



## 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

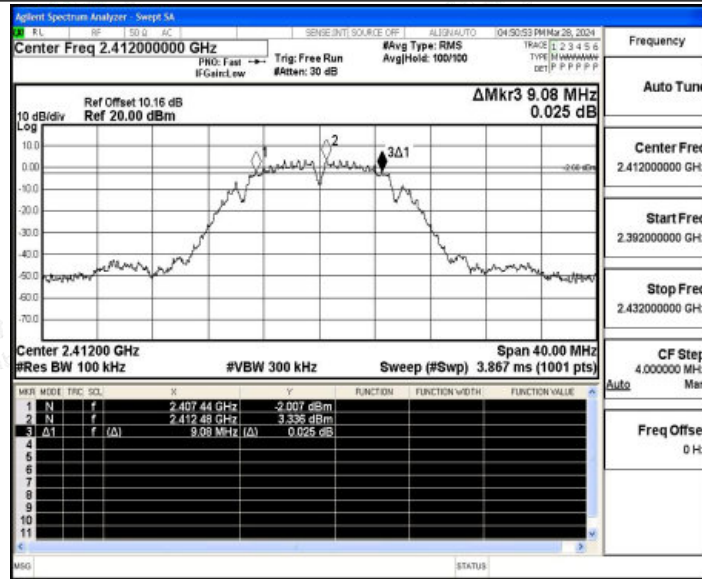
TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.080	2407.440	2416.520	0.5	PASS
		2437	10.000	2432.000	2442.000	0.5	PASS
		2462	8.600	2457.920	2466.520	0.5	PASS
11G	Ant1	2412	16.360	2403.840	2420.200	0.5	PASS
		2437	16.400	2428.800	2445.200	0.5	PASS
		2462	16.360	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



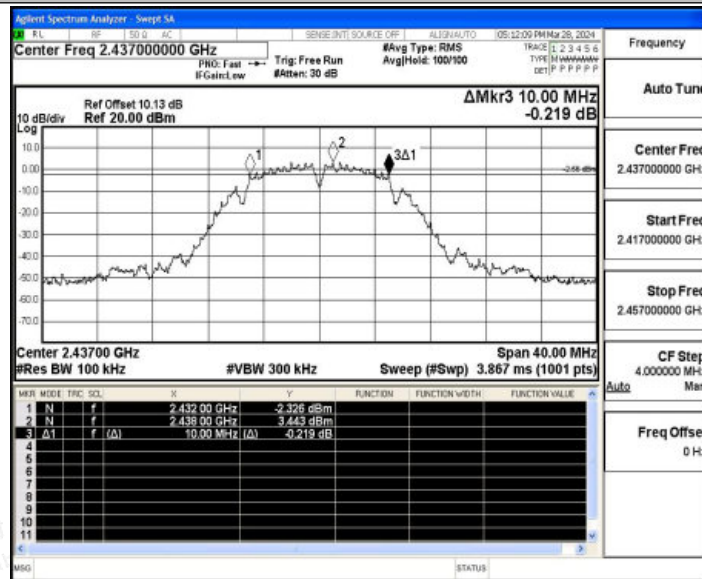


Test Graphs

11B\_Ant1\_2412

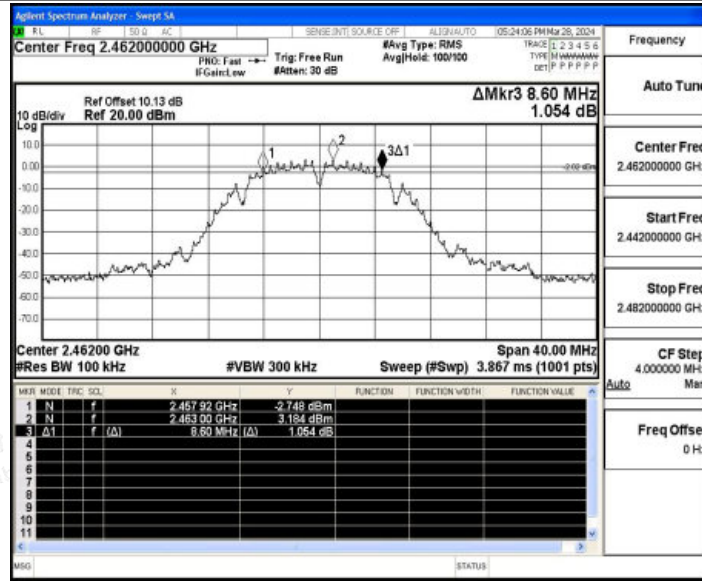


11B\_Ant1\_2437

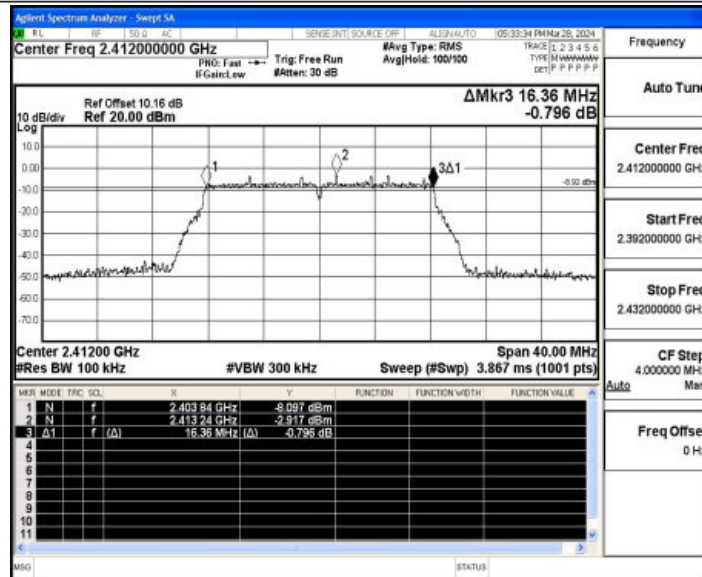


11B\_Ant1\_2462



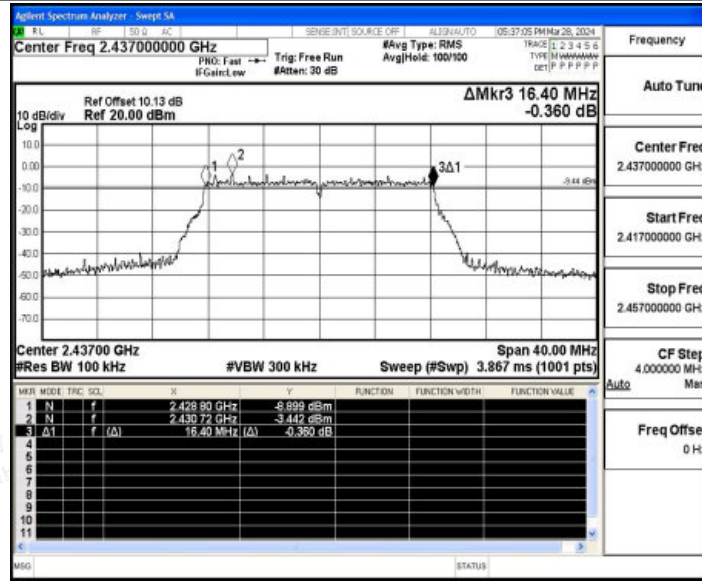


11G\_Ant1\_2412

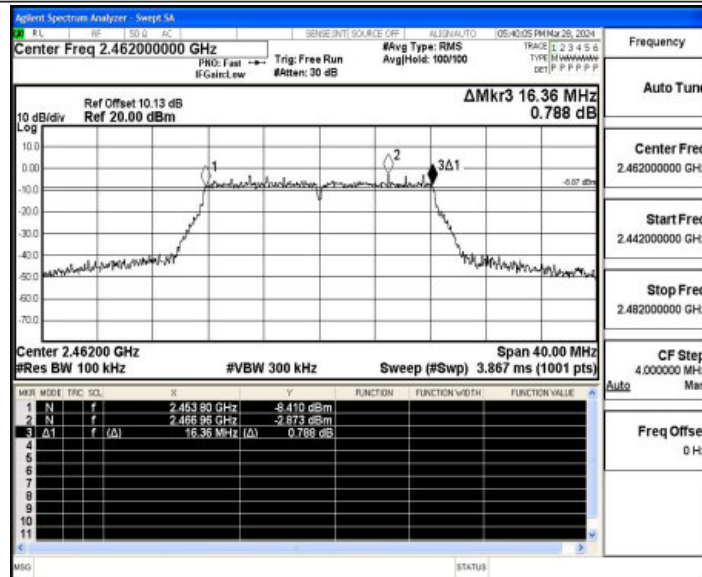


11G\_Ant1\_2437



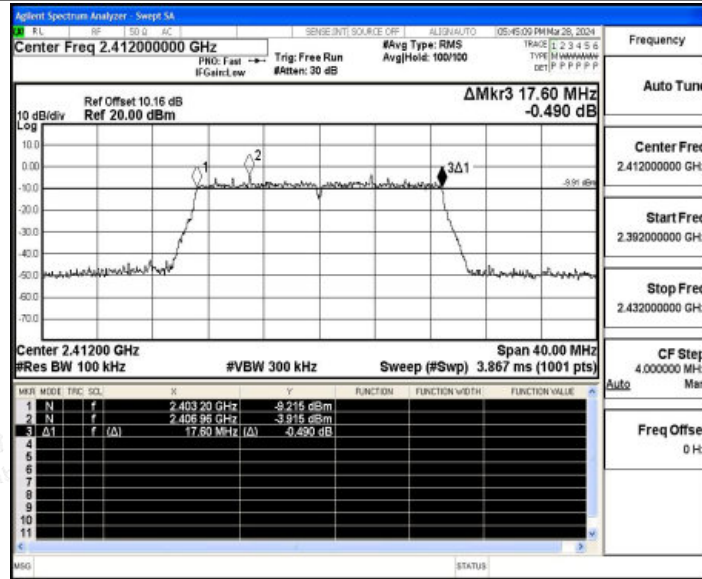


11G\_Ant1\_2462

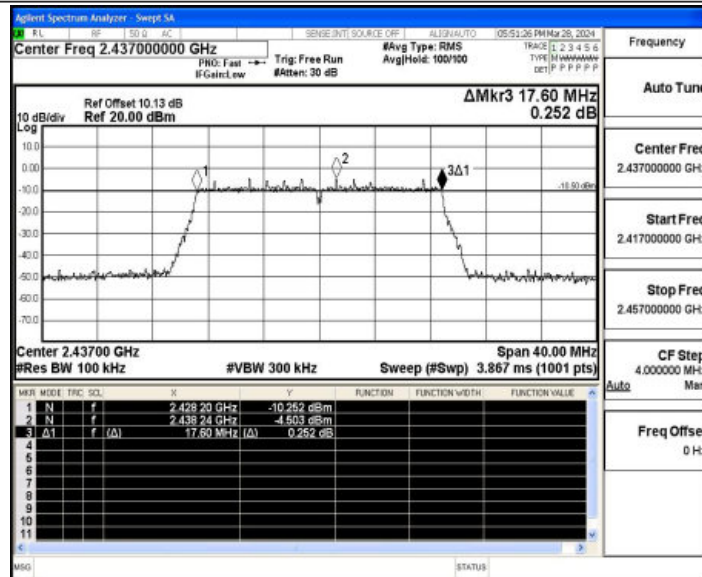


11N20SISO\_Ant1\_2412



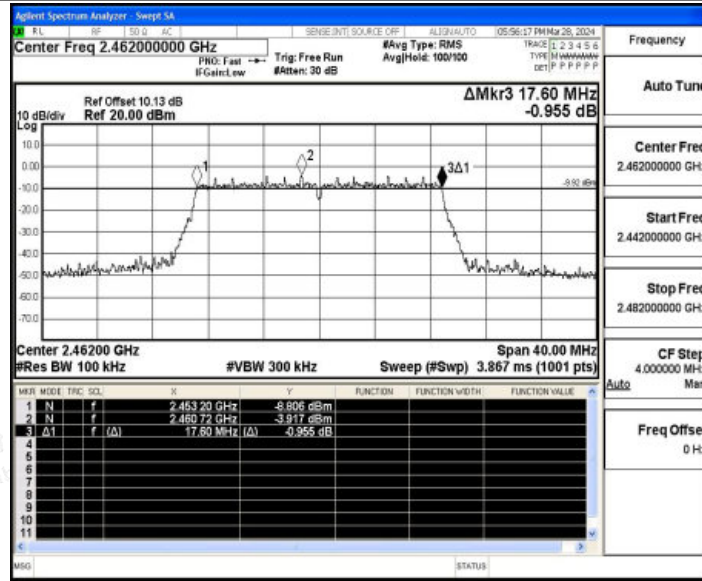


11N20SISO\_Ant1\_2437

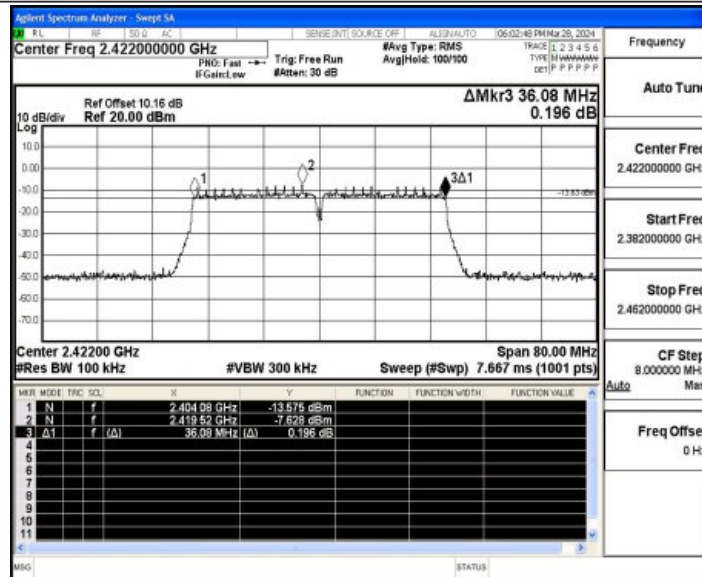


11N20SISO\_Ant1\_2462



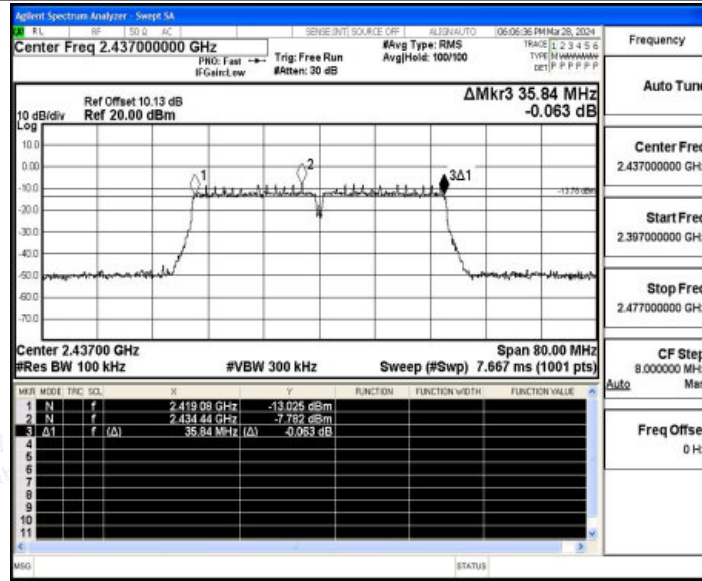


11N40SISO\_Ant1\_2422

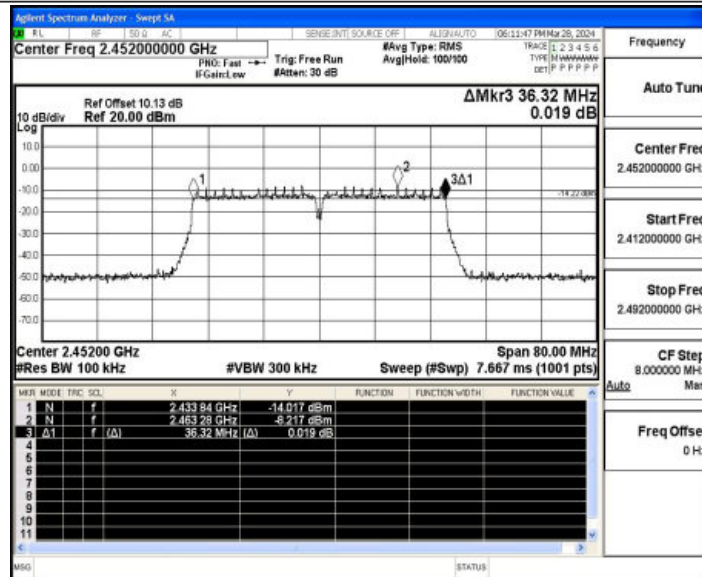


11N40SISO\_Ant1\_2437





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	---	<b>15.85</b>	≤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

