Appendix B

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Smart Hub+

Trade Mark: AMERICAN LIGHTING

Test Model: SPKPL-GTWY

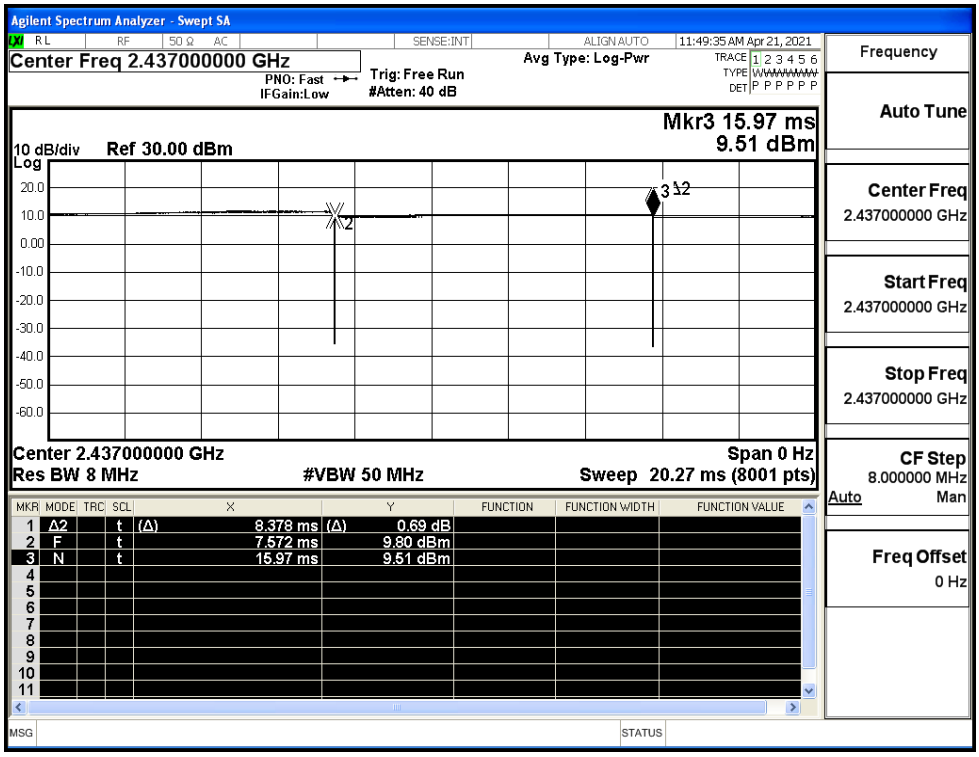
Environmental Conditions

Temperature:	24.6 ° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Kay Hu
Supervised by:	Li Huan

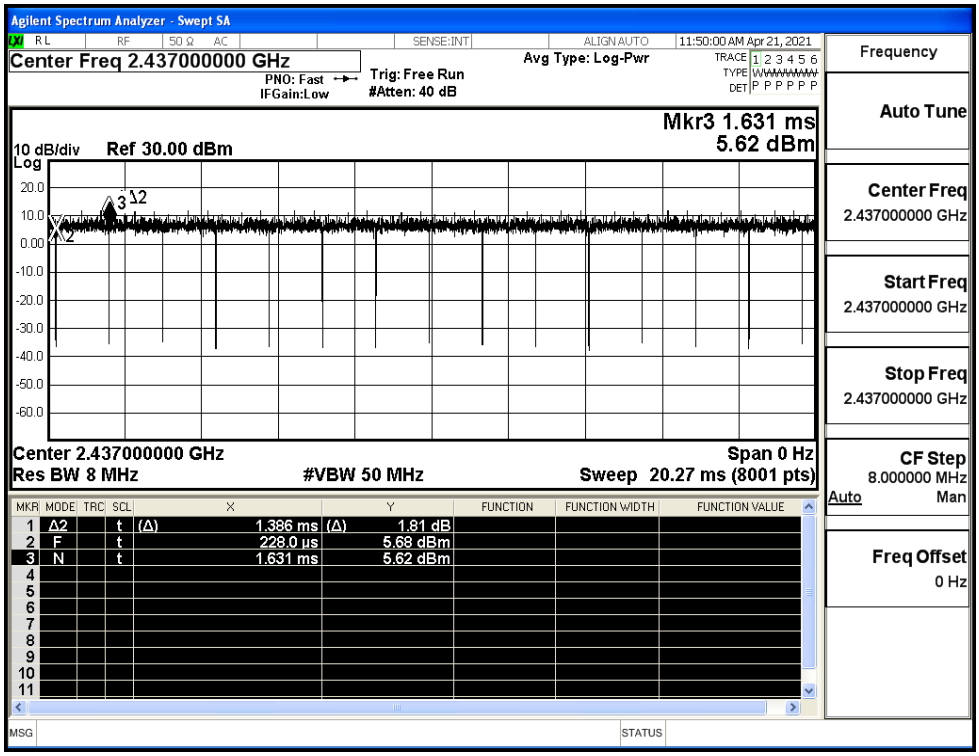
B.1 Duty Cycle

Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2437	Ant1	99.76	PASS
11G	2437	Ant1	98.74	PASS
11N20SISO	2437	Ant1	98.46	PASS
11N40SISO	2437	Ant1	98.07	PASS

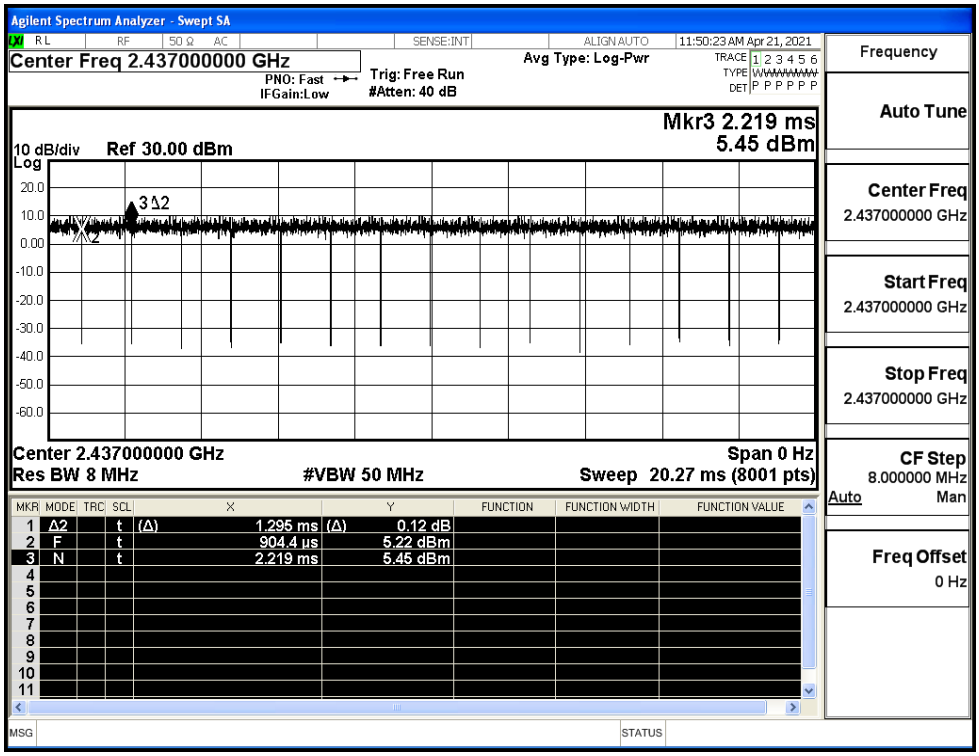
Duty Cycle_11B_2437_Ant1



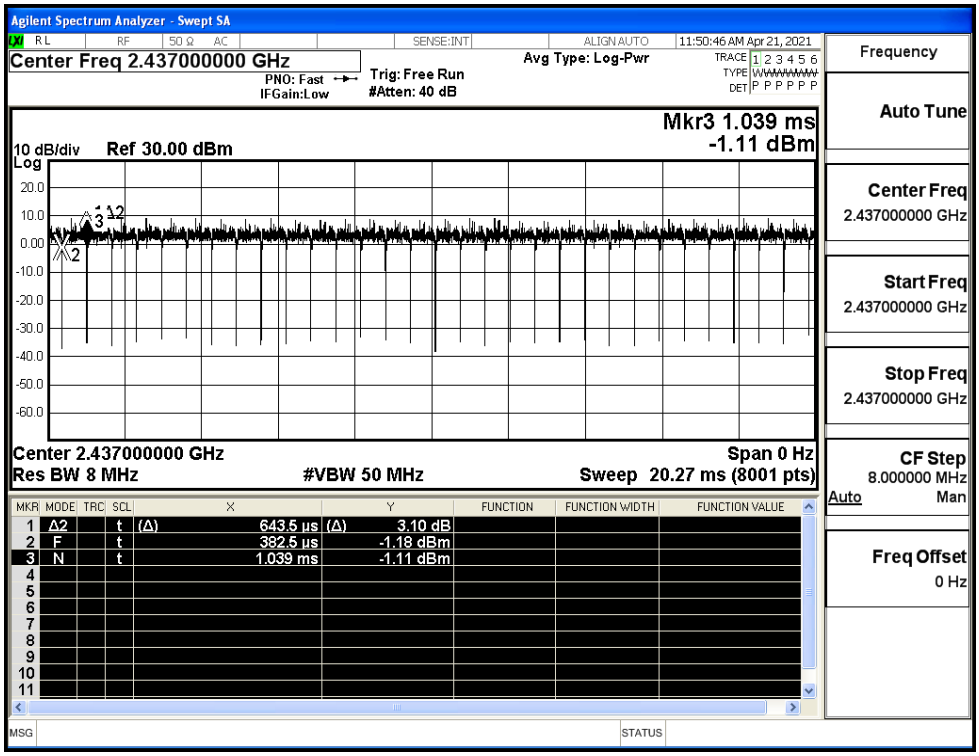
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1

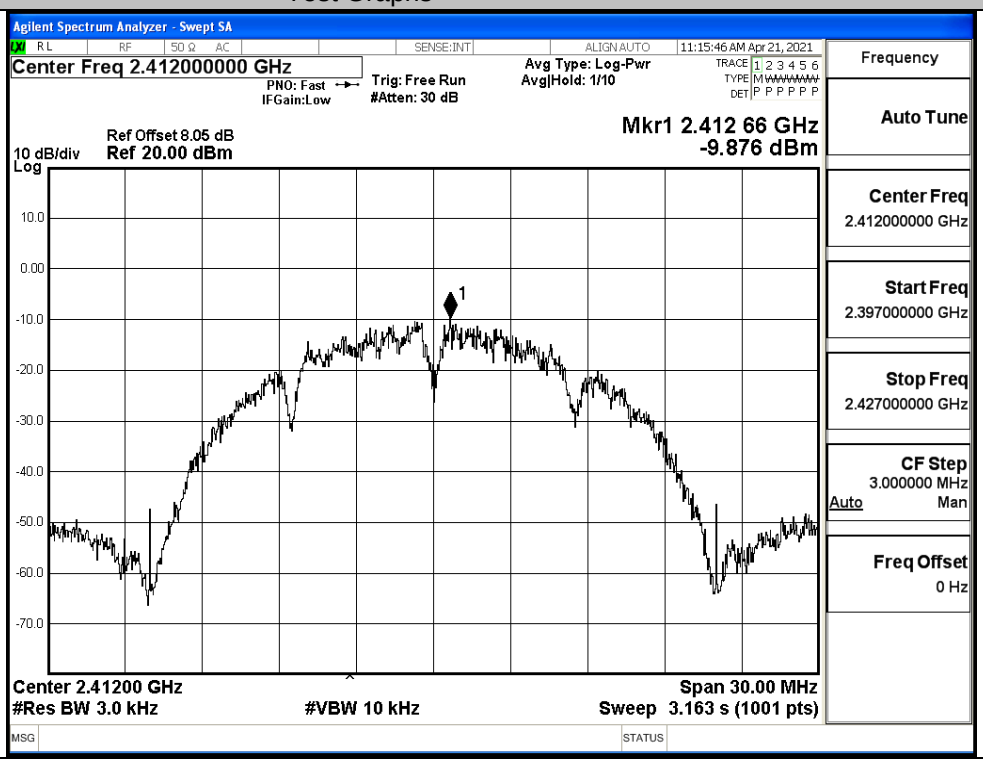


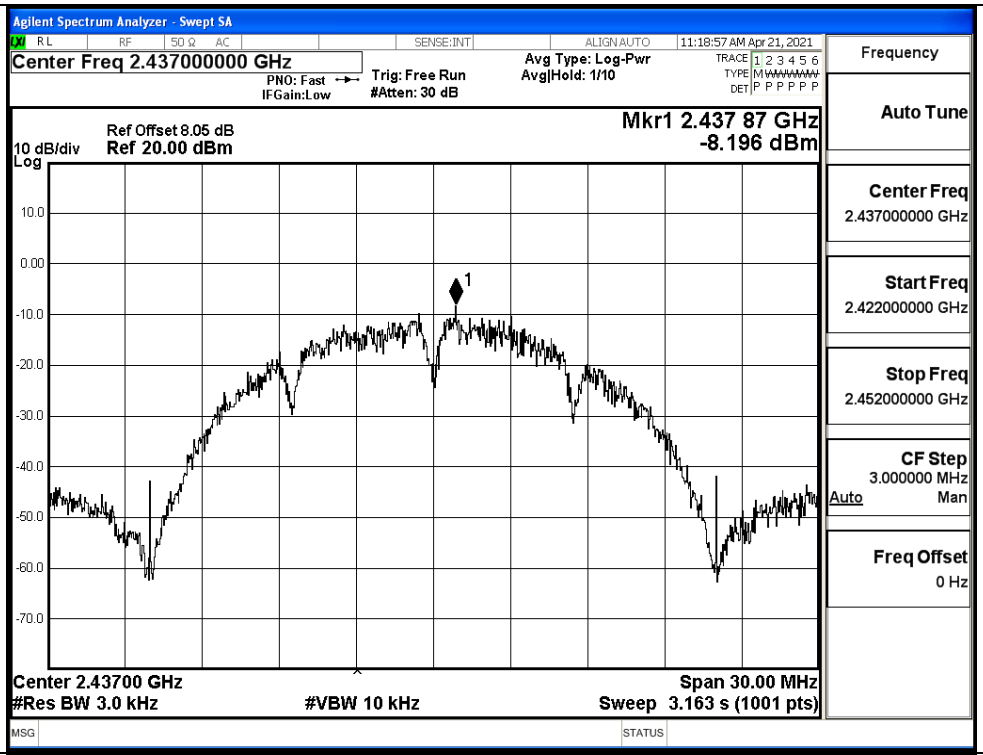
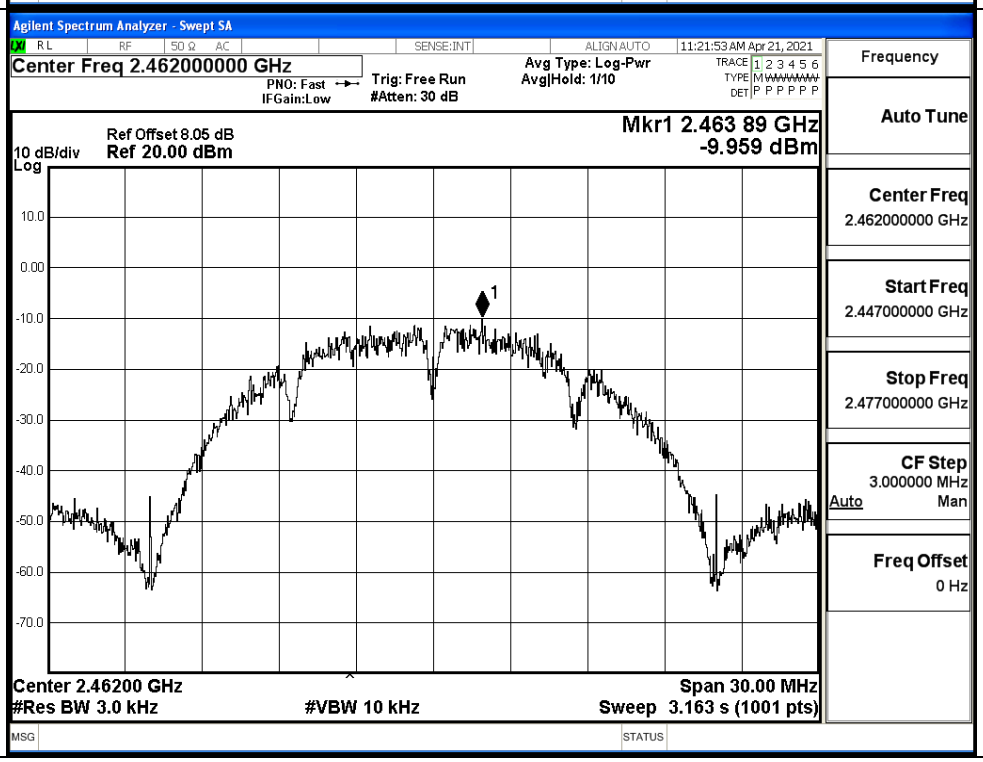
B.2 Maximum Conducted Output Power

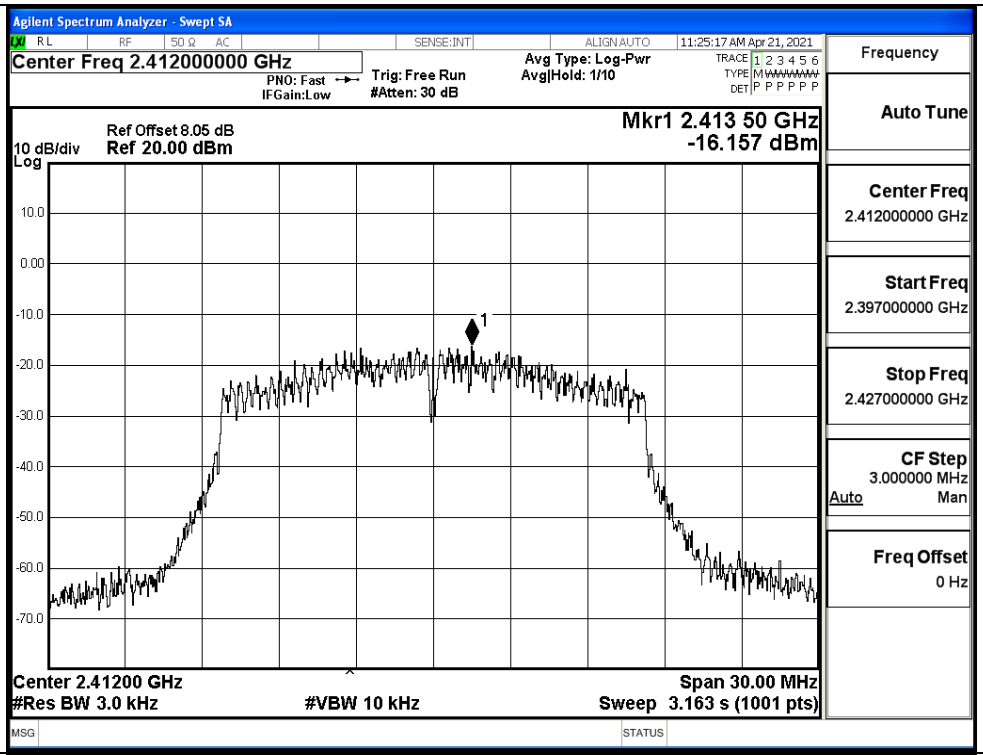
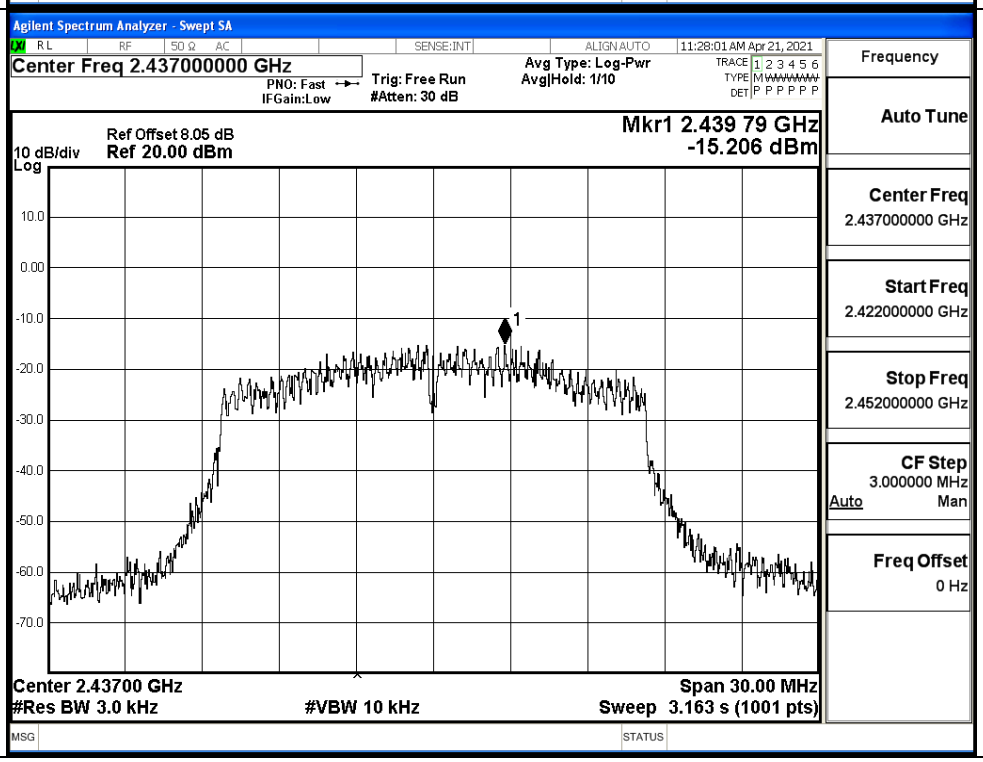
Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	17.00	30	PASS
	MCH	17.66	30	PASS
	HCH	17.04	30	PASS
11G	LCH	16.26	30	PASS
	MCH	17.64	30	PASS
	HCH	16.74	30	PASS
11N20SISO	LCH	16.24	30	PASS
	MCH	17.39	30	PASS
	HCH	16.5	30	PASS
11N40SISO	LCH	16.59	30	PASS
	MCH	17.57	30	PASS
	HCH	16.56	30	PASS

