

RF Test Data for WLAN(2.4G) (Conducted Measurement)**Product Name: Biometric Safe****Trade Mark: PINEWORLD****Test Model: K3****FCC ID: 2A2WS-K3****Environmental Conditions**

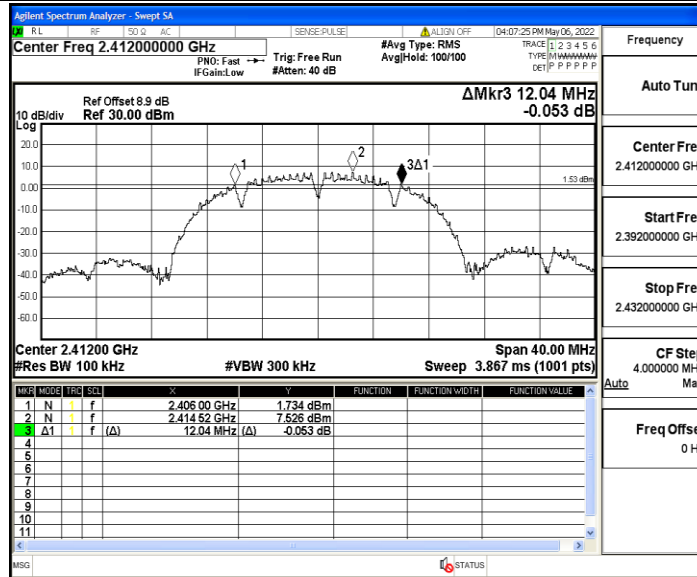
Temperature:	25.5°C
Relative Humidity:	55%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen
NOTE	N/A

Appendix A: DTS Bandwidth**Test Result**

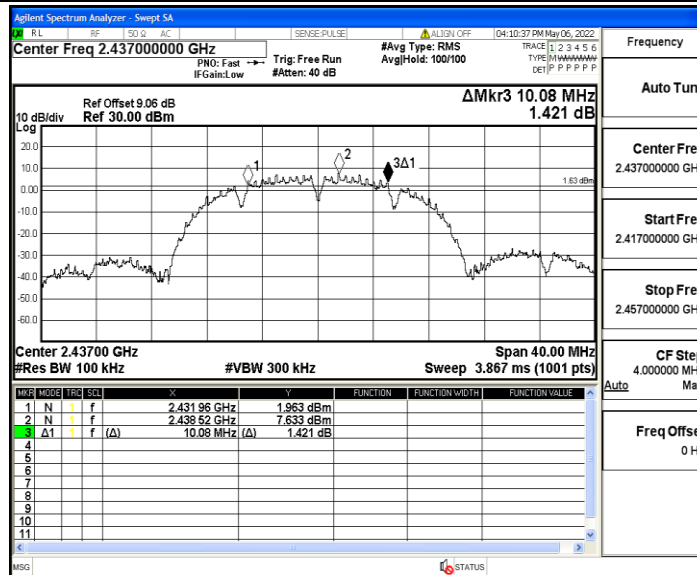
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	12.040	2406.000	2418.040	0.5	PASS
		2437	10.080	2431.960	2442.040	0.5	PASS
		2462	11.040	2457.000	2468.040	0.5	PASS
11G	Ant1	2412	15.440	2404.120	2419.560	0.5	PASS
		2437	15.000	2429.120	2444.120	0.5	PASS
		2462	12.800	2455.720	2468.520	0.5	PASS
11N20SISO	Ant1	2412	15.040	2404.520	2419.560	0.5	PASS
		2437	16.920	2428.480	2445.400	0.5	PASS
		2462	14.720	2454.440	2469.160	0.5	PASS

Test Graphs

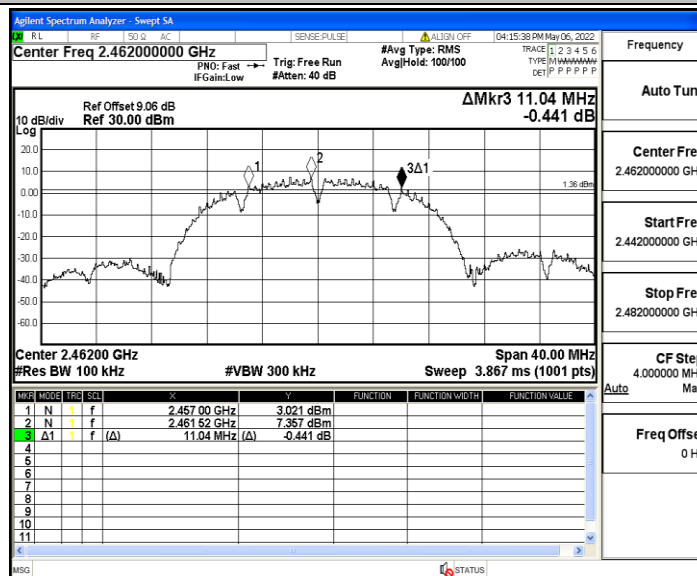
11B_Ant1_2412



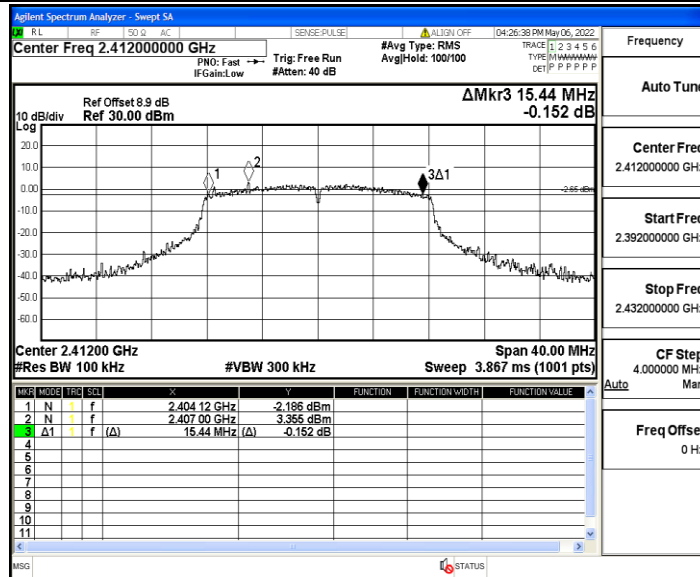
11B_Ant1_2437



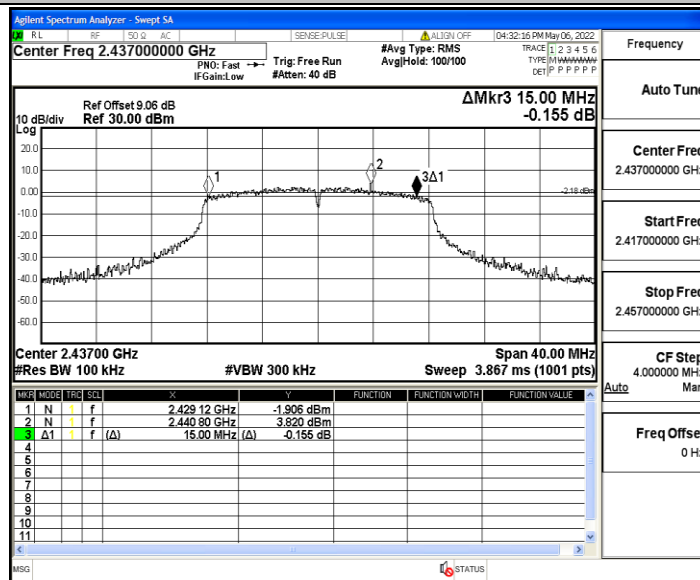
11B_Ant1_2462



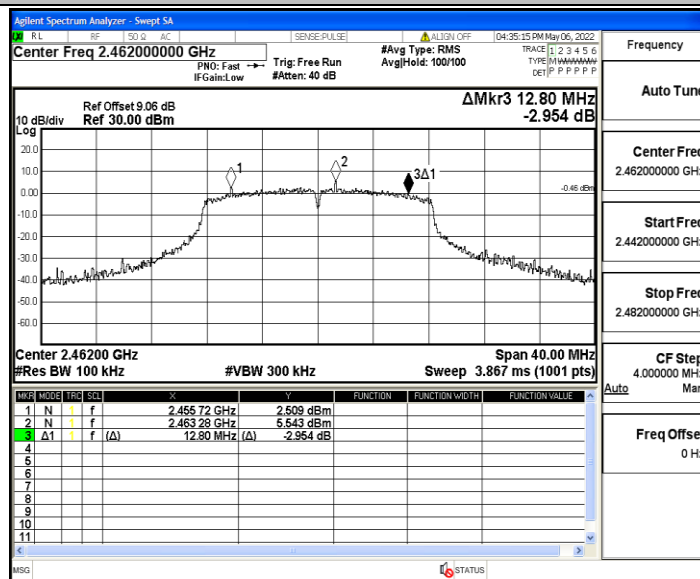
11G_Ant1_2412



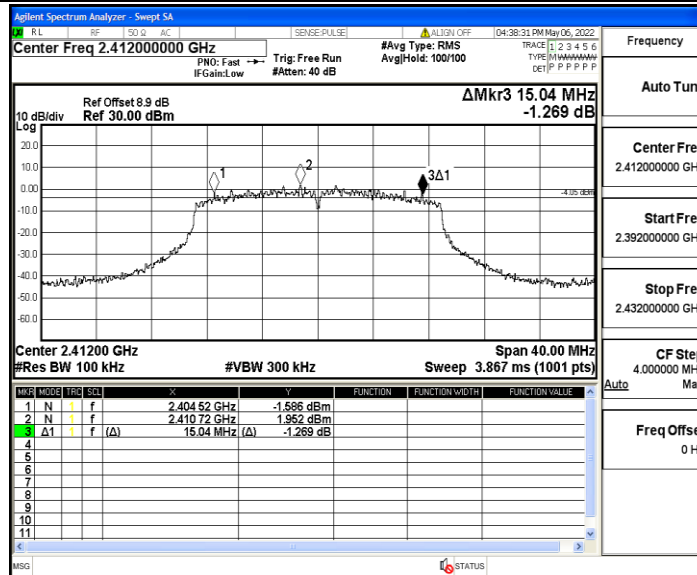
11G_Ant1_2437



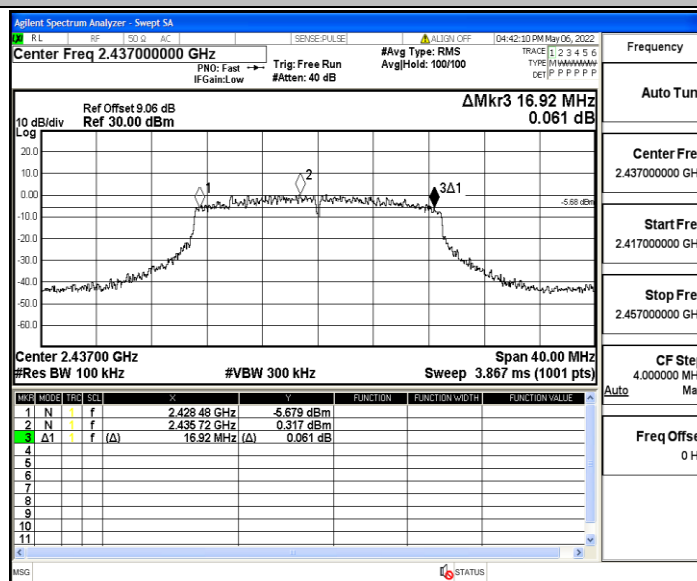
11G_Ant1_2462



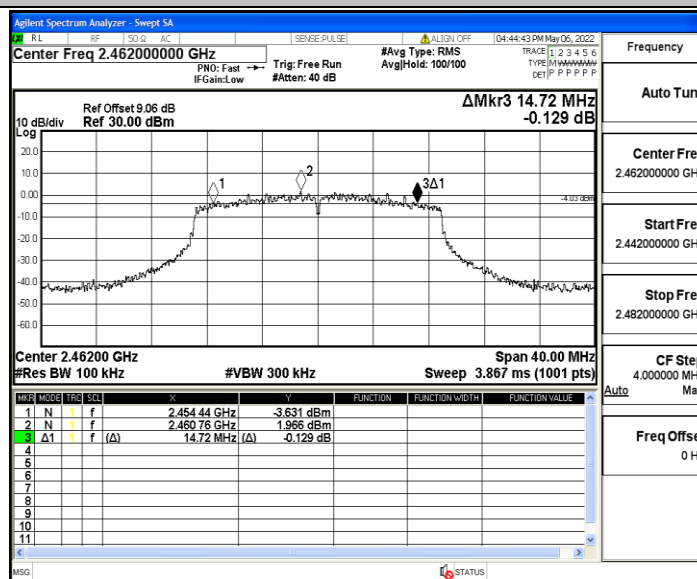
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462

