Appendix B

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: MID

Test Model: KIDS707A

Environmental Conditions

Temperature:	23.8 ° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Taylor Hu
Supervised by:	Li Huan

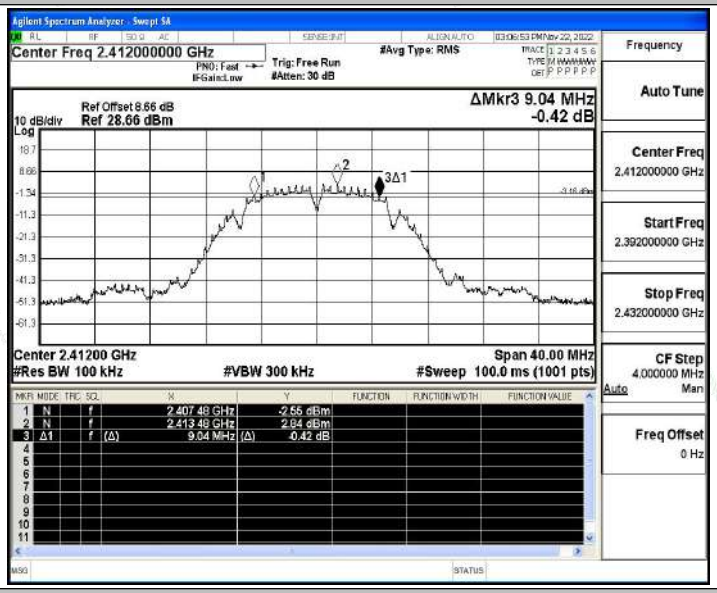
B.1 DTS Bandwidth

Test Result

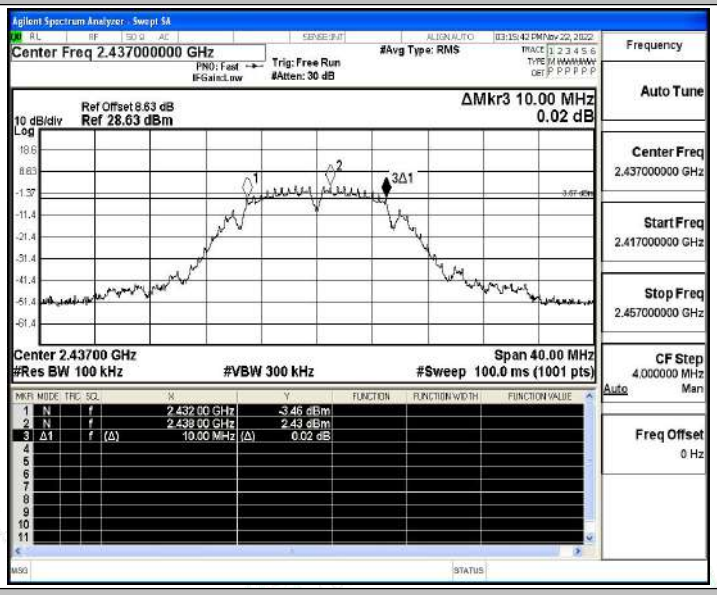
TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.040	2407.480	2416.520	0.5	PASS
		2437	10.000	2432.000	2442.000	0.5	PASS
		2462	9.560	2457.440	2467.000	0.5	PASS
11G	Ant1	2412	16.320	2403.840	2420.160	0.5	PASS
		2437	16.320	2428.840	2445.160	0.5	PASS
		2462	16.360	2453.800	2470.160	0.5	PASS
11N20SISO	Ant1	2412	17.560	2403.200	2420.760	0.5	PASS
		2437	17.560	2428.200	2445.760	0.5	PASS
		2462	17.560	2453.200	2470.760	0.5	PASS

Test Graphs

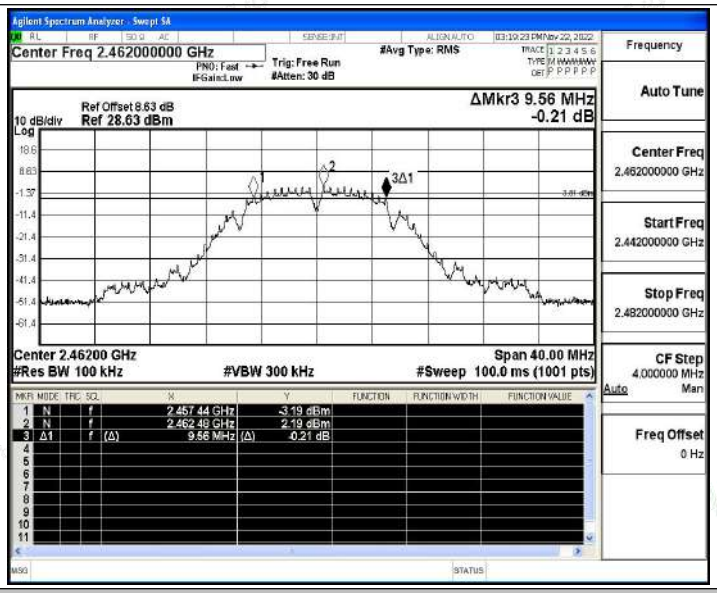
11B_Ant1_2412



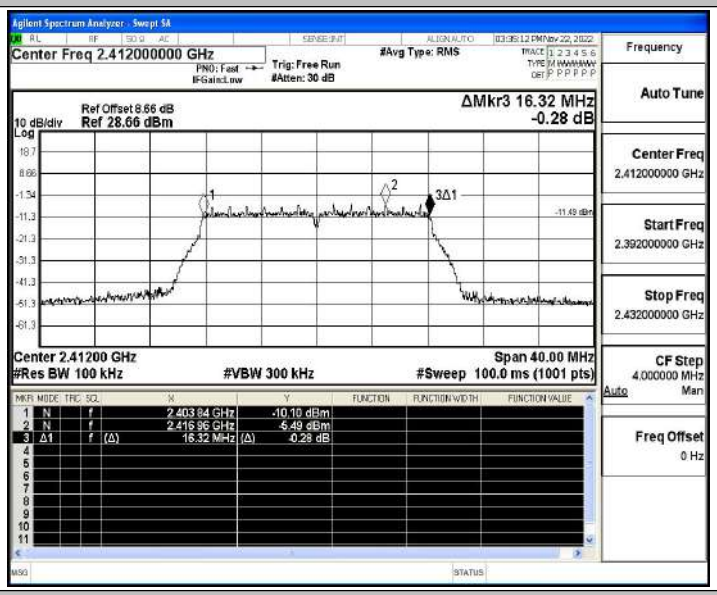
11B_Ant1_2437



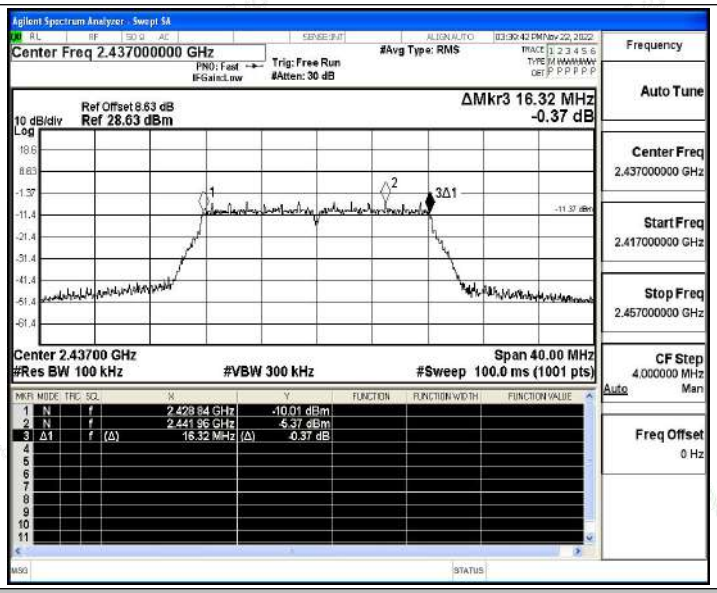
11B_Ant1_2462



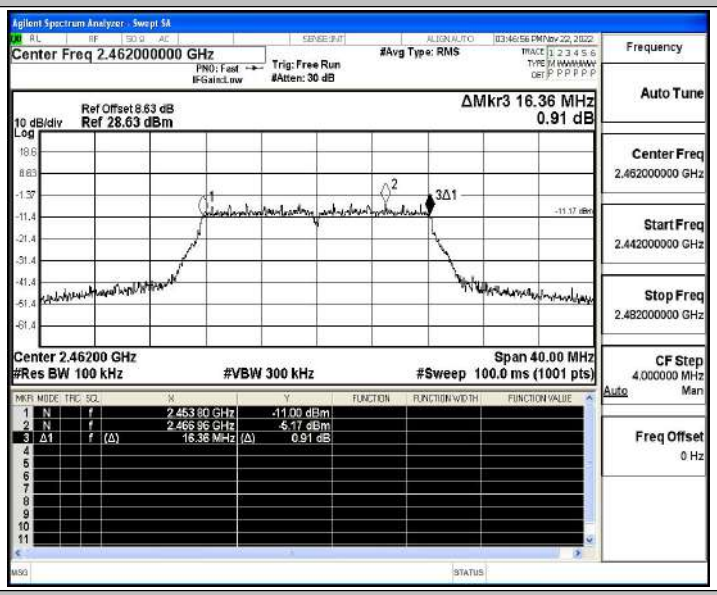
11G_Ant1_2412



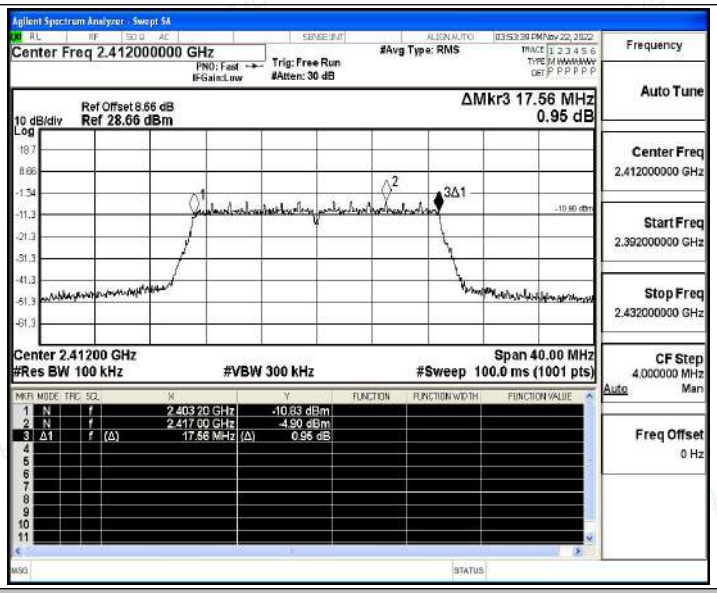
11G_Ant1_2437



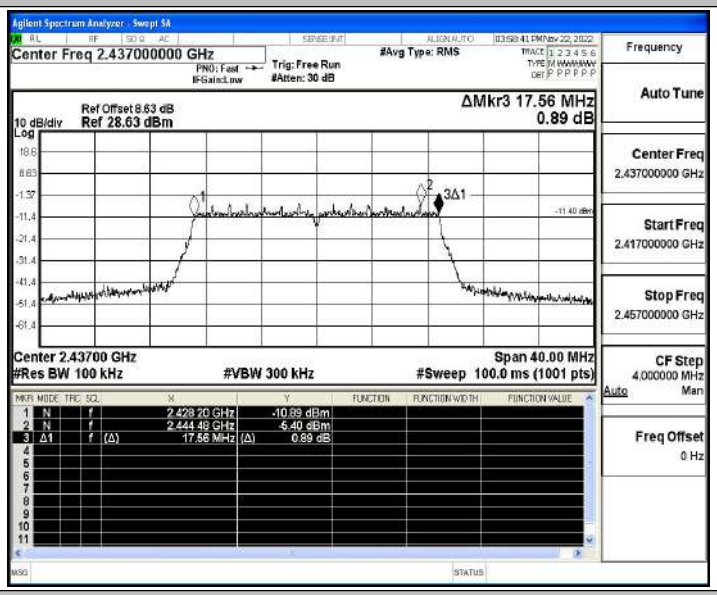
11G_Ant1_2462



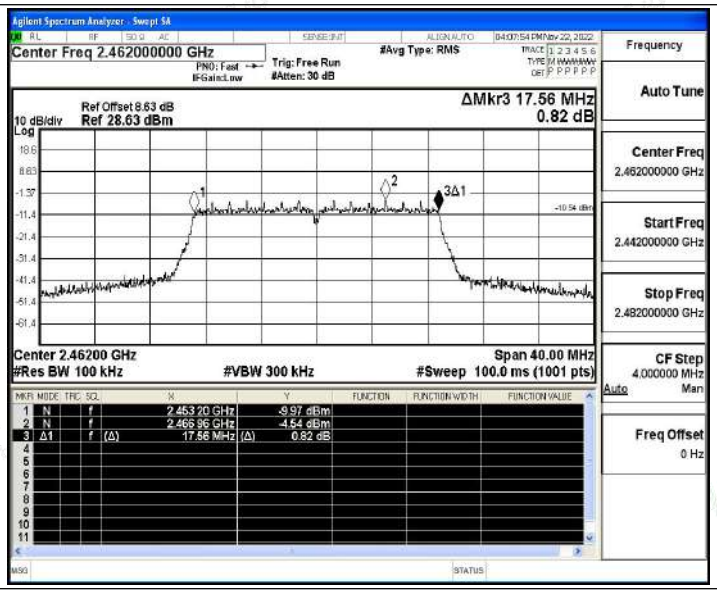
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Ref Offset 8.63 dB
10 dB/div Ref 28.63 dBm
Log
ΔMkr3 17.56 MHz
0.82 dB
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 20 GHz -9.97 dBm
2 N f 2.469 96 GHz -4.54 dBm
3 Δ1 f (Δ) 17.56 MHz (Δ) 0.82 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