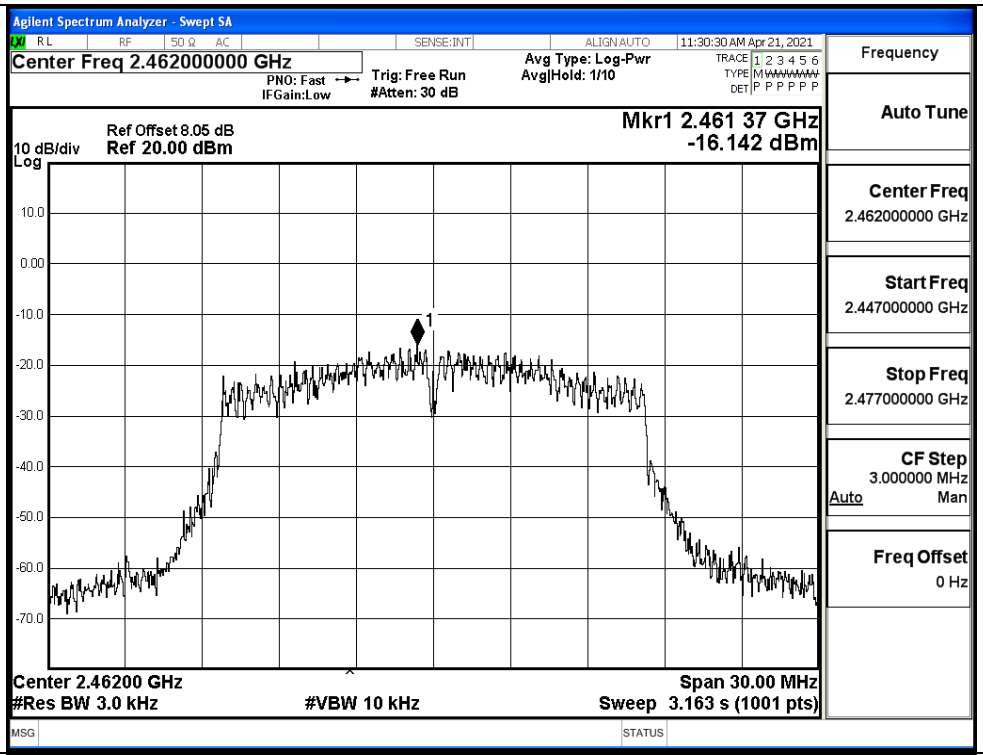
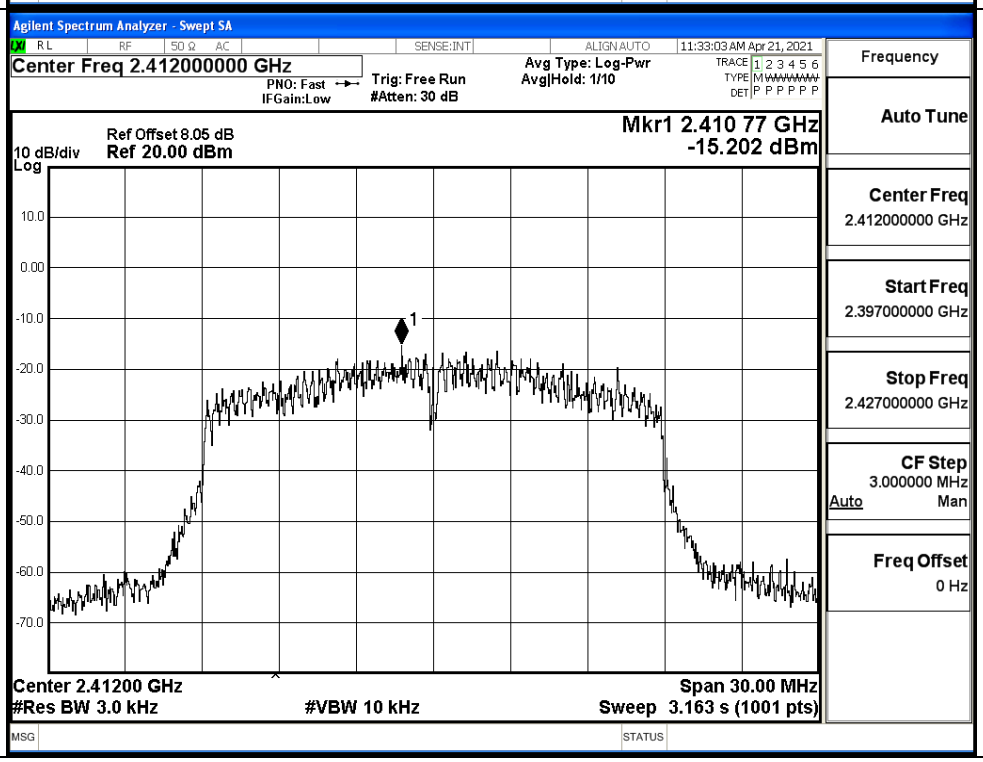
B.3 Maximum Power Spectral Density

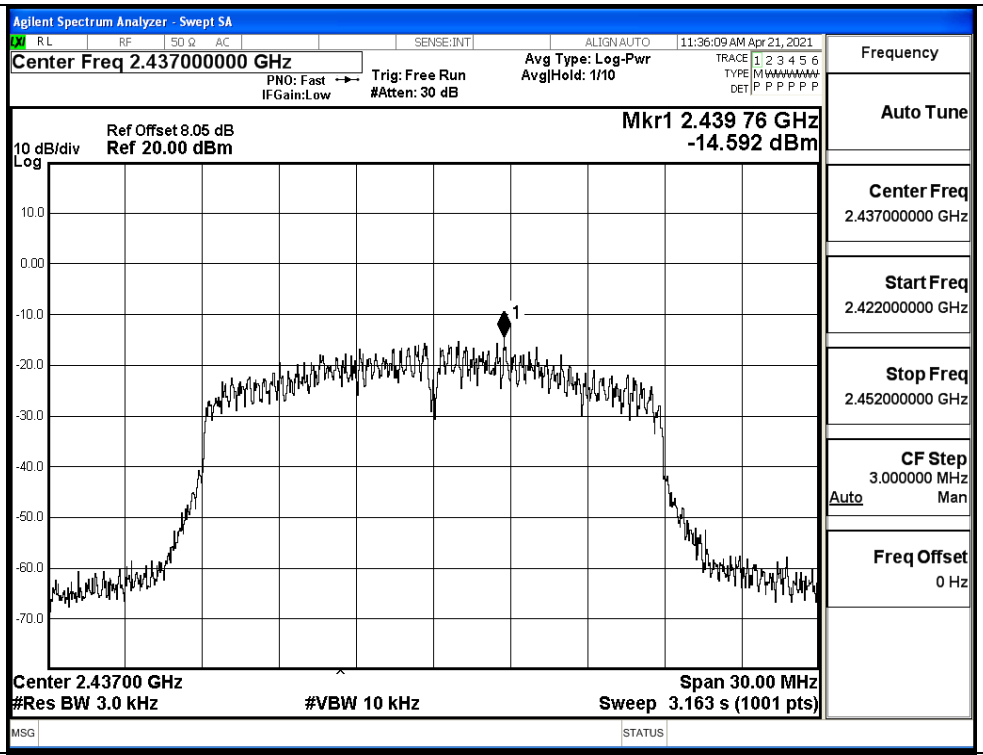
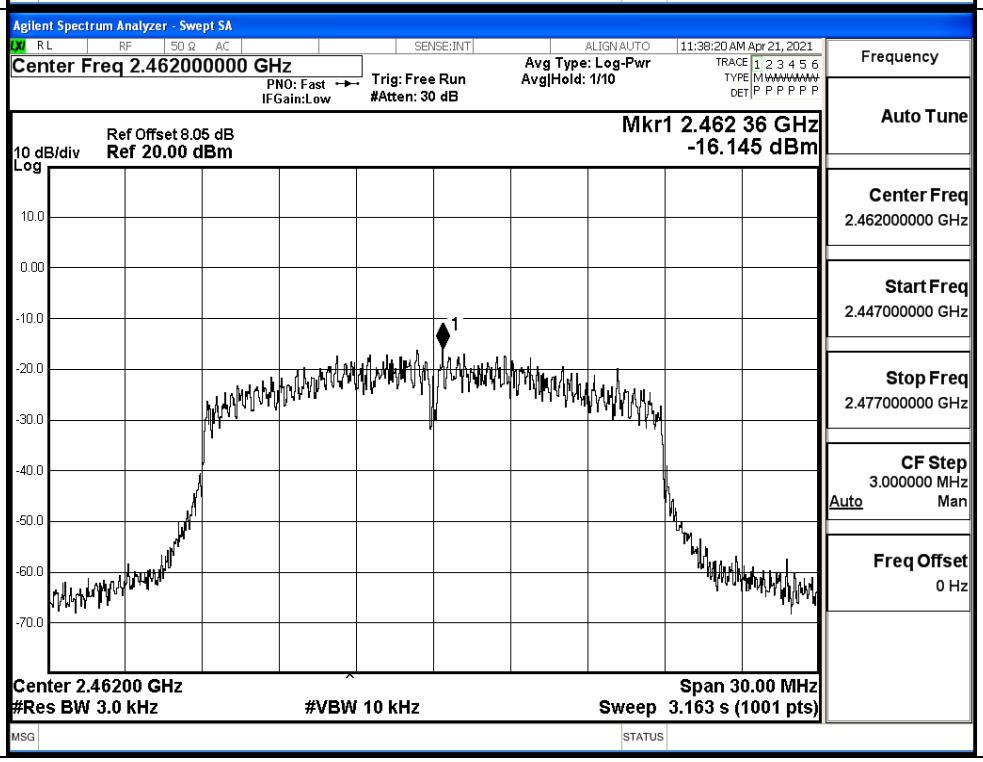
Mode	Channel	Meas.Level [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-9.876	8	PASS
	MCH	-8.196	8	PASS
	HCH	-9.959	8	PASS
11G	LCH	-16.157	8	PASS
	MCH	-15.206	8	PASS
	HCH	-16.142	8	PASS
11N20SISO	LCH	-15.202	8	PASS
	MCH	-14.592	8	PASS
	HCH	-16.145	8	PASS
11N40SISO	LCH	-16.216	8	PASS
	MCH	-16.393	8	PASS
	HCH	-18.625	8	PASS

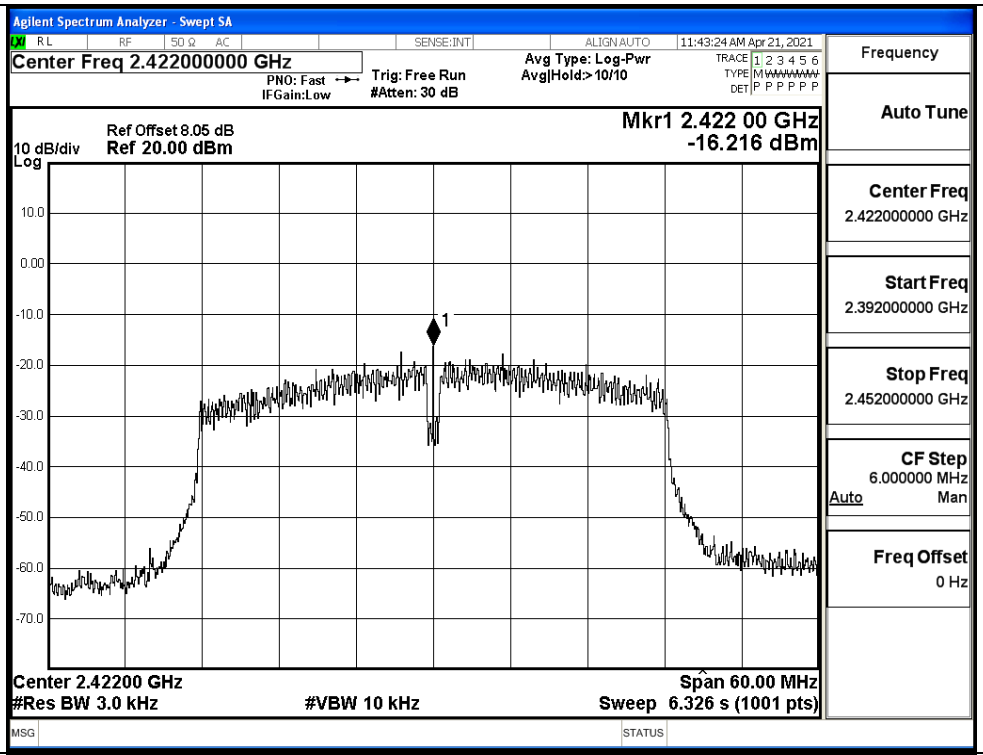
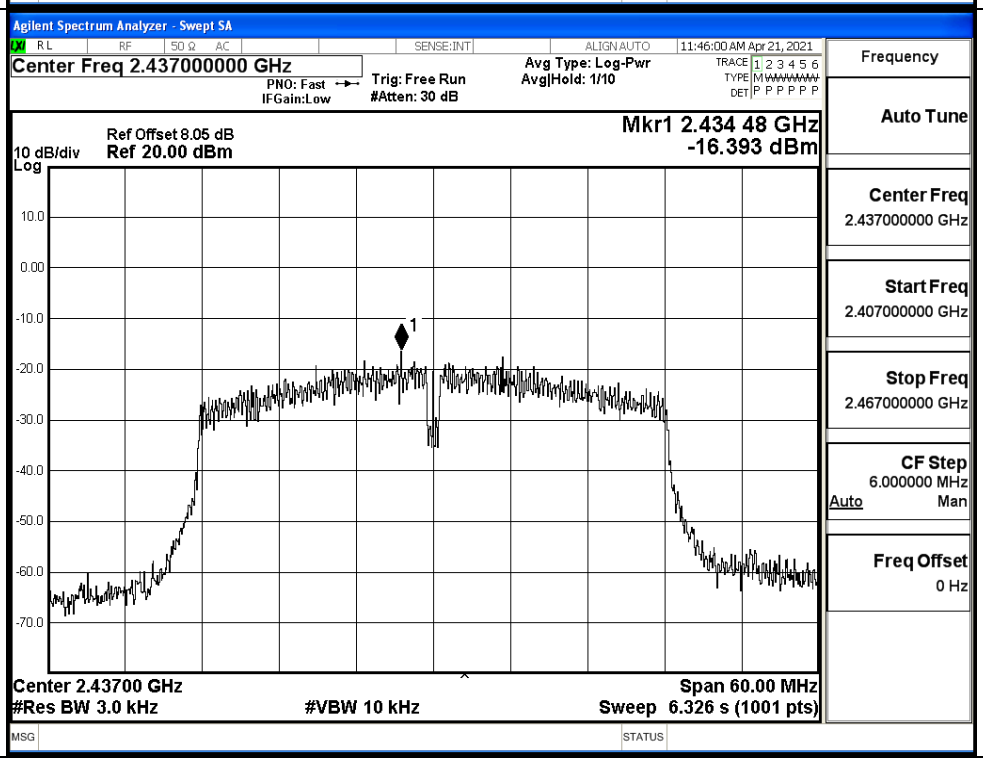
Test Graphs		
11B/LCH		

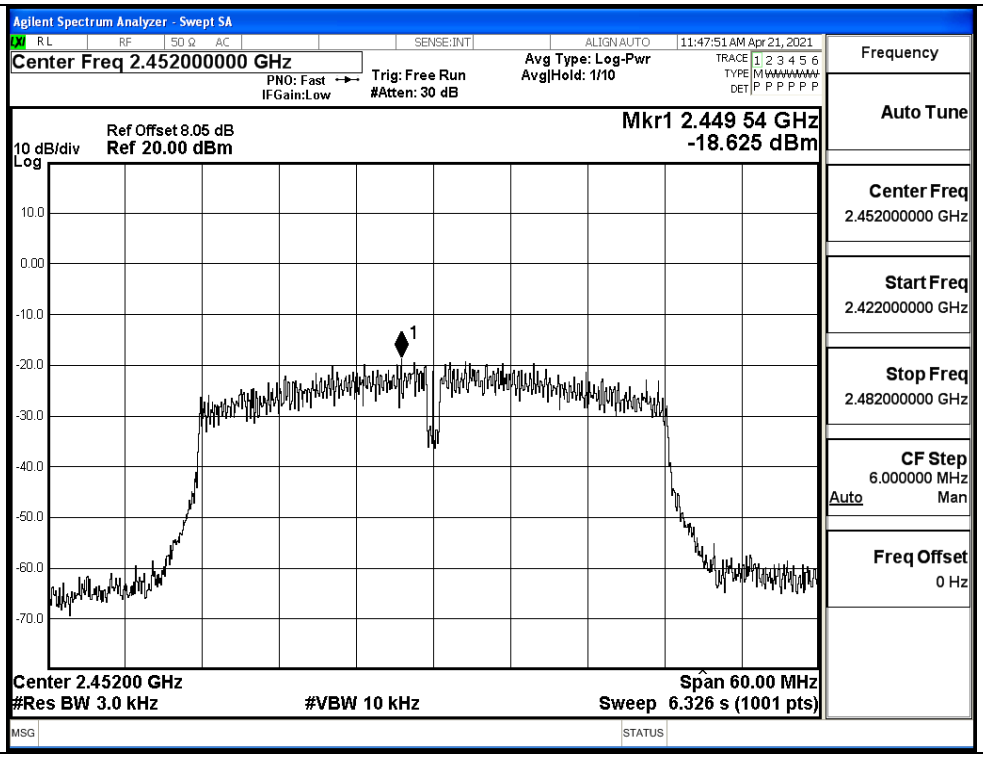
11B/MCH		
11B/HCH		

11G/LCH		
11G/MCH		

11G/HCH		
11N20SISO/LCH		

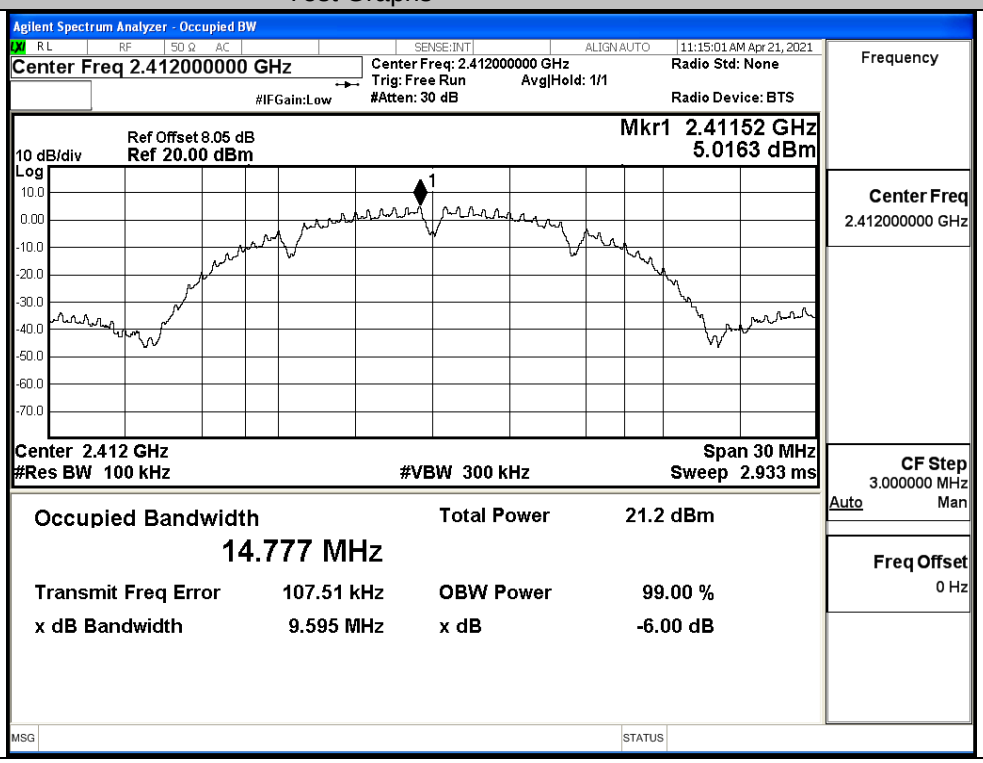
11N20SISO/MCH		
11N20SISO/HCH		

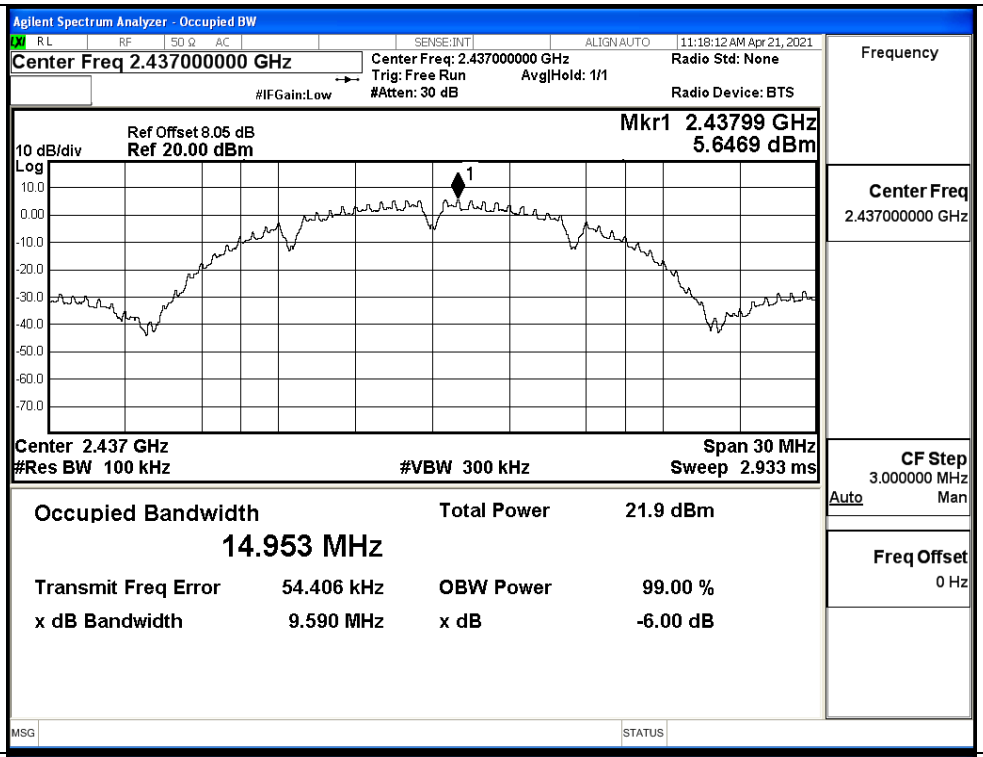
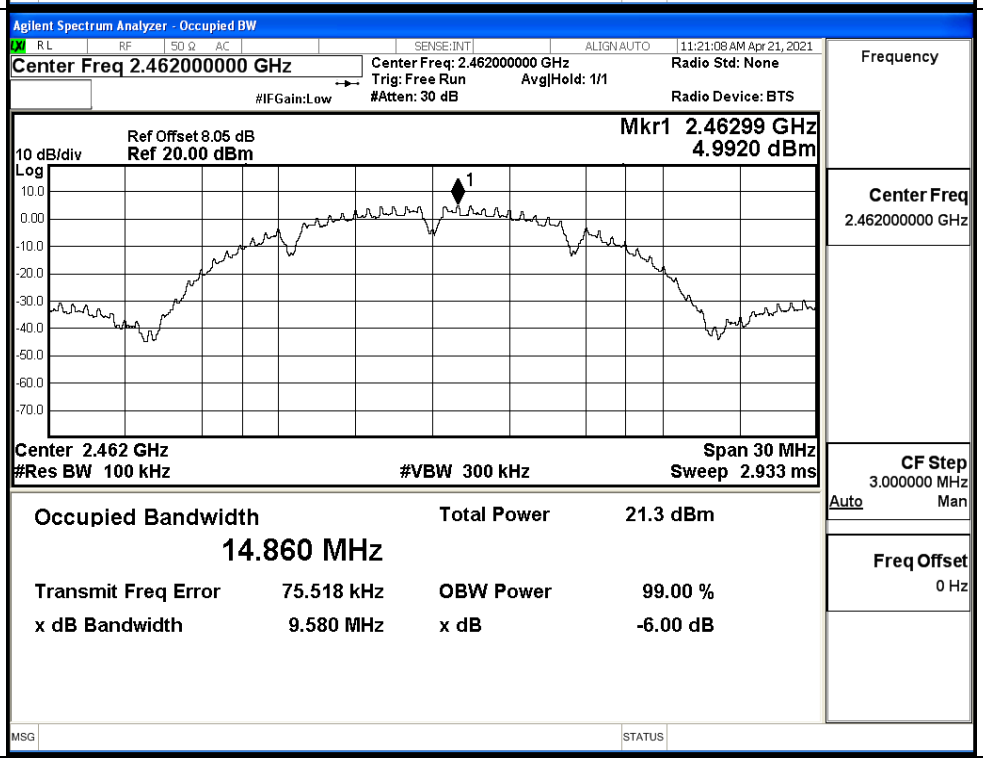
11N40SISO/LCH		
11N40SISO/MCH		

