Appendix C

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: WIMU PRO EVO

Test Model: WT200

Environmental Conditions

Temperature:	23.8℃
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Nick Peng
Supervised by:	Ling Zhu

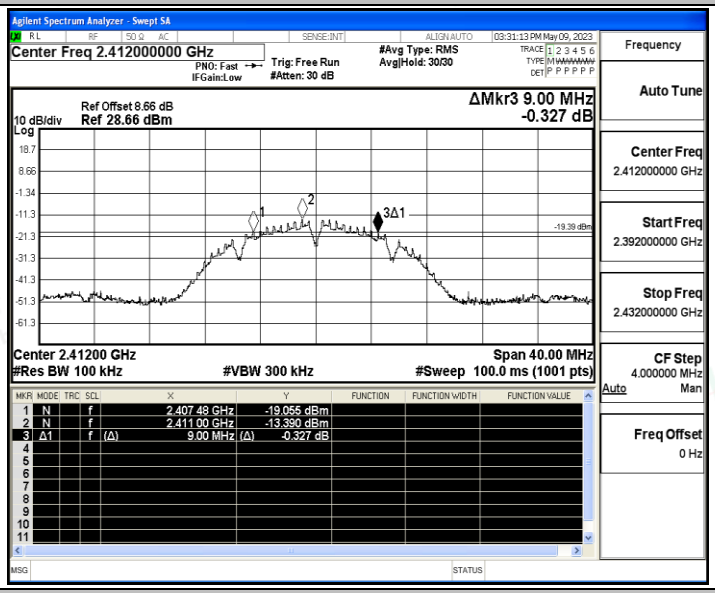
C.1 DTS Bandwidth

Test Result

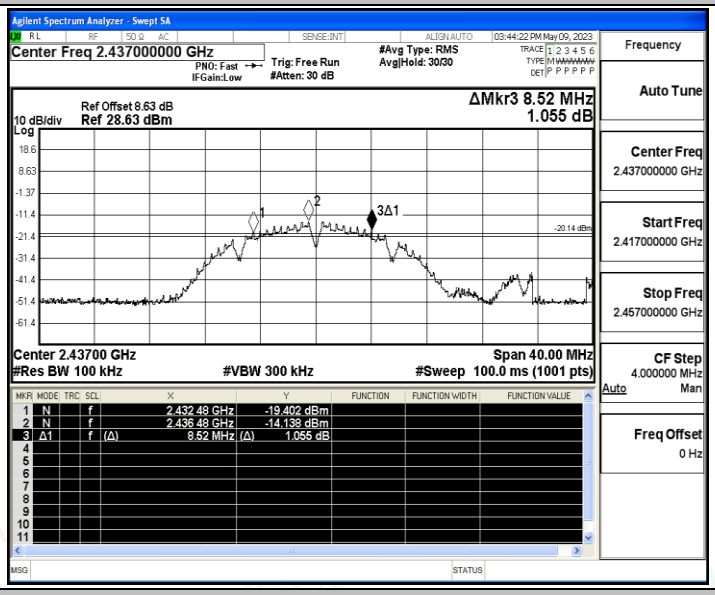
TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant	2412	9.000	2407.480	2416.480	0.5	PASS
		2437	8.520	2432.480	2441.000	0.5	PASS
		2462	8.520	2457.480	2466.000	0.5	PASS
11G	Ant	2412	15.080	2404.440	2419.520	0.5	PASS
		2437	15.080	2429.440	2444.520	0.5	PASS
		2462	15.720	2453.840	2469.560	0.5	PASS
11N20SISO	Ant	2412	15.080	2404.440	2419.520	0.5	PASS
		2437	15.040	2429.480	2444.520	0.5	PASS
		2462	15.640	2453.840	2469.480	0.5	PASS

Test Graphs

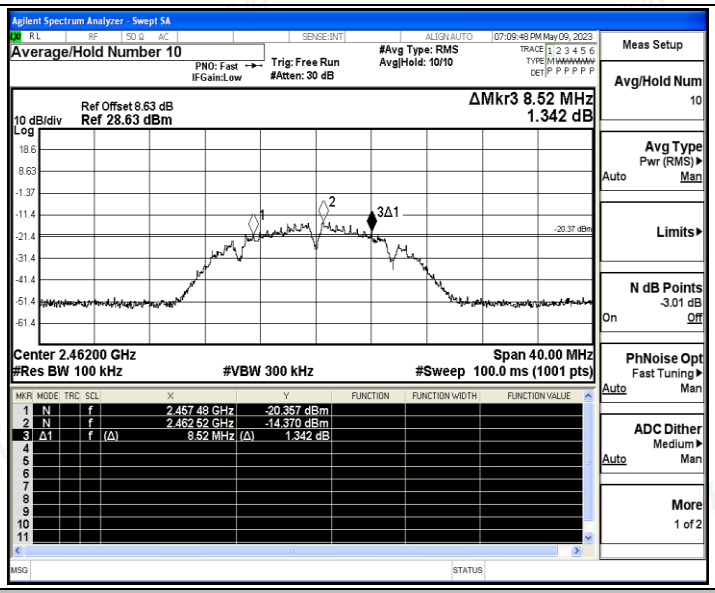
11B_Ant_2412



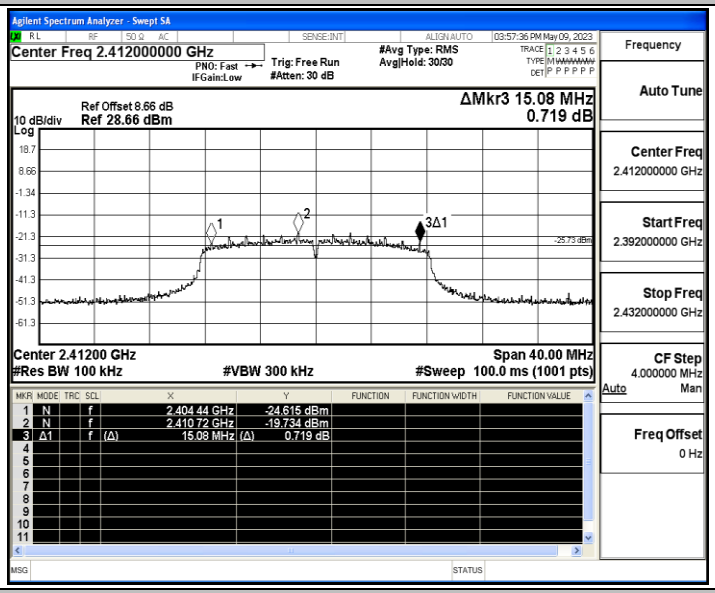
11B_Ant_2437



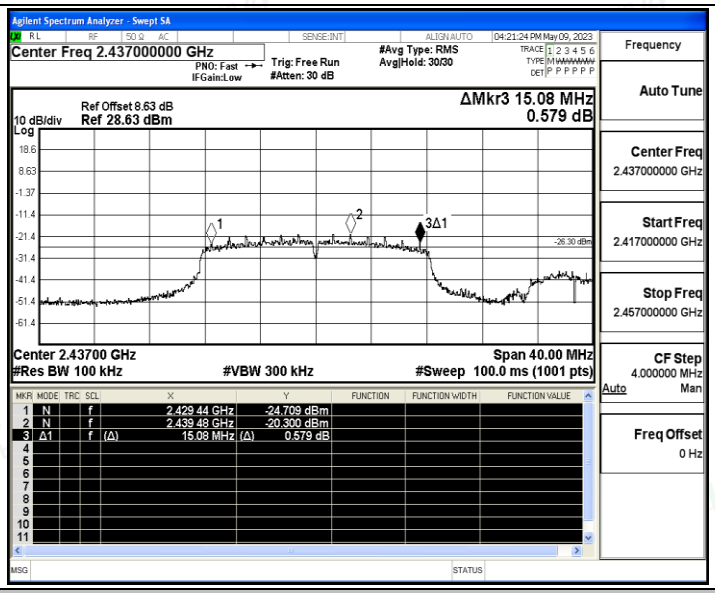
11B_Ant_2462



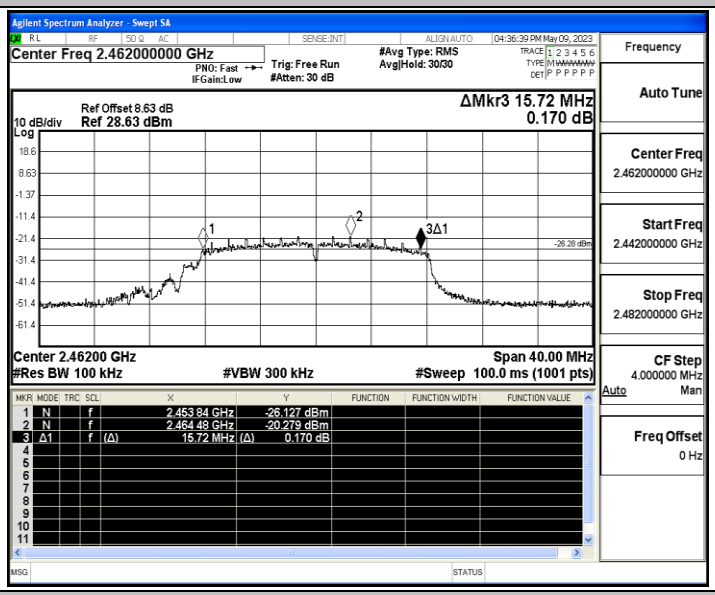
11G_Ant_2412



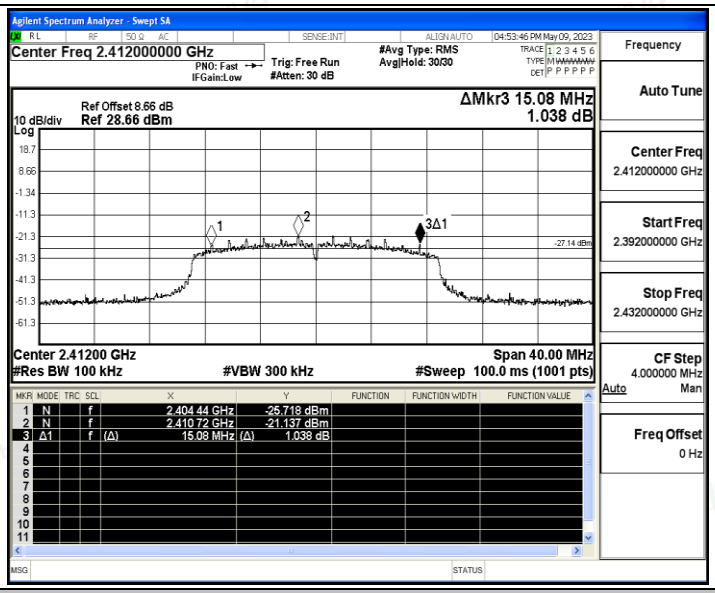
11G_Ant_2437



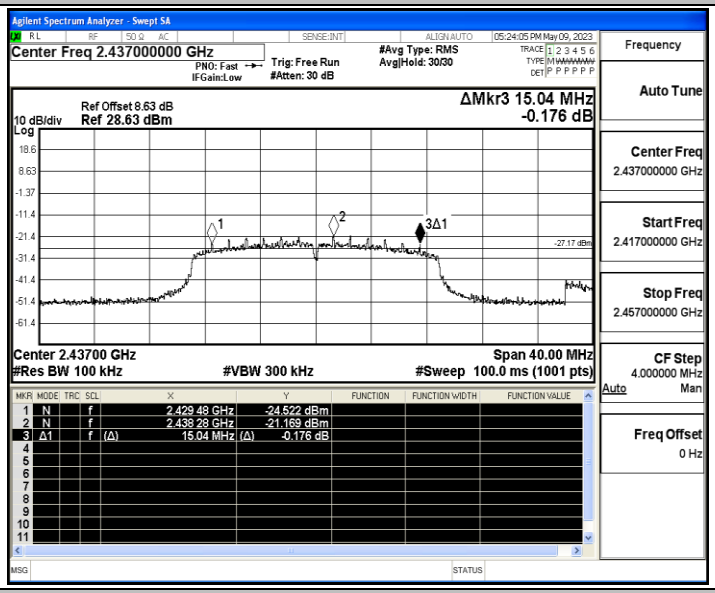
11G_Ant_2462



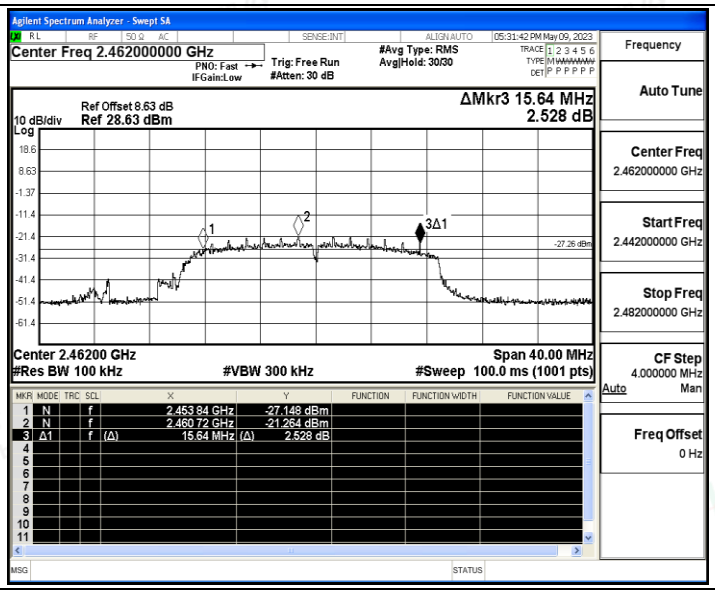
11N20SISO_Ant_2412



11N20SISO_Ant_2437



11N20SISO_Ant_2462


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 30/30
05:31:42 PM May 09, 2023
Ref Offset 8.63 dB
10 dB/div Ref 28.63 dBm
Log
ΔMkr3 15.64 MHz
2.528 dB
-27.26 dBm
Center 2.46200 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 40.00 MHz
#Sweep 100.0 ms (1001 pts)
1 N f 2.453 84 GHz -27.148 dBm
2 N f 2.460 72 GHz -21.264 dBm
3 Δ1 f (Δ) 15.64 MHz (Δ) 2.528 dB
Frequency
Auto Tune
Center Freq 2.462000000 GHz
Start Freq 2.442000000 GHz
Stop Freq 2.482000000 GHz
CF Step 4.000000 MHz
Auto Man
Freq Offset 0 Hz

