Appendix B

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: 12 inch LED Ceiling Light

Test Model: DCO1220SMBN

Environmental Conditions

Temperature:	23.5℃
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Kay Hu
Supervised by:	Li Huan

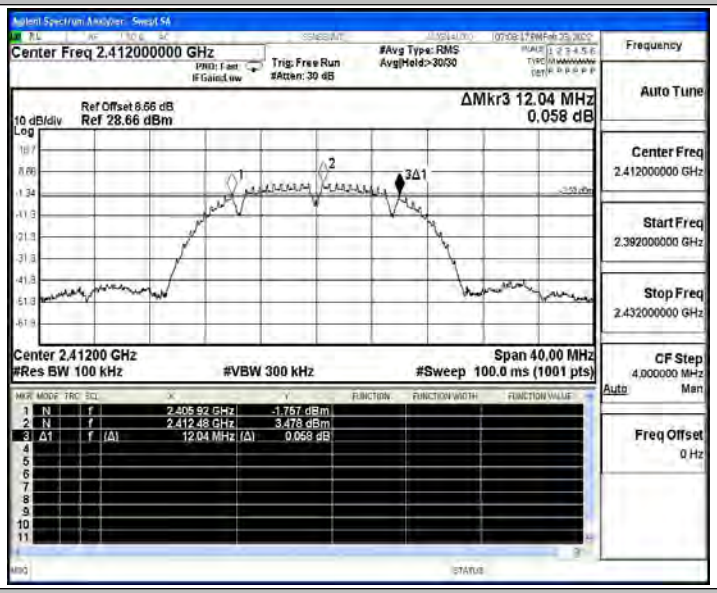
B.1 DTS Bandwidth

Test Result

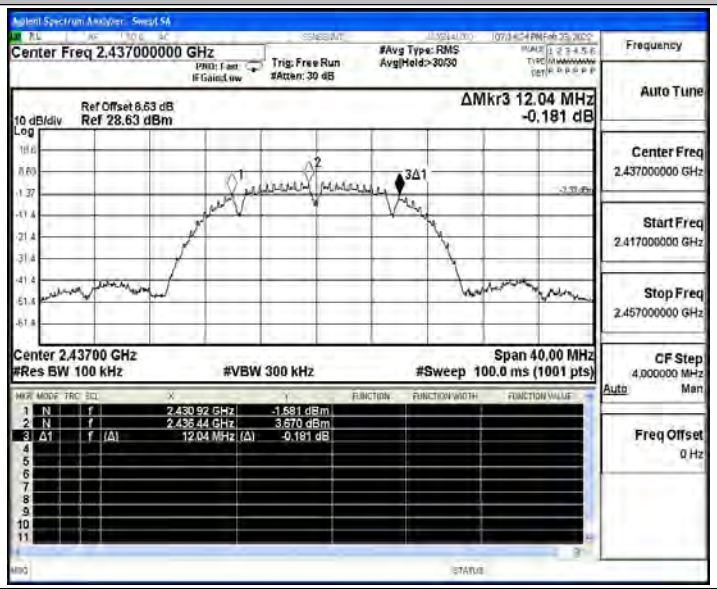
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	12.040	2405.920	2417.960	0.5	PASS
		2437	12.040	2430.920	2442.960	0.5	PASS
		2462	12.040	2455.920	2467.960	0.5	PASS
11G	Ant1	2412	15.080	2404.400	2419.480	0.5	PASS
		2437	15.080	2429.400	2444.480	0.5	PASS
		2462	15.120	2454.400	2469.520	0.5	PASS
11N20SISO	Ant1	2412	13.760	2404.440	2418.200	0.5	PASS
		2437	12.560	2430.680	2443.240	0.5	PASS
		2462	13.760	2454.440	2468.200	0.5	PASS
11N40SISO	Ant1	2422	35.120	2404.400	2439.520	0.5	PASS
		2437	35.040	2419.400	2454.440	0.5	PASS
		2452	35.120	2434.400	2469.520	0.5	PASS

Test Graphs

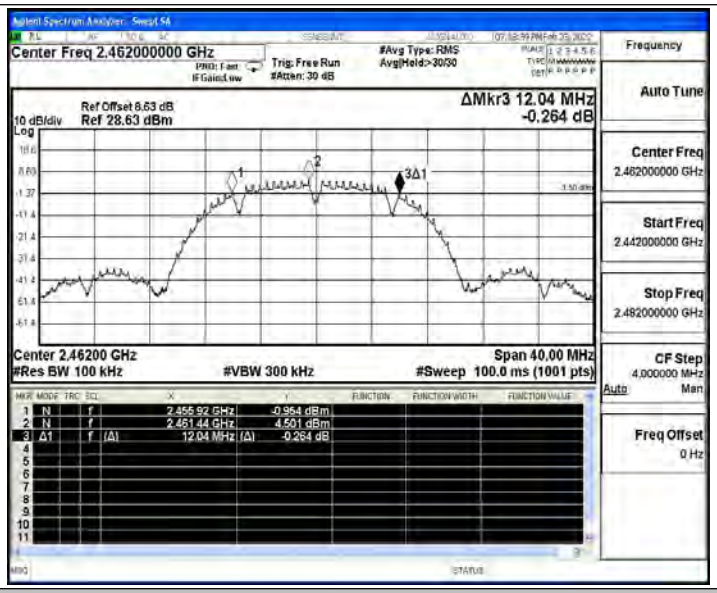
11B_Ant1_2412



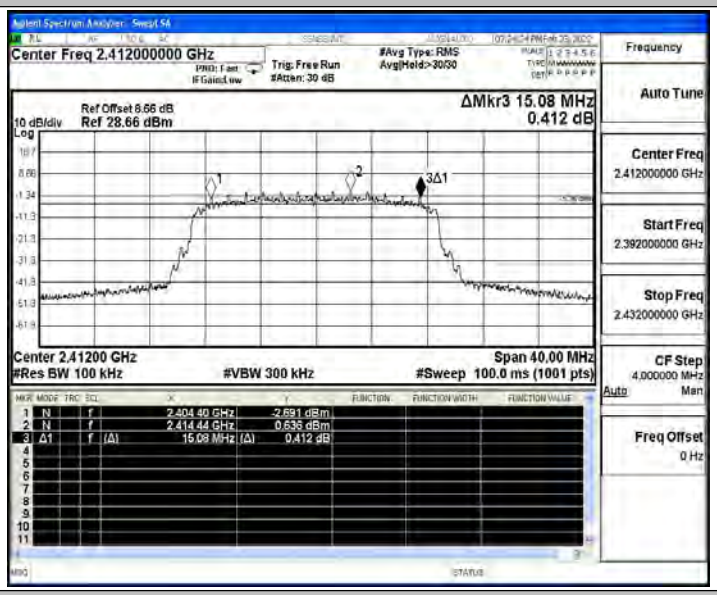
11B_Ant1_2437



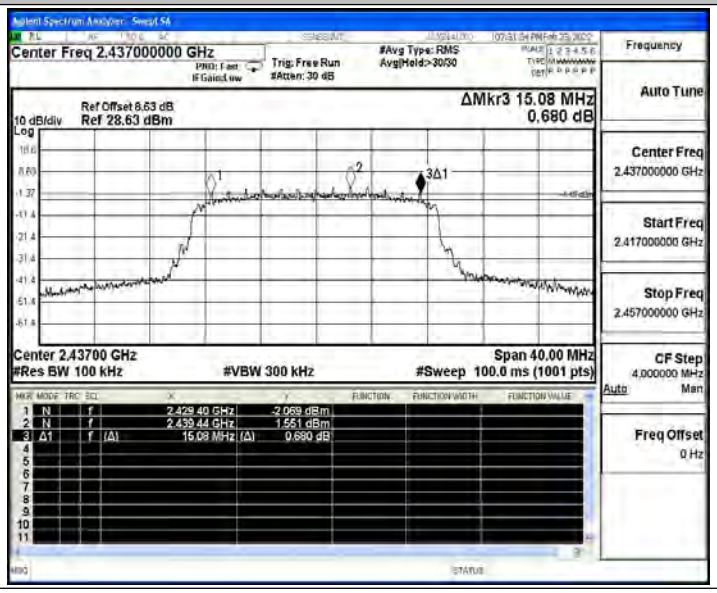
11B_Ant1_2462



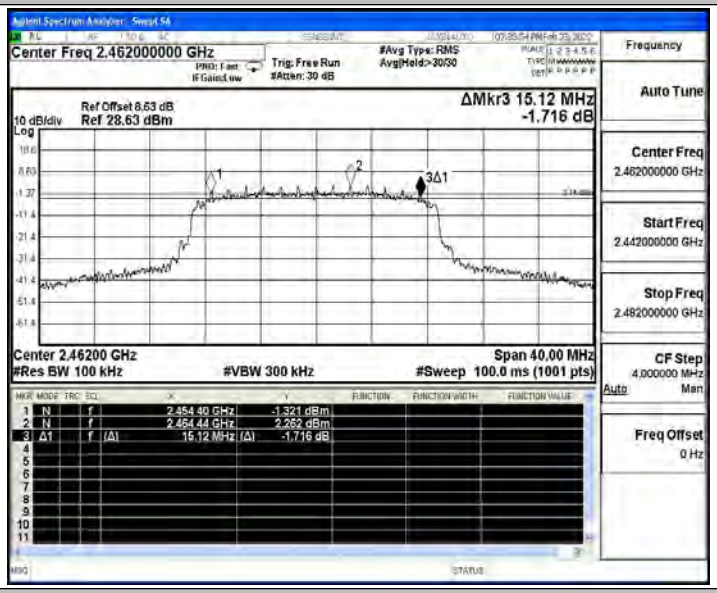
11G_Ant1_2412



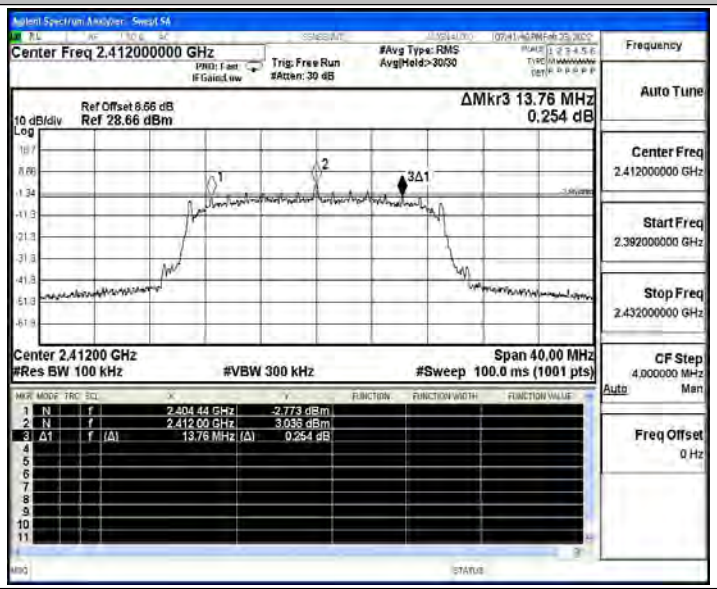
11G_Ant1_2437



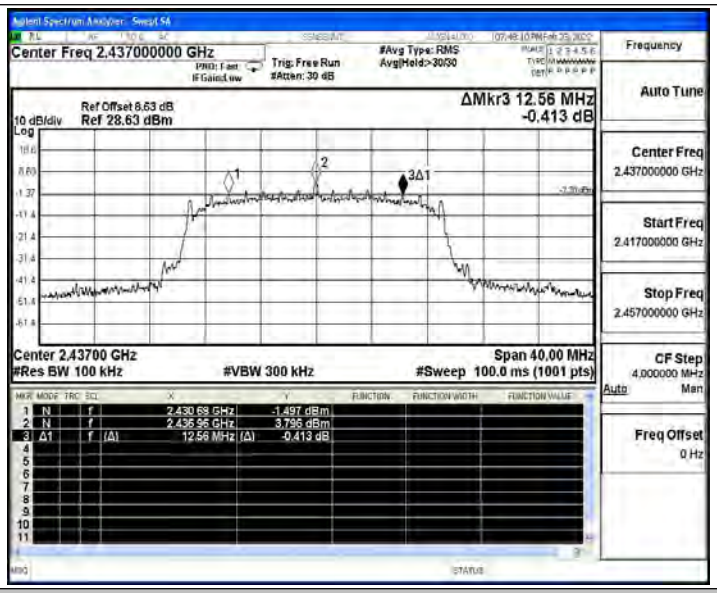
11G_Ant1_2462



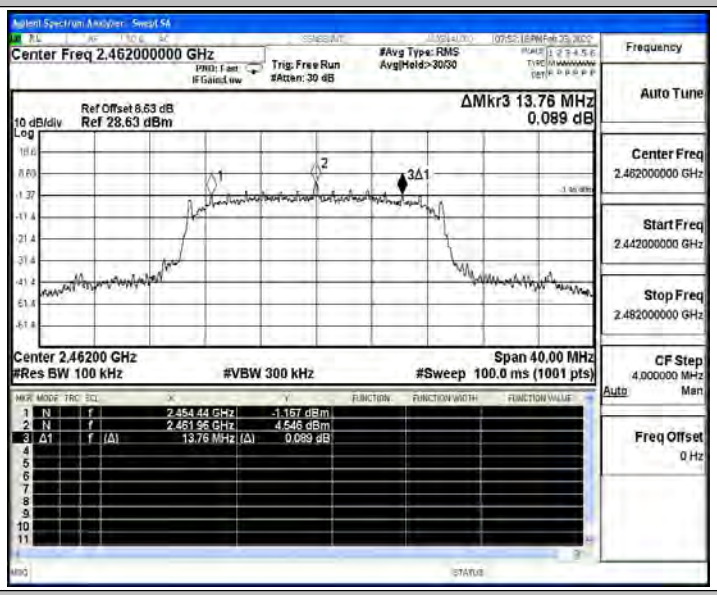
11N20SISO_Ant1_2412



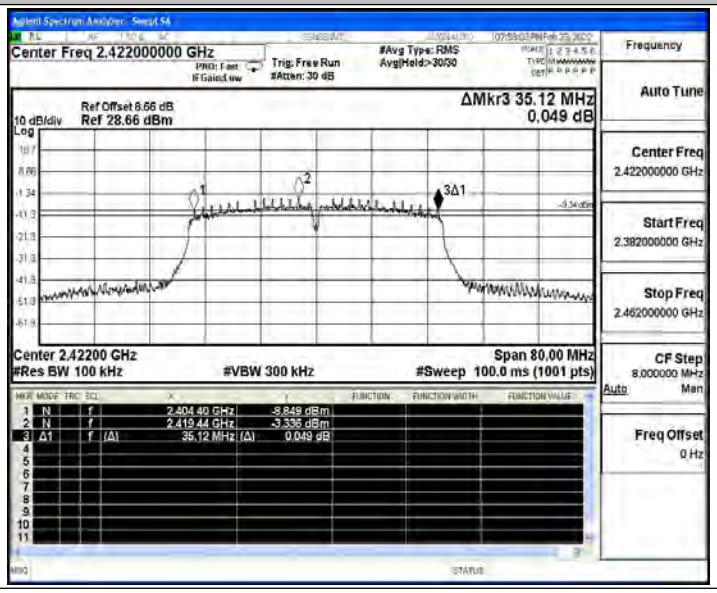
11N20SISO_Ant1_2437



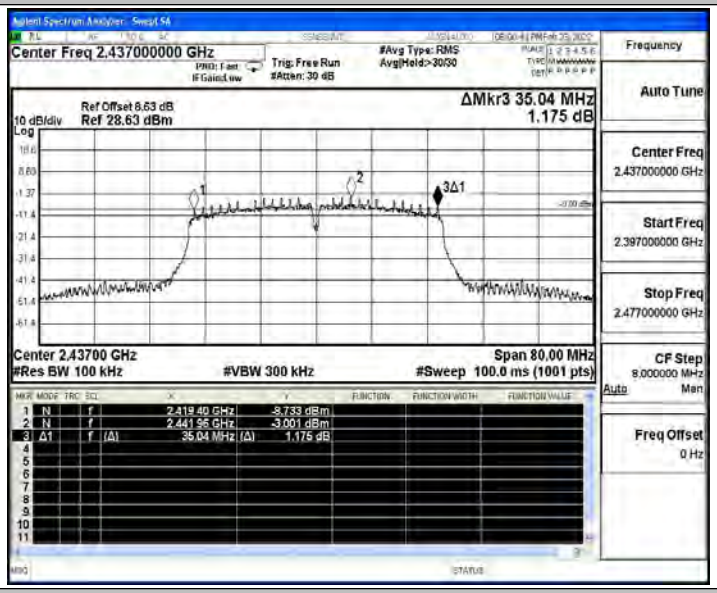
11N20SISO_Ant1_2462



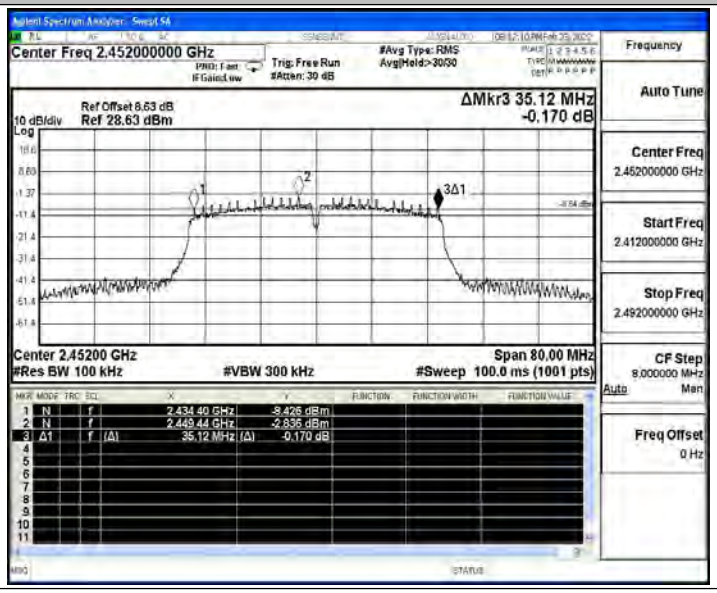
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



B.2 Maximum peak conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	17.23	≤30.00	PASS
		2437	17.44	≤30.00	PASS
		2462	18.17	≤30.00	PASS
11G	Ant1	2412	19.81	≤30.00	PASS
		2437	20.51	≤30.00	PASS
		2462	21.36	≤30.00	PASS
11N20SISO	Ant1	2412	19.02	≤30.00	PASS
		2437	19.64	≤30.00	PASS
		2462	20.46	≤30.00	PASS
11N40SISO	Ant1	2422	17.92	≤30.00	PASS
		2437	18.04	≤30.00	PASS
		2452	18.16	≤30.00	PASS

