

Appendix Test Data for WLAN(2.4G) (Conducted Measurement)

Product Name: WIFI TOUCH SCREEN KARAOKE SYSTEM

Trade Mark: Singing Machine

Test Model: ISM9011

FCC ID: 2AAXO-ISM9011

Environmental Conditions

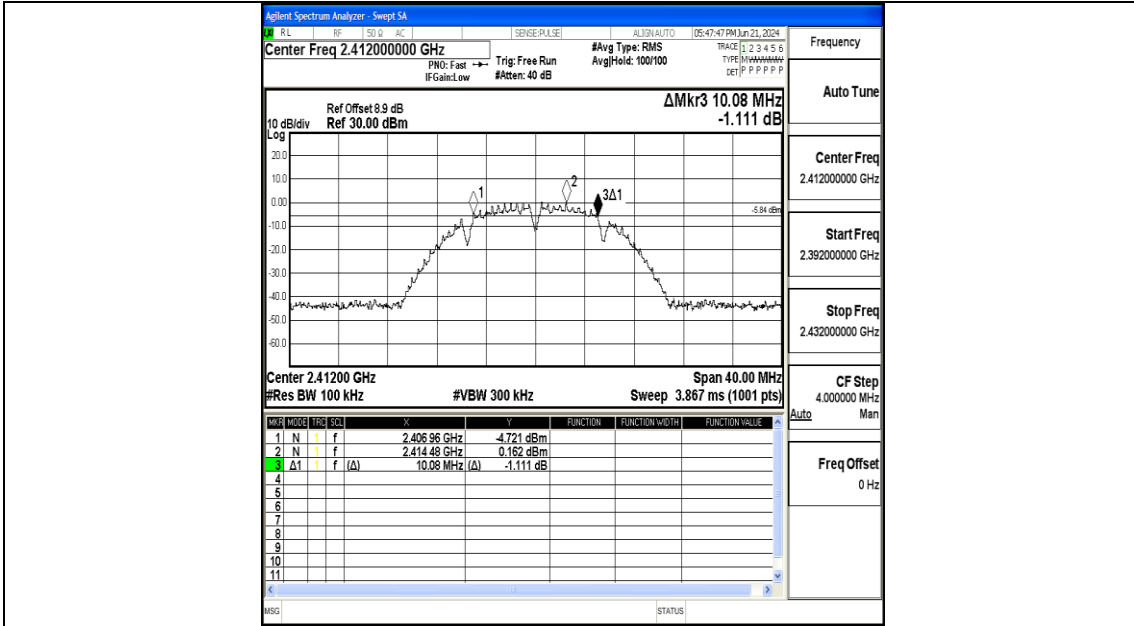
Temperature:	23.8℃
Relative Humidity:	58%
ATM Pressure:	100.0 kPa
Test Engineer:	Allen Lai
Supervised by:	Hugo Chen
NOTE	N/A

Appendix A: DTS Bandwidth

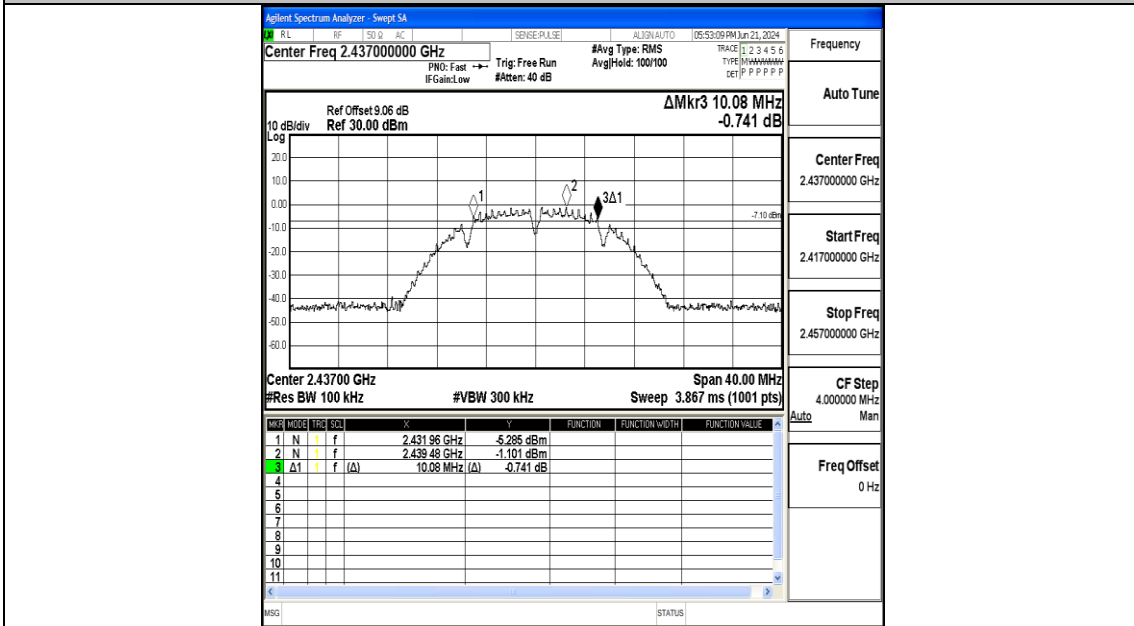
Test Result

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	10.080	2406.960	2417.040	0.5	PASS
11B	Ant1	2437	10.080	2431.960	2442.040	0.5	PASS
11B	Ant1	2462	10.080	2456.960	2467.040	0.5	PASS
11G	Ant1	2412	14.680	2405.080	2419.760	0.5	PASS
11G	Ant1	2437	16.040	2428.840	2444.880	0.5	PASS
11G	Ant1	2462	15.440	2454.480	2469.920	0.5	PASS
11N20SISO	Ant1	2412	16.680	2403.840	2420.520	0.5	PASS
11N20SISO	Ant1	2437	16.840	2428.640	2445.480	0.5	PASS
11N20SISO	Ant1	2462	16.960	2453.440	2470.400	0.5	PASS