C.2 Maximum conducted output power

Test Result Peak

TestMode	Antenna	Frequency[MHz]	Peak Powert[dBm]	Conducted Limit[dBm]	Verdict
11B	Ant	2412	-2.12	≤30.00	PASS
		2437	-2.20	≤30.00	PASS
		2462	-2.09	≤30.00	PASS
11G	Ant	2412	-0.79	≤30.00	PASS
		2437	-1.25	≤30.00	PASS
		2462	-1.25	≤30.00	PASS
11N20SISO	Ant	2412	-2.25	≤30.00	PASS
		2437	-2.31	≤30.00	PASS
		2462	-2.41	≤30.00	PASS

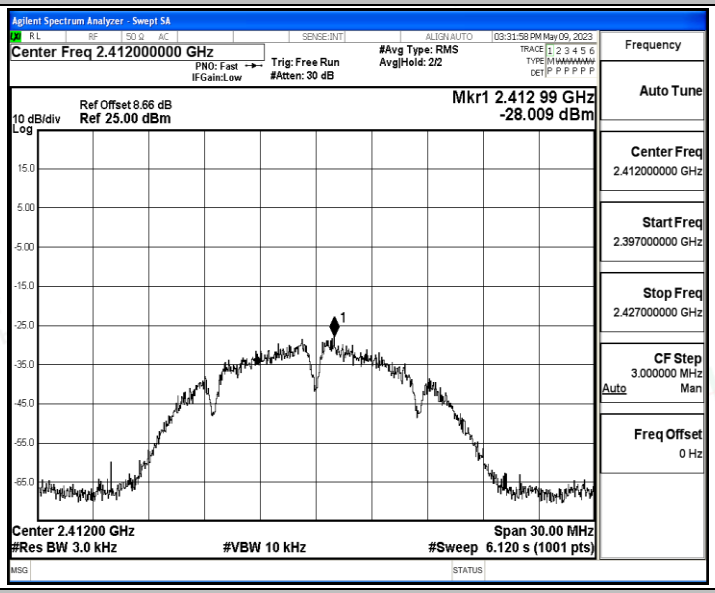
C.3 Maximum power spectral density

Test Result

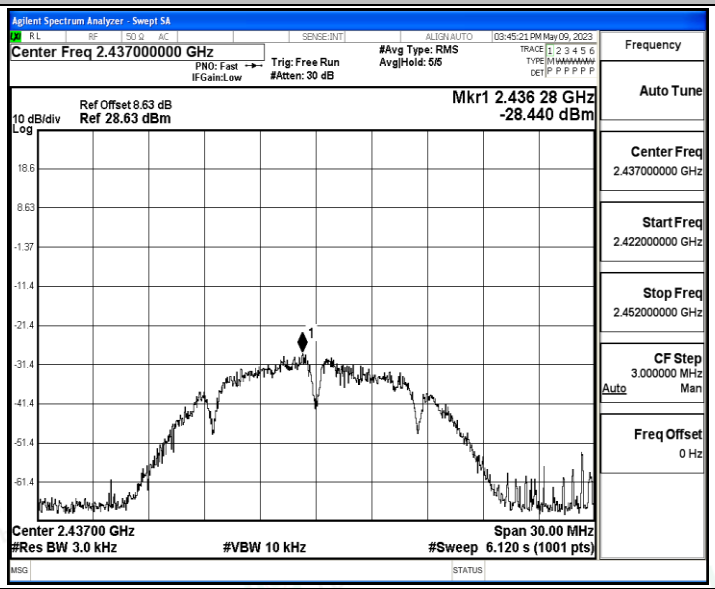
TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant	2412	-28.01	≤8.00	PASS
		2437	-28.44	≤8.00	PASS
		2462	-28.05	≤8.00	PASS
11G	Ant	2412	-33.68	≤8.00	PASS
		2437	-33.99	≤8.00	PASS
		2462	-34.43	≤8.00	PASS
11N20SISO	Ant	2412	-34.46	≤8.00	PASS
		2437	-35.84	≤8.00	PASS
		2462	-35.15	≤8.00	PASS

Test Graphs

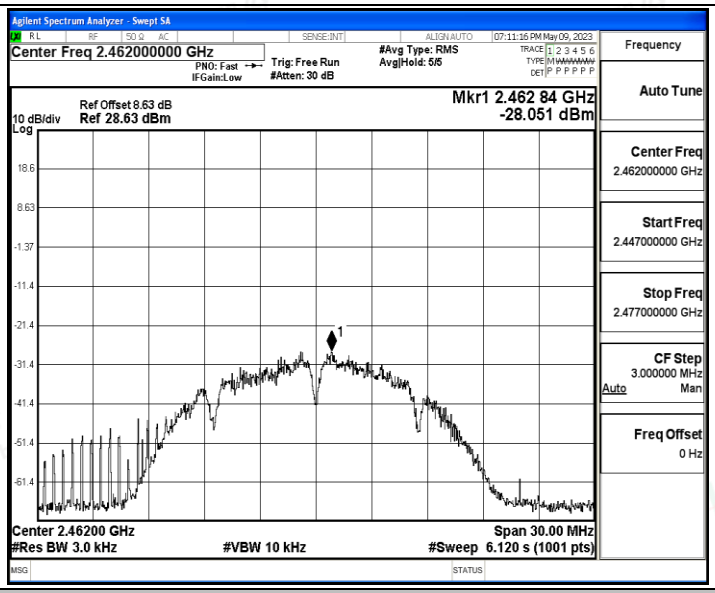
11B_Ant_2412



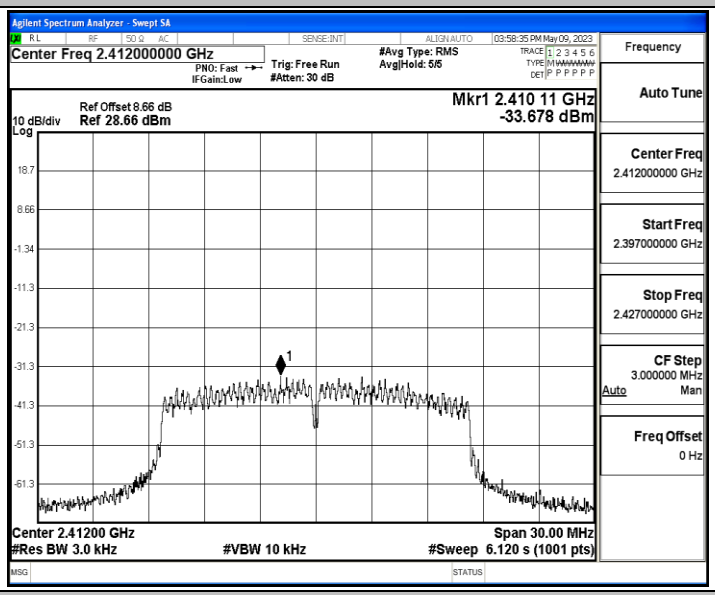
11B_Ant_2437



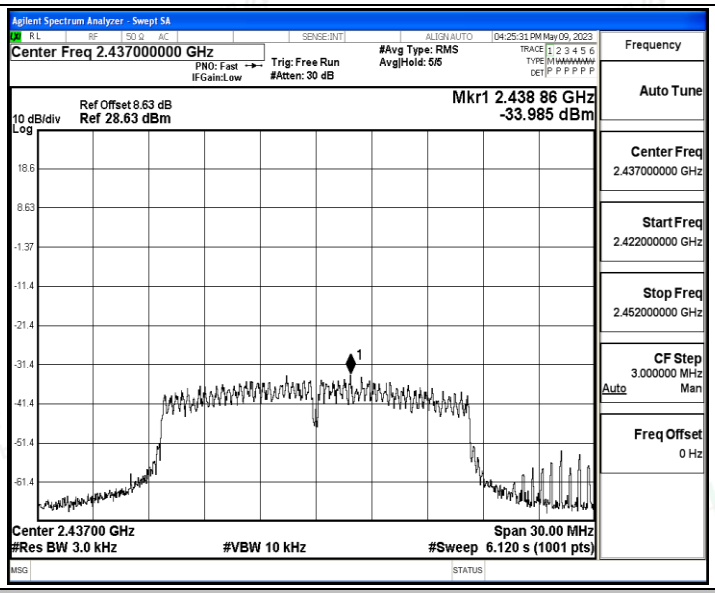
11B_Ant_2462



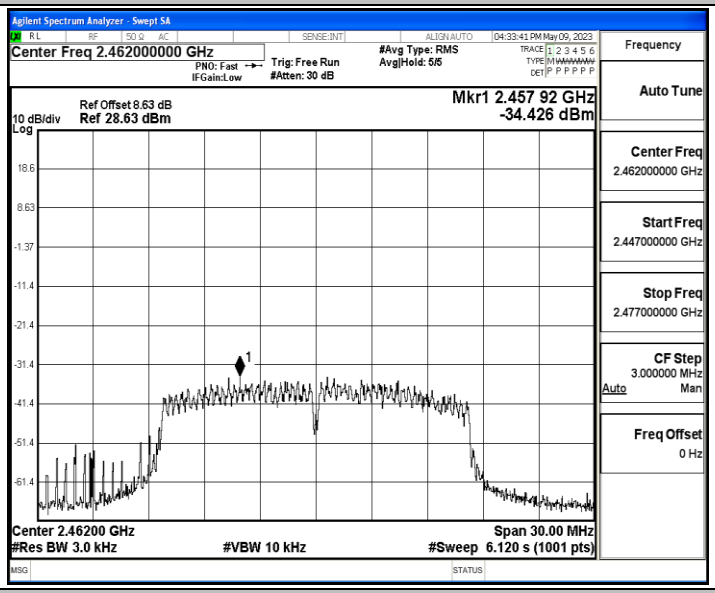
11G_Ant_2412



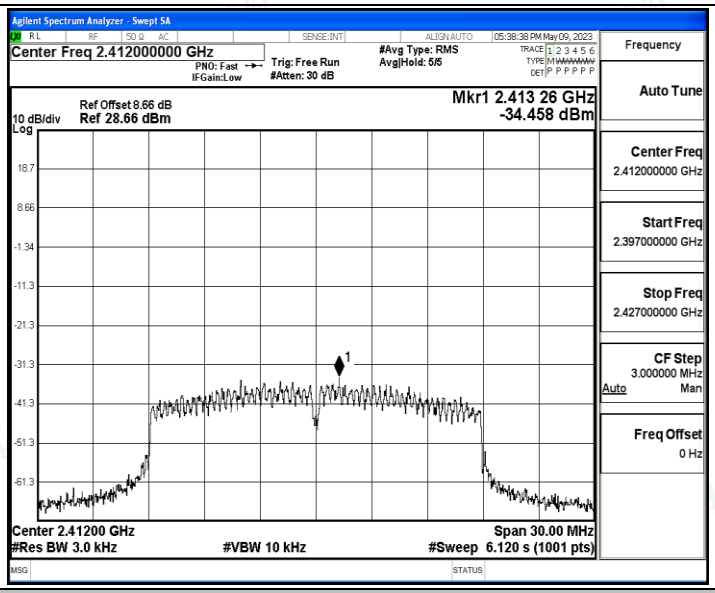
11G_Ant_2437



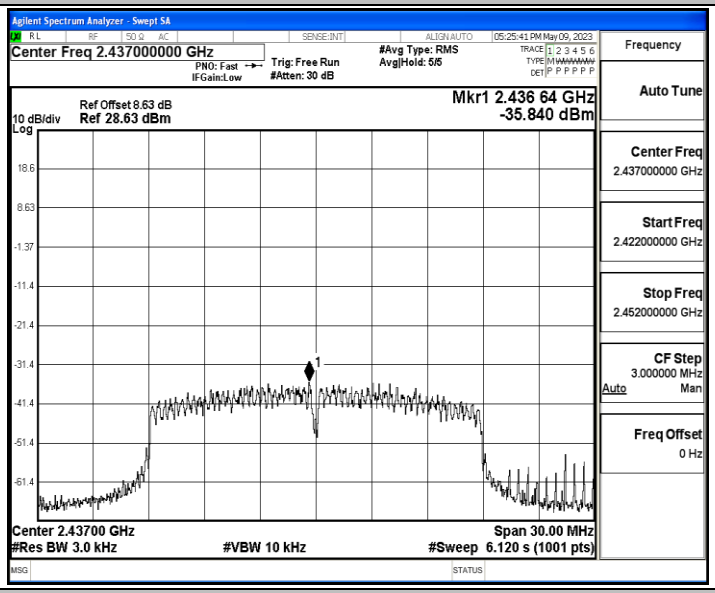
11G_Ant_2462



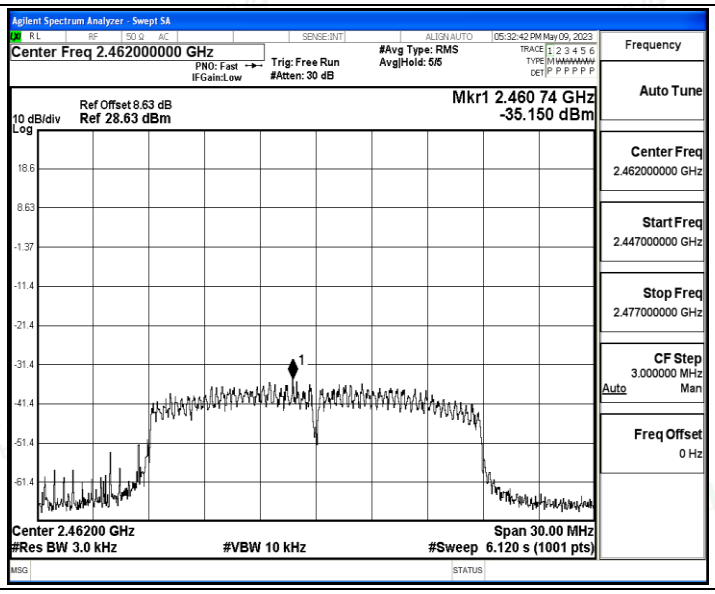
11N20SISO_Ant_2412



11N20SISO_Ant_2437



11N20SISO_Ant_2462


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 5/5
05:32:42 PM May 09, 2023
Frequency
Auto Tune
Ref Offset 8.63 dB
10 dB/div Ref 28.63 dBm
Log
Mkr1 2.460 74 GHz
-35.150 dBm
Center Freq
2.462000000 GHz
Start Freq
2.447000000 GHz
Stop Freq
2.477000000 GHz
CF Step
3.000000 MHz
Auto Man
Freq Offset
0 Hz
Center 2.46200 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 30.00 MHz
#Sweep 6.120 s (1001 pts)

