Appendix Test Data

Report No.:	18220WC30245502	Test Sample No.:	1-2-2
Start Test Date:	2023.12.04	Finish Test Date:	2023.12.05
Test Engineer:	Hayman Chen	Auditor:	Rick Luo
Temperature:	25.3℃	Relative Humidity:	44%
Pressure:	101kPa		

Appendix A: DTS Bandwidth

Test Result

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.000	2407.480	2416.480	0.5	PASS
		2437	9.040	2432.480	2441.520	0.5	PASS
		2462	9.560	2457.000	2466.560	0.5	PASS
11G	Ant1	2412	16.360	2403.840	2420.200	0.5	PASS
		2437	16.320	2428.840	2445.160	0.5	PASS
		2462	16.360	2453.840	2470.200	0.5	PASS
11N20SISO	Ant1	2412	17.640	2403.200	2420.840	0.5	PASS
		2437	17.560	2428.240	2445.800	0.5	PASS
		2462	17.560	2453.240	2470.800	0.5	PASS

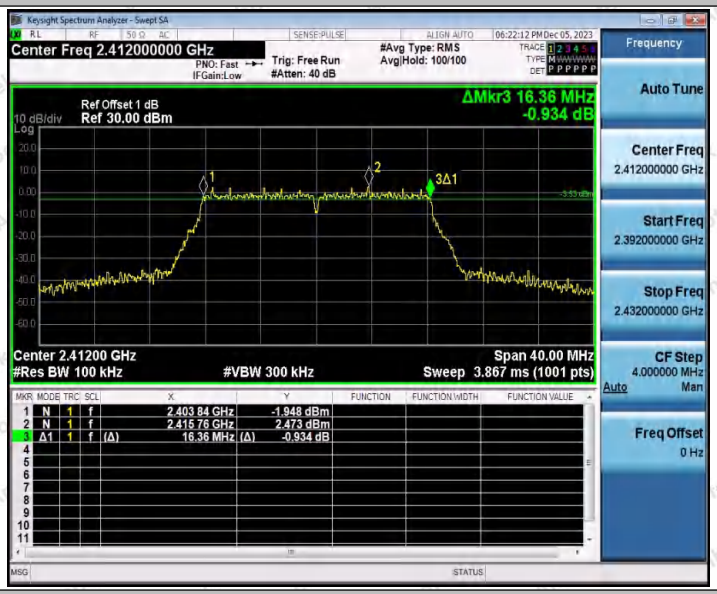
Test Graphs

11B_Ant1_2412

11B_Ant1_2437

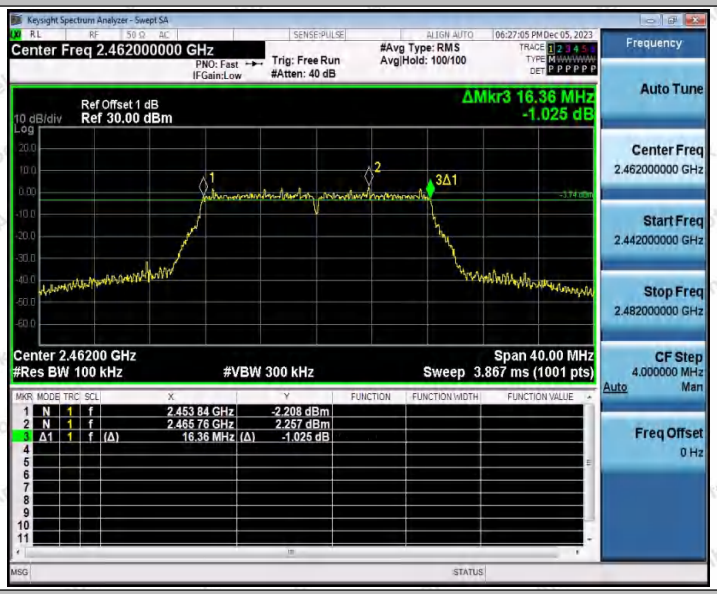
11B_Ant1_2462

11G_Ant1_2412

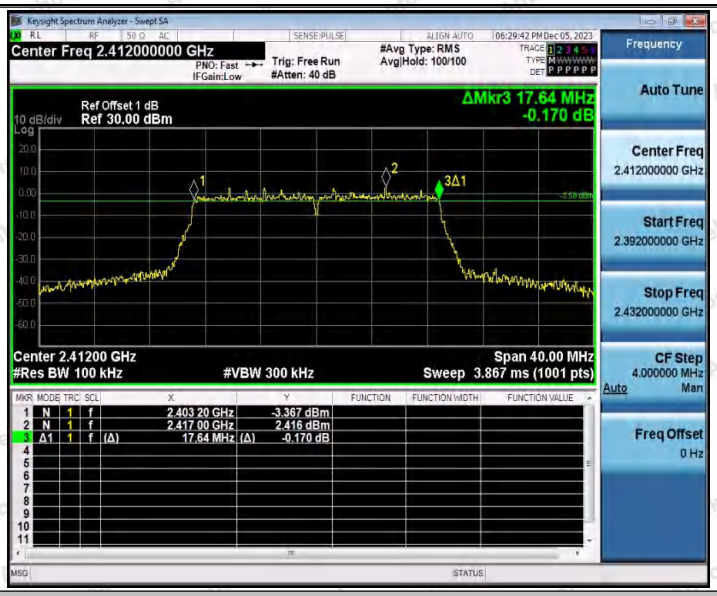


11G_Ant1_2437

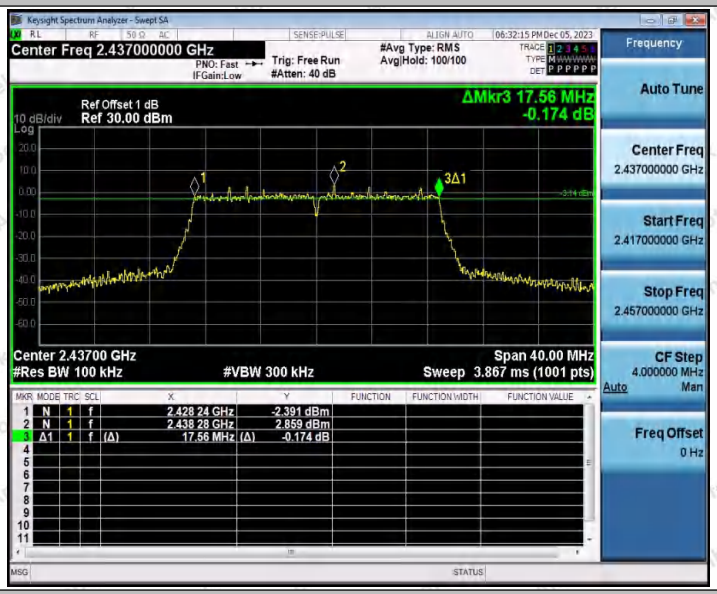
11G_Ant1_2462



11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462

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
06:34:38 PM Dec 05, 2023
Ref Offset 1 dB
10 dB/div
Ref 30.00 dBm
Log
ΔMkr3 17.56 MHz
0.411 dB
Center 2.46200 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 40.00 MHz
Sweep 3.867 ms (1001 pts)
1 N 1 f 2.453 24 GHz -3.111 dBm
2 N 1 f 2.467 00 GHz 2.655 dBm
3 Δ1 1 f (Δ) 17.56 MHz (Δ) 0.411 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

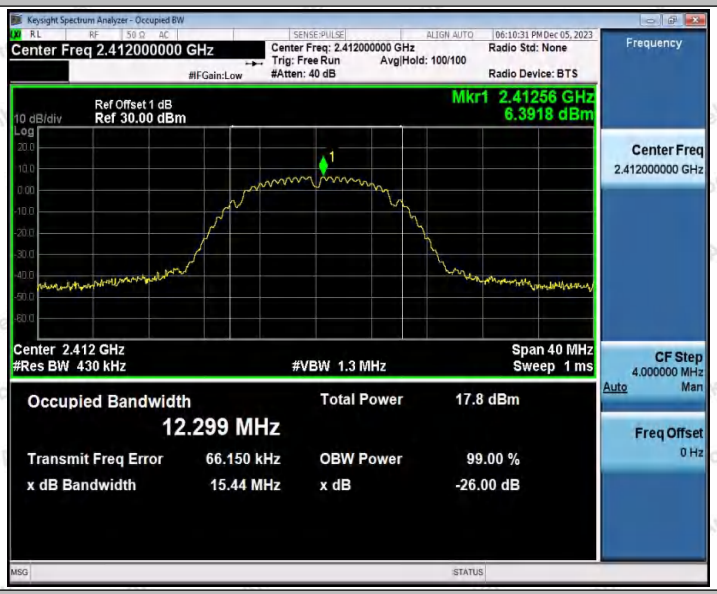
Appendix B: Occupied Channel Bandwidth

Test Result

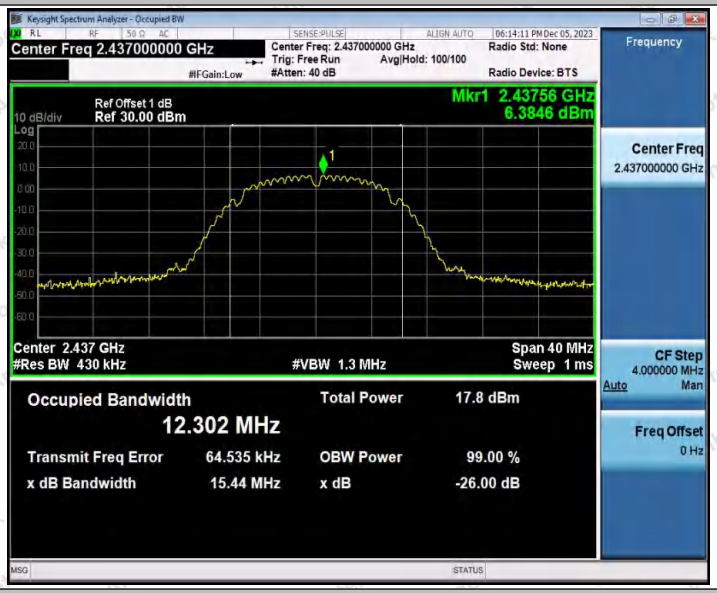
TestMode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	12.299	2405.9167	2418.2157	---	---
		2437	12.302	2430.9135	2443.2155	---	---
		2462	12.285	2455.9039	2468.1889	---	---
11G	Ant1	2412	17.120	2403.4800	2420.6000	---	---
		2437	17.107	2428.5126	2445.6196	---	---
		2462	17.039	2453.5340	2470.5730	---	---
11N20SISO	Ant1	2412	17.961	2403.0591	2421.0201	---	---
		2437	18.037	2428.0551	2446.0921	---	---
		2462	17.940	2453.0549	2470.9949	---	---