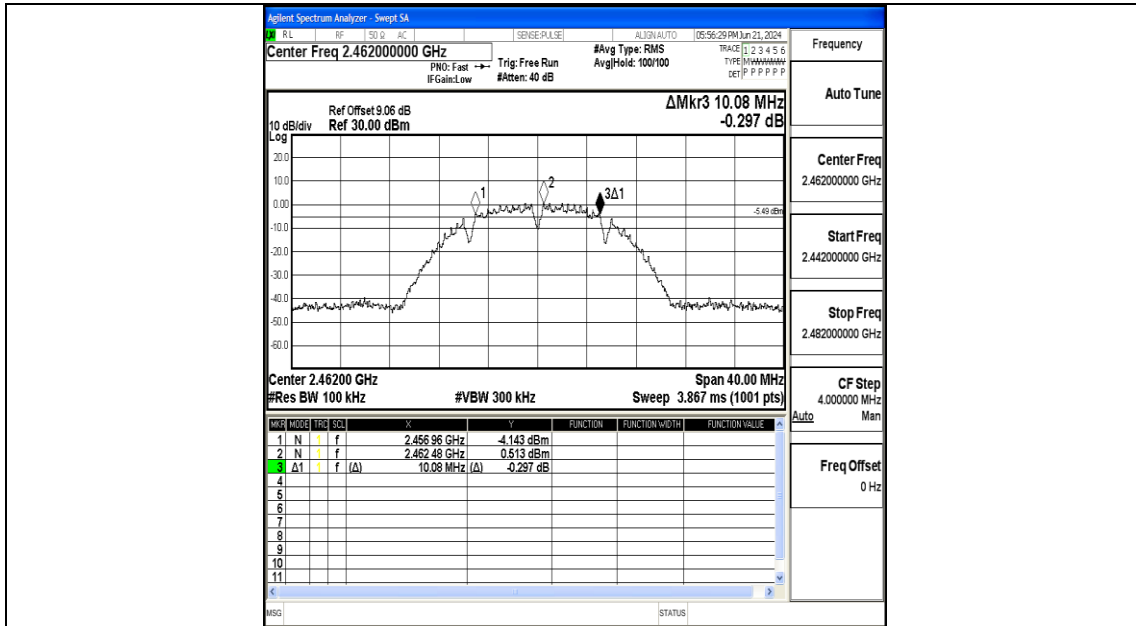
Test Graphs



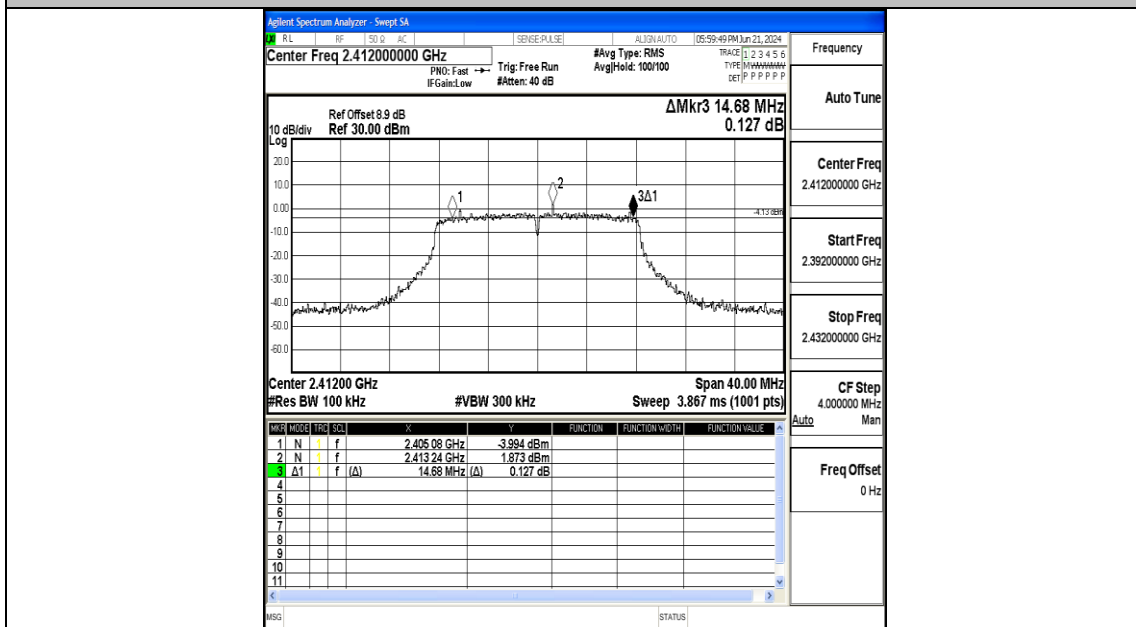
11B-Ant1-2412-PASS



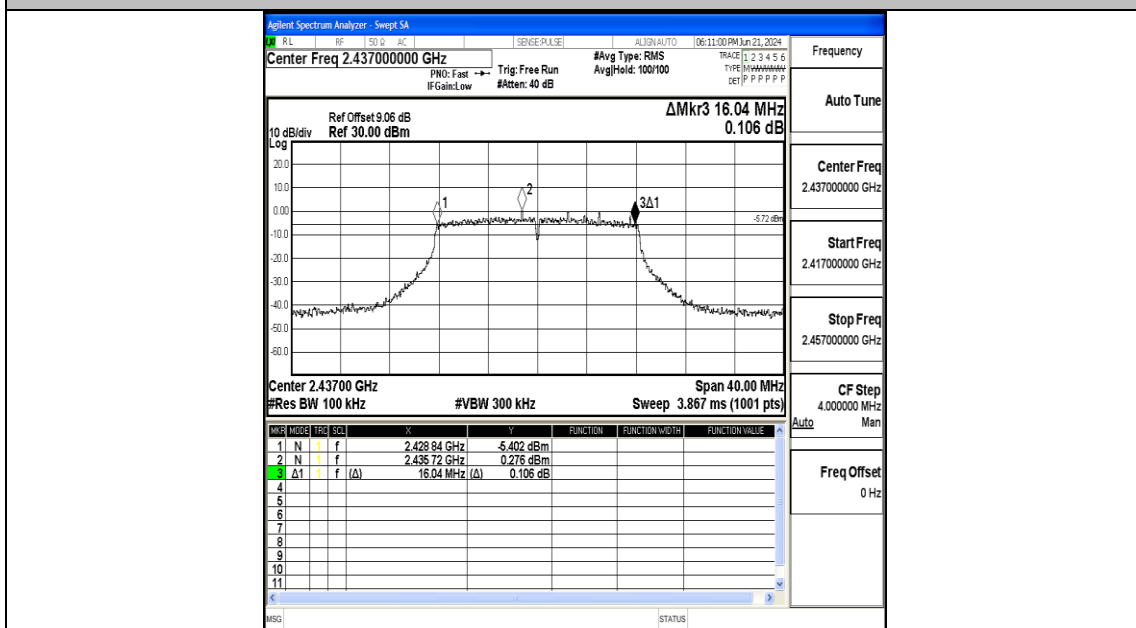
11B-Ant1-2437-PASS



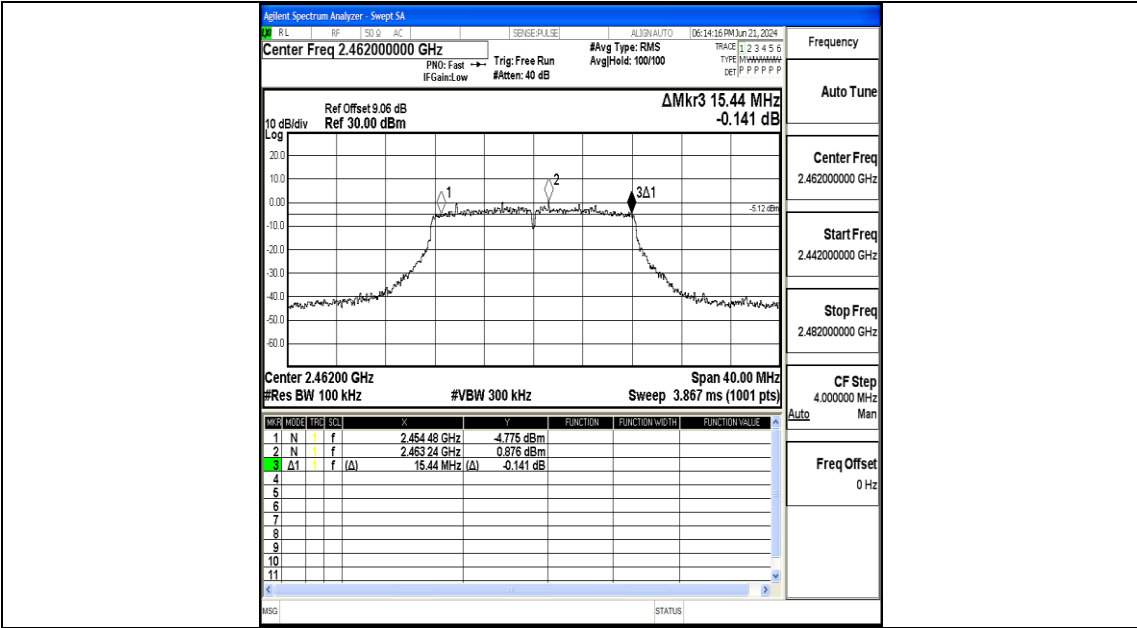
11B-Ant1-2462-PASS



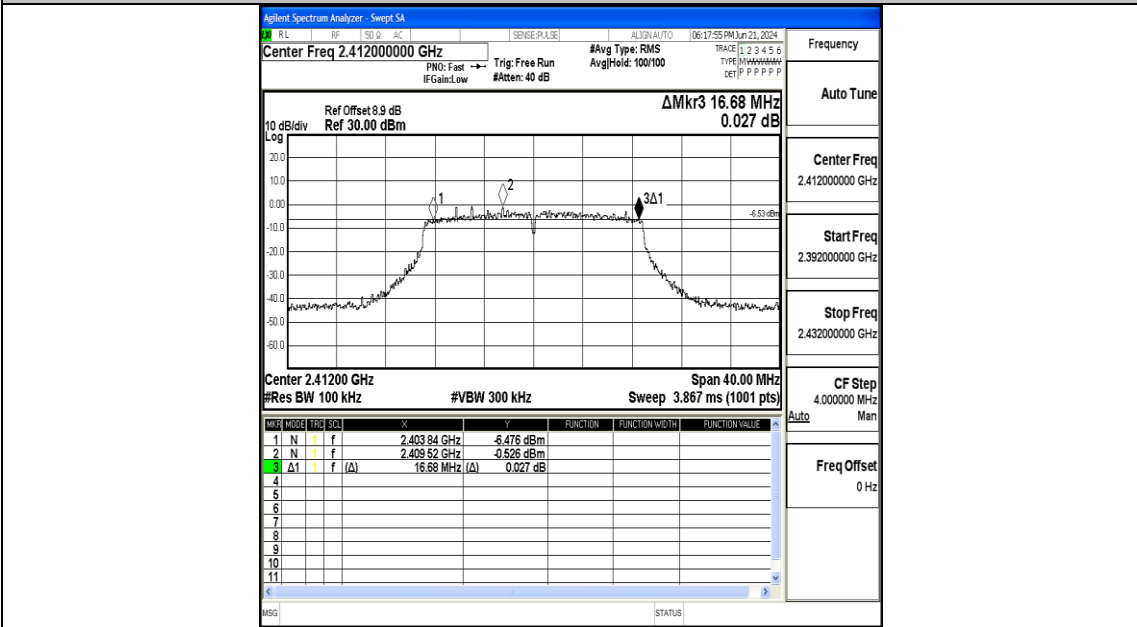
11G-Ant1-2412-PASS



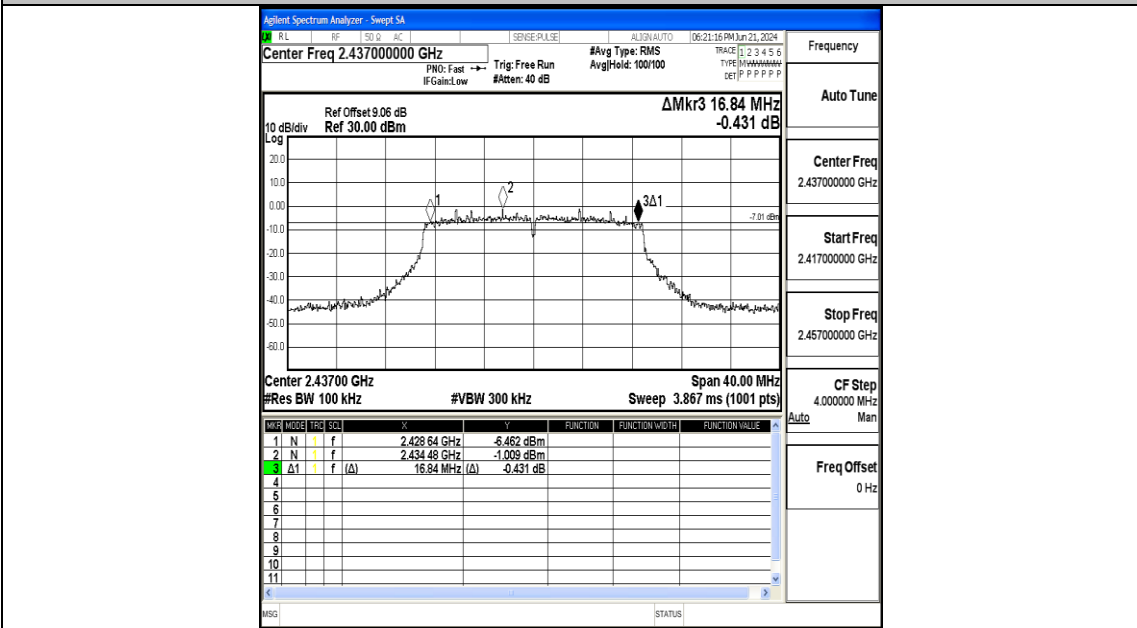
11G-Ant1-2437-PASS



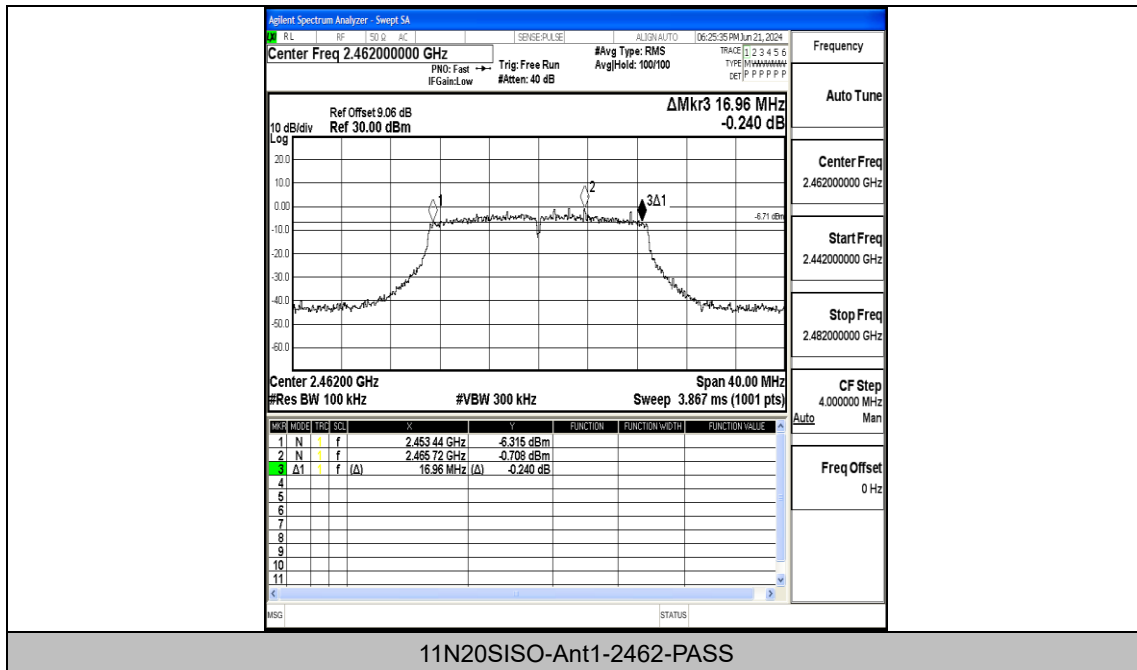
11G-Ant1-2462-PASS



11N20SISO-Ant1-2412-PASS



11N20SISO-Ant1-2437-PASS

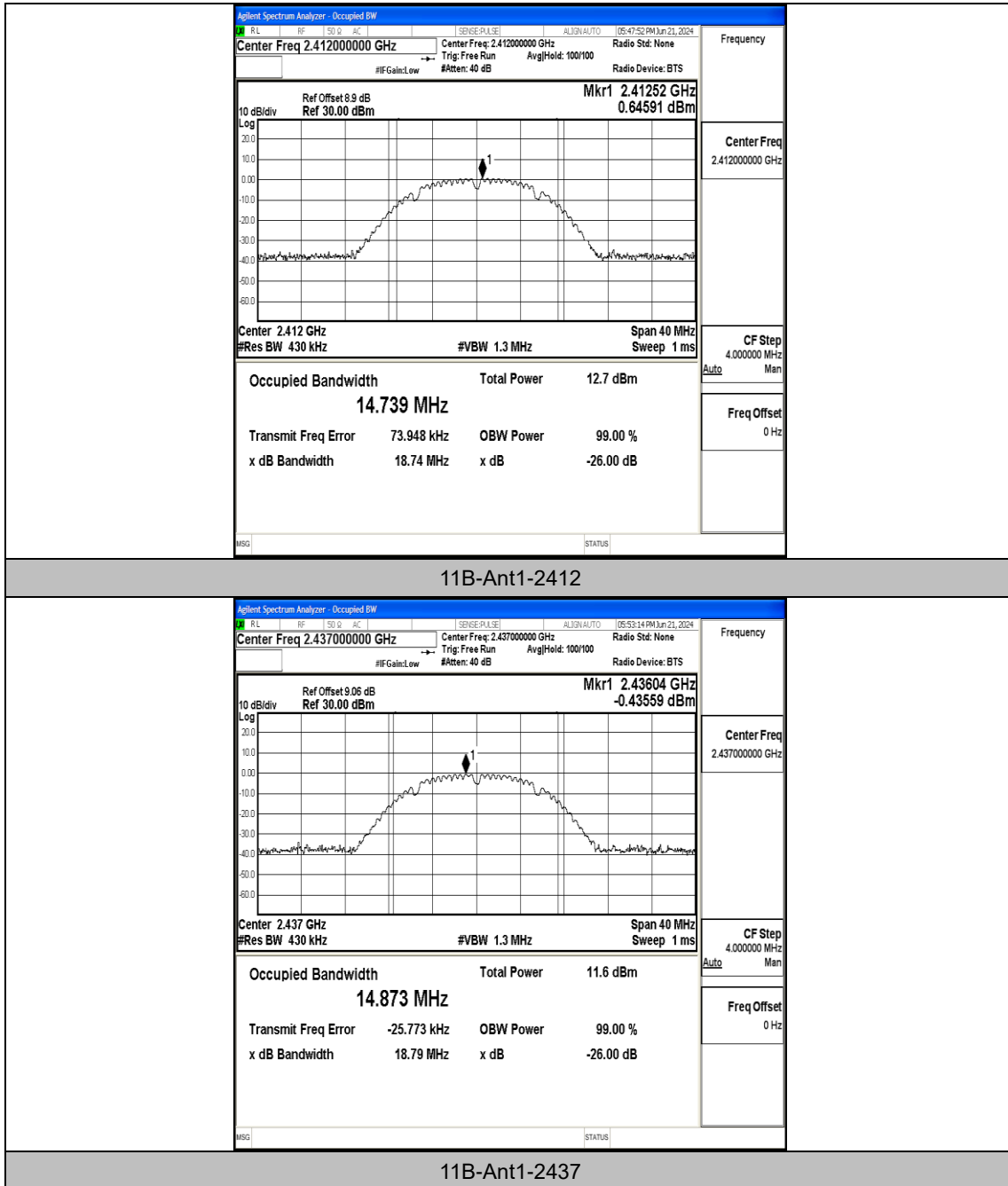


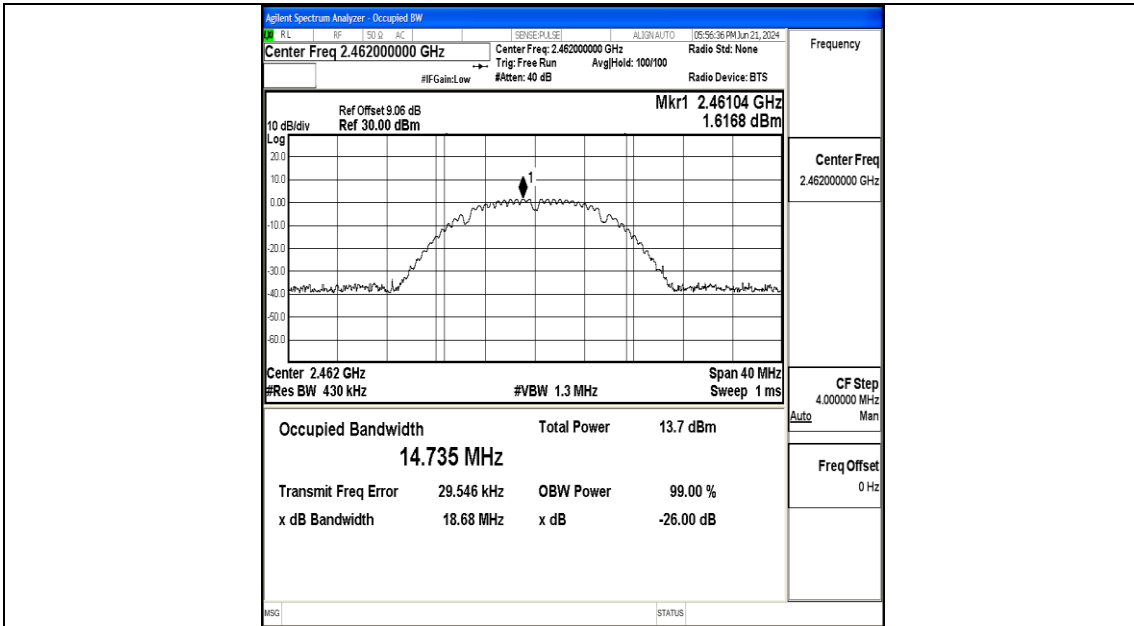
Appendix B: Occupied Channel Bandwidth

Test Result

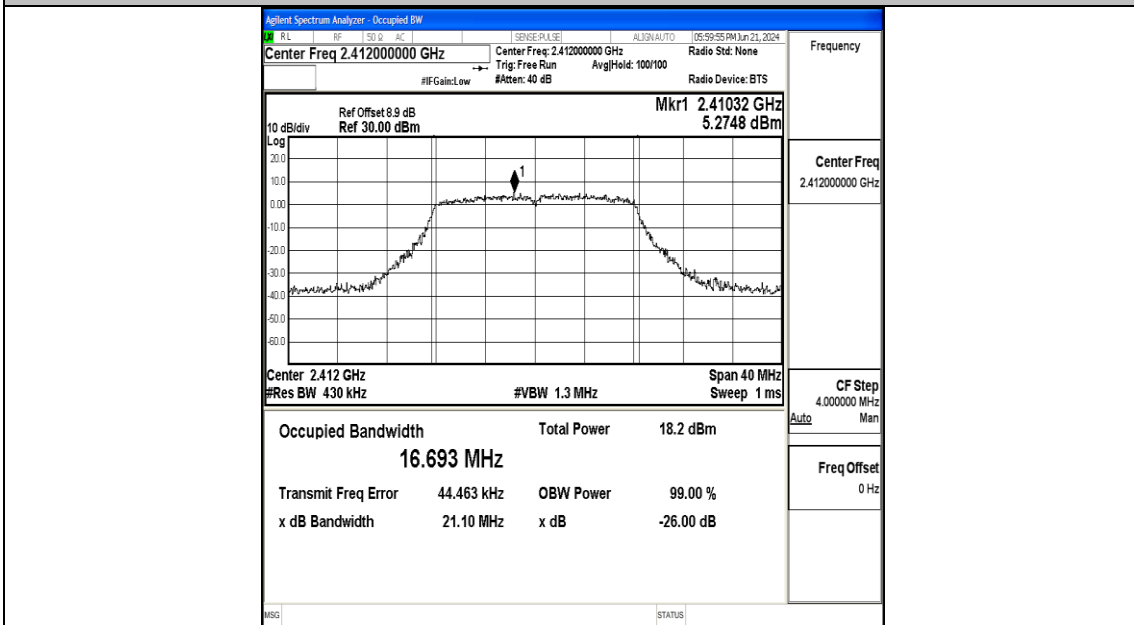
TestMode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	14.739	2404.7045	2419.4435	---	---
11B	Ant1	2437	14.873	2429.5377	2444.4107	---	---
11B	Ant1	2462	14.735	2454.6621	2469.3971	---	---
11G	Ant1	2412	16.693	2403.6980	2420.3910	---	---
11G	Ant1	2437	16.787	2428.5478	2445.3348	---	---
11G	Ant1	2462	16.753	2453.6456	2470.3986	---	---
11N20SISO	Ant1	2412	17.944	2403.0774	2421.0214	---	---
11N20SISO	Ant1	2437	17.859	2428.0823	2445.9413	---	---
11N20SISO	Ant1	2462	17.805	2453.1287	2470.9337	---	---

Test Graphs

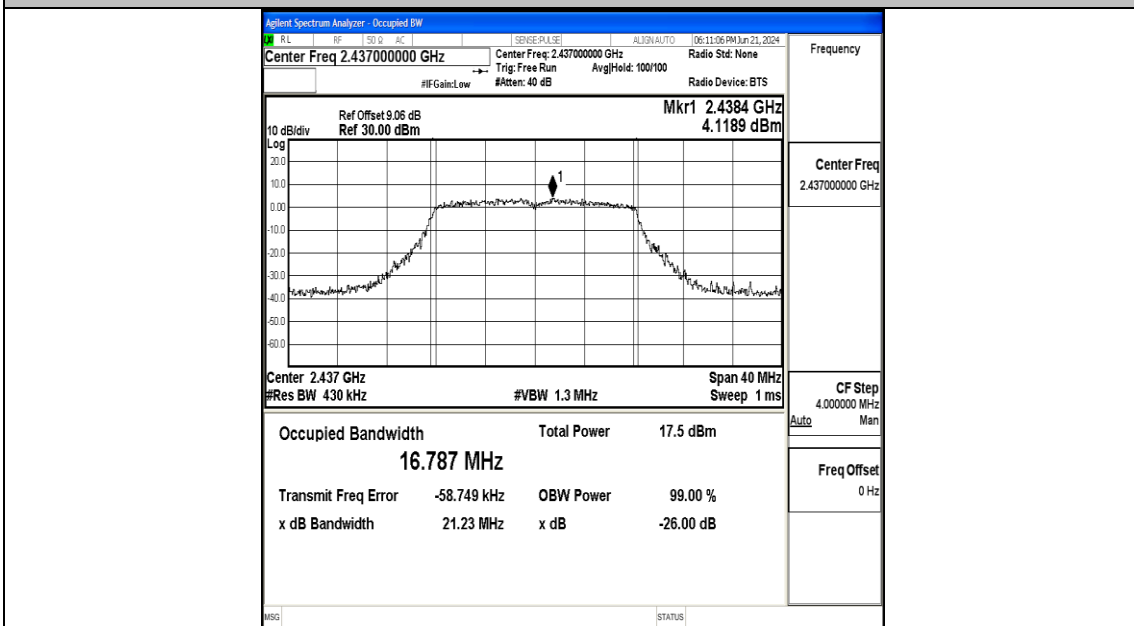




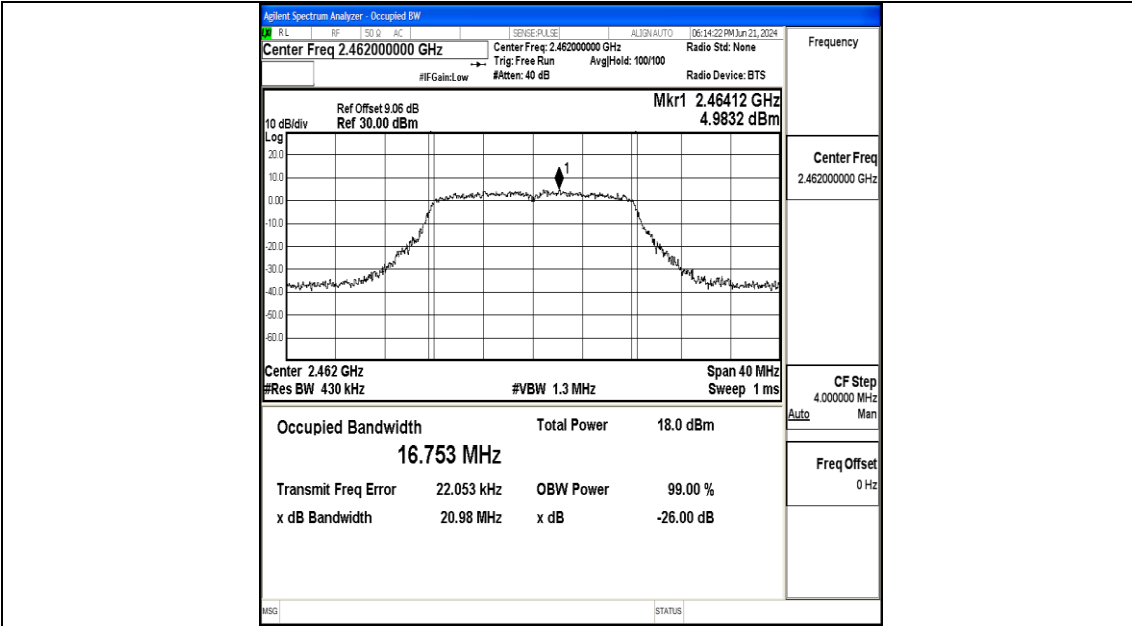
11B-Ant1-2462



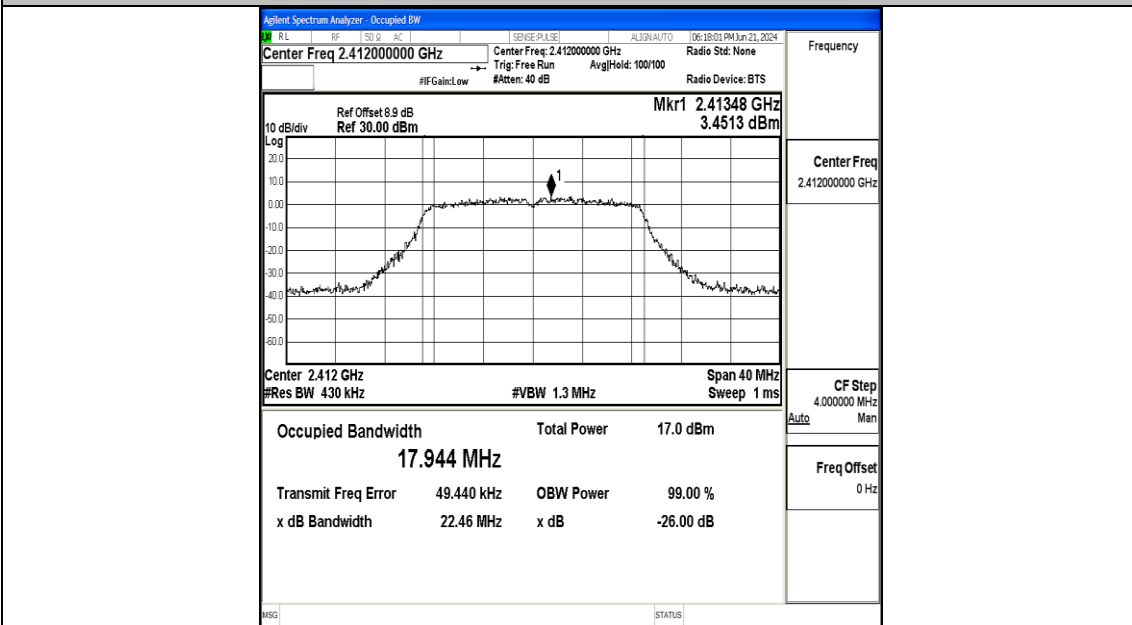
11G-Ant1-2412



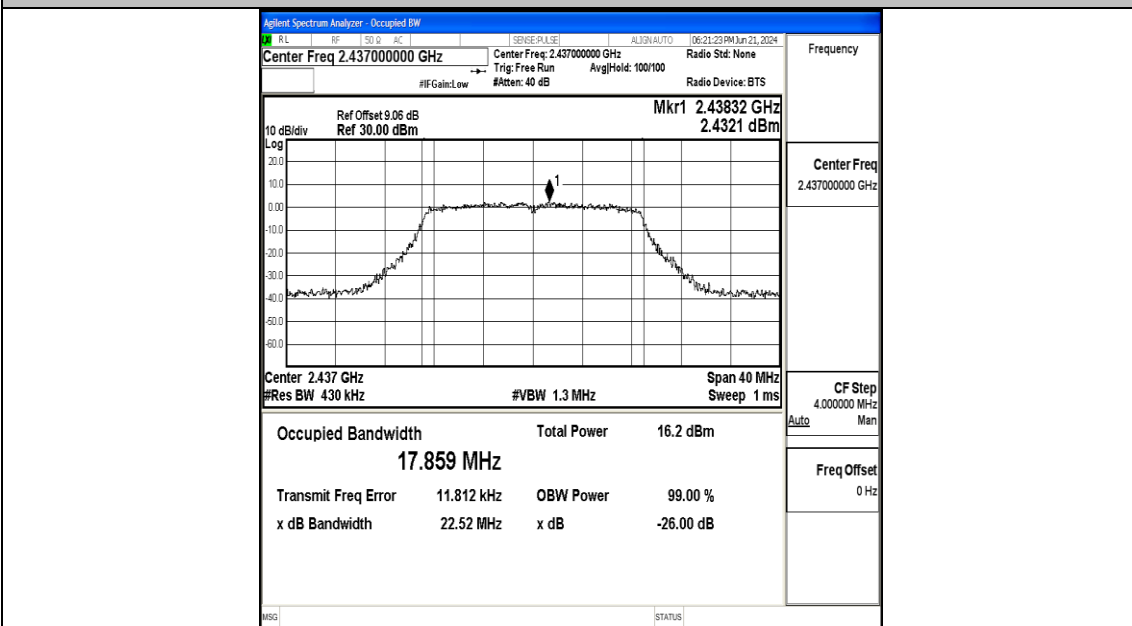
11G-Ant1-2437



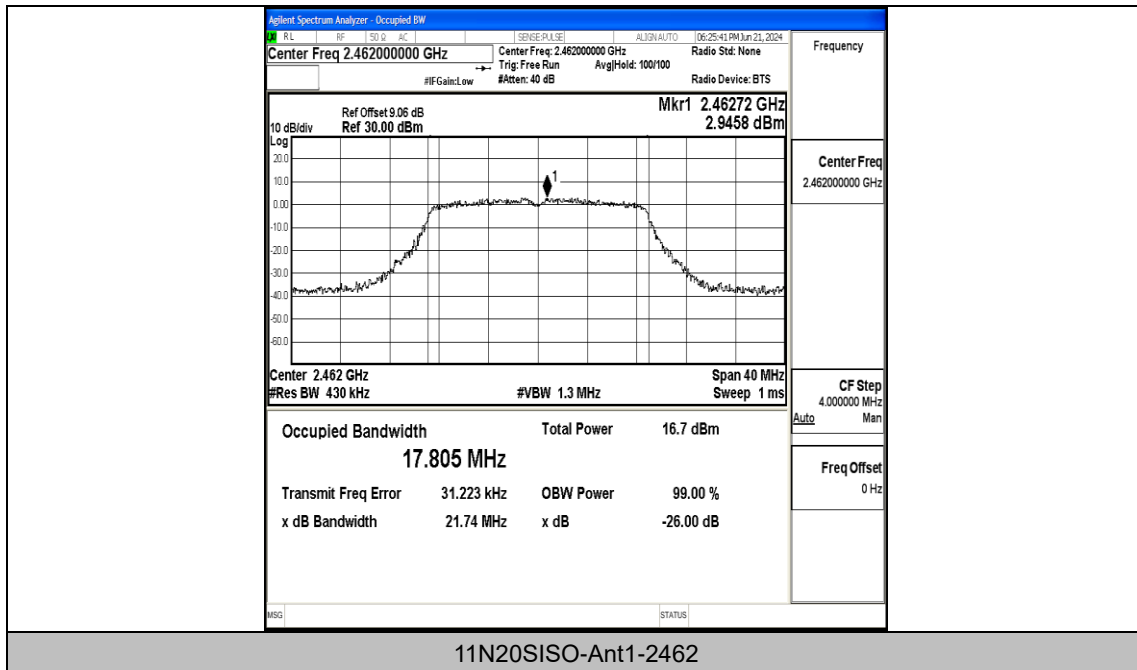
11G-Ant1-2462



11N20SISO-Ant1-2412



11N20SISO-Ant1-2437



Appendix C: Maximum Average conducted output power

Test Result

TestMode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
11B	Ant1	2412	9.78	≤30.00	PASS
11B	Ant1	2437	8.44	≤30.00	PASS
11B	Ant1	2462	10.76	≤30.00	PASS
11G	Ant1	2412	12.37	≤30.00	PASS
11G	Ant1	2437	11.55	≤30.00	PASS
11G	Ant1	2462	11.92	≤30.00	PASS
11N20SISO	Ant1	2412	11.12	≤30.00	PASS
11N20SISO	Ant1	2437	10.35	≤30.00	PASS
11N20SISO	Ant1	2462	10.66	≤30.00	PASS

