



Appendix Test Data for WLAN(2. 4G) (Conducted Measurement)

Product Name: ROLLING

Trade Mark: SYLVOX, ZINVAX, MISTAAD, GOTHOT, VUESTATION, KONTECH

Test Model: RL32K1A3GA

FCC ID: 2AZTZ-RL32K1A3GA

Environmental Conditions

Temperature:	23.5℃
Relative Humidity:	58%
ATM Pressure:	100.0 kPa
Test Engineer:	Allen Lai
Supervised by:	Max Zhang
NOTE	N/A

Appendix A: DTS Bandwidth

Test Result

Test Mode	Antenna	Frequency [MHz]	DTS BW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11B	Ant1	2412	8.120	2408.440	2416.560	0.5	PASS
11B	Ant1	2437	8.640	2432.440	2441.080	0.5	PASS
11B	Ant1	2462	8.600	2458.000	2466.600	0.5	PASS
11G	Ant1	2412	15.600	2404.640	2420.240	0.5	PASS
11G	Ant1	2437	16.160	2428.800	2444.960	0.5	PASS
11G	Ant1	2462	15.480	2454.680	2470.160	0.5	PASS
11N20SISO	Ant1	2412	14.000	2406.800	2420.800	0.5	PASS
11N20SISO	Ant1	2437	17.040	2428.320	2445.360	0.5	PASS
11N20SISO	Ant1	2462	16.240	2454.480	2470.720	0.5	PASS
11N40SISO	Ant1	2422	32.160	2405.680	2437.840	0.5	PASS
11N40SISO	Ant1	2437	36.240	2418.760	2455.000	0.5	PASS
11N40SISO	Ant1	2452	36.000	2434.160	2470.160	0.5	PASS

Note: offset(dB) = cable loss(dB) + attenuator factor(dB)





Test Graphs





11B-Ant1-2462-PASS



11G-Ant1-2412-PASS





11G-Ant1-2437-PASS



11G-Ant1-2462-PASS





11N20SISO-Ant1-2412-PASS

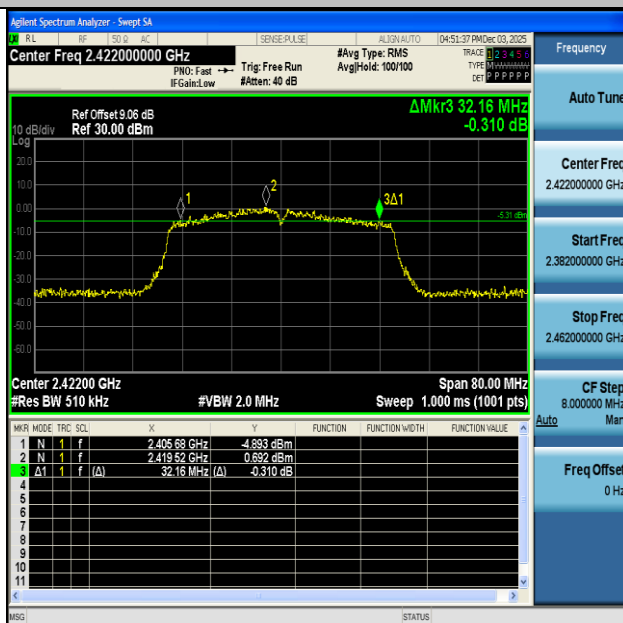


11N20SISO-Ant1-2437-PASS



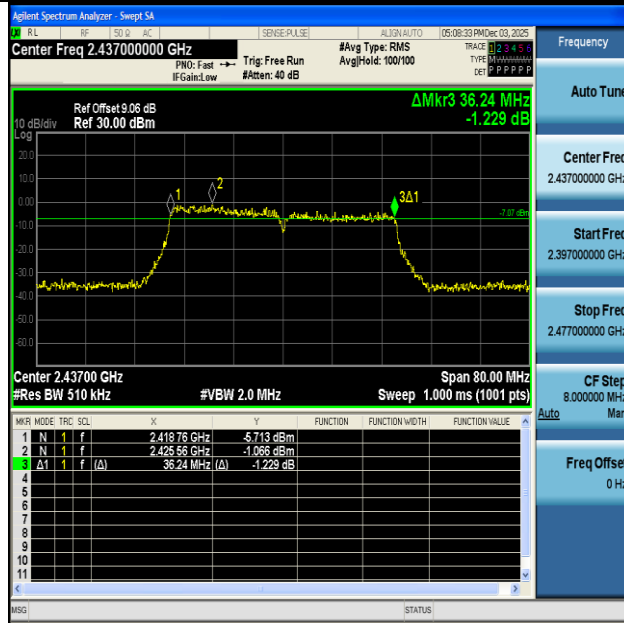


11N20SISO-Ant1-2462-PASS

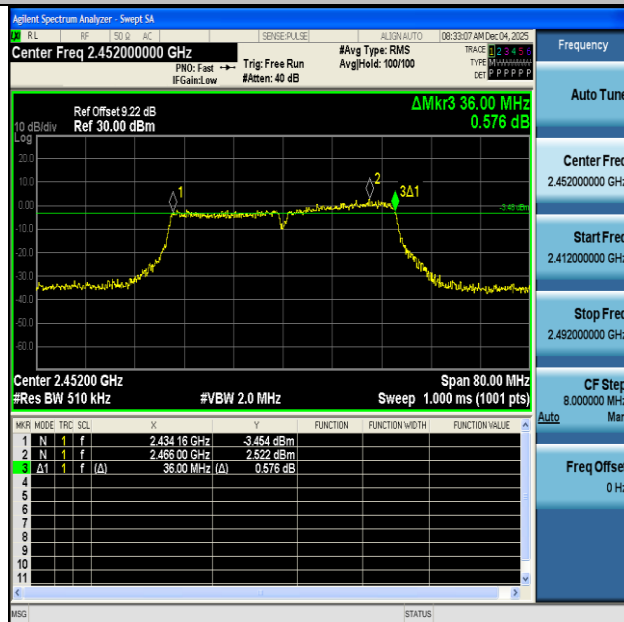


11N40SISO-Ant1-2422-PASS





11N40SISO-Ant1-2437-PASS



11N40SISO-Ant1-2452-PASS





Appendix B: Occupied Channel Bandwidth

Test Result

Test Mode	Antenna	Channel Frequency [MHz]	OCB [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11B	Ant1	2412	13.708	2405.5571	2419.2651	---	---
11B	Ant1	2437	14.432	2429.5933	2444.0253	---	---
11B	Ant1	2462	13.662	2455.4571	2469.1191	---	---
11G	Ant1	2412	16.756	2403.8503	2420.6063	---	---
11G	Ant1	2437	17.086	2428.3450	2445.4310	---	---
11G	Ant1	2462	16.687	2453.7894	2470.4764	---	---
11N20SISO	Ant1	2412	17.855	2403.2870	2421.1420	---	---
11N20SISO	Ant1	2437	18.245	2427.7801	2446.0251	---	---
11N20SISO	Ant1	2462	17.863	2453.2164	2471.0794	---	---
11N40SISO	Ant1	2422	35.835	2404.1501	2439.9851	---	---
11N40SISO	Ant1	2437	36.893	2418.4052	2455.2982	---	---
11N40SISO	Ant1	2452	36.909	2433.7583	2470.6673	---	---

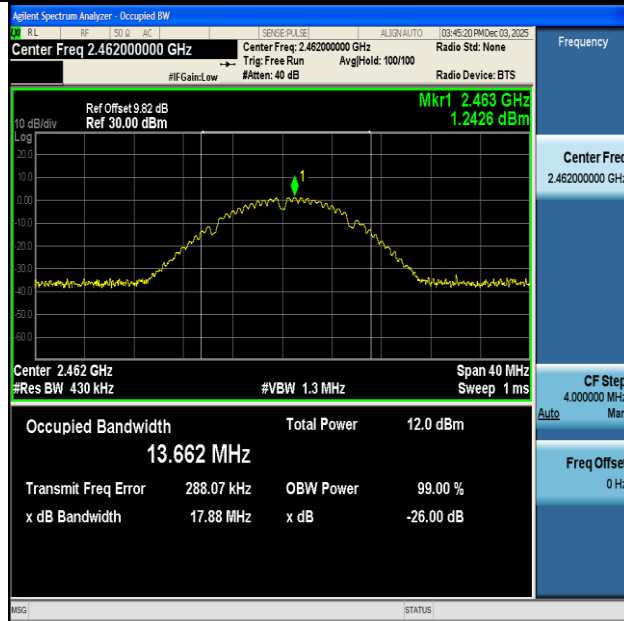
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



