



Appendix A

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: Permanent Outdoor Eaves Lights

Test Model: L-PO120D1

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Luo
Supervised by:	Nick Peng





A.1 DTS Bandwidth

Test Result

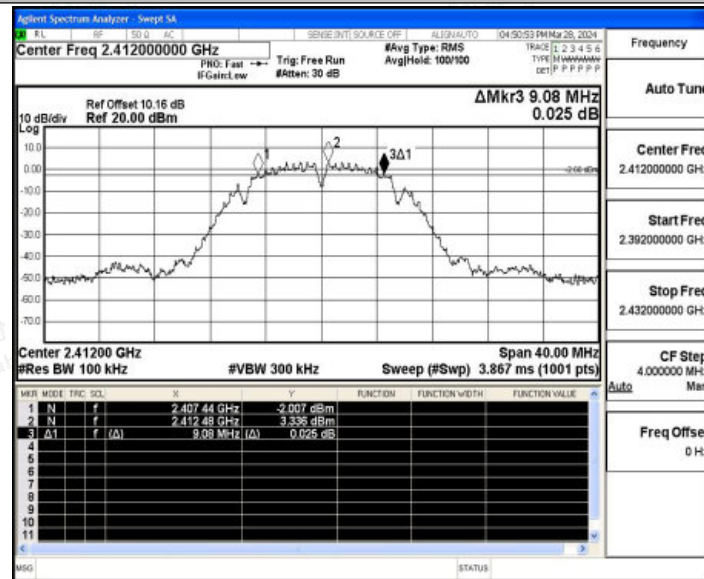
TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.080	2407.440	2416.520	0.5	PASS
		2437	10.000	2432.000	2442.000	0.5	PASS
		2462	8.600	2457.920	2466.520	0.5	PASS
11G	Ant1	2412	16.360	2403.840	2420.200	0.5	PASS
		2437	16.400	2428.800	2445.200	0.5	PASS
		2462	16.360	2453.800	2470.160	0.5	PASS
11N20SISO	Ant1	2412	17.600	2403.200	2420.800	0.5	PASS
		2437	17.600	2428.200	2445.800	0.5	PASS
		2462	17.600	2453.200	2470.800	0.5	PASS
11N40SISO	Ant1	2422	36.080	2404.080	2440.160	0.5	PASS
		2437	35.840	2419.080	2454.920	0.5	PASS
		2452	36.320	2433.840	2470.160	0.5	PASS



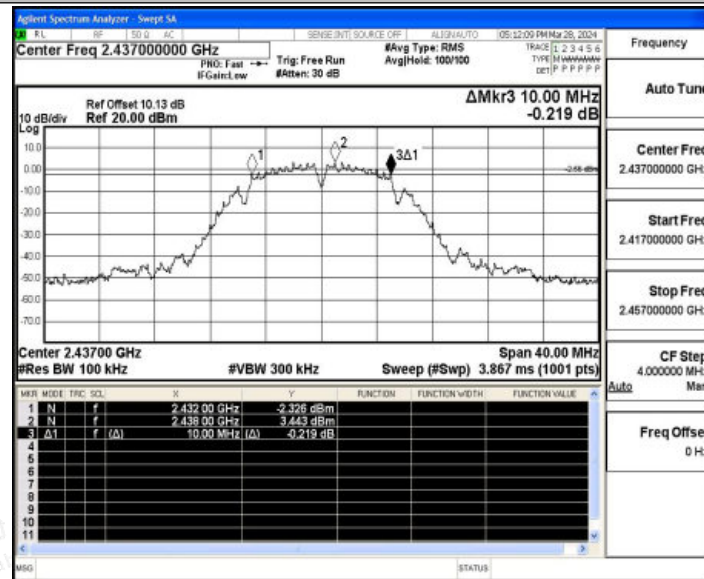


Test Graphs

11B_Ant1_2412

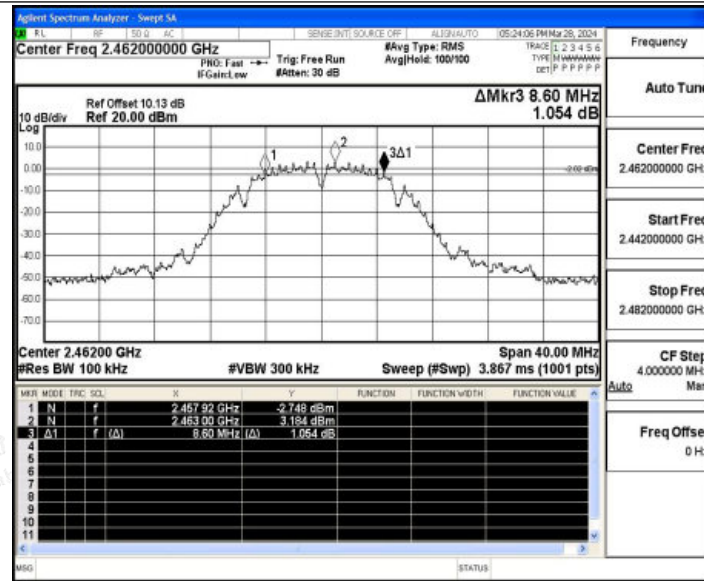


11B_Ant1_2437

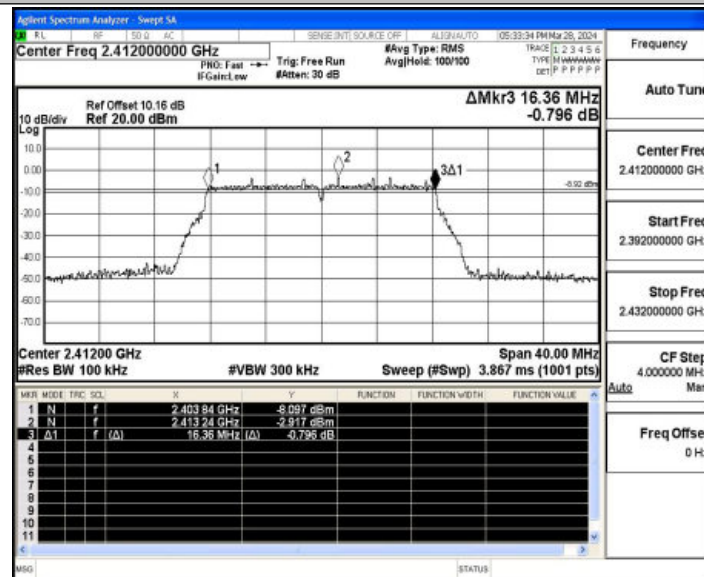


11B_Ant1_2462



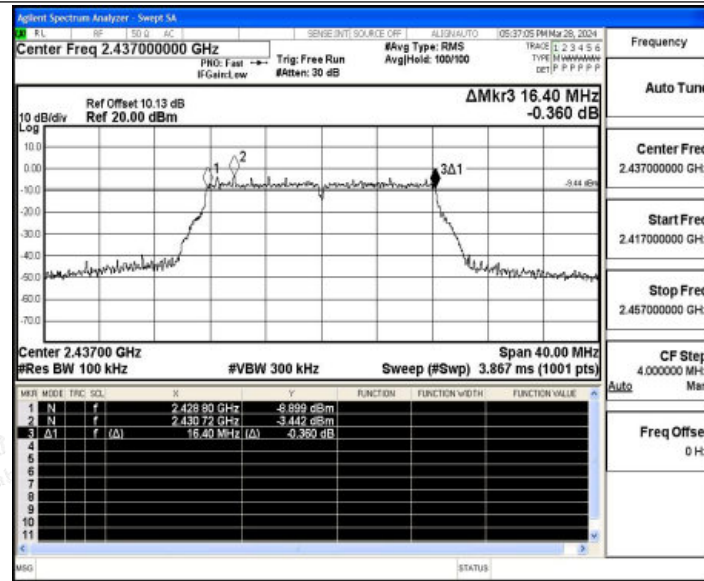


11G_Ant1_2412

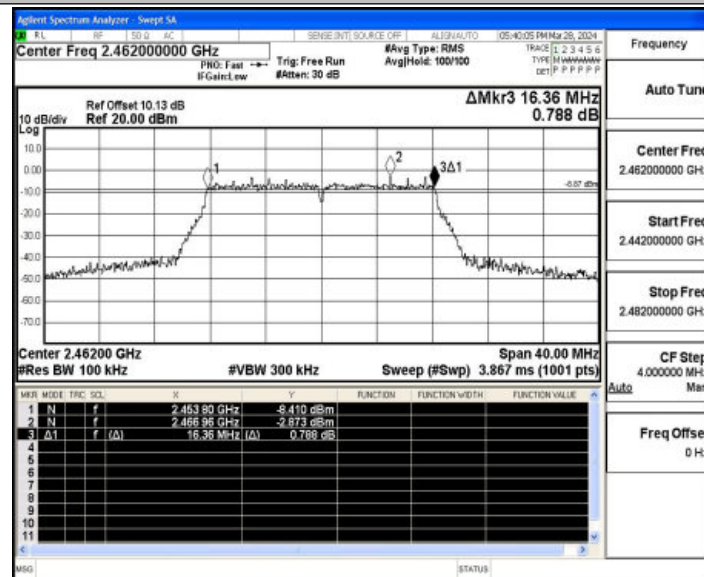


11G_Ant1_2437



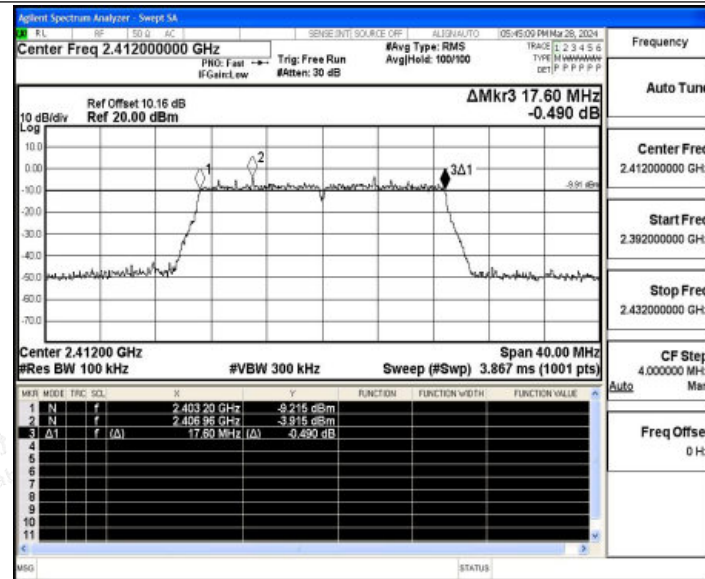


11G_Ant1_2462

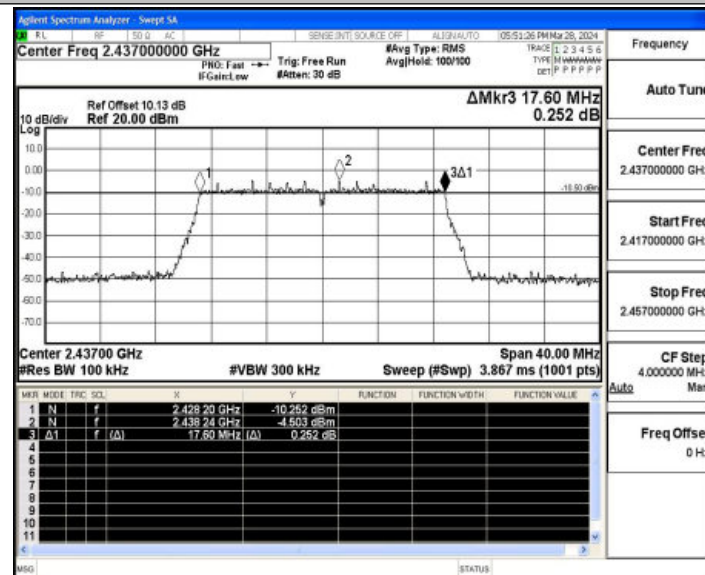


11N20SISO_Ant1_2412



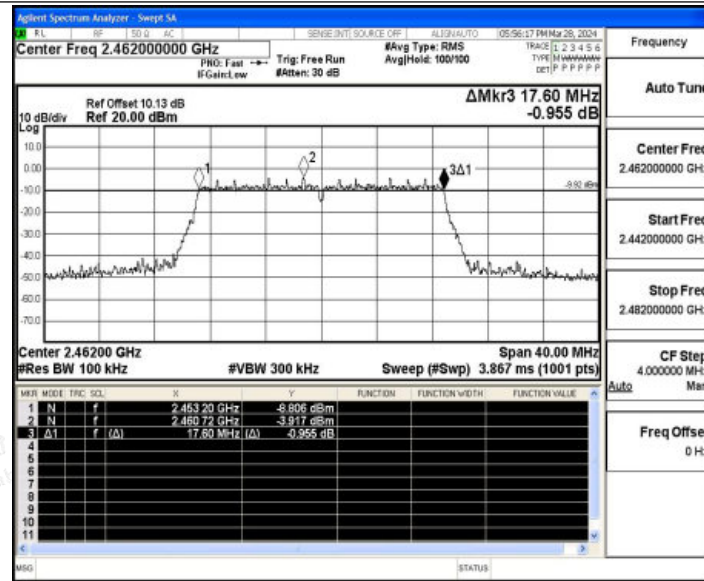


11N20SISO_Ant1_2437

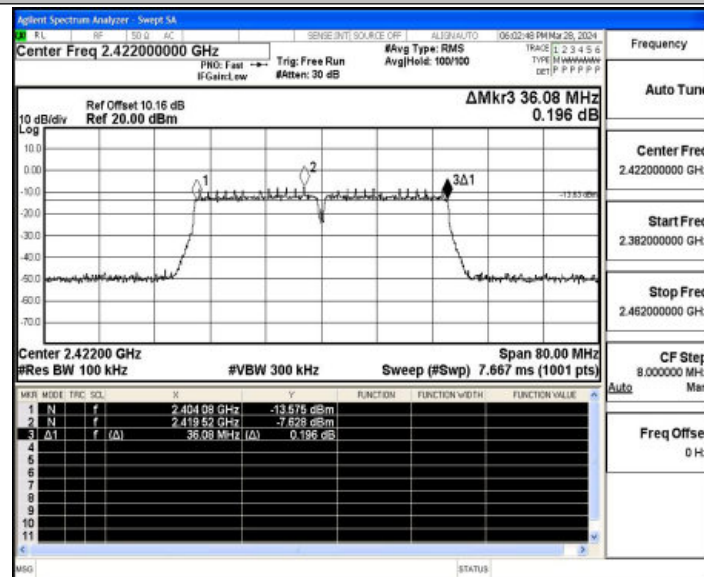


11N20SISO_Ant1_2462



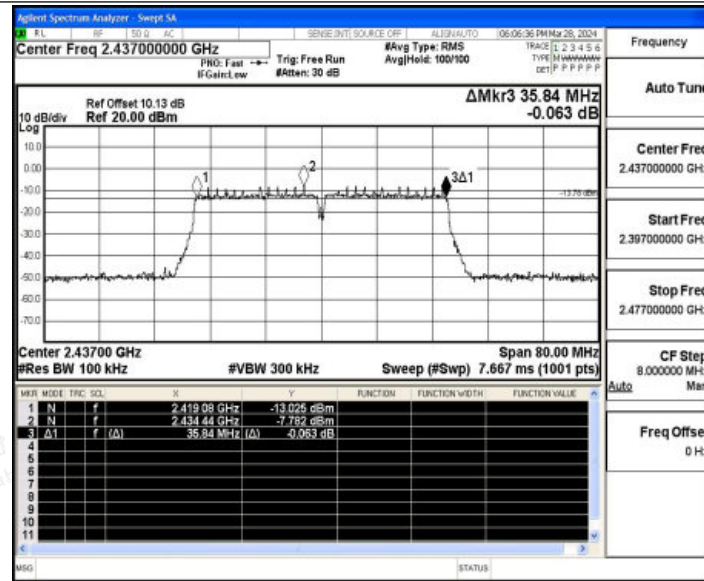


11N40SISO_Ant1_2422

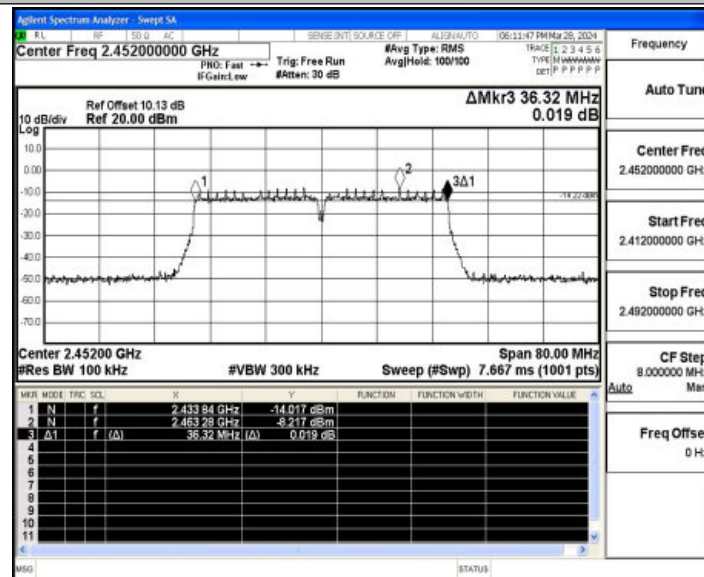


11N40SISO_Ant1_2437





11N40SISO_Ant1_2452





A.2 Maximum Peak conducted output power

Test Result

TestMode	Antenna	Freq(MHz)	Set Power	Peak Power[dBm]	Conducted Limit[dBm]	Verdict
11B	Ant1	2412	---	15.85	≤30.00	PASS
		2437	---	15.62	≤30.00	PASS
		2462	---	15.24	≤30.00	PASS
11G	Ant1	2412	---	14.60	≤30.00	PASS
		2437	---	14.67	≤30.00	PASS
		2462	---	14.79	≤30.00	PASS
11N20SISO	Ant1	2412	---	14.12	≤30.00	PASS
		2437	---	13.29	≤30.00	PASS
		2462	---	13.92	≤30.00	PASS
11N40SISO	Ant1	2422	---	12.86	≤30.00	PASS
		2437	---	12.69	≤30.00	PASS
		2452	---	12.57	≤30.00	PASS





