



Appendix B

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: WiFi+BT+IR deram color music LED neon light kit

Test Model: NHWSC6-37T5

Environmental Conditions

Temperature:	23.5°C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Nick Peng
	<i>Nick Peng</i>
Supervised by:	Ling Zhu
	<i>Ling.zhu</i>





B.1 DTS Bandwidth

Test Result

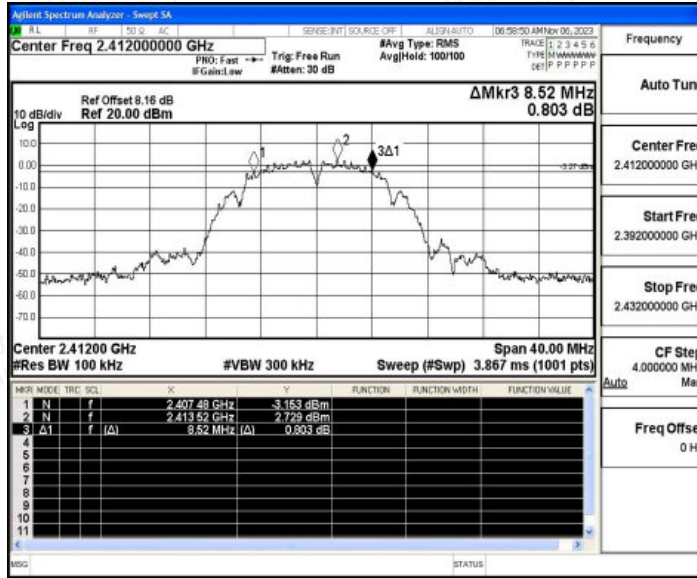
TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	8.520	2407.480	2416.000	0.5	PASS
		2437	8.040	2433.000	2441.040	0.5	PASS
		2462	8.040	2458.000	2466.040	0.5	PASS
11G	Ant1	2412	16.320	2403.840	2420.160	0.5	PASS
		2437	16.320	2428.840	2445.160	0.5	PASS
		2462	16.320	2453.840	2470.160	0.5	PASS
11N20SISO	Ant1	2412	16.280	2404.360	2420.640	0.5	PASS
		2437	17.160	2428.400	2445.560	0.5	PASS
		2462	16.920	2453.640	2470.560	0.5	PASS
11N40SISO	Ant1	2422	35.440	2404.560	2440.000	0.5	PASS
		2437	35.680	2419.080	2454.760	0.5	PASS
		2452	35.520	2434.560	2470.080	0.5	PASS



