



Appendix C

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: Laser Engraving Machine

Trade Mark: Spider

Test Model: Spider X1

Environmental Conditions

Temperature:	25.8° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen



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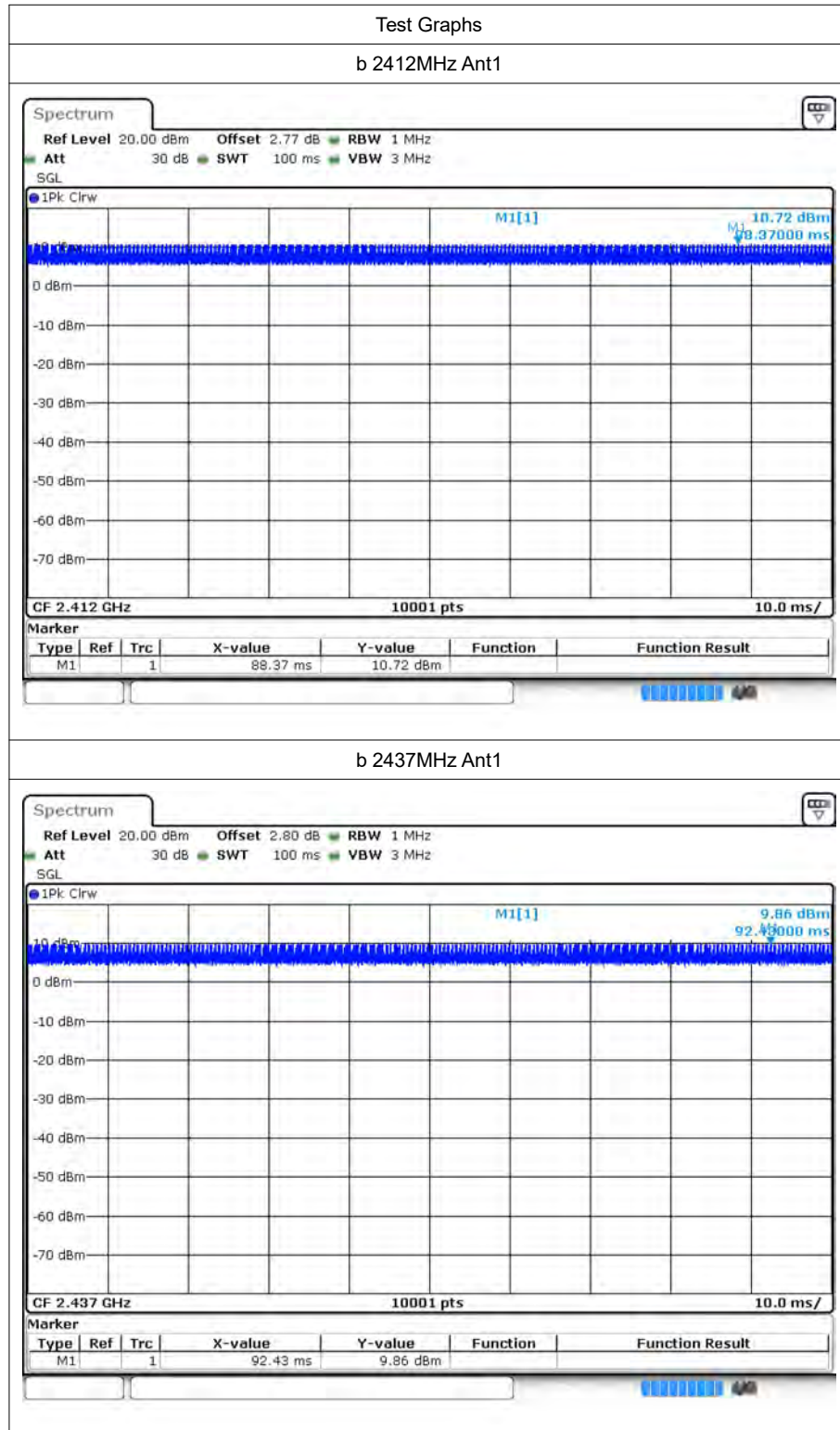


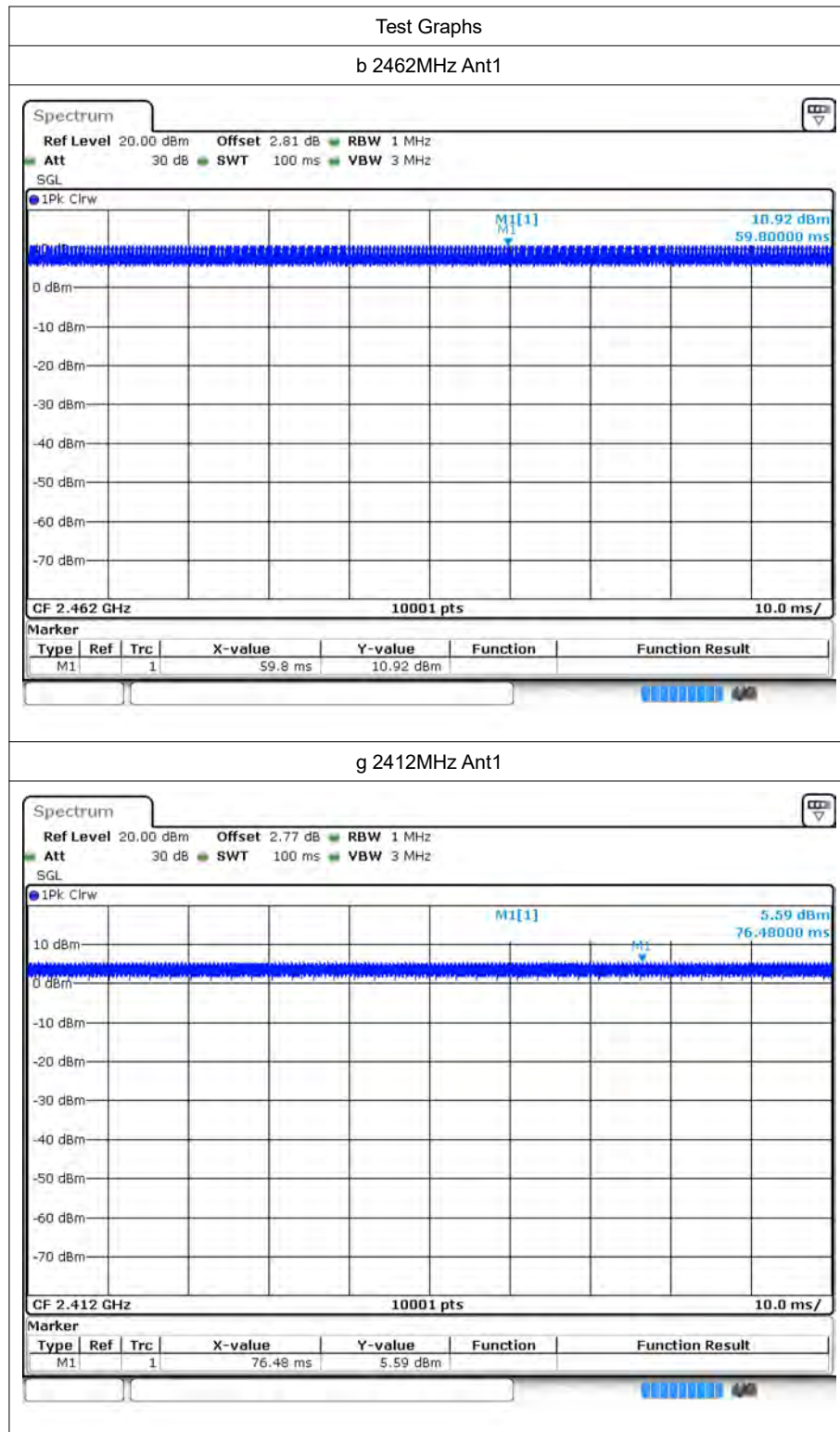
1 Duty Cycle

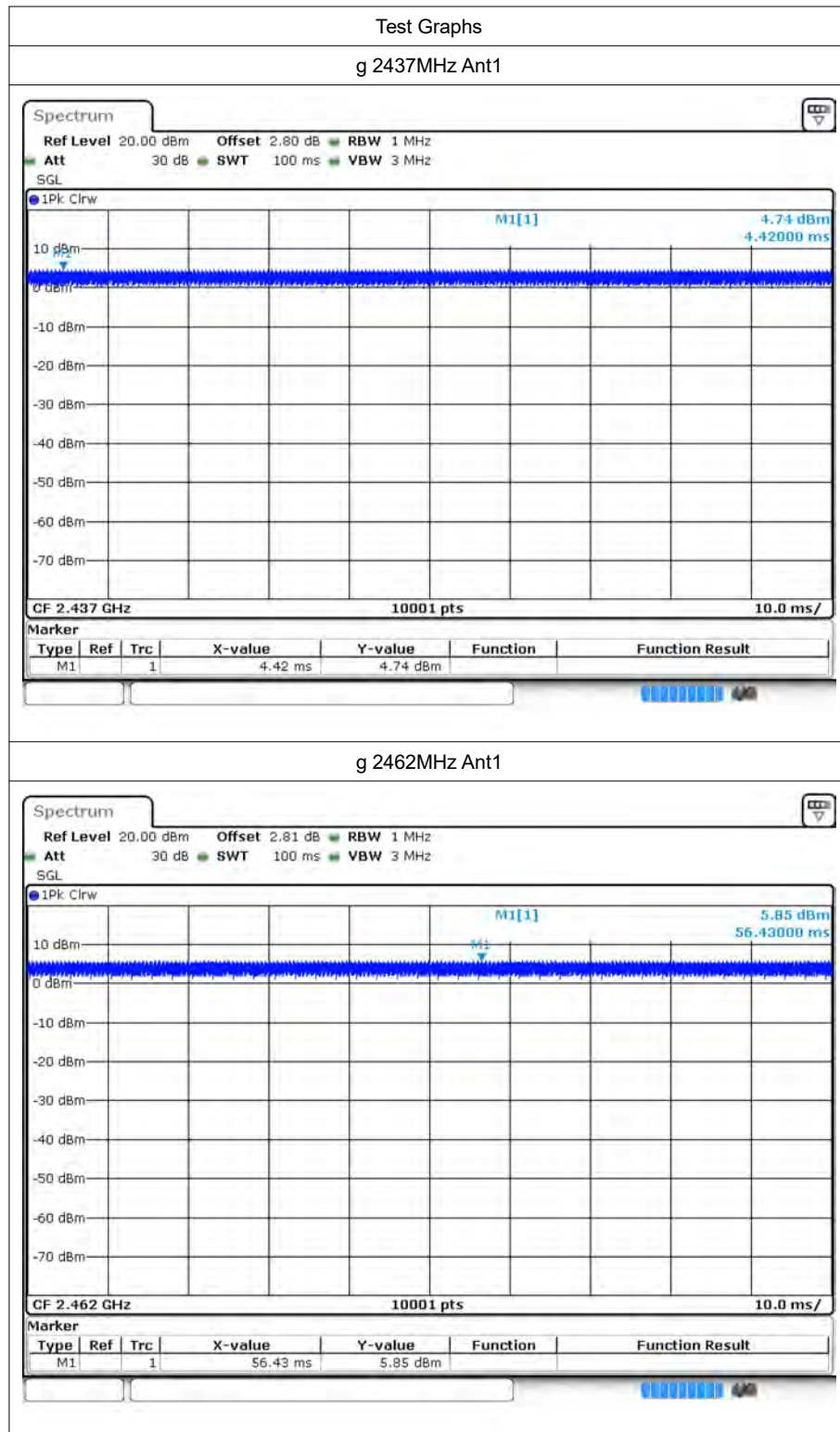
1.1 Test Result

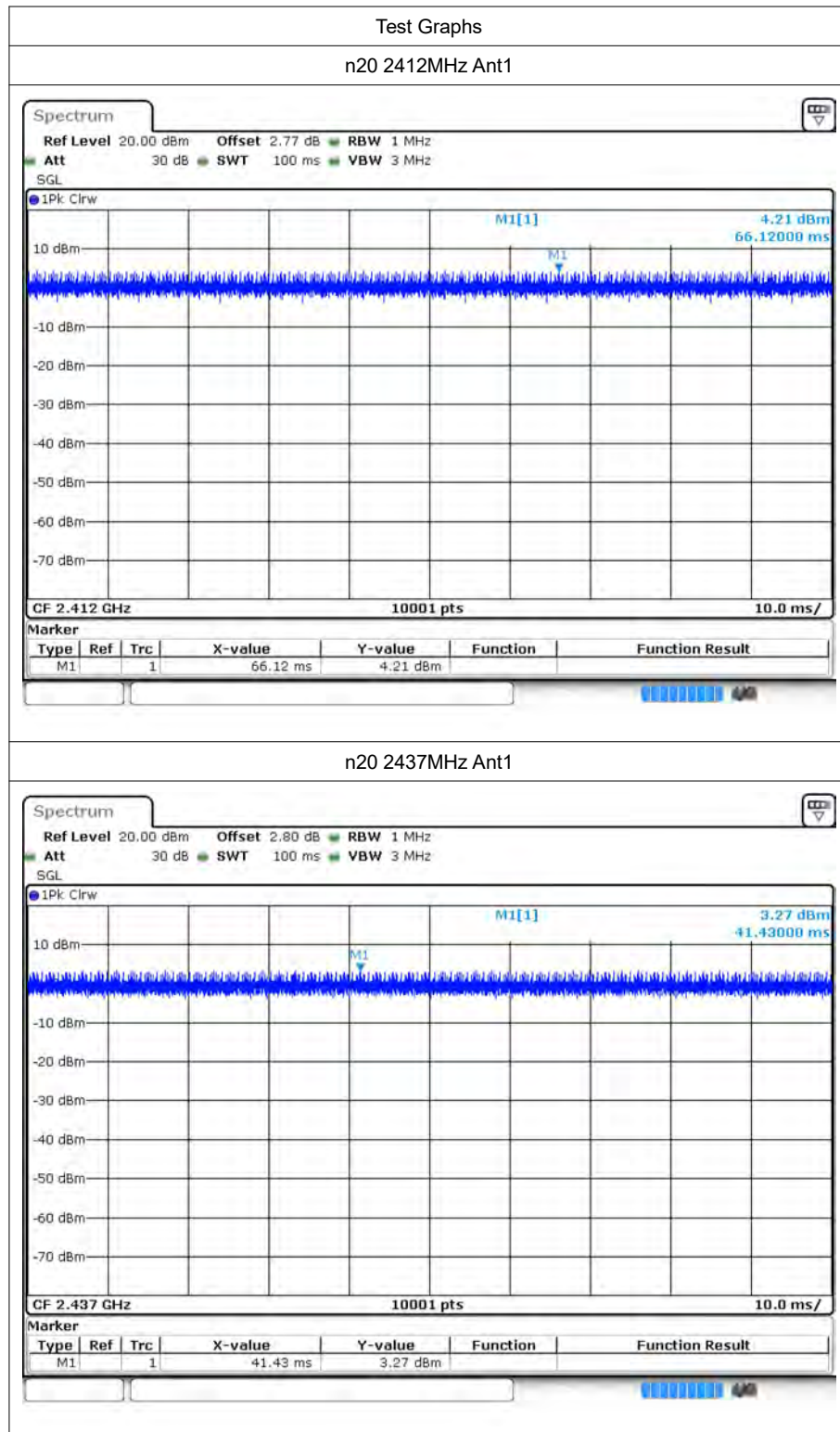
Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	1/T (kHz)
b	2412	Ant1	100	0
b	2437	Ant1	100	0
b	2462	Ant1	100	0
g	2412	Ant1	100	0
g	2437	Ant1	100	0
g	2462	Ant1	100	0
n20	2412	Ant1	100	0
n20	2437	Ant1	100	0
n20	2462	Ant1	100	0
n40	2422	Ant1	100	0
n40	2437	Ant1	100	0
n40	2452	Ant1	100	0

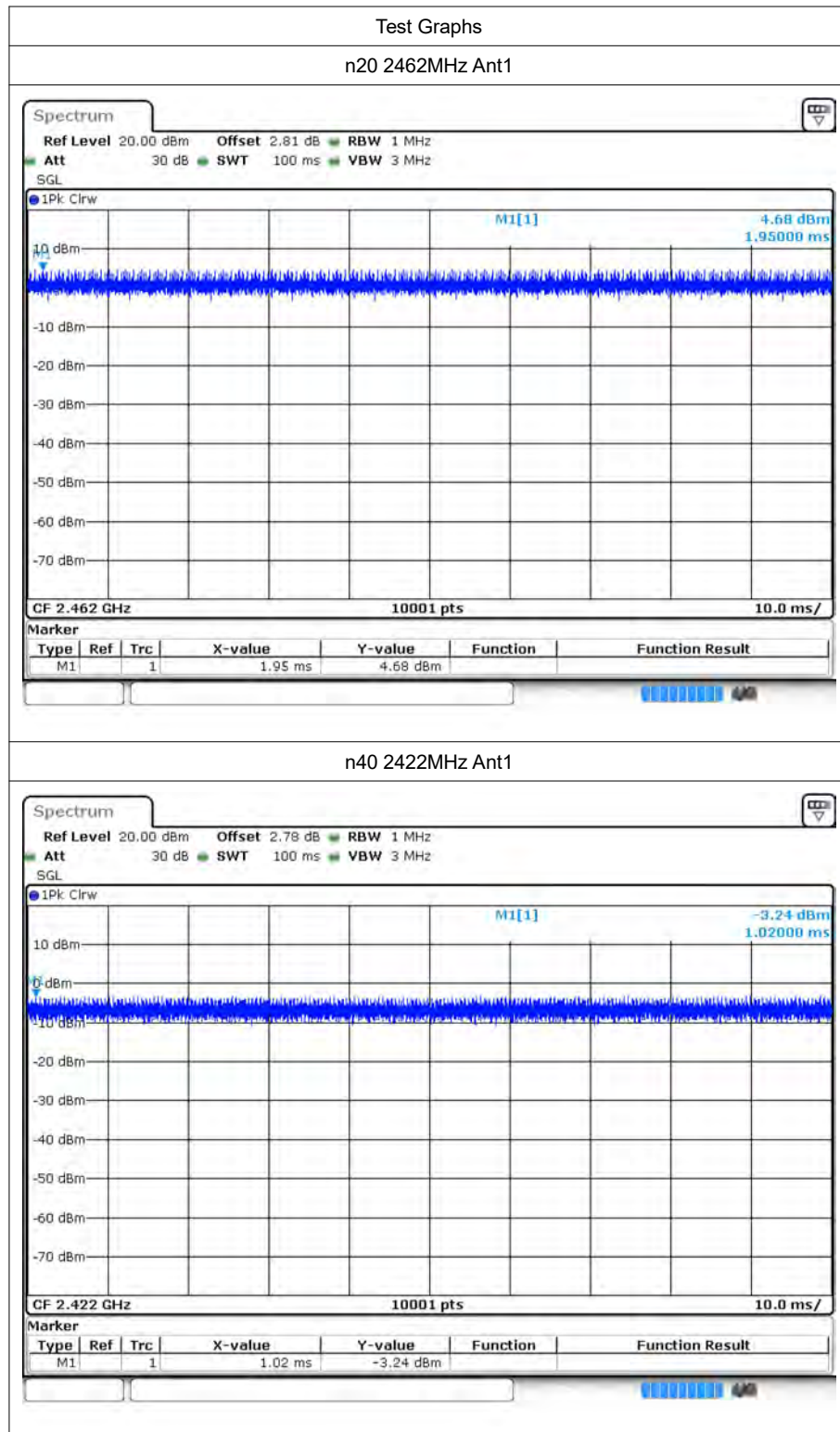
1.2 Test Graphs

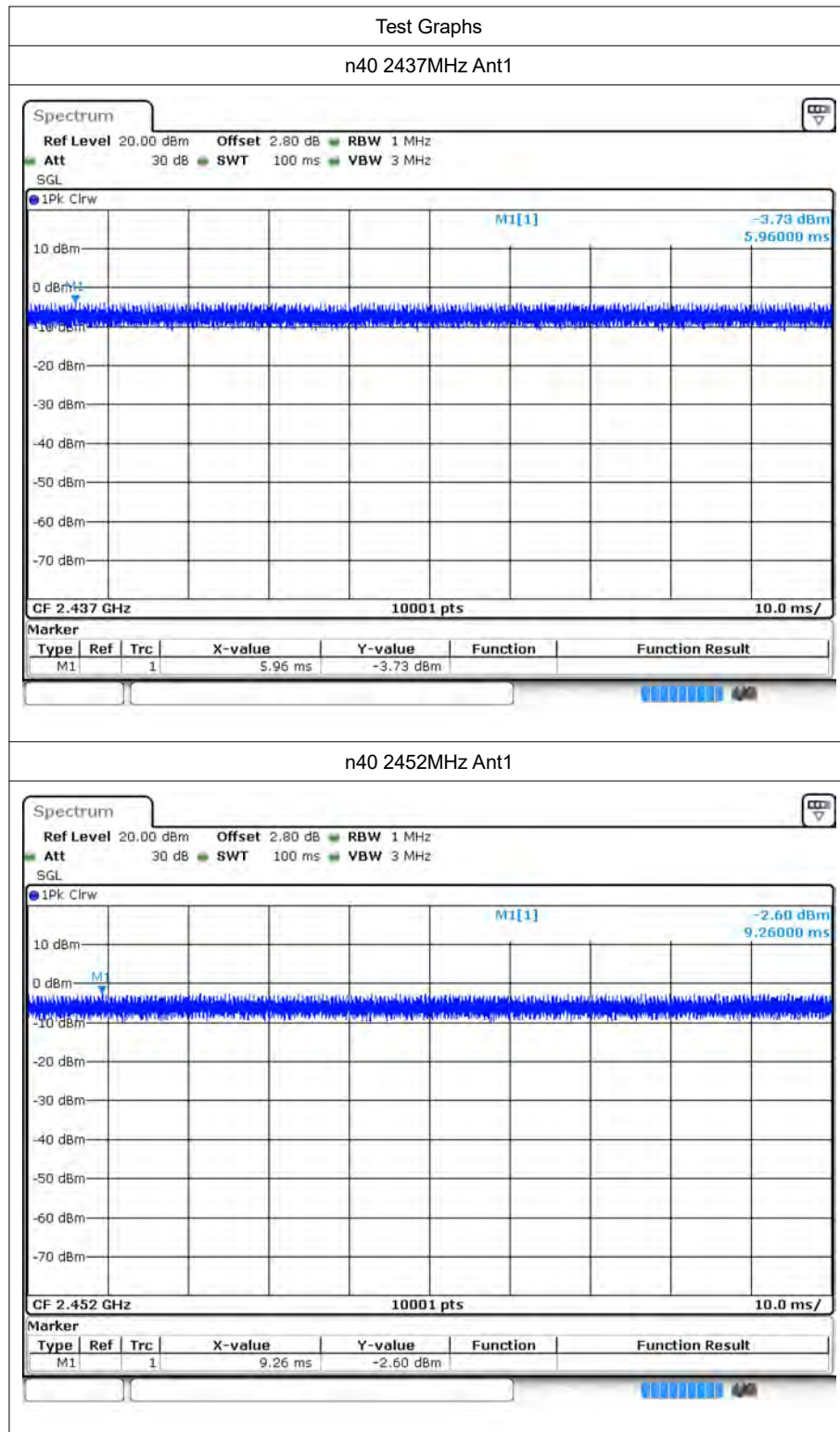














2 Maximum Conducted Output Power

2.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
b	2412	Ant1	18.15	30	Pass
b	2437	Ant1	17.46	30	Pass
b	2462	Ant1	18.32	30	Pass
g	2412	Ant1	17.28	30	Pass
g	2437	Ant1	16.48	30	Pass
g	2462	Ant1	17.7	30	Pass
n20	2412	Ant1	14.38	30	Pass
n20	2437	Ant1	13.43	30	Pass
n20	2462	Ant1	14.87	30	Pass
n40	2422	Ant1	13.83	30	Pass
n40	2437	Ant1	13.31	30	Pass
n40	2452	Ant1	14.05	30	Pass