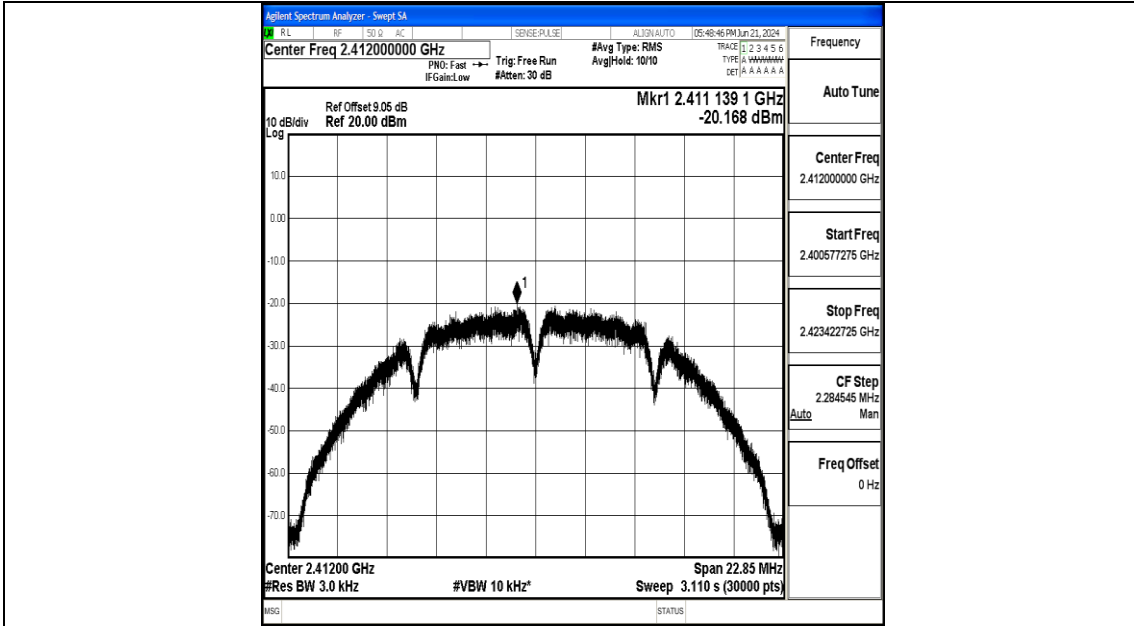
Note: The Duty Cycle Factor is compensated in the result.

Appendix D: Maximum Average power spectral density

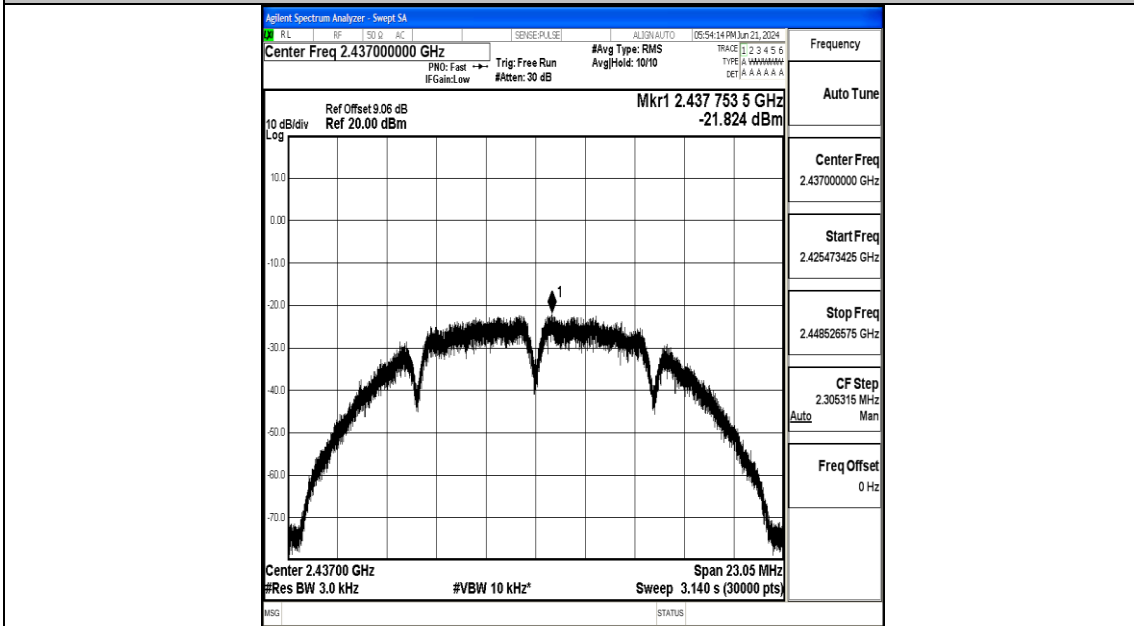
Test Result

TestMode	Antenna	Frequency[MHz]	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-20.17	≤8.00	PASS
11B	Ant1	2437	-21.82	≤8.00	PASS
11B	Ant1	2462	-19.07	≤8.00	PASS
11G	Ant1	2412	-18.06	≤8.00	PASS
11G	Ant1	2437	-18.36	≤8.00	PASS
11G	Ant1	2462	-17.86	≤8.00	PASS
11N20SISO	Ant1	2412	-18.57	≤8.00	PASS
11N20SISO	Ant1	2437	-20.19	≤8.00	PASS
11N20SISO	Ant1	2462	-19.36	≤8.00	PASS

