

Appendix C

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: WiFi Pineapple Mark VII

Trade Mark: N/A

Test Model: MK7

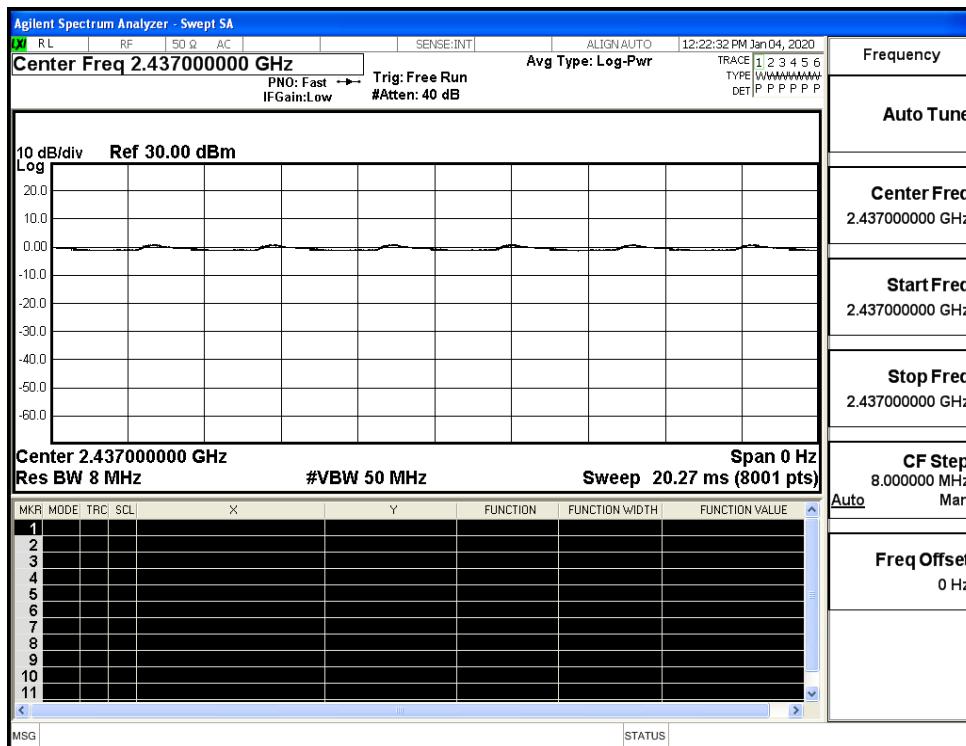
Environmental Conditions

Temperature:	23.7° C
Relative Humidity:	53.8%
ATM Pressure:	100.0 kPa
Test Engineer:	Alisa Huang
Supervised by:	Tom.Liu

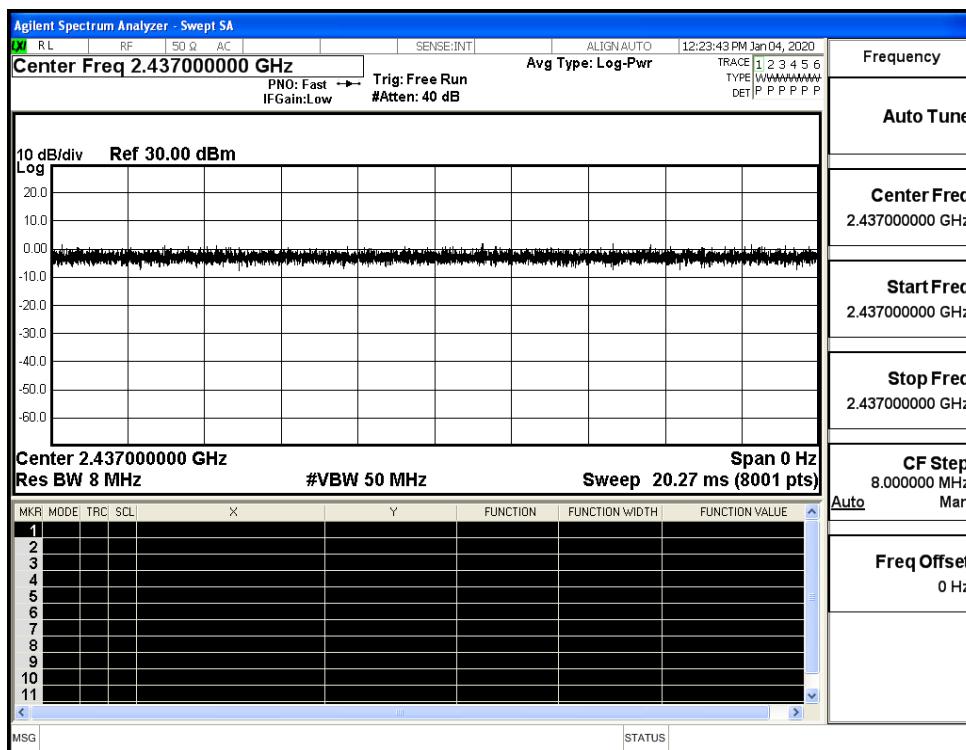
C.1 Duty Cycle

Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2437	Ant0	100	PASS
11G	2437	Ant0	100	PASS
11N20SISO	2437	Ant0	100	PASS
11N40SISO	2437	Ant0	100	PASS

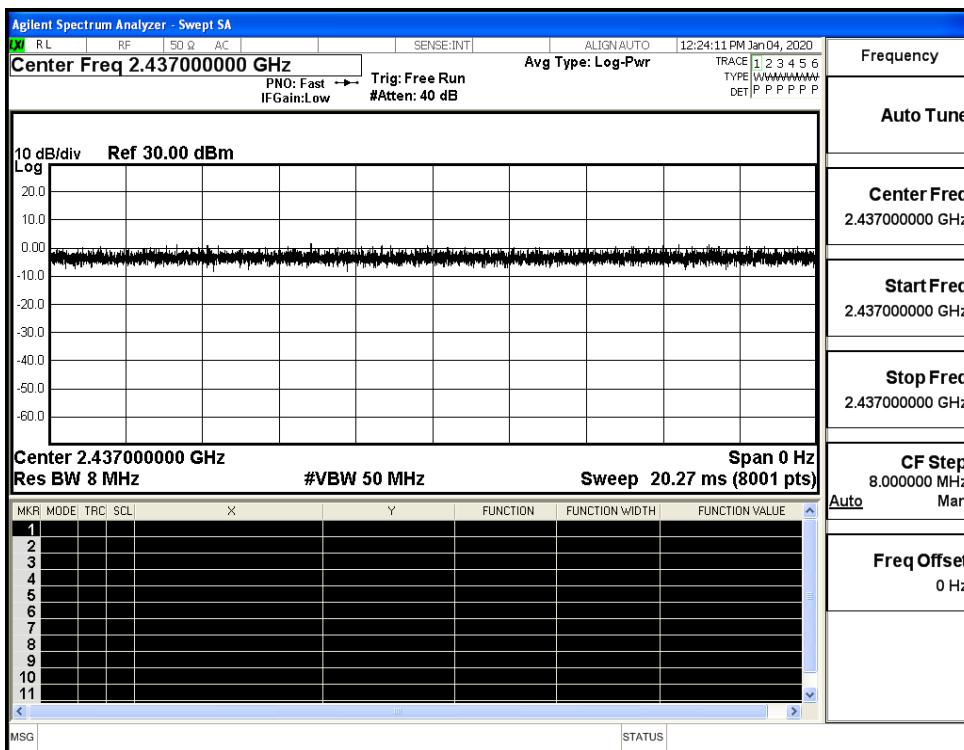
Duty Cycle_11B_2437_Ant0



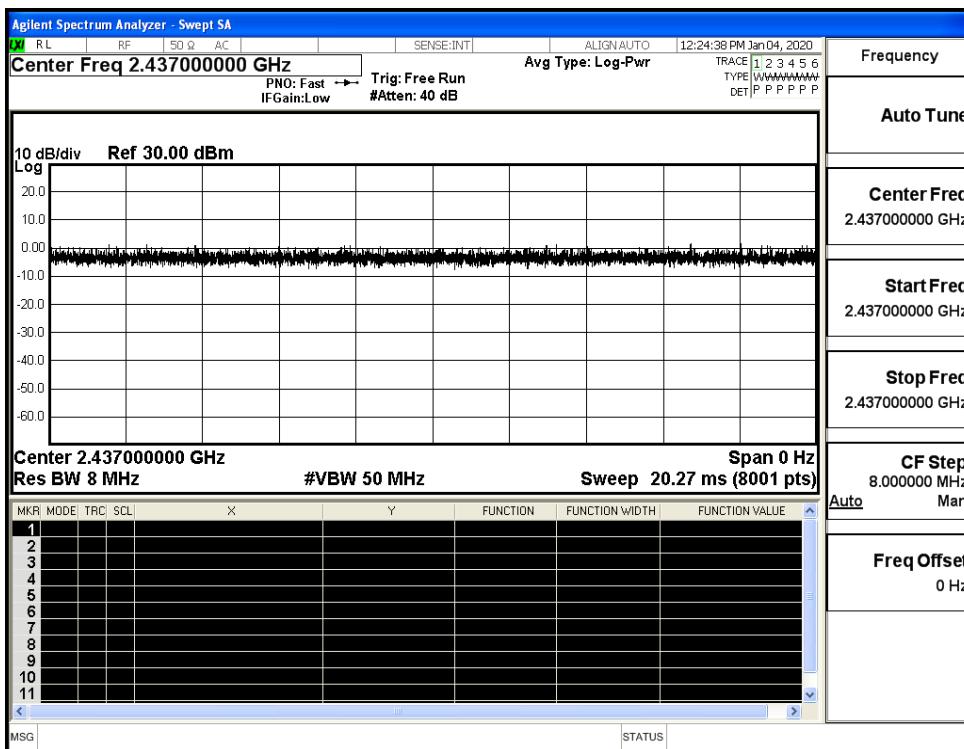
Duty Cycle_11G_2437_Ant0



Duty Cycle_11N20SISO_2437_Ant0

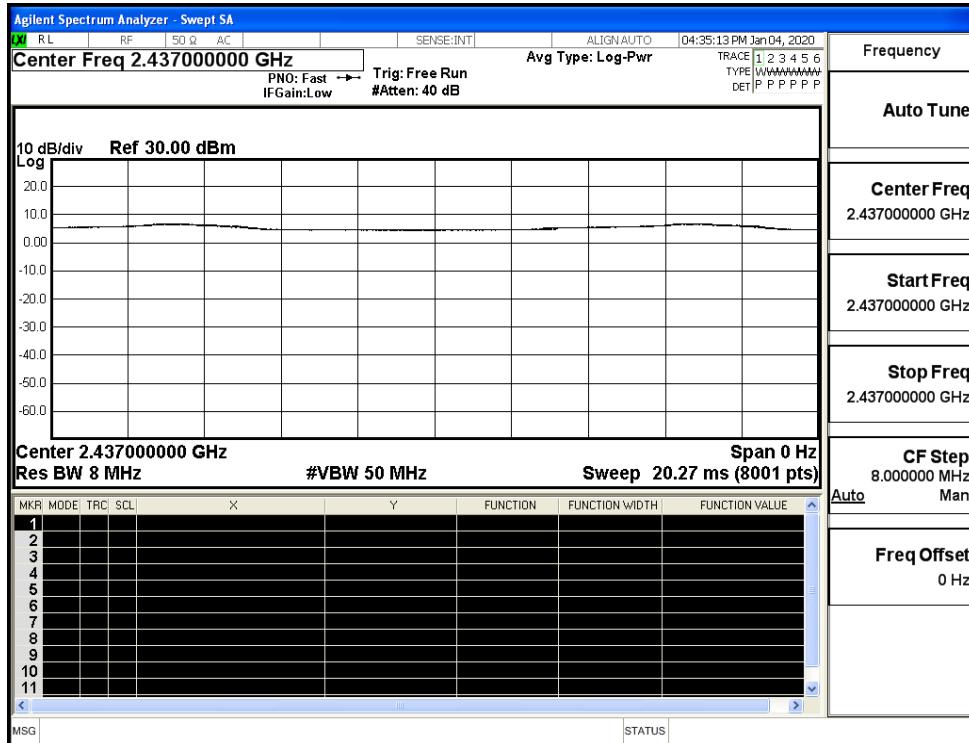


Duty Cycle_11N40SISO_2437_Ant0

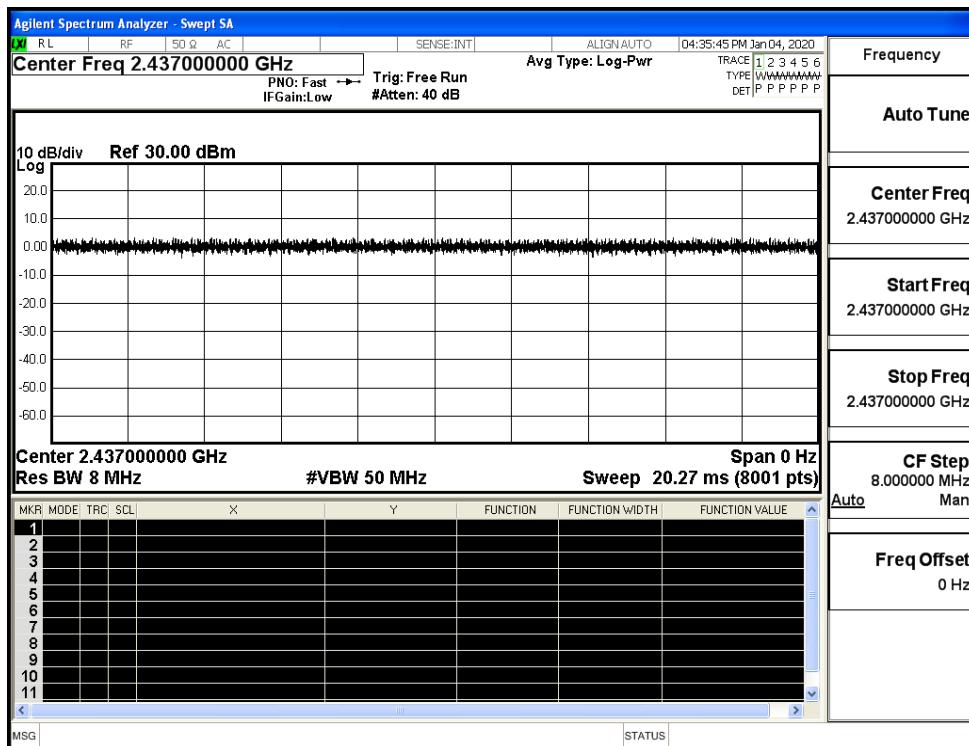


Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2437	Ant1	100	PASS
11G	2437	Ant1	100	PASS
11N20SISO	2437	Ant1	100	PASS
11N40SISO	2437	Ant1	100	PASS

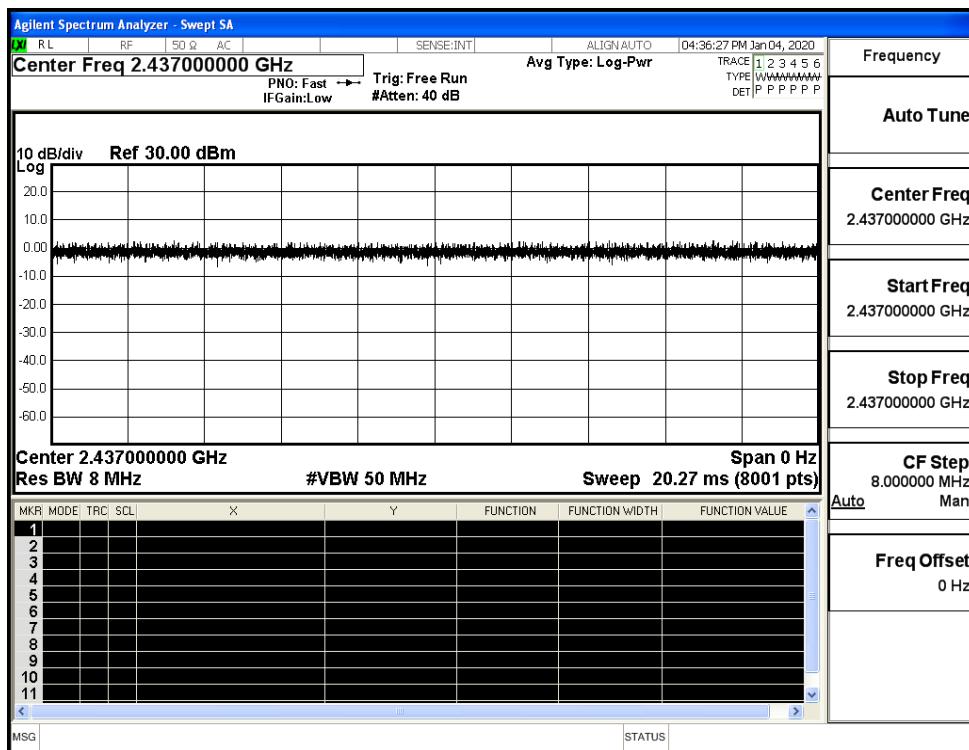
Duty Cycle_11B_2437_Ant1



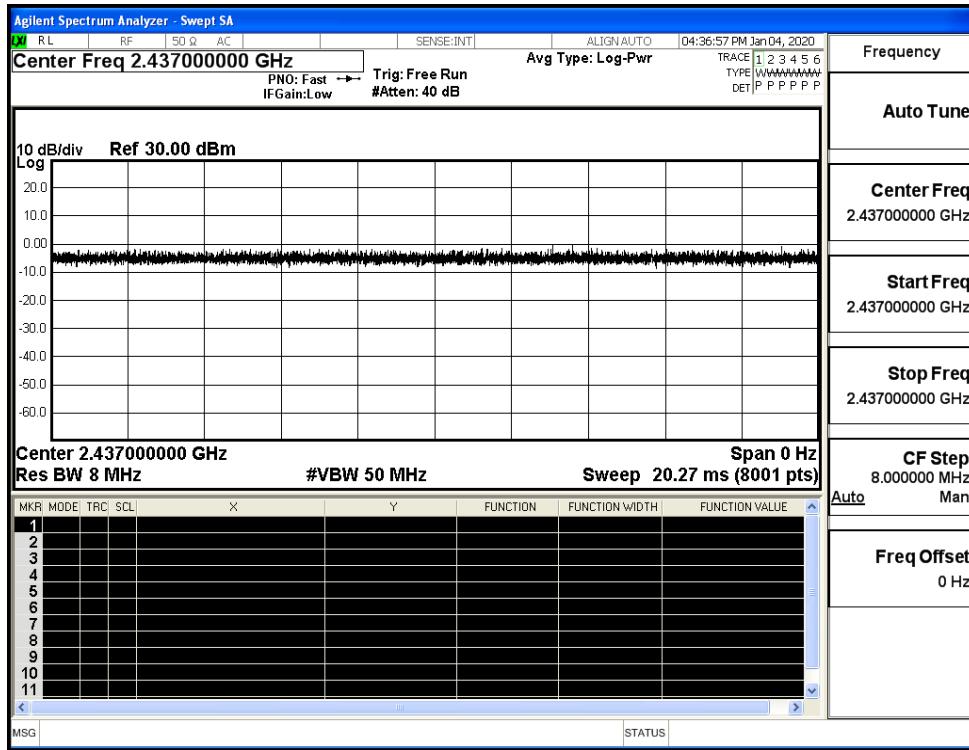
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1

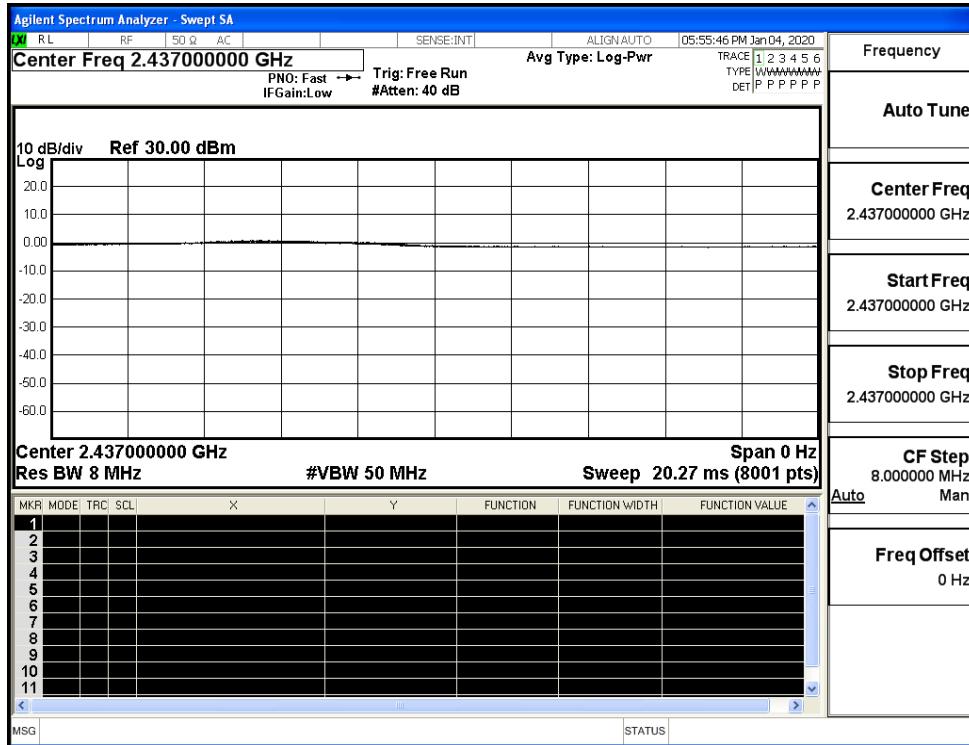


Duty Cycle_11N40SISO_2437_Ant1

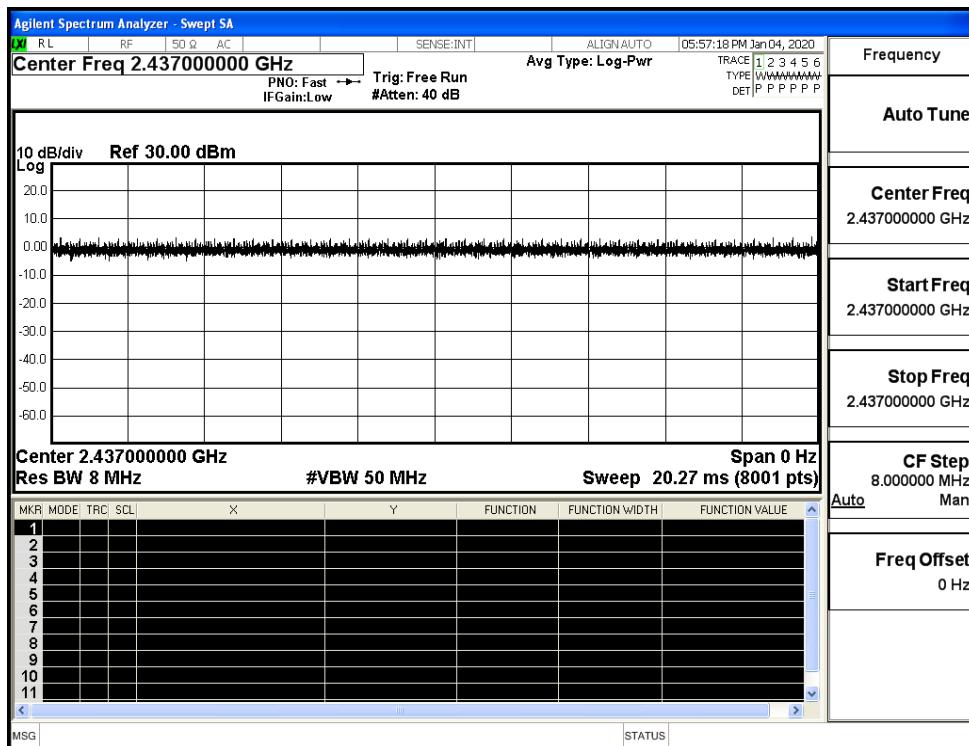


Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2437	Ant2	100	PASS
11G	2437	Ant2	100	PASS
11N20SISO	2437	Ant2	100	PASS
11N40SISO	2437	Ant2	100	PASS

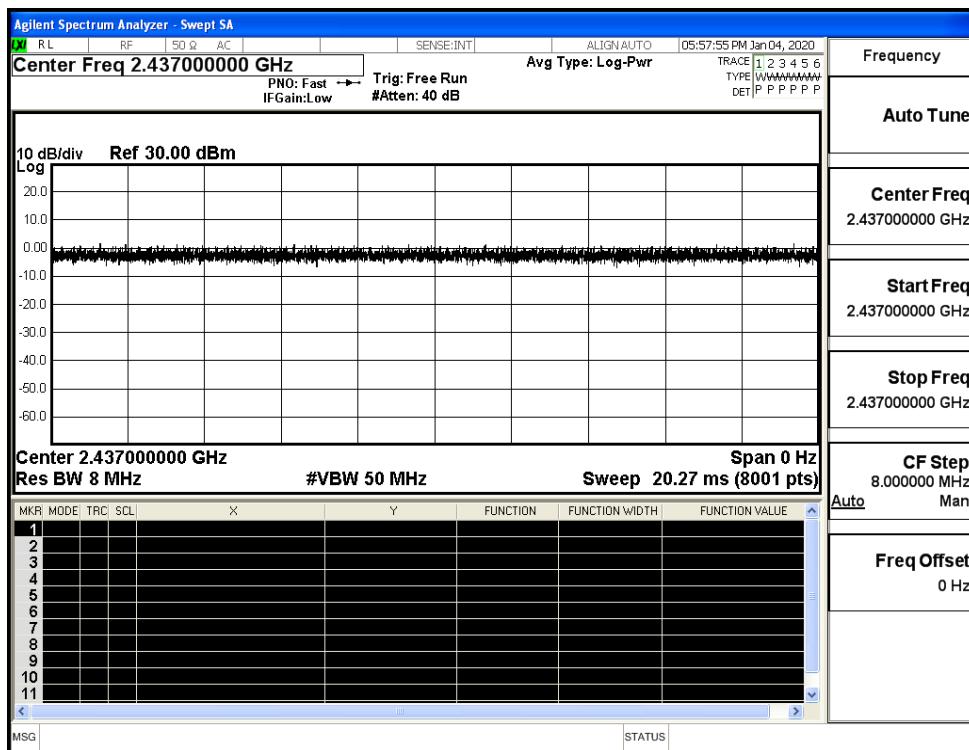
Duty Cycle_11B_2437_Ant2



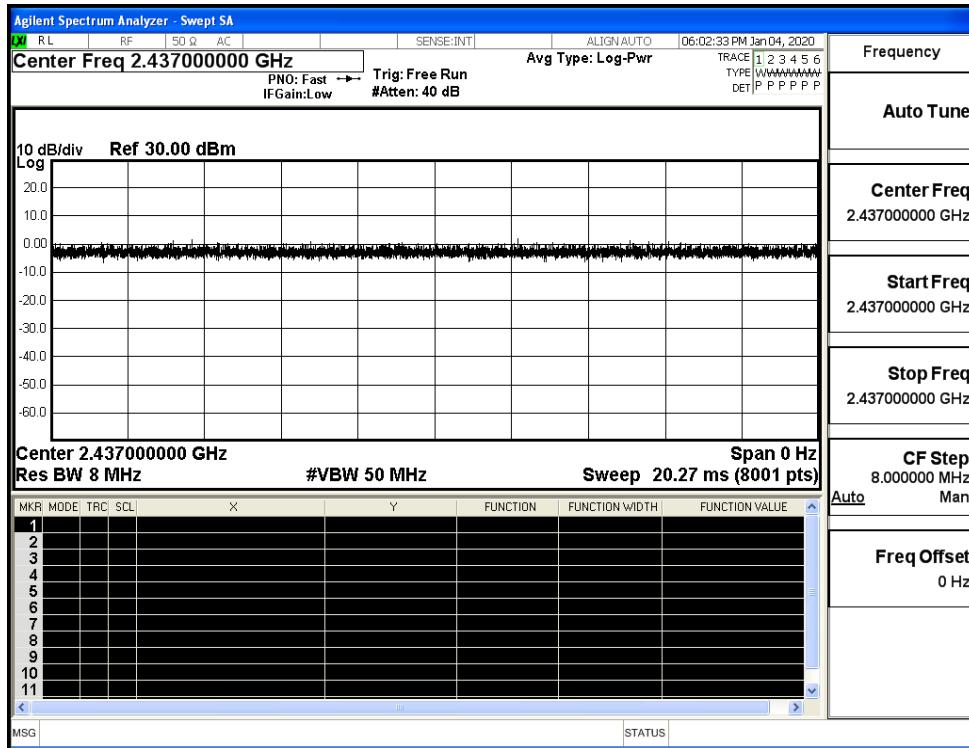
Duty Cycle_11G_2437_Ant2



Duty Cycle_11N20SISO_2437_Ant2



Duty Cycle_11N40SISO_2437_Ant2



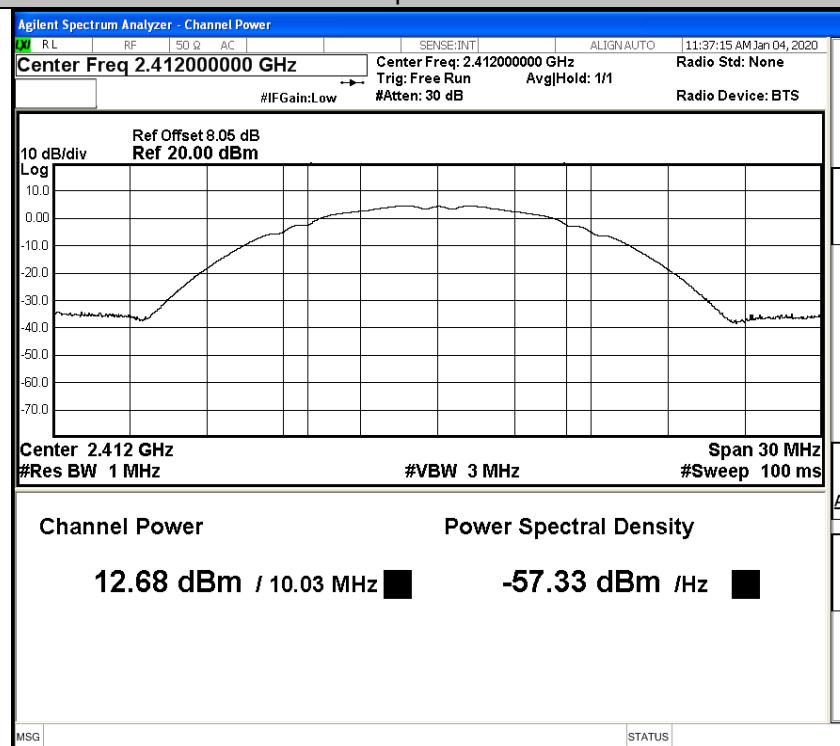
C.2 Maximum Conducted Output Power

Ant0

Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	12.68	30	PASS
	MCH	12.72	30	PASS
	HCH	12.82	30	PASS
11G	LCH	10.78	30	PASS
	MCH	10.92	30	PASS
	HCH	10.79	30	PASS
11N20SISO	LCH	10.43	30	PASS
	MCH	10.53	30	PASS
	HCH	10.43	30	PASS
11N40SISO	LCH	9.94	30	PASS
	MCH	10.09	30	PASS
	HCH	10.02	30	PASS

