



Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Smart HD Visual Ear Cleaner

Trade Mark: N/A

Test Model: BCN-A1

Environmental Conditions

Temperature:	26.0℃
Relative Humidity:	54.0%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan



Appendix A.1: DTS Bandwidth

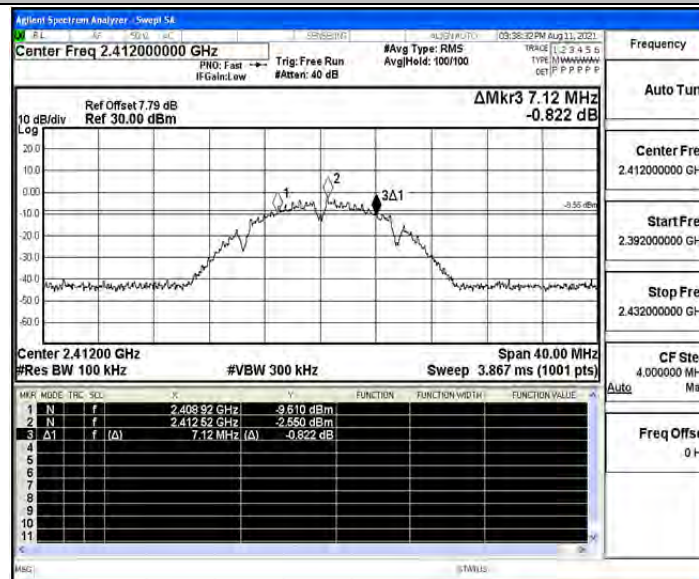
Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	7.120	2408.920	2416.040	0.5	PASS
		2437	8.120	2432.960	2441.080	0.5	PASS
		2462	7.360	2458.200	2465.560	0.5	PASS
11G	Ant1	2412	16.440	2403.800	2420.240	0.5	PASS
		2437	16.480	2428.760	2445.240	0.5	PASS
		2462	16.440	2453.760	2470.200	0.5	PASS
11N20SISO	Ant1	2412	17.680	2403.160	2420.840	0.5	PASS
		2437	17.400	2428.440	2445.840	0.5	PASS
		2462	17.640	2453.160	2470.800	0.5	PASS

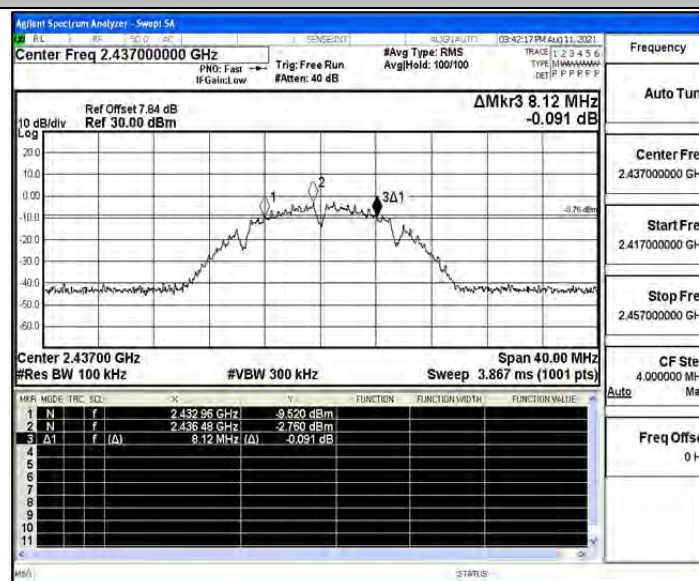


Test Graphs

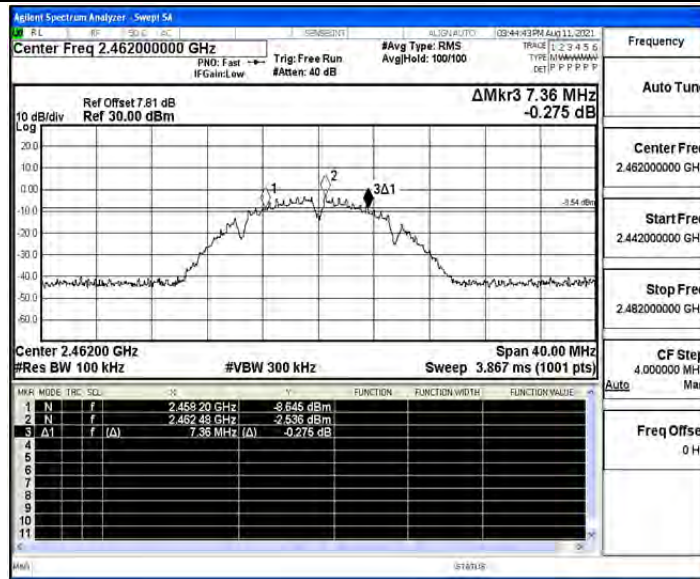
11B_Ant1_2412



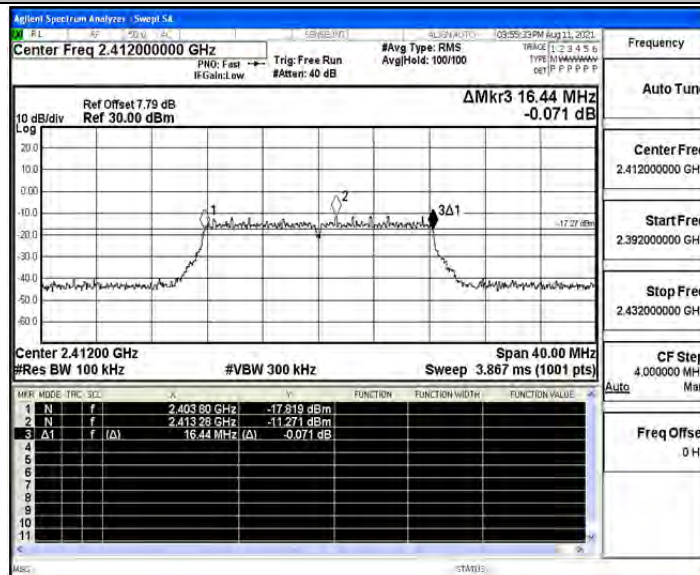
11B_Ant1_2437



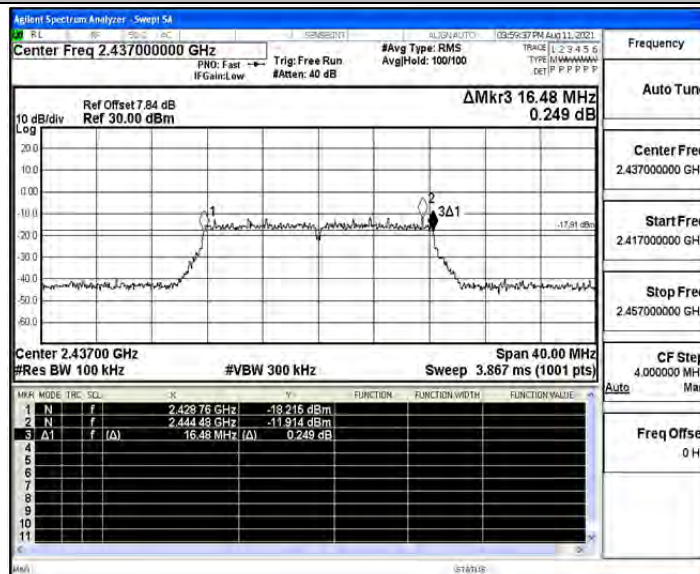
11B_Ant1_2462



11G_Ant1_2412

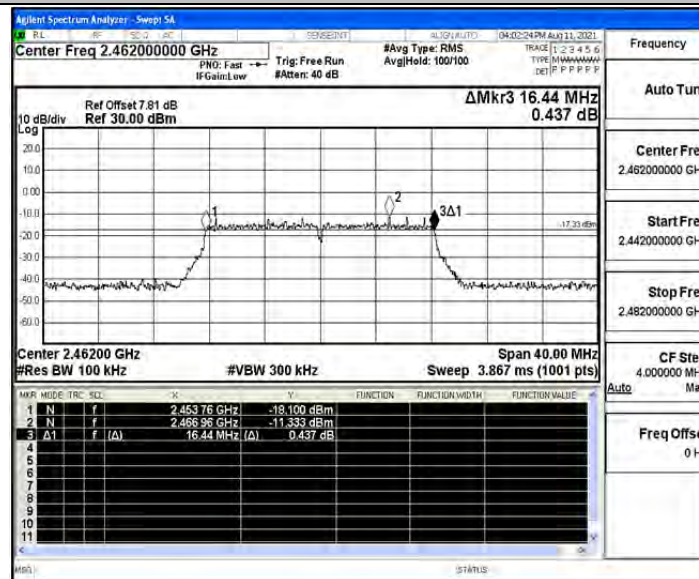


11G_Ant1_2437

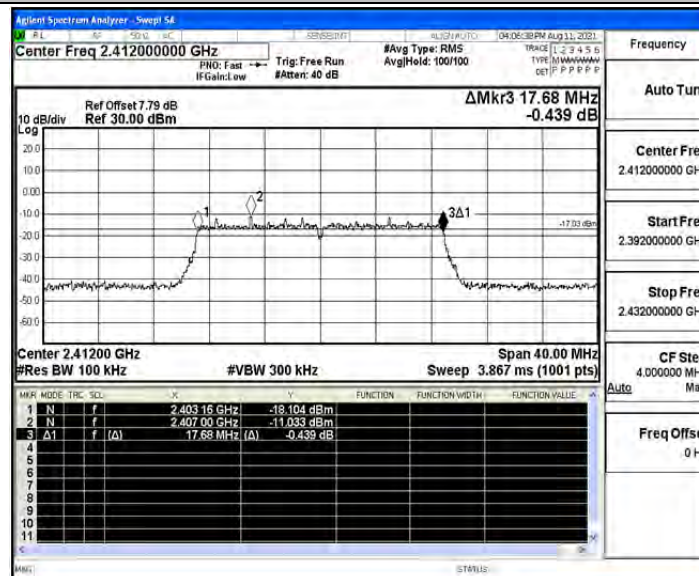




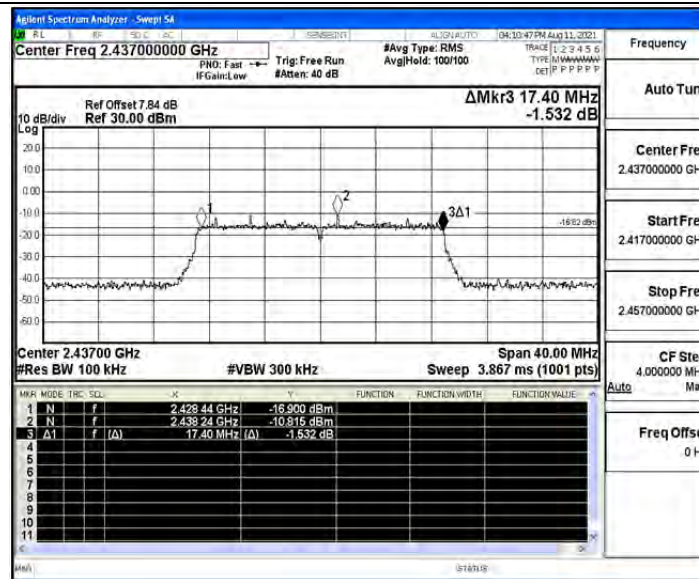
11G_Ant1_2462



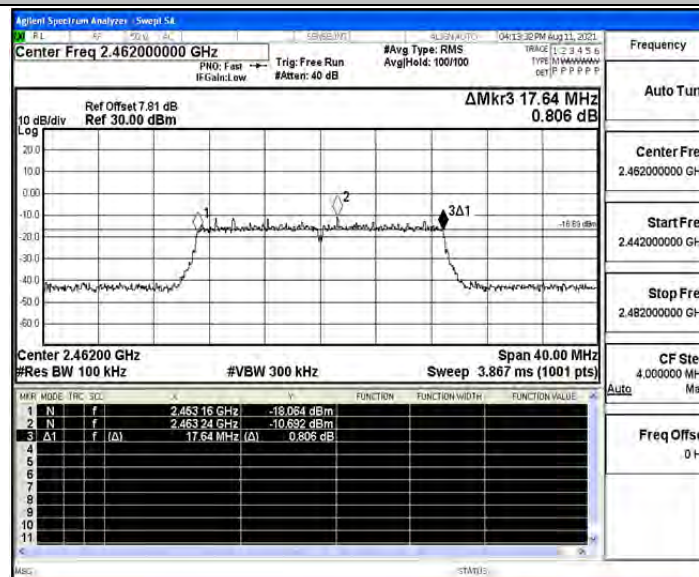
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462





