



Appendix C

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Laser Projection TV

Test Model: MaxAngel M1

Environmental Conditions

Temperature:	22.7℃
Relative Humidity:	53.8%
ATM Pressure:	100.0 kPa
Test Engineer:	 Bill Zhu
Supervised by:	 Li Huan



C.1 DTS Bandwidth

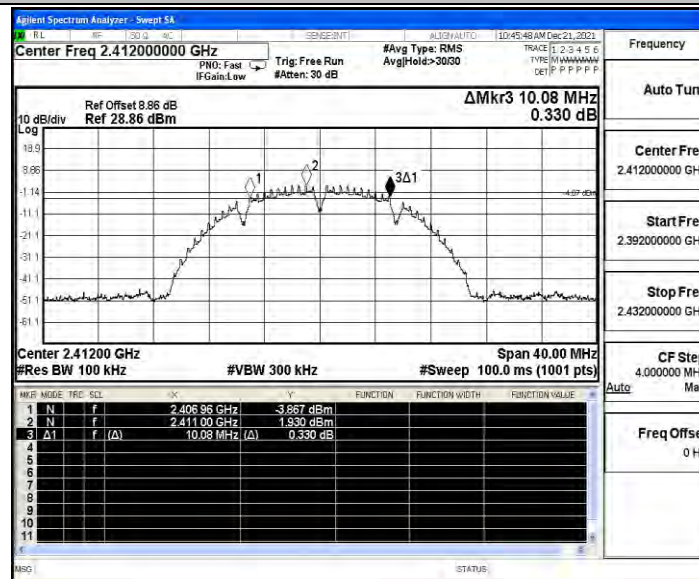
Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant0	2412	10.080	2406.960	2417.040	0.5	PASS
		2437	10.040	2432.000	2442.040	0.5	PASS
		2462	9.560	2456.960	2466.520	0.5	PASS
11G	Ant0	2412	16.320	2403.840	2420.160	0.5	PASS
		2437	16.040	2429.120	2445.160	0.5	PASS
		2462	15.760	2453.800	2469.560	0.5	PASS
11N20SISO	Ant0	2412	17.600	2403.200	2420.800	0.5	PASS
		2437	17.320	2428.480	2445.800	0.5	PASS
		2462	16.360	2453.200	2469.560	0.5	PASS
11N40SISO	Ant0	2422	35.680	2404.480	2440.160	0.5	PASS
		2437	35.600	2419.480	2455.080	0.5	PASS
		2452	32.480	2434.480	2466.960	0.5	PASS

