

Appendix A of 2.4G WIFI

DTS Bandwidth

Test Result

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	8.000	2407.960	2415.960	0.5	PASS
11B	Ant1	2437	8.560	2432.480	2441.040	0.5	PASS
11B	Ant1	2462	9.040	2457.480	2466.520	0.5	PASS
11G	Ant1	2412	16.320	2403.840	2420.160	0.5	PASS
11G	Ant1	2437	16.320	2428.840	2445.160	0.5	PASS
11G	Ant1	2462	16.360	2453.800	2470.160	0.5	PASS
11N20SISO	Ant1	2412	17.320	2403.440	2420.760	0.5	PASS
11N20SISO	Ant1	2437	17.560	2428.200	2445.760	0.5	PASS
11N20SISO	Ant1	2462	17.560	2453.200	2470.760	0.5	PASS
11N40SISO	Ant1	2422	35.840	2404.240	2440.080	0.5	PASS
11N40SISO	Ant1	2437	36.080	2419.080	2455.160	0.5	PASS
11N40SISO	Ant1	2452	35.600	2434.240	2469.840	0.5	PASS

Test Graphs



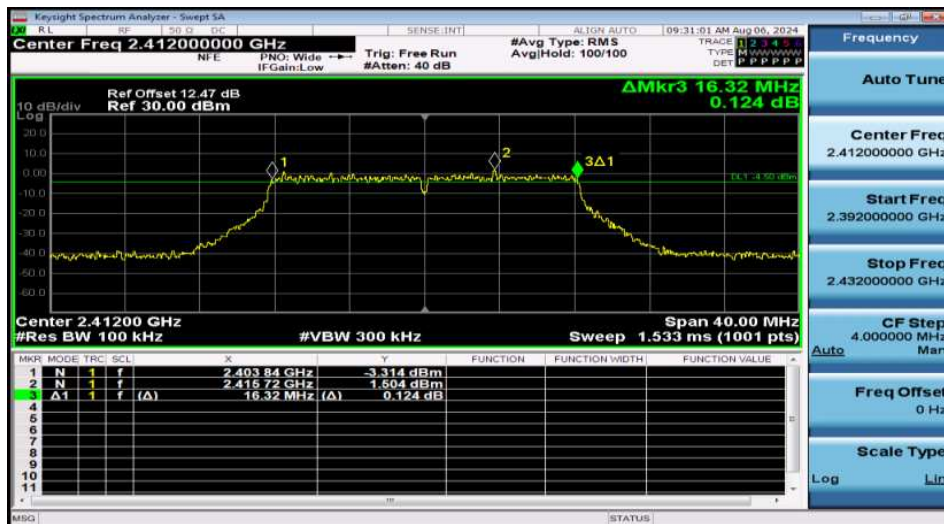
11B-Ant1-2412-PASS



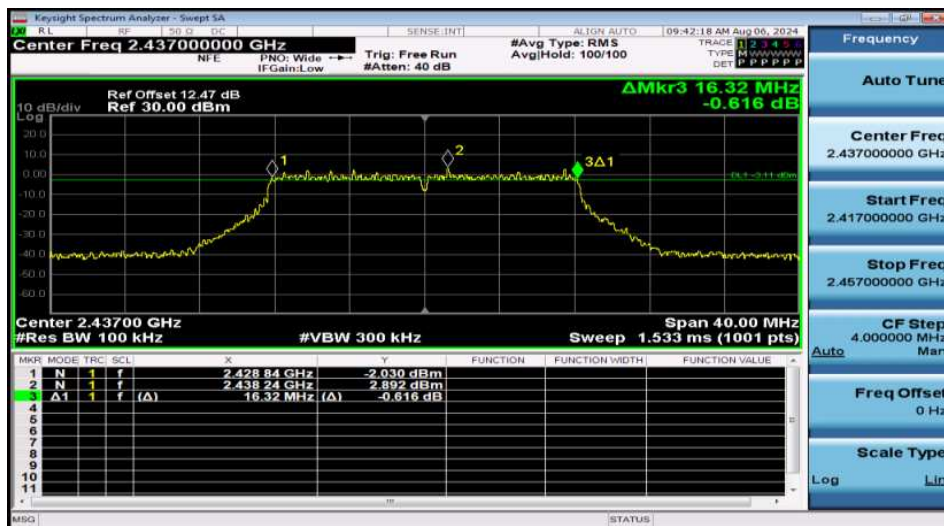
11B-Ant1-2437-PASS



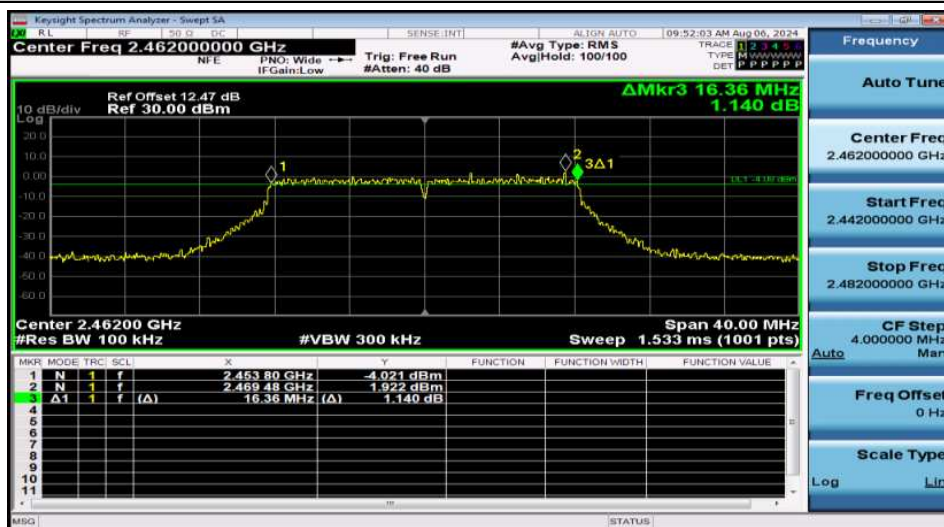
11B-Ant1-2462-PASS



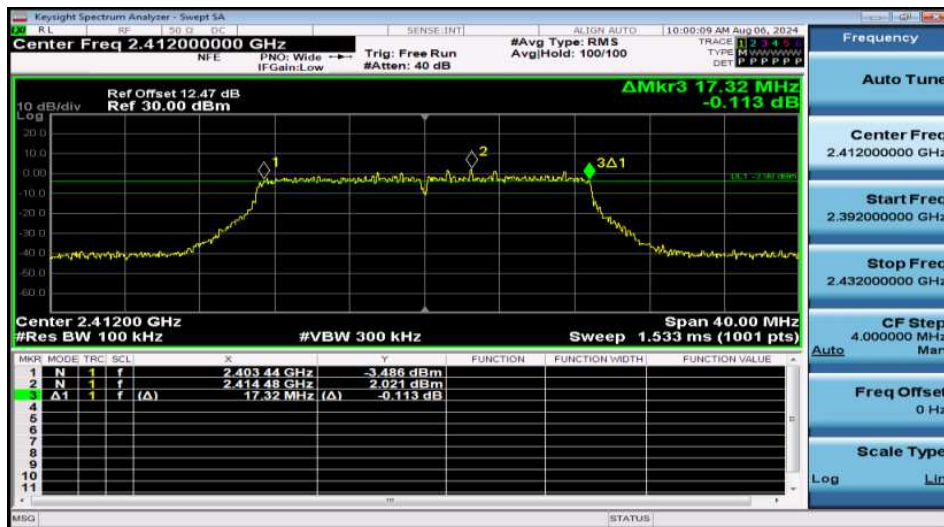
11G-Ant1-2412-PASS



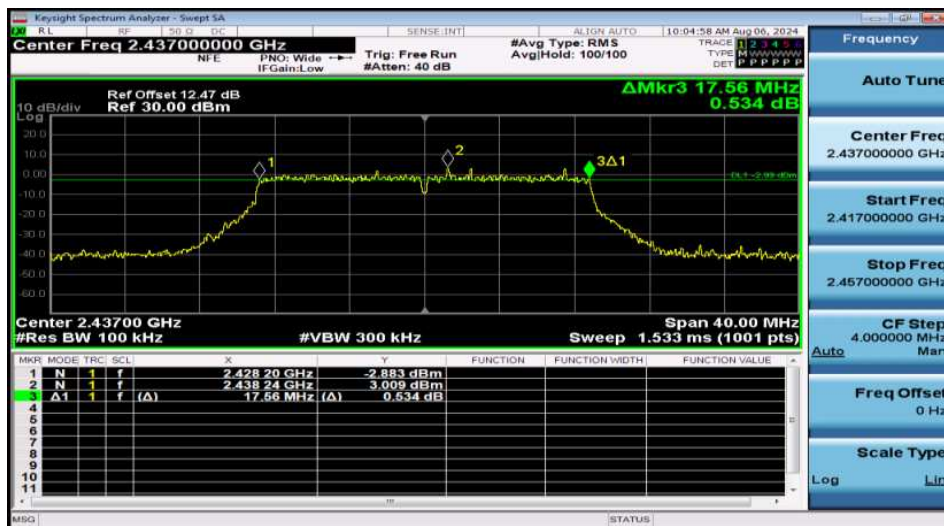
11G-Ant1-2437-PASS



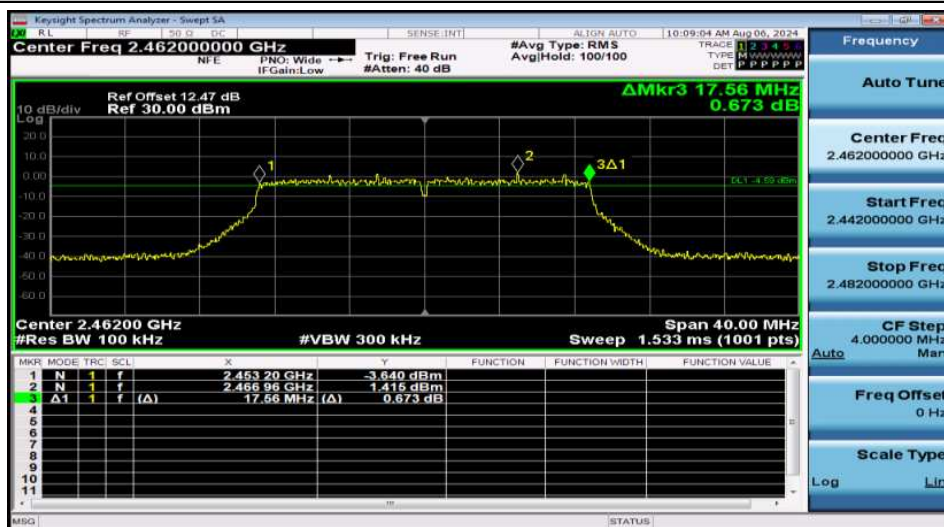
11G-Ant1-2462-PASS



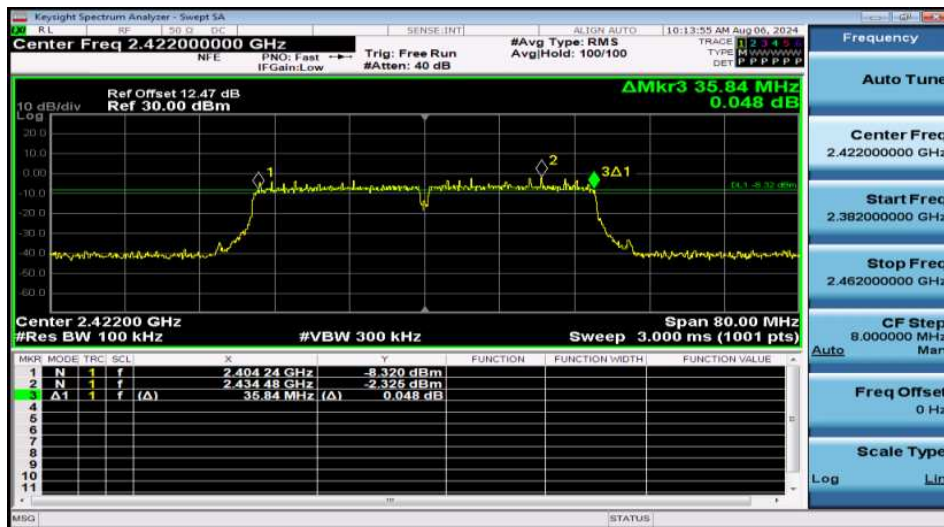
11N20SISO-Ant1-2412-PASS



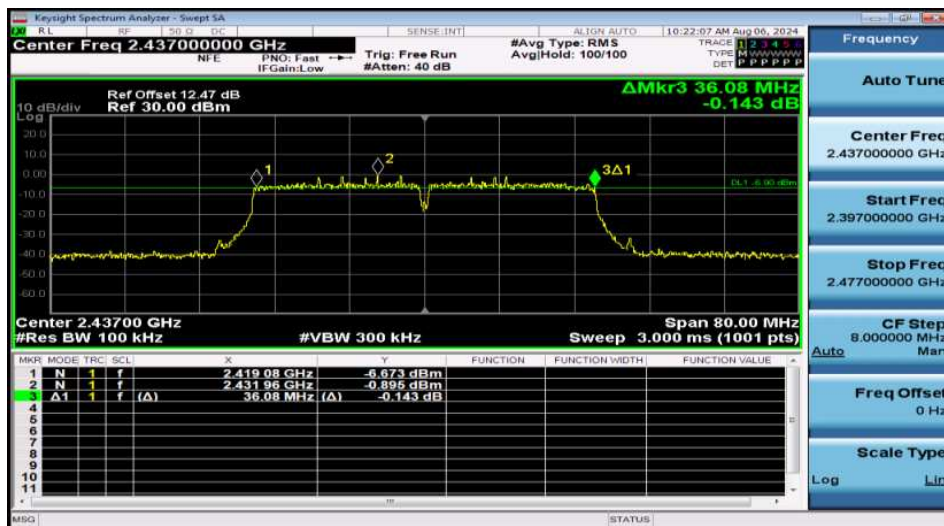
11N20SISO-Ant1-2437-PASS



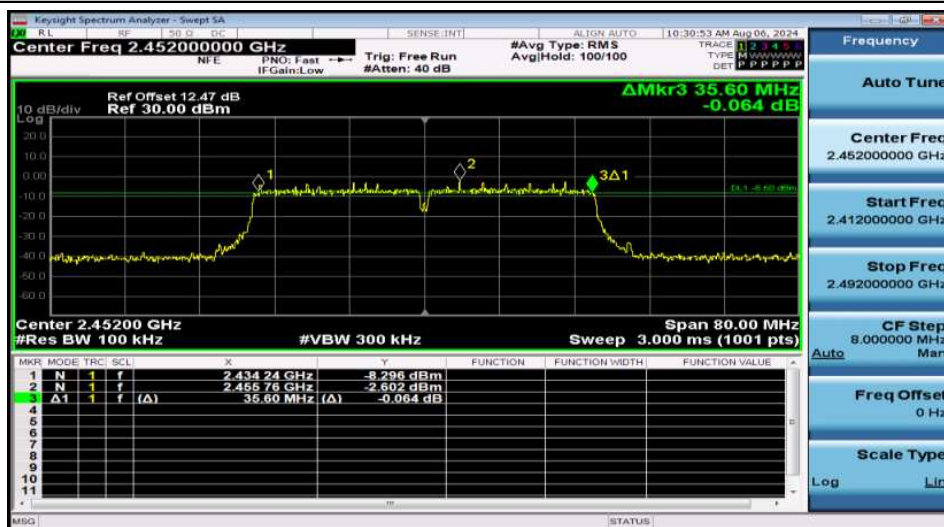
11N20SISO-Ant1-2462-PASS



11N40SISO-Ant1-2422-PASS



11N40SISO-Ant1-2437-PASS



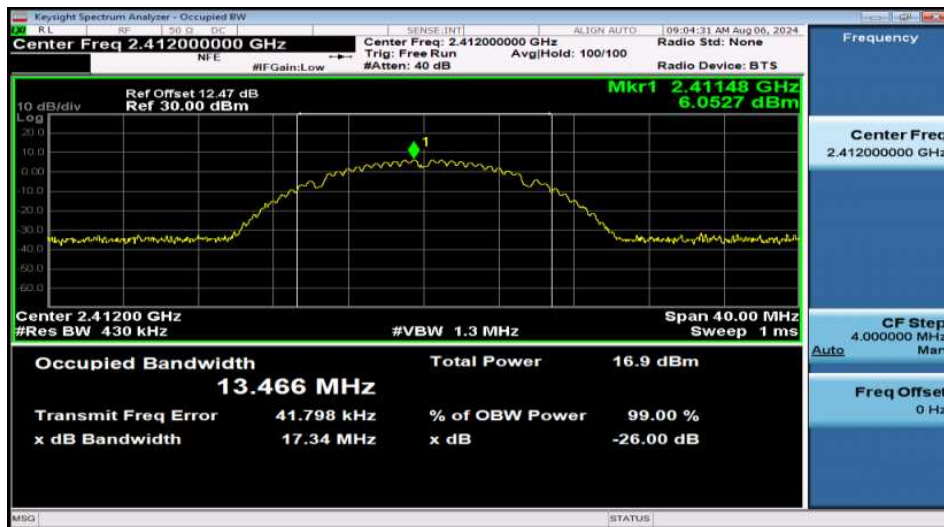
11N40SISO-Ant1-2452-PASS

Occupied Channel Bandwidth

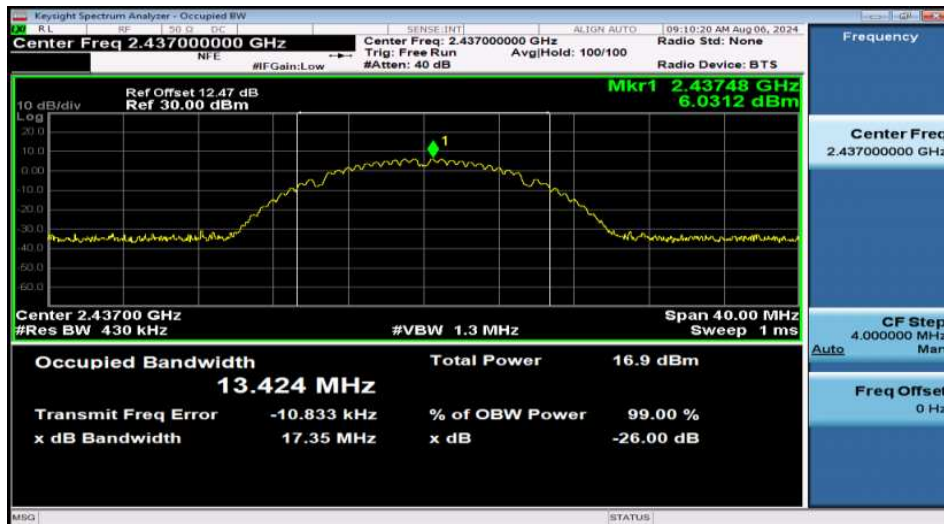
Test Result

TestMode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	13.466	2405.3088	2418.7748	---	---
11B	Ant1	2437	13.424	2430.2772	2443.7012	---	---
11B	Ant1	2462	13.421	2455.3329	2468.7539	---	---
11G	Ant1	2412	17.000	2403.5728	2420.5728	---	---
11G	Ant1	2437	17.009	2428.4717	2445.4807	---	---
11G	Ant1	2462	17.111	2453.3782	2470.4892	---	---
11N20SISO	Ant1	2412	18.086	2402.9466	2421.0326	---	---
11N20SISO	Ant1	2437	18.063	2427.9782	2446.0412	---	---
11N20SISO	Ant1	2462	18.071	2452.9972	2471.0682	---	---
11N40SISO	Ant1	2422	36.279	2403.9283	2440.2073	---	---
11N40SISO	Ant1	2437	36.381	2418.7988	2455.1798	---	---
11N40SISO	Ant1	2452	36.395	2433.7751	2470.1701	---	---

