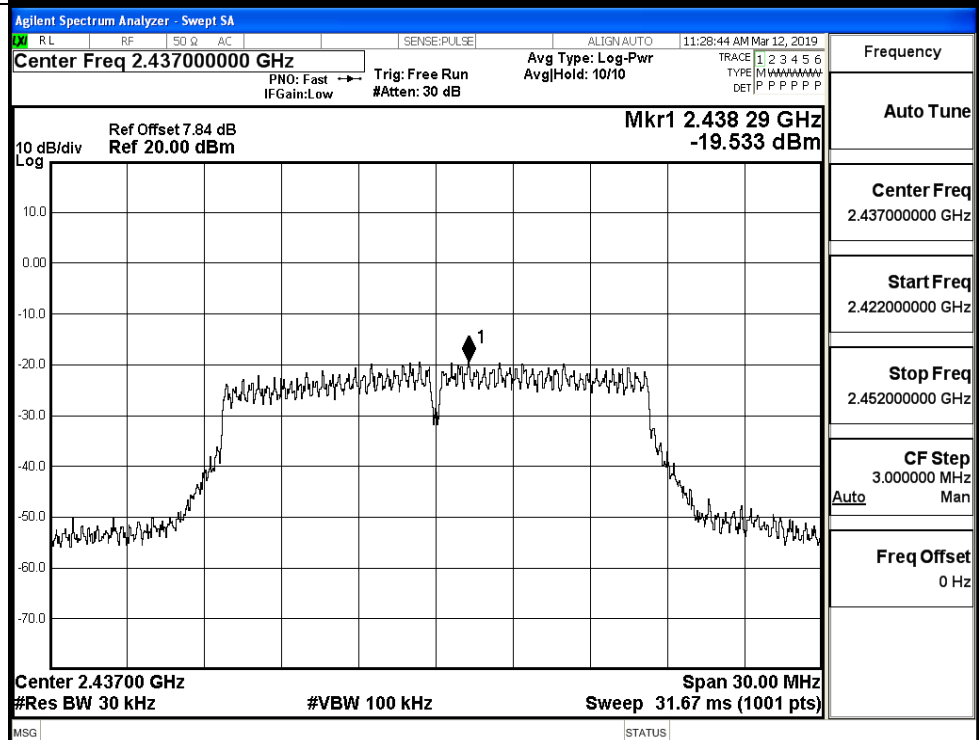
11B/HCH



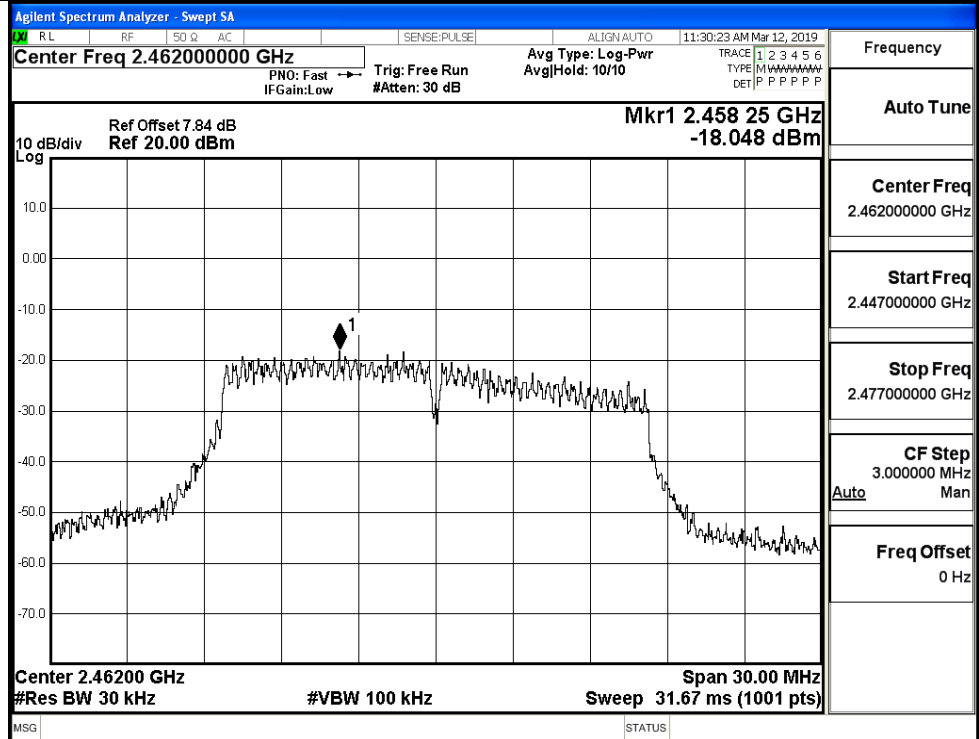
11G/LCH



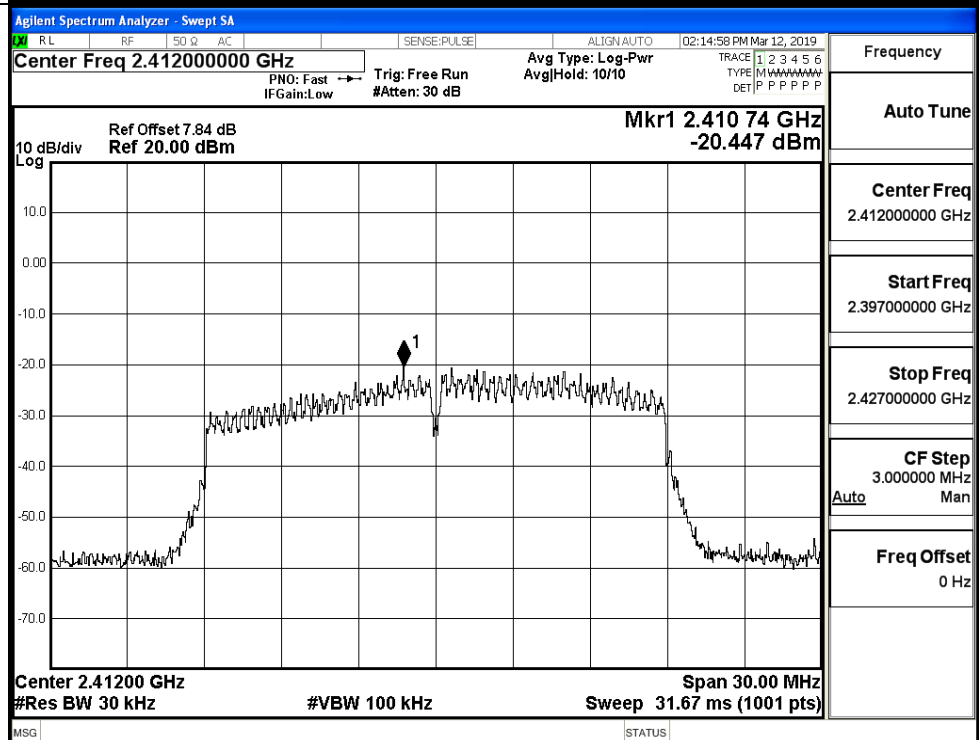
11G/MCH



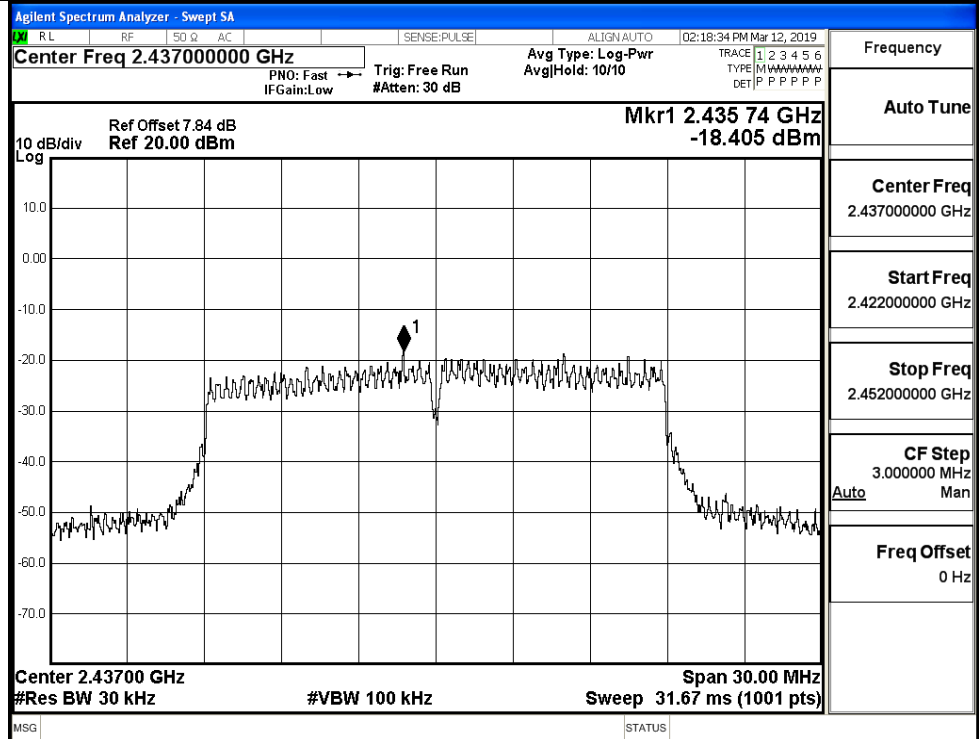
11G/HCH



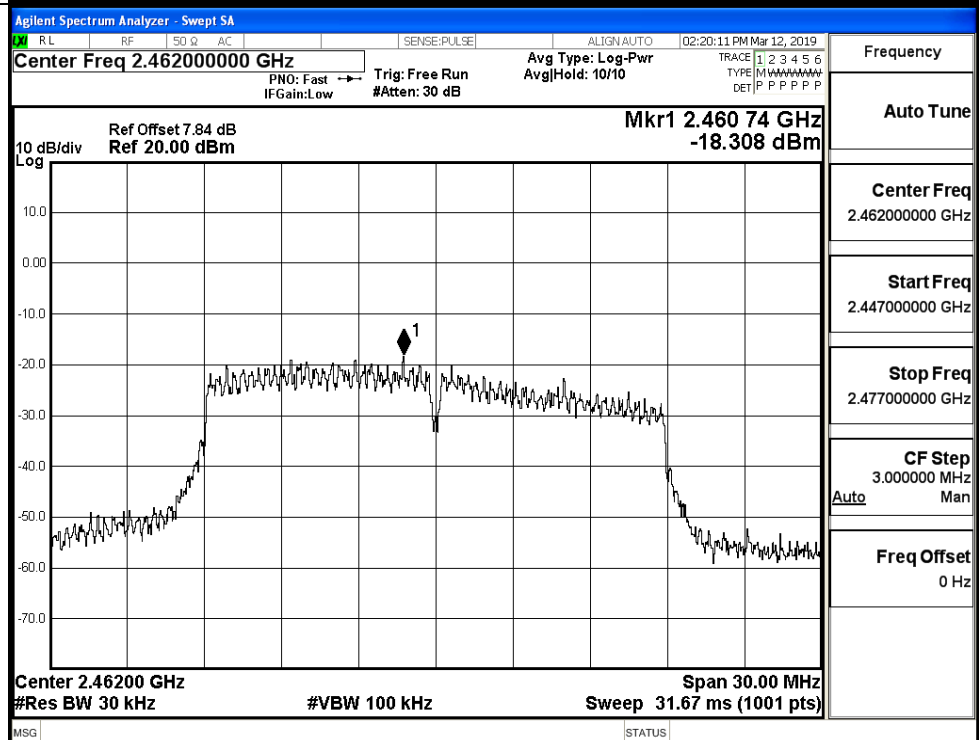
11N20/LCH



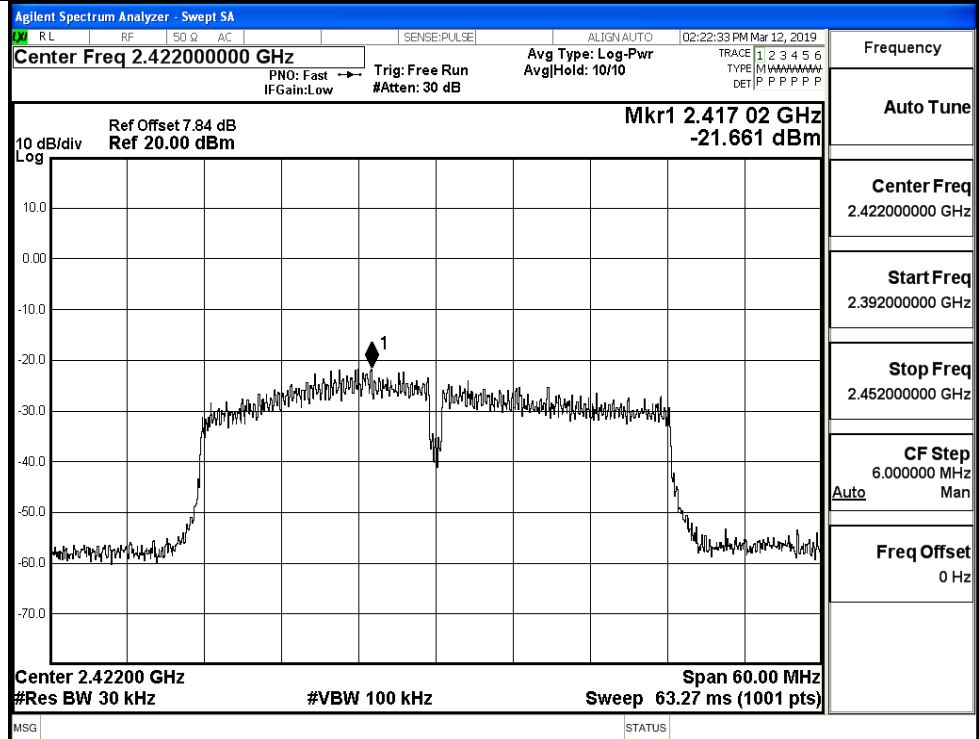
11N20/MCH



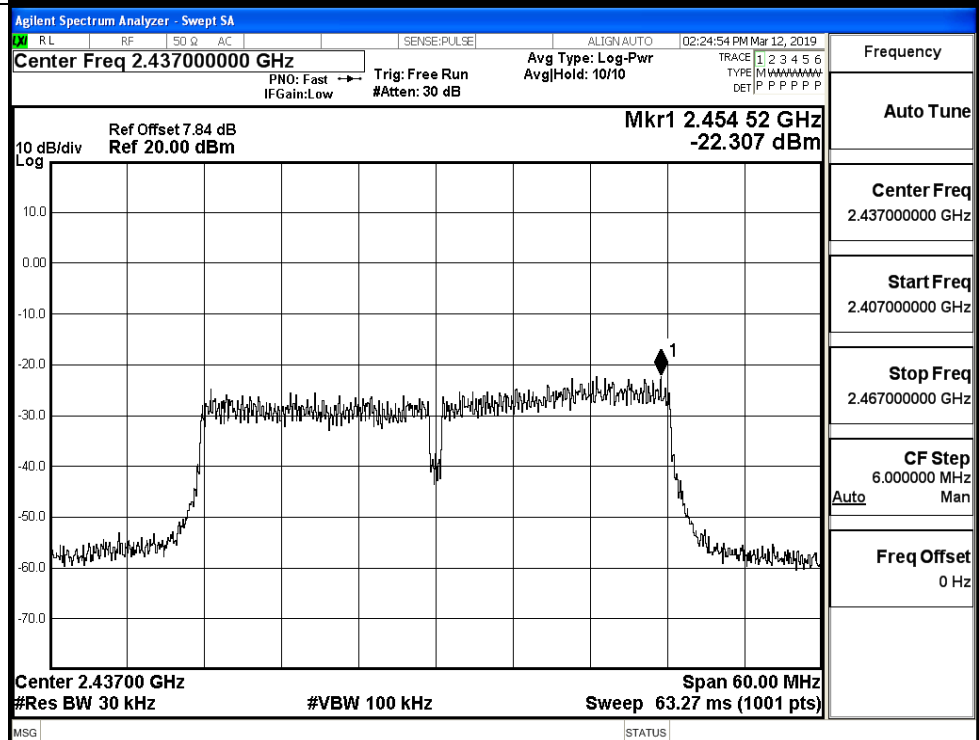
11N20/HCH



11N40/LCH



11N40/MCH



Agilent Spectrum Analyzer - Swept SA

MAX	R L	RF	50 Ω	AC	SENSE:PULSE	ALIGN:AUTO	02:26:35 PM Mar 12, 2019
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Center Freq 2.45200000 GHz

PNO: Fast → Trig: Free Run
IF Gain: Low #Atten: 30 dB

Avg Type: Log-Pwr Avg/Hold: 10/10

TRACE 1 2 3 4 5 6
TYPE M W W W W W W W
DET P P P P P P P

Mkr1 2.455 12 GHz
-20.479 dBm

Ref Offset 7.84 dB
Ref 20.00 dBm

The spectrum analyzer displays a swept frequency range from approximately 2.44 GHz to 2.47 GHz. The vertical axis represents power density in dB/div, ranging from -70.0 to 10.0. A prominent signal peak is visible at 2.455 GHz, labeled 'Mkr1' with a value of -20.479 dBm. The baseline noise floor is around -60 dBm. The trace shows a typical swept SA pattern with some ripple across the passband.

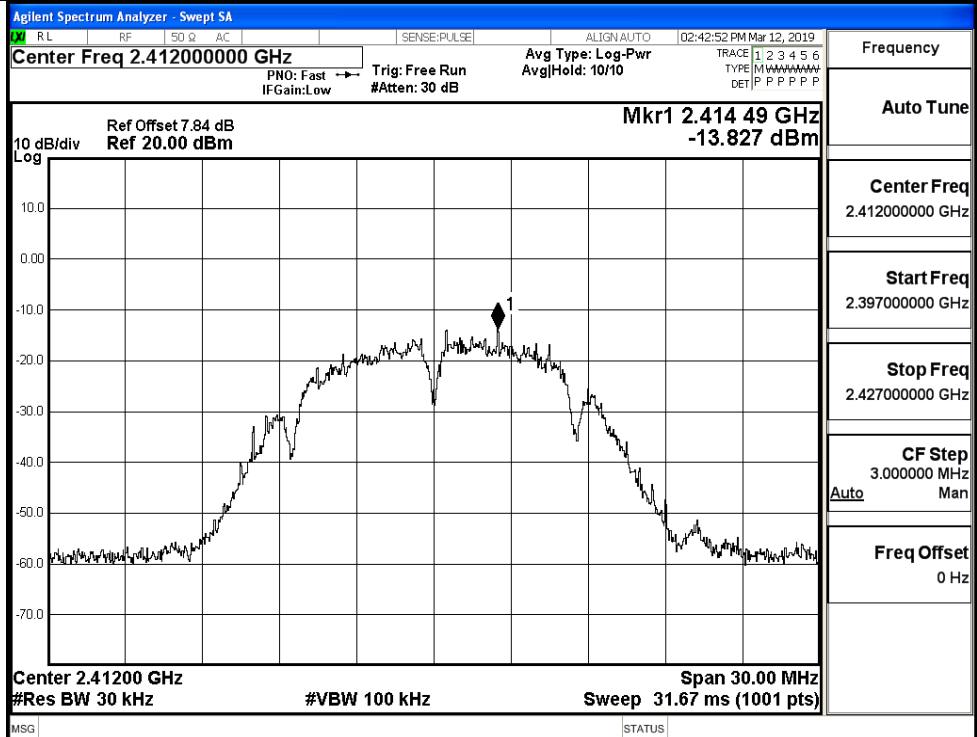
Frequency
Auto Tune
Center Freq 2.45200000 GHz
Start Freq 2.42200000 GHz
Stop Freq 2.48200000 GHz
CF Step 6.000000 MHz <u>Auto</u> Man
Freq Offset 0 Hz

Center 2.45200 GHz **Span 60.00 MHz**
#Res 30 kHz **#VBW 100 kHz** **Sweep 63.27 ms (1001 pts)**

