



Appendix A Test Data

RF Test Data for 2.4G (Conducted Measurement)

Product Name: ELRS Nano TX Module

Test Model: ELRS 2.4GHz

Environmental Conditions

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

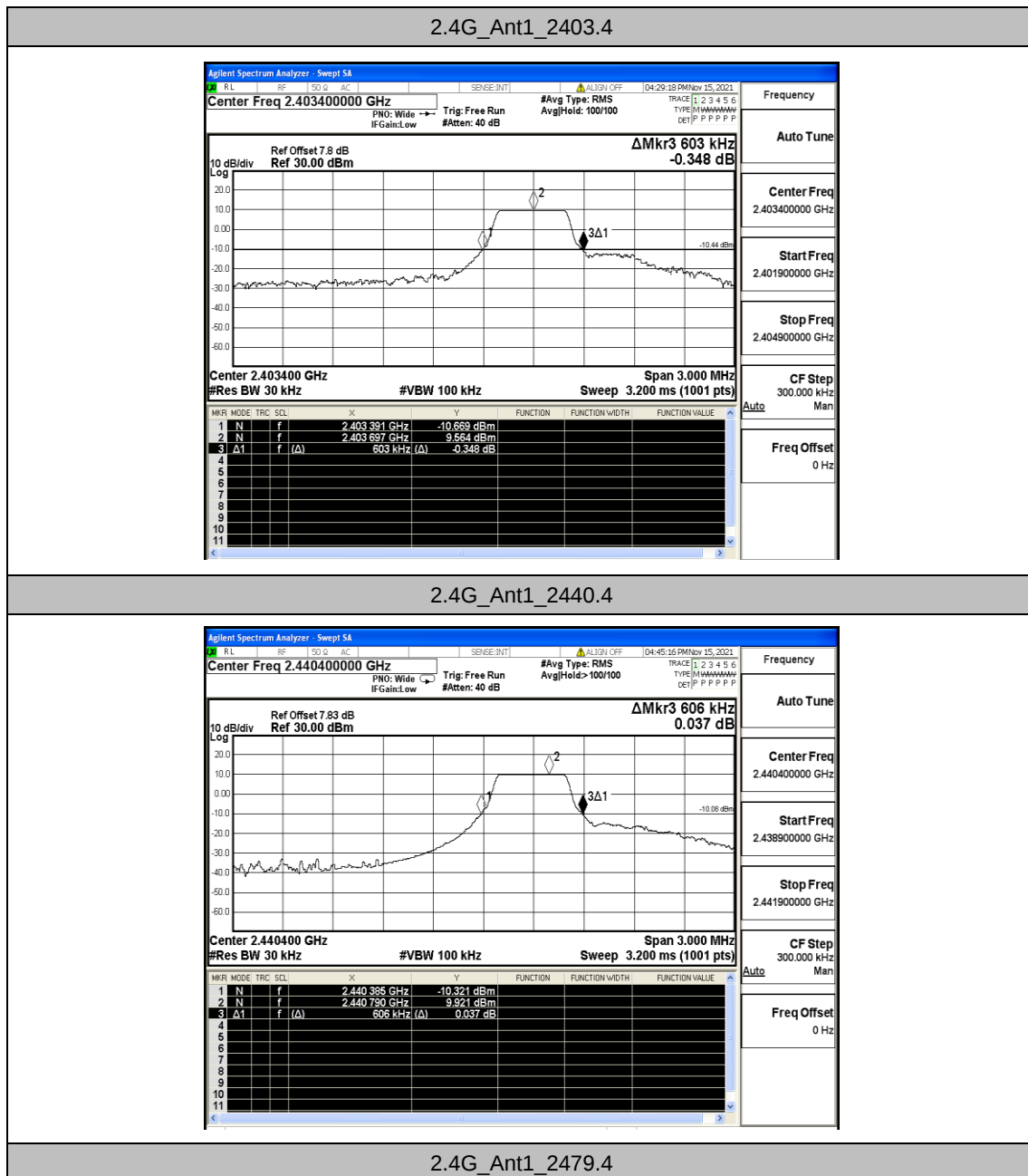


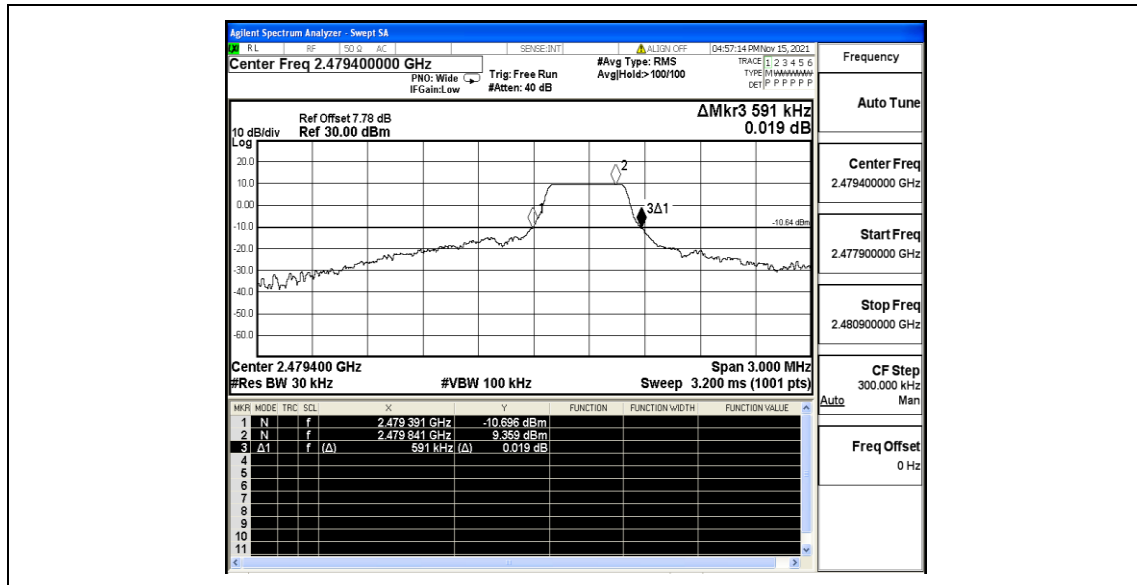
A.1 20dB Emission Bandwidth

Test Result

TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
2.4G	Ant1	2403.4	0.603	2403.391	2403.994	---	PASS
		2440.4	0.606	2440.385	2440.991	---	PASS
		2479.4	0.591	2479.391	2479.982	---	PASS

