Appendix: 2.4G WIFI

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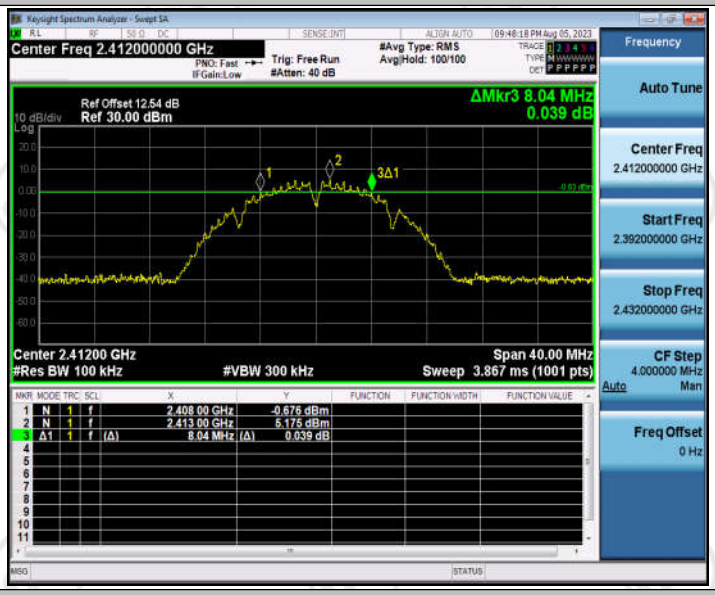
Appendix A: DTS Bandwidth

Test Result

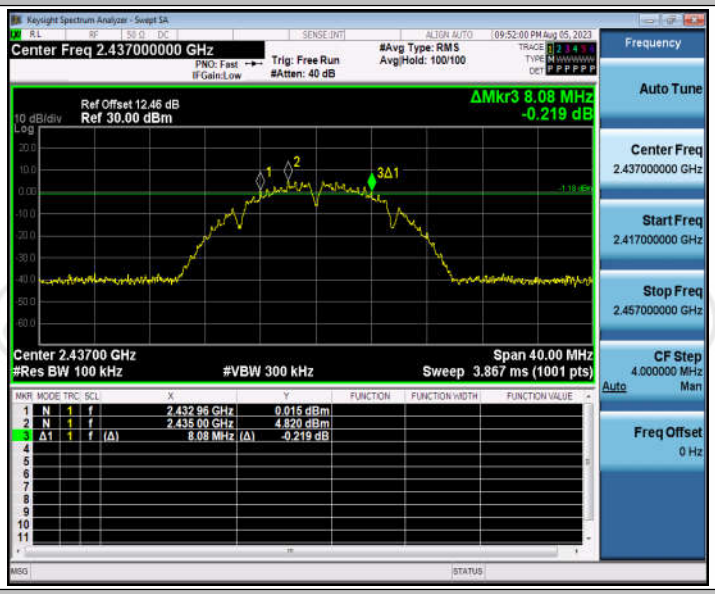
Test Mode	Antenna	Frequency [MHz]	DTS BW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11B	Ant1	2412	8.040	2408.000	2416.040	0.5	PASS
		2437	8.080	2432.960	2441.040	0.5	PASS
		2462	8.040	2458.000	2466.040	0.5	PASS
11G	Ant1	2412	16.320	2403.840	2420.160	0.5	PASS
		2437	15.440	2429.440	2444.880	0.5	PASS
		2462	16.320	2453.840	2470.160	0.5	PASS
11N20SISO	Ant1	2412	16.320	2403.480	2419.800	0.5	PASS
		2437	13.800	2430.760	2444.560	0.5	PASS
		2462	16.520	2453.240	2469.760	0.5	PASS

Test Graphs

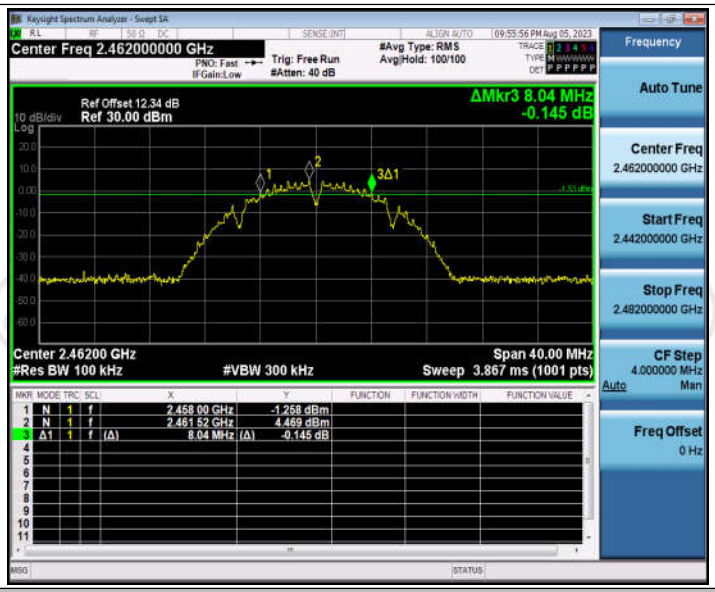
11B_Ant1_2412



11B_Ant1_2437

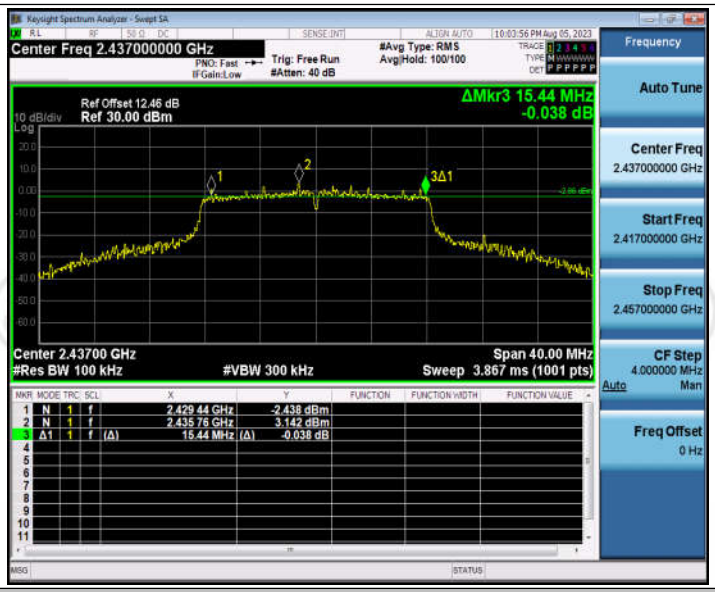


11B_Ant1_2462



11G_Ant1_2412

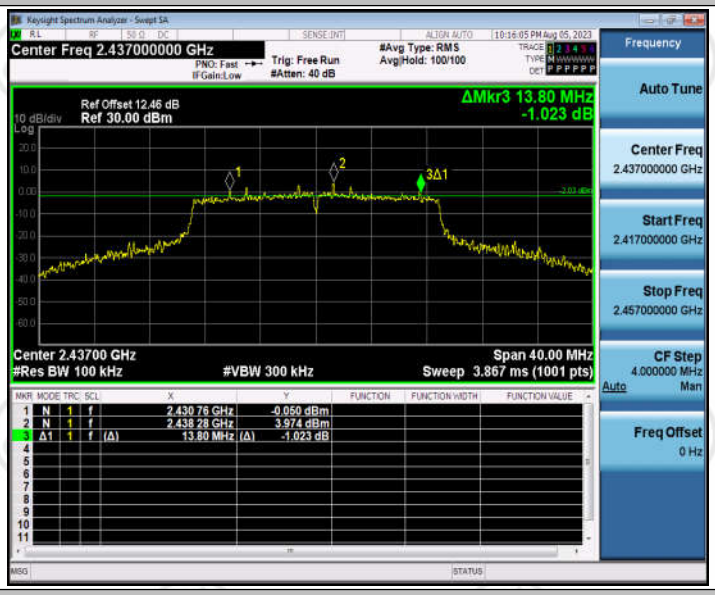
11G_Ant1_2437



11G_Ant1_2462

11N20SISO_Ant1_2412

11N20SISO_Ant1_2437



11N20SISO_Ant1_2462

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
Avg|Hold: 100/100
10:19:58 PM Aug 05, 2023
Frequency
Auto Tune
Ref Offset 12.34 dB
10 dB/div Ref 30.00 dBm
Log
ΔMkr3 16.52 MHz
0.200 dB
Center Freq
2.462000000 GHz
Start Freq
2.442000000 GHz
Stop Freq
2.482000000 GHz
Center 2.46200 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 40.00 MHz
Sweep 3.867 ms (1001 pts)
CF Step
4.000000 MHz
Auto Man
Freq Offset
0 Hz
1 N 1 f 2.453 24 GHz -3.204 dBm
2 N 1 f 2.460 72 GHz 2.792 dBm
3 Δ1 1 f (Δ) 16.52 MHz (Δ) 0.200 dB

Appendix B: Occupied Channel Bandwidth

Test Result

Test Mode	Antenna	Channel Frequency [MHz]	OCB [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11B	Ant1	2412	12.854	2405.6049	2418.4589	---	---
		2437	12.805	2430.6520	2443.4570	---	---
		2462	12.806	2455.5995	2468.4055	---	---
11G	Ant1	2412	17.160	2403.4621	2420.6221	---	---
		2437	17.159	2428.4620	2445.6210	---	---
		2462	16.998	2453.4994	2470.4974	---	---
11N20SISO	Ant1	2412	18.084	2403.0426	2421.1266	---	---
		2437	18.231	2427.9480	2446.1790	---	---
		2462	18.193	2452.8930	2471.0860	---	---

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

Keysight Spectrum Analyzer - Occupied BW
Center Freq 2.462000000 GHz
Center Freq: 2.462000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 40 dB
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 12.34 dB
10 dB/div
Ref 30.00 dBm
Mkr1 2.46024 GHz
6.0360 dBm
Center Freq
2.462000000 GHz
Center 2.462 GHz
#Res BW 430 kHz
#VBW 1.3 MHz
Span 40 MHz
Sweep 1 ms
CF Step
4.000000 MHz
Auto
Man
Occupied Bandwidth
18.193 MHz
Total Power
19.2 dBm
Transmit Freq Error
-10.490 kHz
OBW Power
99.00 %
x dB Bandwidth
28.98 MHz
x dB
-26.00 dB
Freq Offset
0 Hz

