



Appendix C

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: Wi-Fi Module

Trade Mark: LawMate

Test Model: LM-RTL8189FTV

Environmental Conditions

Temperature:	20.6° C
Relative Humidity:	52.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen



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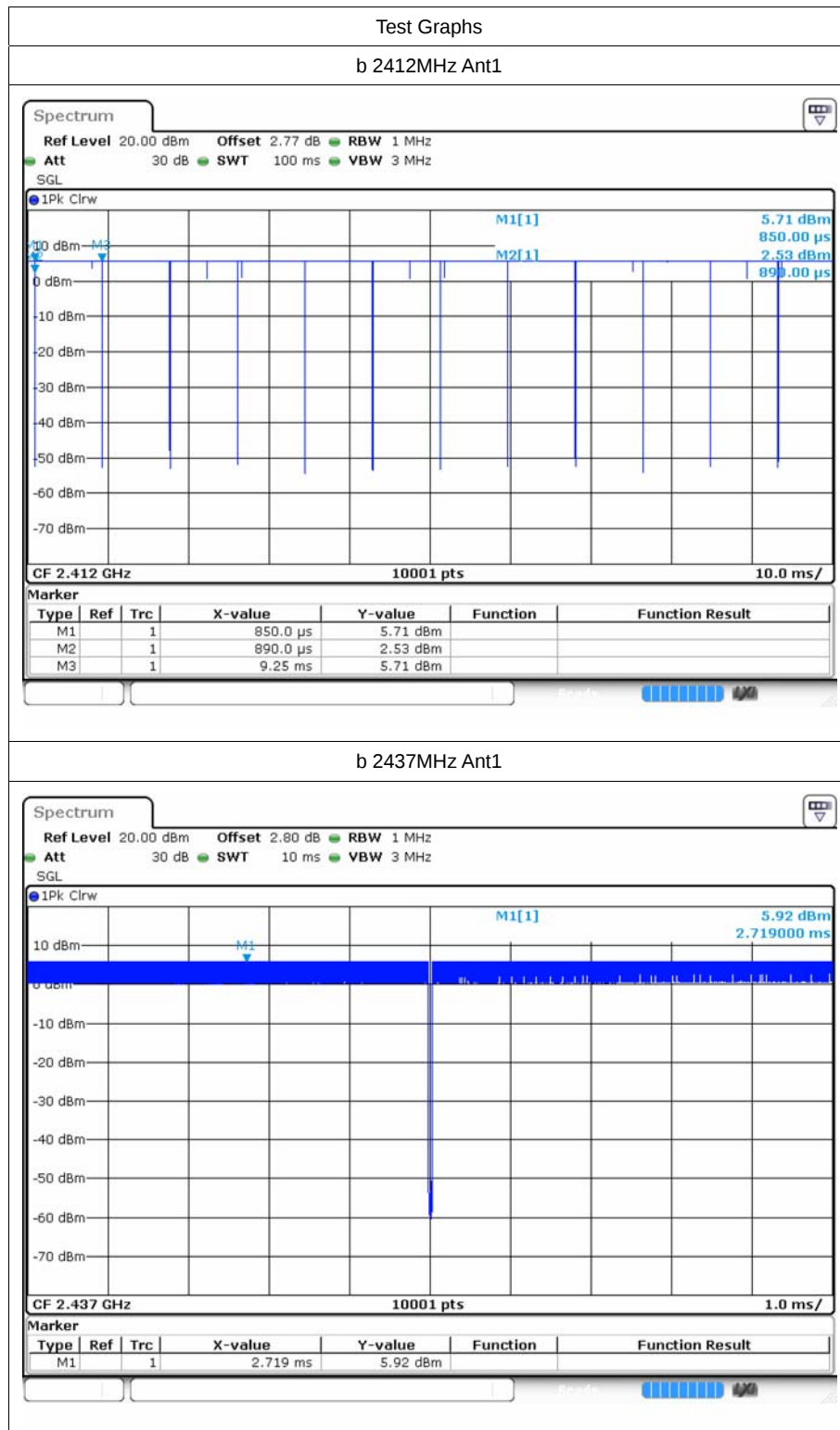


1 Duty Cycle

1.1 Test Result

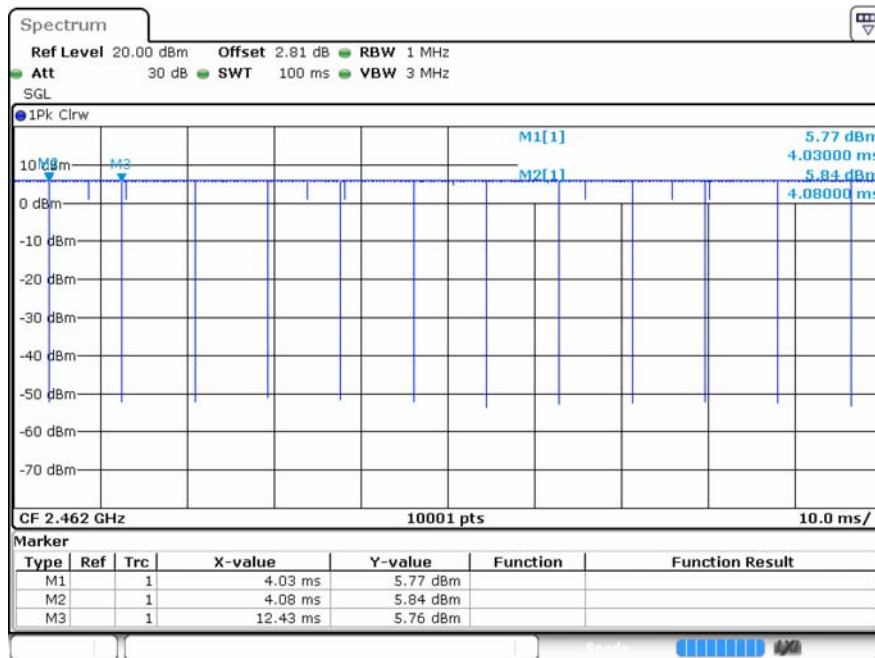
Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	1/T (kHz)
b	2412	Ant1	99.6	0.12
b	2437	Ant1	99.59	0
b	2462	Ant1	99.61	0.12
g	2412	Ant1	86.89	4.55
g	2437	Ant1	86.93	4.76
g	2462	Ant1	86.98	4.76
n20	2412	Ant1	87.58	4.35
n20	2437	Ant1	87.67	4.17
n20	2462	Ant1	87.55	4.35
n40	2422	Ant1	88.06	4.17
n40	2437	Ant1	88.26	4
n40	2452	Ant1	88.02	4.17