Appendix A.2: Maximum peak conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	8.35	≤30	PASS
		2437	8.71	≤30	PASS
		2462	8.73	≤30	PASS
11G	Ant1	2412	7.61	≤30	PASS
		2437	7.24	≤30	PASS
		2462	7.23	≤30	PASS
11N20SISO	Ant1	2412	7.60	≤30	PASS
		2437	7.38	≤30	PASS
		2462	7.22	≤30	PASS



Appendix A.3: Maximum power spectral density

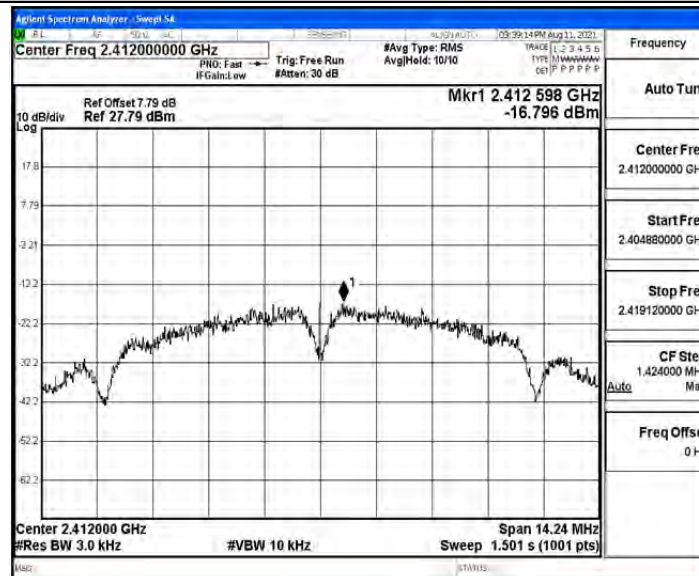
Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-16.8	≤8	PASS
		2437	-16.82	≤8	PASS
		2462	-16.92	≤8	PASS
11G	Ant1	2412	-24.6	≤8	PASS
		2437	-25.39	≤8	PASS
		2462	-24.97	≤8	PASS
11N20SISO	Ant1	2412	-24.11	≤8	PASS
		2437	-23.08	≤8	PASS
		2462	-24.76	≤8	PASS

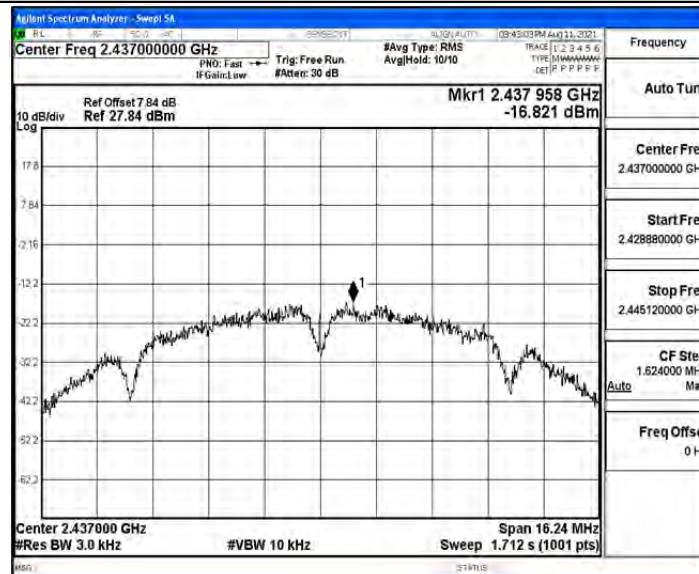


Test Graphs

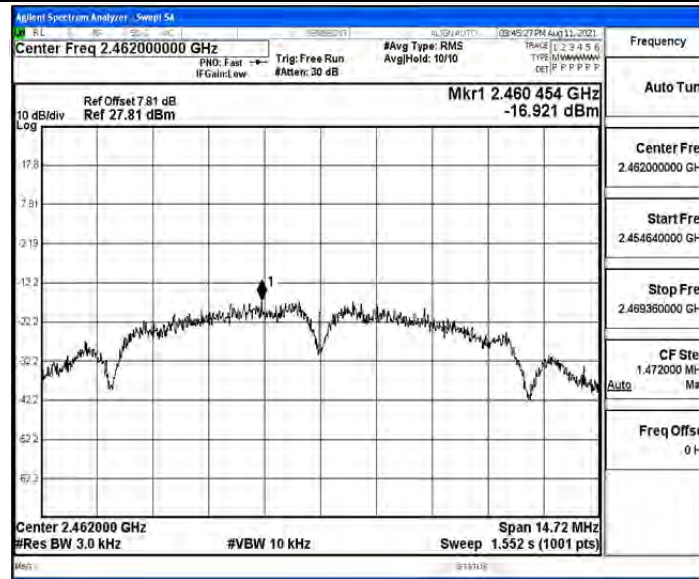
11B_Ant1_2412



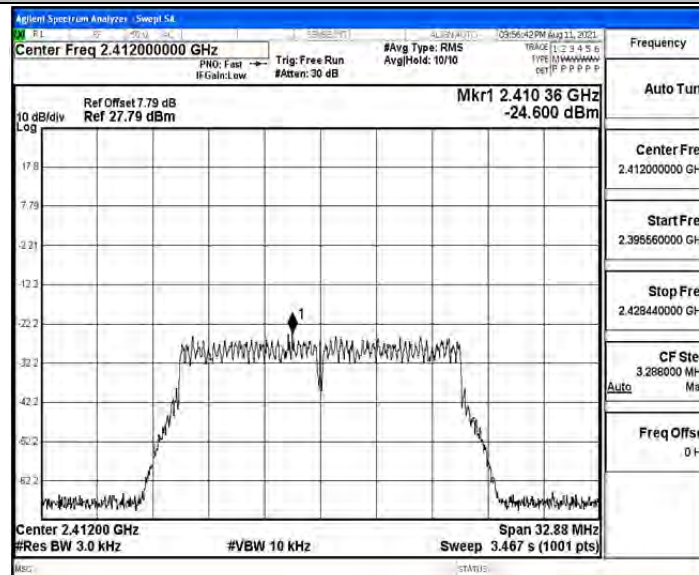
11B_Ant1_2437



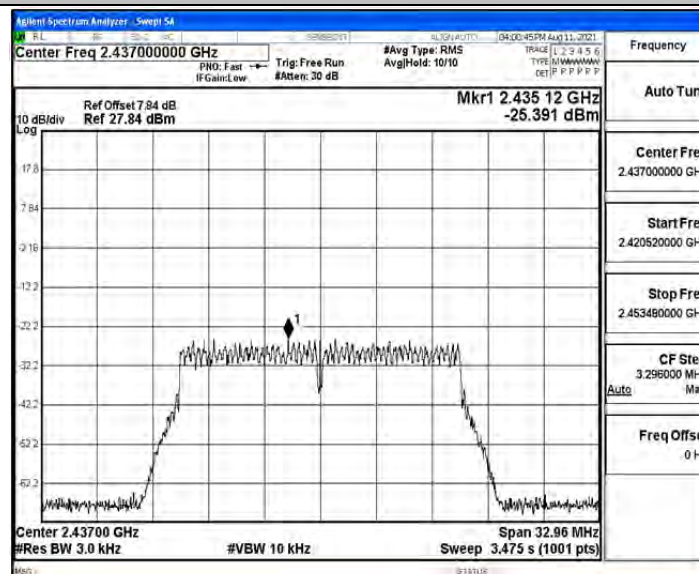
11B_Ant1_2462



11G_Ant1_2412

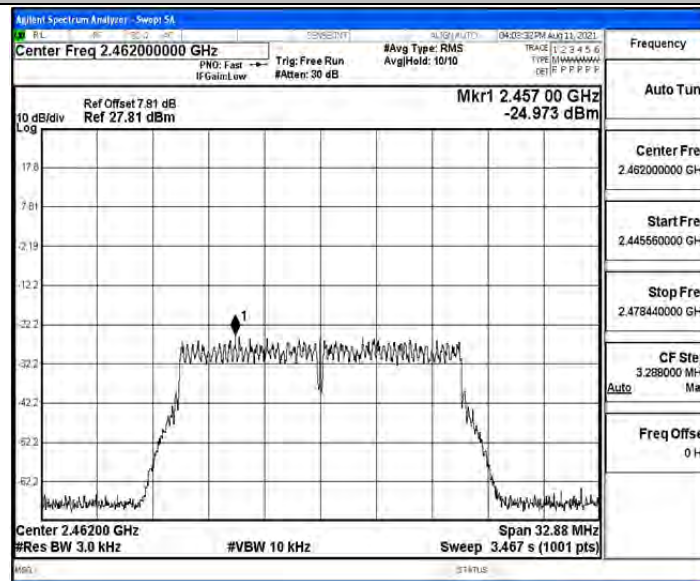


11G_Ant1_2437

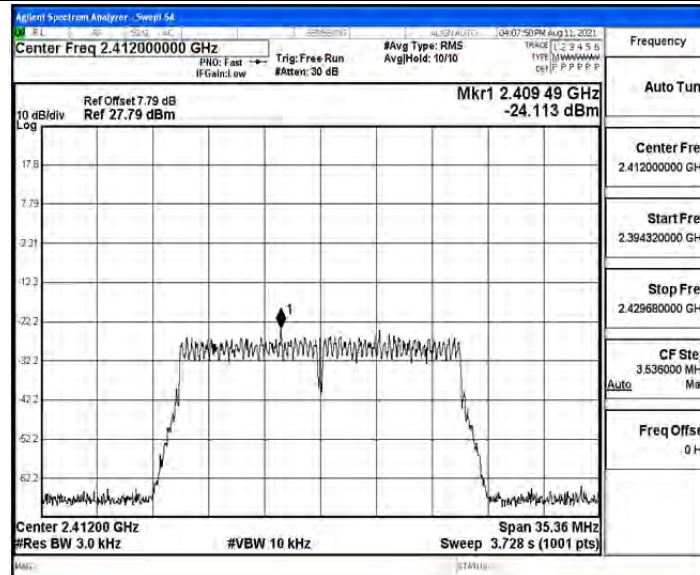




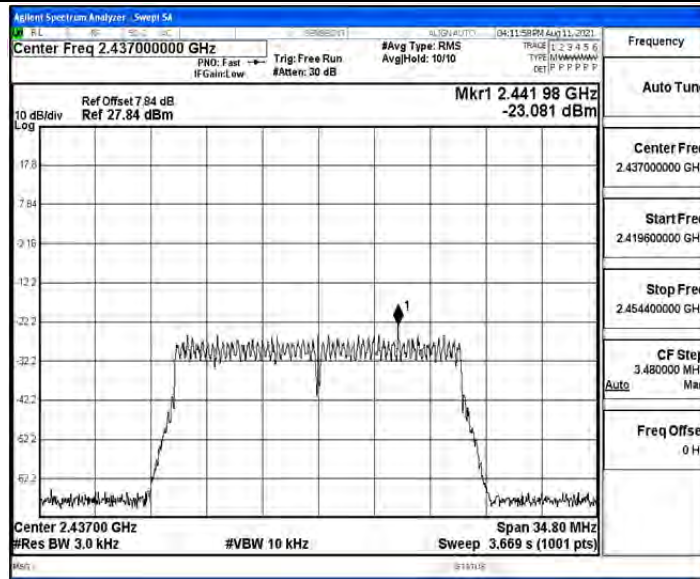
11G_Ant1_2462



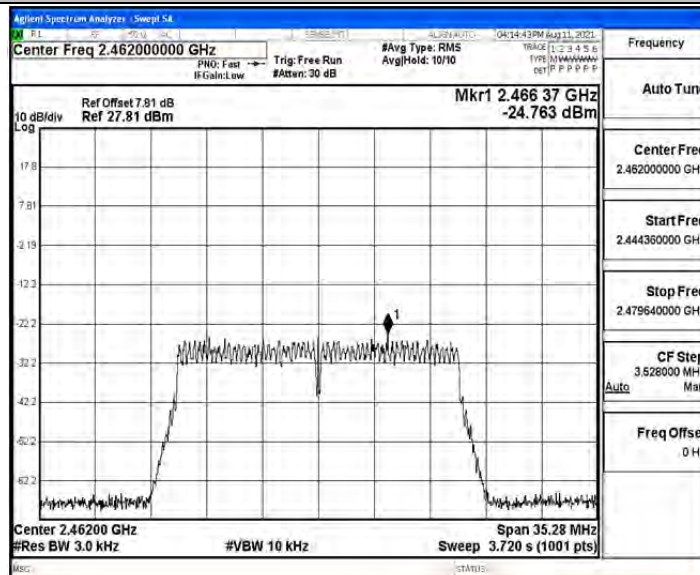
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462