Test Graphs

11B_Ant1_2412



11B_Ant1_2437



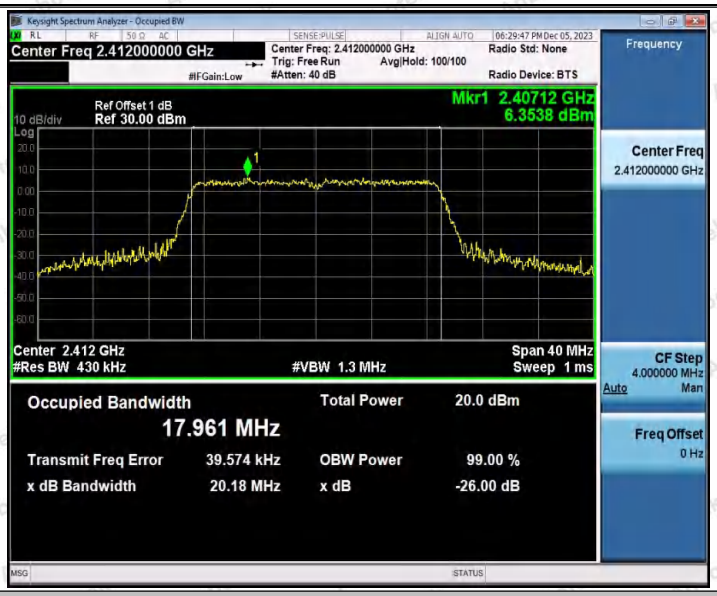
11B_Ant1_2462

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
Ref Offset 1 dB
10 dB/div
Ref 30.00 dBm
Mkr1 2.46428 GHz
6.6004 dBm
Center 2.462 GHz
#Res BW 430 kHz
#VBW 1.3 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.940 MHz
Total Power 19.9 dBm
Transmit Freq Error 24.882 kHz
OBW Power 99.00 %
x dB Bandwidth 20.18 MHz
x dB -26.00 dB
Frequency
Center Freq
2.462000000 GHz
CF Step
4.000000 MHz
Auto Man
Freq Offset
0 Hz

Appendix C: Maximum conducted output power

Test Result

TestMode	Antenna	Frequency[MHz]	Average Output Power[dBm]	Conducted Limit[dBm]
11B	Ant1	2412	14.86	≤30.00
		2437	**14.87**	≤30.00
		2462	14.79	≤30.00
11G	Ant1	2412	13.89	≤30.00
		2437	13.76	≤30.00
		2462	13.75	≤30.00
11N20SISO	Ant1	2412	13.91	≤30.00
		2437	13.65	≤30.00
		2462	13.71	≤30.00

Note：The Duty Cycle Factor(10*log(1/D)) and cable loss are compensated in the graph.

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 - Channel Power
Center Freq 2.462024900 GHz
Center Freq: 2.462024900 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 40 dB
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 1.1 dB
10 dB/div
Ref 30.00 dBm
Log
Center Freq
2.462024900 GHz
Center 2.462 GHz
#Res BW 2.4 MHz
#VBW 8 MHz
Span 40 MHz
Sweep 1 ms
CF Step
4.000000 MHz
Auto
Man
Channel Power
13.71 dBm / 17.94 MHz
Power Spectral Density
-58.83 dBm /Hz
Freq Offset
0 Hz
MSG
STATUS

Appendix D: Maximum power spectral density

Test Result

TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-5.69	≤8.00	PASS
		2437	-14.58	≤8.00	PASS
		2462	-15.14	≤8.00	PASS
11G	Ant1	2412	-17.80	≤8.00	PASS
		2437	-18.32	≤8.00	PASS
		2462	-18.18	≤8.00	PASS
11N20SISO	Ant1	2412	-18.52	≤8.00	PASS
		2437	-18.69	≤8.00	PASS
		2462	-18.63	≤8.00	PASS