1.2 Test Graphs

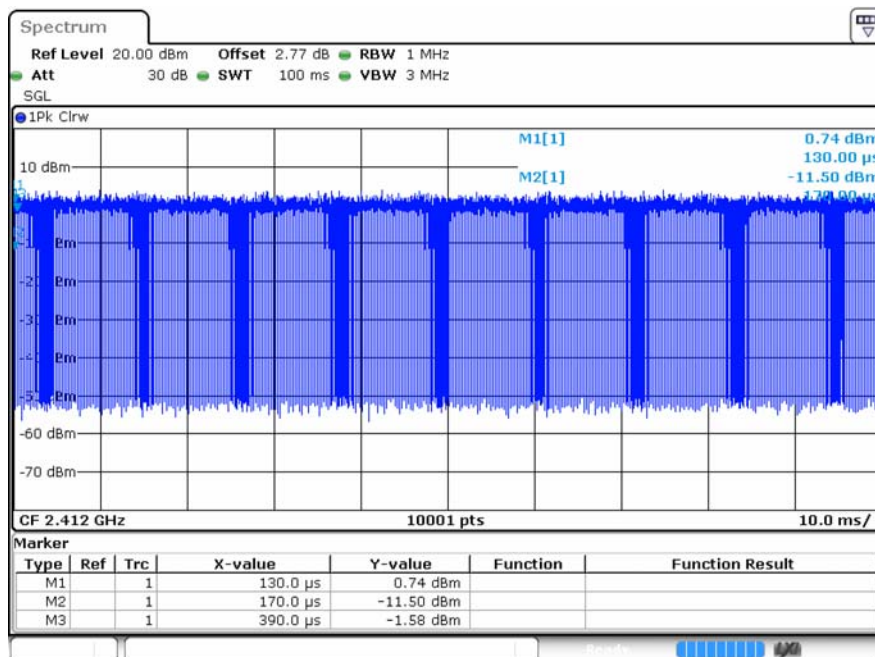


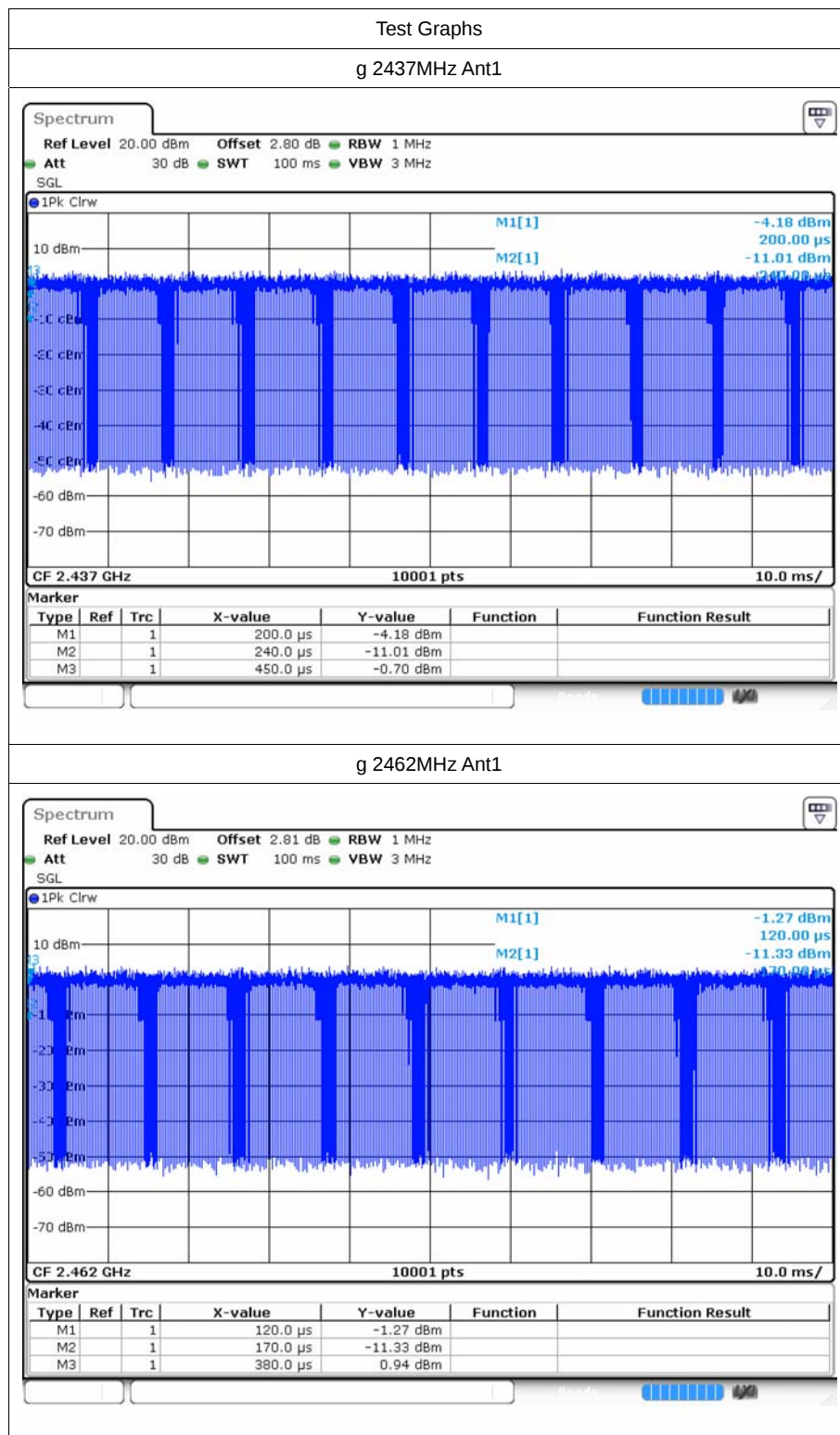
Test Graphs

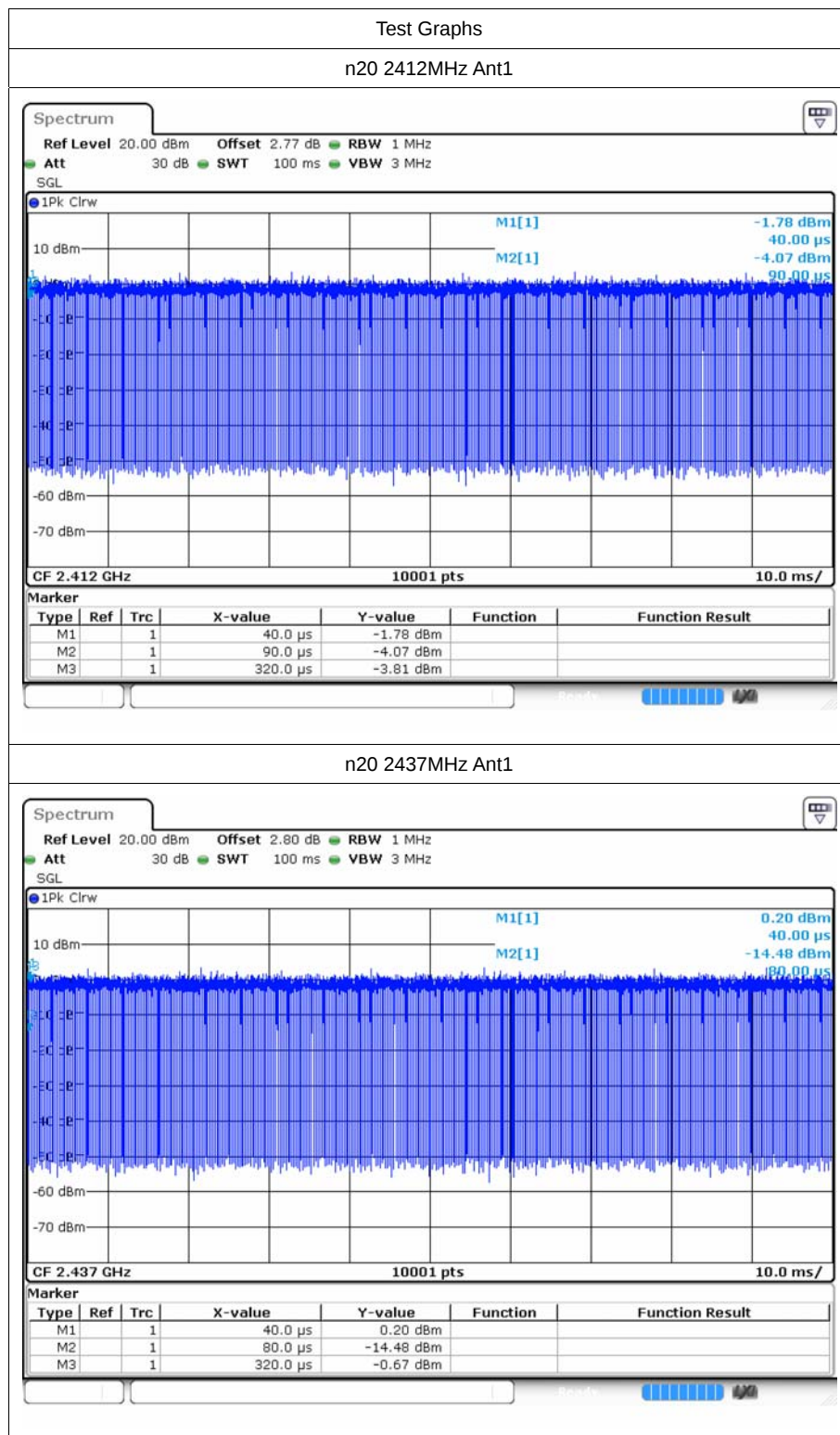
b 2462MHz Ant1

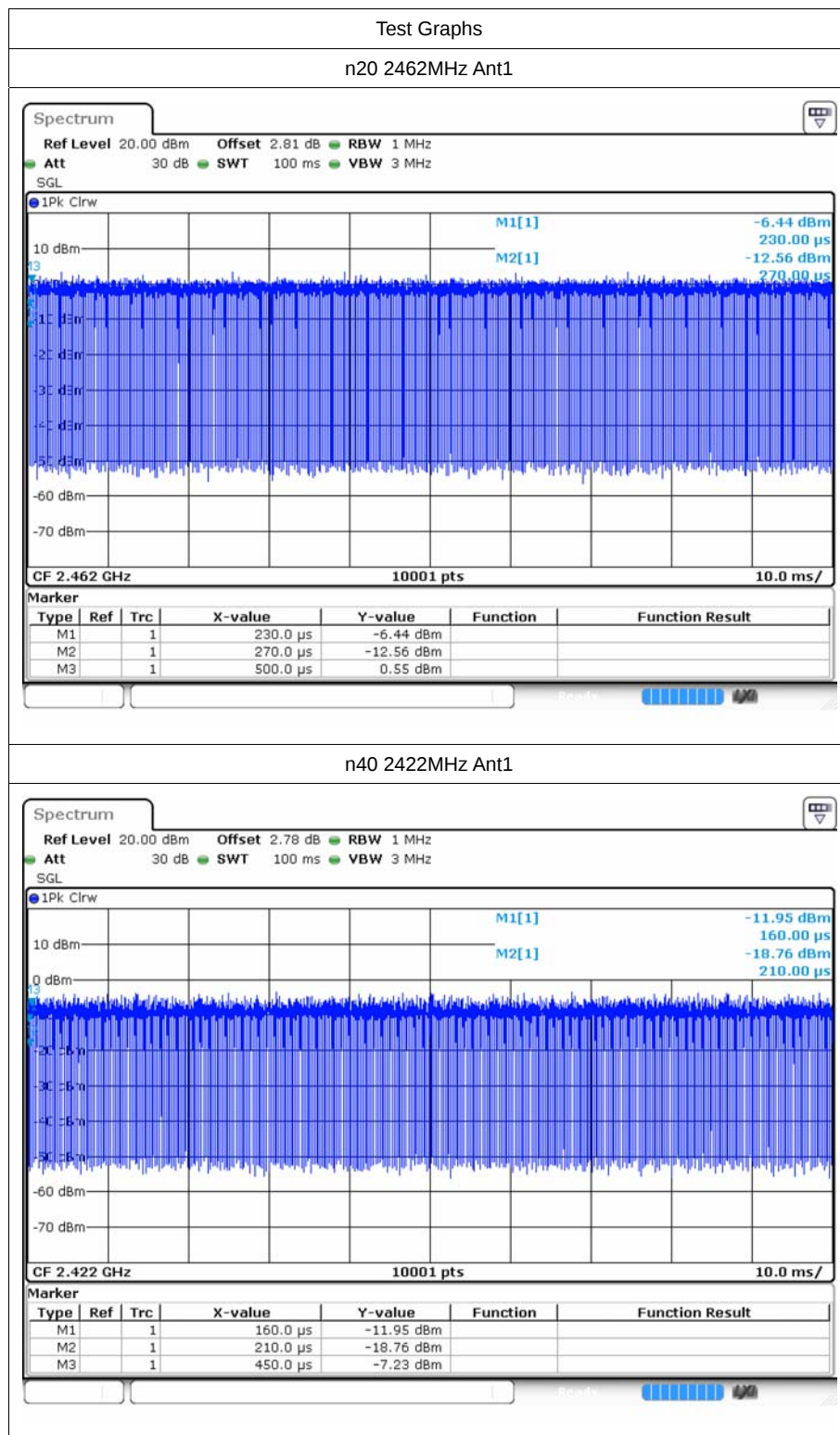


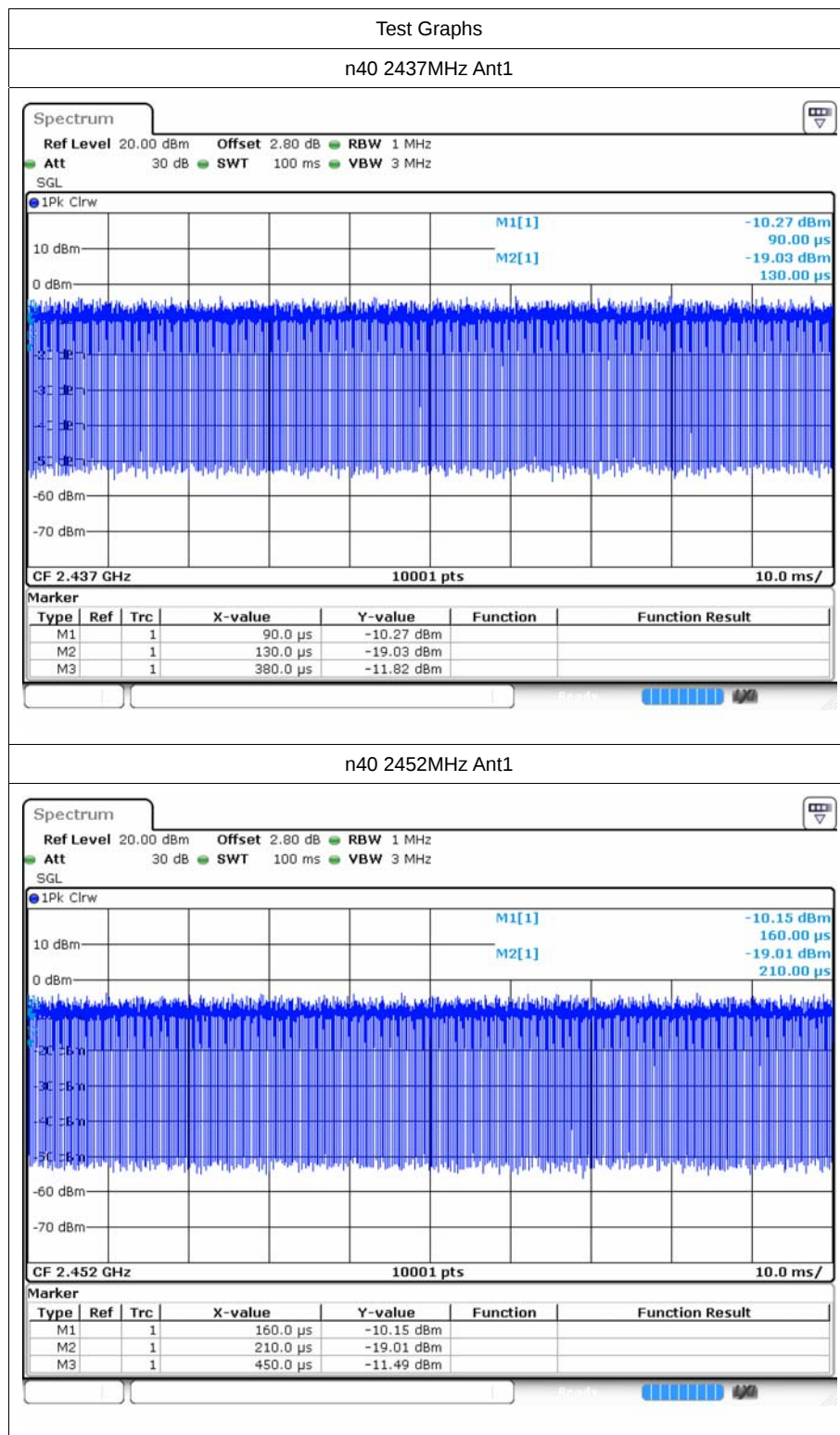
g 2412MHz Ant1













2 Maximum Conducted Output Power

2.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
b	2412	Ant1	16.26	30	Pass
b	2437	Ant1	16.36	30	Pass
b	2462	Ant1	16.3	30	Pass
g	2412	Ant1	13.35	30	Pass
g	2437	Ant1	13.29	30	Pass
g	2462	Ant1	13.19	30	Pass
n20	2412	Ant1	12.45	30	Pass
n20	2437	Ant1	12.26	30	Pass
n20	2462	Ant1	12.2	30	Pass
n40	2422	Ant1	12.69	30	Pass
n40	2437	Ant1	12.69	30	Pass
n40	2452	Ant1	12.65	30	Pass

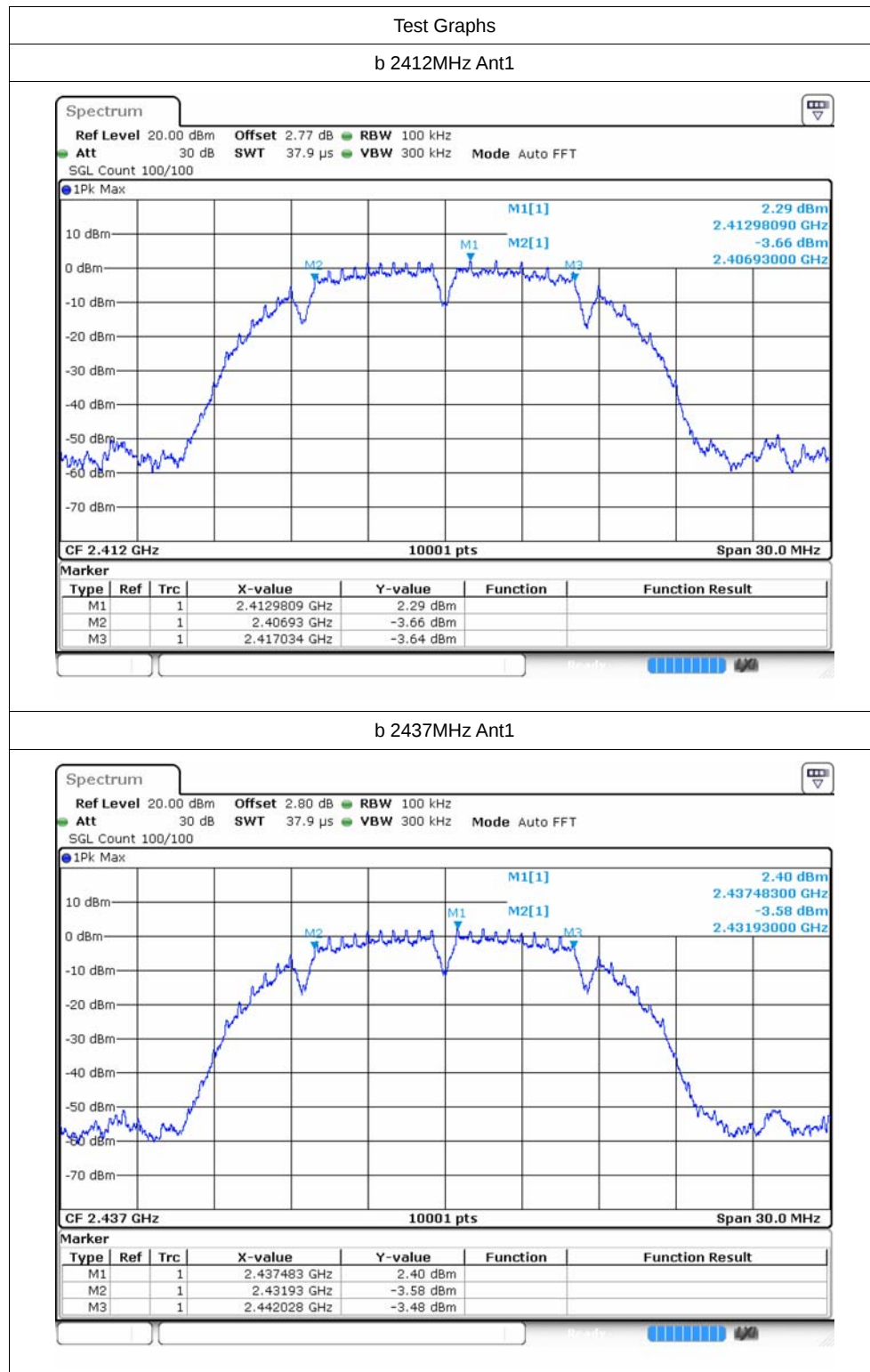


3 -6dB Bandwidth

3.1 Test Result

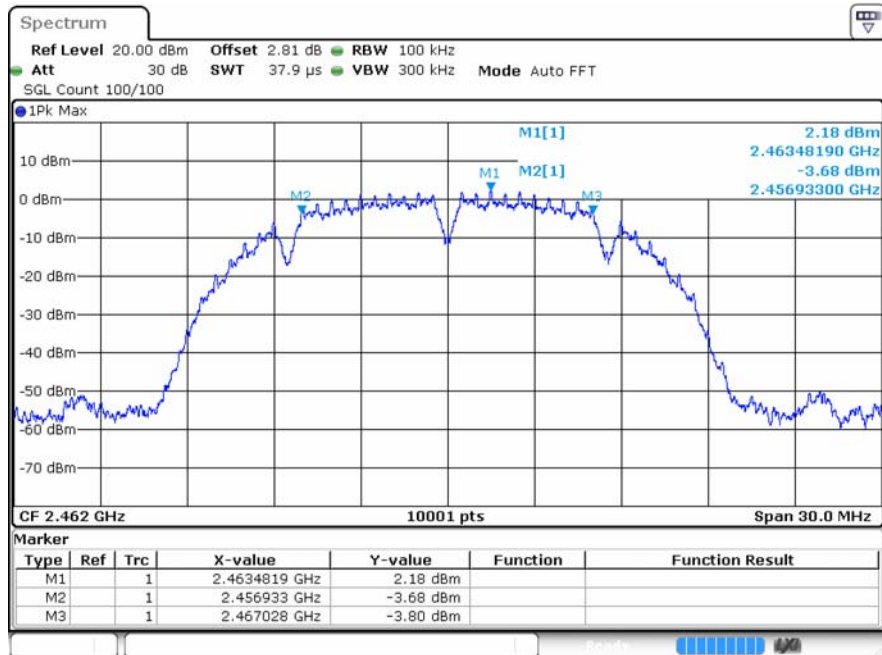
Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
b	2412	Ant1	10.104	0.5	Pass
b	2437	Ant1	10.098	0.5	Pass
b	2462	Ant1	10.095	0.5	Pass
g	2412	Ant1	14.439	0.5	Pass
g	2437	Ant1	15.12	0.5	Pass
g	2462	Ant1	15.105	0.5	Pass
n20	2412	Ant1	15.114	0.5	Pass
n20	2437	Ant1	15.114	0.5	Pass
n20	2462	Ant1	15.087	0.5	Pass
n40	2422	Ant1	32.538	0.5	Pass
n40	2437	Ant1	35.058	0.5	Pass
n40	2452	Ant1	35.088	0.5	Pass