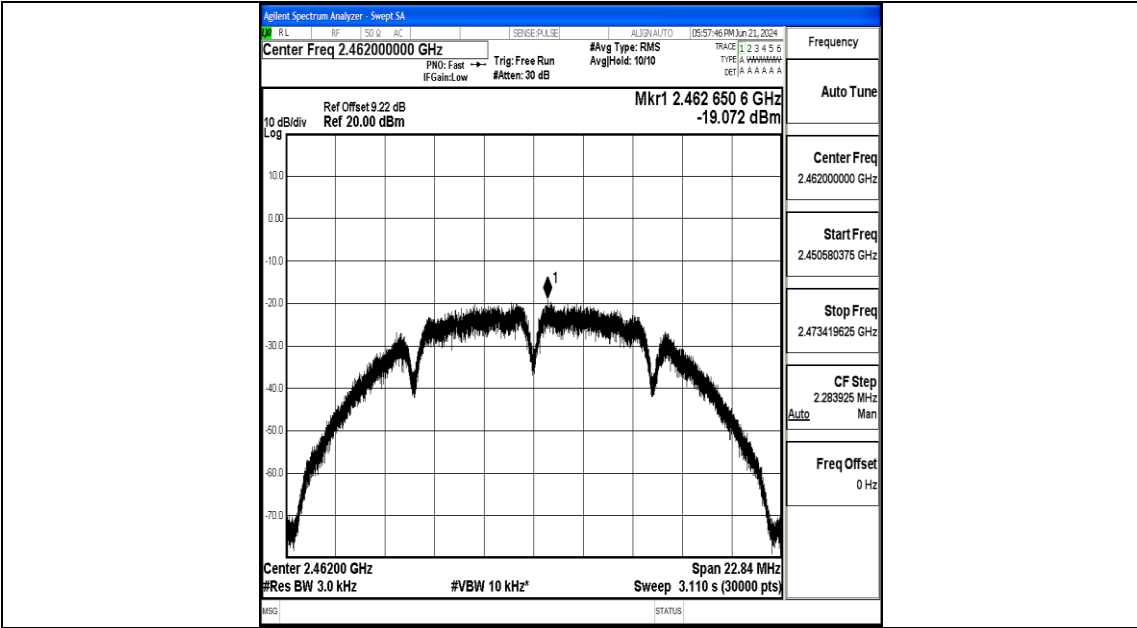
Test Graphs



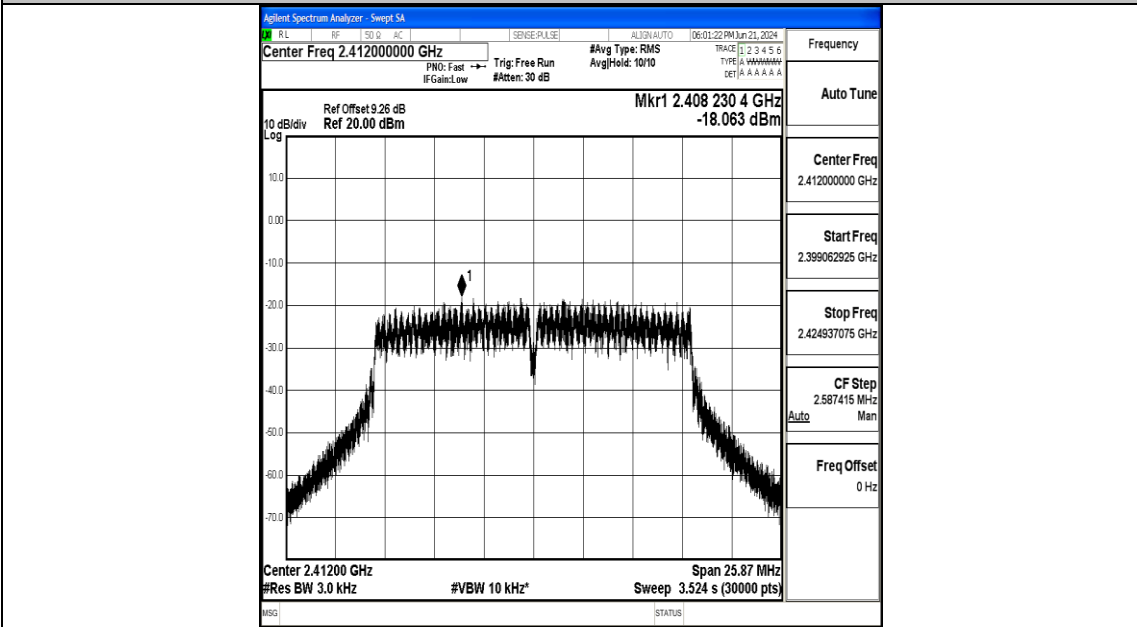
11B-Ant1-2412-PASS



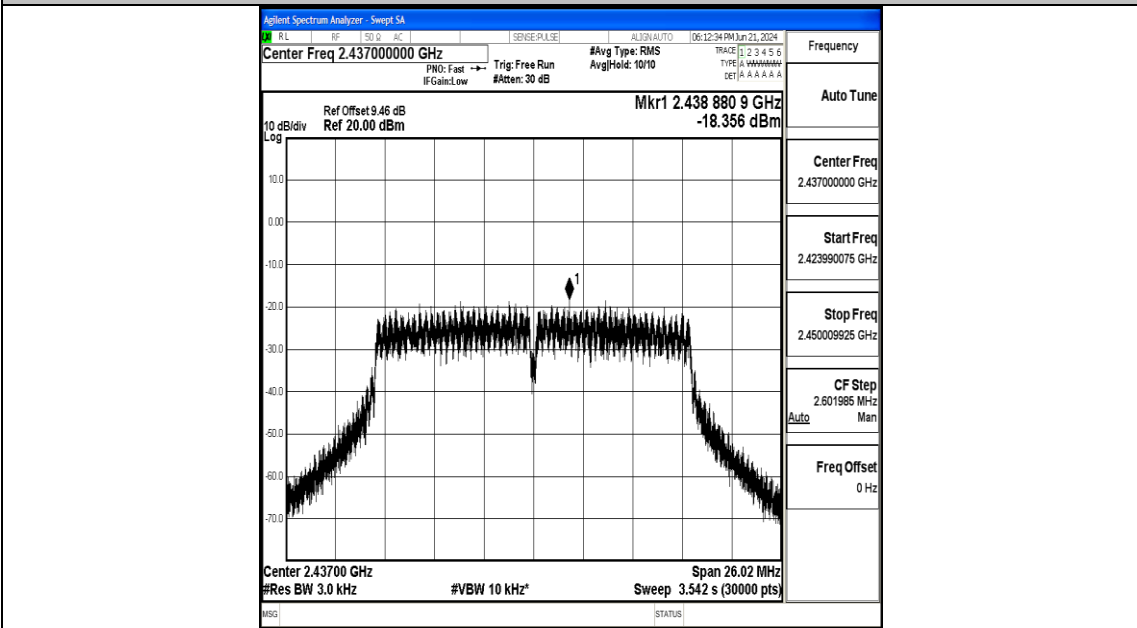
11B-Ant1-2437-PASS



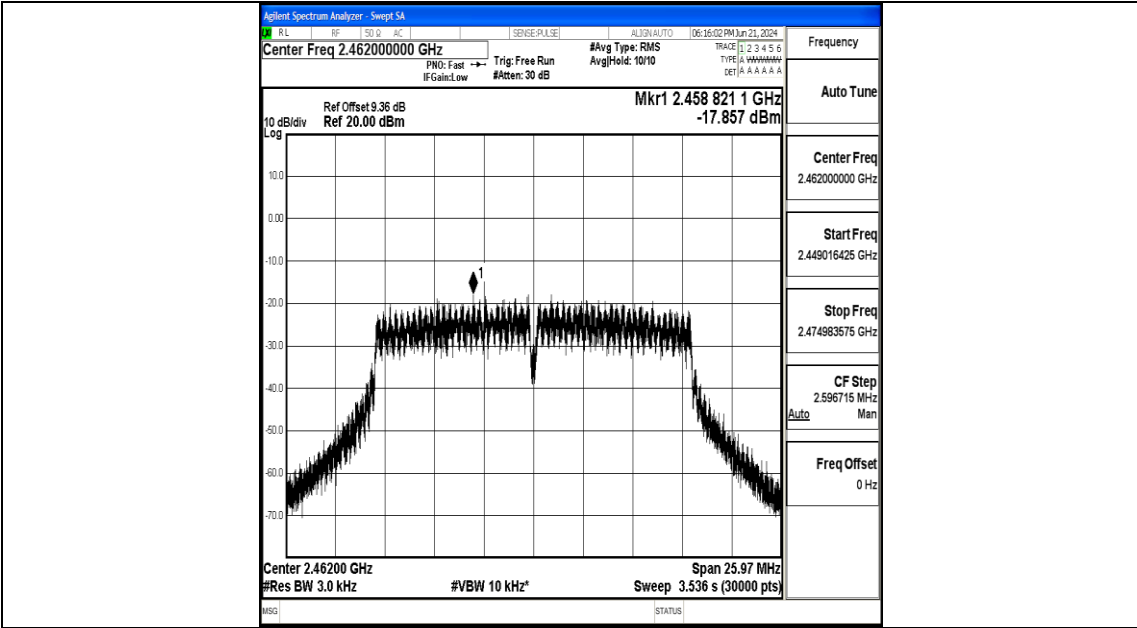
11B-Ant1-2462-PASS



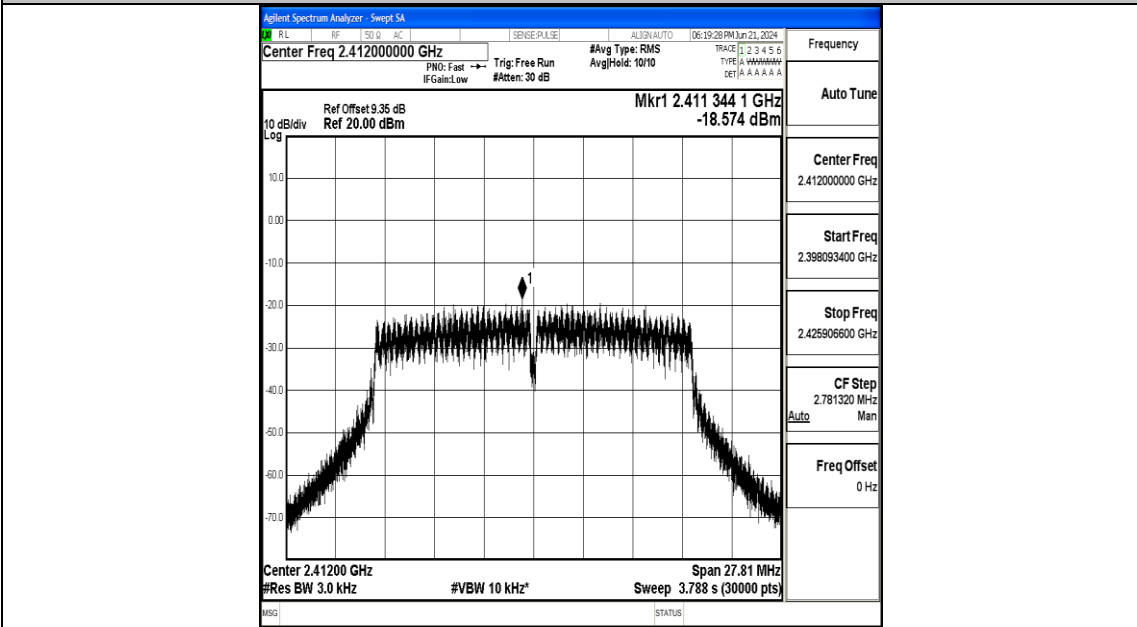
11G-Ant1-2412-PASS



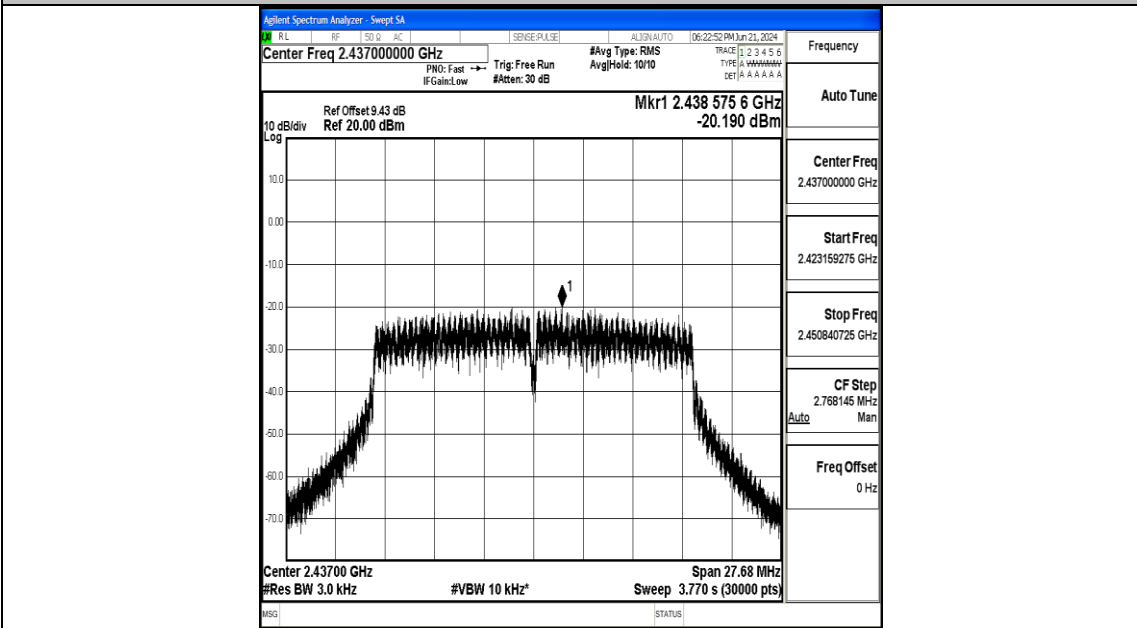
11G-Ant1-2437-PASS



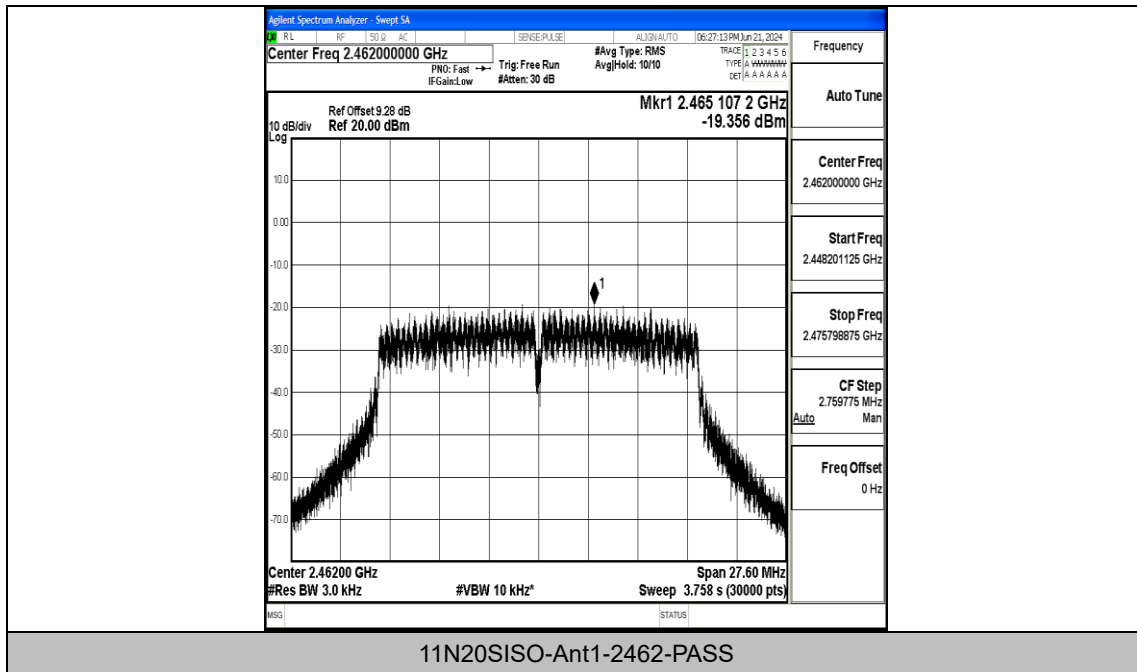
11G-Ant1-2462-PASS



11N20SISO-Ant1-2412-PASS



11N20SISO-Ant1-2437-PASS

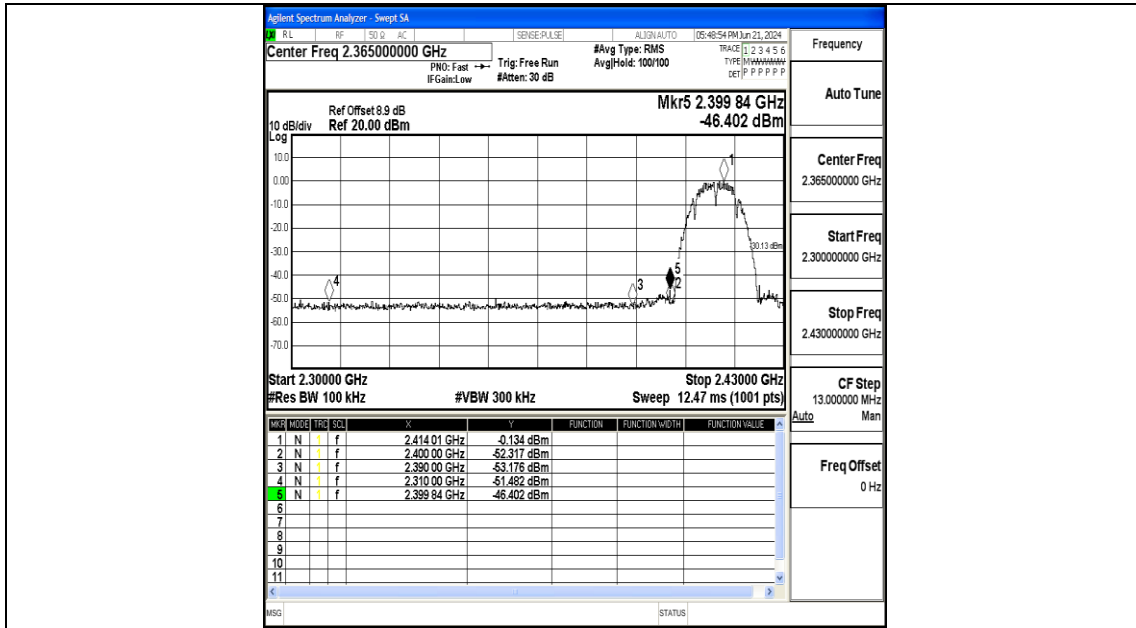


Appendix E: Band edge measurements

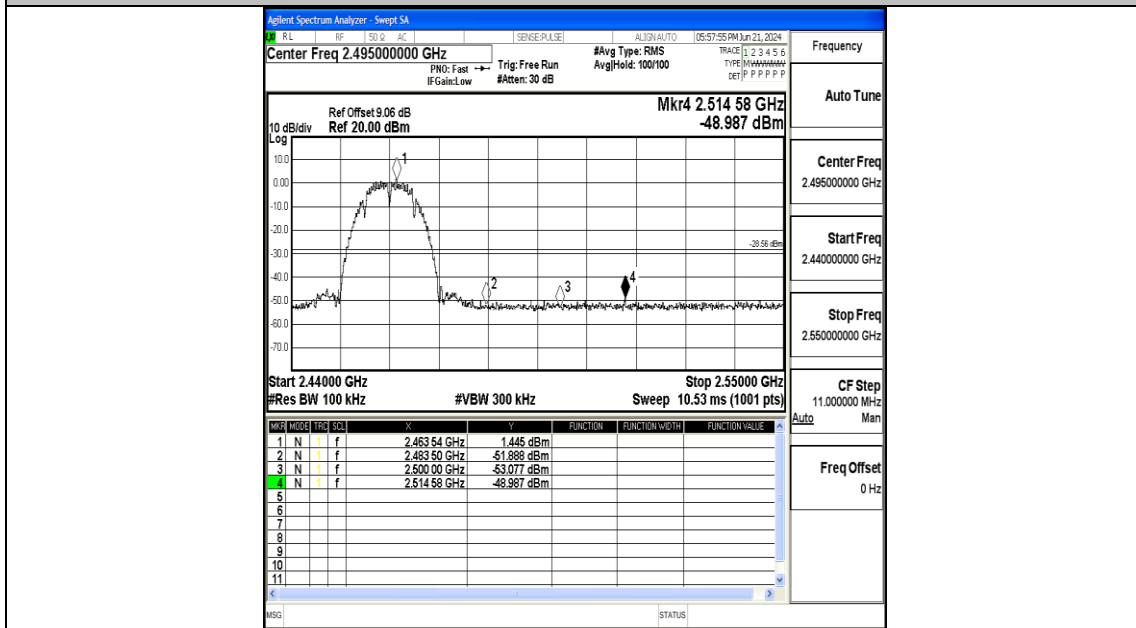
Test Result

TestMode	Antenna	Channel	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	-0.13	-46.4	≤-30.13	PASS
11B	Ant1	High	2462	1.45	-48.99	≤-28.56	PASS
11G	Ant1	Low	2412	1.26	-39.13	≤-28.74	PASS
11G	Ant1	High	2462	0.68	-48.77	≤-29.32	PASS
11N20SISO	Ant1	Low	2412	-0.35	-36.38	≤-30.35	PASS
11N20SISO	Ant1	High	2462	-0.08	-49.52	≤-30.08	PASS