Appendix C: Maximum conducted output power

Test Result Peak

Test Mode	Antenna	Frequency [MHz]	Set Power	Peak Power [dBm]	Conducted Limit [dBm]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
11B	Ant1	2412	---	13.19	≤30.00	12.82	≤36.00	PASS
		2437	---	13.72	≤30.00	**13.35**	≤36.00	PASS
		2462	---	13.56	≤30.00	13.19	≤36.00	PASS
11G	Ant1	2412	---	12.97	≤30.00	12.60	≤36.00	PASS
		2437	---	13.50	≤30.00	13.13	≤36.00	PASS
		2462	---	13.38	≤30.00	13.01	≤36.00	PASS
11N20SISO	Ant1	2412	---	13.00	≤30.00	12.63	≤36.00	PASS
		2437	---	13.44	≤30.00	13.07	≤36.00	PASS
		2462	---	13.39	≤30.00	13.02	≤36.00	PASS

Note：EIRP=Peak Power+Antenna Gain

Appendix D: Maximum power spectral density

Test Result

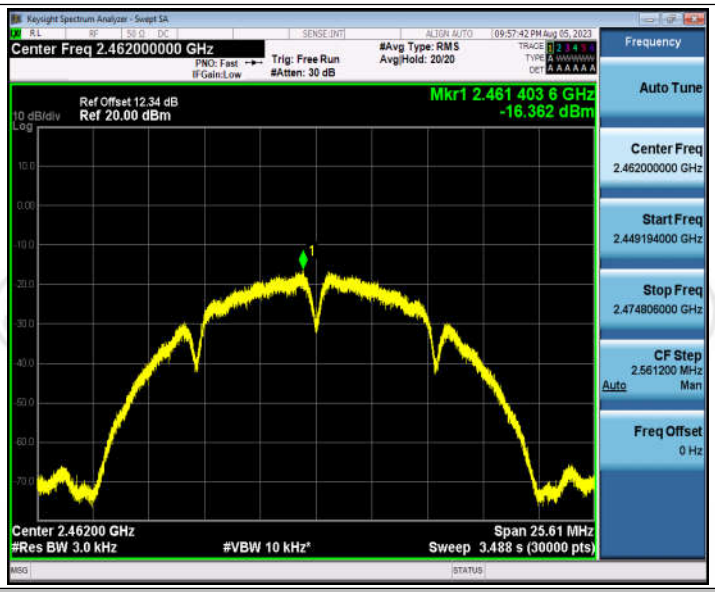
Test Mode	Antenna	Frequency [MHz]	Result [dBm/3-100kHz]	Limit [dBm/3kHz]	Verdict
11B	Ant1	2412	-16.9	≤8.00	PASS
		2437	-16.36	≤8.00	PASS
		2462	-16.36	≤8.00	PASS
11G	Ant1	2412	-19.33	≤8.00	PASS
		2437	-19.29	≤8.00	PASS
		2462	-18.76	≤8.00	PASS
11N20SISO	Ant1	2412	-19.49	≤8.00	PASS
		2437	-18.8	≤8.00	PASS
		2462	-18.93	≤8.00	PASS