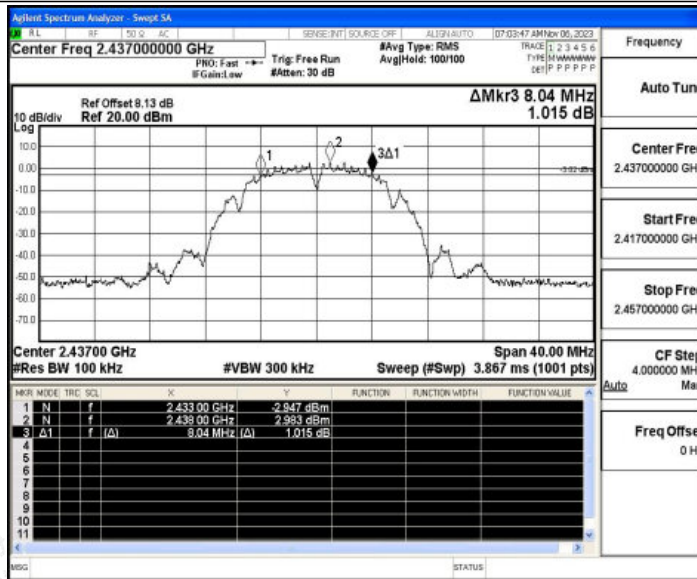


Test Graphs

11B_Ant1_2412

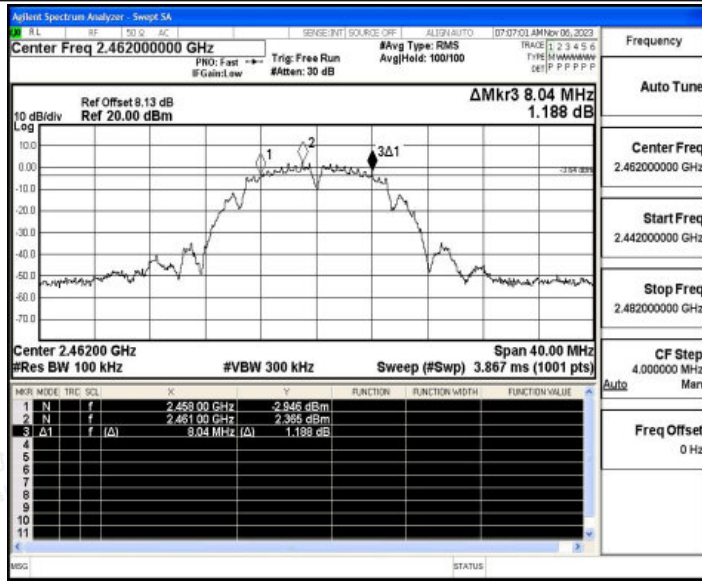


11B_Ant1_2437

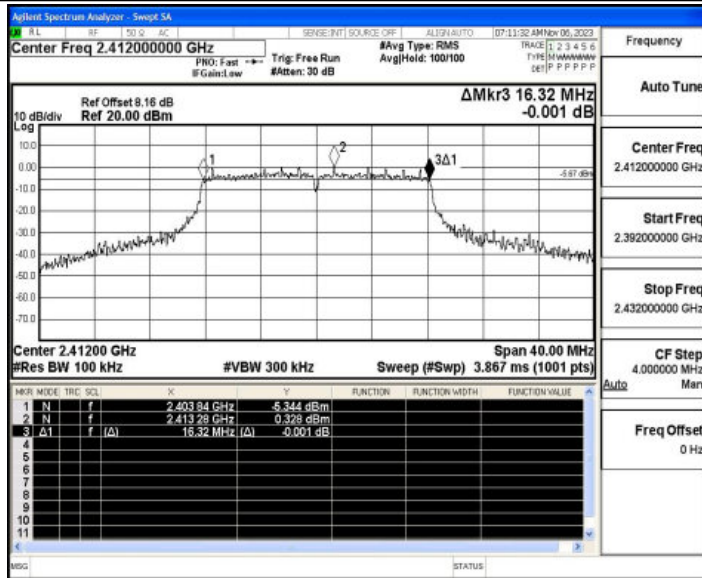


11B_Ant1_2462



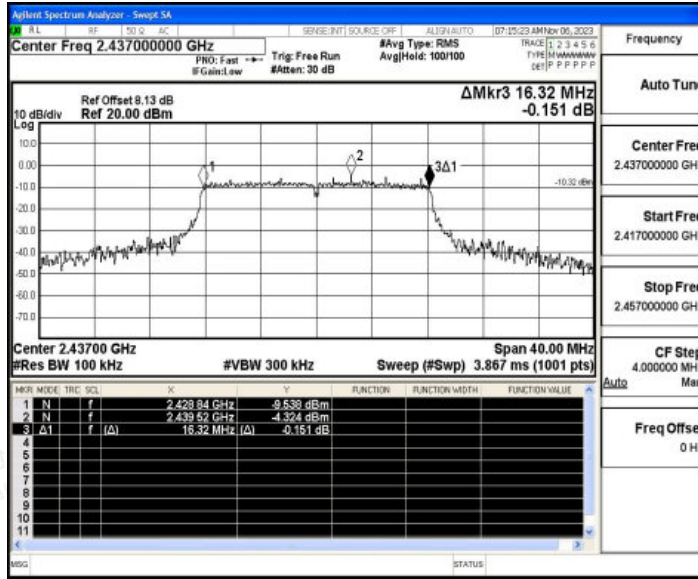


11G_Ant1_2412

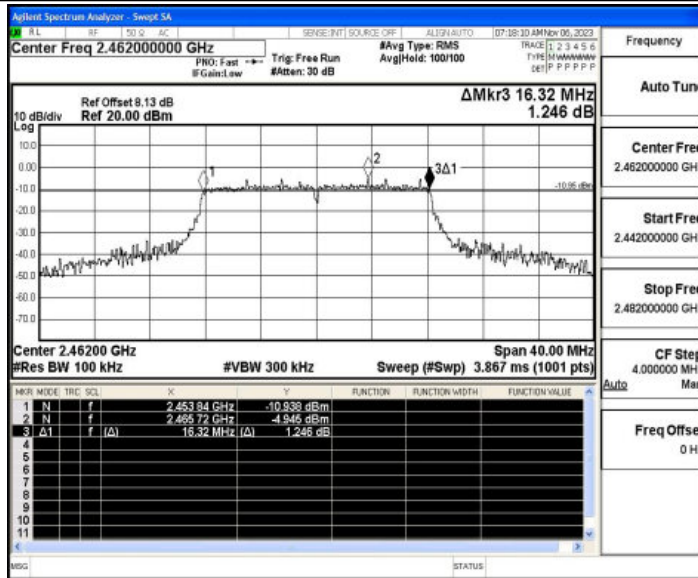


11G_Ant1_2437



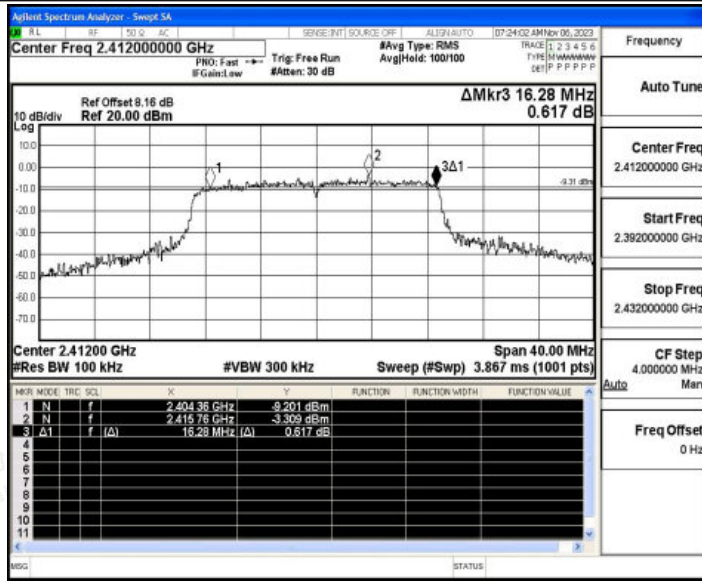


11G_Ant1_2462

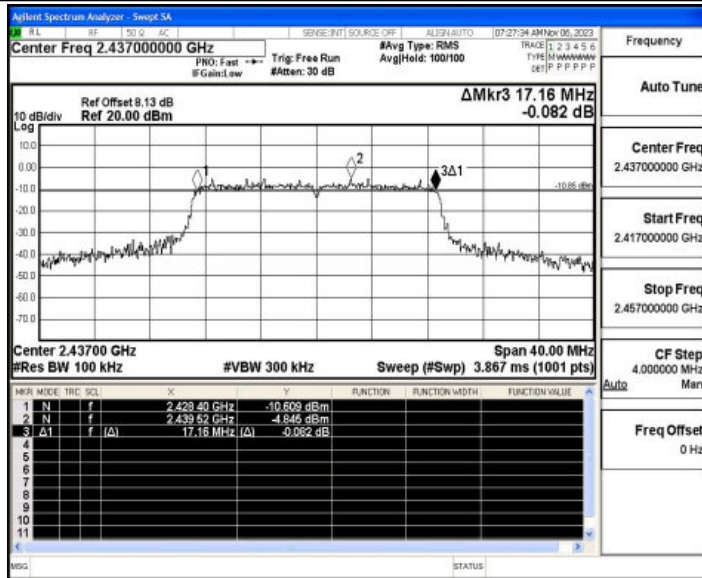


11N20SISO_Ant1_2412



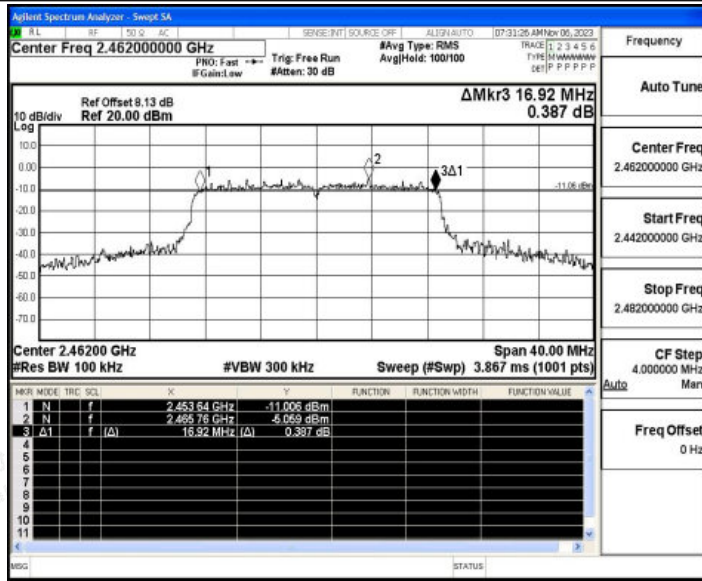


11N20SISO_Ant1_2437

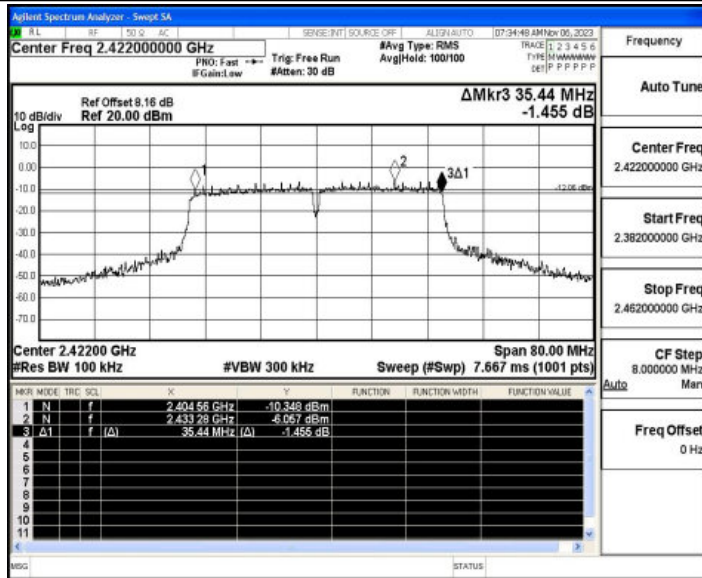


11N20SISO_Ant1_2462



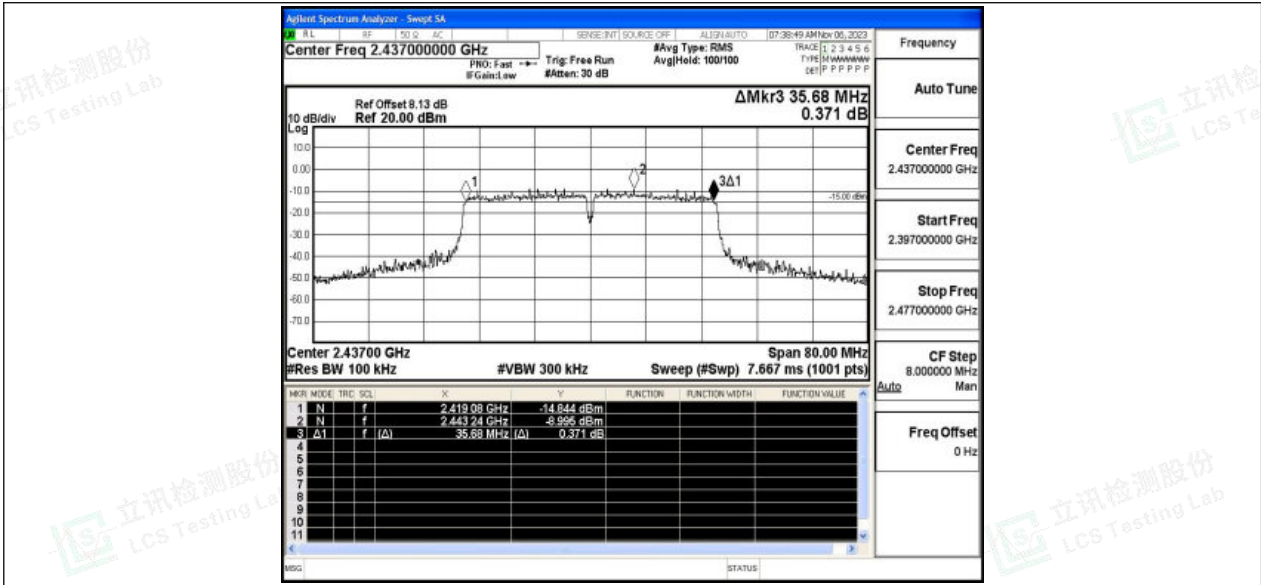


11N40SISO_Ant1_2422

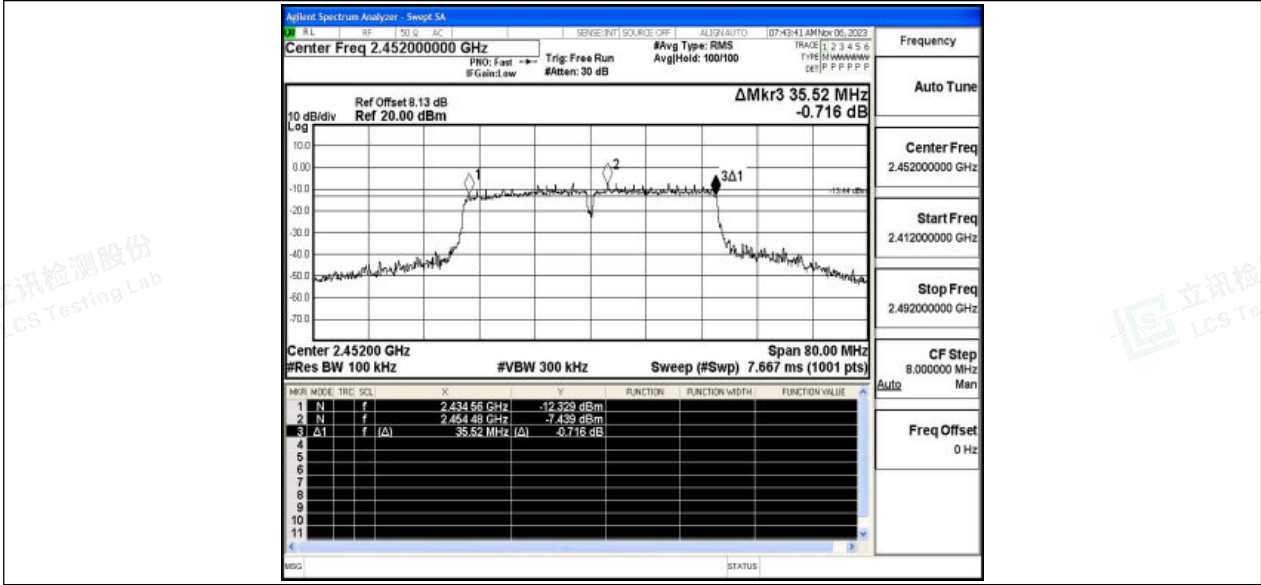


11N40SISO_Ant1_2437





11N40SISO_Ant1_2452





B.2 Maximum Peak Conducted Output Power

Test Result Peak

TestMode	Antenna	Freq(MHz)	Peak Power[dBm]	Conducted Limit[dBm]	Verdict
11B	Ant1	2412	14.80	≤30.00	PASS
		2437	14.44	≤30.00	PASS
		2462	13.75	≤30.00	PASS
11G	Ant1	2412	13.98	≤30.00	PASS
		2437	13.37	≤30.00	PASS
		2462	12.84	≤30.00	PASS
11N20SISO	Ant1	2412	14.26	≤30.00	PASS
		2437	13.19	≤30.00	PASS
		2462	12.92	≤30.00	PASS
11N40SISO	Ant1	2422	14.48	≤30.00	PASS
		2437	12.29	≤30.00	PASS
		2452	13.15	≤30.00	PASS



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B.3 Maximum power spectral density

Test Result

TestMode	Antenna	Freq(MHz)	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B	Ant1	2412	-9.99	≤8.00	PASS
		2437	-10.4	≤8.00	PASS
		2462	-8.47	≤8.00	PASS
11G	Ant1	2412	-17.33	≤8.00	PASS
		2437	-18.58	≤8.00	PASS
		2462	-19.22	≤8.00	PASS
11N20SISO	Ant1	2412	-17.51	≤8.00	PASS
		2437	-19.14	≤8.00	PASS
		2462	-18.56	≤8.00	PASS
11N40SISO	Ant1	2422	-20.58	≤8.00	PASS
		2437	-22.85	≤8.00	PASS
		2452	-22.07	≤8.00	PASS



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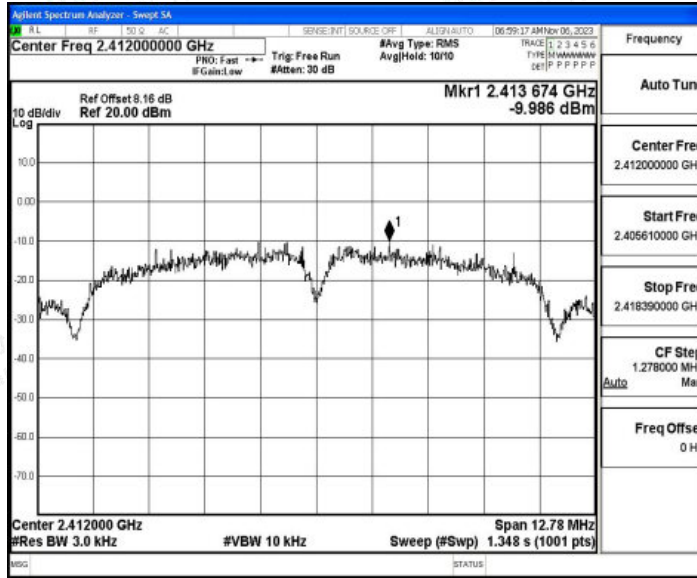
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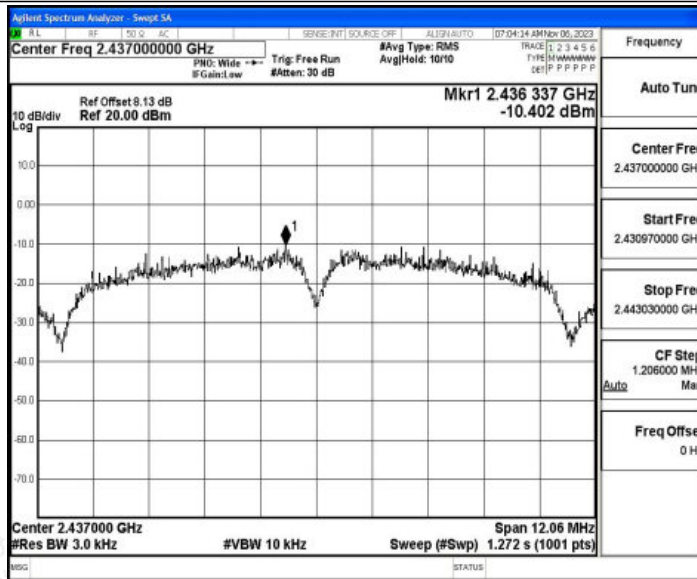


