

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

Product Name: WIFI KARAOKE SYSTEM

Trade Mark: singing machine

Test Model: ISM9025

FCC ID: 2AAXO-ISM9025

Environmental Conditions

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

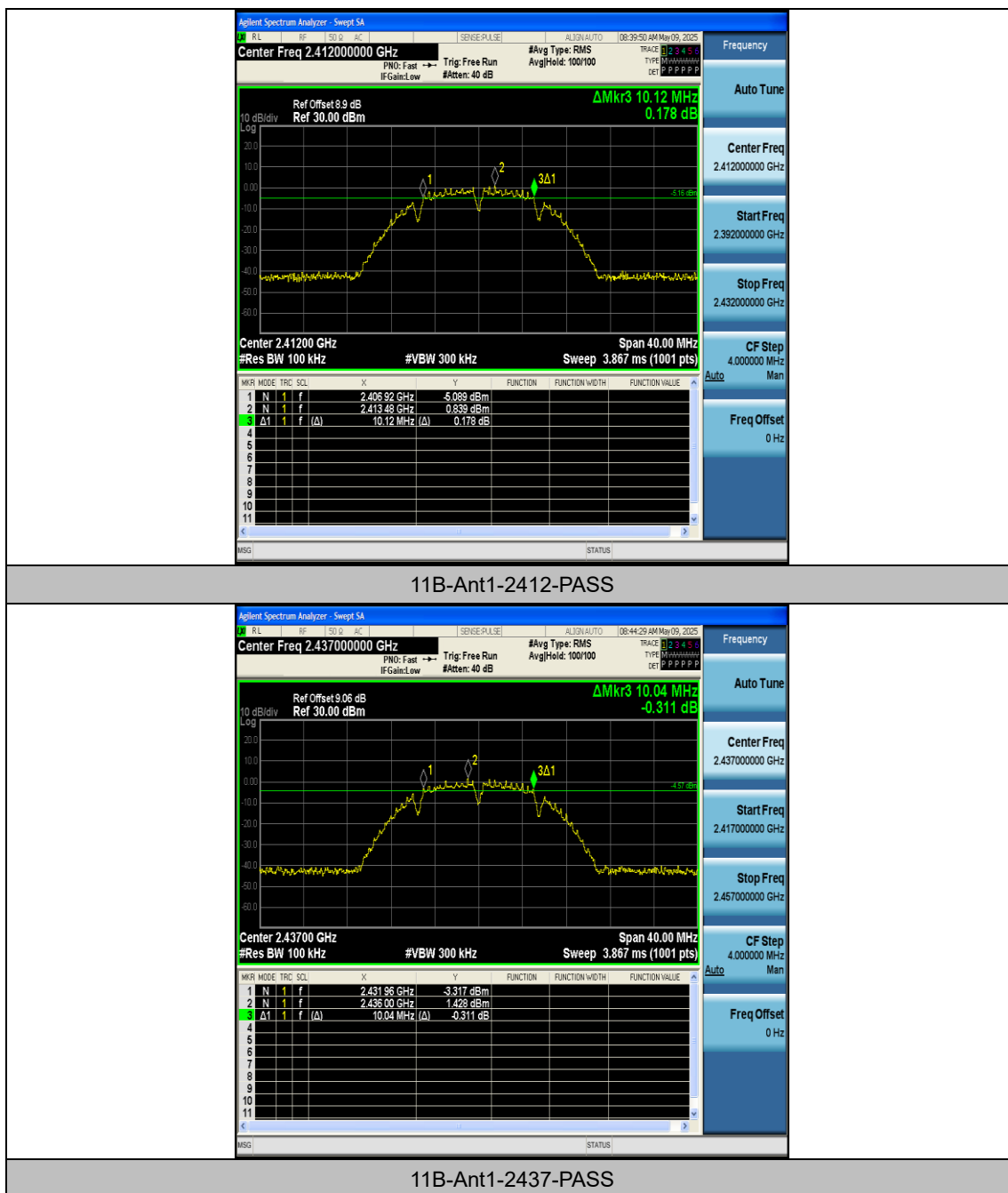
Appendix A: DTS Bandwidth

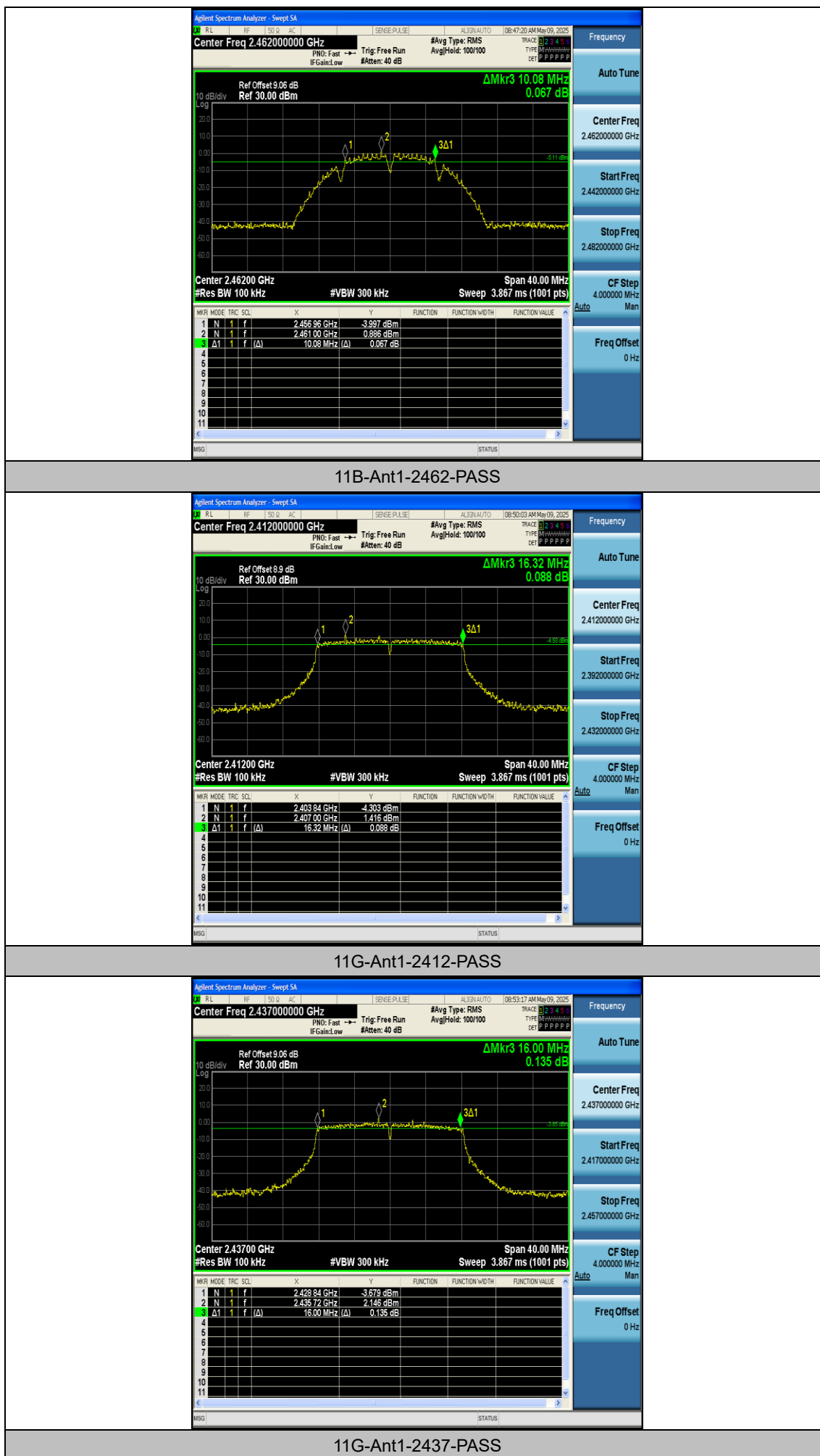
Test Result

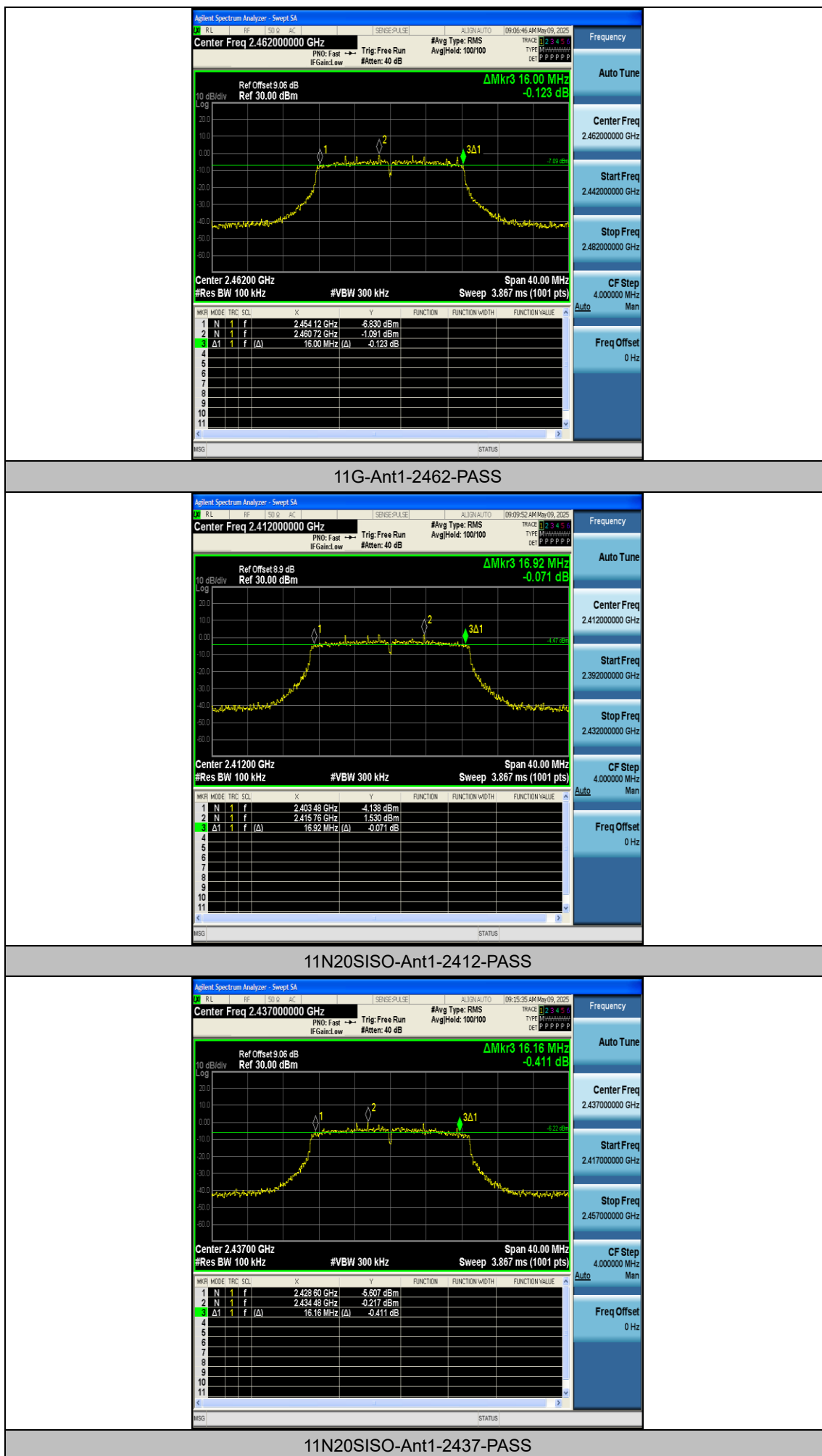
TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	10.120	2406.920	2417.040	0.5	PASS
11B	Ant1	2437	10.040	2431.960	2442.000	0.5	PASS
11B	Ant1	2462	10.080	2456.960	2467.040	0.5	PASS
11G	Ant1	2412	16.320	2403.840	2420.160	0.5	PASS
11G	Ant1	2437	16.000	2428.840	2444.840	0.5	PASS
11G	Ant1	2462	16.000	2454.120	2470.120	0.5	PASS
11N20SISO	Ant1	2412	16.920	2403.480	2420.400	0.5	PASS
11N20SISO	Ant1	2437	16.160	2428.600	2444.760	0.5	PASS
11N20SISO	Ant1	2462	15.280	2454.840	2470.120	0.5	PASS

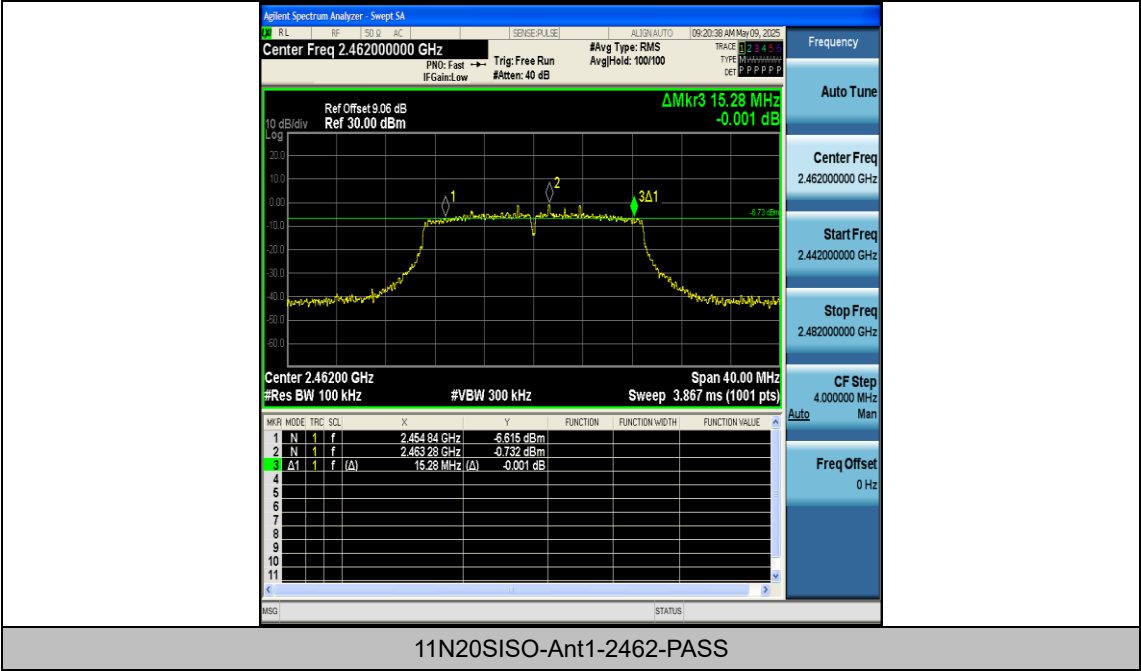
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs









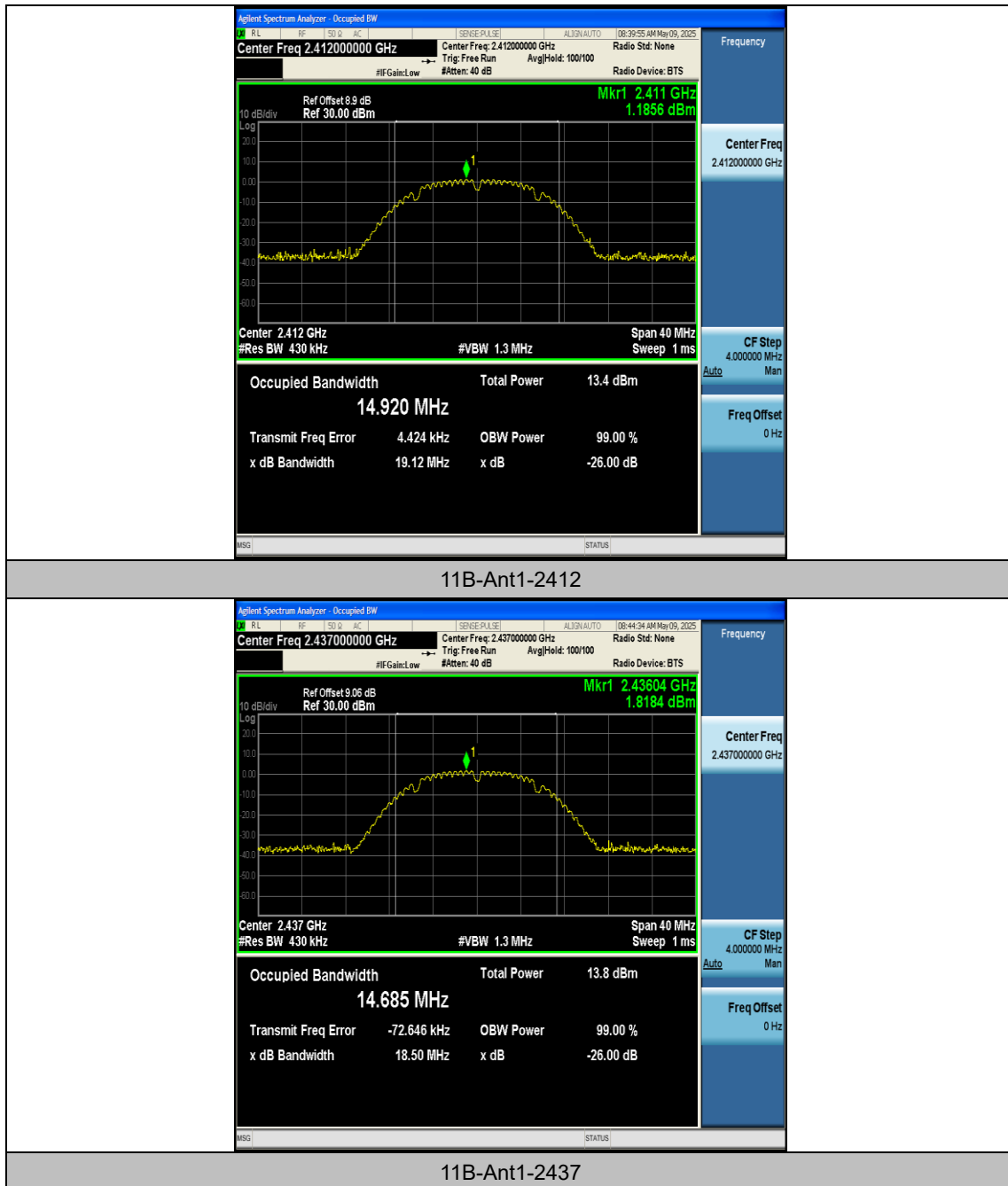
Appendix B: Occupied Channel Bandwidth

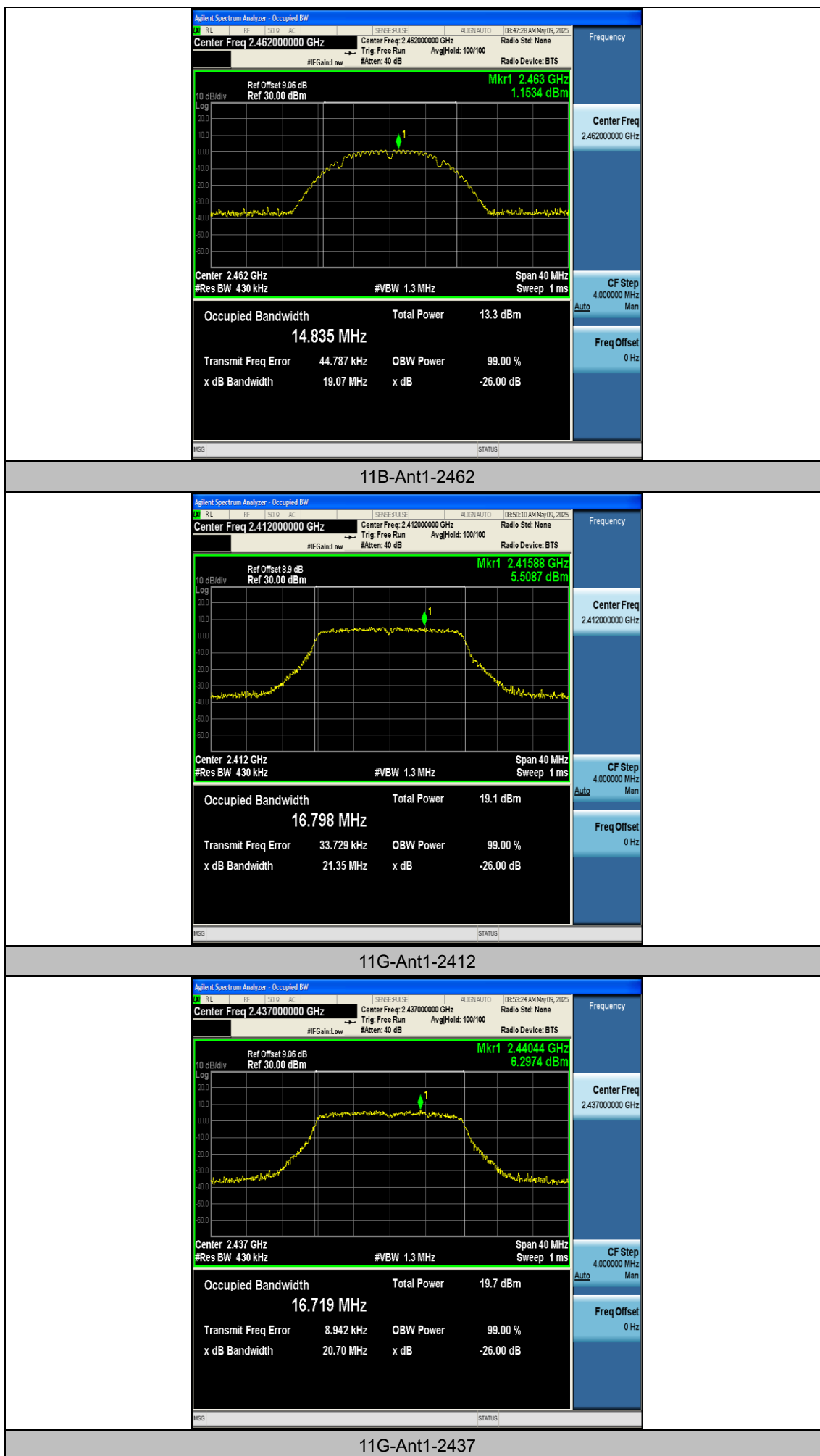
Test Result

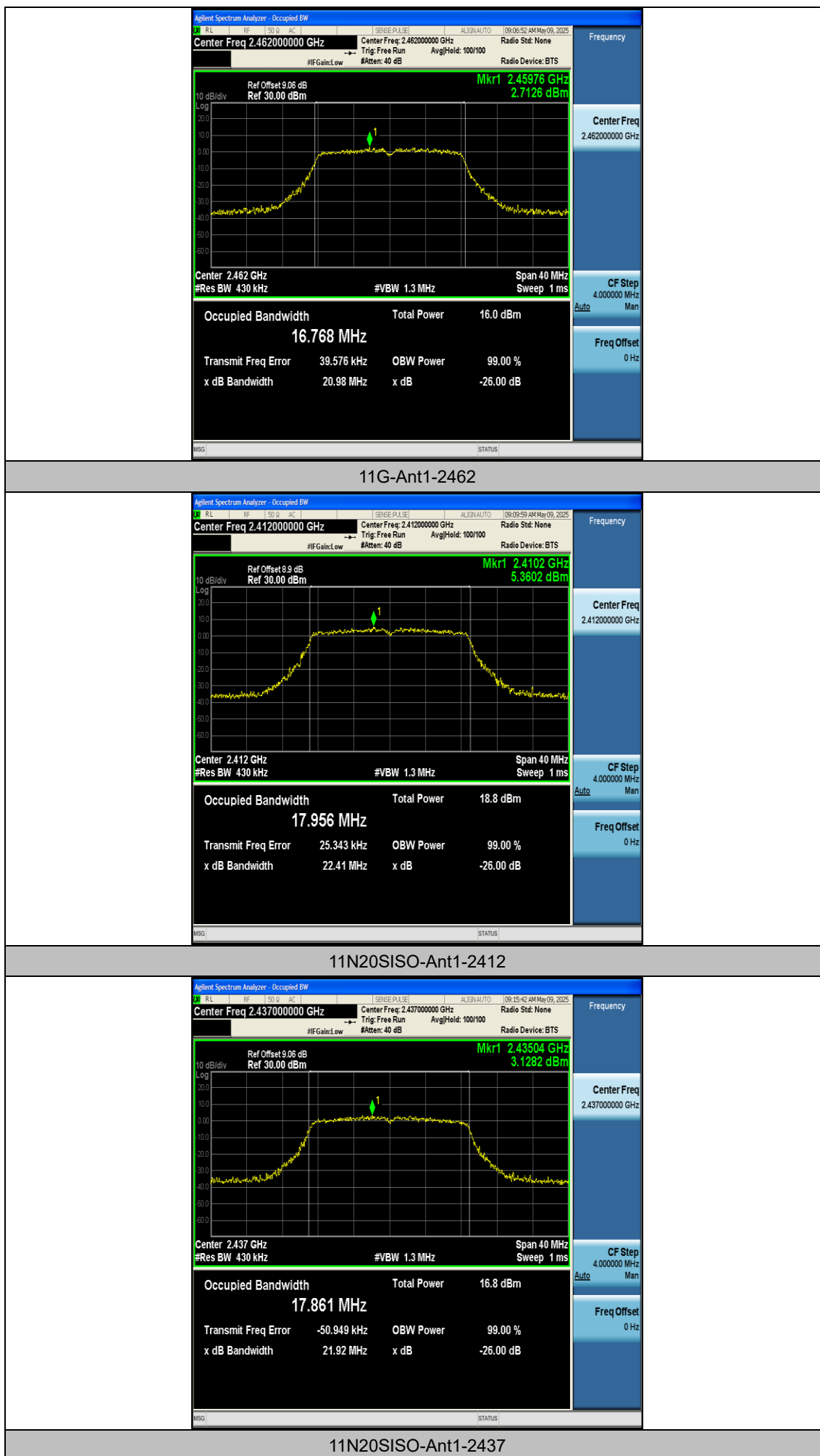
TestMode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	14.920	2404.5444	2419.4644	---	---
11B	Ant1	2437	14.685	2429.5849	2444.2699	---	---
11B	Ant1	2462	14.835	2454.6273	2469.4623	---	---
11G	Ant1	2412	16.798	2403.6347	2420.4327	---	---
11G	Ant1	2437	16.719	2428.6494	2445.3684	---	---
11G	Ant1	2462	16.768	2453.6556	2470.4236	---	---
11N20SISO	Ant1	2412	17.956	2403.0473	2421.0033	---	---
11N20SISO	Ant1	2437	17.861	2428.0186	2445.8796	---	---
11N20SISO	Ant1	2462	17.907	2453.1014	2471.0084	---	---

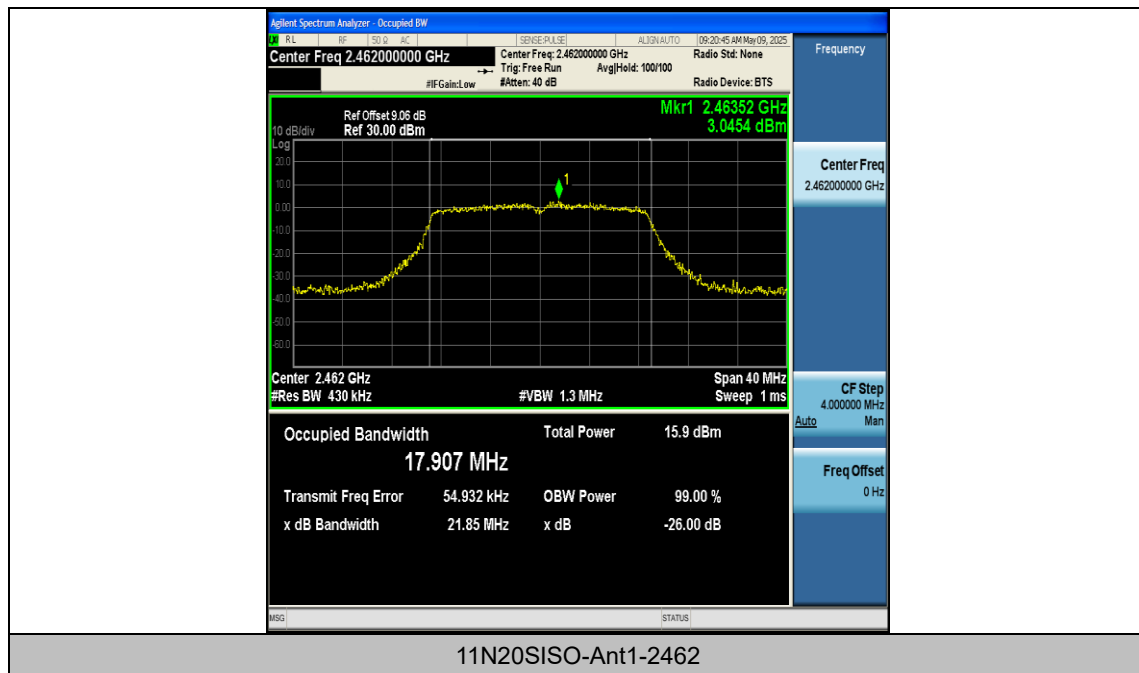
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs









Appendix C: Maximum Average conducted output power

Test Result

Test Mode	Antenna	Frequency [MHz]	Result [dBm]	Limit [dBm]	Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
11B	Ant1	2412	10.47	≤30.00	5.50	15.97	≤36.00	PASS
11B	Ant1	2437	10.46	≤30.00	5.50	15.96	≤36.00	PASS
11B	Ant1	2462	10.18	≤30.00	5.50	15.68	≤36.00	PASS
11G	Ant1	2412	10.38	≤30.00	5.50	15.88	≤36.00	PASS
11G	Ant1	2437	11.02	≤30.00	5.50	16.52	≤36.00	PASS
11G	Ant1	2462	10.08	≤30.00	5.50	15.58	≤36.00	PASS
11N20SIS O	Ant1	2412	10.23	≤30.00	5.50	15.73	≤36.00	PASS
11N20SIS O	Ant1	2437	11.11	≤30.00	5.50	15.61	≤36.00	PASS
11N20SIS O	Ant1	2462	10.09	≤30.00	5.50	15.59	≤36.00	PASS

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

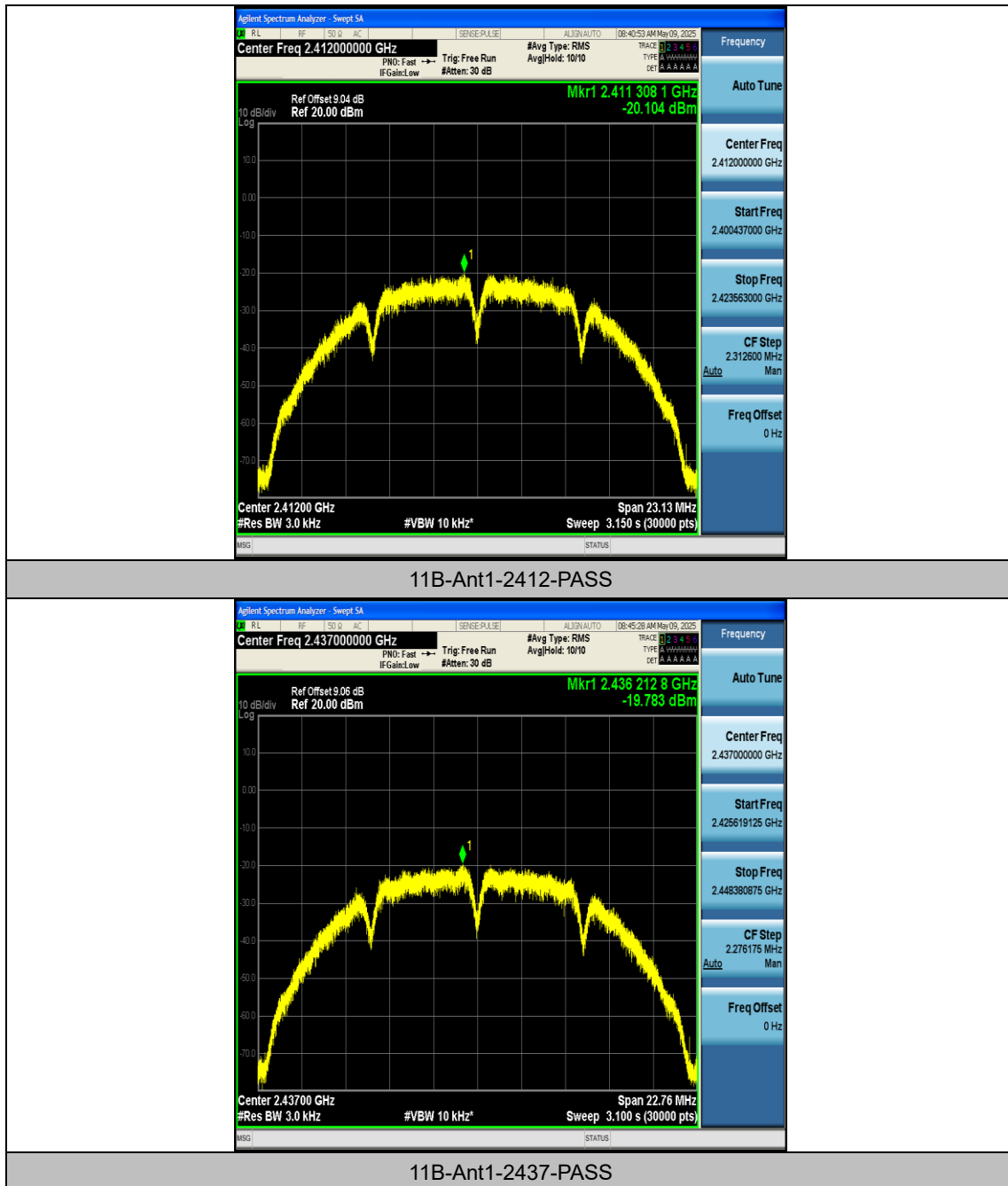
Appendix D: Maximum Average power spectral density