Test Graphs

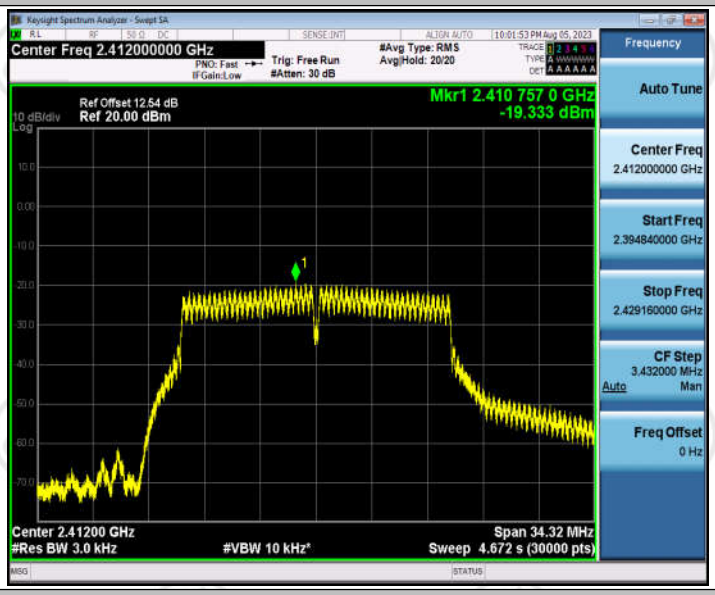
11B_Ant1_2412

11B_Ant1_2437

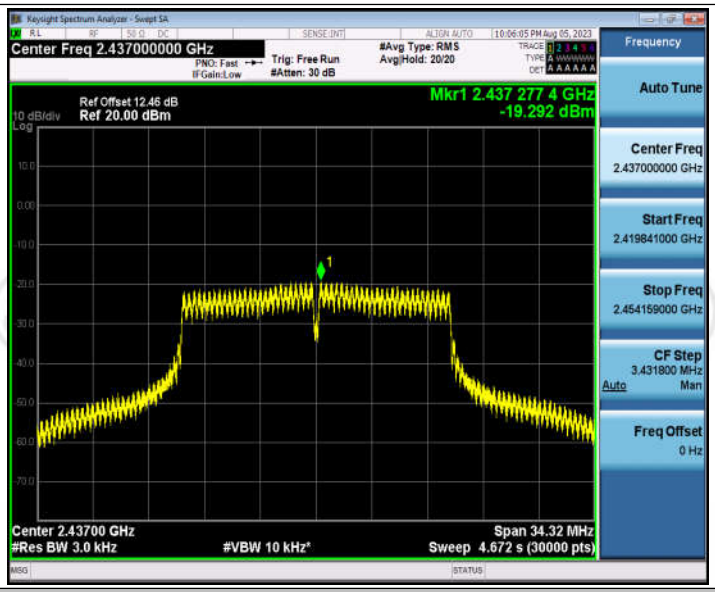
11B_Ant1_2462



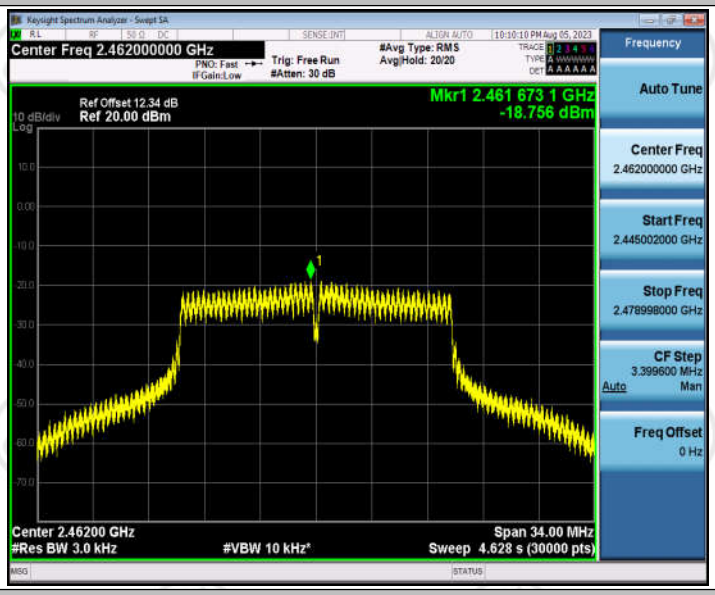
11G_Ant1_2412



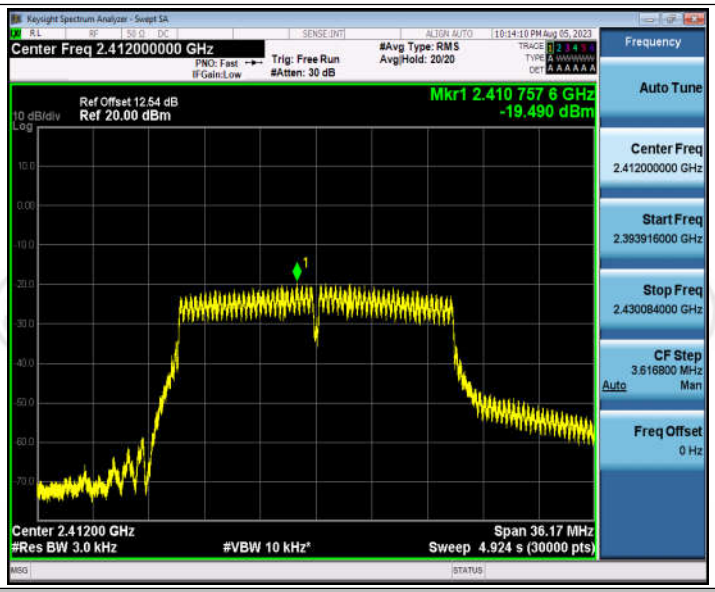
11G_Ant1_2437



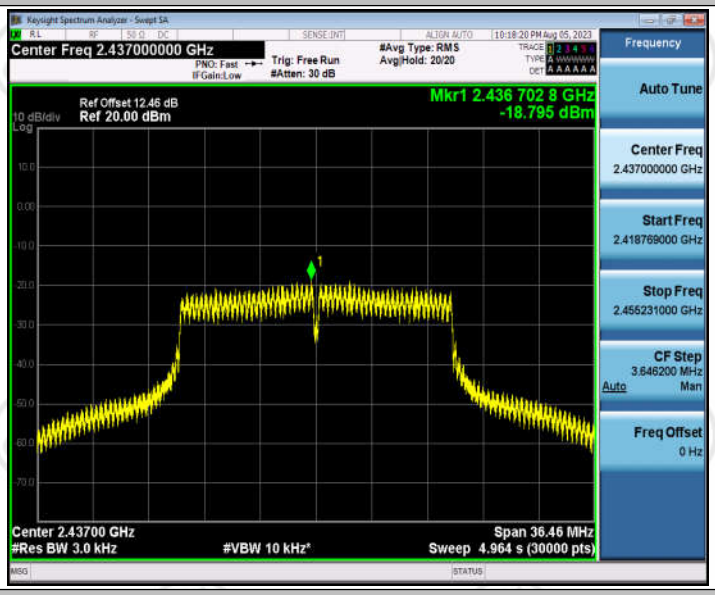
11G_Ant1_2462



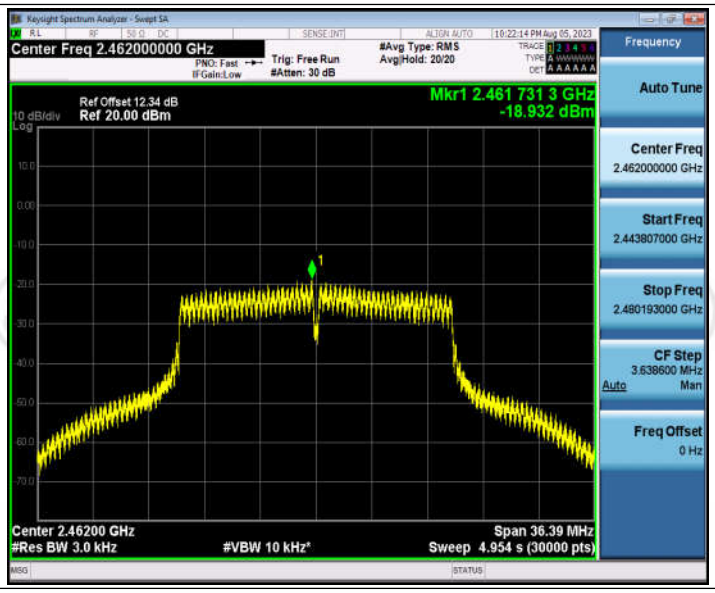
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 20/20
Frequency
Auto Tune
Ref Offset 12.34 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.461 731 3 GHz
-18.932 dBm
Center Freq
2.462000000 GHz
Start Freq
2.443807000 GHz
Stop Freq
2.480193000 GHz
CF Step
3.638600 MHz
Auto
Man
Freq Offset
0 Hz
Center 2.46200 GHz
#Res BW 3.0 kHz
#VBW 10 kHz*
Span 36.39 MHz
Sweep 4.954 s (30000 pts)

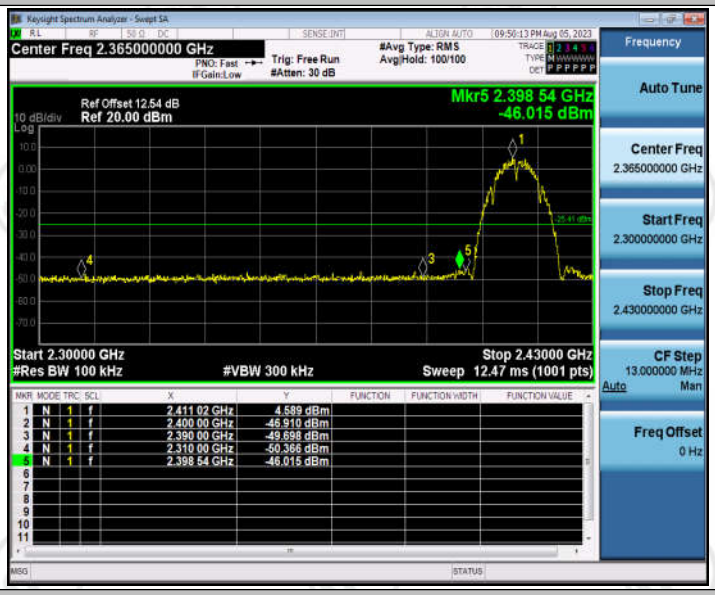
Appendix E: Band edge measurements

Test Result

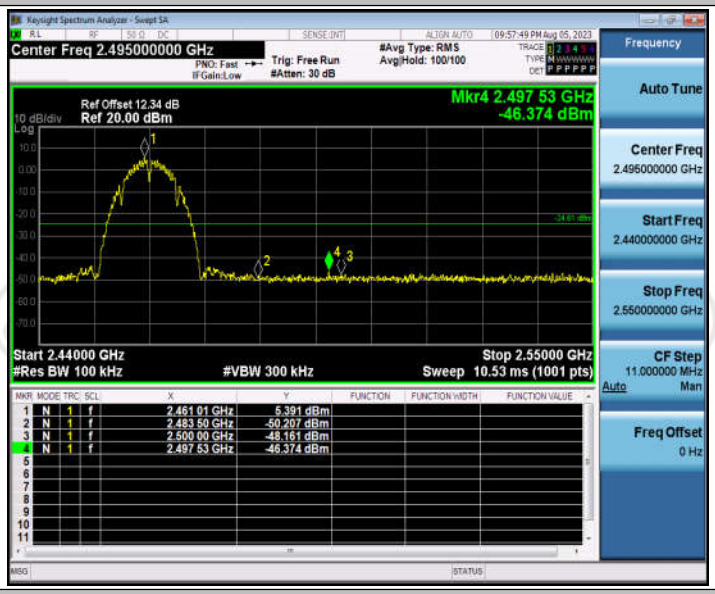
Test Mode	Antenna	ChName	Frequency [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	Low	2412	4.59	-46.02	≤-25.41	PASS
		High	2462	5.39	-46.37	≤-24.61	PASS
11G	Ant1	Low	2412	2.62	-39.62	≤-27.38	PASS
		High	2462	1.95	-46.01	≤-28.05	PASS
11N20SISO	Ant1	Low	2412	2.43	-40.91	≤-27.57	PASS
		High	2462	2.60	-46.49	≤-27.4	PASS