A.3 Maximum power spectral density

Test Result

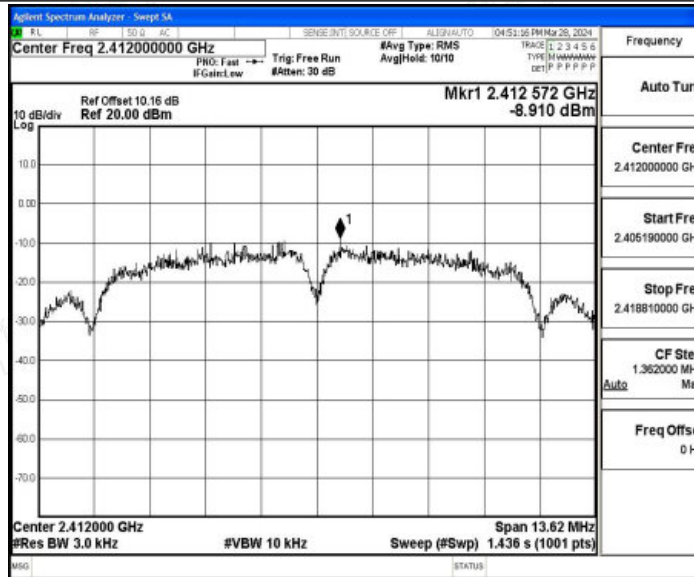
TestMode	Antenna	Freq(MHz)	Result [dBm/3-100kHz]	Limit [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B	Ant1	2412	-8.91	≤8.00	---	PASS
		2437	-9.77	≤8.00	---	PASS
		2462	1.69	≤8.00	---	PASS
11G	Ant1	2412	-16.93	≤8.00	---	PASS
		2437	-16.43	≤8.00	---	PASS
		2462	-16.43	≤8.00	---	PASS
11N20SISO	Ant1	2412	-18.03	≤8.00	---	PASS
		2437	-18.15	≤8.00	---	PASS
		2462	-17.81	≤8.00	---	PASS
11N40SISO	Ant1	2422	-21.48	≤8.00	---	PASS
		2437	-21.92	≤8.00	---	PASS
		2452	-22.08	≤8.00	---	PASS



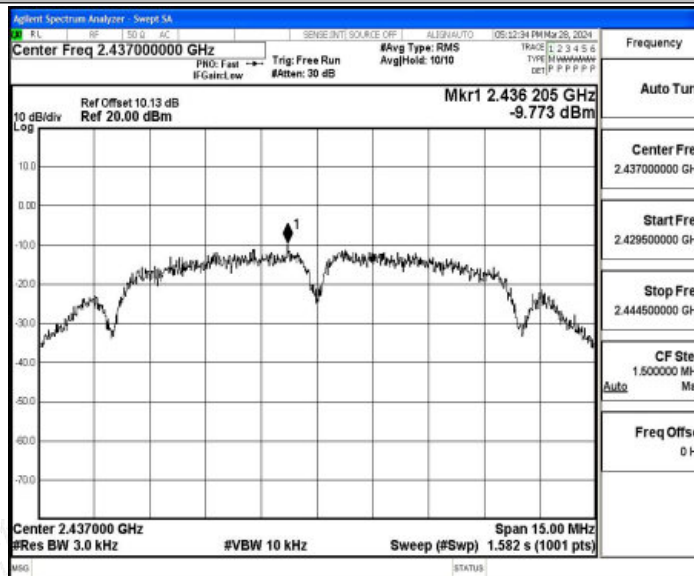


Test Graphs

11B_Ant1_2412



11B_Ant1_2437



11B_Ant1_2462

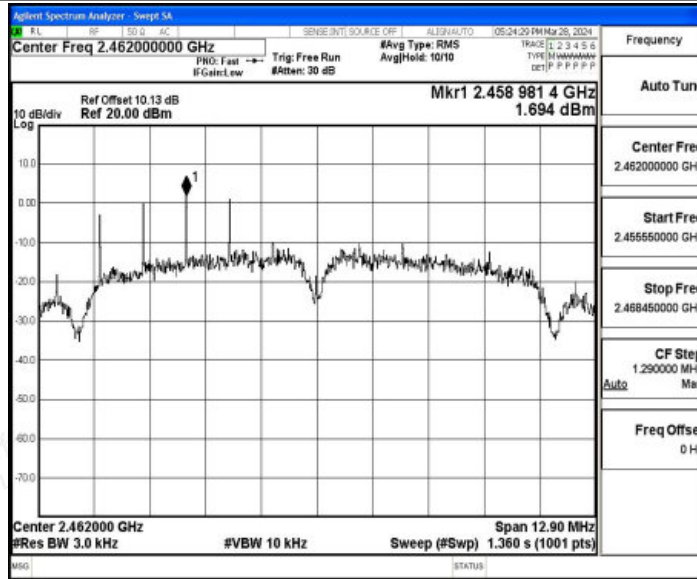


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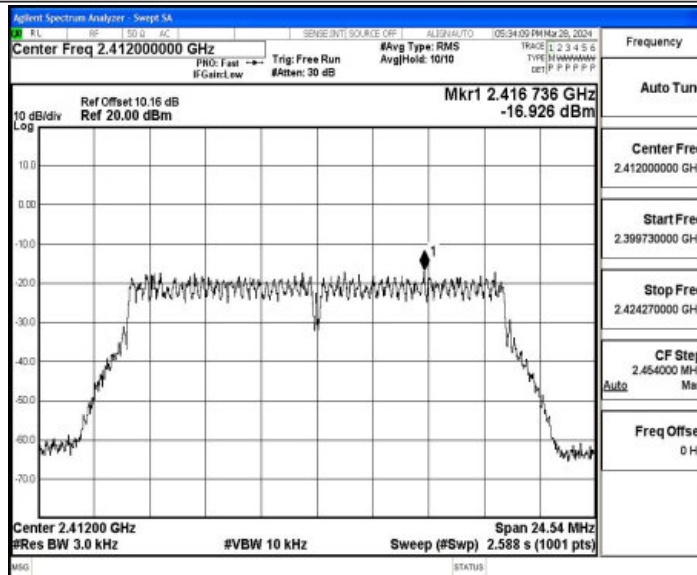
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity

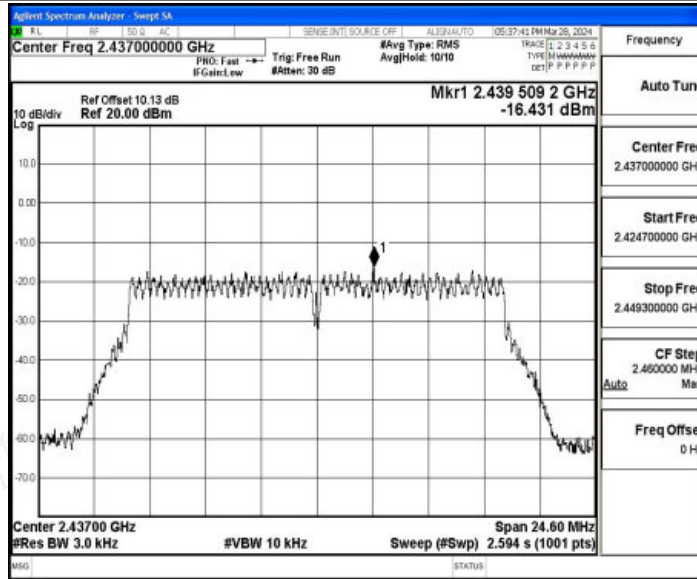


11G_Ant1_2412

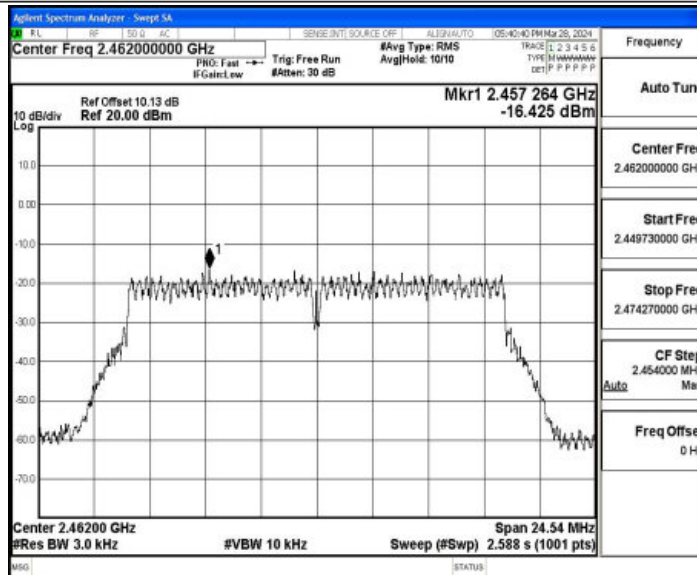


11G_Ant1_2437



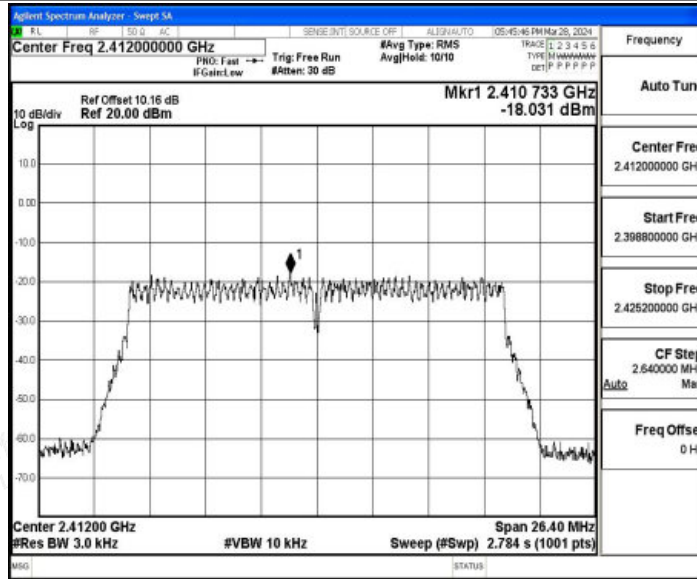


11G_Ant1_2462

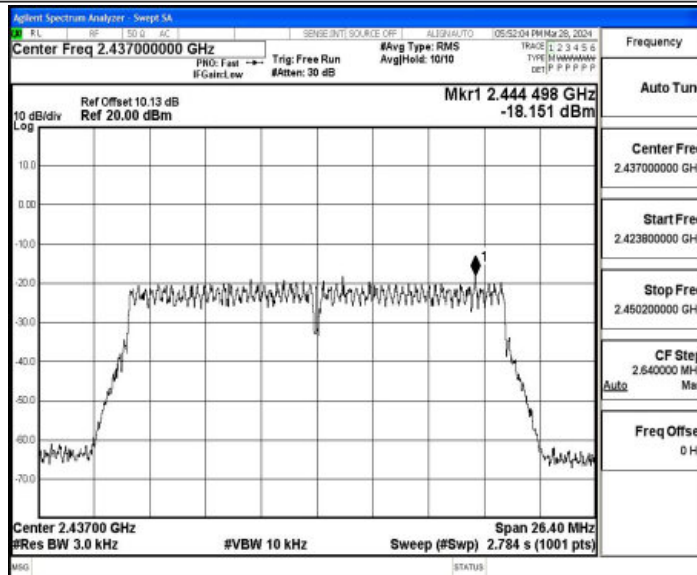


11N20SISO_Ant1_2412



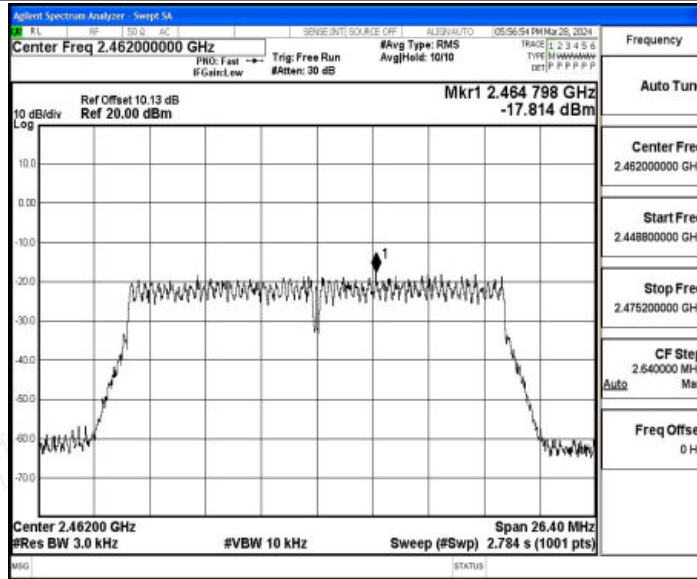


11N20SISO_Ant1_2437

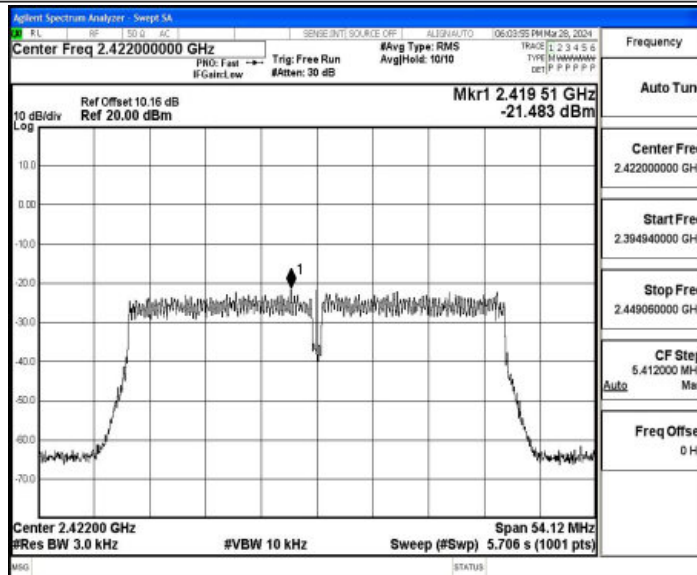


11N20SISO_Ant1_2462



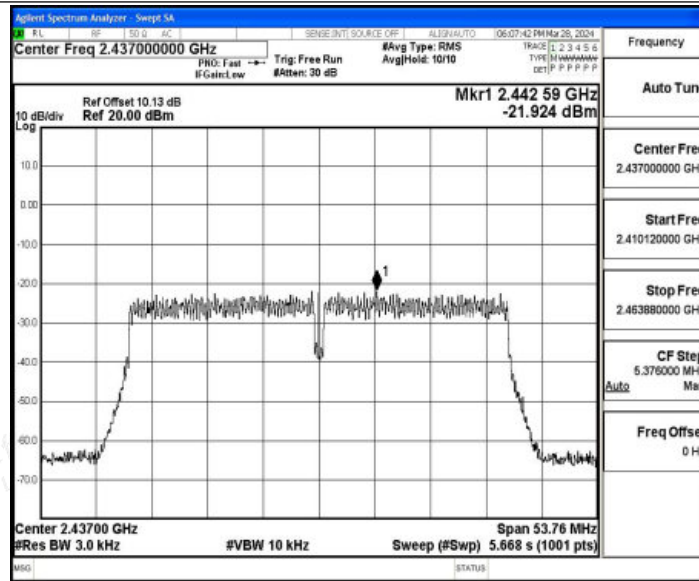


11N40SISO_Ant1_2422

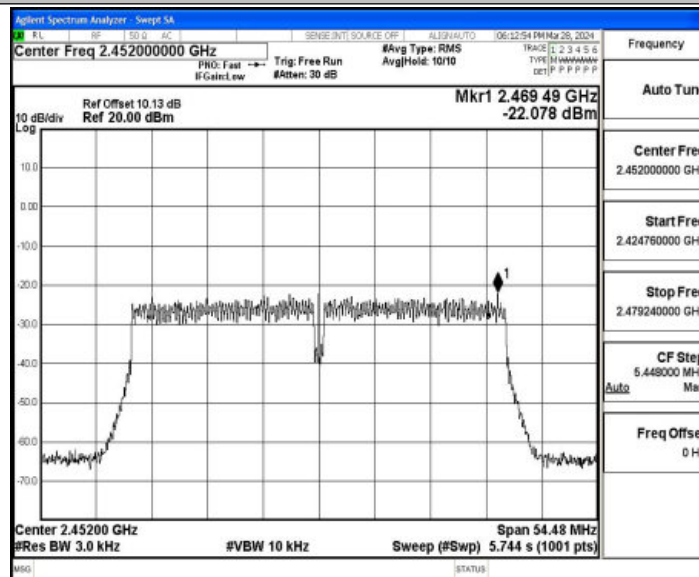


11N40SISO_Ant1_2437





11N40SISO_Ant1_2452





A.4 Band edge measurements

Test Result

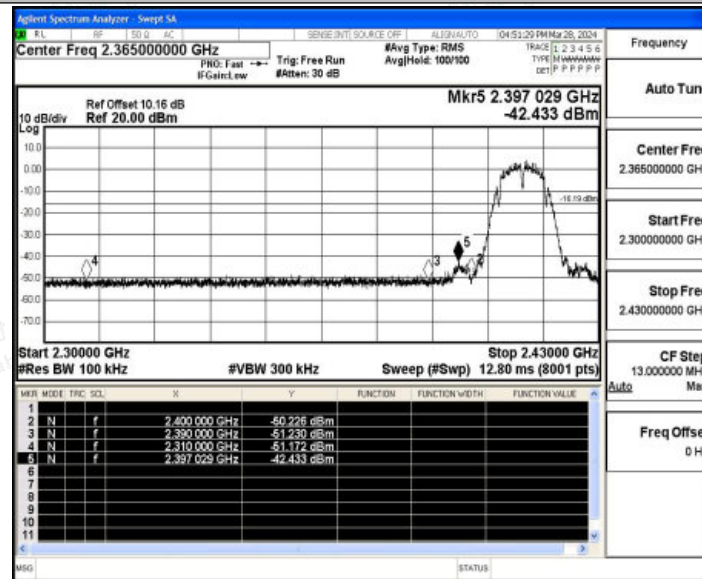
TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	3.81	-42.43	≤ -16.19	PASS
		High	2462	3.16	-47.96	≤ -16.84	PASS
11G	Ant1	Low	2412	-3.47	-44.56	≤ -23.47	PASS
		High	2462	-2.85	-47.2	≤ -22.85	PASS
11N20SISO	Ant1	Low	2412	-3.35	-45.57	≤ -23.35	PASS
		High	2462	-4.10	-47.4	≤ -24.1	PASS
11N40SISO	Ant1	Low	2422	-7.75	-47.41	≤ -27.75	PASS
		High	2452	-8.01	-48.18	≤ -28.01	PASS