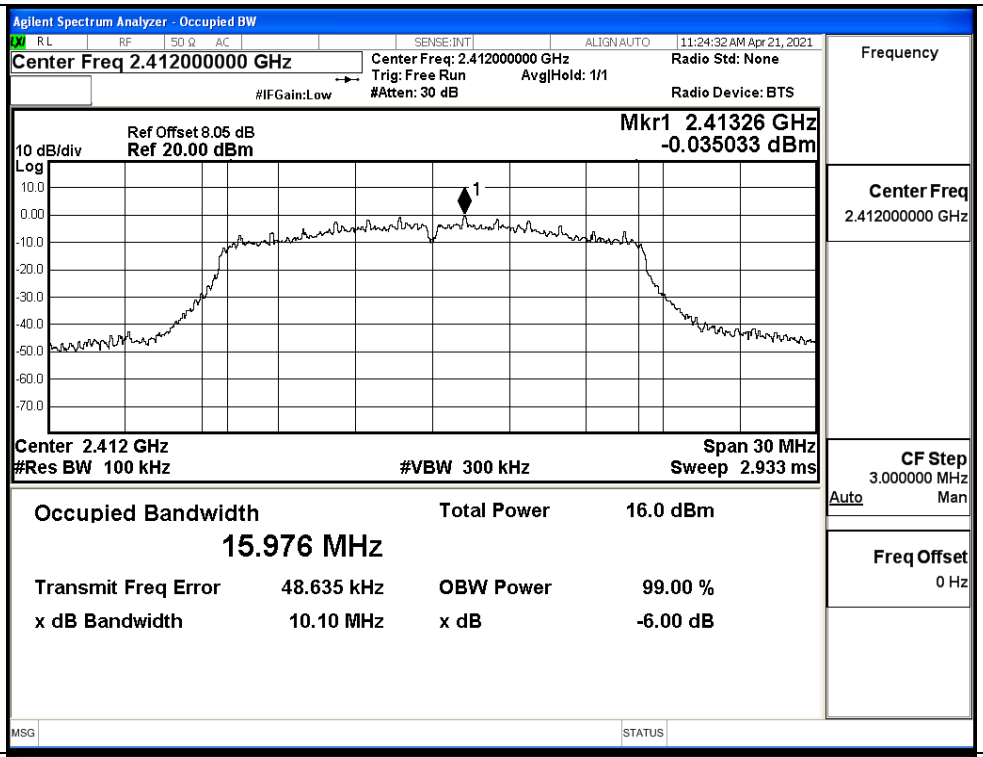
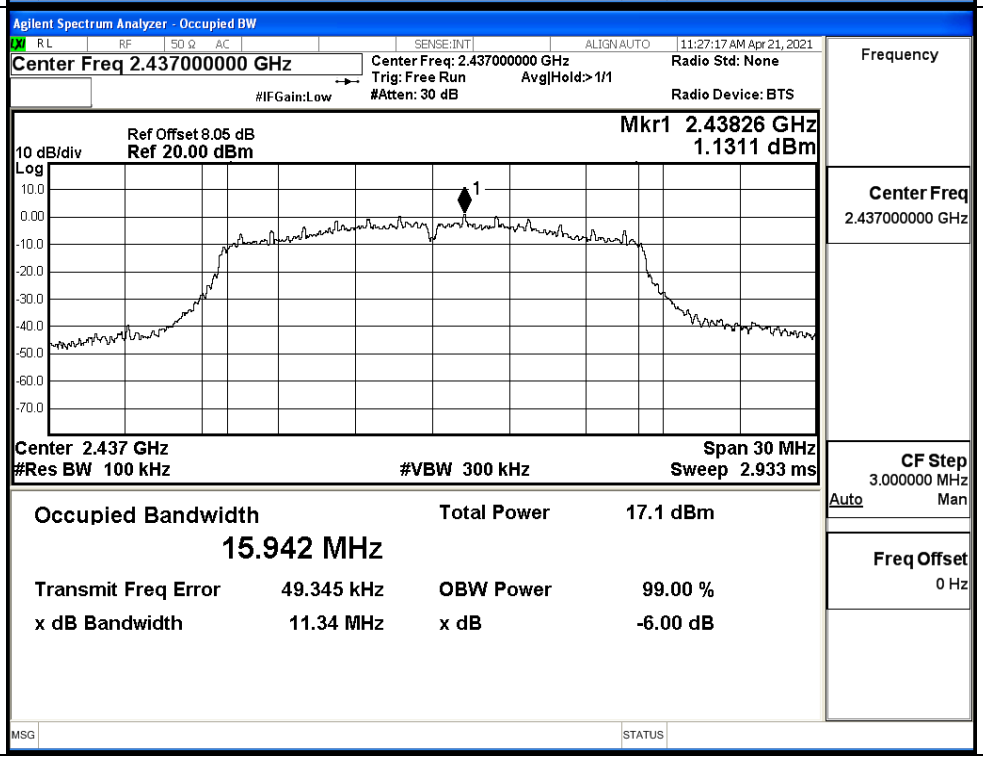
11N40SISO/HCH		

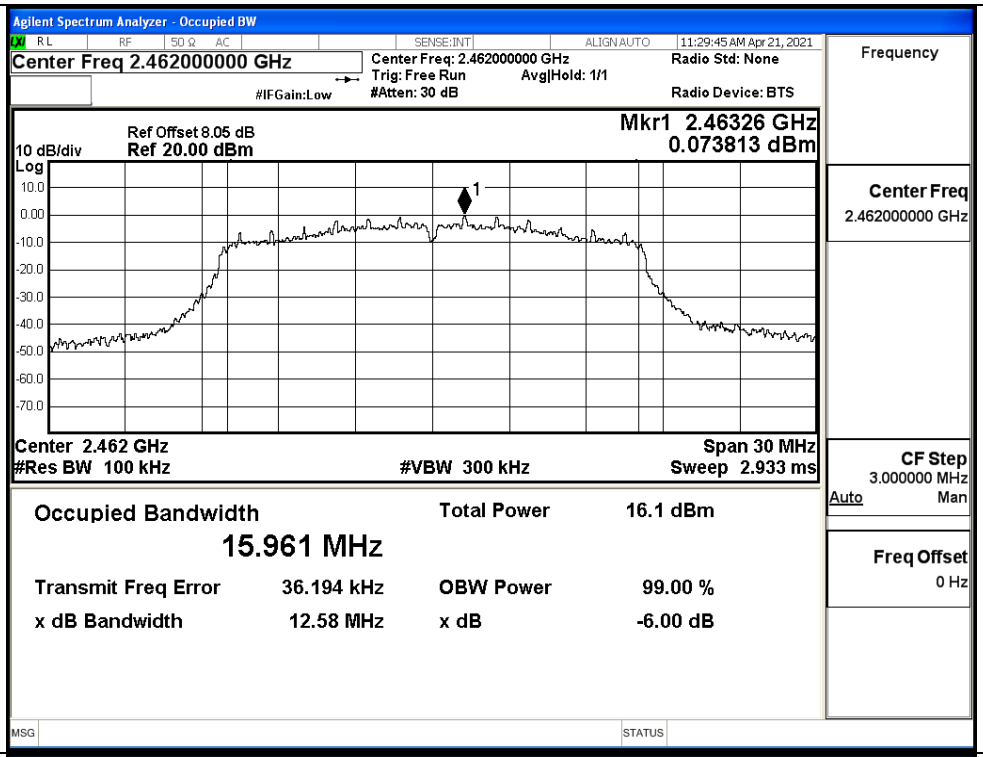
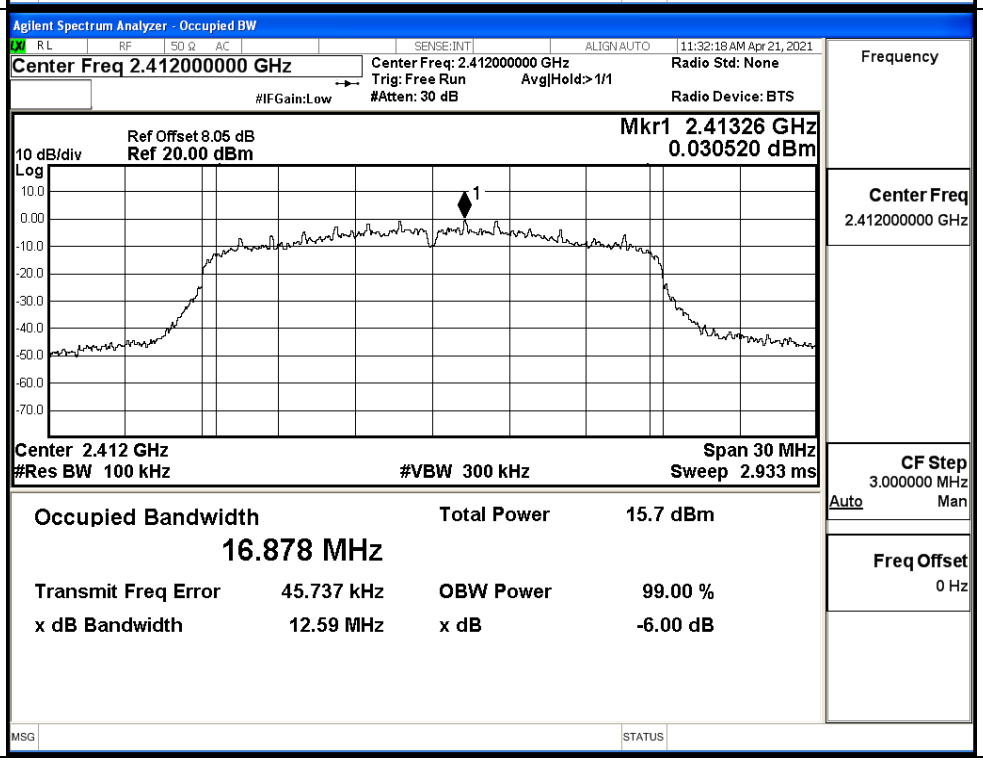
B.4 6dB Bandwidth

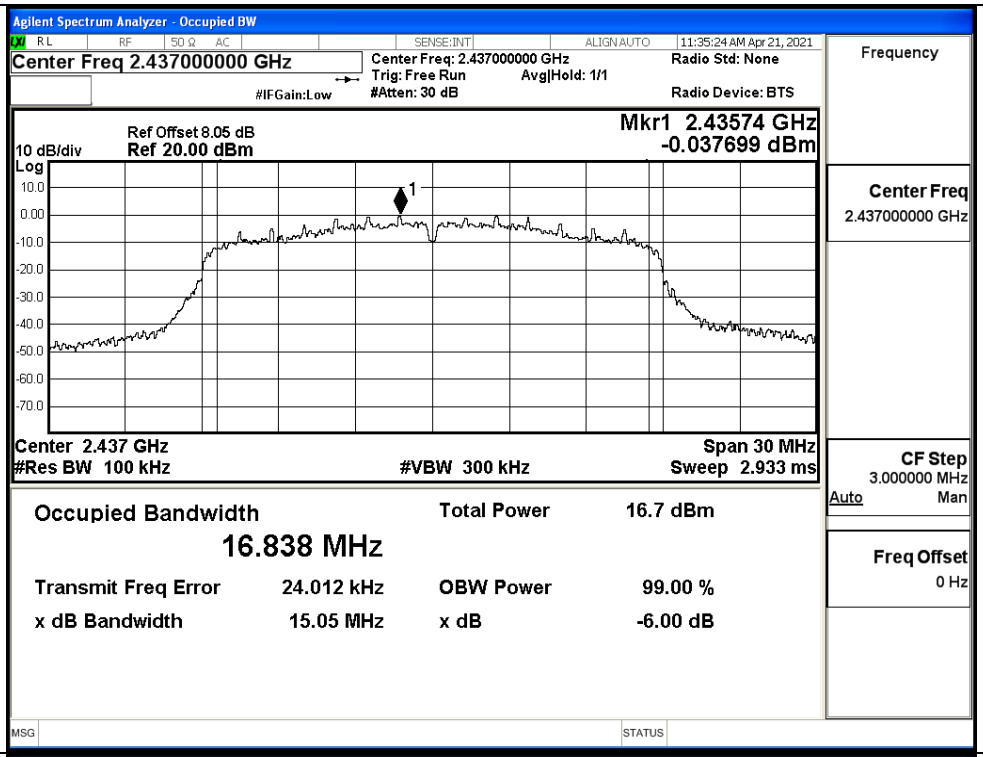
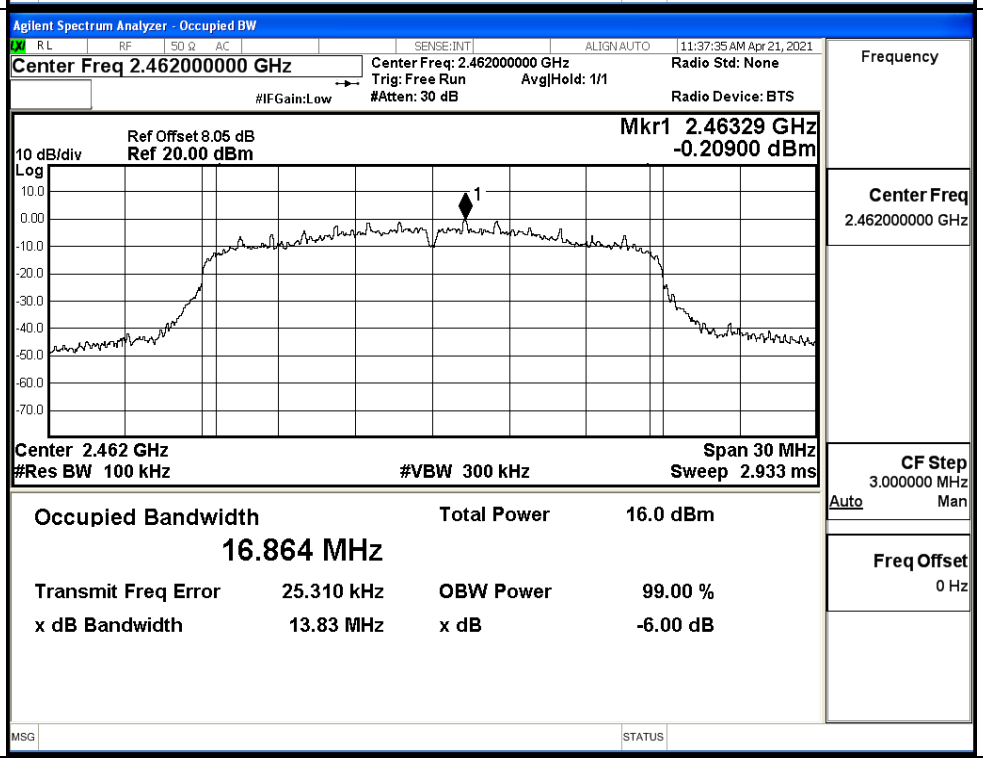
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	9.595	⩾0.5	PASS
	MCH	9.590	⩾0.5	PASS
	HCH	9.580	⩾0.5	PASS
11G	LCH	10.10	⩾0.5	PASS
	MCH	11.34	⩾0.5	PASS
	HCH	12.58	⩾0.5	PASS
11N20SISO	LCH	12.59	⩾0.5	PASS
	MCH	15.05	⩾0.5	PASS
	HCH	13.83	⩾0.5	PASS
11N40SISO	LCH	31.37	⩾0.5	PASS
	MCH	32.56	⩾0.5	PASS
	HCH	33.77	⩾0.5	PASS

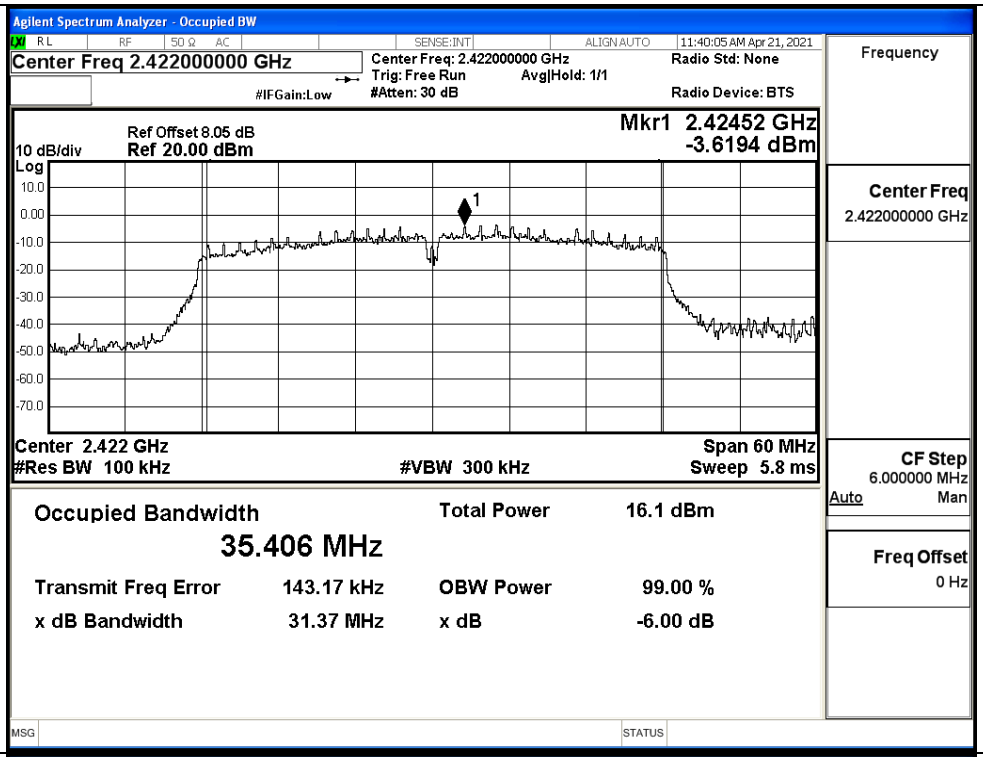
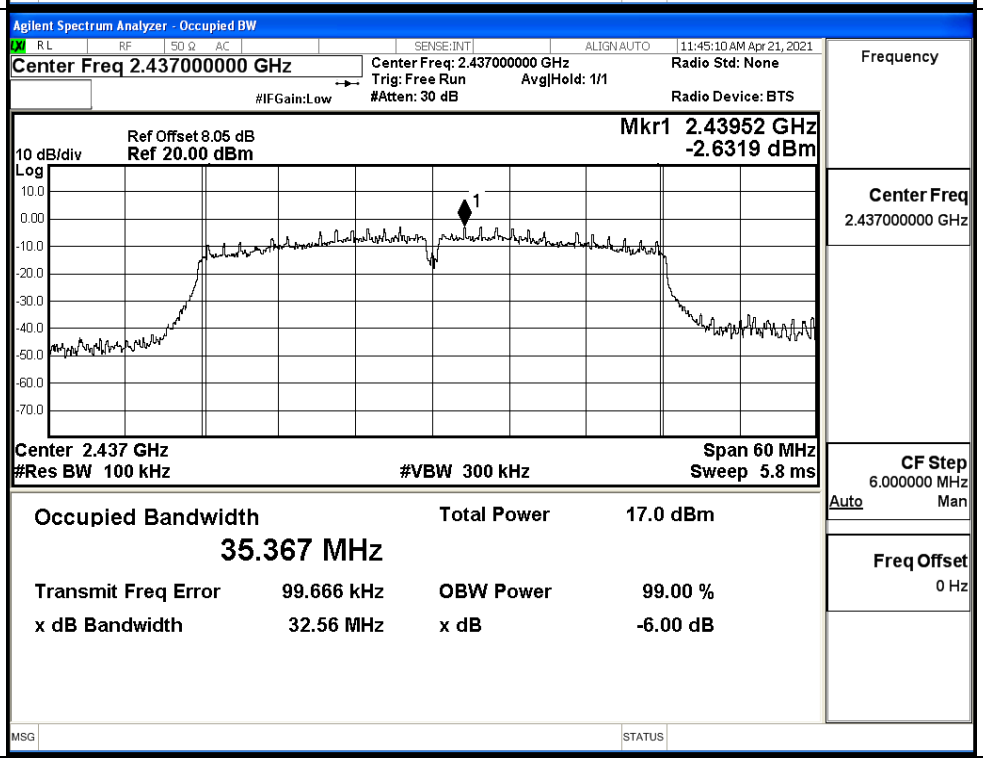
Test Graphs	
11B/LCH	

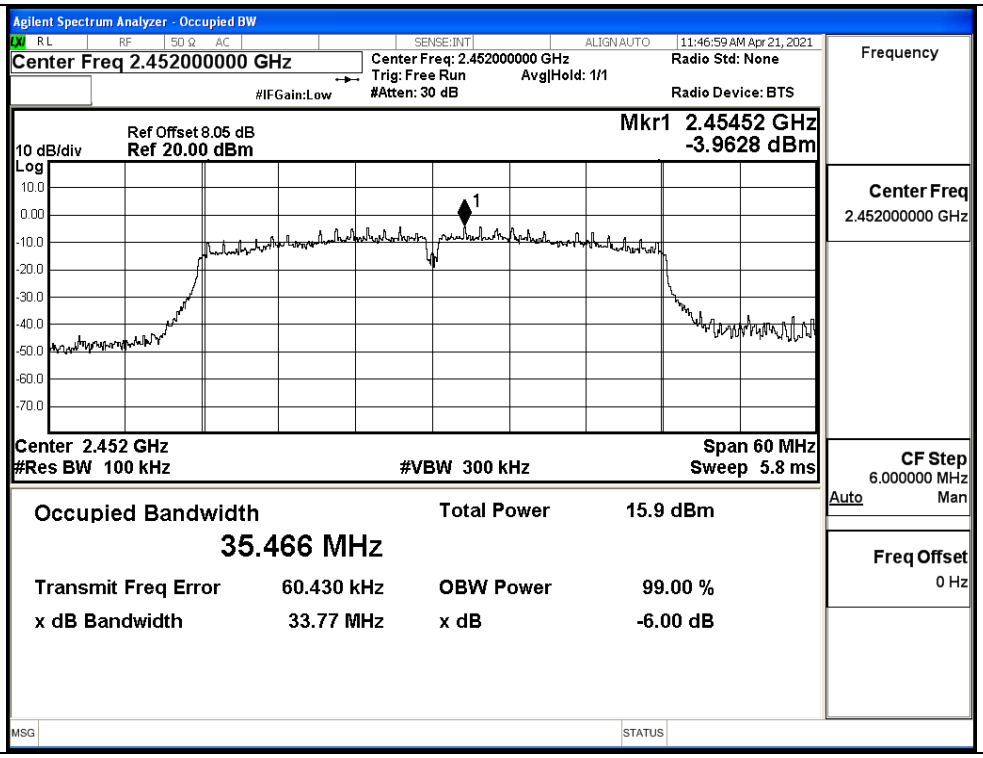
11B/MCH	
11B/HCH	

11G/LCH		
11G/MCH		

11G/HCH		
11N20SISO/LCH		

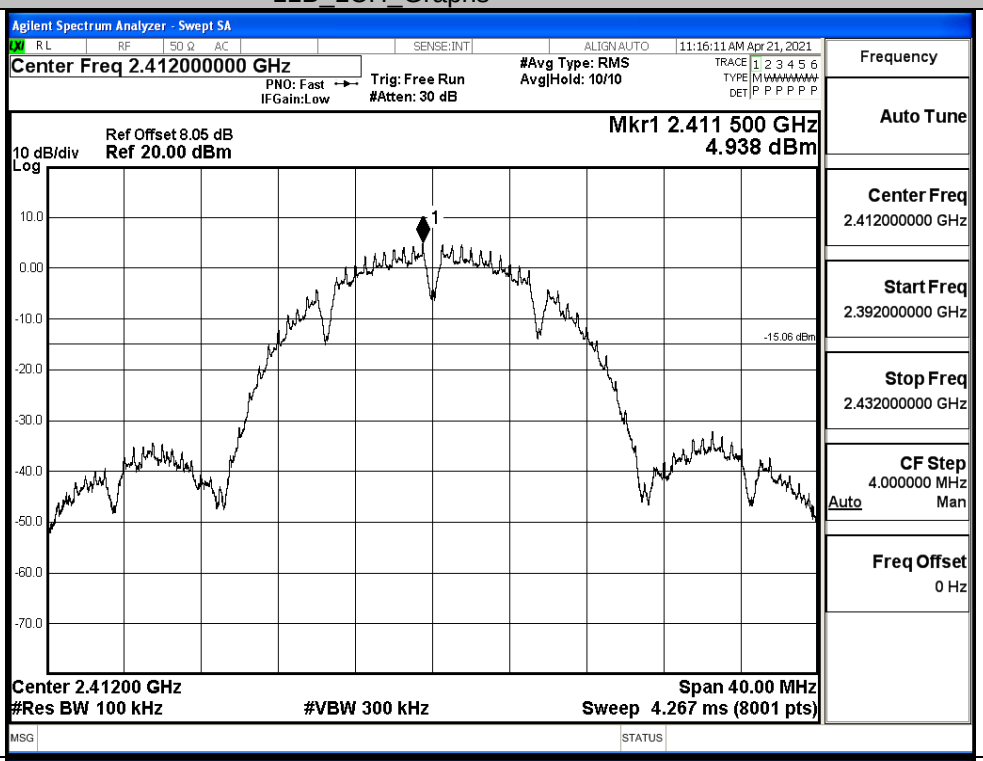
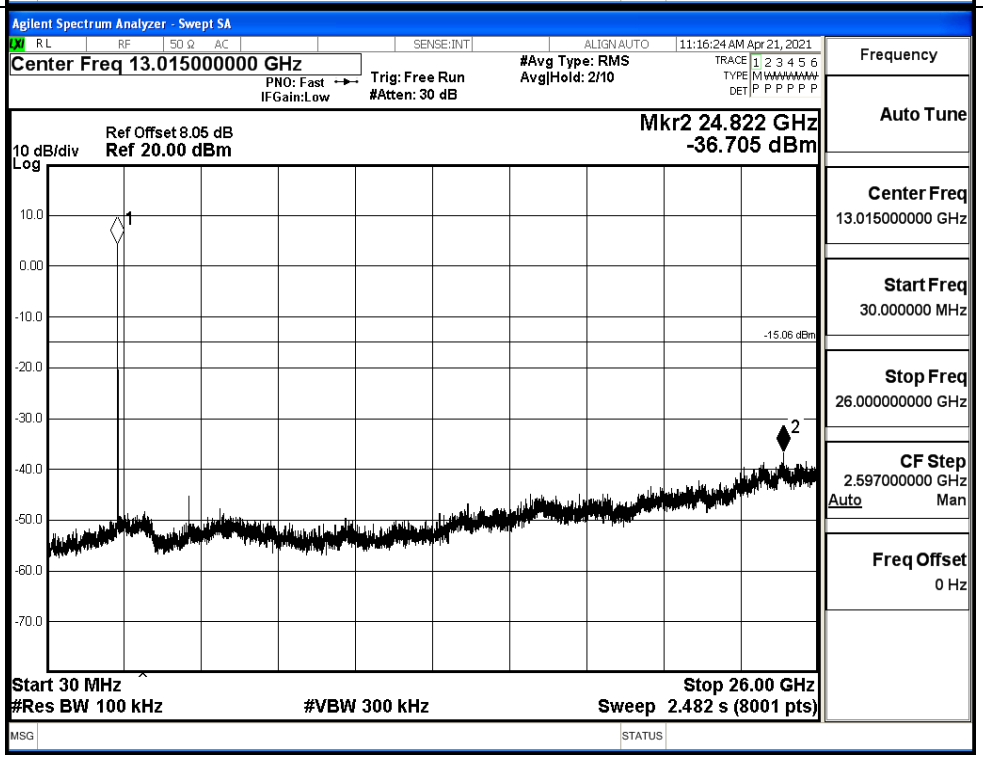
11N20SISO/MCH	
11N20SISO/HCH	