3.2 Test Graphs

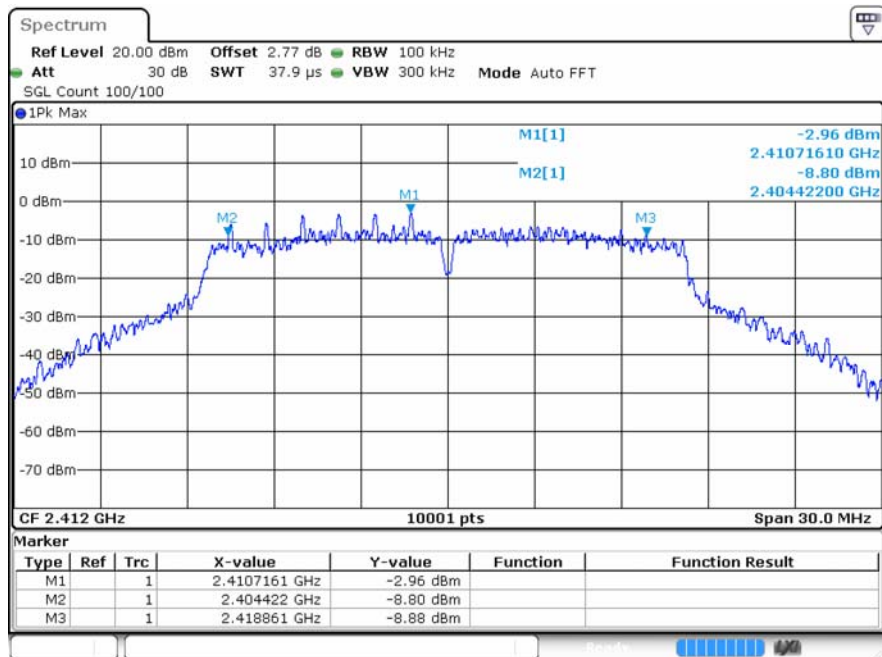




b 2462MHz Ant1

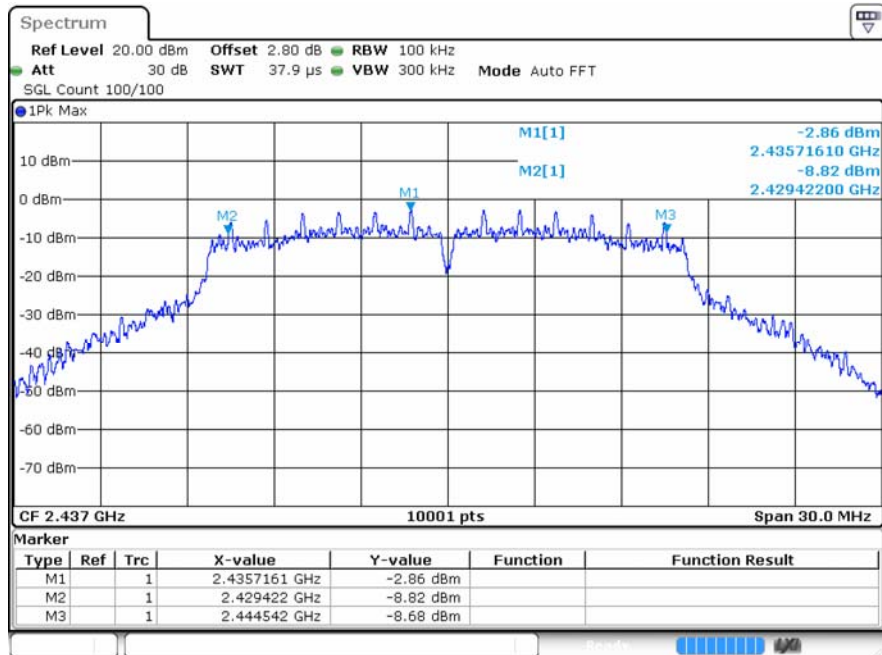


g 2412MHz Ant1

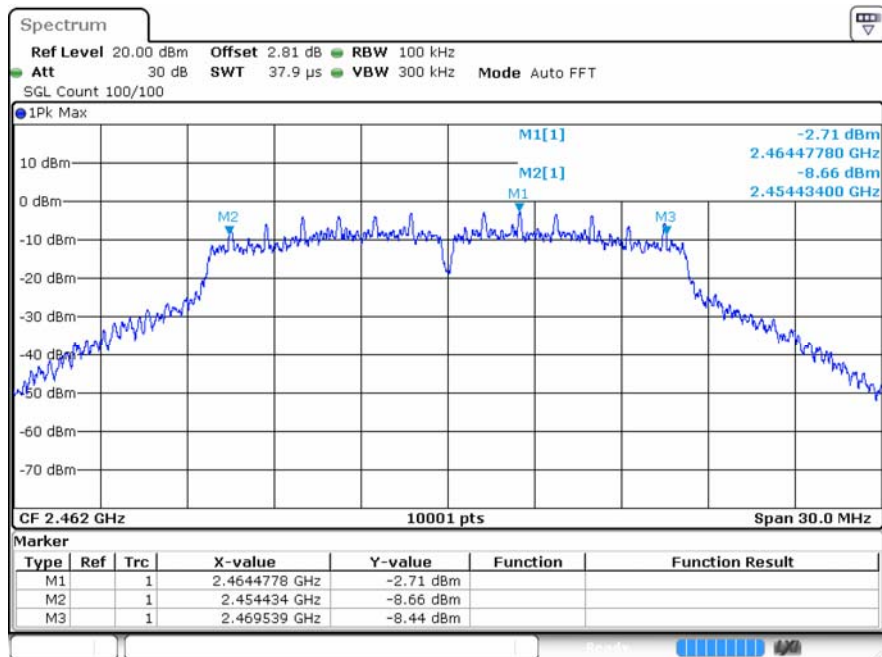


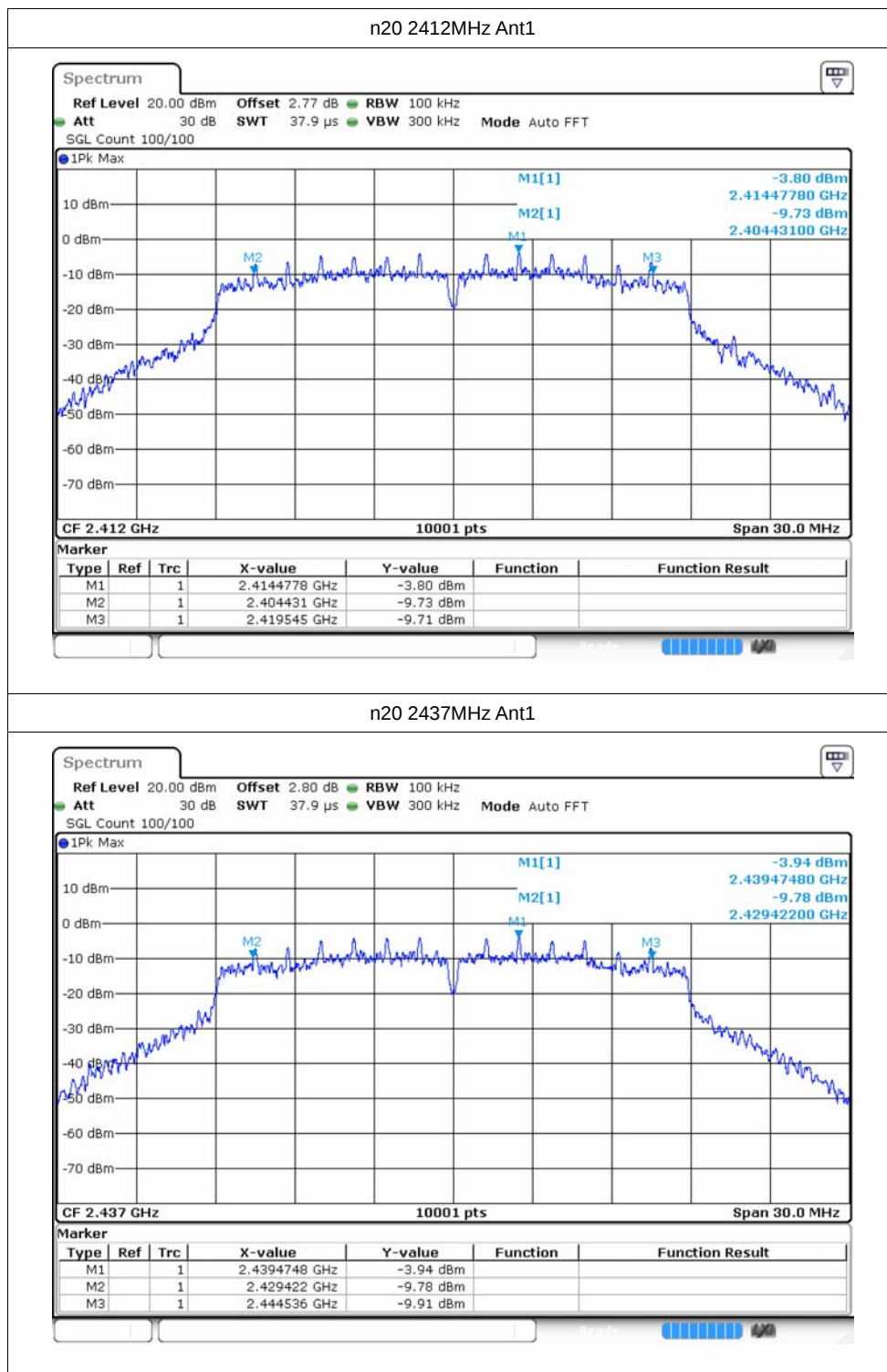


g 2437MHz Ant1



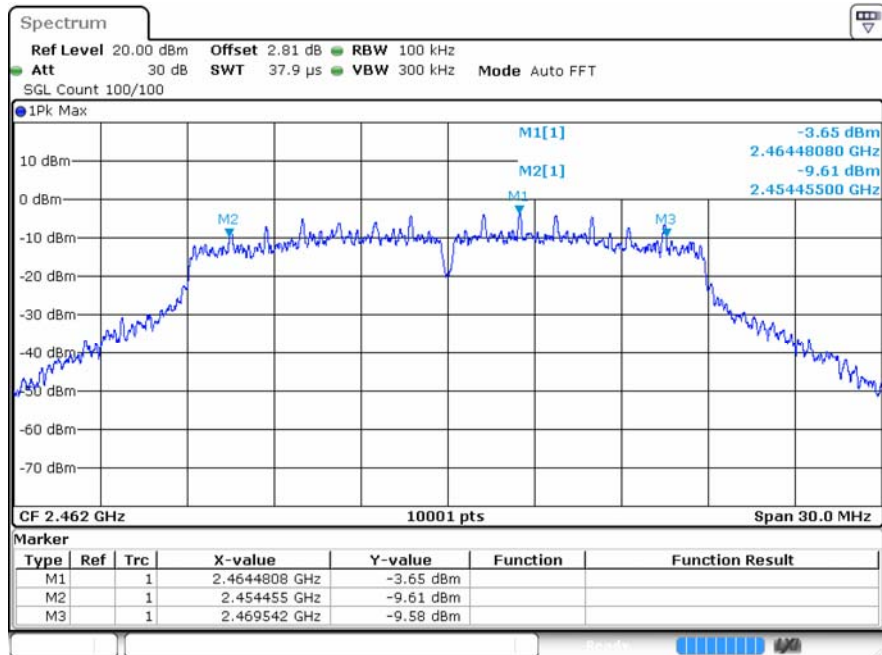
g 2462MHz Ant1



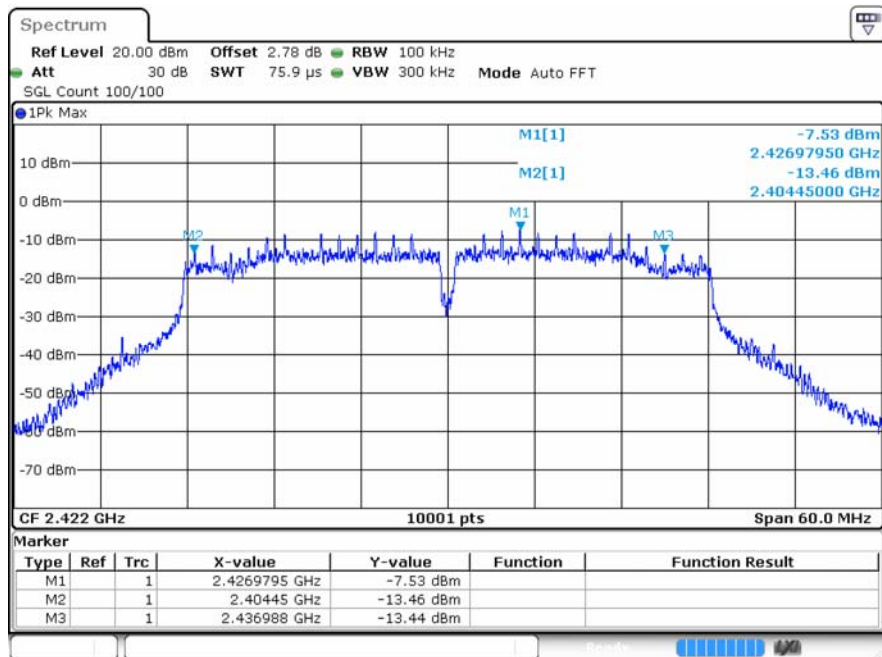


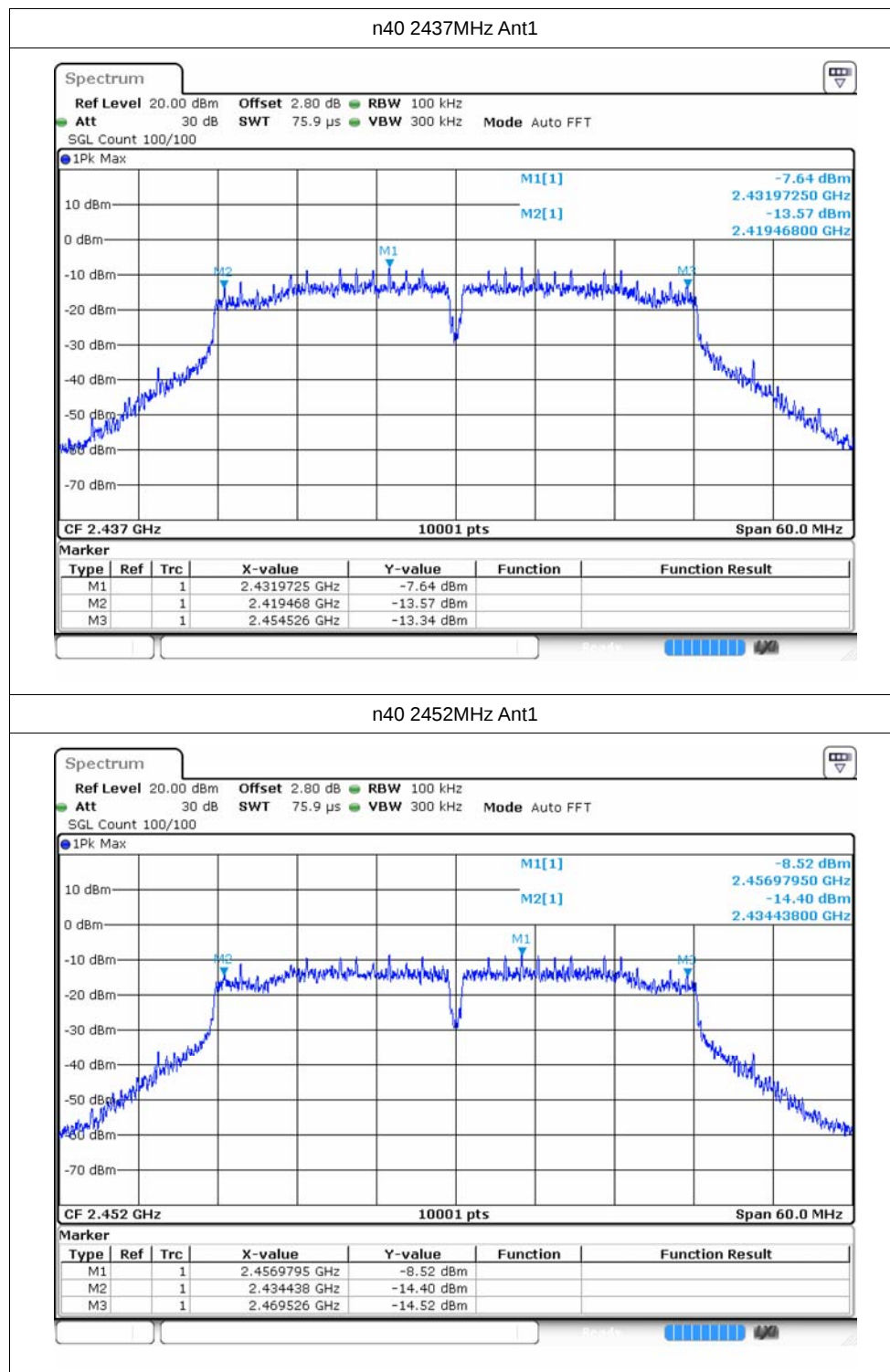


n20 2462MHz Ant1



n40 2422MHz Ant1



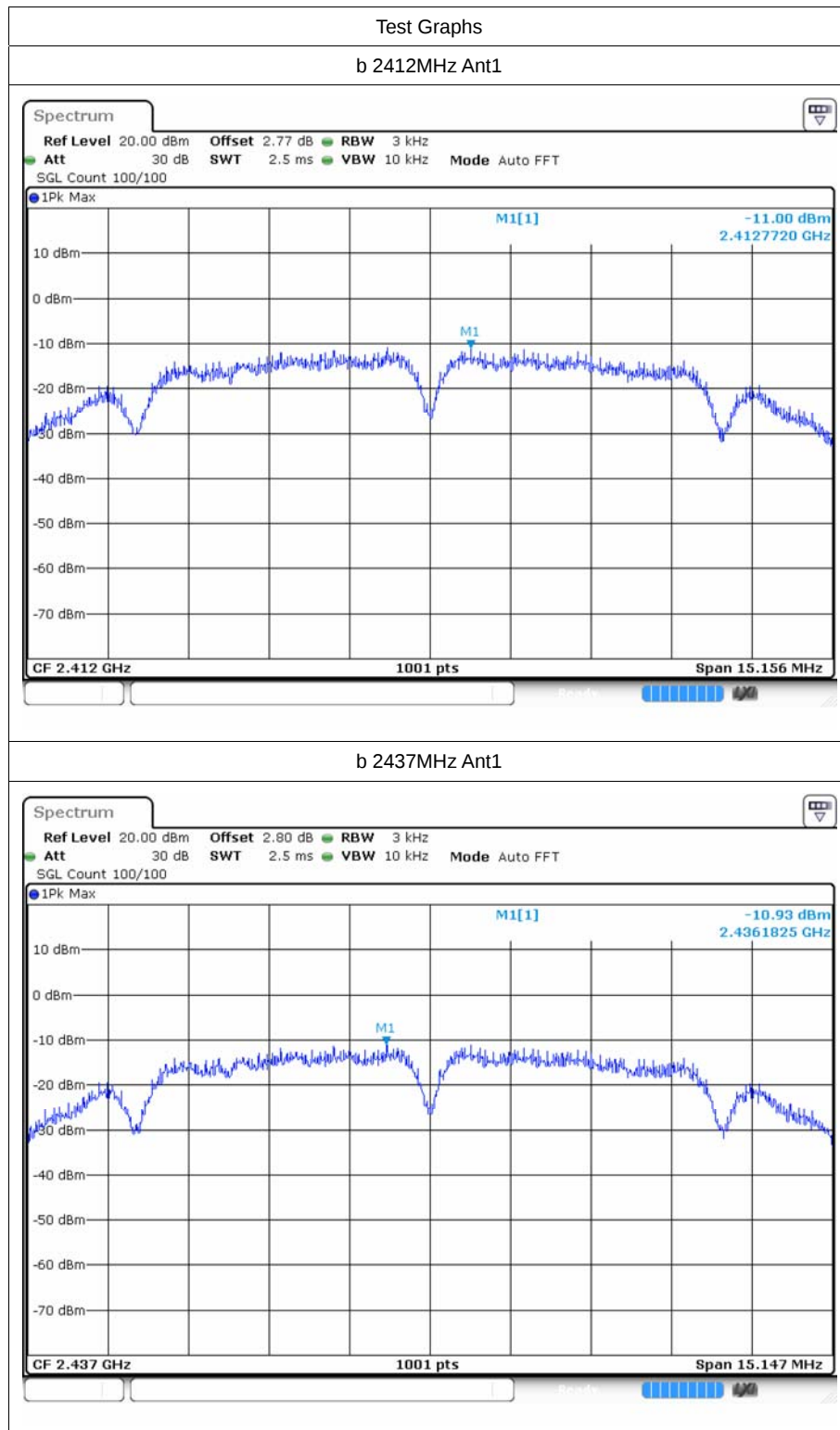


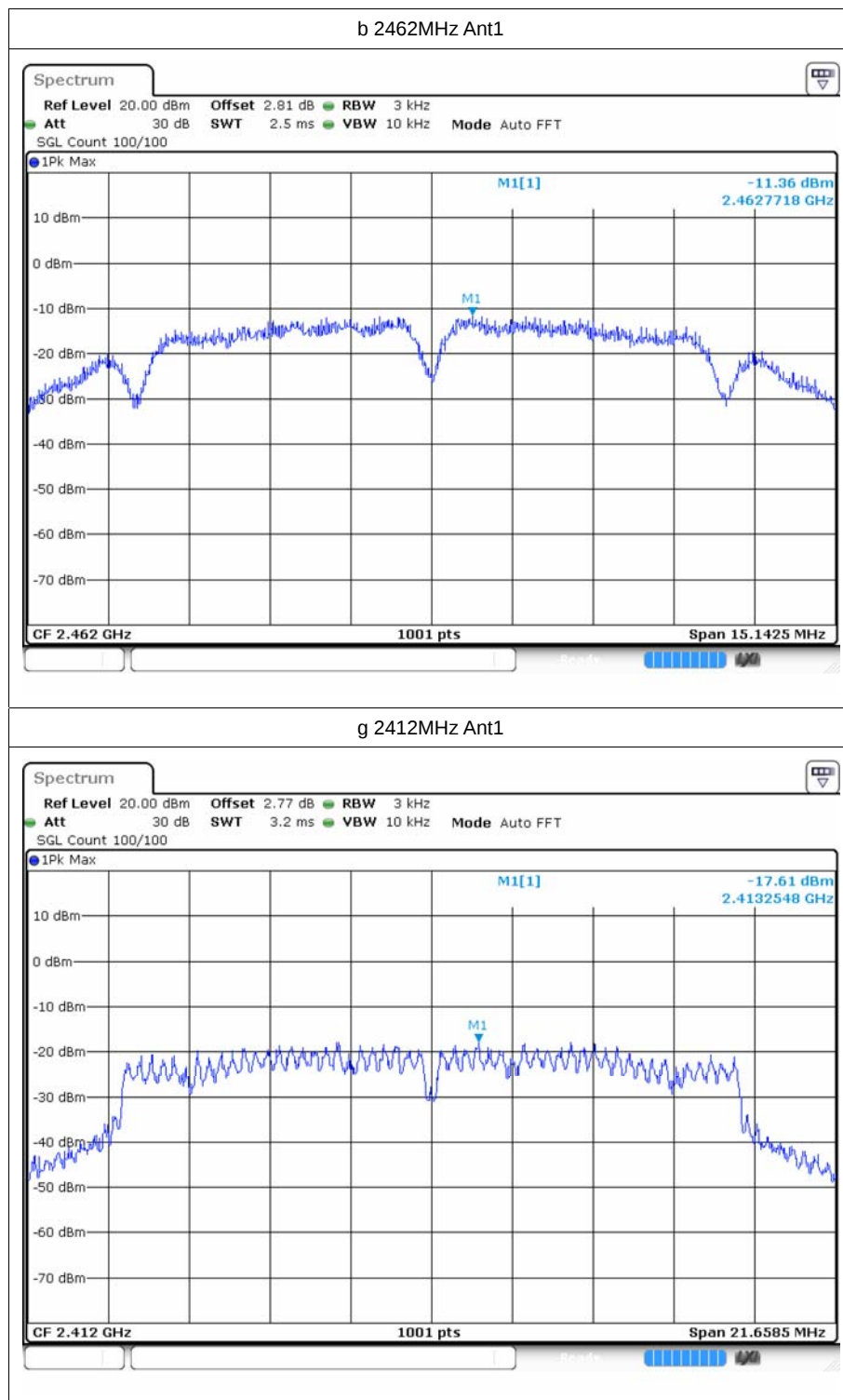
4 Maximum Power Spectral Density Level