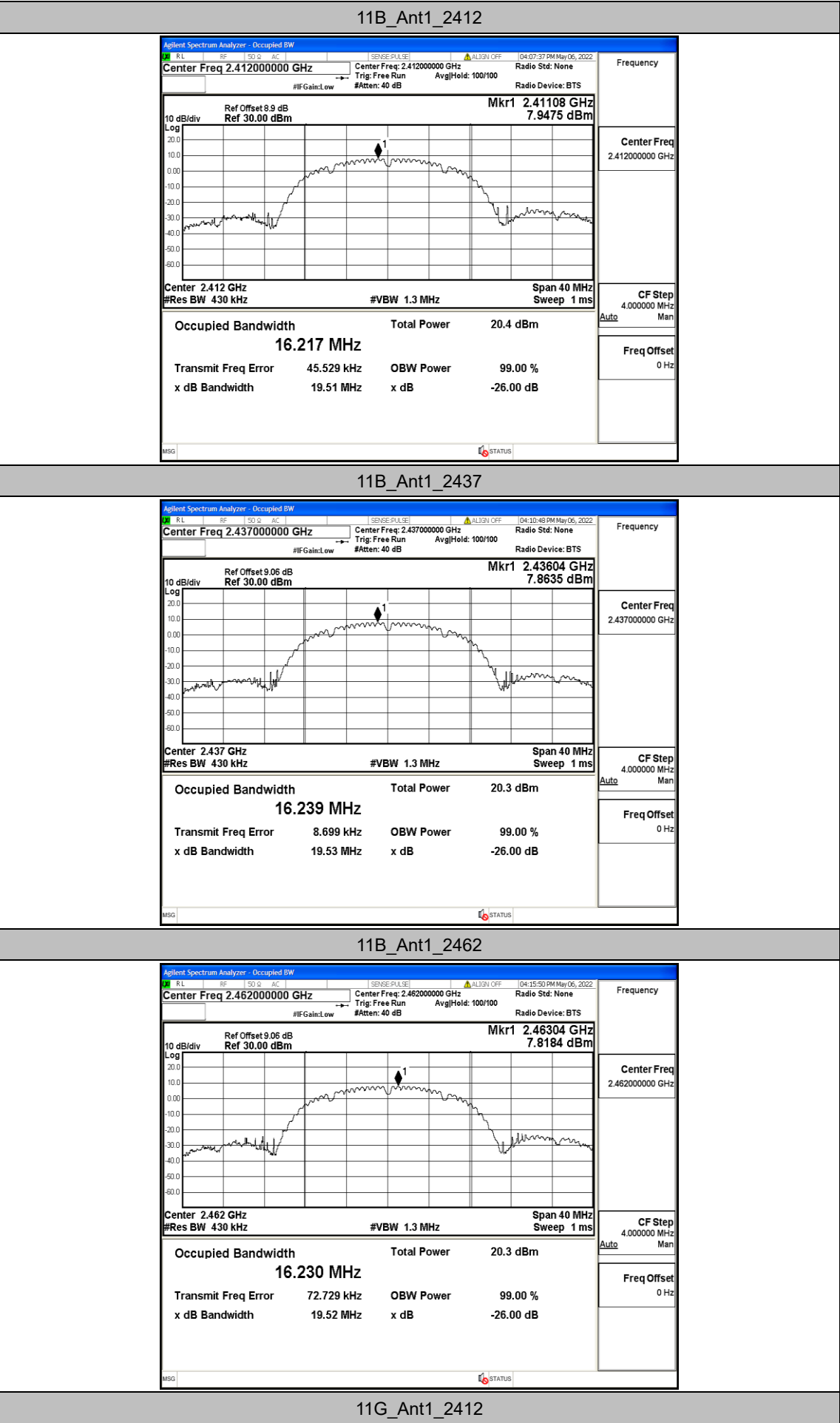


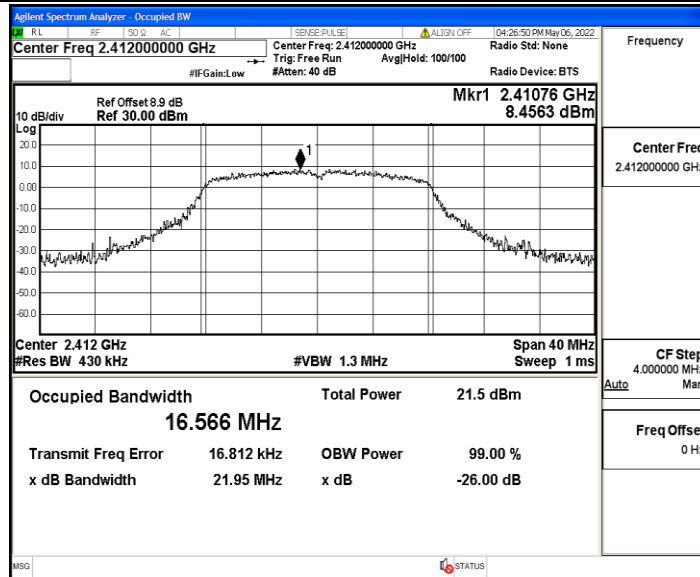
Appendix B: Occupied Channel Bandwidth

Test Result

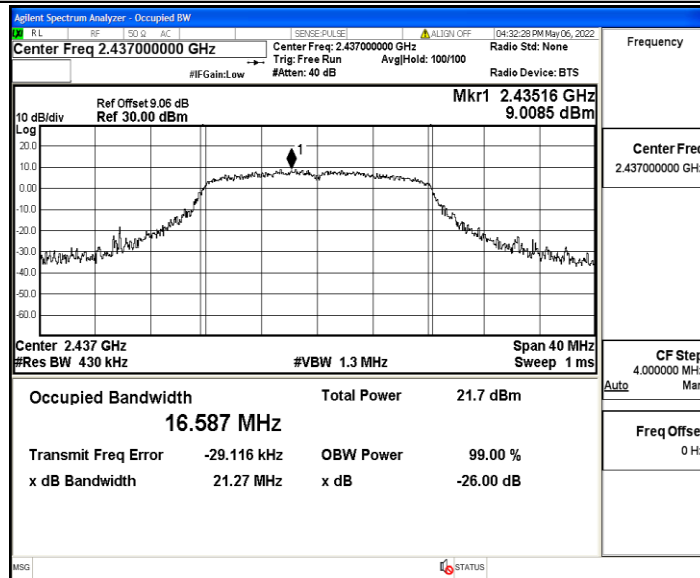
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	16.217	2403.937	2420.154	---	PASS
		2437	16.239	2428.889	2445.128	---	PASS
		2462	16.230	2453.958	2470.188	---	PASS
11G	Ant1	2412	16.566	2403.734	2420.300	---	PASS
		2437	16.587	2428.677	2445.264	---	PASS
		2462	16.535	2453.776	2470.311	---	PASS
11N20SISO	Ant1	2412	17.516	2403.276	2420.792	---	PASS
		2437	17.474	2428.299	2445.773	---	PASS
		2462	17.520	2453.296	2470.816	---	PASS

Test Graphs

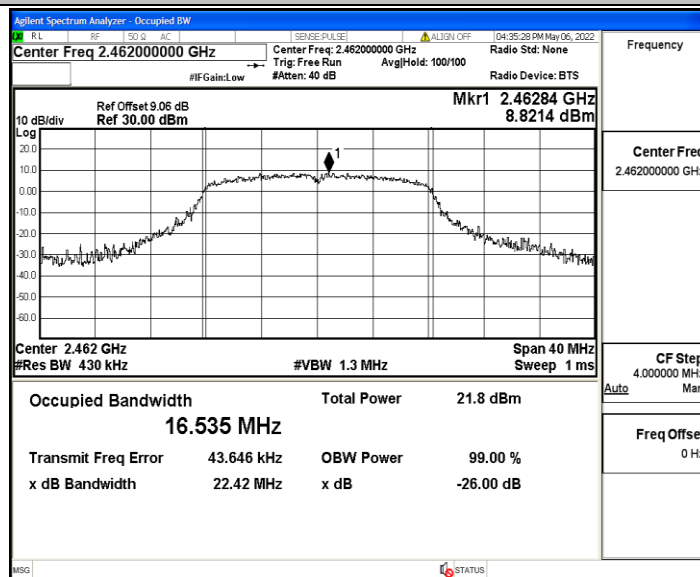




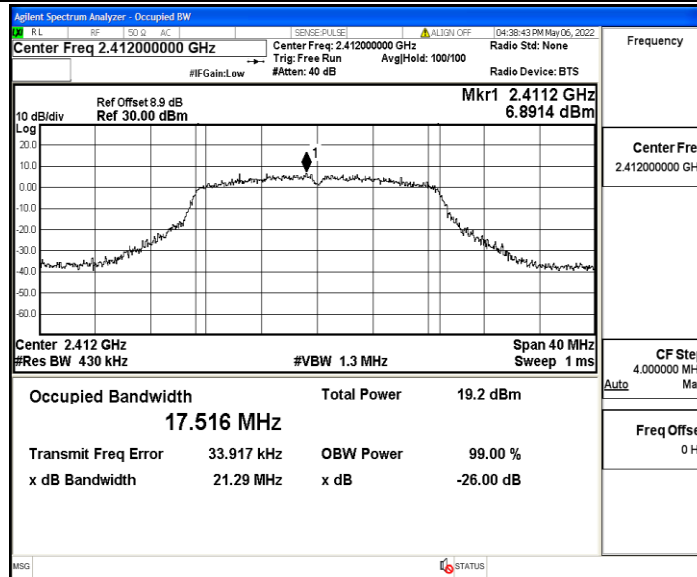
11G_Ant1_2437



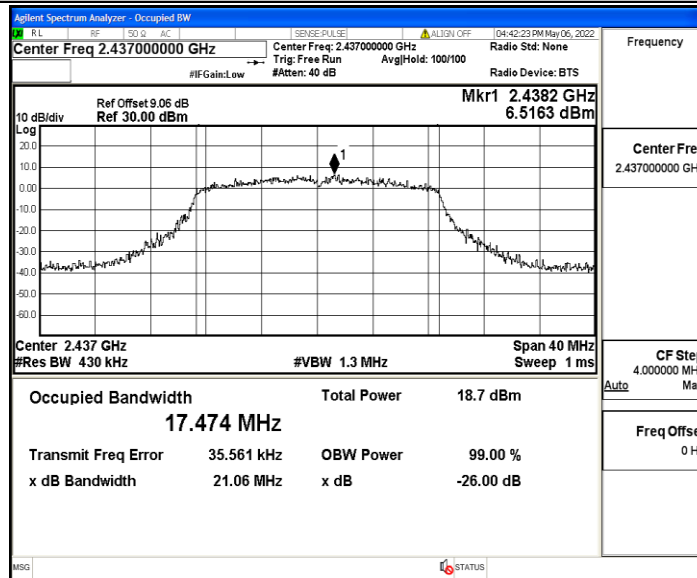
11G_Ant1_2462



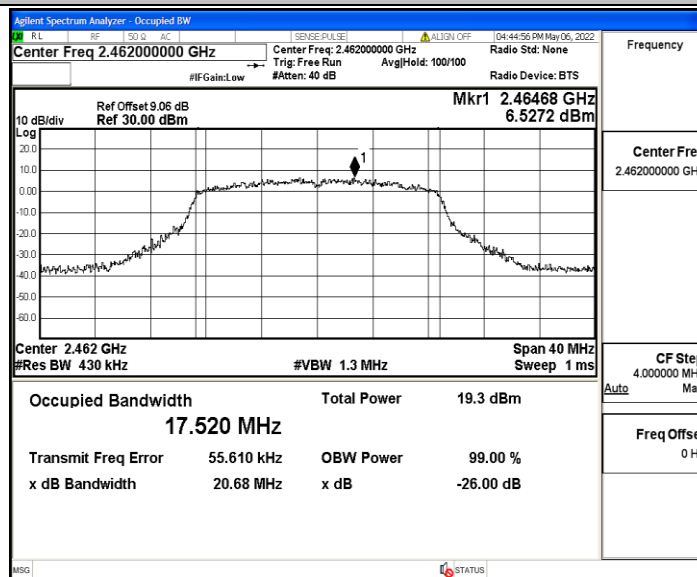
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462



