



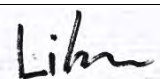
Appendix B

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Smart Down Light

Test Model: GR-SDL05XX-13

Environmental Conditions

Temperature:	23.7° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	
Supervised by:	



B.1 6dB Bandwidth

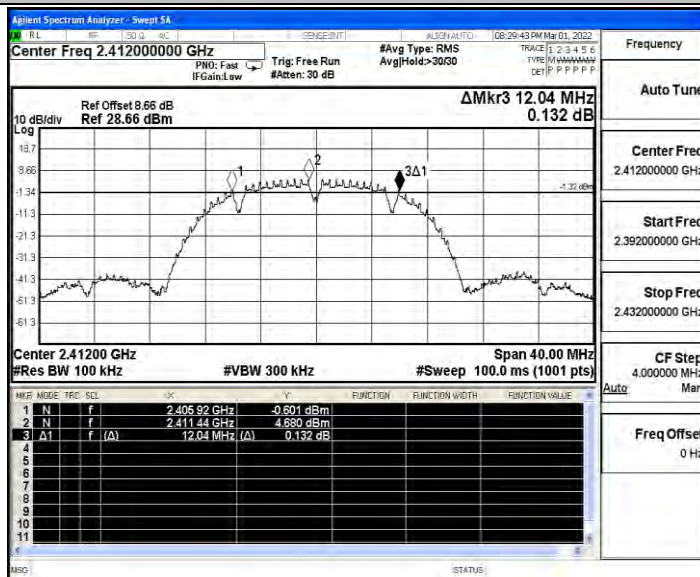
Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	12.040	2405.920	2417.960	0.5	PASS
		2437	12.040	2430.920	2442.960	0.5	PASS
		2462	12.040	2455.920	2467.960	0.5	PASS
11G	Ant1	2412	15.320	2404.360	2419.680	0.5	PASS
		2437	15.280	2429.400	2444.680	0.5	PASS
		2462	15.160	2454.360	2469.520	0.5	PASS
11N20SISO	Ant1	2412	15.080	2404.400	2419.480	0.5	PASS
		2437	15.040	2429.440	2444.480	0.5	PASS
		2462	15.040	2454.400	2469.440	0.5	PASS
11N40SISO	Ant1	2422	35.120	2404.400	2439.520	0.5	PASS
		2437	35.040	2419.400	2454.440	0.5	PASS
		2452	35.040	2434.400	2469.440	0.5	PASS

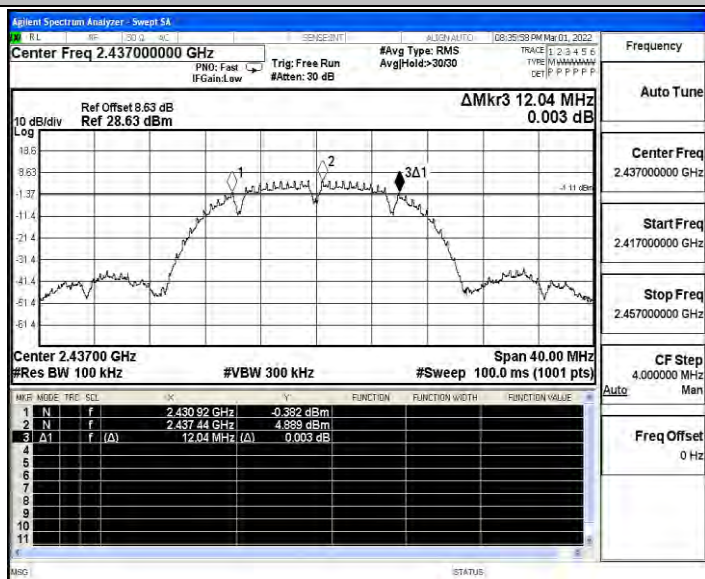


Test Graphs

11B_Ant1_2412

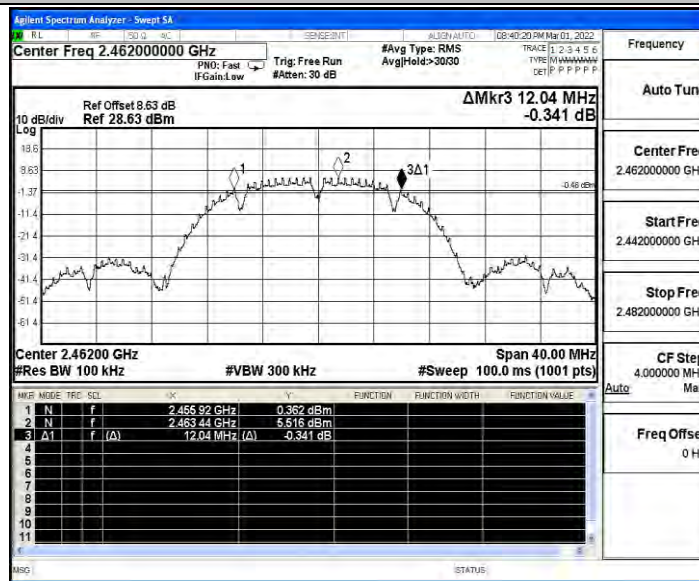


11B_Ant1_2437

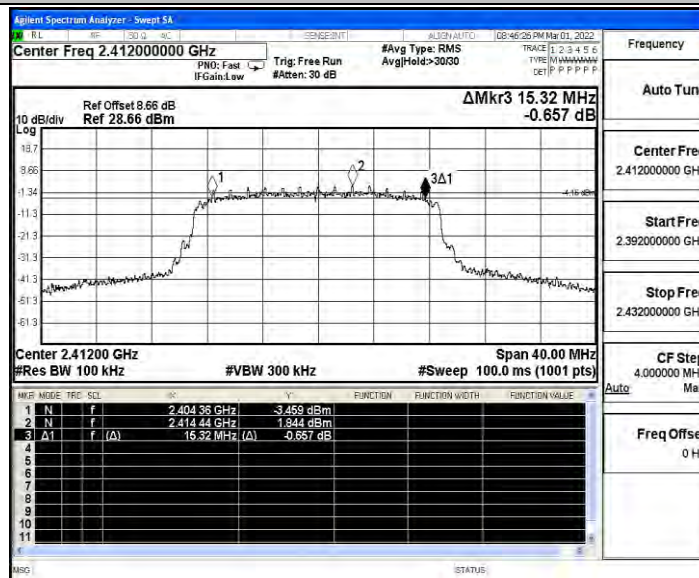




11B_Ant1_2462

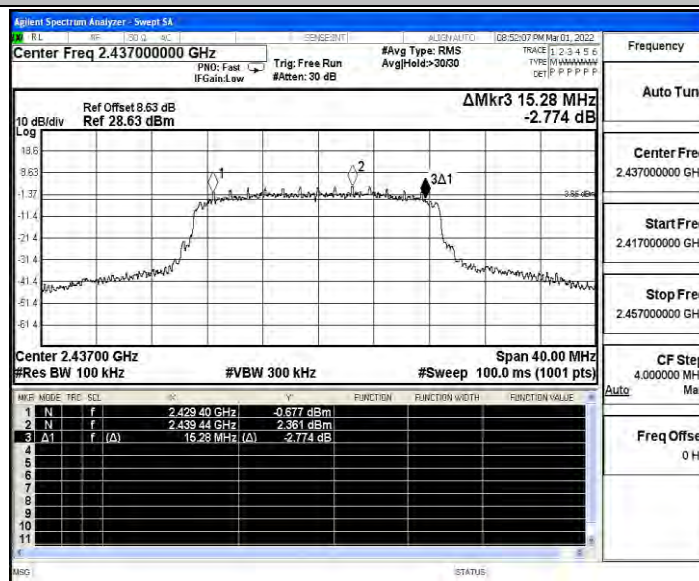


11G_Ant1_2412

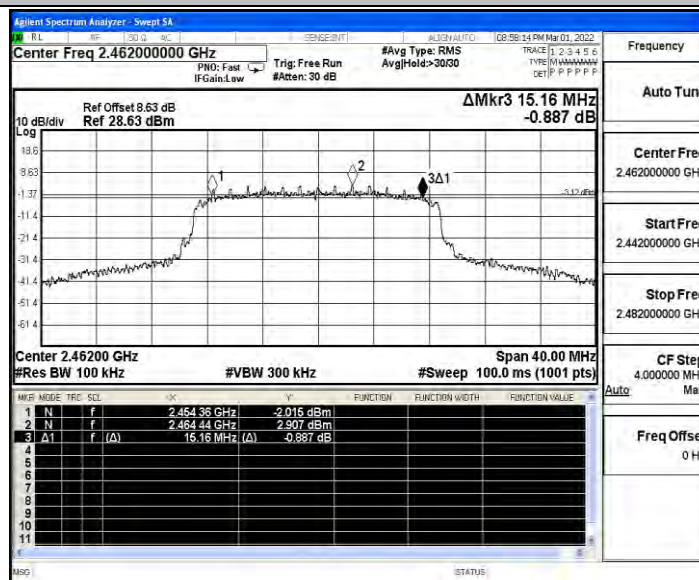




11G_Ant1_2437

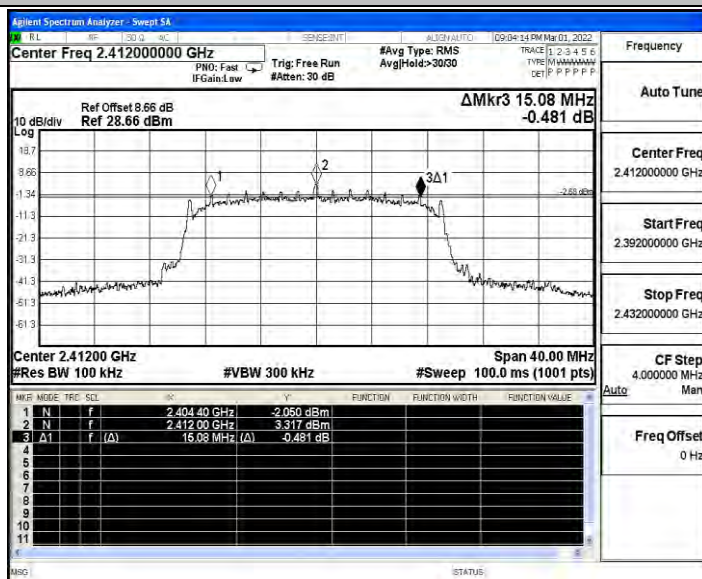


11G_Ant1_2462

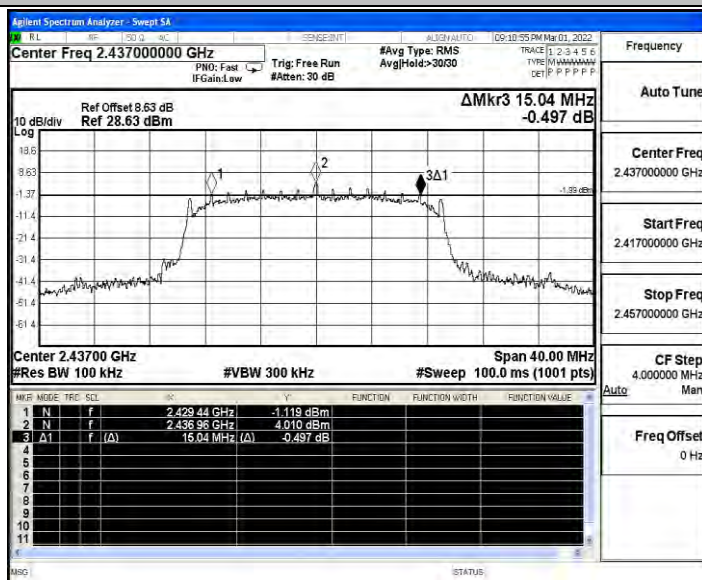




11N20SISO_Ant1_2412

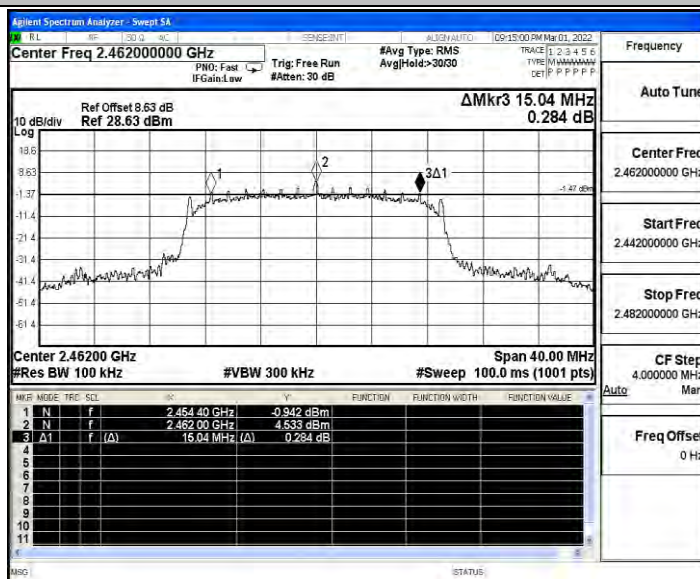


11N20SISO_Ant1_2437

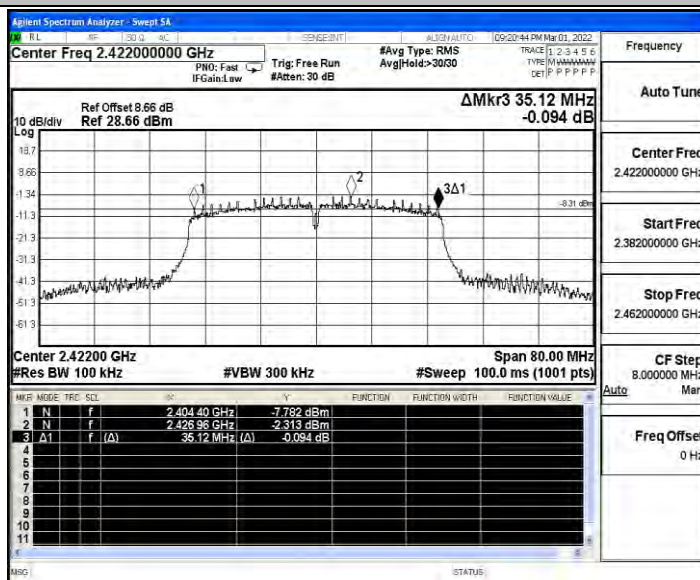




11N20SISO_Ant1_2462

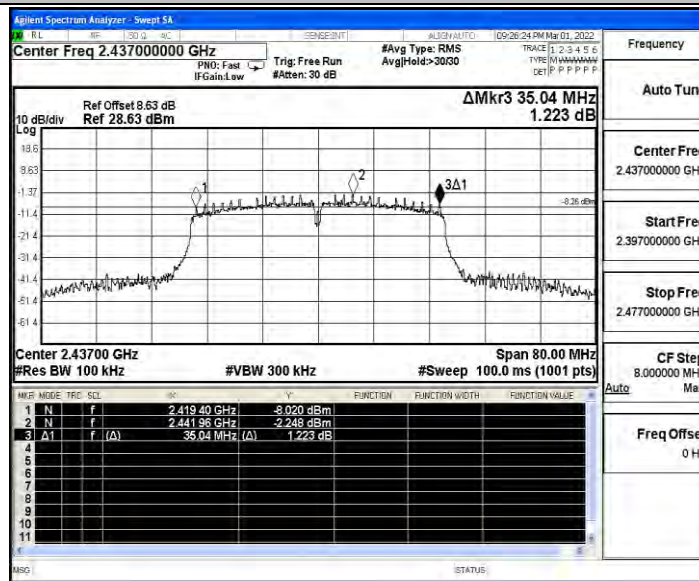


11N40SISO_Ant1_2422

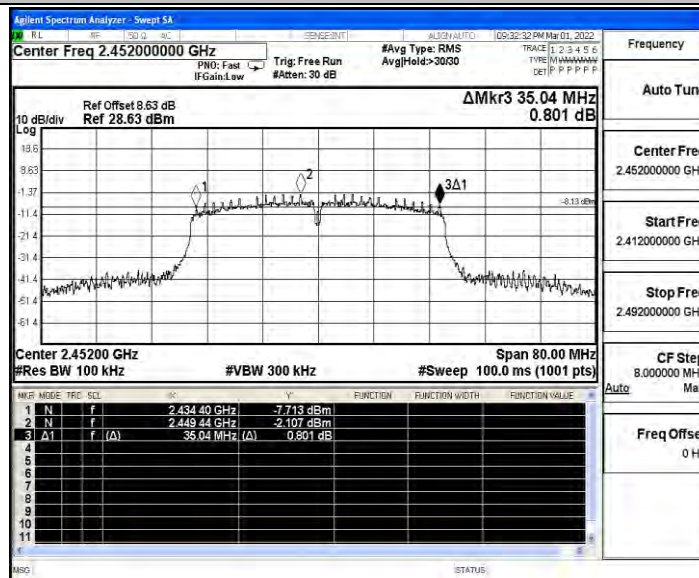




11N40SISO_Ant1_2437



11N40SISO_Ant1_2452





B.2 Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	18.26	≤30.00	PASS
		2437	18.56	≤30.00	PASS
		2462	19.23	≤30.00	PASS
11G	Ant1	2412	20.93	≤30.00	PASS
		2437	21.53	≤30.00	PASS
		2462	22.04	≤30.00	PASS
11N20SISO	Ant1	2412	20.04	≤30.00	PASS
		2437	20.70	≤30.00	PASS
		2462	21.14	≤30.00	PASS
11N40SISO	Ant1	2422	19.08	≤30.00	PASS
		2437	19.00	≤30.00	PASS
		2452	19.13	≤30.00	PASS