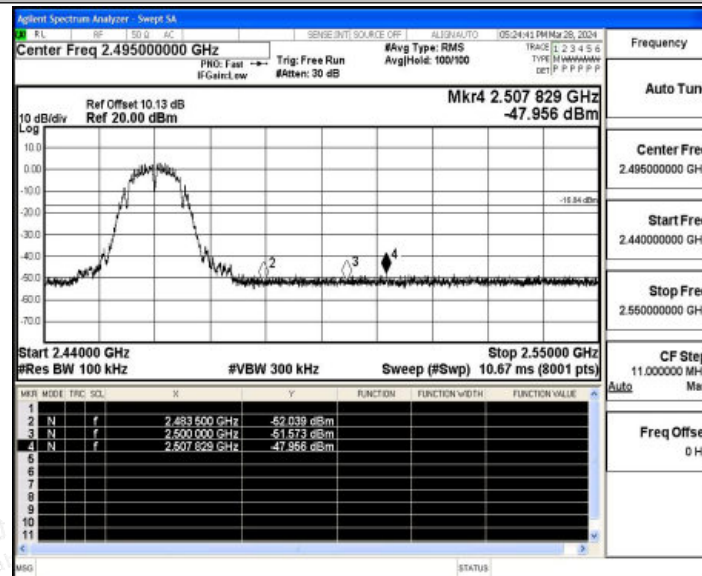


Test Graphs

11B_Ant1_Low_2412

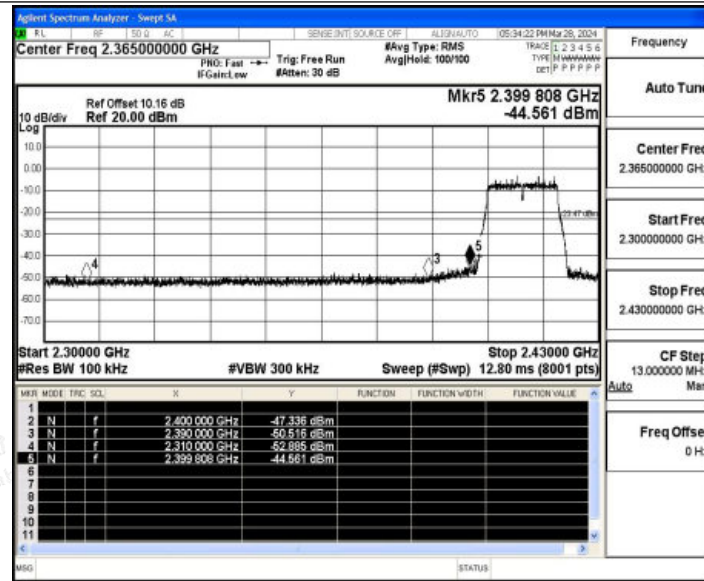


11B_Ant1_High_2462

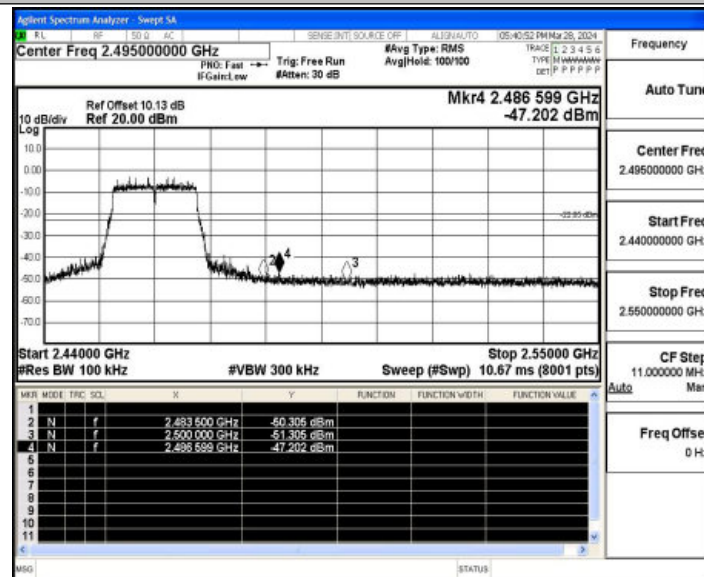


11G_Ant1_Low_2412



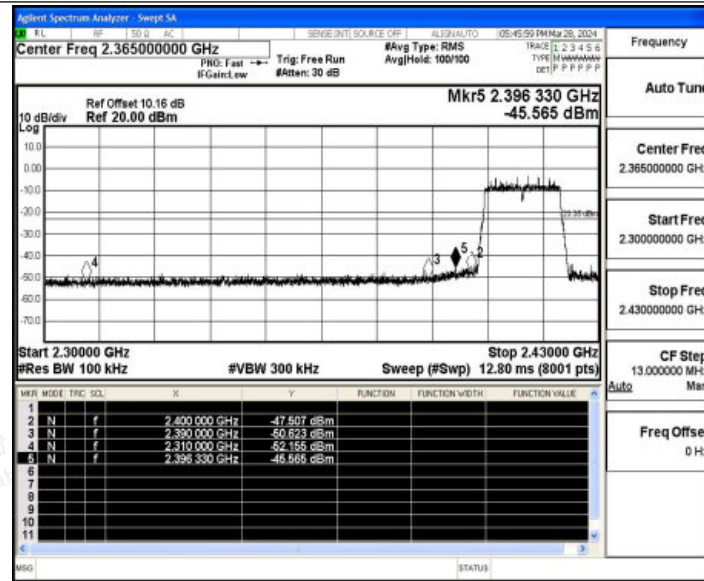


11G_Ant1_High_2462

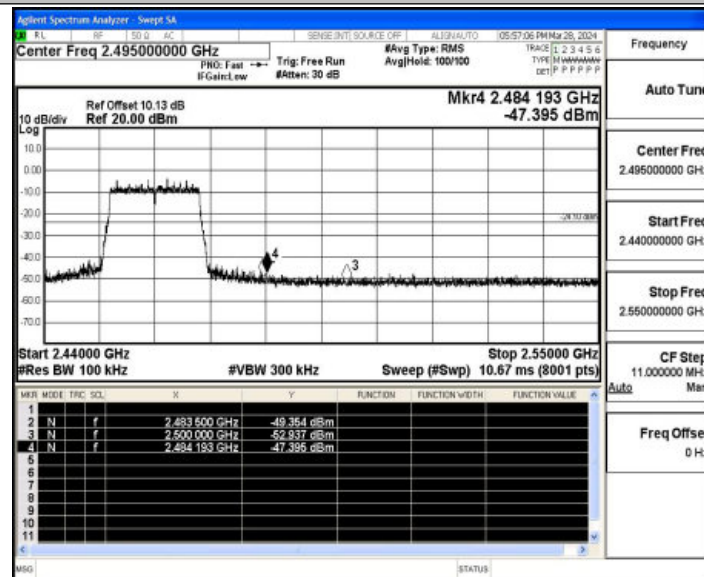


11N20SISO_Ant1_Low_2412



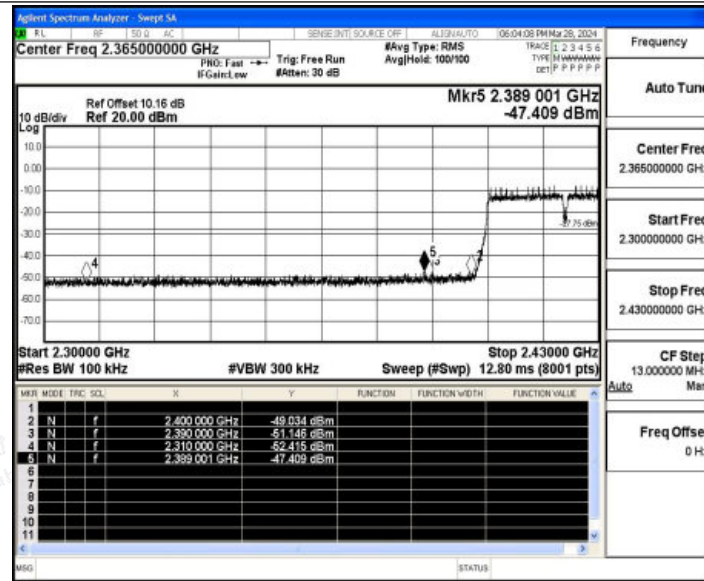


11N20SISO_Ant1_High_2462

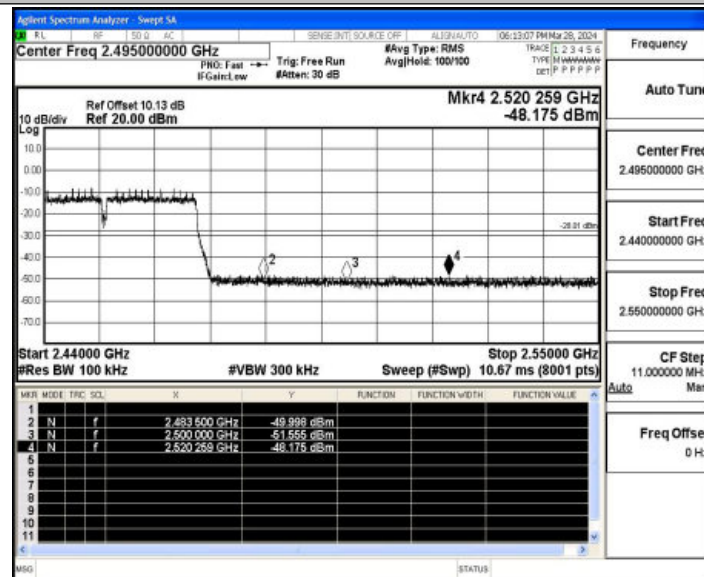


11N40SISO_Ant1_Low_2422





11N40SISO_Ant1_High_2452





A.5 Conducted Spurious Emission

Test Result

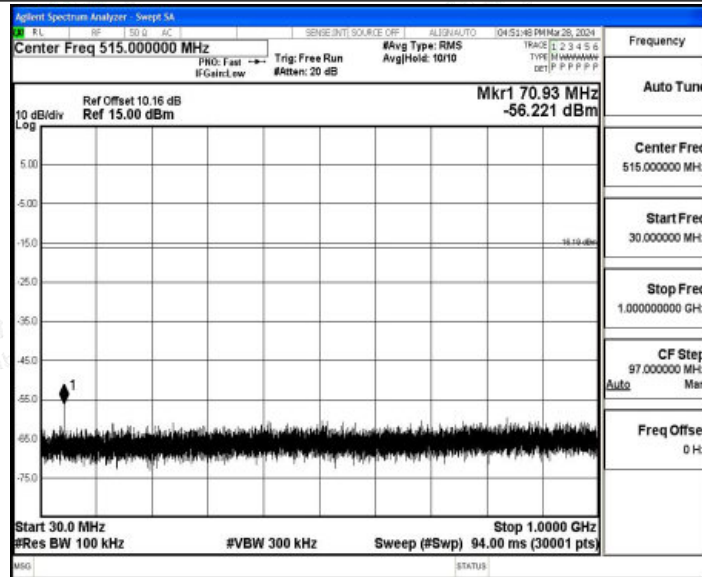
TestMode	Antenna	Freq(MHz)	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	30~1000	3.81	-56.22	≤-16.19	PASS
			1000~26500	3.81	-47.13	≤-16.19	PASS
		2437	30~1000	3.71	-59.31	≤-16.29	PASS
			1000~26500	3.71	-47.57	≤-16.29	PASS
		2462	30~1000	3.16	-59.9	≤-16.84	PASS
			1000~26500	3.16	-46.87	≤-16.84	PASS
11G	Ant1	2412	30~1000	-3.47	-59.51	≤-23.47	PASS
			1000~26500	-3.47	-46.98	≤-23.47	PASS
		2437	30~1000	-3.24	-59.3	≤-23.24	PASS
			1000~26500	-3.24	-46.68	≤-23.24	PASS
		2462	30~1000	-2.85	-60.19	≤-22.85	PASS
			1000~26500	-2.85	-47.14	≤-22.85	PASS
11N20SISO	Ant1	2412	30~1000	-3.35	-59.68	≤-23.35	PASS
			1000~26500	-3.35	-46.27	≤-23.35	PASS
		2437	30~1000	-5.03	-59.85	≤-25.03	PASS
			1000~26500	-5.03	-47.15	≤-25.03	PASS
		2462	30~1000	-4.10	-59.49	≤-24.1	PASS
			1000~26500	-4.10	-47.02	≤-24.1	PASS
11N40SISO	Ant1	2422	30~1000	-7.75	-58.75	≤-27.75	PASS
			1000~26500	-7.75	-46.93	≤-27.75	PASS
		2437	30~1000	-7.66	-58.56	≤-27.66	PASS
			1000~26500	-7.66	-46.96	≤-27.66	PASS
		2452	30~1000	-8.01	-59.56	≤-28.01	PASS
			1000~26500	-8.01	-47.3	≤-28.01	PASS



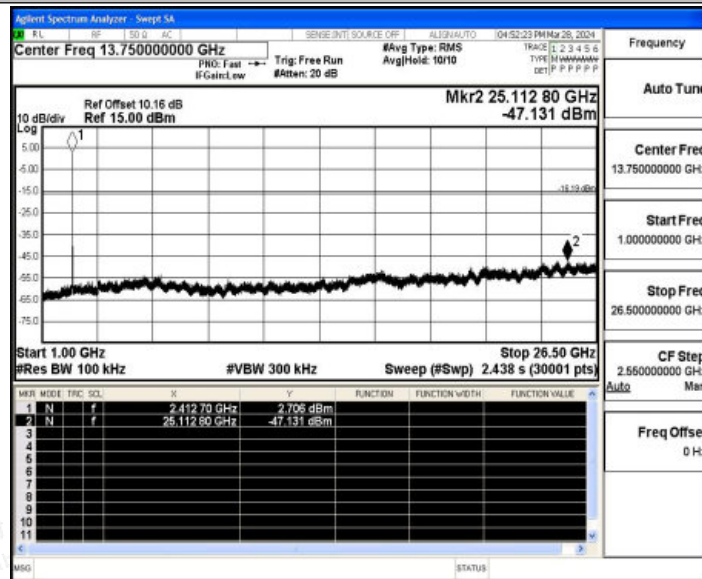


Test Graphs

11B_Ant1_2412_30~1000



11B_Ant1_2412_1000~26500



11B_Ant1_2437_30~1000

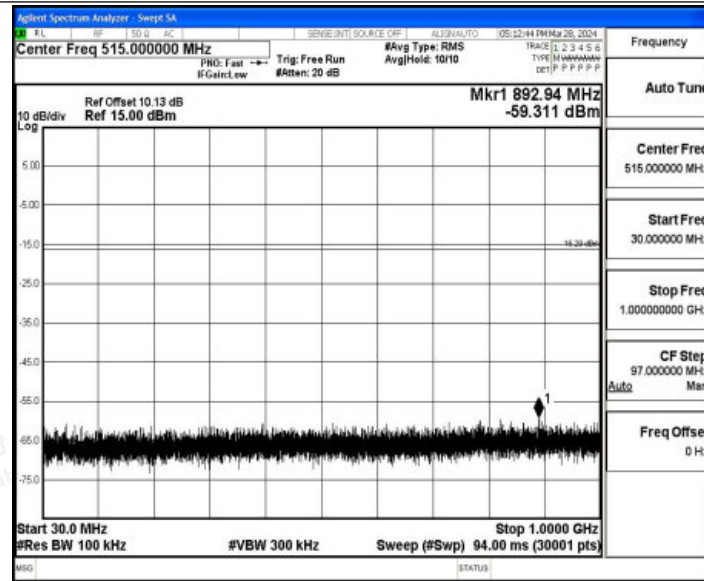


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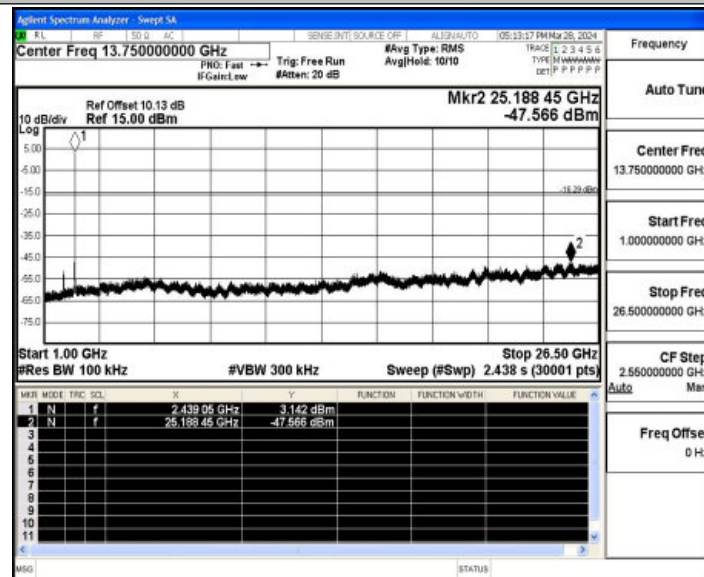
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity