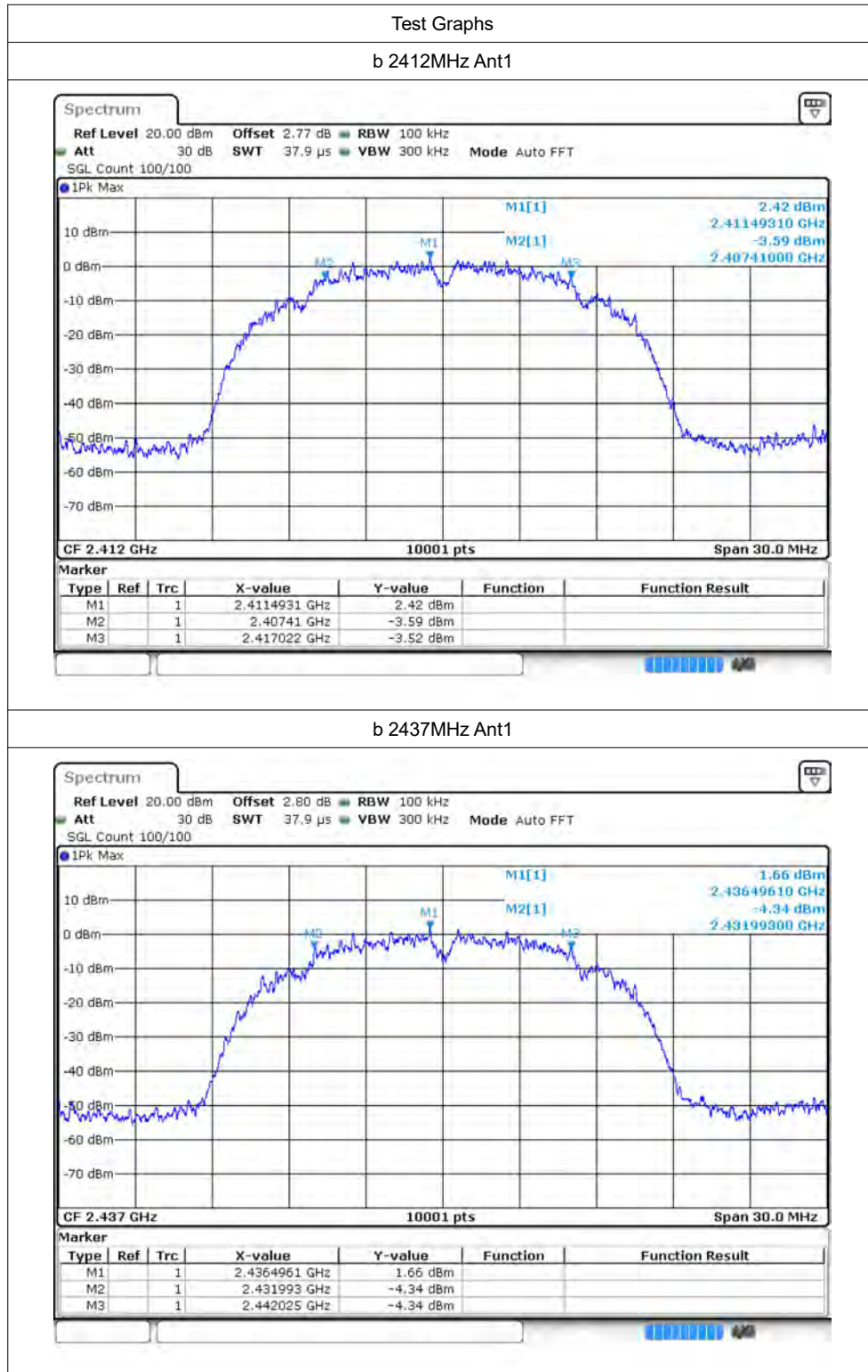


3 -6dB Bandwidth

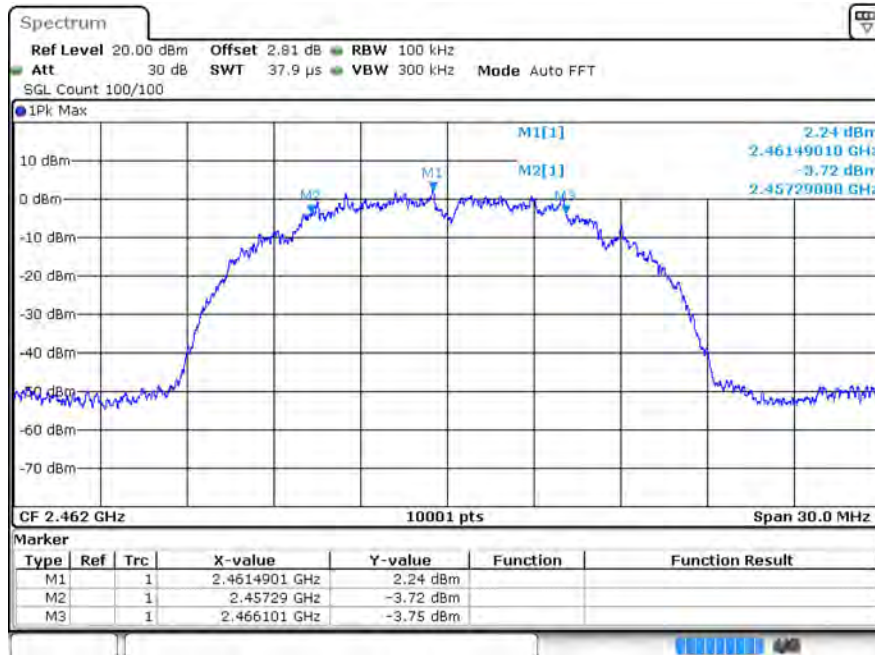
3.1 Test Result

Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
b	2412	Ant1	9.612	0.5	Pass
b	2437	Ant1	10.032	0.5	Pass
b	2462	Ant1	8.811	0.5	Pass
g	2412	Ant1	16.347	0.5	Pass
g	2437	Ant1	16.353	0.5	Pass
g	2462	Ant1	16.392	0.5	Pass
n20	2412	Ant1	17.316	0.5	Pass
n20	2437	Ant1	17.091	0.5	Pass
n20	2462	Ant1	16.989	0.5	Pass
n40	2422	Ant1	33.258	0.5	Pass
n40	2437	Ant1	33.204	0.5	Pass
n40	2452	Ant1	32.016	0.5	Pass

