Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: OVMS

Test Model: OVMS-33-7600G

Environmental Conditions

Temperature:	23.7° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Ling Zhu
Supervised by:	Li Huan

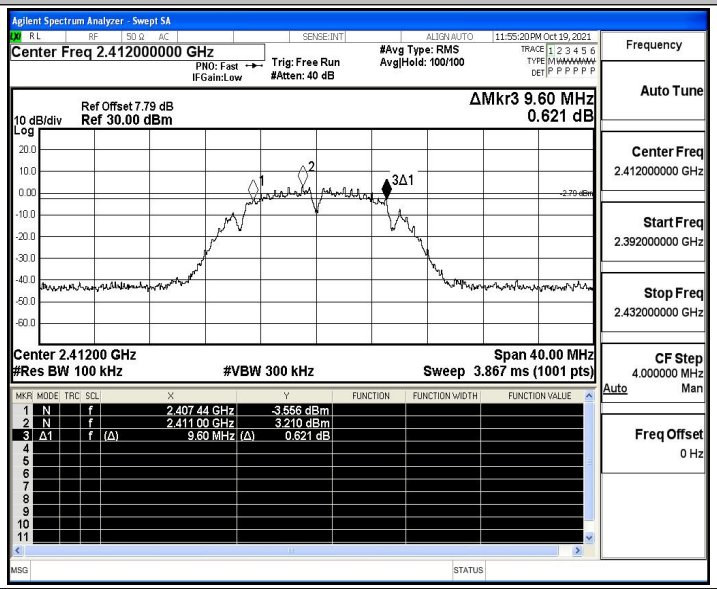
A.1 6dB Bandwidth

Test Result

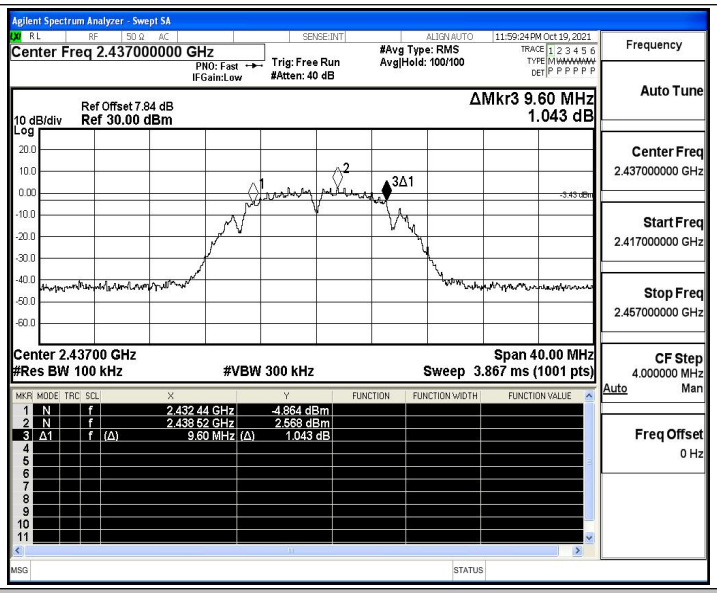
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.600	2407.440	2417.040	0.5	PASS
		2437	9.600	2432.440	2442.040	0.5	PASS
		2462	9.640	2456.920	2466.560	0.5	PASS
11G	Ant1	2412	16.480	2403.760	2420.240	0.5	PASS
		2437	16.400	2428.840	2445.240	0.5	PASS
		2462	15.840	2453.760	2469.600	0.5	PASS
11N20SISO	Ant1	2412	17.680	2403.160	2420.840	0.5	PASS
		2437	17.680	2428.200	2445.880	0.5	PASS
		2462	16.440	2453.160	2469.600	0.5	PASS
11N40SISO	Ant1	2422	36.640	2403.760	2440.400	0.5	PASS
		2437	36.400	2418.920	2455.320	0.5	PASS
		2452	36.080	2433.760	2469.840	0.5	PASS