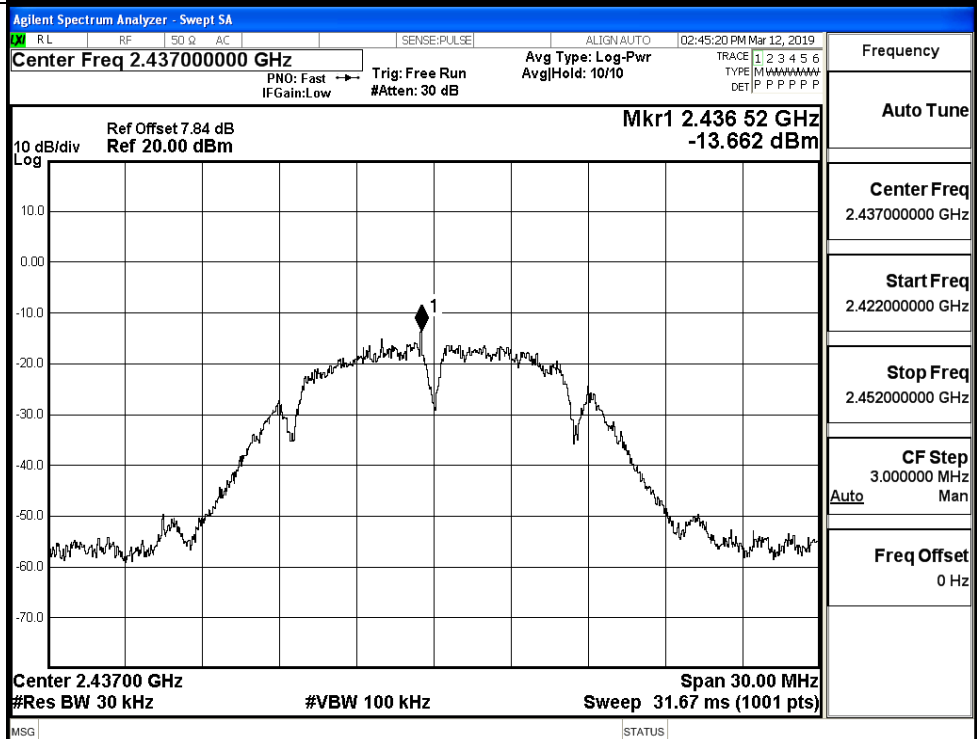
MSG STATUS

Test Graphs_Ant1

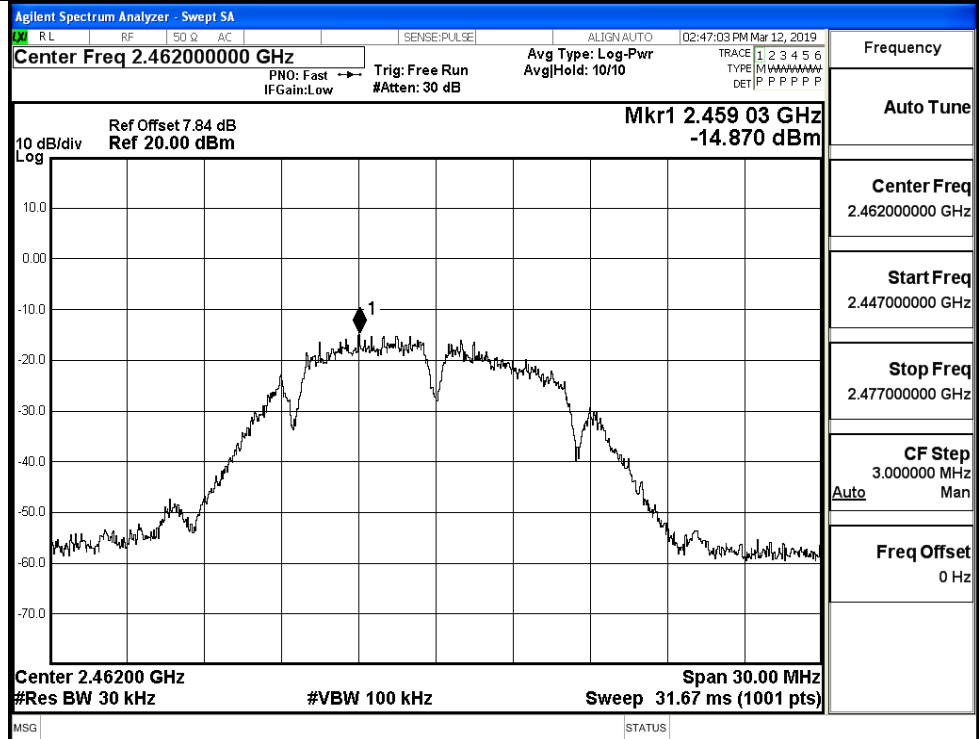
11B/LCH



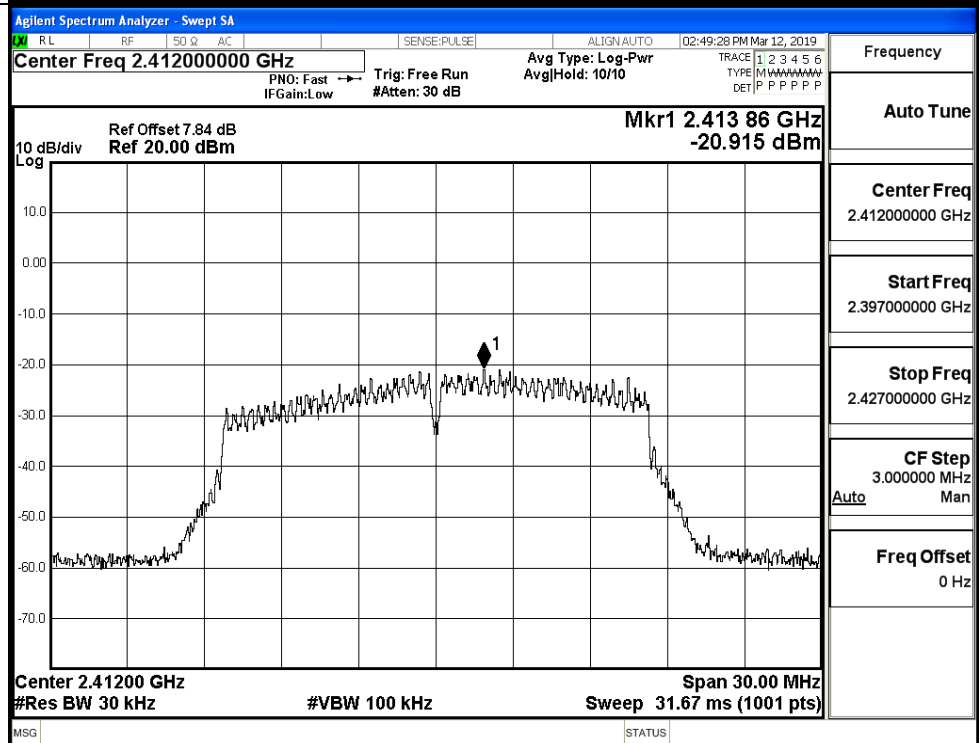
11B/MCH



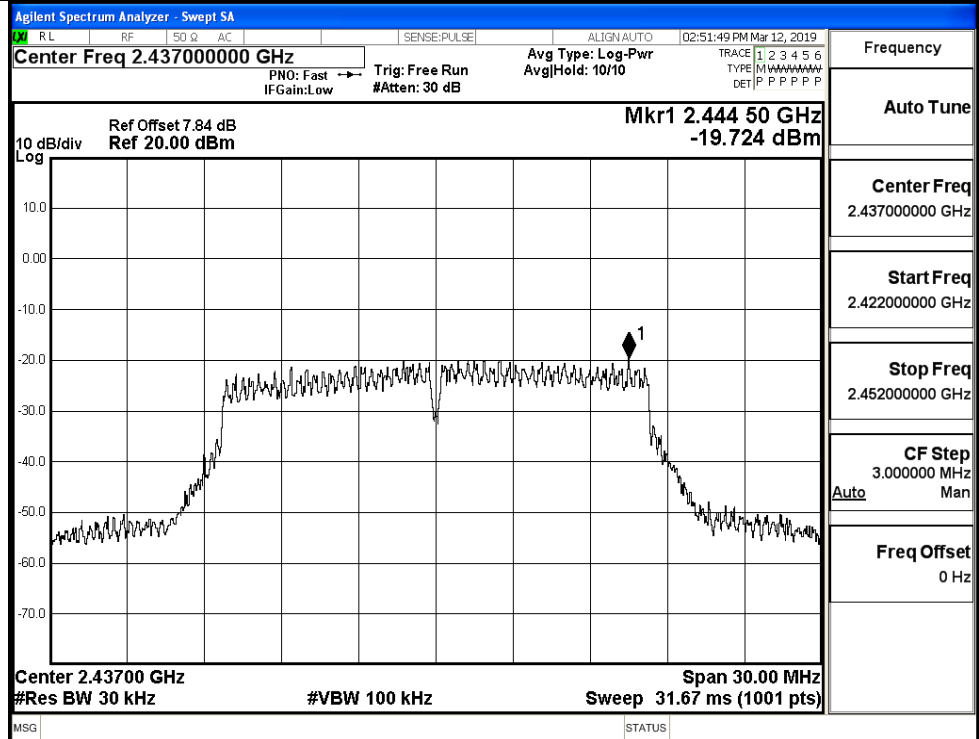
11B/HCH



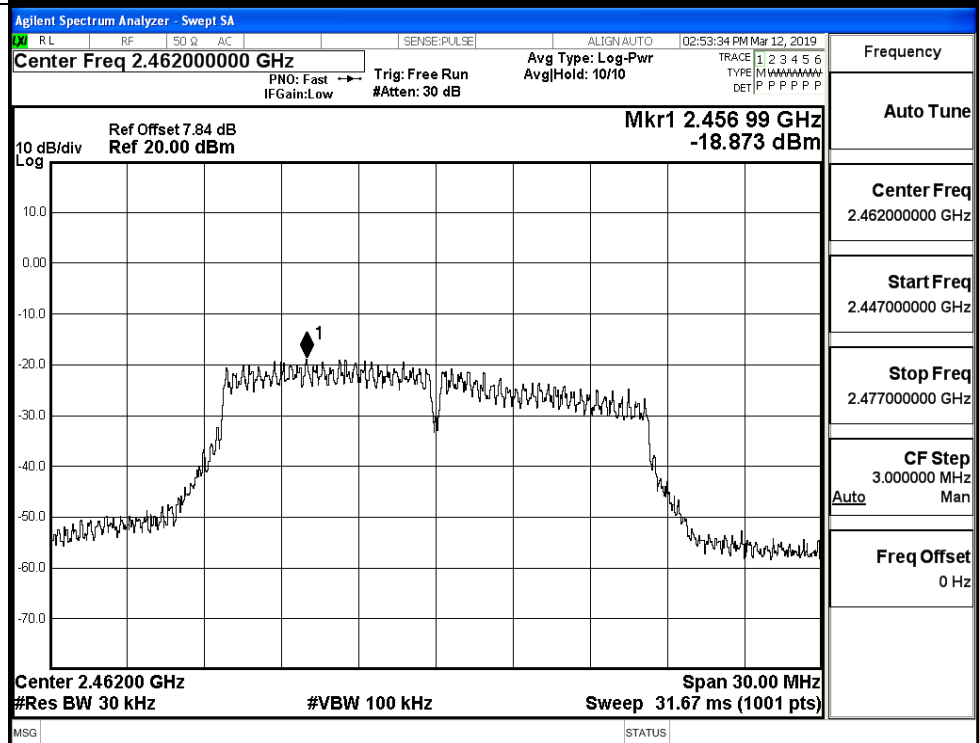
11G/LCH



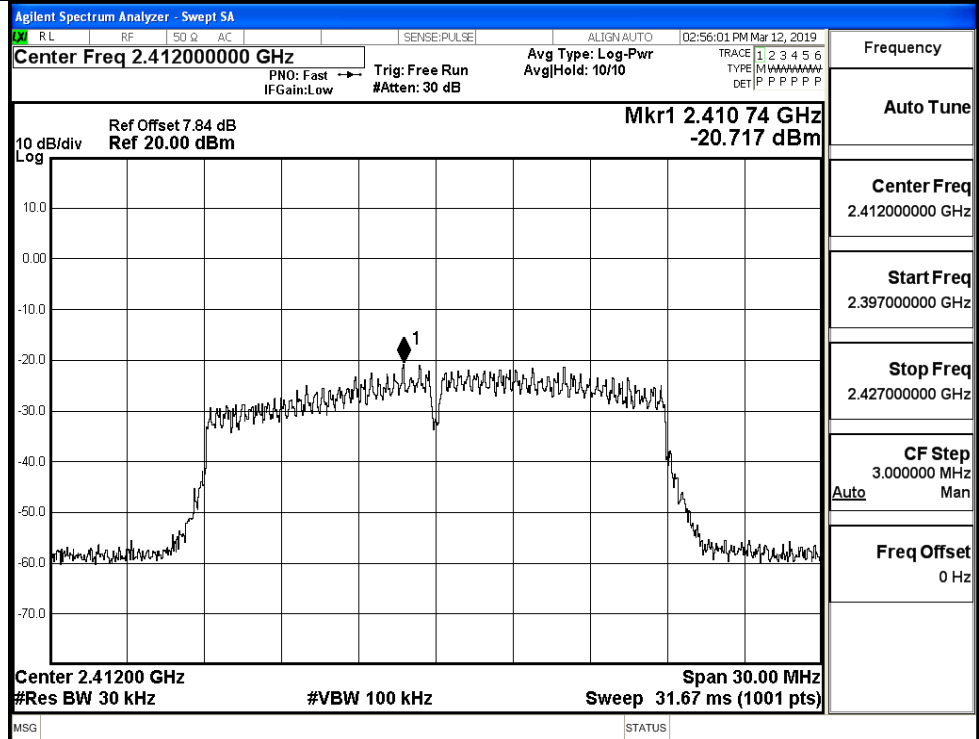
11G/MCH



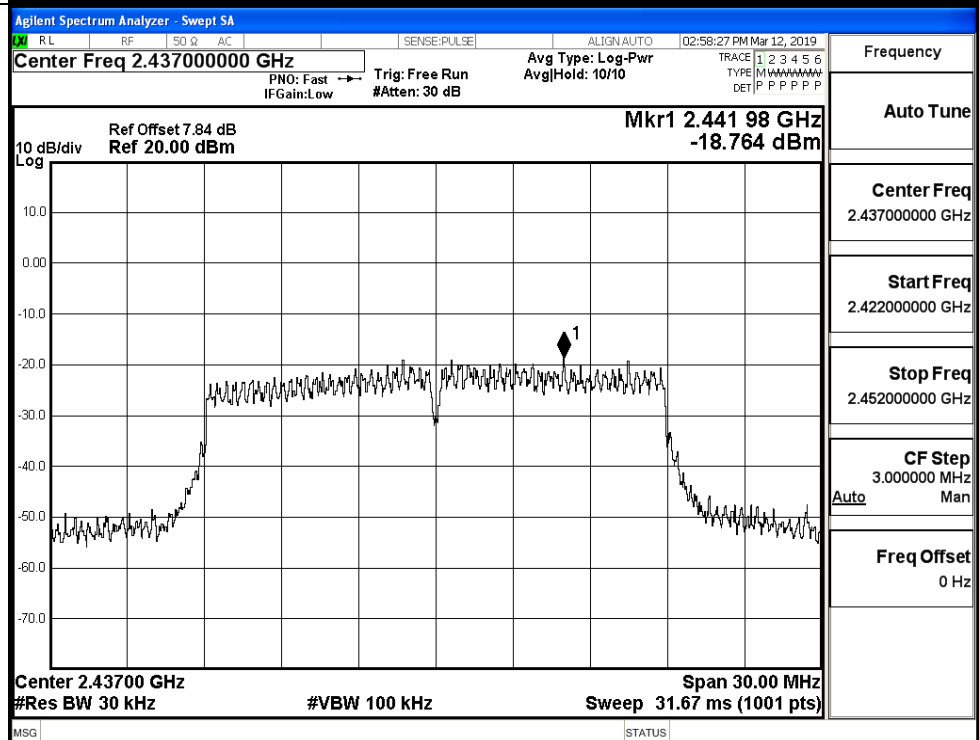
11G/HCH



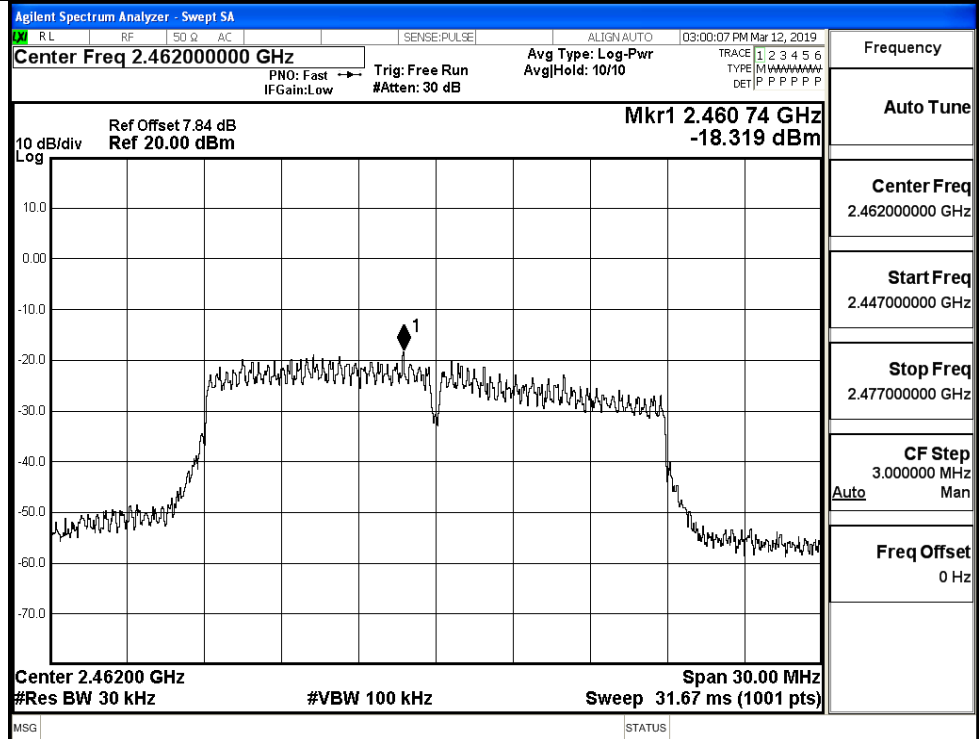
11N20/LCH



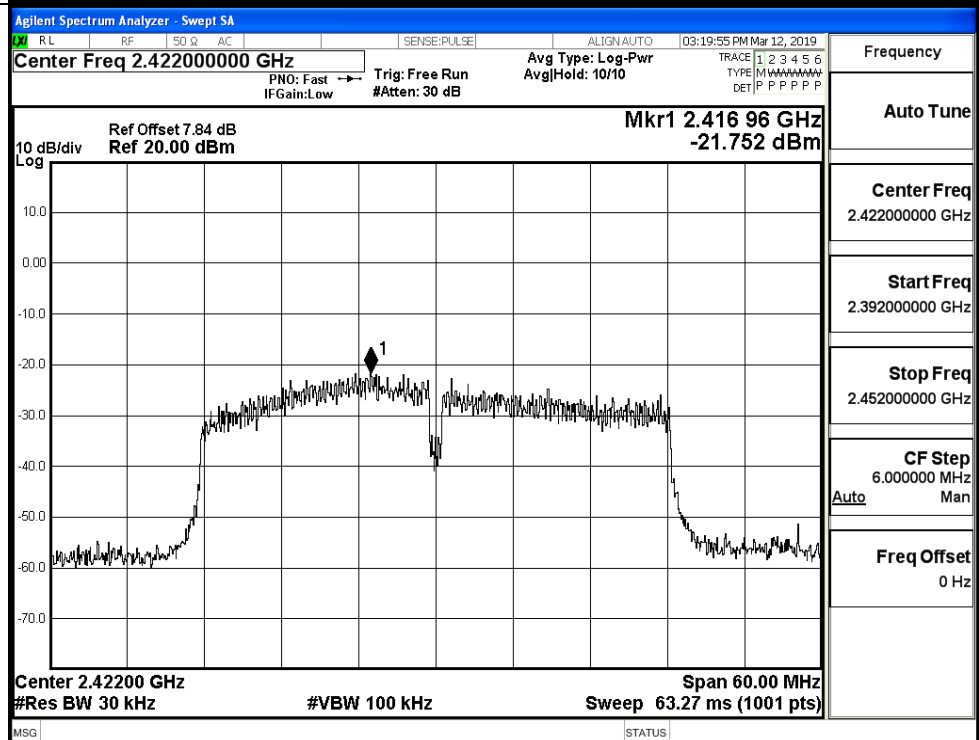
11N20/MCH



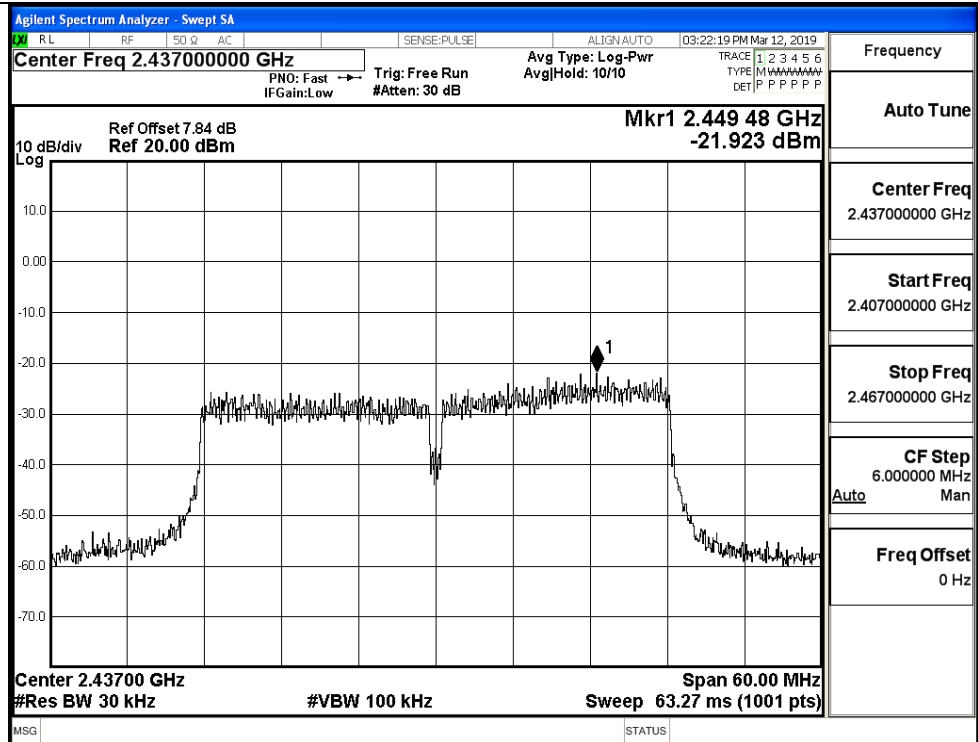
11N20/HCH



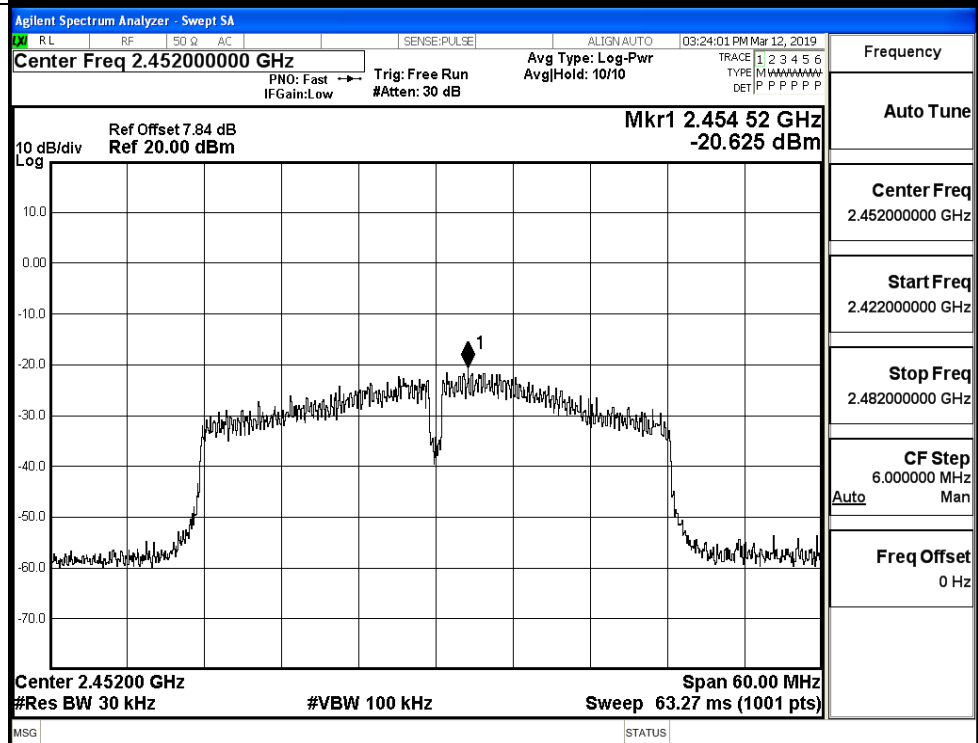
11N40/LCH



11N40/MCH



11N40/HCH

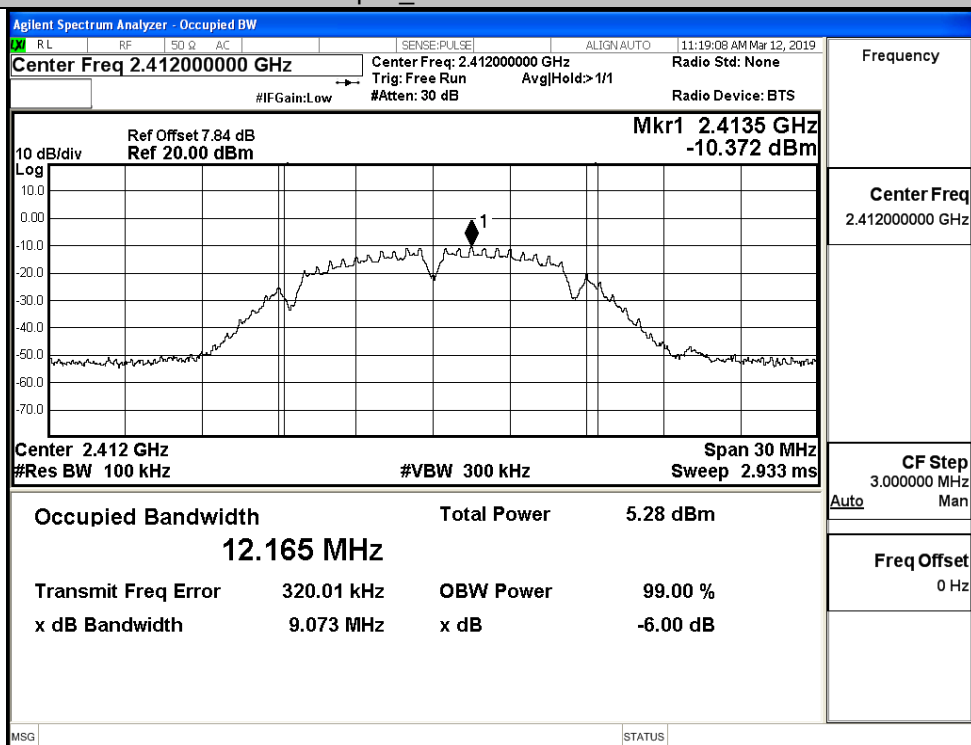


A.4 6dB Bandwidth

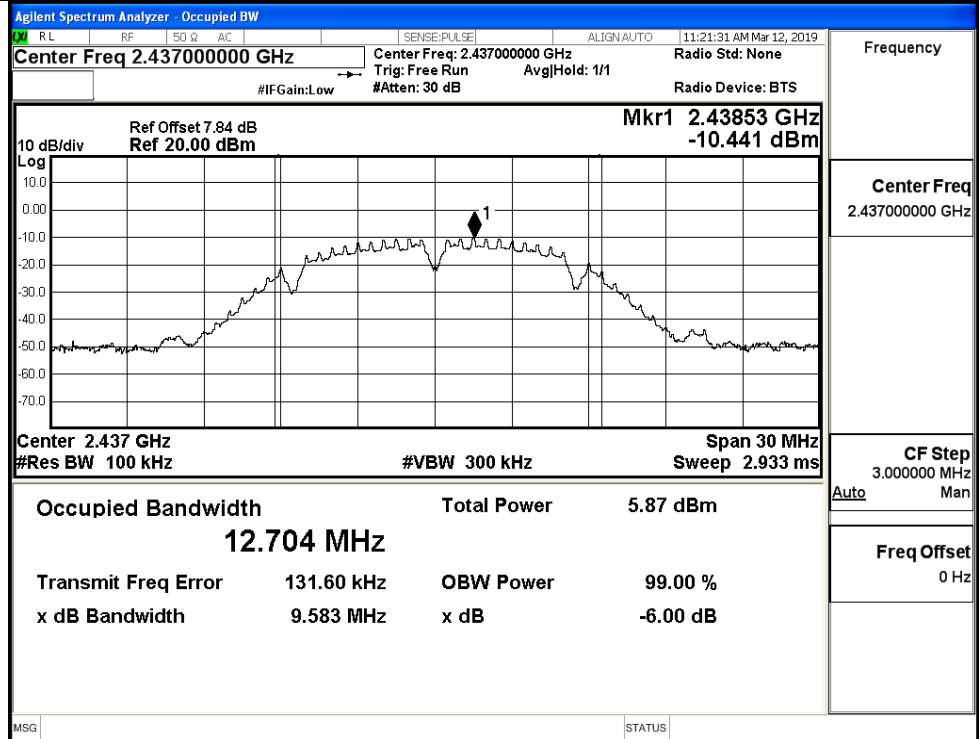
Mode	Channel	6dB Bandwidth [MHz]		Limit [MHz]	Verdict
		Ant0	Ant1		
11B	LCH	9.073	9.058	≥ 0.5	PASS
	MCH	9.583	9.601	≥ 0.5	PASS
	HCH	9.097	9.086	≥ 0.5	PASS
11G	LCH	13.87	13.85	≥ 0.5	PASS
	MCH	15.75	15.75	≥ 0.5	PASS
	HCH	14.48	13.21	≥ 0.5	PASS
11N20	LCH	13.88	13.87	≥ 0.5	PASS
	MCH	16.37	16.37	≥ 0.5	PASS
	HCH	15.03	15.03	≥ 0.5	PASS
11N40	LCH	33.85	33.88	≥ 0.5	PASS
	MCH	35.54	35.54	≥ 0.5	PASS
	HCH	26.29	20.15	≥ 0.5	PASS