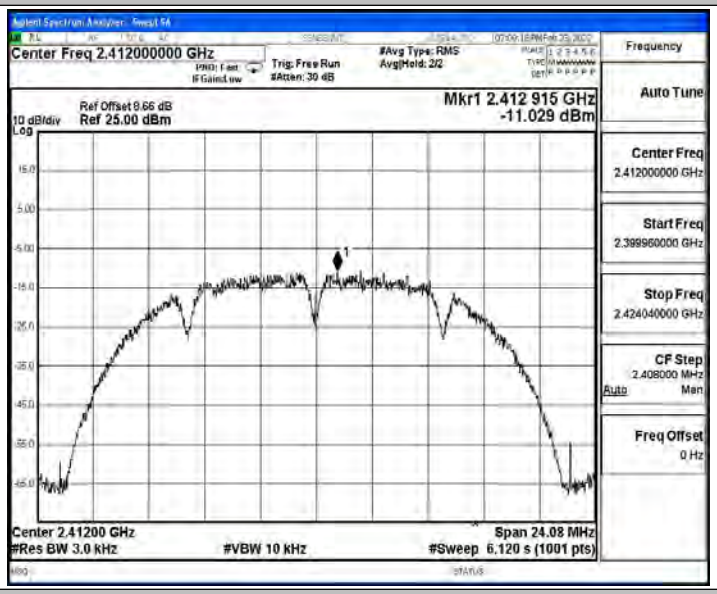
B.3 Maximum power spectral density

Test Result

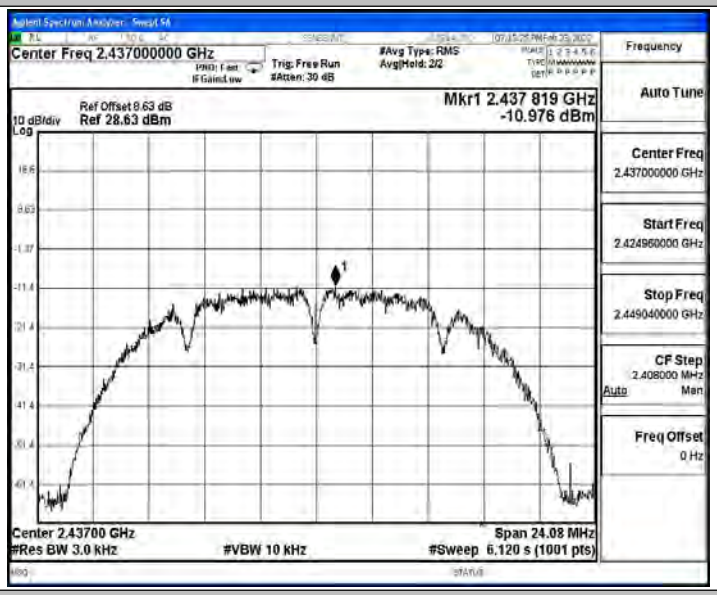
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-11.03	≤8.00	PASS
		2437	-10.98	≤8.00	PASS
		2462	-9.79	≤8.00	PASS
11G	Ant1	2412	-13.07	≤8.00	PASS
		2437	-12.01	≤8.00	PASS
		2462	-11.73	≤8.00	PASS
11N20SISO	Ant1	2412	-13.8	≤8.00	PASS
		2437	-13.34	≤8.00	PASS
		2462	-12.74	≤8.00	PASS
11N40SISO	Ant1	2422	-17.45	≤8.00	PASS
		2437	-17.17	≤8.00	PASS
		2452	-17.17	≤8.00	PASS

Test Graphs

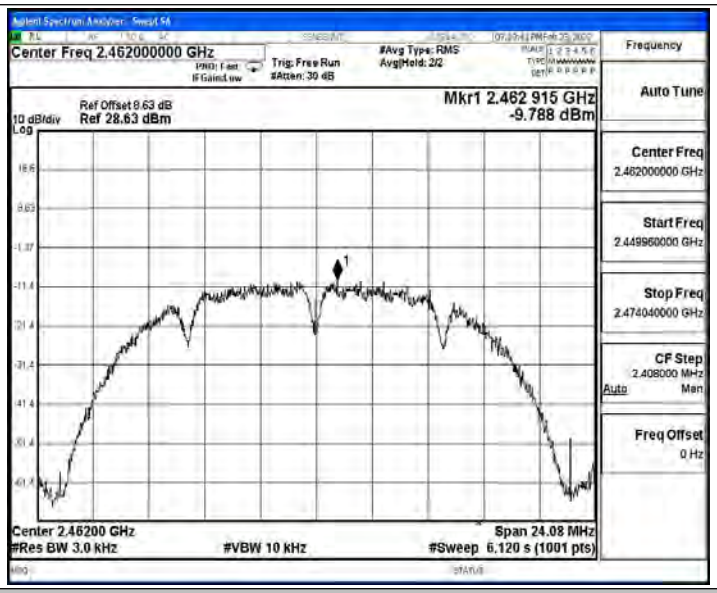
11B_Ant1_2412



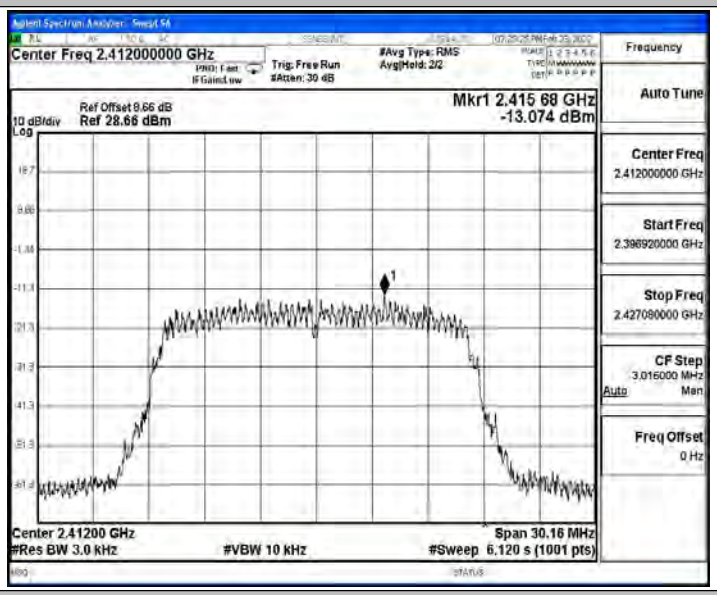
11B_Ant1_2437



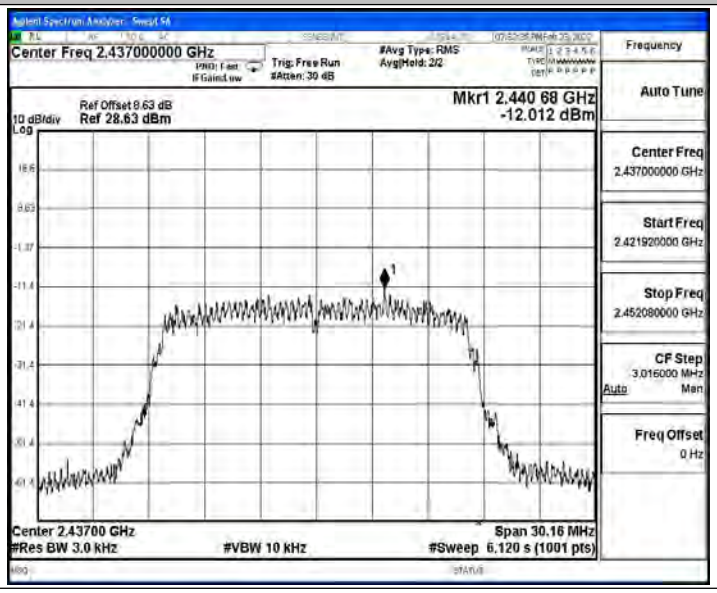
11B_Ant1_2462



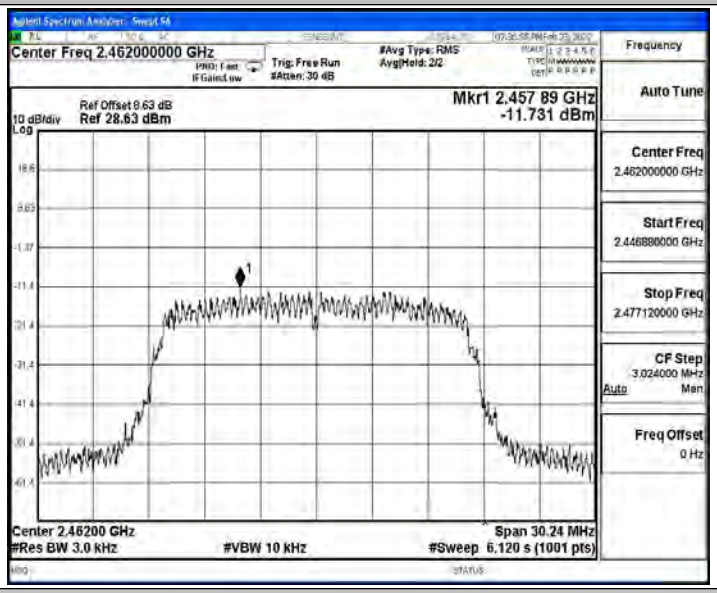
11G_Ant1_2412



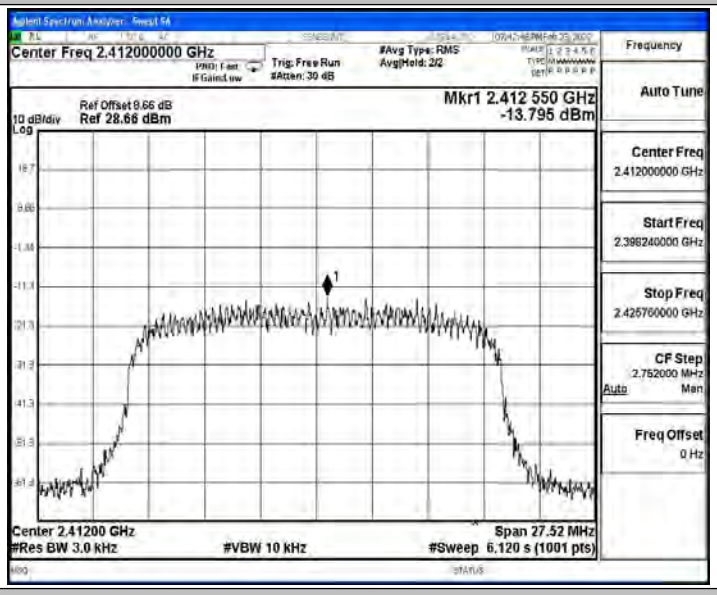
11G_Ant1_2437



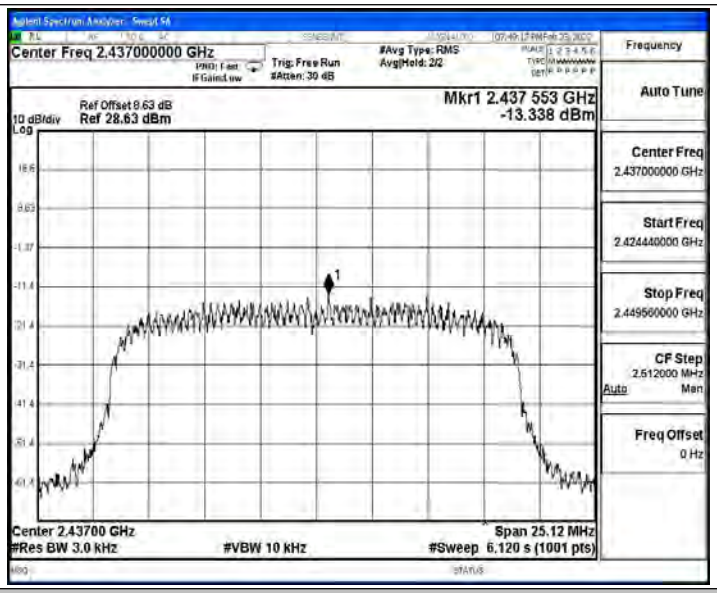
11G_Ant1_2462



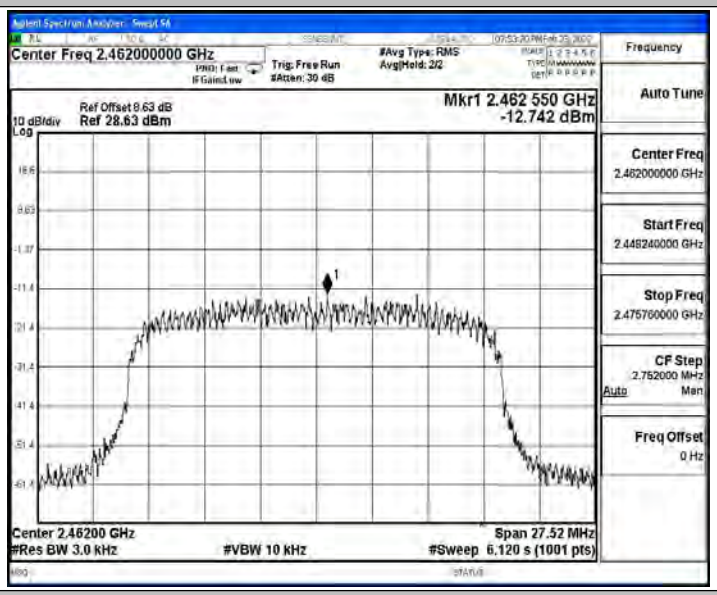
11N20SISO_Ant1_2412



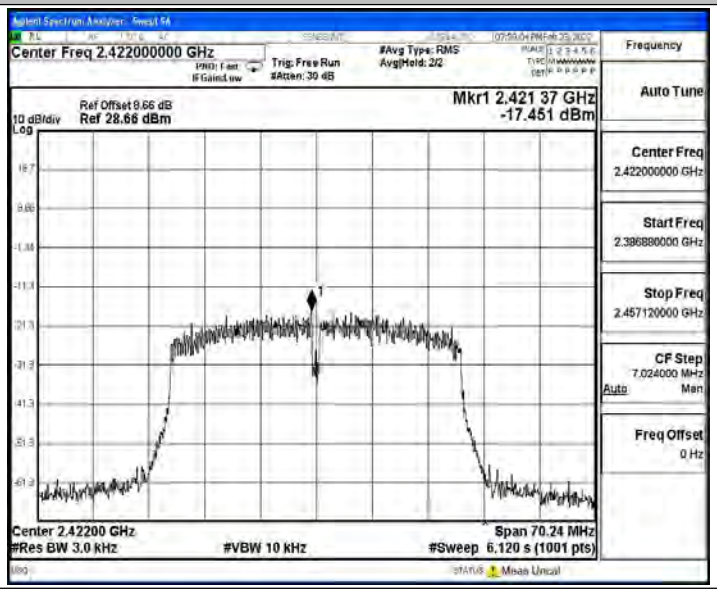
11N20SISO_Ant1_2437



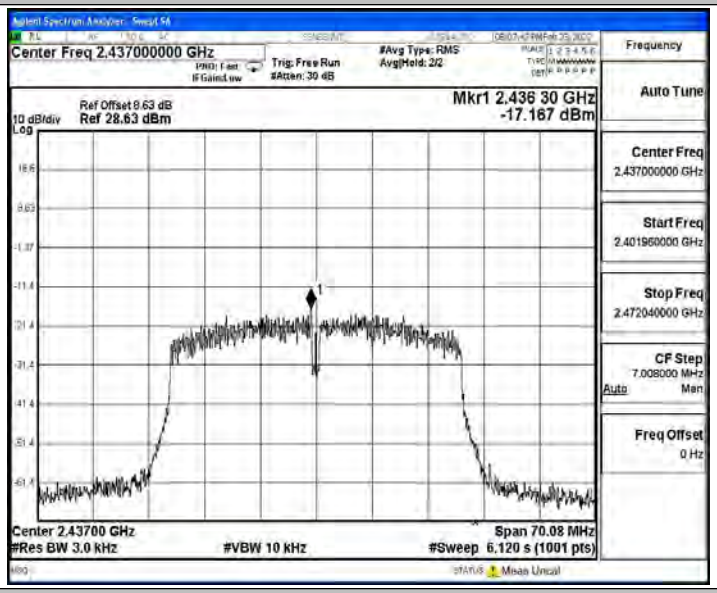
11N20SISO_Ant1_2462



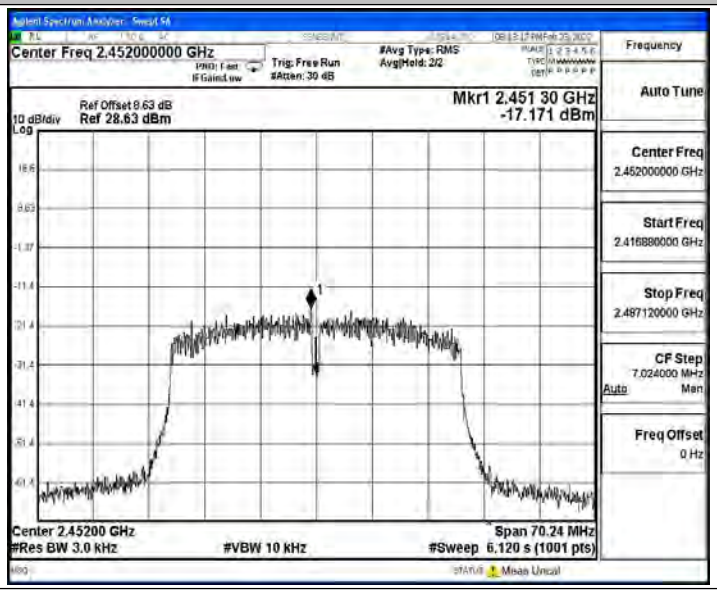
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