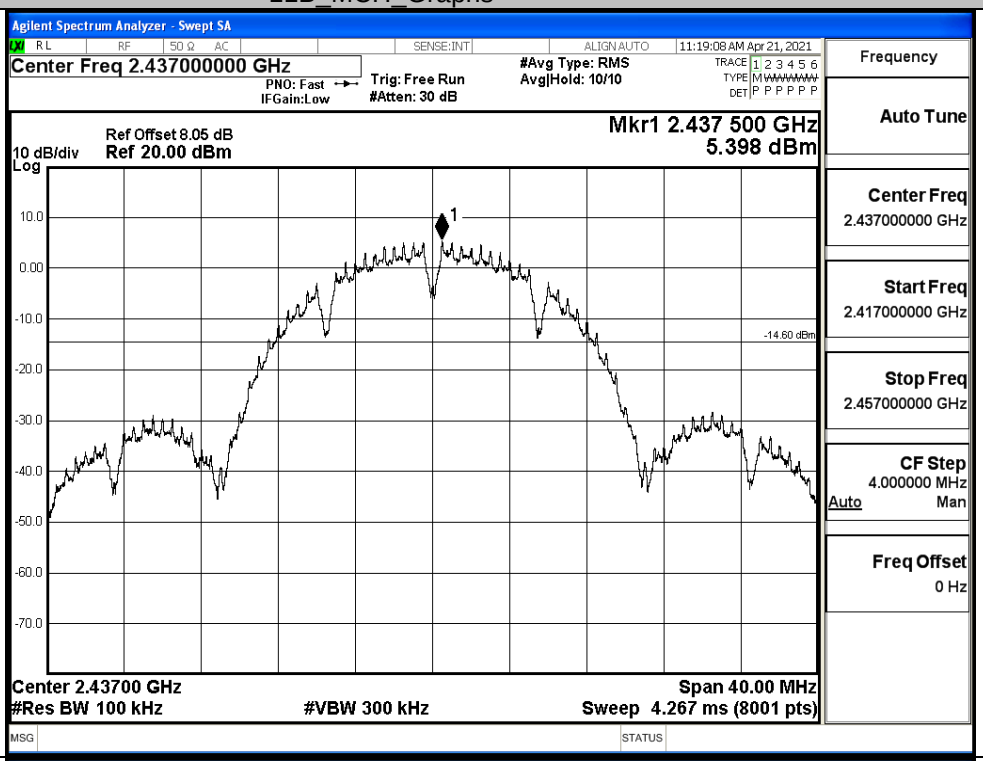
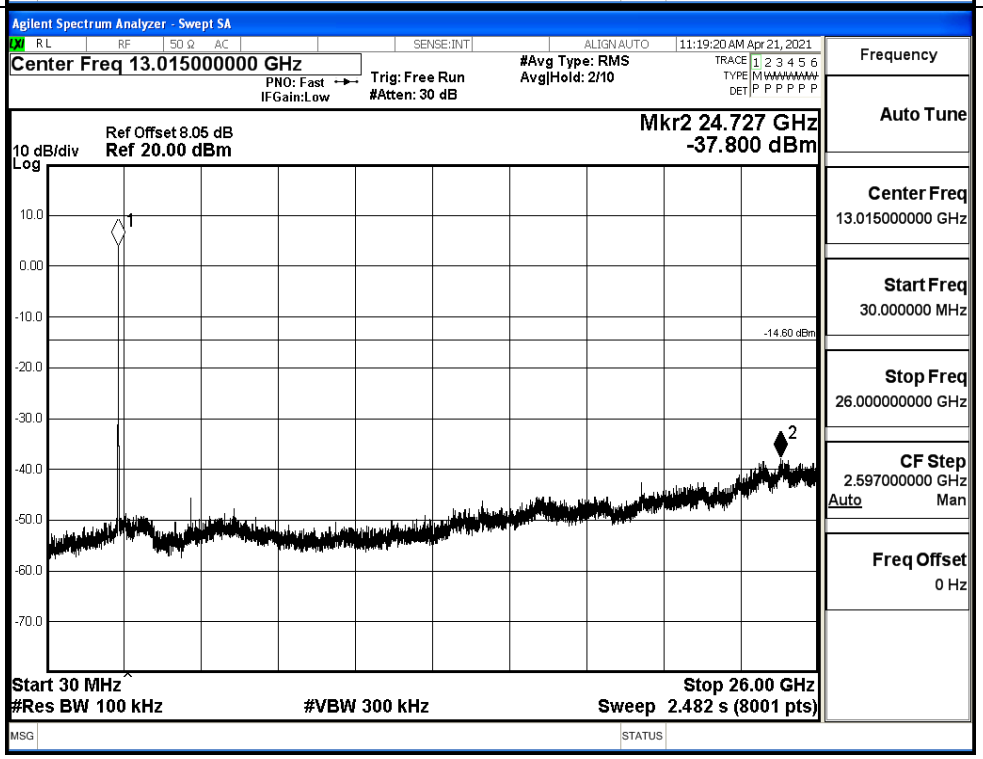
11N40SISO/LCH		
11N40SISO/MCH		

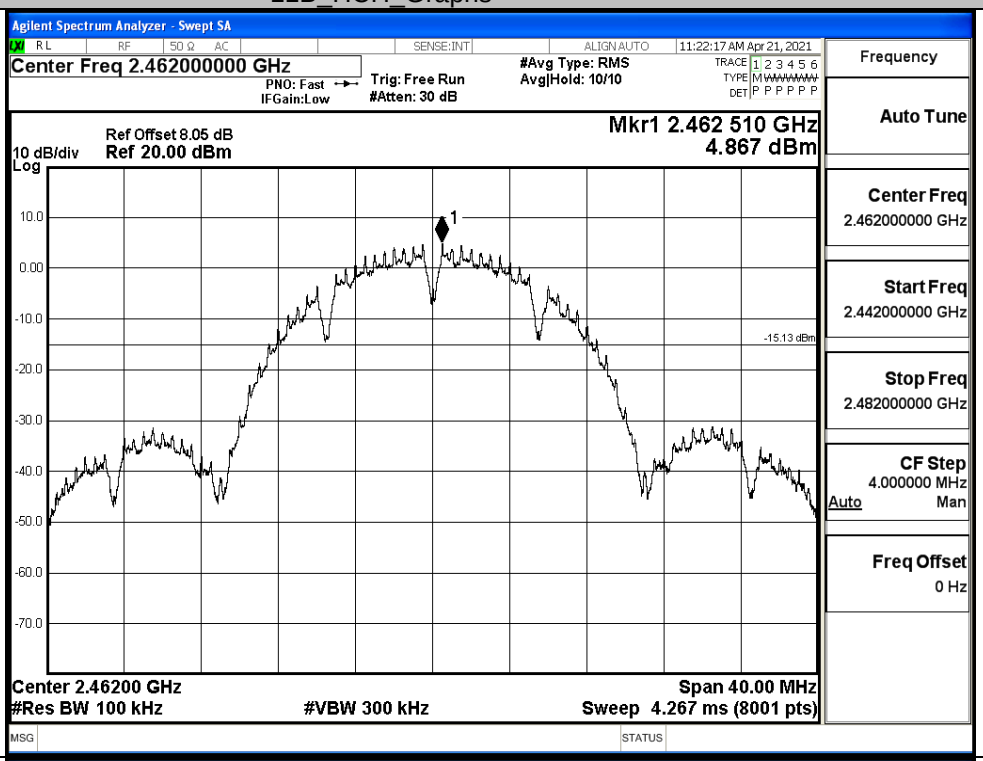
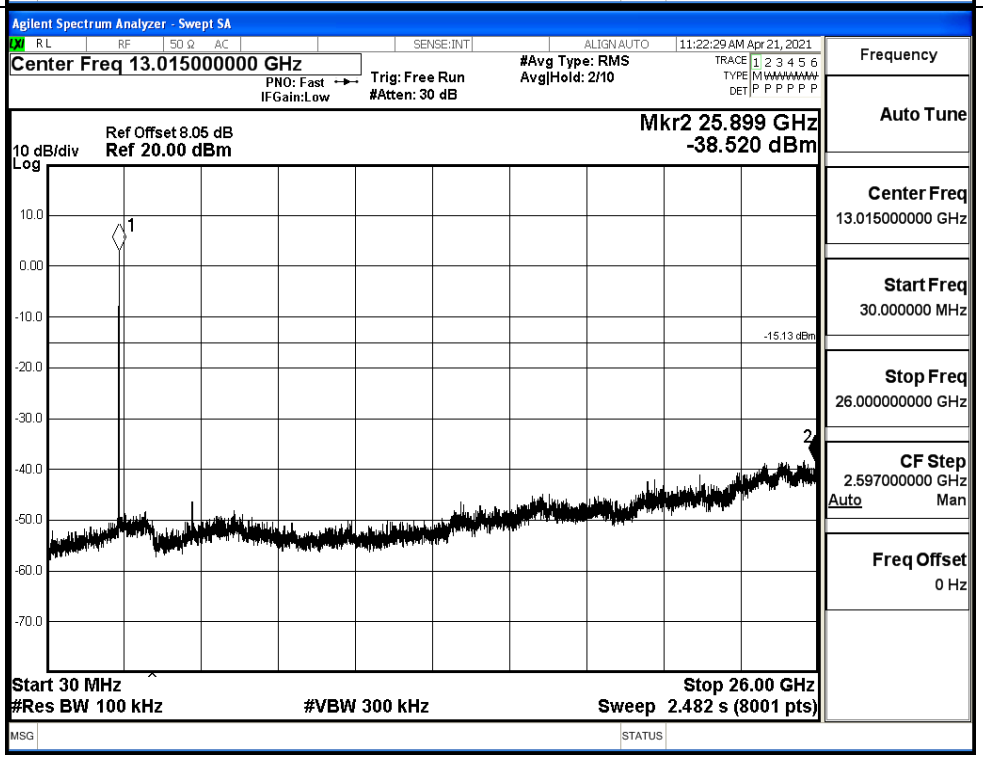
11N40SISO/HCH	

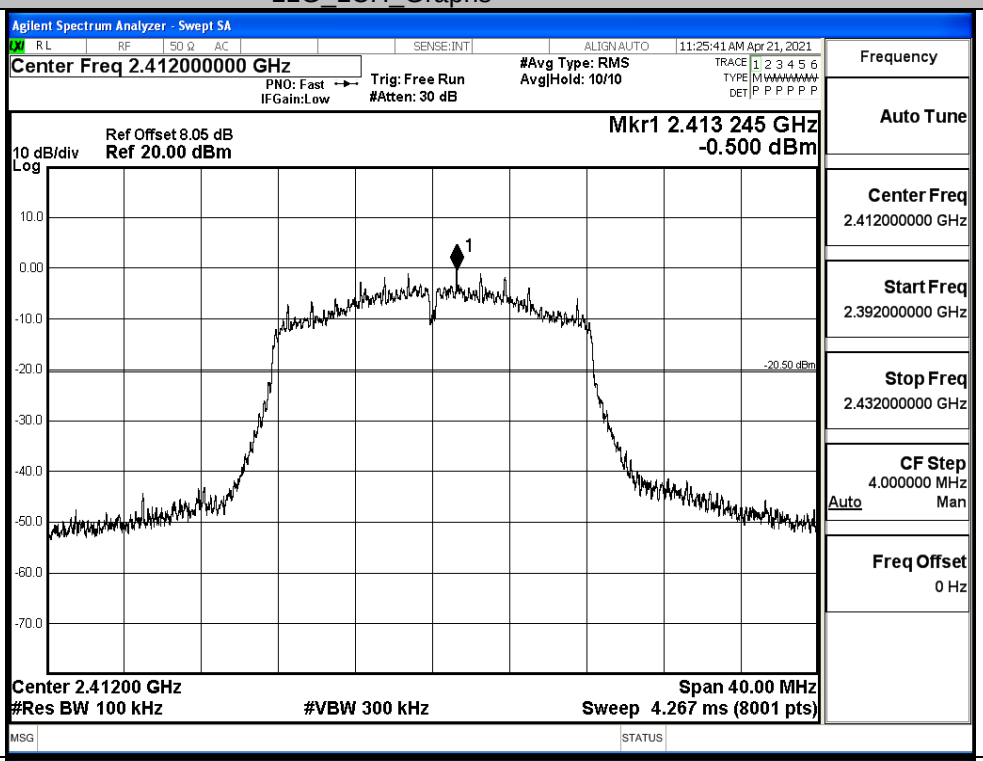
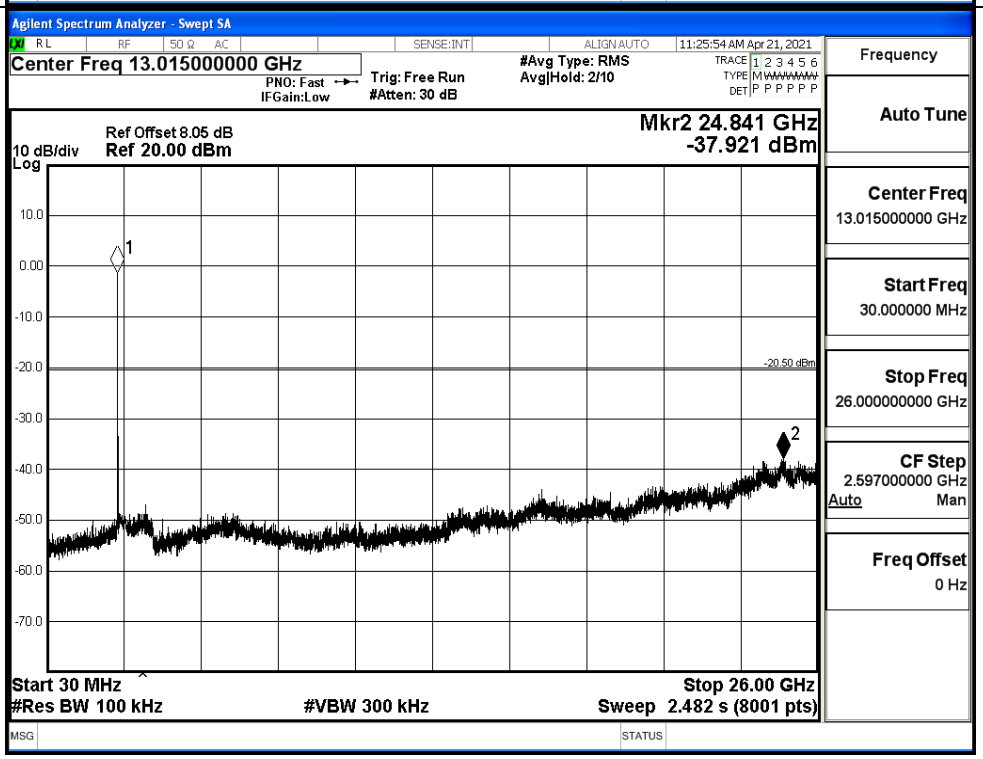
B.5 RF Conducted Spurious Emissions

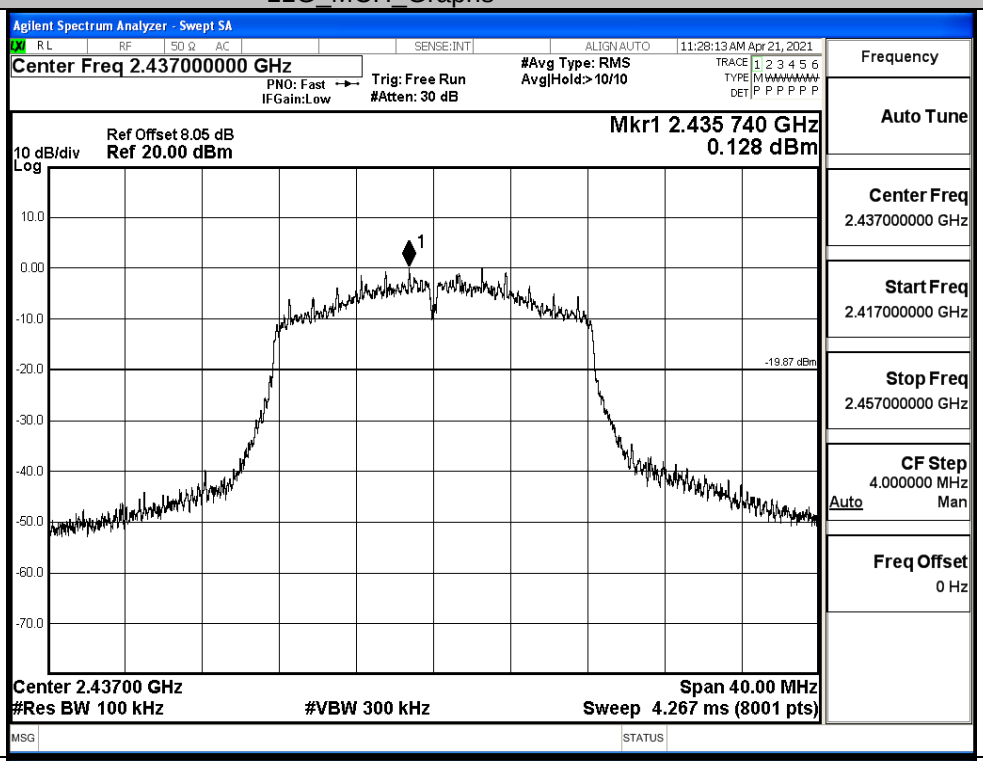
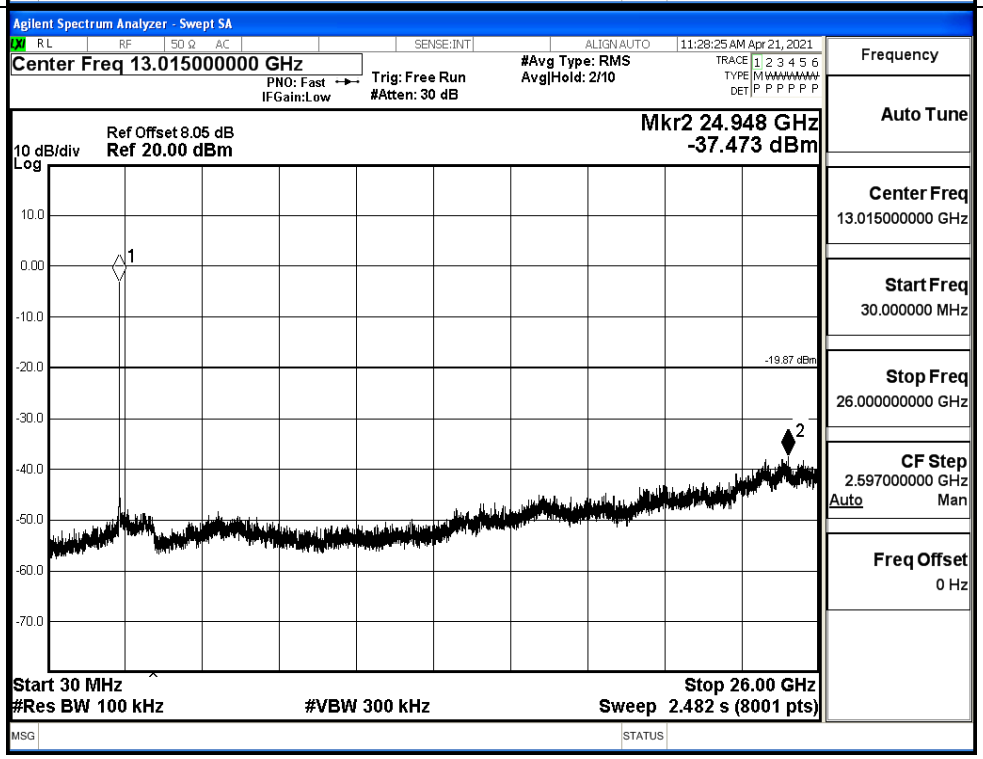
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	4.938	-36.705	-15.062	PASS
	MCH	5.398	-37.800	-14.602	PASS
	HCH	4.867	-38.520	-15.133	PASS
11G	LCH	-0.5	-37.921	-20.500	PASS
	MCH	0.128	-37.473	-19.872	PASS
	HCH	-0.088	-36.338	-20.088	PASS
11N20 SISO	LCH	-1.031	-38.124	-21.031	PASS
	MCH	0.695	-38.053	-19.305	PASS
	HCH	-0.317	-38.201	-20.317	PASS
11N40 SISO	LCH	-4.22	-37.937	-24.220	PASS
	MCH	-2.936	-38.015	-22.936	PASS
	HCH	-4.102	-36.996	-24.102	PASS