B.2 Maximum conducted output power

Test Result

TestMode	Antenna	Freq(MHz)	Peak Power[dBm]	Conducted Limit[dBm]	Verdict
11B	Ant1	2412	7.72	≤30.00	PASS
		2437	7.28	≤30.00	PASS
		2462	7.09	≤30.00	PASS
11G	Ant1	2412	7.02	≤30.00	PASS
		2437	7.26	≤30.00	PASS
		2462	7.42	≤30.00	PASS
11N20SISO	Ant1	2412	7.54	≤30.00	PASS
		2437	7.26	≤30.00	PASS
		2462	7.87	≤30.00	PASS

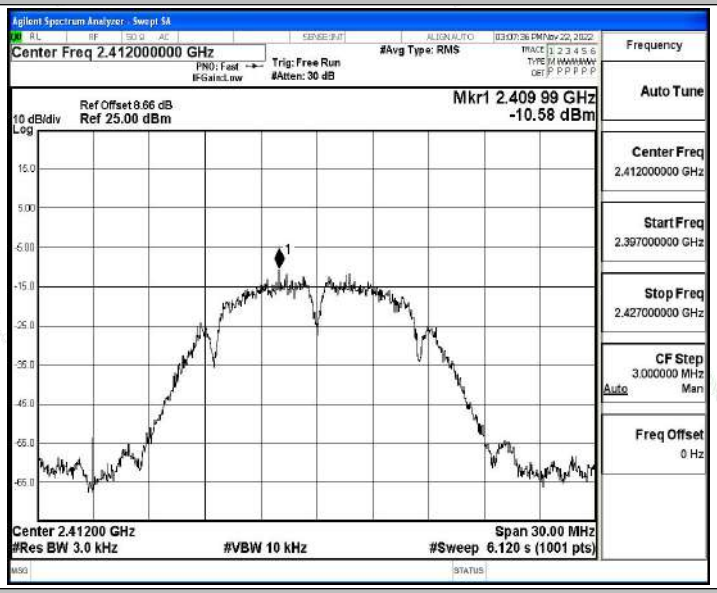
B.3 Maximum power spectral density

Test Result

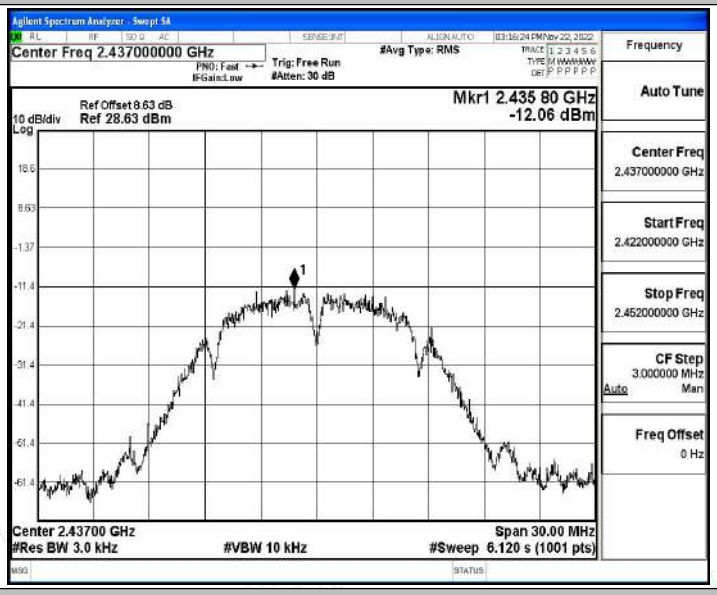
TestMode	Antenna	Freq(MHz)	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B	Ant1	2412	-10.58	≤8.00	PASS
		2437	-12.06	≤8.00	PASS
		2462	-12.81	≤8.00	PASS
11G	Ant1	2412	-19.79	≤8.00	PASS
		2437	-19.29	≤8.00	PASS
		2462	-19.06	≤8.00	PASS
11N20SISO	Ant1	2412	-19.59	≤8.00	PASS
		2437	-19.43	≤8.00	PASS
		2462	-19.44	≤8.00	PASS

Test Graphs

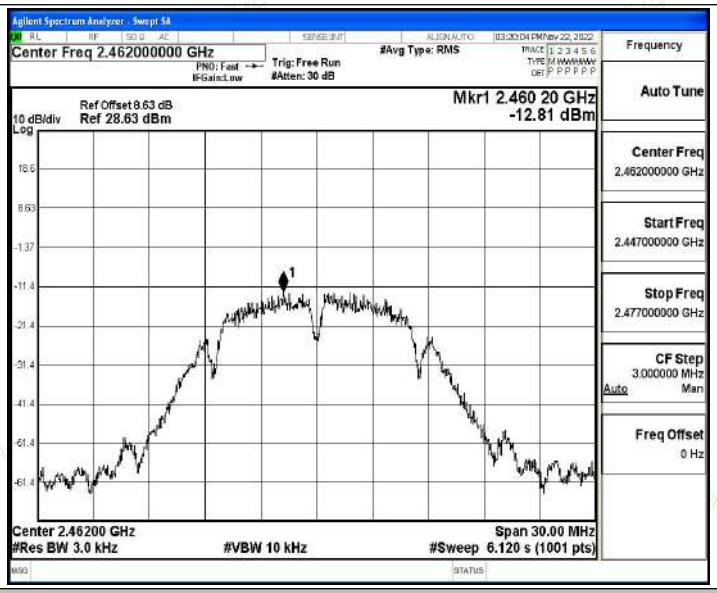
11B_Ant1_2412



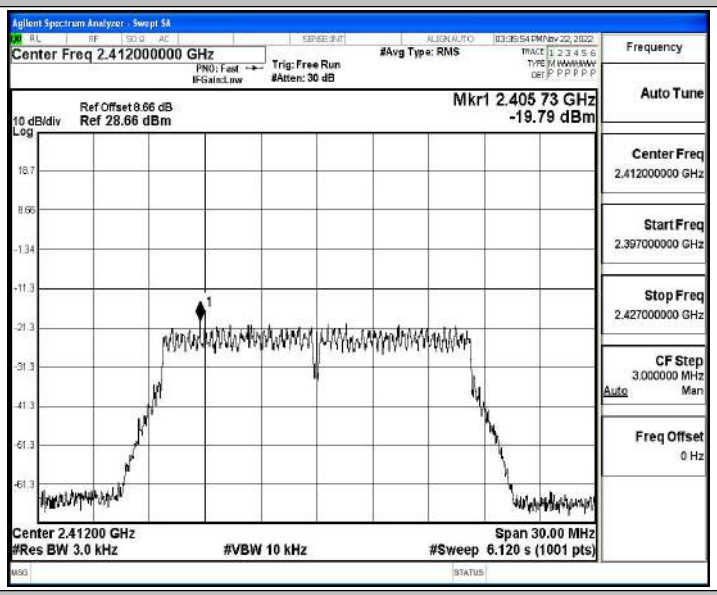
11B_Ant1_2437



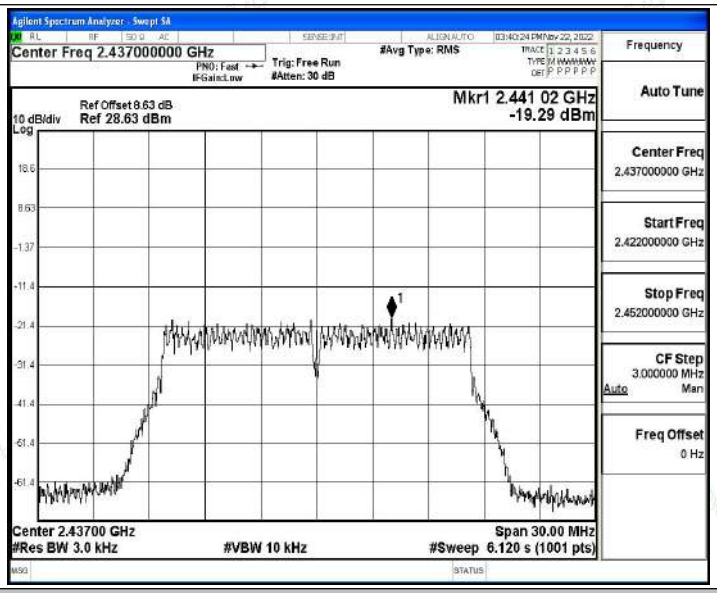
11B_Ant1_2462



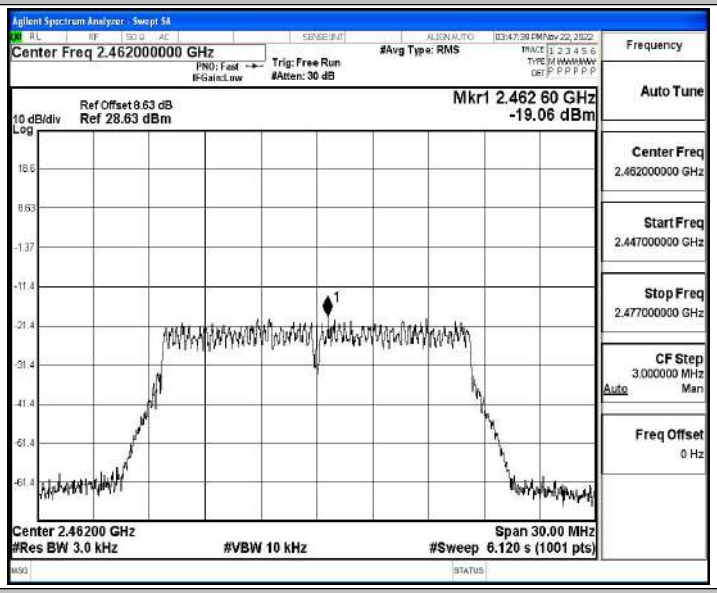
11G_Ant1_2412



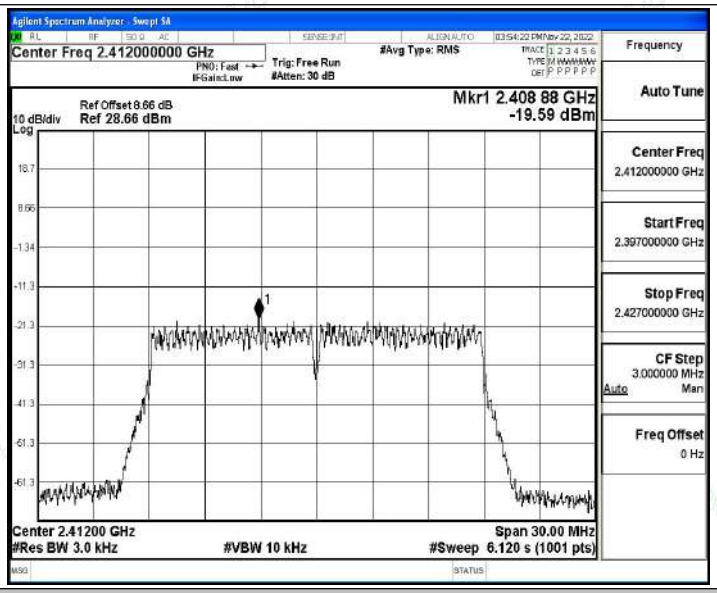
11G_Ant1_2437



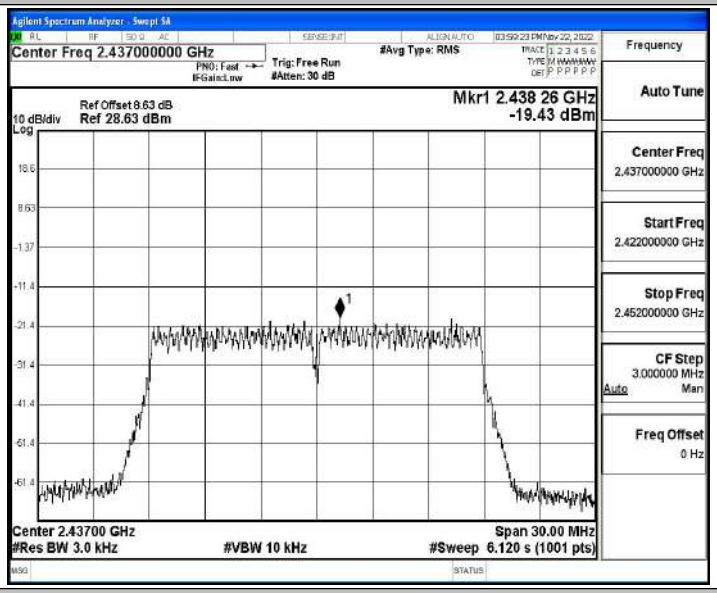
11G_Ant1_2462



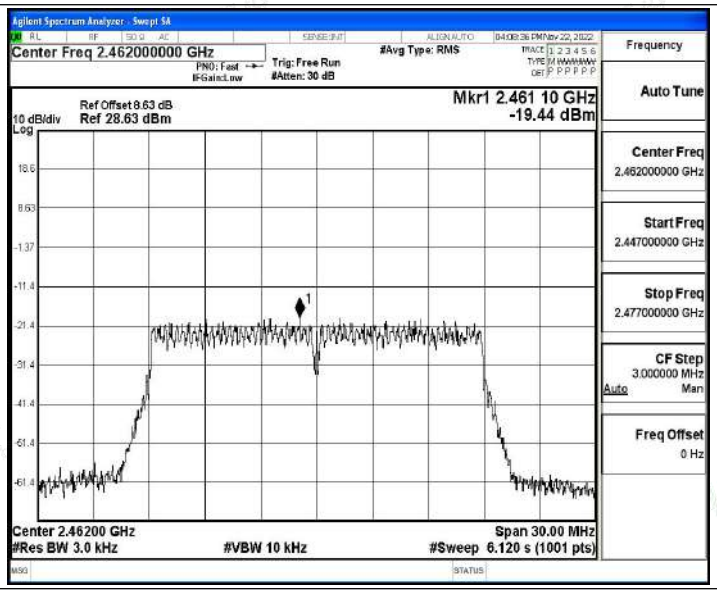
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Frequency
Auto Tune
Ref Offset 8.63 dB
10 dB/div Ref 28.63 dBm
Log
Mkr1 2.461 10 GHz
-19.44 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)

