



Appendix B

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Star Night Light Projector

Trade Mark: N/A

Test Model: W2003

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Ling. Zhu
Supervised by:	Libu



Appendix B.1: Duty Cycle

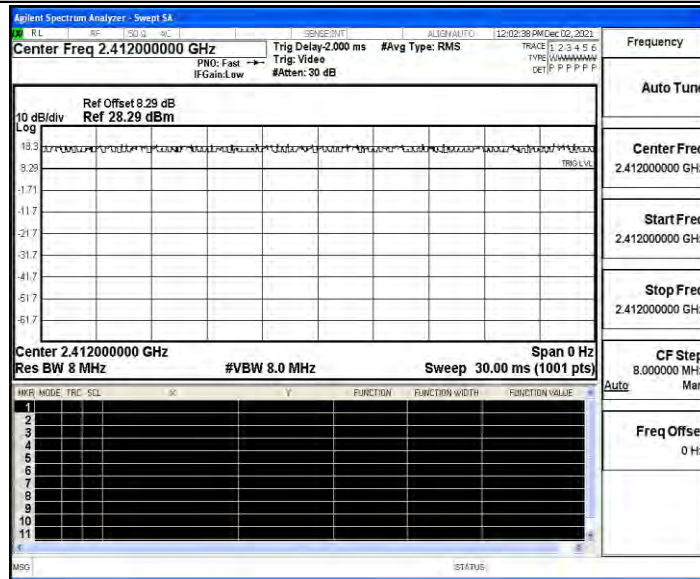
Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
11B	Ant1	2412	30.00	30.00	100.00	---	PASS
		2437	30.00	30.00	100.00	---	PASS
		2462	30.00	30.00	100.00	---	PASS
11G	Ant1	2412	30.00	30.00	100.00	---	PASS
		2437	30.00	30.00	100.00	---	PASS
		2462	30.00	30.00	100.00	---	PASS
11N20SISO	Ant1	2412	30.00	30.00	100.00	---	PASS
		2437	30.00	30.00	100.00	---	PASS
		2462	30.00	30.00	100.00	---	PASS
11N40SISO	Ant1	2422	30.00	30.00	100.00	---	PASS
		2437	30.00	30.00	100.00	---	PASS
		2452	30.00	30.00	100.00	---	PASS

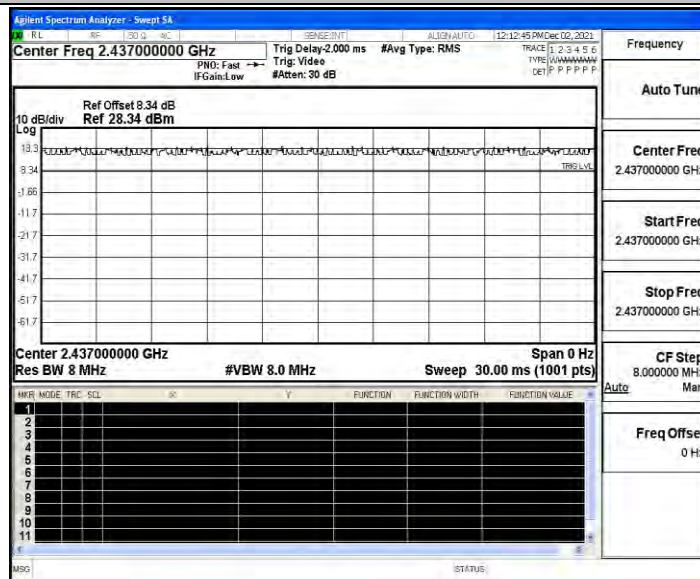


Test Graphs

11B_Ant1_2412

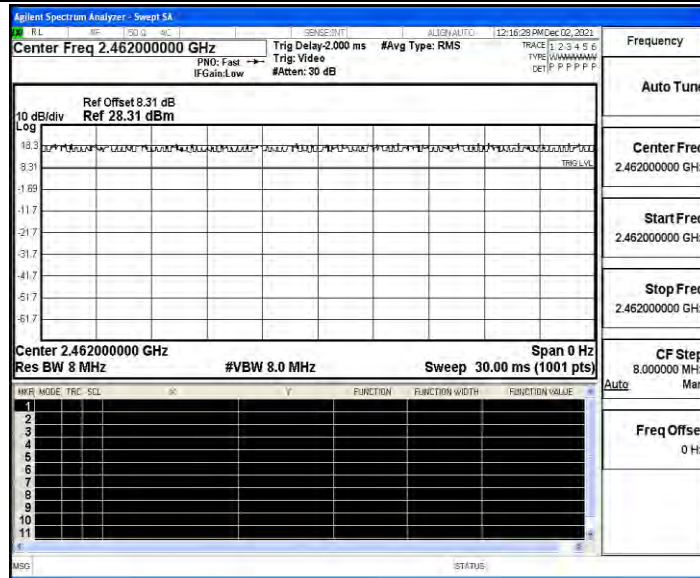


11B_Ant1_2437

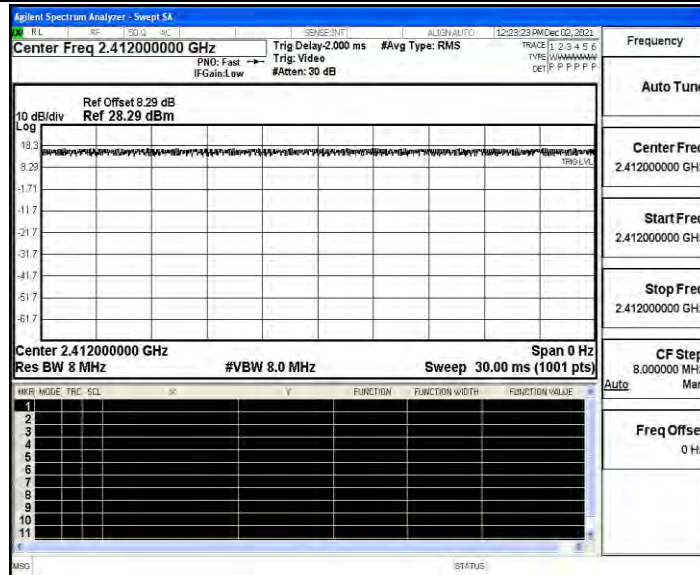




11B_Ant1_2462

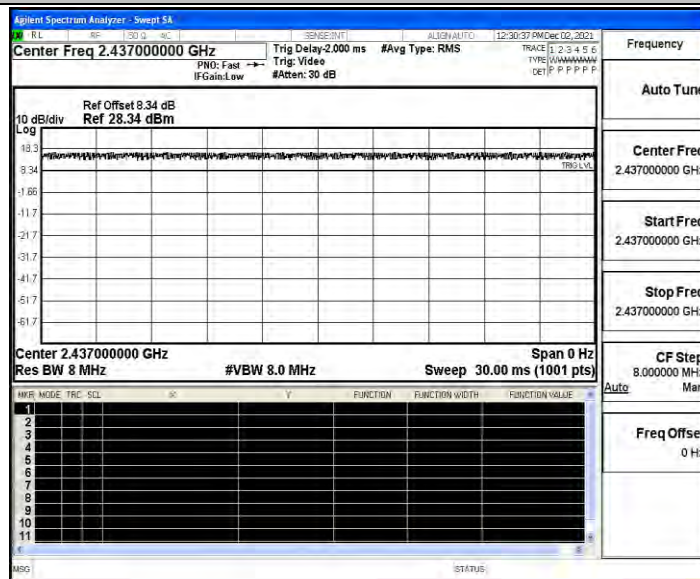


11G_Ant1_2412

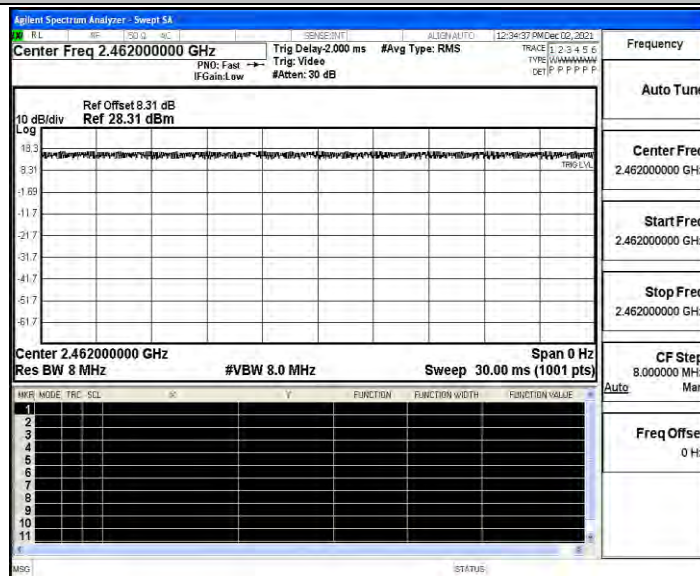




11G_Ant1_2437

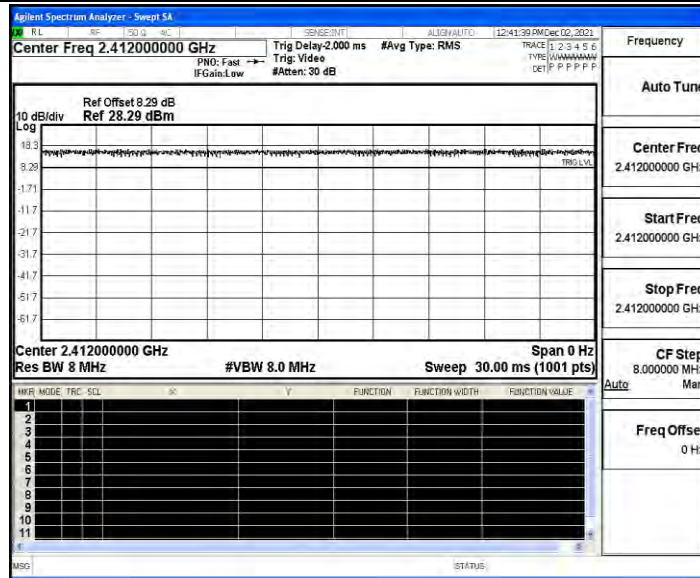


11G_Ant1_2462

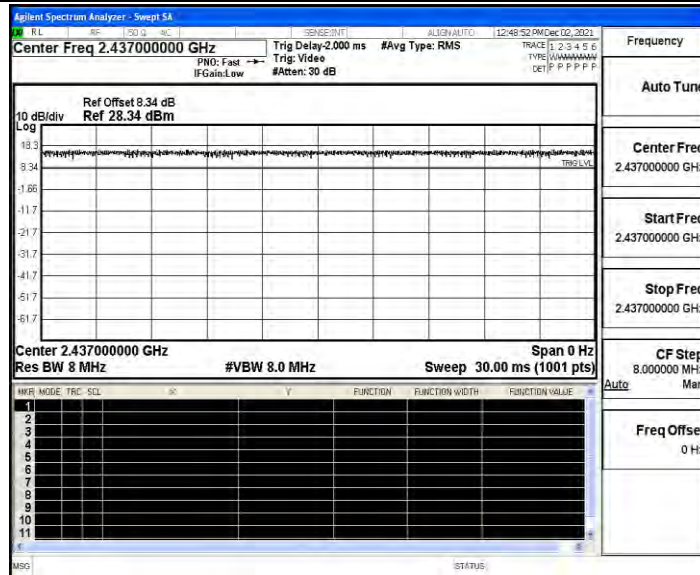


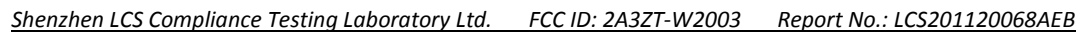


11N20SISO_Ant1_2412

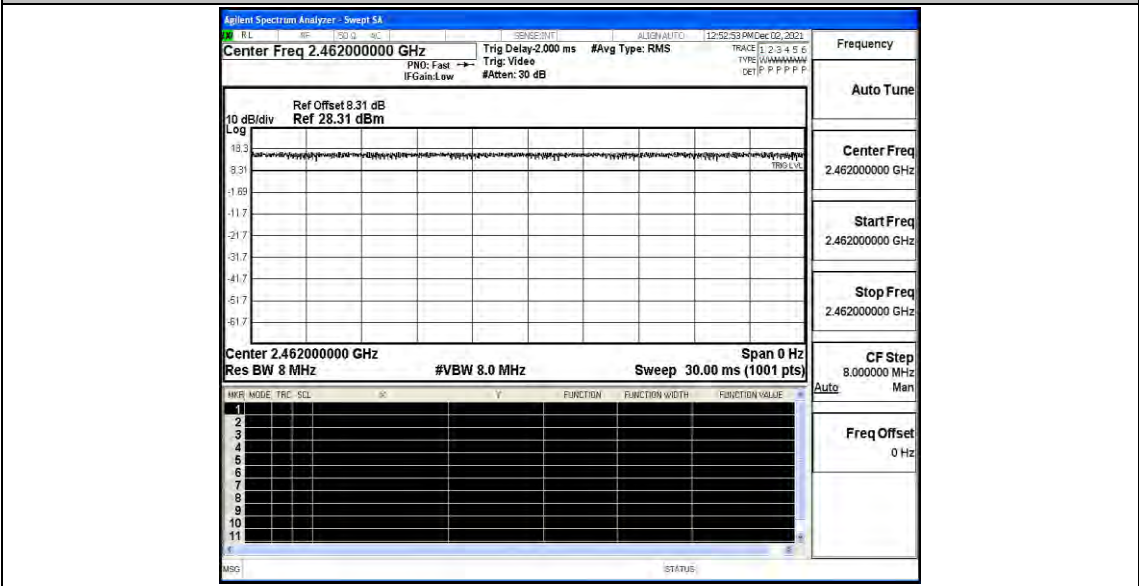


11N20SISO_Ant1_2437

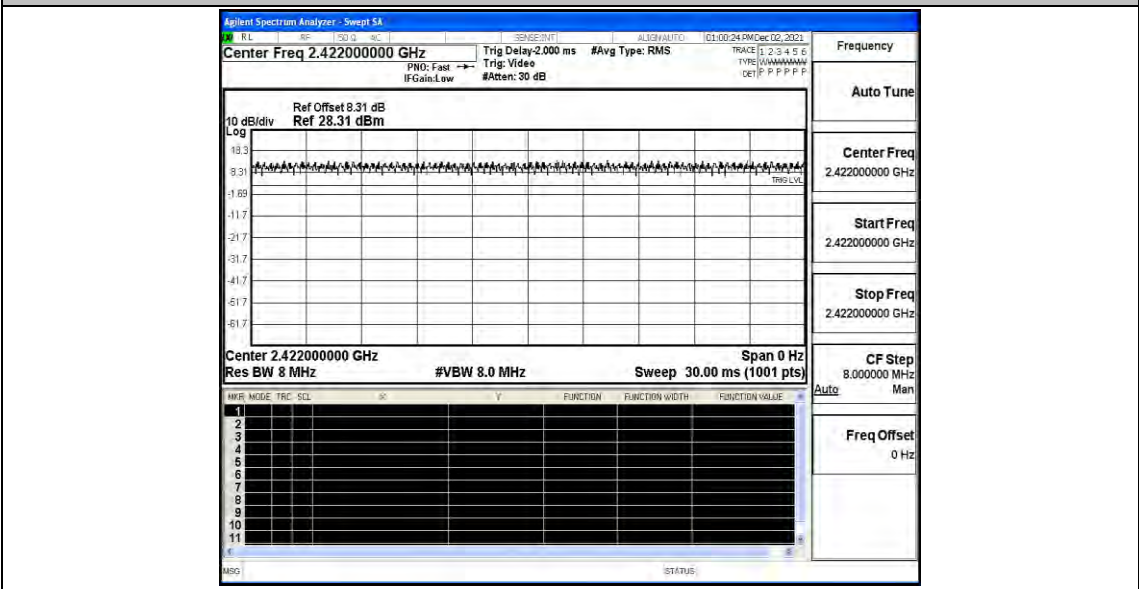




11N20SISO_Ant1_2462

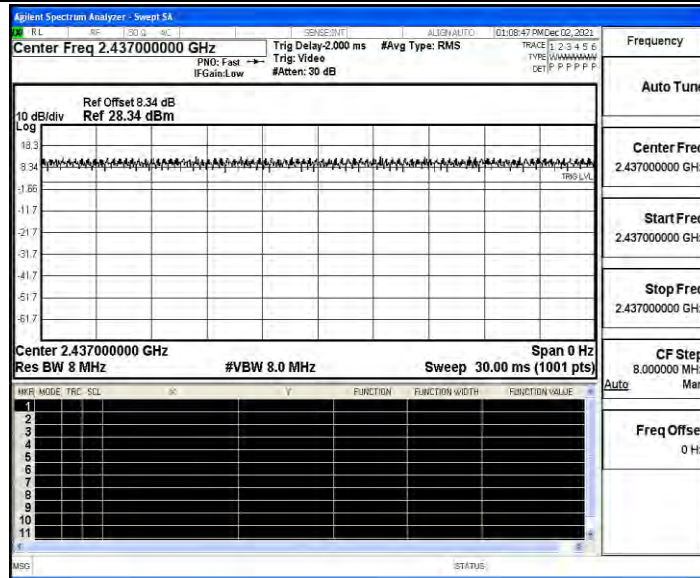


11N40SISO_Ant1_2422

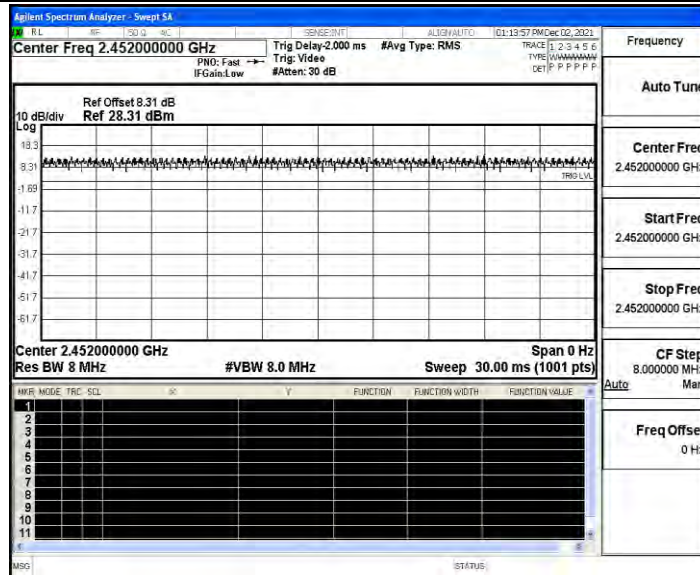




11N40SISO_Ant1_2437



11N40SISO_Ant1_2452





Appendix B.2: Maximum conducted output power

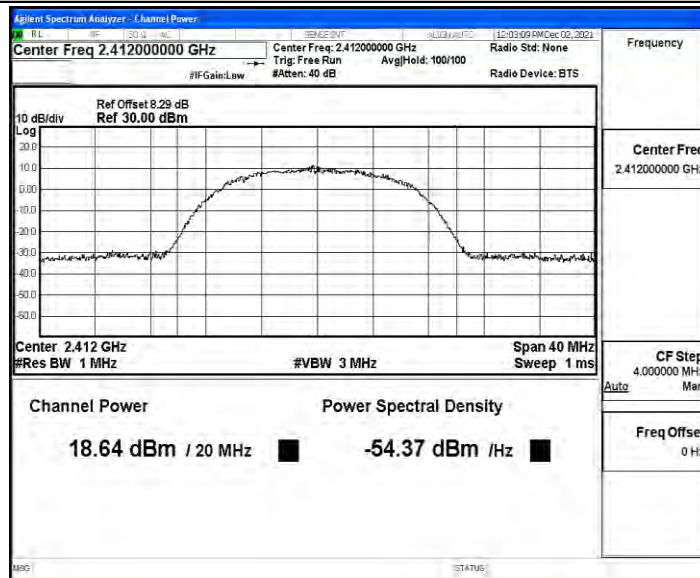
Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	18.64	≤30	PASS
		2437	18.45	≤30	PASS
		2462	18.47	≤30	PASS
11G	Ant1	2412	18.25	≤30	PASS
		2437	18.05	≤30	PASS
		2462	18.33	≤30	PASS
11N20SISO	Ant1	2412	16.88	≤30	PASS
		2437	16.59	≤30	PASS
		2462	16.96	≤30	PASS
11N40SISO	Ant1	2422	15.41	≤30	PASS
		2437	14.98	≤30	PASS
		2452	15.29	≤30	PASS