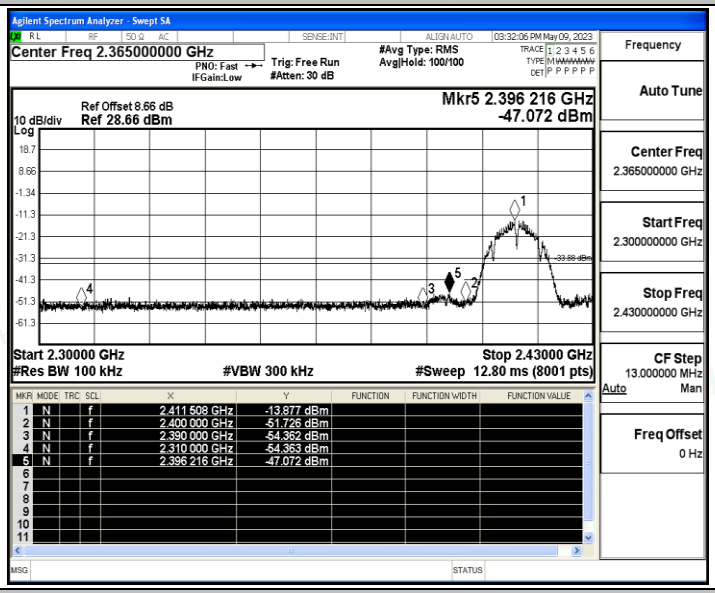
C.4 Band edge measurements

Test Result

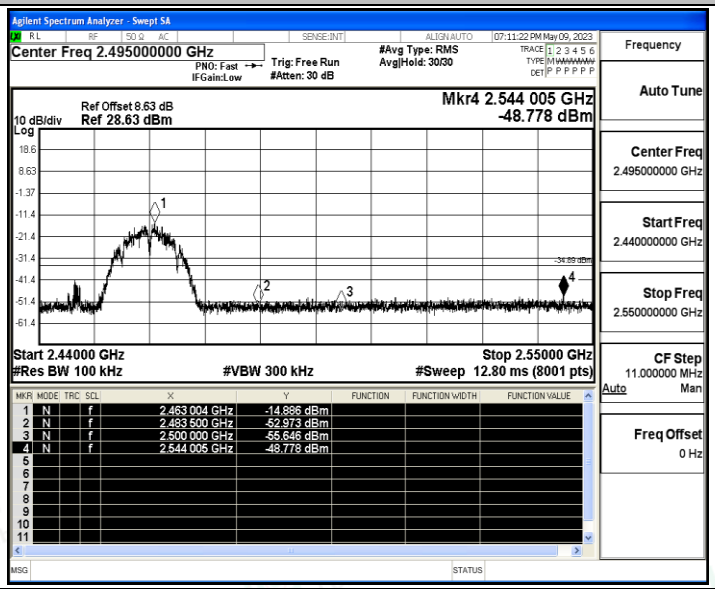
TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant	Low	2412	-13.88	-47.07	≤-33.88	PASS
		High	2462	-14.89	-48.78	≤-34.89	PASS
11G	Ant	Low	2412	-19.78	-49.07	≤-39.78	PASS
		High	2462	-19.94	-48.81	≤-39.94	PASS
11N20SISO	Ant	Low	2412	-21.17	-48.89	≤-41.17	PASS
		High	2462	-22.49	-48.59	≤-42.49	PASS

Test Graphs

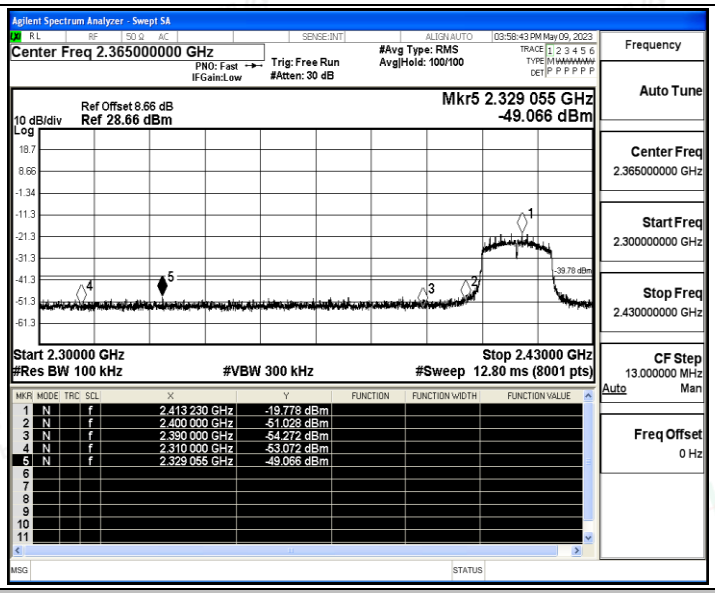
11B_Ant_Low_2412



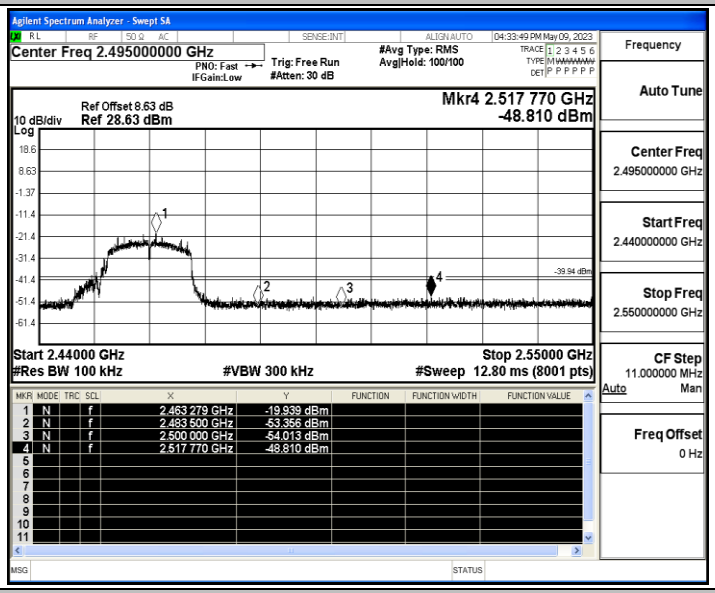
11B_Ant_High_2462



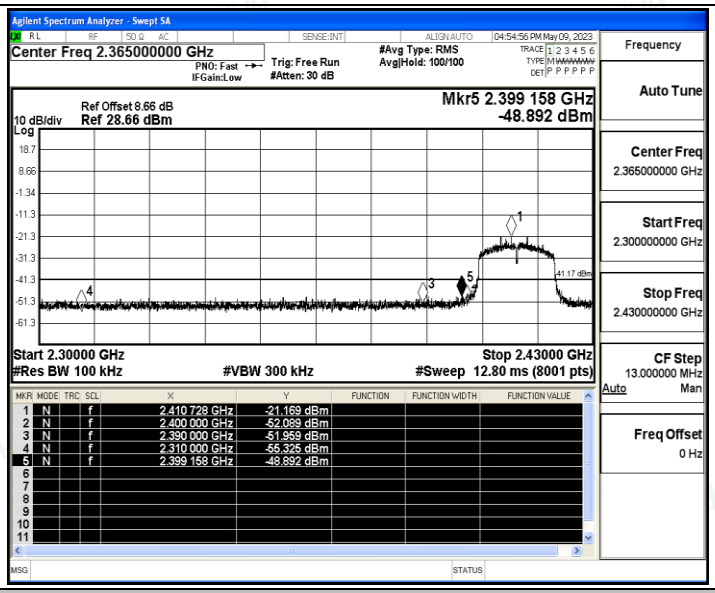
11G_Ant_Low_2412



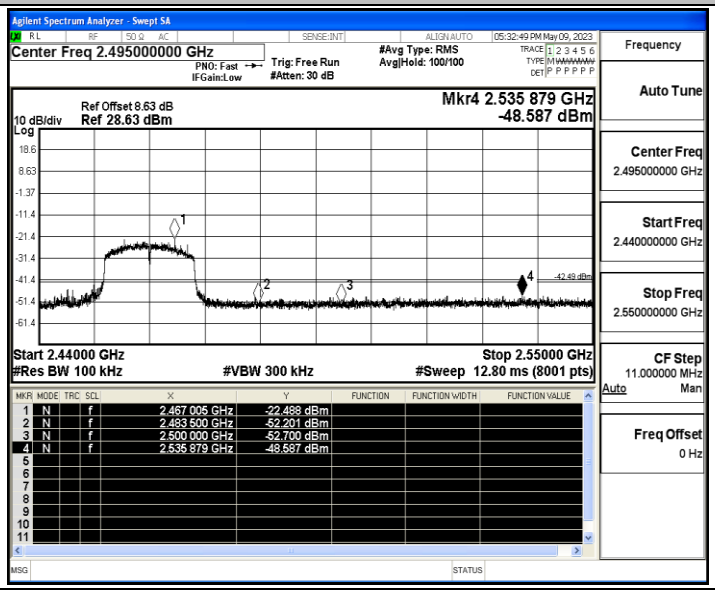
11G_Ant_High_2462



11N20SISO_Ant_Low_2412



11N20SISO_Ant_High_2462



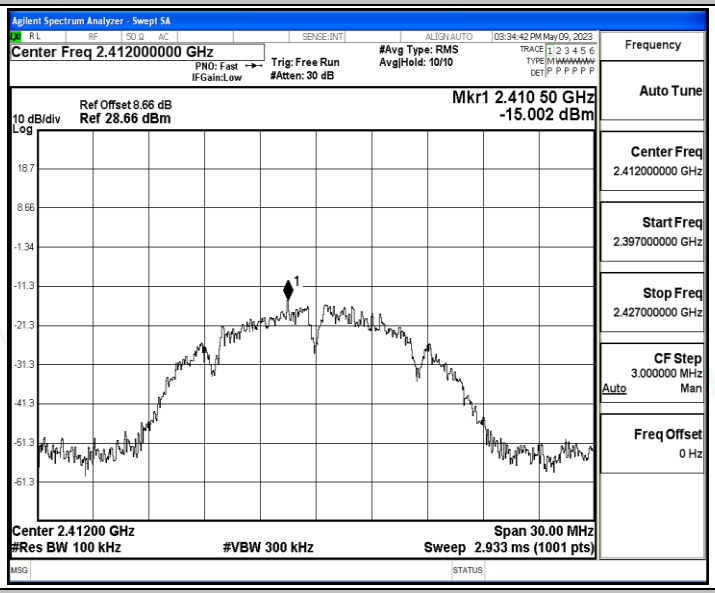
C.5 Conducted Spurious Emission

Test Result

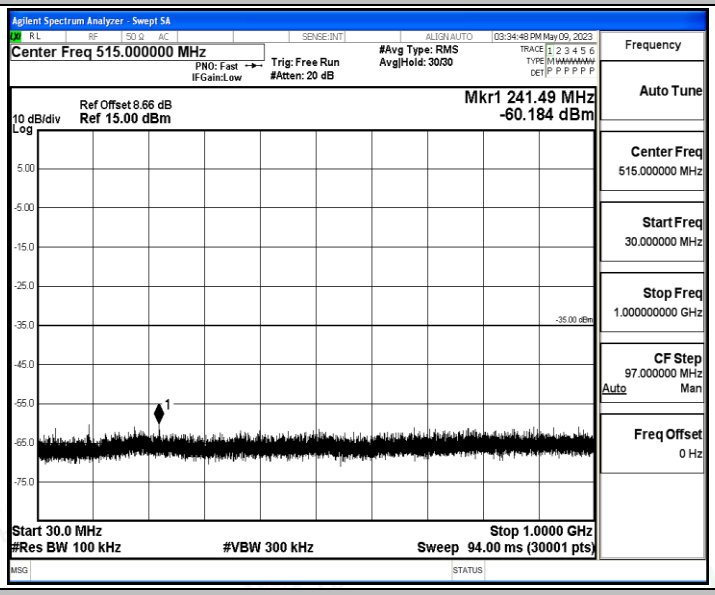
TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant	2412	Reference	-15.00	-15.00	---	PASS
			30~1000	-15.00	-60.18	≤-35	PASS
			1000~26500	-15.00	-39.37	≤-35	PASS
		2437	Reference	-16.08	-16.08	---	PASS
			30~1000	-16.08	-60.72	≤-36.08	PASS
			1000~26500	-16.08	-45.81	≤-36.08	PASS
		2462	Reference	-15.58	-15.58	---	PASS
			30~1000	-15.58	-60.76	≤-35.58	PASS
			1000~26500	-15.58	-46.37	≤-35.58	PASS
11G	Ant	2412	Reference	-22.63	-22.63	---	PASS
			30~1000	-22.63	-60.32	≤-42.63	PASS
			1000~26500	-22.63	-46.56	≤-42.63	PASS
		2437	Reference	-23.11	-23.11	---	PASS
			30~1000	-23.11	-60.24	≤-43.11	PASS
			1000~26500	-23.11	-45.95	≤-43.11	PASS
		2462	Reference	-22.54	-22.54	---	PASS
			30~1000	-22.54	-59.51	≤-42.54	PASS
			1000~26500	-22.54	-45.35	≤-42.54	PASS
11N20SISO	Ant	2412	Reference	-22.22	-22.22	---	PASS
			30~1000	-22.22	-60.21	≤-42.22	PASS
			1000~26500	-22.22	-46.41	≤-42.22	PASS
		2437	Reference	-24.53	-24.53	---	PASS
			30~1000	-24.53	-60.01	≤-44.53	PASS
			1000~26500	-24.53	-46.28	≤-44.53	PASS
		2462	Reference	-22.45	-22.45	---	PASS
			30~1000	-22.45	-60.28	≤-42.45	PASS
			1000~26500	-22.45	-47.05	≤-42.45	PASS