Test Graphs

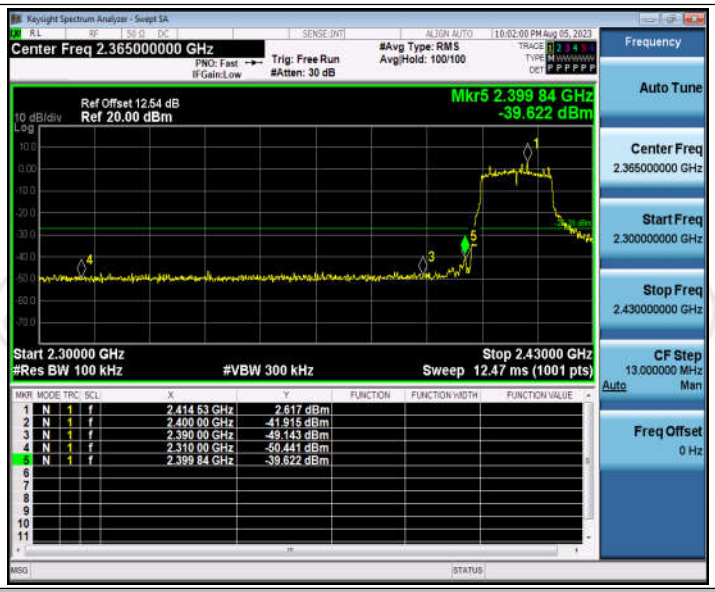
11B_Ant1_Low_2412



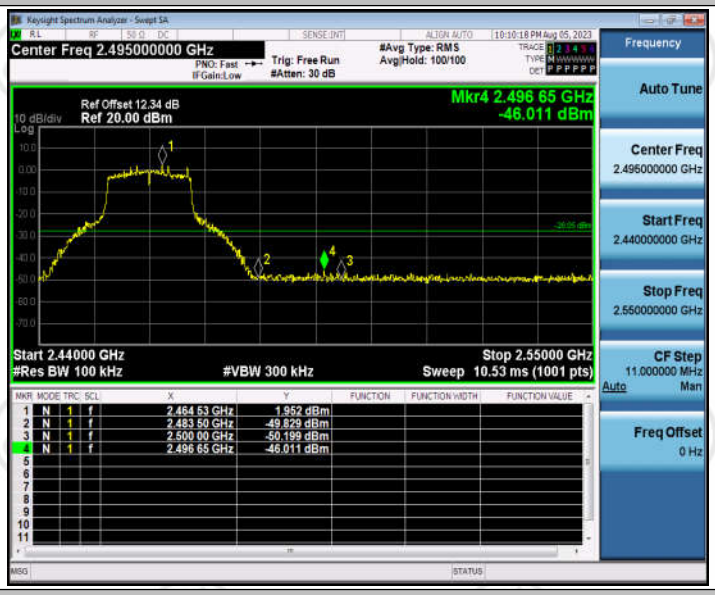
11B_Ant1_High_2462



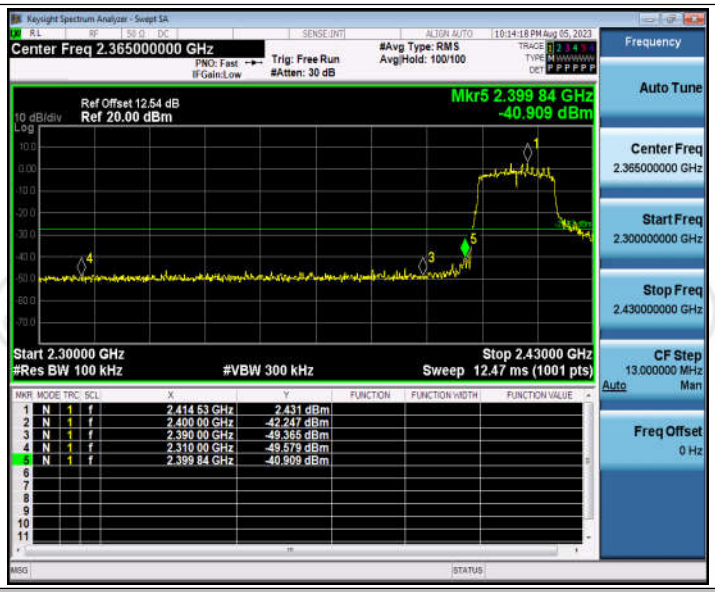
11G_Ant1_Low_2412



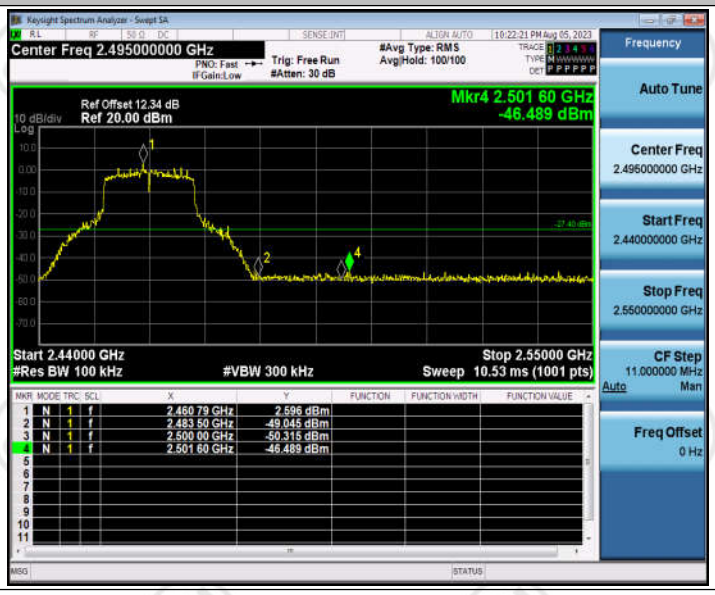
11G_Ant1_High_2462



11N20SISO_Ant1_Low_2412



11N20SISO_Ant1_High_2462



Appendix F: Conducted Spurious Emission

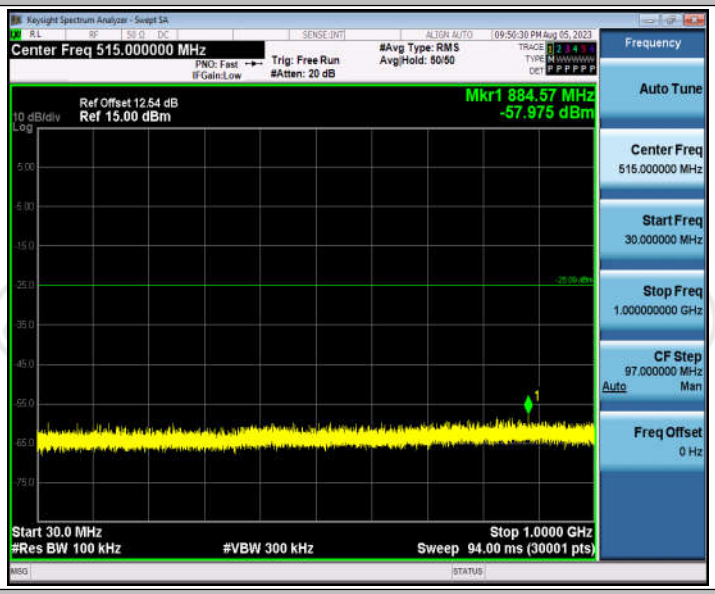
Test Result

Test Mode	Antenna	Frequency [MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	4.91	4.91	---	PASS
			30~1000	4.91	-57.98	≤-25.09	PASS
			1000~26500	4.91	-50.55	≤-25.09	PASS
		2437	Reference	5.13	5.13	---	PASS
			30~1000	5.13	-59.08	≤-24.87	PASS
			1000~26500	5.13	-51.05	≤-24.87	PASS
		2462	Reference	3.58	3.58	---	PASS
			30~1000	3.58	-58.56	≤-26.42	PASS
			1000~26500	3.58	-50.9	≤-26.42	PASS
11G	Ant1	2412	Reference	-1.03	-1.03	---	PASS
			30~1000	-1.03	-58.21	≤-31.03	PASS
			1000~26500	-1.03	-49.94	≤-31.03	PASS
		2437	Reference	0.01	0.01	---	PASS
			30~1000	0.01	-58.08	≤-29.99	PASS
			1000~26500	0.01	-50.53	≤-29.99	PASS
		2462	Reference	0.17	0.17	---	PASS
			30~1000	0.17	-58.91	≤-29.83	PASS
			1000~26500	0.17	-51.05	≤-29.83	PASS
11N20SISO	Ant1	2412	Reference	1.60	1.60	---	PASS
			30~1000	1.60	-58.12	≤-28.4	PASS
			1000~26500	1.60	-50.82	≤-28.4	PASS
		2437	Reference	3.91	3.91	---	PASS
			30~1000	3.91	-58.28	≤-26.09	PASS
			1000~26500	3.91	-50.65	≤-26.09	PASS
		2462	Reference	-0.79	-0.79	---	PASS
			30~1000	-0.79	-58.6	≤-30.79	PASS
			1000~26500	-0.79	-50.69	≤-30.79	PASS