Test Graphs

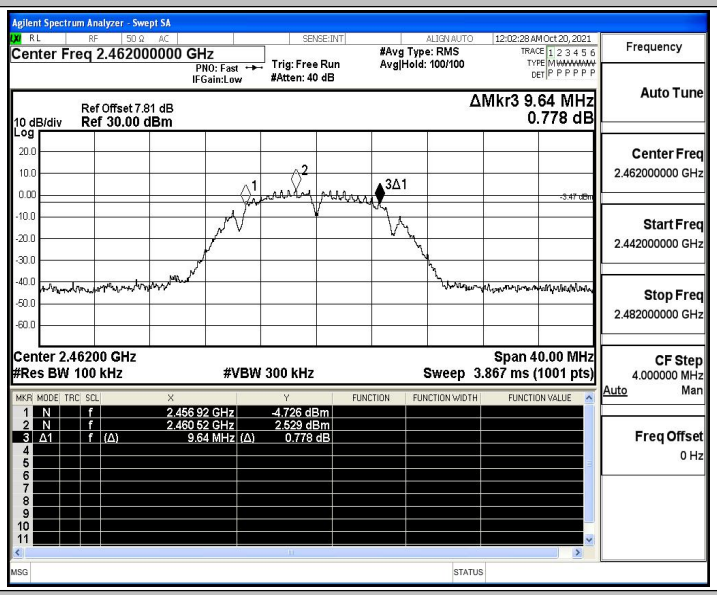
11B_Ant1_2412



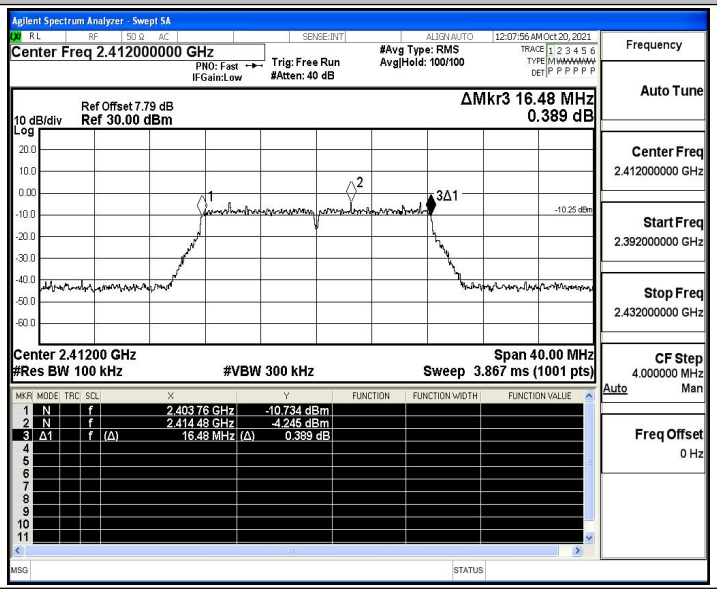
11B_Ant1_2437



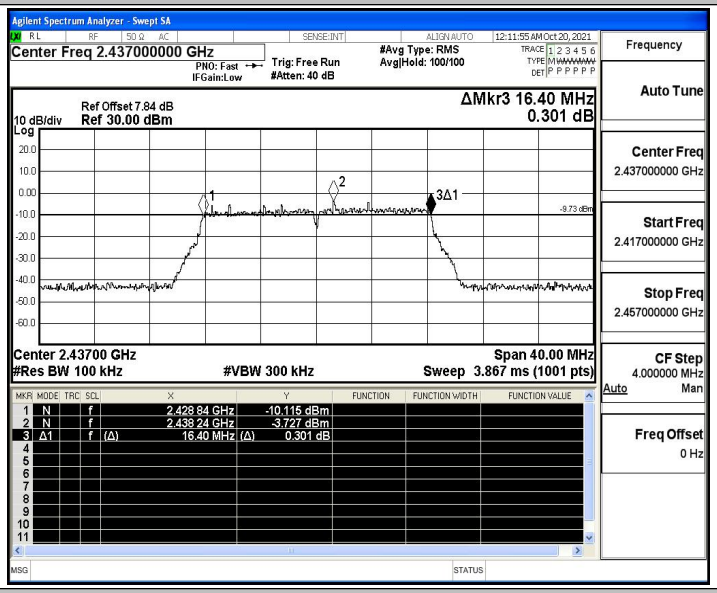
11B_Ant1_2462



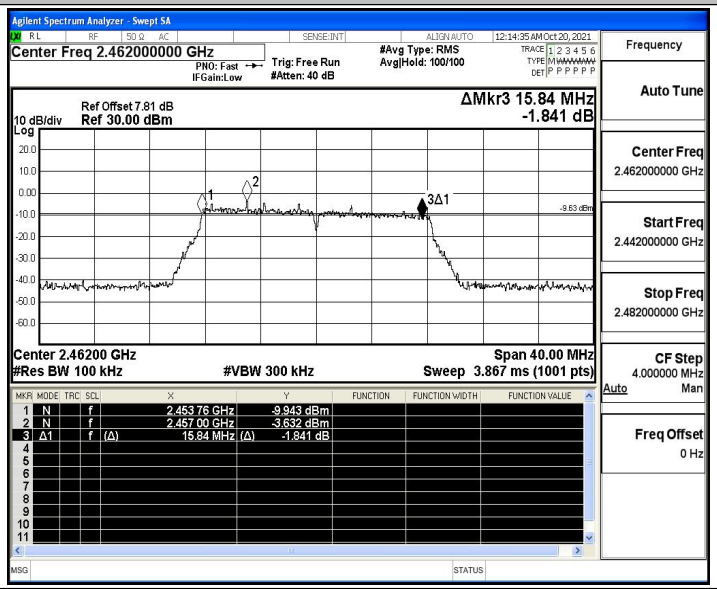
11G_Ant1_2412



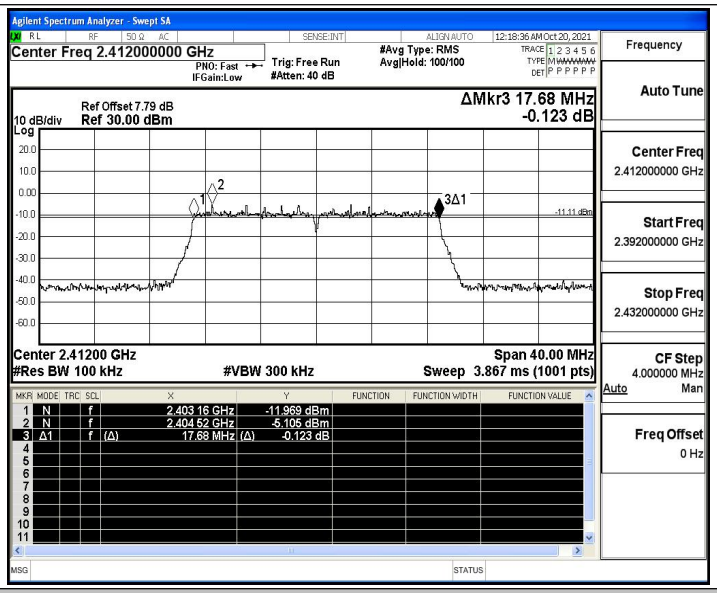
11G_Ant1_2437



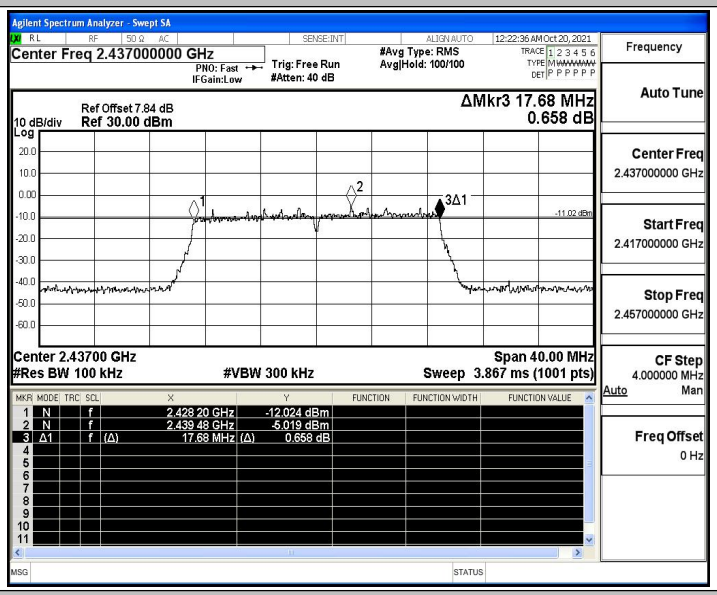
11G_Ant1_2462



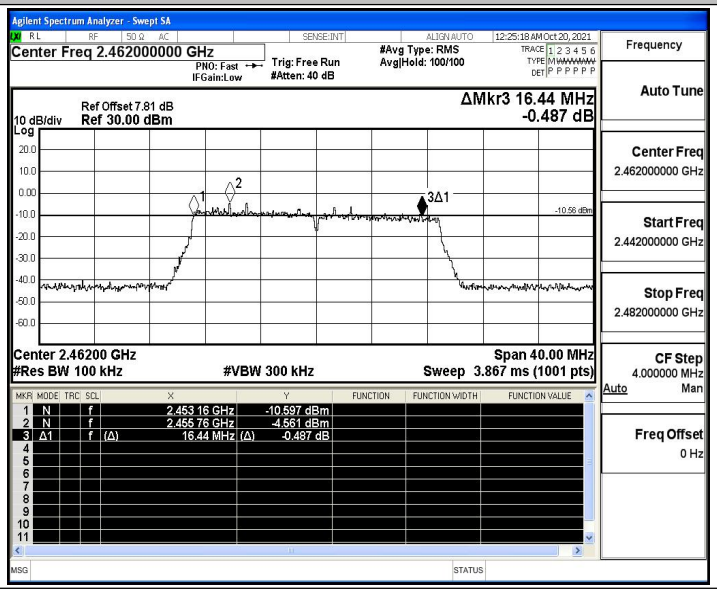
11N20SISO_Ant1_2412



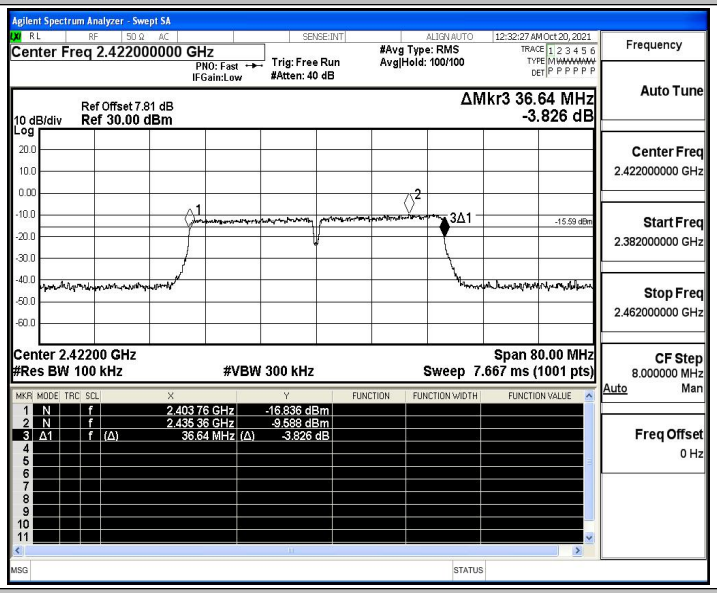
11N20SISO_Ant1_2437



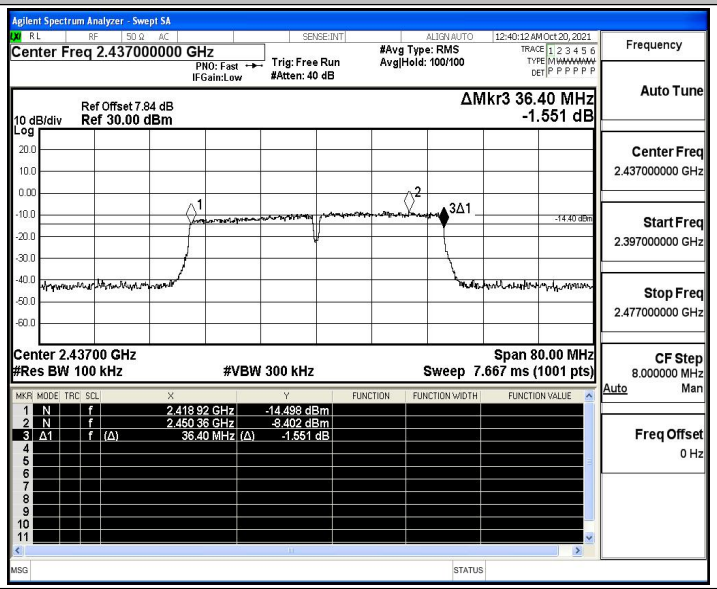
11N20SISO_Ant1_2462



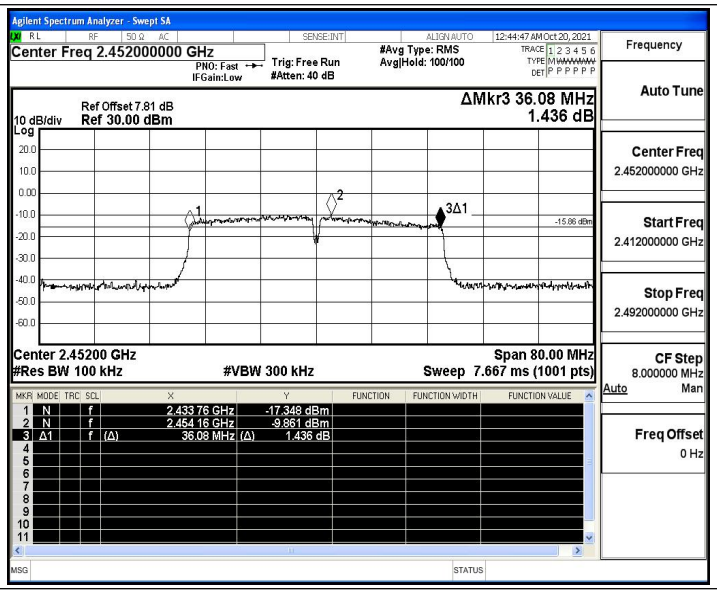
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.452000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
Avg|Hold: 100/100
12:44:47 AM Oct 20, 2021
Ref Offset 7.81 dB
10 dB/div
Ref 30.00 dBm
Log
ΔMkr3 36.08 MHz
1.436 dB
-15.86 dBm
Center 2.45200 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 80.00 MHz
Sweep 7.667 ms (1001 pts)
1 N f 2.433 76 GHz -17.348 dBm
2 N f 2.454 16 GHz -9.861 dBm
3 Δ1 f (Δ) 36.08 MHz (Δ) 1.436 dB
Frequency
Auto Tune
Center Freq
2.452000000 GHz
Start Freq
2.412000000 GHz
Stop Freq
2.492000000 GHz
CF Step
8.000000 MHz
Auto Man
Freq Offset
0 Hz

A.2 Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	15.48	≤30	PASS
		2437	14.87	≤30	PASS
		2462	14.62	≤30	PASS
11G	Ant1	2412	14.57	≤30	PASS
		2437	14.42	≤30	PASS
		2462	14.04	≤30	PASS
11N20SISO	Ant1	2412	13.40	≤30	PASS
		2437	13.54	≤30	PASS
		2462	13.11	≤30	PASS
11N40SISO	Ant1	2422	14.15	≤30	PASS
		2437	15.40	≤30	PASS
		2452	13.49	≤30	PASS