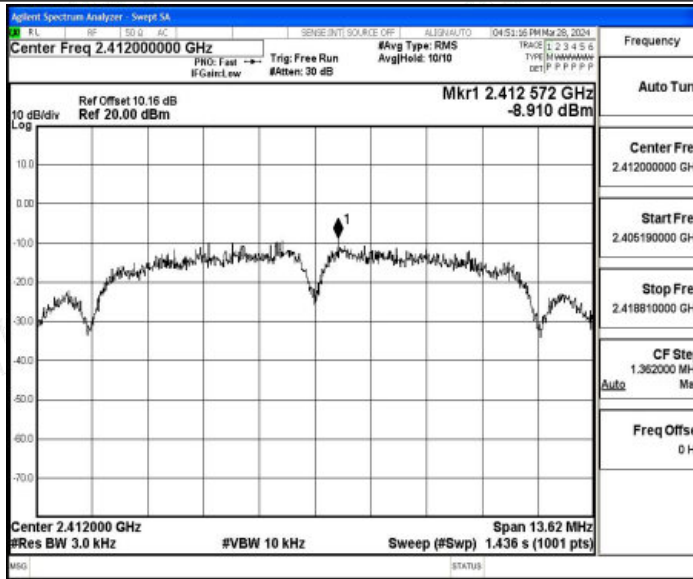
TestMode	Antenna	Freq(MHz)	Result [dBm/3-100kHz]	Limit [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B	Ant1	2412	-8.91	≤8.00	---	PASS
		2437	-9.77	≤8.00	---	PASS
		2462	1.69	≤8.00	---	PASS
11G	Ant1	2412	-16.93	≤8.00	---	PASS
		2437	-16.43	≤8.00	---	PASS
		2462	-16.43	≤8.00	---	PASS
11N20SISO	Ant1	2412	-18.03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