Test Graphs

11B_Ant1_2412

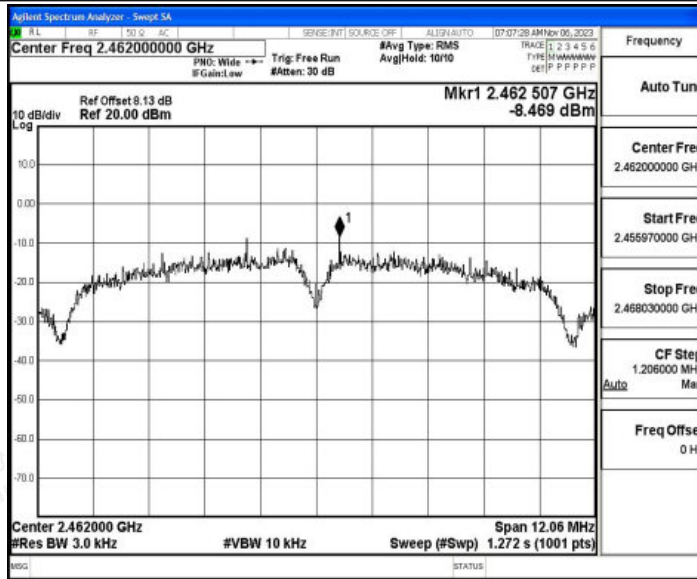


11B_Ant1_2437

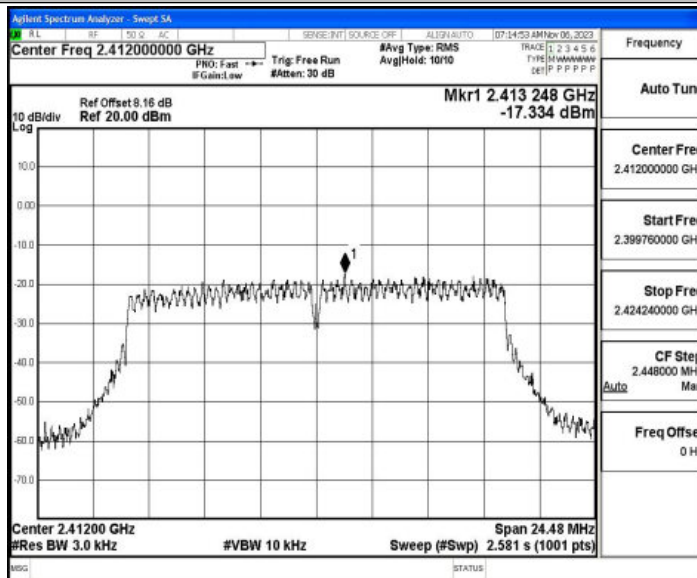


11B_Ant1_2462



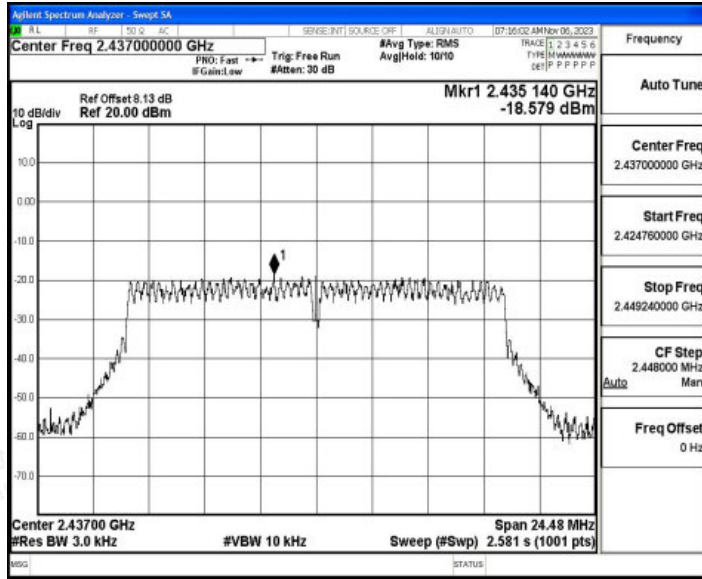


11G_Ant1_2412

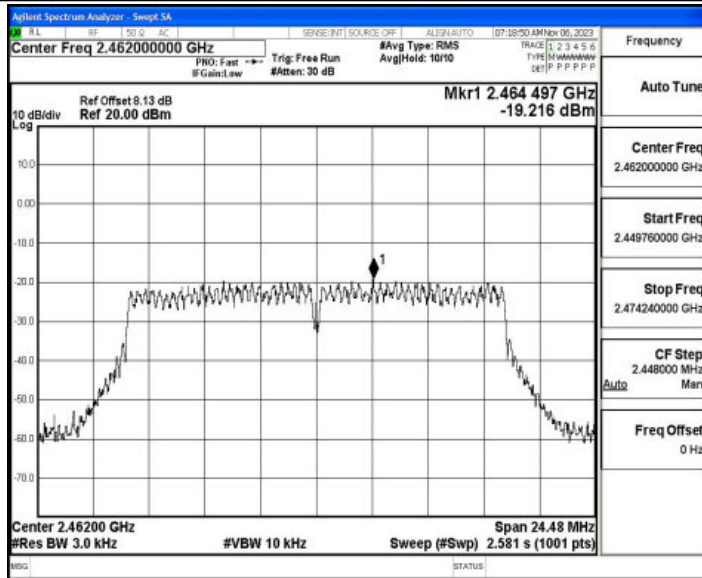


11G_Ant1_2437



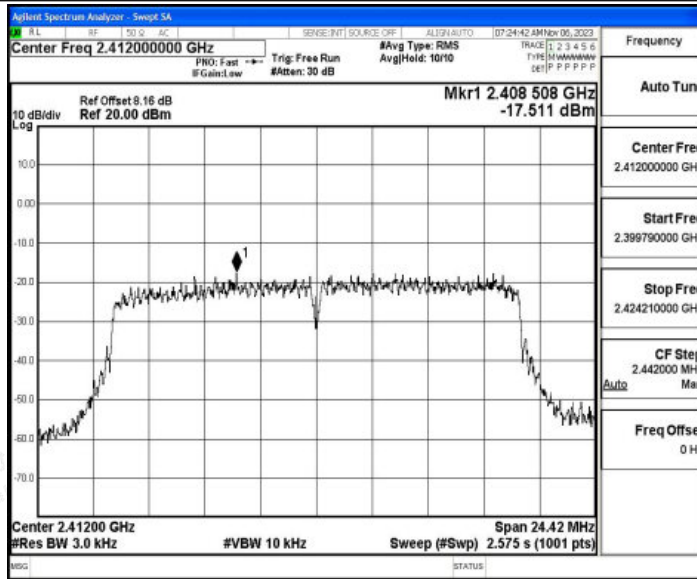


11G_Ant1_2462

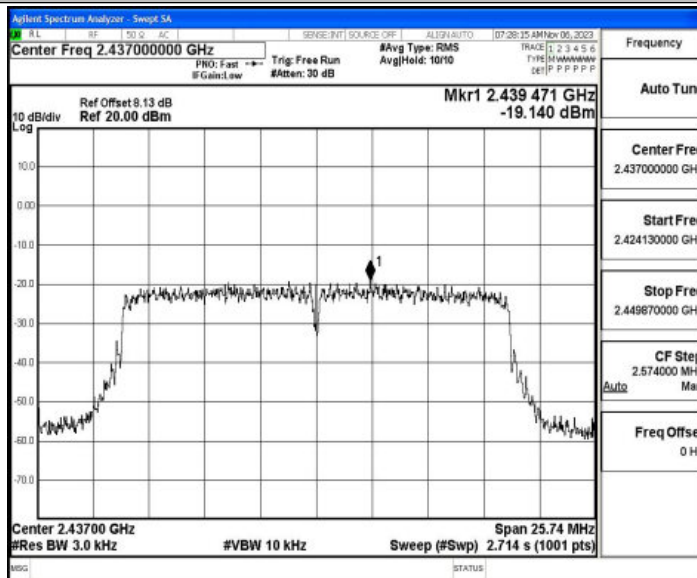


11N20SISO_Ant1_2412



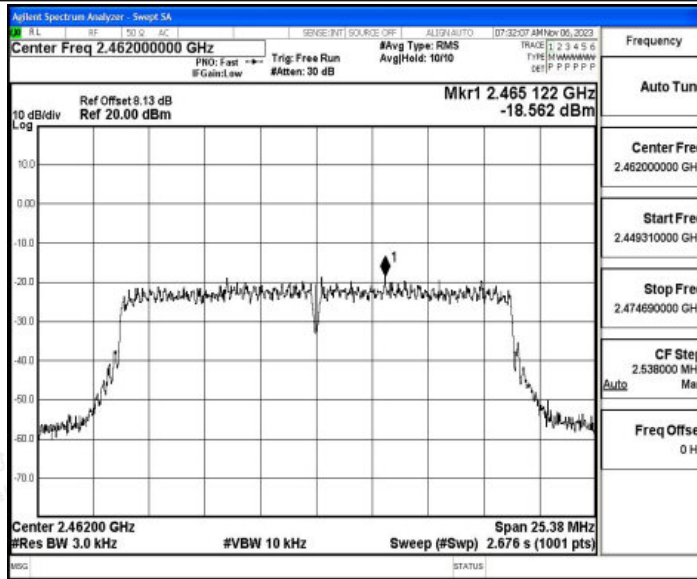


11N20SISO_Ant1_2437

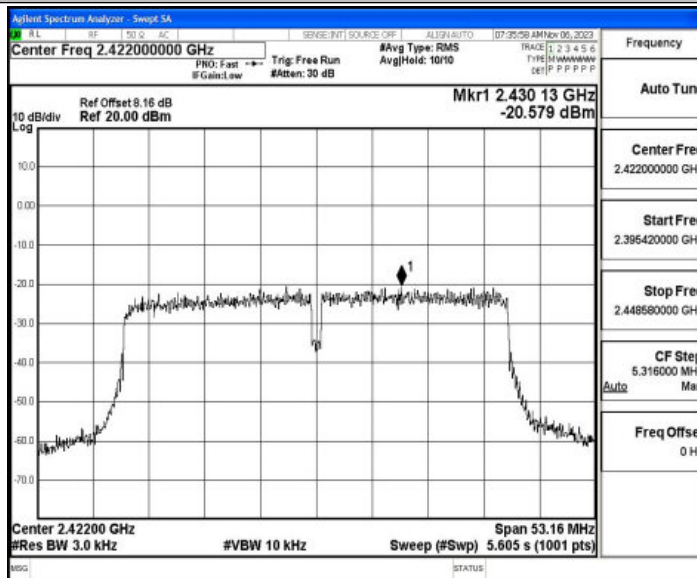


11N20SISO_Ant1_2462



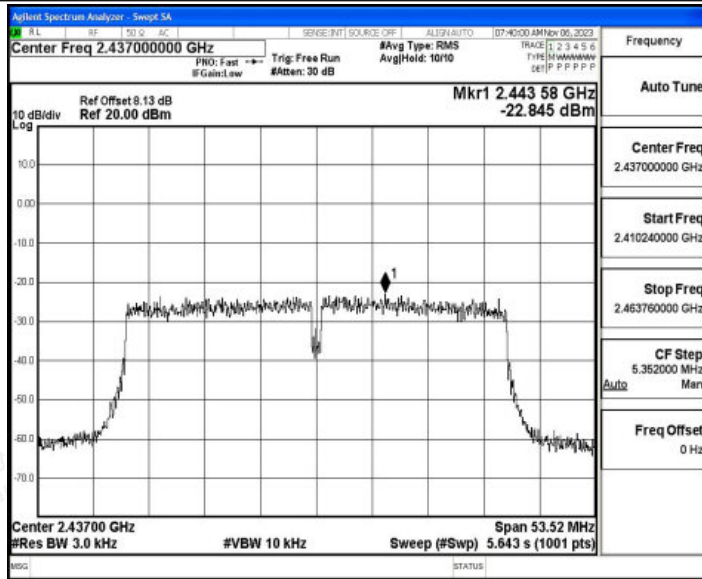


11N40SISO_Ant1_2422

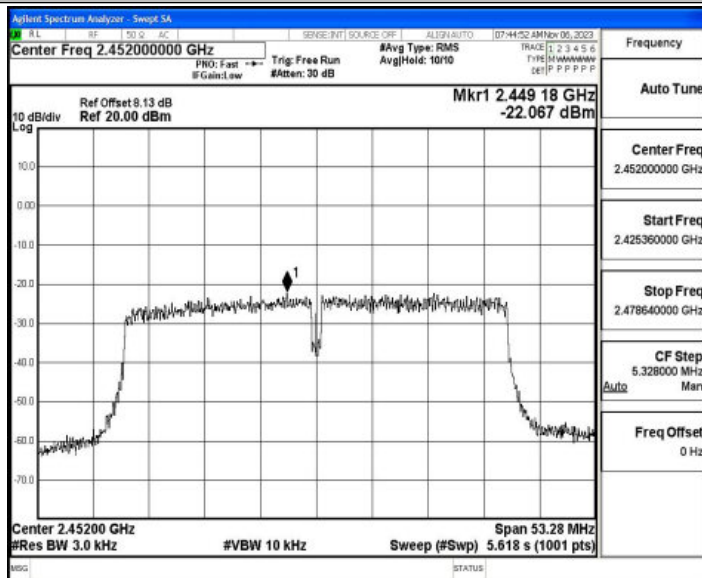


11N40SISO_Ant1_2437





11N40SISO_Ant1_2452





B.4 Band edge measurements

Test Result

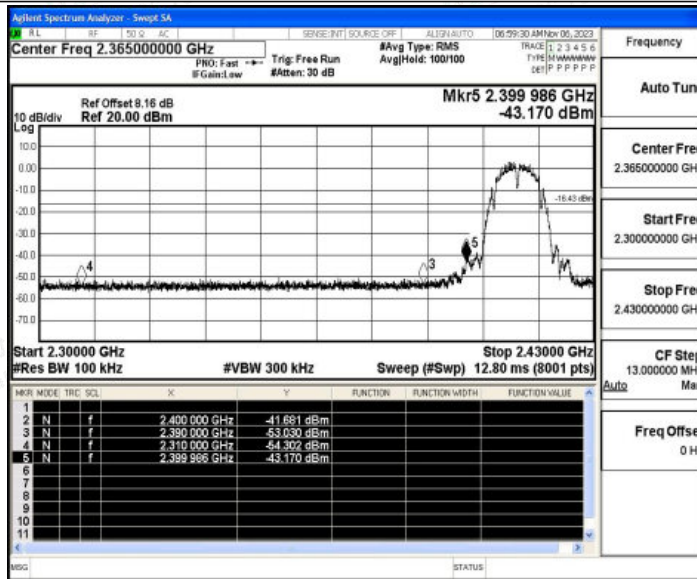
TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	3.57	-43.17	≤-16.43	PASS
		High	2462	2.35	-48.86	≤-17.65	PASS
11G	Ant1	Low	2412	0.41	-31.68	≤-19.59	PASS
		High	2462	-4.62	-46.44	≤-24.62	PASS
11N20SISO	Ant1	Low	2412	-3.57	-37.17	≤-23.57	PASS
		High	2462	-5.51	-45.3	≤-25.51	PASS
11N40SISO	Ant1	Low	2422	-6.19	-38.63	≤-26.19	PASS
		High	2452	-7.65	-42.85	≤-27.65	PASS