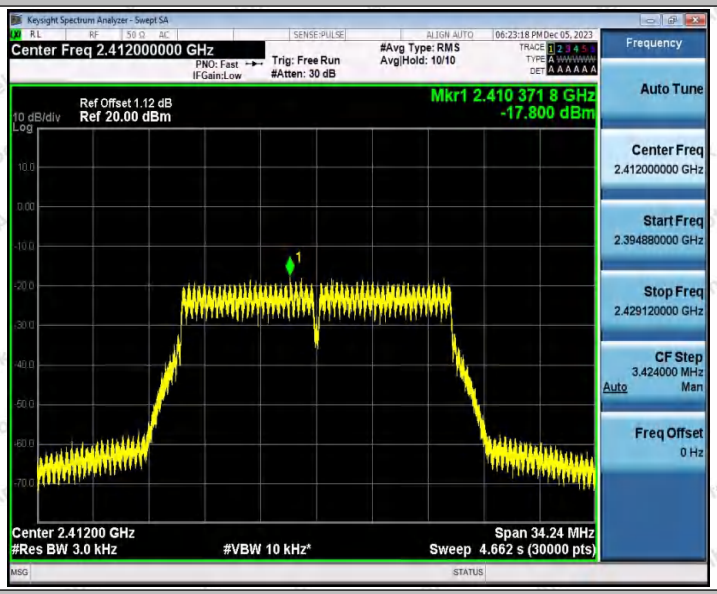
Test Graphs

11B_Ant1_2412

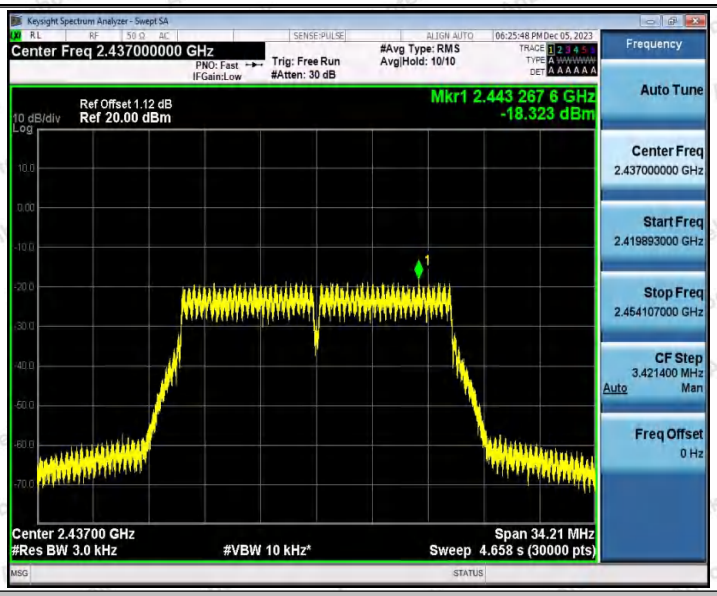
11B_Ant1_2437

11B_Ant1_2462

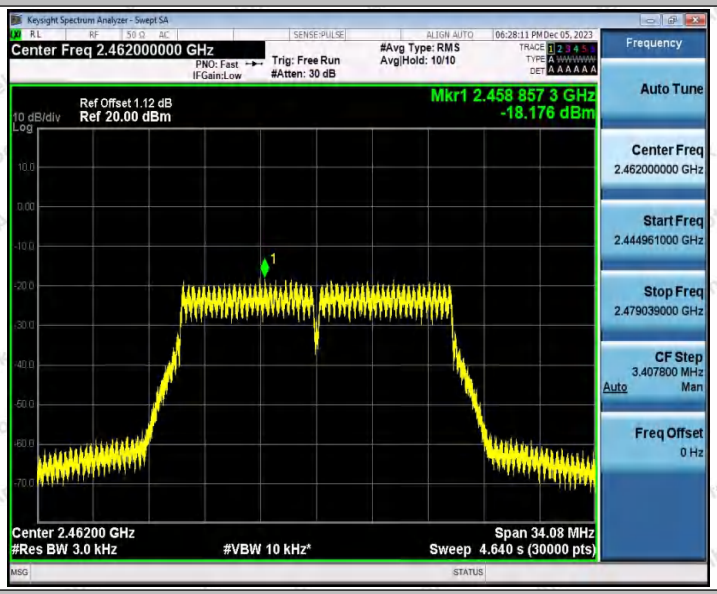
11G_Ant1_2412



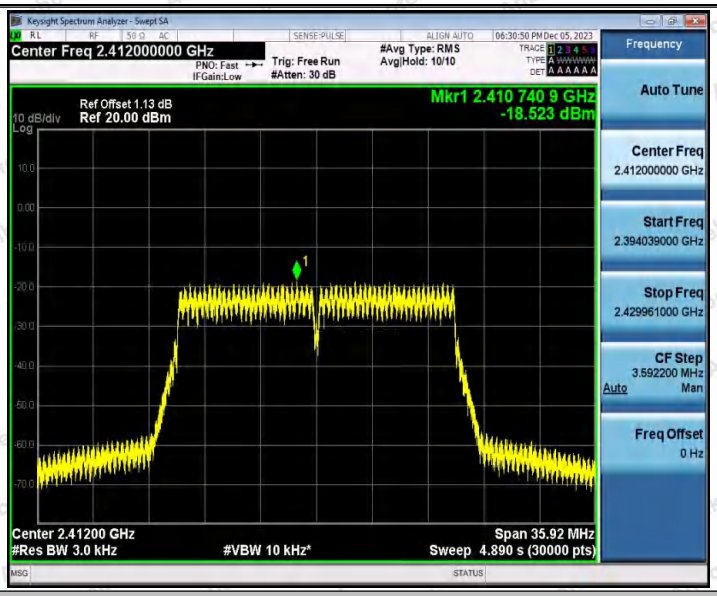
11G_Ant1_2437



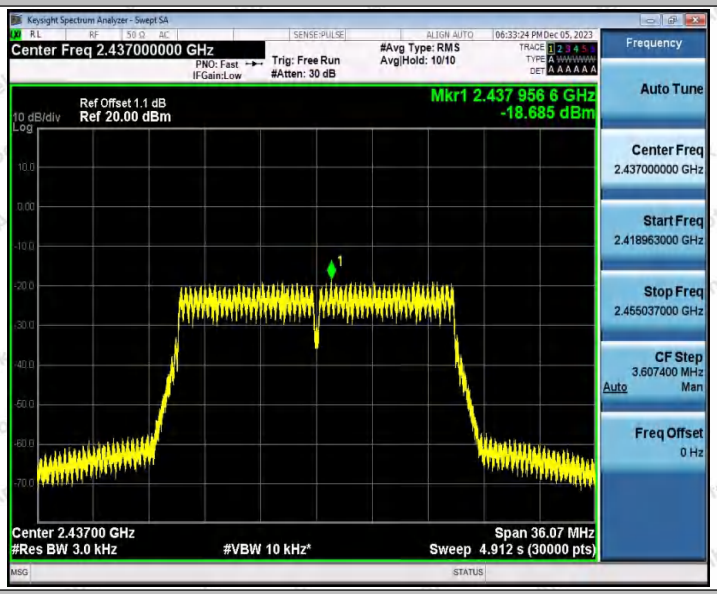
11G_Ant1_2462



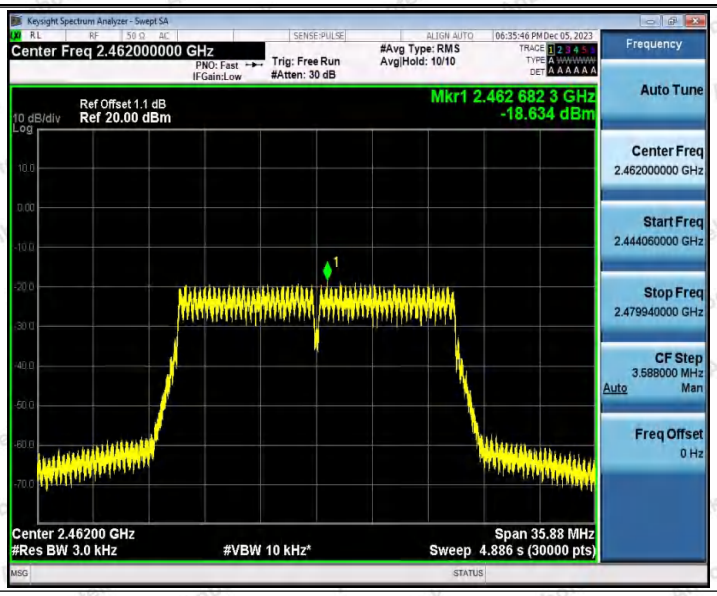
11N20SISO_Ant1_2412



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: 10/10
06:35:46 PM Dec 05, 2023
Ref Offset 1.1 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.462 682 3 GHz
-18.634 dBm
Center 2.46200 GHz
#Res BW 3.0 kHz
#VBW 10 kHz*
Span 35.88 MHz
Sweep 4.886 s (30000 pts)
Frequency
Auto Tune
Center Freq
2.462000000 GHz
Start Freq
2.444060000 GHz
Stop Freq
2.479940000 GHz
CF Step
3.588000 MHz
Auto
Man
Freq Offset
0 Hz

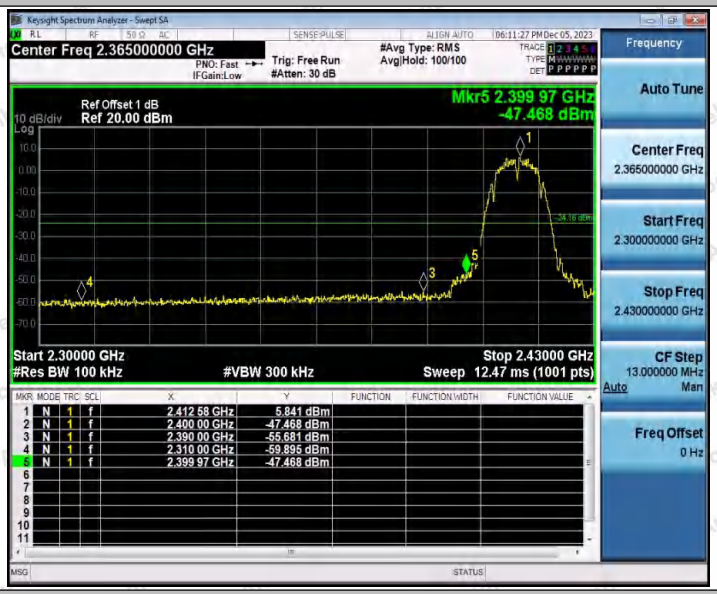
Appendix E: Band edge measurements

Test Result

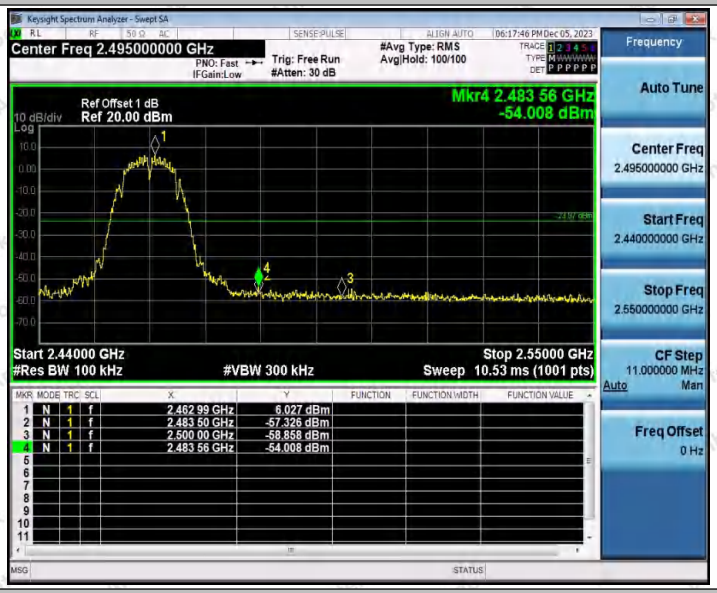
TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	5.84	-47.47	≤-24.16	PASS
		High	2462	6.03	-54.01	≤-23.97	PASS
11G	Ant1	Low	2412	2.61	-36.28	≤-27.39	PASS
		High	2462	1.99	-47.26	≤-28.01	PASS
11N20SISO	Ant1	Low	2412	2.58	-34.68	≤-27.42	PASS
		High	2462	3.05	-46.48	≤-26.95	PASS