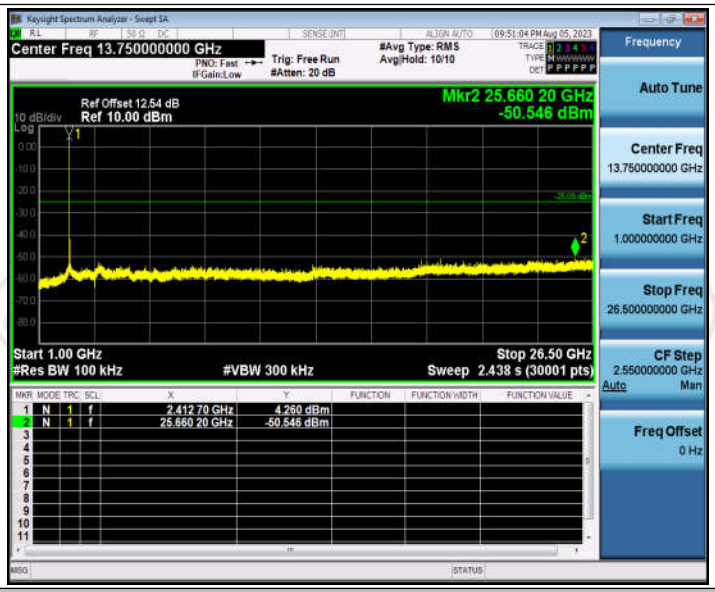
Test Graphs

11B_Ant1_2412_0~Reference

11B_Ant1_2412_30~1000

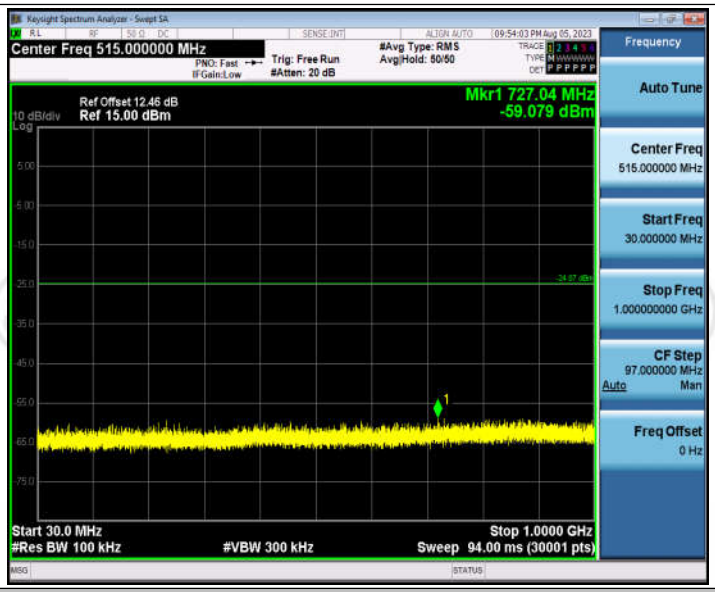


11B_Ant1_2412_1000~26500

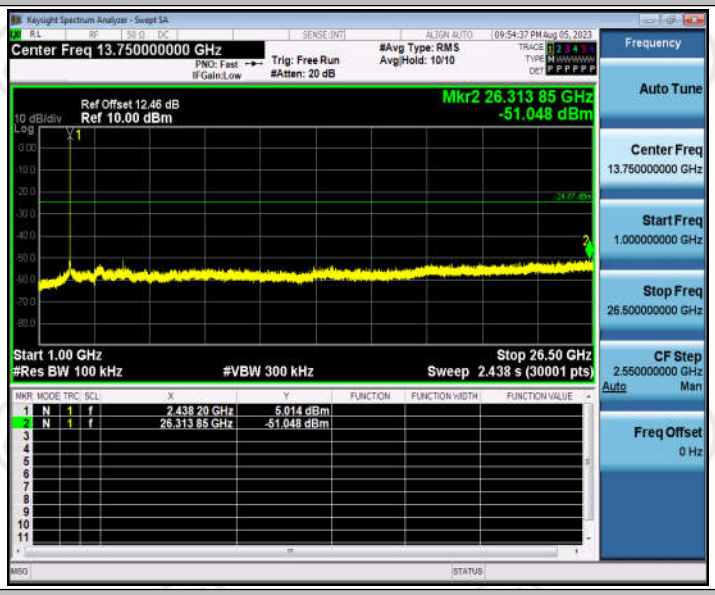


11B_Ant1_2437_0~Reference

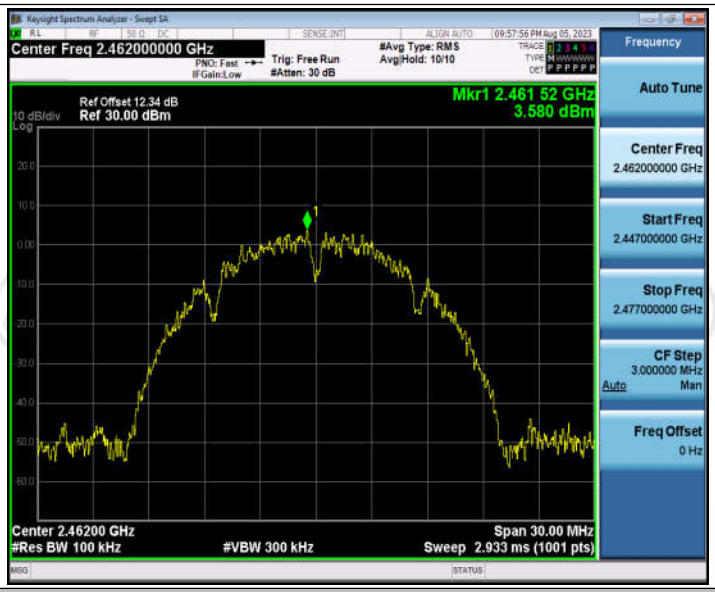
11B_Ant1_2437_30~1000



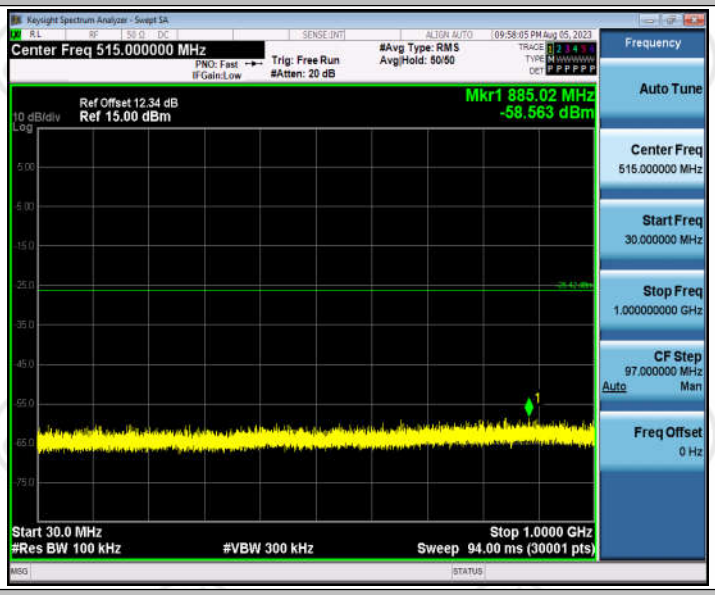
11B_Ant1_2437_1000~26500



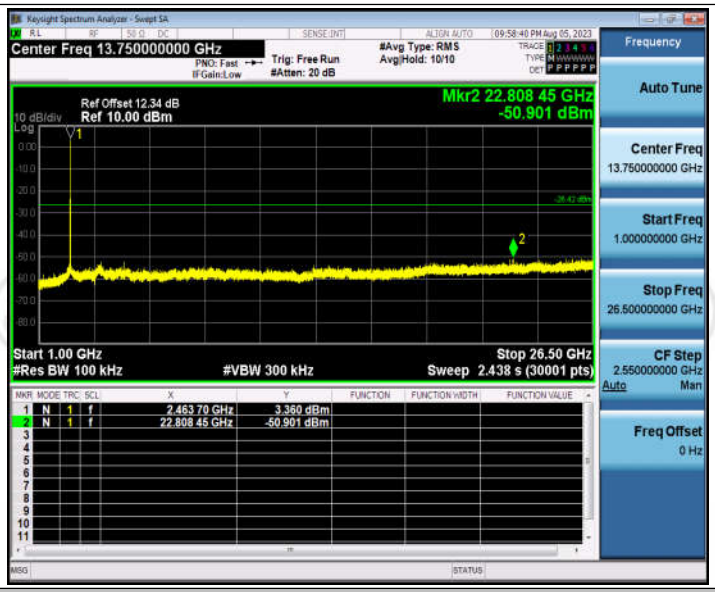
11B_Ant1_2462_0~Reference



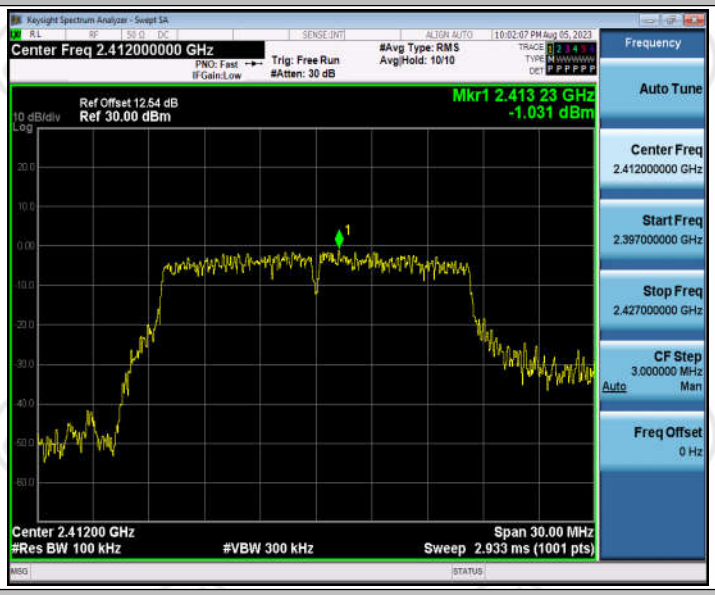
11B_Ant1_2462_30~1000



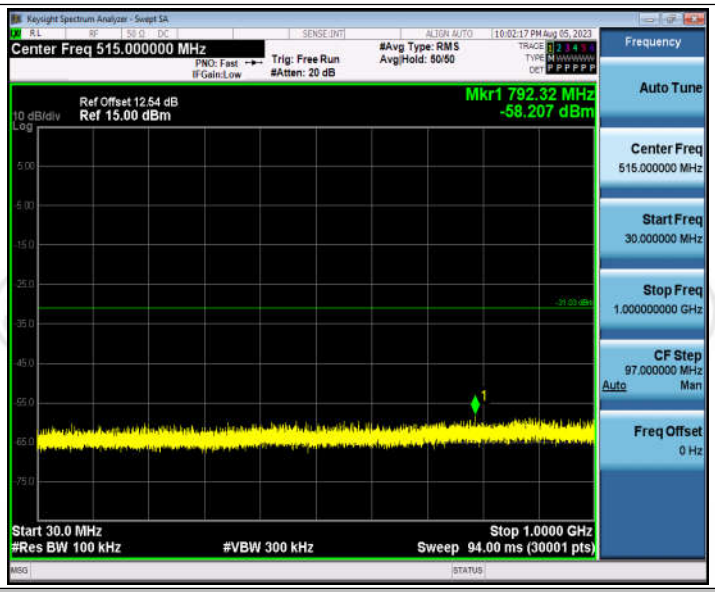
11B_Ant1_2462_1000~26500



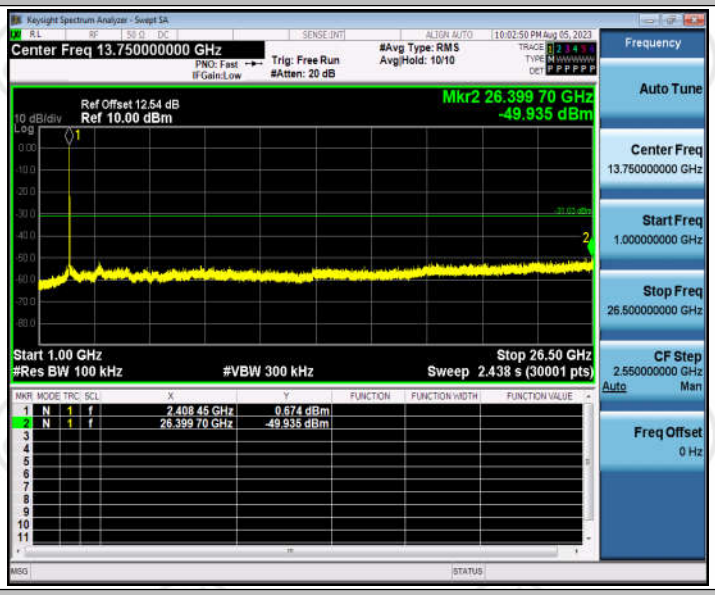
11G_Ant1_2412_0~Reference



