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

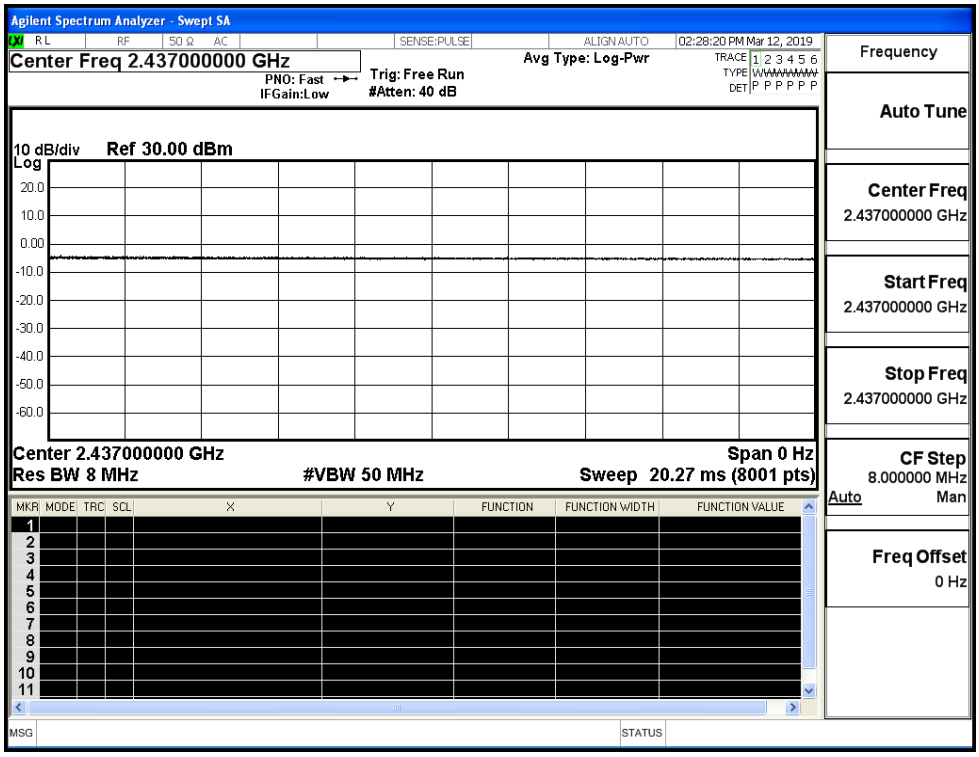
Temperature:	23.8 ° C
Relative Humidity:	52.8%
ATM Pressure:	100.0 kPa
Test Engineer:	Wang Chuang
Supervised by:	Tom Liu

A.1 Duty Cycle

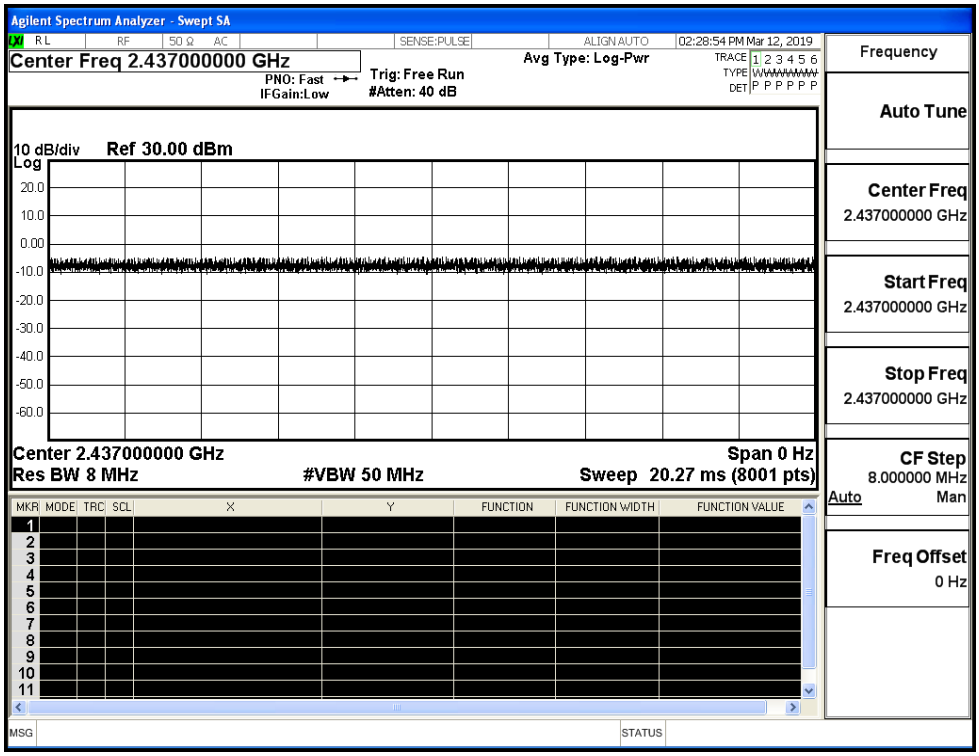
Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2437	Ant0	100	PASS
11G	2437	Ant0	100	PASS
11N20	2437	Ant0	100	PASS
11N40	2437	Ant0	100	PASS

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

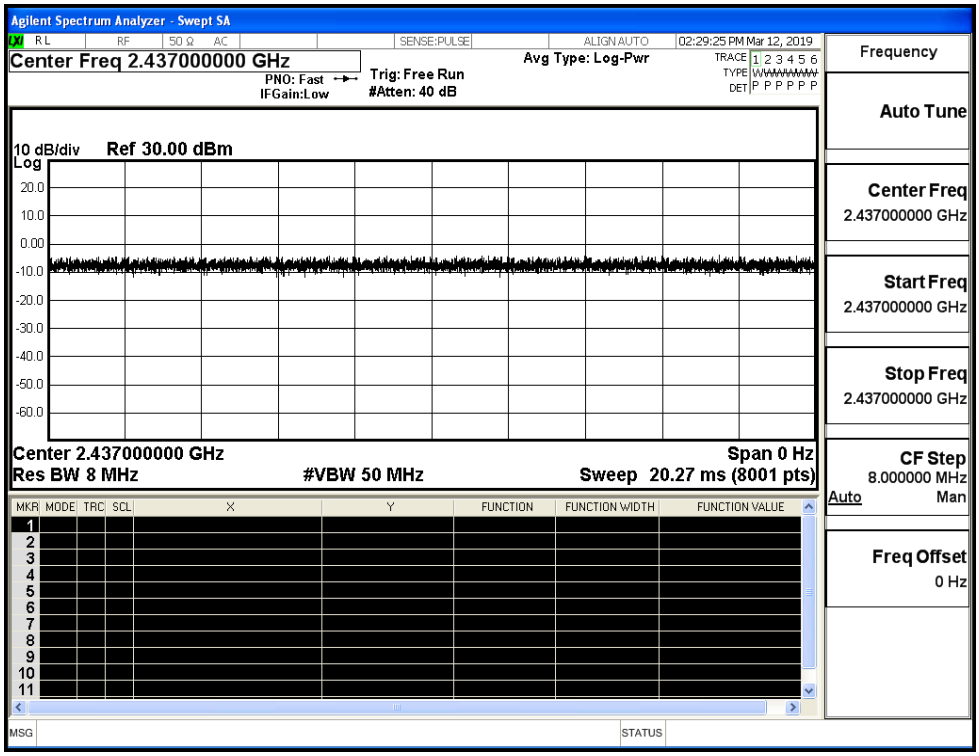
Duty Cycle_11B_2437_Ant0



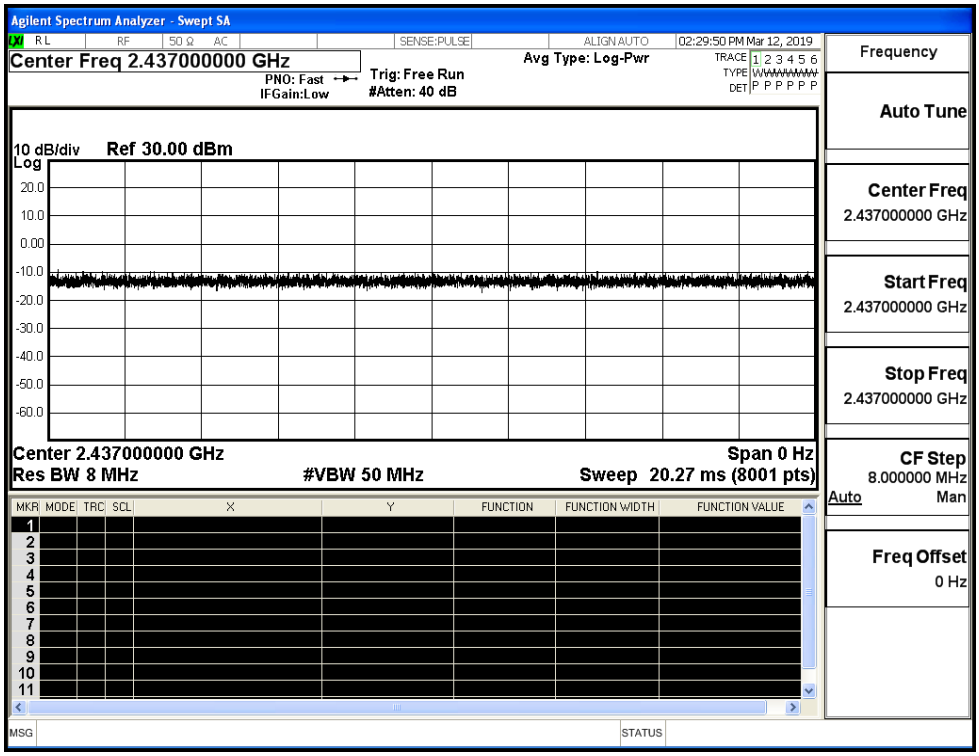
Duty Cycle_11G_2437_Ant0



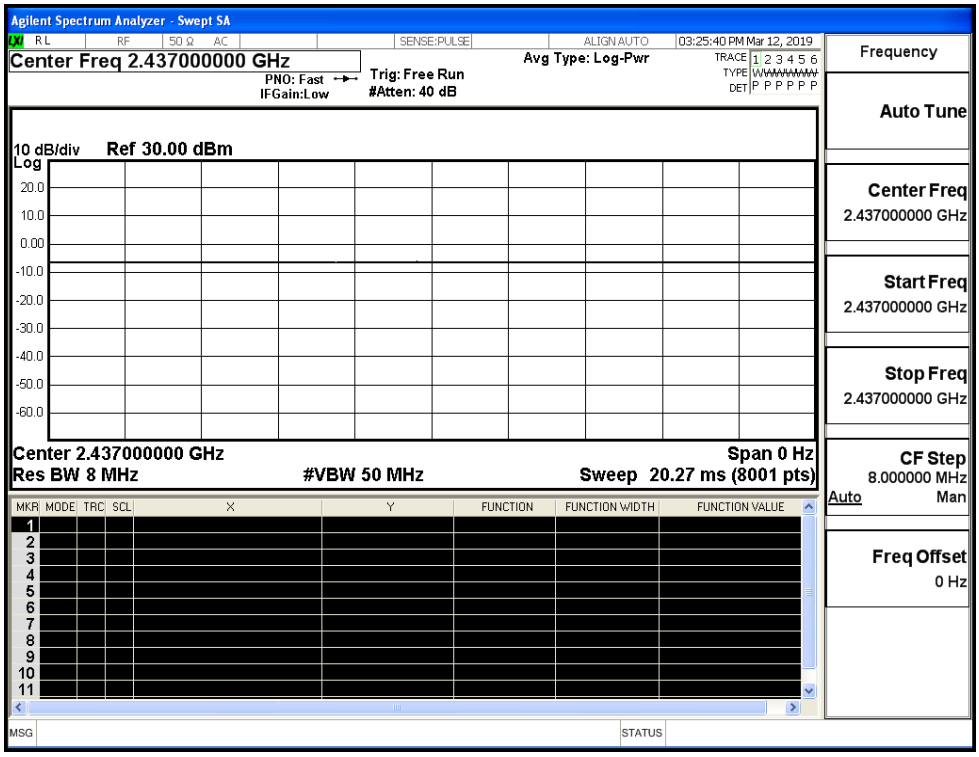
Duty Cycle_11N20_2437_Ant0



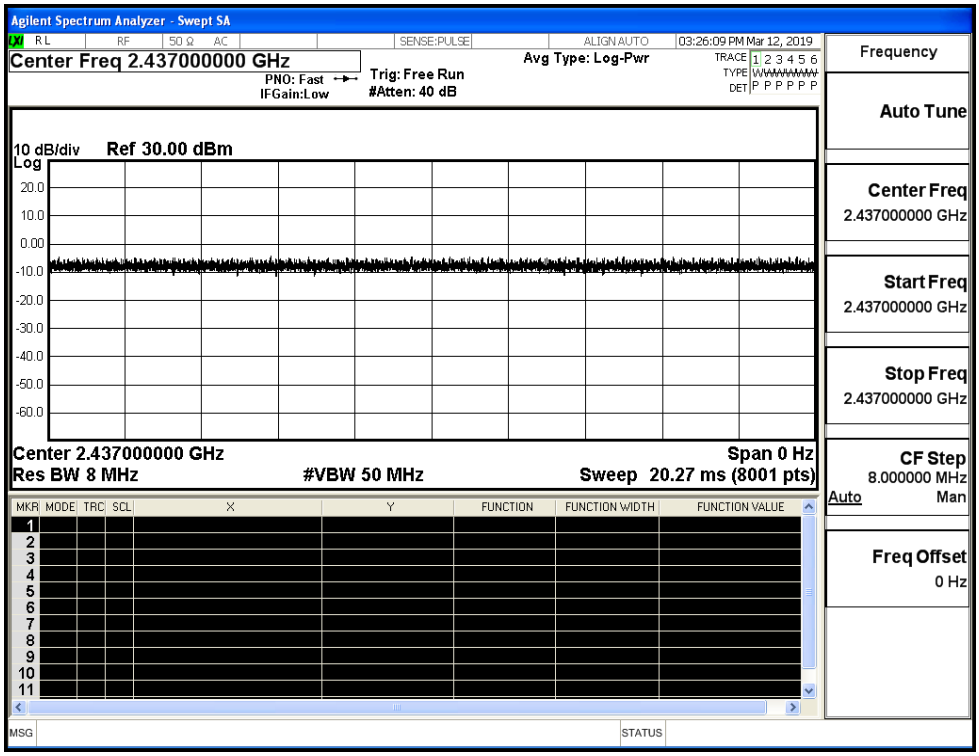
Duty Cycle_11N40_2437_Ant0



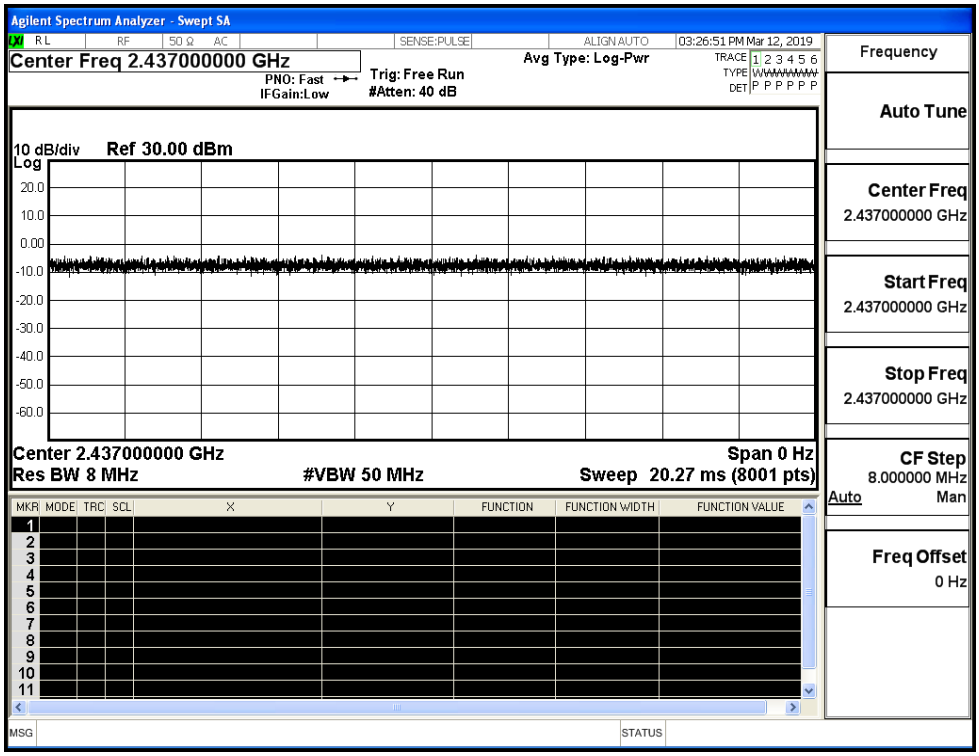
Duty Cycle_11B_2437_Ant1



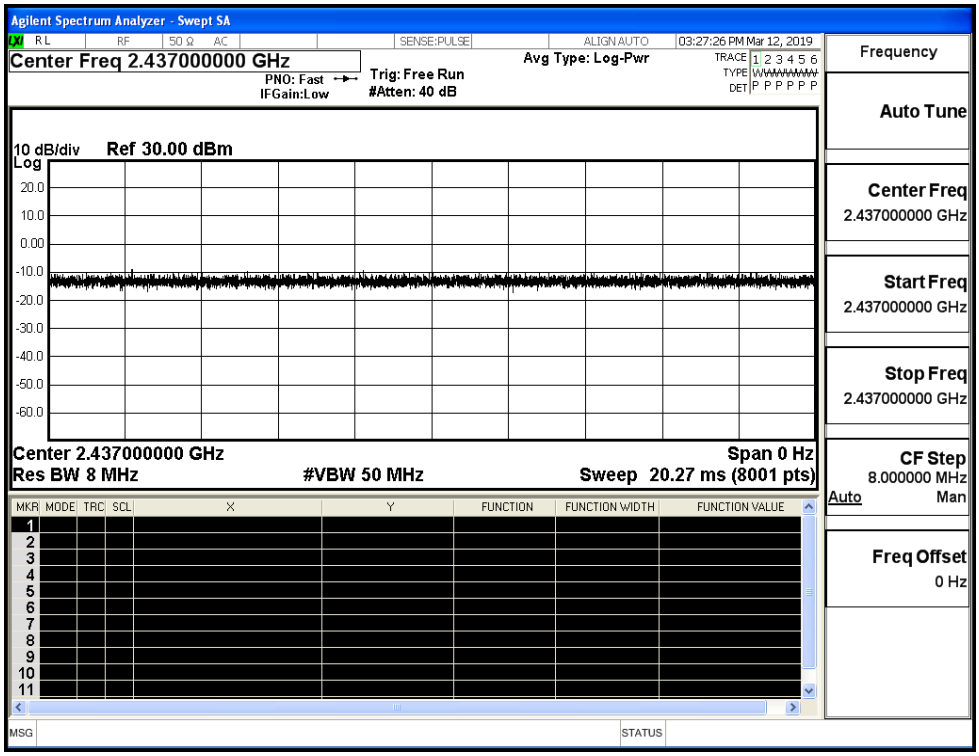
Duty Cycle_11G_2437_Ant1



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*log(3KHz/30KHz) = -10

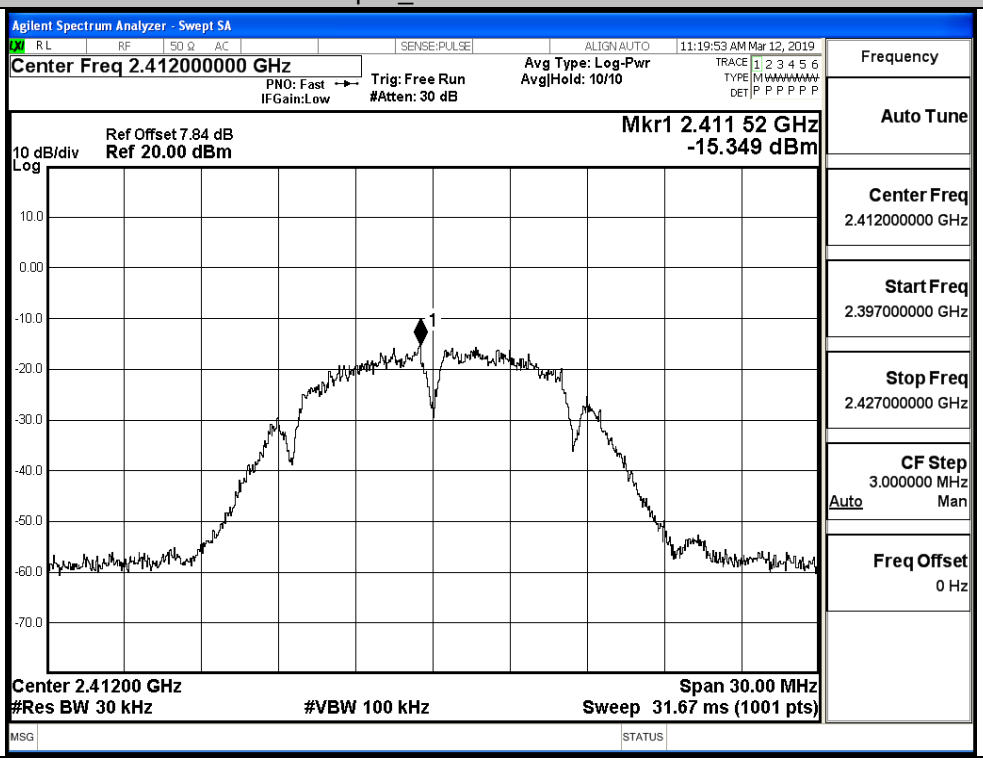
Ant1

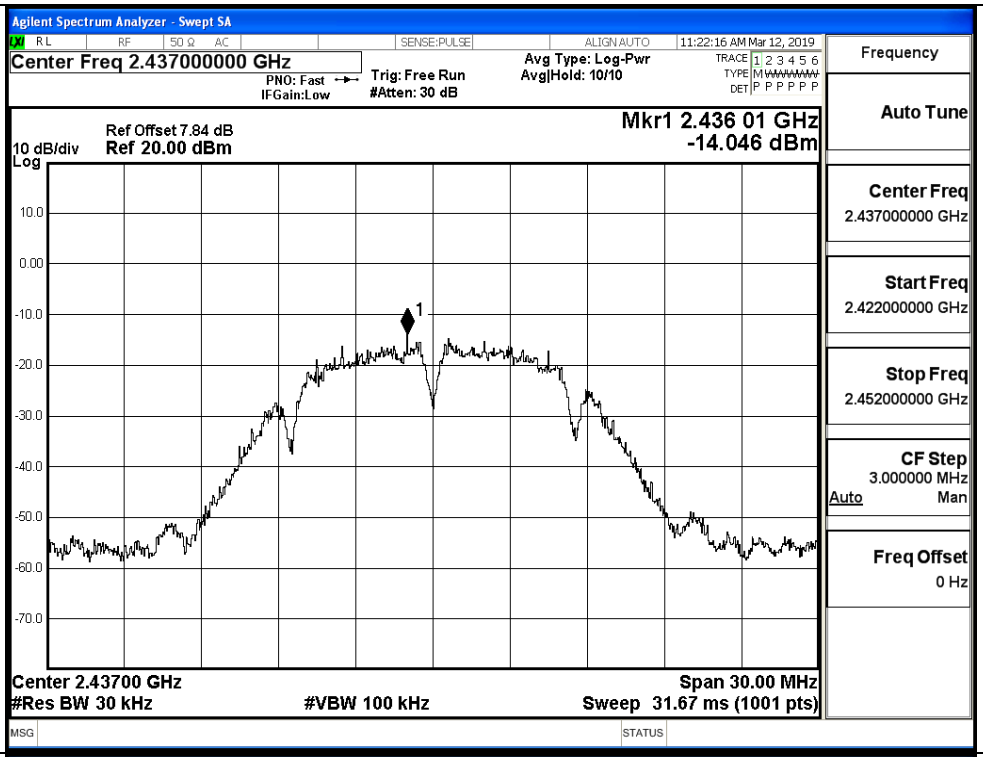
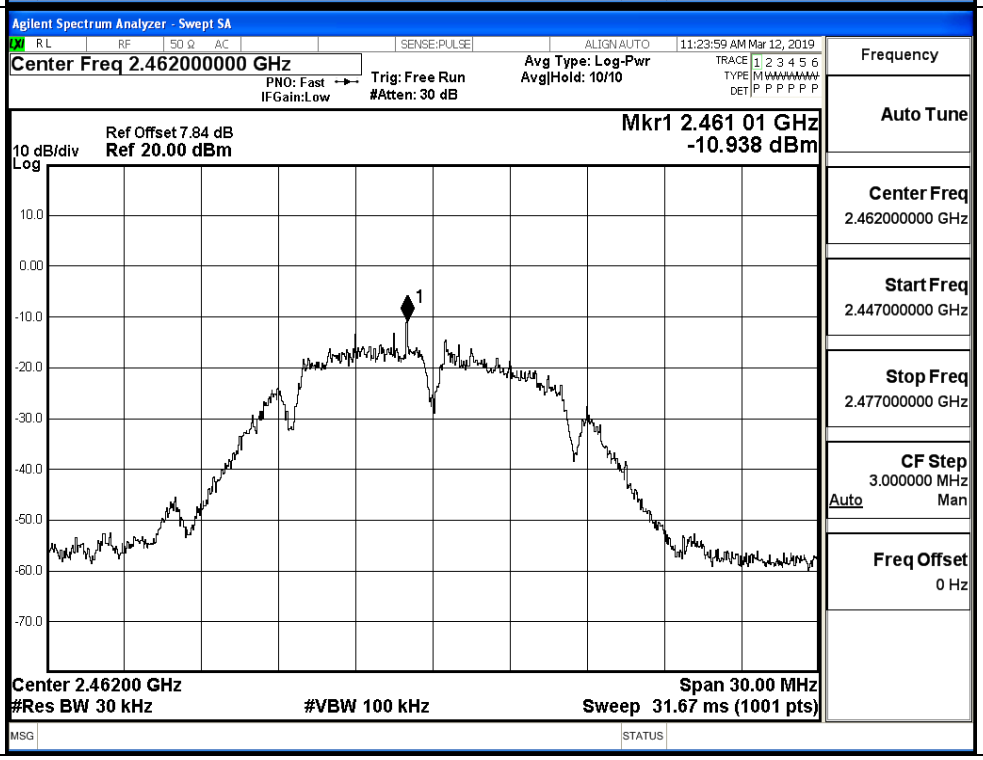
Mode	Channel	Meas.Level [dBm/30KHz]	Convert Factor	Result [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-13.827	-10	-23.827	2.00	PASS
	MCH	-13.662	-10	-23.662	2.00	PASS
	HCH	-14.870	-10	-24.870	2.00	PASS
11G	LCH	-20.915	-10	-30.915	2.00	PASS
	MCH	-19.724	-10	-29.724	2.00	PASS
	HCH	-18.873	-10	-28.873	2.00	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