Test Graphs

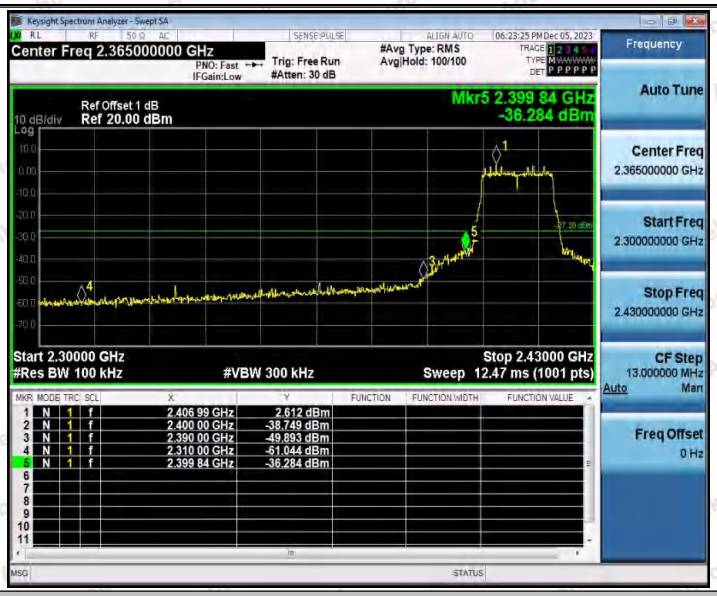
11B_Ant1_Low_2412



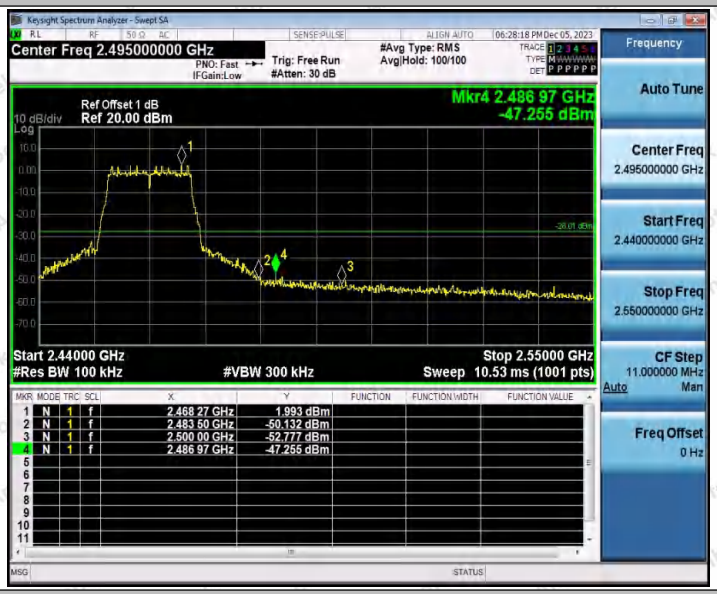
11B_Ant1_High_2462



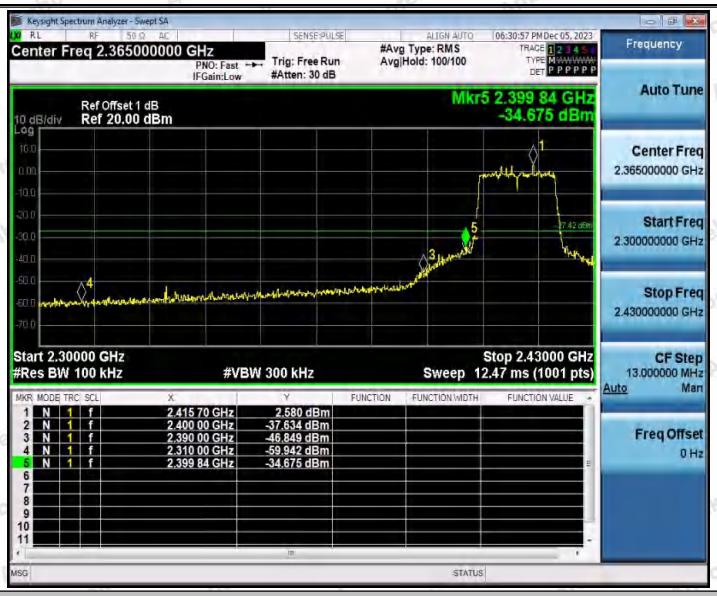
11G_Ant1_Low_2412



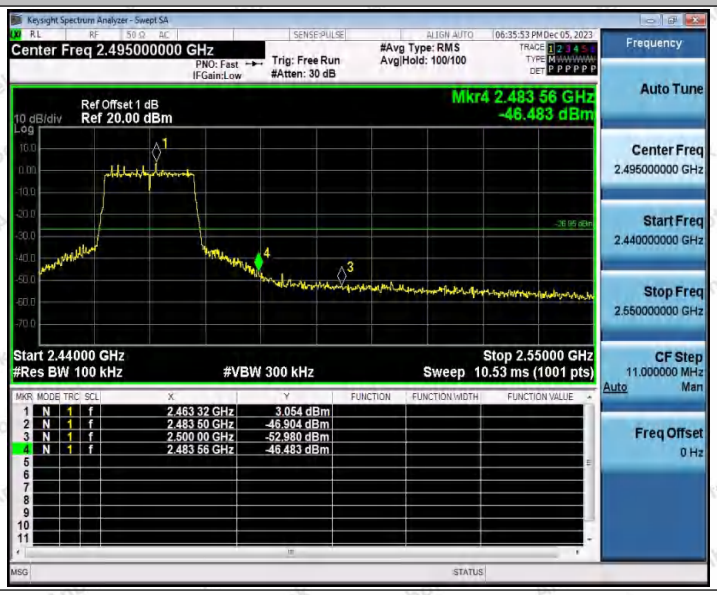
11G_Ant1_High_2462



11N20SISO_Ant1_Low_2412



11N20SISO_Ant1_High_2462



Appendix F: Conducted Spurious Emission

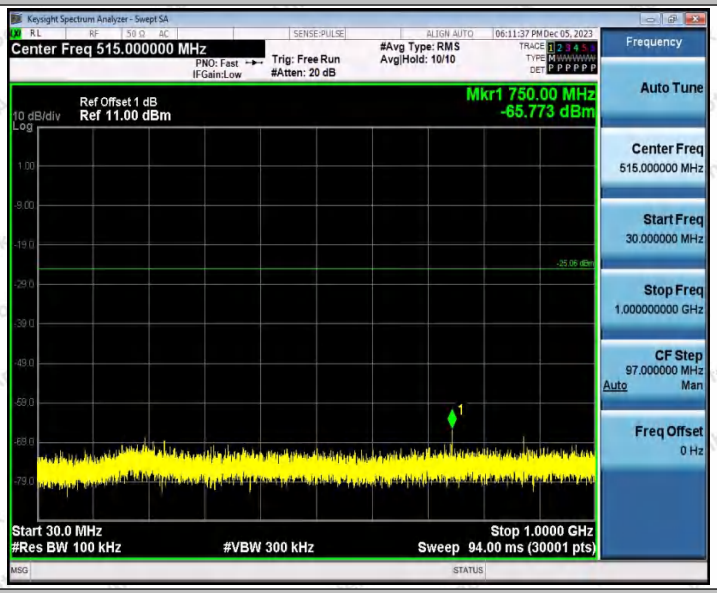
Test Result

TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	4.94	4.94	---	PASS
			30~1000	4.94	-65.77	≤-25.06	PASS
			1000~26500	4.94	-53.92	≤-25.06	PASS
		2437	Reference	4.49	4.49	---	PASS
			30~1000	4.49	-65.11	≤-25.51	PASS
			1000~26500	4.49	-53.13	≤-25.51	PASS
		2462	Reference	4.84	4.84	---	PASS
			30~1000	4.84	-64.57	≤-25.16	PASS
			1000~26500	4.84	-53.03	≤-25.16	PASS
11G	Ant1	2412	Reference	2.03	2.03	---	PASS
			30~1000	2.03	-64.23	≤-27.97	PASS
			1000~26500	2.03	-54.13	≤-27.97	PASS
		2437	Reference	-0.86	-0.86	---	PASS
			30~1000	-0.86	-64.01	≤-30.86	PASS
			1000~26500	-0.86	-53.73	≤-30.86	PASS
		2462	Reference	2.57	2.57	---	PASS
			30~1000	2.57	-65.19	≤-27.43	PASS
			1000~26500	2.57	-50.37	≤-27.43	PASS
11N20SISO	Ant1	2412	Reference	2.30	2.30	---	PASS
			30~1000	2.30	-64.76	≤-27.7	PASS
			1000~26500	2.30	-54.12	≤-27.7	PASS
		2437	Reference	1.53	1.53	---	PASS
			30~1000	1.53	-64.98	≤-28.47	PASS
			1000~26500	1.53	-53.62	≤-28.47	PASS
		2462	Reference	0.59	0.59	---	PASS
			30~1000	0.59	-64.07	≤-29.41	PASS
			1000~26500	0.59	-53.89	≤-29.41	PASS