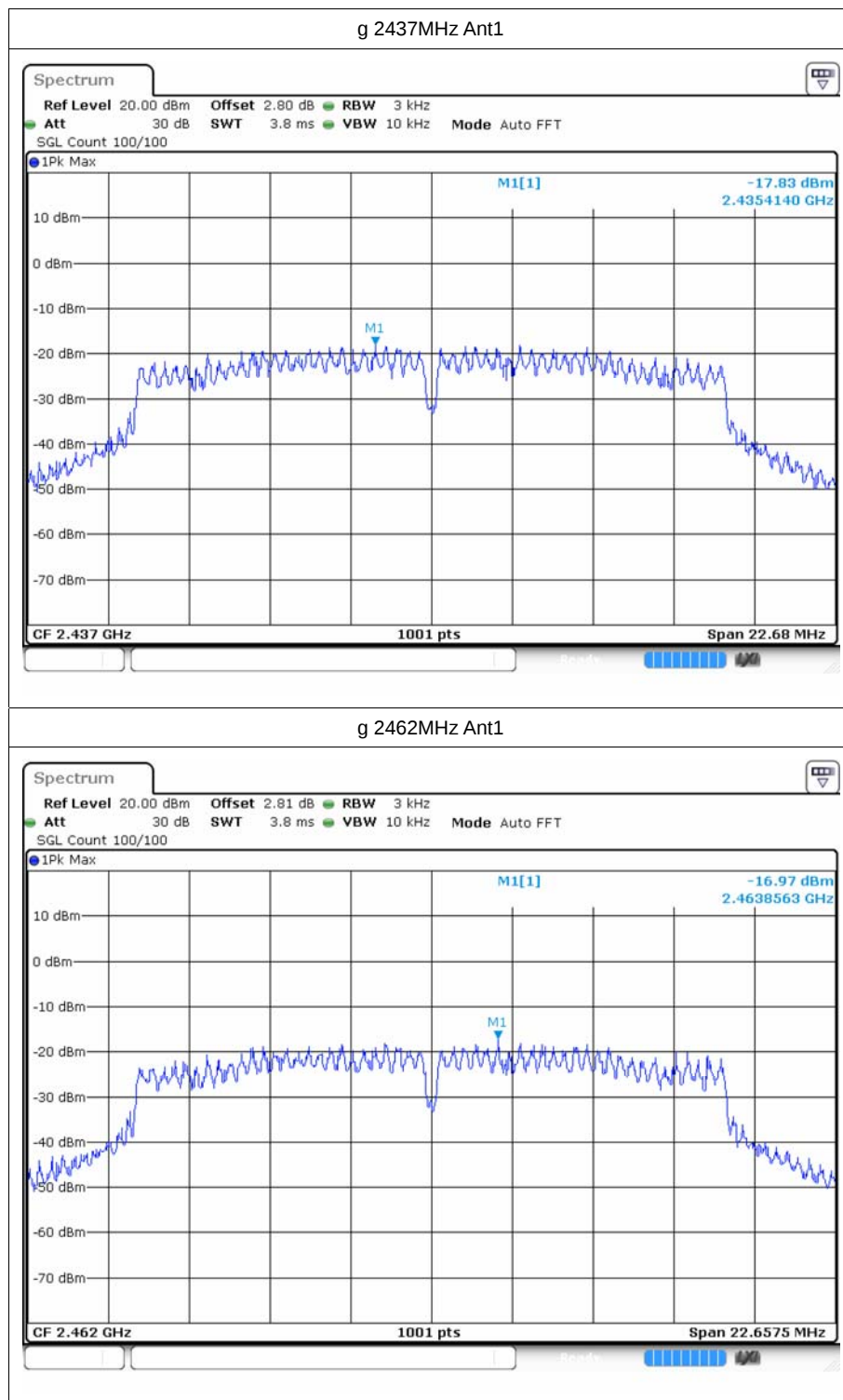
4.1 Test Result

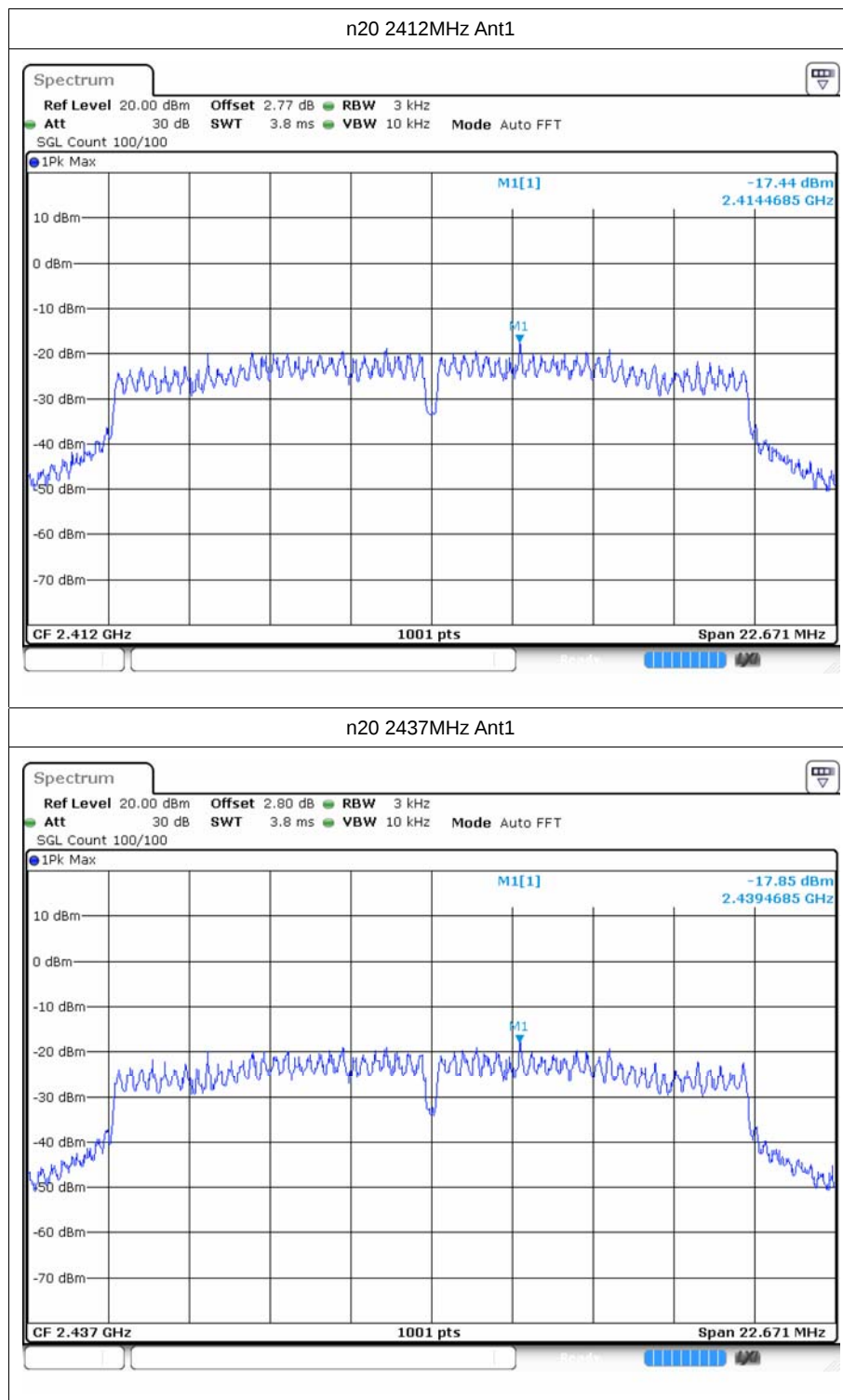
Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3-100kHz)	Limit (dBm/3kHz)	Verdict
b	2412	Ant1	-11	≤ 8	Pass
b	2437	Ant1	-10.93	≤ 8	Pass
b	2462	Ant1	-11.36	≤ 8	Pass
g	2412	Ant1	-17.61	≤ 8	Pass
g	2437	Ant1	-17.83	≤ 8	Pass
g	2462	Ant1	-16.97	≤ 8	Pass
n20	2412	Ant1	-17.44	≤ 8	Pass
n20	2437	Ant1	-17.85	≤ 8	Pass
n20	2462	Ant1	-18.44	≤ 8	Pass
n40	2422	Ant1	-22.44	≤ 8	Pass
n40	2437	Ant1	-22.02	≤ 8	Pass
n40	2452	Ant1	-22.42	≤ 8	Pass