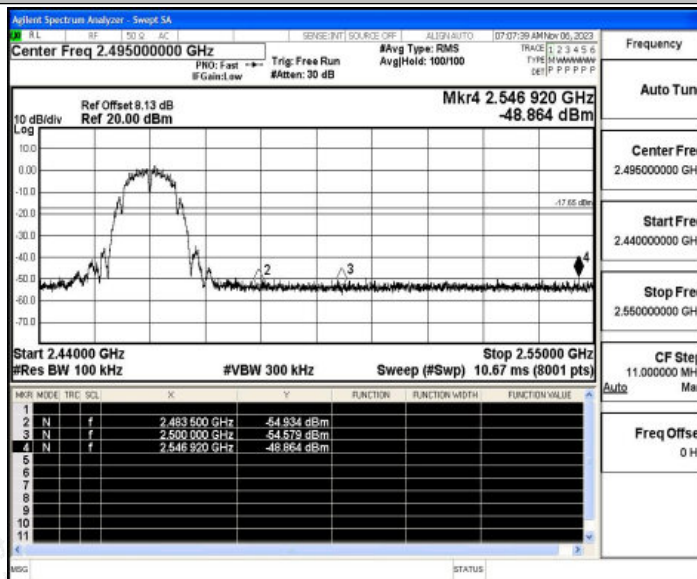


Test Graphs

11B_Ant1_Low_2412

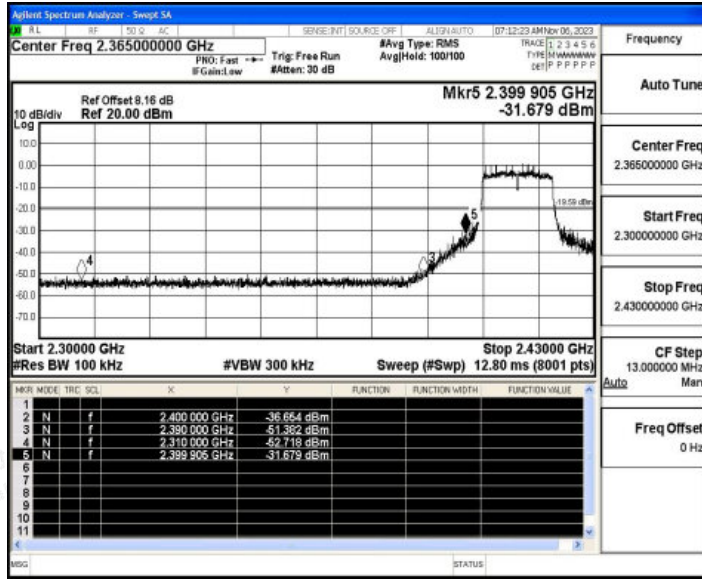


11B_Ant1_High_2462

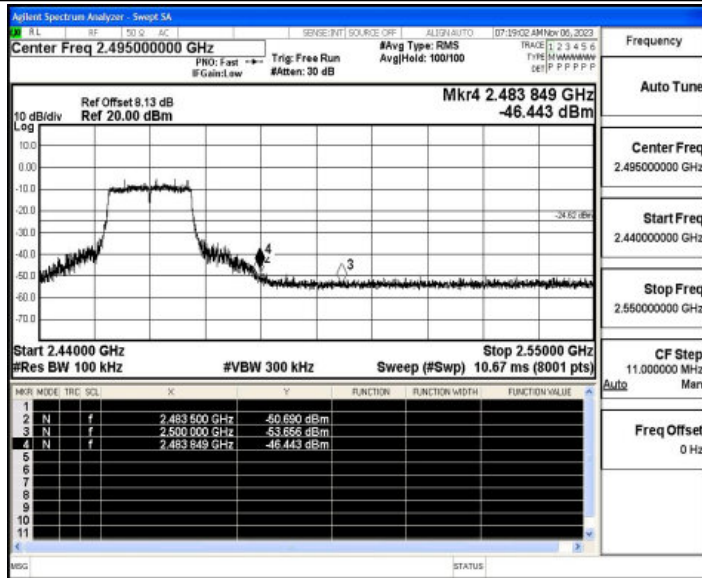


11G_Ant1_Low_2412



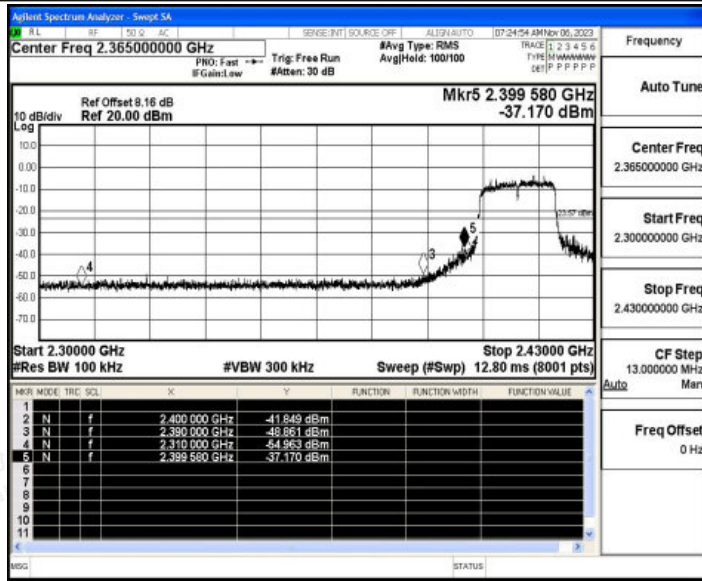


11G_Ant1_High_2462

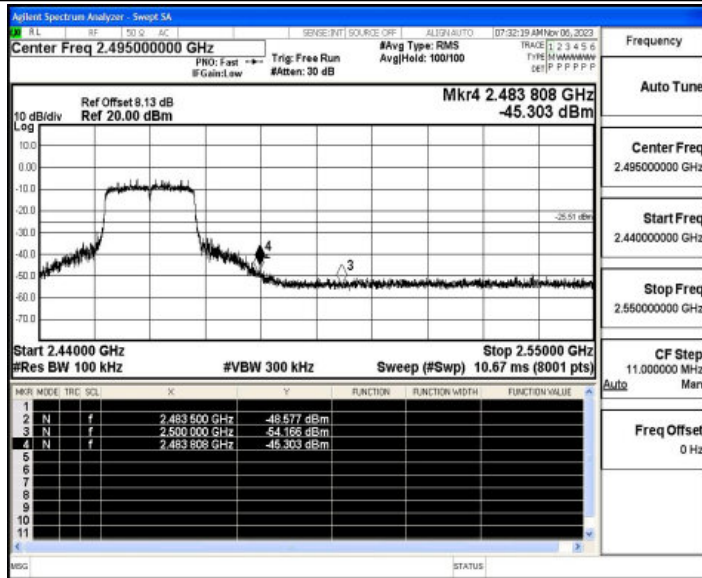


11N20SISO_Ant1_Low_2412





11N20SISO_Ant1_High_2462



11N40SISO_Ant1_Low_2422

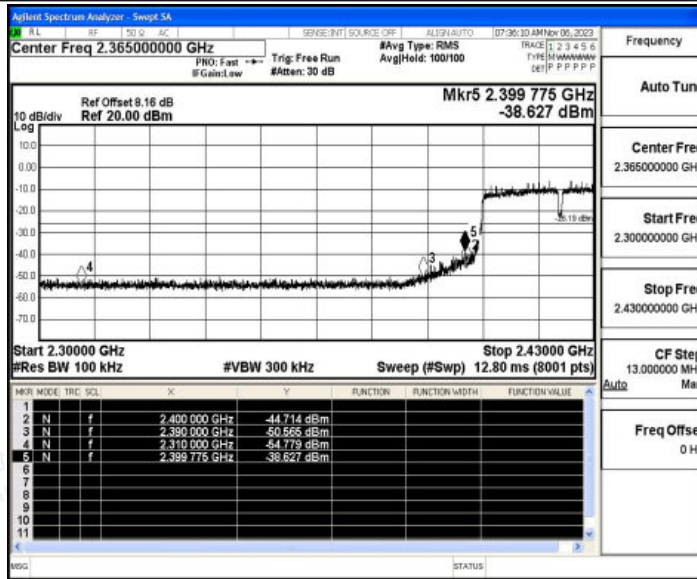


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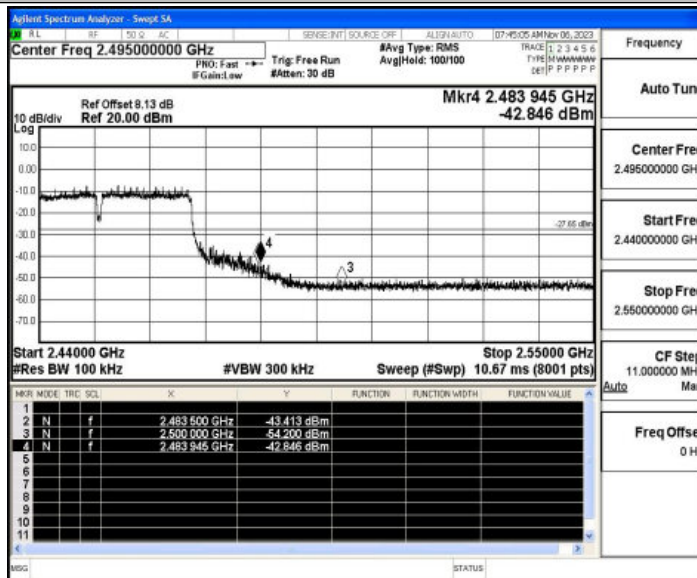
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11N40SISO_Ant1_High_2452





B.5 Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	30~1000	3.57	-61.11	≤-16.43	PASS
			1000~26500	3.57	-48.97	≤-16.43	PASS
		2437	30~1000	2.89	-61.98	≤-17.11	PASS
			1000~26500	2.89	-48.78	≤-17.11	PASS
		2462	30~1000	2.35	-61.79	≤-17.65	PASS
			1000~26500	2.35	-49.46	≤-17.65	PASS
11G	Ant1	2412	30~1000	0.41	-61.41	≤-19.59	PASS
			1000~26500	0.41	-48.51	≤-19.59	PASS
		2437	30~1000	-5.63	-61.68	≤-25.63	PASS
			1000~26500	-5.63	-48.91	≤-25.63	PASS
		2462	30~1000	-4.62	-61.73	≤-24.62	PASS
			1000~26500	-4.62	-49.71	≤-24.62	PASS
11N20SISO	Ant1	2412	30~1000	-3.57	-61.78	≤-23.57	PASS
			1000~26500	-3.57	-48.89	≤-23.57	PASS
		2437	30~1000	-4.69	-61.41	≤-24.69	PASS
			1000~26500	-4.69	-48.75	≤-24.69	PASS
		2462	30~1000	-5.51	-62.13	≤-25.51	PASS
			1000~26500	-5.51	-48.61	≤-25.51	PASS
11N40SISO	Ant1	2422	30~1000	-6.19	-61.7	≤-26.19	PASS
			1000~26500	-6.19	-48.97	≤-26.19	PASS
		2437	30~1000	-8.19	-61.62	≤-28.19	PASS
			1000~26500	-8.19	-49.47	≤-28.19	PASS
		2452	30~1000	-7.65	-61.34	≤-27.65	PASS
			1000~26500	-7.65	-48.29	≤-27.65	PASS



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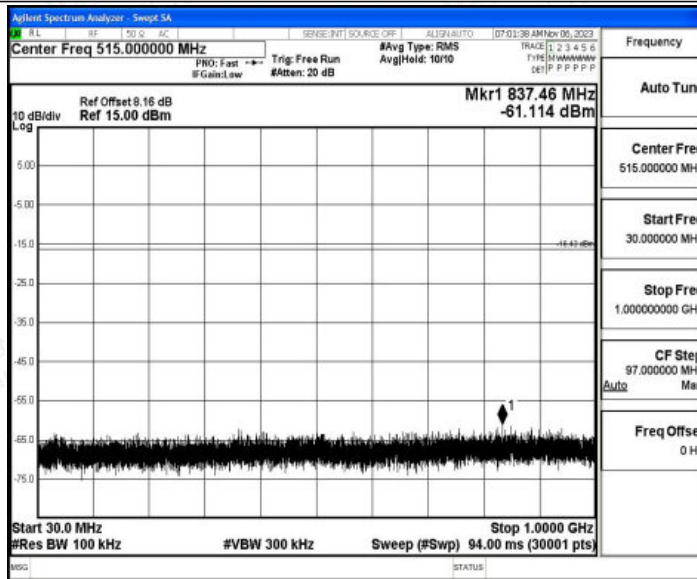
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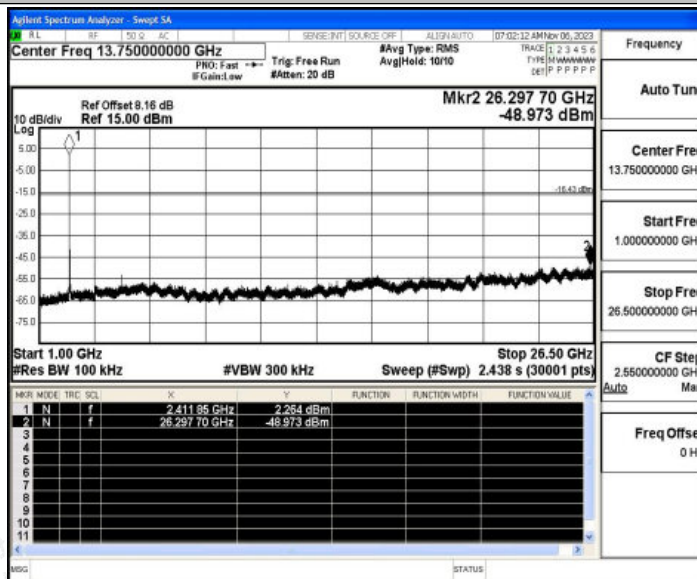