Test Graphs

11B/LCH



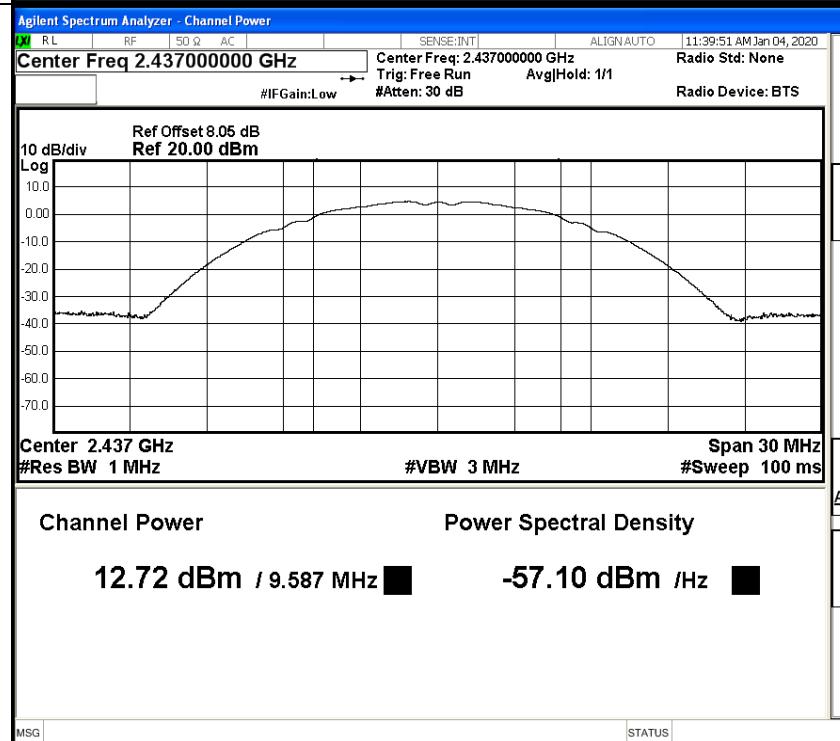
Channel Power

Power Spectral Density

12.68 dBm / 10.03 MHz

-57.33 dBm /Hz

11B/MCH

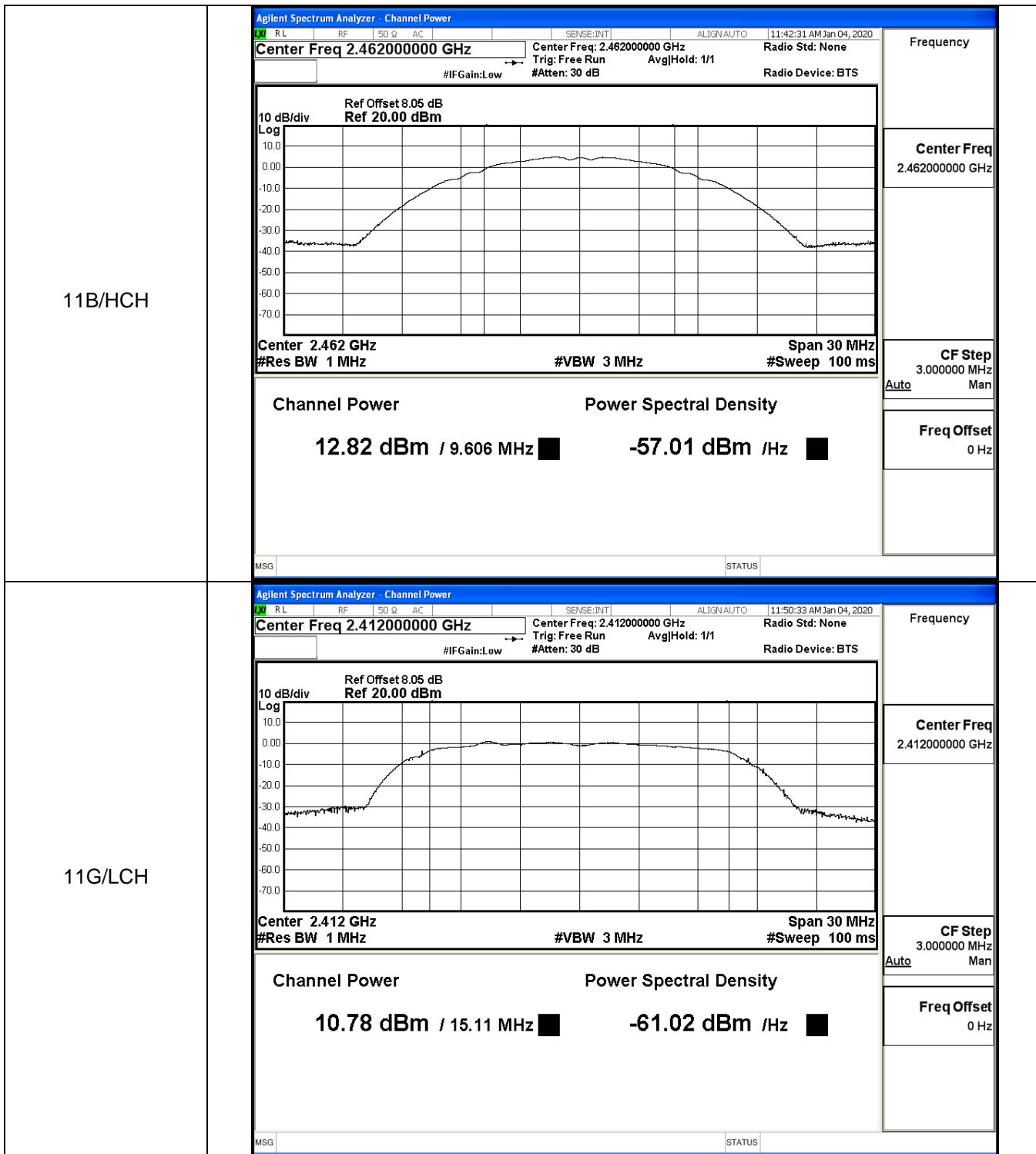


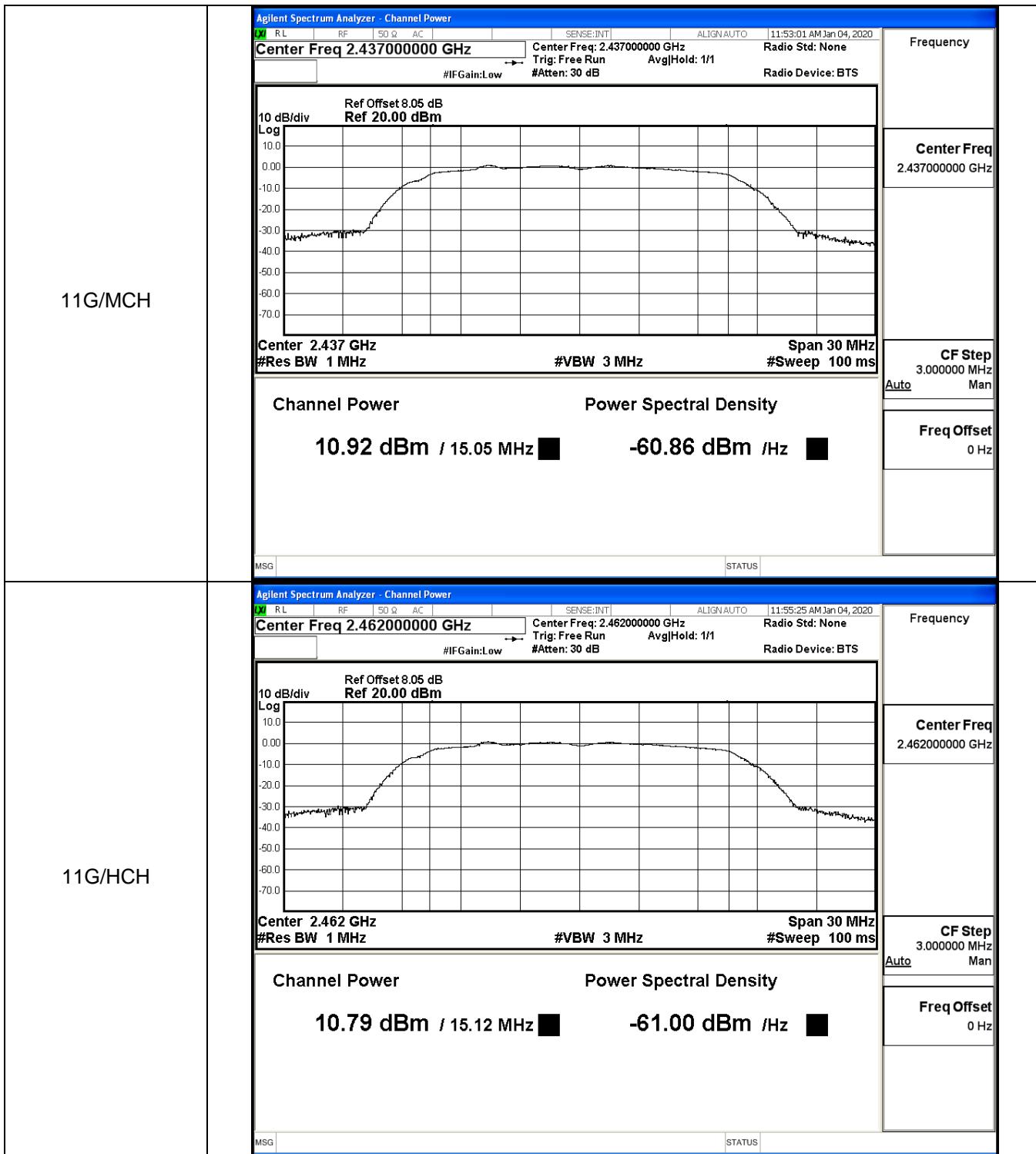
Channel Power

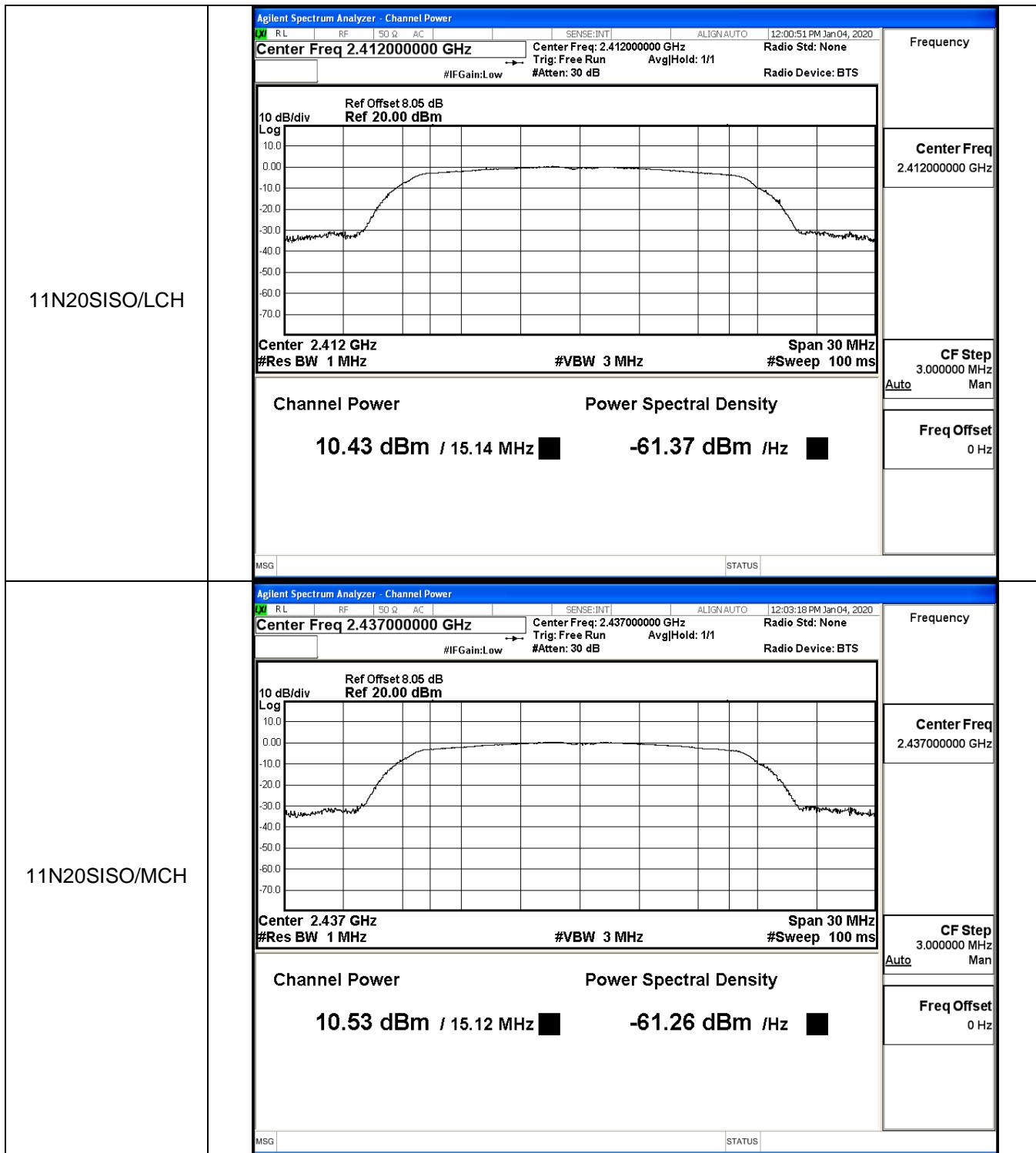
Power Spectral Density

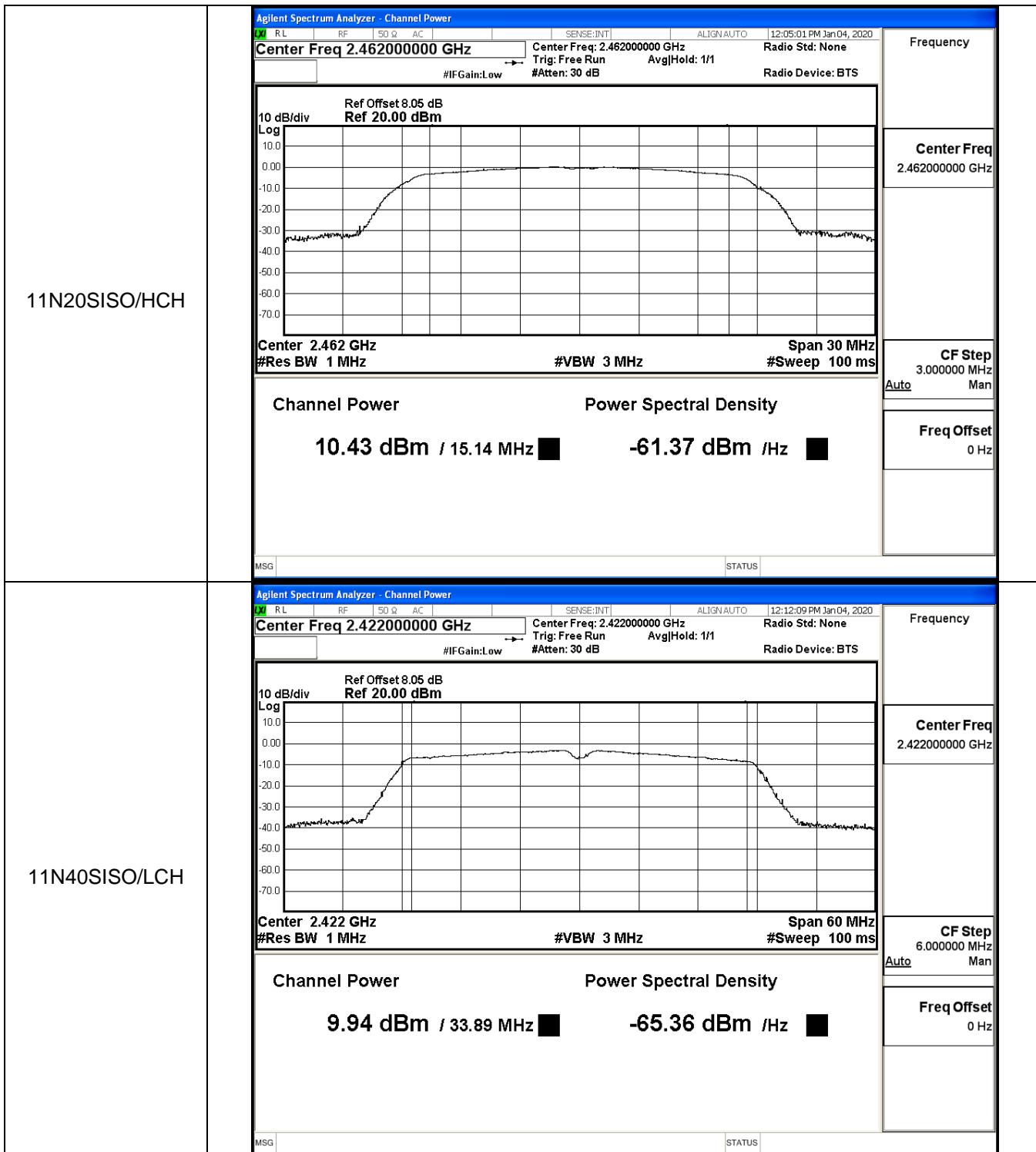
12.72 dBm / 9.587 MHz

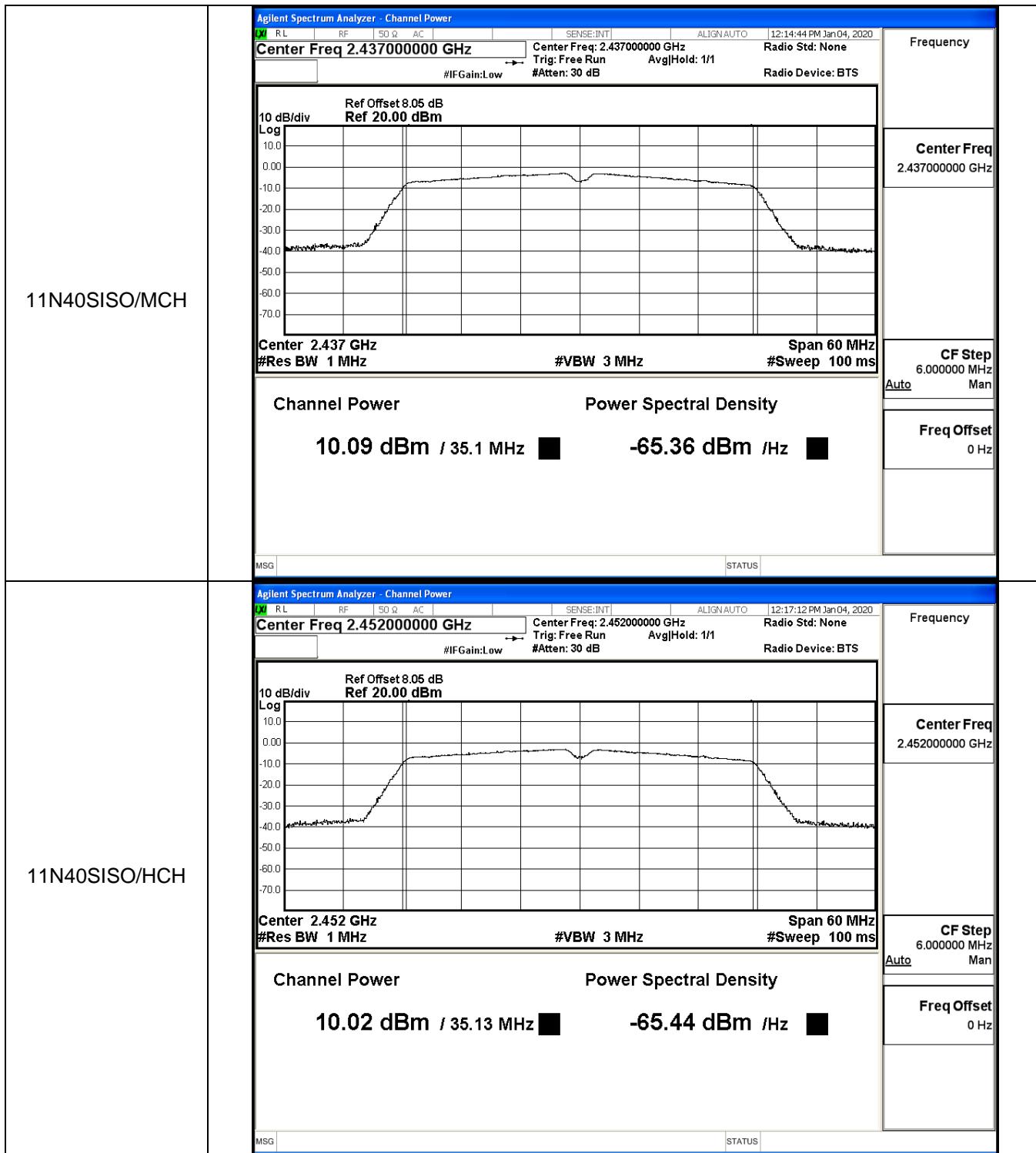
-57.10 dBm /Hz







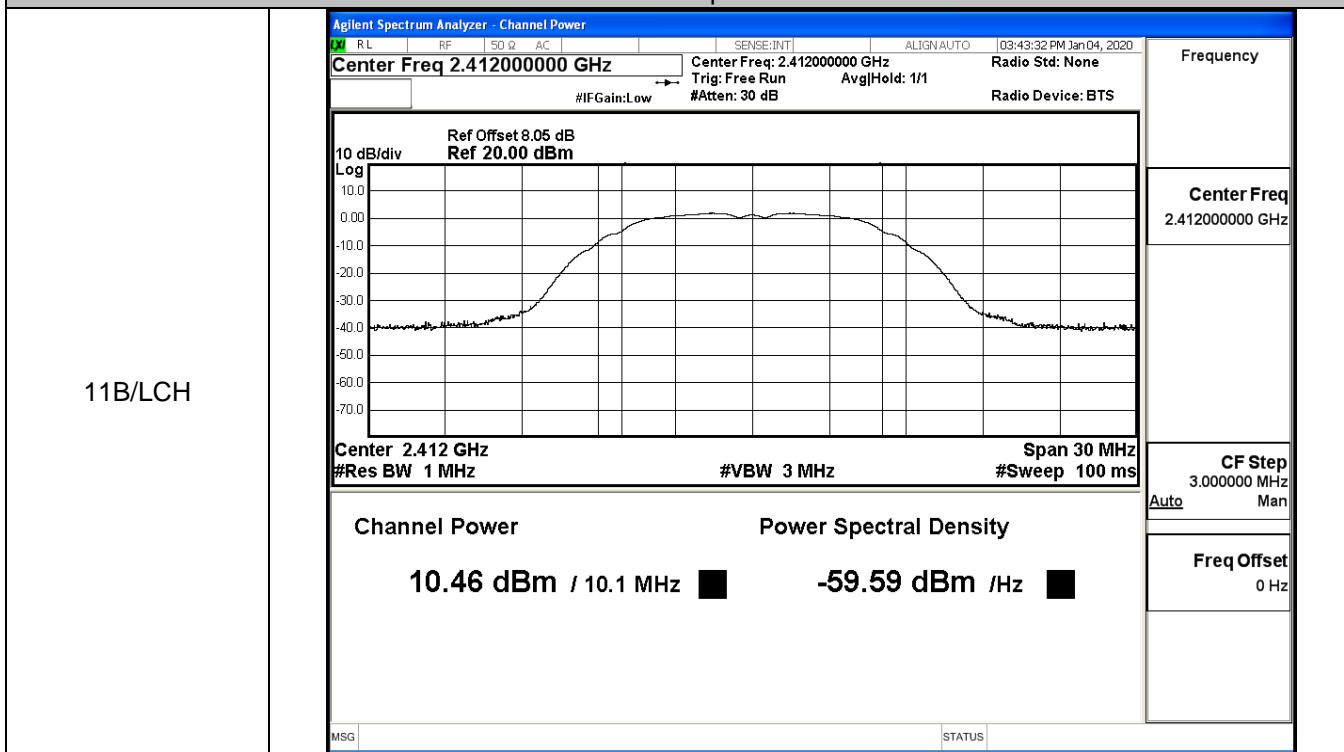


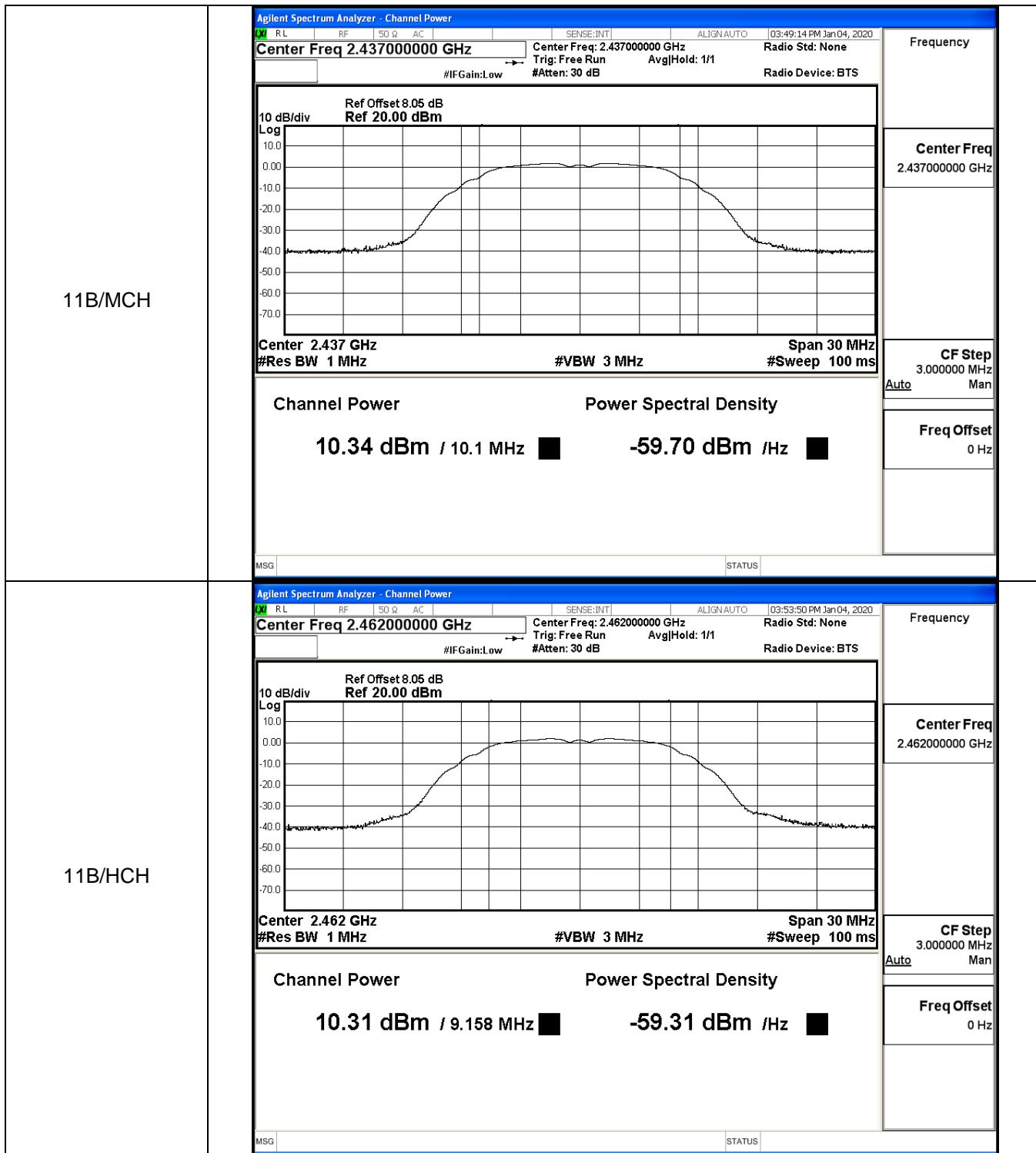


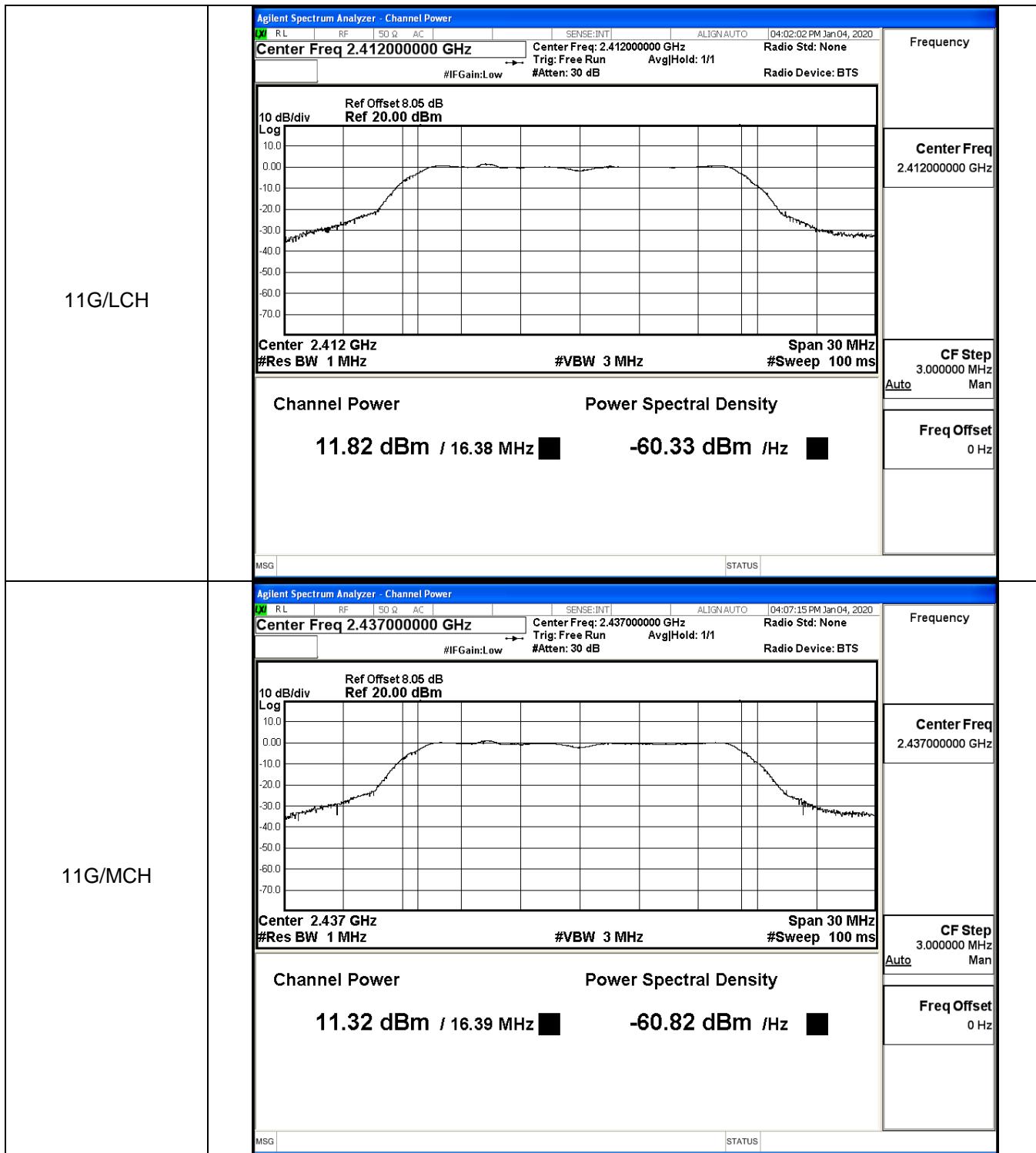
Ant1

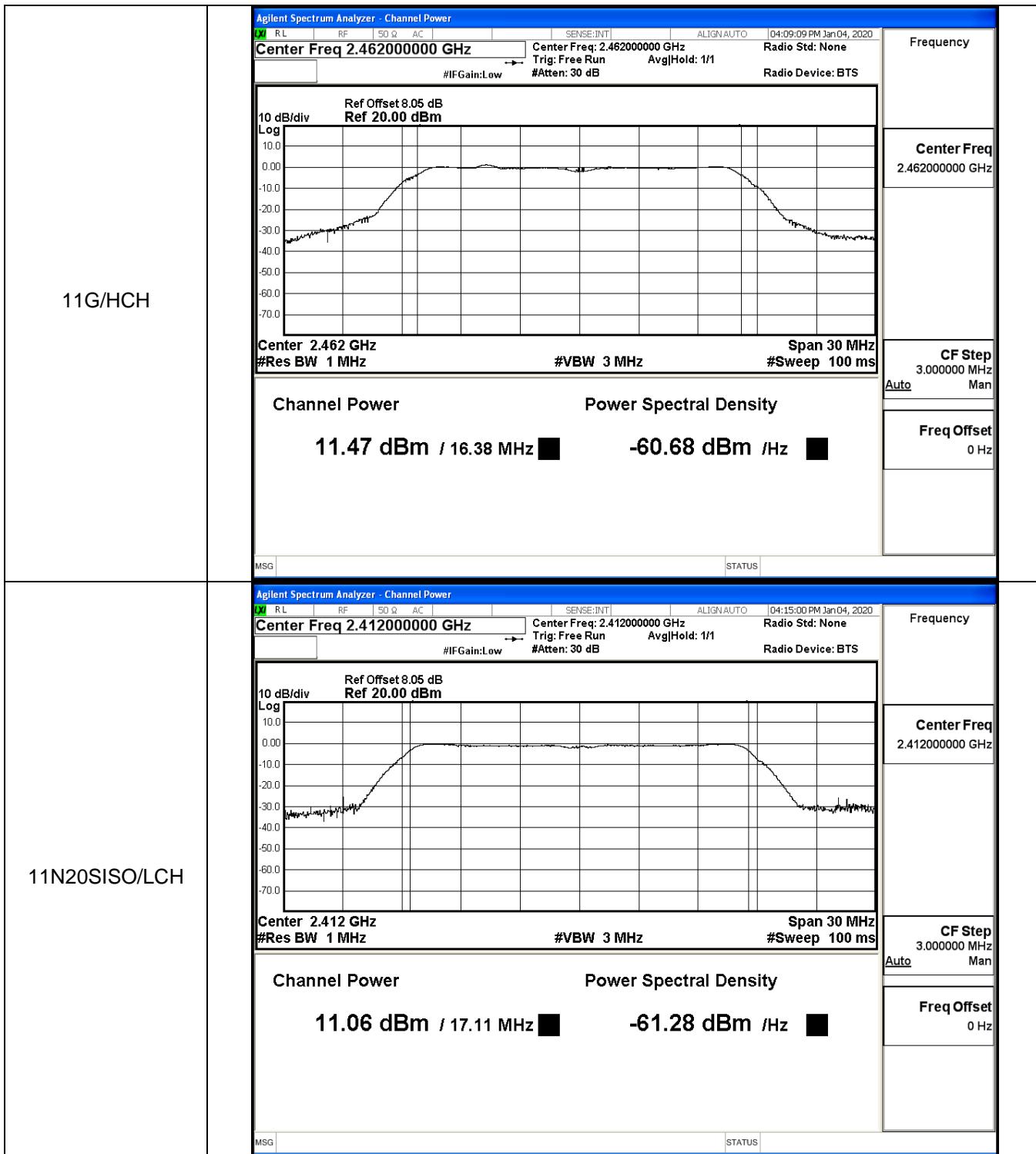
Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	10.46	30	PASS
	MCH	10.34	30	PASS
	HCH	10.31	30	PASS
11G	LCH	11.82	30	PASS
	MCH	11.32	30	PASS
	HCH	11.47	30	PASS
11N20SISO	LCH	11.06	30	PASS
	MCH	10.24	30	PASS
	HCH	10.43	30	PASS
11N40SISO	LCH	10.35	30	PASS
	MCH	10.38	30	PASS
	HCH	10.43	30	PASS

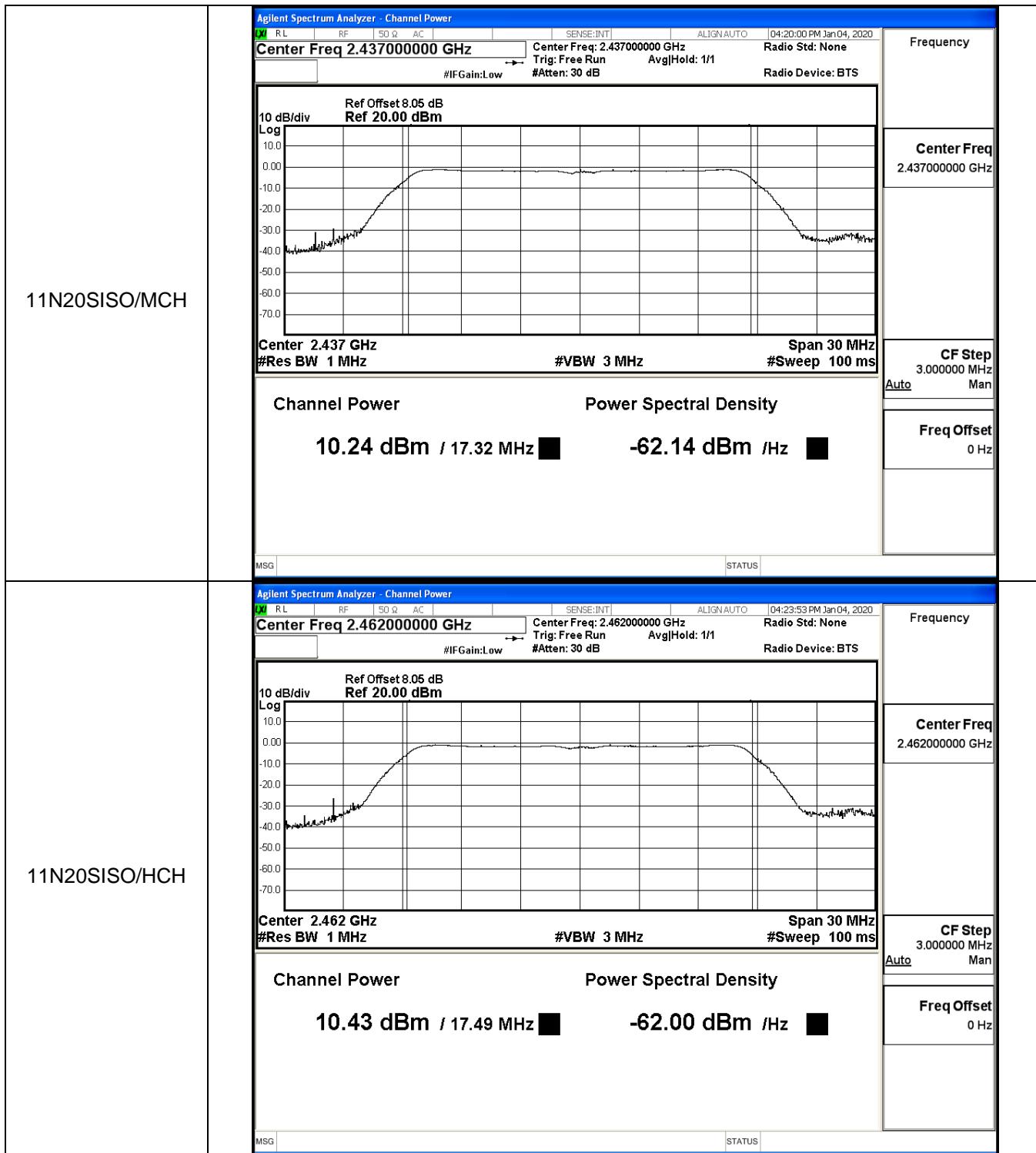
Test Graphs

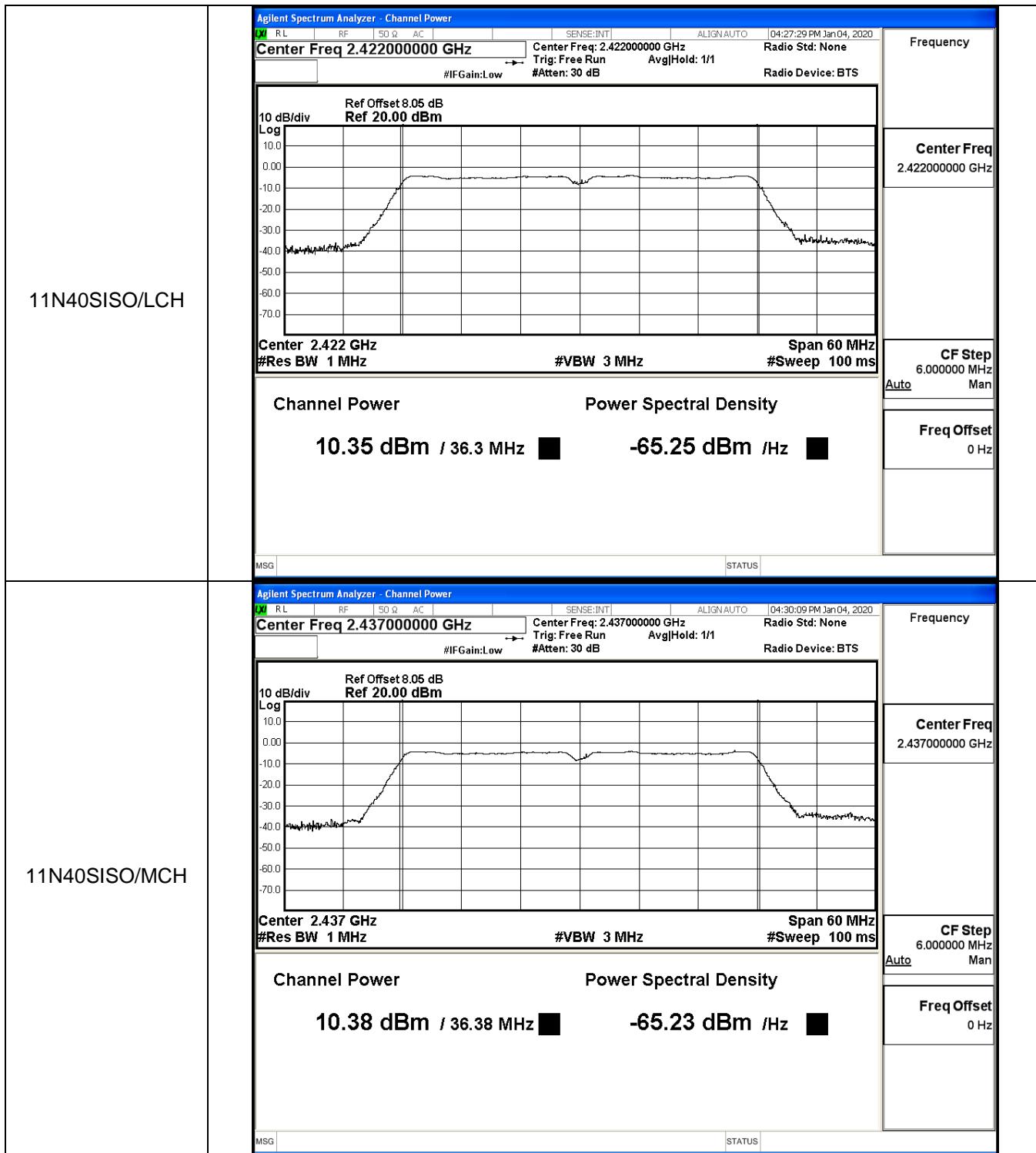


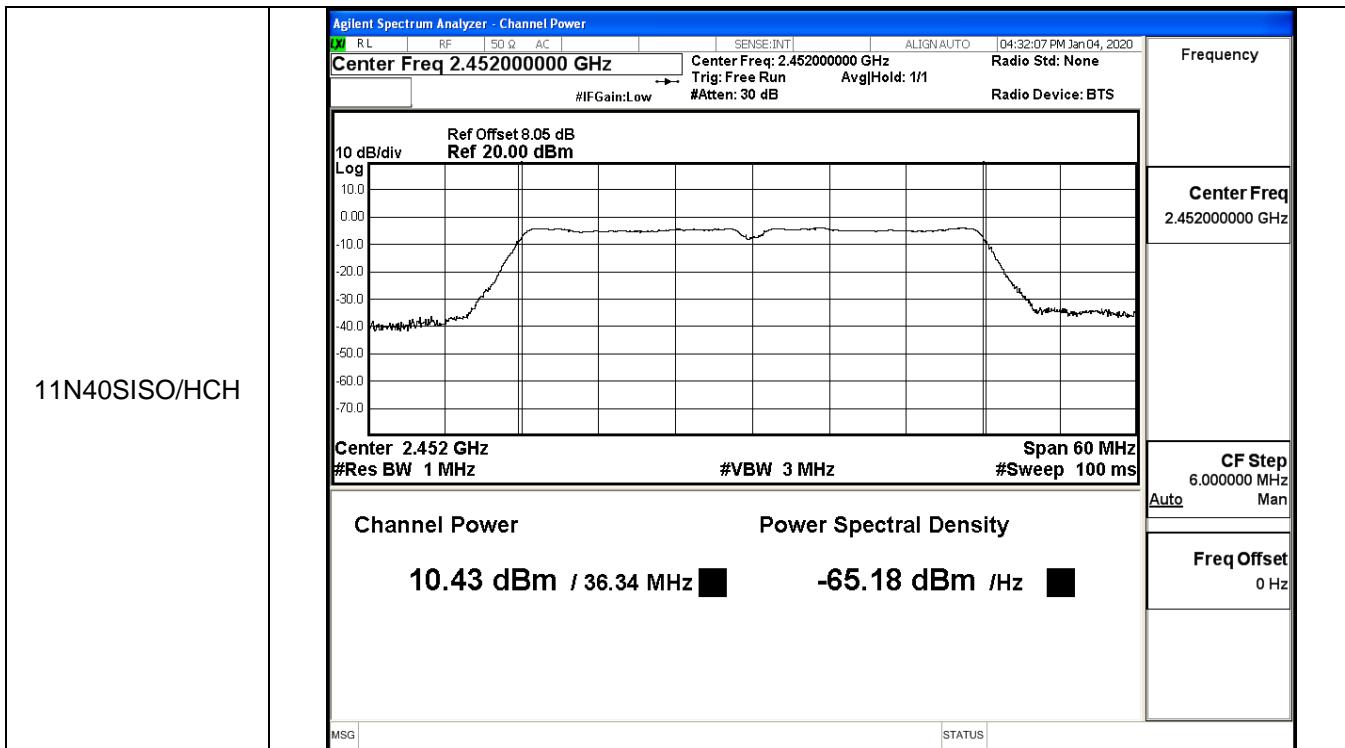








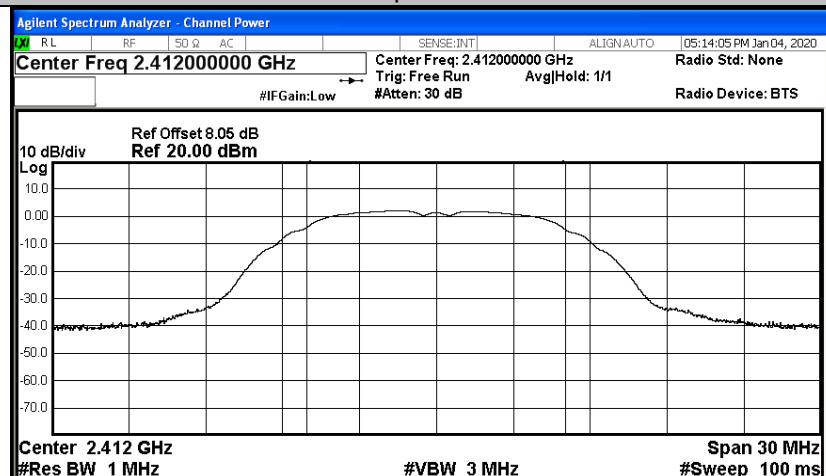


**Ant2**

Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	10.56	30	PASS
	MCH	10.63	30	PASS
	HCH	10.71	30	PASS
11G	LCH	10.2	30	PASS
	MCH	10.55	30	PASS
	HCH	10.26	30	PASS
11N20SISO	LCH	10.52	30	PASS
	MCH	10.44	30	PASS
	HCH	10.12	30	PASS
11N40SISO	LCH	10.59	30	PASS
	MCH	10.64	30	PASS
	HCH	10.67	30	PASS