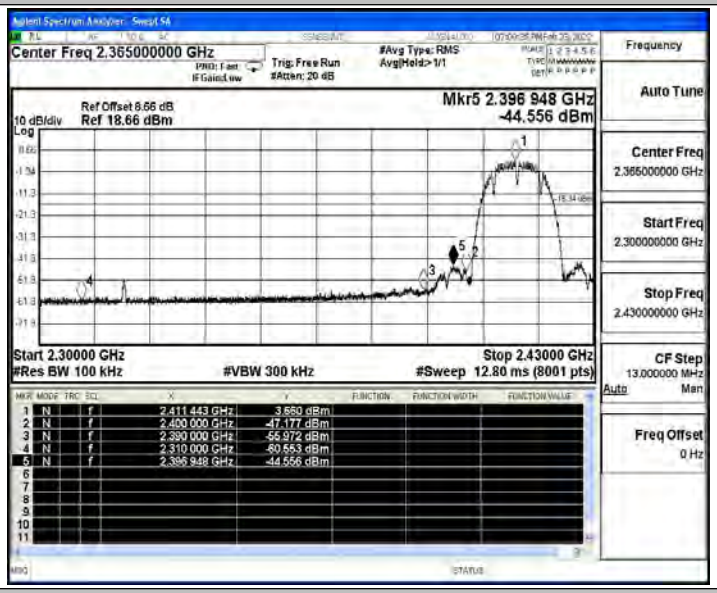
B.4 Band edge measurements

Test Result

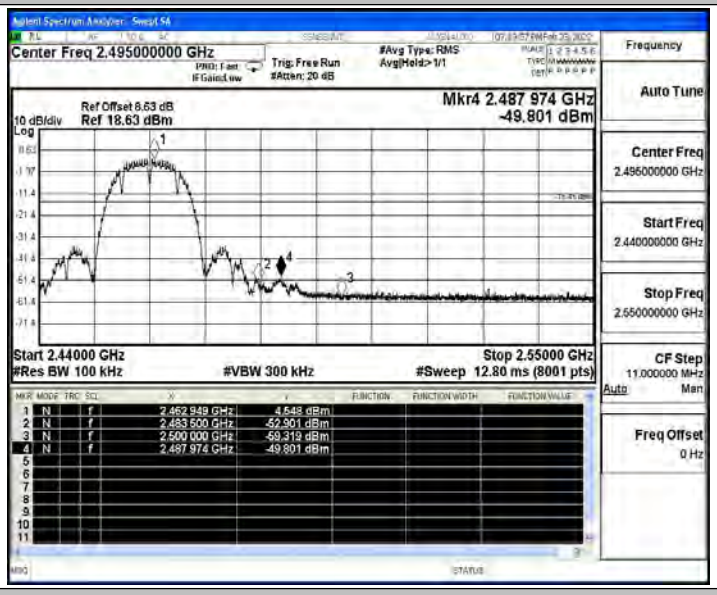
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	3.66	-44.56	≤-16.34	PASS
		High	2462	4.55	-49.8	≤-15.45	PASS
11G	Ant1	Low	2412	1.01	-43.65	≤-18.99	PASS
		High	2462	2.27	-46.21	≤-17.73	PASS
11N20SISO	Ant1	Low	2412	3.42	-45.46	≤-16.58	PASS
		High	2462	4.58	-44.01	≤-15.42	PASS
11N40SISO	Ant1	Low	2422	-3.24	-42.82	≤-23.24	PASS
		High	2452	-3.00	-43.4	≤-23	PASS

Test Graphs

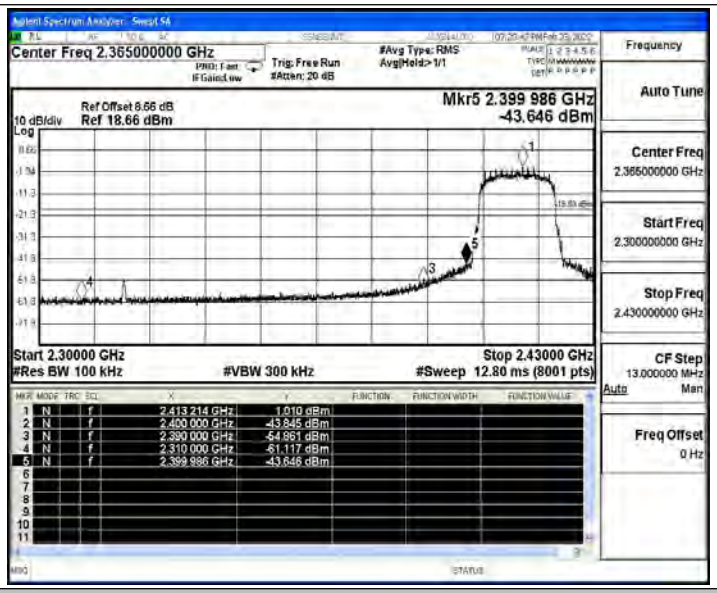
11B_Ant1_Low_2412



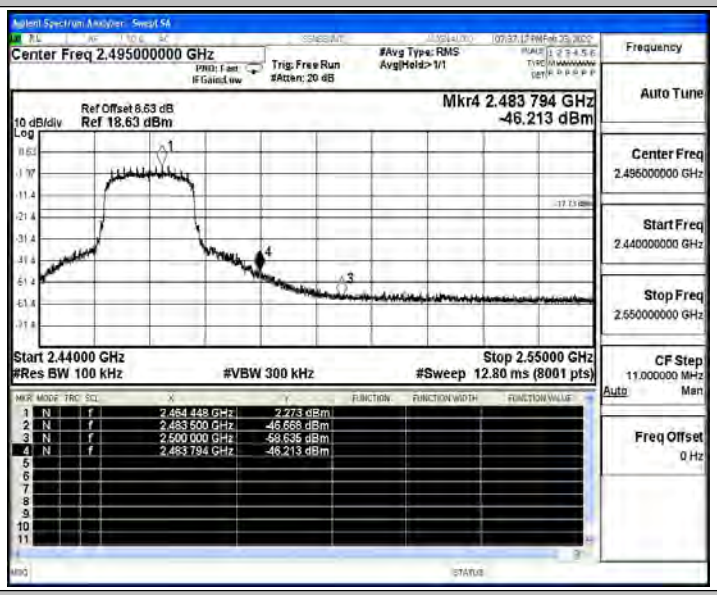
11B_Ant1_High_2462



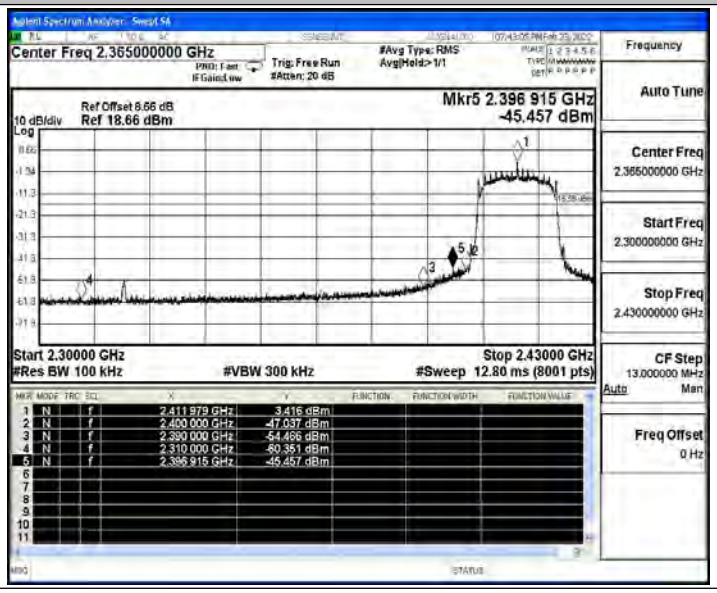
11G_Ant1_Low_2412



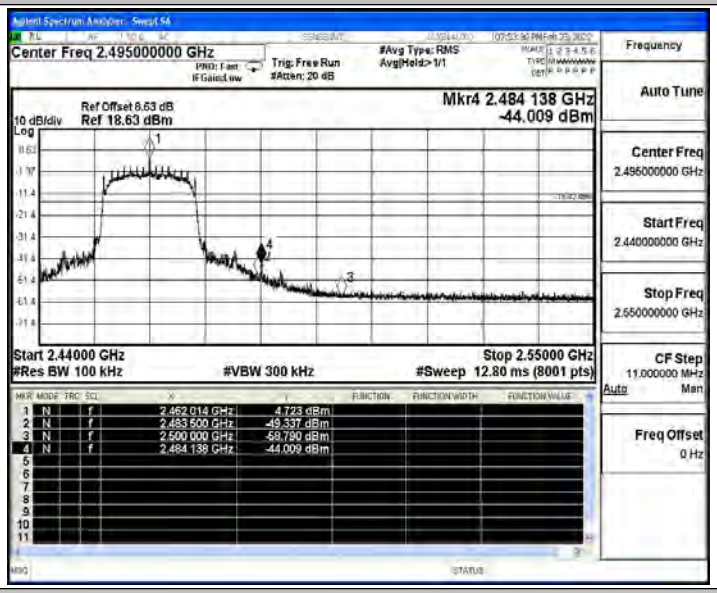
11G_Ant1_High_2462



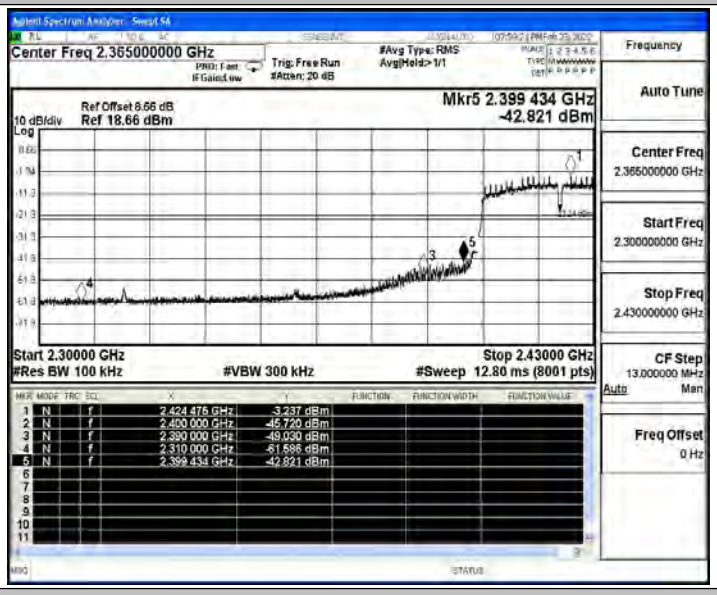
11N20SISO_Ant1_Low_2412



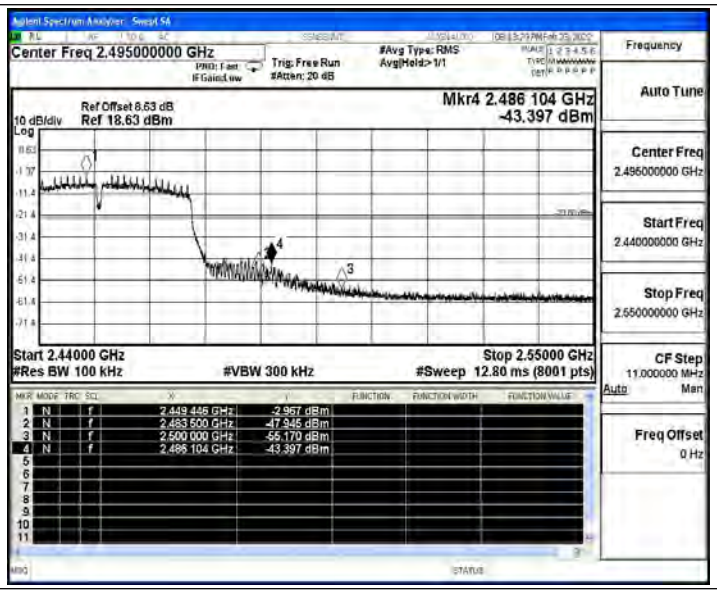
11N20SISO_Ant1_High_2462



11N40SISO_Ant1_Low_2422



11N40SISO_Ant1_High_2452


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.495000000 GHz
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold:>1/1
Frequency
Auto Tune
Ref Offset 8.63 dB
10 dB/div Ref 18.63 dBm
Log
Mkr4 2.486 104 GHz
-43.397 dBm
Center Freq
2.495000000 GHz
Start Freq
2.440000000 GHz
Stop Freq
2.550000000 GHz
Start 2.44000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.55000 GHz
#Sweep 12.80 ms (8001 pts)
CF Step
11.000000 MHz
Auto Man
Freq Offset
0 Hz
1 N f 2.449 446 GHz -2.967 dBm
2 N f 2.483 500 GHz -47.945 dBm
3 N f 2.500 000 GHz -55.170 dBm
4 N f 2.486 104 GHz -43.397 dBm

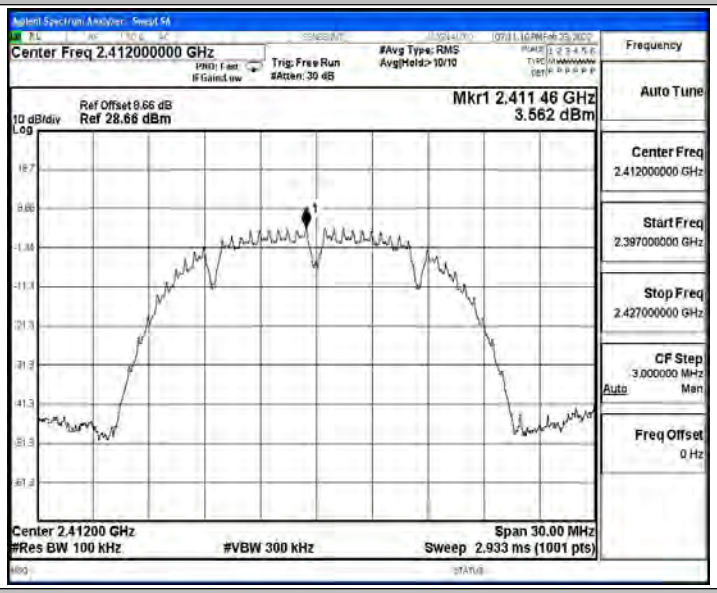
B.5 Conducted Spurious Emission

Test Result

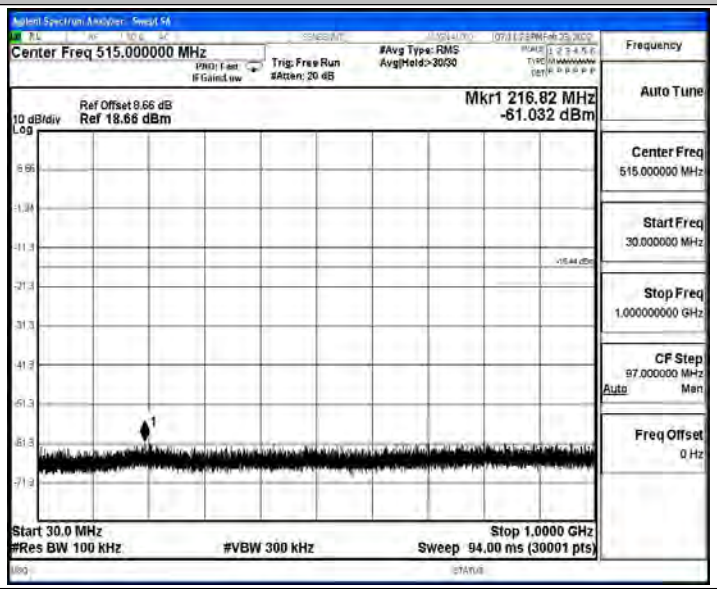
TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	3.56	3.56	---	PASS
			30~1000	3.56	-61.03	≤-16.44	PASS
			1000~26500	3.56	-46.17	≤-16.44	PASS
		2437	Reference	3.93	3.93	---	PASS
			30~1000	3.93	-60.83	≤-16.07	PASS
			1000~26500	3.93	-46.59	≤-16.07	PASS
		2462	Reference	4.77	4.77	---	PASS
			30~1000	4.77	-60.01	≤-15.23	PASS
			1000~26500	4.77	-46.44	≤-15.23	PASS
11G	Ant1	2412	Reference	0.96	0.96	---	PASS
			30~1000	0.96	-60.61	≤-19.04	PASS
			1000~26500	0.96	-46.09	≤-19.04	PASS
		2437	Reference	1.55	1.55	---	PASS
			30~1000	1.55	-60.31	≤-18.45	PASS
			1000~26500	1.55	-46.43	≤-18.45	PASS
		2462	Reference	2.54	2.54	---	PASS
			30~1000	2.54	-60.71	≤-17.46	PASS
			1000~26500	2.54	-46.58	≤-17.46	PASS
11N20SISO	Ant1	2412	Reference	3.53	3.53	---	PASS
			30~1000	3.53	-60.6	≤-16.47	PASS
			1000~26500	3.53	-46.01	≤-16.47	PASS
		2437	Reference	4.20	4.20	---	PASS
			30~1000	4.20	-60.78	≤-15.8	PASS
			1000~26500	4.20	-46.37	≤-15.8	PASS
		2462	Reference	5.02	5.02	---	PASS
			30~1000	5.02	-60.12	≤-14.98	PASS
			1000~26500	5.02	-46.2	≤-14.98	PASS
11N40SISO	Ant1	2422	Reference	-3.25	-3.25	---	PASS
			30~1000	-3.25	-60.78	≤-23.25	PASS
			1000~26500	-3.25	-46.75	≤-23.25	PASS
		2437	Reference	-2.63	-2.63	---	PASS
			30~1000	-2.63	-60.8	≤-22.63	PASS
			1000~26500	-2.63	-46.57	≤-22.63	PASS
		2452	Reference	-2.74	-2.74	---	PASS
			30~1000	-2.74	-60.52	≤-22.74	PASS
			1000~26500	-2.74	-46.19	≤-22.74	PASS