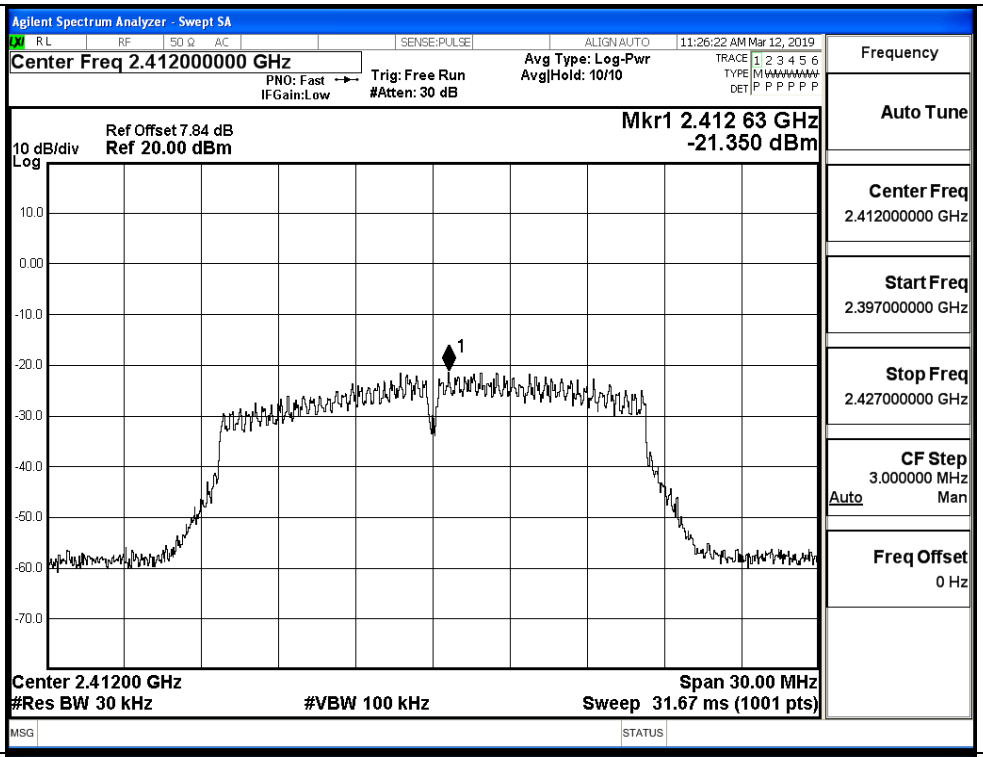
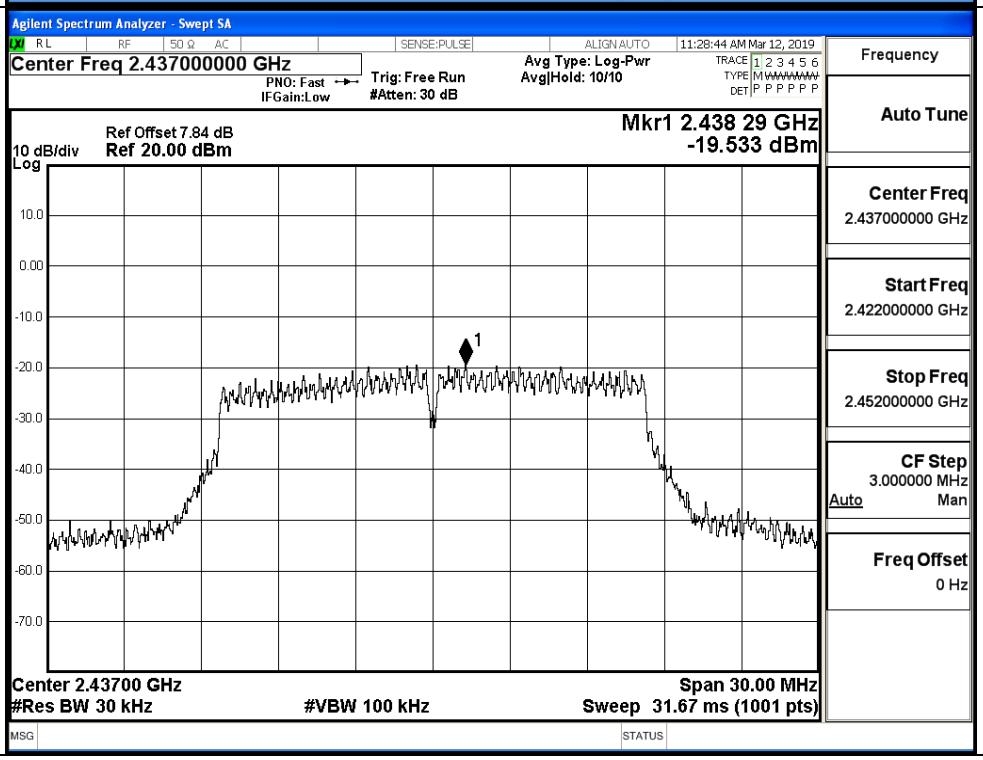
***Note: The Convert Factor = 10*log(3KHz/30KHz) = -10

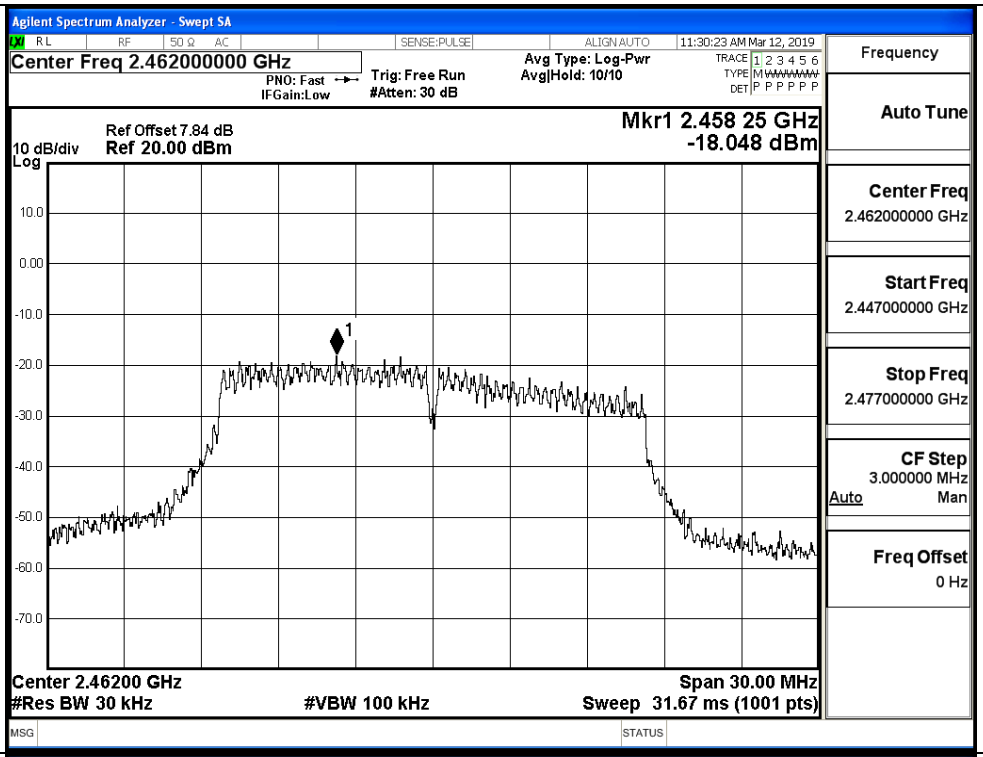
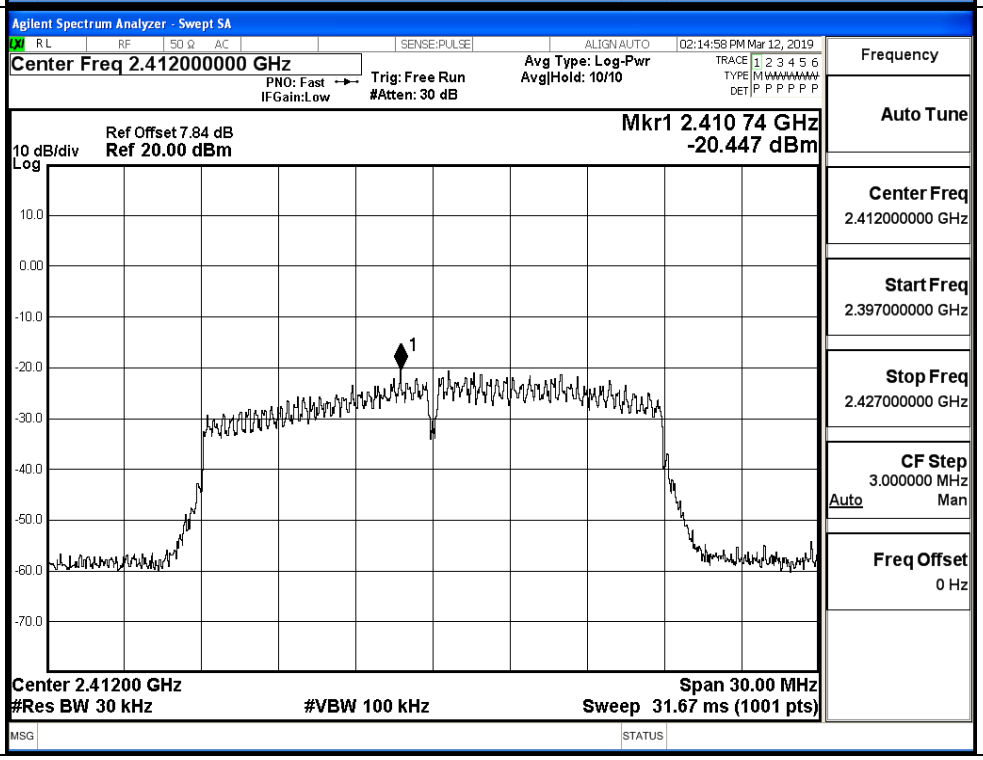
Combined Ant0 and Ant1

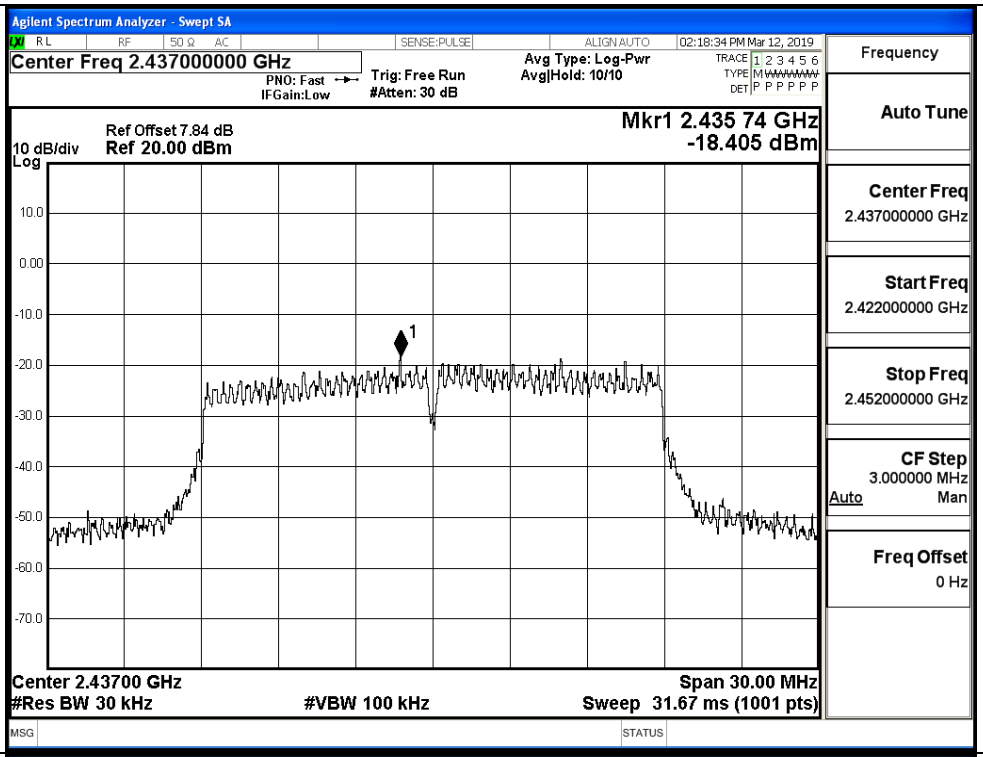
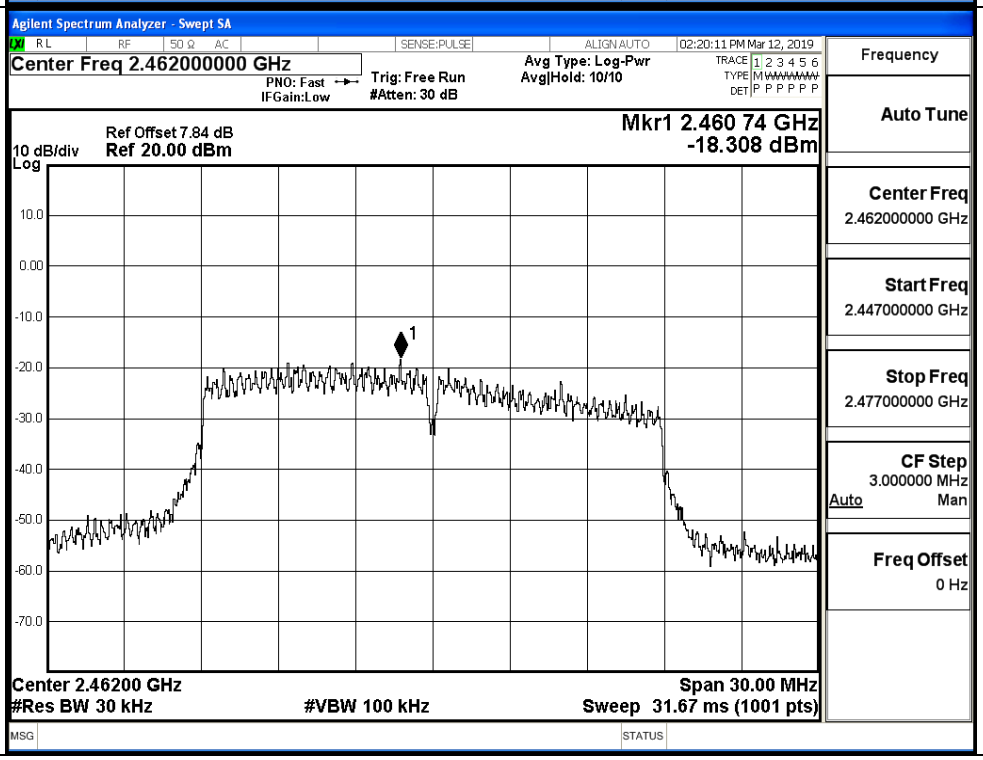
Mode	Channel	Result [dBm/3KHz]			Limit [dBm/3KHz]	Verdict
		Ant0	Ant1	Sum		
11N20	LCH	-30.447	-30.717	-27.570	-1.01	PASS
	MCH	-28.405	-28.764	-25.570	-1.01	PASS
	HCH	-28.308	-28.319	-25.303	-1.01	PASS
11N40	LCH	-31.661	-31.752	-28.696	-1.01	PASS
	MCH	-32.307	-31.923	-29.100	-1.01	PASS
	HCH	-30.479	-30.625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

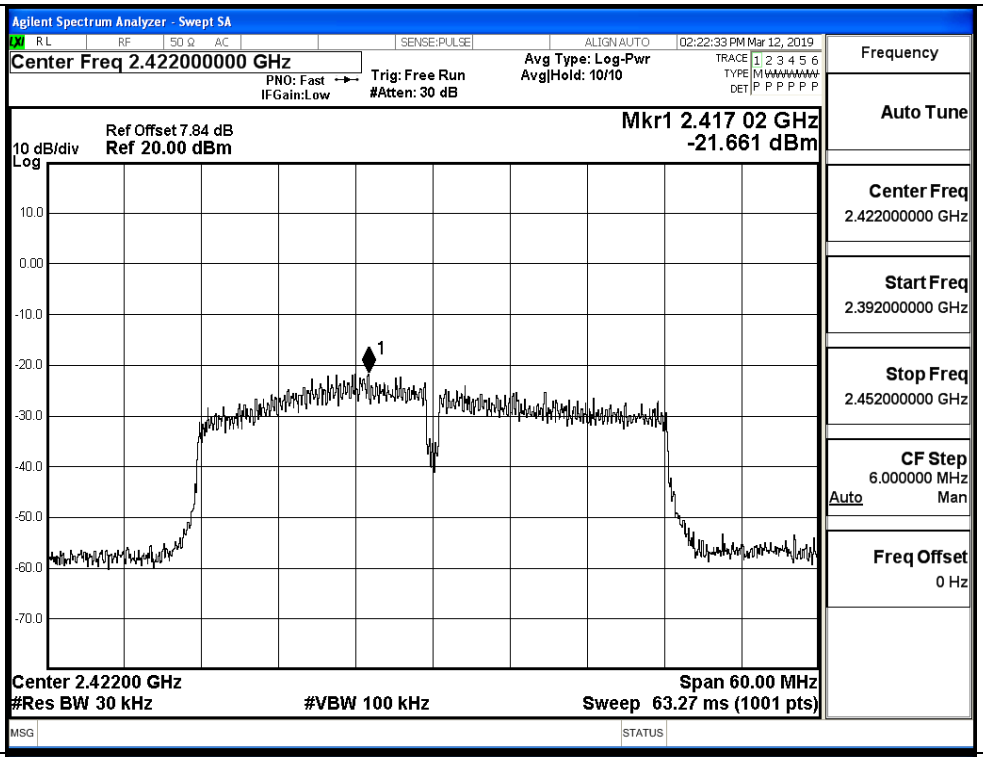
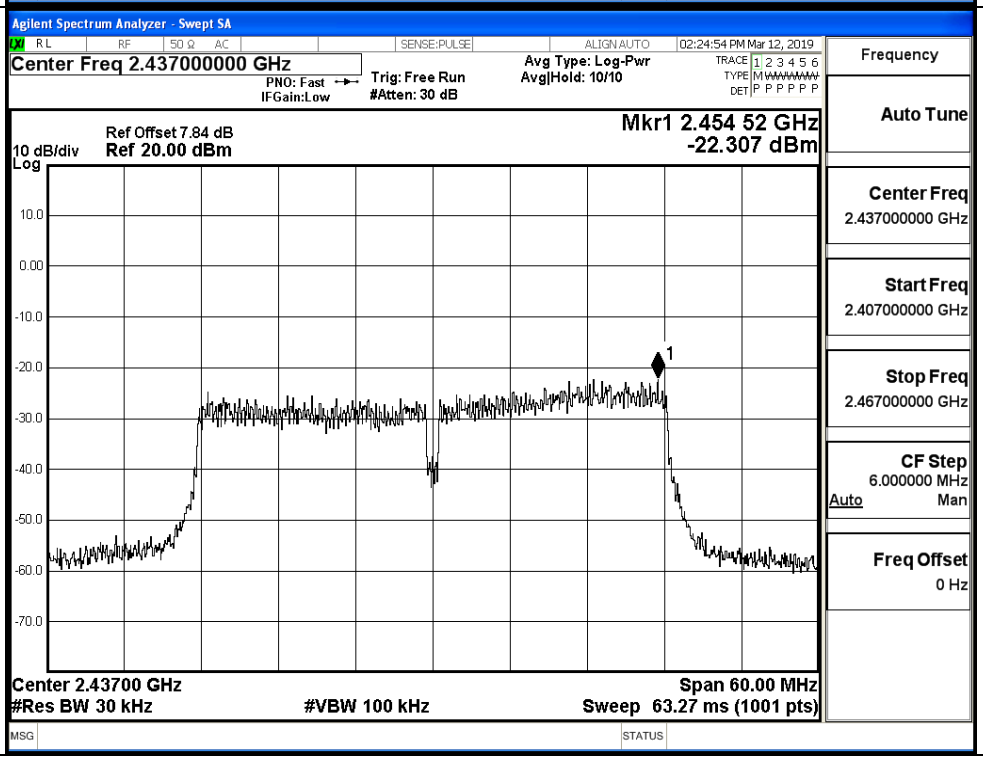
Test Graphs_Ant0	
11B/LCH	

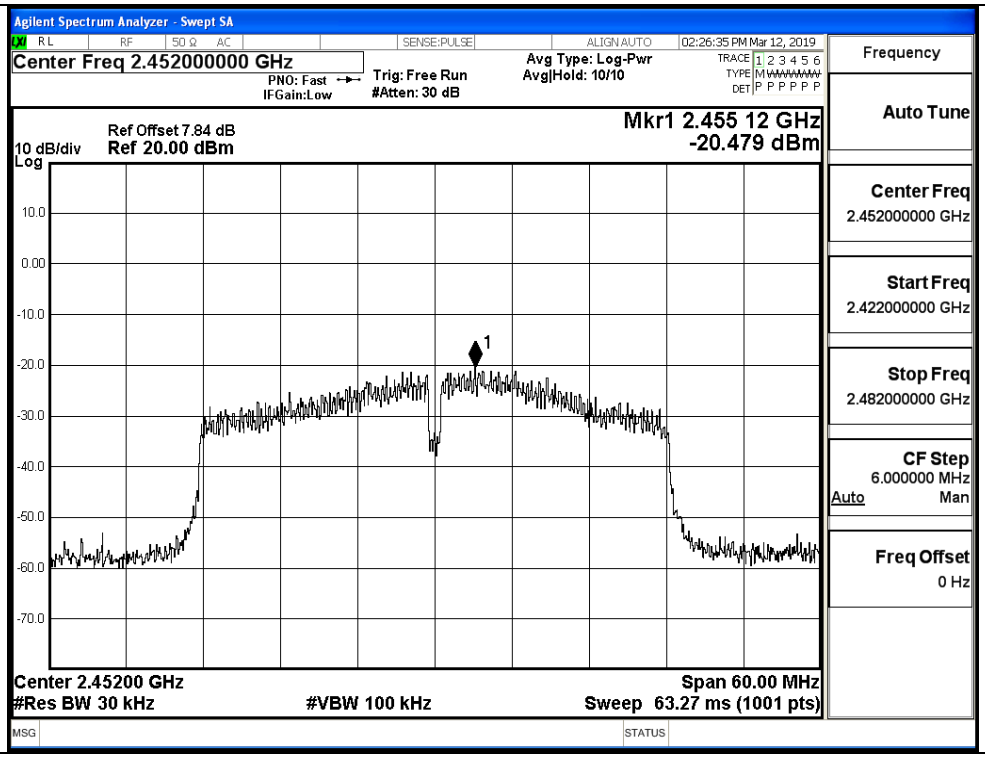
11B/MCH		
11B/HCH		

11G/LCH	
11G/MCH	

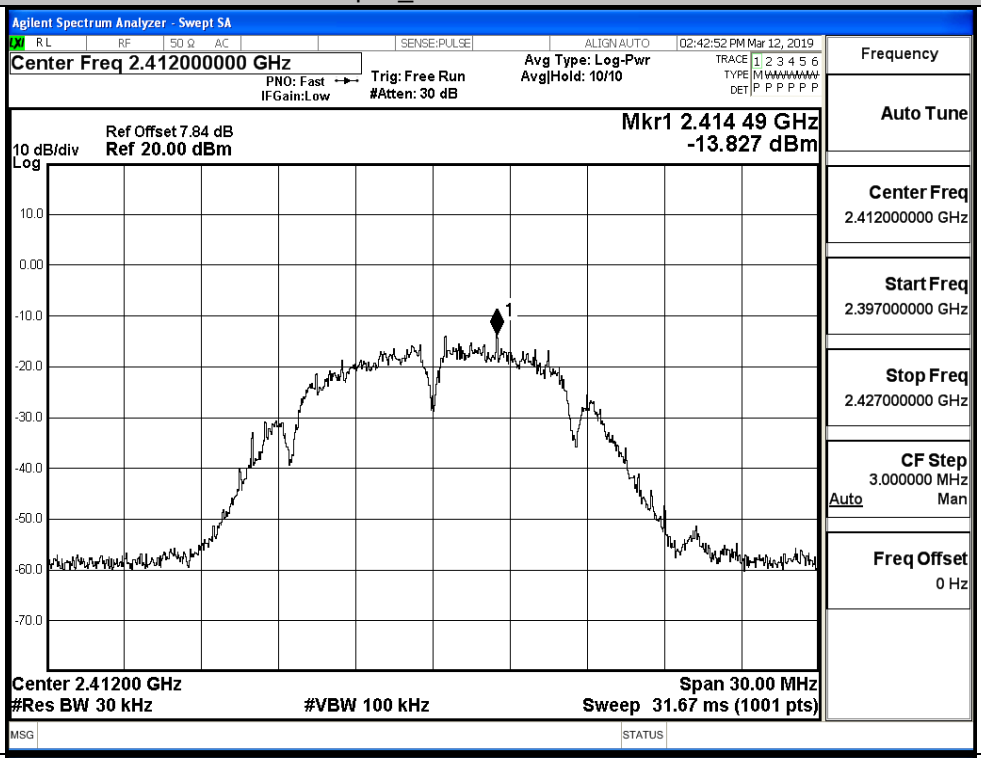
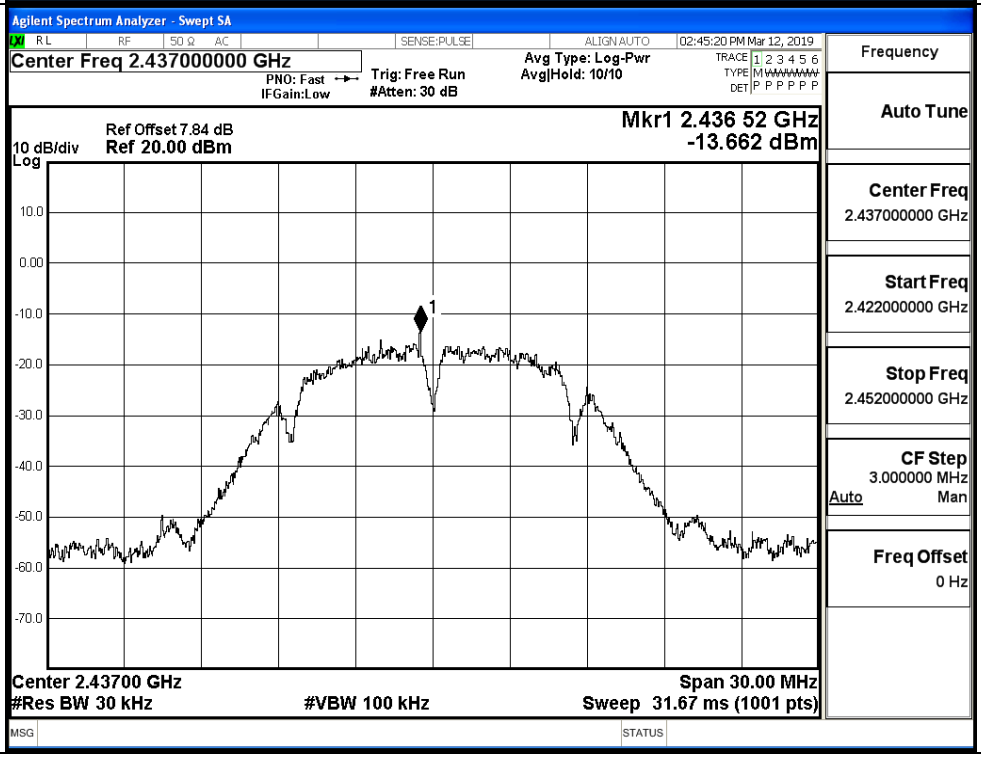
11G/HCH	
11N20/LCH	