Test Graphs







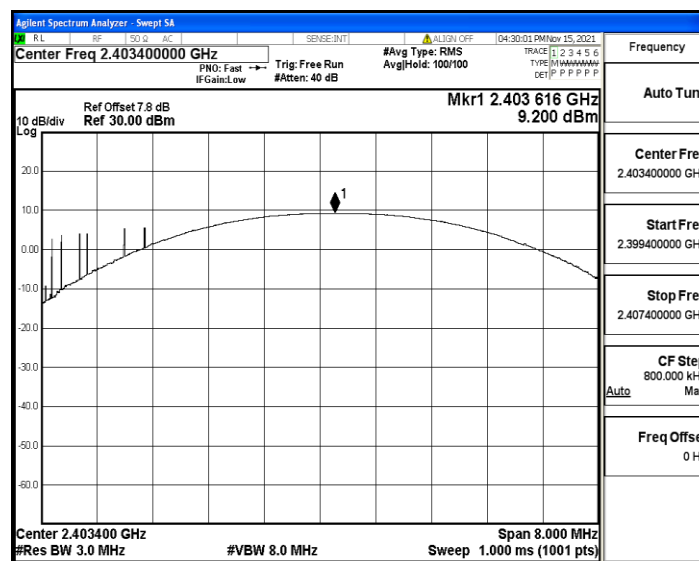
A.2 Maximum conducted output power

Test Result

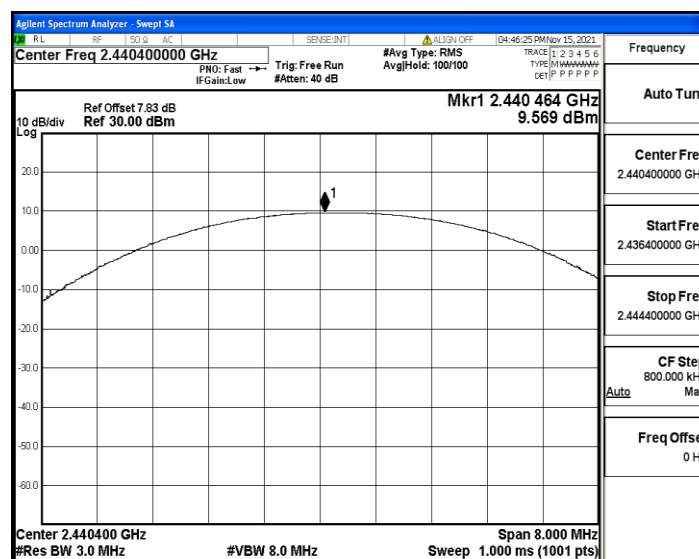
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
2.4G	Ant1	2403.4	9.2	≤30	PASS
		2440.4	9.57	≤30	PASS
		2479.4	9.03	≤30	PASS