Appendix A.4: Band edge measurements

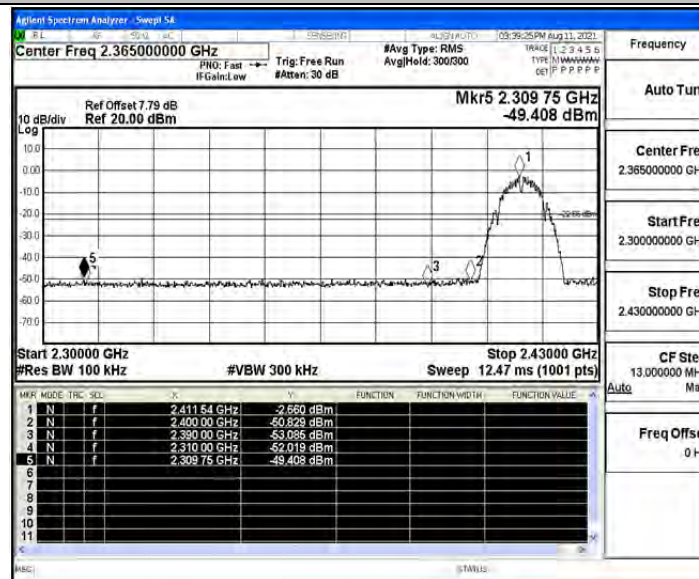
Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	-2.66	-49.41	≤ -22.66	PASS
		High	2462	-2.74	-48.45	≤ -22.74	PASS
11G	Ant1	Low	2412	-10.64	-49.46	≤ -30.64	PASS
		High	2462	-11.05	-49.2	≤ -31.05	PASS
11N20SISO	Ant1	Low	2412	-11.21	-49.1	≤ -31.21	PASS
		High	2462	-10.63	-48.94	≤ -30.63	PASS

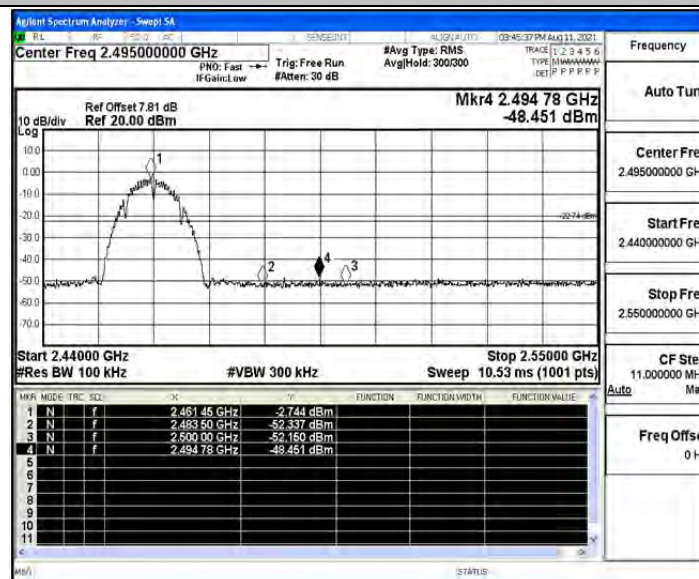


Test Graphs

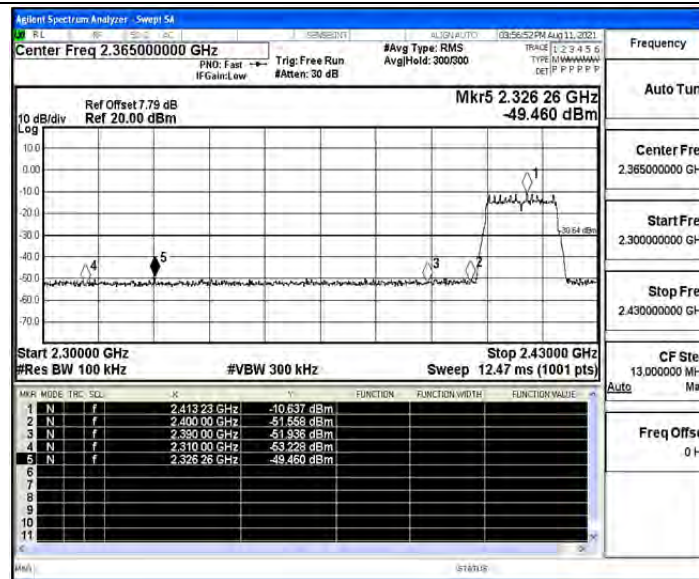
11B_Ant1_Low_2412



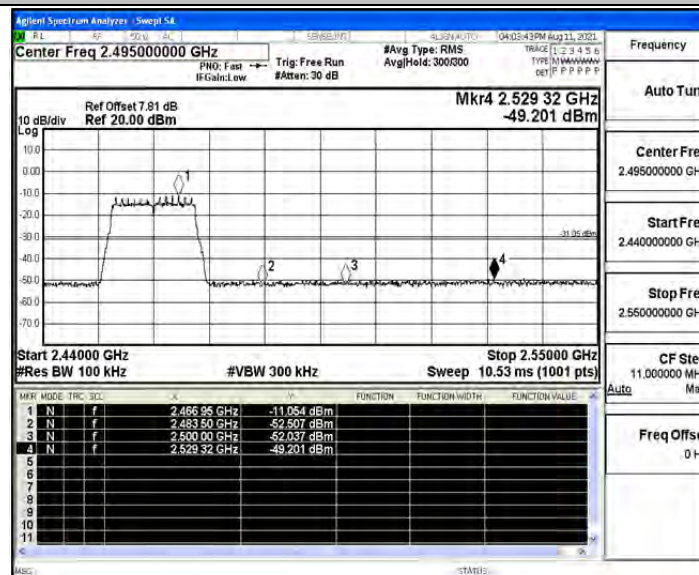
11B_Ant1_High_2462



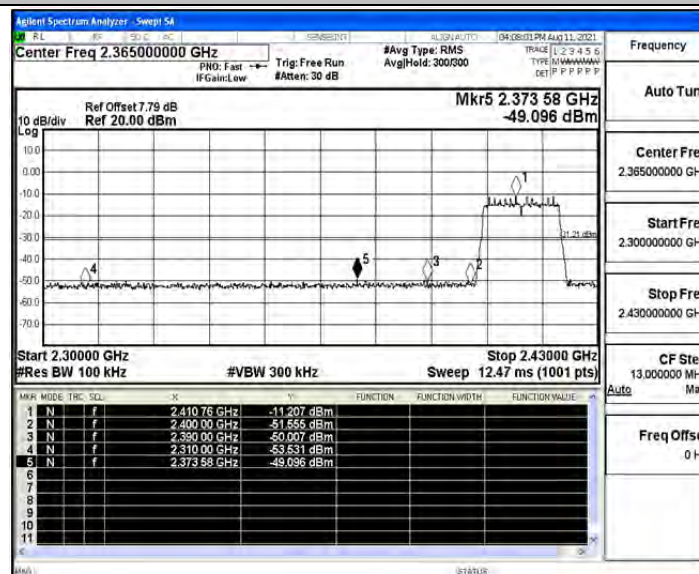
11G_Ant1_Low_2412



11G_Ant1_High_2462

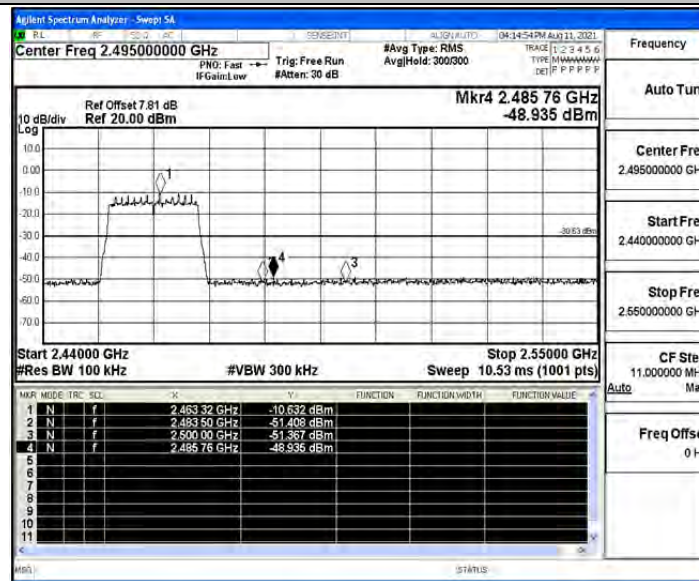


11N20SISO_Ant1_Low_2412





11N20SISO_Ant1_High_2462





Appendix A.5: Conducted Spurious Emission

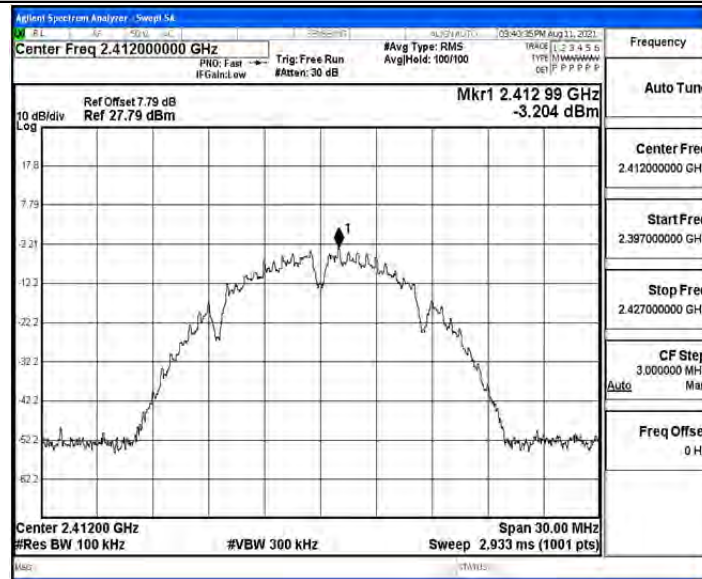
Test Result

TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	-3.20	-3.20	---	PASS
			30~1000	-3.20	-61.86	≤ -23.2	PASS
			1000~26500	-3.20	-47.35	≤ -23.2	PASS
		2437	Reference	-2.74	-2.74	---	PASS
			30~1000	-2.74	-61.81	≤ -22.74	PASS
			1000~26500	-2.74	-47.7	≤ -22.74	PASS
		2462	Reference	-2.71	-2.71	---	PASS
			30~1000	-2.71	-62.19	≤ -22.71	PASS
			1000~26500	-2.71	-47.39	≤ -22.71	PASS
11G	Ant1	2412	Reference	-11.75	-11.75	---	PASS
			30~1000	-11.75	-61.09	≤ -31.75	PASS
			1000~26500	-11.75	-47.87	≤ -31.75	PASS
		2437	Reference	-11.26	-11.26	---	PASS
			30~1000	-11.26	-62.1	≤ -31.26	PASS
			1000~26500	-11.26	-46.64	≤ -31.26	PASS
		2462	Reference	-11.67	-11.67	---	PASS
			30~1000	-11.67	-61.43	≤ -31.67	PASS
			1000~26500	-11.67	-46.75	≤ -31.67	PASS
11N20SISO	Ant1	2412	Reference	-10.95	-10.95	---	PASS
			30~1000	-10.95	-61.98	≤ -30.95	PASS
			1000~26500	-10.95	-47.48	≤ -30.95	PASS
		2437	Reference	-11.54	-11.54	---	PASS
			30~1000	-11.54	-61.67	≤ -31.54	PASS
			1000~26500	-11.54	-47.15	≤ -31.54	PASS
		2462	Reference	-11.54	-11.54	---	PASS
			30~1000	-11.54	-61.93	≤ -31.54	PASS
			1000~26500	-11.54	-47.32	≤ -31.54	PASS