Test Graphs_Ant0

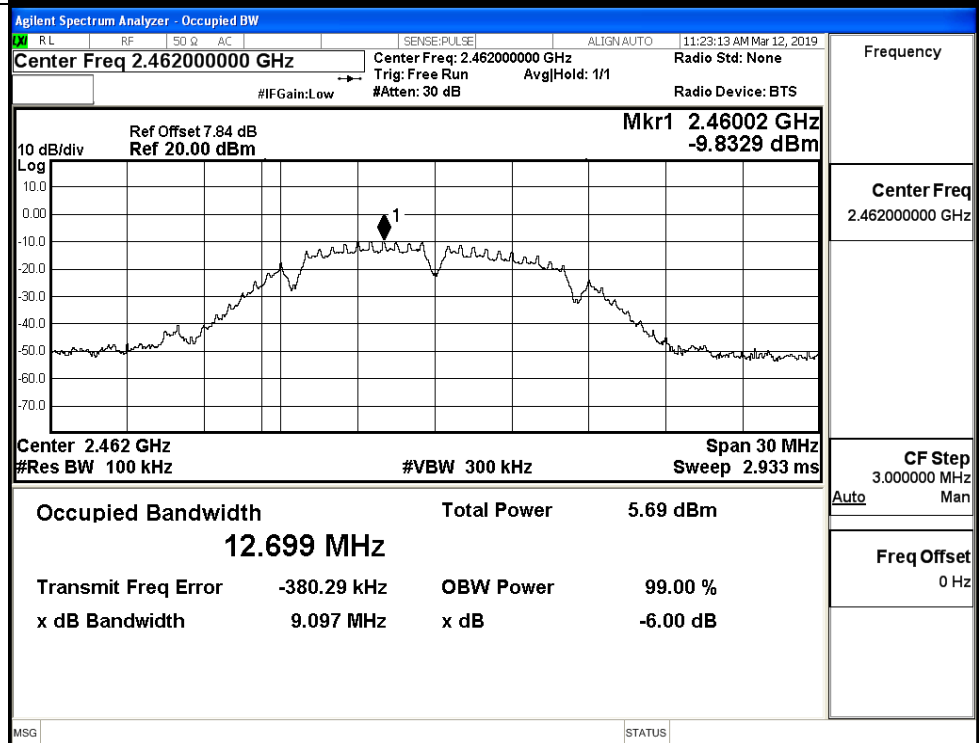
11B/LCH



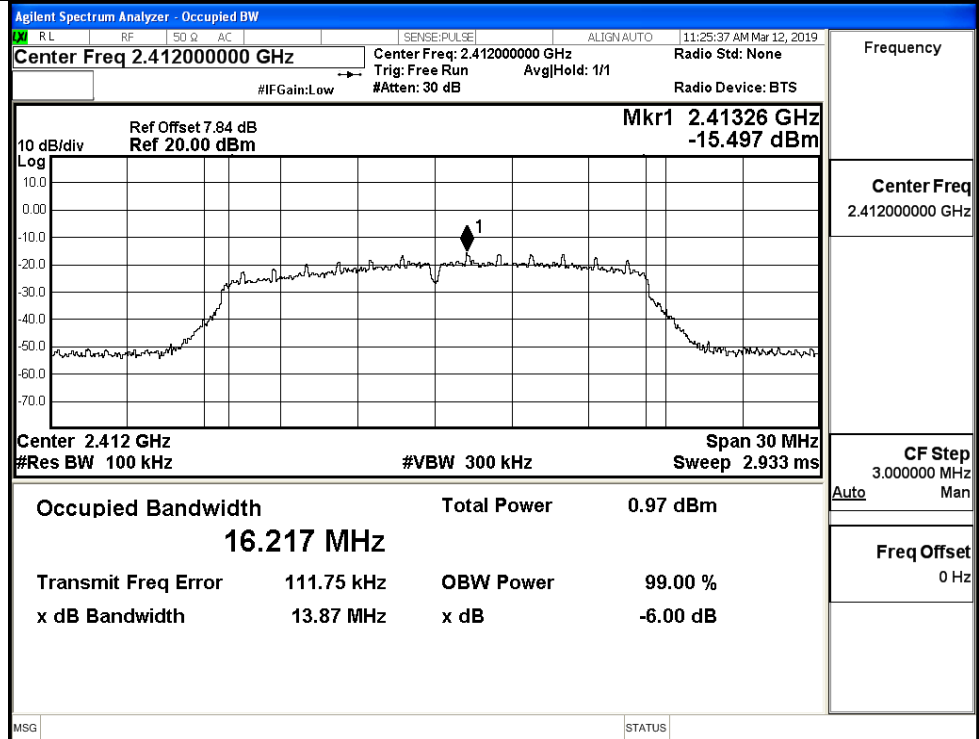
11B/MCH



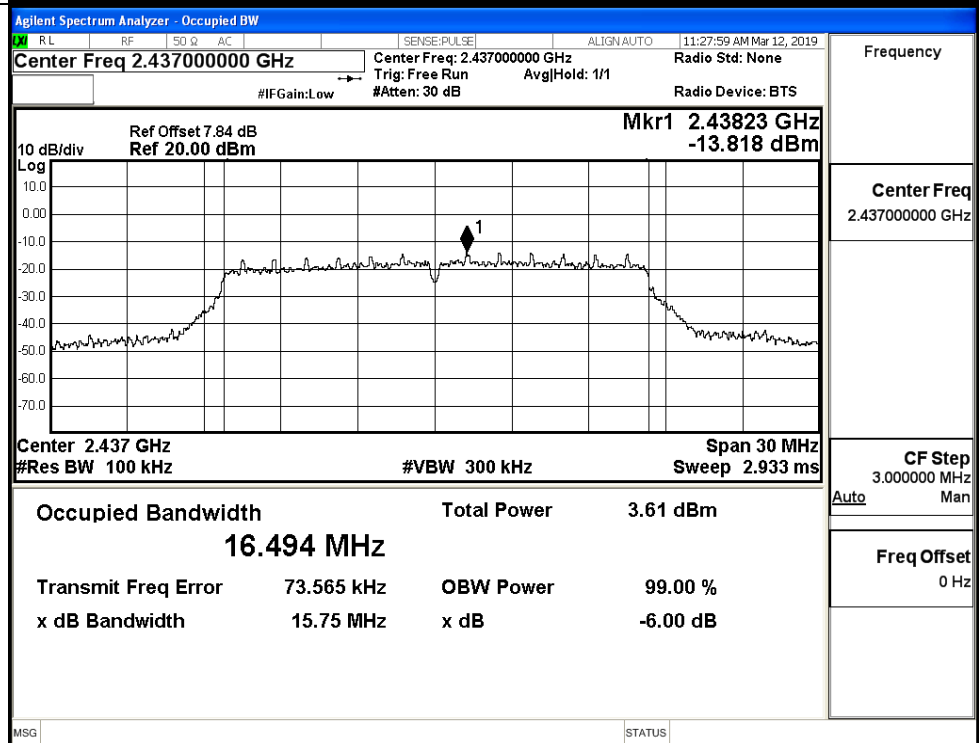
11B/HCH



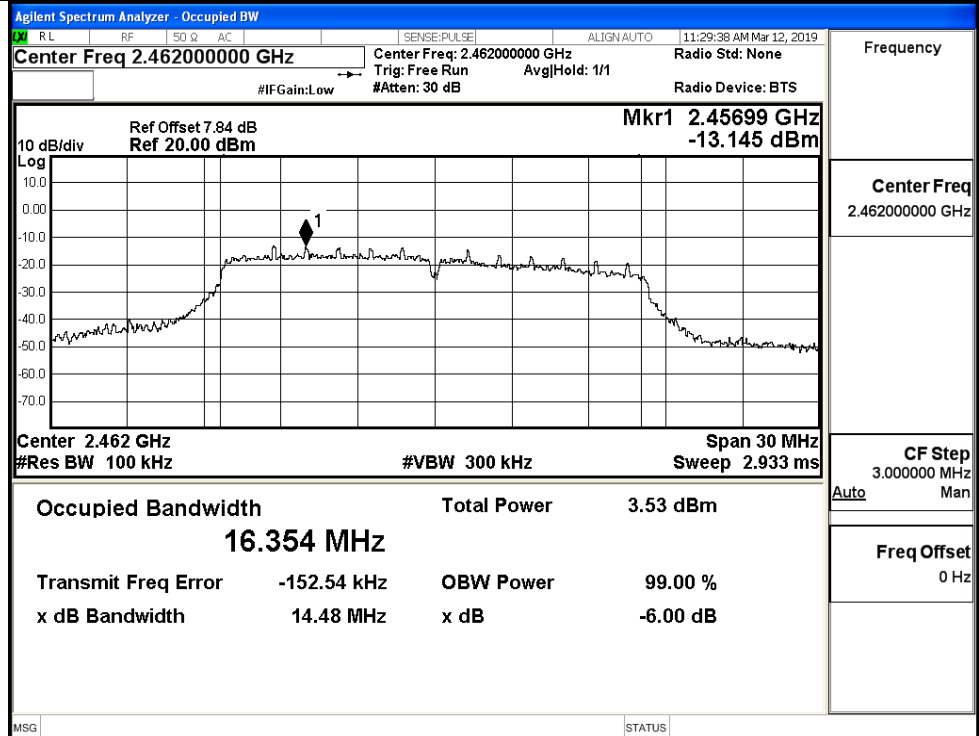
11G/LCH



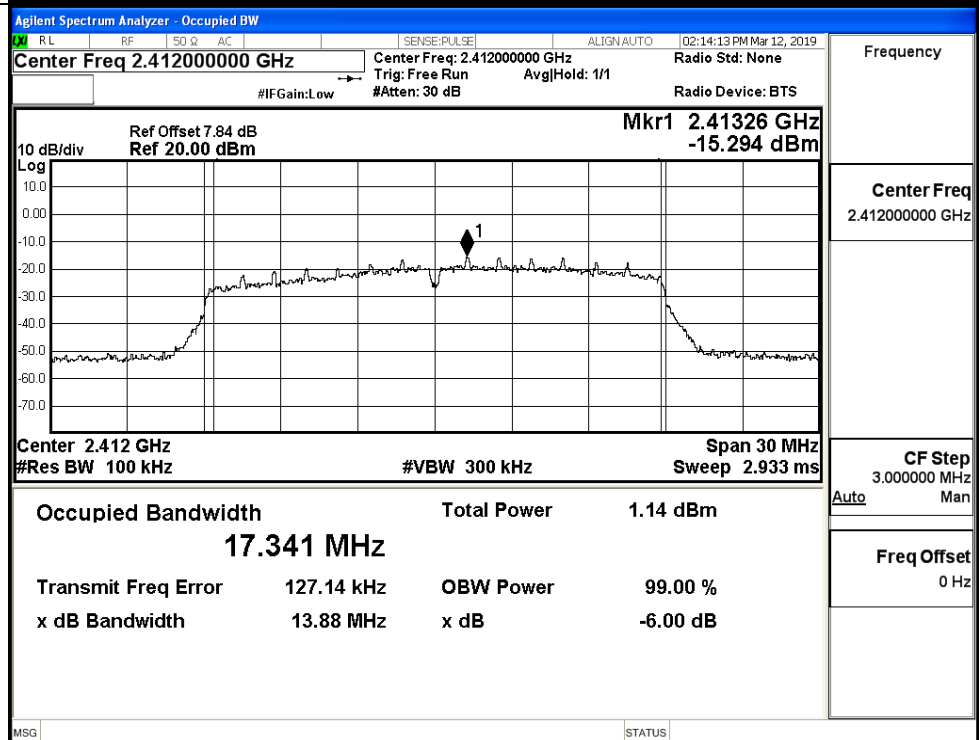
11G/MCH



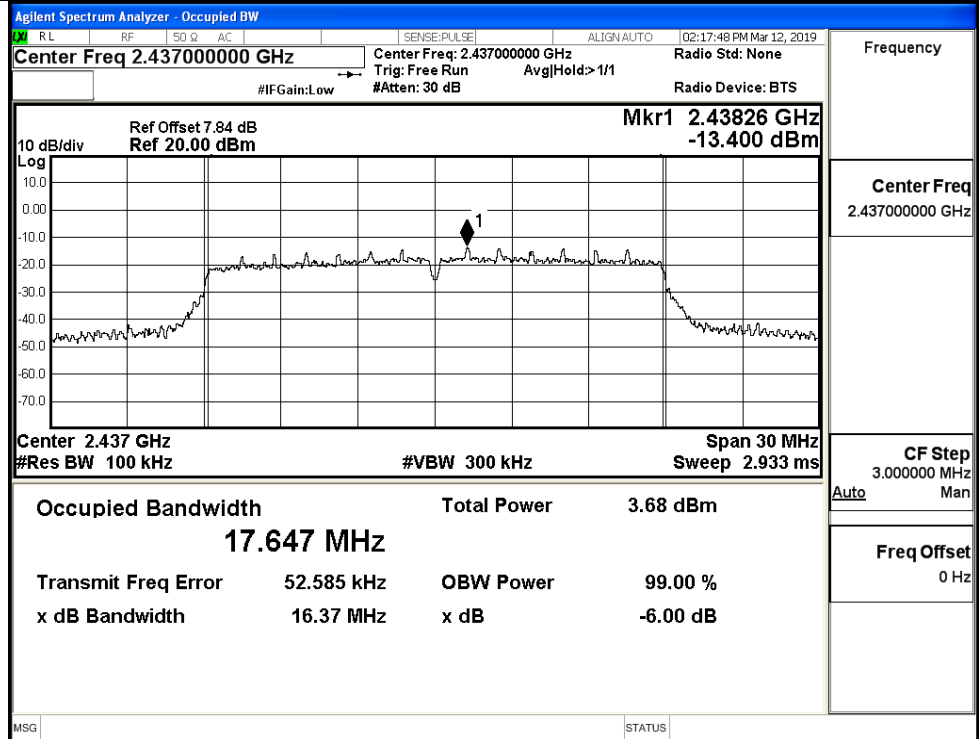
11G/HCH



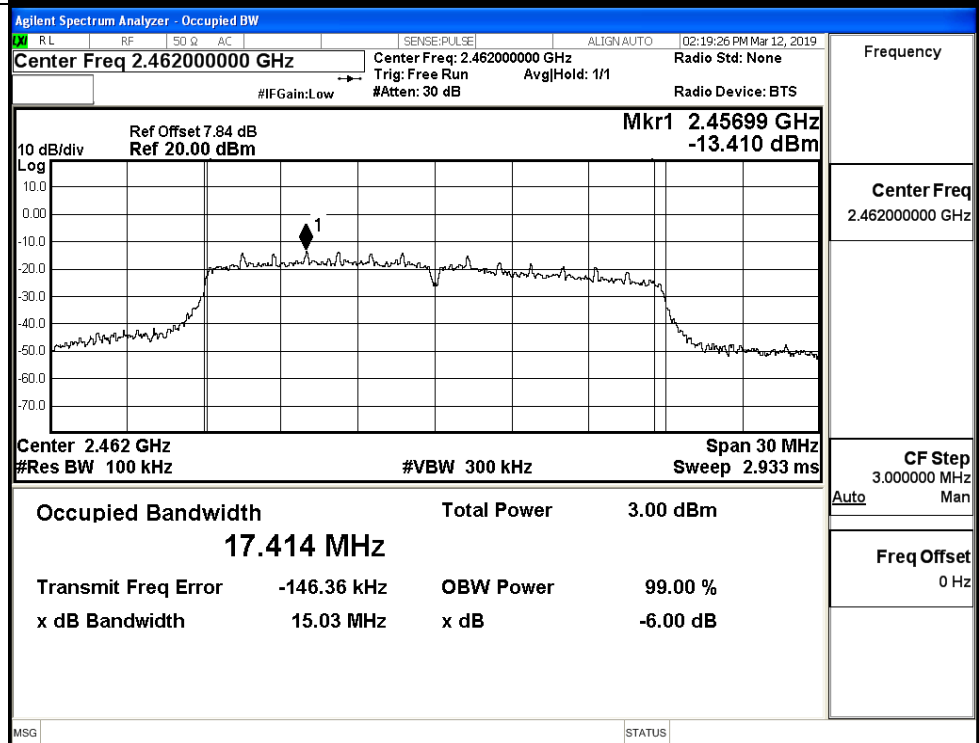
11N20/LCH



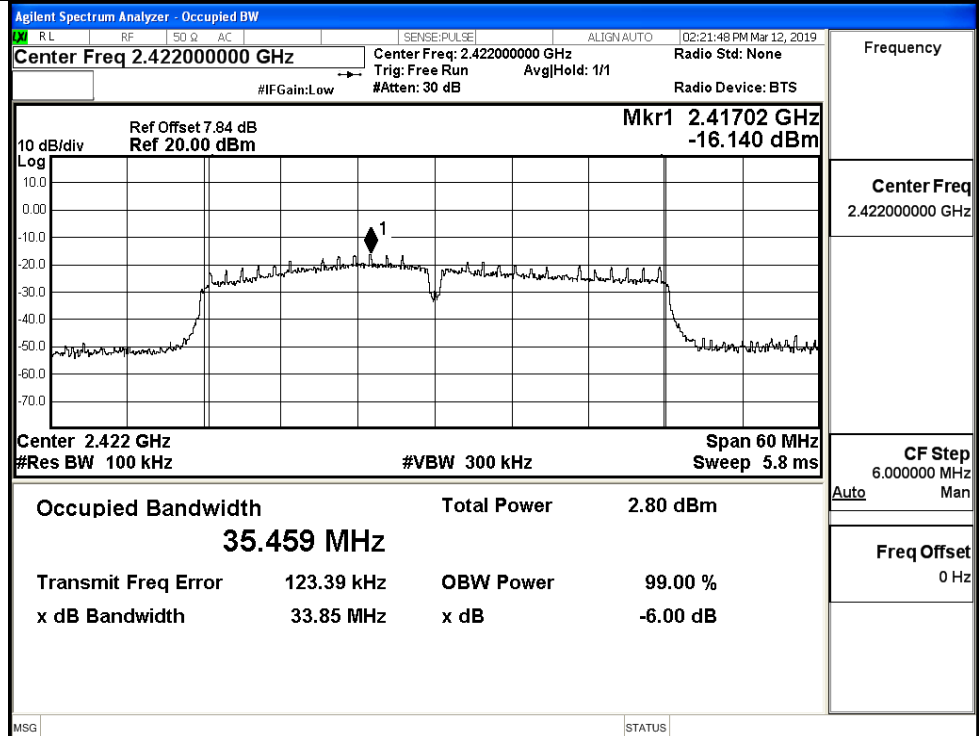
11N20/MCH



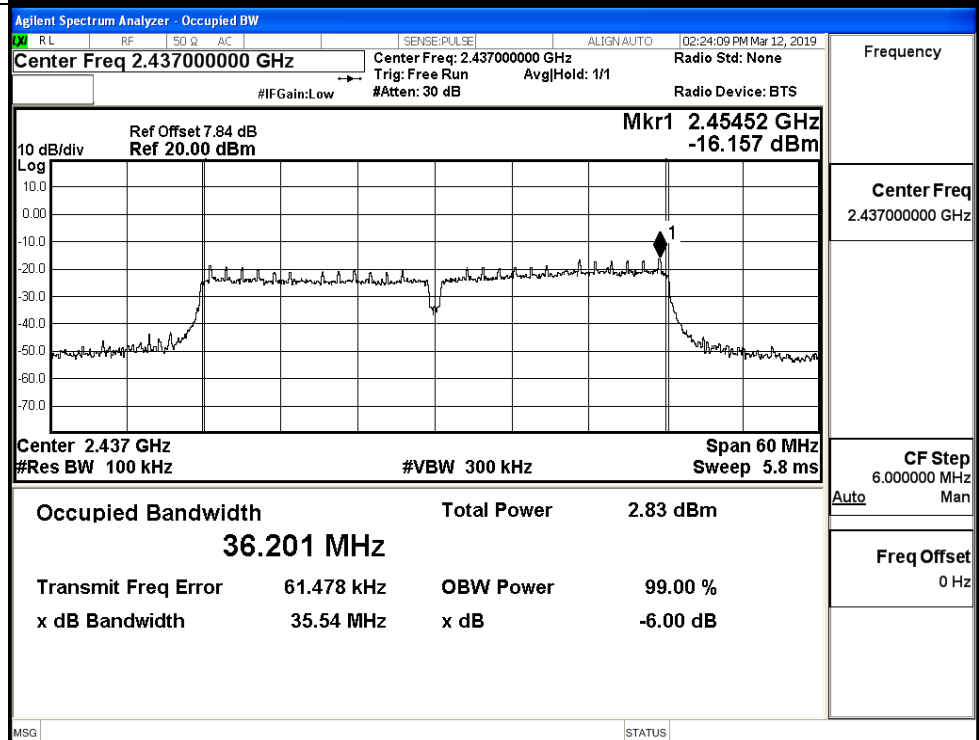
11N20/HCH



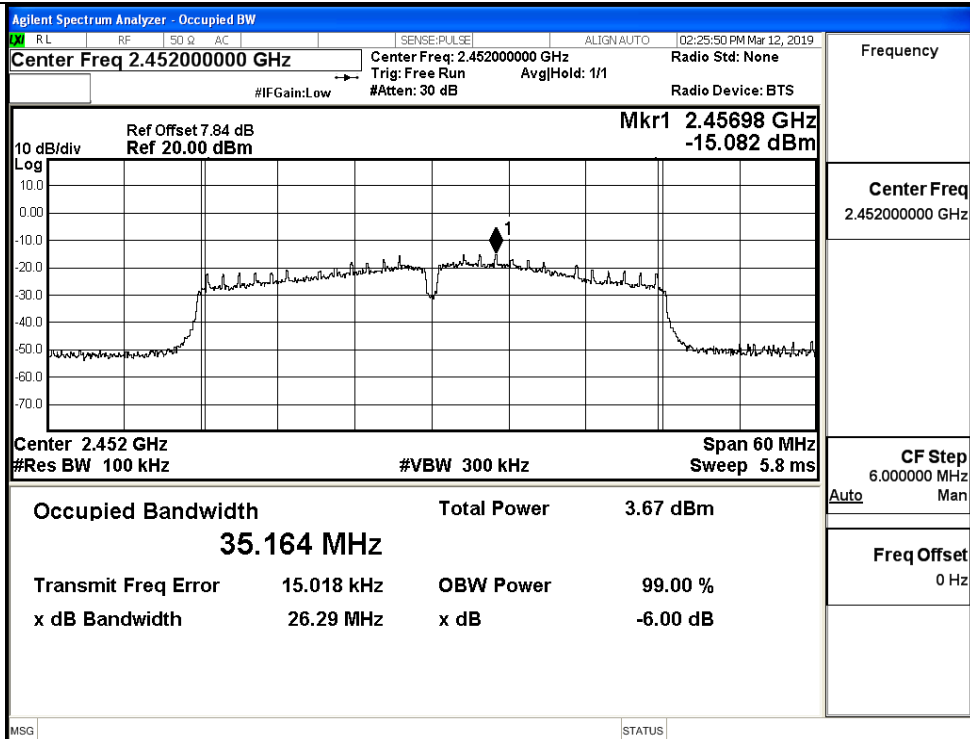
11N40/LCH



11N40/MCH

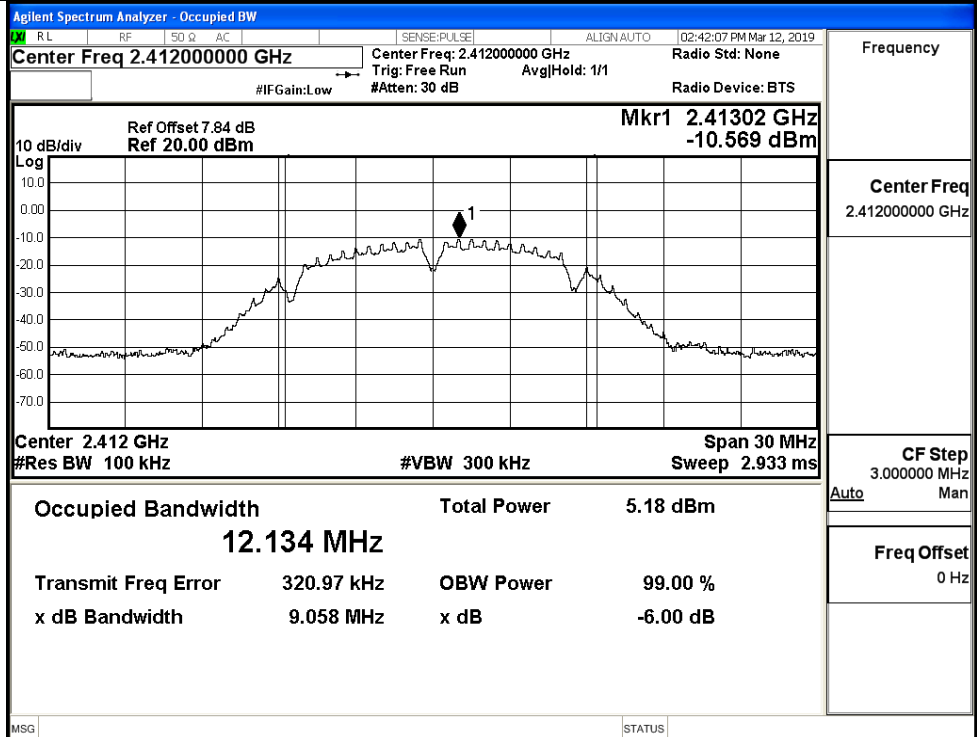