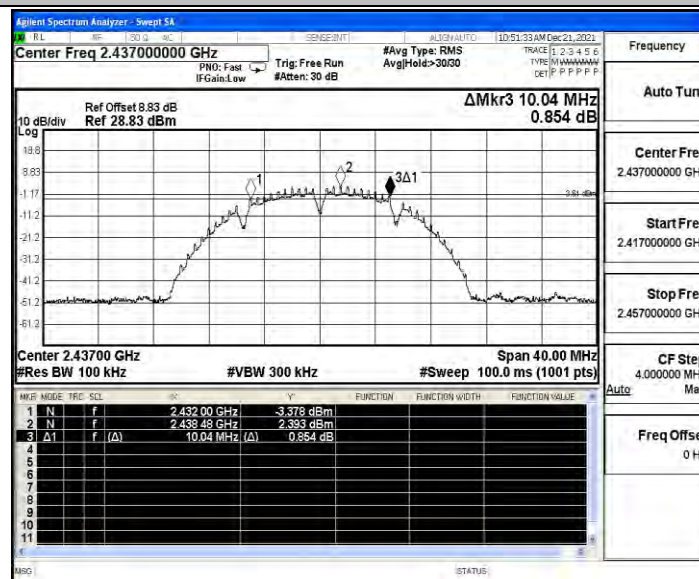


Test Graphs

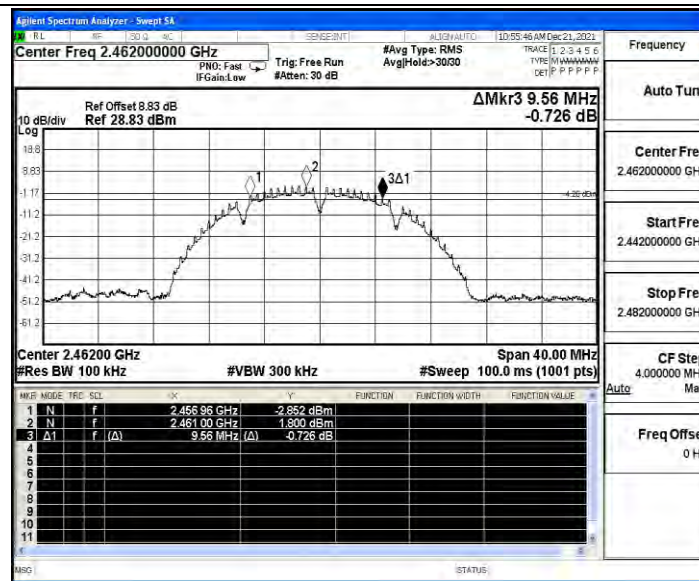
11B_Ant0_2412



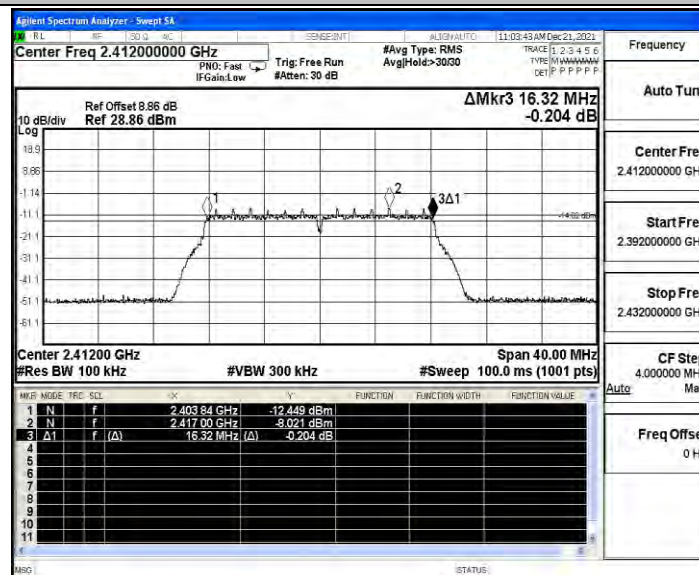
11B_Ant0_2437



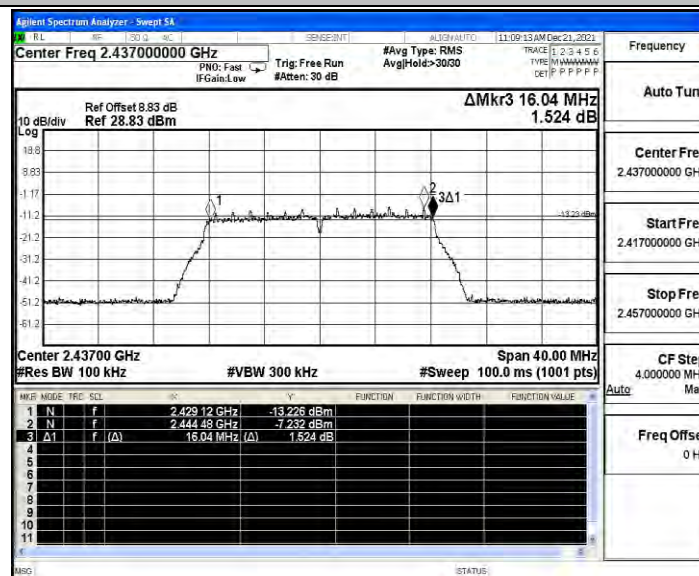
11B_Ant0_2462



11G_Ant0_2412

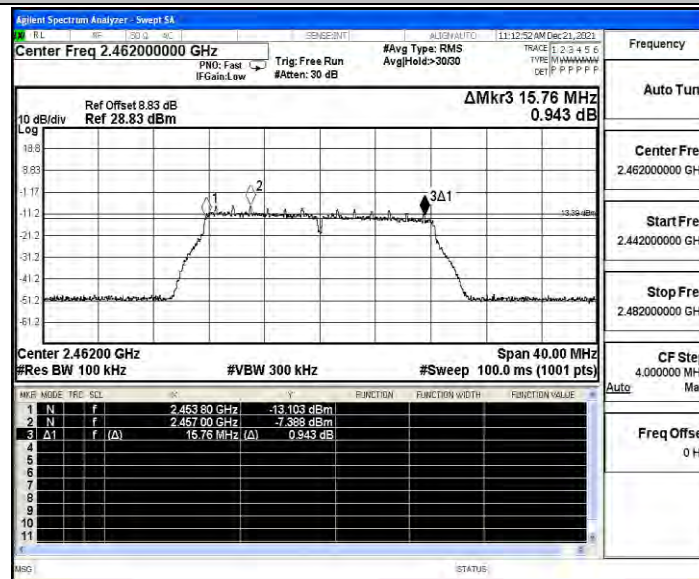


11G_Ant0_2437

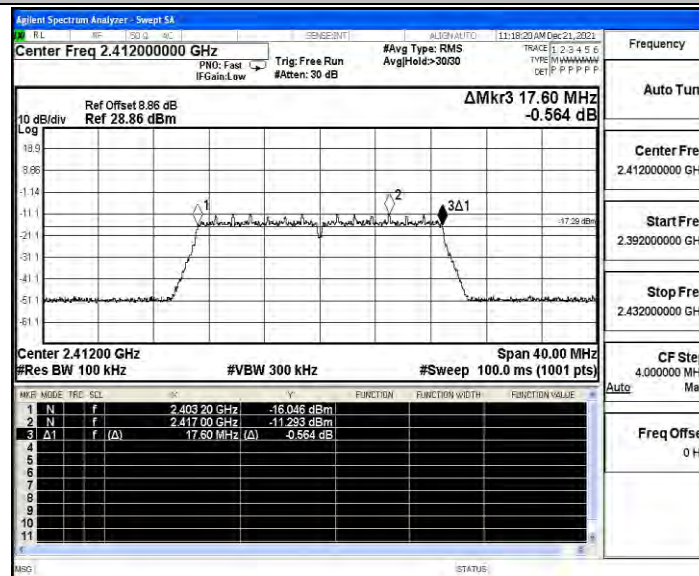




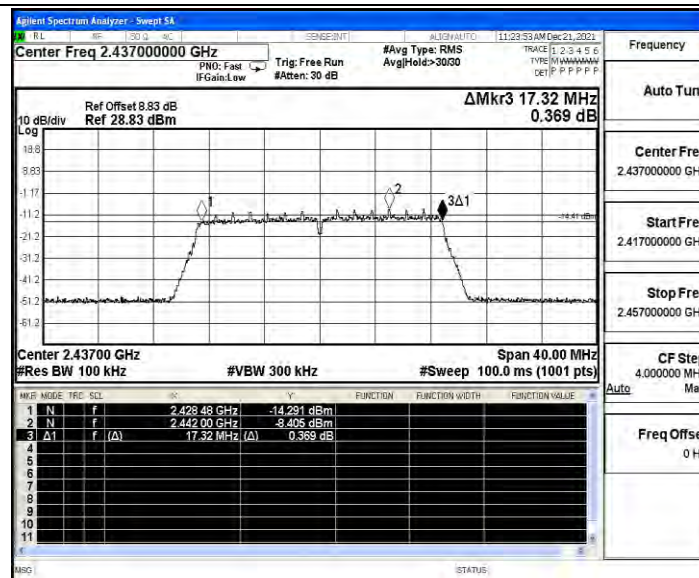
11G_Ant0_2462



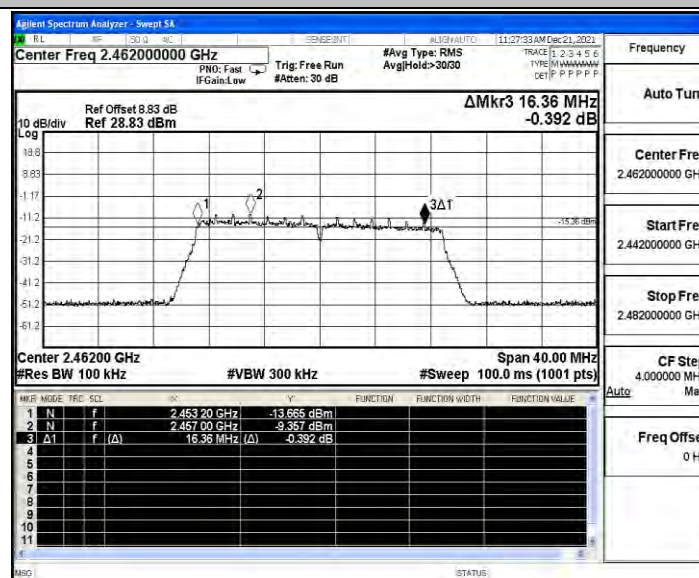
11N20SISO_Ant0_2412



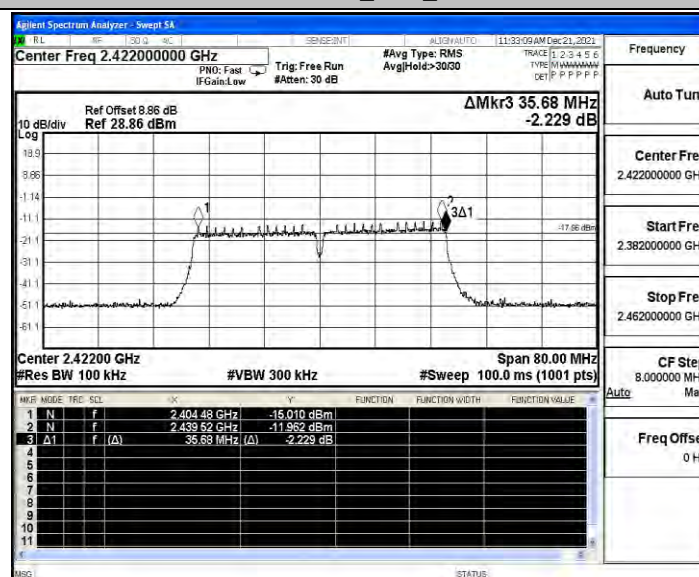
11N20SISO_Ant0_2437



11N20SISO_Ant0_2462

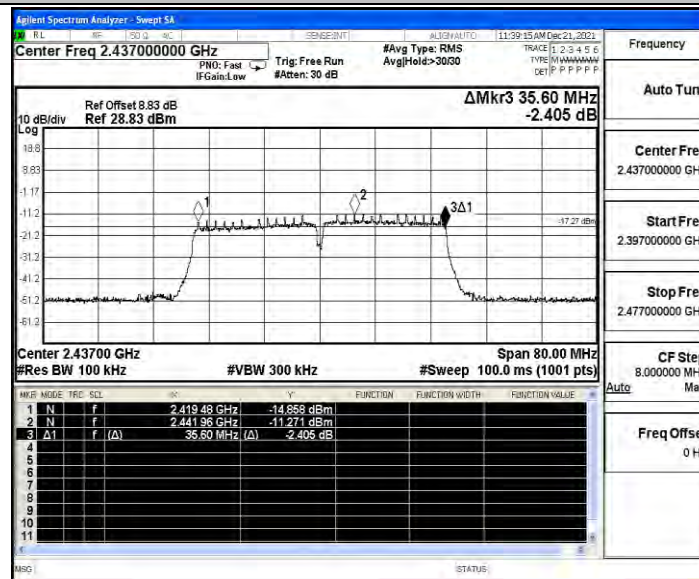


11N40SISO_Ant0_2422

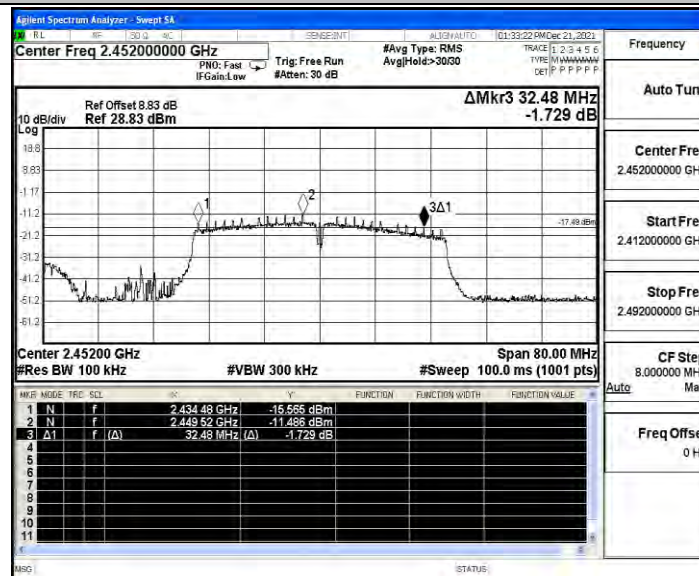




11N40SISO_Ant0_2437



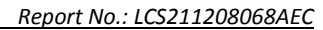
11N40SISO_Ant0_2452



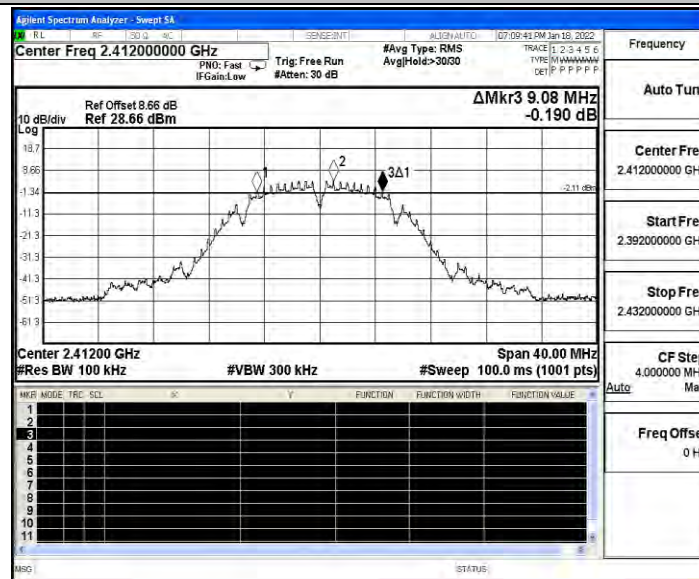


Test Result

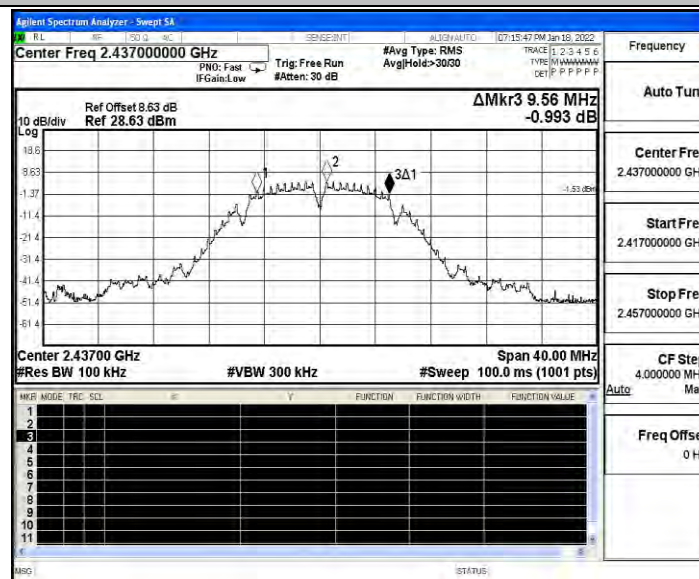
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.080	2407.440	2416.520	0.5	PASS
		2437	9.560	2432.440	2442.000	0.5	PASS
		2462	10.000	2456.960	2466.960	0.5	PASS
11G	Ant1	2412	16.360	2403.800	2420.160	0.5	PASS
		2437	16.360	2428.800	2445.160	0.5	PASS
		2462	16.360	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
11N40SISO	Ant1	2422	36.080	2404.080	2440.160	0.5	PASS
		2437	35.920	2419.240	2455.160	0.5	PASS
		2452	36.000	2434.080	2470.080	0.5	PASS



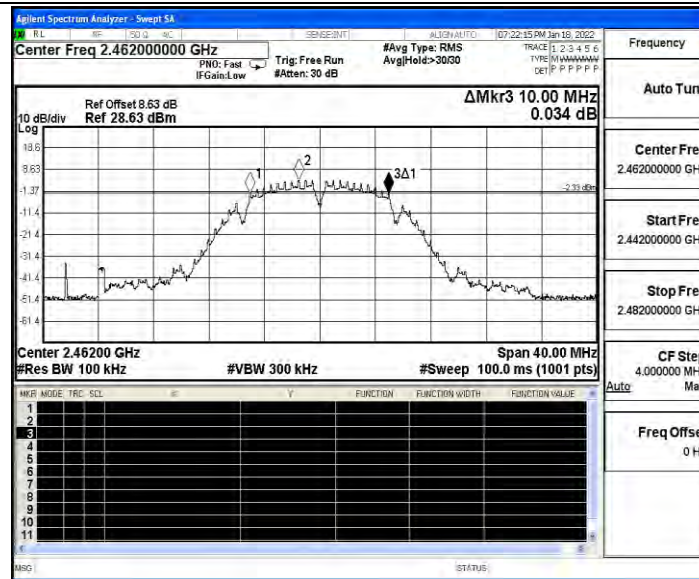
11B_Ant1_2412



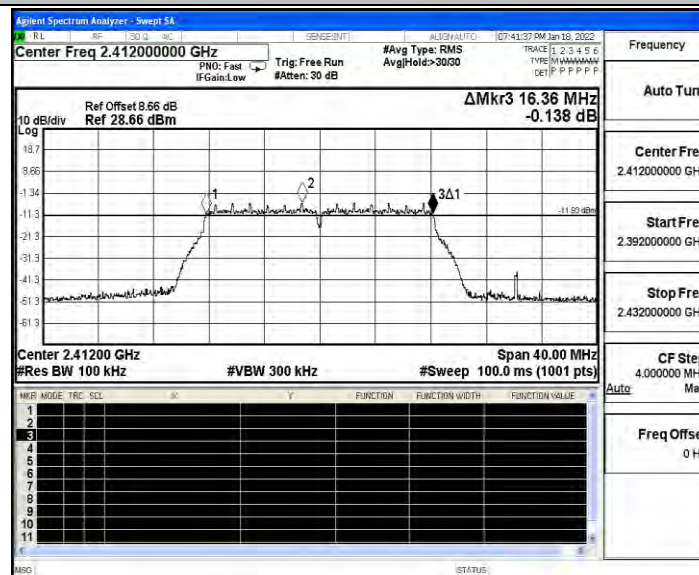
11B_Ant1_2437



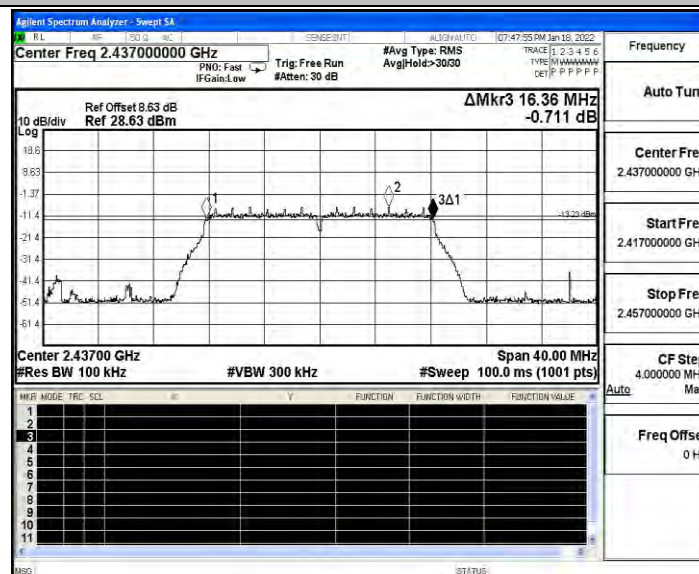
11B_Ant1_2462

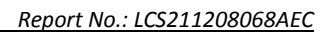


11G_Ant1_2412



11G_Ant1_2437





Agilent Spectrum Analyzer - Sweep SA

Center Freq 2.462000000 GHz

Span 40.00 MHz

Res BW 100 kHz

VBW 300 kHz

Sweep 100.0 ms (1001 pts)

Ref Offset 8.63 dB

Ref 28.63 dBm

DMkr3 16.36 MHz

-0.676 dB

1

2

341

11.13 dBm

10 dB/div

Log

13.0

9.63

-1.37

-11.4

-21.4

-31.4

-41.4

-51.4

-61.4

Center 2.462000 GHz

#Res BW 100 kHz

#VBW 300 kHz

#Sweep 100.0 ms (1001 pts)

Span 40.00 MHz

Auto

CF Ste

4.000000 MHz

Auto

Freq Offs

0 Hz

Agilent Spectrum Analyzer - Sweep SA

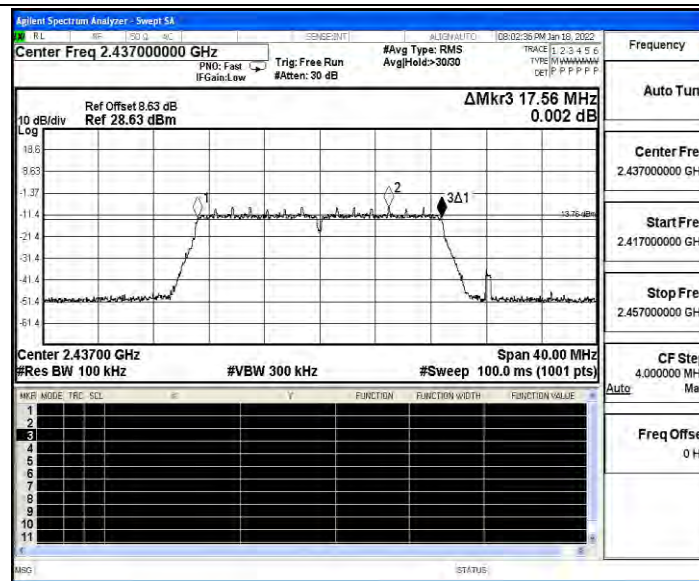
Center 2.412000000 GHz

DMkr3 17.56 MHz
-0.237 dB

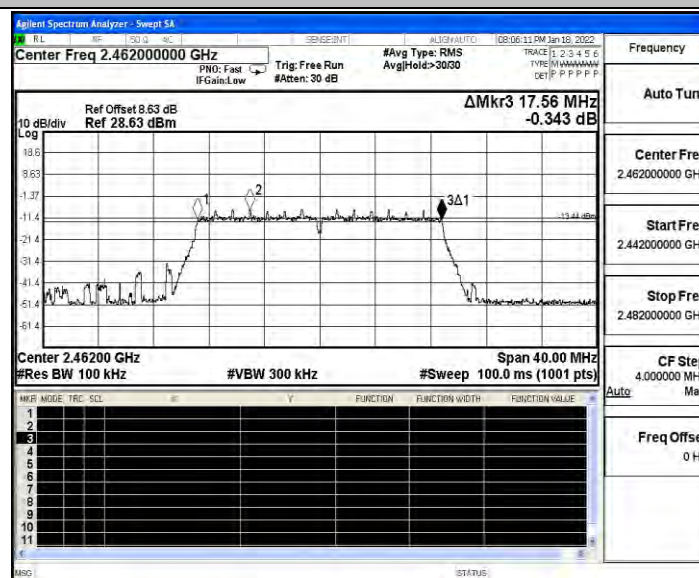
Ref Offset 8.66 dB
Ref 28.66 dBm

Center 2.41200 GHz
Span 40.00 MHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 100.0 ms (1001 pts)

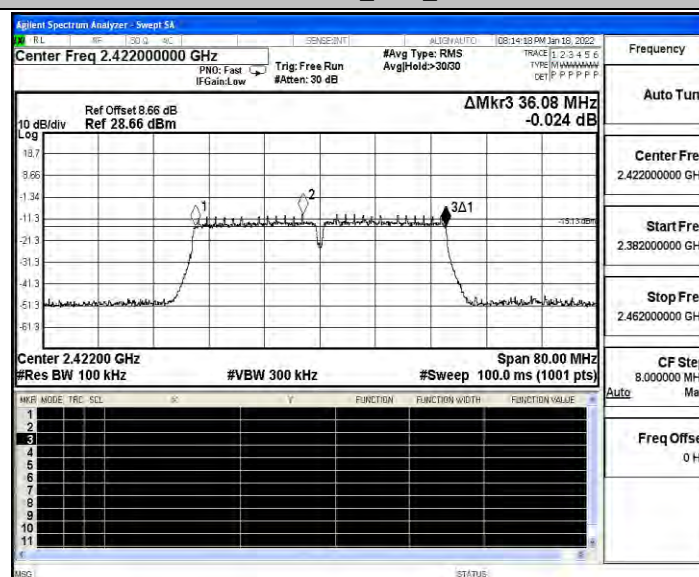
11 / 97

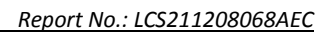


11N20SISO_Ant1_2462



11N40SISO_Ant1_2422



[illegible]

Agilent Spectrum Analyzer - Sweep SA

Center Freq 2.452000000 GHz

Ref Offset 8.53 dB
Ref 28.63 dBm

Trig: Free Run
#Atten: 30 dB

#Avg Type: RMS
Avg/Hold>3000

DATE: 2013 Jan 18, 2022
TIME: 12:34:55
TYPE: M W W W W W W W W W
DET: P P P P P P P P

Frequency

Auto Tun

Center Freq
2.452000000 GHz

Start Freq
2.412000000 GHz

Stop Freq
2.492000000 GHz

CF Ste
8.0000000 MHz

Auto

Freq Offset
0 Hz

10 dB/div

Log

ΔMkr3 36.00 MHz
0.109 dB

1

2

3Δ1

-17.82 dBm

Center 2.45200 GHz

Span 80.00 MHz

#Res BW 100 kHz

#VBW 300 kHz

#Sweep 100.0 ms (1001 pts)

MUR	MODE	TRC	SCN	IF	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

MMS

STATUS



C.2 Maximum peak conducted output power

Test Result

TestMode	Channel	Result[dBm]			Limit[dBm]	Verdict
		Ant 0	Ant 1	MIMO		
11B	2412	14.09	15.80	/	≤30.00	PASS
	2437	14.16	15.78	/	≤30.00	PASS
	2462	13.78	15.54	/	≤30.00	PASS
11G	2412	11.43	12.05	/	≤30.00	PASS
	2437	11.61	12.17	/	≤30.00	PASS
	2462	11.13	12.48	/	≤30.00	PASS
11N20SISO	2412	8.25	11.30	13.05	≤30.00	PASS
	2437	10.51	11.65	14.13	≤30.00	PASS
	2462	9.23	11.57	13.57	≤30.00	PASS
11N40SISO	2422	9.29	10.54	12.97	≤30.00	PASS
	2437	10.52	10.00	13.28	≤30.00	PASS
	2452	9.21	10.35	12.83	≤30.00	PASS



C.3 Maximum power spectral density

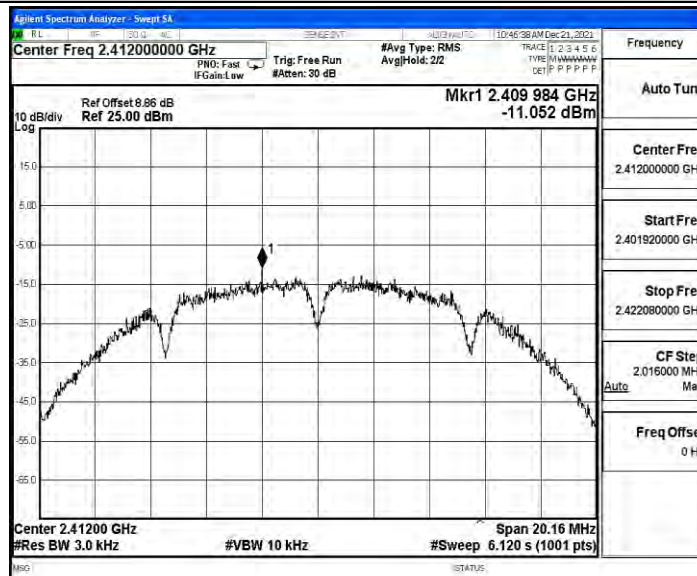
Test Result

TestMode	Channel	Result[dBm/3-100kHz]			Limit[dBm/3kHz]	Verdict
		Ant 0	Ant 1	MIMO		
11B	2412	-11.05	-10.44	/	≤8.00	PASS
	2437	-10.85	-10.07	/	≤8.00	PASS
	2462	-8.12	-2.88	/	≤8.00	PASS
11G	2412	-22.3	-21.05	/	≤8.00	PASS
	2437	-22.23	-21.69	/	≤8.00	PASS
	2462	-21.93	-20.97	/	≤8.00	PASS
11N20SISO	2412	-25.78	-22.9	-21.10	≤7.94	PASS
	2437	-23.15	-22.7	-19.91	≤7.94	PASS
	2462	-24.26	-21.72	-19.80	≤7.94	PASS
11N40SISO	2422	-27.1	-25.33	-23.12	≤7.94	PASS
	2437	-23.56	-26.2	-21.67	≤7.94	PASS
	2452	-17.95	-25.65	-17.27	≤7.94	PASS