Test Graphs

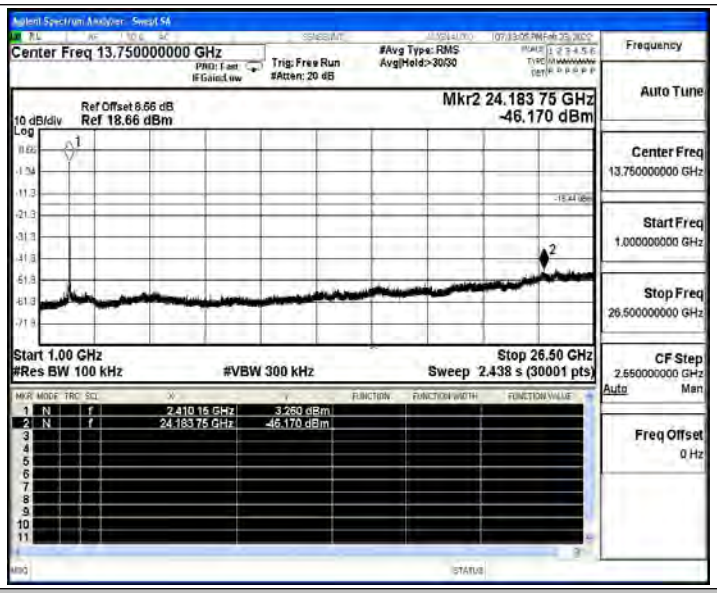
11B_Ant1_2412_0~Reference



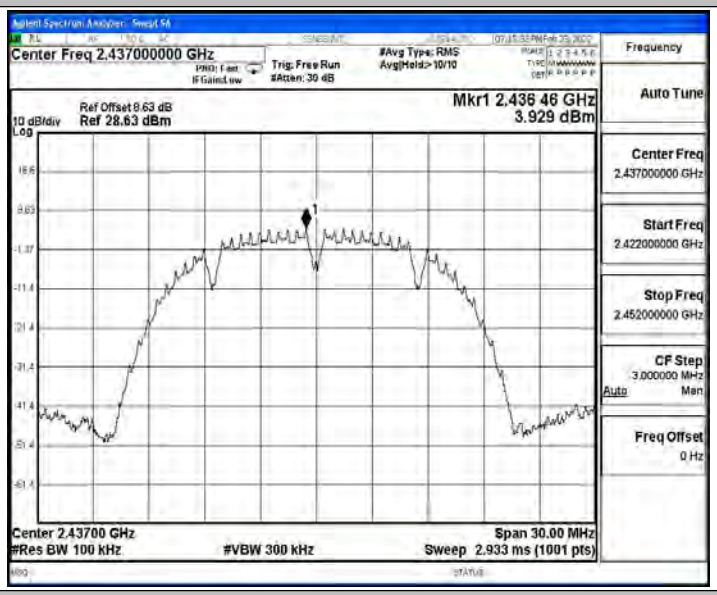
11B_Ant1_2412_30~1000



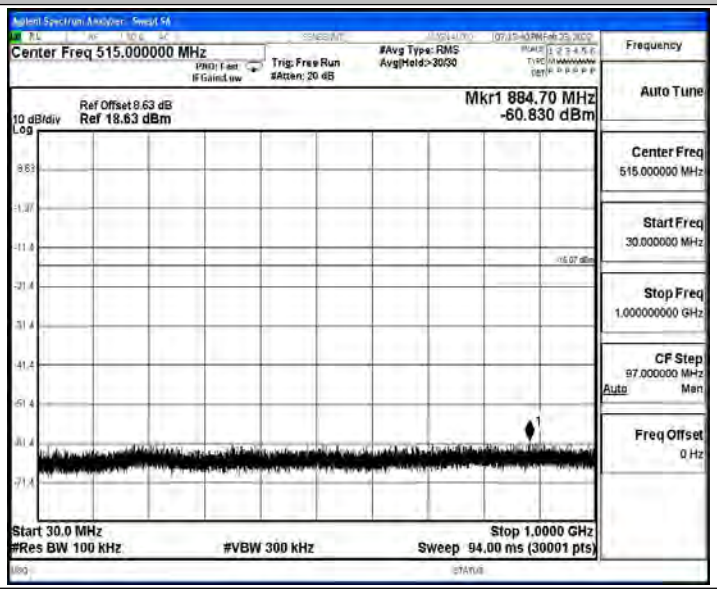
11B_Ant1_2412_1000~26500



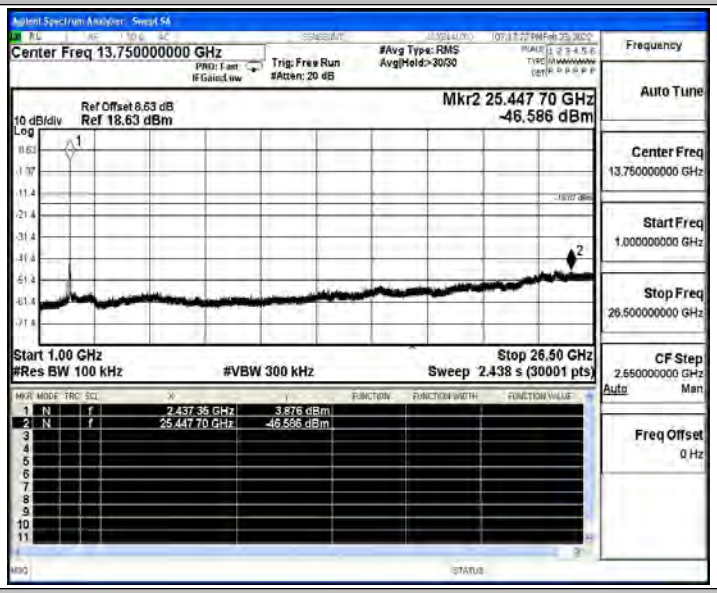
11B_Ant1_2437_0~Reference



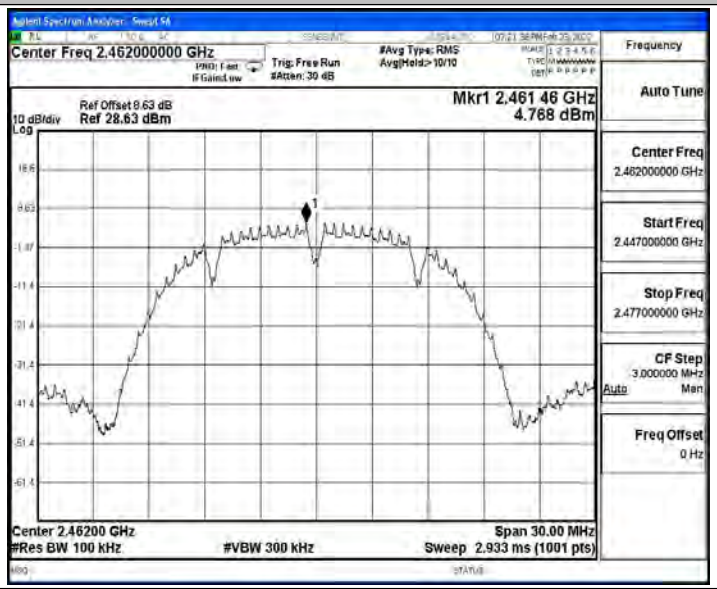
11B_Ant1_2437_30~1000



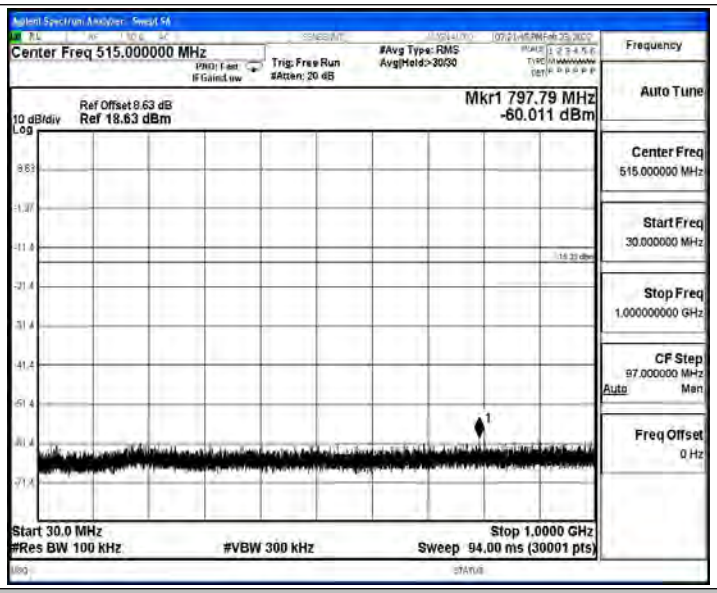
11B_Ant1_2437_1000~26500



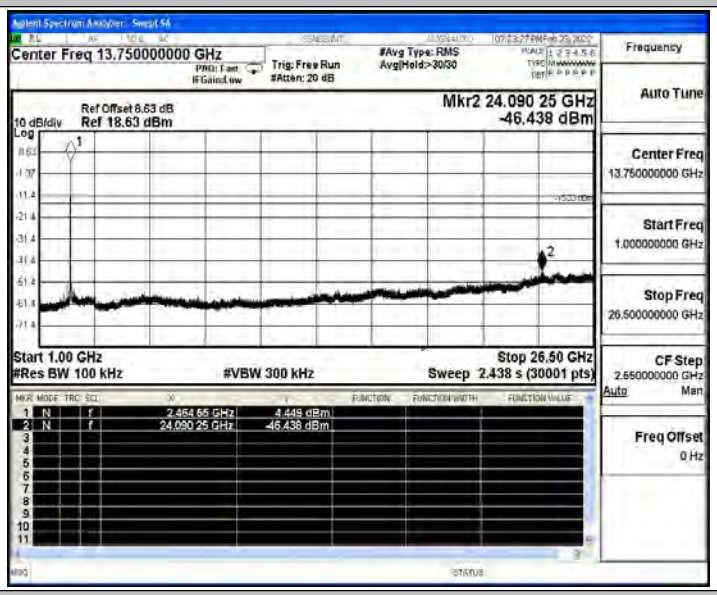
11B_Ant1_2462_0~Reference



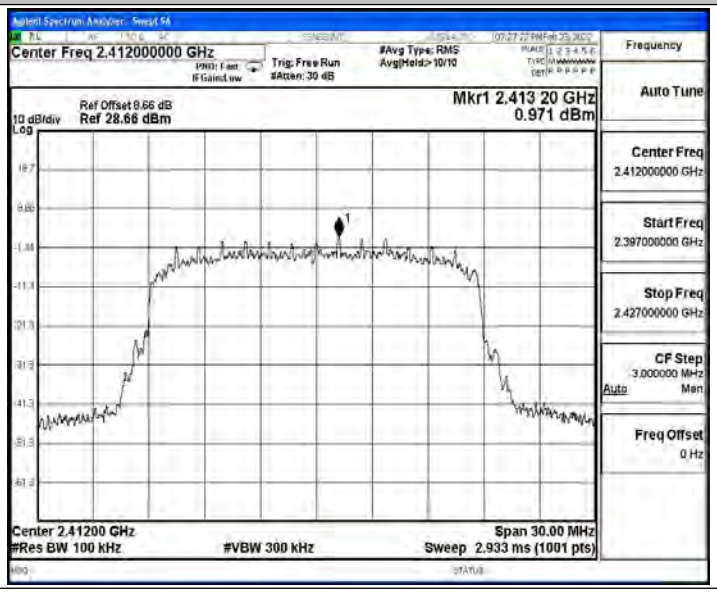
11B_Ant1_2462_30~1000



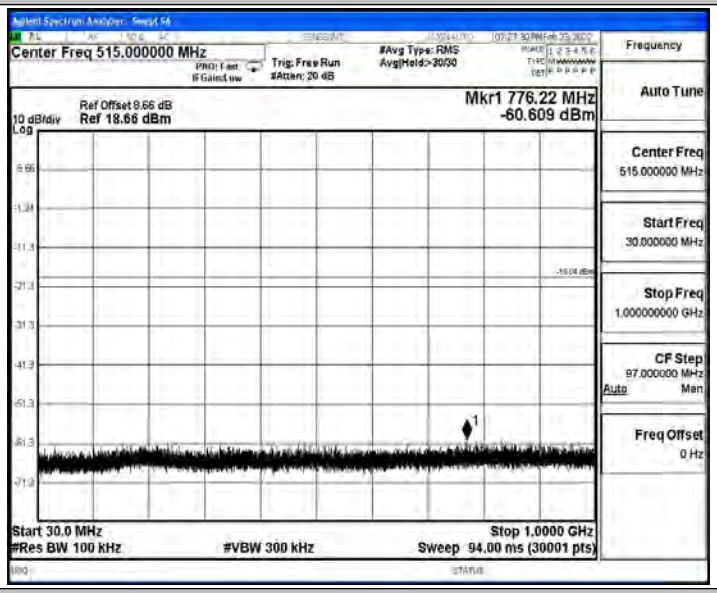
11B_Ant1_2462_1000~26500



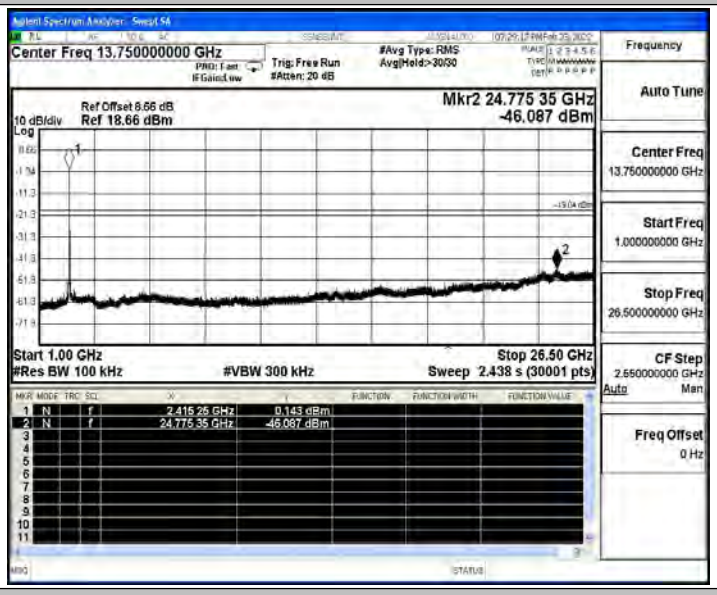
11G_Ant1_2412_0~Reference



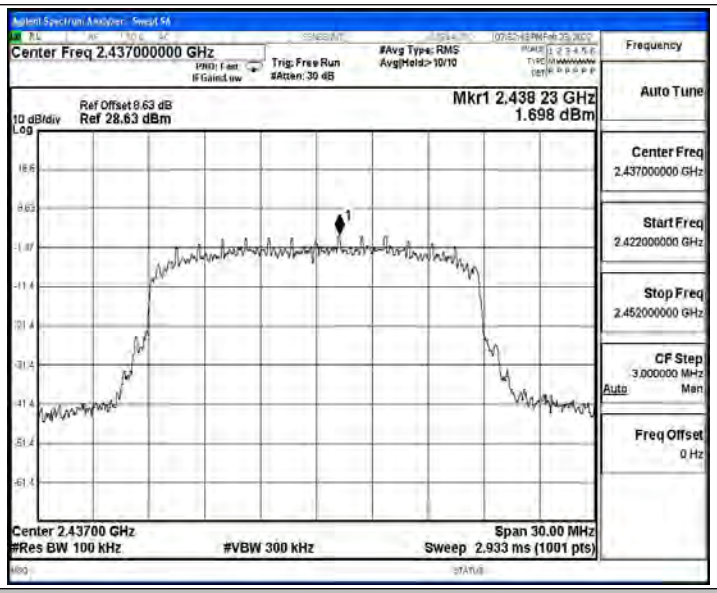
11G_Ant1_2412_30~1000



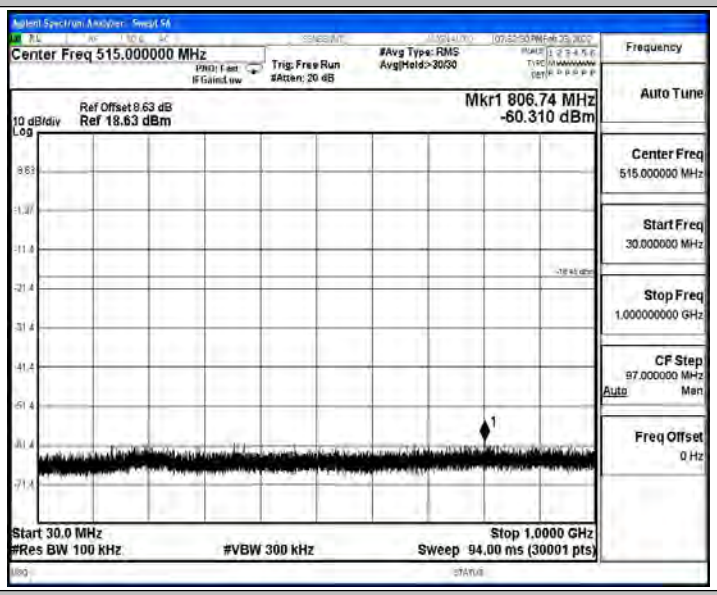
11G_Ant1_2412_1000~26500



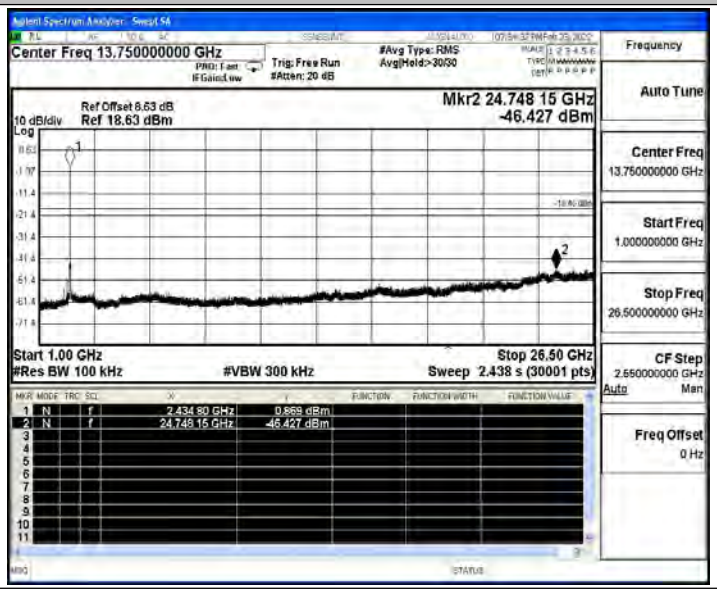
11G_Ant1_2437_0~Reference



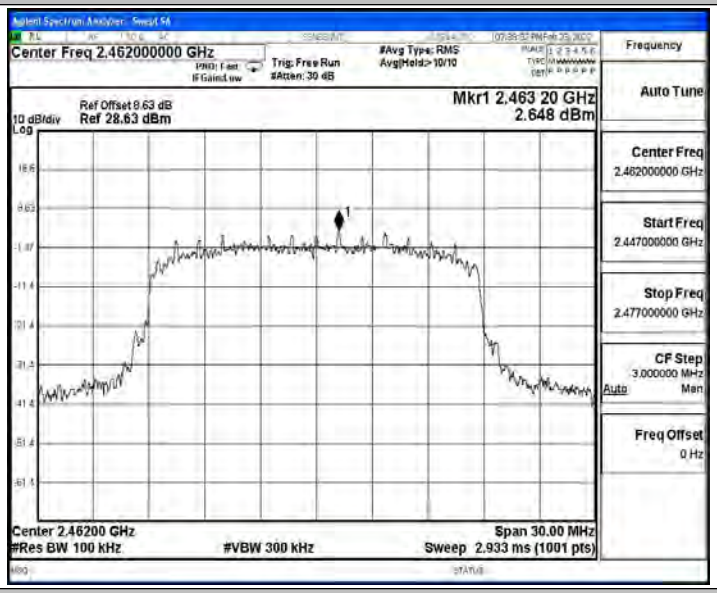
11G_Ant1_2437_30~1000



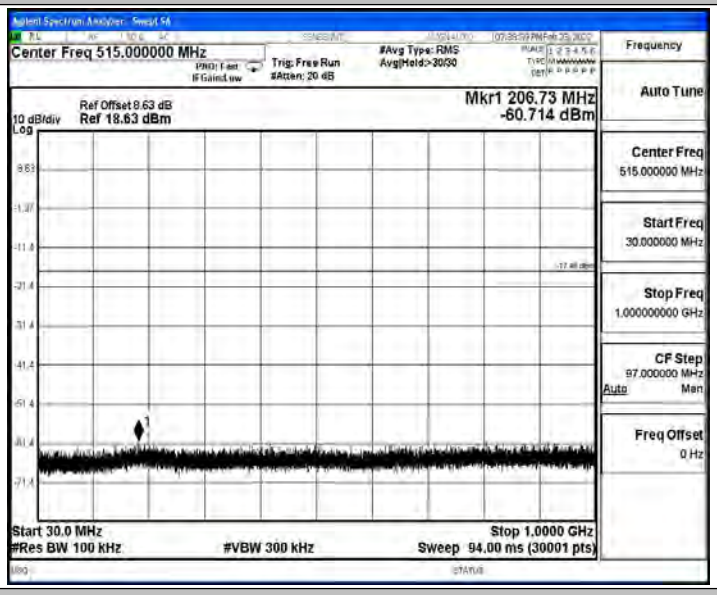
11G_Ant1_2437_1000~26500