B.3 Maximum power spectral density

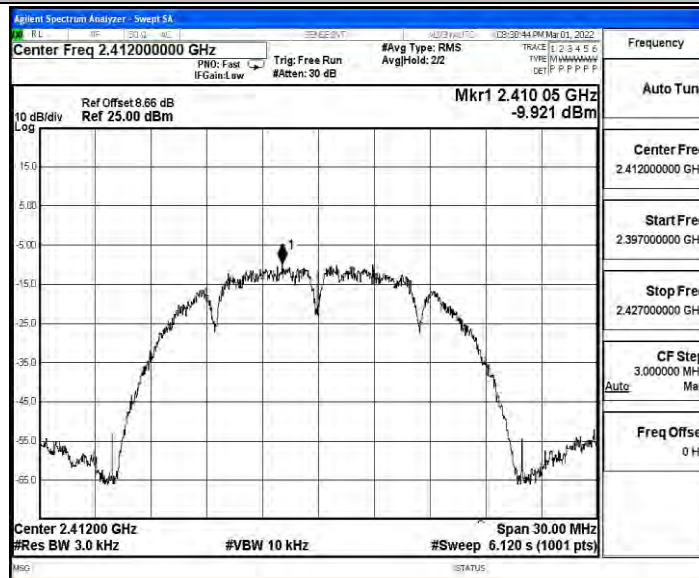
Test Result

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-9.92	≤8.00	PASS
		2437	-9.31	≤8.00	PASS
		2462	-8.55	≤8.00	PASS
11G	Ant1	2412	-11.8	≤8.00	PASS
		2437	-11.47	≤8.00	PASS
		2462	-11.35	≤8.00	PASS
11N20SISO	Ant1	2412	-11.55	≤8.00	PASS
		2437	-11.88	≤8.00	PASS
		2462	-12.41	≤8.00	PASS
11N40SISO	Ant1	2422	-13.07	≤8.00	PASS
		2437	-12.94	≤8.00	PASS
		2452	-13.87	≤8.00	PASS

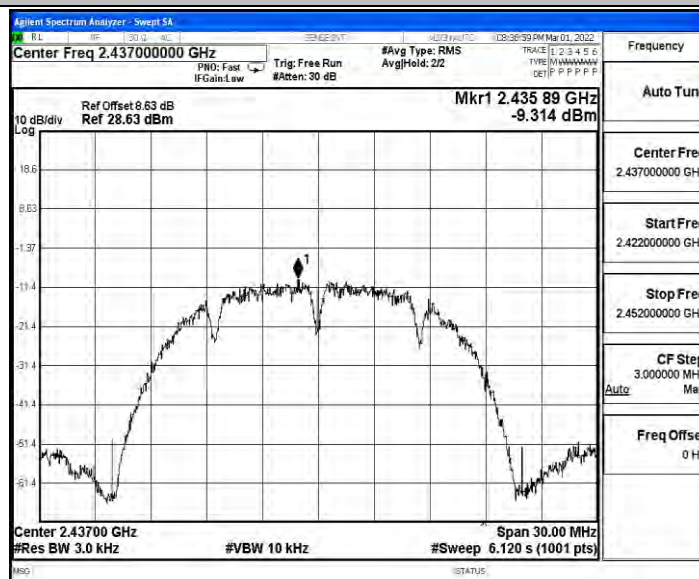


Test Graphs

11B_Ant1_2412

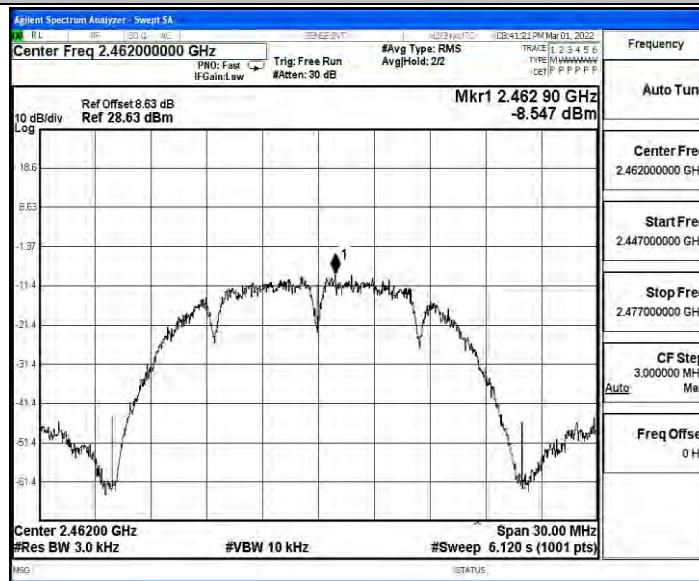


11B_Ant1_2437

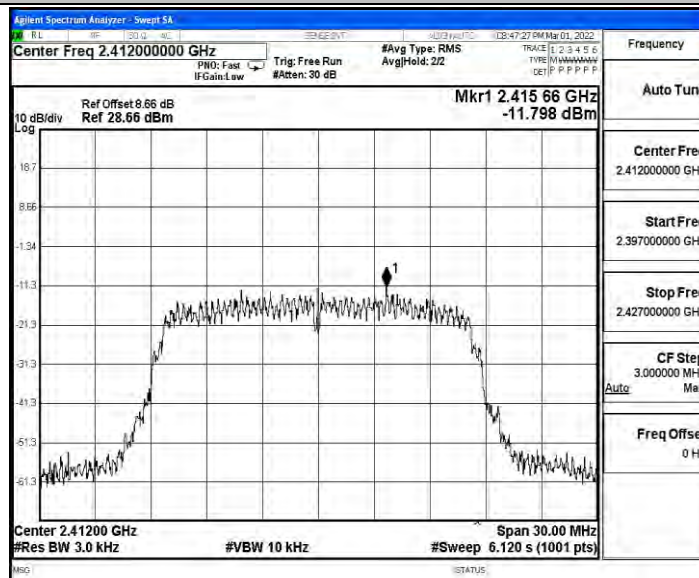




11B_Ant1_2462

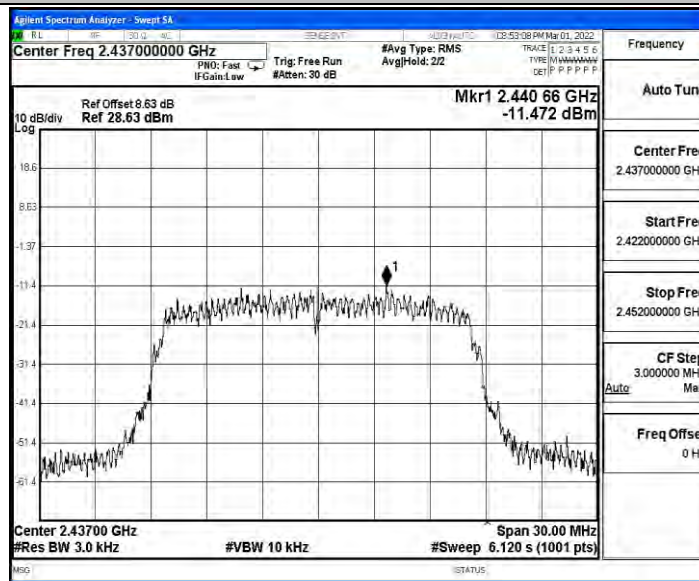


11G_Ant1_2412

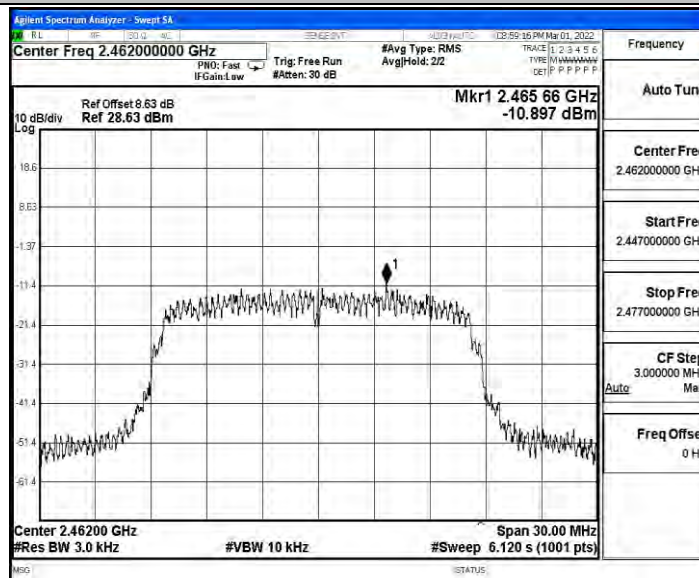




11G_Ant1_2437

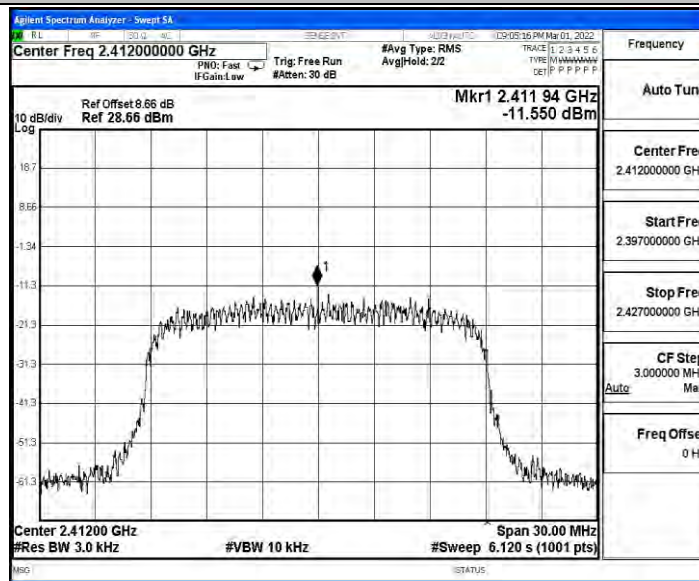


11G_Ant1_2462

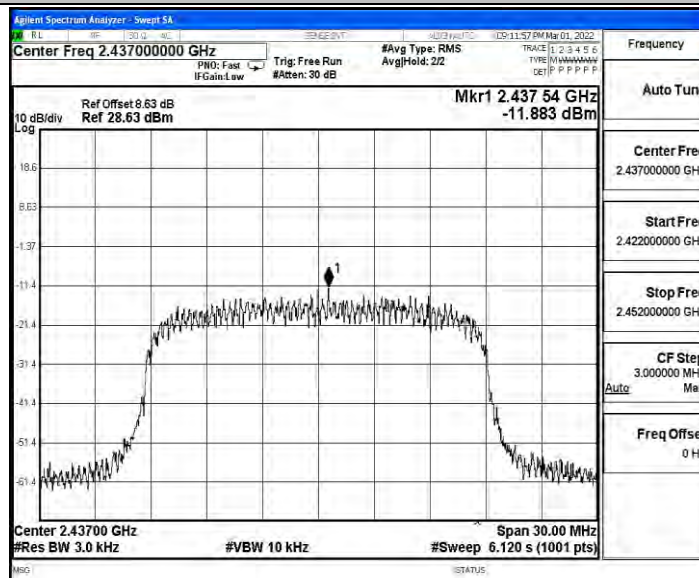




11N20SISO_Ant1_2412

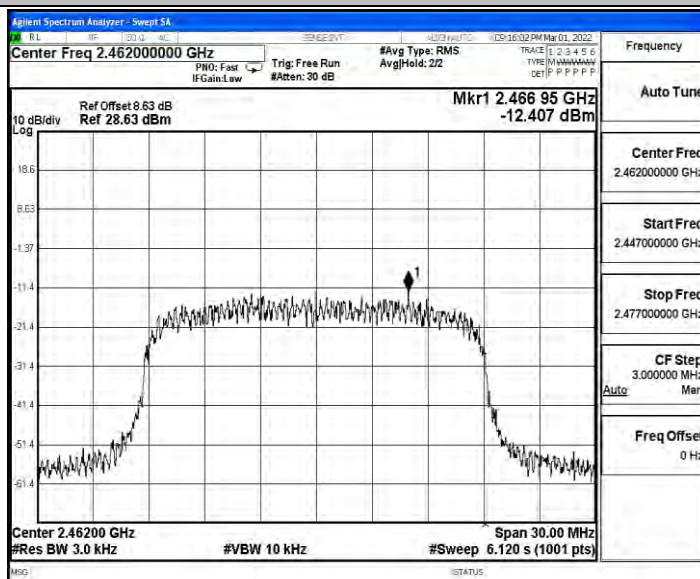


11N20SISO_Ant1_2437

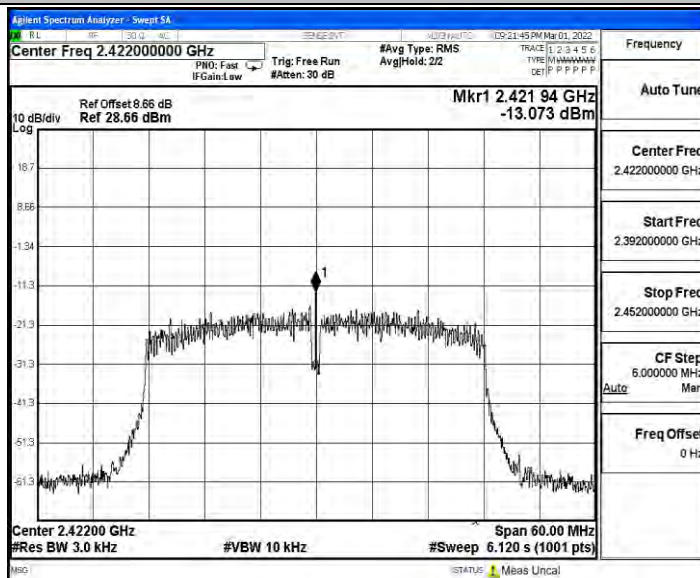




11N20SISO_Ant1_2462

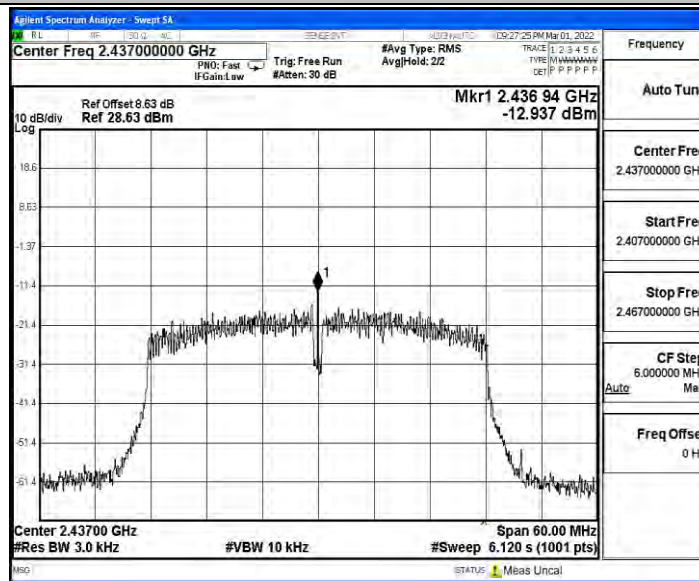


11N40SISO_Ant1_2422

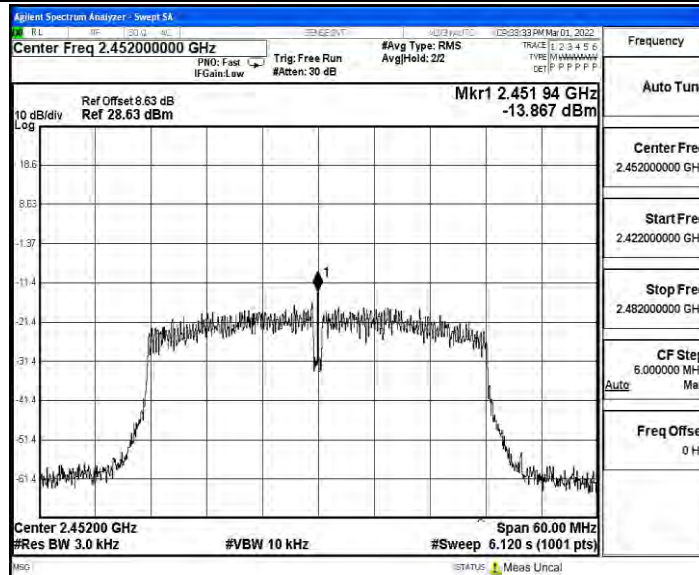




11N40SISO_Ant1_2437



11N40SISO_Ant1_2452





B.4 Band edge measurements

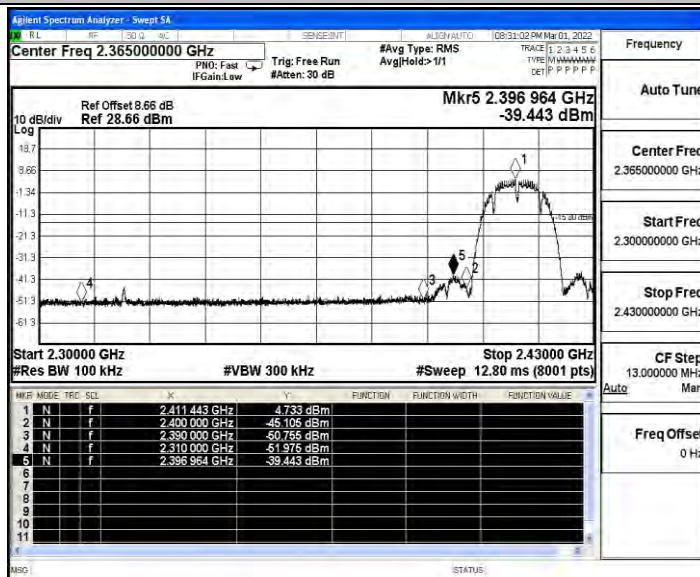
Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	4.70	-39.44	≤ -15.3	PASS
		High	2462	5.61	-44.92	≤ -14.39	PASS
11G	Ant1	Low	2412	2.08	-38.68	≤ -17.92	PASS
		High	2462	3.15	-42.81	≤ -16.85	PASS
11N20SISO	Ant1	Low	2412	3.62	-41.76	≤ -16.38	PASS
		High	2462	4.89	-40.95	≤ -15.11	PASS
11N40SISO	Ant1	Low	2422	-2.08	-39.06	≤ -22.08	PASS
		High	2452	-2.05	-39.54	≤ -22.05	PASS