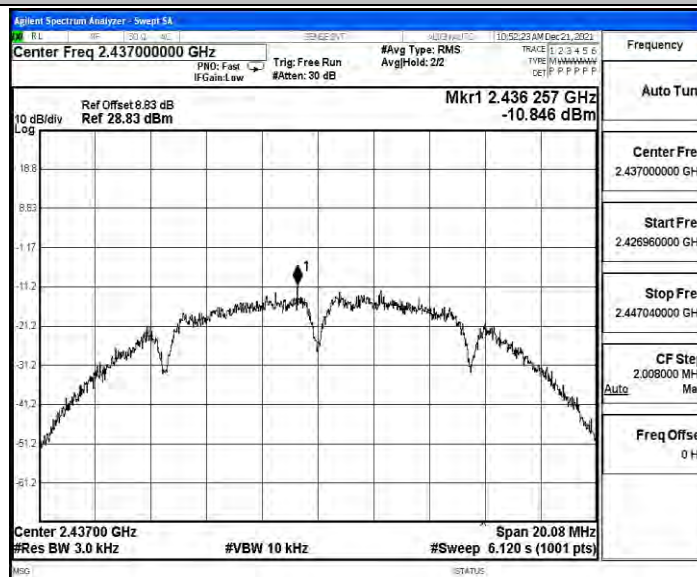


Test Graphs

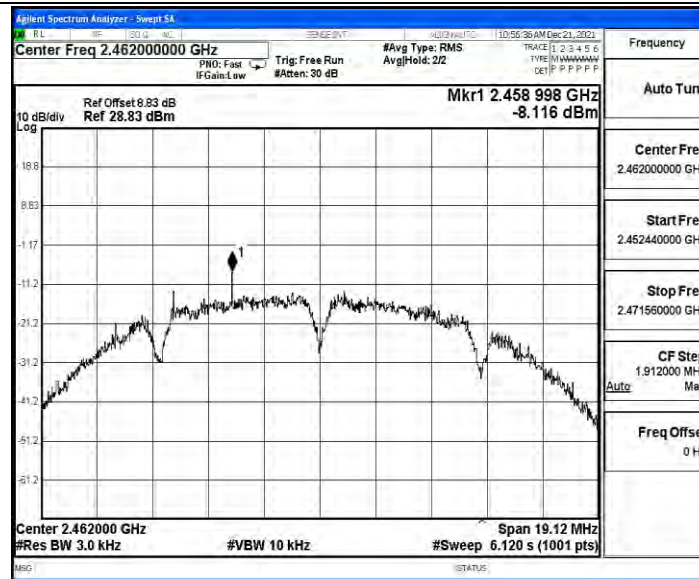
11B_Ant0_2412



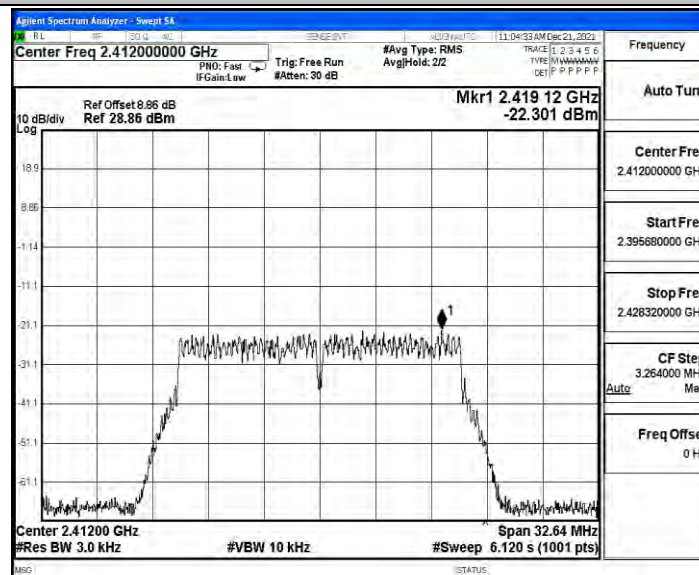
11B_Ant0_2437



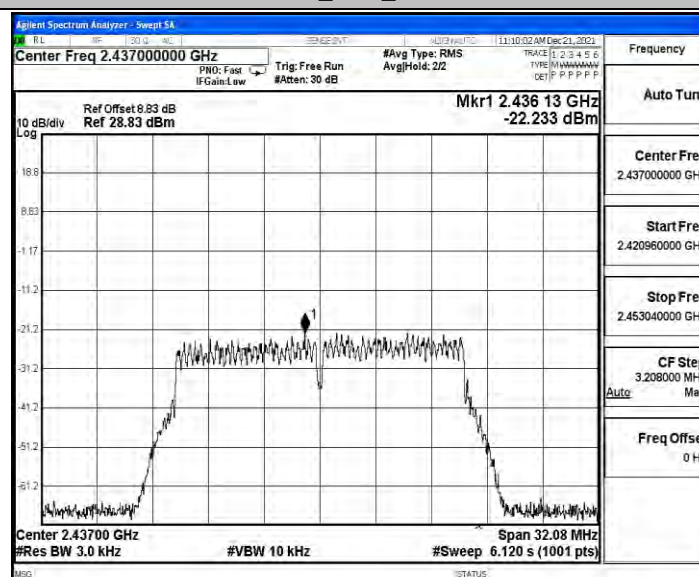
11B_Ant0_2462



11G_Ant0_2412

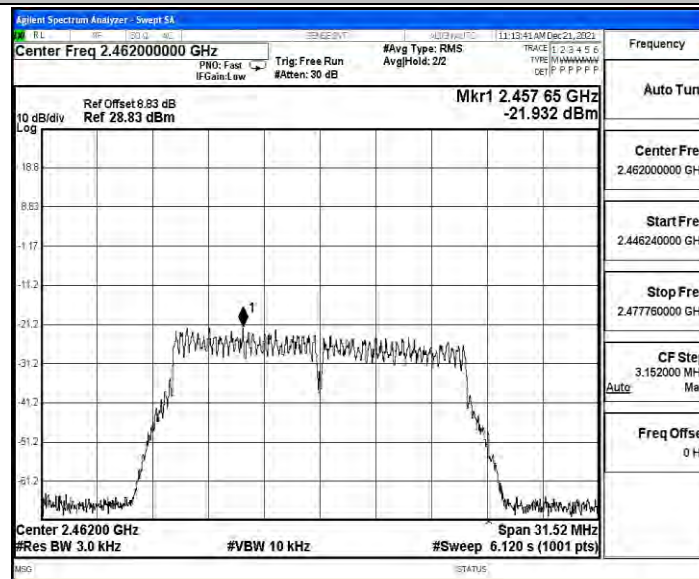


11G_Ant0_2437

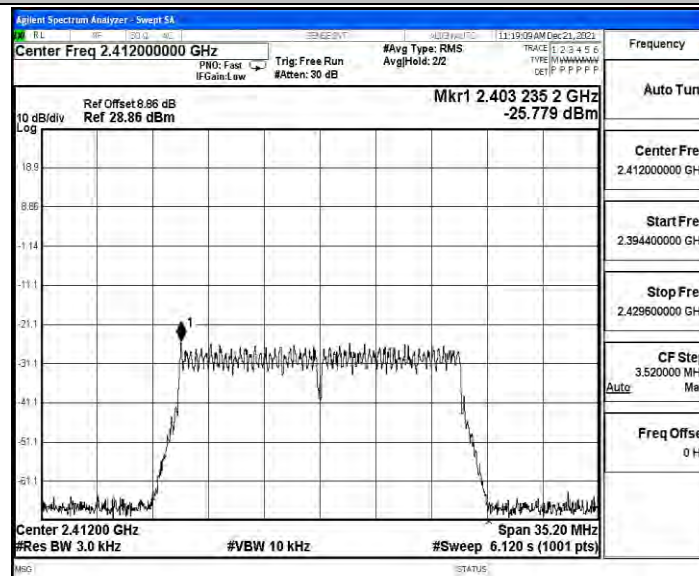




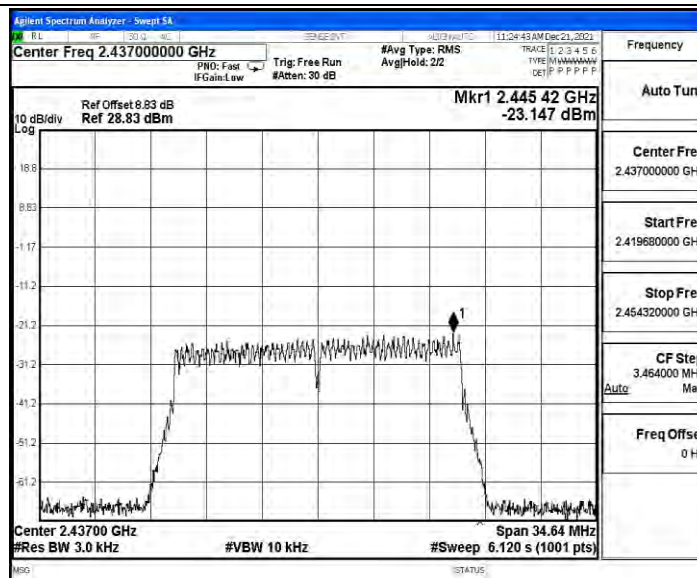
11G_Ant0_2462



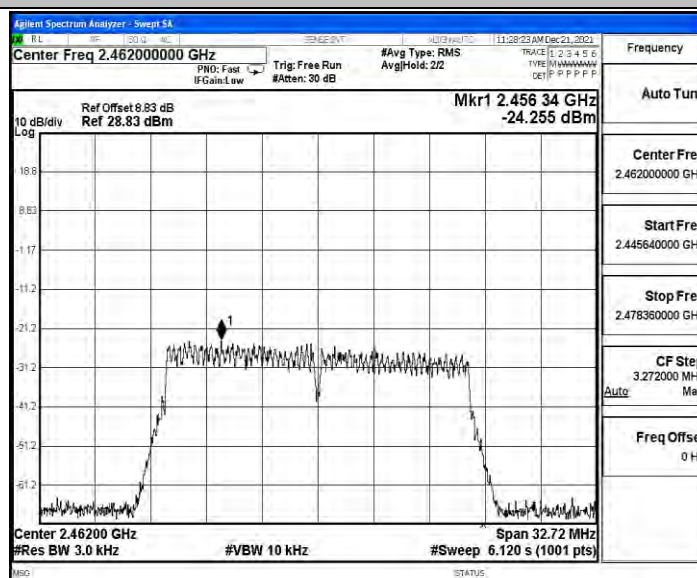
11N20SISO_Ant0_2412



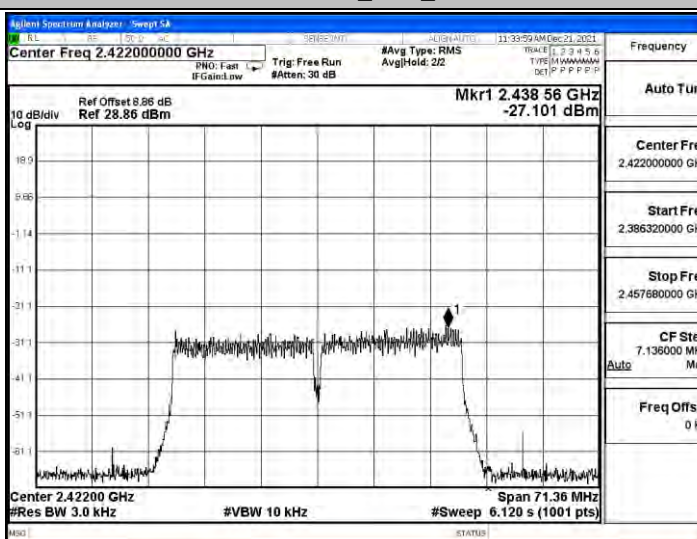
11N20SISO_Ant0_2437



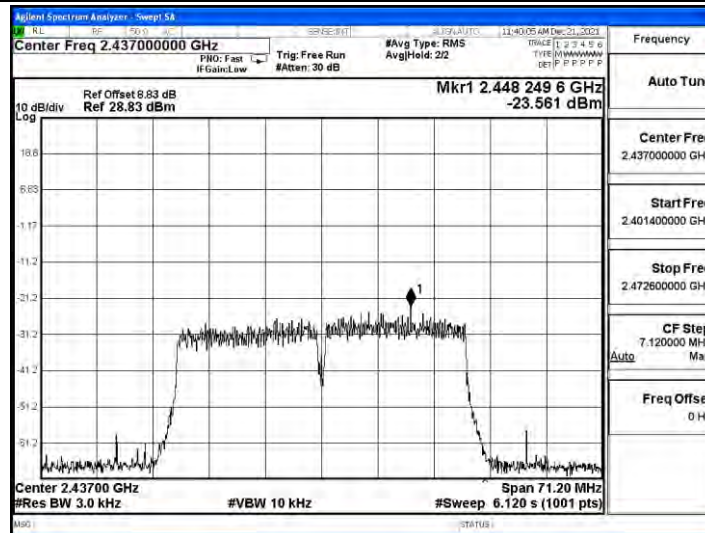
11N20SISO_Ant0_2462



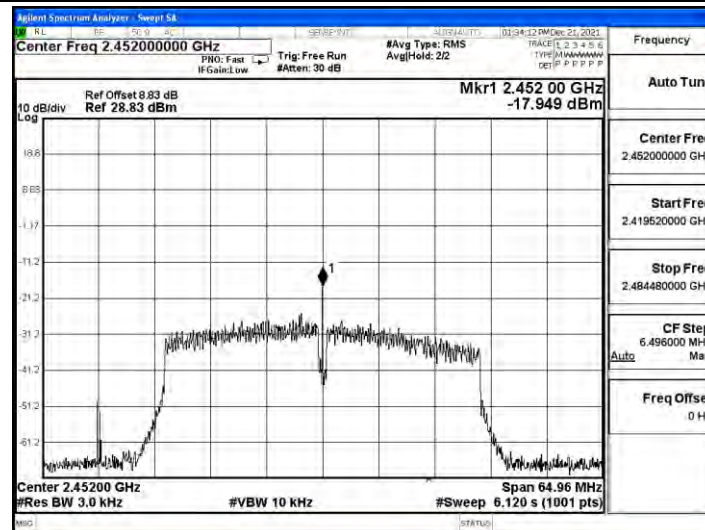
11N40SISO_Ant0_2422



11N40SISO_Ant0_2437



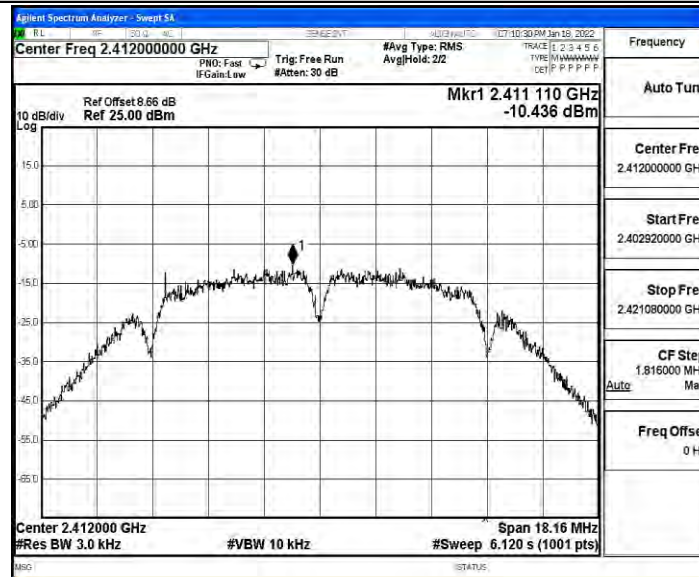
11N40SISO_Ant0_2452



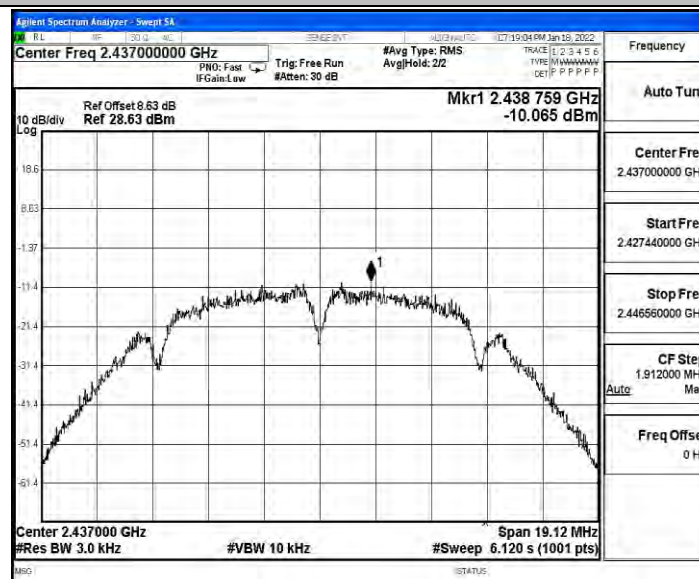


Test Graphs

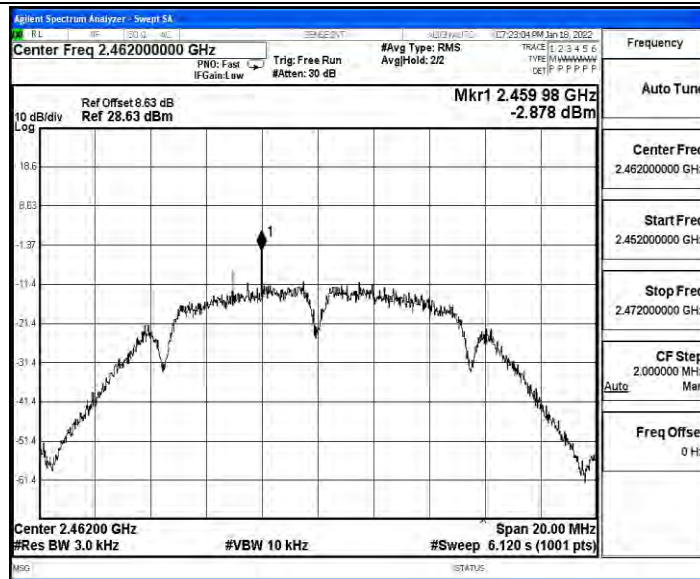
11B_Ant1_2412



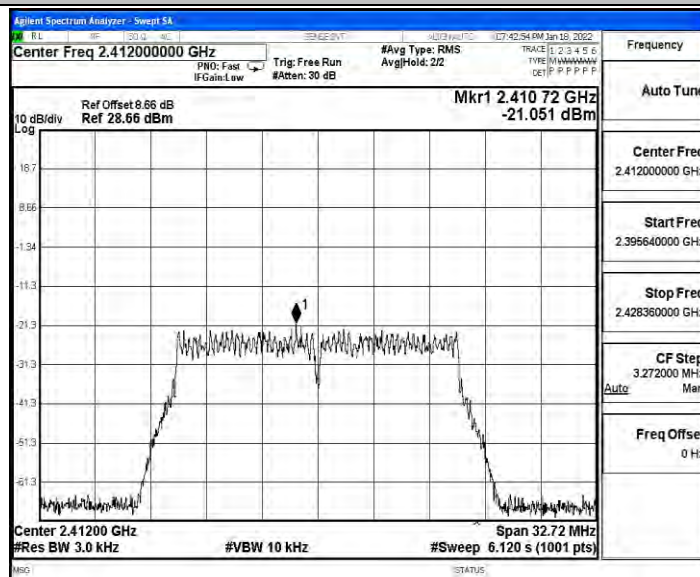
11B_Ant1_2437



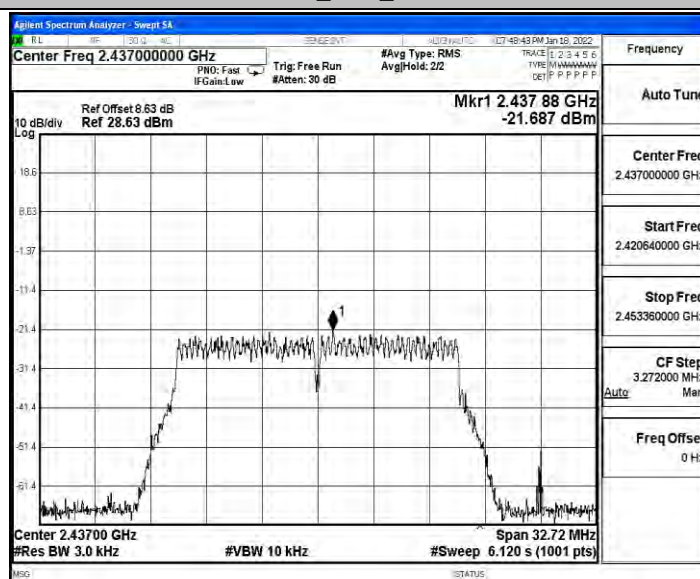