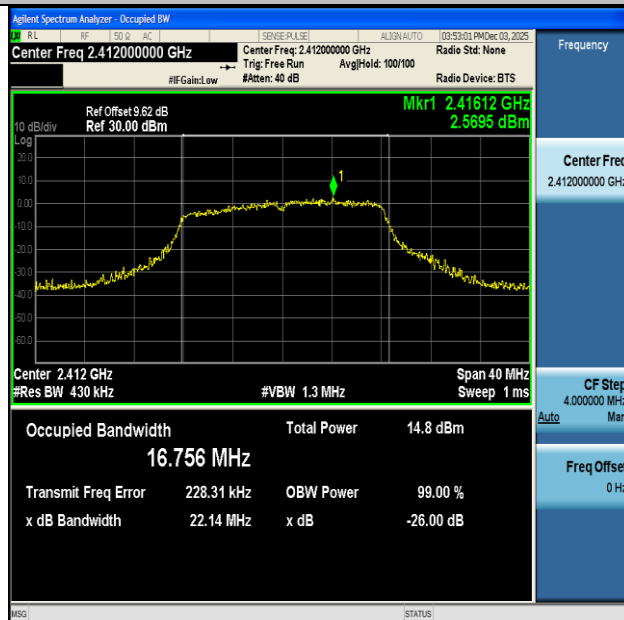


Test Graphs



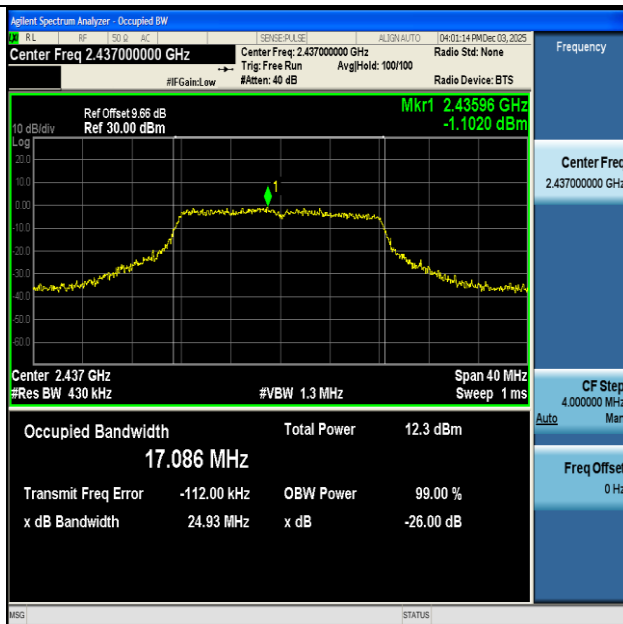


11B-Ant1-2462

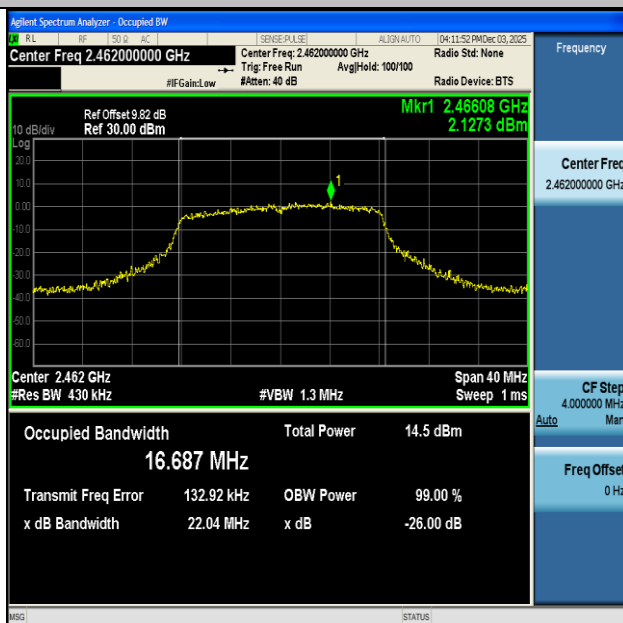


11G-Ant1-2412



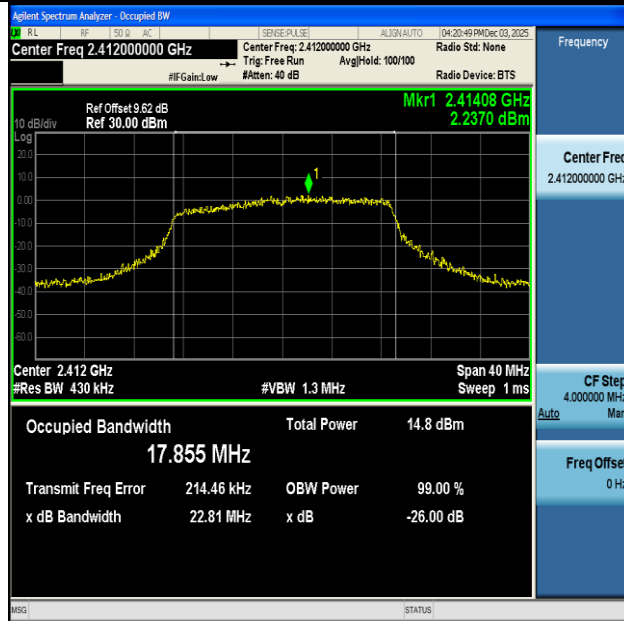


11G-Ant1-2437

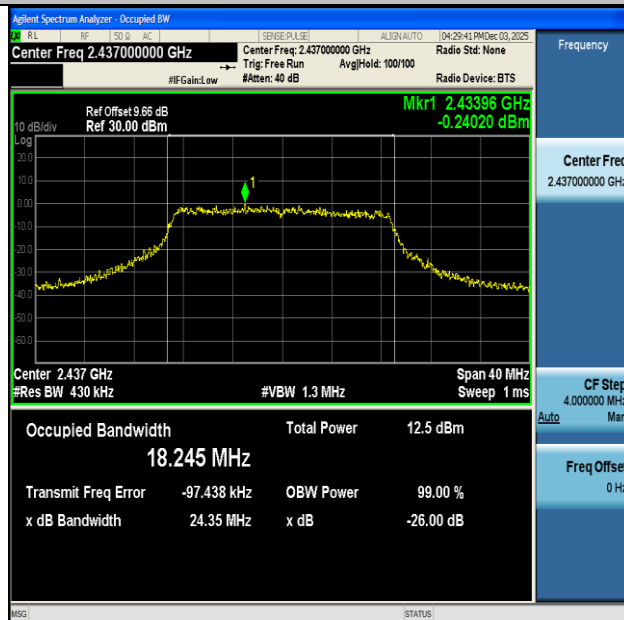


11G-Ant1-2462



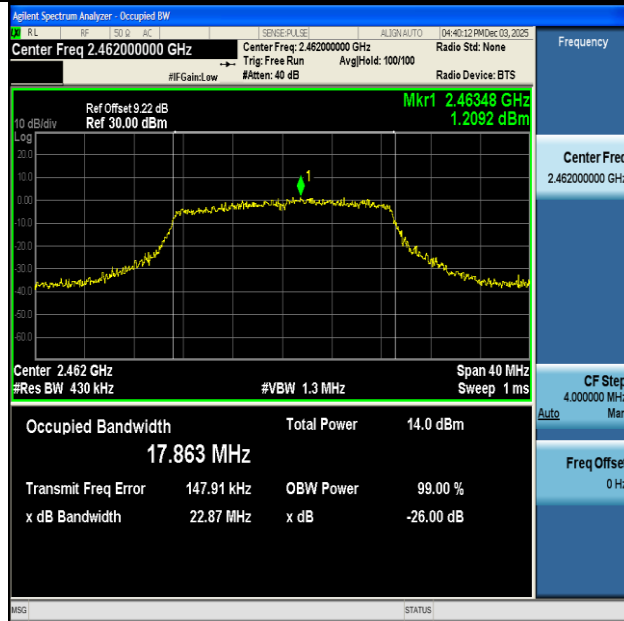


11N20SISO-Ant1-2412

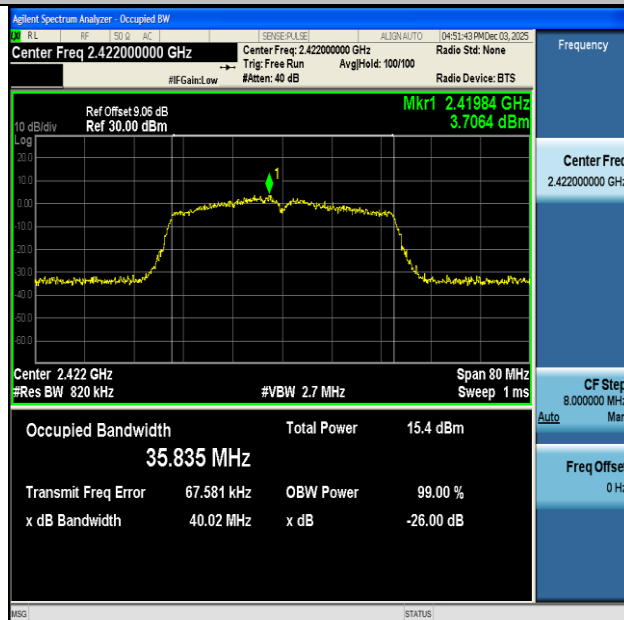


11N20SISO-Ant1-2437



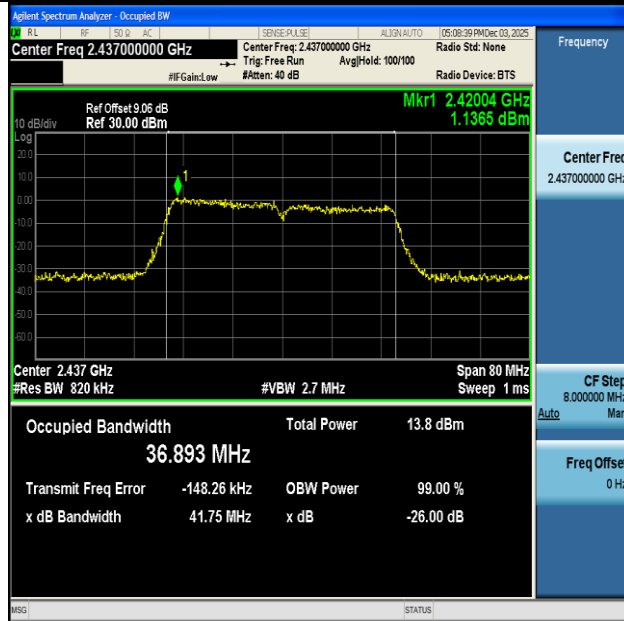


11N20SISO-Ant1-2462

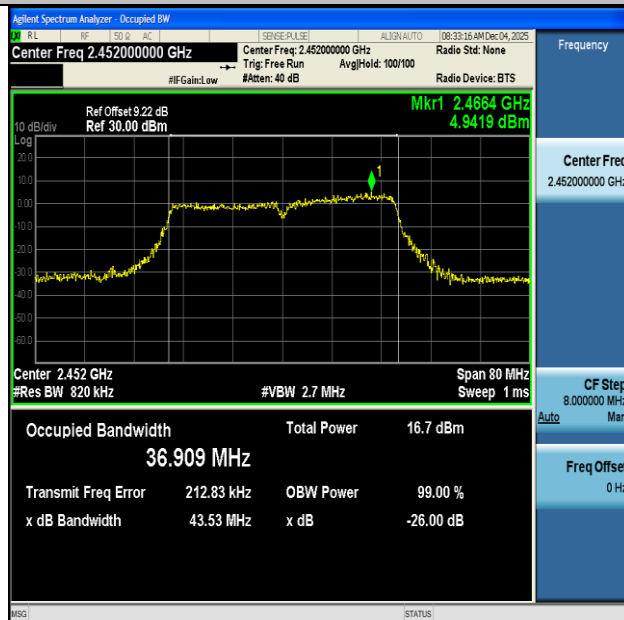


11N40SISO-Ant1-2422





11N40SISO-Ant1-2437



11N40SISO-Ant1-2452





Appendix C: Maximum Average conducted output power

Test Result

Test Mode	Antenna	Frequency [MHz]	Conducted Power [dBm]	Conducted Limit [dBm]	Verdict
11B	Ant1	2412	8.92	≤30.00	PASS
11B	Ant1	2437	6.51	≤30.00	PASS
11B	Ant1	2462	8.86	≤30.00	PASS
11G	Ant1	2412	8.55	≤30.00	PASS
11G	Ant1	2437	6.09	≤30.00	PASS
11G	Ant1	2462	8.31	≤30.00	PASS
11N20SISO	Ant1	2412	8.36	≤30.00	PASS
11N20SISO	Ant1	2437	6.02	≤30.00	PASS
11N20SISO	Ant1	2462	7.55	≤30.00	PASS
11N40SISO	Ant1	2422	8.08	≤30.00	PASS
11N40SISO	Ant1	2437	6.65	≤30.00	PASS
11N40SISO	Ant1	2452	10.08	≤30.00	PASS

Note: offset(dB) = cable loss(dB) + attenuator factor(dB) + Duty Cycle Factor(dB)





Appendix D: Maximum Average power spectral density

Test Result

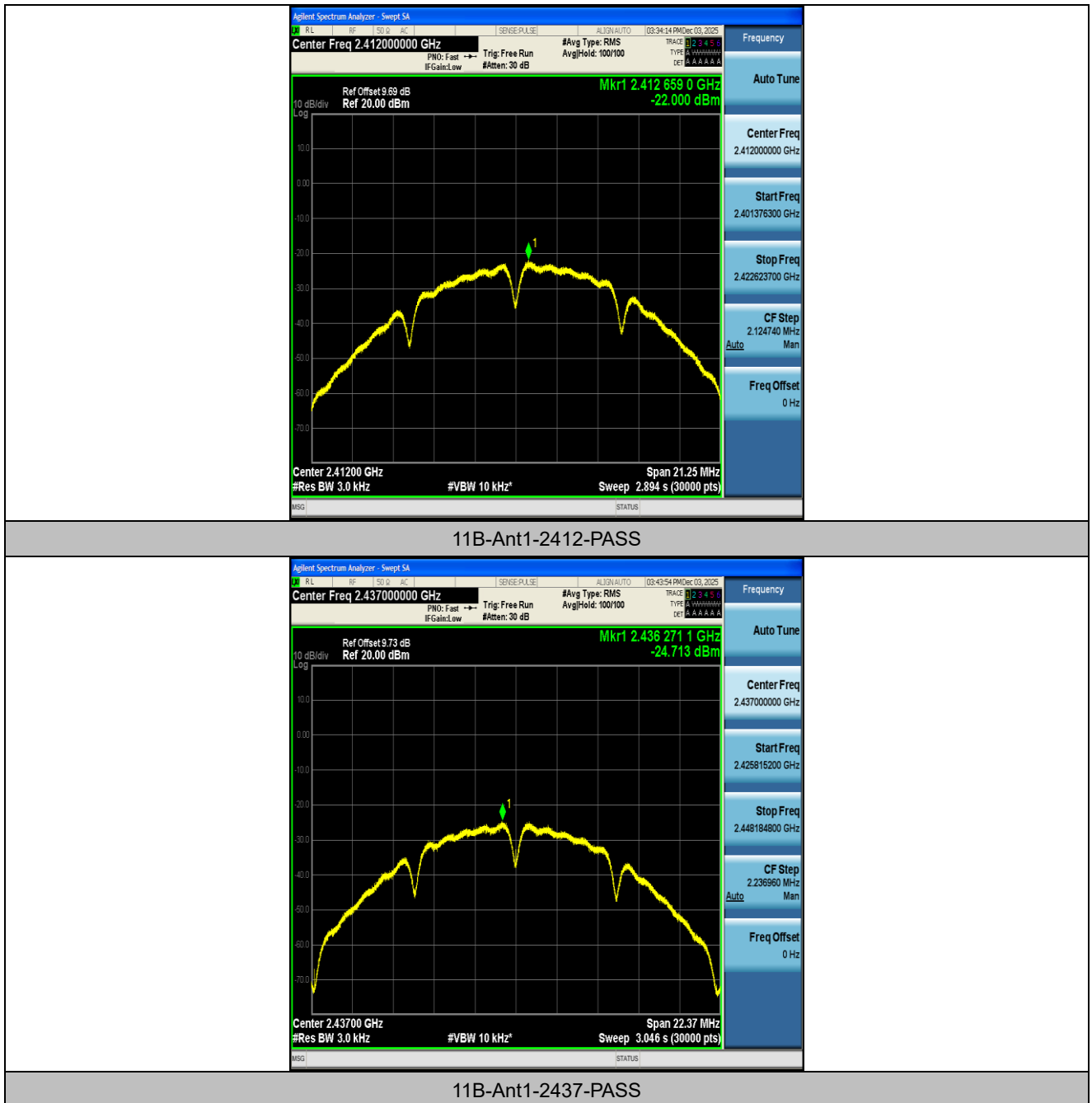
Test Mode	Antenna	Frequency [MHz]	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B	Ant1	2412	-22.00	≤8.00	PASS
11B	Ant1	2437	-24.71	≤8.00	PASS
11B	Ant1	2462	-22.20	≤8.00	PASS
11G	Ant1	2412	-24.61	≤8.00	PASS
11G	Ant1	2437	-27.66	≤8.00	PASS
11G	Ant1	2462	-24.79	≤8.00	PASS
11N20SISO	Ant1	2412	-25.29	≤8.00	PASS
11N20SISO	Ant1	2437	-27.98	≤8.00	PASS
11N20SISO	Ant1	2462	-25.95	≤8.00	PASS
11N40SISO	Ant1	2422	-27.04	≤8.00	PASS
11N40SISO	Ant1	2437	-28.72	≤8.00	PASS
11N40SISO	Ant1	2452	-20.55	≤8.00	PASS

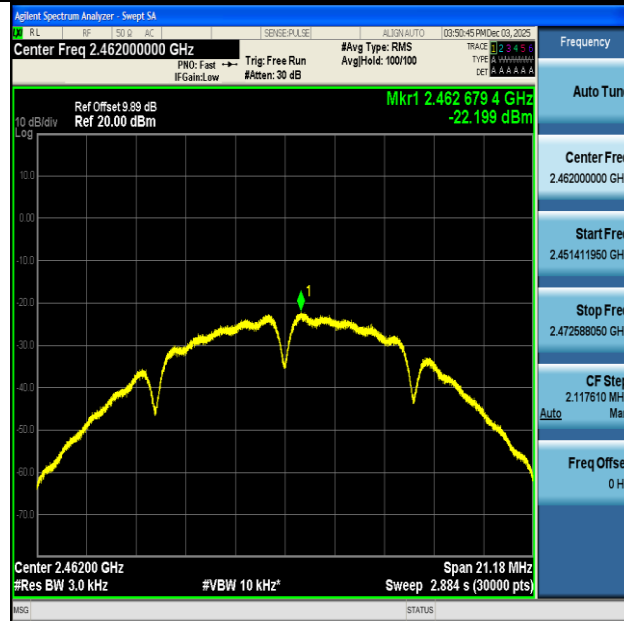
Note: offset(dB) = cable loss(dB) + attenuator factor(dB) + Duty Cycle Factor(dB)