11N40/HCH

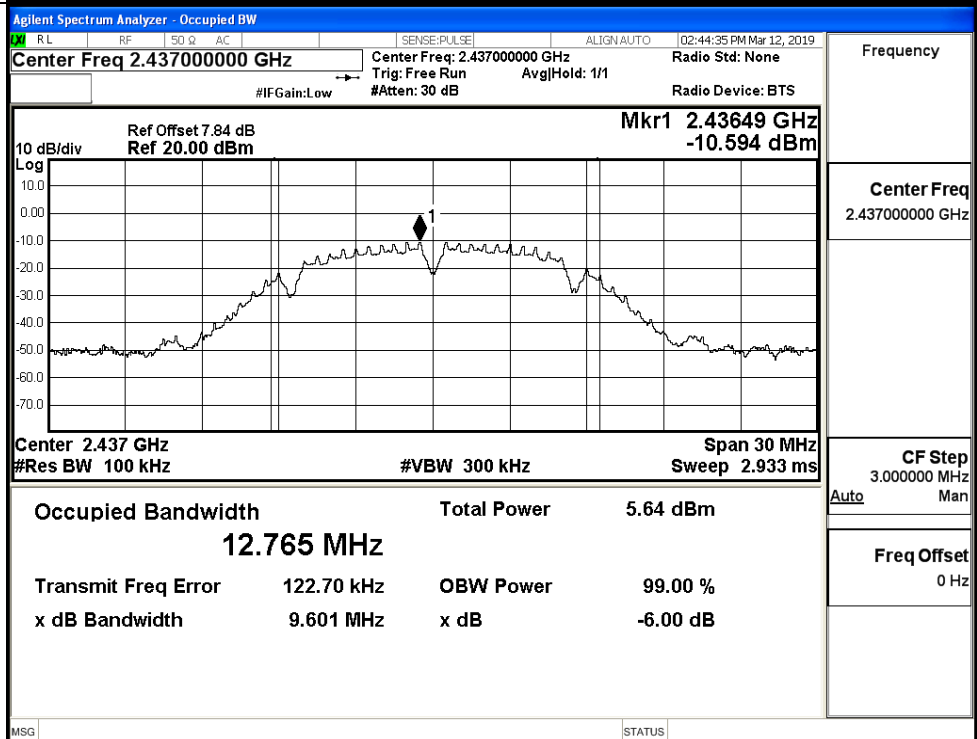


Test Graphs_Ant1

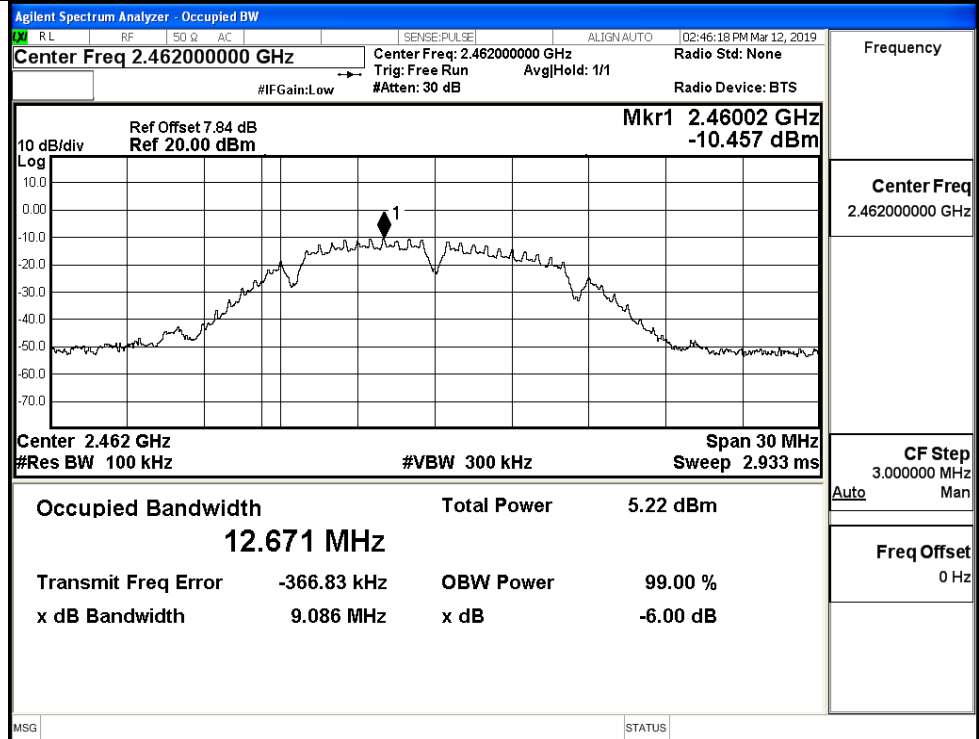
11B/LCH



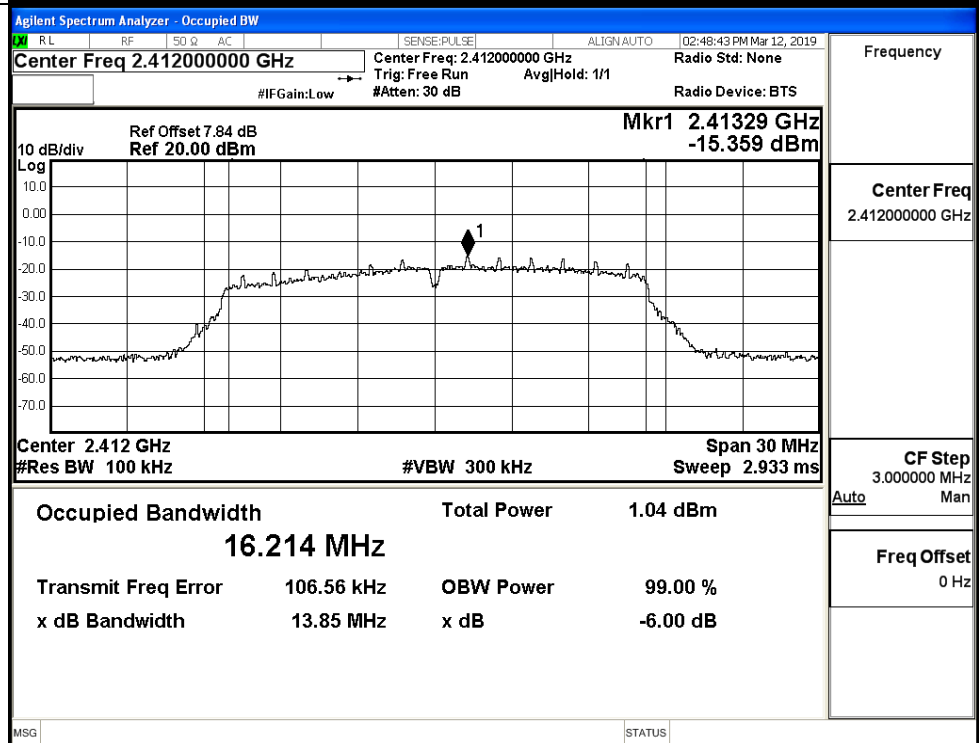
11B/MCH



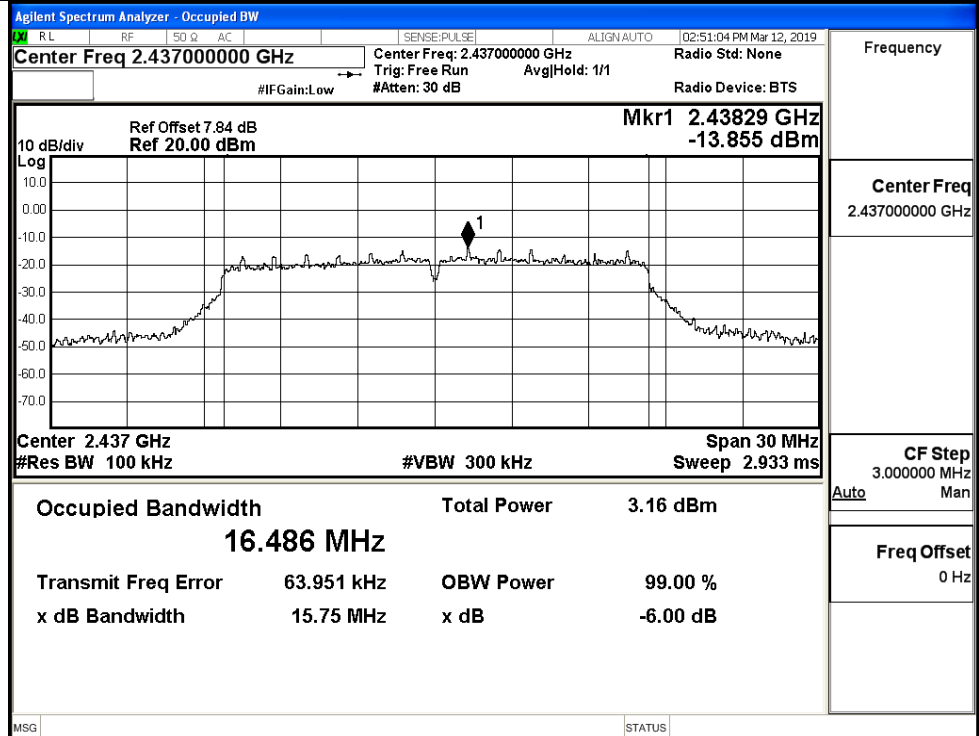
11B/HCH



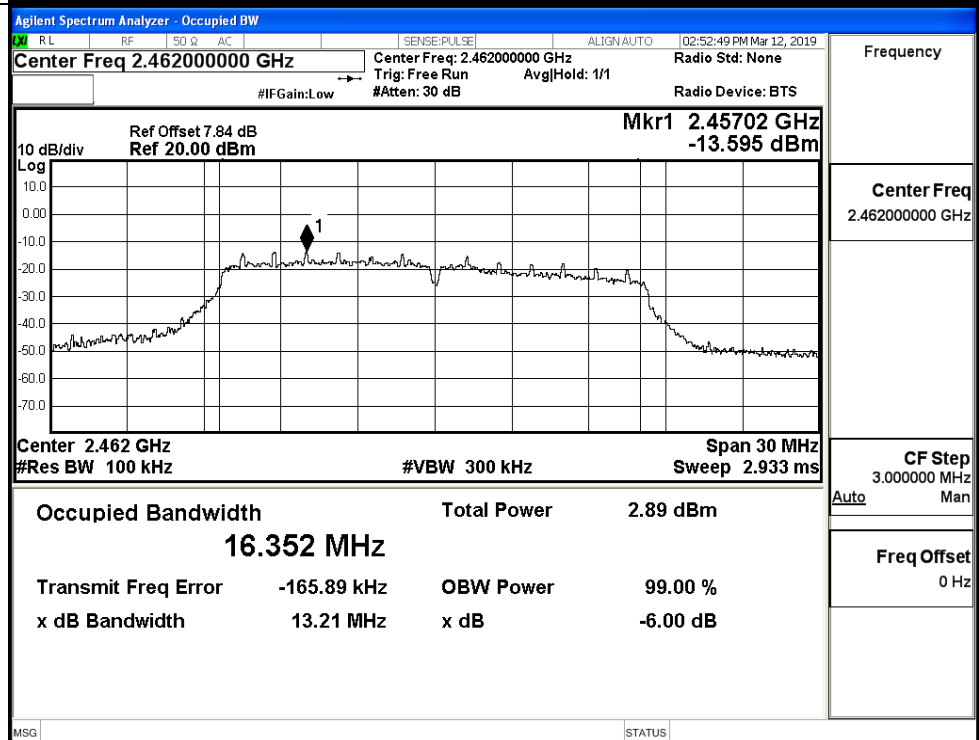
11G/LCH



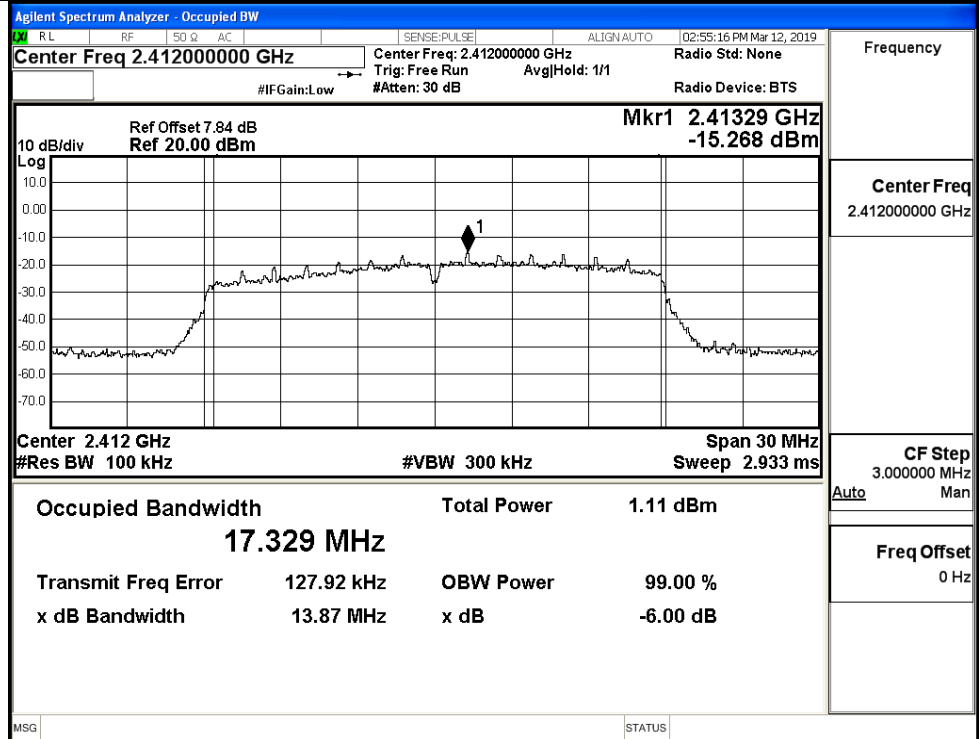
11G/MCH



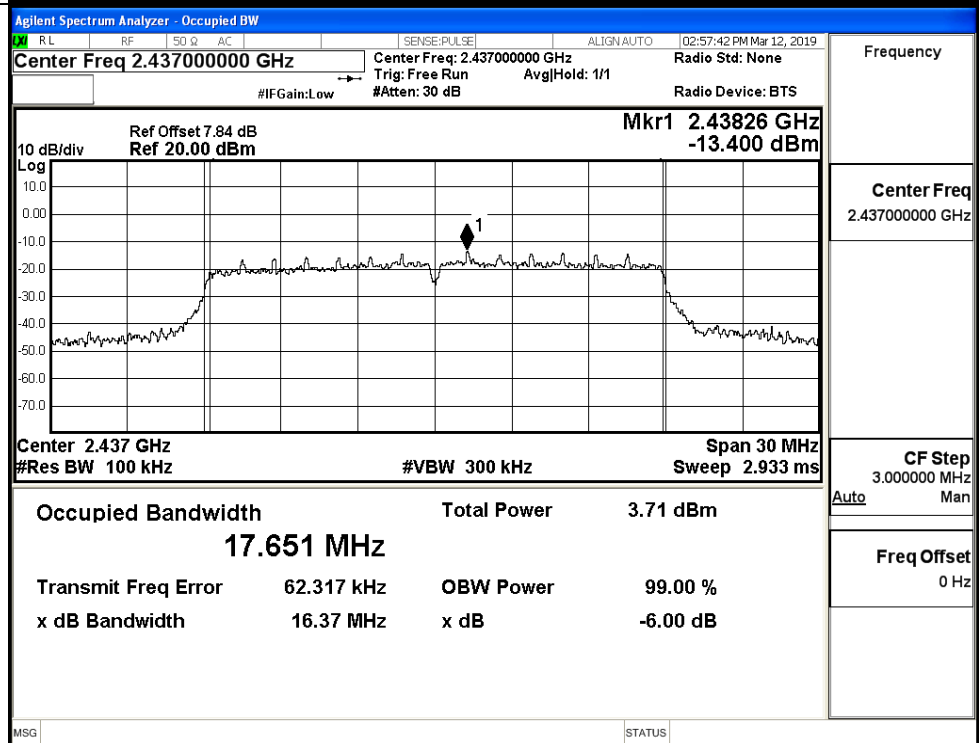
11G/HCH



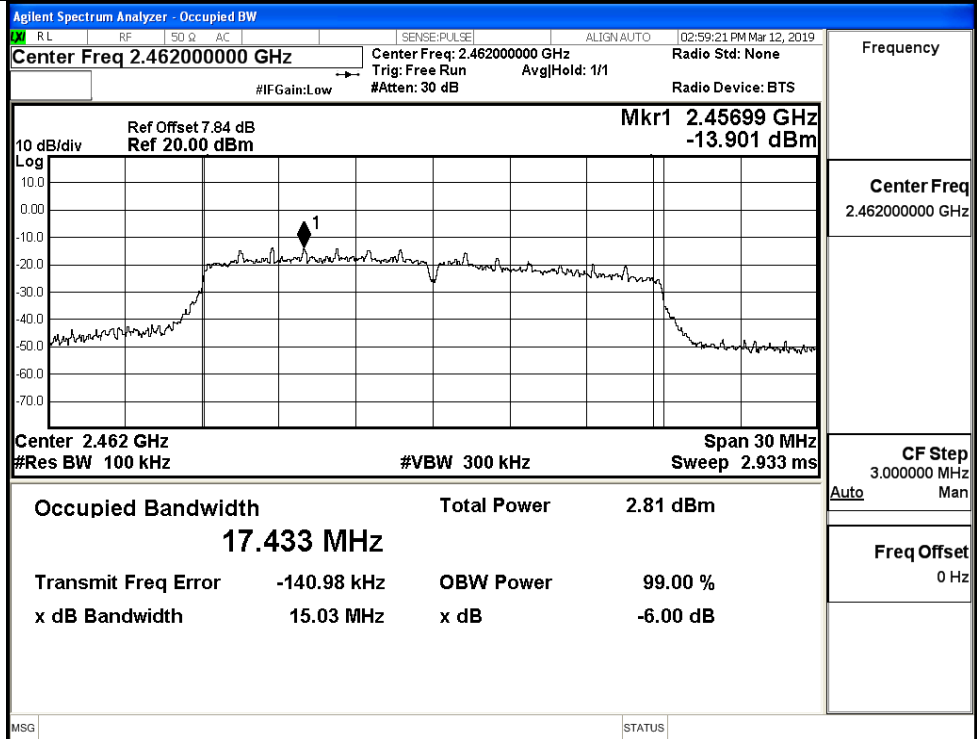
11N20/LCH



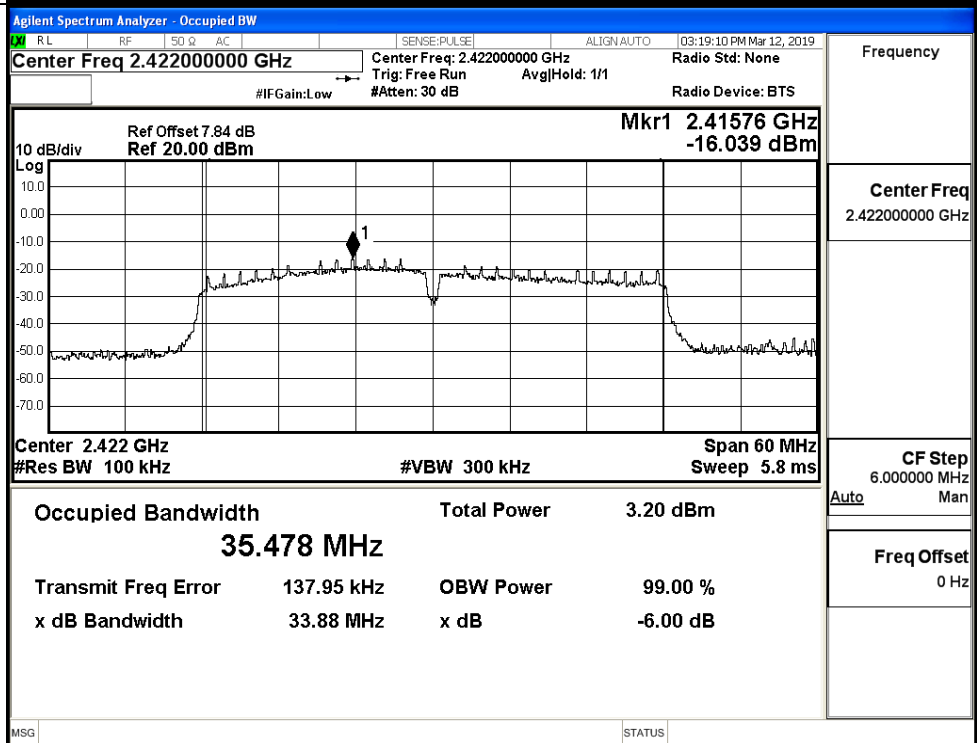
11N20/MCH



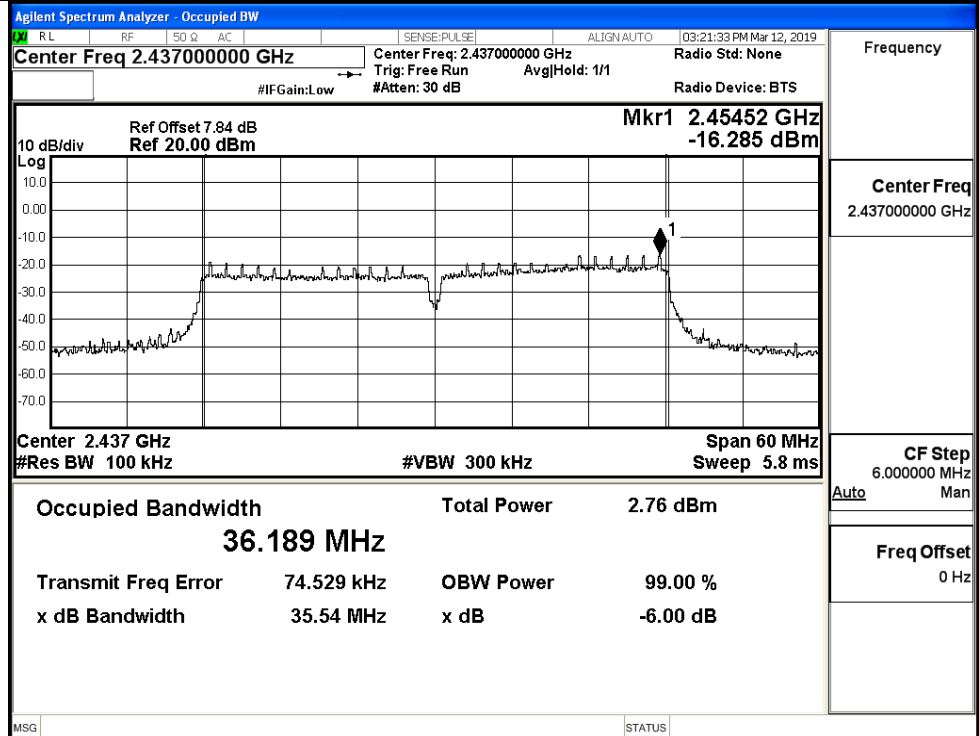
11N20/HCH



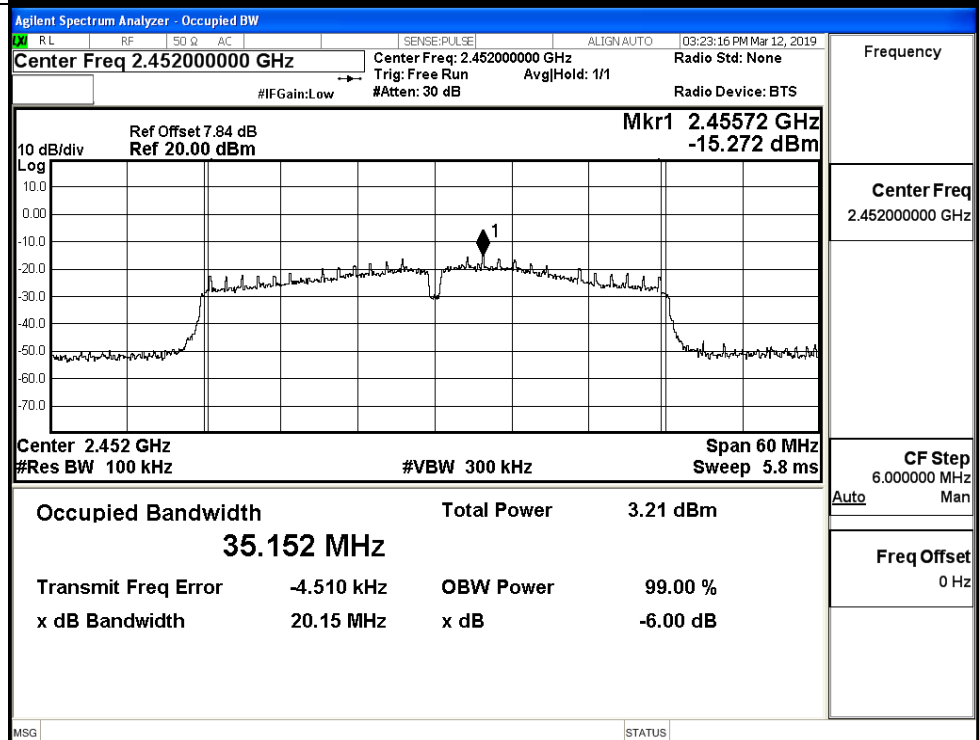