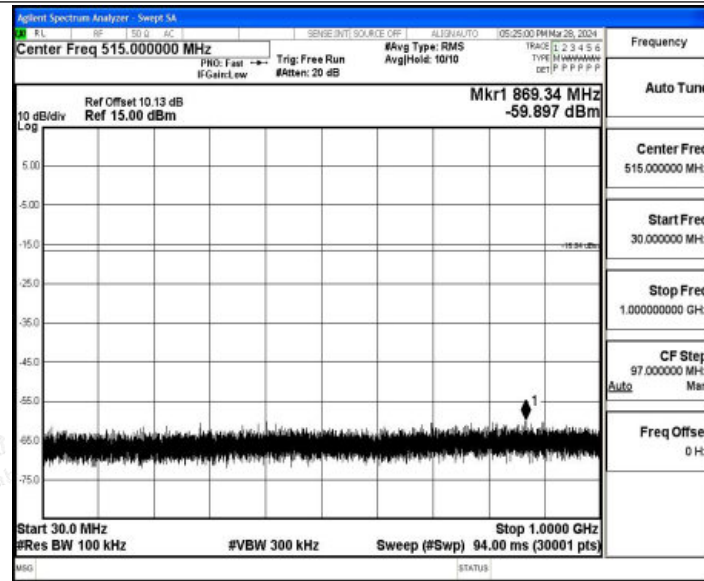


11B_Ant1_2437_1000~26500

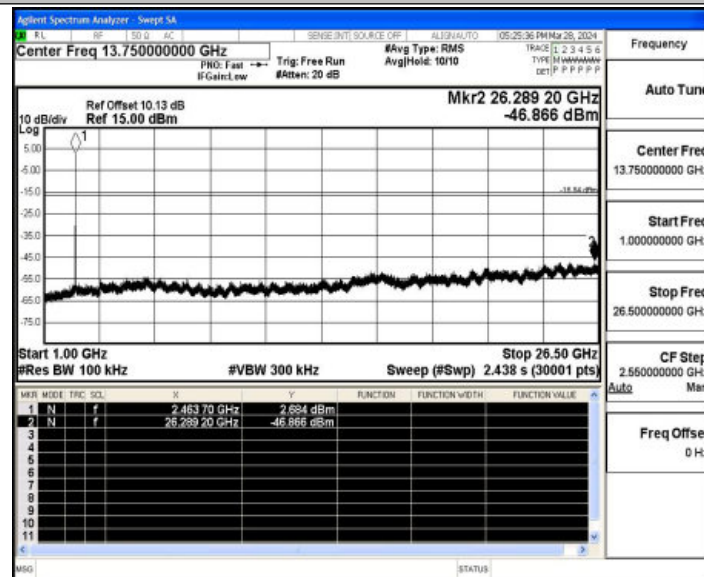


11B_Ant1_2462_30~1000



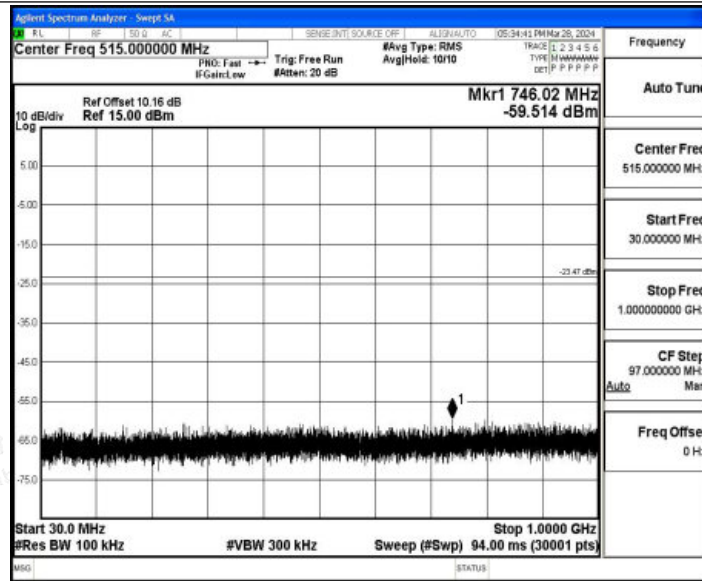


11B_Ant1_2462_1000~26500

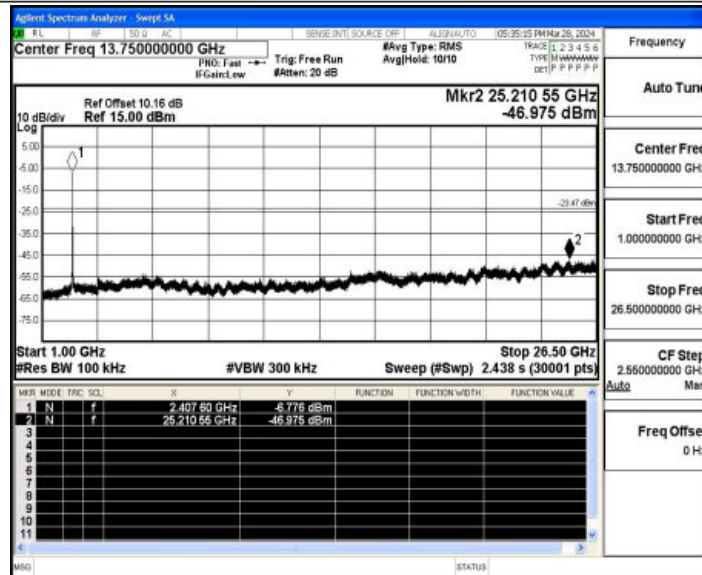


11G_Ant1_2412_30~1000



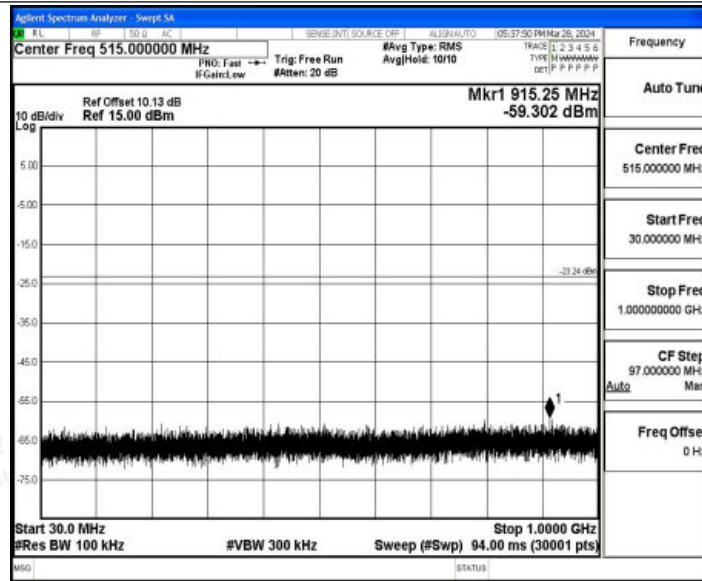


11G_Ant1_2412_1000~26500

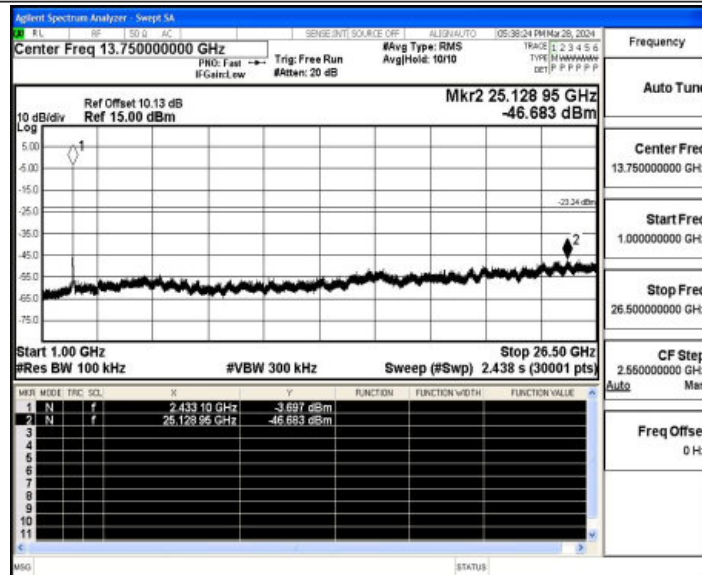


11G_Ant1_2437_30~1000



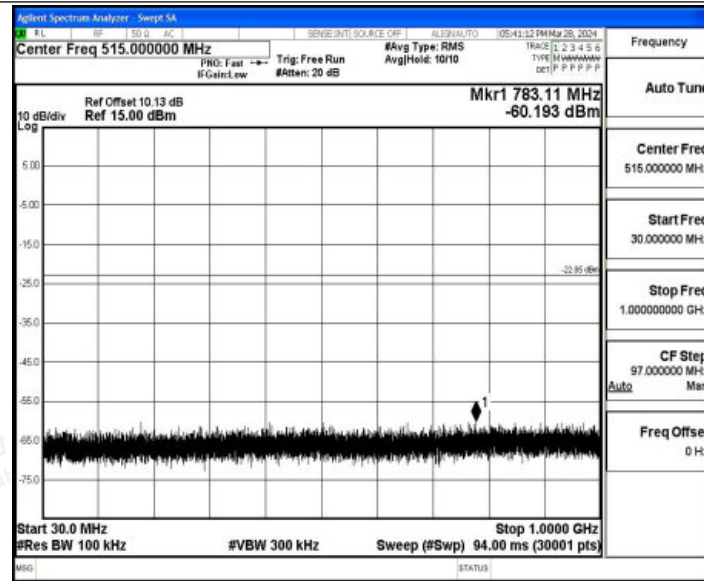


11G_Ant1_2437_1000~26500

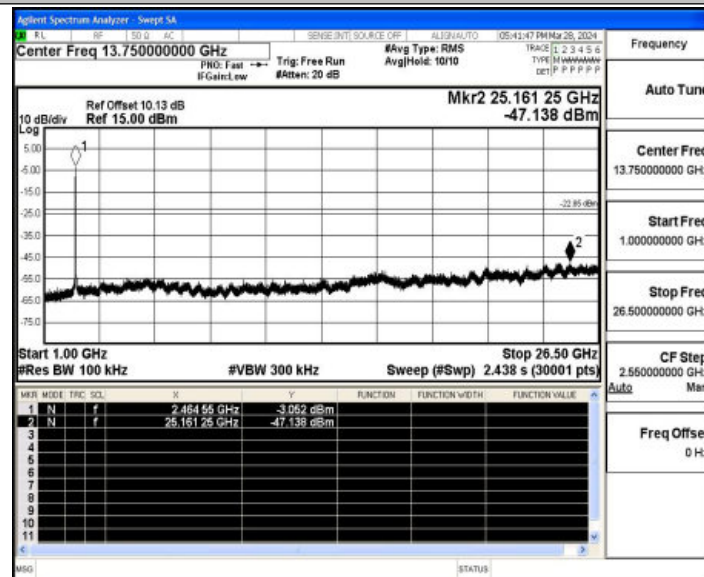


11G_Ant1_2462_30~1000



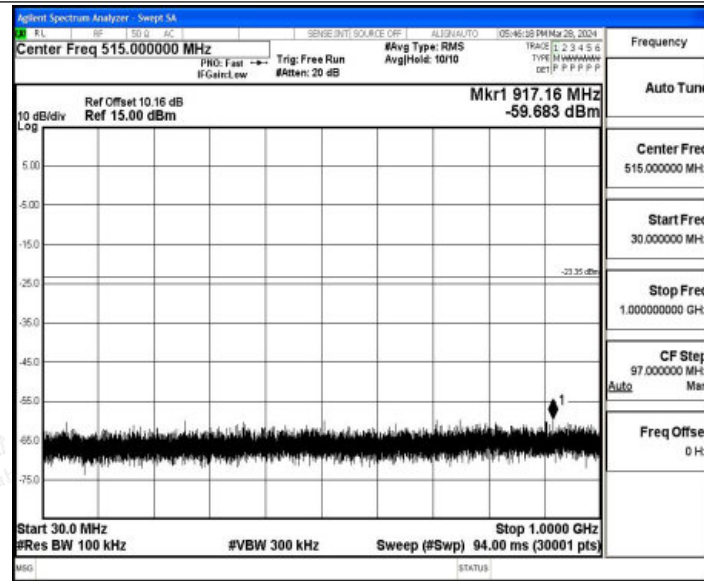


11G_Ant1_2462_1000~26500

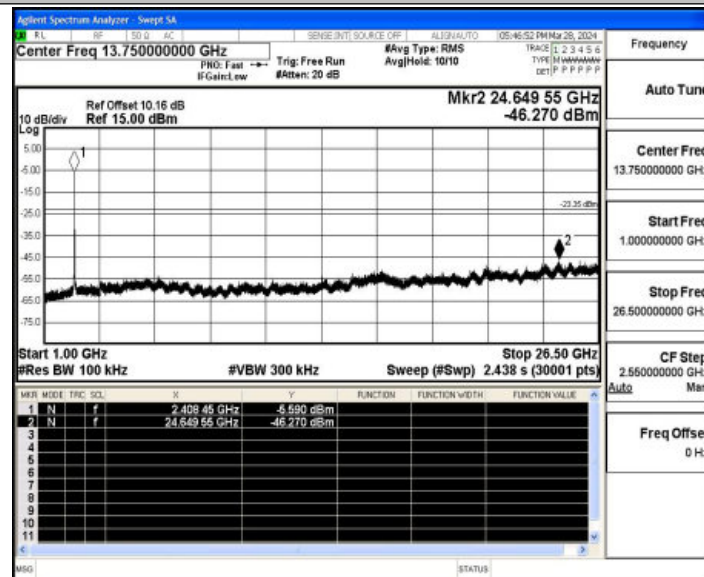


11N20SISO_Ant1_2412_30~1000



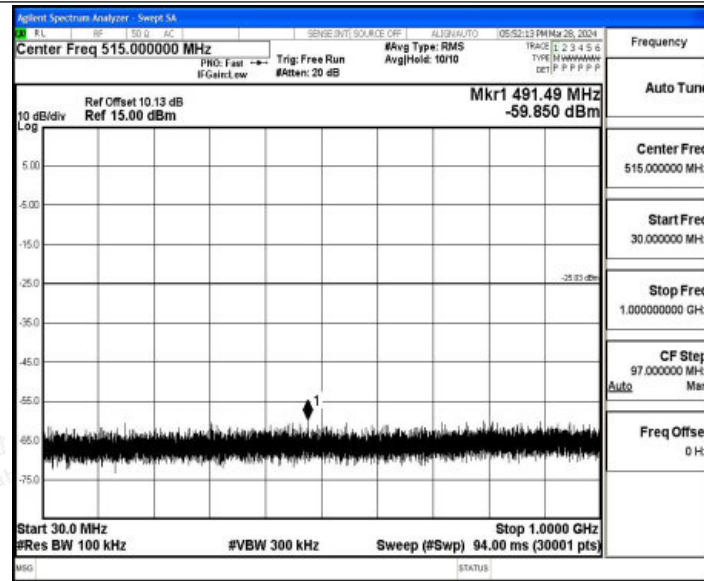


11N20SISO_Ant1_2412_1000~26500

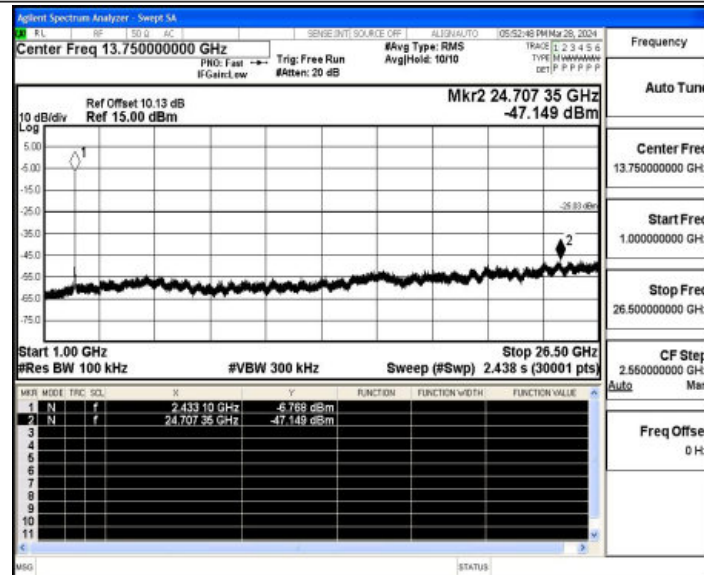


11N20SISO_Ant1_2437_30~1000



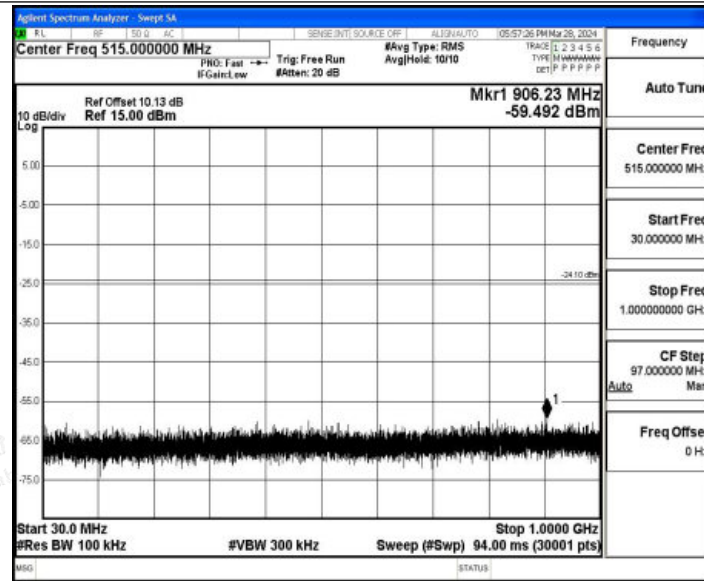


11N20SISO_Ant1_2437_1000~26500

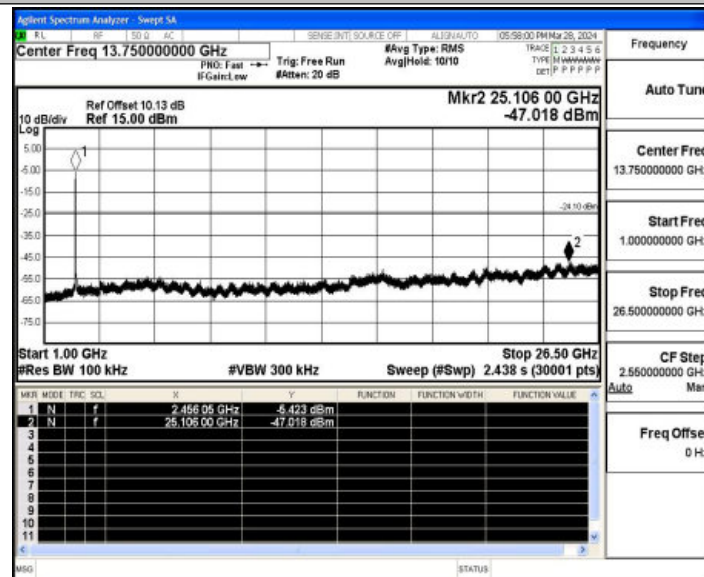