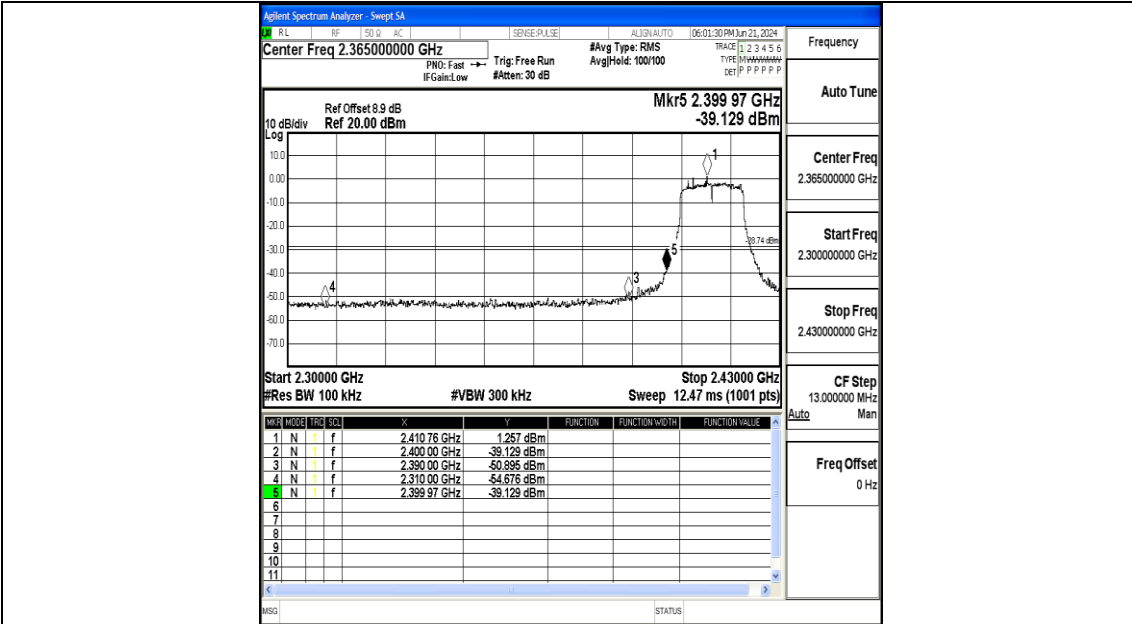
Test Graphs



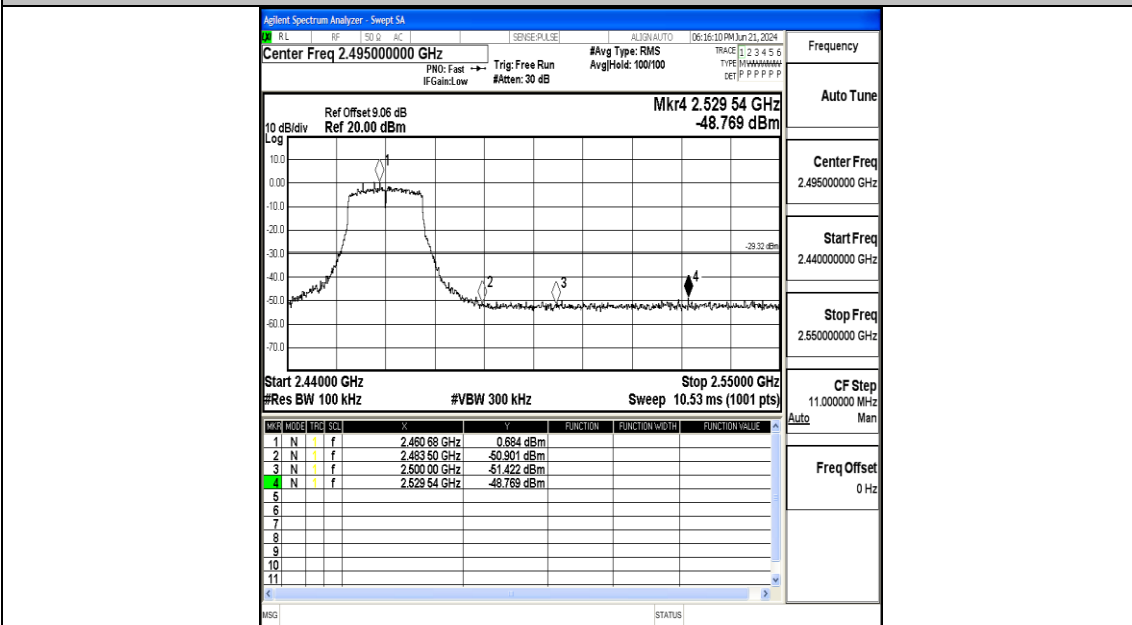
11B-Ant1-2412-PASS



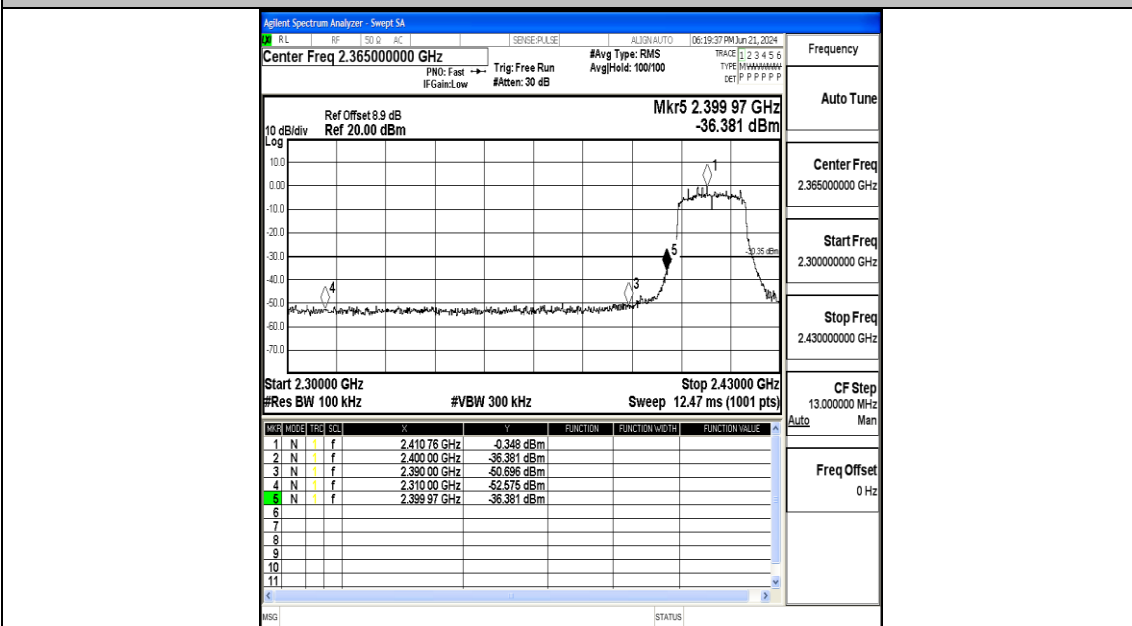
11B-Ant1-2462-PASS



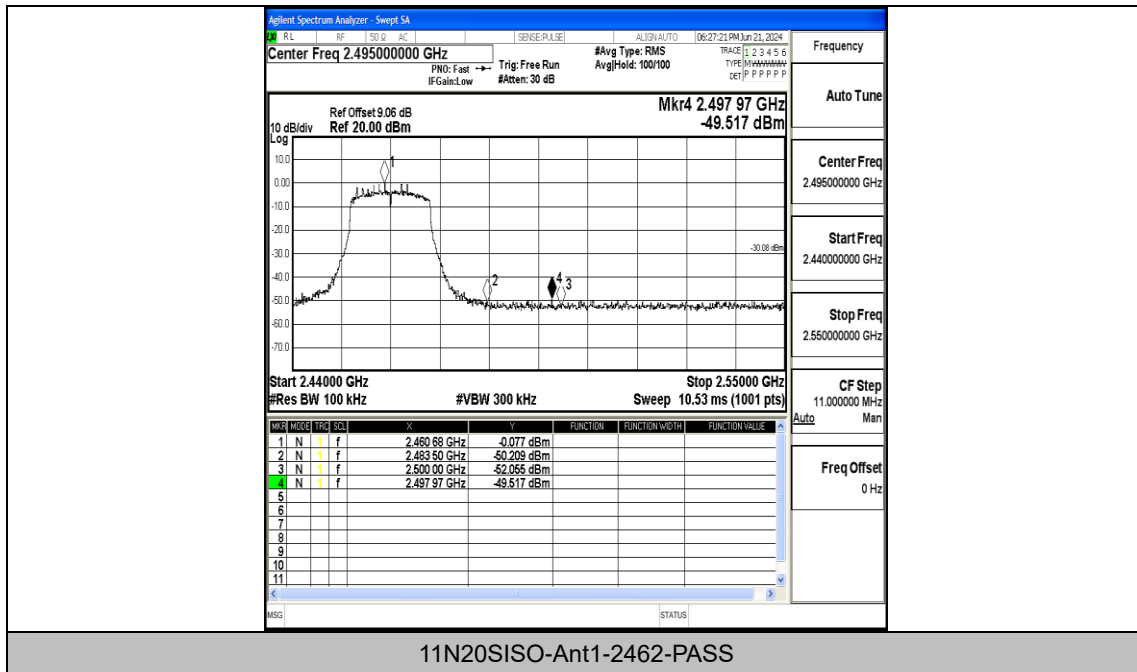
11G-Ant1-2412-PASS



11G-Ant1-2462-PASS



11N20SISO-Ant1-2412-PASS

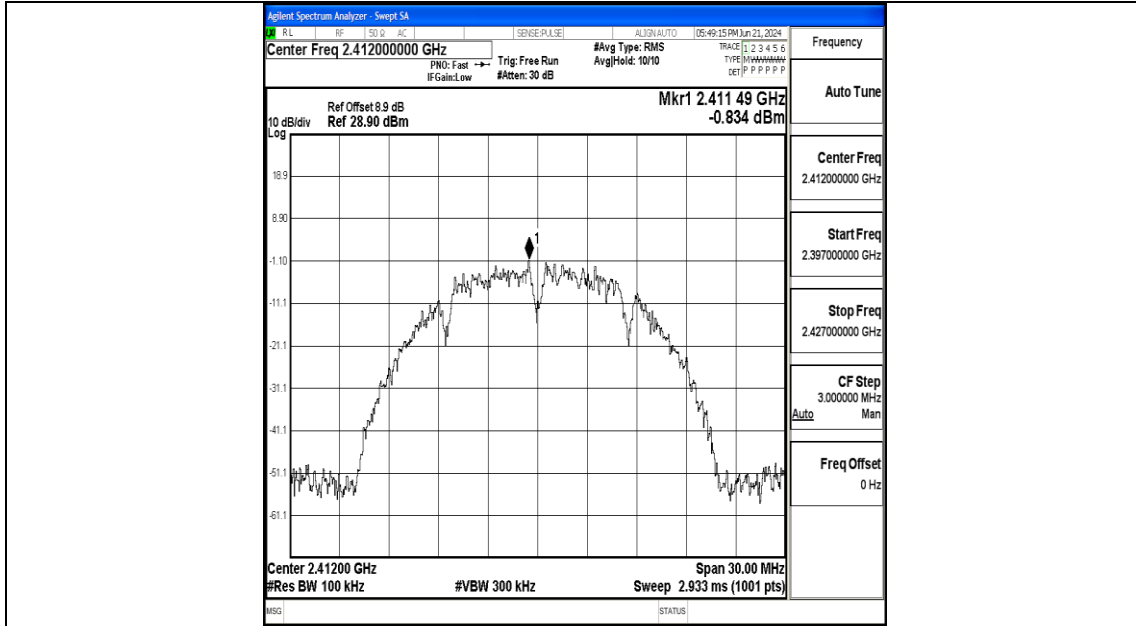


Appendix F: Conducted Spurious Emission

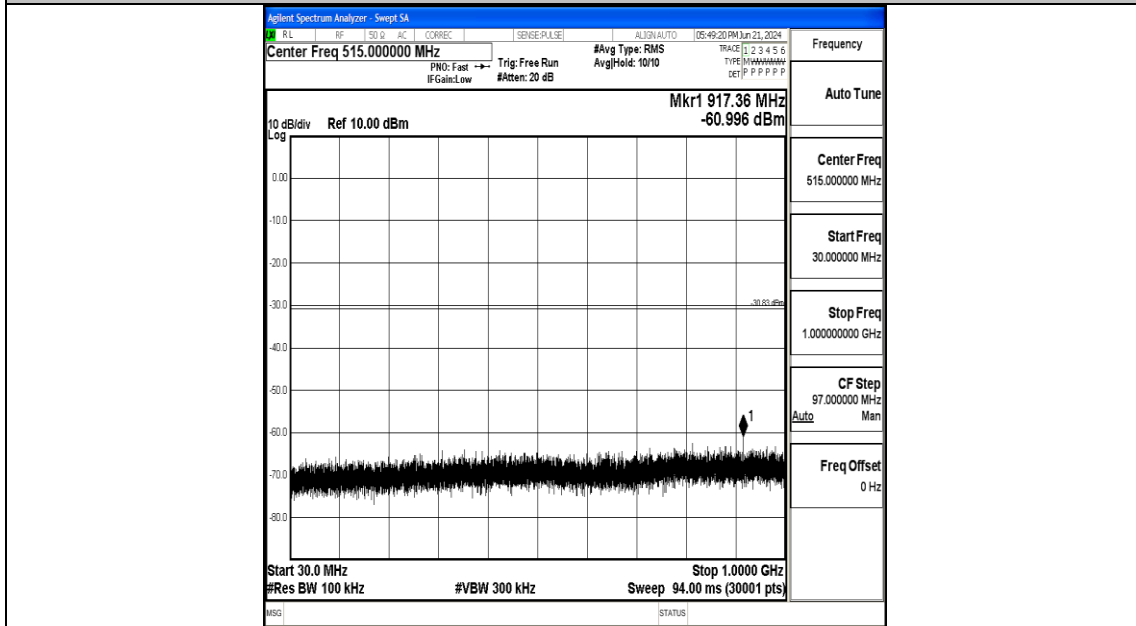
Test Result

TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	0~Reference	-0.83	-0.83	---	PASS
11B	Ant1	2412	30~1000	-0.83	-61	≤-30.83	PASS
11B	Ant1	2412	1000~26500	-0.83	-50.02	≤-30.83	PASS
11B	Ant1	2437	0~Reference	-1.97	-1.97	---	PASS
11B	Ant1	2437	30~1000	-1.97	-51.19	≤-31.97	PASS
11B	Ant1	2437	1000~26500	-1.97	-50.77	≤-31.97	PASS
11B	Ant1	2462	0~Reference	-0.61	-0.61	---	PASS
11B	Ant1	2462	30~1000	-0.61	-62.5	≤-30.61	PASS
11B	Ant1	2462	1000~26500	-0.61	-49.78	≤-30.61	PASS
11G	Ant1	2412	0~Reference	-2.17	-2.17	---	PASS
11G	Ant1	2412	30~1000	-2.17	-57.2	≤-32.17	PASS
11G	Ant1	2412	1000~26500	-2.17	-50.26	≤-32.17	PASS
11G	Ant1	2437	0~Reference	-1.69	-1.69	---	PASS
11G	Ant1	2437	30~1000	-1.69	-62.05	≤-31.69	PASS
11G	Ant1	2437	1000~26500	-1.69	-49.64	≤-31.69	PASS
11G	Ant1	2462	0~Reference	-1.82	-1.82	---	PASS
11G	Ant1	2462	30~1000	-1.82	-62.81	≤-31.82	PASS
11G	Ant1	2462	1000~26500	-1.82	-50.27	≤-31.82	PASS
11N20SISO	Ant1	2412	0~Reference	-0.69	-0.69	---	PASS
11N20SISO	Ant1	2412	30~1000	-0.69	-62.59	≤-30.69	PASS
11N20SISO	Ant1	2412	1000~26500	-0.69	-50.24	≤-30.69	PASS
11N20SISO	Ant1	2437	0~Reference	-4.04	-4.04	---	PASS
11N20SISO	Ant1	2437	30~1000	-4.04	-62.44	≤-34.04	PASS
11N20SISO	Ant1	2437	1000~26500	-4.04	-49.61	≤-34.04	PASS
11N20SISO	Ant1	2462	0~Reference	-3.69	-3.69	---	PASS
11N20SISO	Ant1	2462	30~1000	-3.69	-62.87	≤-33.69	PASS
11N20SISO	Ant1	2462	1000~26500	-3.69	-50.12	≤-33.69	PASS