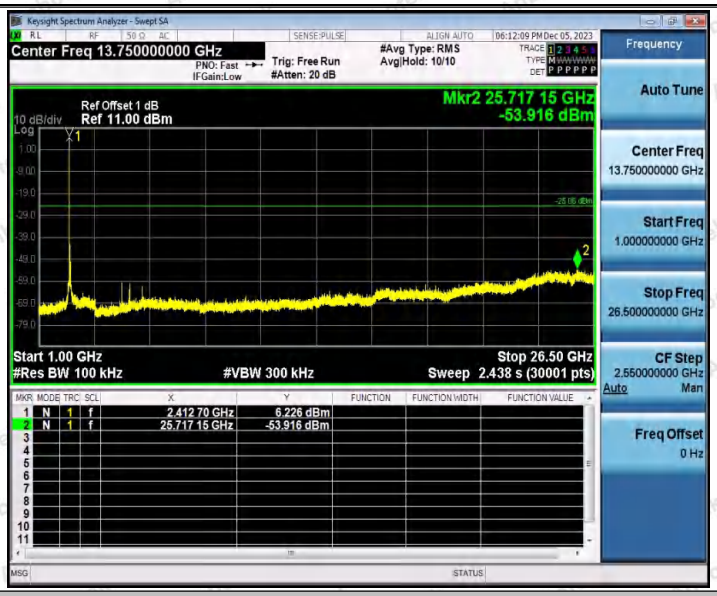
Test Graphs

11B_Ant1_2412_0~Reference

11B_Ant1_2412_30~1000

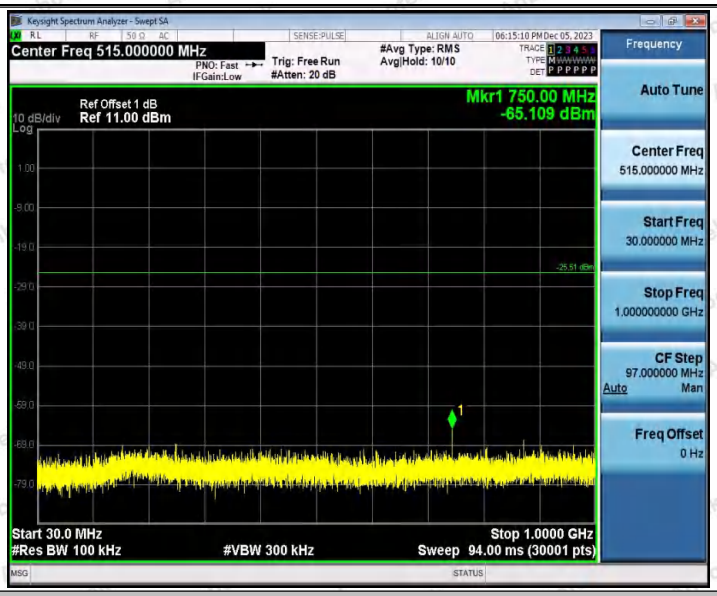


11B_Ant1_2412_1000~26500

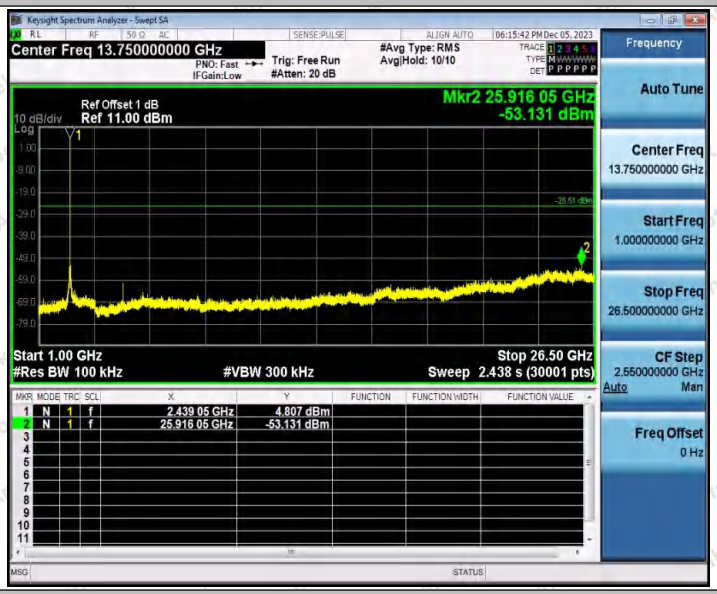


11B_Ant1_2437_0~Reference

11B_Ant1_2437_30~1000

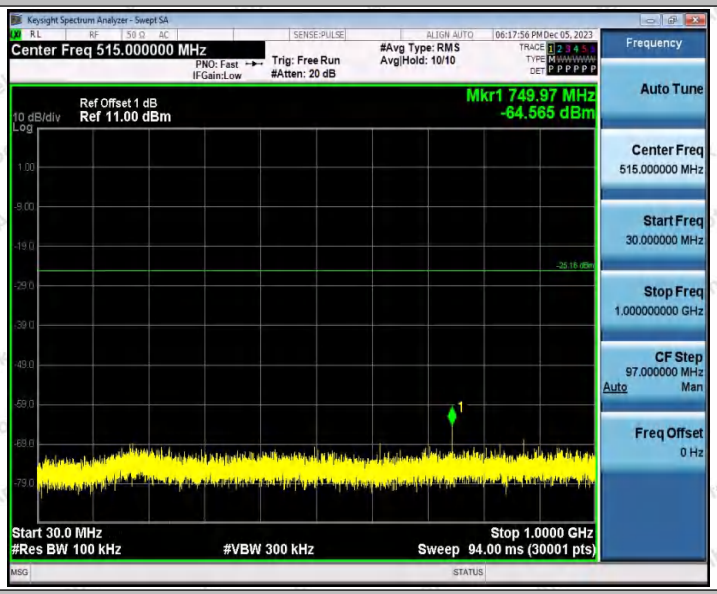


11B_Ant1_2437_1000~26500

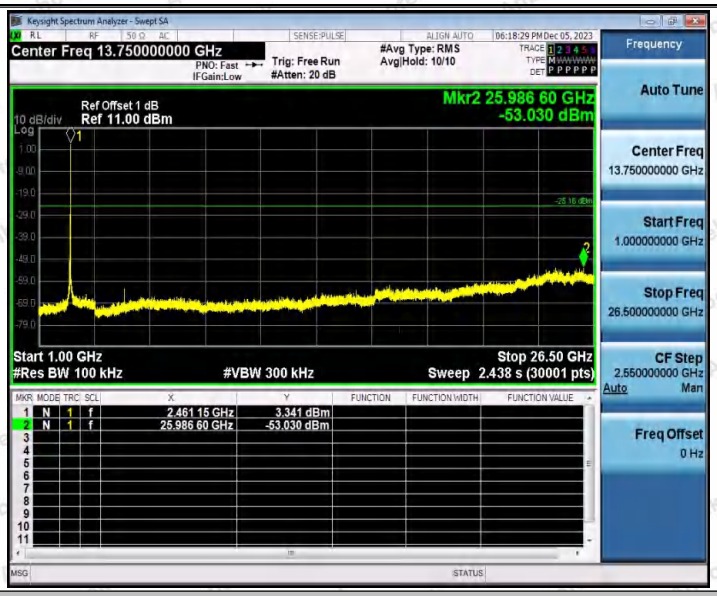


11B_Ant1_2462_0~Reference

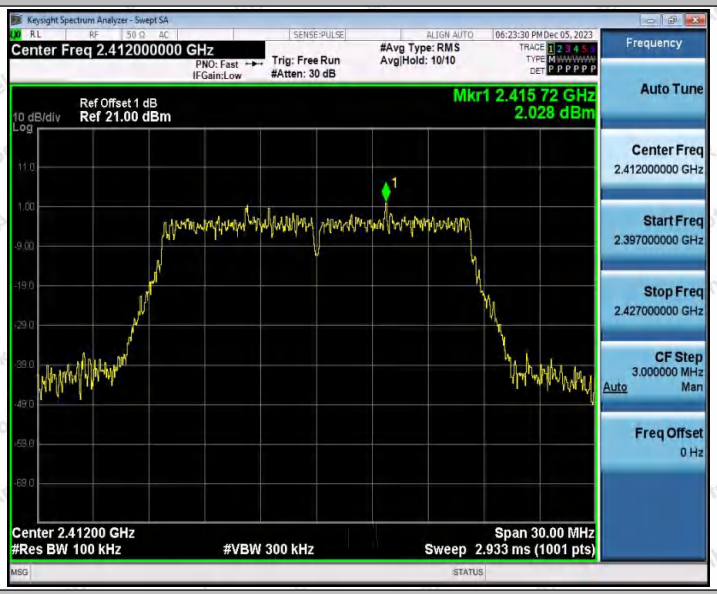
11B_Ant1_2462_30~1000



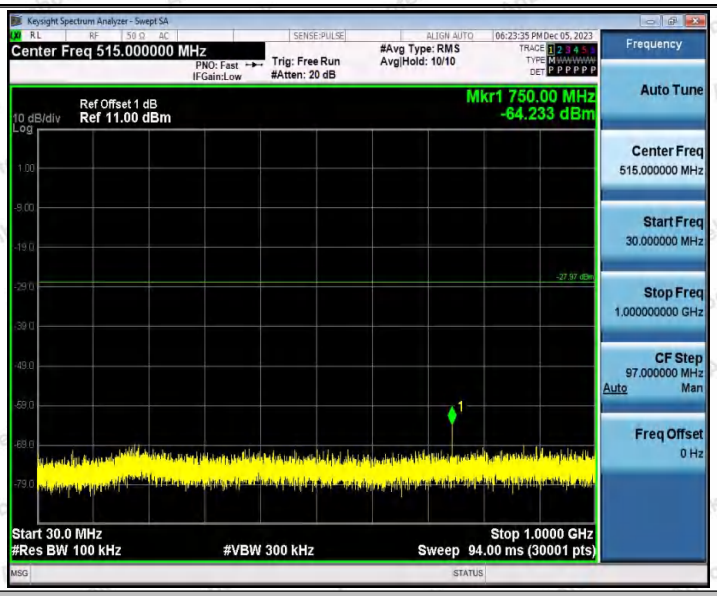
11B_Ant1_2462_1000~26500



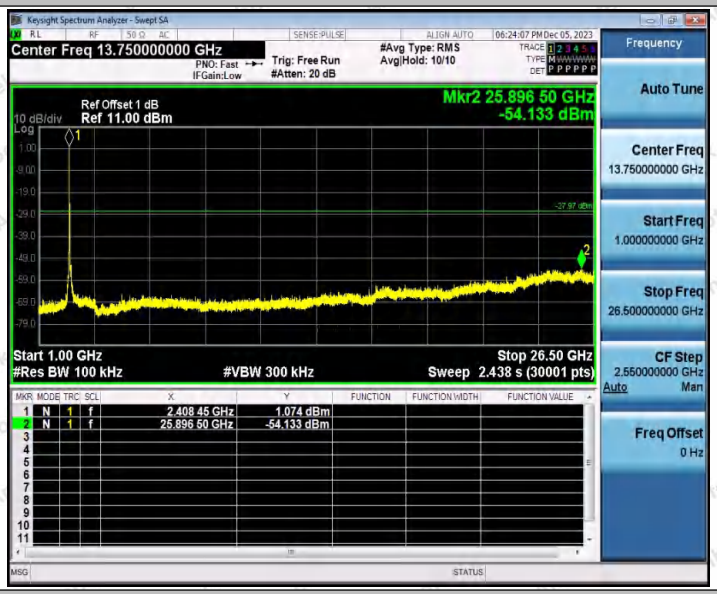
11G_Ant1_2412_0~Reference



11G_Ant1_2412_30~1000

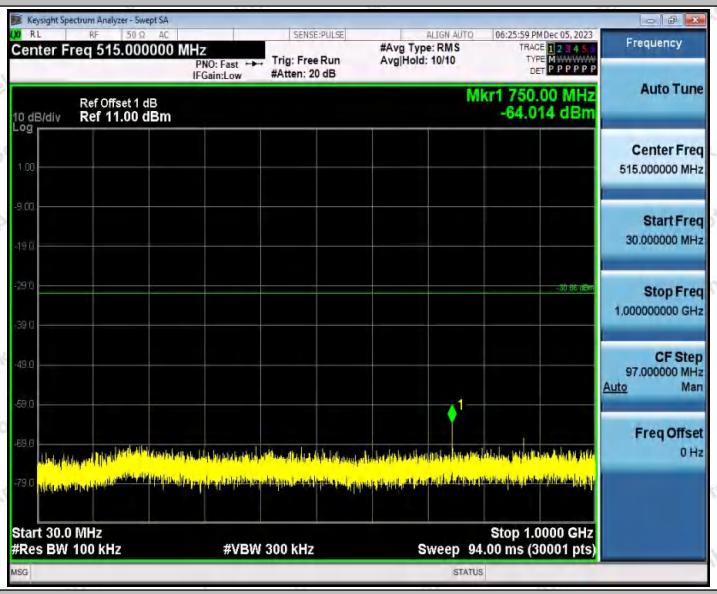


11G_Ant1_2412_1000~26500

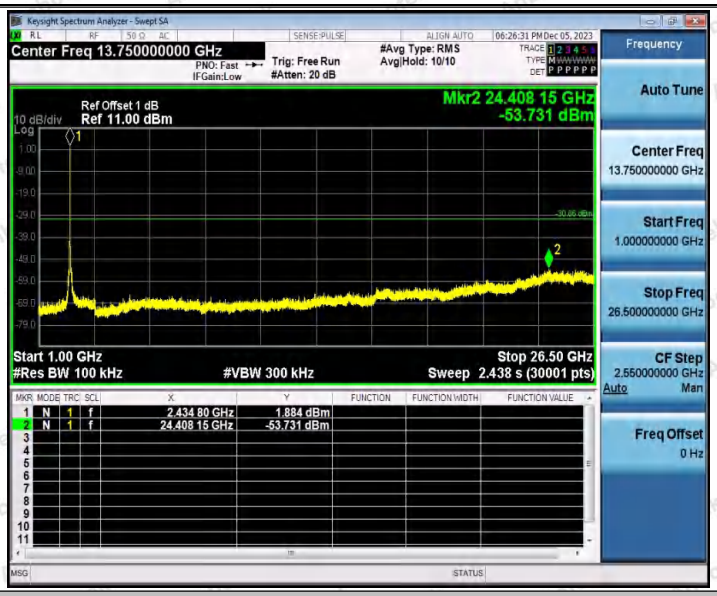


11G_Ant1_2437_0~Reference