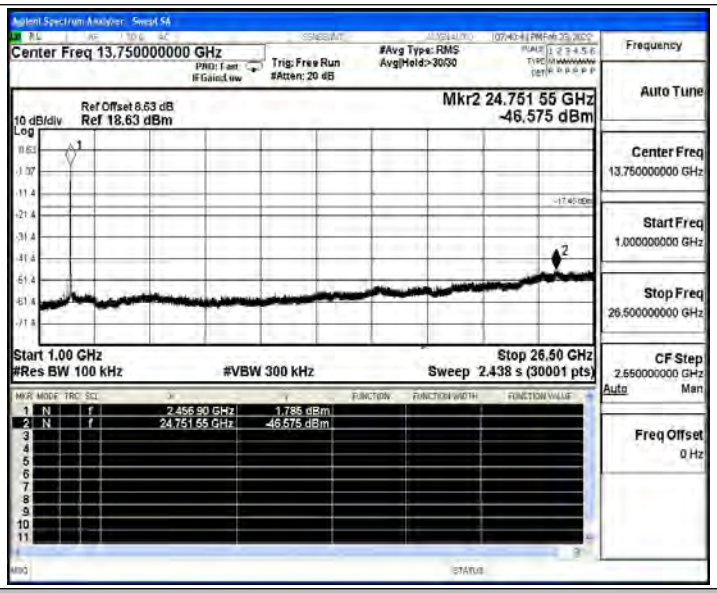
11G_Ant1_2462_0~Reference



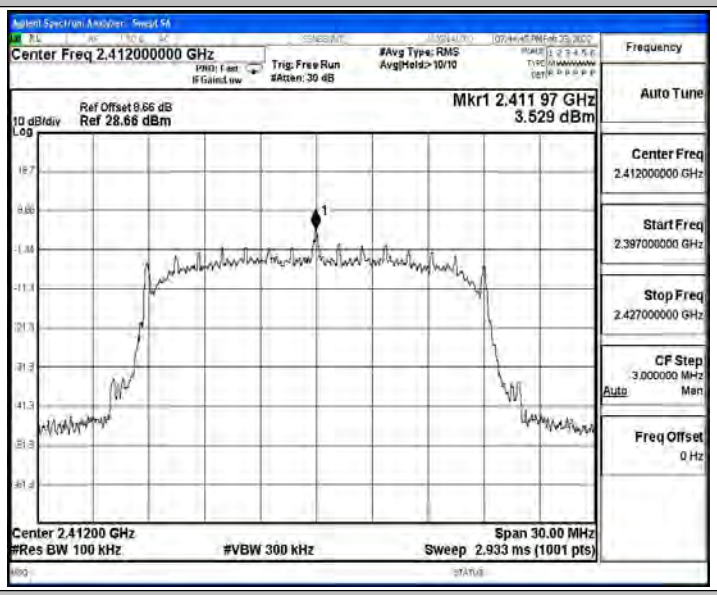
11G_Ant1_2462_30~1000



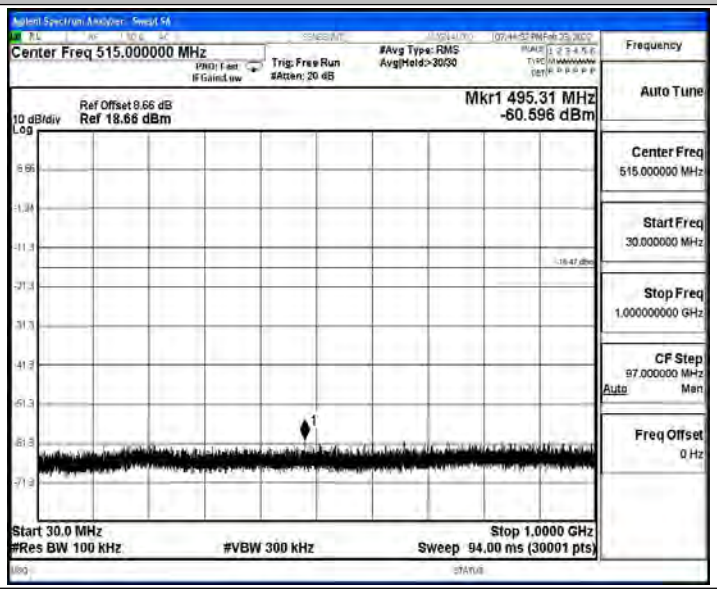
11G_Ant1_2462_1000~26500



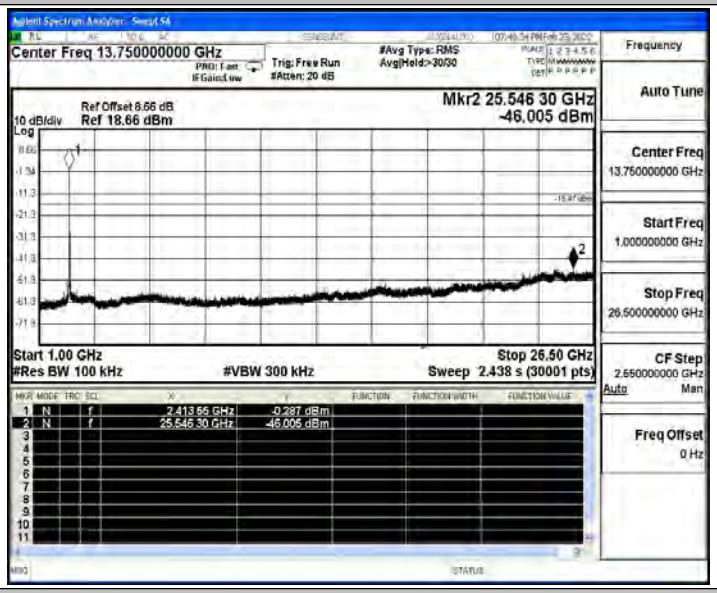
11N20SISO_Ant1_2412_0~Reference



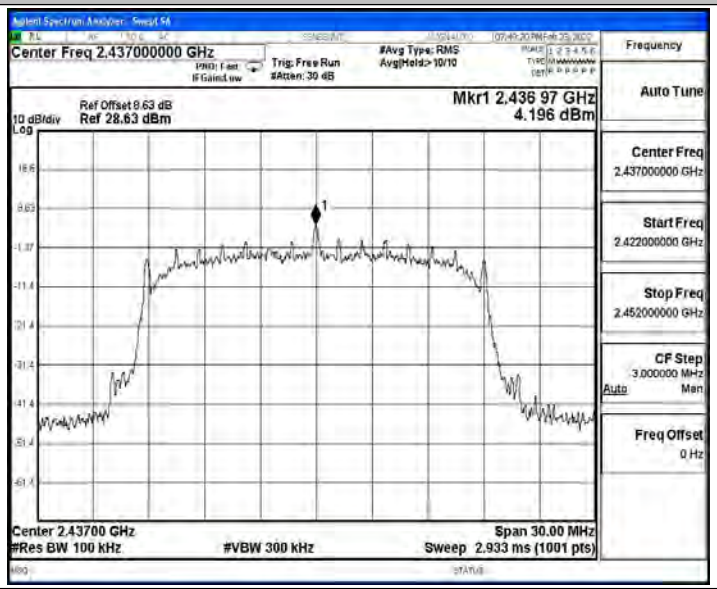
11N20SISO_Ant1_2412_30~1000



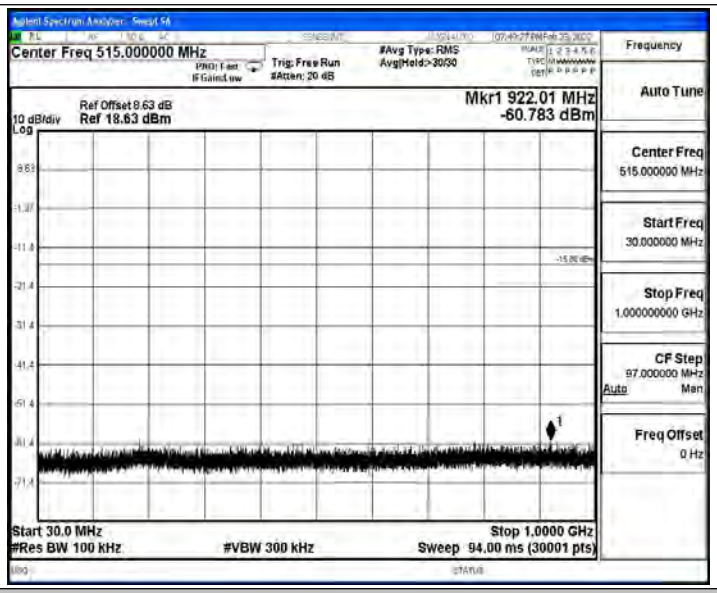
11N20SISO_Ant1_2412_1000~26500



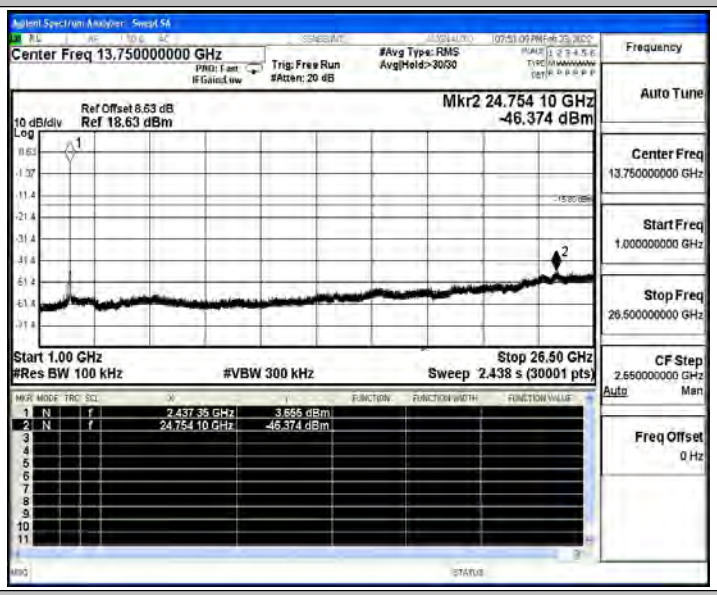
11N20SISO_Ant1_2437_0~Reference



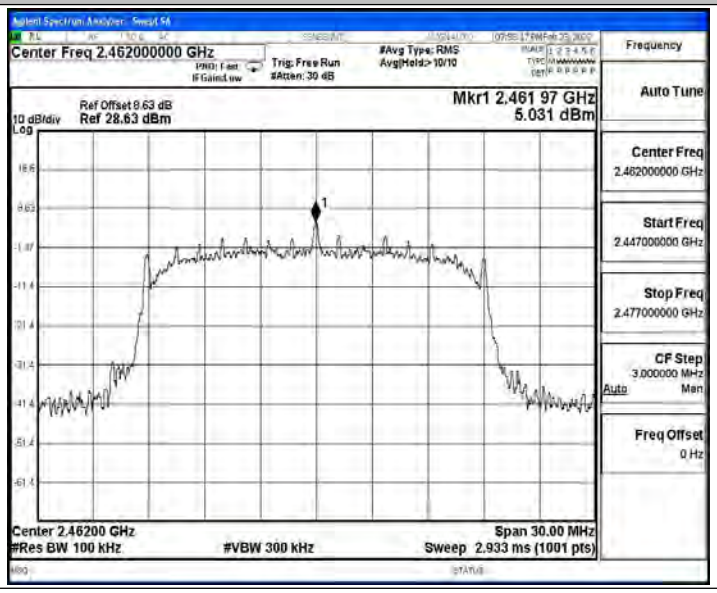
11N20SISO_Ant1_2437_30~1000



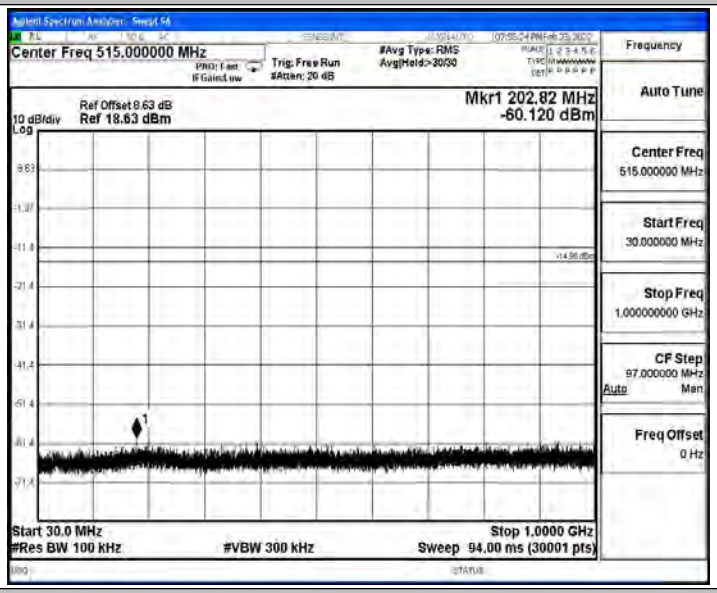
11N20SISO_Ant1_2437_1000~26500



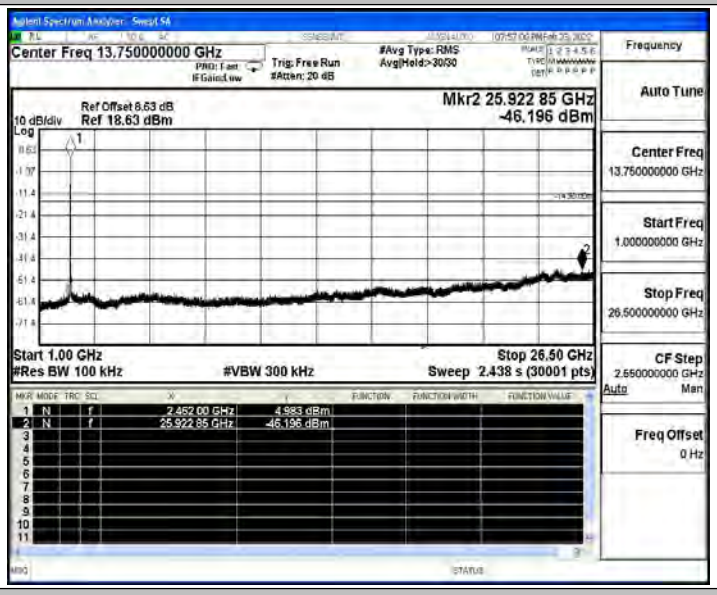
11N20SISO_Ant1_2462_0~Reference



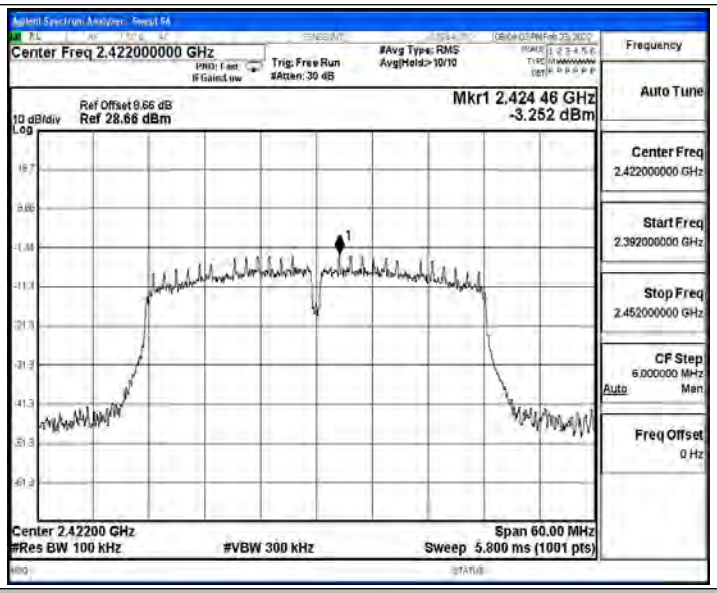
11N20SISO_Ant1_2462_30~1000



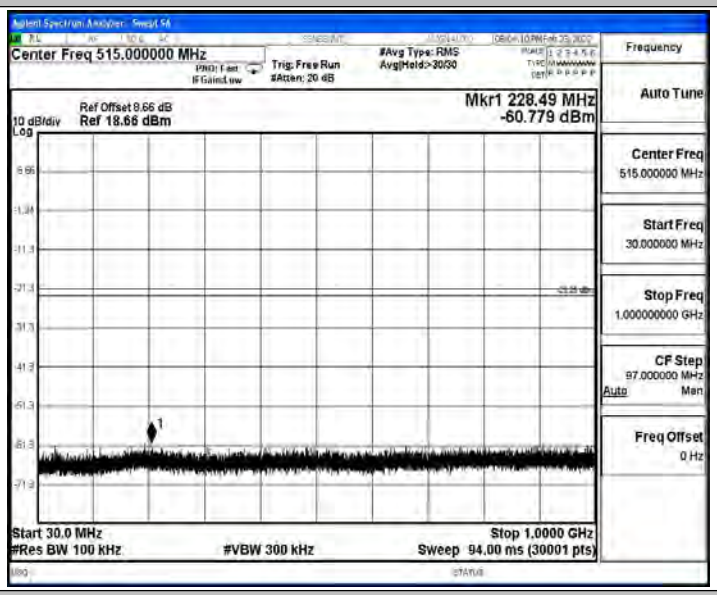
11N20SISO_Ant1_2462_1000~26500



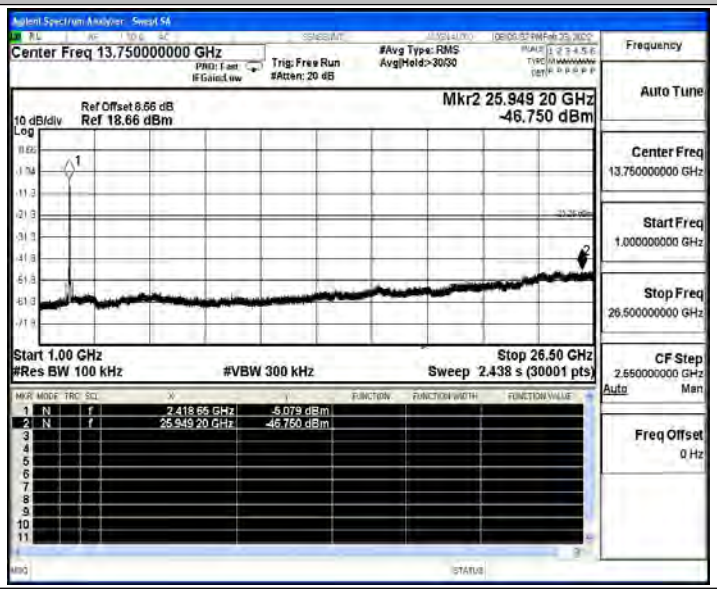
11N40SISO_Ant1_2422_0~Reference



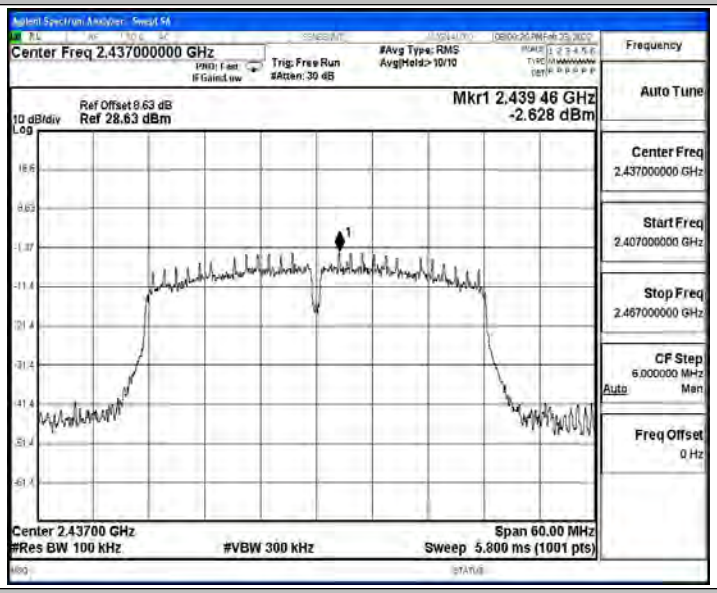
11N40SISO_Ant1_2422_30~1000