11B_Ant1_2462



11G_Ant1_2412

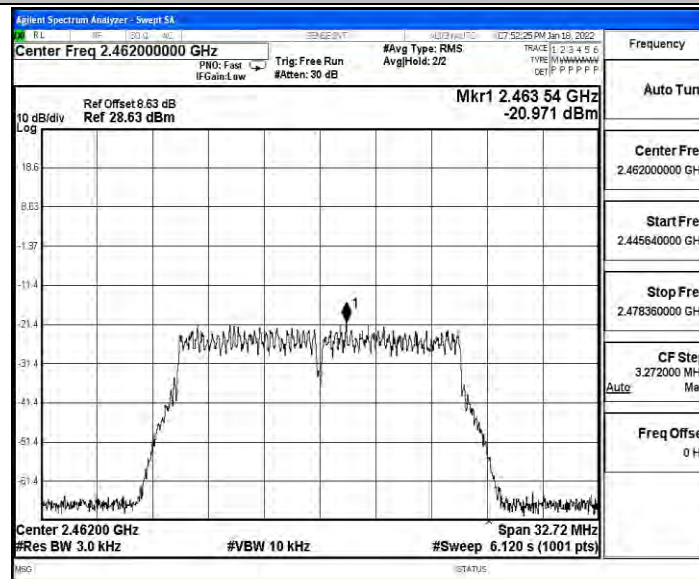


11G_Ant1_2437

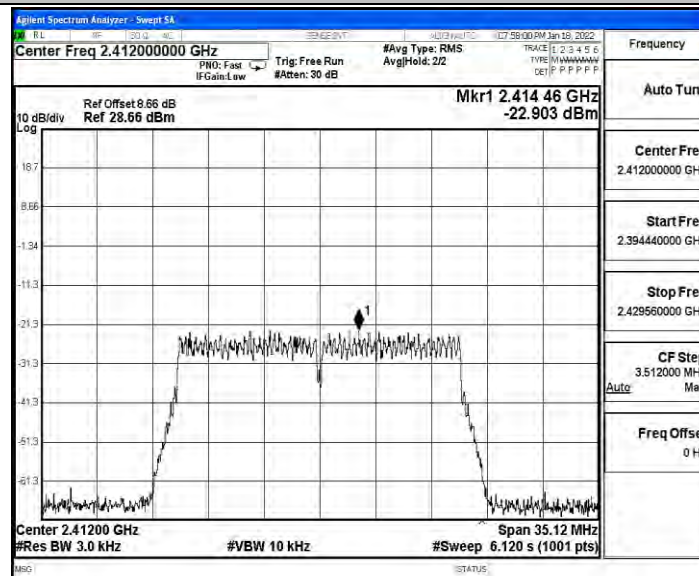




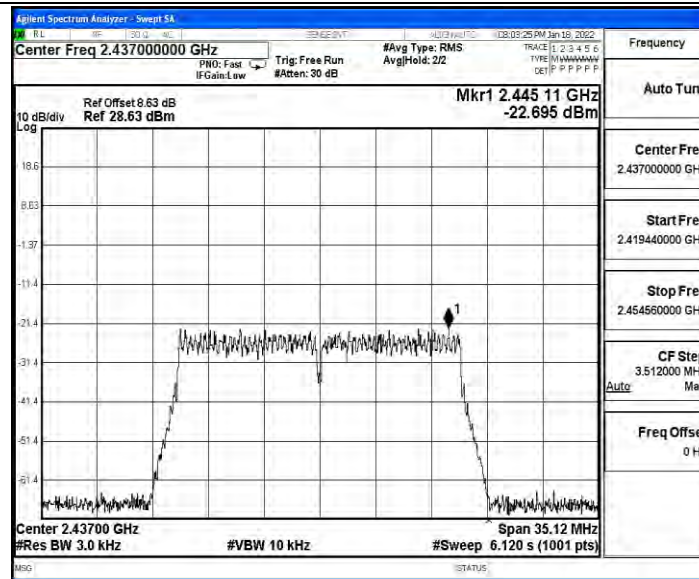
11G_Ant1_2462



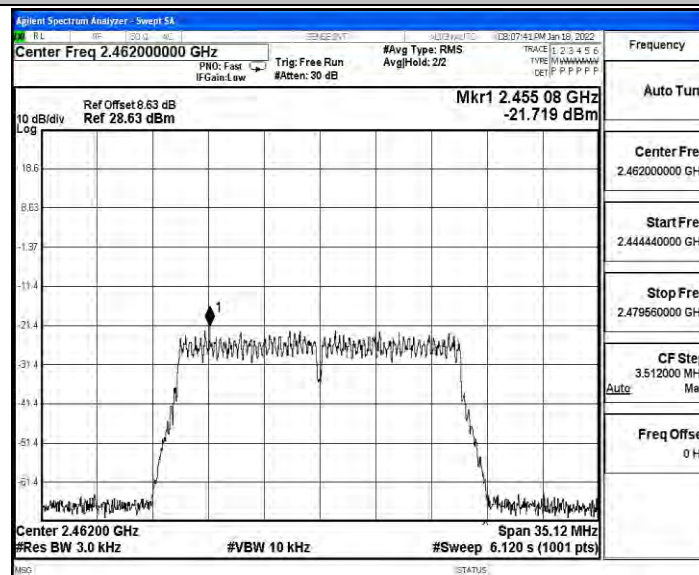
11N20SISO_Ant1_2412



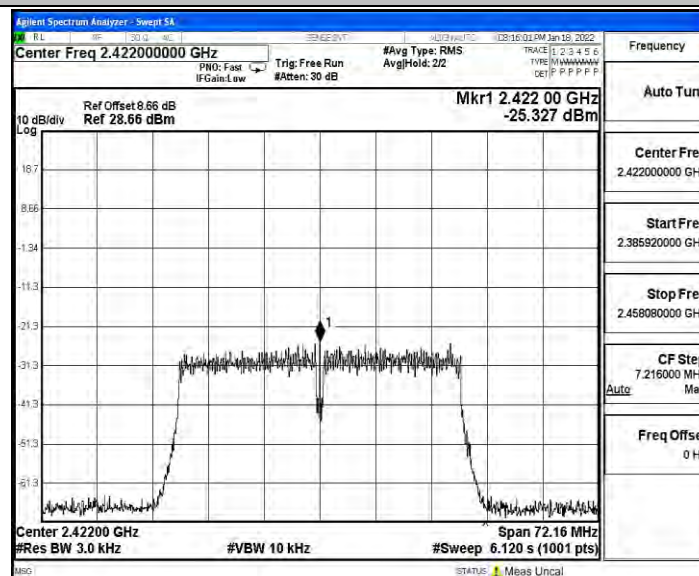
11N20SISO_Ant1_2437



11N20SISO_Ant1_2462

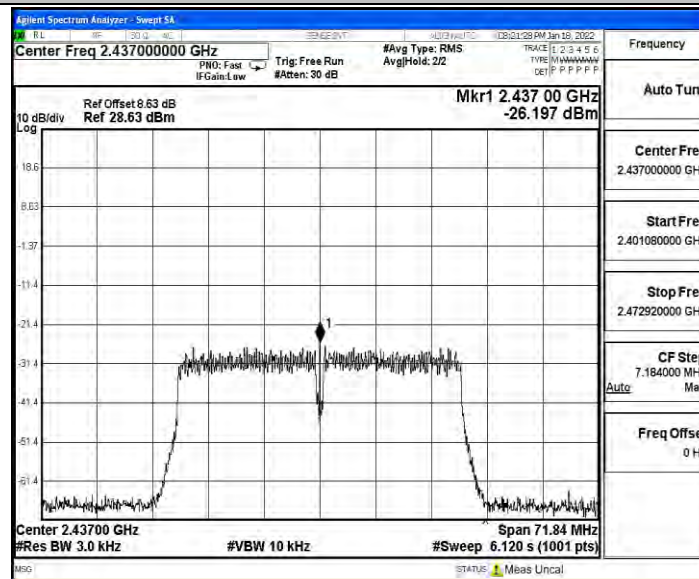


11N40SISO_Ant1_2422

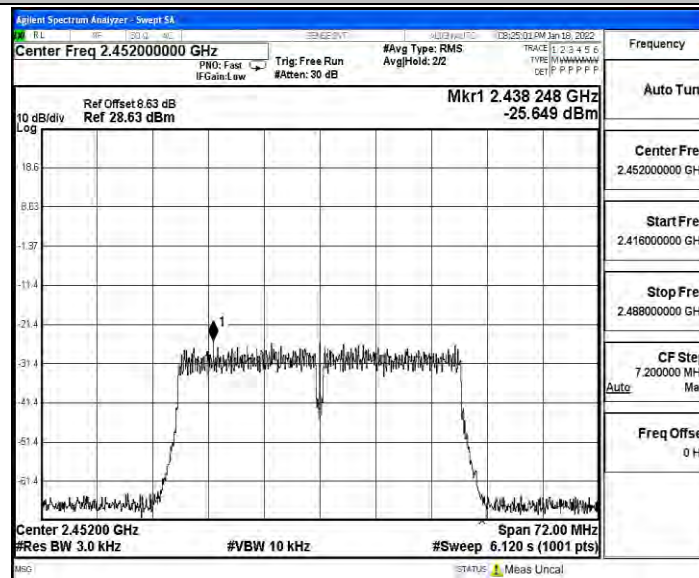




11N40SISO_Ant1_2437



11N40SISO_Ant1_2452





C.4 Band edge measurements

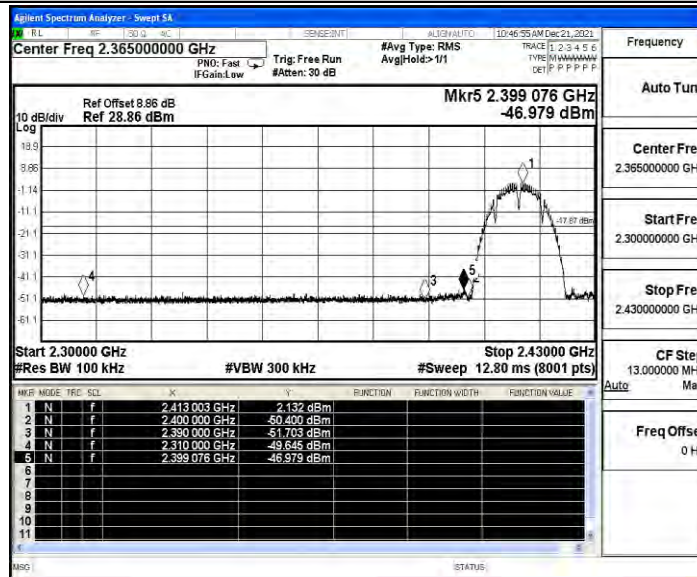
Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant0	Low	2412	2.13	-46.98	≤ -17.87	PASS
		High	2462	1.85	-47.06	≤ -18.15	PASS
11G	Ant0	Low	2412	-7.98	-48.61	≤ -27.98	PASS
		High	2462	-7.18	-47.25	≤ -27.18	PASS
11N20SISO	Ant0	Low	2412	-11.13	-48.51	≤ -31.13	PASS
		High	2462	-9.13	-47.55	≤ -29.13	PASS
11N40SISO	Ant0	Low	2422	-13.33	-48.51	≤ -33.33	PASS
		High	2452	-11.60	-47.47	≤ -31.6	PASS