11N20SISO_Ant1_2462_30~1000



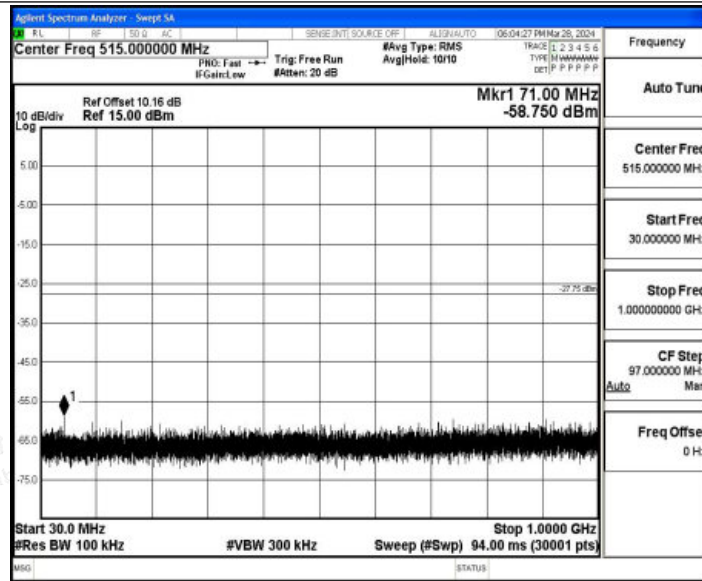


11N20SISO_Ant1_2462_1000~26500

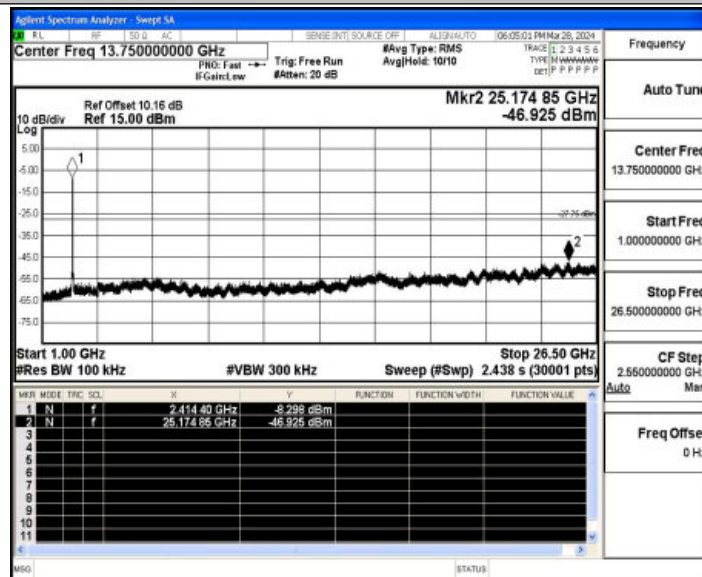


11N40SISO_Ant1_2422_30~1000



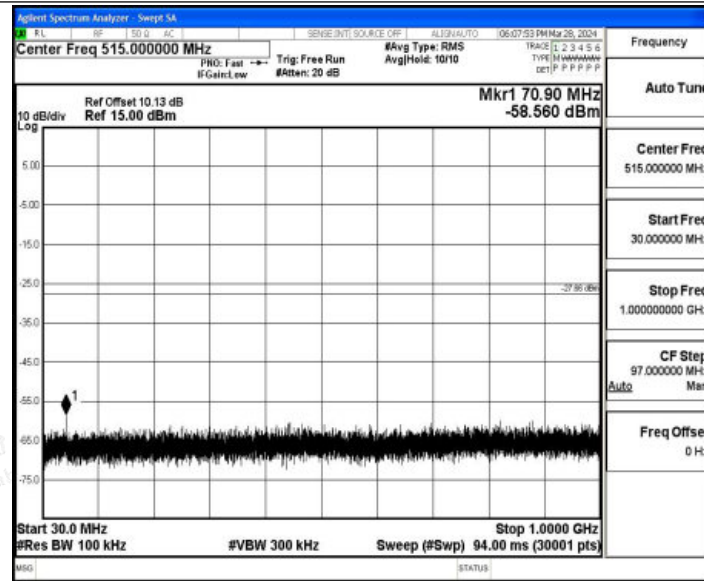


11N40SISO_Ant1_2422_1000~26500

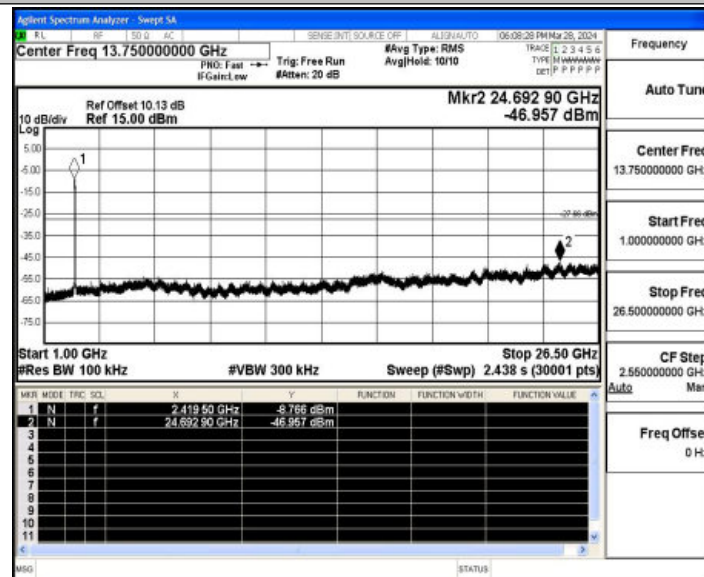


11N40SISO_Ant1_2437_30~1000



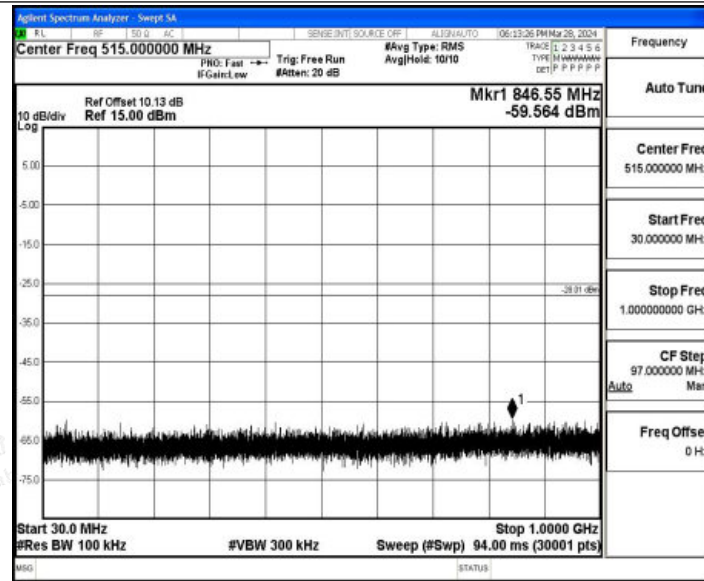


11N40SISO_Ant1_2437_1000~26500

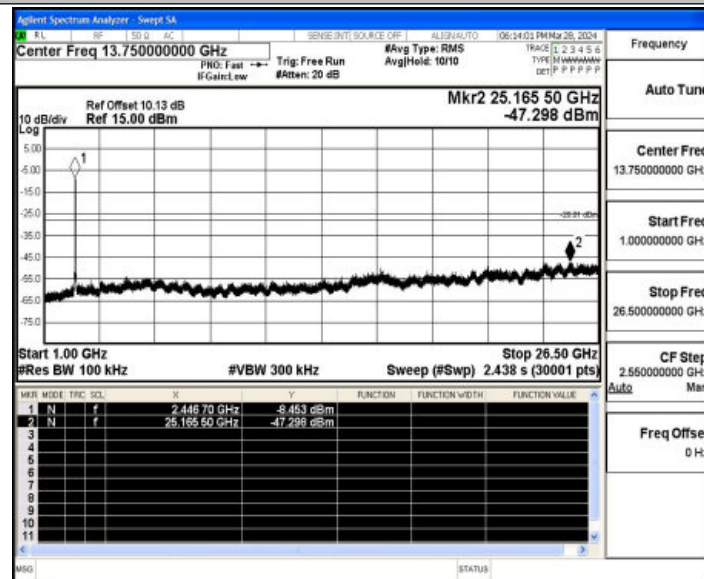


11N40SISO_Ant1_2452_30~1000





11N40SISO_Ant1_2452_1000~26500





Reference level measurement

Test Result

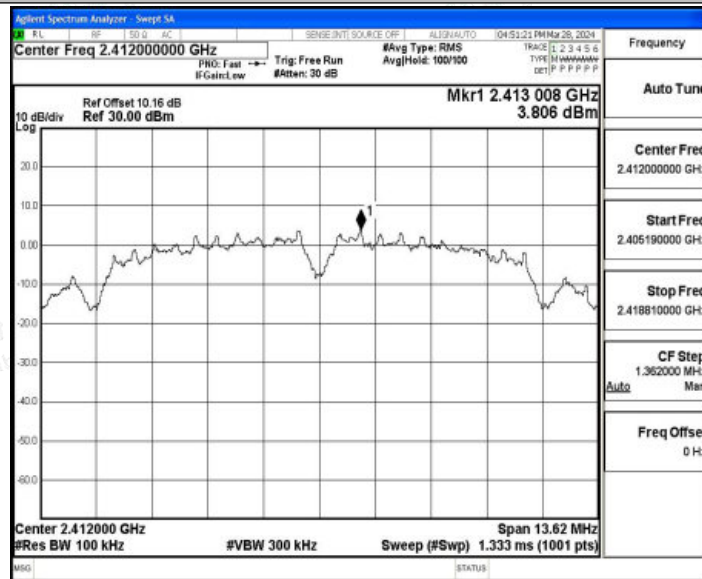
TestMode	Antenna	Freq(MHz)	Max.Point[MHz]	Result[dBm]
11B	Ant1	2412	2413.01	3.81
		2437	2436.49	3.71
		2462	2462.99	3.16
11G	Ant1	2412	2410.72	-3.47
		2437	2435.72	-3.24
		2462	2466.98	-2.85
11N20SISO	Ant1	2412	2413.24	-3.35
		2437	2429.50	-5.03
		2462	2455.74	-4.10
11N40SISO	Ant1	2422	2419.46	-7.75
		2437	2439.53	-7.66
		2452	2454.51	-8.01