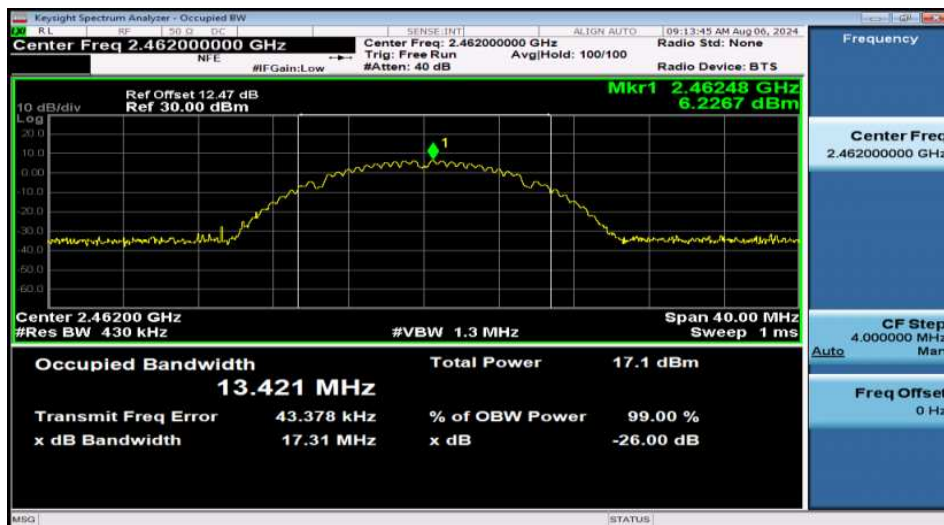
Test Graphs



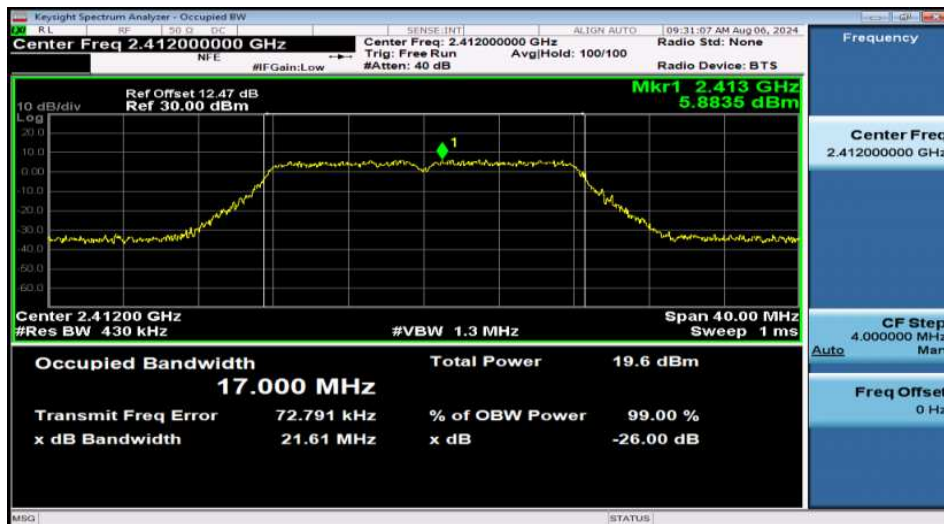
11B-Ant1-2412



11B-Ant1-2437



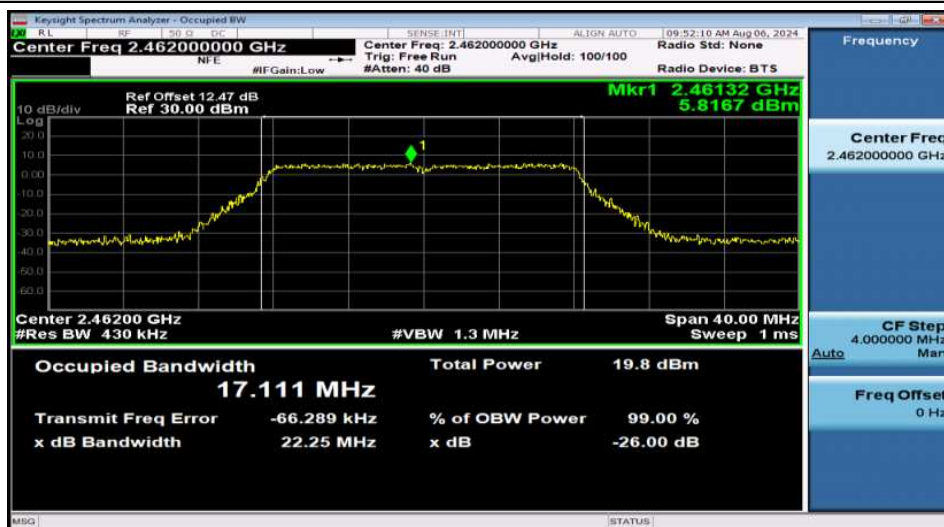
11B-Ant1-2462



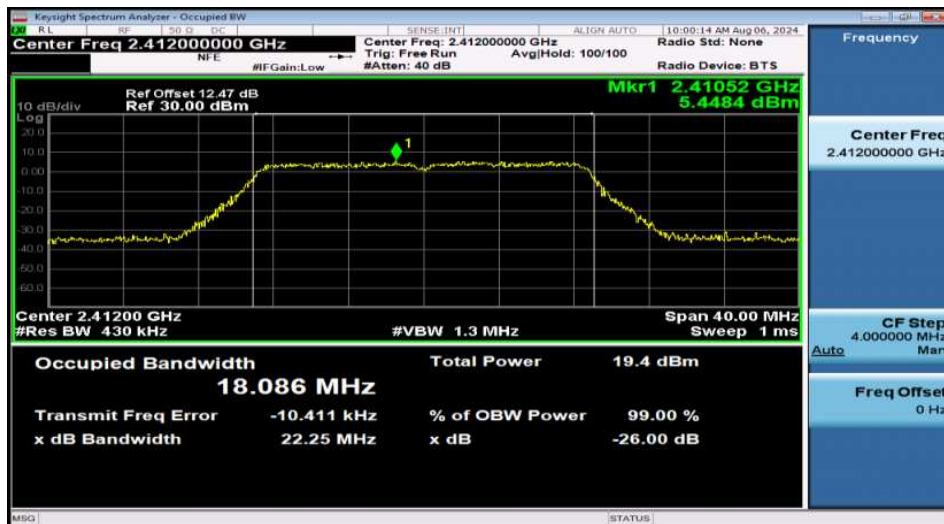
11G-Ant1-2412



11G-Ant1-2437



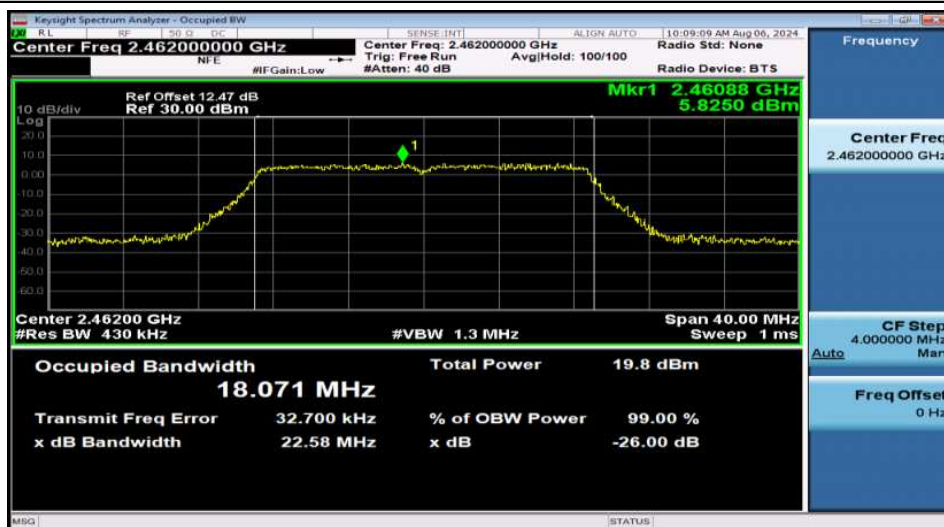
11G-Ant1-2462



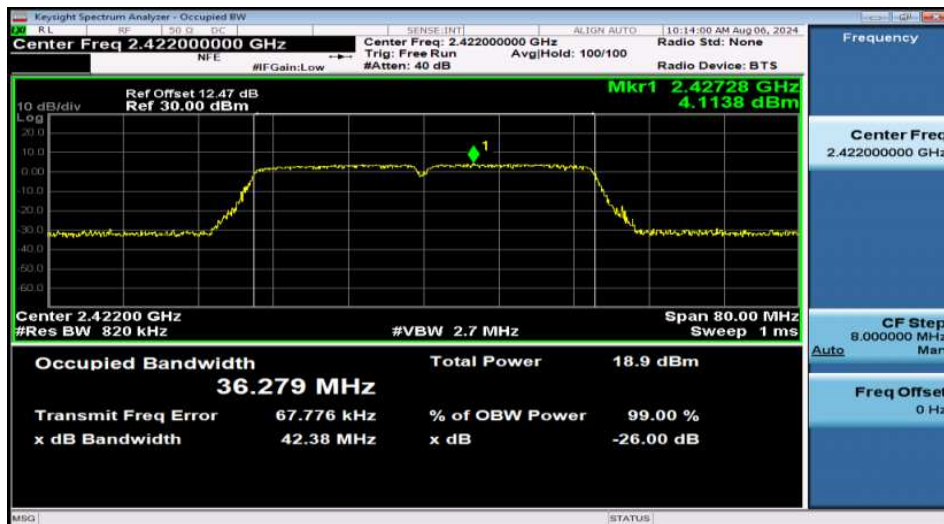
11N20SISO-Ant1-2412



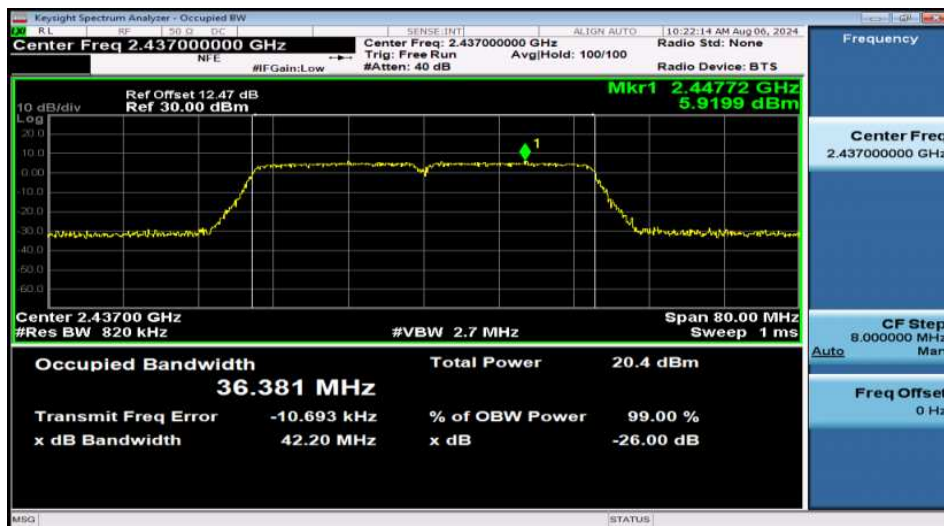
11N20SISO-Ant1-2437



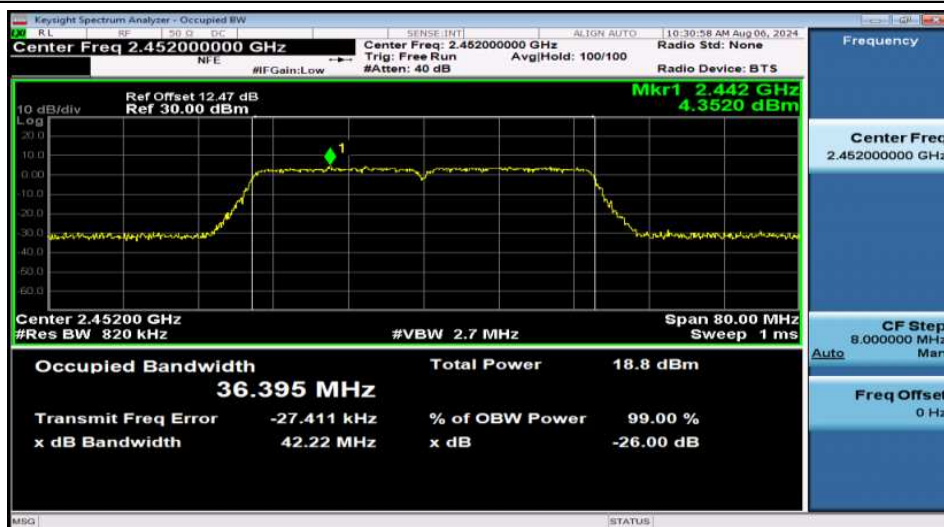
11N20SISO-Ant1-2462



11N40SISO-Ant1-2422



11N40SISO-Ant1-2437



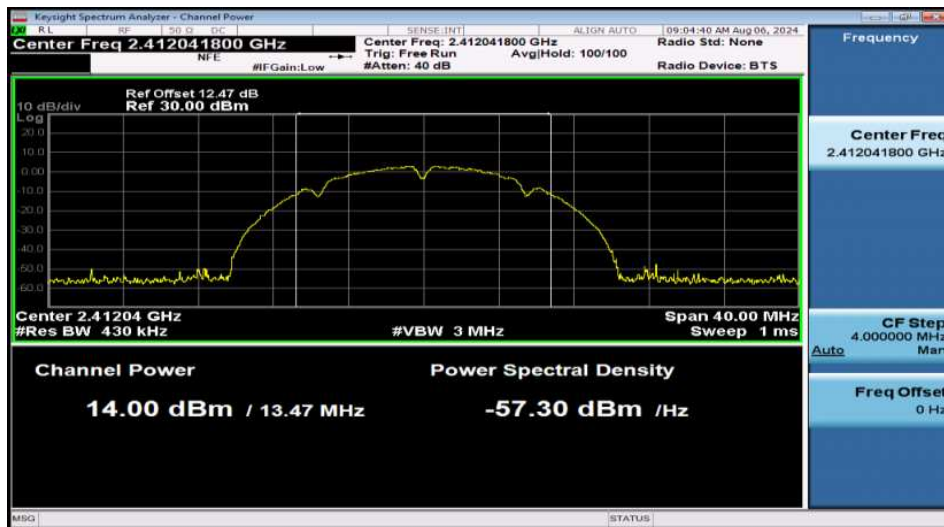
11N40SISO-Ant1-2452

Maximum conducted output power

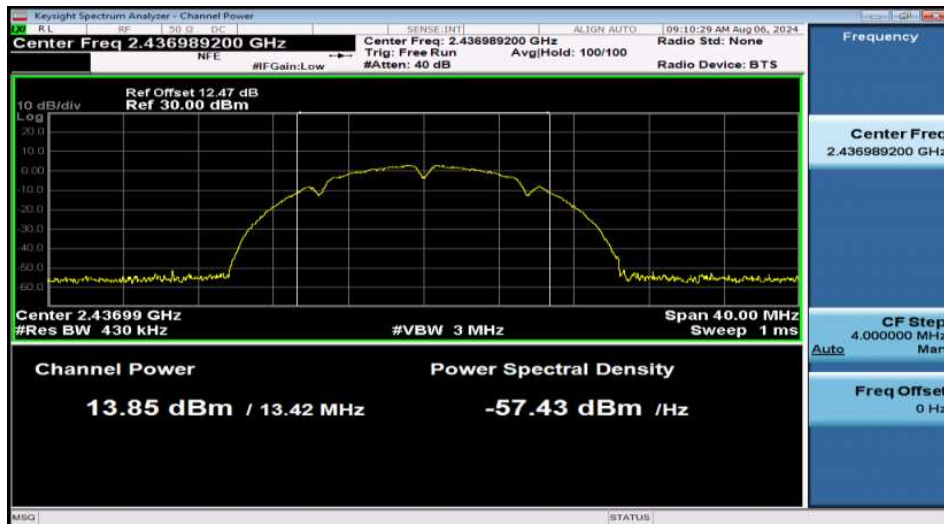
Test Result Average

Test Mode	Antenna	Frequency[MHz]	Average power [dBm]	Duty Cycle [%]	DC Factor [dBm]	Result [dBm]	Limit [dBm]	Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
11B	Ant1	2412	14.00	99.04	0.04	14.04	≤30.00	2.59	16.63	≤36.00	PASS
11B	Ant1	2437	13.85	98.73	0.06	13.91	≤30.00	2.59	16.50	≤36.00	PASS
11B	Ant1	2462	14.07	99.68	0.01	14.08	≤30.00	2.59	16.67	≤36.00	PASS
11G	Ant1	2412	13.49	93.64	0.29	13.78	≤30.00	2.59	16.37	≤36.00	PASS
11G	Ant1	2437	14.44	91.96	0.36	14.80	≤30.00	2.59	17.39	≤36.00	PASS
11G	Ant1	2462	13.68	91.96	0.36	14.04	≤30.00	2.59	16.63	≤36.00	PASS
11N20SI SO	Ant1	2412	13.27	92.31	0.35	13.62	≤30.00	2.59	16.21	≤36.00	PASS
11N20SI SO	Ant1	2437	14.29	66.67	0.31	14.60	≤30.00	2.59	17.19	≤36.00	PASS
11N20SI SO	Ant1	2462	13.49	92.31	0.35	13.84	≤30.00	2.59	16.43	≤36.00	PASS
11N40SI SO	Ant1	2422	11.55	85.45	0.68	12.23	≤30.00	2.59	14.82	≤36.00	PASS
11N40SI SO	Ant1	2437	13.12	85.45	0.68	13.80	≤30.00	2.59	16.39	≤36.00	PASS
11N40SI SO	Ant1	2452	11.47	85.45	0.68	12.15	≤30.00	2.59	14.74	≤36.00	PASS