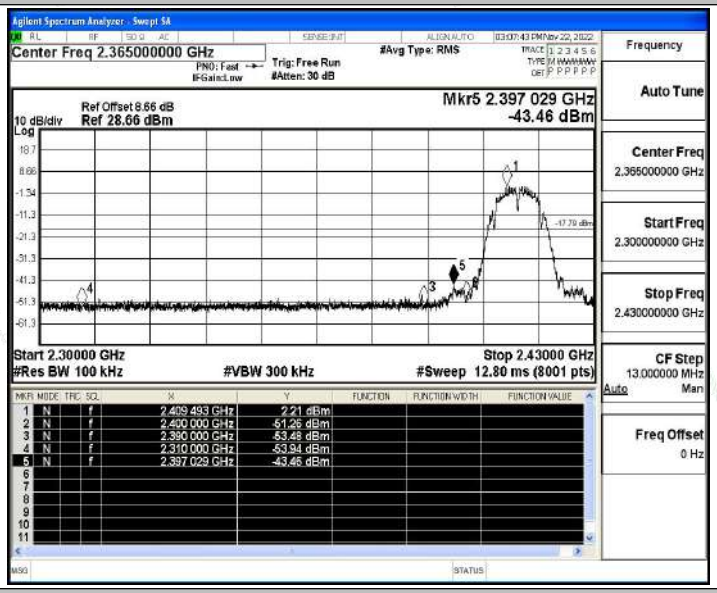
B.4 Band edge measurements

Test Result

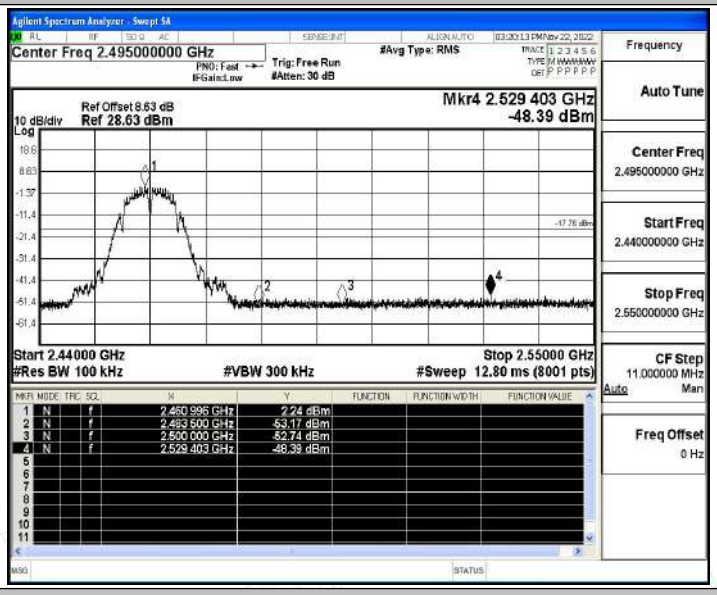
TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	2.21	-43.46	≤-17.79	PASS
		High	2462	2.24	-48.39	≤-17.76	PASS
11G	Ant1	Low	2412	-5.47	-45.76	≤-25.47	PASS
		High	2462	-4.81	-48.18	≤-24.81	PASS
11N20SISO	Ant1	Low	2412	-5.00	-45.06	≤-25	PASS
		High	2462	-4.96	-47.33	≤-24.96	PASS

Test Graphs

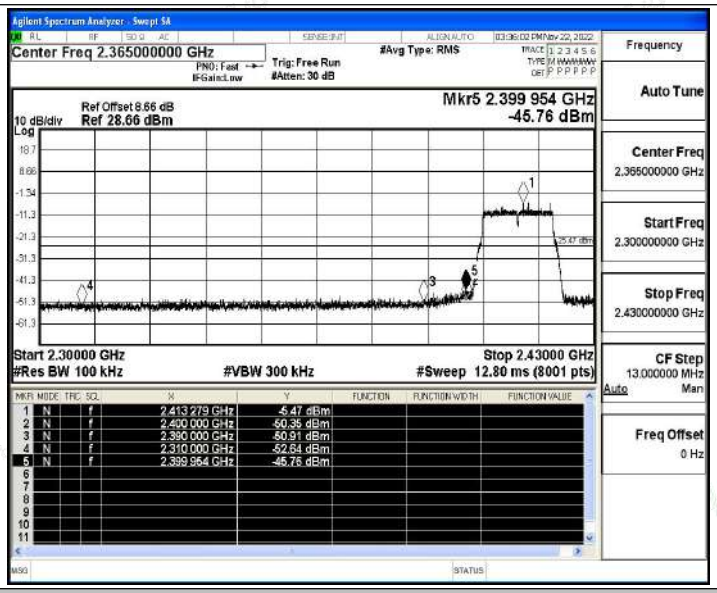
11B_Ant1_Low_2412



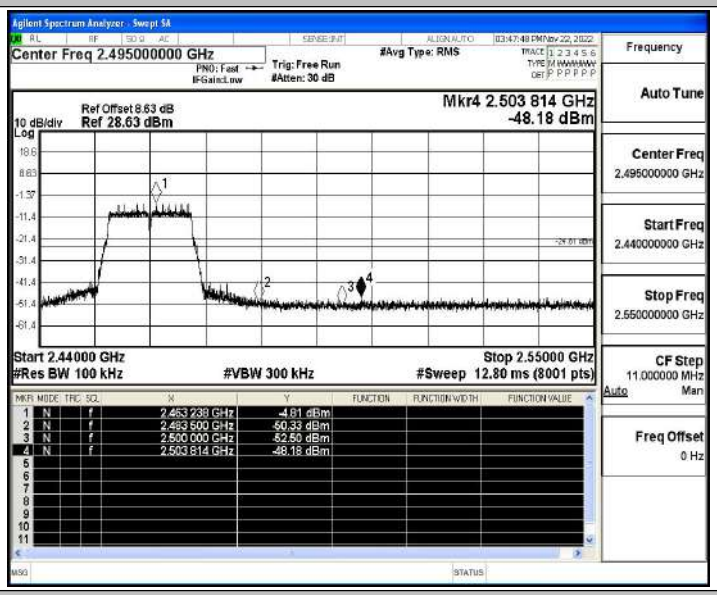
11B_Ant1_High_2462



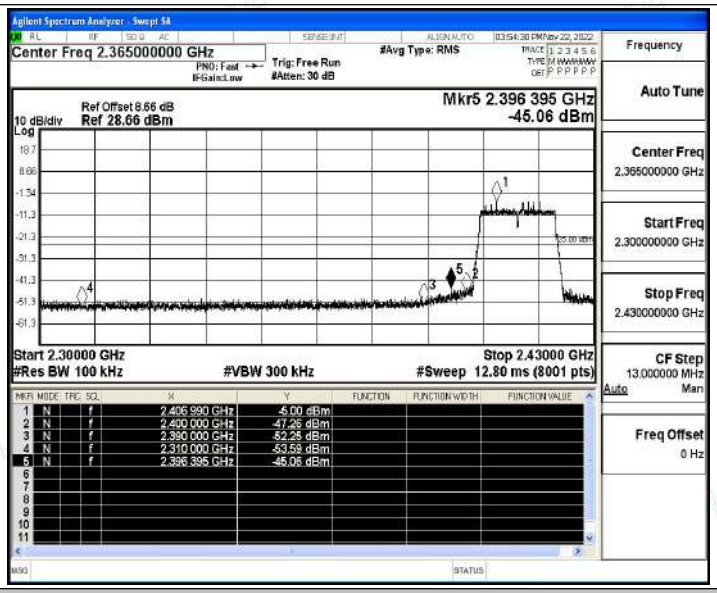
11G_Ant1_Low_2412



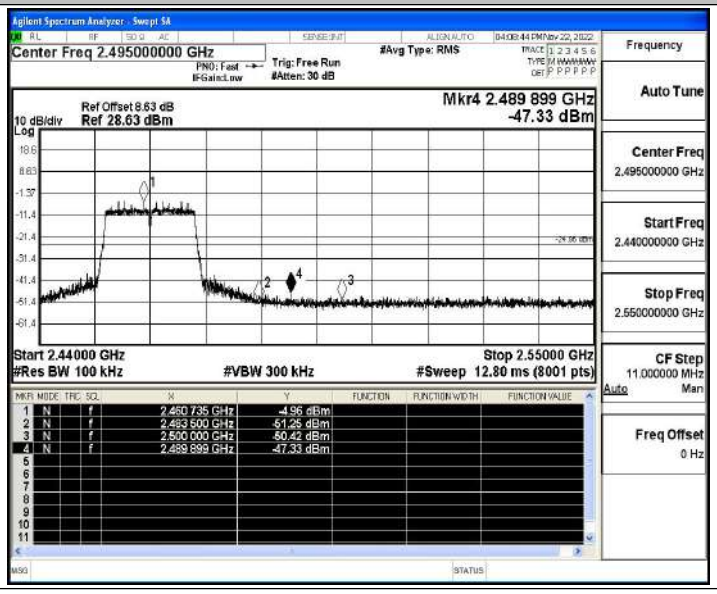
11G_Ant1_High_2462



11N20SISO_Ant1_Low_2412



11N20SISO_Ant1_High_2462



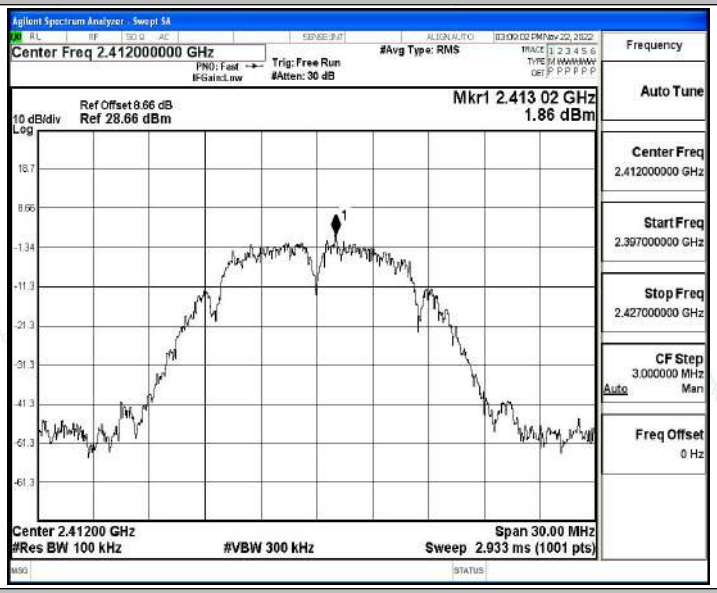
B.5 Conducted Spurious Emission

Test Result

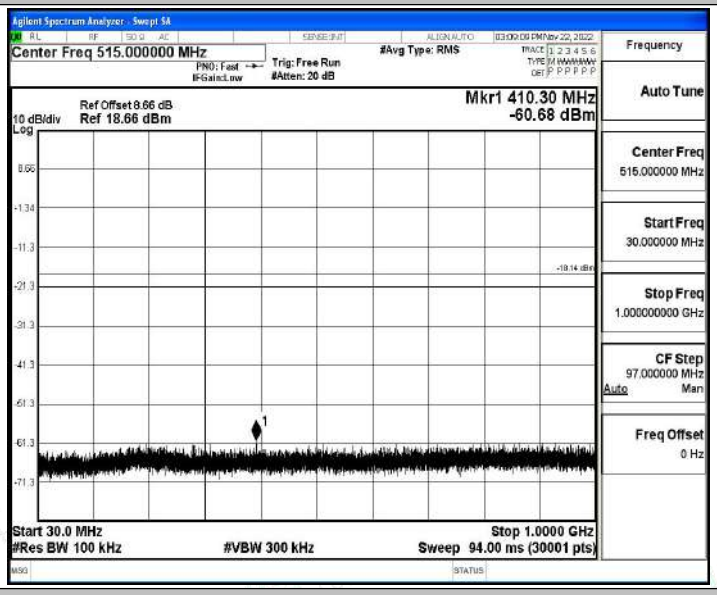
TestMode	Antenna	Freq(MHz)	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	1.86	1.86	---	PASS
			30~1000	1.86	-60.68	≤-18.14	PASS
			1000~26500	1.86	-46.03	≤-18.14	PASS
		2437	Reference	1.81	1.81	---	PASS
			30~1000	1.81	-60.79	≤-18.19	PASS
			1000~26500	1.81	-45.8	≤-18.19	PASS
		2462	Reference	1.00	1.00	---	PASS
			30~1000	1.00	-60.63	≤-19	PASS
			1000~26500	1.00	-46.29	≤-19	PASS
11G	Ant1	2412	Reference	-8.02	-8.02	---	PASS
			30~1000	-8.02	-60.4	≤-28.02	PASS
			1000~26500	-8.02	-45.82	≤-28.02	PASS
		2437	Reference	-5.78	-5.78	---	PASS
			30~1000	-5.78	-60.21	≤-25.78	PASS
			1000~26500	-5.78	-45.72	≤-25.78	PASS
		2462	Reference	-5.59	-5.59	---	PASS
			30~1000	-5.59	-60.88	≤-25.59	PASS
			1000~26500	-5.59	-46.15	≤-25.59	PASS
11N20SISO	Ant1	2412	Reference	-5.12	-5.12	---	PASS
			30~1000	-5.12	-53.39	≤-25.12	PASS
			1000~26500	-5.12	-46.73	≤-25.12	PASS
		2437	Reference	-6.48	-6.48	---	PASS
			30~1000	-6.48	-60.24	≤-26.48	PASS
			1000~26500	-6.48	-45.87	≤-26.48	PASS
		2462	Reference	-6.41	-6.41	---	PASS
			30~1000	-6.41	-60.01	≤-26.41	PASS
			1000~26500	-6.41	-46.21	≤-26.41	PASS