11G_Ant1_2437_30~1000

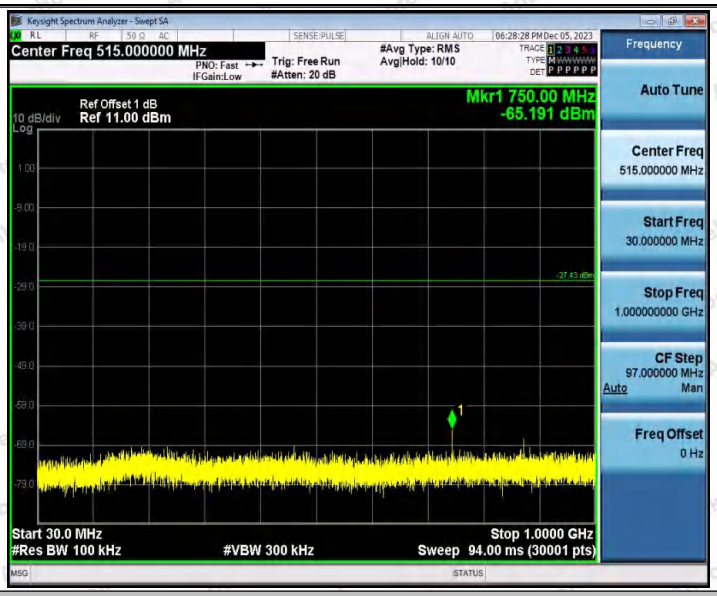


11G_Ant1_2437_1000~26500

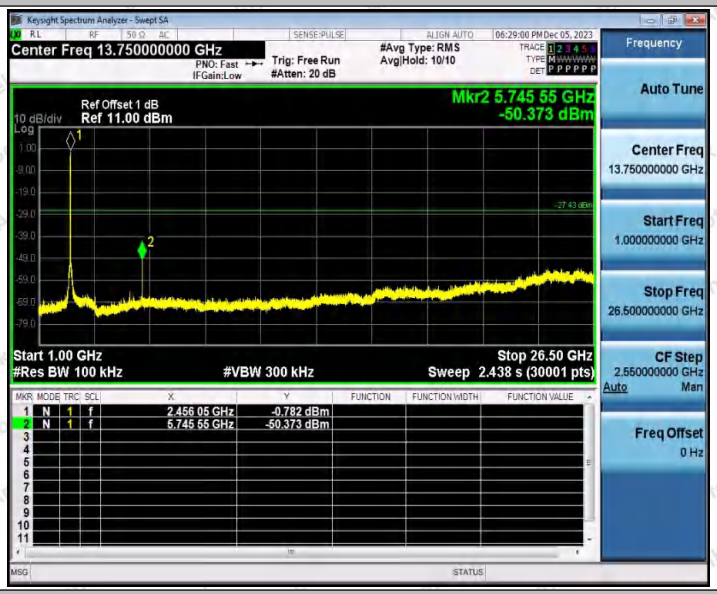


11G_Ant1_2462_0~Reference

11G_Ant1_2462_30~1000

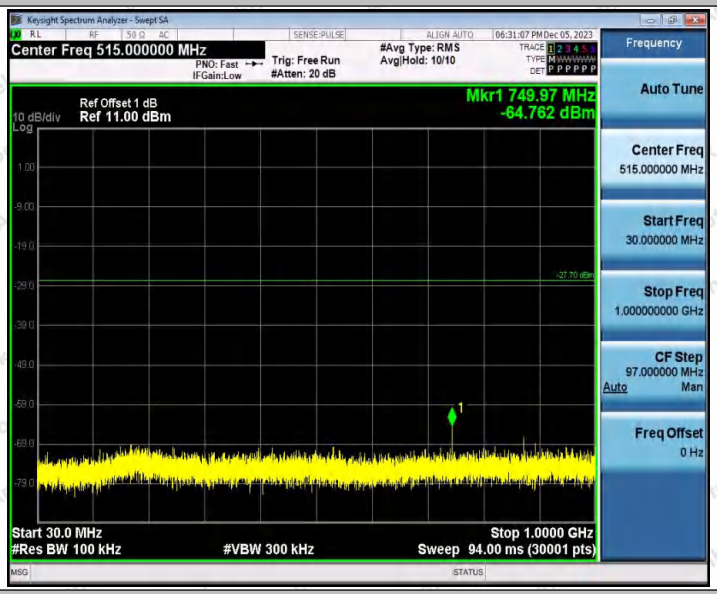


11G_Ant1_2462_1000~26500

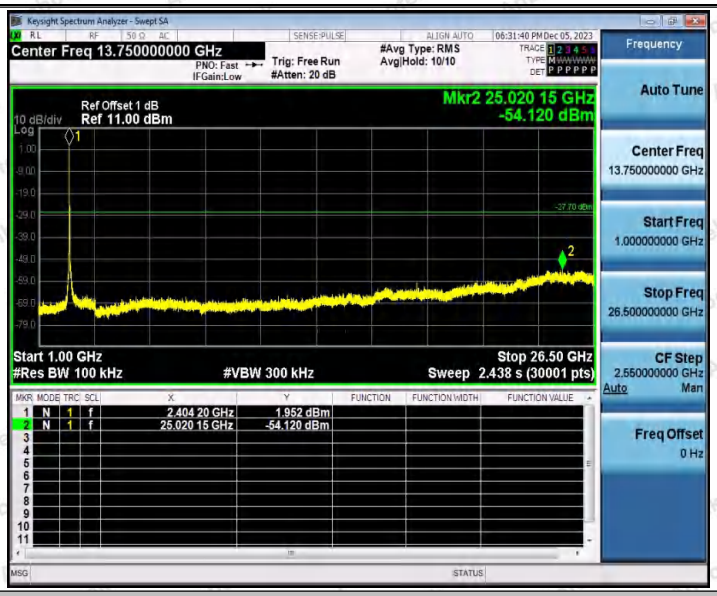


11N20SISO_Ant1_2412_0~Reference

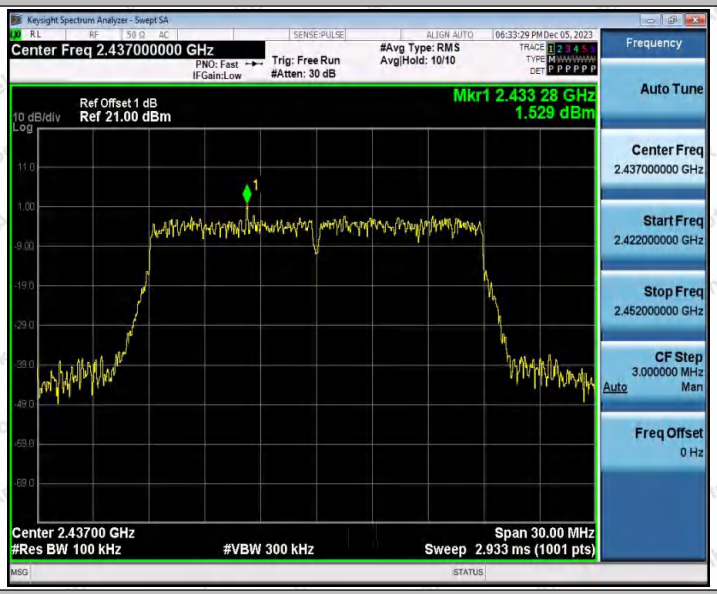
11N20SISO_Ant1_2412_30~1000



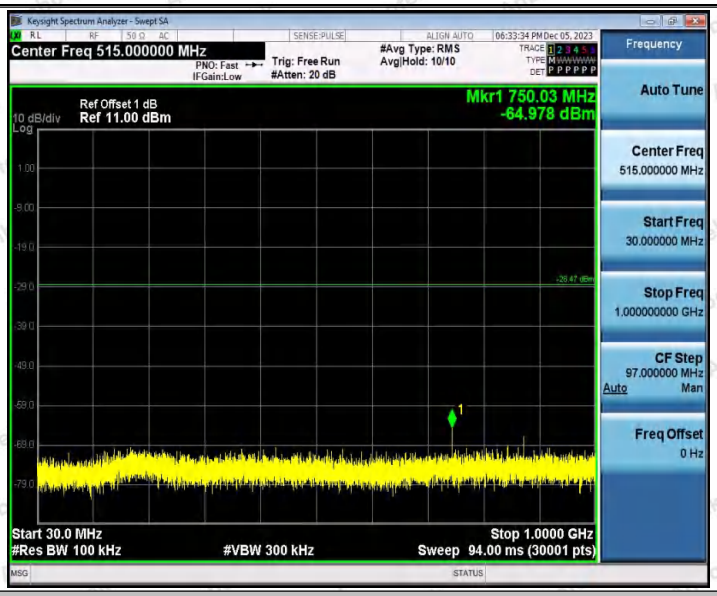
11N20SISO_Ant1_2412_1000~26500



11N20SISO_Ant1_2437_0~Reference



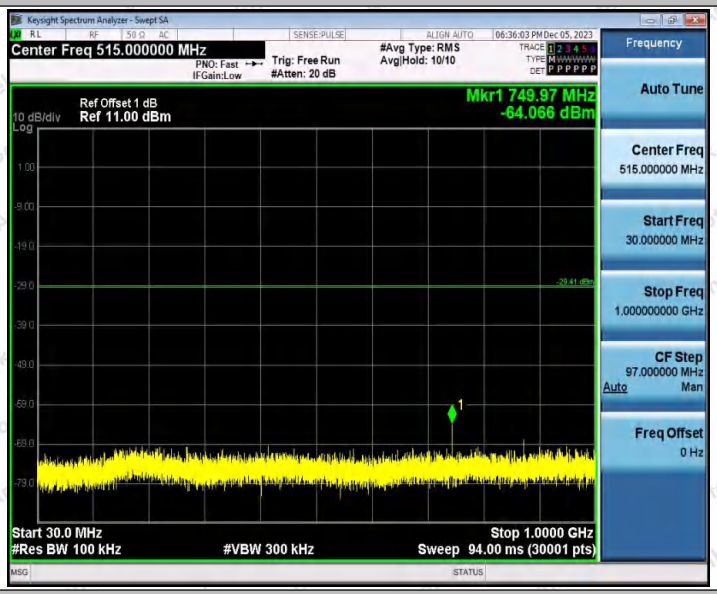
11N20SISO_Ant1_2437_30~1000



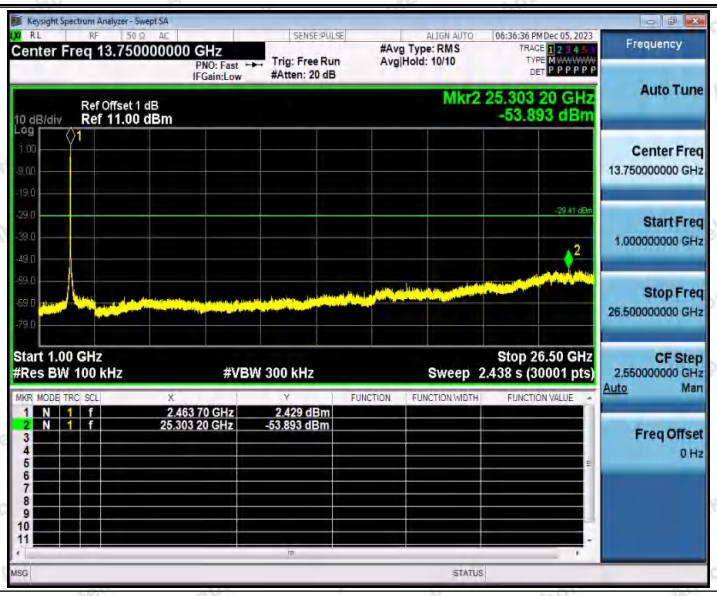
11N20SISO_Ant1_2437_1000~26500

11N20SISO_Ant1_2462_0~Reference

11N20SISO_Ant1_2462_30~1000



11N20SISO_Ant1_2462_1000~26500