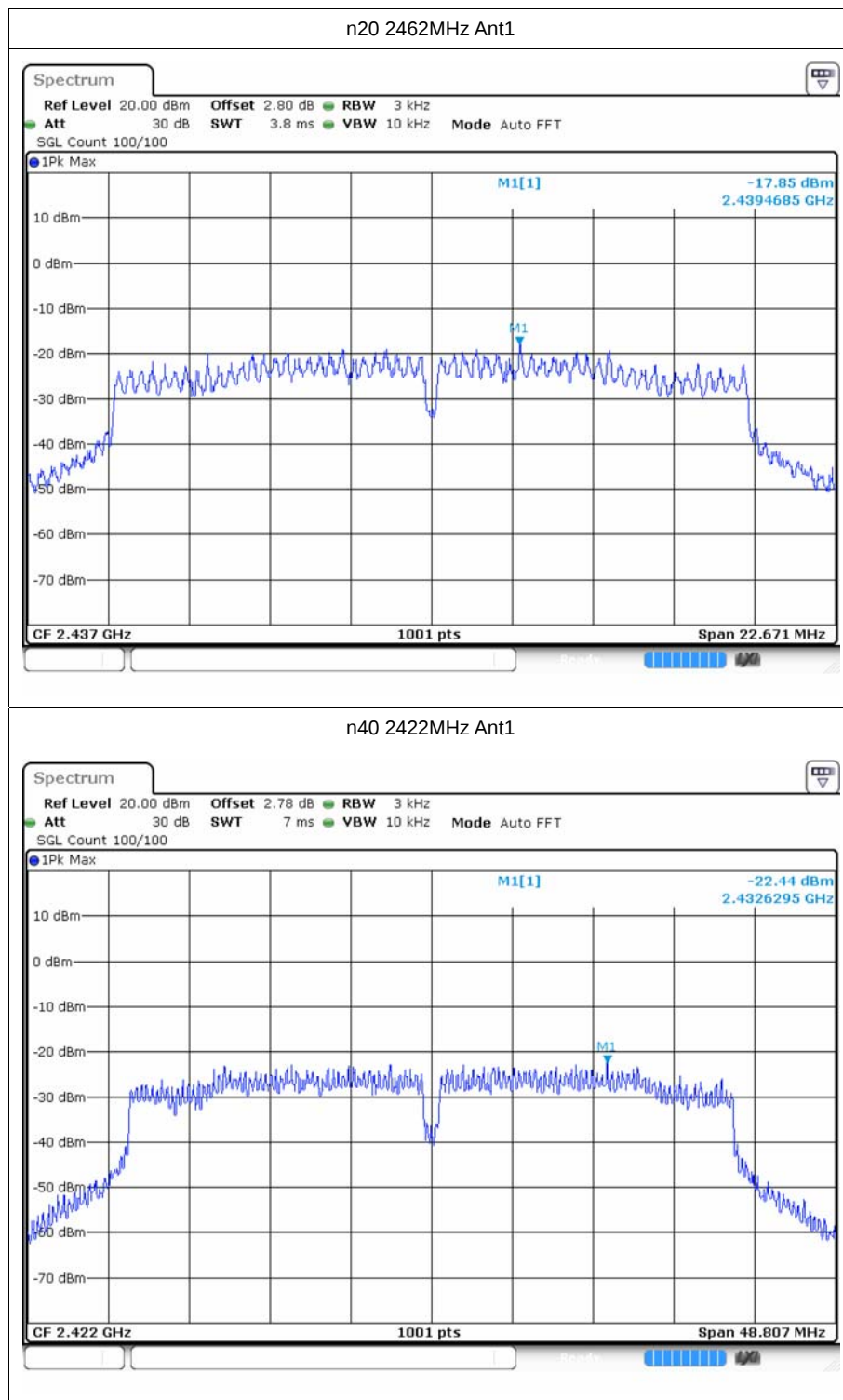
4.2 Test Graphs

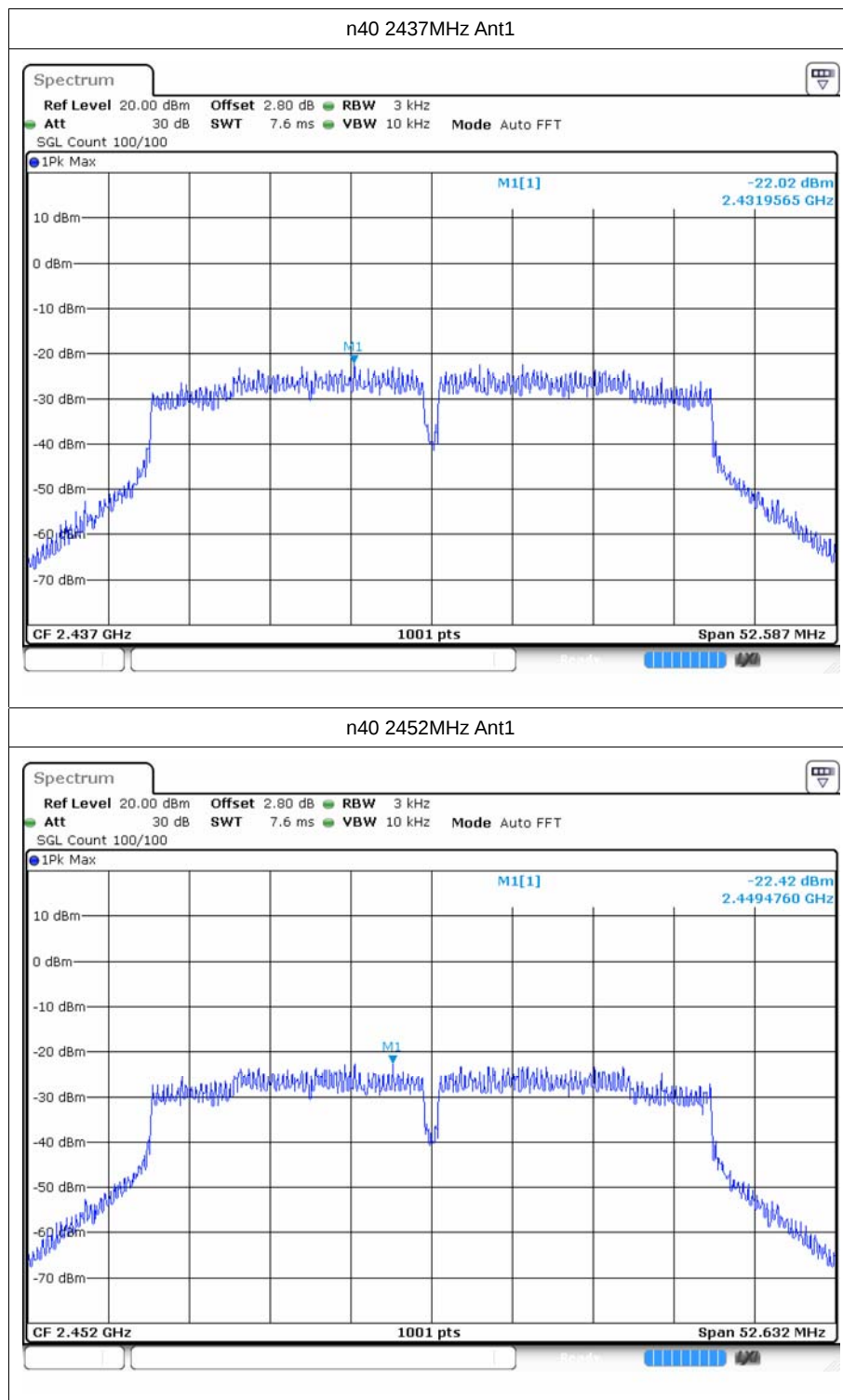












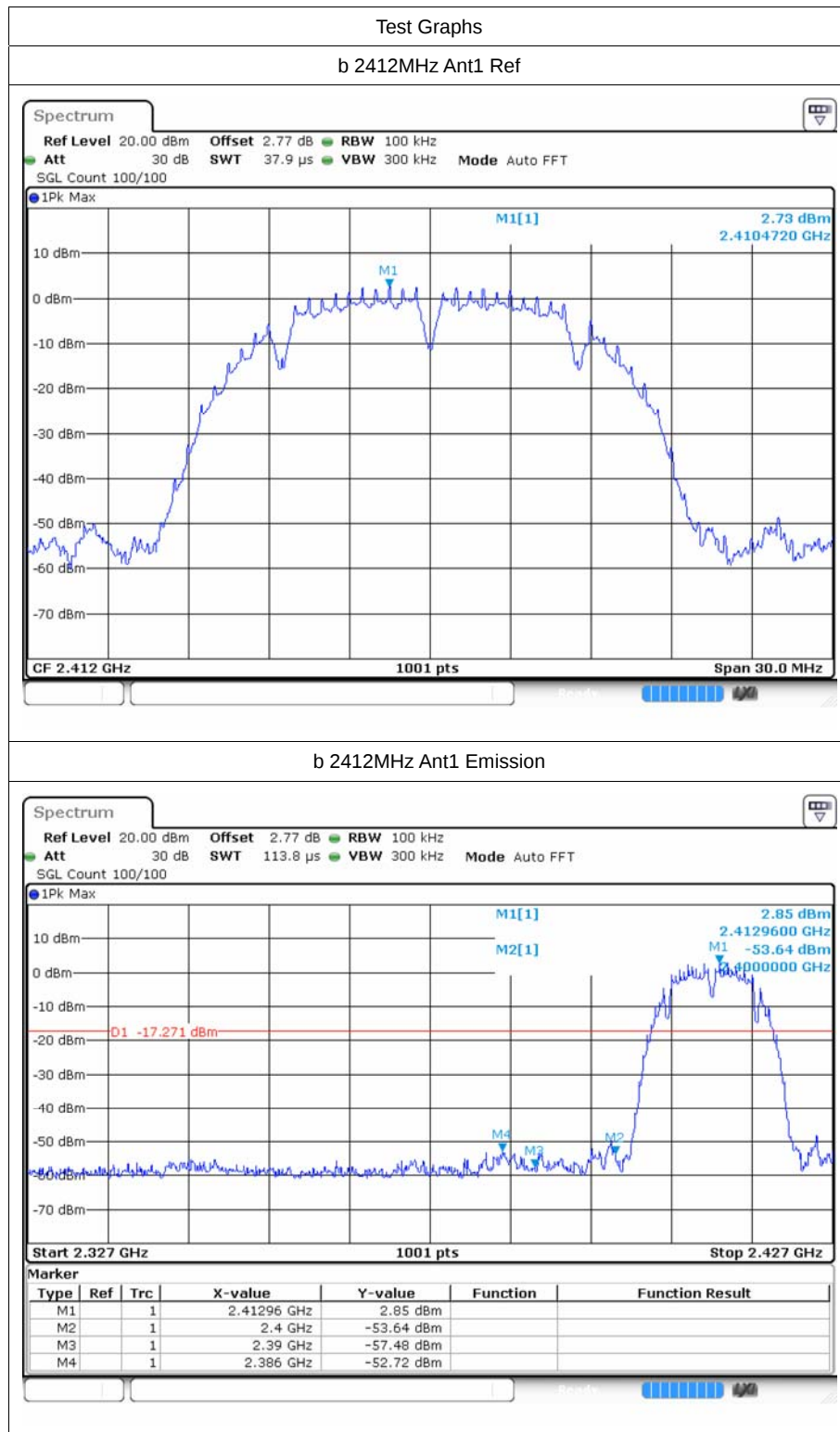


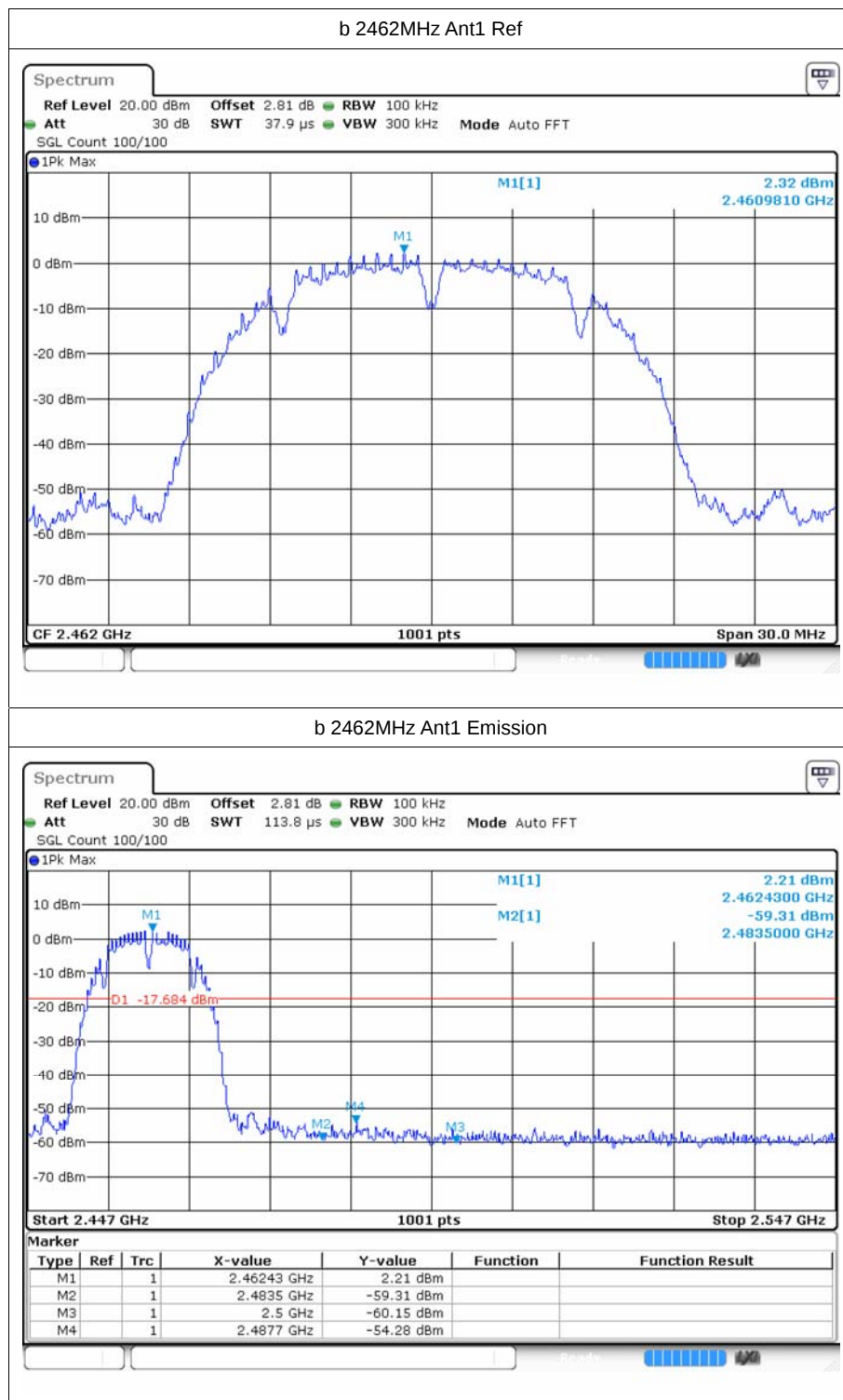
5 Band Edge

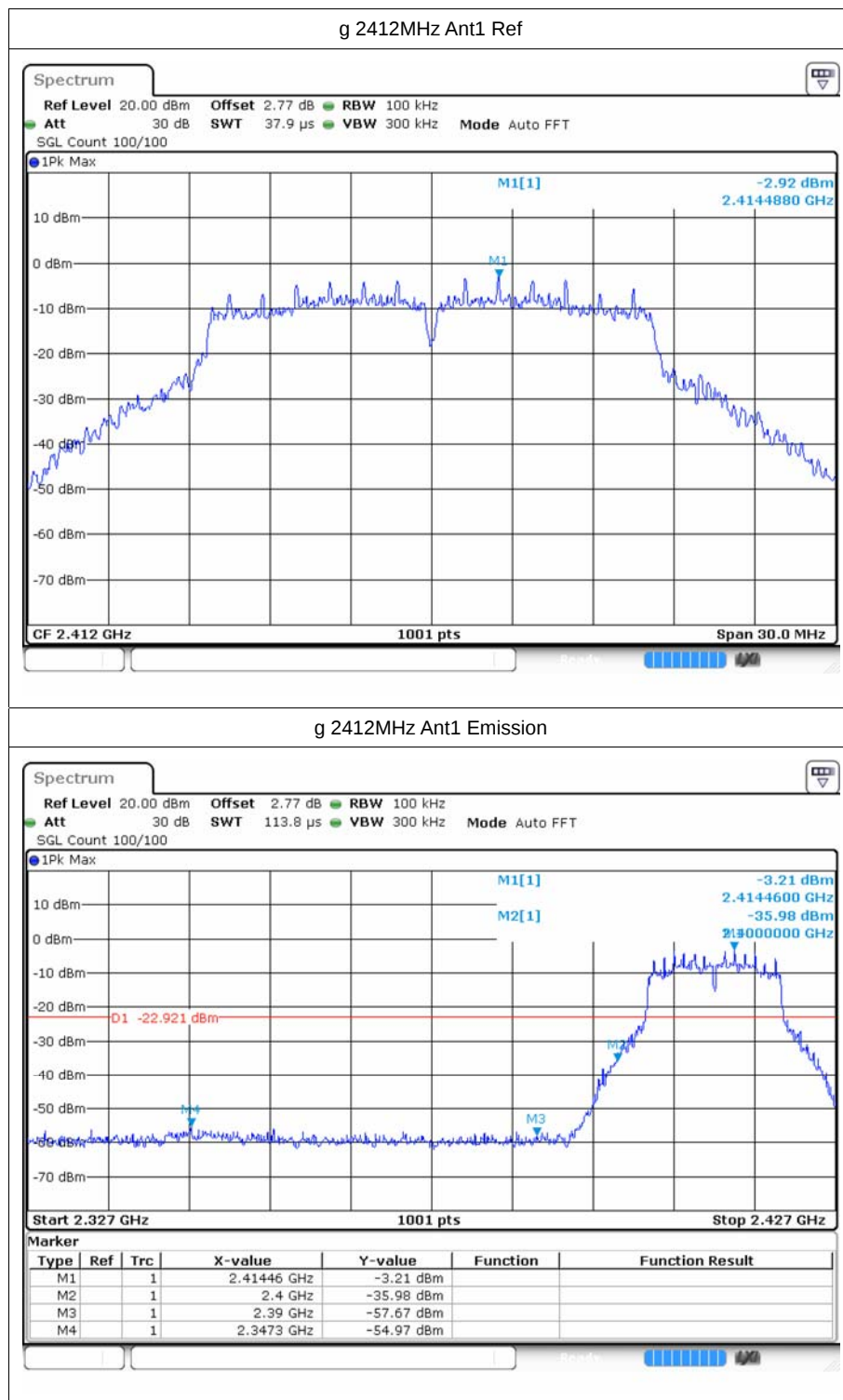
5.1 Test Result

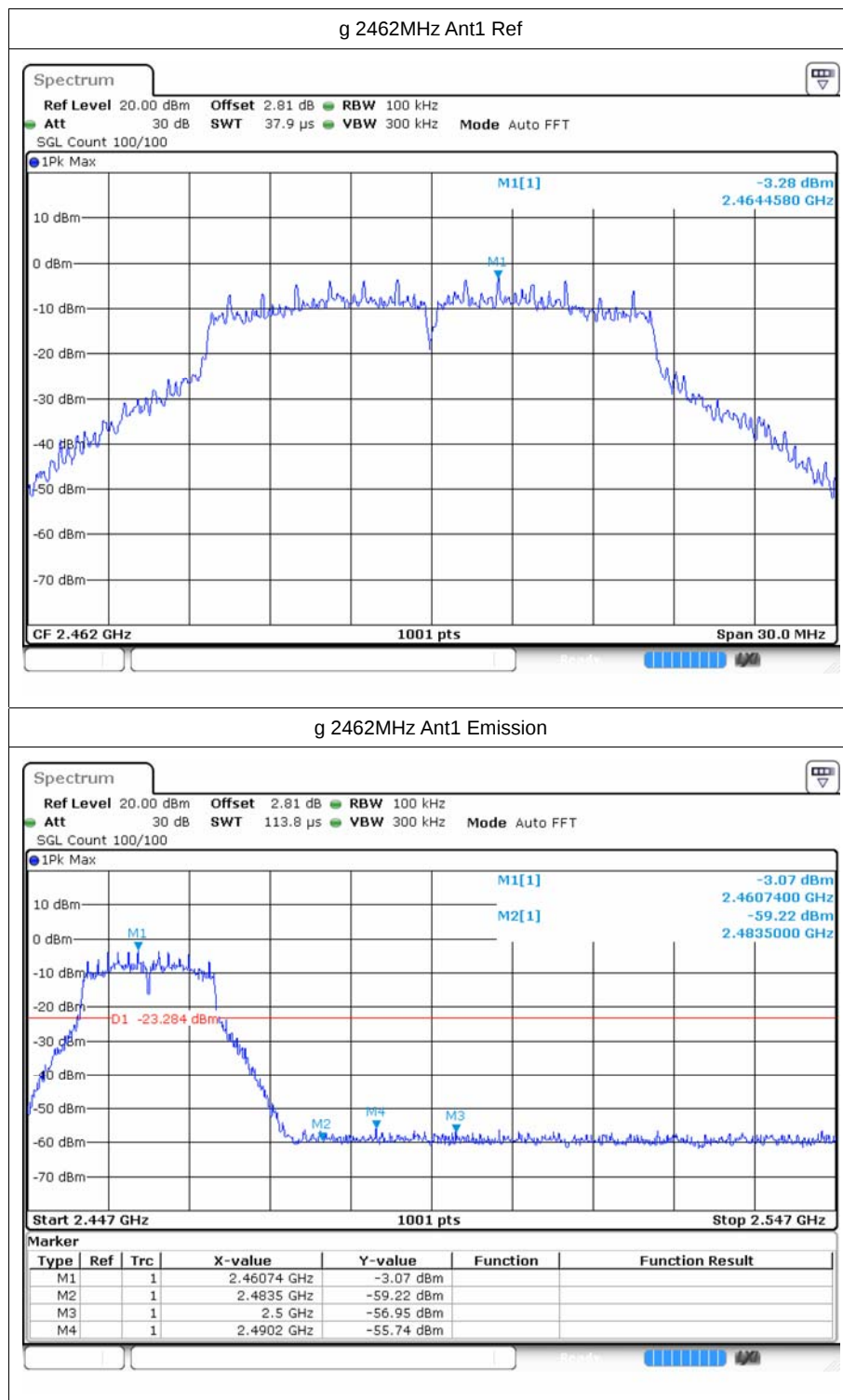
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-55.45	-20	-55.45
b	2462	Ant1	-56.6	-20	Pass
g	2412	Ant1	-52.04	-20	Pass
g	2462	Ant1	-52.45	-20	Pass
n20	2412	Ant1	-51.68	-20	Pass
n20	2462	Ant1	-51.35	-20	Pass
n40	2422	Ant1	-48.89	-20	Pass
n40	2452	Ant1	-47.36	-20	Pass