Test Graphs

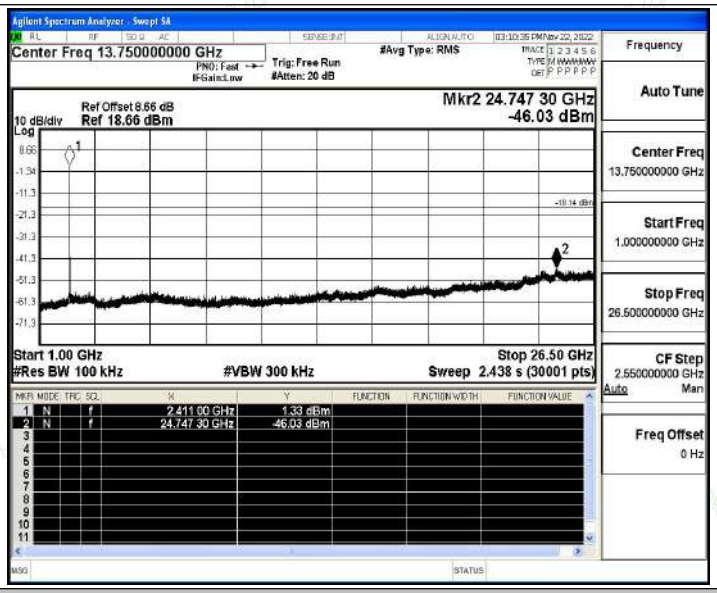
11B_Ant1_2412_0~Reference



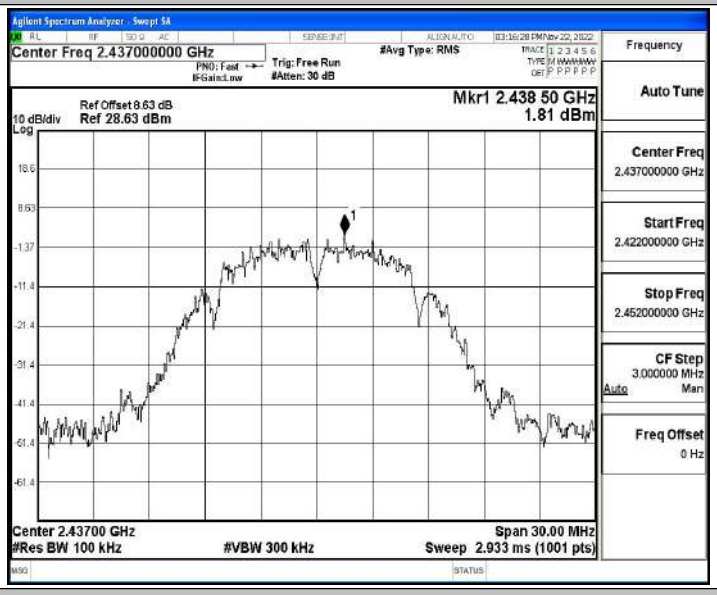
11B_Ant1_2412_30~1000



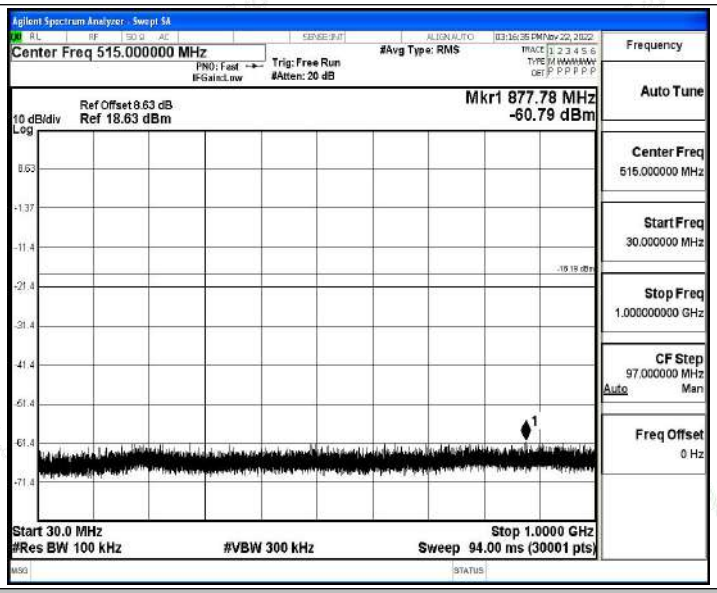
11B_Ant1_2412_1000~26500



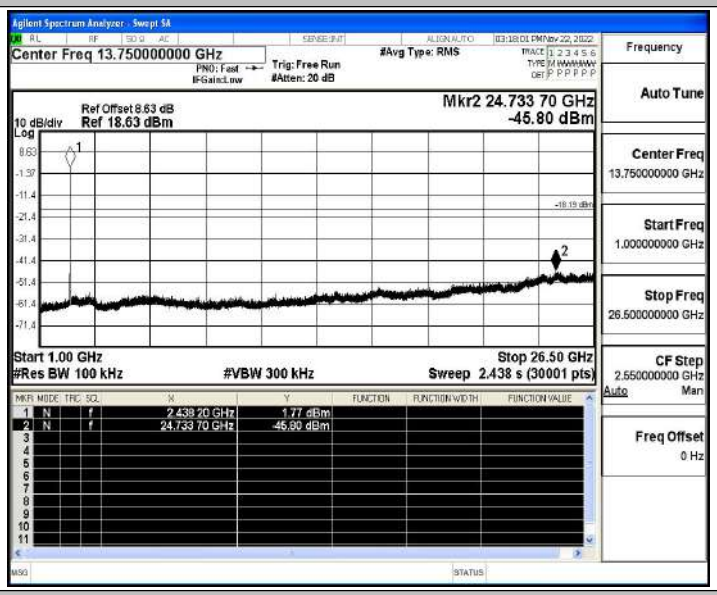
11B_Ant1_2437_0~Reference



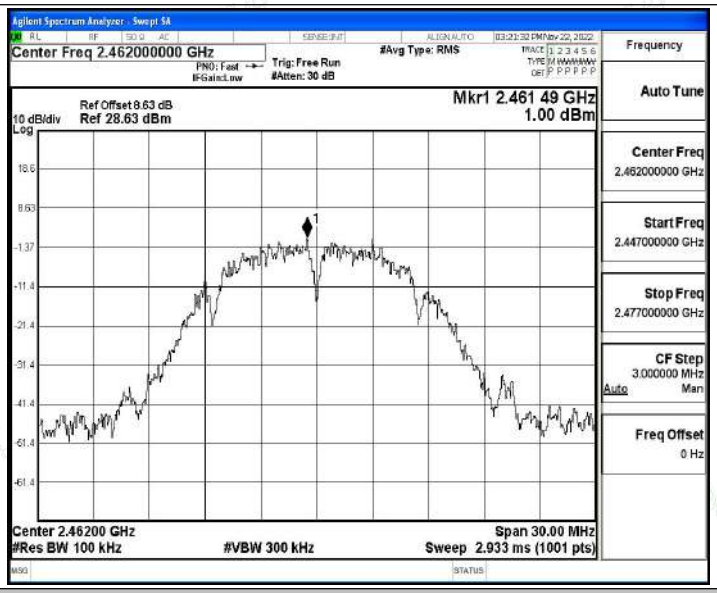
11B_Ant1_2437_30~1000



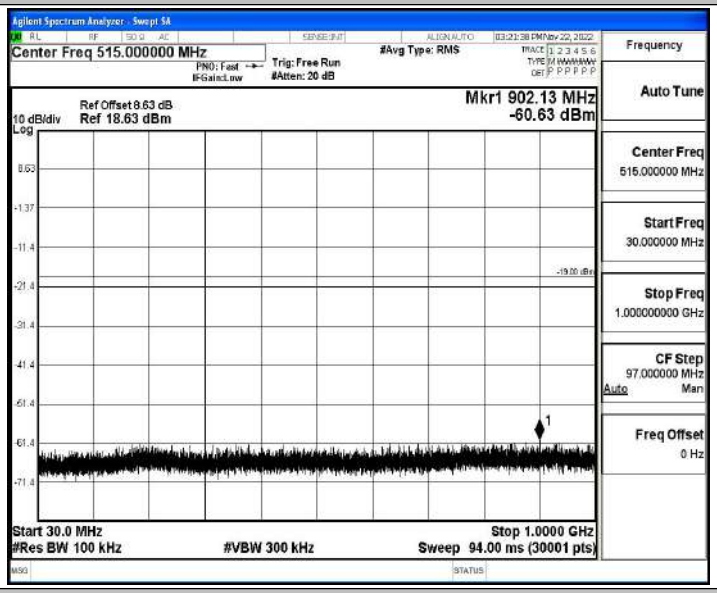
11B_Ant1_2437_1000~26500



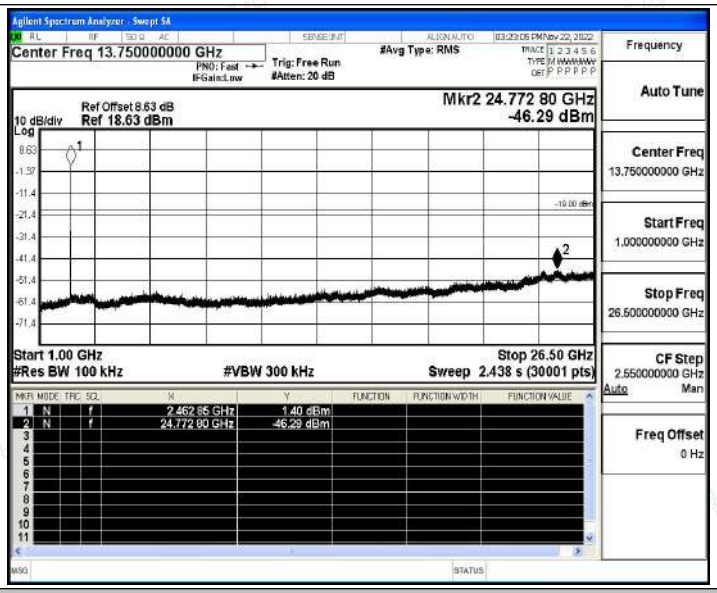
11B_Ant1_2462_0~Reference



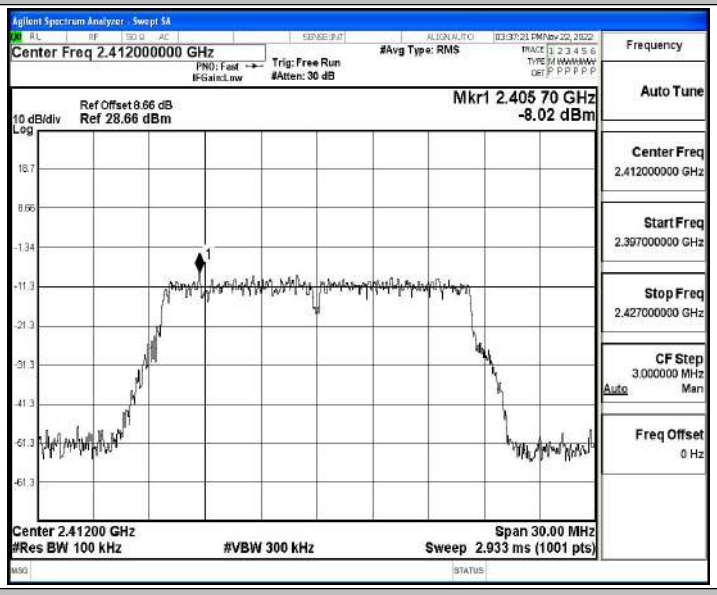
11B_Ant1_2462_30~1000



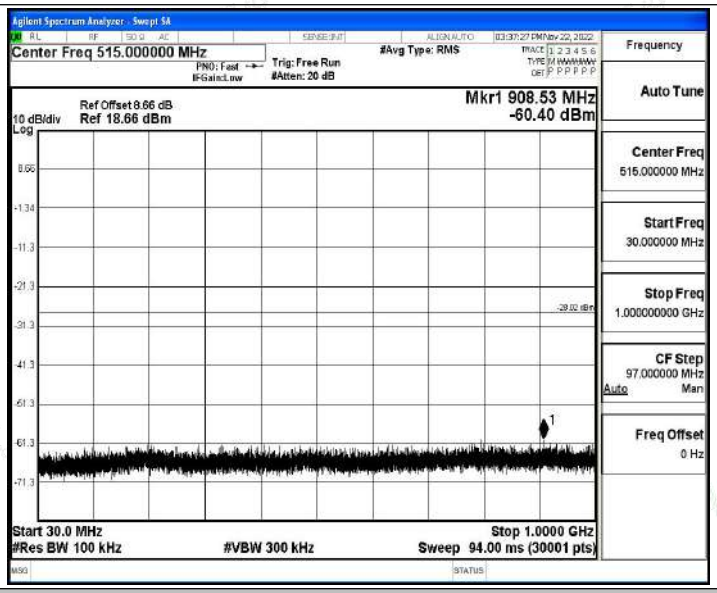
11B_Ant1_2462_1000~26500



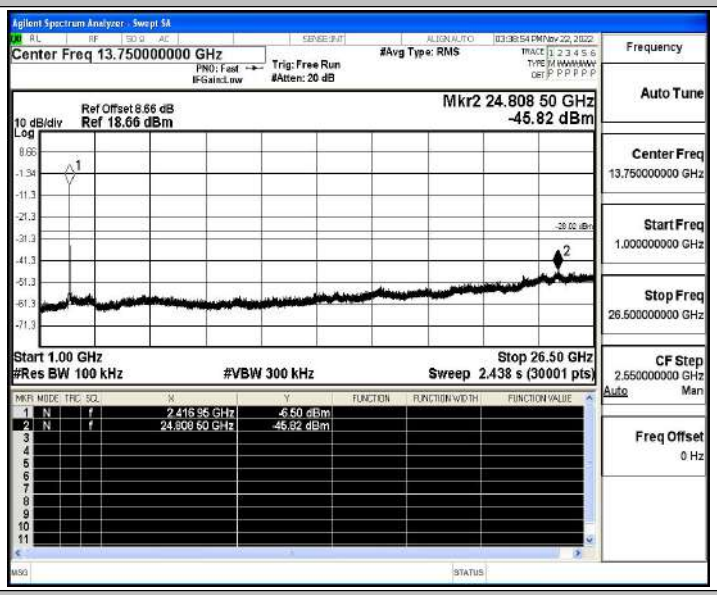
11G_Ant1_2412_0~Reference



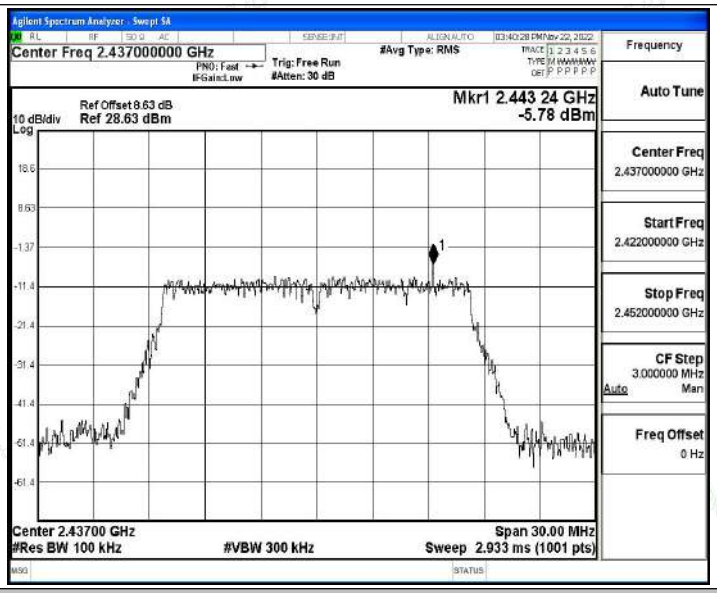
11G_Ant1_2412_30~1000



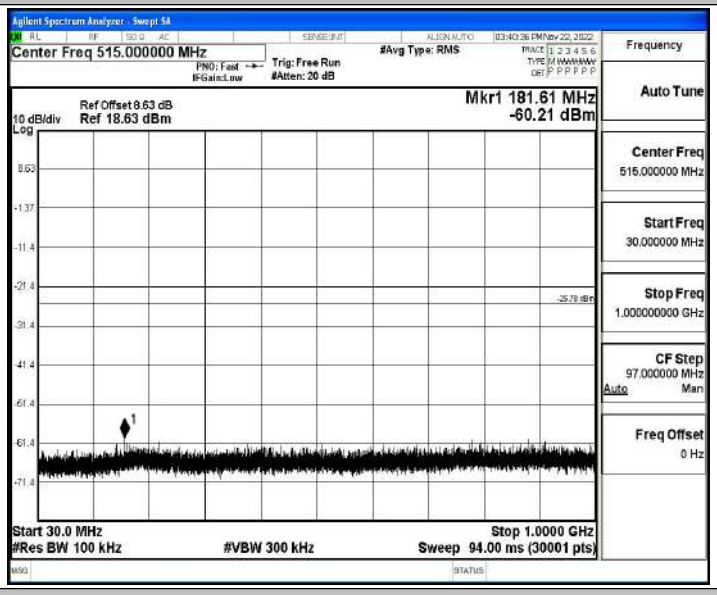
11G_Ant1_2412_1000~26500



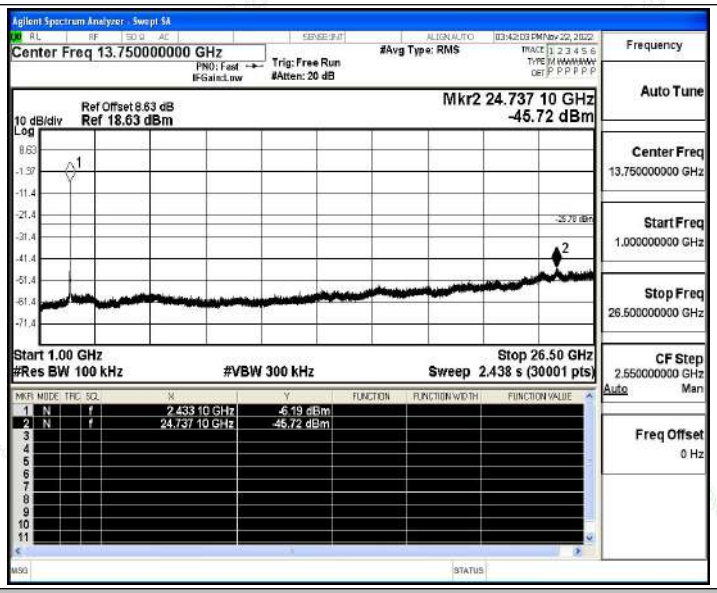