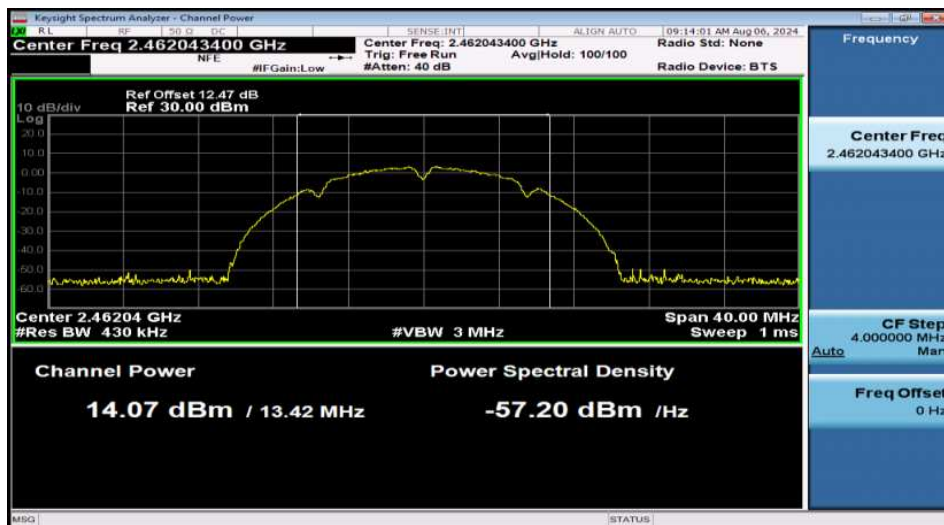
Test Graphs Average



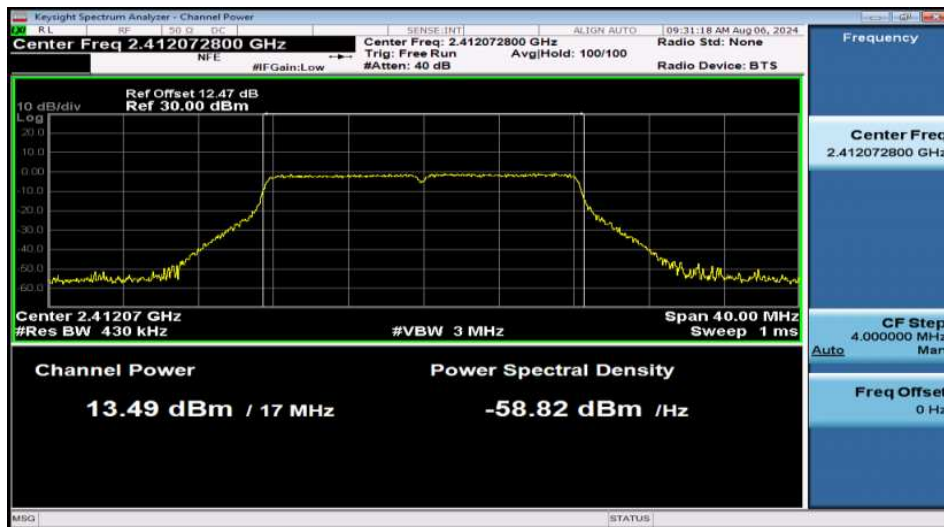
11B-Ant1-2412-PASS



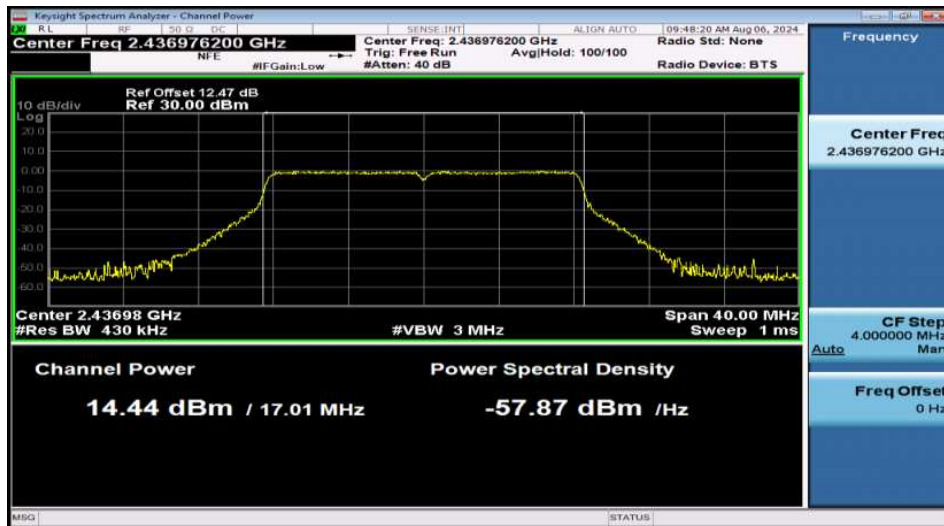
11B-Ant1-2437-PASS



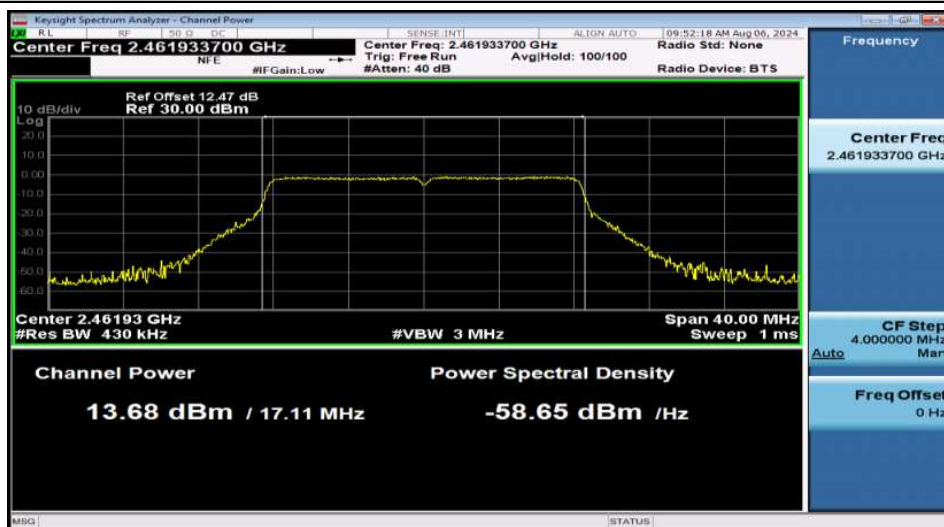
11B-Ant1-2462-PASS



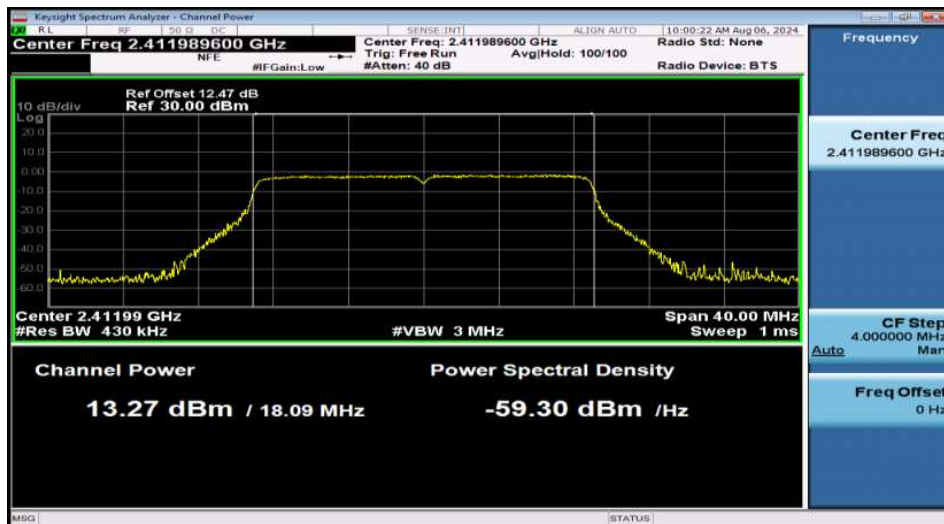
11G-Ant1-2412-PASS



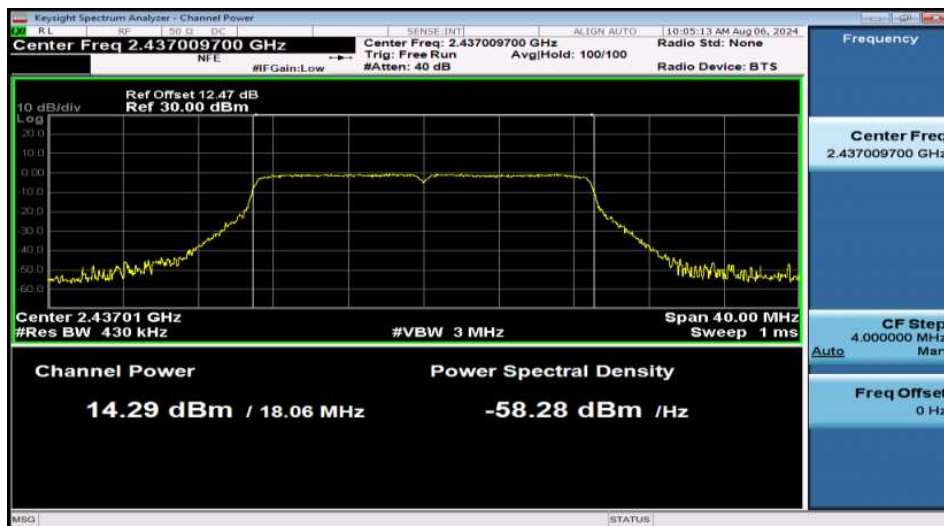
11G-Ant1-2437-PASS



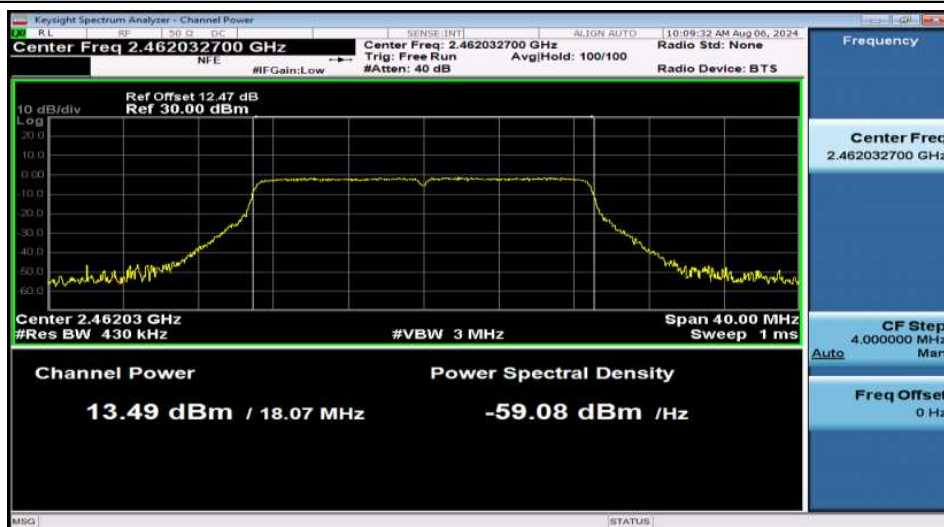
11G-Ant1-2462-PASS



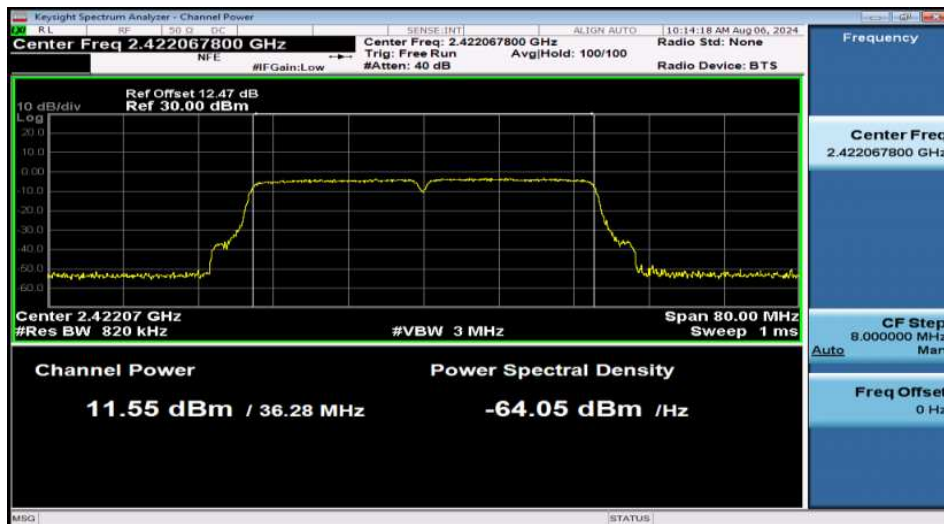
11N20SISO-Ant1-2412-PASS



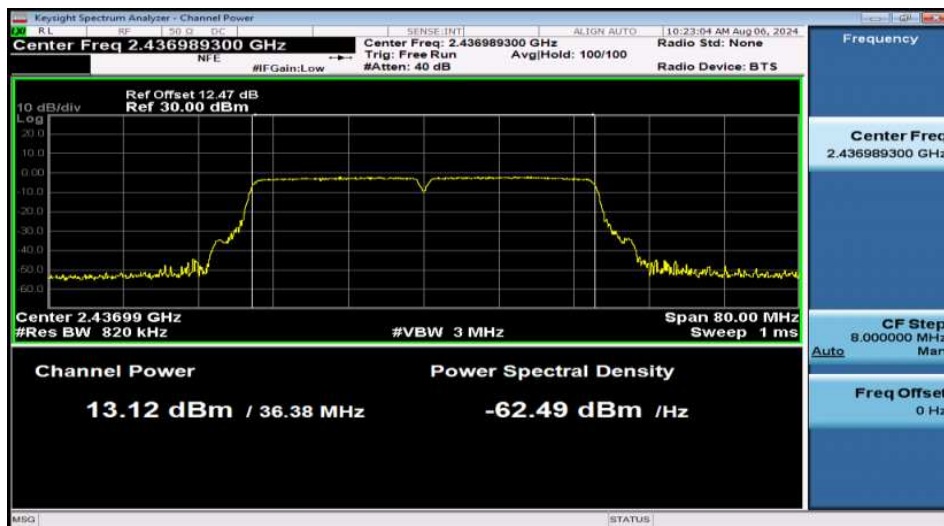
11N20SISO-Ant1-2437-PASS



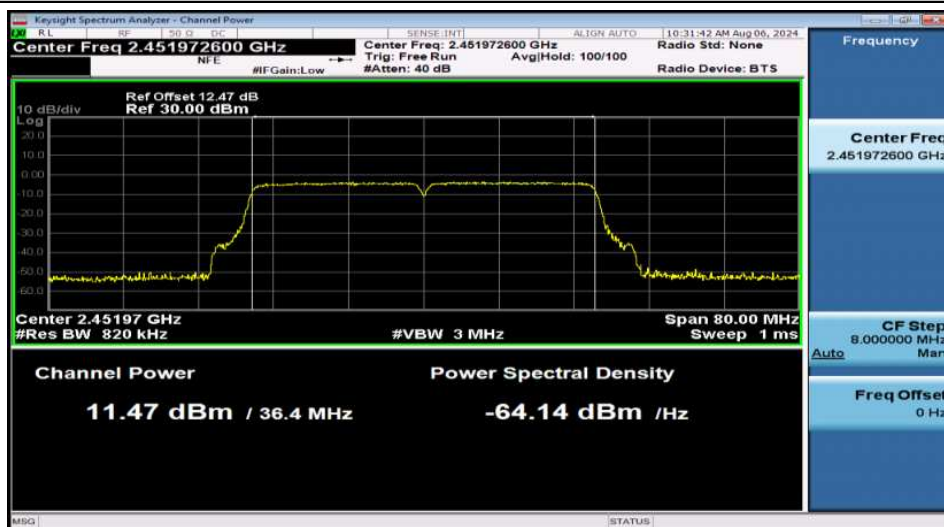
11N20SISO-Ant1-2462-PASS



11N40SISO-Ant1-2422-PASS



11N40SISO-Ant1-2437-PASS



11N40SISO-Ant1-2452-PASS

Maximum power spectral density

Test Result

TestMode	Antenna	Frequency[MHz]	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-17.28	≤8.00	PASS
11B	Ant1	2437	-17.17	≤8.00	PASS
11B	Ant1	2462	-17.37	≤8.00	PASS
11G	Ant1	2412	-18.13	≤8.00	PASS
11G	Ant1	2437	-17.02	≤8.00	PASS
11G	Ant1	2462	-17.84	≤8.00	PASS
11N20SISO	Ant1	2412	-17.90	≤8.00	PASS
11N20SISO	Ant1	2437	-15.89	≤8.00	PASS
11N20SISO	Ant1	2462	-17.54	≤8.00	PASS
11N40SISO	Ant1	2422	-19.50	≤8.00	PASS
11N40SISO	Ant1	2437	-19.62	≤8.00	PASS
11N40SISO	Ant1	2452	-19.63	≤8.00	PASS