Test Graphs

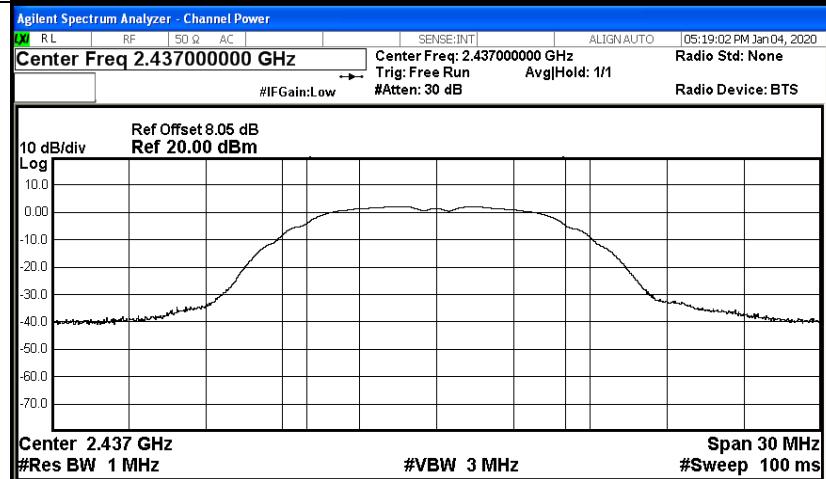
11B/LCH



Frequency

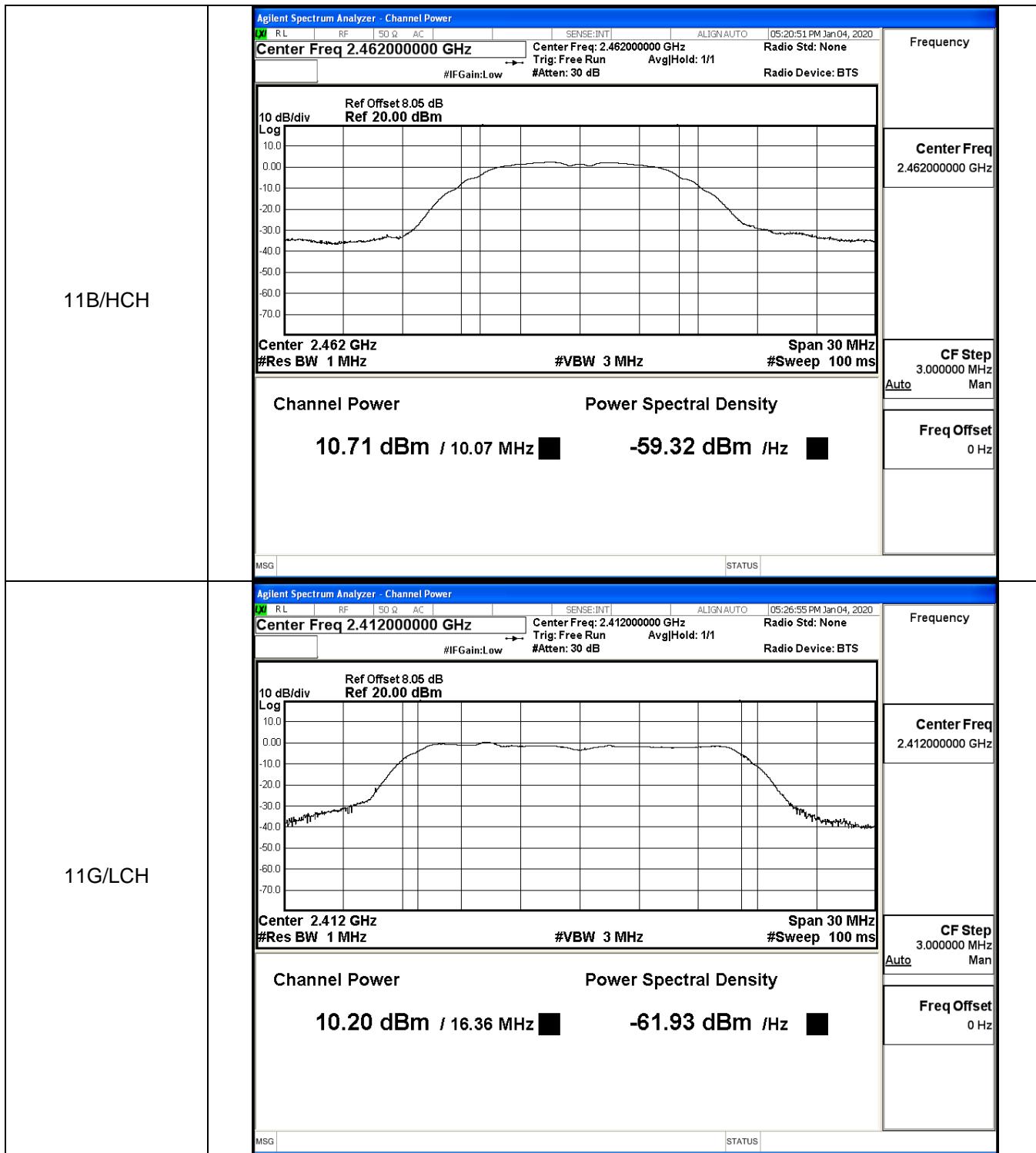
Center Freq
2.412000000 GHzCF Step
3.000000 MHz
Auto ManFreq Offset
0 Hz

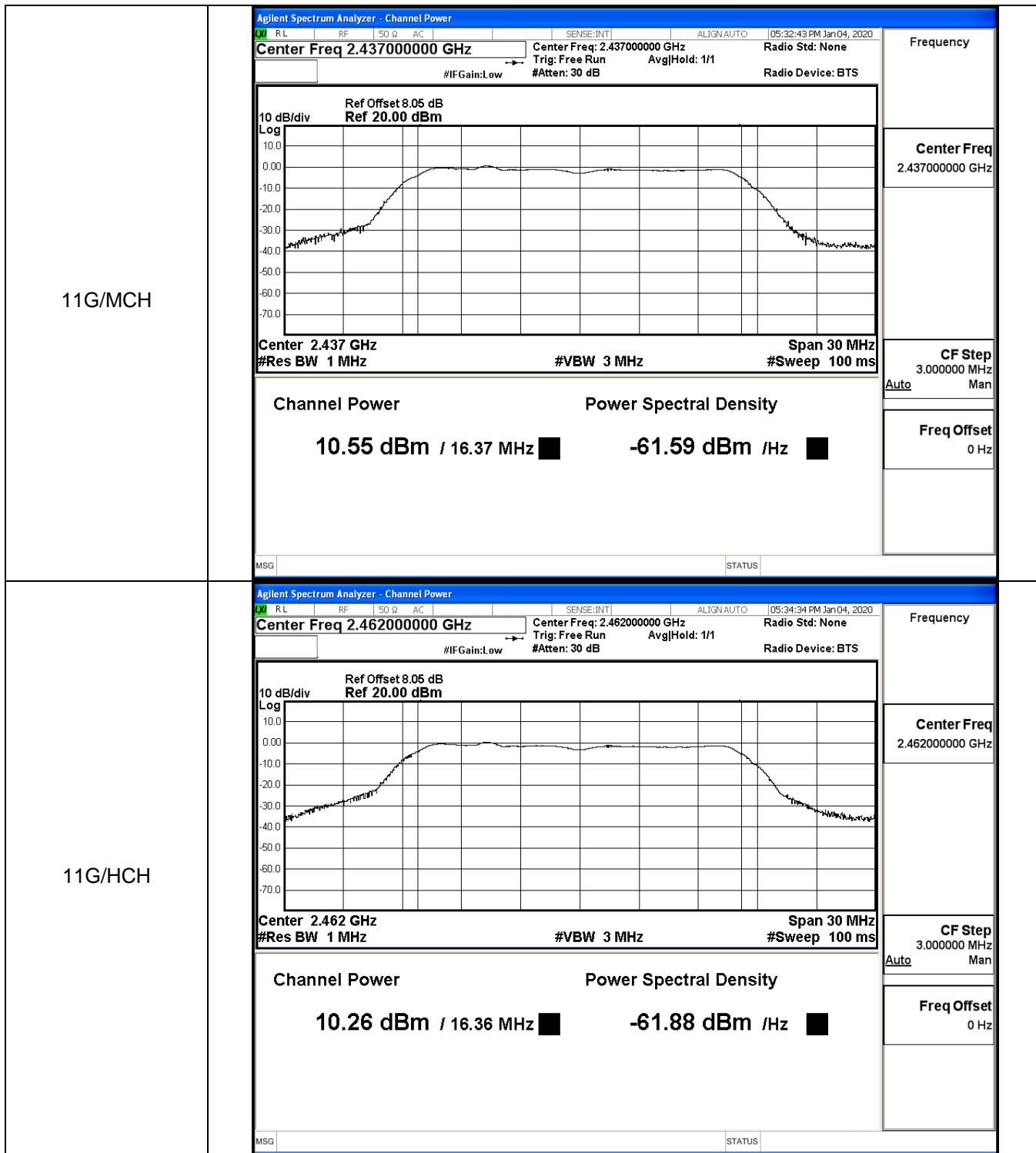
11B/MCH

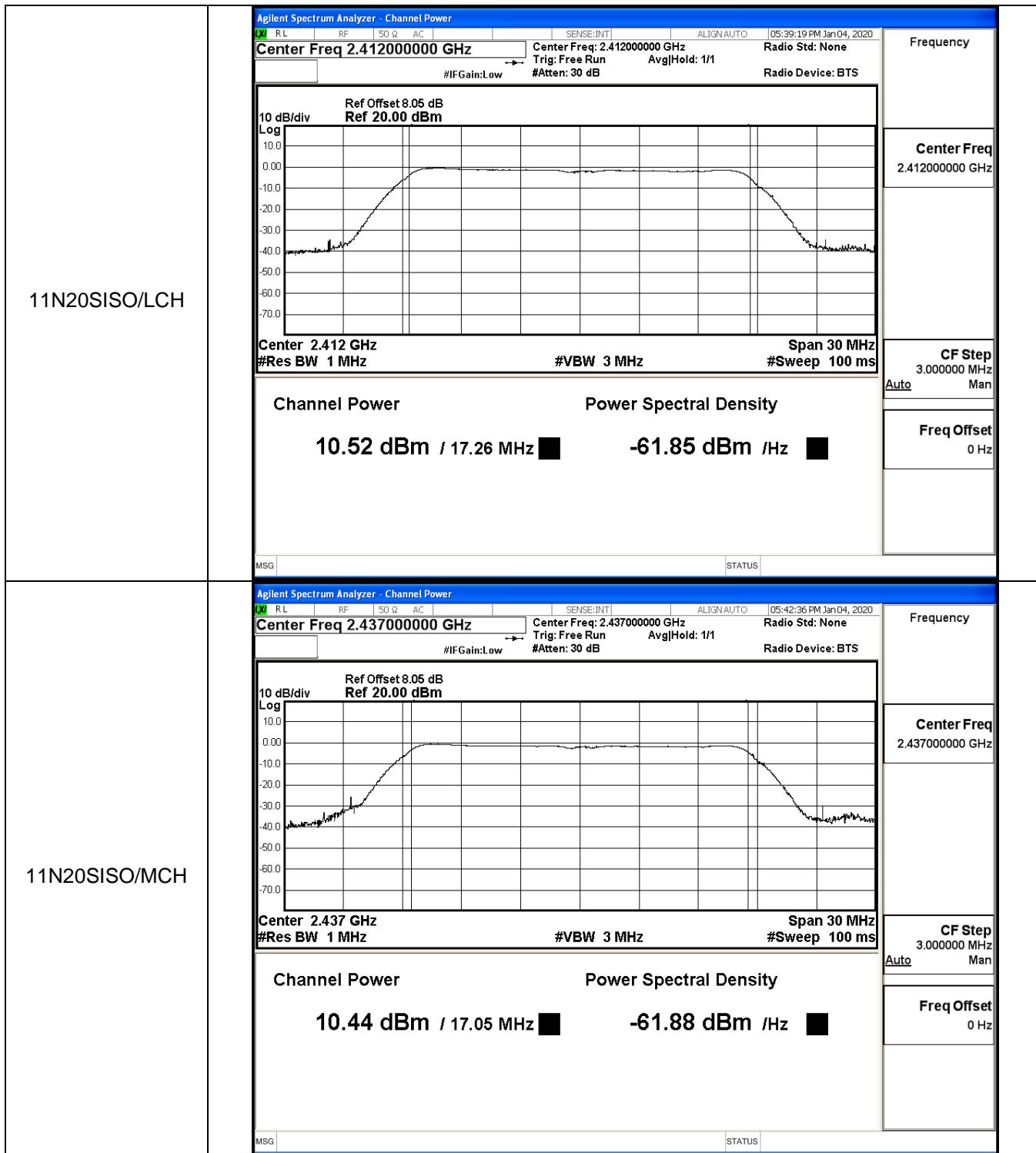


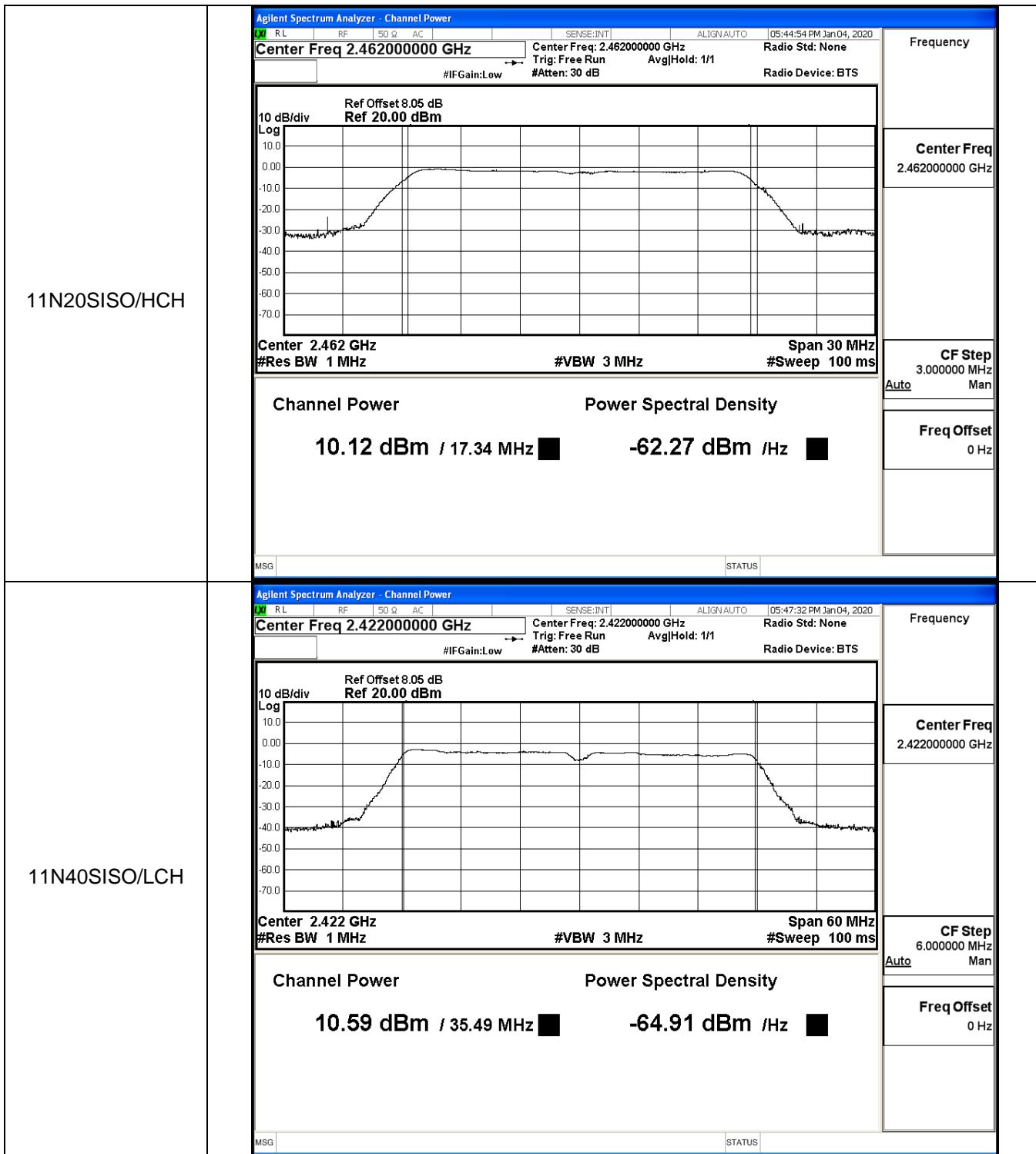
Frequency

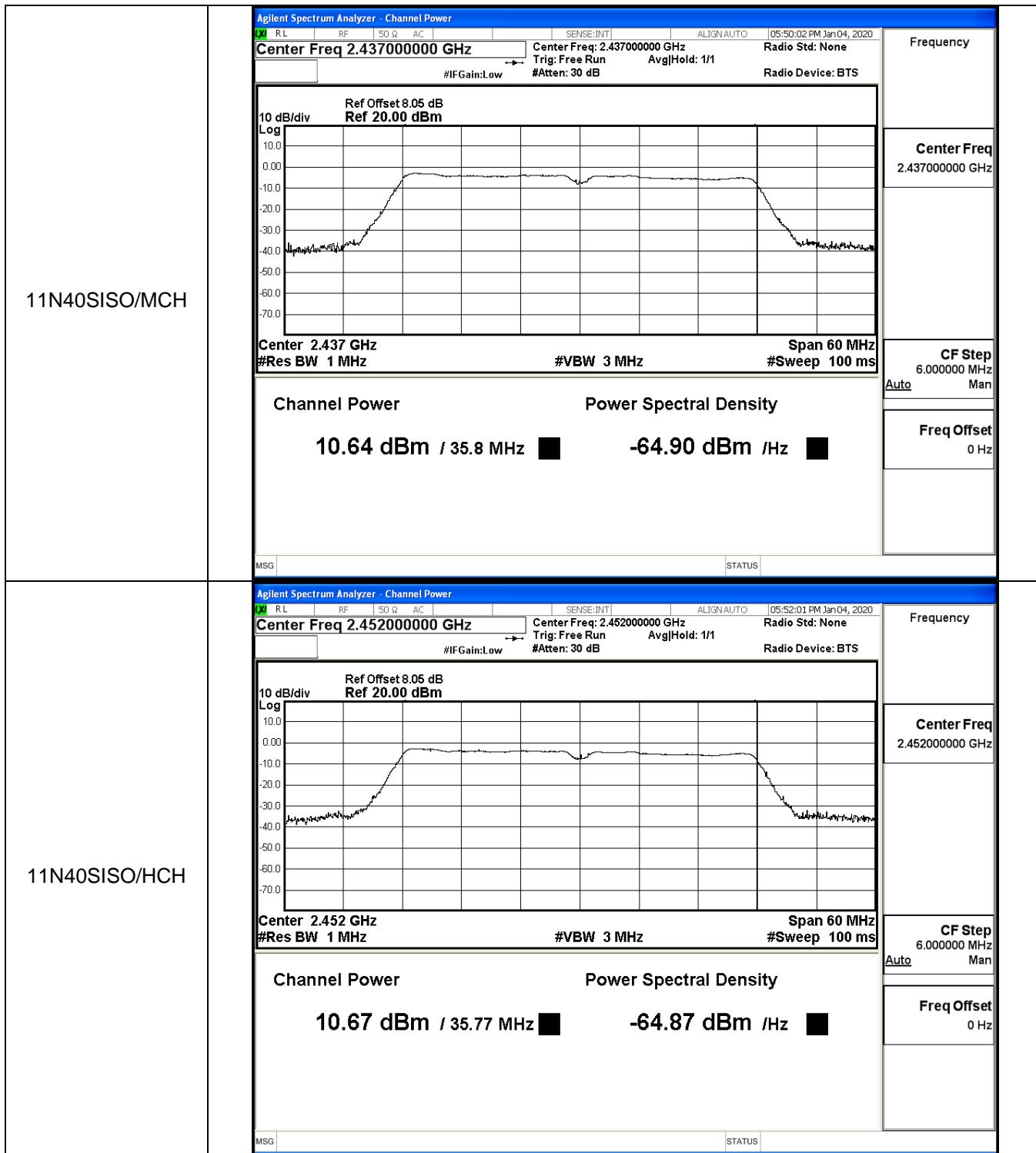
Center Freq
2.437000000 GHzCF Step
3.000000 MHz
Auto ManFreq Offset
0 Hz











MIMO

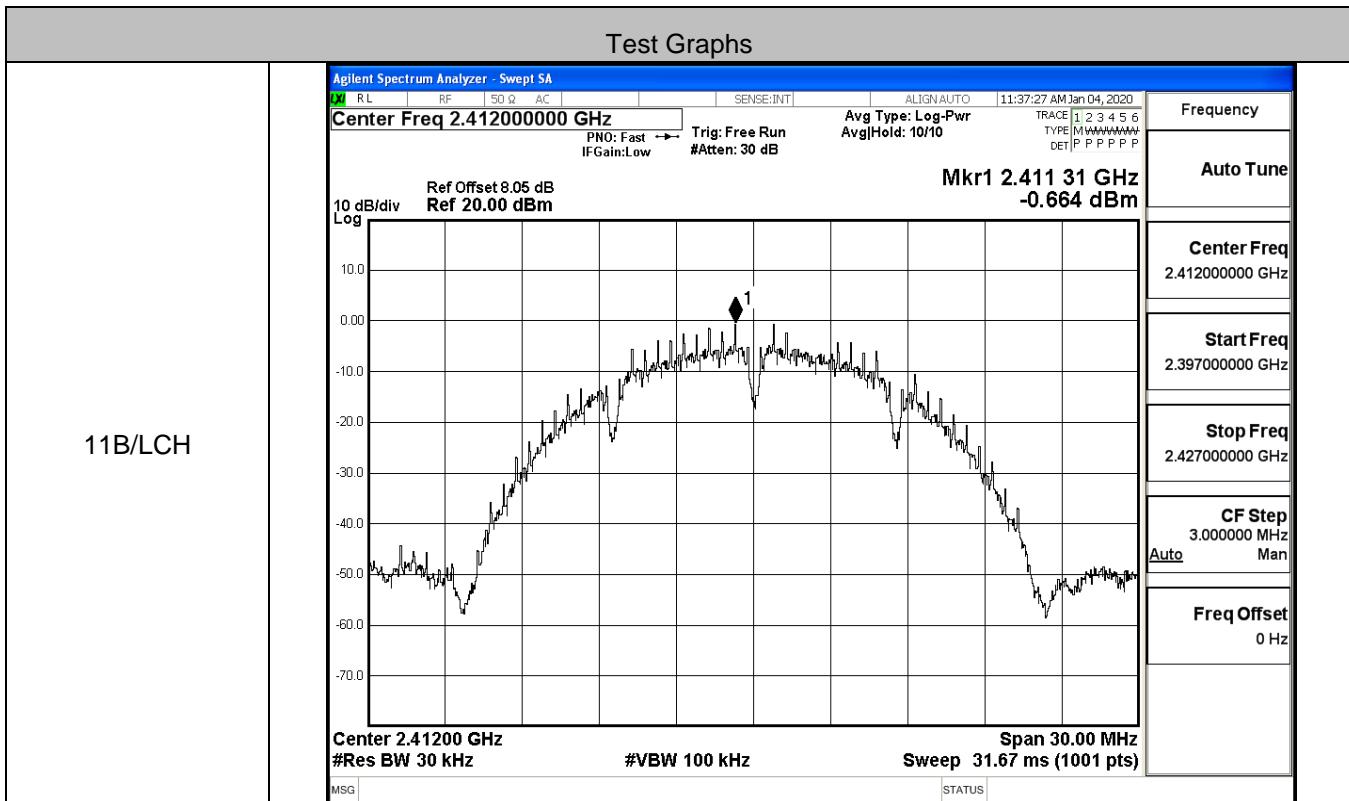
Mode	Channel	Meas.Level	Meas.Level	Meas.Level	Meas.Level	Limit [dBm]	Verdict
		ANT 0 [dBm]	ANT 1 [dBm]	ANT 2 [dBm]	MIMO [dBm]		
11N20SISO	LCH	10.43	11.06	10.52	15.45	30	PASS
	MCH	10.53	10.24	10.44	15.18	30	PASS
	HCH	10.43	10.43	10.12	15.10	30	PASS
11N40SISO	LCH	9.94	10.35	10.59	15.07	30	PASS
	MCH	10.09	10.38	10.64	15.15	30	PASS
	HCH	10.02	10.43	10.67	15.15	30	PASS

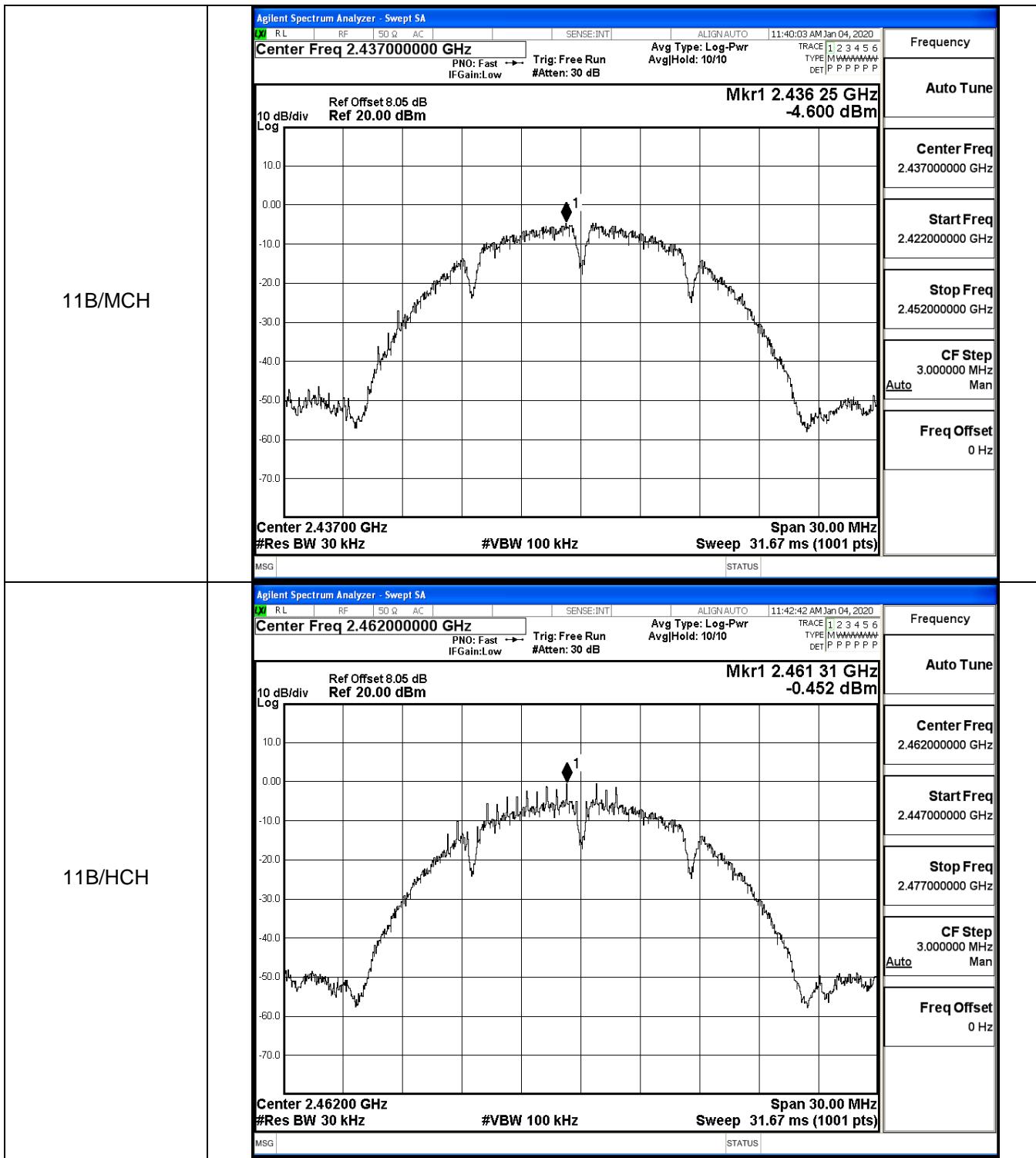
C.3 Maximum Power Spectral Density

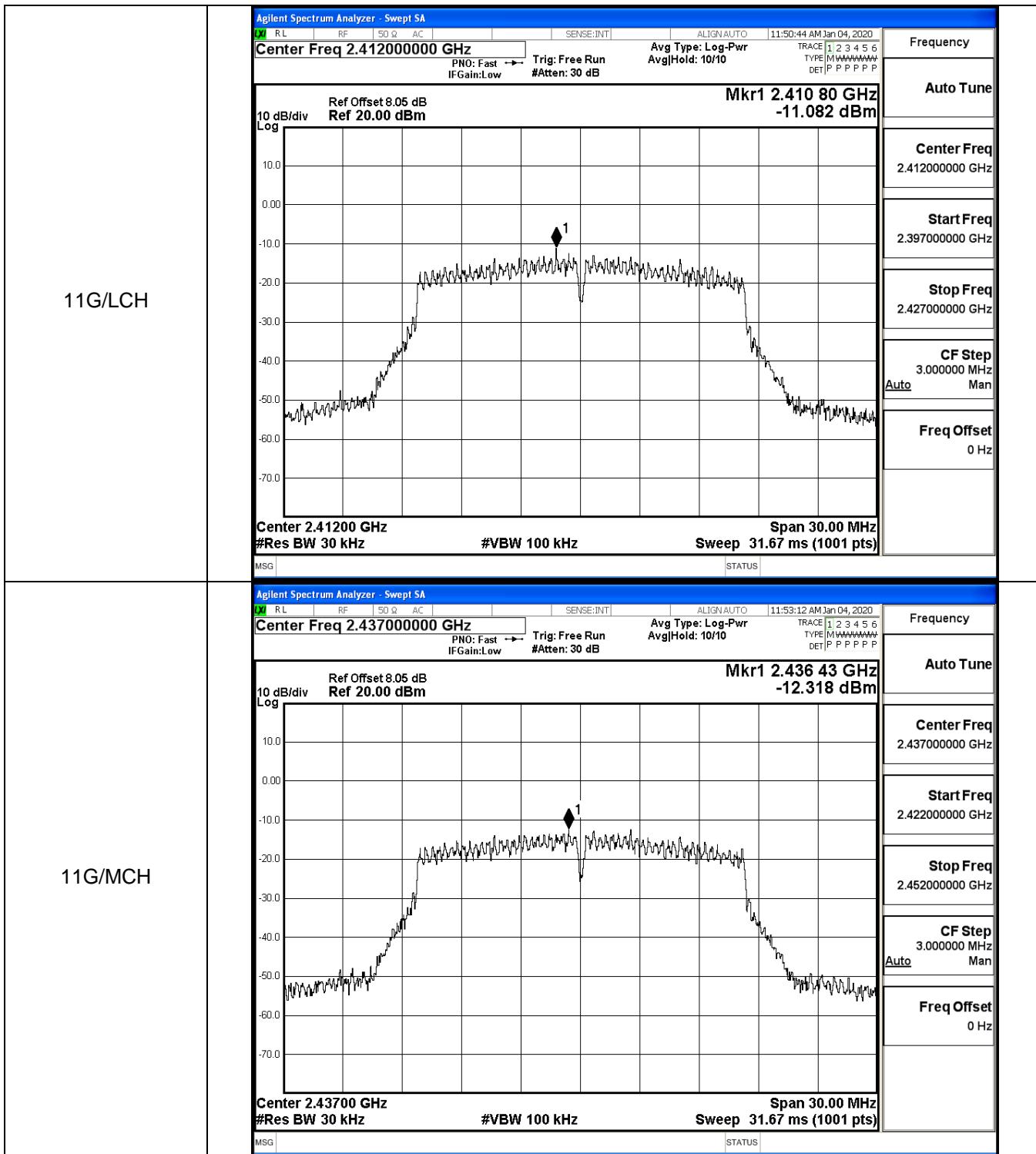
Ant0

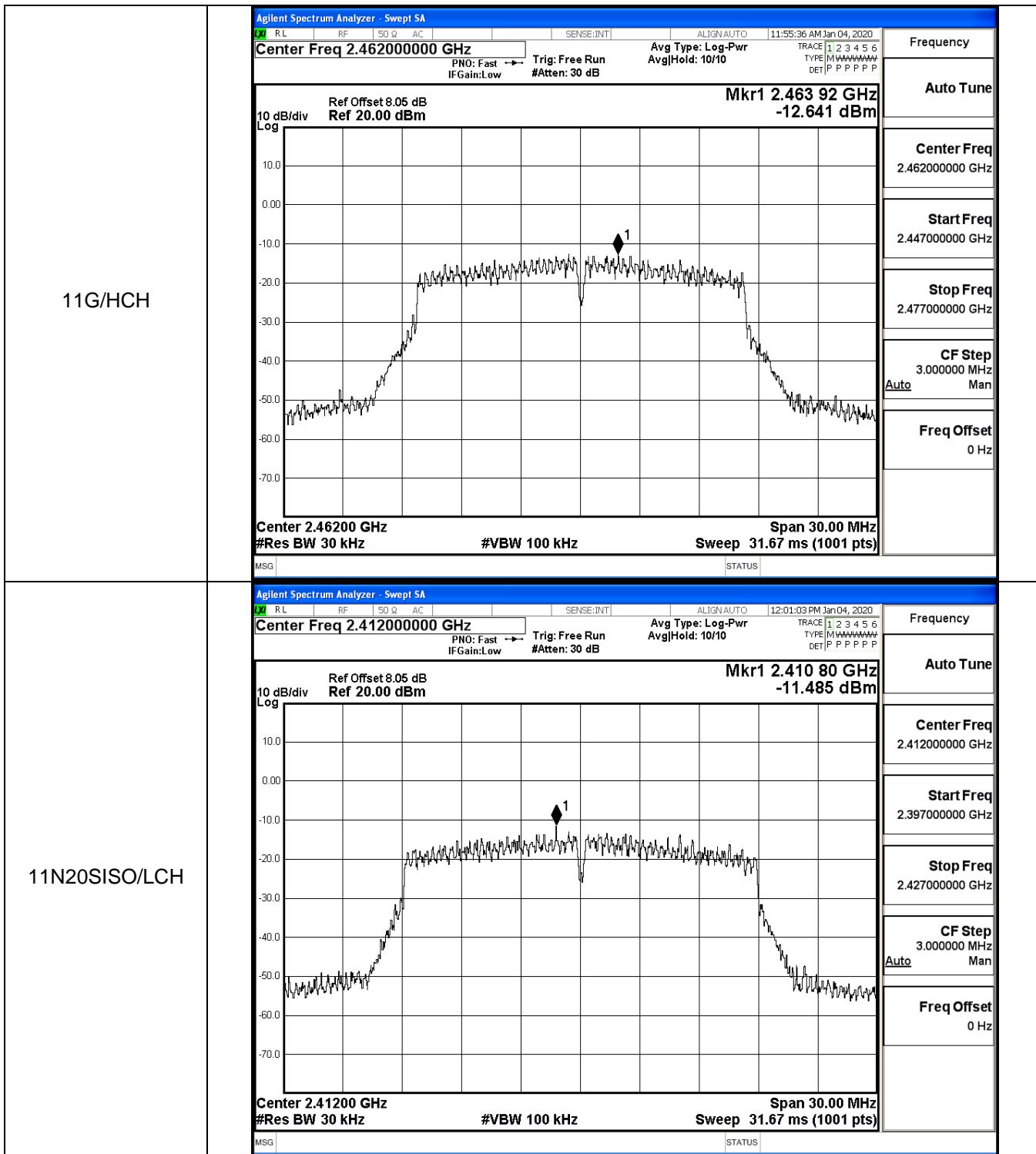
Mode	Channel	Meas.Level [dBm/30KHz]	Meas.Level [dBm/3KHz]	10log(N- 3)dB	Meas.Level [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-0.664	-10.664	4.77	-5.894	4.23	PASS
	MCH	-4.600	-14.600	4.77	-9.830	4.23	PASS
	HCH	-0.452	-10.452	4.77	-5.682	4.23	PASS
11G	LCH	-11.082	-21.082	4.77	-16.312	4.23	PASS
	MCH	-12.318	-22.318	4.77	-17.548	4.23	PASS
	HCH	-12.641	-22.641	4.77	-17.871	4.23	PASS
11N20SISO	LCH	-11.485	-21.485	4.77	-16.715	4.23	PASS
	MCH	-12.584	-22.584	4.77	-17.814	4.23	PASS
	HCH	-11.153	-21.153	4.77	-16.383	4.23	PASS
11N40SISO	LCH	-16.402	-26.402	4.77	-21.632	4.23	PASS
	MCH	-16.064	-26.064	4.77	-21.294	4.23	PASS
	HCH	-16.173	-26.173	4.77	-21.403	4.23	PASS