Appendix C: Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	17.28	≤30.00	PASS
		2437	16.58	≤30.00	PASS
		2462	17.43	≤30.00	PASS
11G	Ant1	2412	15.23	≤30.00	PASS
		2437	17.41	≤30.00	PASS
		2462	15.67	≤30.00	PASS
11N20SISO	Ant1	2412	12.46	≤30.00	PASS
		2437	15.16	≤30.00	PASS
		2462	12.75	≤30.00	PASS

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

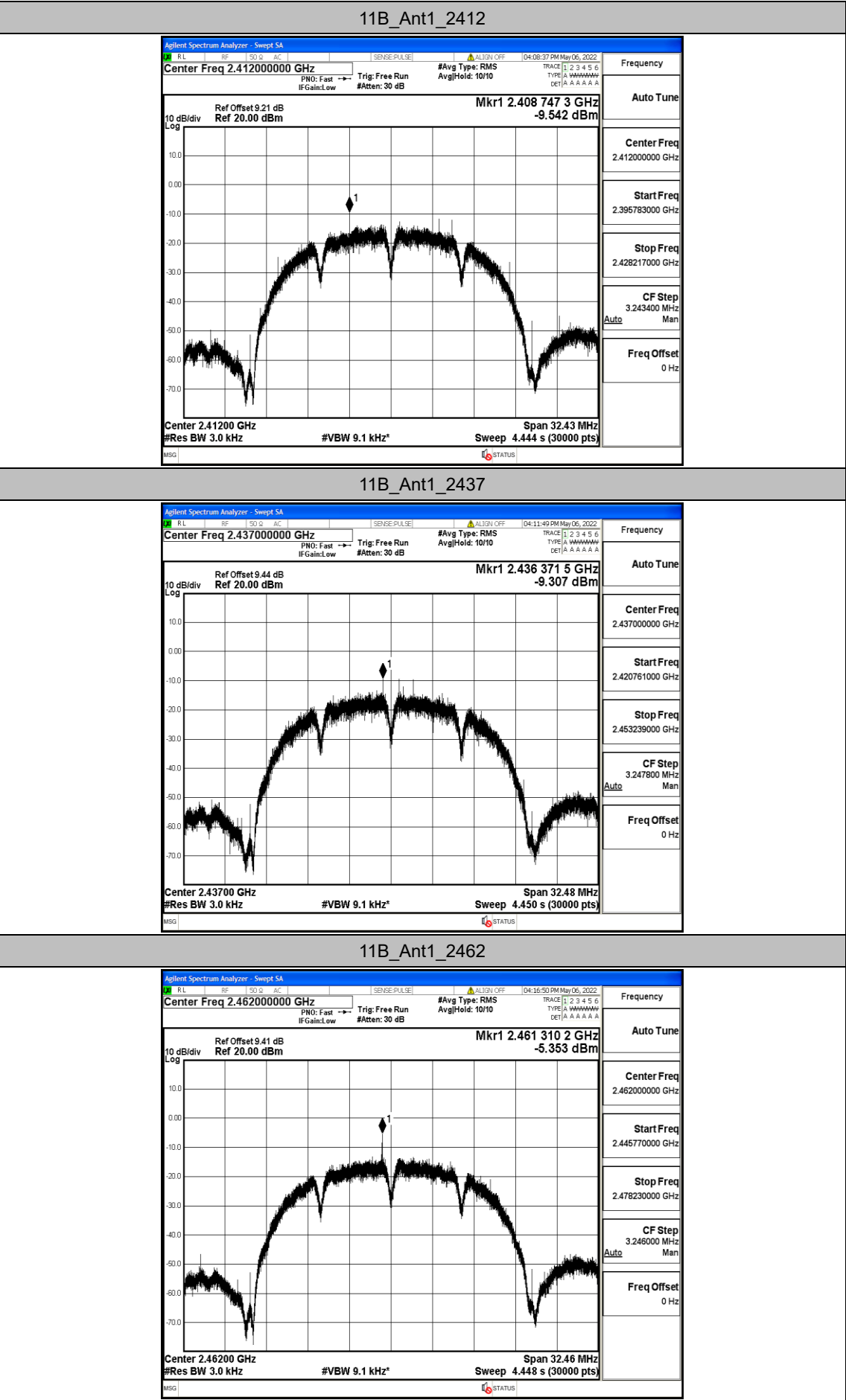
Appendix D: Maximum power spectral density

Test Result

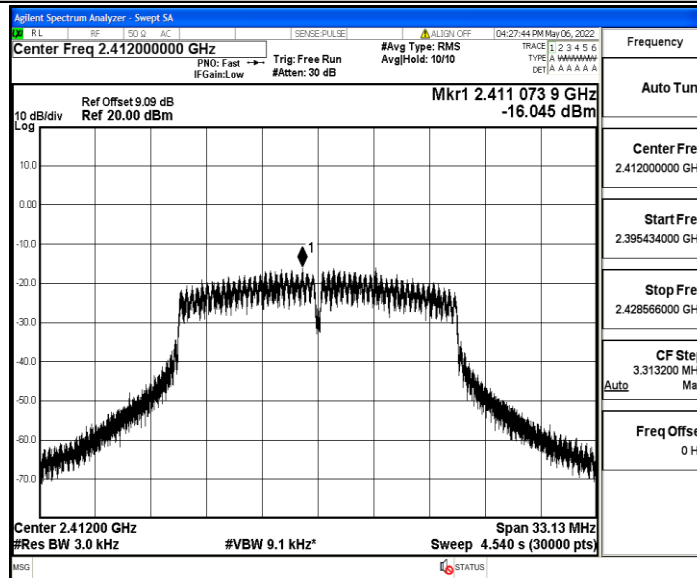
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-9.54	≤8.00	PASS
		2437	-9.31	≤8.00	PASS
		2462	-5.35	≤8.00	PASS
11G	Ant1	2412	-16.05	≤8.00	PASS
		2437	-13.6	≤8.00	PASS
		2462	-16.61	≤8.00	PASS
11N20SISO	Ant1	2412	-17.64	≤8.00	PASS
		2437	-12.2	≤8.00	PASS
		2462	-17.6	≤8.00	PASS