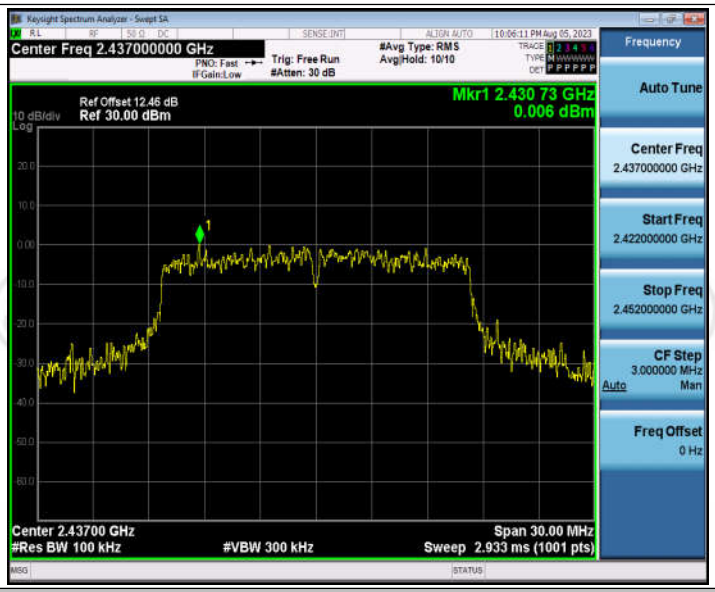
11G_Ant1_2412_30~1000



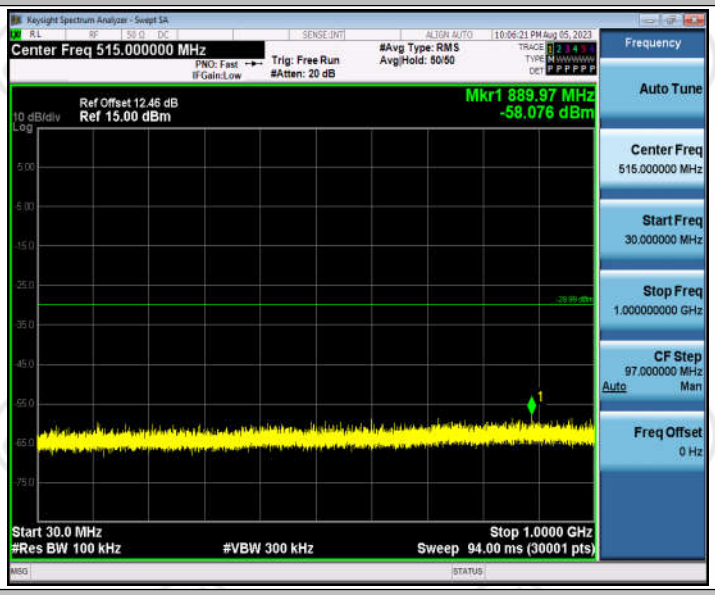
11G_Ant1_2412_1000~26500



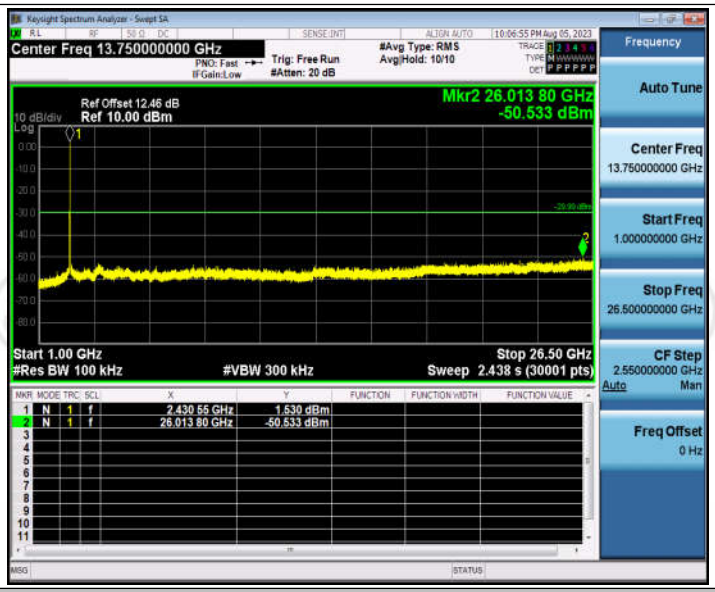
11G_Ant1_2437_0~Reference



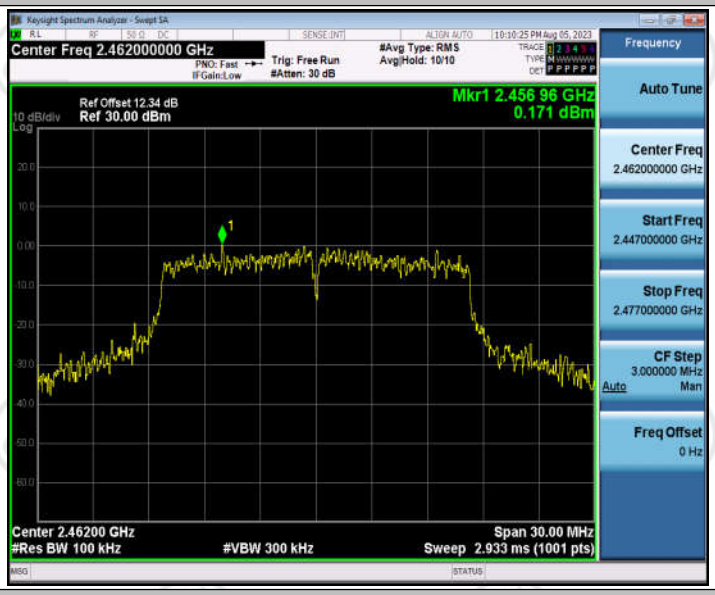
11G_Ant1_2437_30~1000



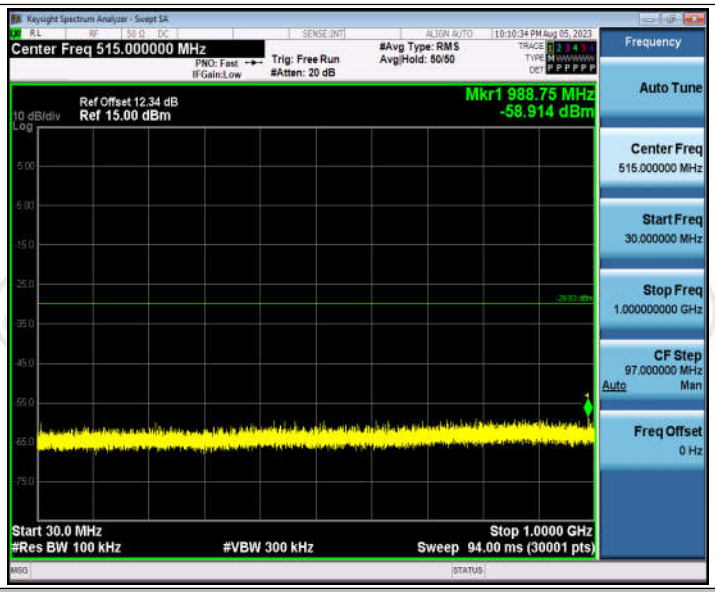
11G_Ant1_2437_1000~26500



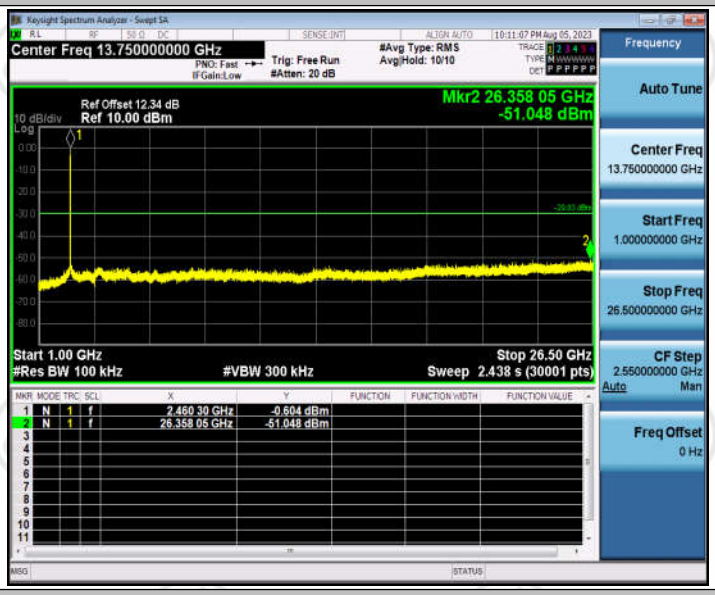
11G_Ant1_2462_0~Reference



11G_Ant1_2462_30~1000

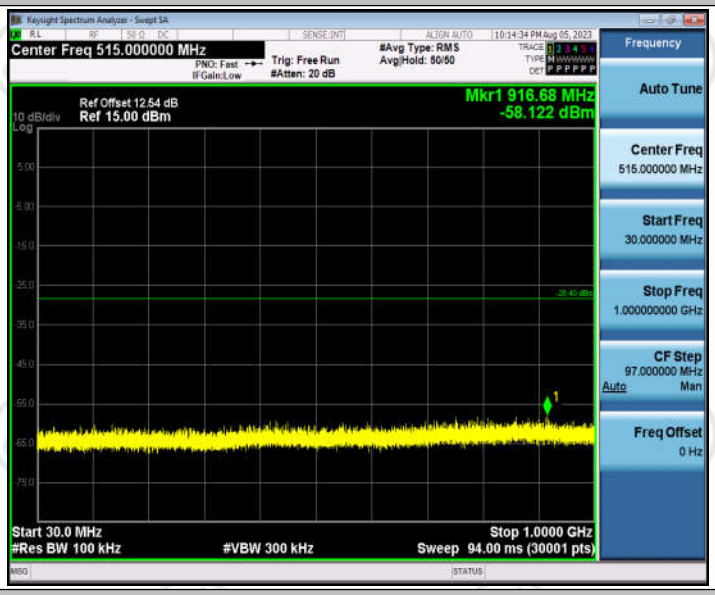


11G_Ant1_2462_1000~26500



11N20SISO_Ant1_2412_0~Reference

11N20SISO_Ant1_2412_30~1000



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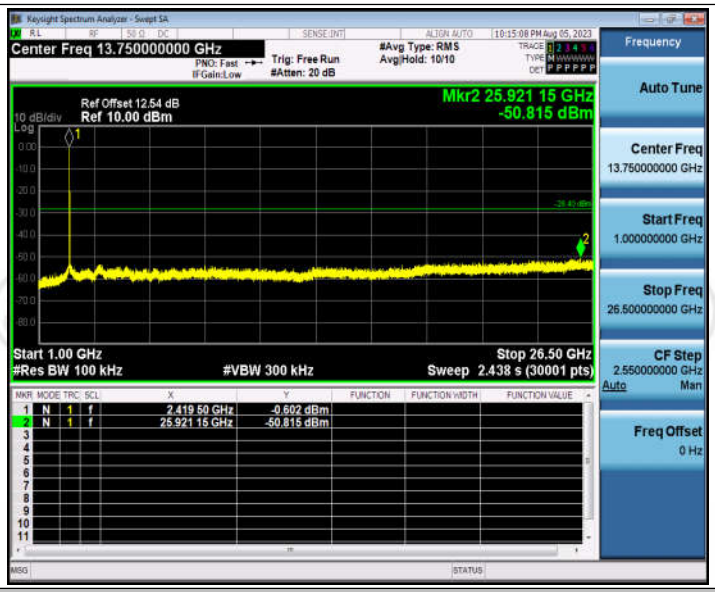