11G_Ant1_2437_0~Reference



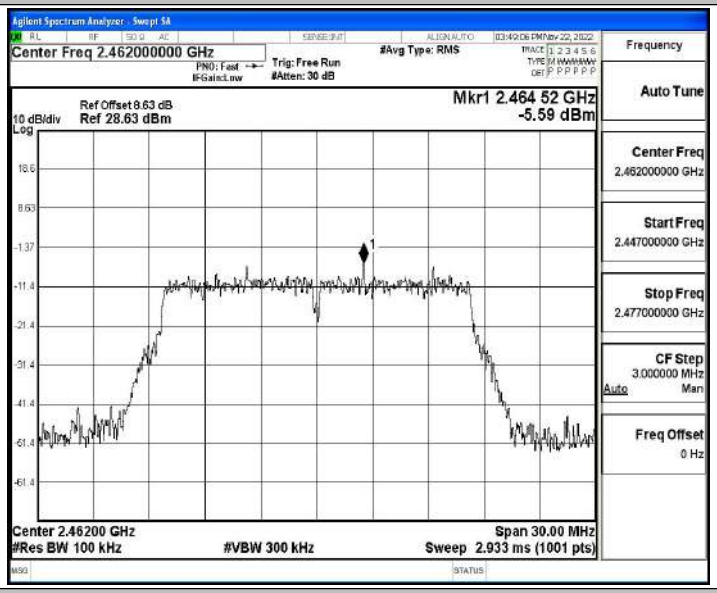
11G_Ant1_2437_30~1000



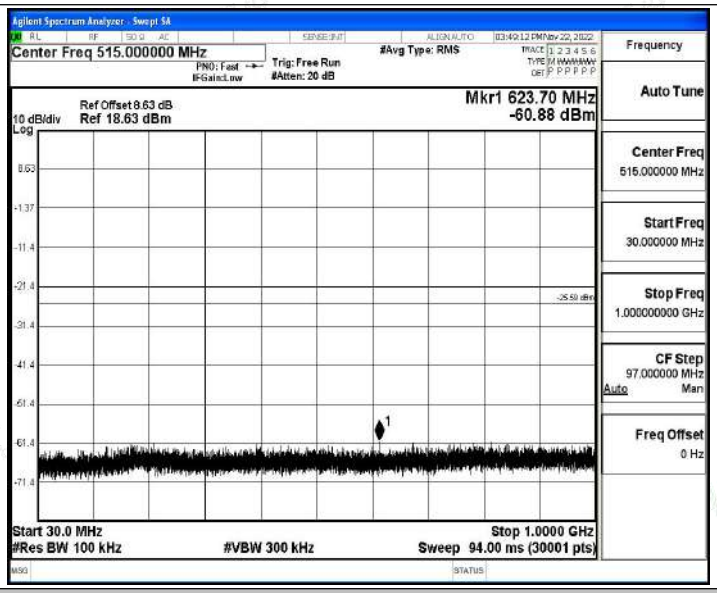
11G_Ant1_2437_1000~26500



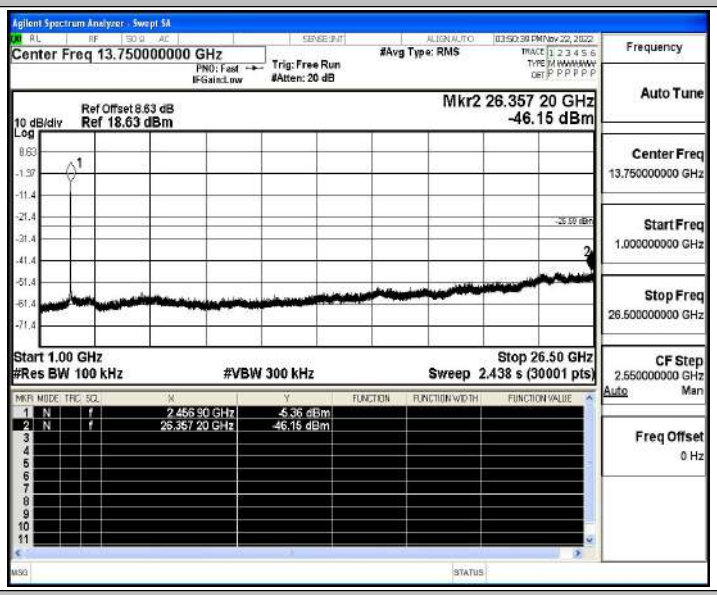
11G_Ant1_2462_0~Reference



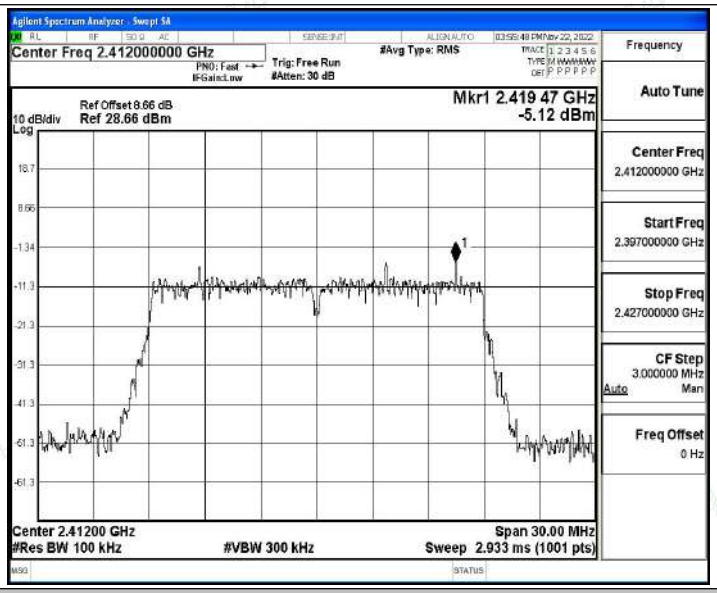
11G_Ant1_2462_30~1000



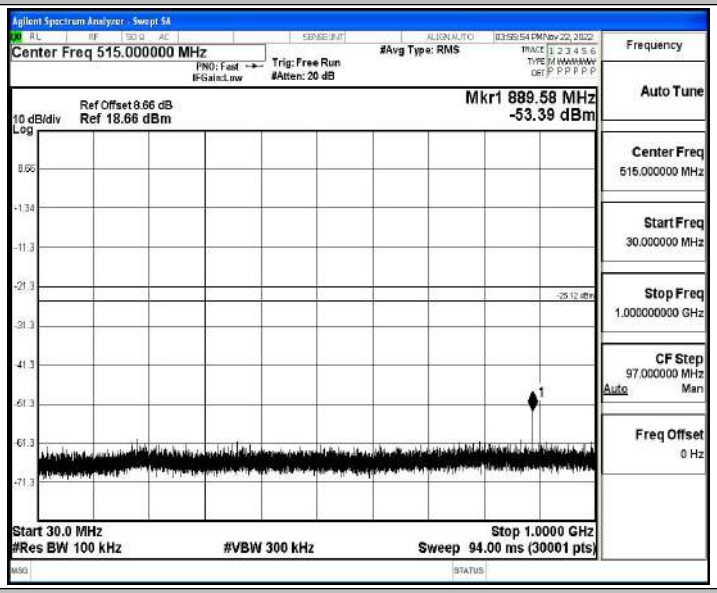
11G_Ant1_2462_1000~26500



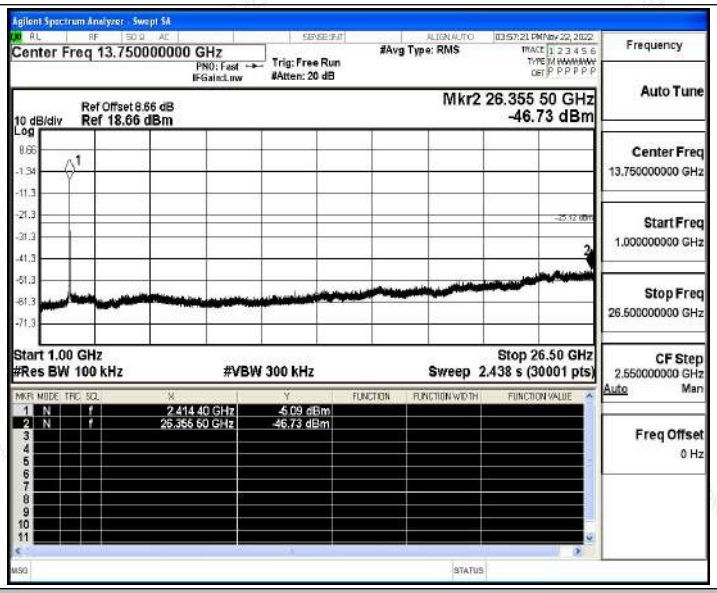
11N20SISO_Ant1_2412_0~Reference



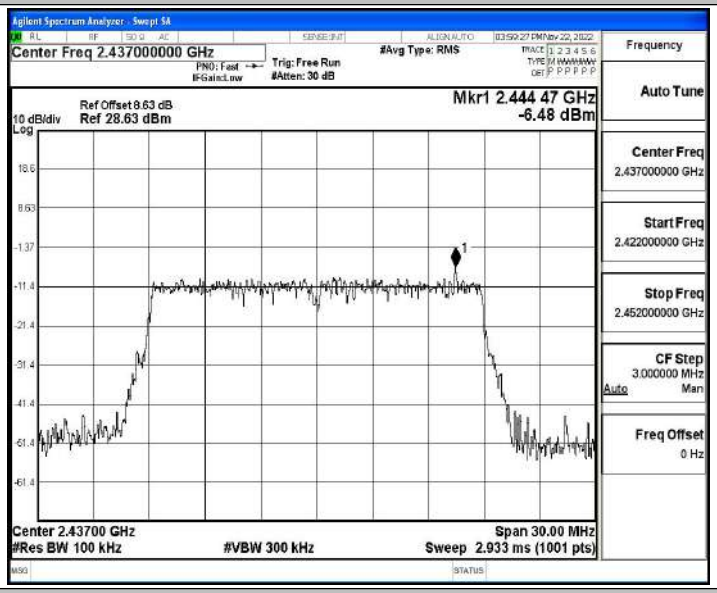
11N20SISO_Ant1_2412_30~1000



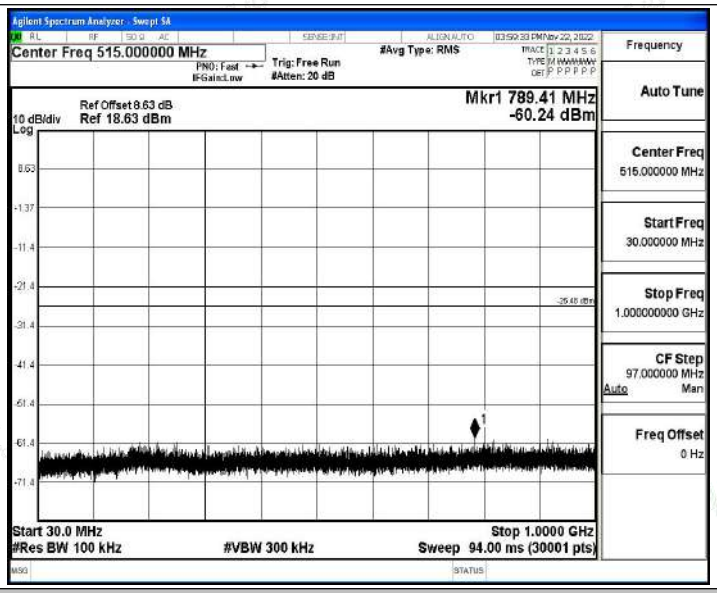
11N20SISO_Ant1_2412_1000~26500



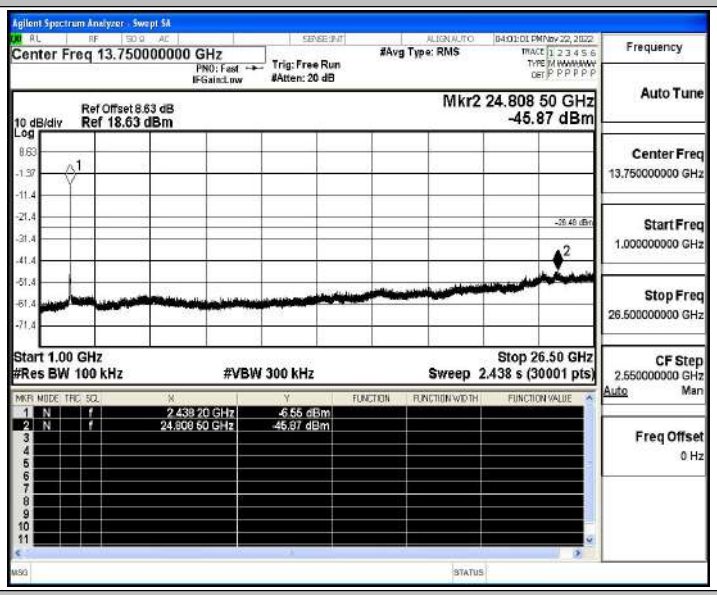
11N20SISO_Ant1_2437_0~Reference



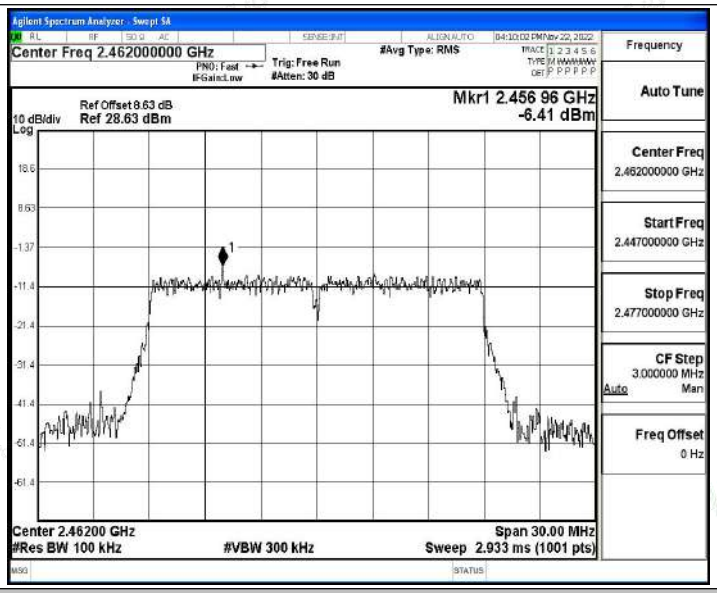
11N20SISO_Ant1_2437_30~1000



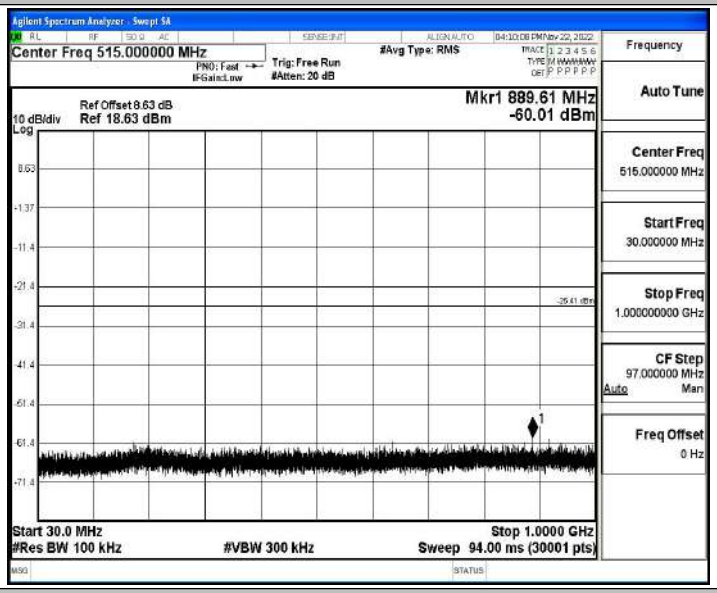
11N20SISO_Ant1_2437_1000~26500



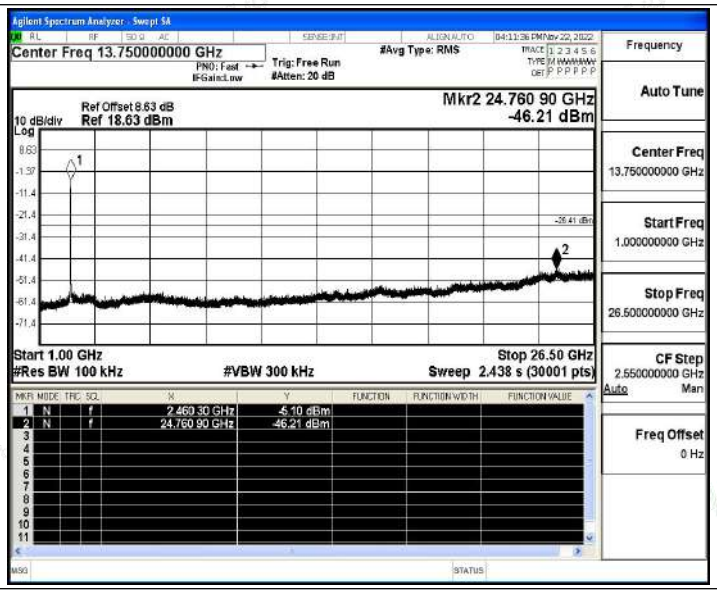
11N20SISO_Ant1_2462_0~Reference