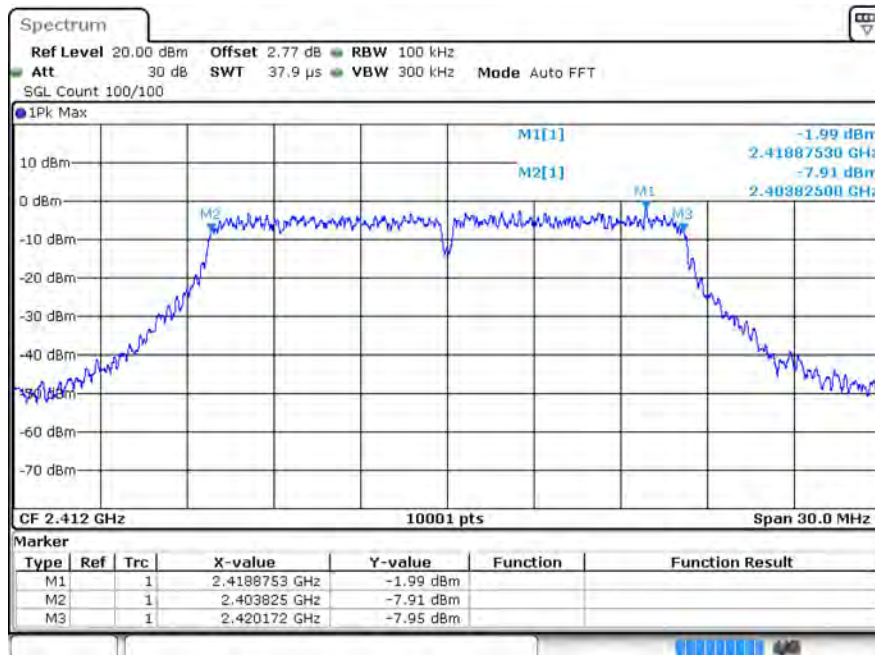
3.2 Test Graphs



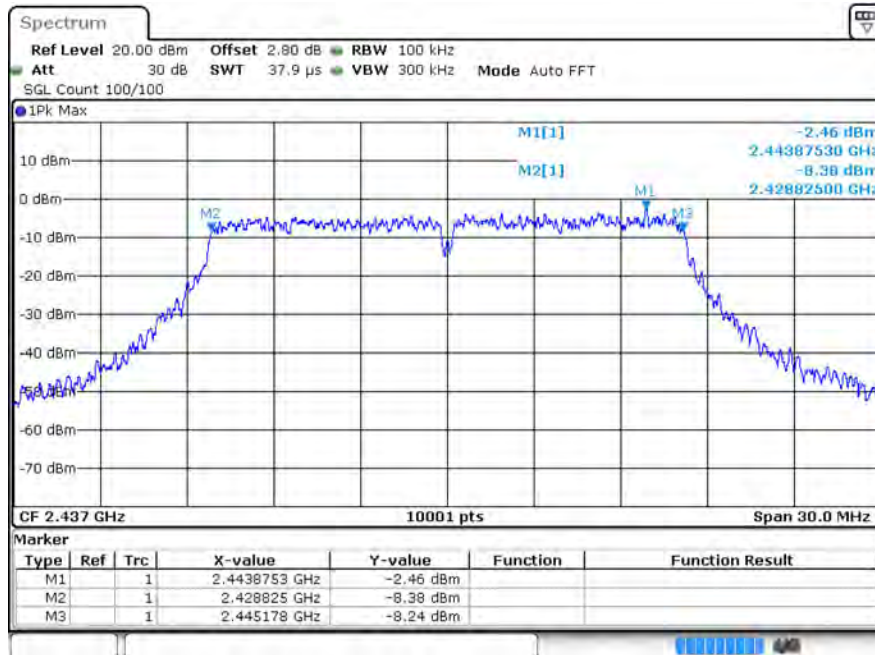
b 2462MHz Ant1



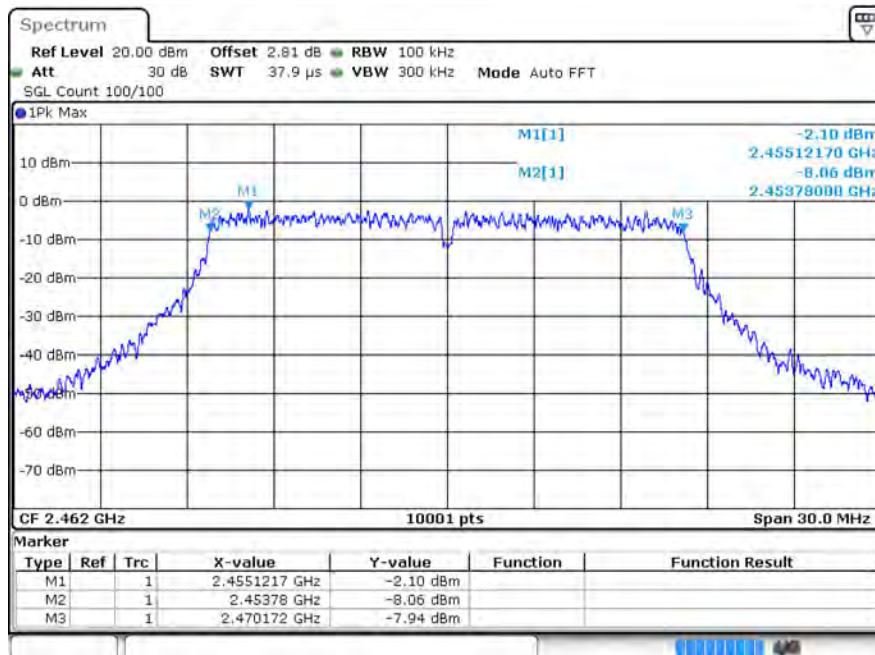
g 2412MHz Ant1



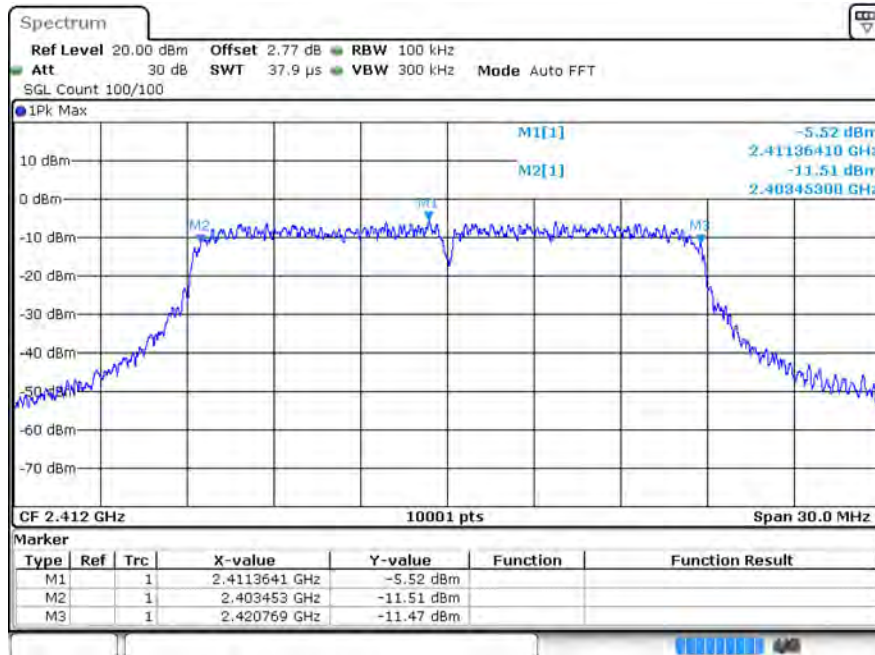
g 2437MHz Ant1



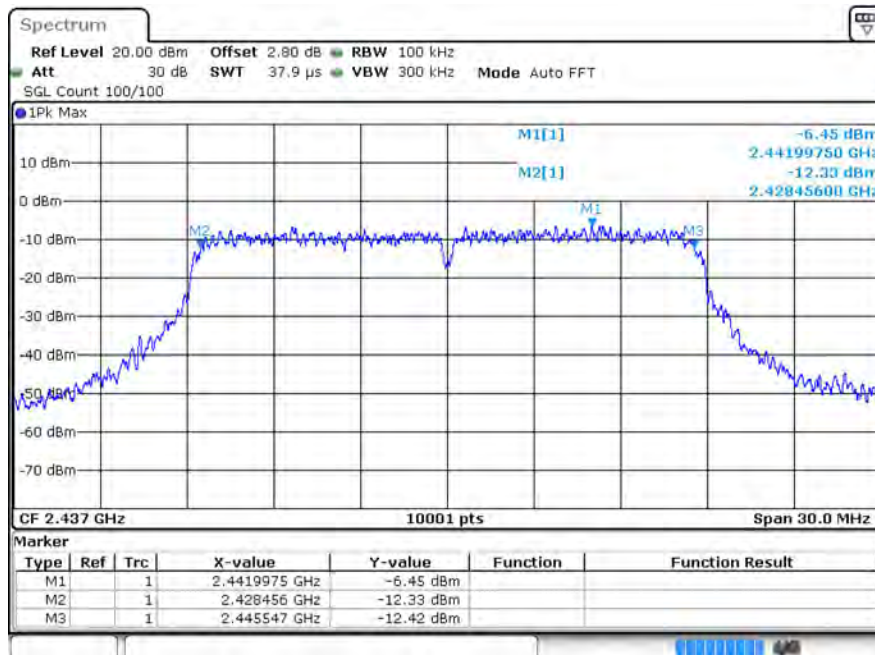
g 2462MHz Ant1



n20 2412MHz Ant1

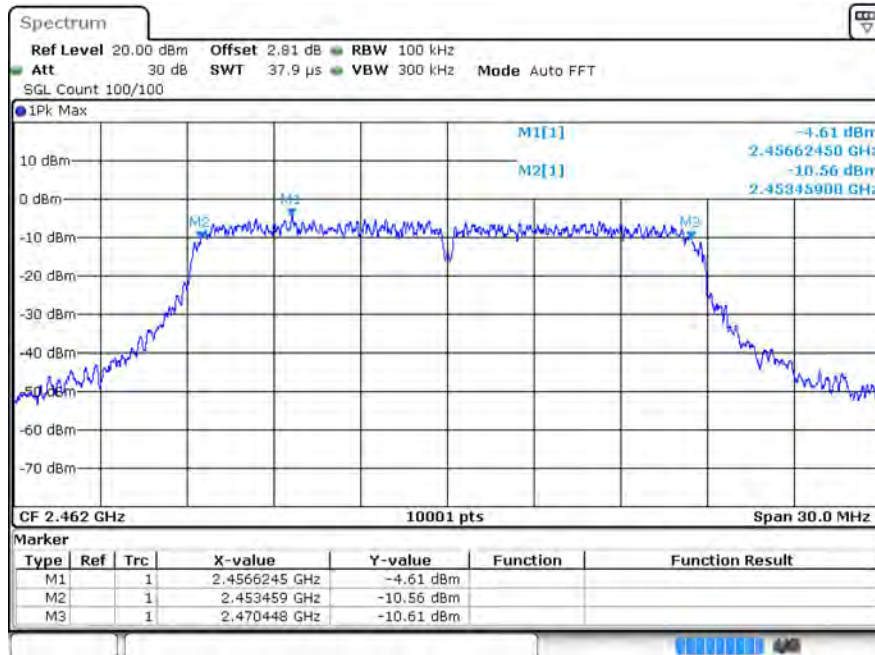


n20 2437MHz Ant1

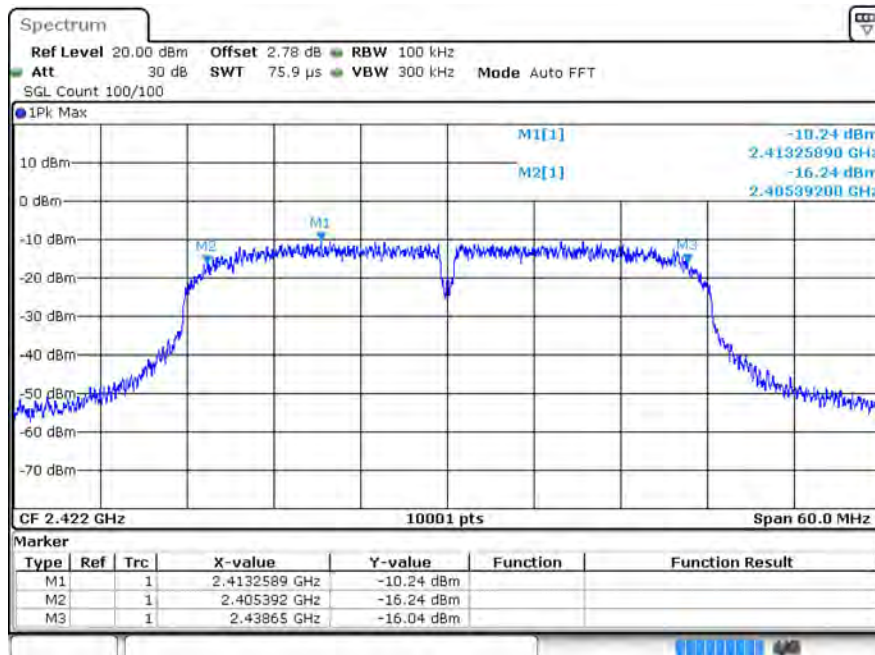




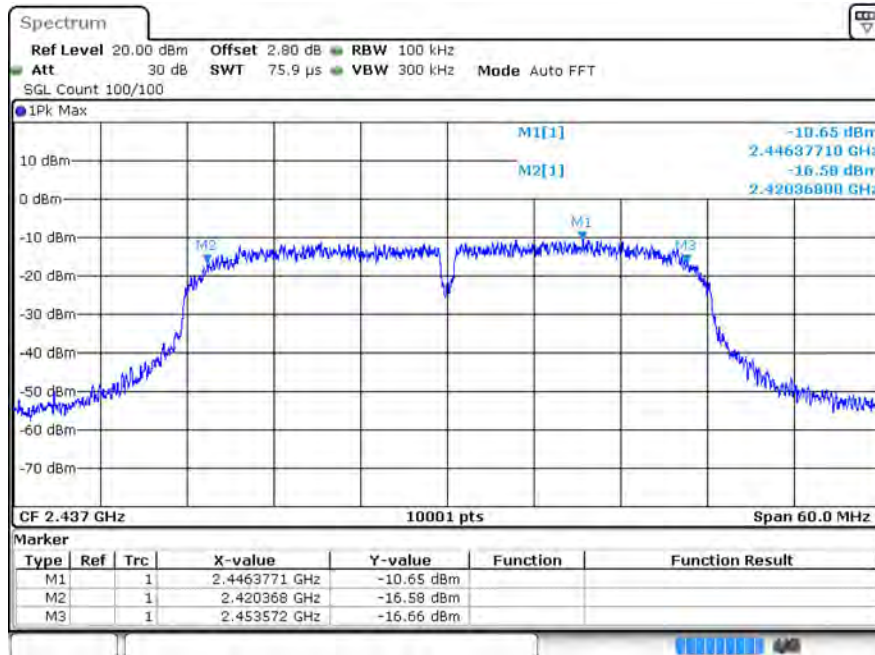
n20 2462MHz Ant1



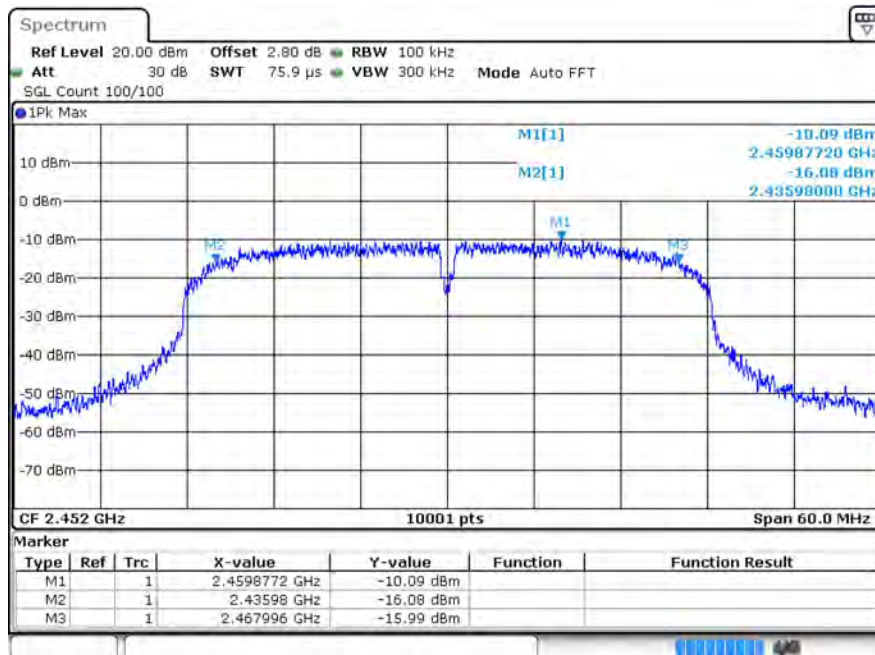
n40 2422MHz Ant1



n40 2437MHz Ant1



n40 2452MHz Ant1

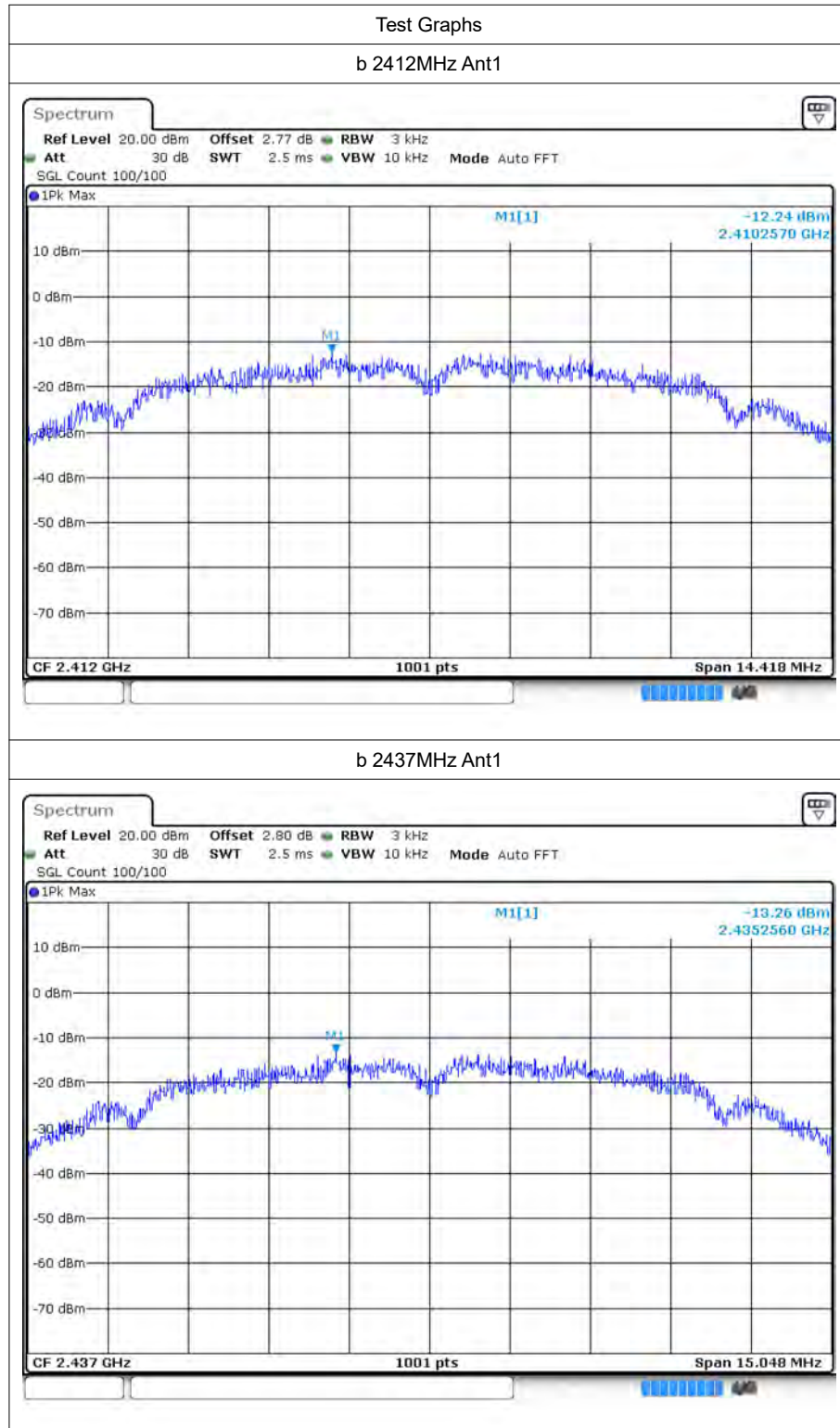


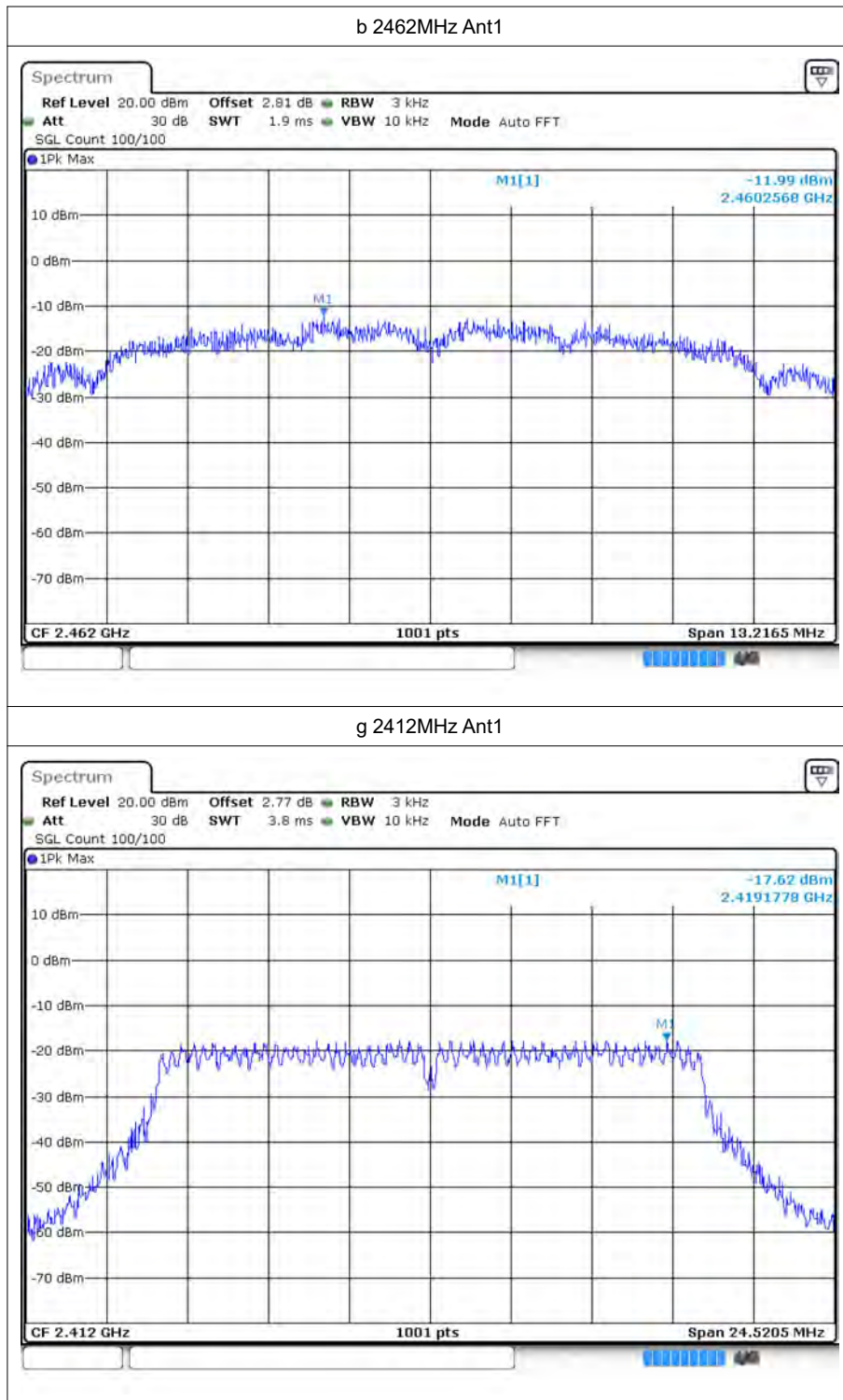
4 Maximum Power Spectral Density Level

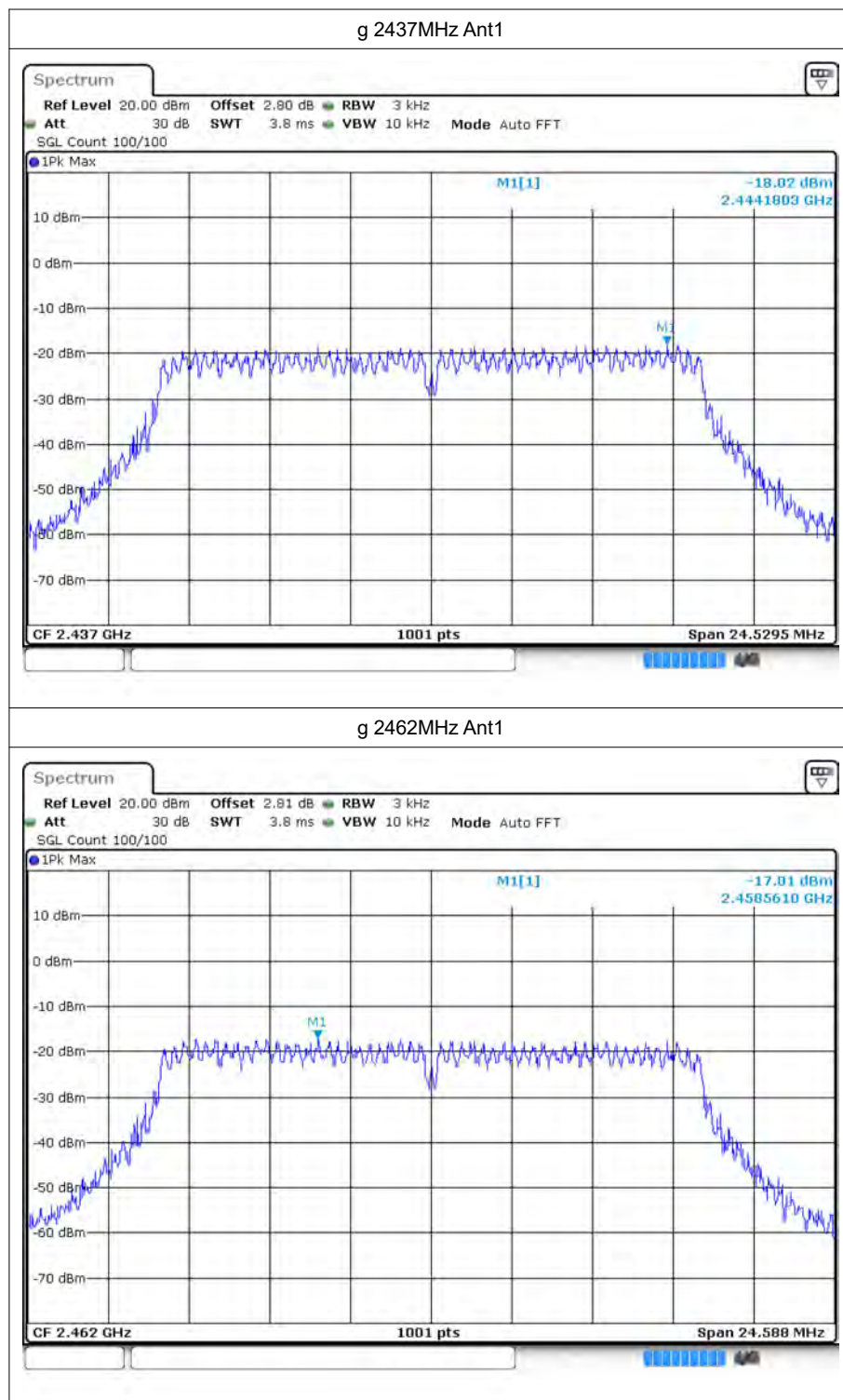
4.1 Test Result

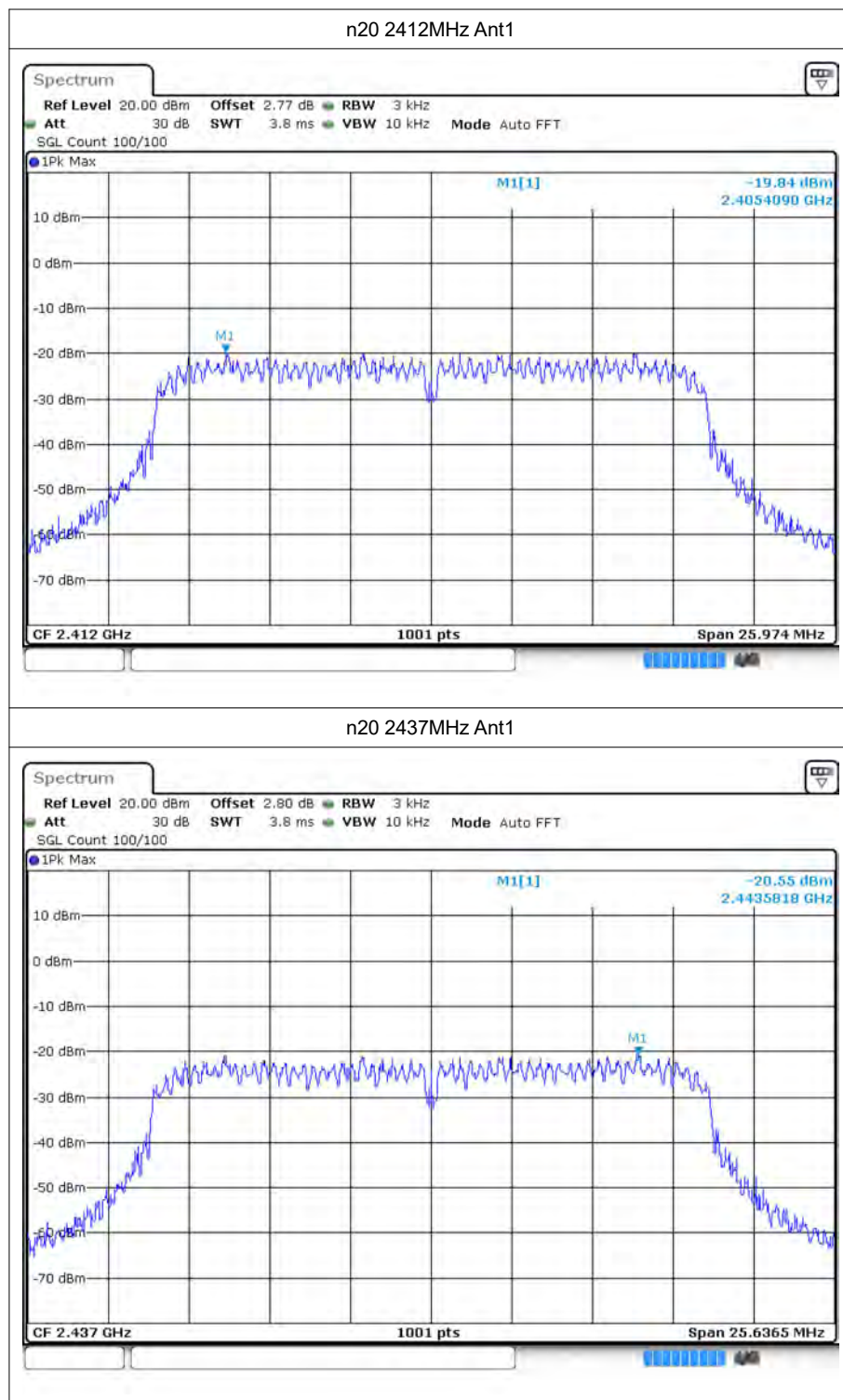
Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3-100kHz)	Limit (dBm/3kHz)	Verdict
b	2412	Ant1	-12.24	≤ 8	Pass
b	2437	Ant1	-13.26	≤ 8	Pass
b	2462	Ant1	-11.99	≤ 8	Pass
g	2412	Ant1	-17.62	≤ 8	Pass
g	2437	Ant1	-18.02	≤ 8	Pass
g	2462	Ant1	-17.01	≤ 8	Pass
n20	2412	Ant1	-19.84	≤ 8	Pass
n20	2437	Ant1	-20.55	≤ 8	Pass
n20	2462	Ant1	-18.89	≤ 8	Pass
n40	2422	Ant1	-22.82	≤ 8	Pass
n40	2437	Ant1	-22.7	≤ 8	Pass
n40	2452	Ant1	-22.32	≤ 8	Pass