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

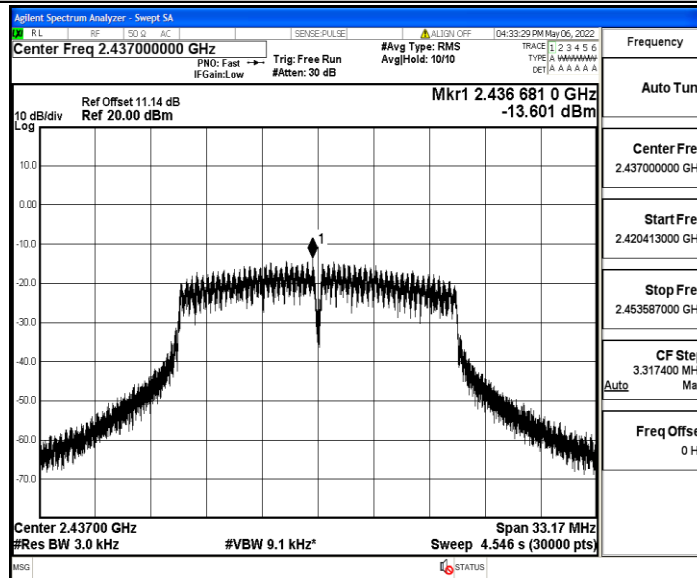
Test Graphs



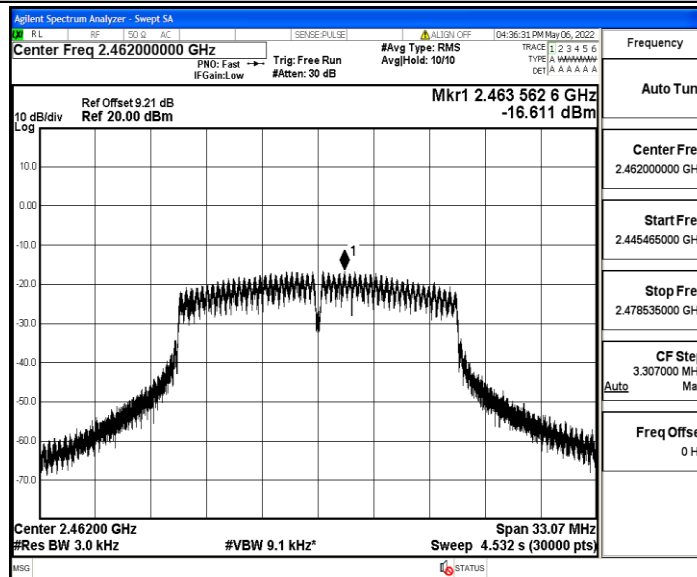
11G_Ant1_2412



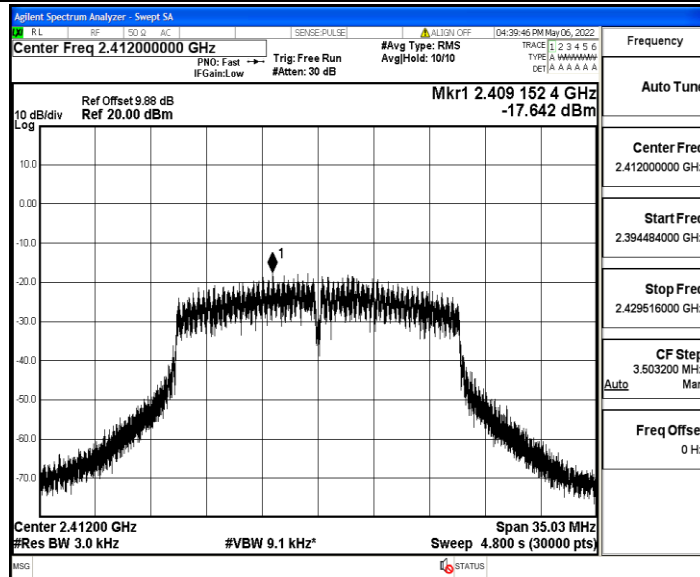
11G_Ant1_2437



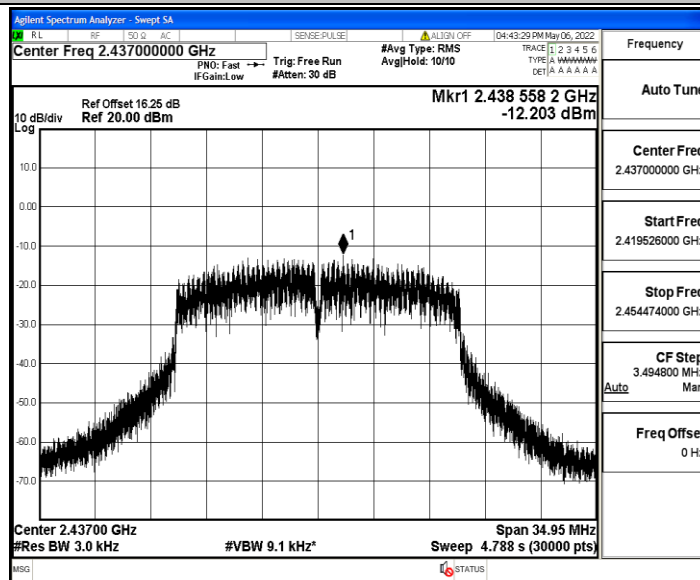
11G_Ant1_2462



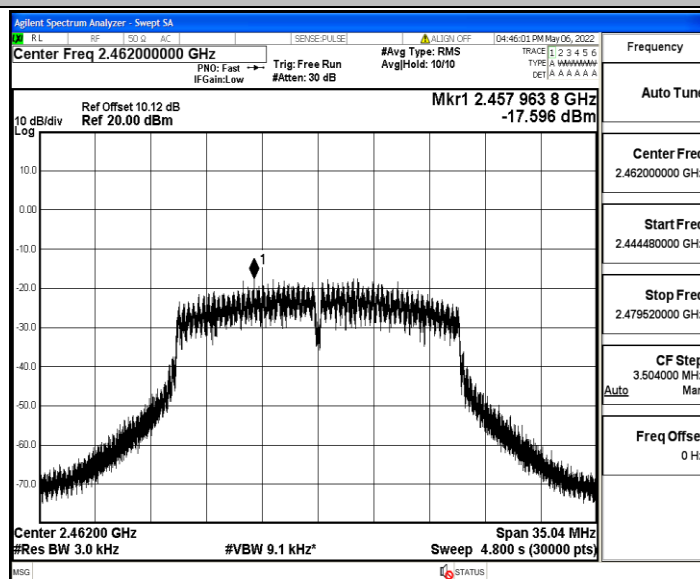
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462



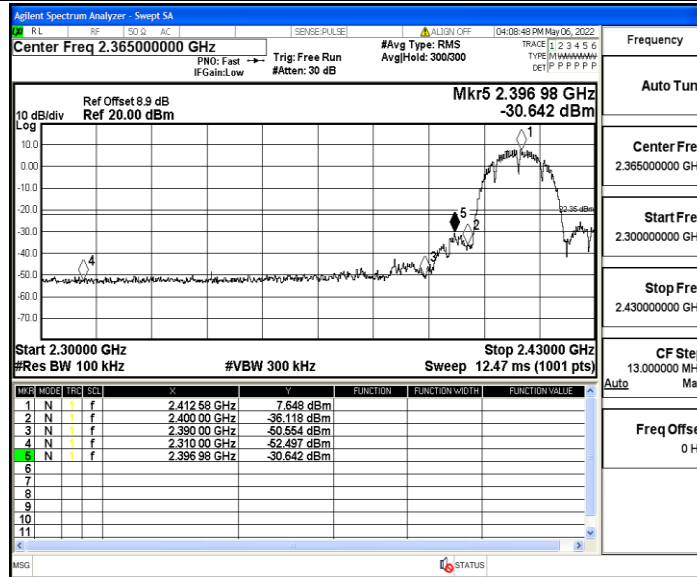
Appendix E: Band edge measurements

Test Result

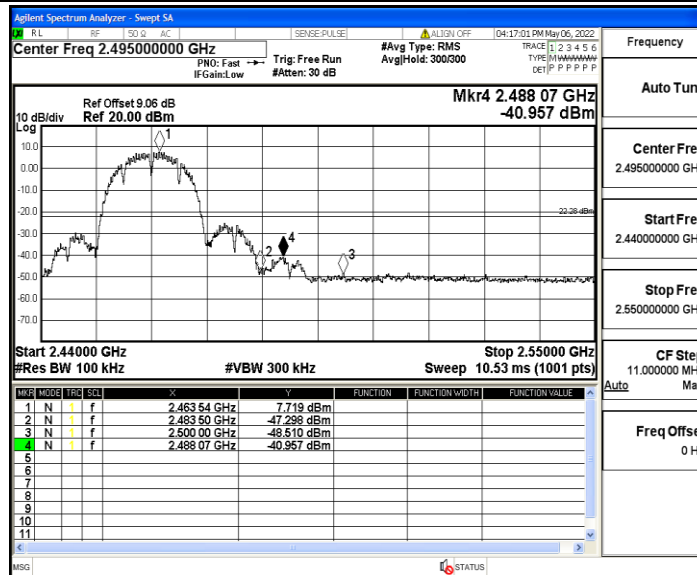
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	7.65	-30.64	≤-22.35	PASS
		High	2462	7.72	-40.96	≤-22.28	PASS
11G	Ant1	Low	2412	5.15	-30.03	≤-24.85	PASS
		High	2462	5.11	-39.8	≤-24.9	PASS
11N20SISO	Ant1	Low	2412	2.70	-32.49	≤-27.3	PASS
		High	2462	2.63	-44.34	≤-27.38	PASS