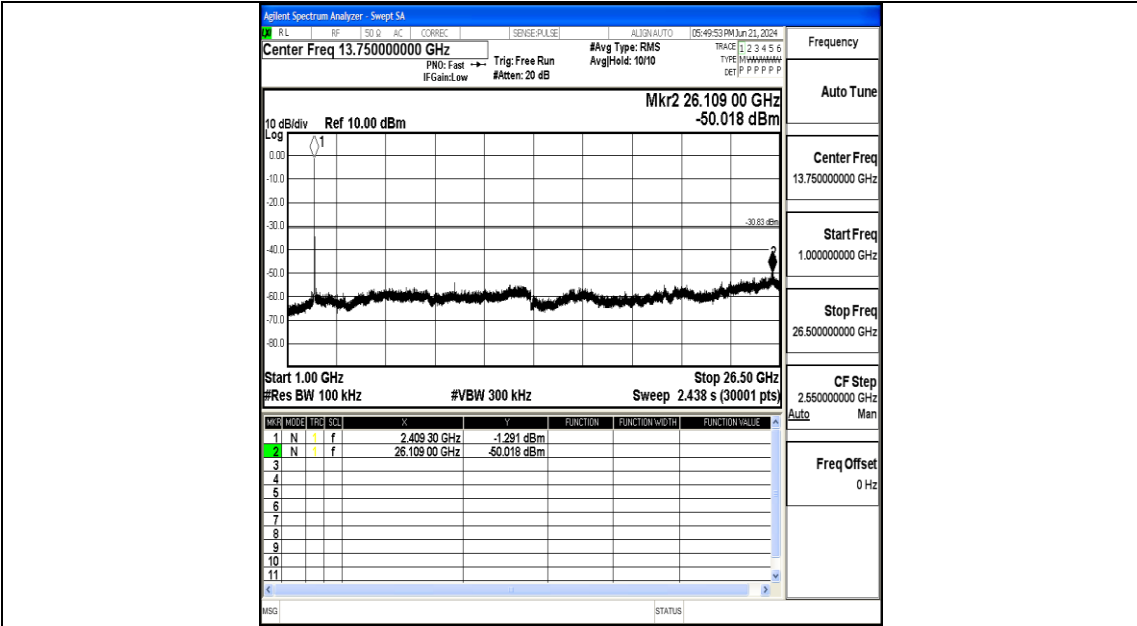
Test Graphs



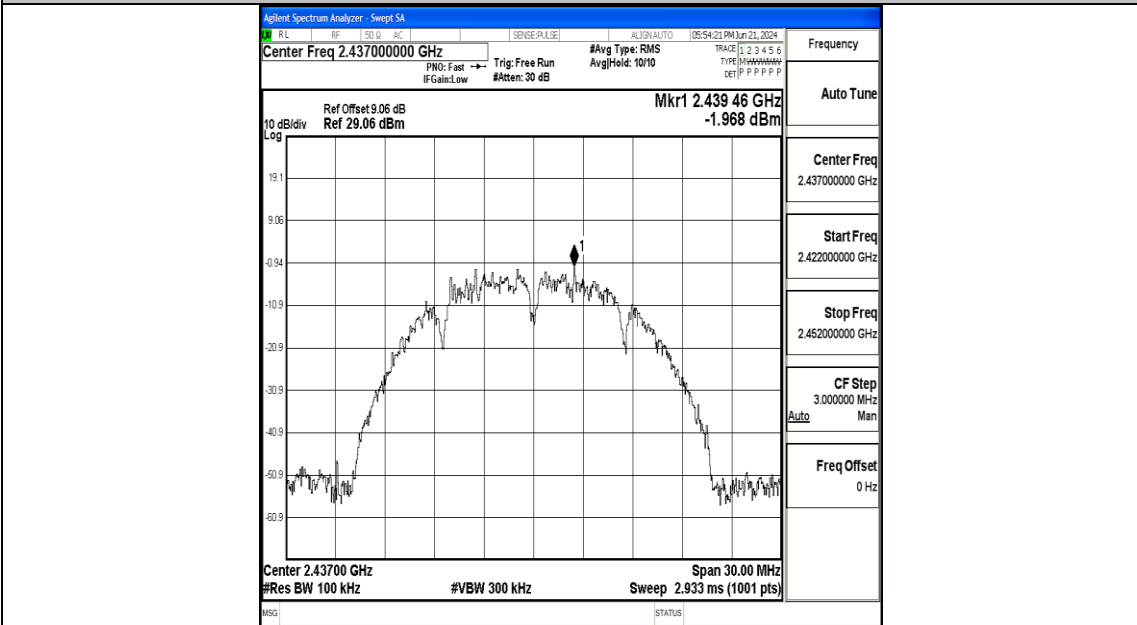
11B-Ant1-2412-0~Reference-PASS



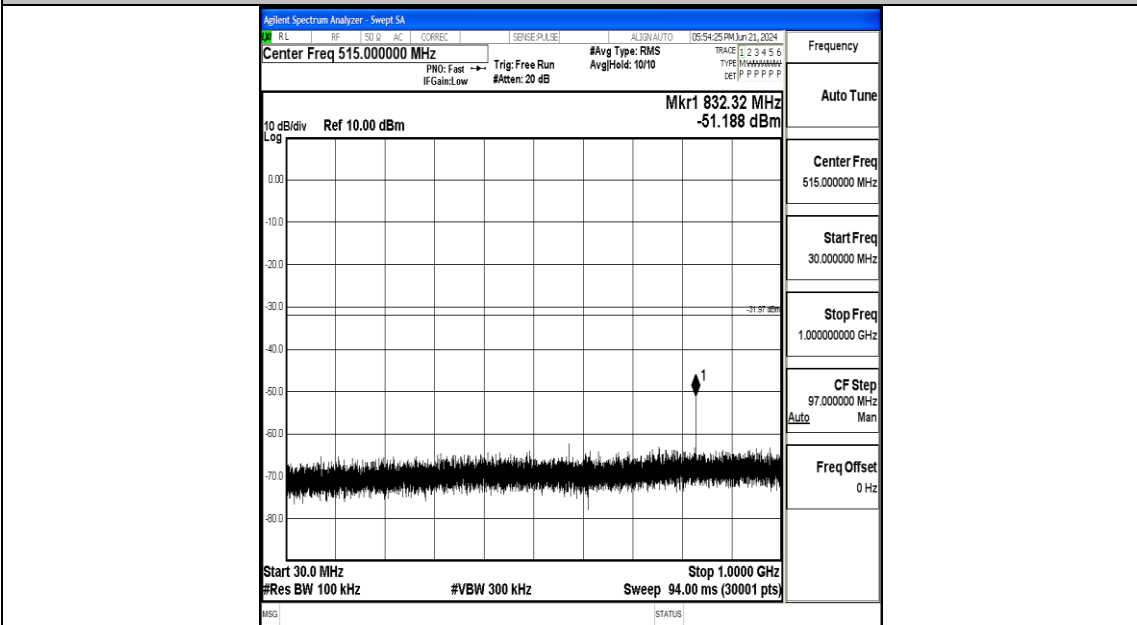
11B-Ant1-2412-30~1000-PASS



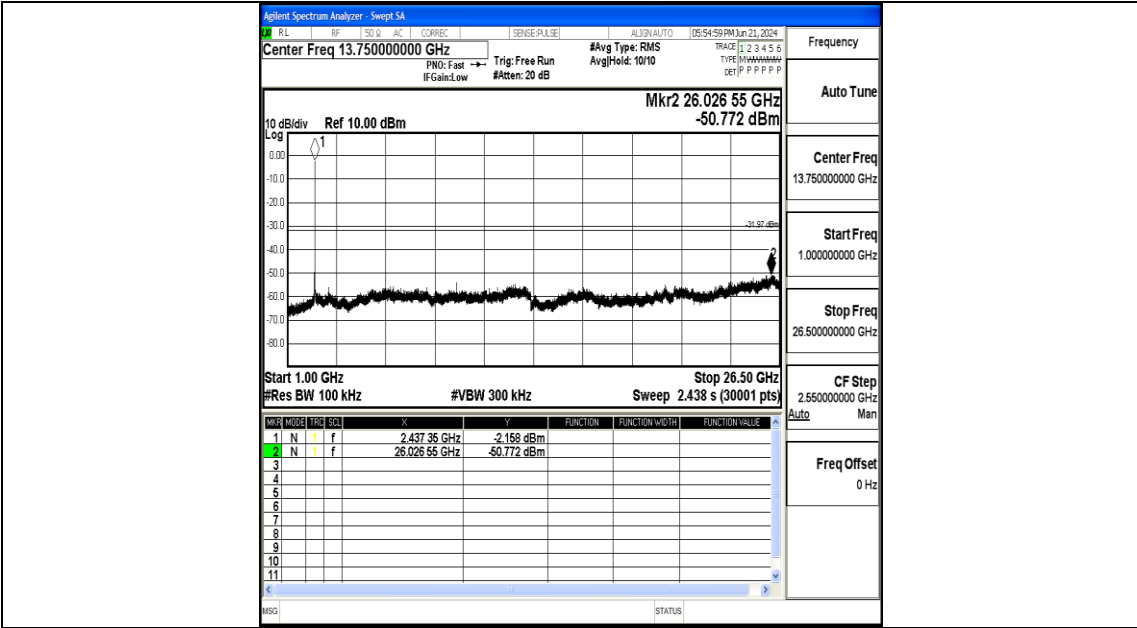
11B-Ant1-2412-1000~26500-PASS



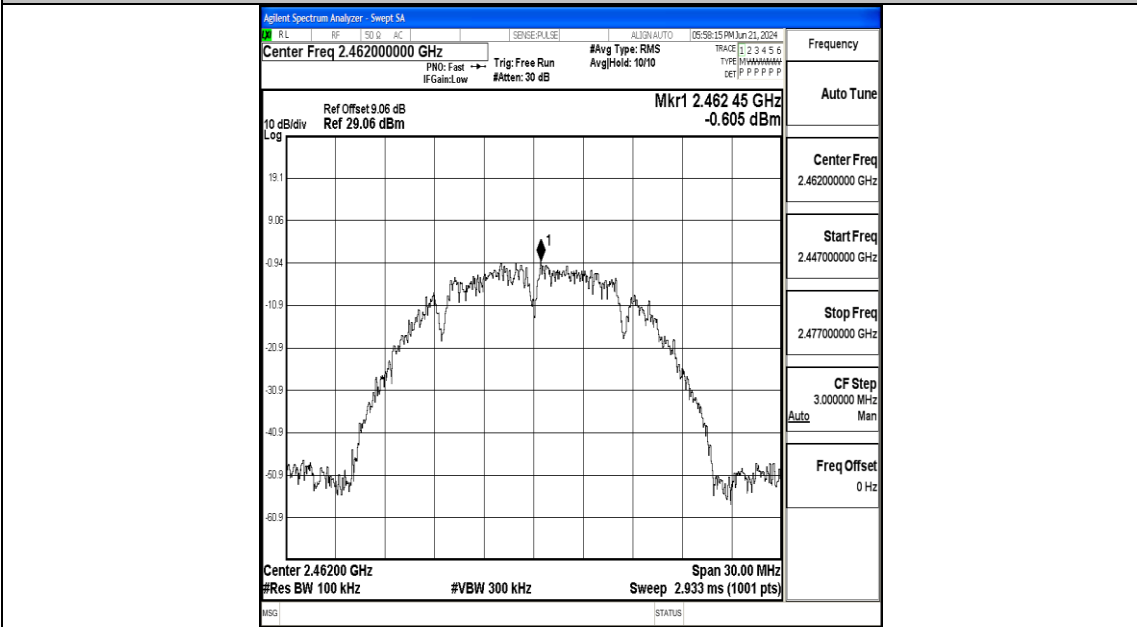
11B-Ant1-2437-0~Reference-PASS



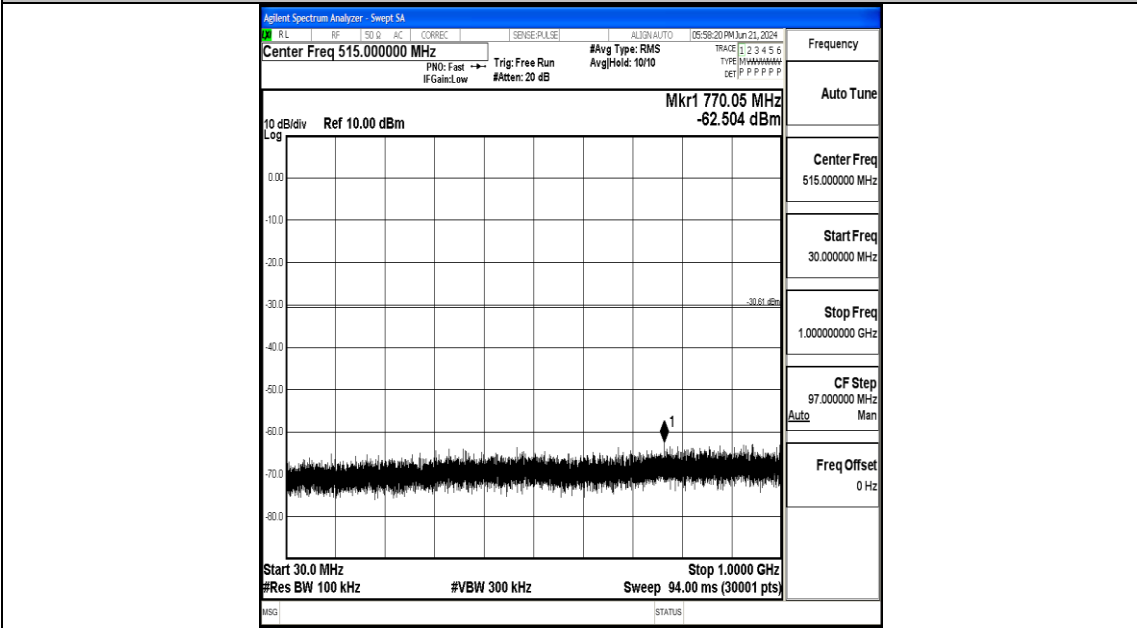
11B-Ant1-2437-30~1000-PASS



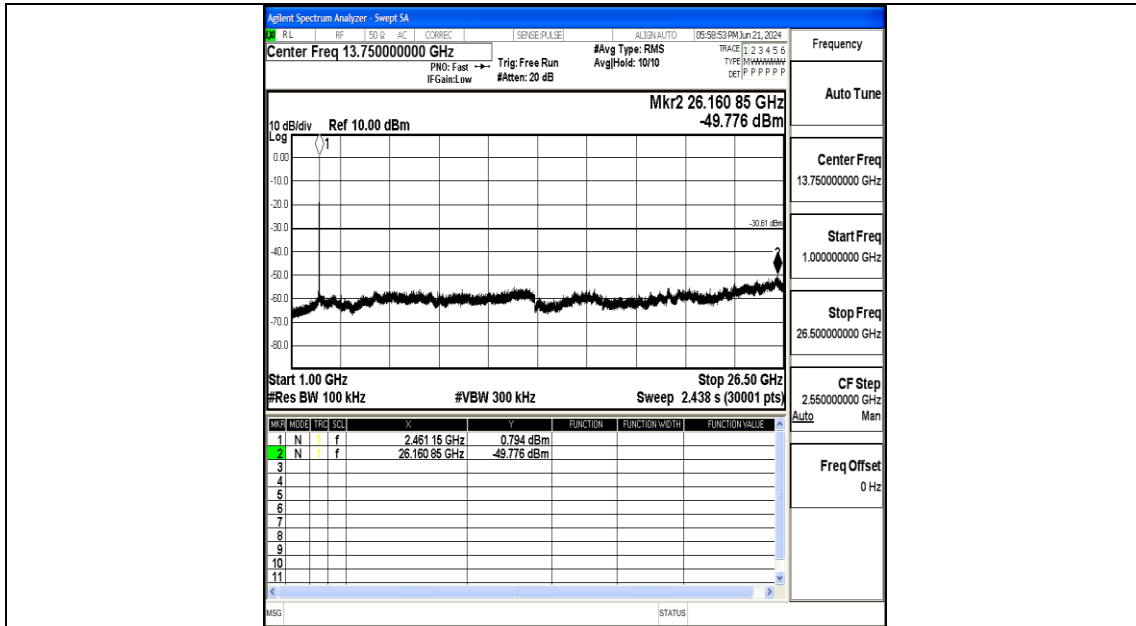
11B-Ant1-2437-1000~26500-PASS



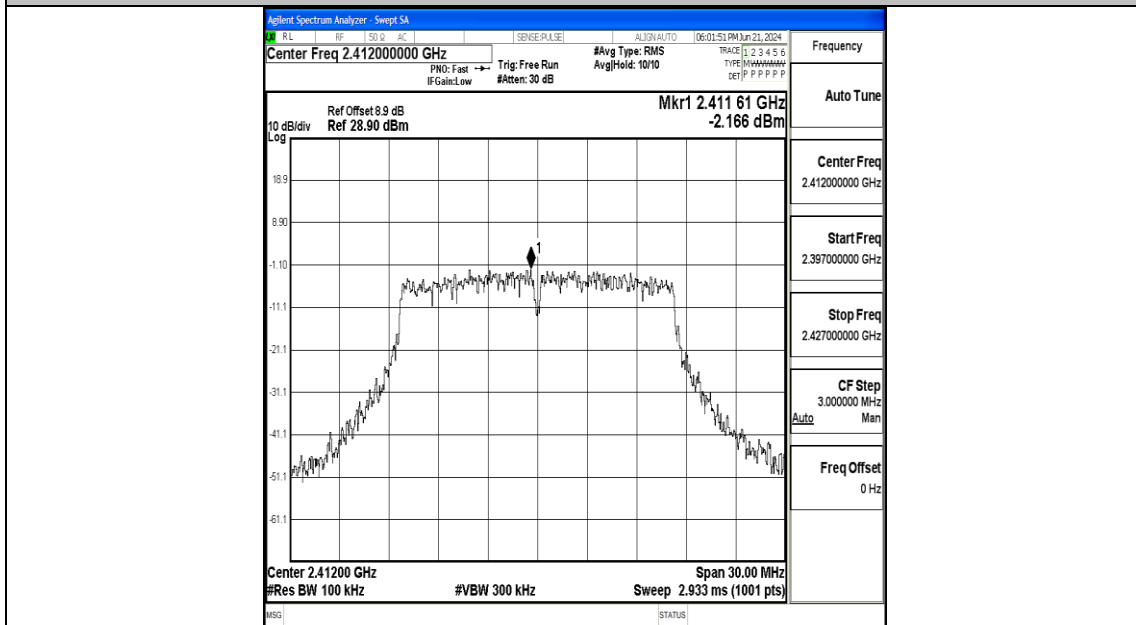
11B-Ant1-2462-0~Reference-PASS



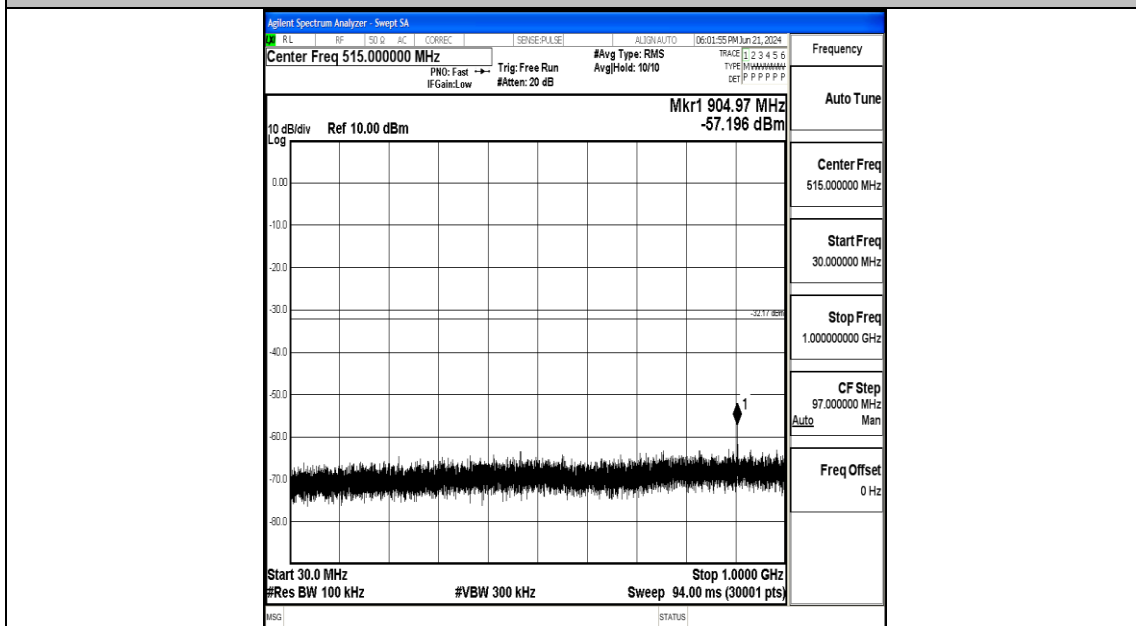
11B-Ant1-2462-30~1000-PASS



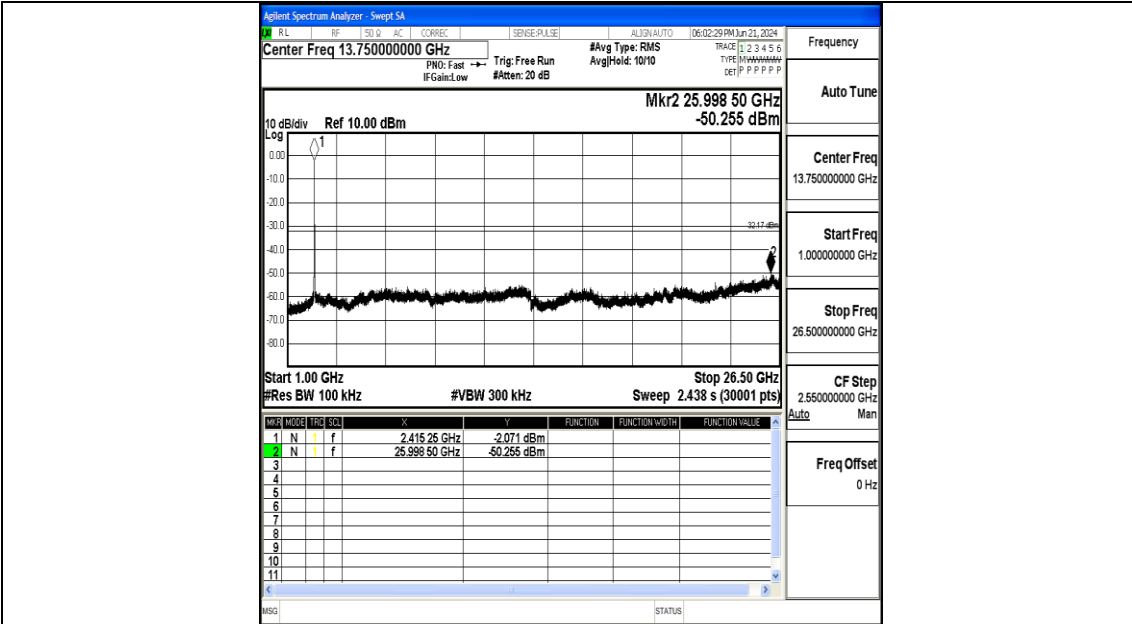
11B-Ant1-2462-1000~26500-PASS



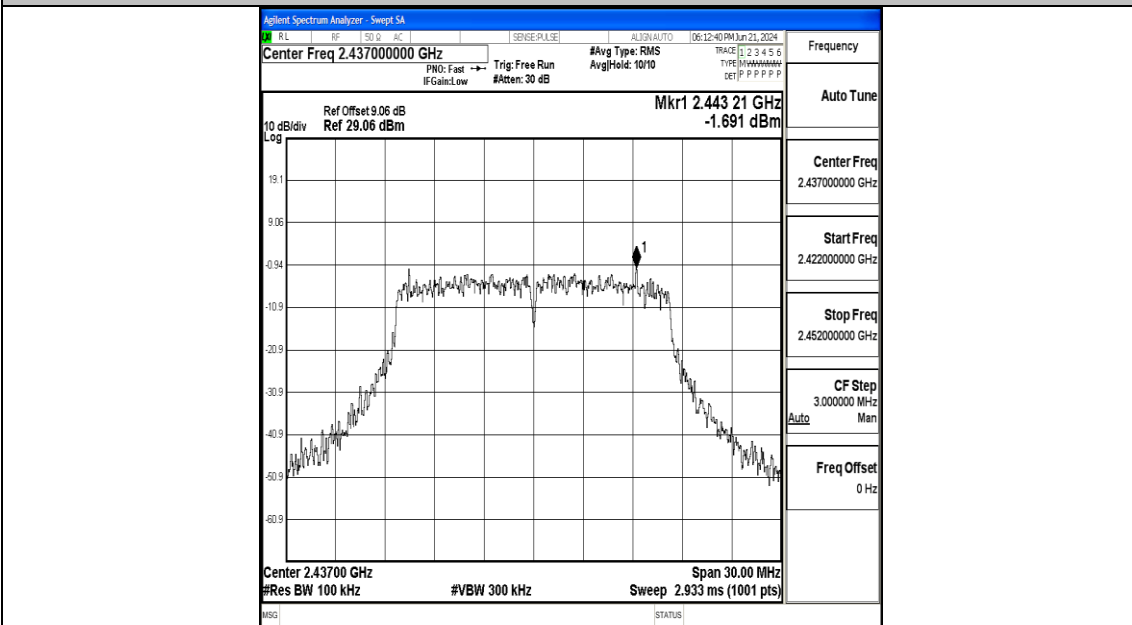
11G-Ant1-2412-0~Reference-PASS



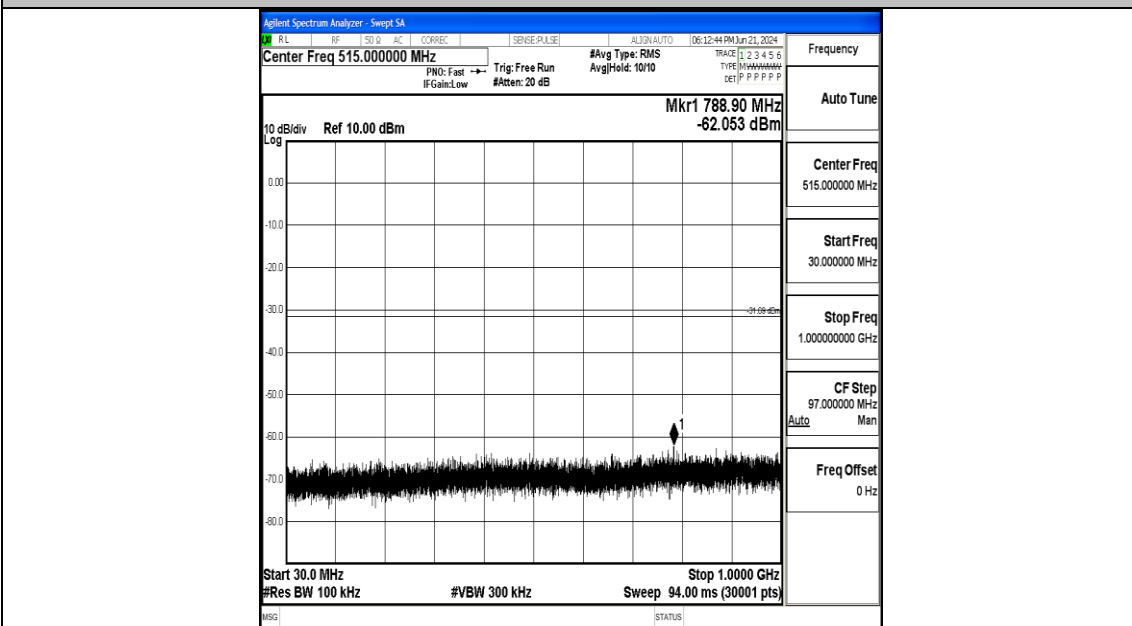
11G-Ant1-2412-30~1000-PASS



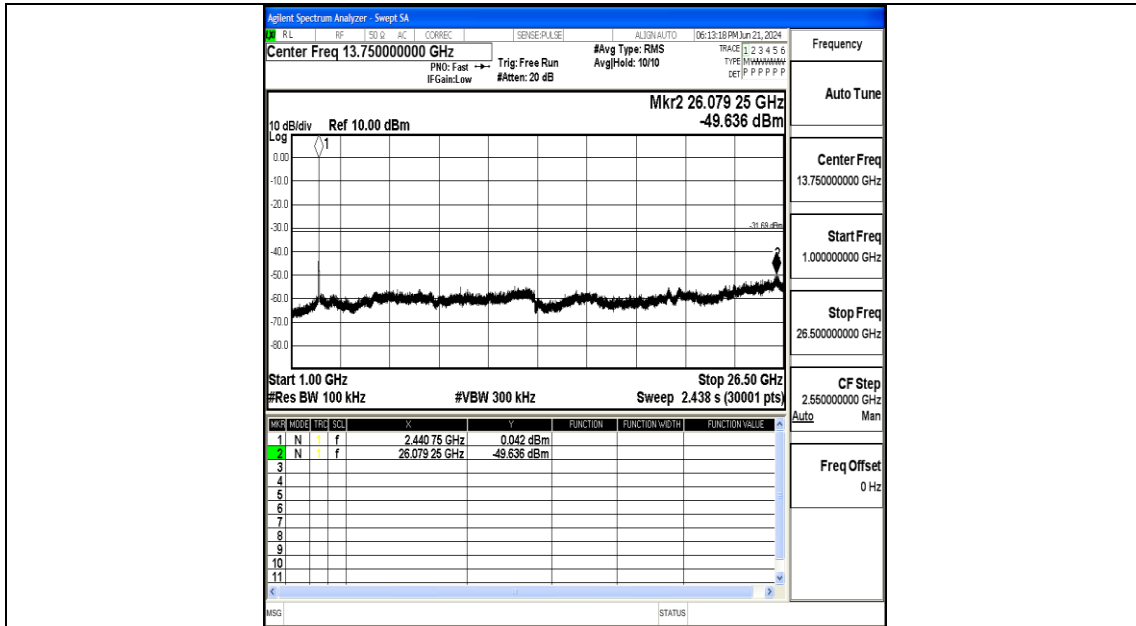
11G-Ant1-2412-1000~26500-PASS



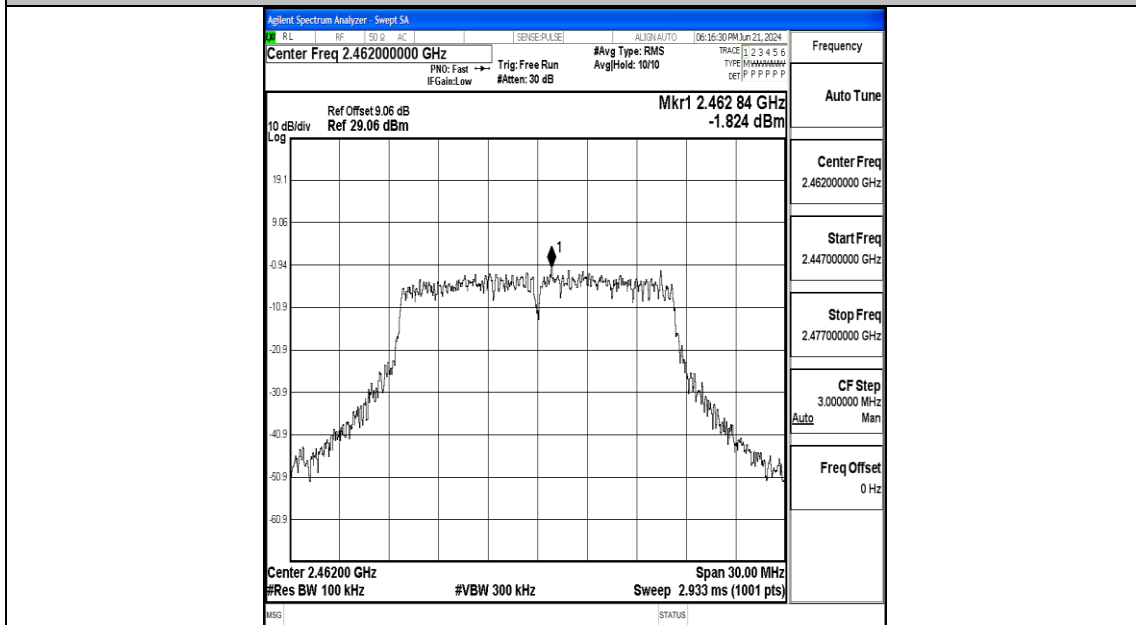