Test Graphs

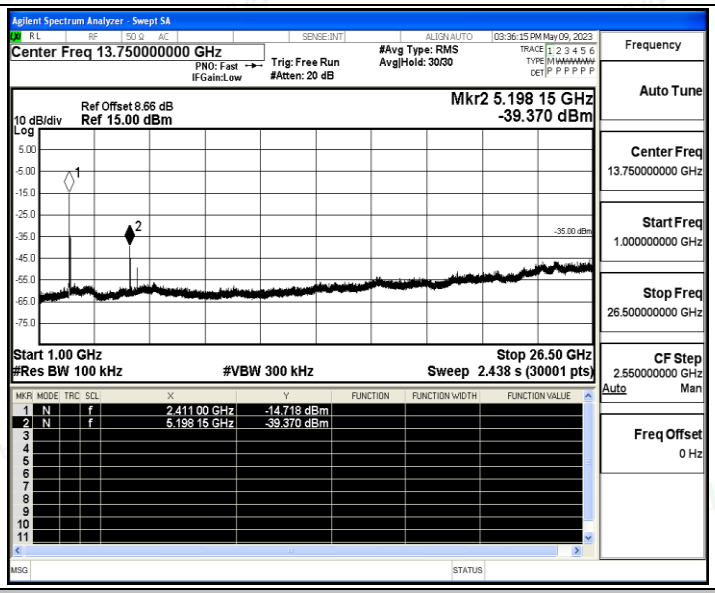
11B_Ant_2412_0~Reference



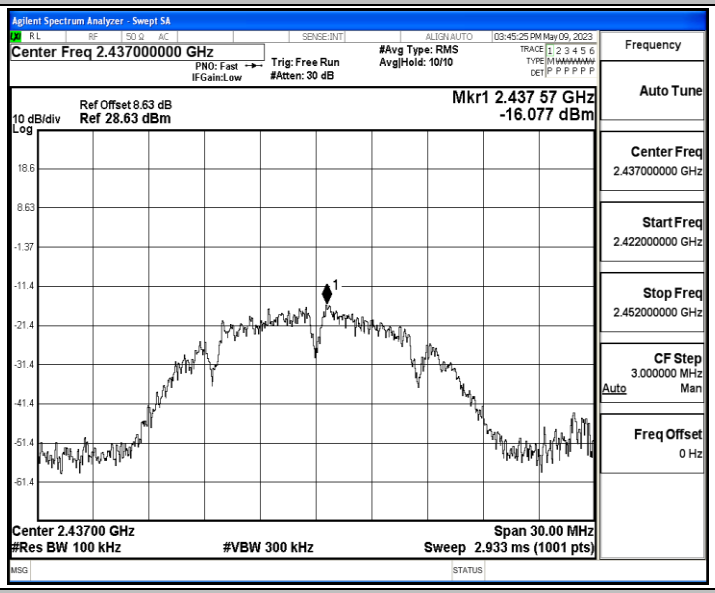
11B_Ant_2412_30~1000



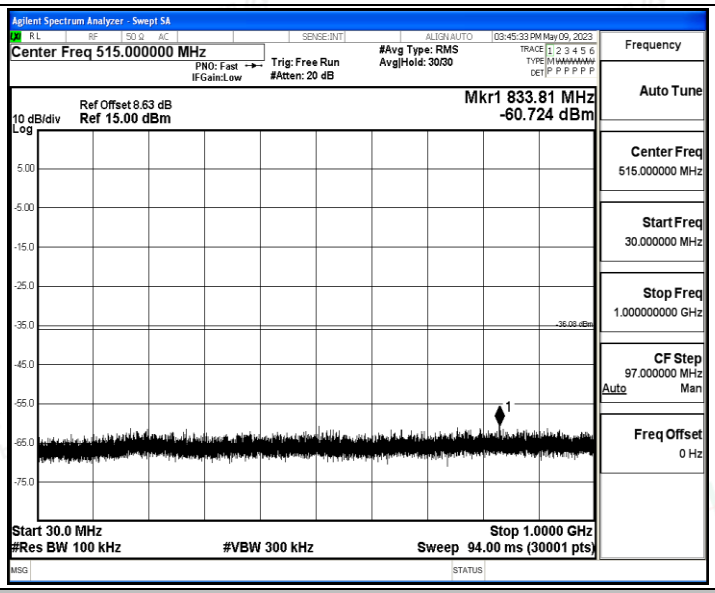
11B_Ant_2412_1000~26500



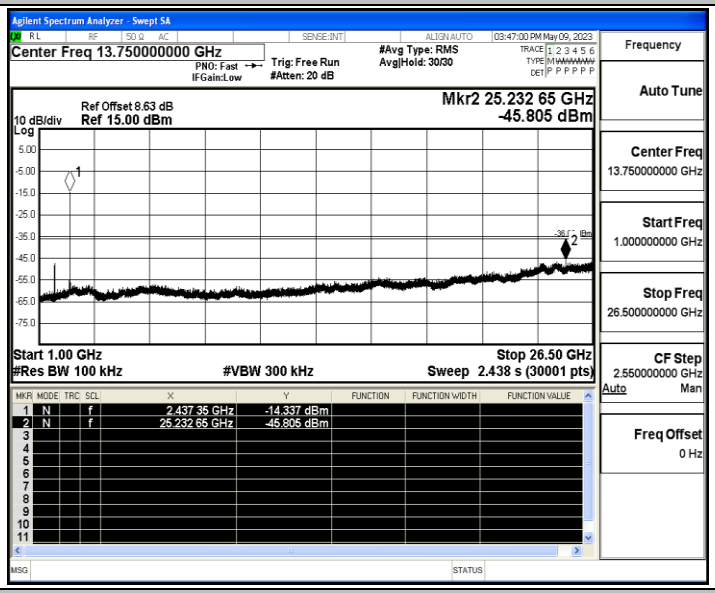
11B_Ant_2437_0~Reference



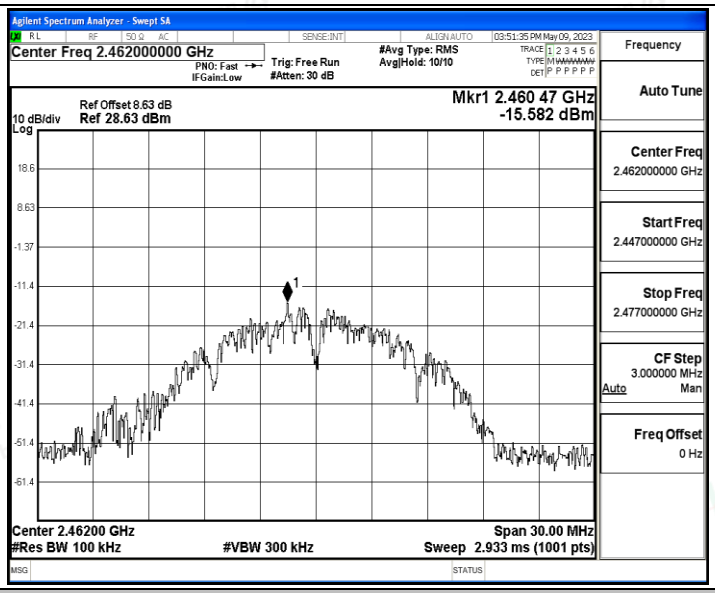
11B_Ant_2437_30~1000



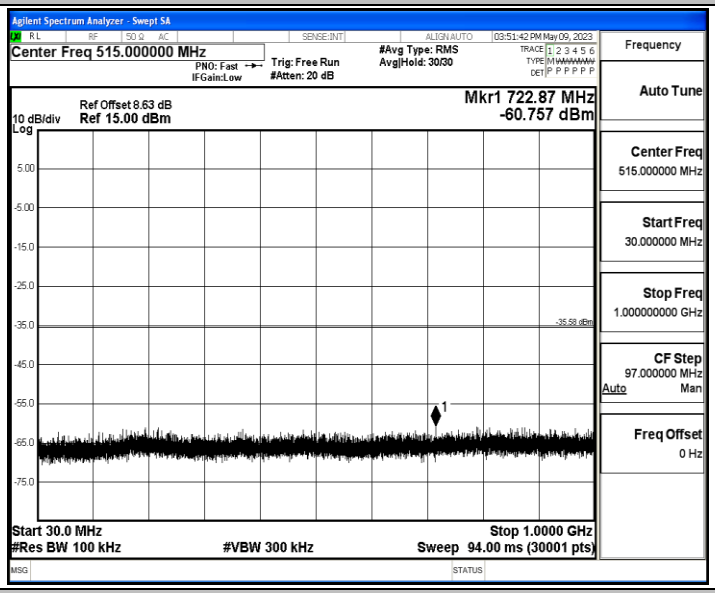
11B_Ant_2437_1000~26500



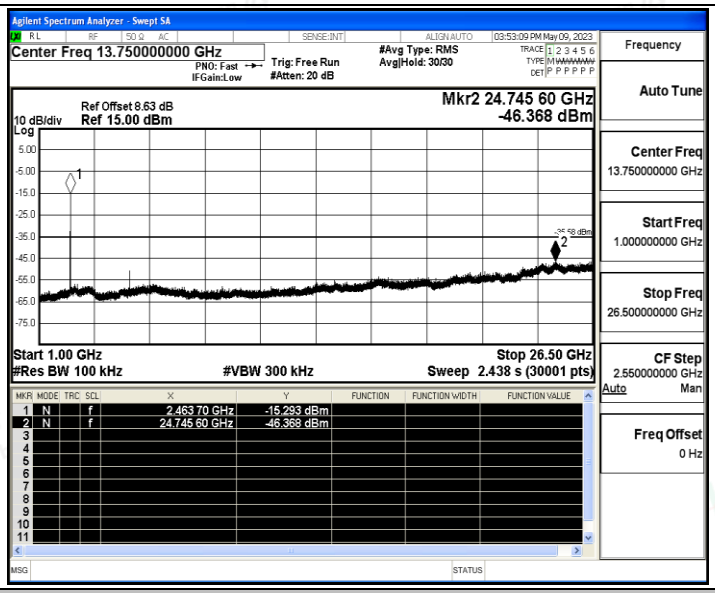
11B_Ant_2462_0~Reference



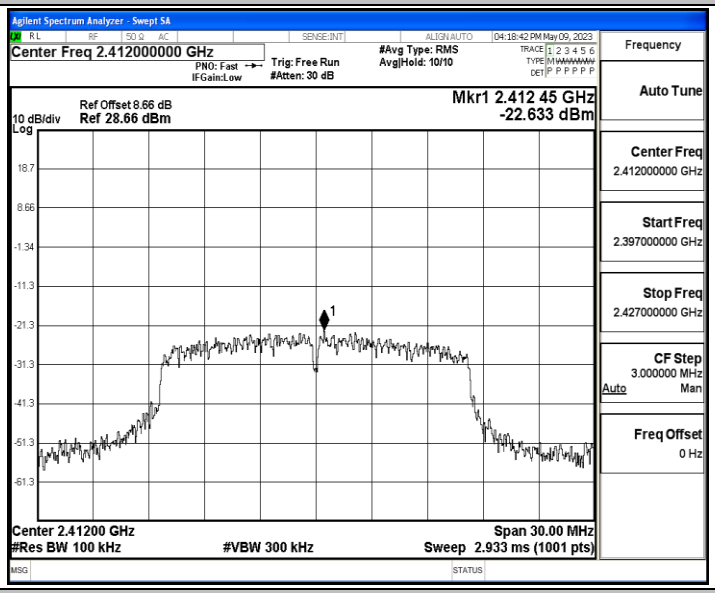
11B_Ant_2462_30~1000



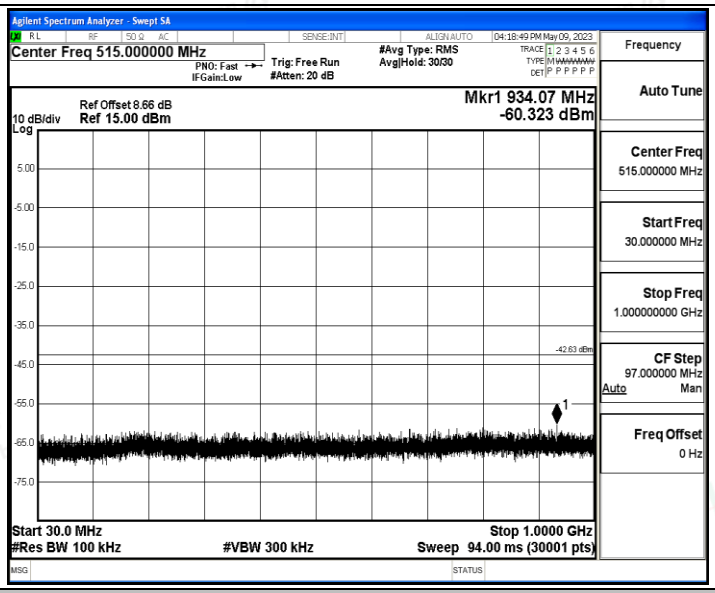
11B_Ant_2462_1000~26500



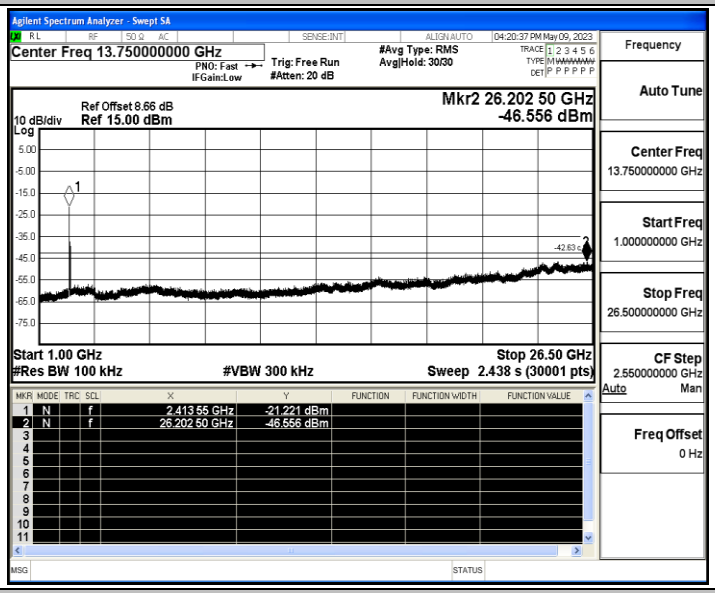
11G_Ant_2412_0~Reference



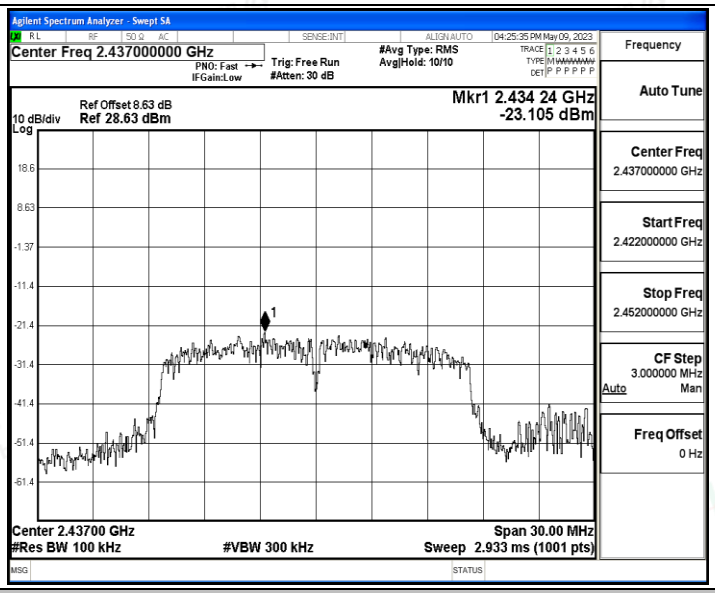
11G_Ant_2412_30~1000



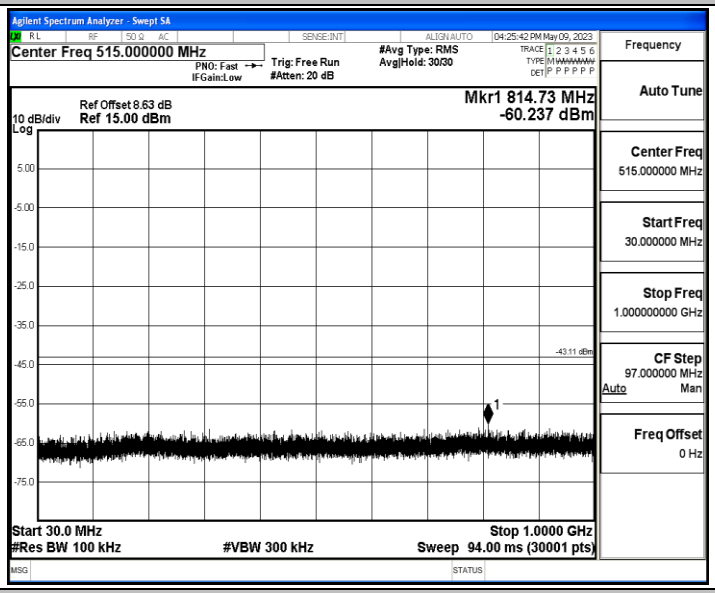
11G_Ant_2412_1000~26500



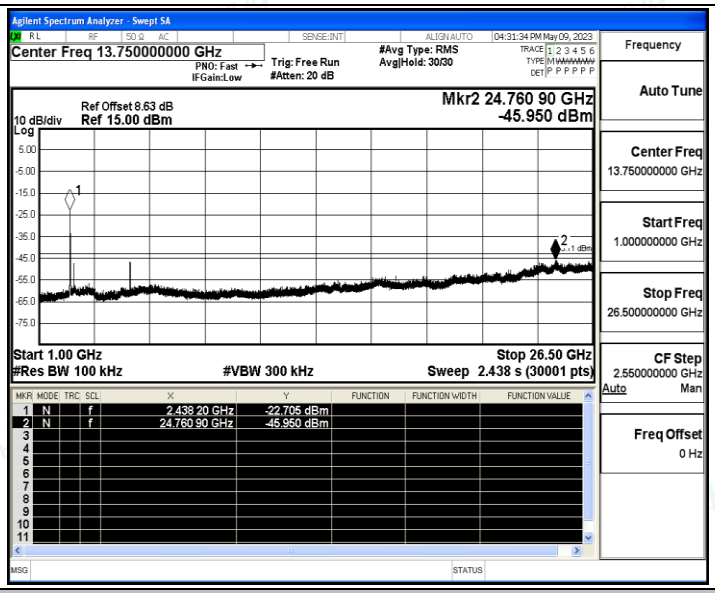
11G_Ant_2437_0~Reference