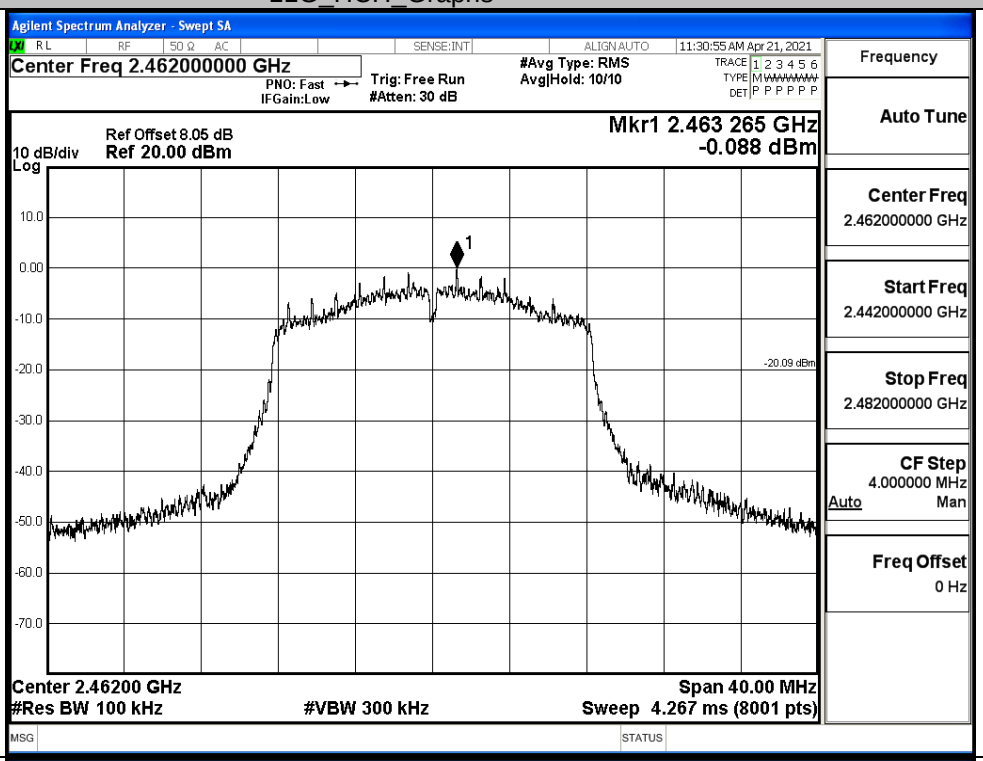
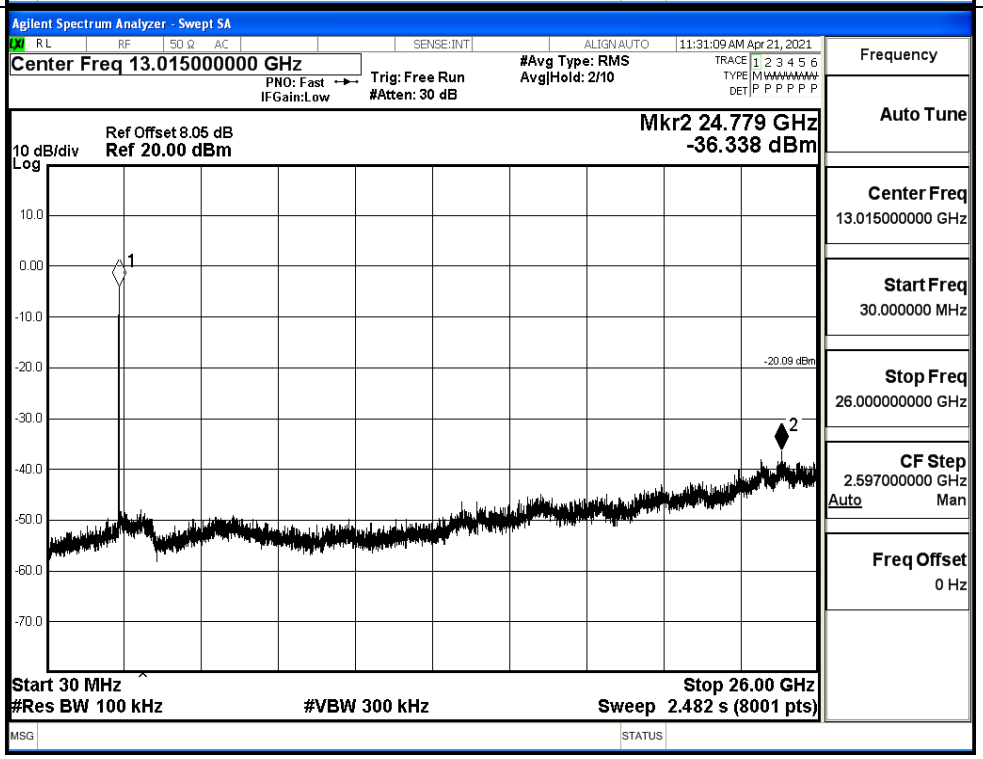
11B_LCH_Graphs		
Pref/11B/LCH		
Puw/11B/LCH		

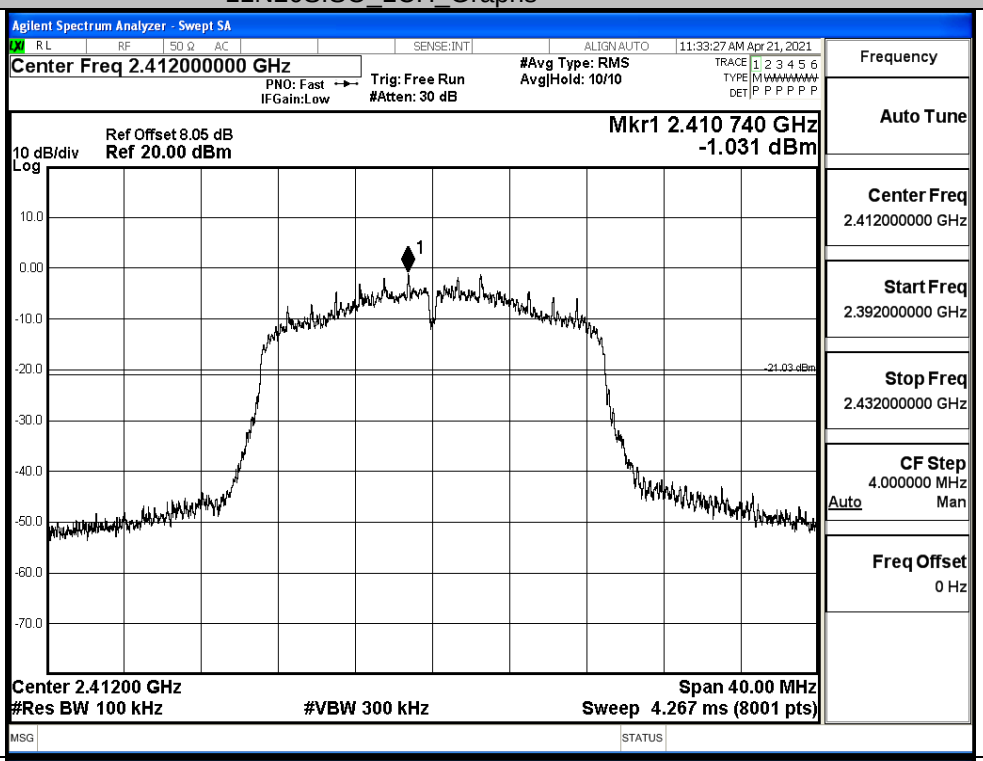
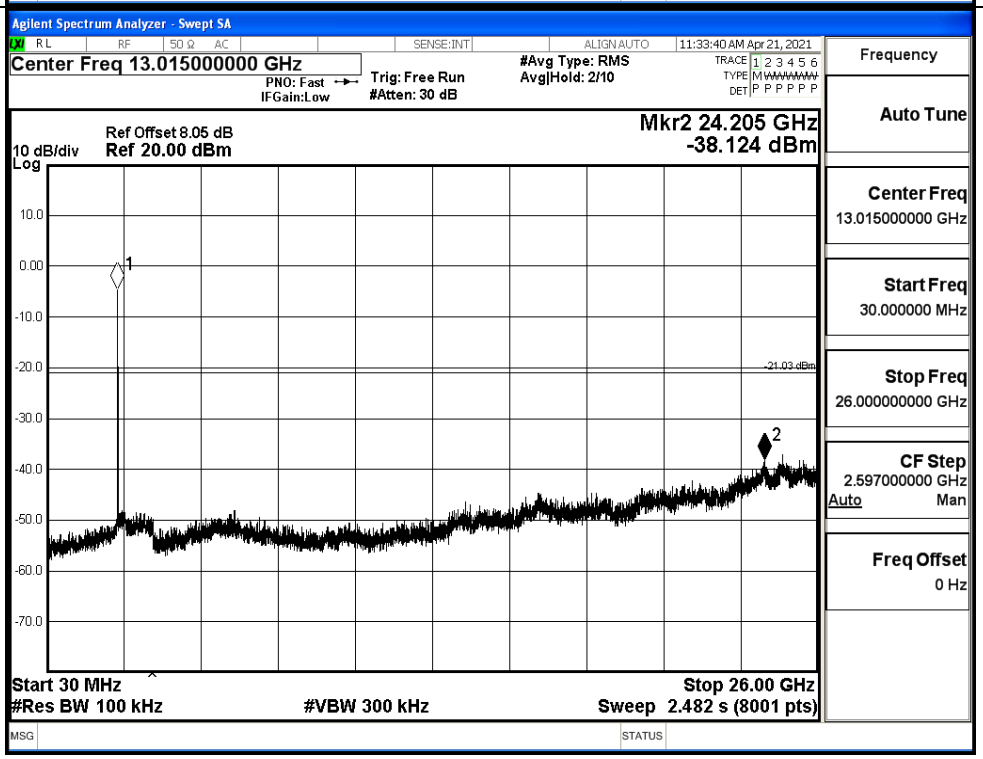
11B_MCH_Graphs		
Pref/11B/MCH		
Puw/11B/MCH		

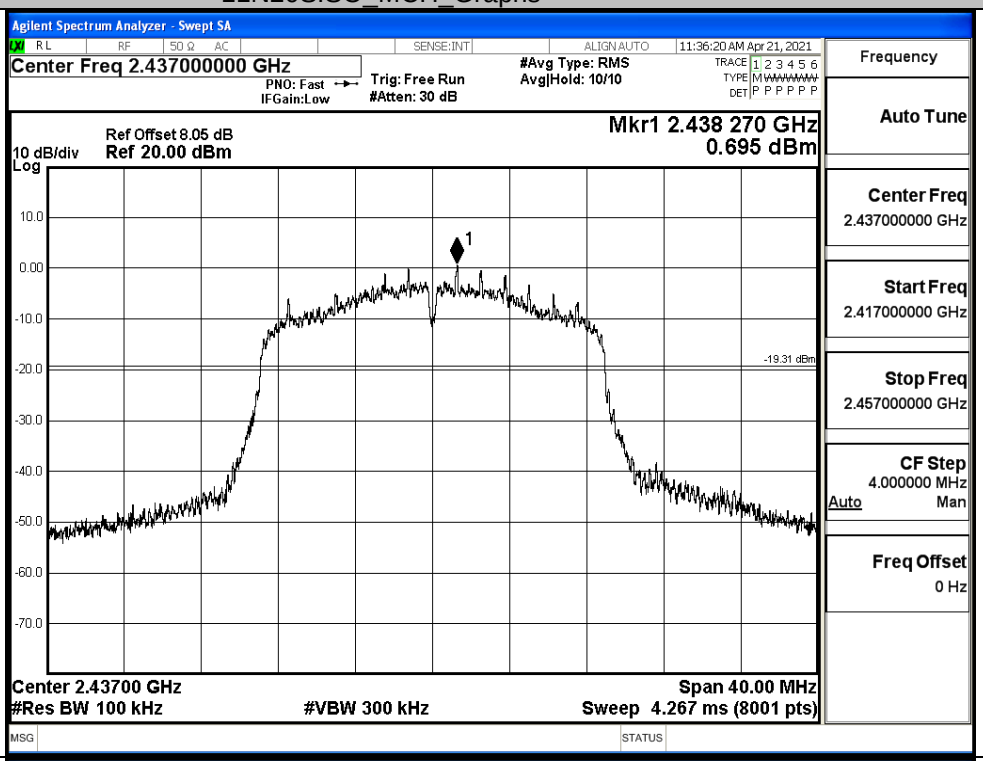
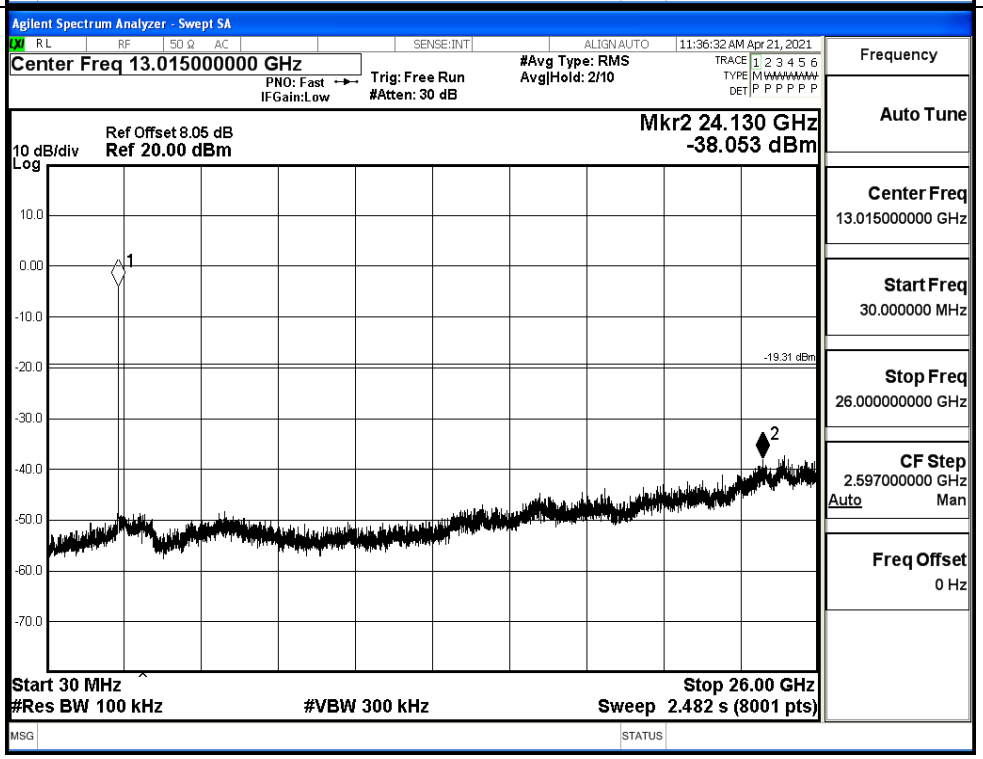
11B_HCH_Graphs		
Pref/11B/HCH		
Puw/11B/HCH		

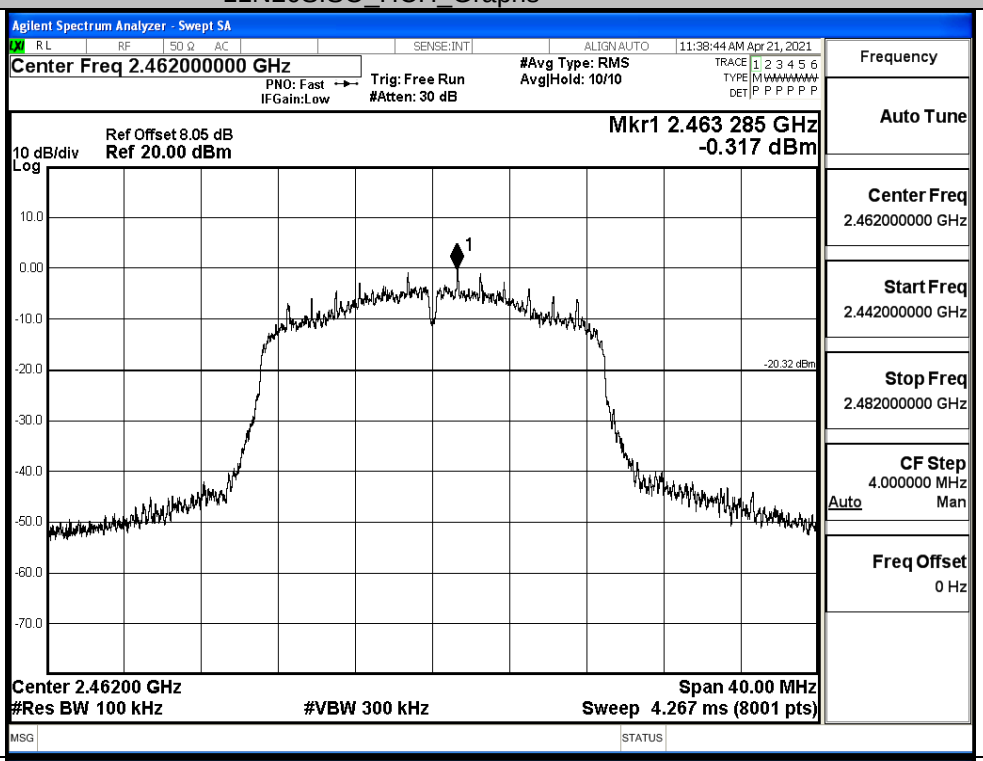
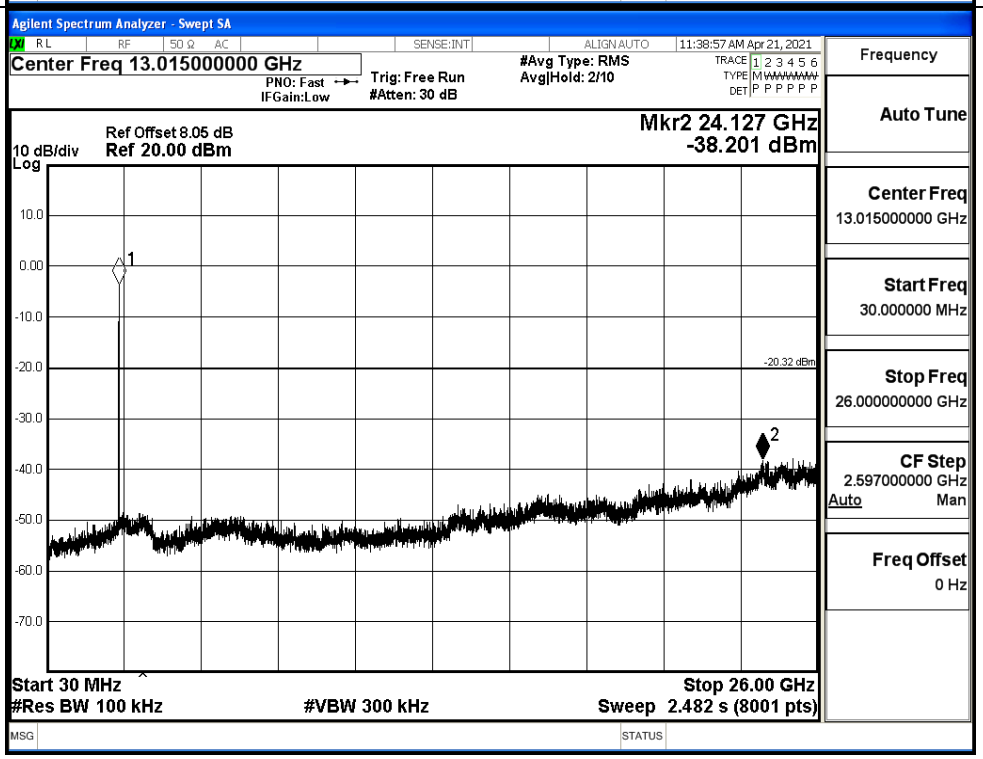
11G_LCH_Graphs		
Pref/11G/LCH		
Puw/11G/LCH		

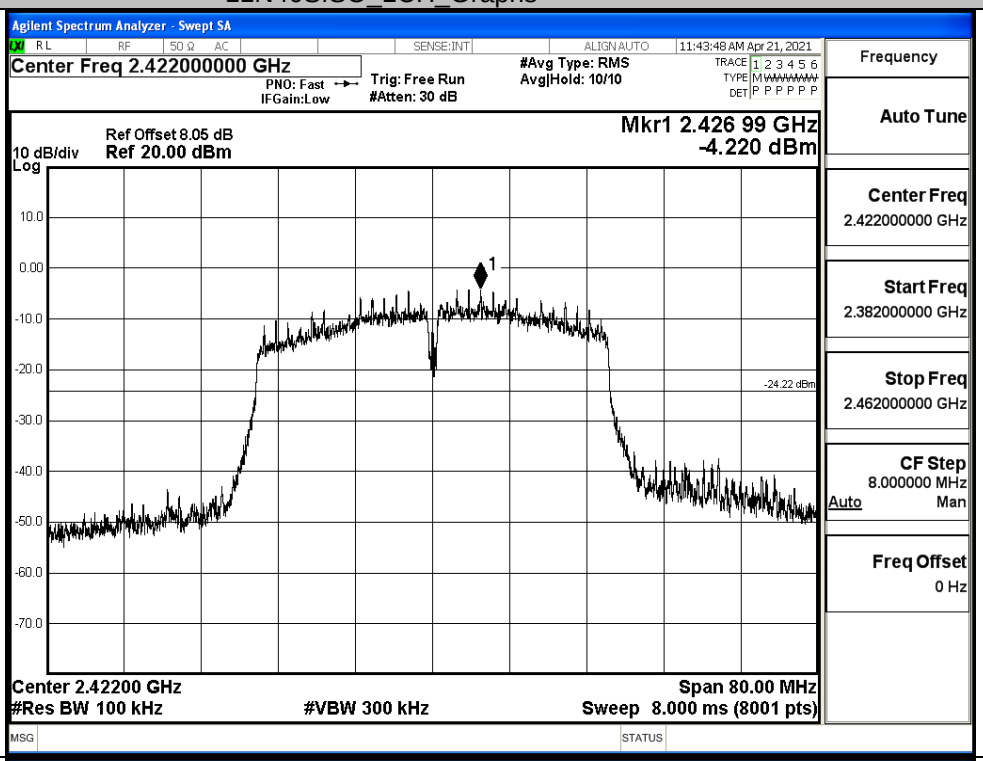
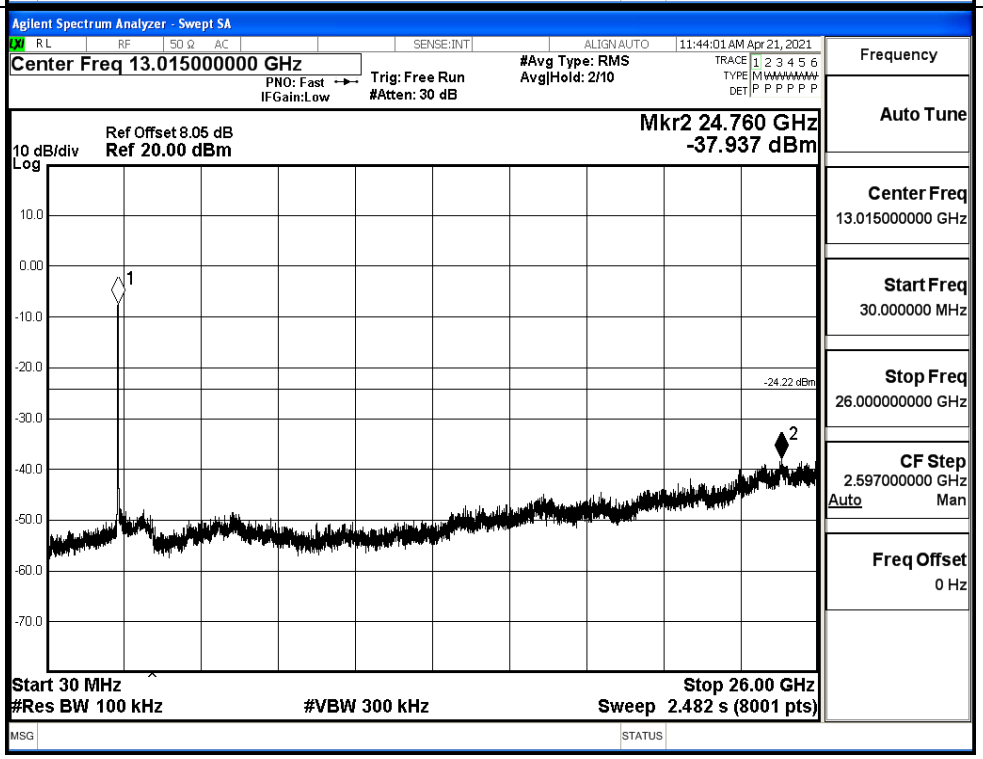
11G_MCH_Graphs		
Pref/11G/MCH		
Puw/11G/MCH		