11G-Ant1-2437-0~Reference-PASS



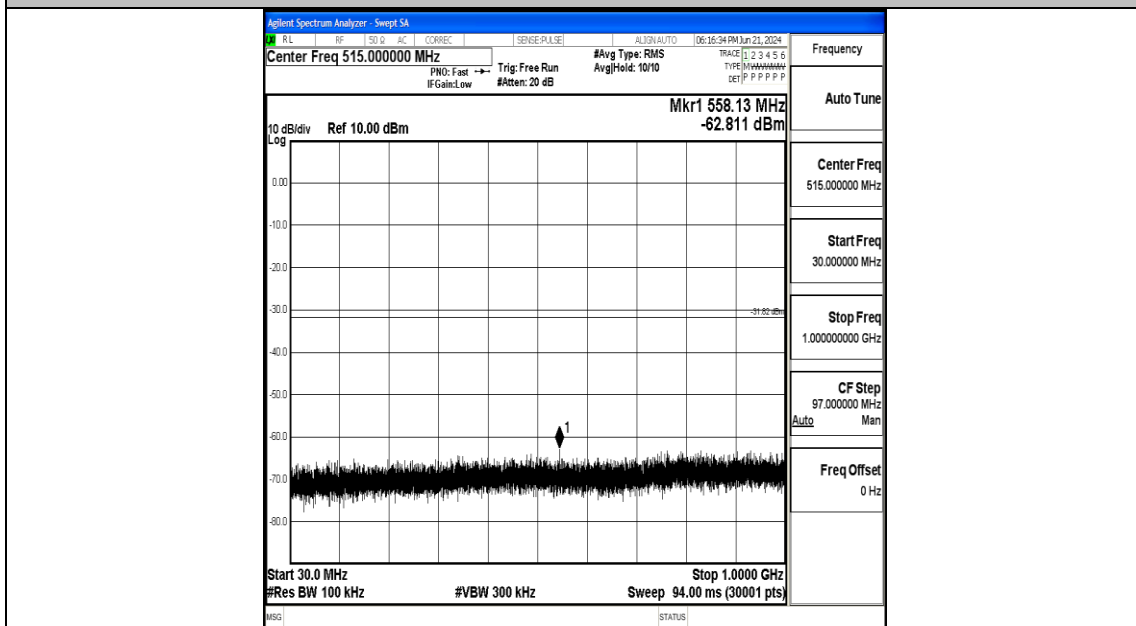
11G-Ant1-2437-30~1000-PASS



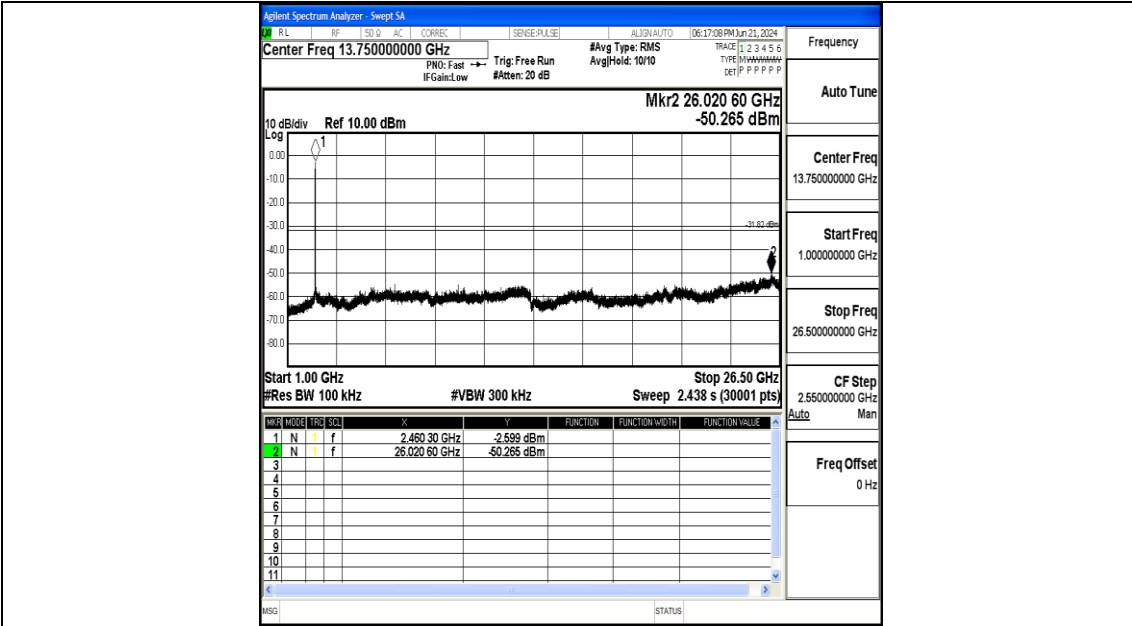
11G-Ant1-2437-1000~26500-PASS



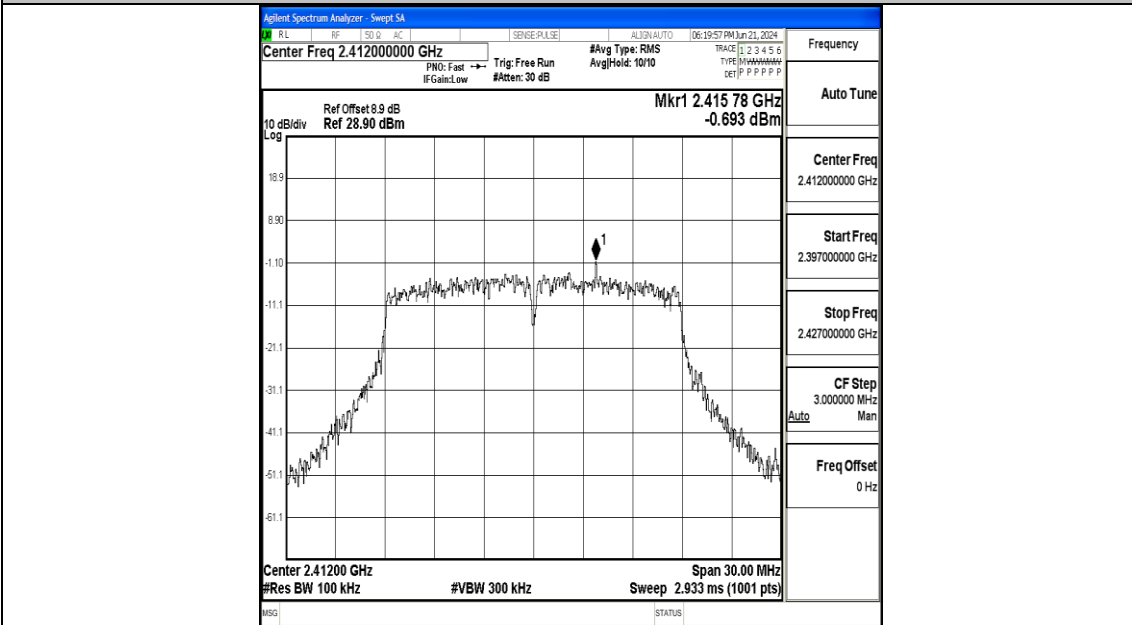
11G-Ant1-2462-0~Reference-PASS



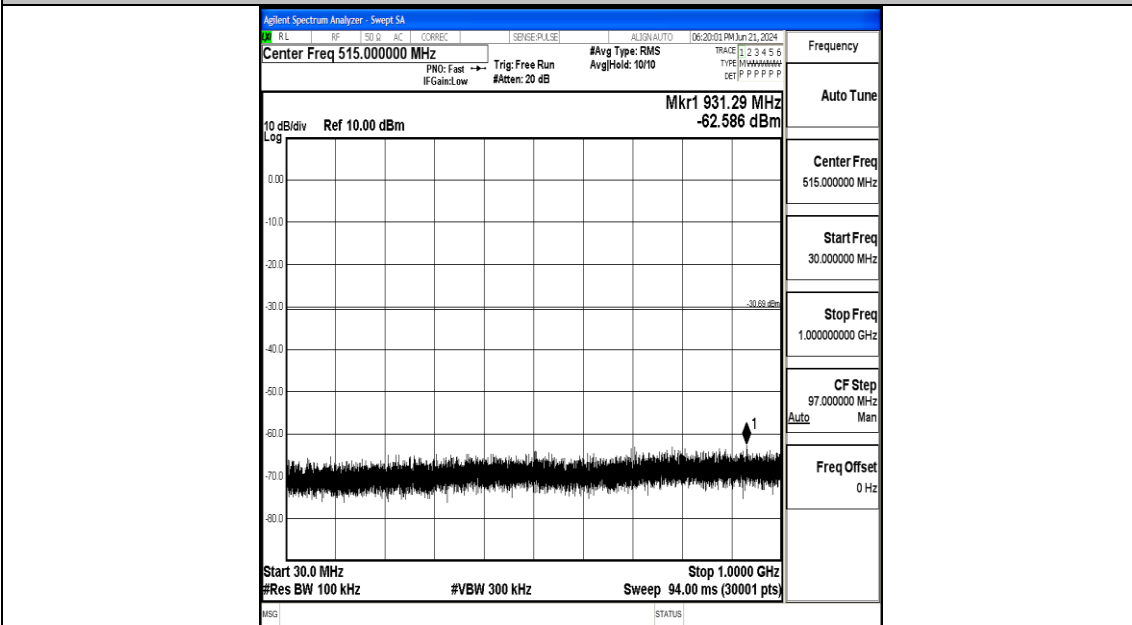
11G-Ant1-2462-30~1000-PASS



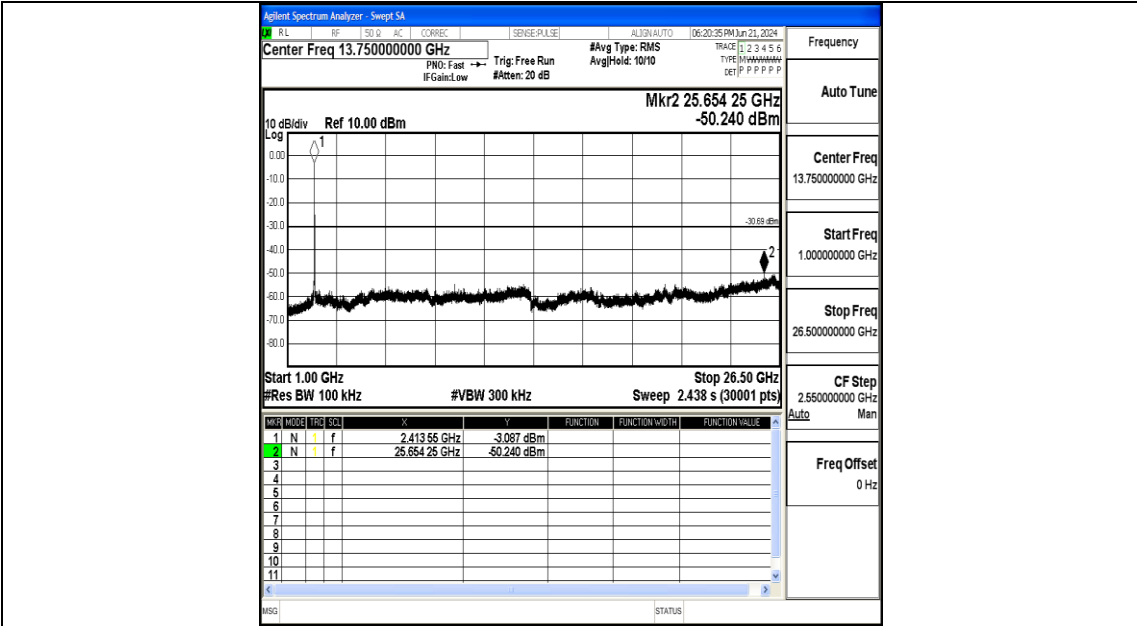
11G-Ant1-2462-1000~26500-PASS



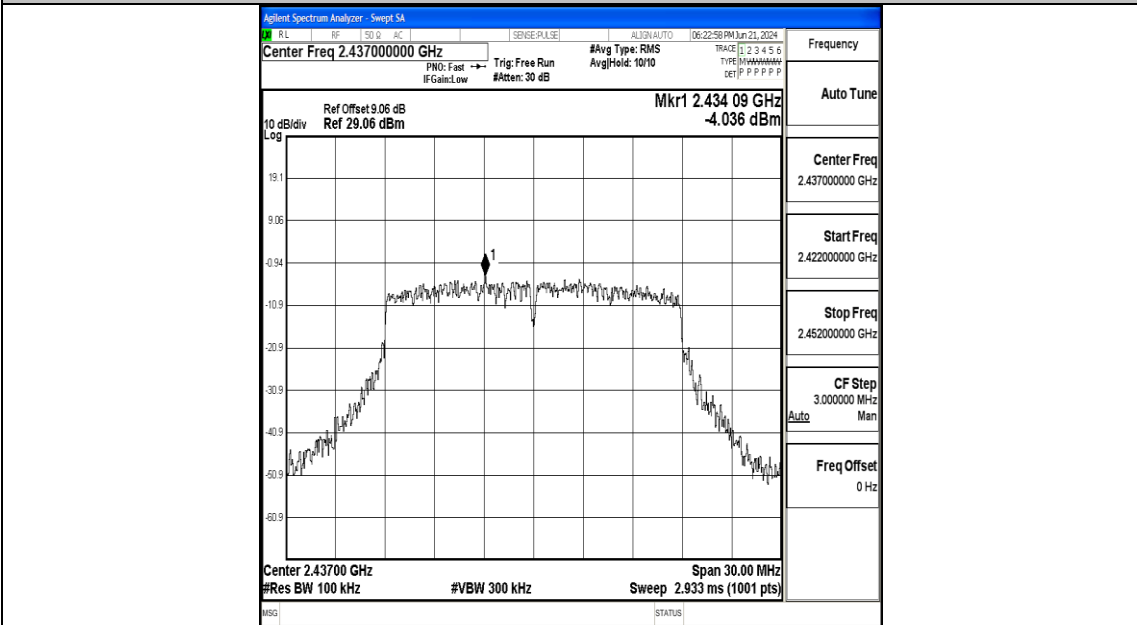
11N20SISO-Ant1-2412-0~Reference-PASS



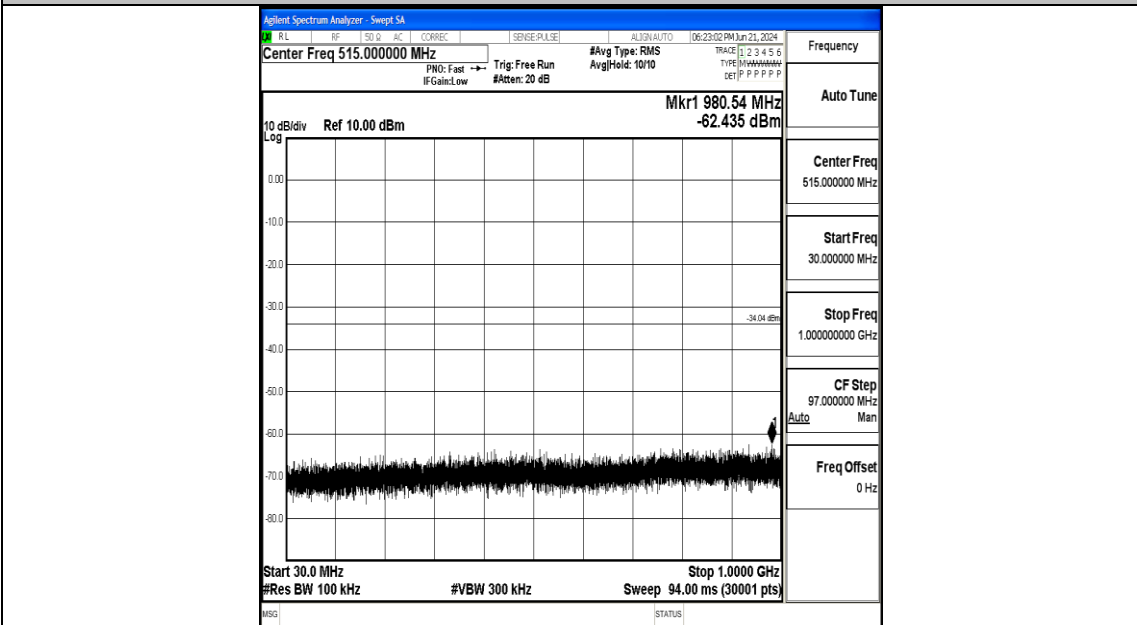
11N20SISO-Ant1-2412-30~1000-PASS



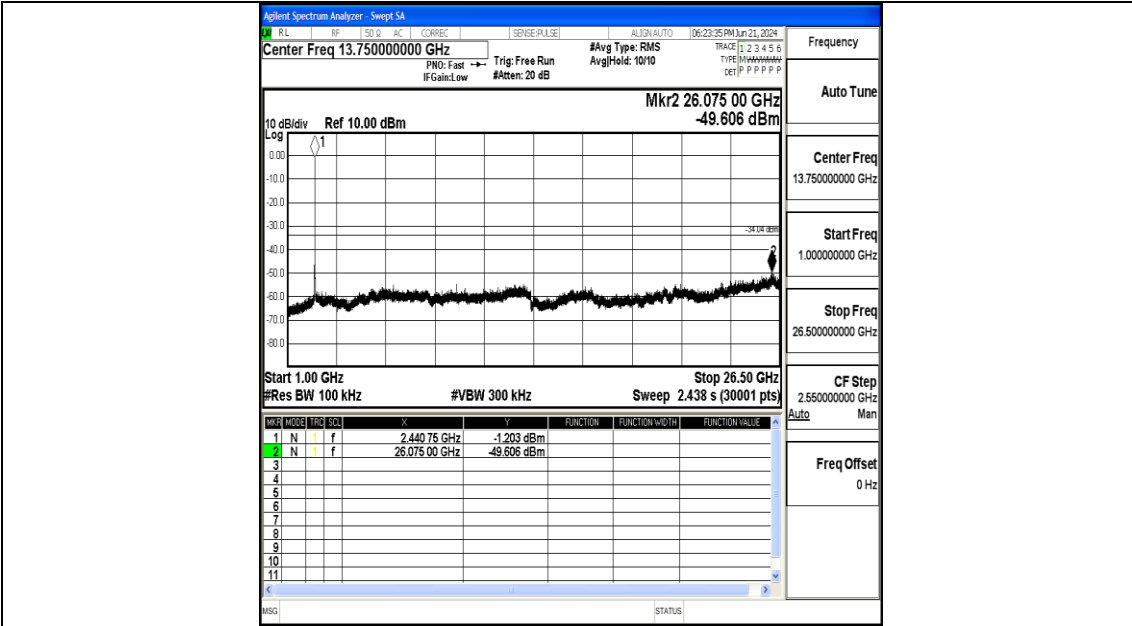
11N20SISO-Ant1-2412-1000~26500-PASS



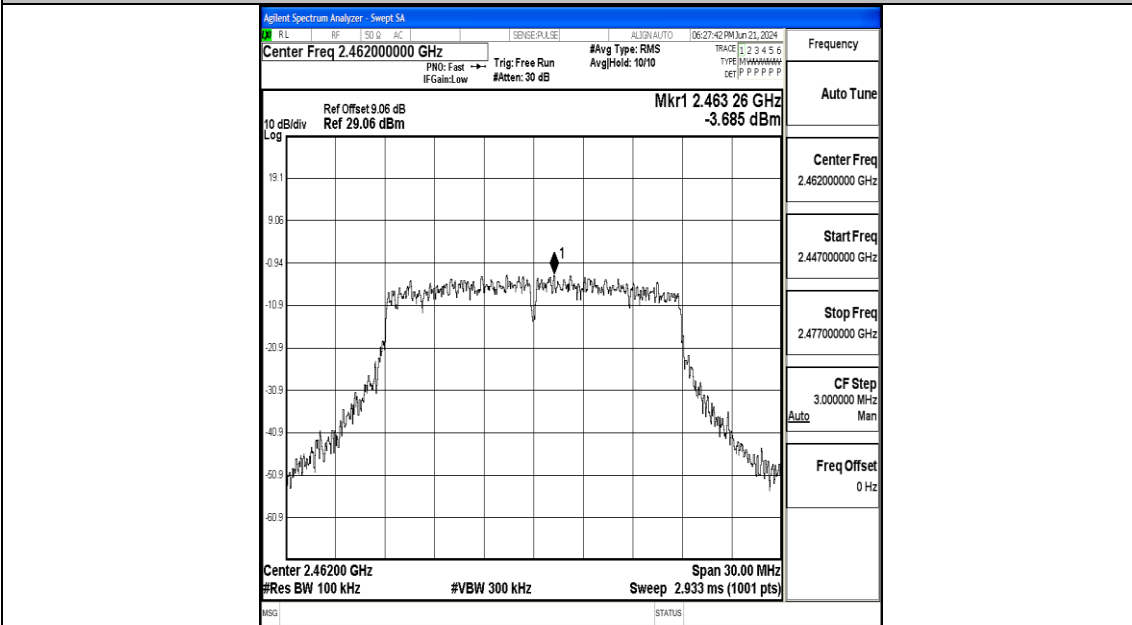
11N20SISO-Ant1-2437-0~Reference-PASS



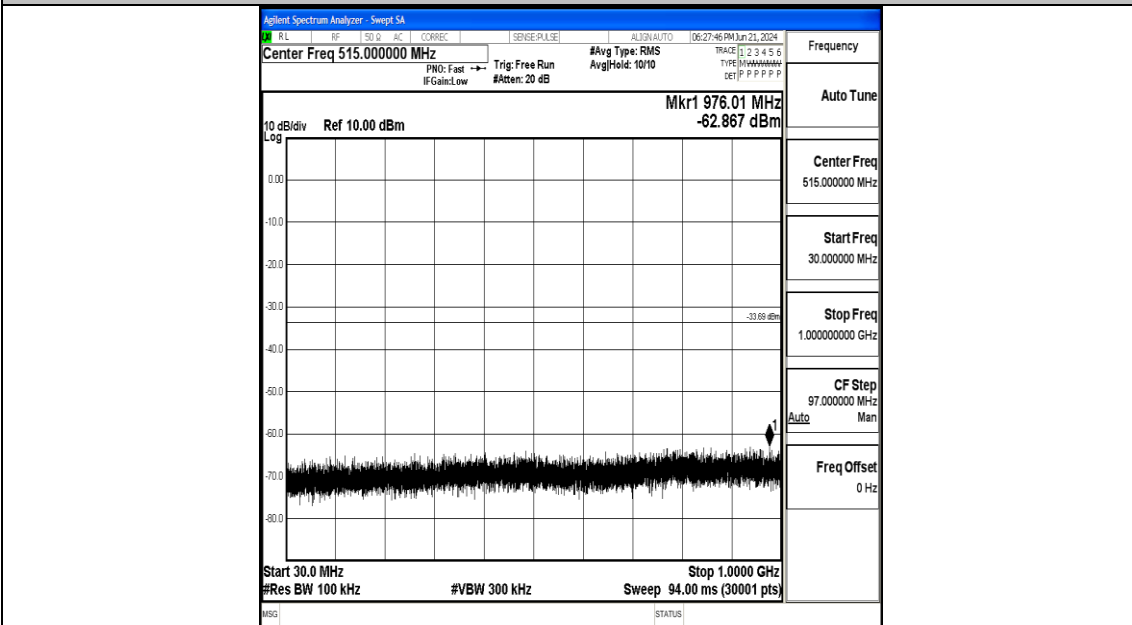
11N20SISO-Ant1-2437-30~1000-PASS



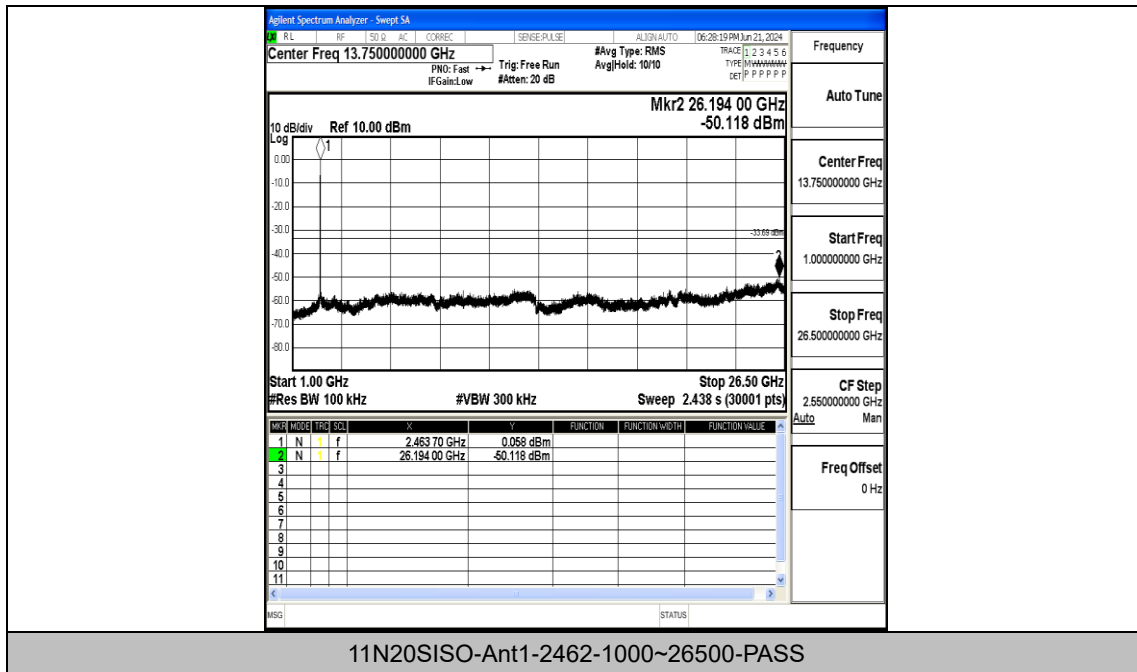
11N20SISO-Ant1-2437-1000~26500-PASS



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



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