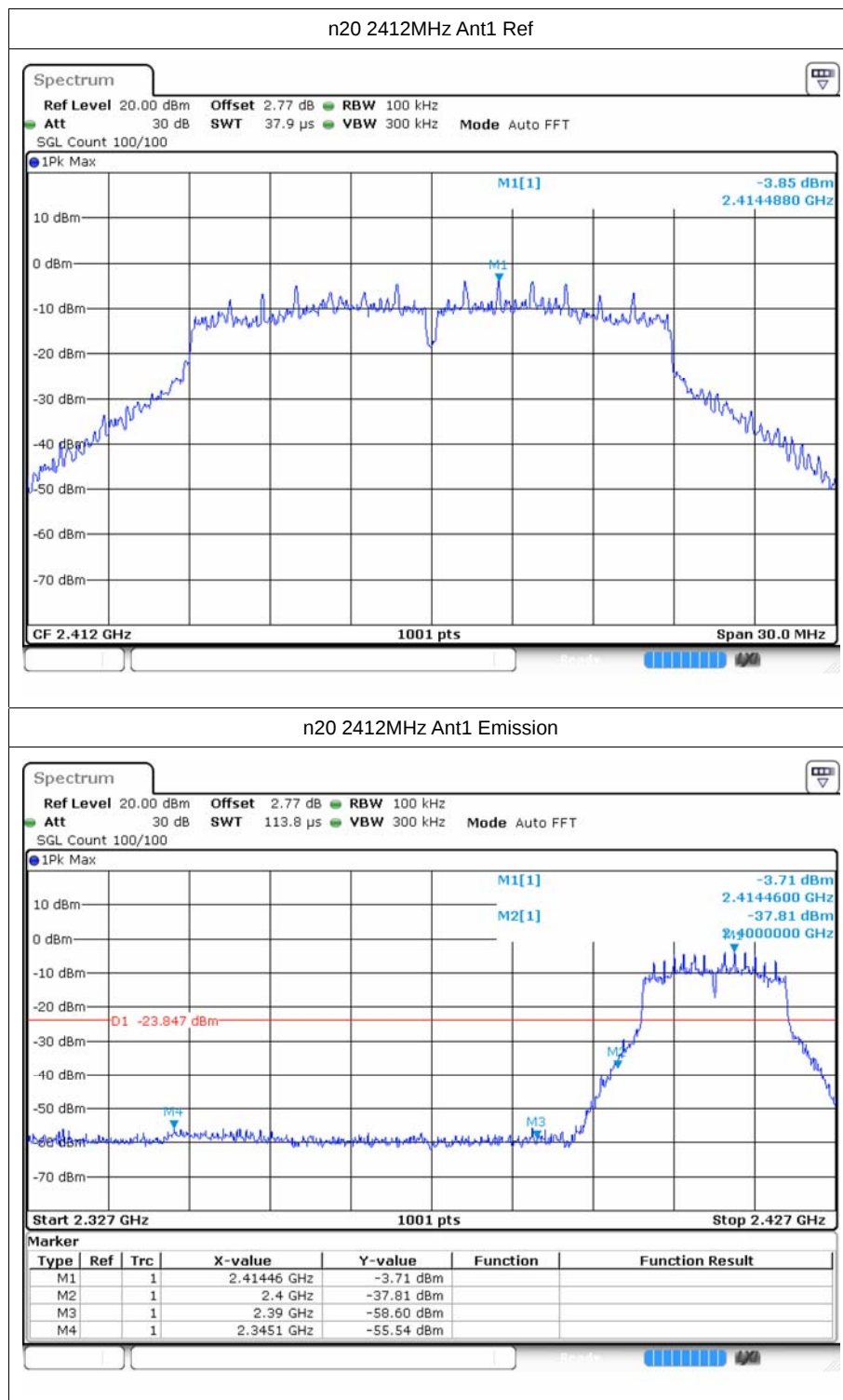
5.2 Test Graphs

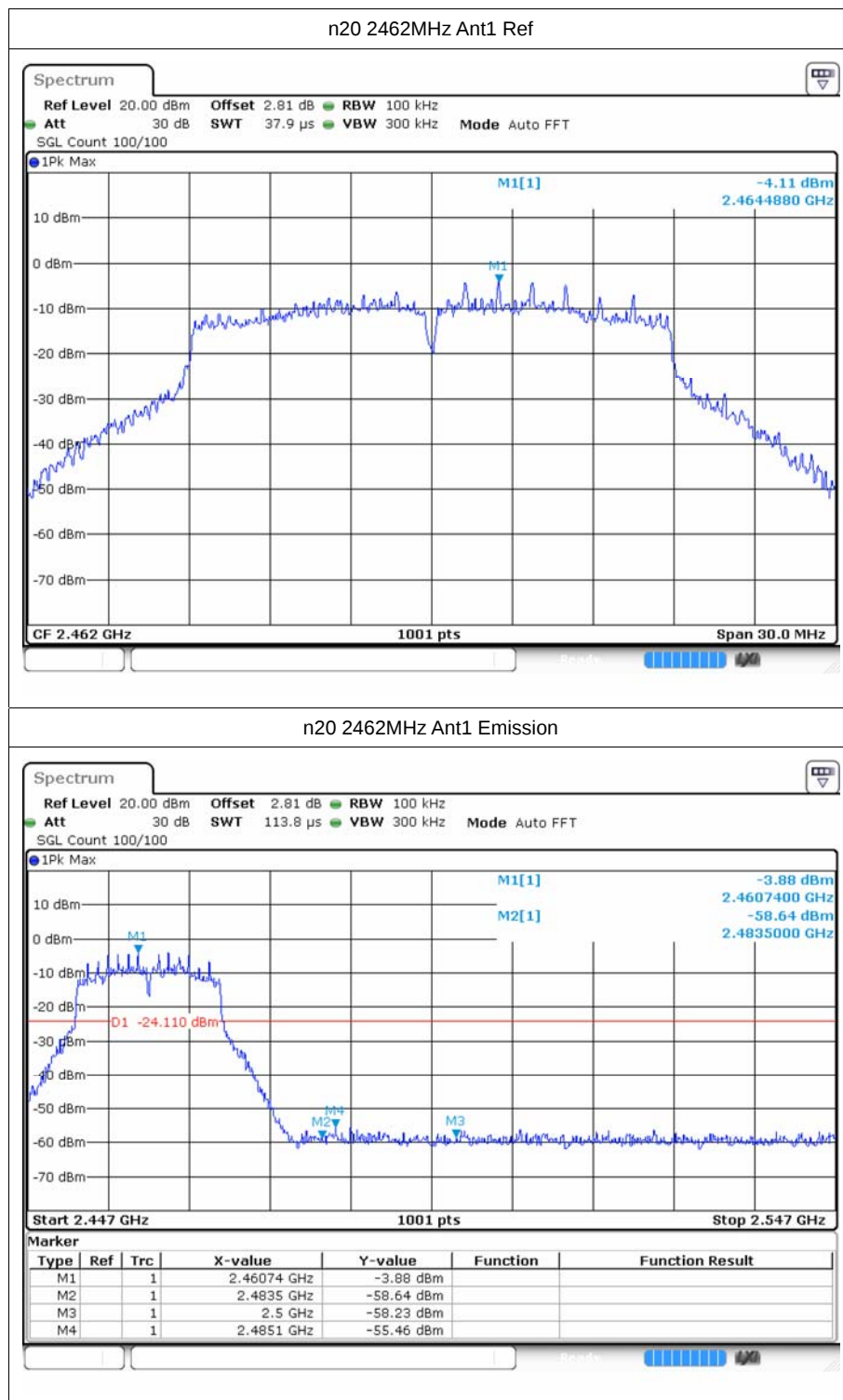


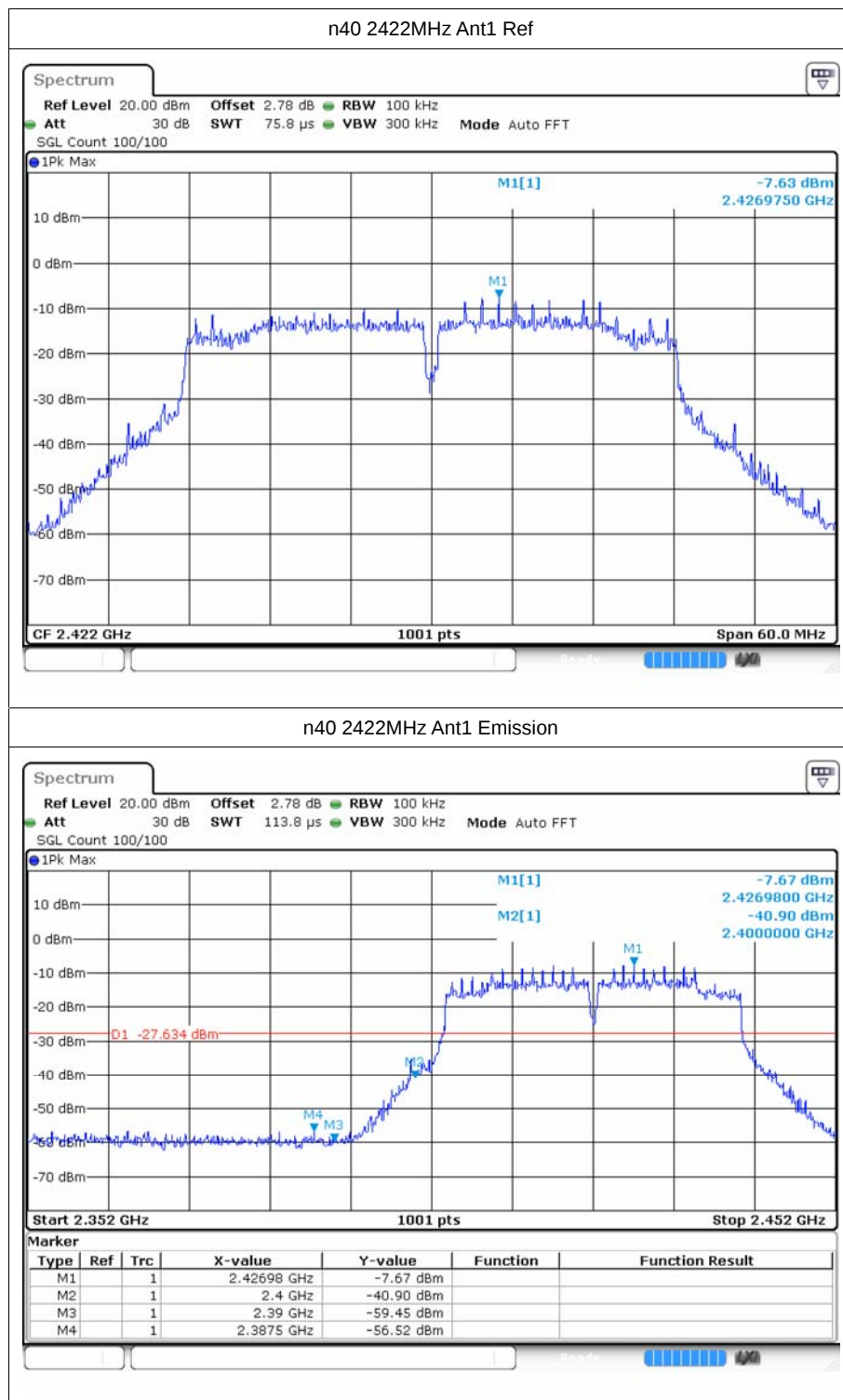


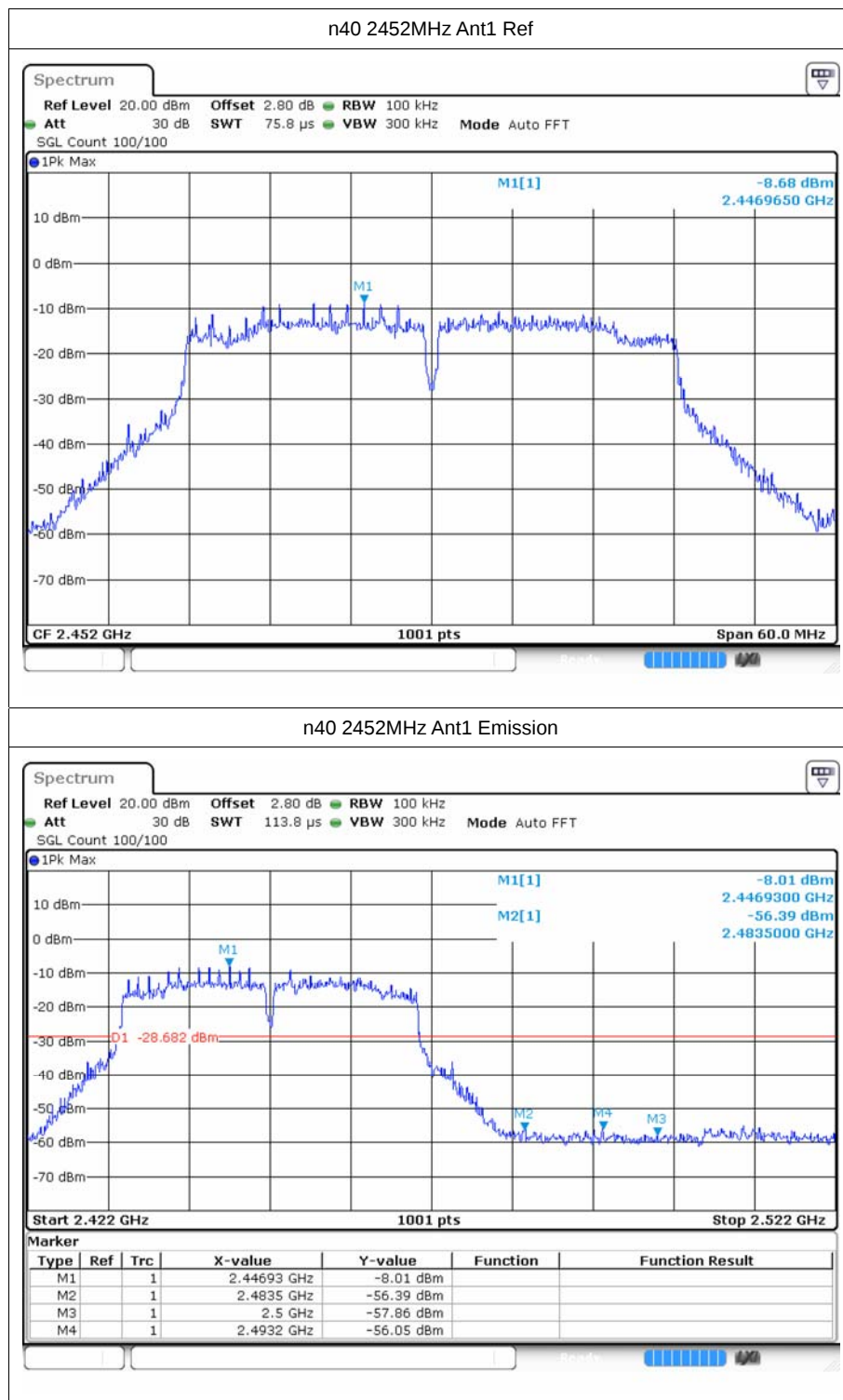












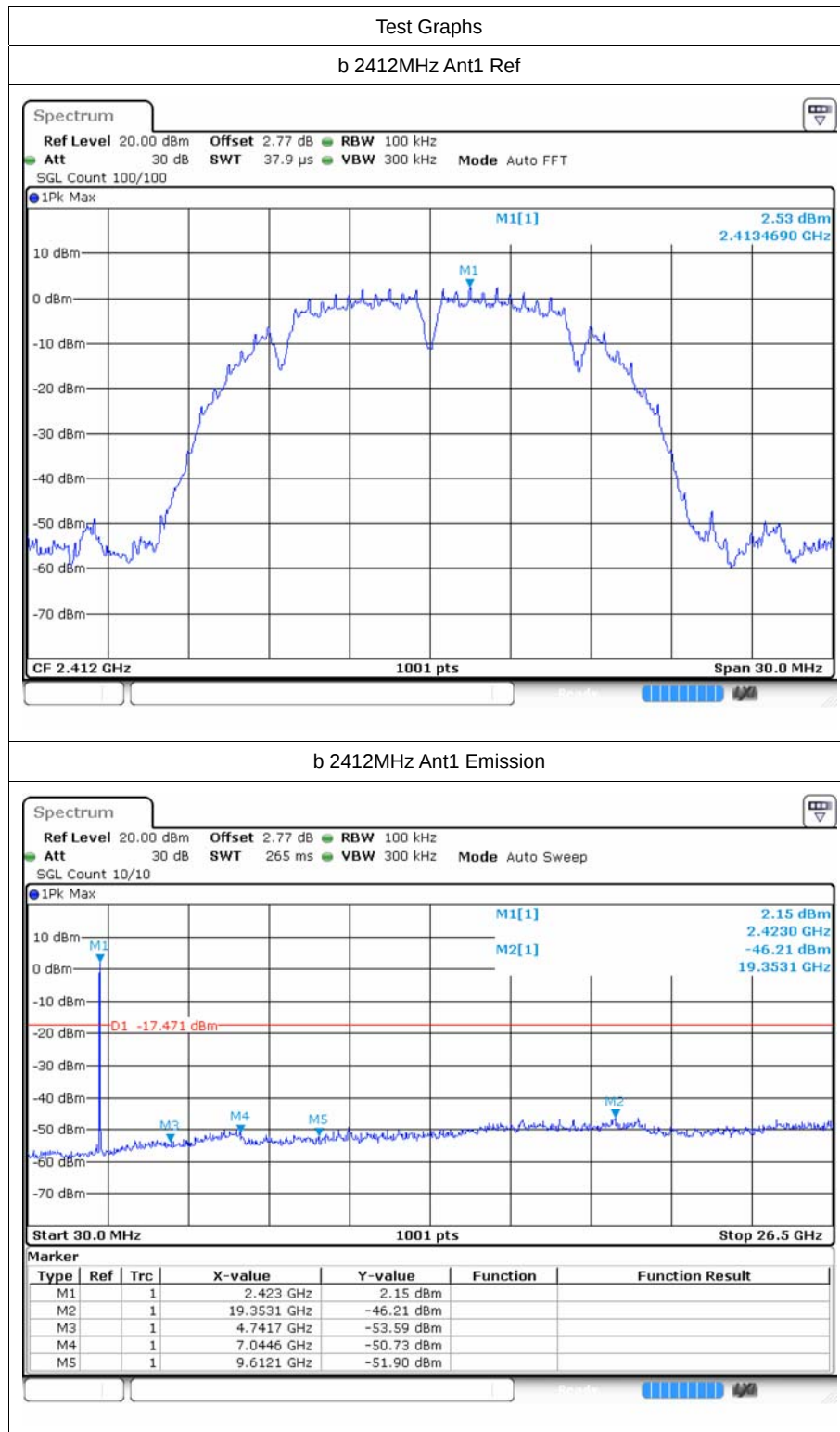


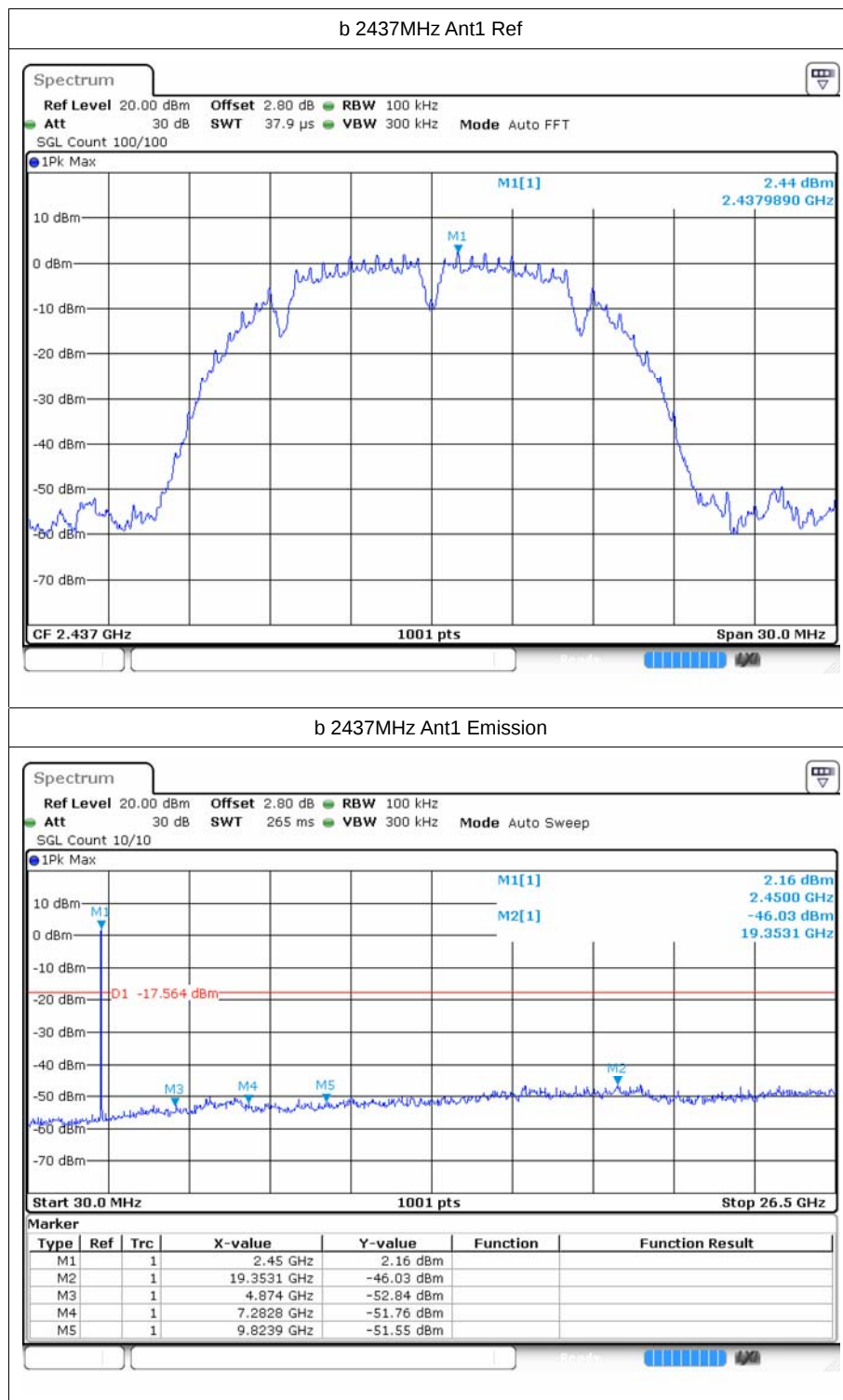
6 Conducted RF Spurious Emission

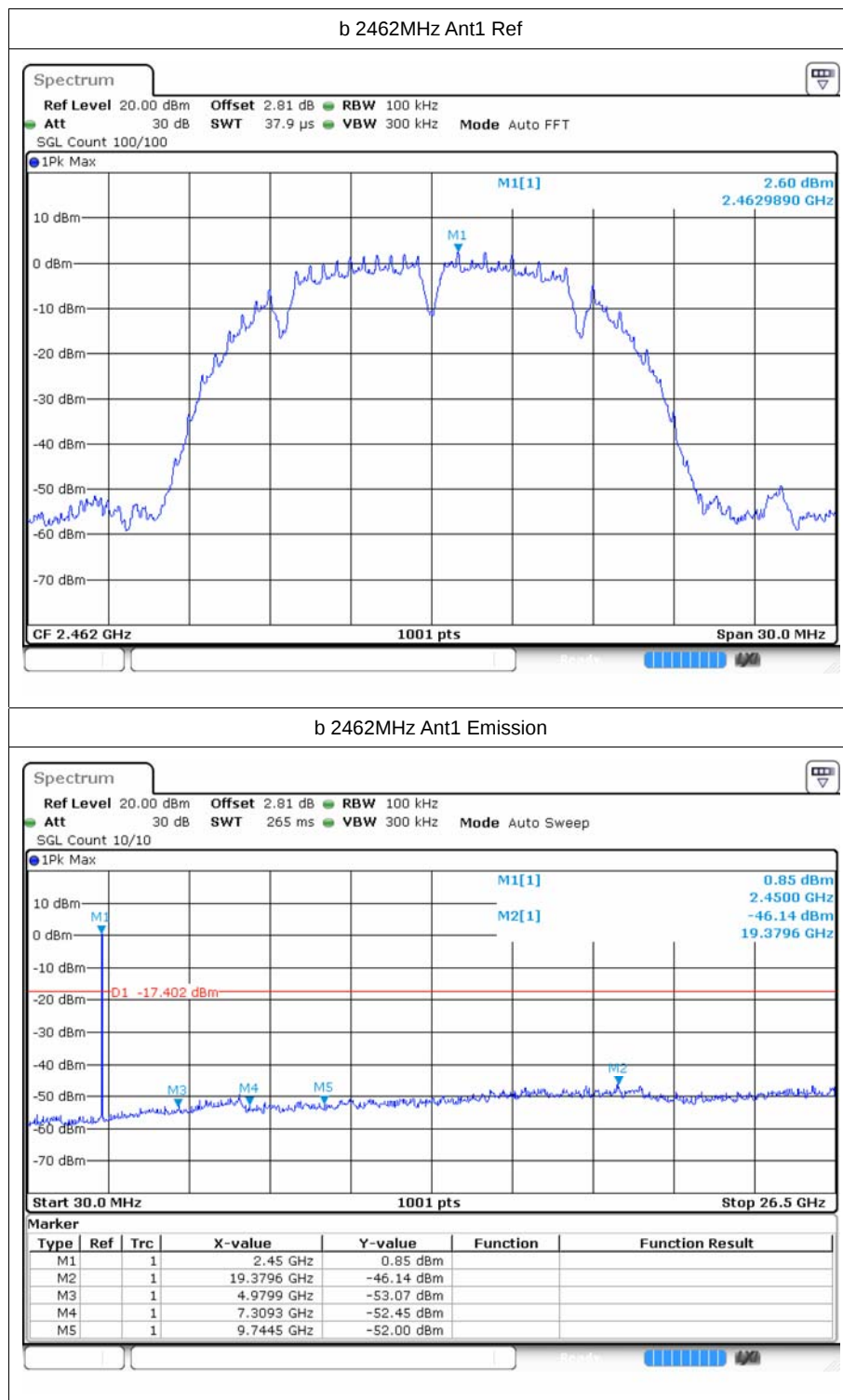
6.1 Test Result

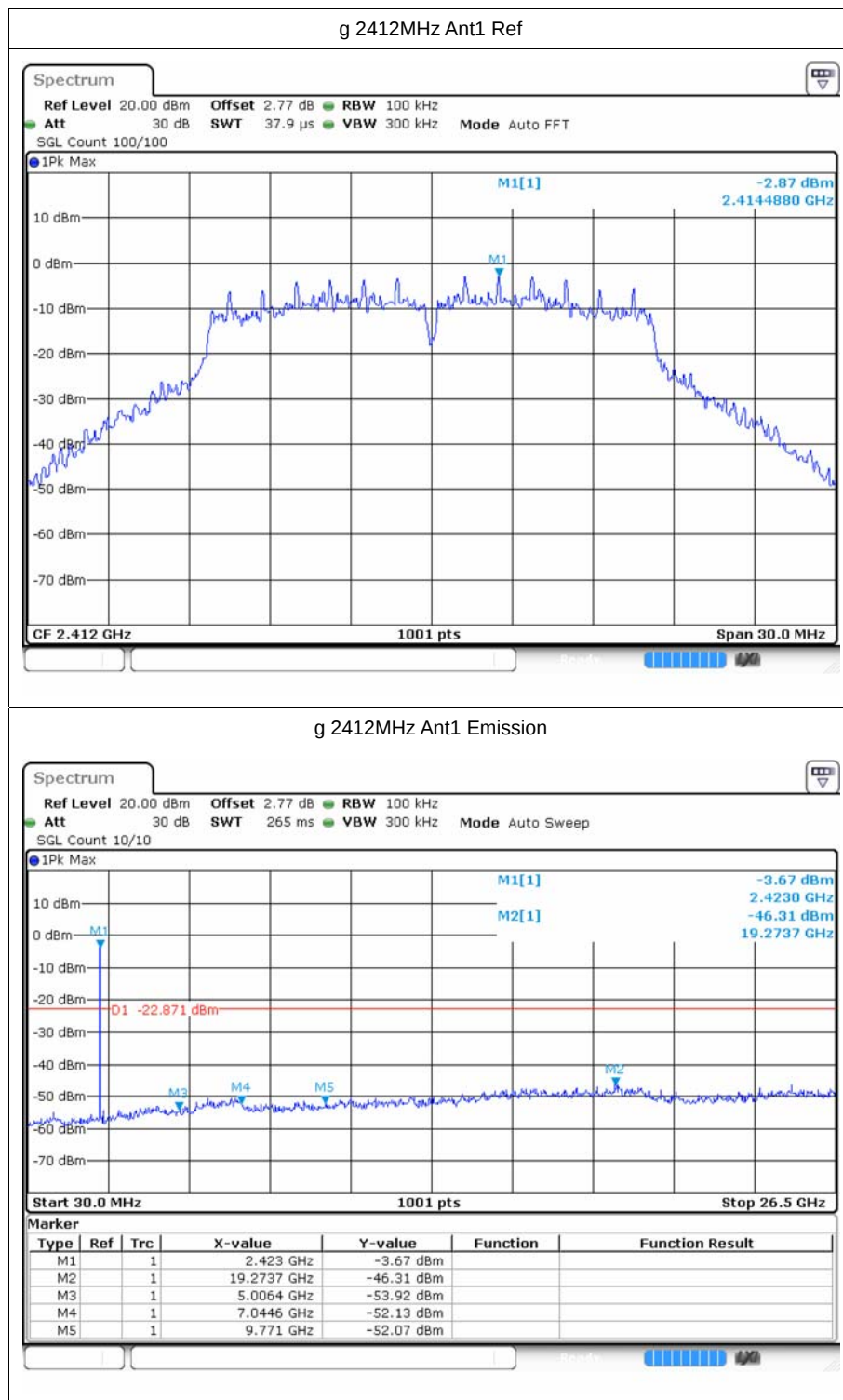
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-48.74	-20	Pass
b	2437	Ant1	-48.46	-20	Pass
b	2462	Ant1	-48.73	-20	Pass
g	2412	Ant1	-43.44	-20	Pass
g	2437	Ant1	-42.94	-20	Pass
g	2462	Ant1	-43.06	-20	Pass
n20	2412	Ant1	-42.27	-20	Pass
n20	2437	Ant1	-42	-20	Pass
n20	2462	Ant1	-42.36	-20	Pass
n40	2422	Ant1	-38.57	-20	Pass
n40	2437	Ant1	-38.34	-20	Pass
n40	2452	Ant1	-36.44	-20	Pass