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
06:36:36 PM Dec 05, 2023
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Log
Mkr2 25.303 20 GHz
-53.893 dBm
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)
1 N 1 f 2.463 70 GHz 2.429 dBm
2 N 1 f 25.303 20 GHz -53.893 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

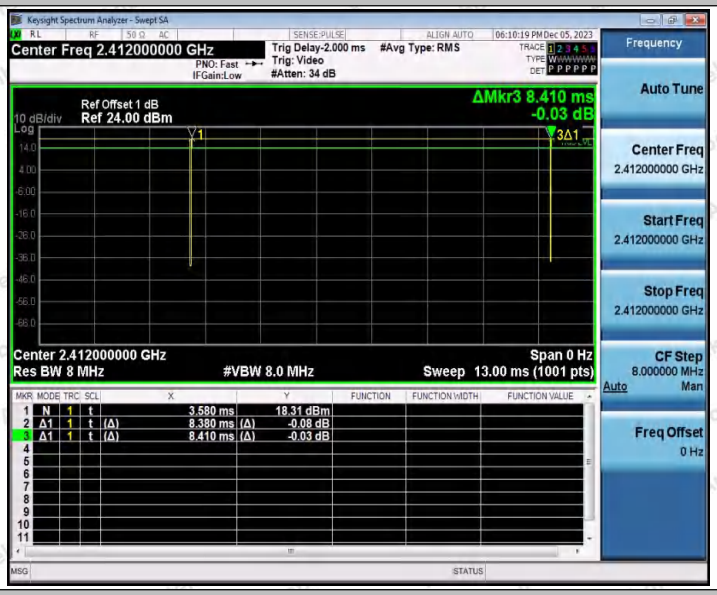
Appendix G: Duty Cycle

Test Result

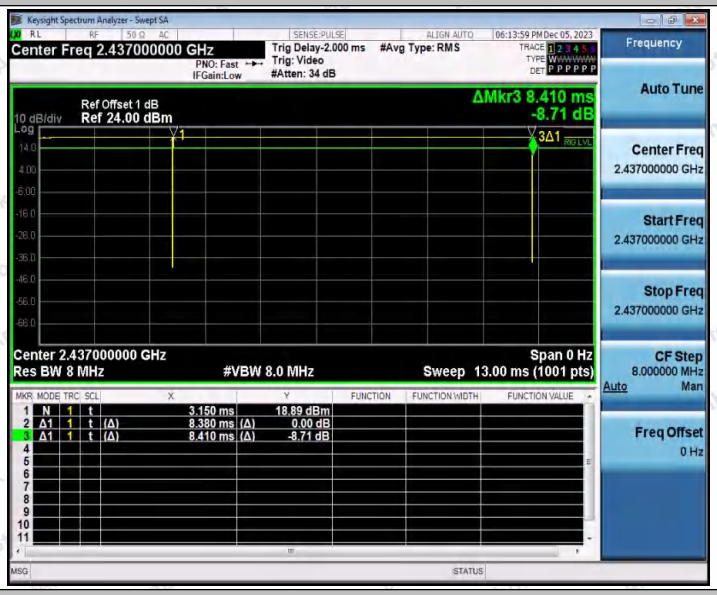
TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor
11B	Ant1	2412	8.38	8.41	99.64	0.02
		2437	8.38	8.41	99.64	0.02
		2462	8.38	8.42	99.52	0.02
11G	Ant1	2412	1.39	1.43	97.20	0.12
		2437	1.39	1.43	97.20	0.12
		2462	1.39	1.43	97.20	0.12
11N20SISO	Ant1	2412	1.29	1.33	96.99	0.13
		2437	1.30	1.33	97.74	0.10
		2462	1.30	1.33	97.74	0.10