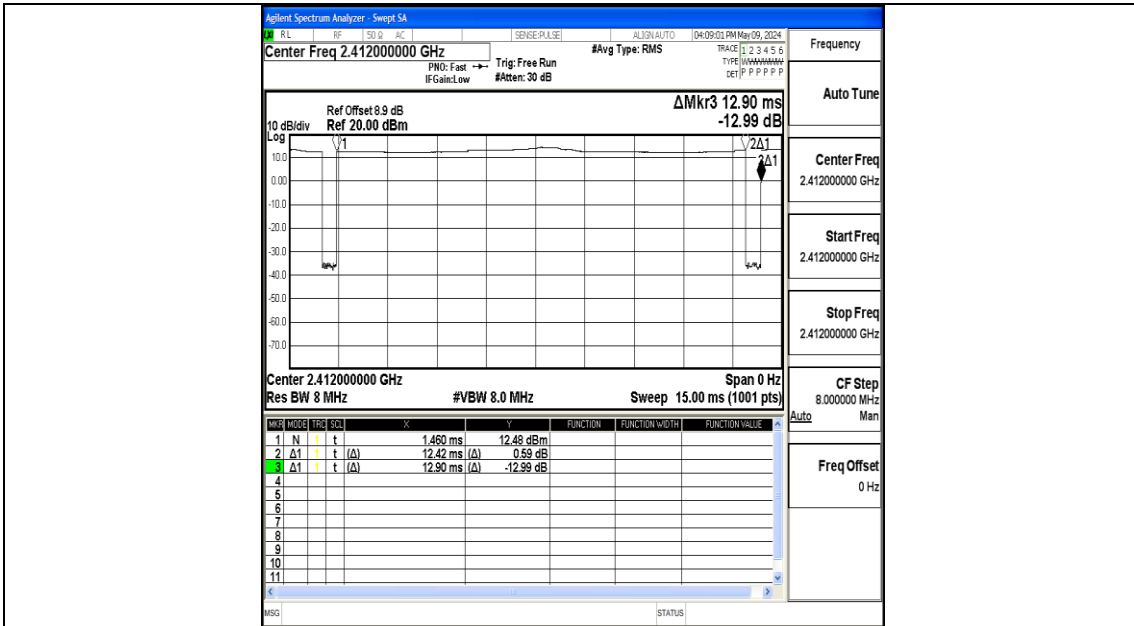


Appendix G: Duty Cycle

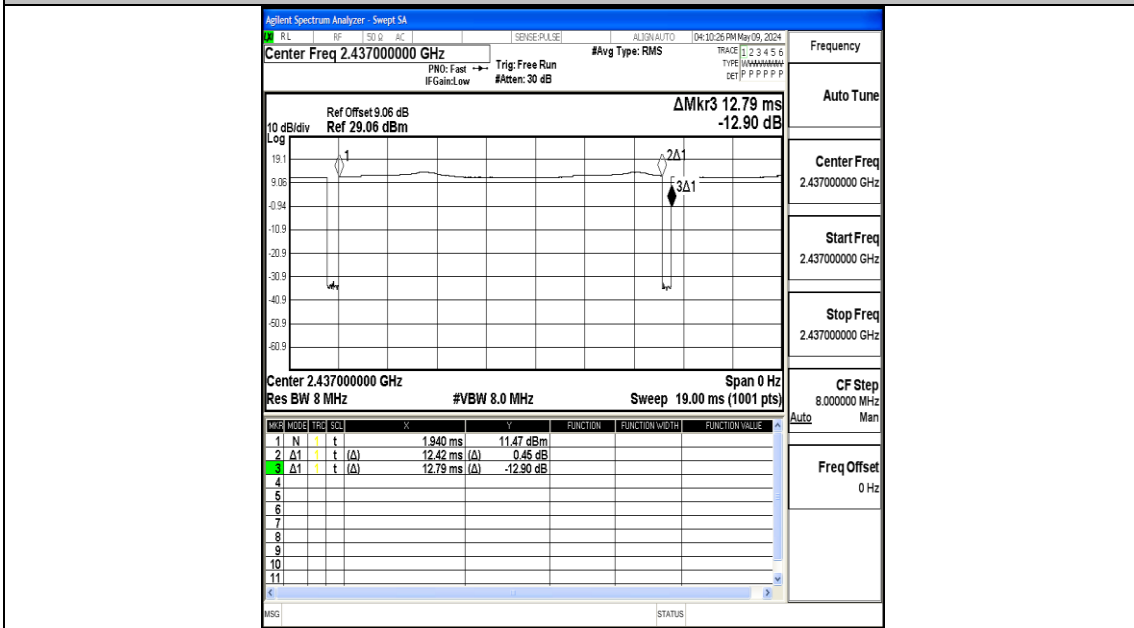
Test Result

TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor
11B	Ant1	2412	12.42	12.90	96.28	0.16
11B	Ant1	2437	12.42	12.79	97.11	0.13
11B	Ant1	2462	12.43	12.83	96.88	0.14
11G	Ant1	2412	2.07	2.25	92.00	0.36
11G	Ant1	2437	2.07	2.27	91.19	0.40
11G	Ant1	2462	2.07	2.22	93.24	0.30
11N20SISO	Ant1	2412	1.92	2.13	90.14	0.45
11N20SISO	Ant1	2437	1.92	2.09	91.87	0.37
11N20SISO	Ant1	2462	1.92	2.02	95.05	0.22

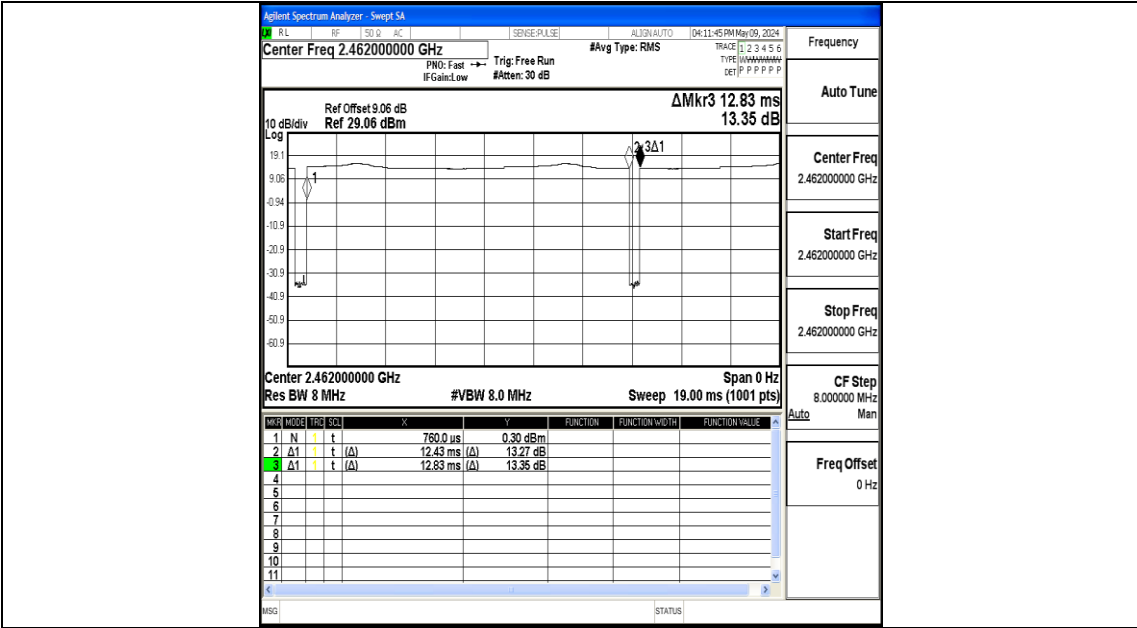
Test Graphs



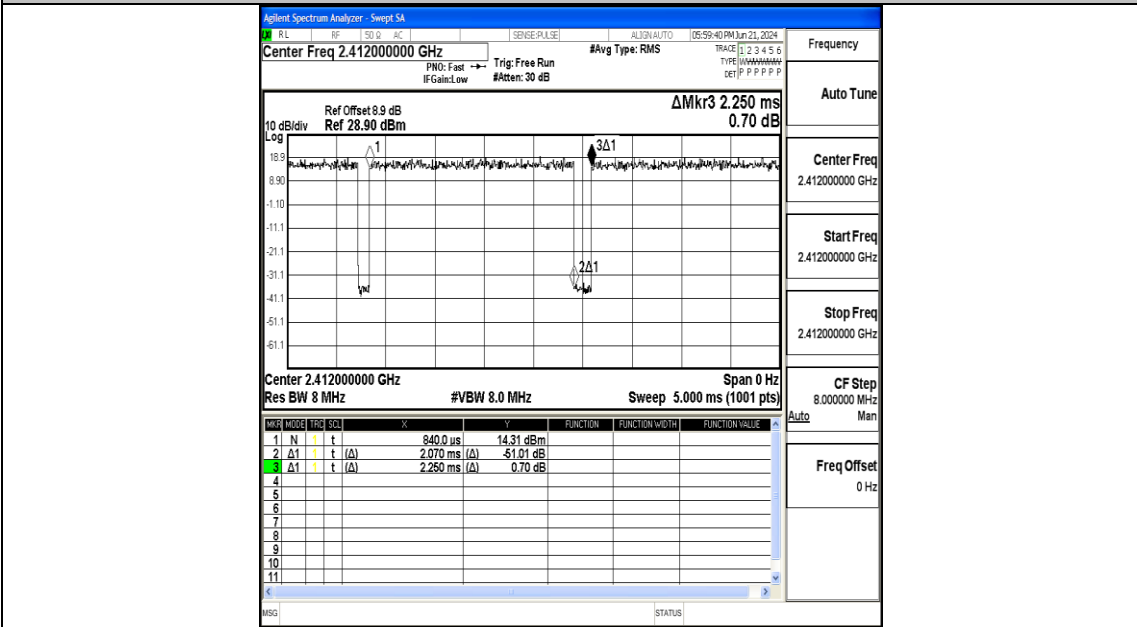
NTNV-11B-Ant1-2412



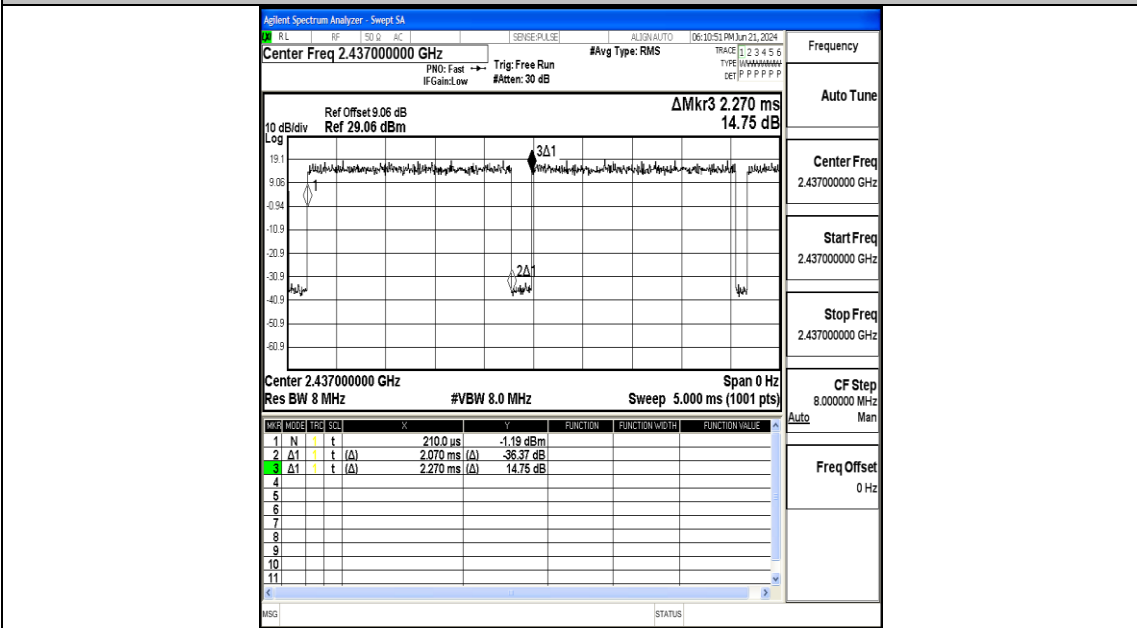
NTNV-11B-Ant1-2437



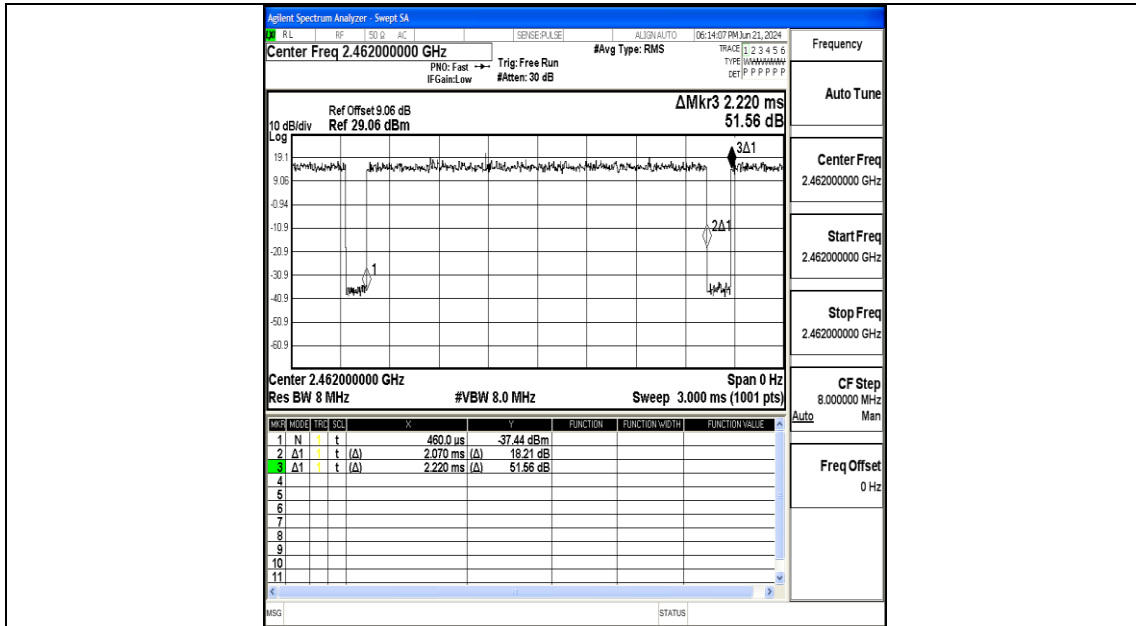
NTNV-11B-Ant1-2462



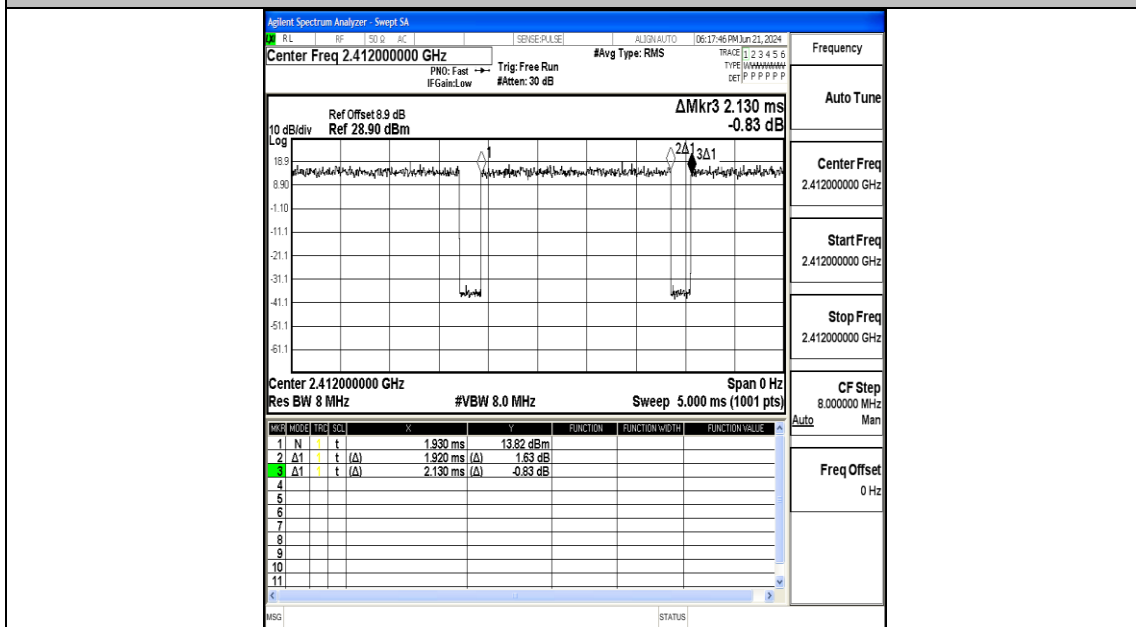
NTNV-11G-Ant1-2412



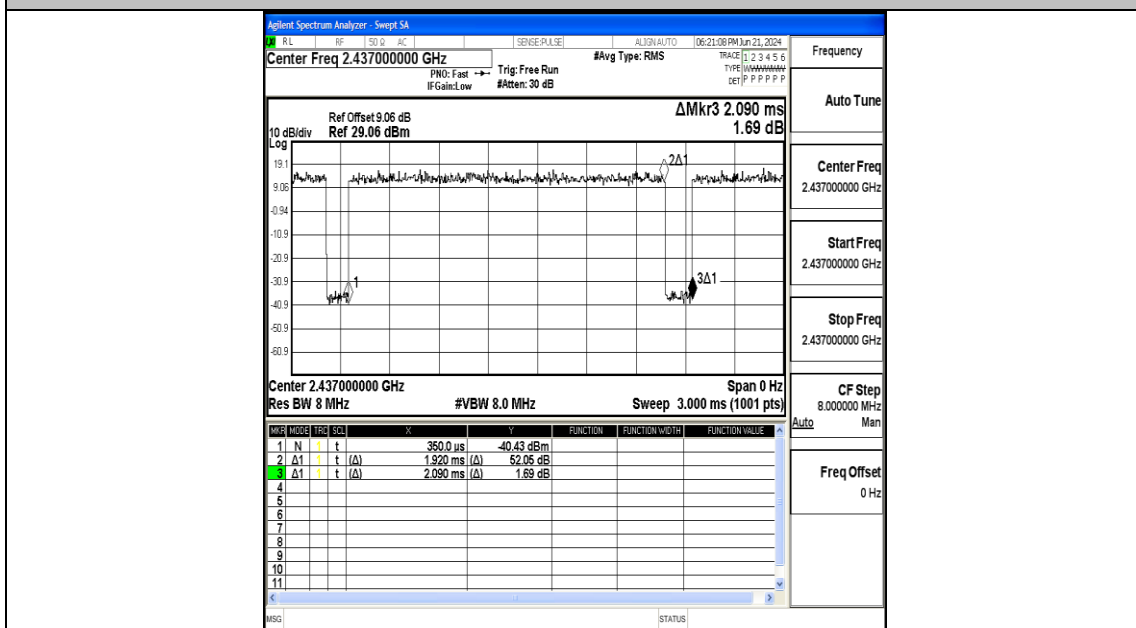
NTNV-11G-Ant1-2437



NTNV-11G-Ant1-2462



NTNV-11N20SISO-Ant1-2412



NTNV-11N20SISO-Ant1-2437