11N20SISO_Ant1_2462_30~1000



11N20SISO_Ant1_2462_1000~26500


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Ref Offset 8.63 dB
10 dB/div Ref 18.63 dBm
Mkr2 24.760 90 GHz
-46.21 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 -5.10 dBm
2 N f 24.760 90 GHz -46.21 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

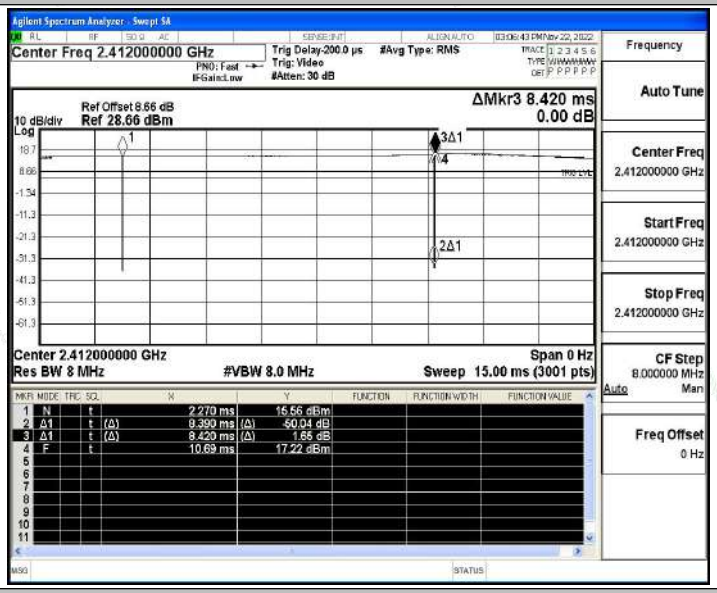
B.6 Duty Cycle

Test Result

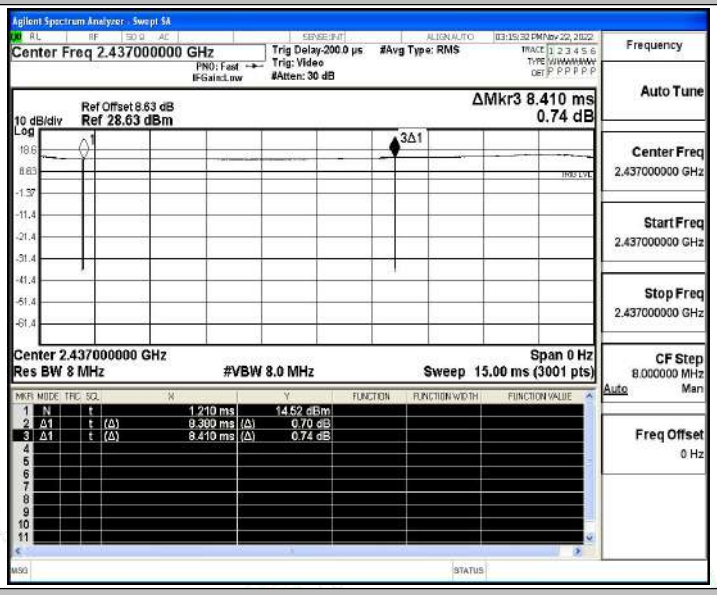
TestMode	Antenna	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor	1/T	Verdict
11B	Ant1	2412	8.39	8.42	99.64	0.02	0.01	---
		2437	8.38	8.41	99.64	0.02	0.01	---
		2462	8.39	8.42	99.64	0.02	0.01	---
11G	Ant1	2412	1.39	1.43	97.20	0.12	0.72	---
		2437	1.39	1.43	97.20	0.12	0.72	---
		2462	1.39	1.43	97.20	0.12	0.72	---
11N20SISO	Ant1	2412	1.28	1.32	96.97	0.13	0.78	---
		2437	1.28	1.32	96.97	0.13	0.78	---
		2462	1.29	1.32	97.73	0.10	0.78	---