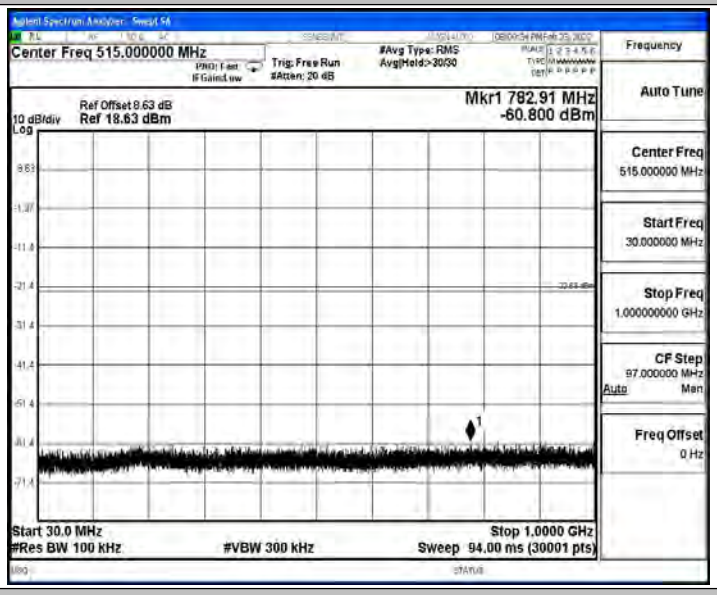
11N40SISO_Ant1_2422_1000~26500



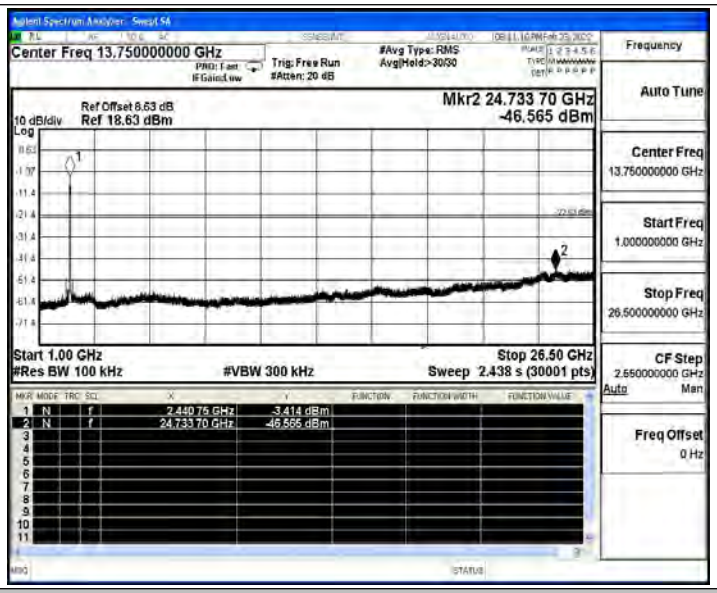
11N40SISO_Ant1_2437_0~Reference



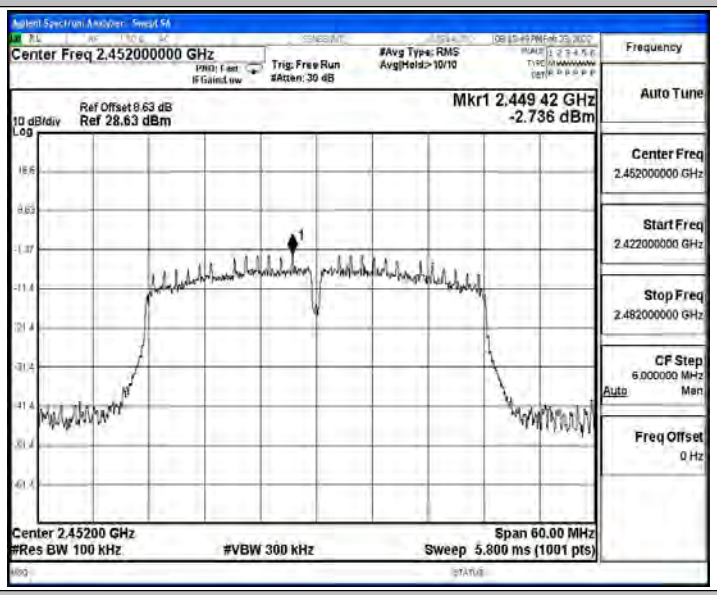
11N40SISO_Ant1_2437_30~1000



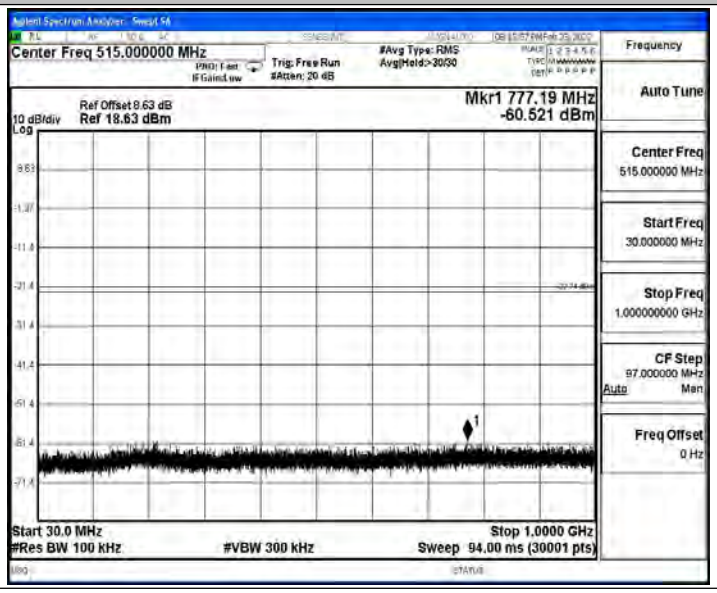
11N40SISO_Ant1_2437_1000~26500

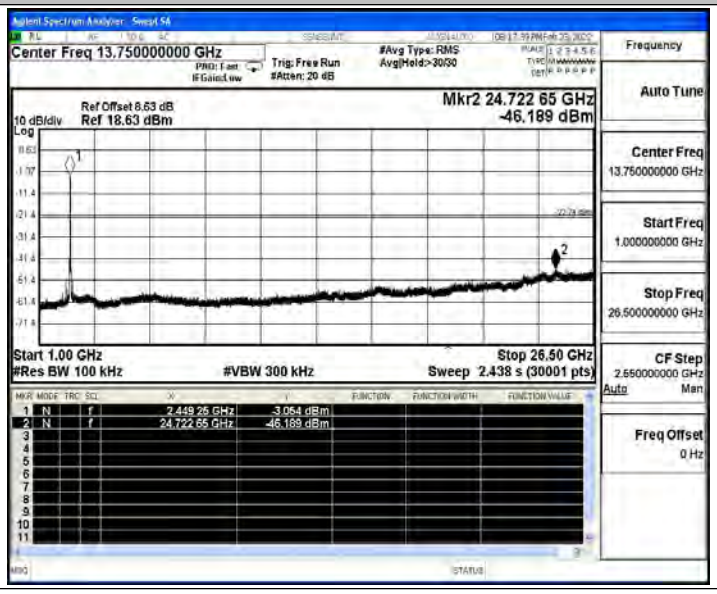


11N40SISO_Ant1_2452_0~Reference



11N40SISO_Ant1_2452_30~1000



11N40SISO_Ant1_2452_1000~26500


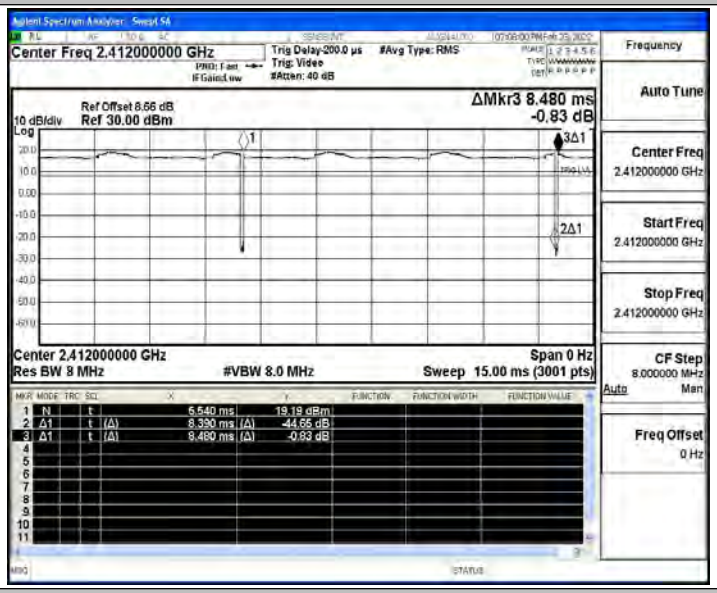
B.6 Duty Cycle

Test Result

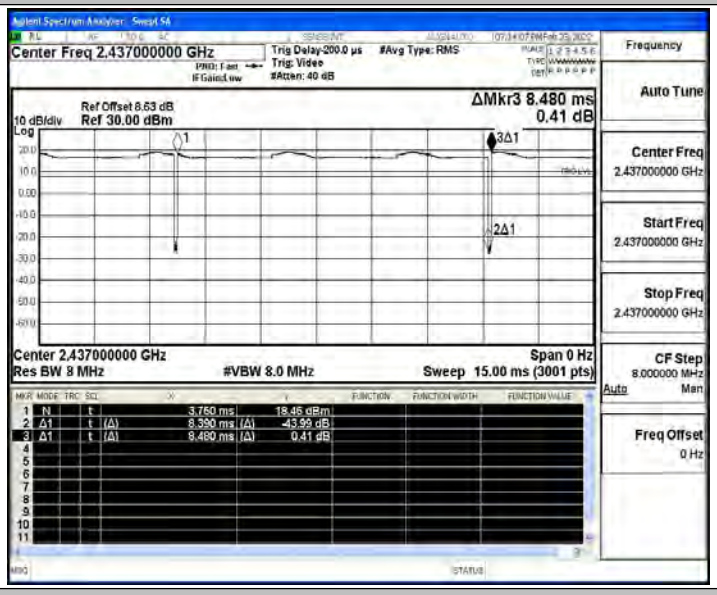
TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
11B	Ant1	2412	8.39	8.48	98.94	---	---
		2437	8.39	8.48	98.94	---	---
		2462	8.39	8.48	98.94	---	---
11G	Ant1	2412	1.39	1.41	98.58	---	---
		2437	1.39	1.40	99.29	---	---
		2462	1.39	1.41	98.58	---	---
11N20SISO	Ant1	2412	1.30	1.31	99.24	---	---
		2437	1.30	1.31	99.24	---	---
		2462	1.30	1.31	99.24	---	---
11N40SISO	Ant1	2422	0.64	0.65	98.46	---	---
		2437	0.65	0.66	98.48	---	---
		2452	0.64	0.65	98.46	---	---