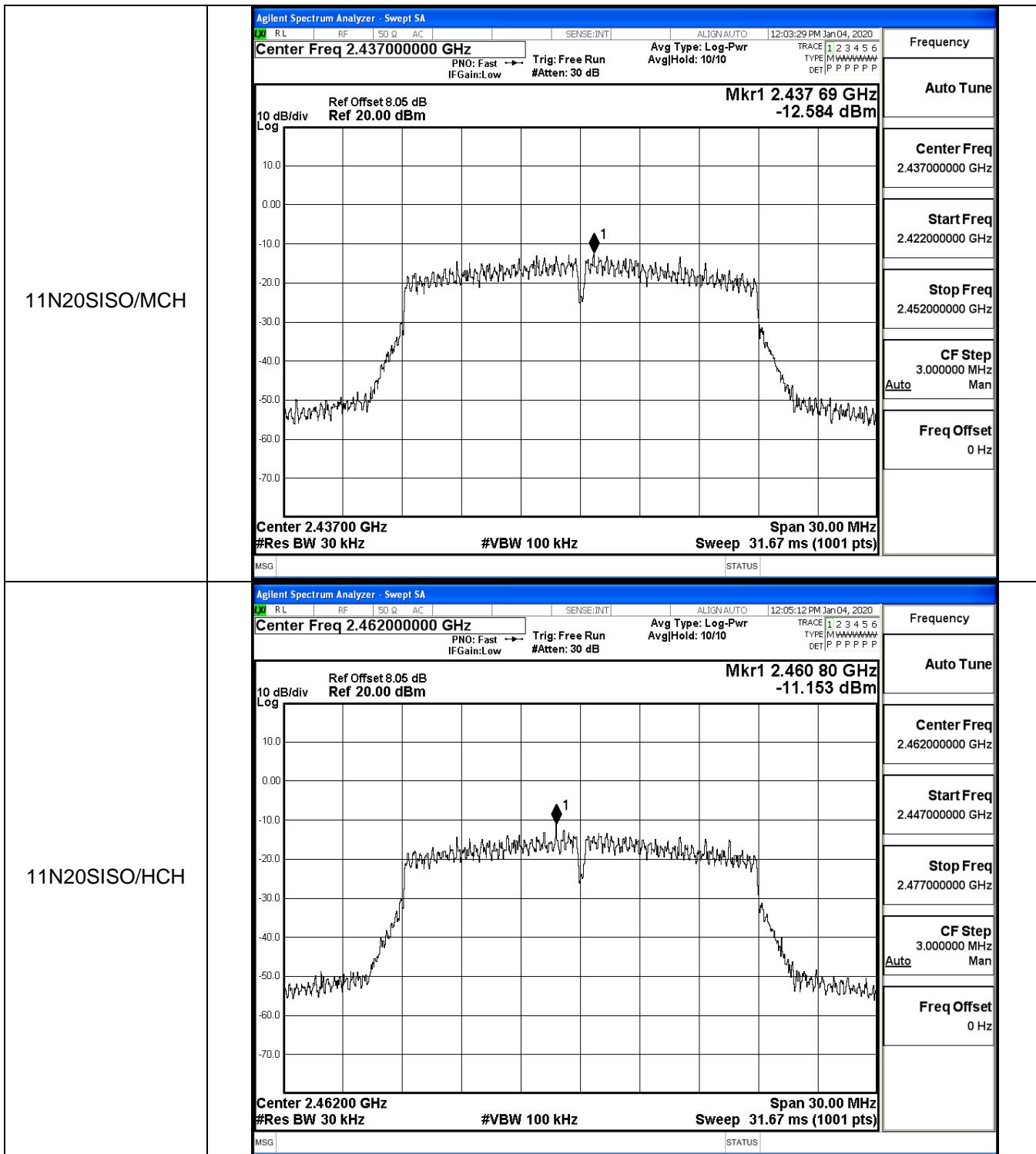
Directional gain=5dBi+10 log (3) = 9.77dBi > 6dBi, So the power density limit shall be reduced to 8-(9.77-6) = 4.23

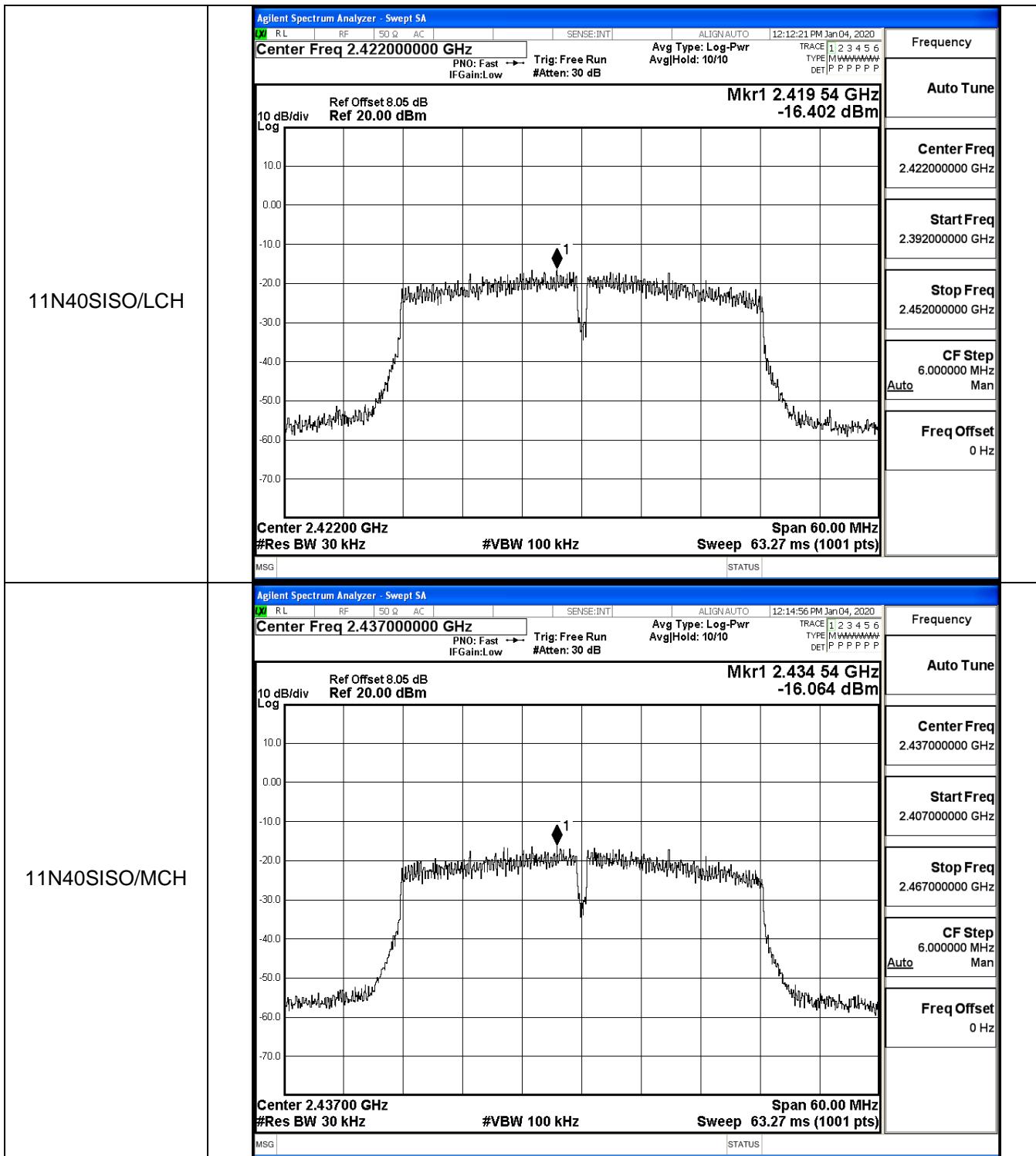


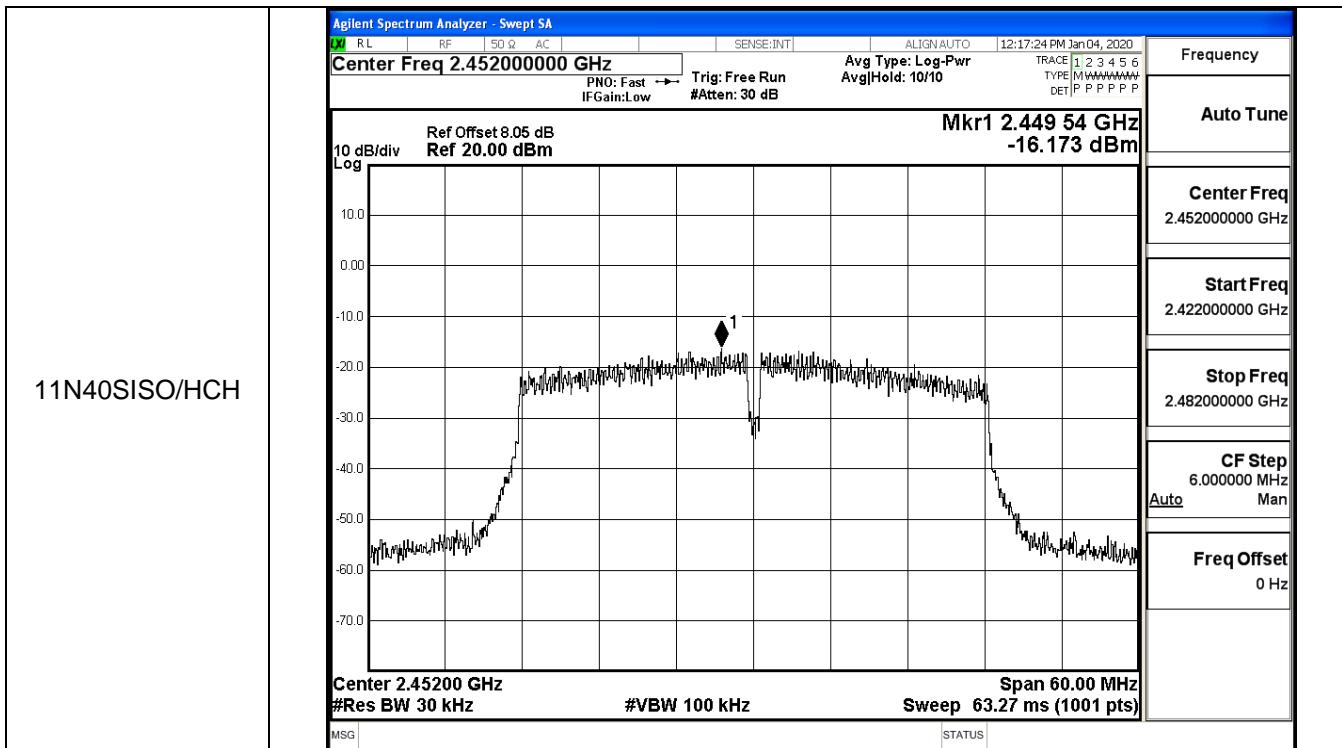






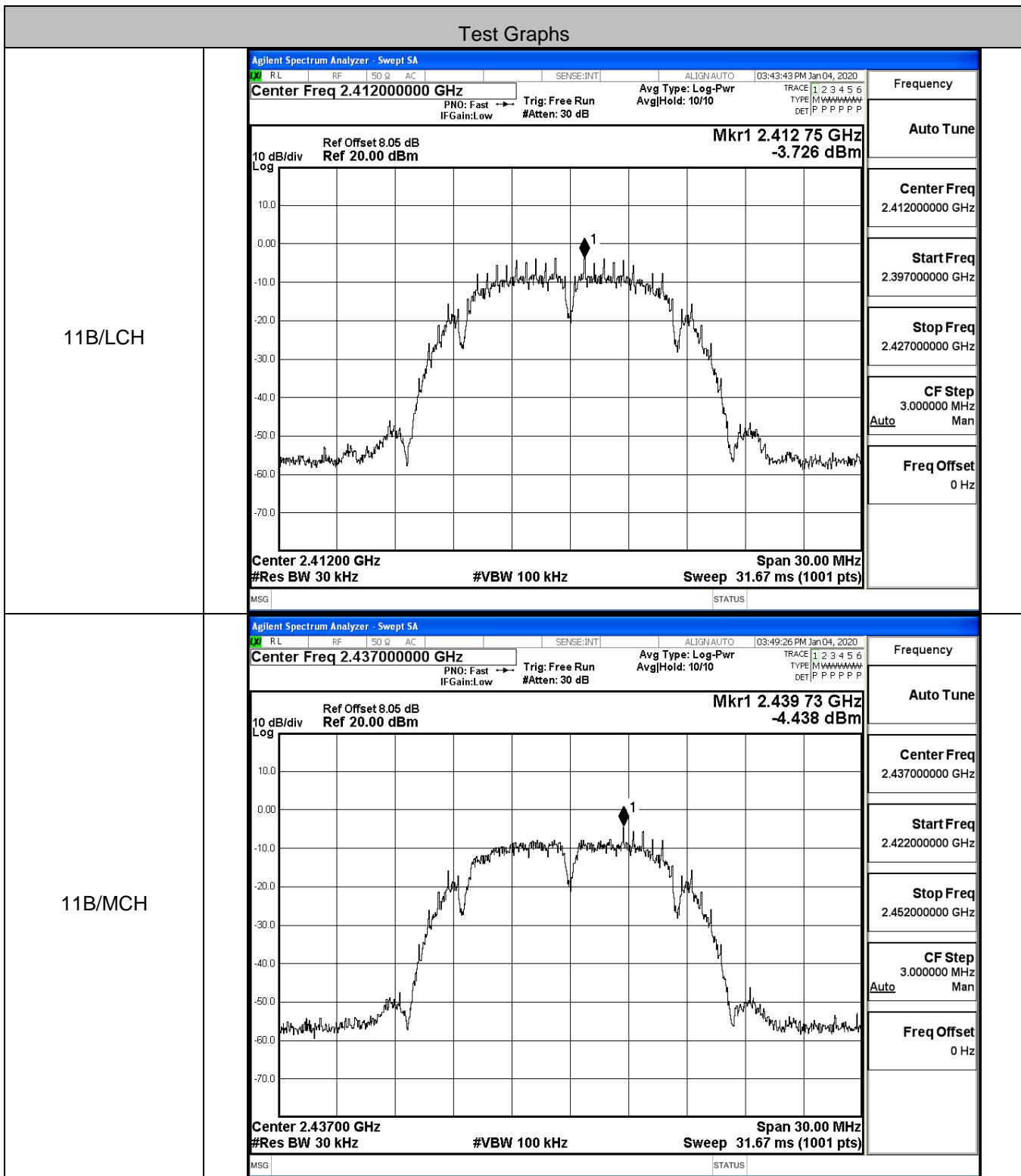


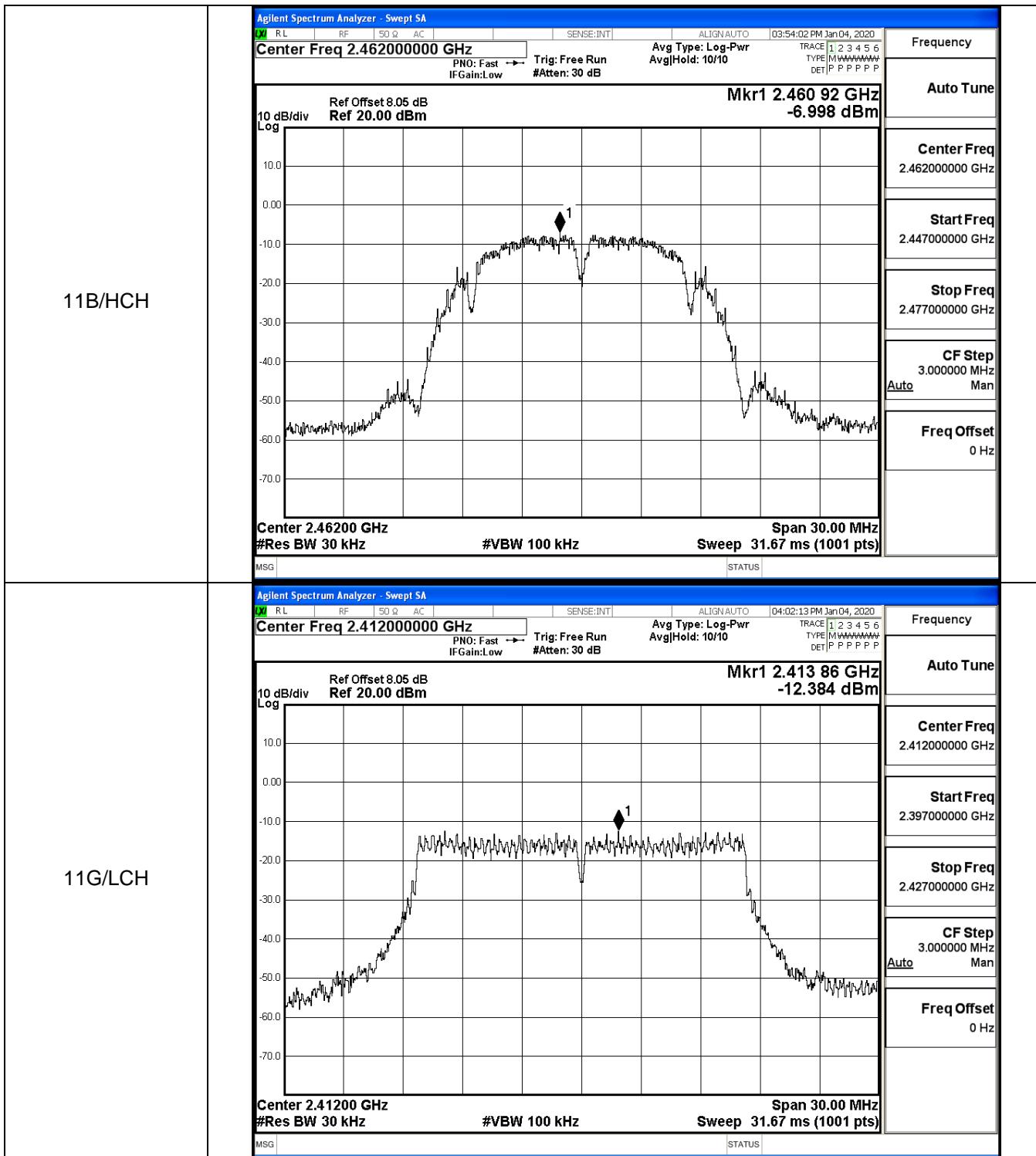


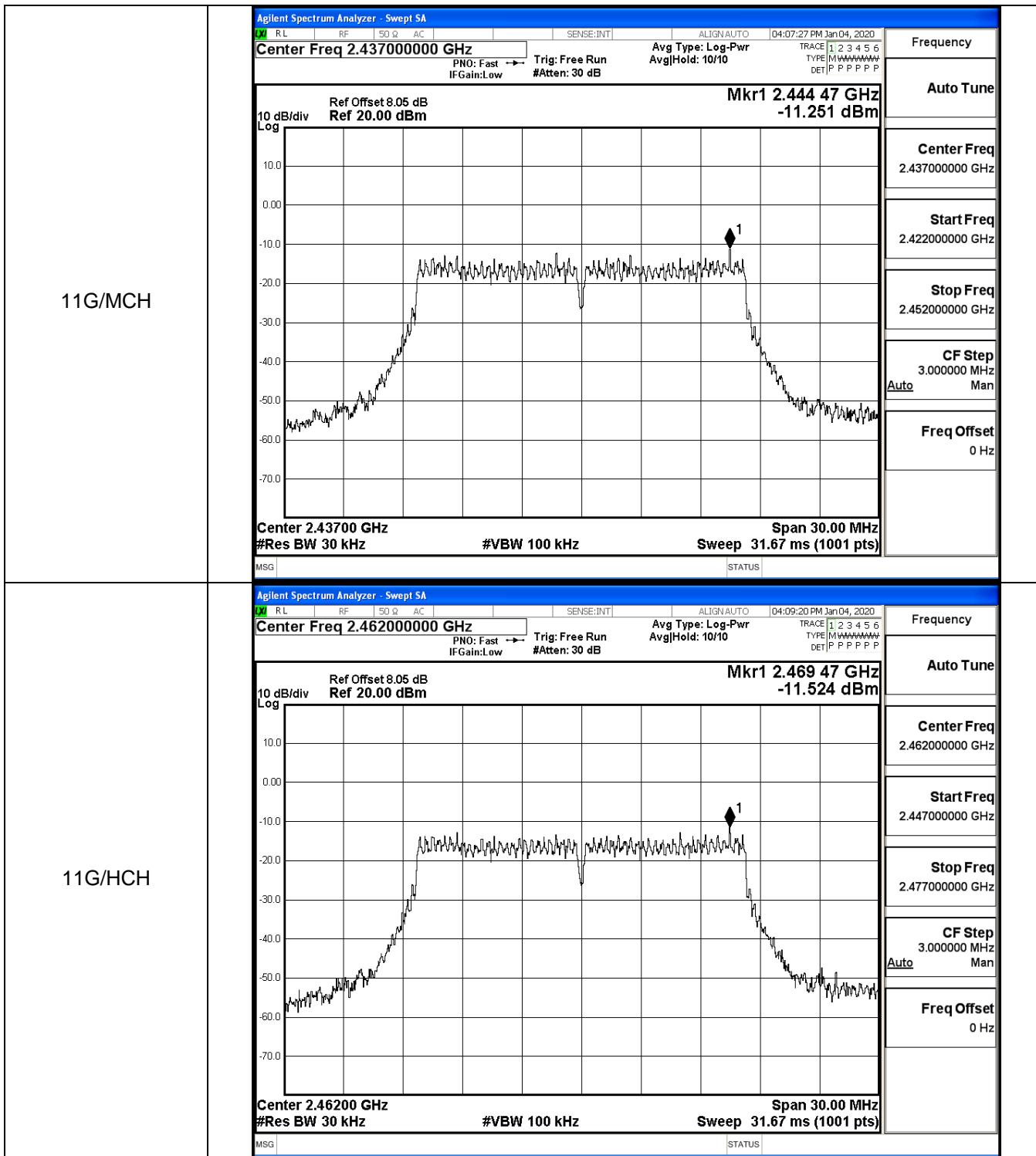
**Ant1**

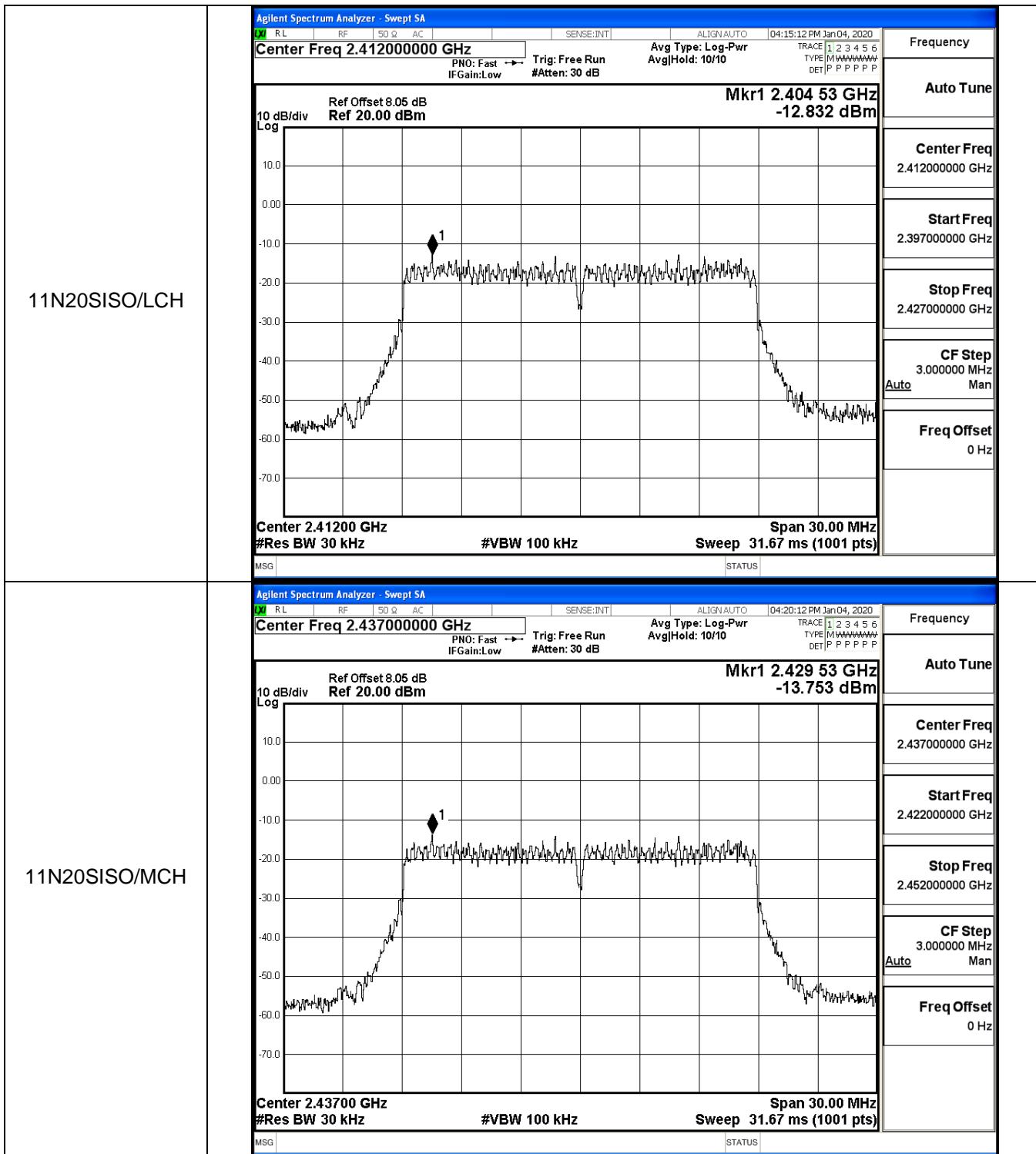
Mode	Channel	Meas.Level [dBm/30KHz]	Meas.Level [dBm/3KHz]	10log(N-3)dB	Meas.Level [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-3.726	-13.726	4.77	-8.956	4.23	PASS
	MCH	-4.438	-14.438	4.77	-9.668	4.23	PASS
	HCH	-6.998	-16.998	4.77	-12.228	4.23	PASS
11G	LCH	-12.384	-22.384	4.77	-17.614	4.23	PASS
	MCH	-11.251	-21.251	4.77	-16.481	4.23	PASS
	HCH	-11.524	-21.524	4.77	-16.754	4.23	PASS
11N20SISO	LCH	-12.832	-22.832	4.77	-18.062	4.23	PASS
	MCH	-13.753	-23.753	4.77	-18.983	4.23	PASS
	HCH	-13.195	-23.195	4.77	-18.425	4.23	PASS
11N40SISO	LCH	-16.120	-26.120	4.77	-21.350	4.23	PASS
	MCH	-15.851	-25.851	4.77	-21.081	4.23	PASS
	HCH	-16.019	-26.019	4.77	-21.249	4.23	PASS

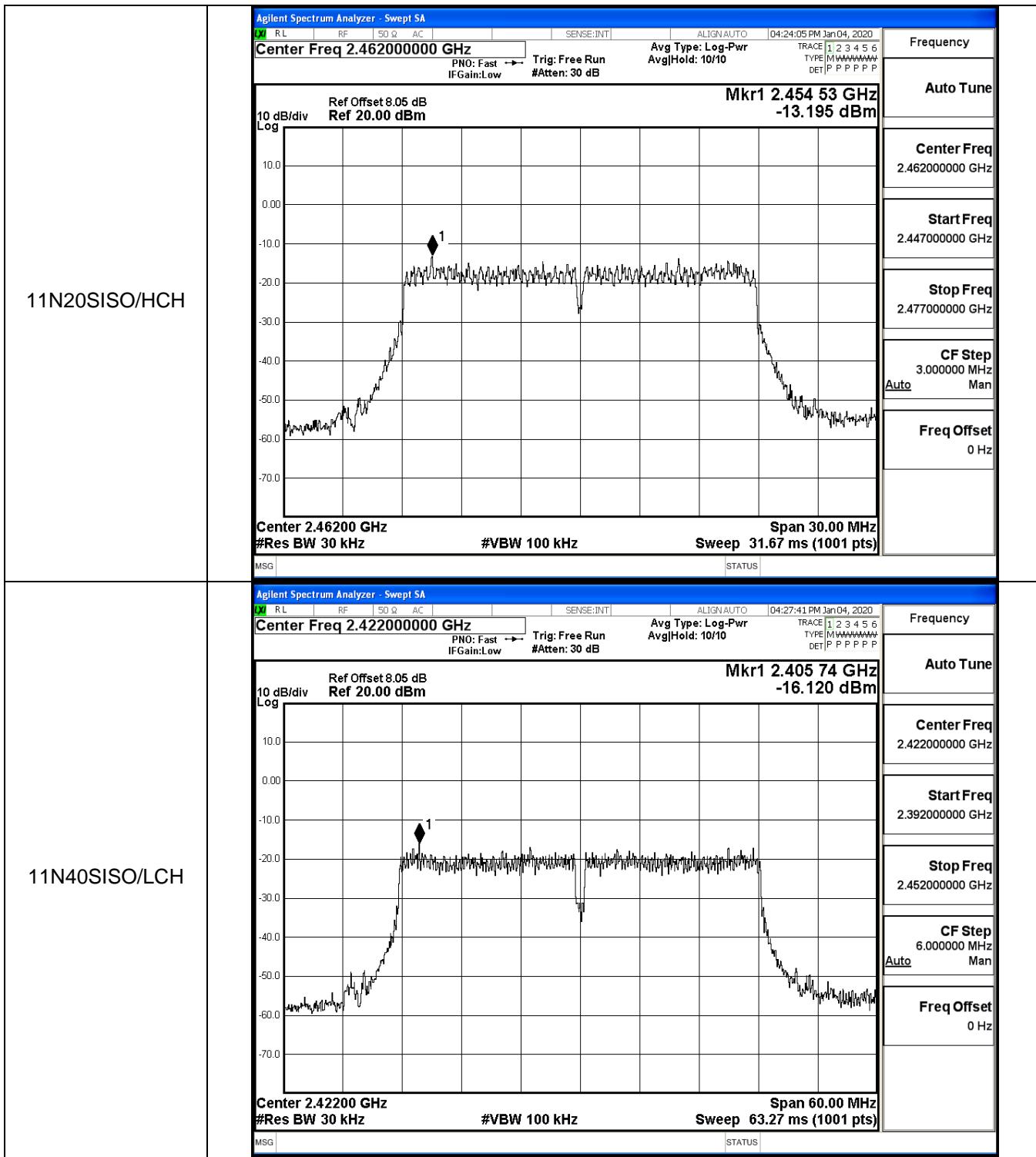
Directional gain=5dBi+10 log (3) = 9.77dBi > 6dBi, So the power density limit shall be reduced to 8-(9.77-6) = 4.23