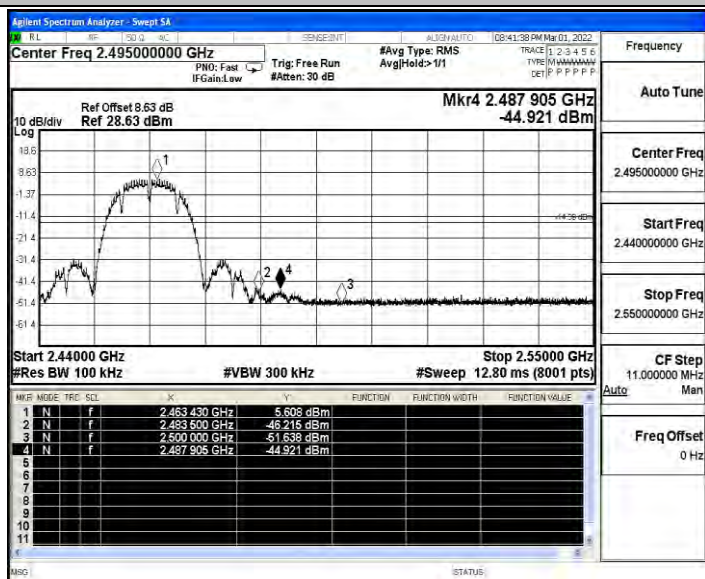


Test Graphs

11B_Ant1_Low_2412

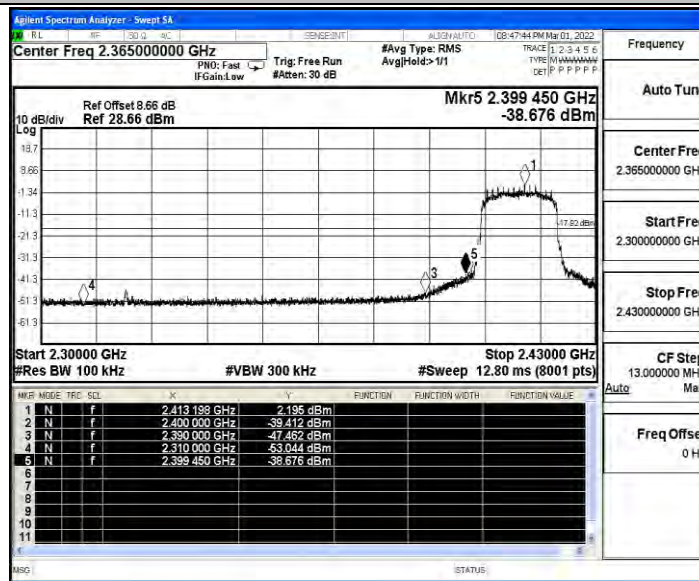


11B_Ant1_High_2462

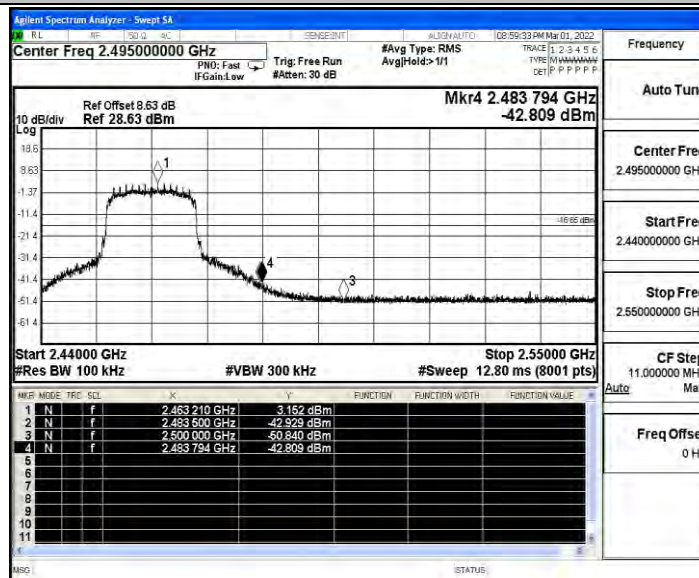




11G_Ant1_Low_2412

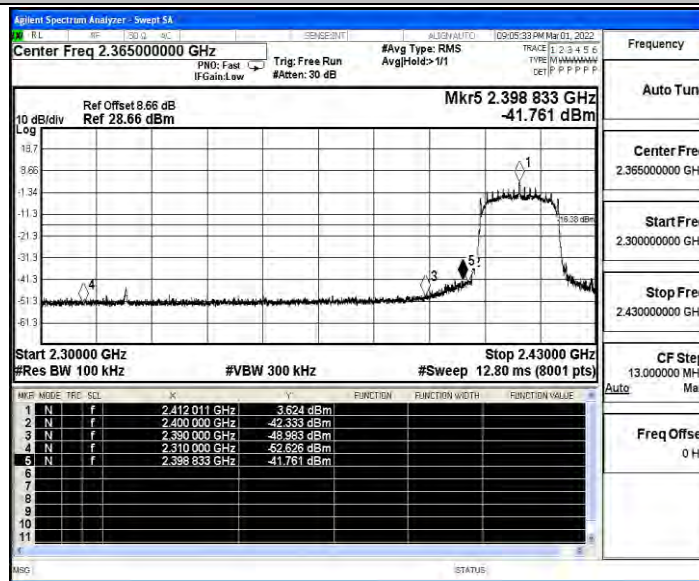


11G_Ant1_High_2462

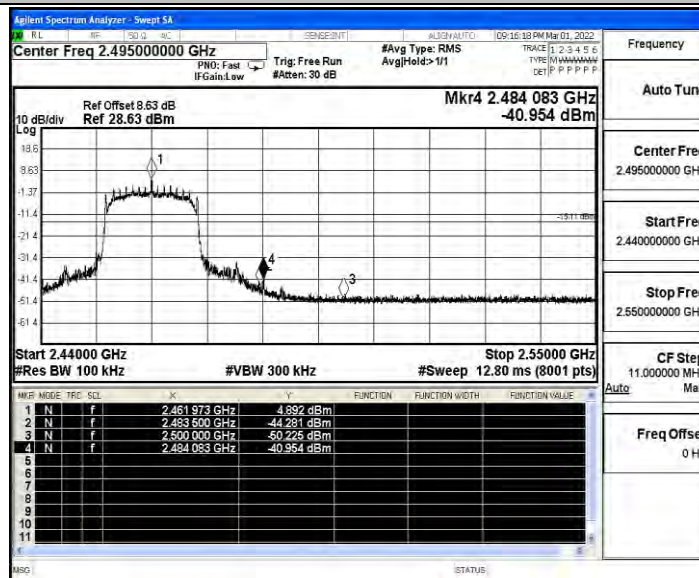




11N20SISO_Ant1_Low_2412

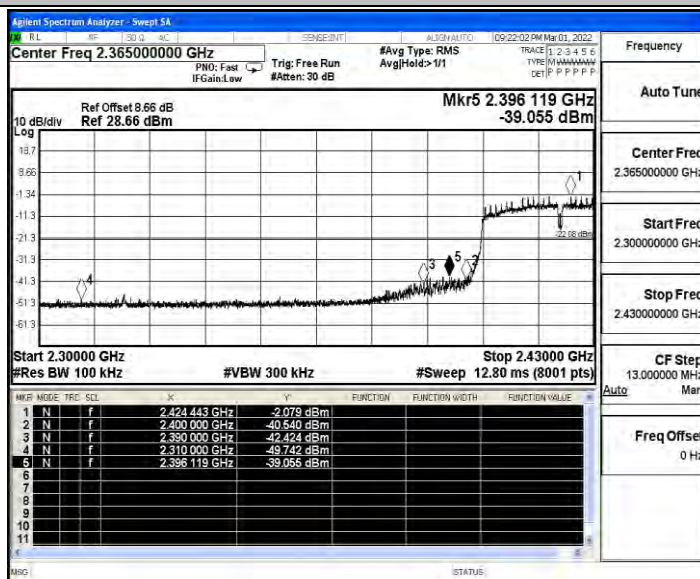


11N20SISO_Ant1_High_2462

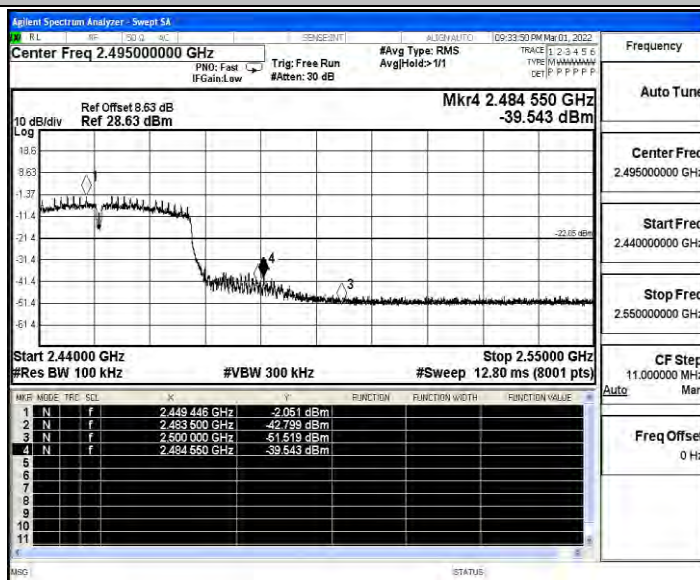




11N40SISO_Ant1_Low_2422



11N40SISO_Ant1_High_2452





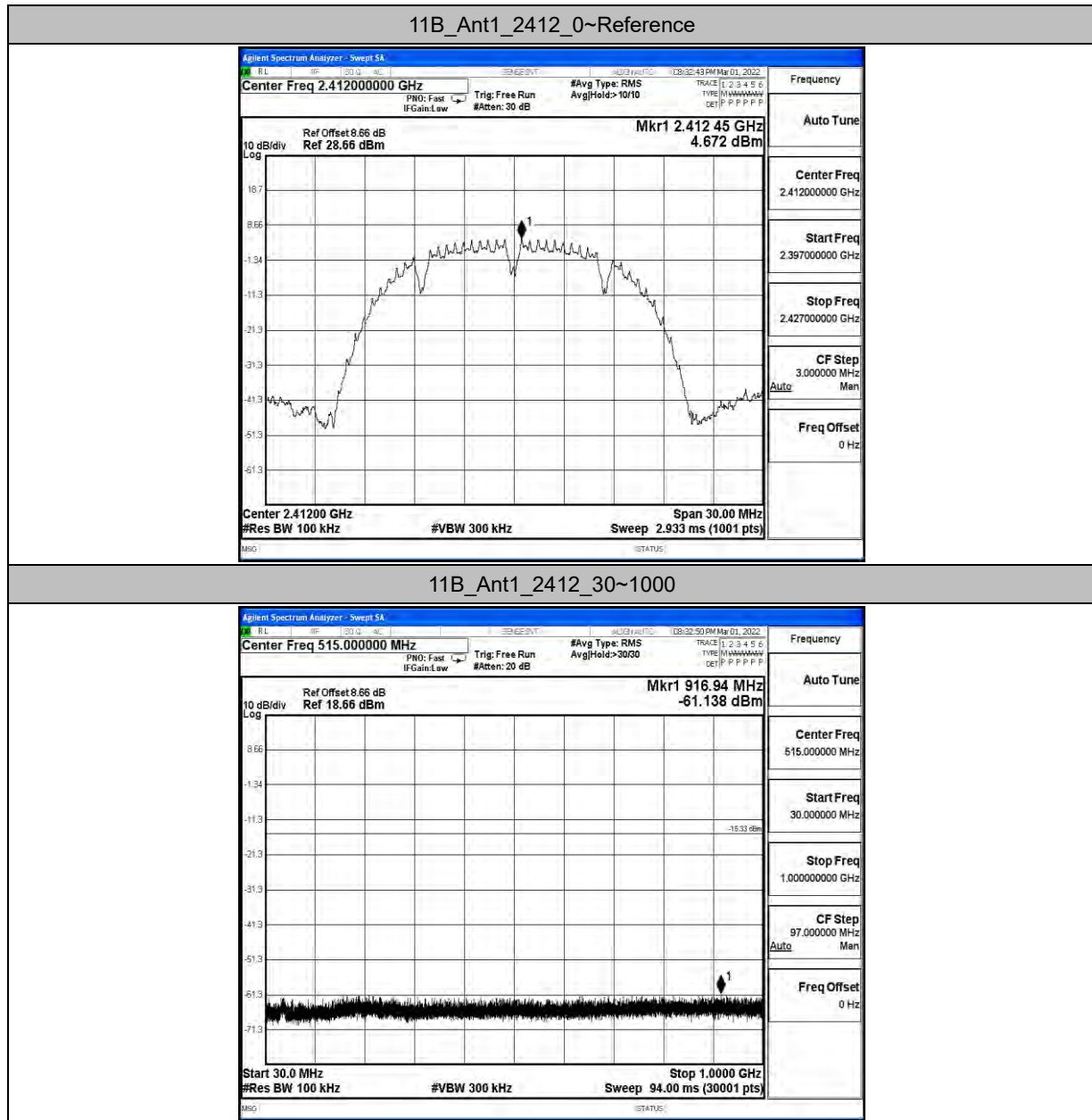
B.5 Conducted Spurious Emission

Test Result

TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	4.67	4.67	---	PASS
			30~1000	4.67	-61.14	≤-15.33	PASS
			1000~26500	4.67	-45.82	≤-15.33	PASS
		2437	Reference	5.12	5.12	---	PASS
			30~1000	5.12	-59.29	≤-14.88	PASS
			1000~26500	5.12	-45.16	≤-14.88	PASS
		2462	Reference	5.83	5.83	---	PASS
			30~1000	5.83	-60.19	≤-14.17	PASS
			1000~26500	5.83	-45.95	≤-14.17	PASS
11G	Ant1	2412	Reference	2.15	2.15	---	PASS
			30~1000	2.15	-60.74	≤-17.85	PASS
			1000~26500	2.15	-46.17	≤-17.85	PASS
		2437	Reference	2.78	2.78	---	PASS
			30~1000	2.78	-60.6	≤-17.22	PASS
			1000~26500	2.78	-46.55	≤-17.22	PASS
		2462	Reference	2.95	2.95	---	PASS
			30~1000	2.95	-59.49	≤-17.05	PASS
			1000~26500	2.95	-45.77	≤-17.05	PASS
11N20SISO	Ant1	2412	Reference	3.64	3.64	---	PASS
			30~1000	3.64	-56.53	≤-16.36	PASS
			1000~26500	3.64	-45.78	≤-16.36	PASS
		2437	Reference	4.43	4.43	---	PASS
			30~1000	4.43	-55.89	≤-15.57	PASS
			1000~26500	4.43	-46.53	≤-15.57	PASS
		2462	Reference	4.71	4.71	---	PASS
			30~1000	4.71	-56.08	≤-15.29	PASS
			1000~26500	4.71	-45.85	≤-15.29	PASS
11N40SISO	Ant1	2422	Reference	-2.08	-2.08	---	PASS
			30~1000	-2.08	-55.58	≤-22.08	PASS
			1000~26500	-2.08	-45.63	≤-22.08	PASS
		2437	Reference	-2.09	-2.09	---	PASS
			30~1000	-2.09	-55.92	≤-22.09	PASS
			1000~26500	-2.09	-46.33	≤-22.09	PASS
		2452	Reference	-2.00	-2.00	---	PASS
			30~1000	-2.00	-54.28	≤-22	PASS
			1000~26500	-2.00	-46.03	≤-22	PASS