Test Graphs

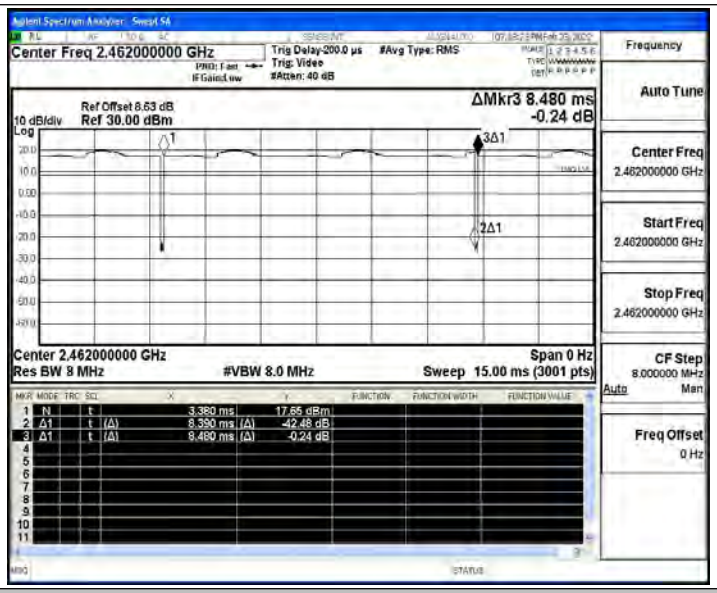
11B_Ant1_2412



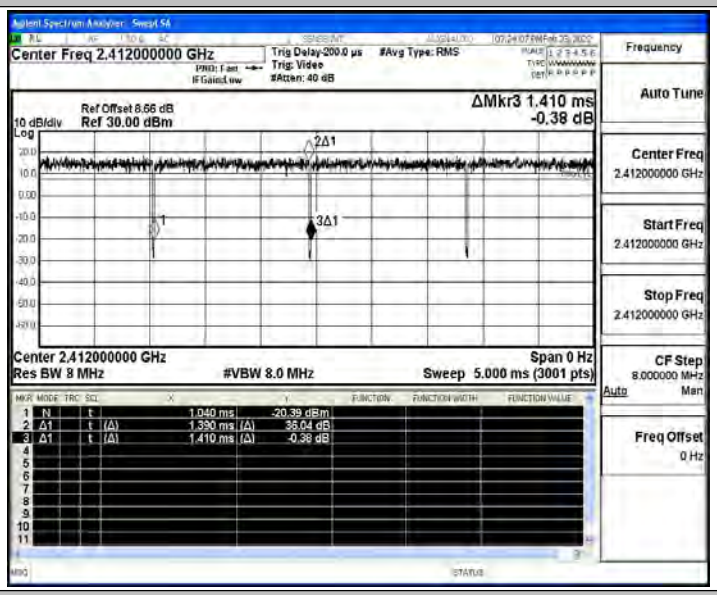
11B_Ant1_2437



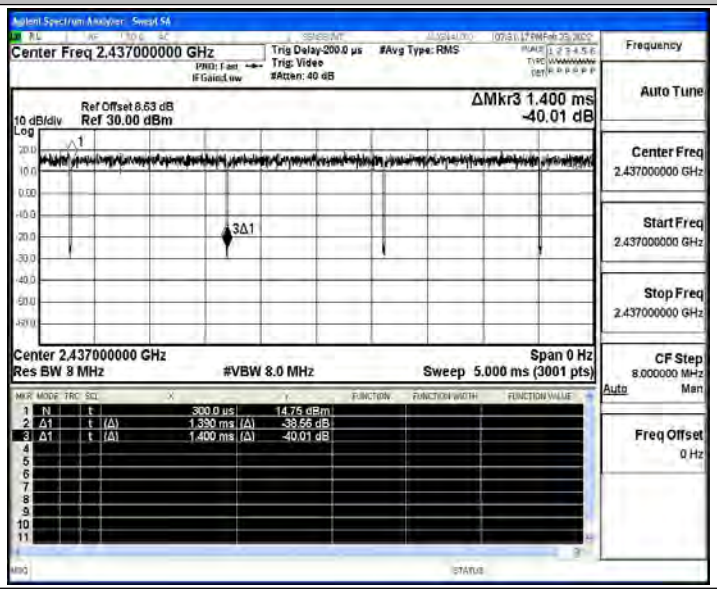
11B_Ant1_2462



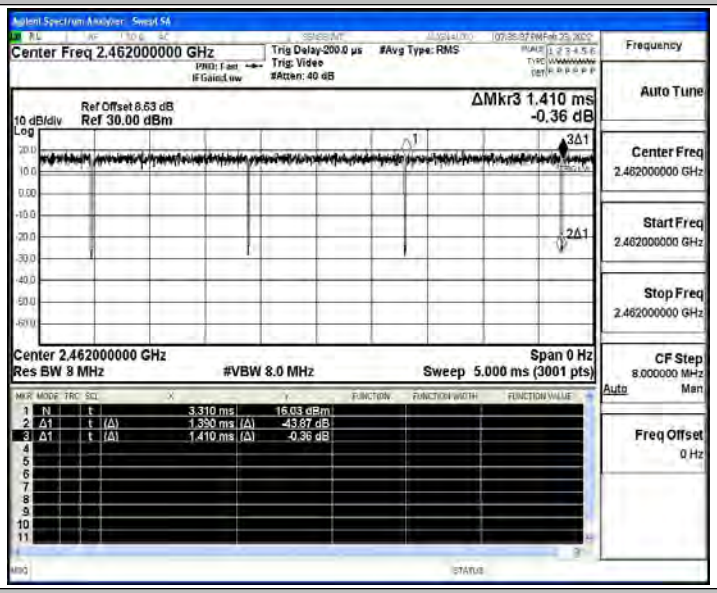
11G_Ant1_2412



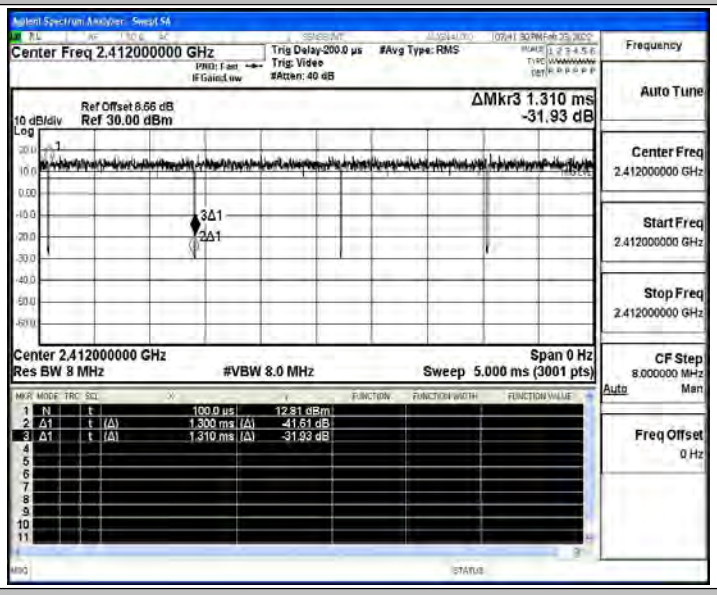
11G_Ant1_2437



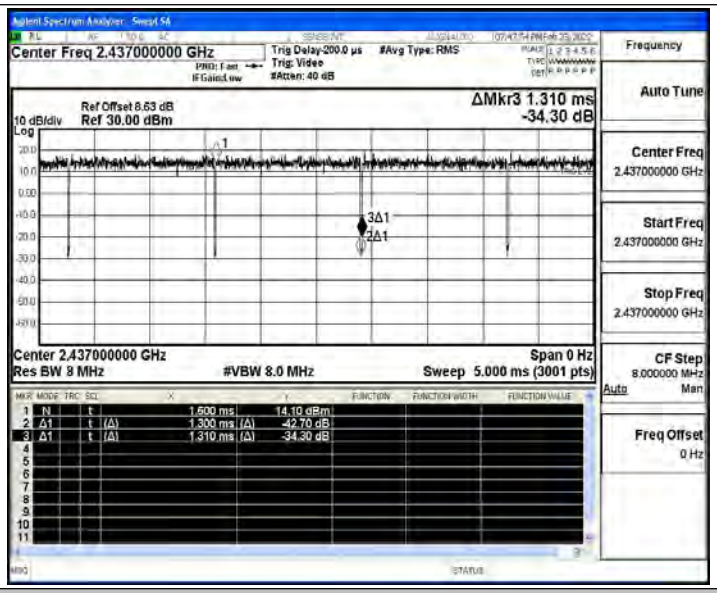
11G_Ant1_2462



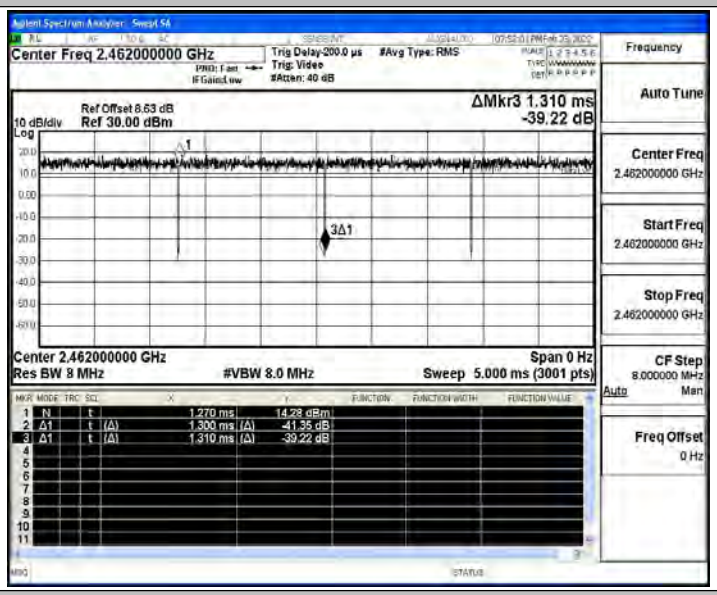
11N20SISO_Ant1_2412



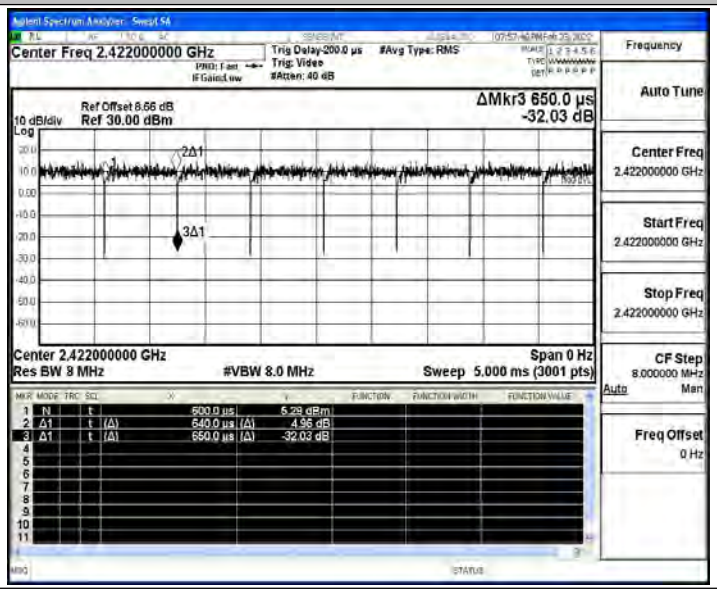
11N20SISO_Ant1_2437



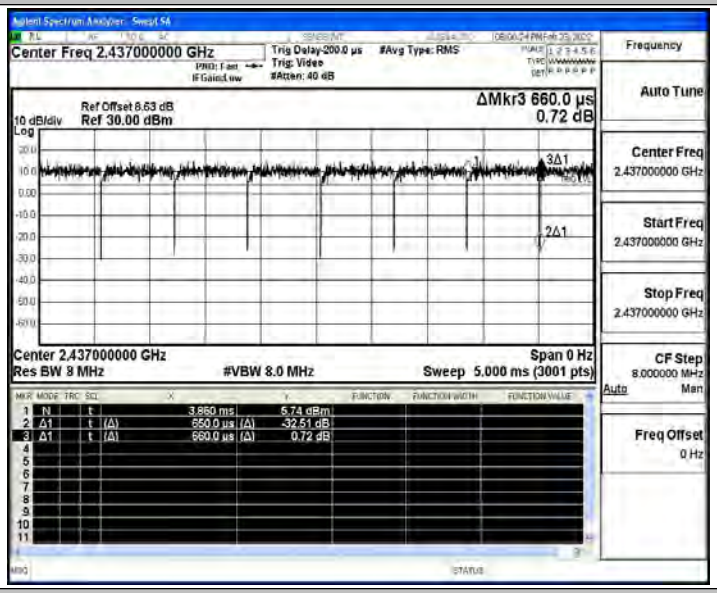
11N20SISO_Ant1_2462



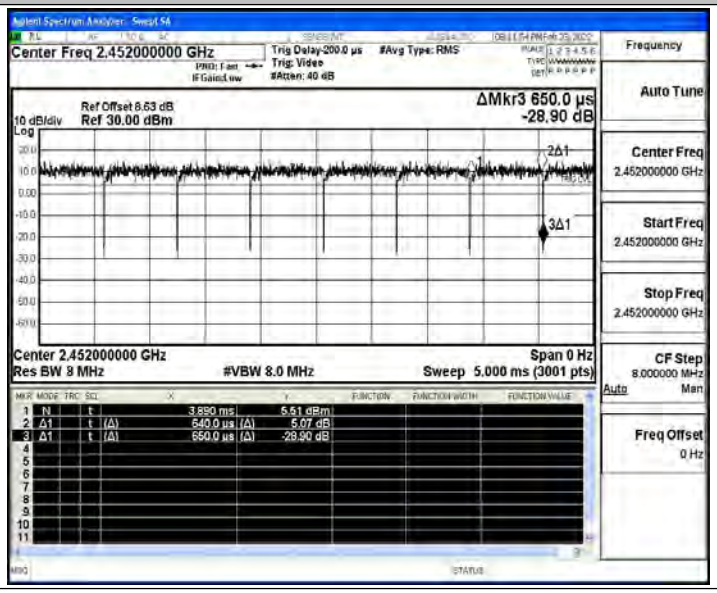
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



B.7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11B	Ant1	Low	2412	AV	2310.000	-57.97	≤-41.20	37.23	≤54	PASS
				AV	2319.890	-49.92	≤-41.20	45.28	≤54	PASS
				AV	2390.000	-53.64	≤-41.20	41.56	≤54	PASS
				Peak	2310.000	-46.68	≤-21.20	48.52	≤74	PASS
				Peak	2385.280	-42.51	≤-21.20	52.69	≤74	PASS
				Peak	2390.000	-42.68	≤-21.20	52.52	≤74	PASS
		High	2462	AV	2483.500	-48.07	≤-41.20	47.13	≤54	PASS
				AV	2487.740	-47.61	≤-41.20	47.59	≤54	PASS
				AV	2500.000	-55.5	≤-41.20	39.70	≤54	PASS
				Peak	2483.500	-39.47	≤-21.20	55.73	≤74	PASS
				Peak	2487.630	-39.44	≤-21.20	55.76	≤74	PASS
				Peak	2500.000	-44.81	≤-21.20	50.39	≤74	PASS
11G	Ant1	Low	2412	AV	2310.000	-57.47	≤-41.20	37.73	≤54	PASS
				AV	2319.890	-49.89	≤-41.20	45.31	≤54	PASS
				AV	2390.000	-50.39	≤-41.20	44.81	≤54	PASS
				Peak	2310.000	-46.52	≤-21.20	48.68	≤74	PASS
				Peak	2389.310	-35.49	≤-21.20	59.71	≤74	PASS
				Peak	2390.000	-36.15	≤-21.20	59.05	≤74	PASS
		High	2462	AV	2483.500	-44.18	≤-41.20	51.02	≤54	PASS
				AV	2483.560	-44.32	≤-41.20	50.88	≤54	PASS
				AV	2500.000	-54.31	≤-41.20	40.89	≤54	PASS
				Peak	2483.500	-30.09	≤-21.20	65.11	≤74	PASS
				Peak	2483.560	-30.15	≤-21.20	65.05	≤74	PASS
				Peak	2500.000	-44.29	≤-21.20	50.91	≤74	PASS
11N20SISO	Ant1	Low	2412	AV	2310.000	-57.67	≤-41.20	37.53	≤54	PASS
				AV	2320.020	-49.77	≤-41.20	45.43	≤54	PASS
				AV	2390.000	-51.23	≤-41.20	43.97	≤54	PASS
				Peak	2310.000	-46.88	≤-21.20	48.32	≤74	PASS
				Peak	2388.400	-37.26	≤-21.20	57.94	≤74	PASS
				Peak	2390.000	-39.13	≤-21.20	56.07	≤74	PASS
		High	2462	AV	2483.500	-47.11	≤-41.20	48.09	≤54	PASS
				AV	2483.560	-47.14	≤-41.20	48.06	≤54	PASS
				AV	2500.000	-54.46	≤-41.20	40.74	≤54	PASS
				Peak	2483.500	-31.61	≤-21.20	63.59	≤74	PASS
				Peak	2483.560	-31.1	≤-21.20	64.10	≤74	PASS
				Peak	2500.000	-43.81	≤-21.20	51.39	≤74	PASS
11N40SI	Ant1	Low	2422	AV	2310.000	-57.35	≤-41.20	37.85	≤54	PASS

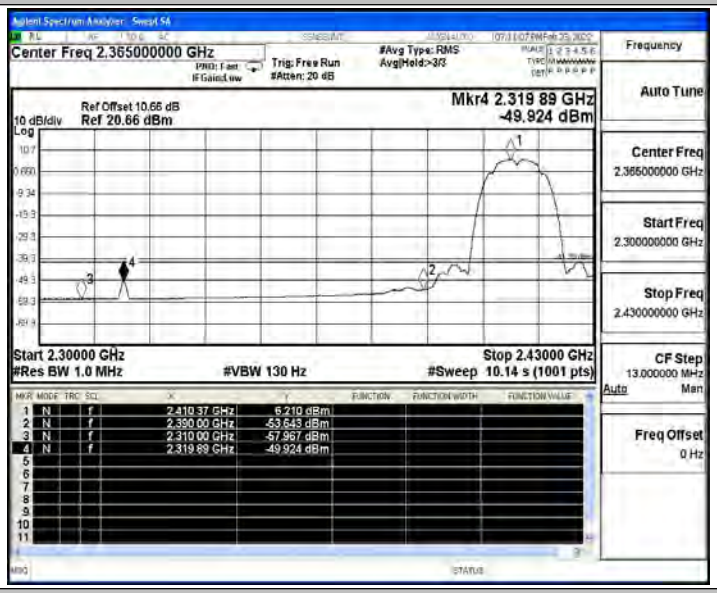
SO				AV	2389.440	-45.03	≤-41.20	50.17	≤54	PASS
				AV	2390.000	-45.06	≤-41.20	50.14	≤54	PASS
				Peak	2310.000	-47.59	≤-21.20	47.61	≤74	PASS
				Peak	2388.790	-27.81	≤-21.20	67.39	≤74	PASS
				Peak	2390.000	-28.58	≤-21.20	66.62	≤74	PASS
		High	2452	AV	2483.500	-45.07	≤-41.20	50.13	≤54	PASS
				AV	2483.670	-45.27	≤-41.20	49.93	≤54	PASS
				AV	2500.000	-52.63	≤-41.20	42.57	≤54	PASS
				Peak	2483.500	-27.53	≤-21.20	67.67	≤74	PASS
				Peak	2485.540	-27.45	≤-21.20	67.75	≤74	PASS
				Peak	2500.000	-41.05	≤-21.20	54.15	≤74	PASS

Note：

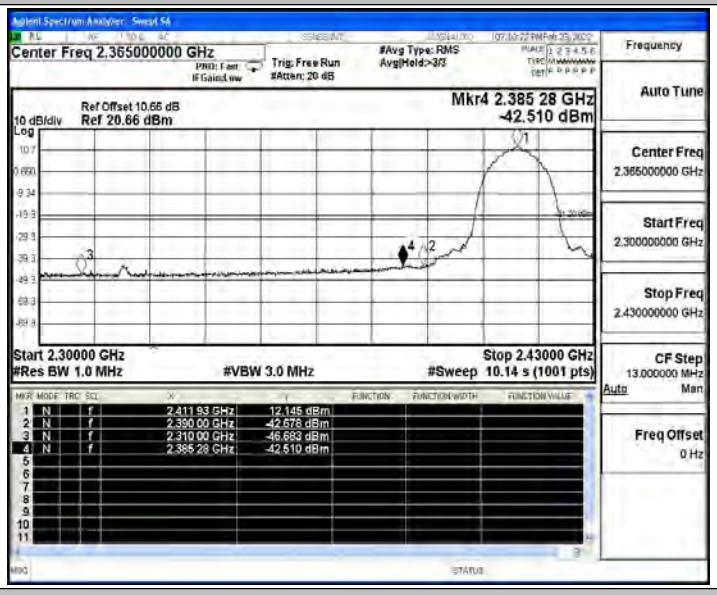
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

11B_Ant1_Low_2412_AV



11B_Ant1_Low_2412_Peak



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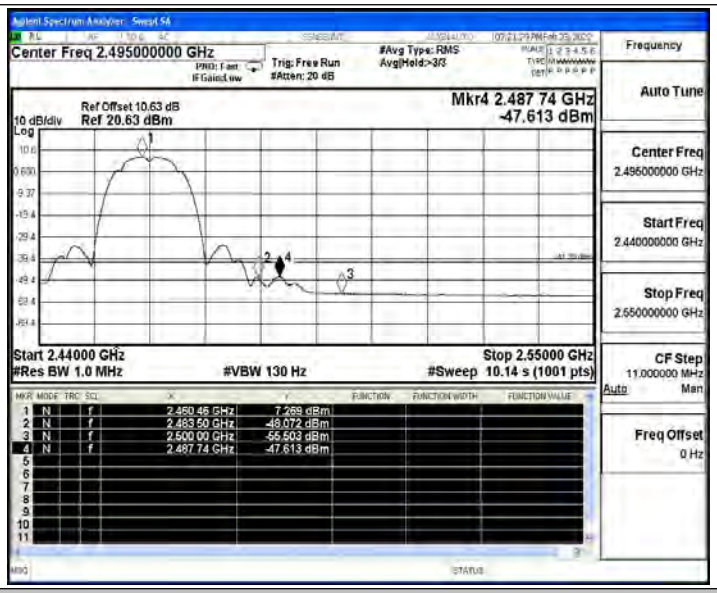