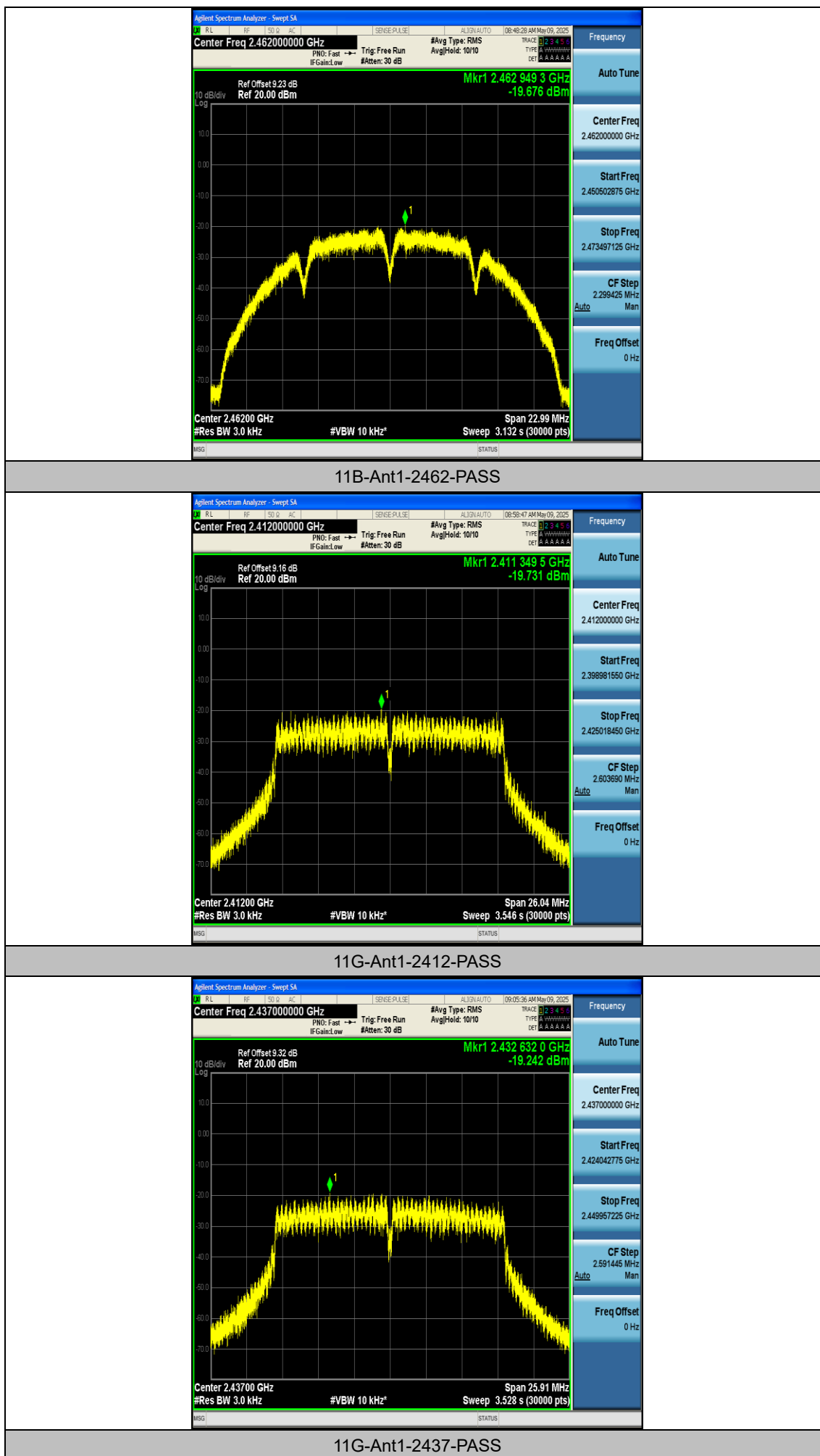
Test Result

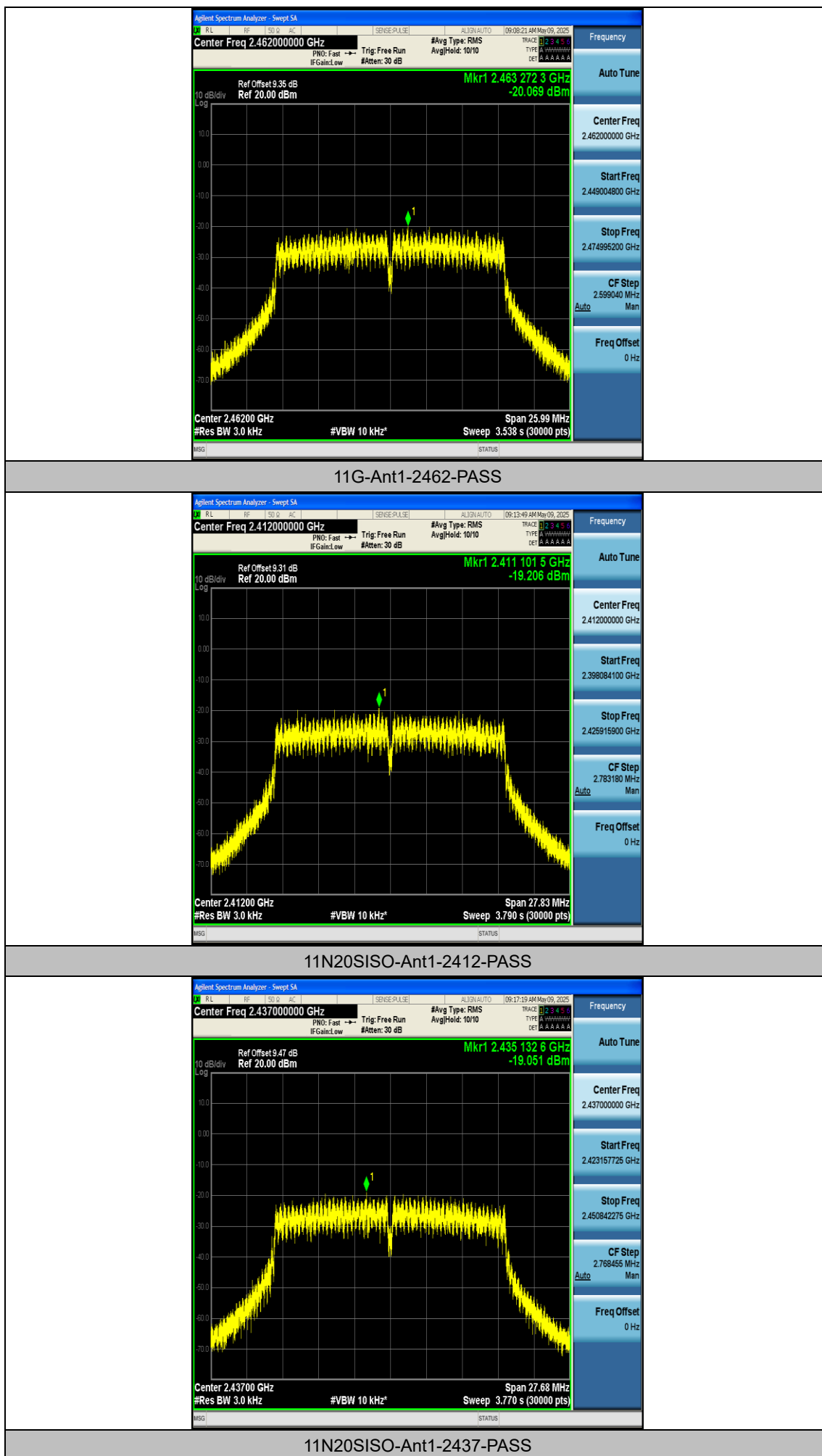
TestMode	Antenna	Frequency[MHz]	RawData[dBm/3kHz]	DcFactor	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-20.24	0.14	-20.10	≤8.00	PASS
11B	Ant1	2437	-19.78	0.00	-19.78	≤8.00	PASS
11B	Ant1	2462	-19.85	0.17	-19.68	≤8.00	PASS
11G	Ant1	2412	-19.99	0.26	-19.73	≤8.00	PASS
11G	Ant1	2437	-19.50	0.26	-19.24	≤8.00	PASS
11G	Ant1	2462	-20.36	0.29	-20.07	≤8.00	PASS
11N20SI SO	Ant1	2412	-19.62	0.41	-19.21	≤8.00	PASS
11N20SI SO	Ant1	2437	-19.46	0.41	-19.05	≤8.00	PASS
11N20SI SO	Ant1	2462	-21.13	0.45	-20.68	≤8.00	PASS

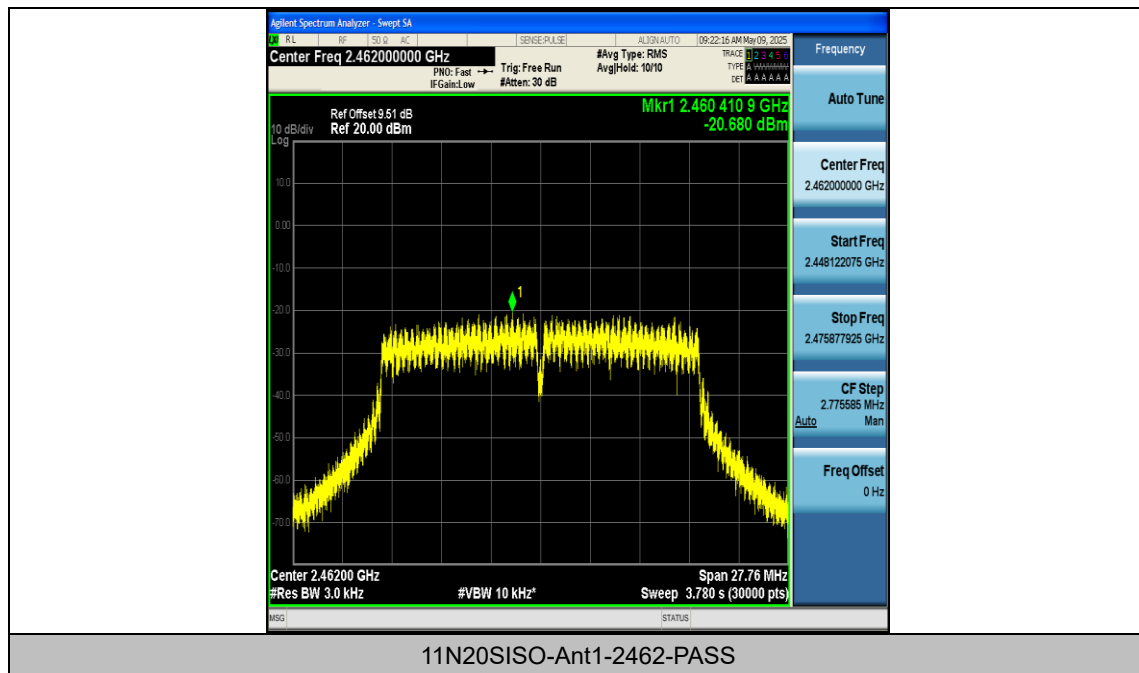
Note: offset(dB) = cable loss(dB) + attenuator factor(dB) + Duty Cycle Factor(dB)