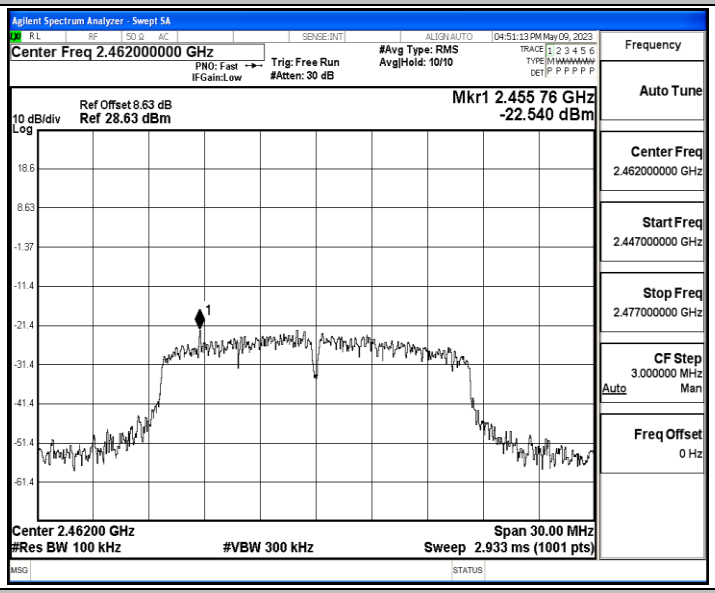
11G_Ant_2437_30~1000



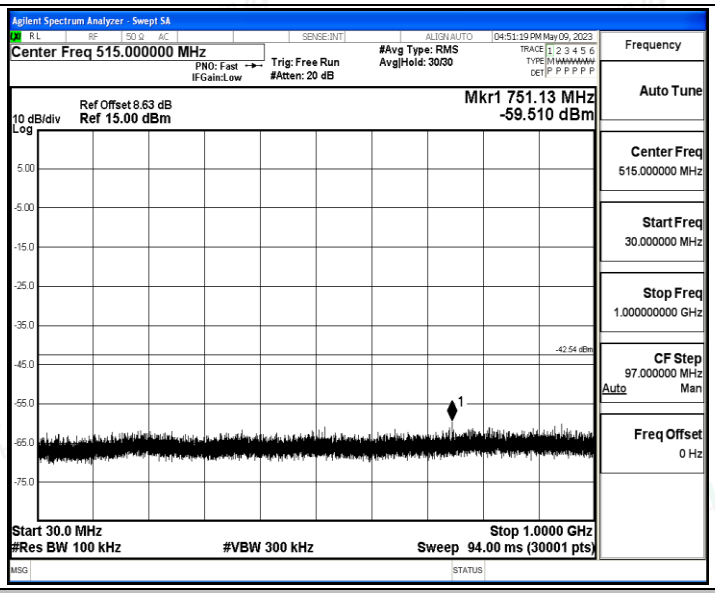
11G_Ant_2437_1000~26500



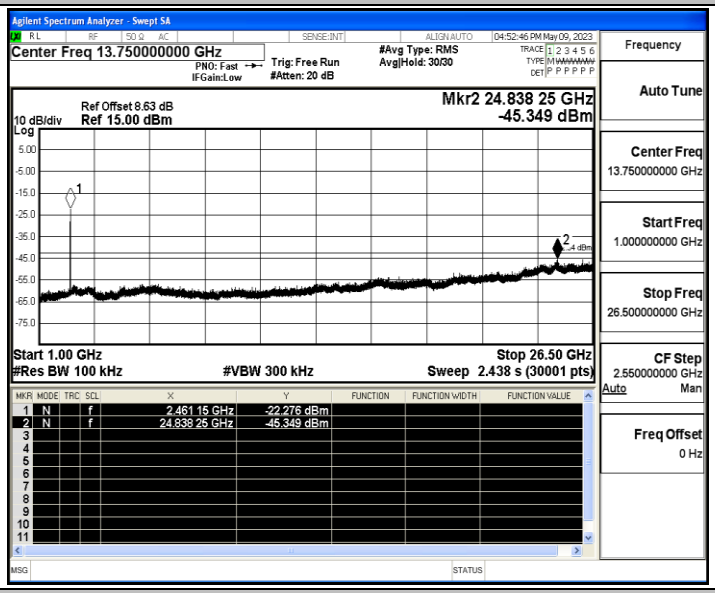
11G_Ant_2462_0~Reference



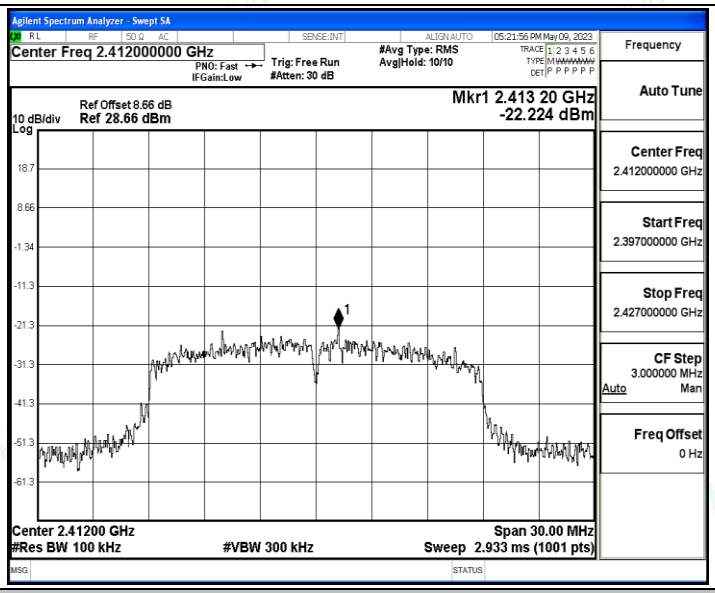
11G_Ant_2462_30~1000



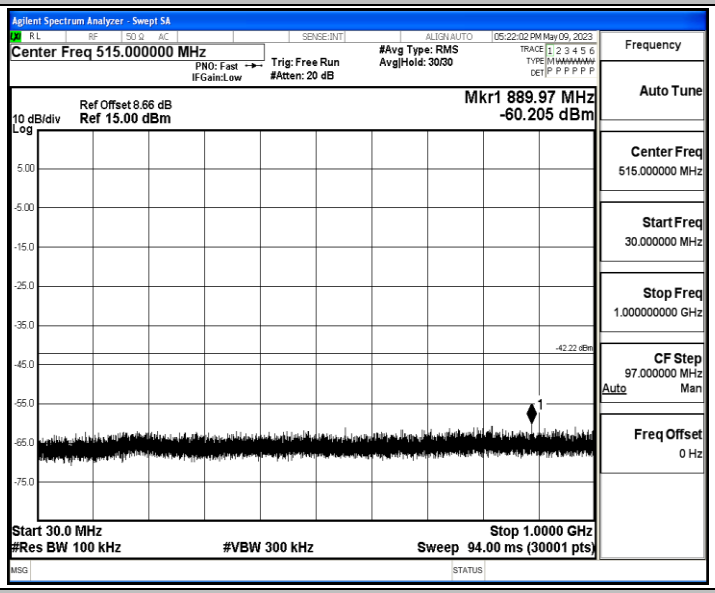
11G_Ant_2462_1000~26500



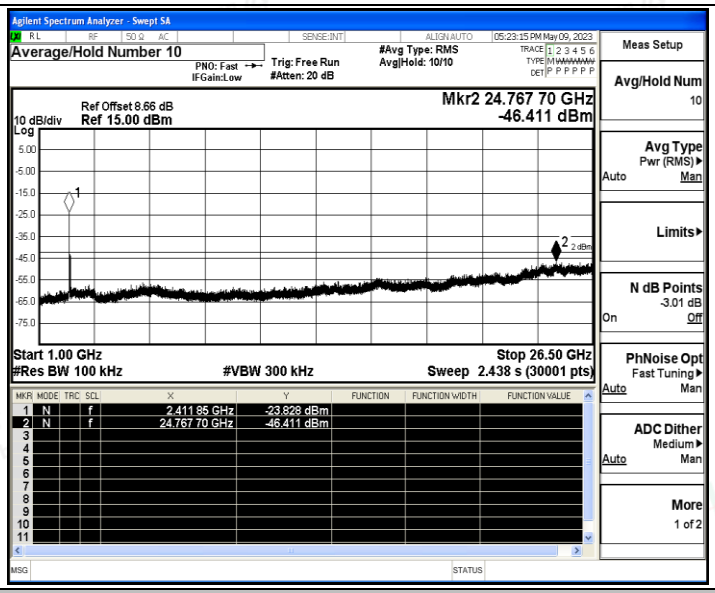
11N20SISO_Ant_2412_0~Reference



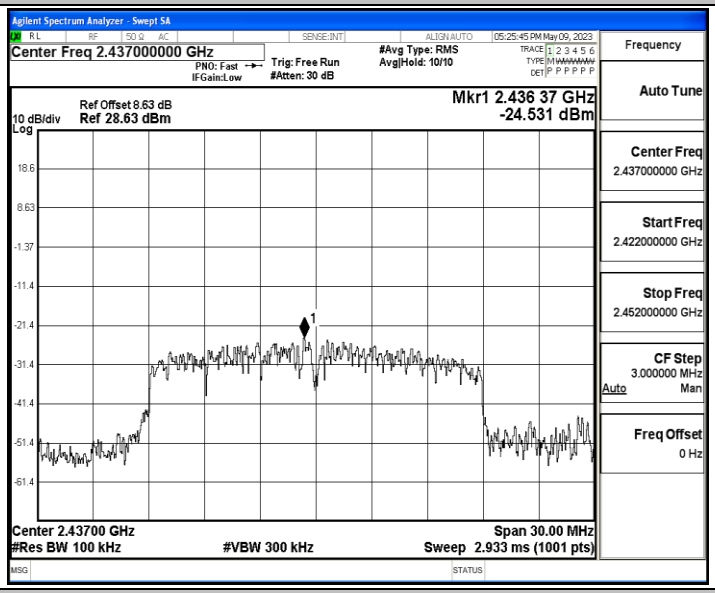
11N20SISO_Ant_2412_30~1000



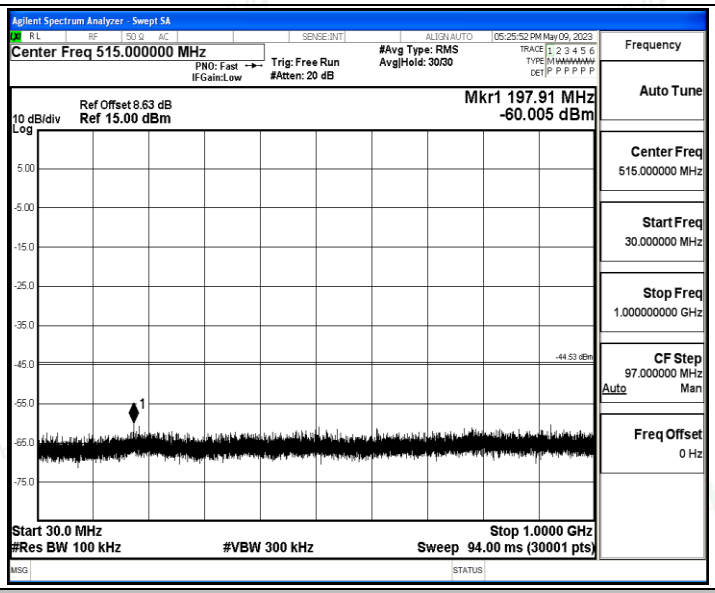
11N20SISO_Ant_2412_1000~26500



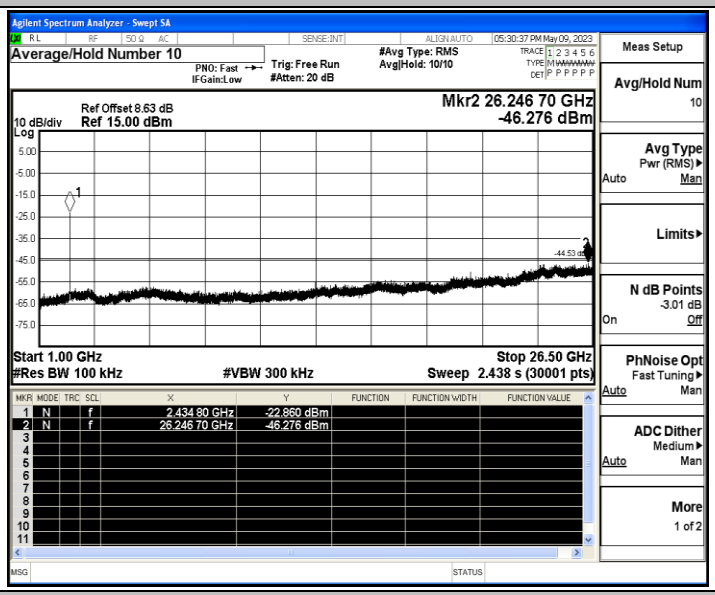
11N20SISO_Ant_2437_0~Reference



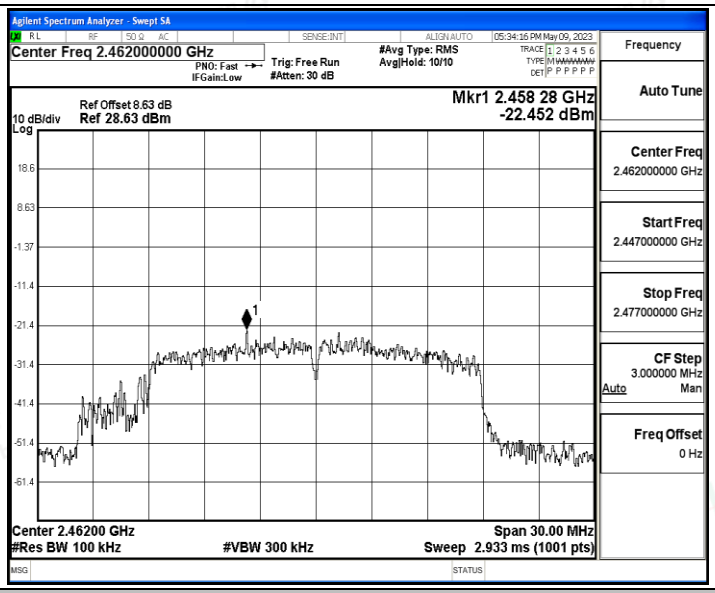
11N20SISO_Ant_2437_30~1000



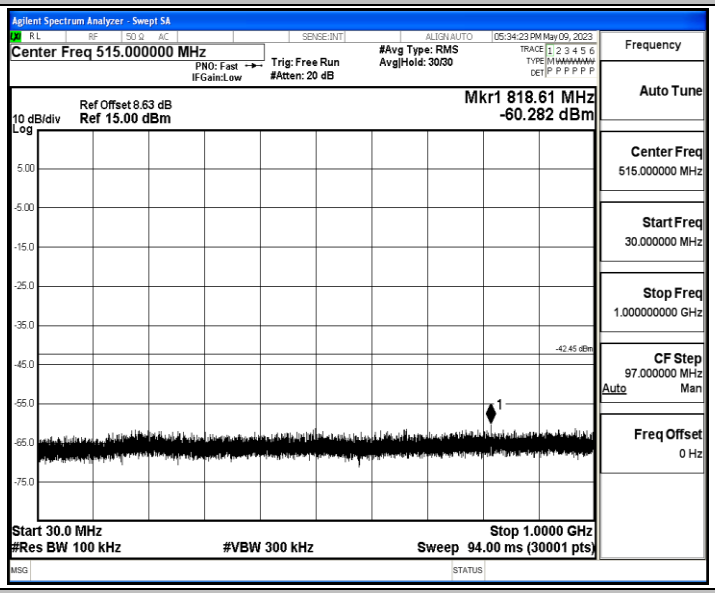
11N20SISO_Ant_2437_1000~26500



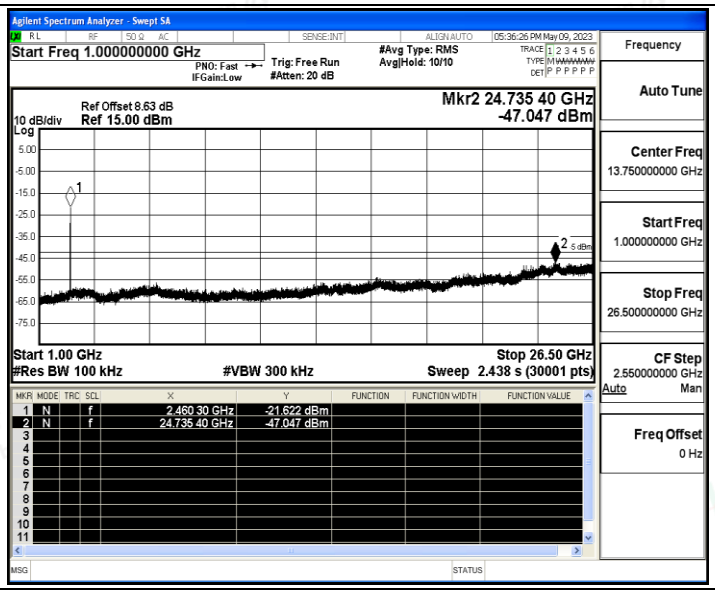
11N20SISO_Ant_2462_0~Reference



11N20SISO_Ant_2462_30~1000