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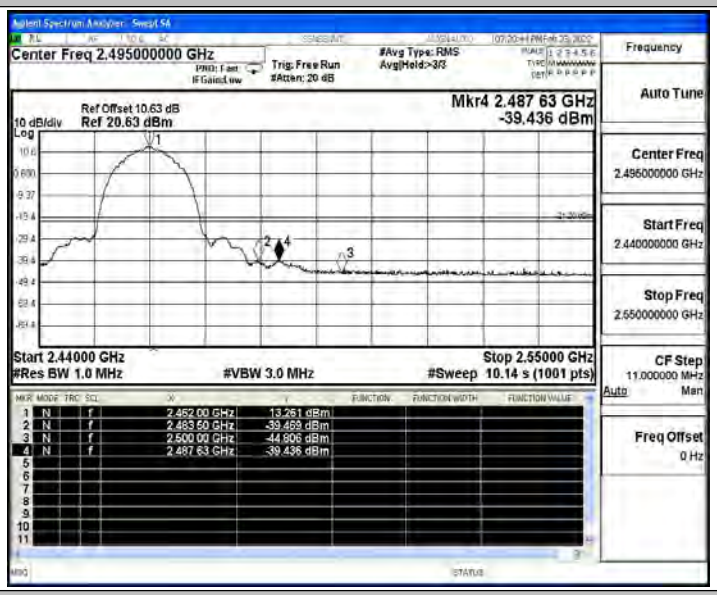

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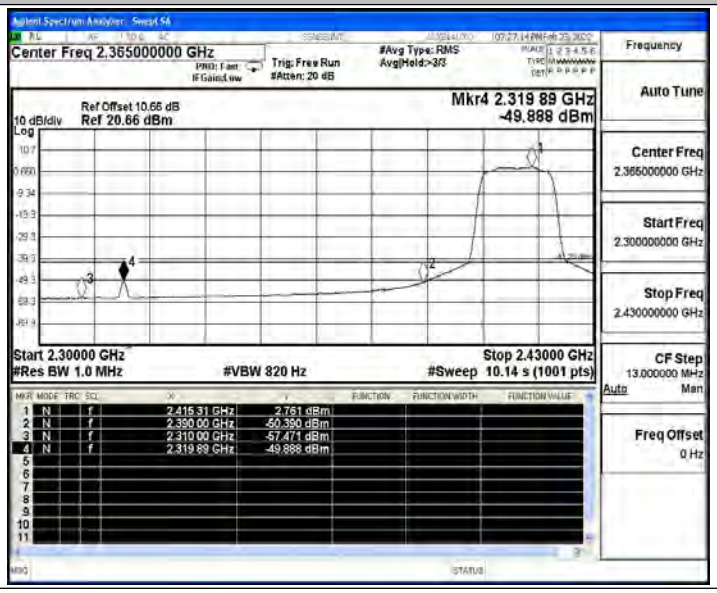

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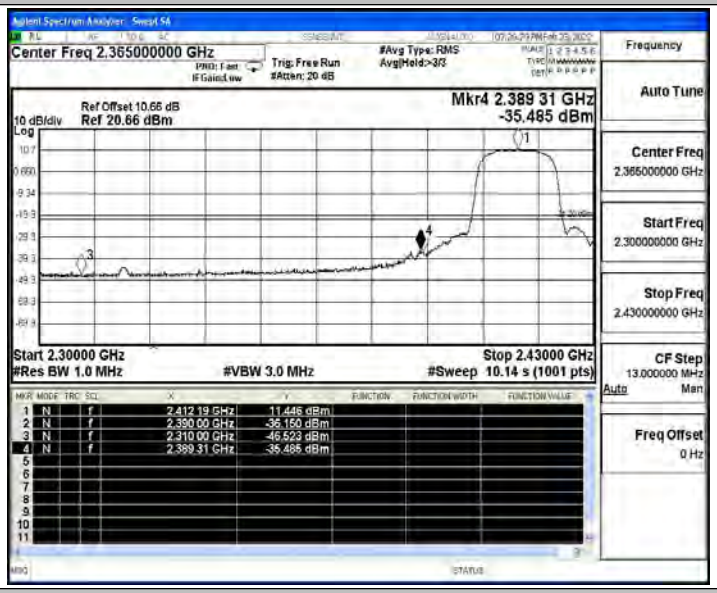

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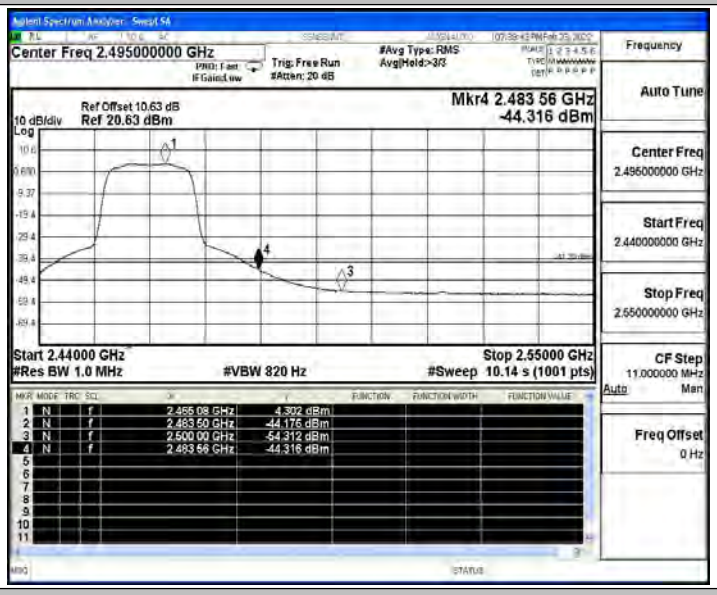

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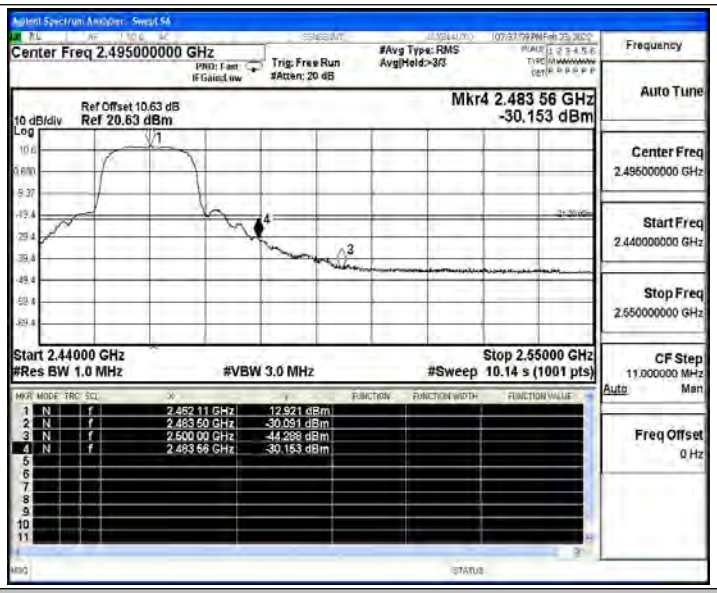
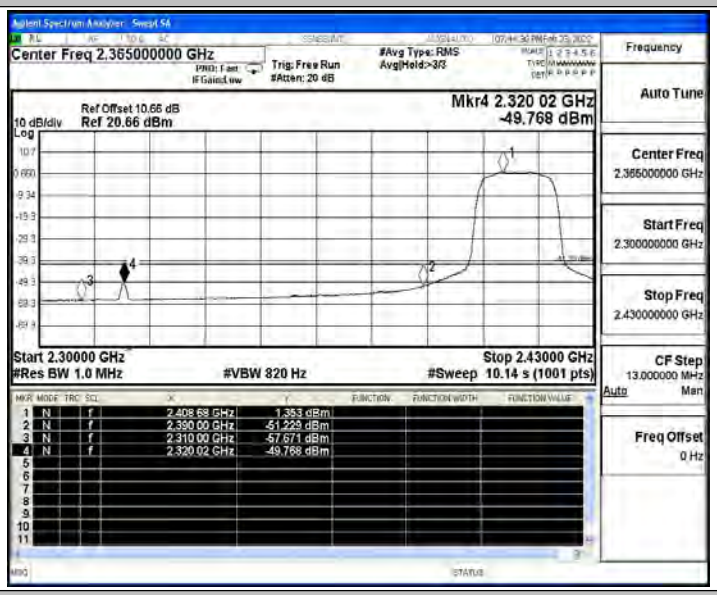


11N20SISO_Ant1_Low_2412_AV



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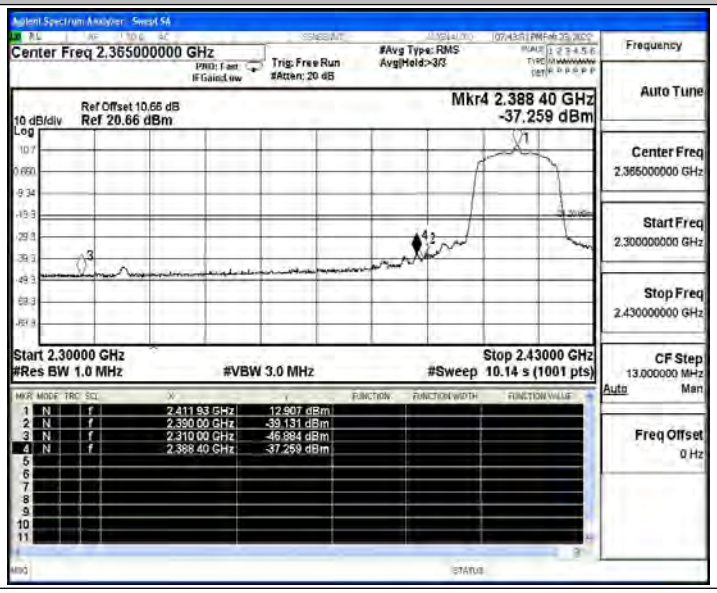

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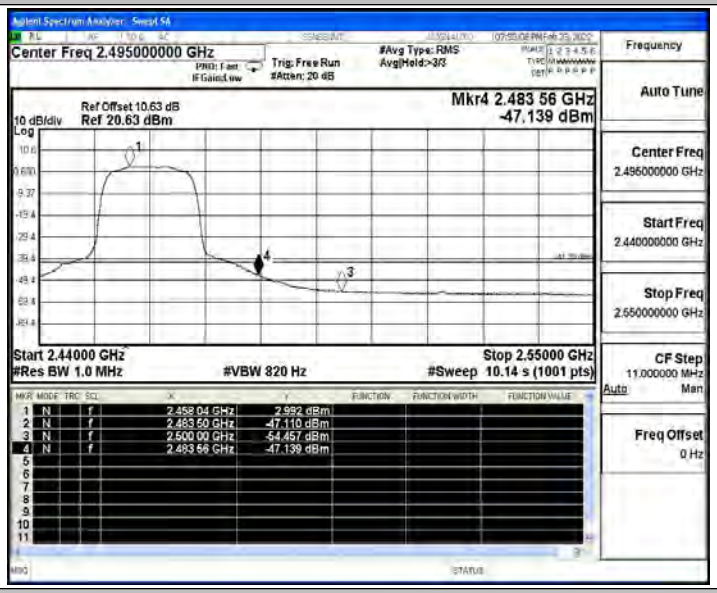
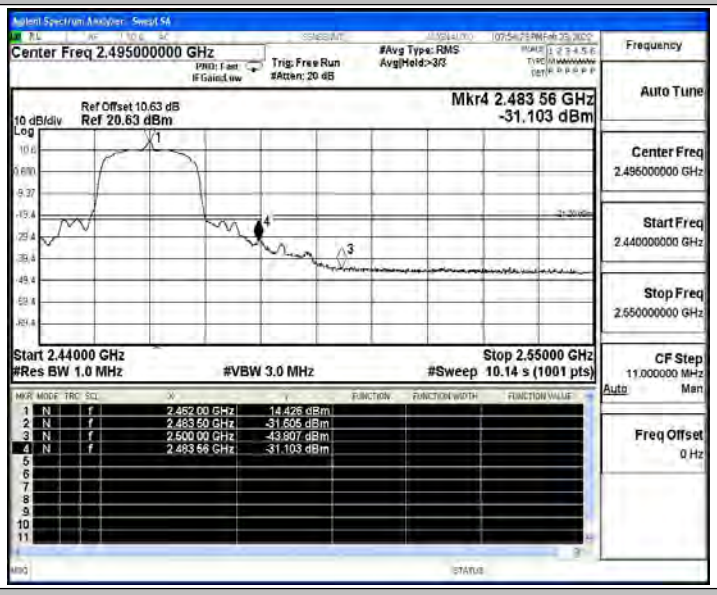


11N20SISO_Ant1_High_2462_Peak



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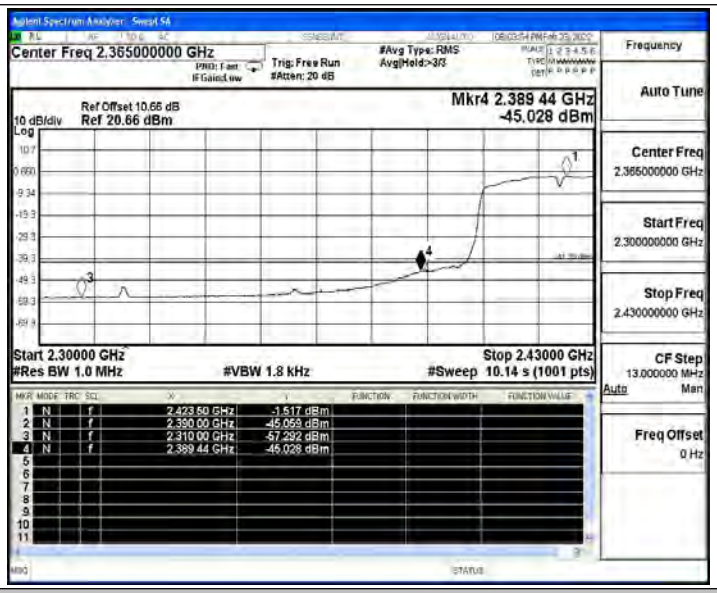
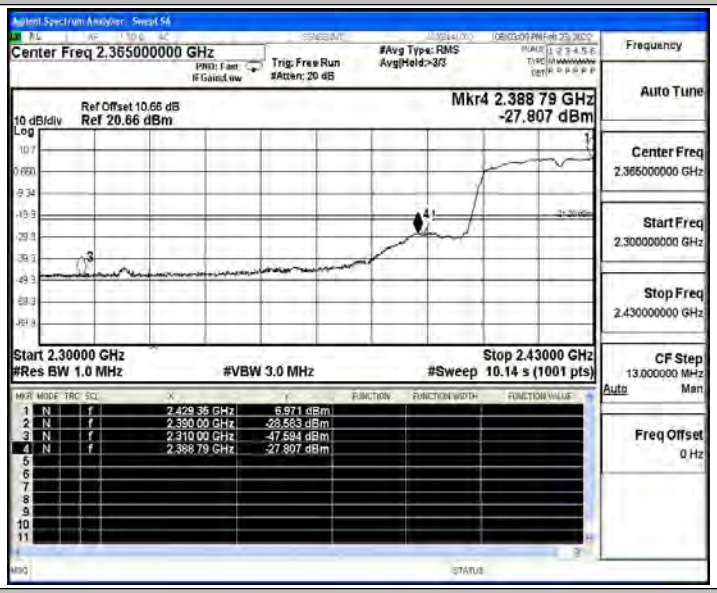


11N40SISO_Ant1_Low_2422_Peak



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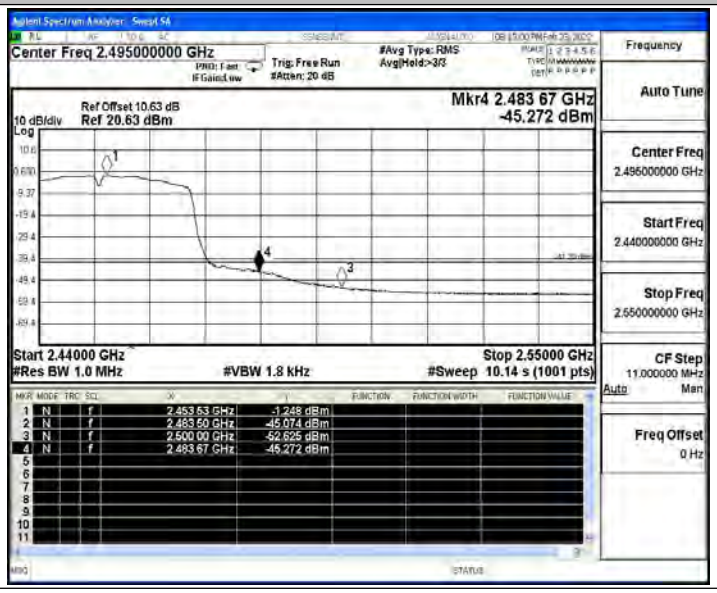
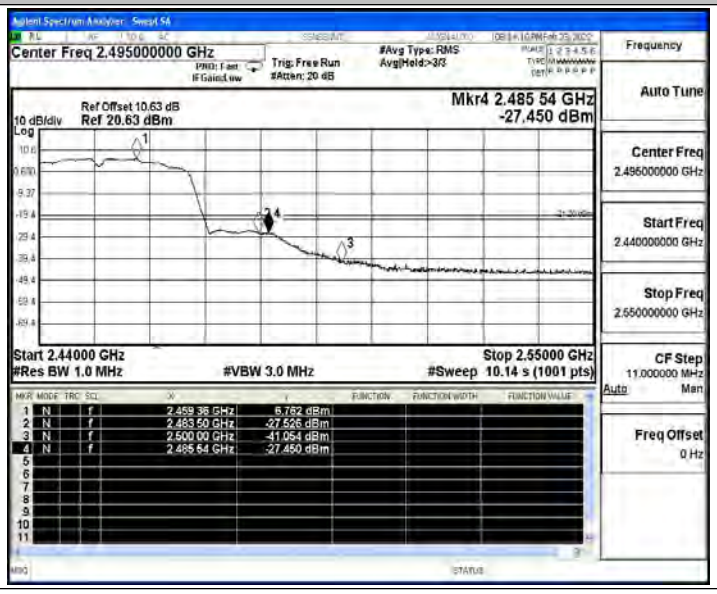
11N40SISO_Ant1_High_2452_Peak