Test Graphs









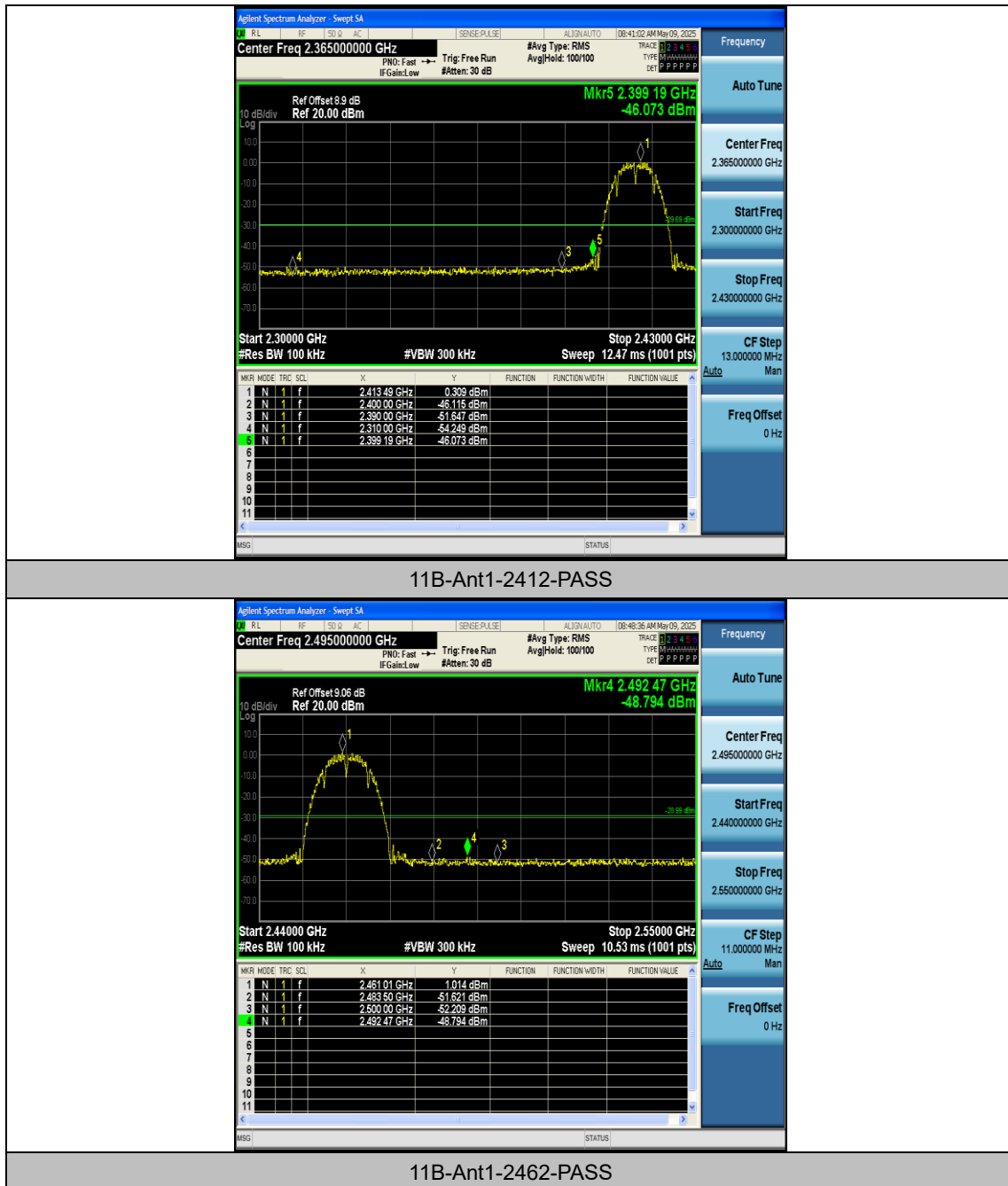
Appendix E: Band edge measurements

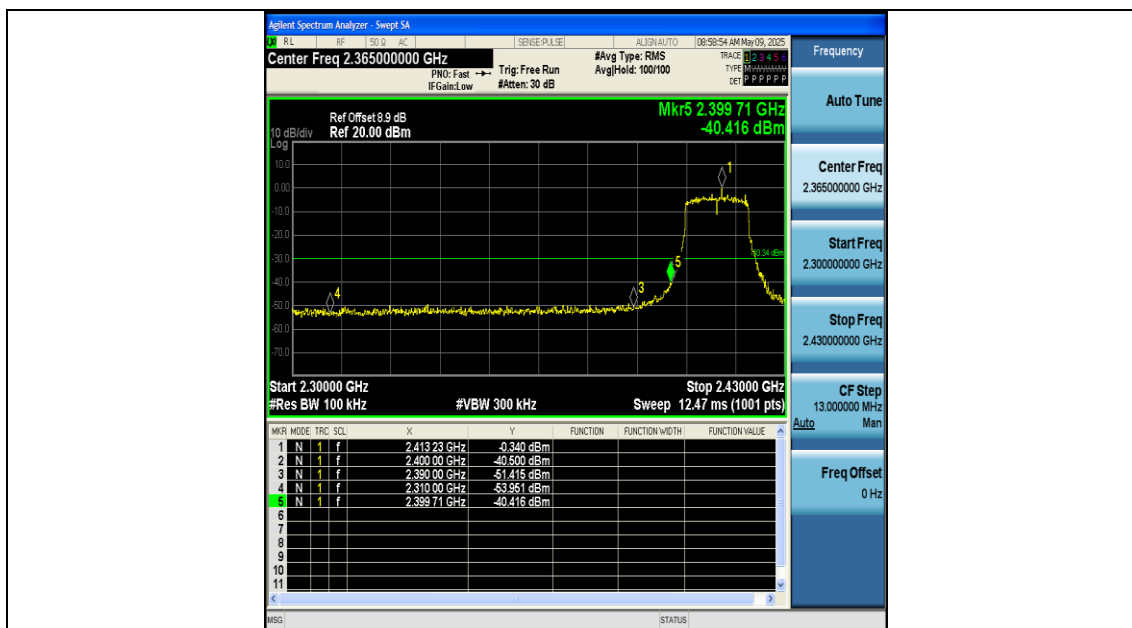
Test Result

TestMode	Antenna	Channel	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	0.31	-46.07	≤-29.69	PASS
11B	Ant1	High	2462	1.01	-48.79	≤-28.99	PASS
11G	Ant1	Low	2412	-0.34	-40.42	≤-30.34	PASS
11G	Ant1	High	2462	-1.82	-48.96	≤-31.82	PASS
11N20SISO	Ant1	Low	2412	-1.28	-37.36	≤-31.28	PASS
11N20SISO	Ant1	High	2462	-0.48	-47.98	≤-30.48	PASS

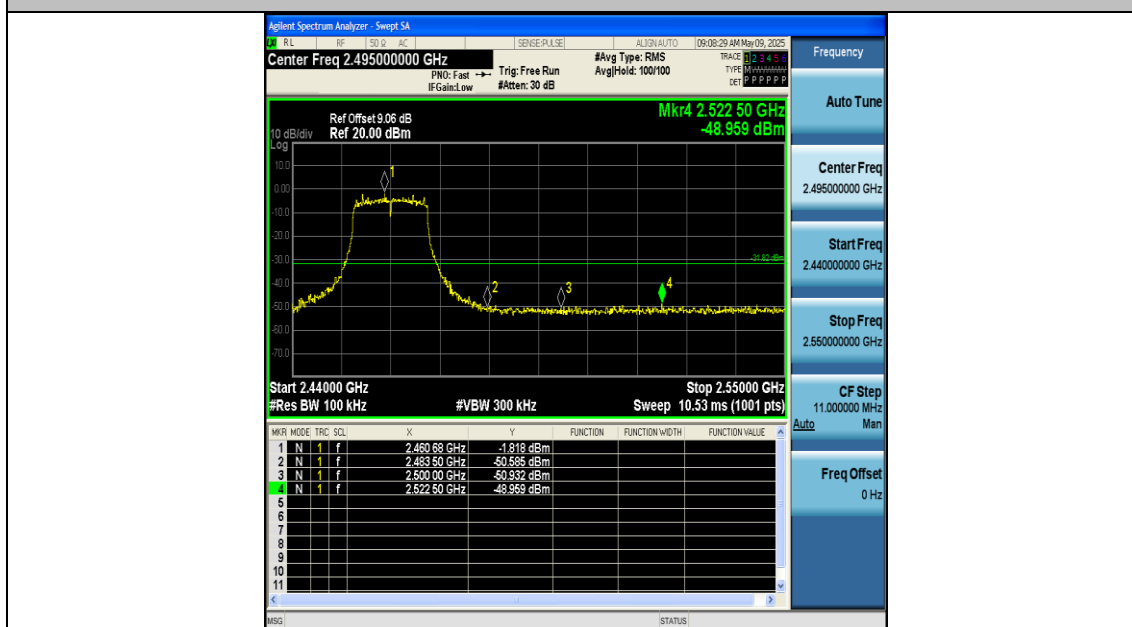
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs

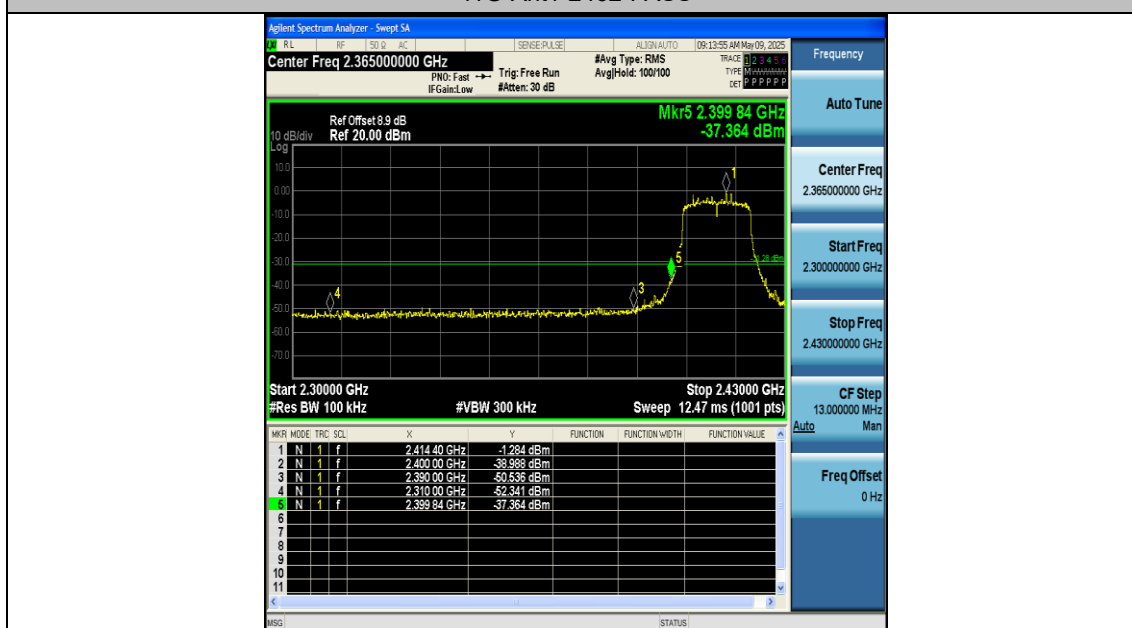




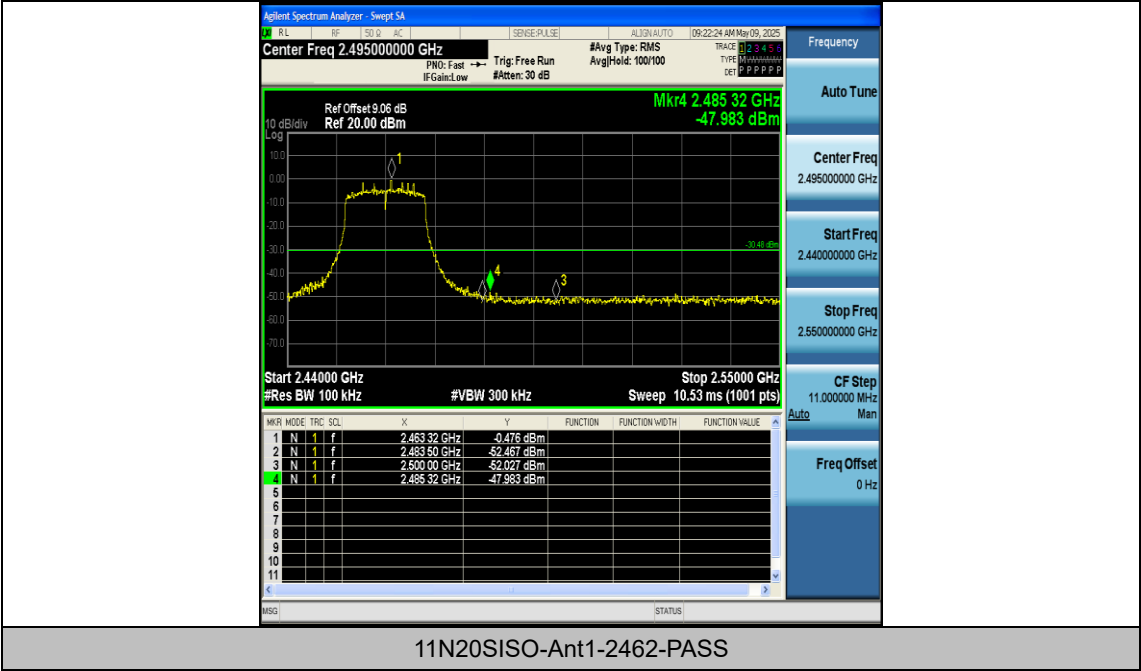
11G-Ant1-2412-PASS



11G-Ant1-2462-PASS



11N20SISO-Ant1-2412-PASS



11N20SISO-Ant1-2462-PASS

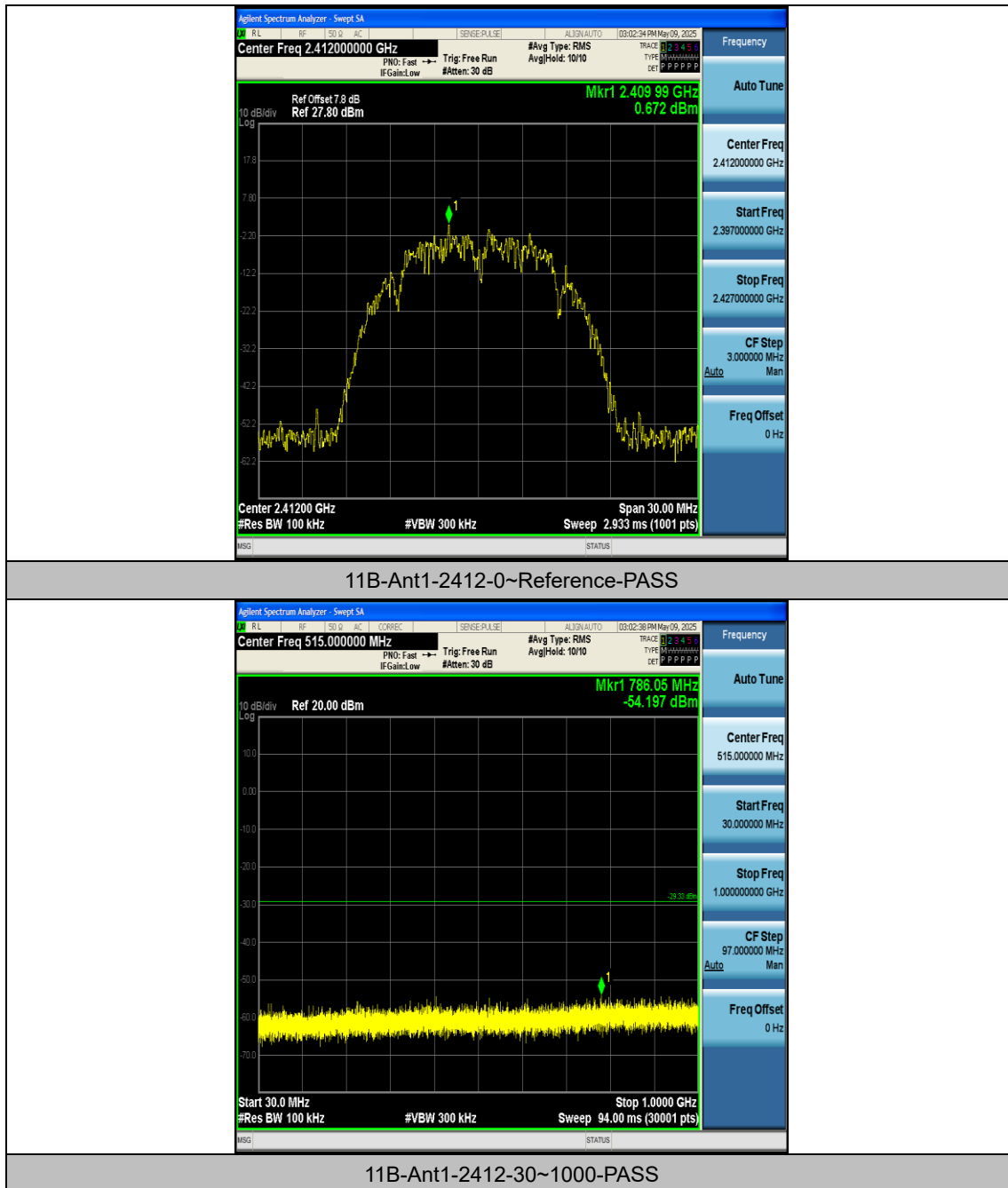
Appendix F: Conducted Spurious Emission

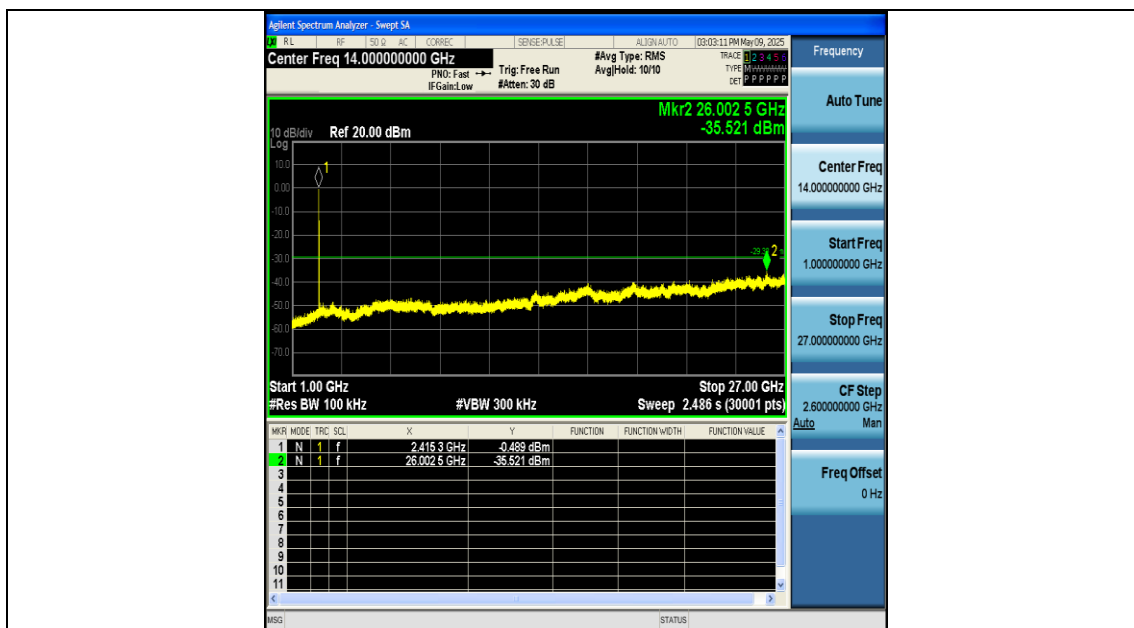
Test Result

Test Mode	Antenna	Frequency [MHz]	Freq. Range [Mhz]	Ref. Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	0~Reference	0.67	0.67	---	PASS
11B	Ant1	2412	30~1000	0.67	-54.2	≤ -29.33	PASS
11B	Ant1	2412	1000~270000	0.67	-35.52	≤ -29.33	PASS
11B	Ant1	2437	0~Reference	0.57	0.57	---	PASS
11B	Ant1	2437	30~1000	0.57	-53.51	≤ -29.43	PASS
11B	Ant1	2437	1000~270000	0.57	-36.28	≤ -29.43	PASS
11B	Ant1	2462	0~Reference	0.80	0.80	---	PASS
11B	Ant1	2462	30~1000	0.80	-53.93	≤ -29.2	PASS
11B	Ant1	2462	1000~270000	0.80	-35.73	≤ -29.2	PASS
11G	Ant1	2412	0~Reference	-2.69	-2.69	---	PASS
11G	Ant1	2412	30~1000	-2.69	-52.44	≤ -32.69	PASS
11G	Ant1	2412	1000~270000	-2.69	-34.2	≤ -32.69	PASS
11G	Ant1	2437	0~Reference	-3.62	-3.62	---	PASS
11G	Ant1	2437	30~1000	-3.62	-51.91	≤ -33.62	PASS
11G	Ant1	2437	1000~270000	-3.62	-34.54	≤ -33.62	PASS
11G	Ant1	2462	0~Reference	-1.77	-1.77	---	PASS
11G	Ant1	2462	30~1000	-1.77	-50.32	≤ -31.77	PASS
11G	Ant1	2462	1000~270000	-1.77	-32.69	≤ -31.77	PASS
11N20SISO	Ant1	2412	0~Reference	-1.94	-1.94	---	PASS
11N20SISO	Ant1	2412	30~1000	-1.94	-50.45	≤ -31.94	PASS
11N20SISO	Ant1	2412	1000~270000	-1.94	-32.53	≤ -31.94	PASS
11N20SISO	Ant1	2437	0~Reference	1.05	1.05	---	PASS
11N20SISO	Ant1	2437	30~1000	1.05	-50.81	≤ -28.95	PASS
11N20SISO	Ant1	2437	1000~270000	1.05	-31.75	≤ -28.95	PASS
11N20SISO	Ant1	2462	0~Reference	0.99	0.99	---	PASS
11N20SISO	Ant1	2462	30~1000	0.99	-49.95	≤ -29.01	PASS
11N20SISO	Ant1	2462	1000~270000	0.99	-32.35	≤ -29.01	PASS

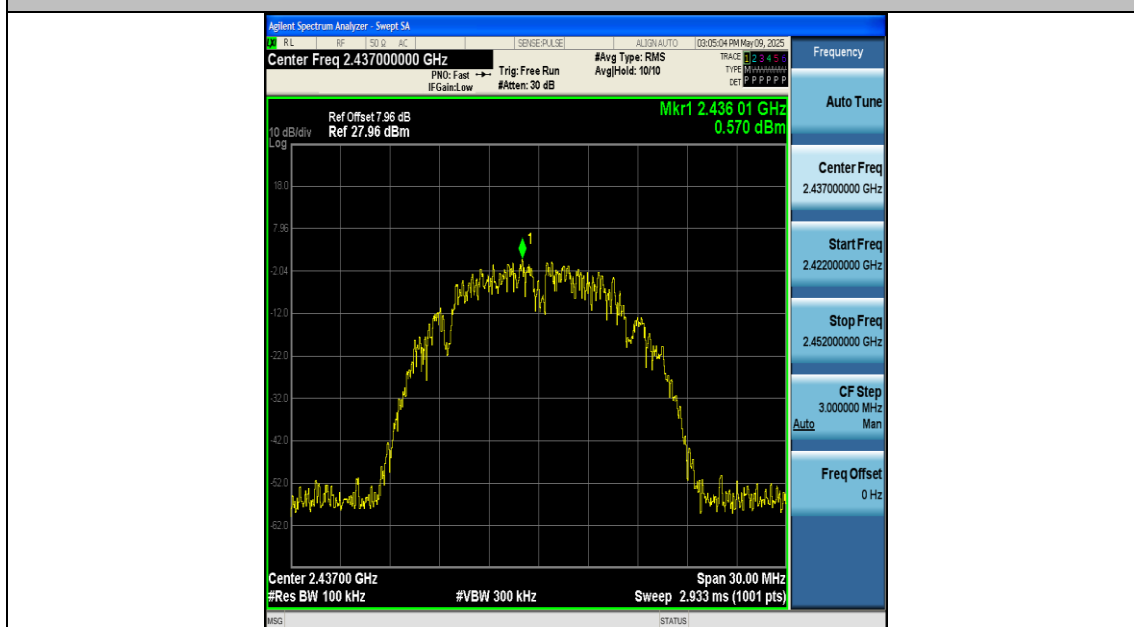
Note: offset(dB) in Reference test plots = cable loss(dB) + attenuator factor(dB); For spurious emissions plots from 30MHz to 26.5GHz, the cable loss and attenuator factors have been set in the 'Input Correction' of the Spectrum Analyzer during the test.

