

Appendix B

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: all-in-one

Test Model: ZF320

Environmental Conditions

Temperature:	24.9°C
Relative Humidity:	53.8%
ATM Pressure:	100.0 kPa
Test Engineer:	Suichao Lai
Supervised by:	Yan Chen

B.1 DTS Bandwidth

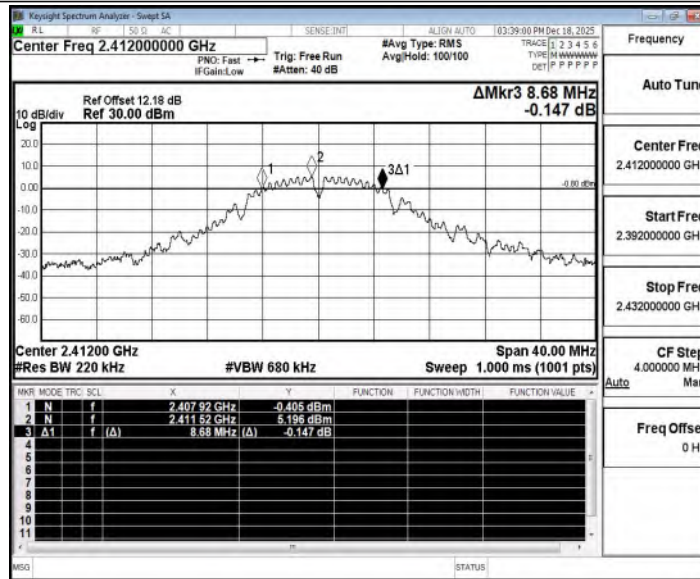
Test Result

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	8.680	2407.920	2416.600	0.5	PASS
		2437	8.680	2432.400	2441.080	0.5	PASS
		2462	9.120	2457.480	2466.600	0.5	PASS
11G	Ant1	2412	16.040	2404.120	2420.160	0.5	PASS
		2437	16.080	2428.880	2444.960	0.5	PASS
		2462	16.160	2454.000	2470.160	0.5	PASS
11N20SISO	Ant1	2412	16.200	2404.400	2420.600	0.5	PASS
		2437	17.080	2428.280	2445.360	0.5	PASS
		2462	16.920	2453.680	2470.600	0.5	PASS
11N40SISO	Ant1	2422	34.720	2404.320	2439.040	0.5	PASS
		2437	34.400	2419.000	2453.400	0.5	PASS
		2452	36.240	2433.920	2470.160	0.5	PASS

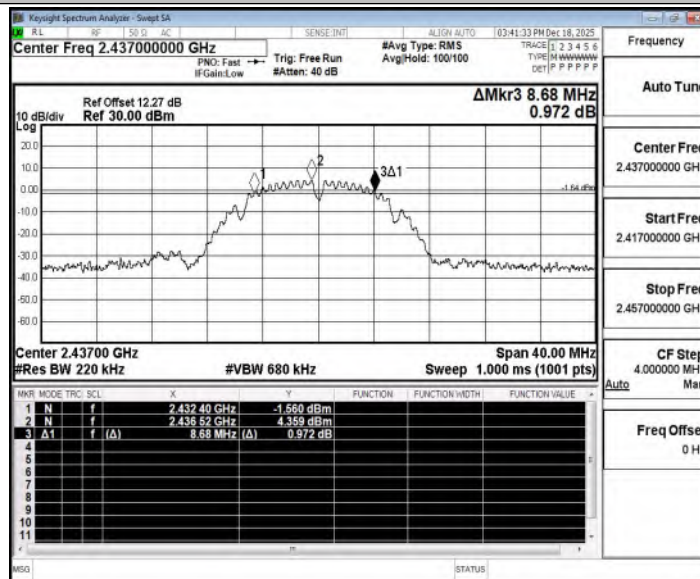
Note :offset=System attenuation +cabal loss

Test Graphs

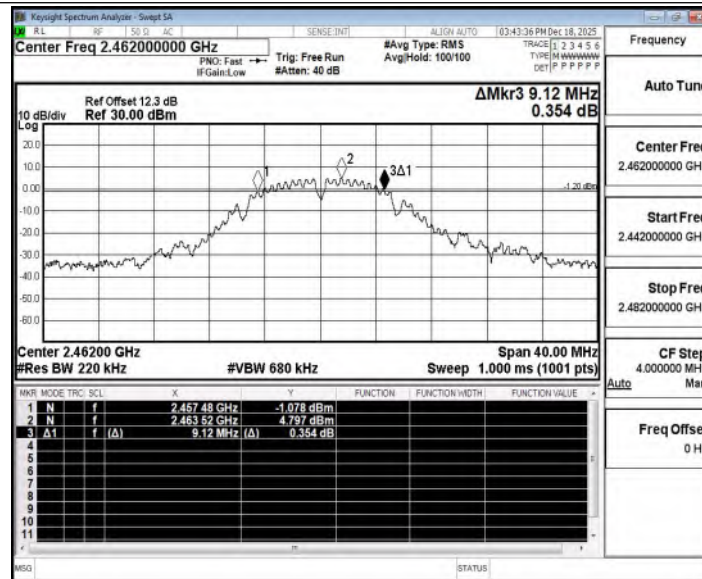
11B_Ant1_2412



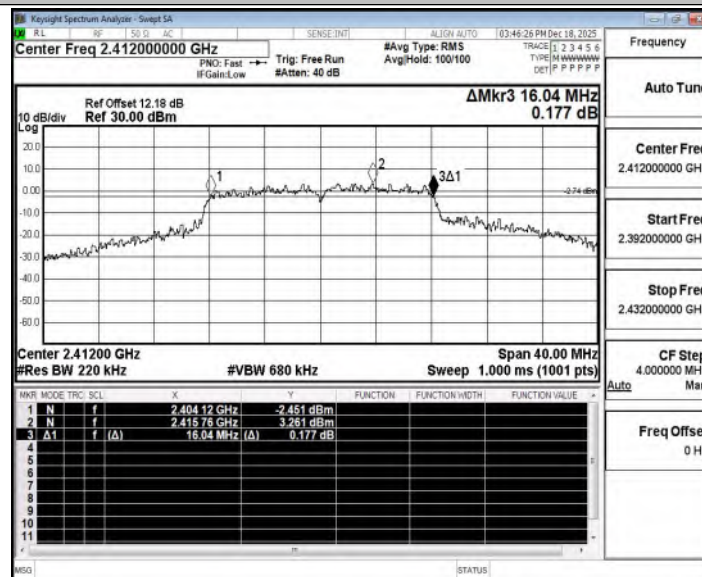
11B_Ant1_2437



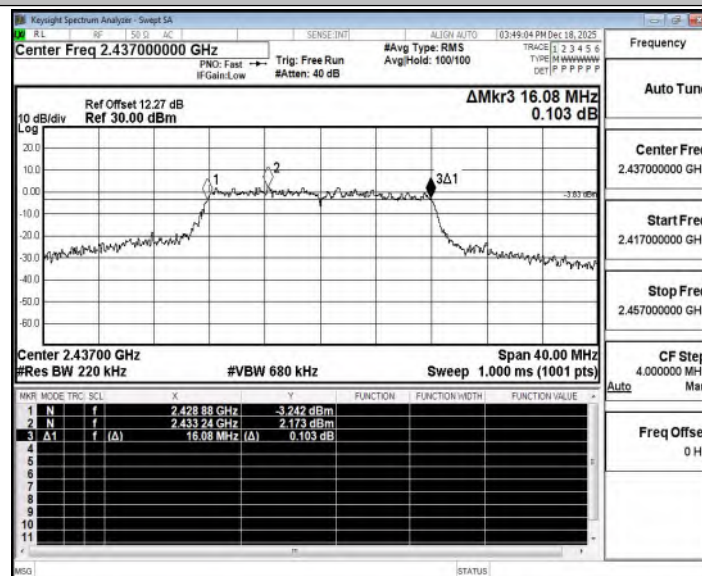
11B_Ant1_2462



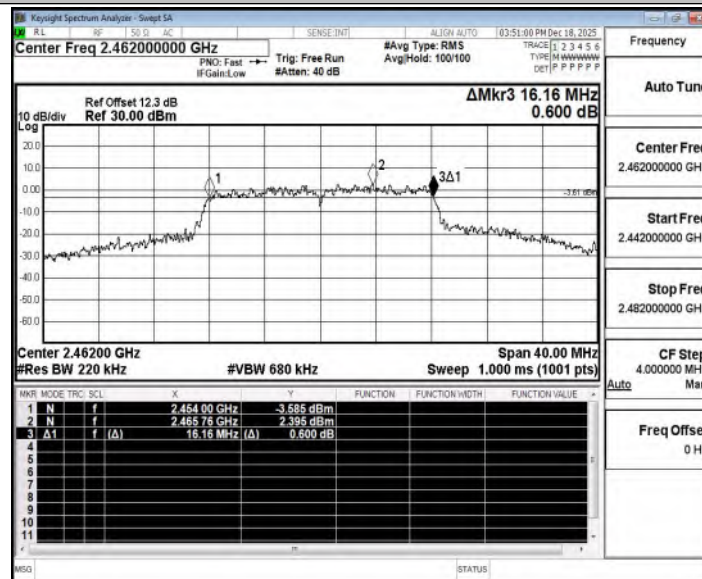
11G_Ant1_2412



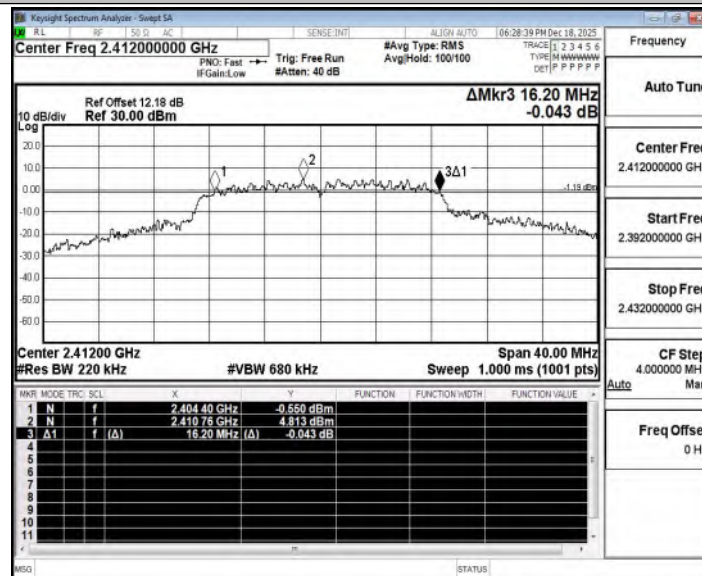
11G_Ant1_2437



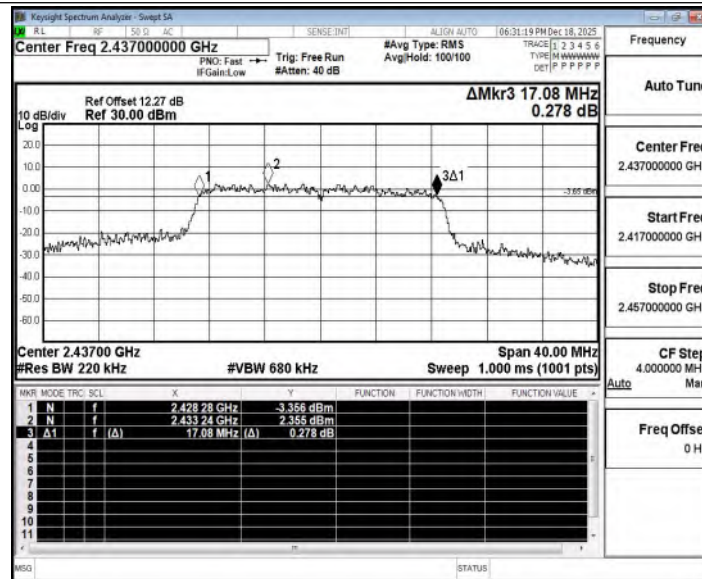
11G_Ant1_2462



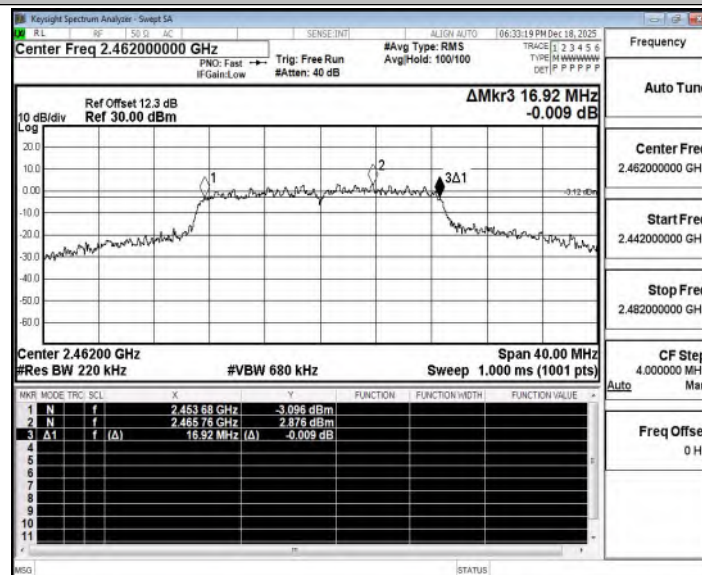
11N20SISO_Ant1_2412



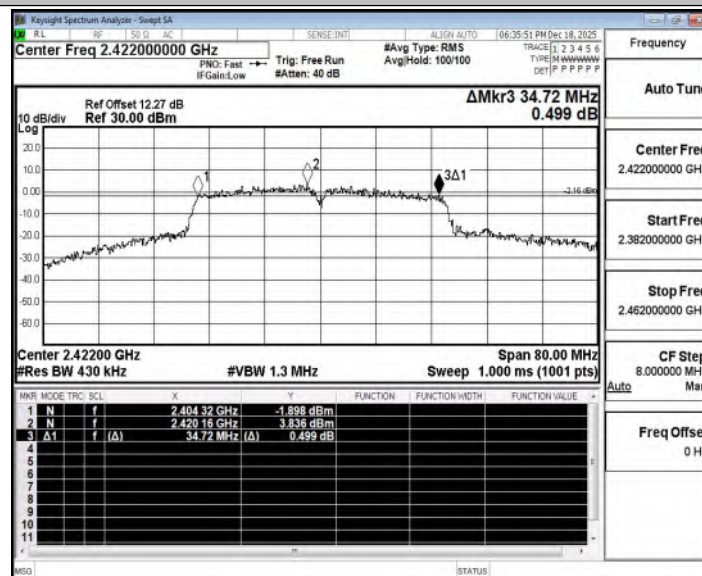
11N20SISO_Ant1_2437



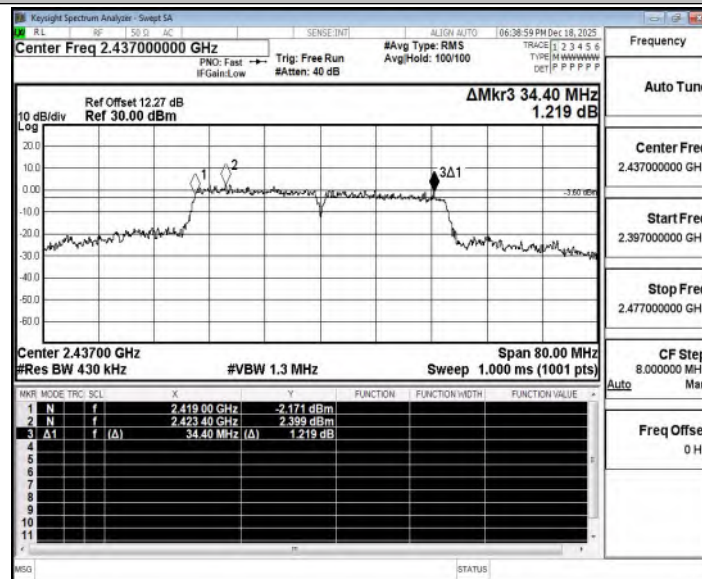
11N20SISO_Ant1_2462



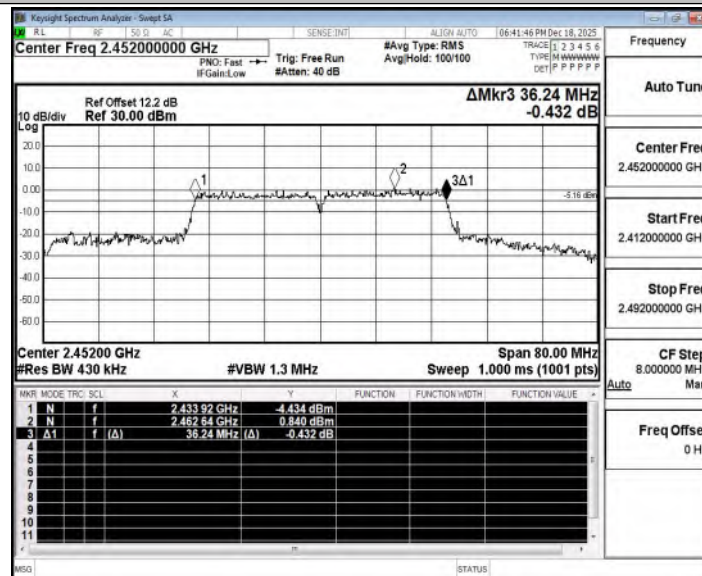
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