11N20SISO_Ant_2462_1000~26500


Agilent Spectrum Analyzer - Swept SA
Start Freq 1.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
05:36:26 PM May 09, 2023
Ref Offset 8.63 dB
10 dB/div Ref 15.00 dBm
Log
Mkr2 24.735 40 GHz
-47.047 dBm
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)
1 N f 2.460 30 GHz -21.622 dBm
2 N f 24.735 40 GHz -47.047 dBm
Frequency
Auto Tune
Center Freq 13.750000000 GHz
Start Freq 1.000000000 GHz
Stop Freq 26.500000000 GHz
CF Step 2.550000000 GHz
Auto Man
Freq Offset 0 Hz

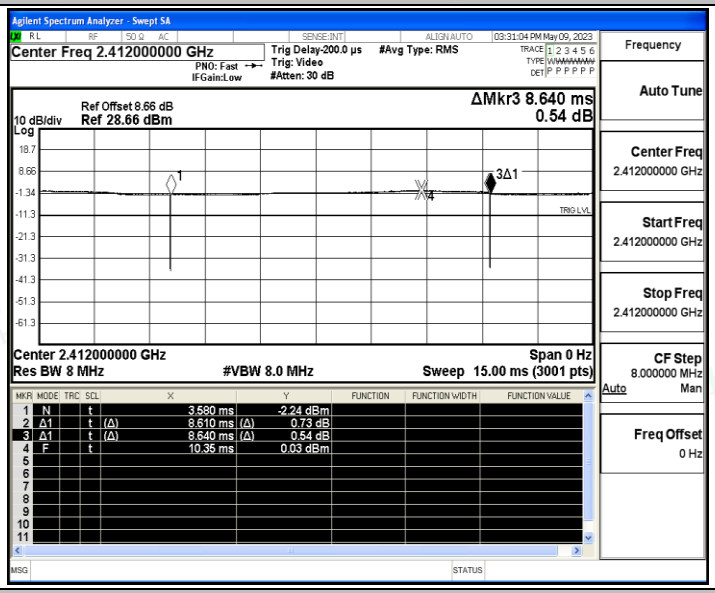
C.6 Duty Cycle

Test Result

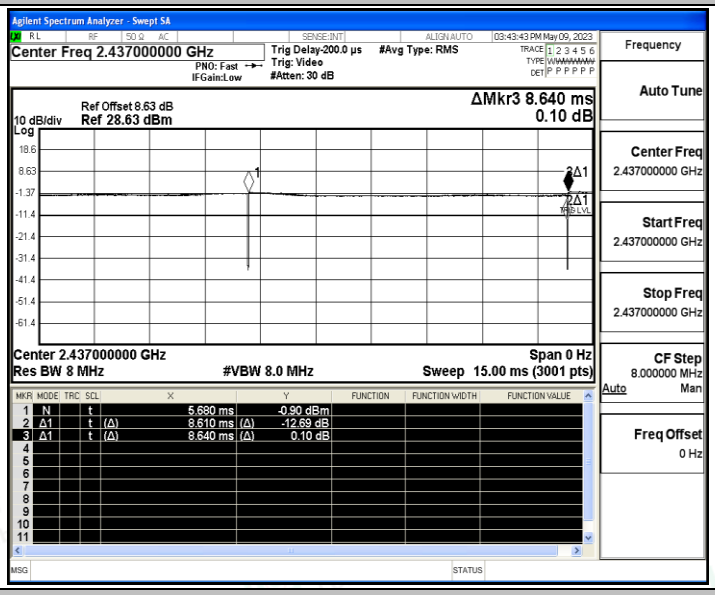
TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
11B	Ant	2412	8.61	8.64	99.65
		2437	8.61	8.64	99.65
		2462	8.61	8.63	99.77
11G	Ant	2412	1.43	1.46	97.95
		2437	1.43	1.46	97.95
		2462	1.43	1.46	97.95
11N20SISO	Ant	2412	1.34	1.37	97.81
		2437	1.34	1.37	97.81
		2462	1.33	1.36	97.79