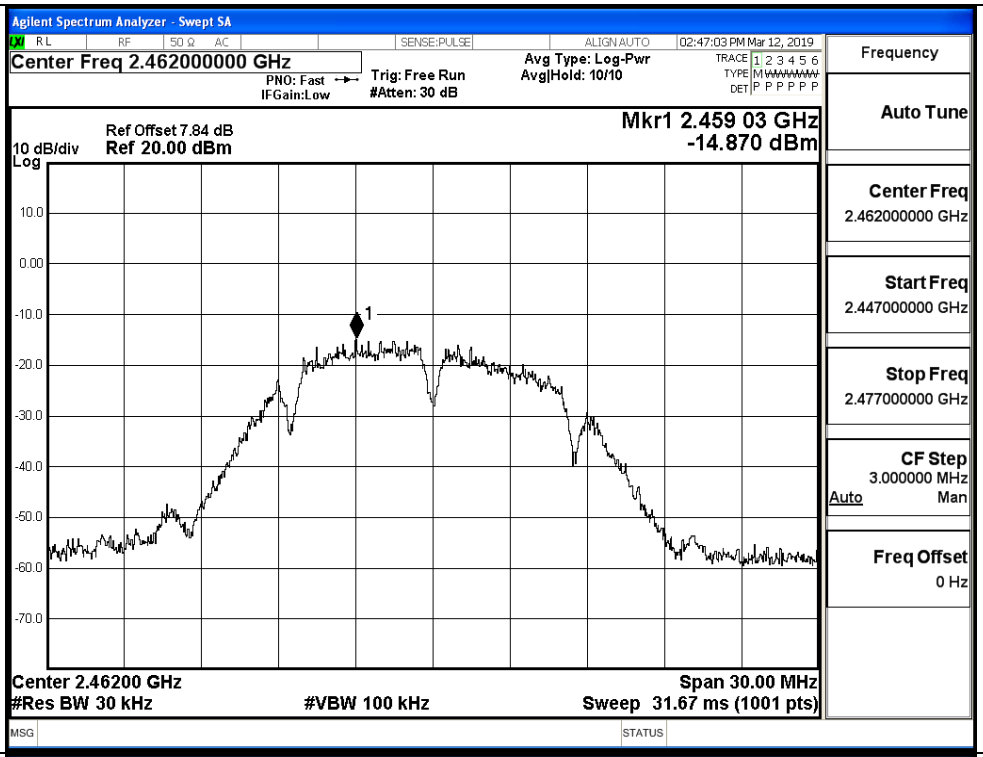
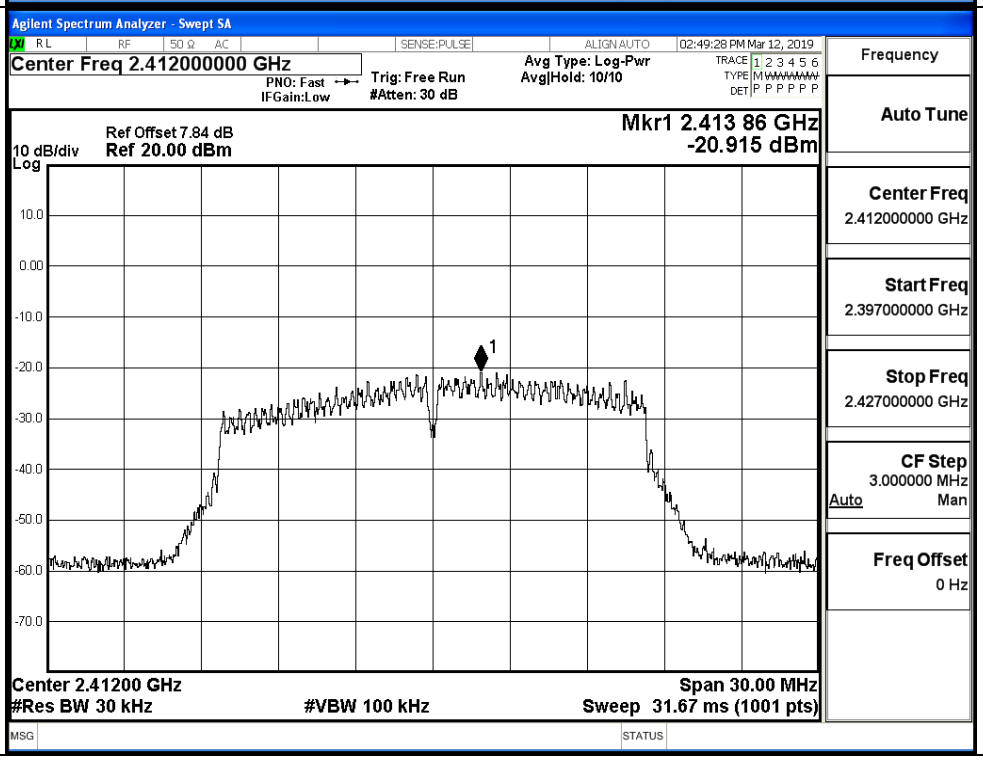
11N20/MCH	
11N20/HCH	

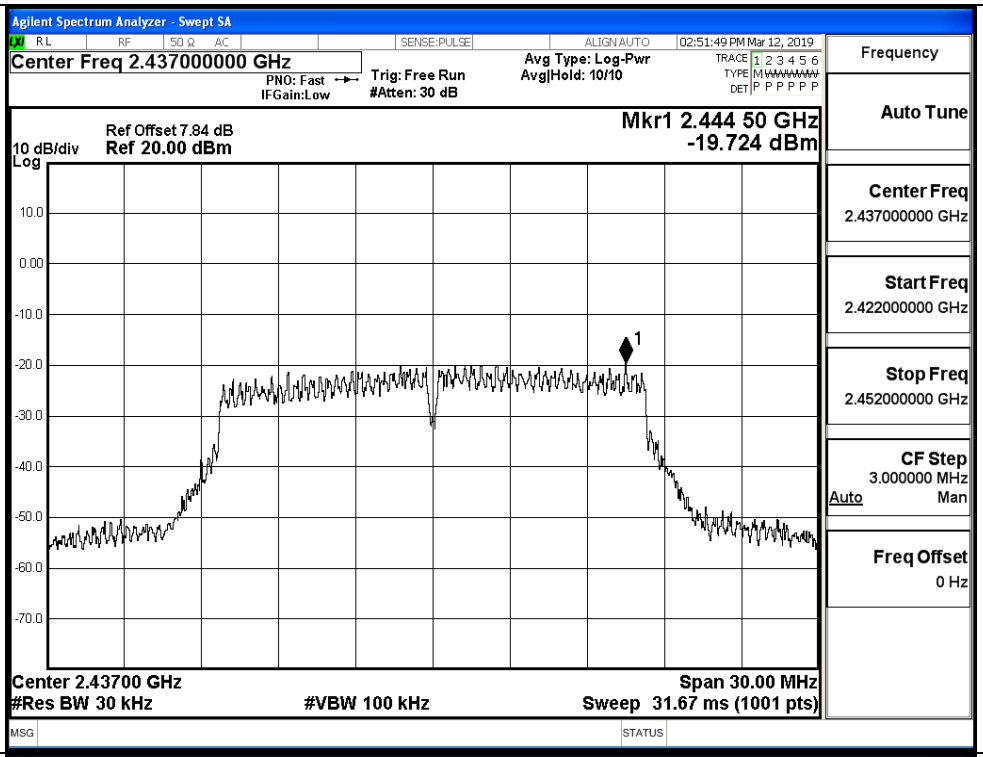
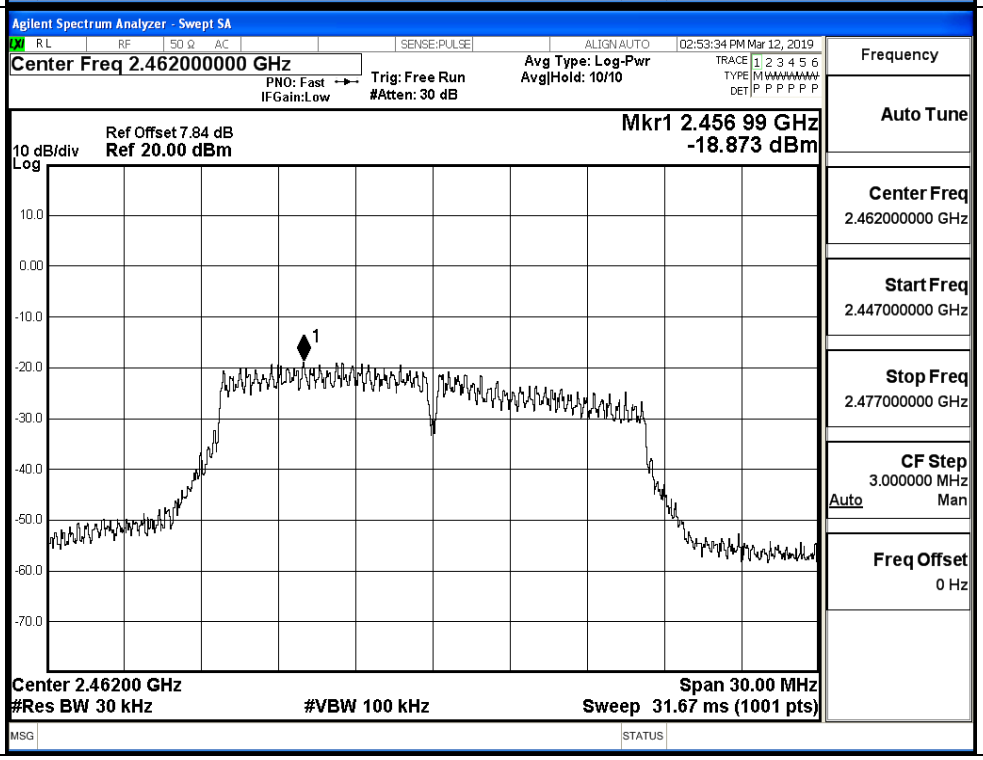
11N40/LCH		
11N40/MCH		

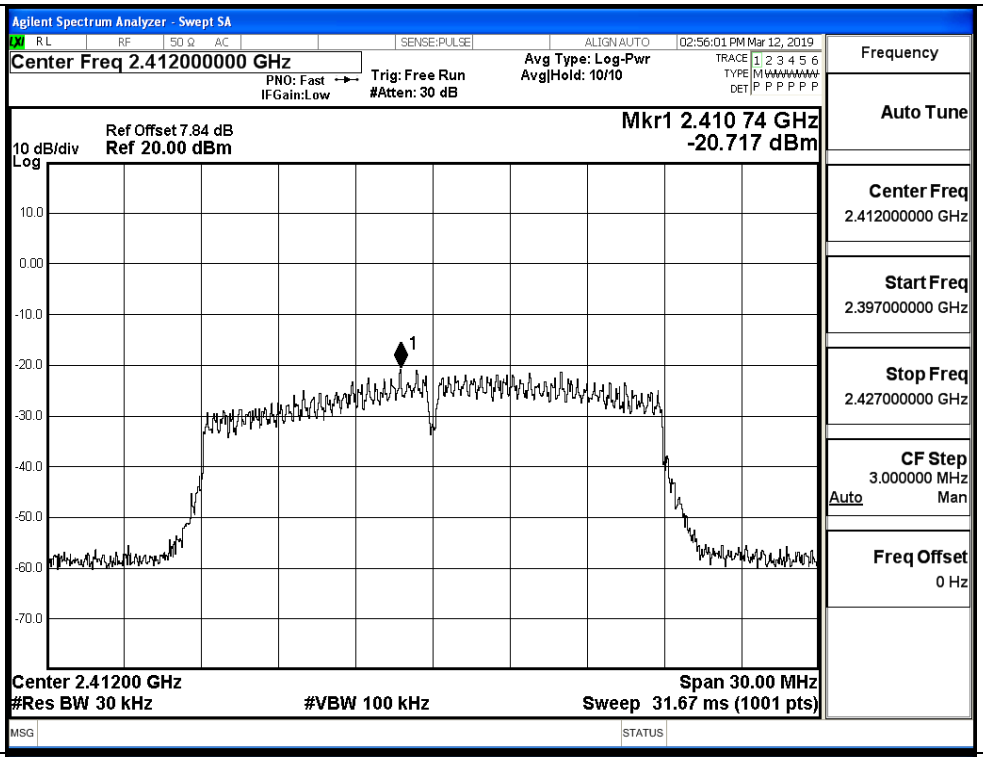
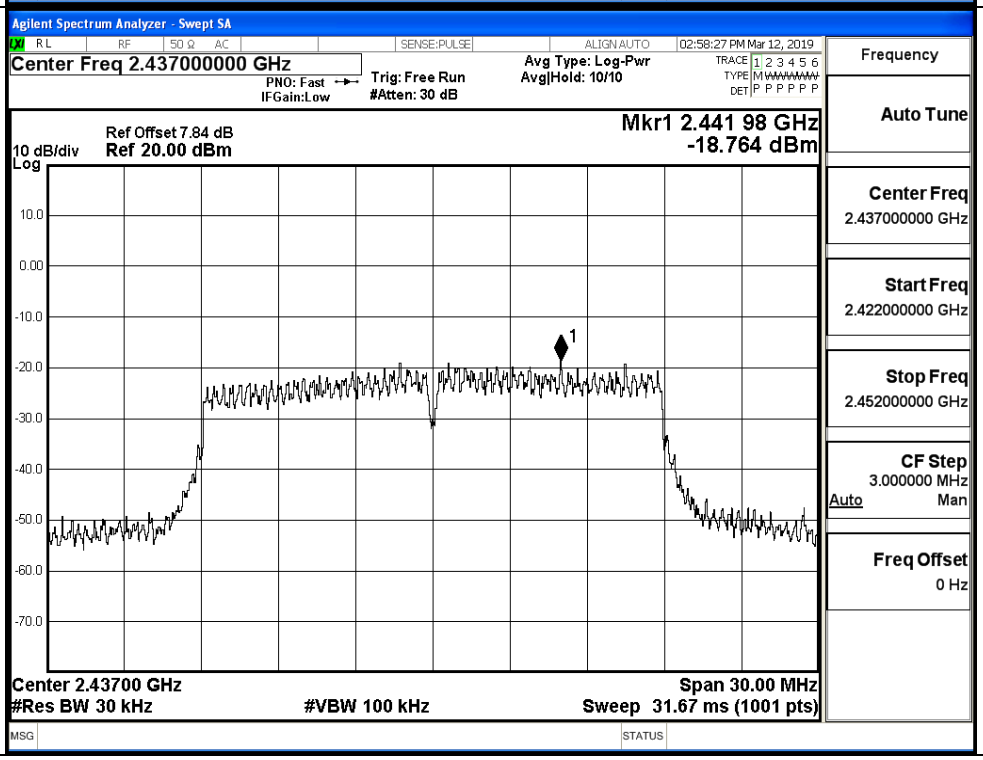
11N40/HCH	

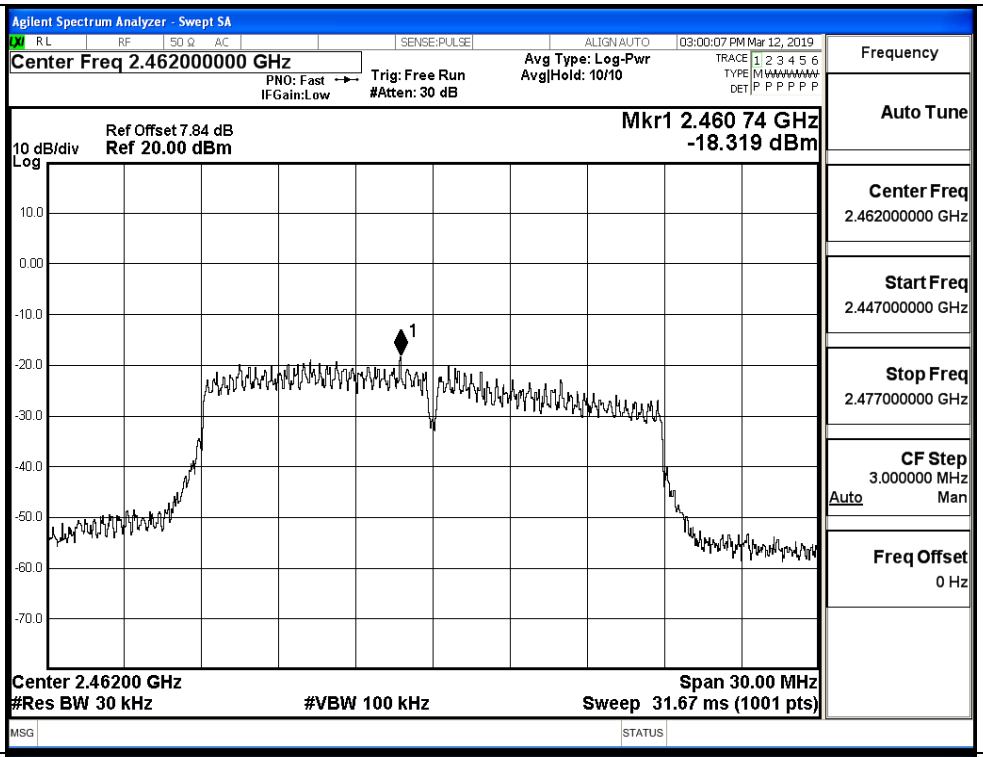
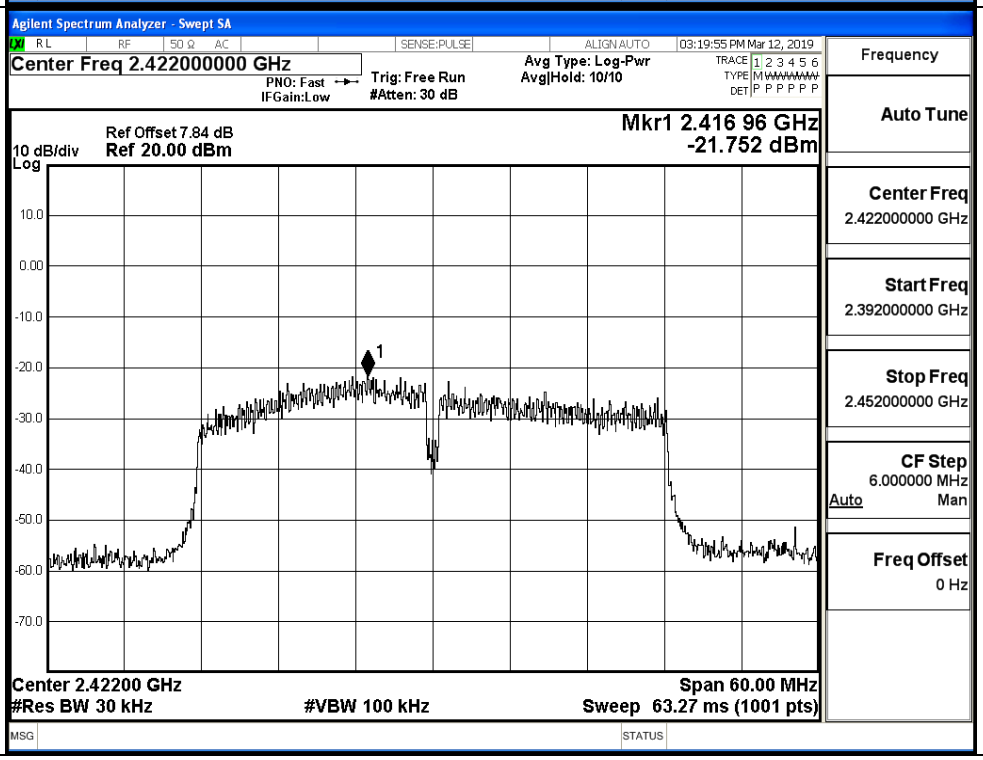
Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:PULSE
ALIGN AUTO
02:26:35 PM Mar 12, 2019
Center Freq 2.452000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 10/10
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P P P P P P
Ref Offset 7.84 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 2.455 12 GHz
-20.479 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 2.45200 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
2.452000000 GHz
Start Freq
2.422000000 GHz
Stop Freq
2.482000000 GHz
CF Step
6.000000 MHz
Auto
Man
Freq Offset
0 Hz

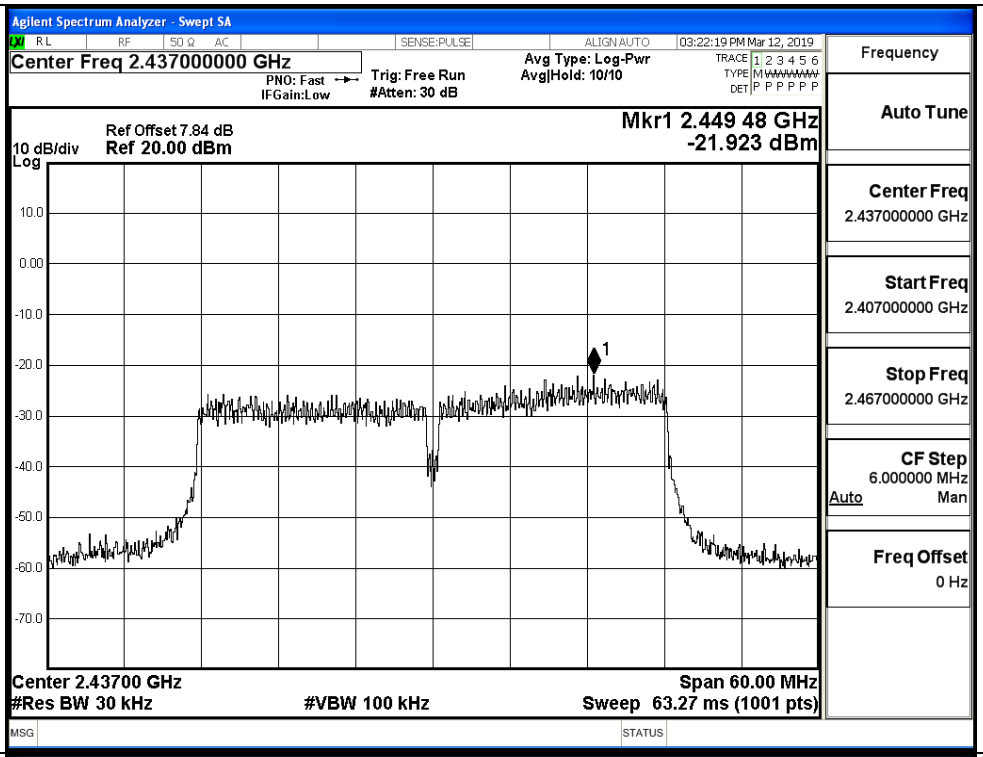
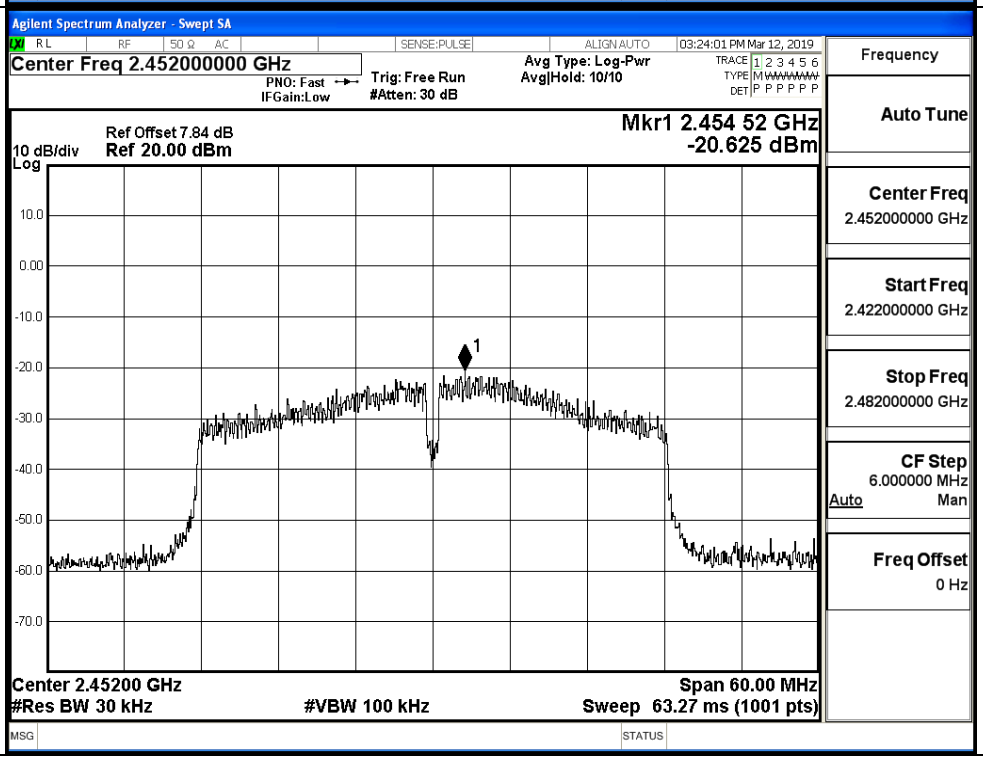
Test Graphs_Ant1		
11B/LCH		
11B/MCH		