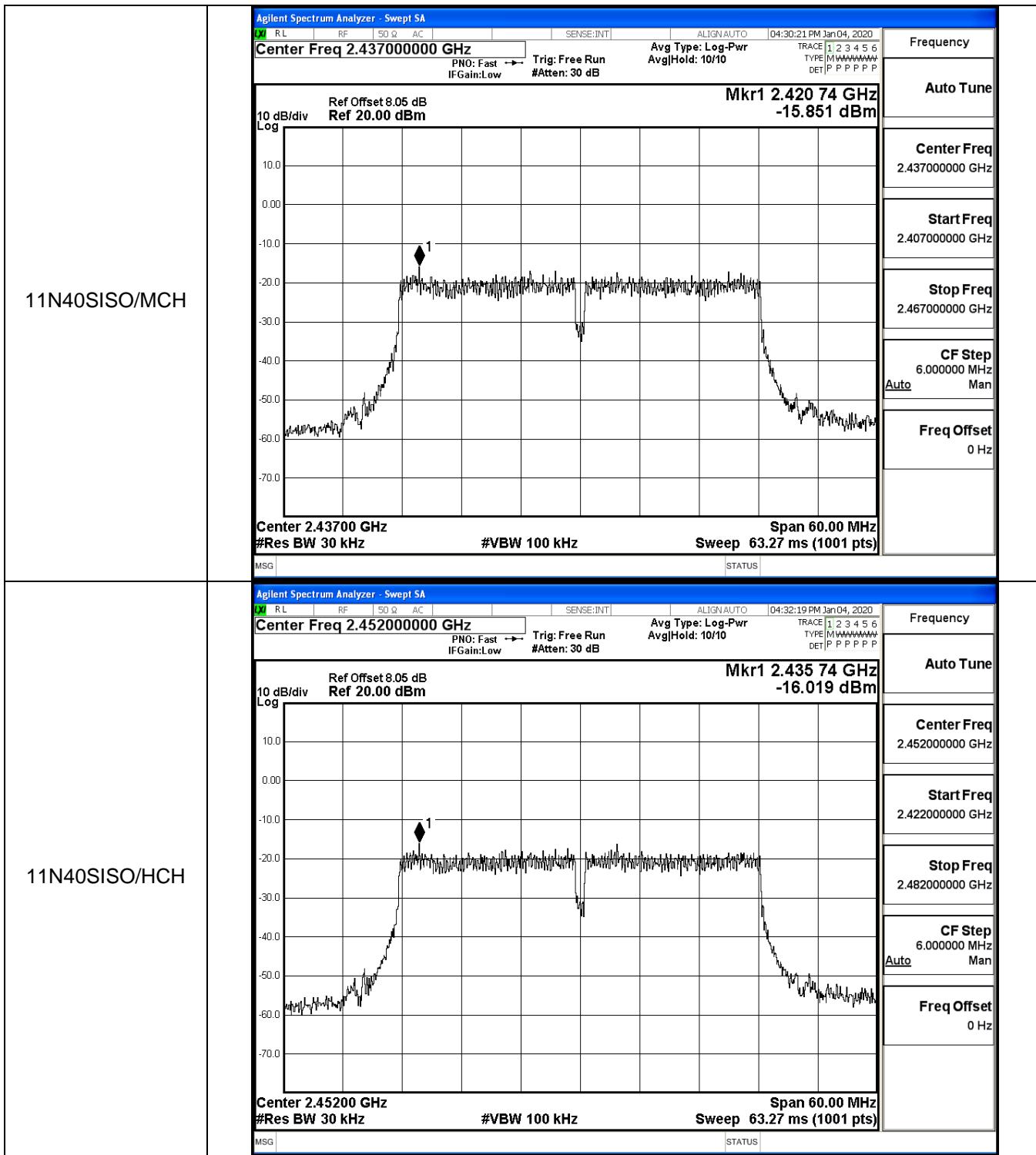








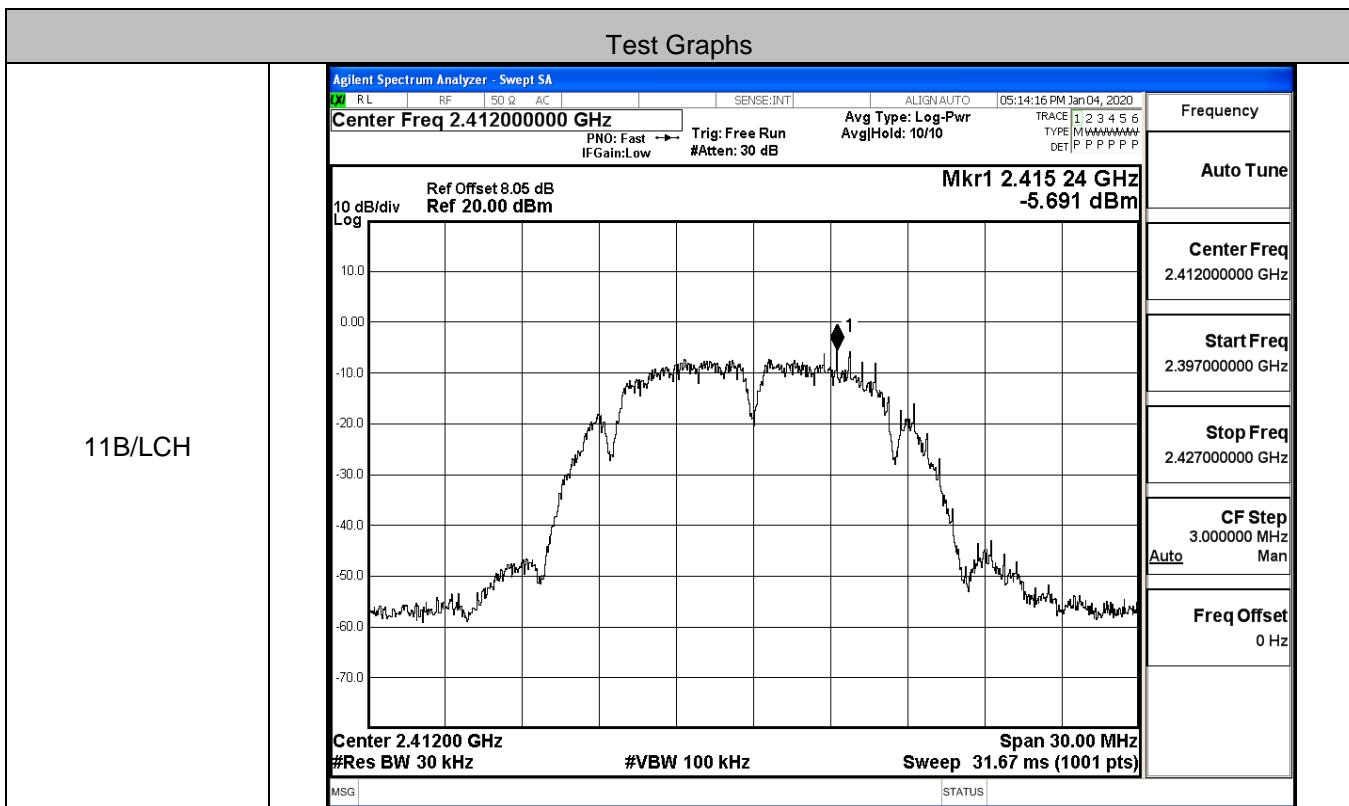


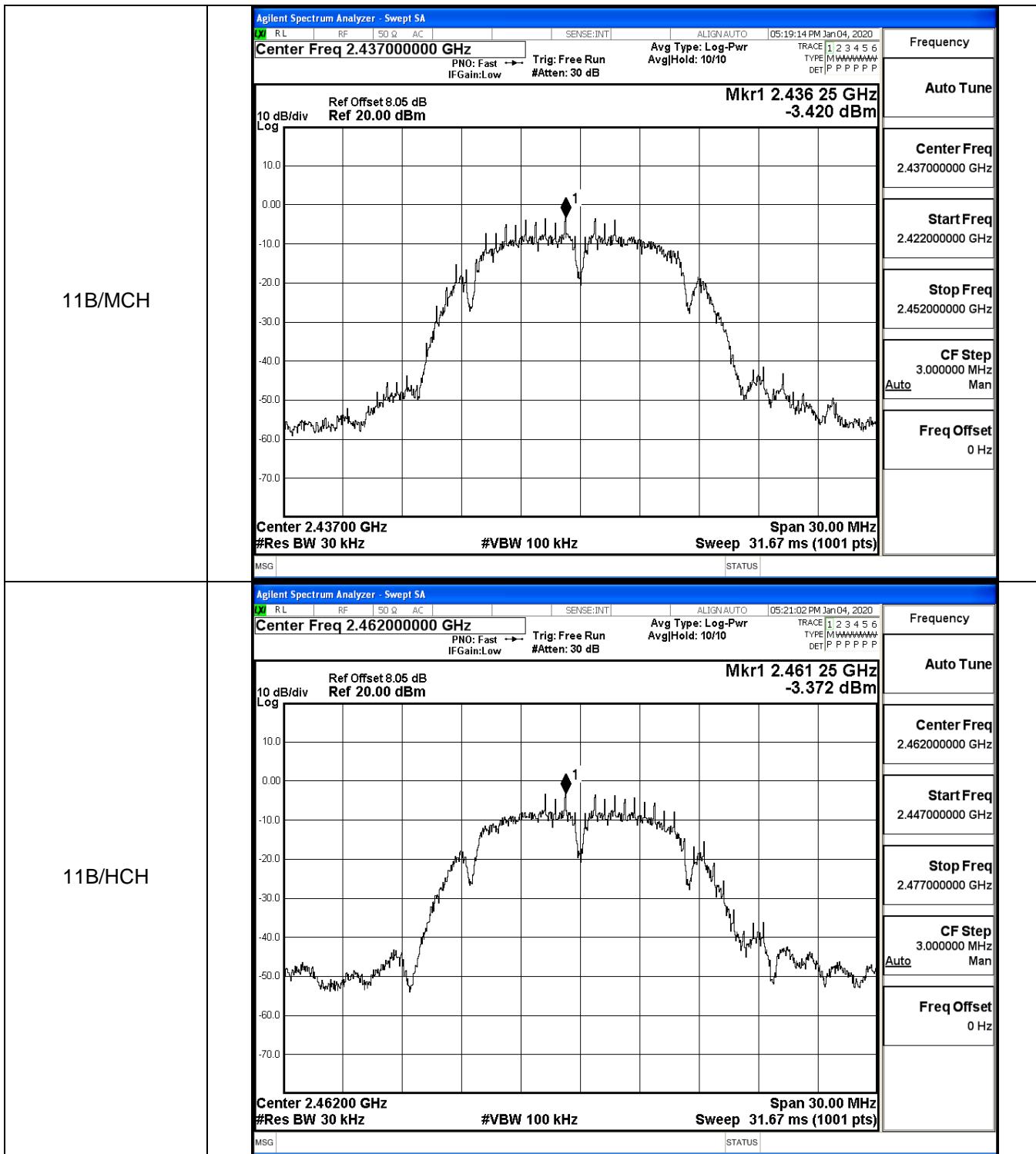


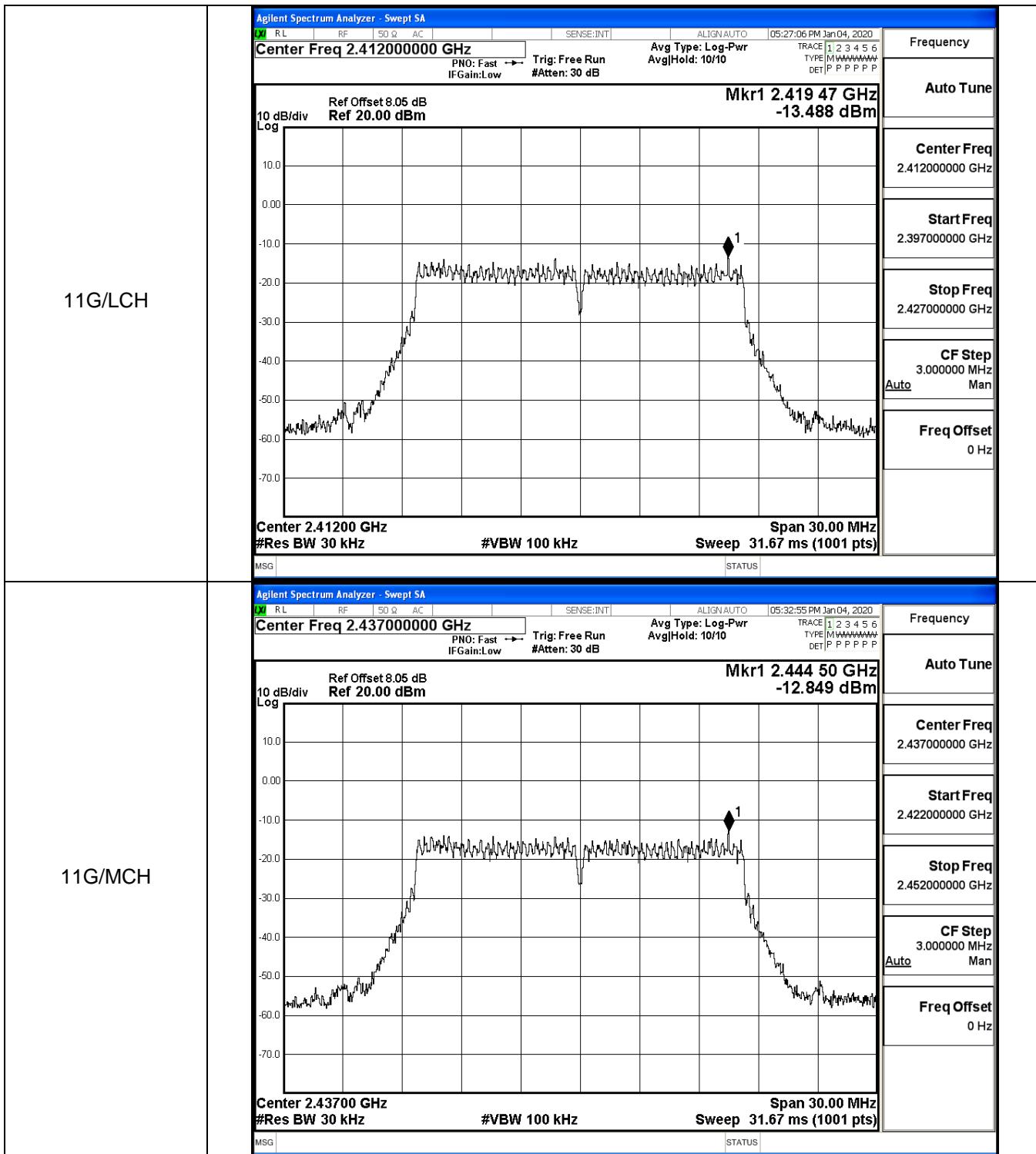
Ant2

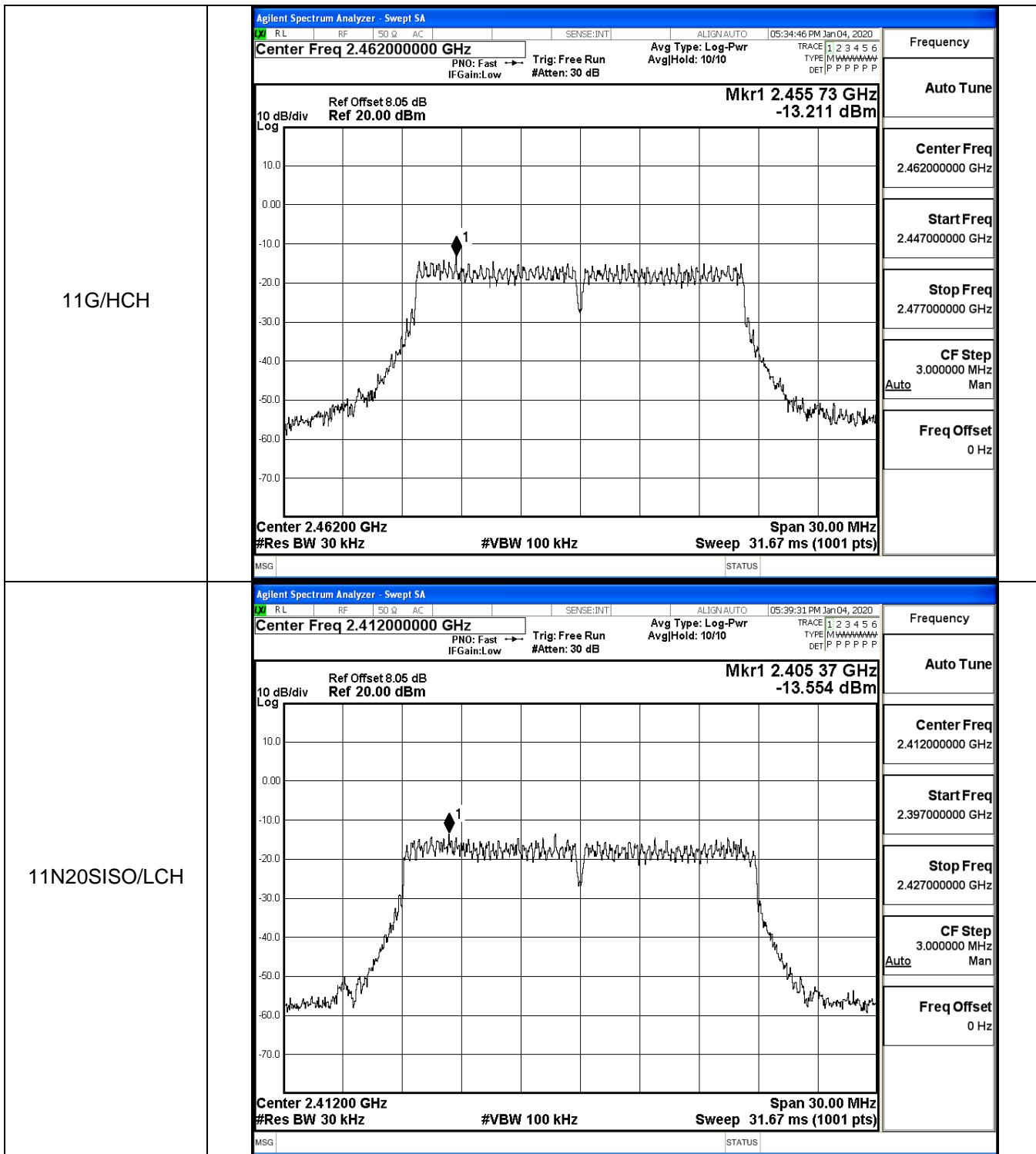
Mode	Channel	Meas.Level [dBm/30KHz]	Meas.Level [dBm/3KHz]	10log(N- 3)dB	Meas.Level [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-5.691	-15.691	4.77	-10.921	4.23	PASS
	MCH	-3.420	-13.420	4.77	-8.650	4.23	PASS
	HCH	-3.372	-13.372	4.77	-8.602	4.23	PASS
11G	LCH	-13.488	-23.488	4.77	-18.718	4.23	PASS
	MCH	-12.849	-22.849	4.77	-18.079	4.23	PASS
	HCH	-13.211	-23.211	4.77	-18.441	4.23	PASS
11N20SISO	LCH	-13.554	-23.554	4.77	-18.784	4.23	PASS
	MCH	-12.811	-22.811	4.77	-18.041	4.23	PASS
	HCH	-14.215	-24.215	4.77	-19.445	4.23	PASS
11N40SISO	LCH	-14.956	-24.956	4.77	-20.186	4.23	PASS
	MCH	-14.707	-24.707	4.77	-19.937	4.23	PASS
	HCH	-15.213	-25.213	4.77	-20.443	4.23	PASS

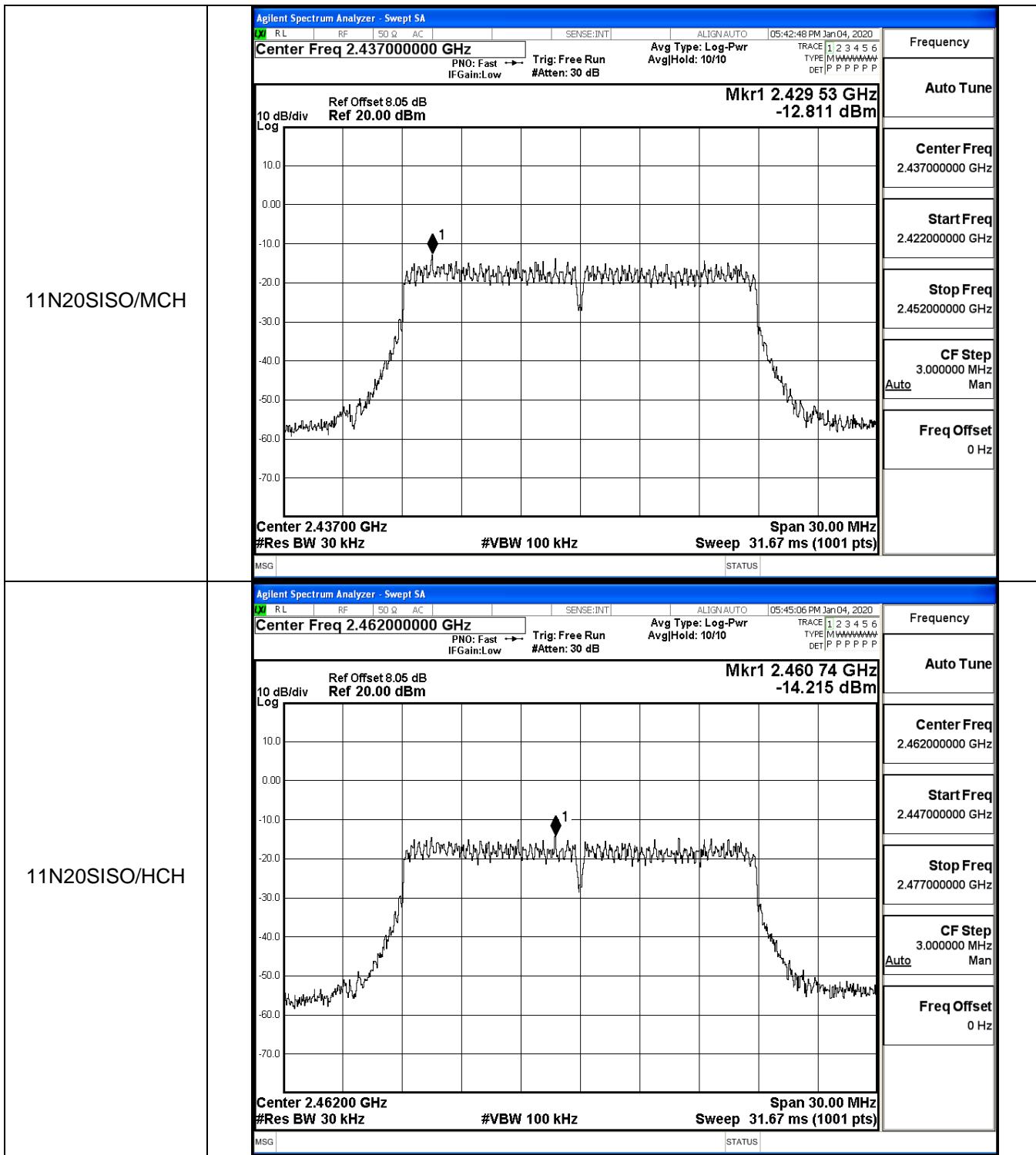
Directional gain=5dBi+10 log (3) = 9.77dBi > 6dBi, So the power density limit shall be reduced to 8-(9.77-6) = 4.23

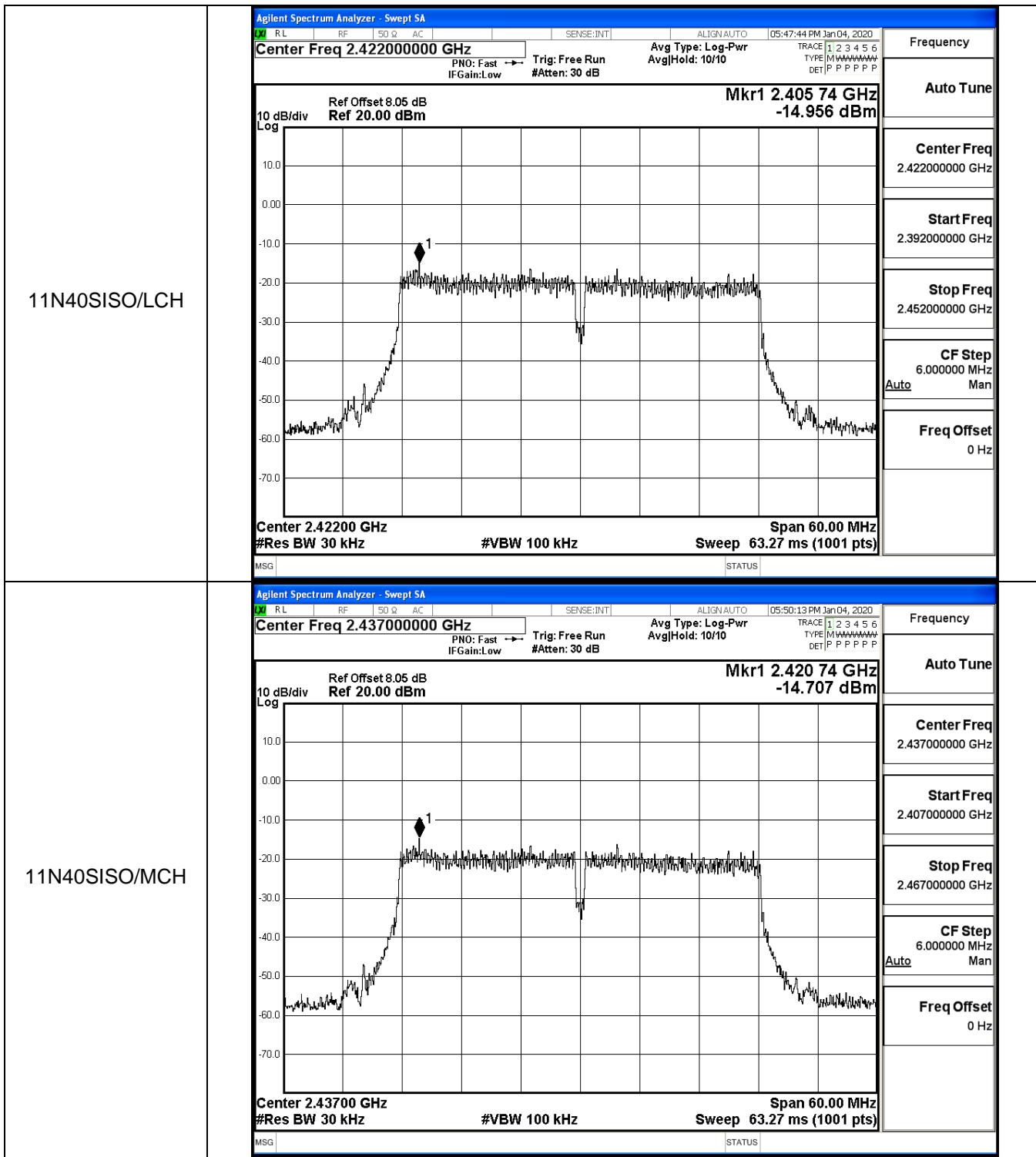


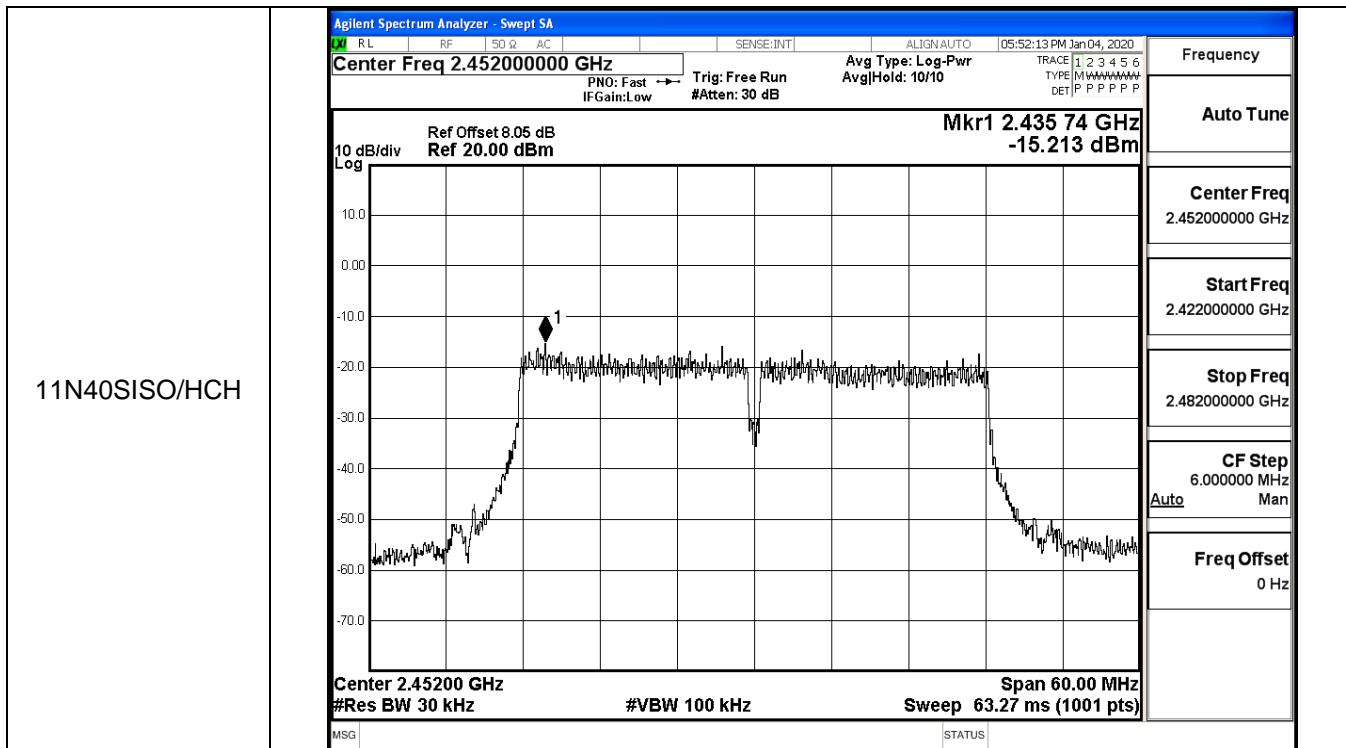










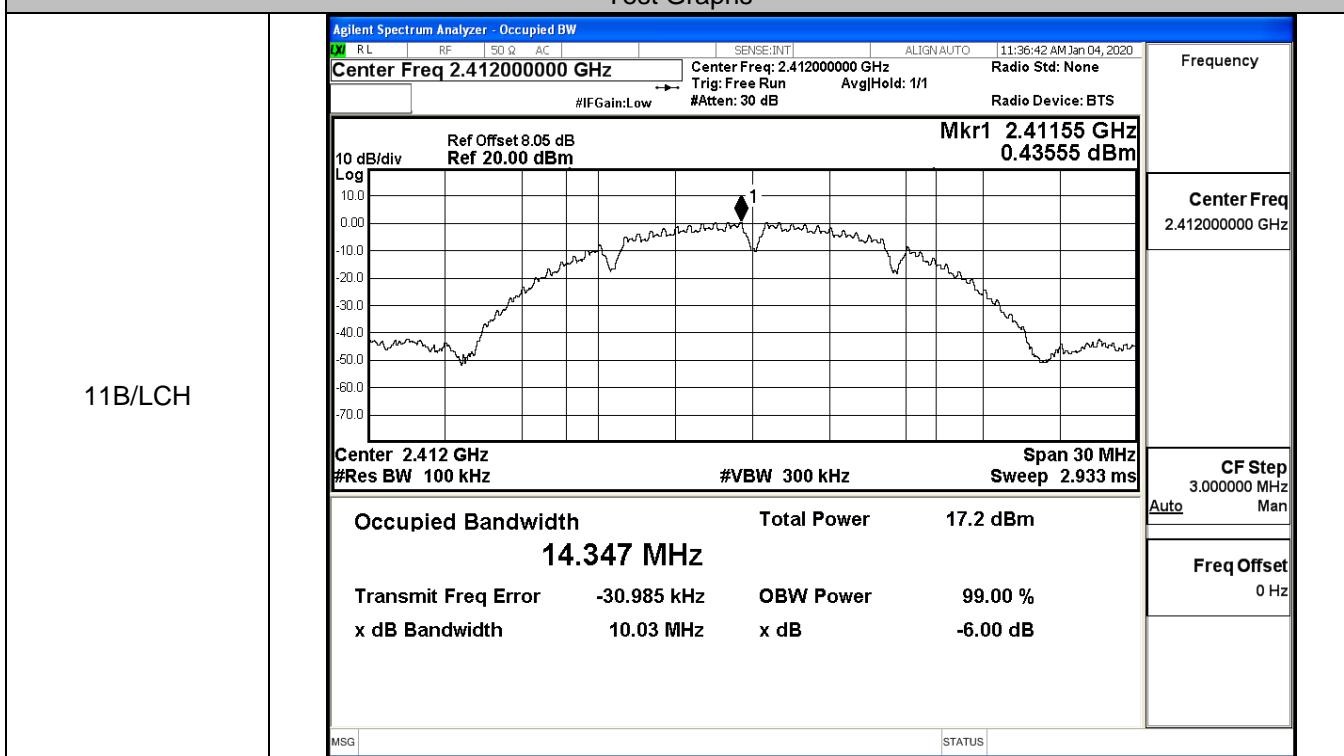


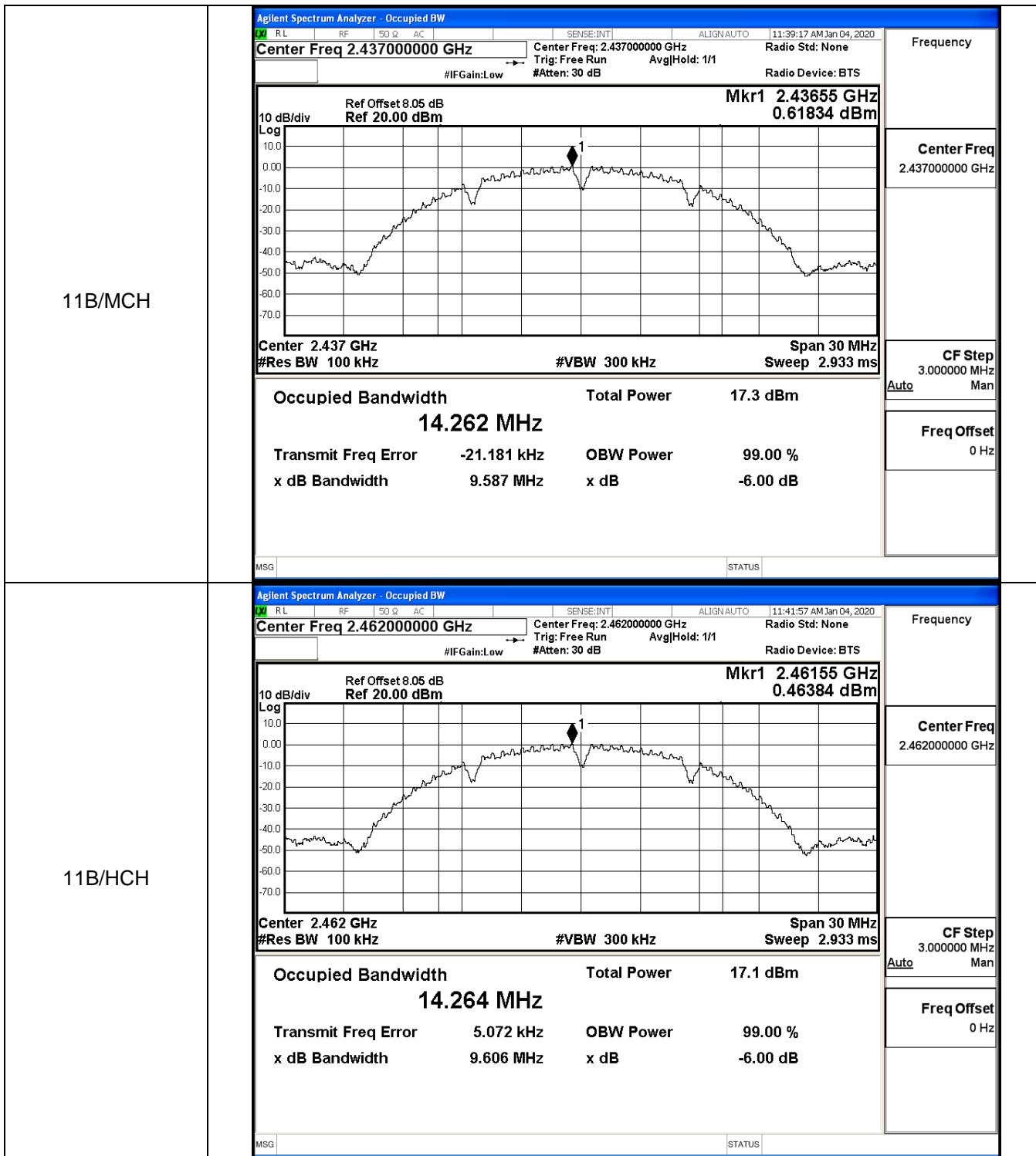
C.4 6dB Bandwidth

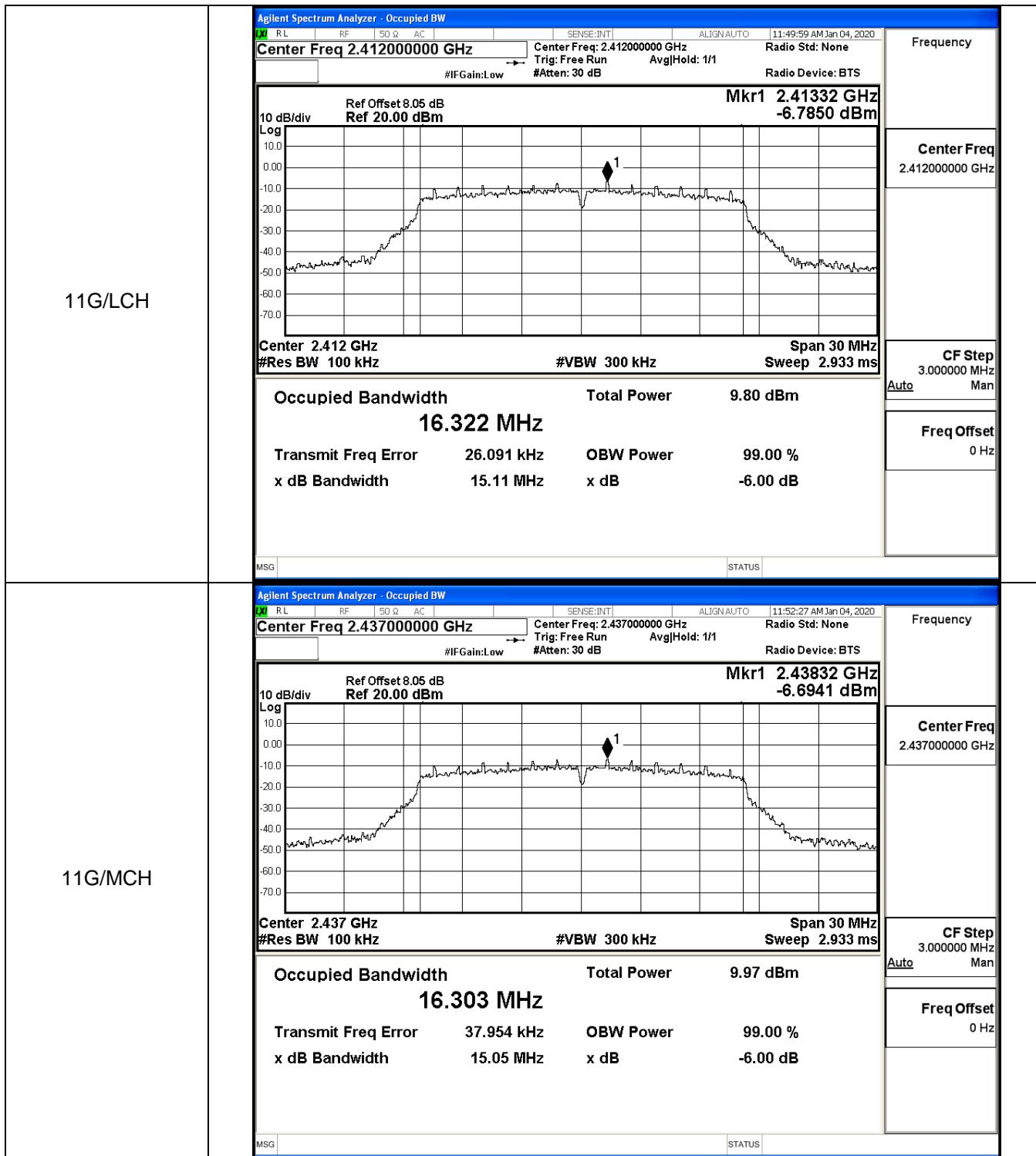
Ant0

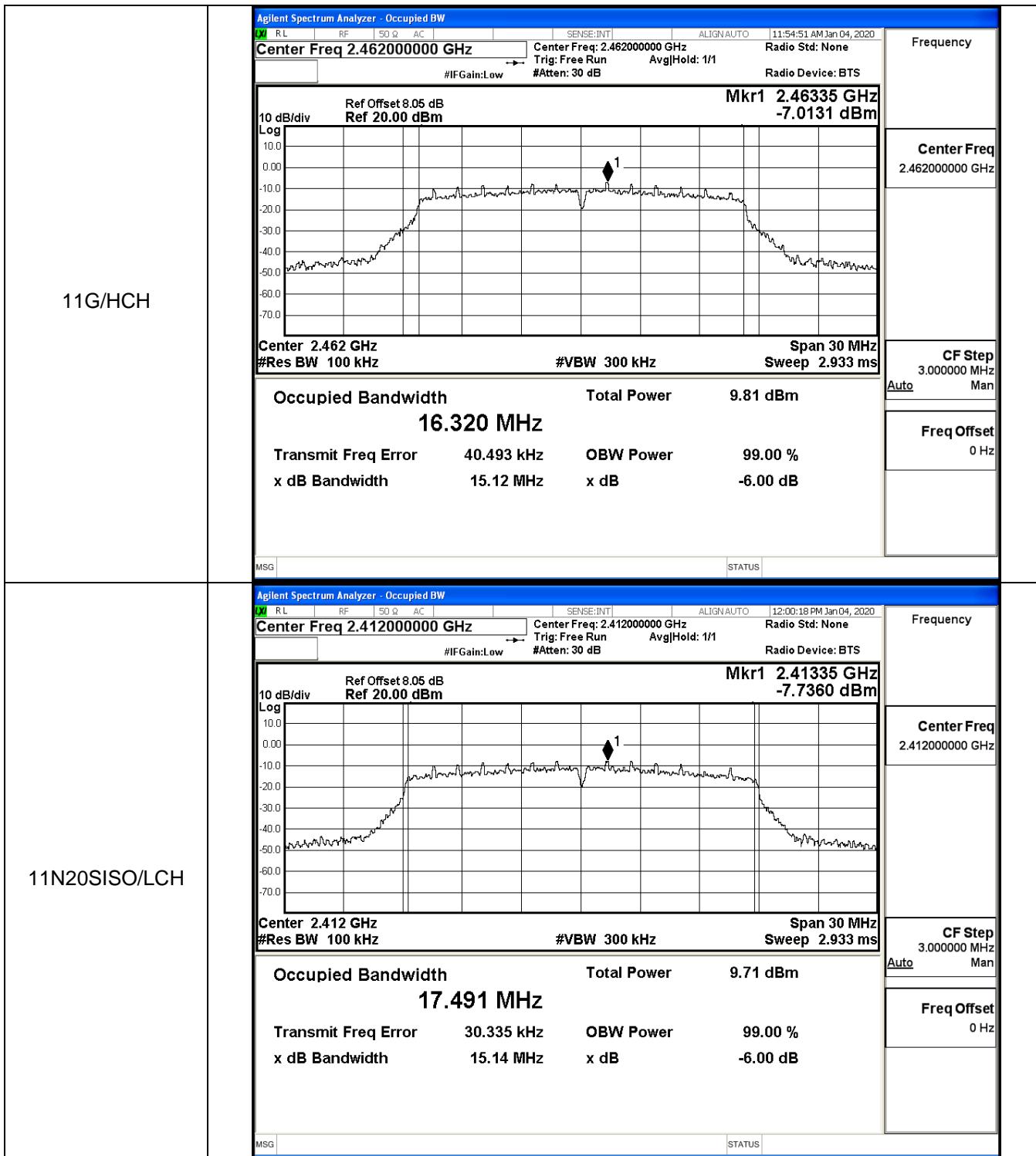
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	10.03	≥0.5	PASS
	MCH	9.587	≥0.5	PASS
	HCH	9.606	≥0.5	PASS
11G	LCH	15.11	≥0.5	PASS
	MCH	15.05	≥0.5	PASS
	HCH	15.12	≥0.5	PASS
11N20SISO	LCH	15.14	≥0.5	PASS
	MCH	15.12	≥0.5	PASS
	HCH	15.14	≥0.5	PASS
11N40SISO	LCH	33.89	≥0.5	PASS
	MCH	35.10	≥0.5	PASS
	HCH	35.13	≥0.5	PASS