Test Graphs

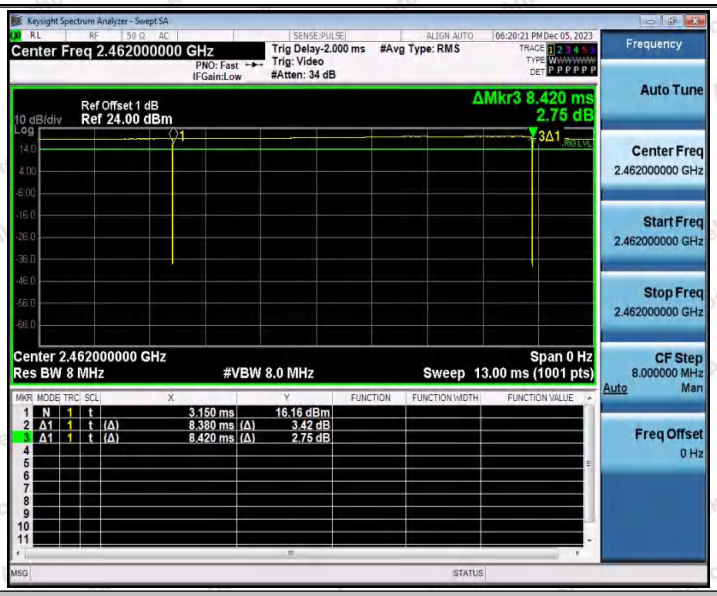
11B_Ant1_2412



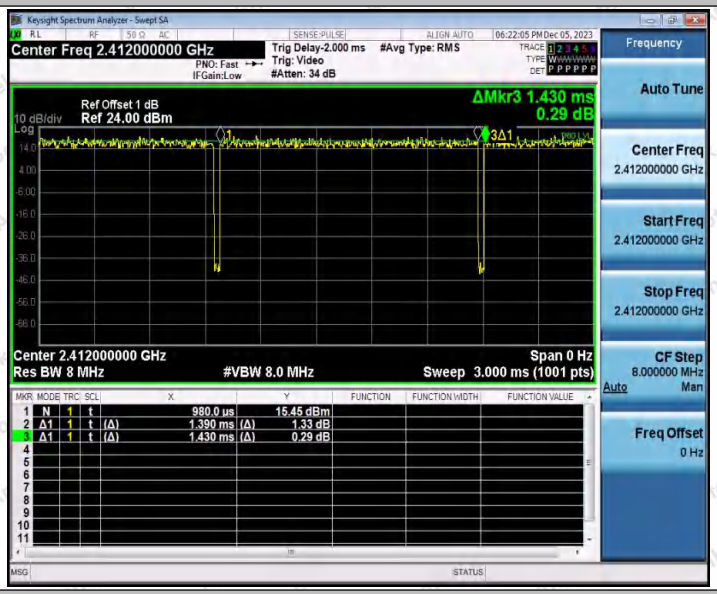
11B_Ant1_2437



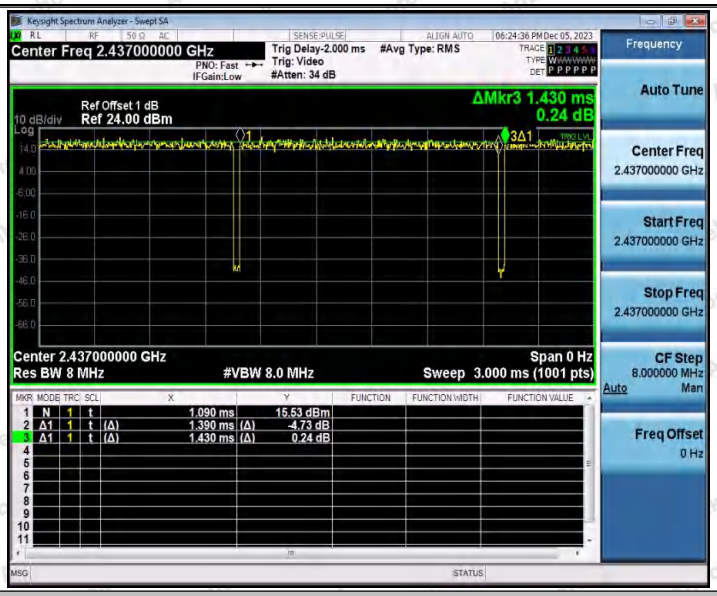
11B_Ant1_2462



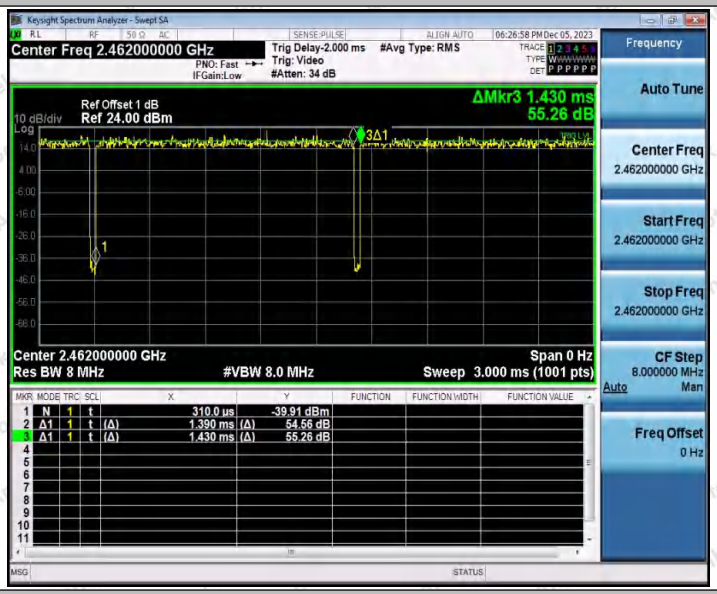
11G_Ant1_2412



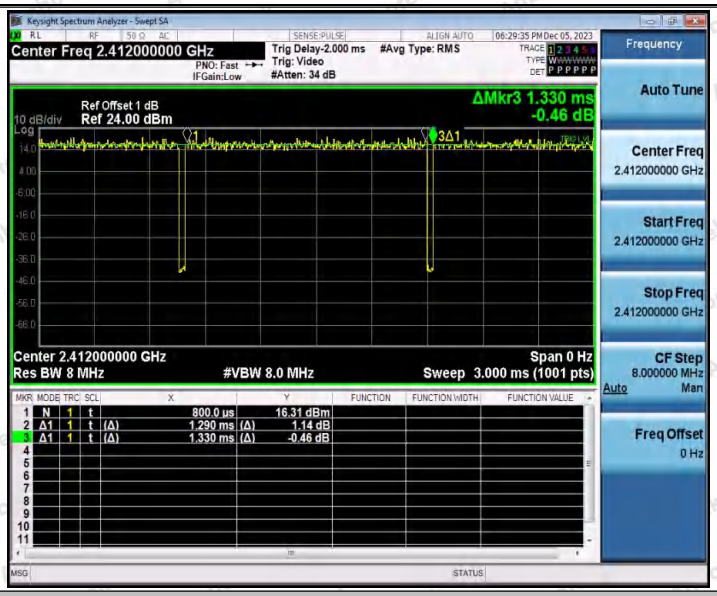
11G_Ant1_2437



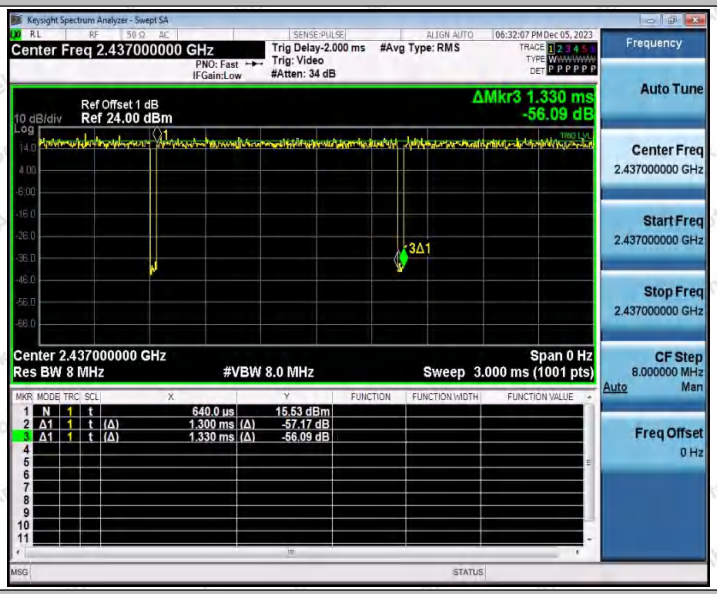
11G_Ant1_2462



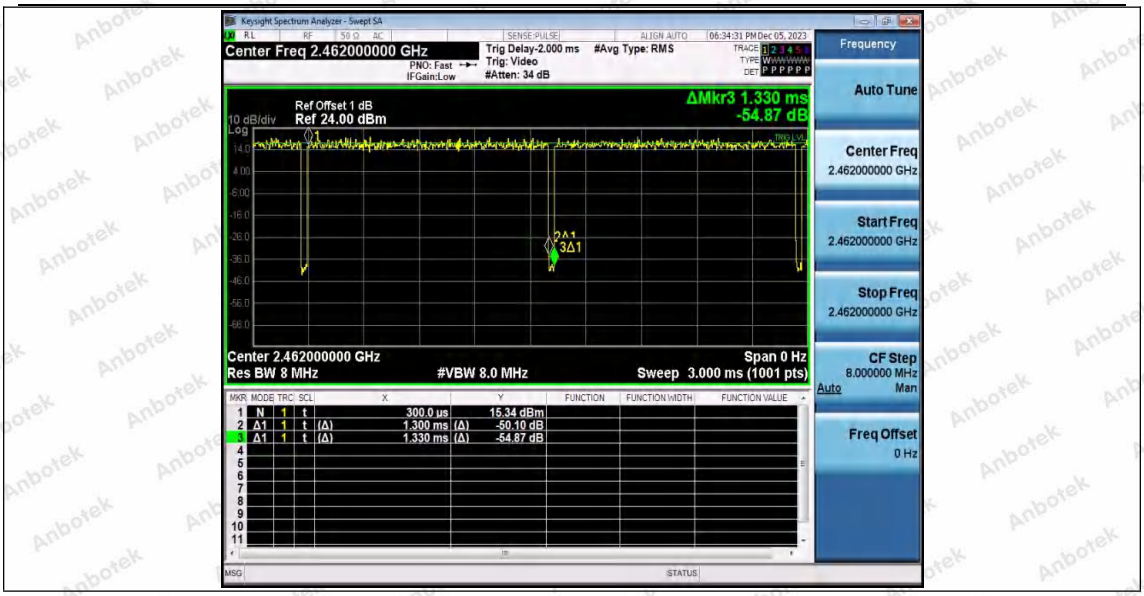
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig Delay-2.000 ms
Trig: Video
#Atten: 34 dB
#Avg Type: RMS
06:34:31 PM Dec 05, 2023
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
Ref Offset 1 dB
10 dB/div
Ref 24.00 dBm
ΔMkr3 1.330 ms
-54.87 dB
Center 2.462000000 GHz
Span 0 Hz
Res BW 8 MHz
#VBW 8.0 MHz
Sweep 3.000 ms (1001 pts)
1 N 1 t 300.0 µs 15.34 dBm
2 Δ1 1 t (Δ) 1.300 ms (Δ) -50.10 dB
3 Δ1 1 t (Δ) 1.330 ms (Δ) -54.87 dB

---End---