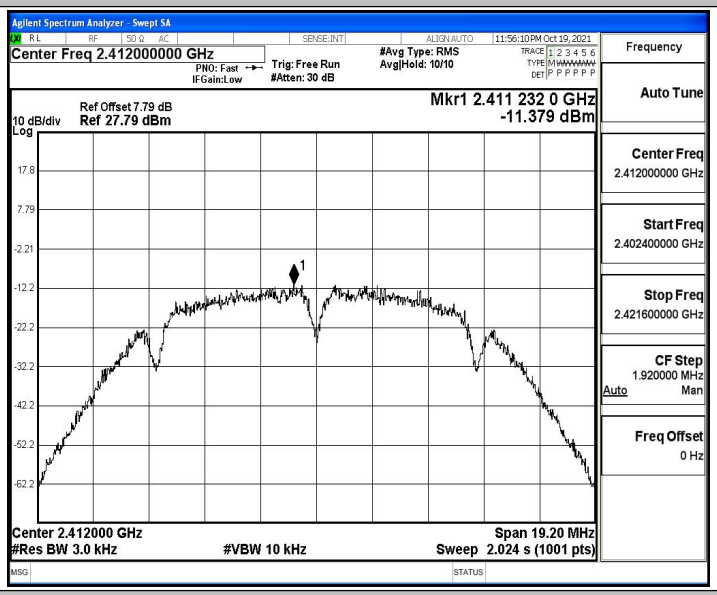
A.3 Maximum power spectral density

Test Result

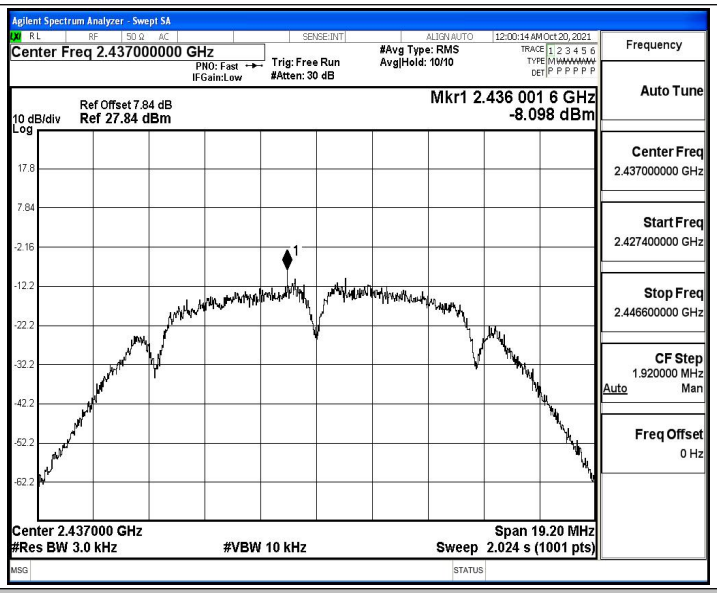
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-11.38	≤8	PASS
		2437	-8.1	≤8	PASS
		2462	-10.97	≤8	PASS
11G	Ant1	2412	-17.64	≤8	PASS
		2437	-16.96	≤8	PASS
		2462	-17.98	≤8	PASS
11N20SISO	Ant1	2412	-18.67	≤8	PASS
		2437	-18.57	≤8	PASS
		2462	-18.12	≤8	PASS
11N40SISO	Ant1	2422	-22.12	≤8	PASS
		2437	-21.87	≤8	PASS
		2452	-22.67	≤8	PASS