Test Graphs

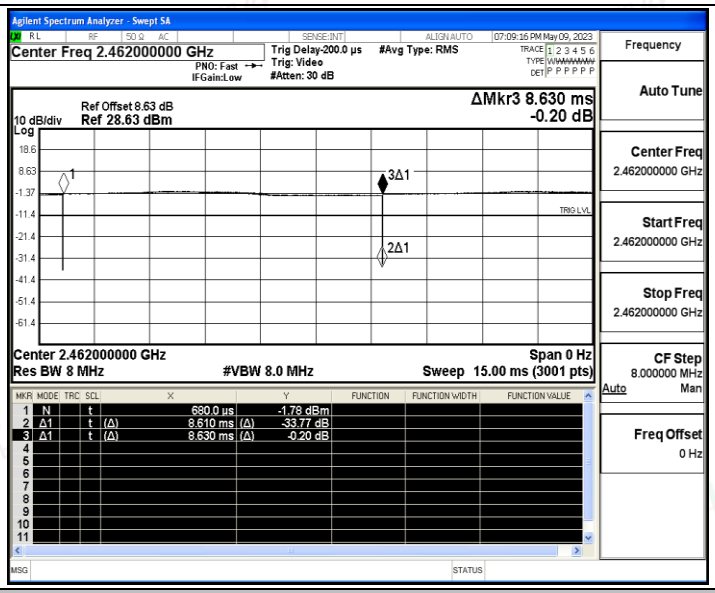
11B_Ant_2412



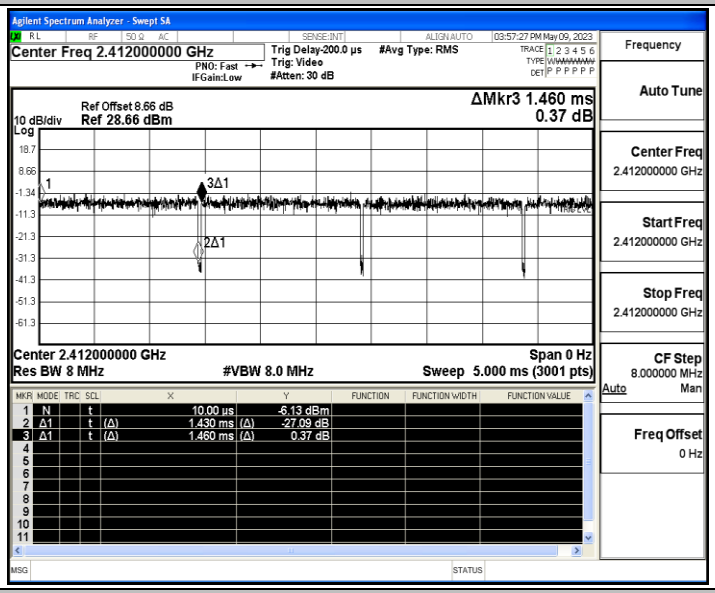
11B_Ant_2437



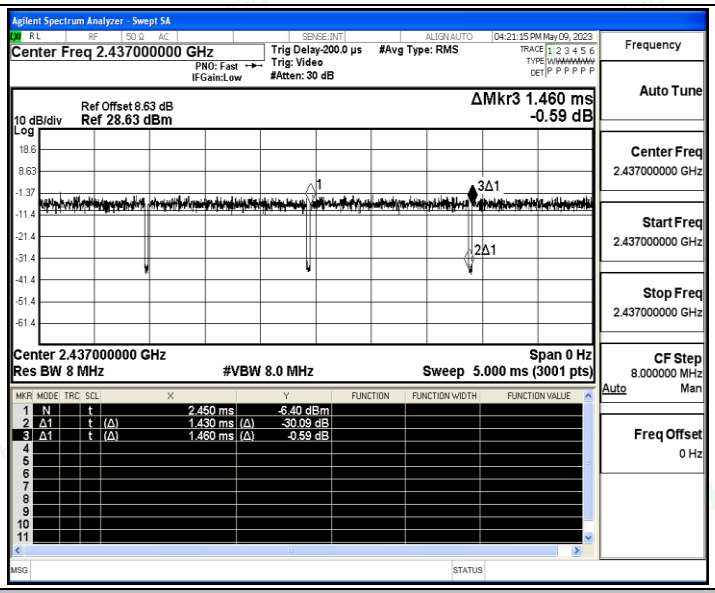
11B_Ant_2462



11G_Ant_2412



11G_Ant_2437



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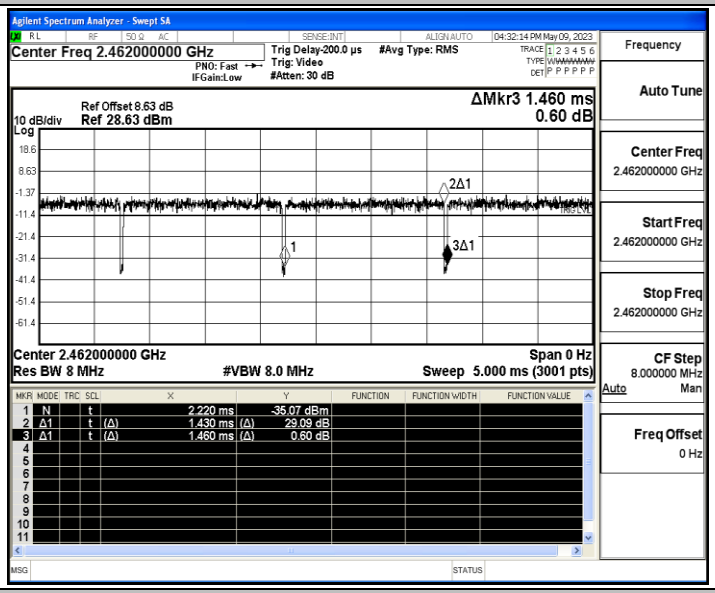
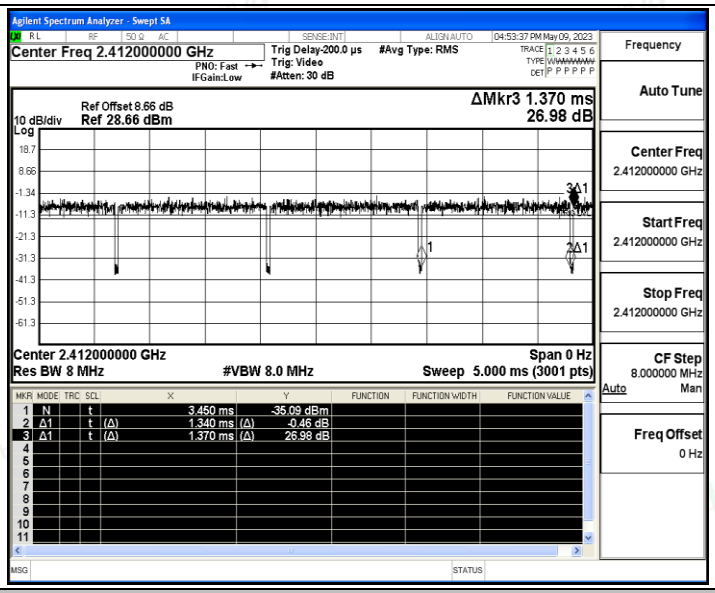
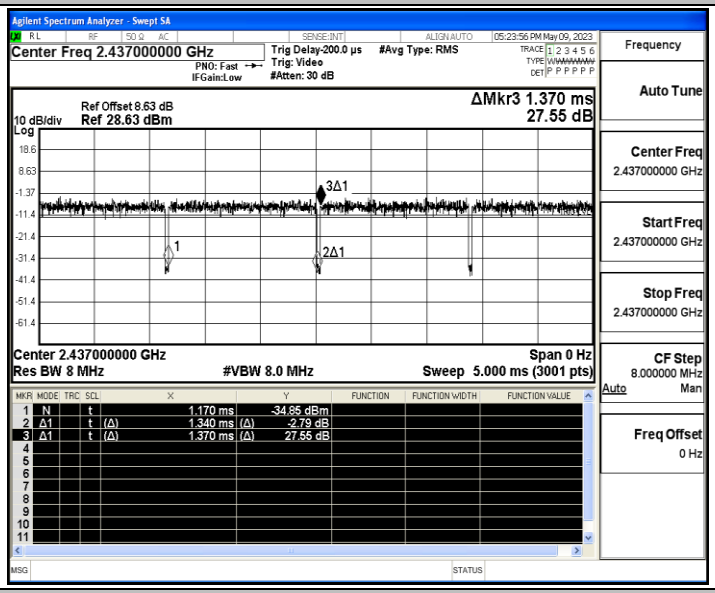


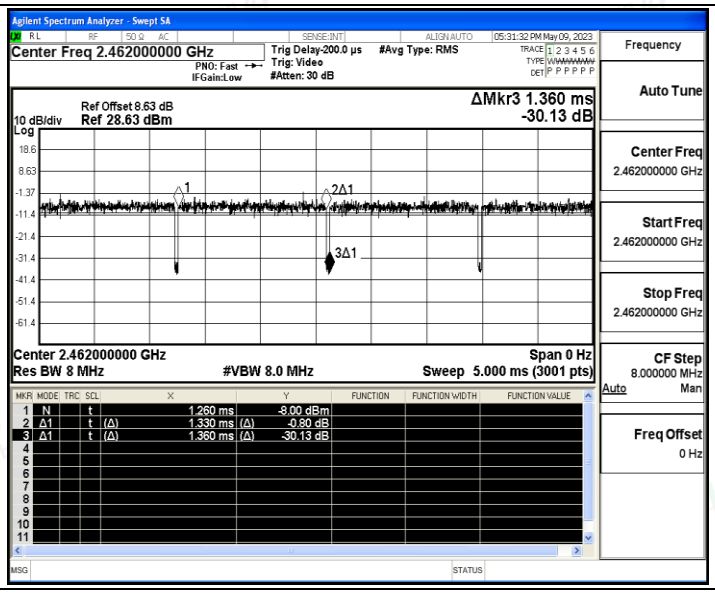
11N20SISO_Ant_2412



11N20SISO_Ant_2437



11N20SISO_Ant_2462


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
Trig Delay-200.0 µs
#Avg Type: RMS
PNO: Fast
IFGain:Low
Trig: Video
#Atten: 30 dB
05:31:32 PM May 09, 2023
Frequency
Auto Tune
Ref Offset 8.63 dB
10 dB/div
Ref 28.63 dBm
Log
ΔMkr3 1.360 ms
-30.13 dB
Center Freq
2.462000000 GHz
Start Freq
2.462000000 GHz
Stop Freq
2.462000000 GHz
Center 2.462000000 GHz
Span 0 Hz
Res BW 8 MHz
#VBW 8.0 MHz
Sweep 5.000 ms (3001 pts)
CF Step
8.000000 MHz
Auto
Man
Freq Offset
0 Hz
1 N t 1.260 ms -8.00 dBm
2 Δ1 t (Δ) 1.330 ms (Δ) -0.80 dB
3 Δ1 t (Δ) 1.360 ms (Δ) -30.13 dB
MSG
STATUS

C.7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Frequency[MHz]	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11B	Ant	Low	2412	AV	2310.000	-58.36	≤-41.20	36.84	≤54	PASS
				AV	2388.660	-55.19	≤-41.20	40.01	≤54	PASS
				AV	2390.000	-56.78	≤-41.20	38.42	≤54	PASS
				Peak	2310.000	-48.48	≤-21.20	46.72	≤74	PASS
				Peak	2386.190	-44.7	≤-21.20	50.50	≤74	PASS
				Peak	2390.000	-47.19	≤-21.20	48.01	≤74	PASS
		High	2462	AV	2483.500	-57.46	≤-41.20	37.74	≤54	PASS
				AV	2484.660	-56.83	≤-41.20	38.37	≤54	PASS
				AV	2500.000	-57.4	≤-41.20	37.80	≤54	PASS
				Peak	2483.500	-47.23	≤-21.20	47.97	≤74	PASS
				Peak	2486.310	-45.93	≤-21.20	49.27	≤74	PASS
				Peak	2500.000	-47.47	≤-21.20	47.73	≤74	PASS
11G	Ant	Low	2412	AV	2310.000	-58.14	≤-41.20	37.06	≤54	PASS
				AV	2389.960	-55.72	≤-41.20	39.48	≤54	PASS
				AV	2390.000	-55.72	≤-41.20	39.48	≤54	PASS
				Peak	2310.000	-48.25	≤-21.20	46.95	≤74	PASS
				Peak	2388.270	-44.12	≤-21.20	51.08	≤74	PASS
				Peak	2390.000	-44.66	≤-21.20	50.54	≤74	PASS
		High	2462	AV	2483.500	-57.16	≤-41.20	38.04	≤54	PASS
				AV	2484.000	-57.11	≤-41.20	38.09	≤54	PASS
				AV	2500.000	-57.26	≤-41.20	37.94	≤54	PASS
				Peak	2483.500	-46.7	≤-21.20	48.50	≤74	PASS
				Peak	2485.870	-45.6	≤-21.20	49.60	≤74	PASS
				Peak	2500.000	-46.75	≤-21.20	48.45	≤74	PASS
11N20SISO	Ant	Low	2412	AV	2310.000	-58.16	≤-41.20	37.04	≤54	PASS
				AV	2389.570	-55.74	≤-41.20	39.46	≤54	PASS
				AV	2390.000	-55.92	≤-41.20	39.28	≤54	PASS
				Peak	2310.000	-48.68	≤-21.20	46.52	≤74	PASS
				Peak	2388.790	-44.61	≤-21.20	50.59	≤74	PASS
				Peak	2390.000	-45.33	≤-21.20	49.87	≤74	PASS
		High	2462	AV	2483.500	-57.37	≤-41.20	37.83	≤54	PASS
				AV	2496.320	-57.1	≤-41.20	38.10	≤54	PASS
				AV	2500.000	-57.27	≤-41.20	37.93	≤54	PASS
				Peak	2483.500	-46.73	≤-21.20	48.47	≤74	PASS
				Peak	2485.760	-45.12	≤-21.20	50.08	≤74	PASS

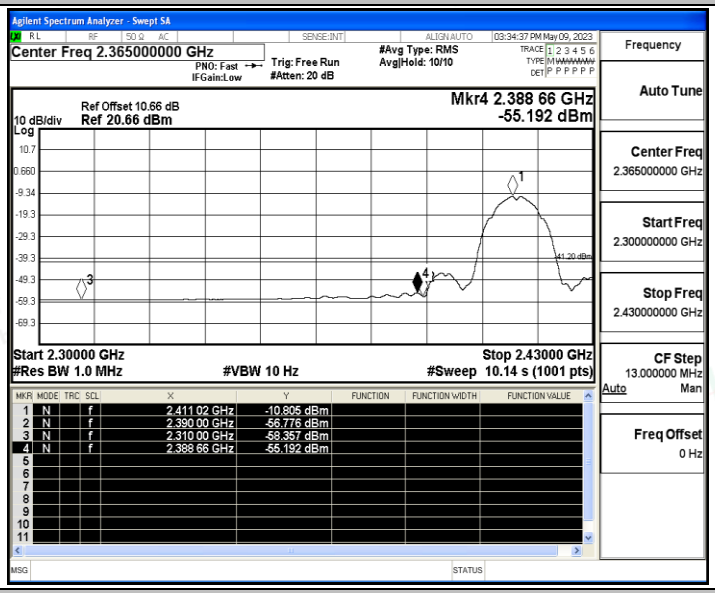
				Peak	2500.000	-47.65	≤-21.20	47.55	≤74	PASS

Note：

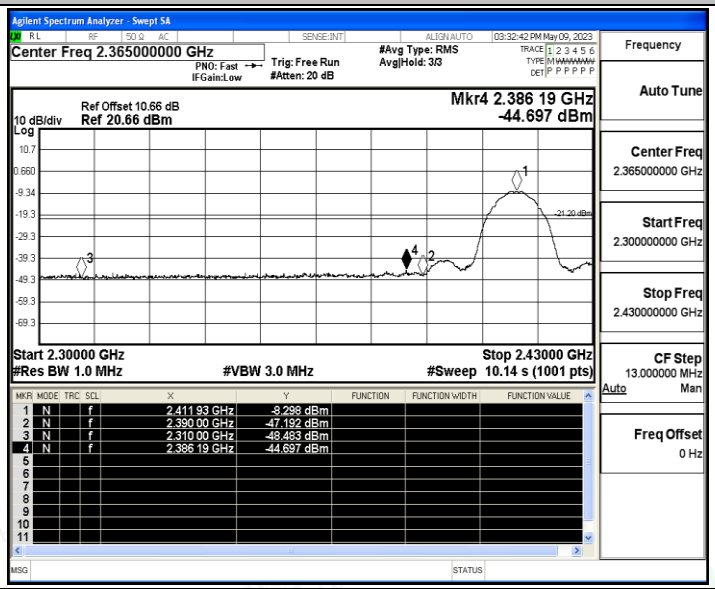
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