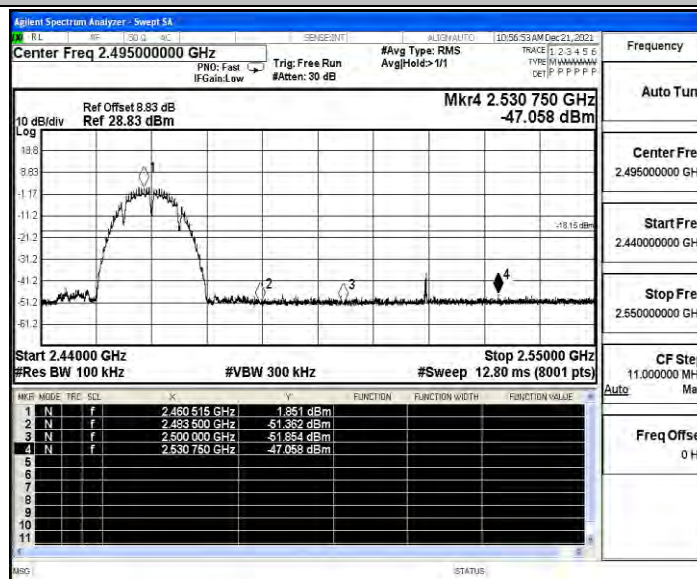


Test Graphs

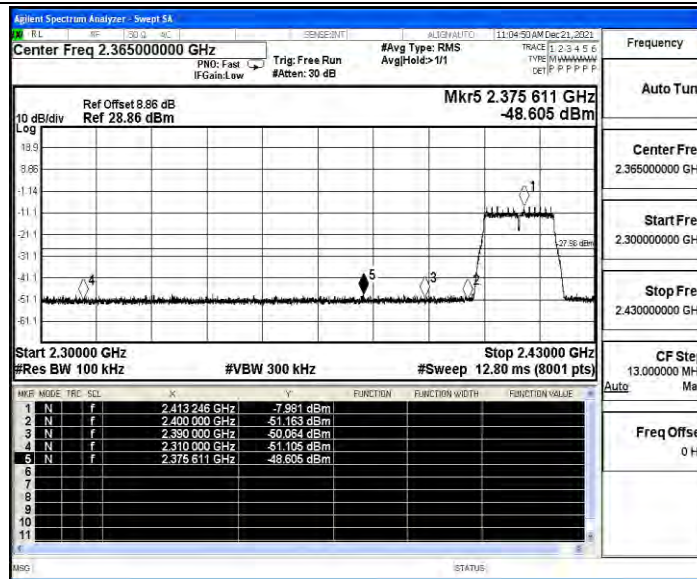
11B_Ant0_Low_2412



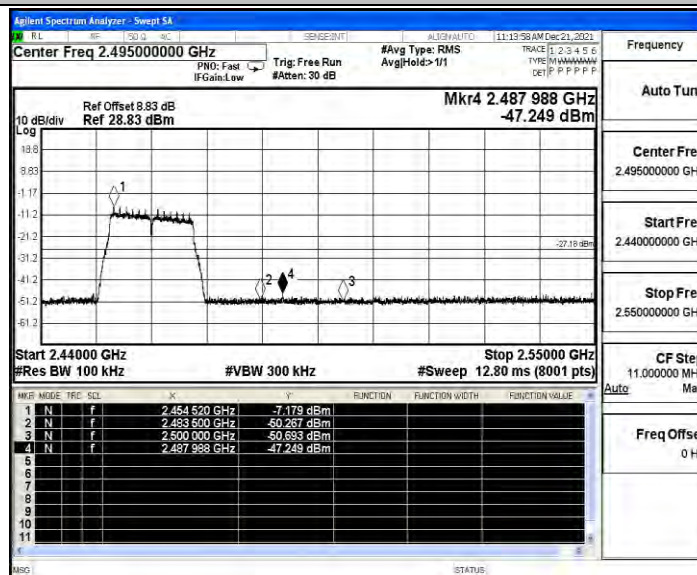
11B_Ant0_High_2462



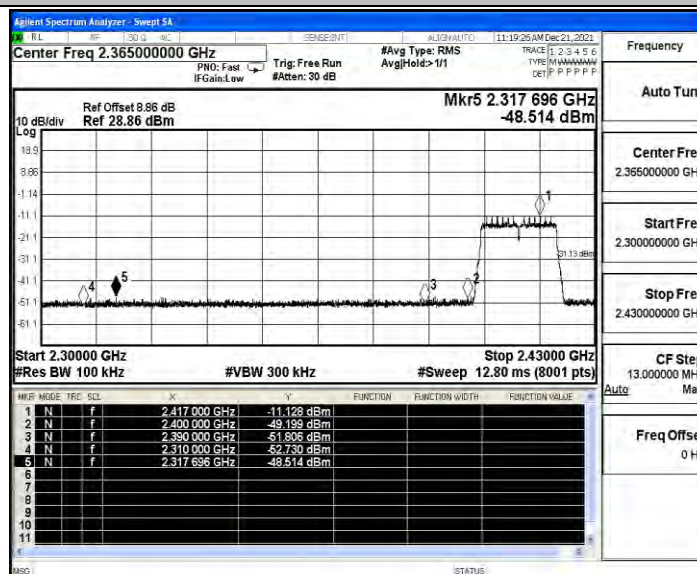
11G_Ant0_Low_2412



11G_Ant0_High_2462

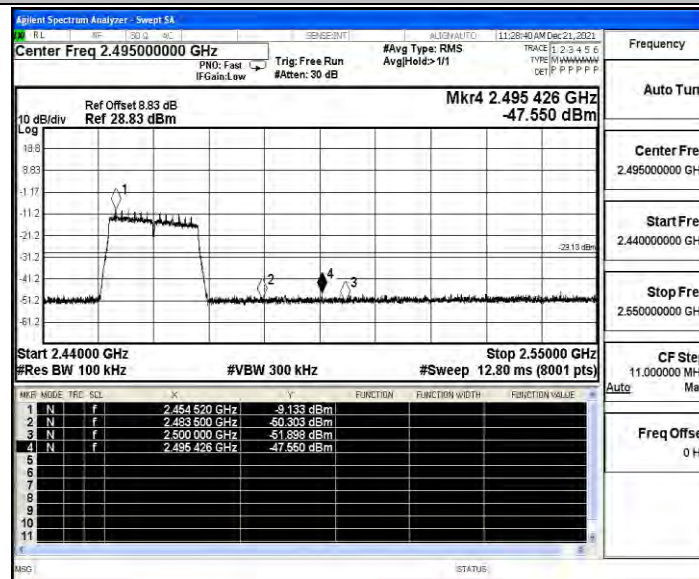


11N20SISO_Ant0_Low_2412

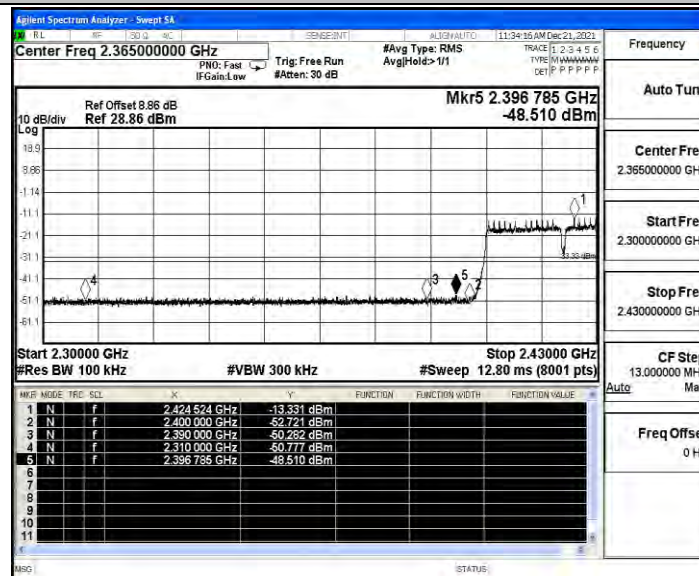




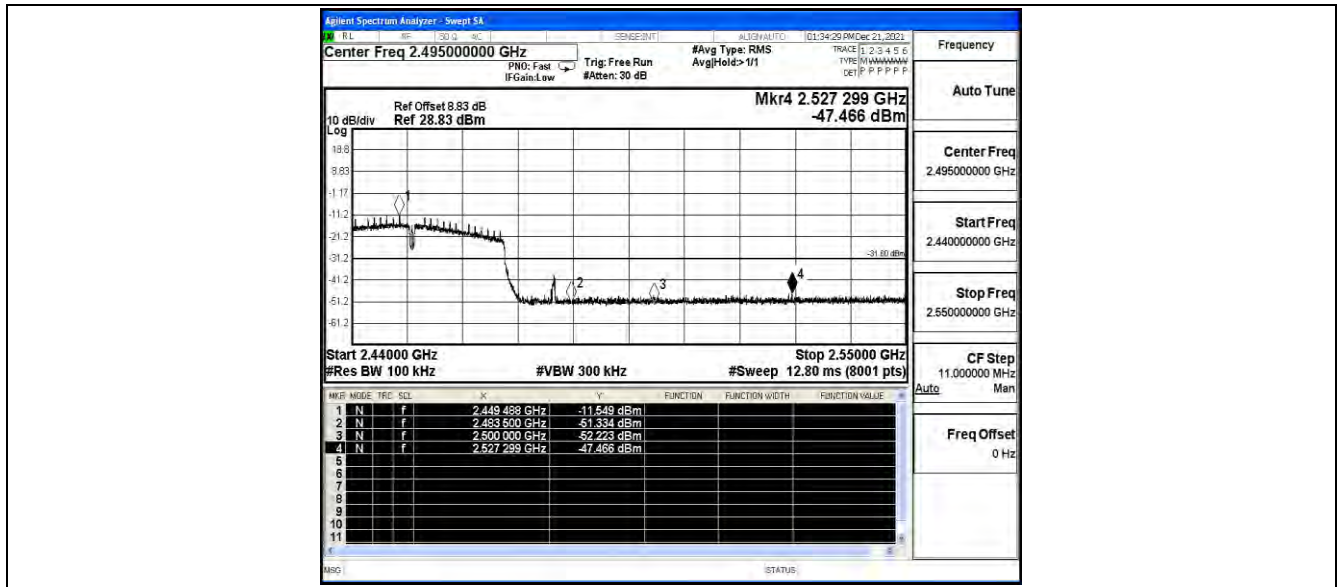
11N20SISO_Ant0_High_2462



11N40SISO_Ant0_Low_2422



11N40SISO_Ant0_High_2452





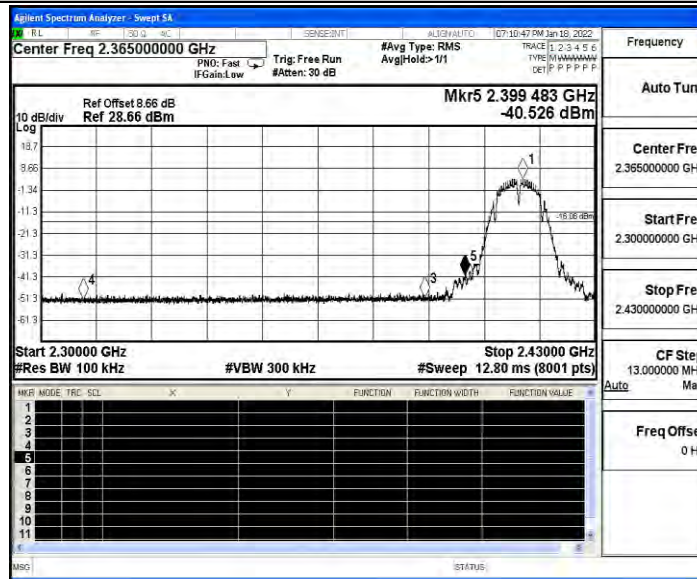
Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	3.94	-40.53	≤ -16.06	PASS
		High	2462	3.72	-47.98	≤ -16.28	PASS
11G	Ant1	Low	2412	-7.36	-48.56	≤ -27.36	PASS
		High	2462	-6.70	-48.67	≤ -26.7	PASS
11N20SISO	Ant1	Low	2412	-7.97	-48.19	≤ -27.97	PASS
		High	2462	-7.95	-48.04	≤ -27.95	PASS
11N40SISO	Ant1	Low	2422	-11.41	-48.75	≤ -31.41	PASS
		High	2452	-11.90	-47.69	≤ -31.9	PASS

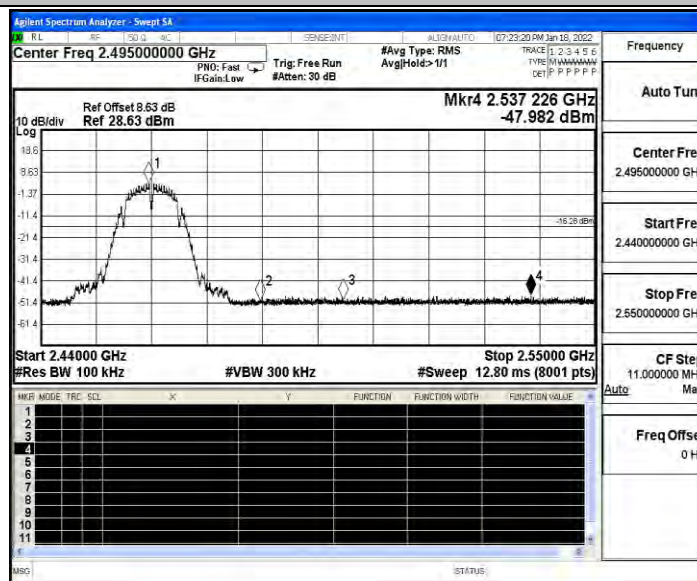


Test Graphs

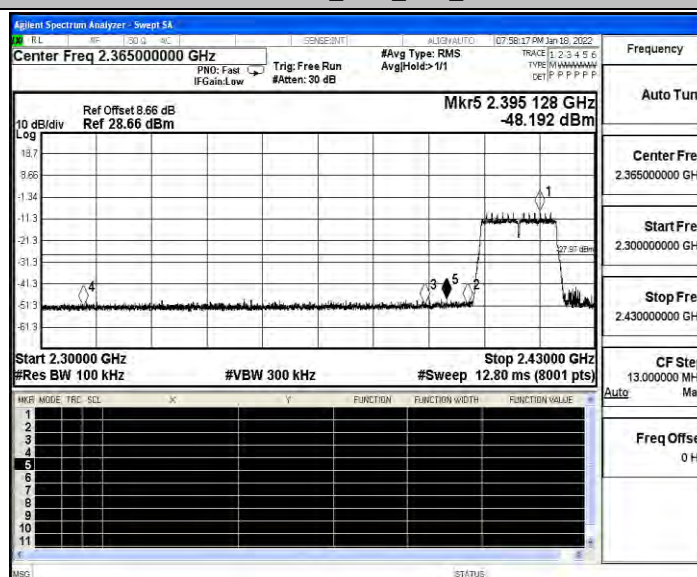
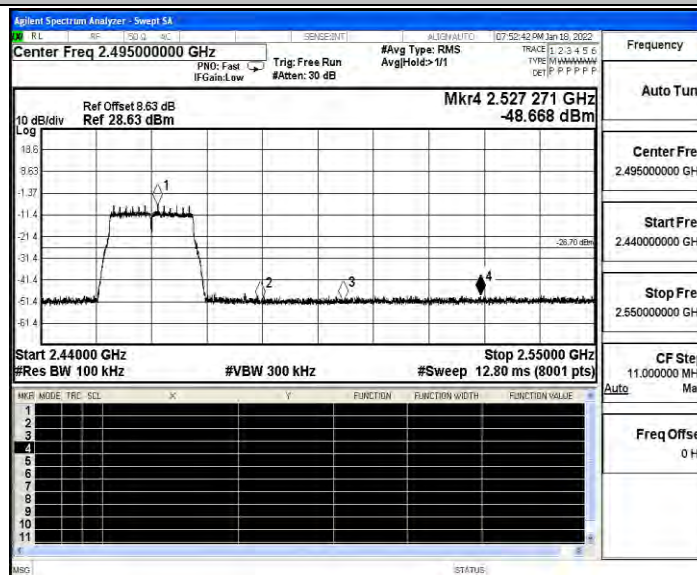
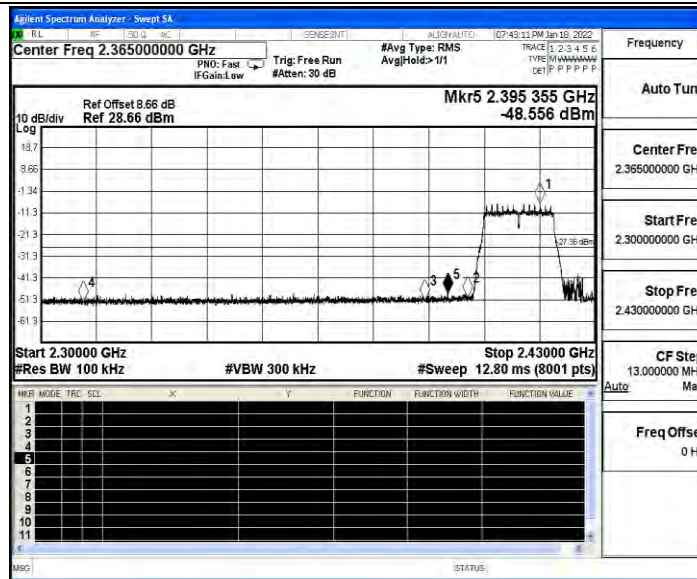
11B_Ant1_Low_2412