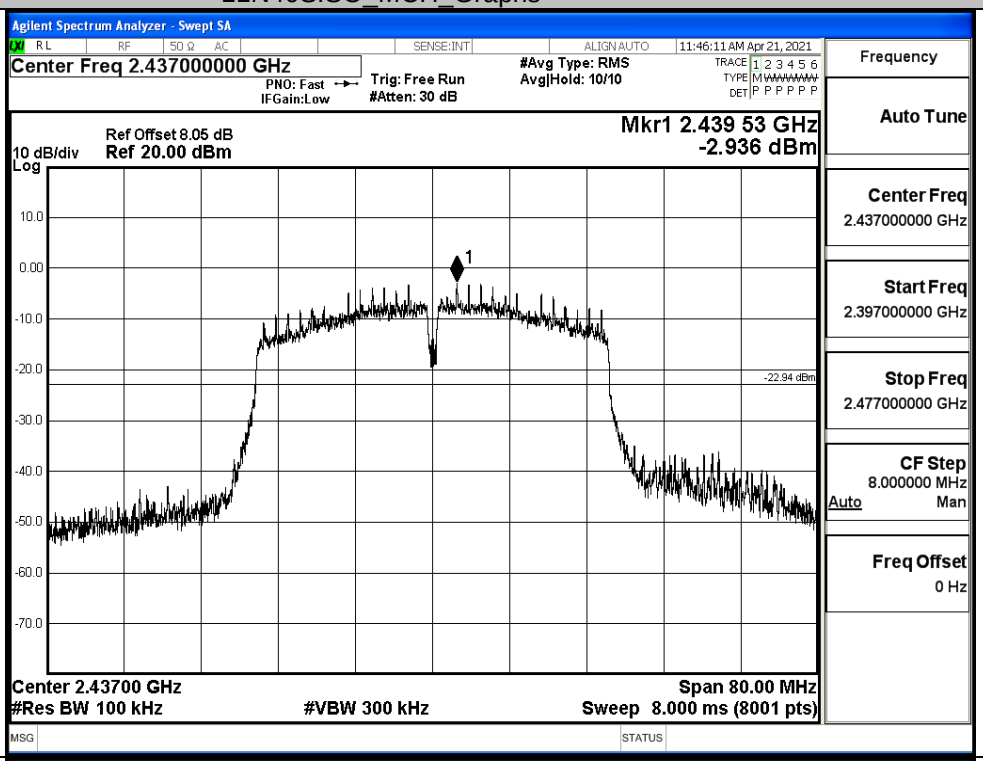
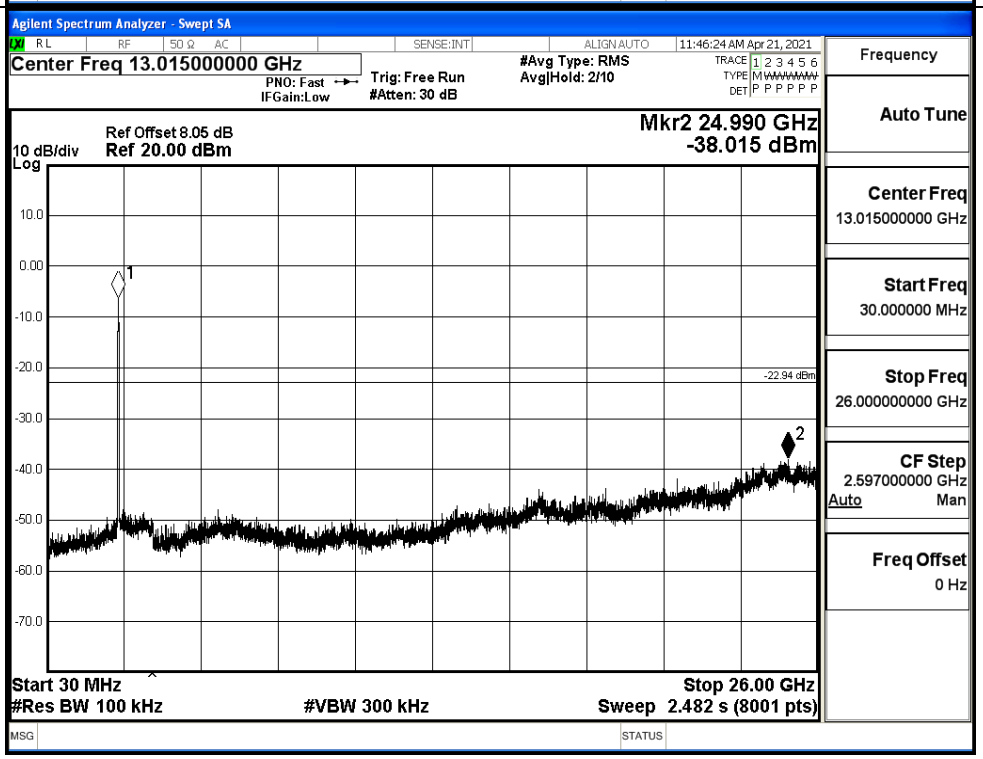
11G_HCH_Graphs		
Pref/11G/HCH		
Puw/11G/HCH		

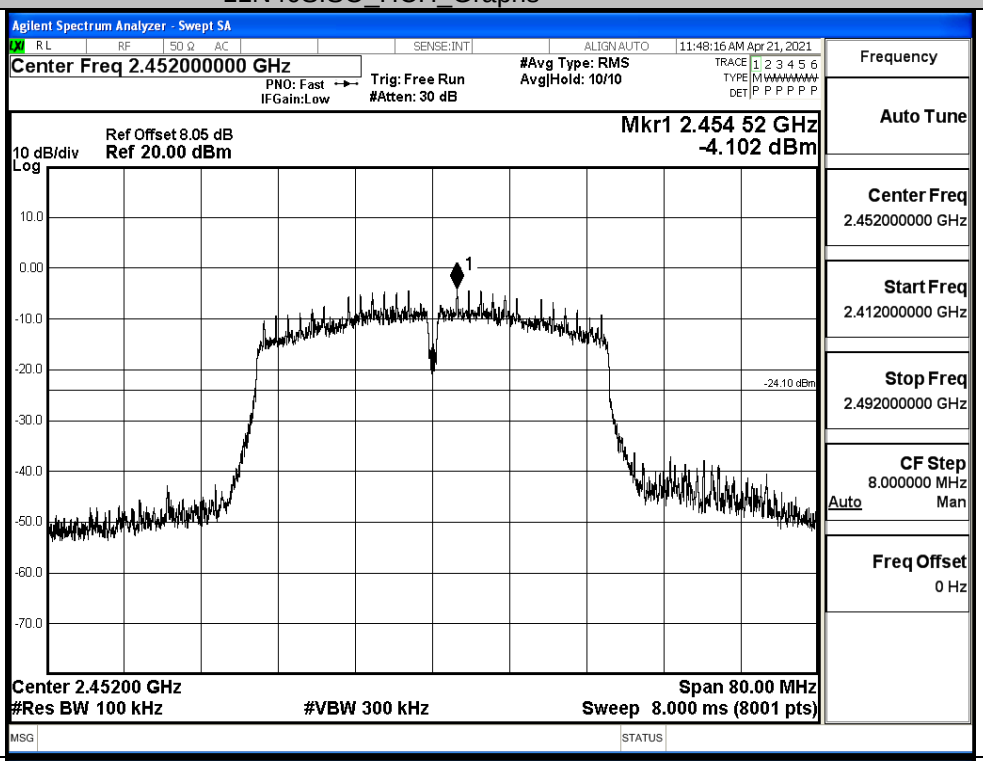
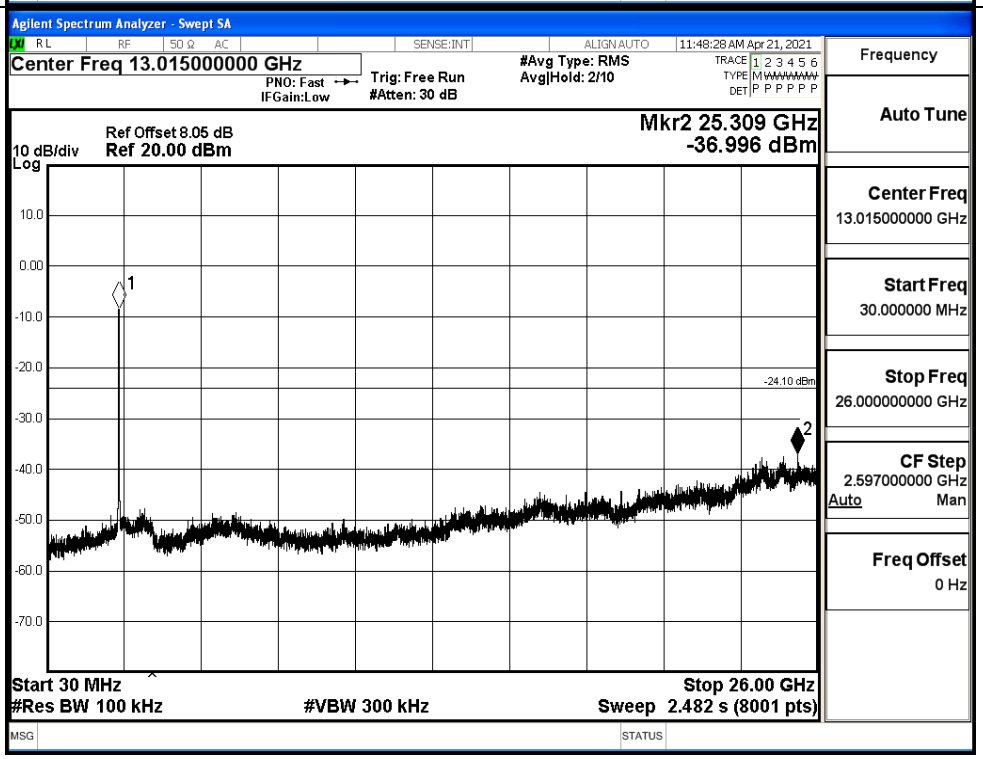
11N20SISO_LCH_Graphs		
Pref/11N20SISO/LCH		
Puw/11N20SISO/LCH		

11N20SISO_MCH_Graphs	
Pref/11N20 SISO/MCH	
Puw/11N20 SISO/MCH	

11N20SISO_HCH_Graphs	
Pref/11N20 SISO/HCH	
Puw/11N20 SISO/HCH	

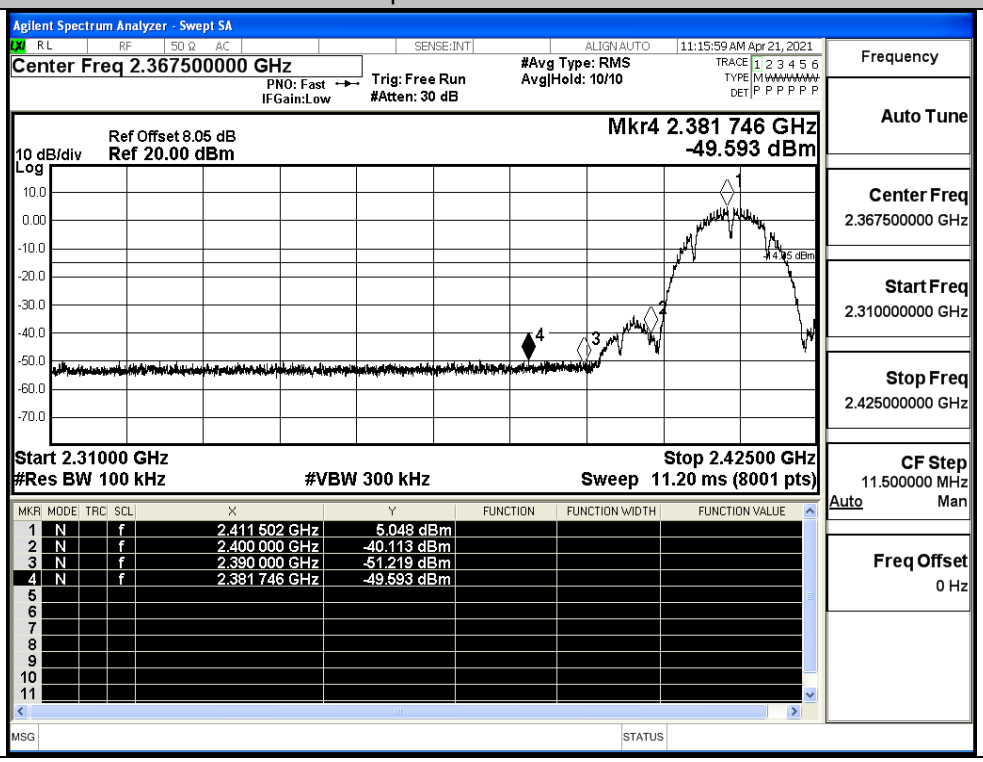
11N40SISO_LCH_Graphs	
Pref/11N40 SISO/LCH	
Puw/11N40 SISO/LCH	

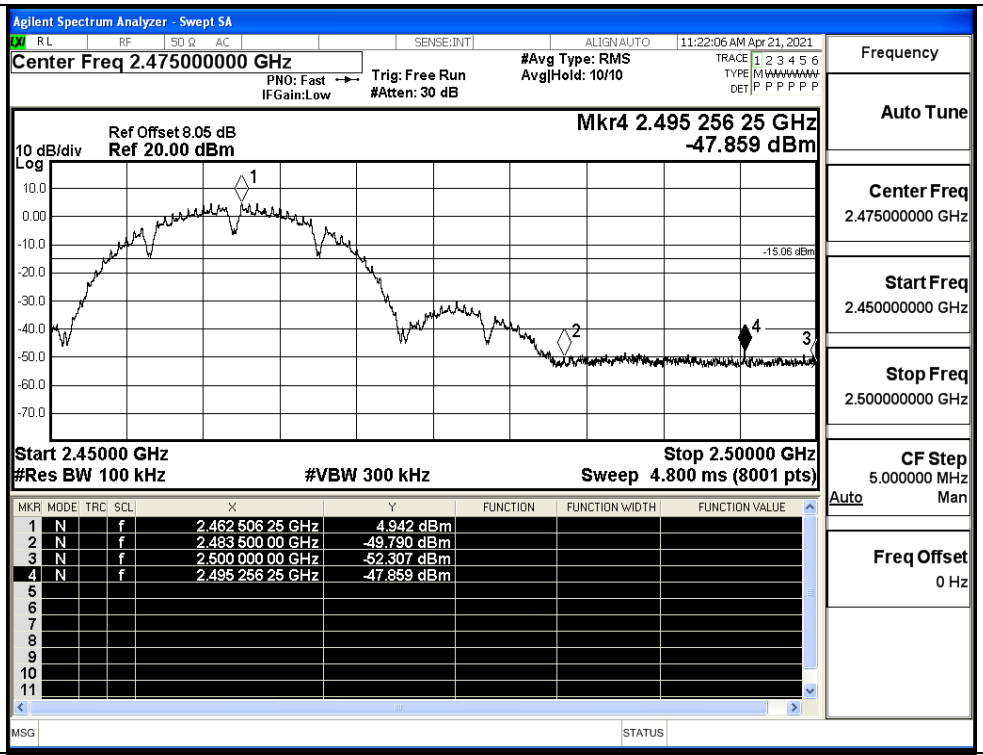
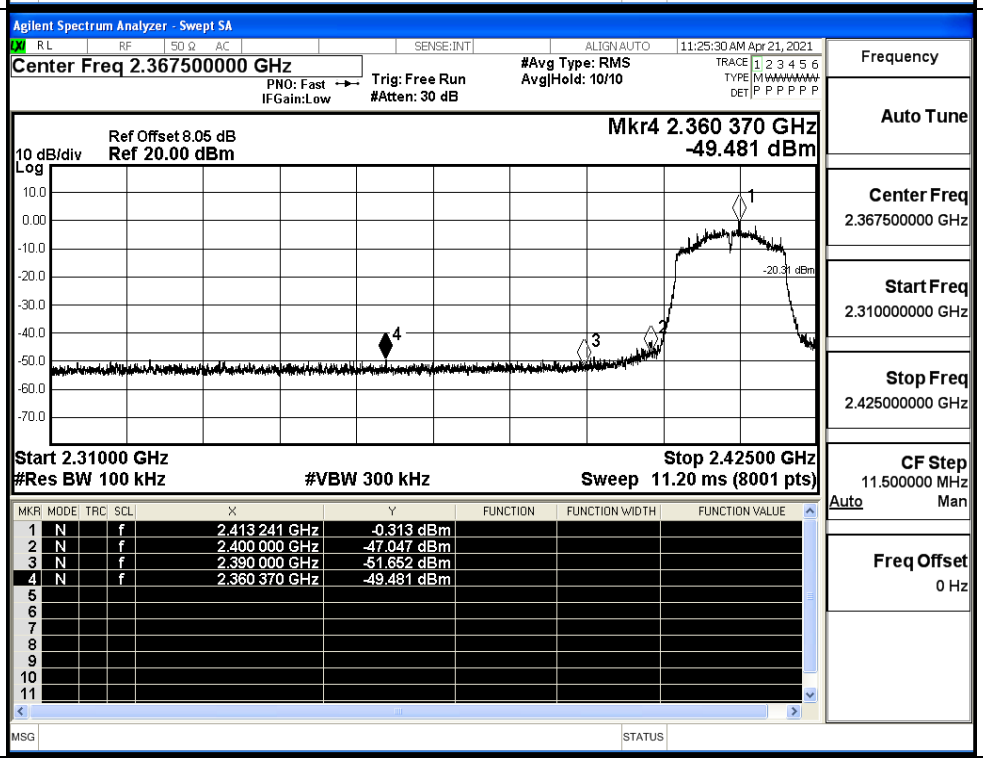
11N40SISO_MCH_Graphs	
Pref/11N40 SISO/MCH	
Puw/11N40 SISO/MCH	

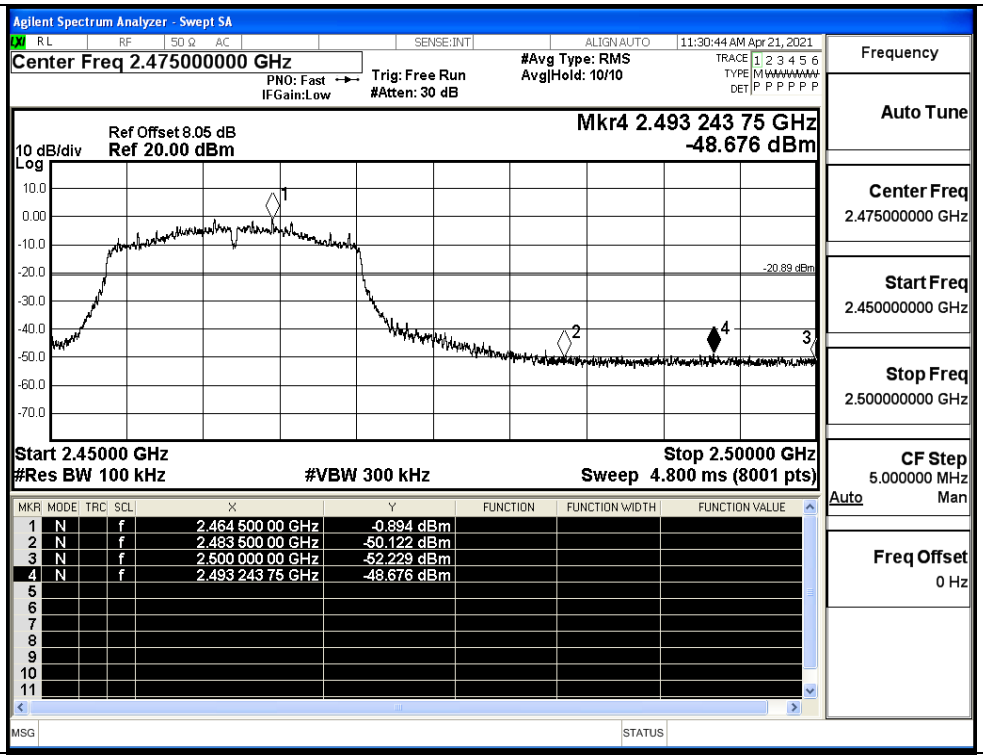
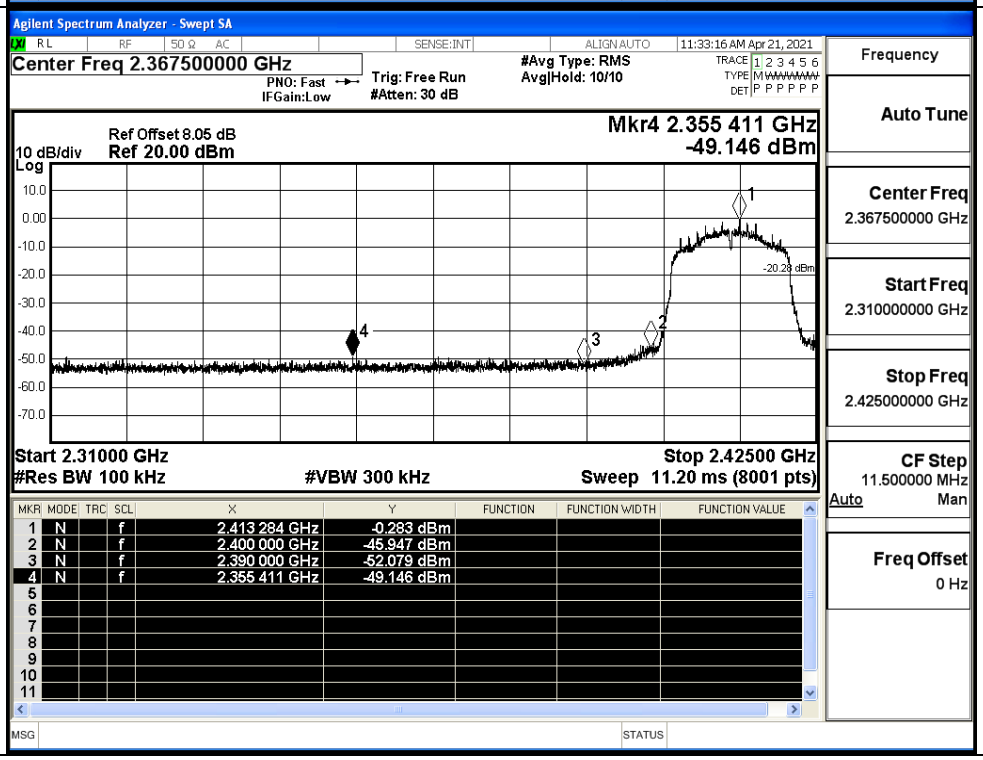
11N40SISO_HCH_Graphs	
Pref/11N40 SISO/HCH	
Puw/11N40 SISO/HCH	