Test Graphs

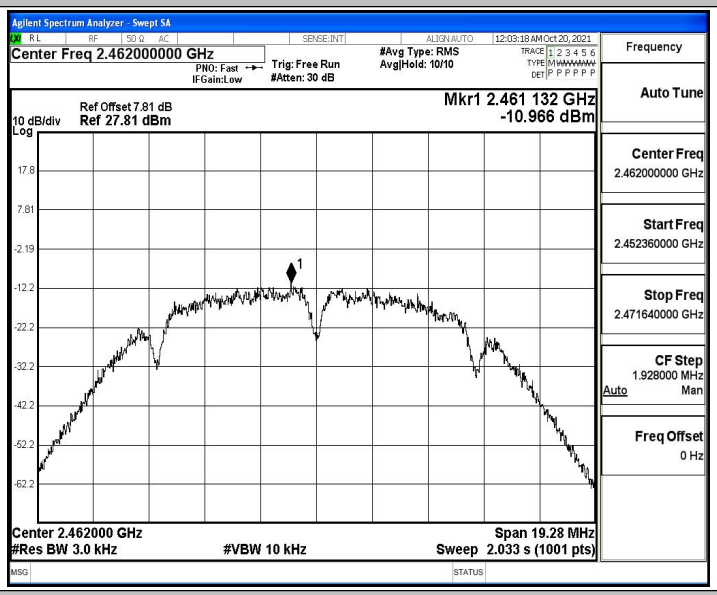
11B_Ant1_2412



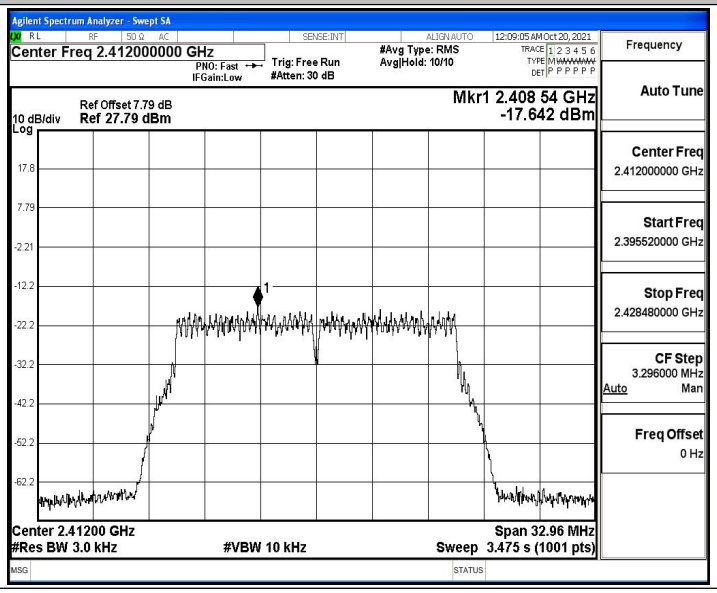
11B_Ant1_2437



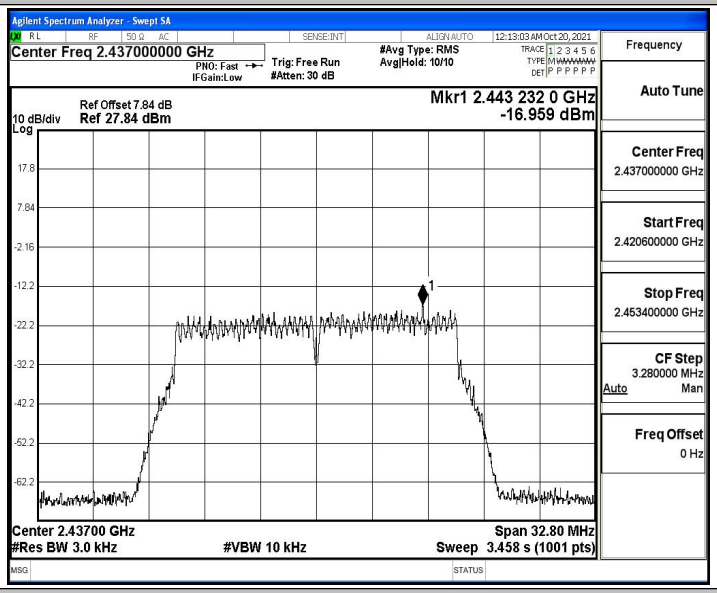
11B_Ant1_2462



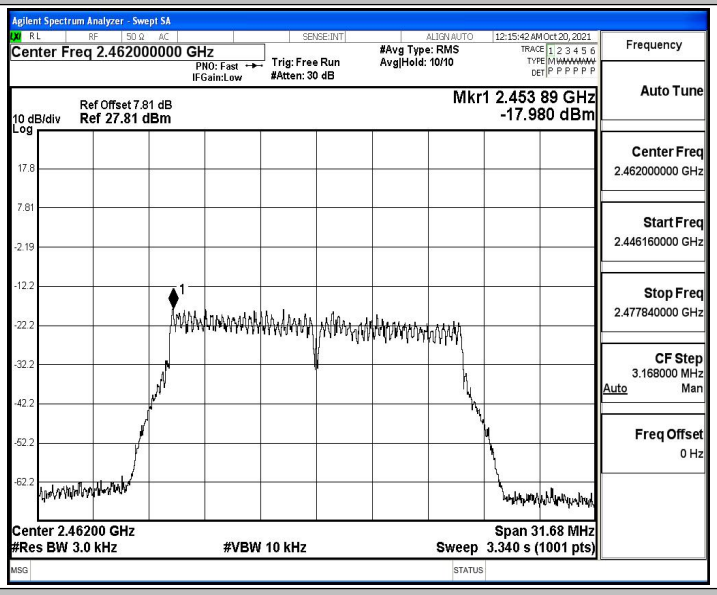
11G_Ant1_2412



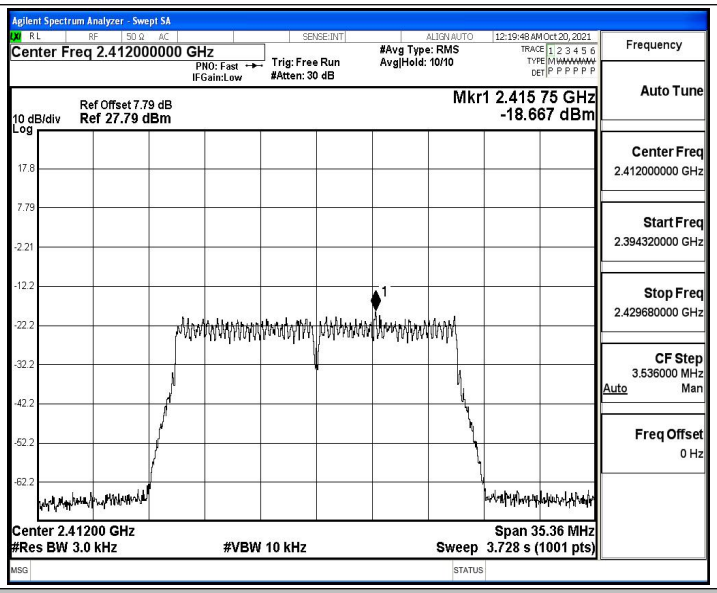
11G_Ant1_2437



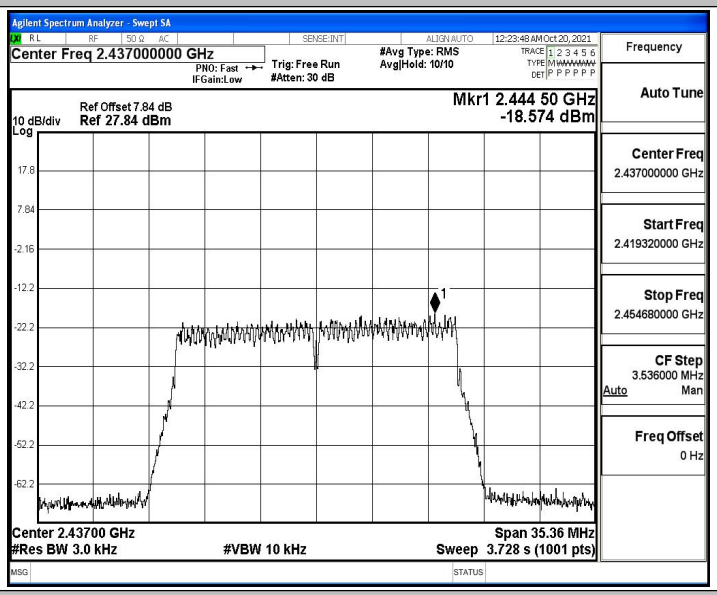
11G_Ant1_2462



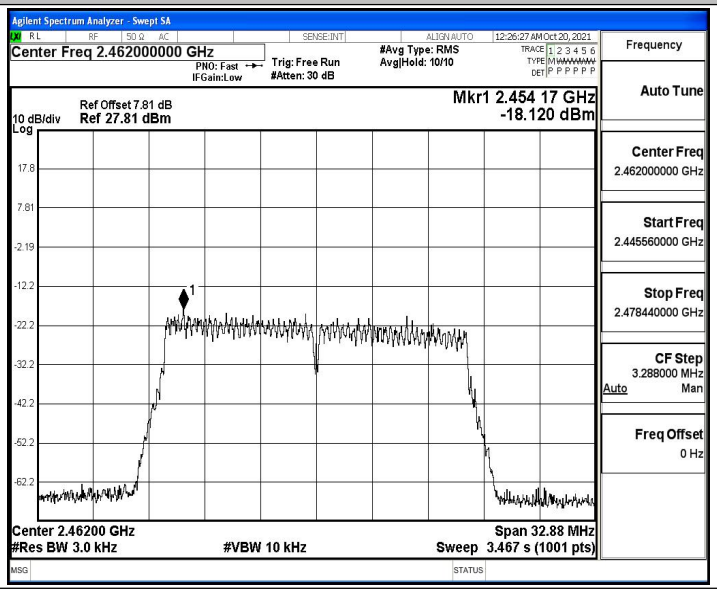
11N20SISO_Ant1_2412



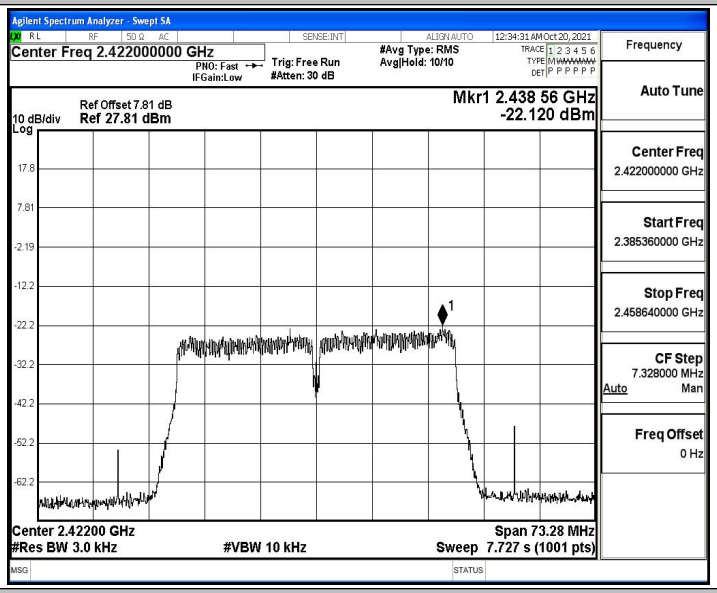
11N20SISO_Ant1_2437



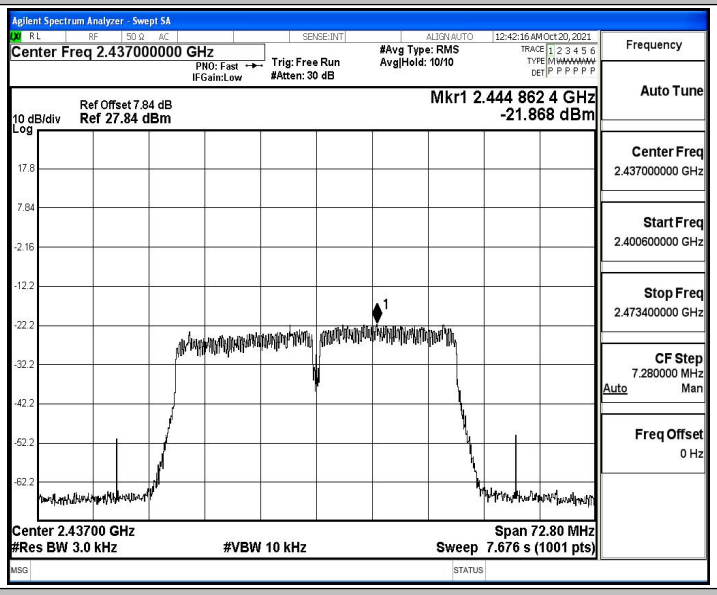
11N20SISO_Ant1_2462



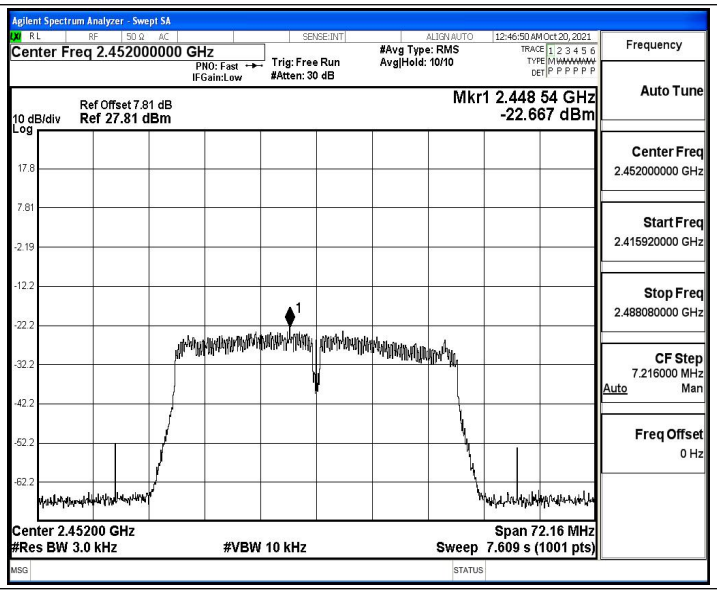
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.452000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
12:46:50 AM Oct 20, 2021
Ref Offset 7.81 dB
10 dB/div
Ref 27.81 dBm
Log