Test Graphs

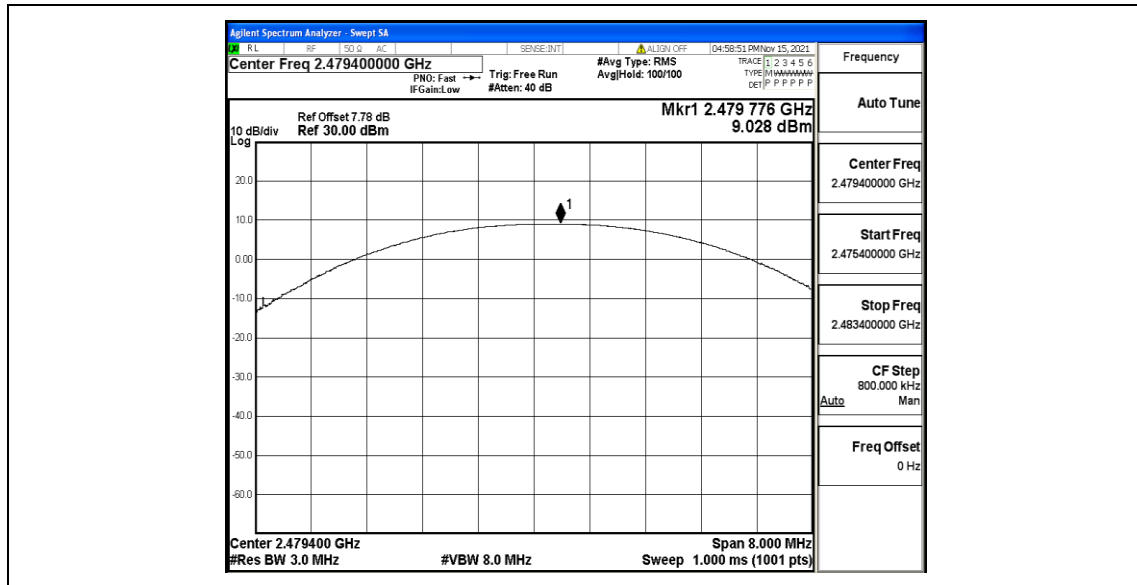
2.4G_Ant1_2403.4



2.4G_Ant1_2440.4



2.4G_Ant1_2479.4



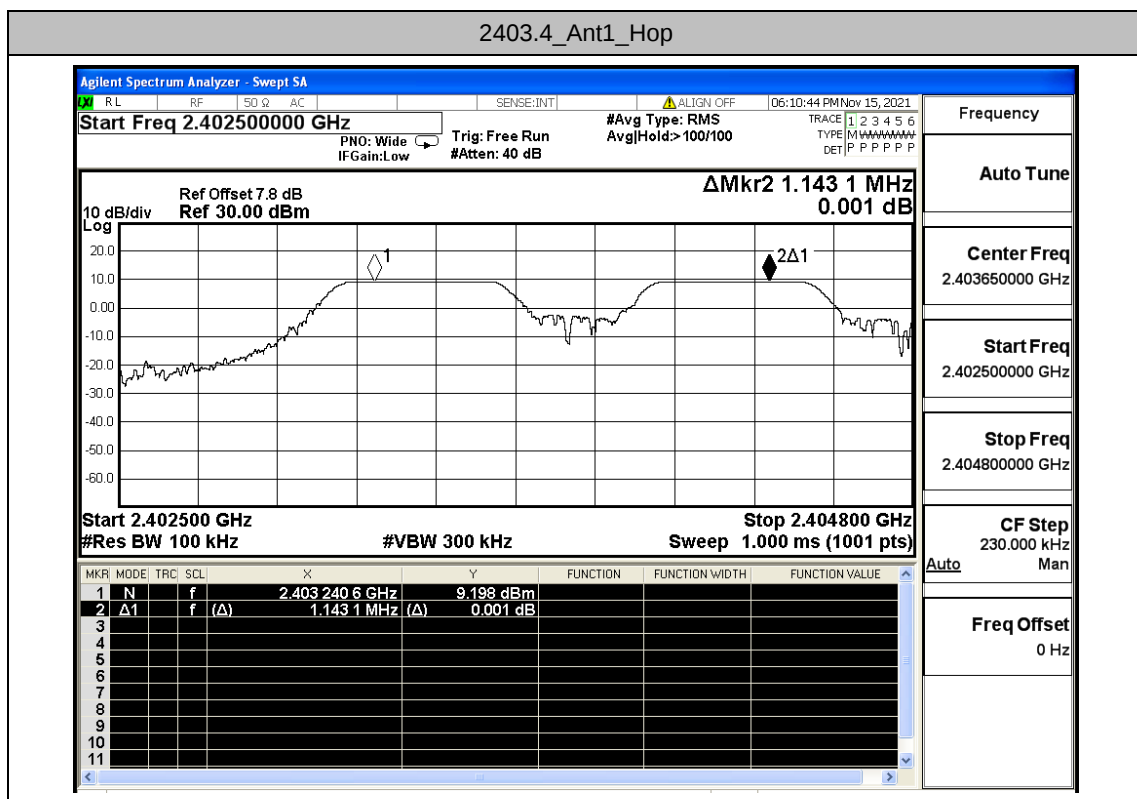


A.3 Carrier frequency separation

Test Result

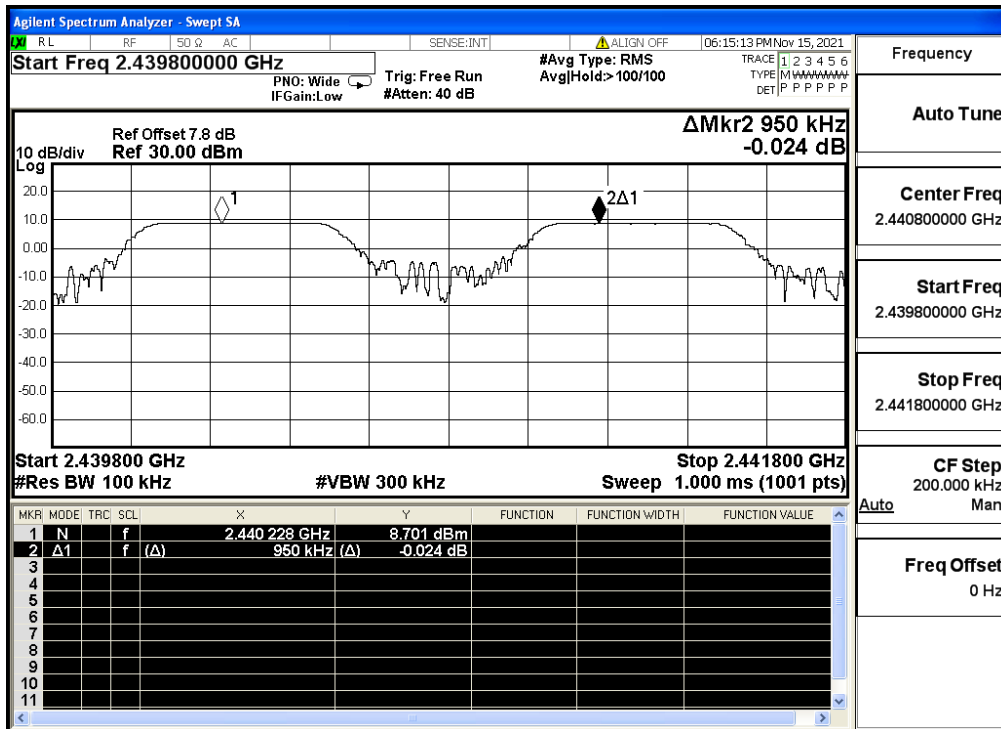
TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
2.4G	Ant1	2403.4	1.1431	≥ 0.606	PASS
2.4G	Ant1	2440.4	0.950	≥ 0.606	PASS
2.4G	Ant1	2479.4	0.914	≥ 0.606	PASS