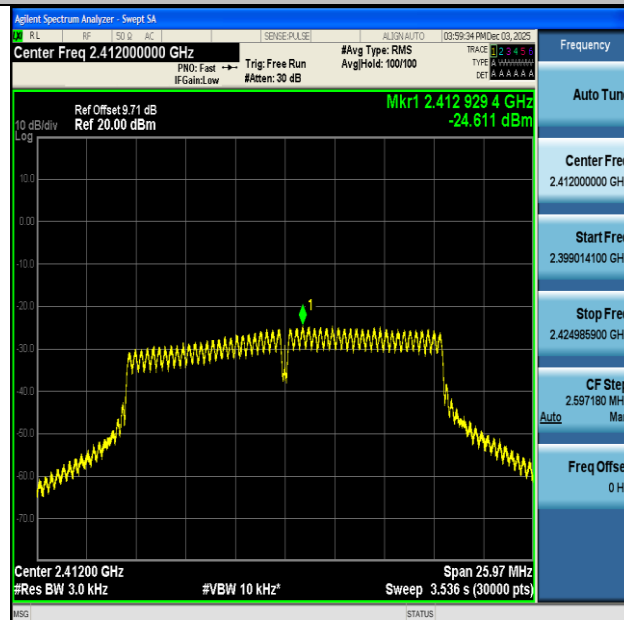


Test Graphs



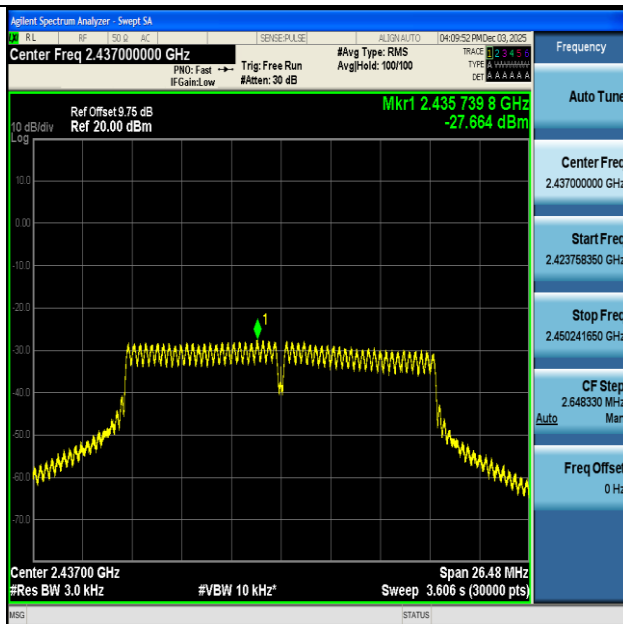


11B-Ant1-2462-PASS

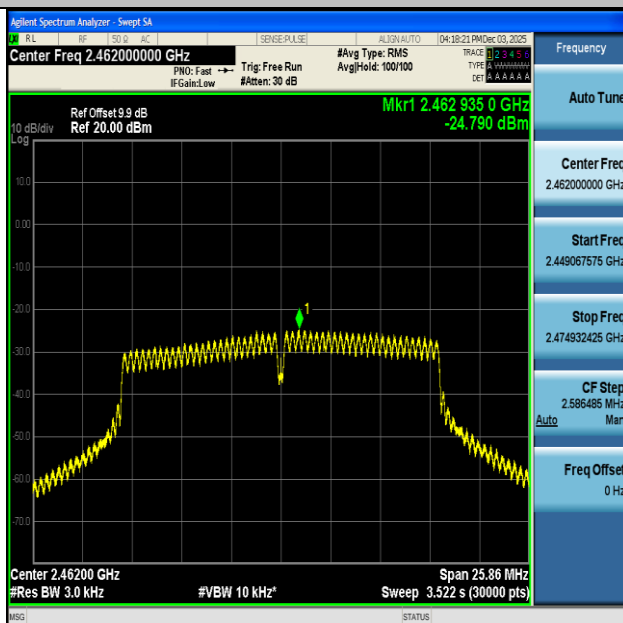


11G-Ant1-2412-PASS



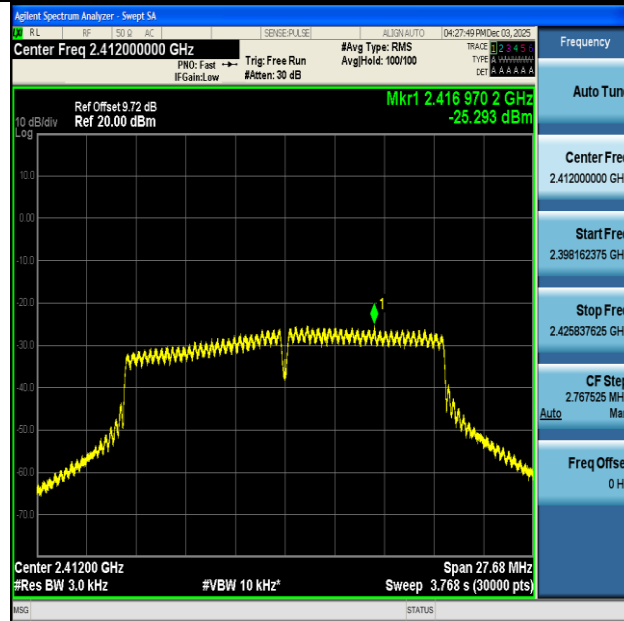


11G-Ant1-2437-PASS

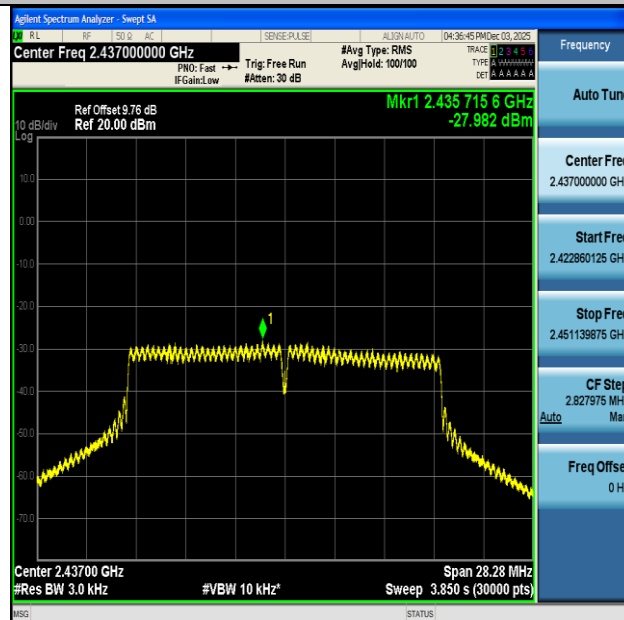


11G-Ant1-2462-PASS



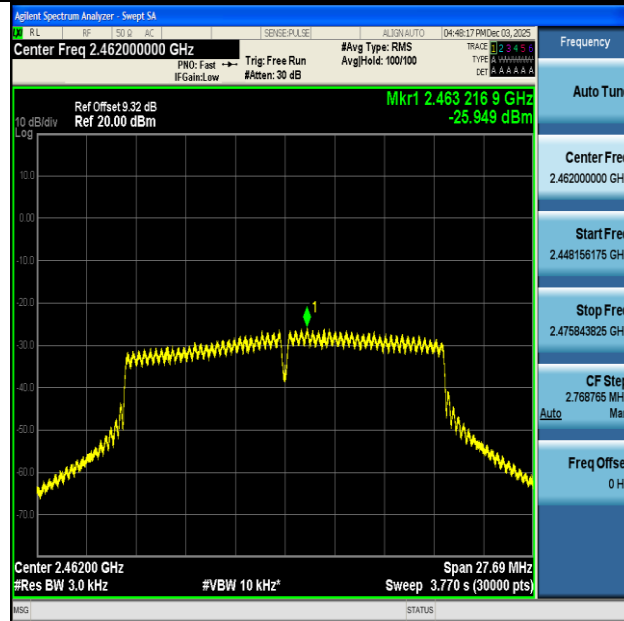


11N20SISO-Ant1-2412-PASS

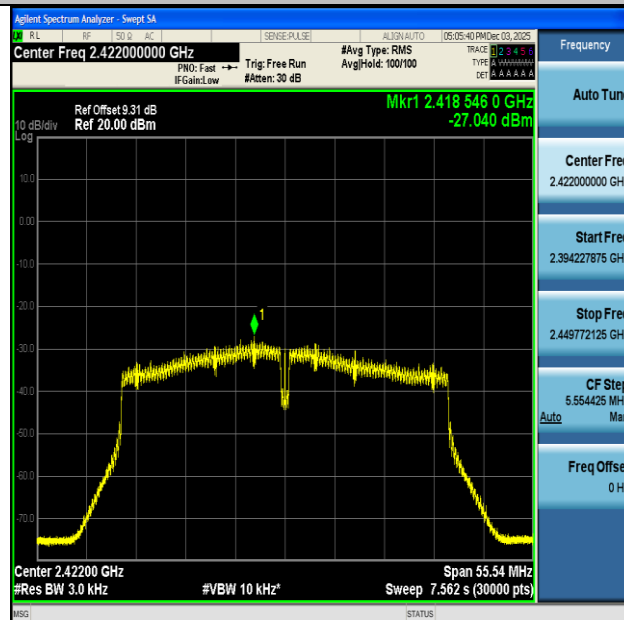


11N20SISO-Ant1-2437-PASS



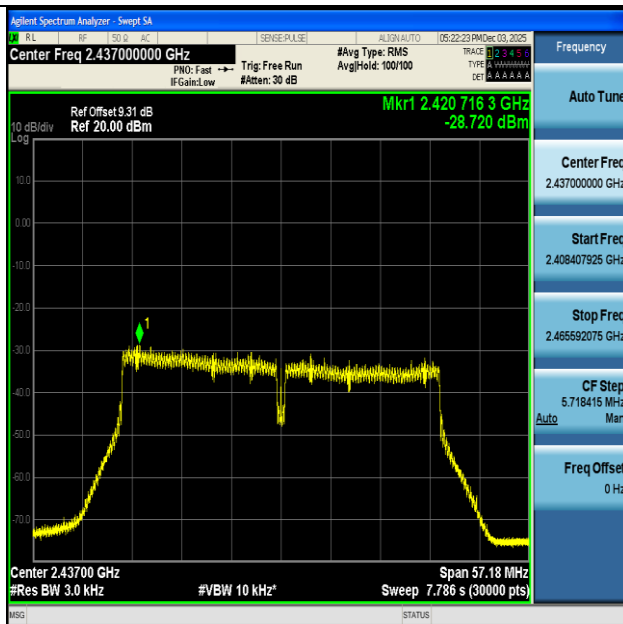


11N20SISO-Ant1-2462-PASS

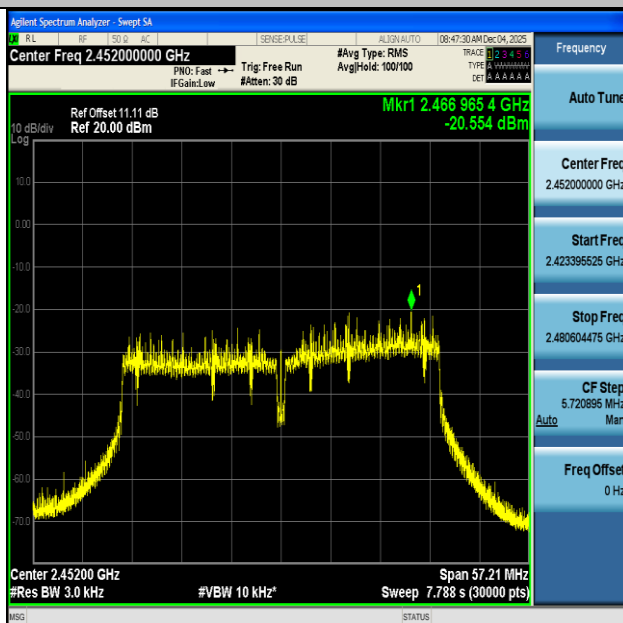


11N40SISO-Ant1-2422-PASS





11N40SISO-Ant1-2437-PASS



11N40SISO-Ant1-2452-PASS





Appendix E: Band edge measurements

Test Result

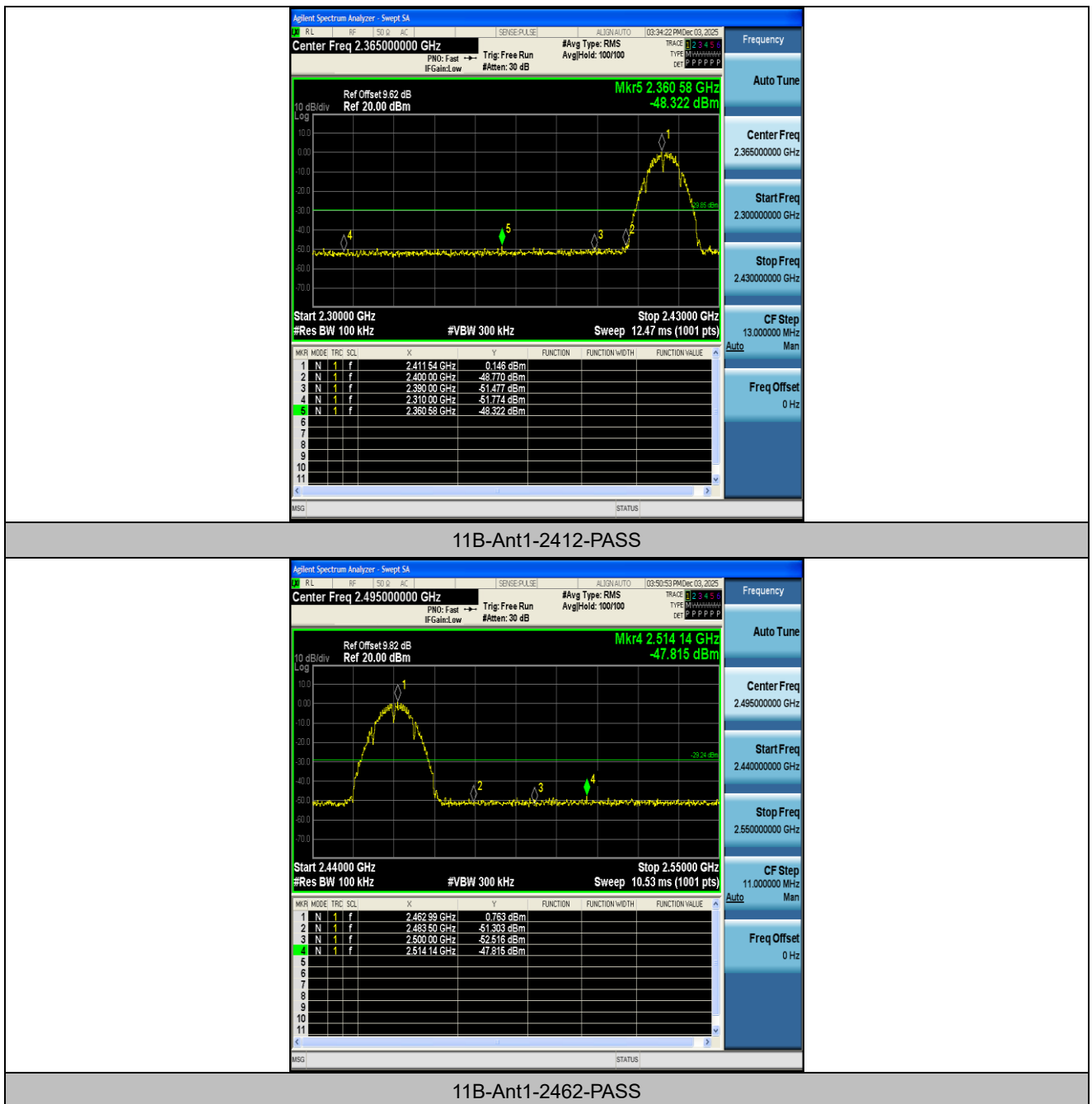
Test Mode	Antenna	Ch. Name	Frequency.[MHz]	Ref. Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	Low	2412	0.15	-48.32	≤-29.85	PASS
11B	Ant1	High	2462	0.76	-47.82	≤-29.24	PASS
11G	Ant1	Low	2412	-0.52	-35.35	≤-30.52	PASS
11G	Ant1	High	2462	-1.08	-48.35	≤-31.08	PASS
11N20SISO	Ant1	Low	2412	-1.37	-34.6	≤-31.37	PASS
11N20SISO	Ant1	High	2462	-2.11	-48.6	≤-32.11	PASS
11N40SISO	Ant1	Low	2422	-4.27	-44.41	≤-34.27	PASS
11N40SISO	Ant1	High	2452	-2.33	-46.01	≤-32.33	PASS

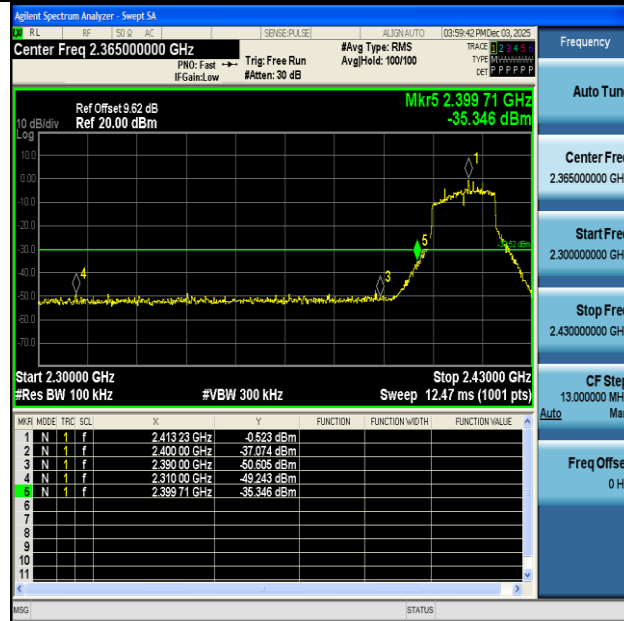
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



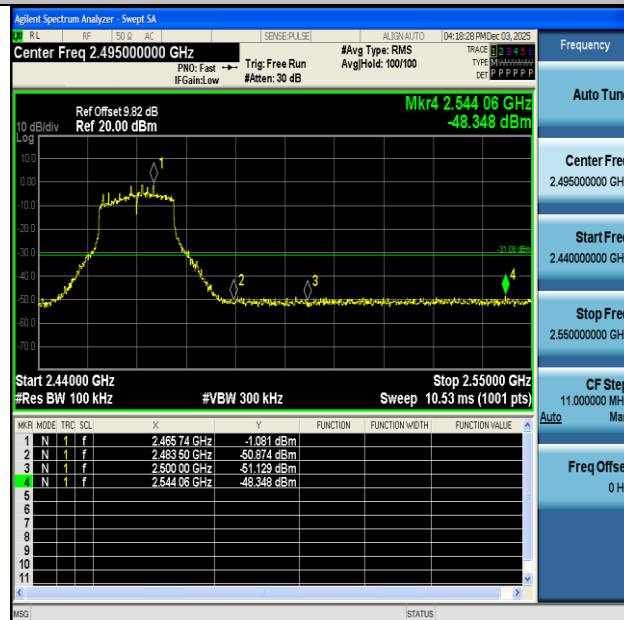


Test Graphs



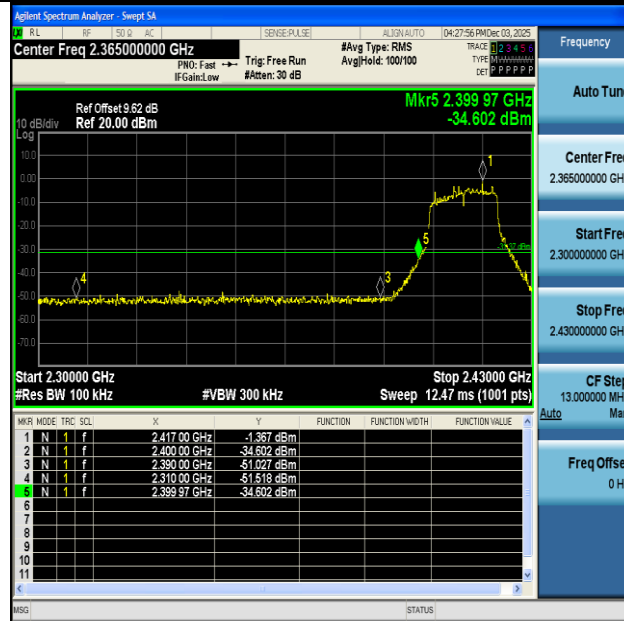


11G-Ant1-2412-PASS

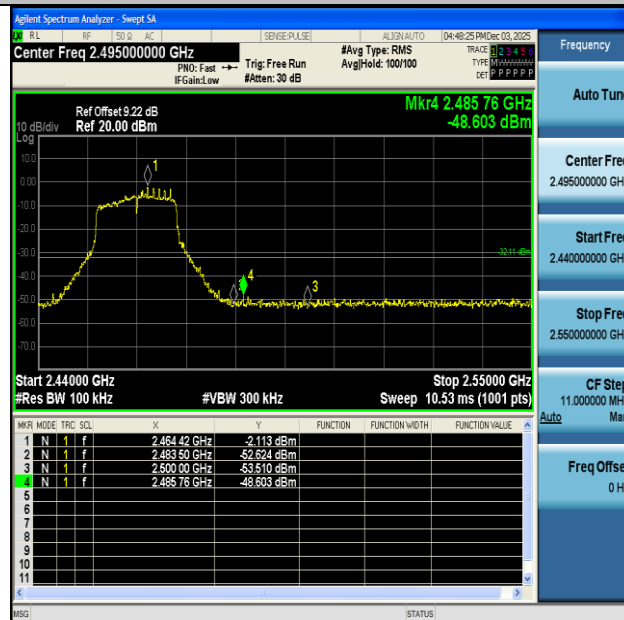


11G-Ant1-2462-PASS



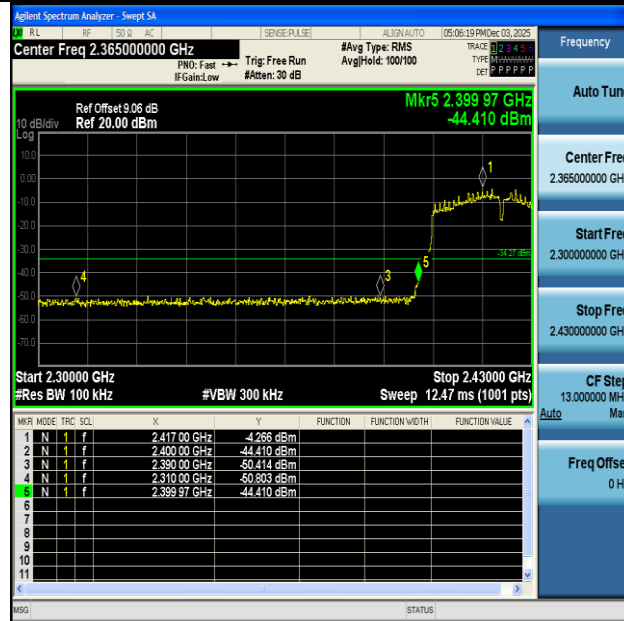


11N20SISO-Ant1-2412-PASS

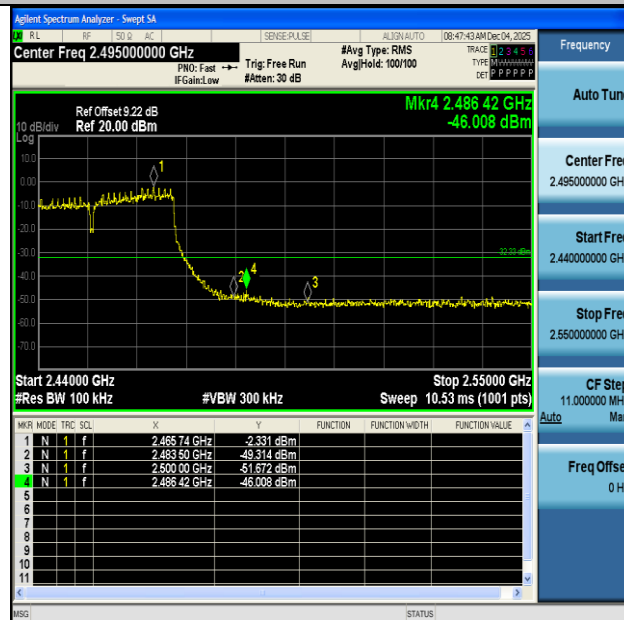


11N20SISO-Ant1-2462-PASS





11N40SISO-Ant1-2422-PASS



11N40SISO-Ant1-2452-PASS





Appendix F: Conducted Spurious Emission

Test Result

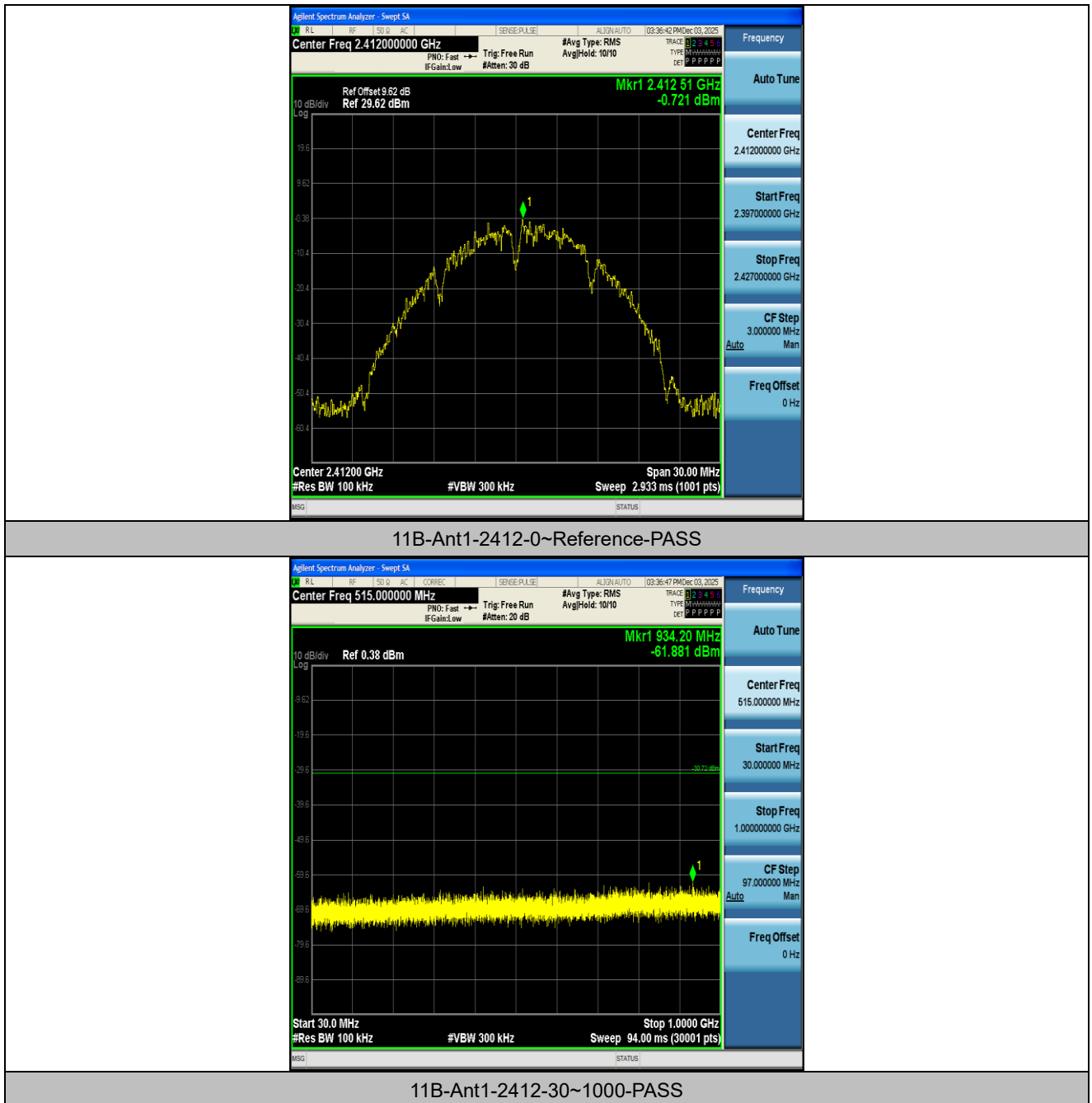