11B/HCH		
11G/LCH		

11G/MCH		
11G/HCH		

11N20/LCH		
11N20/MCH		

11N20/HCH		
11N40/LCH		

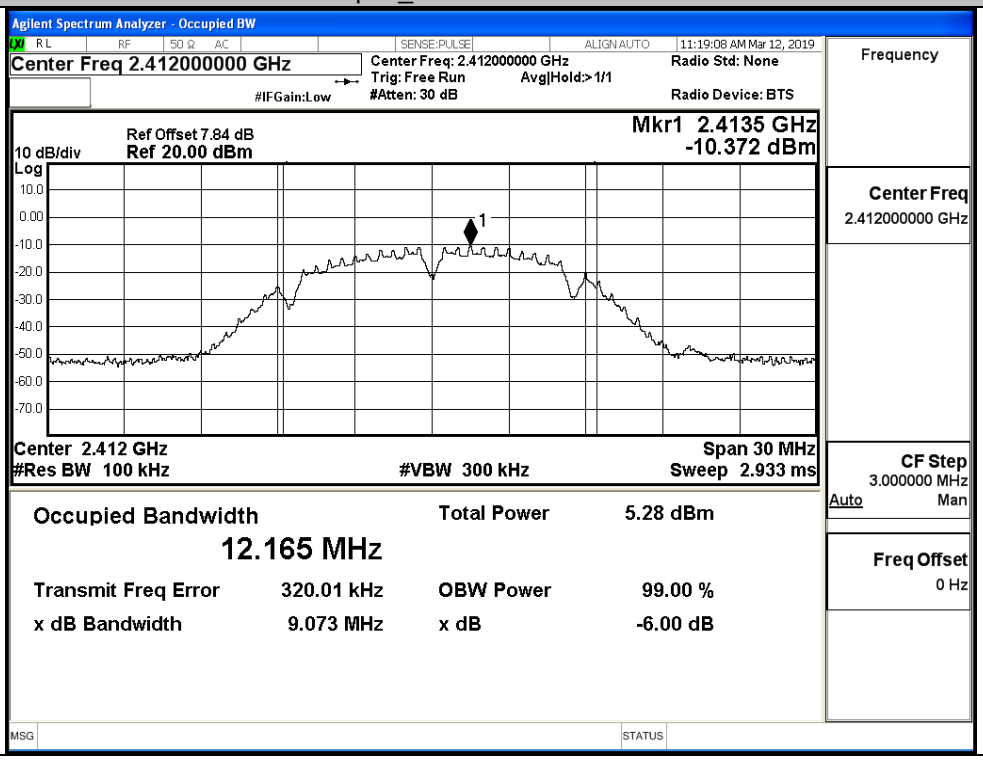
11N40/MCH		
11N40/HCH		

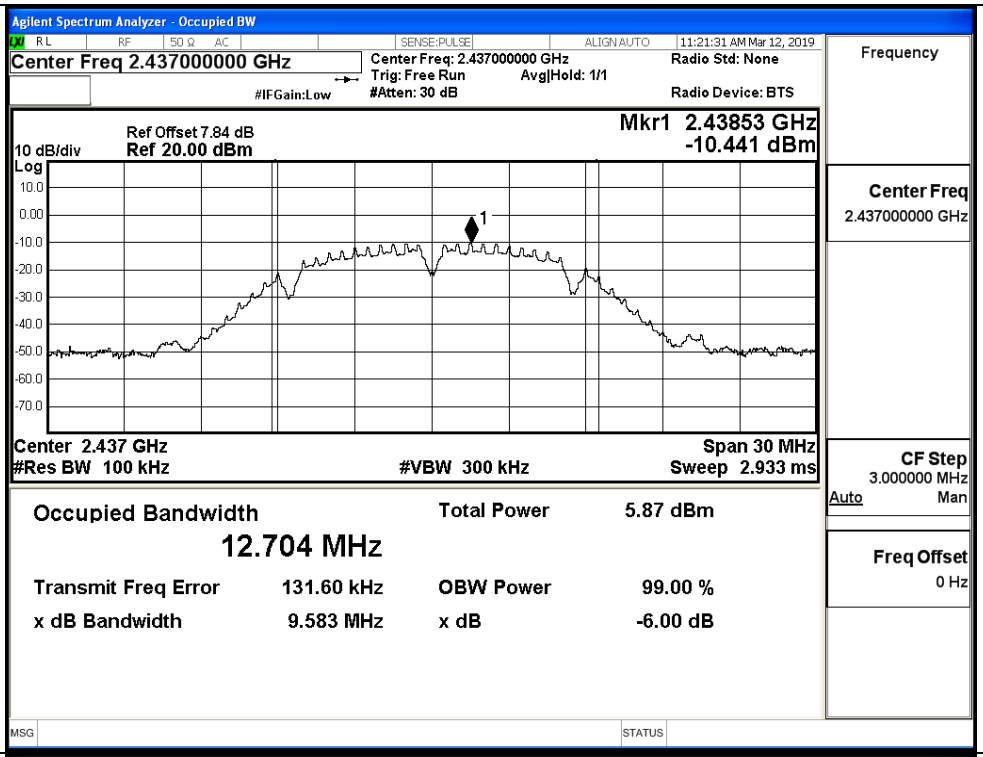
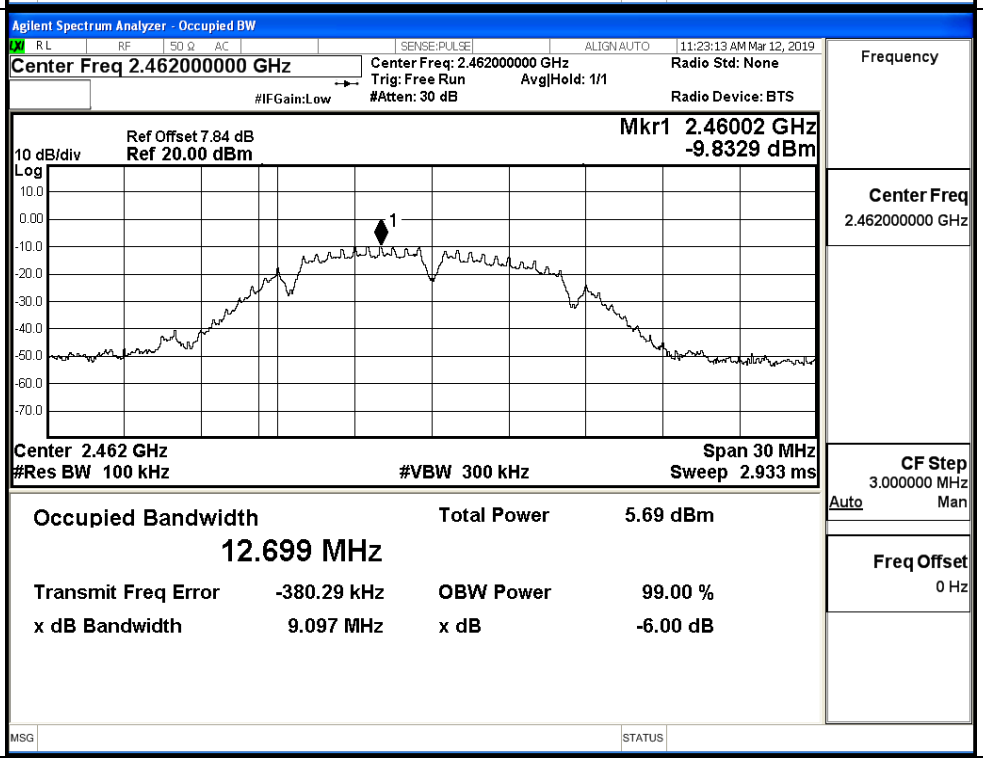
A.4 6dB Bandwidth

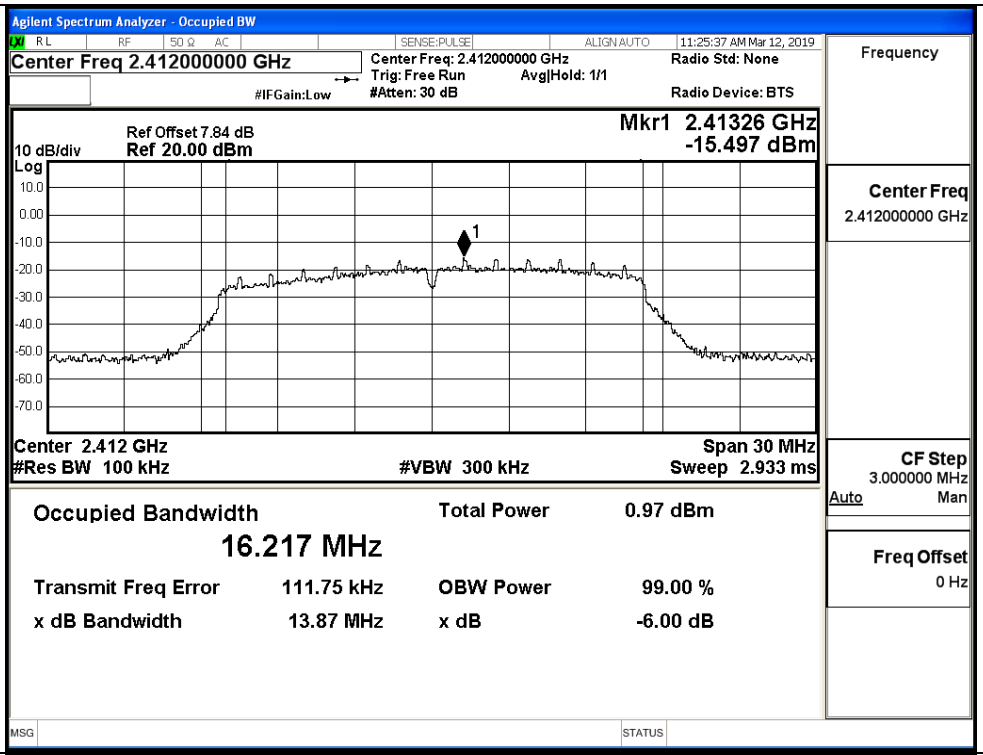
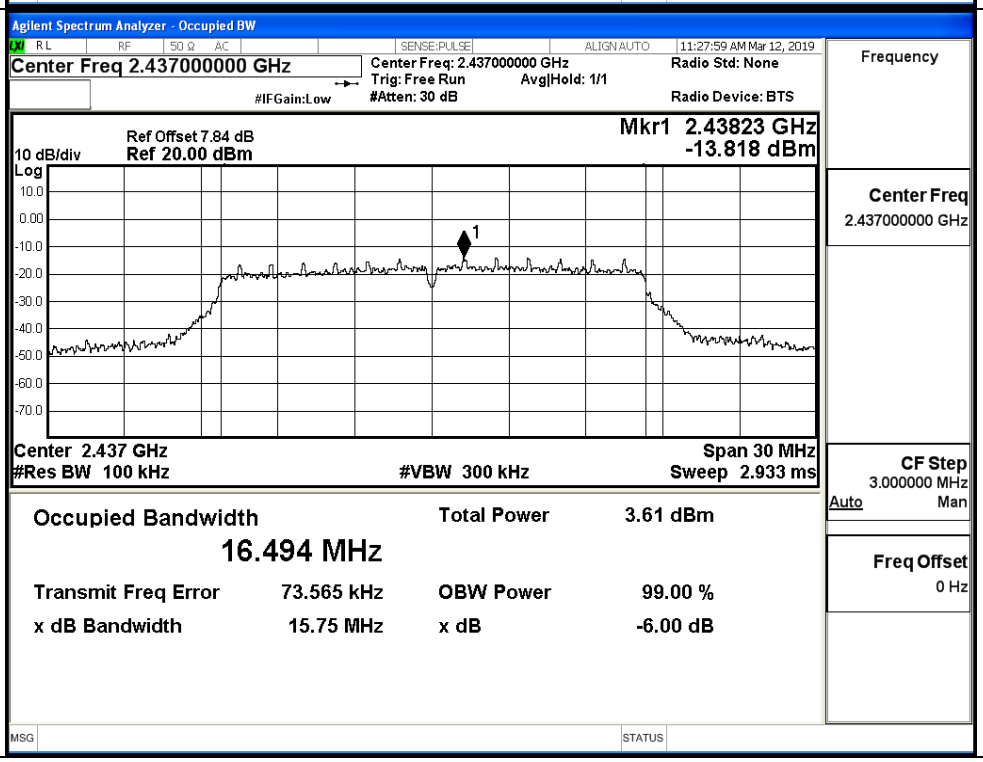
Mode	Channel	6dB Bandwidth [MHz]		Limit [MHz]	Verdict
		Ant0	Ant1		
11B	LCH	9.073	9.058	⩾0.5	PASS
	MCH	9.583	9.601	⩾0.5	PASS
	HCH	9.097	9.086	⩾0.5	PASS
11G	LCH	13.87	13.85	⩾0.5	PASS
	MCH	15.75	15.75	⩾0.5	PASS
	HCH	14.48	13.21	⩾0.5	PASS
11N20	LCH	13.88	13.87	⩾0.5	PASS
	MCH	16.37	16.37	⩾0.5	PASS
	HCH	15.03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

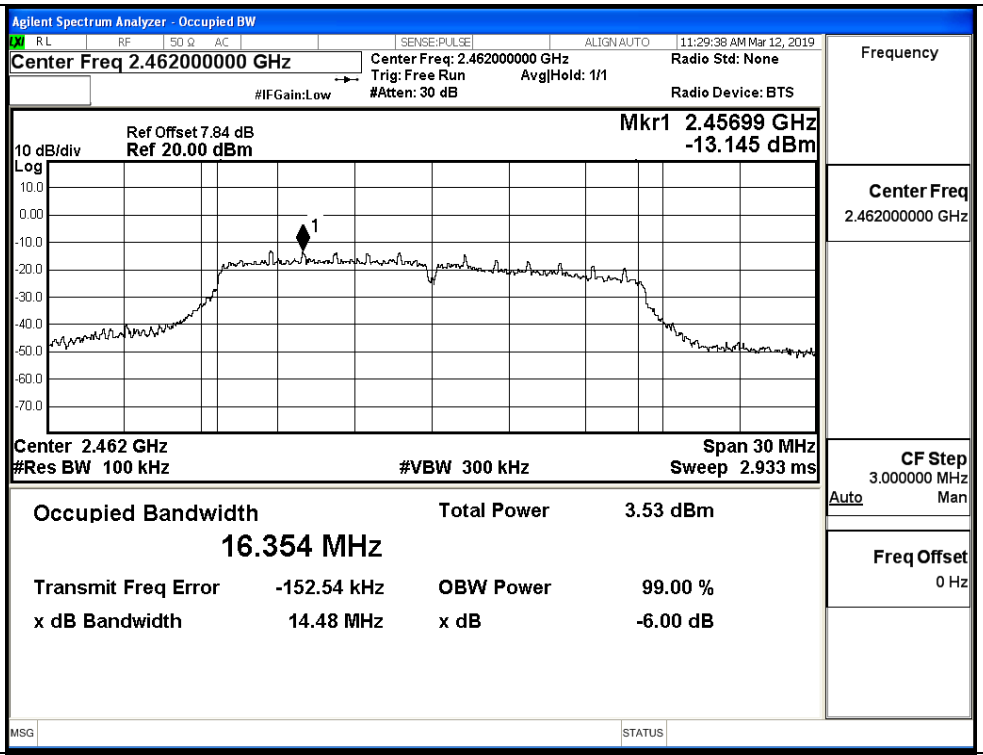
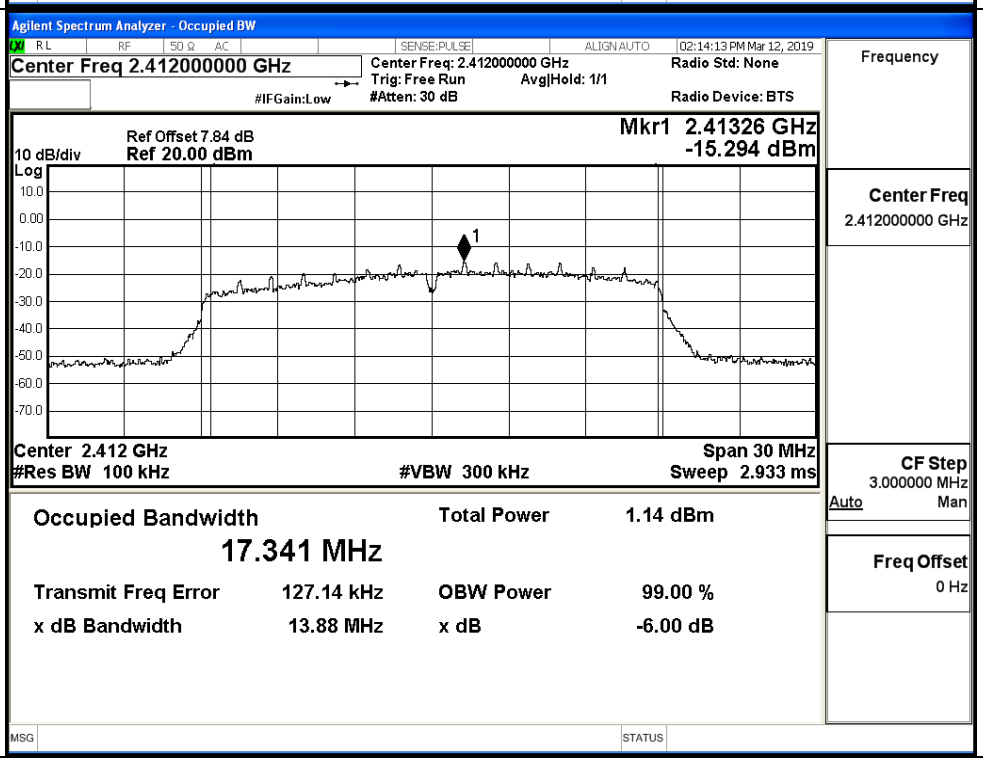
Test Graphs_Ant0

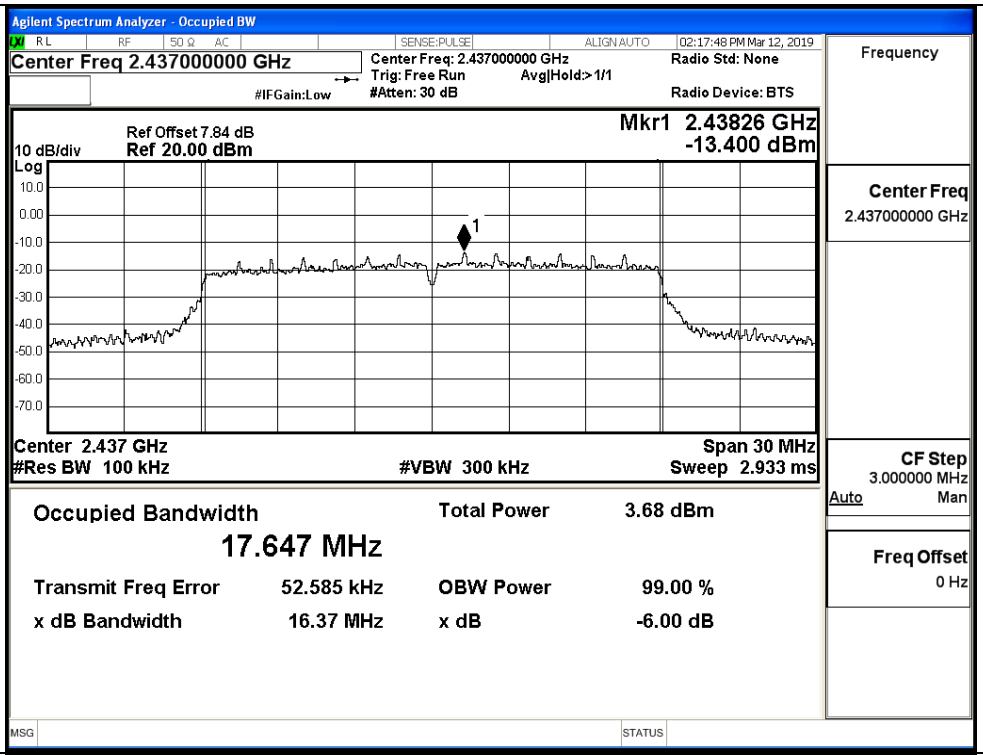
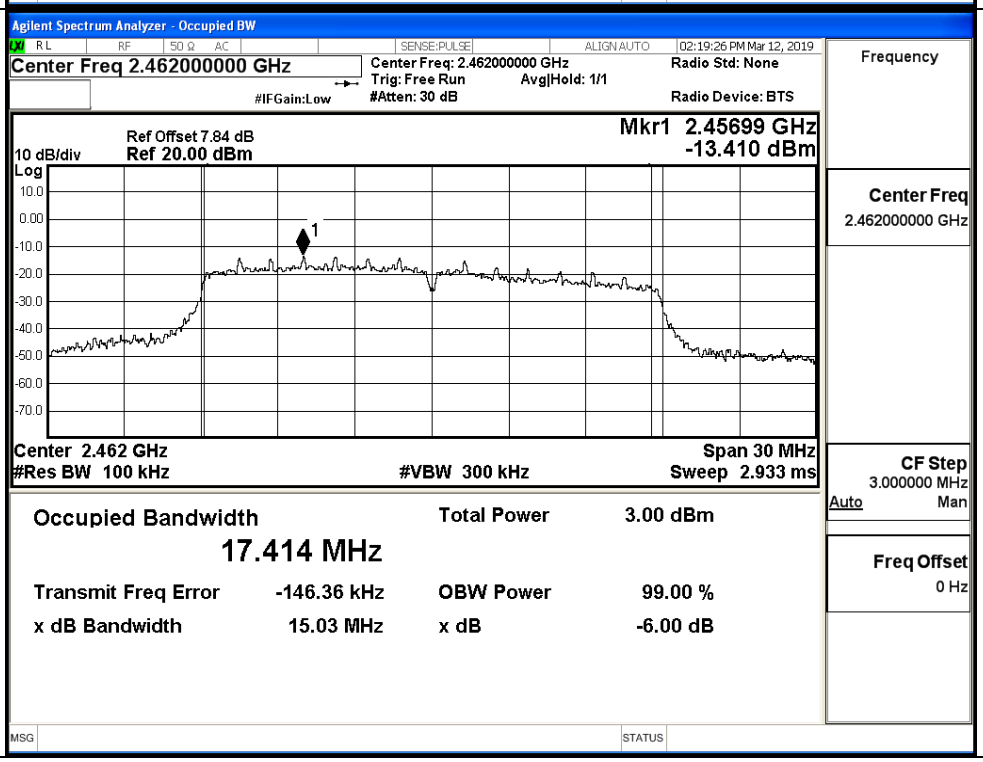
11B/LCH

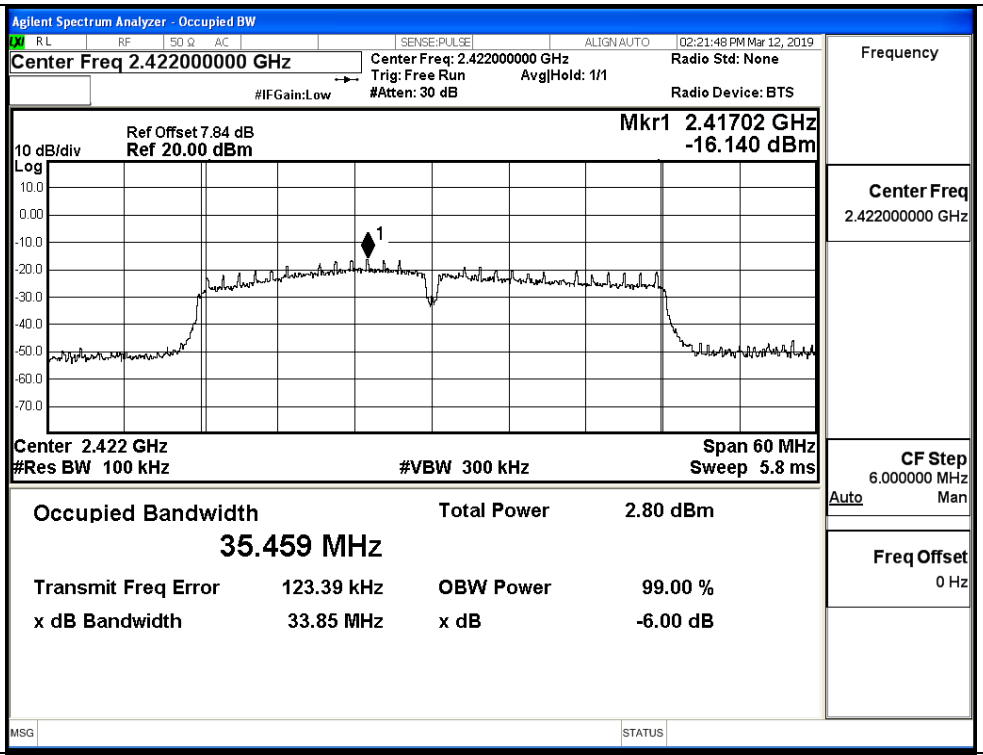
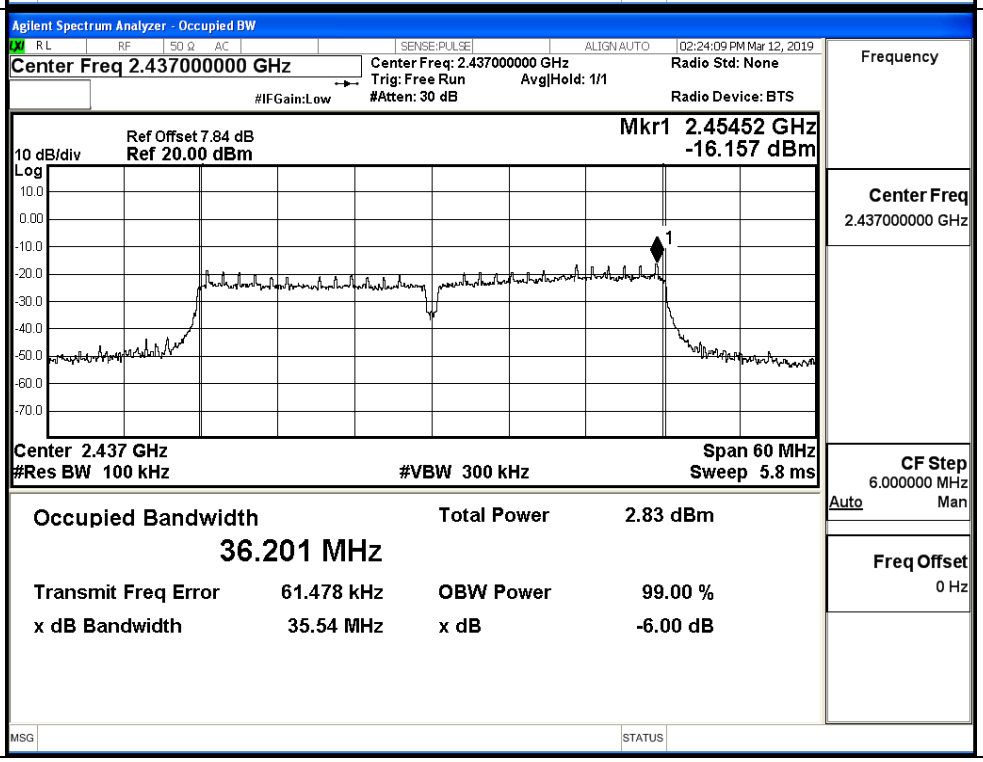