Test Graphs

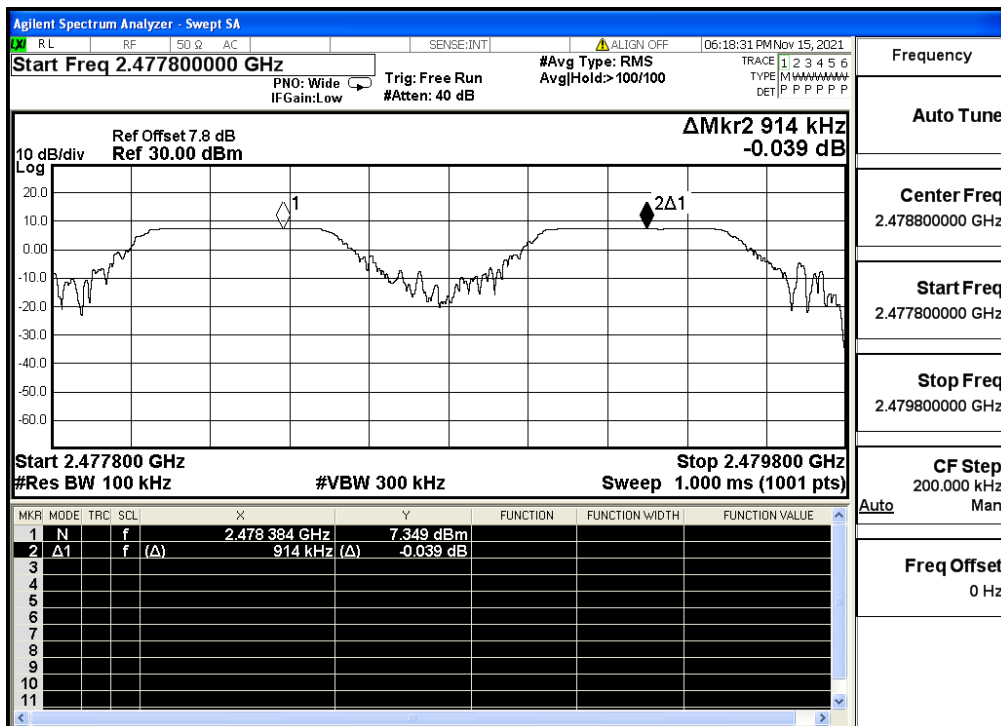




2440.4_Ant1_Hop



2479.4Ant1_Hop



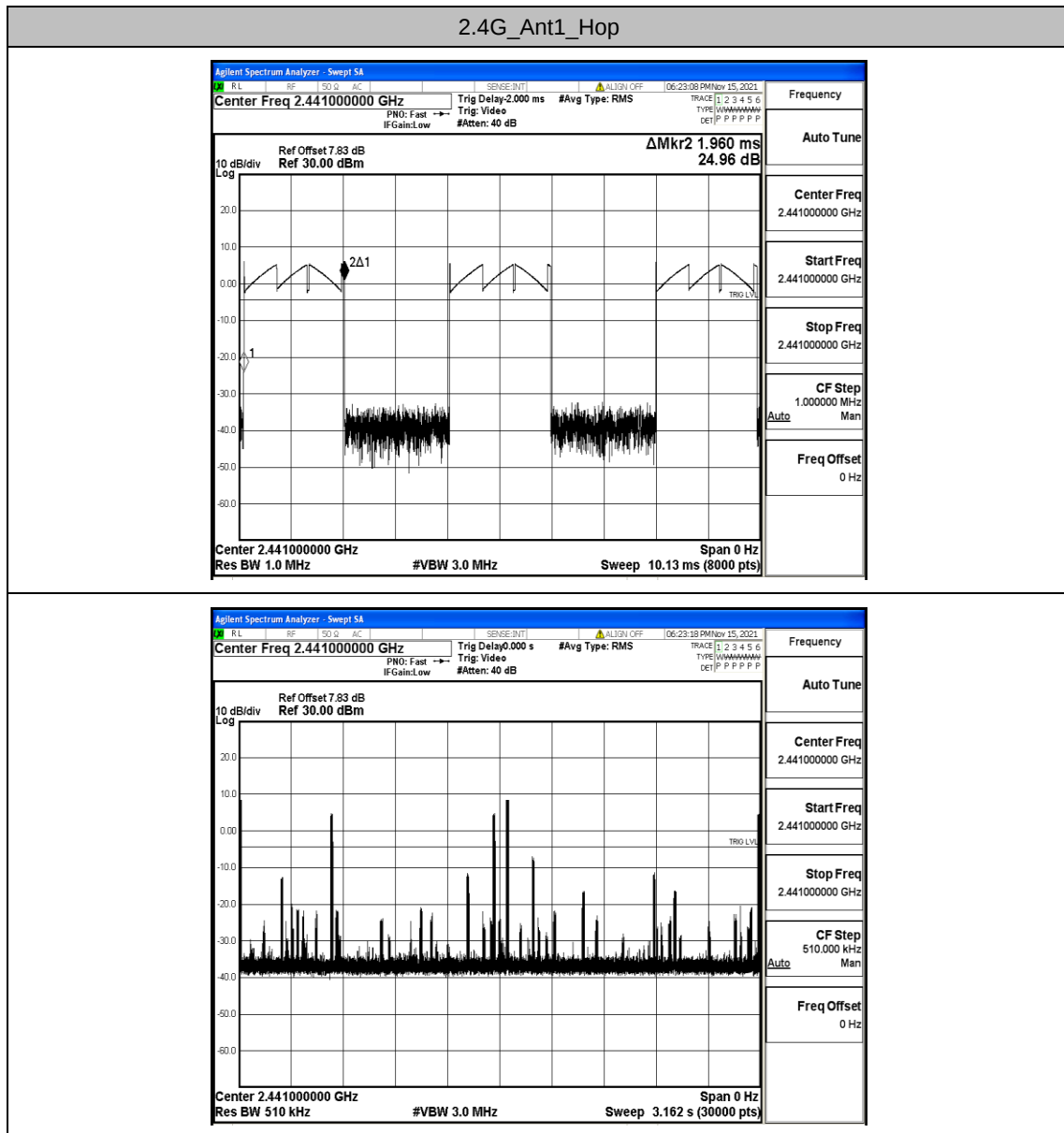


A.4 Time of occupancy

Test Result

TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
2.4G	Ant1	Hop	1.96	111	0.218	≤0.4	Pass