Test Mode	Antenna	Frequency [MHz]	Freq. Range [Mhz]	Ref. Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	0~Reference	-0.72	-0.72	---	PASS
11B	Ant1	2412	30~1000	-0.72	-61.88	≤-30.72	PASS
11B	Ant1	2412	1000~26500	-0.72	-36.24	≤-30.72	PASS
11B	Ant1	2437	0~Reference	-2.16	-2.16	---	PASS
11B	Ant1	2437	30~1000	-2.16	-61.88	≤-32.16	PASS
11B	Ant1	2437	1000~26500	-2.16	-37.31	≤-32.16	PASS
11B	Ant1	2462	0~Reference	-0.27	-0.27	---	PASS
11B	Ant1	2462	30~1000	-0.27	-62.38	≤-30.27	PASS
11B	Ant1	2462	1000~26500	-0.27	-37.25	≤-30.27	PASS
11G	Ant1	2412	0~Reference	-3.99	-3.99	---	PASS
11G	Ant1	2412	30~1000	-3.99	-62.38	≤-33.99	PASS
11G	Ant1	2412	1000~26500	-3.99	-37.26	≤-33.99	PASS
11G	Ant1	2437	0~Reference	-4.22	-4.22	---	PASS
11G	Ant1	2437	30~1000	-4.22	-62.07	≤-34.22	PASS
11G	Ant1	2437	1000~26500	-4.22	-36.35	≤-34.22	PASS
11G	Ant1	2462	0~Reference	-5.31	-5.31	---	PASS
11G	Ant1	2462	30~1000	-5.31	-62.54	≤-35.31	PASS
11G	Ant1	2462	1000~26500	-5.31	-37.28	≤-35.31	PASS
11N20SISO	Ant1	2412	0~Reference	-4.35	-4.35	---	PASS
11N20SISO	Ant1	2412	30~1000	-4.35	-62.39	≤-34.35	PASS
11N20SISO	Ant1	2412	1000~26500	-4.35	-37.32	≤-34.35	PASS
11N20SISO	Ant1	2437	0~Reference	-8.55	-8.55	---	PASS
11N20SISO	Ant1	2437	30~1000	-8.55	-70.17	≤-38.55	PASS
11N20SISO	Ant1	2437	1000~26500	-8.55	-47.17	≤-38.55	PASS
11N20SISO	Ant1	2462	0~Reference	-5.10	-5.10	---	PASS
11N20SISO	Ant1	2462	30~1000	-5.10	-72.32	≤-35.1	PASS
11N20SISO	Ant1	2462	1000~26500	-5.10	-47.3	≤-35.1	PASS
11N40SISO	Ant1	2422	0~Reference	-7.74	-7.74	---	PASS
11N40SISO	Ant1	2422	30~1000	-7.74	-71.85	≤-37.74	PASS
11N40SISO	Ant1	2422	1000~26500	-7.74	-48.02	≤-37.74	PASS
11N40SISO	Ant1	2437	0~Reference	-7.00	-7.00	---	PASS
11N40SISO	Ant1	2437	30~1000	-7.00	-72	≤-37	PASS
11N40SISO	Ant1	2452	0~Reference	-2.53	-2.53	---	PASS
11N40SISO	Ant1	2452	30~1000	-2.53	-71.03	≤-32.53	PASS
11N40SISO	Ant1	2452	1000~26500	-2.53	-47.53	≤-32.53	PASS