Mkr1 2.448 54 GHz
-22.667 dBm
Center 2.45200 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 72.16 MHz
Sweep 7.609 s (1001 pts)
Frequency
Auto Tune
Center Freq
2.452000000 GHz
Start Freq
2.415920000 GHz
Stop Freq
2.488080000 GHz
CF Step
7.216000 MHz
Auto
Man
Freq Offset
0 Hz

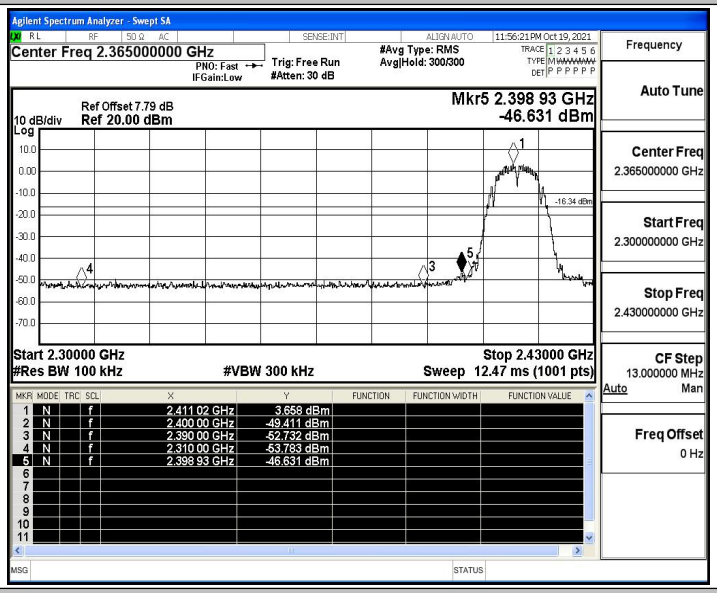
A.4 Band edge measurements

Test Result

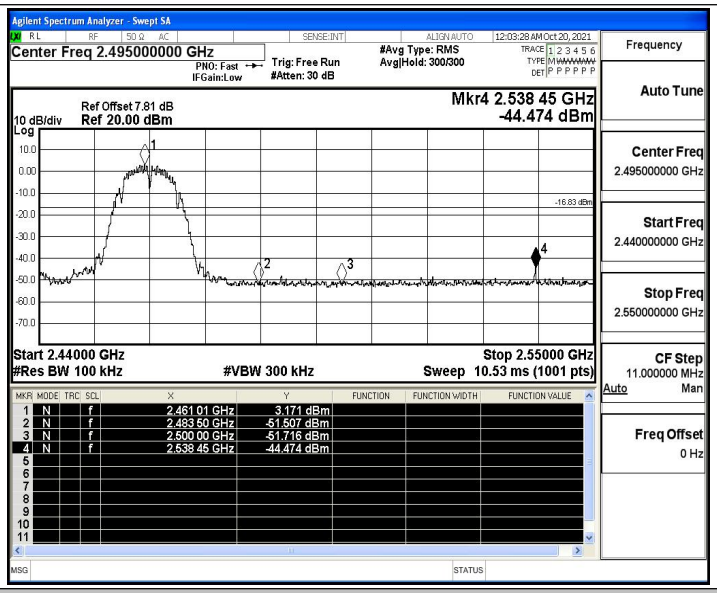
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	3.66	-46.63	≤-16.34	PASS
		High	2462	3.17	-44.47	≤-16.83	PASS
11G	Ant1	Low	2412	-3.75	-46.33	≤-23.75	PASS
		High	2462	-3.68	-45.91	≤-23.68	PASS
11N20SISO	Ant1	Low	2412	-5.23	-47.61	≤-25.23	PASS
		High	2462	-4.69	-47.16	≤-24.69	PASS
11N40SISO	Ant1	Low	2422	-10.74	-48.91	≤-30.74	PASS
		High	2452	-10.12	-48.97	≤-30.12	PASS