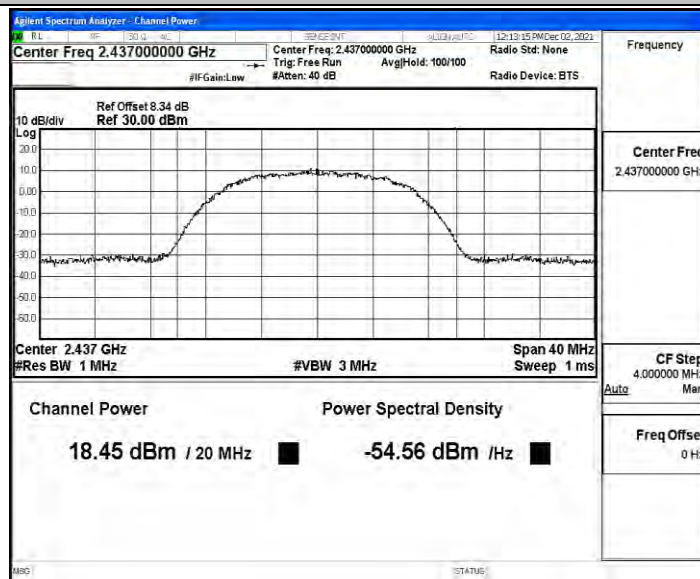


Test Graphs

11B_Ant1_2412

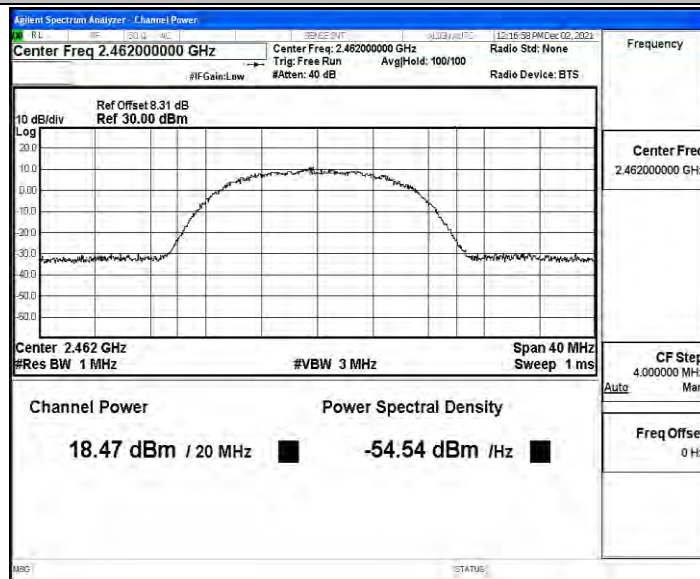


11B_Ant1_2437

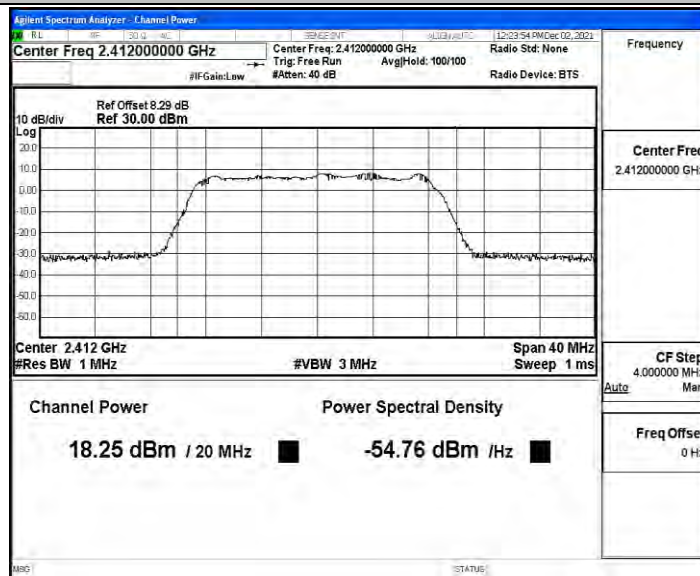




11B_Ant1_2462

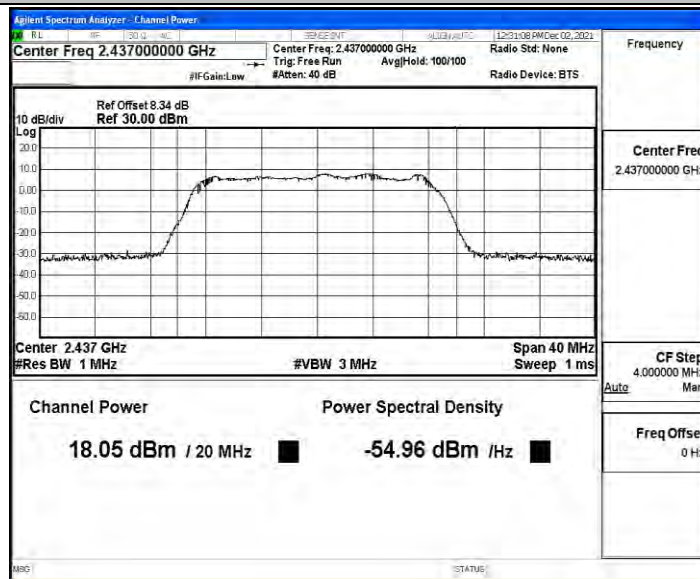


11G_Ant1_2412

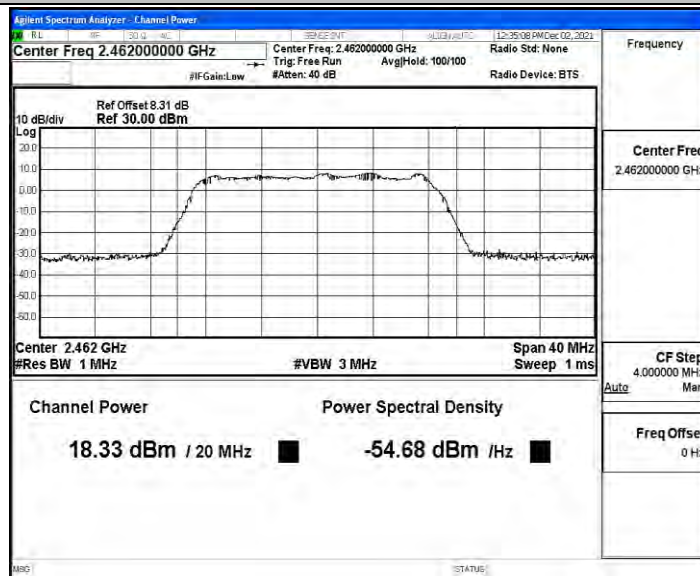




11G_Ant1_2437



11G_Ant1_2462

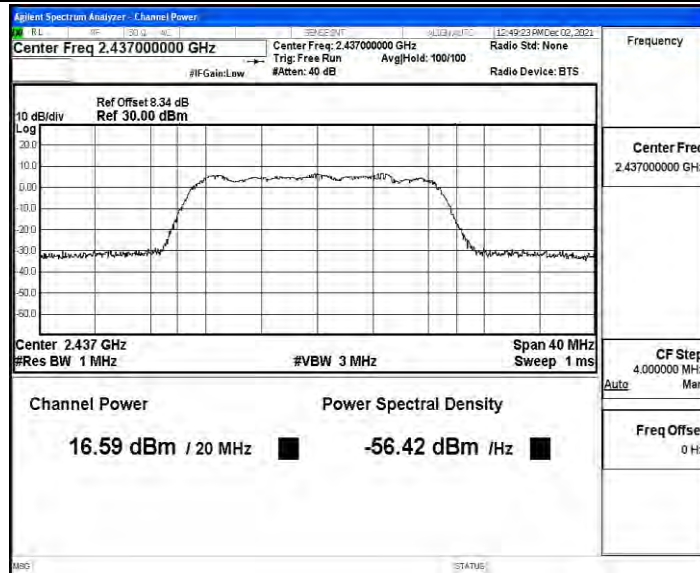




11N20SISO_Ant1_2412

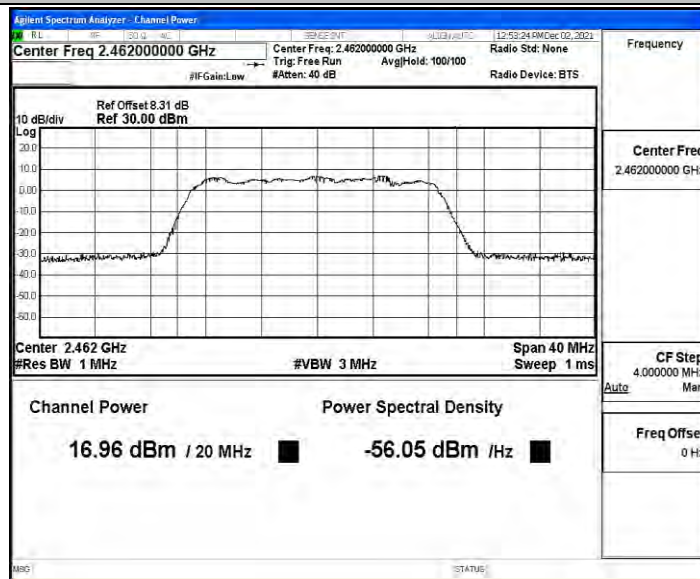


11N20SISO_Ant1_2437

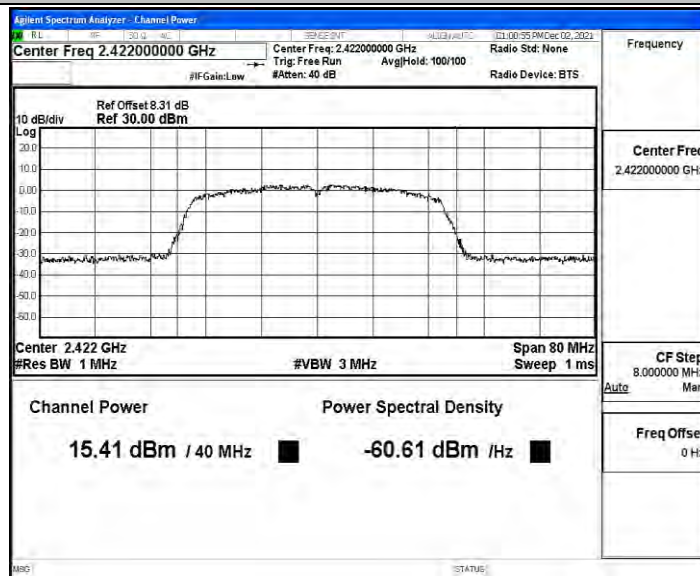




11N20SISO_Ant1_2462

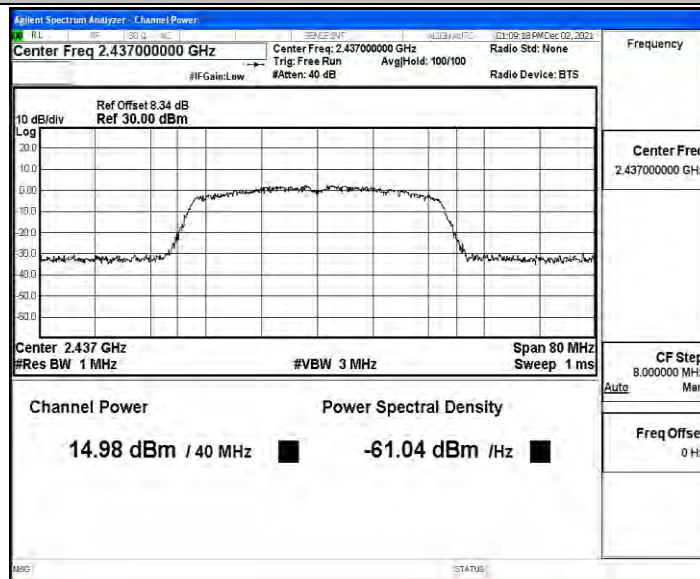


11N40SISO_Ant1_2422

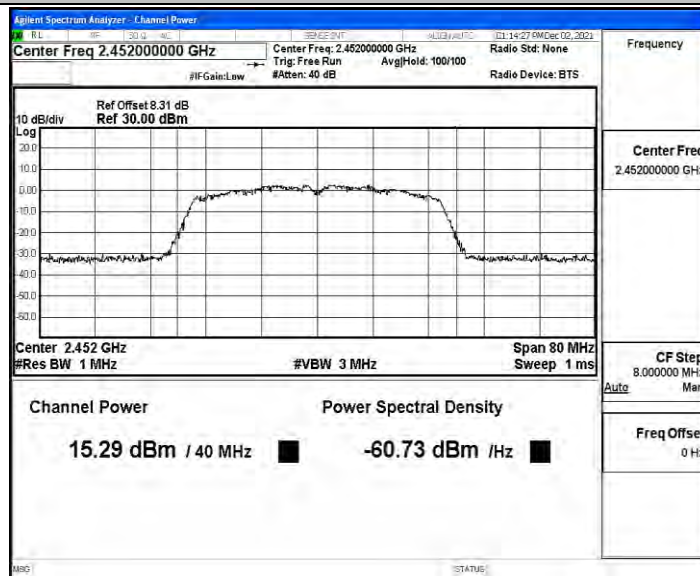




11N40SISO_Ant1_2437



11N40SISO_Ant1_2452





Appendix B.3: Maximum power spectral density

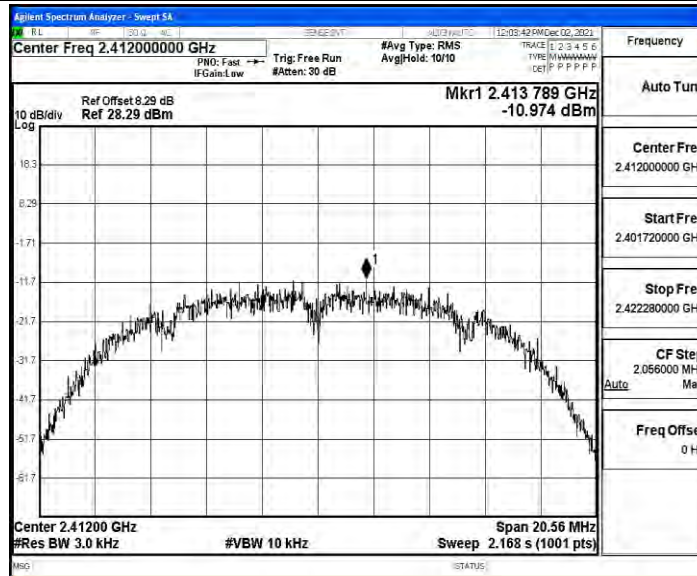
Test Result

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-10.97	≤8	PASS
		2437	-11.19	≤8	PASS
		2462	-11.3	≤8	PASS
11G	Ant1	2412	-12.01	≤8	PASS
		2437	-12.26	≤8	PASS
		2462	-11.91	≤8	PASS
11N20SISO	Ant1	2412	-12.89	≤8	PASS
		2437	-13.24	≤8	PASS
		2462	-12.79	≤8	PASS
11N40SISO	Ant1	2422	-15.11	≤8	PASS
		2437	-15.2	≤8	PASS
		2452	-15.38	≤8	PASS