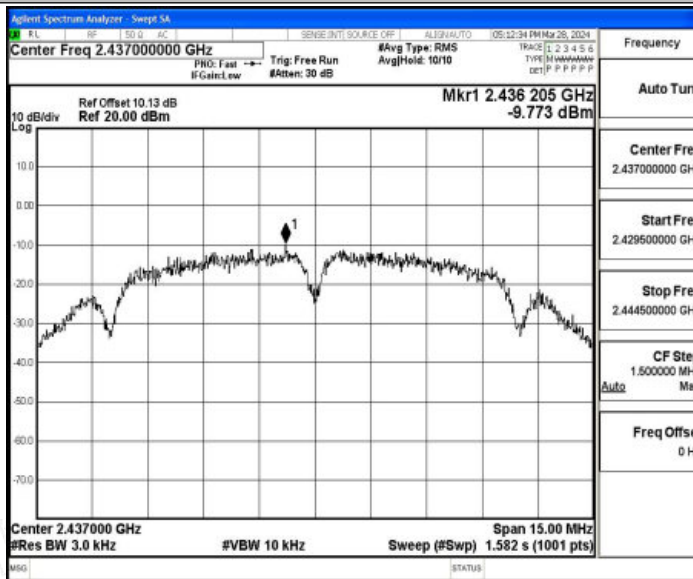


Test Graphs

11B\_Ant1\_2412



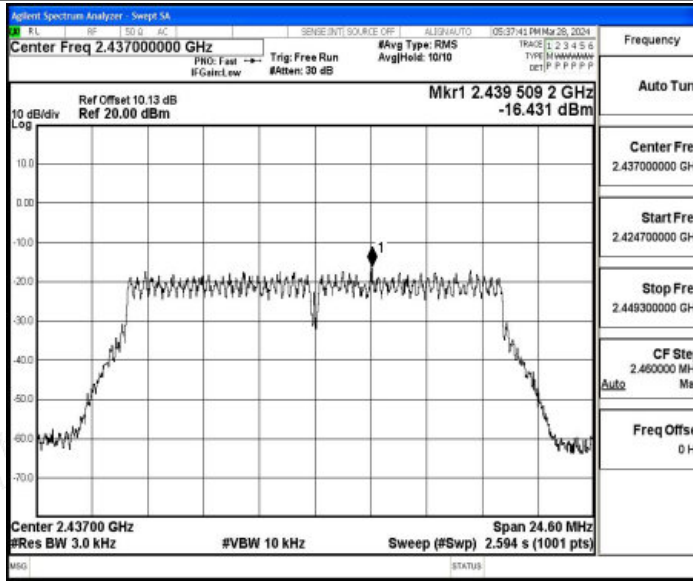
11B\_Ant1\_2437



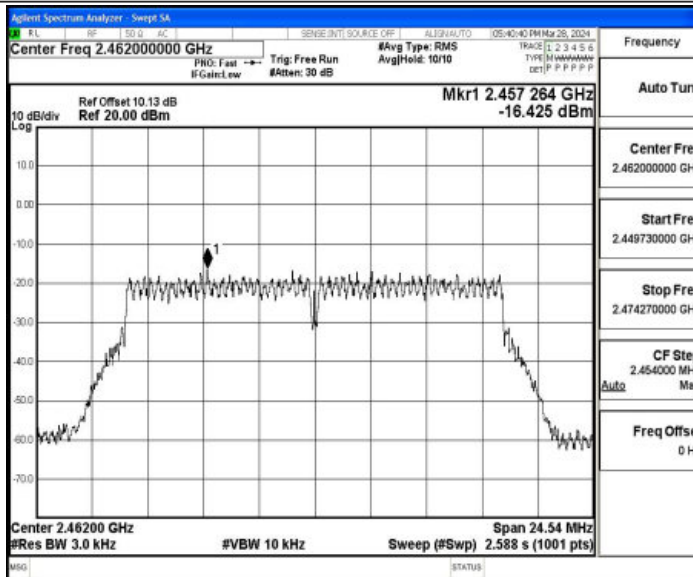
11B\_Ant1\_2462





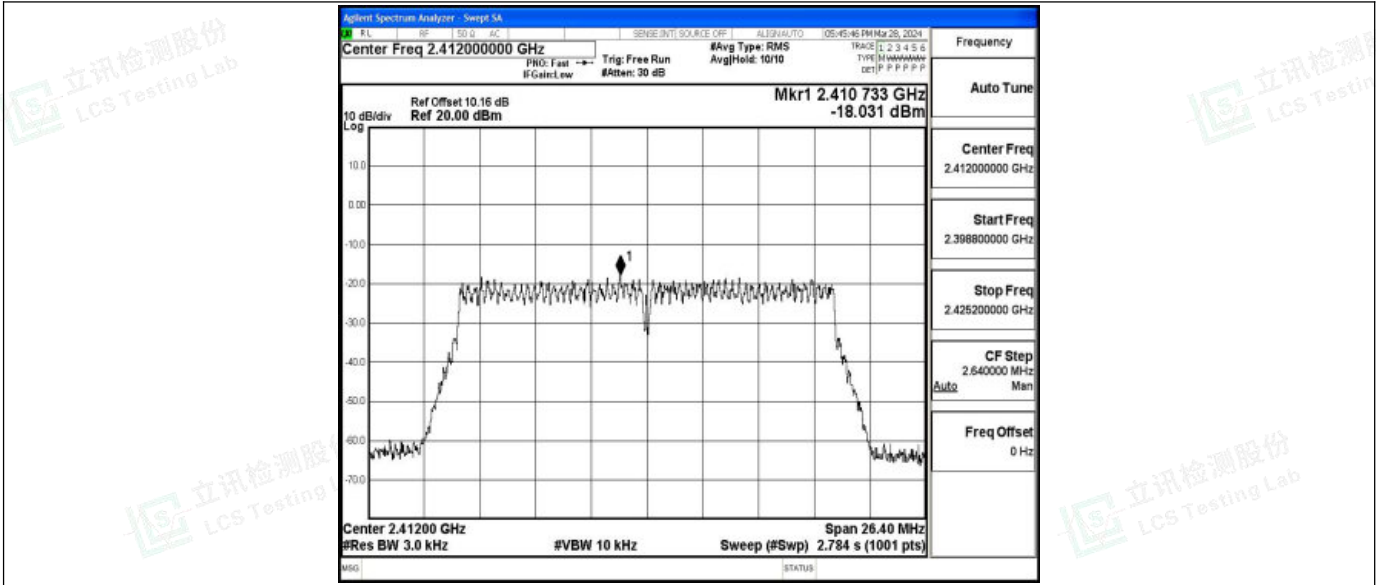


11G\_Ant1\_2462

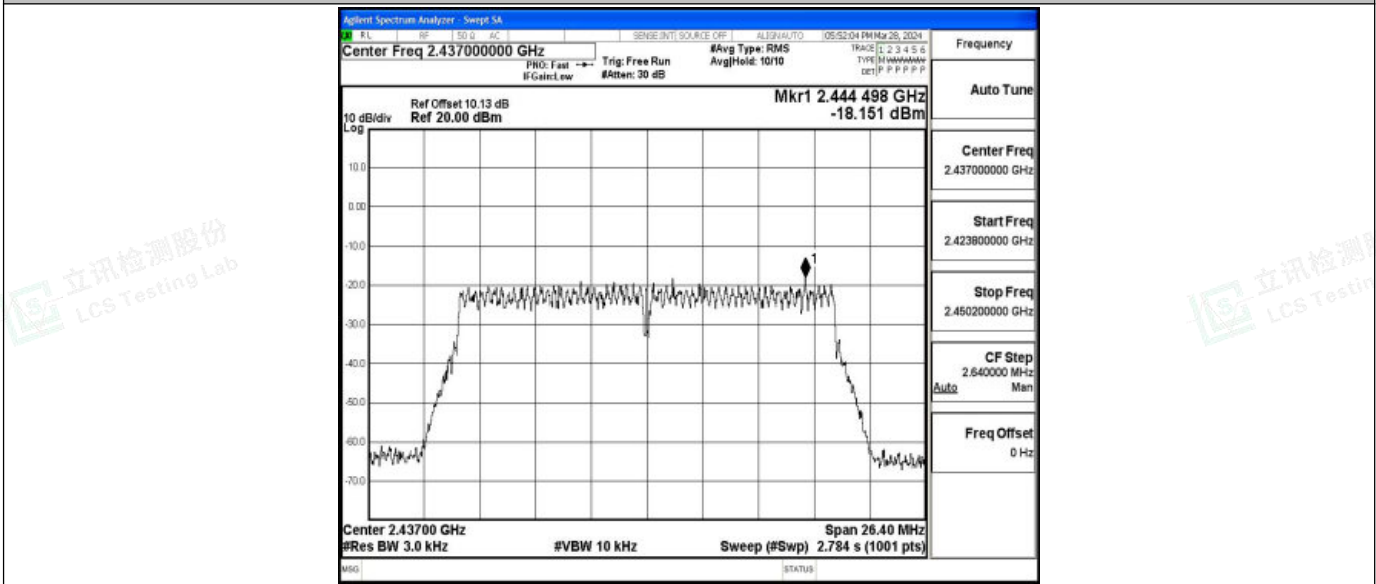


11N20SISO\_Ant1\_2412



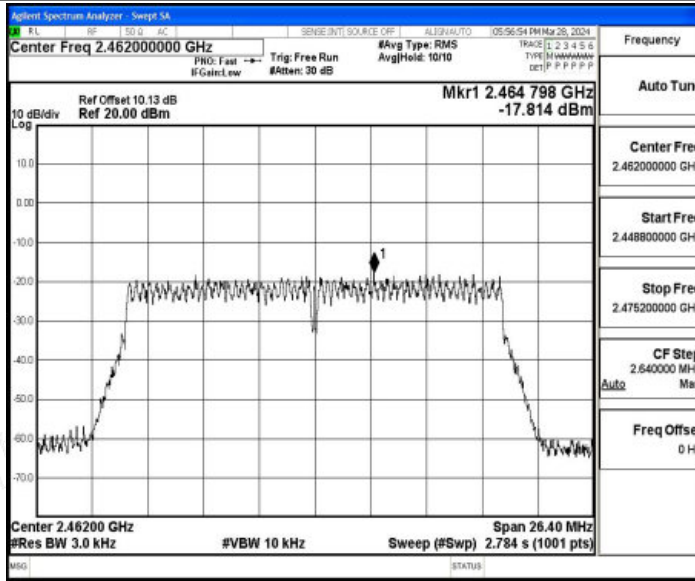


11N20SISO\_Ant1\_2437

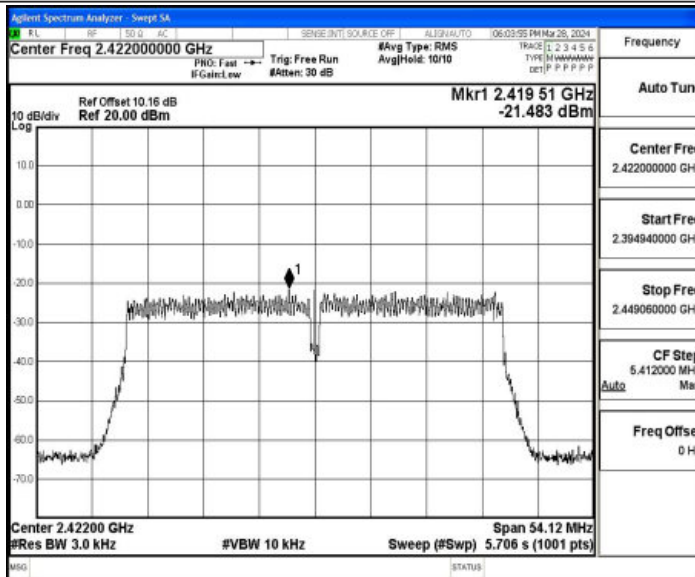


11N20SISO\_Ant1\_2462



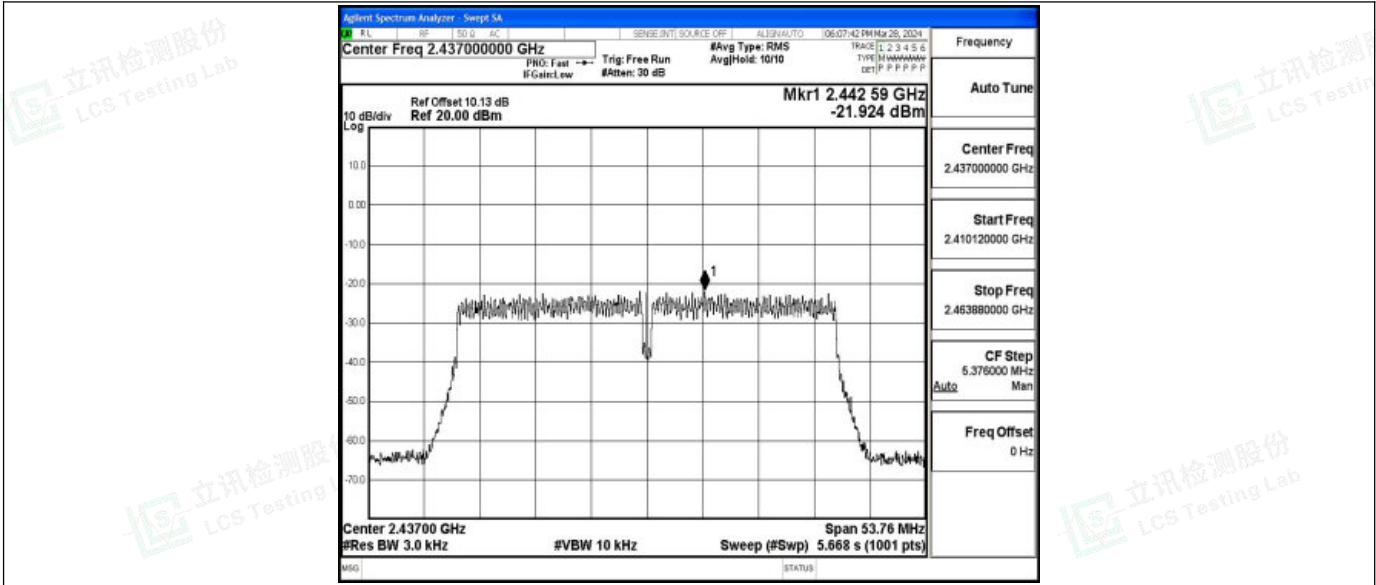


11N40SISO\_Ant1\_2422

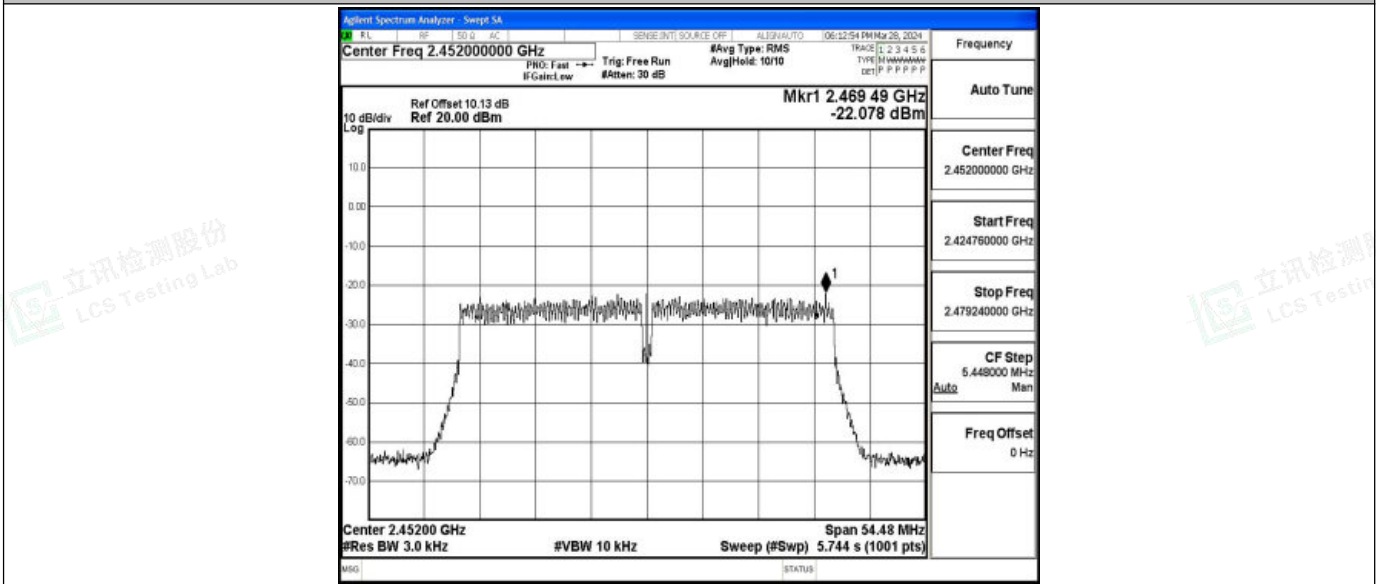


11N40SISO\_Ant1\_2437





11N40SISO\_Ant1\_2452







## A.4 Band edge measurements

### Test Result

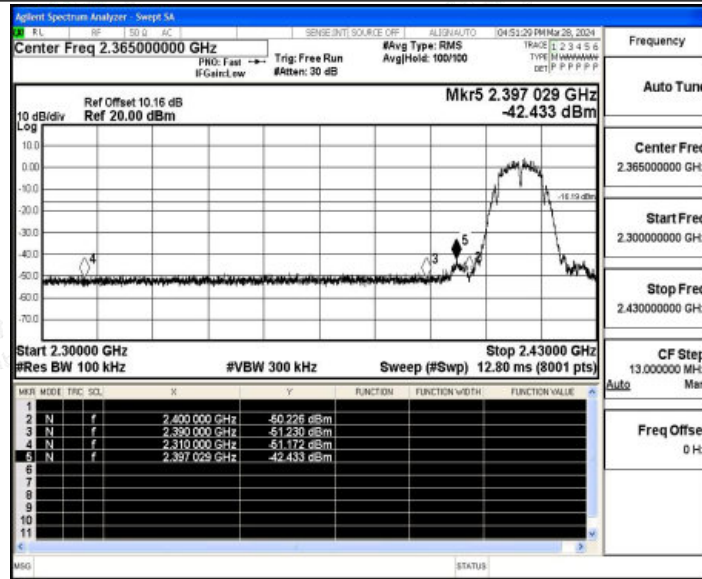
TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	3.81	-42.43	$\leq -16.19$	PASS
		High	2462	3.16	-47.96	$\leq -16.84$	PASS
11G	Ant1	Low	2412	-3.47	-44.56	$\leq -23.47$	PASS
		High	2462	-2.85	-47.2	$\leq -22.85$	PASS
11N20SISO	Ant1	Low	2412	-3.35	-45.57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



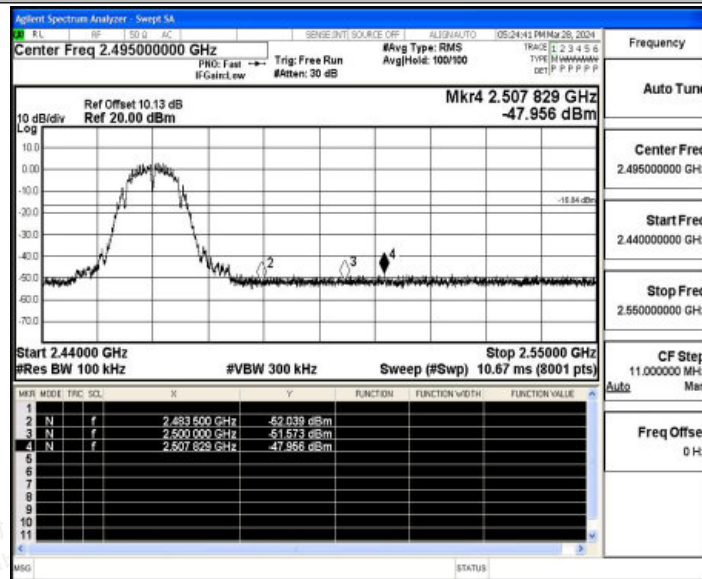


Test Graphs

11B\_Ant1\_Low\_2412

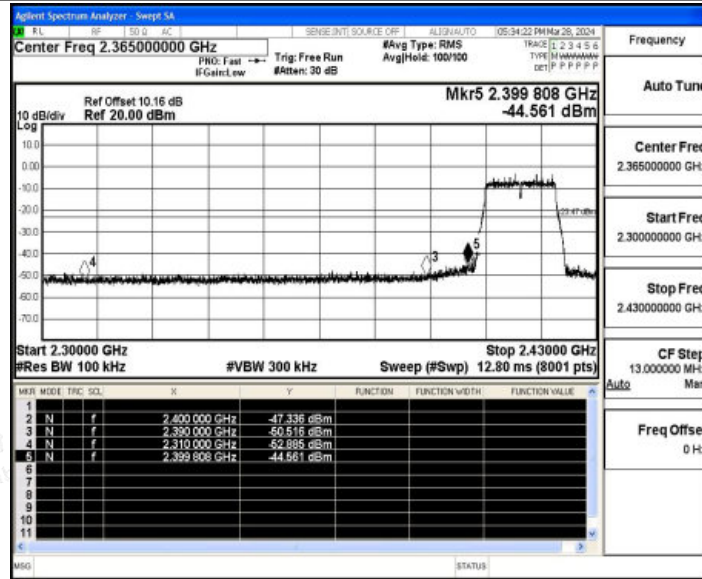


11B\_Ant1\_High\_2462

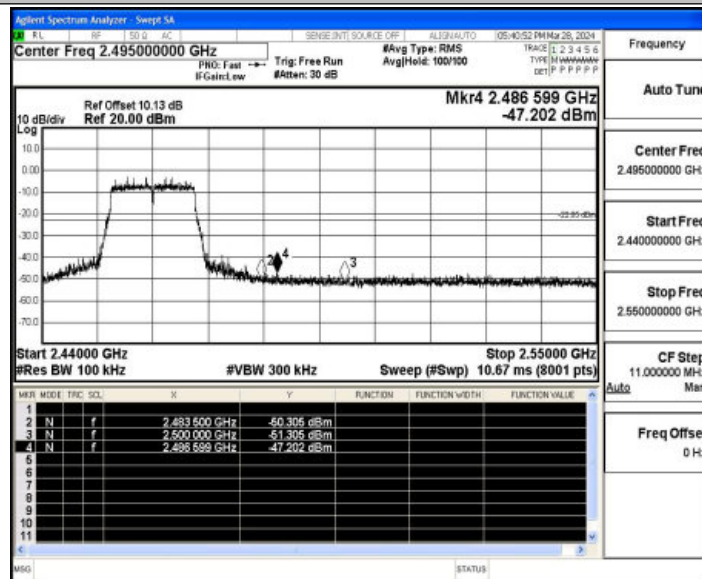


11G\_Ant1\_Low\_2412



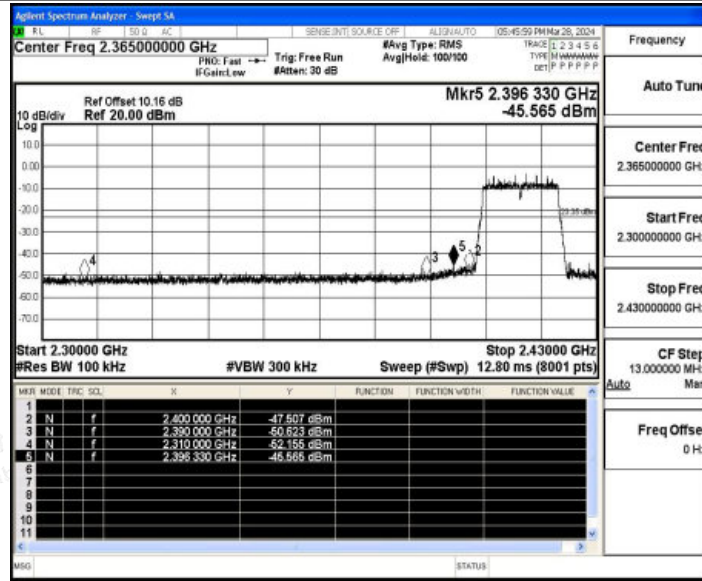


11G\_Ant1\_High\_2462

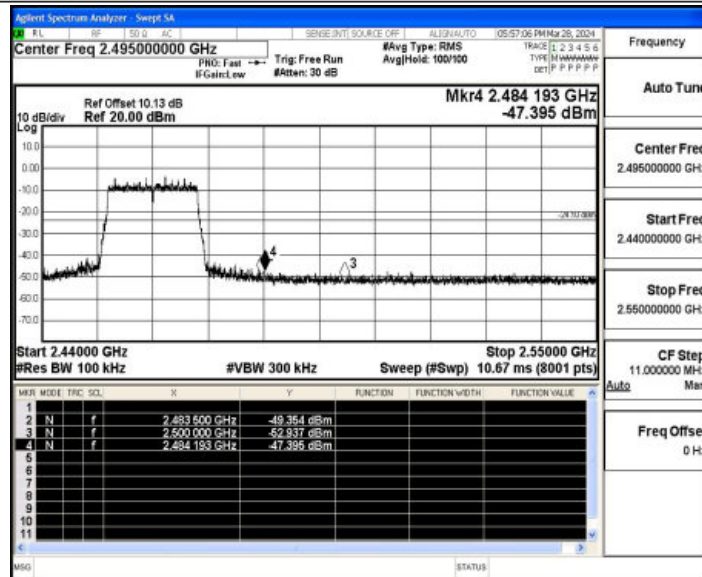


11N20SISO\_Ant1\_Low\_2412



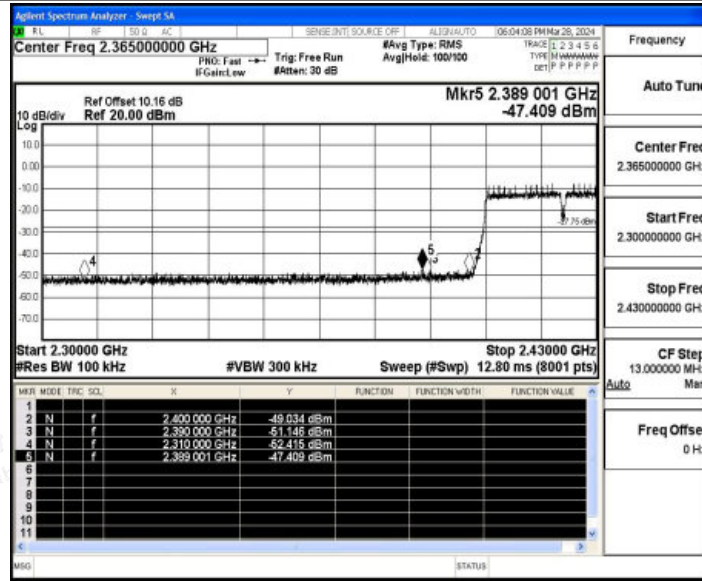


11N20SISO\_Ant1\_High\_2462

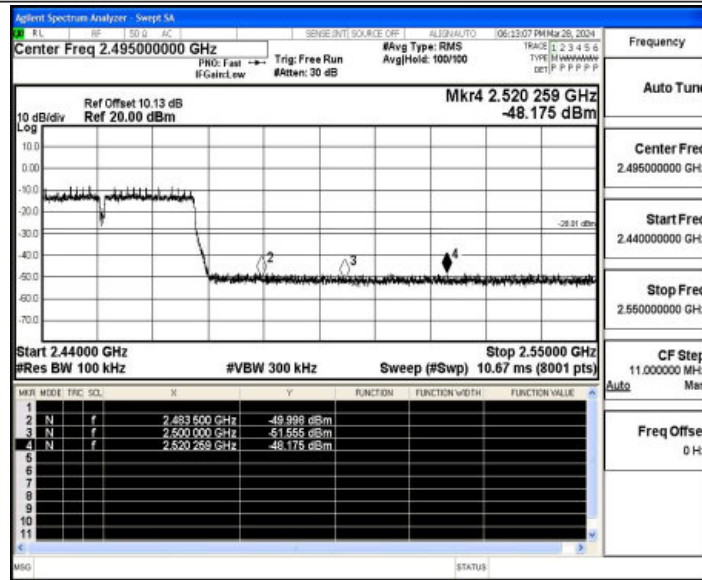


11N40SISO\_Ant1\_Low\_2422





11N40SISO\_Ant1\_High\_2452





## A.5 Conducted Spurious Emission

### Test Result

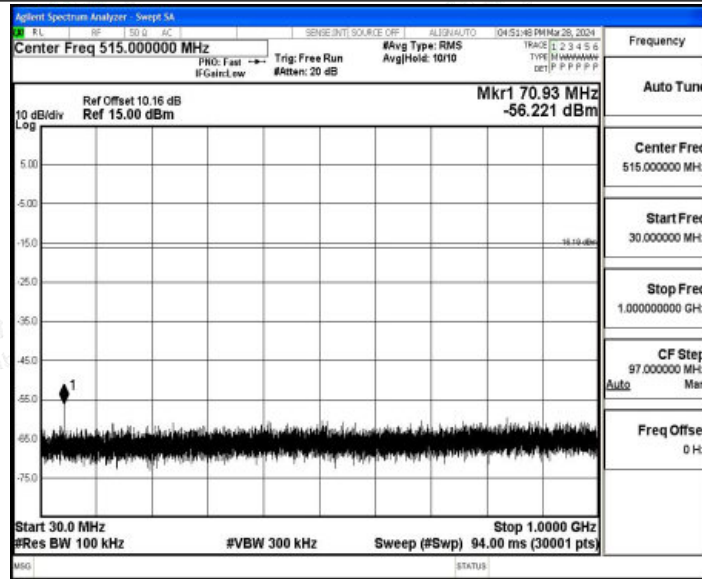
TestMode	Antenna	Freq(MHz)	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	30~1000	3.81	-56.22	≤-16.19	PASS
			1000~26500	3.81	-47.13	≤-16.19	PASS
		2437	30~1000	3.71	-59.31	≤-16.29	PASS
			1000~26500	3.71	-47.57	≤-16.29	PASS
		2462	30~1000	3.16	-59.9	≤-16.84	PASS
			1000~26500	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