11B_Ant1_High_2462

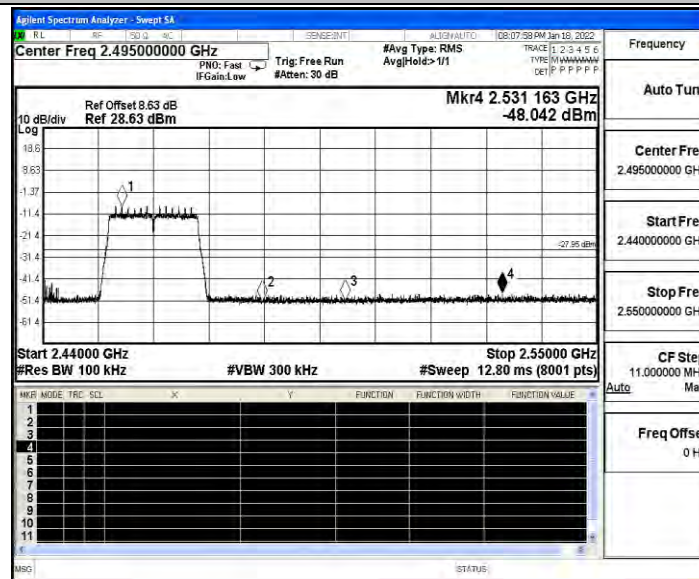


11G_Ant1_Low_2412

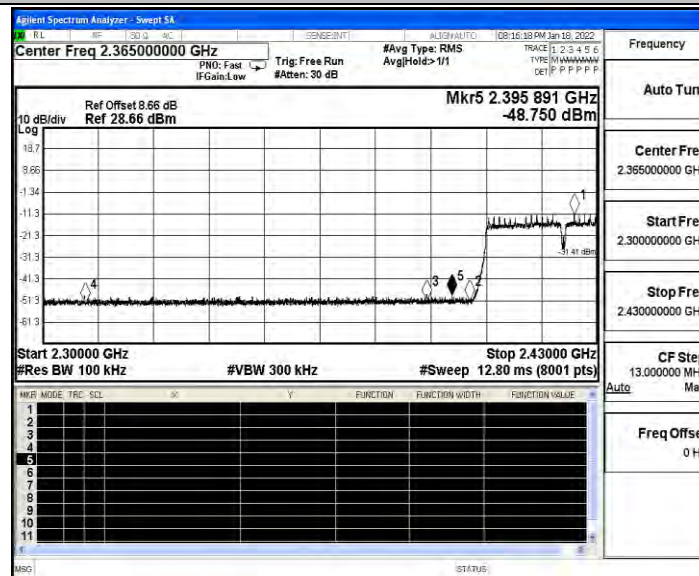




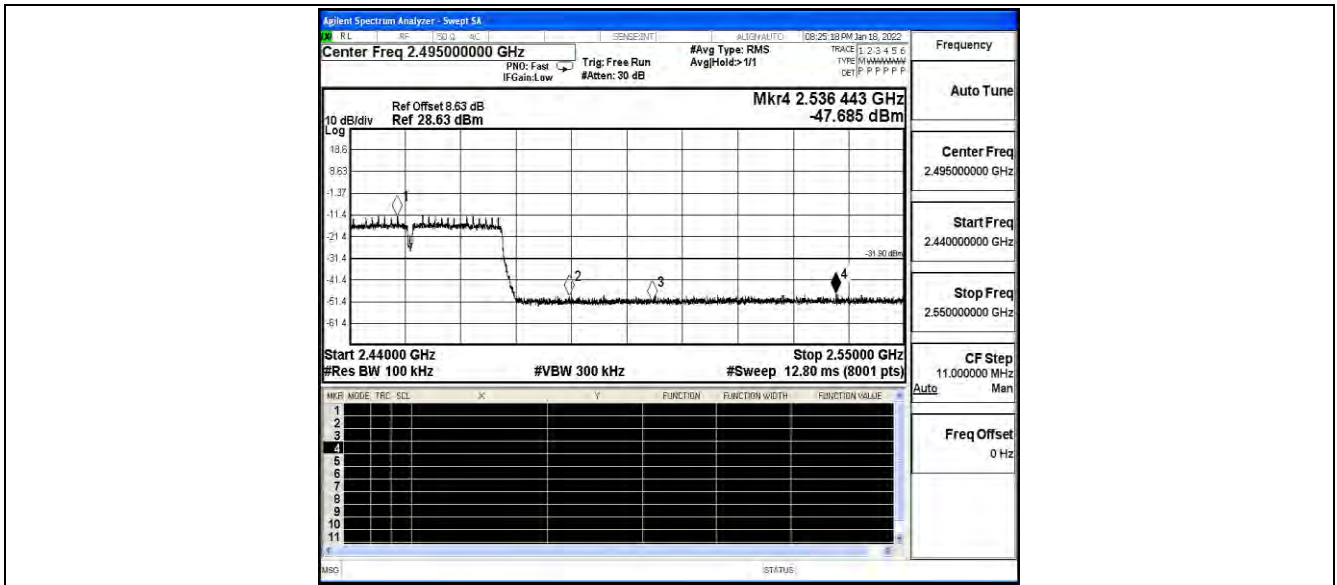
11N20SISO_Ant1_High_2462



11N40SISO_Ant1_Low_2422



11N40SISO_Ant1_High_2452





C.5 Conducted Spurious Emission

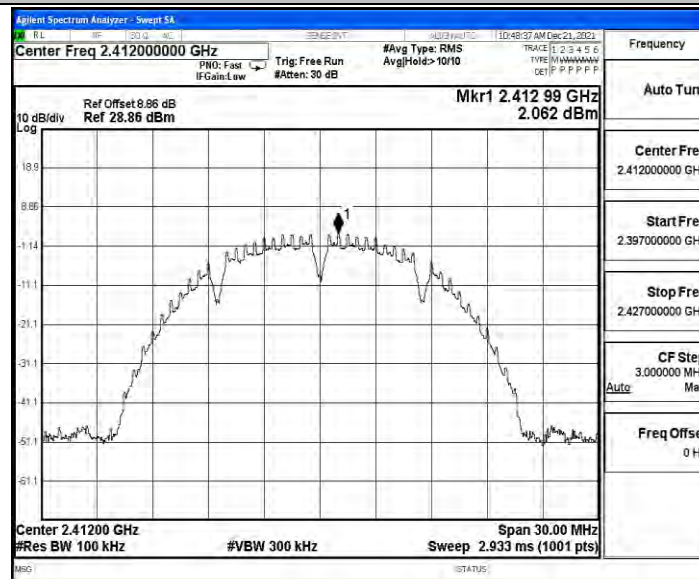
Test Result

TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant0	2412	Reference	2.06	2.06	---	PASS
			30~1000	2.06	-60.01	≤ -17.94	PASS
			1000~26500	2.06	-46.24	≤ -17.94	PASS
		2437	Reference	2.10	2.10	---	PASS
			30~1000	2.10	-60.48	≤ -17.9	PASS
			1000~26500	2.10	-45.27	≤ -17.9	PASS
		2462	Reference	2.04	2.04	---	PASS
			30~1000	2.04	-59.78	≤ -17.96	PASS
			1000~26500	2.04	-46.24	≤ -17.96	PASS
11G	Ant0	2412	Reference	-7.58	-7.58	---	PASS
			30~1000	-7.58	-59.97	≤ -27.58	PASS
			1000~26500	-7.58	-45.99	≤ -27.58	PASS
		2437	Reference	-7.46	-7.46	---	PASS
			30~1000	-7.46	-60.22	≤ -27.46	PASS
			1000~26500	-7.46	-45.65	≤ -27.46	PASS
		2462	Reference	-7.01	-7.01	---	PASS
			30~1000	-7.01	-47.75	≤ -27.01	PASS
			1000~26500	-7.01	-45.96	≤ -27.01	PASS
11N20SISO	Ant0	2412	Reference	-10.97	-10.97	---	PASS
			30~1000	-10.97	-60.55	≤ -30.97	PASS
			1000~26500	-10.97	-46.16	≤ -30.97	PASS
		2437	Reference	-8.26	-8.26	---	PASS
			30~1000	-8.26	-60.55	≤ -28.26	PASS
			1000~26500	-8.26	-45.71	≤ -28.26	PASS
		2462	Reference	-9.26	-9.26	---	PASS
			30~1000	-9.26	-59.88	≤ -29.26	PASS
			1000~26500	-9.26	-46.1	≤ -29.26	PASS
11N40SISO	Ant0	2422	Reference	-11.93	-11.93	---	PASS
			30~1000	-11.93	-60.17	≤ -31.93	PASS
			1000~26500	-11.93	-45.82	≤ -31.93	PASS
		2437	Reference	-11.01	-11.01	---	PASS
			30~1000	-11.01	-59.91	≤ -31.01	PASS
			1000~26500	-11.01	-45.97	≤ -31.01	PASS
		2452	Reference	-11.68	-11.68	---	PASS
			30~1000	-11.68	-60.07	≤ -31.68	PASS
			1000~26500	-11.68	-45.84	≤ -31.68	PASS