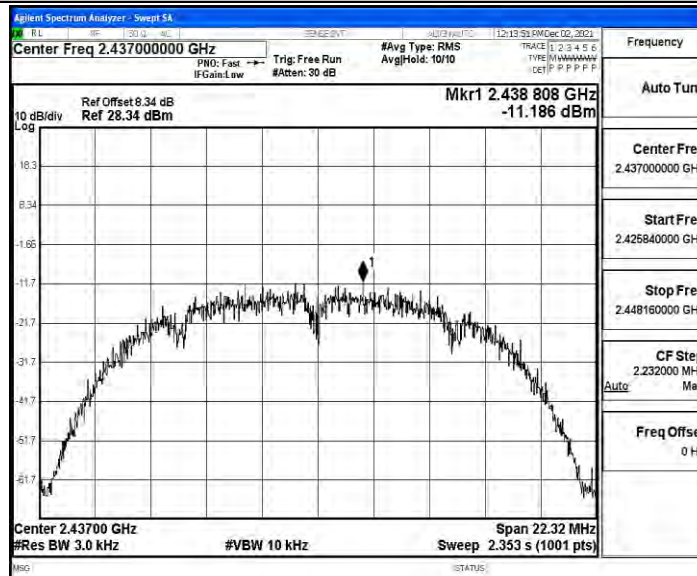


Test Graphs

11B_Ant1_2412

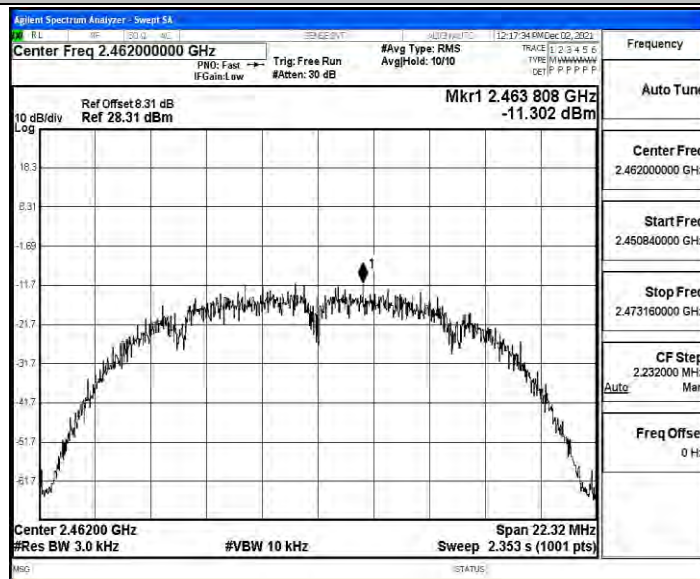


11B_Ant1_2437

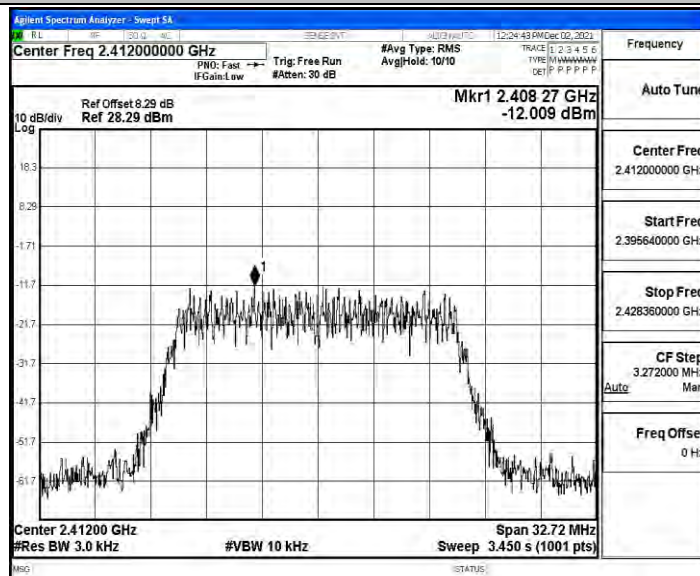




11B_Ant1_2462

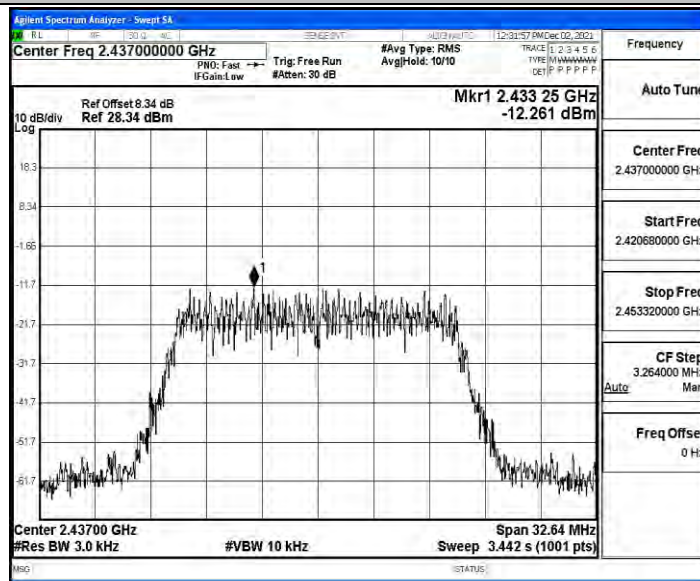


11G_Ant1_2412

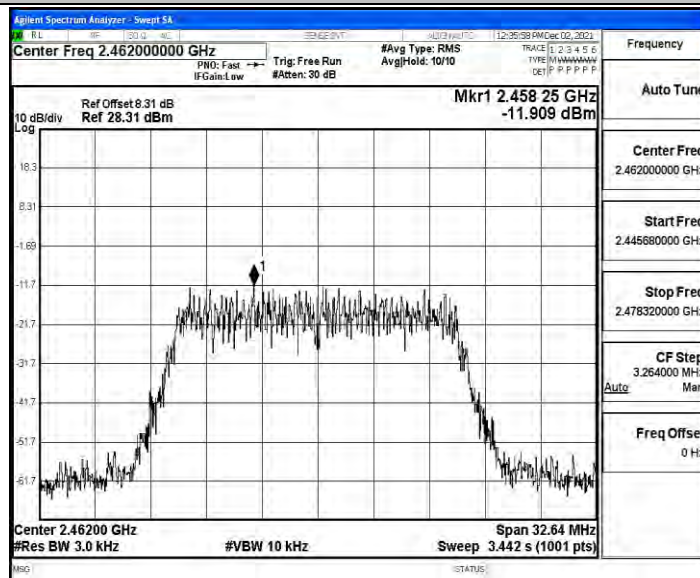




11G_Ant1_2437

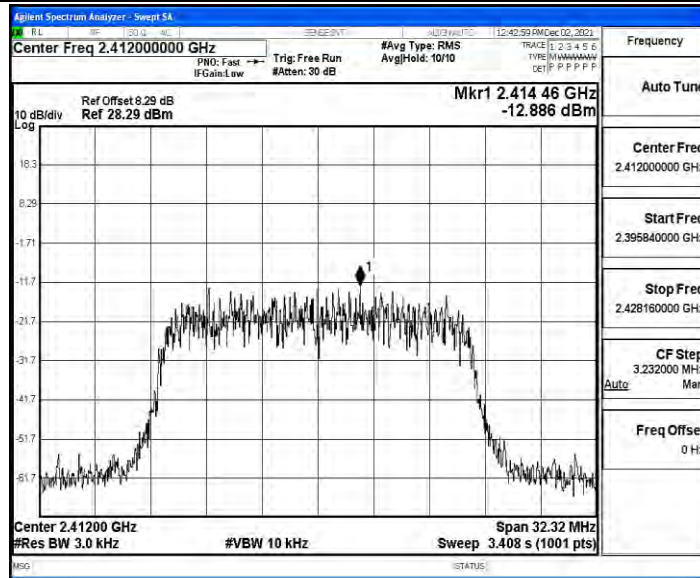


11G_Ant1_2462

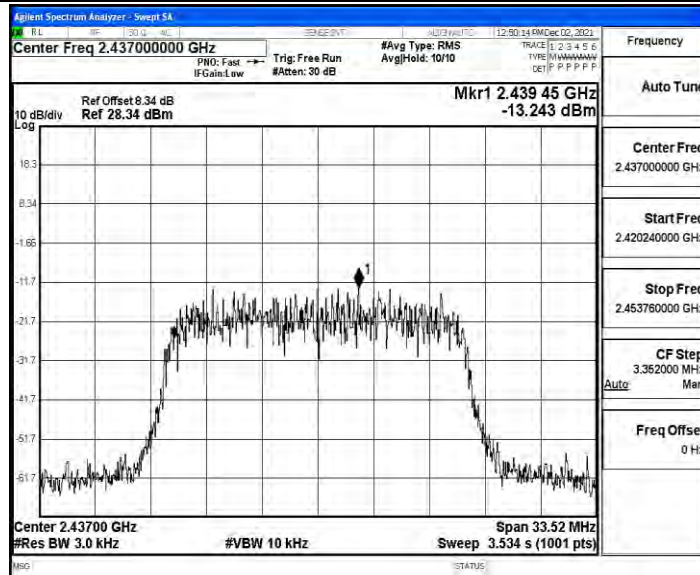




11N20SISO_Ant1_2412

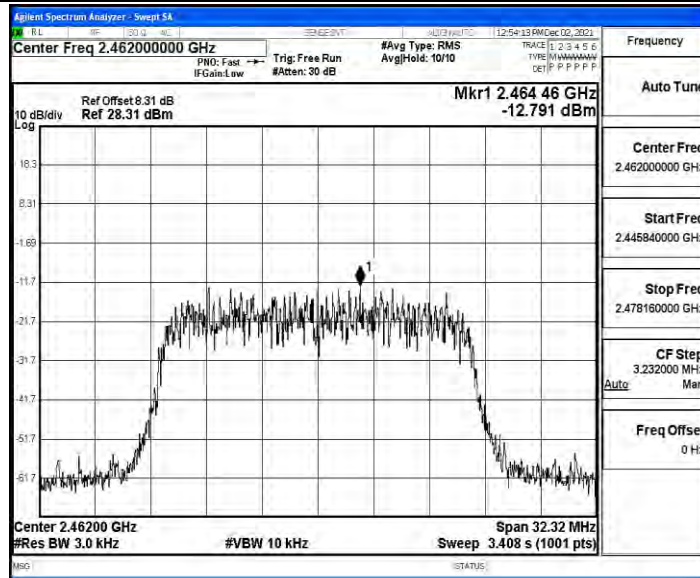


11N20SISO_Ant1_2437

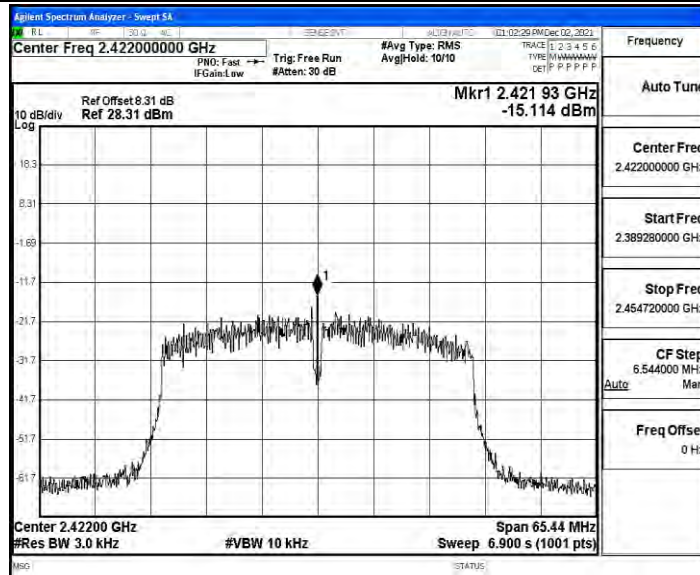




11N20SISO_Ant1_2462

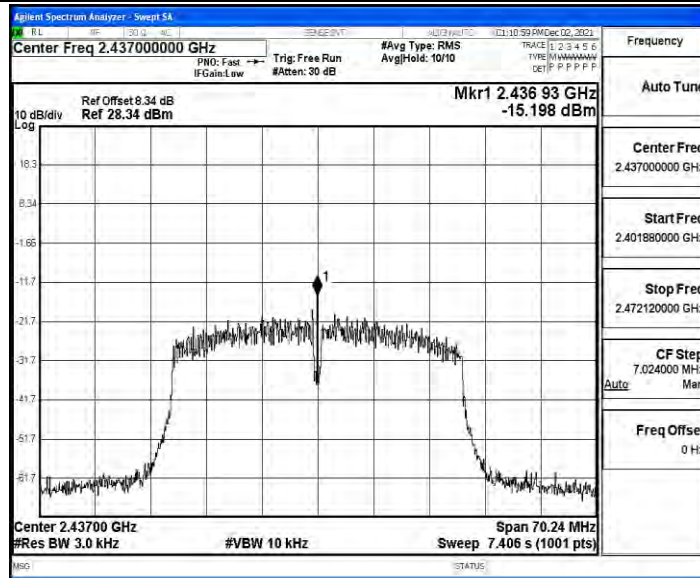


11N40SISO_Ant1_2422

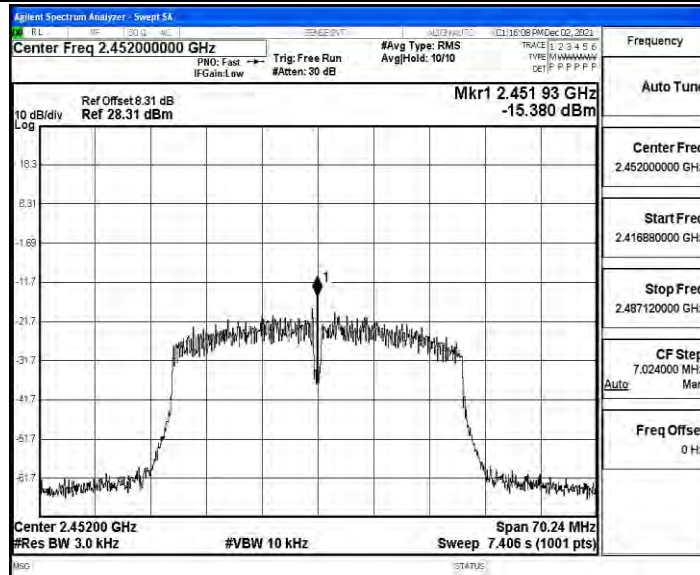




11N40SISO_Ant1_2437



11N40SISO_Ant1_2452





Appendix B.4.1: DTS Bandwidth

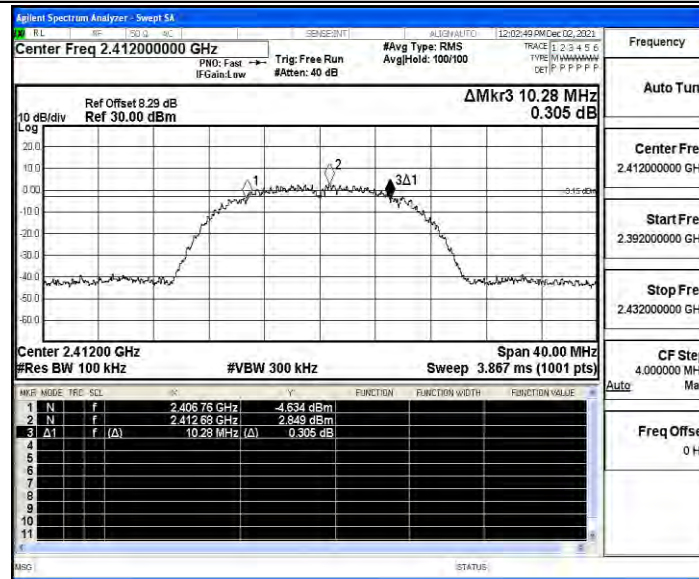
Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	10.280	2406.760	2417.040	0.5	PASS
		2437	11.160	2430.880	2442.040	0.5	PASS
		2462	11.160	2455.880	2467.040	0.5	PASS
11G	Ant1	2412	16.360	2403.800	2420.160	0.5	PASS
		2437	16.320	2428.840	2445.160	0.5	PASS
		2462	16.320	2453.840	2470.160	0.5	PASS
11N20SISO	Ant1	2412	16.160	2403.440	2419.600	0.5	PASS
		2437	16.760	2428.440	2445.200	0.5	PASS
		2462	16.160	2453.440	2469.600	0.5	PASS
11N40SISO	Ant1	2422	32.720	2405.600	2438.320	0.5	PASS
		2437	35.120	2419.400	2454.520	0.5	PASS
		2452	35.120	2434.400	2469.520	0.5	PASS