Test Graphs

11B_Ant1_2412_30~1000

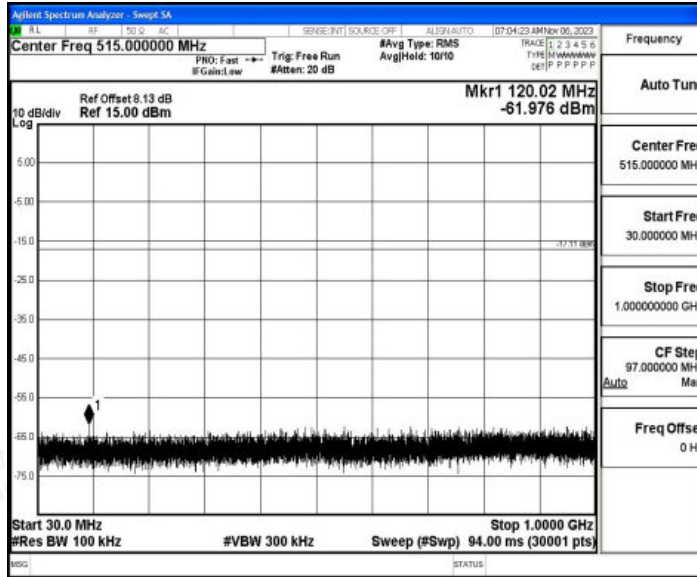


11B_Ant1_2412_1000~26500

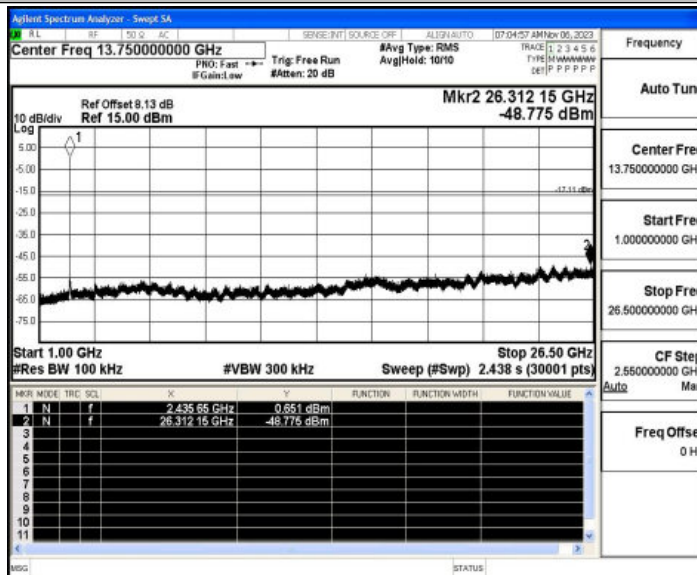


11B_Ant1_2437_30~1000



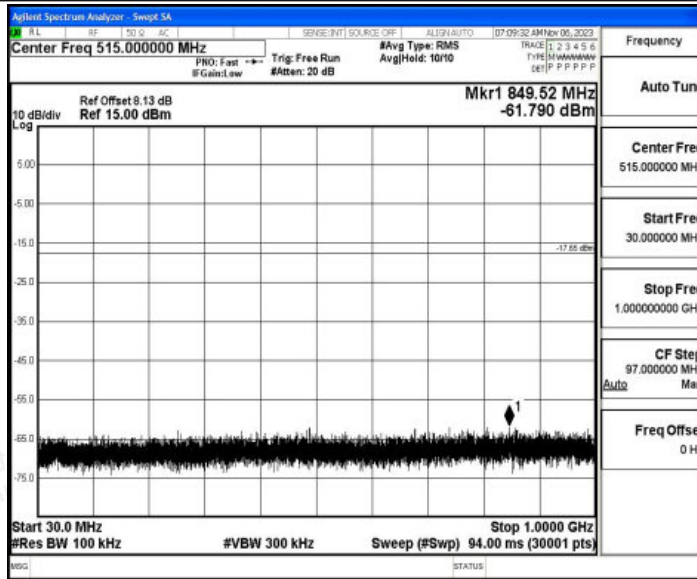


11B_Ant1_2437_1000~26500

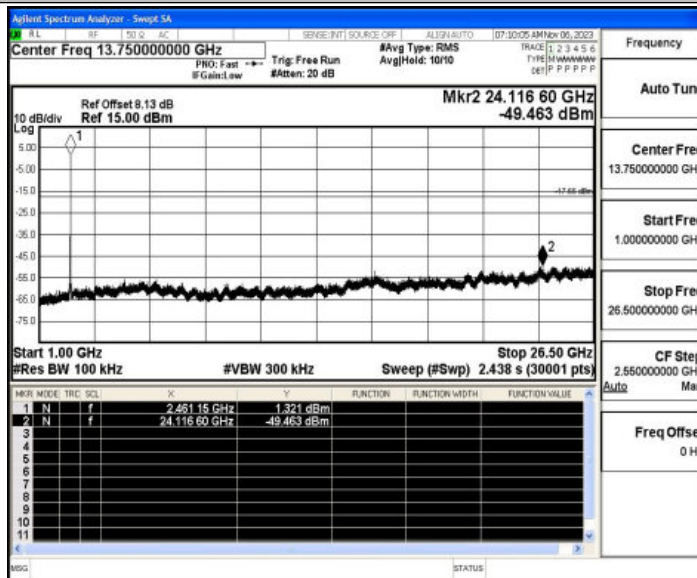


11B_Ant1_2462_30~1000



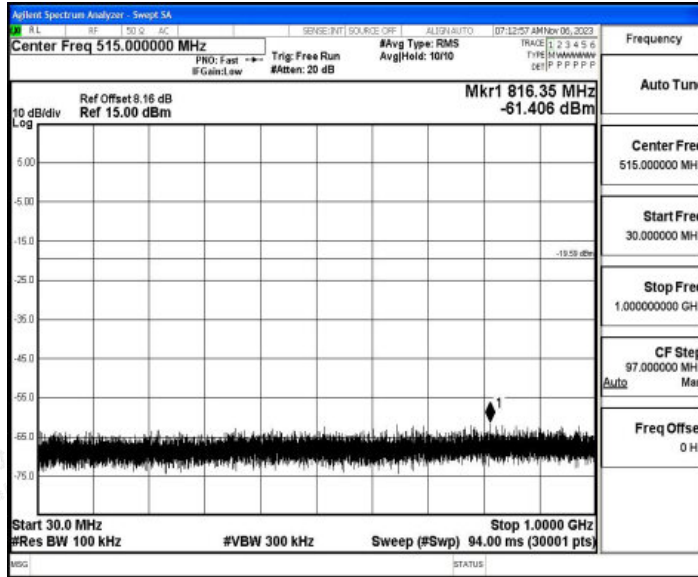


11B_Ant1_2462_1000~26500

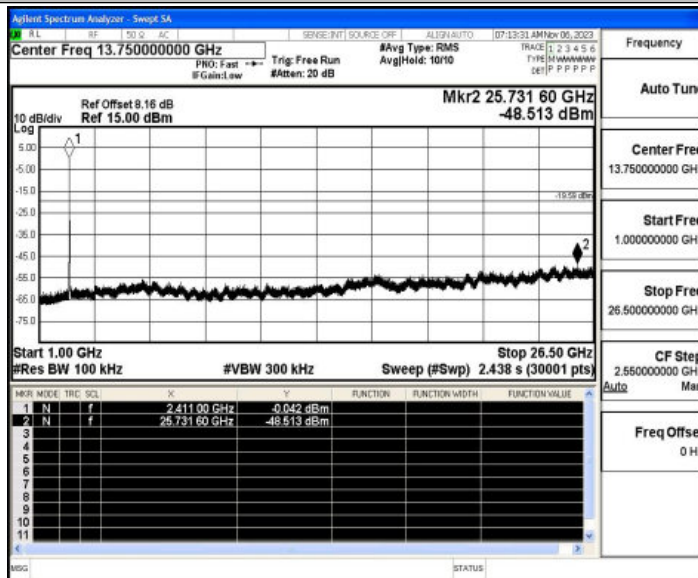


11G_Ant1_2412_30~1000



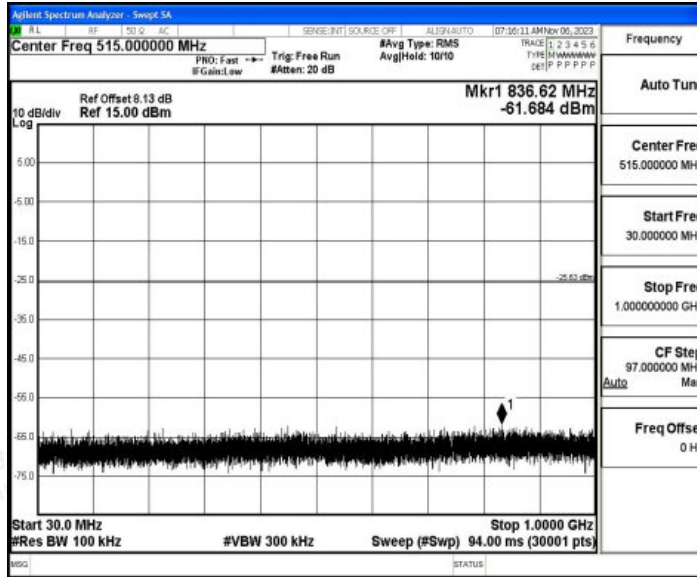


11G_Ant1_2412_1000~26500

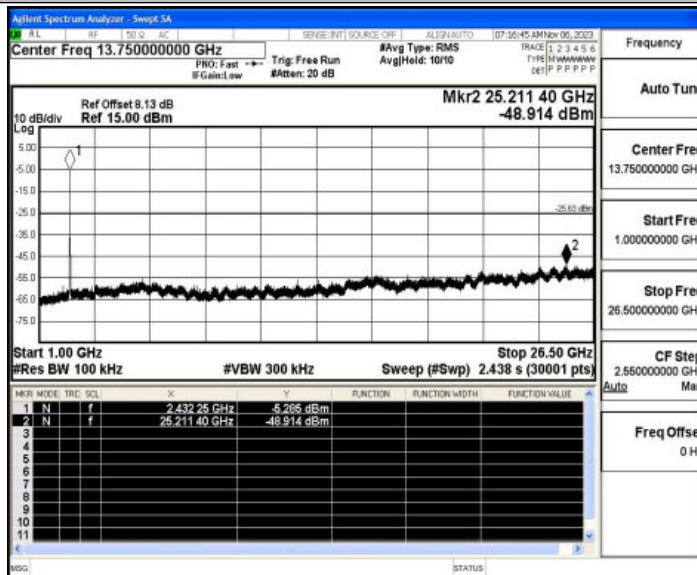


11G_Ant1_2437_30~1000



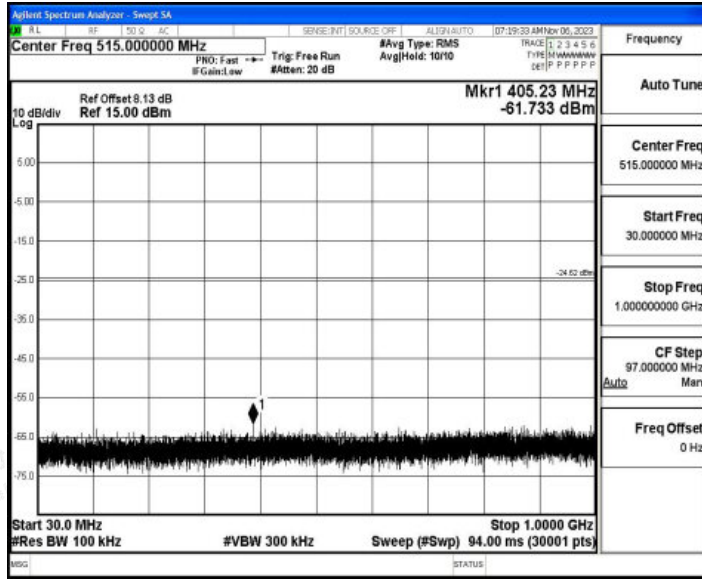


11G_Ant1_2437_1000~26500

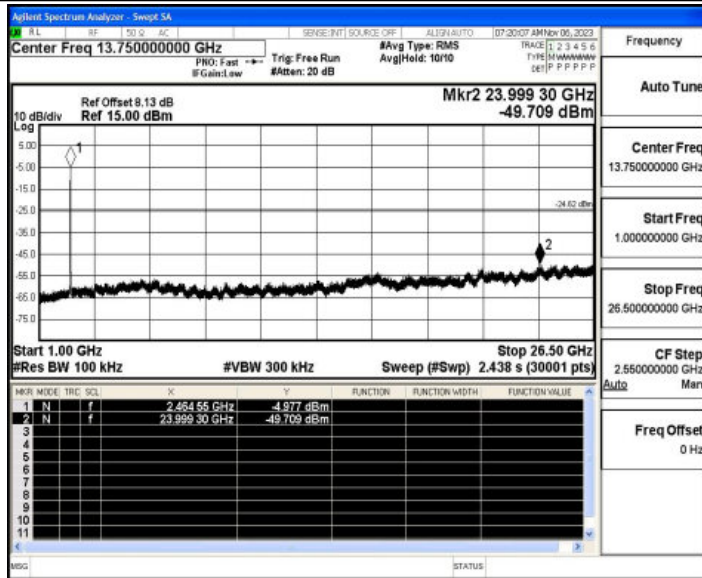


11G_Ant1_2462_30~1000





11G_Ant1_2462_1000~26500



11N20SISO_Ant1_2412_30~1000

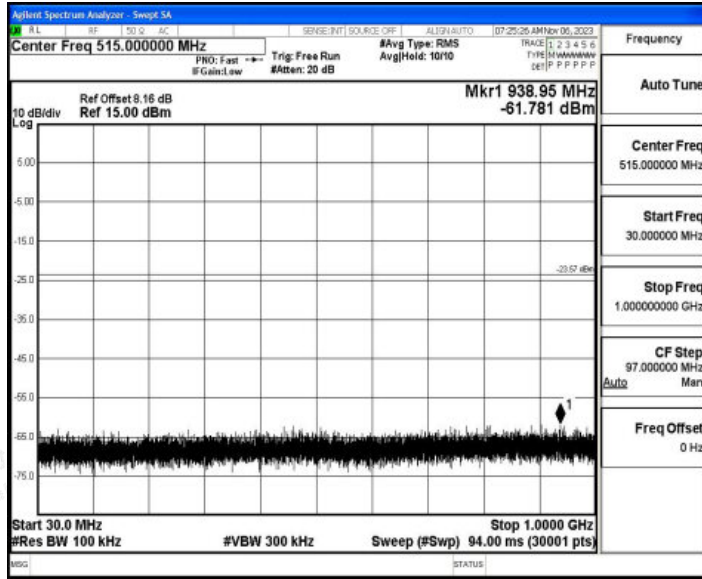


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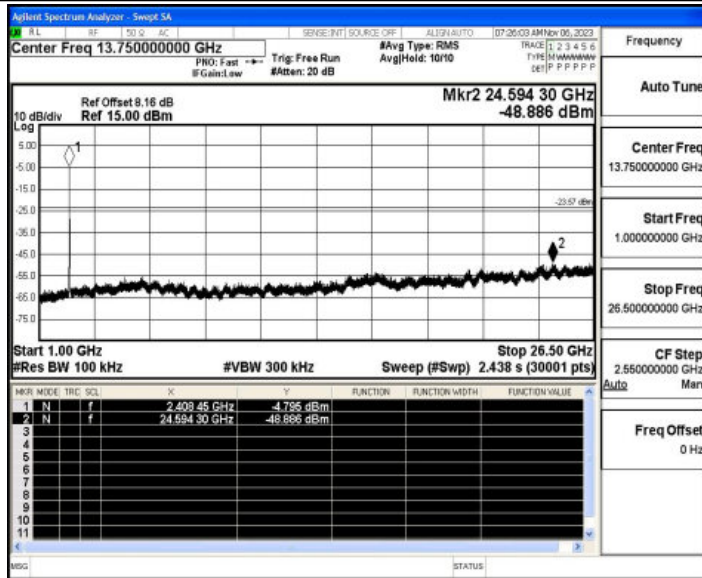
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11N20SISO_Ant1_2412_1000~26500



11N20SISO_Ant1_2437_30~1000

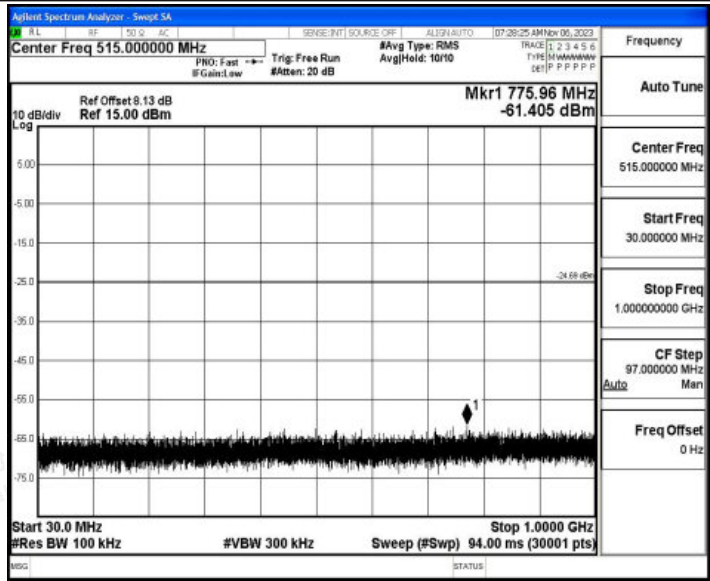


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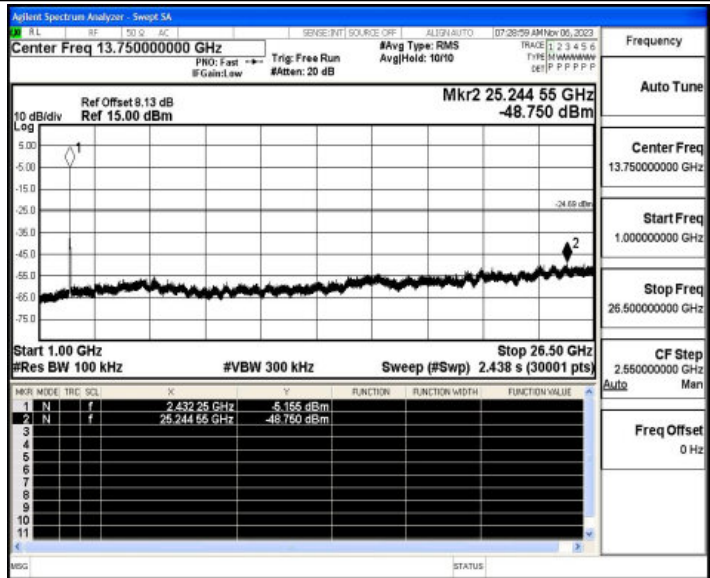
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11N20SISO_Ant1_2437_1000~26500



11N20SISO_Ant1_2462_30~1000

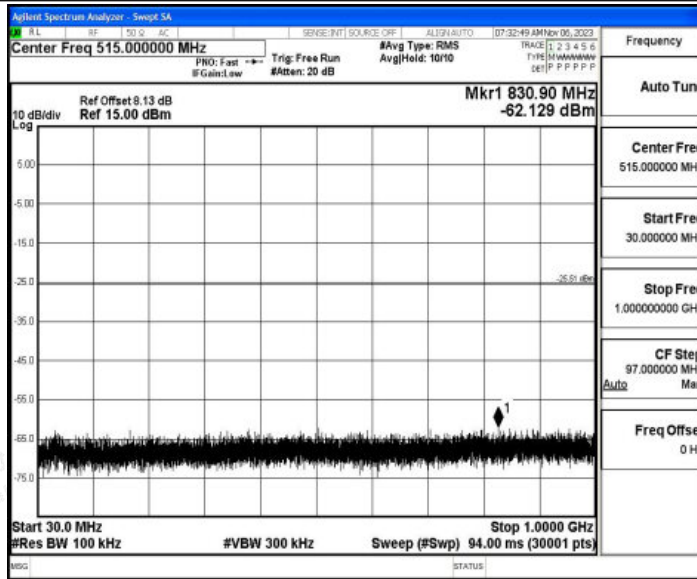


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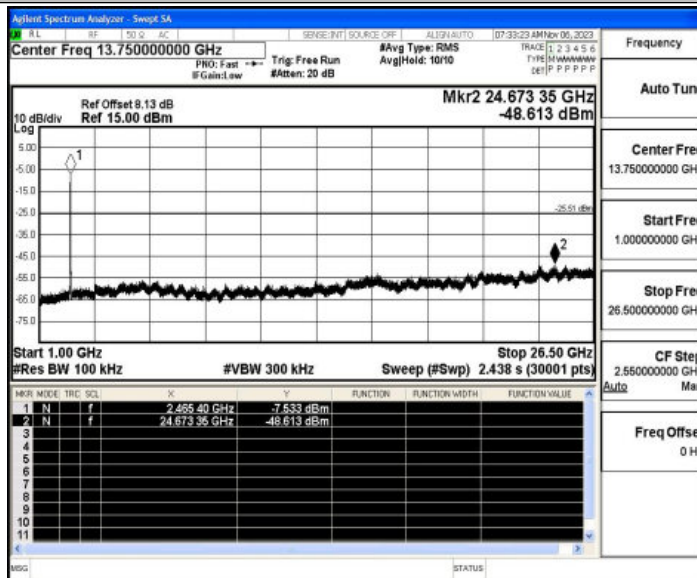
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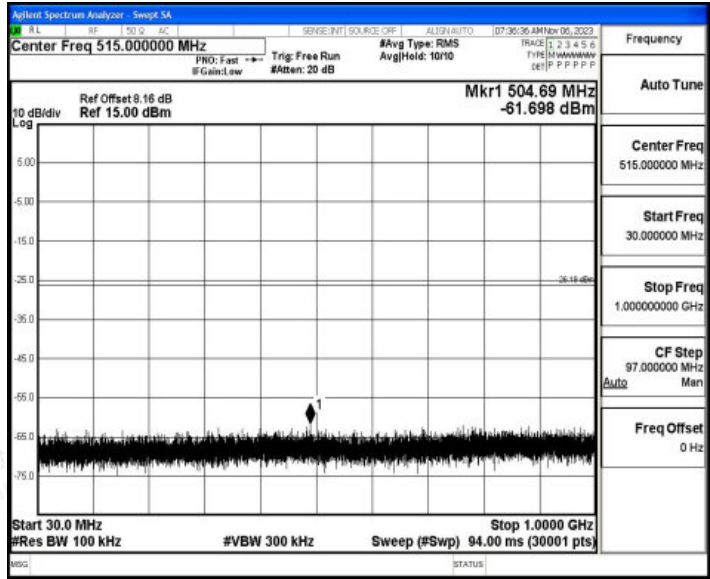