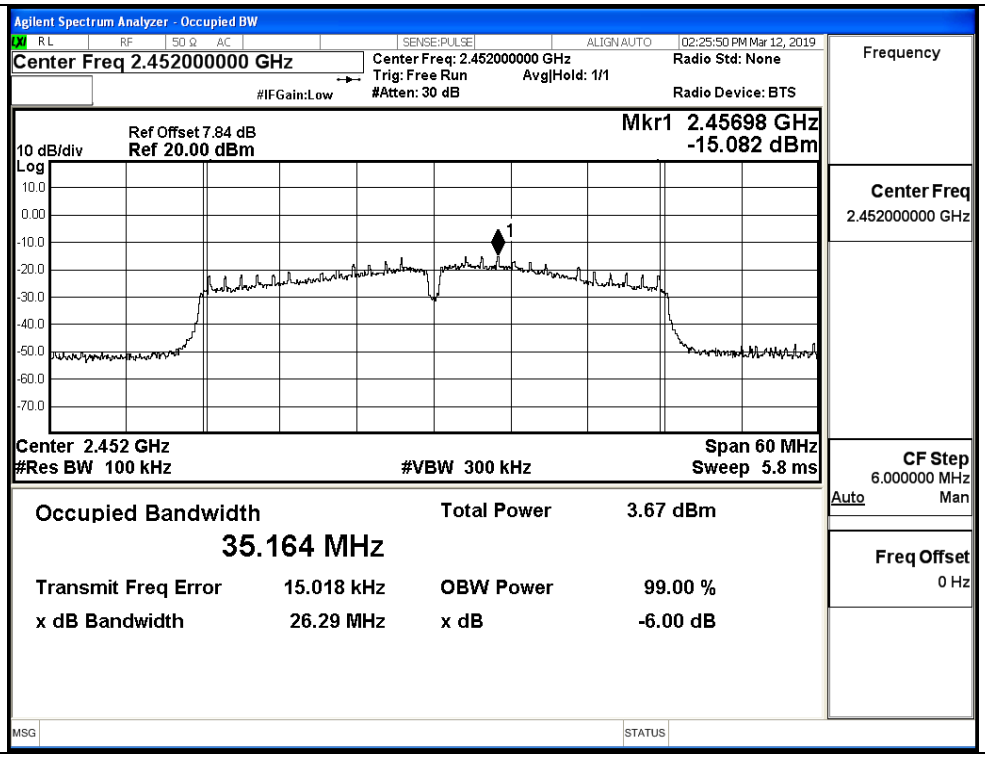
11B/MCH	
11B/HCH	

11G/LCH	
11G/MCH	

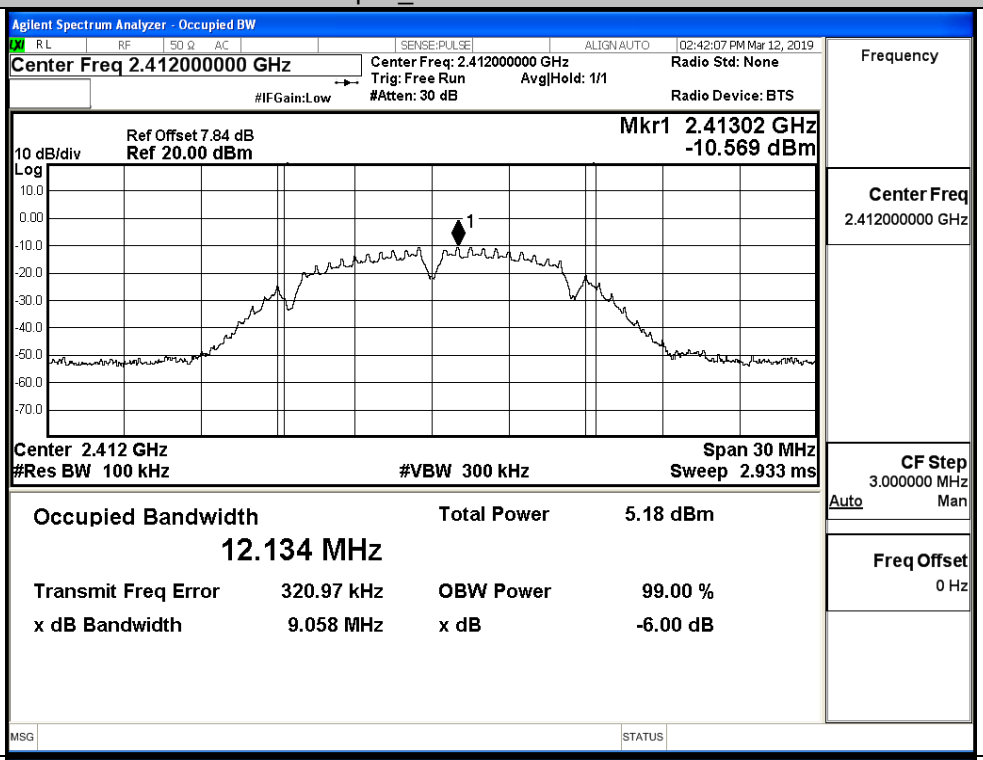
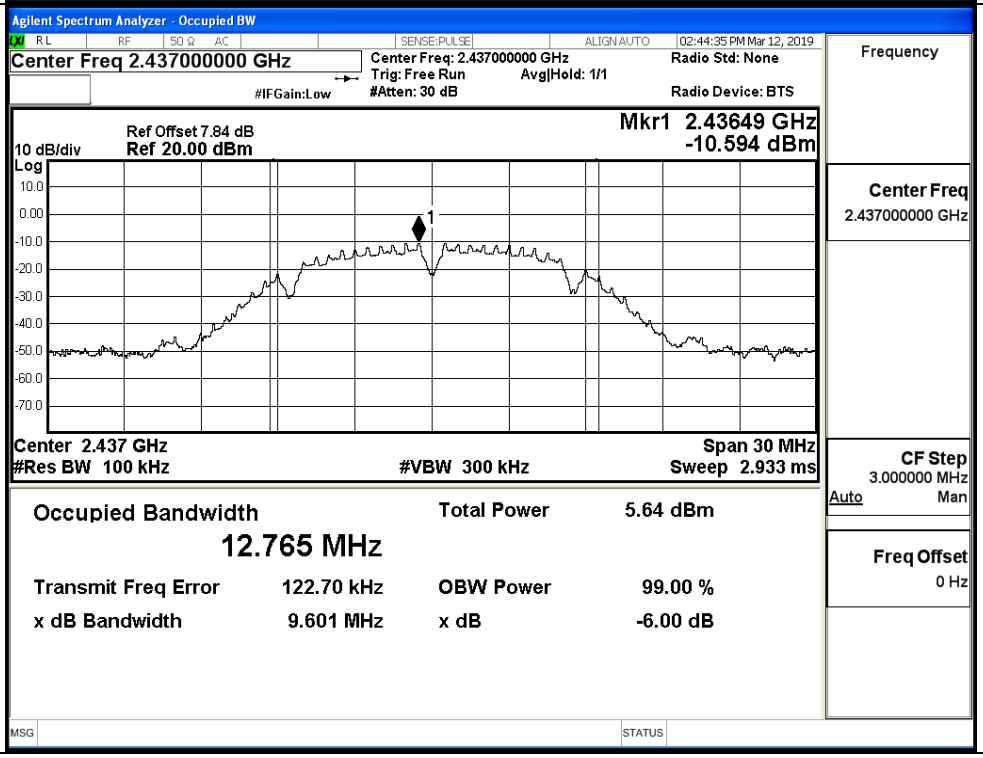
11G/HCH	
11N20/LCH	

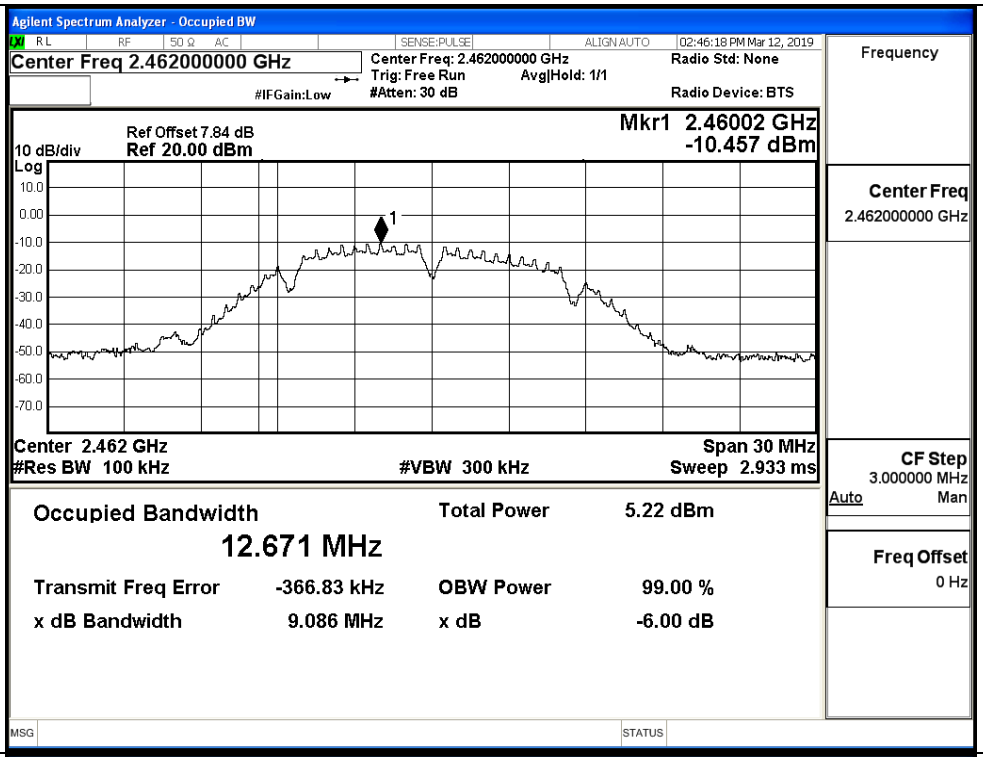
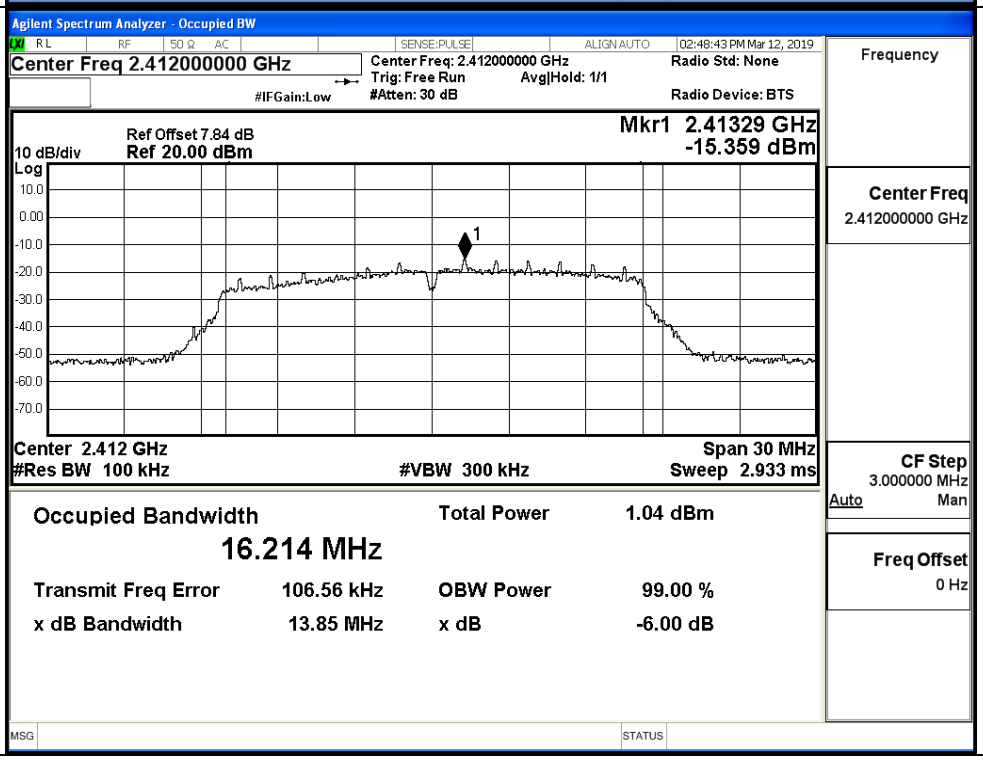
11N20/MCH	
11N20/HCH	

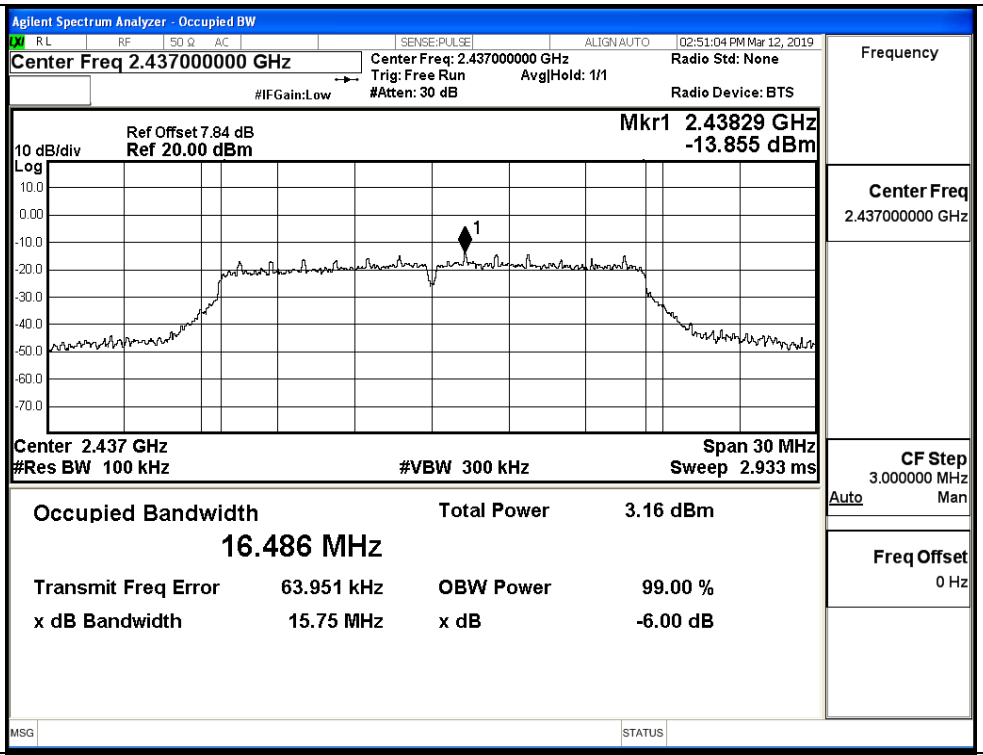
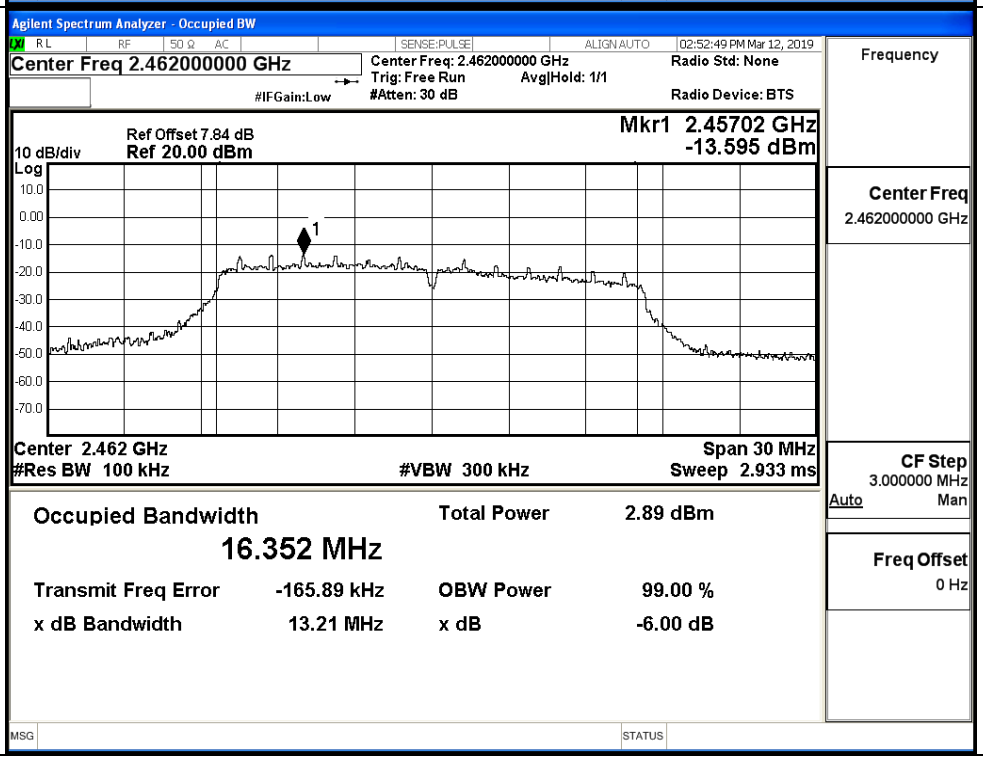
11N40/LCH	
11N40/MCH	

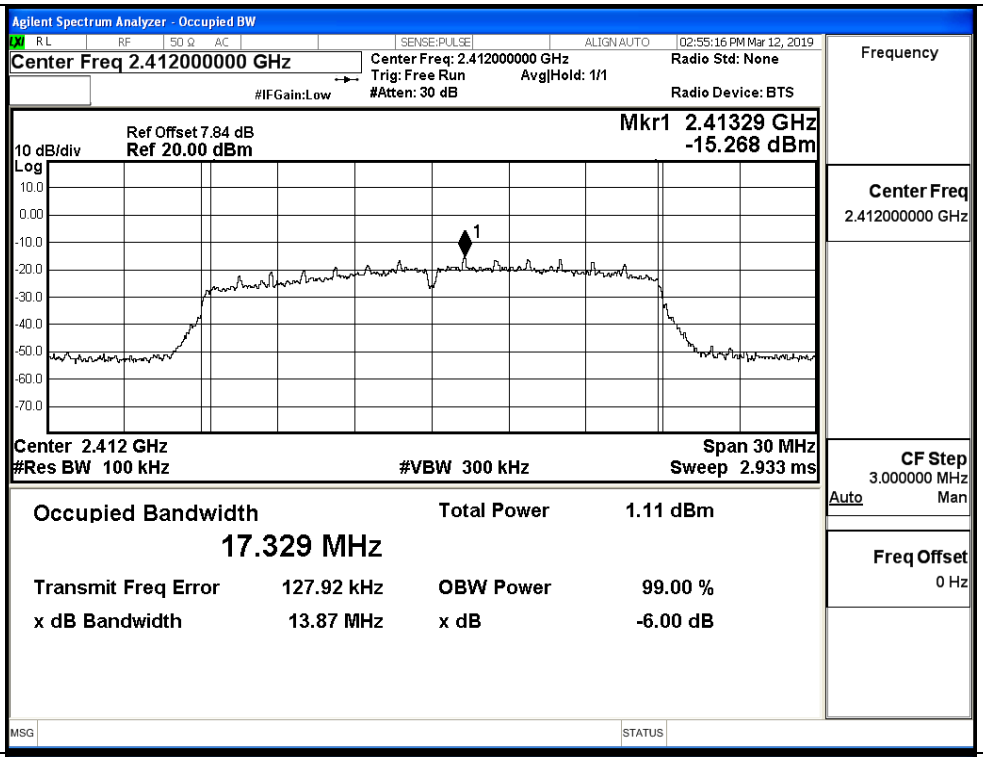
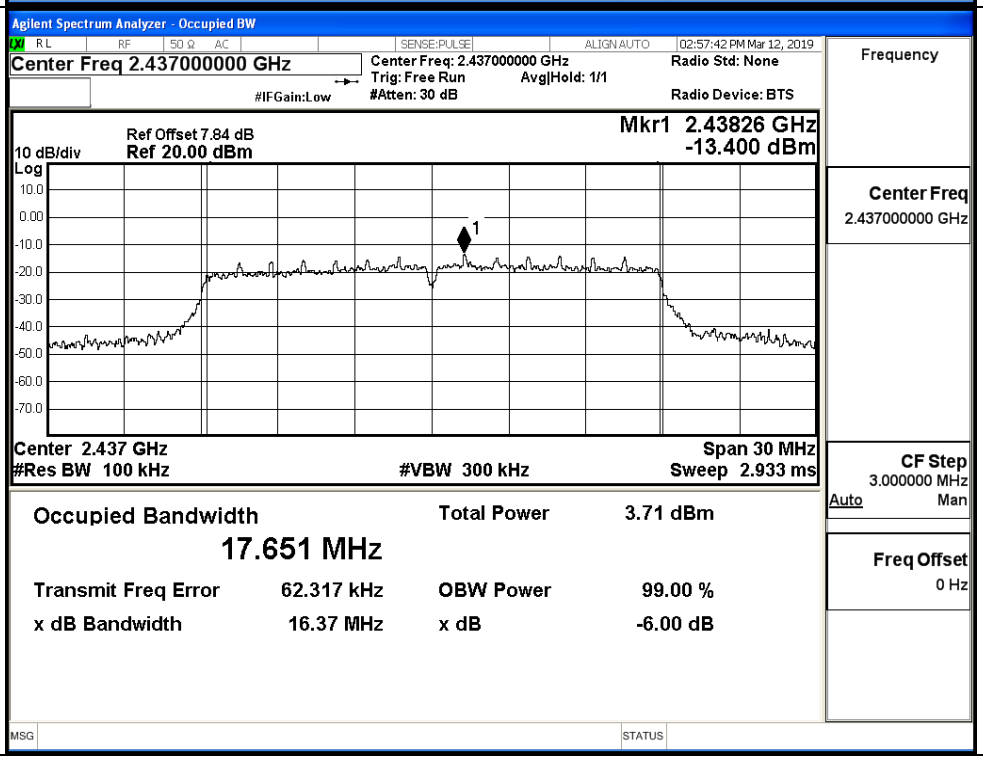
11N40/HCH	

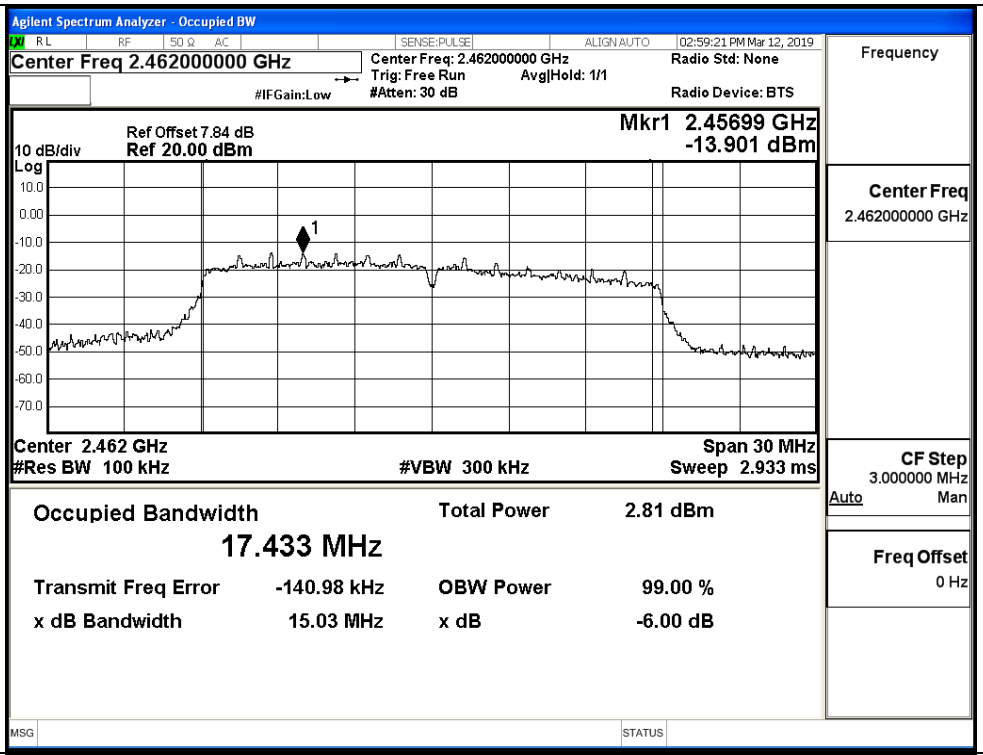
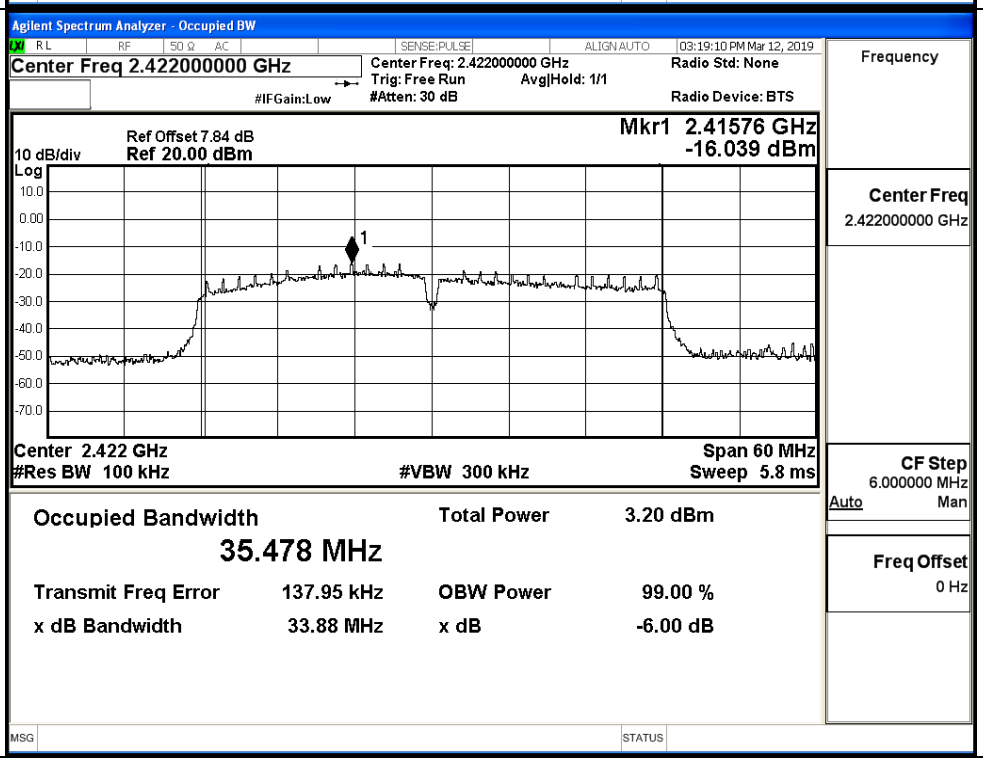
Agilent Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
SENSE:PULSE
ALIGN AUTO
02:25:50 PM Mar 12, 2019
Center Freq 2.452000000 GHz
Center Freq: 2.452000000 GHz
Trig: Free Run
Avg|Hold: 1/1
#IFGain:Low
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Frequency
Mkr1 2.45698 GHz
-15.082 dBm
Ref Offset 7.84 dB
10 dB/div
Ref 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center Freq
2.452000000 GHz
Center 2.452 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 60 MHz
Sweep 5.8 ms
CF Step
6.000000 MHz
Auto
Man
Occupied Bandwidth
35.164 MHz
Total Power 3.67 dBm
Transmit Freq Error 15.018 kHz
OBW Power 99.00 %
x dB Bandwidth 26.29 MHz
x dB -6.00 dB
Freq Offset
0 Hz
MSG
STATUS