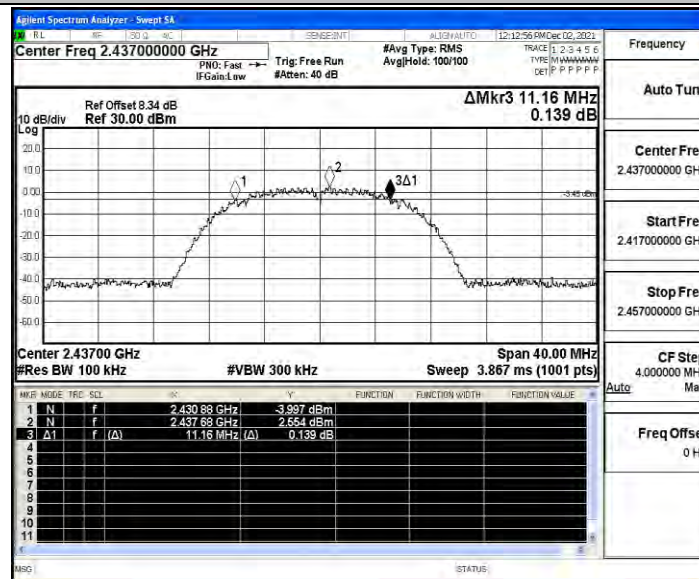


Test Graphs

11B_Ant1_2412

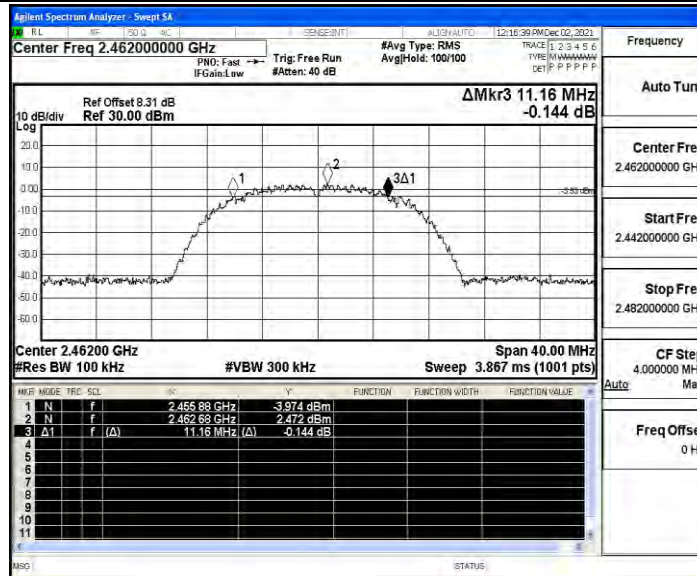


11B_Ant1_2437

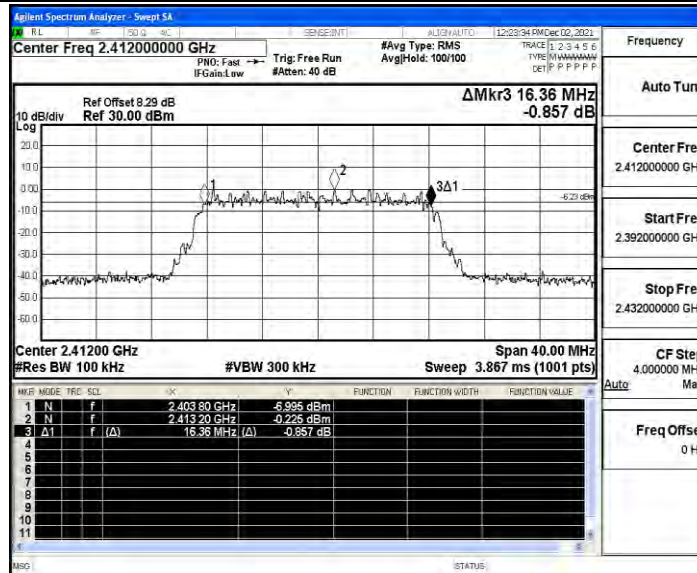




11B_Ant1_2462

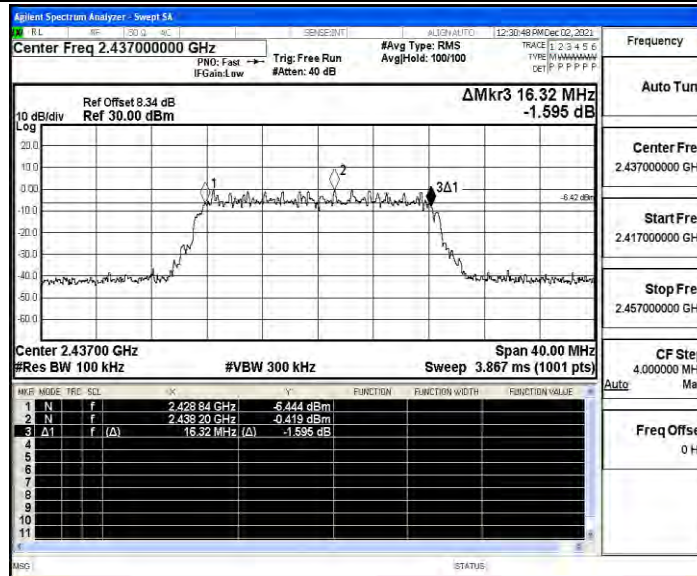


11G_Ant1_2412

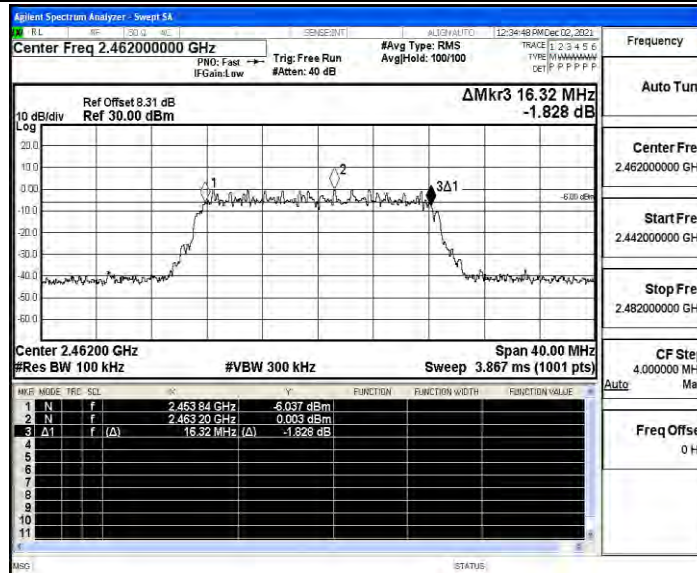




11G_Ant1_2437

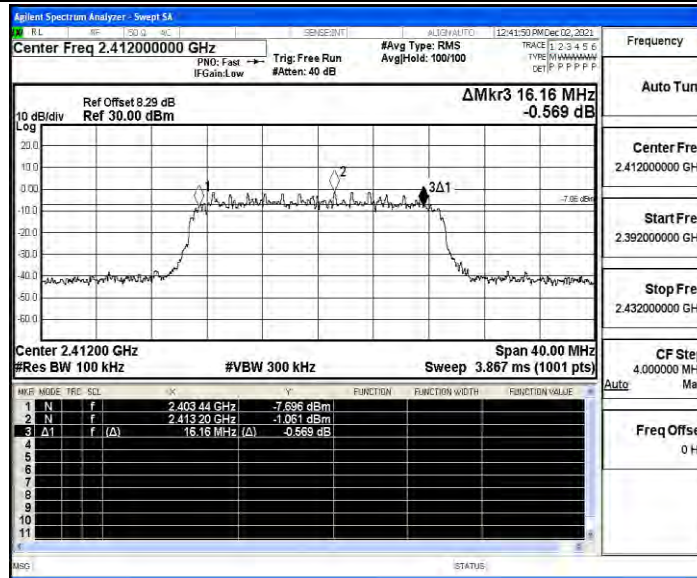


11G_Ant1_2462

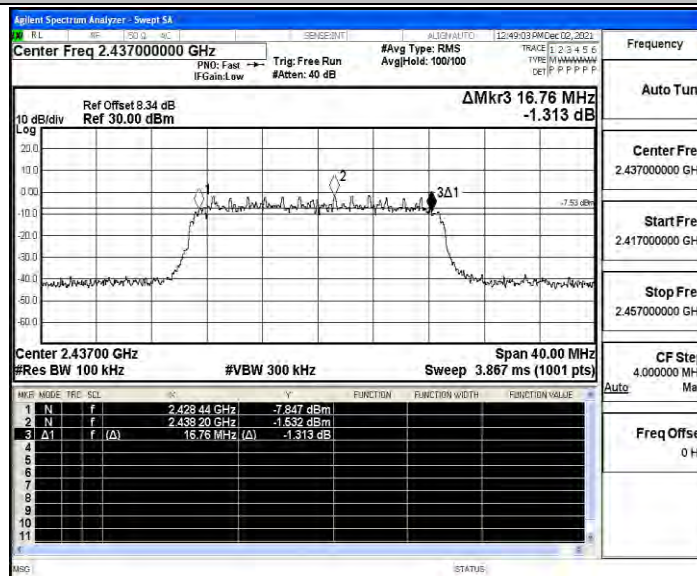




11N20SISO_Ant1_2412

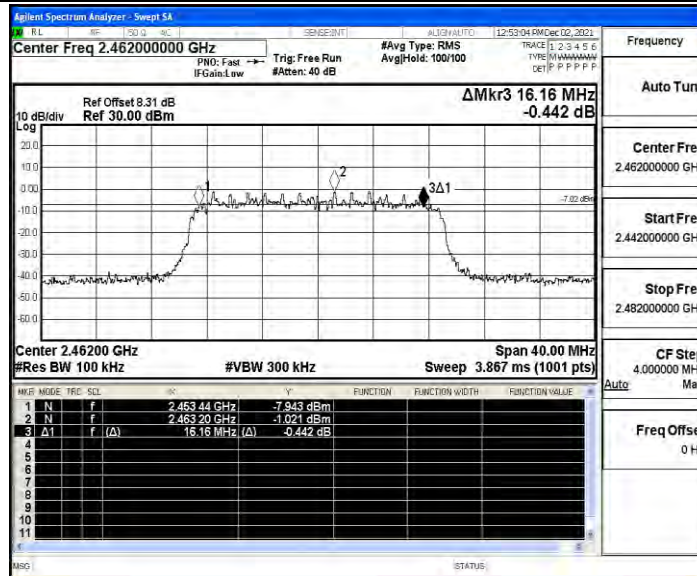


11N20SISO_Ant1_2437

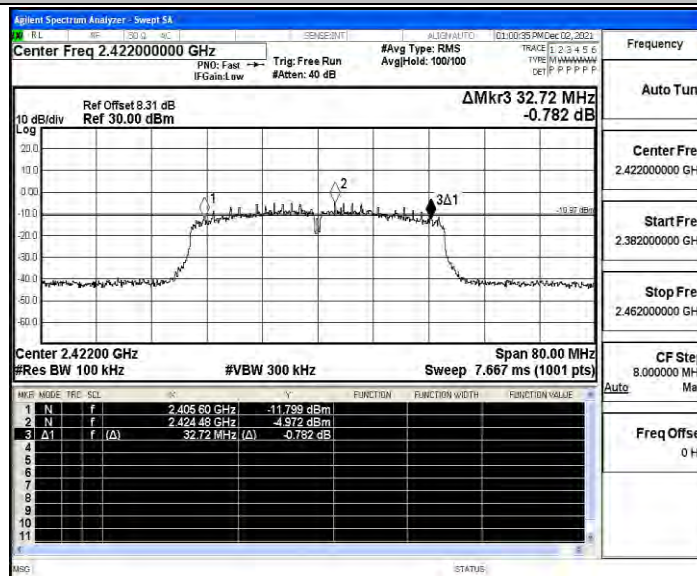




11N20SISO_Ant1_2462

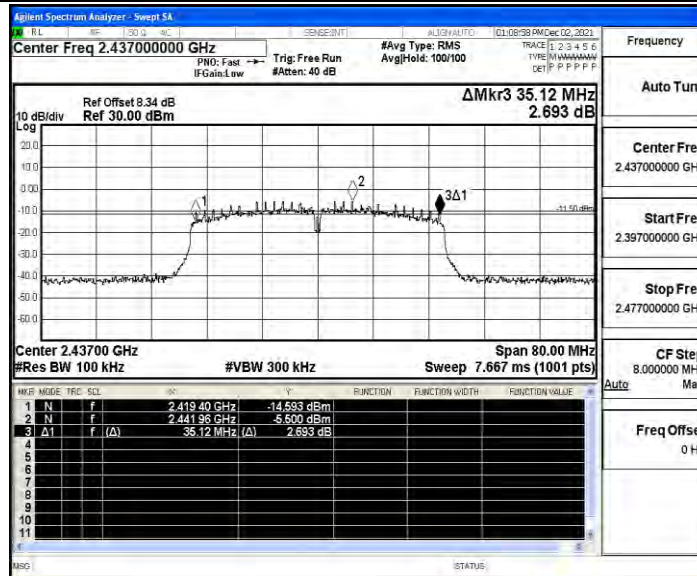


11N40SISO_Ant1_2422

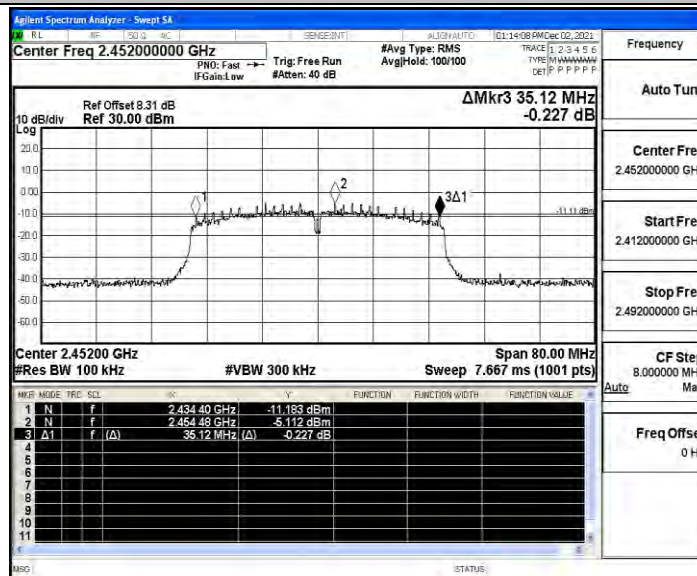




11N40SISO_Ant1_2437



11N40SISO_Ant1_2452





Appendix B.4.2: Occupied Channel Bandwidth

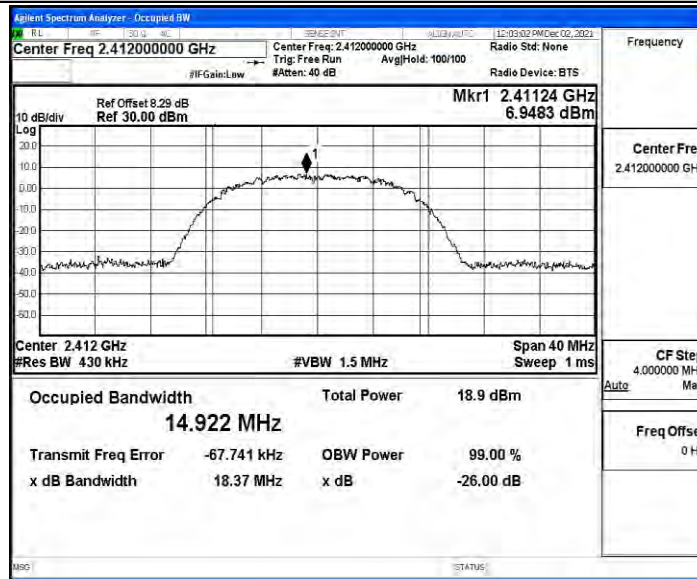
Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	14.922	2404.471	2419.393	---	PASS
		2437	14.957	2429.479	2444.436	---	PASS
		2462	14.879	2454.484	2469.363	---	PASS
11G	Ant1	2412	17.364	2403.259	2420.623	---	PASS
		2437	17.369	2428.297	2445.666	---	PASS
		2462	17.396	2453.271	2470.667	---	PASS
11N20SISO	Ant1	2412	17.806	2403.036	2420.842	---	PASS
		2437	17.813	2428.025	2445.838	---	PASS
		2462	17.791	2453.027	2470.818	---	PASS
11N40SISO	Ant1	2422	35.707	2404.055	2439.762	---	PASS
		2437	35.734	2419.076	2454.810	---	PASS
		2452	35.662	2434.112	2469.774	---	PASS

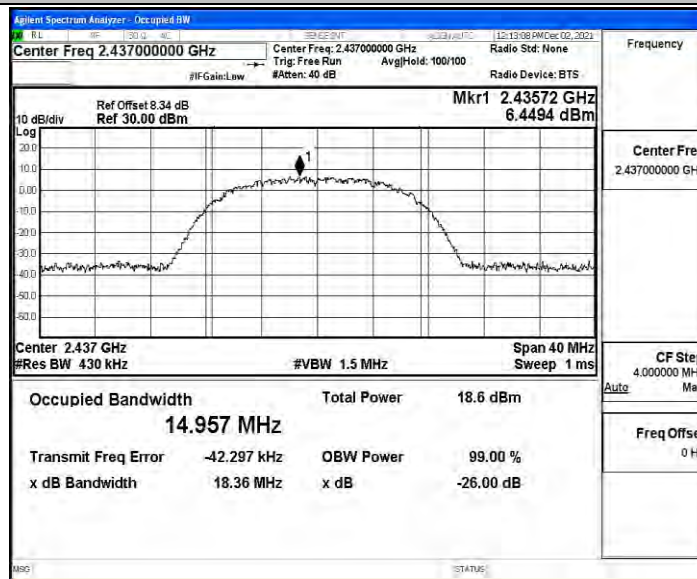


Test Graphs

11B_Ant1_2412

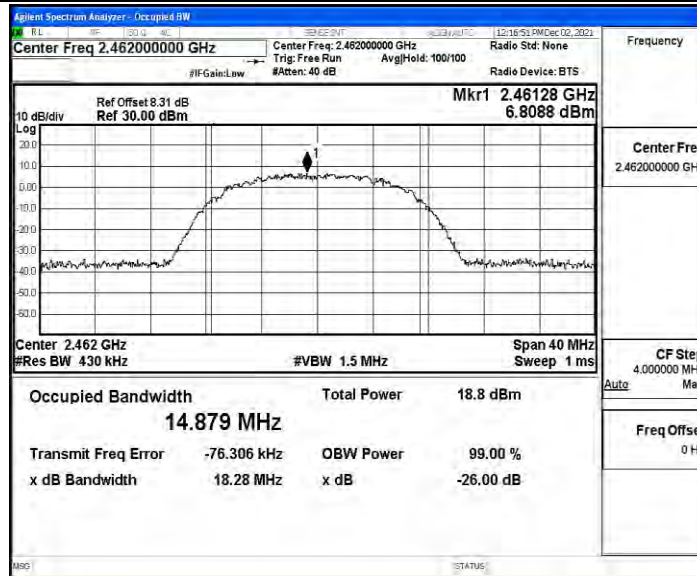


11B_Ant1_2437

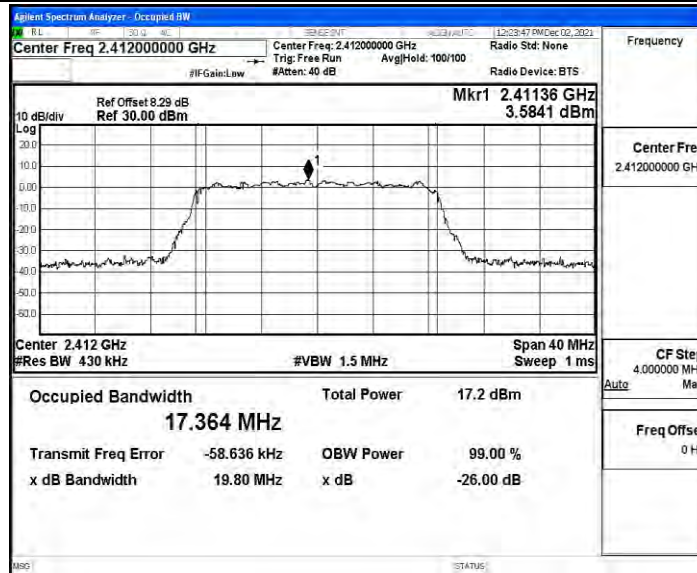




11B_Ant1_2462

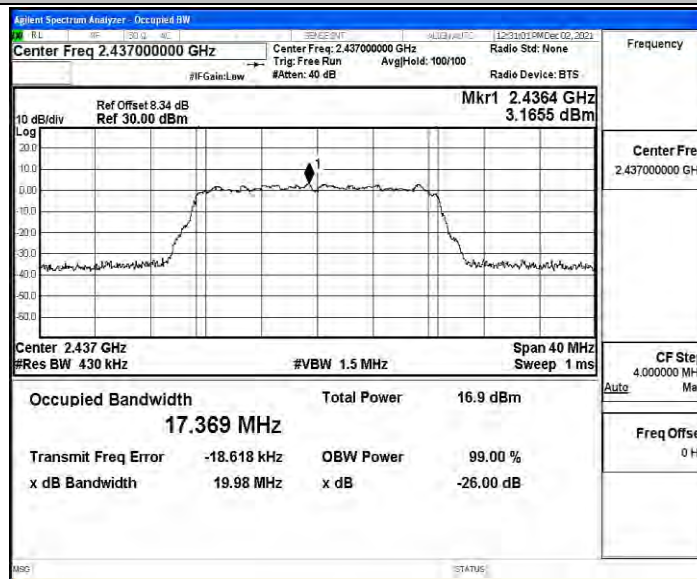


11G_Ant1_2412

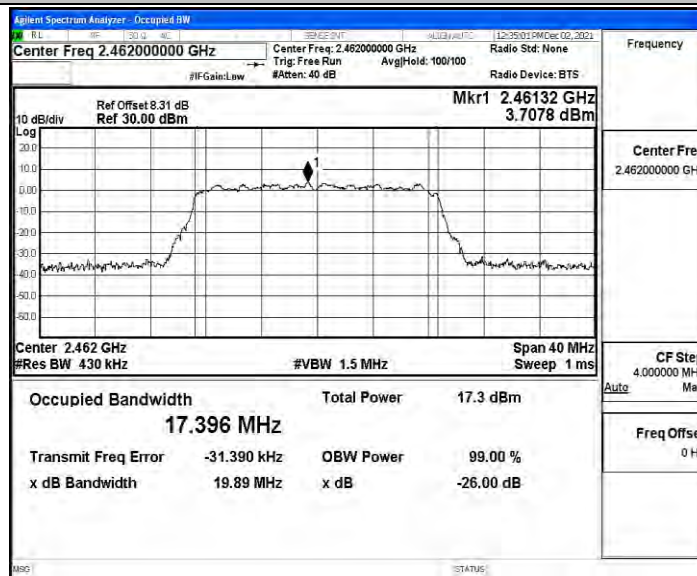




11G_Ant1_2437

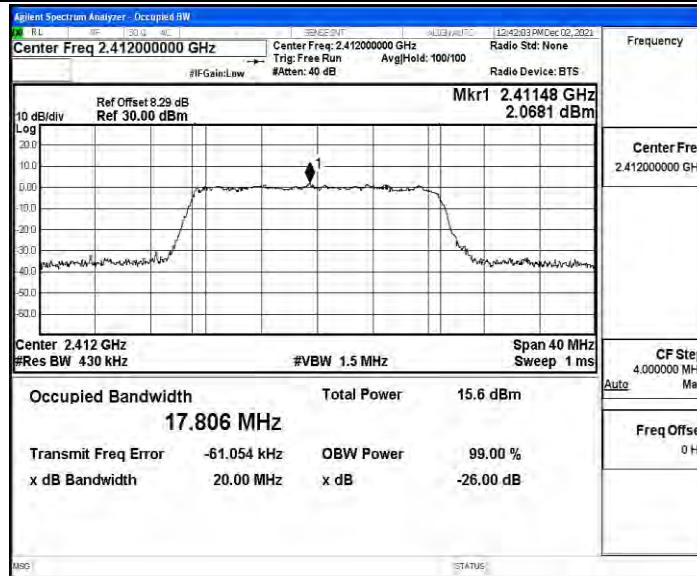


11G_Ant1_2462

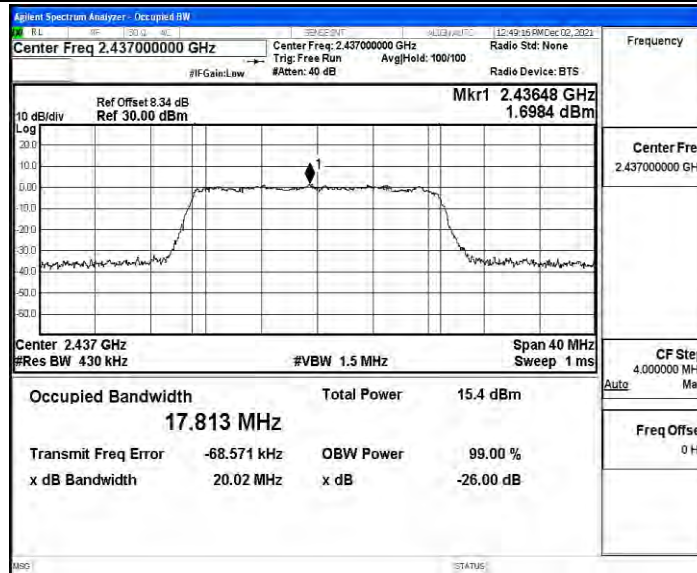




11N20SISO_Ant1_2412

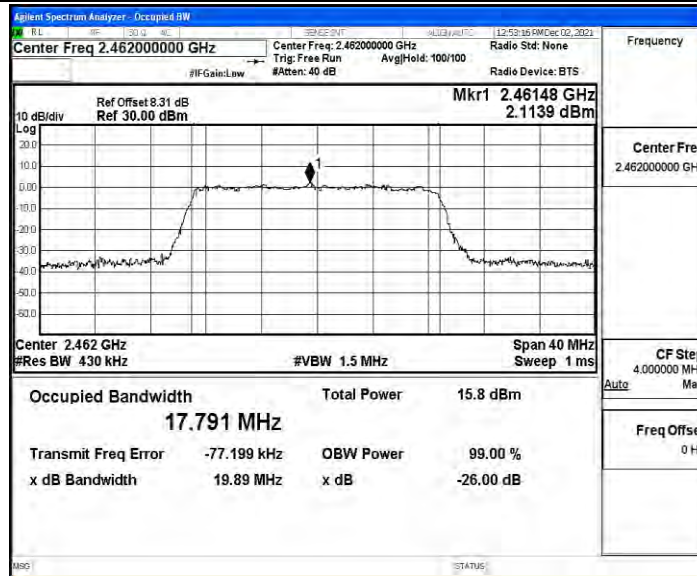


11N20SISO_Ant1_2437

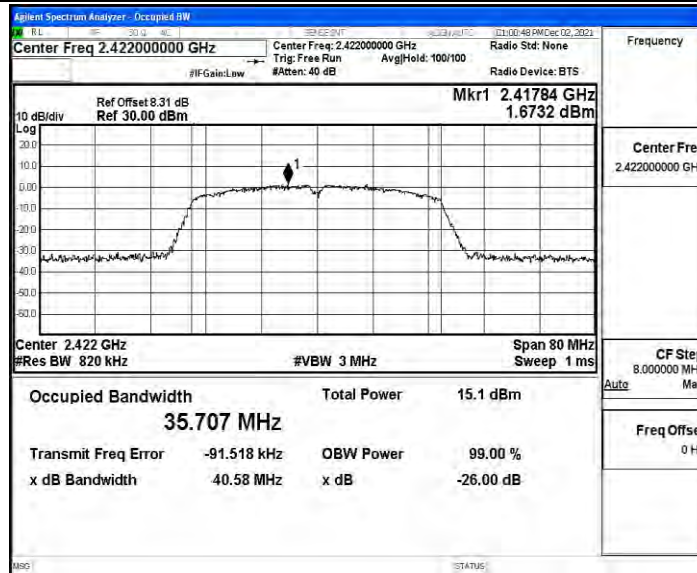




11N20SISO_Ant1_2462

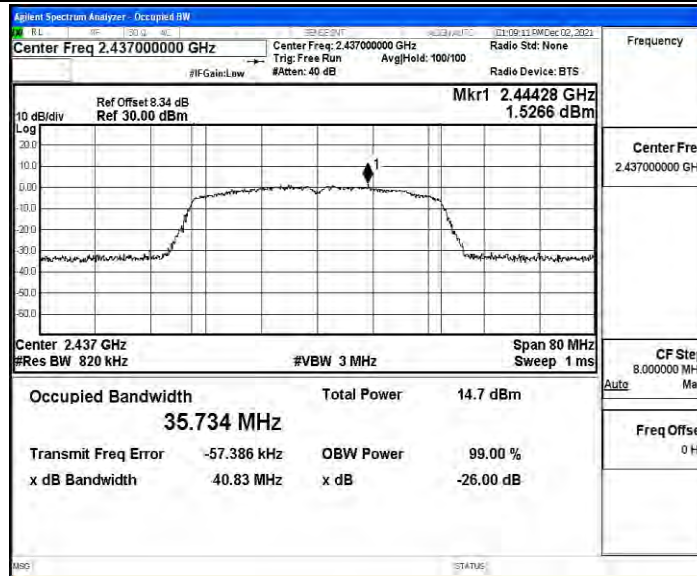


11N40SISO_Ant1_2422

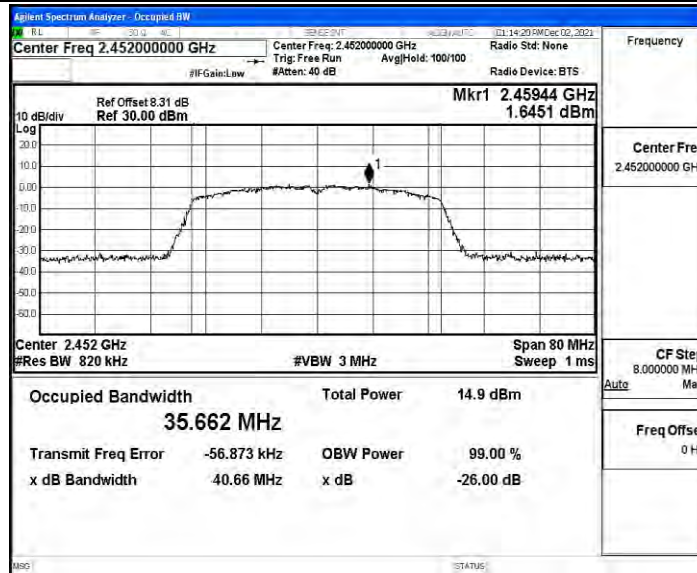




11N40SISO_Ant1_2437



11N40SISO_Ant1_2452





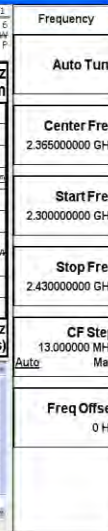
Appendix B.5: Band edge measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	2.73	-42	≤ -17.27	PASS
		High	2462	2.73	-48.39	≤ -17.27	PASS
11G	Ant1	Low	2412	-0.11	-39.63	≤ -20.11	PASS
		High	2462	-0.30	-47.49	≤ -20.3	PASS
11N20SISO	Ant1	Low	2412	-1.10	-40.38	≤ -21.1	PASS
		High	2462	-1.08	-48.36	≤ -21.08	PASS
11N40SISO	Ant1	Low	2422	-4.94	-41.66	≤ -24.94	PASS
		High	2452	-5.06	-47.11	≤ -25.06	PASS