11N40/LCH



11N40/MCH



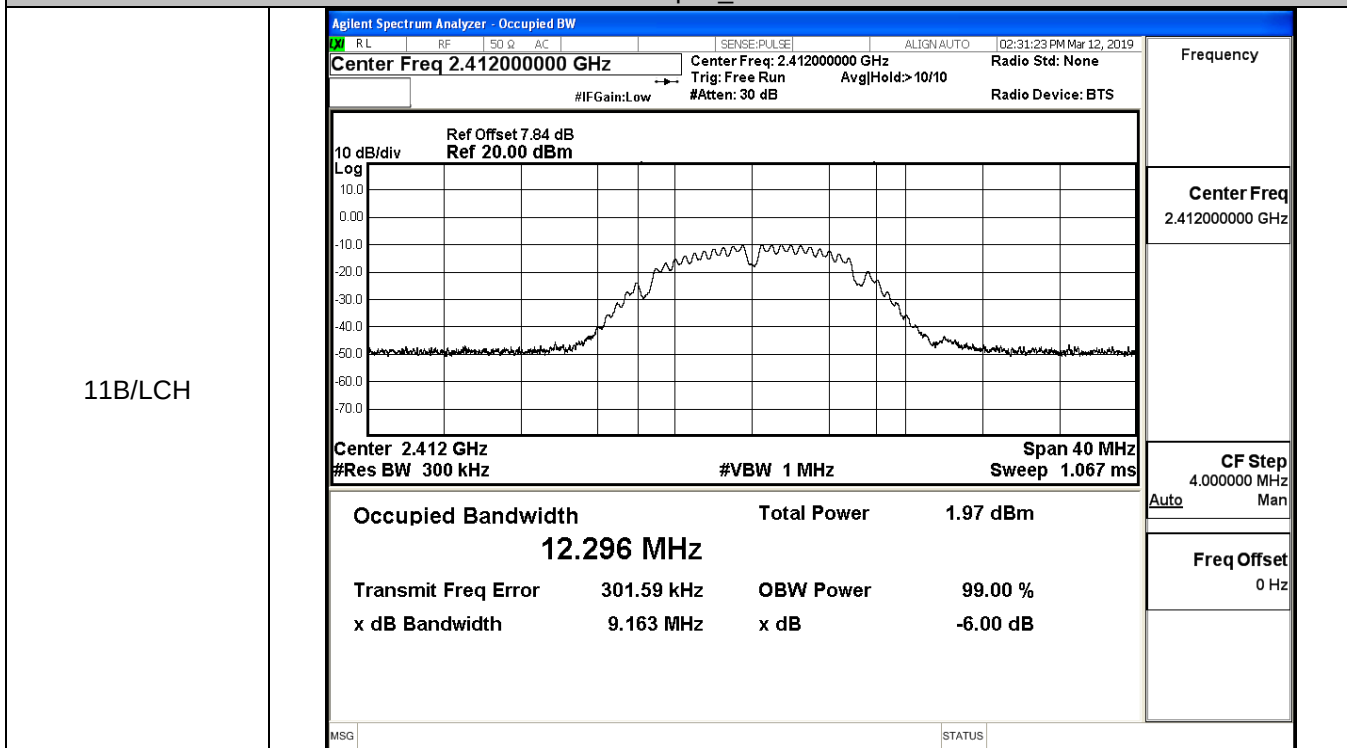
11N40/HCH



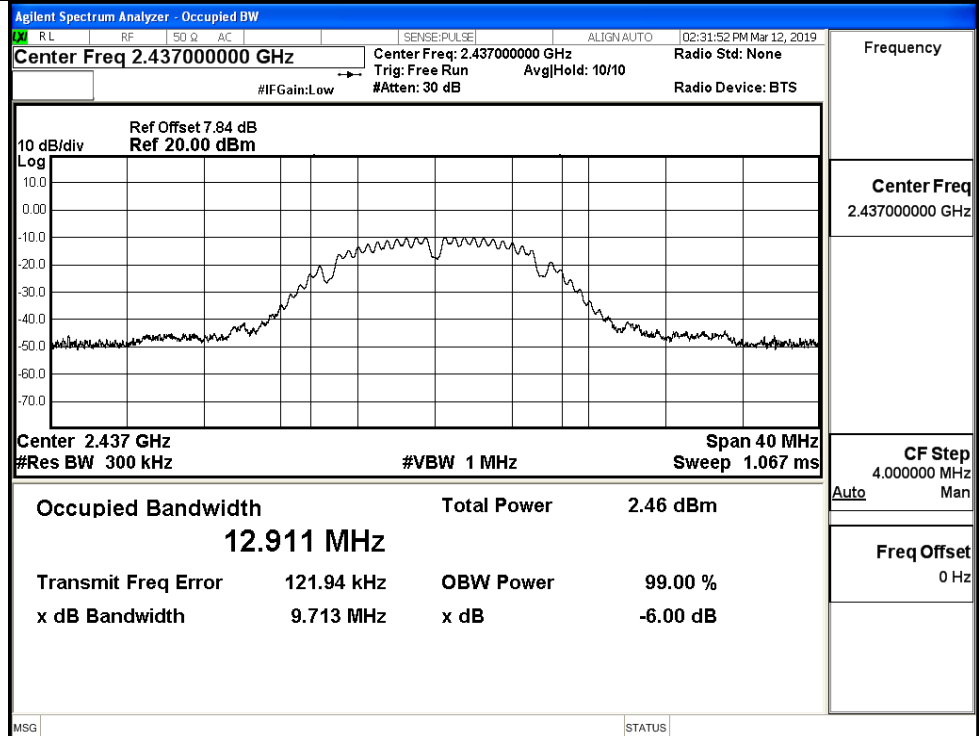
A.5 Occupied Bandwidth

Mode	Channel	Occupied Bandwidth [MHz]		Limit [MHz]	Verdict
		Ant0	Ant1		
11B	LCH	12.296	12.309	≥ 0.5	PASS
	MCH	12.911	12.880	≥ 0.5	PASS
	HCH	12.879	12.838	≥ 0.5	PASS
11G	LCH	16.430	16.413	≥ 0.5	PASS
	MCH	16.966	16.916	≥ 0.5	PASS
	HCH	16.602	16.638	≥ 0.5	PASS
11N20	LCH	17.460	17.425	≥ 0.5	PASS
	MCH	17.901	17.844	≥ 0.5	PASS
	HCH	17.611	17.577	≥ 0.5	PASS
11N40	LCH	35.731	35.732	≥ 0.5	PASS
	MCH	36.639	36.584	≥ 0.5	PASS
	HCH	35.349	35.365	≥ 0.5	PASS