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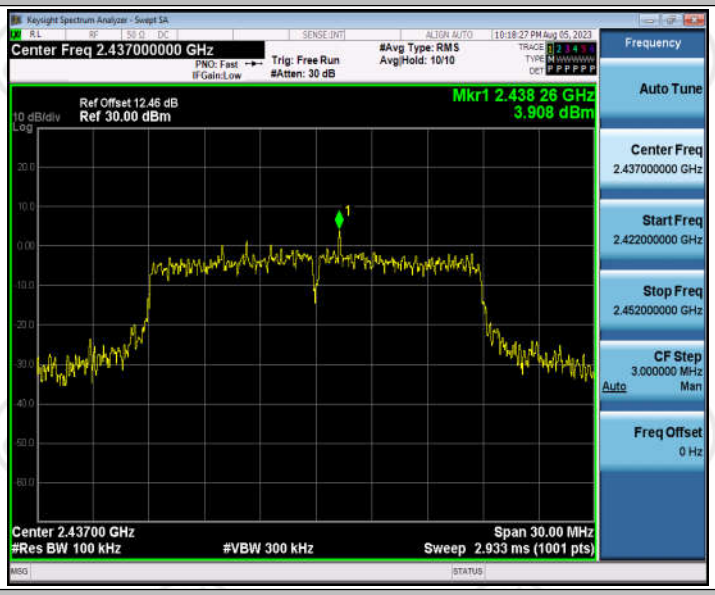
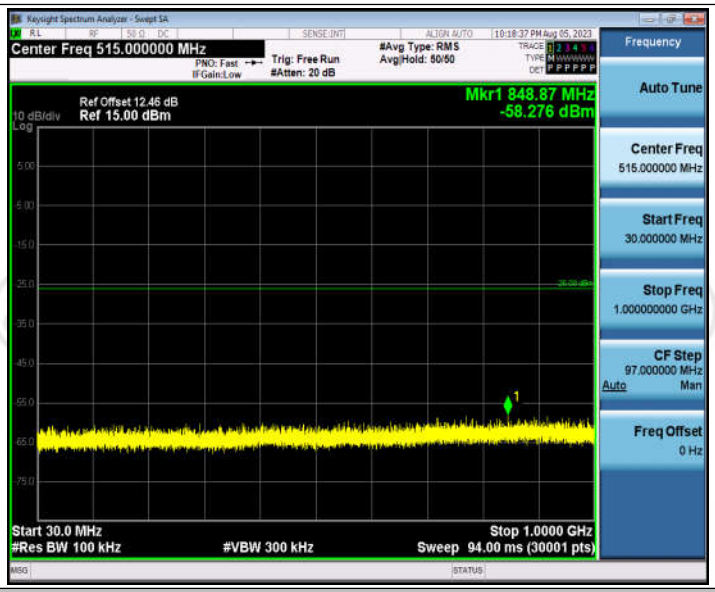
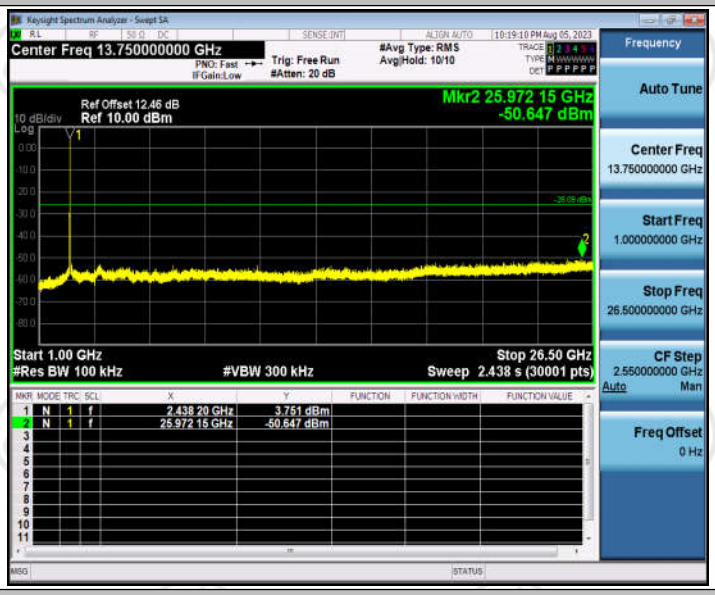


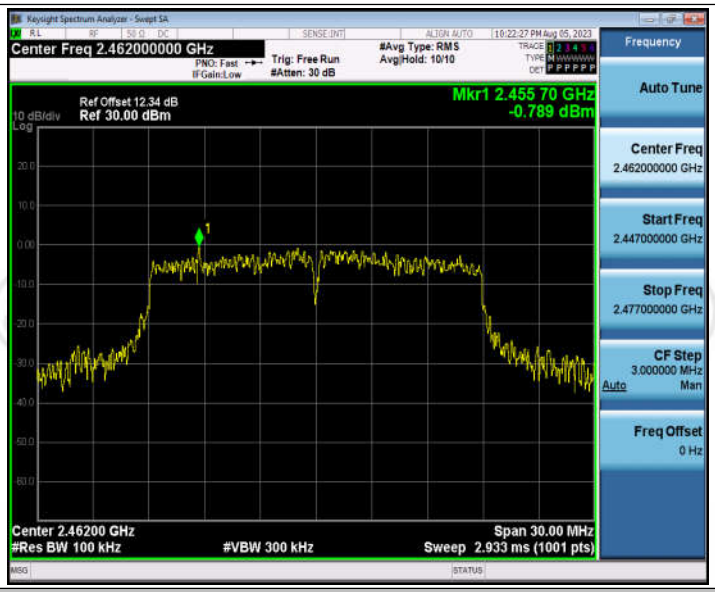
11N20SISO_Ant1_2437_30~1000



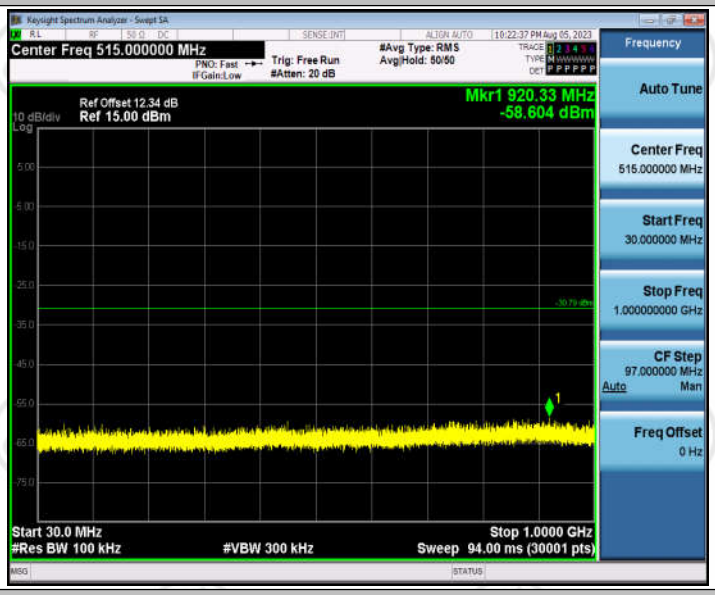
11N20SISO_Ant1_2437_1000~26500



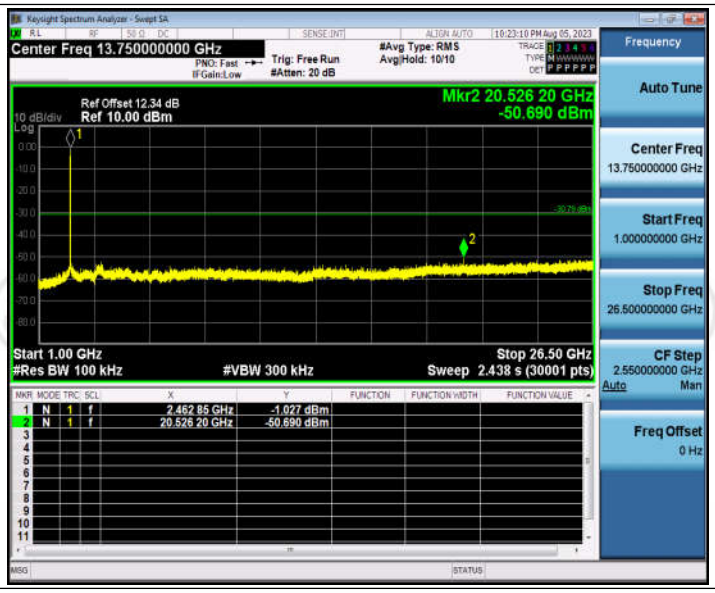
11N20SISO_Ant1_2462_0~Reference



11N20SISO_Ant1_2462_30~1000



11N20SISO_Ant1_2462_1000~26500


Keysight Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
Frequency
Auto Tune
Mkr2 20.526 20 GHz
-50.690 dBm
Ref Offset 12.34 dB
10 dB/div Ref 10.00 dBm
Log
Center Freq
13.750000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
26.500000000 GHz
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)
CF Step
2.550000000 GHz
Auto Man
Freq Offset
0 Hz
1 N 1 f 2.462 85 GHz -1.027 dBm
2 N 1 f 20.526 20 GHz -50.690 dBm

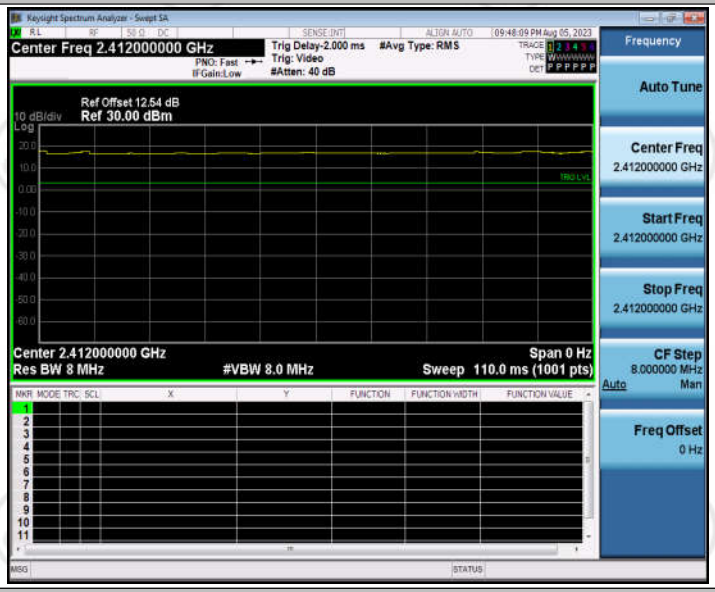
Appendix G: Duty Cycle

Test Result

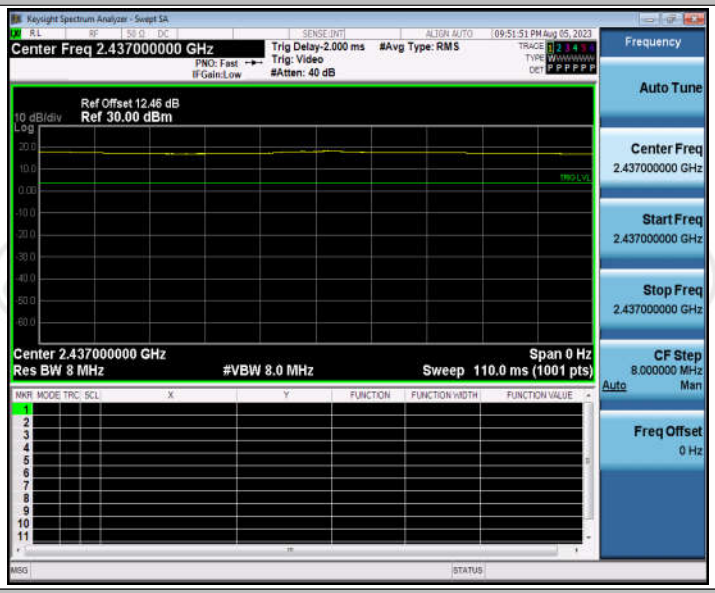
Test Mode	Antenna	Frequency [MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor
11B	Ant1	2412	110.00	110.00	100.00	0.00
		2437	110.00	110.00	100.00	0.00
		2462	110.00	110.00	100.00	0.00
11G	Ant1	2412	110.00	110.00	100.00	0.00
		2437	110.00	110.00	100.00	0.00
		2462	110.00	110.00	100.00	0.00
11N20SISO	Ant1	2412	110.00	110.00	100.00	0.00
		2437	110.00	110.00	100.00	0.00
		2462	110.00	110.00	100.00	0.00