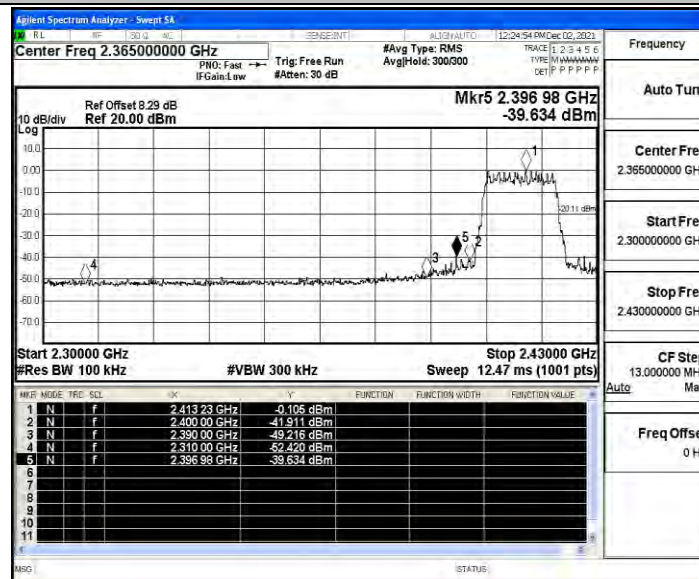
11B_Ant1_Low_2412



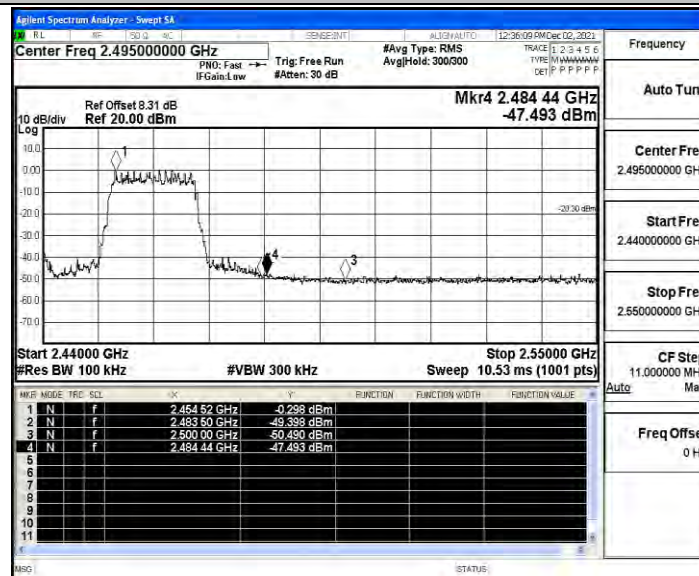
Frequency
Auto Tun
Center Fre 2.495000000 GHz
Start Fre 2.440000000 GHz
Stop Fre 2.550000000 GHz
CF Ste 11.000000 MHz
Auto
Freq Offset 0 Hz



11G_Ant1_Low_2412

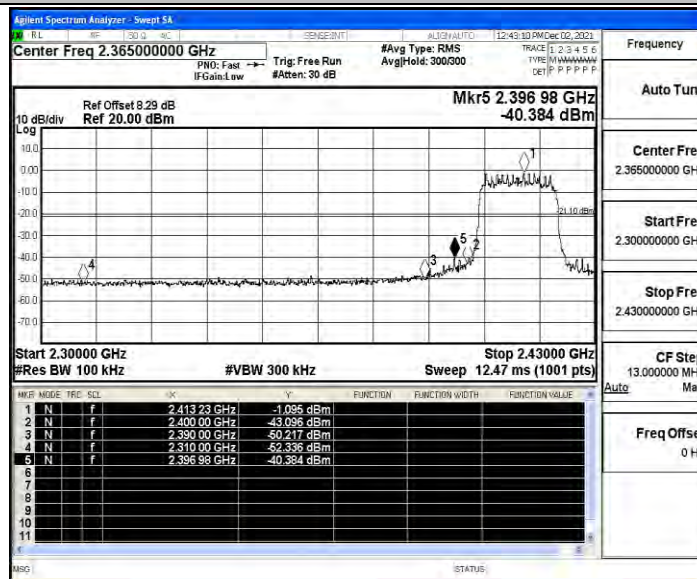


11G_Ant1_High_2462

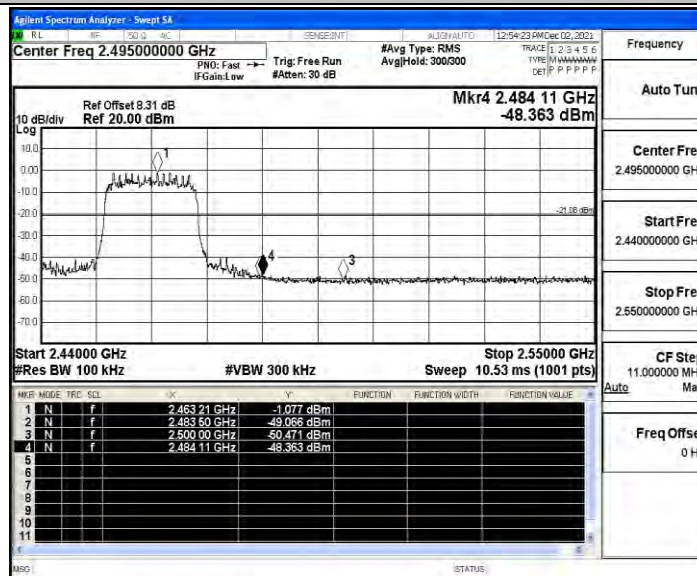




11N20SISO_Ant1_Low_2412

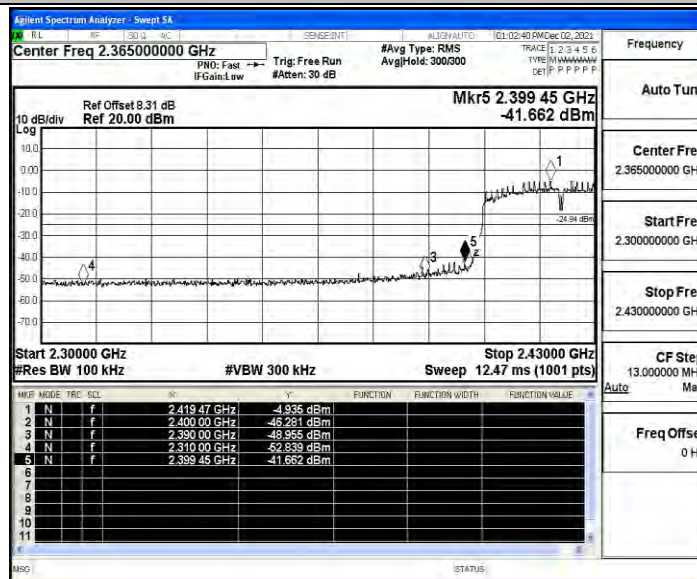


11N20SISO_Ant1_High_2462

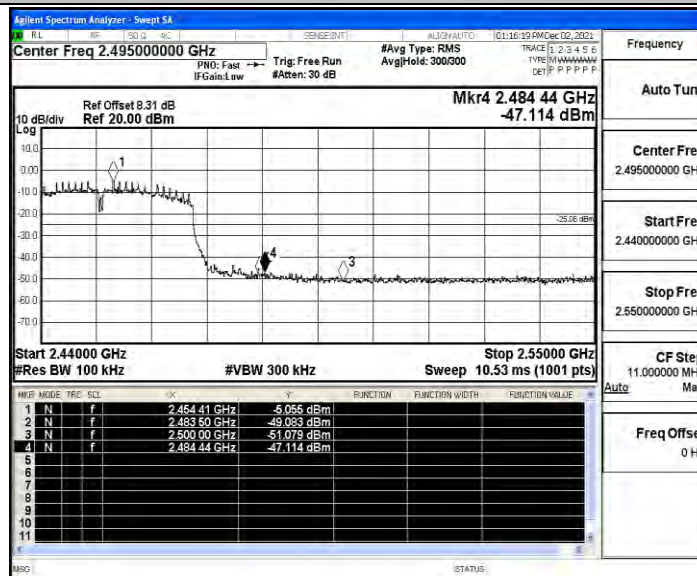




11N40SISO_Ant1_Low_2422



11N40SISO_Ant1_High_2452





Appendix B.6: Conducted Spurious Emission

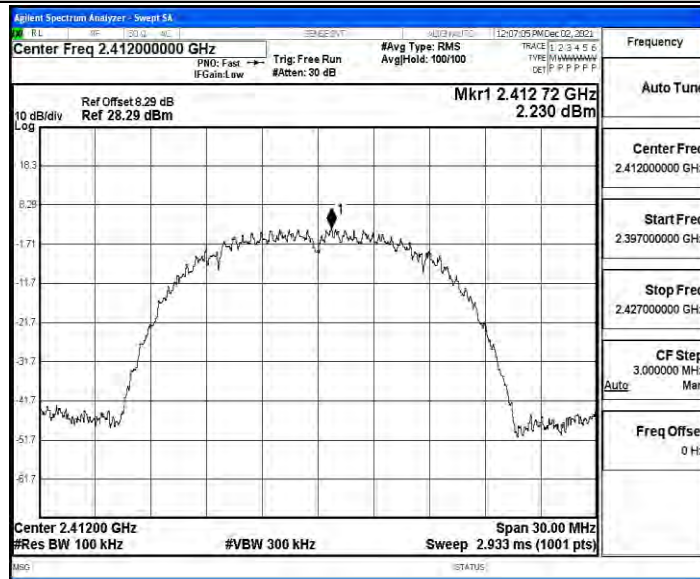
Test Result

TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	2.23	2.23	---	PASS
			30~1000	2.23	-60.62	≤ -17.77	PASS
			1000~26500	2.23	-47.01	≤ -17.77	PASS
		2437	Reference	2.49	2.49	---	PASS
			30~1000	2.49	-61.35	≤ -17.51	PASS
			1000~26500	2.49	-46.75	≤ -17.51	PASS
		2462	Reference	2.50	2.50	---	PASS
			30~1000	2.50	-60.83	≤ -17.5	PASS
			1000~26500	2.50	-46.85	≤ -17.5	PASS
11G	Ant1	2412	Reference	-0.44	-0.44	---	PASS
			30~1000	-0.44	-61.25	≤ -20.44	PASS
			1000~26500	-0.44	-46.08	≤ -20.44	PASS
		2437	Reference	-0.42	-0.42	---	PASS
			30~1000	-0.42	-59.84	≤ -20.42	PASS
			1000~26500	-0.42	-46.93	≤ -20.42	PASS
		2462	Reference	-0.07	-0.07	---	PASS
			30~1000	-0.07	-61.22	≤ -20.07	PASS
			1000~26500	-0.07	-46.61	≤ -20.07	PASS
11N20SISO	Ant1	2412	Reference	-1.16	-1.16	---	PASS
			30~1000	-1.16	-61.57	≤ -21.16	PASS
			1000~26500	-1.16	-46.47	≤ -21.16	PASS
		2437	Reference	-1.43	-1.43	---	PASS
			30~1000	-1.43	-60.36	≤ -21.43	PASS
			1000~26500	-1.43	-45.47	≤ -21.43	PASS
		2462	Reference	-1.05	-1.05	---	PASS
			30~1000	-1.05	-61.14	≤ -21.05	PASS
			1000~26500	-1.05	-46.66	≤ -21.05	PASS
11N40SISO	Ant1	2422	Reference	-4.89	-4.89	---	PASS
			30~1000	-4.89	-60.84	≤ -24.89	PASS
			1000~26500	-4.89	-46.29	≤ -24.89	PASS
		2437	Reference	-5.50	-5.50	---	PASS
			30~1000	-5.50	-61.15	≤ -25.5	PASS
			1000~26500	-5.50	-46.27	≤ -25.5	PASS
		2452	Reference	-5.28	-5.28	---	PASS
			30~1000	-5.28	-61.27	≤ -25.28	PASS
			1000~26500	-5.28	-46.96	≤ -25.28	PASS