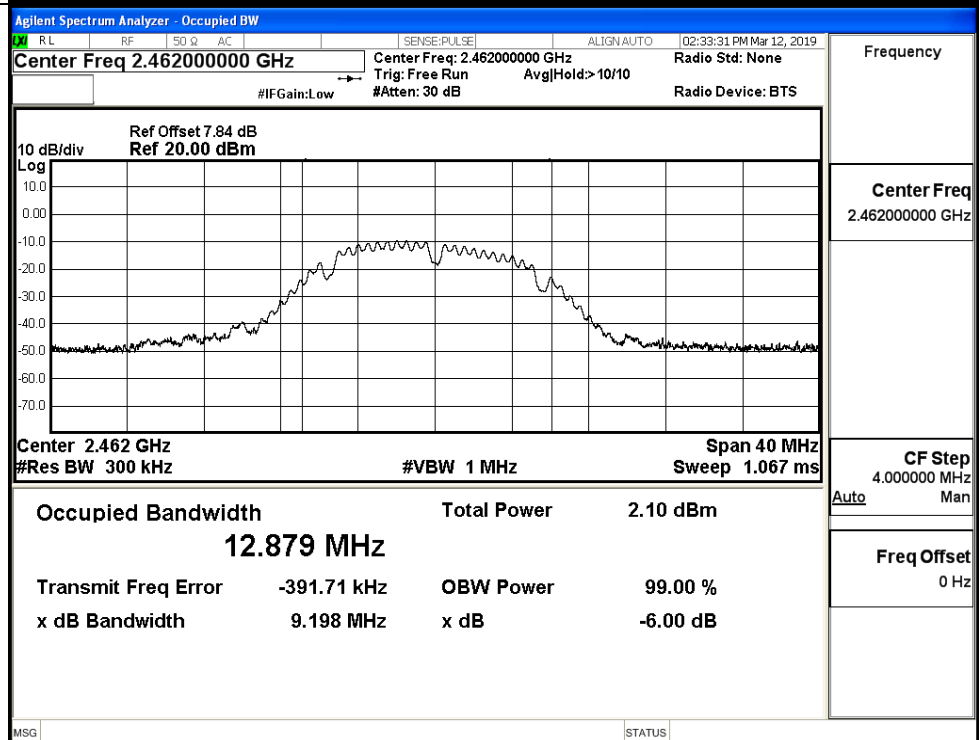
Test Graphs_Ant0



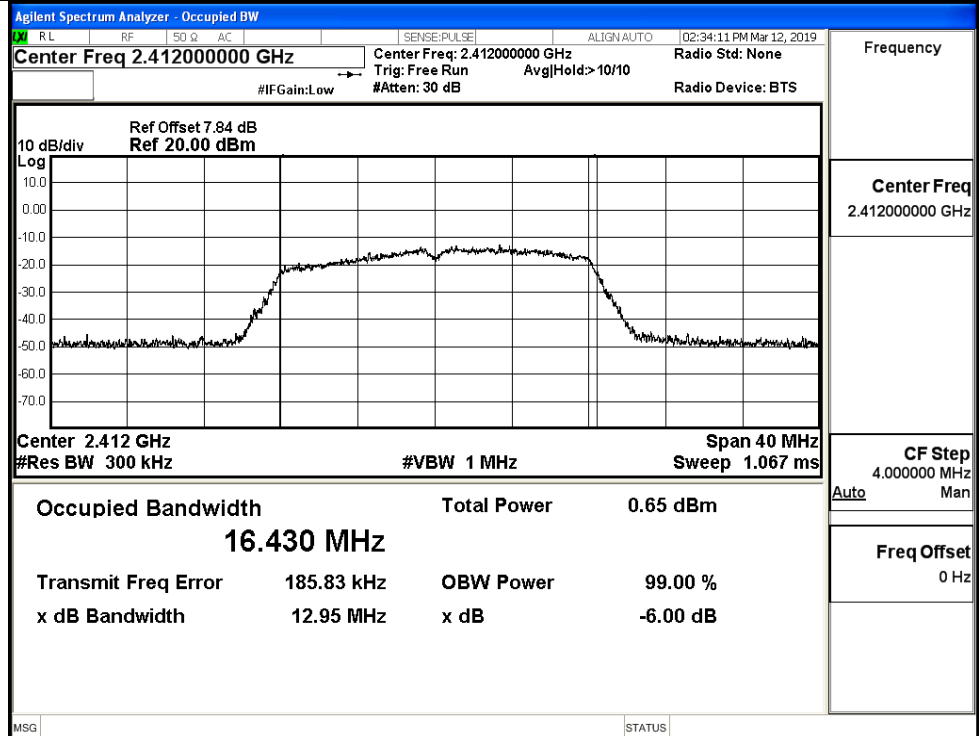
11B/MCH



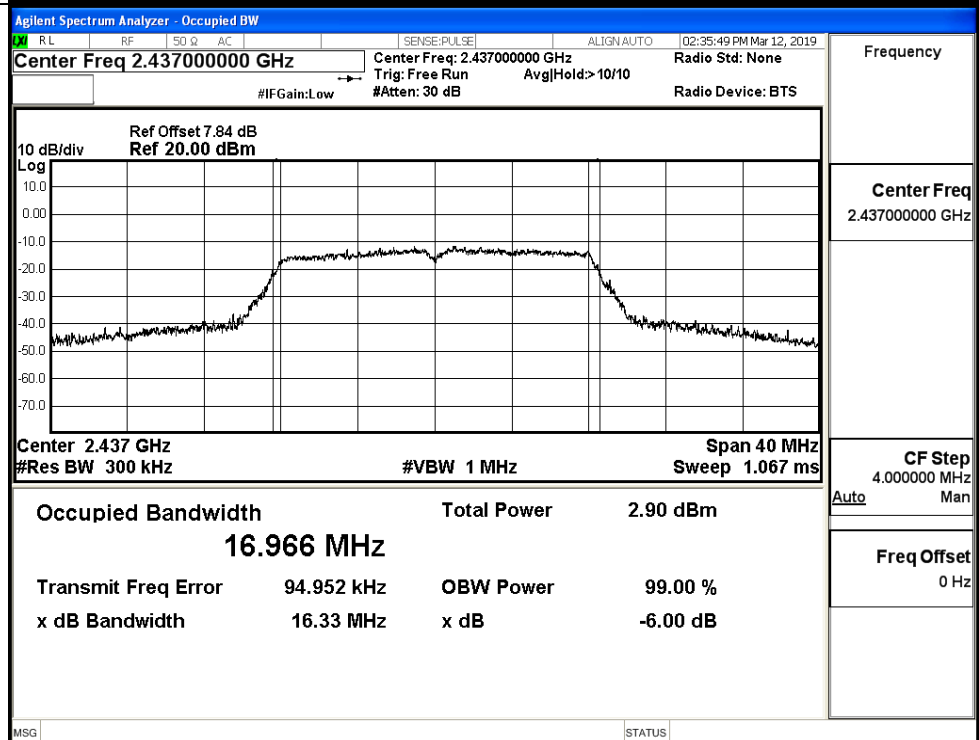
11B/HCH



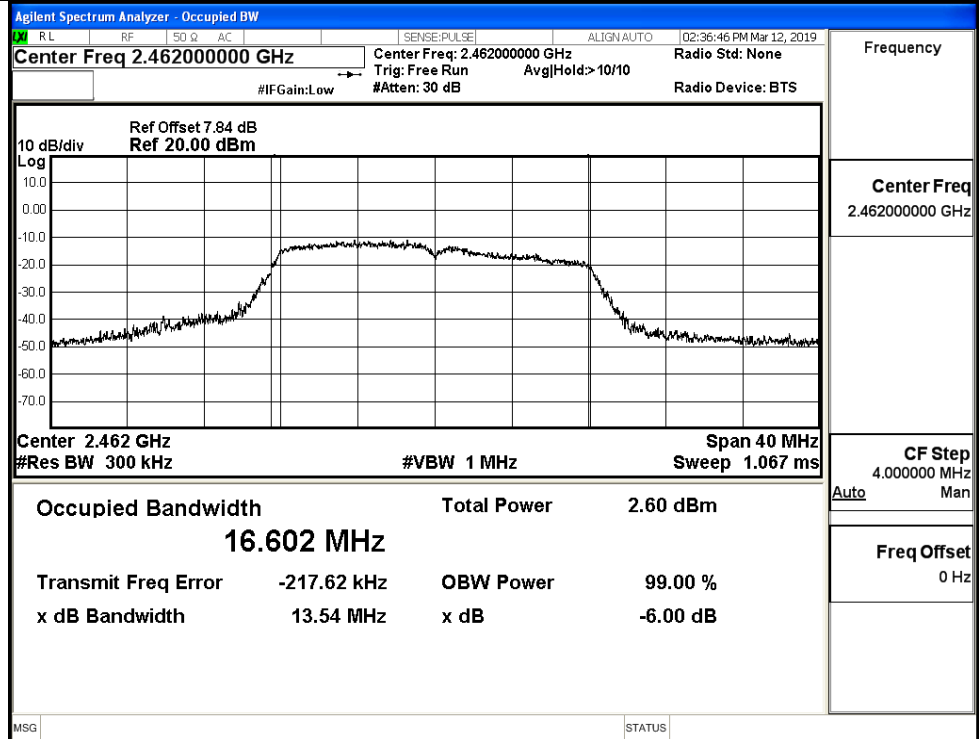
11G/LCH



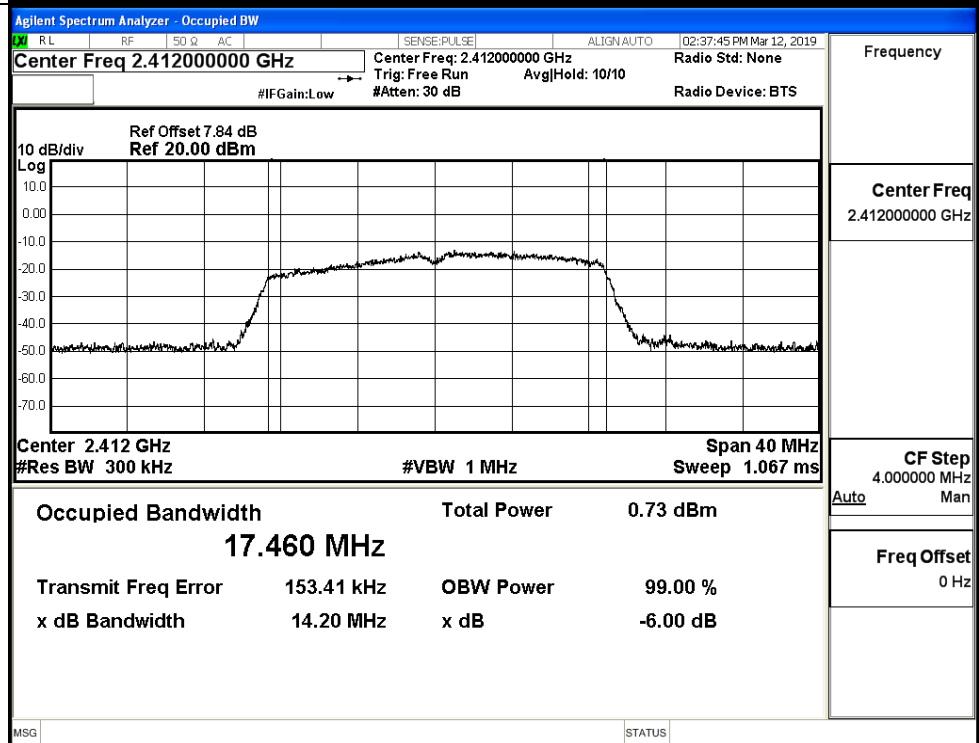
11G/MCH



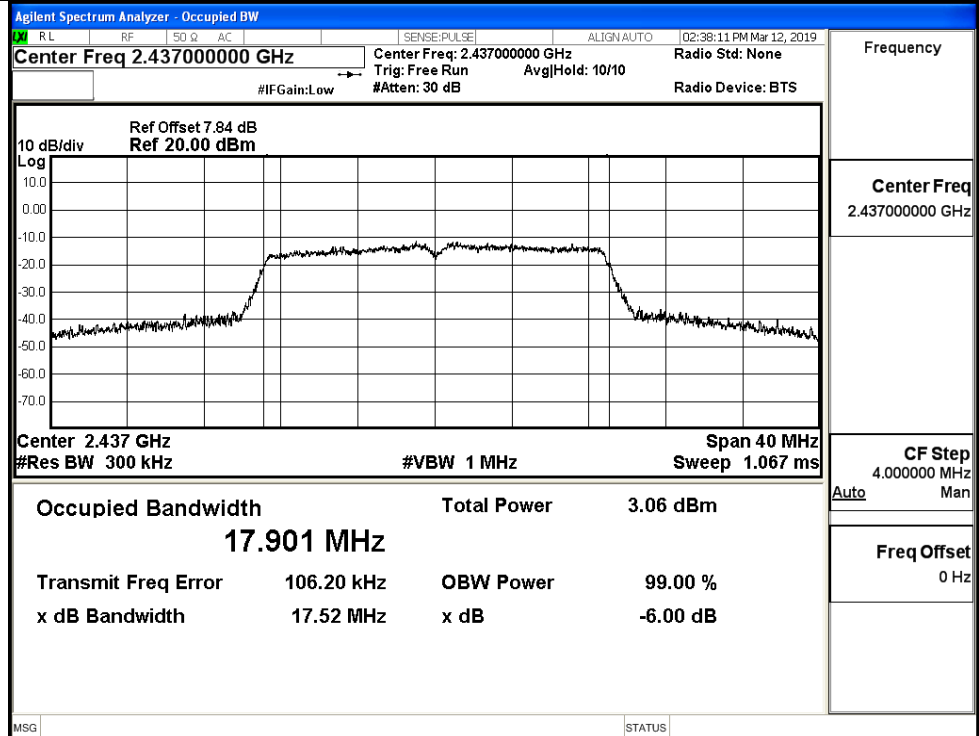
11G/HCH



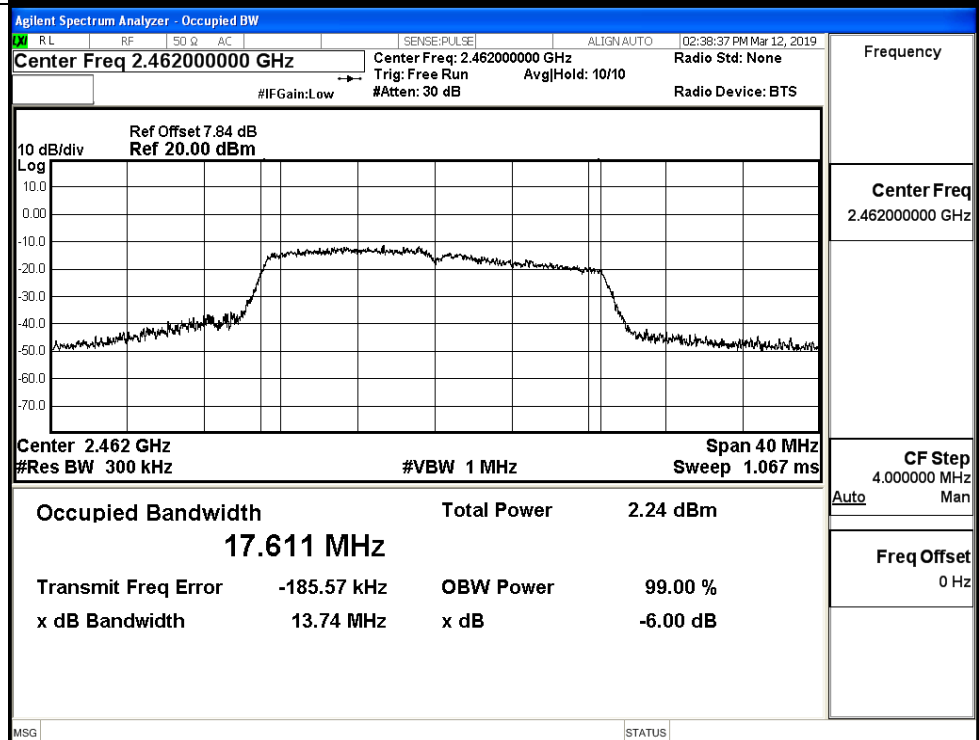
11N20/LCH



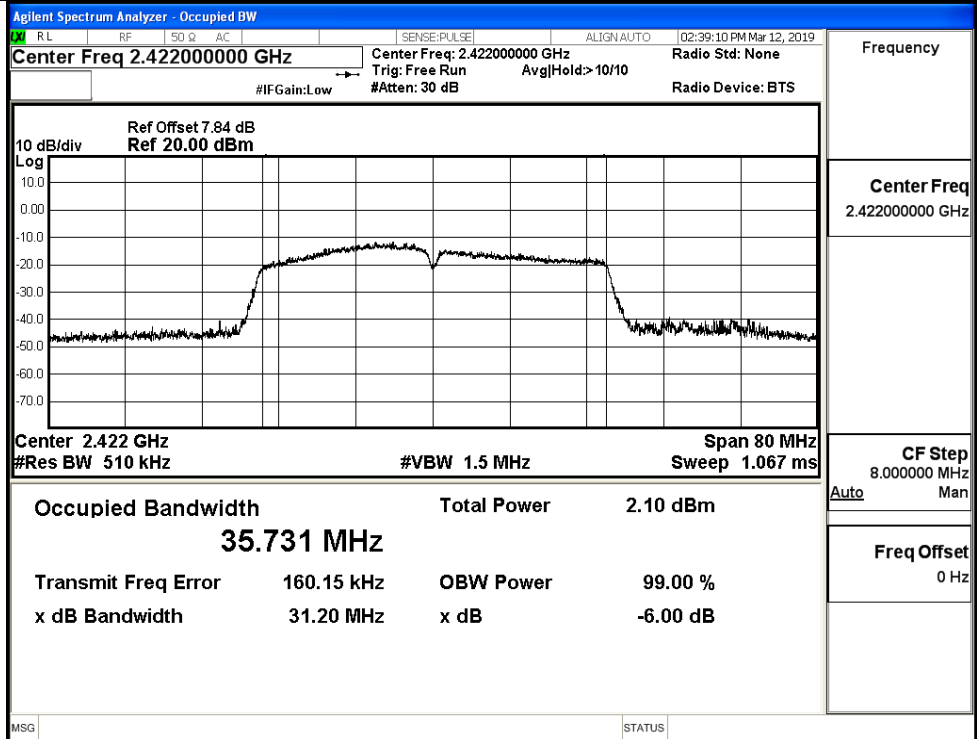
11N20/MCH



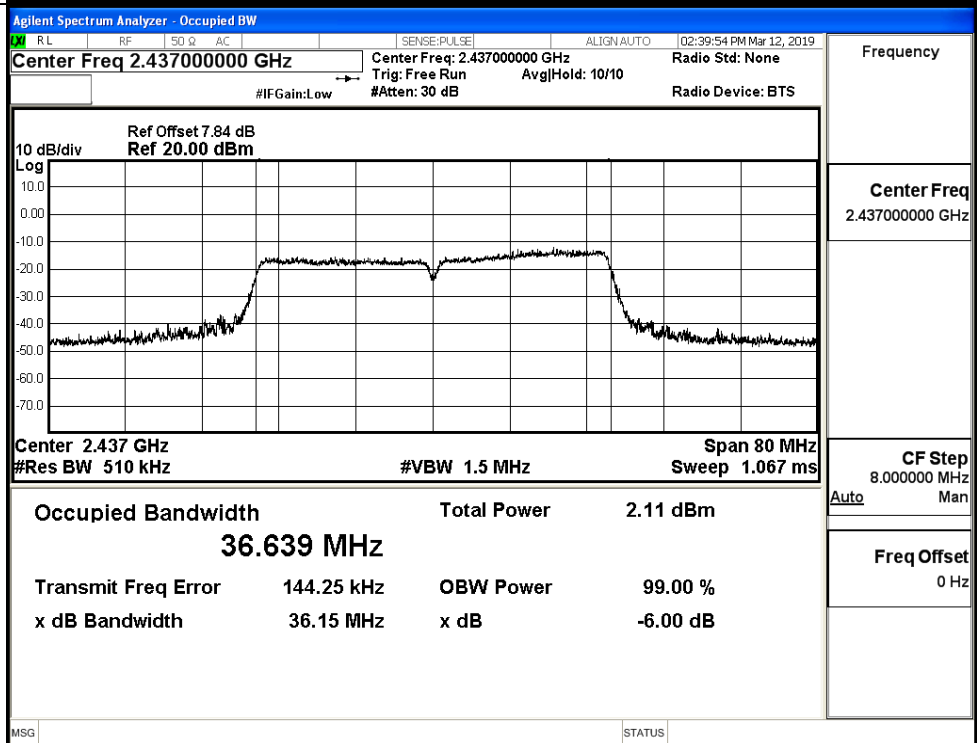
11N20/HCH



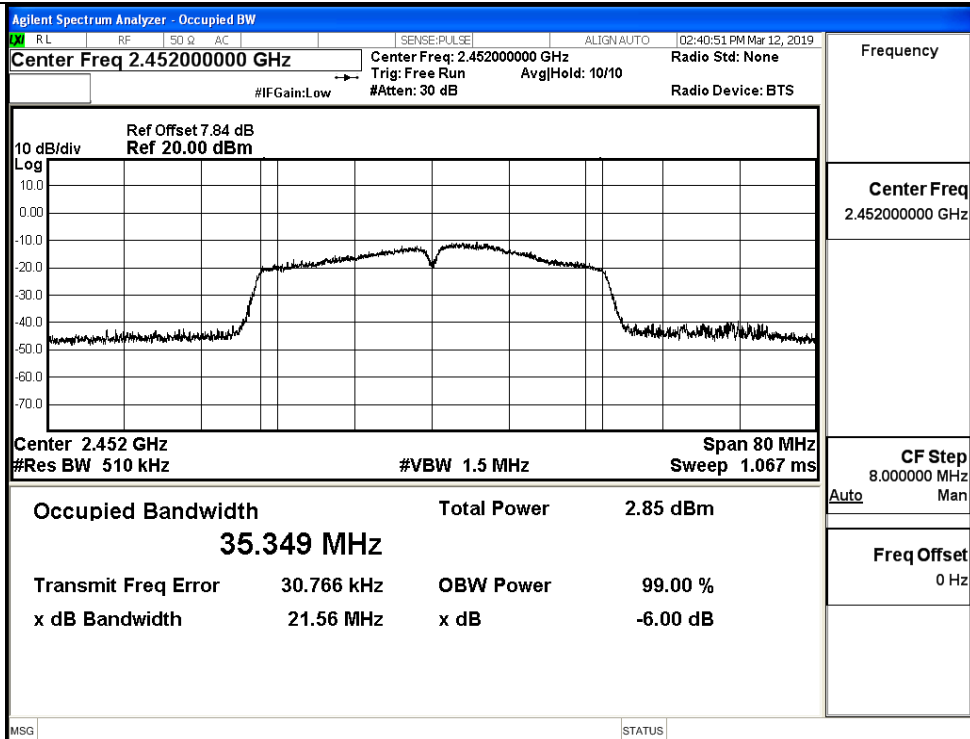
11N40/LCH



11N40/MCH

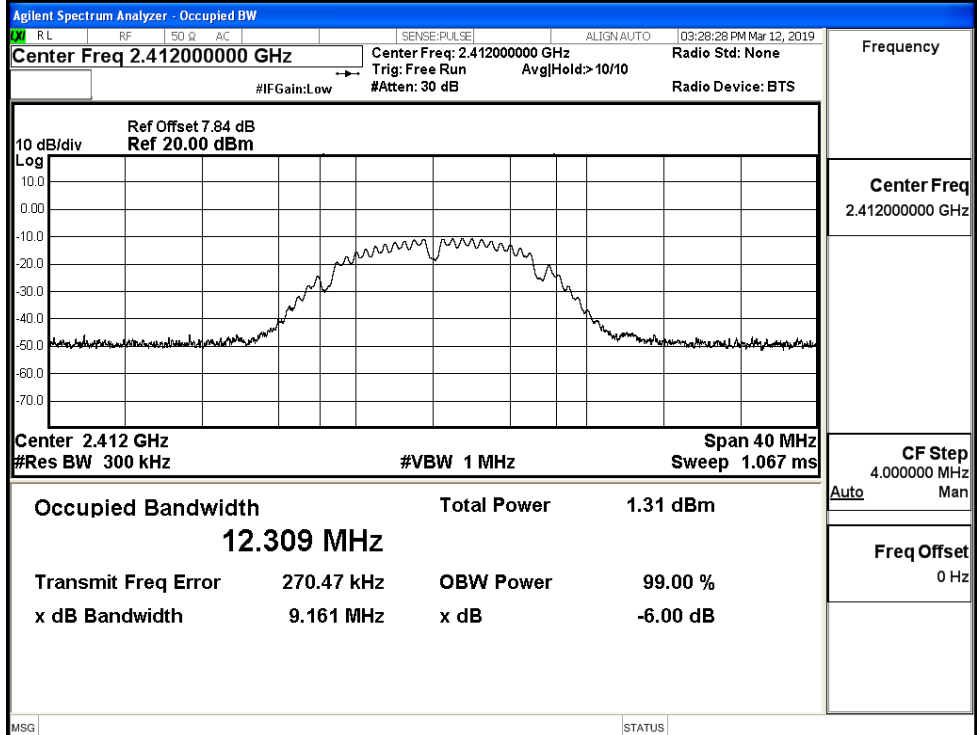


11N40/HCH

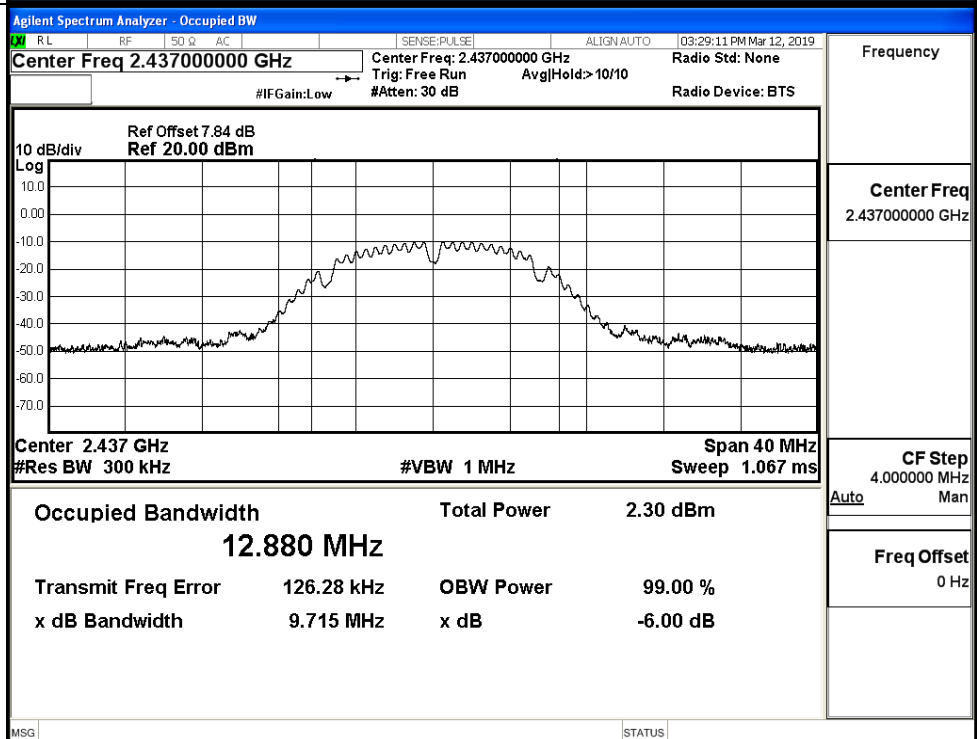


Test Graphs_Ant1

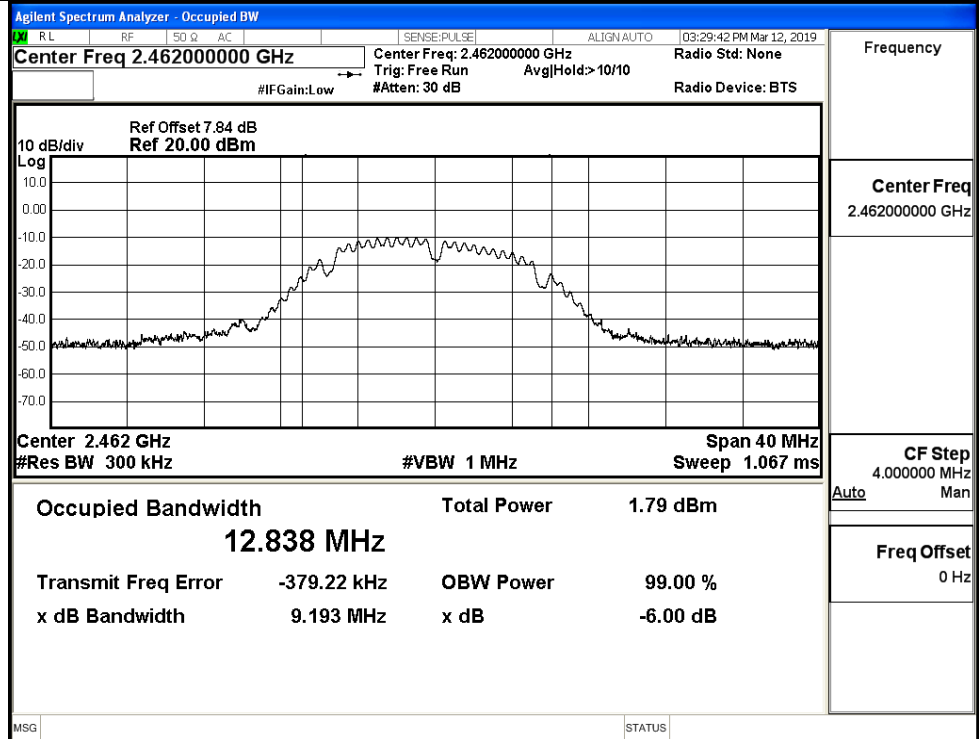