Test Graphs



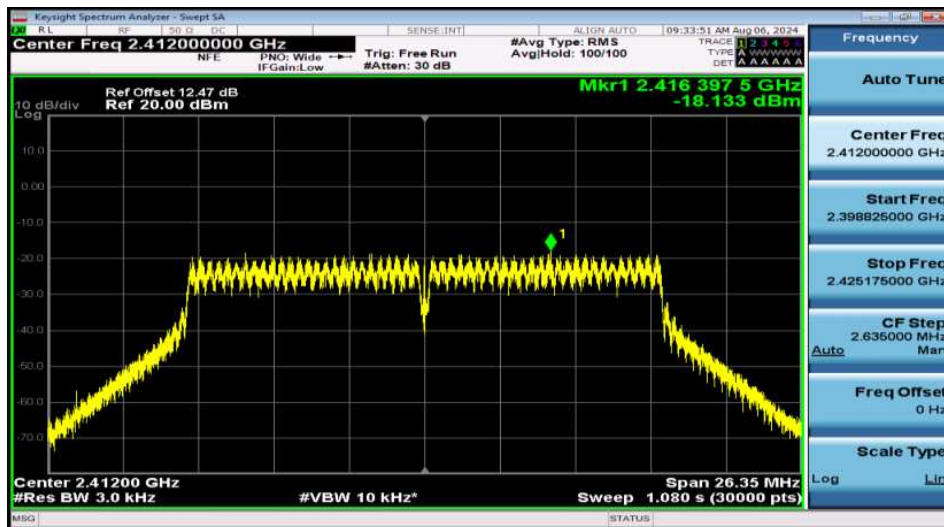
11B-Ant1-2412-PASS



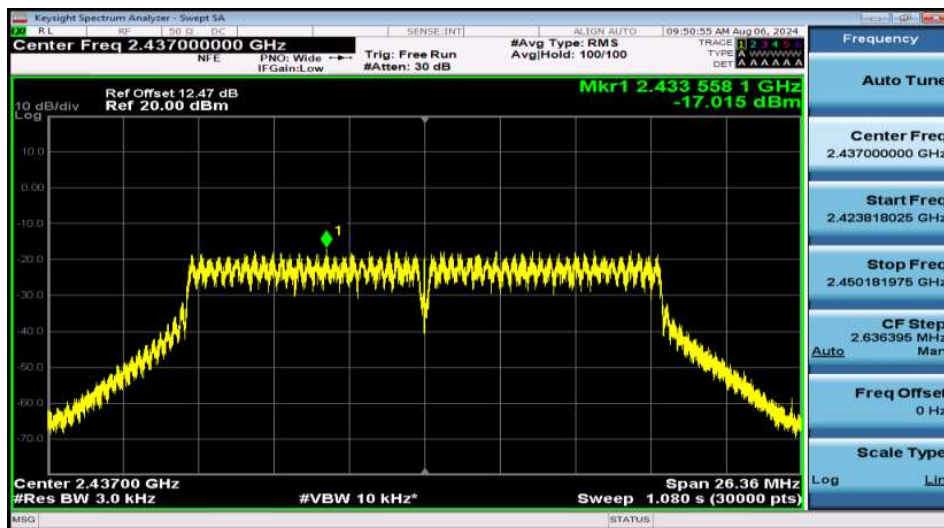
11B-Ant1-2437-PASS



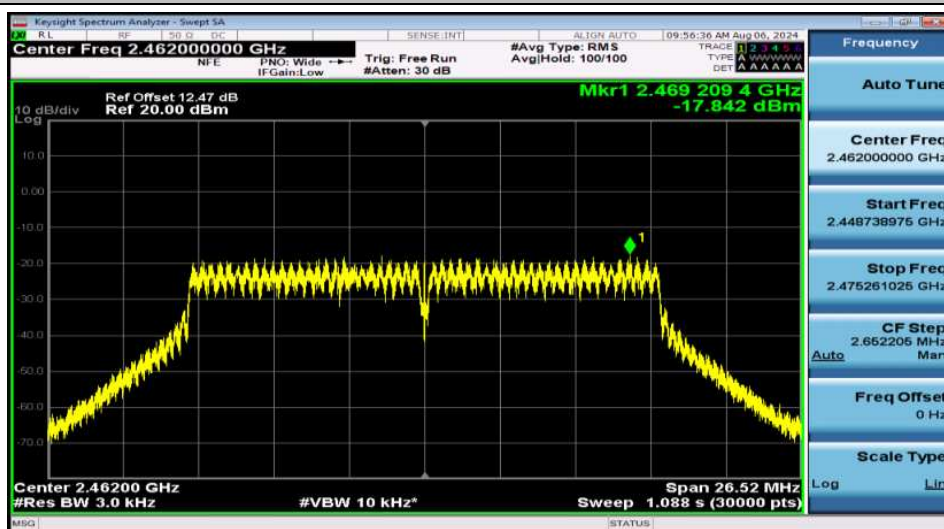
11B-Ant1-2462-PASS



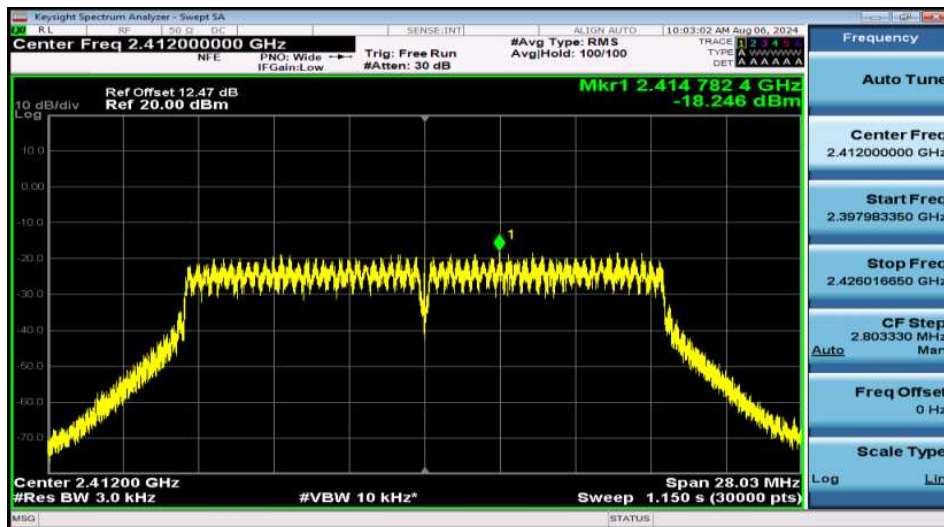
11G-Ant1-2412-PASS



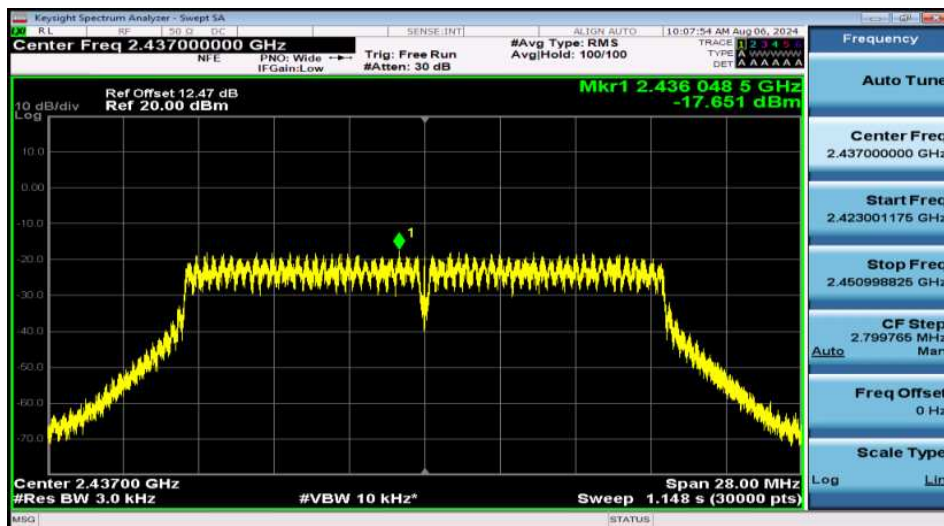
11G-Ant1-2437-PASS



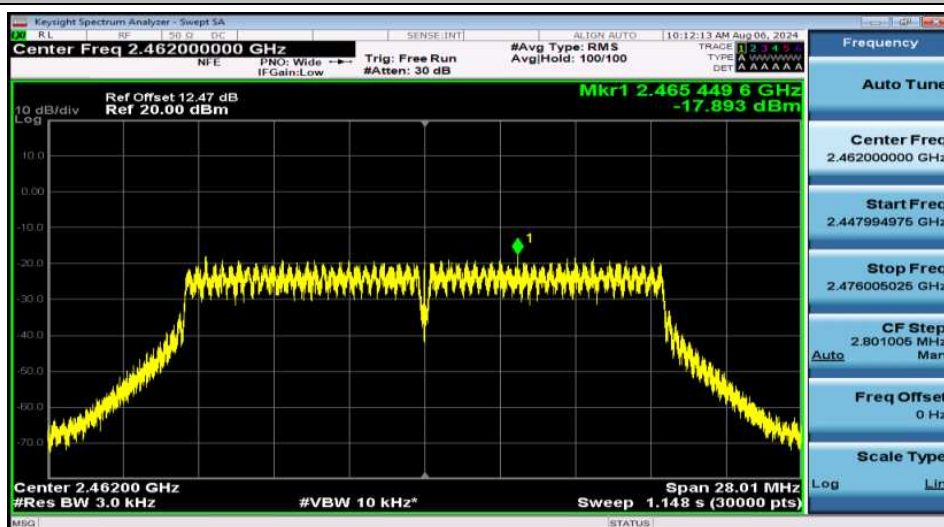
11G-Ant1-2462-PASS



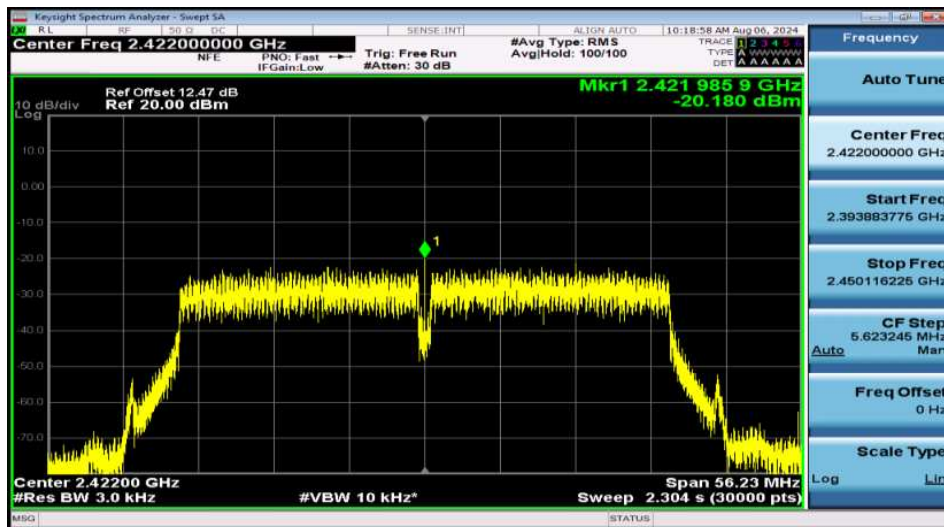
11N20SISO-Ant1-2412-PASS



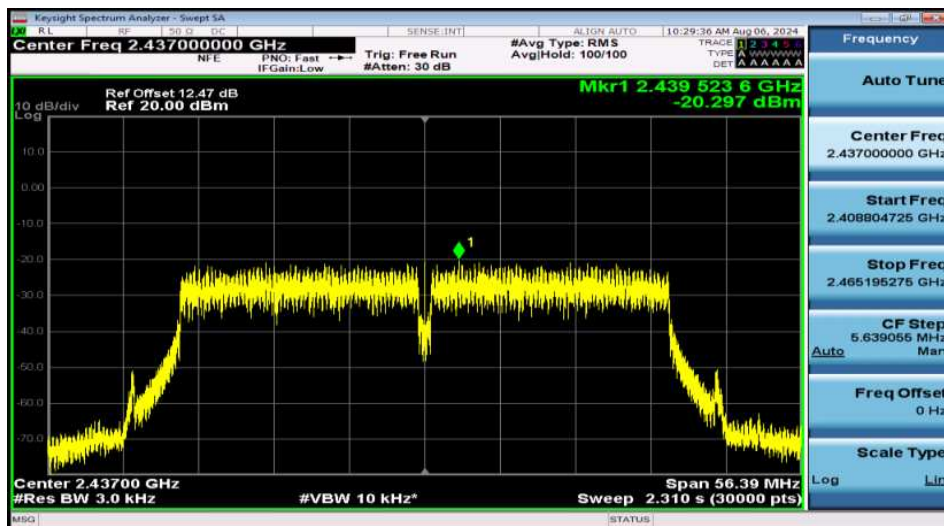
11N20SISO-Ant1-2437-PASS



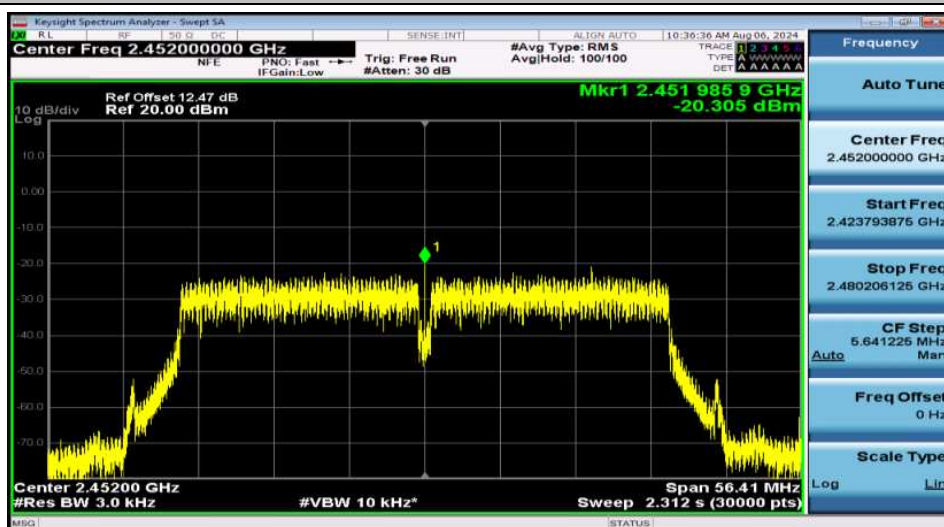
11N20SISO-Ant1-2462-PASS



11N40SISO-Ant1-2422-PASS



11N40SISO-Ant1-2437-PASS



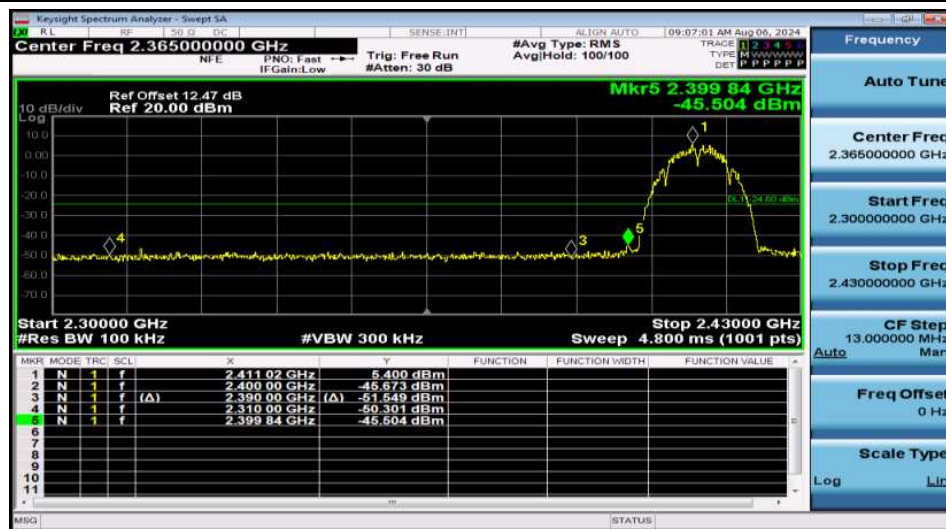
11N40SISO-Ant1-2452-PASS

Band edge measurements

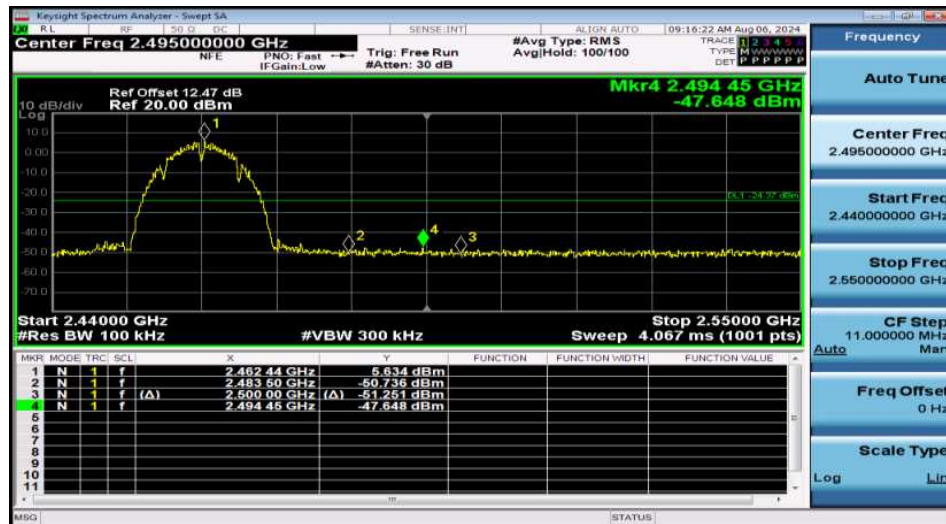
Test Result

TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	5.40	-45.5	≤-24.6	PASS
11B	Ant1	High	2462	5.63	-47.65	≤-24.37	PASS
11G	Ant1	Low	2412	1.04	-38.55	≤-28.96	PASS
11G	Ant1	High	2462	2.20	-45.59	≤-27.81	PASS
11N20SISO	Ant1	Low	2412	2.18	-37.26	≤-27.82	PASS
11N20SISO	Ant1	High	2462	2.08	-46.07	≤-27.92	PASS
11N40SISO	Ant1	Low	2422	-3.15	-38.41	≤-33.15	PASS
11N40SISO	Ant1	High	2452	-2.70	-44.25	≤-32.7	PASS