B.2 Maximum Average conducted output power

Test Mode	Antenna	Frequency[MHz]	Set Power	Average power [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	NA	13.08	≤30.00	PASS
		2437	NA	12.24	≤30.00	PASS
		2462	NA	12.81	≤30.00	PASS
11G	Ant1	2412	NA	10.74	≤30.00	PASS
		2437	NA	9.87	≤30.00	PASS
		2462	NA	9.82	≤30.00	PASS
11N20SISO	Ant1	2412	NA	12.17	≤30.00	PASS
		2437	NA	10.34	≤30.00	PASS
		2462	NA	10.21	≤30.00	PASS
11N40SISO	Ant1	2422	NA	9.99	≤30.00	PASS
		2437	NA	8.97	≤30.00	PASS
		2452	NA	8.16	≤30.00	PASS

Note :offset=System attenuation +cabal loss

B.3 Maximum Power Spectral Density Level

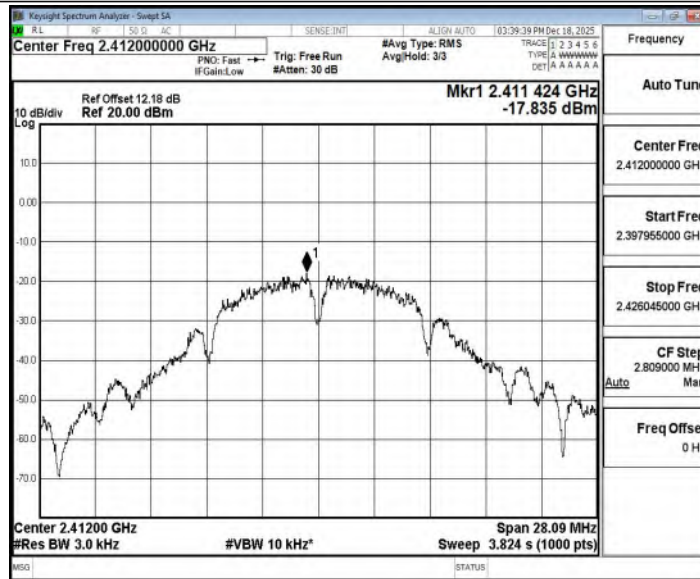
Test Result

TestMode	Antenna	Frequency[MHz]	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-17.56	≤8.00	PASS
		2437	-18.43	≤8.00	PASS
		2462	-18.41	≤8.00	PASS
11G	Ant1	2412	-18.97	≤8.00	PASS
		2437	-19.03	≤8.00	PASS
		2462	-20.14	≤8.00	PASS
11N20SISO	Ant1	2412	-17.72	≤8.00	PASS
		2437	-19.34	≤8.00	PASS
		2462	-19.78	≤8.00	PASS
11N40SISO	Ant1	2422	-21.44	≤8.00	PASS
		2437	-22.80	≤8.00	PASS
		2452	-23.46	≤8.00	PASS

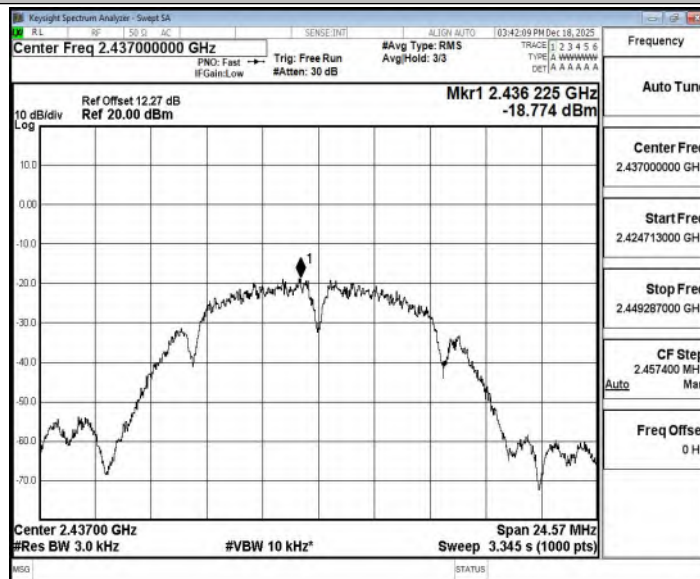
Note :offset=System attenuation +cabal loss

Test Graphs

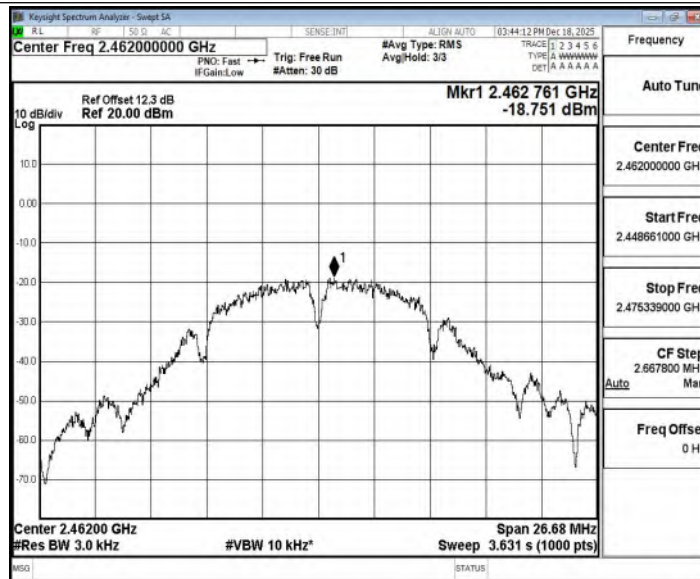
11B_Ant1_2412



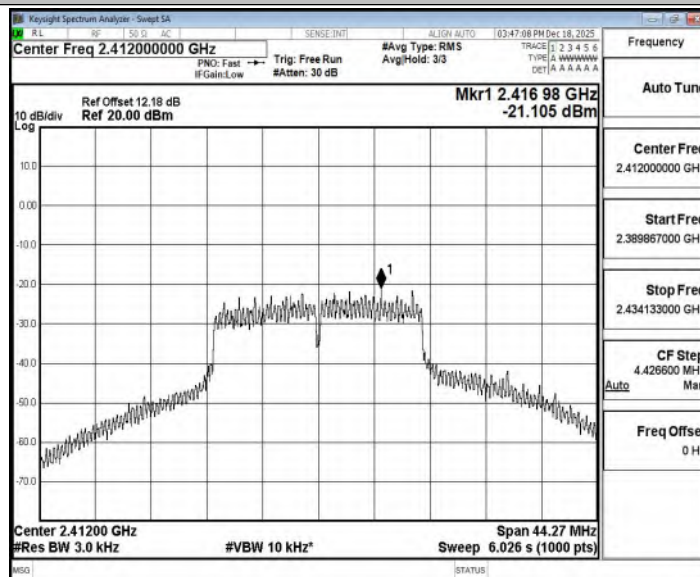
11B_Ant1_2437



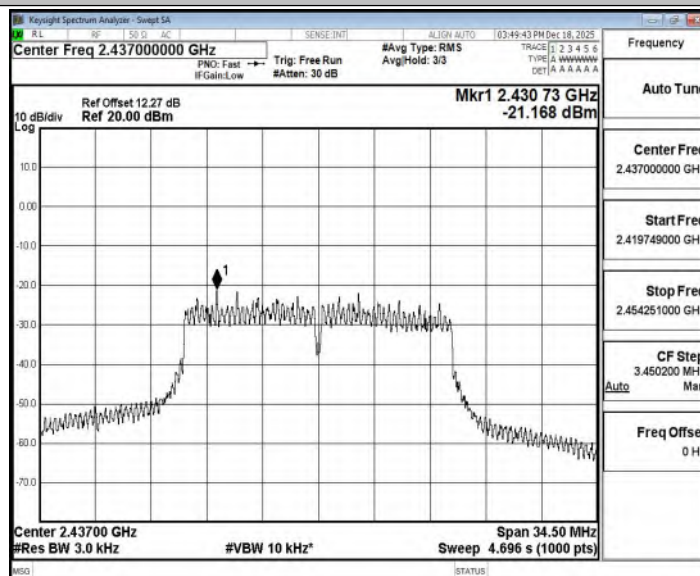
11B_Ant1_2462



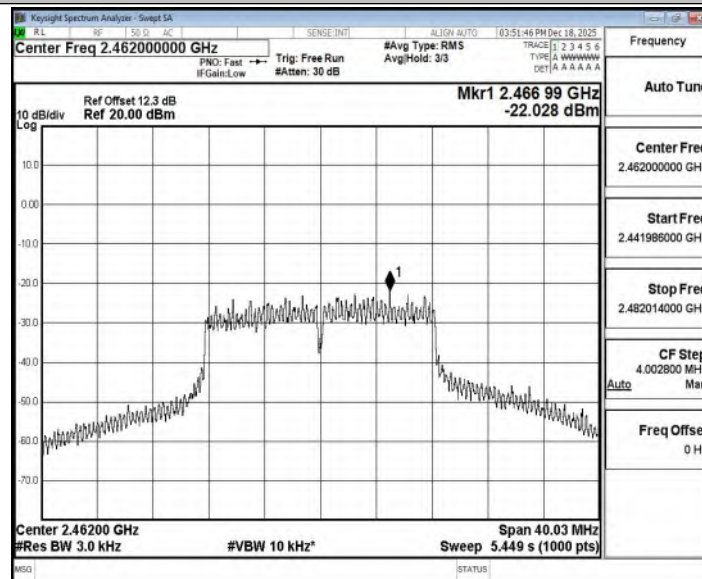
11G_Ant1_2412



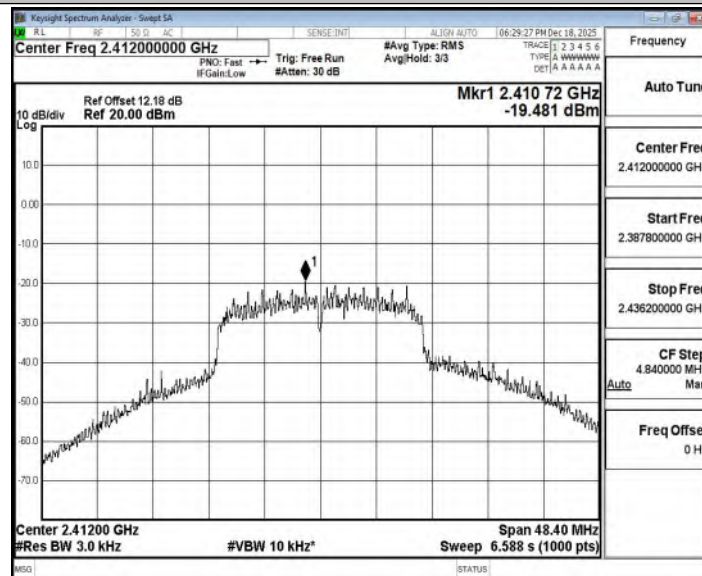
11G_Ant1_2437



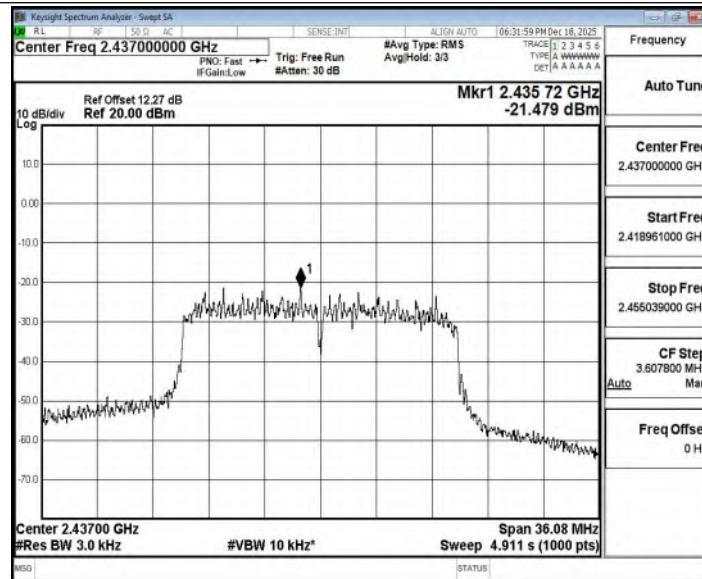
11G_Ant1_2462



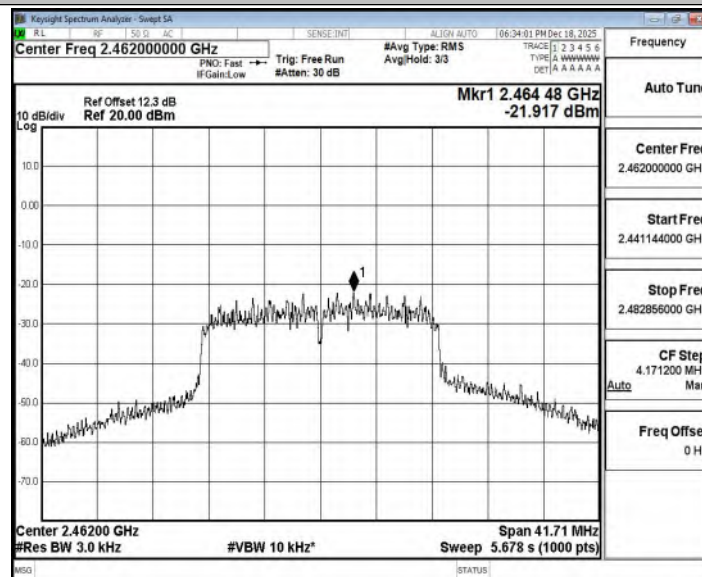
11N20SISO_Ant1_2412



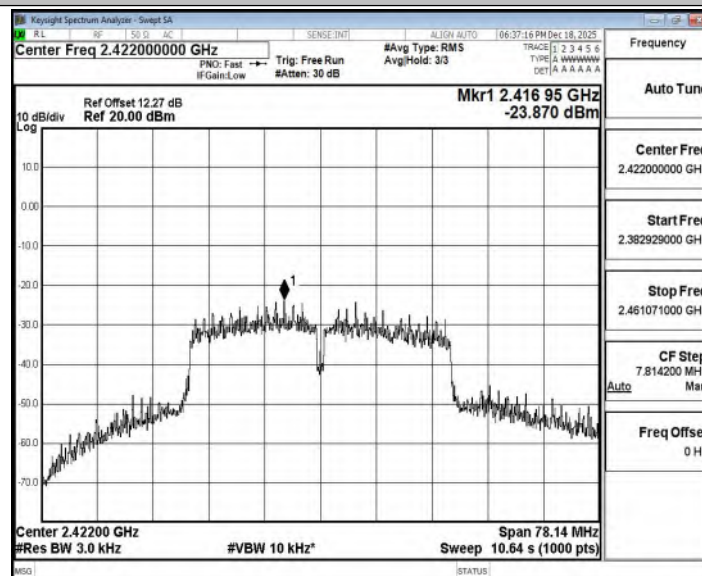
11N20SISO_Ant1_2437



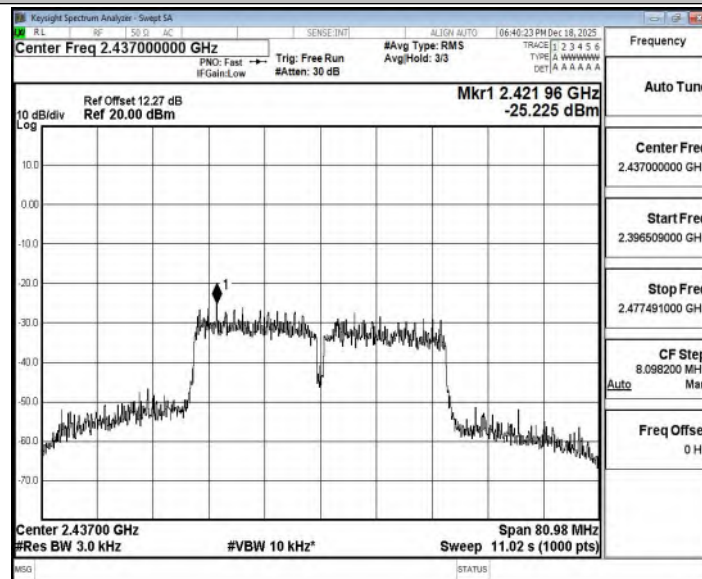
11N20SISO_Ant1_2462



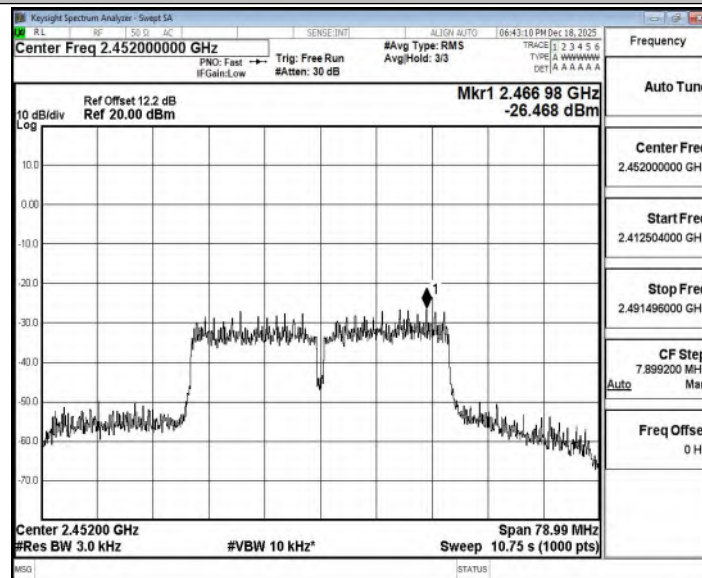
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