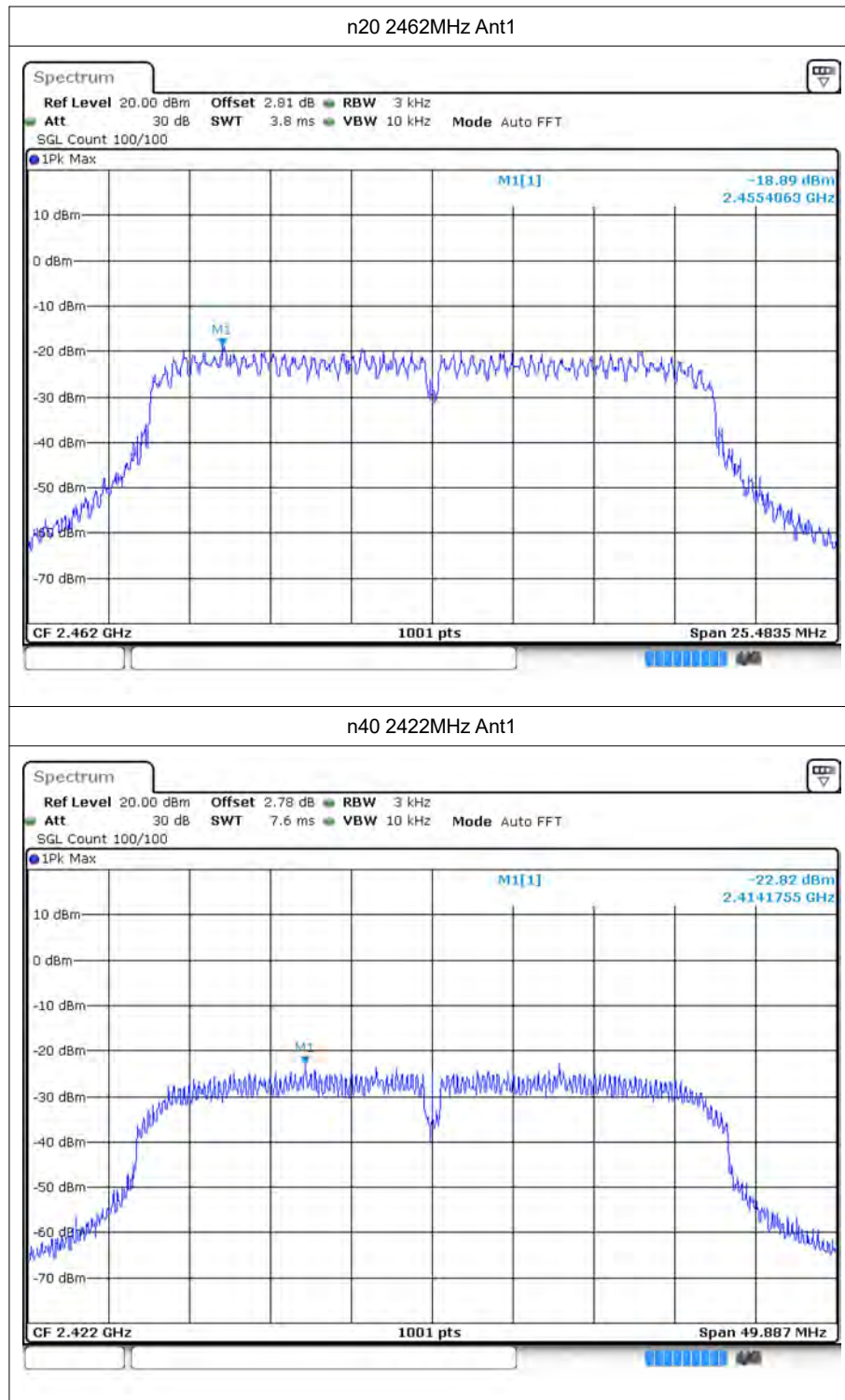
4.2 Test Graphs

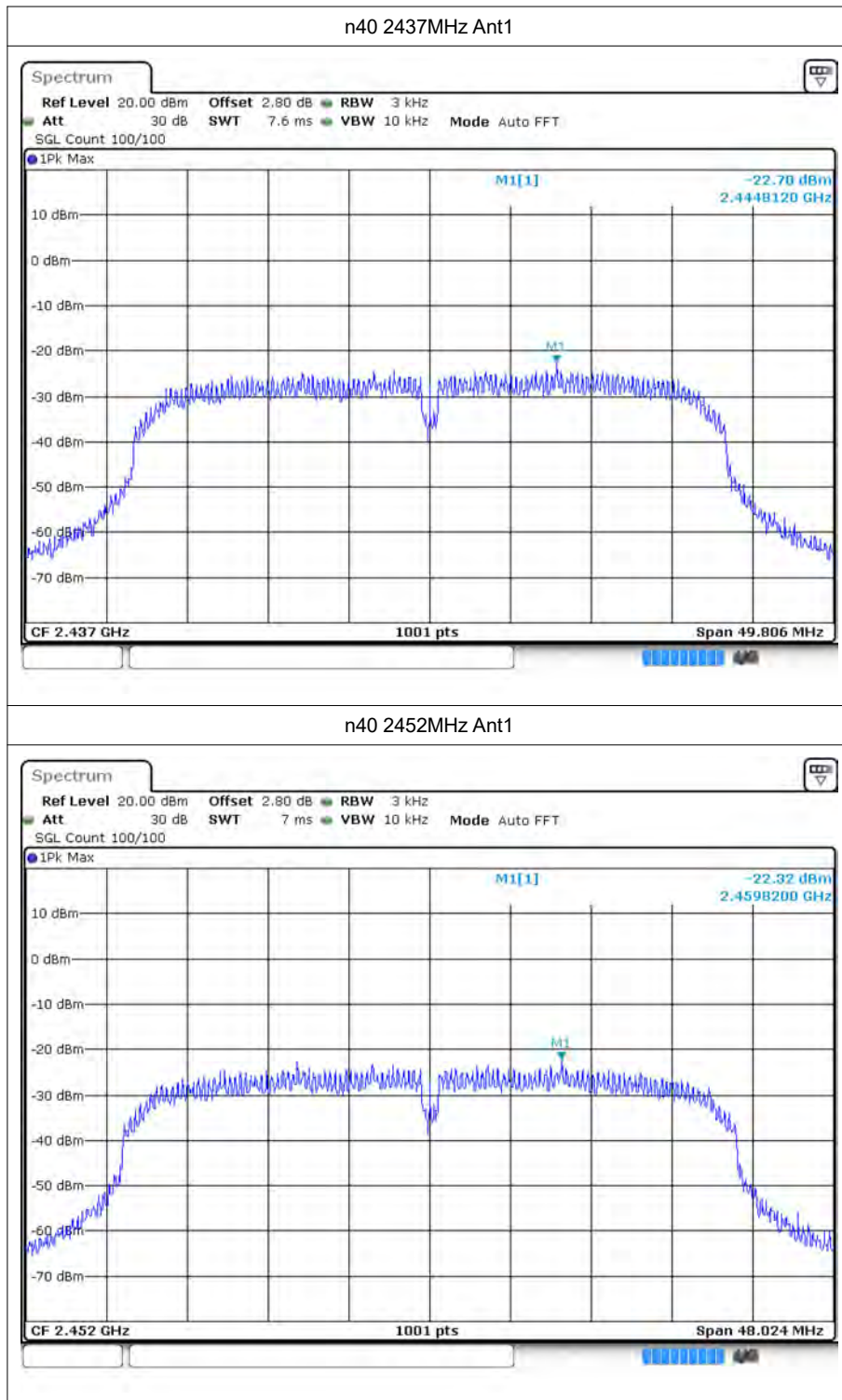












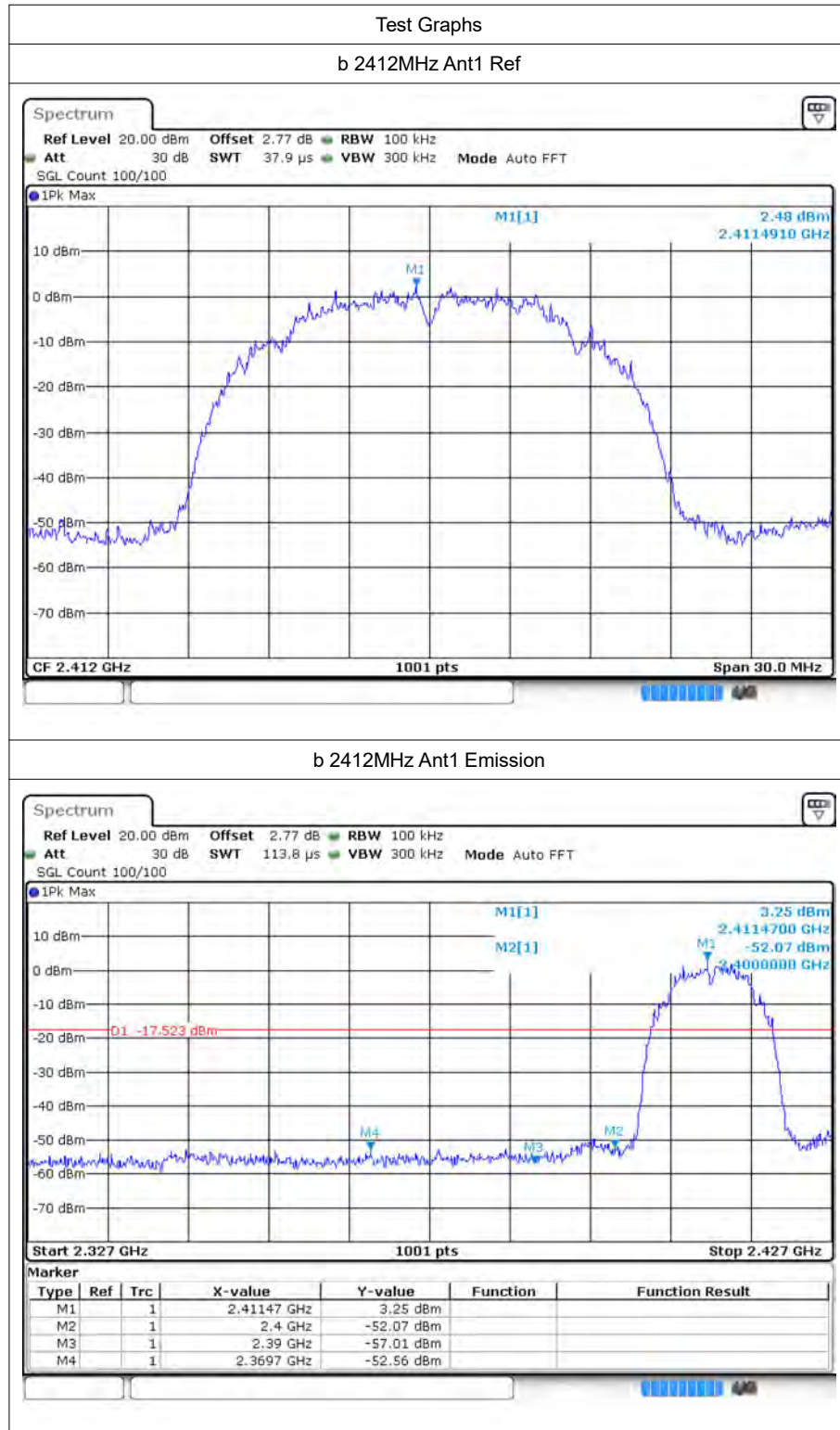


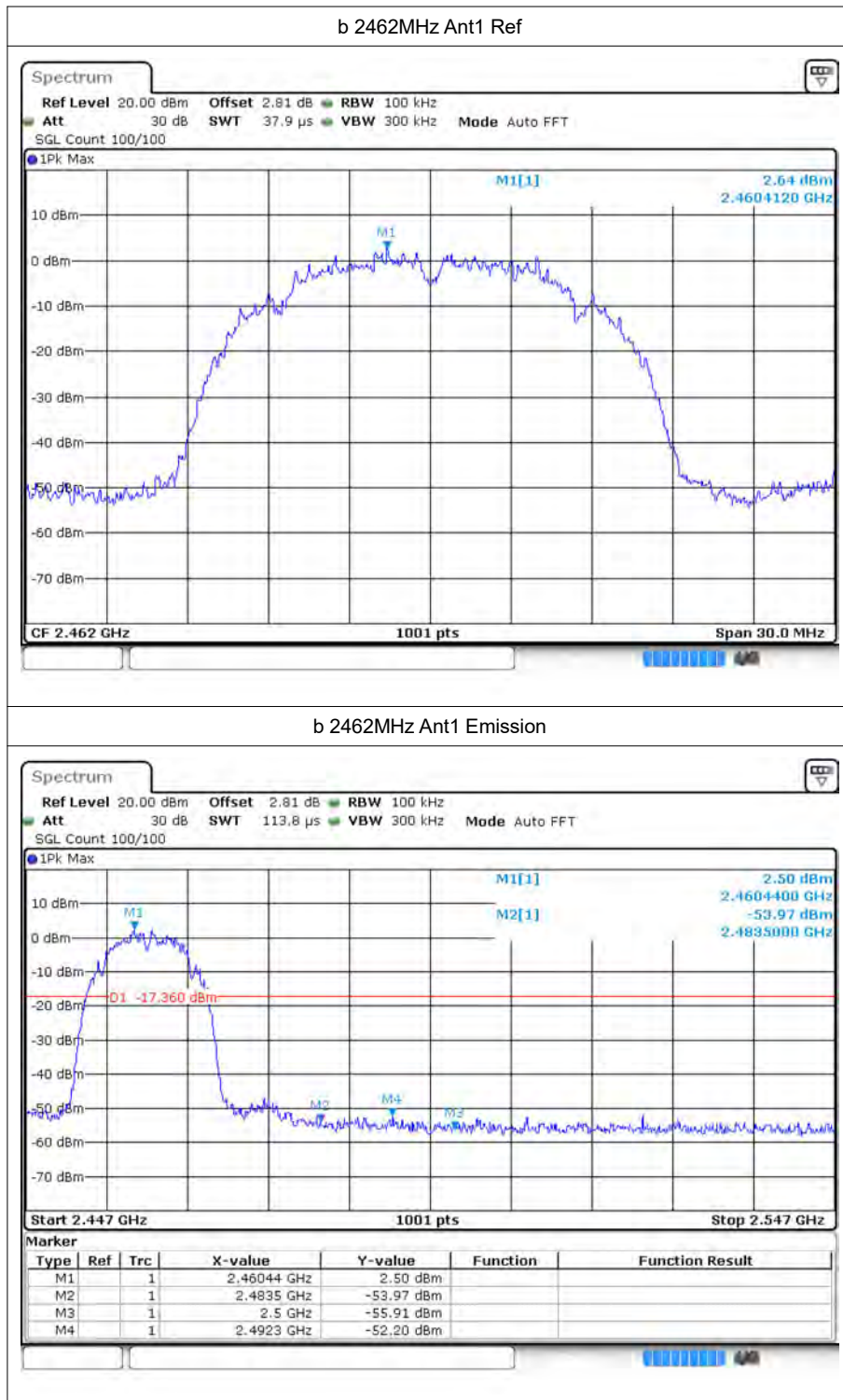
5 Band Edge

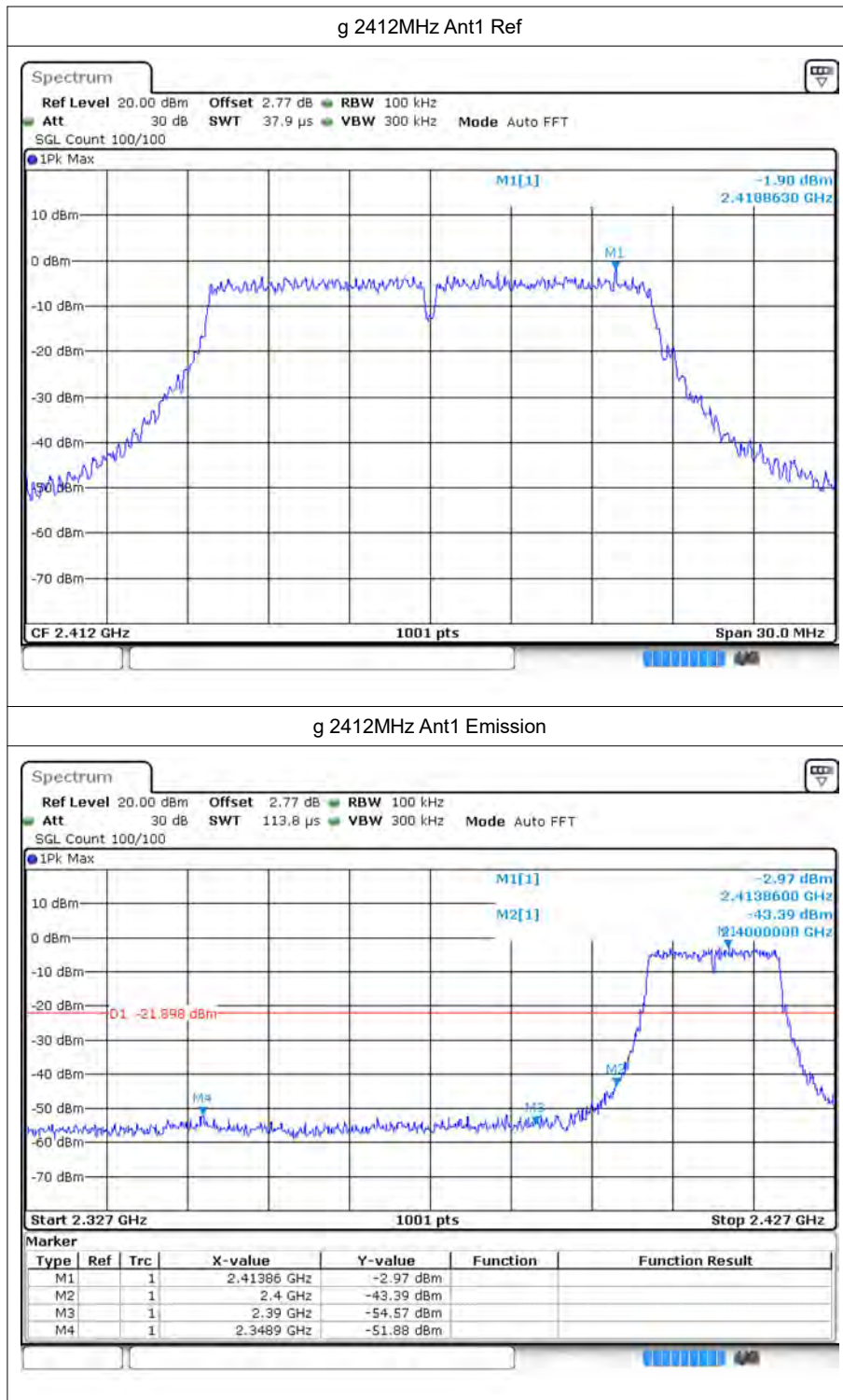
5.1 Test Result

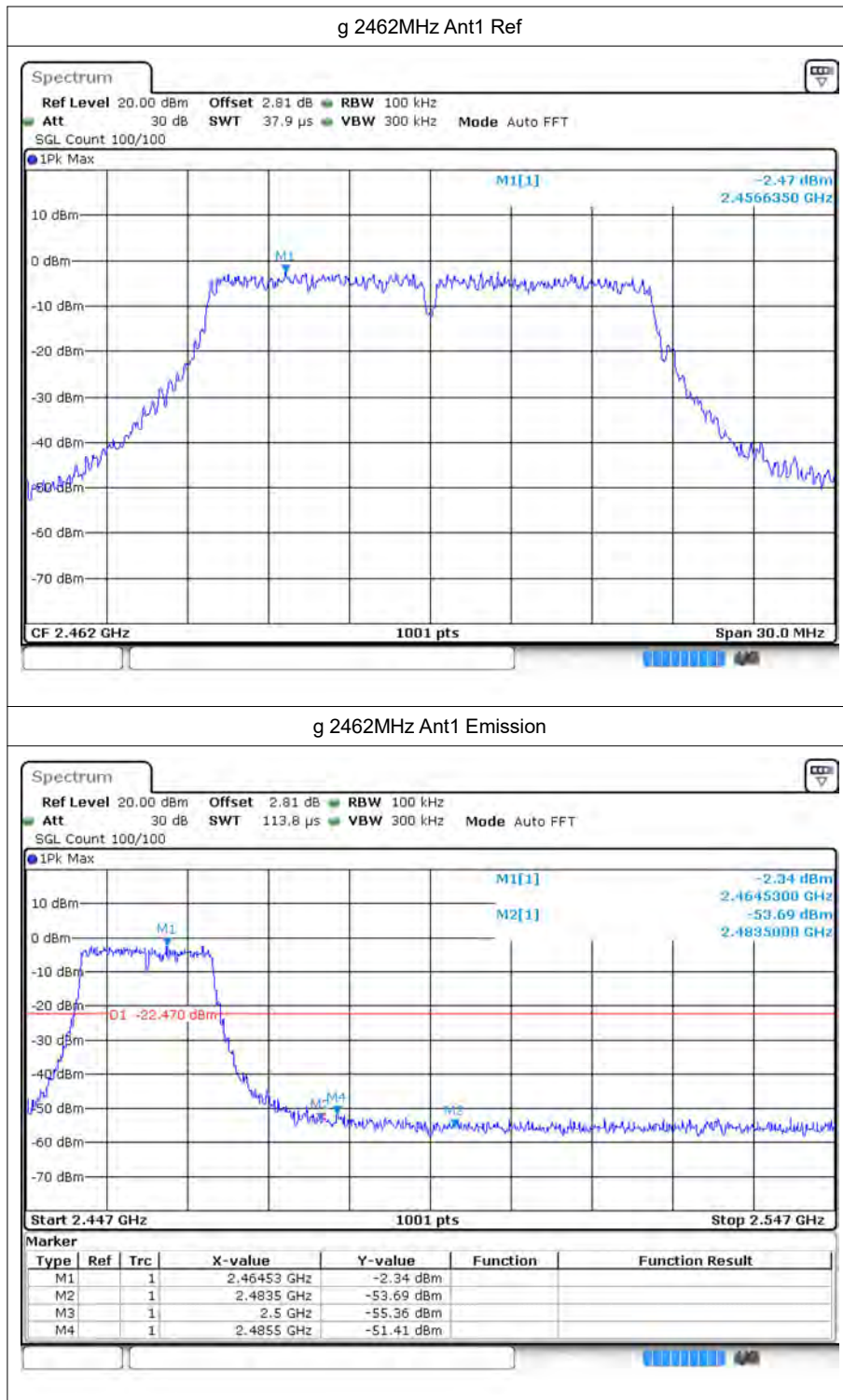
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-55.04	-20	-55.04
b	2462	Ant1	-54.84	-20	Pass
g	2412	Ant1	-49.97	-20	Pass
g	2462	Ant1	-48.93	-20	Pass
n20	2412	Ant1	-47.12	-20	Pass
n20	2462	Ant1	-47.72	-20	Pass
n40	2422	Ant1	-42.14	-20	Pass
n40	2452	Ant1	-41.7	-20	Pass