Test Graphs

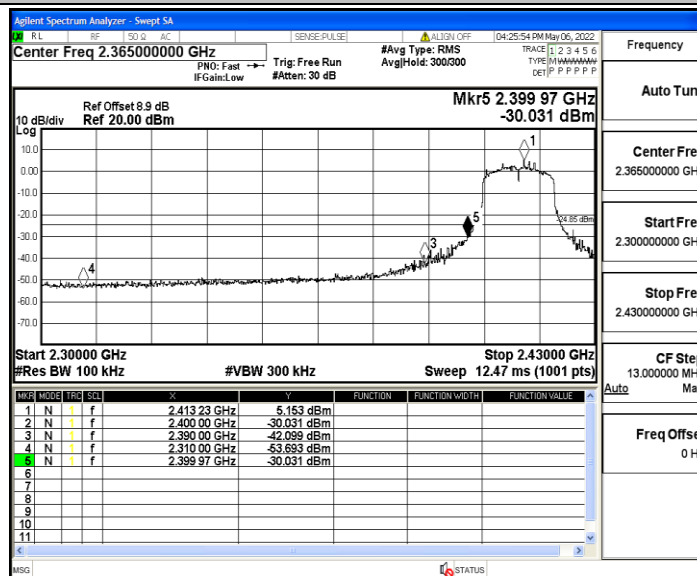
11B_Ant1_Low_2412



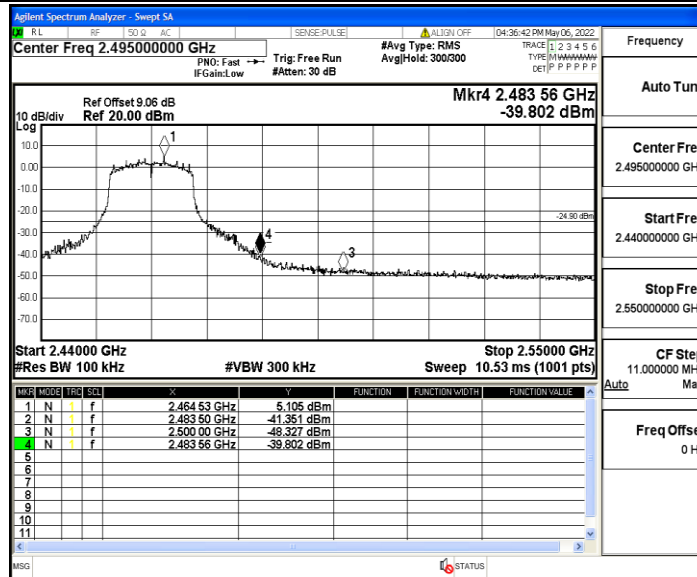
11B_Ant1_High_2462



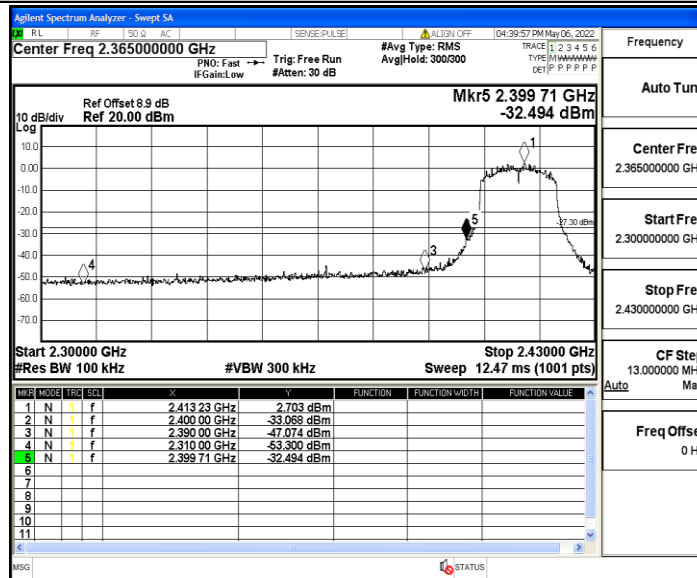
11G_Ant1_Low_2412



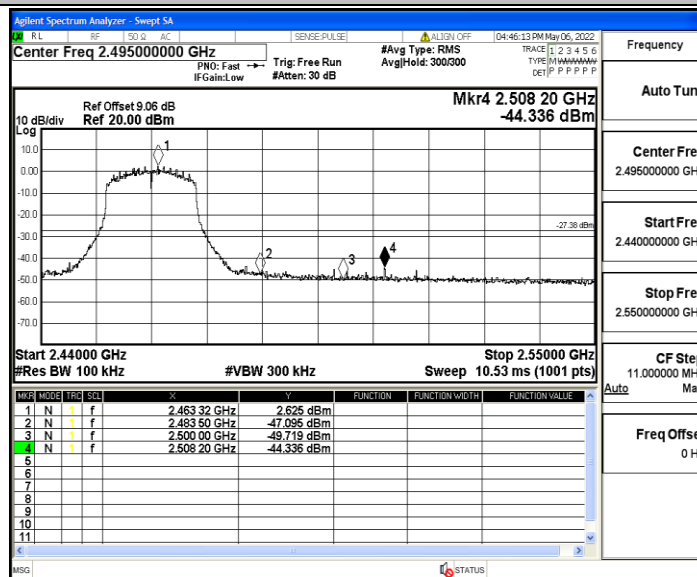
11G_Ant1_High_2462



11N20SISO_Ant1_Low_2412



11N20SISO_Ant1_High_2462

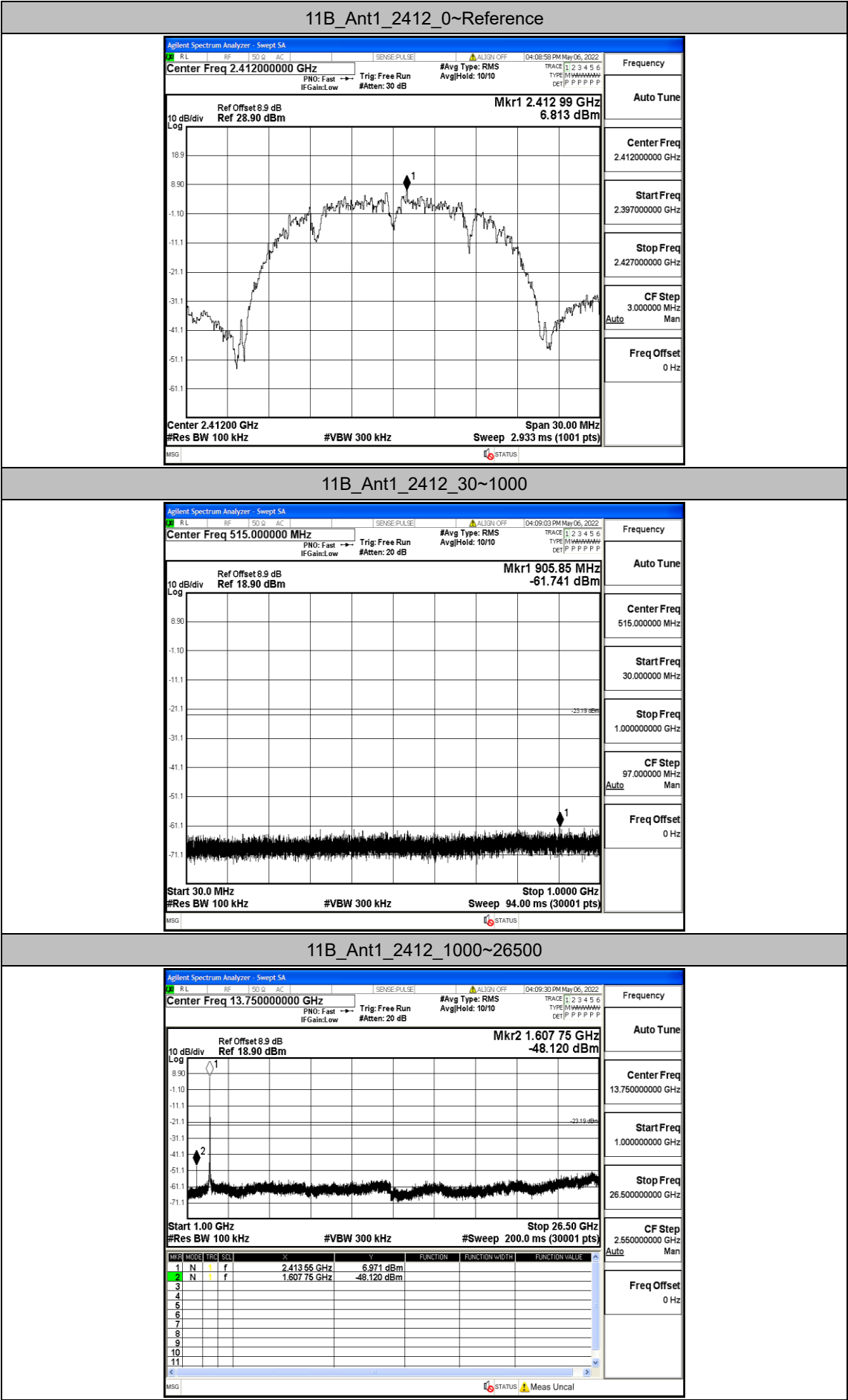


Appendix F: Conducted Spurious Emission

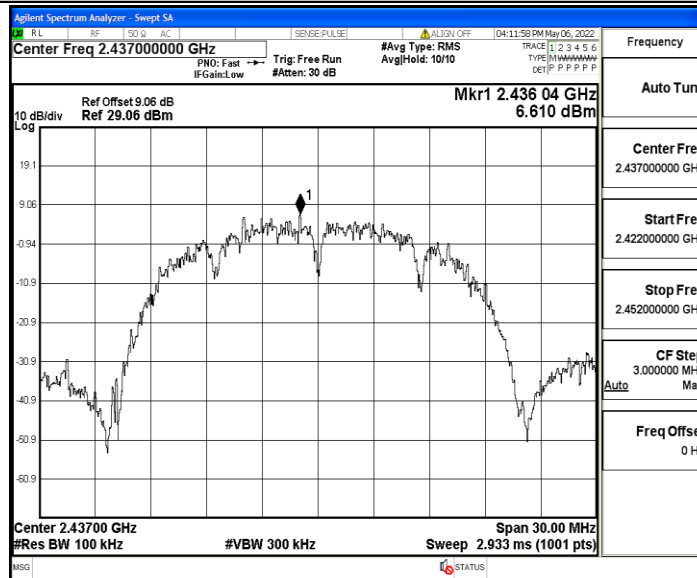
Test Result

TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	6.81	6.81	---	PASS
			30~1000	6.81	-61.74	≤-23.19	PASS
			1000~26500	6.81	-48.12	≤-23.19	PASS
		2437	Reference	6.61	6.61	---	PASS
			30~1000	6.61	-60.5	≤-23.39	PASS
			1000~26500	6.61	-47.75	≤-23.39	PASS
		2462	Reference	7.12	7.12	---	PASS
			30~1000	7.12	-61.08	≤-22.88	PASS
			1000~26500	7.12	-47.81	≤-22.88	PASS
11G	Ant1	2412	Reference	2.51	2.51	---	PASS
			30~1000	2.51	-61.34	≤-27.49	PASS
			1000~26500	2.51	-51.39	≤-27.49	PASS
		2437	Reference	1.77	1.77	---	PASS
			30~1000	1.77	-60.35	≤-28.23	PASS
			1000~26500	1.77	-50.58	≤-28.23	PASS
		2462	Reference	2.53	2.53	---	PASS
			30~1000	2.53	-61.12	≤-27.47	PASS
			1000~26500	2.53	-51.73	≤-27.47	PASS
11N20SISO	Ant1	2412	Reference	1.97	1.97	---	PASS
			30~1000	1.97	-61.28	≤-28.03	PASS
			1000~26500	1.97	-48.78	≤-28.03	PASS
		2437	Reference	0.73	0.73	---	PASS
			30~1000	0.73	-60.51	≤-29.27	PASS
			1000~26500	0.73	-49.38	≤-29.27	PASS
		2462	Reference	1.23	1.23	---	PASS
			30~1000	1.23	-61.15	≤-28.77	PASS
			1000~26500	1.23	-48.91	≤-28.77	PASS