Test Graphs



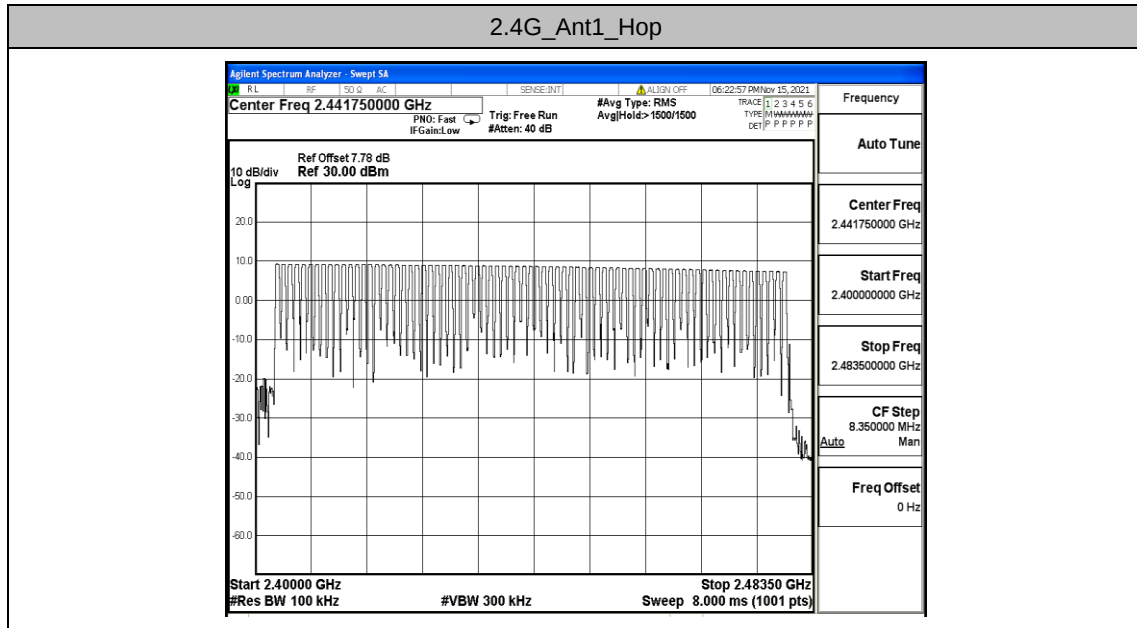


A.5 Number of hopping channels

Test Result

TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
2.4G	Ant1	Hop	77	≥15	PASS

Test Graphs



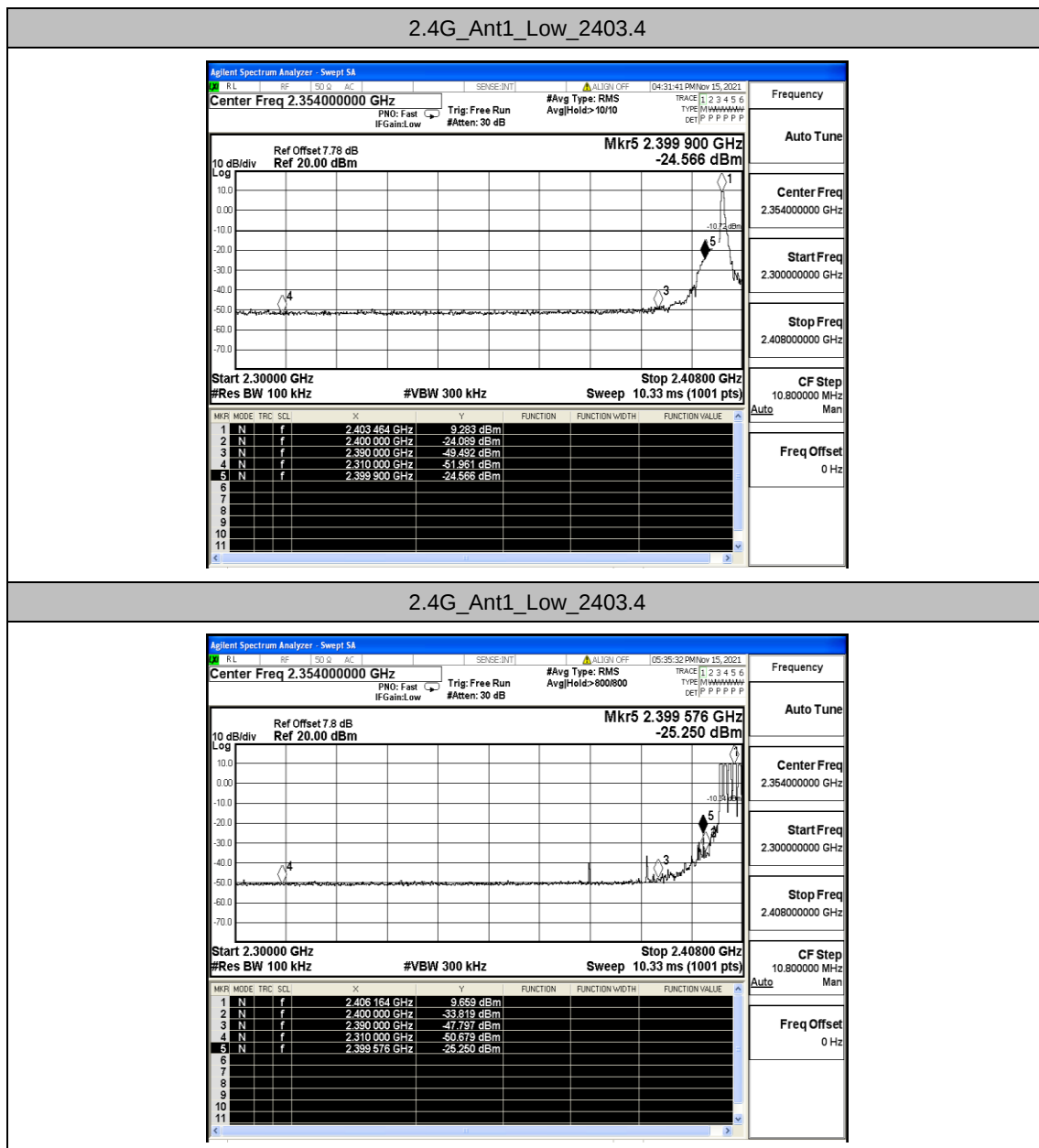


A.6 Band edge measurements

Test Result

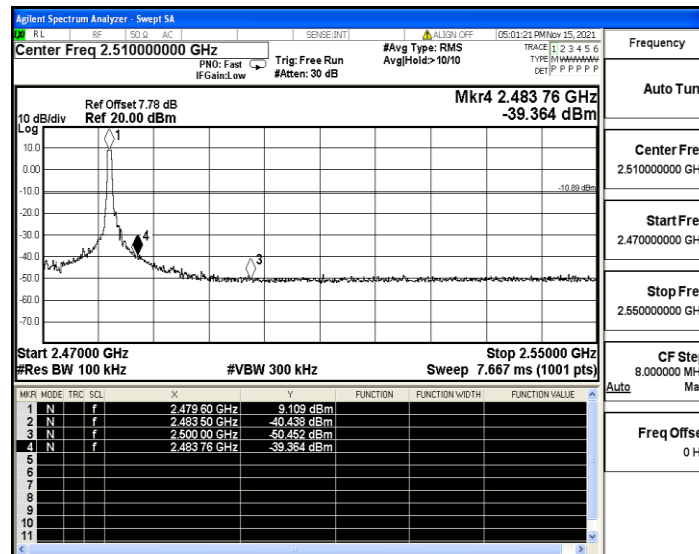
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
2.4G	Ant1	Low	2403.4	9.28	-24.57	≤-10.72	PASS
			2403.4	9.66	-25.25	≤-10.34	PASS
		High	2479.4	9.11	-39.36	≤-10.89	PASS
			2479.4	9.70	-52.62	≤-10.47	PASS