B.4 Band Edge

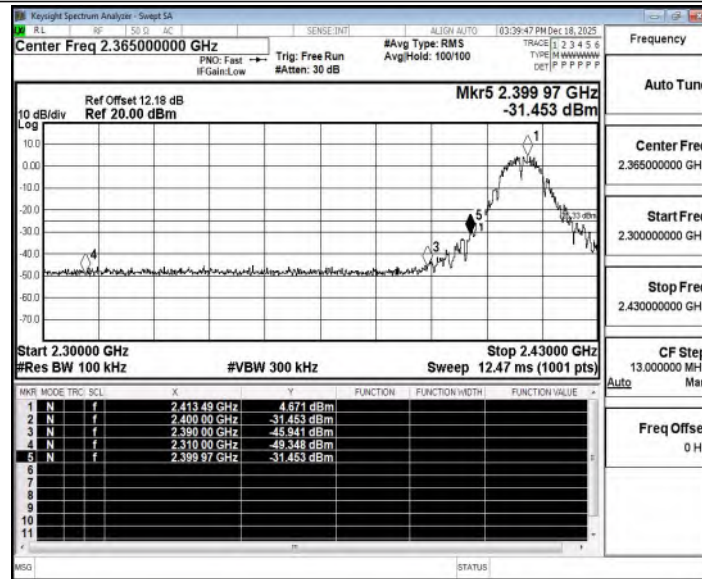
Test Result

TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	4.67	-31.45	≤-25.33	PASS
		High	2462	4.32	-41.96	≤-25.69	PASS
11G	Ant1	Low	2412	-4.06	-38.53	≤-34.06	PASS
		High	2462	1.55	-33.57	≤-28.45	PASS
11N20SISO	Ant1	Low	2412	-4.02	-36.35	≤-34.02	PASS
		High	2462	2.15	-31.1	≤-27.85	PASS
11N40SISO	Ant1	Low	2422	-5.59	-42.67	≤-35.59	PASS
		High	2452	-7.73	-45.16	≤-37.73	PASS

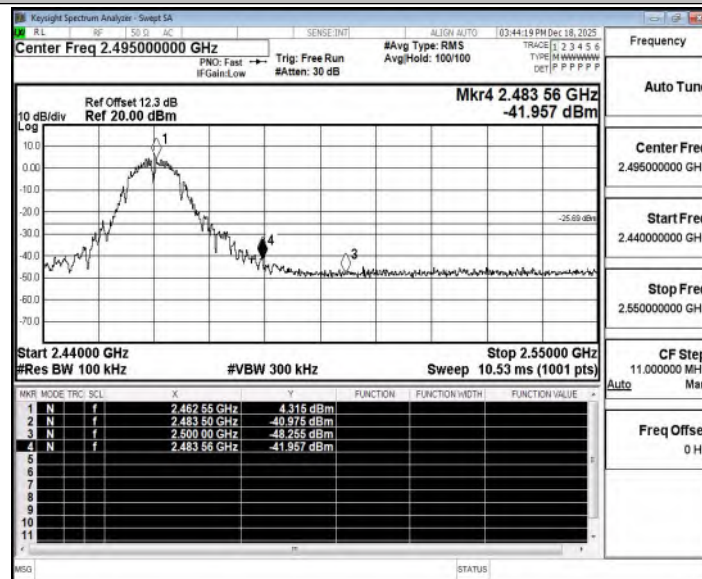
Note :offset=System attenuation +cabal loss

Test Graphs

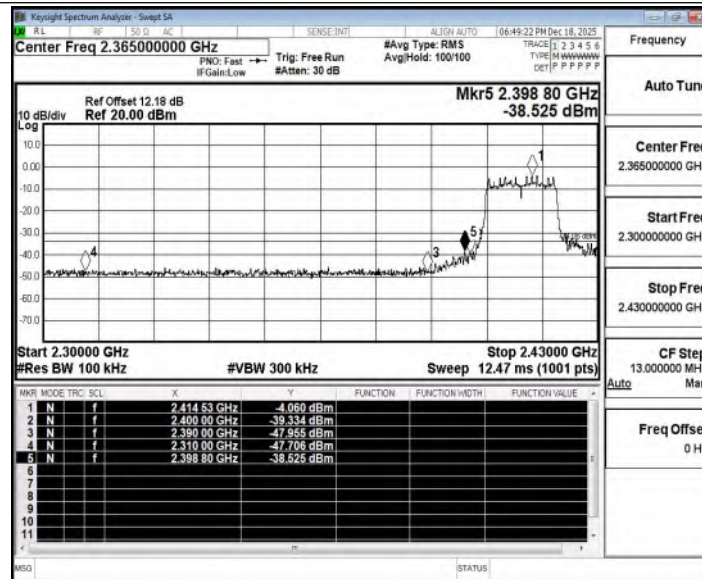
11B_Ant1_Low_2412



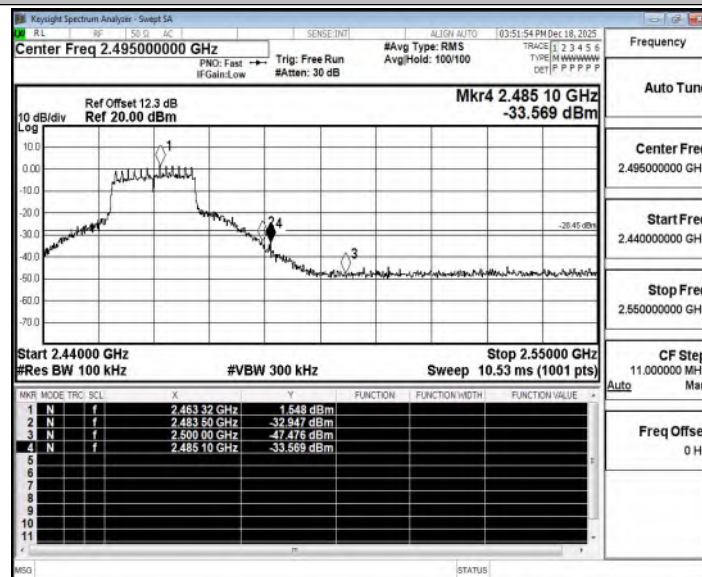
11B_Ant1_High_2462



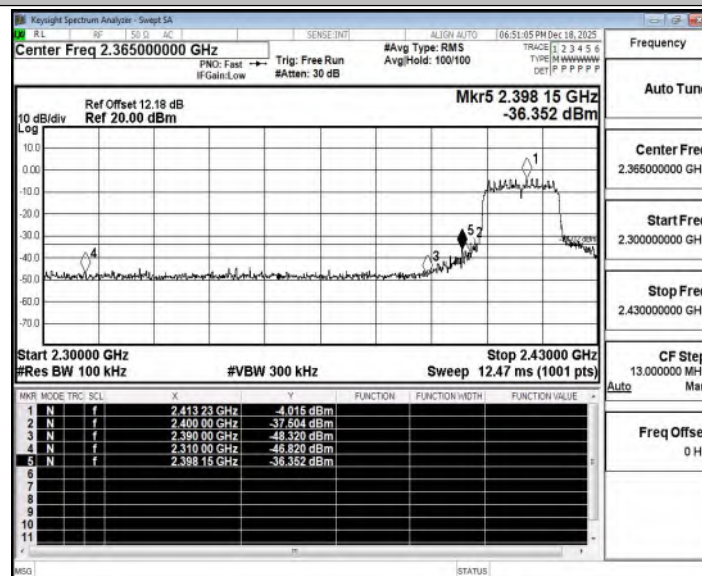
11G_Ant1_Low_2412



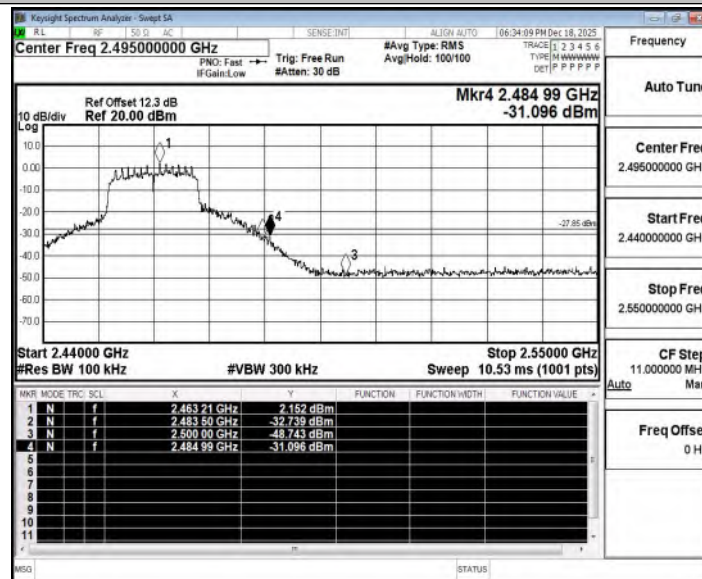
11G_Ant1_High_2462



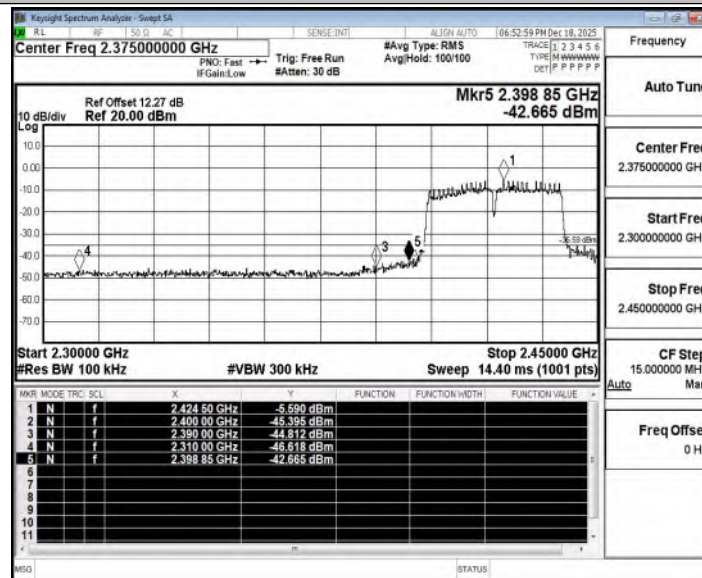
11N20SISO_Ant1_Low_2412



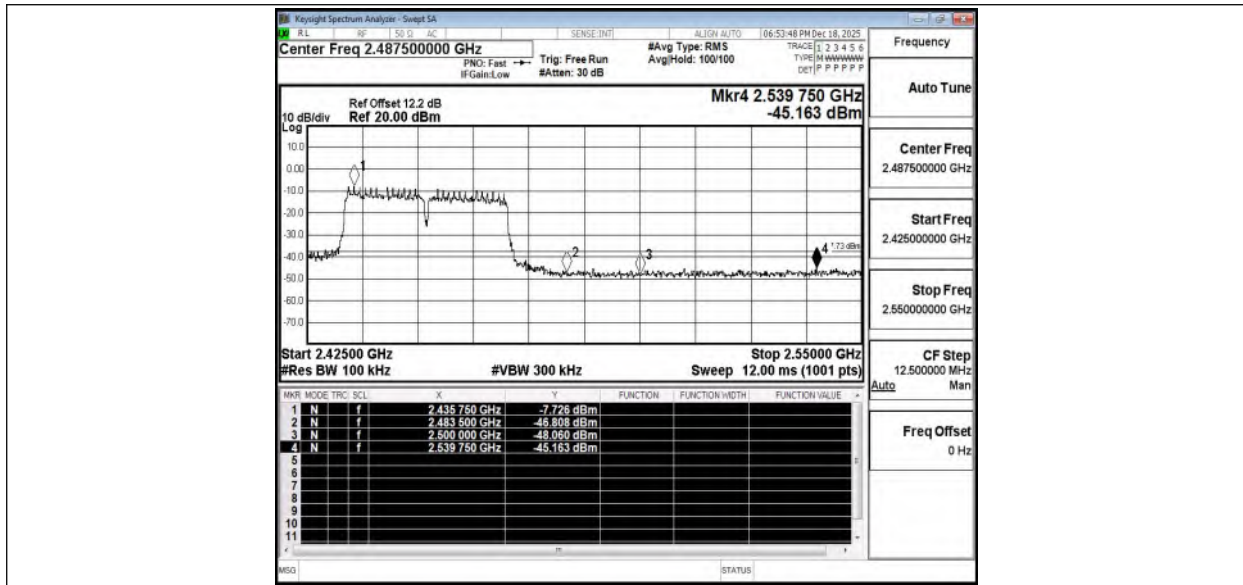
11N20SISO_Ant1_High_2462



11N40SISO_Ant1_Low_2422



11N40SISO_Ant1_High_2452



B.5 Conducted RF Spurious Emission

TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	4.08	4.08	---	PASS
			30~1000	4.08	-49.18	≤-25.92	PASS
			1000~26500	4.08	-54.78	≤-25.92	PASS
		2437	Reference	2.77	2.77	---	PASS
			30~1000	2.77	-48.19	≤-27.23	PASS
			1000~26500	2.77	-54.93	≤-27.23	PASS
		2462	Reference	2.55	2.55	---	PASS
			30~1000	2.55	-48.7	≤-27.45	PASS
			1000~26500	2.55	-54.33	≤-27.45	PASS
11G	Ant1	2412	Reference	0.79	0.79	---	PASS
			30~1000	0.79	-49.35	≤-29.21	PASS
			1000~26500	0.79	-55.15	≤-29.21	PASS
		2437	Reference	0.81	0.81	---	PASS
			30~1000	0.81	-47.94	≤-29.19	PASS
			1000~26500	0.81	-54.91	≤-29.19	PASS
		2462	Reference	0.66	0.66	---	PASS
			30~1000	0.66	-58.98	≤-29.34	PASS
			1000~26500	0.66	-55.24	≤-29.34	PASS
11N20SISO	Ant1	2412	Reference	2.58	2.58	---	PASS
			30~1000	2.58	-51.71	≤-27.42	PASS
			1000~26500	2.58	-36.75	≤-27.42	PASS
		2437	Reference	0.92	0.92	---	PASS
			30~1000	0.92	-40.72	≤-29.08	PASS
			1000~26500	0.92	-55.23	≤-29.08	PASS
		2462	Reference	1.77	1.77	---	PASS
			30~1000	1.77	-48.55	≤-28.23	PASS
			1000~26500	1.77	-53.66	≤-28.23	PASS
11N40SISO	Ant1	2422	Reference	-0.38	-0.38	---	PASS
			30~1000	-0.38	-51.11	≤-30.38	PASS
			1000~26500	-0.38	-54.45	≤-30.38	PASS
		2437	Reference	-2.17	-2.17	---	PASS
			30~1000	-2.17	-50.69	≤-32.17	PASS
			1000~26500	-2.17	-54.47	≤-32.17	PASS
		2452	Reference	-2.76	-2.76	---	PASS
			30~1000	-2.76	-49.66	≤-32.76	PASS
			1000~26500	-2.76	-54.9	≤-32.76	PASS

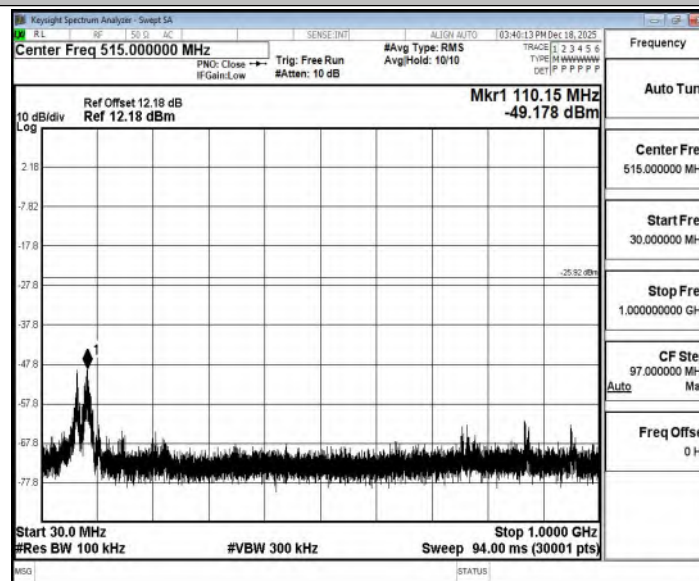
Note :Regarding the spurious emissions from 30MHz to 26.5GHz, the cable lose have been set in the CORREC' of the Spectrum Analyzer during the test.