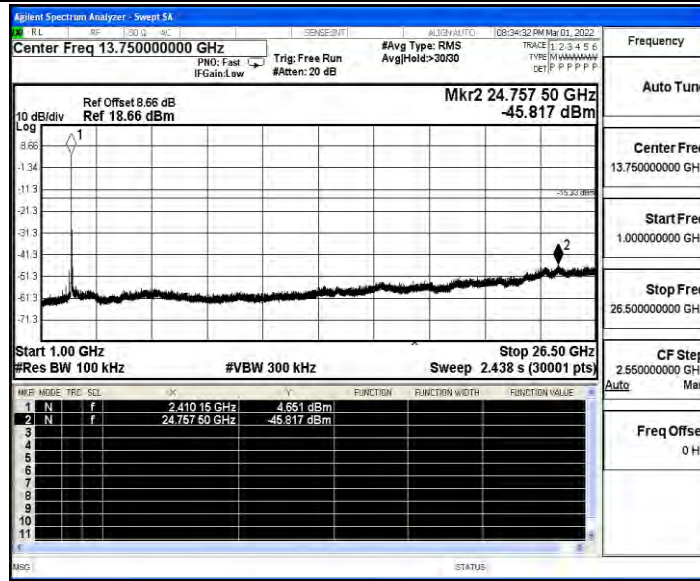


Test Graphs

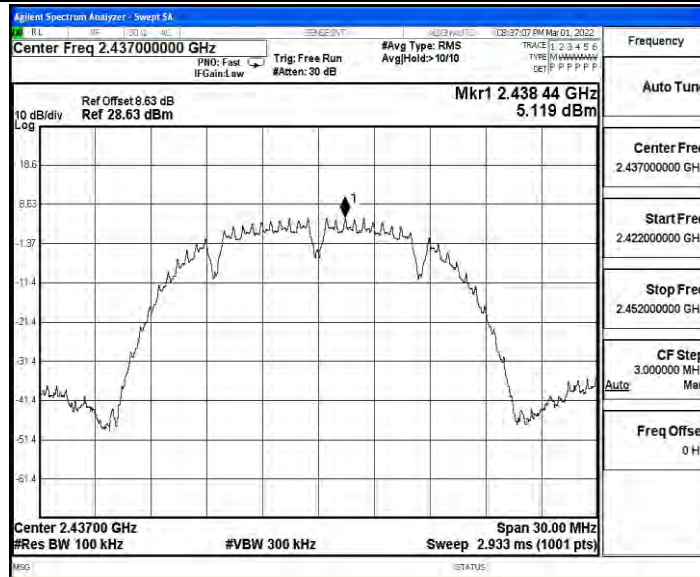




11B_Ant1_2412_1000~26500

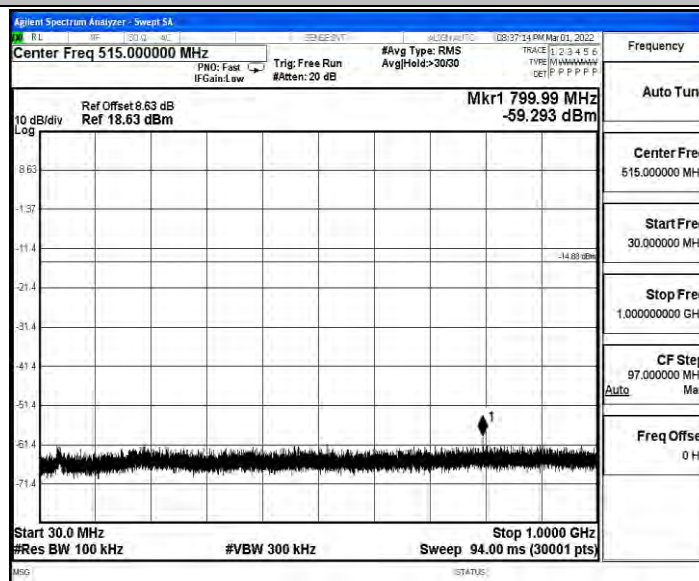


11B_Ant1_2437_0~Reference

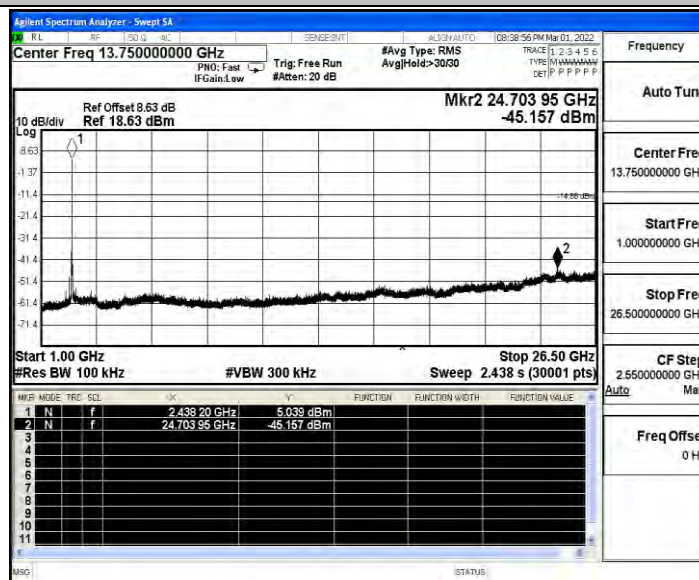




11B_Ant1_2437_30~1000

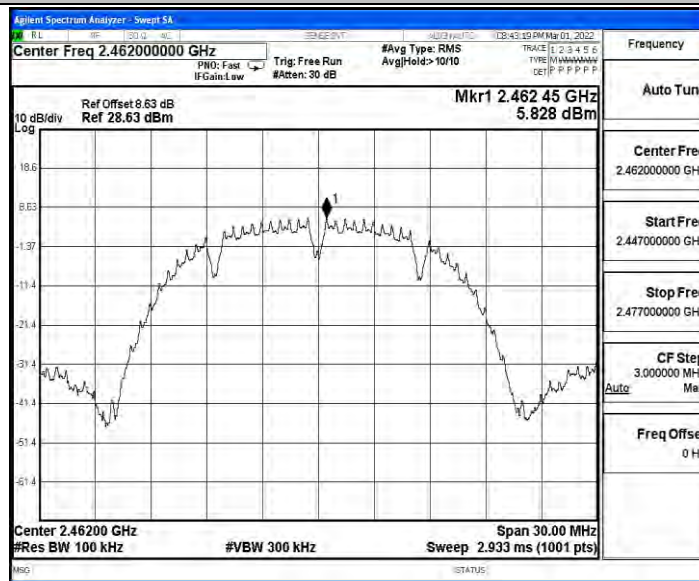


11B_Ant1_2437_1000~26500

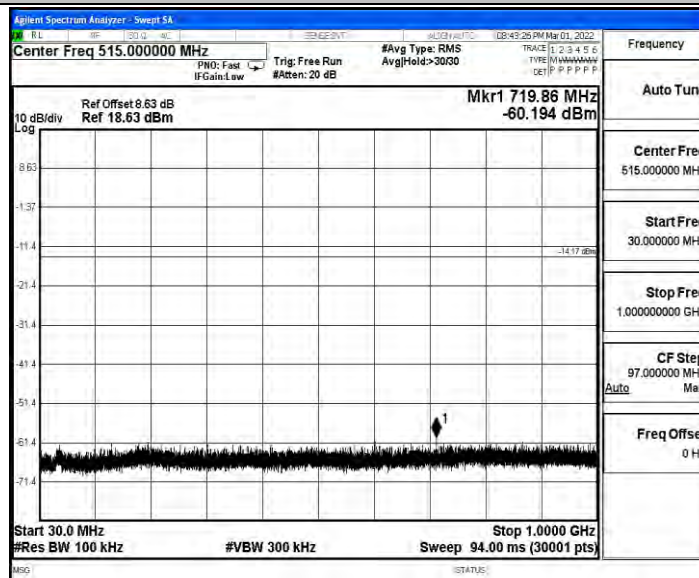




11B_Ant1_2462_0~Reference

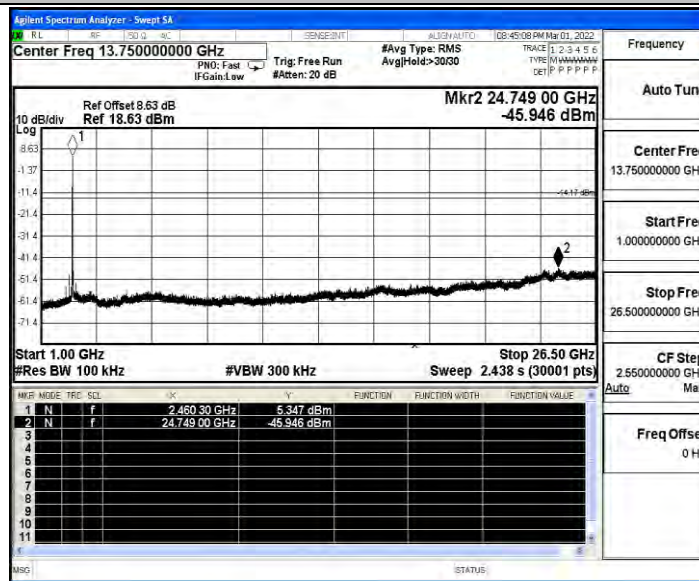


11B_Ant1_2462_30~1000

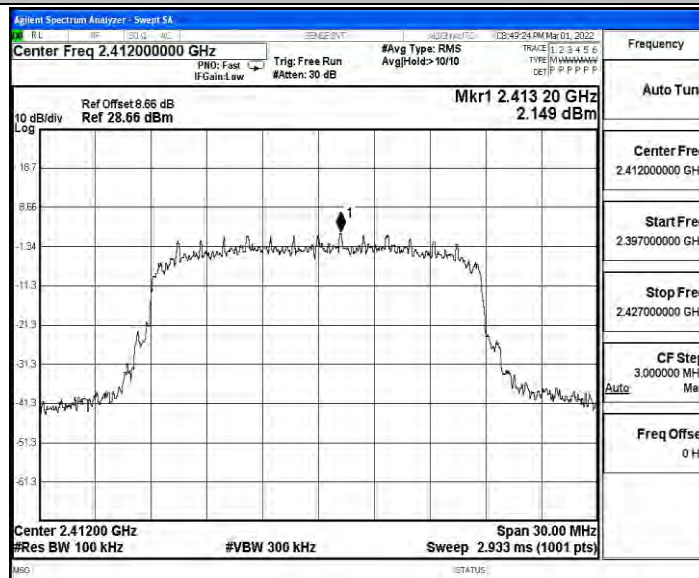




11B_Ant1_2462_1000~26500

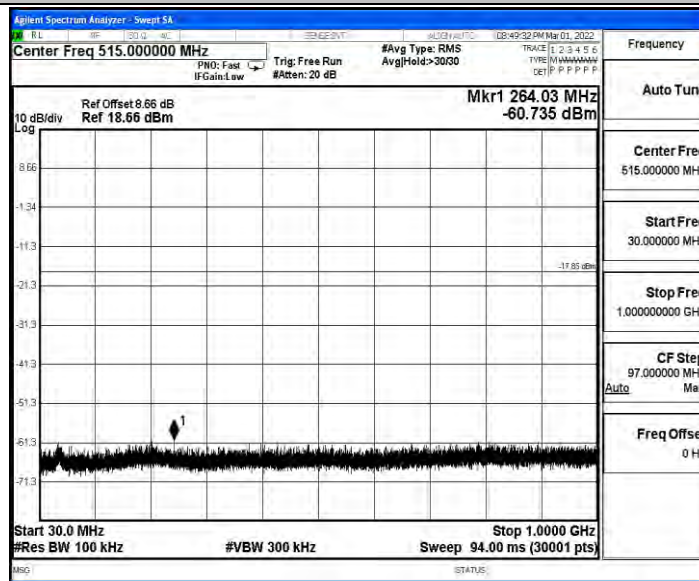


11G_Ant1_2412_0~Reference

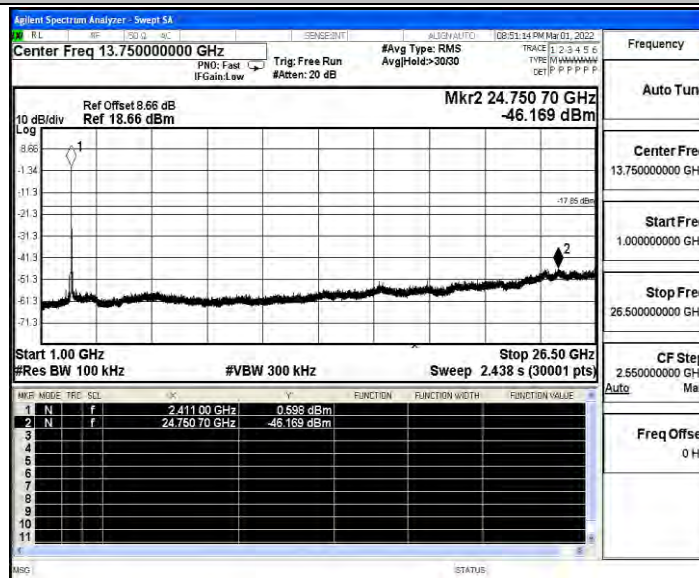




11G_Ant1_2412_30~1000

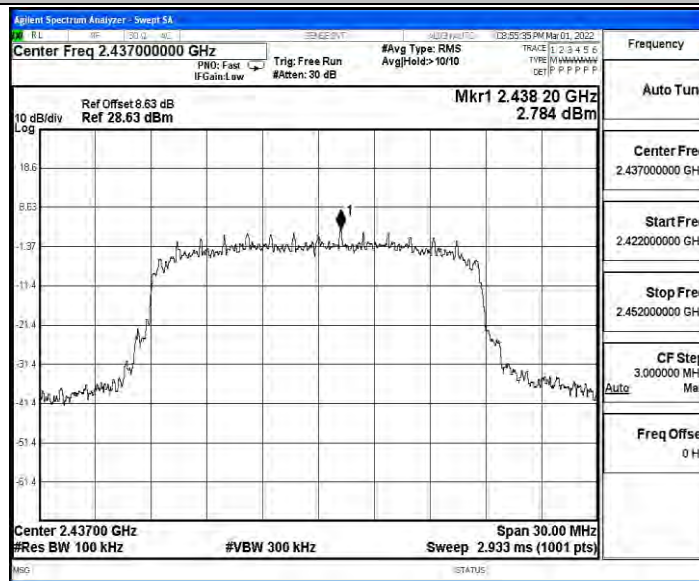


11G_Ant1_2412_1000~26500

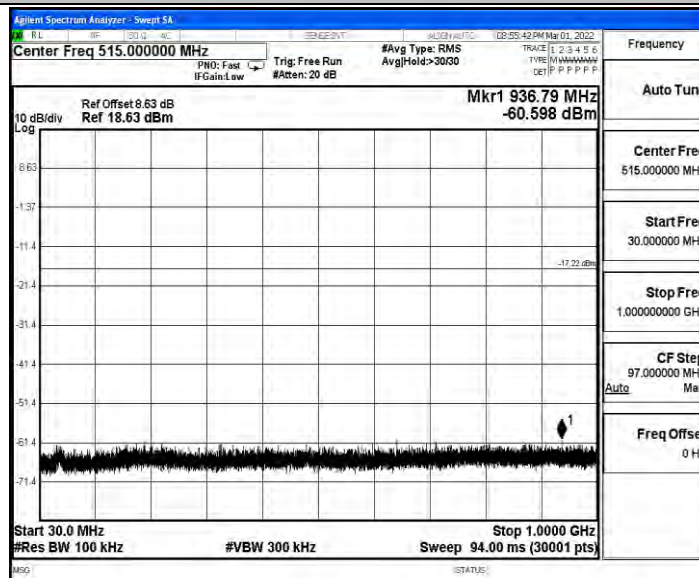




11G_Ant1_2437_0~Reference

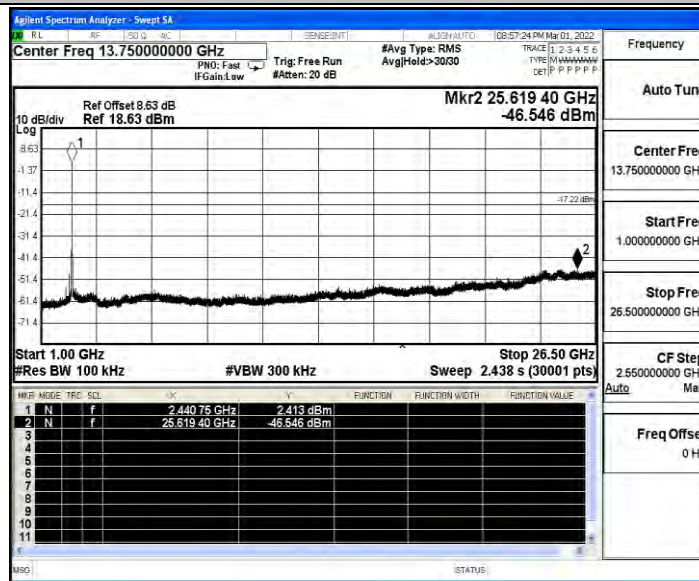


11G_Ant1_2437_30~1000

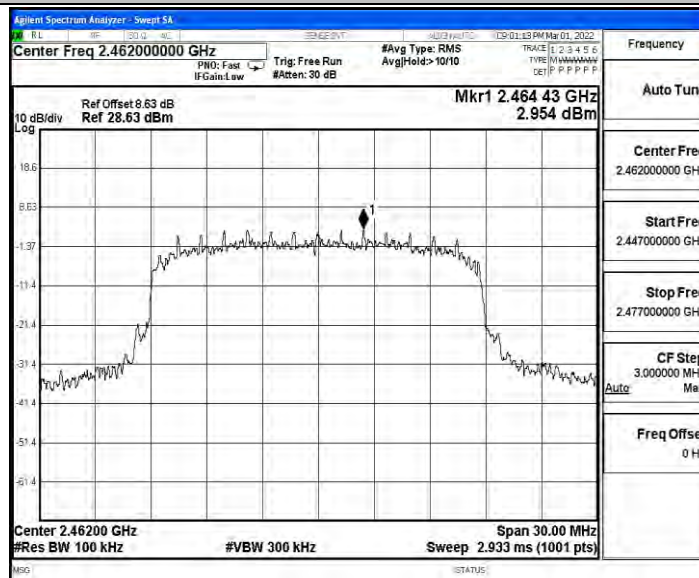




11G_Ant1_2437_1000~26500

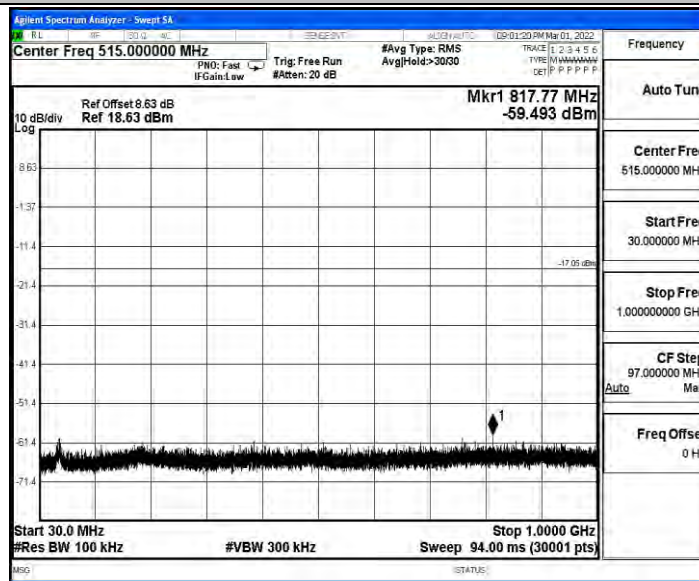