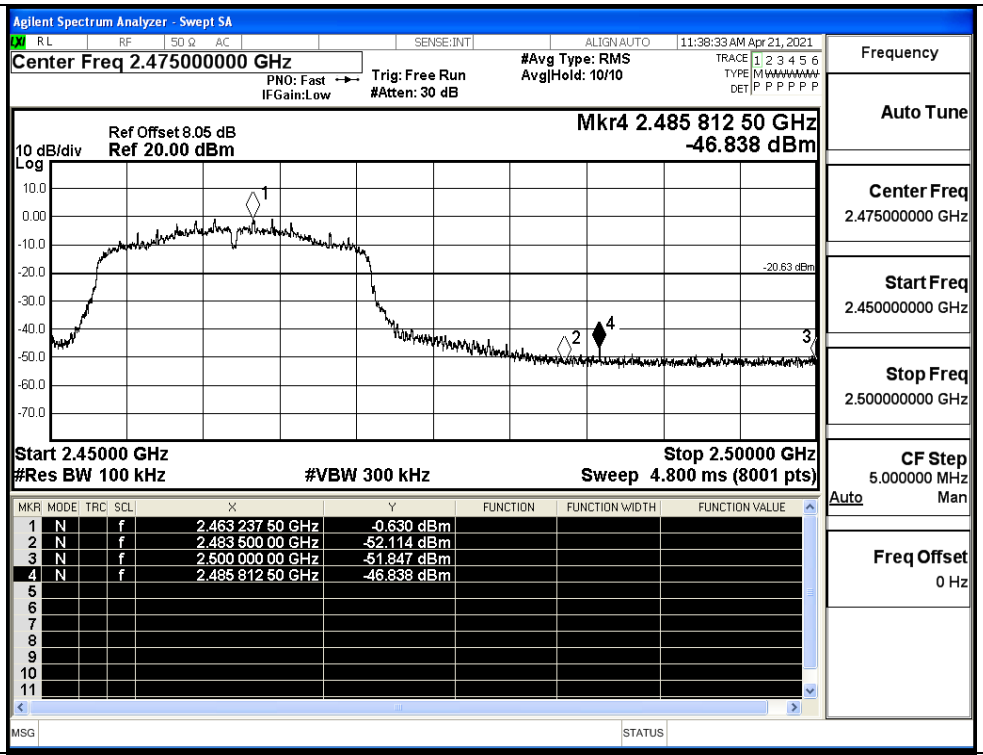
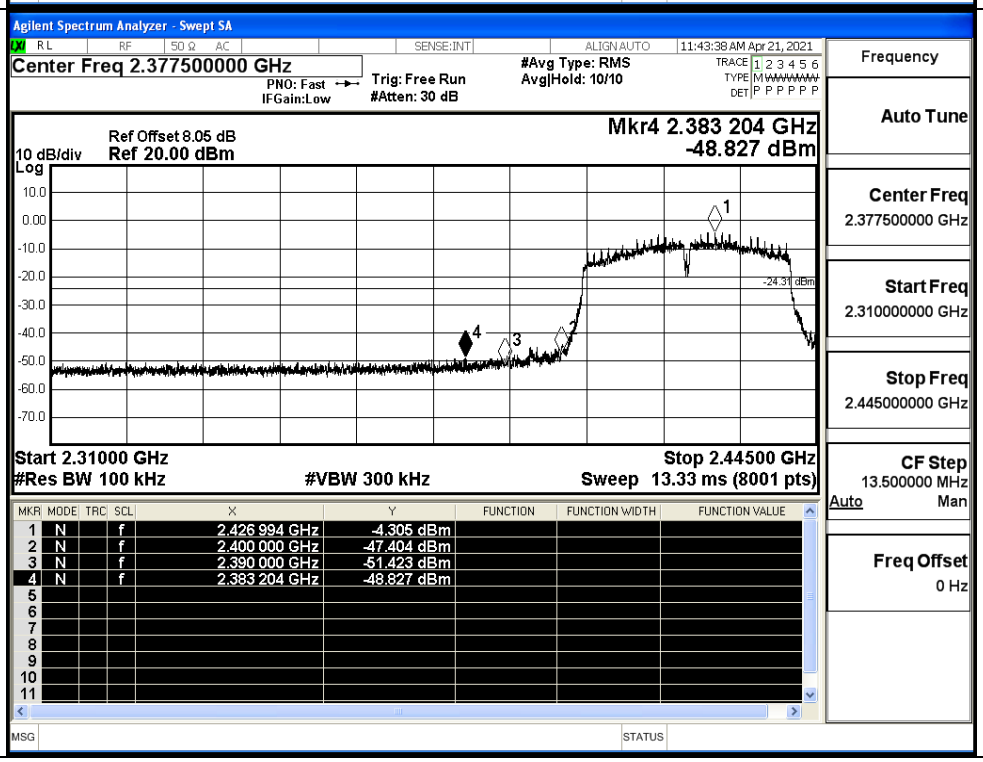
B.6 Band-edge for RF Conducted Emissions

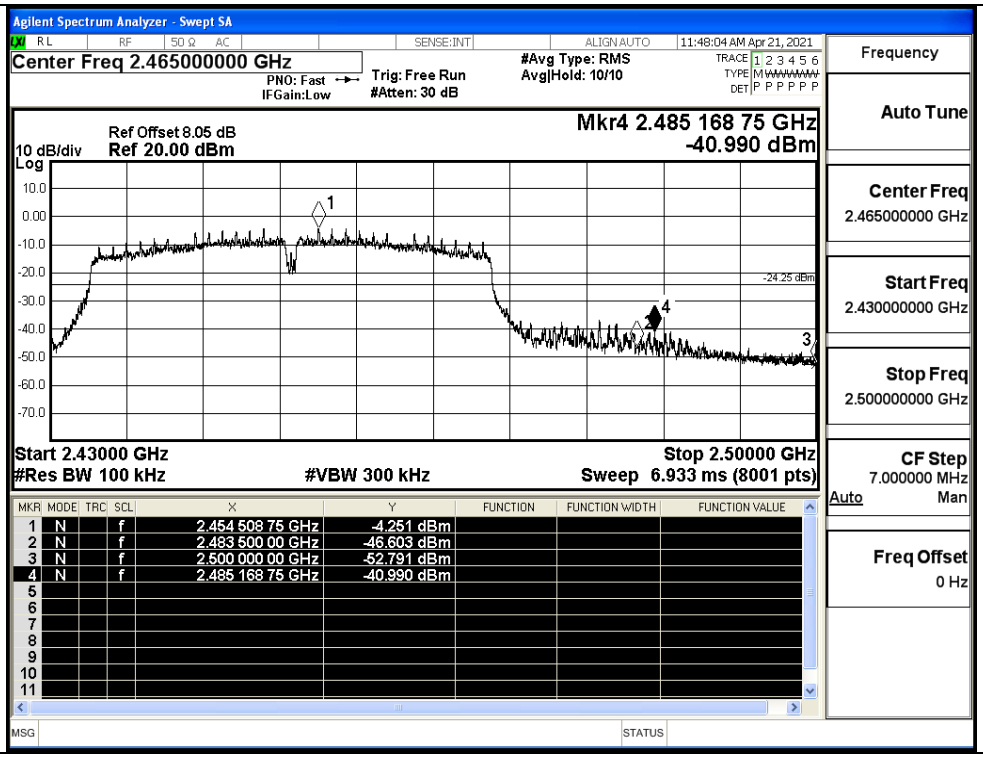
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	5.048	-49.593	-14.95	PASS
	HCH	4.942	-47.859	-15.06	PASS
11G	LCH	-0.313	-49.481	-20.31	PASS
	HCH	-0.894	-48.676	-20.89	PASS
11N20SISO	LCH	-0.283	-49.146	-20.28	PASS
	HCH	-0.630	-46.838	-20.63	PASS
11N40SISO	LCH	-4.305	-48.827	-24.31	PASS
	HCH	-4.251	-40.990	-24.25	PASS

Test Graphs	
11B/LCH	

11B/HCH		
11G/LCH		

11G/HCH		
11N20SISO/LCH		

11N20SISO/HCH		
11N40SISO/LCH		

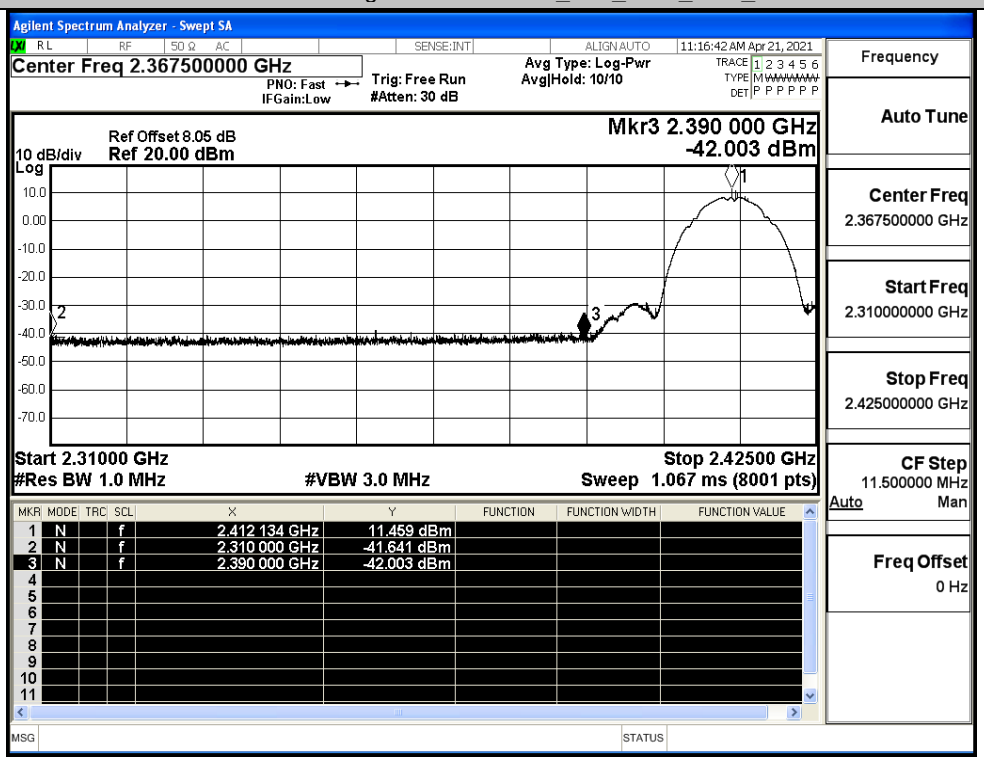
11N40SISO/HCH		

B.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	-41.64	2.5	0	56.12	PEAK	74	PASS
	2412	Ant1	2310.0	-53.62	2.5	0	44.14	AV	54	PASS
	2412	Ant1	2390.0	-42.00	2.5	0	55.76	PEAK	74	PASS
	2412	Ant1	2390.0	-52.56	2.5	0	45.2	AV	54	PASS
	2462	Ant1	2483.5	-42.21	2.5	0	55.55	PEAK	74	PASS
	2462	Ant1	2483.5	-51.78	2.5	0	45.98	AV	54	PASS
	2462	Ant1	2500.0	-41.55	2.5	0	56.21	PEAK	74	PASS
	2462	Ant1	2500.0	-52.06	2.5	0	45.7	AV	54	PASS
11G	2412	Ant1	2310.0	-43.49	2.5	0	54.27	PEAK	74	PASS
	2412	Ant1	2310.0	-53.44	2.5	0	44.32	AV	54	PASS
	2412	Ant1	2390.0	-41.02	2.5	0	56.74	PEAK	74	PASS
	2412	Ant1	2390.0	-52.41	2.5	0	45.35	AV	54	PASS
	2462	Ant1	2483.5	-41.40	2.5	0	56.36	PEAK	74	PASS
	2462	Ant1	2483.5	-51.64	2.5	0	46.12	AV	54	PASS
	2462	Ant1	2500.0	-41.48	2.5	0	56.28	PEAK	74	PASS
	2462	Ant1	2500.0	-51.78	2.5	0	45.98	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-43.52	2.5	0	54.24	PEAK	74	PASS
	2412	Ant1	2310.0	-53.45	2.5	0	44.31	AV	54	PASS
	2412	Ant1	2390.0	-42.59	2.5	0	55.17	PEAK	74	PASS
	2412	Ant1	2390.0	-52.43	2.5	0	45.33	AV	54	PASS
	2462	Ant1	2483.5	-41.31	2.5	0	56.45	PEAK	74	PASS
	2462	Ant1	2483.5	-51.61	2.5	0	46.15	AV	54	PASS
	2462	Ant1	2500.0	-39.80	2.5	0	57.96	PEAK	74	PASS
	2462	Ant1	2500.0	-51.78	2.5	0	45.98	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-43.15	2.5	0	54.61	PEAK	74	PASS
	2422	Ant1	2310.0	-53.38	2.5	0	44.38	AV	54	PASS

	2422	Ant1	2390.0	-39.14	2.5	0	58.62	PEAK	74	PASS
	2422	Ant1	2390.0	-50.63	2.5	0	47.13	AV	54	PASS
	2452	Ant1	2483.5	-31.04	2.5	0	66.72	PEAK	74	PASS
	2452	Ant1	2483.5	-47.29	2.5	0	50.47	AV	54	PASS
	2452	Ant1	2500.0	-40.60	2.5	0	57.16	PEAK	74	PASS
	2452	Ant1	2500.0	-51.52	2.5	0	46.24	AV	54	PASS

Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



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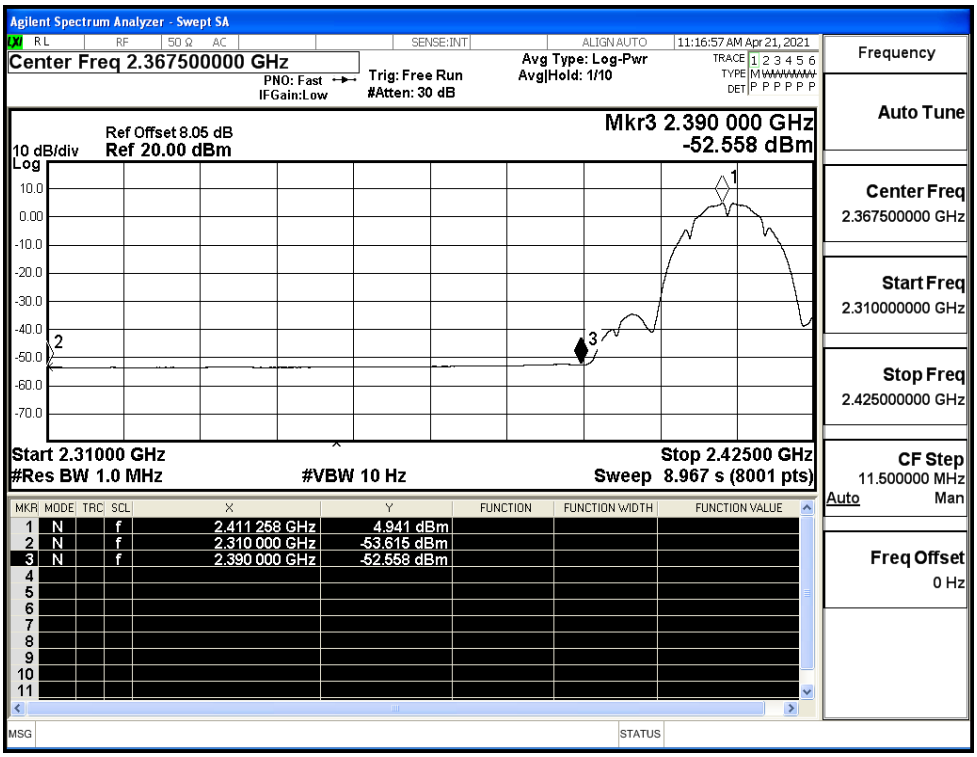
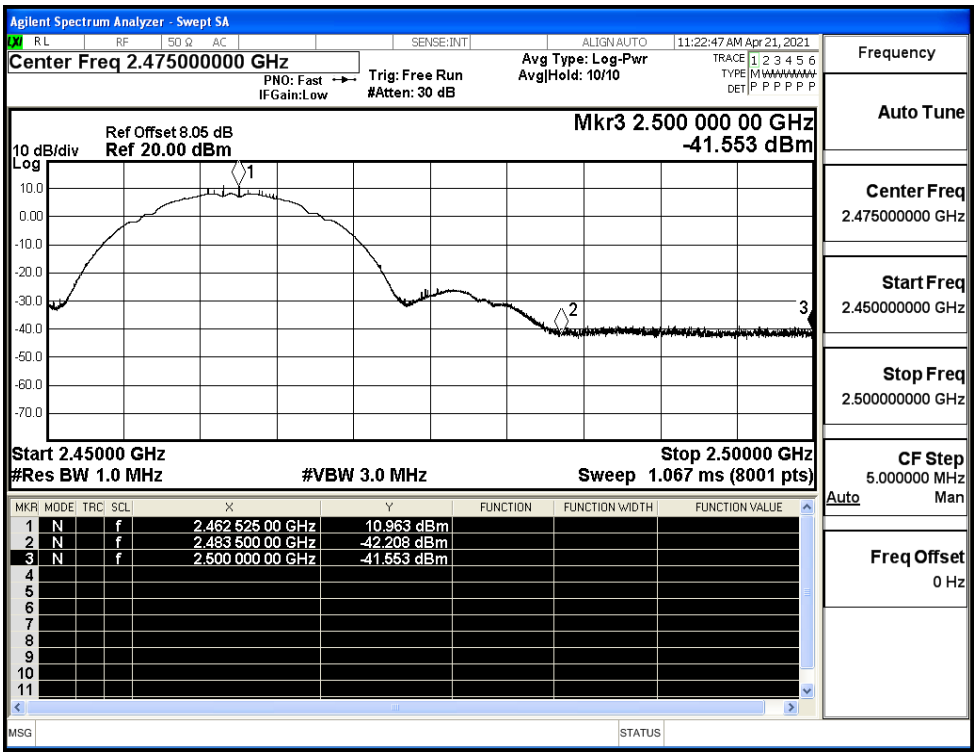


Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



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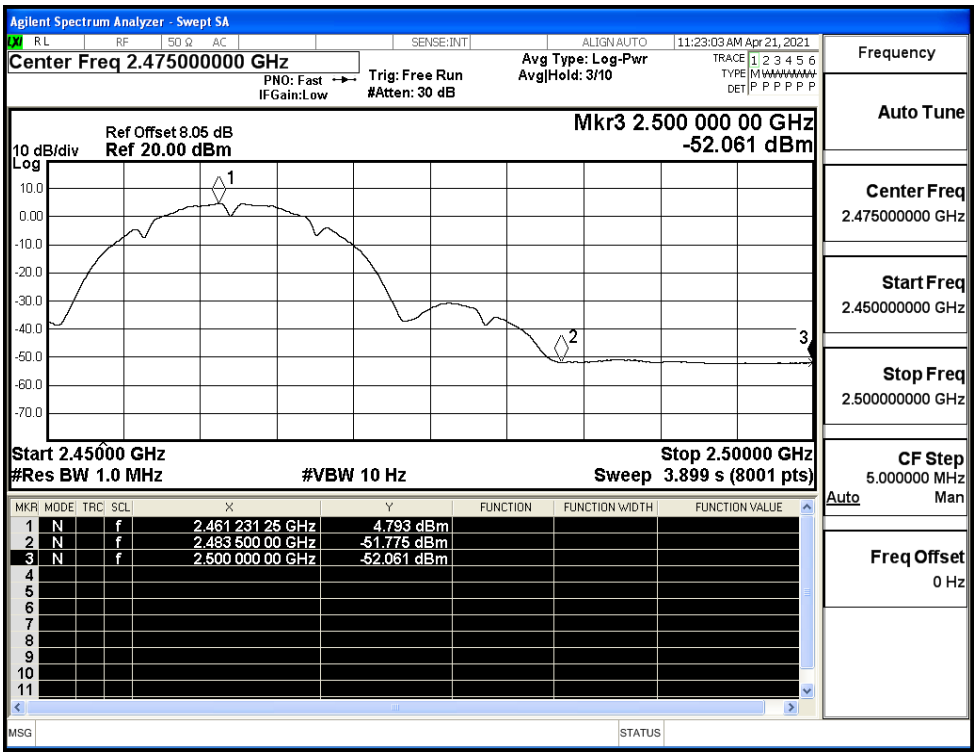

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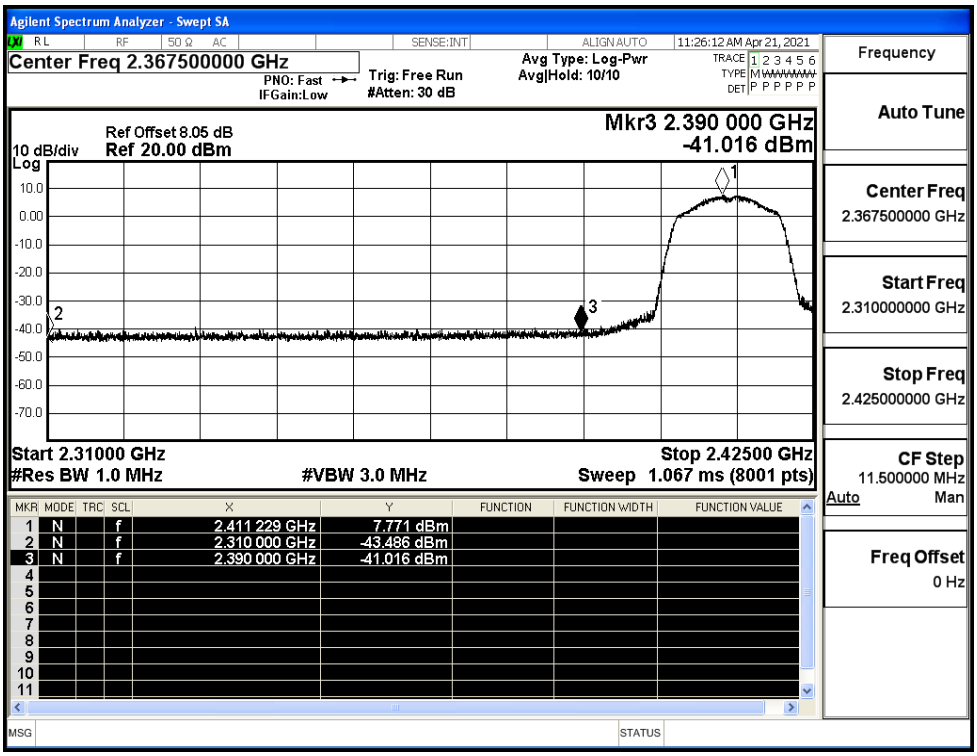

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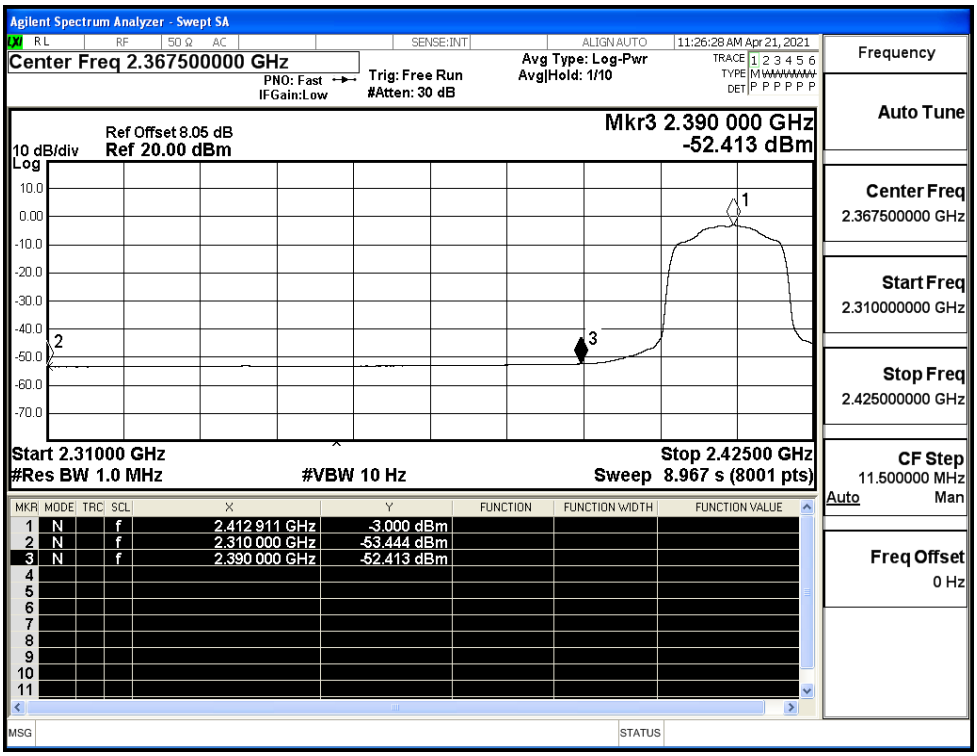