Test Graphs

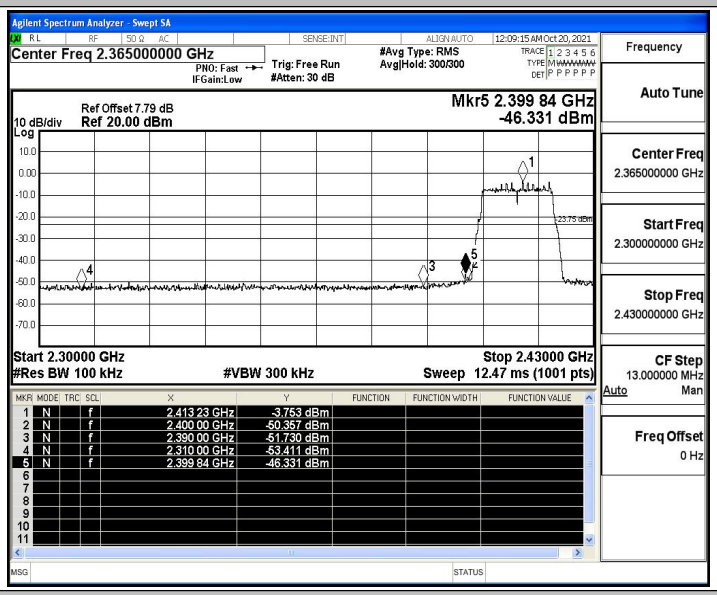
11B_Ant1_Low_2412



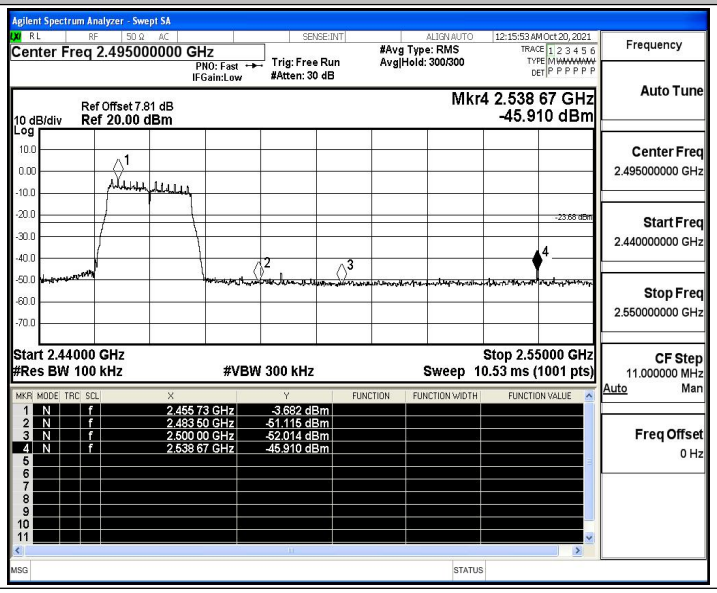
11B_Ant1_High_2462



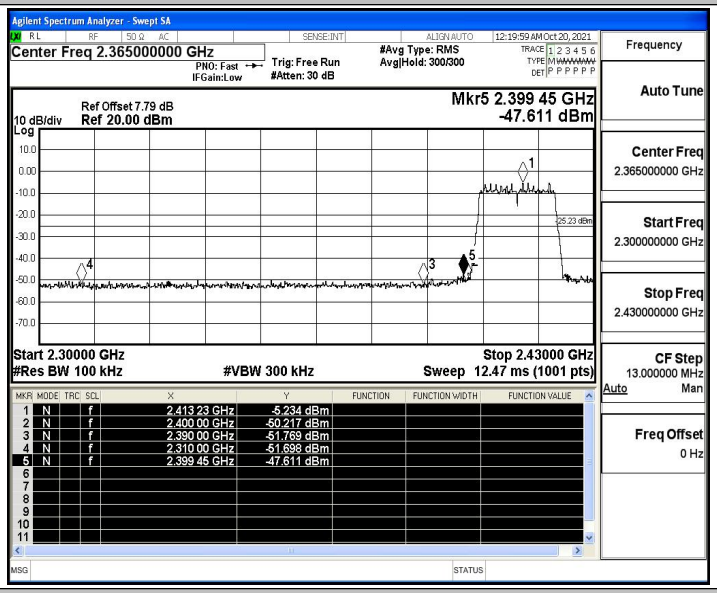
11G_Ant1_Low_2412



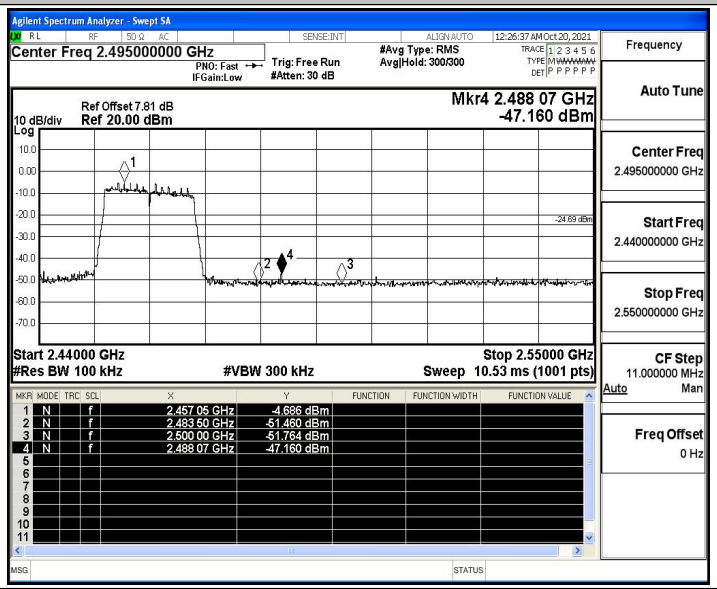
11G_Ant1_High_2462



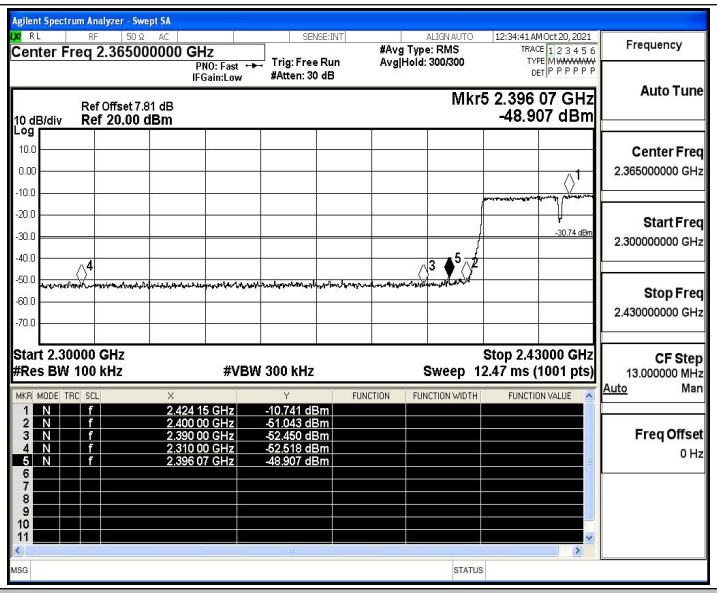
11N20SISO_Ant1_Low_2412



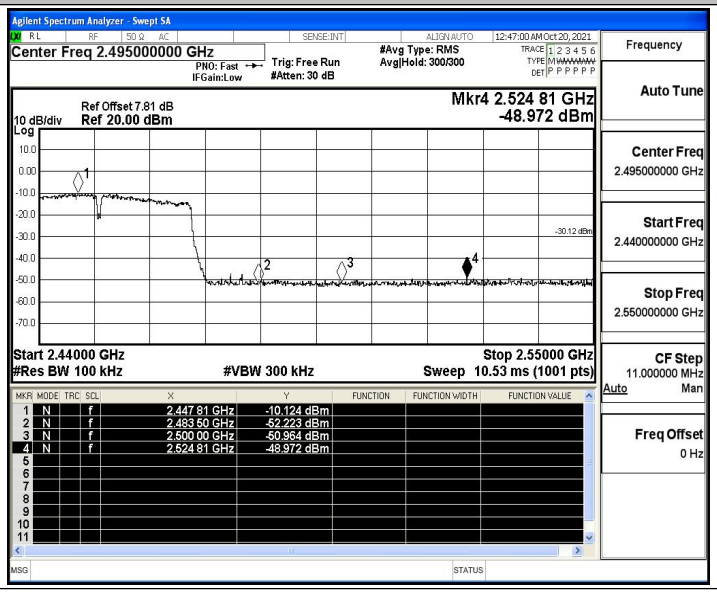
11N20SISO_Ant1_High_2462



11N40SISO_Ant1_Low_2422



11N40SISO_Ant1_High_2452



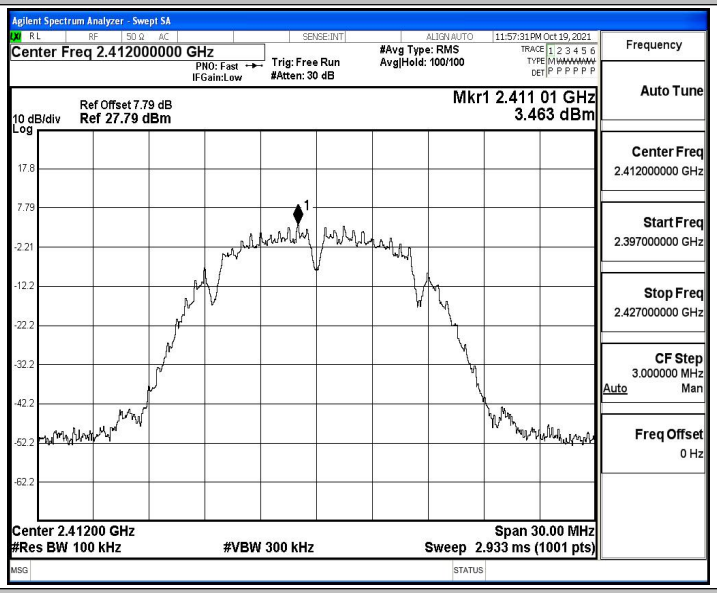
A.5 Conducted Spurious Emission

Test Result

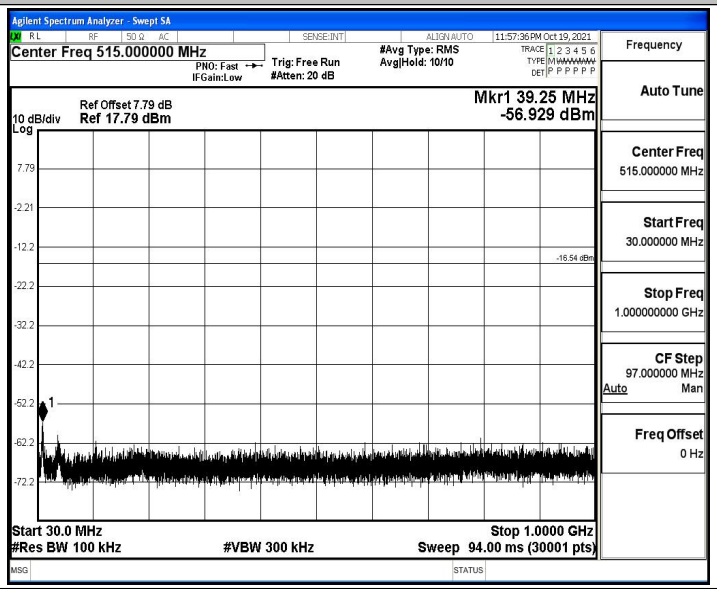
TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	3.46	3.46	---	PASS
			30~1000	3.46	-56.93	≤-16.54	PASS
			1000~26500	3.46	-47.76	≤-16.54	PASS
		2437	Reference	2.81	2.81	---	PASS
			30~1000	2.81	-55.22	≤-17.19	PASS
			1000~26500	2.81	-47.39	≤-17.19	PASS
		2462	Reference	2.62	2.62	---	PASS
			30~1000	2.62	-55	≤-17.38	PASS
			1000~26500	2.62	-47.62	≤-17.38	PASS
11G	Ant1	2412	Reference	-4.48	-4.48	---	PASS
			30~1000	-4.48	-56.04	≤-24.48	PASS
			1000~26500	-4.48	-45.54	≤-24.48	PASS