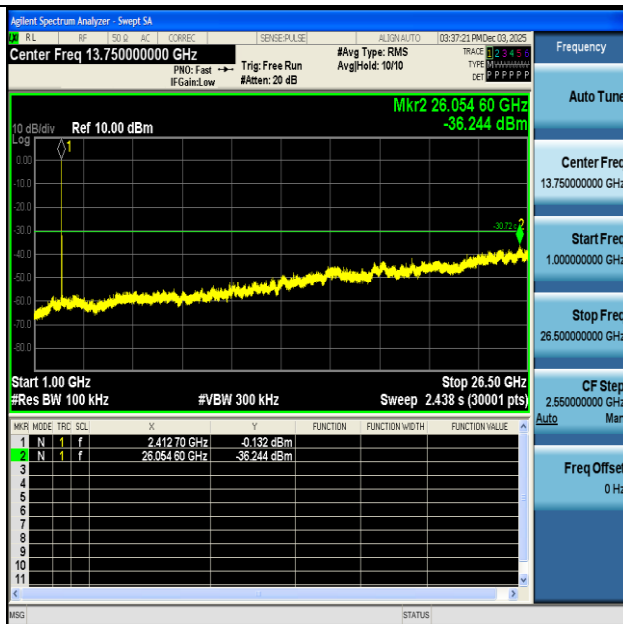
Note: offset(dB) in Reference test plots = cable loss(dB) + attenuator factor(dB); For spurious emissions plots from 30MHz to 26.5GHz, the cable loss and attenuator factors have been set in the 'Input Correction' of the Spectrum Analyzer during the test.