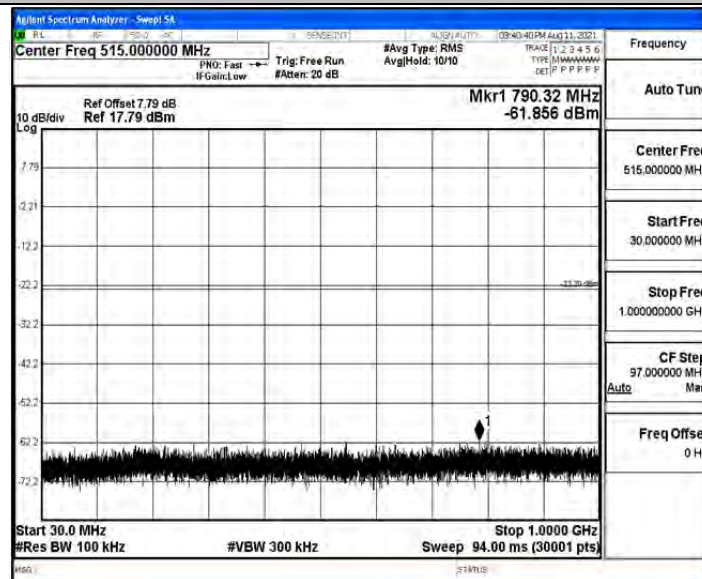


Test Graphs

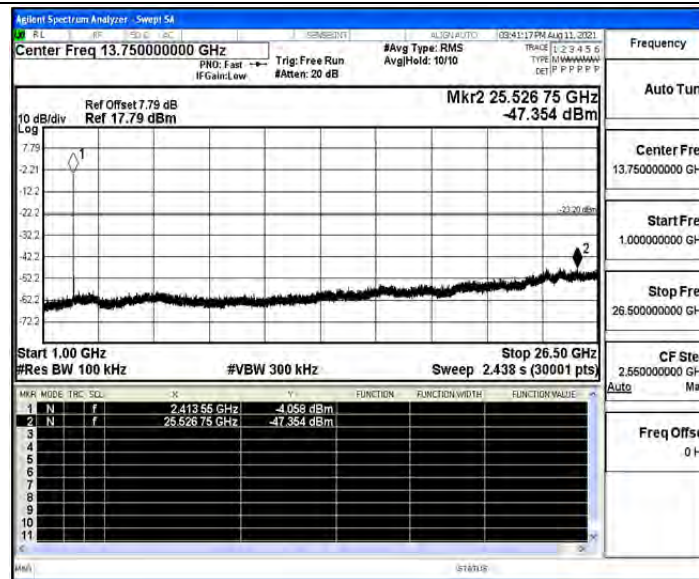
11B_Ant1_2412_0~Reference



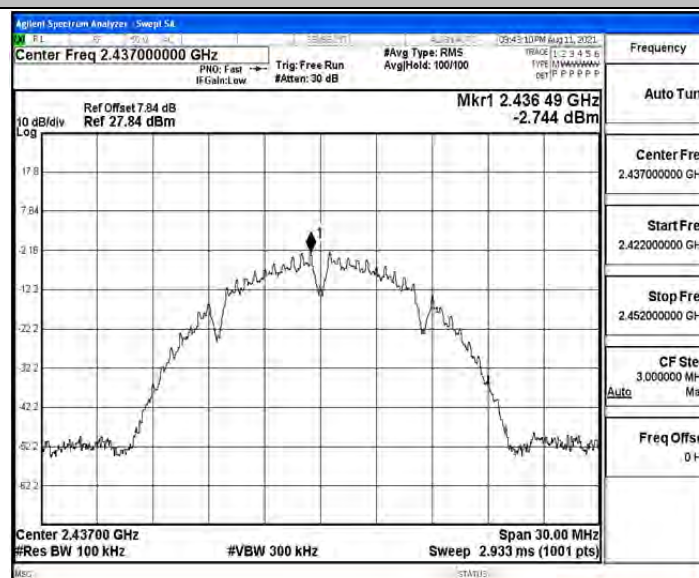
11B_Ant1_2412_30~1000



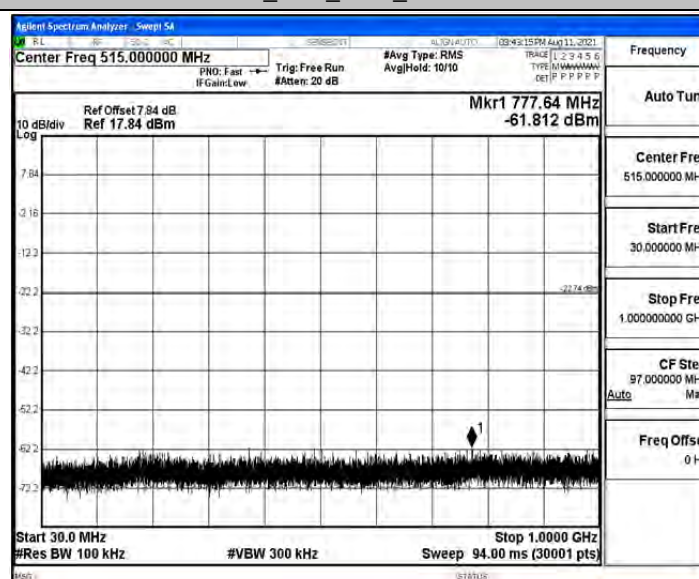
11B_Ant1_2412_1000~26500



11B_Ant1_2437_0~Reference

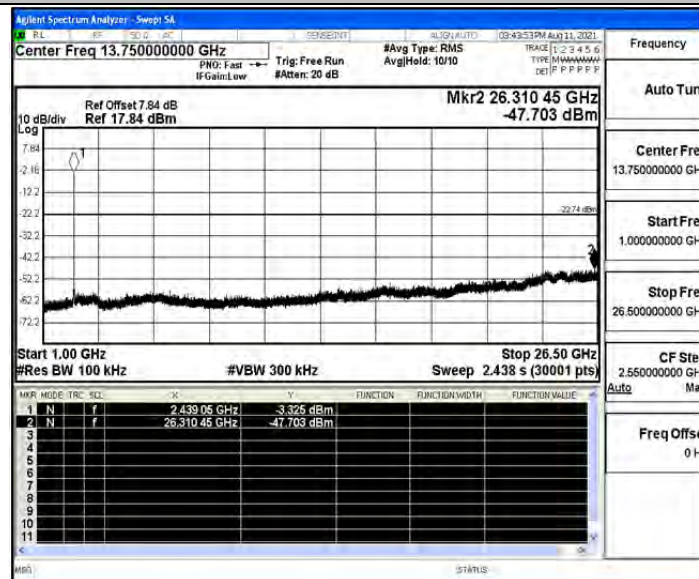


11B_Ant1_2437_30~1000

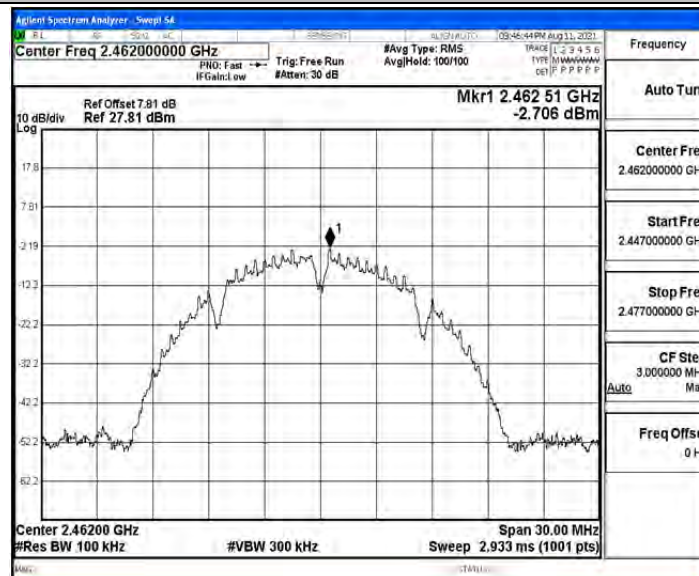




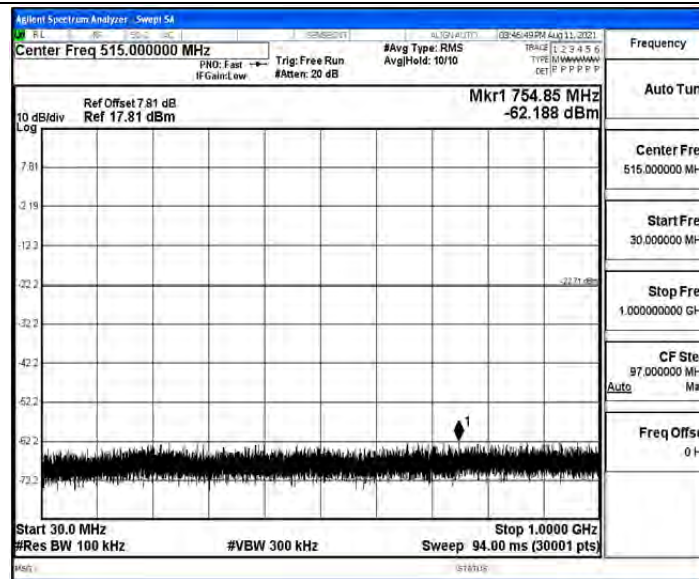
11B_Ant1_2437_1000~26500



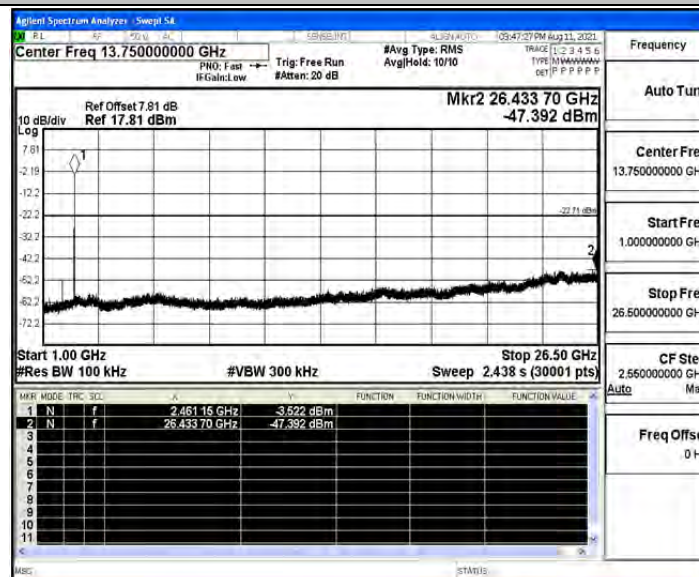
11B_Ant1_2462_0~Reference



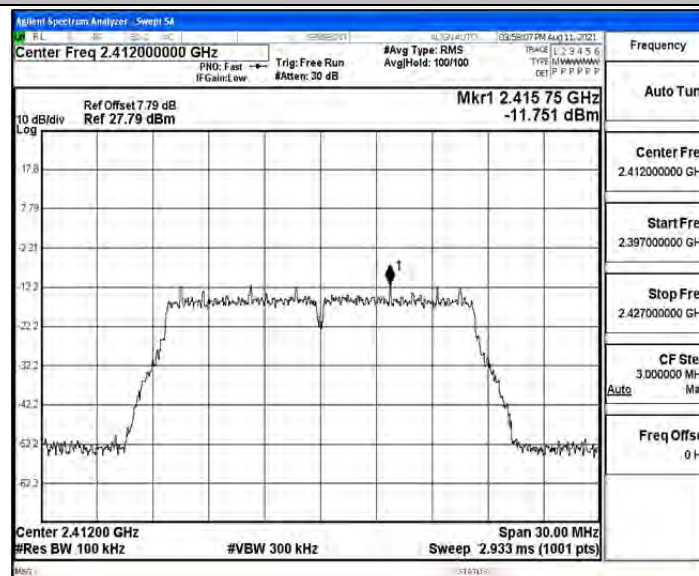
11B_Ant1_2462_30~1000



11B_Ant1_2462_1000~26500

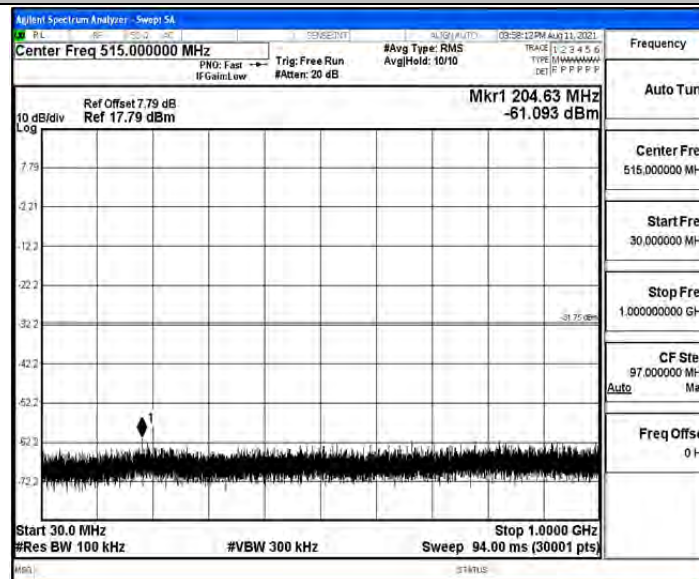


11G_Ant1_2412_0~Reference

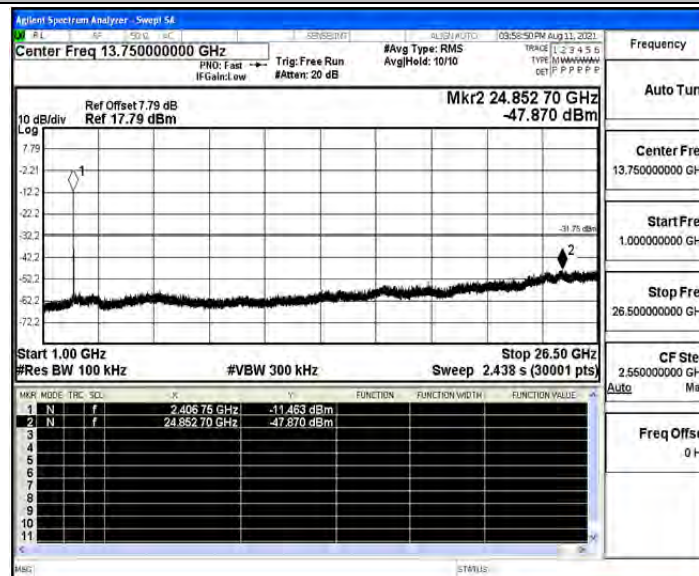




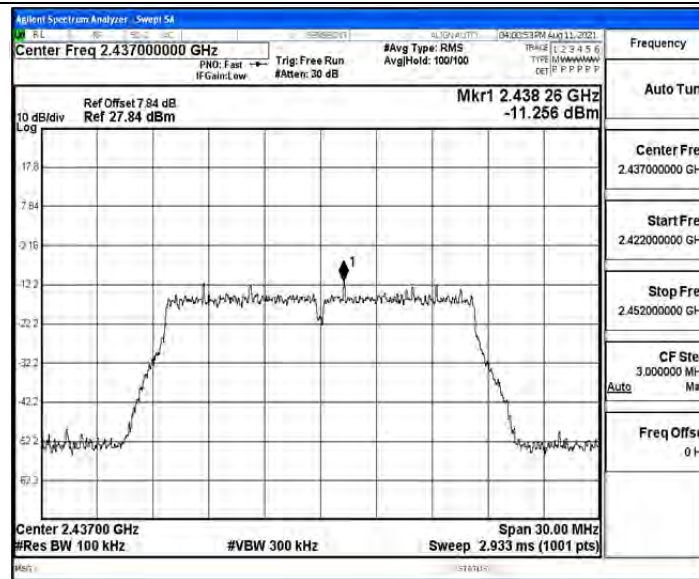