11B/LCH



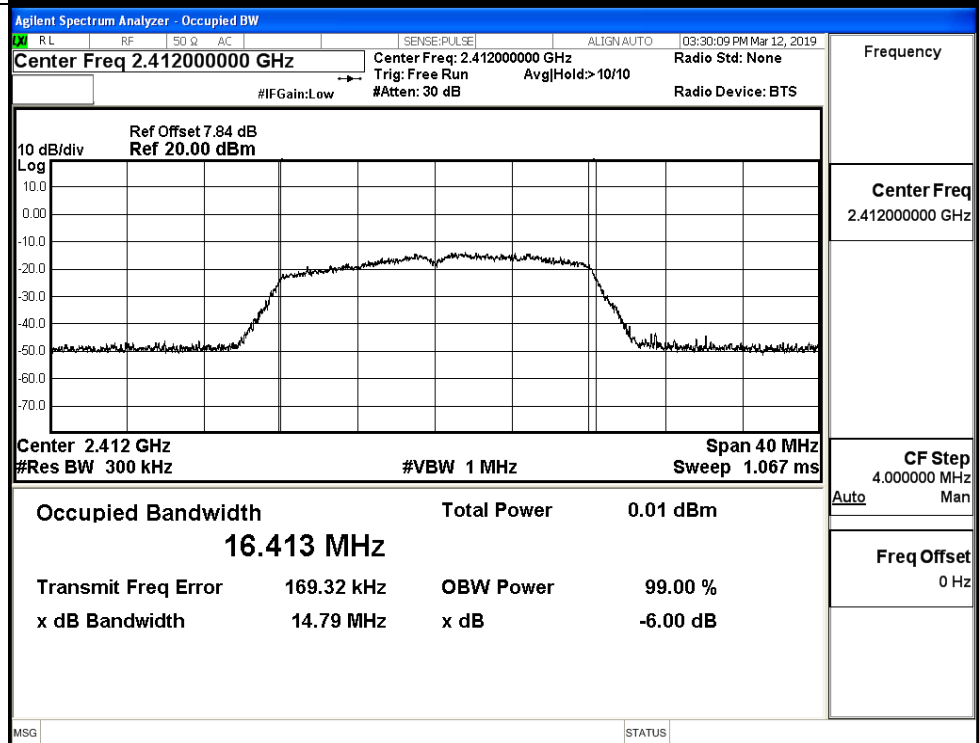
11B/MCH



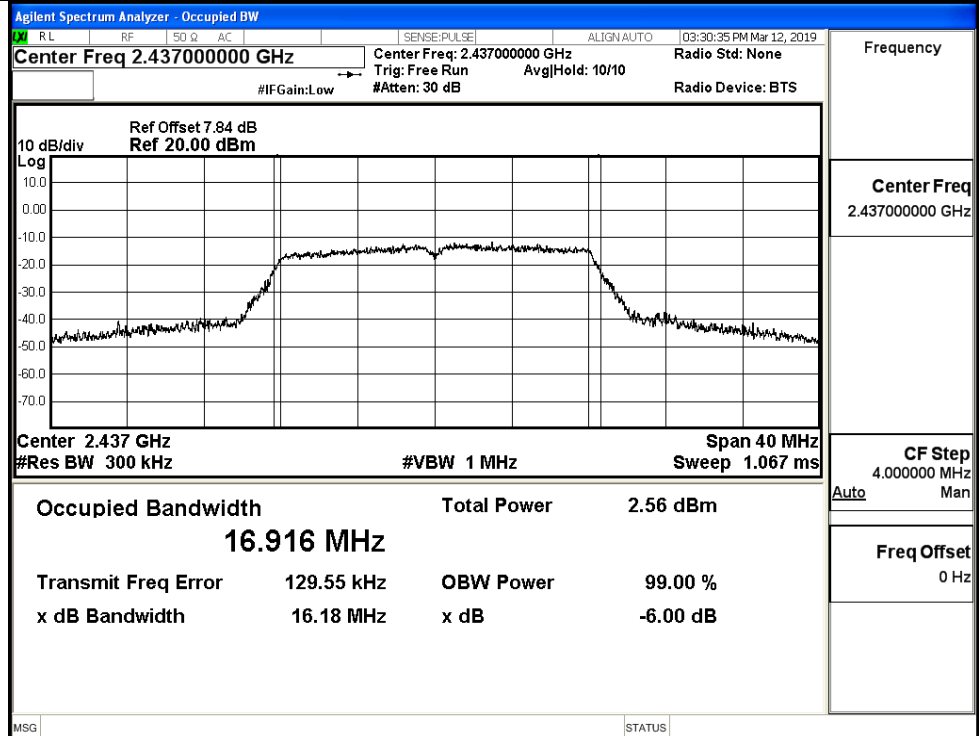
11B/HCH



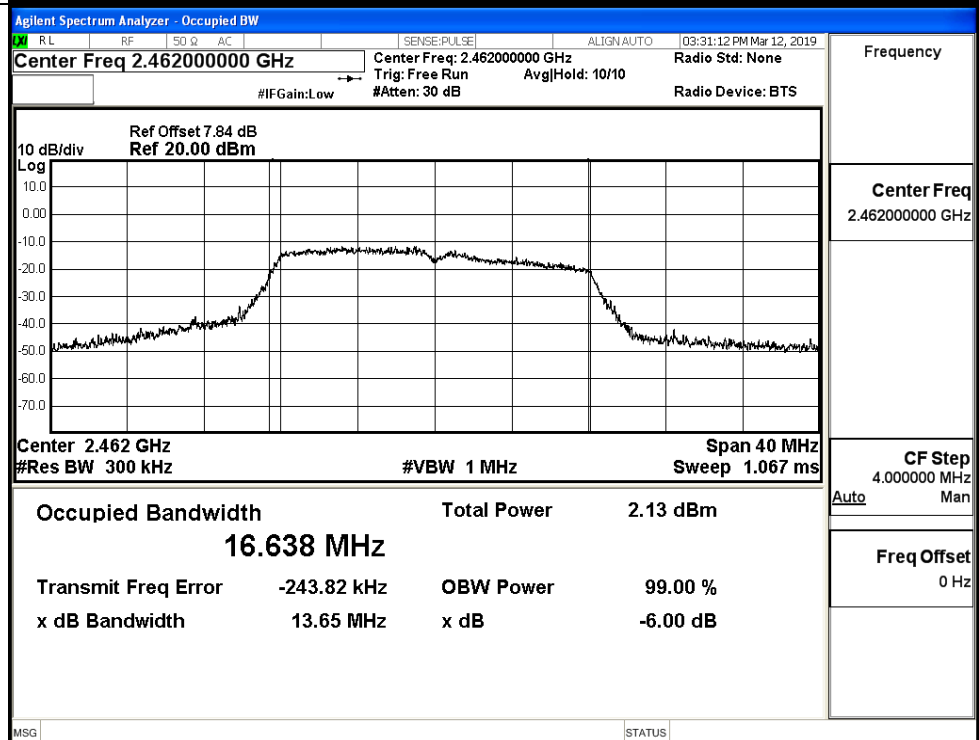
11G/LCH



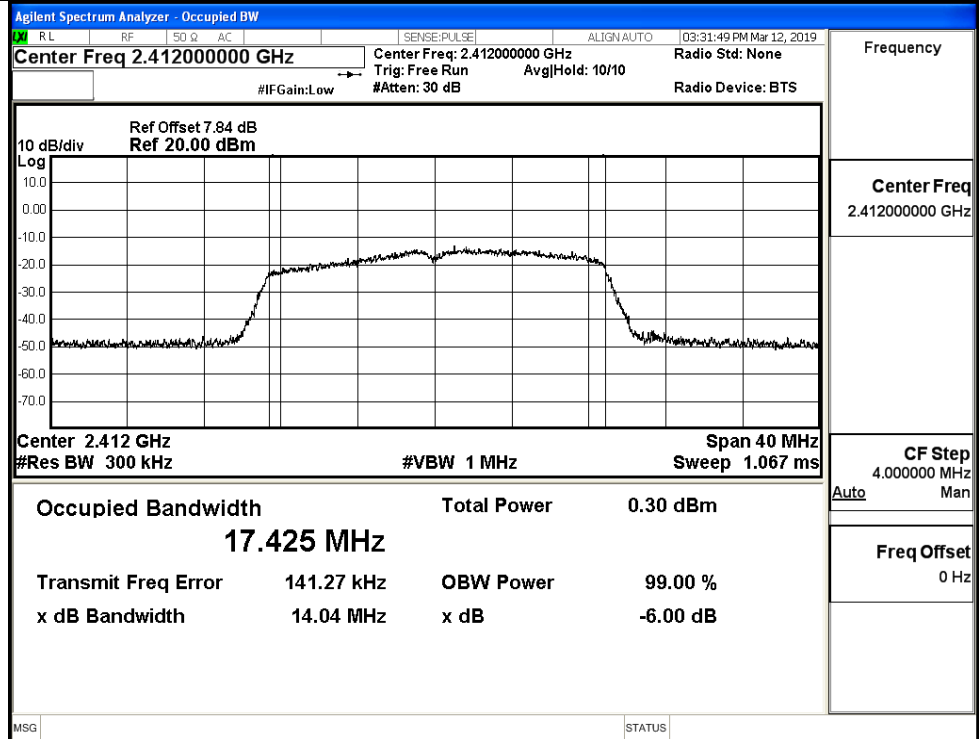
11G/MCH



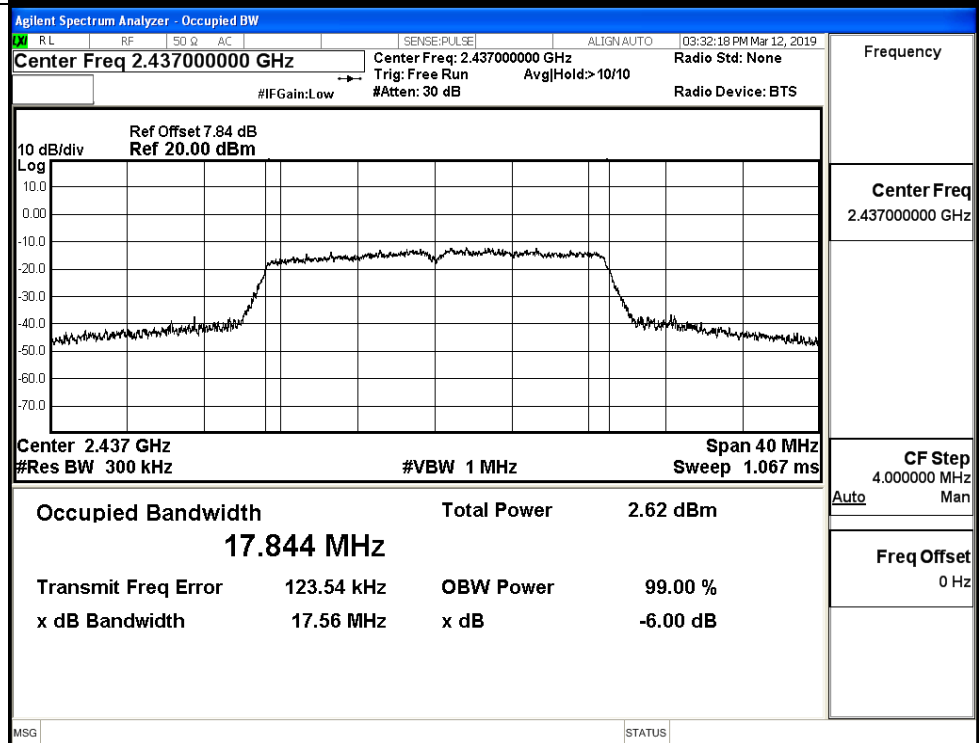
11G/HCH



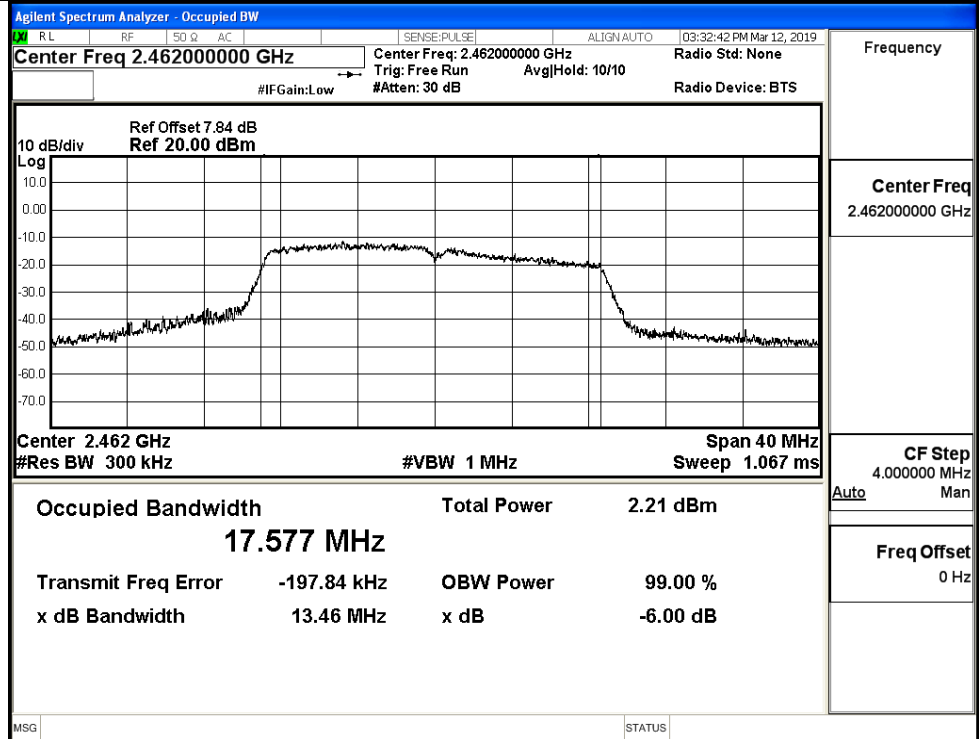
11N20/LCH



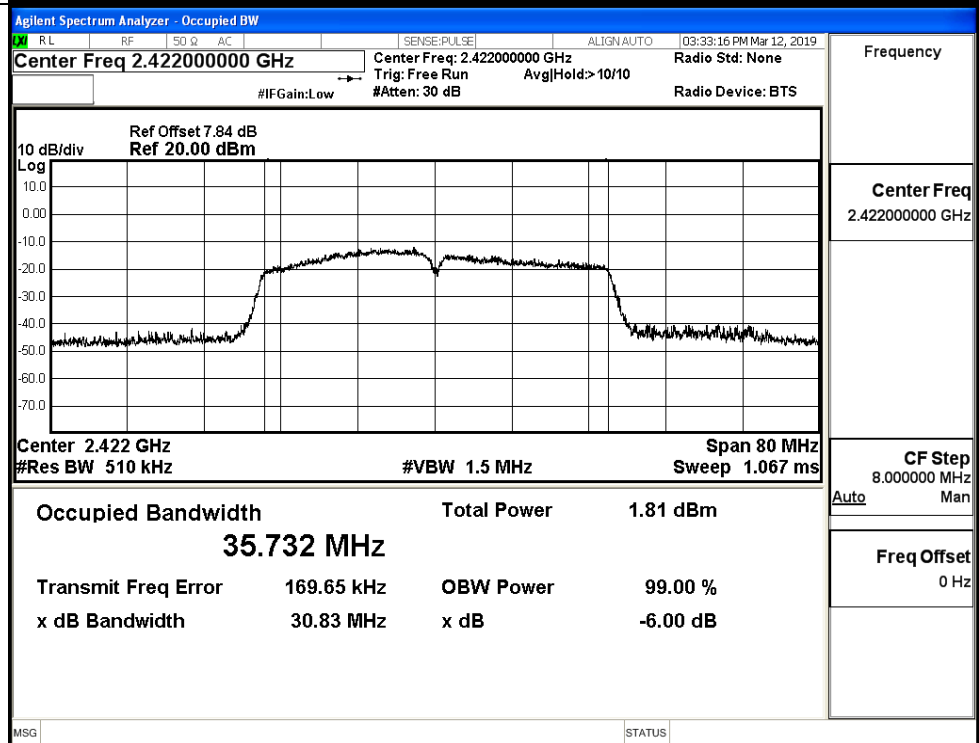
11N20/MCH



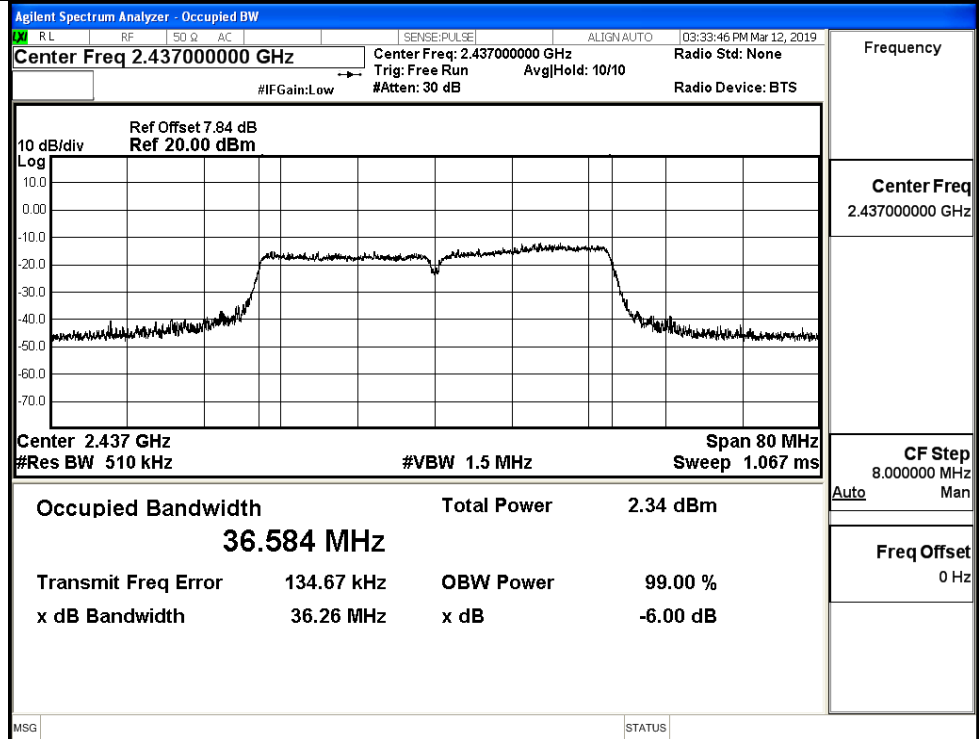
11N20/HCH



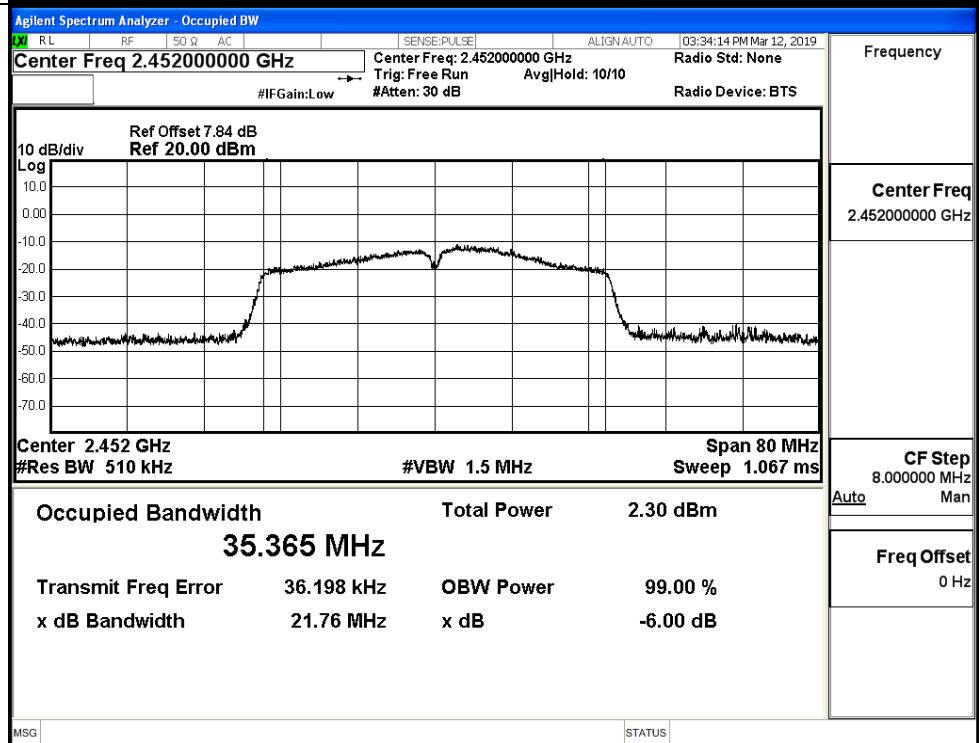
11N40/LCH



11N40/MCH



11N40/HCH



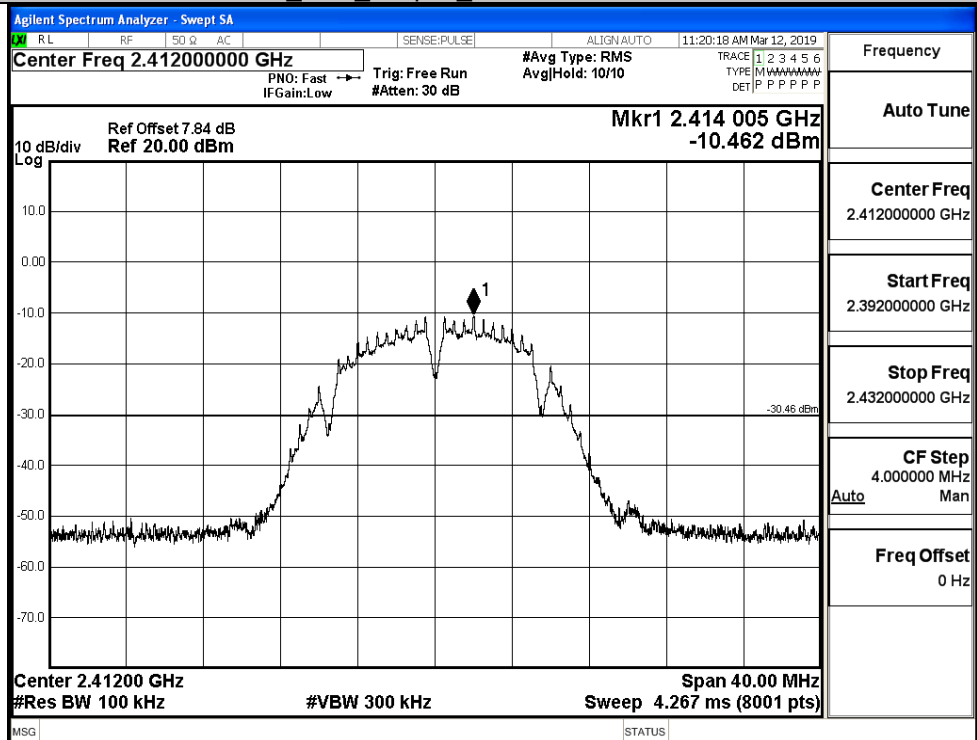
A.6 RF Conducted Spurious Emissions

Ant0

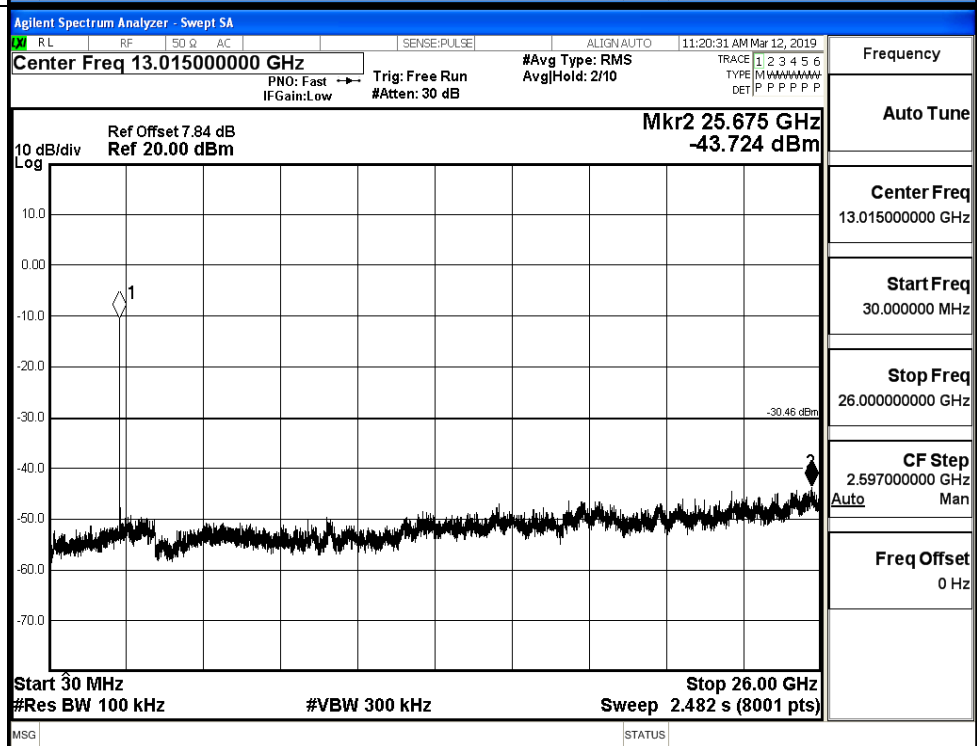
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-10.462	-43.724	-30.462	PASS