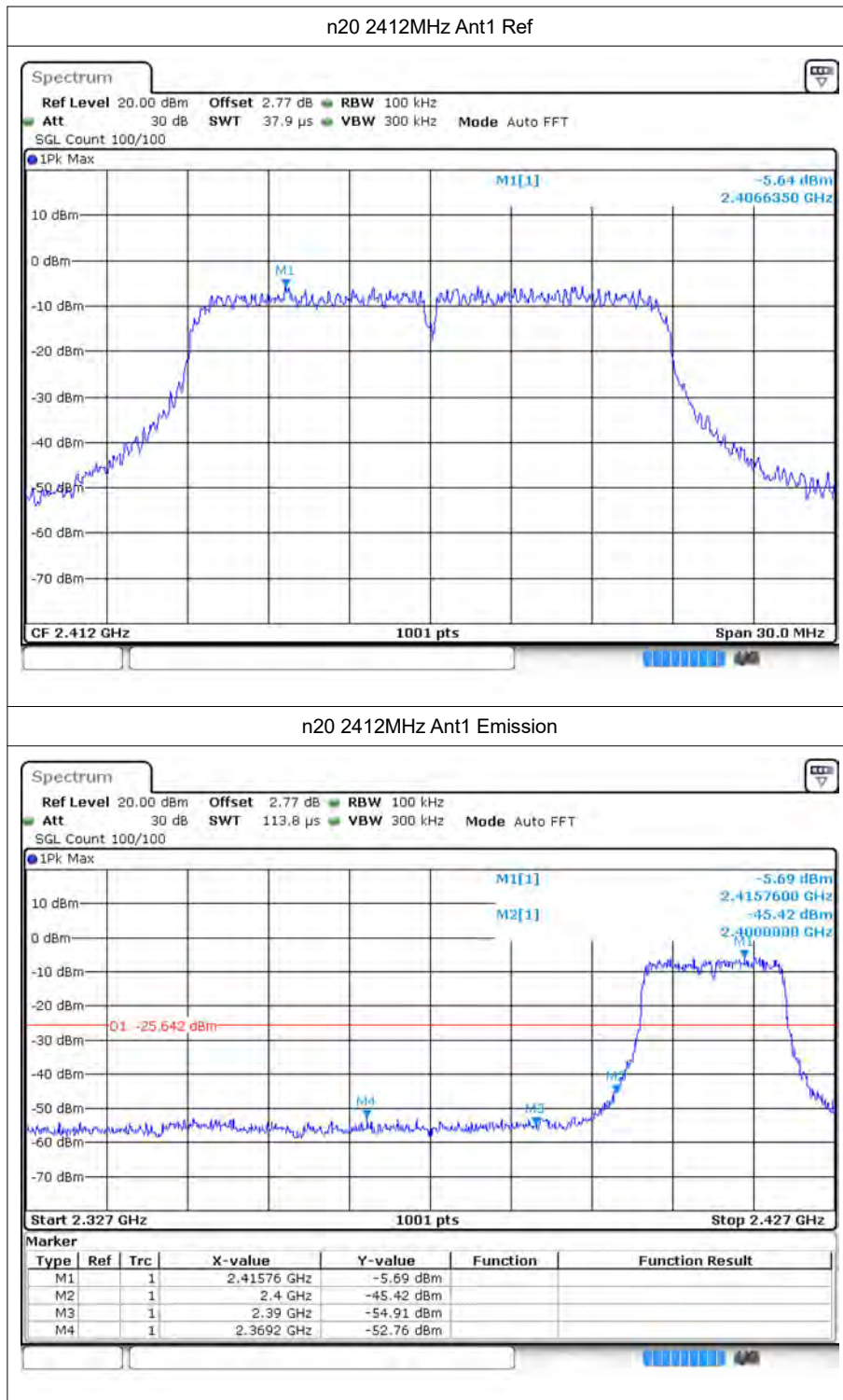
5.2 Test Graphs

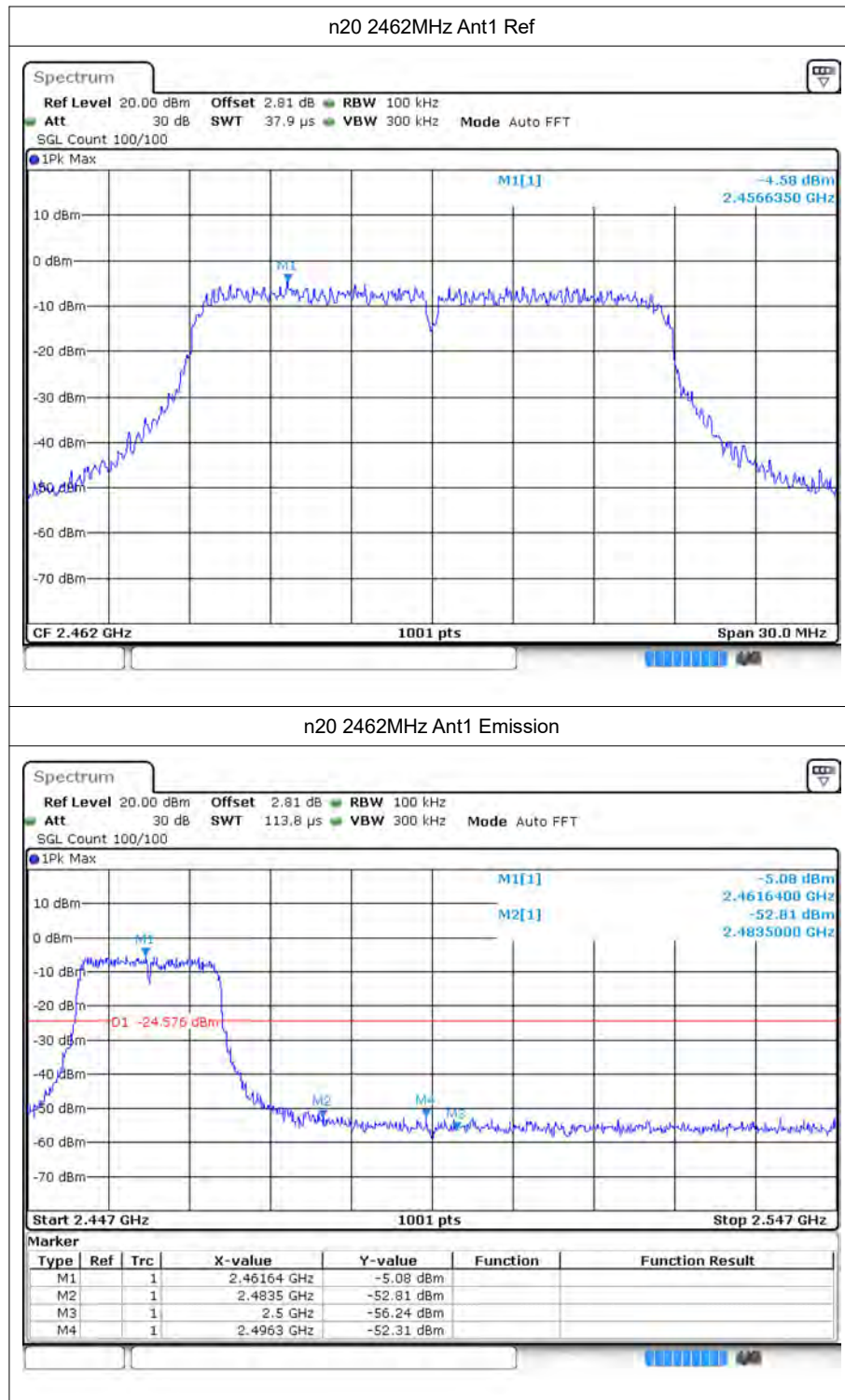


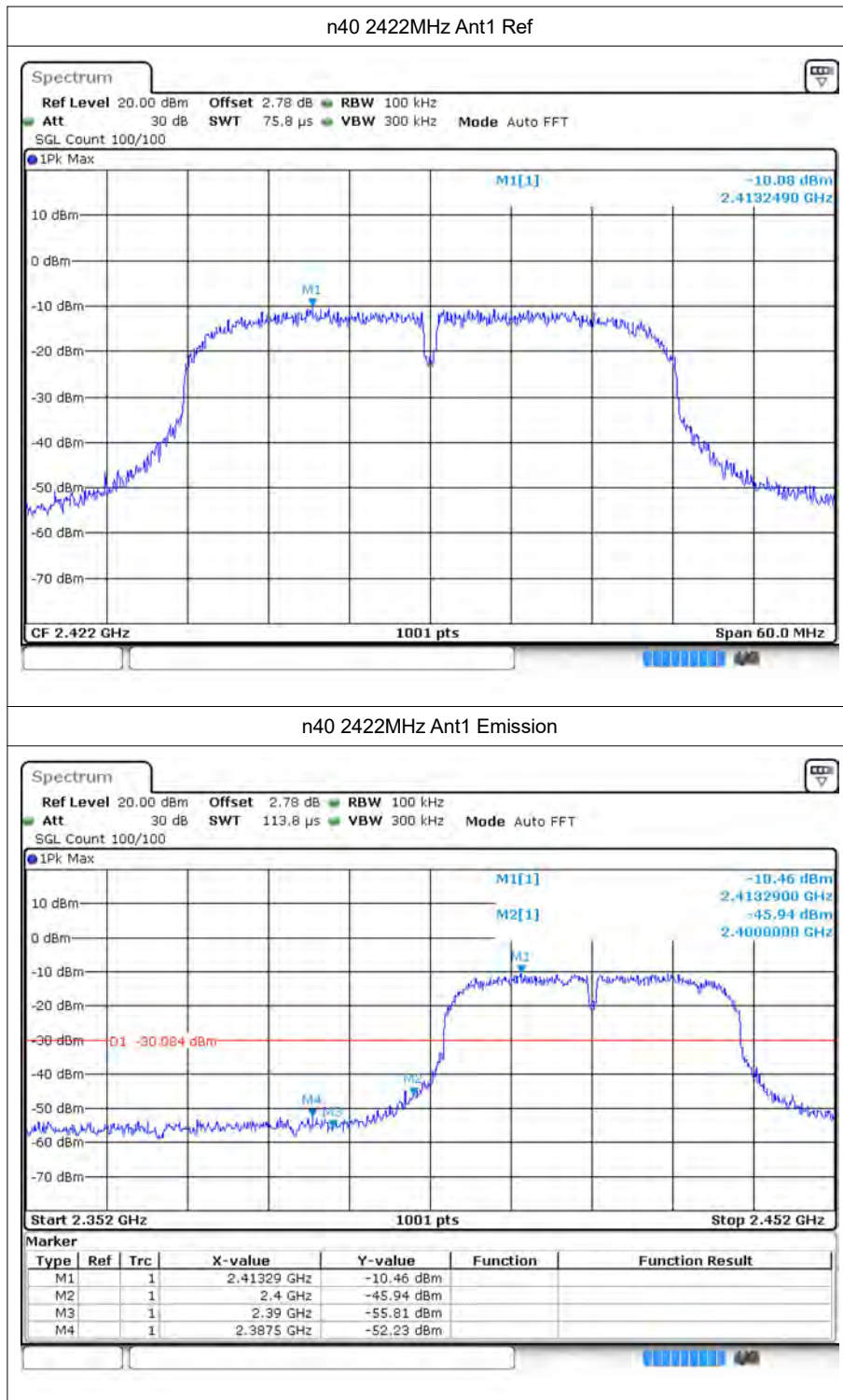


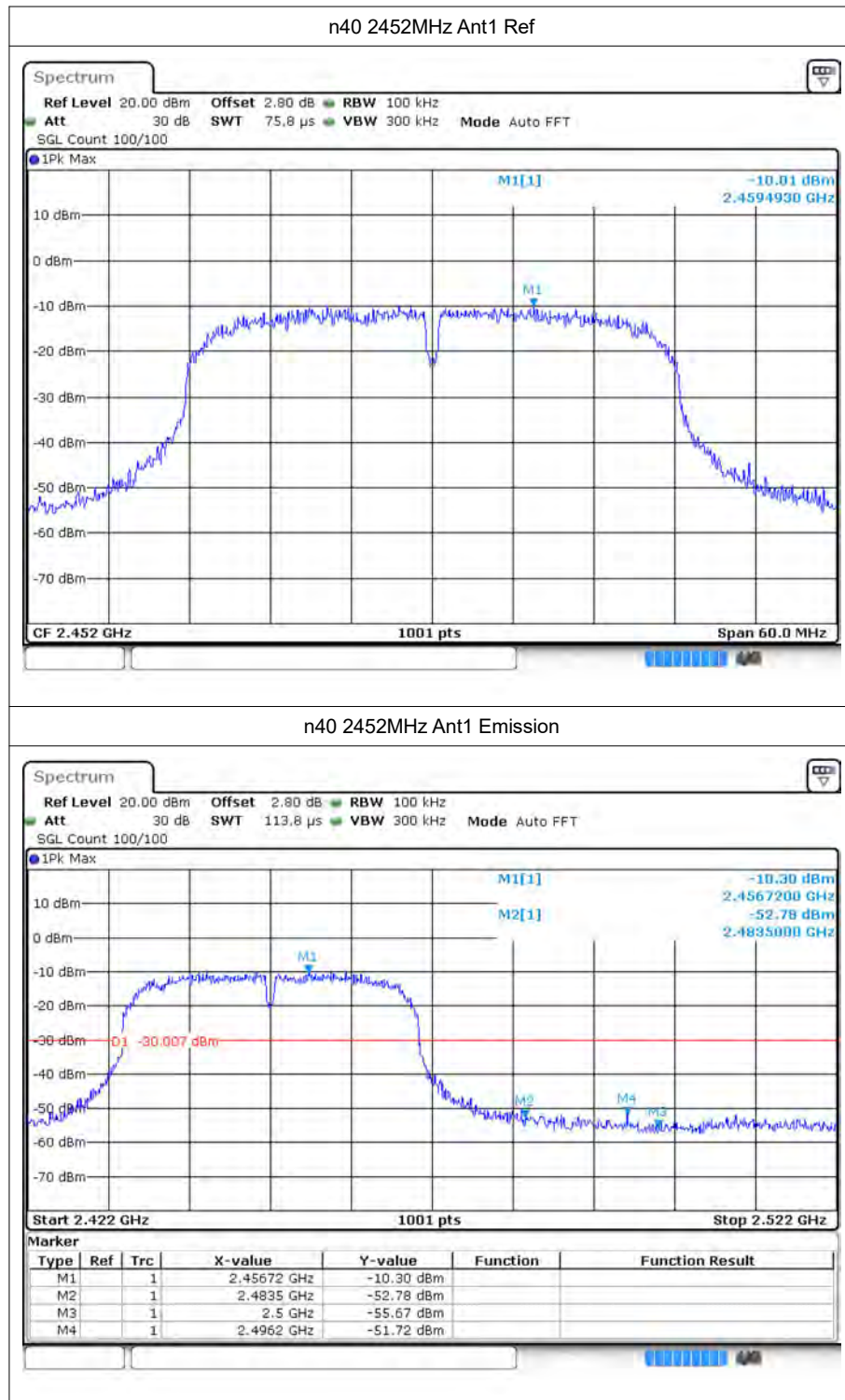












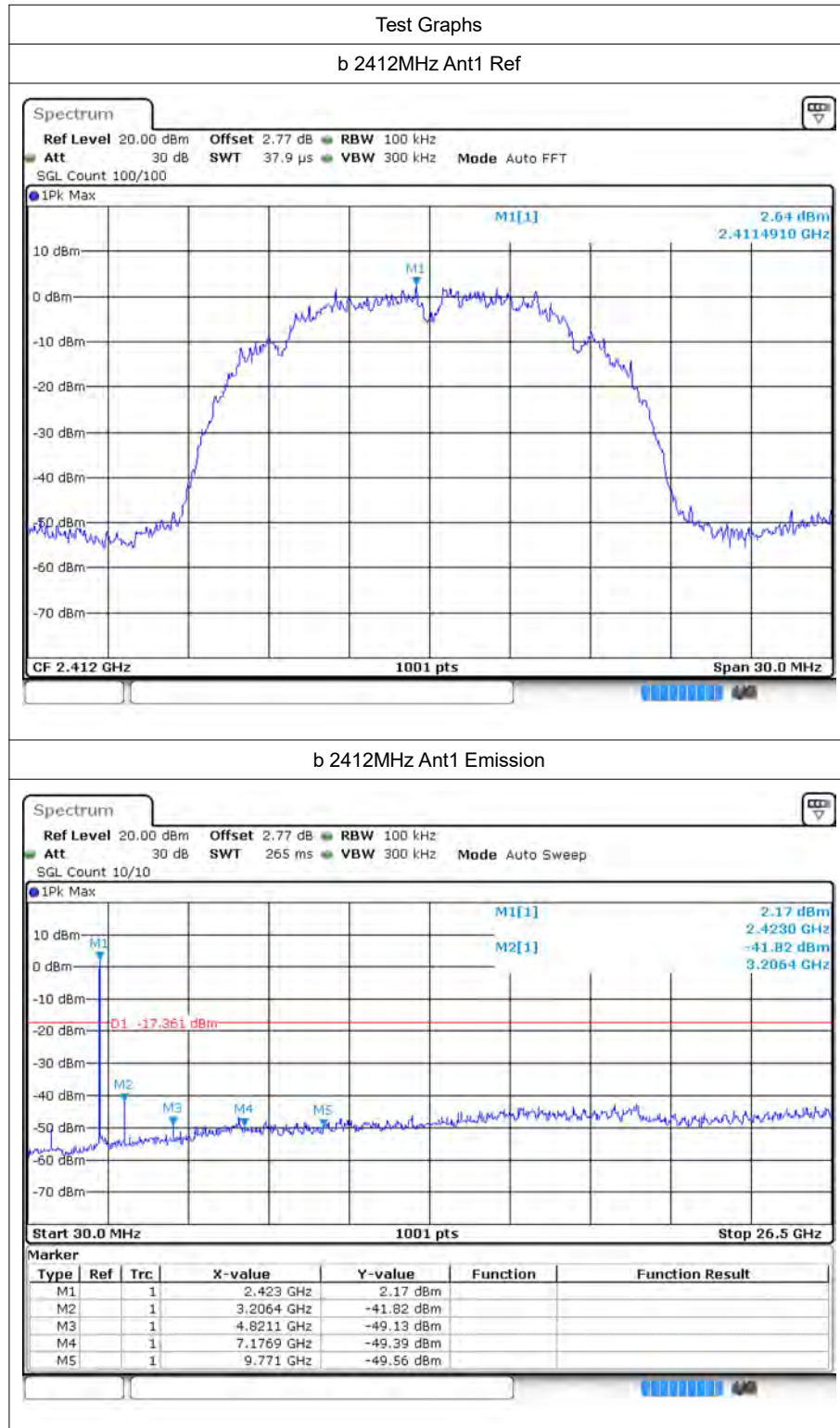


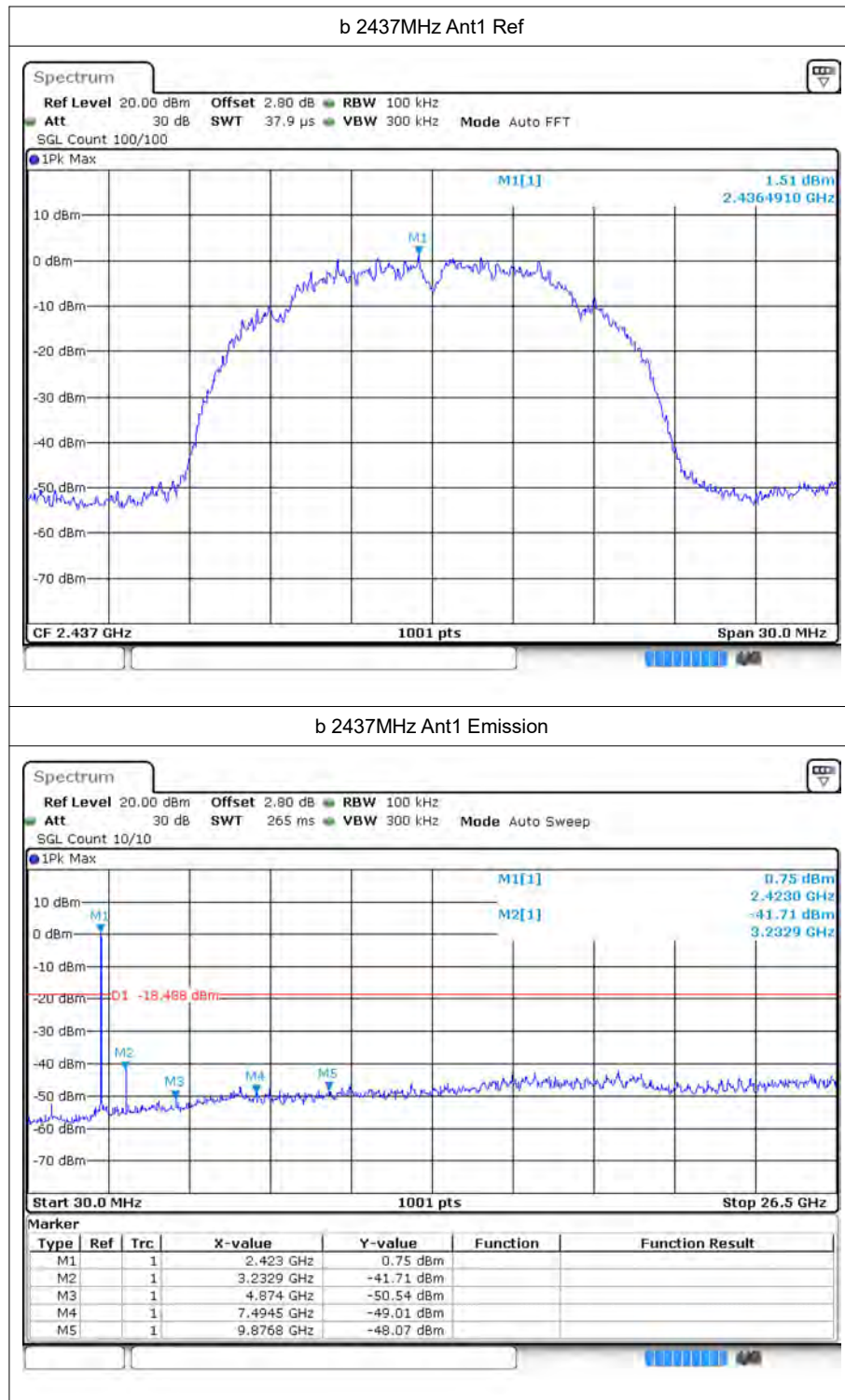
6 Conducted RF Spurious Emission

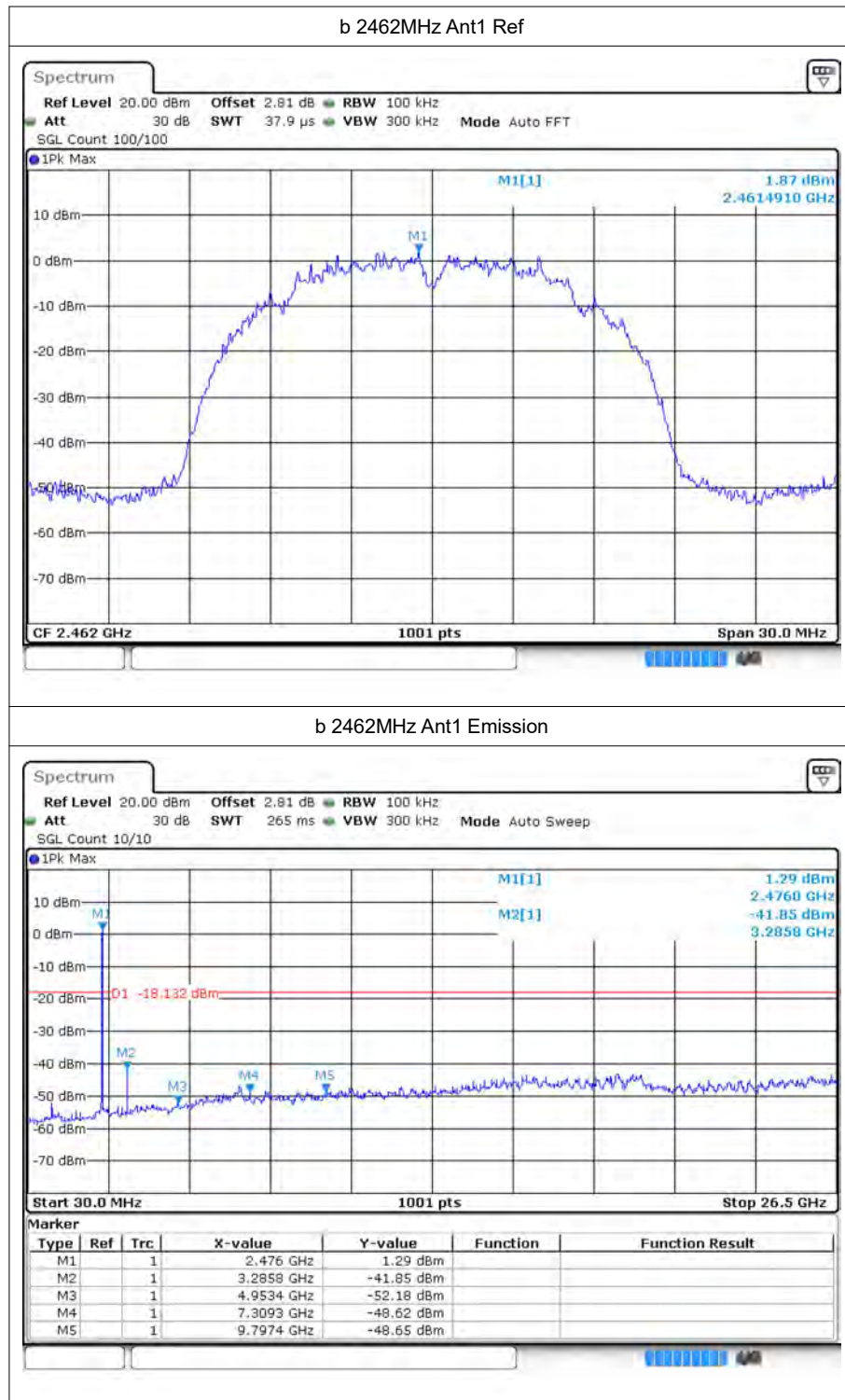
6.1 Test Result

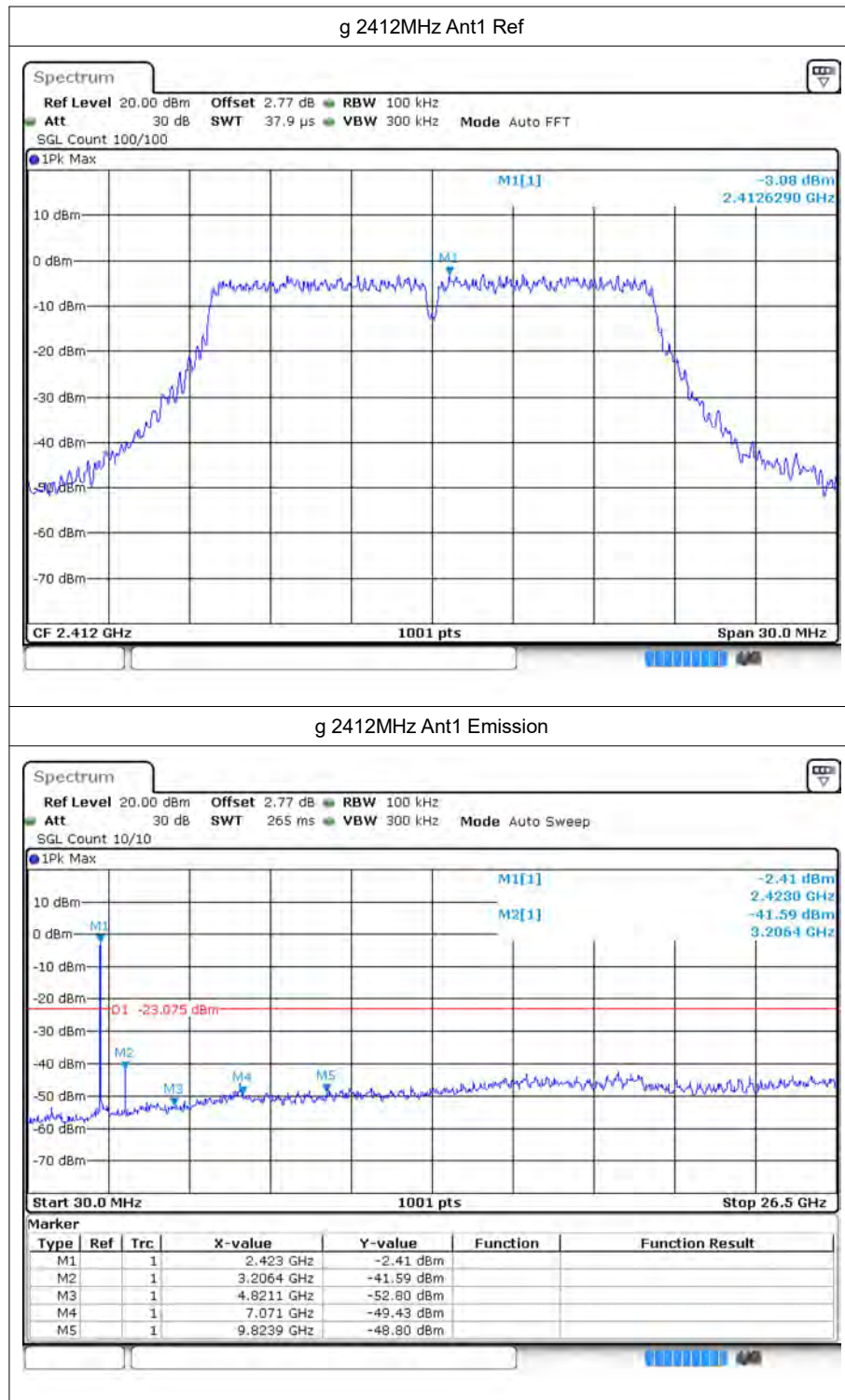
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-44.45	-20	Pass
b	2437	Ant1	-43.21	-20	Pass
b	2462	Ant1	-43.71	-20	Pass
g	2412	Ant1	-38.5	-20	Pass
g	2437	Ant1	-38.25	-20	Pass
g	2462	Ant1	-39.77	-20	Pass
n20	2412	Ant1	-35.28	-20	Pass
n20	2437	Ant1	-34.18	-20	Pass
n20	2462	Ant1	-37.45	-20	Pass
n40	2422	Ant1	-30.97	-20	Pass
n40	2437	Ant1	-30.06	-20	Pass
n40	2452	Ant1	-30.91	-20	Pass