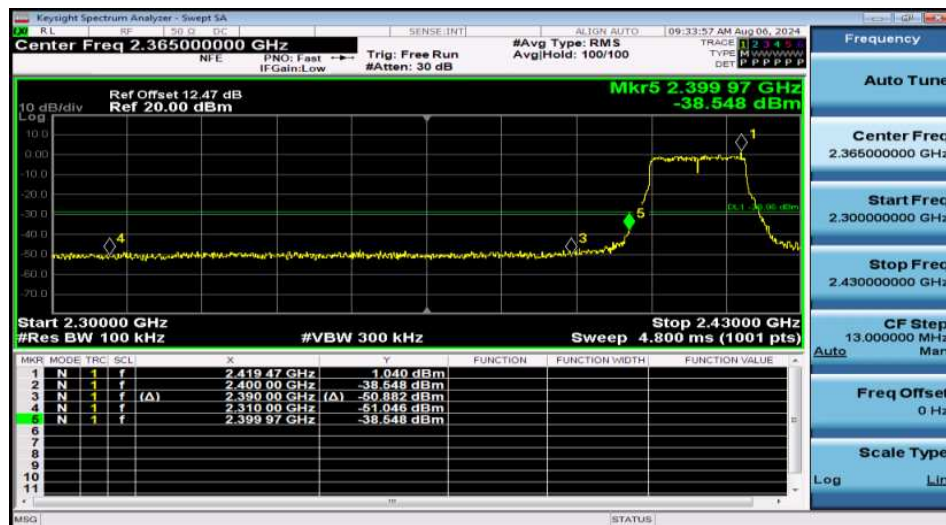
Test Graphs



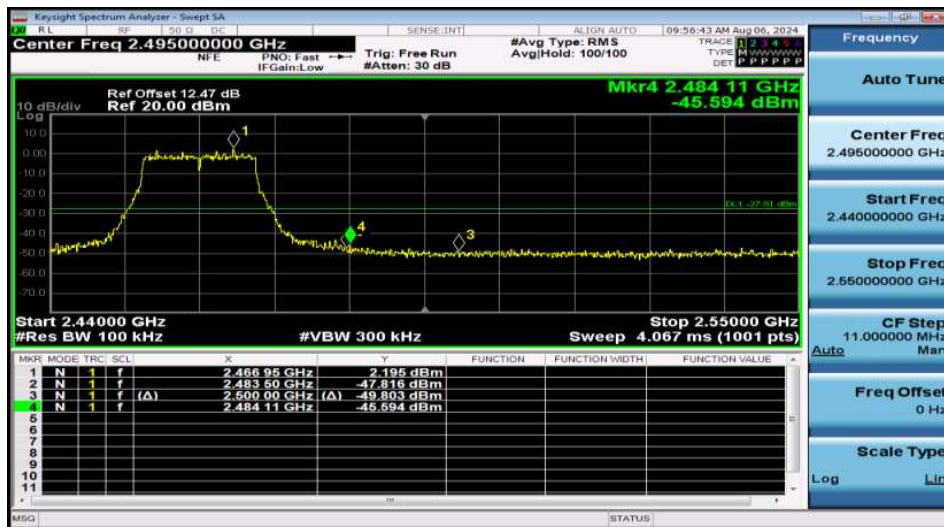
11B-Ant1-2412-PASS



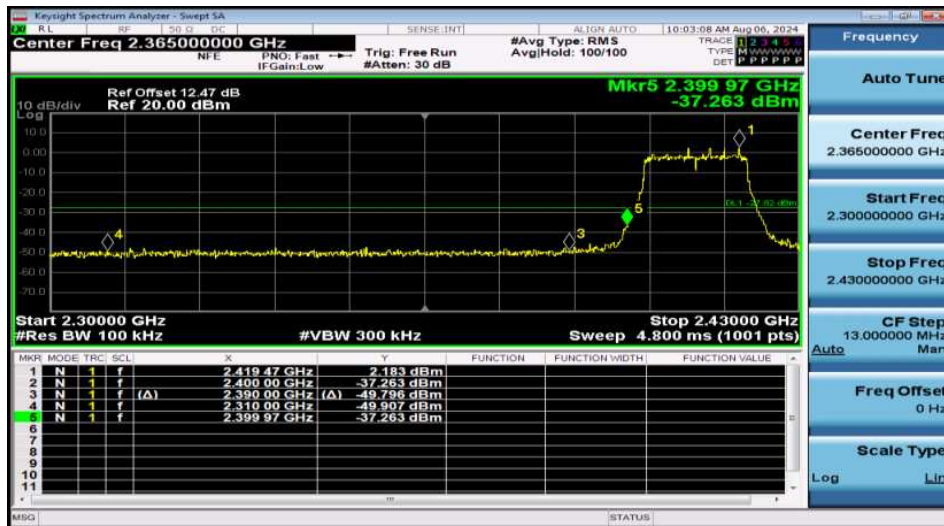
11B-Ant1-2462-PASS



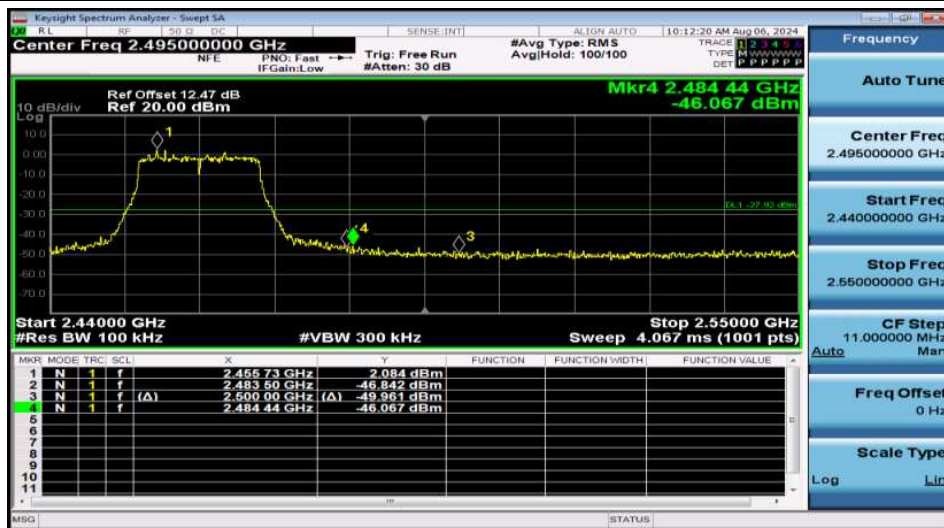
11G-Ant1-2412-PASS



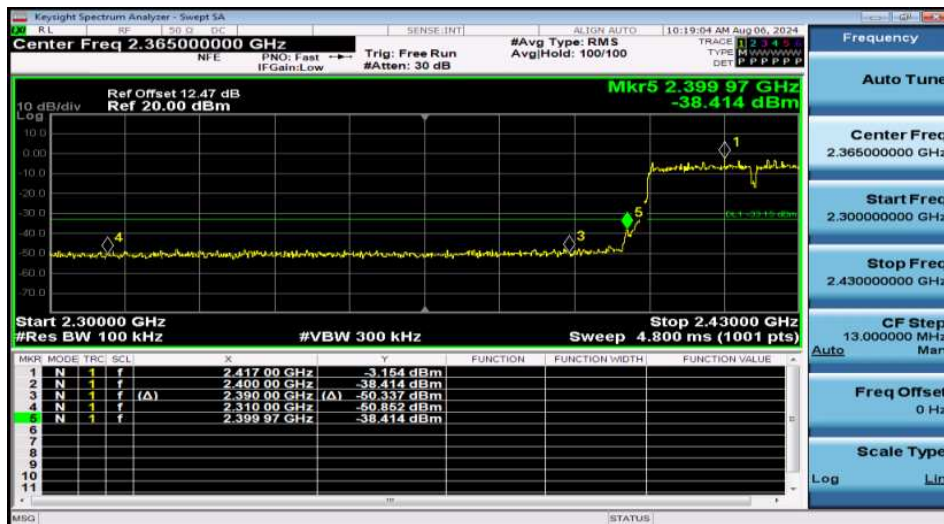
11G-Ant1-2462-PASS



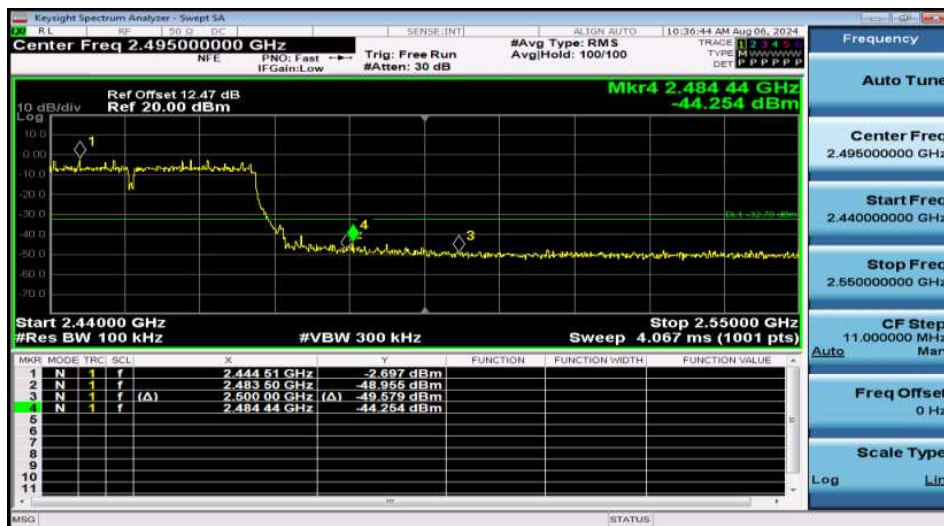
11N20SISO-Ant1-2412-PASS



11N20SISO-Ant1-2462-PASS



11N40SISO-Ant1-2422-PASS



11N40SISO-Ant1-2452-PASS

Conducted Spurious Emission

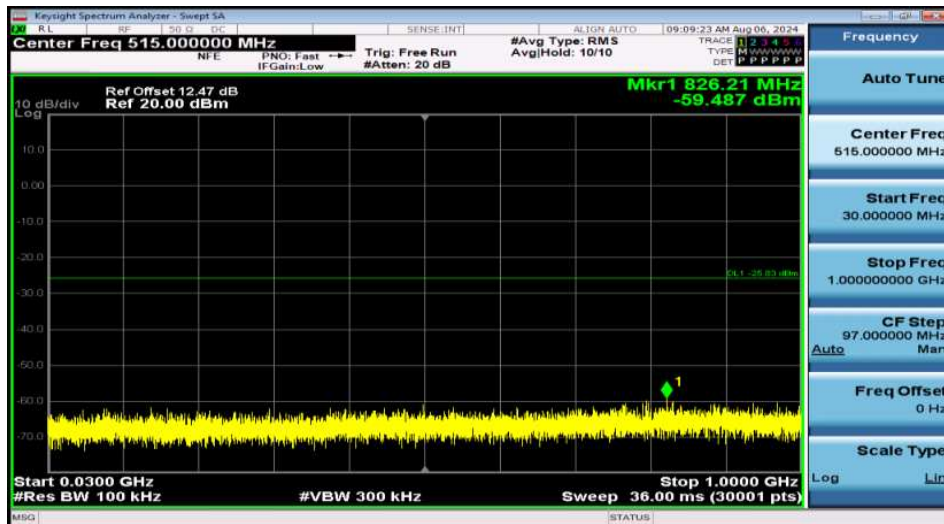
Test Result

TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	0~Reference	4.17	4.17	---	PASS
11B	Ant1	2412	30~1000	4.17	-59.49	≤-25.83	PASS
11B	Ant1	2412	1000~26500	4.17	-50.67	≤-25.83	PASS
11B	Ant1	2437	0~Reference	3.41	3.41	---	PASS
11B	Ant1	2437	30~1000	3.41	-59.24	≤-26.59	PASS
11B	Ant1	2437	1000~26500	3.41	-49.62	≤-26.59	PASS
11B	Ant1	2462	0~Reference	5.20	5.20	---	PASS
11B	Ant1	2462	30~1000	5.20	-59.99	≤-24.8	PASS
11B	Ant1	2462	1000~26500	5.20	-50.27	≤-24.8	PASS
11G	Ant1	2412	0~Reference	-0.94	-0.94	---	PASS
11G	Ant1	2412	30~1000	-0.94	-60.45	≤-30.94	PASS
11G	Ant1	2412	1000~26500	-0.94	-51.94	≤-30.94	PASS
11G	Ant1	2437	0~Reference	0.26	0.26	---	PASS
11G	Ant1	2437	30~1000	0.26	-59.6	≤-29.74	PASS
11G	Ant1	2437	1000~26500	0.26	-52.1	≤-29.74	PASS
11G	Ant1	2462	0~Reference	2.02	2.02	---	PASS
11G	Ant1	2462	30~1000	2.02	-60.19	≤-27.98	PASS
11G	Ant1	2462	1000~26500	2.02	-51.53	≤-27.98	PASS
11N20SISO	Ant1	2412	0~Reference	-1.47	-1.47	---	PASS
11N20SISO	Ant1	2412	30~1000	-1.47	-59.79	≤-31.47	PASS
11N20SISO	Ant1	2412	1000~26500	-1.47	-51.6	≤-31.47	PASS
11N20SISO	Ant1	2437	0~Reference	1.79	1.79	---	PASS
11N20SISO	Ant1	2437	30~1000	1.79	-60.1	≤-28.21	PASS
11N20SISO	Ant1	2437	1000~26500	1.79	-51.65	≤-28.21	PASS
11N20SISO	Ant1	2462	0~Reference	-1.36	-1.36	---	PASS
11N20SISO	Ant1	2462	30~1000	-1.36	-60.06	≤-31.36	PASS
11N20SISO	Ant1	2462	1000~26500	-1.36	-51.8	≤-31.36	PASS
11N40SISO	Ant1	2422	0~Reference	-3.03	-3.03	---	PASS
11N40SISO	Ant1	2422	30~1000	-3.03	-60.62	≤-33.03	PASS
11N40SISO	Ant1	2422	1000~26500	-3.03	-49.77	≤-33.03	PASS
11N40SISO	Ant1	2437	0~Reference	-1.04	-1.04	---	PASS
11N40SISO	Ant1	2437	30~1000	-1.04	-55.78	≤-31.04	PASS
11N40SISO	Ant1	2437	1000~26500	-1.04	-50.93	≤-31.04	PASS
11N40SISO	Ant1	2452	0~Reference	-5.37	-5.37	---	PASS
11N40SISO	Ant1	2452	30~1000	-5.37	-59.87	≤-35.37	PASS
11N40SISO	Ant1	2452	1000~26500	-5.37	-51.02	≤-35.37	PASS