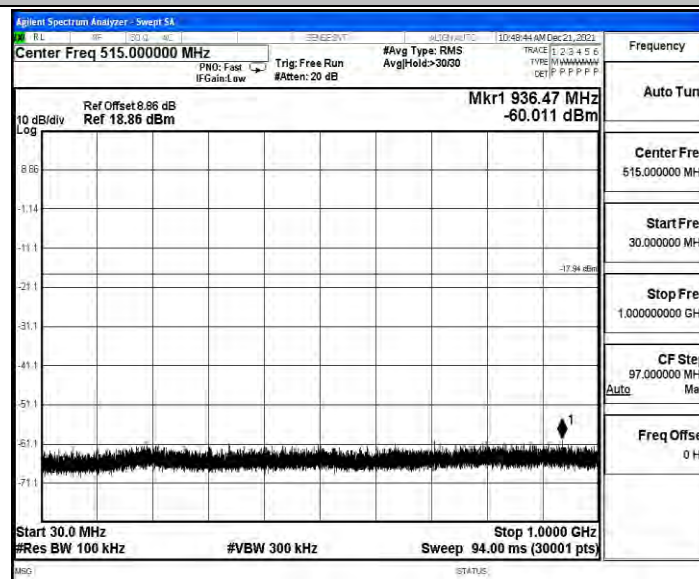


Test Graphs

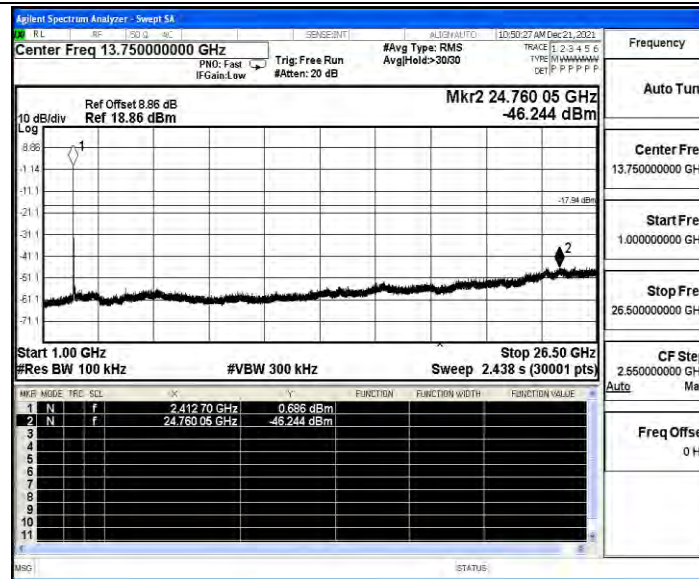
11B_Ant0_2412_0~Reference



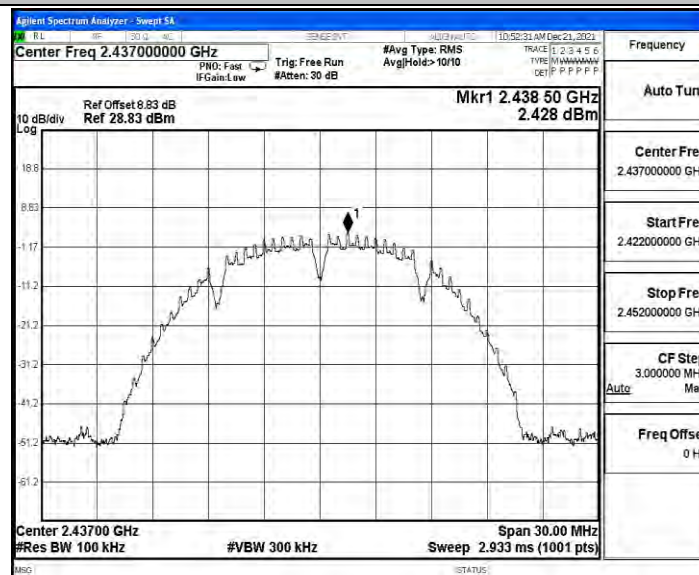
11B_Ant0_2412_30~1000



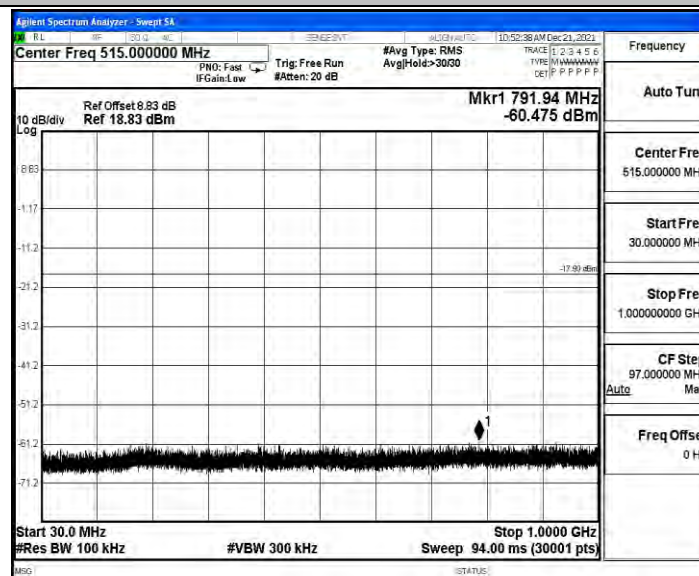
11B_Ant0_2412_1000~26500



11B_Ant0_2437_0~Reference

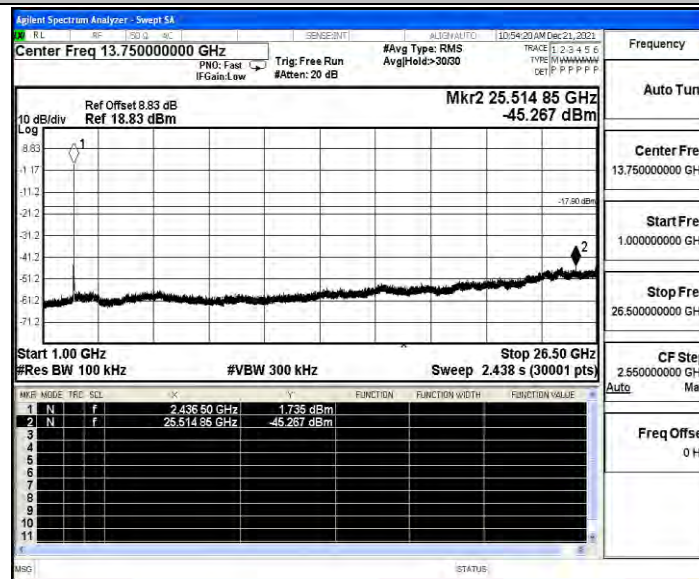


11B_Ant0_2437_30~1000

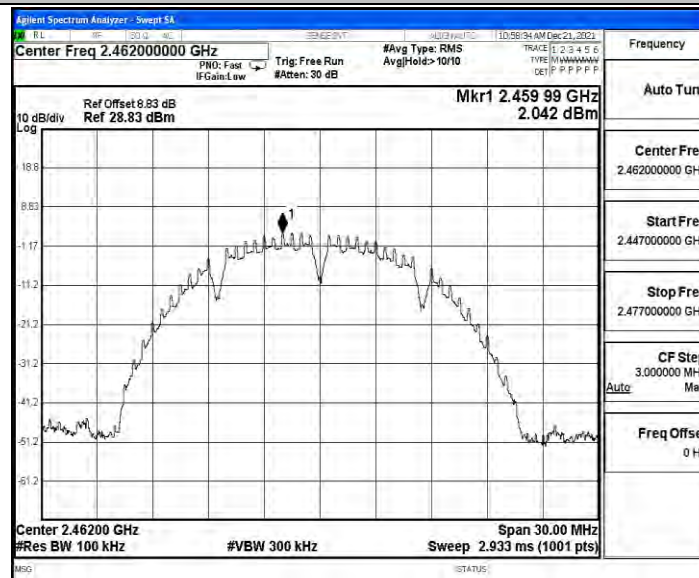




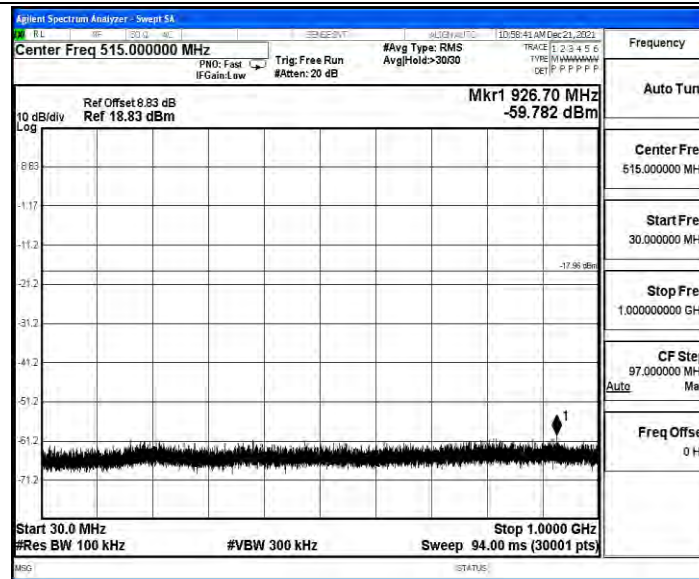
11B_Ant0_2437_1000~26500



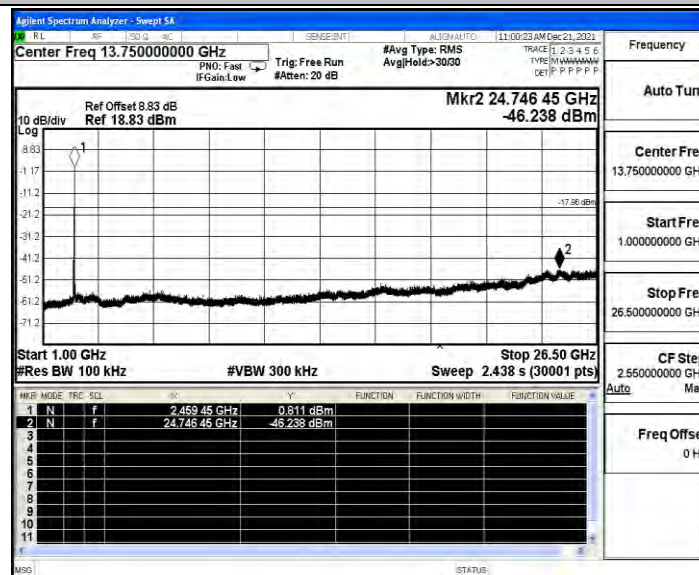
11B_Ant0_2462_0~Reference



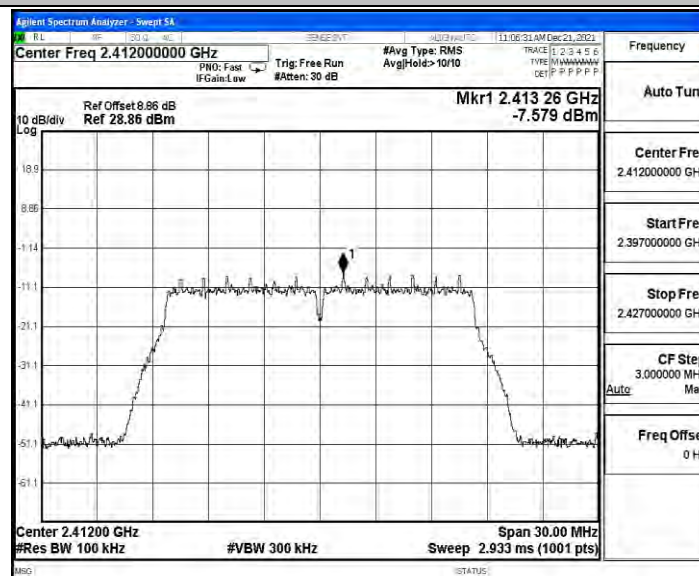
11B_Ant0_2462_30~1000



11B_Ant0_2462_1000~26500

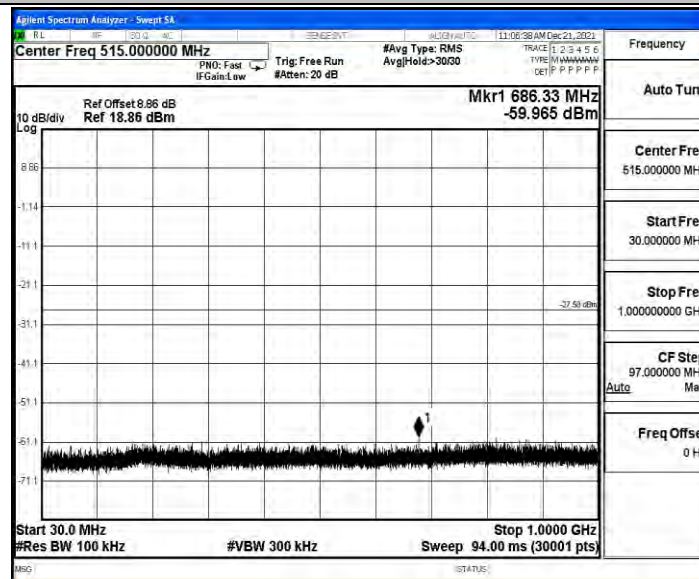


11G_Ant0_2412_0~Reference

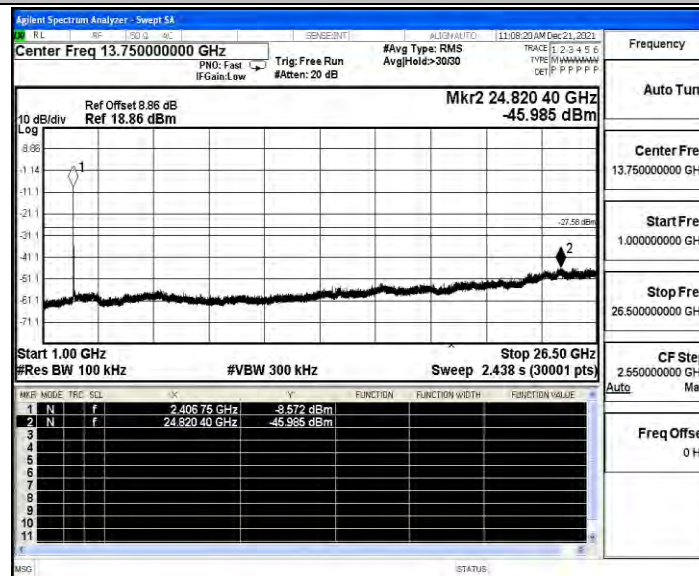




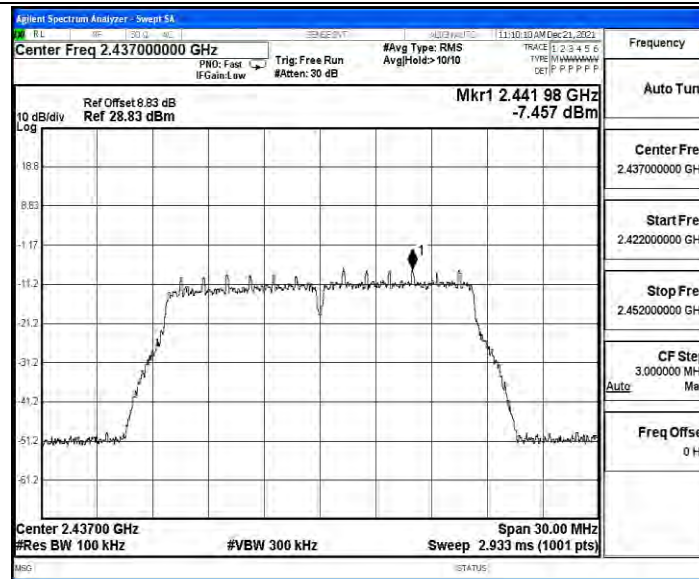
11G_Ant0_2412_30~1000



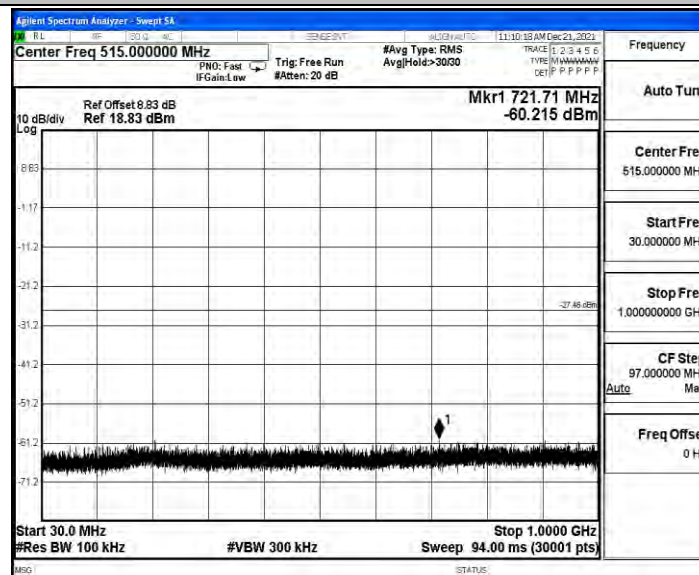
11G_Ant0_2412_1000~26500



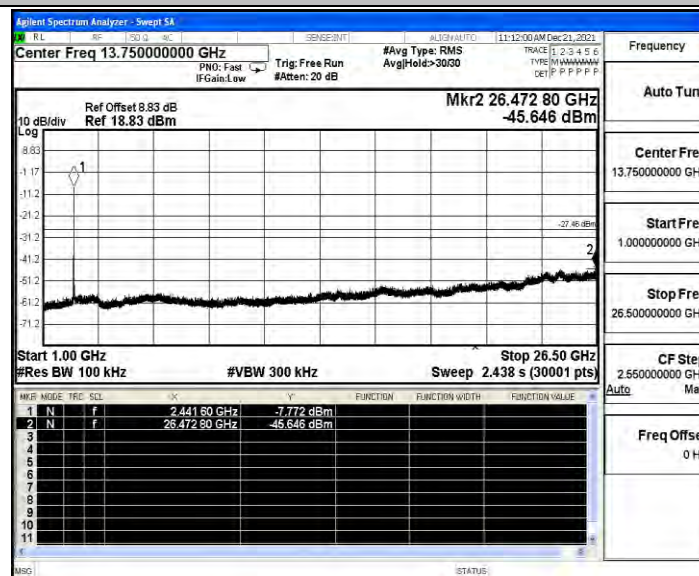
11G_Ant0_2437_0~Reference



11G_Ant0_2437_30~1000

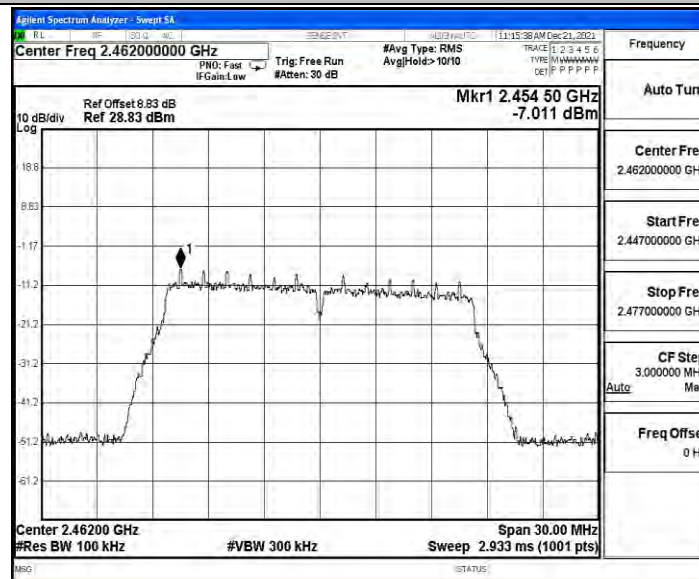


11G_Ant0_2437_1000~26500

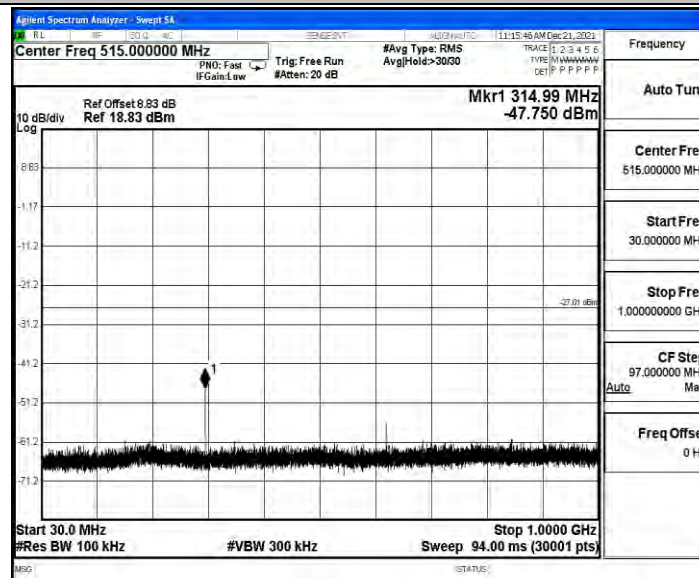




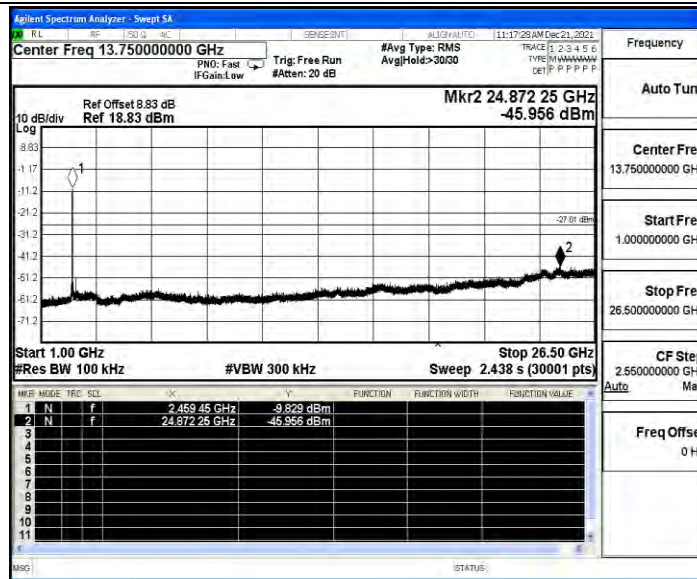
11G_Ant0_2462_0~Reference



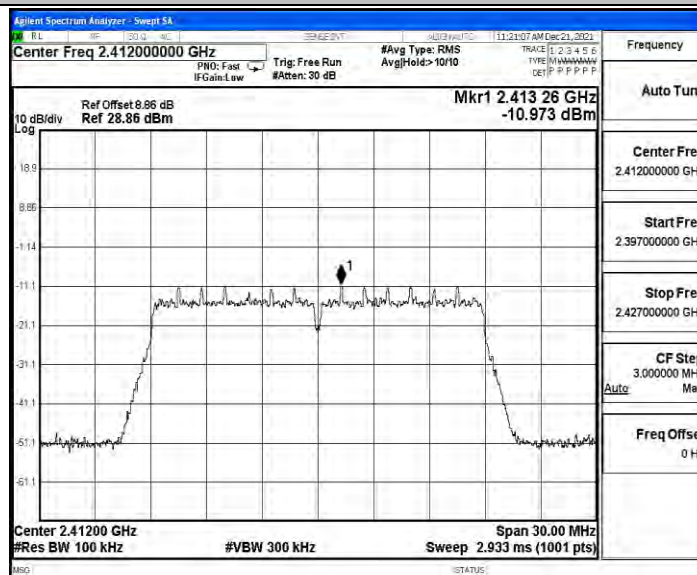
11G_Ant0_2462_30~1000