Test Graphs

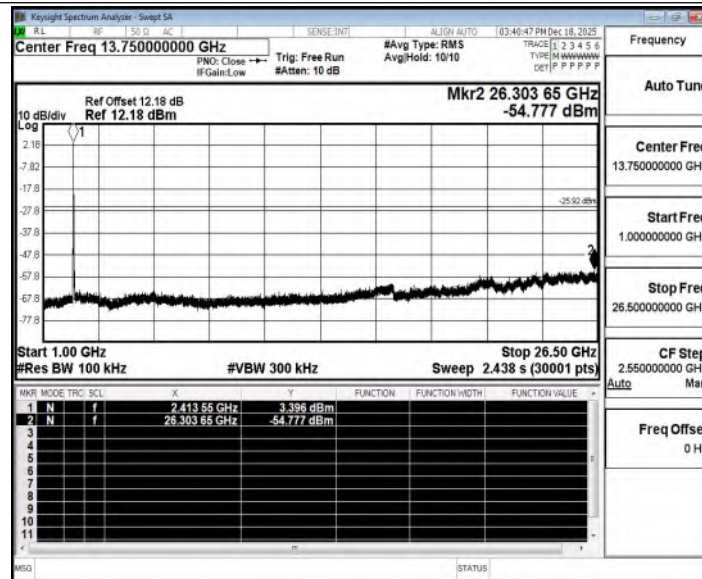
11B_Ant1_2412_0~Reference



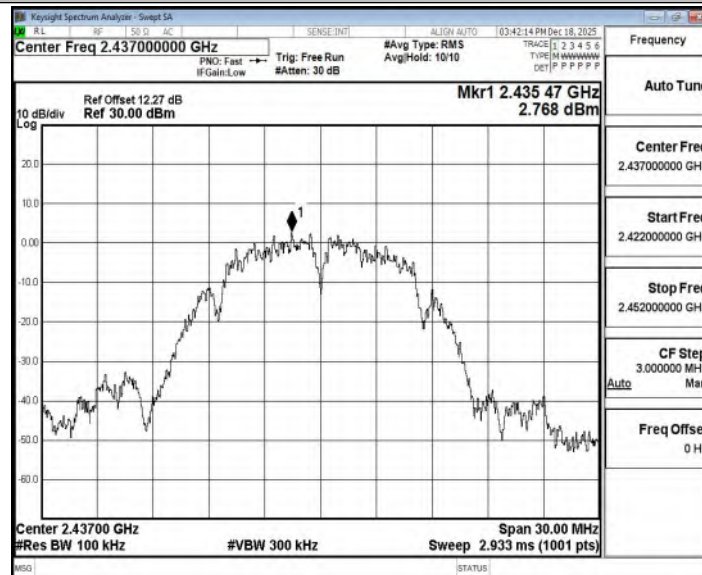
11B_Ant1_2412_30~1000



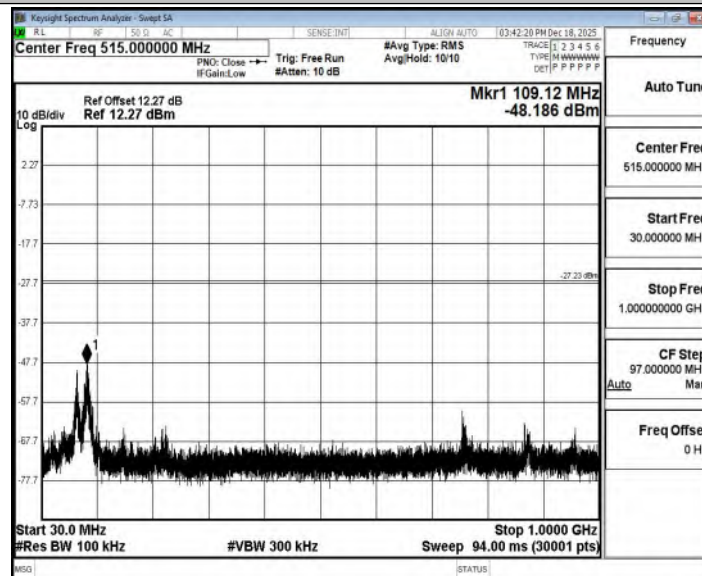
11B_Ant1_2412_1000~26500



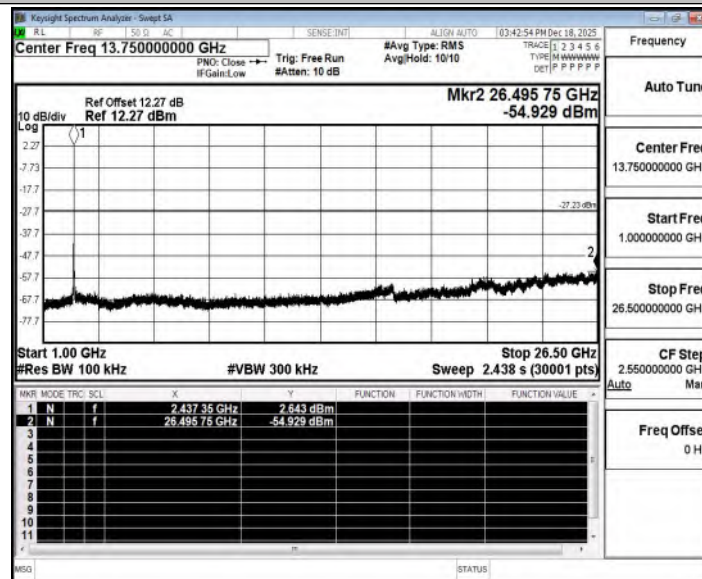
11B_Ant1_2437_0~Reference



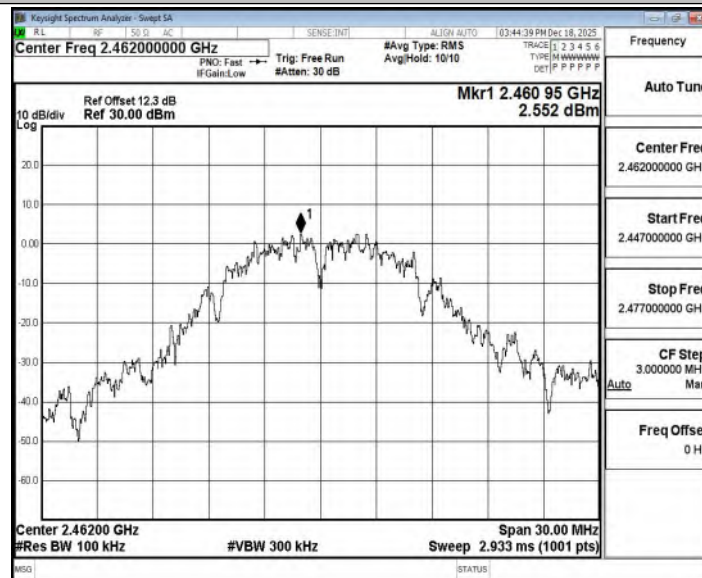
11B_Ant1_2437_30~1000



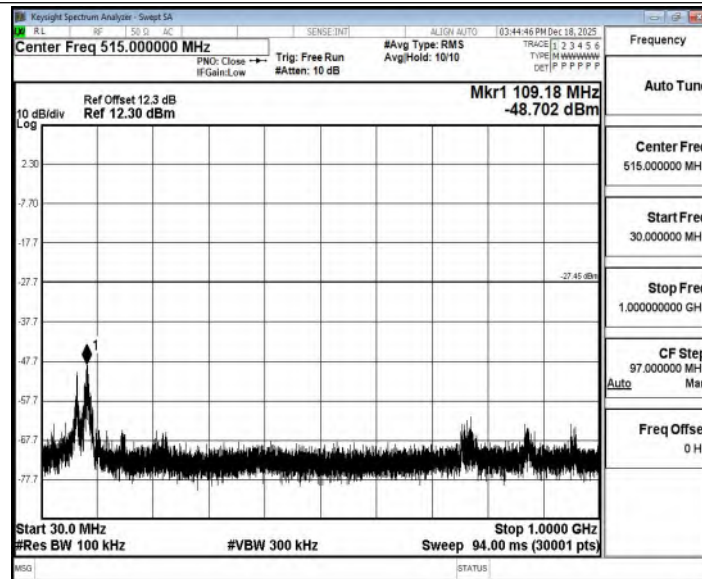
11B_Ant1_2437_1000~26500



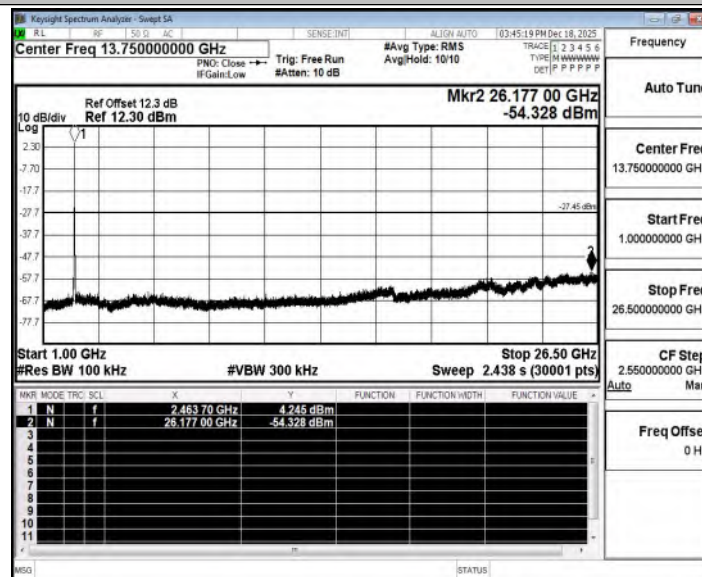
11B_Ant1_2462_0~Reference



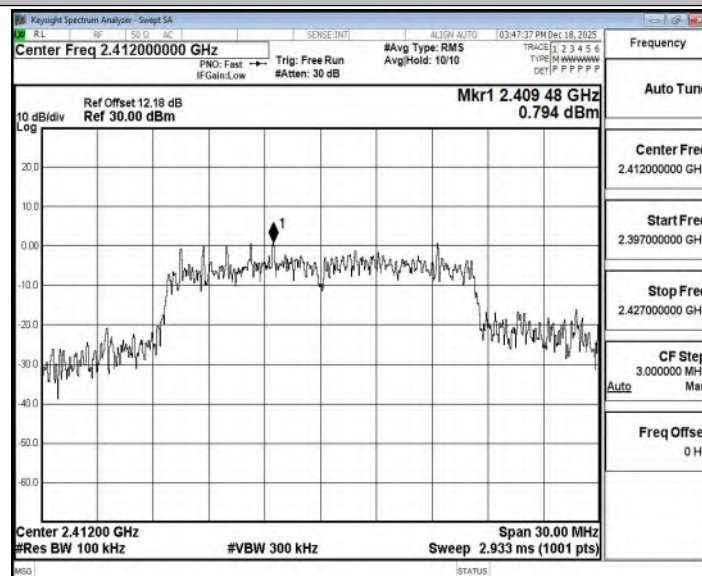
11B_Ant1_2462_30~1000



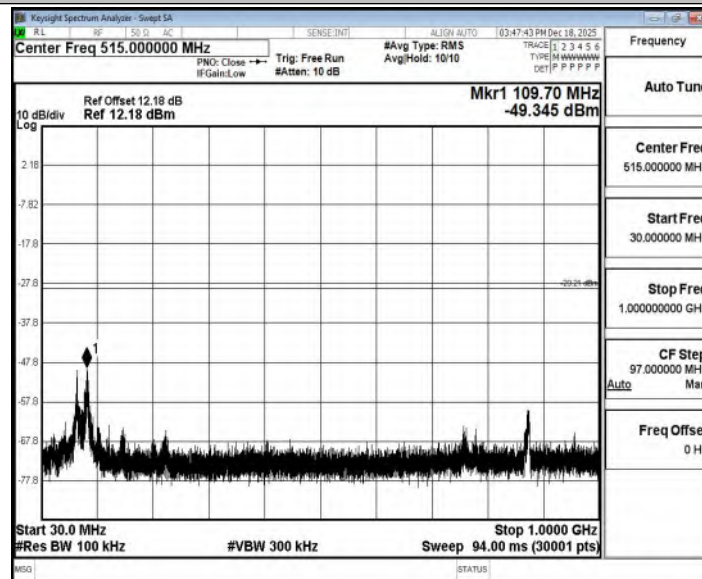
11B_Ant1_2462_1000~26500



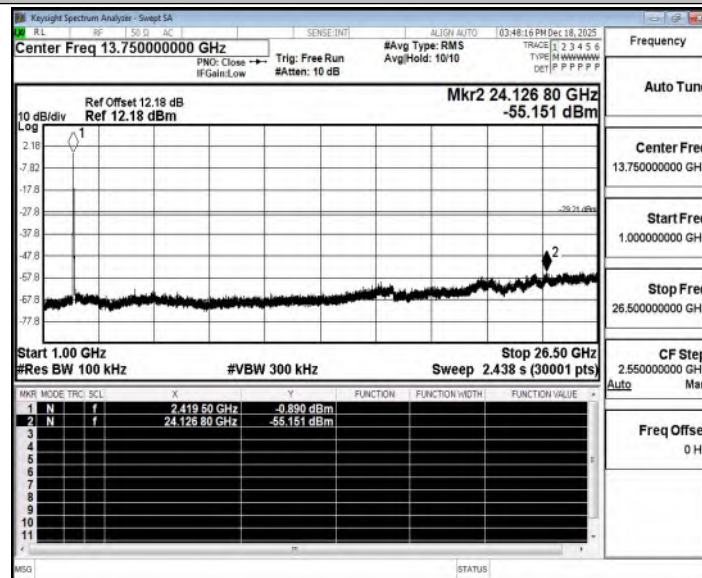
11G_Ant1_2412_0~Reference



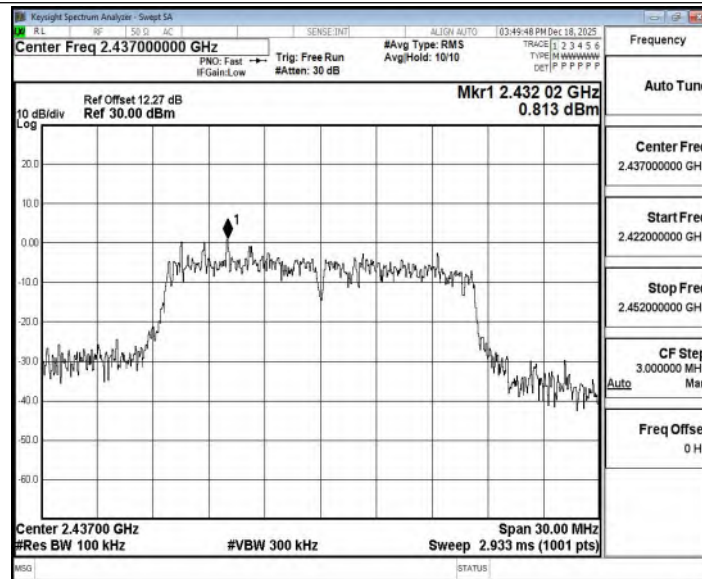
11G_Ant1_2412_30~1000



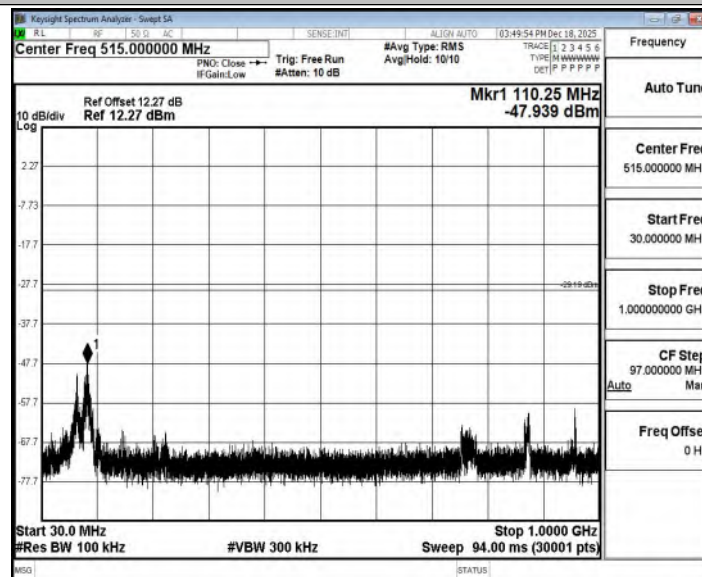
11G_Ant1_2412_1000~26500



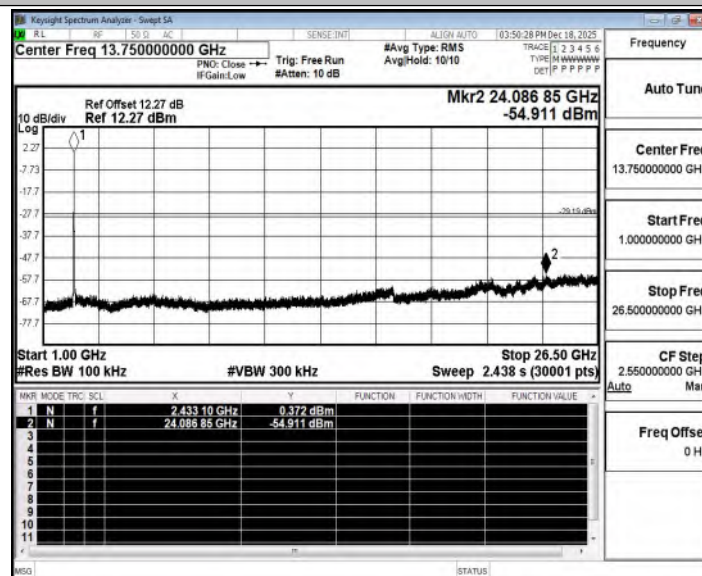
11G_Ant1_2437_0~Reference



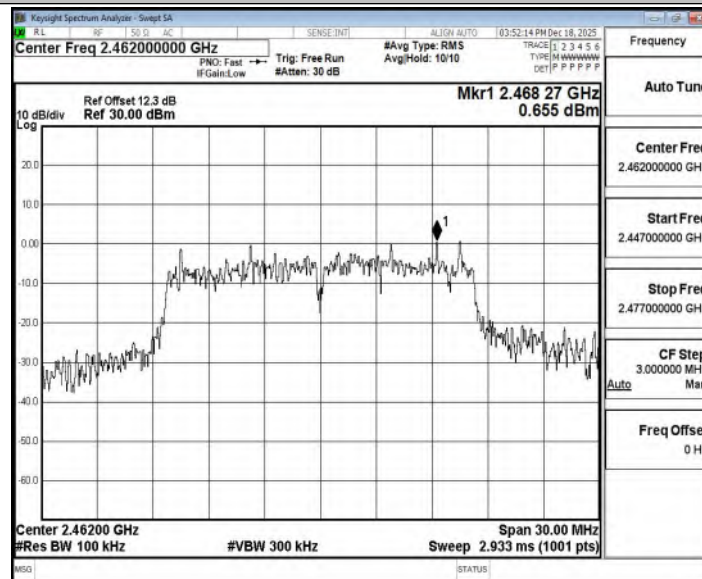
11G_Ant1_2437_30~1000



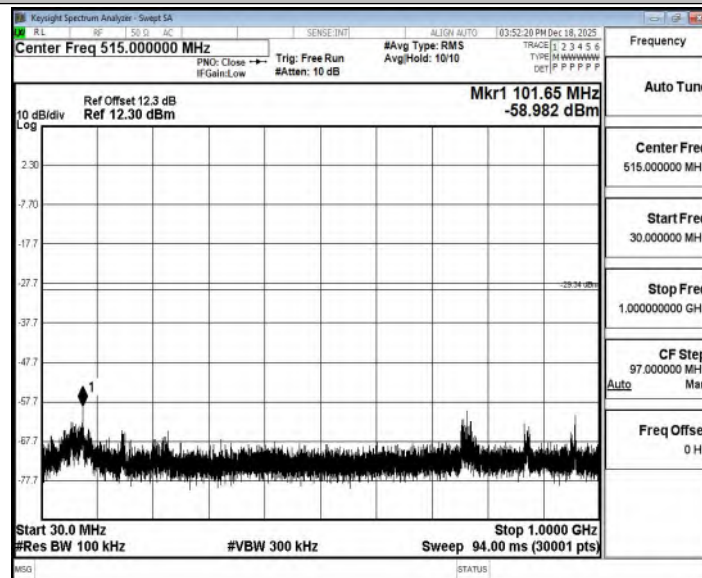
11G_Ant1_2437_1000~26500