Test Graphs

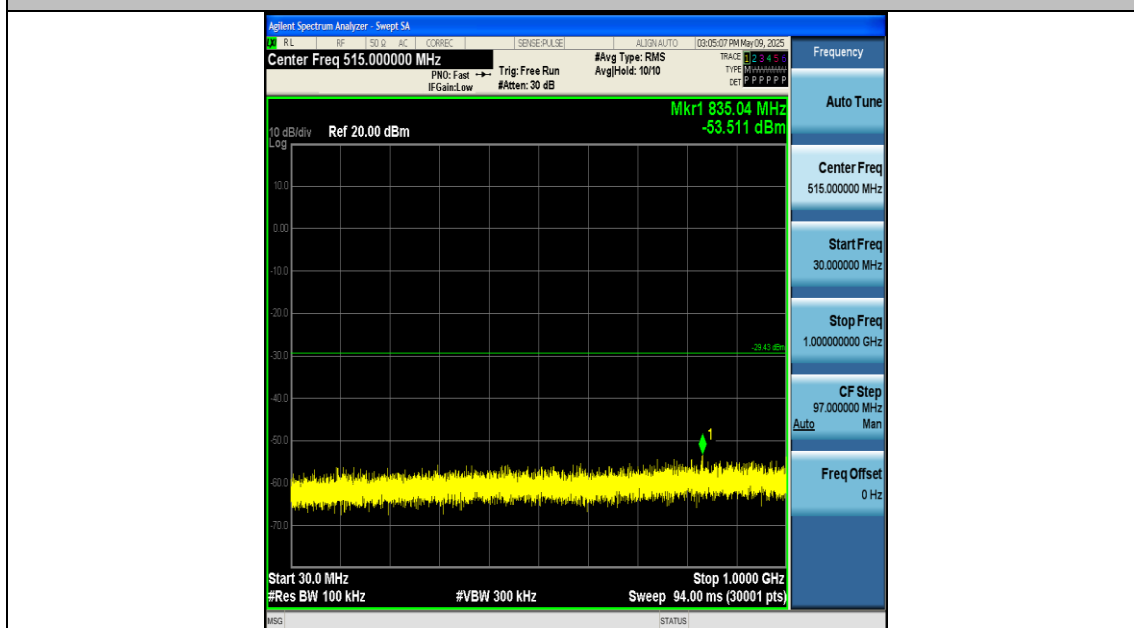




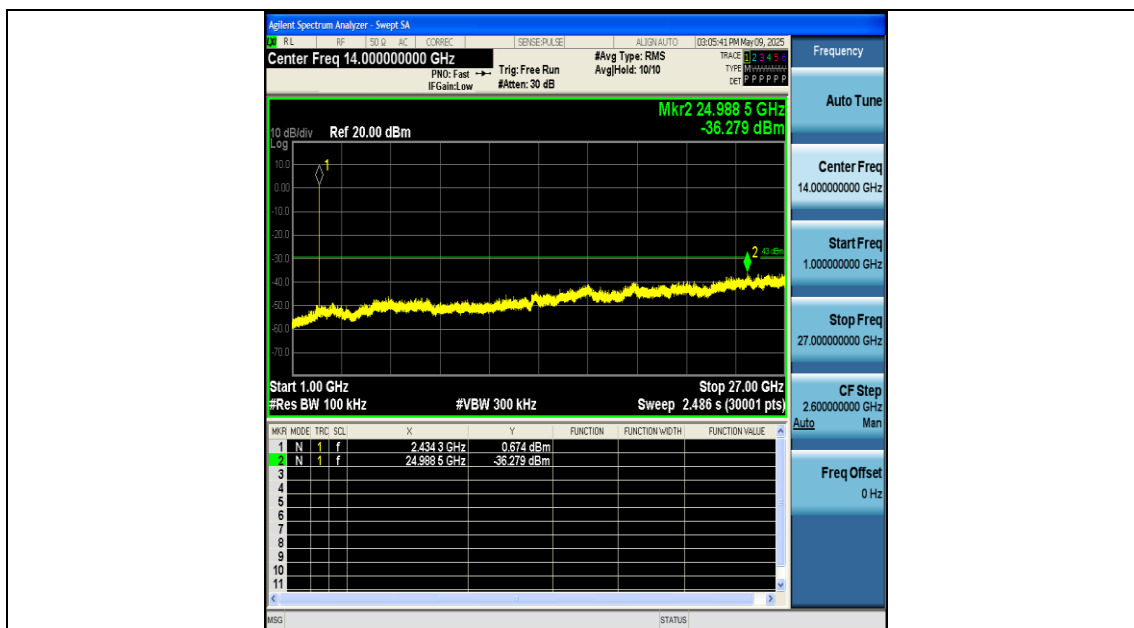
11B-Ant1-2412-1000~270000-PASS



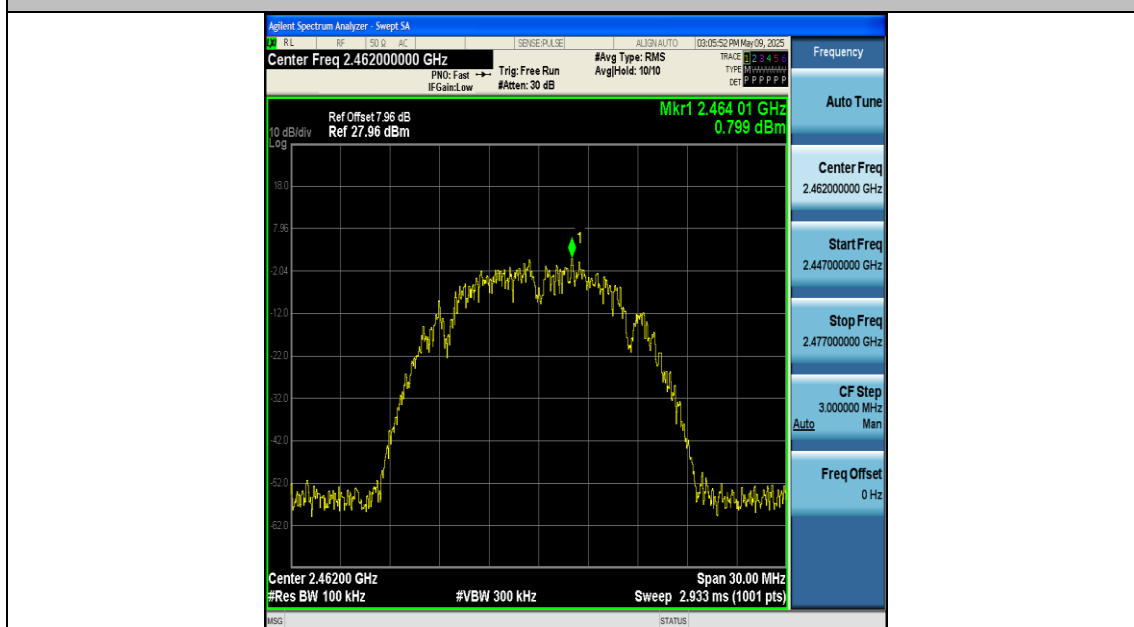
11B-Ant1-2437-0~Reference-PASS



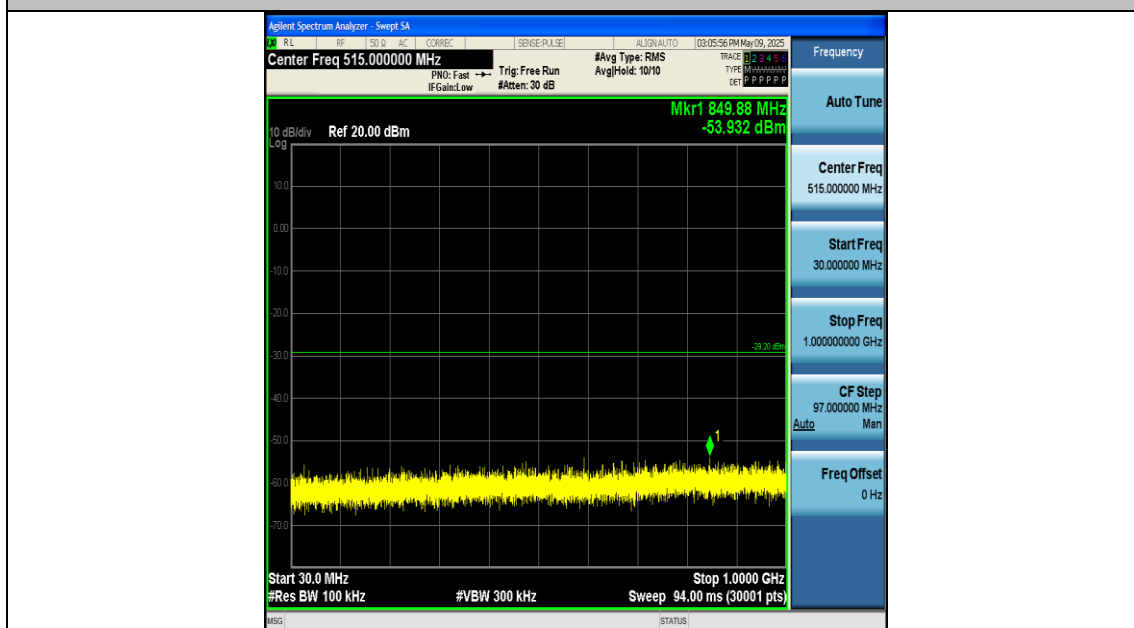
11B-Ant1-2437-30~1000-PASS



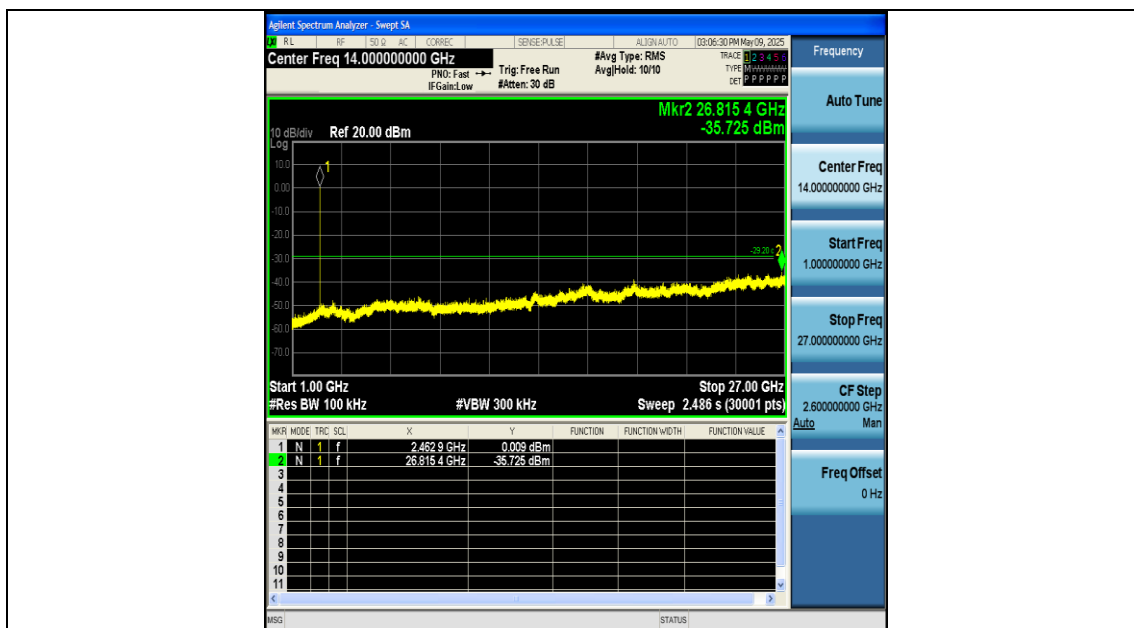
11B-Ant1-2437-1000~270000-PASS



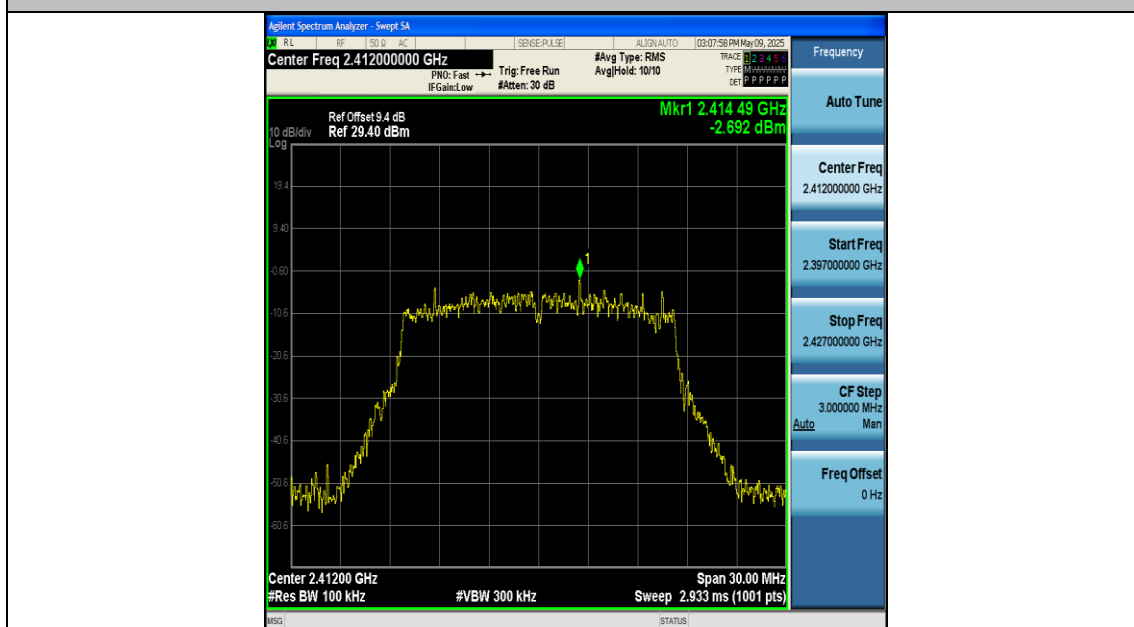
11B-Ant1-2462-0~Reference-PASS



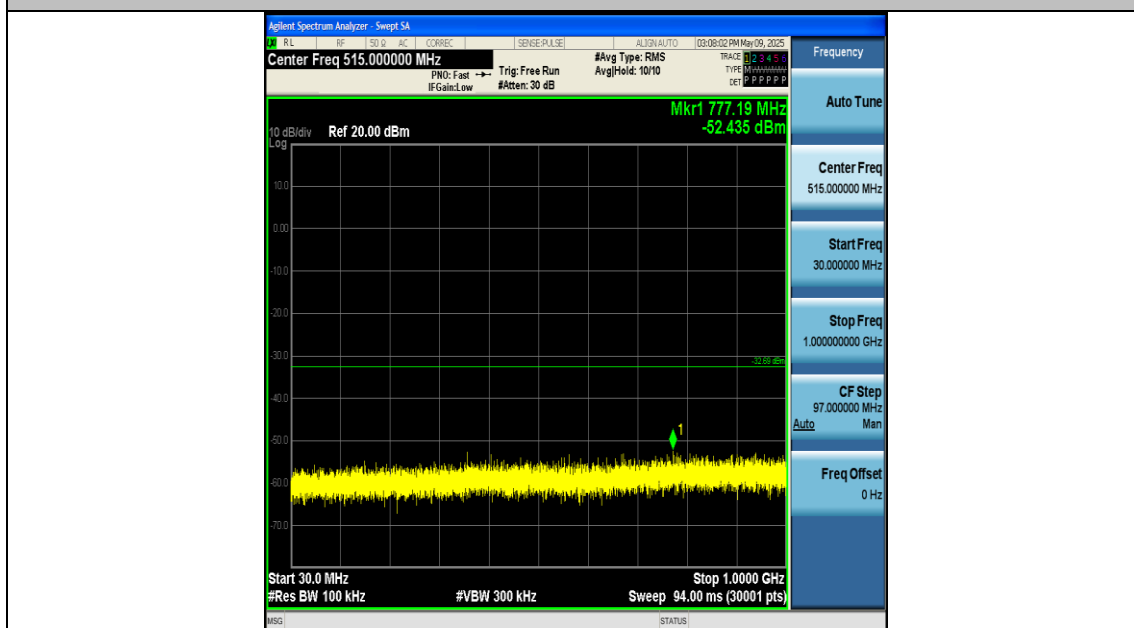
11B-Ant1-2462-30~1000-PASS



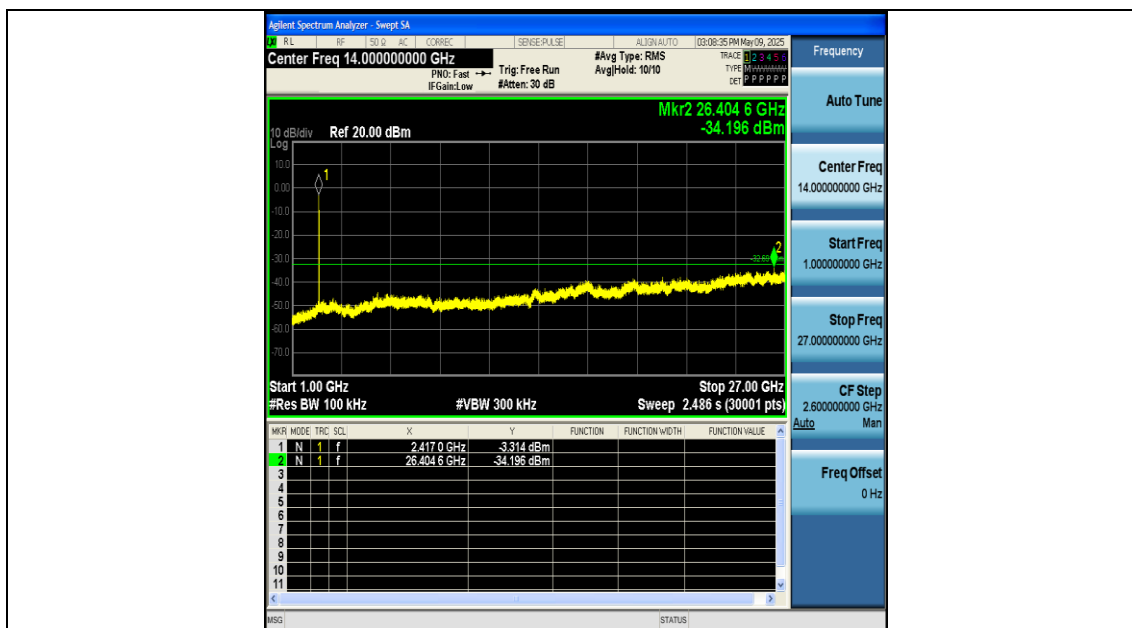
11B-Ant1-2462-1000~270000-PASS



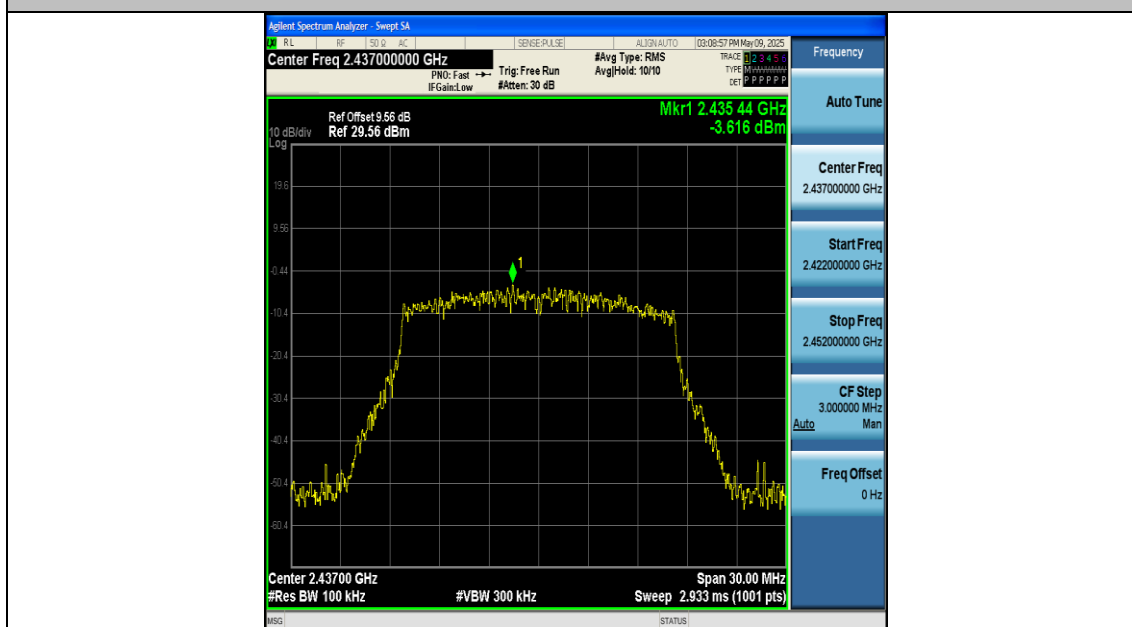
11G-Ant1-2412-0~Reference-PASS



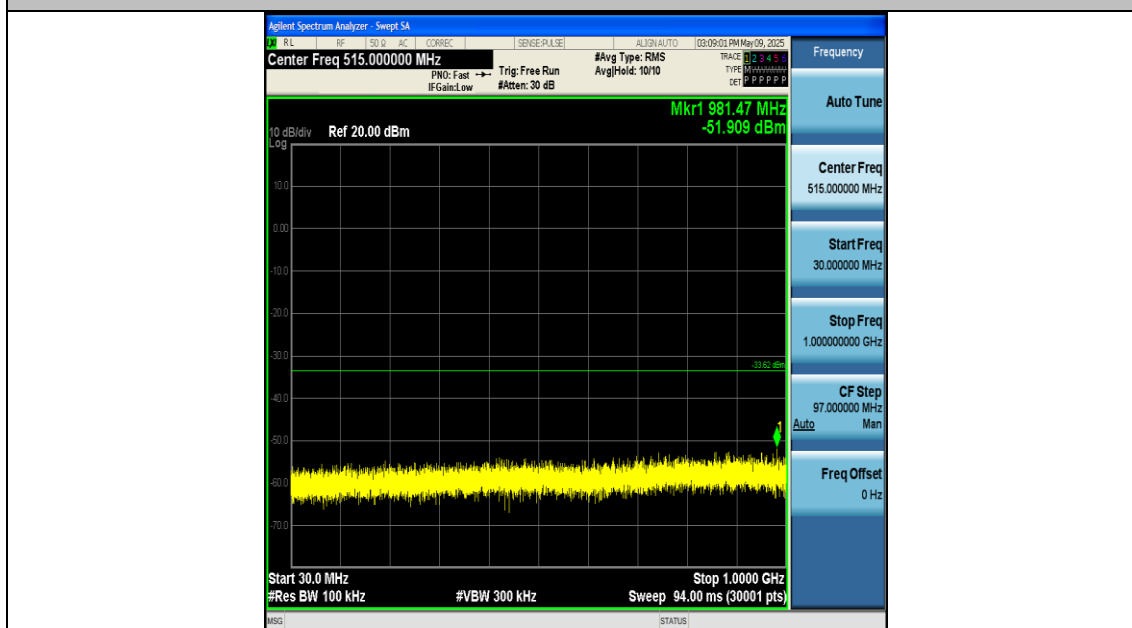
11G-Ant1-2412-30~1000-PASS



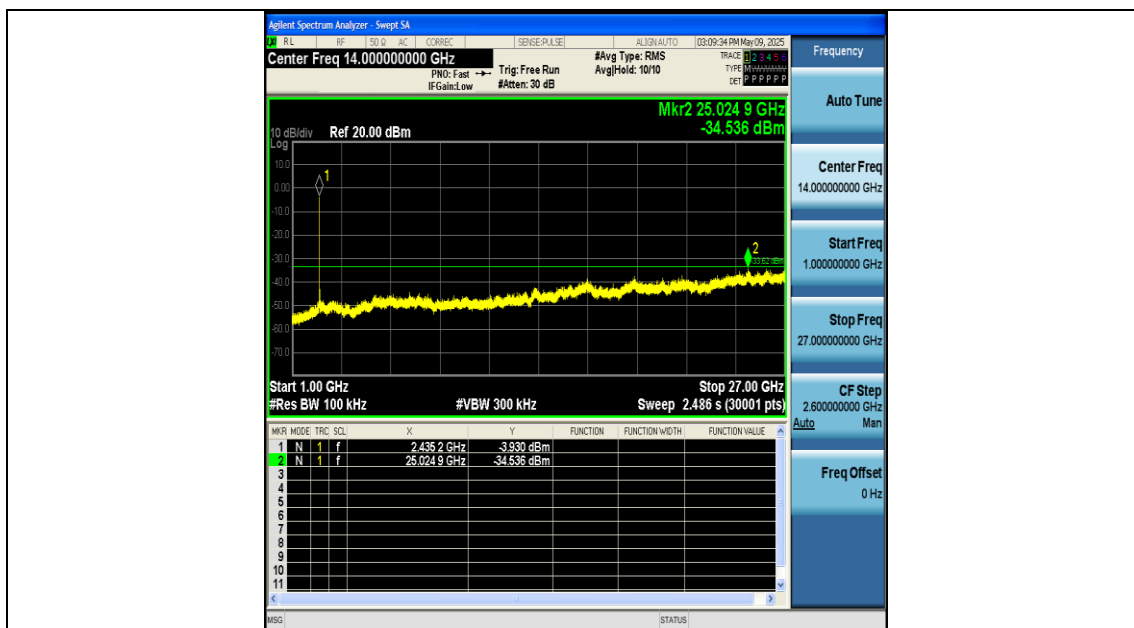
11G-Ant1-2412-1000~270000-PASS