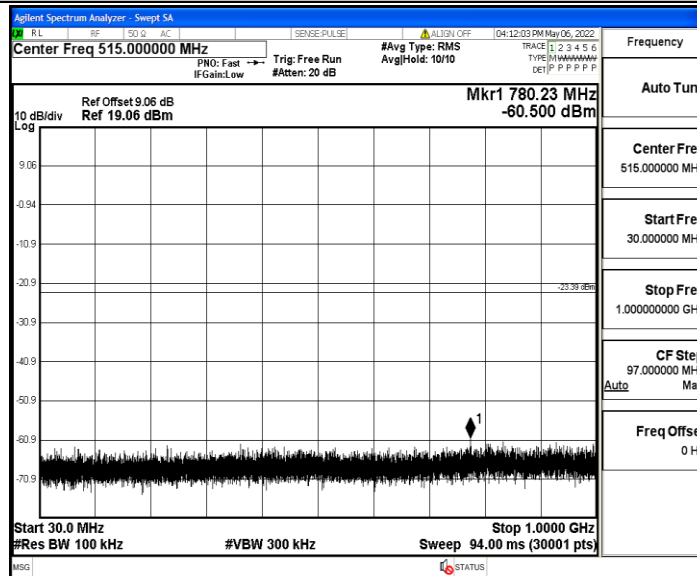
Test Graphs



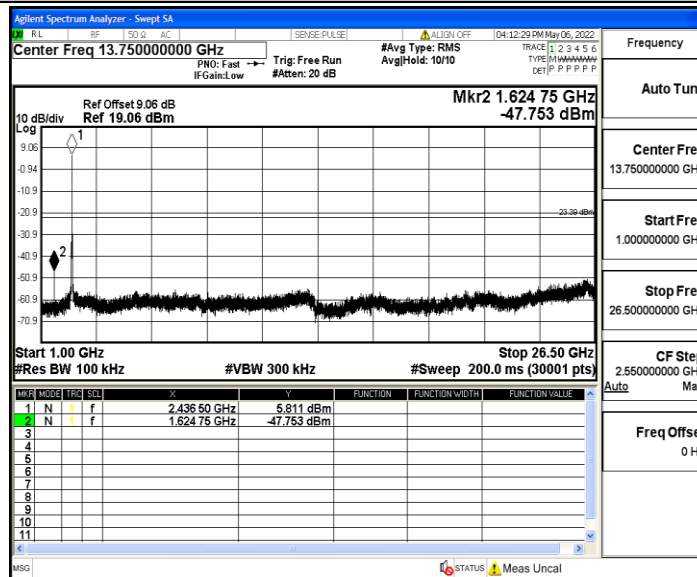
11B_Ant1_2437_0~Reference



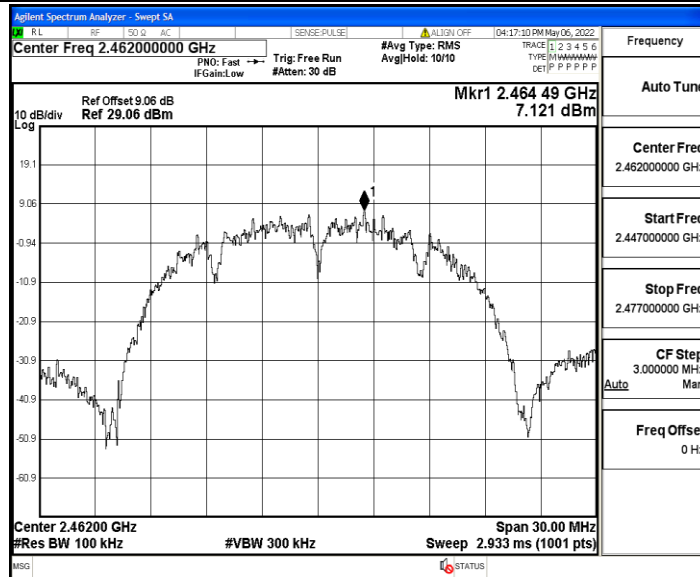
11B_Ant1_2437_30~1000



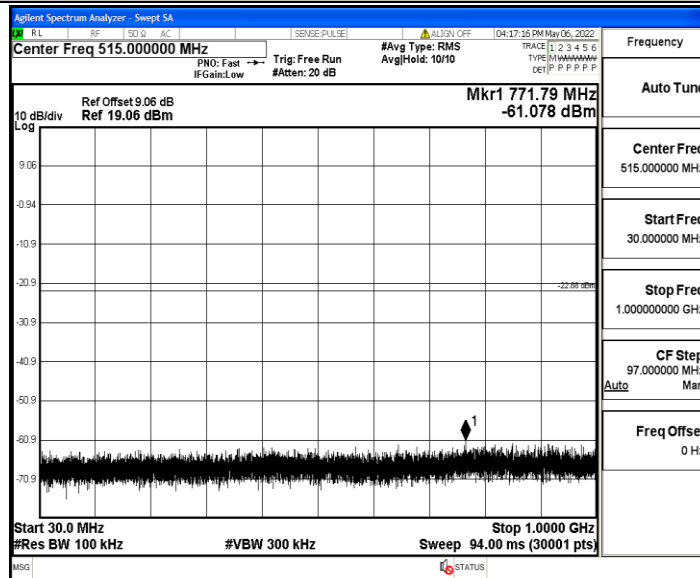
11B_Ant1_2437_1000~26500



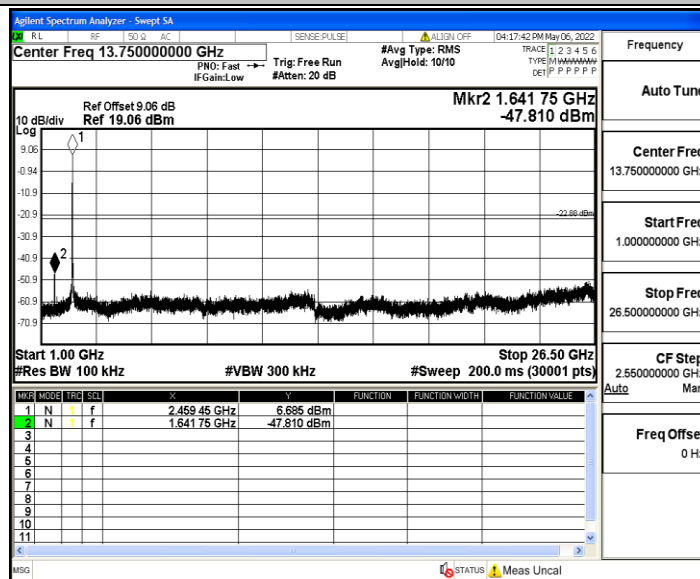
11B_Ant1_2462_0~Reference



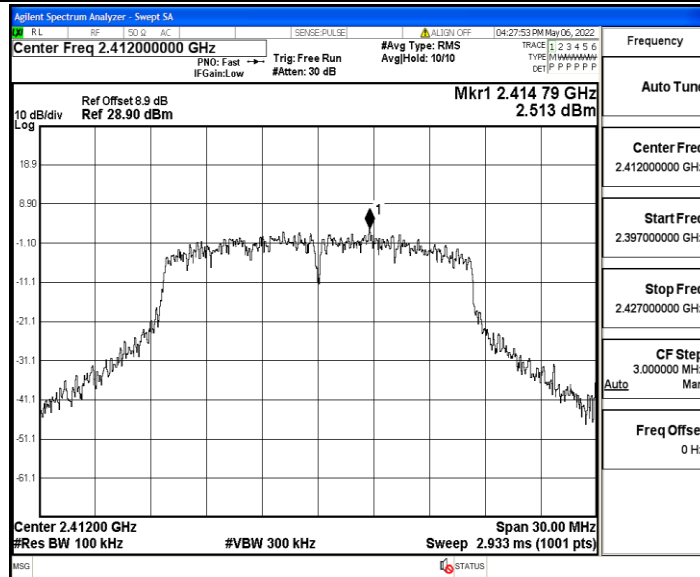
11B_Ant1_2462_30~1000



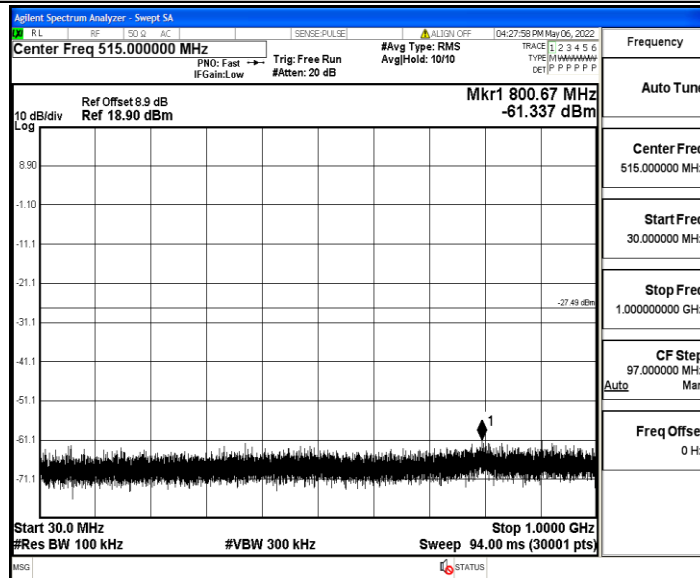
11B_Ant1_2462_1000~26500



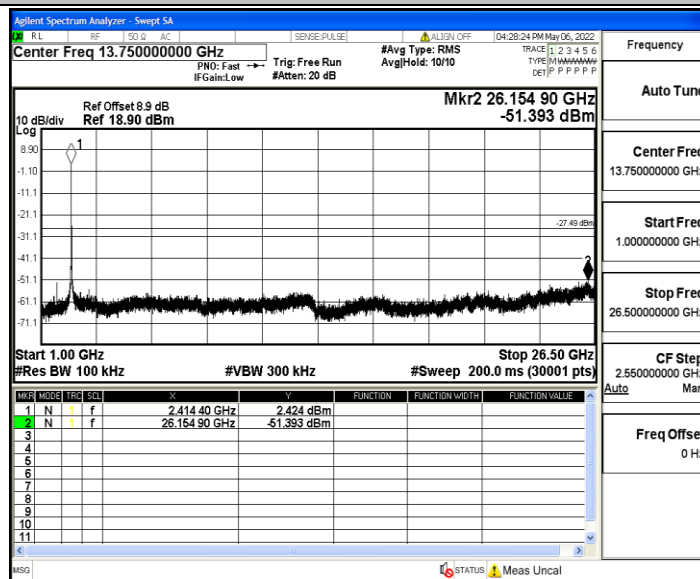
11G_Ant1_2412_0~Reference



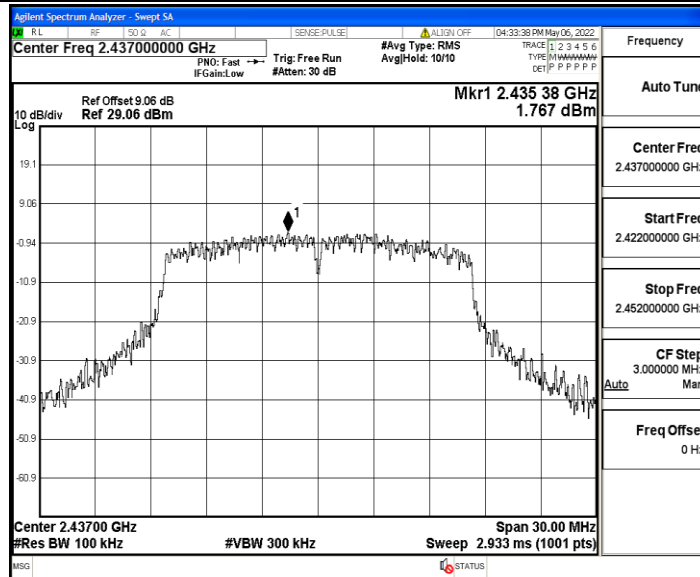
11G_Ant1_2412_30~1000



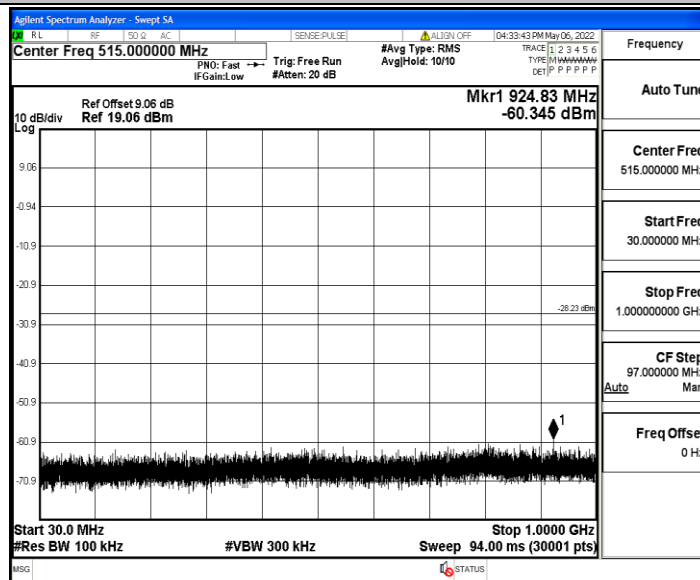
11G_Ant1_2412_1000~26500



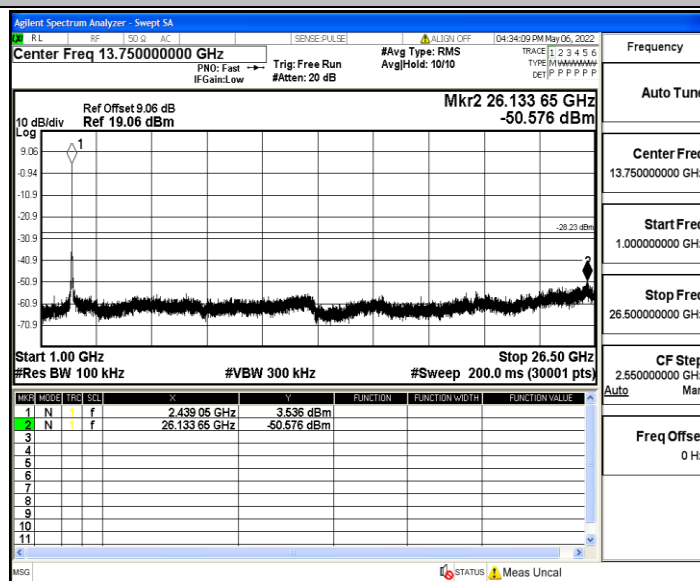
11G_Ant1_2437_0~Reference



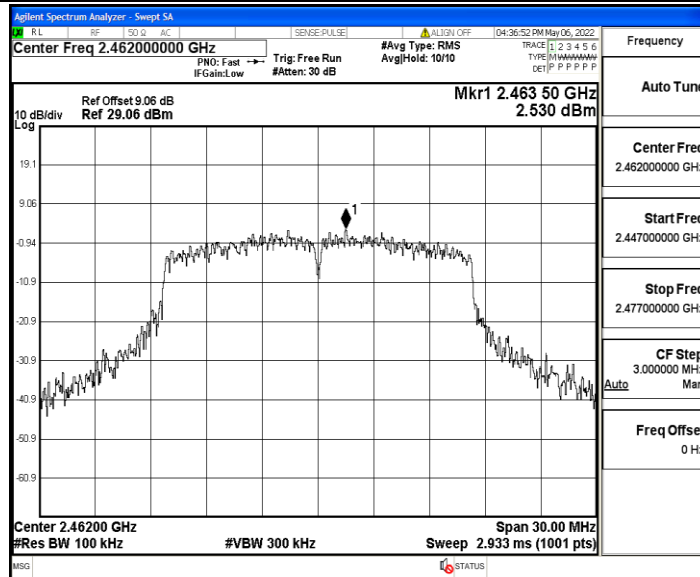
11G_Ant1_2437_30~1000



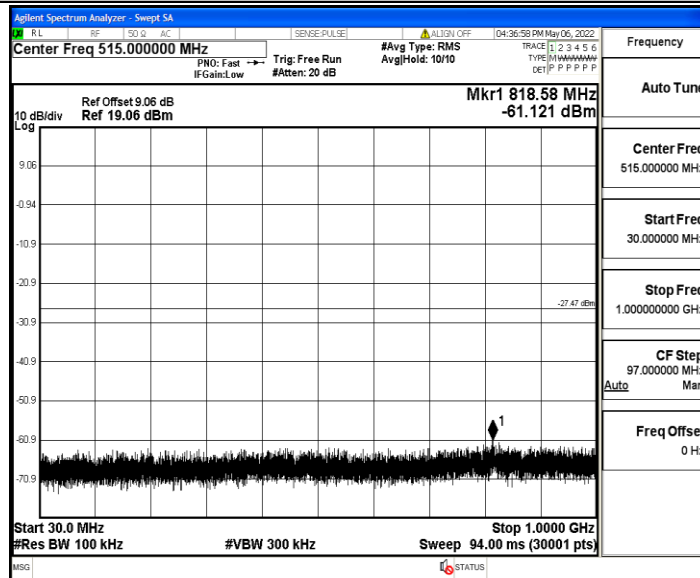