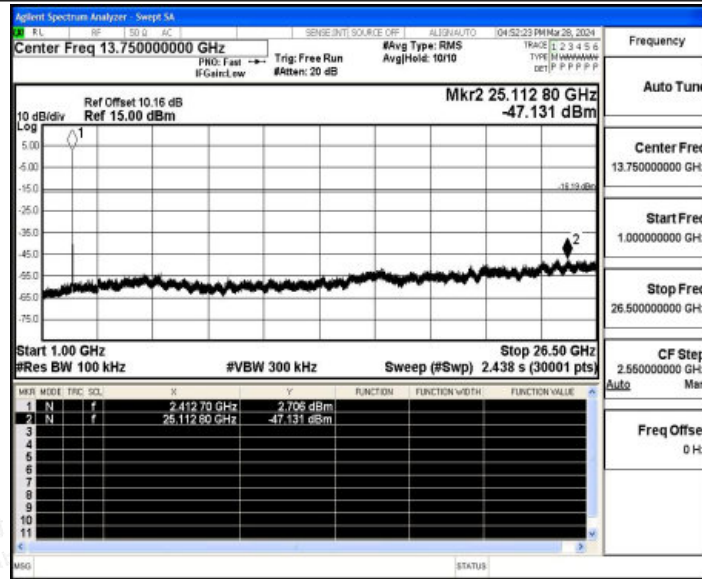


Test Graphs

11B\_Ant1\_2412\_30~1000

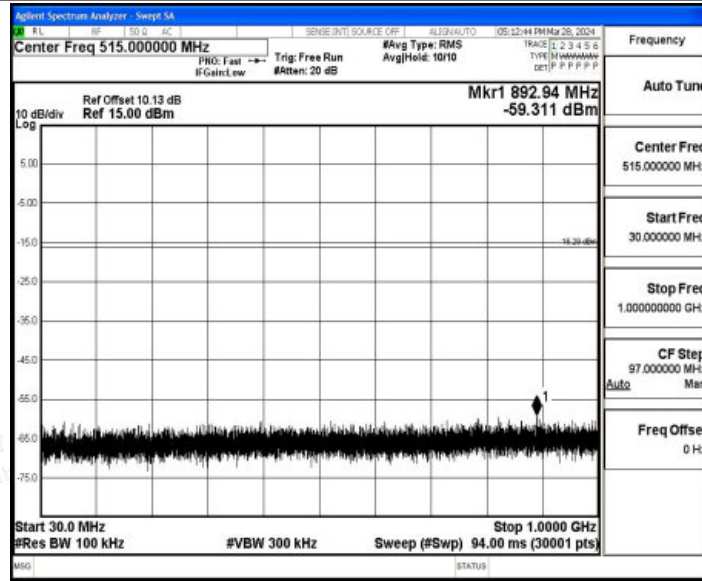


11B\_Ant1\_2412\_1000~26500

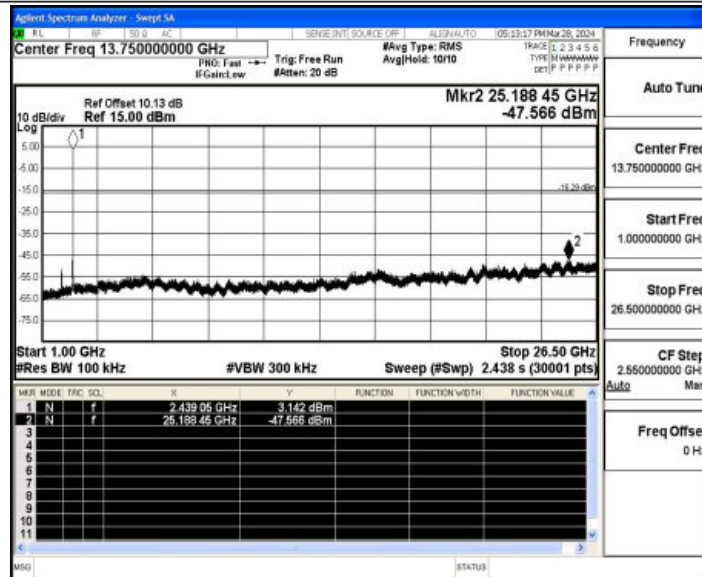


11B\_Ant1\_2437\_30~1000





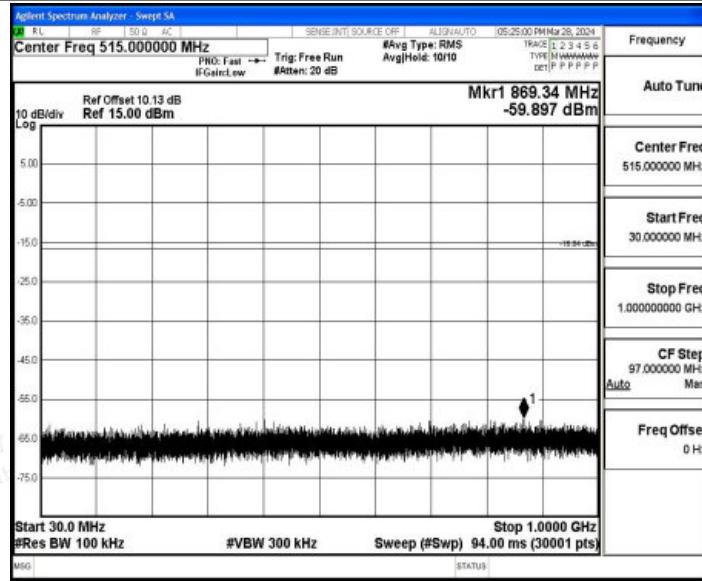
11B\_Ant1\_2437\_1000~26500



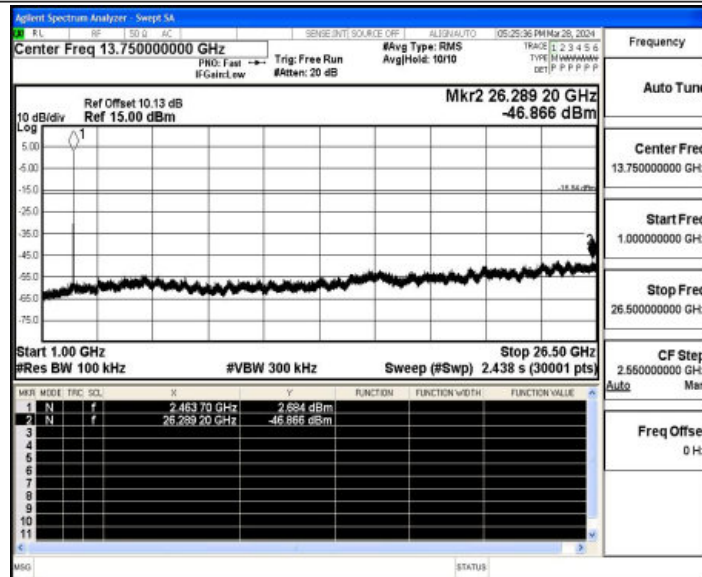
11B\_Ant1\_2462\_30~1000





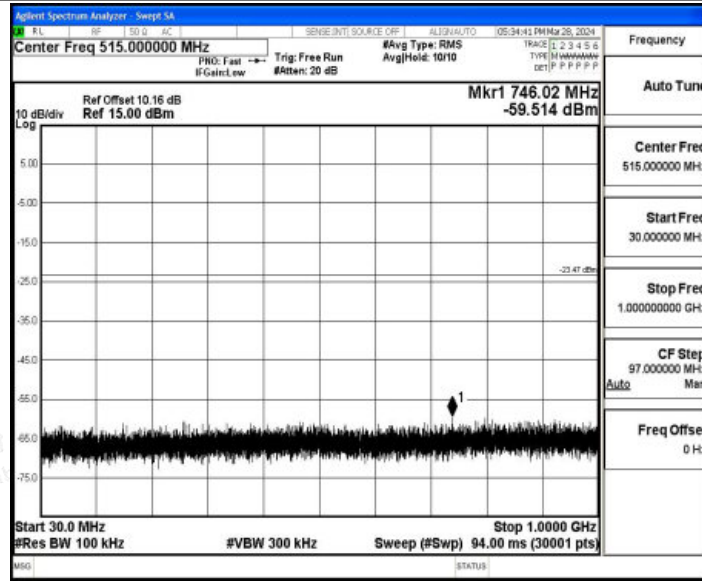


11B\_Ant1\_2462\_1000~26500

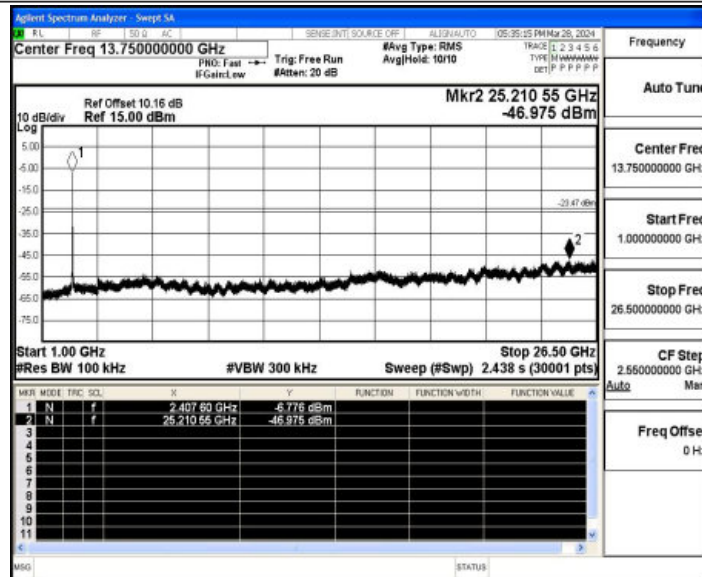


11G\_Ant1\_2412\_30~1000



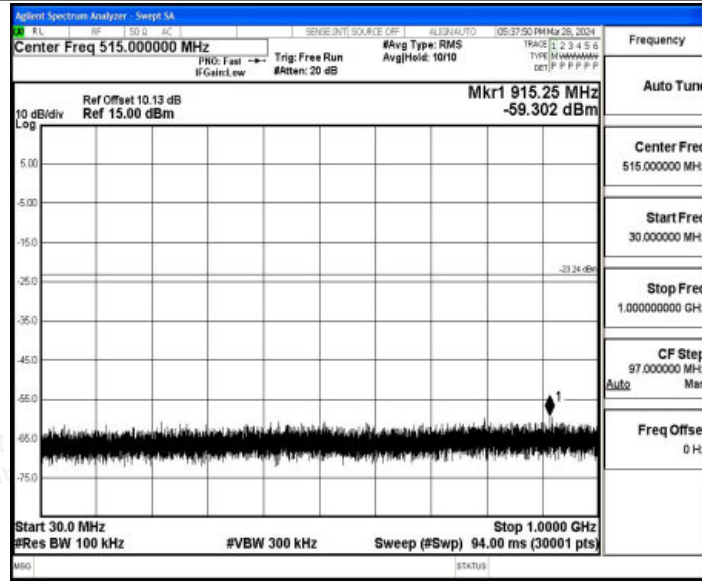


11G\_Ant1\_2412\_1000~26500

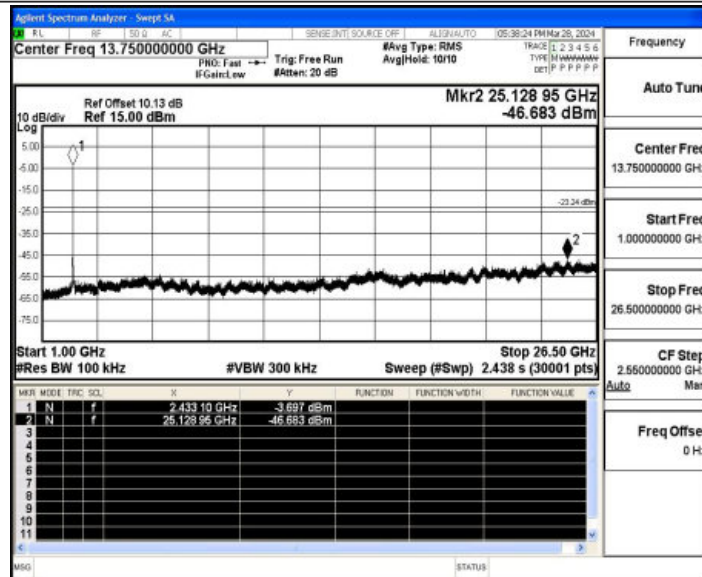


11G\_Ant1\_2437\_30~1000



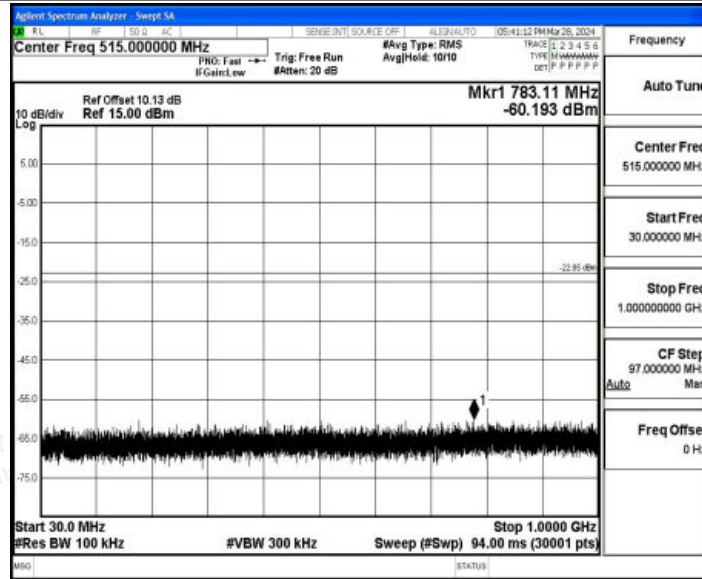


11G\_Ant1\_2437\_1000~26500

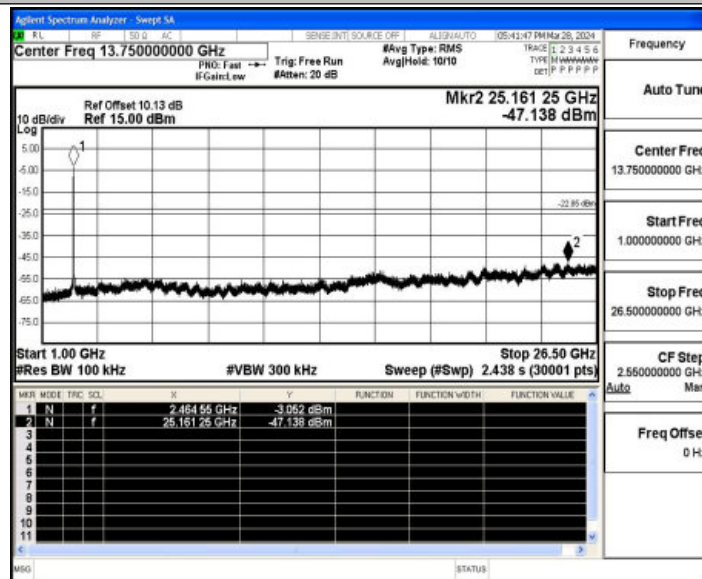


11G\_Ant1\_2462\_30~1000



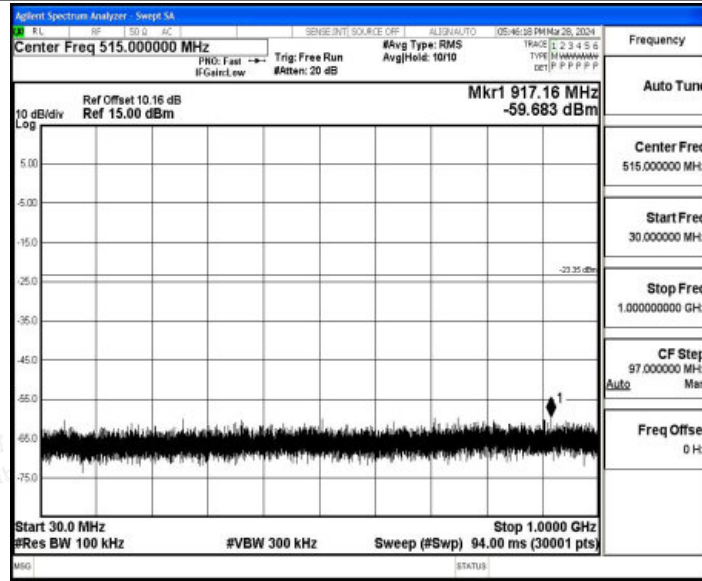


11G\_Ant1\_2462\_1000~26500

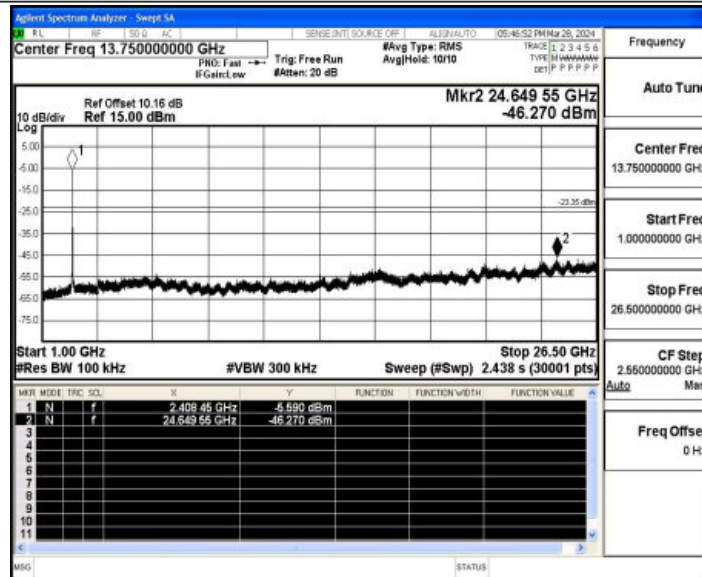


11N20SISO\_Ant1\_2412\_30~1000



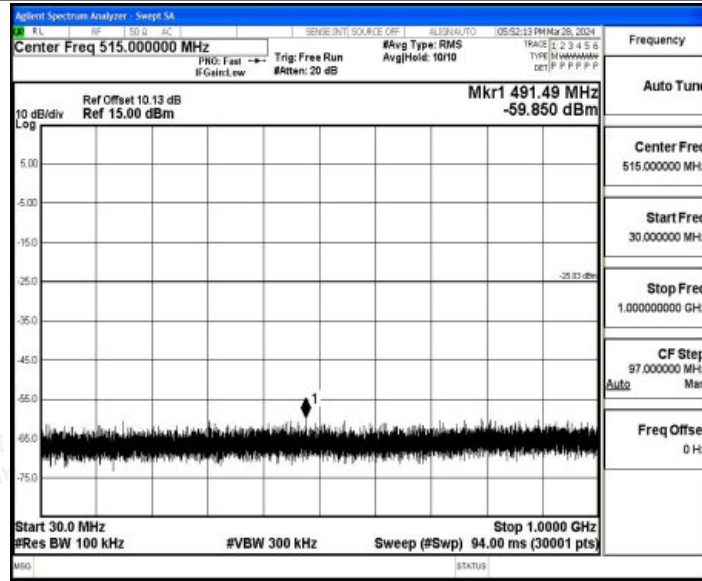


11N20SISO\_Ant1\_2412\_1000~26500

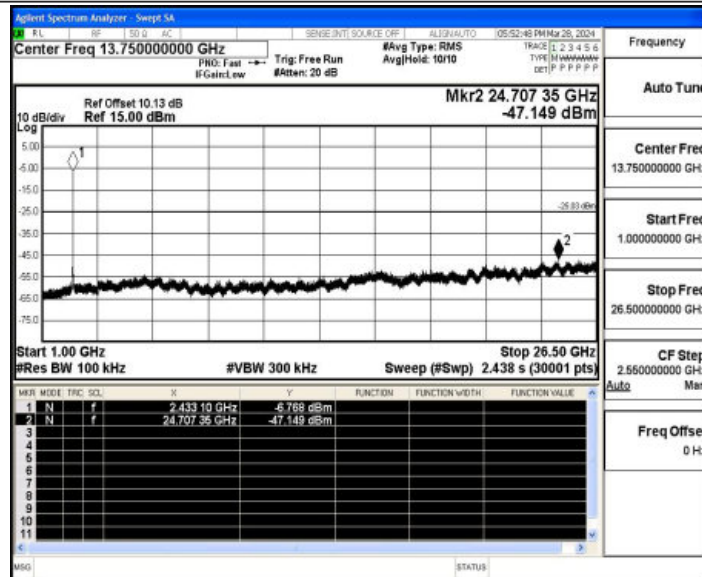


11N20SISO\_Ant1\_2437\_30~1000