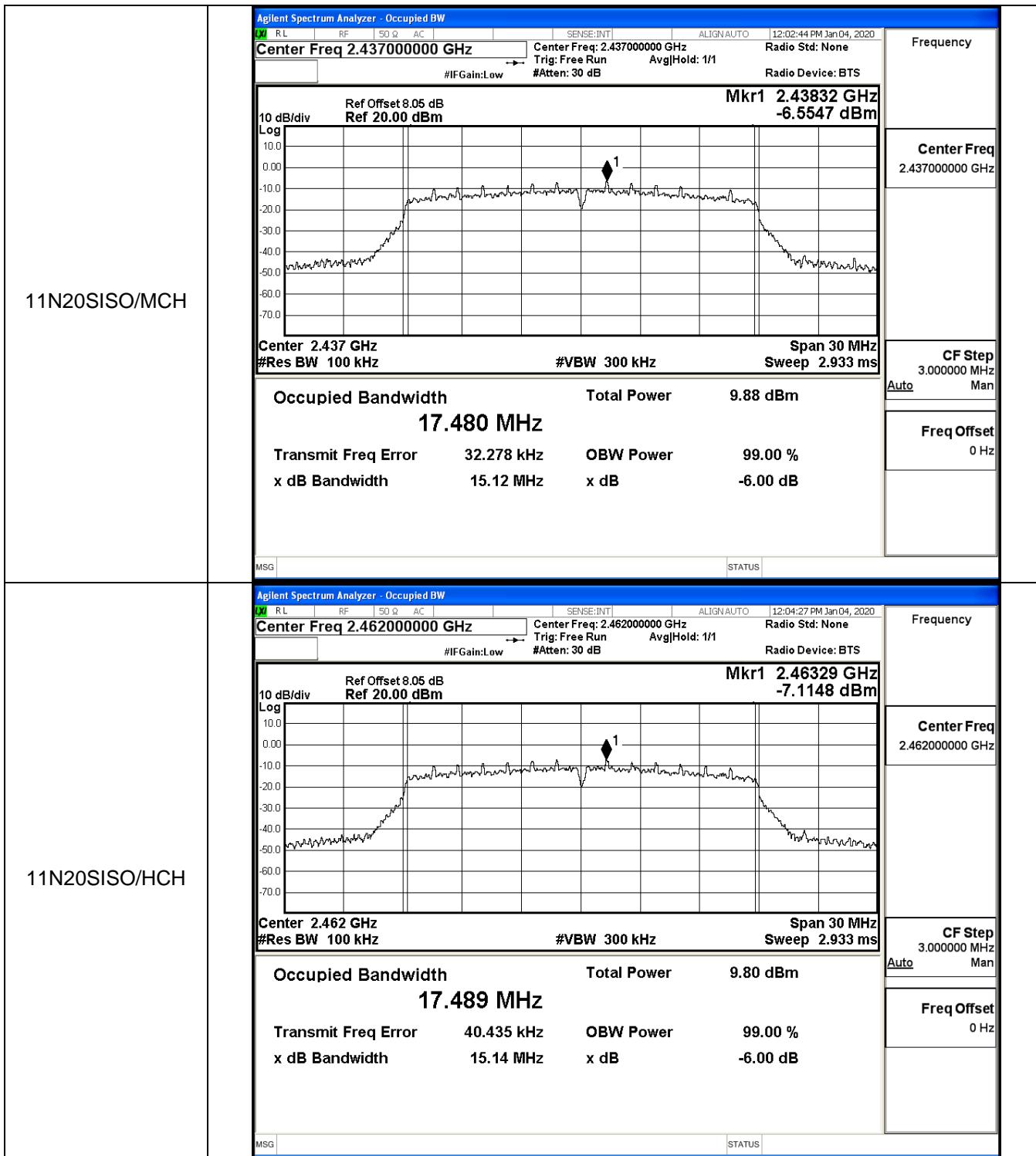
Test Graphs

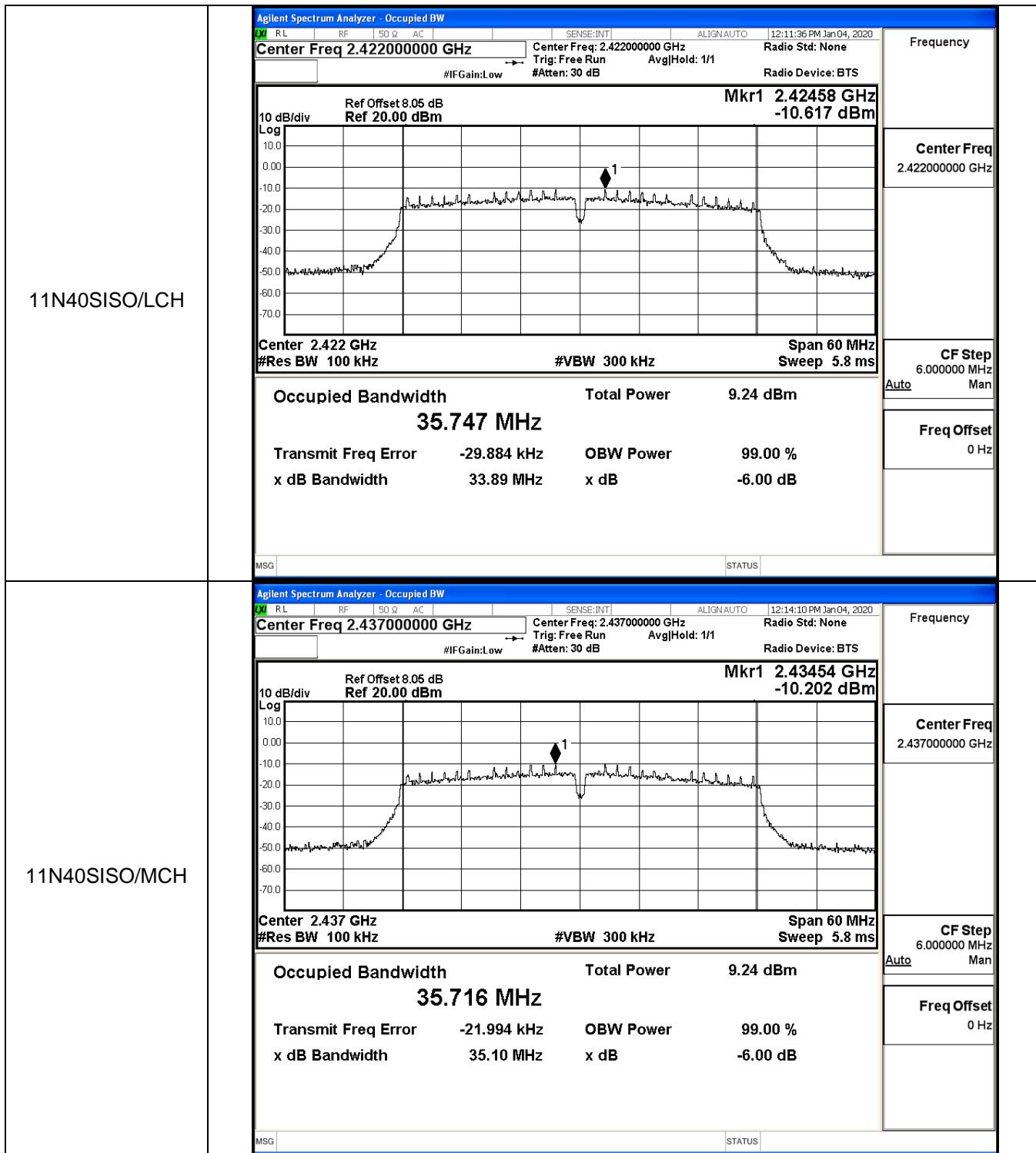


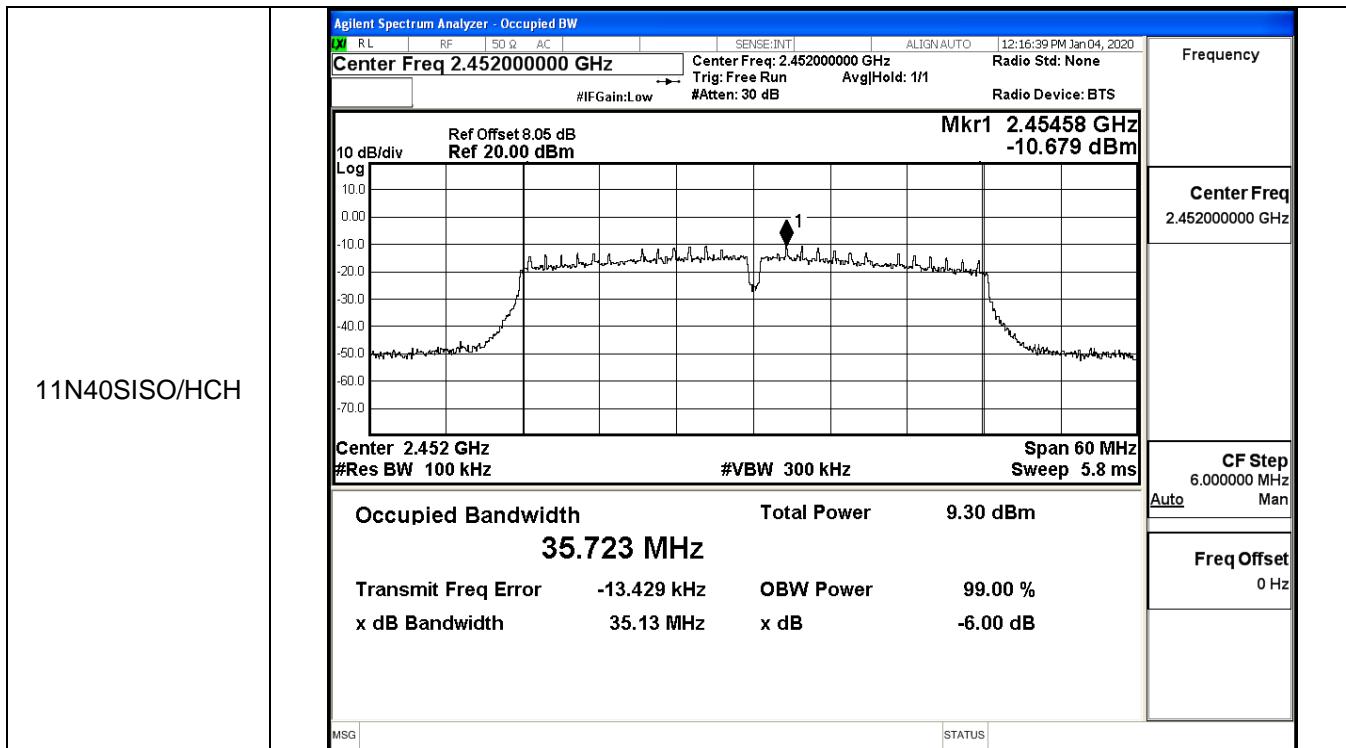








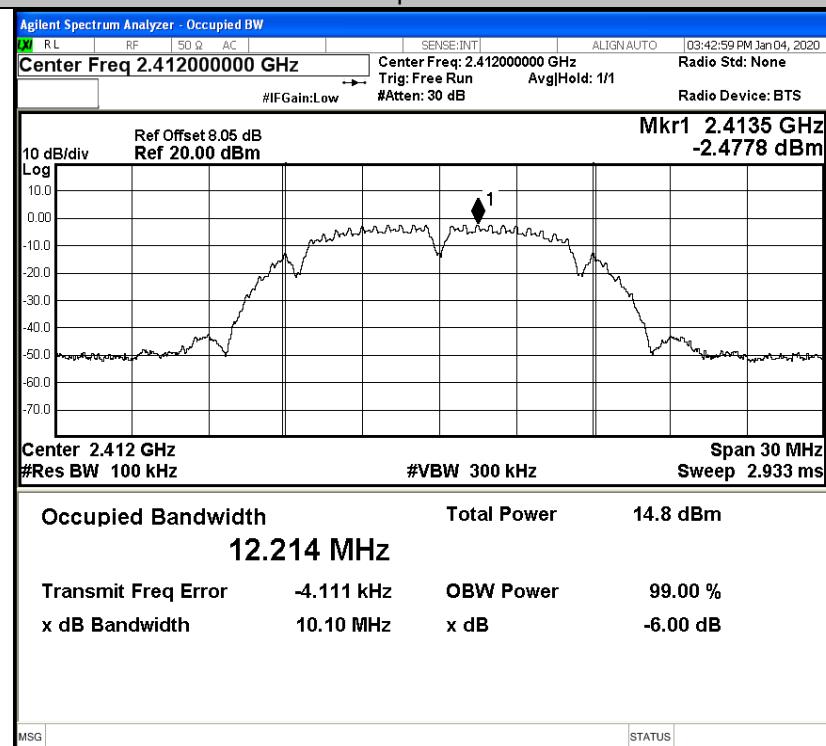


**Ant1**

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	10.10	≥0.5	PASS
	MCH	10.10	≥0.5	PASS
	HCH	9.158	≥0.5	PASS
11G	LCH	16.38	≥0.5	PASS
	MCH	16.39	≥0.5	PASS
	HCH	16.38	≥0.5	PASS
11N20SISO	LCH	17.11	≥0.5	PASS
	MCH	17.32	≥0.5	PASS
	HCH	17.49	≥0.5	PASS
11N40SISO	LCH	36.30	≥0.5	PASS
	MCH	36.38	≥0.5	PASS
	HCH	36.34	≥0.5	PASS

Test Graphs

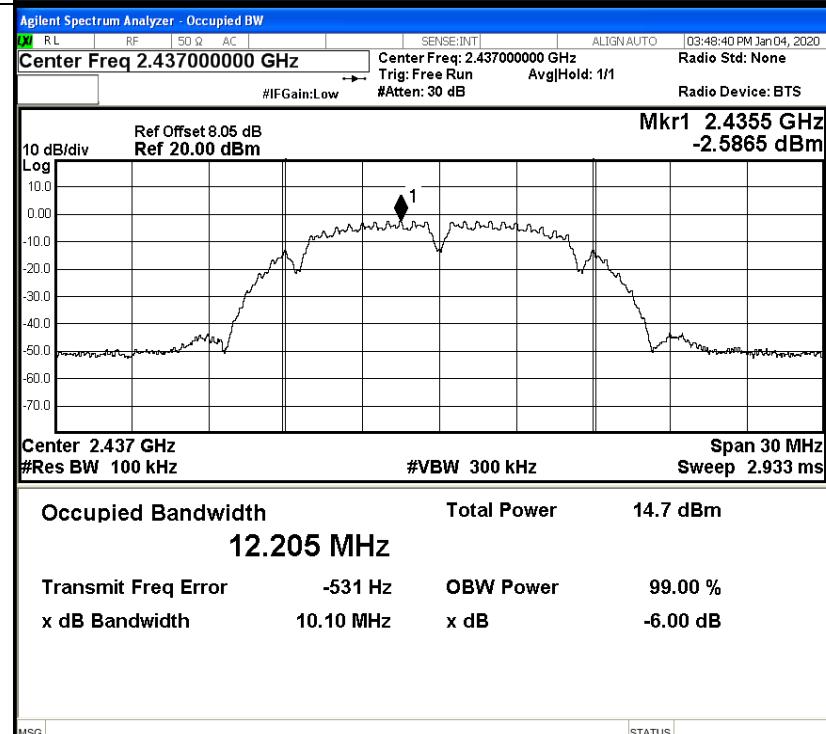
11B/LCH



Frequency

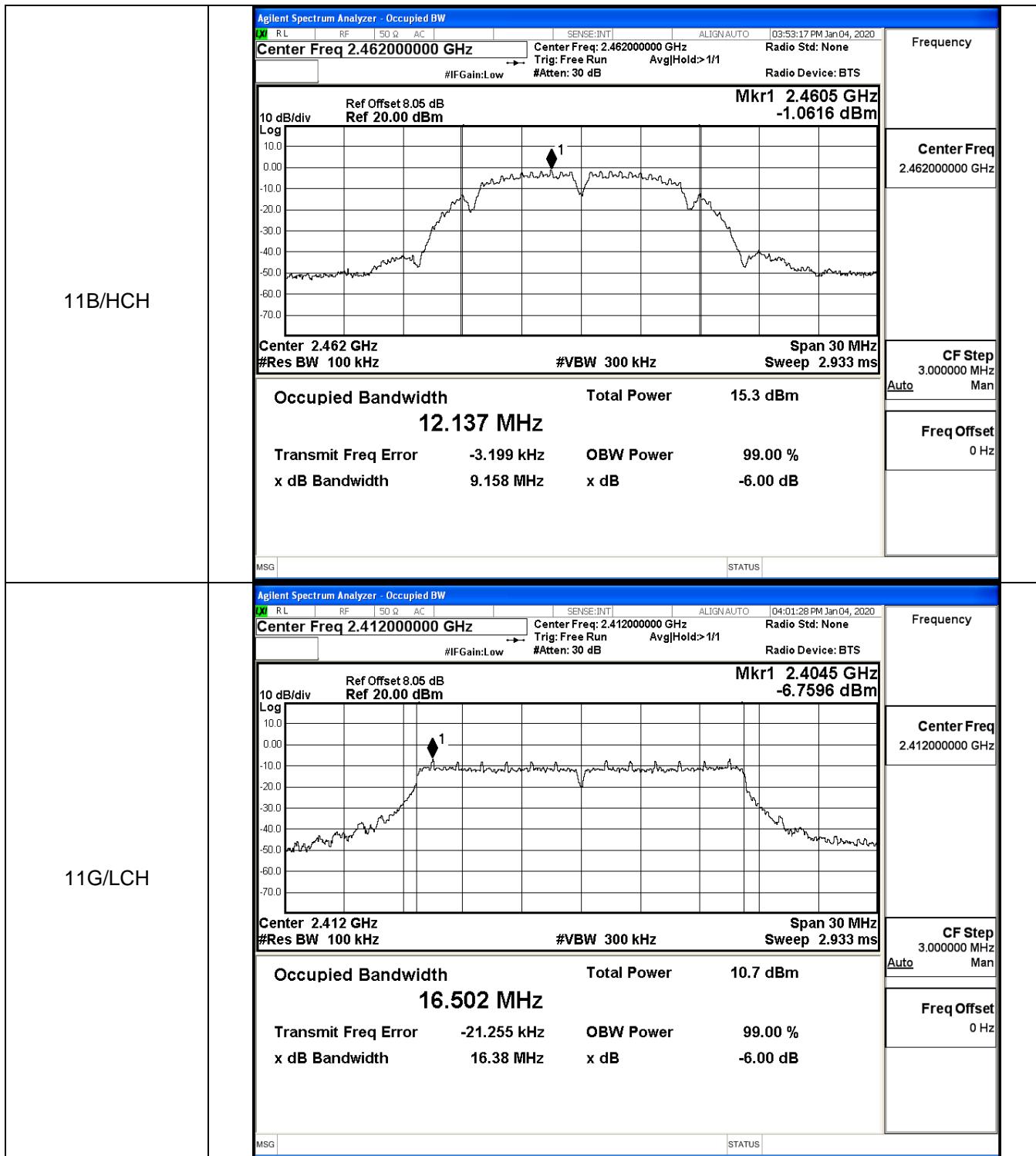
Center Freq
2.412000000 GHzCF Step
3.000000 MHz
Auto ManFreq Offset
0 Hz

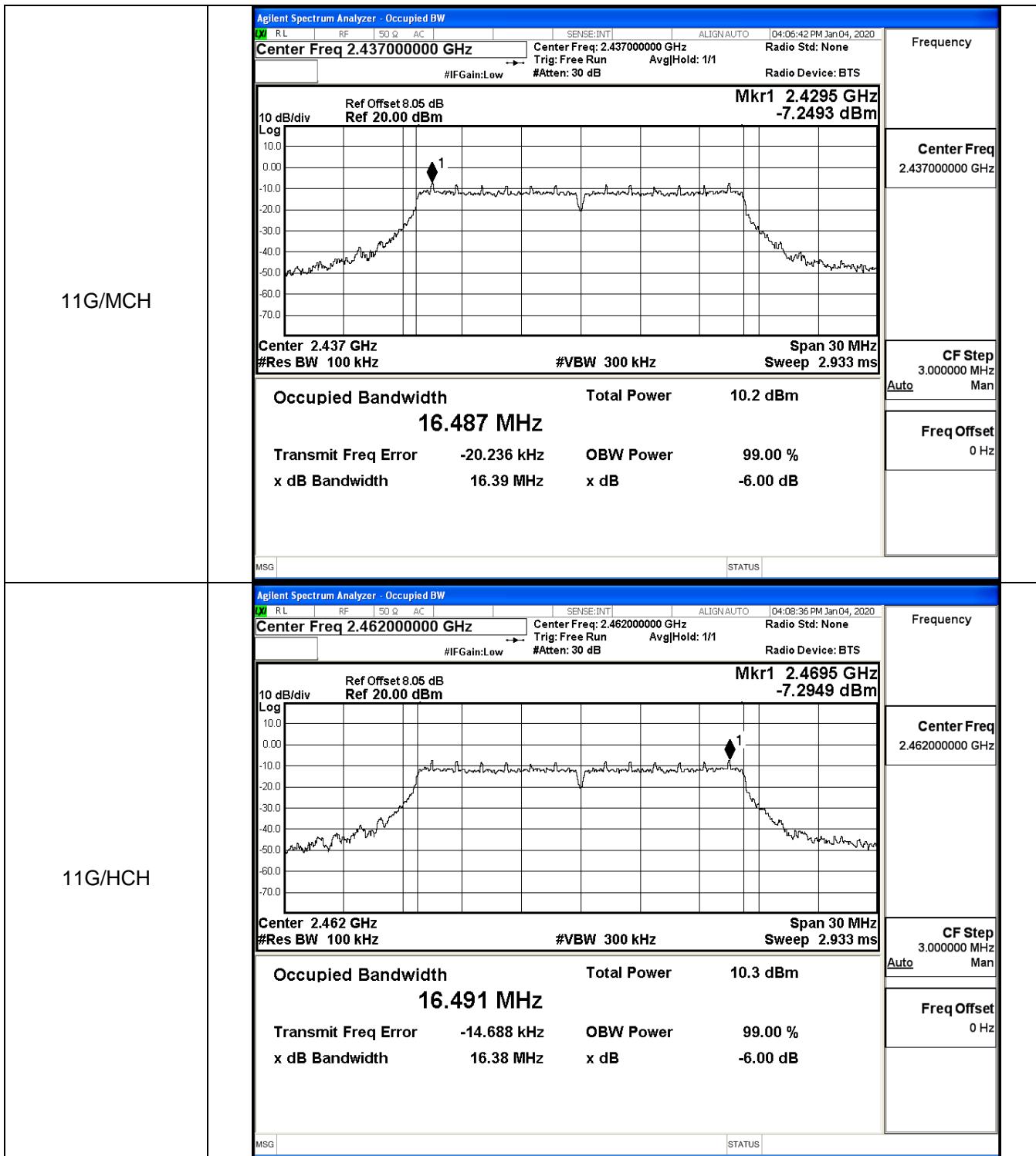
11B/MCH

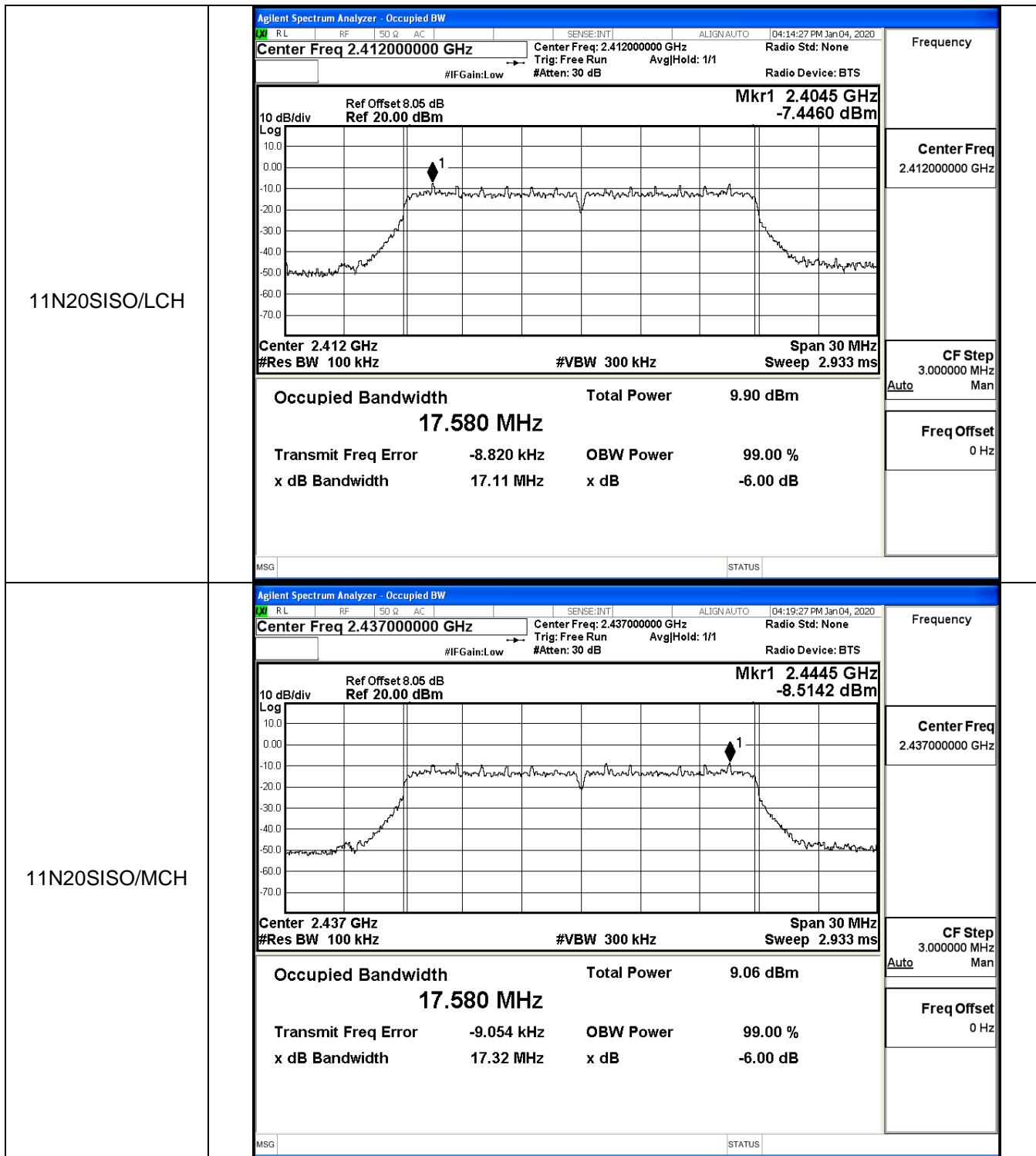


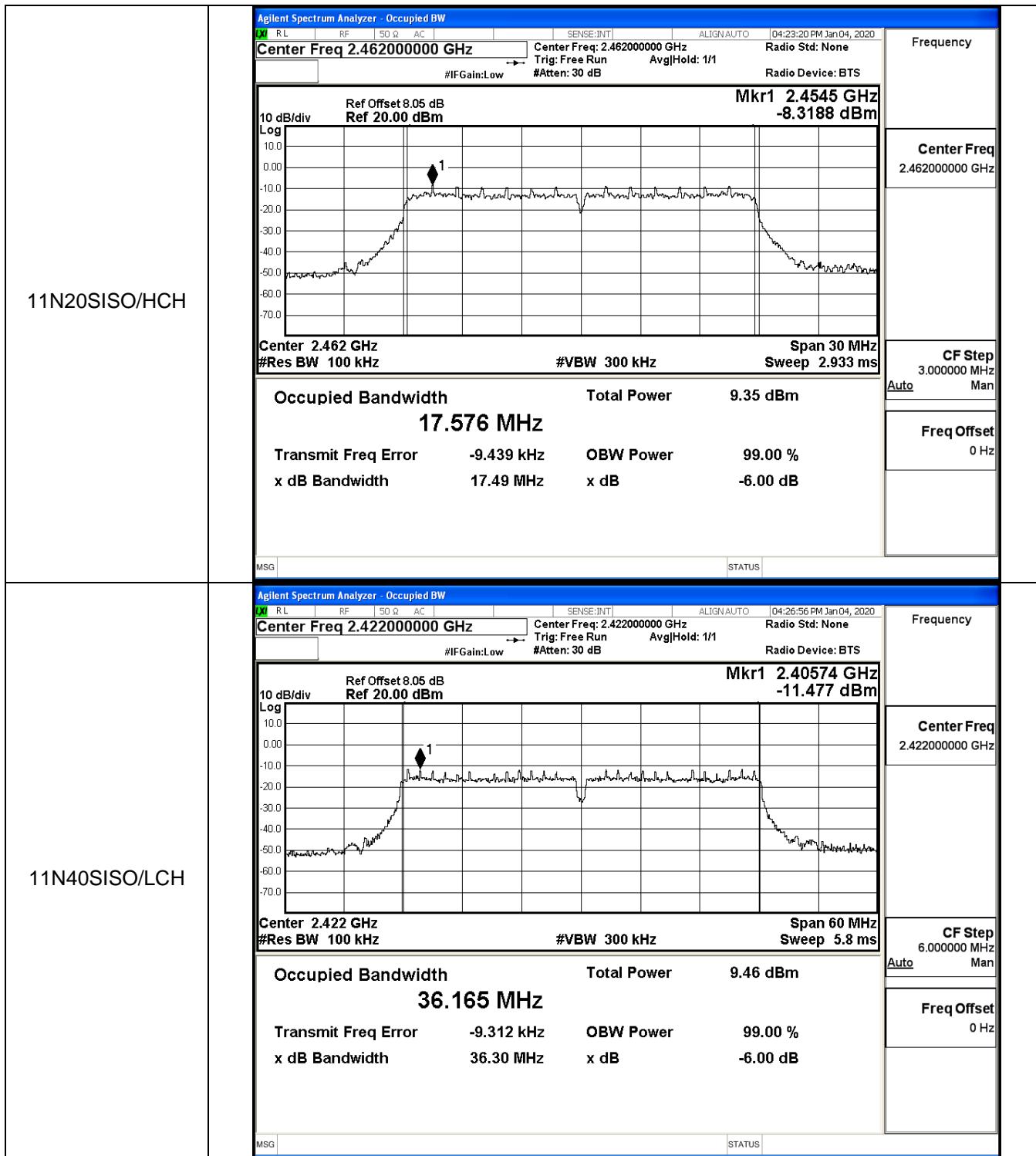
Frequency

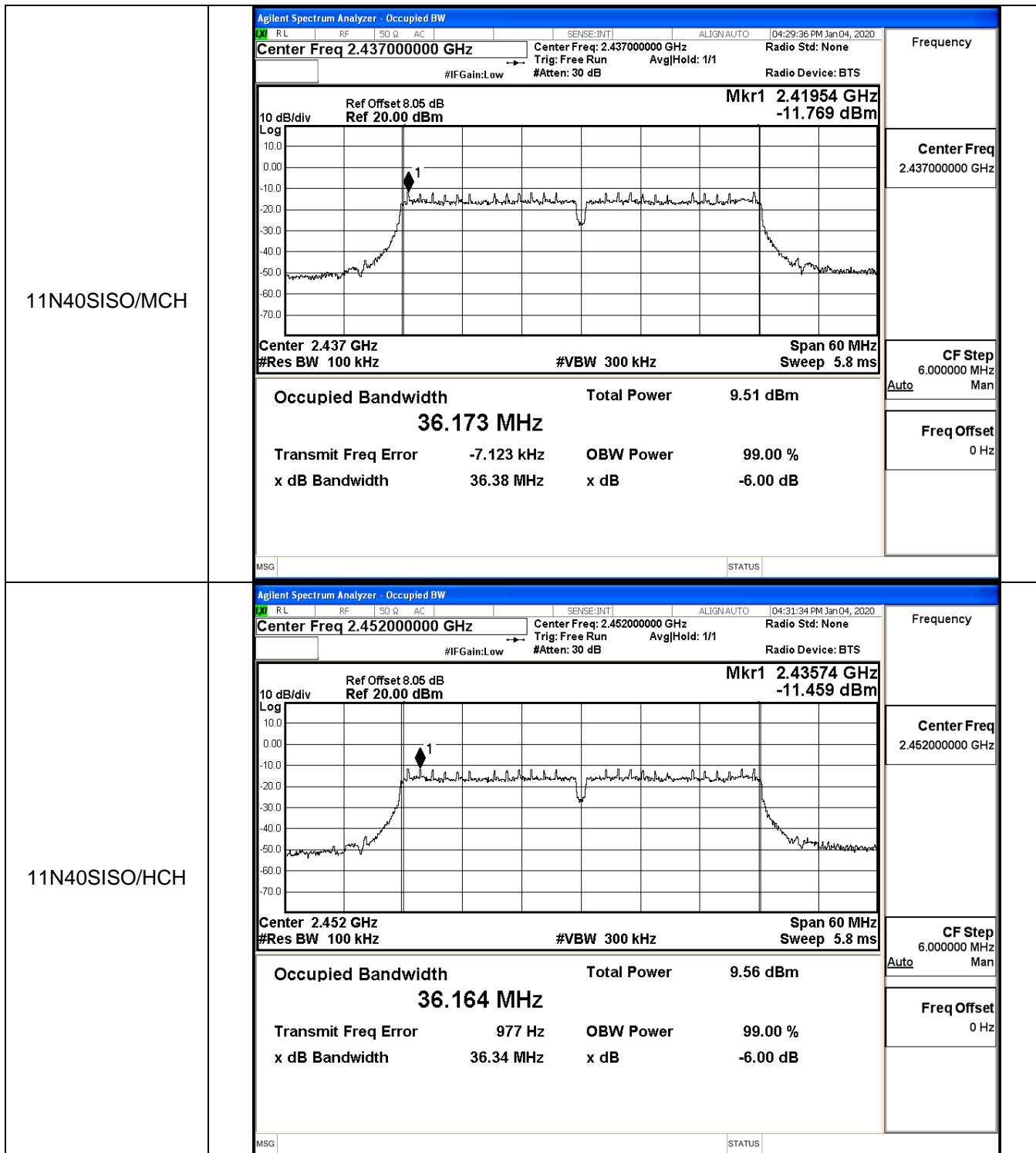
Center Freq
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3.000000 MHz
Auto ManFreq Offset
0 Hz