11N20SISO_Ant1_2462_1000~26500

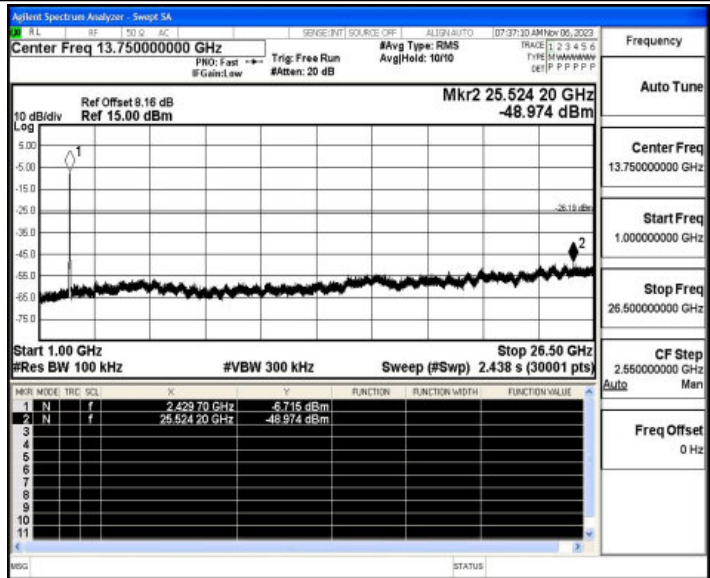


11N40SISO_Ant1_2422_30~1000



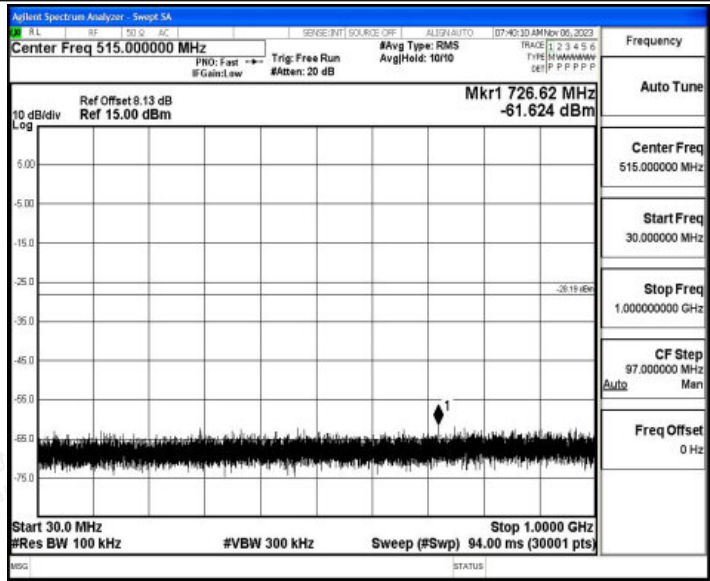


11N40SISO_Ant1_2422_1000~26500

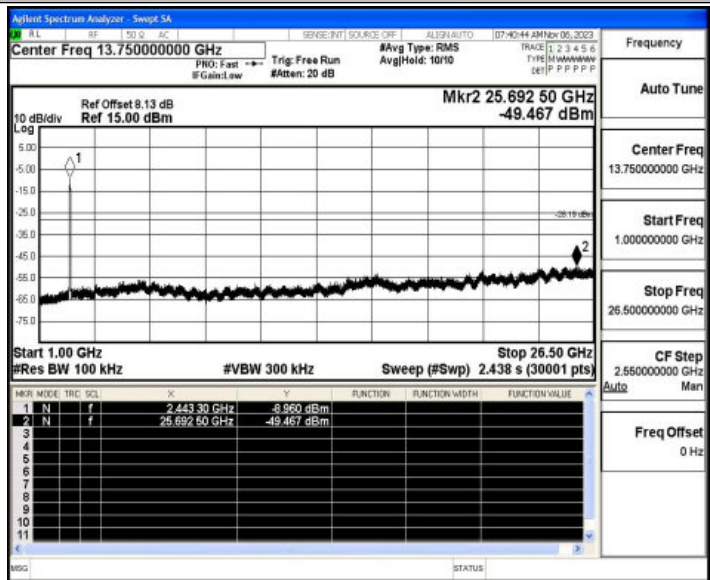


11N40SISO_Ant1_2437_30~1000



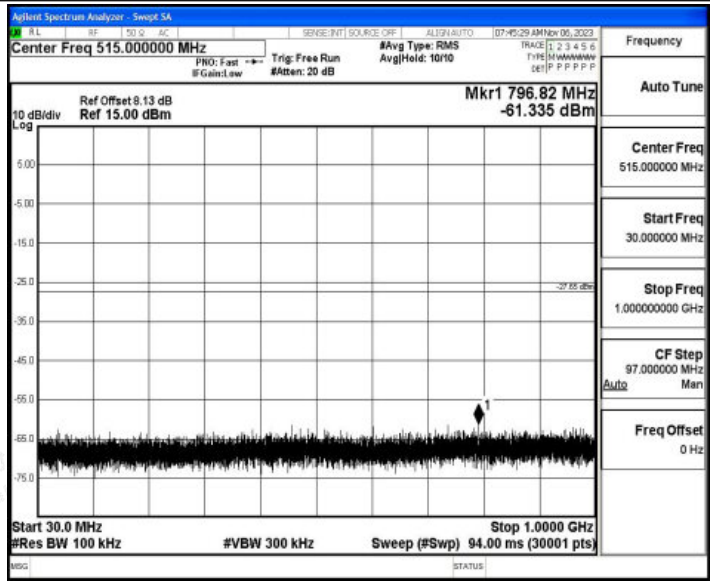


11N40SISO_Ant1_2437_1000~26500

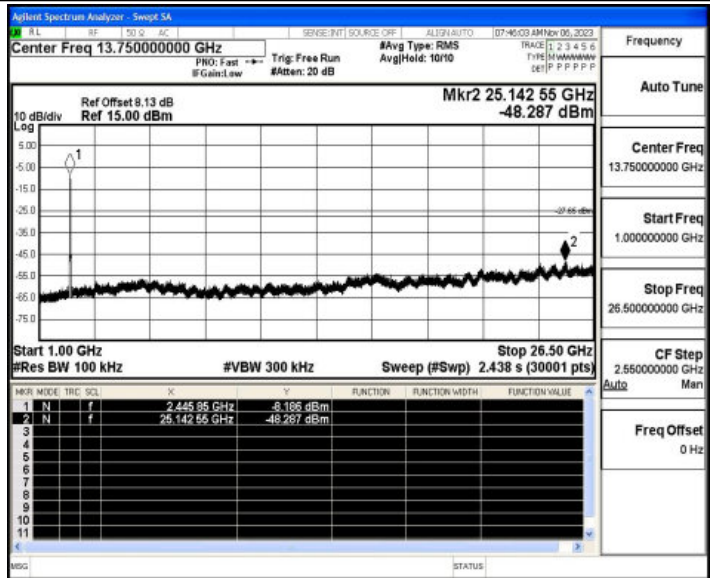


11N40SISO_Ant1_2452_30~1000





11N40SISO_Ant1_2452_1000~26500



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B.6 Duty Cycle

Test Result

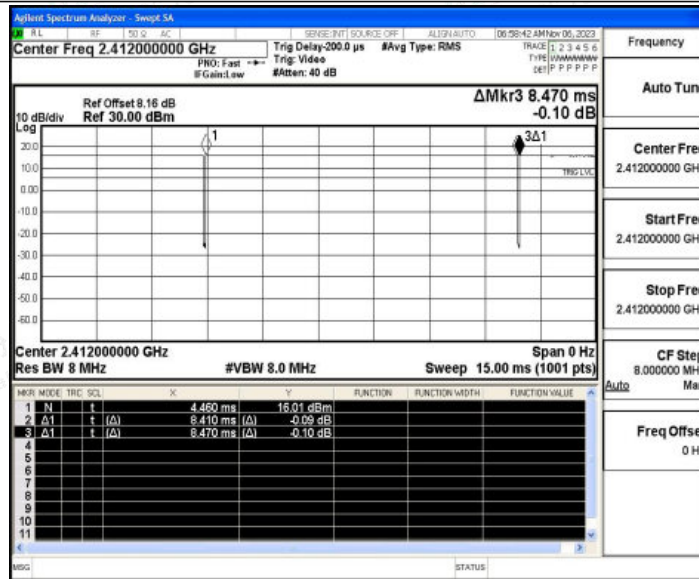
TestMode	Antenna	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor	Verdict
11B	Ant1	2412	8.41	8.47	99.29	0.03	---
		2437	8.42	8.48	99.29	0.03	---
		2462	8.41	8.49	99.06	0.04	---
11G	Ant1	2412	1.40	1.46	95.89	0.18	---
		2437	1.39	1.46	95.21	0.21	---
		2462	1.39	1.46	95.21	0.21	---
11N20SISO	Ant1	2412	1.18	1.24	95.16	0.22	---
		2437	1.18	1.25	94.40	0.25	---
		2462	1.18	1.25	94.40	0.25	---
11N40SISO	Ant1	2422	0.59	0.65	90.77	0.42	---
		2437	0.59	0.65	90.77	0.42	---
		2452	0.59	0.65	90.77	0.42	---