Test Graphs

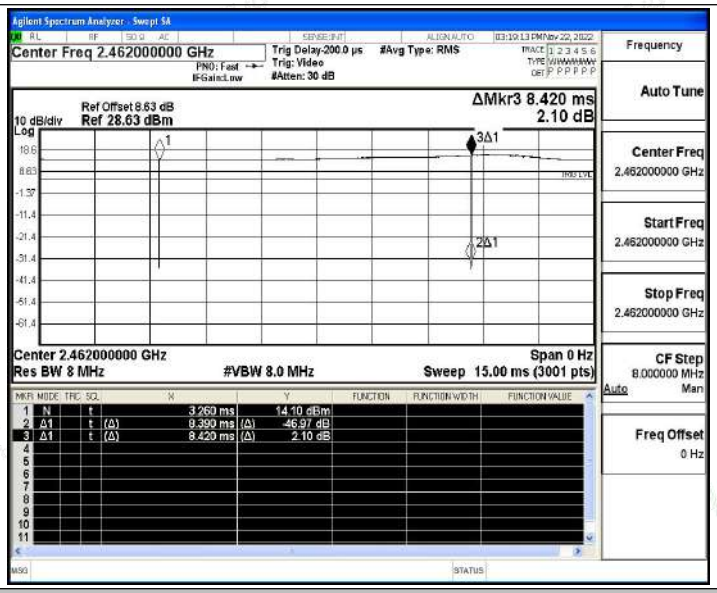
11B_Ant1_2412



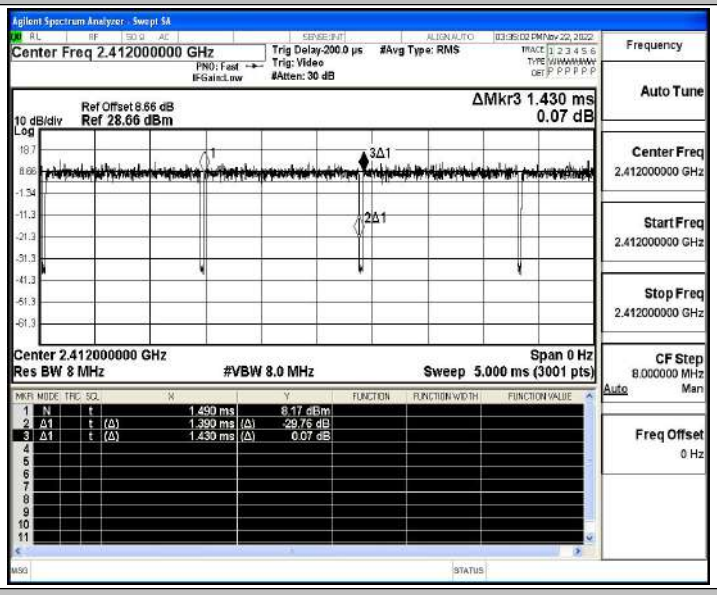
11B_Ant1_2437



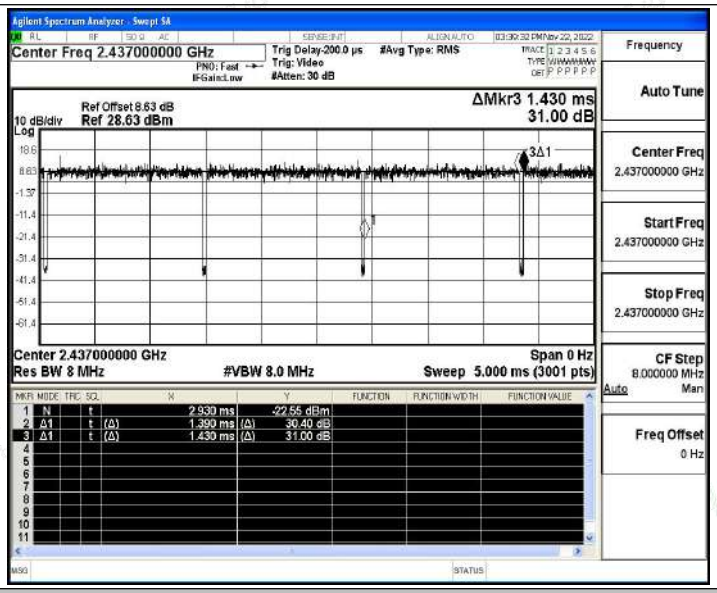
11B_Ant1_2462



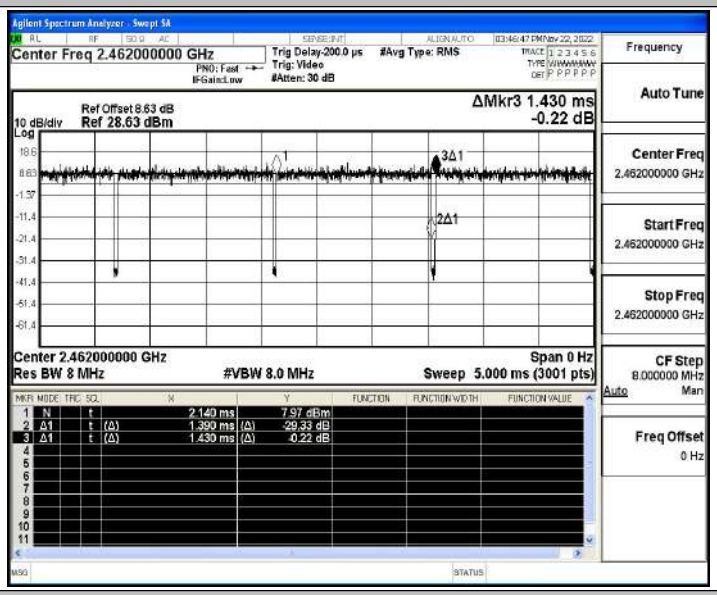
11G_Ant1_2412



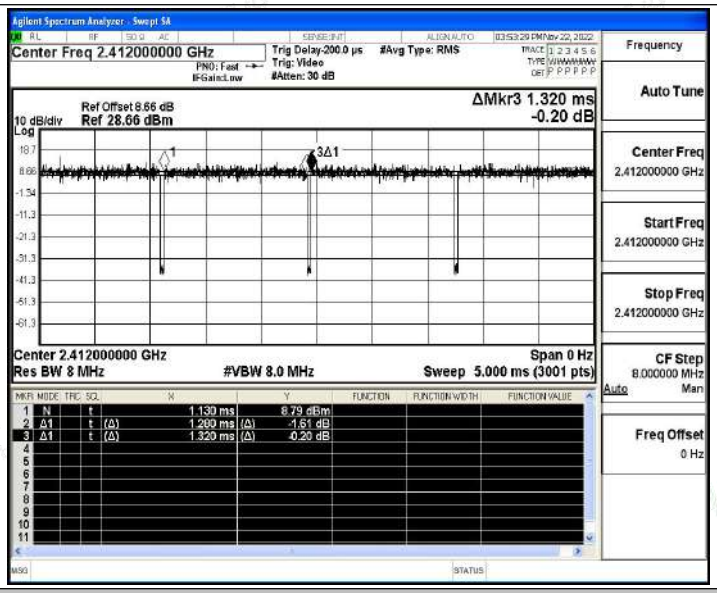
11G_Ant1_2437



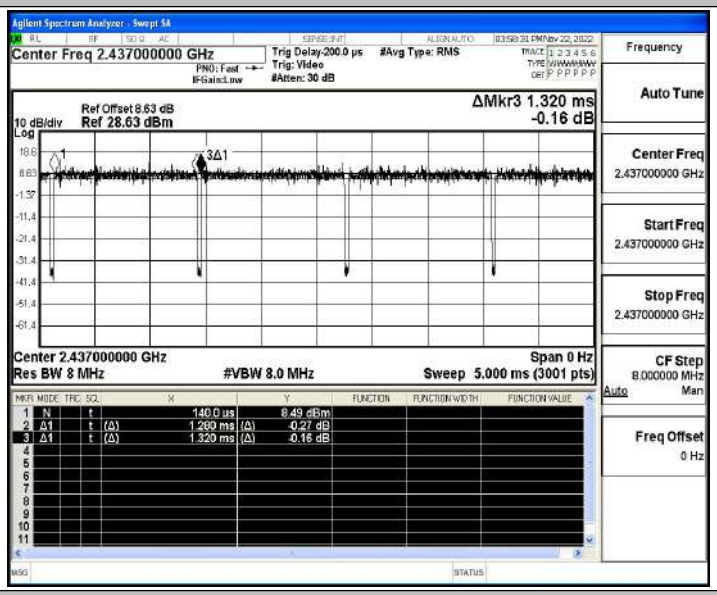
11G_Ant1_2462



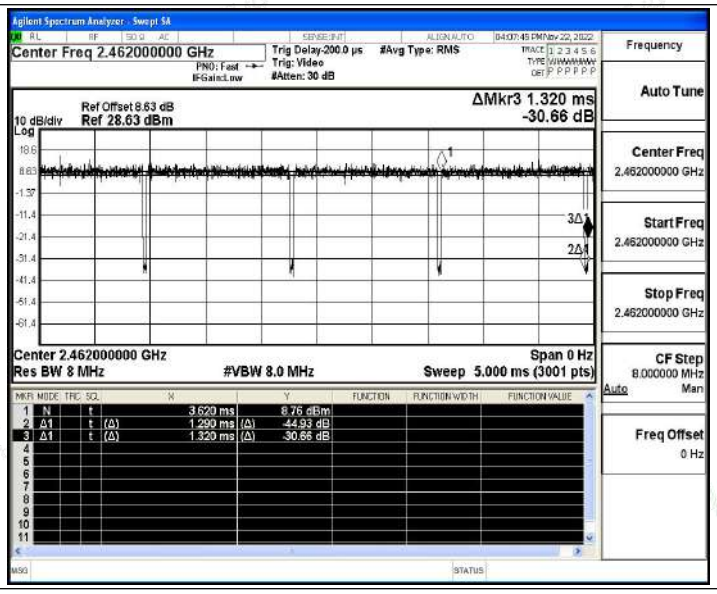
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
Trig Delay-200.0 µs
Trig: Video
#Atten: 30 dB
#Avg Type: RMS
Ref Offset 8.63 dB
10 dB/div Ref 28.63 dBm
ΔMkr3 1.320 ms
-30.66 dB
Center 2.462000000 GHz
Res BW 8 MHz
#VBW 8.0 MHz
Span 0 Hz
Sweep 5.000 ms (3001 pts)
1 N t 3.620 ms 8.76 dBm
2 Δ1 t (Δ) 1.290 ms (Δ) -44.93 dB
3 Δ1 t (Δ) 1.320 ms (Δ) -30.66 dB
Frequency
Auto Tune
Center Freq 2.462000000 GHz
Start Freq 2.462000000 GHz
Stop Freq 2.462000000 GHz
CF Step 8.000000 MHz
Auto Man
Freq Offset 0 Hz

B.7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11B	Ant1	Low	2412	AV	2310.000	-58.56	≤-41.20	36.64	≤54	PASS
				AV	2389.960	-55.29	≤-41.20	39.91	≤54	PASS
				AV	2390.000	-55.3	≤-41.20	39.90	≤54	PASS
				Peak	2310.000	-47.86	≤-21.20	47.34	≤74	PASS
				Peak	2389.960	-44.48	≤-21.20	50.72	≤74	PASS
				Peak	2390.000	-44.48	≤-21.20	50.72	≤74	PASS
		High	2462	AV	2483.500	-54.94	≤-41.20	40.26	≤54	PASS
				AV	2483.560	-54.89	≤-41.20	40.31	≤54	PASS
				AV	2500.000	-57.08	≤-41.20	38.12	≤54	PASS
				Peak	2483.500	-44.94	≤-21.20	50.26	≤74	PASS
				Peak	2487.300	-43.92	≤-21.20	51.28	≤74	PASS
				Peak	2500.000	-45.91	≤-21.20	49.29	≤74	PASS
11G	Ant1	Low	2412	AV	2310.000	-57.65	≤-41.20	37.55	≤54	PASS
				AV	2389.960	-52.97	≤-41.20	42.23	≤54	PASS
				AV	2390.000	-52.97	≤-41.20	42.23	≤54	PASS
				Peak	2310.000	-47.77	≤-21.20	47.43	≤74	PASS
				Peak	2389.700	-39.01	≤-21.20	56.19	≤74	PASS
				Peak	2390.000	-40.56	≤-21.20	54.64	≤74	PASS
		High	2462	AV	2483.500	-50.78	≤-41.20	44.42	≤54	PASS
				AV	2483.560	-50.11	≤-41.20	45.09	≤54	PASS
				AV	2500.000	-54.08	≤-41.20	41.12	≤54	PASS
				Peak	2483.500	-34.92	≤-21.20	60.28	≤74	PASS
				Peak	2483.670	-33.46	≤-21.20	61.74	≤74	PASS
				Peak	2500.000	-43.92	≤-21.20	51.28	≤74	PASS
11N20SISO	Ant1	Low	2412	AV	2310.000	-57.73	≤-41.20	37.47	≤54	PASS
				AV	2389.960	-51.07	≤-41.20	44.13	≤54	PASS
				AV	2390.000	-51.07	≤-41.20	44.13	≤54	PASS
				Peak	2310.000	-47.49	≤-21.20	47.71	≤74	PASS
				Peak	2389.960	-34.46	≤-21.20	60.74	≤74	PASS
				Peak	2390.000	-34.46	≤-21.20	60.74	≤74	PASS
		High	2462	AV	2483.500	-48.45	≤-41.20	46.75	≤54	PASS
				AV	2484.220	-48.54	≤-41.20	46.66	≤54	PASS
				AV	2500.000	-54.05	≤-41.20	41.15	≤54	PASS
				Peak	2483.500	-31.03	≤-21.20	64.17	≤74	PASS
				Peak	2484.220	-28.82	≤-21.20	66.38	≤74	PASS

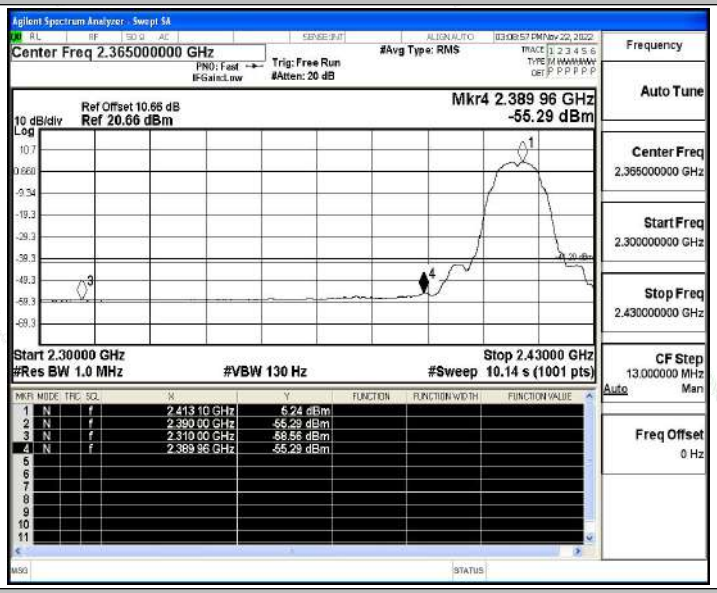
				Peak	2500.000	-43.55	≤-21.20	51.65	≤74	PASS

Note：

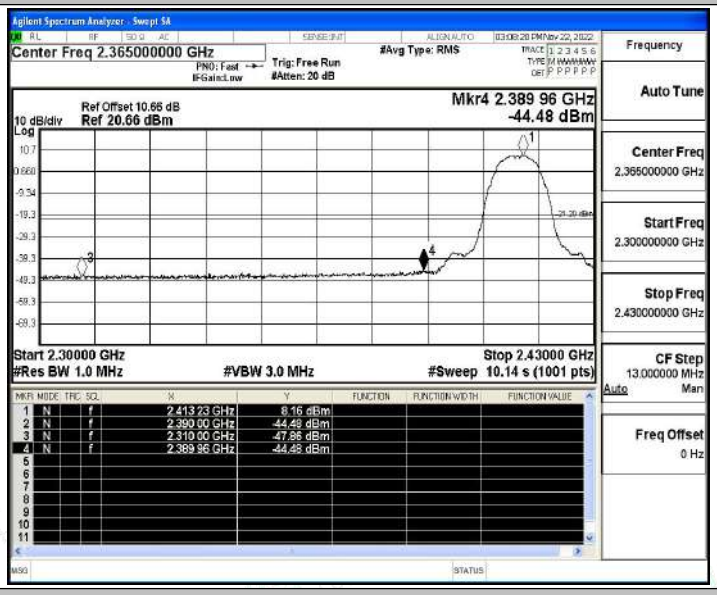
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