11G_Ant1_2412_30~1000



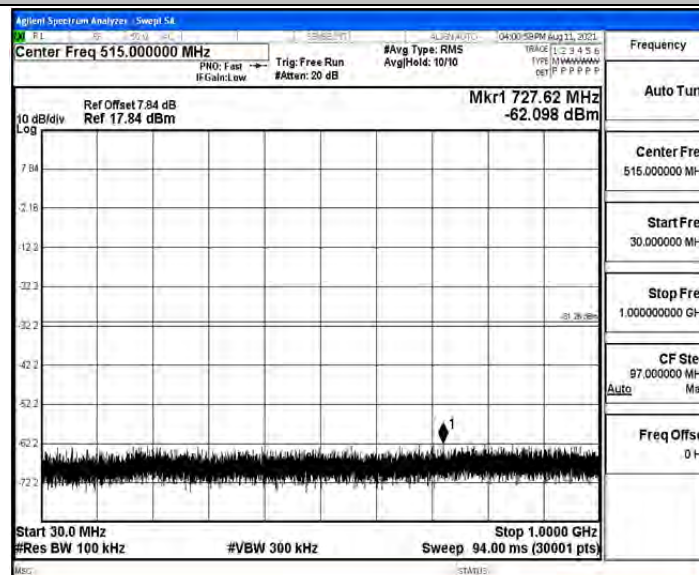
11G_Ant1_2412_1000~26500



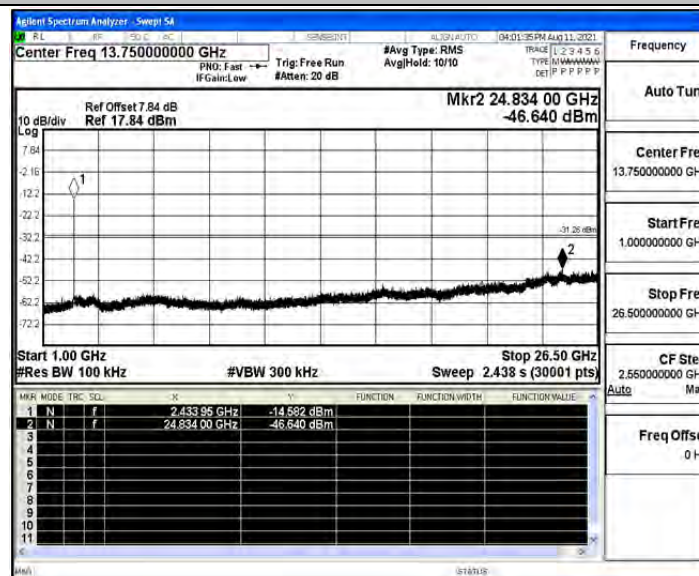
11G_Ant1_2437_0~Reference



11G_Ant1_2437_30~1000

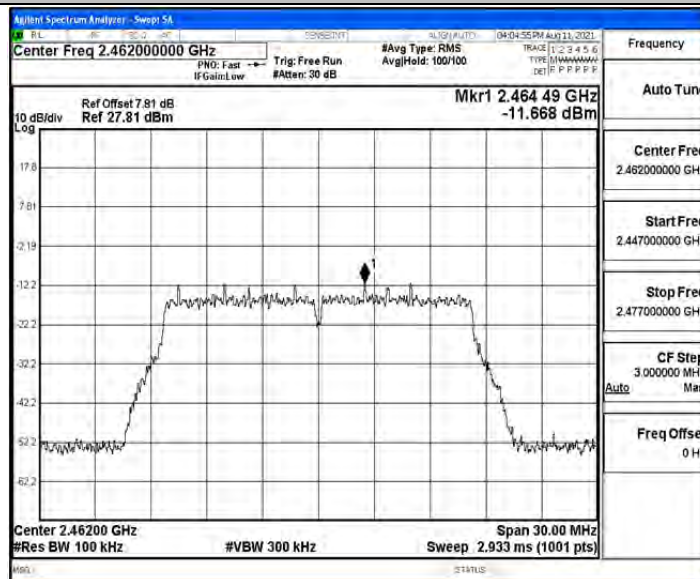


11G_Ant1_2437_1000~26500

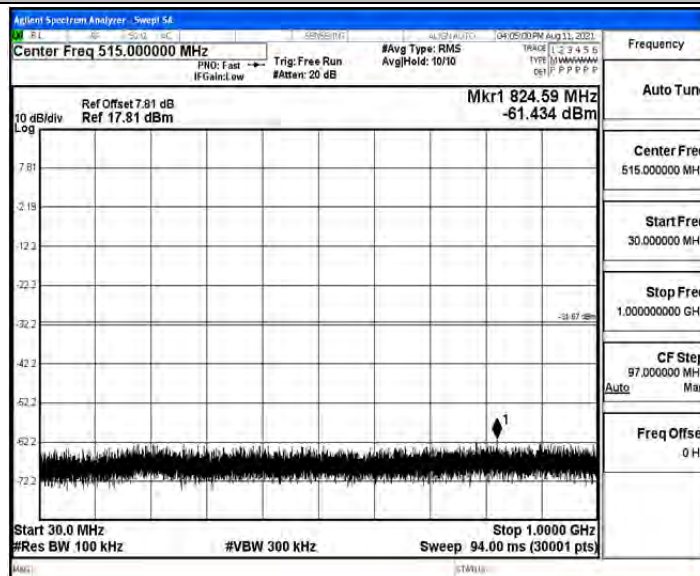




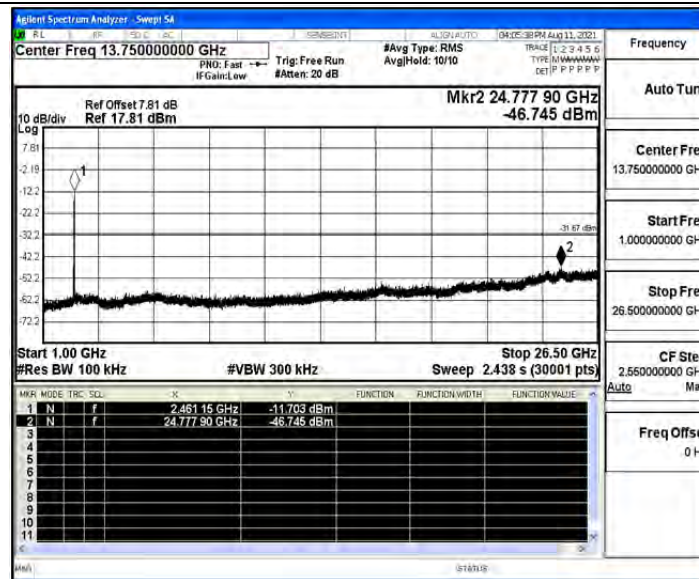
11G_Ant1_2462_0~Reference



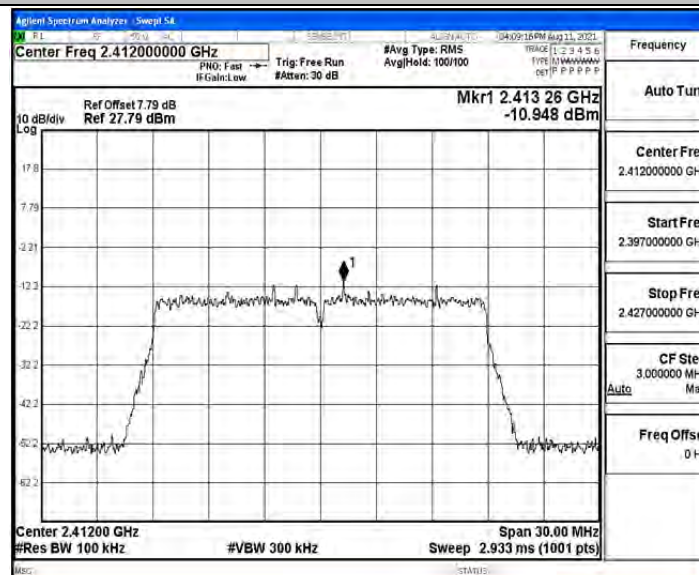
11G_Ant1_2462_30~1000



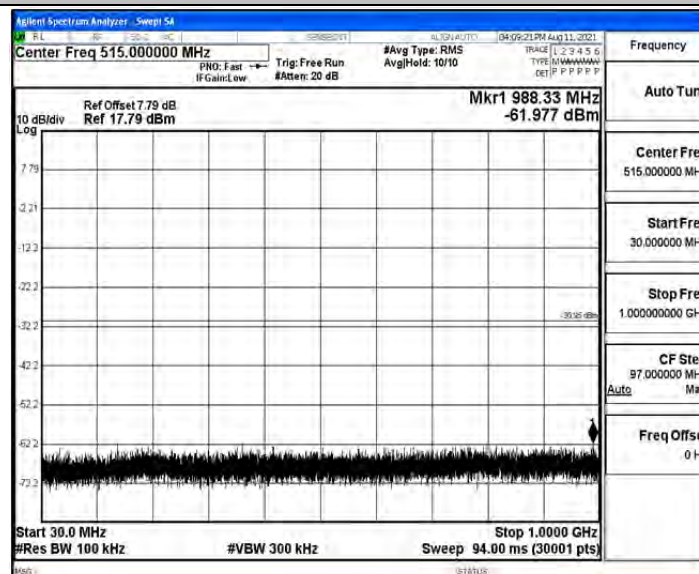
11G_Ant1_2462_1000~26500



11N20SISO_Ant1_2412_0~Reference

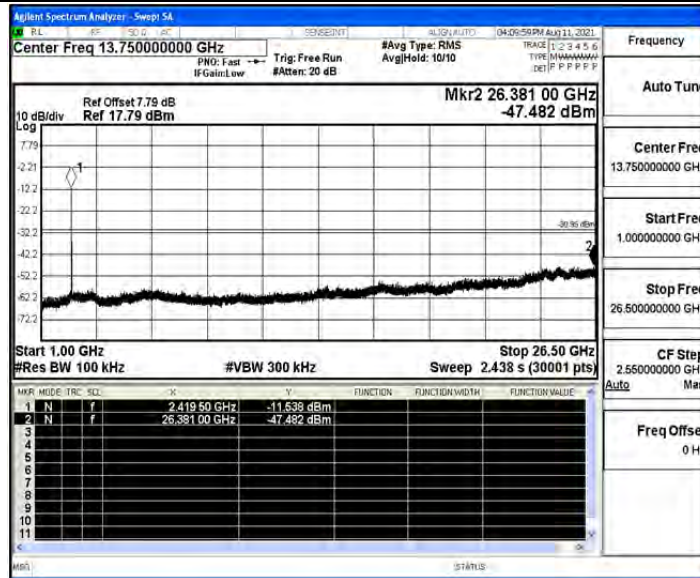


11N20SISO_Ant1_2412_30~1000

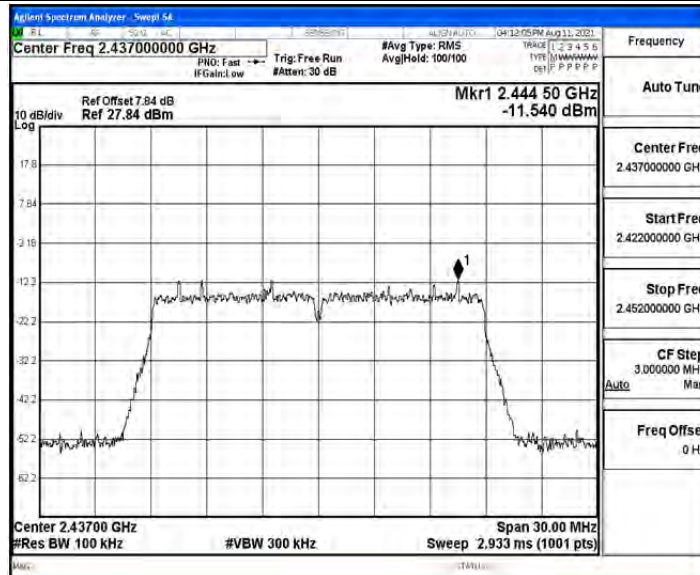




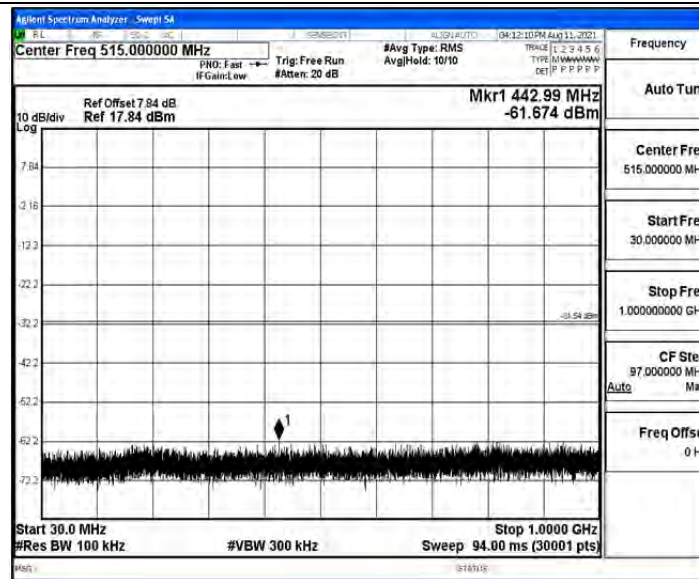
11N20SISO_Ant1_2412_1000~26500



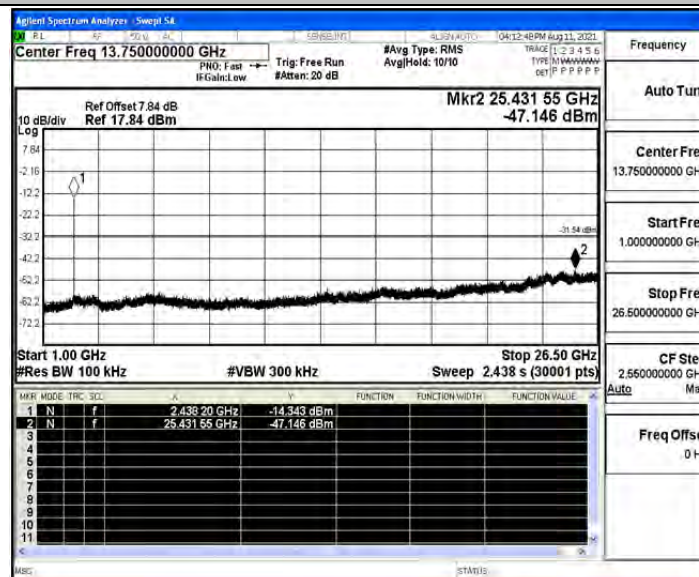