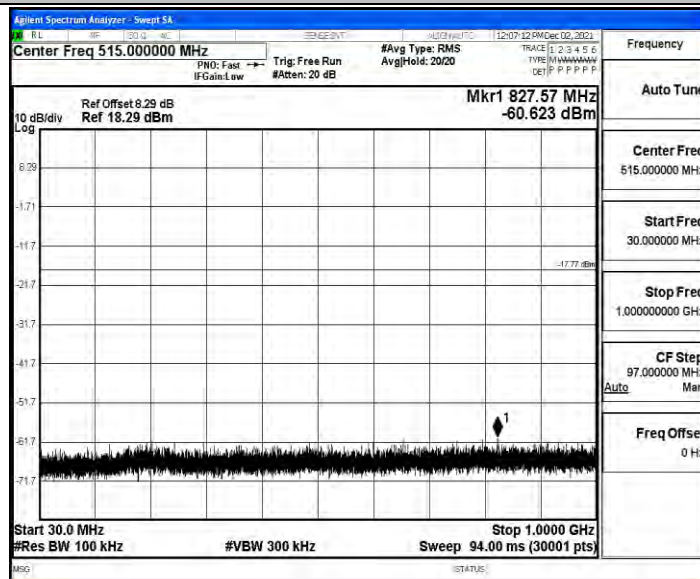


Test Graphs

11B_Ant1_2412_0~Reference

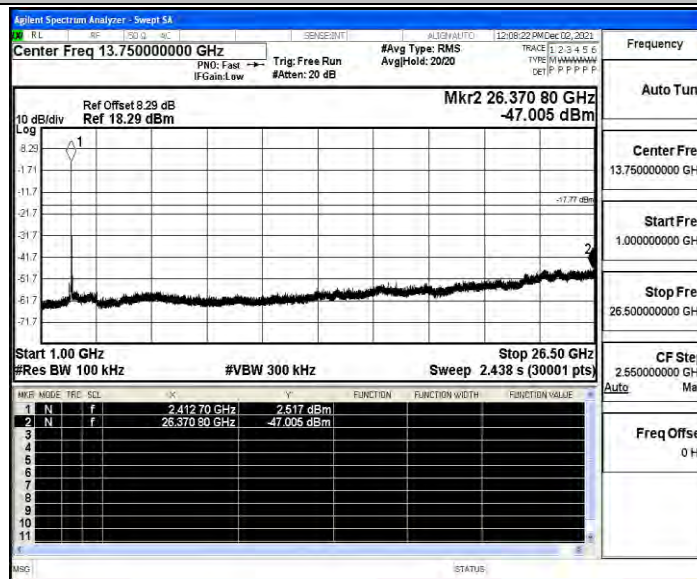


11B_Ant1_2412_30~1000

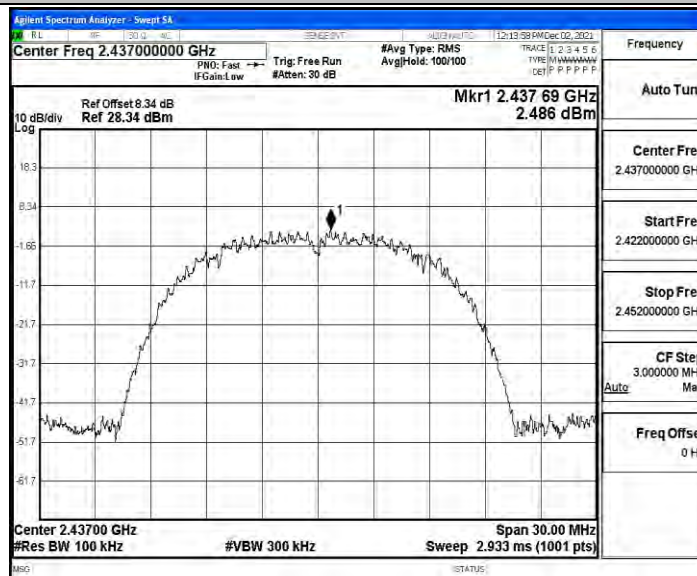




11B_Ant1_2412_1000~26500

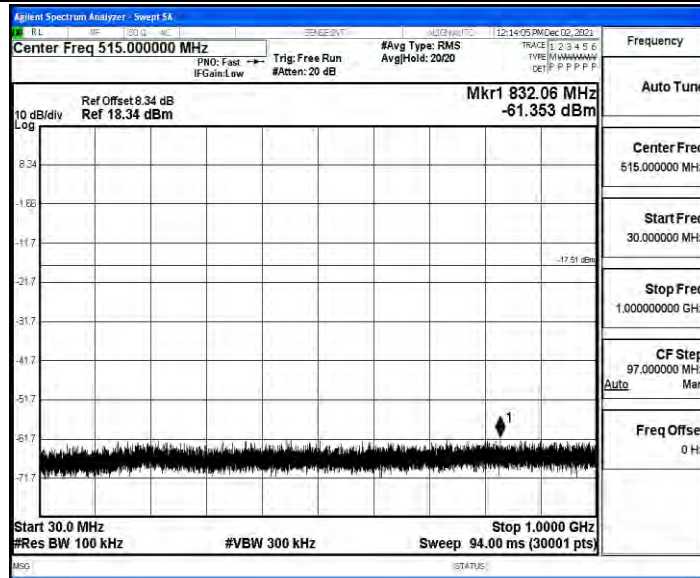


11B_Ant1_2437_0~Reference

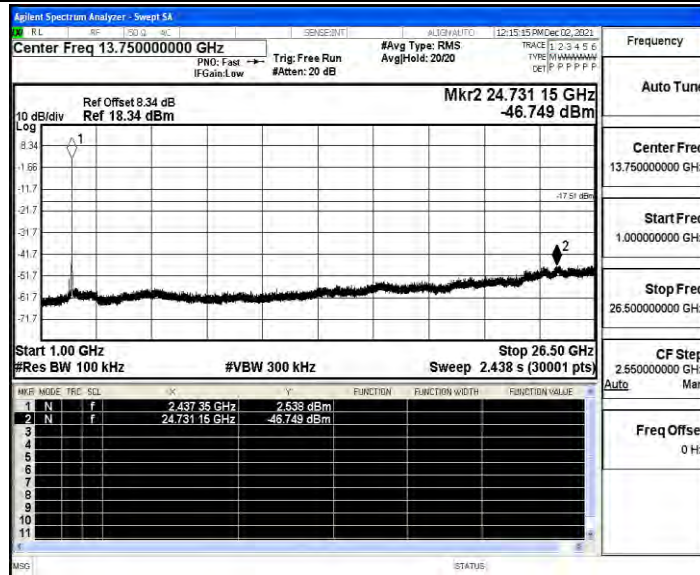




11B_Ant1_2437_30~1000

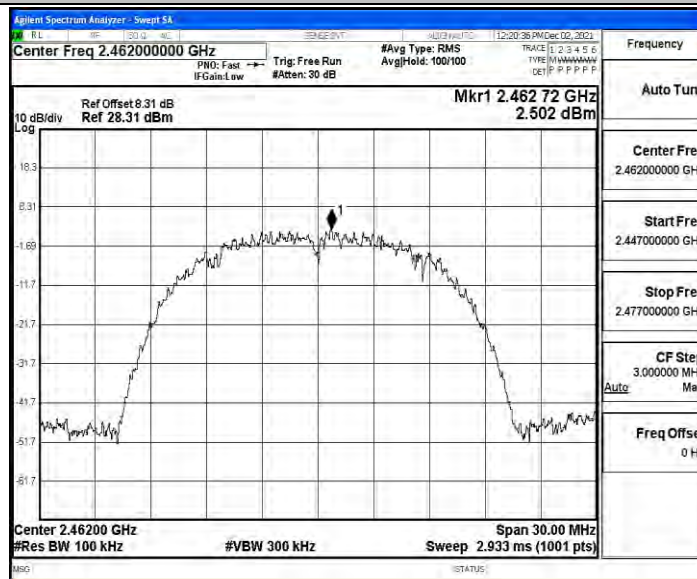


11B_Ant1_2437_1000~26500

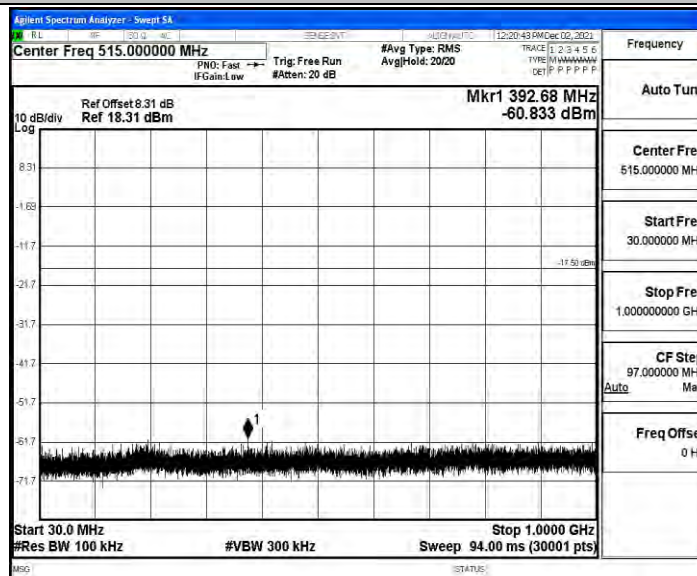




11B_Ant1_2462_0~Reference

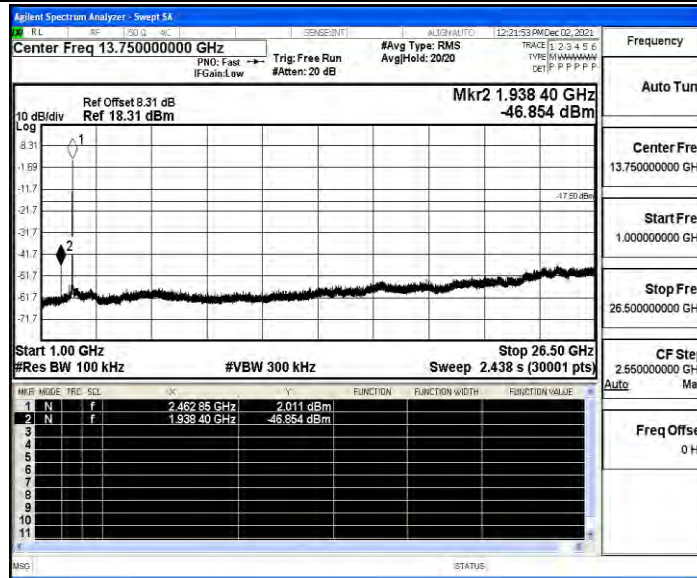


11B_Ant1_2462_30~1000

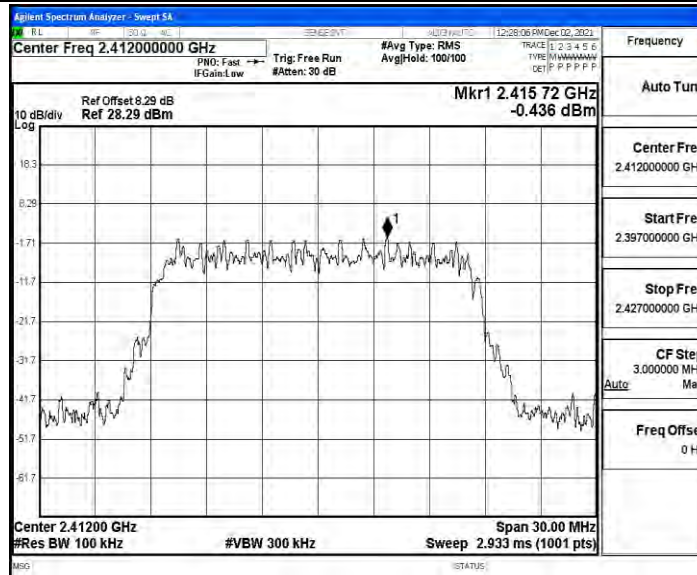




11B_Ant1_2462_1000~26500

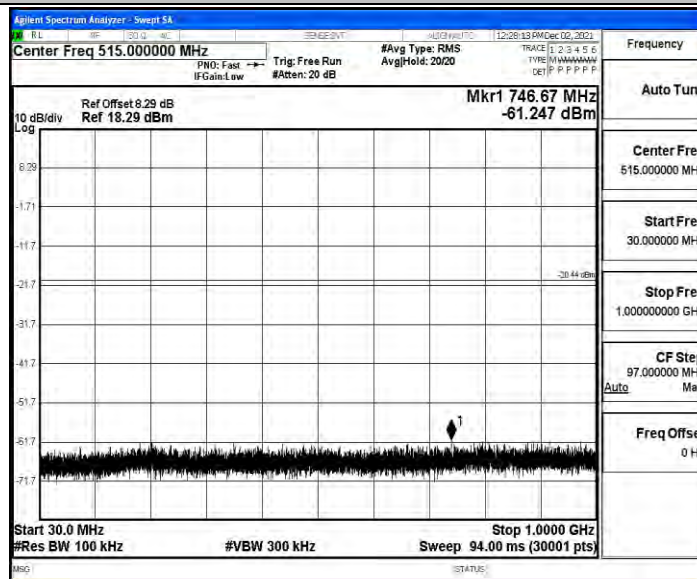


11G_Ant1_2412_0~Reference

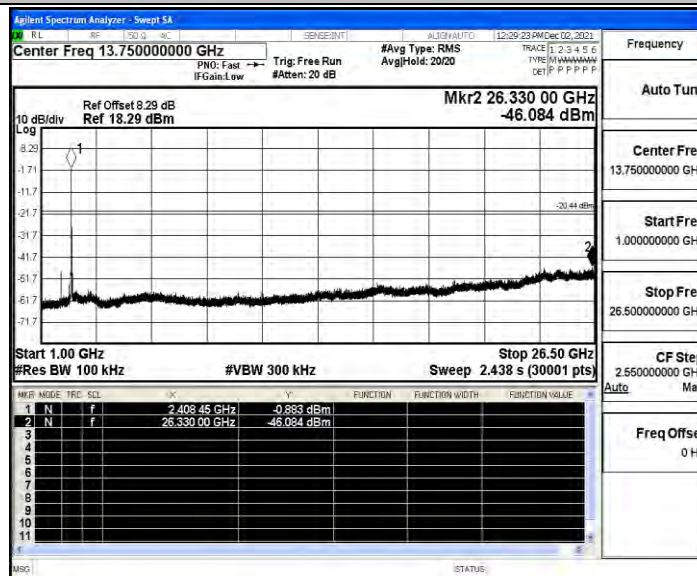




11G_Ant1_2412_30~1000

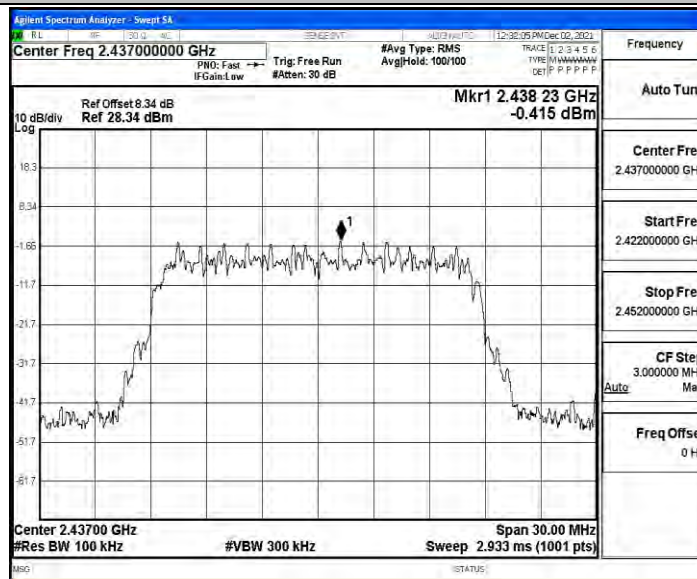


11G_Ant1_2412_1000~26500

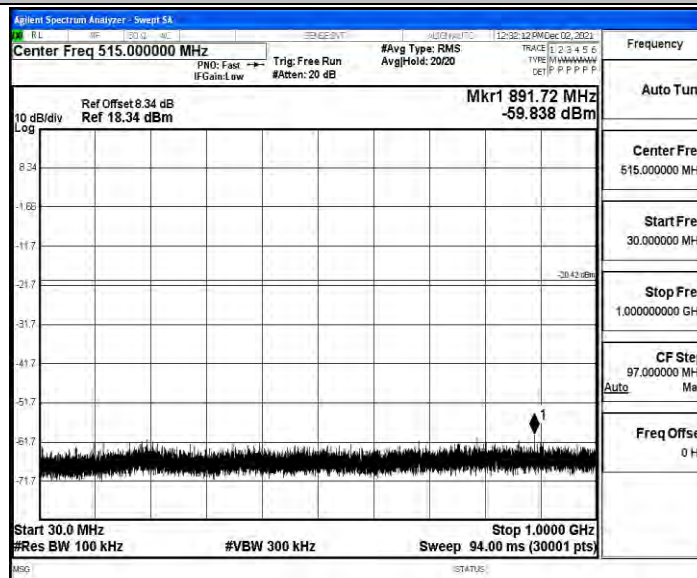




11G_Ant1_2437_0~Reference

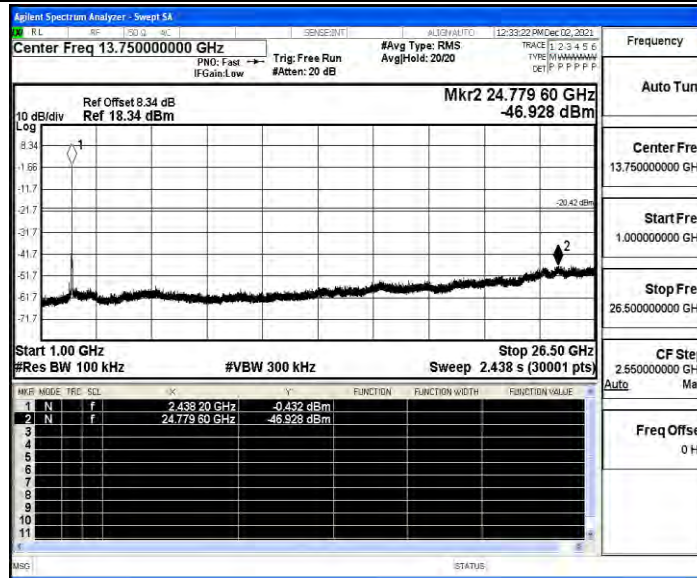


11G_Ant1_2437_30~1000

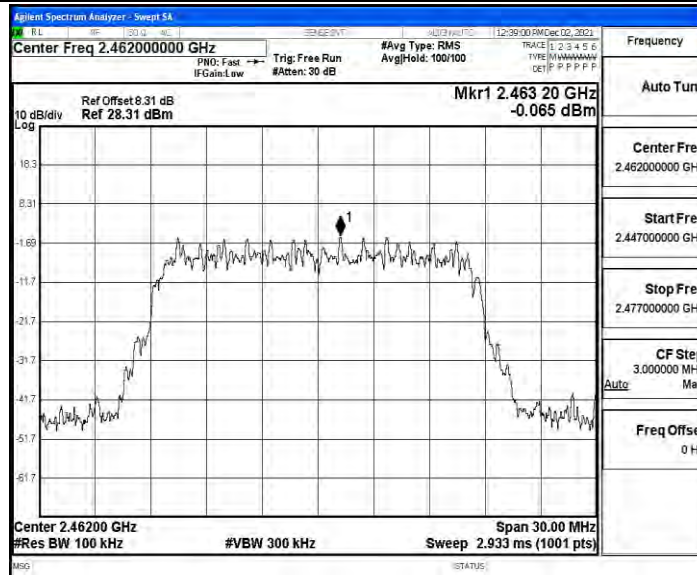




11G_Ant1_2437_1000~26500

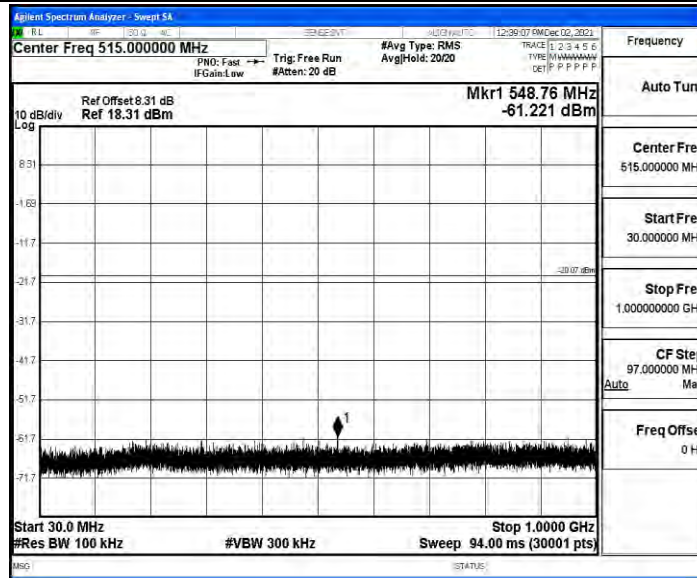


11G_Ant1_2462_0~Reference

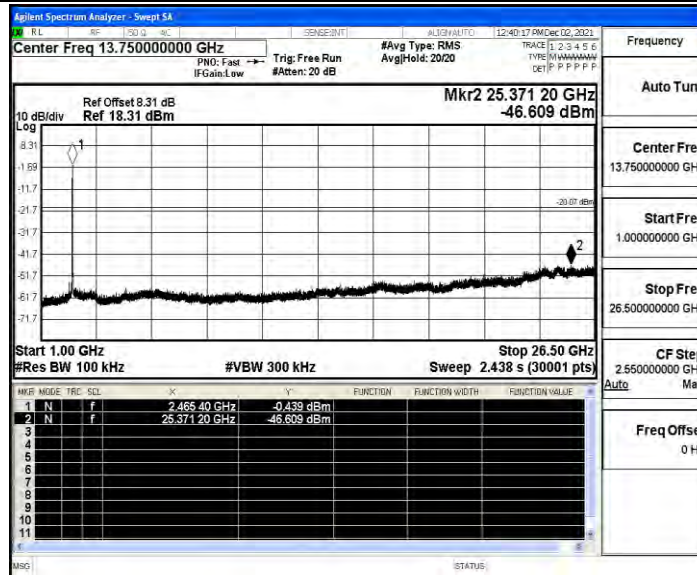




11G_Ant1_2462_30~1000

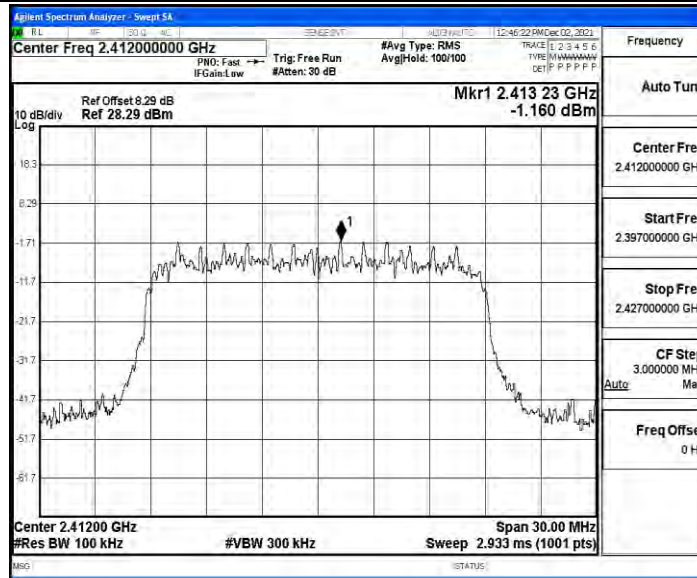


11G_Ant1_2462_1000~26500

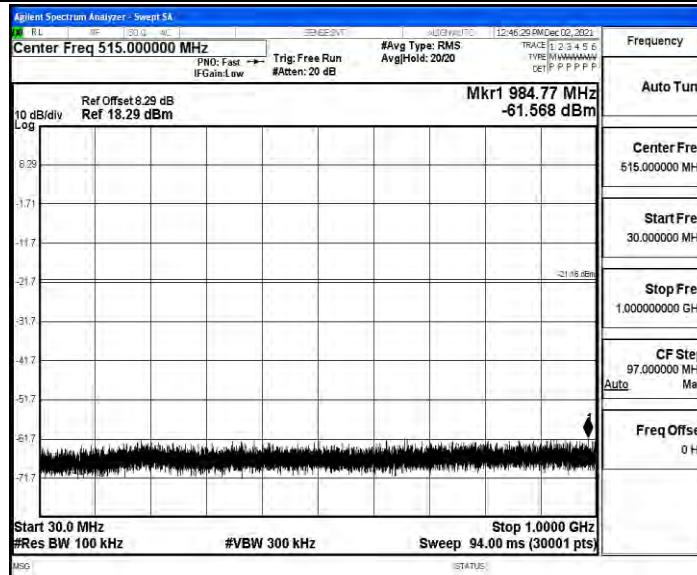




11N20SISO_Ant1_2412_0~Reference

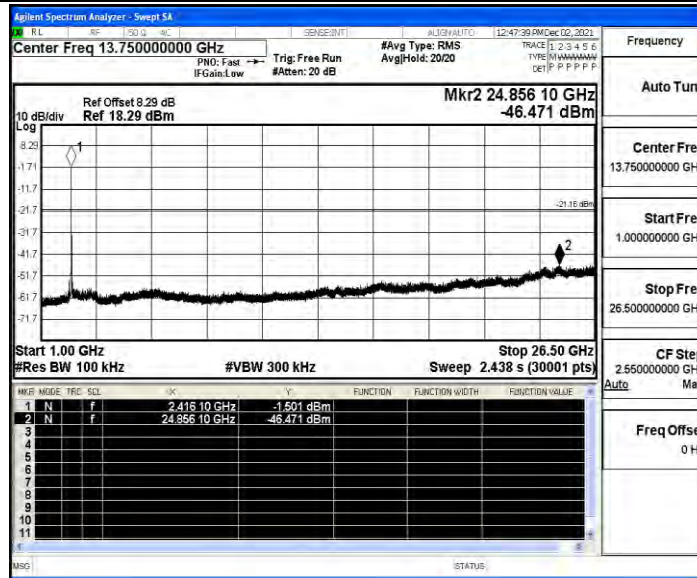


11N20SISO_Ant1_2412_30~1000

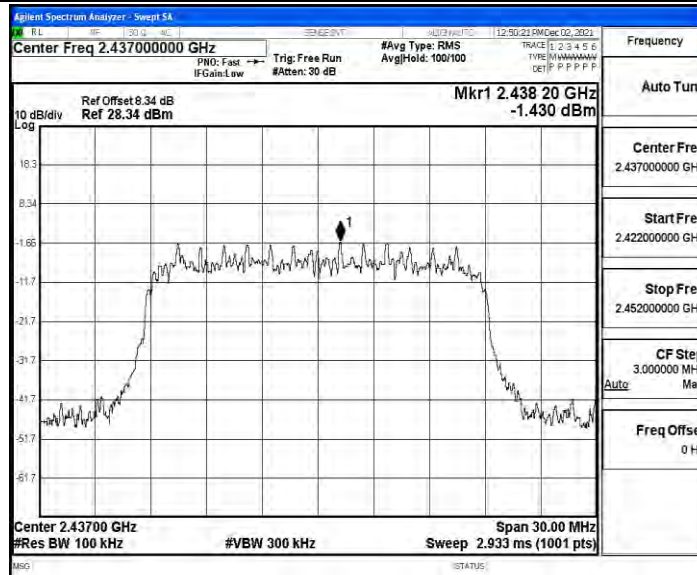




11N20SISO_Ant1_2412_1000~26500

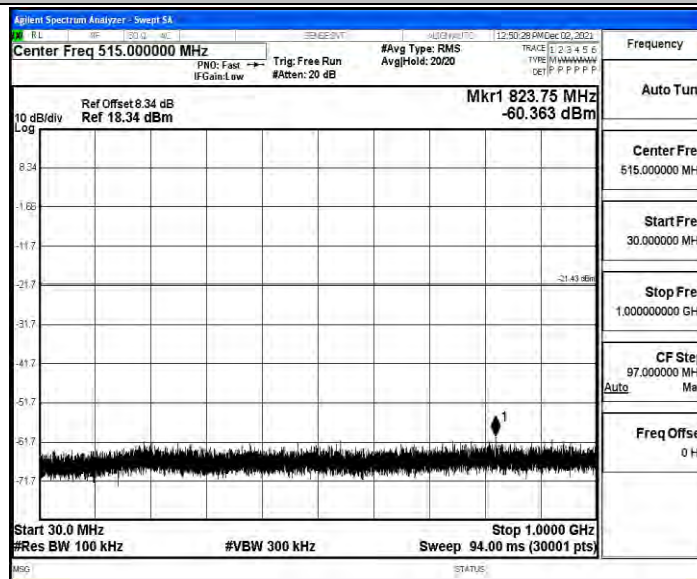


11N20SISO_Ant1_2437_0~Reference

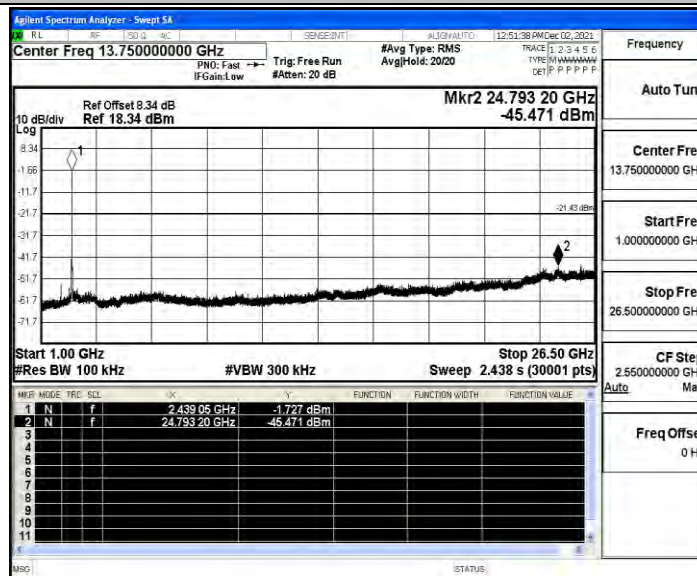




11N20SISO_Ant1_2437_30~1000

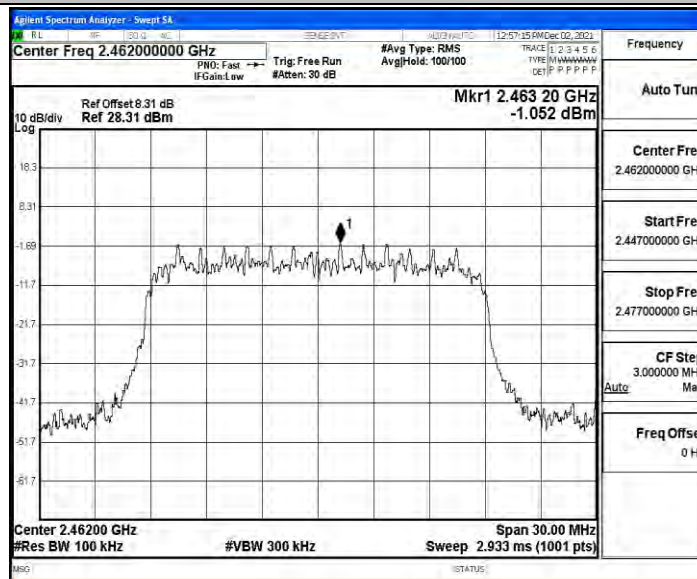


11N20SISO_Ant1_2437_1000~26500

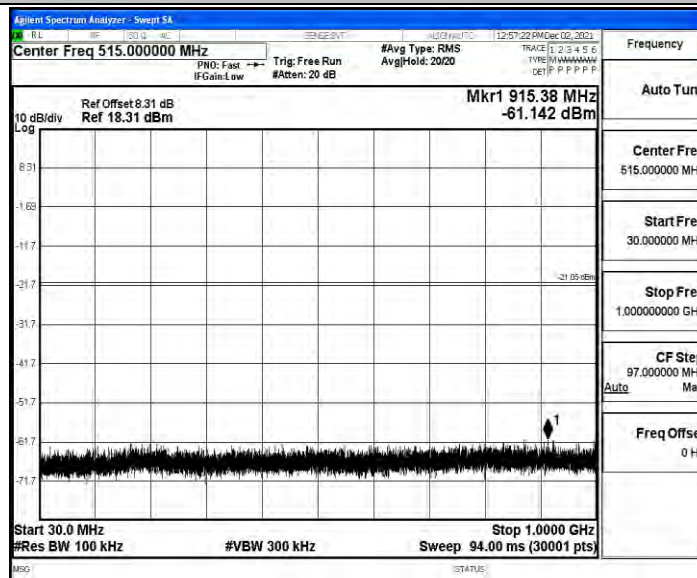




11N20SISO_Ant1_2462_0~Reference

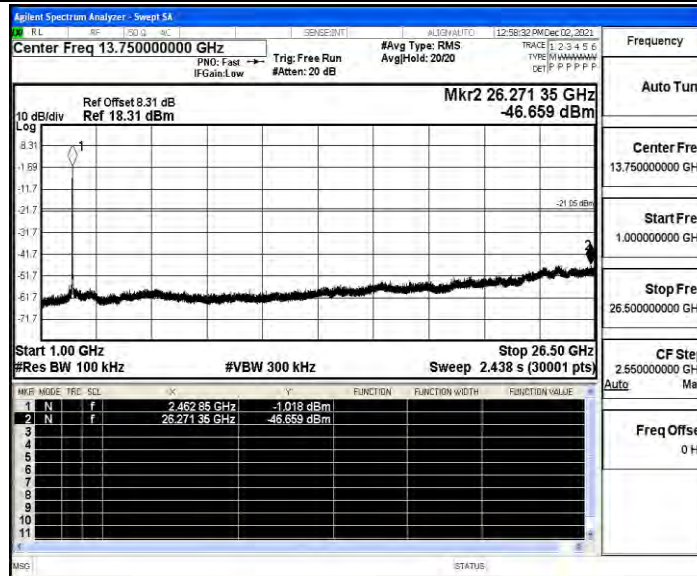


11N20SISO_Ant1_2462_30~1000

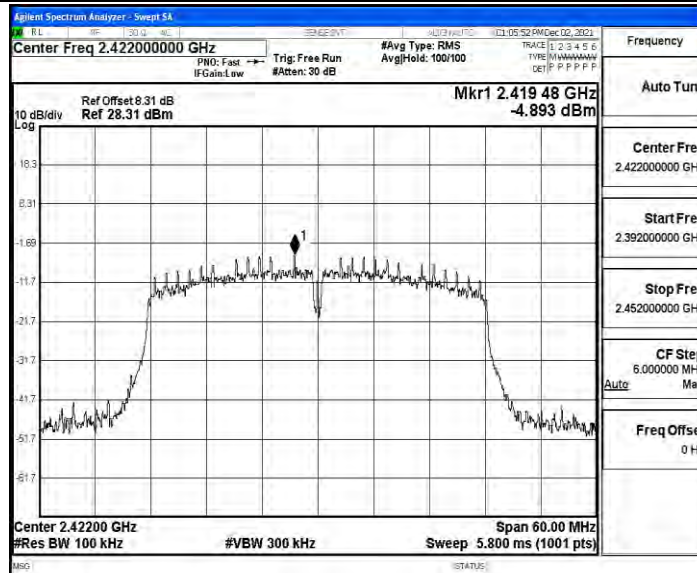




11N20SISO_Ant1_2462_1000~26500

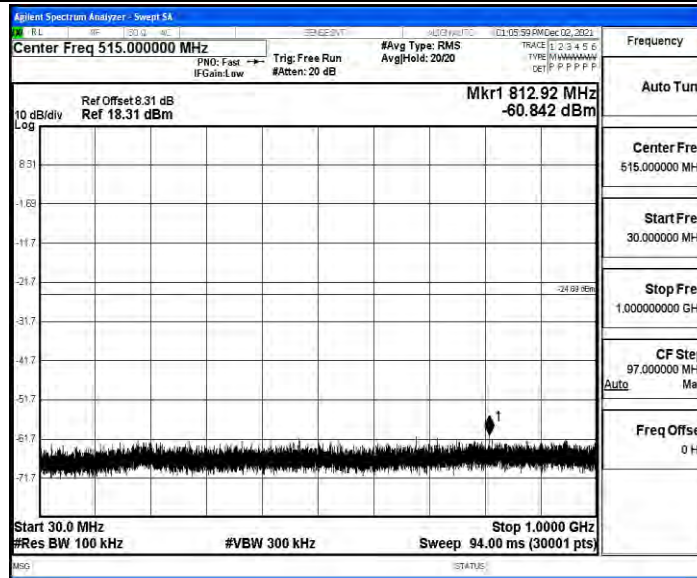


11N40SISO_Ant1_2422_0~Reference

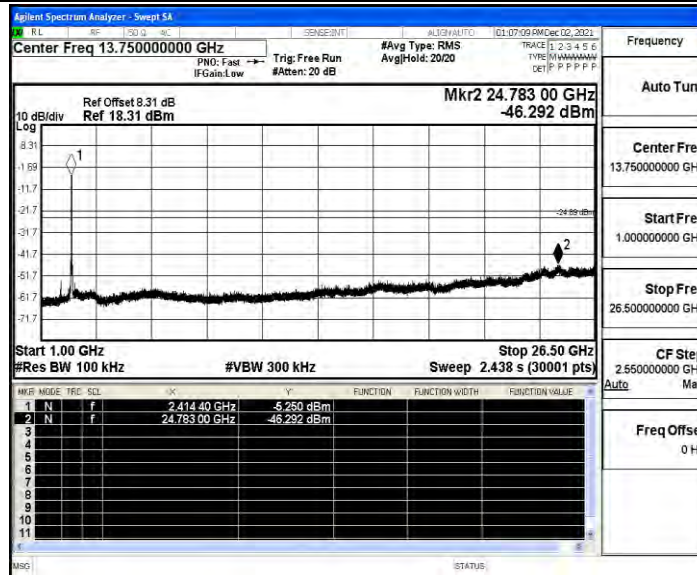




11N40SISO_Ant1_2422_30~1000

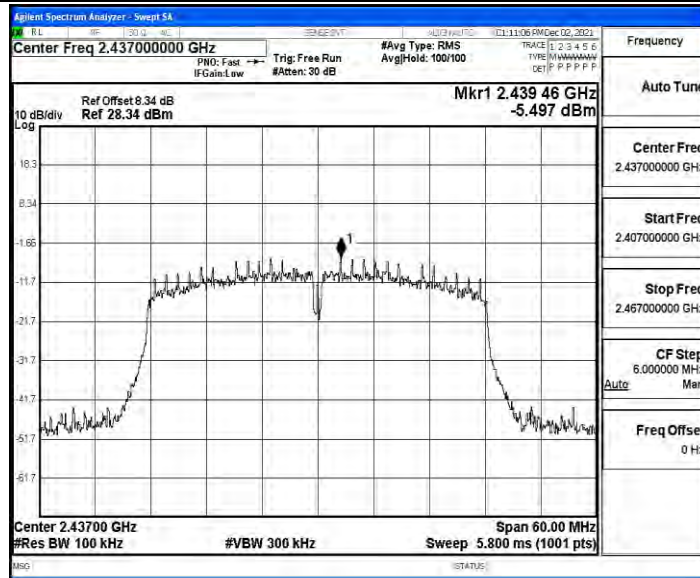


11N40SISO_Ant1_2422_1000~26500

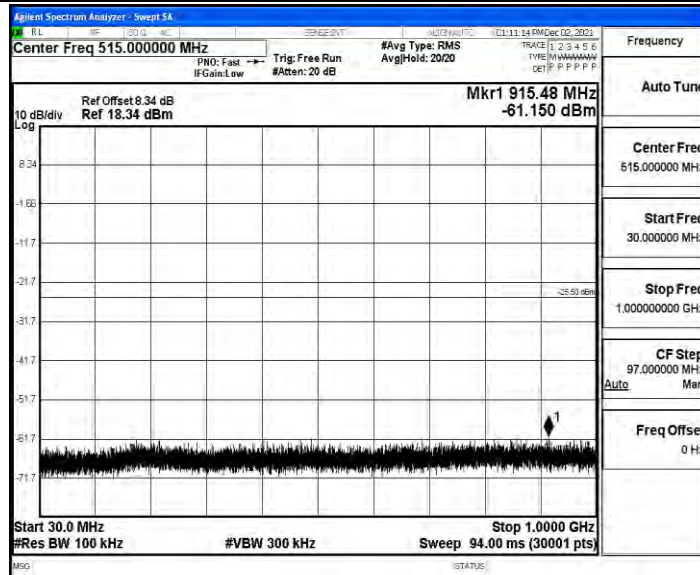




11N40SISO_Ant1_2437_0~Reference