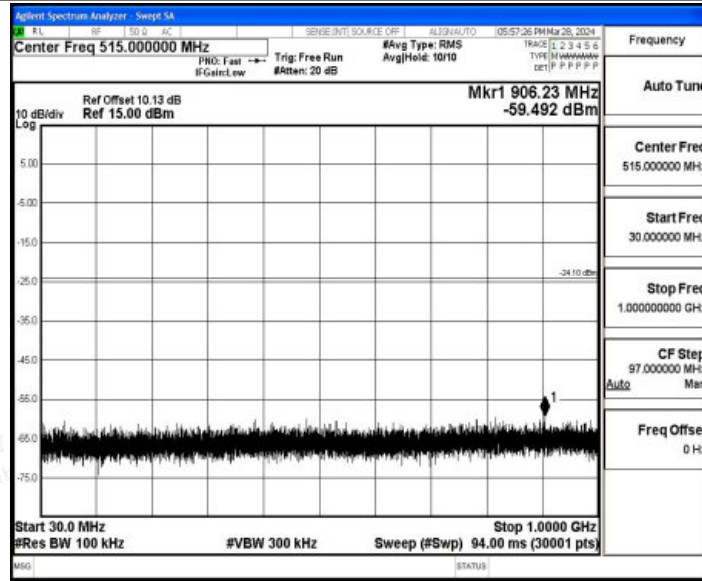


11N20SISO\_Ant1\_2437\_1000~26500

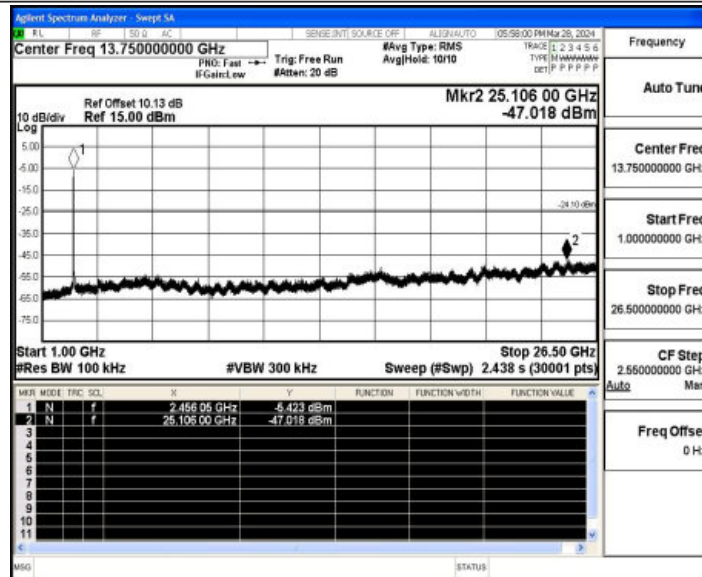


11N20SISO\_Ant1\_2462\_30~1000



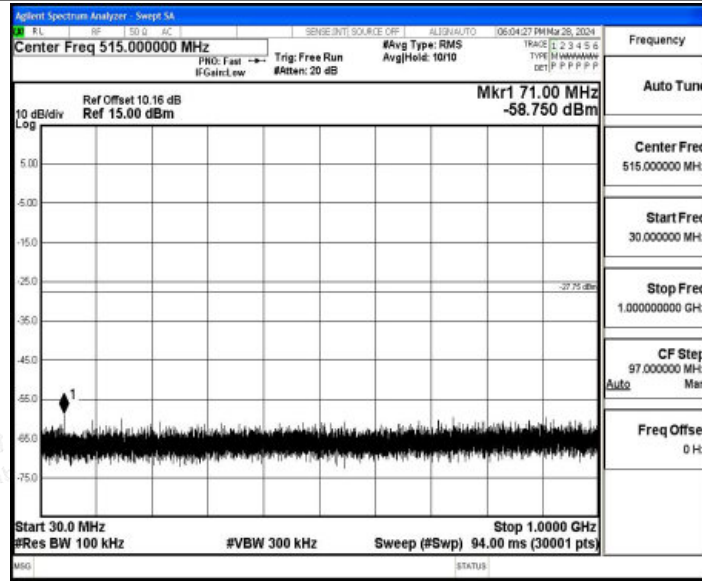


11N20SISO\_Ant1\_2462\_1000~26500

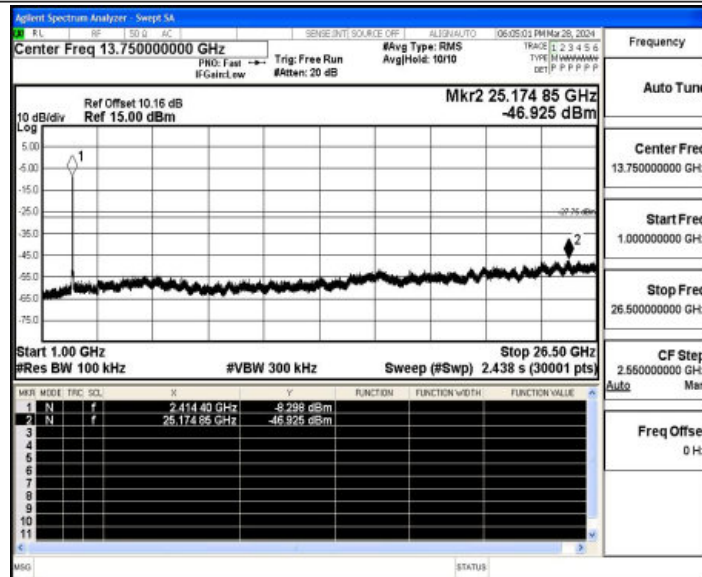


11N40SISO\_Ant1\_2422\_30~1000





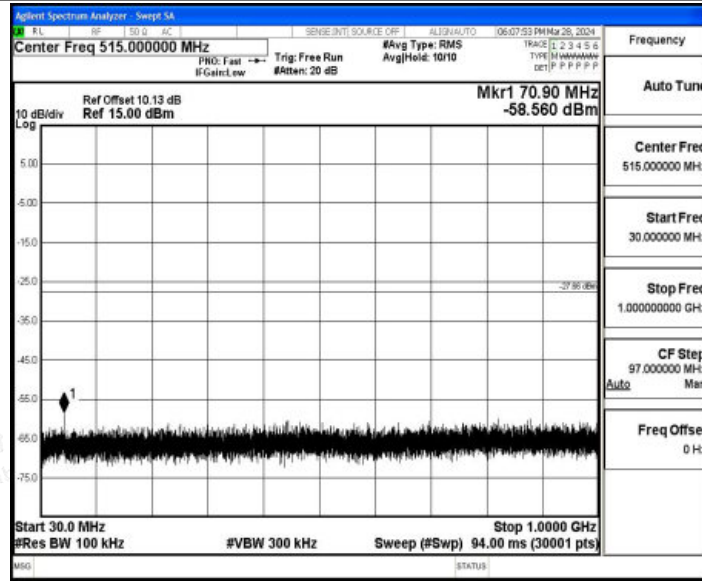
11N40SISO\_Ant1\_2422\_1000~26500



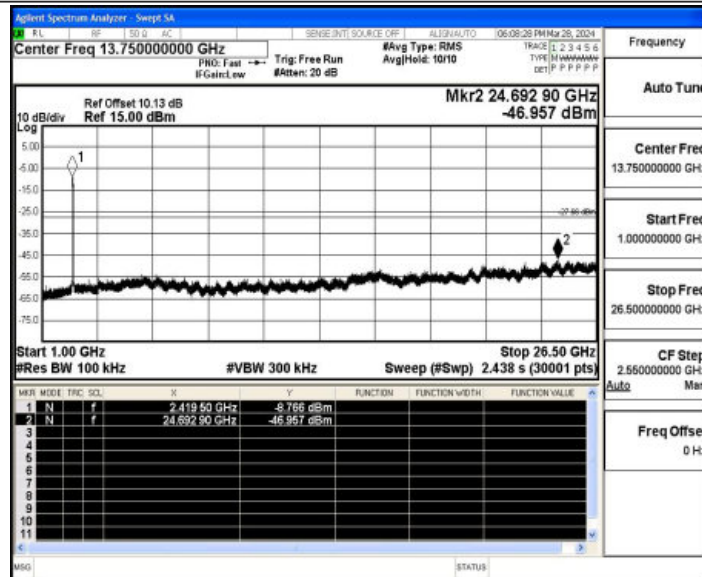
11N40SISO\_Ant1\_2437\_30~1000





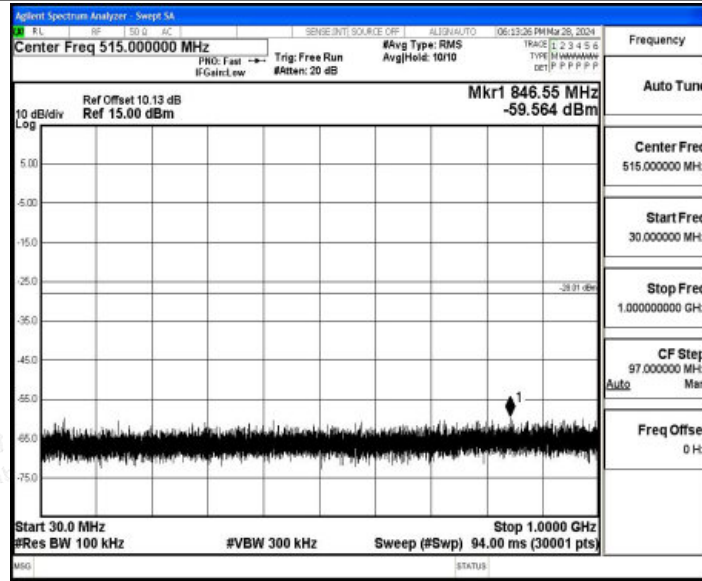


11N40SISO\_Ant1\_2437\_1000~26500

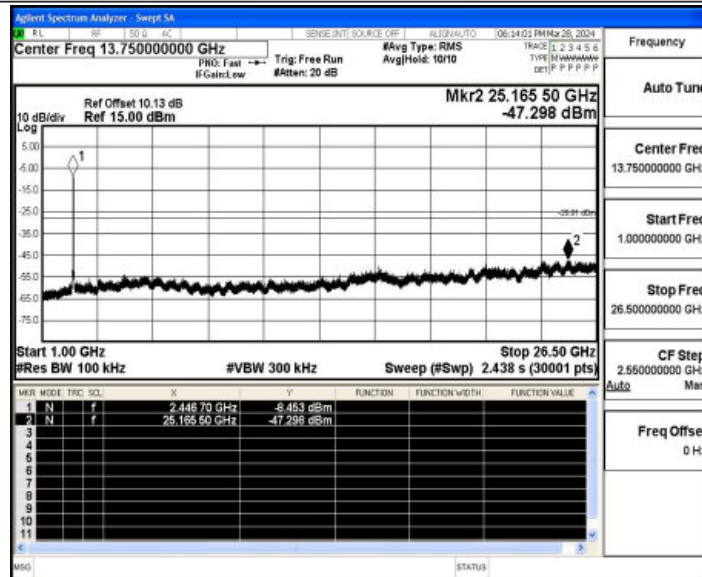


11N40SISO\_Ant1\_2452\_30~1000





11N40SISO\_Ant1\_2452\_1000~26500





## Reference level measurement

### Test Result

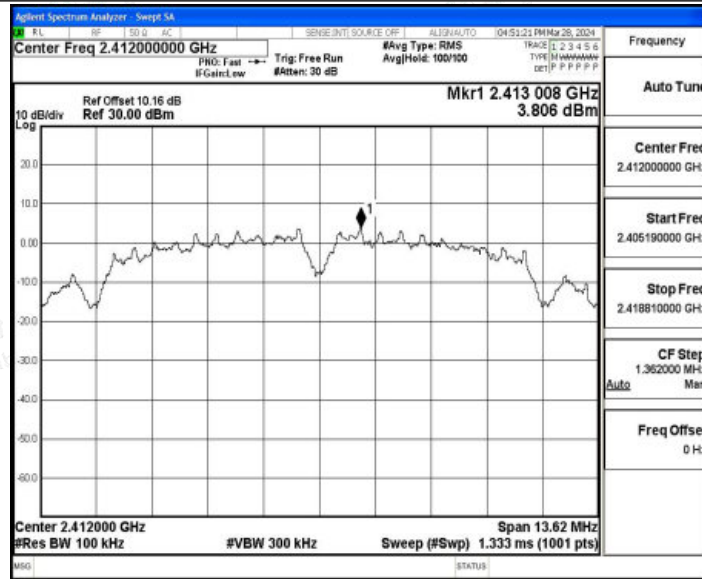
TestMode	Antenna	Freq(MHz)	Max.Point[MHz]	Result[dBm]
11B	Ant1	2412	2413.01	3.81
		2437	2436.49	3.71
		2462	2462.99	3.16
11G	Ant1	2412	2410.72	-3.47
		2437	2435.72	-3.24
		2462	2466.98	-2.85
11N20SISO	Ant1	2412	2413.24	-3.35
		2437	2429.50	-5.03
		2462	2455.74	-4.10
11N40SISO	Ant1	2422	2419.46	-7.75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