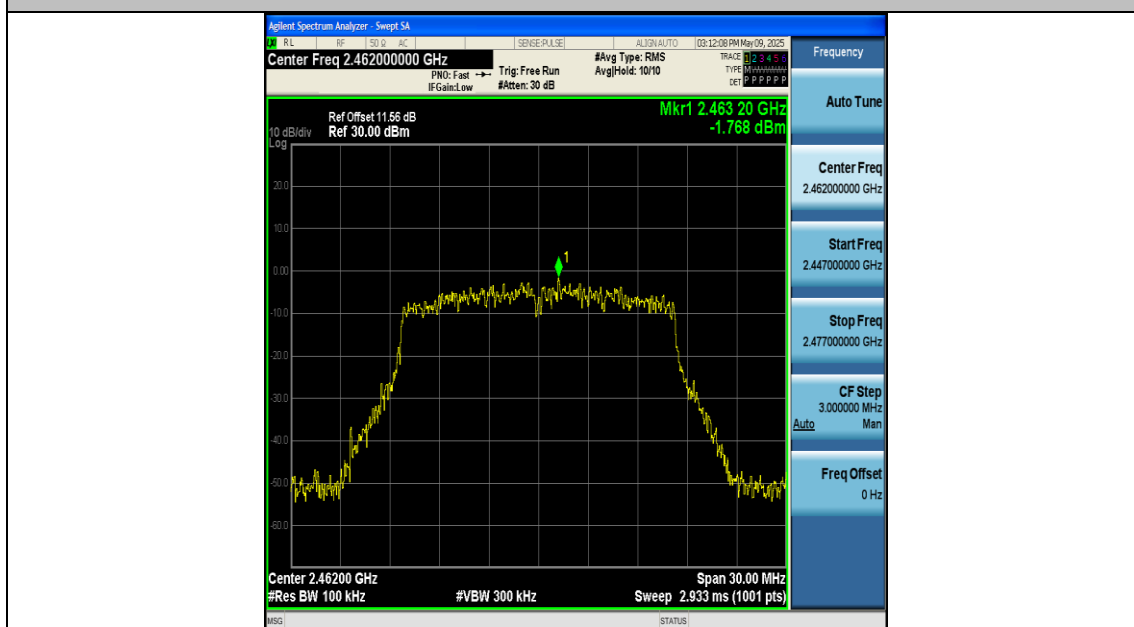
11G-Ant1-2437-0~Reference-PASS



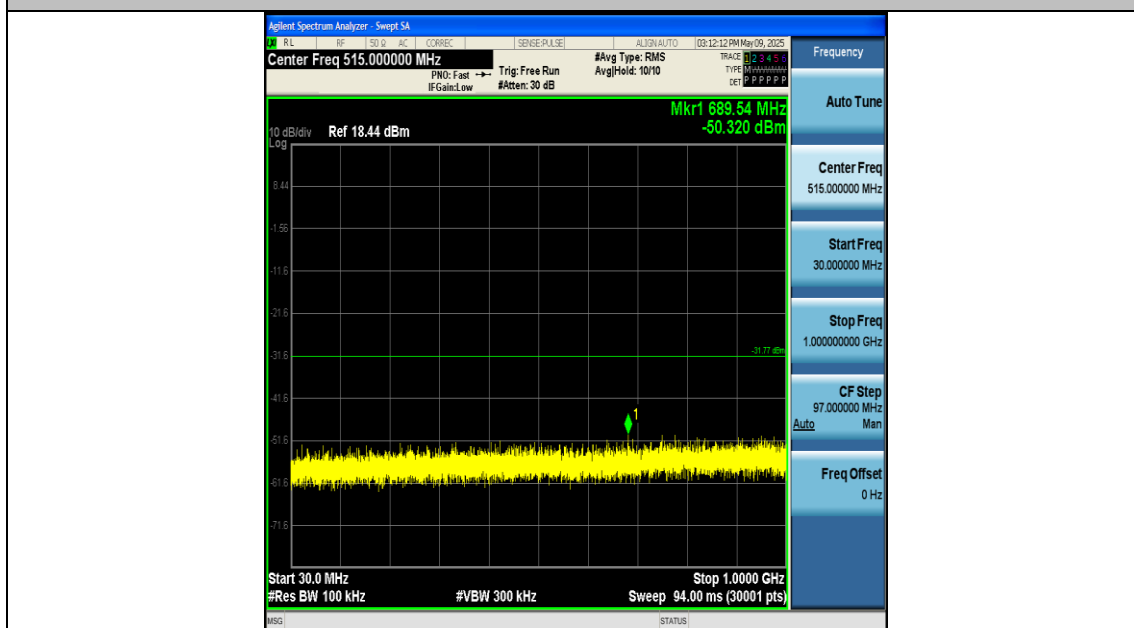
11G-Ant1-2437-30~1000-PASS



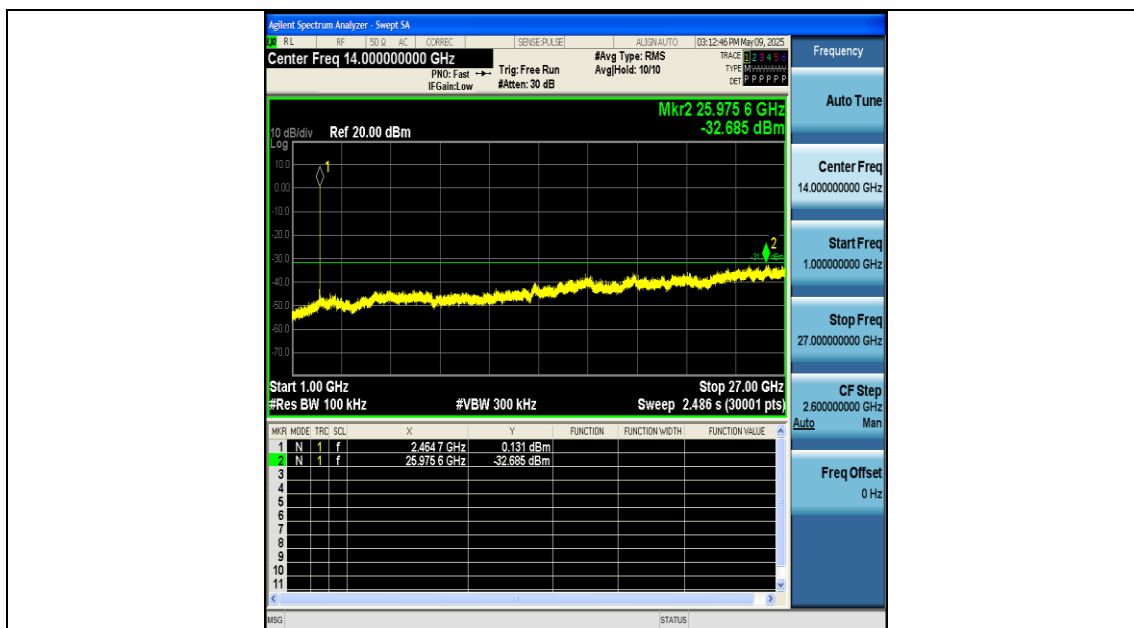
11G-Ant1-2437-1000~270000-PASS



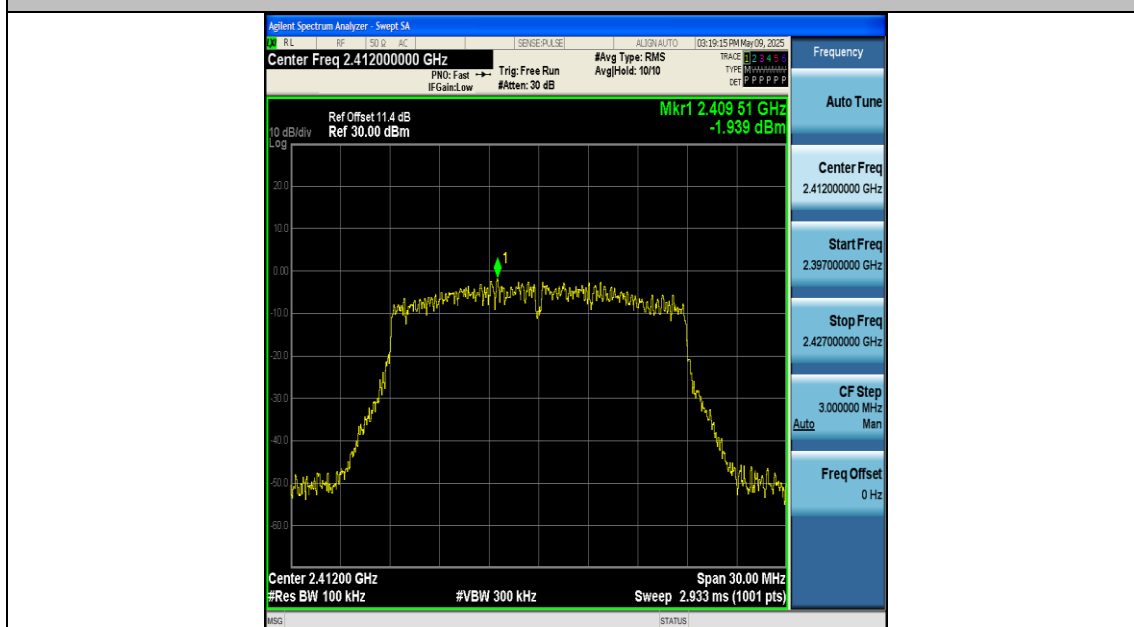
11G-Ant1-2462-0~Reference-PASS



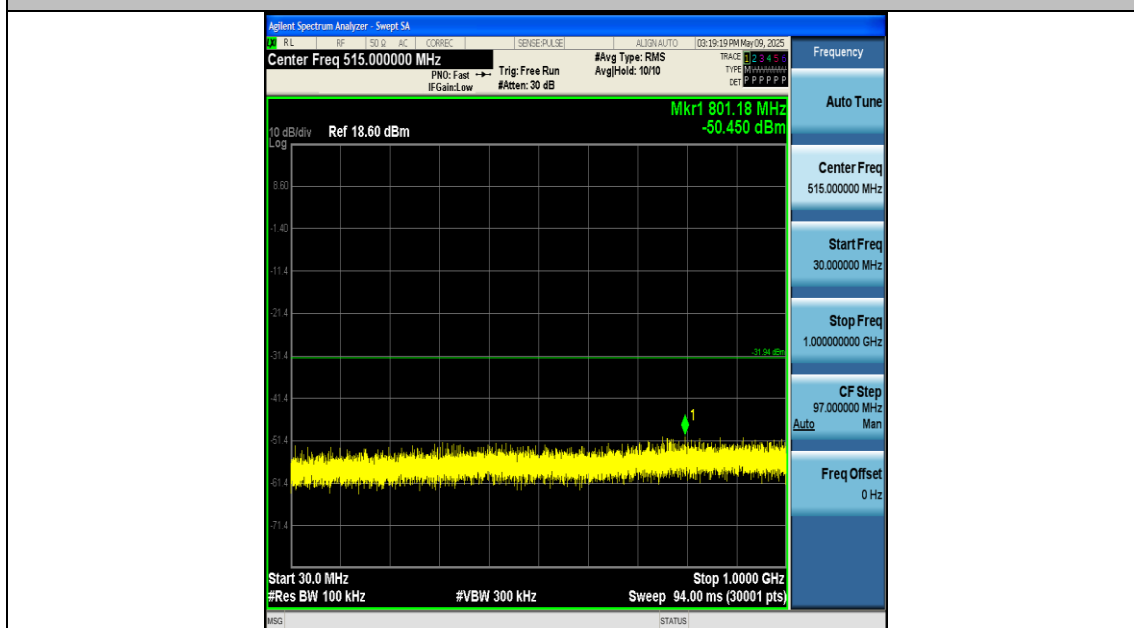
11G-Ant1-2462-30~1000-PASS



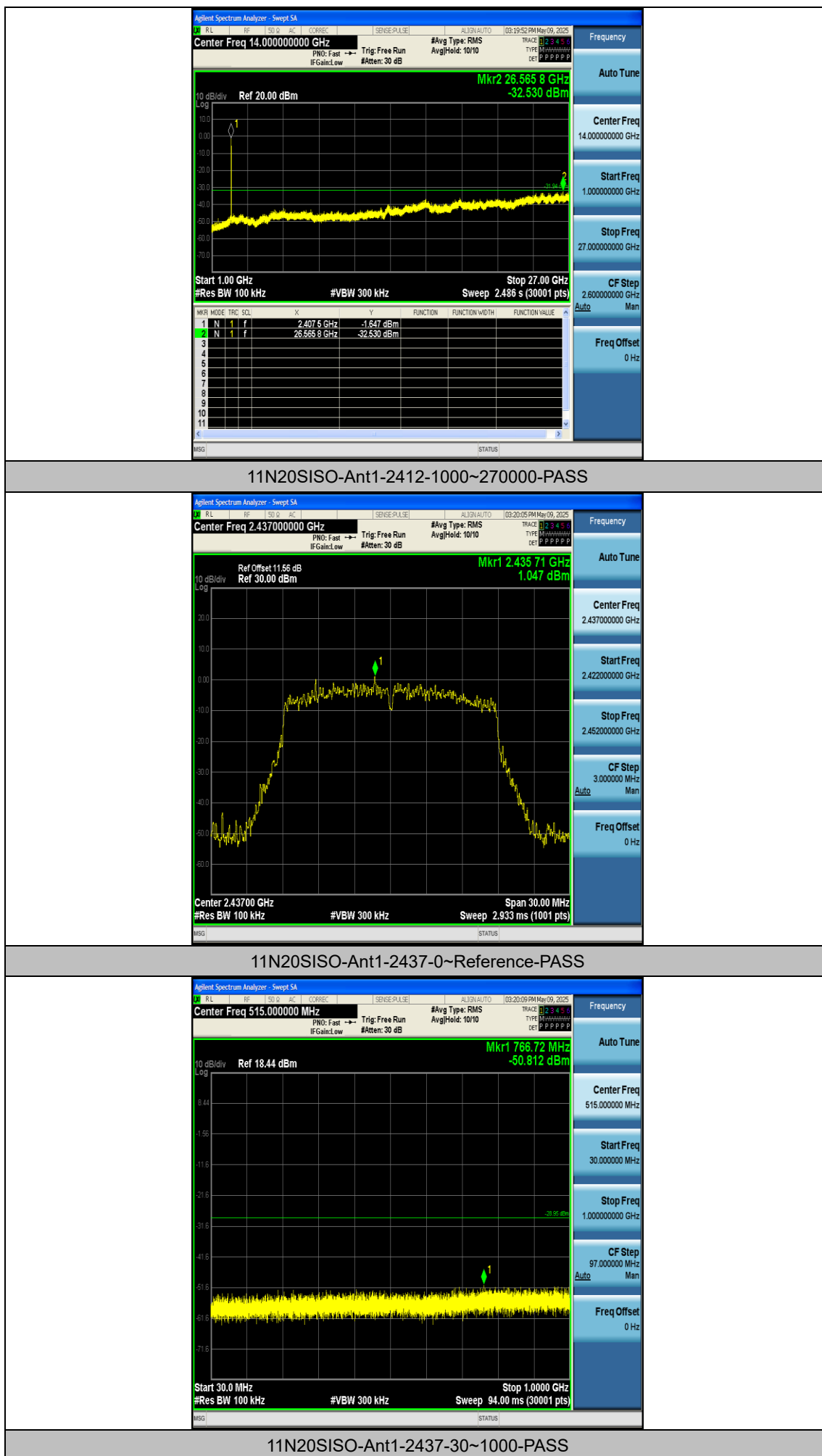
11G-Ant1-2462-1000~270000-PASS

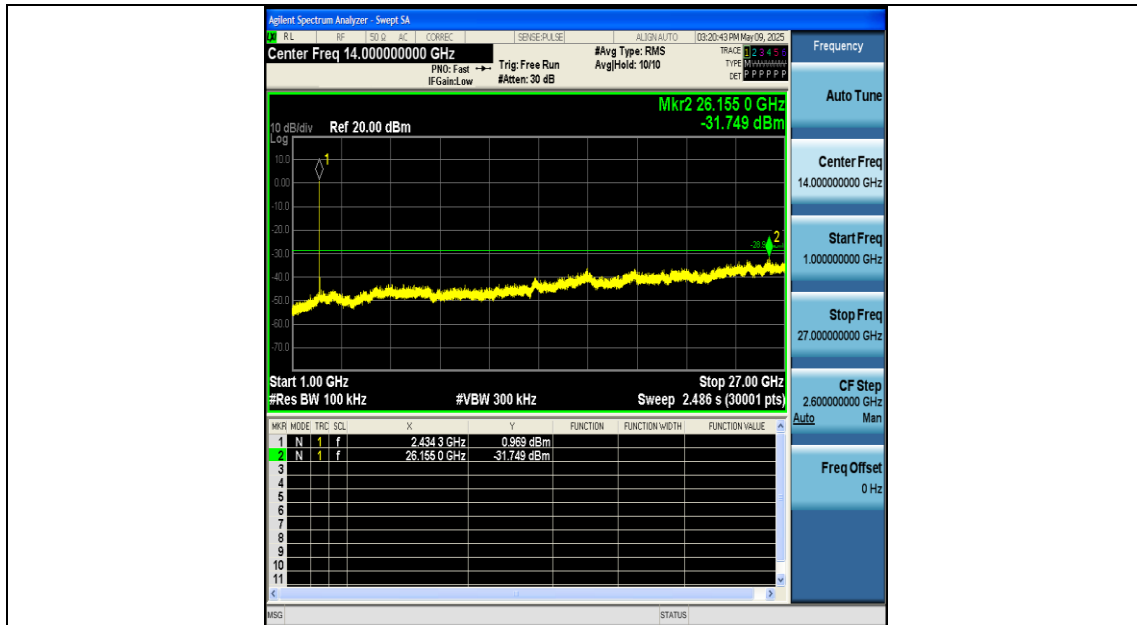


11N20SISO-Ant1-2412-0~Reference-PASS



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

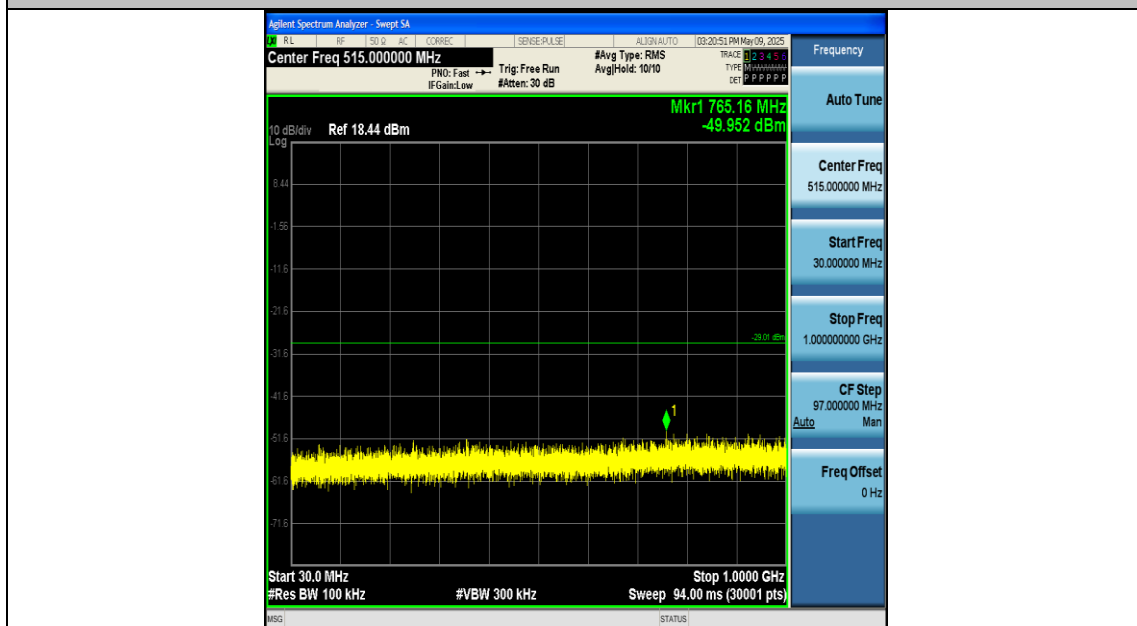




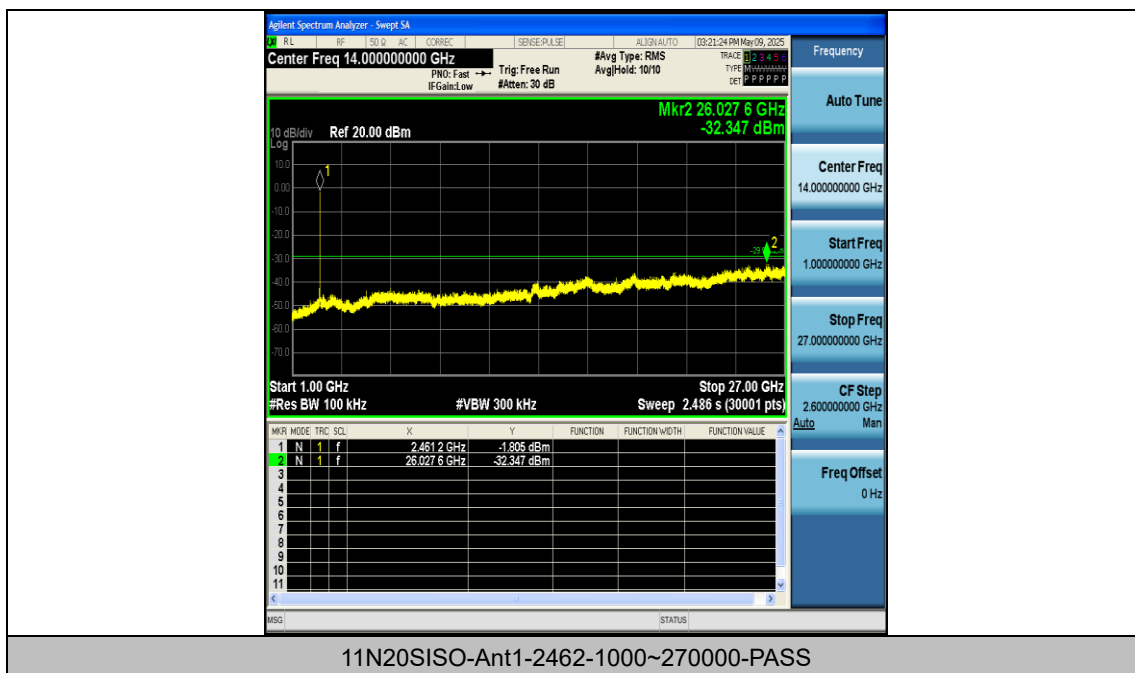
11N20SISO-Ant1-2437-1000~270000-PASS



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