Test Graphs

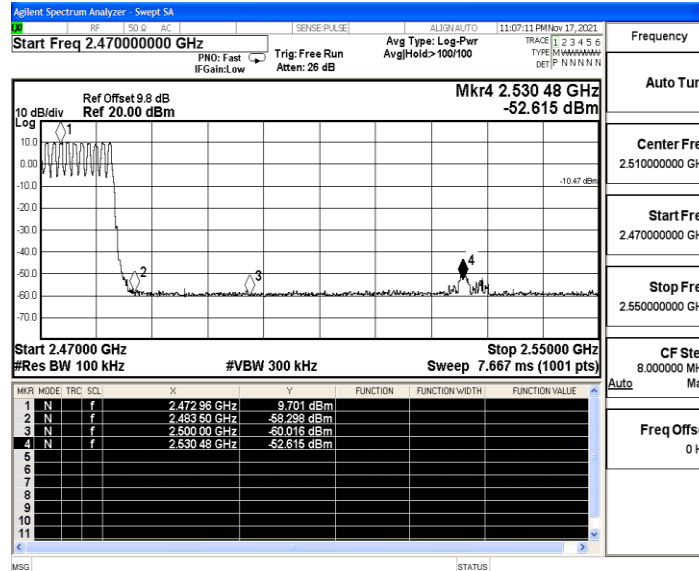




2.4G_Ant1_High_2479.4



2.4G_Ant1_High_2479.4



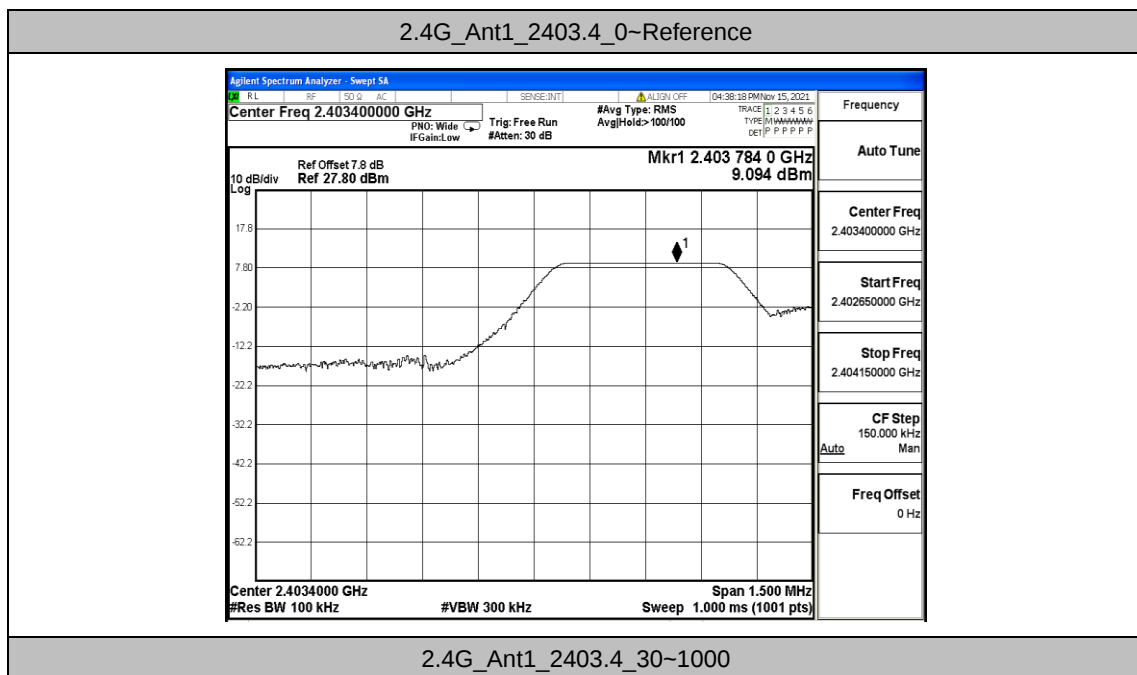


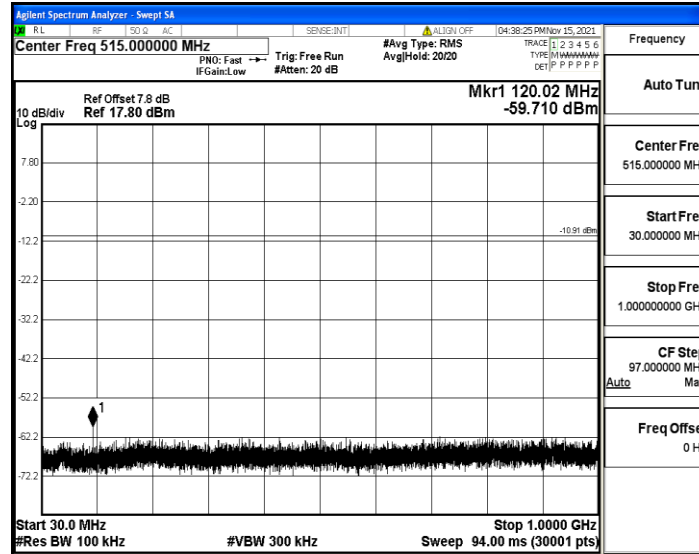
A.7 Conducted Spurious Emission

Test Result

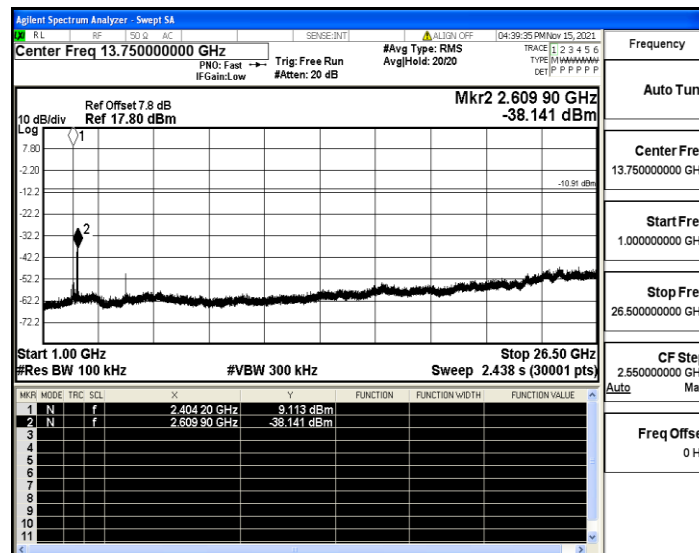
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
2.4G	Ant1	2403.4	Reference	9.09	9.09	---	PASS
			30~1000	9.09	-59.71	≤-10.91	PASS
			1000~26500	9.09	-38.14	≤-10.91	PASS
		2440.4	Reference	9.48	9.48	---	PASS
			30~1000	9.48	-60.68	≤-10.52	PASS
			1000~26500	9.48	-46.84	≤-10.52	PASS
		2479.4	Reference	9.01	9.01	---	PASS
			30~1000	9.01	-60.69	≤-10.99	PASS
			1000~26500	9.01	-47.1	≤-10.99	PASS