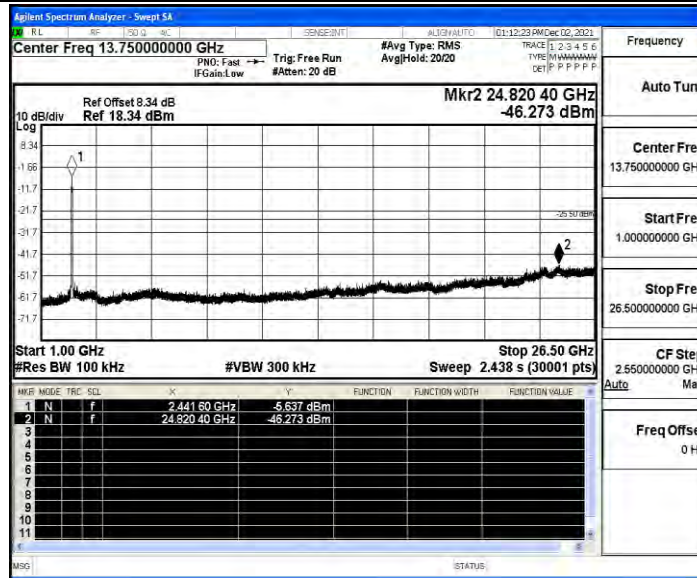


11N40SISO_Ant1_2437_30~1000

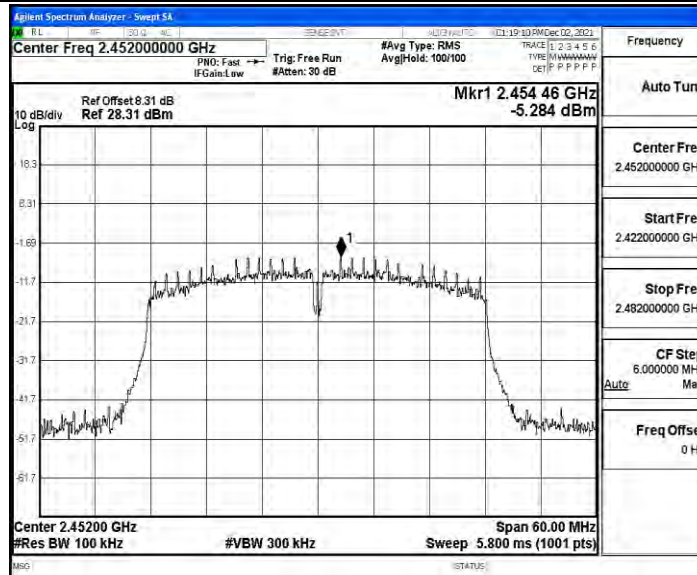




11N40SISO_Ant1_2437_1000~26500

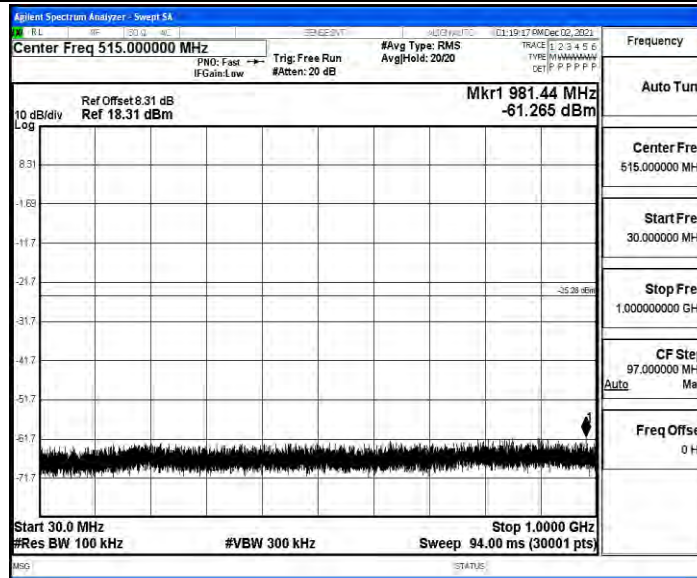


11N40SISO_Ant1_2452_0~Reference

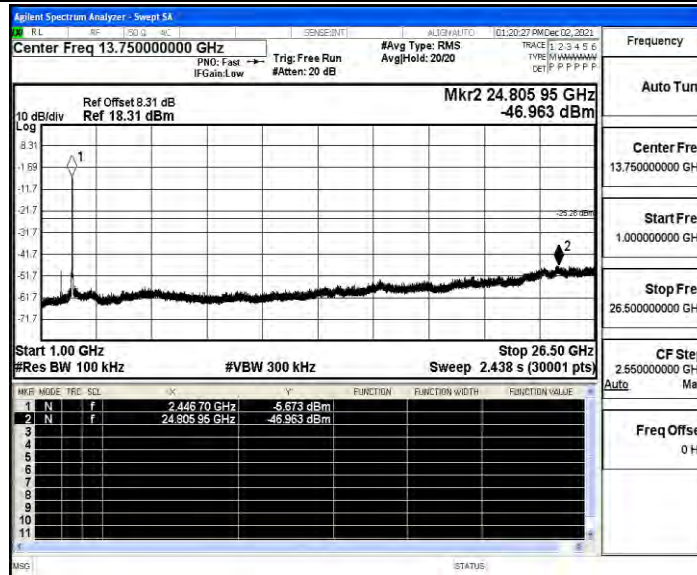




11N40SISO_Ant1_2452_30~1000



11N40SISO_Ant1_2452_1000~26500





Appendix B.7: Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11B	Ant1	Low	2412	AV	2310.000	-48.88	≤-41.20	46.32	≤54	PASS
				AV	2320.020	-47.33	≤-41.20	47.87	≤54	PASS
				AV	2390.000	-47.65	≤-41.20	47.55	≤54	PASS
				Peak	2310.000	-43.72	≤-21.20	51.48	≤74	PASS
				Peak	2384.890	-39.01	≤-21.20	56.19	≤74	PASS
				Peak	2390.000	-42.9	≤-21.20	52.30	≤74	PASS
		High	2462	AV	2483.500	-47.31	≤-41.20	47.89	≤54	PASS
				AV	2487.410	-47.17	≤-41.20	48.03	≤54	PASS
				AV	2500.000	-47.66	≤-41.20	47.54	≤54	PASS
				Peak	2483.500	-41.36	≤-21.20	53.84	≤74	PASS
				Peak	2491.480	-37.89	≤-21.20	57.31	≤74	PASS
				Peak	2500.000	-42.26	≤-21.20	52.94	≤74	PASS
11G	Ant1	Low	2412	AV	2310.000	-48.85	≤-41.20	46.35	≤54	PASS
				AV	2389.050	-45.31	≤-41.20	49.89	≤54	PASS
				AV	2390.000	-45.39	≤-41.20	49.81	≤54	PASS
				Peak	2310.000	-44.95	≤-21.20	50.25	≤74	PASS
				Peak	2388.790	-35.77	≤-21.20	59.43	≤74	PASS
				Peak	2390.000	-38.85	≤-21.20	56.35	≤74	PASS
		High	2462	AV	2483.500	-45.08	≤-41.20	50.12	≤54	PASS
				AV	2483.560	-45.16	≤-41.20	50.04	≤54	PASS
				AV	2500.000	-47.54	≤-41.20	47.66	≤54	PASS
				Peak	2483.500	-37.25	≤-21.20	57.95	≤74	PASS
				Peak	2483.780	-37.09	≤-21.20	58.11	≤74	PASS
				Peak	2500.000	-42.57	≤-21.20	52.63	≤74	PASS
11N20SISO	Ant1	Low	2412	AV	2310.000	-48.86	≤-41.20	46.34	≤54	PASS
				AV	2389.960	-46.02	≤-41.20	49.18	≤54	PASS
				AV	2390.000	-46.02	≤-41.20	49.18	≤54	PASS
				Peak	2310.000	-44.78	≤-21.20	50.42	≤74	PASS
				Peak	2387.230	-38.09	≤-21.20	57.11	≤74	PASS
				Peak	2390.000	-38.49	≤-21.20	56.71	≤74	PASS
		High	2462	AV	2483.500	-45.58	≤-41.20	49.62	≤54	PASS
				AV	2483.560	-45.65	≤-41.20	49.55	≤54	PASS
				AV	2500.000	-47.58	≤-41.20	47.62	≤54	PASS
				Peak	2483.500	-39.6	≤-21.20	55.60	≤74	PASS
				Peak	2488.290	-38.35	≤-21.20	56.85	≤74	PASS
				Peak	2500.000	-40.08	≤-21.20	55.12	≤74	PASS
11N40SISO	Ant1	Low	2422	AV	2310.000	-48.85	≤-41.20	46.35	≤54	PASS