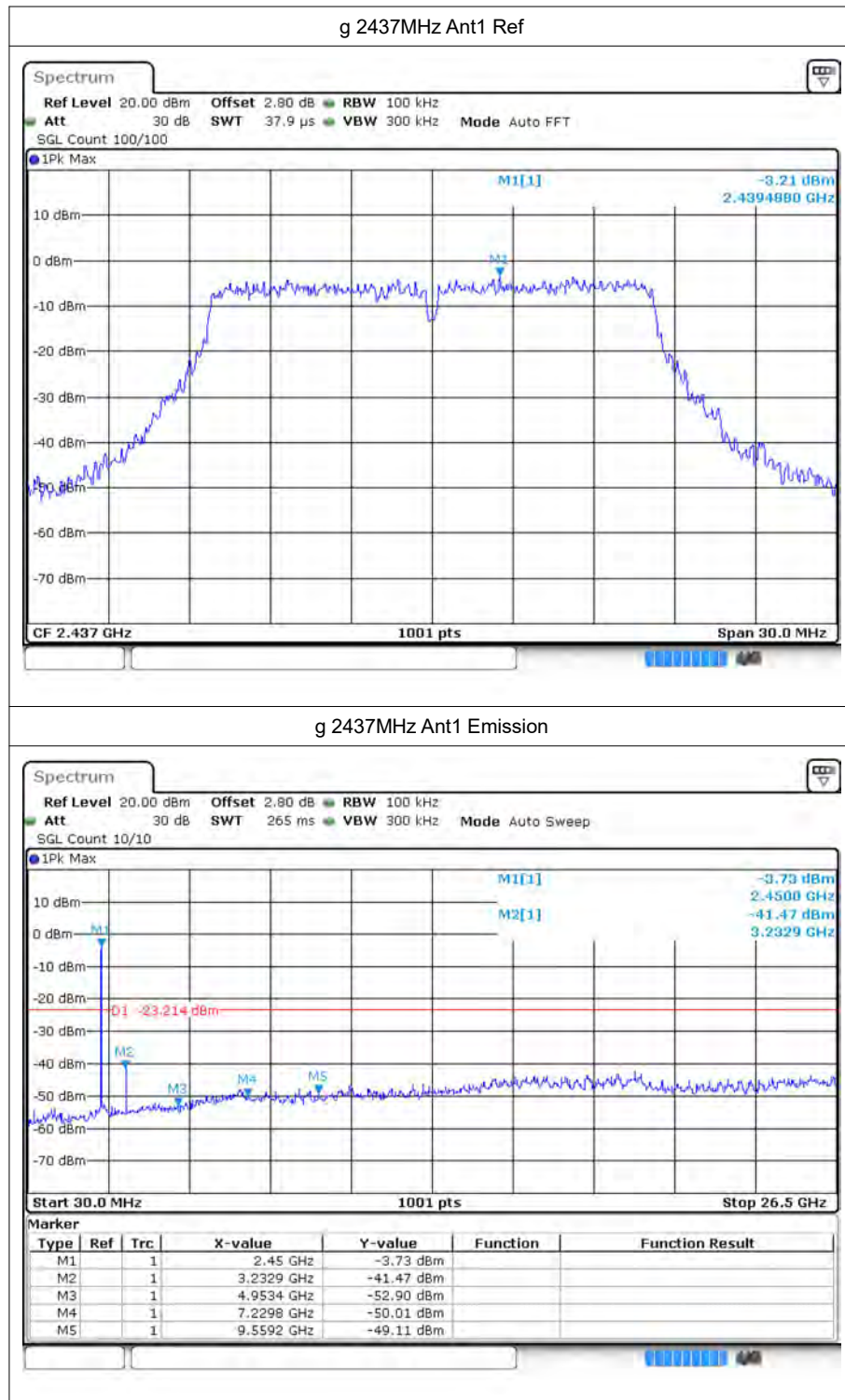
6.2 Test Graphs

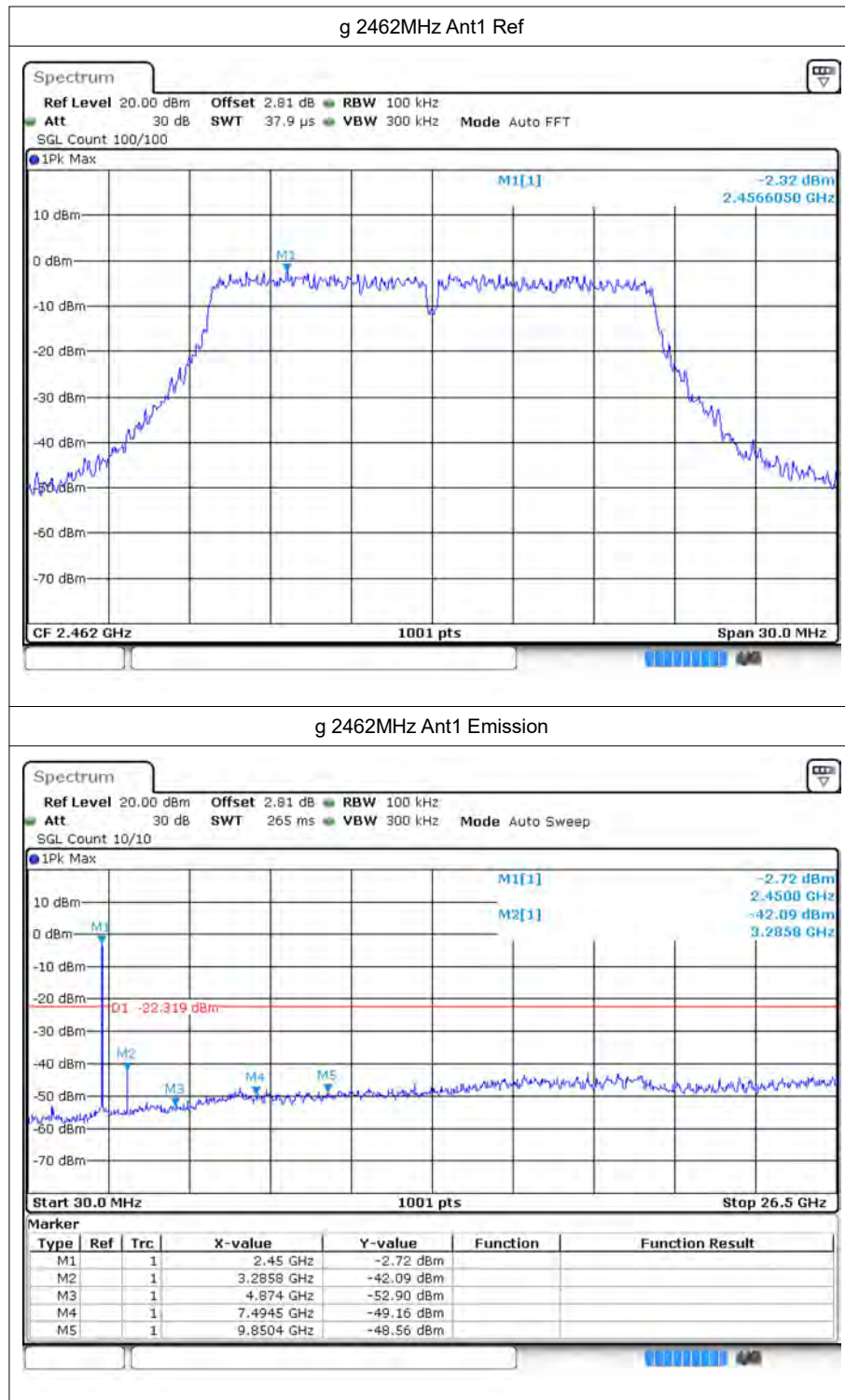


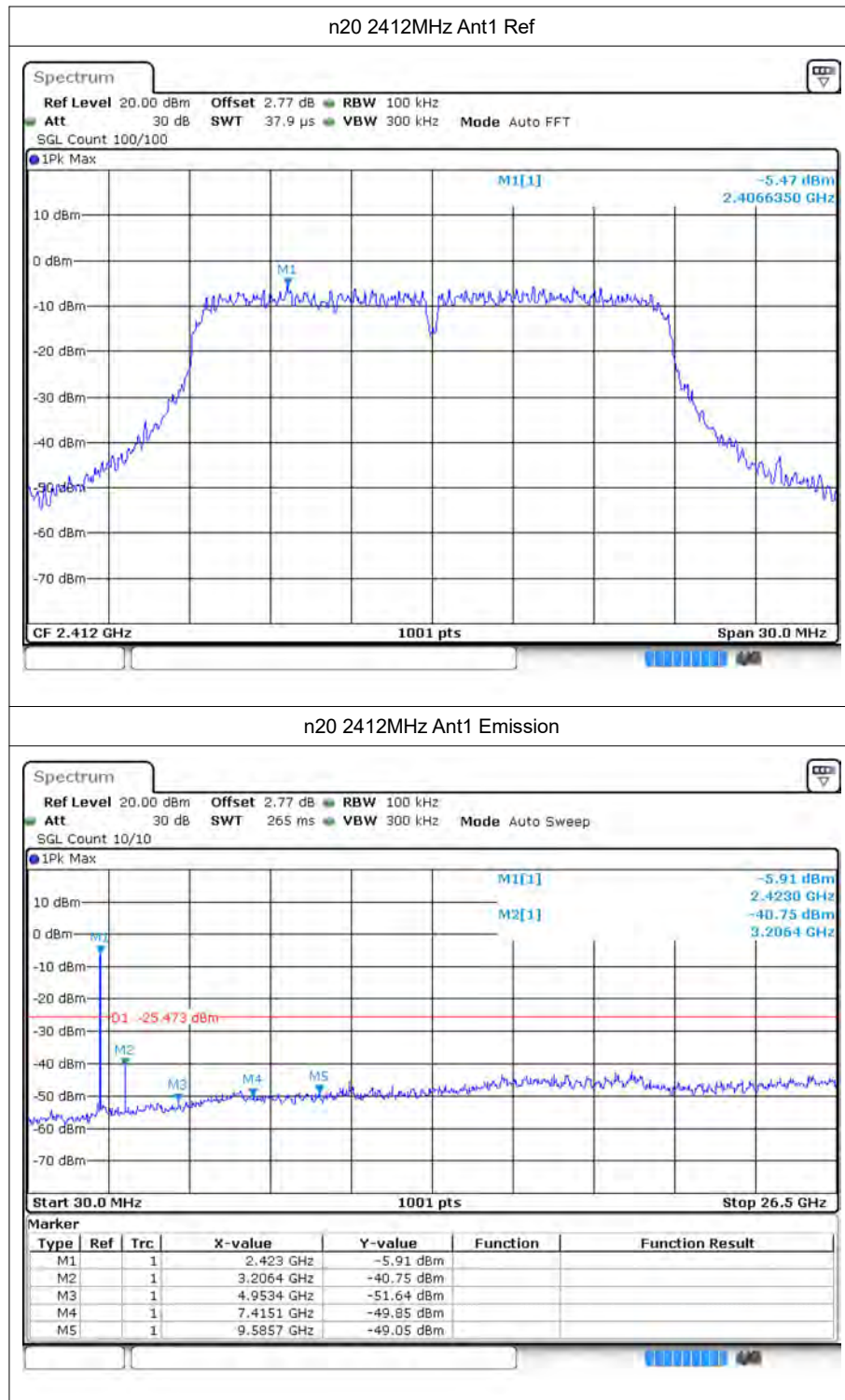


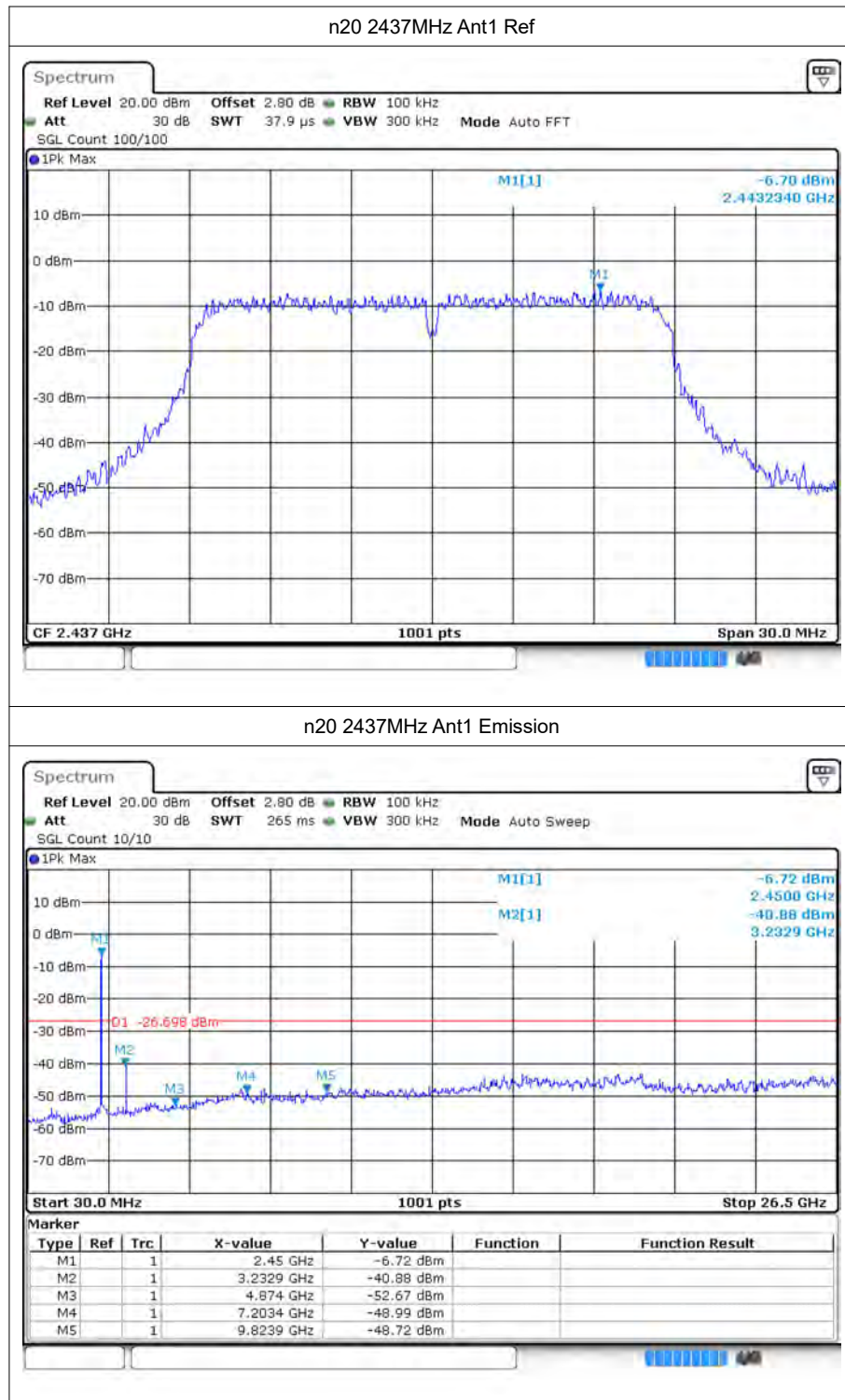


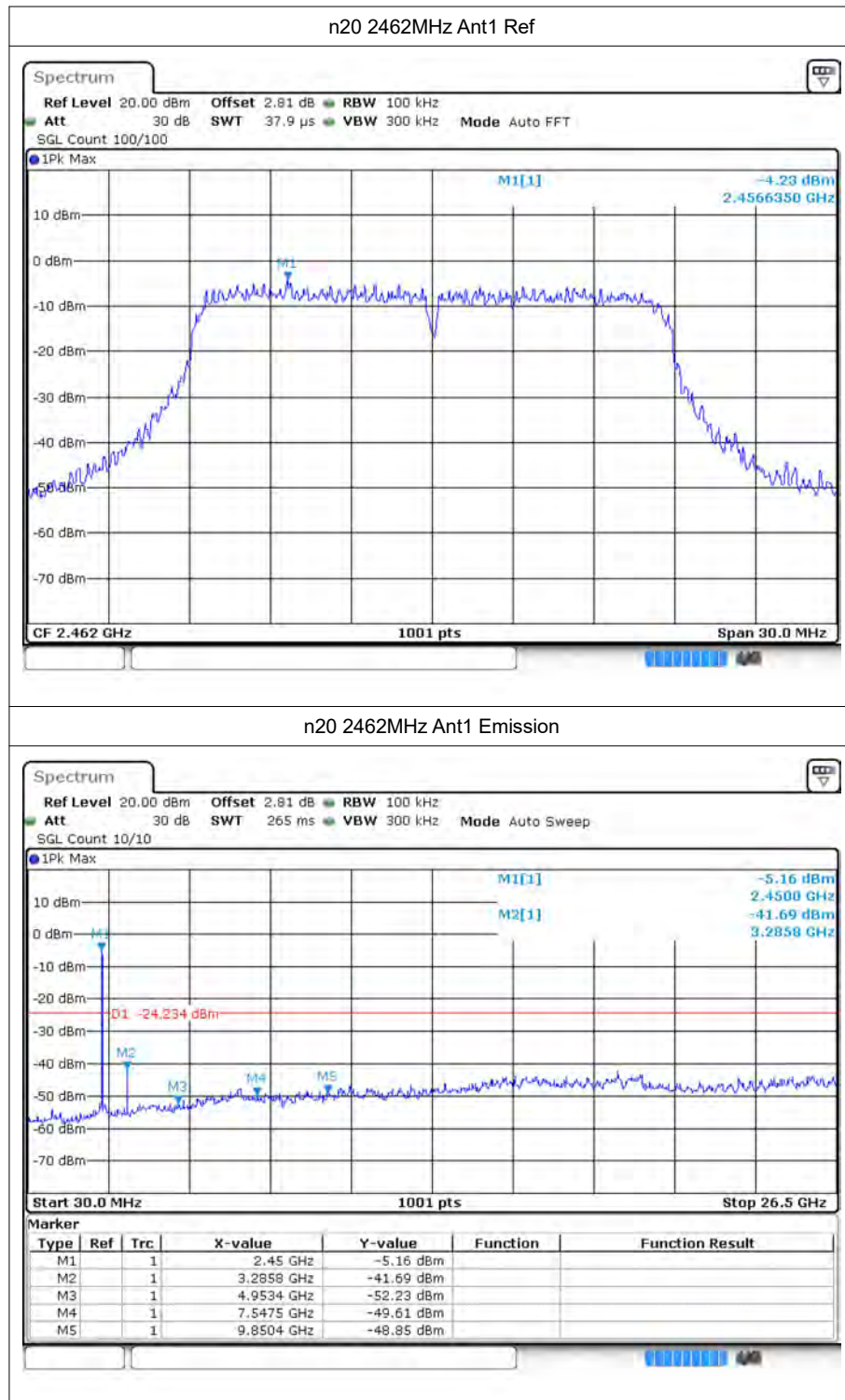


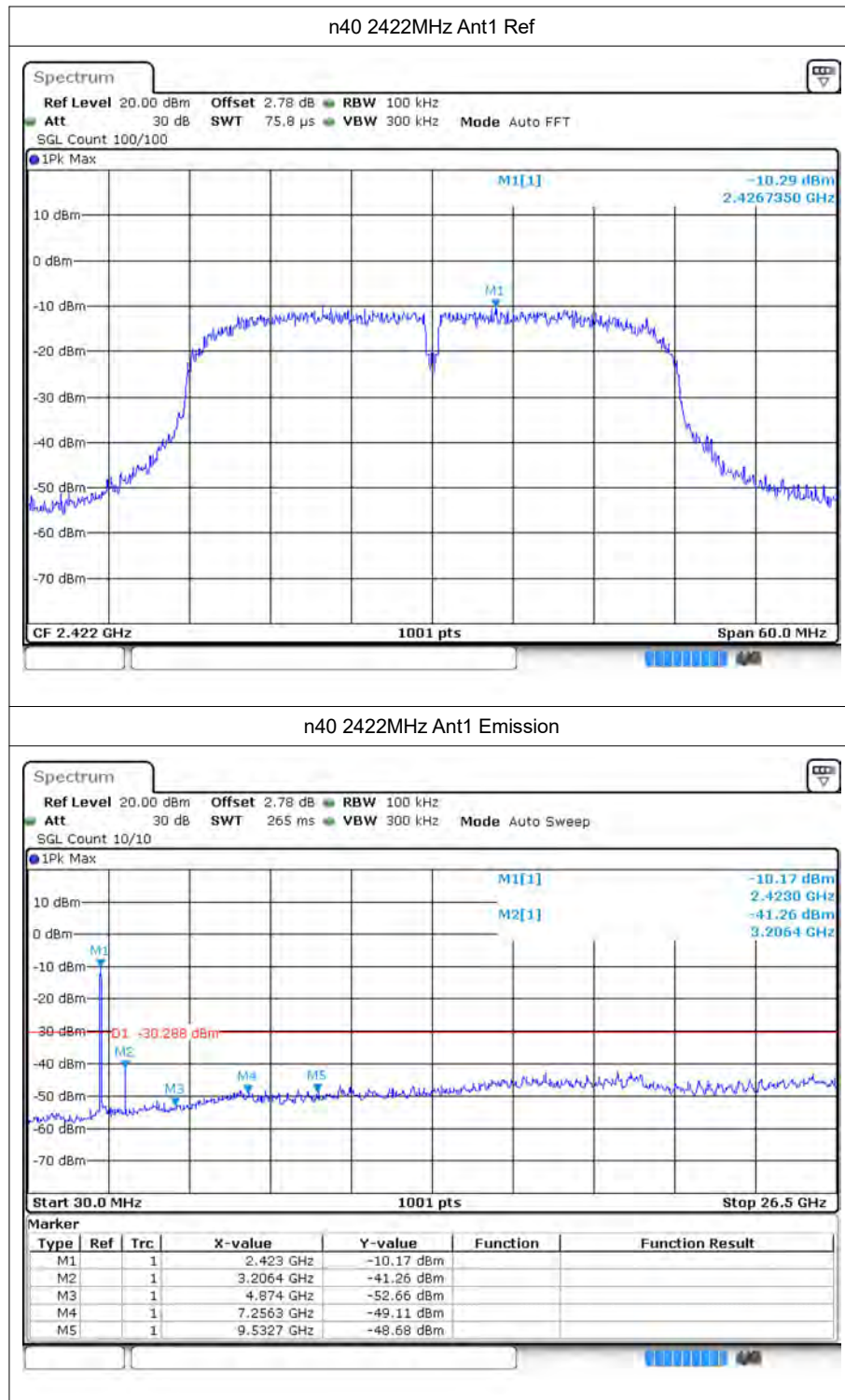


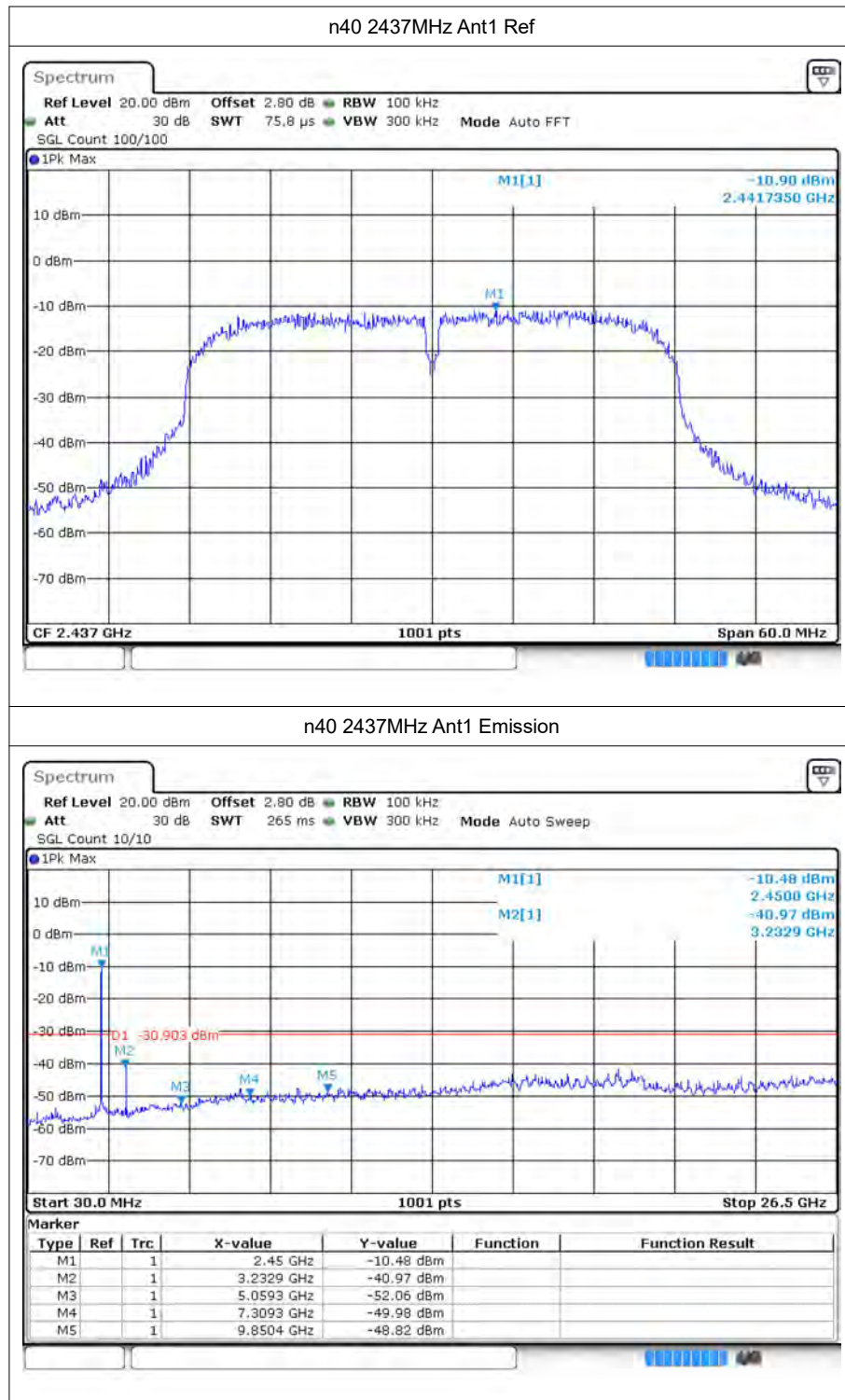


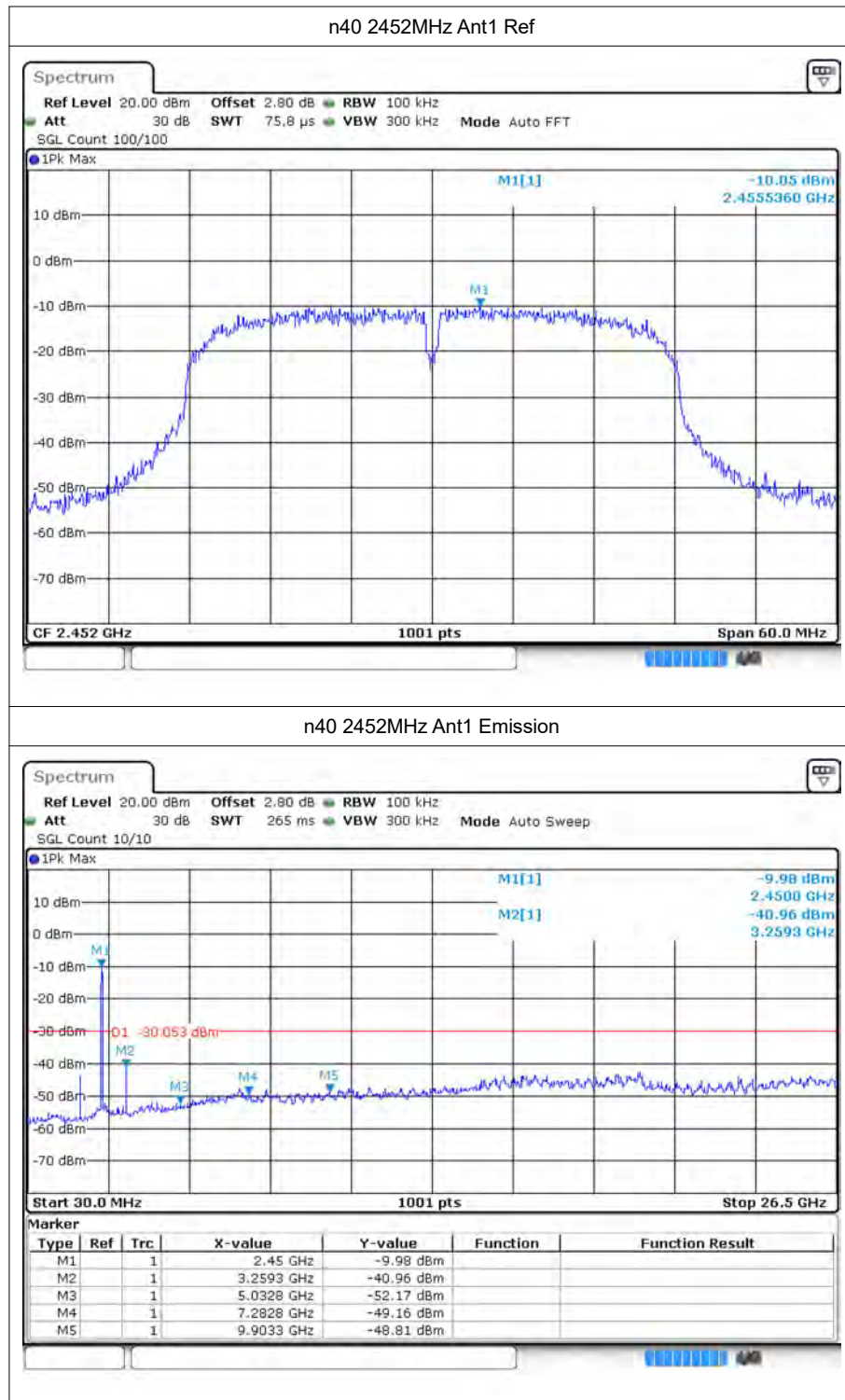














7 Restrict Band

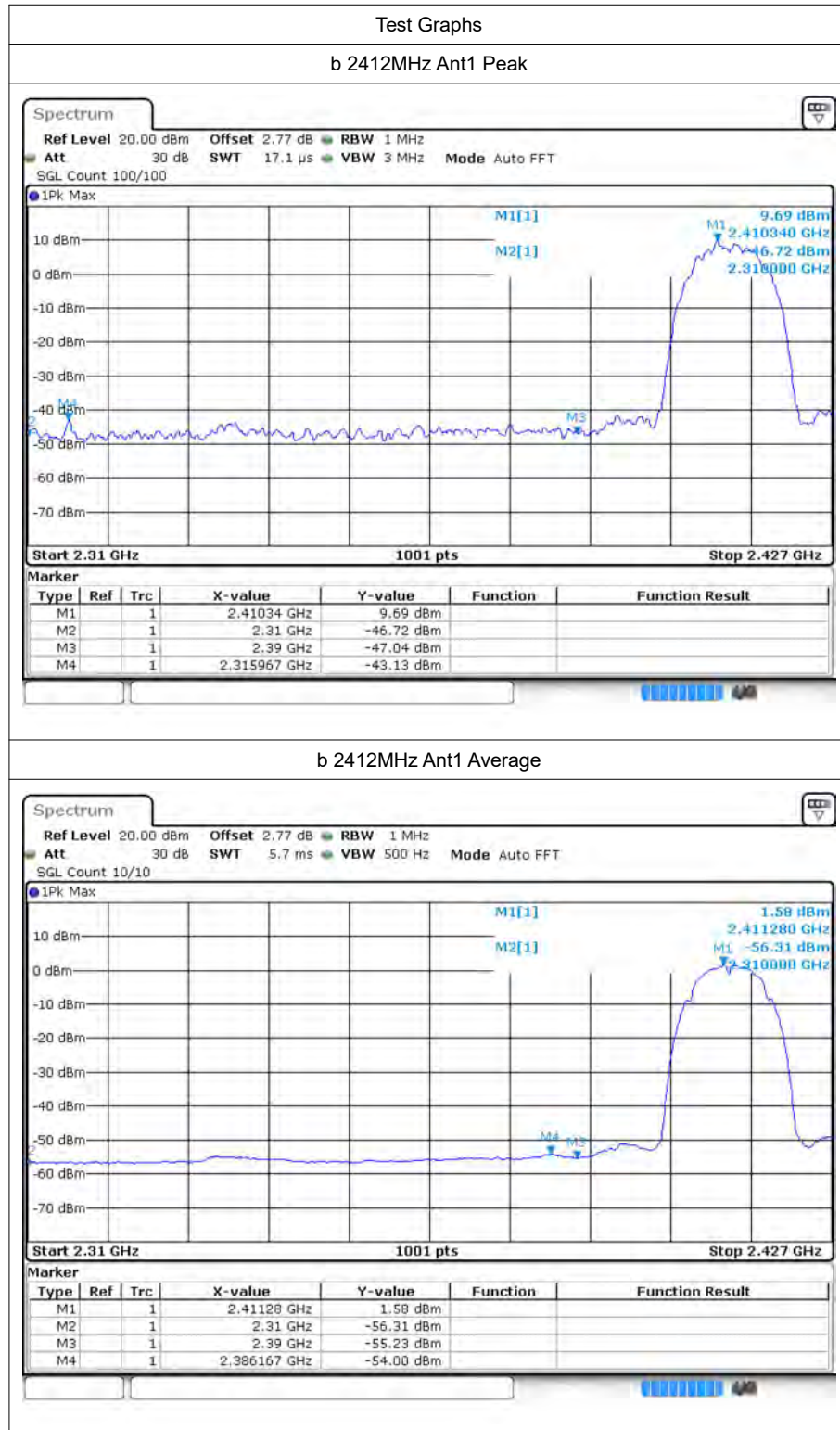
7.1 Test Result

Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
b	2412	Ant1	2310	-46.71	2	50.55	Peak	74	Pass
b	2412	Ant1	2310	-56.3	2	40.96	Average	54	Pass
b	2412	Ant1	2315.967	-43.13	2	54.13	Peak	74	Pass
b	2412	Ant1	2386.167	-54	2	43.26	Average	54	Pass
b	2412	Ant1	2390	-47.03	2	50.23	Peak	74	Pass
b	2412	Ant1	2390	-55.22	2	42.04	Average	54	Pass
b	2462	Ant1	2483.5	-45.23	2	52.03	Peak	74	52.03
b	2462	Ant1	2483.5	-54.65	2	42.61	Average	54	Pass
b	2462	Ant1	2487.439	-43.63	2	53.63	Peak	74	Pass
b	2462	Ant1	2487.651	-54.04	2	43.22	Average	54	Pass
b	2462	Ant1	2500	-46.14	2	51.12	Peak	74	Pass
b	2462	Ant1	2500	-55.42	2	41.84	Average	54	Pass
g	2412	Ant1	2310	-46.91	2	50.35	Peak	74	Pass
g	2412	Ant1	2310	-56.21	2	41.05	Average	54	Pass
g	2412	Ant1	2379.381	-43.18	2	54.08	Peak	74	Pass
g	2412	Ant1	2389.56	-53.42	2	43.84	Average	54	Pass
g	2412	Ant1	2390	-44.39	2	50.23	Peak	74	Pass
g	2412	Ant1	2390	-54.09	2	43.17	Average	54	Pass
g	2462	Ant1	2483.5	-42.39	2	54.87	Peak	74	Pass
g	2462	Ant1	2483.5	-52.51	2	44.75	Average	54	Pass