Test Graphs

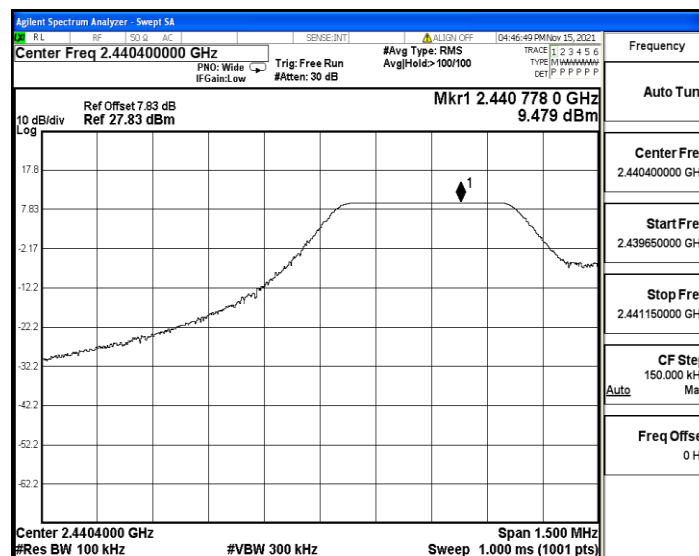




2.4G_Ant1_2403.4_1000~26500

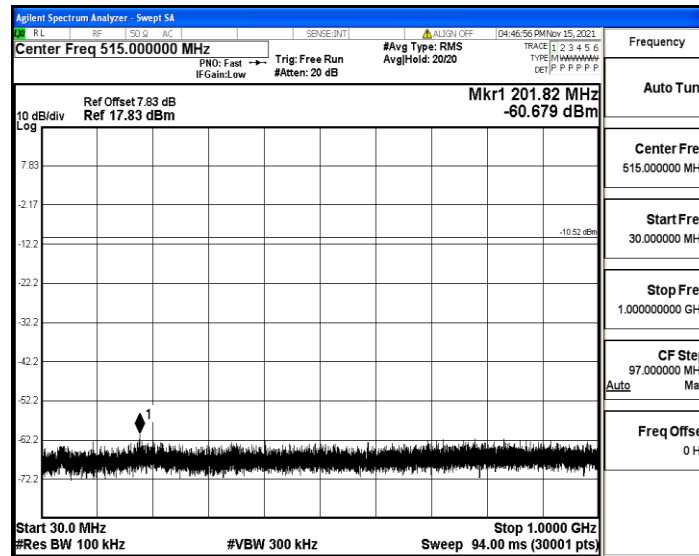


2.4G_Ant1_2440.4_0~Reference

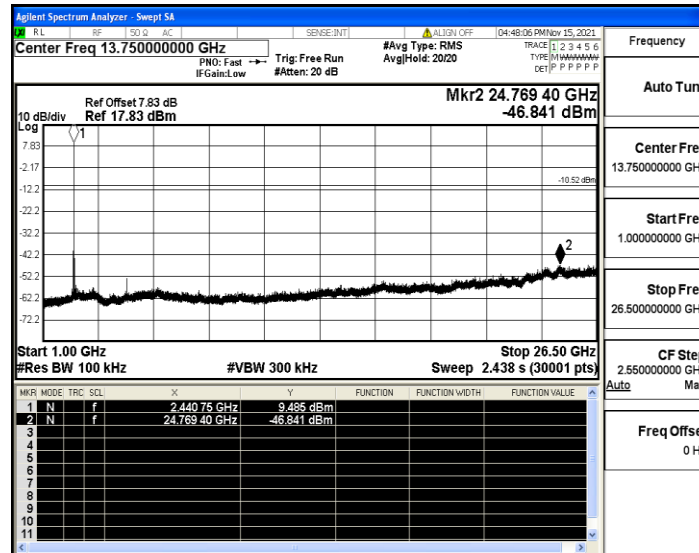




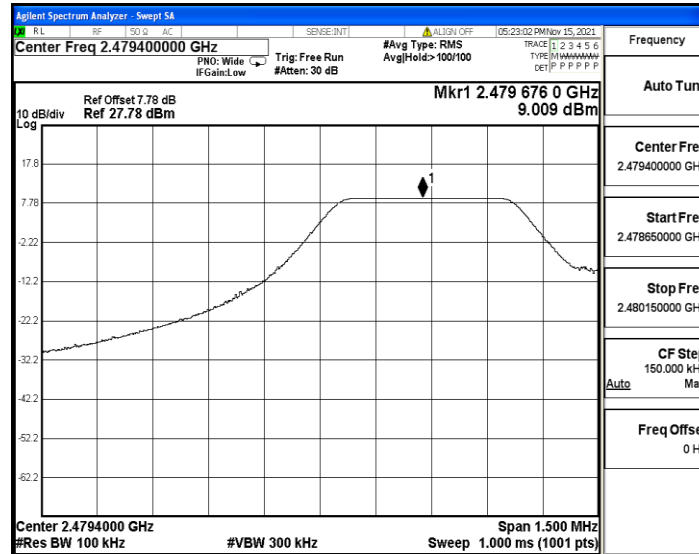
2.4G_Ant1_2440.4_30~1000



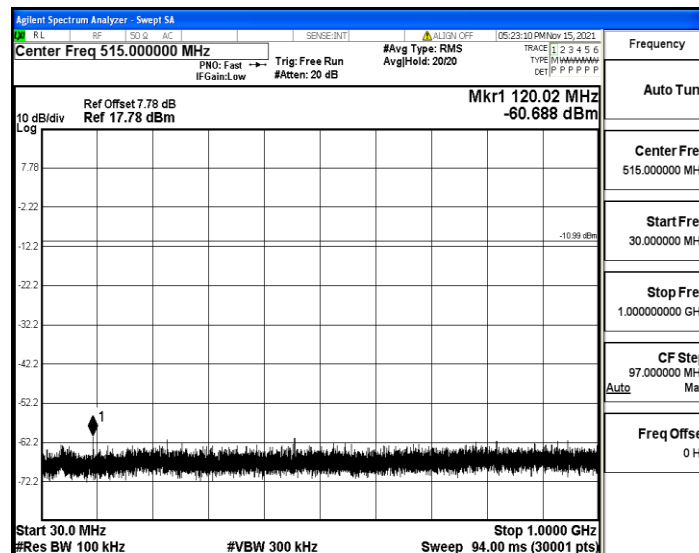
2.4G_Ant1_2440.4_1000~26500



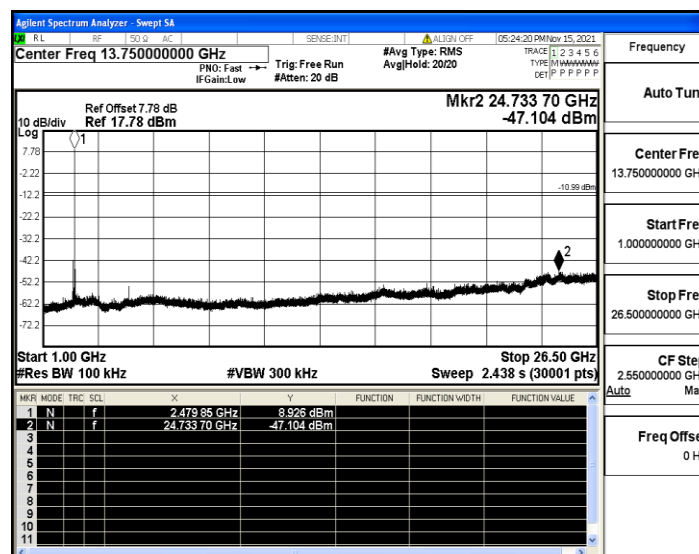
2.4G_Ant1_2479.4_0~Reference



2.4G_Ant1_2479.4_30~1000



2.4G_Ant1_2479.4_1000~26500





A.8 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
2.4G	Ant1	Low	2403.4	AV	2310.000	-60.224	≤-41.20	35.01	≤54	PASS
				AV	2390.000	-59.005	≤-41.20	36.23	≤54	PASS
				AV	2341.796	-60.141	≤-41.20	35.09	≤54	PASS
				Peak	2310.000	-47.494	≤-21.20	47.74	≤74	PASS
				Peak	2390.000	-31.453	≤-21.20	63.78	≤74	PASS
				Peak	2341.796	-41.826	≤-21.20	53.40	≤74	PASS
		High	2479.4	AV	2483.500	-54.324	≤-41.20	40.91	≤54	PASS
				AV	2492.320	-57.494	≤-41.20	37.74	≤54	PASS
				AV	2500.000	-59.411	≤-41.20	35.82	≤54	PASS
				Peak	2483.500	-21.695	≤-21.20	73.54	≤74	PASS
				Peak	2488.320	-29.045	≤-21.20	66.19	≤74	PASS
				Peak	2500.000	-36.665	≤-21.20	58.57	≤74	PASS

Note:

1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



Test Graphs