11N20SISO_Ant1_2437_0~Reference



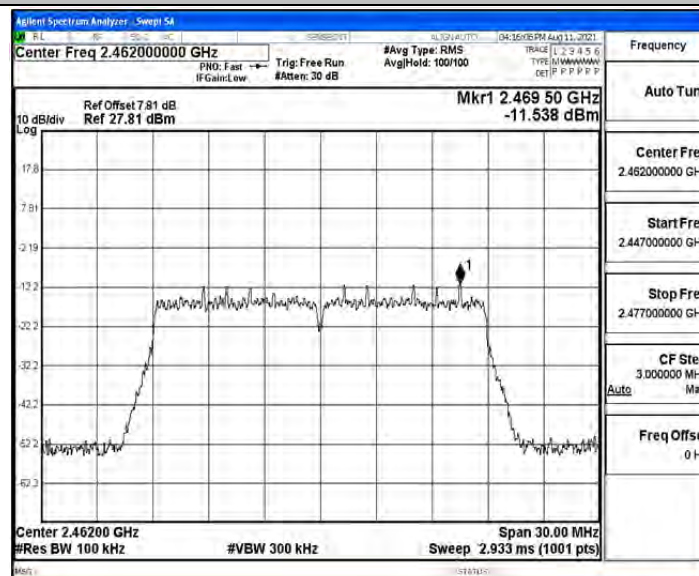
11N20SISO_Ant1_2437_30~1000



11N20SISO_Ant1_2437_1000~26500

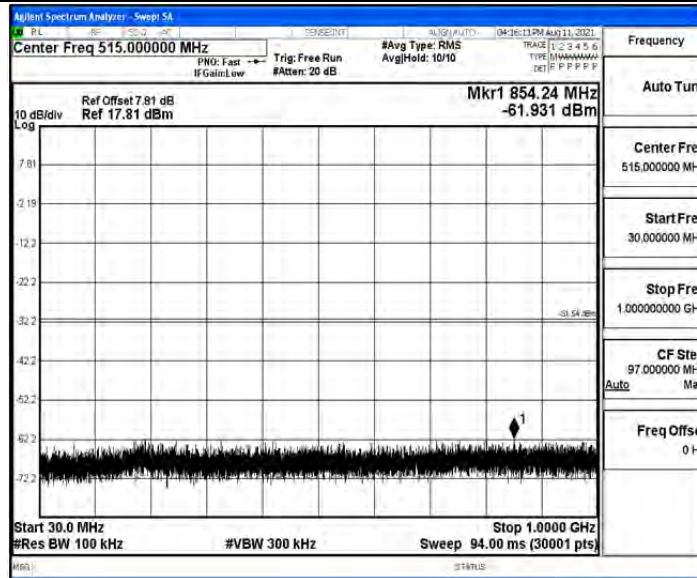


11N20SISO_Ant1_2462_0~Reference

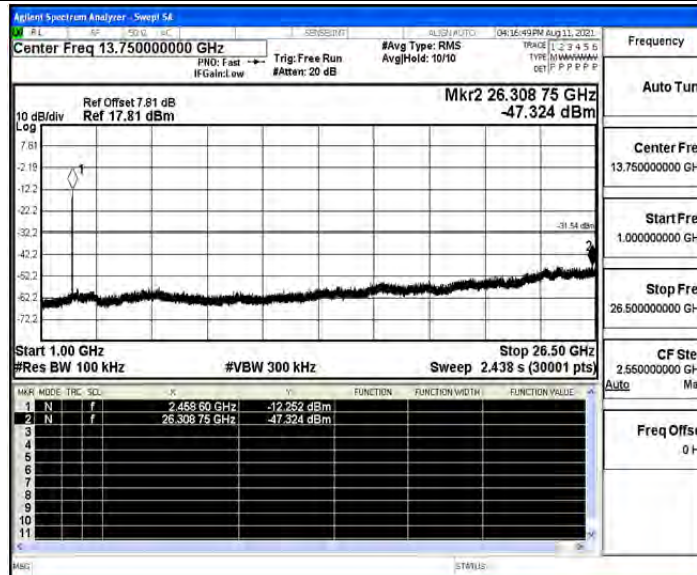




11N20SISO_Ant1_2462_30~1000



11N20SISO_Ant1_2462_1000~26500





Appendix A.6: Duty Cycle

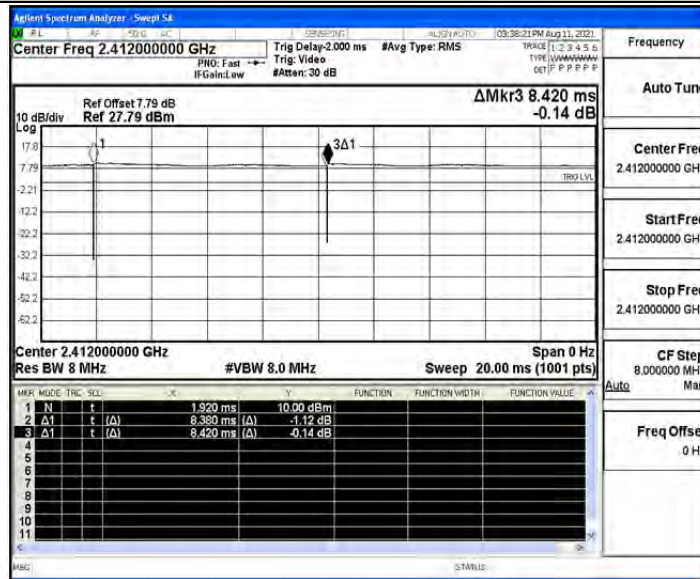
Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
11B	Ant1	2412	8.38	8.42	99.52	---	PASS
		2437	8.38	8.43	99.41	---	PASS
		2462	8.38	8.42	99.52	---	PASS
11G	Ant1	2412	1.39	1.43	97.20	---	PASS
		2437	1.39	1.43	97.20	---	PASS
		2462	1.39	1.43	97.20	---	PASS
11N20SISO	Ant1	2412	1.30	1.34	97.01	---	PASS
		2437	1.30	1.34	97.01	---	PASS
		2462	1.30	1.34	97.01	---	PASS