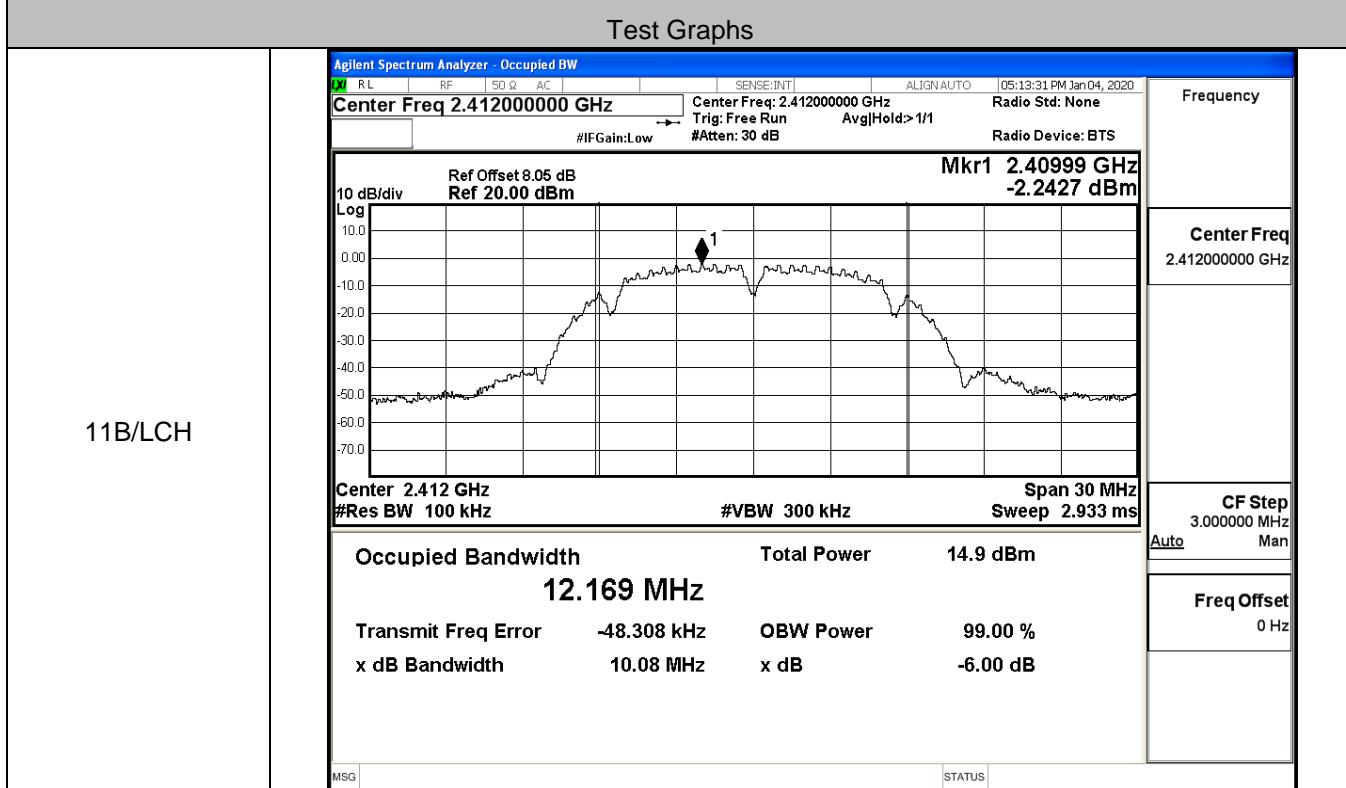


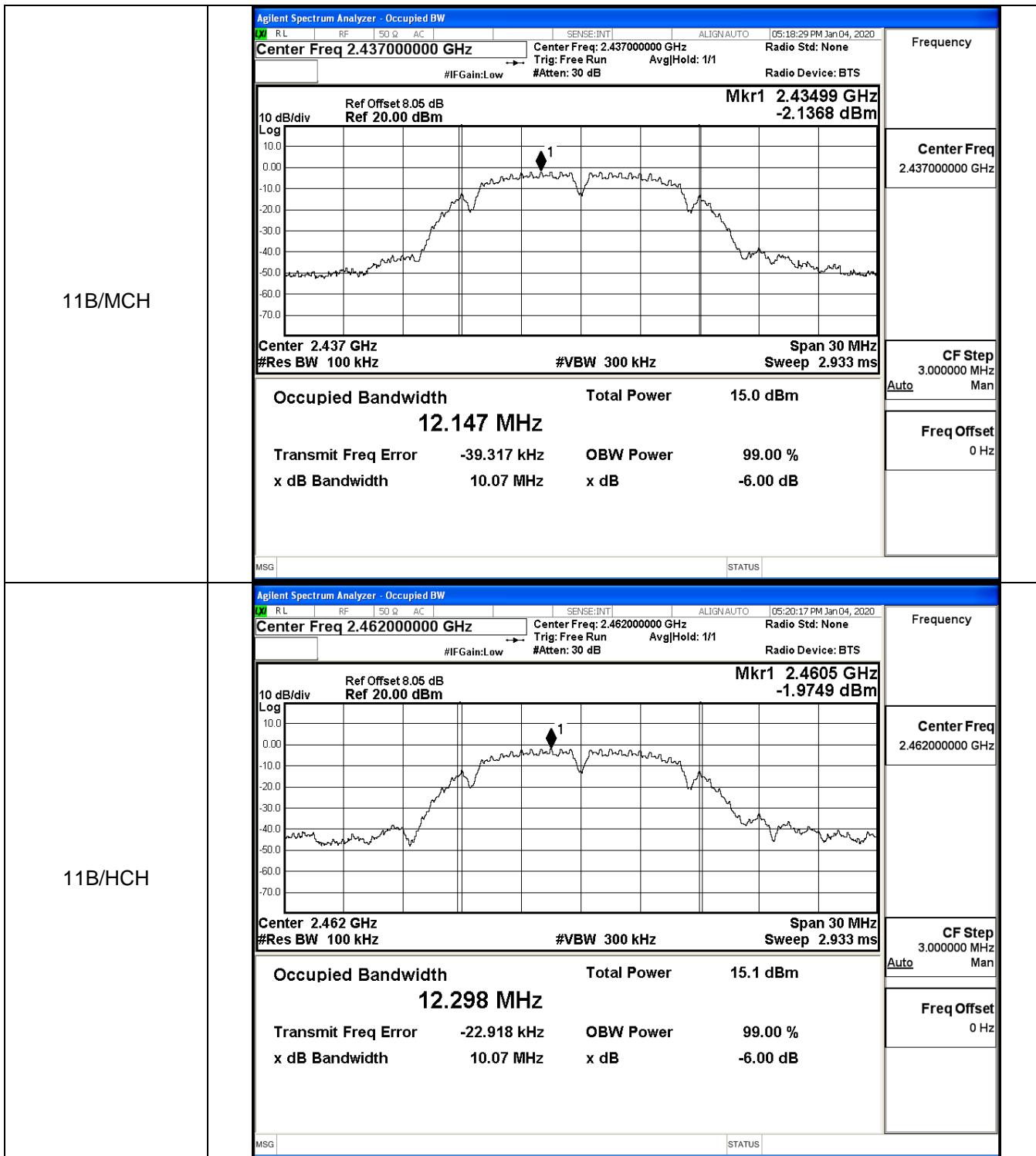


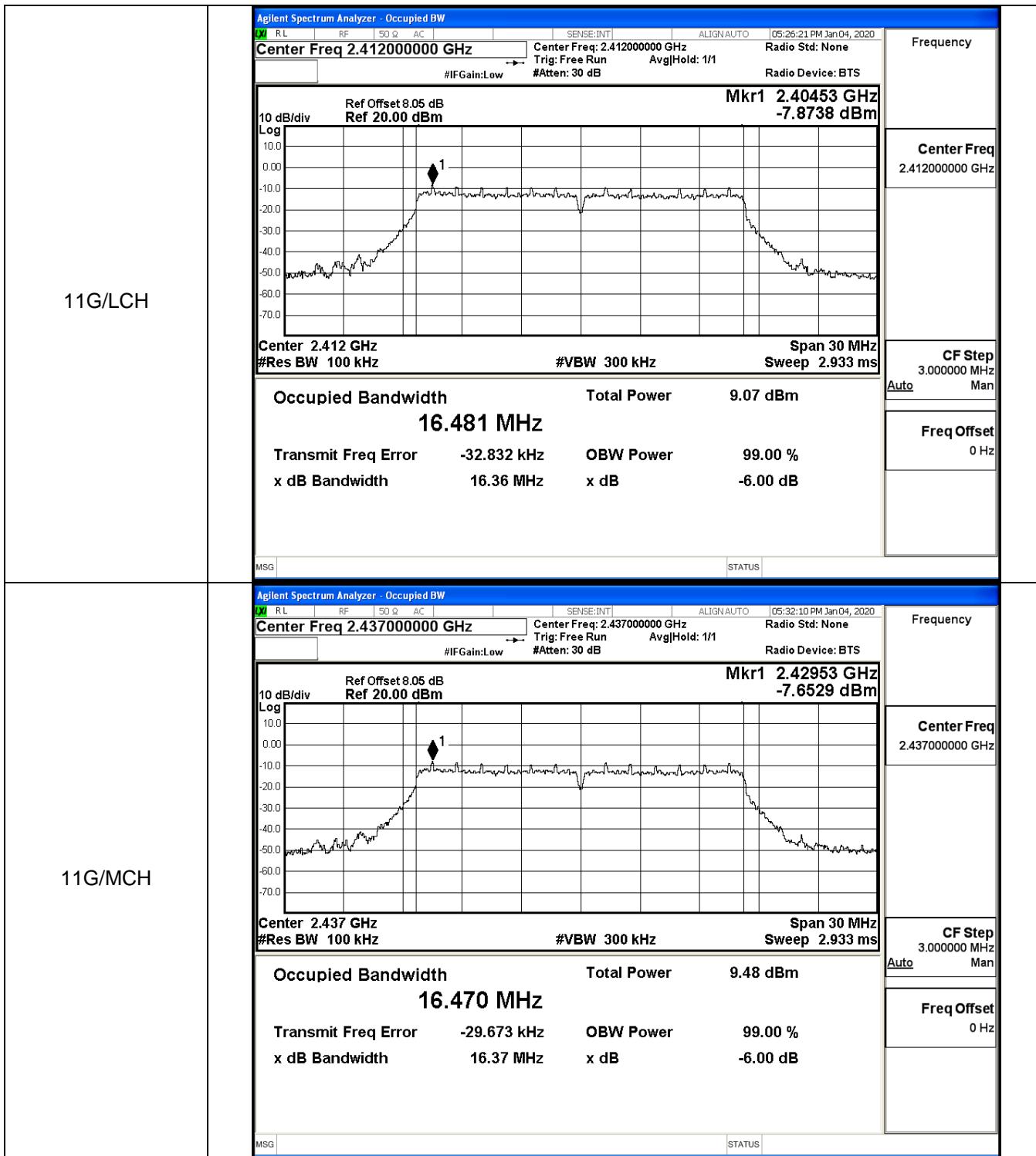


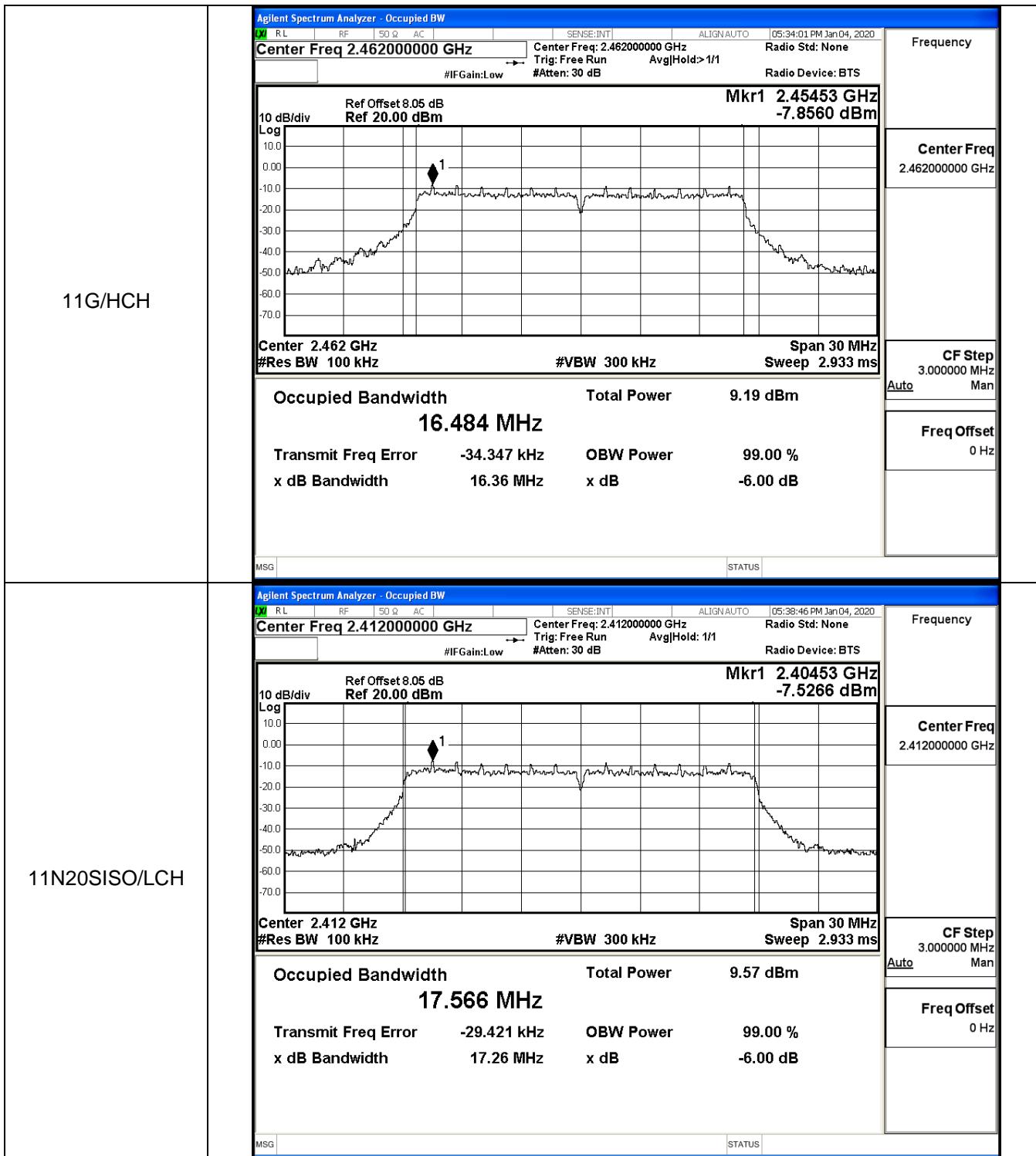
Ant2

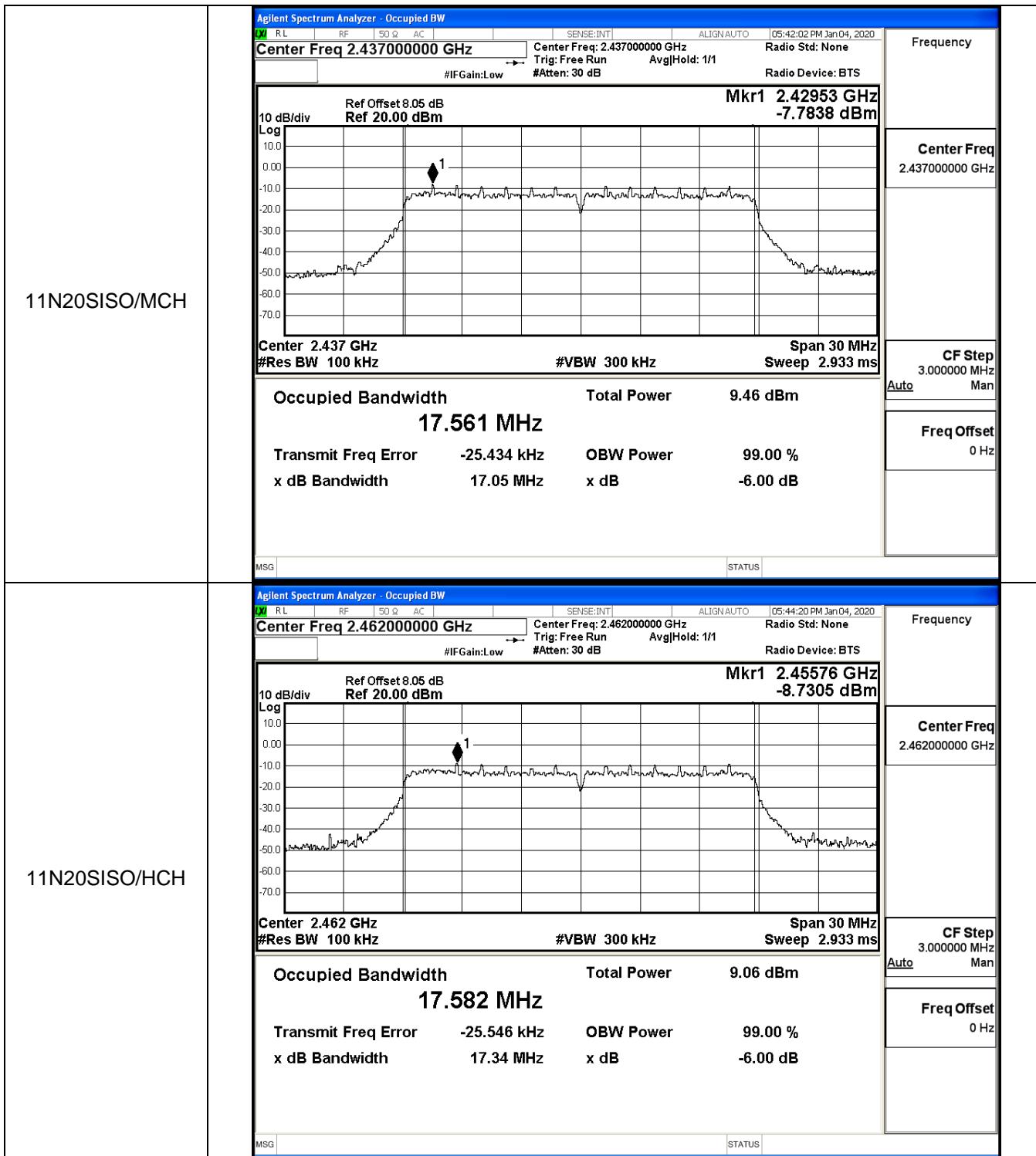
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	10.08	≥0.5	PASS
	MCH	10.07	≥0.5	PASS
	HCH	10.07	≥0.5	PASS
11G	LCH	16.36	≥0.5	PASS
	MCH	16.37	≥0.5	PASS
	HCH	16.36	≥0.5	PASS
11N20SISO	LCH	17.26	≥0.5	PASS
	MCH	17.05	≥0.5	PASS
	HCH	17.34	≥0.5	PASS
11N40SISO	LCH	35.49	≥0.5	PASS
	MCH	35.80	≥0.5	PASS
	HCH	35.77	≥0.5	PASS