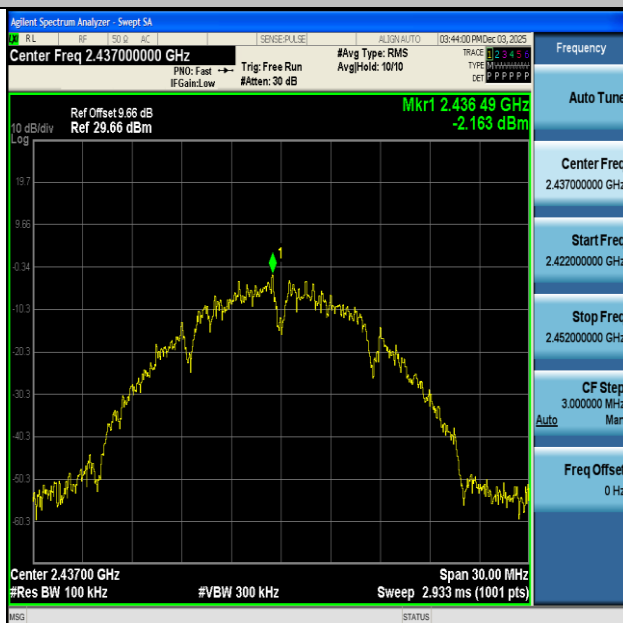


Test Graphs



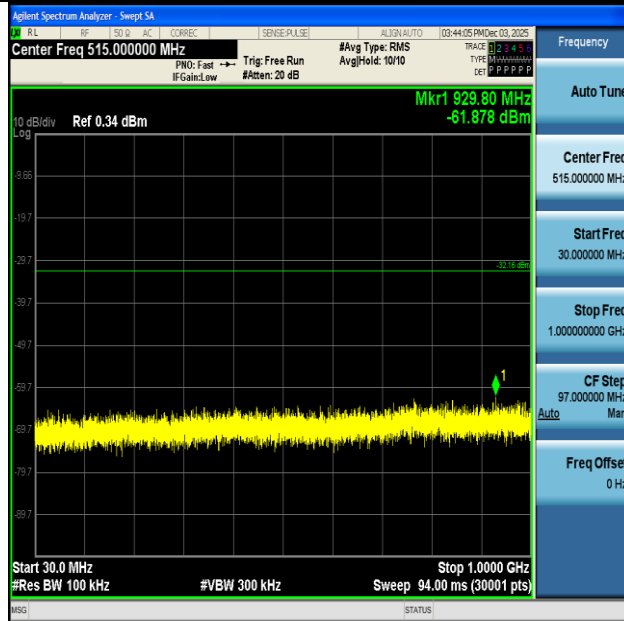


11B-Ant1-2412-1000~26500-PASS

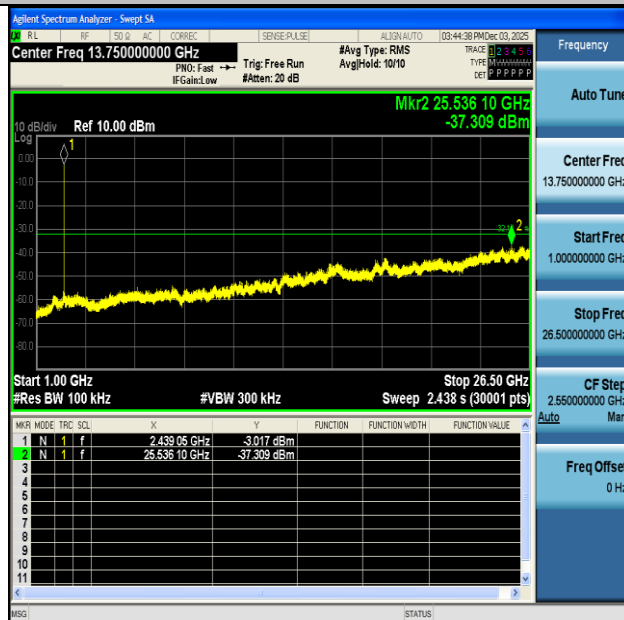


11B-Ant1-2437-0~Reference-PASS



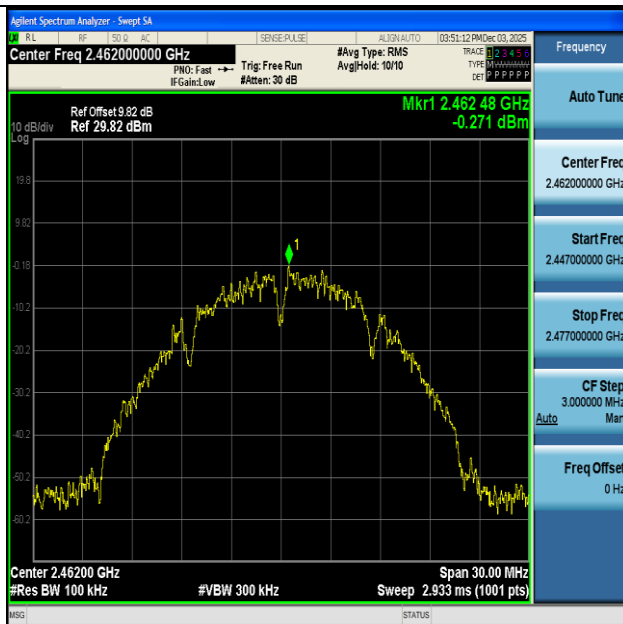


11B-Ant1-2437-30~1000-PASS

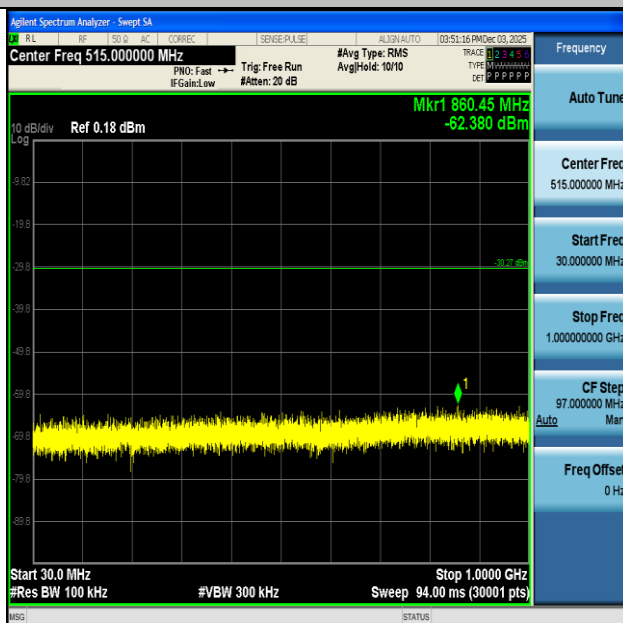


11B-Ant1-2437-1000~26500-PASS



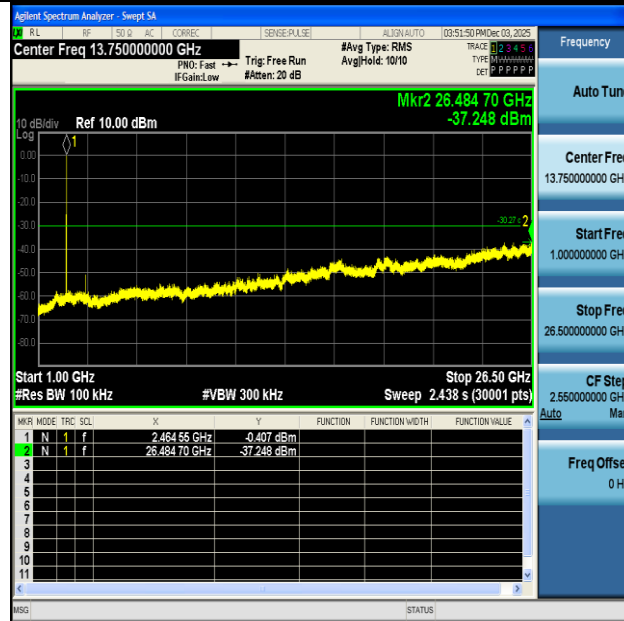


11B-Ant1-2462-0~Reference-PASS

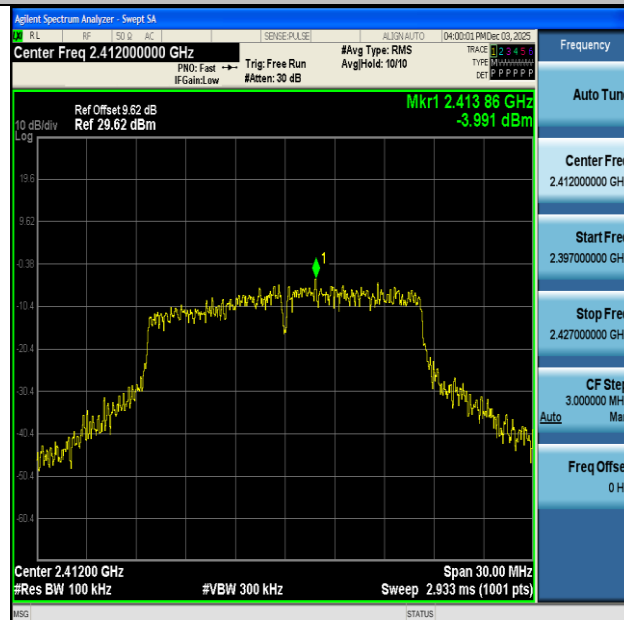


11B-Ant1-2462-30~1000-PASS



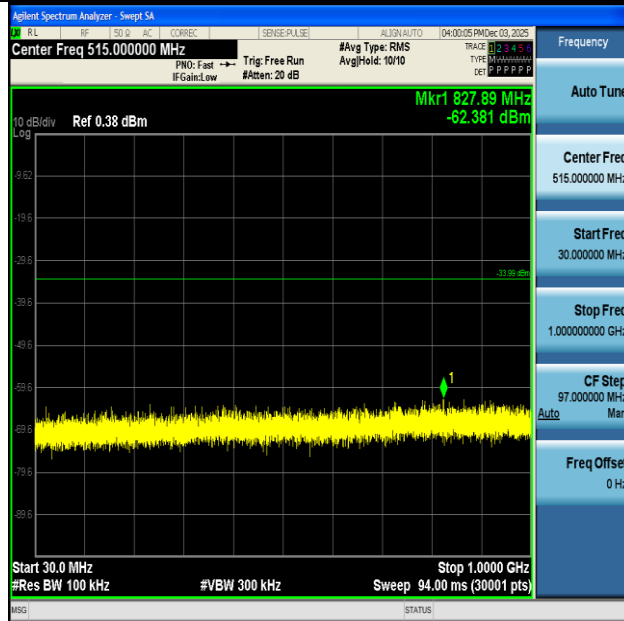


11B-Ant1-2462-1000~26500-PASS

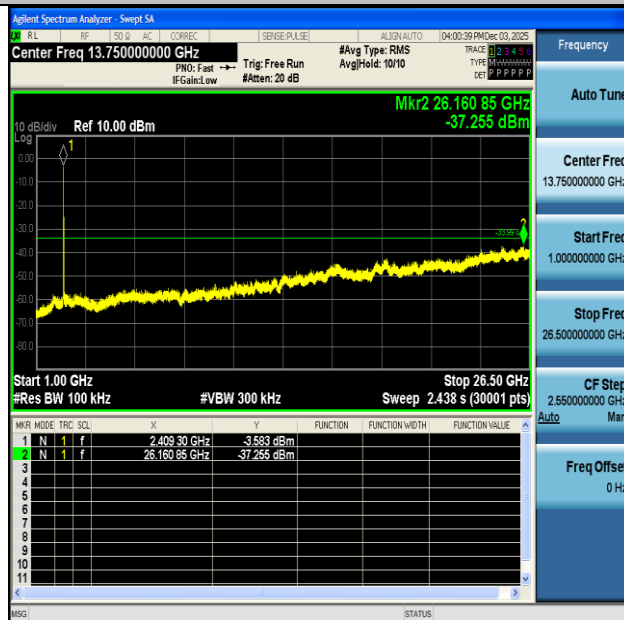


11G-Ant1-2412-0~Reference-PASS



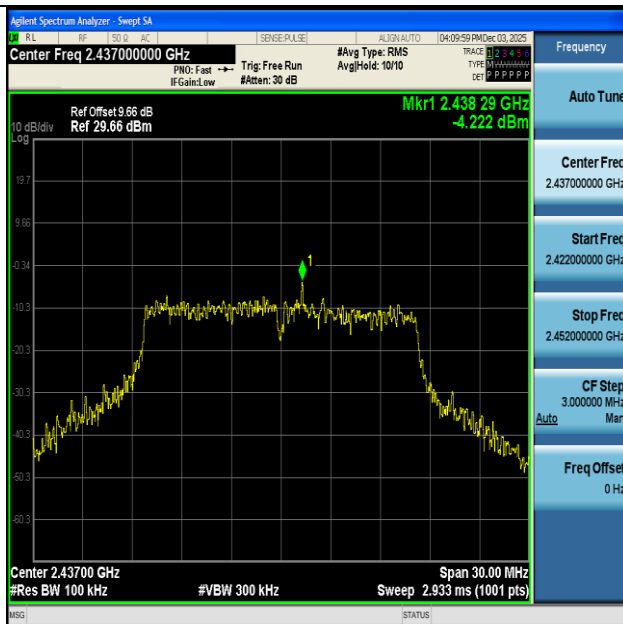


11G-Ant1-2412-30~1000-PASS

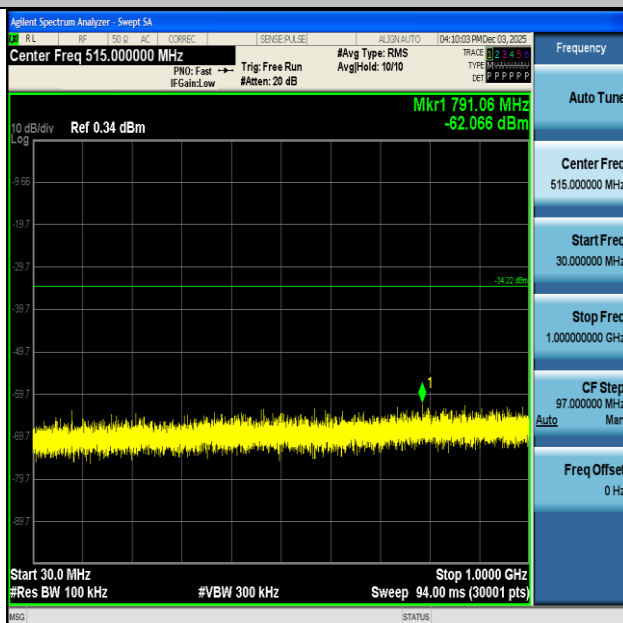


11G-Ant1-2412-1000~26500-PASS



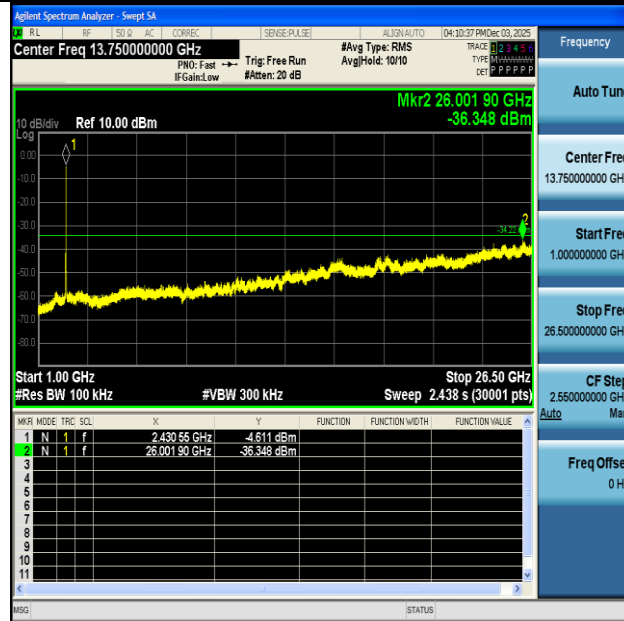


11G-Ant1-2437-0~Reference-PASS

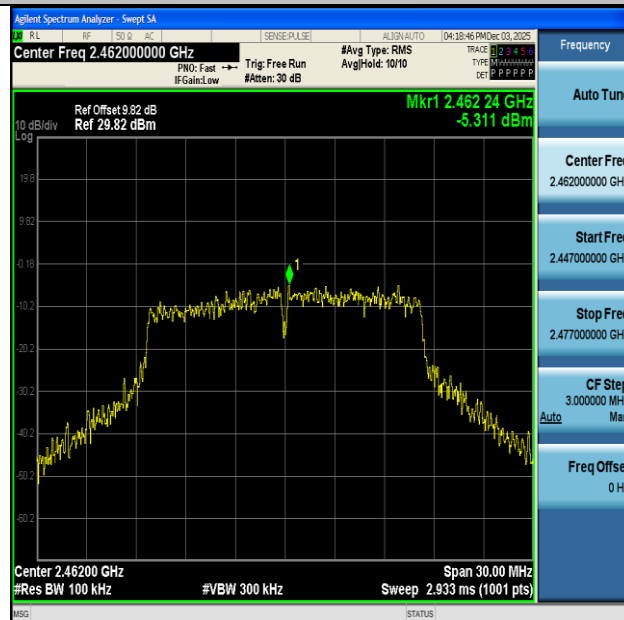


11G-Ant1-2437-30~1000-PASS





11G-Ant1-2437-1000~26500-PASS

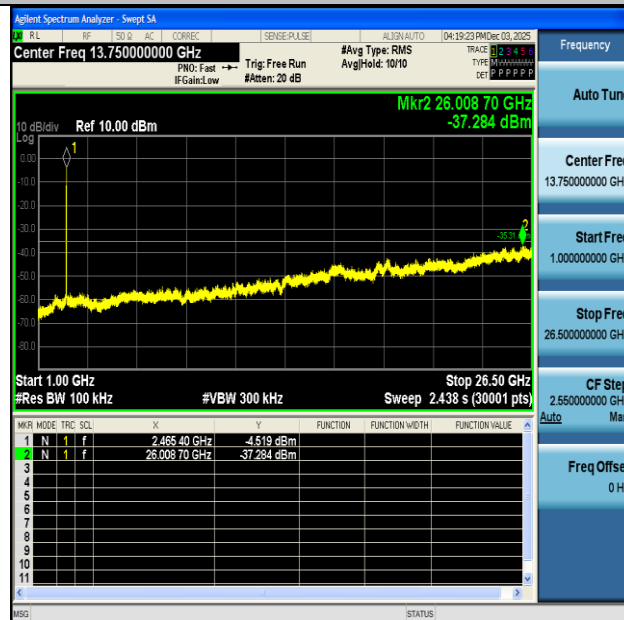


11G-Ant1-2462-0~Reference-PASS



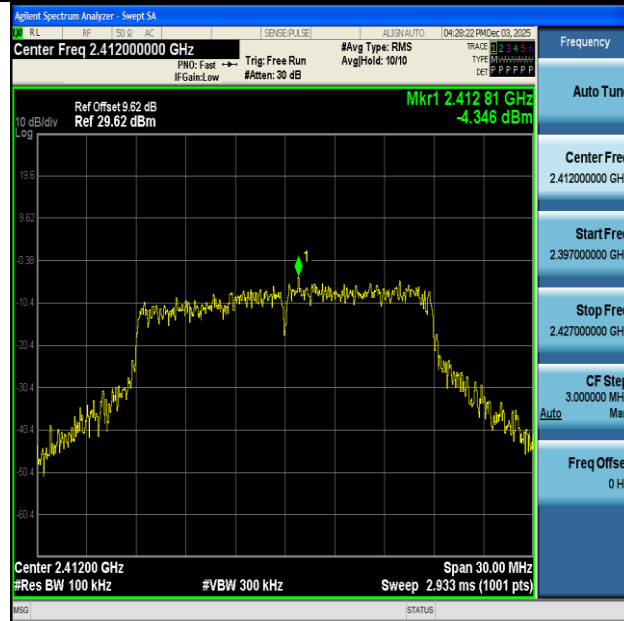


11G-Ant1-2462-30~1000-PASS

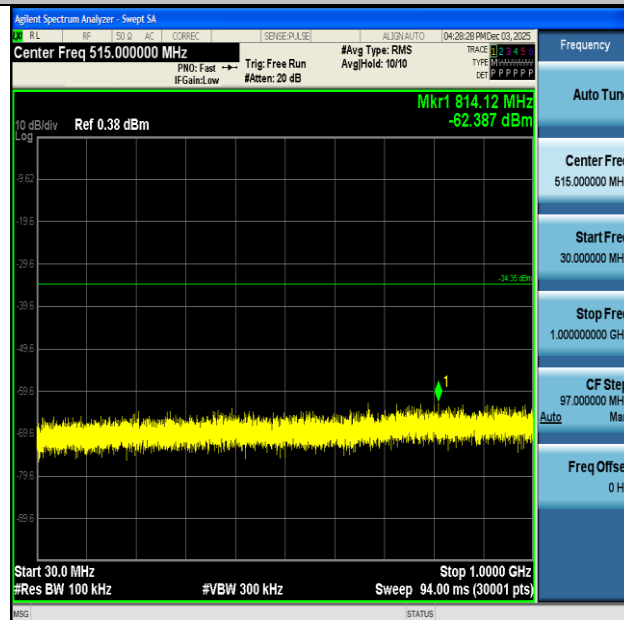