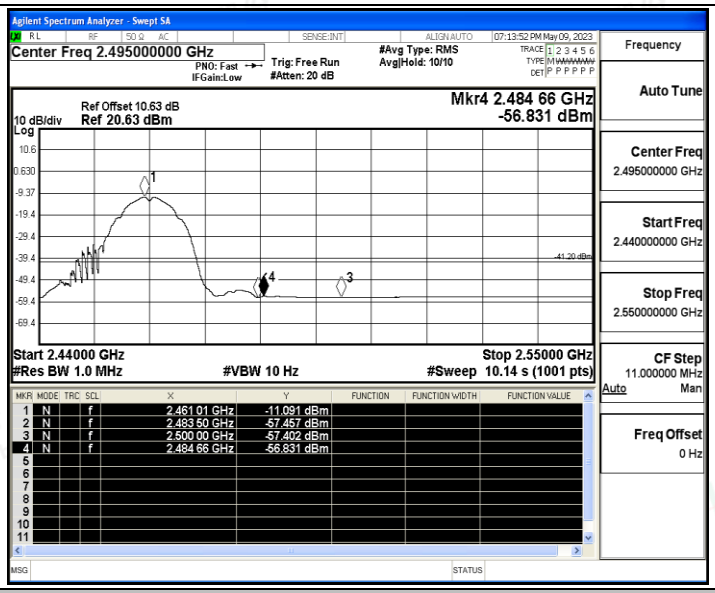
11B_Ant_Low_2412_AV



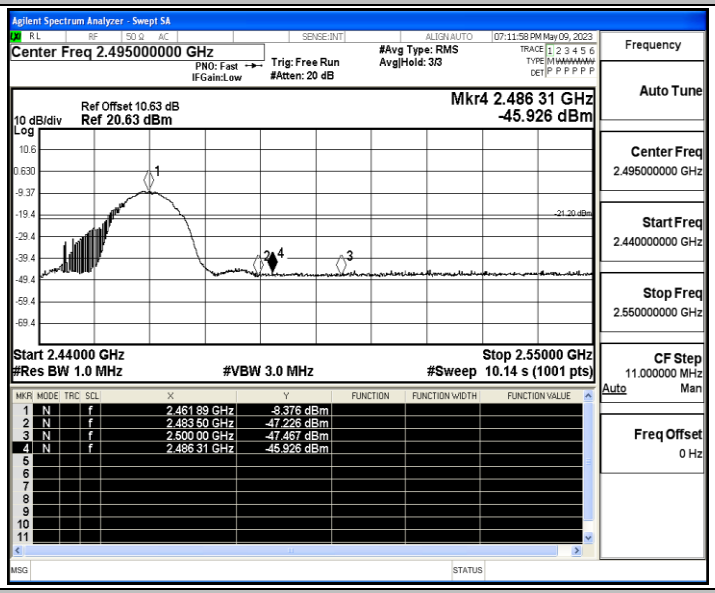
11B_Ant_Low_2412_Peak



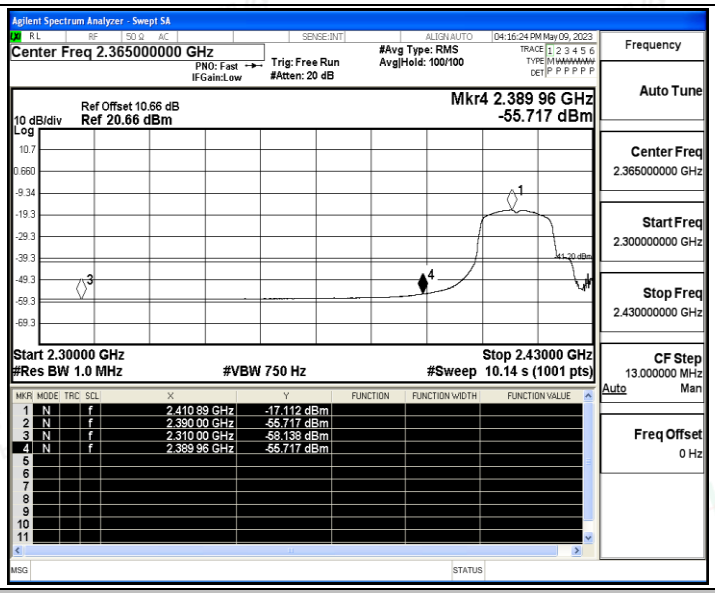
11B_Ant_High_2462_AV



11B_Ant_High_2462_Peak



11G_Ant_Low_2412_AV



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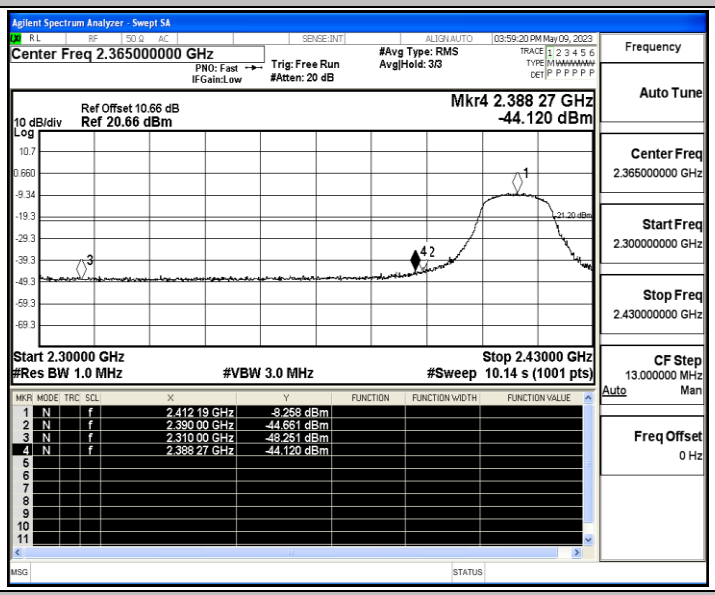
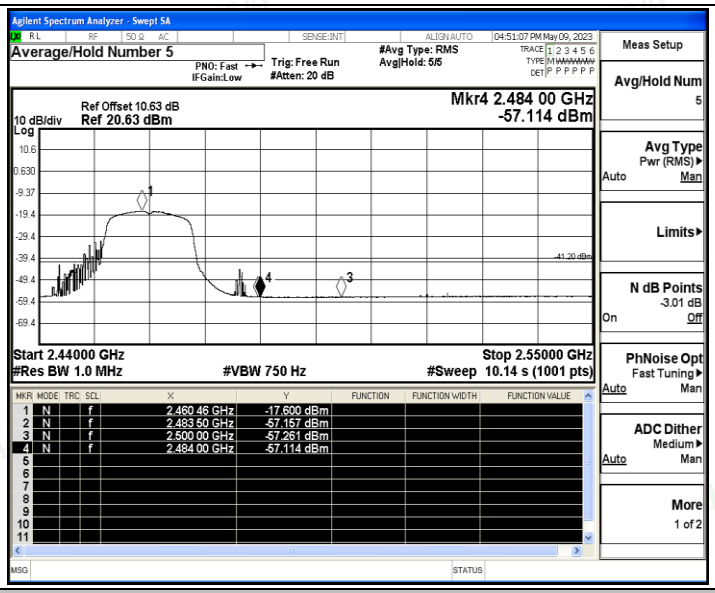
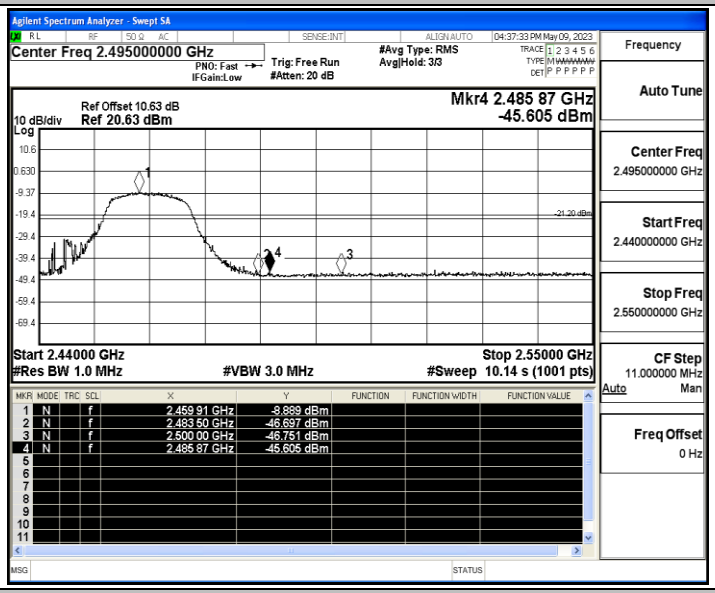


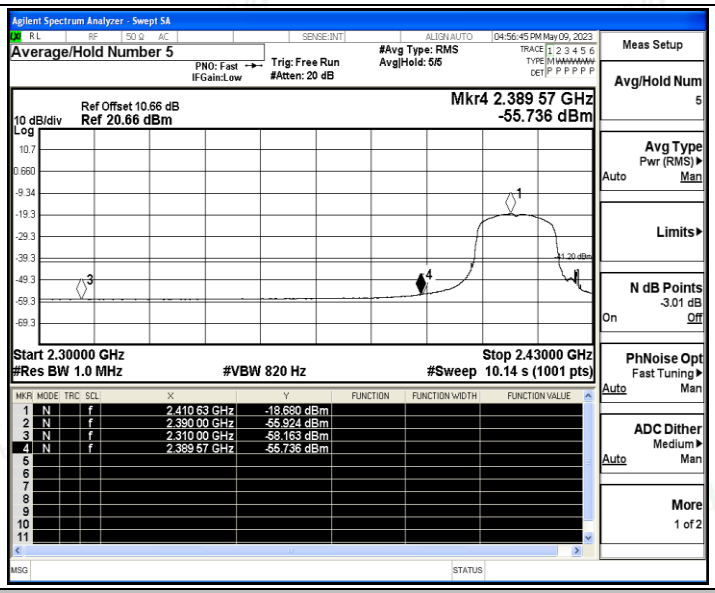
11G_Ant_High_2462_AV



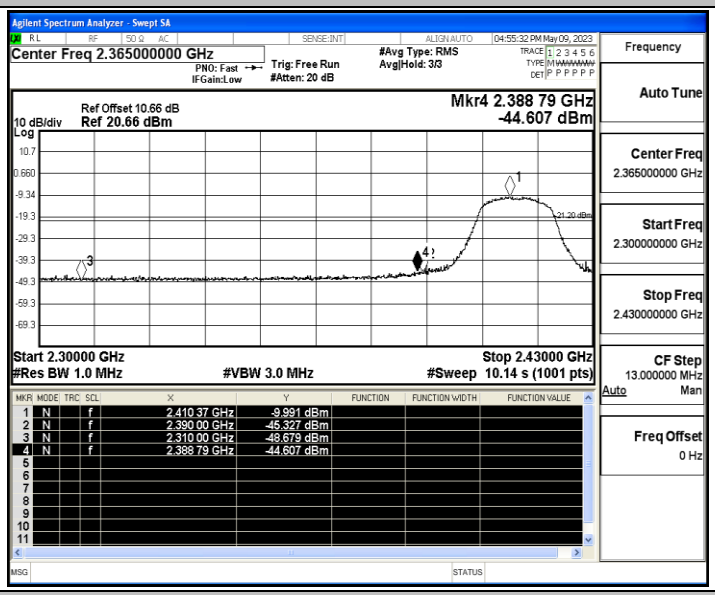
11G_Ant_High_2462_Peak



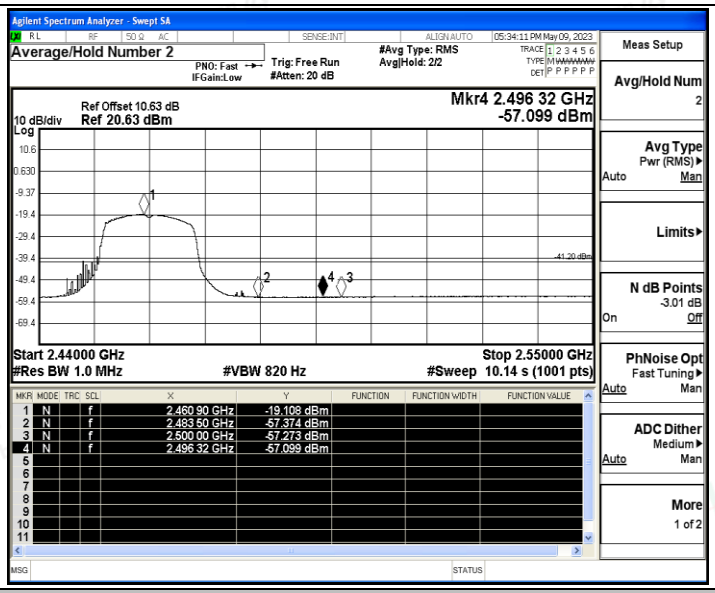
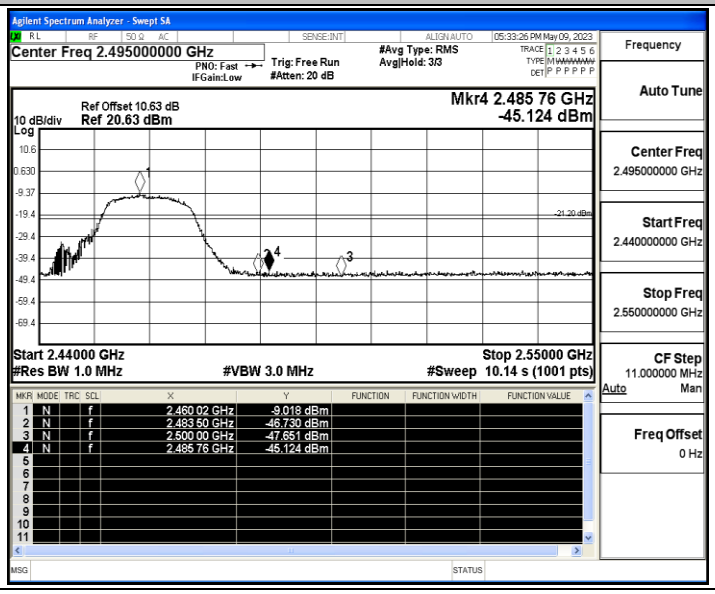
11N20SISO_Ant_Low_2412_AV



11N20SISO_Ant_Low_2412_Peak



11N20SISO_Ant_High_2462_AV



11N20SISO_Ant_High_2462_Peak