11G_Ant1_2462_0~Reference

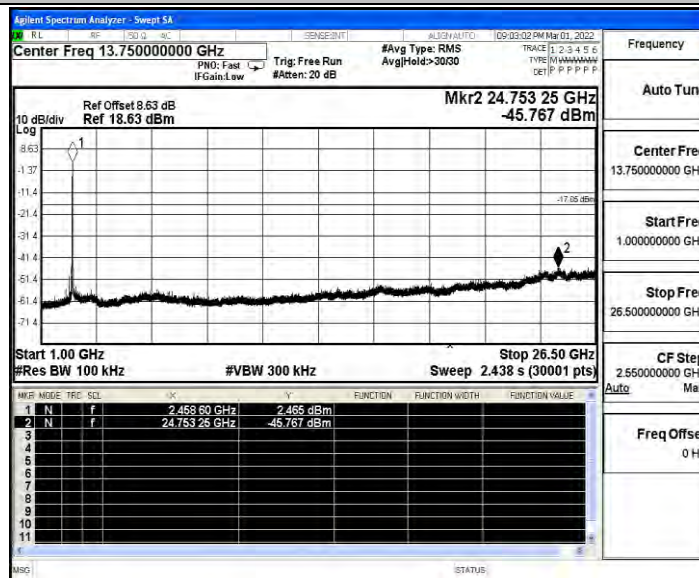




11G_Ant1_2462_30~1000

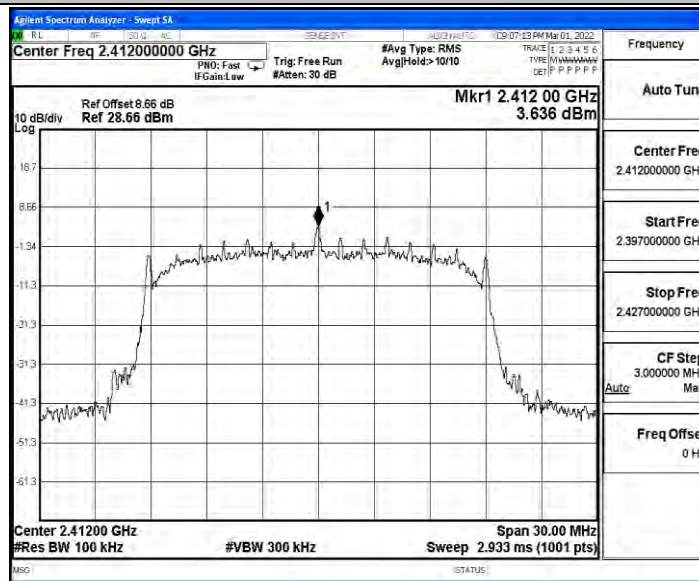


11G_Ant1_2462_1000~26500

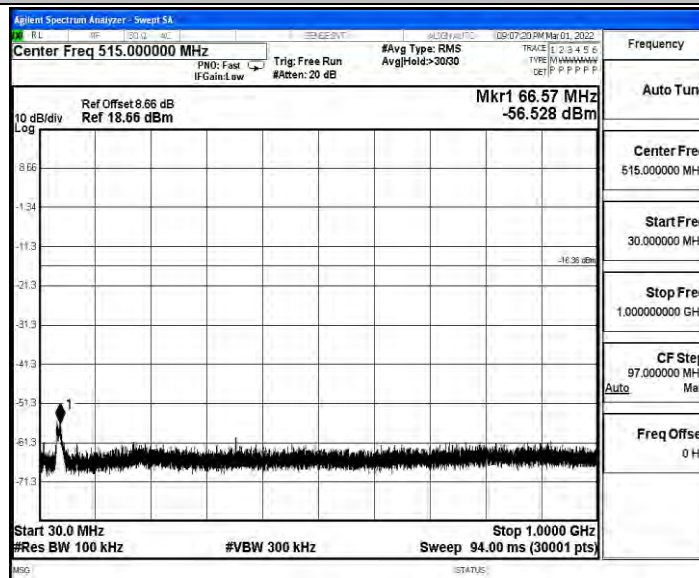




11N20SISO_Ant1_2412_0~Reference

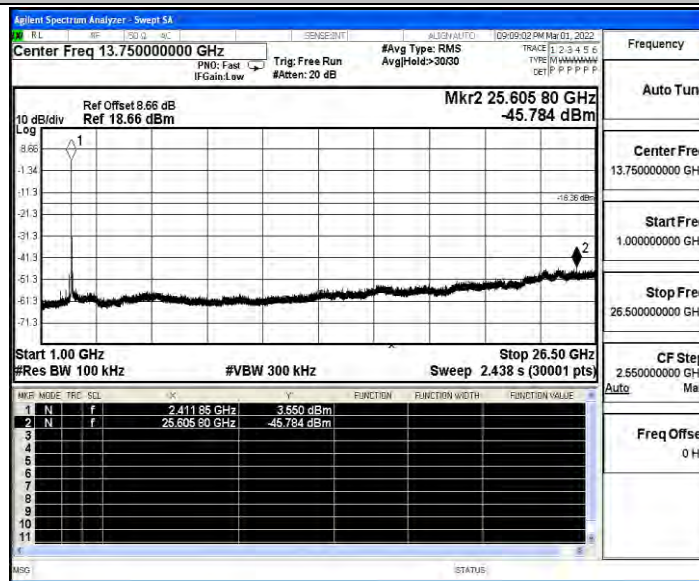


11N20SISO_Ant1_2412_30~1000

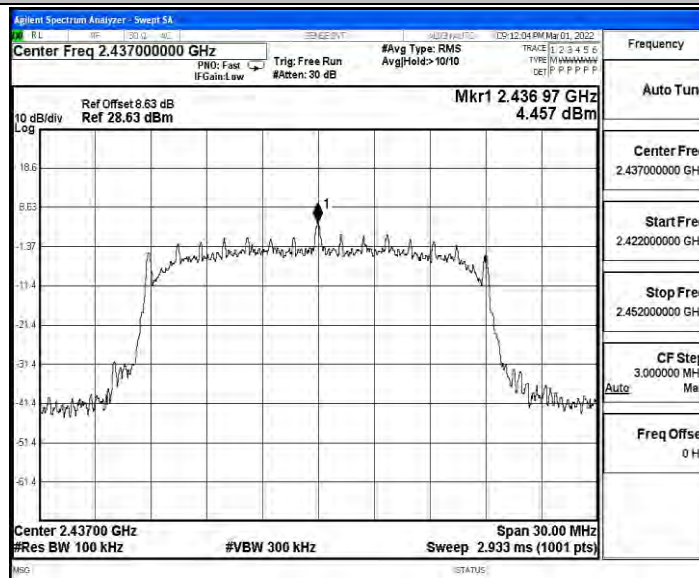




11N20SISO_Ant1_2412_1000~26500

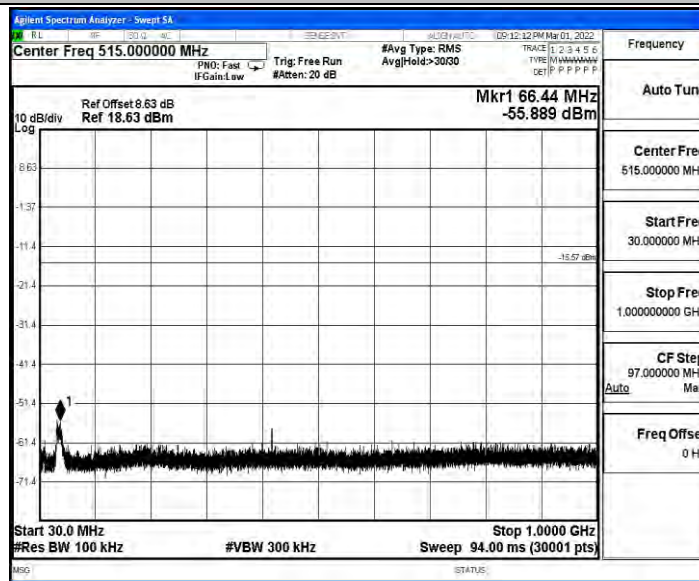


11N20SISO_Ant1_2437_0~Reference

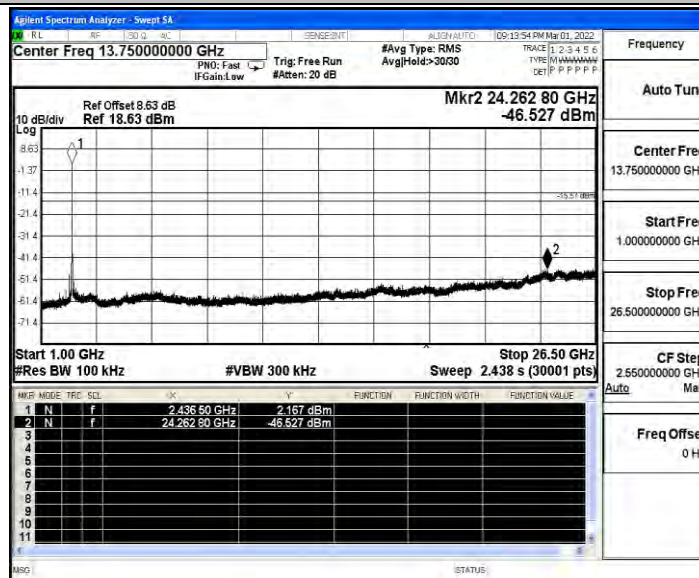




11N20SISO_Ant1_2437_30~1000

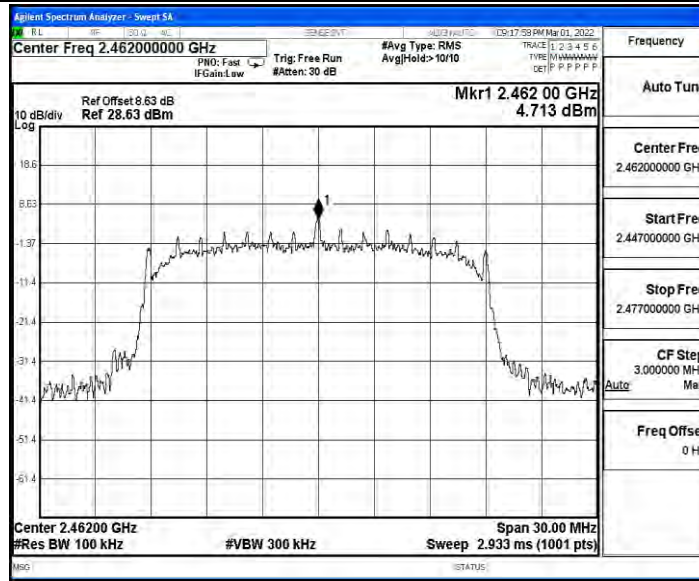


11N20SISO_Ant1_2437_1000~26500

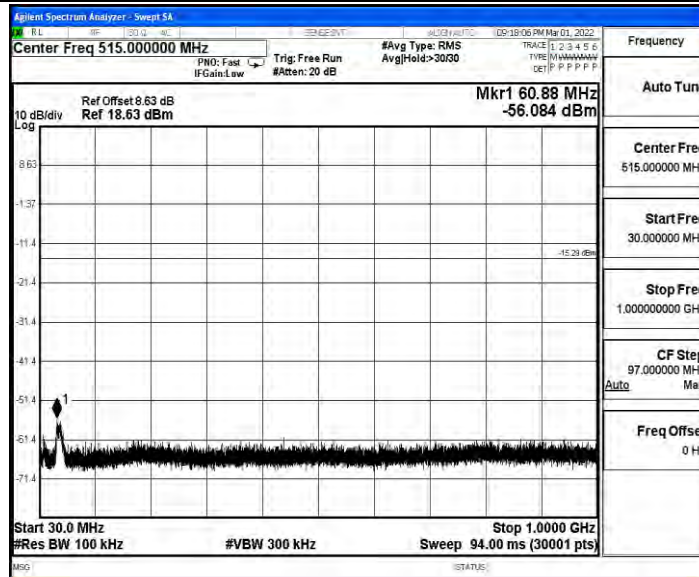




11N20SISO_Ant1_2462_0~Reference

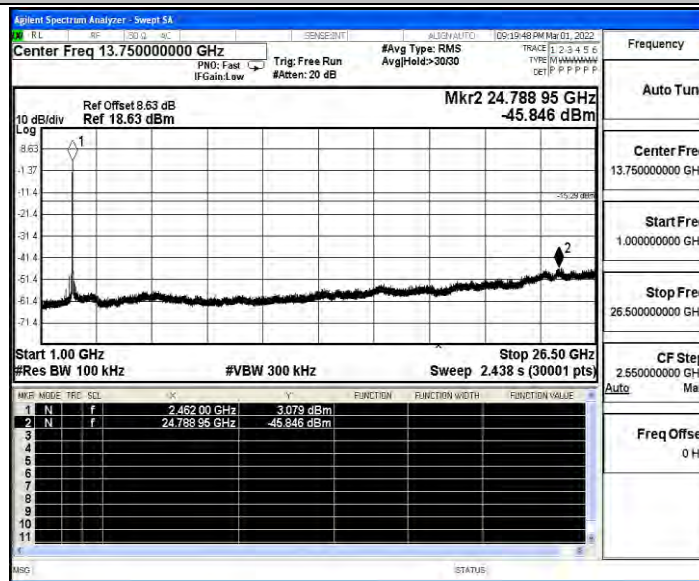


11N20SISO_Ant1_2462_30~1000

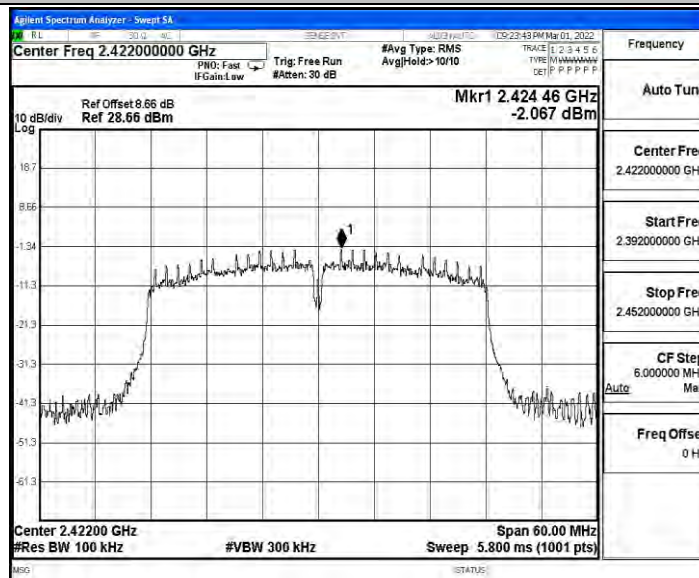




11N20SISO_Ant1_2462_1000~26500

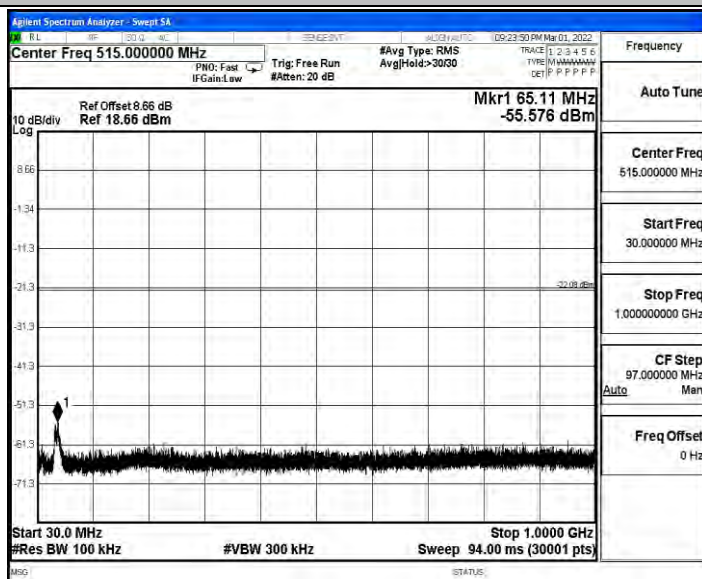


11N40SISO_Ant1_2422_0~Reference

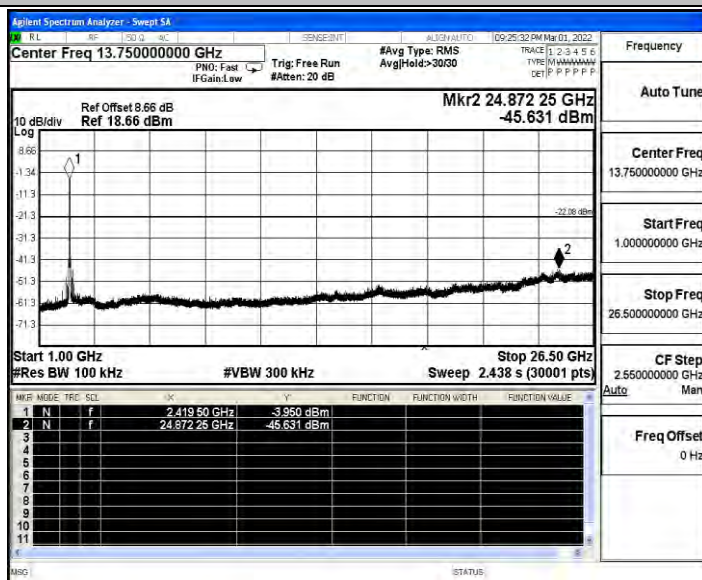




11N40SISO_Ant1_2422_30~1000