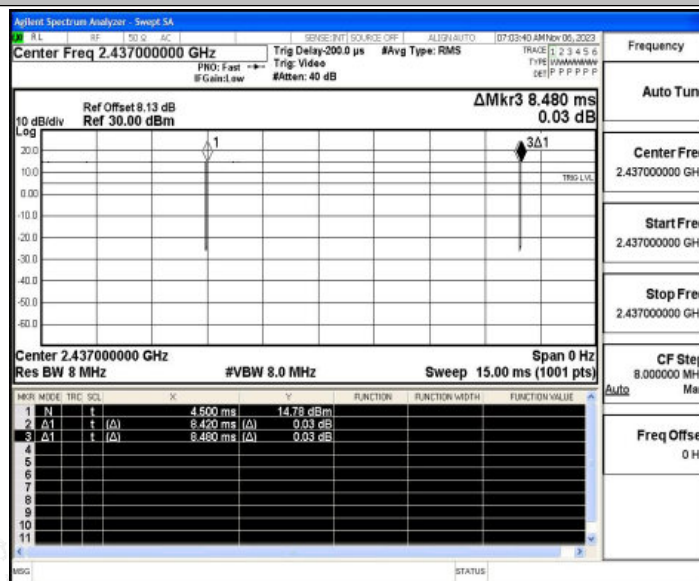


Test Graphs

11B_Ant1_2412

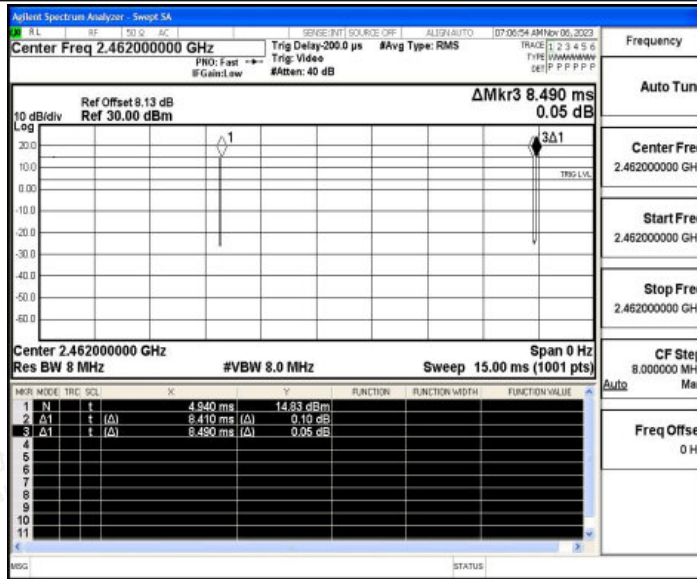


11B_Ant1_2437

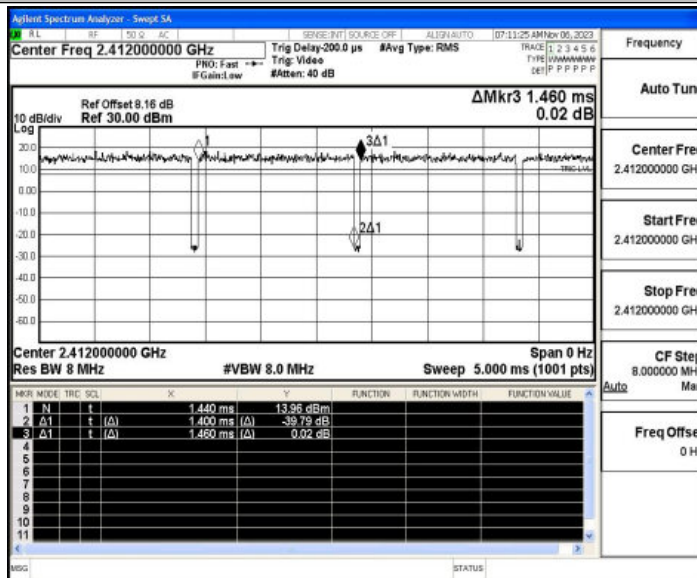


11B_Ant1_2462



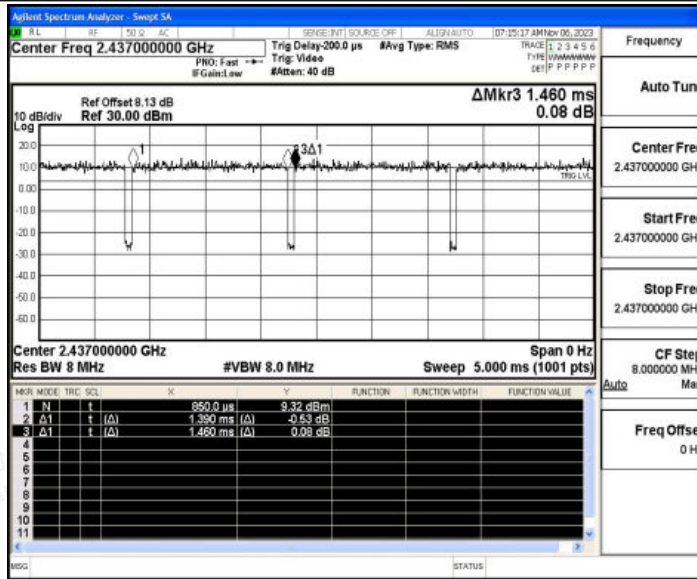


11G_Ant1_2412

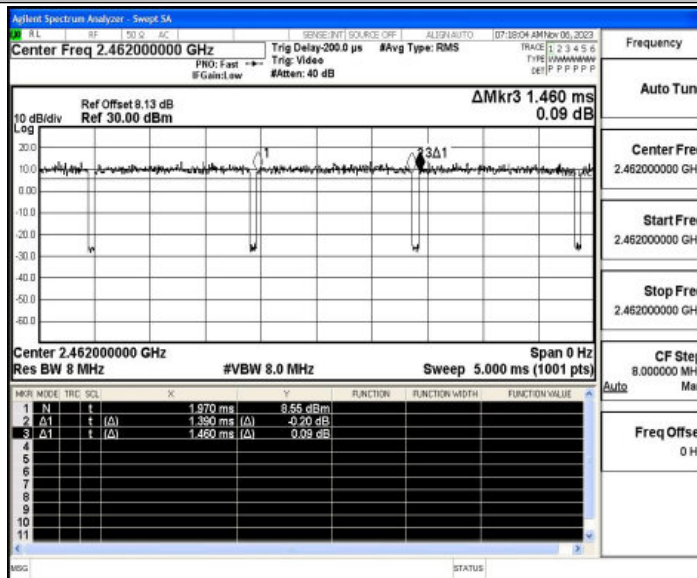


11G_Ant1_2437



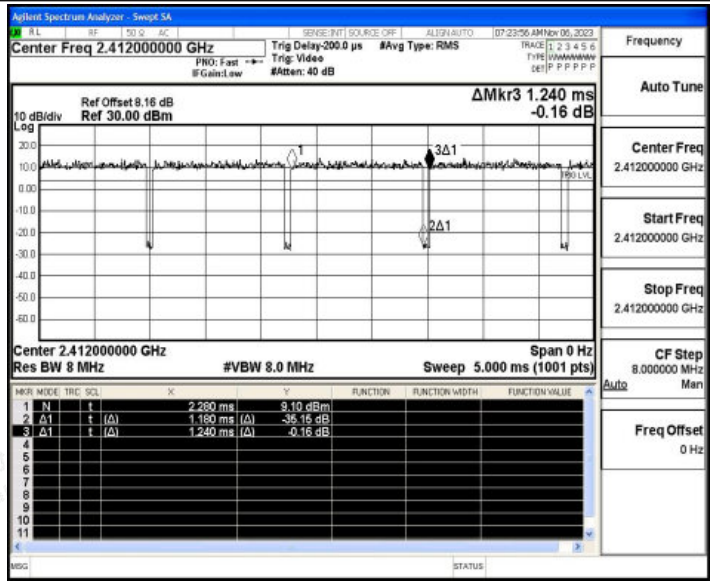


11G_Ant1_2462

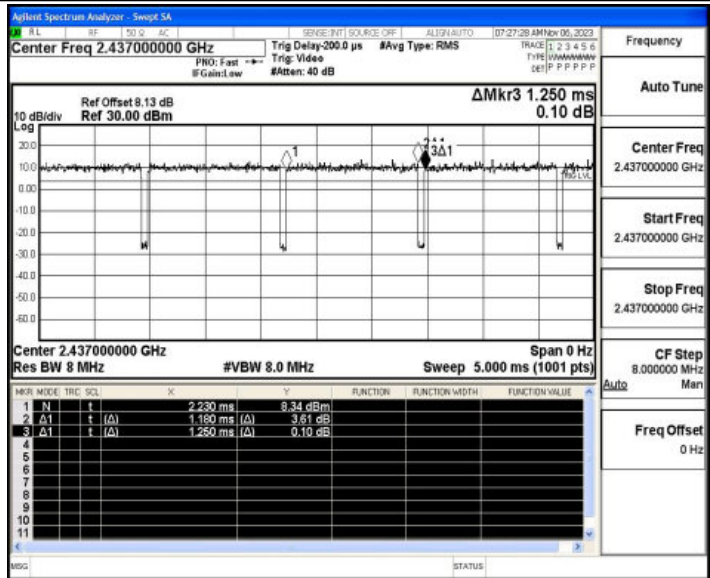


11N20SISO_Ant1_2412



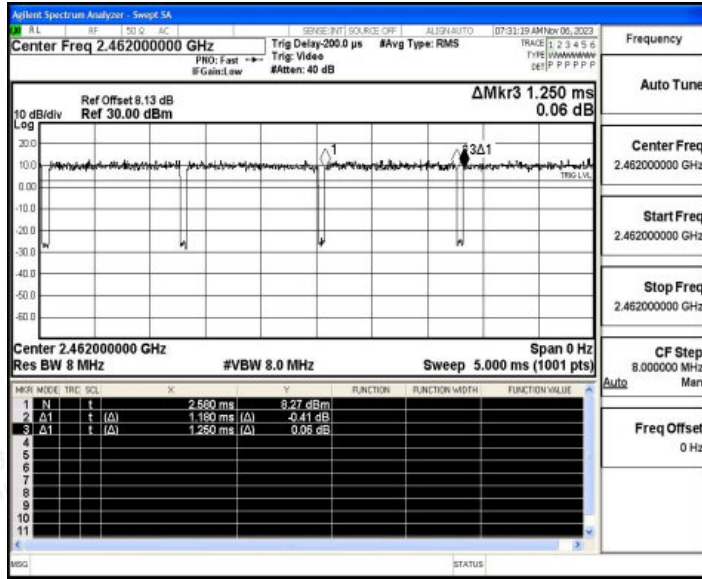


11N20SISO_Ant1_2437

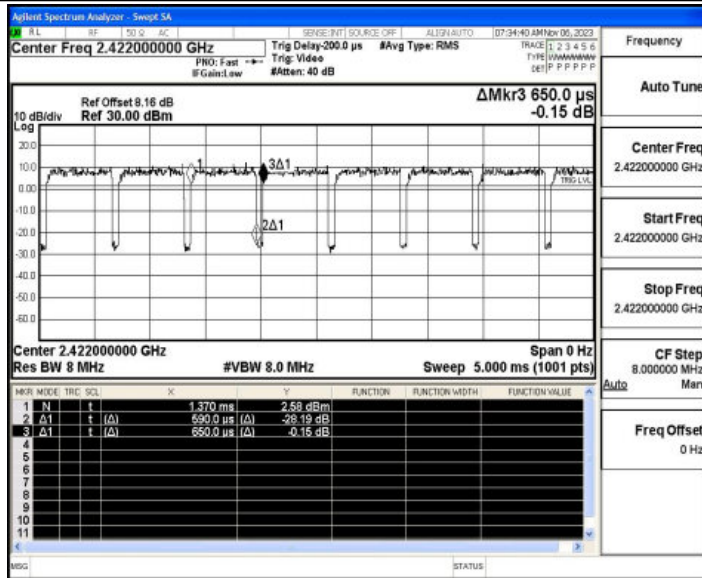


11N20SISO_Ant1_2462



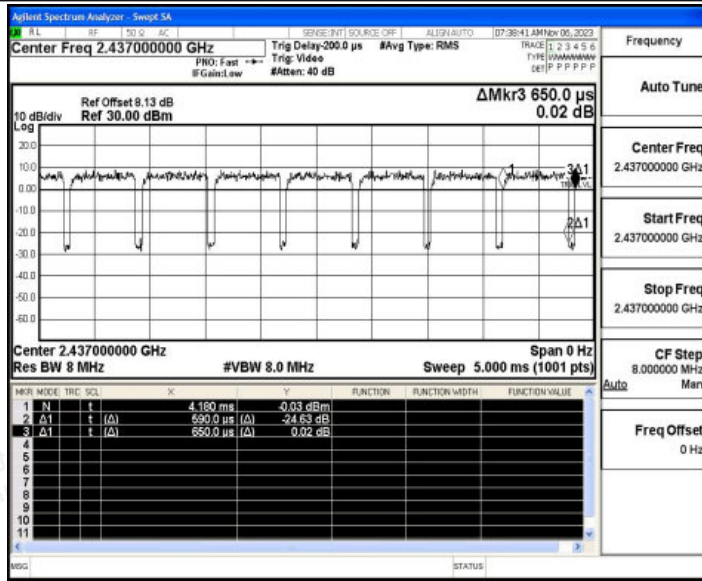


11N40SISO_Ant1_2422

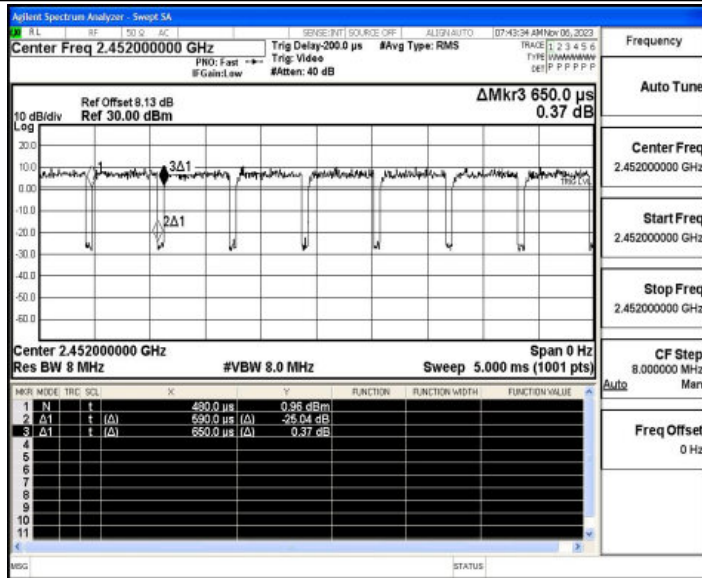


11N40SISO_Ant1_2437





11N40SISO_Ant1_2452



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B.7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	Channel Name	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11B	Ant1	Low	2412	AV	2310.000	-49.51	≤-41.20	45.69	≤54	PASS
				AV	2389.310	-48.62	≤-41.20	46.58	≤54	PASS
				AV	2390.000	-48.67	≤-41.20	46.53	≤54	PASS
				Peak	2310.000	-42.55	≤-21.20	52.65	≤74	PASS
				Peak	2359.670	-39.2	≤-21.20	56.00	≤74	PASS
				Peak	2390.000	-42.79	≤-21.20	52.41	≤74	PASS
		High	2462	AV	2483.500	-48.64	≤-41.20	46.56	≤54	PASS
				AV	2485.100	-48.6	≤-41.20	46.60	≤54	PASS
				AV	2500.000	-49.02	≤-41.20	46.18	≤54	PASS
				Peak	2483.500	-41.46	≤-21.20	53.74	≤74	PASS
				Peak	2483.560	-39.16	≤-21.20	56.04	≤74	PASS
				Peak	2500.000	-42.58	≤-21.20	52.62	≤74	PASS
11G	Ant1	Low	2412	AV	2310.000	-48.87	≤-41.20	46.33	≤54	PASS
				AV	2389.960	-45.09	≤-41.20	50.11	≤54	PASS
				AV	2390.000	-45.09	≤-41.20	50.11	≤54	PASS
				Peak	2310.000	-43.09	≤-21.20	52.11	≤74	PASS
				Peak	2389.960	-35.83	≤-21.20	59.37	≤74	PASS
				Peak	2390.000	-35.83	≤-21.20	59.37	≤74	PASS
		High	2462	AV	2483.500	-45.02	≤-41.20	50.18	≤54	PASS
				AV	2483.670	-45.12	≤-41.20	50.08	≤54	PASS
				AV	2500.000	-48.47	≤-41.20	46.73	≤54	PASS
				Peak	2483.500	-38.8	≤-21.20	56.40	≤74	PASS
				Peak	2484.660	-33.62	≤-21.20	61.58	≤74	PASS
				Peak	2500.000	-41.32	≤-21.20	53.88	≤74	PASS
11N20SI SO	Ant1	Low	2412	AV	2310.000	-48.93	≤-41.20	46.27	≤54	PASS
				AV	2389.830	-46.4	≤-41.20	48.80	≤54	PASS
				AV	2390.000	-46.82	≤-41.20	48.38	≤54	PASS
				Peak	2310.000	-42.89	≤-21.20	52.31	≤74	PASS
				Peak	2389.310	-36.6	≤-21.20	58.60	≤74	PASS
				Peak	2390.000	-41.33	≤-21.20	53.87	≤74	PASS
		High	2462	AV	2483.500	-43.25	≤-41.20	51.95	≤54	PASS
				AV	2483.560	-43.94	≤-41.20	51.26	≤54	PASS
				AV	2500.000	-48.47	≤-41.20	46.73	≤54	PASS
				Peak	2483.500	-35.03	≤-21.20	60.17	≤74	PASS
				Peak	2483.890	-32.23	≤-21.20	62.97	≤74	PASS
				Peak	2500.000	-44.82	≤-21.20	50.38	≤74	PASS





11N40SI SO	Ant1	Low	2422	AV	2310.000	-48.81	≤-41.20	46.39	≤54	PASS
				AV	2389.830	-45.35	≤-41.20	49.85	≤54	PASS
				AV	2390.000	-45.56	≤-41.20	49.64	≤54	PASS
				Peak	2310.000	-42.58	≤-21.20	52.62	≤74	PASS
				Peak	2389.700	-34.55	≤-21.20	60.65	≤74	PASS
				Peak	2390.000	-38.18	≤-21.20	57.02	≤74	PASS
	High	2452	AV	2483.500	-46.02	≤-41.20	49.18	≤54	PASS	
			AV	2483.780	-46.08	≤-41.20	49.12	≤54	PASS	
			AV	2500.000	-48.08	≤-41.20	47.12	≤54	PASS	
			Peak	2483.500	-39.79	≤-21.20	55.41	≤74	PASS	
			Peak	2484.000	-35.84	≤-21.20	59.36	≤74	PASS	
			Peak	2500.000	-41.97	≤-21.20	53.23	≤74	PASS	

Note:

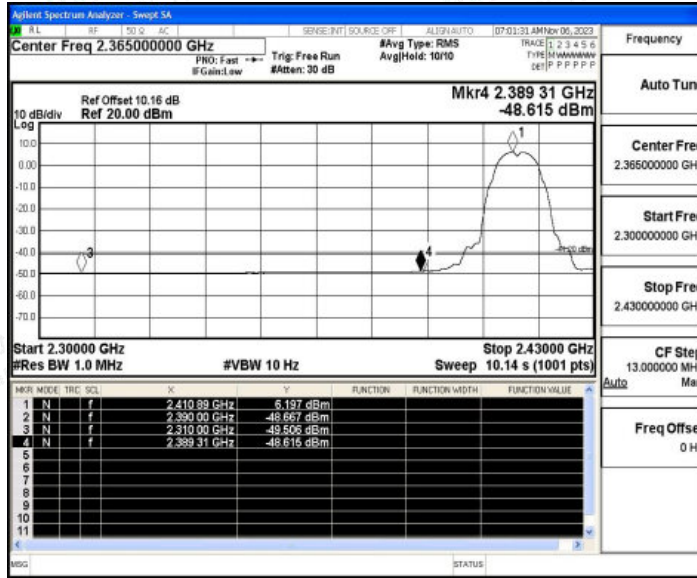
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