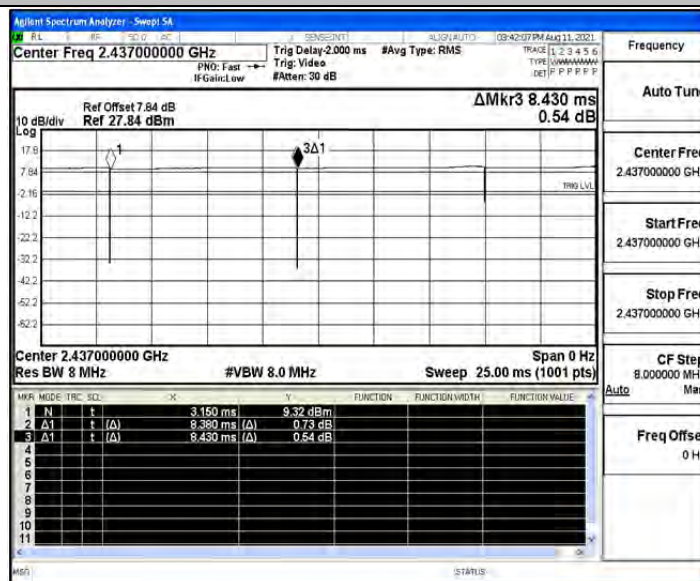


Test Graphs

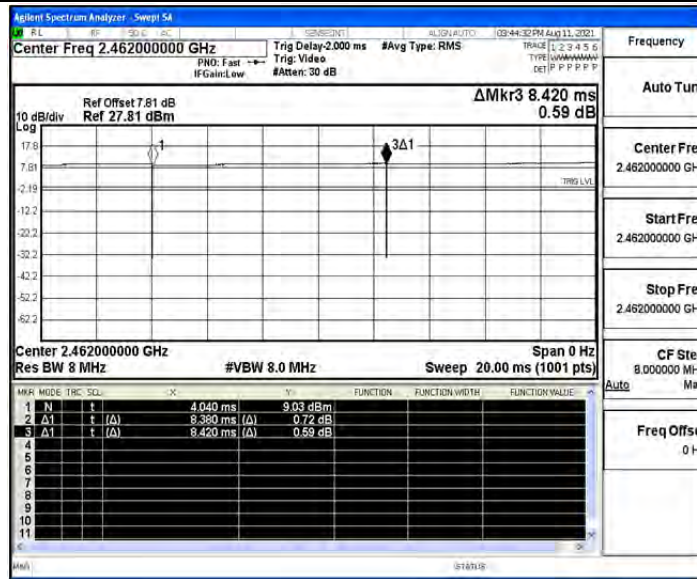
11B_Ant1_2412



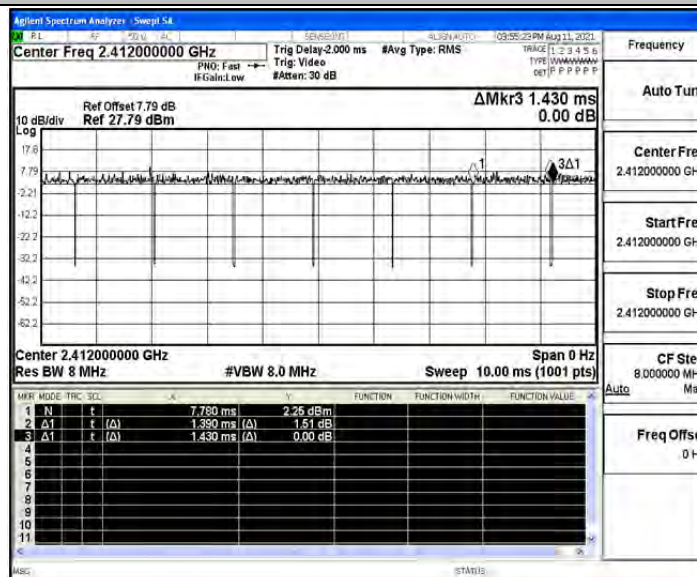
11B_Ant1_2437



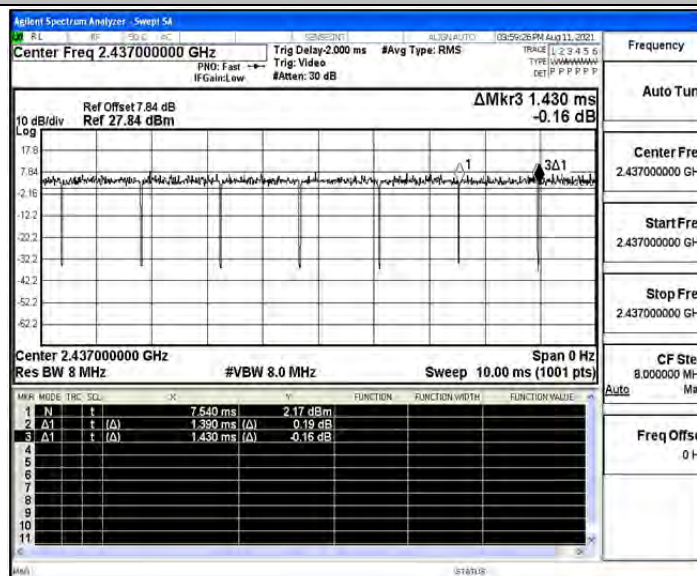
11B_Ant1_2462



11G_Ant1_2412

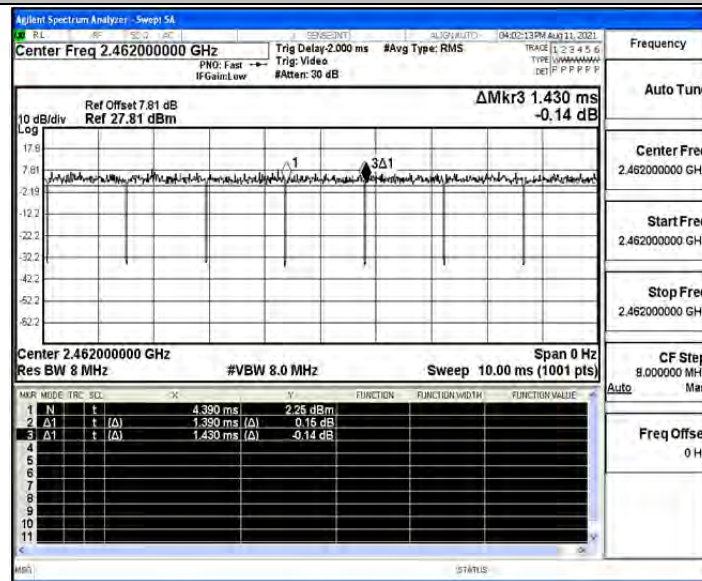


11G_Ant1_2437

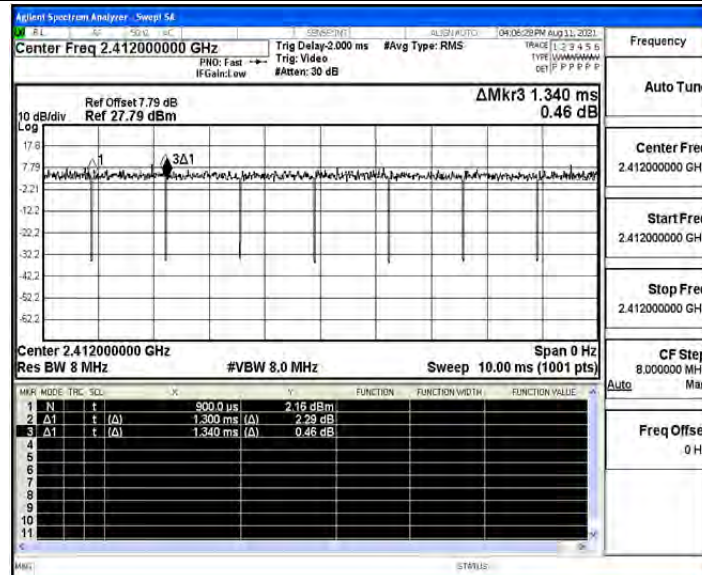




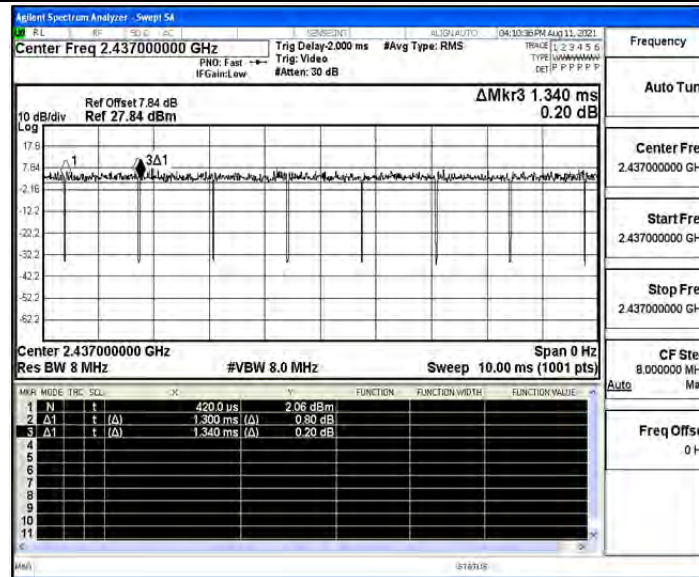
11G_Ant1_2462



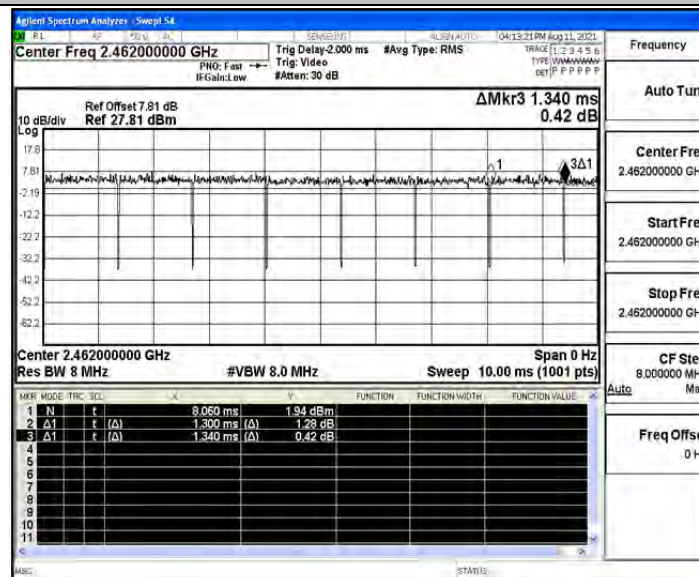
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462





Appendix A.7: Emissions in Restricted Bands

Test Result

TestMod e	Antenn a	ChNam e	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV /m]	Limit [dBuV/m]	Verdict
11B	Ant1	Low	2412	AV	2310.000	-49.16	≤-41.20	46.04	≤54	PASS
				AV	2383.980	-48.76	≤-41.20	46.44	≤54	PASS
				AV	2390.000	-48.85	≤-41.20	46.35	≤54	PASS
				Peak	2310.000	-43.44	≤-21.20	51.76	≤74	PASS
				Peak	2358.890	-39	≤-21.20	56.20	≤74	PASS
				Peak	2390.000	-43.84	≤-21.20	51.36	≤74	PASS
		High	2462	AV	2483.500	-48.42	≤-41.20	46.78	≤54	PASS
				AV	2490.270	-48.18	≤-41.20	47.02	≤54	PASS
				AV	2500.000	-48.22	≤-41.20	46.98	≤54	PASS
				Peak	2483.500	-42.39	≤-21.20	52.81	≤74	PASS
				Peak	2484.330	-39.53	≤-21.20	55.67	≤74	PASS
				Peak	2500.000	-42.95	≤-21.20	52.25	≤74	PASS
11G	Ant1	Low	2412	AV	2310.000	-48.8	≤-41.20	46.40	≤54	PASS
				AV	2387.750	-48.01	≤-41.20	47.19	≤54	PASS
				AV	2390.000	-48.1	≤-41.20	47.10	≤54	PASS
				Peak	2310.000	-42.15	≤-21.20	53.05	≤74	PASS
				Peak	2356.550	-38.87	≤-21.20	56.33	≤74	PASS
				Peak	2390.000	-41.42	≤-21.20	53.78	≤74	PASS
		High	2462	AV	2483.500	-47.83	≤-41.20	47.37	≤54	PASS
				AV	2499.070	-47.54	≤-41.20	47.66	≤54	PASS
				AV	2500.000	-47.58	≤-41.20	47.62	≤54	PASS
				Peak	2483.500	-40.14	≤-21.20	55.06	≤74	PASS
				Peak	2491.700	-38.57	≤-21.20	56.63	≤74	PASS
				Peak	2500.000	-41.46	≤-21.20	53.74	≤74	PASS
11N20SI SO	Ant1	Low	2412	AV	2310.000	-48.68	≤-41.20	46.52	≤54	PASS
				AV	2389.570	-48.11	≤-41.20	47.09	≤54	PASS
				AV	2390.000	-48.24	≤-41.20	46.96	≤54	PASS
				Peak	2310.000	-42.24	≤-21.20	52.96	≤74	PASS
				Peak	2353.300	-38.18	≤-21.20	57.02	≤74	PASS
				Peak	2390.000	-41.84	≤-21.20	53.36	≤74	PASS
		High	2462	AV	2483.500	-47.87	≤-41.20	47.33	≤54	PASS
				AV	2499.730	-47.56	≤-41.20	47.64	≤54	PASS
				AV	2500.000	-47.71	≤-41.20	47.49	≤54	PASS
				Peak	2483.500	-41.28	≤-21.20	53.92	≤74	PASS
				Peak	2496.210	-38.78	≤-21.20	56.42	≤74	PASS
				Peak	2500.000	-41.29	≤-21.20	53.91	≤74	PASS



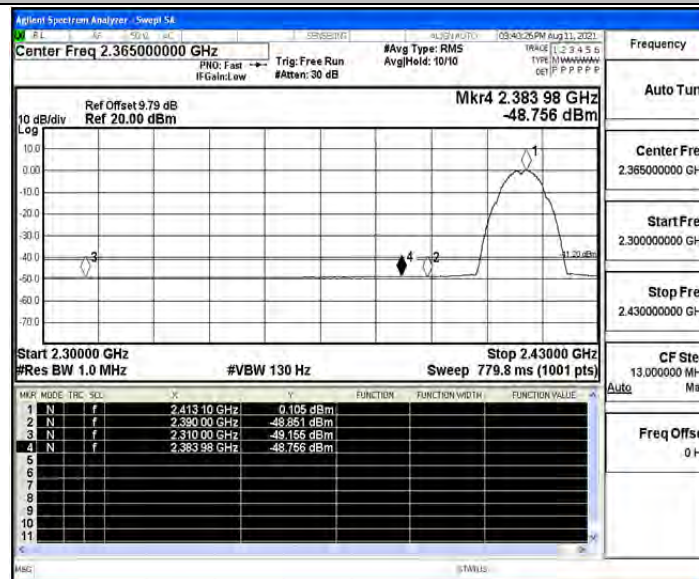
Note:

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.