11G_Ant1_2437_1000~26500



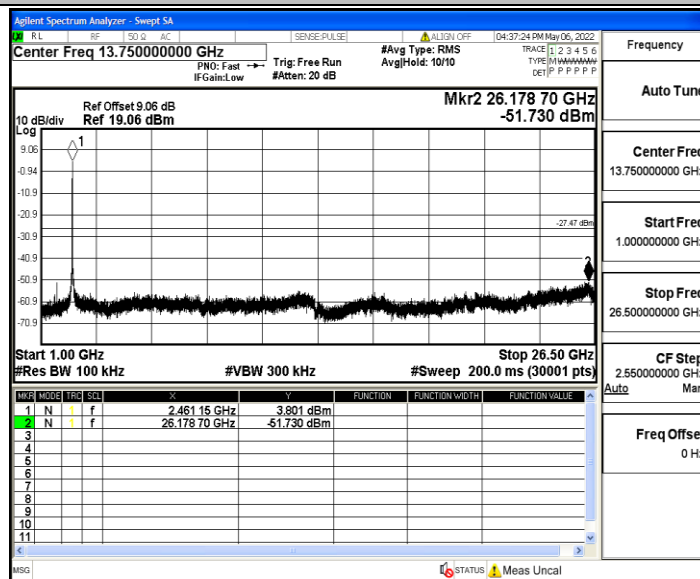
11G_Ant1_2462_0~Reference



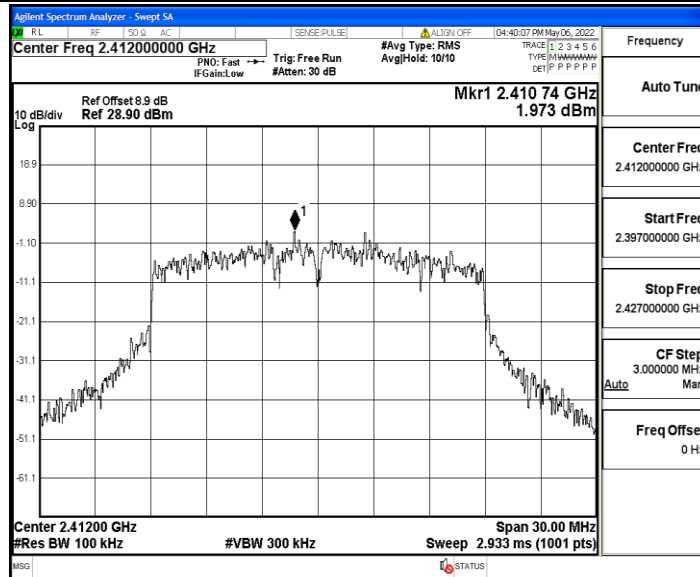
11G_Ant1_2462_30~1000



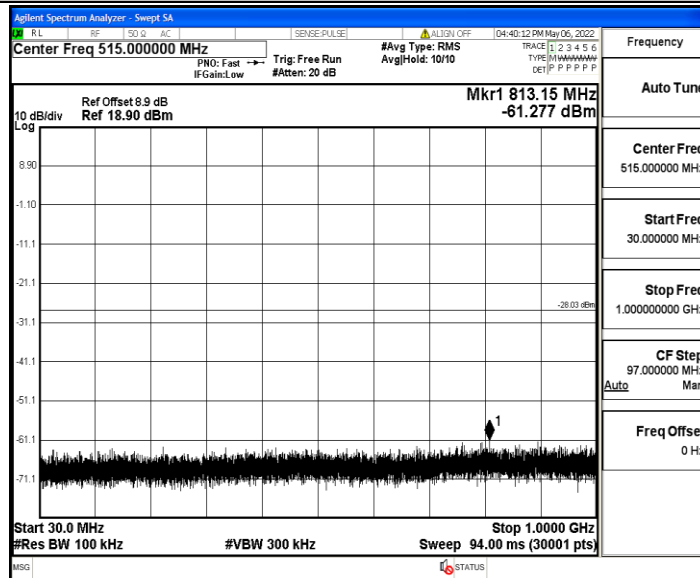
11G_Ant1_2462_1000~26500



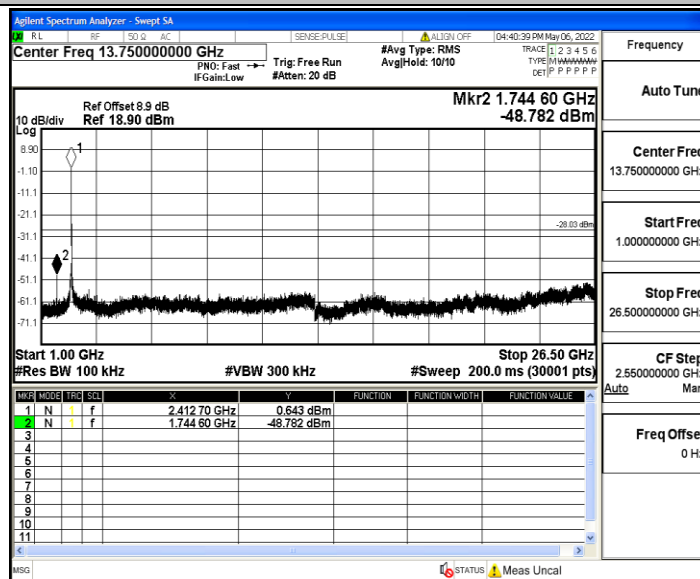
11N20SISO_Ant1_2412_0~Reference



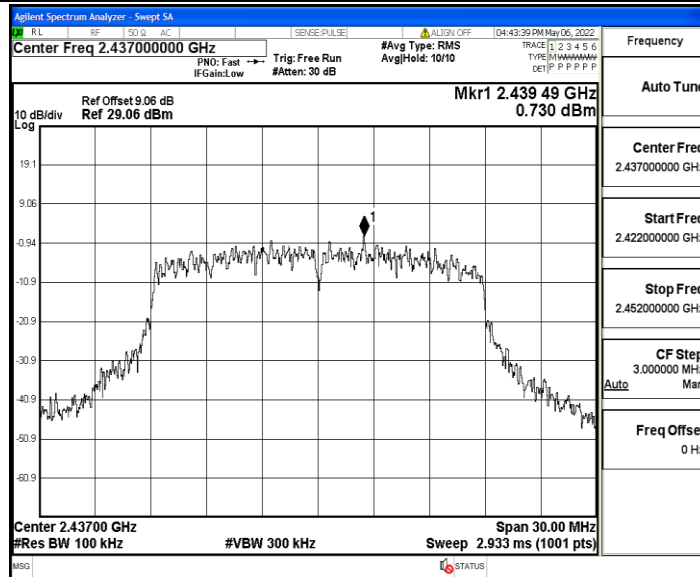
11N20SISO_Ant1_2412_30~1000



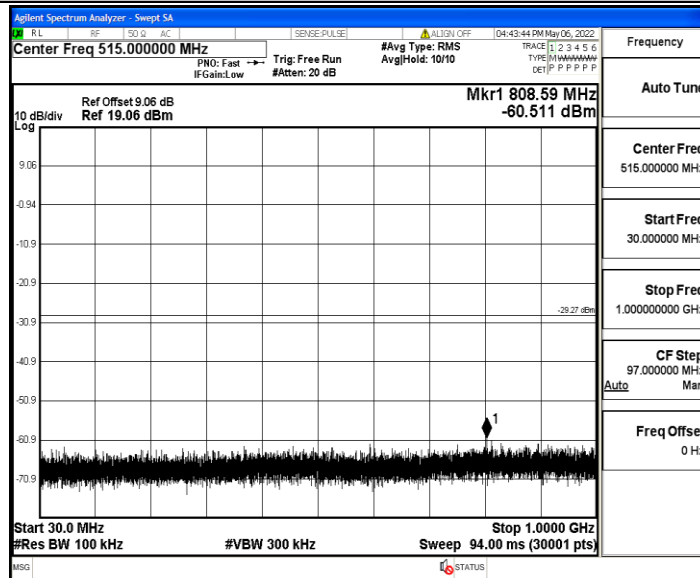
11N20SISO_Ant1_2412_1000~26500



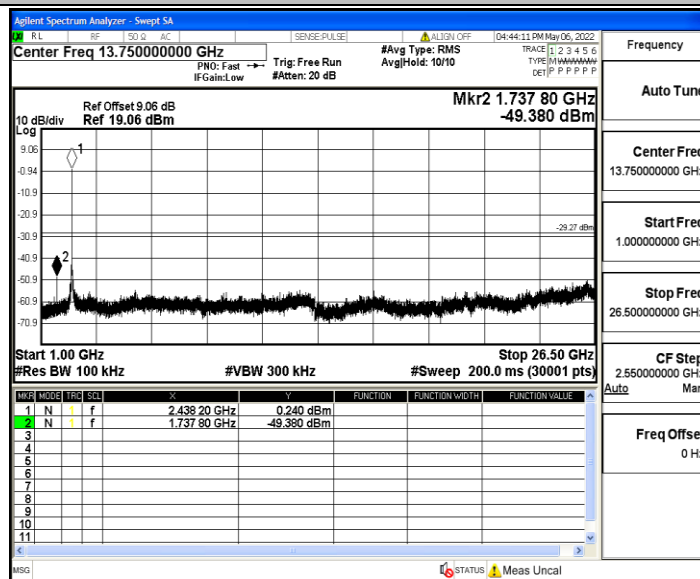
11N20SISO_Ant1_2437_0~Reference



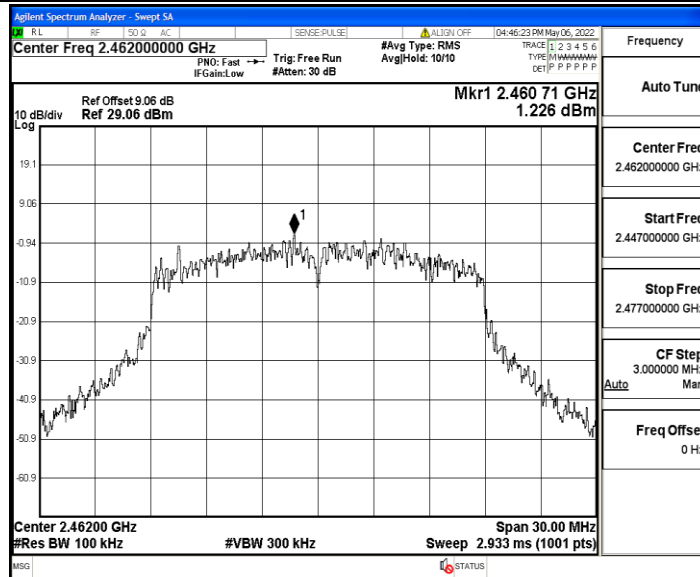
11N20SISO_Ant1_2437_30~1000



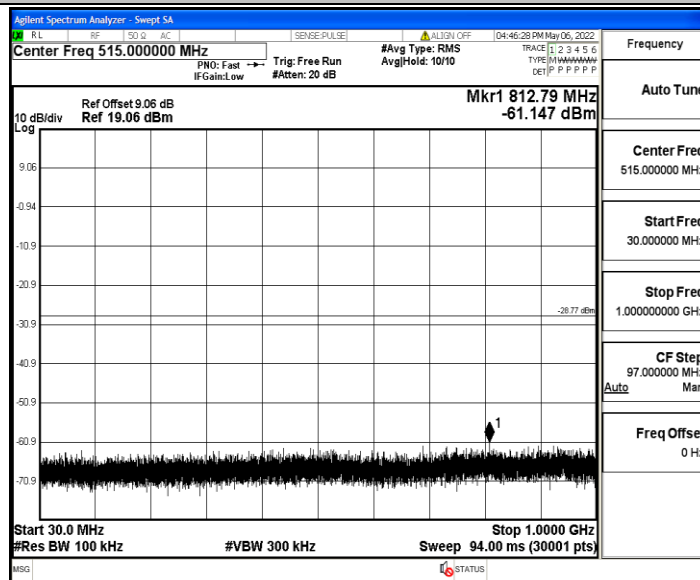
11N20SISO_Ant1_2437_1000~26500



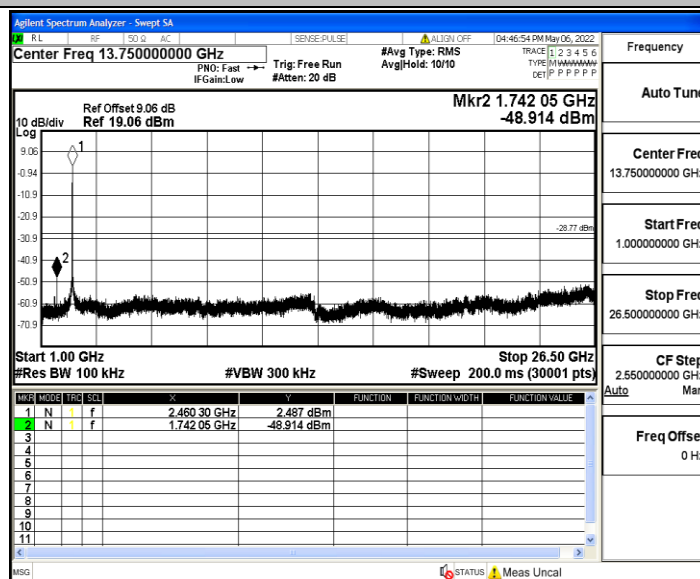
11N20SISO_Ant1_2462_0~Reference



11N20SISO_Ant1_2462_30~1000



11N20SISO_Ant1_2462_1000~26500



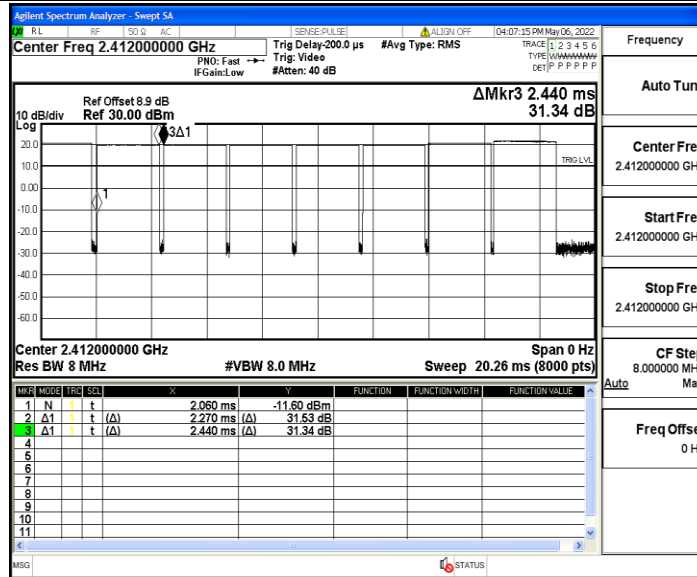