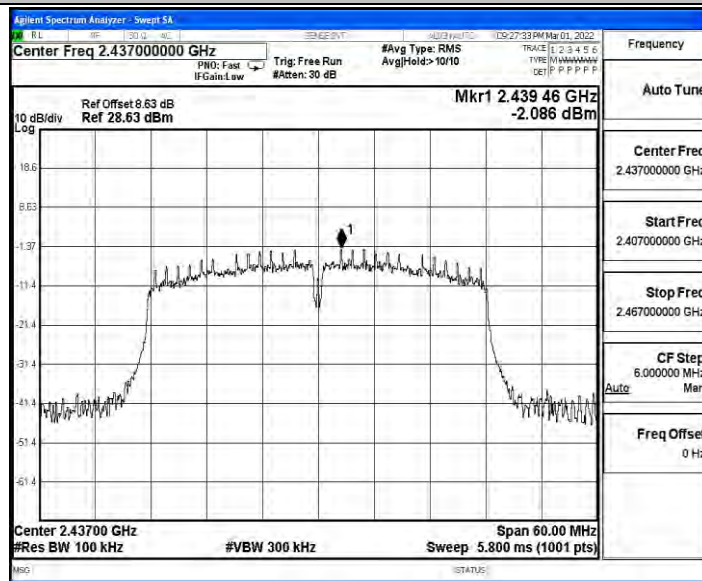


11N40SISO_Ant1_2422_1000~26500

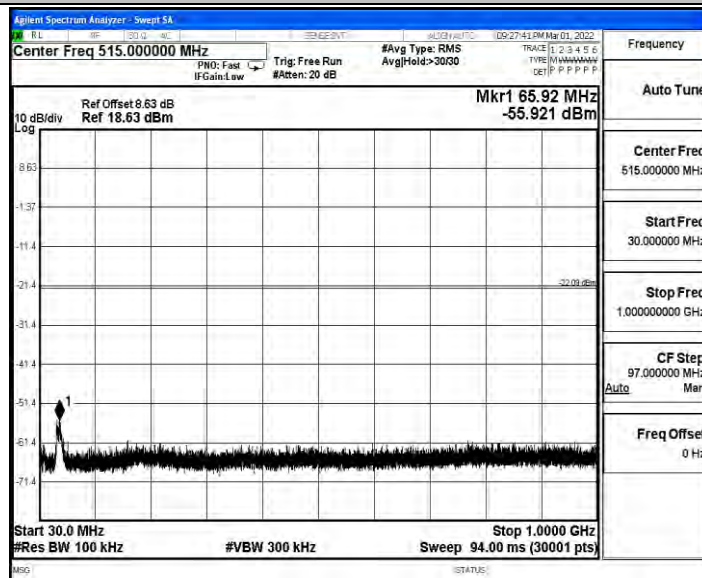




11N40SISO_Ant1_2437_0~Reference

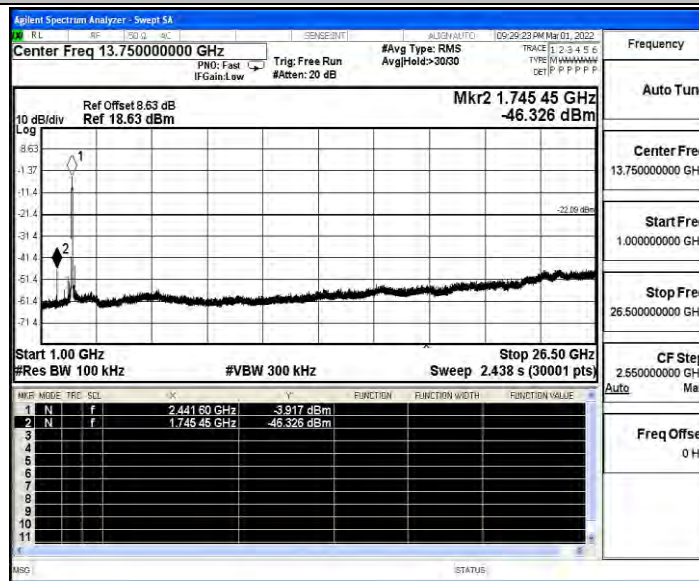


11N40SISO_Ant1_2437_30~1000

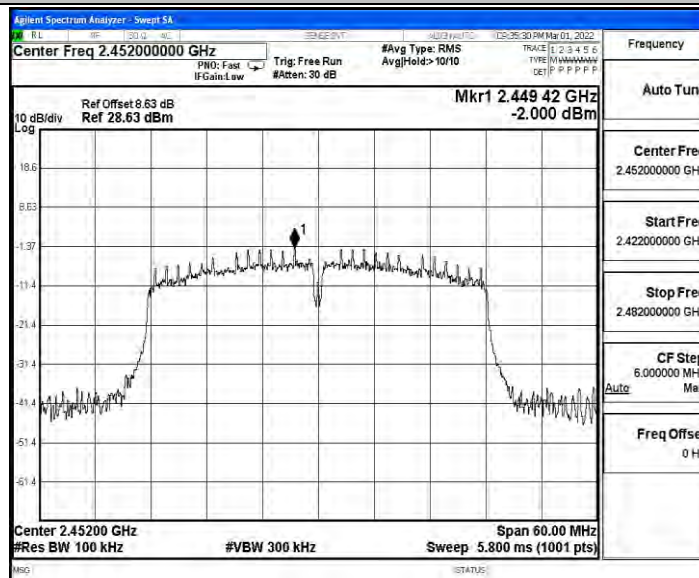




11N40SISO_Ant1_2437_1000~26500

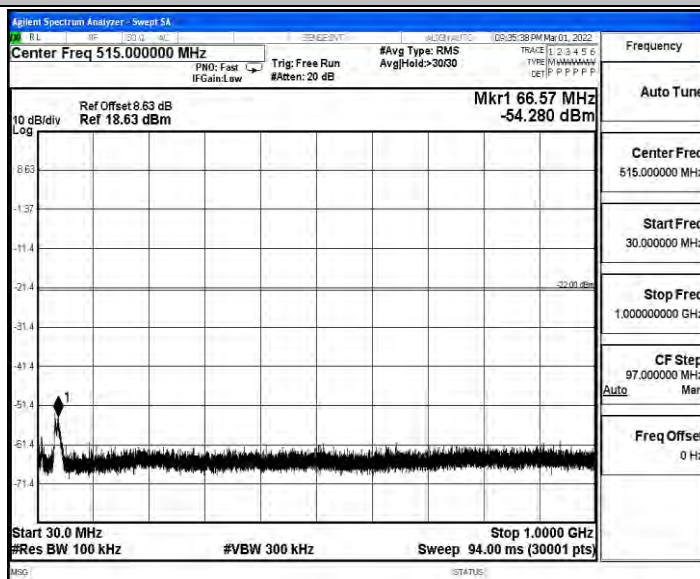


11N40SISO_Ant1_2452_0~Reference

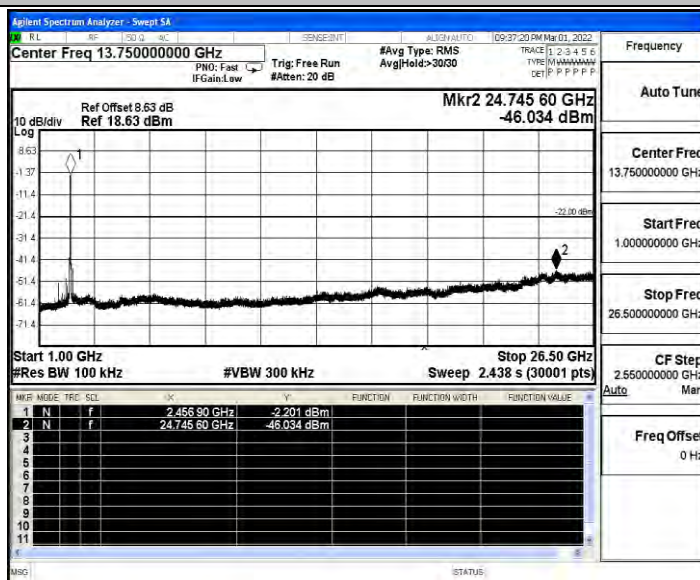




11N40SISO_Ant1_2452_30~1000



11N40SISO_Ant1_2452_1000~26500





B.6 Duty Cycle

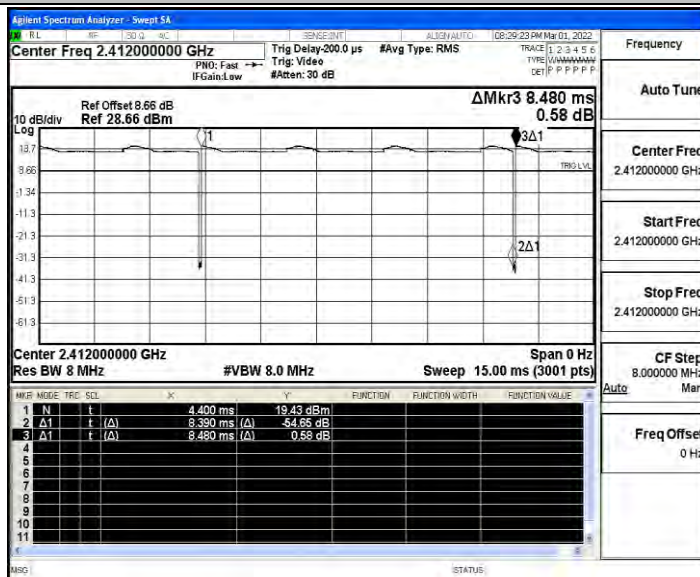
Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
11B	Ant1	2412	8.39	8.48	98.94	---	---
		2437	8.38	8.47	98.94	---	---
		2462	8.38	8.47	98.94	---	---
11G	Ant1	2412	1.39	1.41	98.58	---	---
		2437	1.39	1.41	98.58	---	---
		2462	1.39	1.41	98.58	---	---
11N20SISO	Ant1	2412	1.30	1.32	98.48	---	---
		2437	1.30	1.31	99.24	---	---
		2462	1.30	1.31	99.24	---	---
11N40SISO	Ant1	2422	0.65	0.66	98.48	---	---
		2437	0.65	0.66	98.48	---	---
		2452	0.65	0.66	98.48	---	---