				AV	2389.960	-44.85	≤ -41.20	50.35	≤ 54	PASS
				AV	2390.000	-44.85	≤ -41.20	50.35	≤ 54	PASS
				Peak	2310.000	-44.07	≤ -21.20	51.13	≤ 74	PASS
				Peak	2389.570	-36.17	≤ -21.20	59.03	≤ 74	PASS
				Peak	2390.000	-36.93	≤ -21.20	58.27	≤ 74	PASS
		High	2452	AV	2483.500	-45.29	≤ -41.20	49.91	≤ 54	PASS
				AV	2484.110	-45.23	≤ -41.20	49.97	≤ 54	PASS
				AV	2500.000	-47.41	≤ -41.20	47.79	≤ 54	PASS
				Peak	2483.500	-42.69	≤ -21.20	52.51	≤ 74	PASS
				Peak	2489.830	-37.19	≤ -21.20	58.01	≤ 74	PASS
				Peak	2500.000	-40.79	≤ -21.20	54.41	≤ 74	PASS

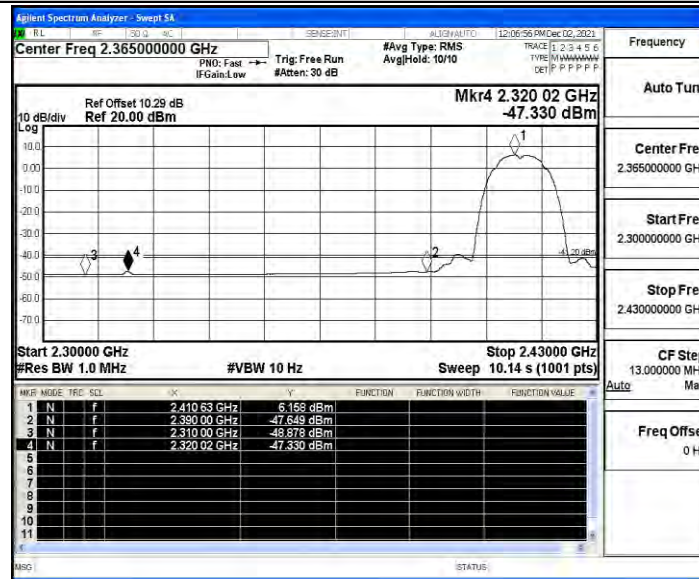
Note:

1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

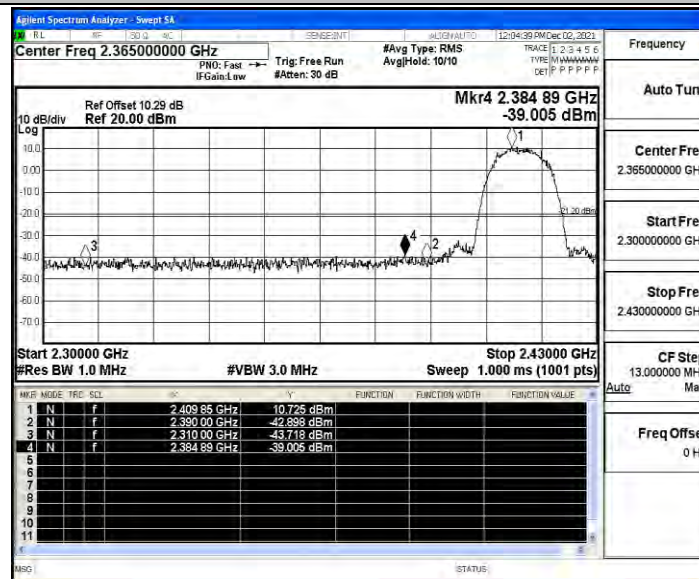


Test Graphs

11B_Ant1_Low_2412_AV

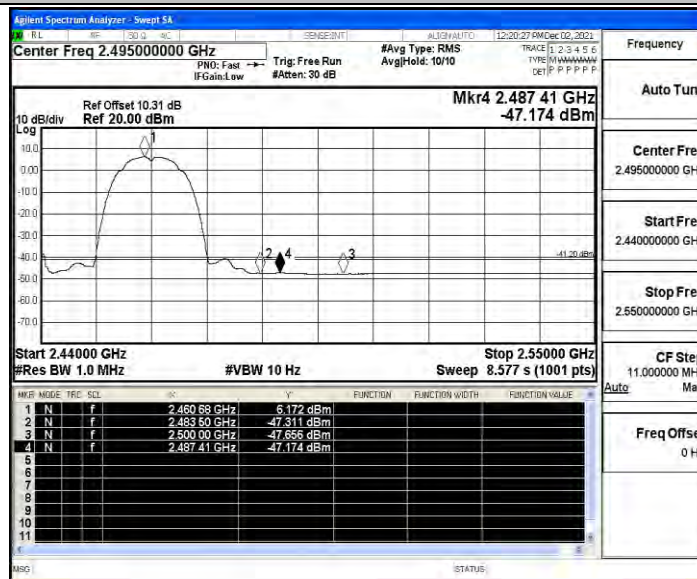


11B_Ant1_Low_2412_Peak

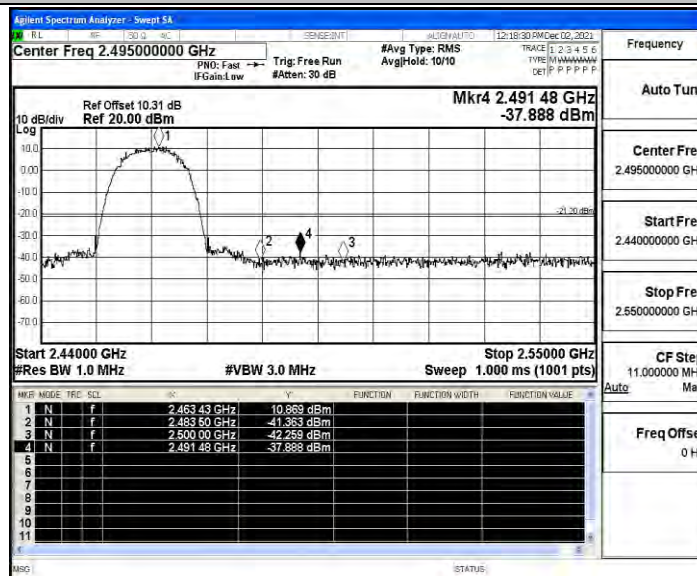




11B_Ant1_High_2462_AV

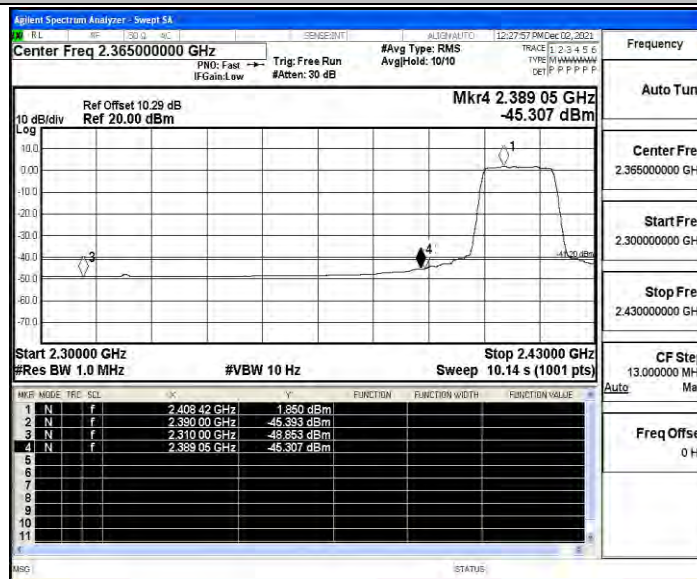


11B_Ant1_High_2462_Peak

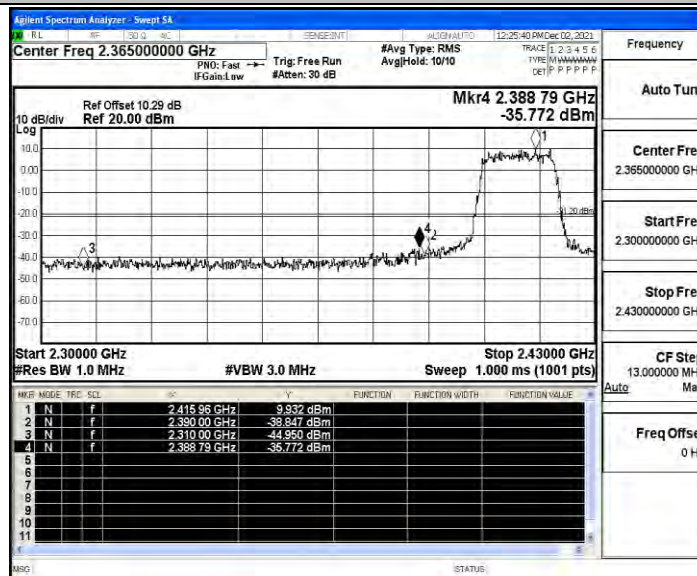




11G_Ant1_Low_2412_AV

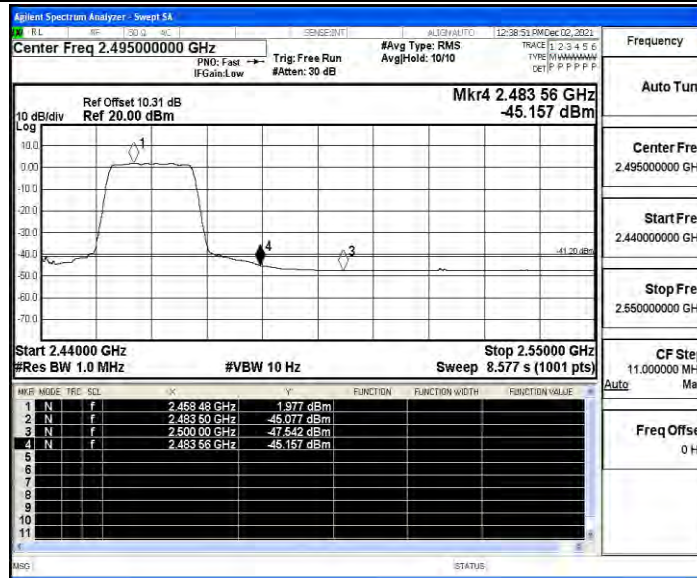


11G_Ant1_Low_2412_Peak

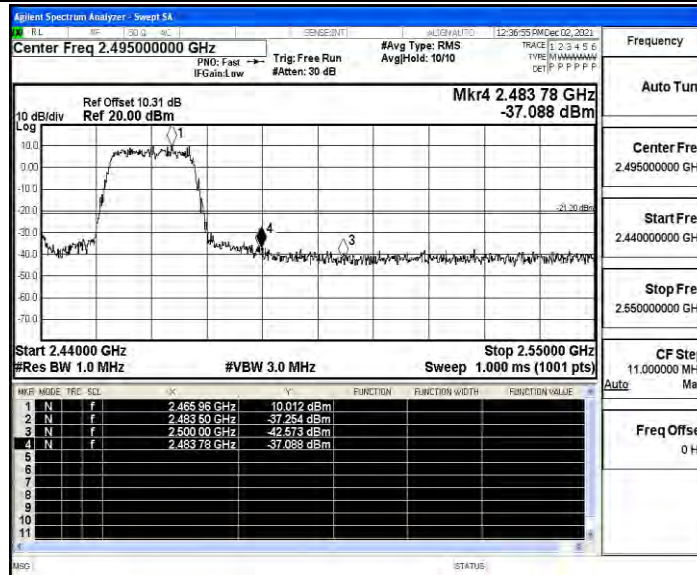




11G_Ant1_High_2462_AV

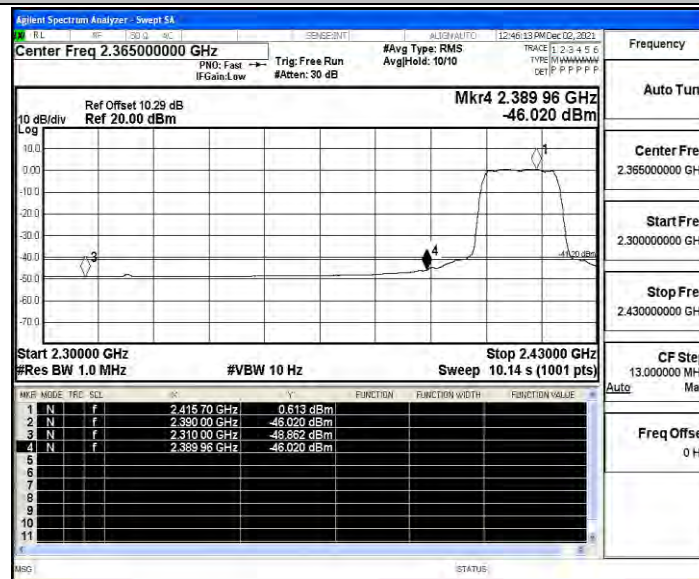


11G_Ant1_High_2462_Peak

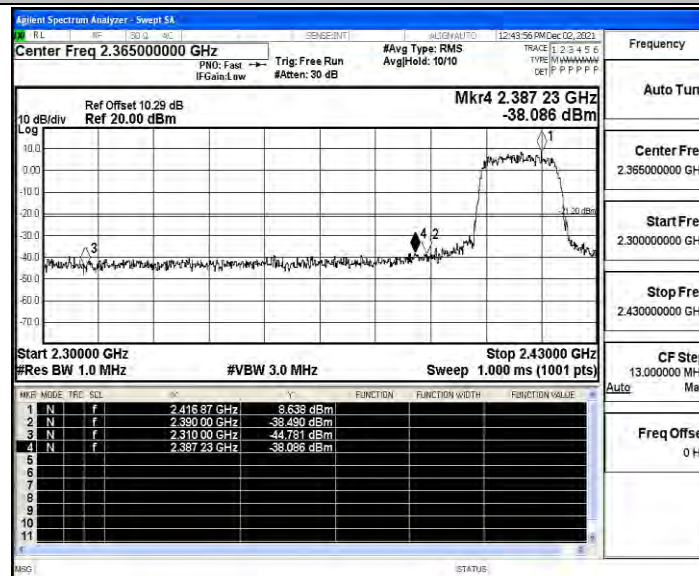




11N20SISO_Ant1_Low_2412_AV

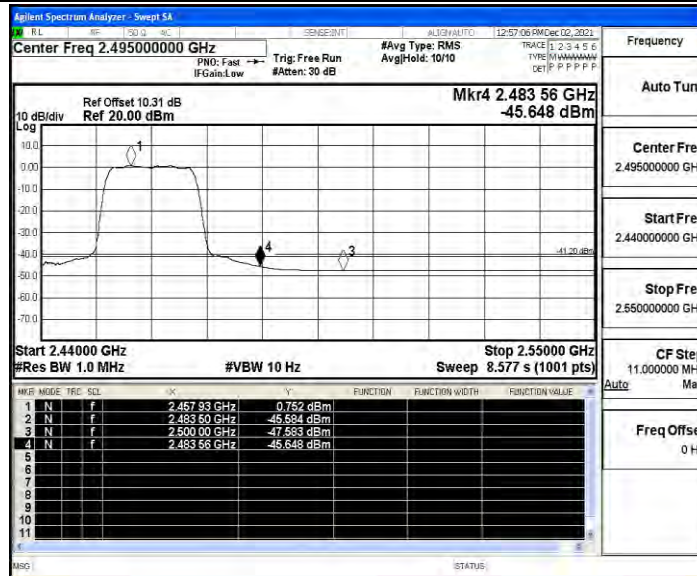


11N20SISO_Ant1_Low_2412_Peak

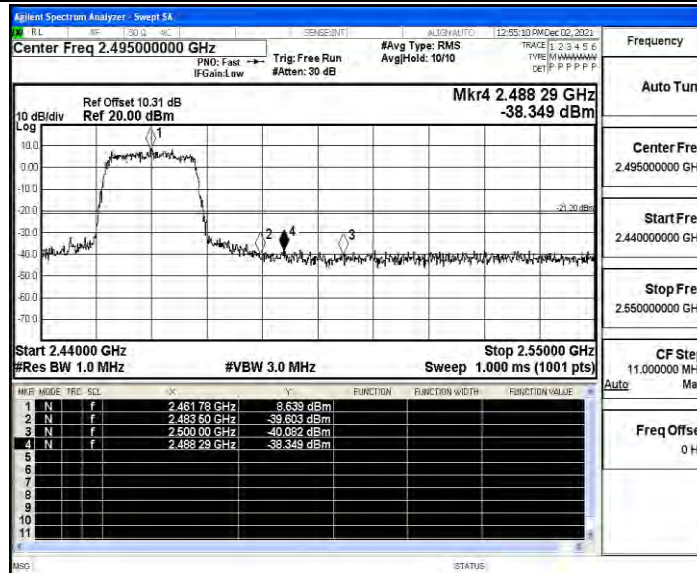




11N20SISO_Ant1_High_2462_AV

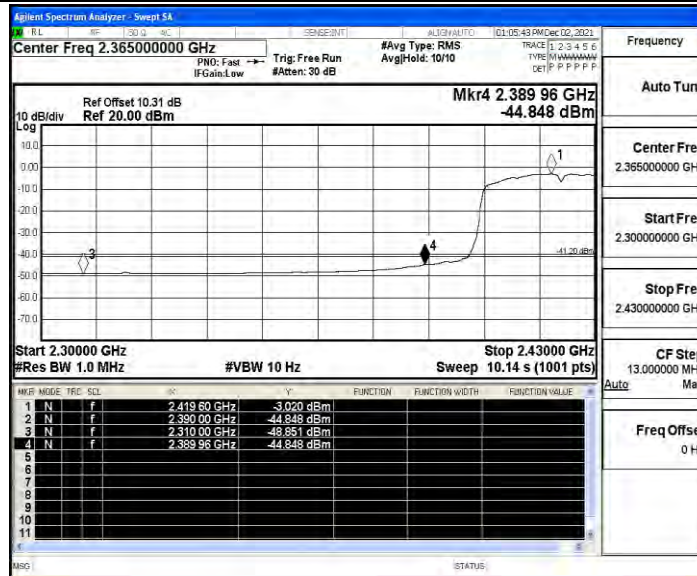


11N20SISO_Ant1_High_2462_Peak

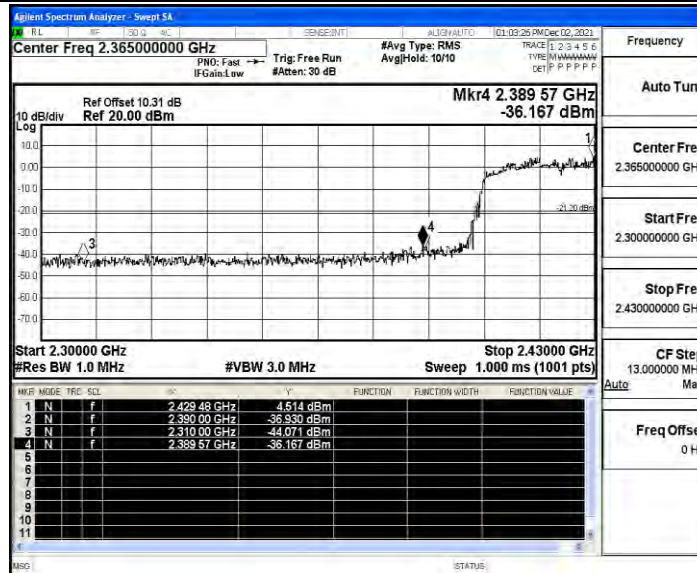




11N40SISO_Ant1_Low_2422_AV

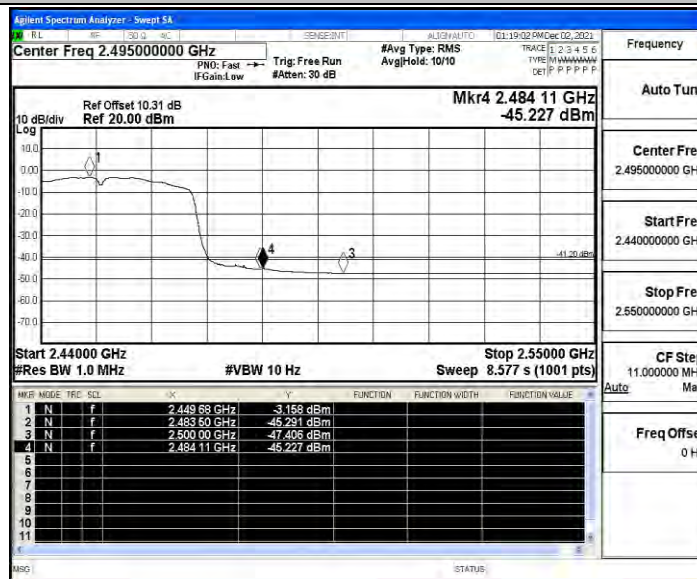


11N40SISO_Ant1_Low_2422_Peak





11N40SISO_Ant1_High_2452_AV



11N40SISO_Ant1_High_2452_Peak