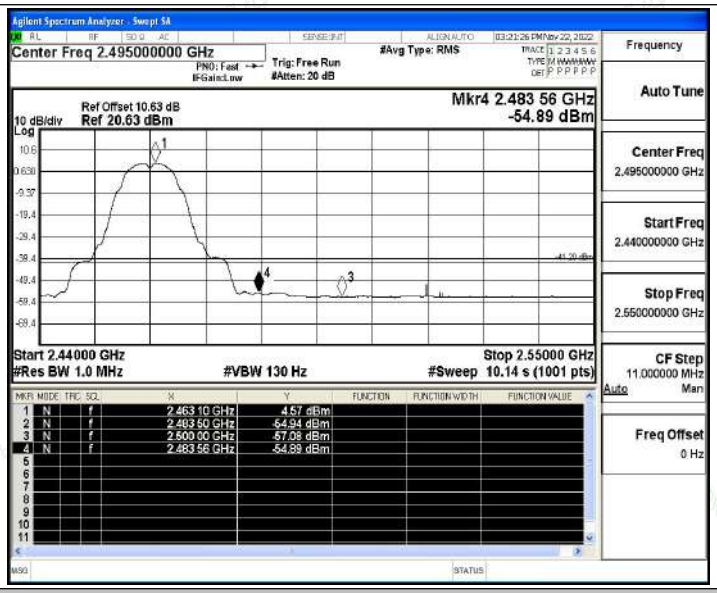
11B_Ant1_Low_2412_AV



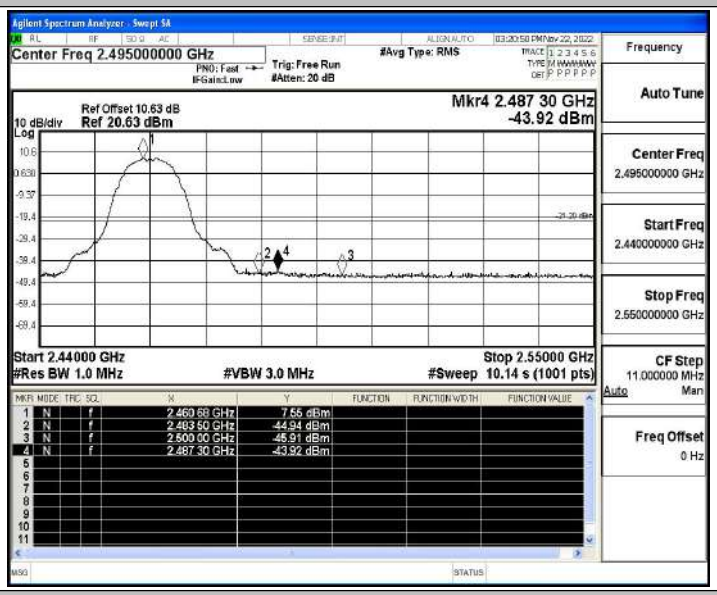
11B_Ant1_Low_2412_Peak



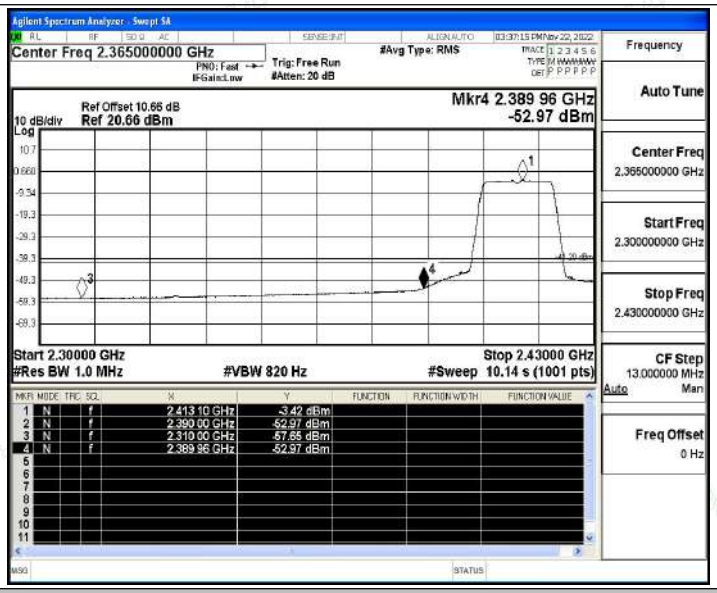
11B_Ant1_High_2462_AV



11B_Ant1_High_2462_Peak



11G_Ant1_Low_2412_AV



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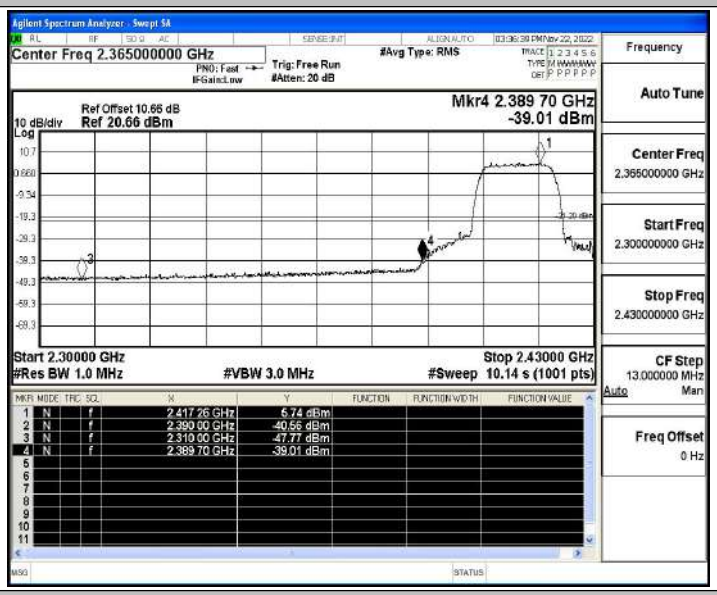
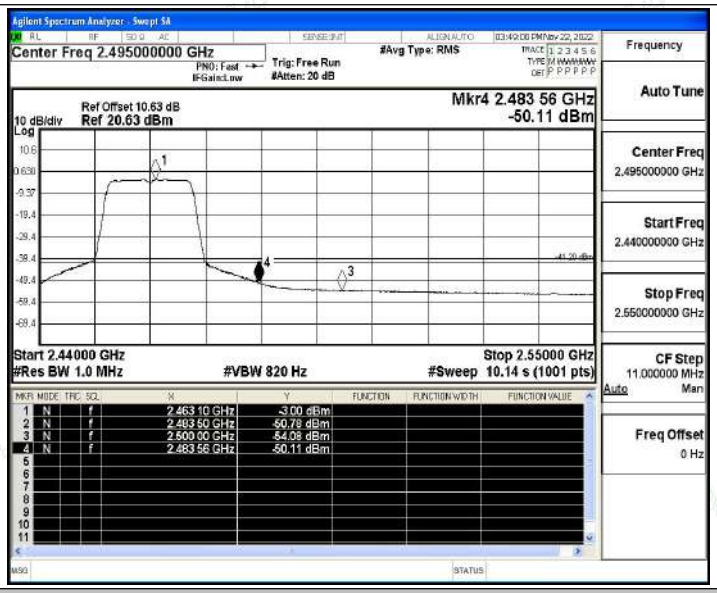
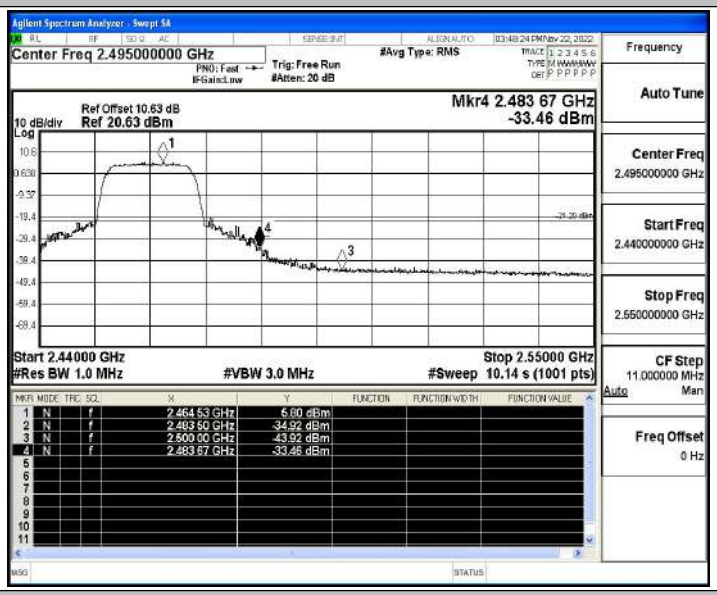


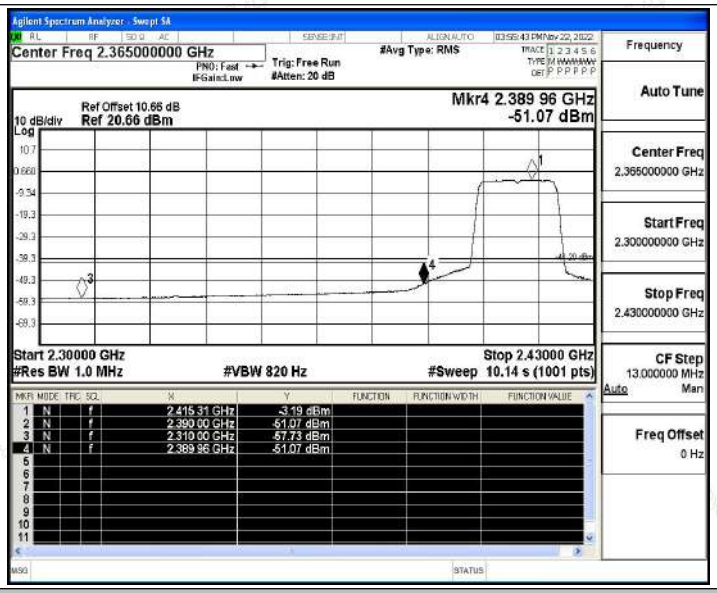
11G_Ant1_High_2462_AV



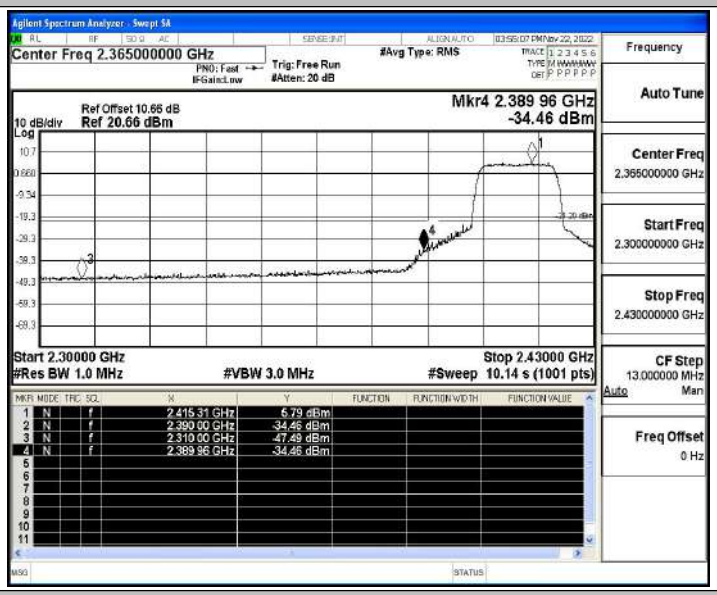
11G_Ant1_High_2462_Peak



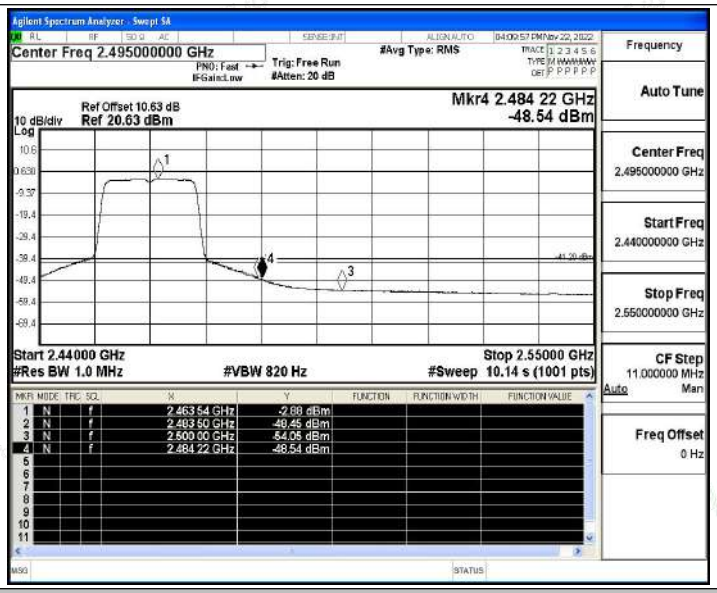
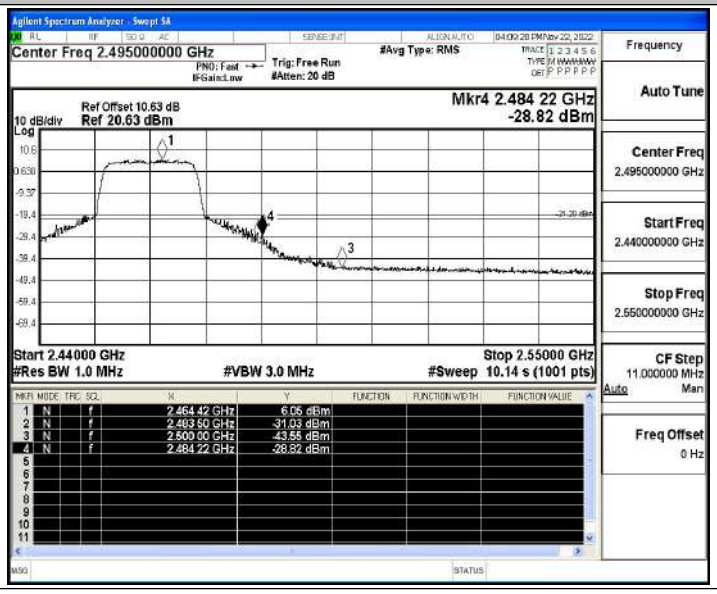
11N20SISO_Ant1_Low_2412_AV



11N20SISO_Ant1_Low_2412_Peak



11N20SISO_Ant1_High_2462_AV



11N20SISO_Ant1_High_2462_Peak