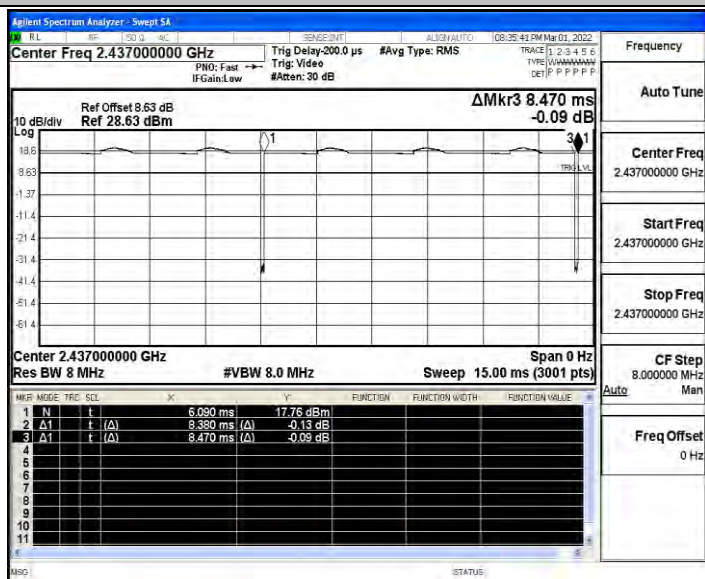


Test Graphs

11B_Ant1_2412

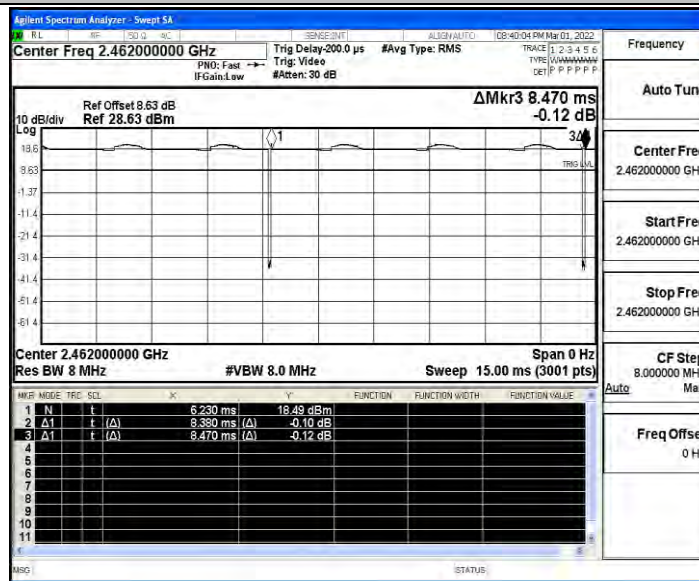


11B_Ant1_2437

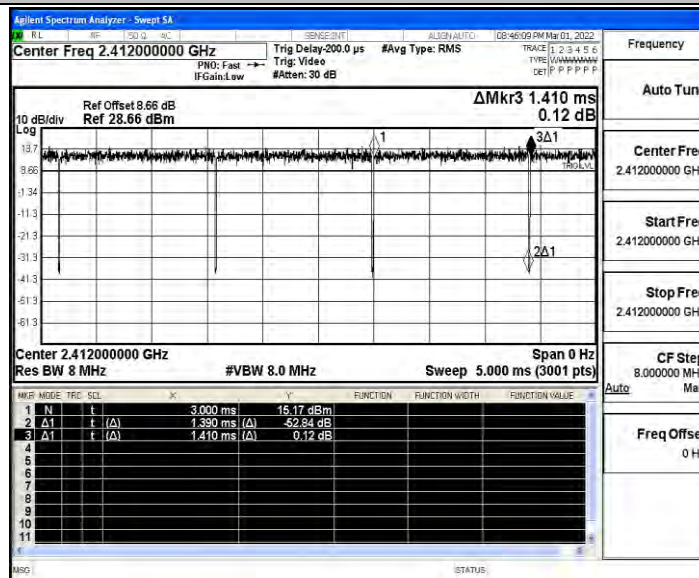




11B_Ant1_2462

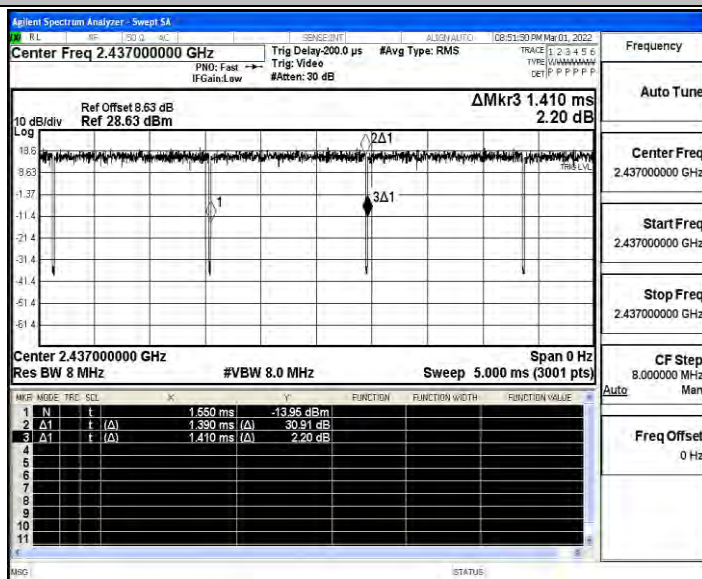


11G_Ant1_2412

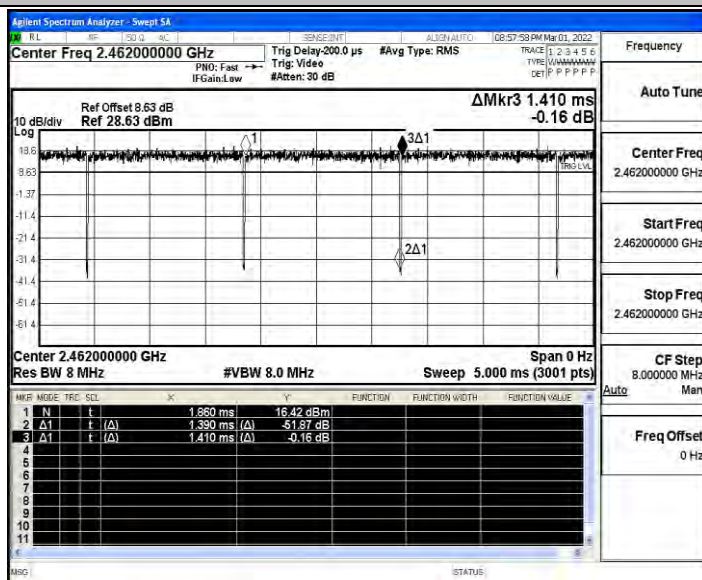




11G_Ant1_2437

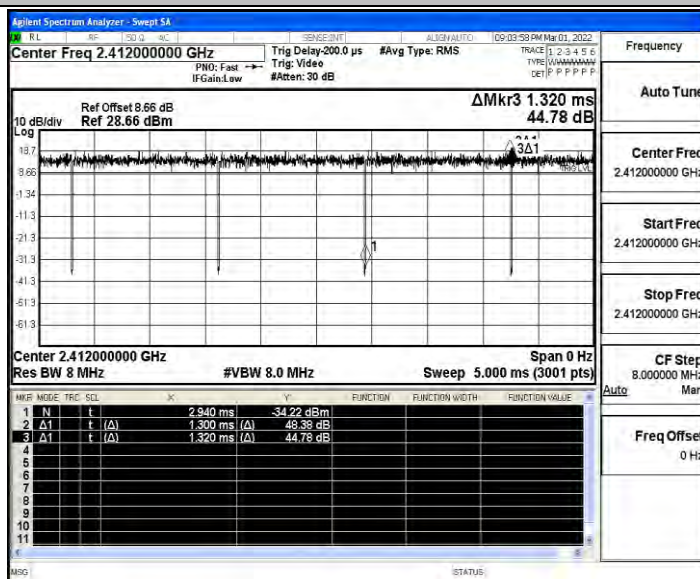


11G_Ant1_2462

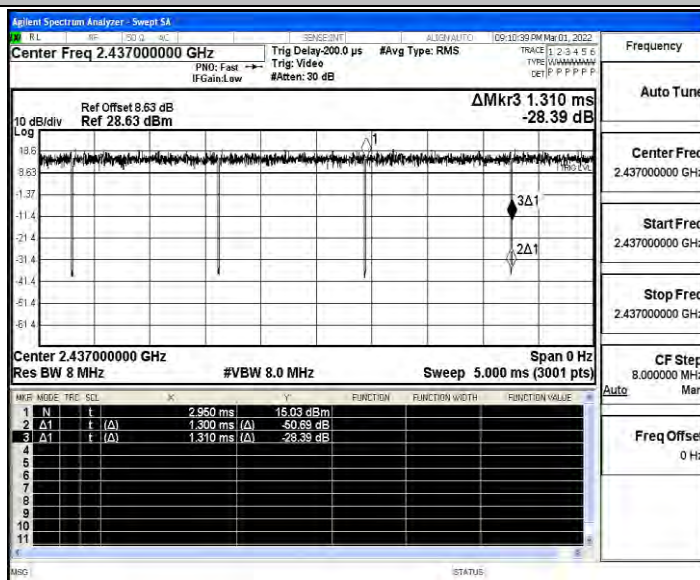




11N20SISO_Ant1_2412

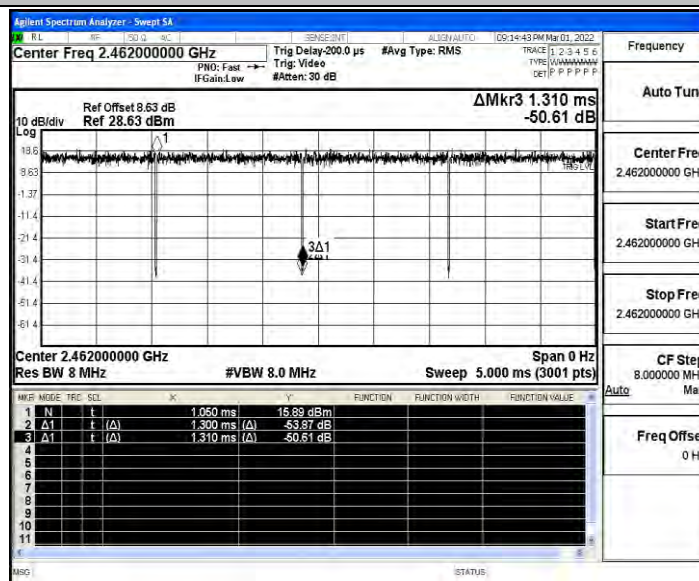


11N20SISO_Ant1_2437

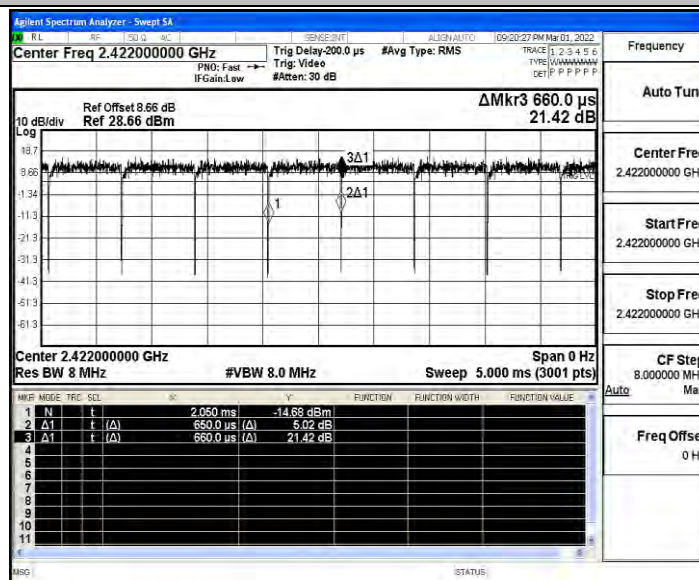




11N20SISO_Ant1_2462

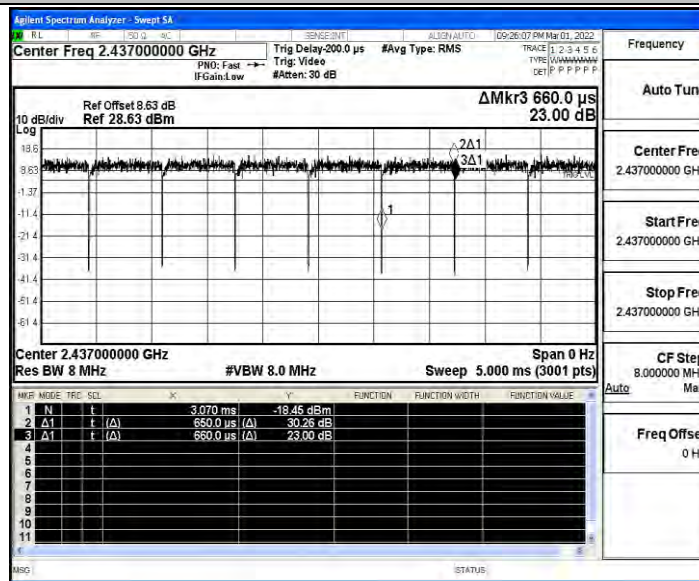


11N40SISO_Ant1_2422

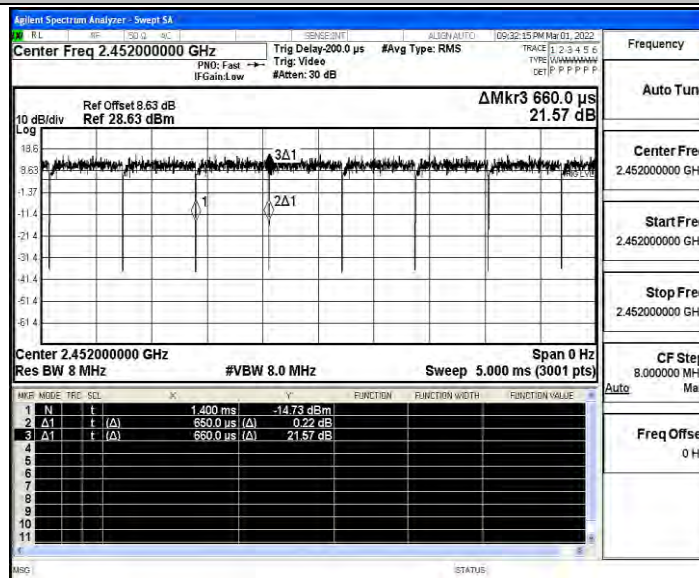




11N40SISO_Ant1_2437



11N40SISO_Ant1_2452





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	-57.84	≤-41.20	37.36	≤54	PASS
				AV	2319.890	-46.53	≤-41.20	48.67	≤54	PASS
				AV	2390.000	-52.62	≤-41.20	42.58	≤54	PASS
				Peak	2310.000	-46.35	≤-21.20	48.85	≤74	PASS
				Peak	2389.180	-40.36	≤-21.20	54.84	≤74	PASS
				Peak	2390.000	-42.18	≤-21.20	53.02	≤74	PASS
		High	2462	AV	2483.500	-44.54	≤-41.20	50.66	≤54	PASS
				AV	2487.740	-44.42	≤-41.20	50.78	≤54	PASS
				AV	2500.000	-54.9	≤-41.20	40.30	≤54	PASS
				Peak	2483.500	-37.63	≤-21.20	57.57	≤74	PASS
				Peak	2487.850	-36.74	≤-21.20	58.46	≤74	PASS
				Peak	2500.000	-44.32	≤-21.20	50.88	≤74	PASS
11G	Ant1	Low	2412	AV	2310.000	-57.46	≤-41.20	37.74	≤54	PASS
				AV	2319.890	-46.8	≤-41.20	48.40	≤54	PASS
				AV	2390.000	-47.73	≤-41.20	47.47	≤54	PASS
				Peak	2310.000	-47.17	≤-21.20	48.03	≤74	PASS
				Peak	2389.700	-33.13	≤-21.20	62.07	≤74	PASS
				Peak	2390.000	-33.65	≤-21.20	61.55	≤74	PASS
		High	2462	AV	2483.500	-41.94	≤-41.20	53.26	≤54	PASS
				AV	2483.560	-42.05	≤-41.20	53.15	≤54	PASS
				AV	2500.000	-53.09	≤-41.20	42.11	≤54	PASS
				Peak	2483.500	-28.4	≤-21.20	66.80	≤74	PASS
				Peak	2484.000	-28.72	≤-21.20	66.48	≤74	PASS
				Peak	2500.000	-41.23	≤-21.20	53.97	≤74	PASS
11N20SISO	Ant1	Low	2412	AV	2310.000	-57.29	≤-41.20	37.91	≤54	PASS
				AV	2320.020	-46.83	≤-41.20	48.37	≤54	PASS
				AV	2390.000	-49.08	≤-41.20	46.12	≤54	PASS
				Peak	2310.000	-46.98	≤-21.20	48.22	≤74	PASS
				Peak	2388.790	-34.57	≤-21.20	60.63	≤74	PASS
				Peak	2390.000	-36.57	≤-21.20	58.63	≤74	PASS
		High	2462	AV	2483.500	-44.56	≤-41.20	50.64	≤54	PASS
				AV	2483.670	-44.66	≤-41.20	50.54	≤54	PASS
				AV	2500.000	-53.34	≤-41.20	41.86	≤54	PASS
				Peak	2483.500	-27.8	≤-21.20	67.40	≤74	PASS
				Peak	2483.670	-27.34	≤-21.20	67.86	≤74	PASS
				Peak	2500.000	-42.36	≤-21.20	52.84	≤74	PASS



11N40SISO	Ant1	Low	2422	AV	2310.000	-57.23	≤-41.20	37.97	≤54	PASS
				AV	2389.960	-42.32	≤-41.20	52.88	≤54	PASS
				AV	2390.000	-42.32	≤-41.20	52.88	≤54	PASS
				Peak	2310.000	-47.04	≤-21.20	48.16	≤74	PASS
				Peak	2388.920	-25.36	≤-21.20	69.84	≤74	PASS
				Peak	2390.000	-26.25	≤-21.20	68.95	≤74	PASS
		High	2452	AV	2483.500	-42.38	≤-41.20	52.82	≤54	PASS
				AV	2483.560	-42.42	≤-41.20	52.78	≤54	PASS
				AV	2500.000	-51.38	≤-41.20	43.82	≤54	PASS
				Peak	2483.500	-24.58	≤-21.20	70.62	≤74	PASS
				Peak	2483.560	-24.17	≤-21.20	71.03	≤74	PASS
				Peak	2500.000	-37.93	≤-21.20	57.27	≤74	PASS

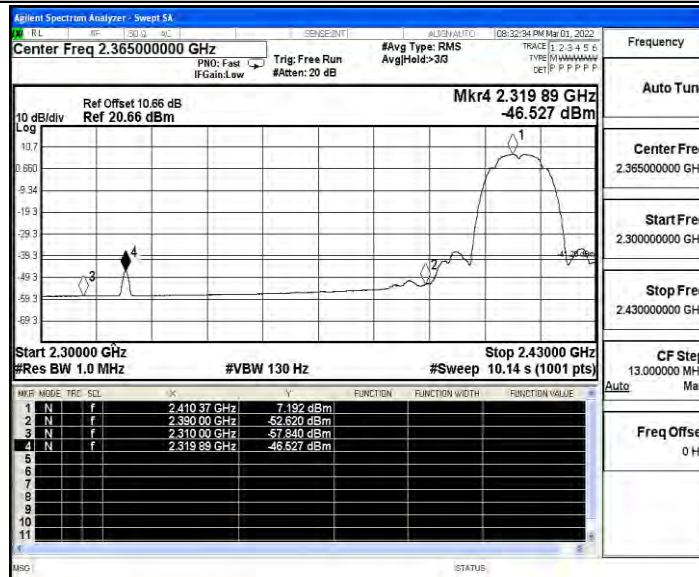
Note:

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.