Test Graphs

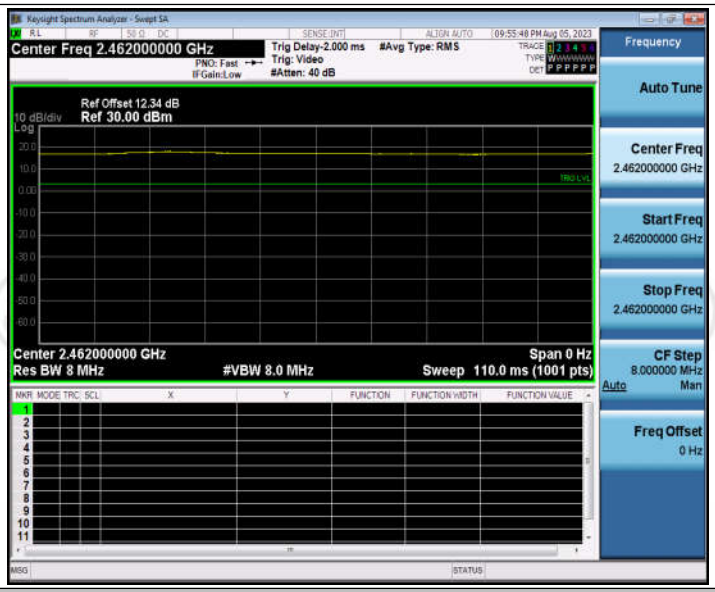
11B_Ant1_2412



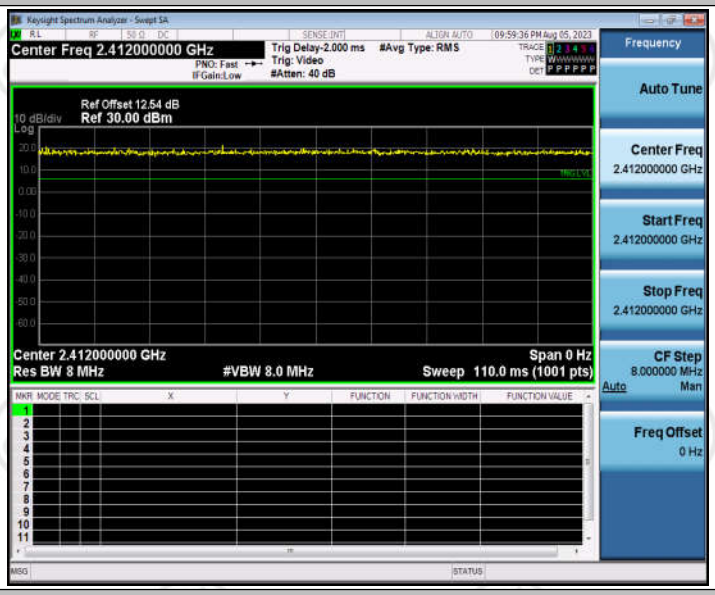
11B_Ant1_2437



11B_Ant1_2462



11G_Ant1_2412



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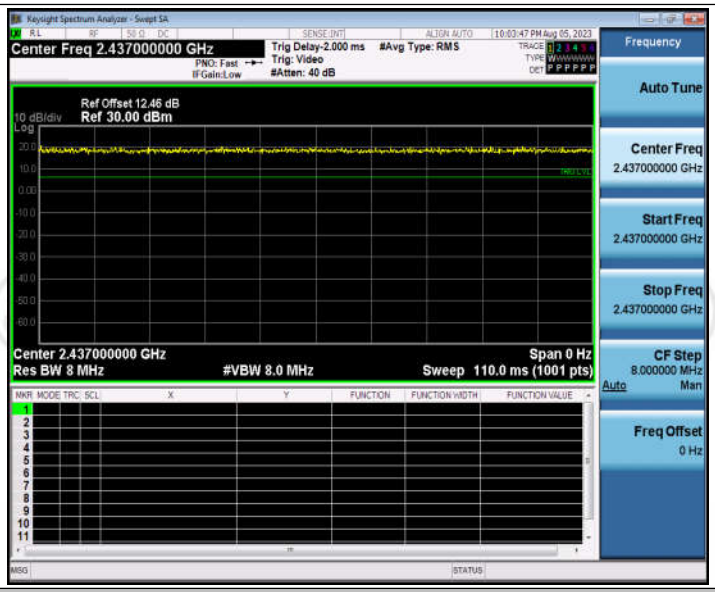

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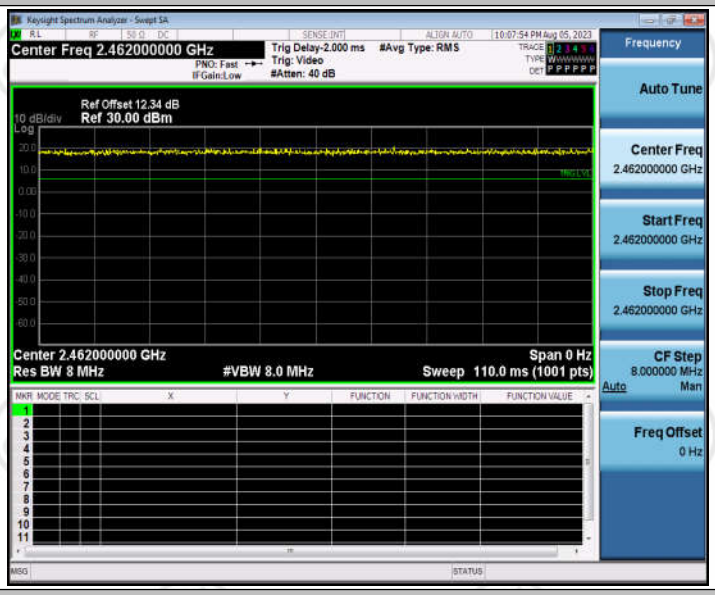
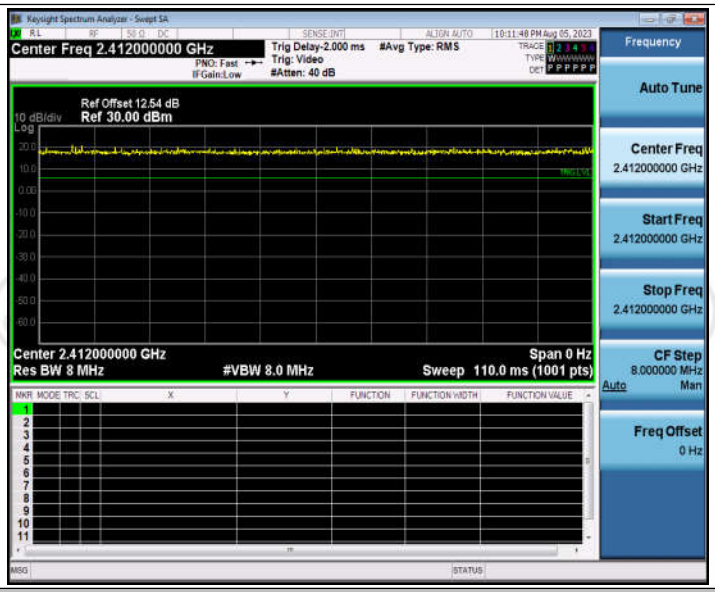
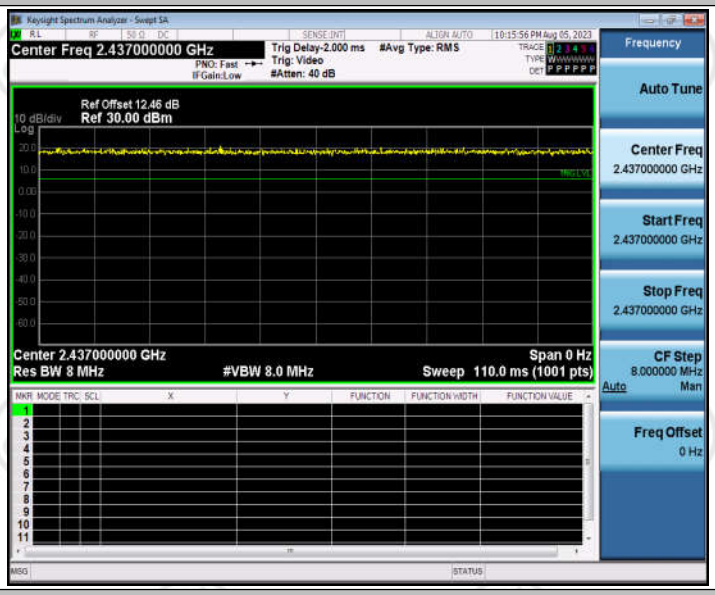


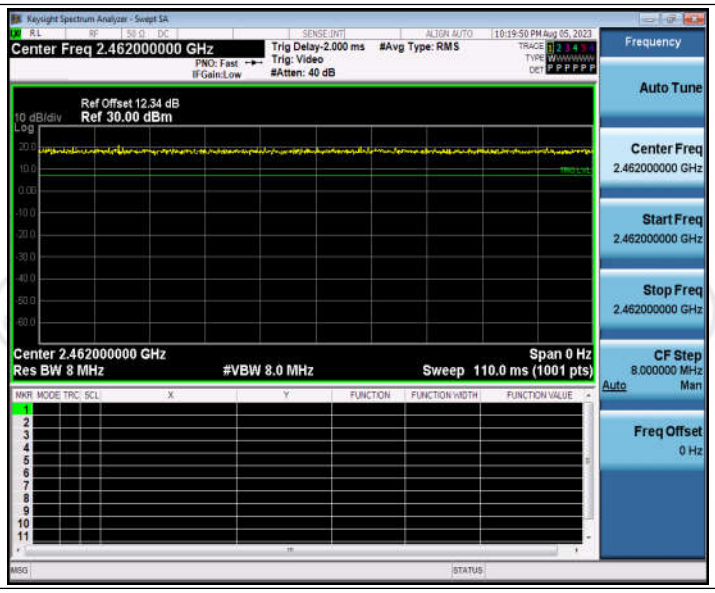
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462



*** End of Report ***