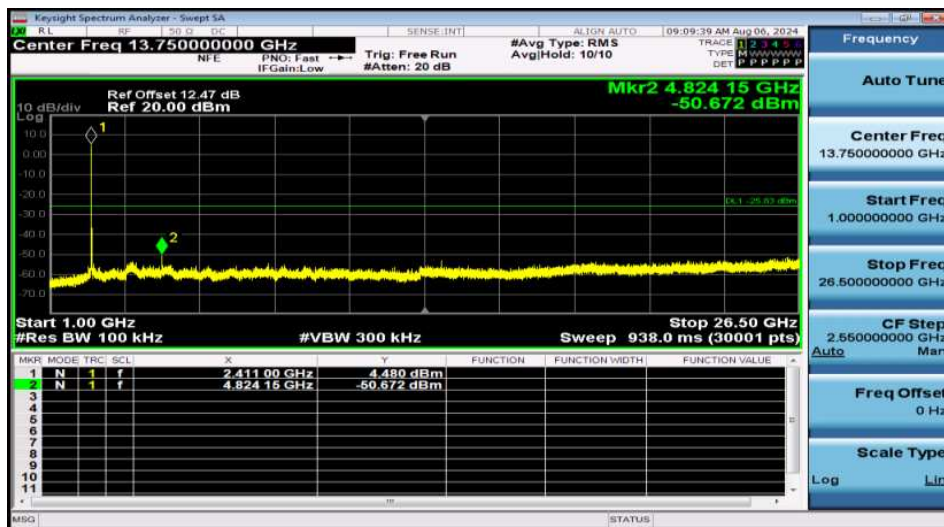
Test Graphs



11B-Ant1-2412-0~Reference-PASS



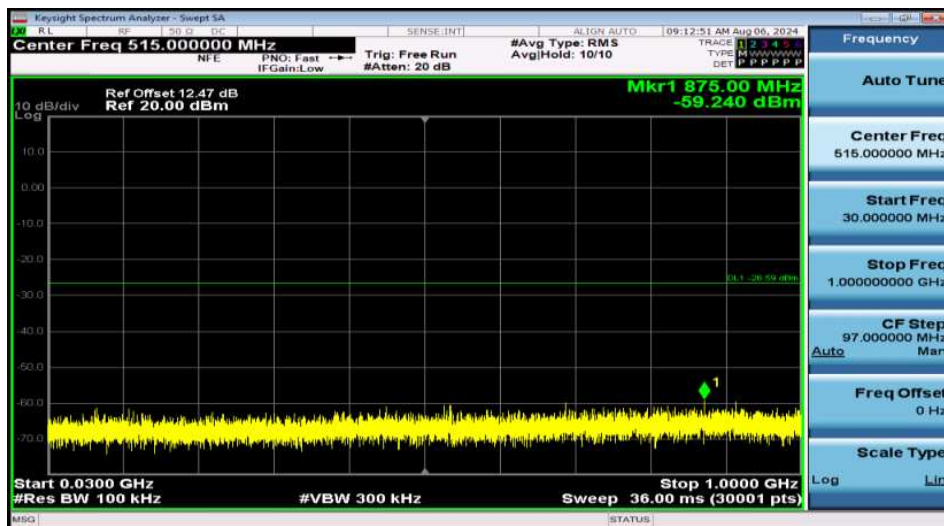
11B-Ant1-2412-30~1000-PASS



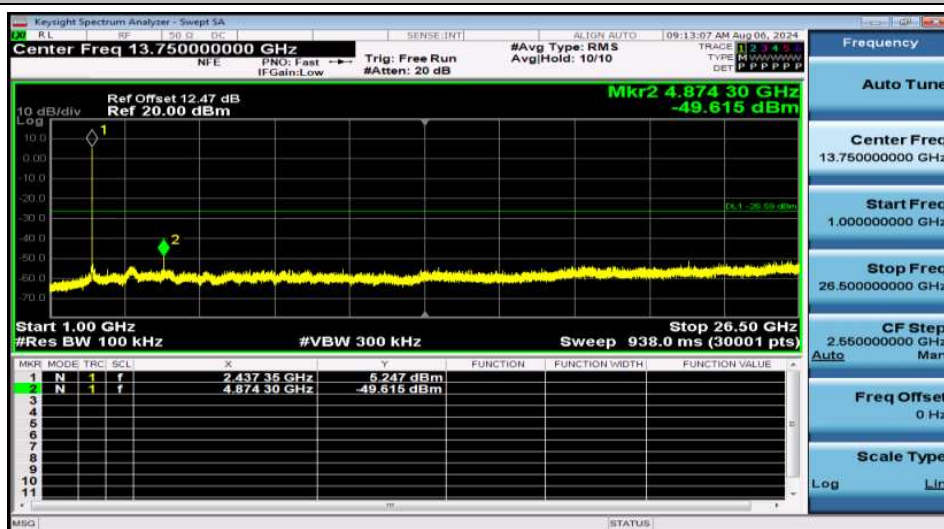
11B-Ant1-2412-1000~26500-PASS



11B-Ant1-2437-0~Reference-PASS



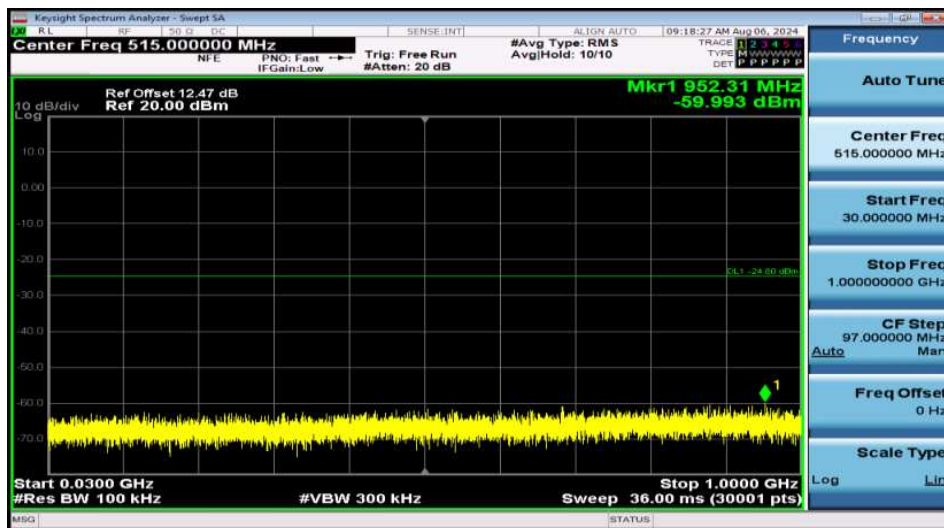
11B-Ant1-2437-30~1000-PASS



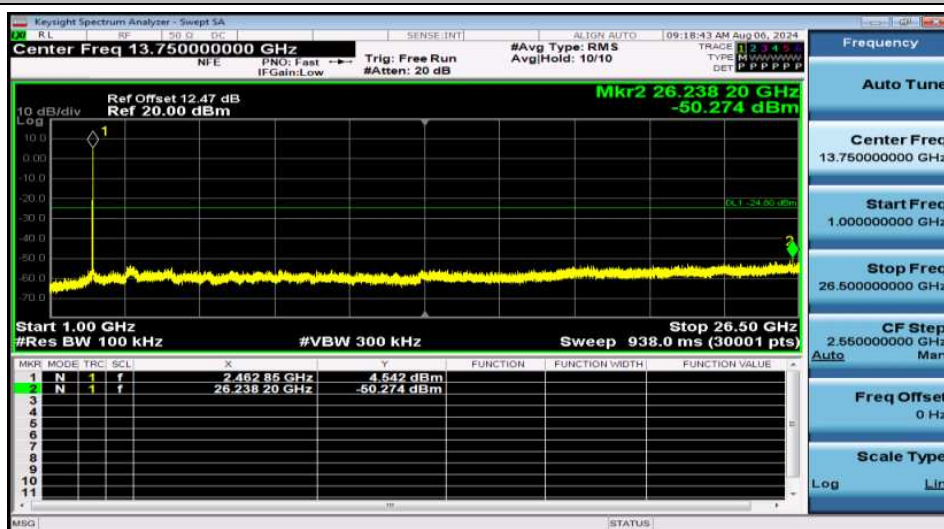
11B-Ant1-2437-1000~26500-PASS



11B-Ant1-2462-0~Reference-PASS



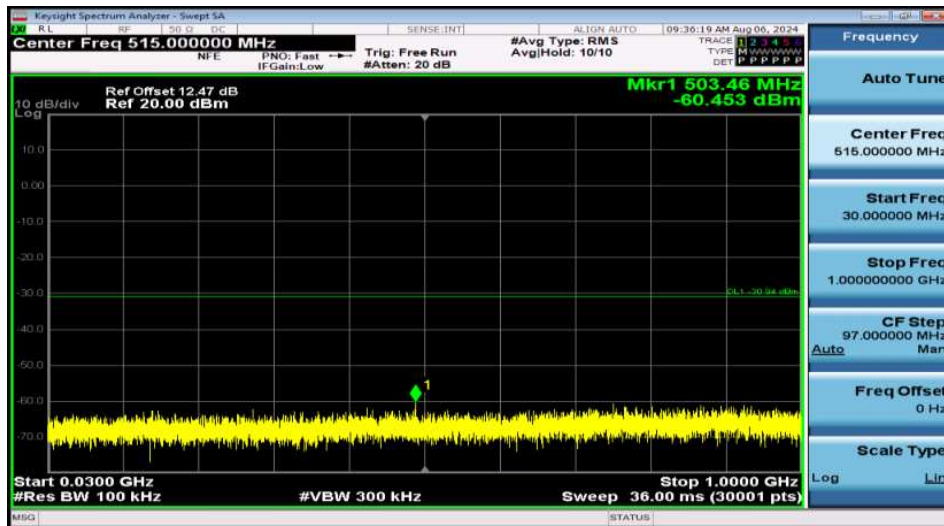
11B-Ant1-2462-30~1000-PASS



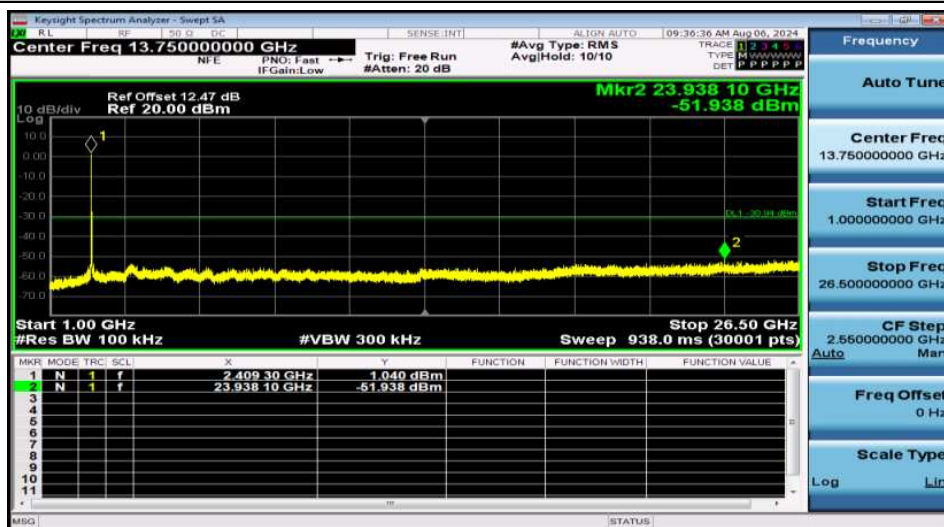
11B-Ant1-2462-1000~26500-PASS



11G-Ant1-2412-0~Reference-PASS



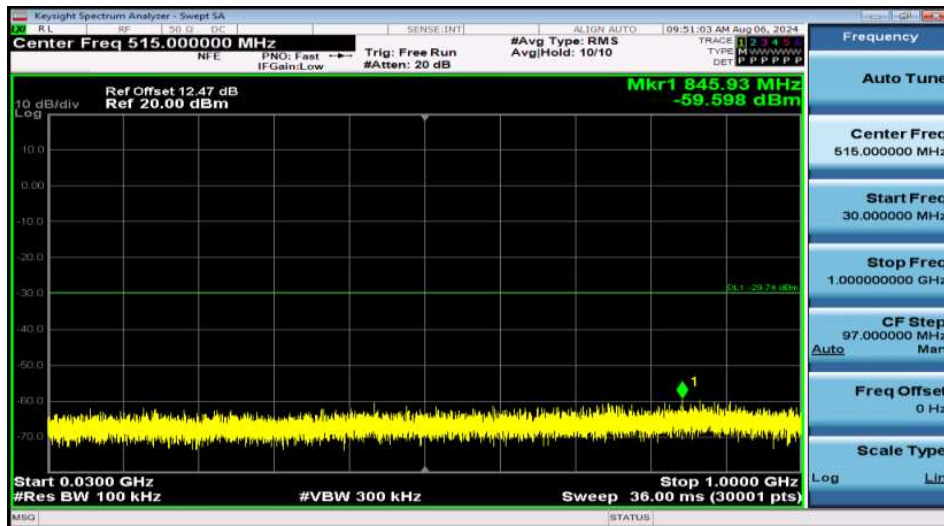
11G-Ant1-2412-30~1000-PASS



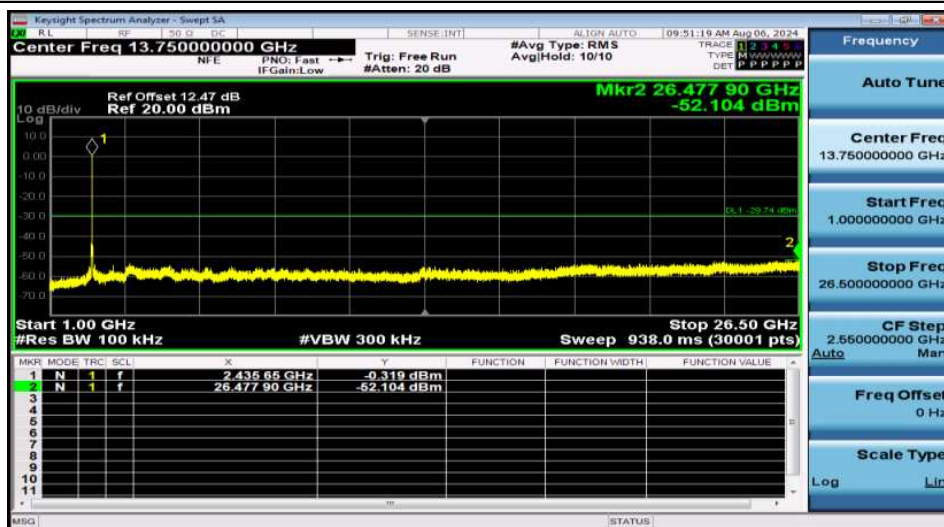
11G-Ant1-2412-1000~26500-PASS



11G-Ant1-2437-0~Reference-PASS



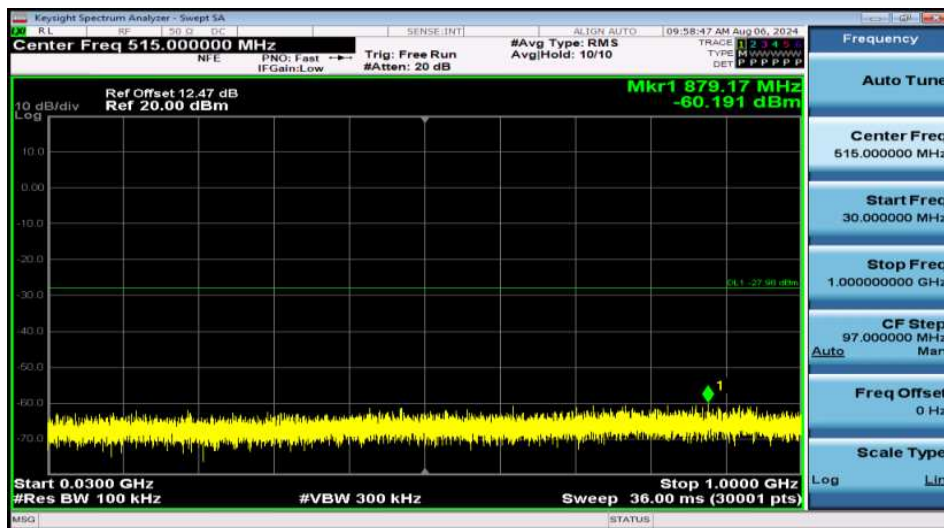
11G-Ant1-2437-30~1000-PASS



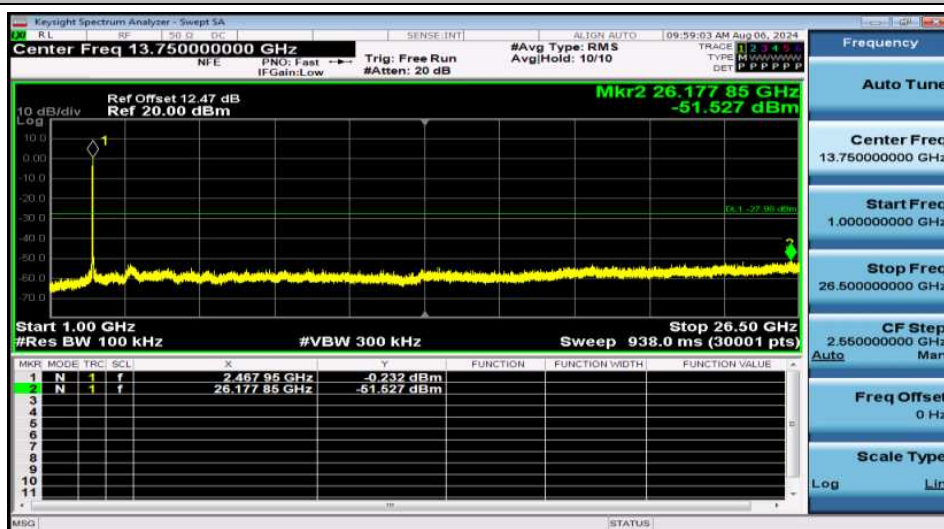
11G-Ant1-2437-1000~26500-PASS



11G-Ant1-2462-0~Reference-PASS



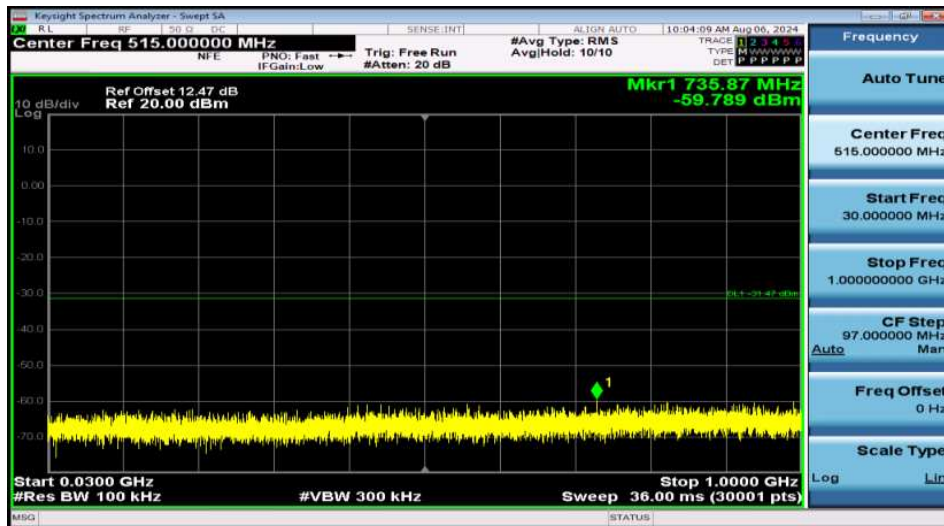
11G-Ant1-2462-30~1000-PASS



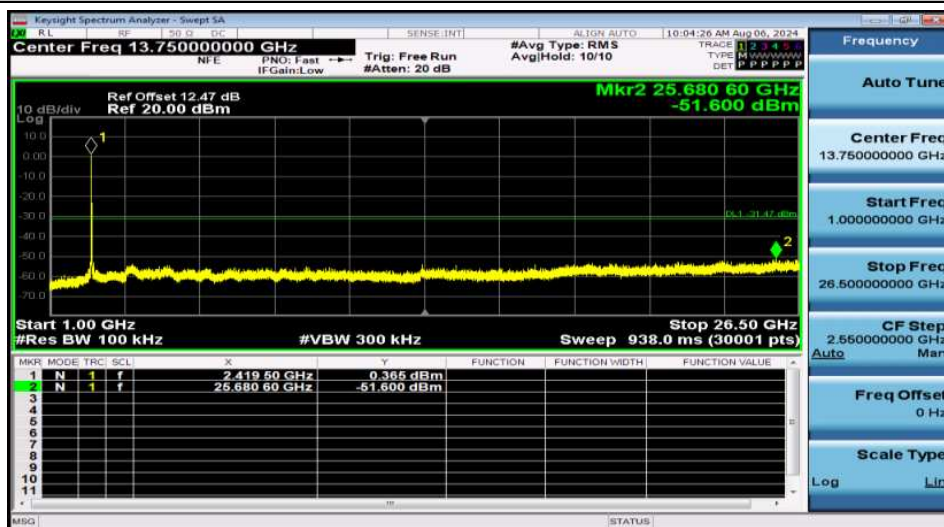
11G-Ant1-2462-1000~26500-PASS



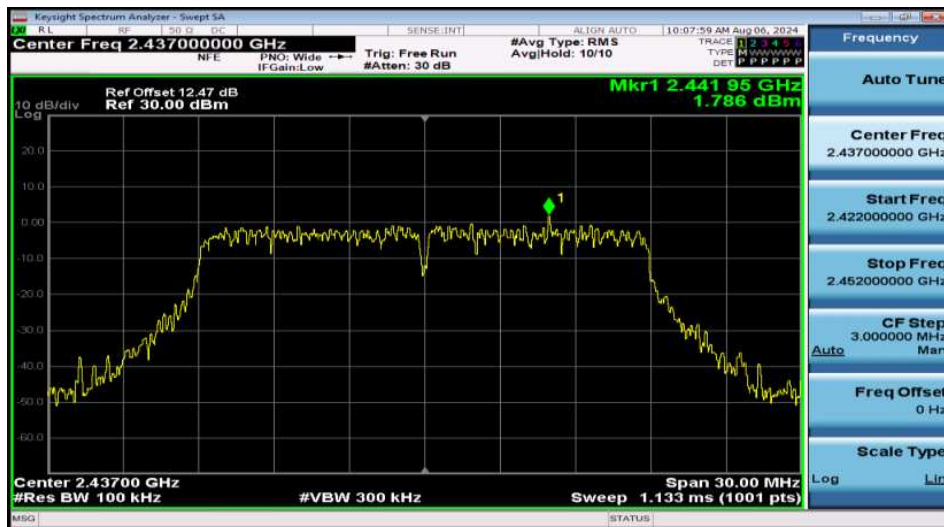
11N20SISO-Ant1-2412-0~Reference-PASS



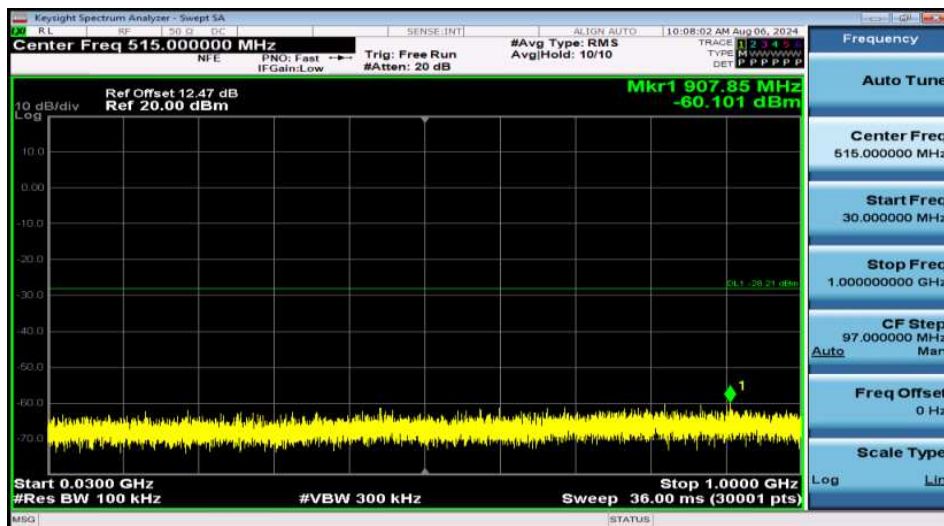
11N20SISO-Ant1-2412-30~1000-PASS



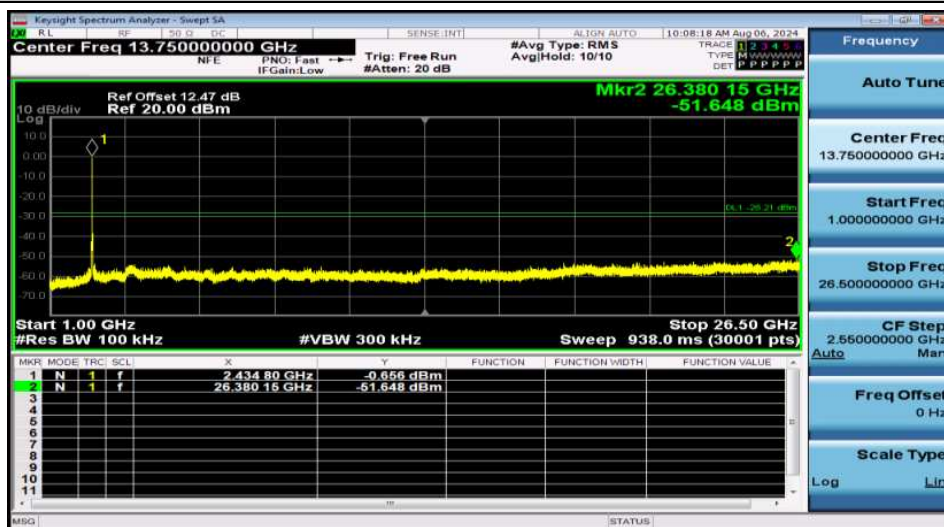
11N20SISO-Ant1-2412-1000~26500-PASS



11N20SISO-Ant1-2437-0~Reference-PASS