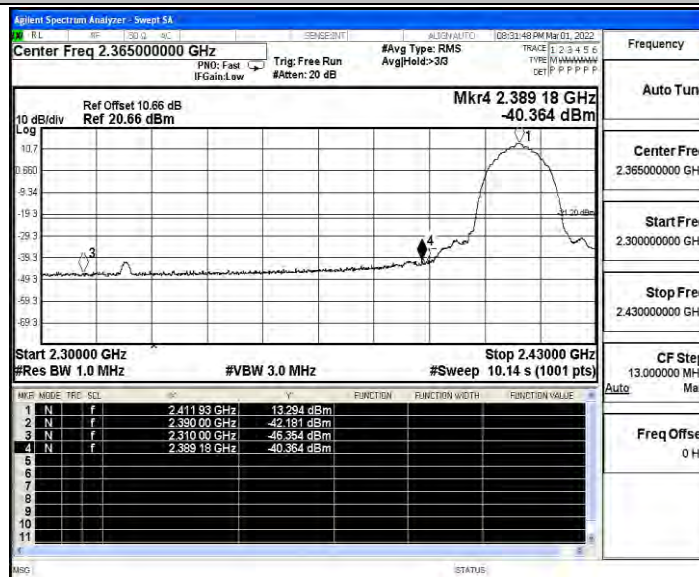


Test Graphs

11B_Ant1_Low_2412_AV

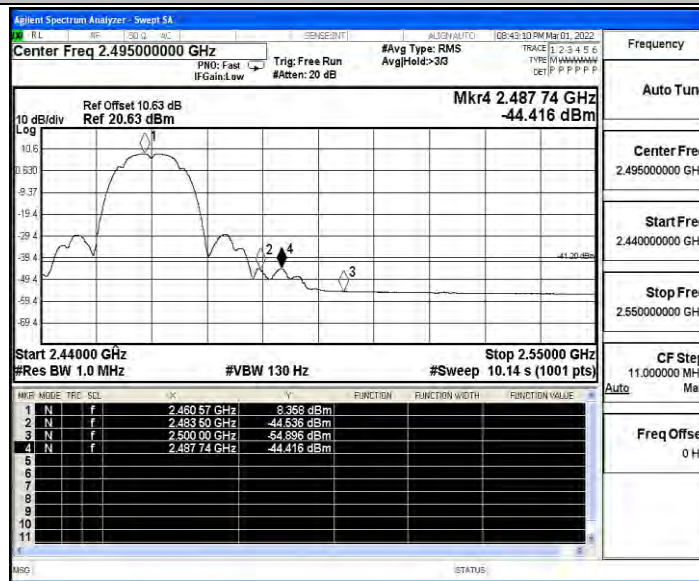


11B_Ant1_Low_2412_Peak

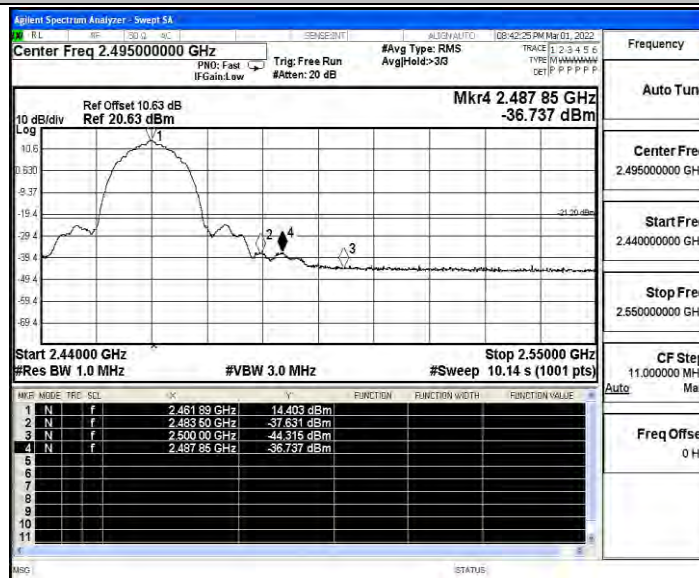




11B_Ant1_High_2462_AV

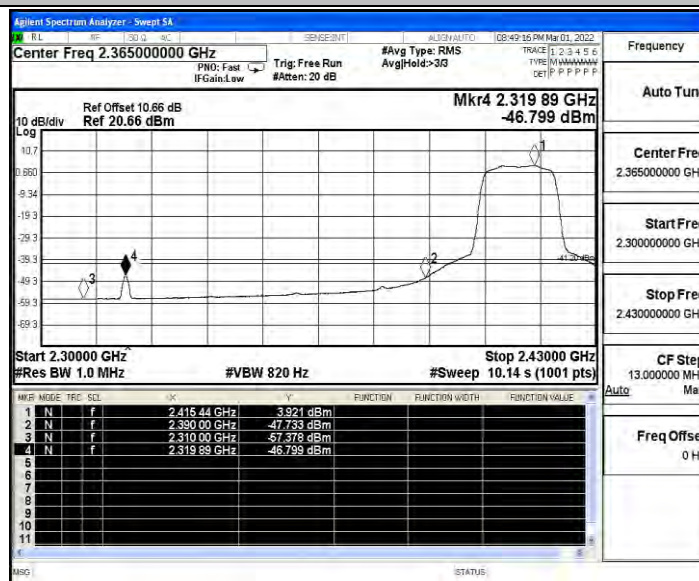


11B_Ant1_High_2462_Peak

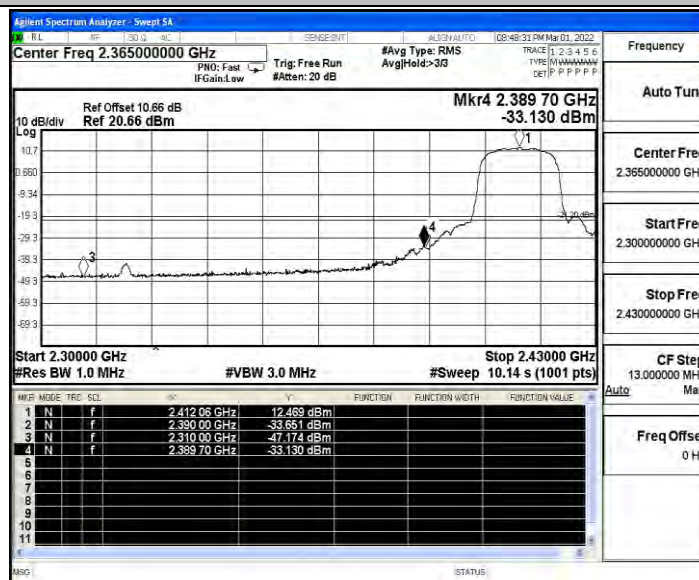




11G_Ant1_Low_2412_AV

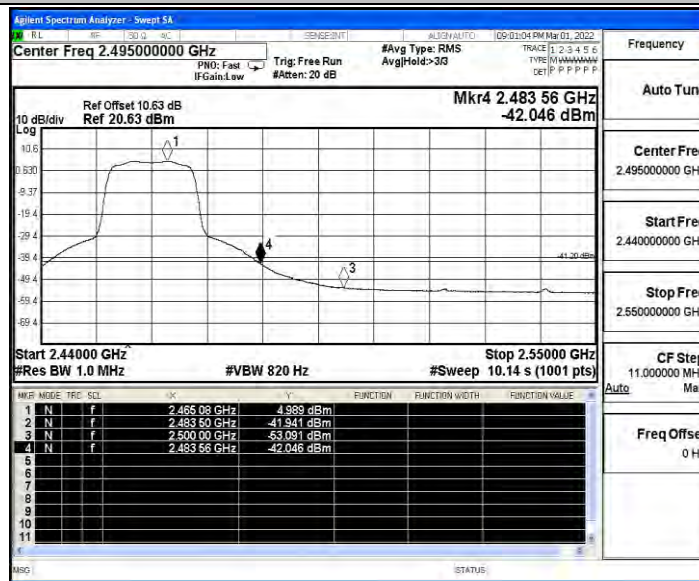


11G_Ant1_Low_2412_Peak

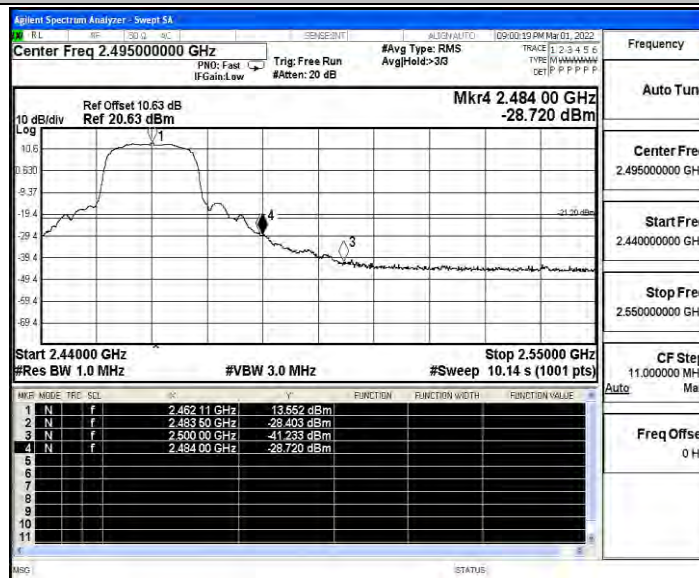




11G_Ant1_High_2462_AV

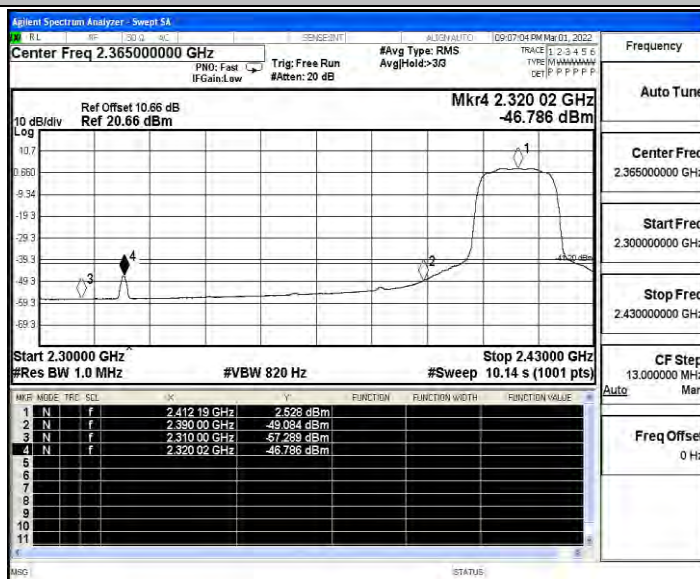


11G_Ant1_High_2462_Peak

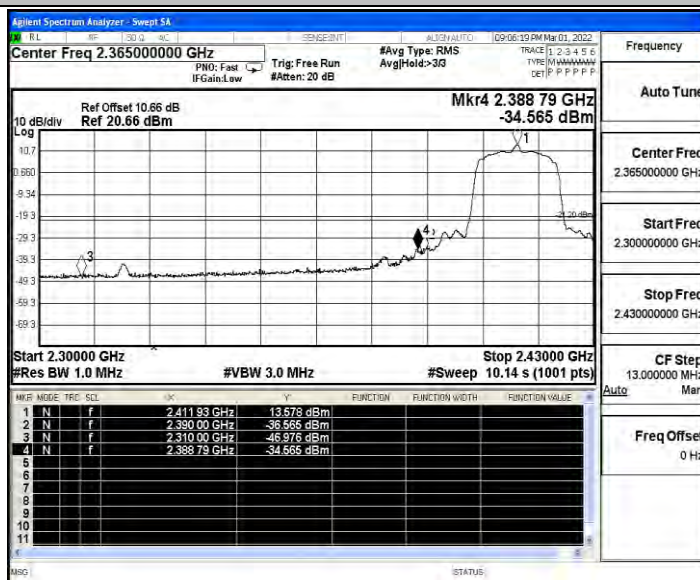




11N20SISO_Ant1_Low_2412_AV

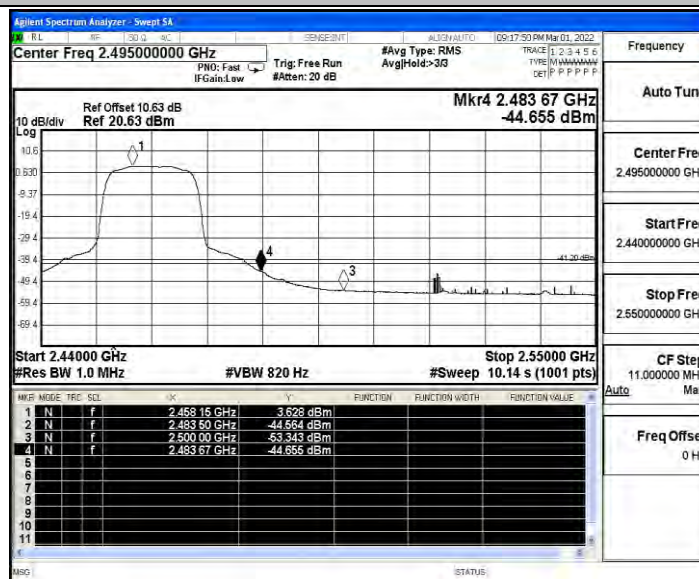


11N20SISO_Ant1_Low_2412_Peak

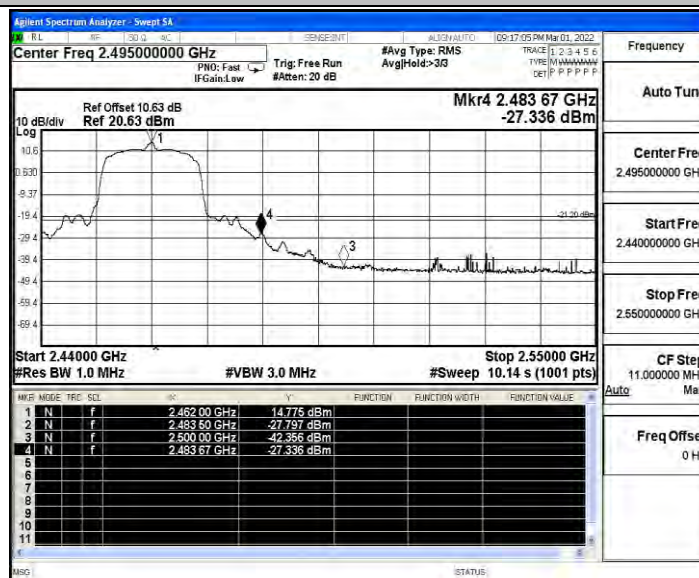




11N20SISO_Ant1_High_2462_AV

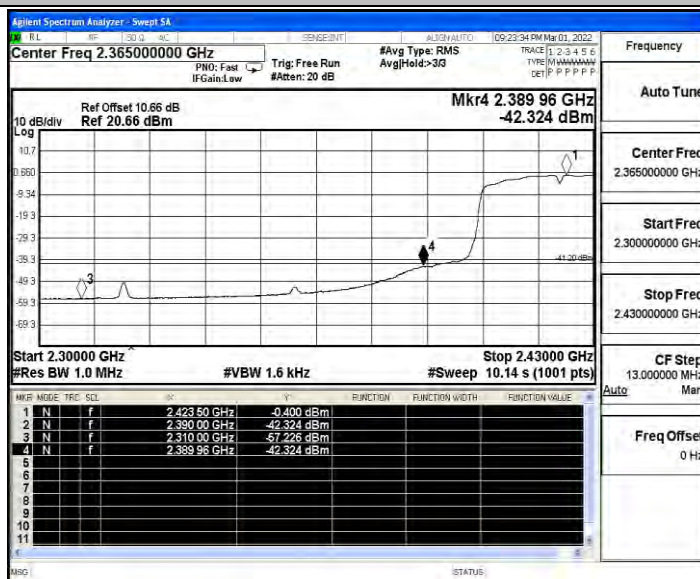


11N20SISO_Ant1_High_2462_Peak

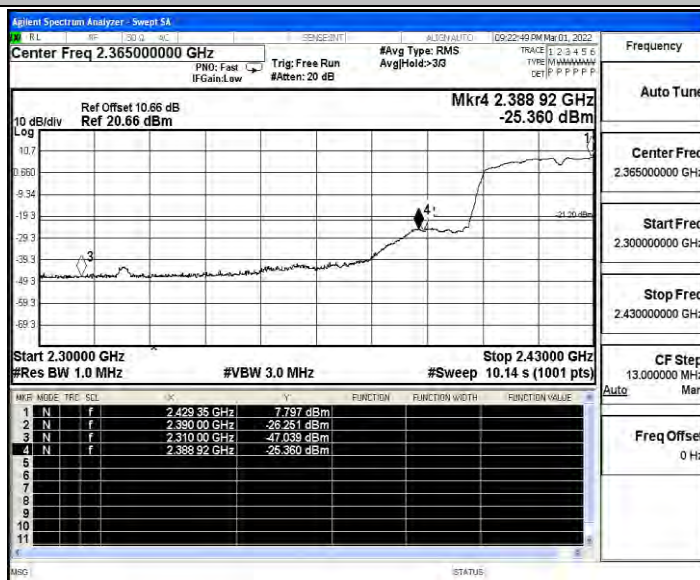




11N40SISO_Ant1_Low_2422_AV

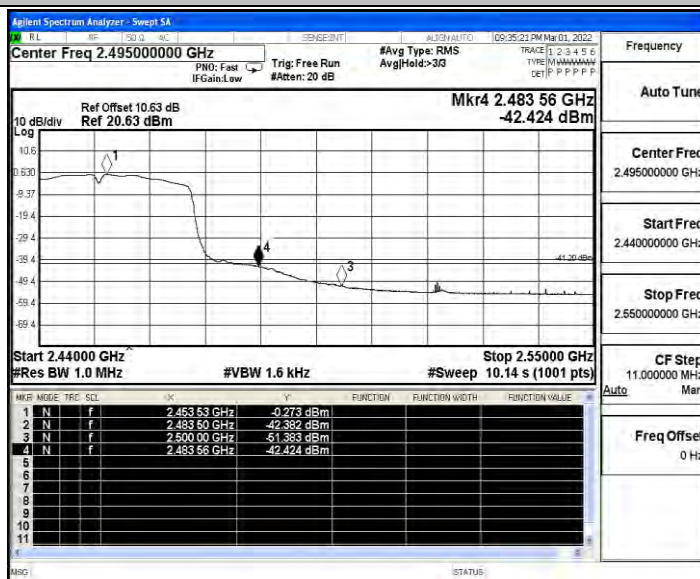


11N40SISO_Ant1_Low_2422_Peak





11N40SISO_Ant1_High_2452_AV



11N40SISO_Ant1_High_2452_Peak