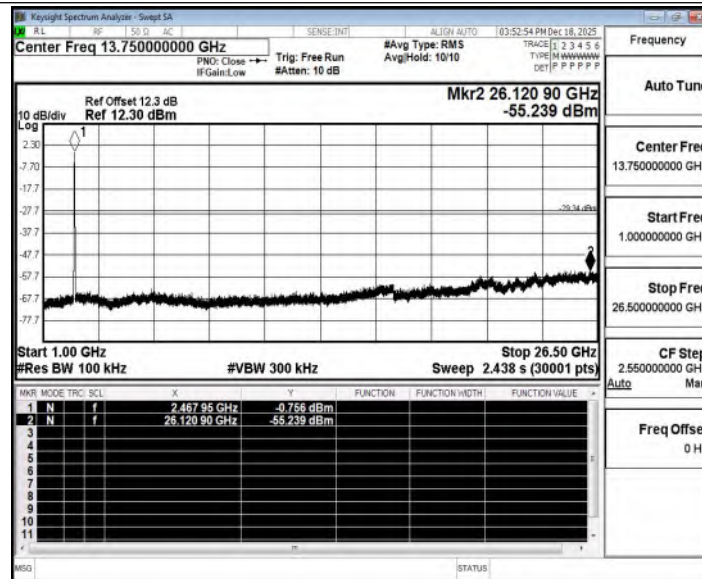
11G_Ant1_2462_0~Reference



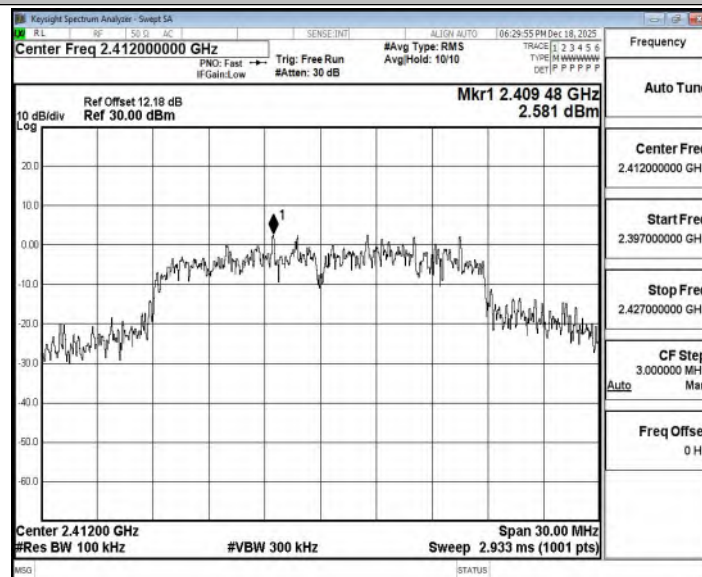
11G_Ant1_2462_30~1000



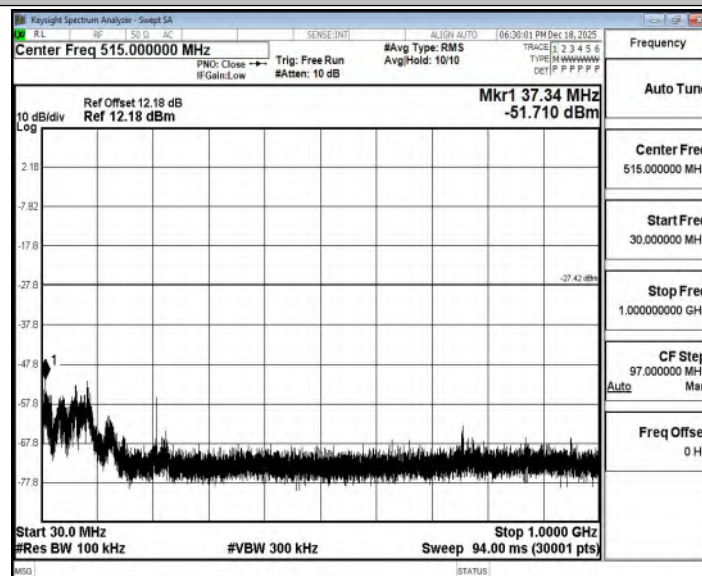
11G_Ant1_2462_1000~26500



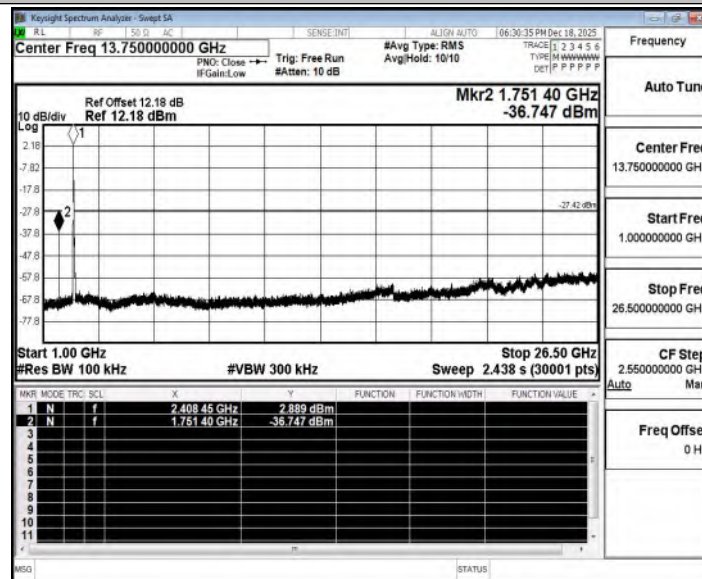
11N20SISO_Ant1_2412_0~Reference



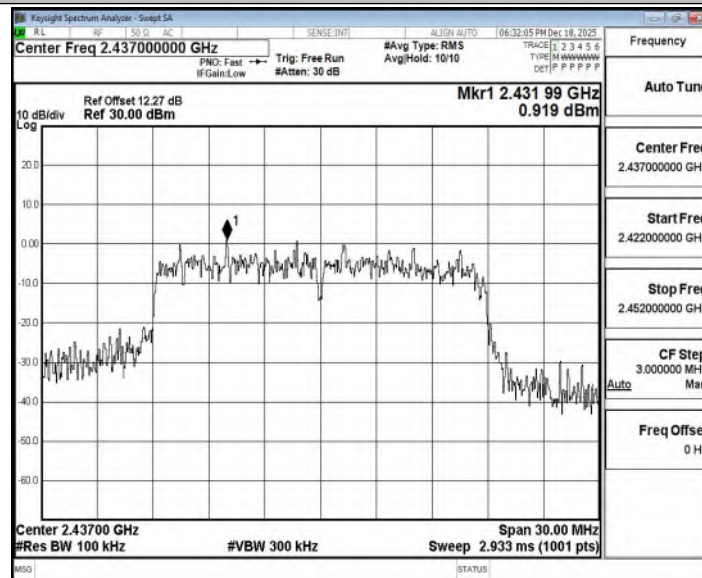
11N20SISO_Ant1_2412_30~1000



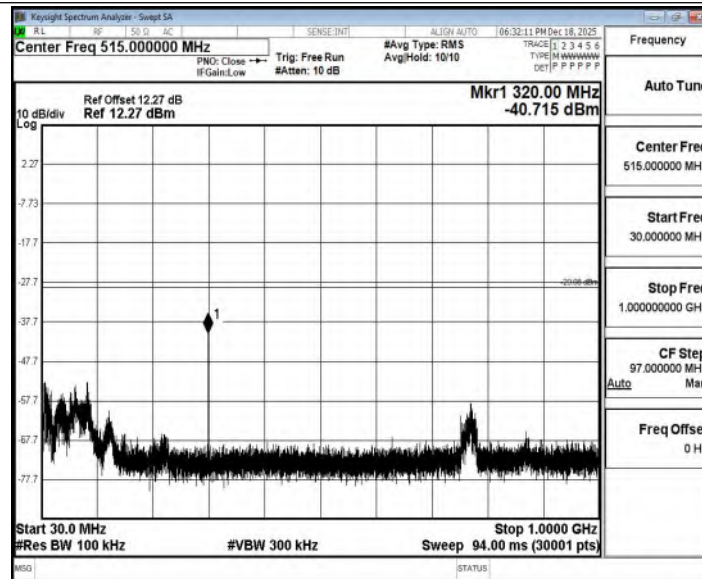
11N20SISO_Ant1_2412_1000~26500



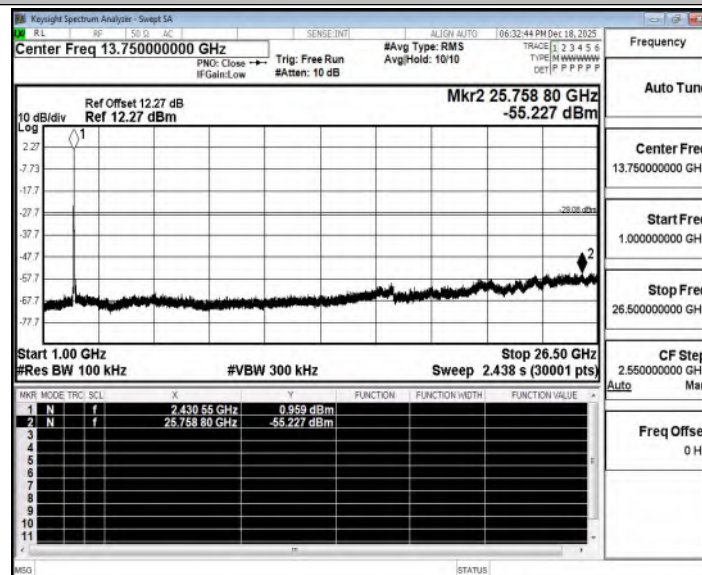
11N20SISO_Ant1_2437_0~Reference



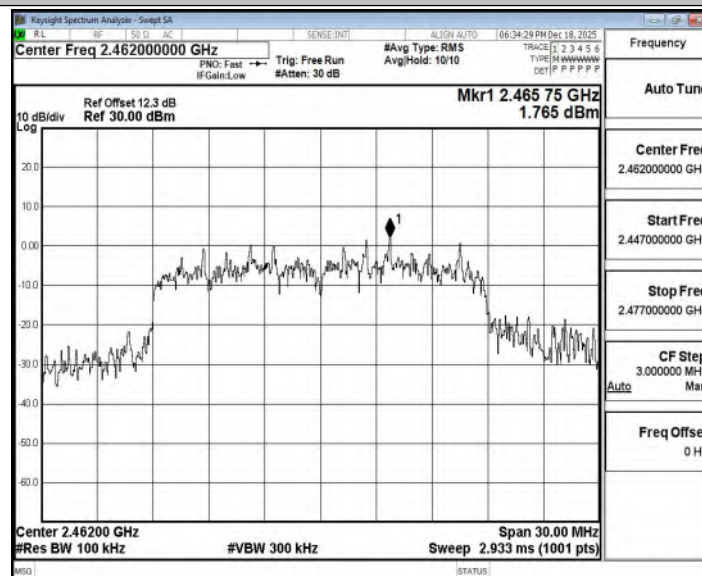
11N20SISO_Ant1_2437_30~1000



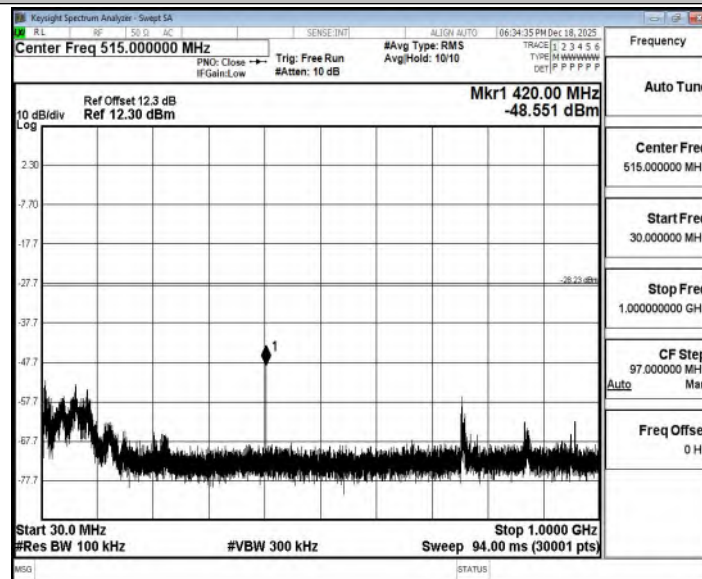
11N20SISO_Ant1_2437_1000~26500



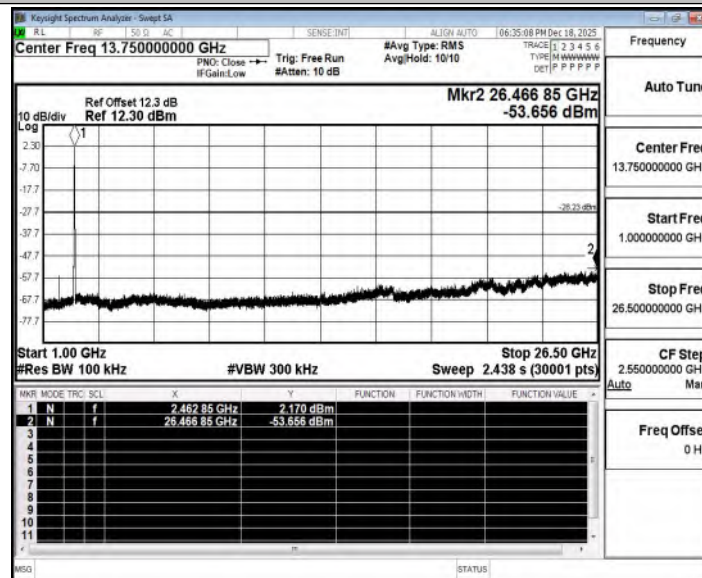
11N20SISO_Ant1_2462_0~Reference



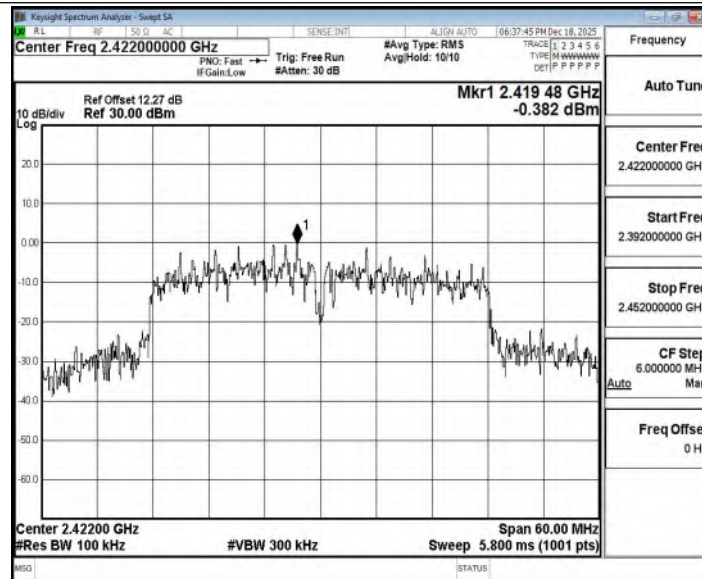
11N20SISO_Ant1_2462_30~1000



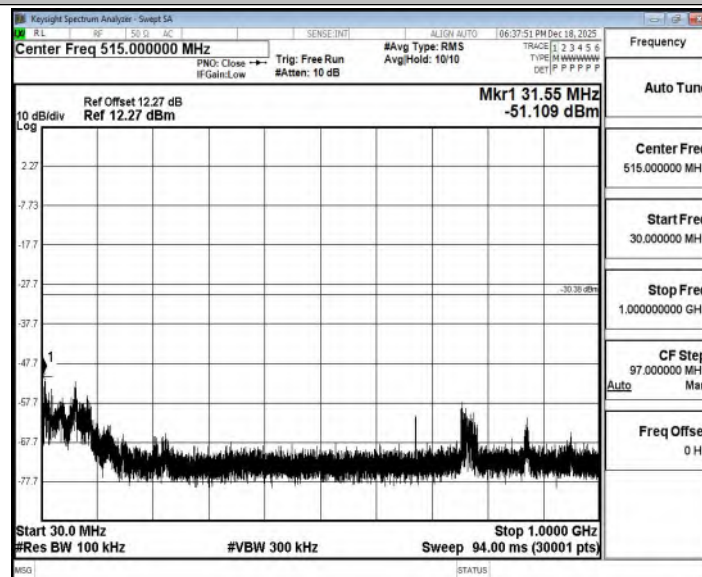
11N20SISO_Ant1_2462_1000~26500



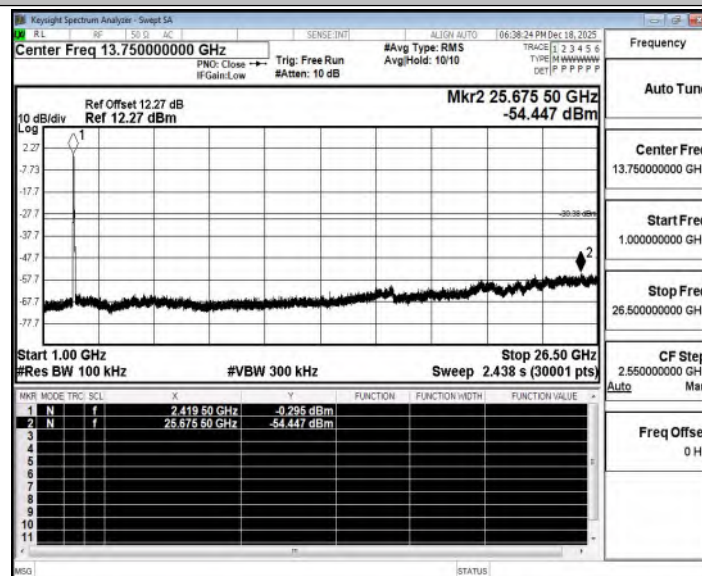
11N40SISO_Ant1_2422_0~Reference



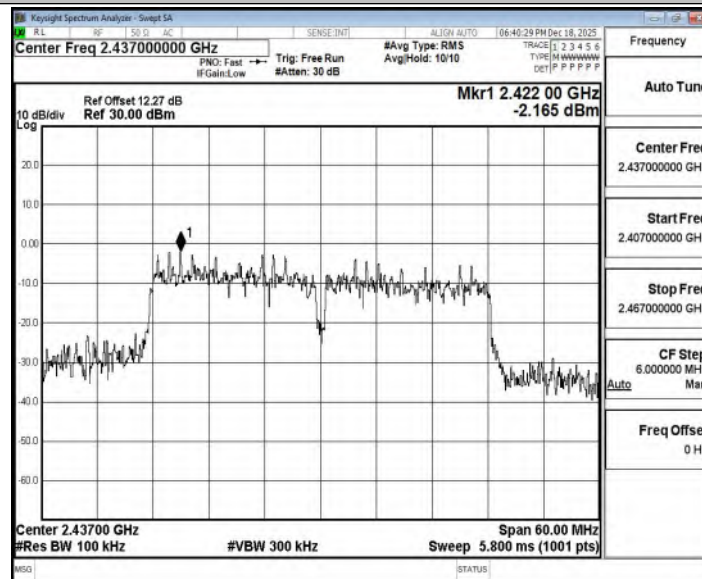
11N40SISO_Ant1_2422_30~1000