	MCH	-10.262	-44.474	-30.262	PASS
	HCH	-10.375	-44.546	-30.375	PASS
11G	LCH	-15.478	-44.149	-35.478	PASS
	MCH	-13.678	-43.836	-33.678	PASS
	HCH	-12.864	-44.032	-32.864	PASS
11N20	LCH	-15.908	-43.831	-35.908	PASS
	MCH	-13.471	-43.775	-33.471	PASS
	HCH	-13.761	-42.777	-33.761	PASS
11N40	LCH	-16.422	-43.832	-36.422	PASS
	MCH	-16.722	-43.896	-36.722	PASS
	HCH	-14.877	-44.756	-34.877	PASS

11B LCH Graphs Ant0

Pref/11B/LCH

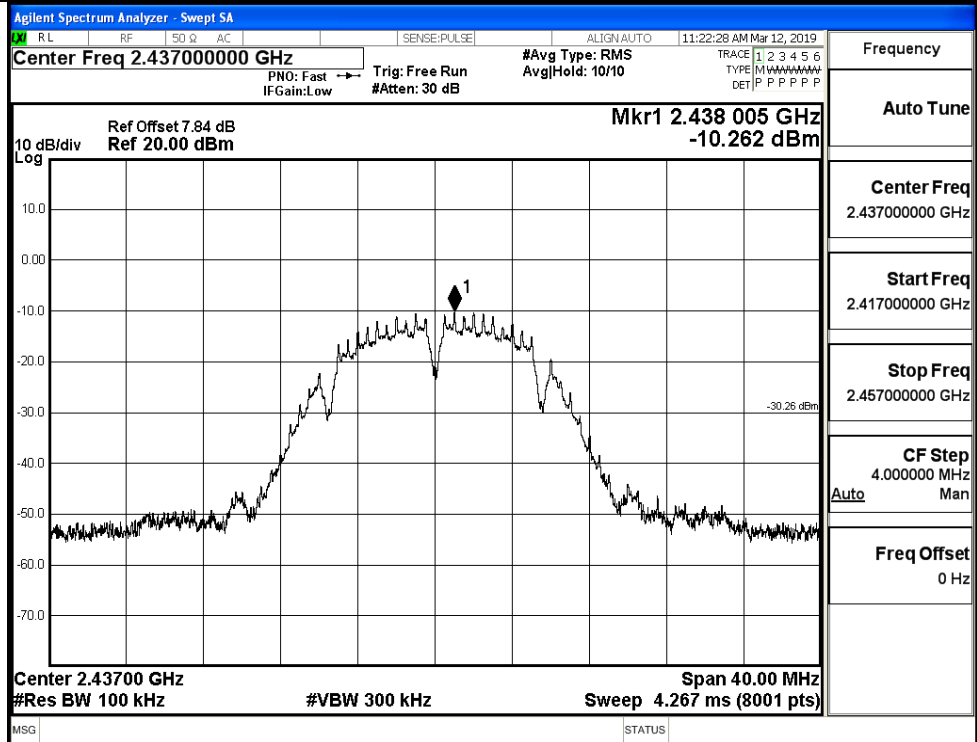


Puw/11B/LCH

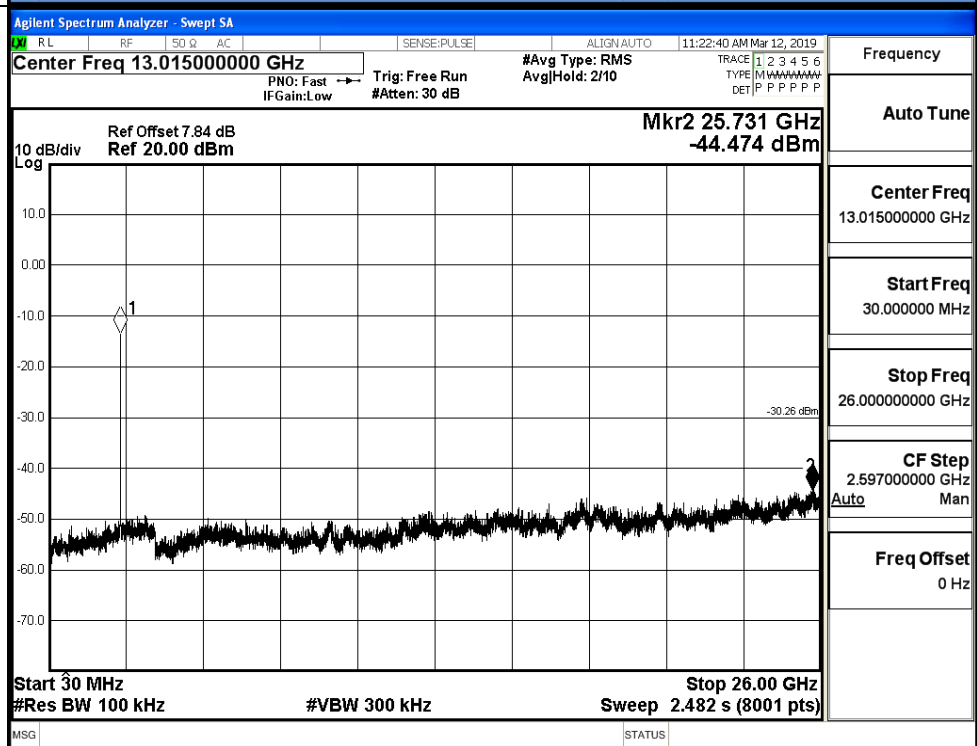


11B MCH Graphs Ant0

Pref/11B/MCH

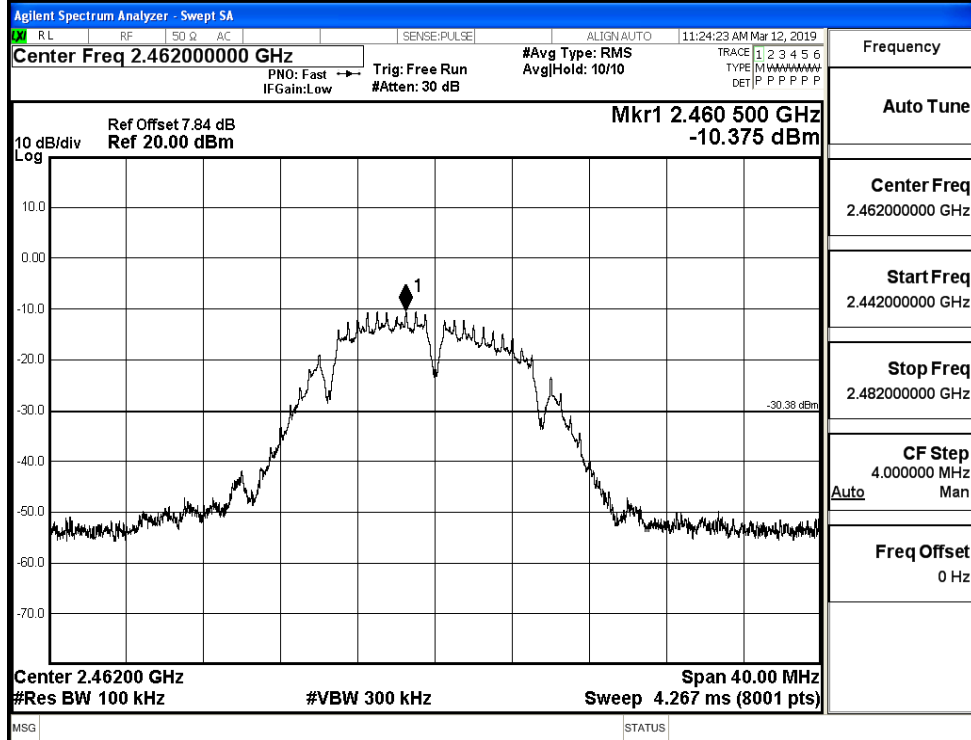


Puw/11B/MCH



11B_HCH_Graphs_Ant0

Pref/11B/HCH



Puw/11B/HCH