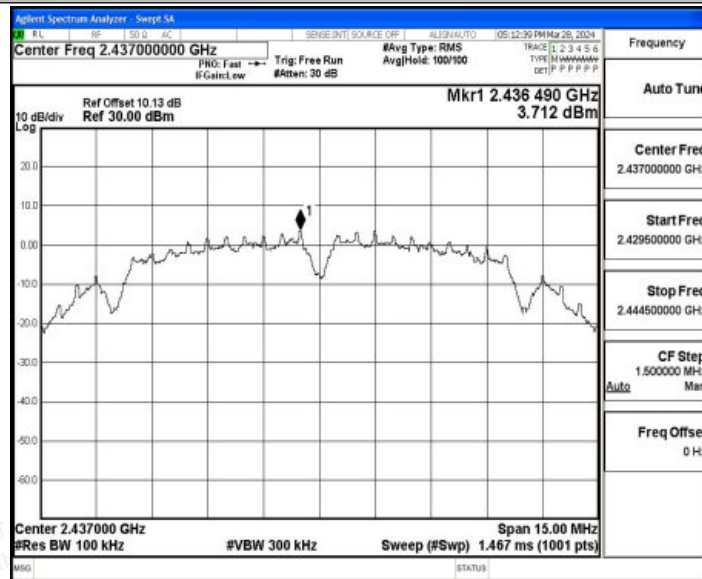


Test Graphs

11B_Ant1_2412

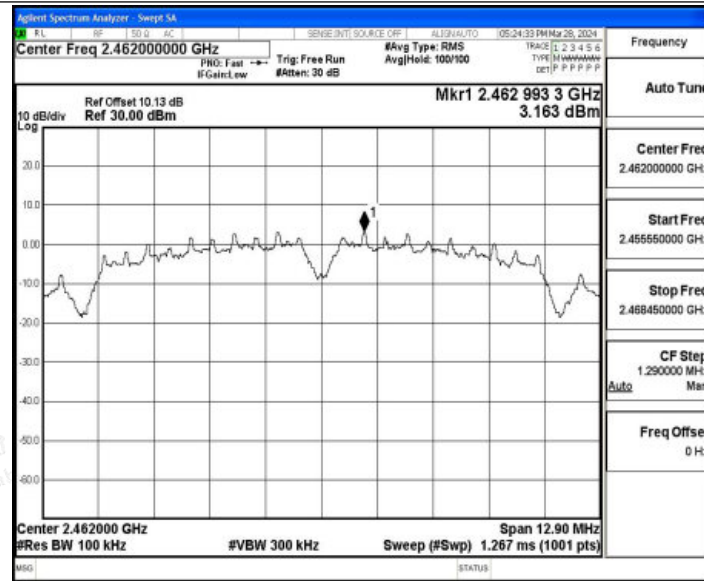


11B_Ant1_2437

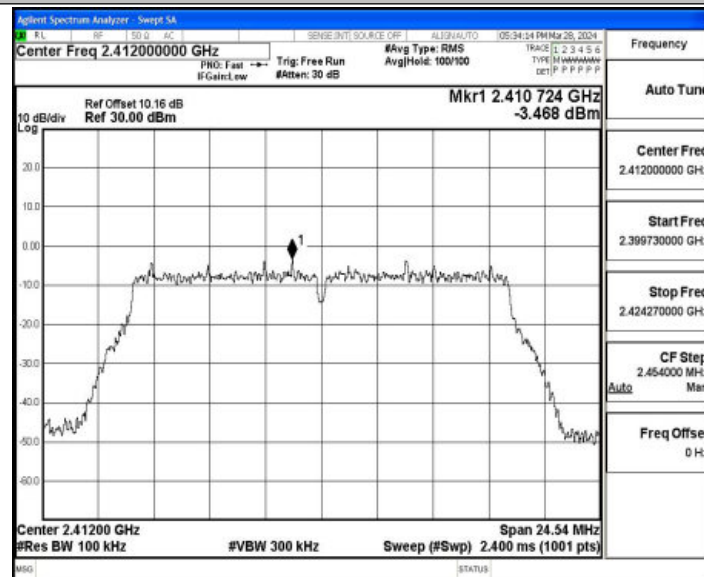


11B_Ant1_2462



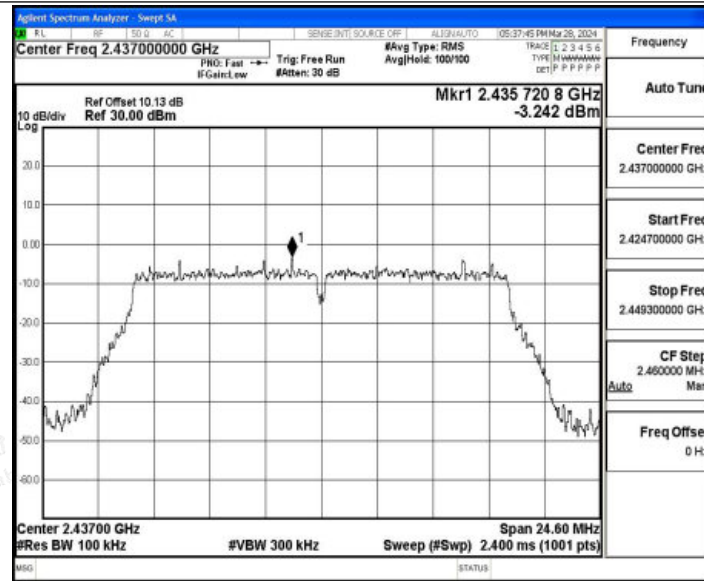


11G_Ant1_2412

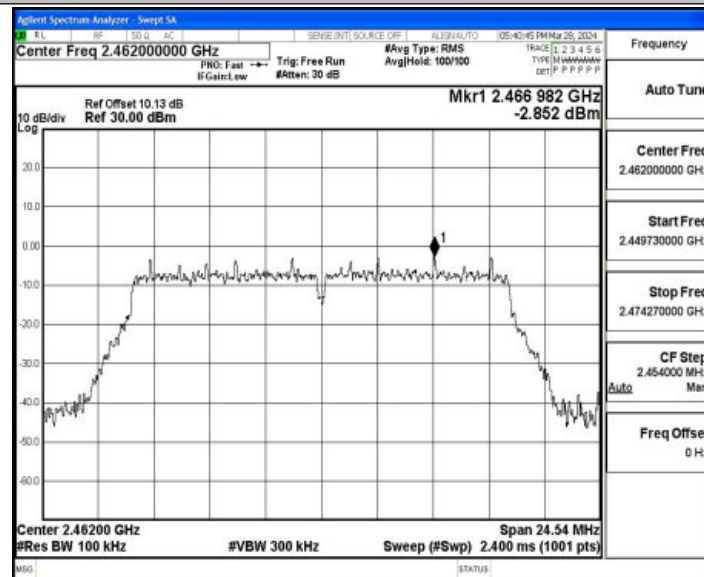


11G_Ant1_2437



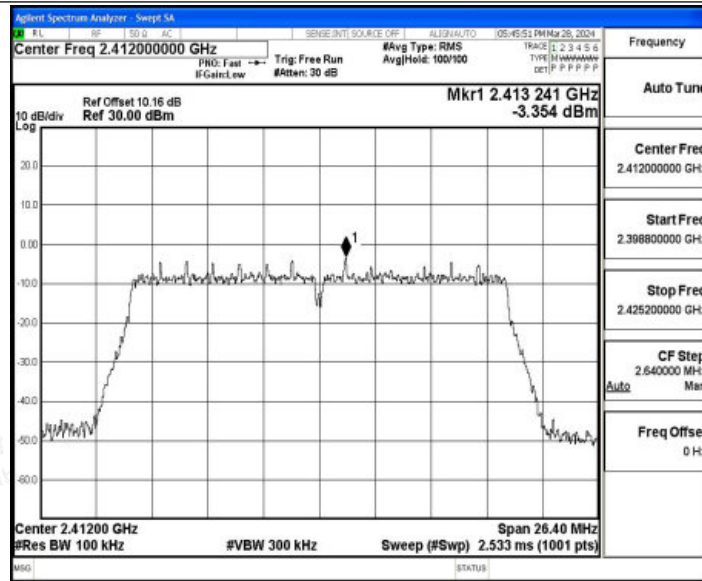


11G_Ant1_2462

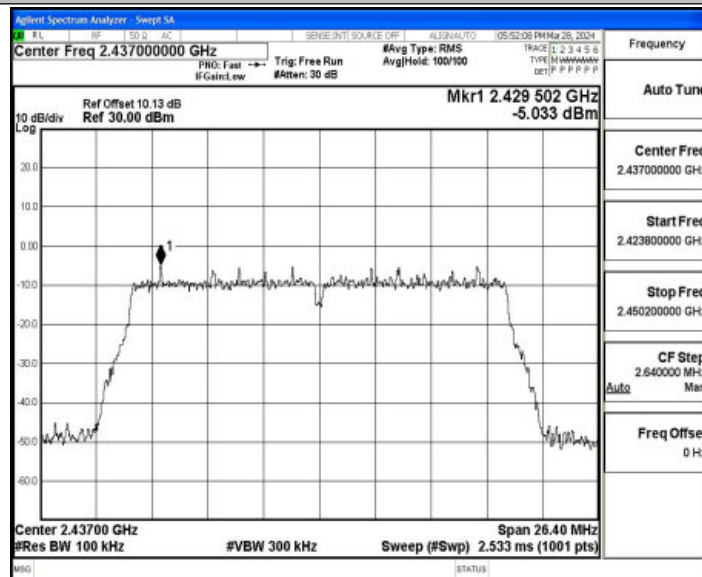


11N20SISO_Ant1_2412



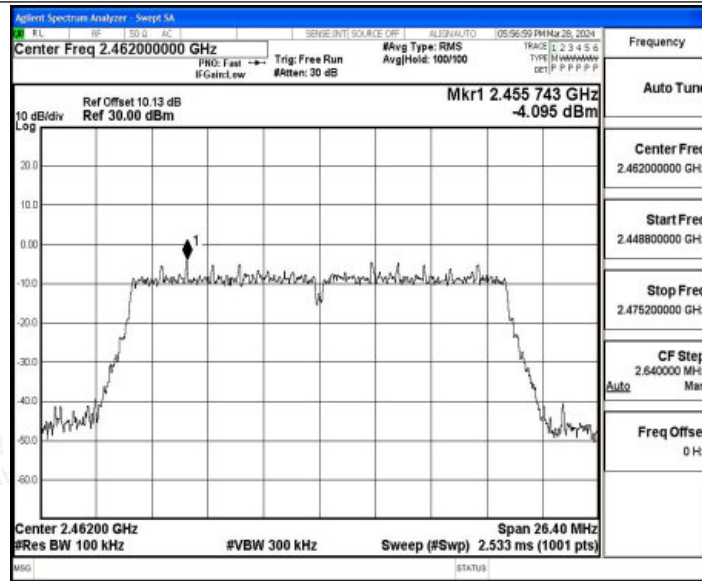


11N20SISO_Ant1_2437

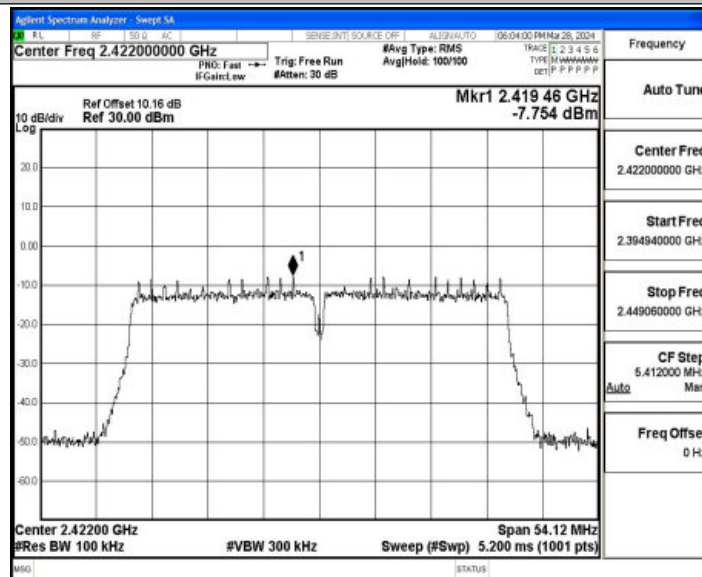


11N20SISO_Ant1_2462



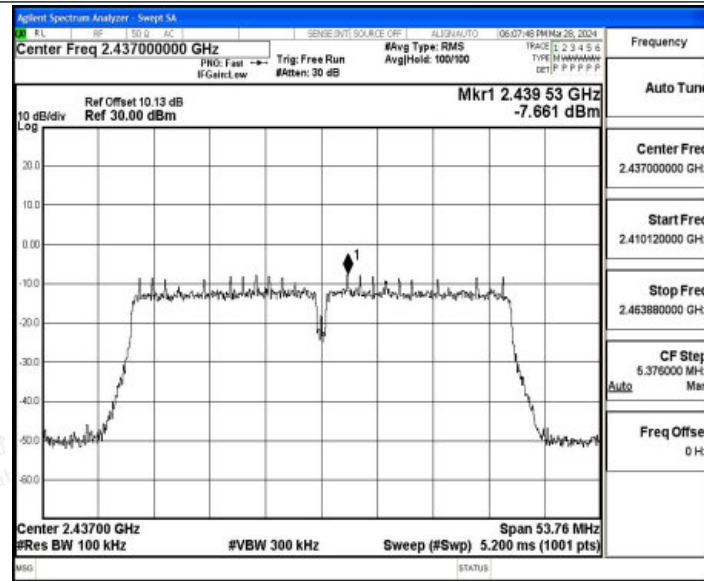


11N40SISO_Ant1_2422

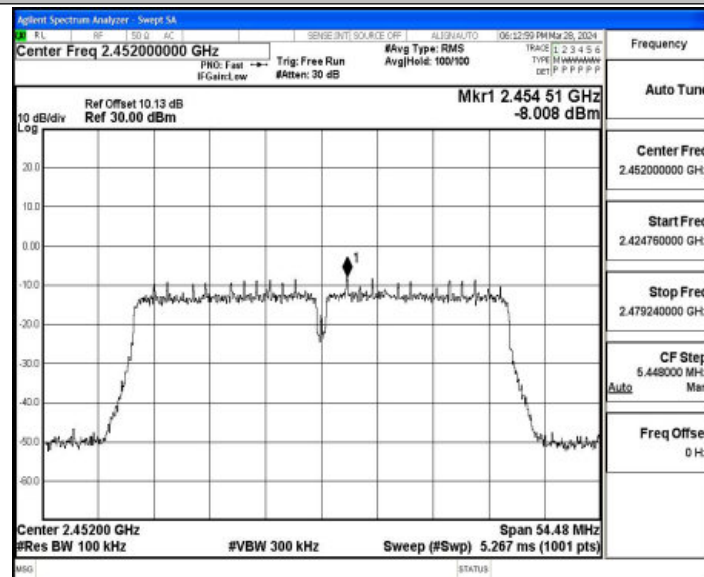


11N40SISO_Ant1_2437





11N40SISO_Ant1_2452





A.6 Duty Cycle

Test Result

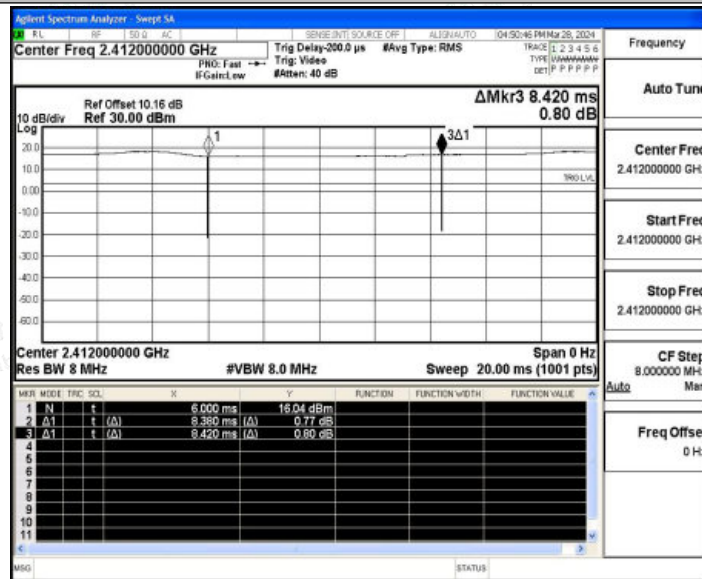
TestMode	Antenna	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor	Verdict
11B	Ant1	2412	8.38	8.42	99.52	0.02	---
		2437	4.20	4.23	99.29	0.03	---
		2462	6.59	6.62	99.55	0.02	---
11G	Ant1	2412	1.09	1.13	96.46	0.16	---
		2437	1.09	1.13	96.46	0.16	---
		2462	1.09	1.12	97.32	0.12	---
11N20SISO	Ant1	2412	1.02	1.06	96.23	0.17	---
		2437	1.02	1.06	96.23	0.17	---
		2462	1.03	1.06	97.17	0.12	---
11N40SISO	Ant1	2422	0.51	0.54	94.44	0.25	---
		2437	0.51	0.55	92.73	0.33	---
		2452	0.51	0.54	94.44	0.25	---