g	2462	Ant1	2487.439	-42.39	2	54.87	Peak	74	Pass
g	2462	Ant1	2483.517	-52.51	2	44.75	Average	54	Pass
g	2462	Ant1	2500	-46.87	2	51.12	Peak	74	Pass
g	2462	Ant1	2500	-55.25	2	42.01	Average	54	Pass
n20	2412	Ant1	2310	-47.26	2	50	Peak	74	Pass
n20	2412	Ant1	2310	-56.43	2	40.83	Average	54	Pass
n20	2412	Ant1	2381.019	-44.14	2	53.12	Peak	74	Pass
n20	2412	Ant1	2385.465	-53.45	2	43.81	Average	54	Pass
n20	2412	Ant1	2390	-46.7	2	50.56	Peak	74	Pass
n20	2412	Ant1	2390	-53.69	2	43.57	Average	54	Pass
n20	2462	Ant1	2483.5	-45.94	2	51.32	Peak	74	Pass
n20	2462	Ant1	2483.5	-52.38	2	44.88	Average	54	Pass
n20	2462	Ant1	2484.418	-43.03	2	54.23	Peak	74	Pass
n20	2462	Ant1	2483.676	-52.22	2	45.04	Average	54	Pass

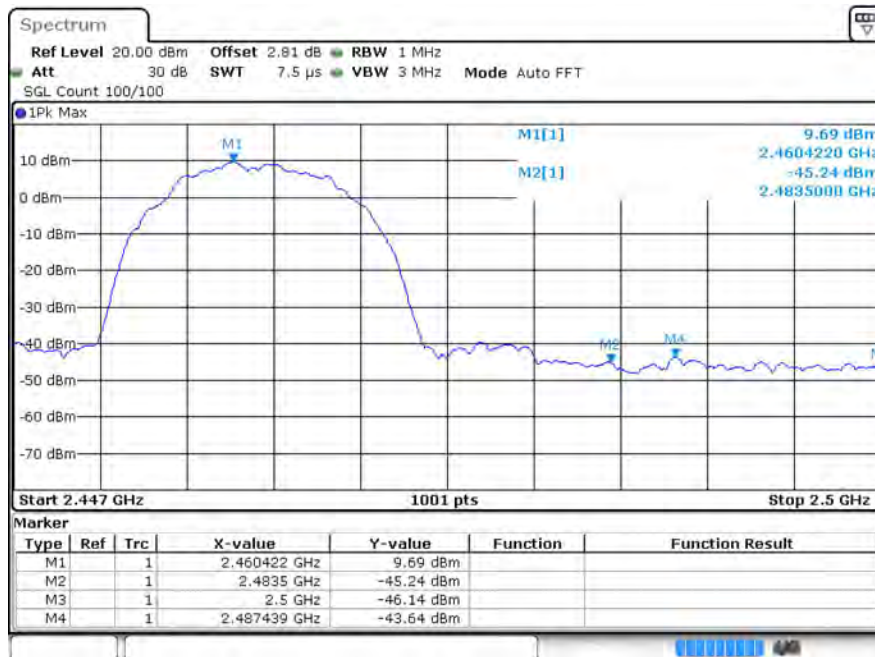


n20	2462	Ant1	2500	-47.44	2	49.82	Peak	74	Pass
n20	2462	Ant1	2500	-54.12	2	43.14	Average	54	Pass
n40	2422	Ant1	2310	-47.52	2	49.74	Peak	74	Pass
n40	2422	Ant1	2310	-55.14	2	42.12	Average	54	Pass
n40	2422	Ant1	2386.396	-42.34	2	54.92	Peak	74	Pass
n40	2422	Ant1	2387.248	-53.48	2	43.78	Average	54	Pass
n40	2422	Ant1	2390	-45.9	2	51.36	Peak	74	Pass
n40	2422	Ant1	2390	-54.3	2	42.96	Average	54	Pass
n40	2452	Ant1	2483.5	-44.69	2	52.57	Peak	74	Pass
n40	2452	Ant1	2483.5	-52.82	2	44.44	Average	54	Pass
n40	2452	Ant1	2491.108	-43.07	2	54.19	Peak	74	Pass
n40	2452	Ant1	2484.088	-52.65	2	44.61	Average	54	Pass
n40	2452	Ant1	2500	-47.35	2	49.91	Peak	74	Pass
n40	2452	Ant1	2500	-55.32	2	41.94	Average	54	Pass