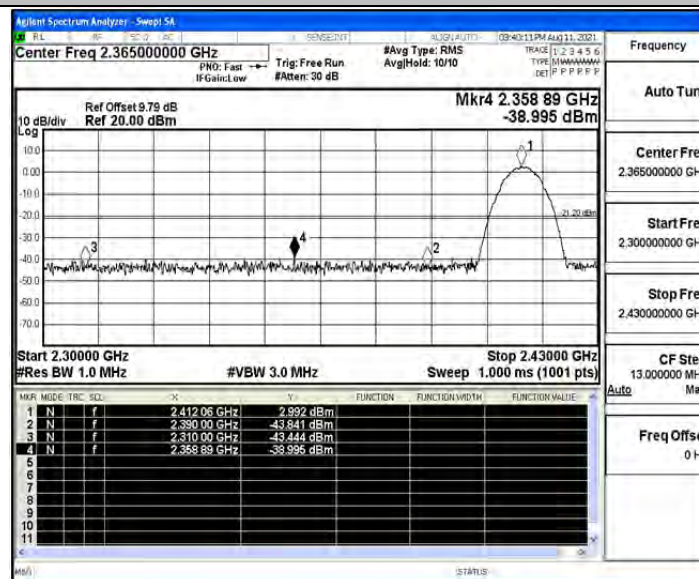


Test Graphs

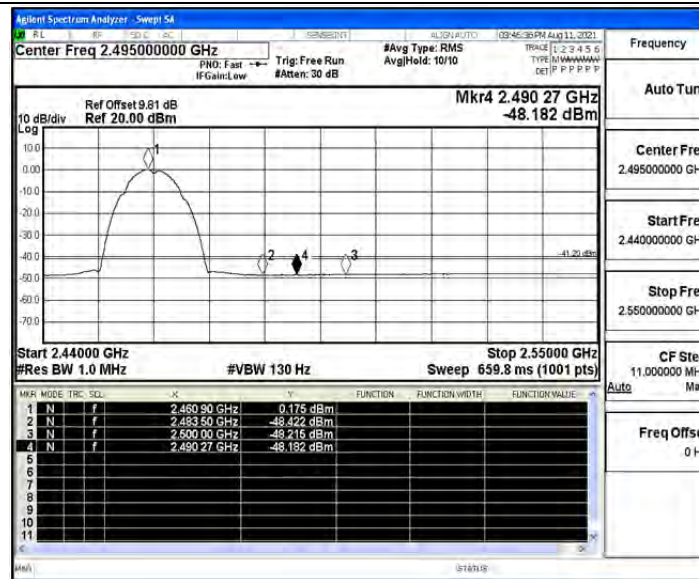
11B_Ant1_Low_2412_AV



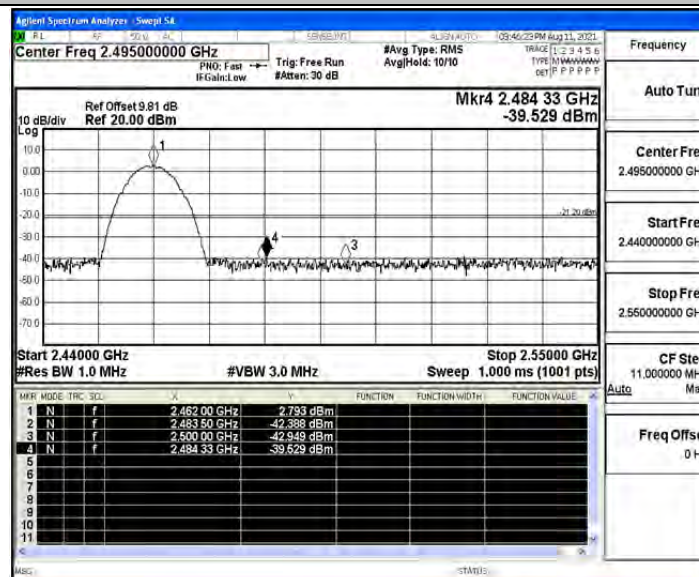
11B_Ant1_Low_2412_Peak



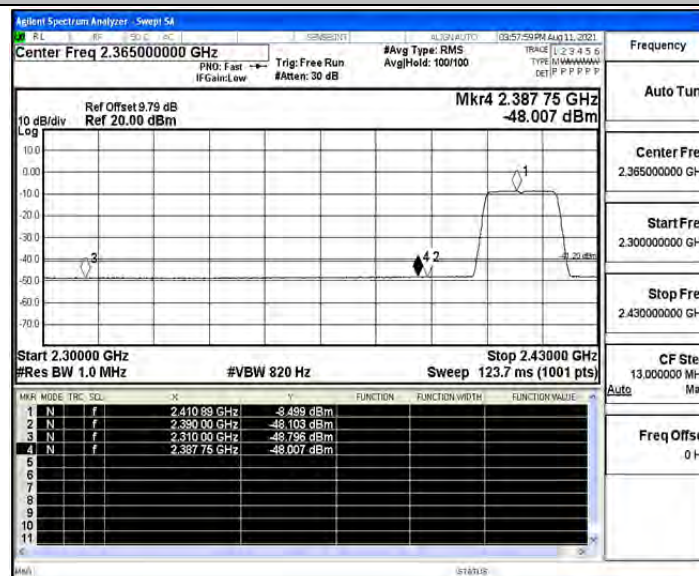
11B_Ant1_High_2462_AV



11B_Ant1_High_2462_Peak

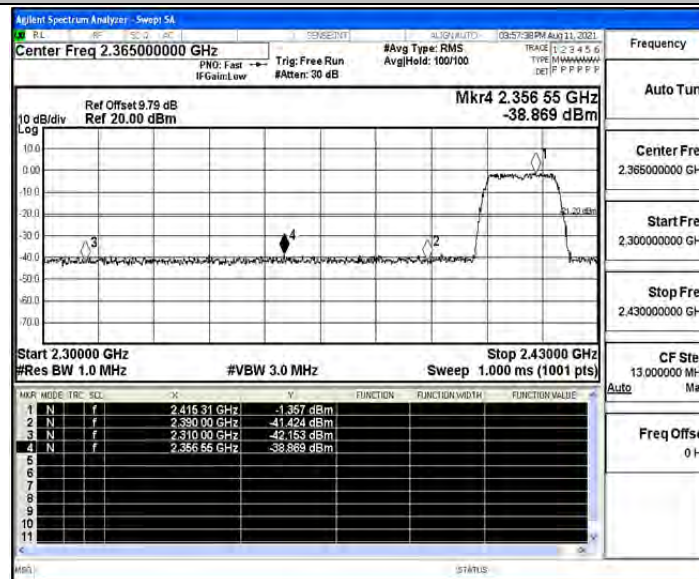


11G_Ant1_Low_2412_AV

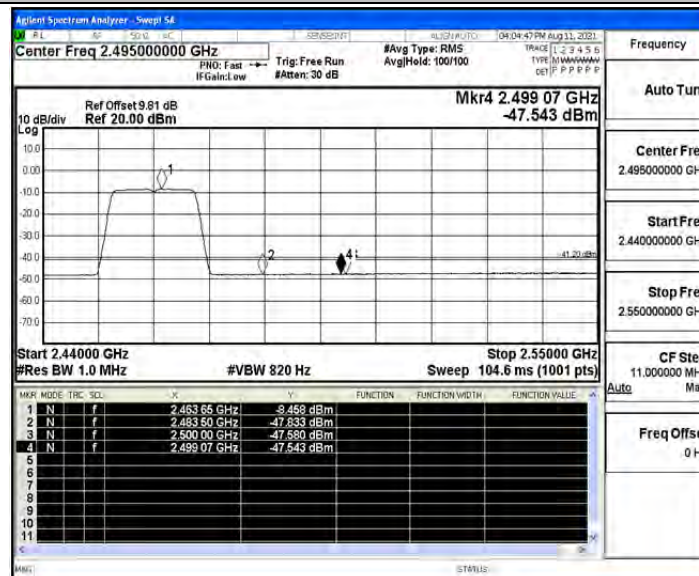




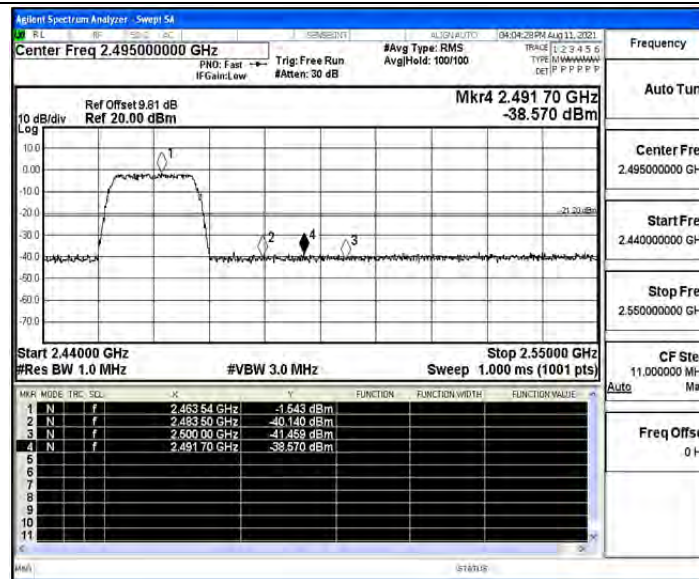
11G_Ant1_Low_2412_Peak



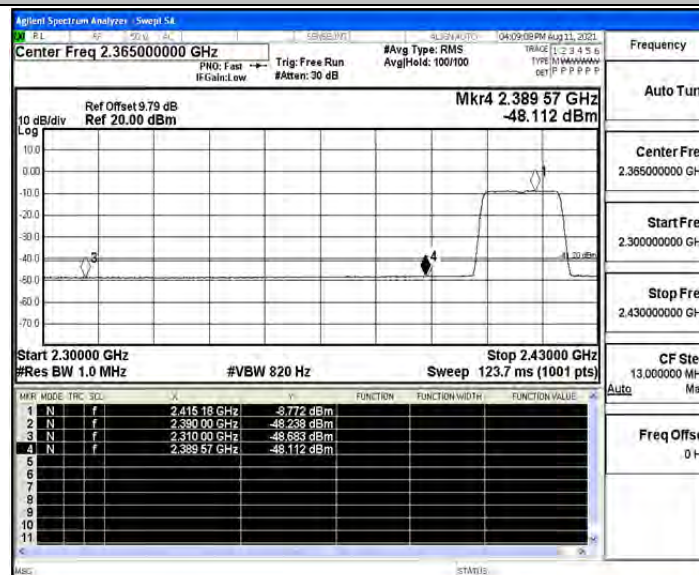
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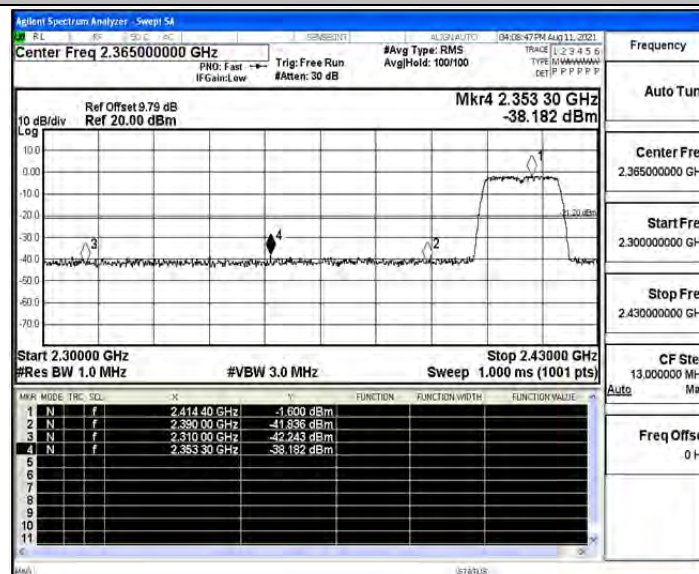
11G_Ant1_High_2462_Peak



11N20SISO_Ant1_Low_2412_AV

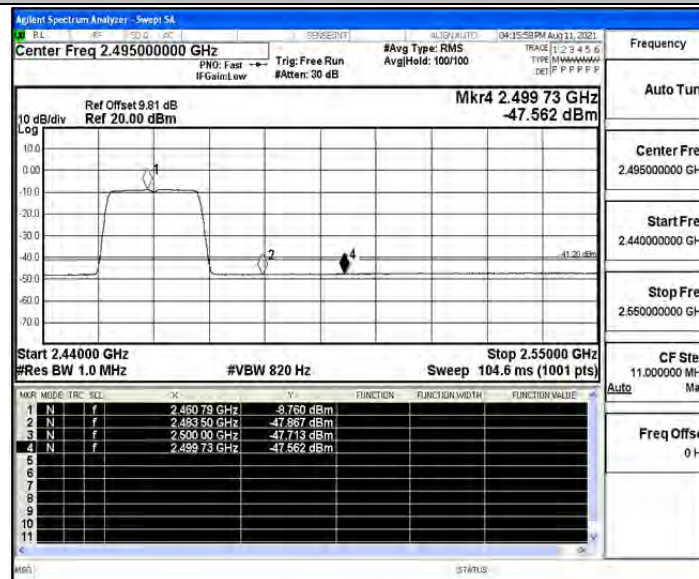


11N20SISO_Ant1_Low_2412_Peak





11N20SISO_Ant1_High_2462_AV



11N20SISO_Ant1_High_2462_Peak