11G-Ant1-2462-1000~26500-PASS



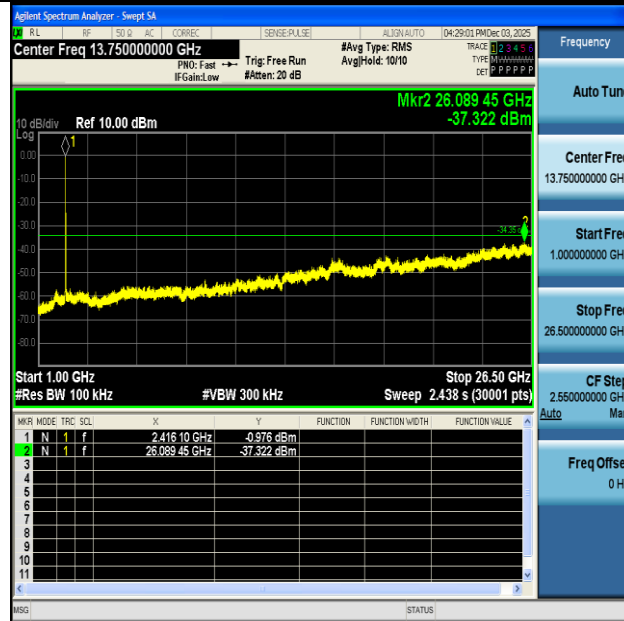


11N20SISO-Ant1-2412-0~Reference-PASS

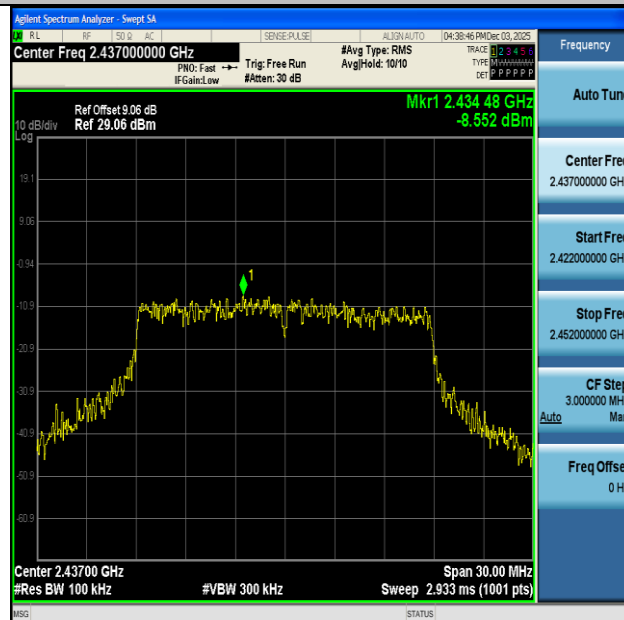


11N20SISO-Ant1-2412-30~1000-PASS



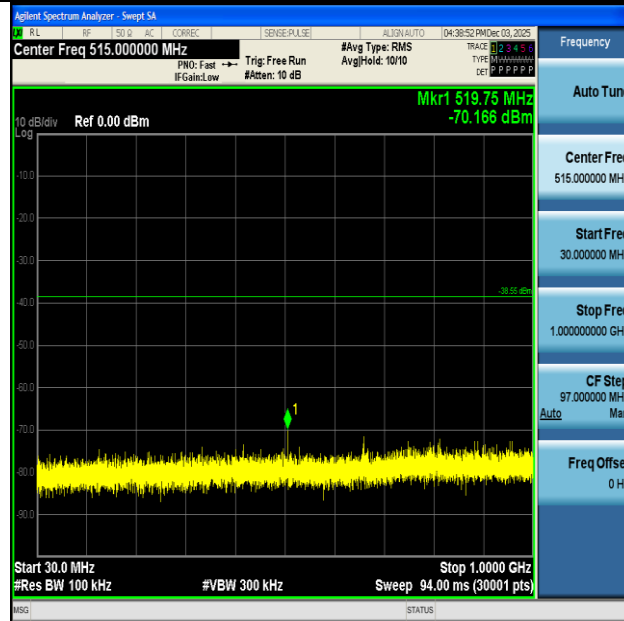


11N20SISO-Ant1-2412-1000~26500-PASS

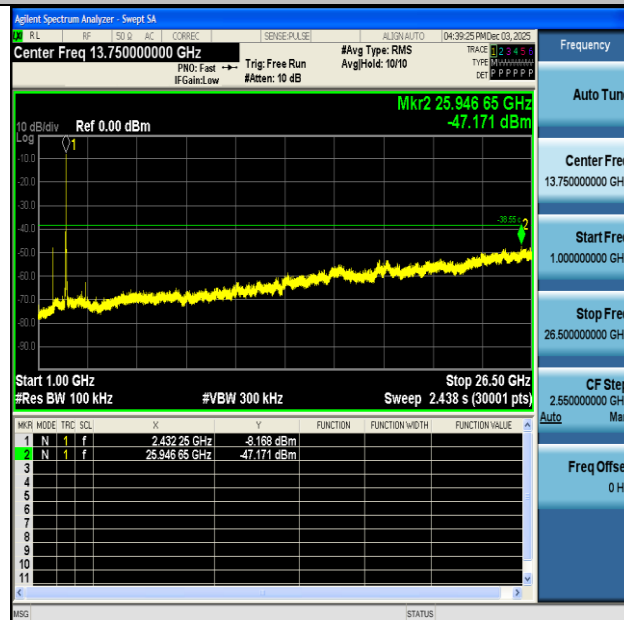


11N20SISO-Ant1-2437-0~Reference-PASS



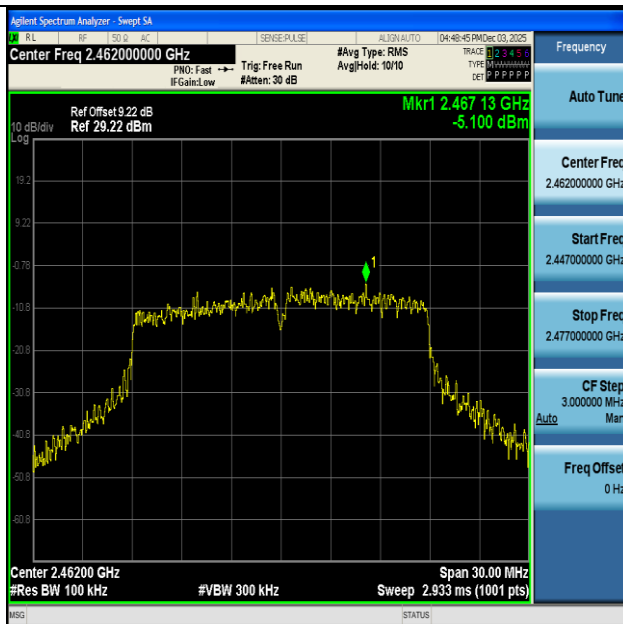


11N20SISO-Ant1-2437-30~1000-PASS

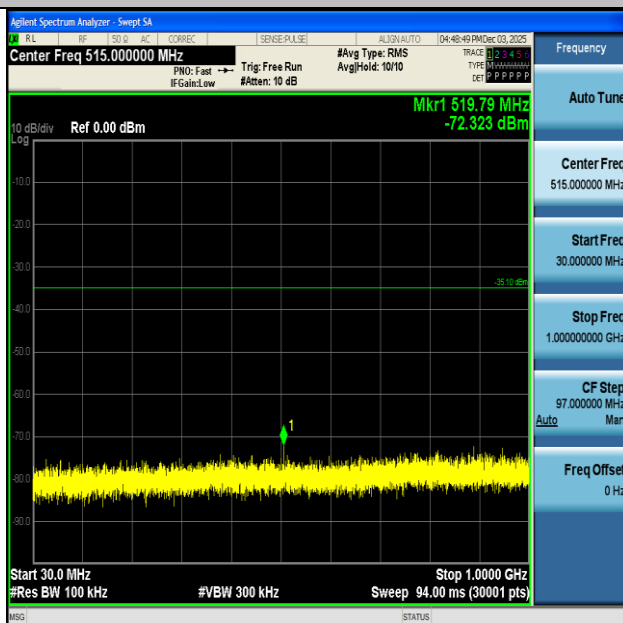


11N20SISO-Ant1-2437-1000~26500-PASS



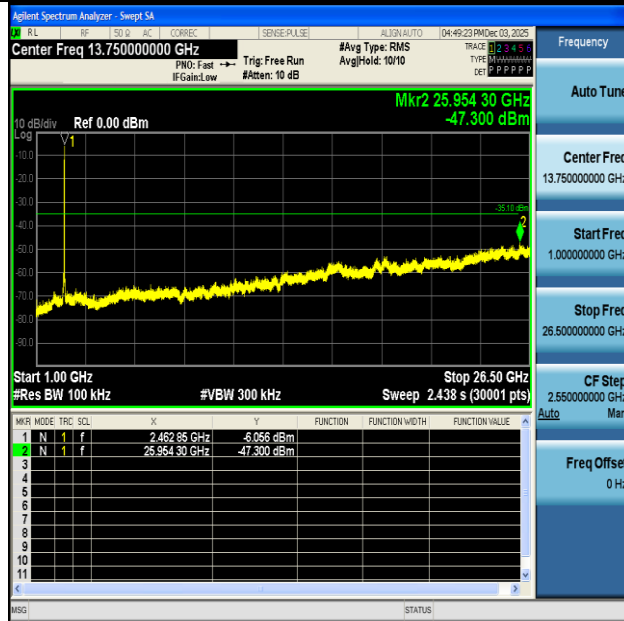


11N20SISO-Ant1-2462-0~Reference-PASS

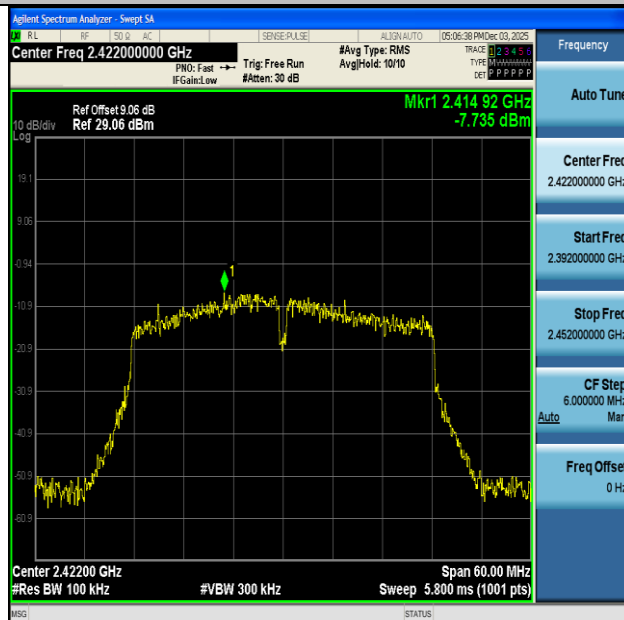


11N20SISO-Ant1-2462-30~1000-PASS



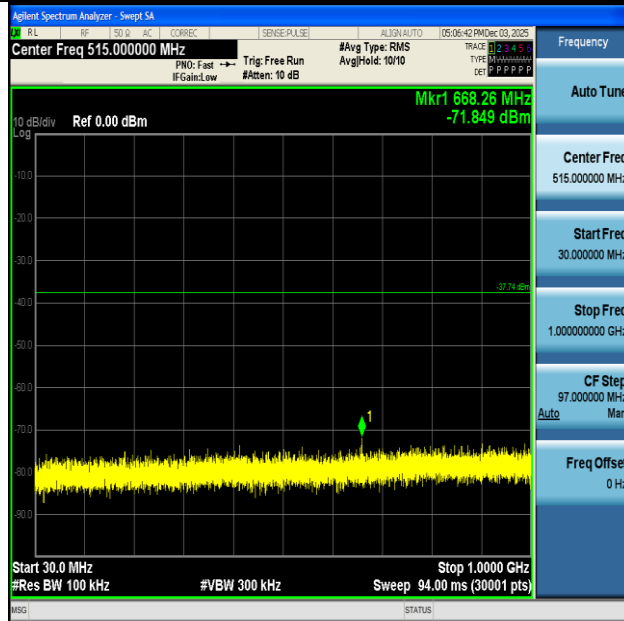


11N20SISO-Ant1-2462-1000~26500-PASS

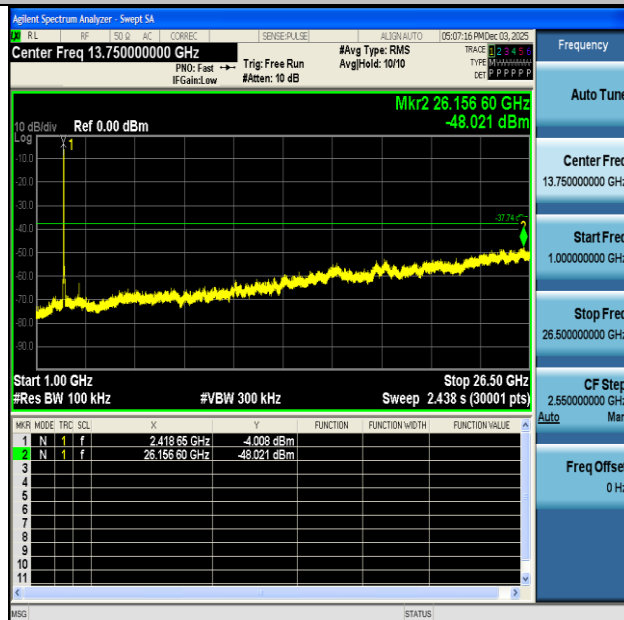


11N40SISO-Ant1-2422-0~Reference-PASS



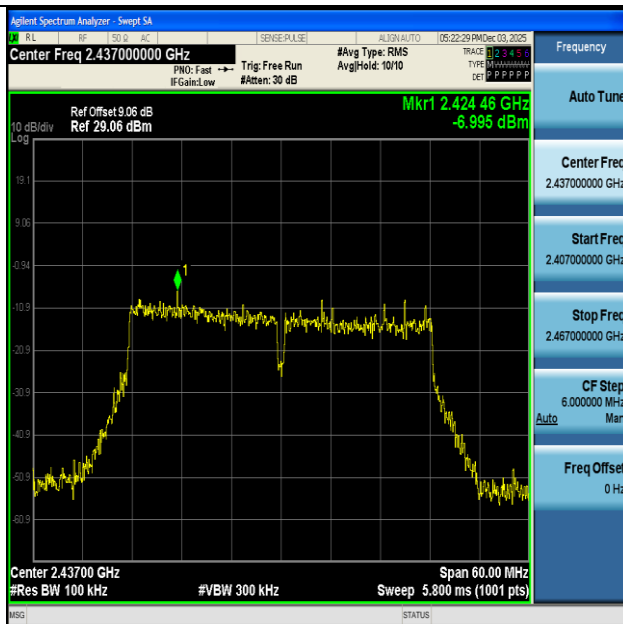


11N40SISO-Ant1-2422-30~1000-PASS

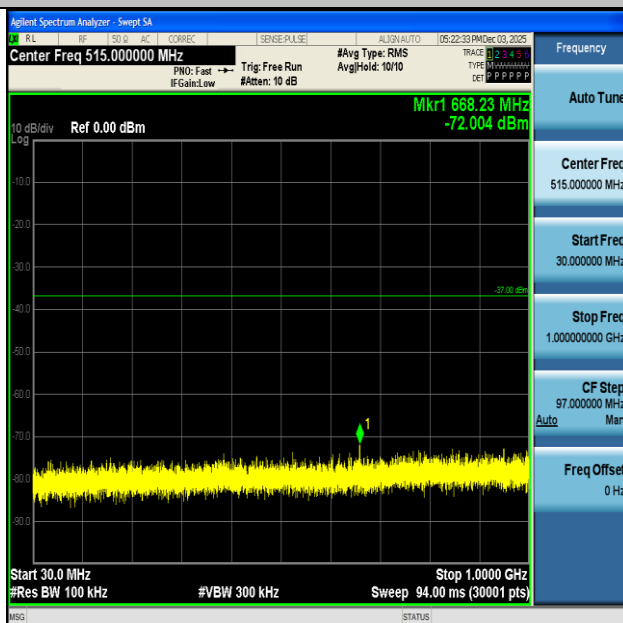


11N40SISO-Ant1-2422-1000~26500-PASS



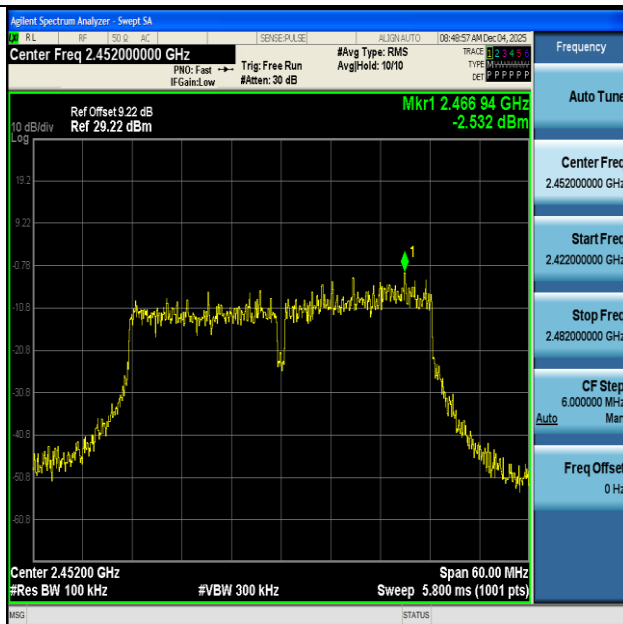


11N40SISO-Ant1-2437-0~Reference-PASS

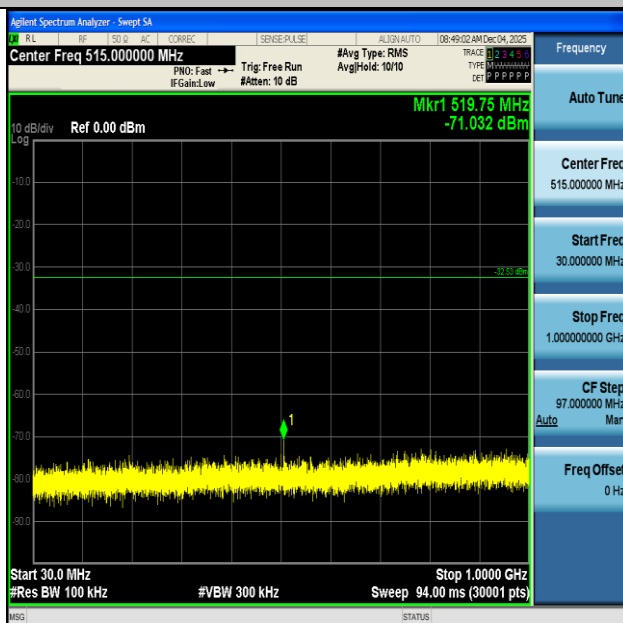


11N40SISO-Ant1-2437-30~1000-PASS



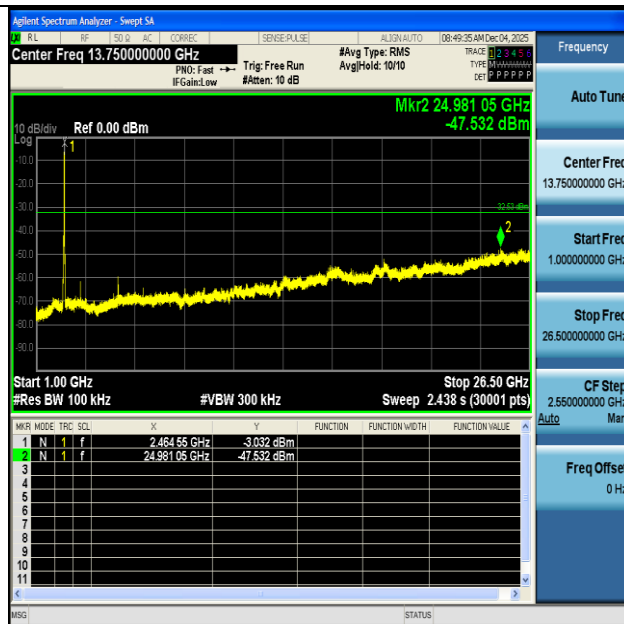