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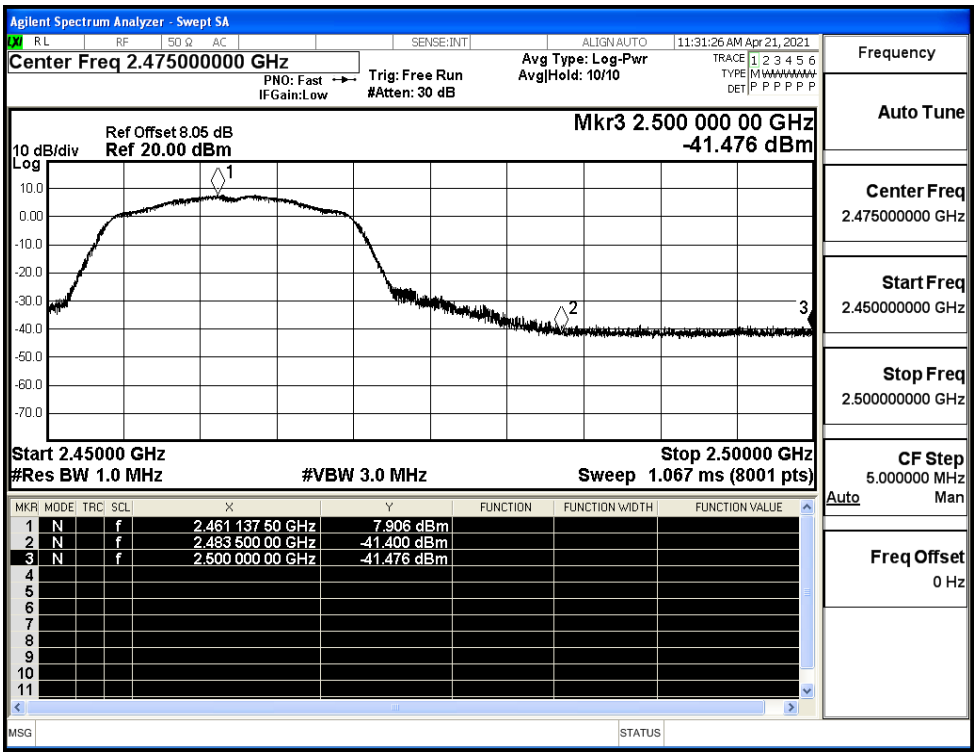

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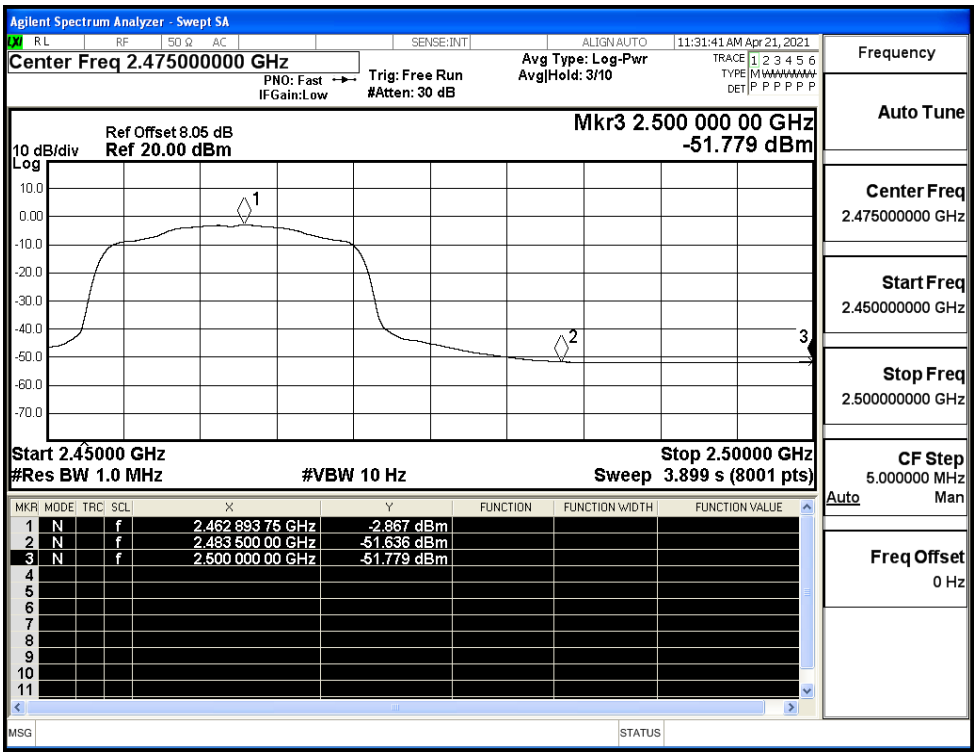

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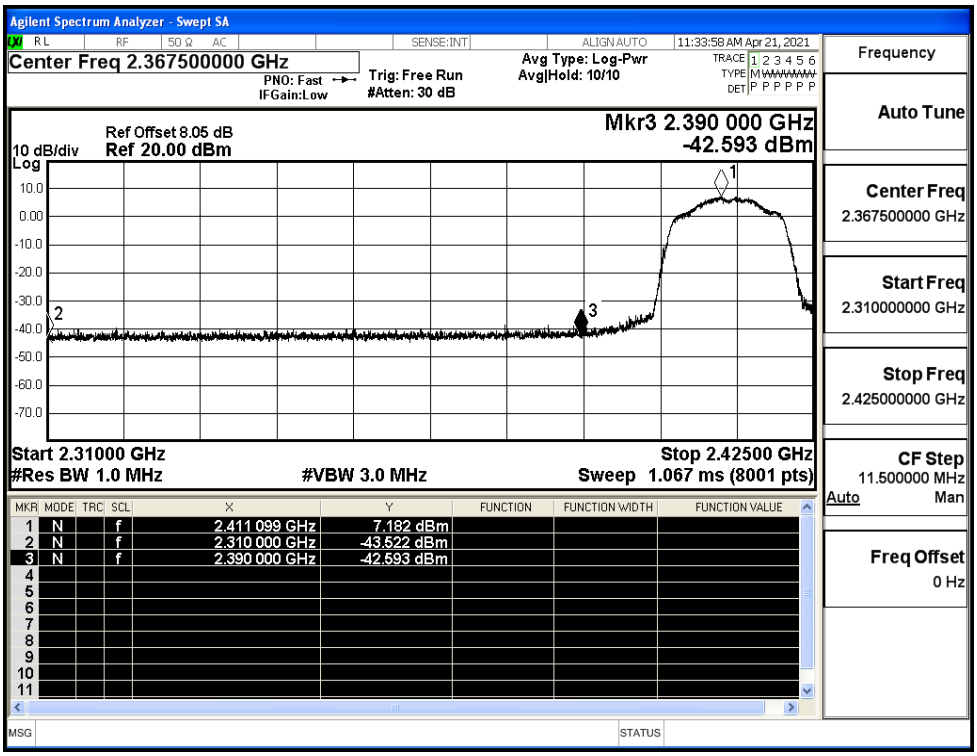

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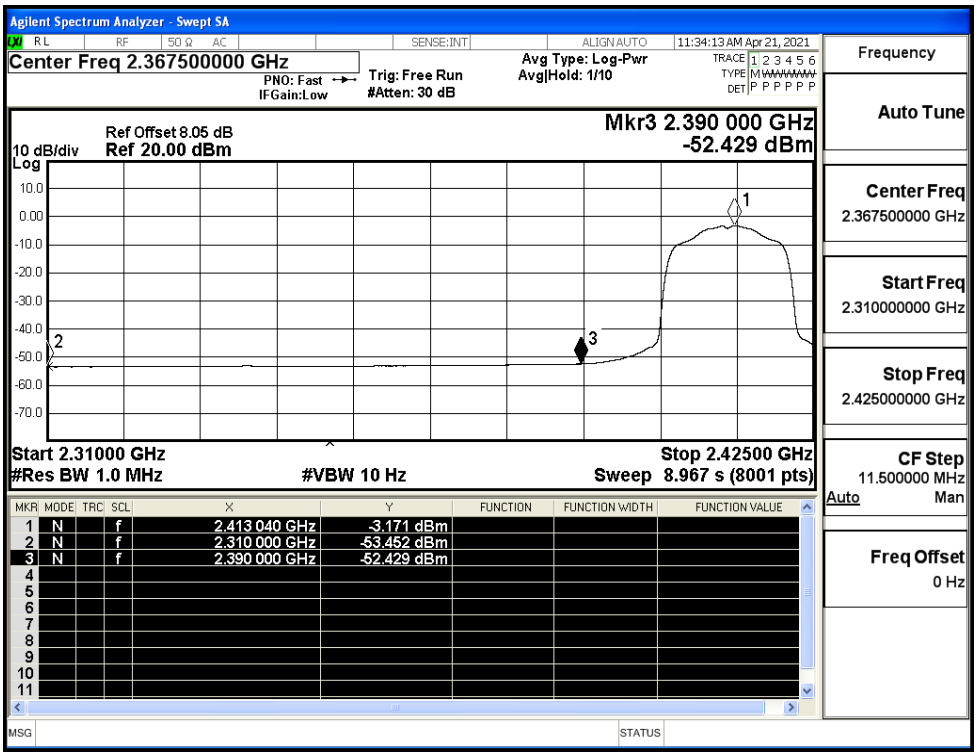

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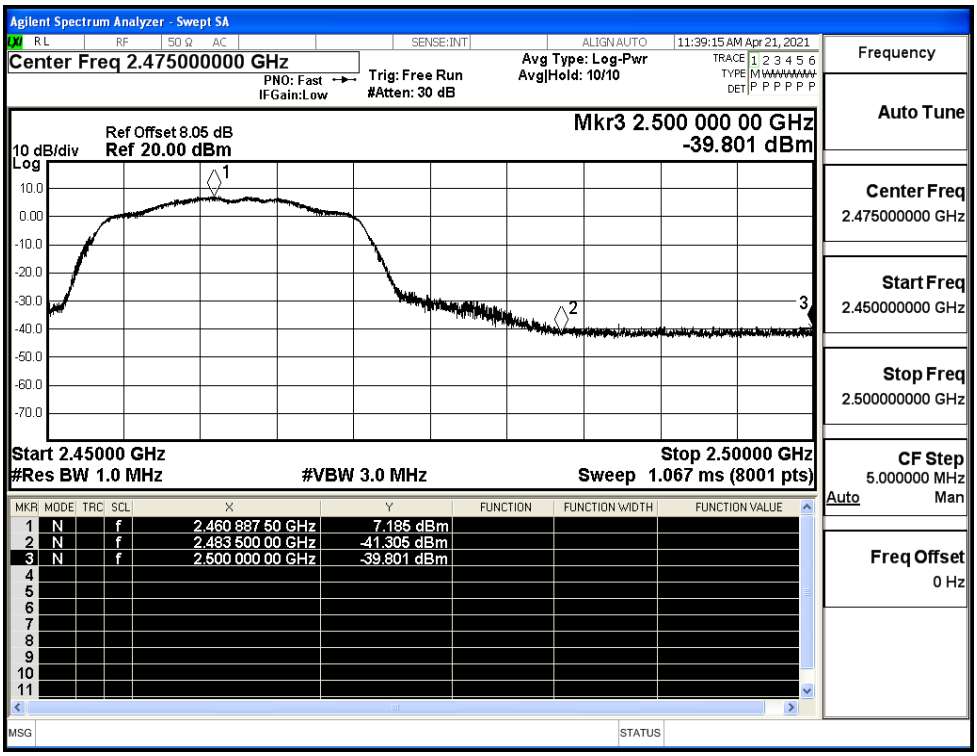

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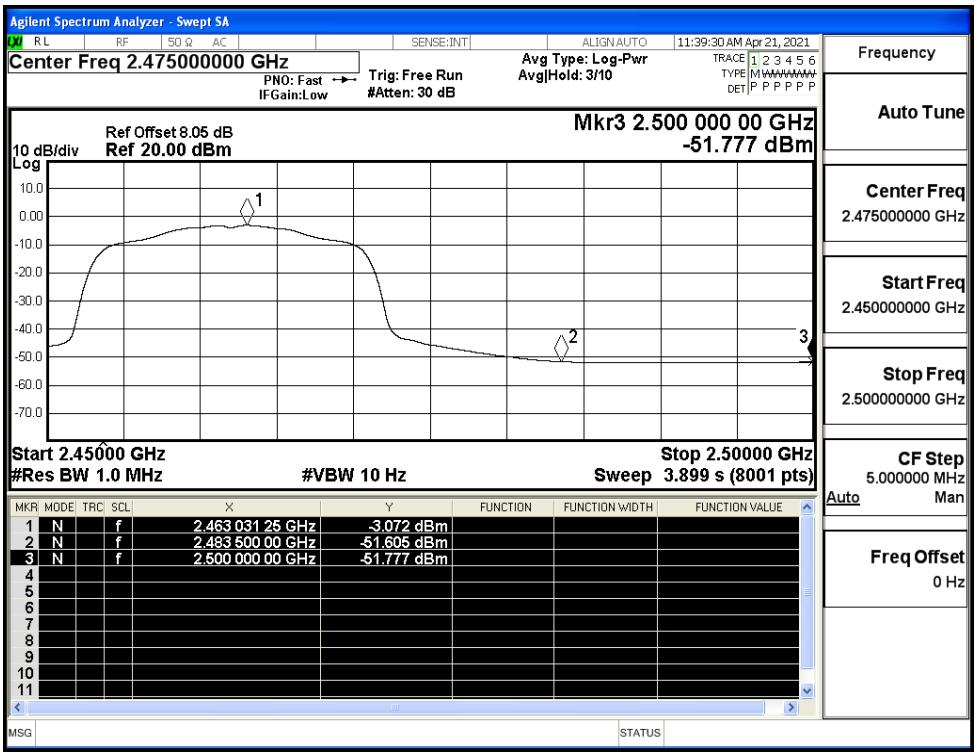

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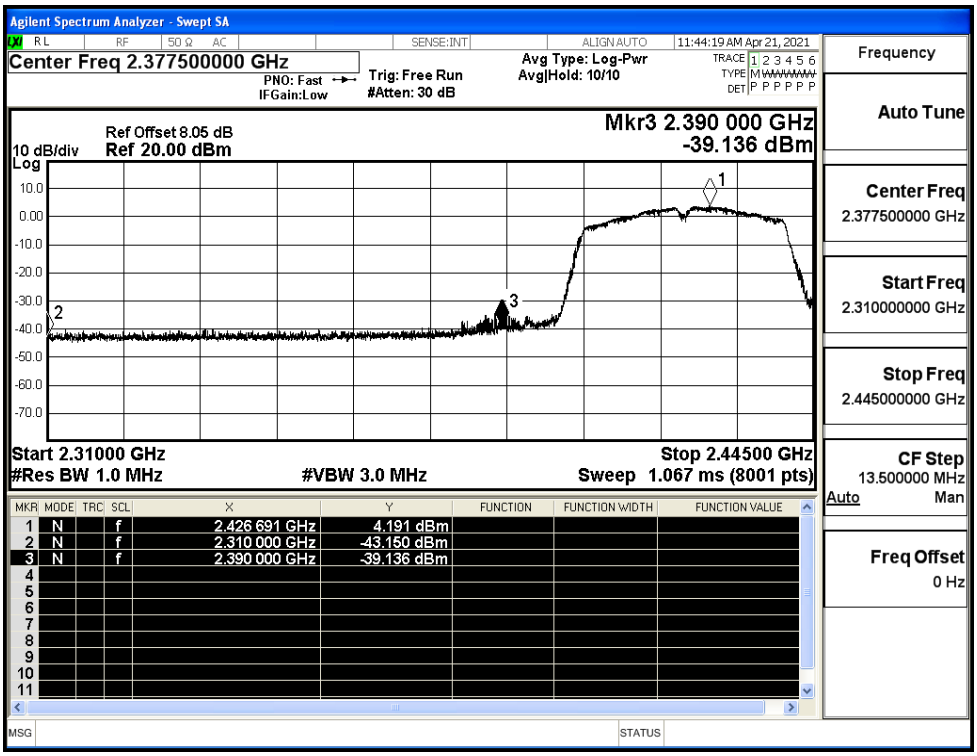

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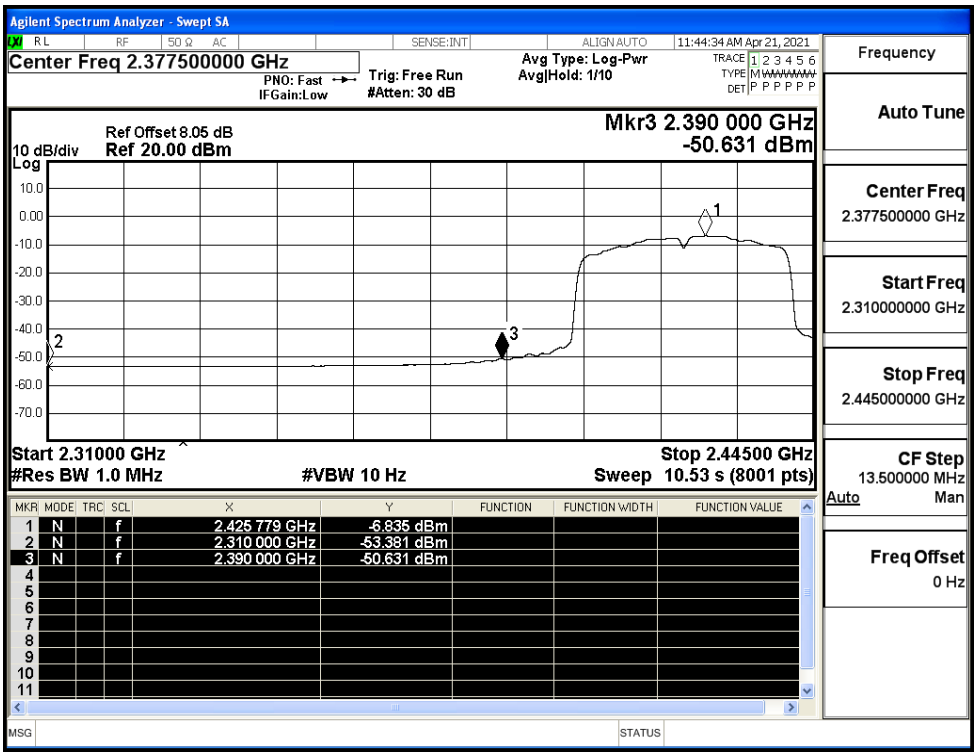

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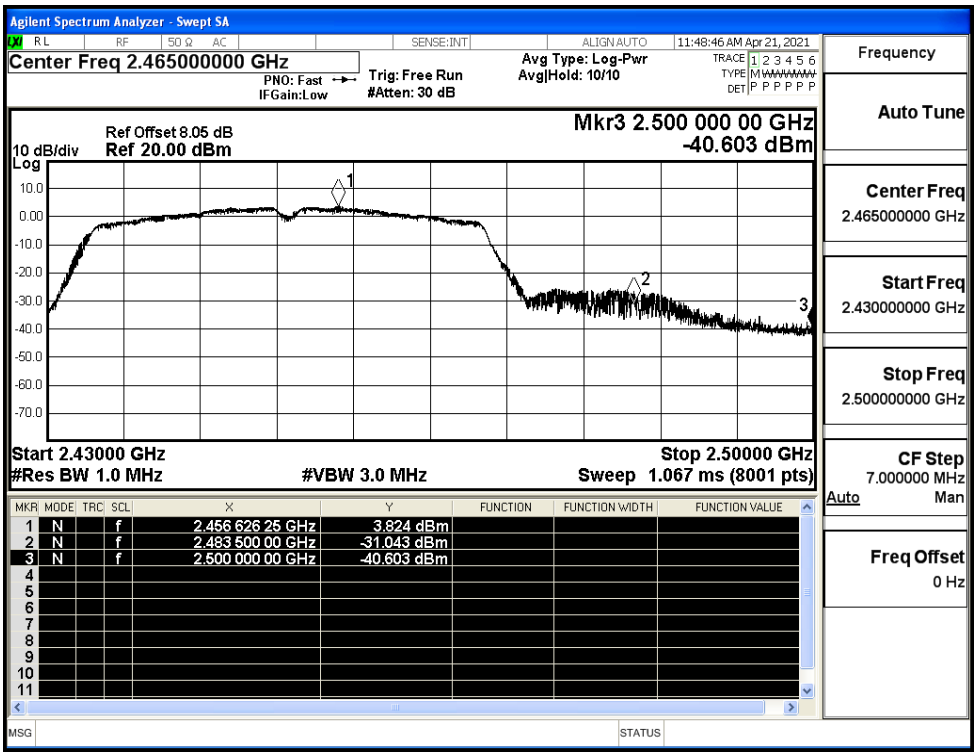
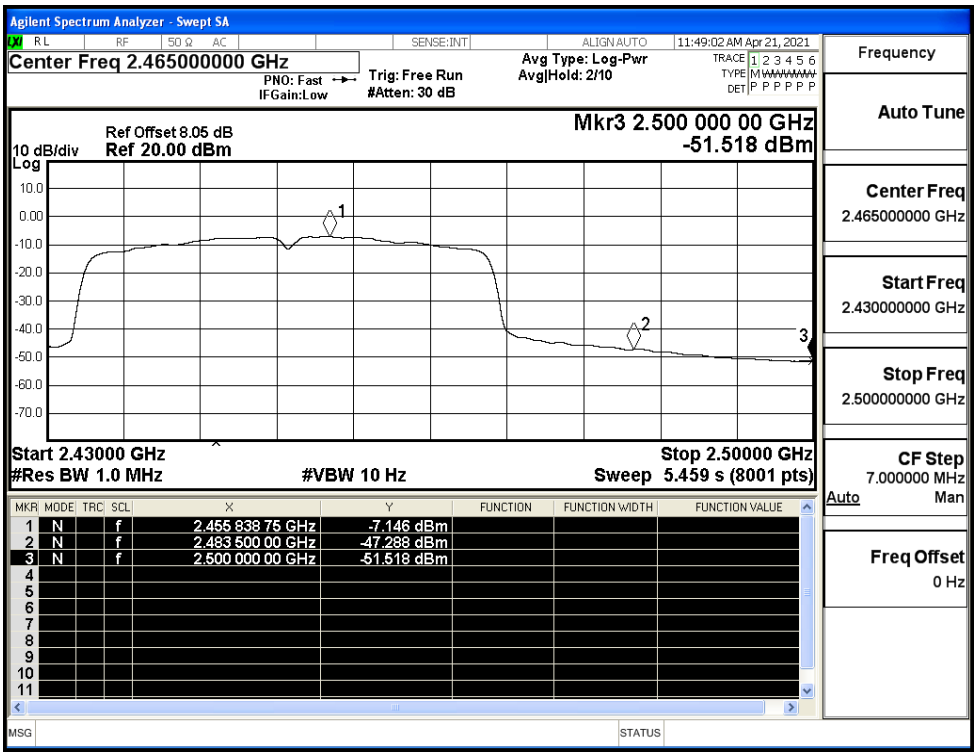
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