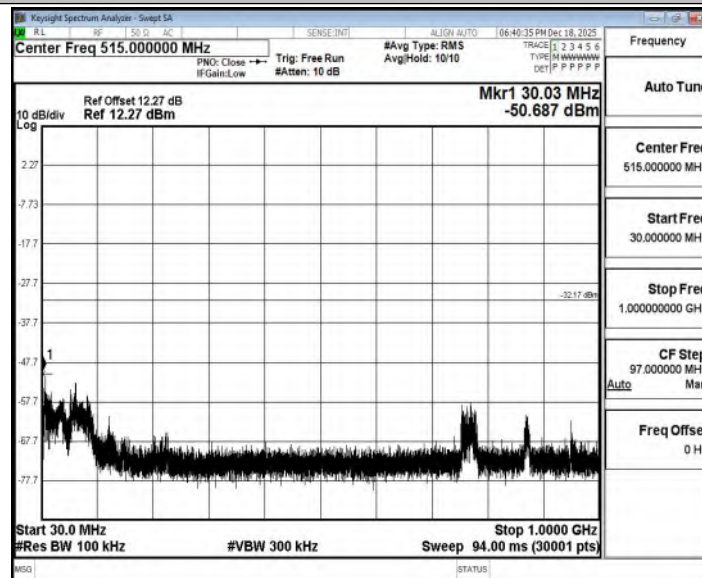
11N40SISO_Ant1_2422_1000~26500



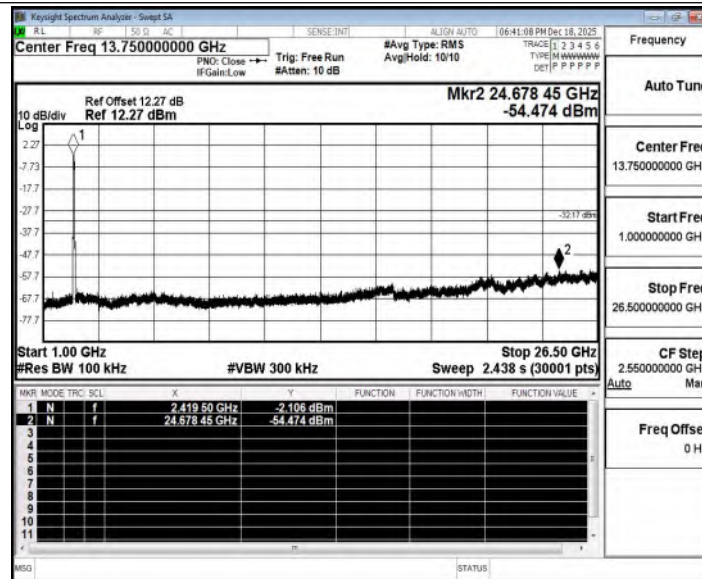
11N40SISO_Ant1_2437_0~Reference



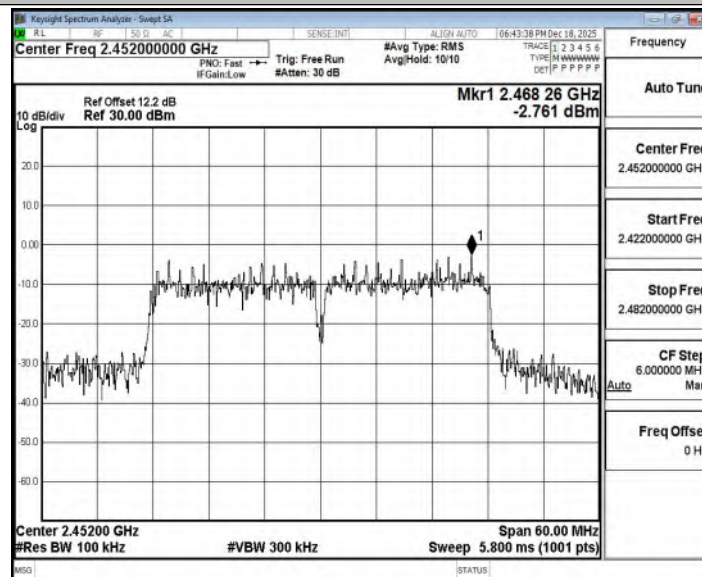
11N40SISO_Ant1_2437_30~1000



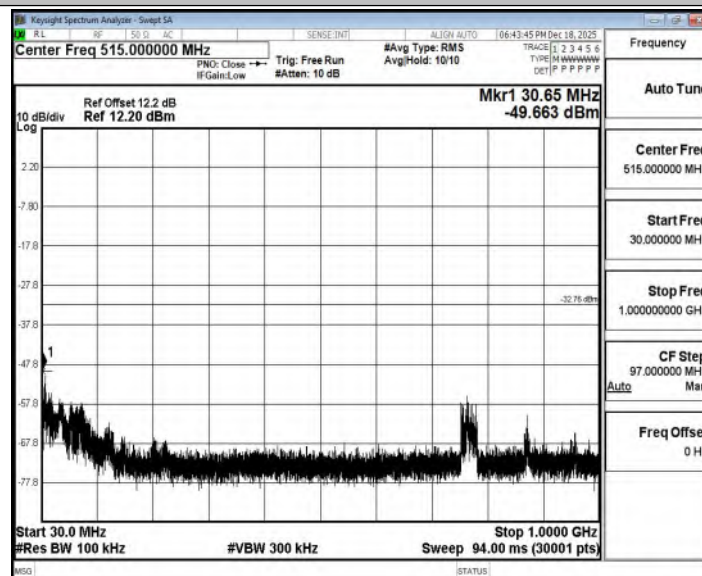
11N40SISO_Ant1_2437_1000~26500



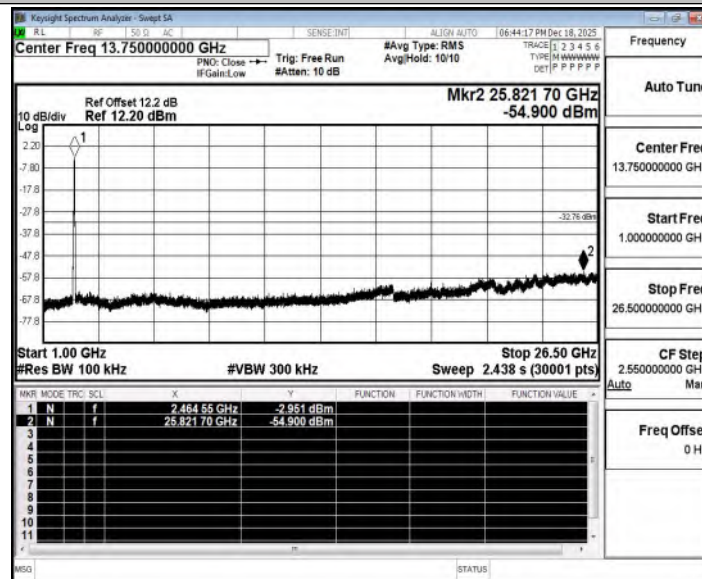
11N40SISO_Ant1_2452_0~Reference



11N40SISO_Ant1_2452_30~1000



11N40SISO_Ant1_2452_1000~26500



B.6 Duty Cycle

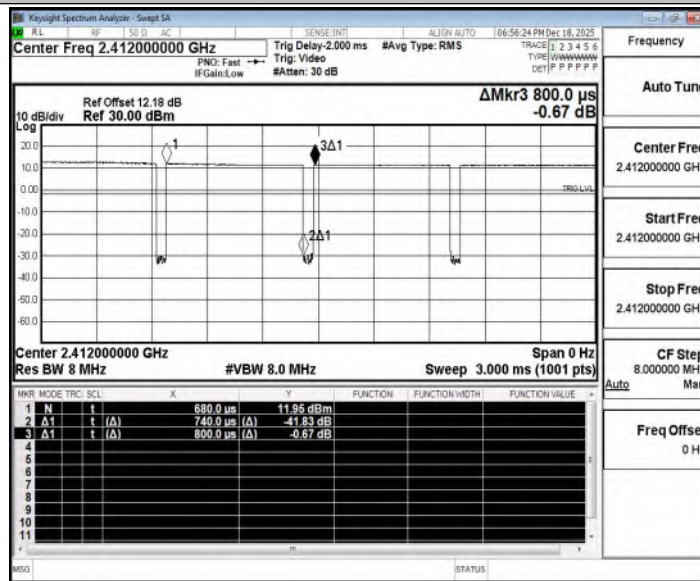
Test Result

TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Duty Cycle Factor [dB]
11B	Ant1	2412	0.74	0.80	92.50	0.34
		2437	0.73	0.79	92.41	0.34
		2462	0.73	0.79	92.41	0.34
11G	Ant1	2412	0.11	0.17	64.71	1.89
		2437	0.11	0.18	61.11	2.14
		2462	0.11	0.18	61.11	2.14
11N20SISO	Ant1	2412	0.11	0.17	64.71	1.89
		2437	0.12	0.18	66.67	1.76
		2462	0.12	0.18	66.67	1.76
11N40SISO	Ant1	2422	0.08	0.14	57.14	2.43
		2437	0.08	0.14	57.14	2.43
		2452	0.08	0.14	57.14	2.43

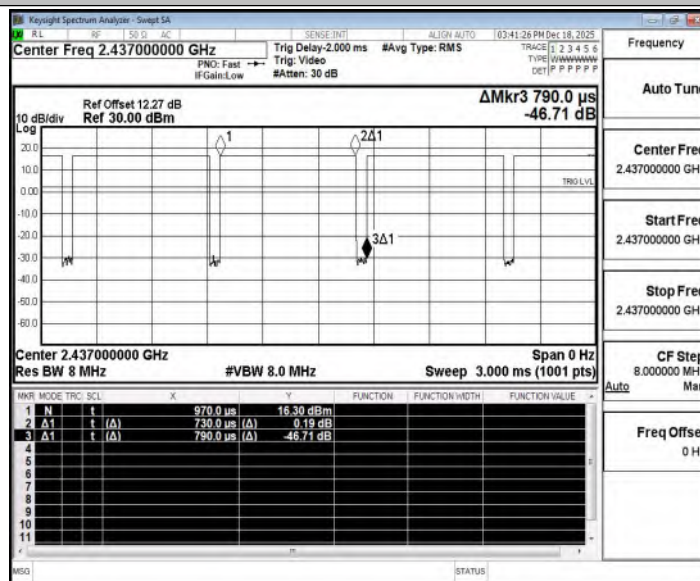
Note:offset=System attenuation +cabal loss