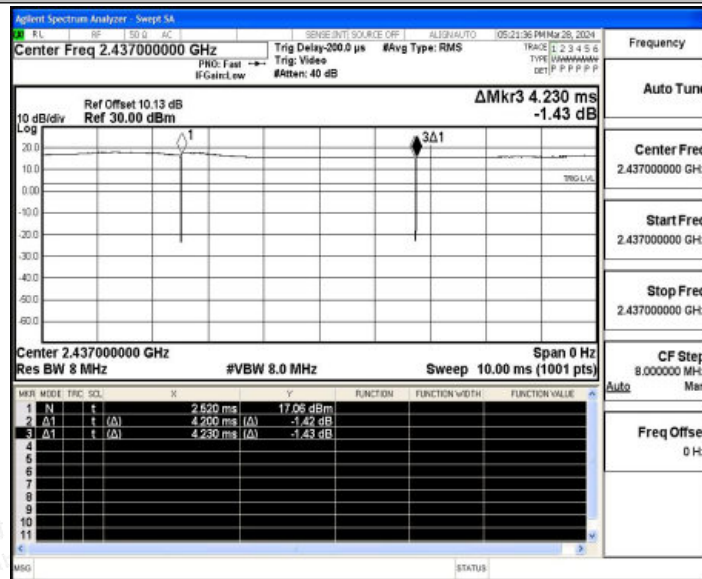


Test Graphs

11B_Ant1_2412

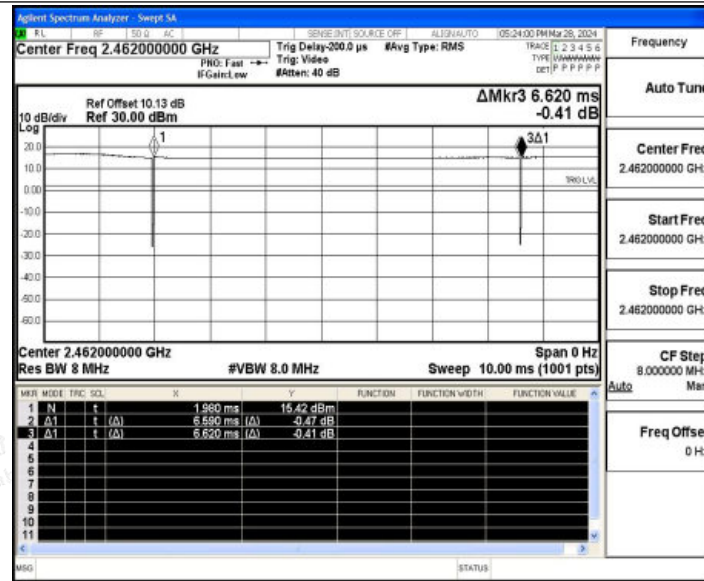


11B_Ant1_2437

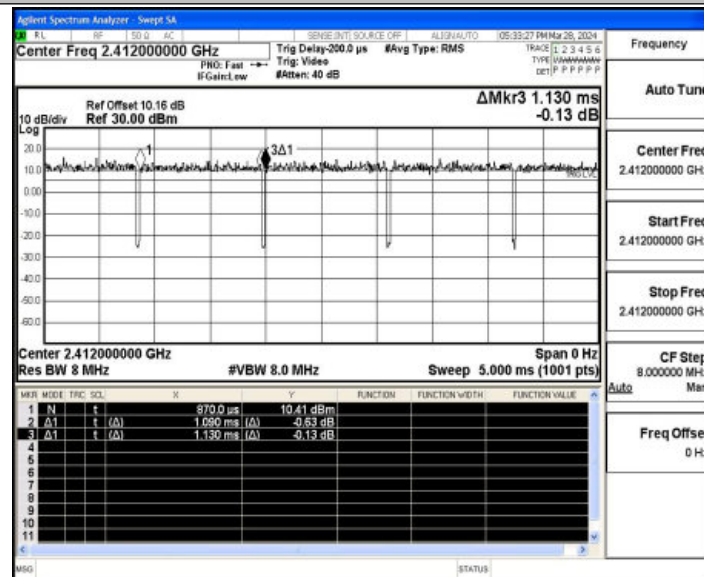


11B_Ant1_2462



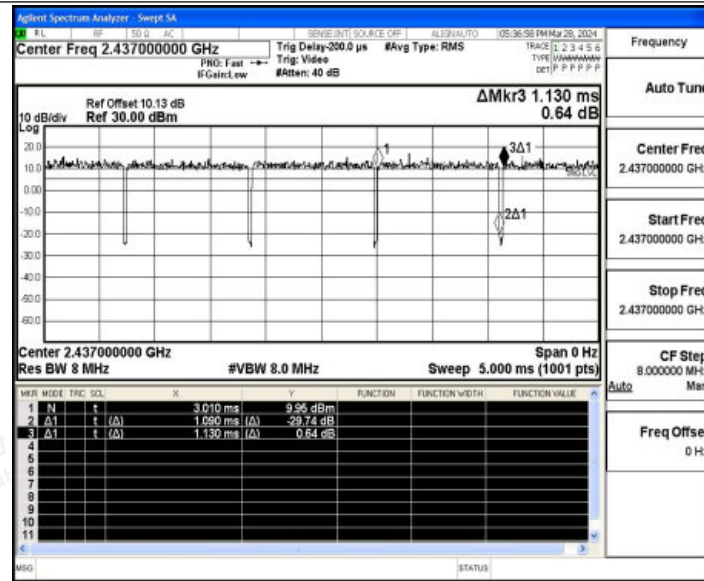


11G_Ant1_2412

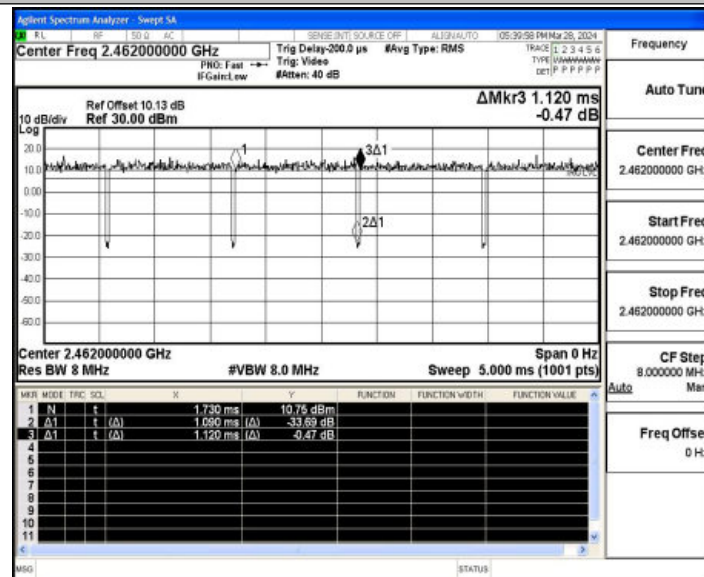


11G_Ant1_2437



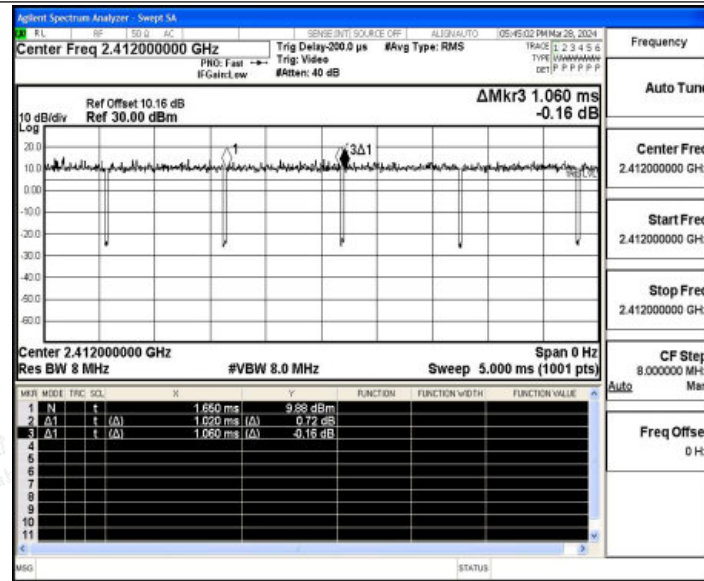


11G_Ant1_2462

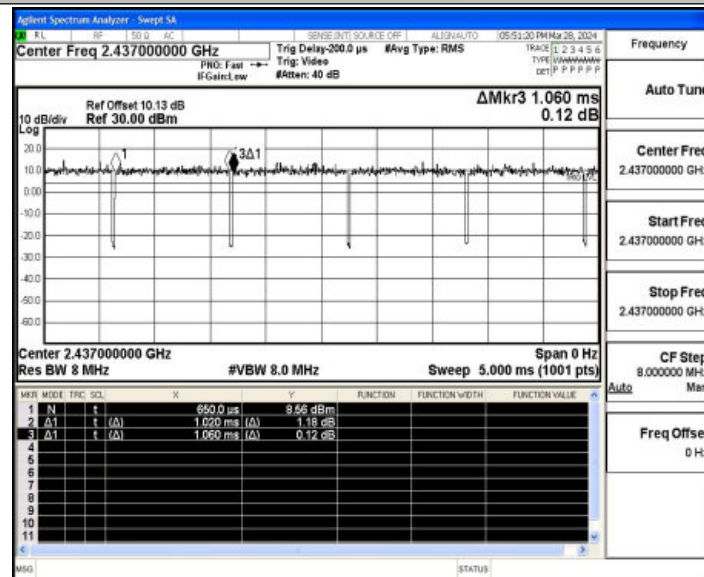


11N20SISO_Ant1_2412



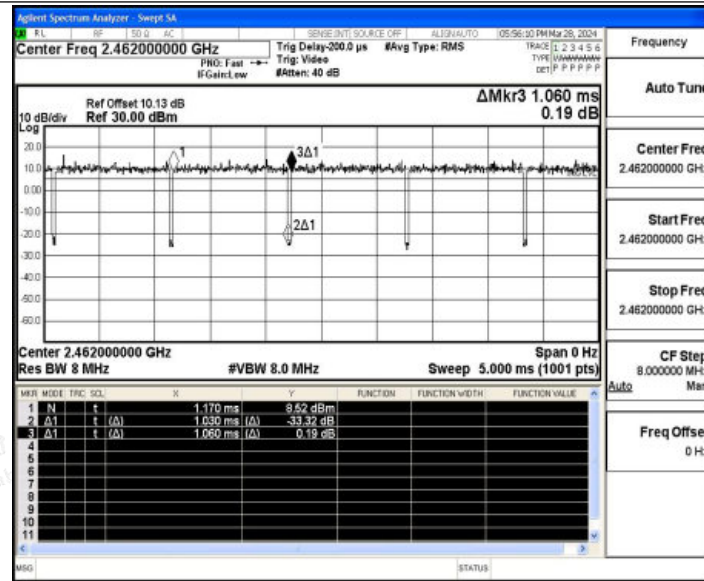


11N20SISO_Ant1_2437

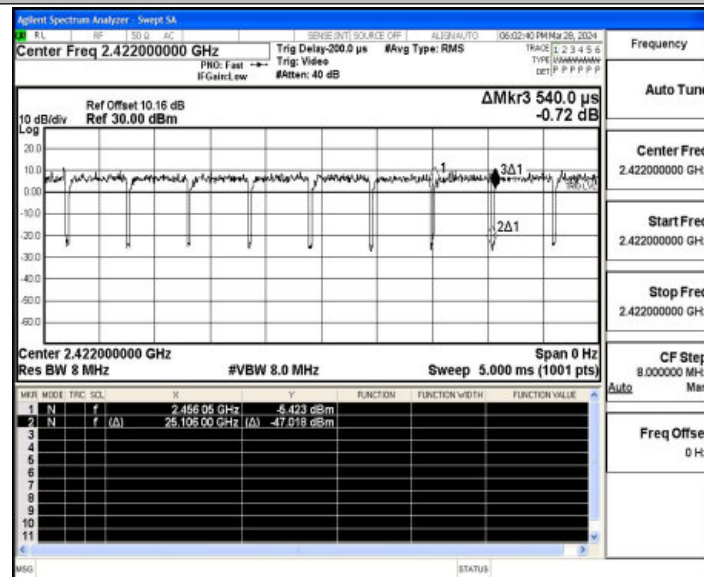


11N20SISO_Ant1_2462



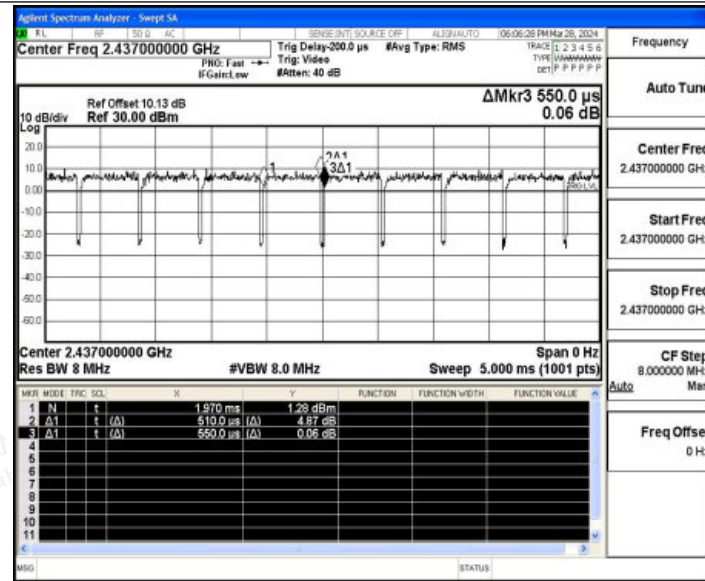


11N40SISO_Ant1_2422

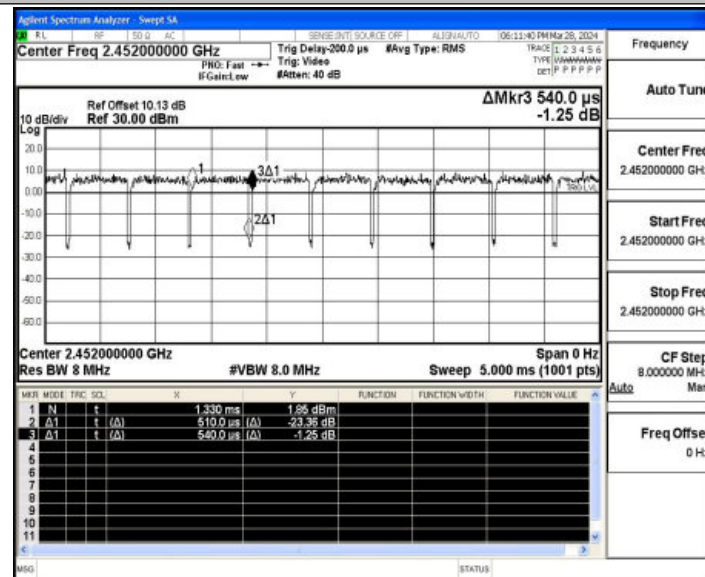


11N40SISO_Ant1_2437





11N40SISO_Ant1_2452





A.7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11B	Ant1	Low	2412	AV	2310.000	-48	≤-41.20	47.20	≤54	PASS
				AV	2379.170	-46.87	≤-41.20	48.33	≤54	PASS
				AV	2390.000	-47.51	≤-41.20	47.69	≤54	PASS
				Peak	2310.000	-41	≤-21.20	54.20	≤74	PASS
				Peak	2341.210	-35.36	≤-21.20	59.84	≤74	PASS
				Peak	2390.000	-39.99	≤-21.20	55.21	≤74	PASS
		High	2462	AV	2483.500	-47.32	≤-41.20	47.88	≤54	PASS
				AV	2497.090	-46.89	≤-41.20	48.31	≤54	PASS
				AV	2500.000	-47.09	≤-41.20	48.11	≤54	PASS
				Peak	2483.500	-40.69	≤-21.20	54.51	≤74	PASS
				Peak	2488.400	-35.99	≤-21.20	59.21	≤74	PASS
				Peak	2500.000	-40.52	≤-21.20	54.68	≤74	PASS
11G	Ant1	Low	2412	AV	2310.000	-48.02	≤-41.20	47.18	≤54	PASS
				AV	2382.810	-46.01	≤-41.20	49.19	≤54	PASS
				AV	2390.000	-47.16	≤-41.20	48.04	≤54	PASS
				Peak	2310.000	-39.9	≤-21.20	55.30	≤74	PASS
				Peak	2389.570	-35.25	≤-21.20	59.95	≤74	PASS
				Peak	2390.000	-38	≤-21.20	57.20	≤74	PASS
		High	2462	AV	2483.500	-45.62	≤-41.20	49.58	≤54	PASS
				AV	2483.560	-45.55	≤-41.20	49.65	≤54	PASS
				AV	2500.000	-47.28	≤-41.20	47.92	≤54	PASS
				Peak	2483.500	-38.3	≤-21.20	56.90	≤74	PASS
				Peak	2484.330	-34.49	≤-21.20	60.71	≤74	PASS
				Peak	2500.000	-37.84	≤-21.20	57.36	≤74	PASS
11N20SISO	Ant1	Low	2412	AV	2310.000	-47.97	≤-41.20	47.23	≤54	PASS
				AV	2389.310	-45.76	≤-41.20	49.44	≤54	PASS
				AV	2390.000	-46.63	≤-41.20	48.57	≤54	PASS
				Peak	2310.000	-41.15	≤-21.20	54.05	≤74	PASS
				Peak	2333.410	-36.46	≤-21.20	58.74	≤74	PASS
				Peak	2390.000	-38.68	≤-21.20	56.52	≤74	PASS
		High	2462	AV	2483.500	-45.89	≤-41.20	49.31	≤54	PASS
				AV	2483.670	-45.77	≤-41.20	49.43	≤54	PASS
				AV	2500.000	-47.42	≤-41.20	47.78	≤54	PASS
				Peak	2483.500	-36.86	≤-21.20	58.34	≤74	PASS
				Peak	2483.890	-34.58	≤-21.20	60.62	≤74	PASS
				Peak	2500.000	-39.15	≤-21.20	56.05	≤74	PASS





11N40SISO	Ant1	Low	2422	AV	2310.000	-47.7	≤ -41.20	47.50	≤ 54	PASS
				AV	2389.440	-45.52	≤ -41.20	49.68	≤ 54	PASS
				AV	2390.000	-46.35	≤ -41.20	48.85	≤ 54	PASS
				Peak	2310.000	-40.35	≤ -21.20	54.85	≤ 74	PASS
				Peak	2386.450	-36.06	≤ -21.20	59.14	≤ 74	PASS
				Peak	2390.000	-37.47	≤ -21.20	57.73	≤ 74	PASS
		High	2452	AV	2483.500	-46.51	≤ -41.20	48.69	≤ 54	PASS
				AV	2491.920	-45.86	≤ -41.20	49.34	≤ 54	PASS
				AV	2500.000	-47.37	≤ -41.20	47.83	≤ 54	PASS
				Peak	2483.500	-39.49	≤ -21.20	55.71	≤ 74	PASS
				Peak	2492.250	-36.31	≤ -21.20	58.89	≤ 74	PASS
				Peak	2500.000	-38.43	≤ -21.20	56.77	≤ 74	PASS

Note:

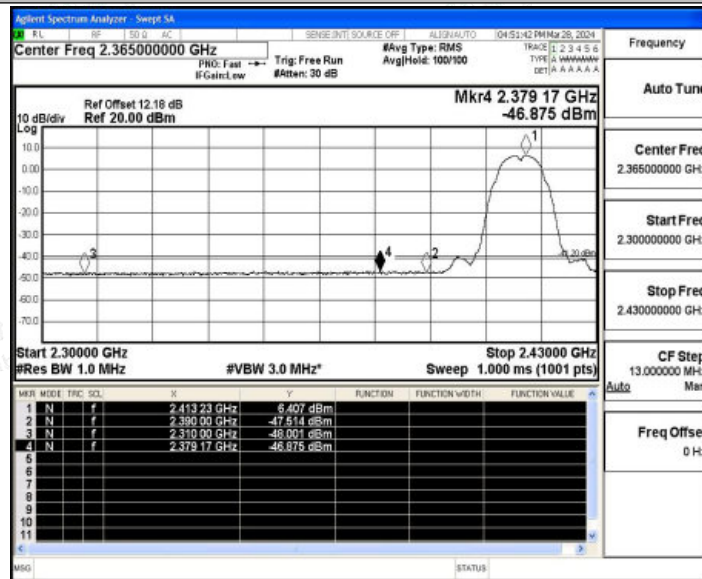
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