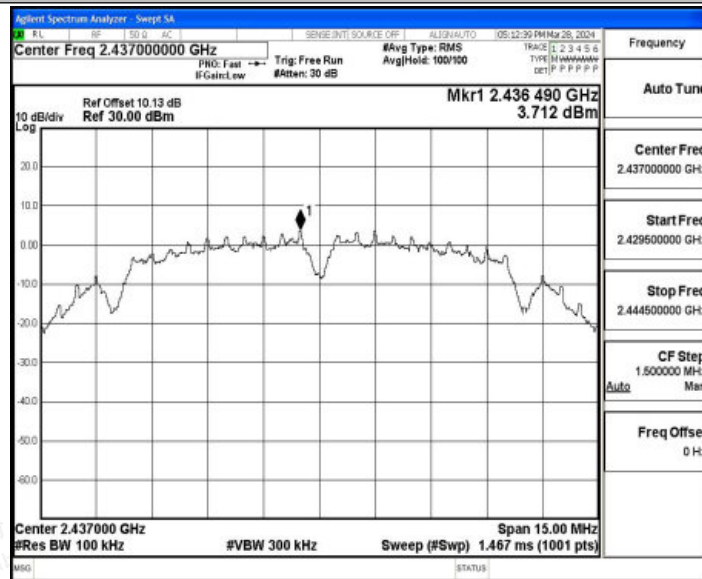


Test Graphs

11B\_Ant1\_2412

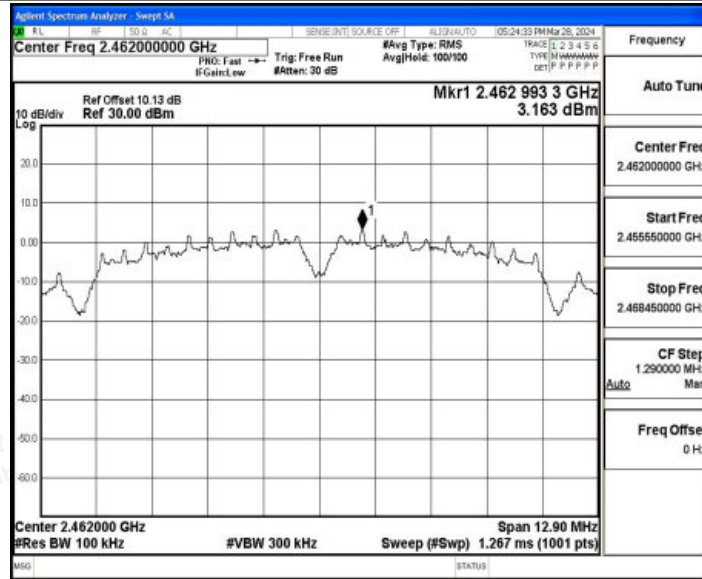


11B\_Ant1\_2437

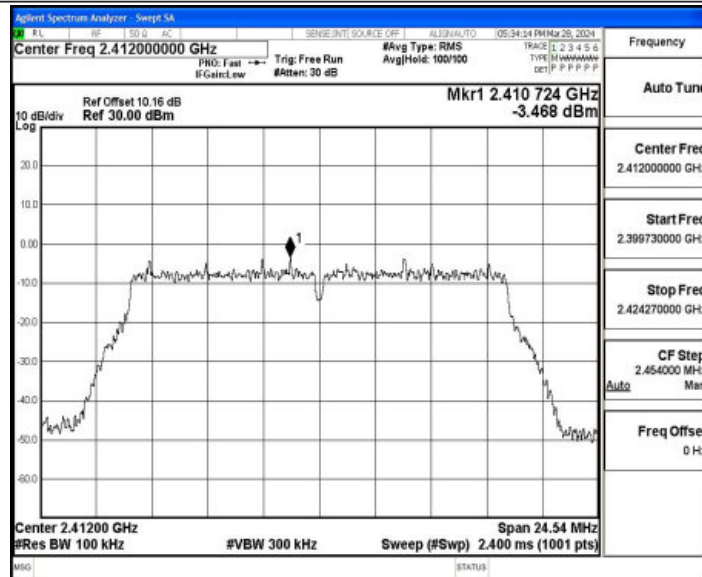


11B\_Ant1\_2462



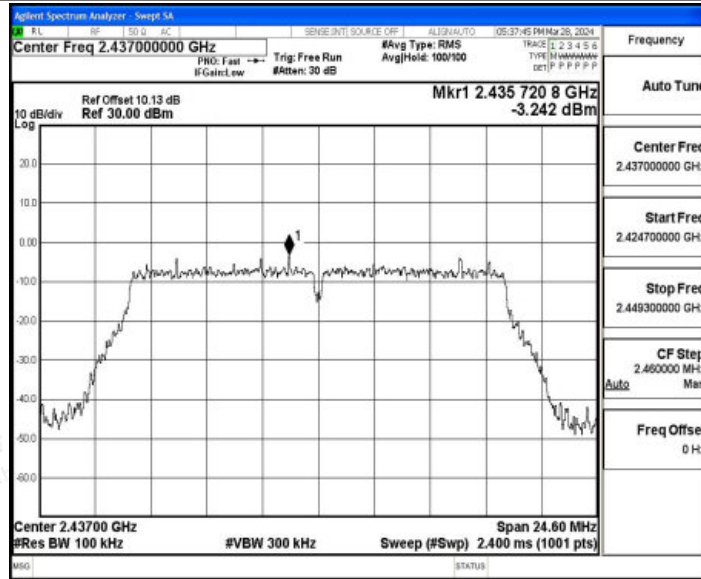


11G\_Ant1\_2412

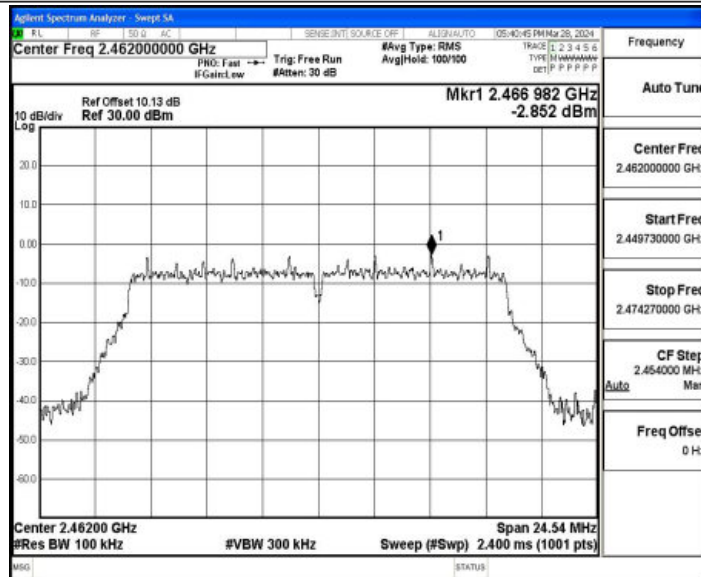


11G\_Ant1\_2437



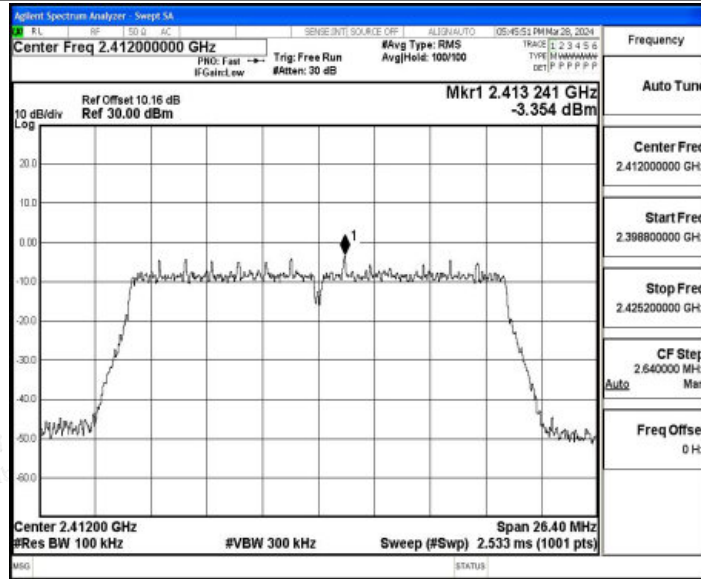


11G\_Ant1\_2462

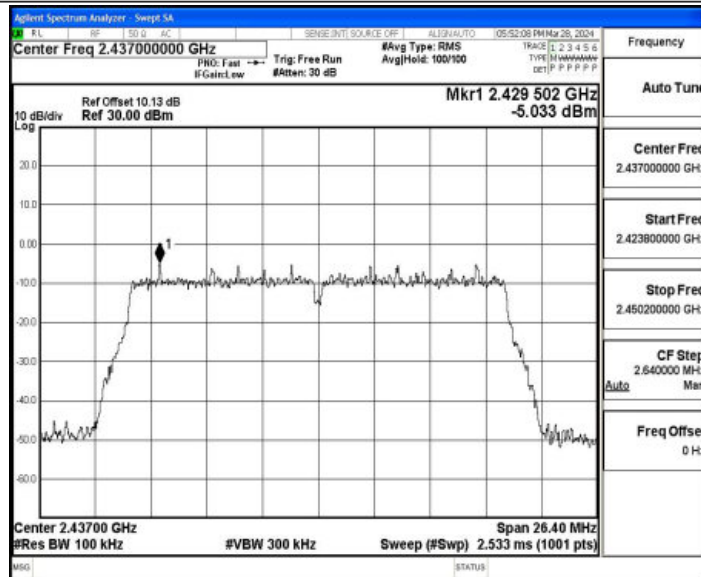


11N20SISO\_Ant1\_2412



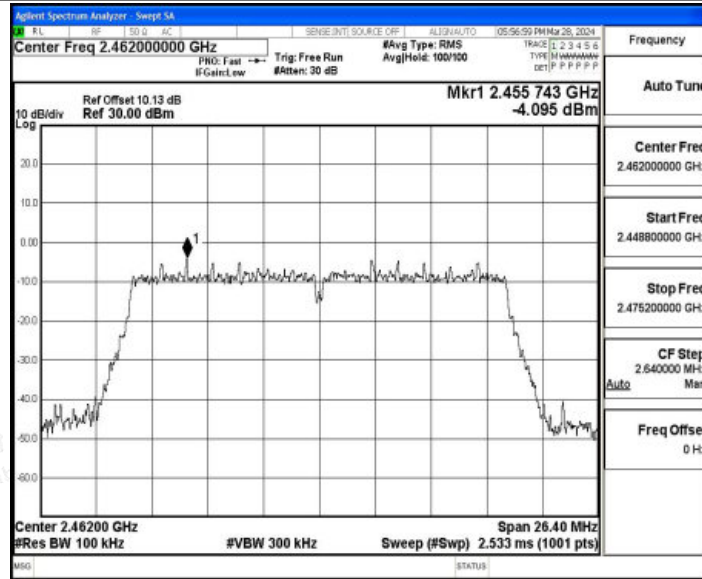


11N20SISO\_Ant1\_2437

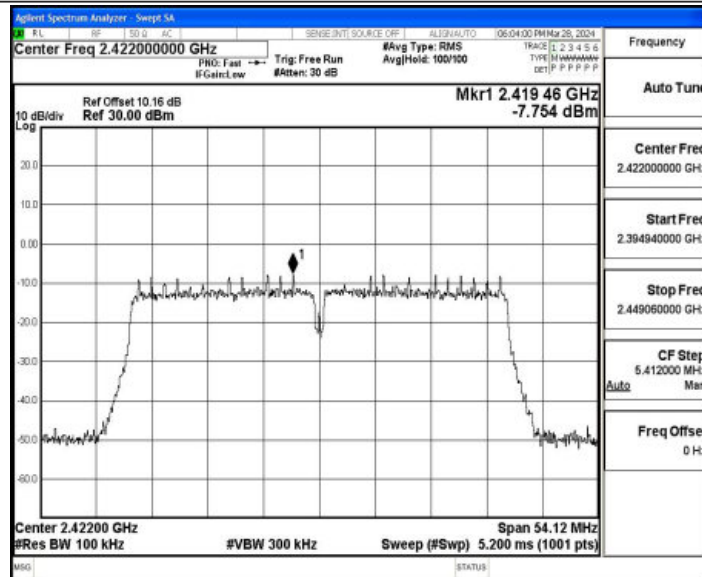


11N20SISO\_Ant1\_2462





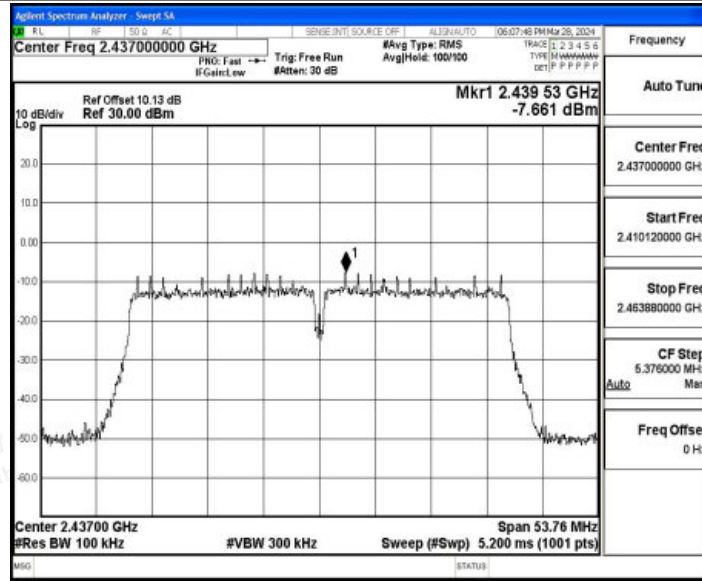
11N40SISO\_Ant1\_2422



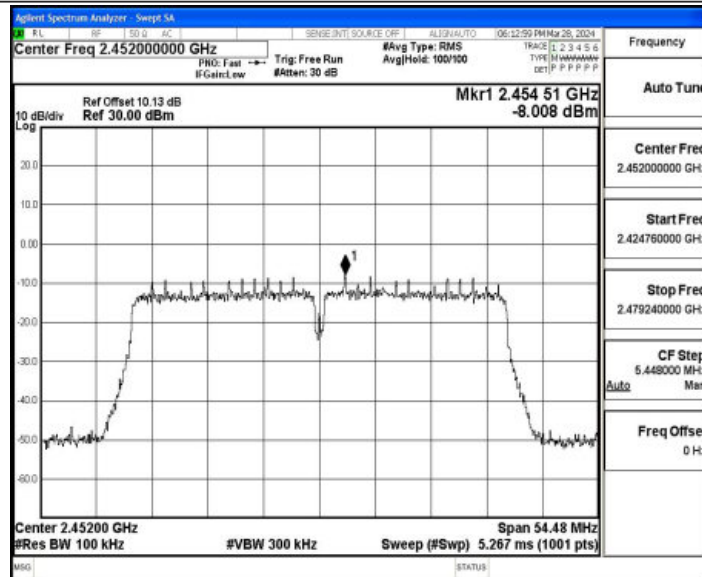
11N40SISO\_Ant1\_2437







11N40SISO\_Ant1\_2452





## A.6 Duty Cycle

### Test Result

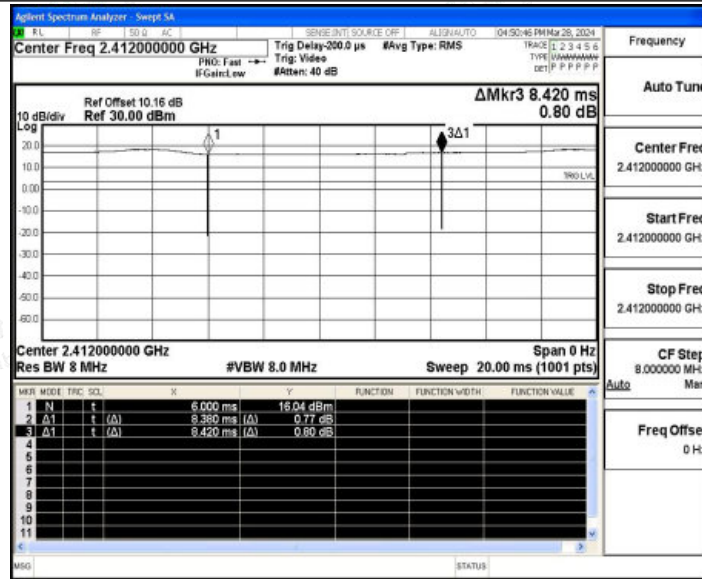
TestMode	Antenna	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor	Verdict
11B	Ant1	2412	8.38	8.42	99.52	0.02	---
		2437	4.20	4.23	99.29	0.03	---
		2462	6.59	6.62	99.55	0.02	---
11G	Ant1	2412	1.09	1.13	96.46	0.16	---
		2437	1.09	1.13	96.46	0.16	---
		2462	1.09	1.12	97.32	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	---