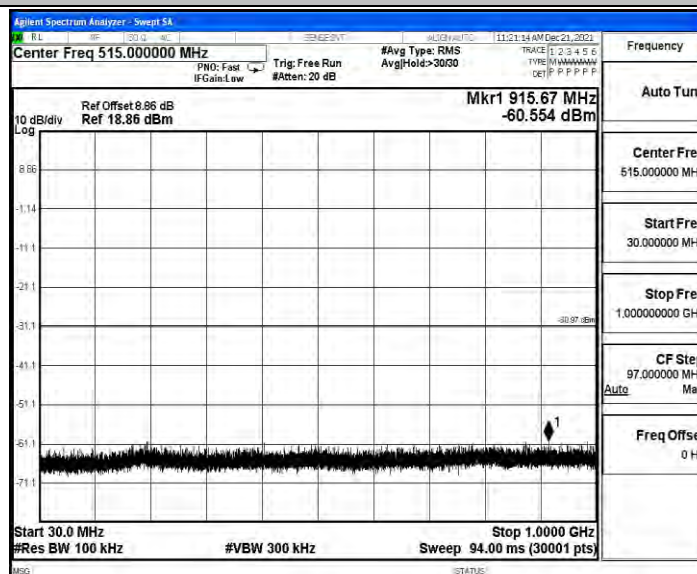
11G_Ant0_2462_1000~26500



11N20SISO_Ant0_2412_0~Reference

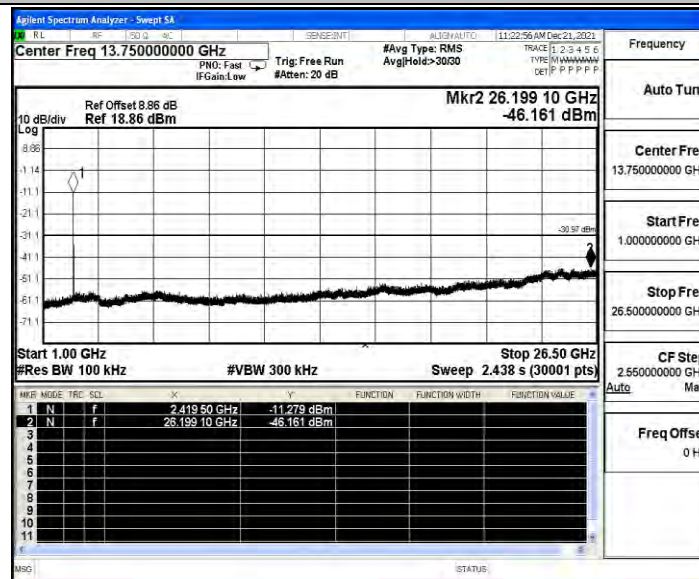


11N20SISO_Ant0_2412_30~1000

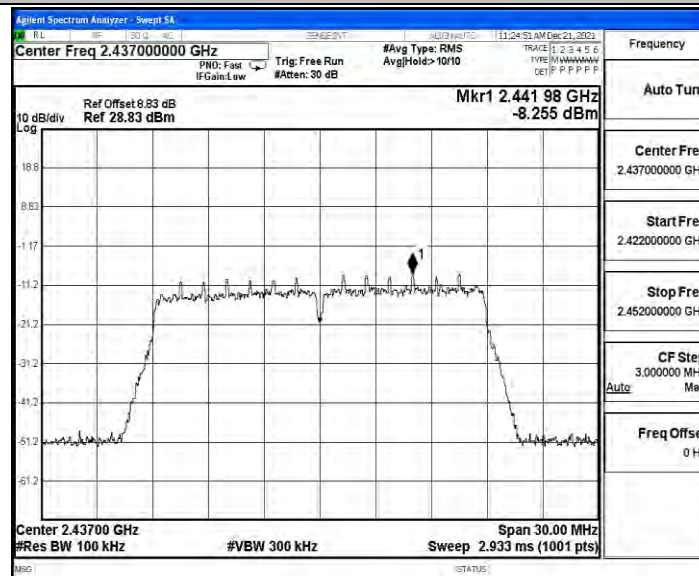




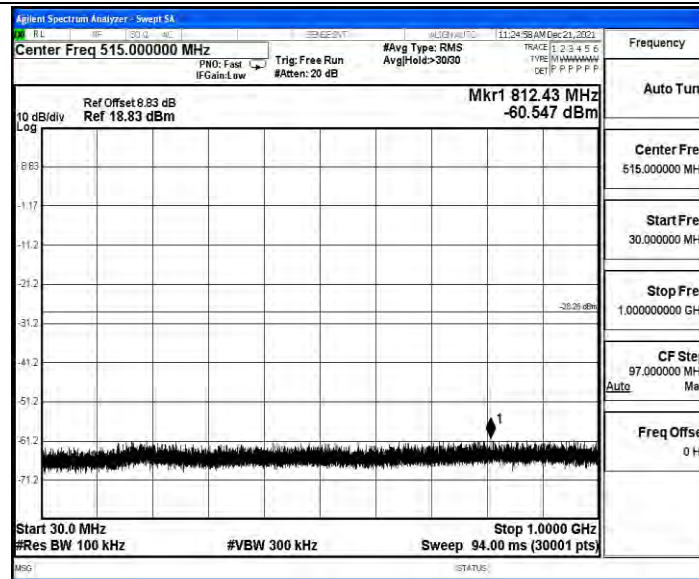
11N20SISO_Ant0_2412_1000~26500



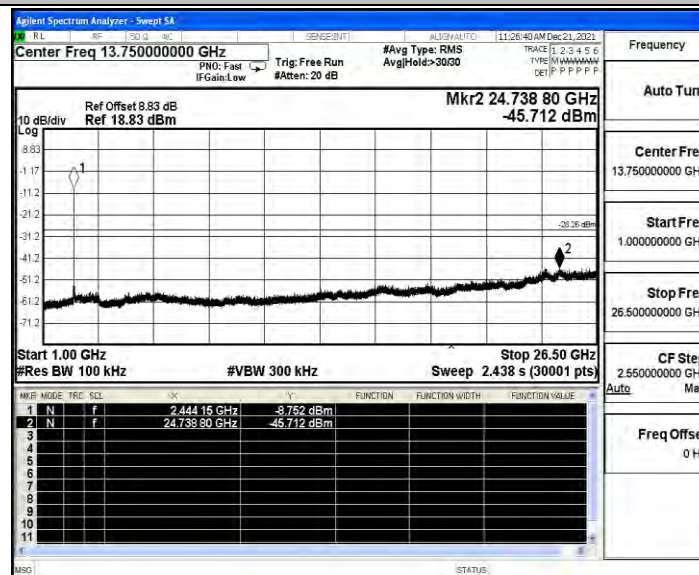
11N20SISO_Ant0_2437_0~Reference



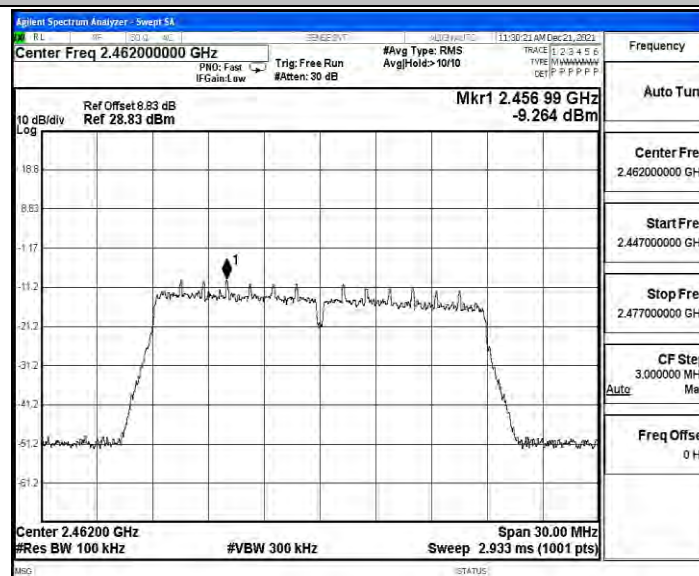
11N20SISO_Ant0_2437_30~1000



11N20SISO_Ant0_2437_1000~26500

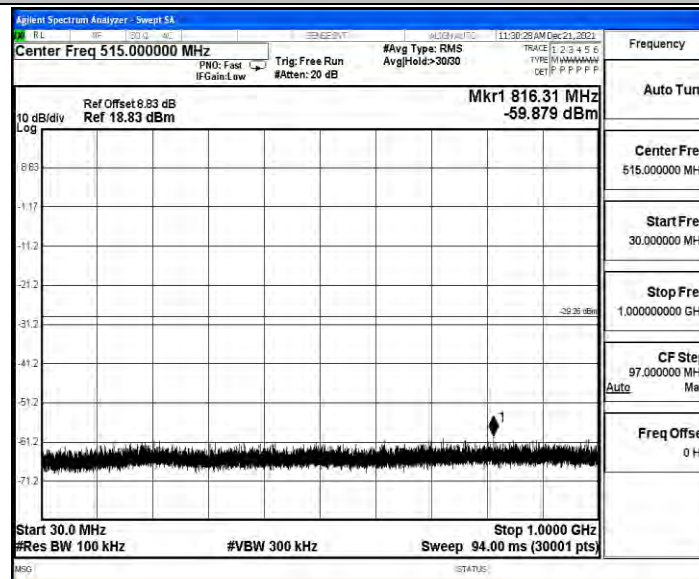


11N20SISO_Ant0_2462_0~Reference

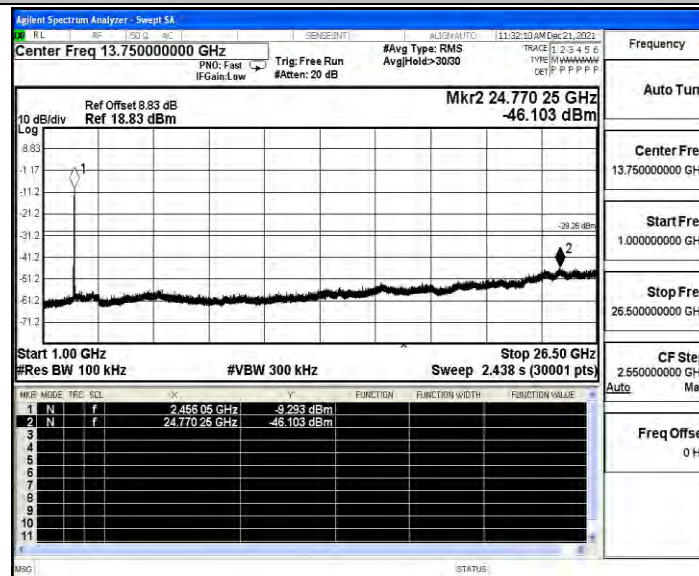




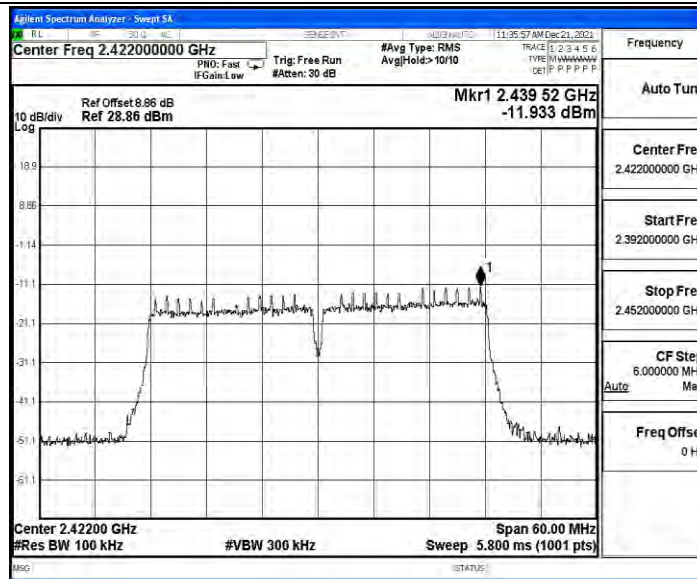
11N20SISO_Ant0_2462_30~1000



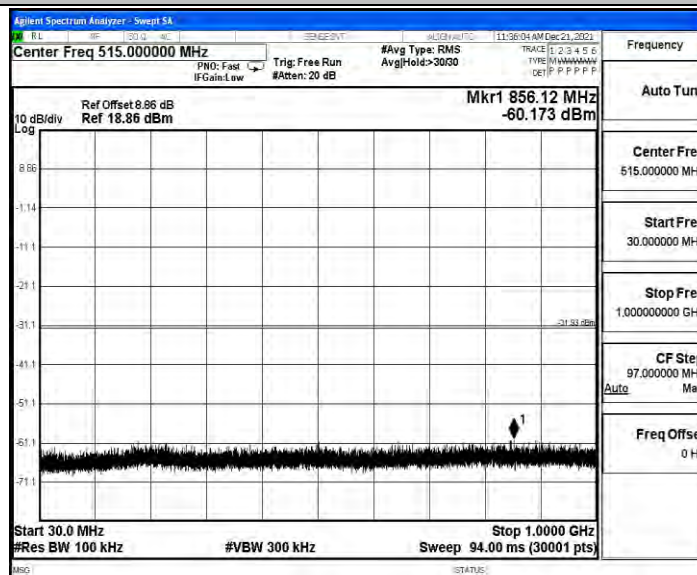
11N20SISO_Ant0_2462_1000~26500



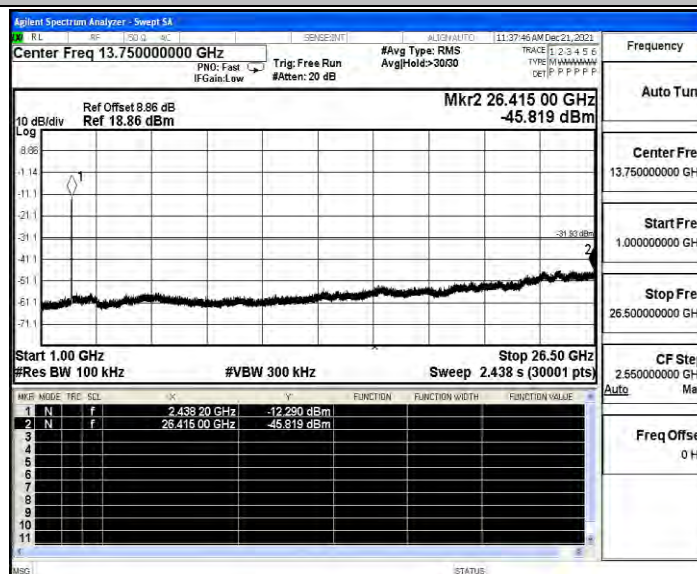
11N40SISO_Ant0_2422_0~Reference



11N40SISO_Ant0_2422_30~1000

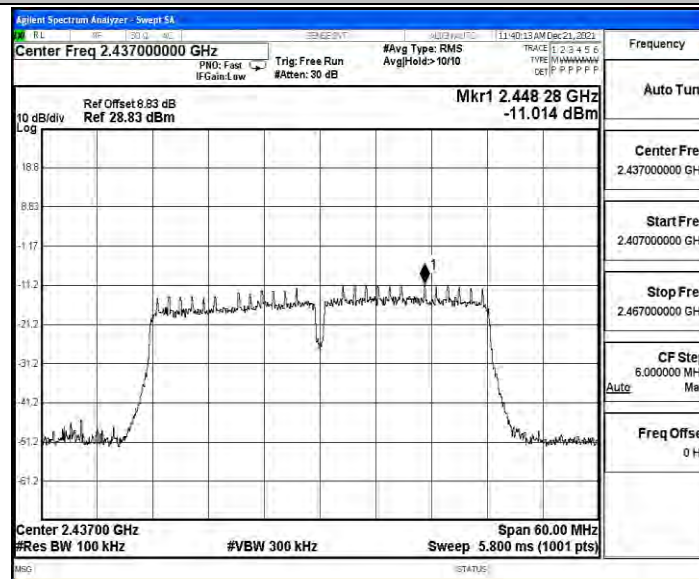


11N40SISO_Ant0_2422_1000~26500

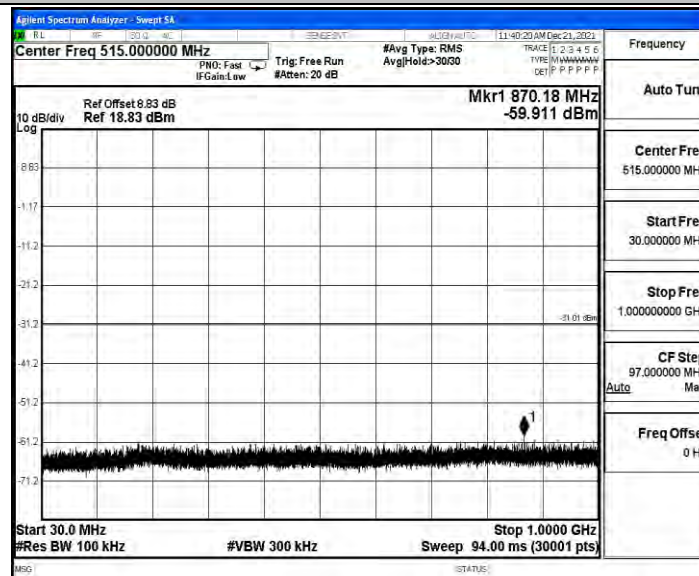




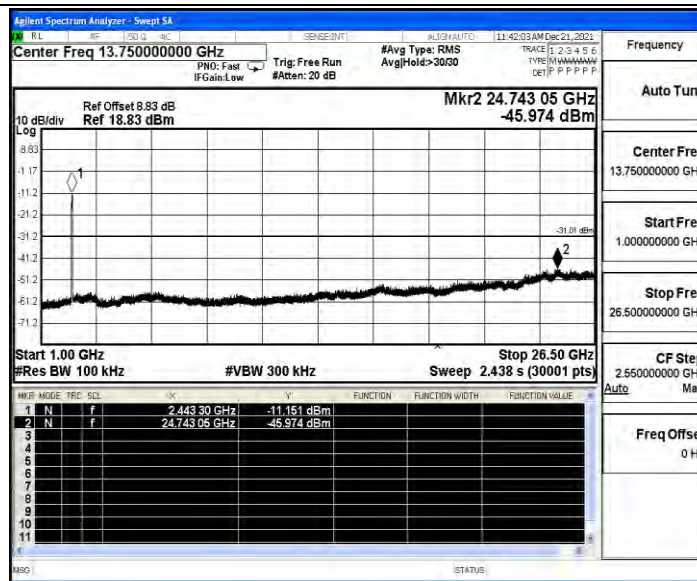
11N40SISO_Ant0_2437_0~Reference



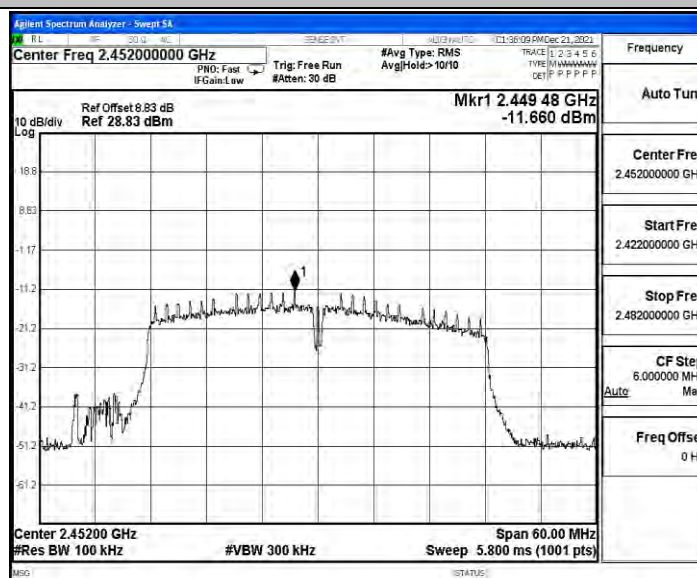
11N40SISO_Ant0_2437_30~1000



11N40SISO_Ant0_2437_1000~26500



11N40SISO_Ant0_2452_0~Reference



11N40SISO_Ant0_2452_30~1000