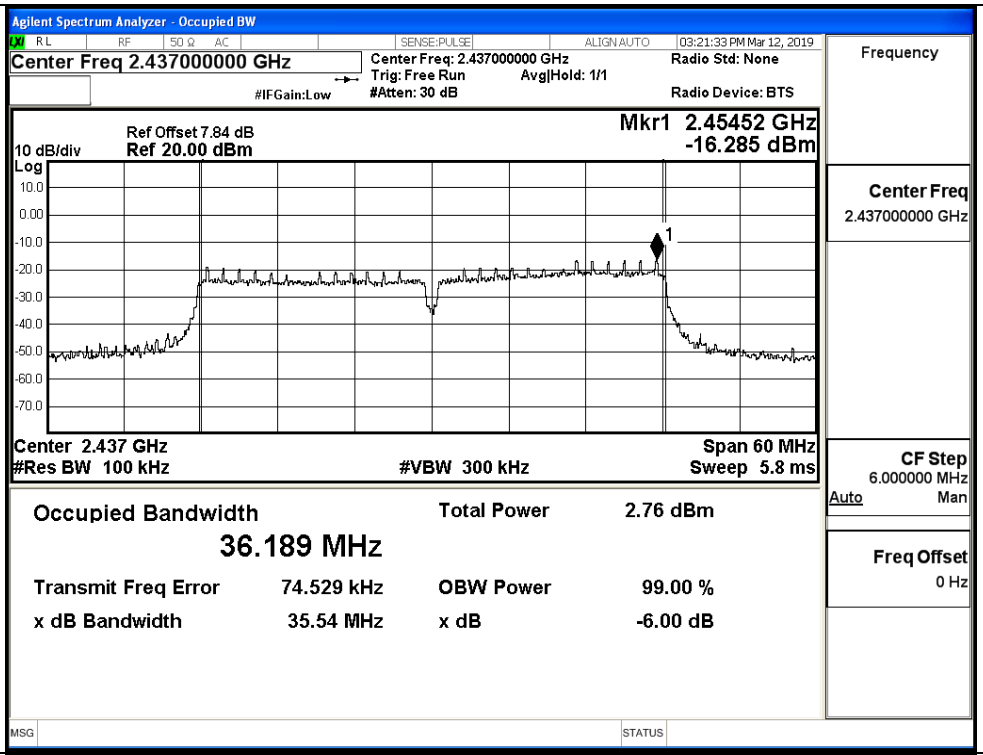
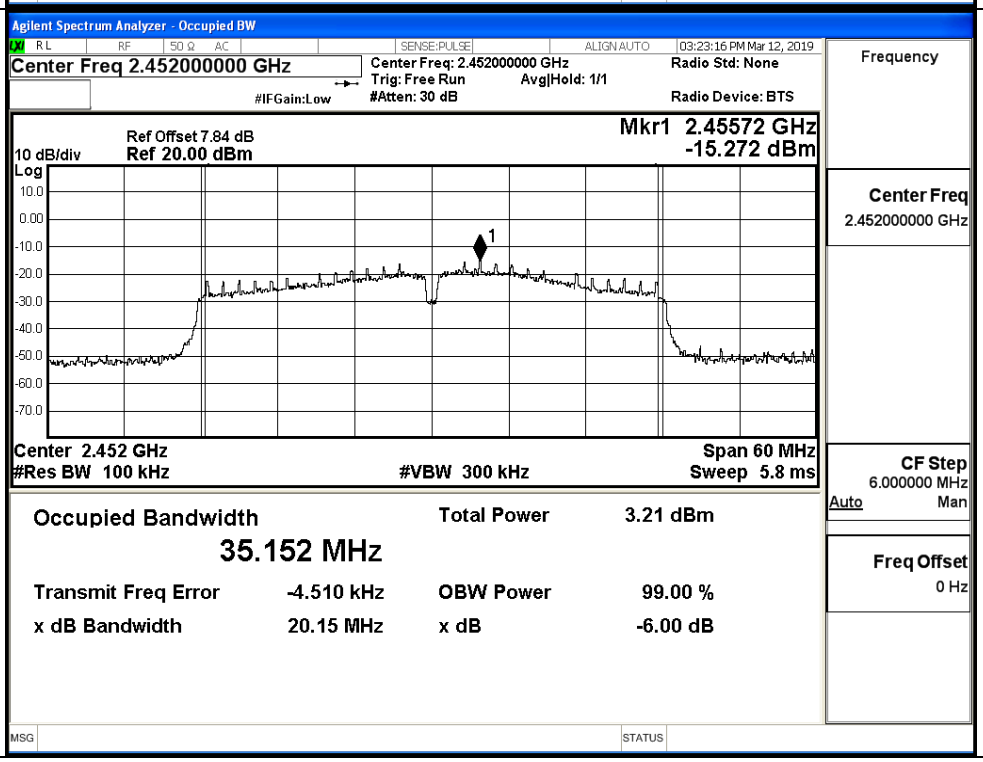
Test Graphs_Ant1		
11B/LCH		
11B/MCH		

11B/HCH	
11G/LCH	

11G/MCH	
11G/HCH	

11N20/LCH	
11N20/MCH	

11N20/HCH	
11N40/LCH	

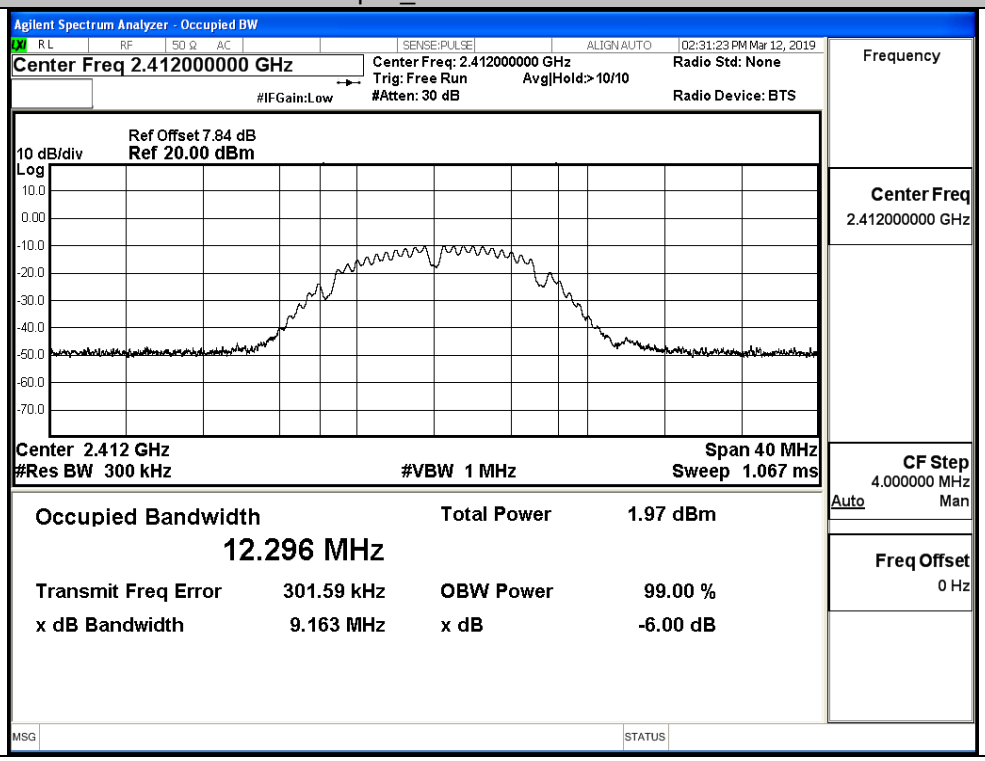
11N40/MCH	
11N40/HCH	

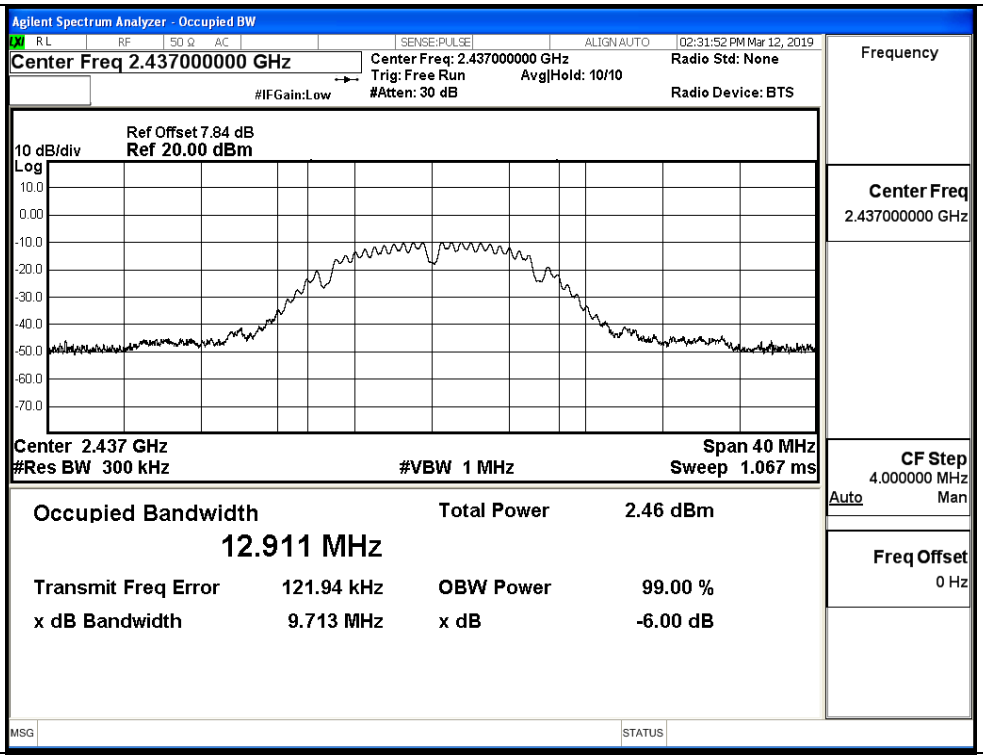
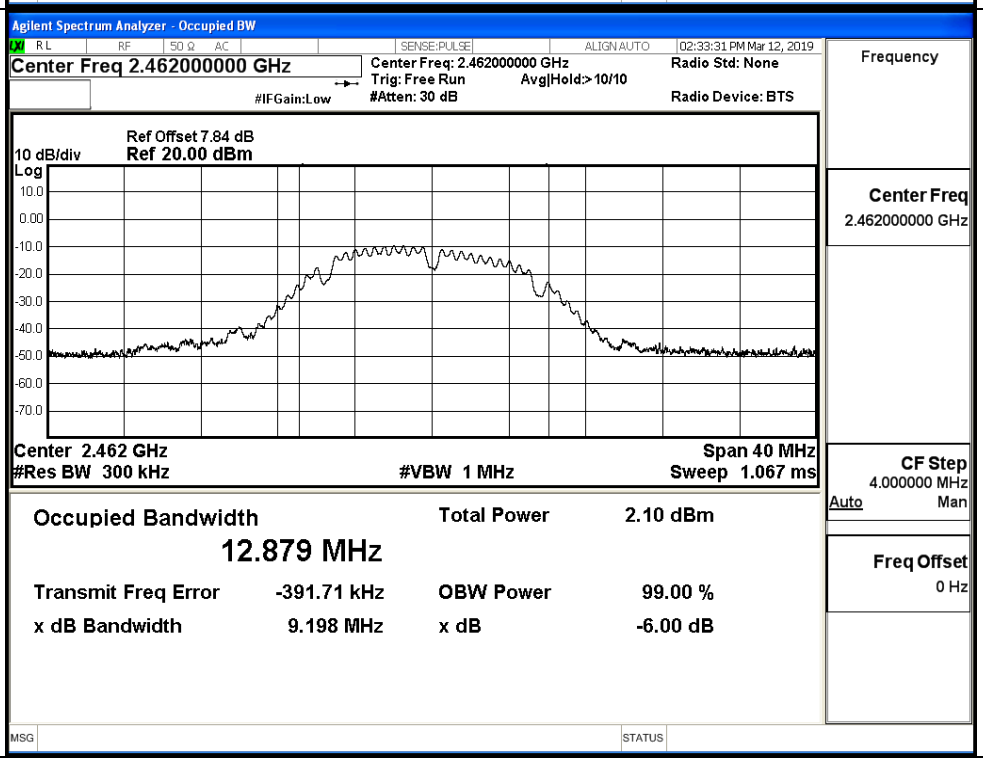
A.5 Occupied Bandwidth

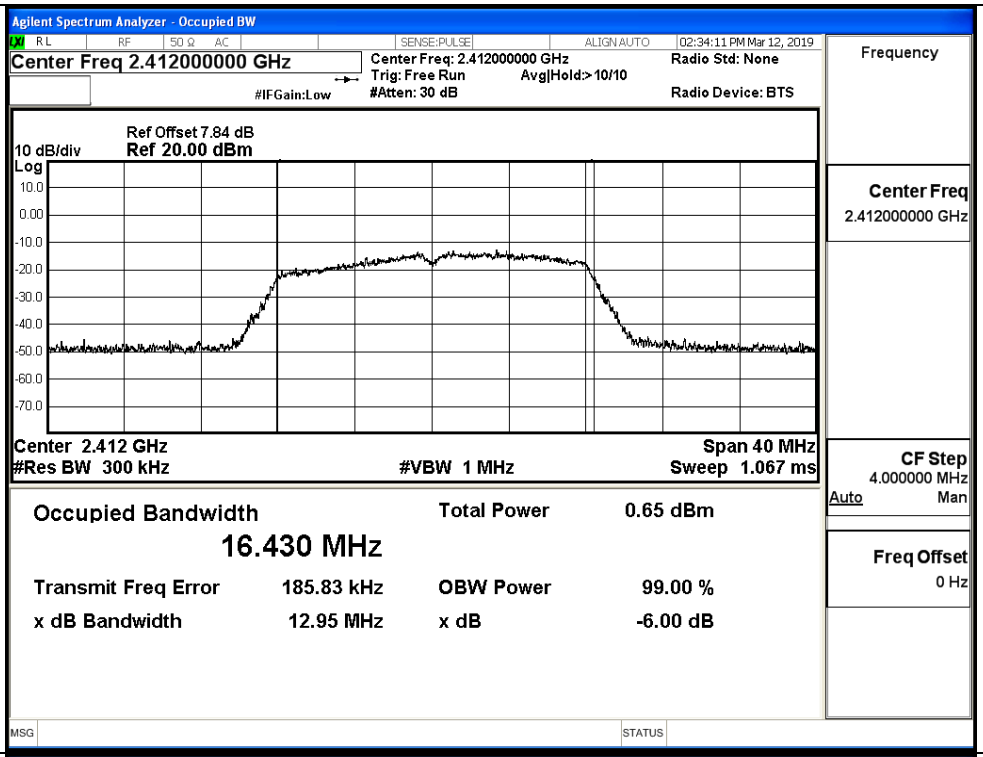
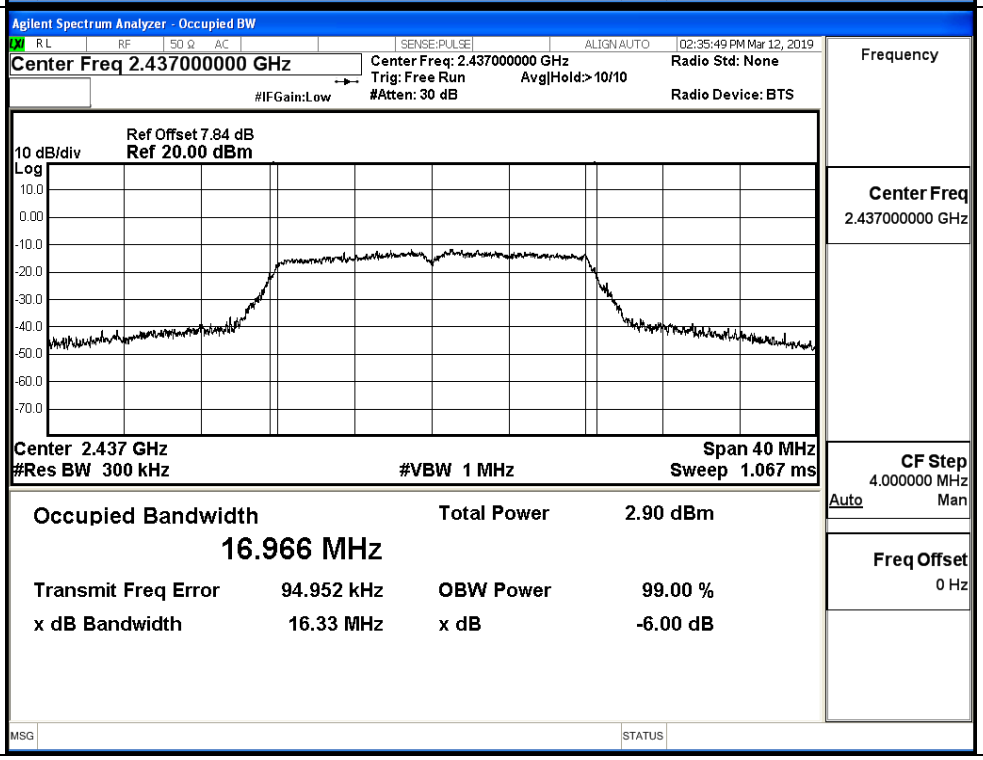
Mode	Channel	Occupied Bandwidth [MHz]		Limit [MHz]	Verdict
		Ant0	Ant1		
11B	LCH	12.296	12.309	⩾0.5	PASS
	MCH	12.911	12.880	⩾0.5	PASS
	HCH	12.879	12.838	⩾0.5	PASS
11G	LCH	16.430	16.413	⩾0.5	PASS
	MCH	16.966	16.916	⩾0.5	PASS
	HCH	16.602	16.638	⩾0.5	PASS
11N20	LCH	17.460	17.425	⩾0.5	PASS
	MCH	17.901	17.844	⩾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

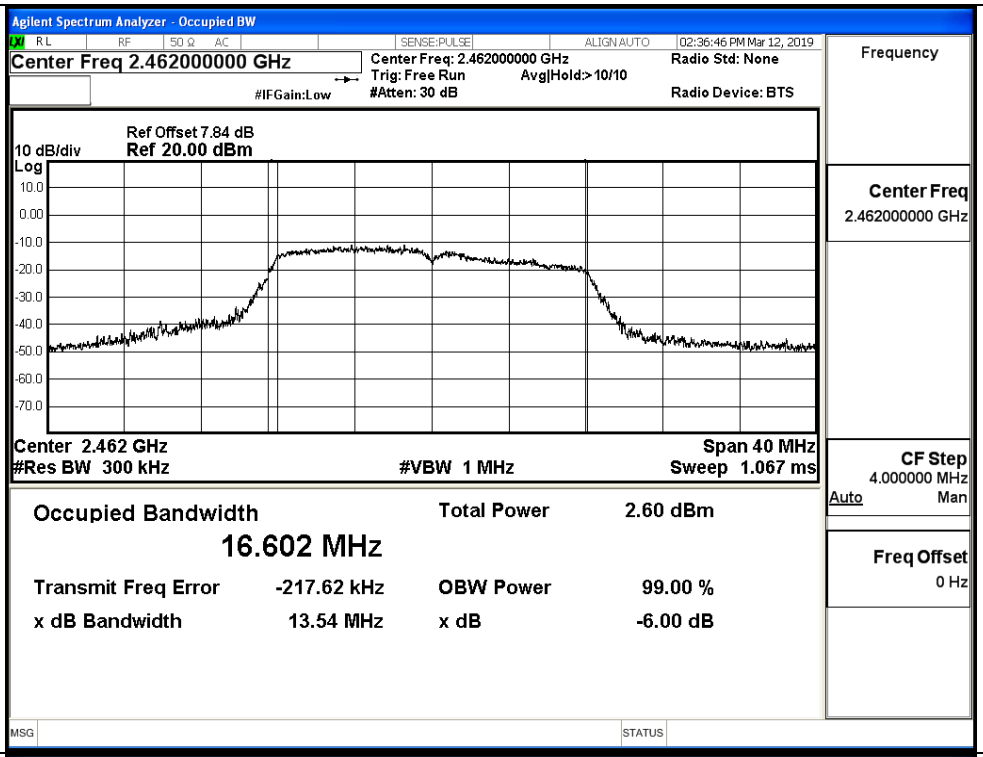
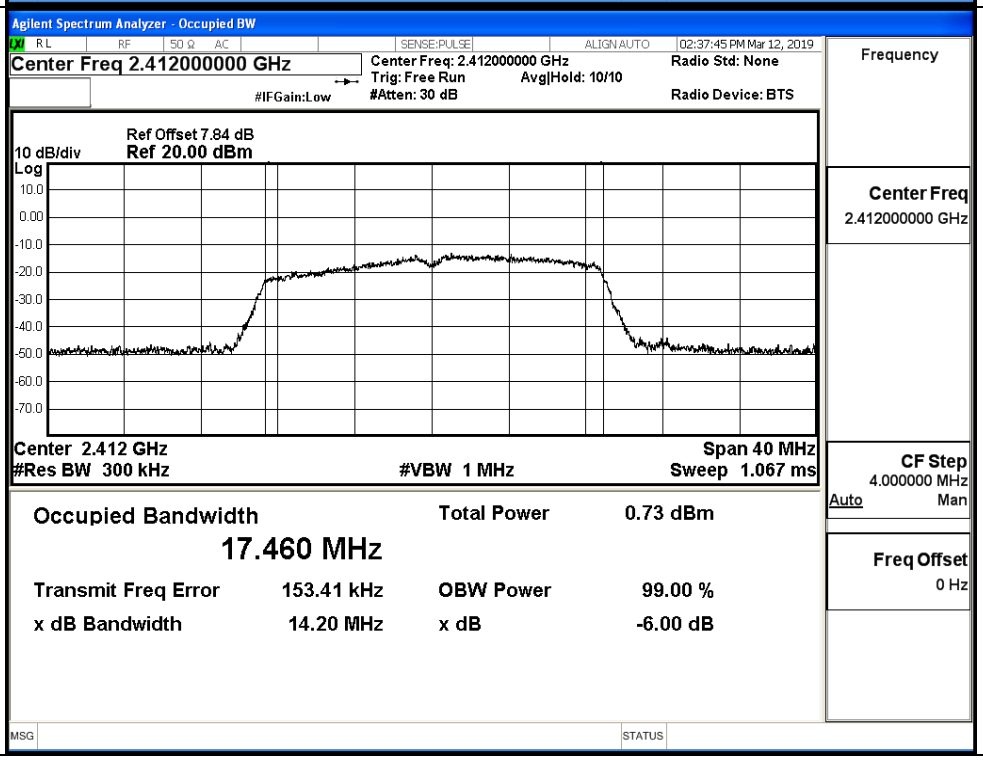
Test Graphs_Ant0