Appendix G: Duty Cycle

Test Result

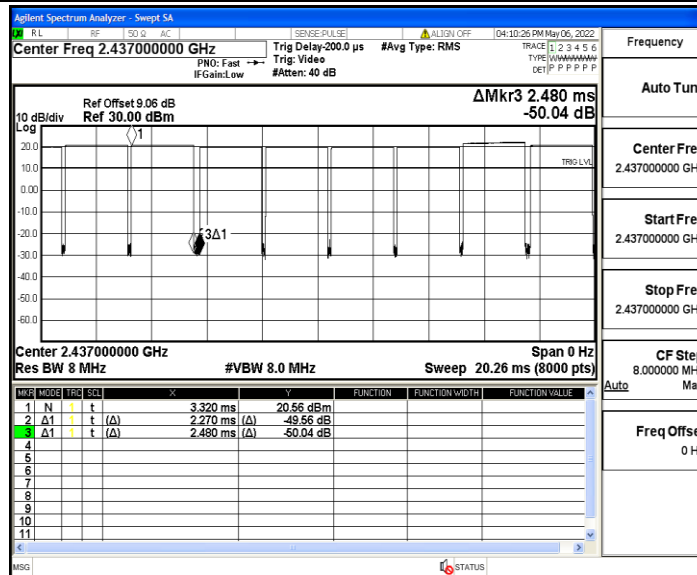
TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T
11B	Ant1	2412	2.27	2.44	93.03	0.44
		2437	2.27	2.48	91.53	0.44
		2462	2.27	2.46	92.28	0.44
11G	Ant1	2412	3.44	3.59	95.82	0.29
		2437	3.45	3.59	96.10	0.29
		2462	3.45	3.57	96.64	0.29
11N20SISO	Ant1	2412	0.55	0.69	79.71	1.82
		2437	0.55	0.70	78.57	1.82
		2462	0.54	0.69	78.26	1.85

Test Graphs

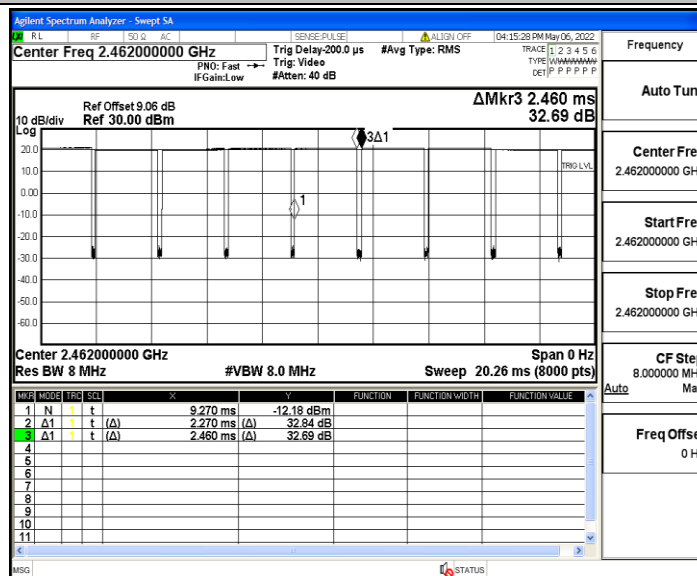
11B_Ant1_2412



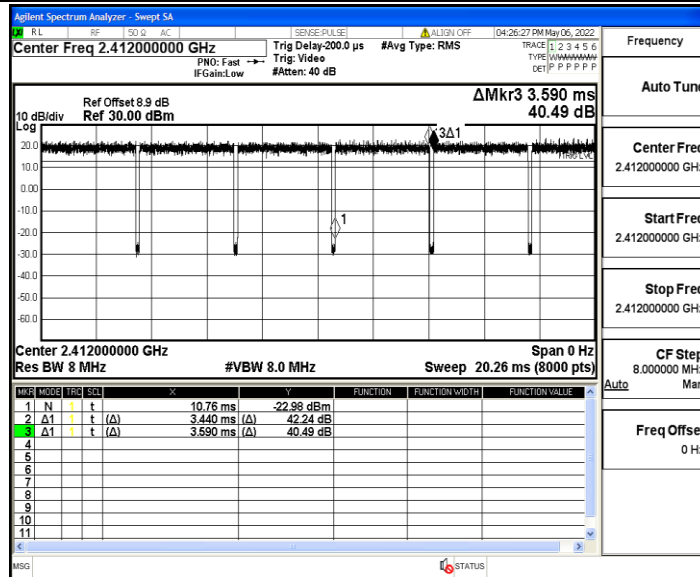
11B_Ant1_2437



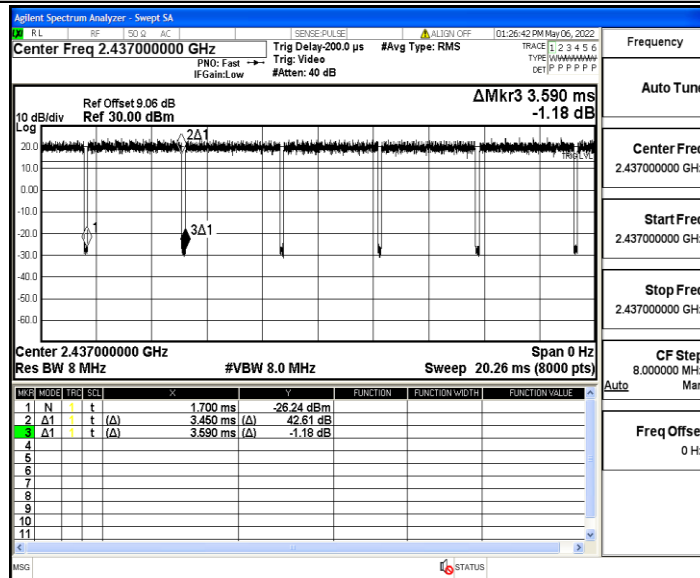
11B_Ant1_2462



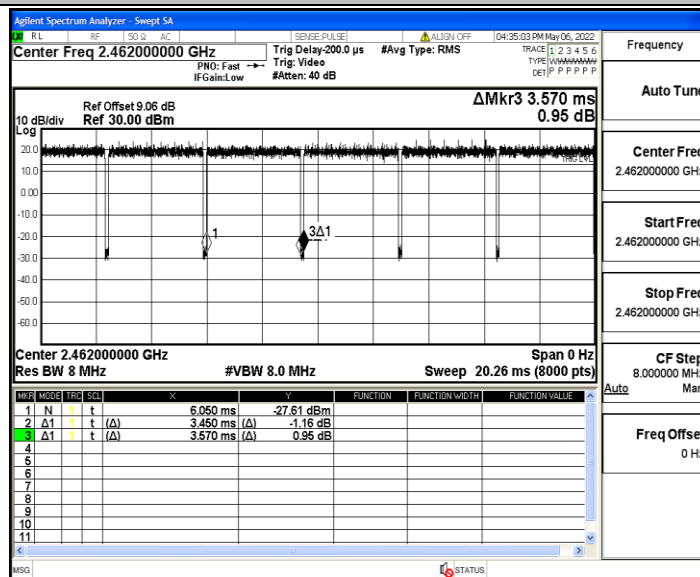
11G_Ant1_2412



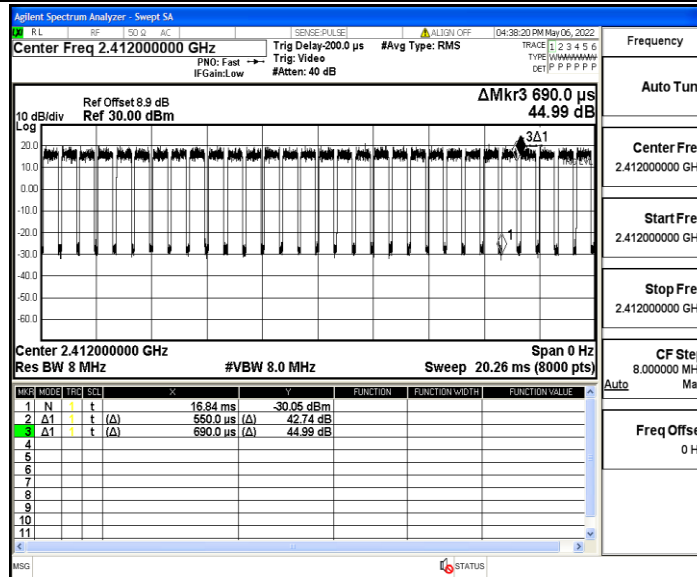
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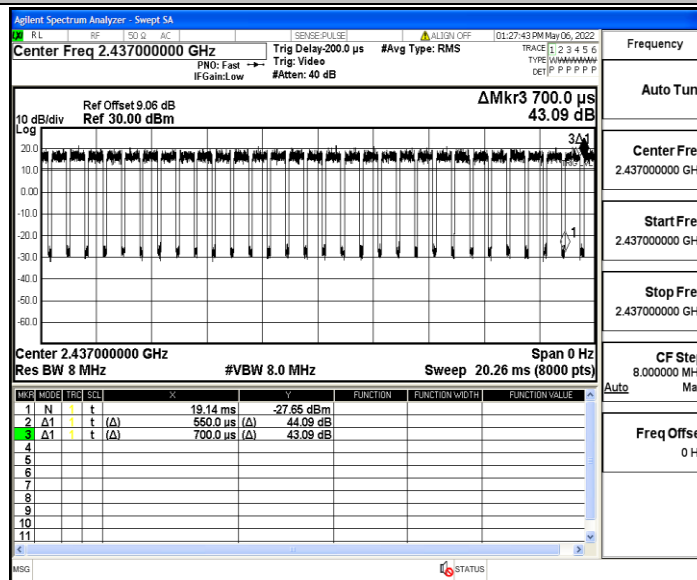
11G_Ant1_2462



11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462