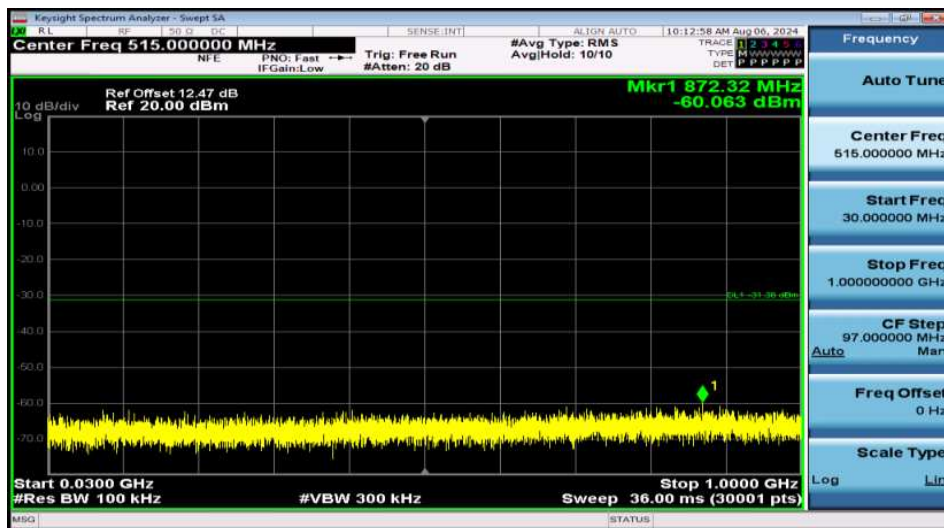
11N20SISO-Ant1-2437-30~1000-PASS



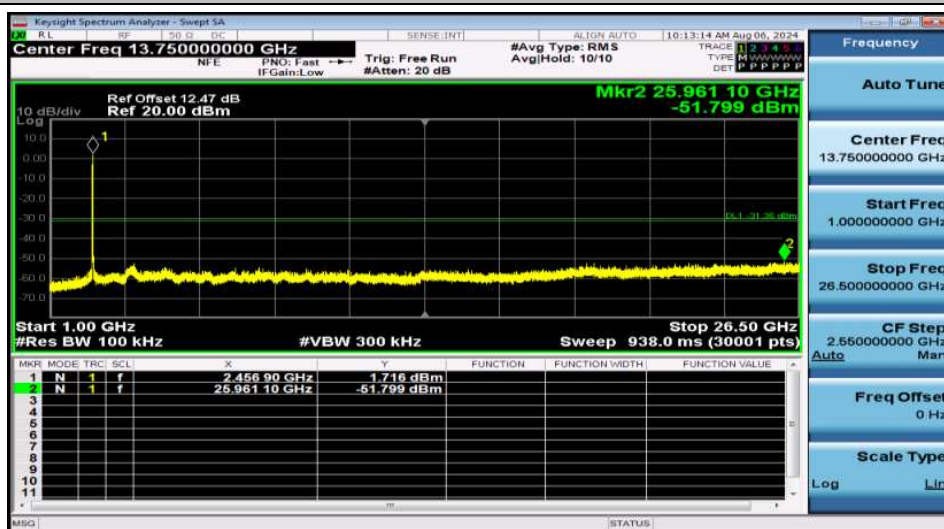
11N20SISO-Ant1-2437-1000~26500-PASS



11N20SISO-Ant1-2462-0~Reference-PASS



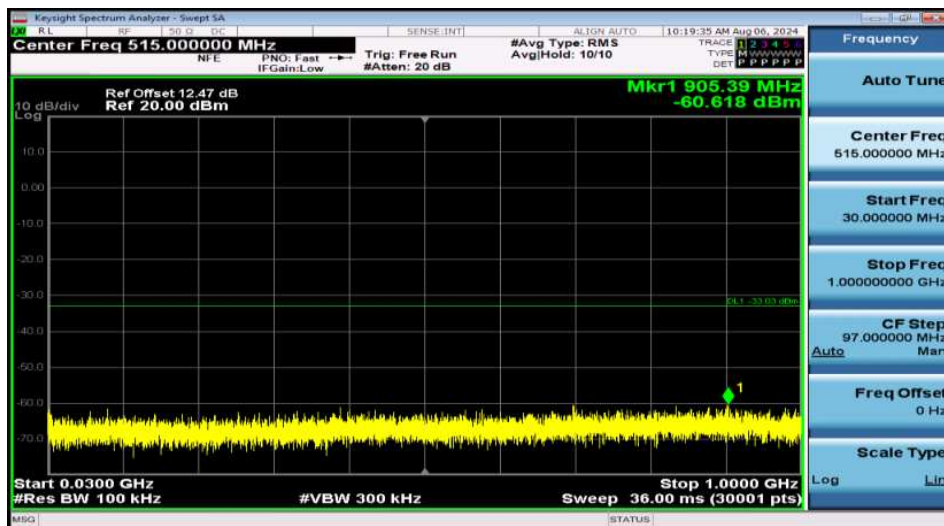
11N20SISO-Ant1-2462-30~1000-PASS



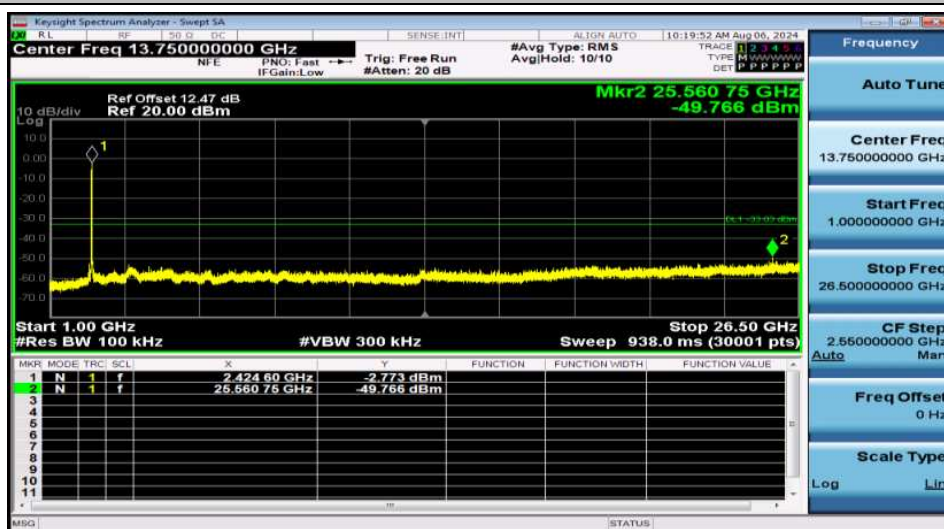
11N20SISO-Ant1-2462-1000~26500-PASS



11N40SISO-Ant1-2422-0~Reference-PASS



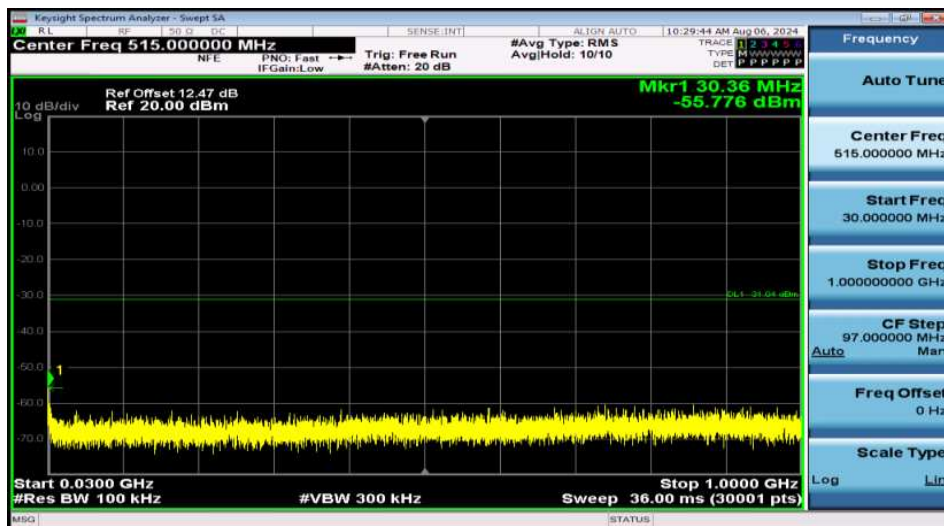
11N40SISO-Ant1-2422-30~1000-PASS



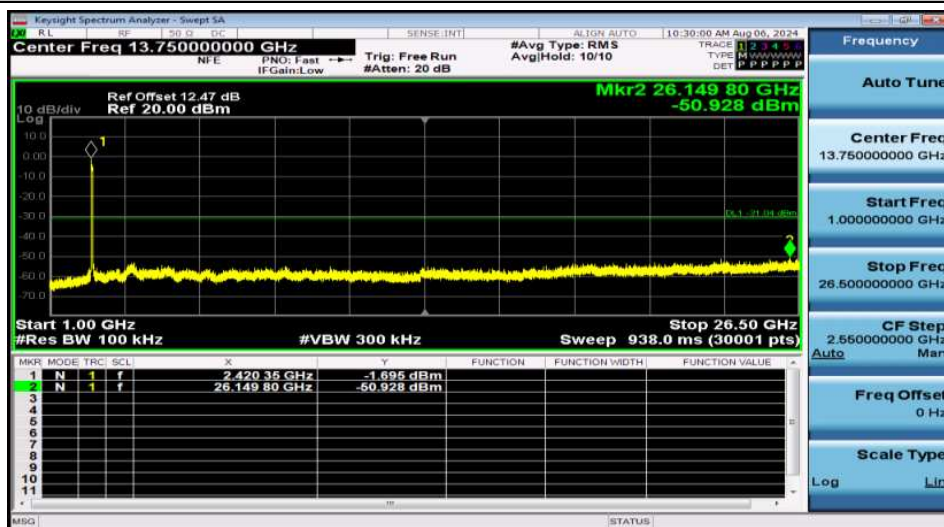
11N40SISO-Ant1-2422-1000~26500-PASS



11N40SISO-Ant1-2437-0~Reference-PASS



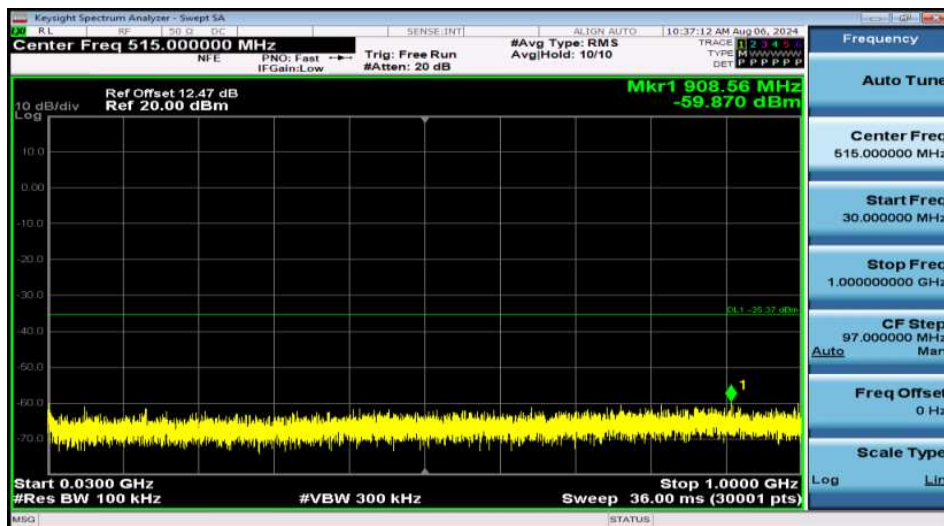
11N40SISO-Ant1-2437-30~1000-PASS



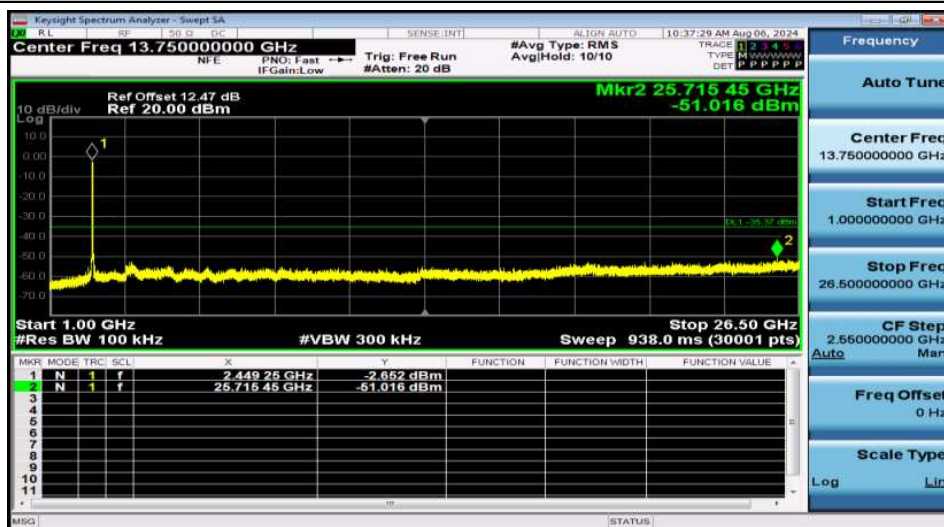
11N40SISO-Ant1-2437-1000~26500-PASS



11N40SISO-Ant1-2452-0~Reference-PASS



11N40SISO-Ant1-2452-30~1000-PASS



11N40SISO-Ant1-2452-1000~26500-PASS

Duty Cycle

Test Result

TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor
11B	Ant1	2412	12.40	12.52	99.04	0.04
11B	Ant1	2437	12.40	12.56	98.73	0.06
11B	Ant1	2462	24.88	24.96	99.68	0.01
11G	Ant1	2412	2.06	2.20	93.64	0.29
11G	Ant1	2437	2.06	2.24	91.96	0.36
11G	Ant1	2462	2.06	2.24	91.96	0.36
11N20SISO	Ant1	2412	1.92	2.08	92.31	0.35
11N20SISO	Ant1	2437	1.92	2.06	93.20	0.31
11N20SISO	Ant1	2462	1.92	2.08	92.31	0.35
11N40SISO	Ant1	2422	0.94	1.10	85.45	0.68
11N40SISO	Ant1	2437	0.94	1.10	85.45	0.68
11N40SISO	Ant1	2452	0.94	1.10	85.45	0.68