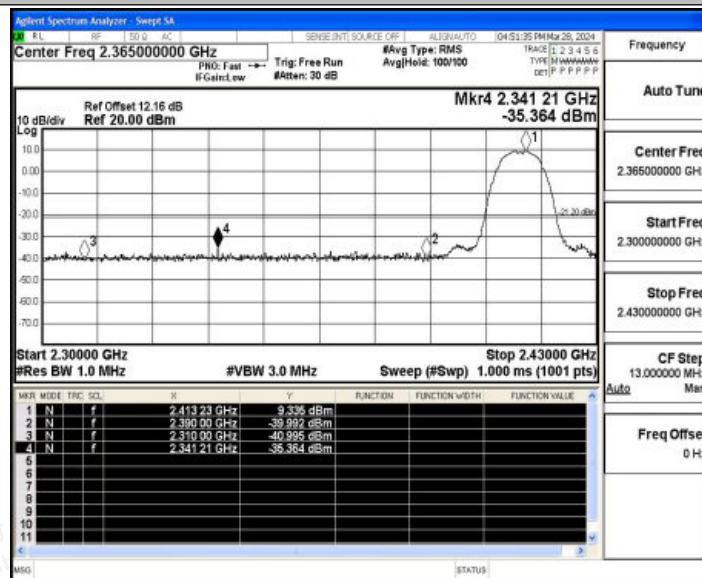


Test Graphs

11B_Ant1_Low_2412_AV

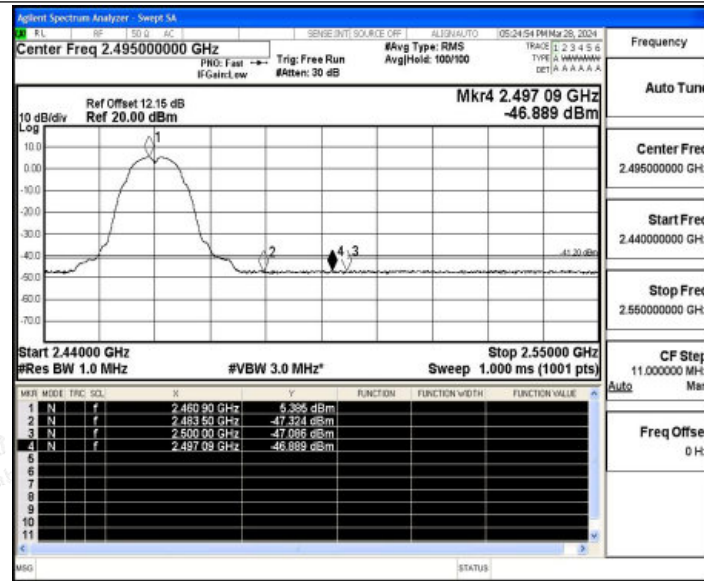


11B_Ant1_Low_2412_Peak

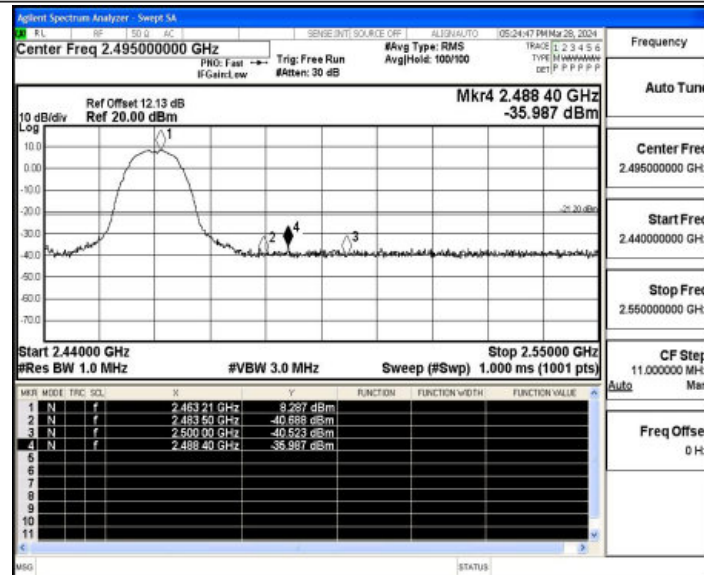


11B_Ant1_High_2462_AV



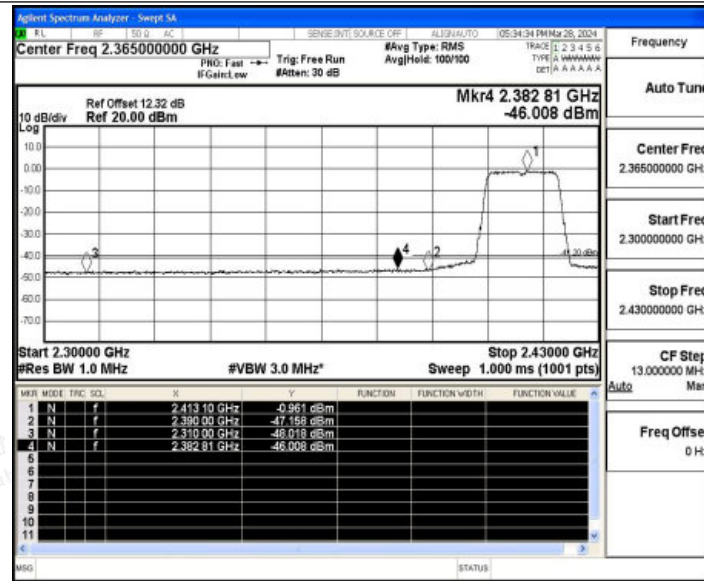


11B_Ant1_High_2462_Peak

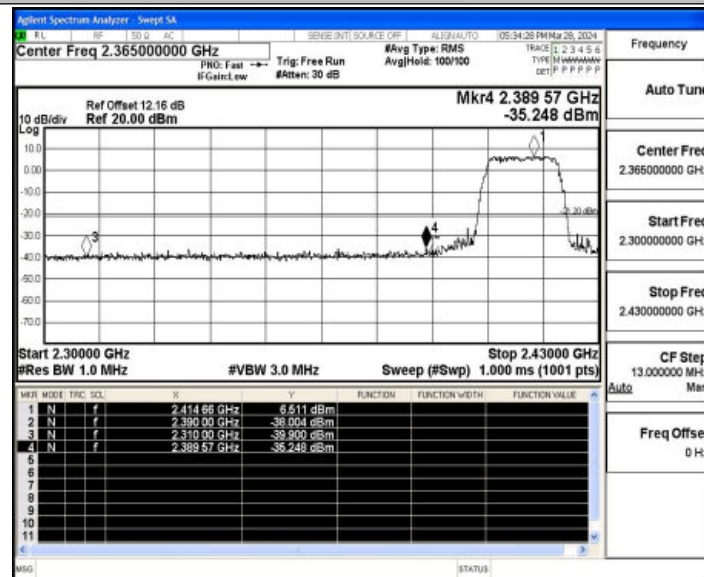


11G_Ant1_Low_2412_AV



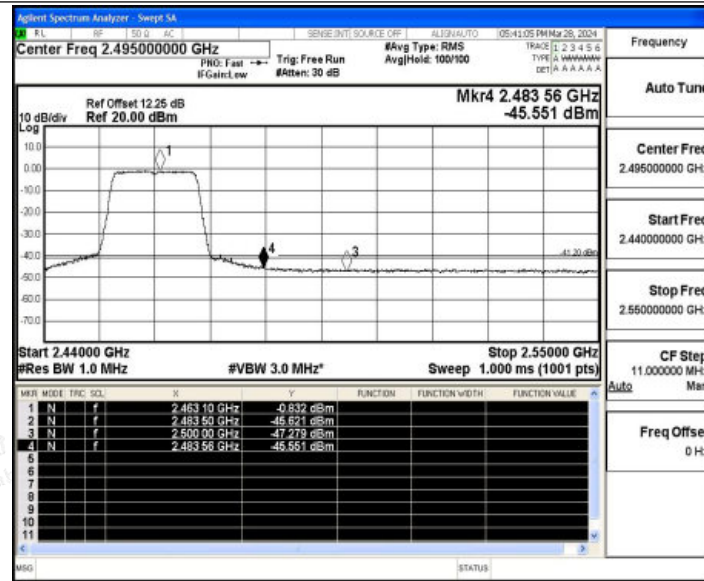


11G_Ant1_Low_2412_Peak

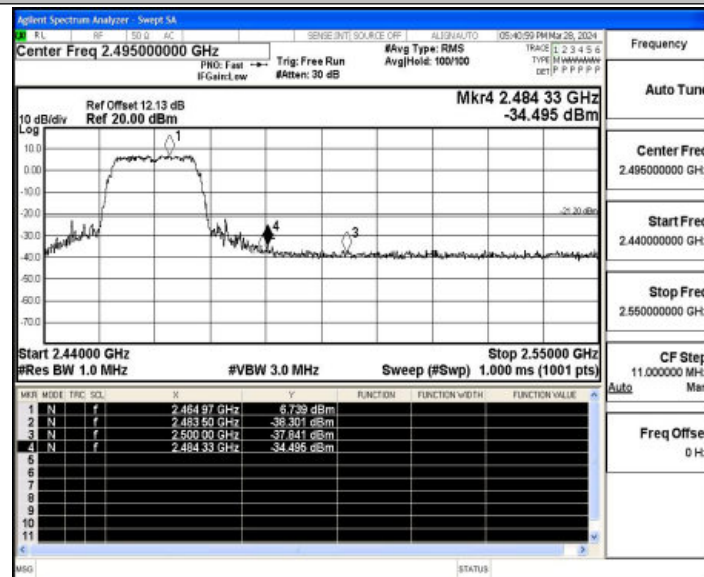


11G_Ant1_High_2462_AV



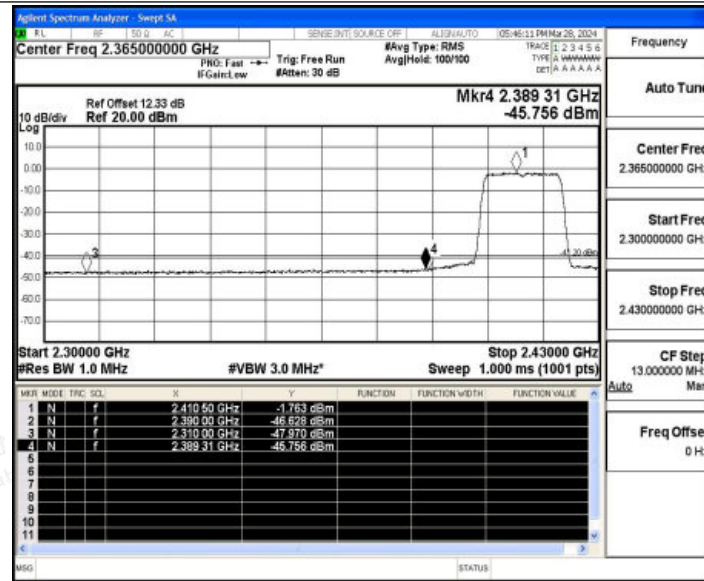


11G_Ant1_High_2462_Peak

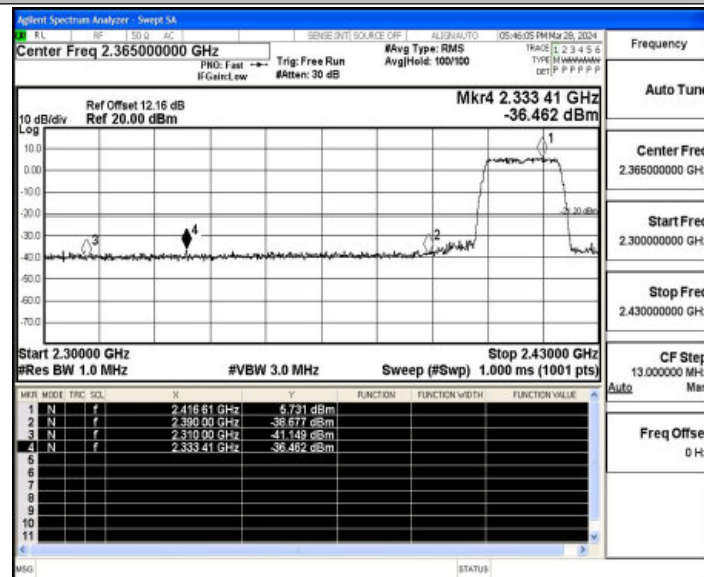


11N20SISO_Ant1_Low_2412_AV



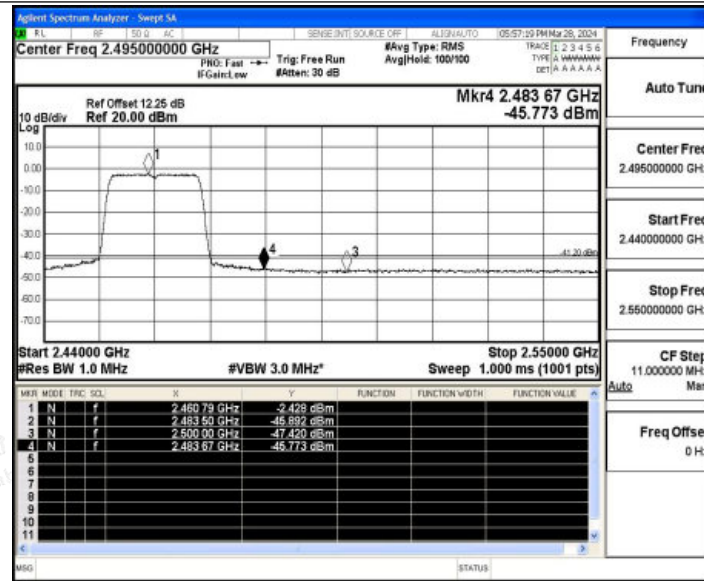


11N20SISO_Ant1_Low_2412_Peak

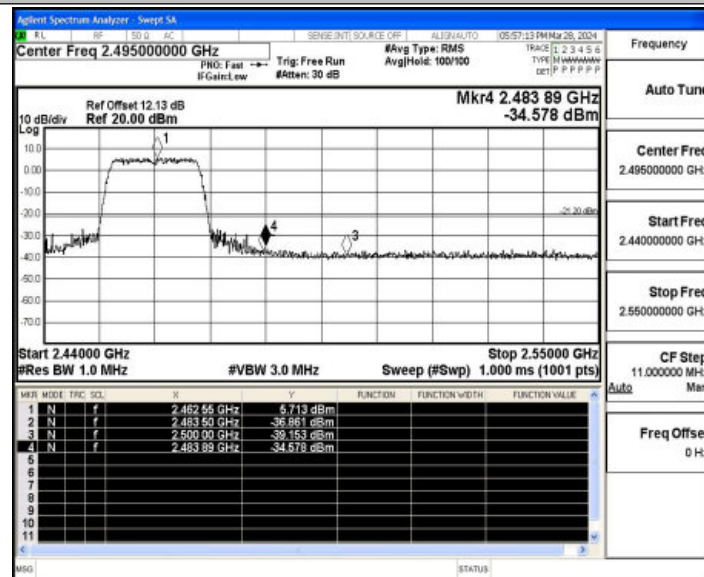


11N20SISO_Ant1_High_2462_AV



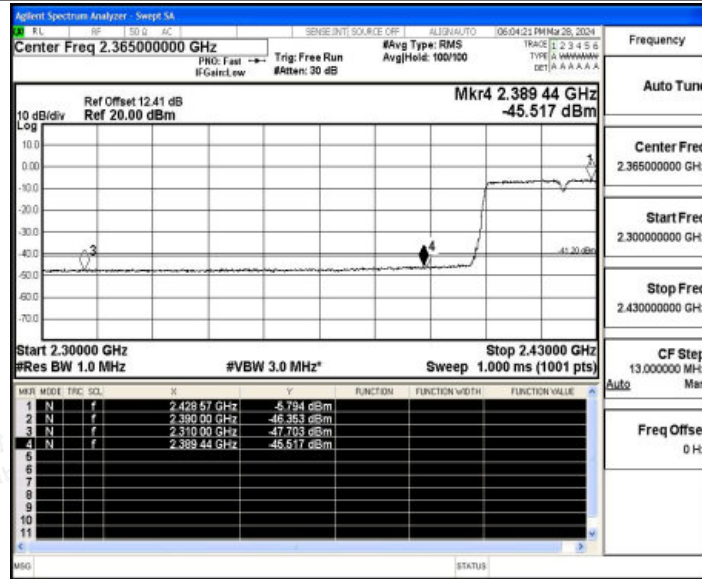


11N20SISO_Ant1_High_2462_Peak

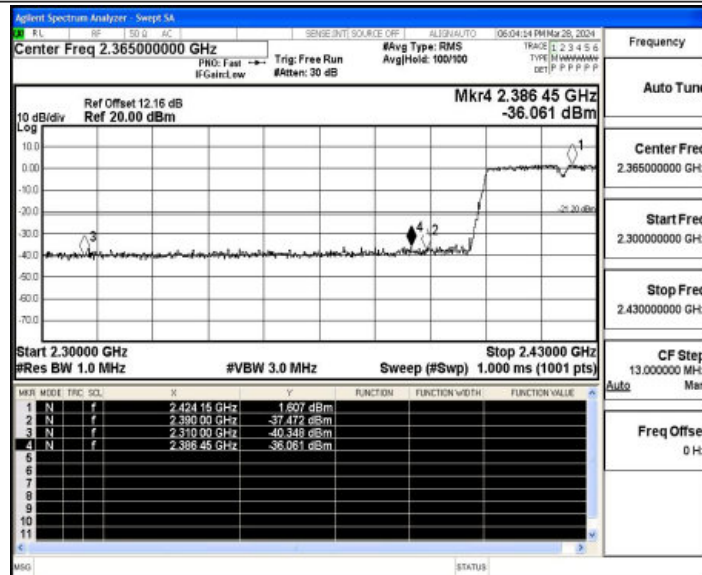


11N40SISO_Ant1_Low_2422_AV



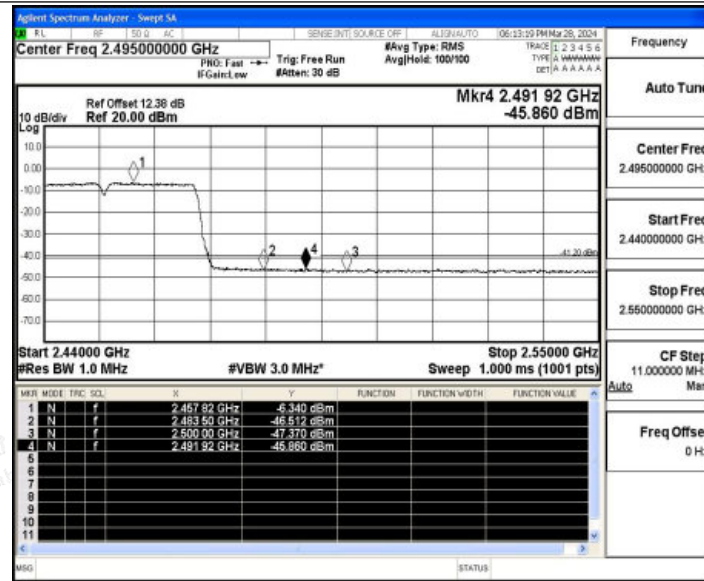


11N40SISO_Ant1_Low_2422_Peak



11N40SISO_Ant1_High_2452_AV





11N40SISO_Ant1_High_2452_Peak