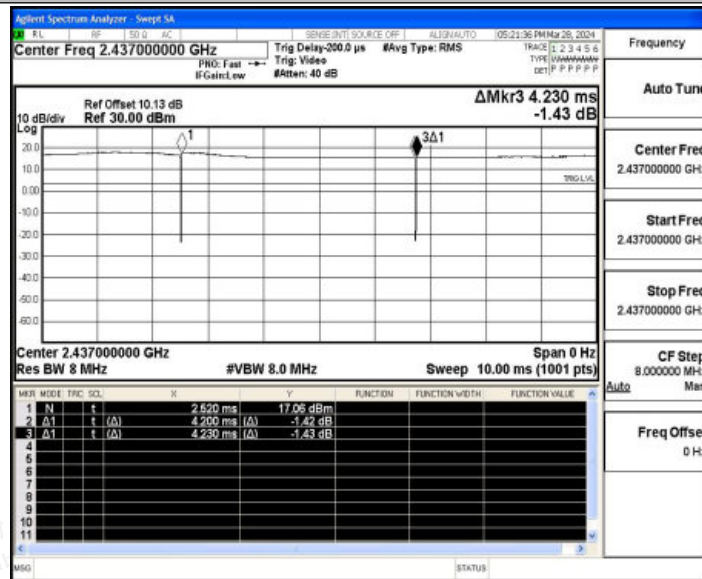


Test Graphs

11B\_Ant1\_2412

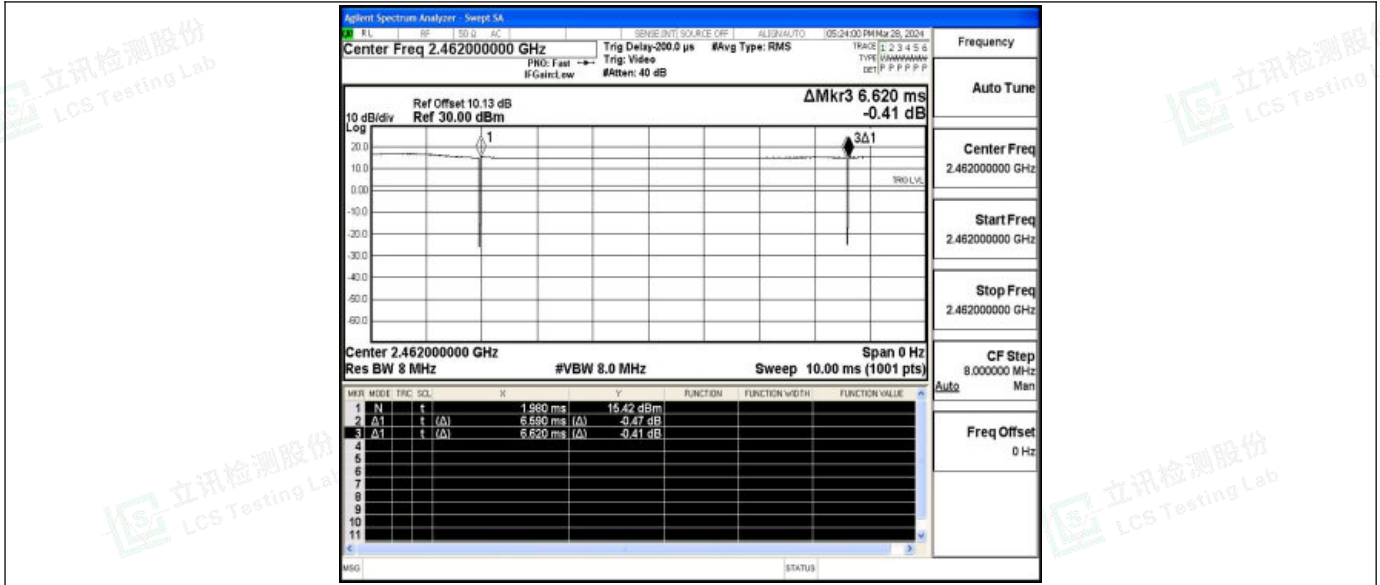


11B\_Ant1\_2437

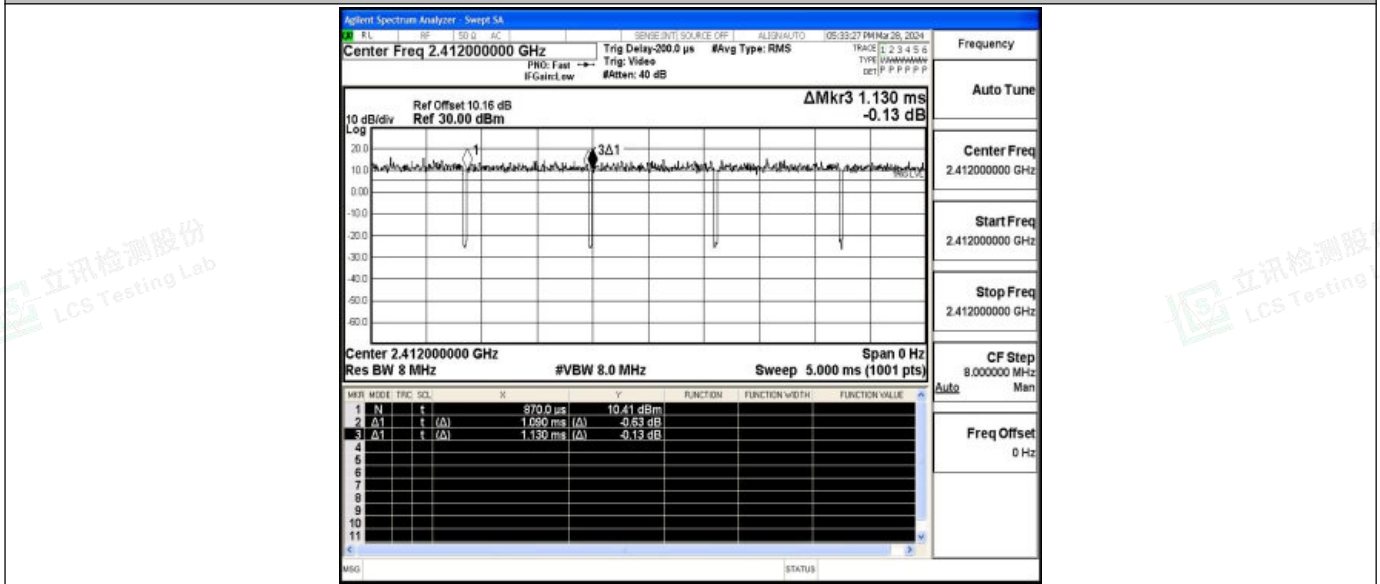


11B\_Ant1\_2462



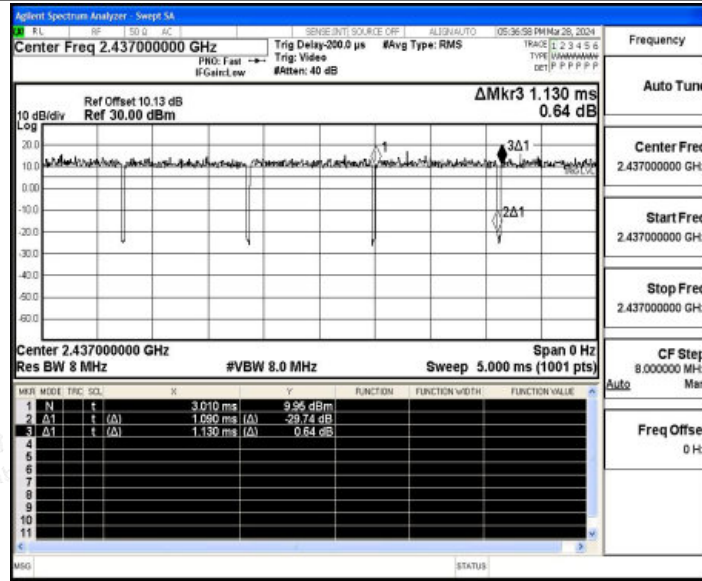


11G\_Ant1\_2412

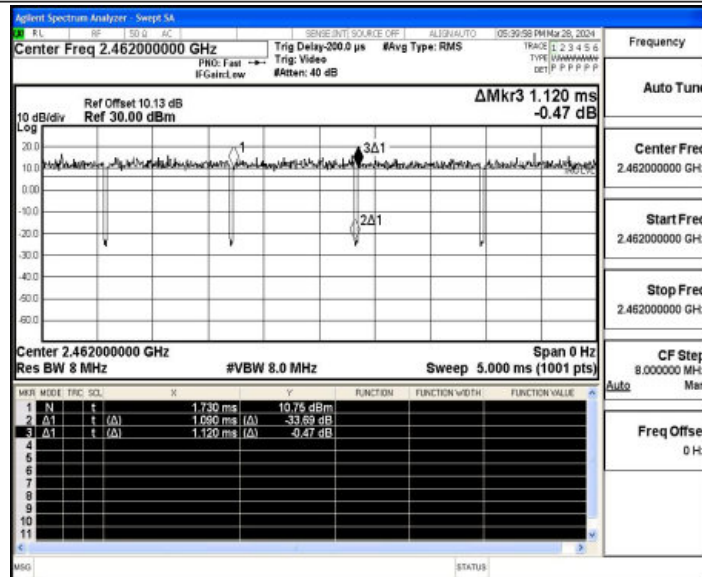


11G\_Ant1\_2437



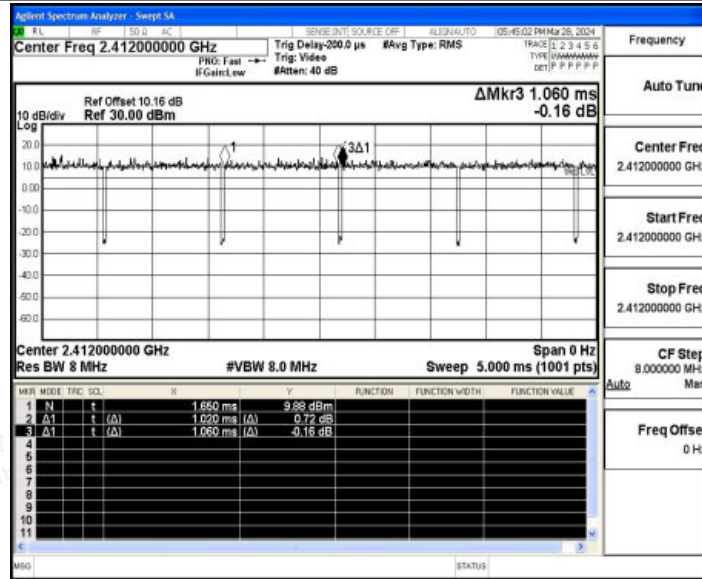


11G\_Ant1\_2462

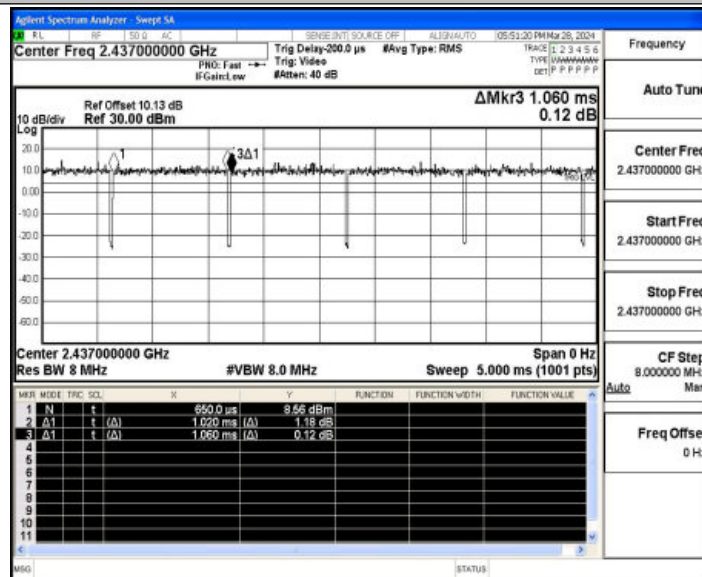


11N20SISO\_Ant1\_2412



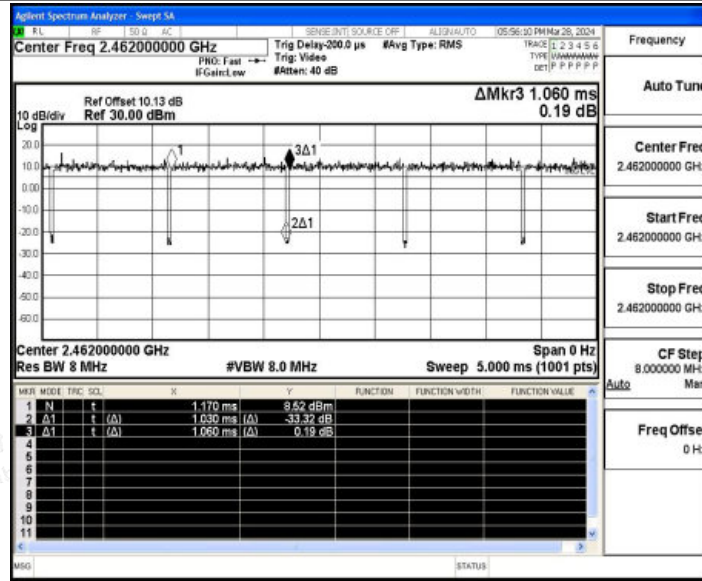


11N20SISO\_Ant1\_2437

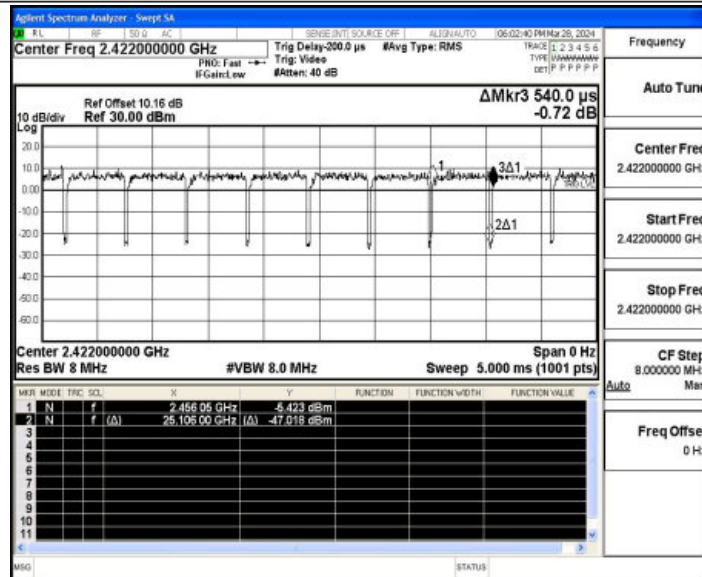


11N20SISO\_Ant1\_2462



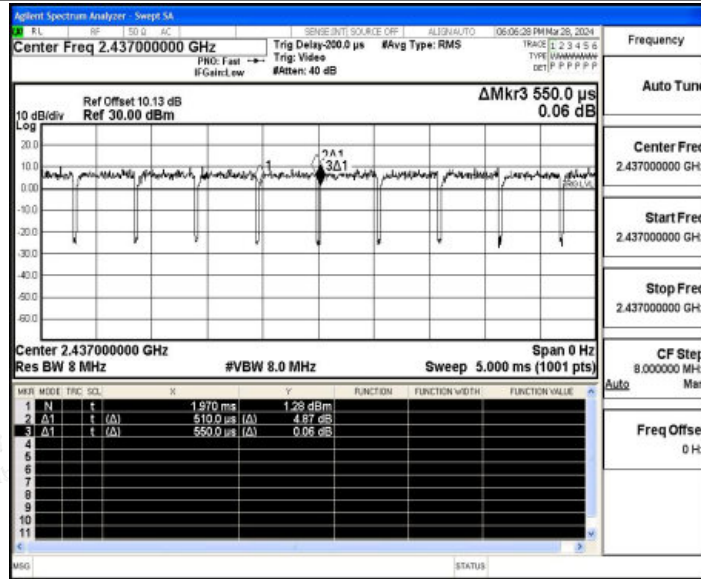


11N40SISO\_Ant1\_2422

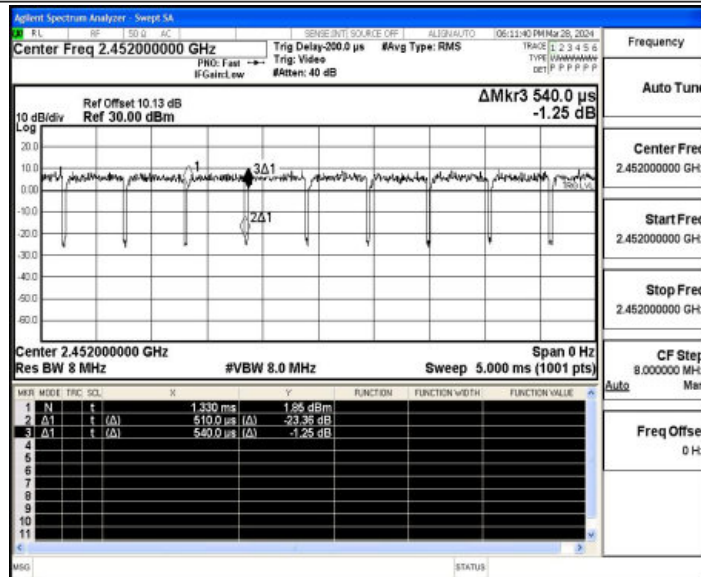


11N40SISO\_Ant1\_2437





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:

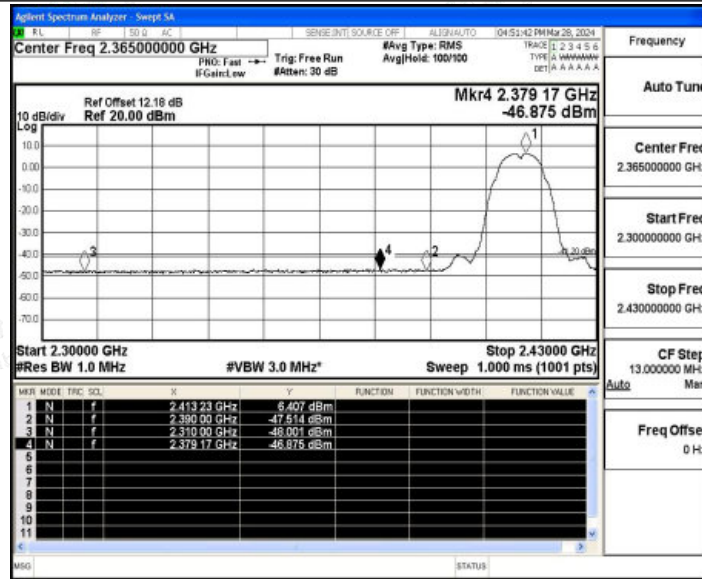
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