Keysight Spectrum Analyzer - Swept SA

Center Freq 2.412000000 GHz
Res BW 8 MHz
Span 0 Hz
Sweep 40.00 ms (1001 pts)

Ref Offset 12.47 dB
Ref 30.00 dBm

ΔMkr3 12.52 ms
-1.02 dB

MKR	MODE	TRC	SCL	X	F	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N				21.84 ms	17.91 dBm		
2	A1	1	t	(Δ)	12.40 ms	-0.95 dB		
3	A1	1	t	(Δ)	12.52 ms	-1.02 dB		

[illegible]

Keysight Spectrum Analyzer - Swept SA

Center Freq 2.462000000 GHz

Ref Offset 12.47 dB
Ref 30.00 dBm

Trig Delay 2.000 ms
Trig: Video
#Atten: 30 dB

#Avg Type: RMS

09:13:32 AM Aug 06, 2024

TRACE 1 2 3 4 5
TYPE WWWWWWW
DET P P P P P

10 dB/div
Log

20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0

2.462000000 GHz

ΔMkr3 24.96 ms
0.32 dB

3A1

Center 2.462000000 GHz
Res BW 8 MHz
#VBW 8.0 MHz
Sweep 40.00 ms (1001 pts)
Span 0 Hz

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	8.600 ms	17.25 dBm			
2	Δ1	1	f (Δ)	24.88 ms (Δ)	1.20 dB			
3	Δ1	1	f (Δ)	24.96 ms (Δ)	0.32 dB			
4								
5								
6								
7								
8								
9								
10								
11								

Frequency

Auto Tune

Center Freq
2.462000000 GHz

Start Freq
2.462000000 GHz

Stop Freq
2.462000000 GHz

CF Step
8.000000 MHz
Man

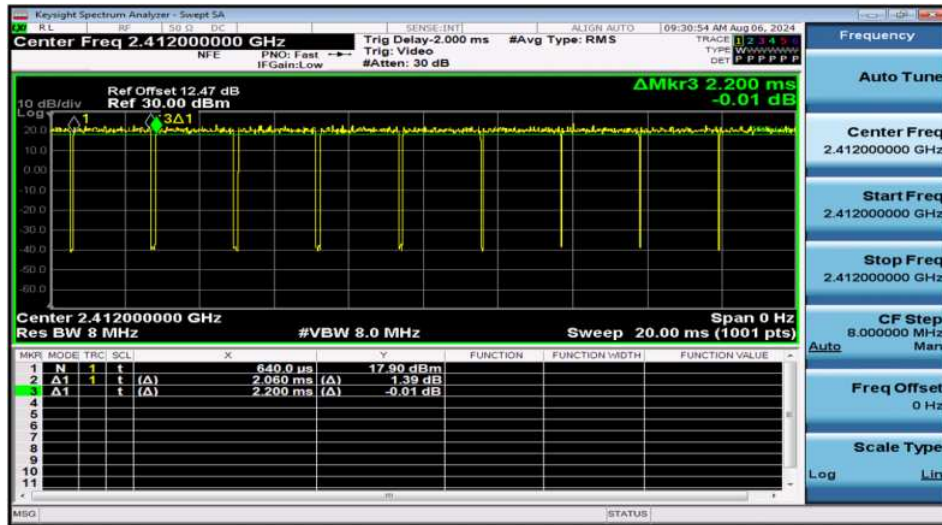
Freq Offset
0 Hz

Scale Type
Log Lin

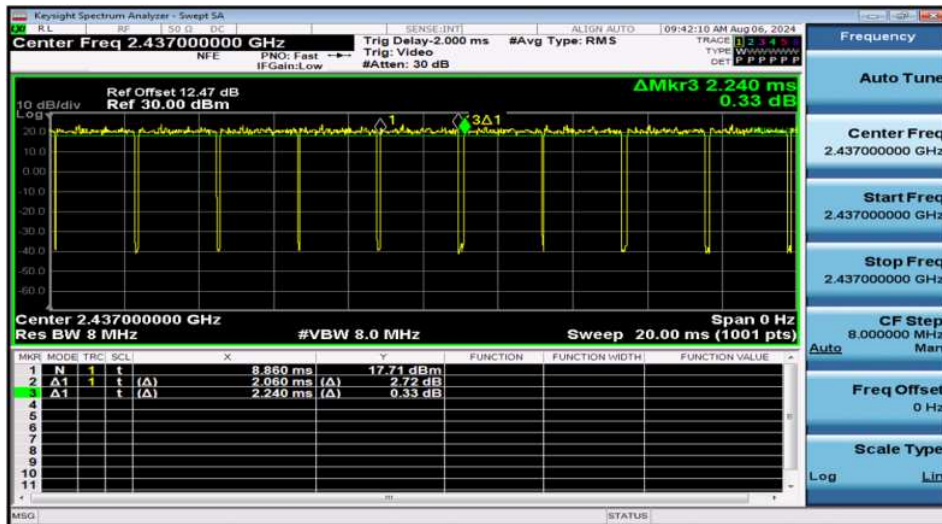
Log Lin

STATUS

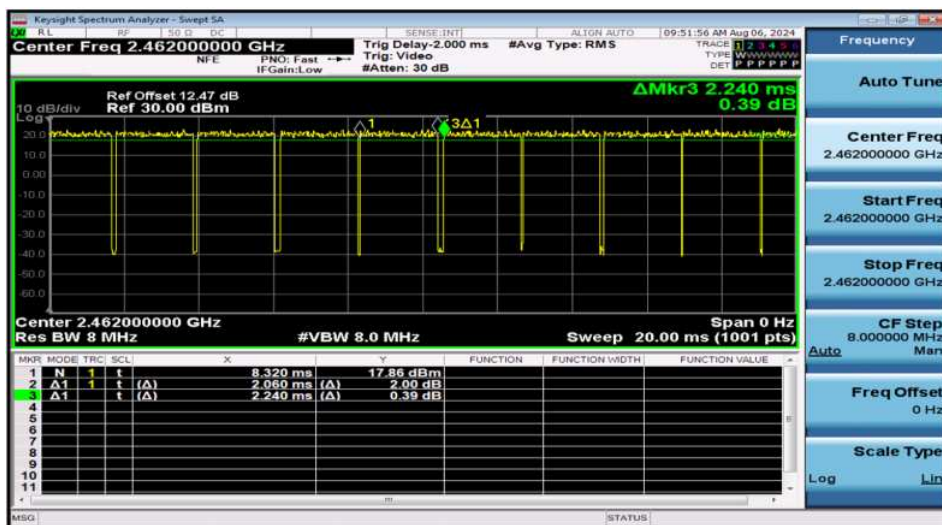
NTNV-11B-Ant1-2462



NTNV-11G-Ant1-2412



NTNV-11G-Ant1-2437



NTNV-11G-Ant1-2462