11N40SISO-Ant1-2452-0~Reference-PASS



11N40SISO-Ant1-2452-30~1000-PASS





11N40SISO-Ant1-2452-1000~26500-PASS





Appendix G: Duty Cycle

Test Result

Test Mode	Antenna	Frequency [MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor
11B	Ant1	2412	12.21	12.40	98.47	0.07
11B	Ant1	2437	12.21	12.40	98.47	0.07
11B	Ant1	2462	12.21	12.40	98.47	0.07
11G	Ant1	2412	2.02	2.06	98.06	0.09
11G	Ant1	2437	2.02	2.06	98.06	0.09
11G	Ant1	2462	2.03	2.07	98.07	0.08
11N20SISO	Ant1	2412	1.70	1.74	97.70	0.10
11N20SISO	Ant1	2437	1.70	1.74	97.70	0.10
11N20SISO	Ant1	2462	1.70	1.74	97.70	0.10
11N40SISO	Ant1	2422	0.84	0.89	94.38	0.25
11N40SISO	Ant1	2437	0.84	0.89	94.38	0.25
11N40SISO	Ant1	2452	0.11	0.17	64.71	1.89

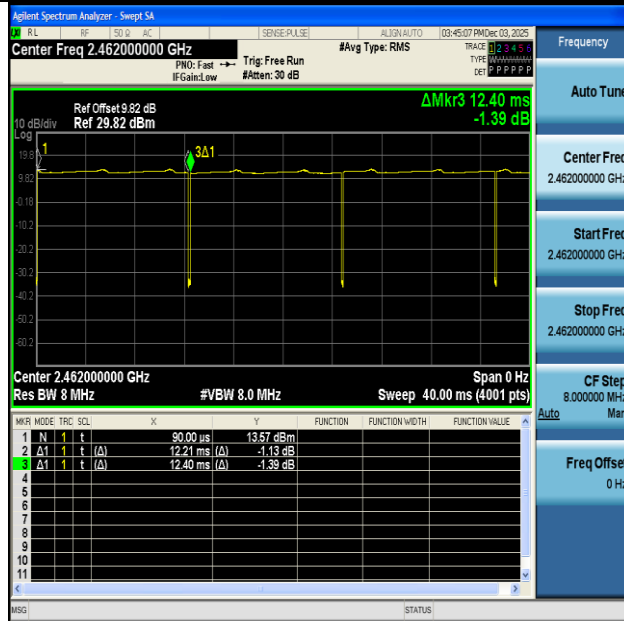
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



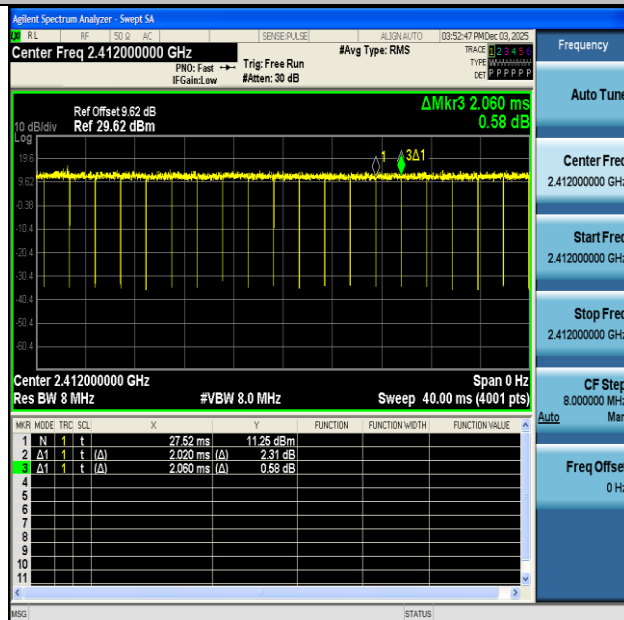


Test Graphs



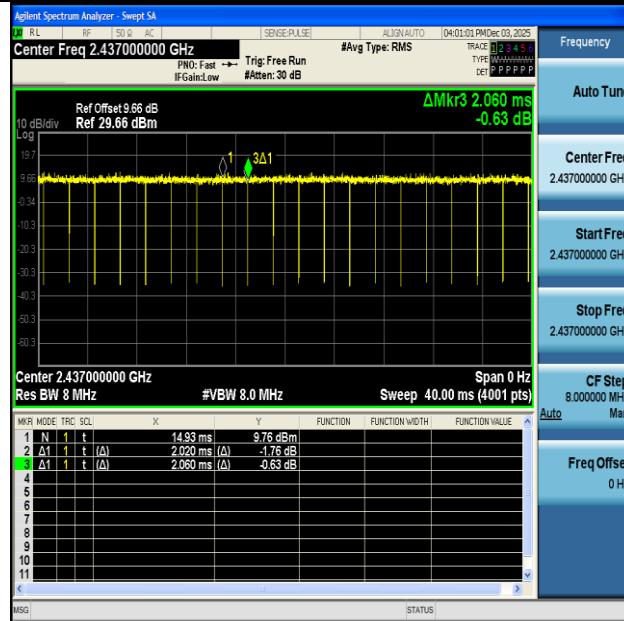


NTNV-11B-Ant1-2462

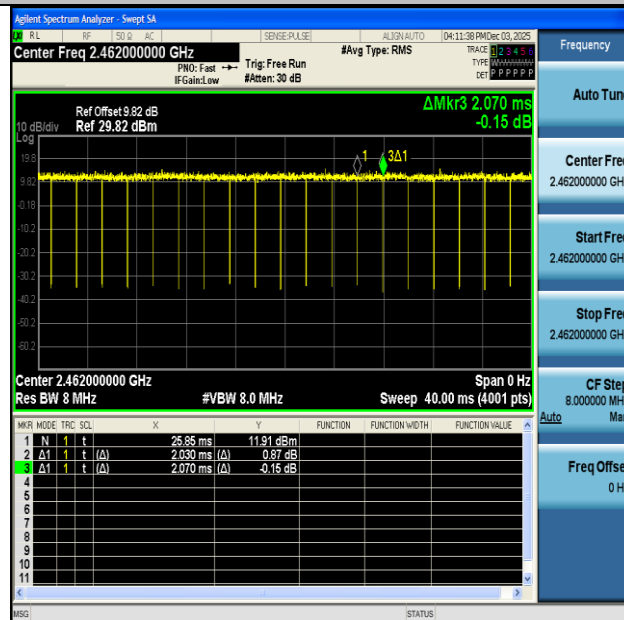


NTNV-11G-Ant1-2412



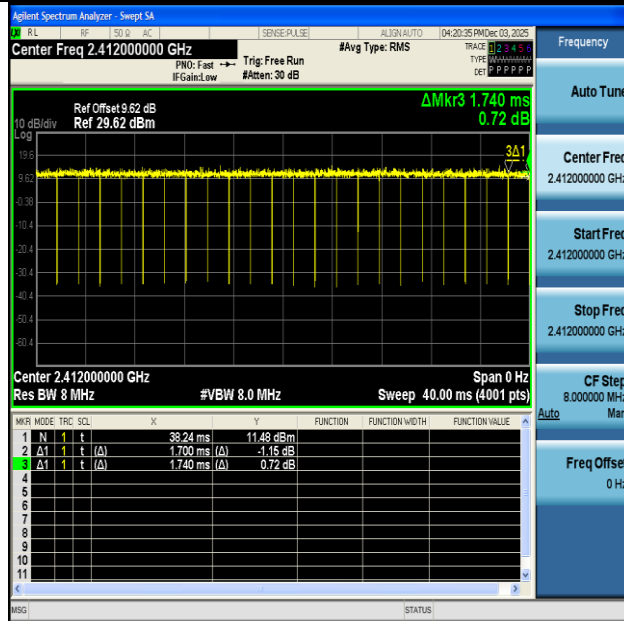


NTNV-11G-Ant1-2437

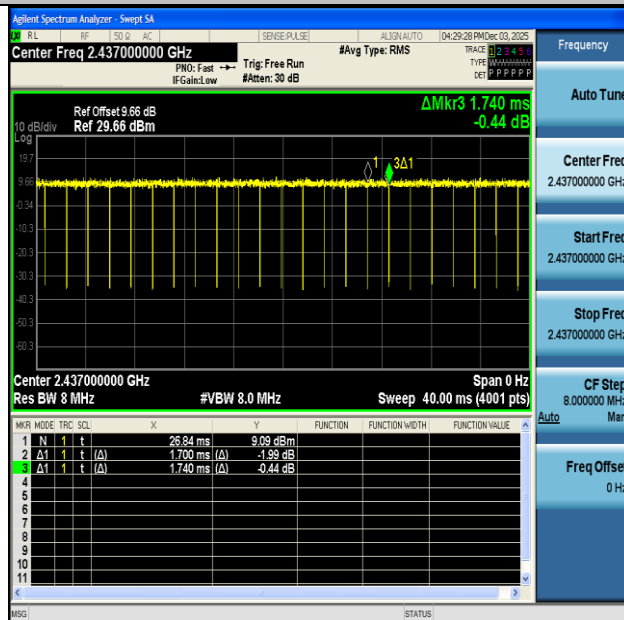


NTNV-11G-Ant1-2462





NTNV-11N20SISO-Ant1-2412



NTNV-11N20SISO-Ant1-2437