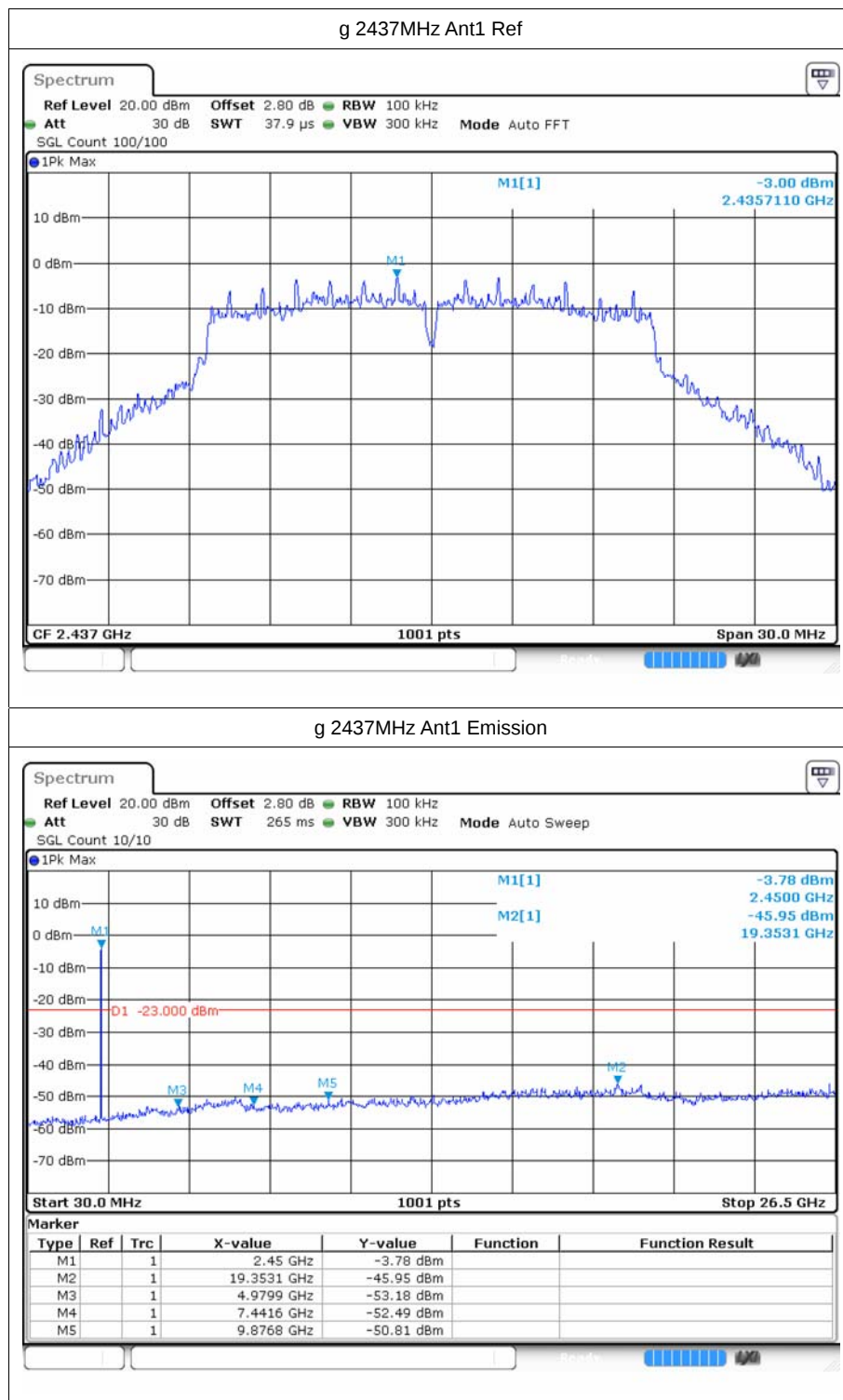
6.2 Test Graphs

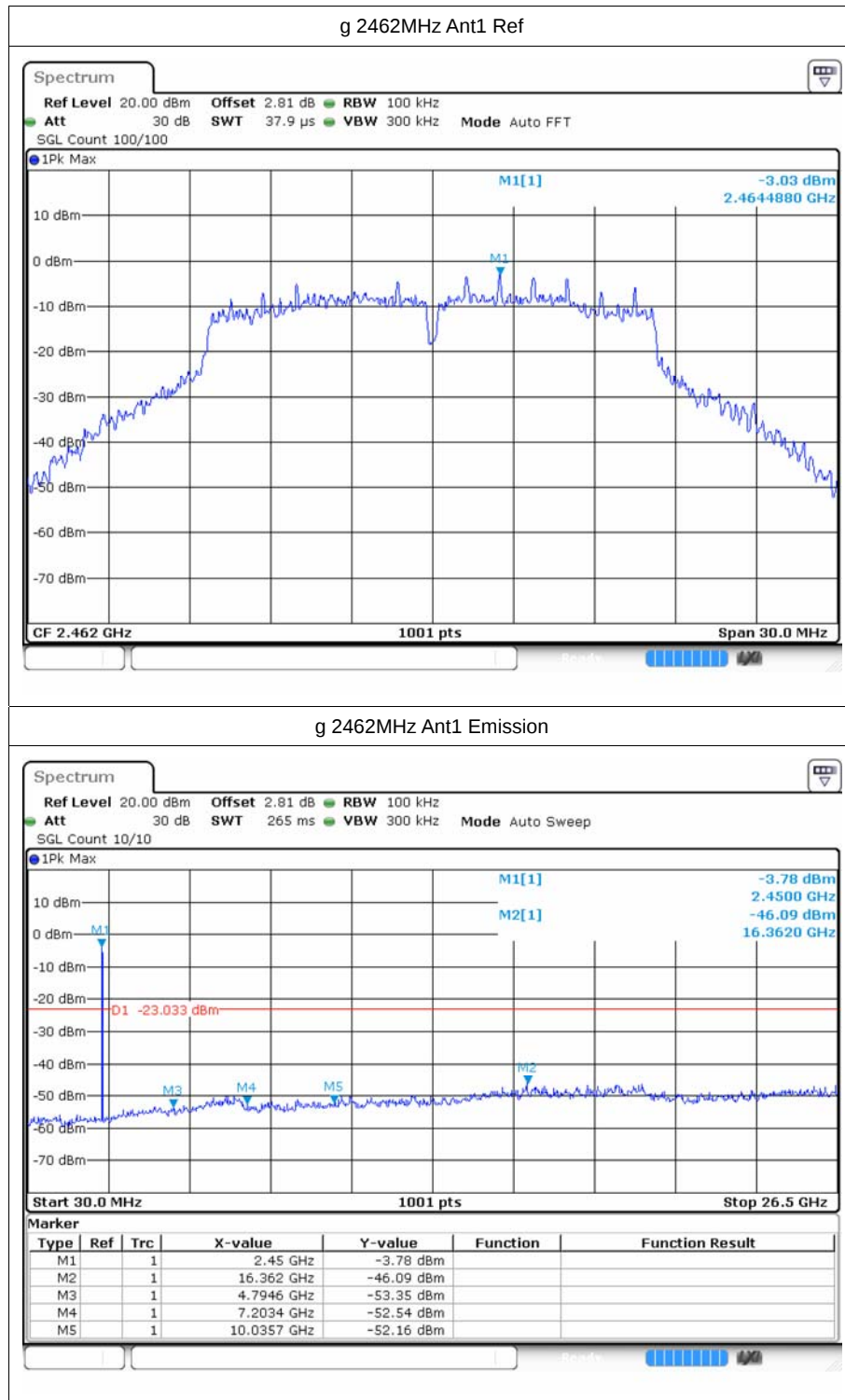


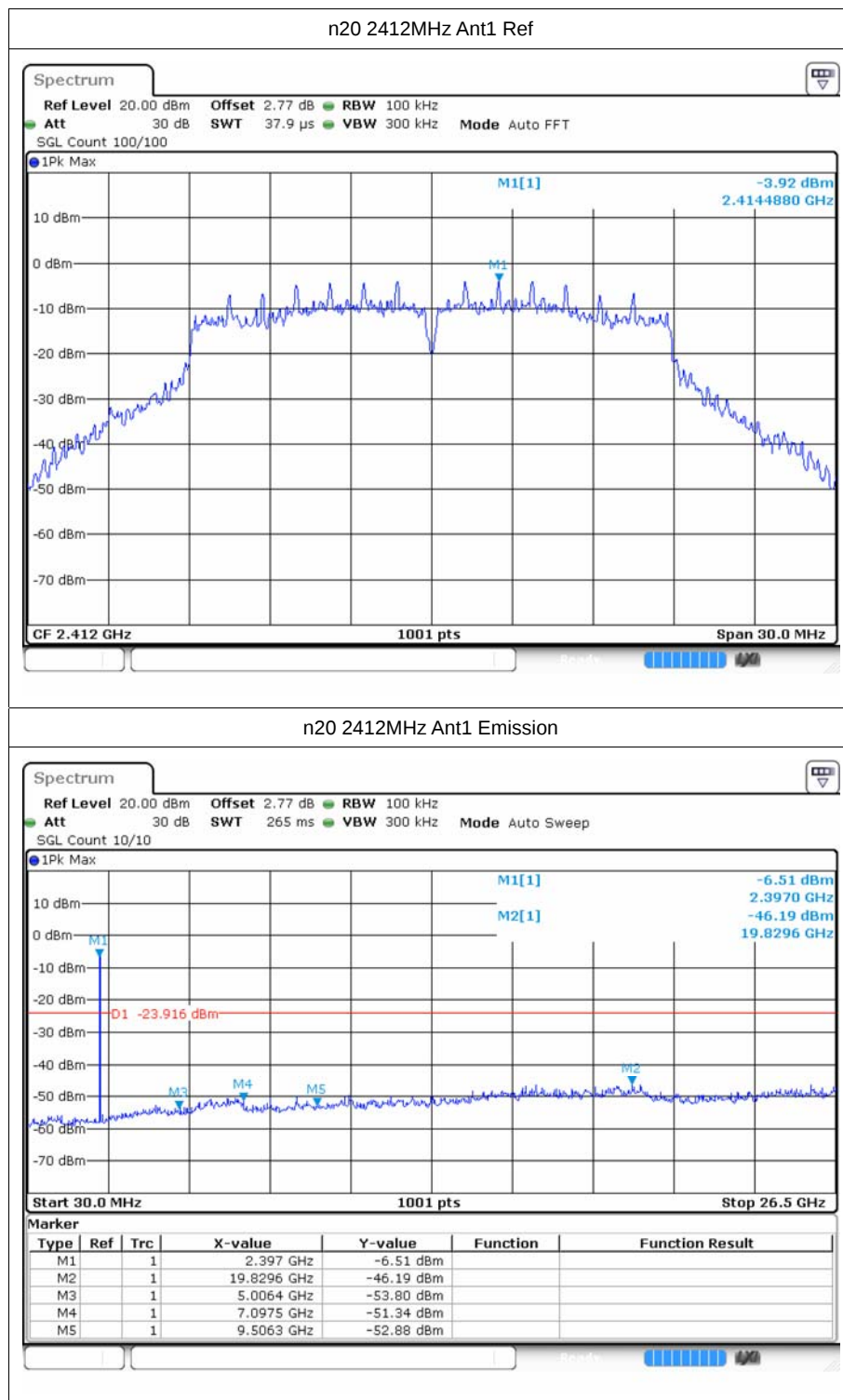


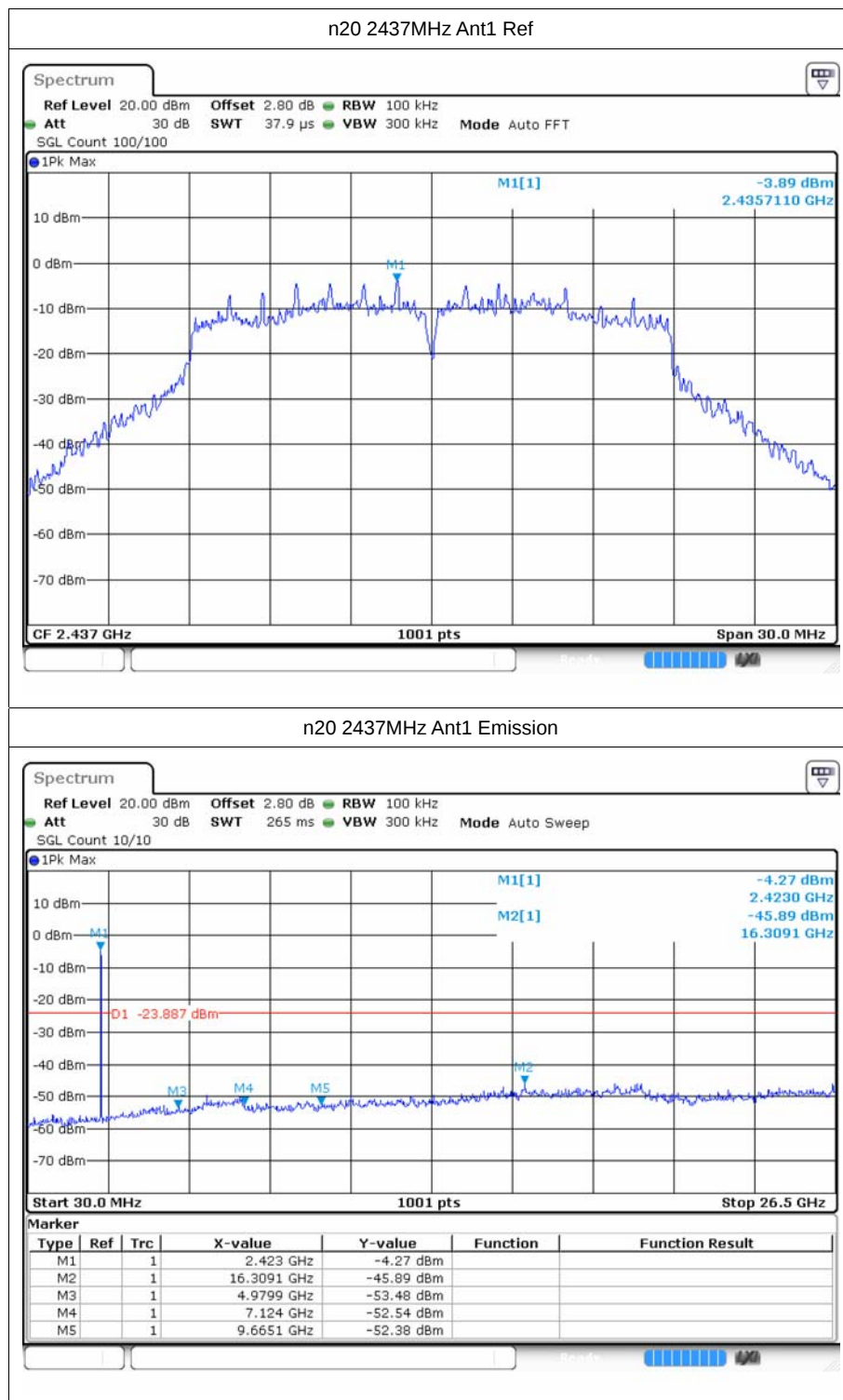


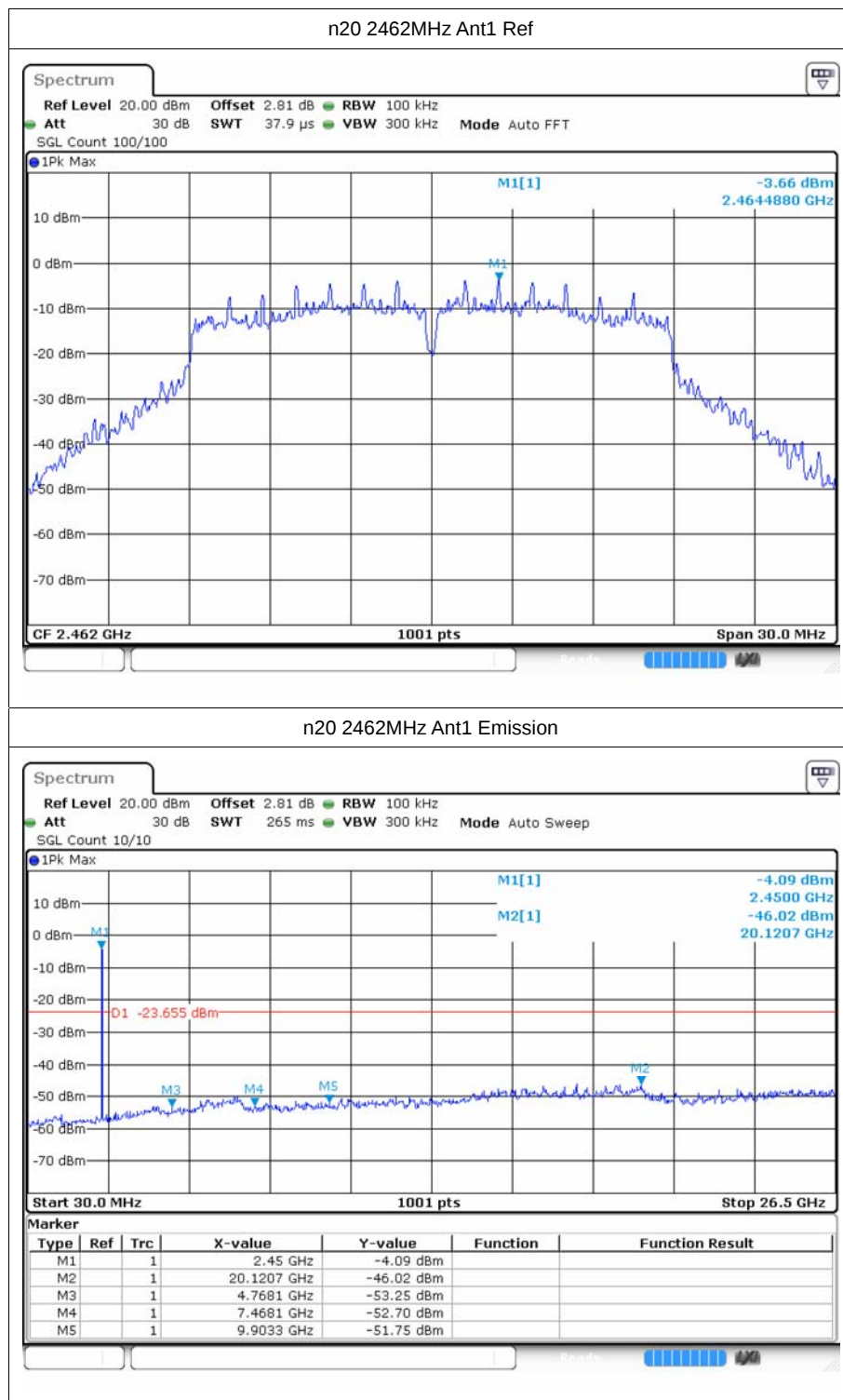


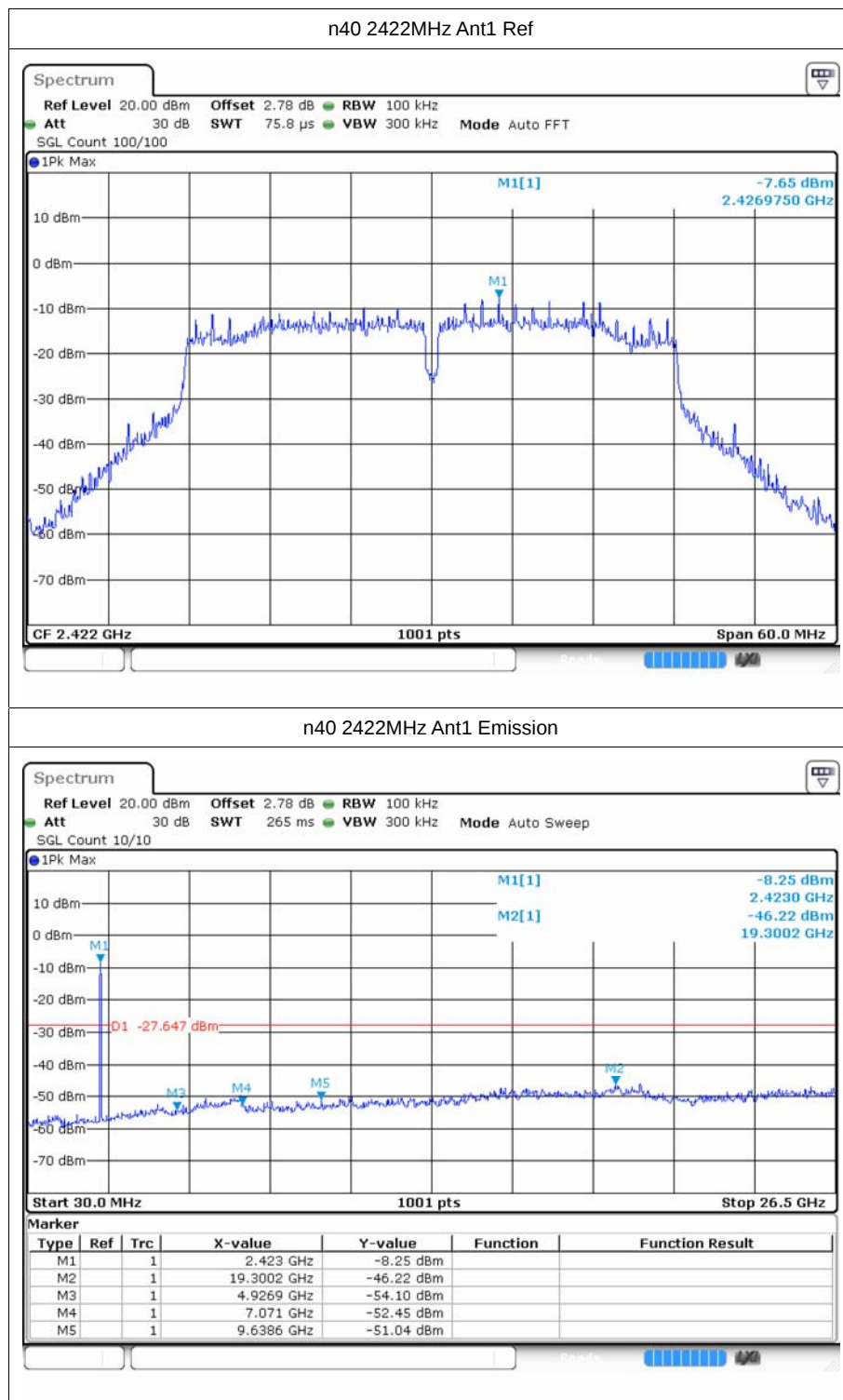


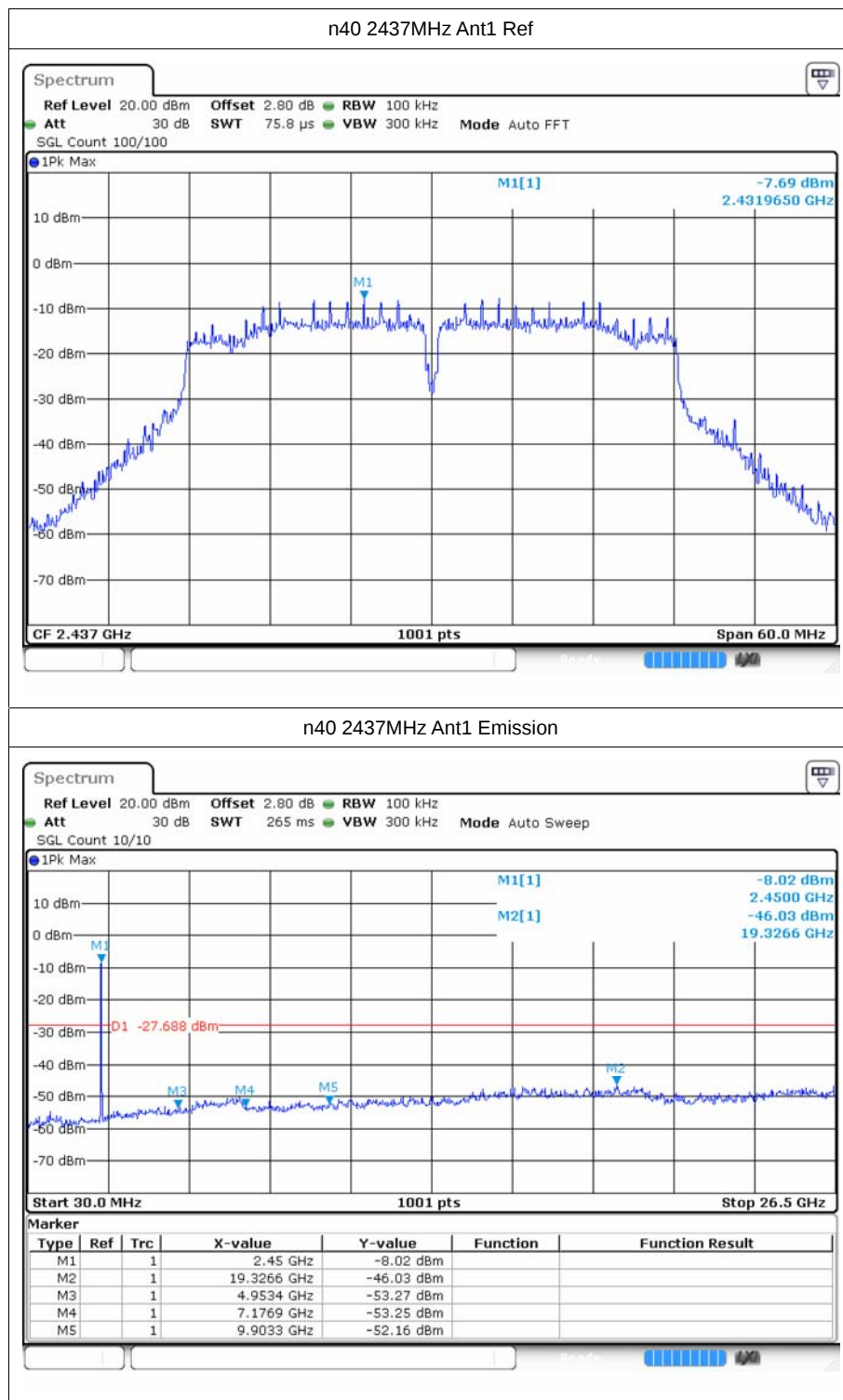


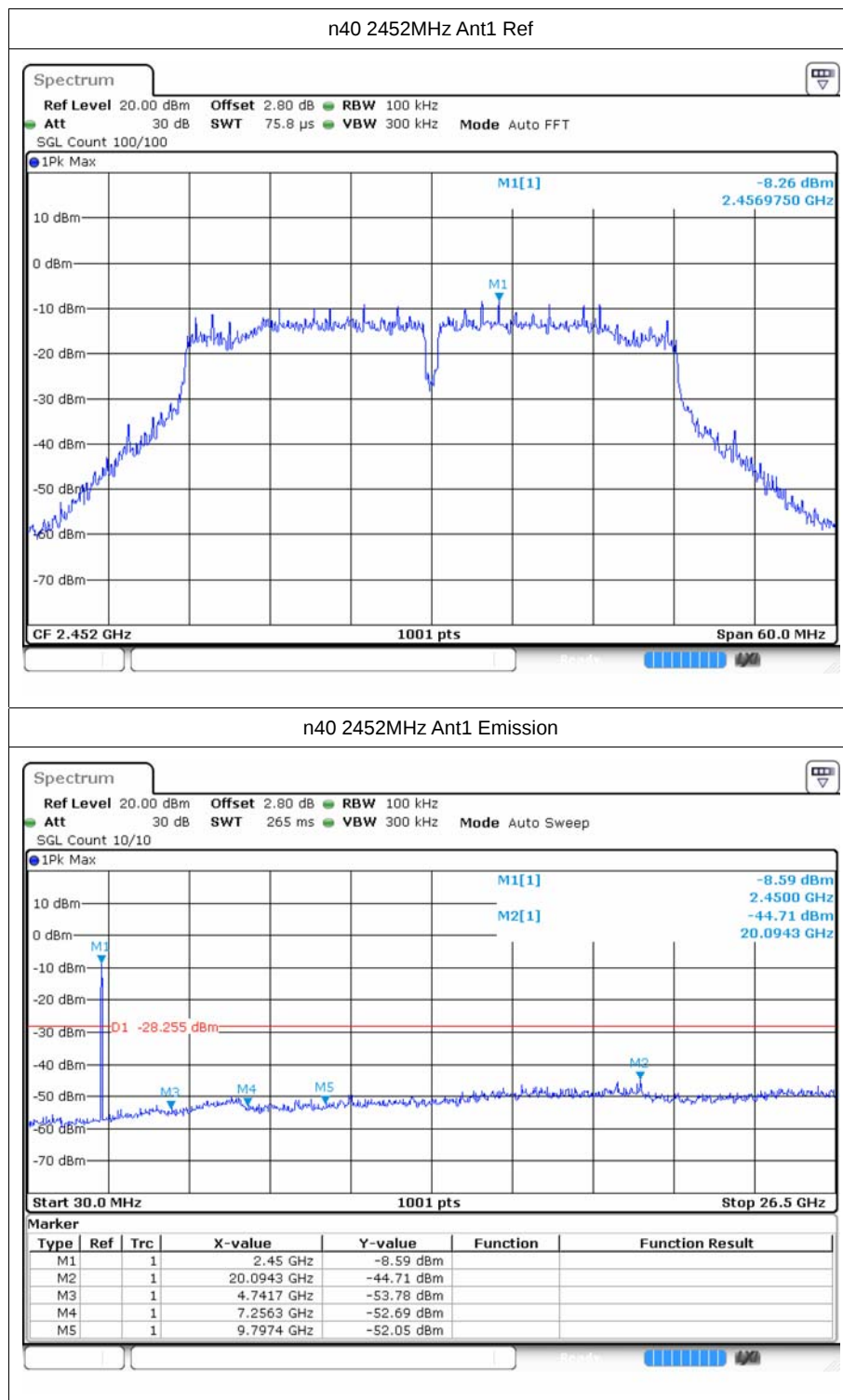














7 Restrict Band

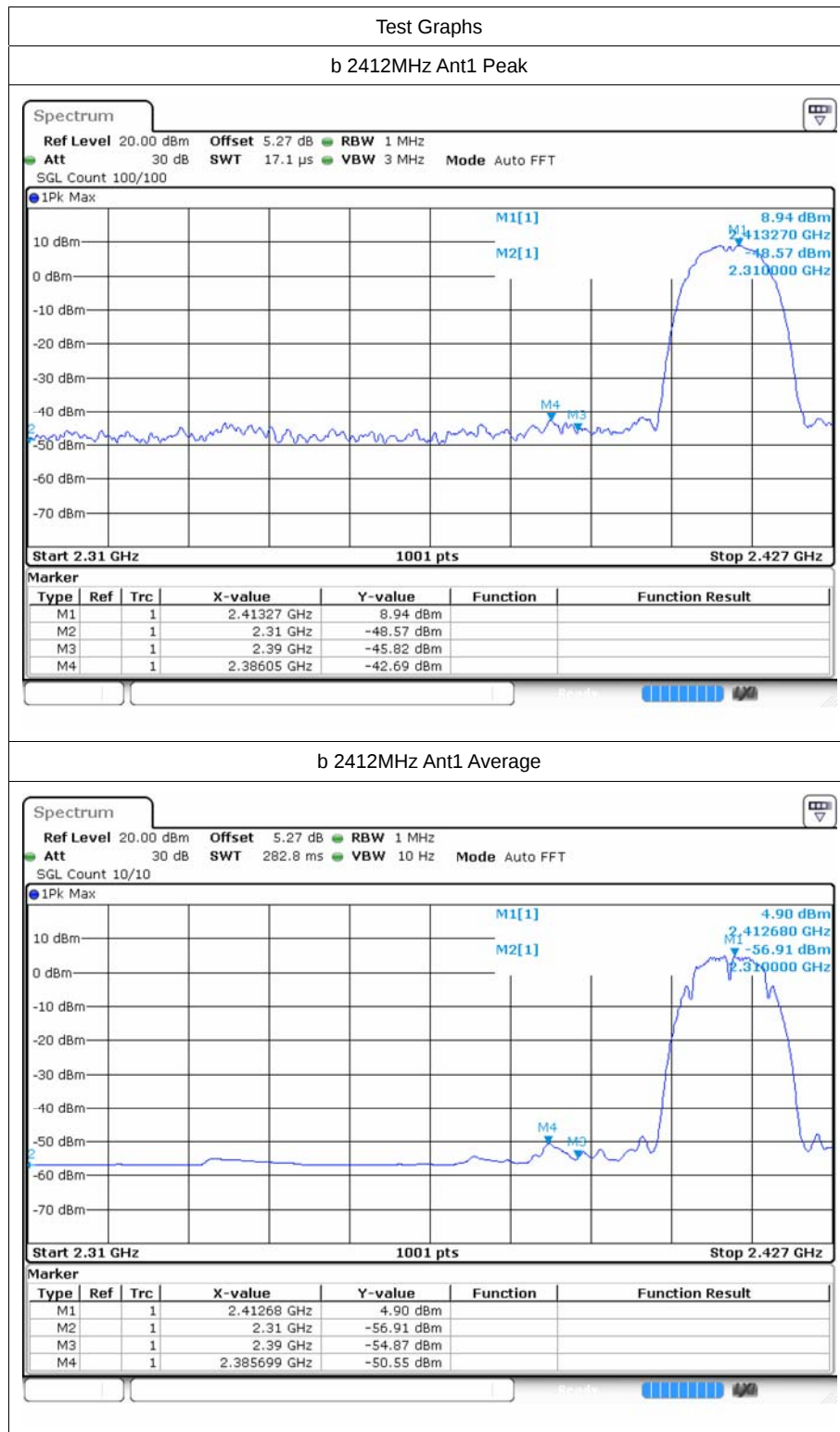
7.1 Test Result

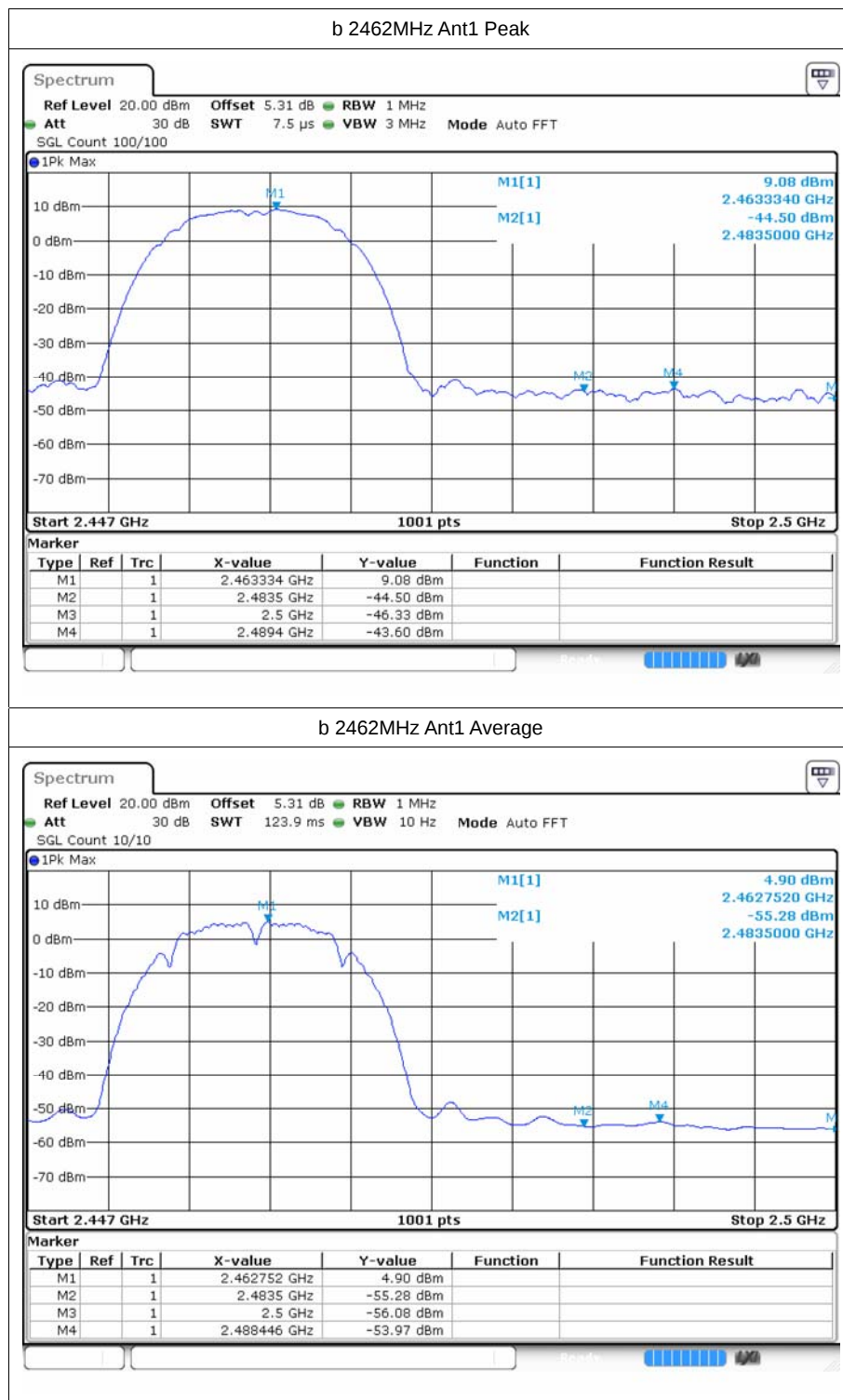
Mod e	Frequency (MHz)	Antenn a	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detecto r	Limit (dBuV/m)	Verdic t
b	2412	Ant1	2310	-48.57	2.5	49.19	Peak	74	Pass
b	2412	Ant1	2310	-56.91	2.5	40.85	Average	54	Pass
b	2412	Ant1	2386.05	-42.68	2.5	55.08	Peak	74	Pass
b	2412	Ant1	2385.699	-50.54	2.5	47.22	Average	54	Pass
b	2412	Ant1	2390	-45.81	2.5	51.95	Peak	74	Pass
b	2412	Ant1	2390	-54.87	2.5	42.89	Average	54	Pass
b	2462	Ant1	2483.5	-44.5	2.5	53.26	Peak	74	53.26
b	2462	Ant1	2483.5	-55.28	2.5	42.48	Average	54	Pass
b	2462	Ant1	2489.4	-43.59	2.5	54.17	Peak	74	Pass
b	2462	Ant1	2488.446	-53.96	2.5	43.8	Average	54	Pass
b	2462	Ant1	2500	-46.33	2.5	51.43	Peak	74	Pass
b	2462	Ant1	2500	-56.07	2.5	41.69	Average	54	Pass
g	2412	Ant1	2310	-46.78	2.5	50.98	Peak	74	Pass
g	2412	Ant1	2310	-54.78	2.5	42.98	Average	54	Pass
g	2412	Ant1	2340.303	-44.45	2.5	53.31	Peak	74	Pass
g	2412	Ant1	2338.08	-53.37	2.5	44.39	Average	54	Pass
g	2412	Ant1	2390	-47.63	2.5	51.95	Peak	74	Pass
g	2412	Ant1	2390	-55.51	2.5	42.25	Average	54	Pass
g	2462	Ant1	2483.5	-46.54	2.5	51.22	Peak	74	Pass