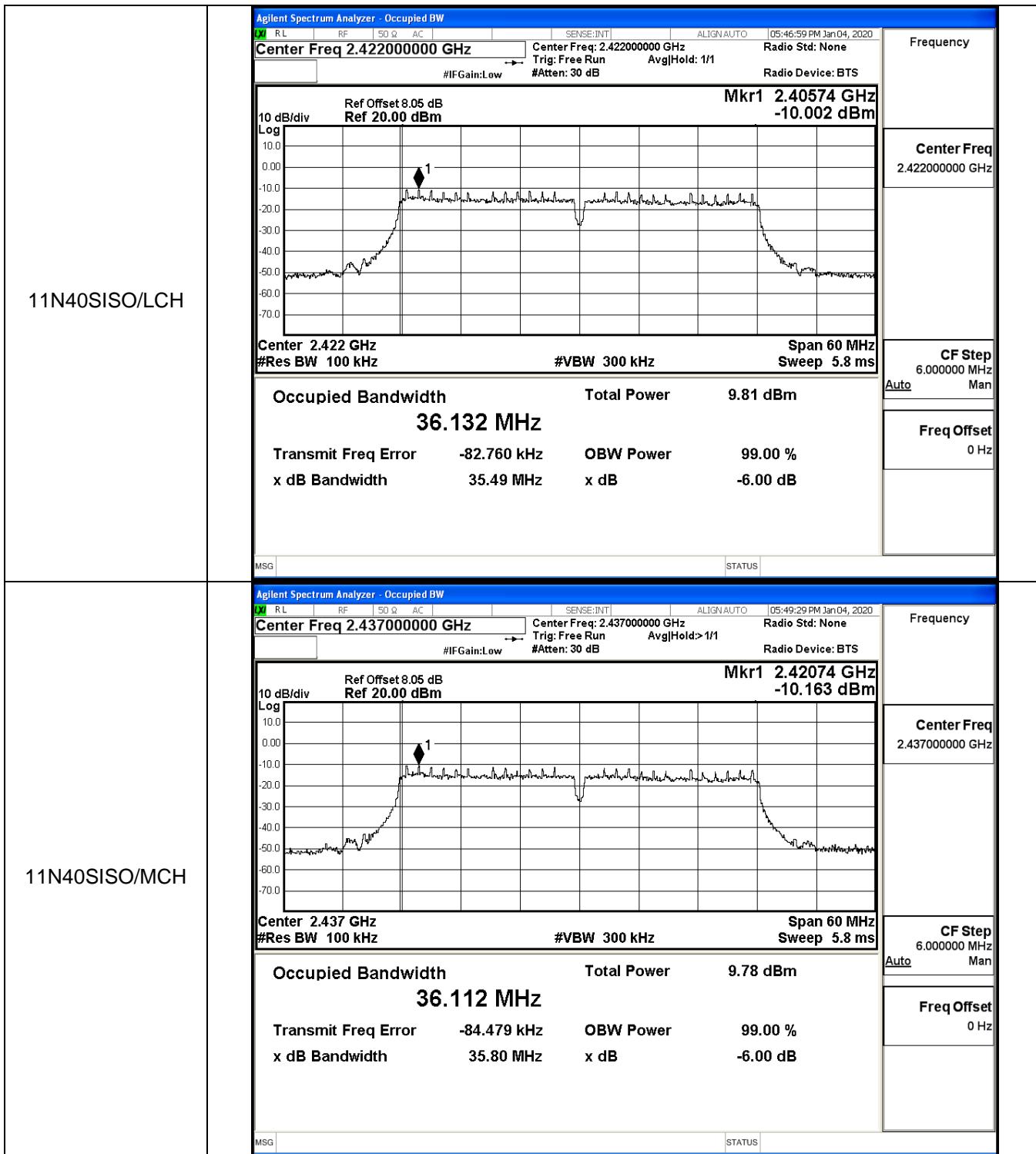
Test Graphs

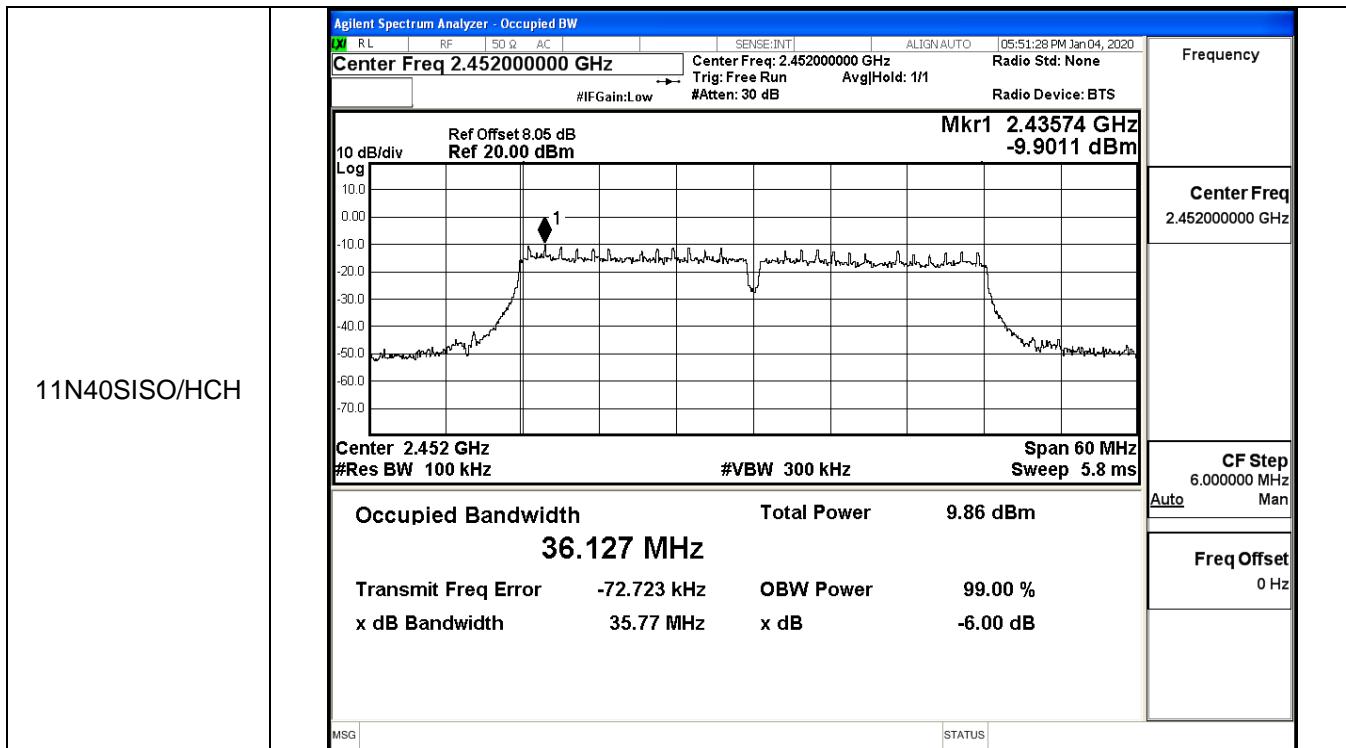








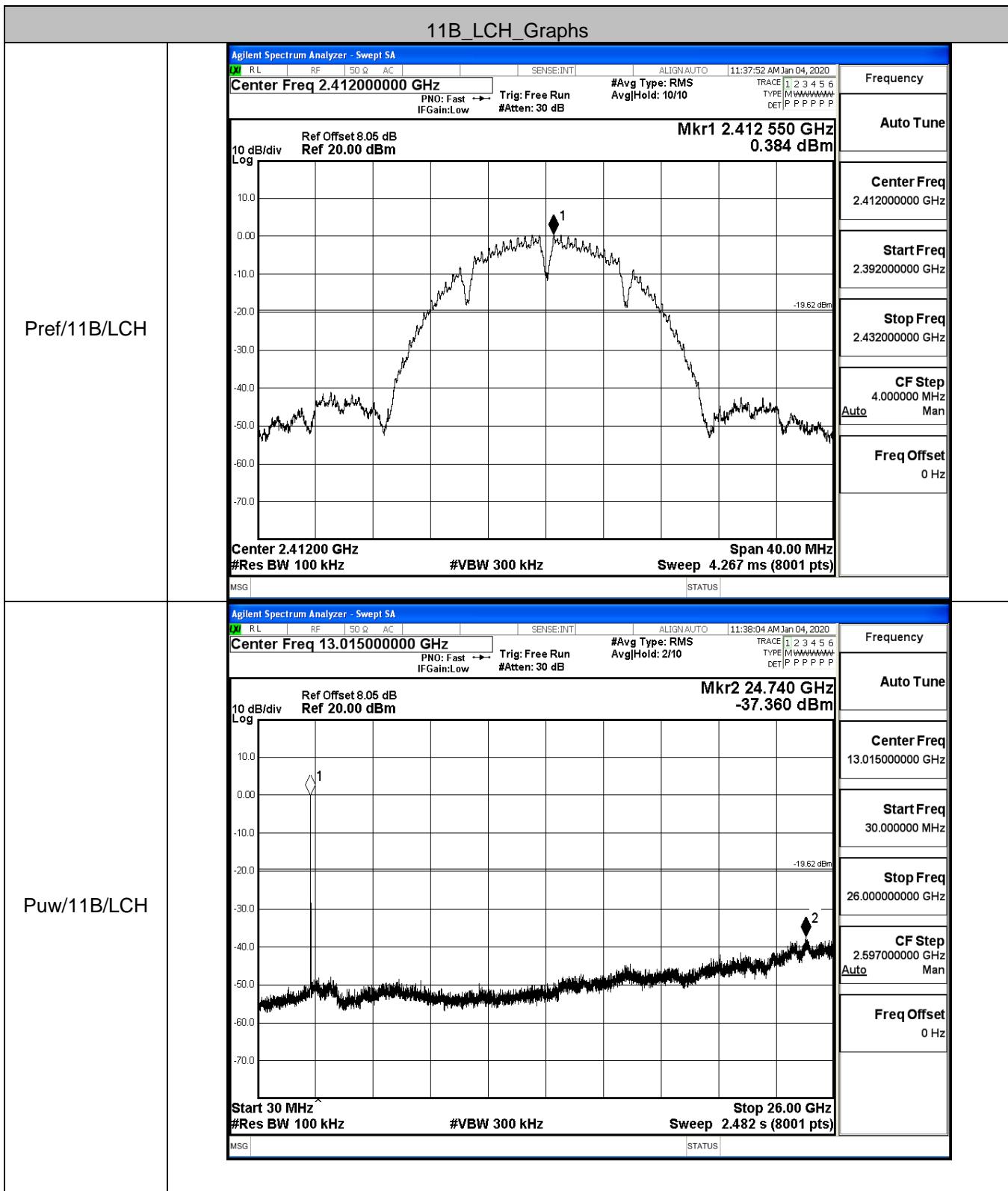


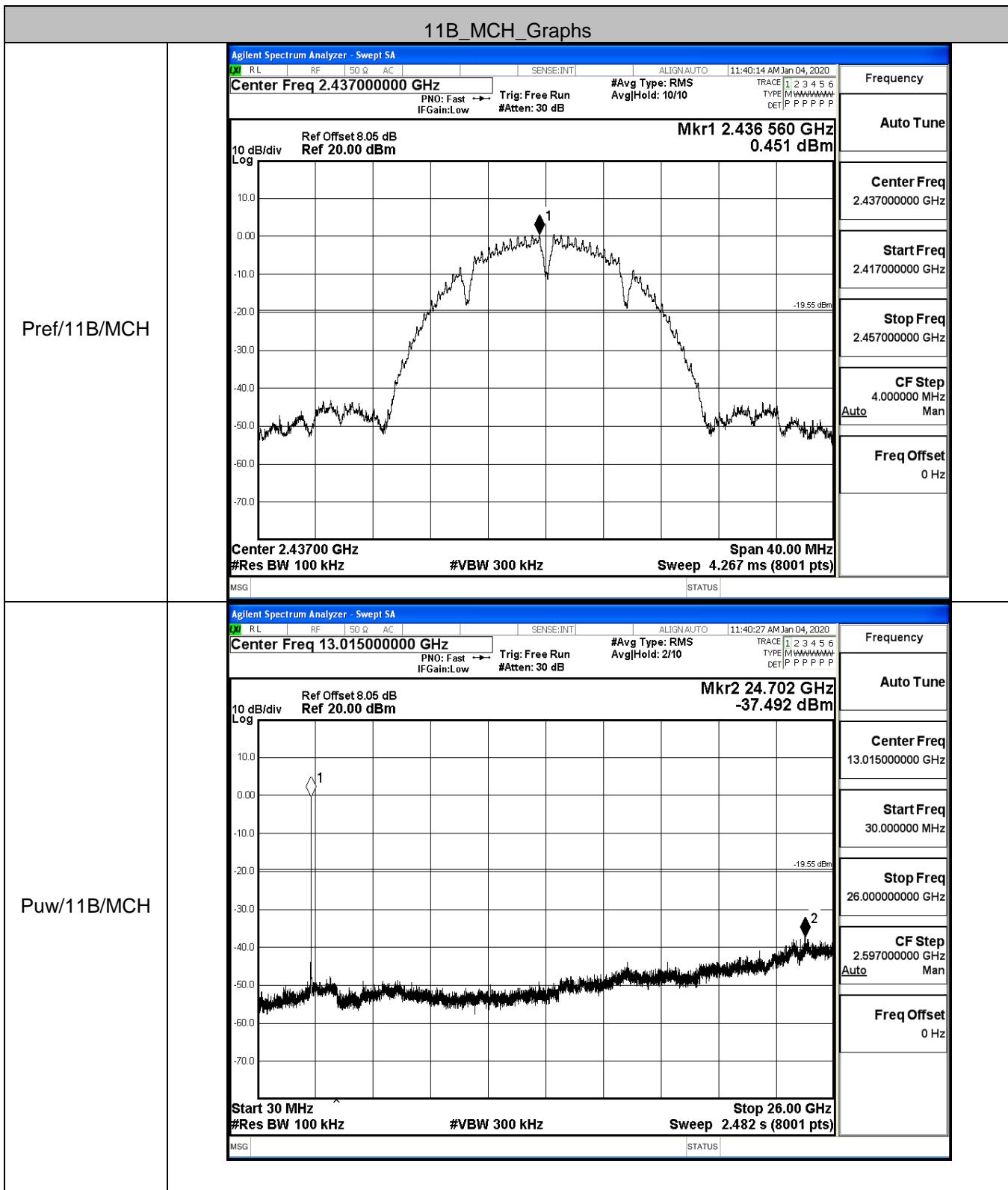


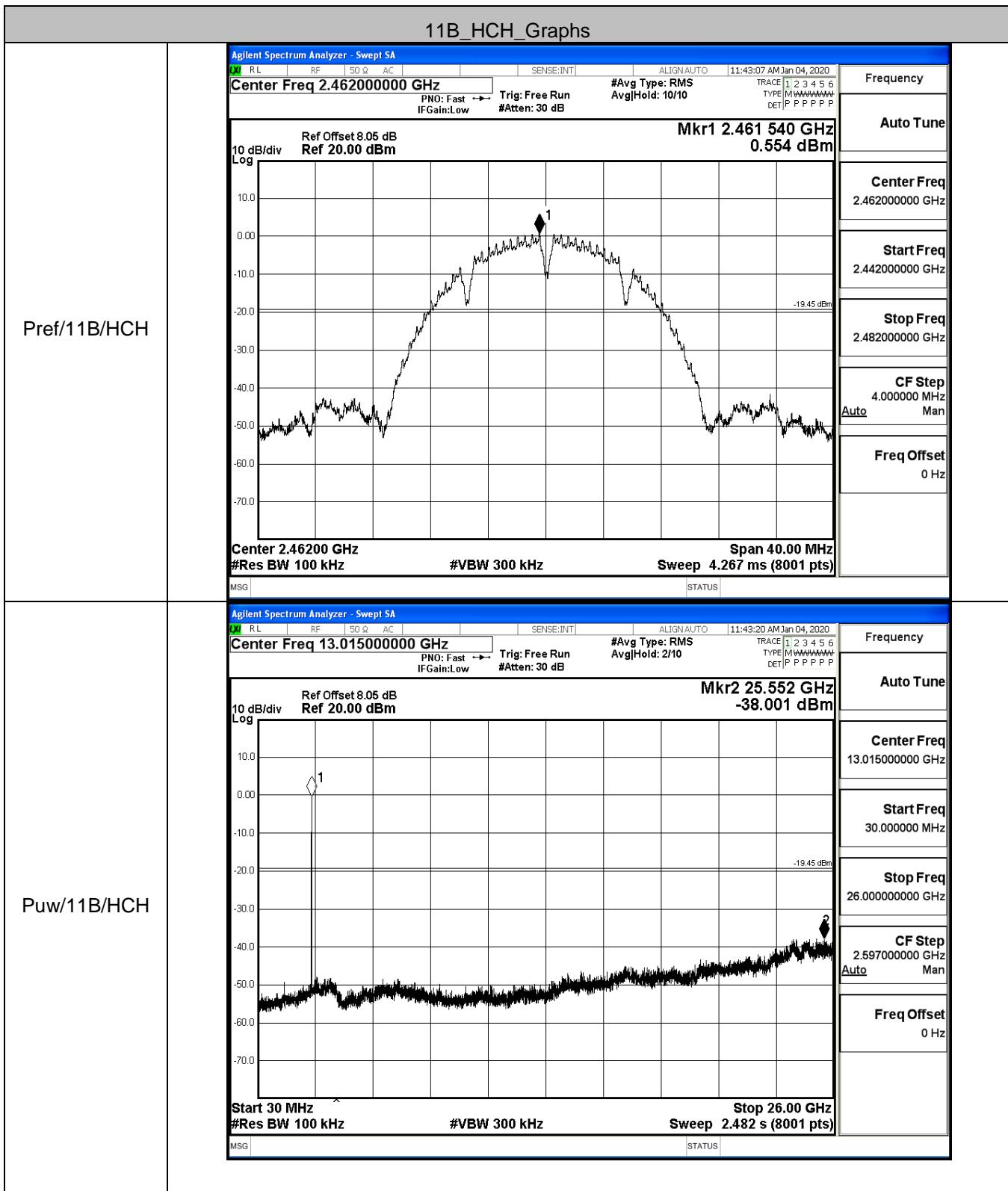
C.5 RF Conducted Spurious Emissions

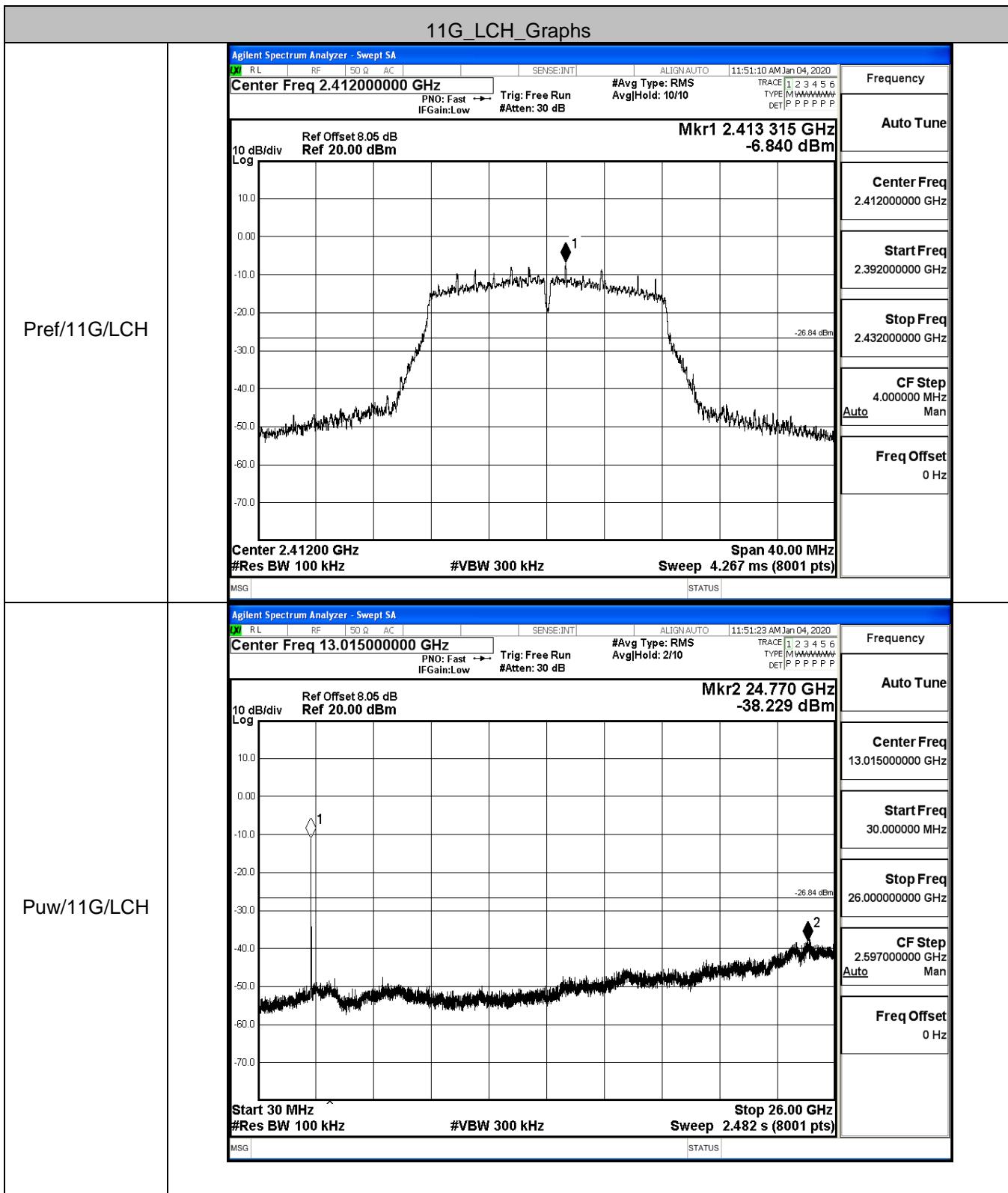
Ant0

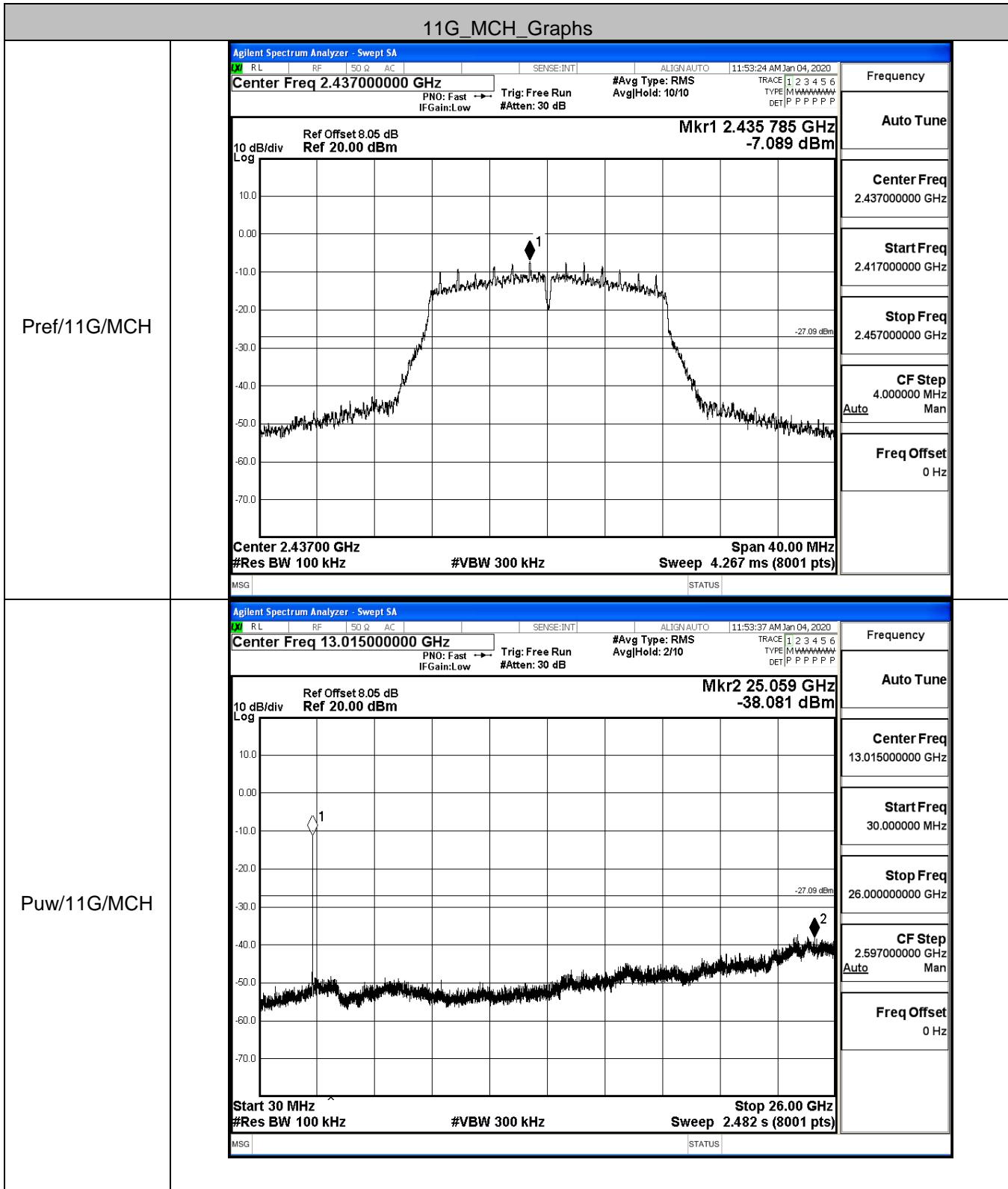
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	0.384	-37.360	-19.616	PASS
	MCH	0.451	-37.492	-19.549	PASS
	HCH	0.554	-38.001	-19.446	PASS
11G	LCH	-6.84	-38.229	-26.840	PASS
	MCH	-7.089	-38.081	-27.089	PASS
	HCH	-7.147	-36.404	-27.147	PASS
11N20 SISO	LCH	-6.905	-37.948	-26.905	PASS
	MCH	-6.876	-37.790	-26.876	PASS
	HCH	-6.794	-36.271	-26.794	PASS
11N40 SISO	LCH	-10.458	-38.386	-30.458	PASS
	MCH	-10.206	-37.049	-30.206	PASS
	HCH	-10.622	-37.637	-30.622	PASS

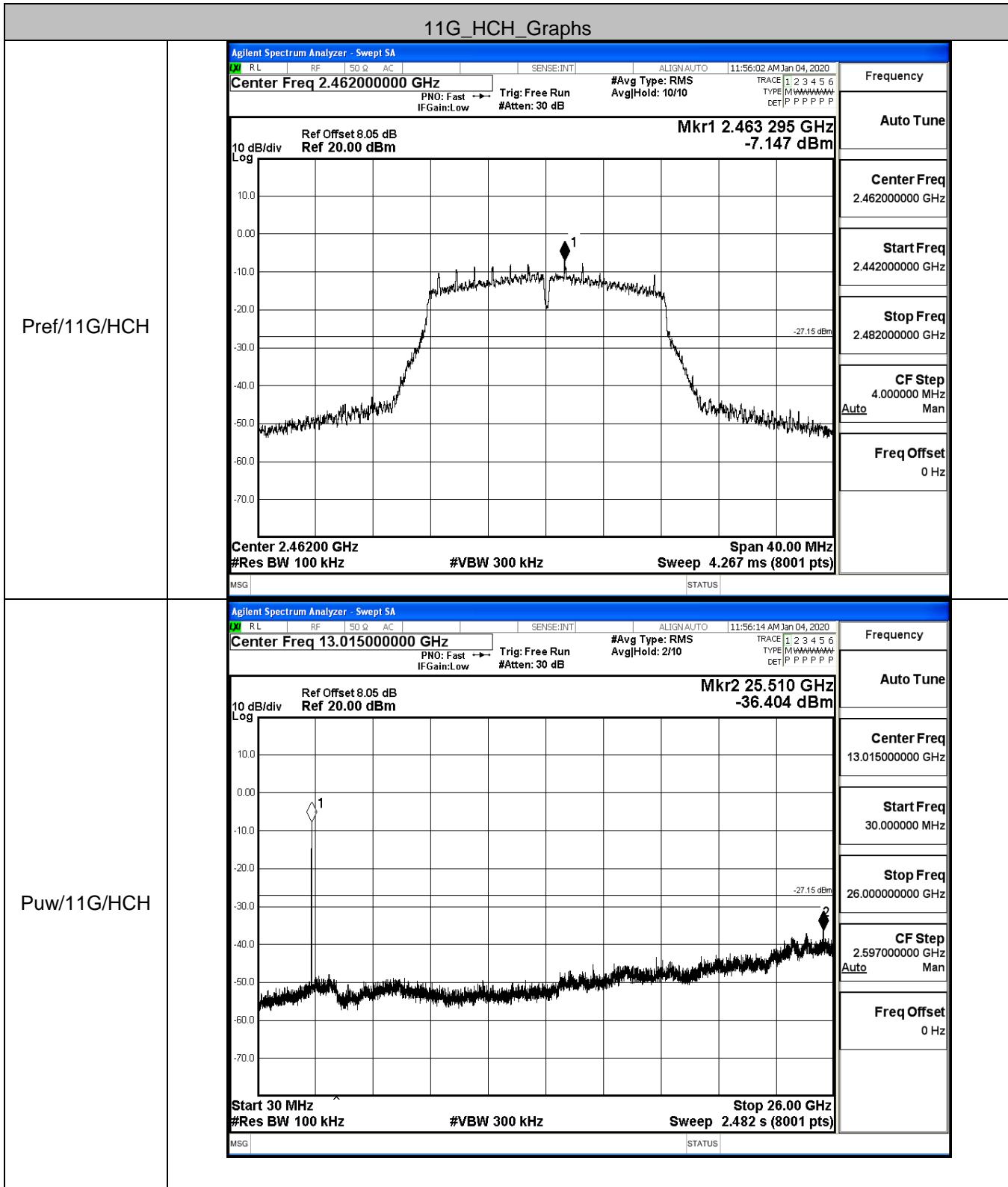


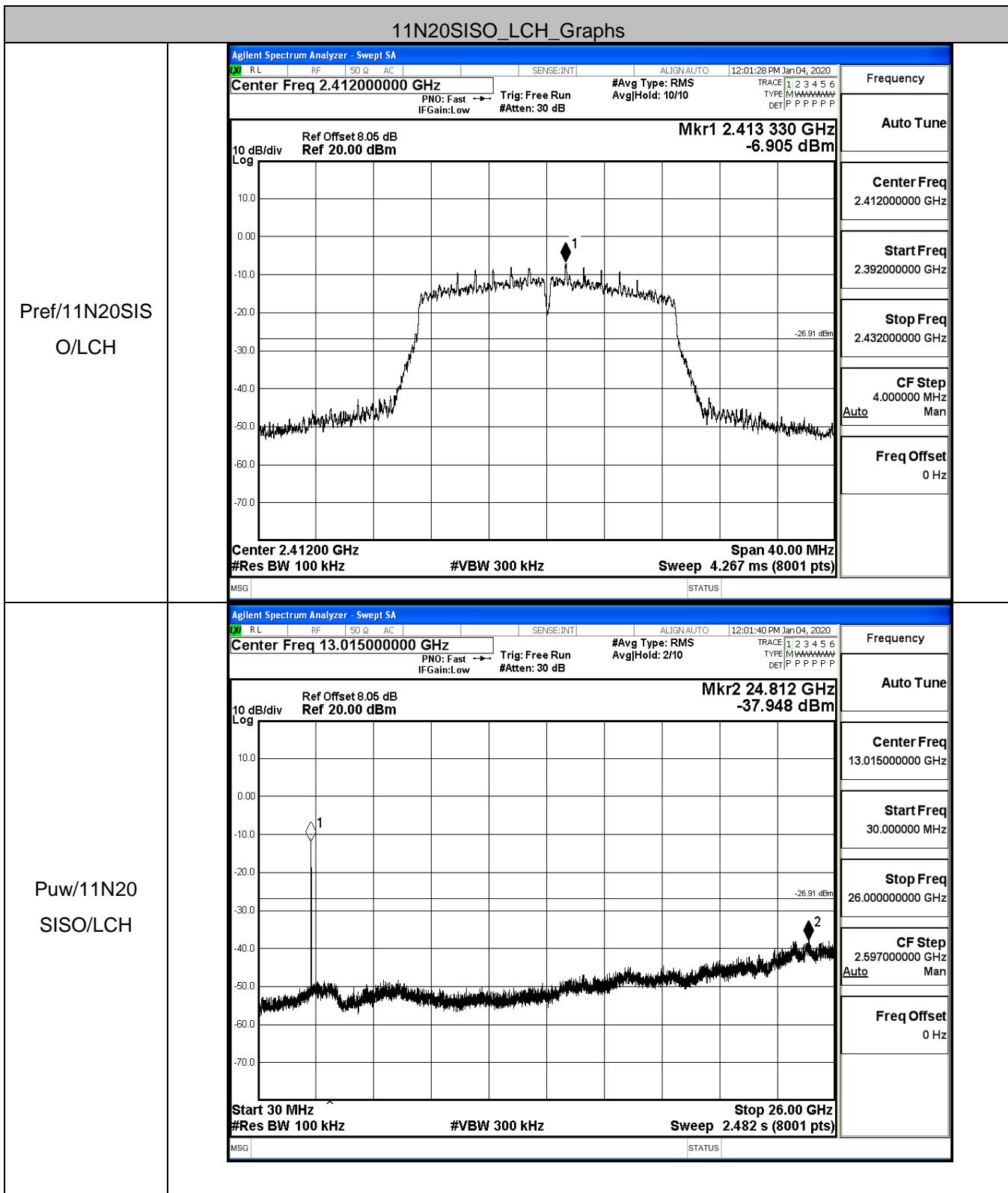


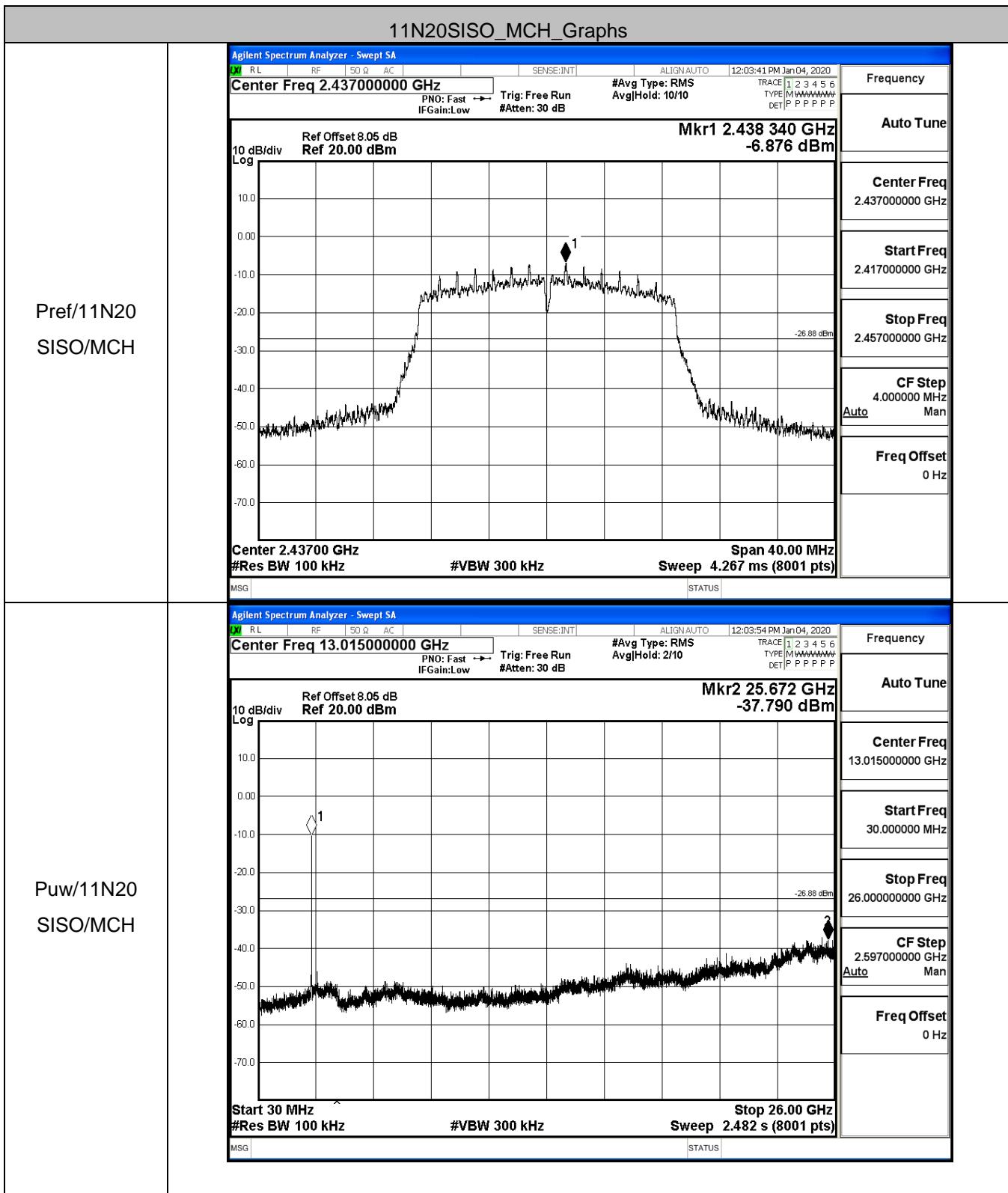


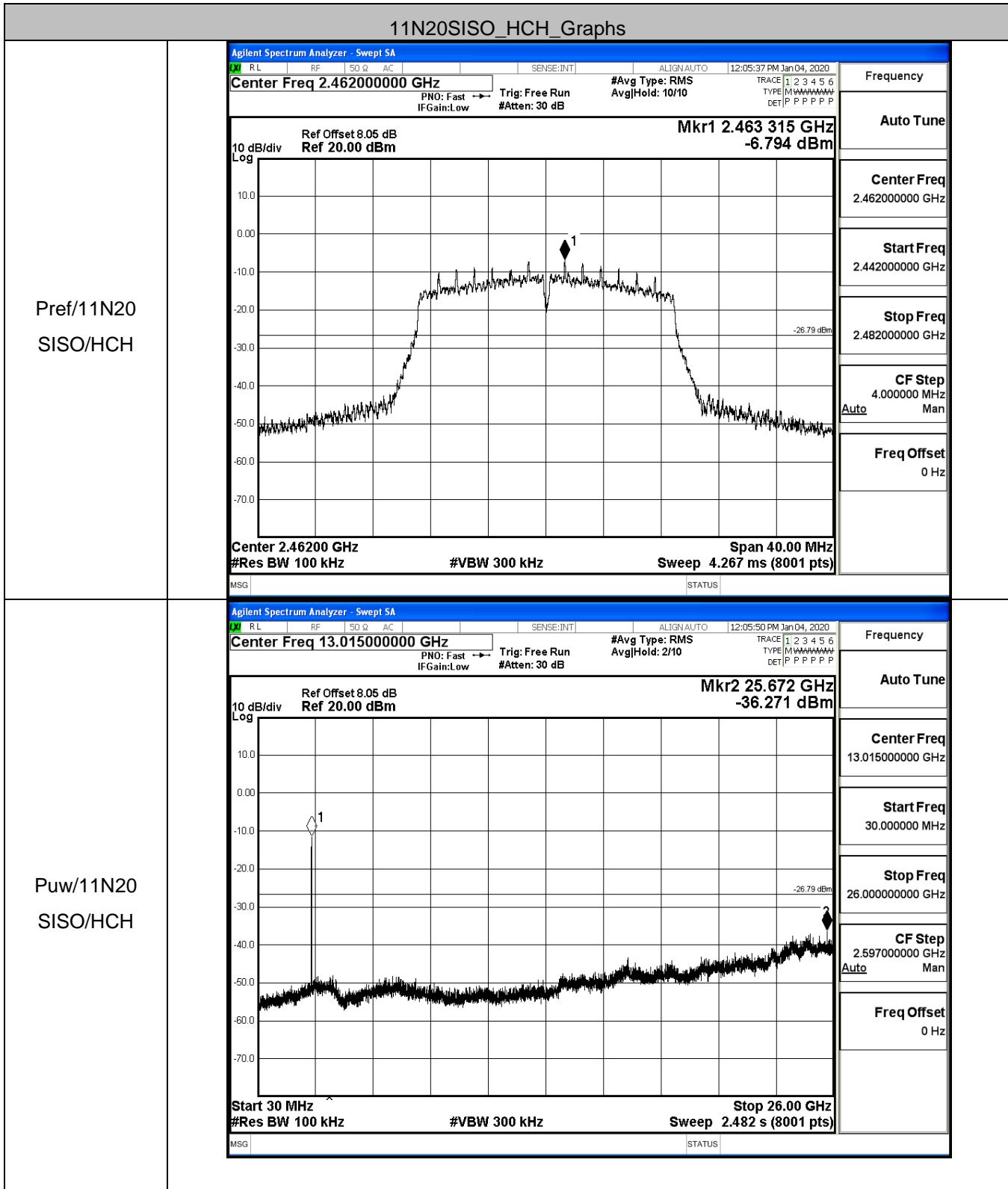


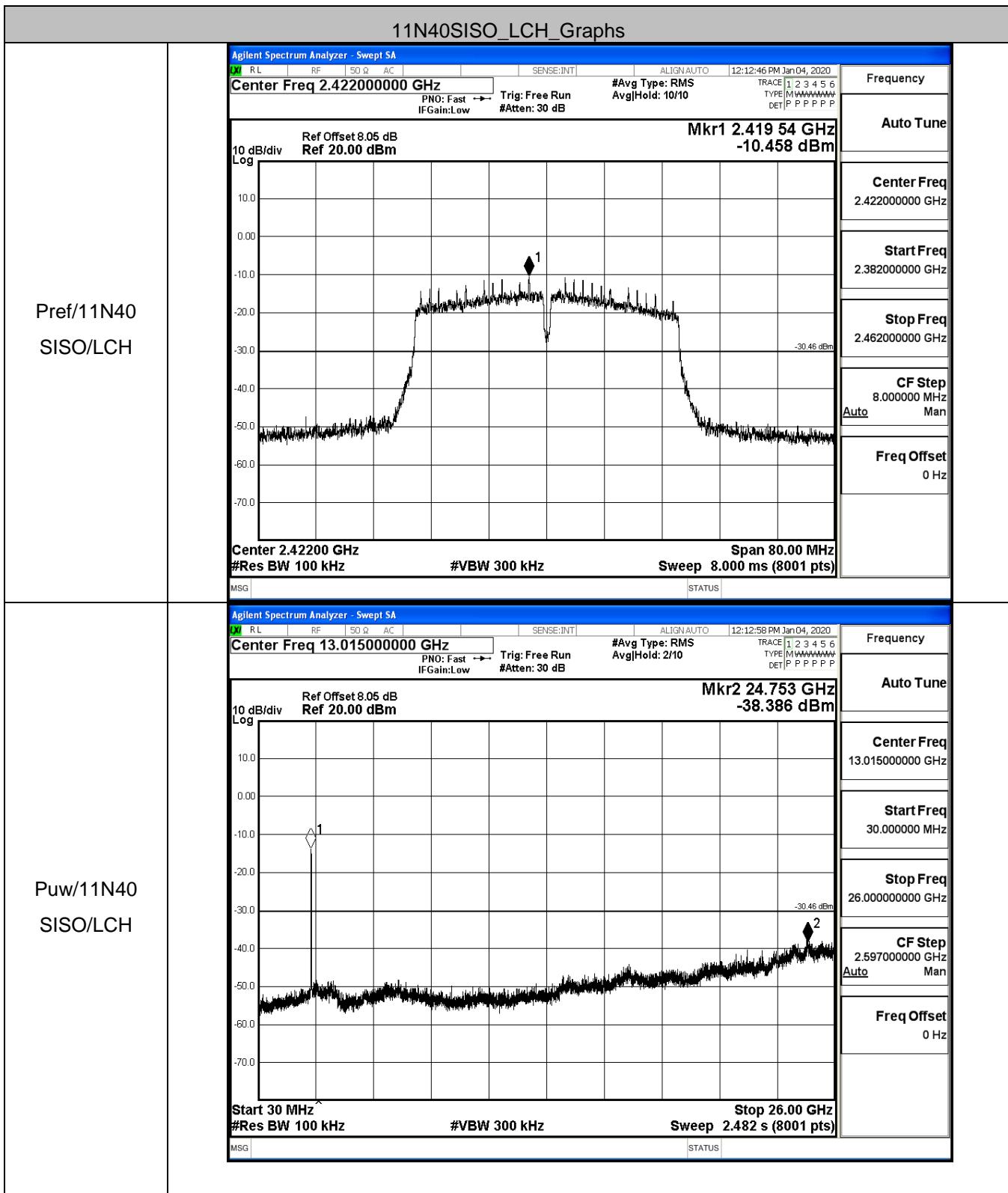




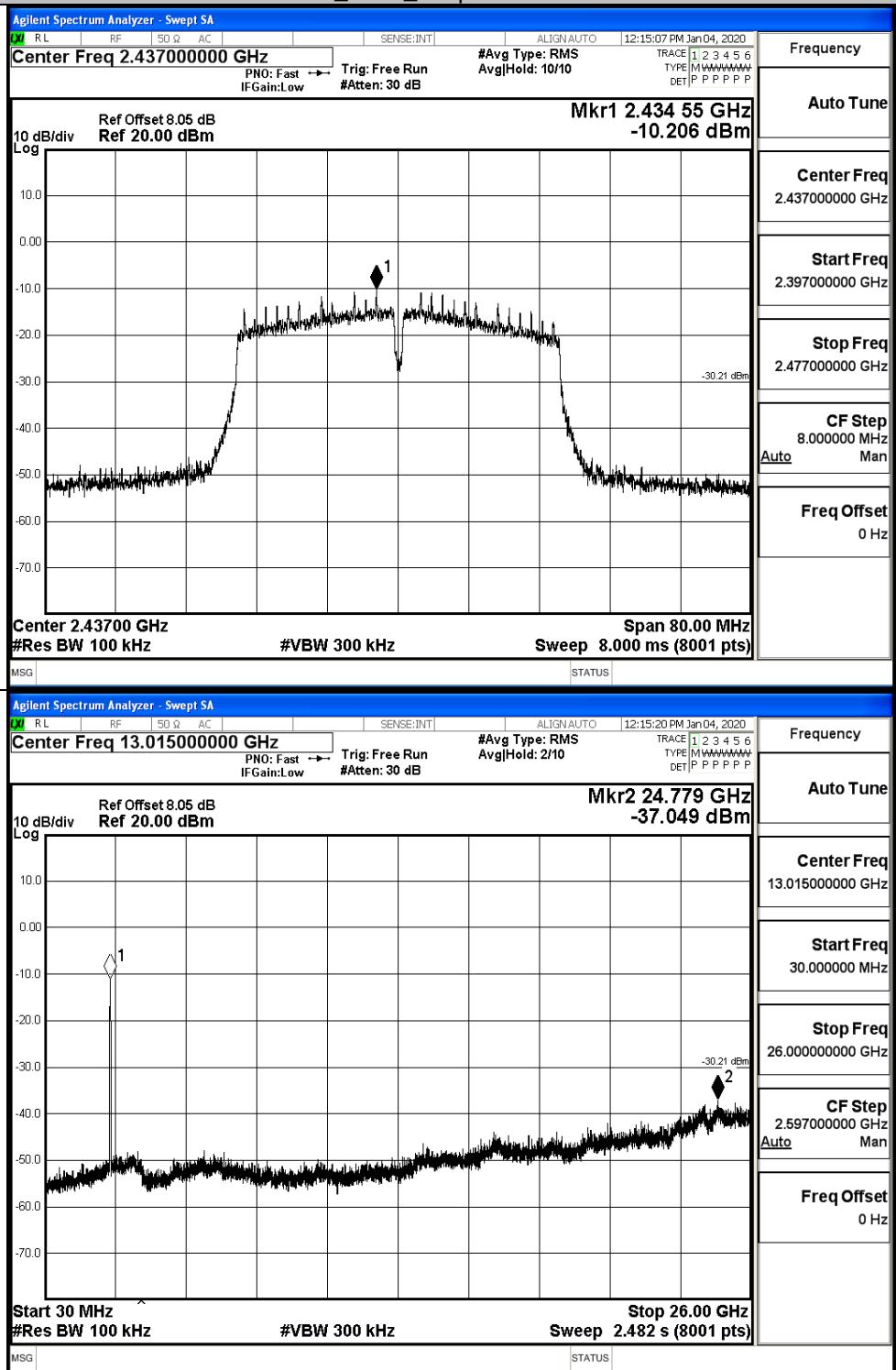


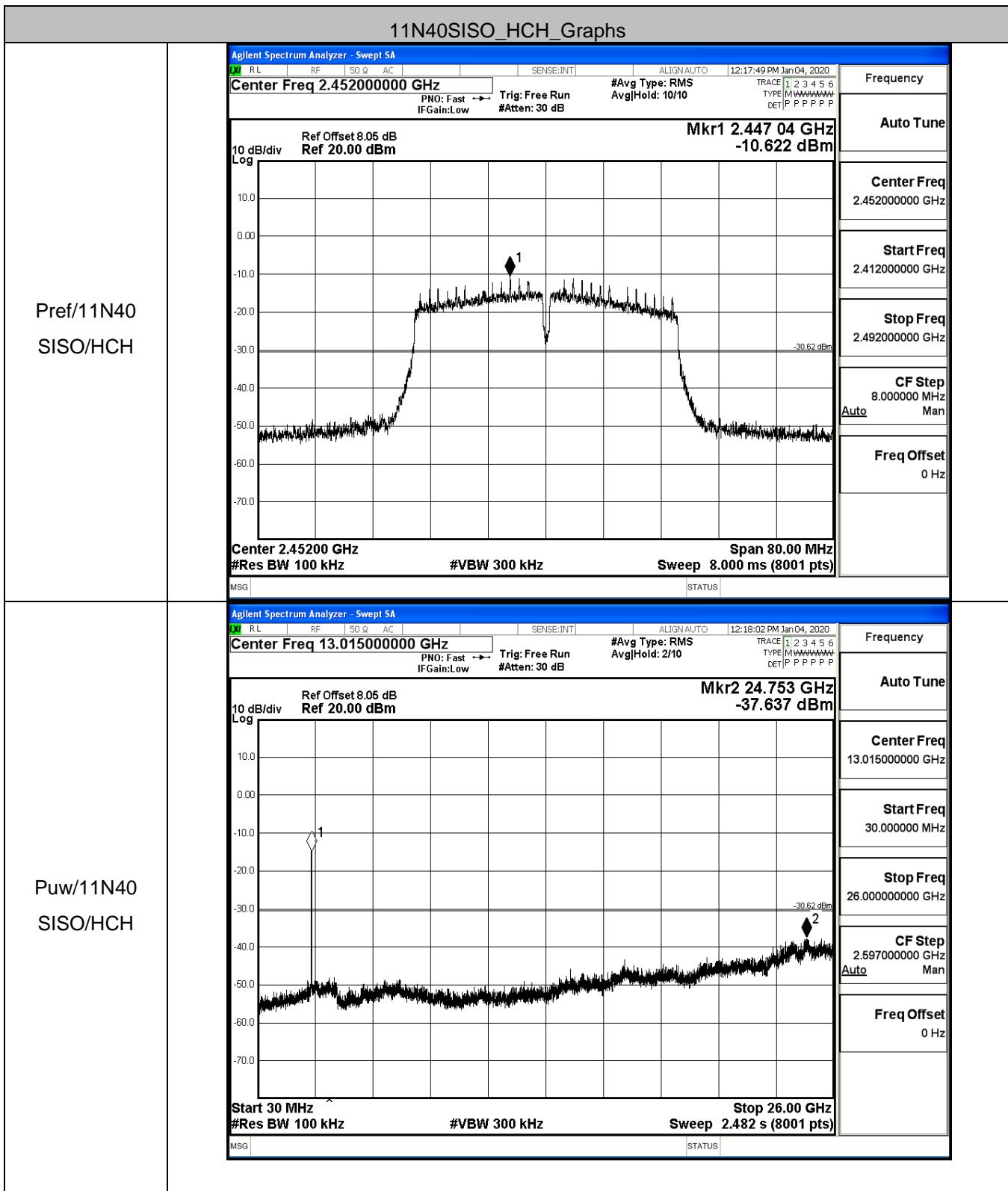






11N40SISO_MCH_Graphs





Ant1

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-2.6	-36.893	-22.600	PASS
	MCH	-2.641	-37.730	-22.641	PASS
	HCH	-2.551	-36.849	-22.551	PASS
11G	LCH	-6.863	-37.938	-26.863	PASS
	MCH	-7.573	-37.859	-27.573	PASS
	HCH	-7.255	-37.958	-27.255	PASS
11N20 SISO	LCH	-7.513	-36.933	-27.513	PASS
	MCH	-8.366	-37.037	-28.366	PASS
	HCH	-8.837	-37.179	-28.837	PASS
11N40 SISO	LCH	-11.446	-37.651	-31.446	PASS
	MCH	-11.747	-36.940	-31.747	PASS
	HCH	-11.641	-37.954	-31.641	PASS