		2437	Reference	-3.65	-3.65	---	PASS
			30~1000	-3.65	-55.21	≤-23.65	PASS
			1000~26500	-3.65	-47.65	≤-23.65	PASS
		2462	Reference	-3.83	-3.83	---	PASS
			30~1000	-3.83	-56.53	≤-23.83	PASS
			1000~26500	-3.83	-47.44	≤-23.83	PASS
11N20SISO	Ant1	2412	Reference	-5.32	-5.32	---	PASS
			30~1000	-5.32	-55.45	≤-25.32	PASS
			1000~26500	-5.32	-48.34	≤-25.32	PASS
		2437	Reference	-4.50	-4.50	---	PASS
			30~1000	-4.50	-55.78	≤-24.5	PASS
			1000~26500	-4.50	-46.94	≤-24.5	PASS
		2462	Reference	-4.28	-4.28	---	PASS
			30~1000	-4.28	-55.89	≤-24.28	PASS
			1000~26500	-4.28	-47.13	≤-24.28	PASS
11N40SISO	Ant1	2422	Reference	-9.55	-9.55	---	PASS
			30~1000	-9.55	-55.94	≤-29.55	PASS
			1000~26500	-9.55	-47.66	≤-29.55	PASS
		2437	Reference	-8.38	-8.38	---	PASS
			30~1000	-8.38	-55.13	≤-28.38	PASS
			1000~26500	-8.38	-47.62	≤-28.38	PASS
		2452	Reference	-10.15	-10.15	---	PASS
			30~1000	-10.15	-57.07	≤-30.15	PASS
			1000~26500	-10.15	-47.7	≤-30.15	PASS

Test Graphs

11B_Ant1_2412_0~Reference



11B_Ant1_2412_30~1000



11B_Ant1_2412_1000~26500