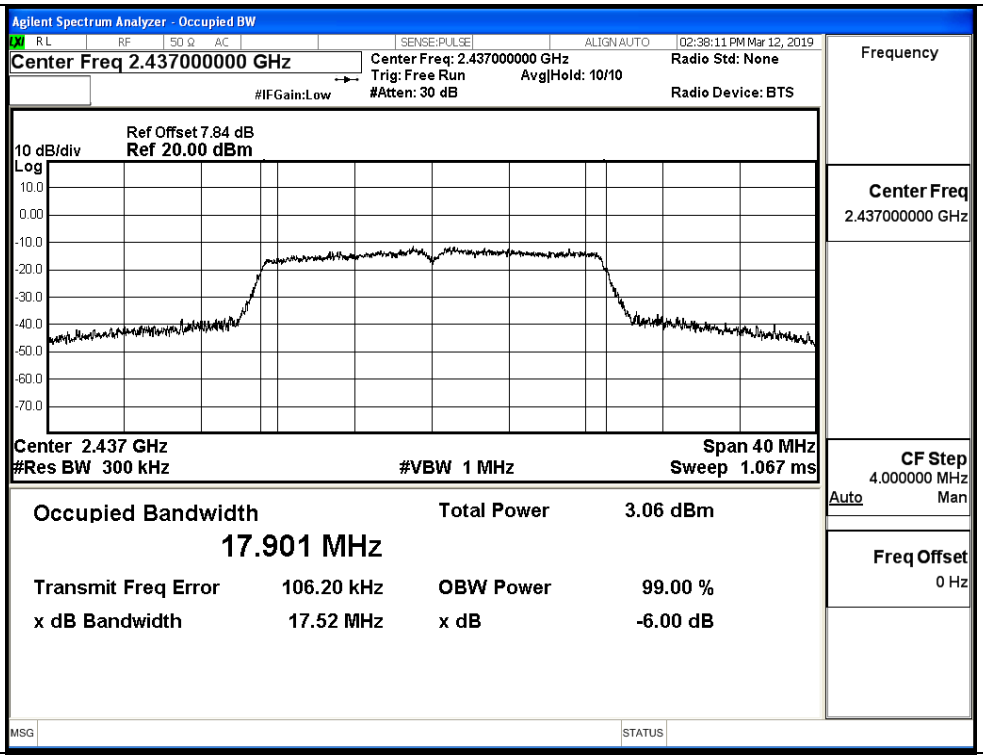
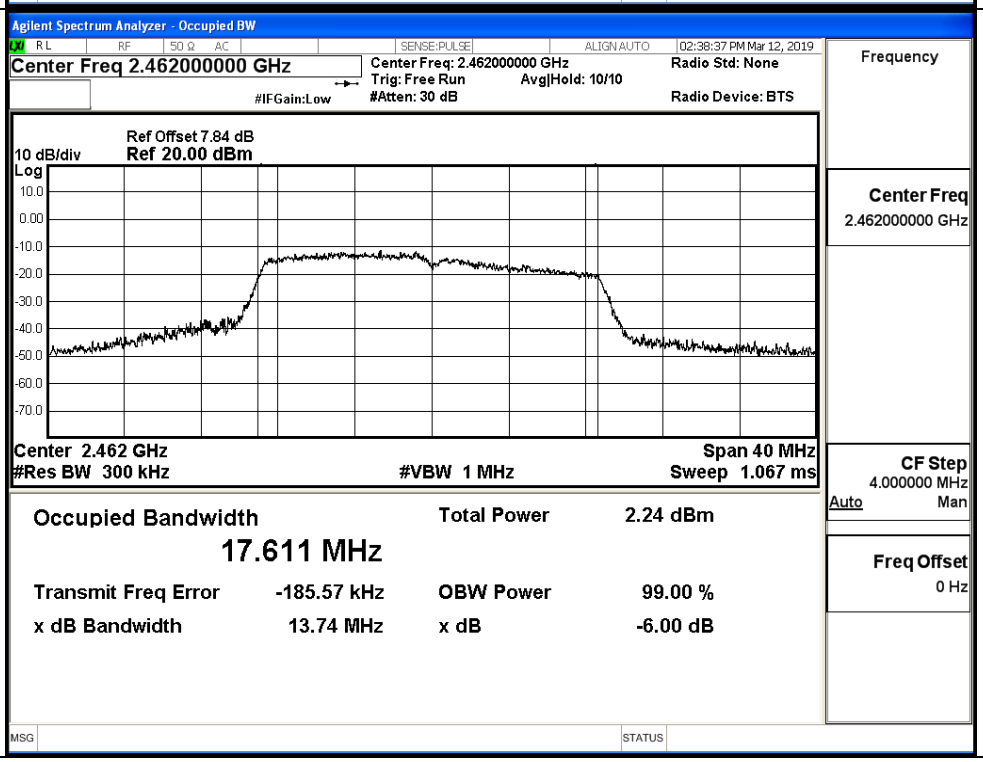
11B/LCH

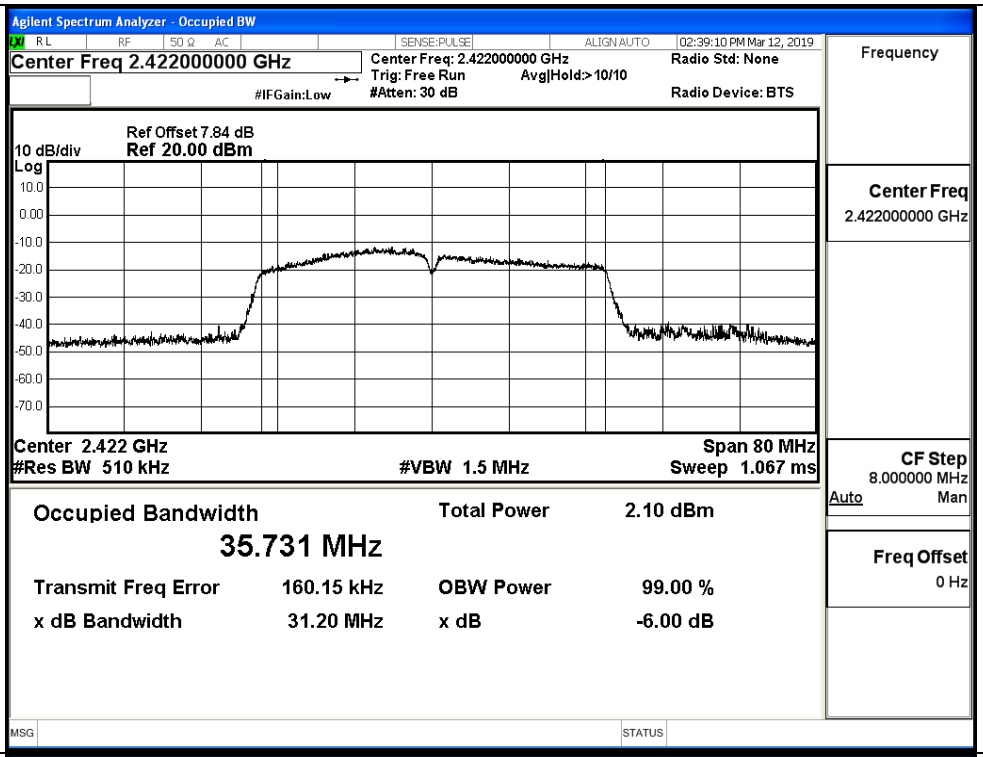
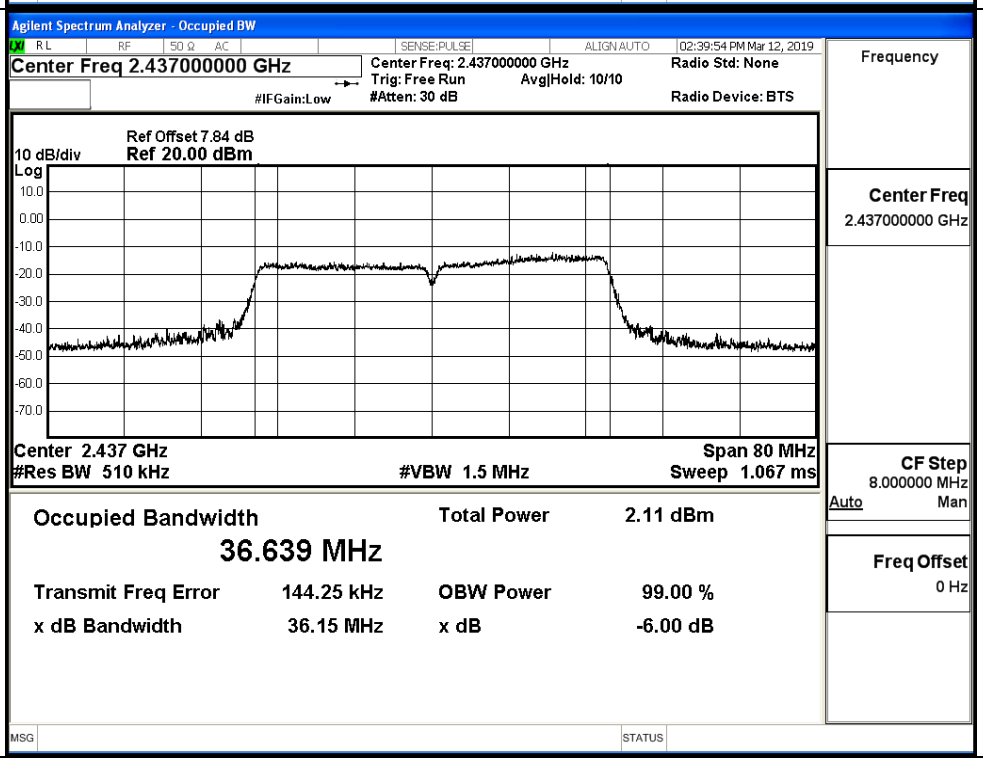


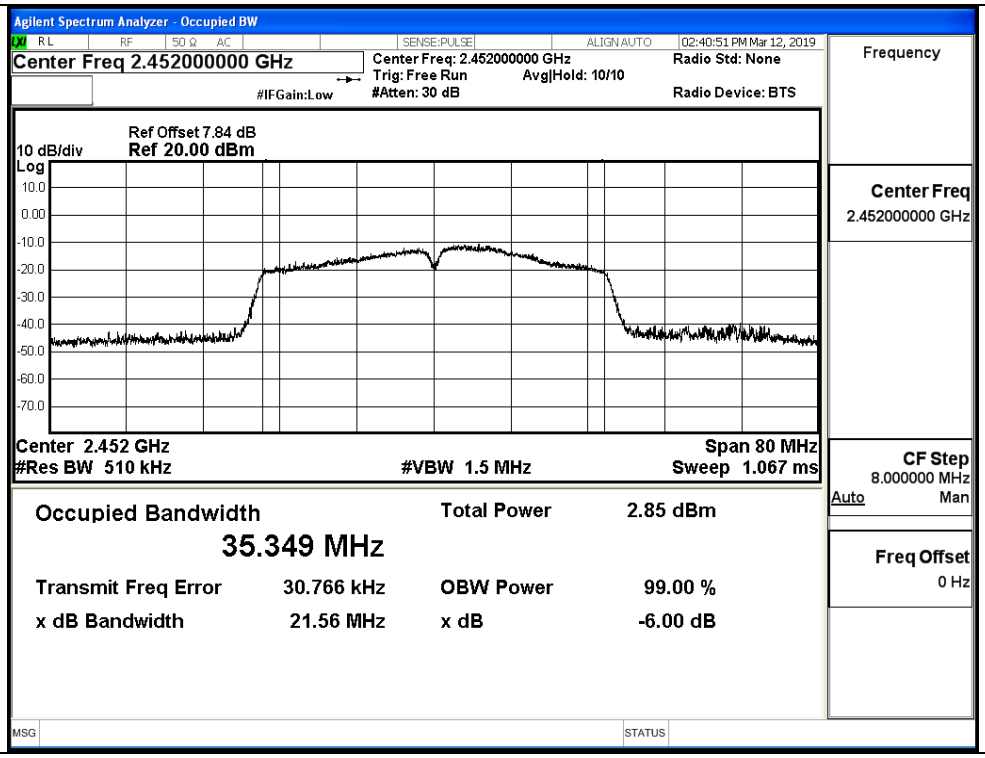
11B/MCH	
11B/HCH	

11G/LCH		
11G/MCH		

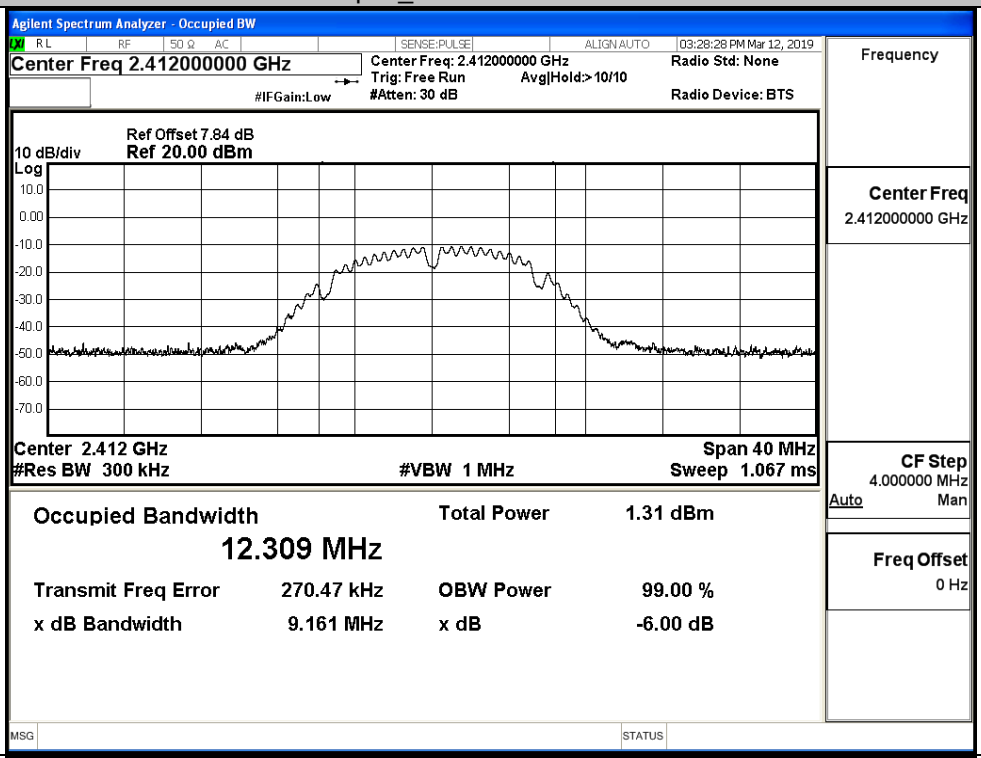
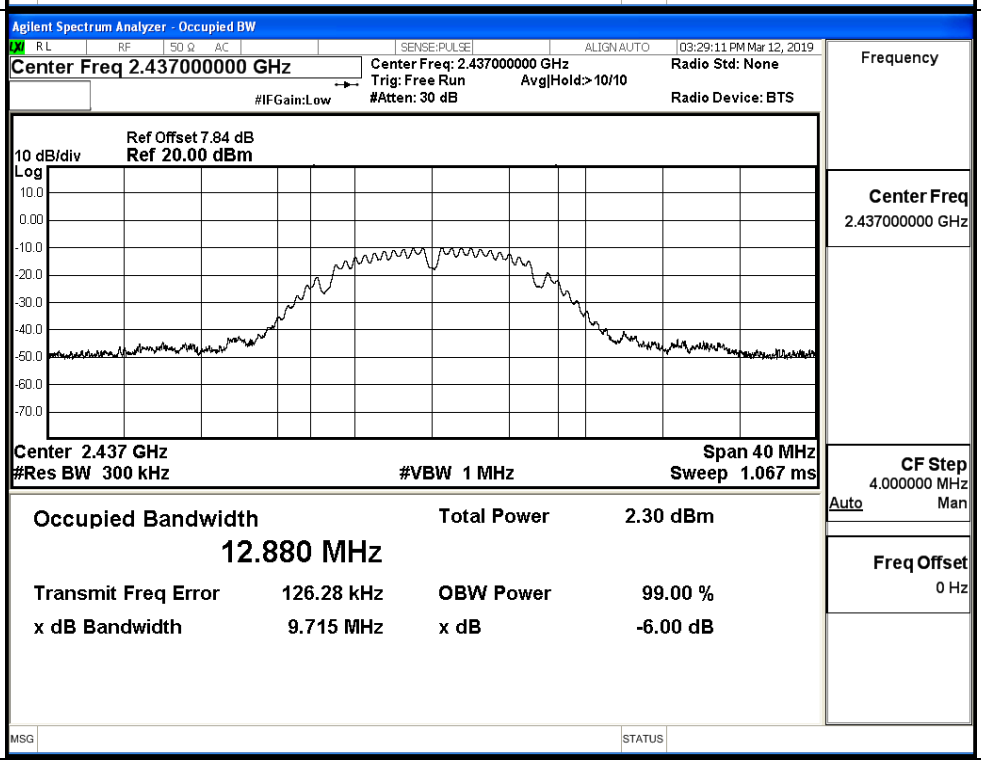
11G/HCH	
11N20/LCH	

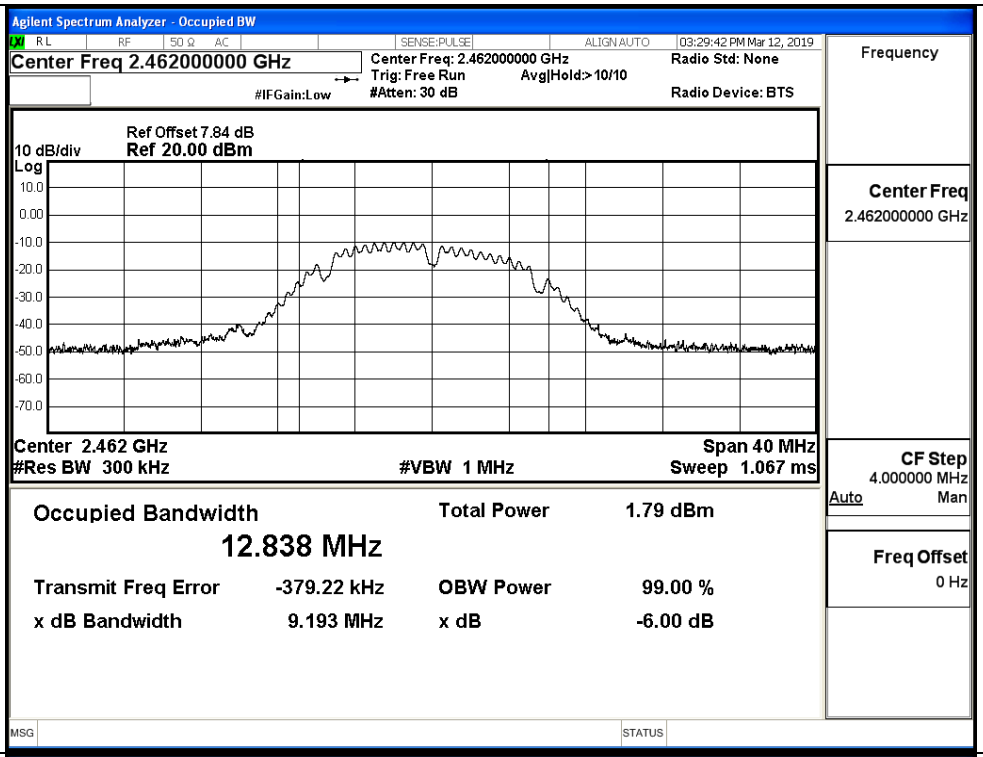
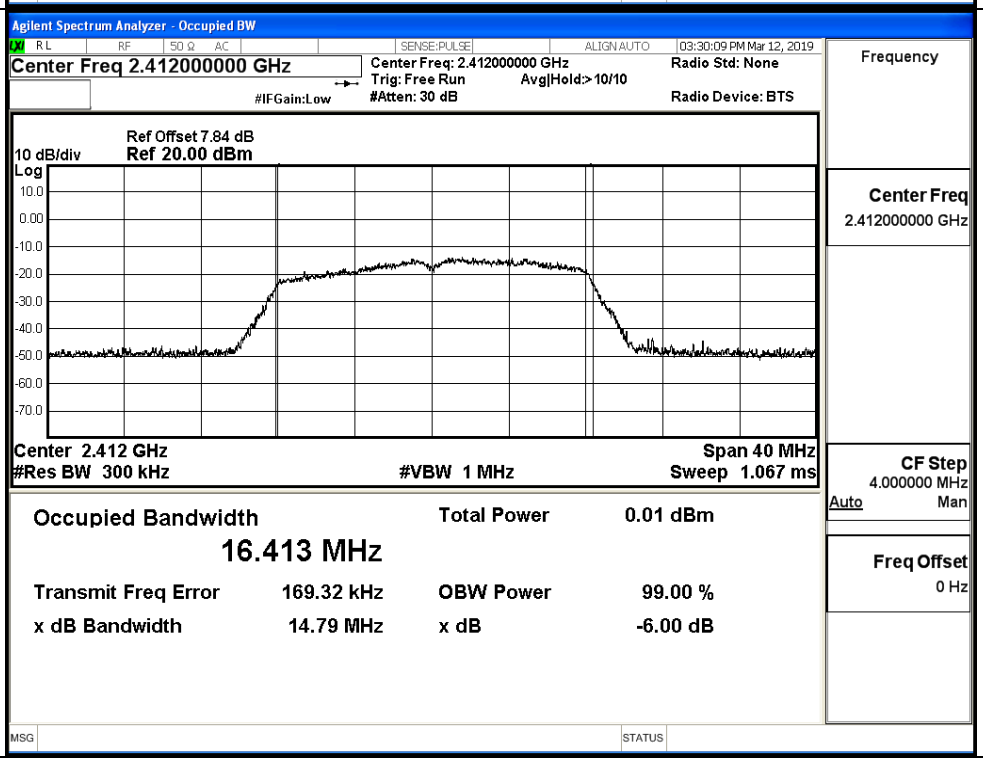
11N20/MCH	
11N20/HCH	

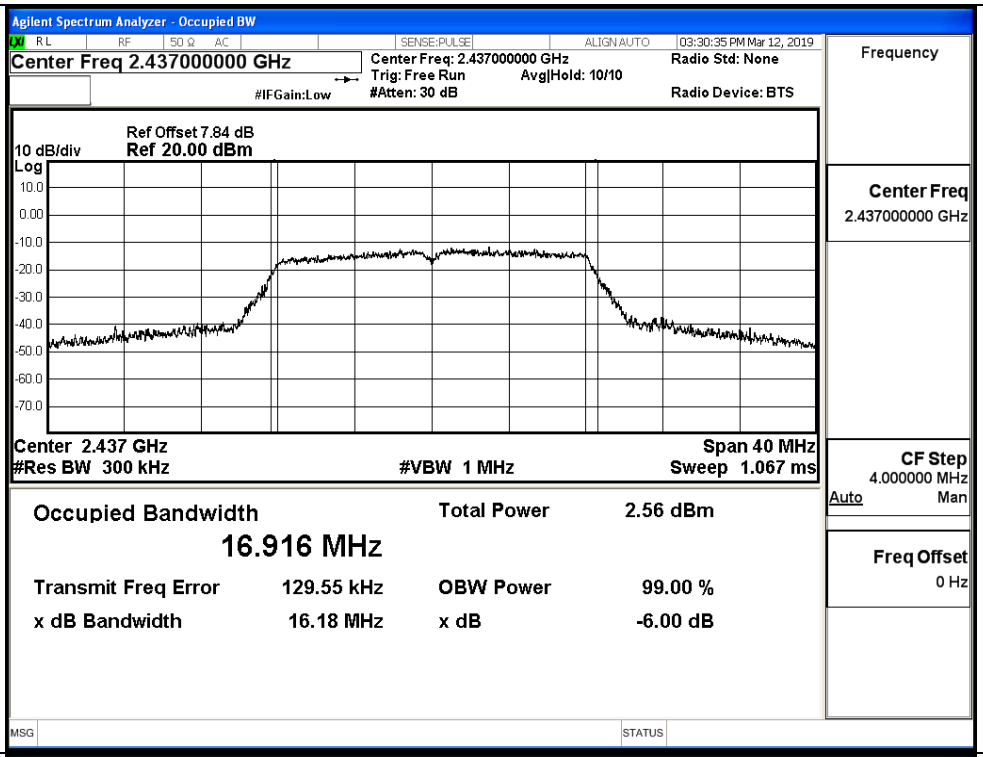
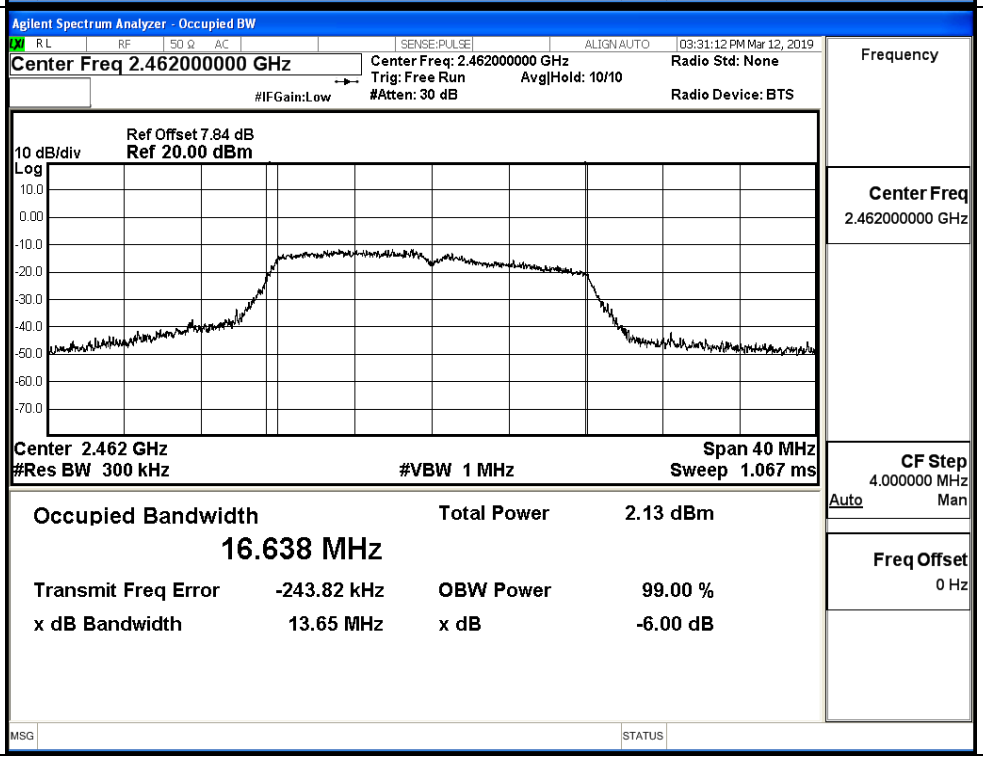
11N40/LCH		
11N40/MCH		