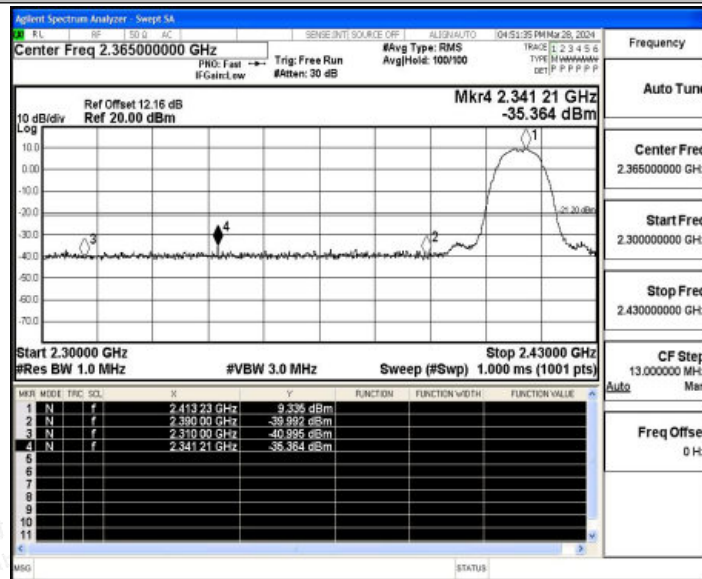


Test Graphs

11B\_Ant1\_Low\_2412\_AV

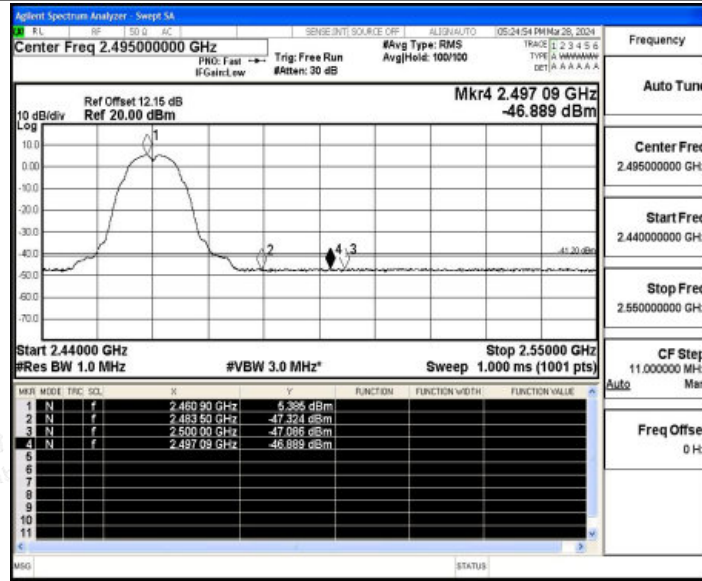


11B\_Ant1\_Low\_2412\_Peak

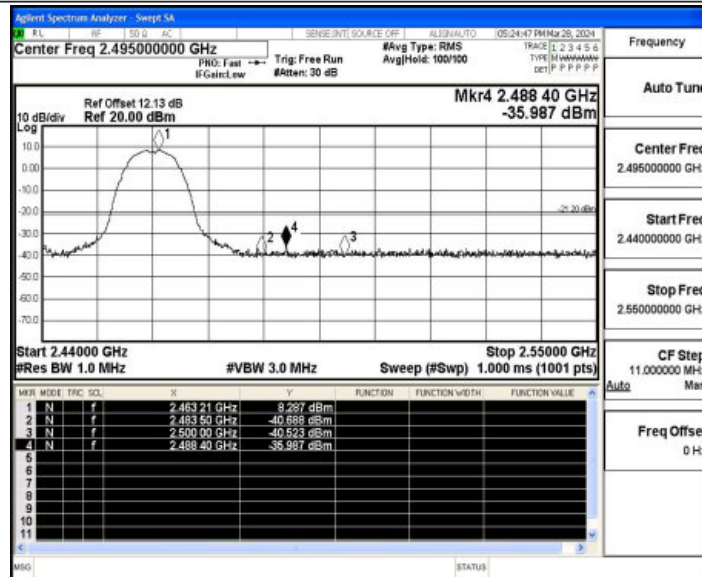


11B\_Ant1\_High\_2462\_AV



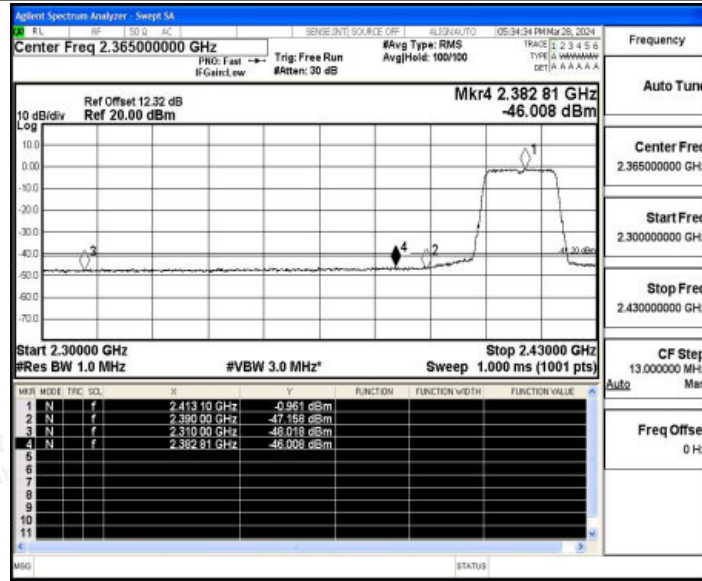


11B\_Ant1\_High\_2462\_Peak

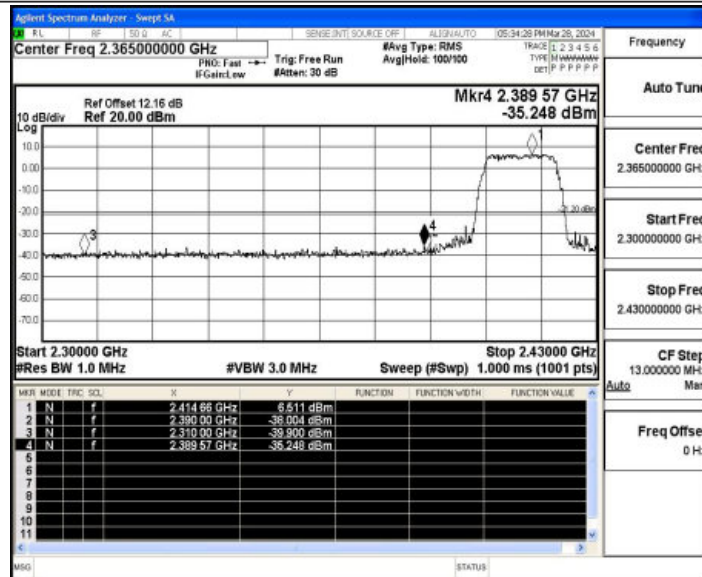


11G\_Ant1\_Low\_2412\_AV



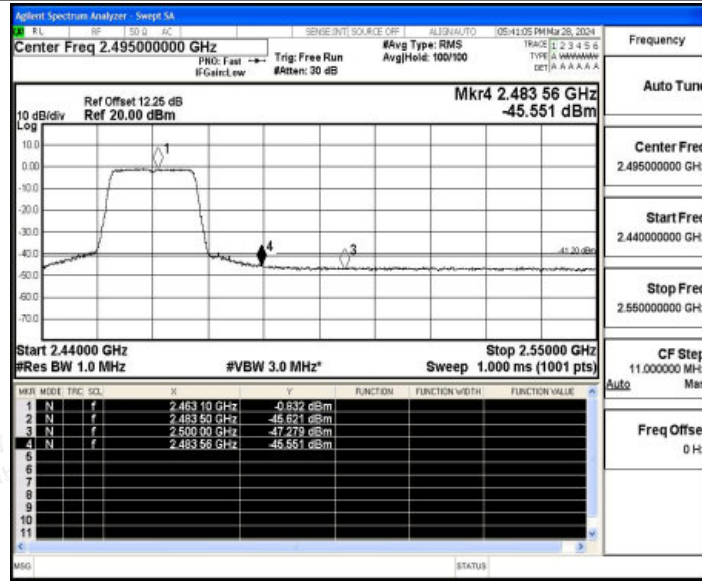


11G\_Ant1\_Low\_2412\_Peak

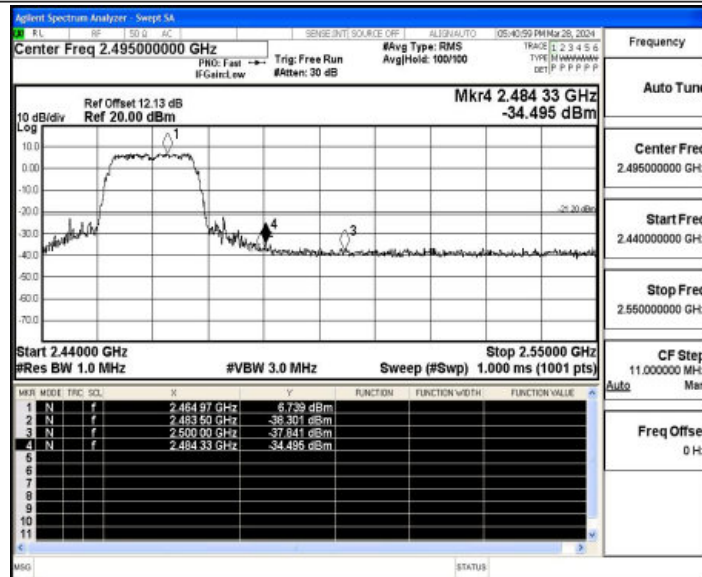


11G\_Ant1\_High\_2462\_AV



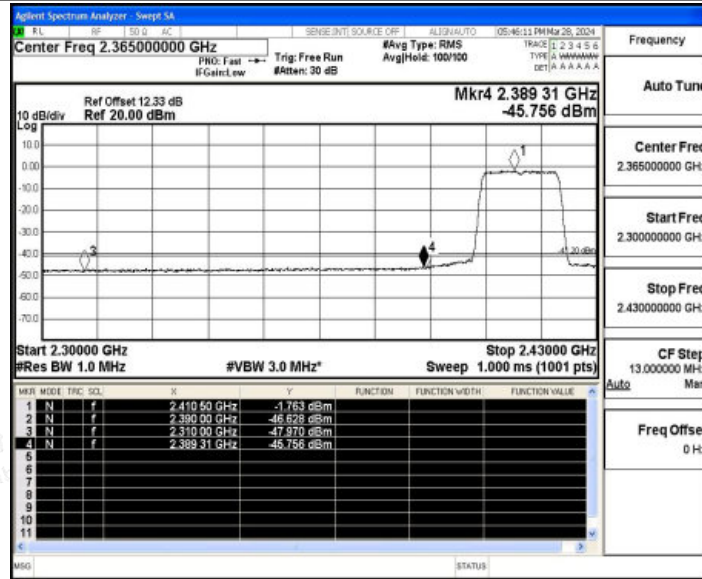


11G\_Ant1\_High\_2462\_Peak

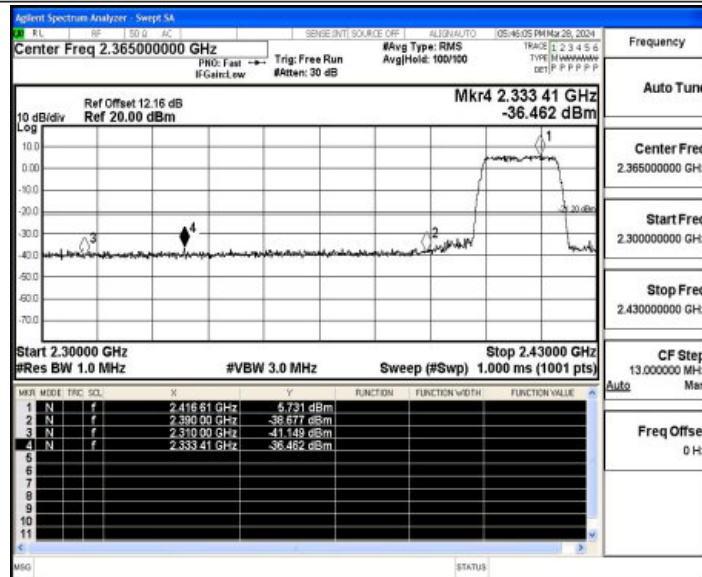


11N20SISO\_Ant1\_Low\_2412\_AV



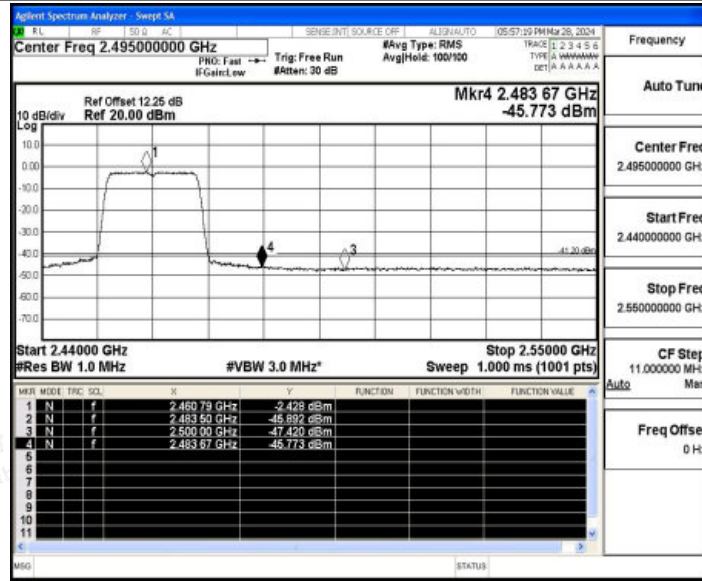


11N20SISO\_Ant1\_Low\_2412\_Peak

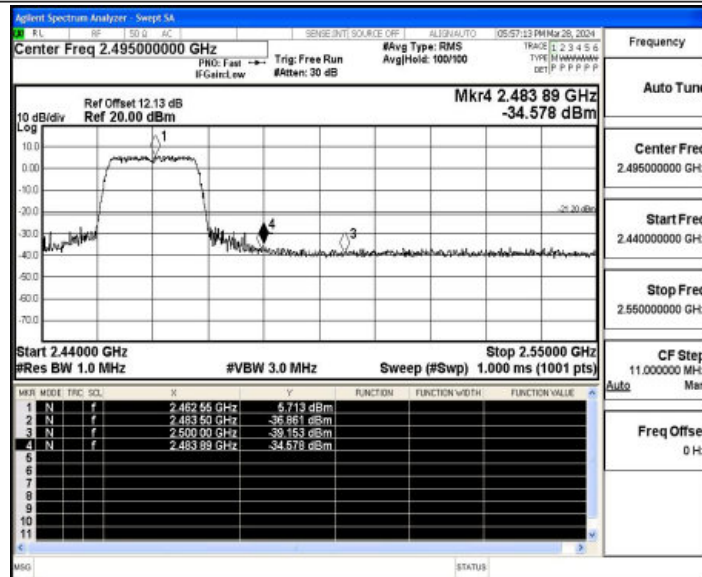


11N20SISO\_Ant1\_High\_2462\_AV





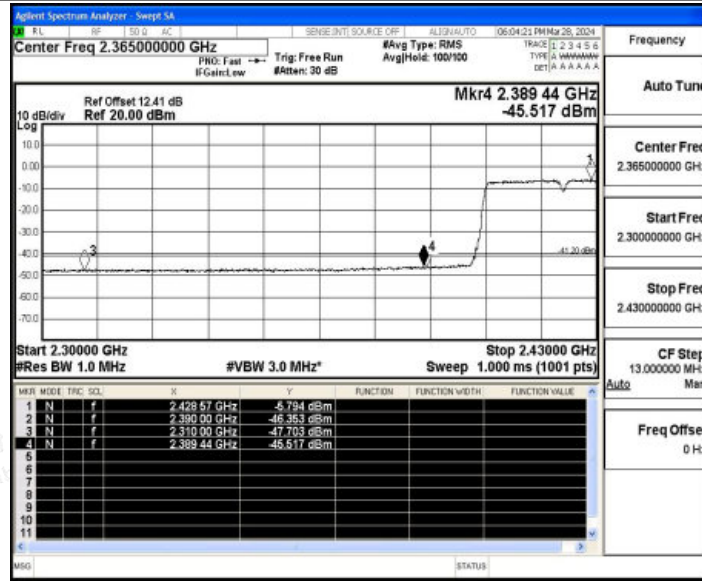
11N20SISO\_Ant1\_High\_2462\_Peak



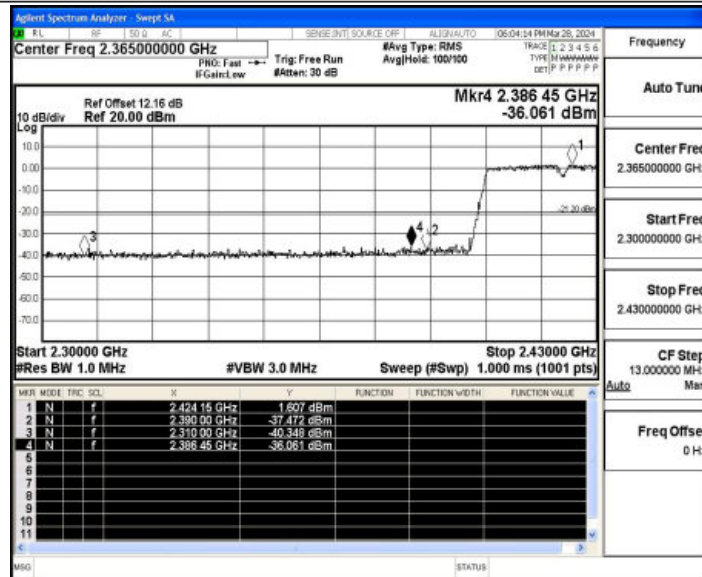
11N40SISO\_Ant1\_Low\_2422\_AV





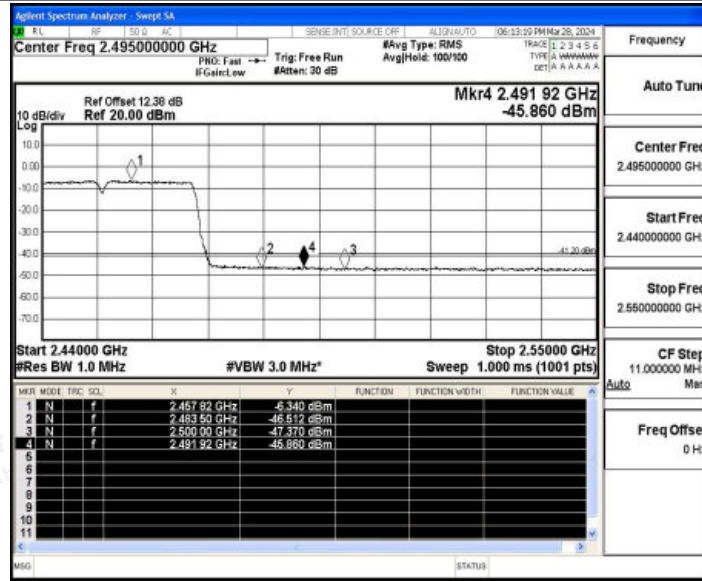


11N40SISO\_Ant1\_Low\_2422\_Peak



11N40SISO\_Ant1\_High\_2452\_AV





11N40SISO\_Ant1\_High\_2452\_Peak