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



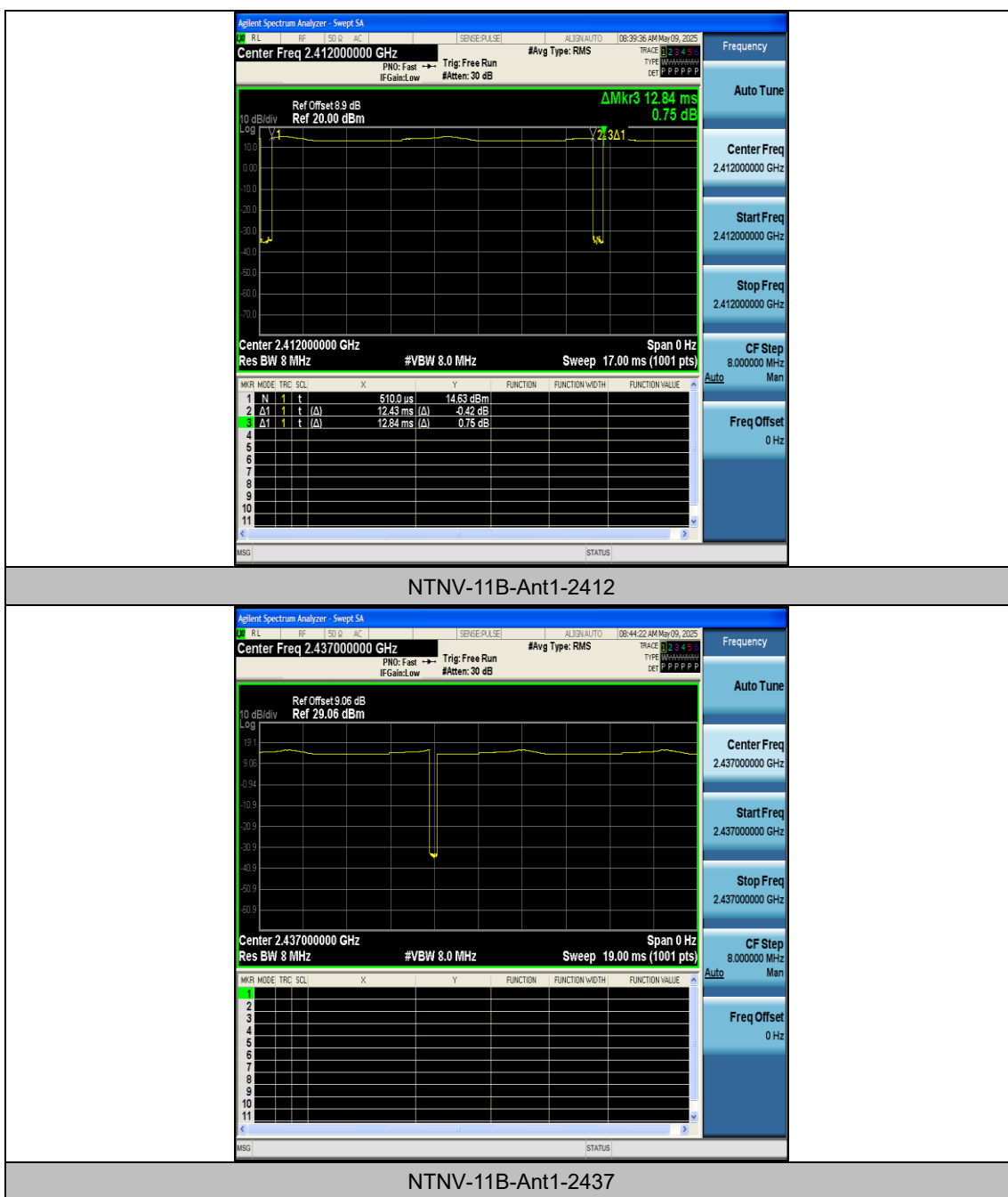
Appendix G: Duty Cycle

Test Result

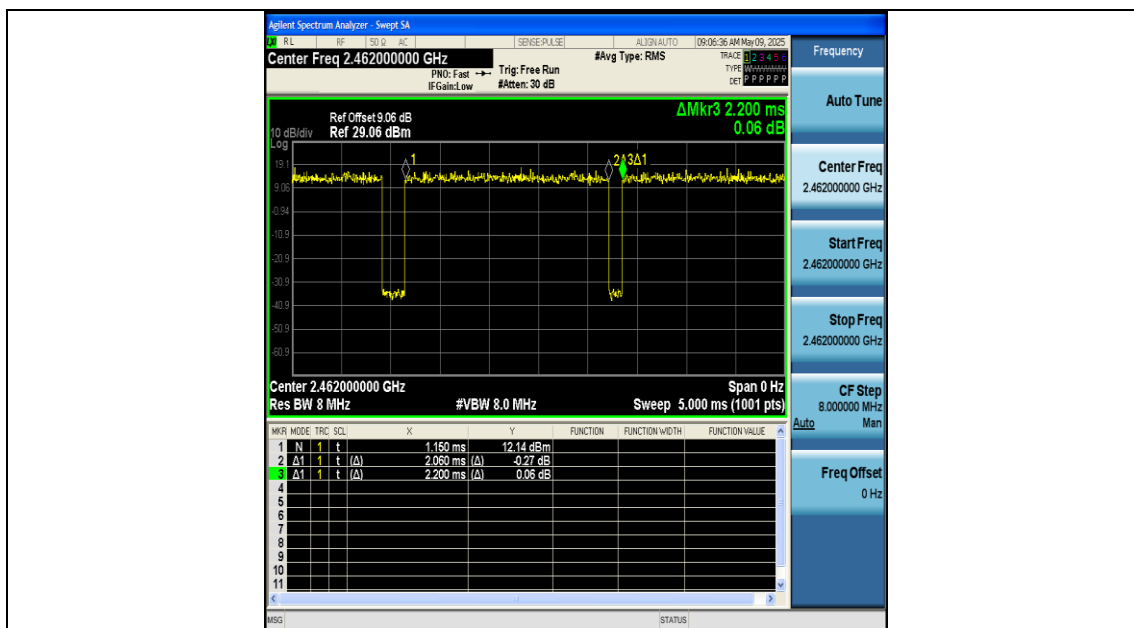
TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor
11B	Ant1	2412	12.43	12.84	96.81	0.14
11B	Ant1	2437	11.00	11.00	100.00	0.00
11B	Ant1	2462	12.40	12.90	96.12	0.17
11G	Ant1	2412	2.07	2.24	92.41	0.34
11G	Ant1	2437	2.07	2.20	94.09	0.26
11G	Ant1	2462	2.06	2.20	93.64	0.29
11N20SISO	Ant1	2412	1.92	2.11	91.00	0.41
11N20SISO	Ant1	2437	1.92	2.11	91.00	0.41
11N20SISO	Ant1	2462	1.92	2.13	90.14	0.45

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

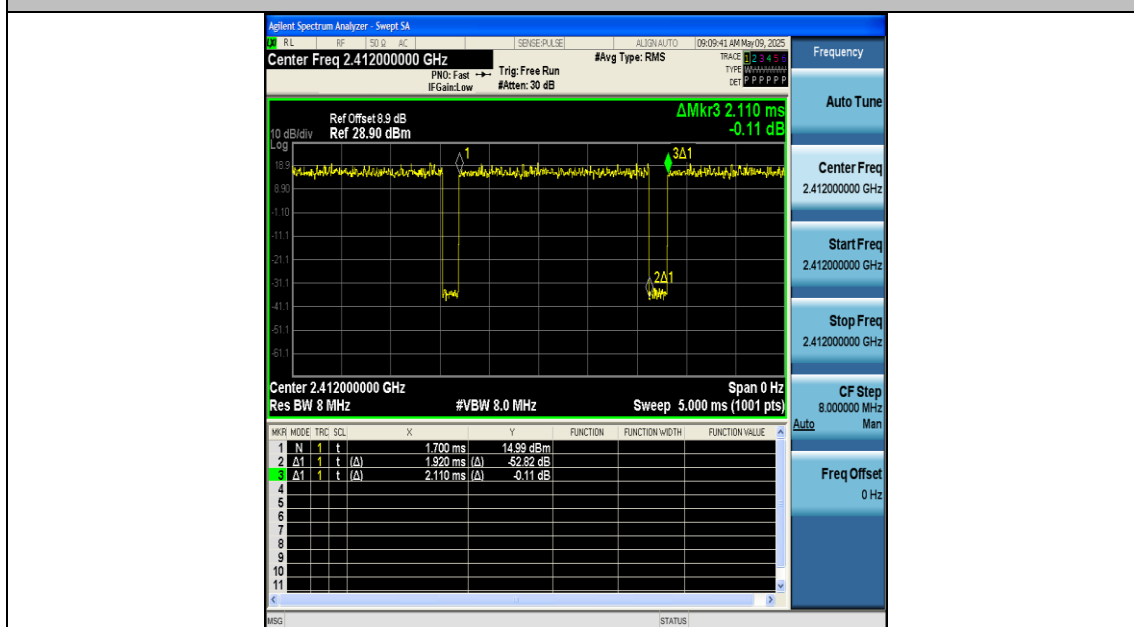
Test Graphs



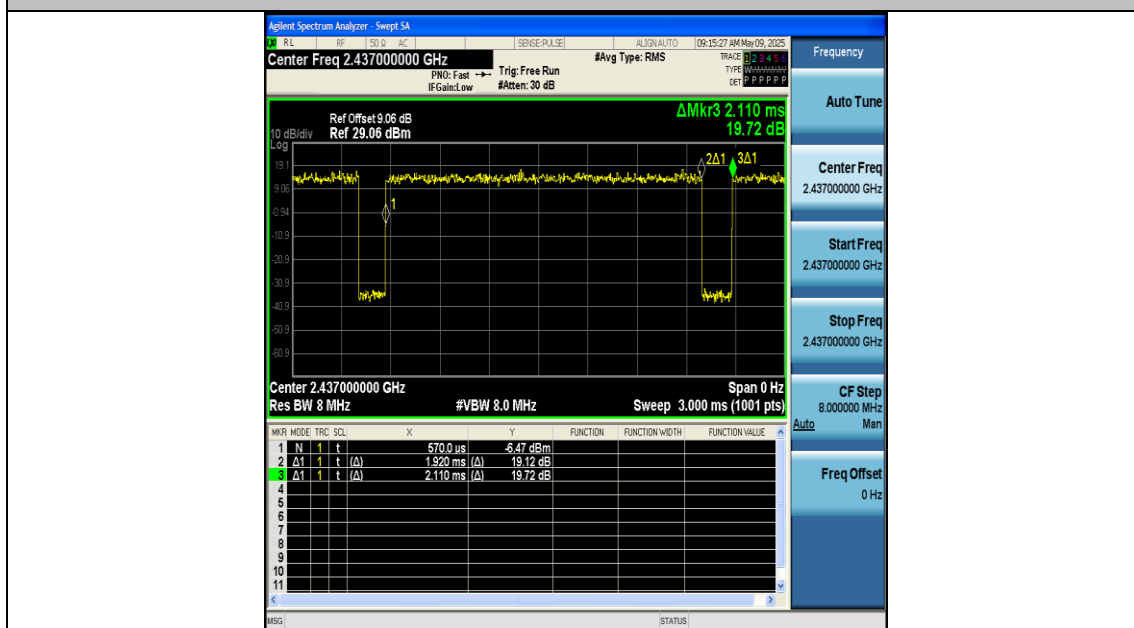




NTNV-11G-Ant1-2462



NTNV-11N20SISO-Ant1-2412



NTNV-11N20SISO-Ant1-2437