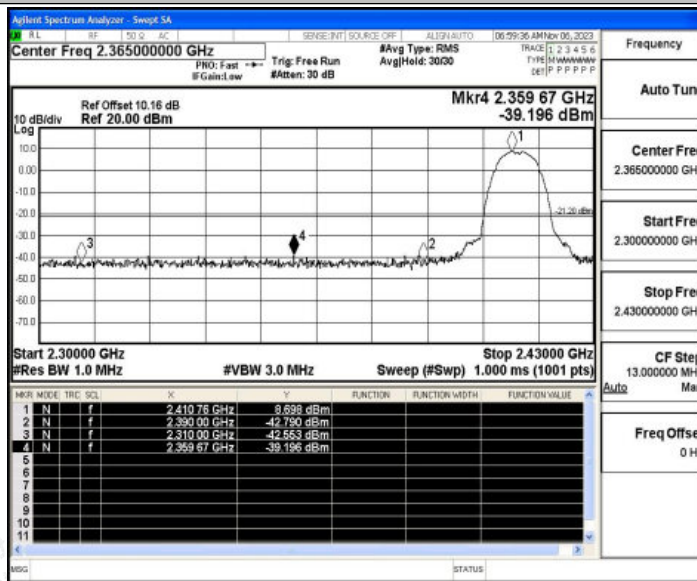


Test Graphs

11B_Ant1_Low_2412_AV

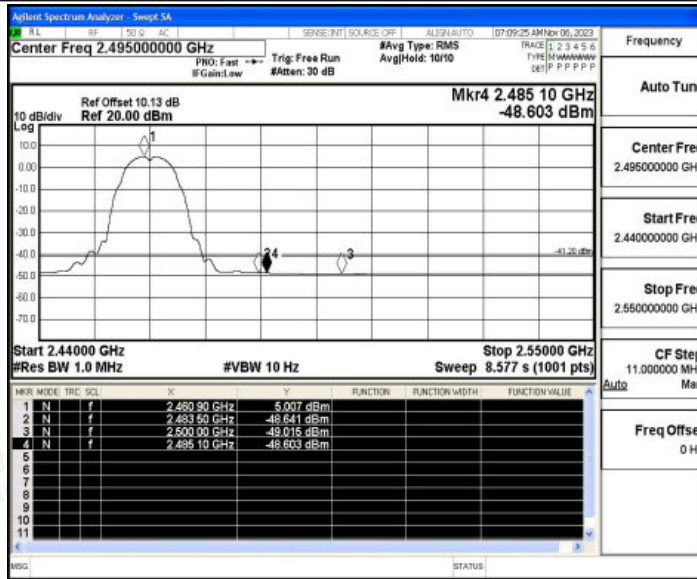


11B_Ant1_Low_2412_Peak

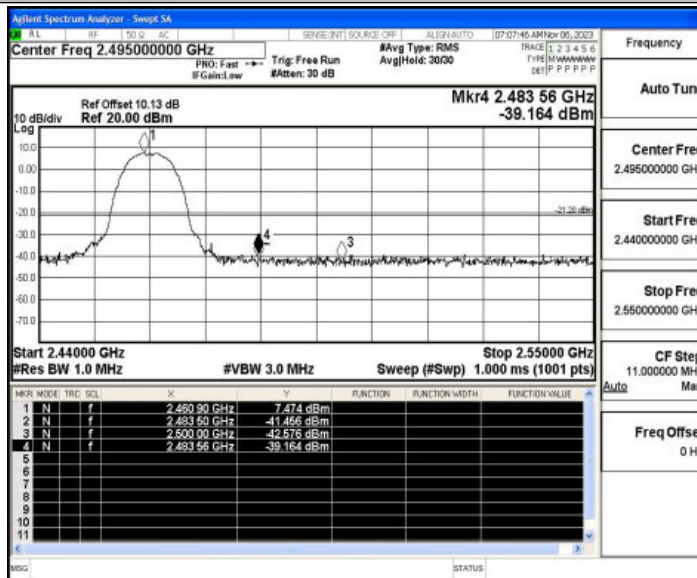


11B_Ant1_High_2462_AV



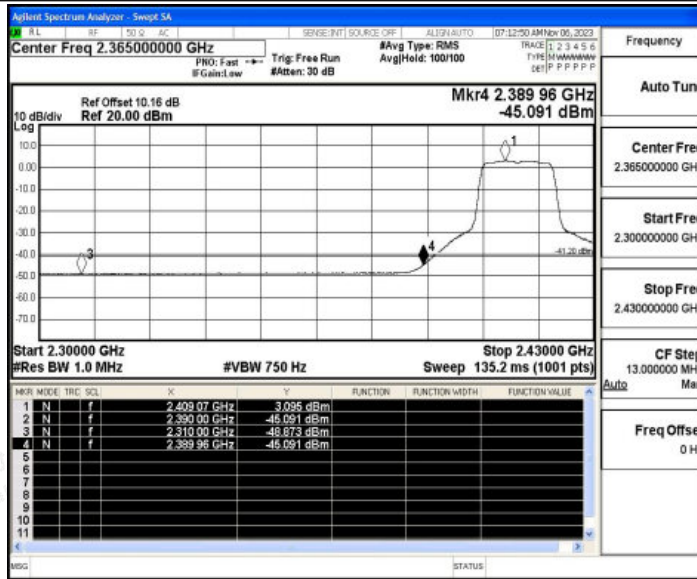


11B_Ant1_High_2462_Peak

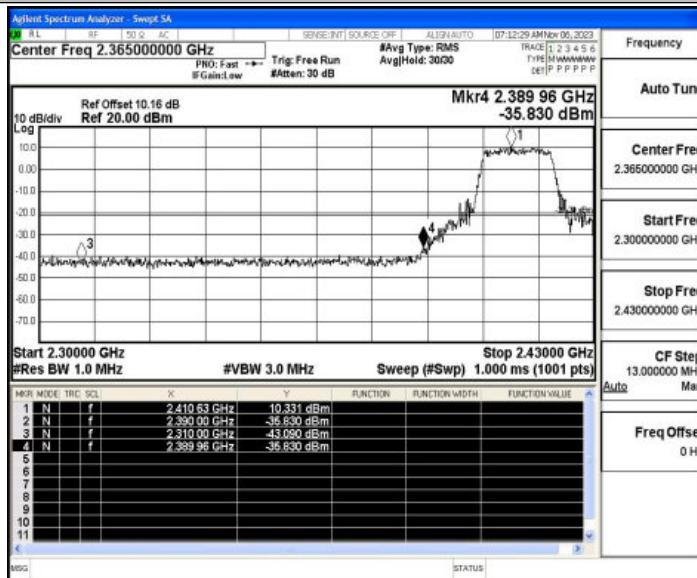


11G_Ant1_Low_2412_AV



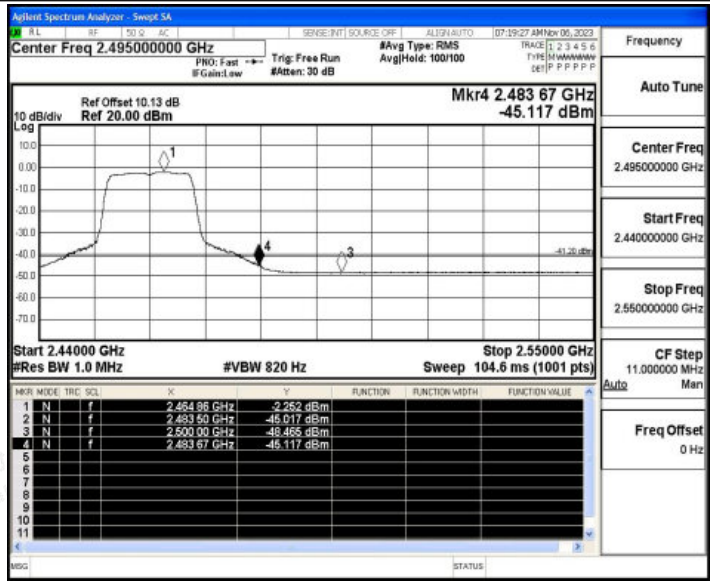


11G_Ant1_Low_2412_Peak

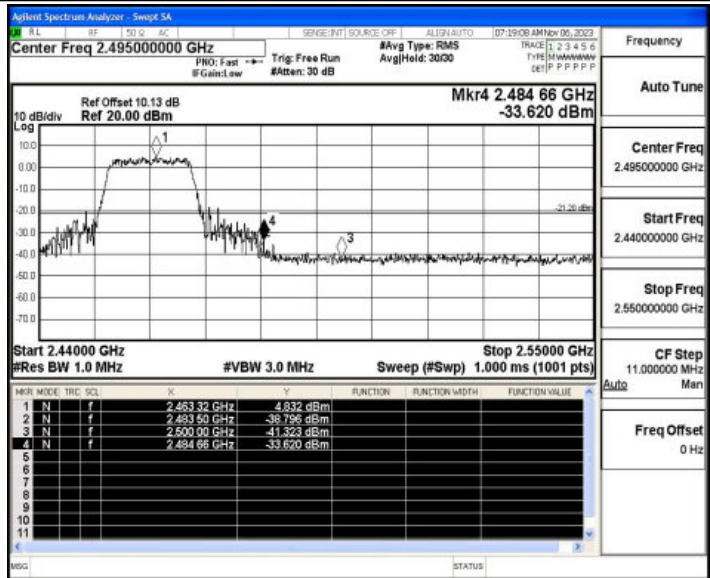


11G_Ant1_High_2462_AV



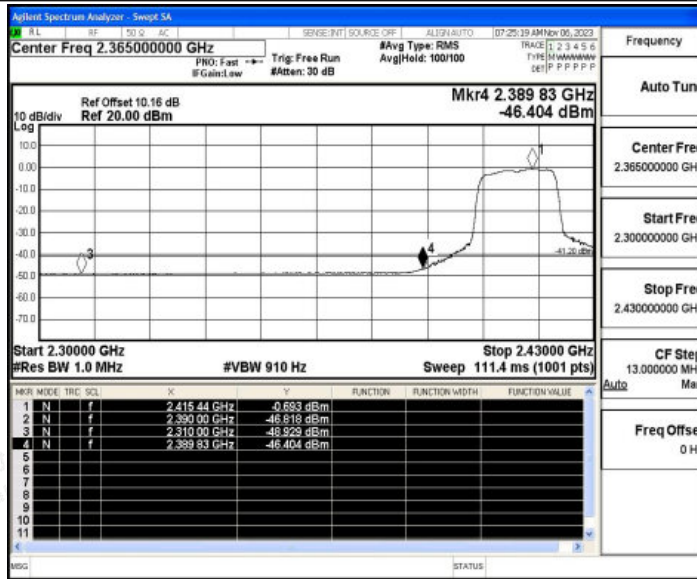


11G_Ant1_High_2462_Peak

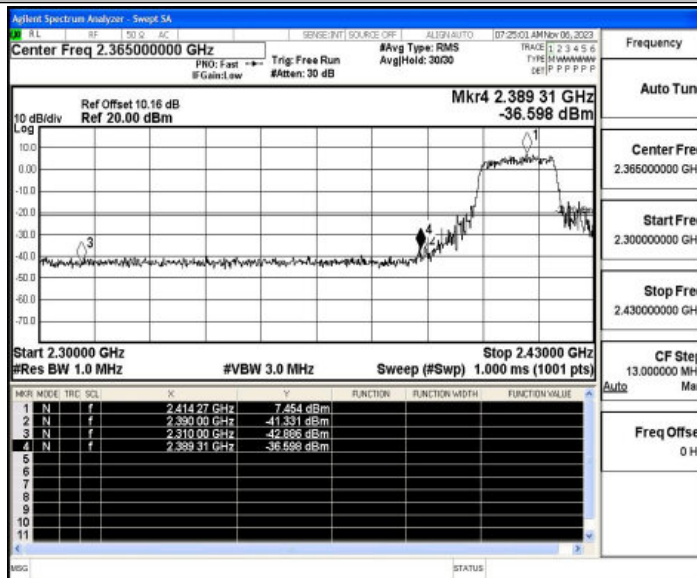


11N20SISO_Ant1_Low_2412_AV



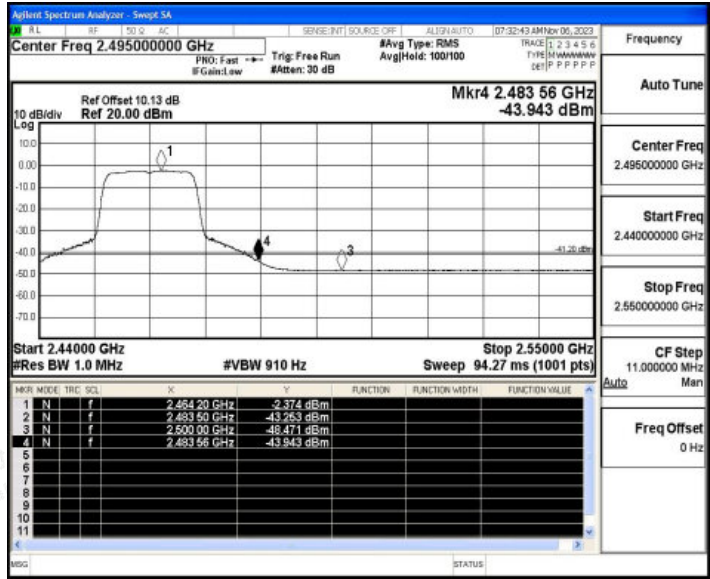


11N20SISO_Ant1_Low_2412_Peak



11N20SISO_Ant1_High_2462_AV



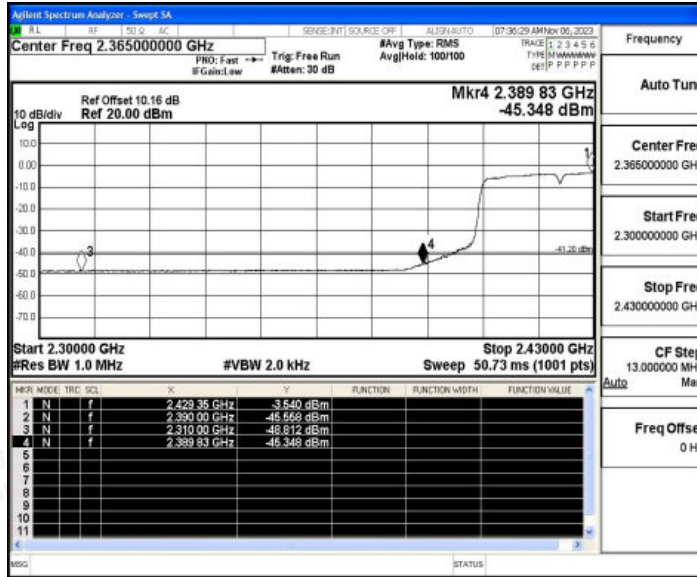


11N20SISO_Ant1_High_2462_Peak

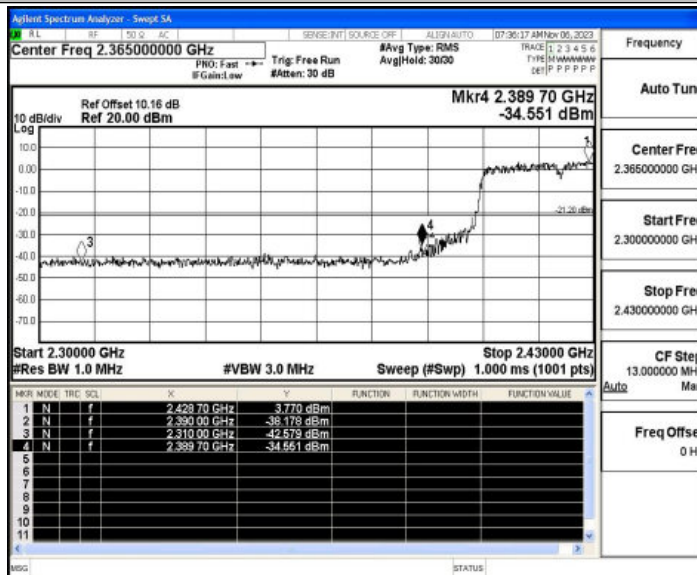


11N40SISO_Ant1_Low_2422_AV



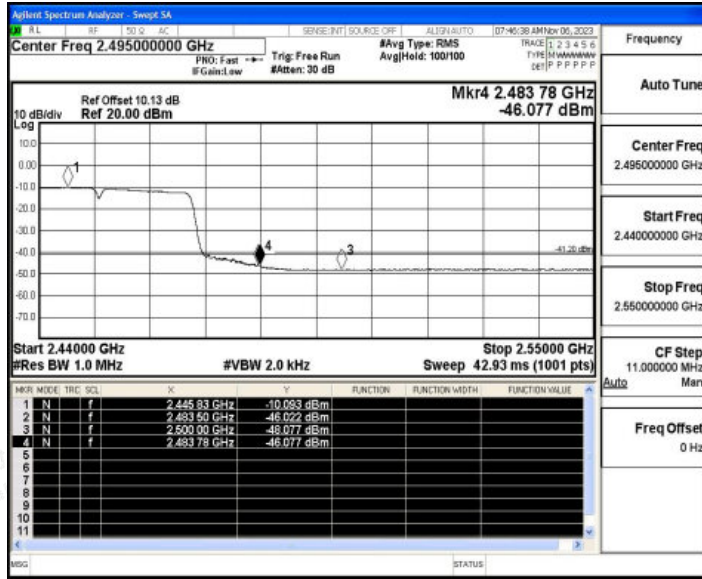


11N40SISO_Ant1_Low_2422_Peak



11N40SISO_Ant1_High_2452_AV





11N40ISO_Ant1_High_2452_Peak