Test Graphs

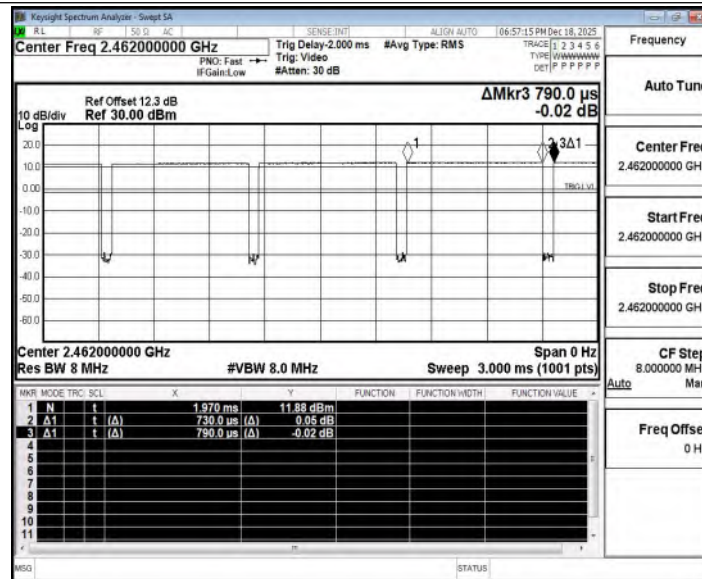
11B_Ant1_2412



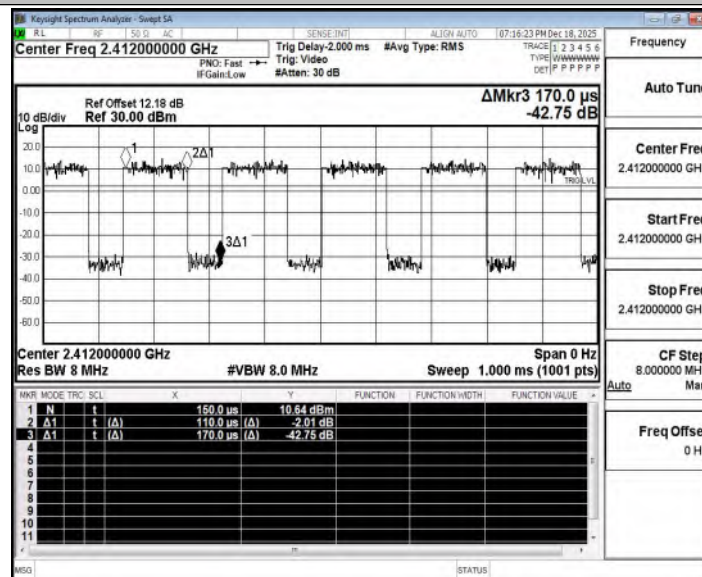
11B_Ant1_2437



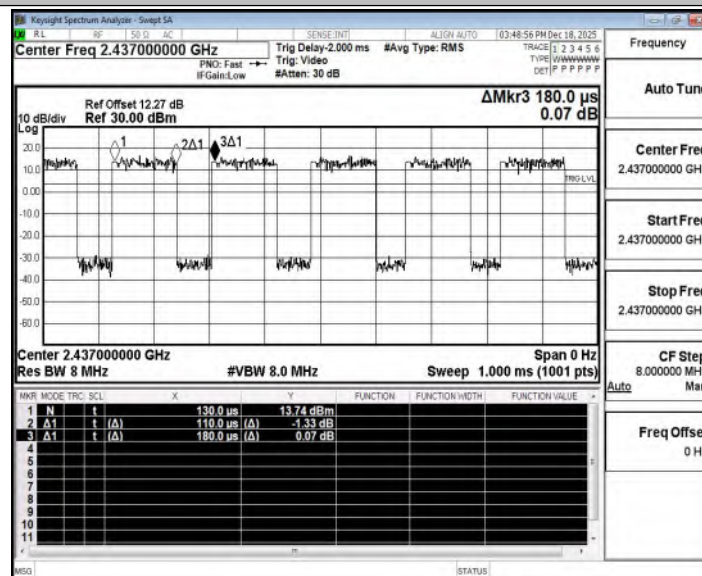
11B_Ant1_2462



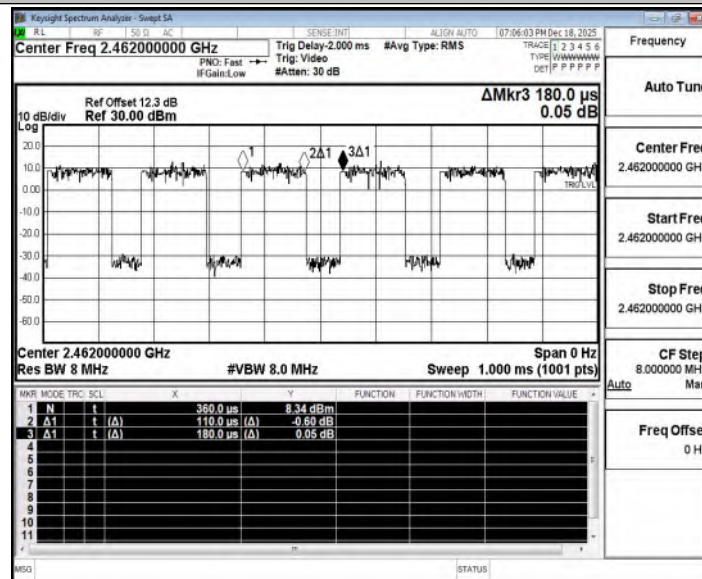
11G_Ant1_2412



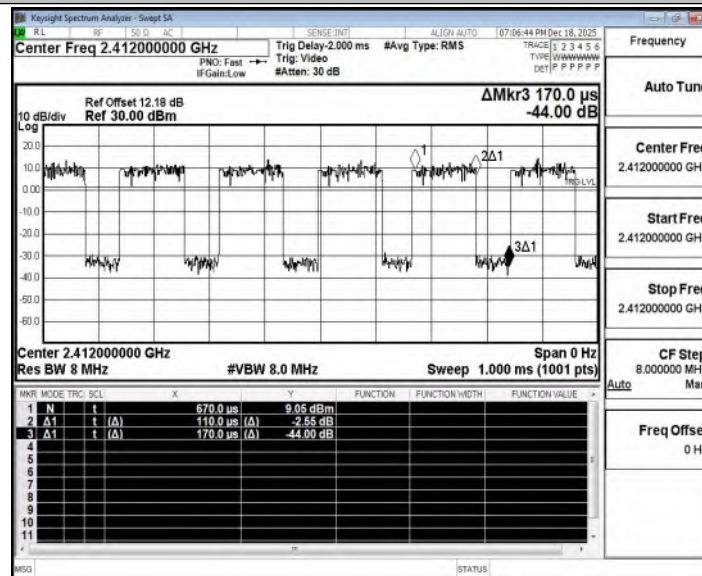
11G_Ant1_2437



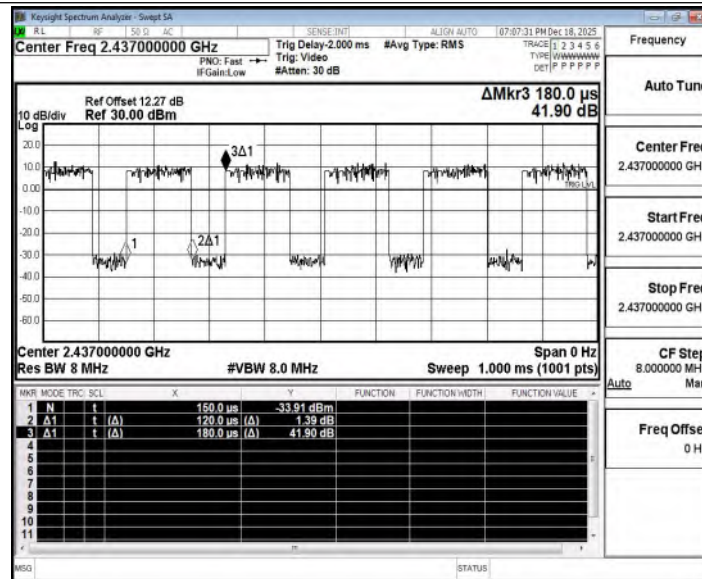
11G_Ant1_2462



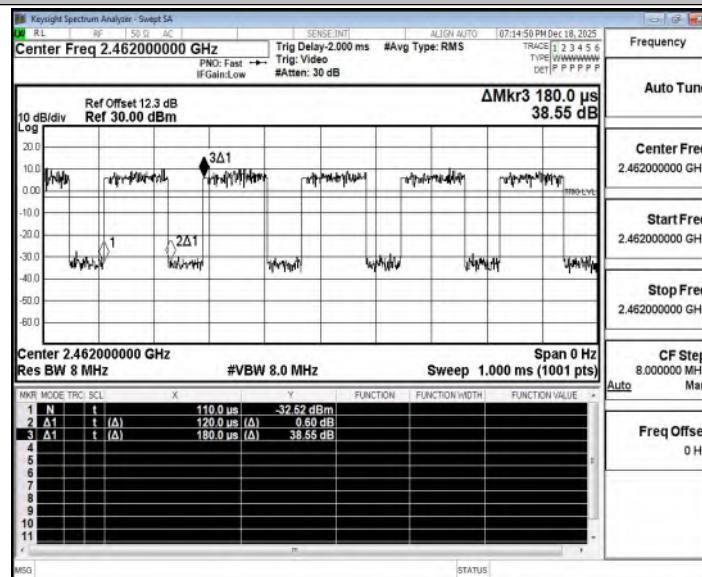
11N20SISO_Ant1_2412



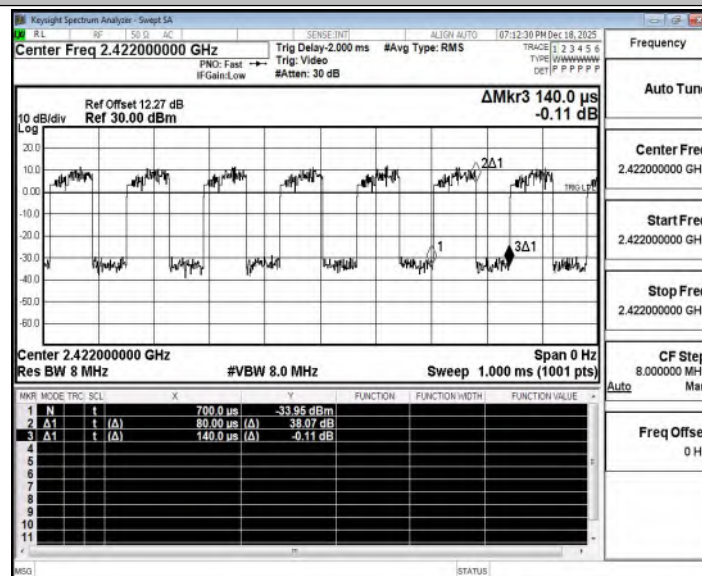
11N20SISO_Ant1_2437



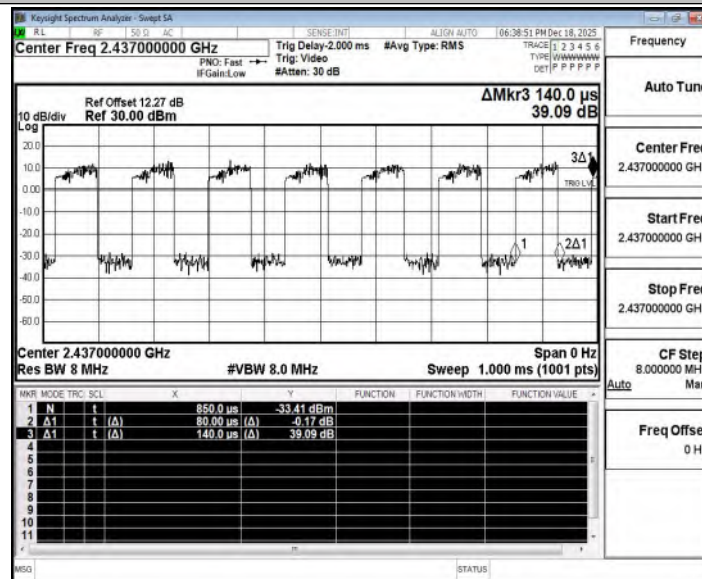
11N20SISO_Ant1_2462



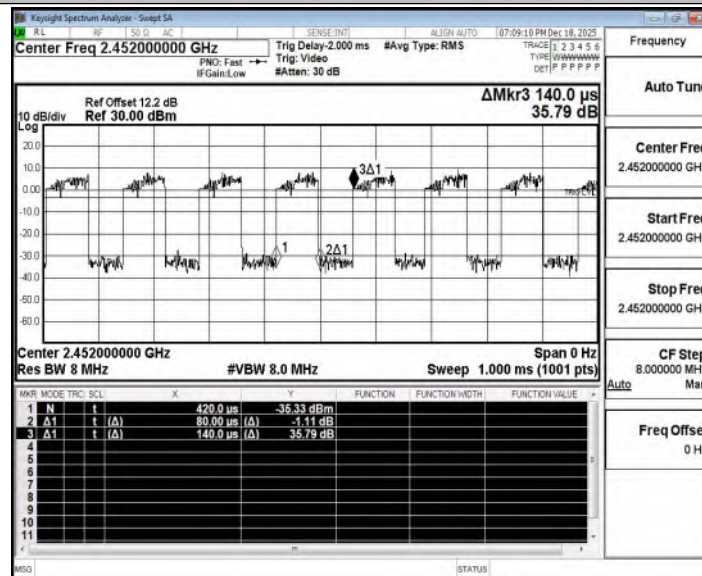
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



B.7 Restrict Band

Test Result

TestM ode	Anten na	ChNa me	Frequ ency[MHz]	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Gain [dBi]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11B	Ant1	Low	2412	AV	2310.000	-60.83	≤-47.54	0.95	0.34	35.72	≤54	PASS
				AV	2386.970	-58.99	≤-47.54	0.95	0.34	37.56	≤54	PASS
				AV	2390.000	-59.94	≤-47.54	0.95	0.34	36.61	≤54	PASS
				Peak	2310.000	-54.35	≤-27.20	0.95	0.00	41.86	≤74	PASS
				Peak	2386.710	-49.87	≤-27.20	0.95	0.00	46.34	≤74	PASS
				Peak	2390.000	-52.55	≤-27.20	0.95	0.00	43.66	≤74	PASS
		High	2462	AV	2483.500	-58.87	≤-47.54	0.95	0.34	37.68	≤54	PASS
				AV	2485.210	-58.42	≤-47.54	0.95	0.34	38.13	≤54	PASS
				AV	2500.000	-60.65	≤-47.54	0.95	0.34	35.90	≤54	PASS
				Peak	2483.500	-52.05	≤-27.20	0.95	0.00	44.16	≤74	PASS
				Peak	2484.990	-47.51	≤-27.20	0.95	0.00	48.70	≤74	PASS
				Peak	2500.000	-52.45	≤-27.20	0.95	0.00	43.76	≤74	PASS
11G	Ant1	Low	2412	AV	2310.000	-61.5	≤-49.09	0.95	1.89	36.60	≤54	PASS
				AV	2389.960	-52.96	≤-49.09	0.95	1.89	45.14	≤54	PASS
				AV	2390.000	-52.96	≤-49.09	0.95	1.89	45.14	≤54	PASS
				Peak	2310.000	-52.08	≤-27.20	0.95	0.00	44.13	≤74	PASS
				Peak	2388.790	-35.79	≤-27.20	0.95	0.00	60.42	≤74	PASS
				Peak	2390.000	-40.61	≤-27.20	0.95	0.00	55.60	≤74	PASS
		High	2462	AV	2483.500	-53.67	≤-49.34	0.95	2.14	44.68	≤54	PASS
				AV	2484.440	-52.39	≤-49.34	0.95	2.14	45.96	≤54	PASS
				AV	2500.000	-60.99	≤-49.34	0.95	2.14	37.36	≤54	PASS
				Peak	2483.500	-39.86	≤-27.20	0.95	0.00	56.35	≤74	PASS
				Peak	2483.560	-31.48	≤-27.20	0.95	0.00	64.73	≤74	PASS
				Peak	2500.000	-51.95	≤-27.20	0.95	0.00	44.26	≤74	PASS
11N20 SISO	Ant1	Low	2412	AV	2310.000	-61.29	≤-49.09	0.95	1.89	36.81	≤54	PASS
				AV	2389.570	-51.64	≤-49.09	0.95	1.89	46.46	≤54	PASS
				AV	2390.000	-54.44	≤-49.09	0.95	1.89	43.66	≤54	PASS
				Peak	2310.000	-53.54	≤-27.20	0.95	0.00	42.67	≤74	PASS
				Peak	2387.490	-37.09	≤-27.20	0.95	0.00	59.12	≤74	PASS
				Peak	2390.000	-42.57	≤-27.20	0.95	0.00	53.64	≤74	PASS
		High	2462	AV	2483.500	-57.36	≤-48.96	0.95	1.76	40.61	≤54	PASS
				AV	2484.110	-54.95	≤-48.96	0.95	1.76	43.02	≤54	PASS
				AV	2500.000	-61.13	≤-48.96	0.95	1.76	36.84	≤54	PASS
				Peak	2483.500	-38.93	≤-27.20	0.95	0.00	57.28	≤74	PASS
				Peak	2483.560	-37.72	≤-27.20	0.95	0.00	58.49	≤74	PASS
				Peak	2500.000	-52.53	≤-27.20	0.95	0.00	43.68	≤74	PASS

11N40 SISO	Ant1	Low	2422	AV	2310.000	-61.14	≤-49.63	0.95	2.43	37.50	≤54	PASS
				AV	2388.350	-49.68	≤-49.63	0.95	2.43	48.96	≤54	PASS
				AV	2390.000	-51.4	≤-49.63	0.95	2.43	47.24	≤54	PASS
				Peak	2310.000	-54.08	≤-27.20	0.95	0.00	42.13	≤74	PASS
				Peak	2385.650	-33.94	≤-27.20	0.95	0.00	62.27	≤74	PASS
				Peak	2390.000	-38.08	≤-27.20	0.95	0.00	58.13	≤74	PASS
		High	2452	AV	2483.500	-55.54	≤-49.63	0.95	2.43	43.10	≤54	PASS
				AV	2486.125	-54.82	≤-49.63	0.95	2.43	43.82	≤54	PASS
				AV	2500.000	-60.35	≤-49.63	0.95	2.43	38.29	≤54	PASS
				Peak	2483.500	-44.46	≤-27.20	0.95	0.00	51.75	≤74	PASS
				Peak	2485.875	-40.44	≤-27.20	0.95	0.00	55.77	≤74	PASS
				Peak	2500.000	-52.77	≤-27.20	0.95	0.00	43.44	≤74	PASS

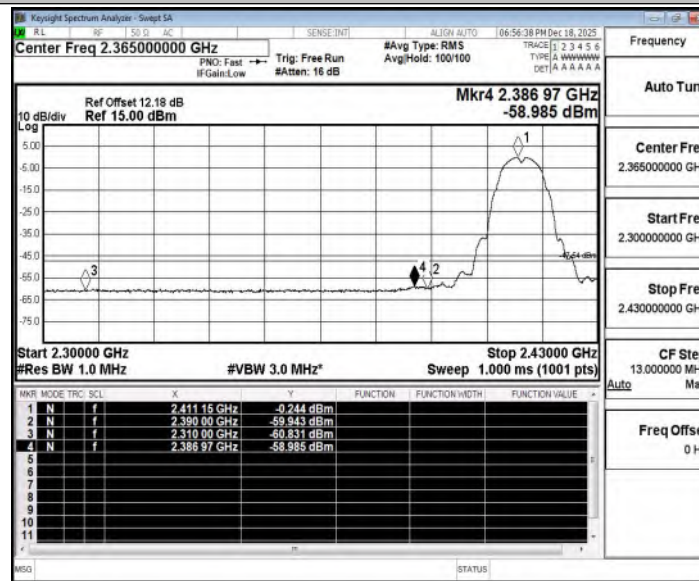
Note :offset=System attenuation +cabal loss

Note:

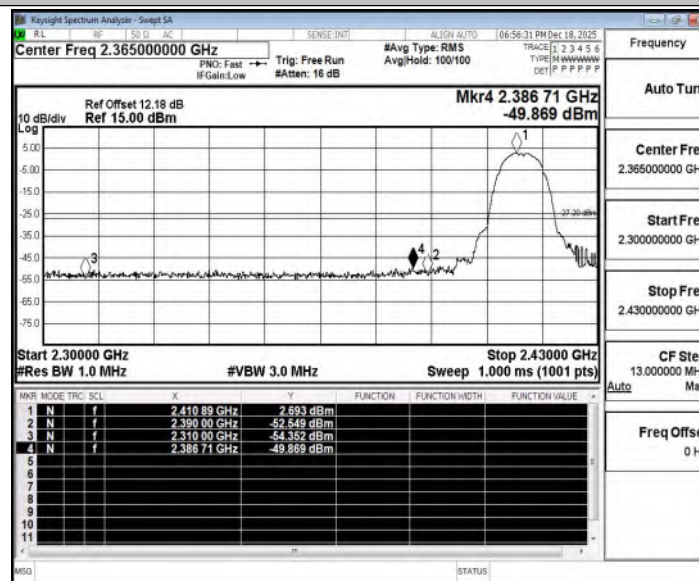
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

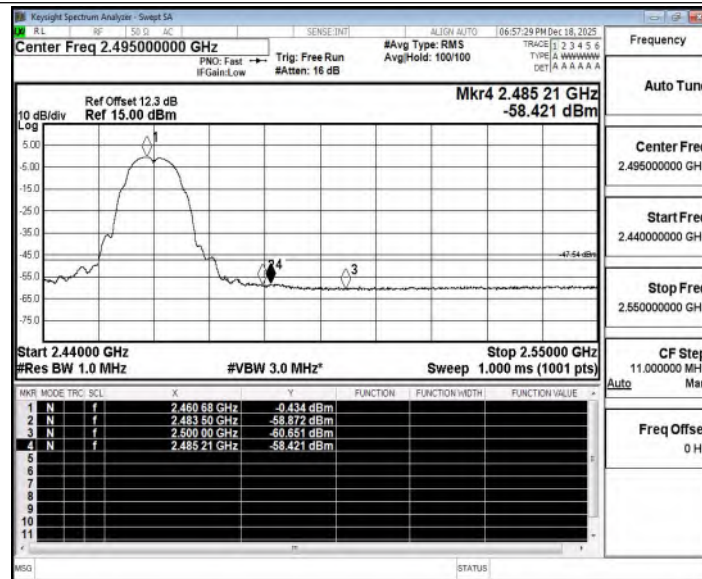
11B_Ant1_Low_2412_AV



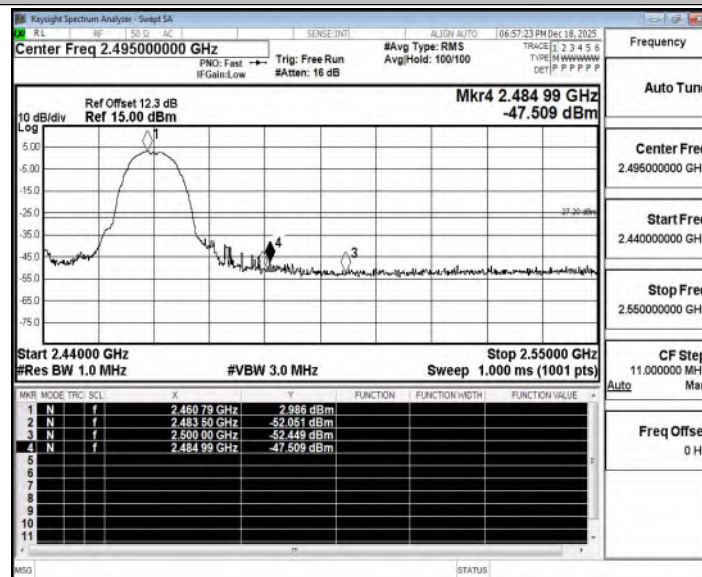
11B_Ant1_Low_2412_Peak



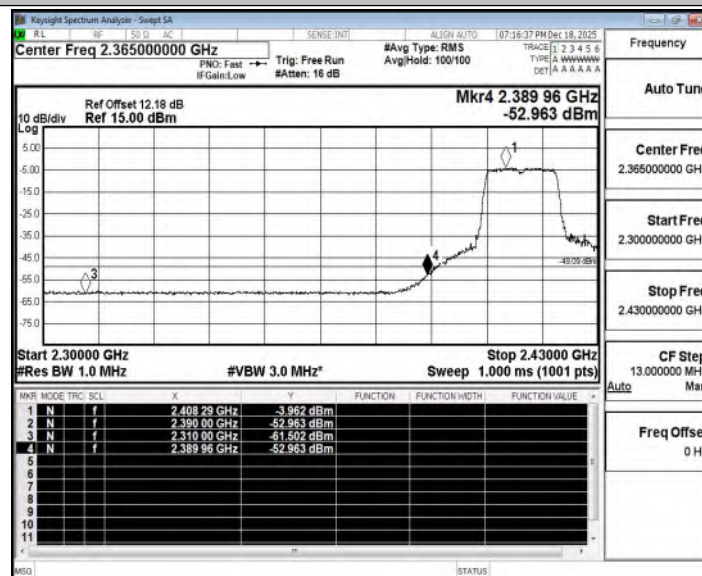
11B_Ant1_High_2462_AV



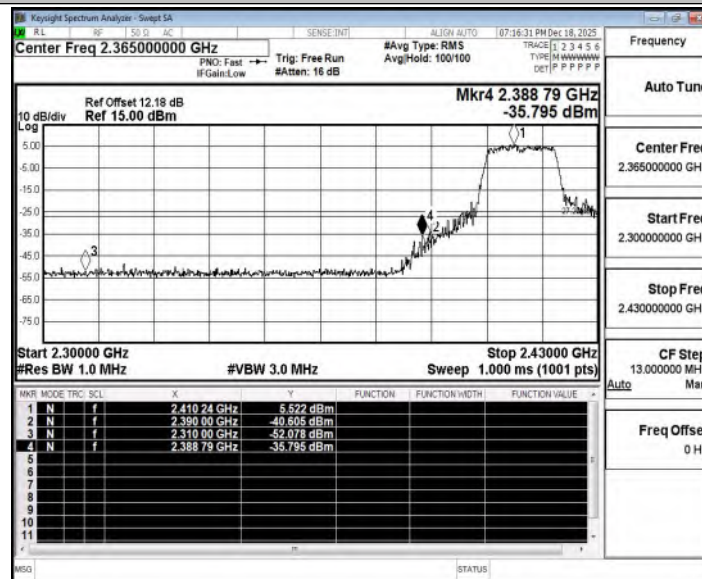
11B_Ant1_High_2462_Peak



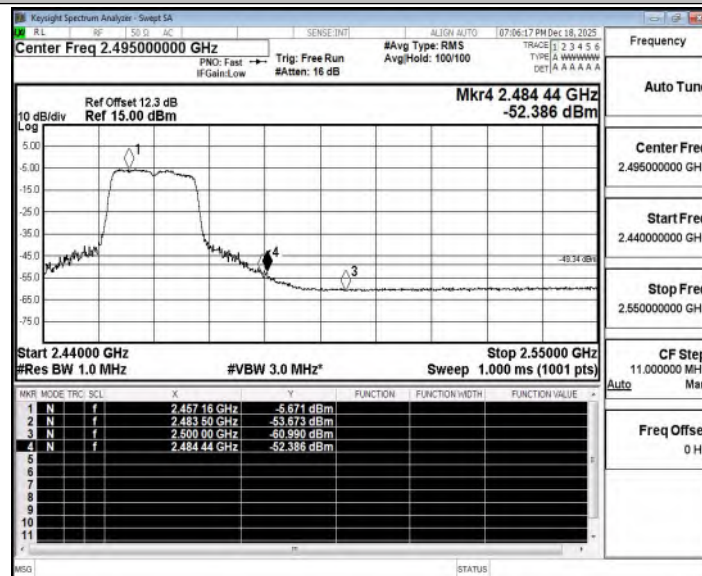
11G_Ant1_Low_2412_AV



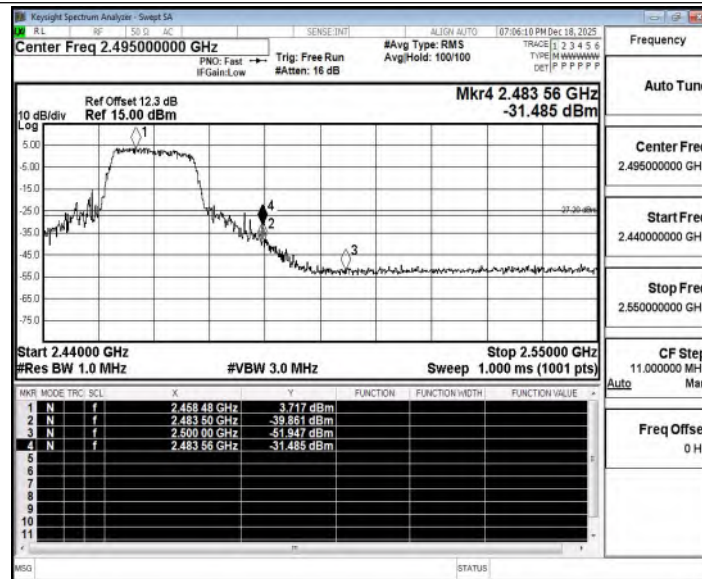
11G_Ant1_Low_2412_Peak



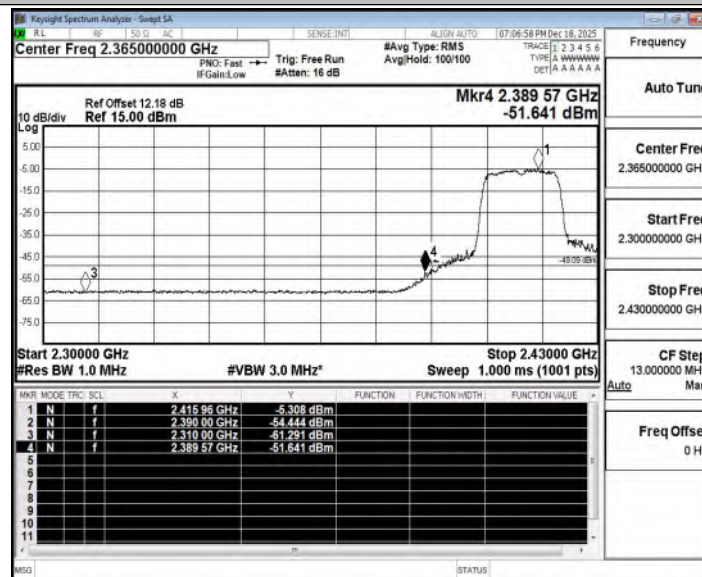
11G_Ant1_High_2462_AV



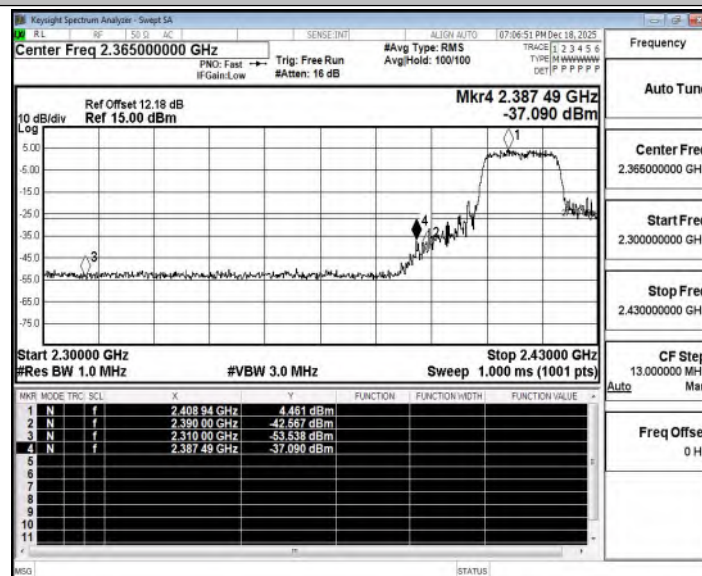
11G_Ant1_High_2462_Peak



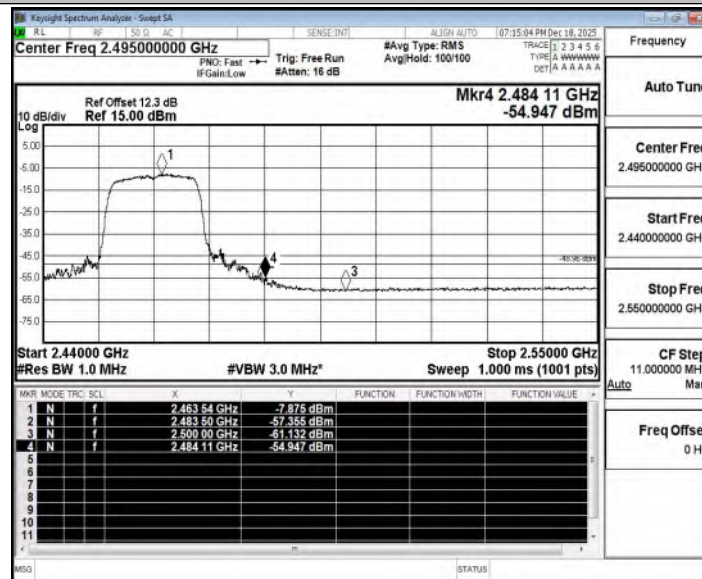
11N20SISO_Ant1_Low_2412_AV



11N20SISO_Ant1_Low_2412_Peak



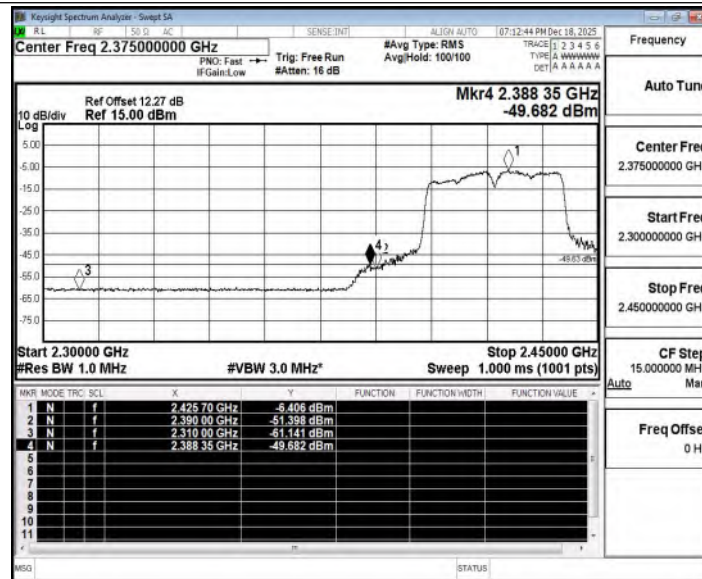
11N20SISO_Ant1_High_2462_AV



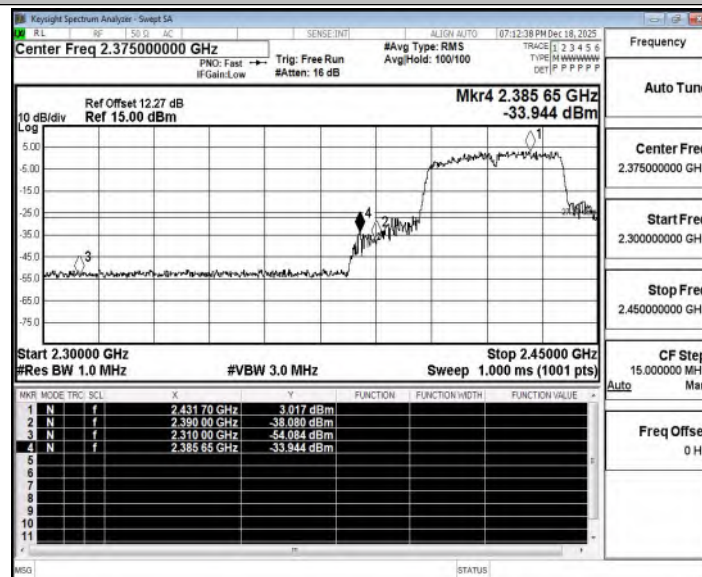
11N20SISO_Ant1_High_2462_Peak



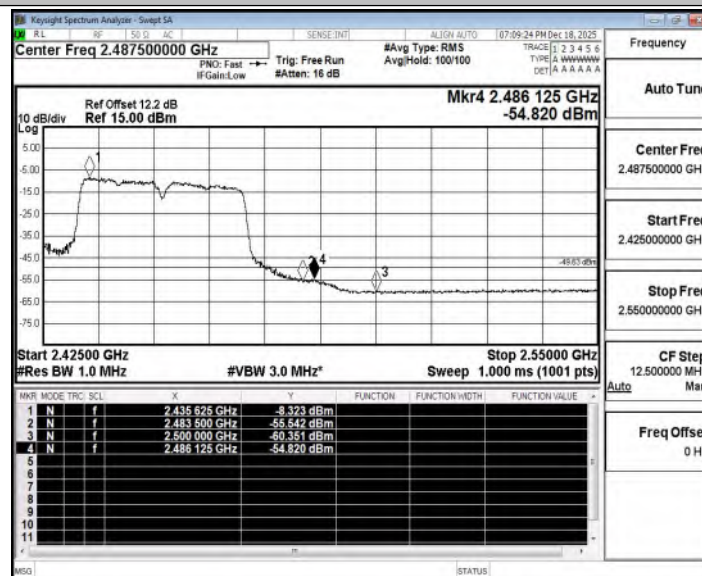
11N40SISO_Ant1_Low_2422_AV



11N40SISO_Ant1_Low_2422_Peak



11N40SISO_Ant1_High_2452_AV



11N40SISO_Ant1_High_2452_Peak