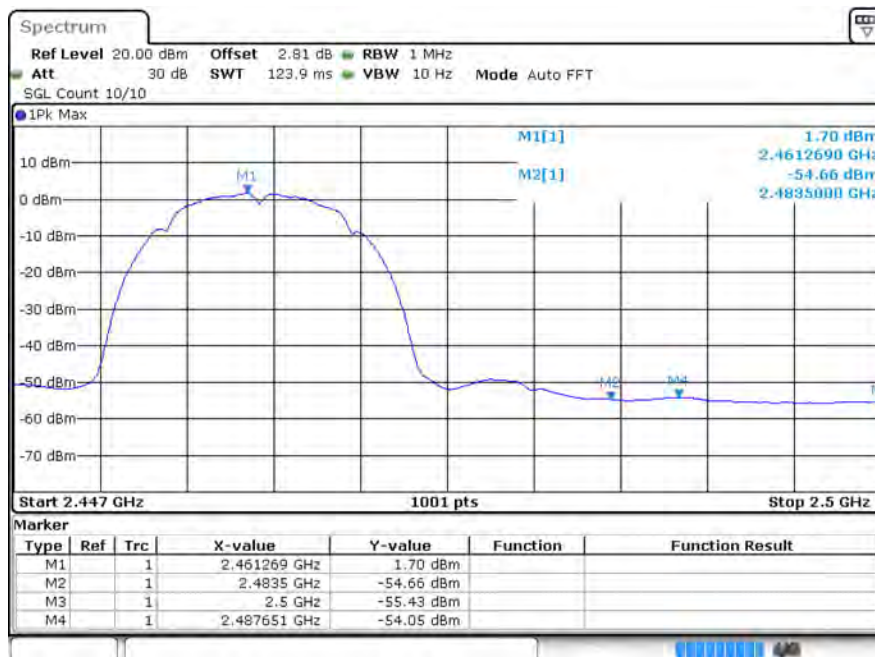
7.2 Test Graphs

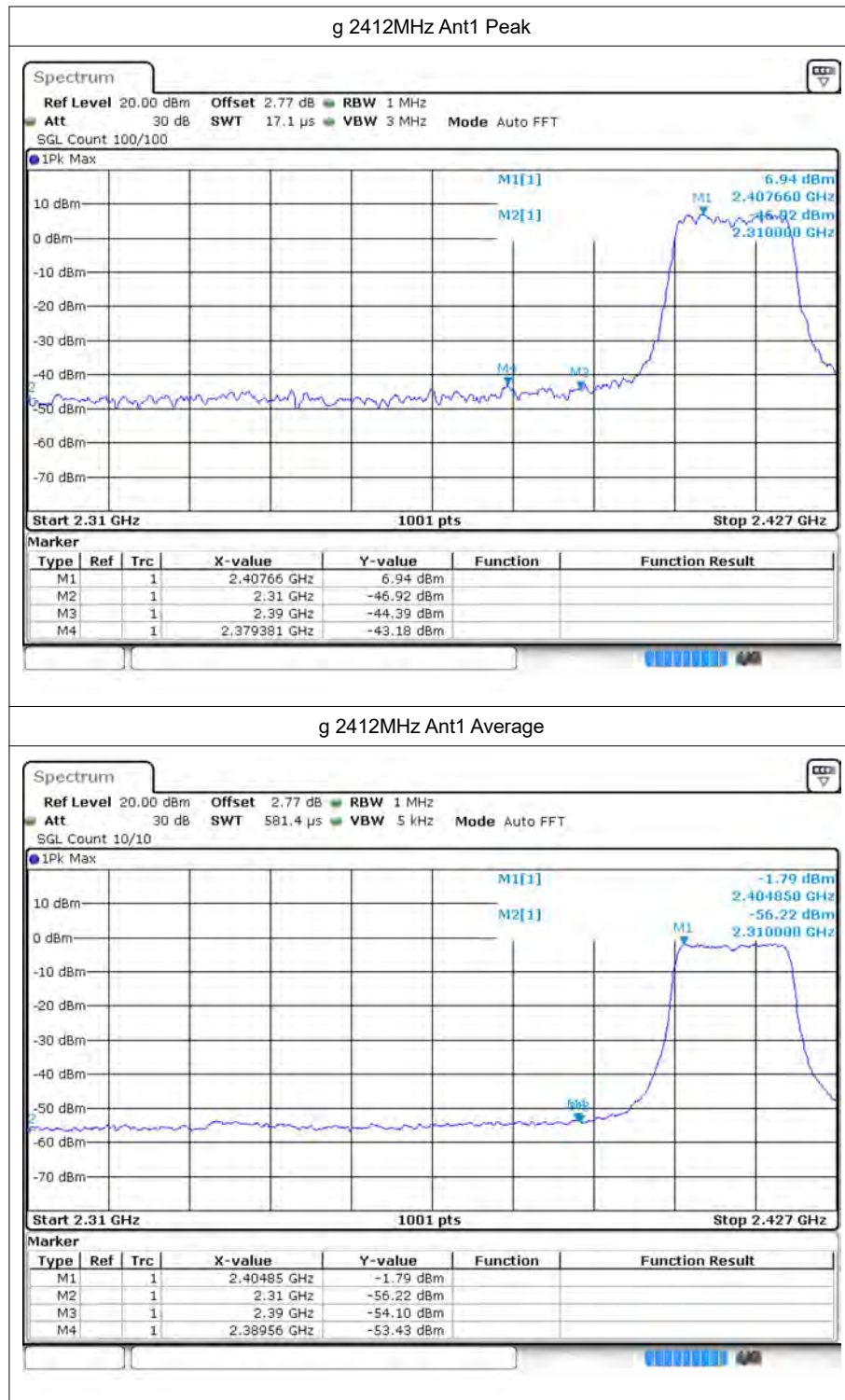


b 2462MHz Ant1 Peak

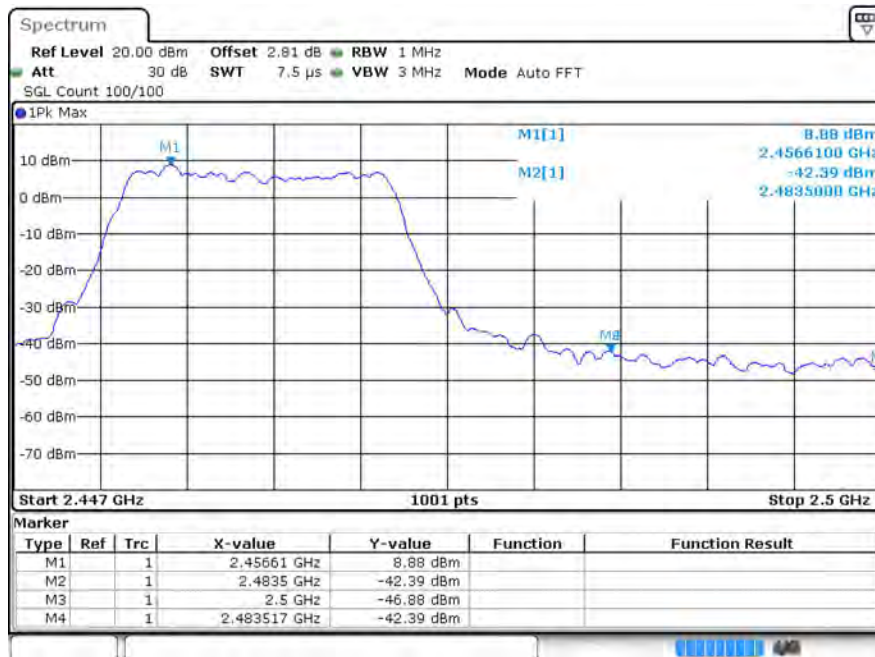


b 2462MHz Ant1 Average

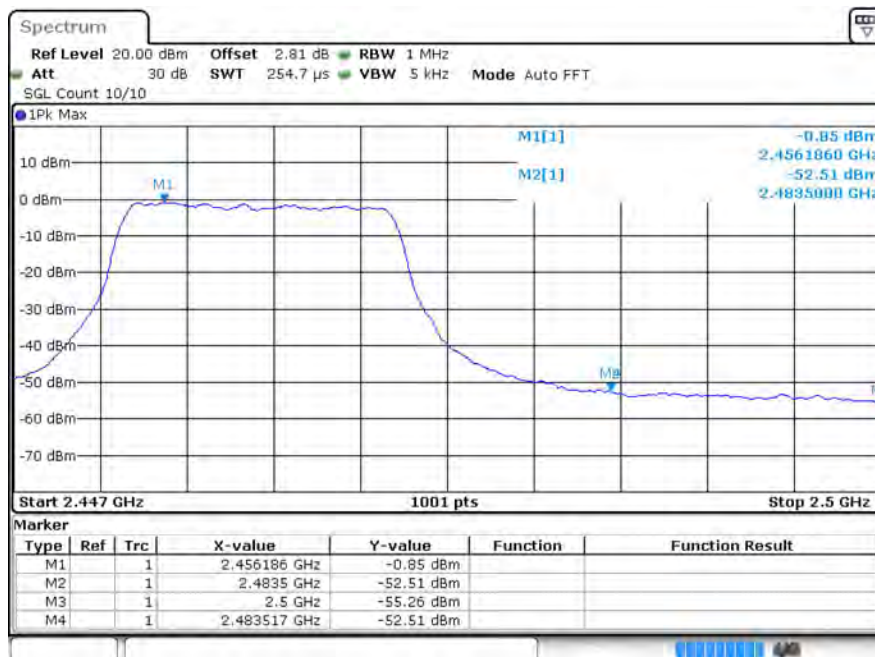


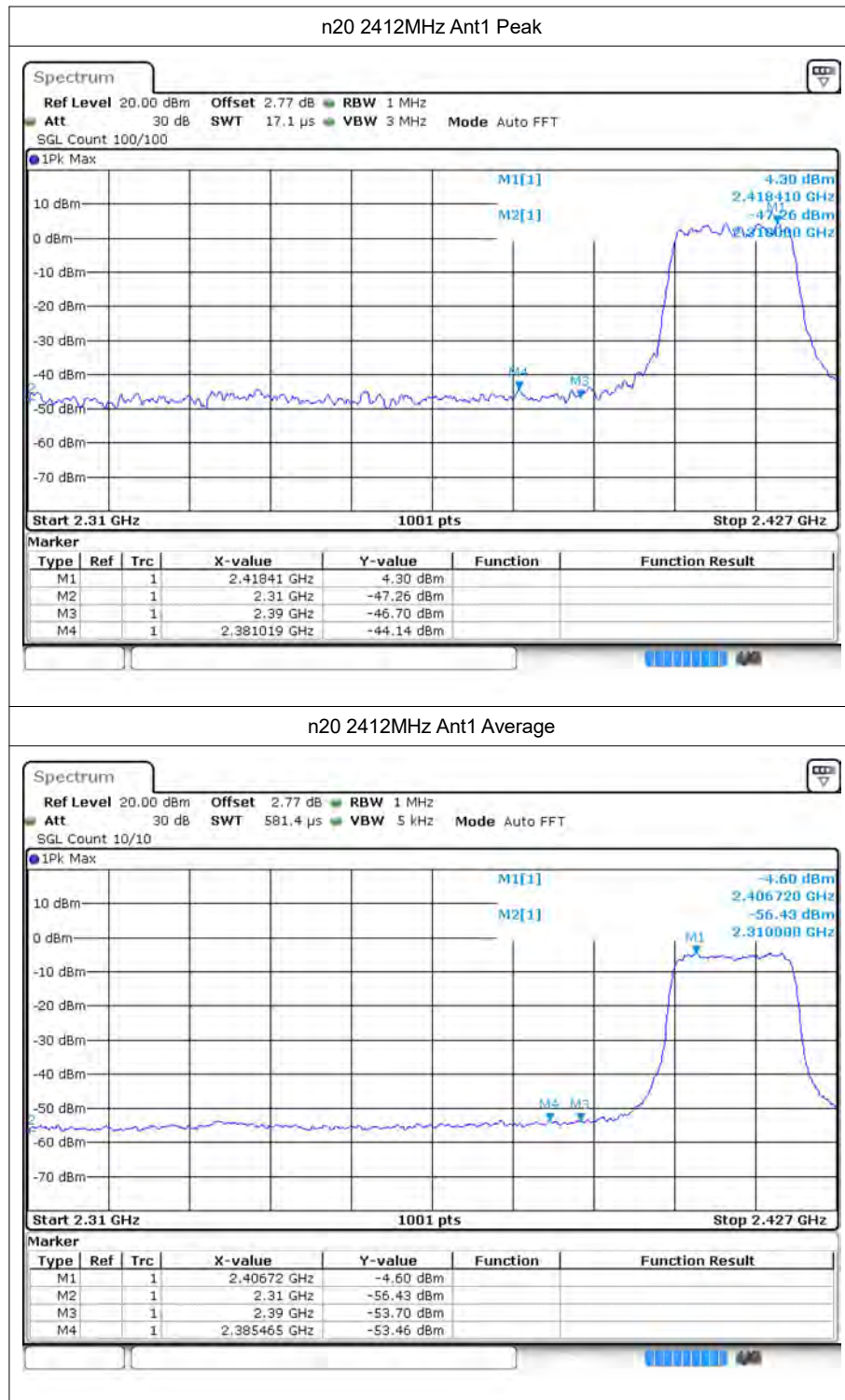


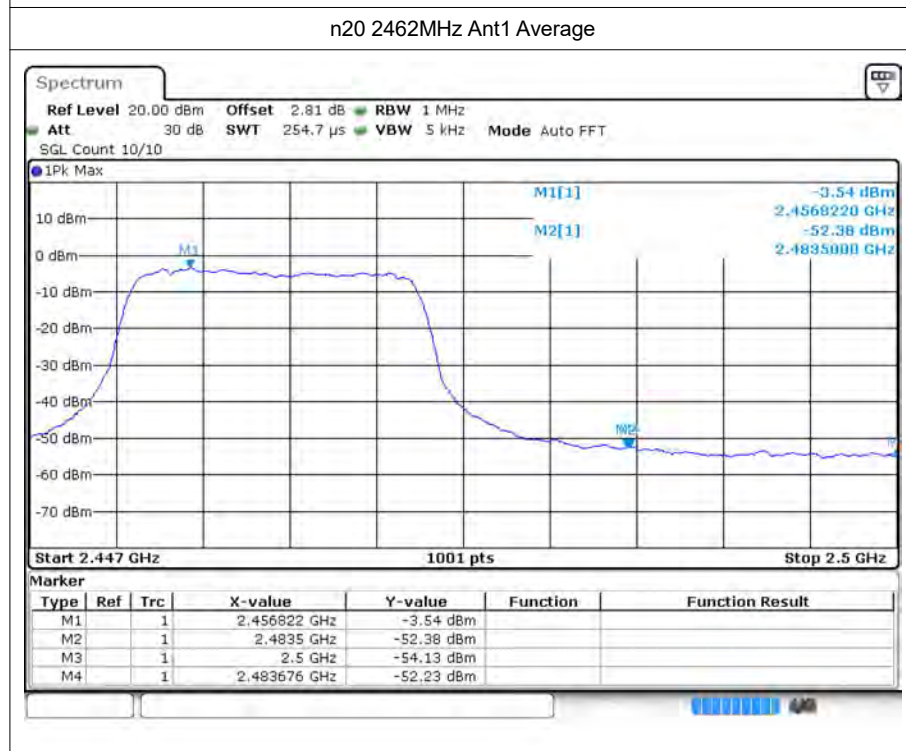
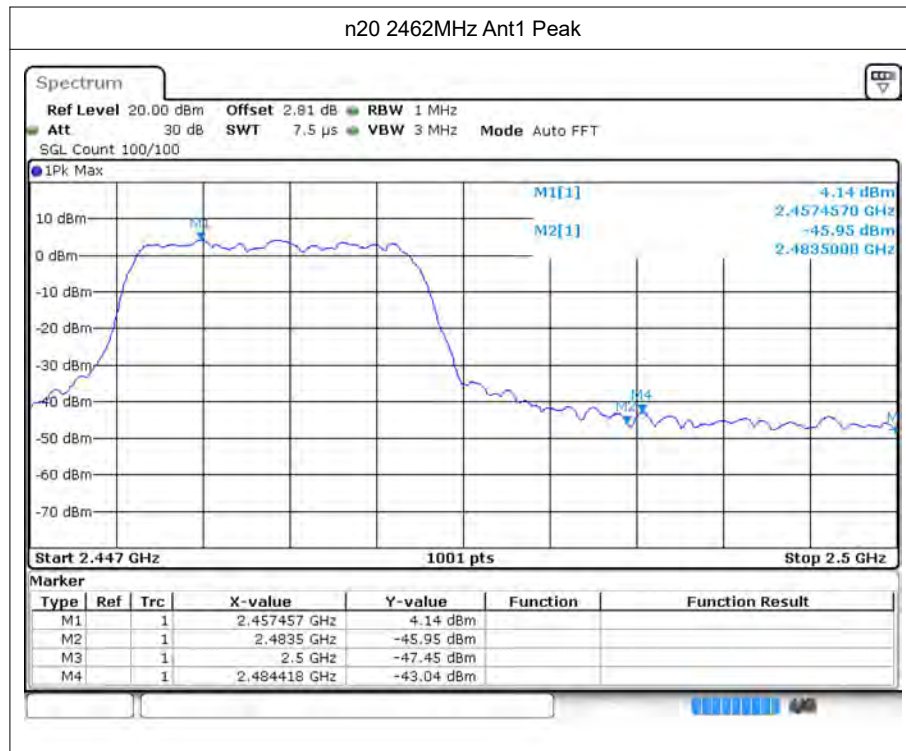
g 2462MHz Ant1 Peak

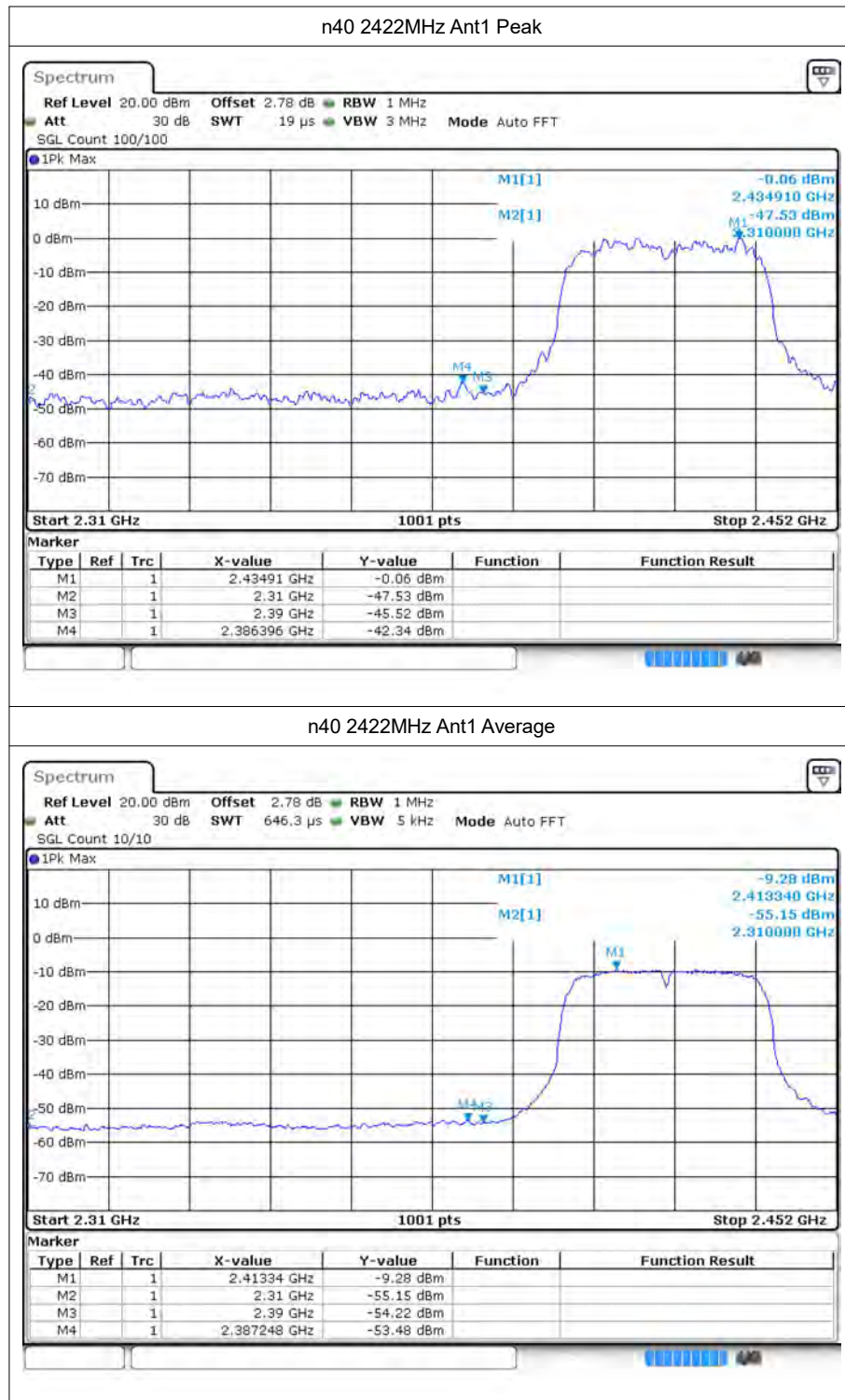


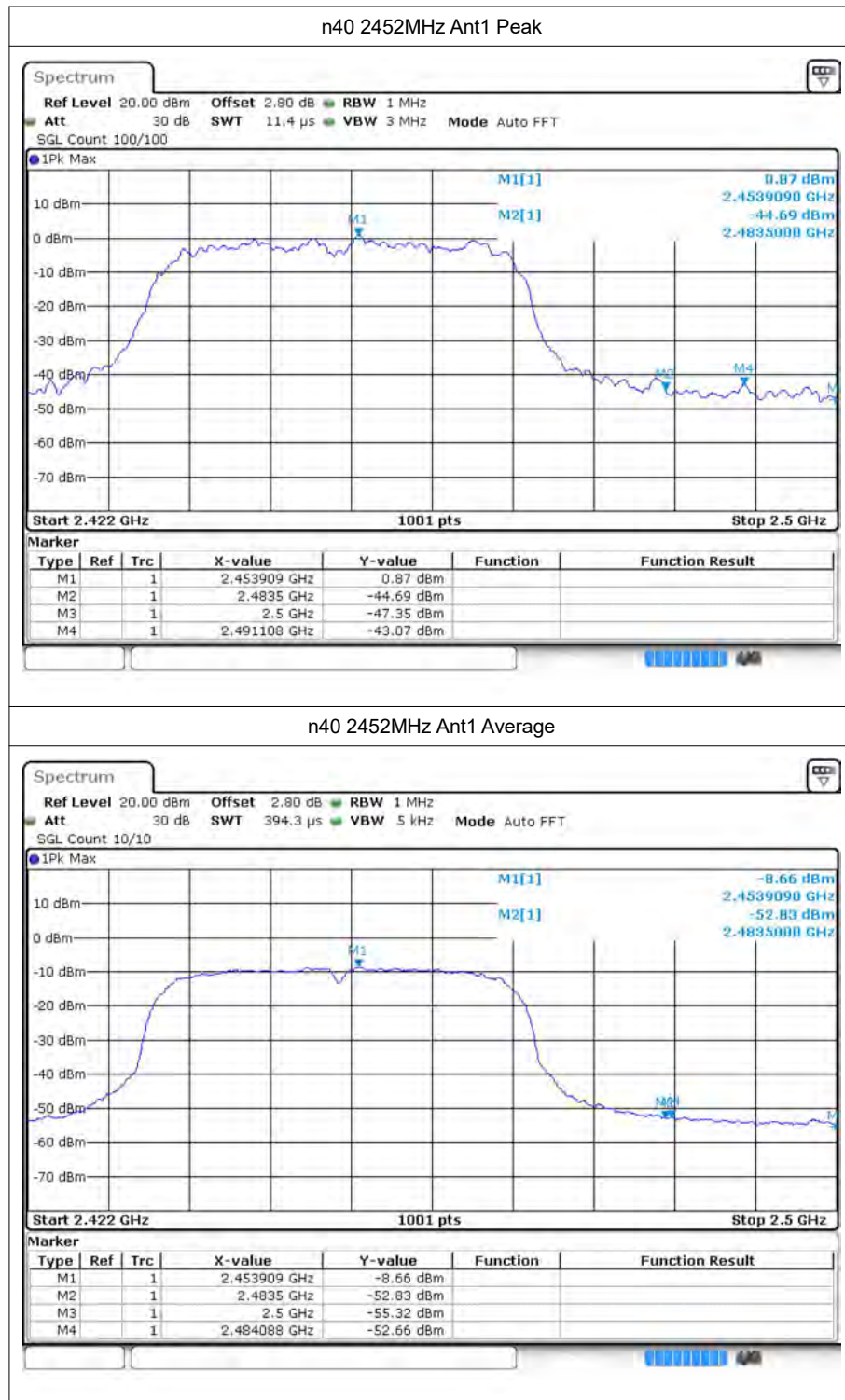
g 2462MHz Ant1 Average











---The End---