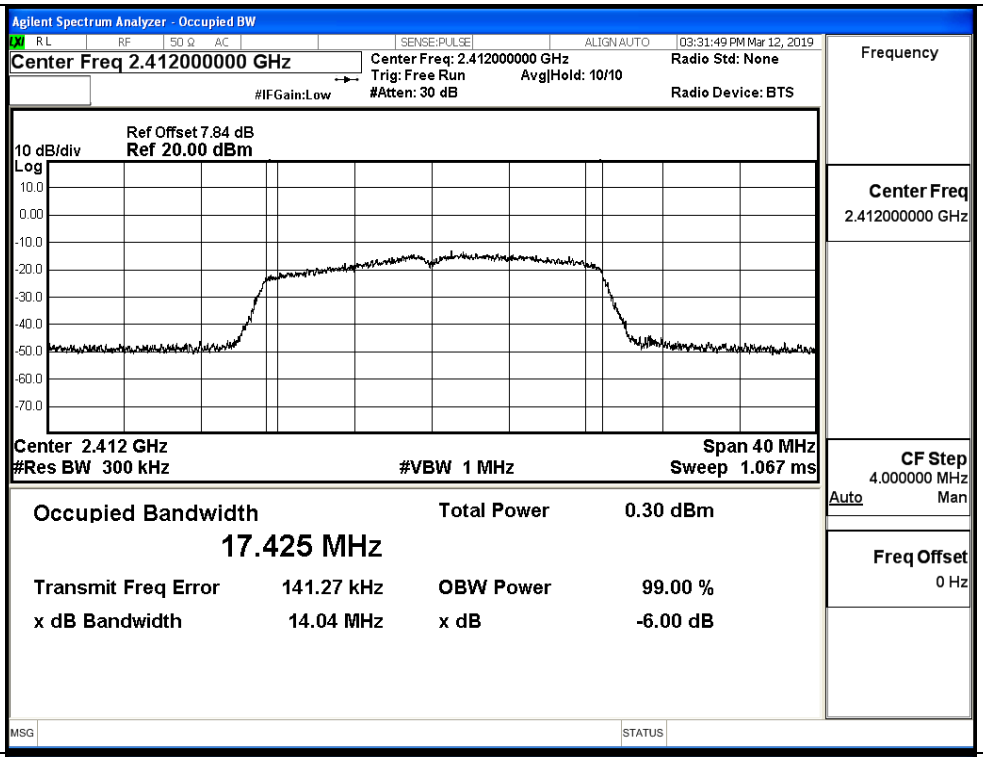
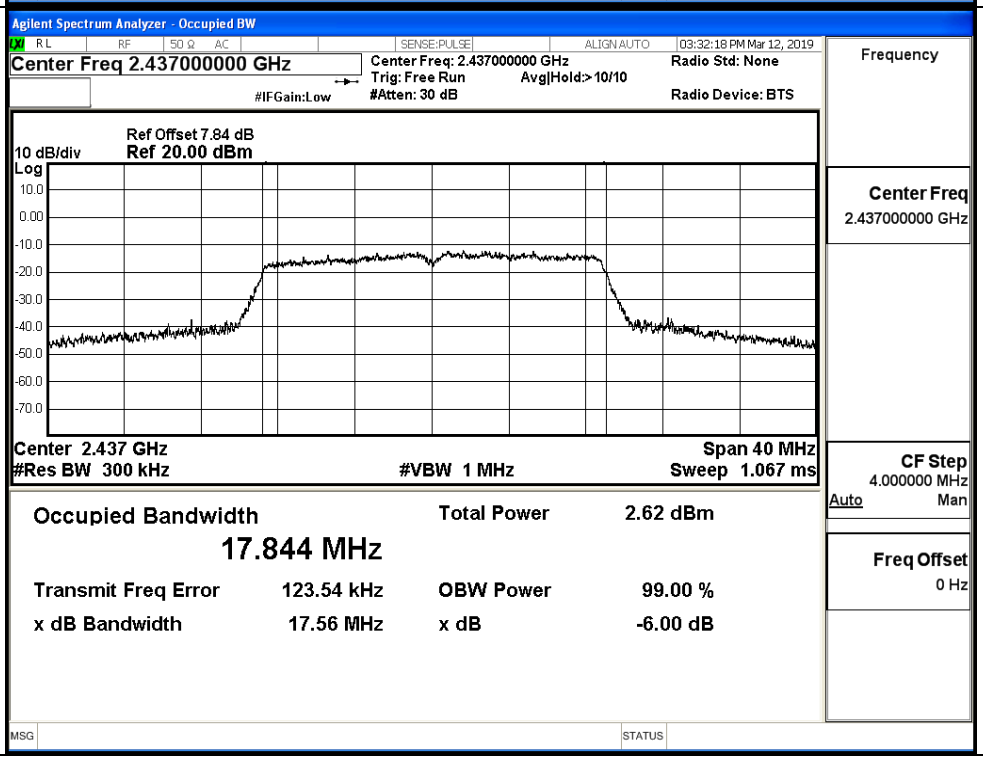
11N40/HCH	

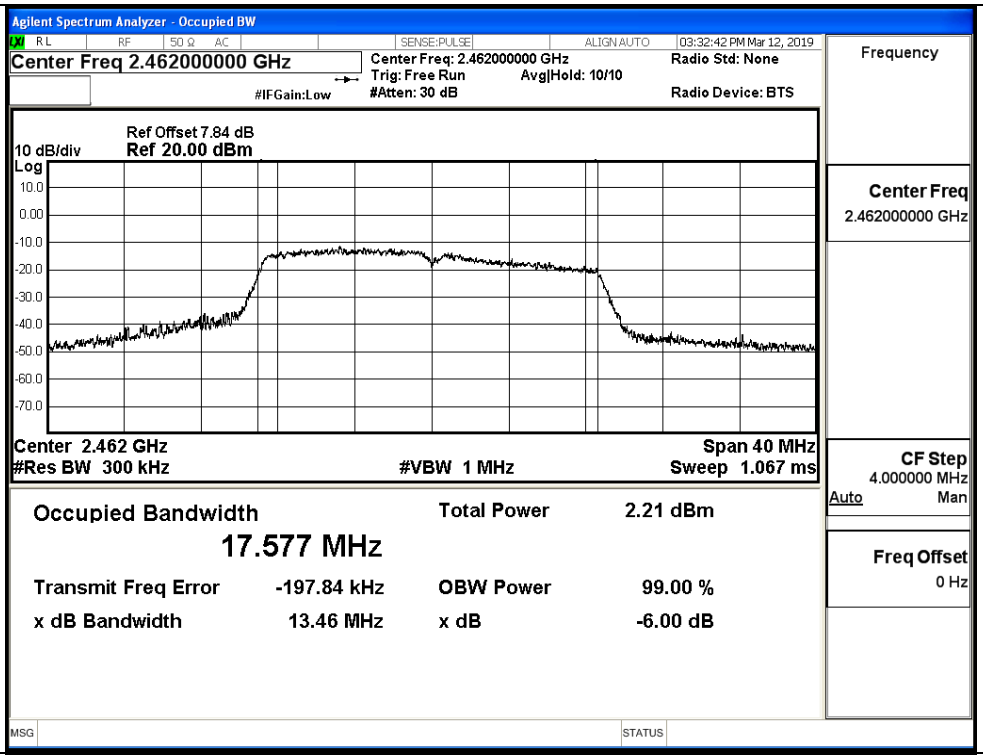
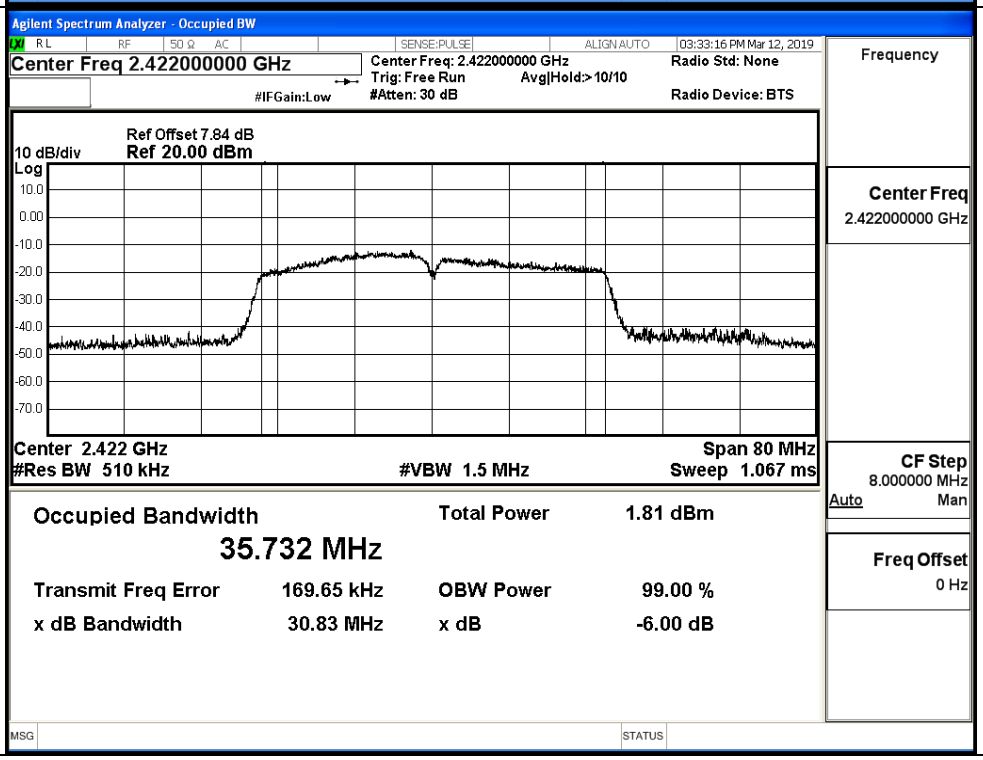
Agilent Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
SENSE:PULSE
ALIGN AUTO
02:40:51 PM Mar 12, 2019
Center Freq 2.452000000 GHz
Center Freq: 2.452000000 GHz
Trig: Free Run
Avg|Hold: 10/10
#IFGain:Low
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 7.84 dB
10 dB/div
Ref 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center Freq
2.452000000 GHz
Center 2.452 GHz
#Res BW 510 kHz
#VBW 1.5 MHz
Span 80 MHz
Sweep 1.067 ms
CF Step
8.000000 MHz
Auto
Man
Occupied Bandwidth
35.349 MHz
Total Power
2.85 dBm
Transmit Freq Error
30.766 kHz
OBW Power
99.00 %
x dB Bandwidth
21.56 MHz
x dB
-6.00 dB
Freq Offset
0 Hz
MSG
STATUS

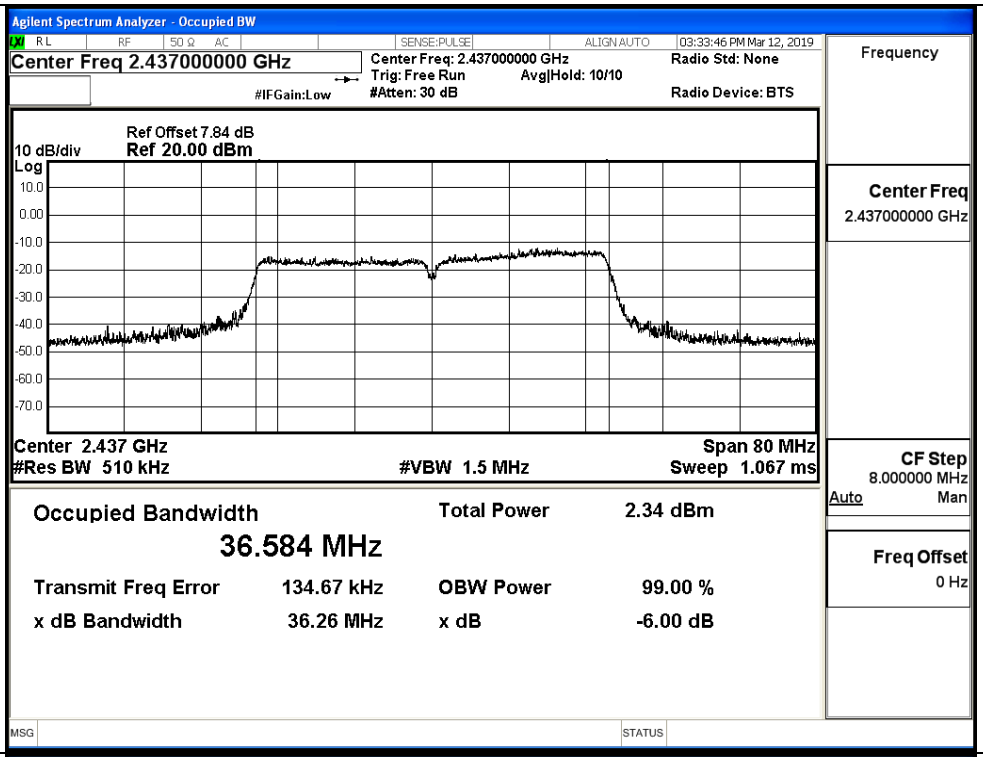
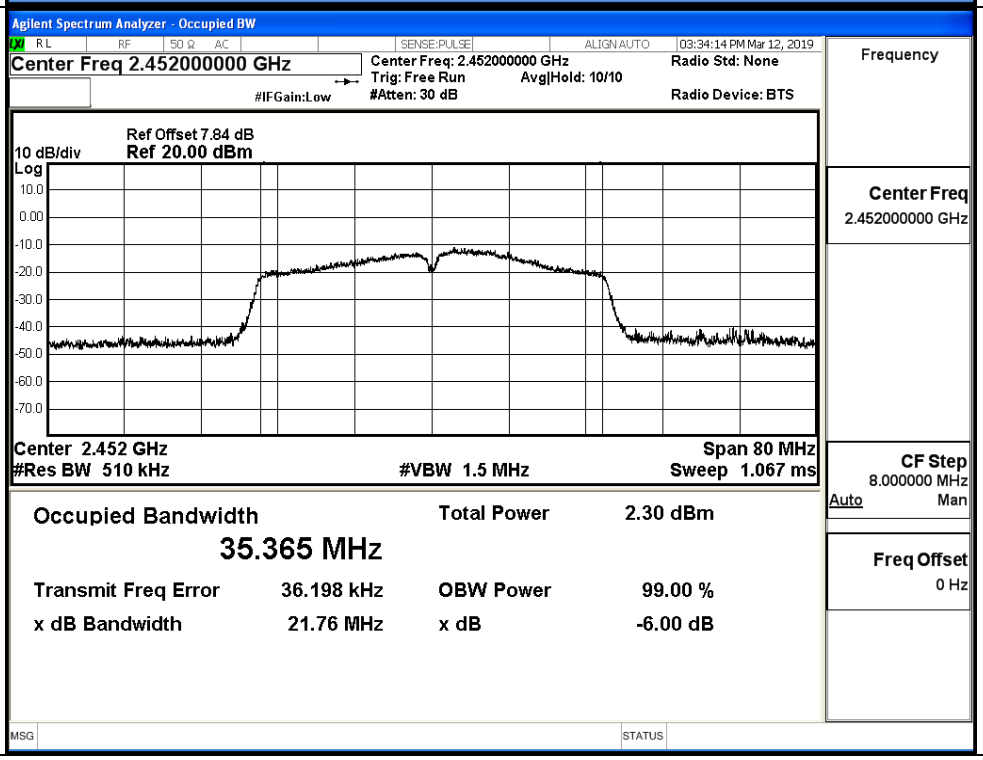
Test Graphs_Ant1		
11B/LCH		
11B/MCH		

11B/HCH	
11G/LCH	

11G/MCH	
11G/HCH	

11N20/LCH	
11N20/MCH	

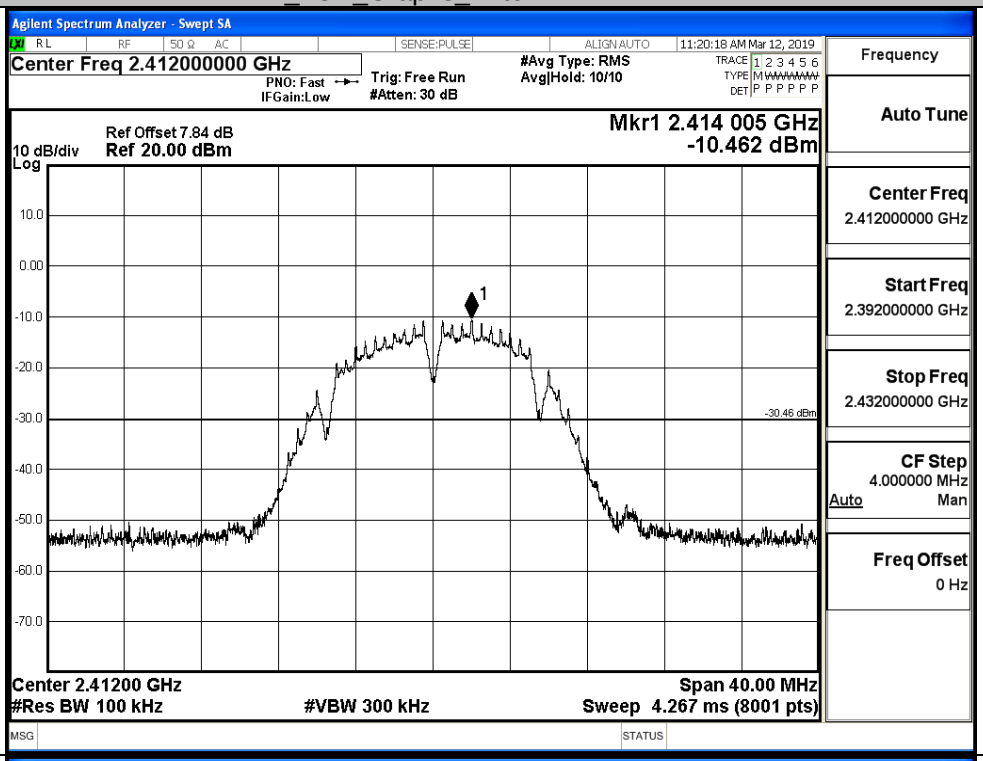
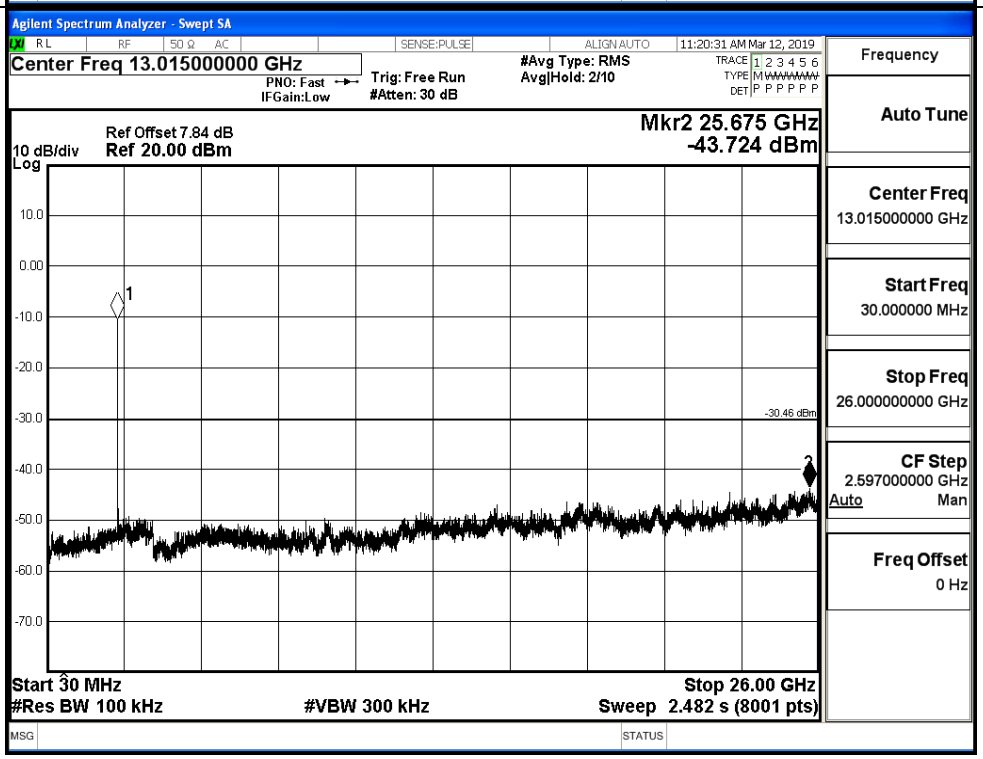
11N20/HCH	
11N40/LCH	

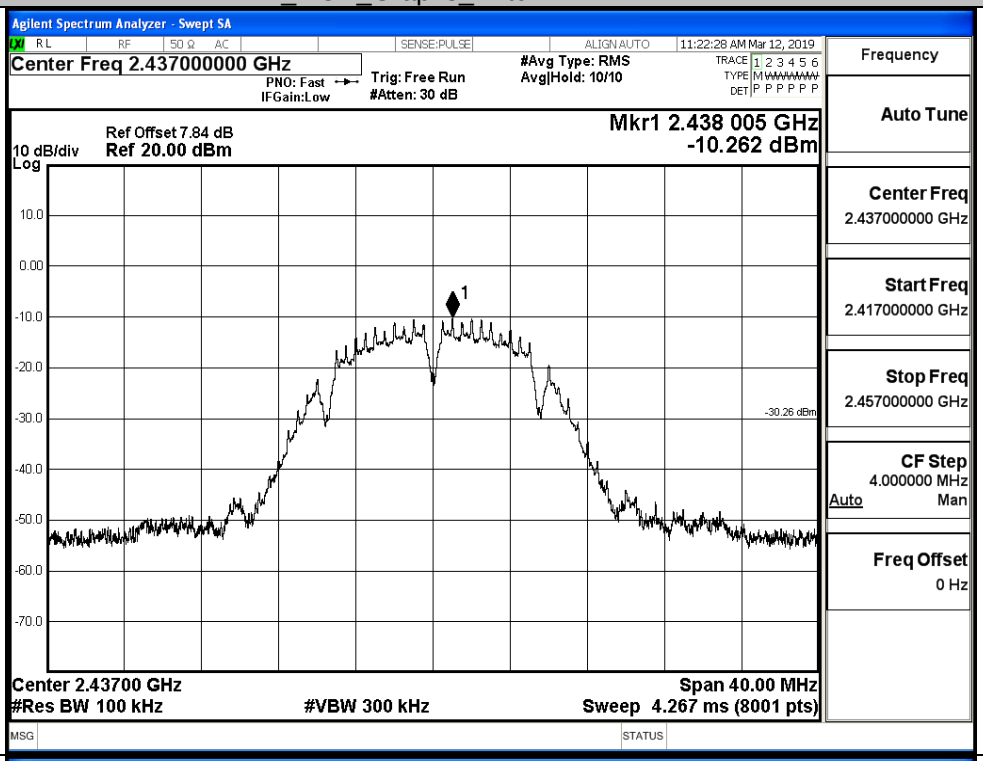
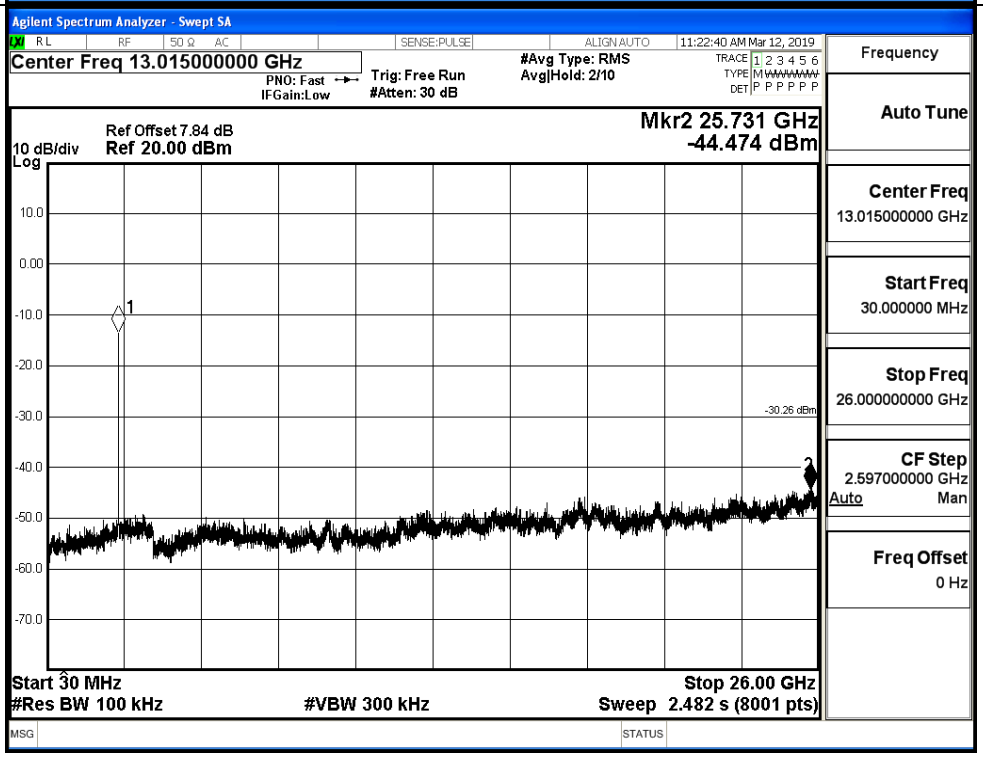
11N40/MCH	
11N40/HCH	

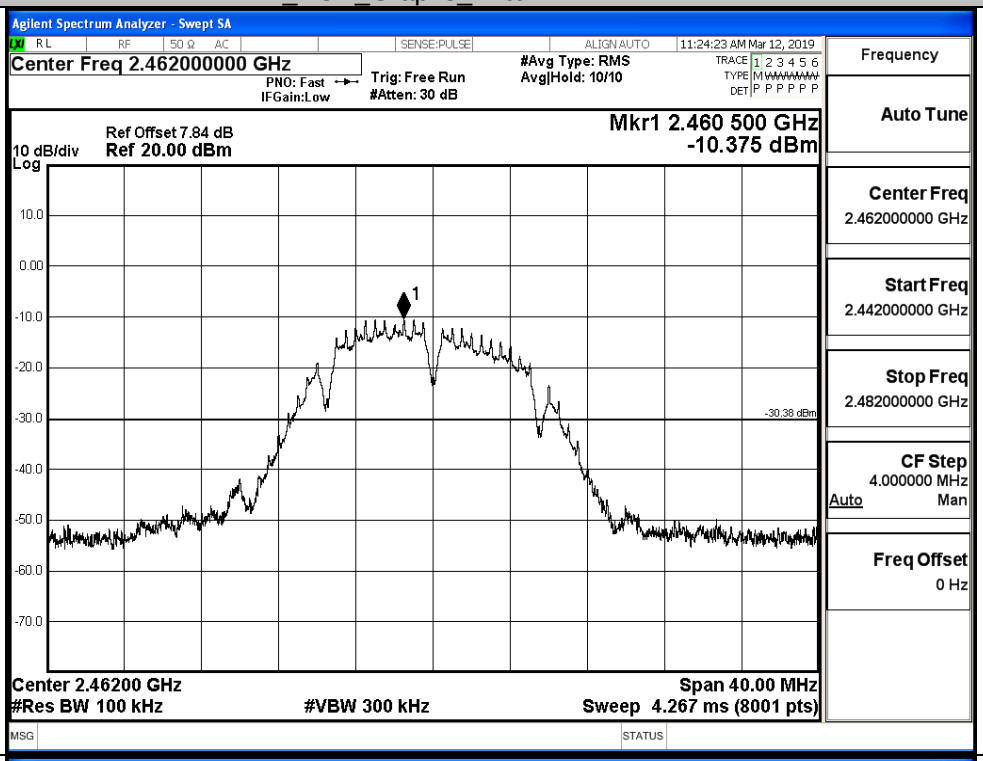
A.6 RF Conducted Spurious Emissions

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