g	2462	Ant1	2483.5	-54.81	2.5	42.95	Average	54	Pass
g	2462	Ant1	2489.4	-45.36	2.5	52.4	Peak	74	Pass
g	2462	Ant1	2489.453	-54.15	2.5	43.61	Average	54	Pass
g	2462	Ant1	2500	-47.6	2.5	51.43	Peak	74	Pass
g	2462	Ant1	2500	-54.77	2.5	42.99	Average	54	Pass
n20	2412	Ant1	2310	-46.22	2.5	51.54	Peak	74	Pass
n20	2412	Ant1	2310	-54.8	2.5	42.96	Average	54	Pass
n20	2412	Ant1	2337.963	-44.38	2.5	53.38	Peak	74	Pass
n20	2412	Ant1	2336.676	-53.03	2.5	44.73	Average	54	Pass
n20	2412	Ant1	2390	-48.09	2.5	49.67	Peak	74	Pass
n20	2412	Ant1	2390	-54.76	2.5	43	Average	54	Pass
n20	2462	Ant1	2483.5	-45.82	2.5	51.94	Peak	74	Pass
n20	2462	Ant1	2483.5	-54.91	2.5	42.85	Average	54	Pass
n20	2462	Ant1	2499.046	-44.33	2.5	53.43	Peak	74	Pass
n20	2462	Ant1	2487.386	-53.77	2.5	43.99	Average	54	Pass

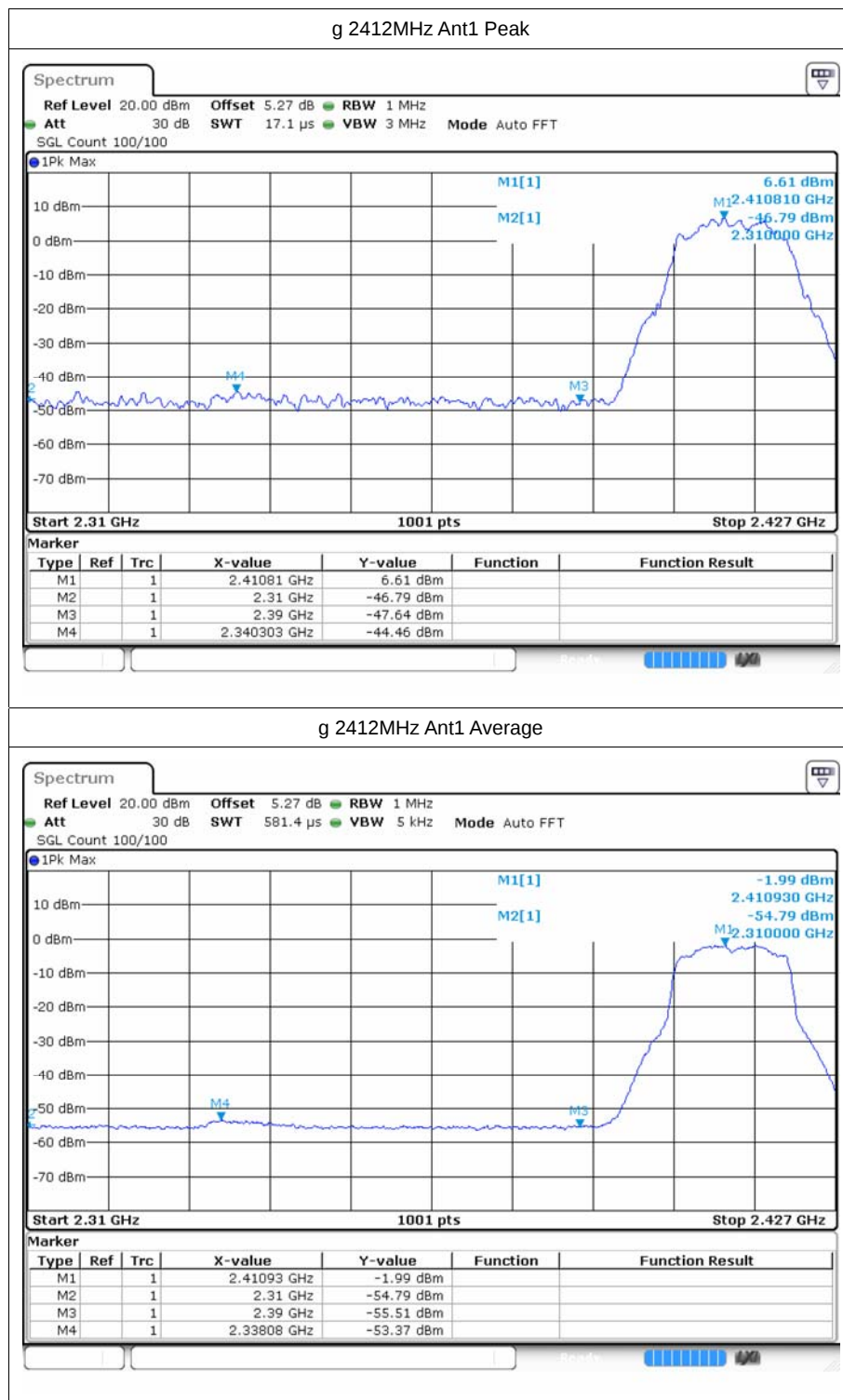


n20	2462	Ant1	2500	-46.65	2.5	51.11	Peak	74	Pass
n20	2462	Ant1	2500	-54.72	2.5	43.04	Average	54	Pass
n40	2422	Ant1	2310	-47.68	2.5	50.08	Peak	74	Pass
n40	2422	Ant1	2310	-55.12	2.5	42.64	Average	54	Pass
n40	2422	Ant1	2329.738	-44.52	2.5	53.24	Peak	74	Pass
n40	2422	Ant1	2347.204	-53.5	2.5	44.26	Average	54	Pass
n40	2422	Ant1	2390	-46.37	2.5	51.39	Peak	74	Pass
n40	2422	Ant1	2390	-55.45	2.5	42.31	Average	54	Pass
n40	2452	Ant1	2483.5	-48.4	2.5	49.36	Peak	74	Pass
n40	2452	Ant1	2483.5	-54.37	2.5	43.39	Average	54	Pass
n40	2452	Ant1	2498.83	-44.7	2.5	53.06	Peak	74	Pass
n40	2452	Ant1	2492.746	-53.94	2.5	43.82	Average	54	Pass
n40	2452	Ant1	2500	-47.81	2.5	49.95	Peak	74	Pass
n40	2452	Ant1	2500	-55.11	2.5	42.65	Average	54	Pass

7.2 Test Graphs

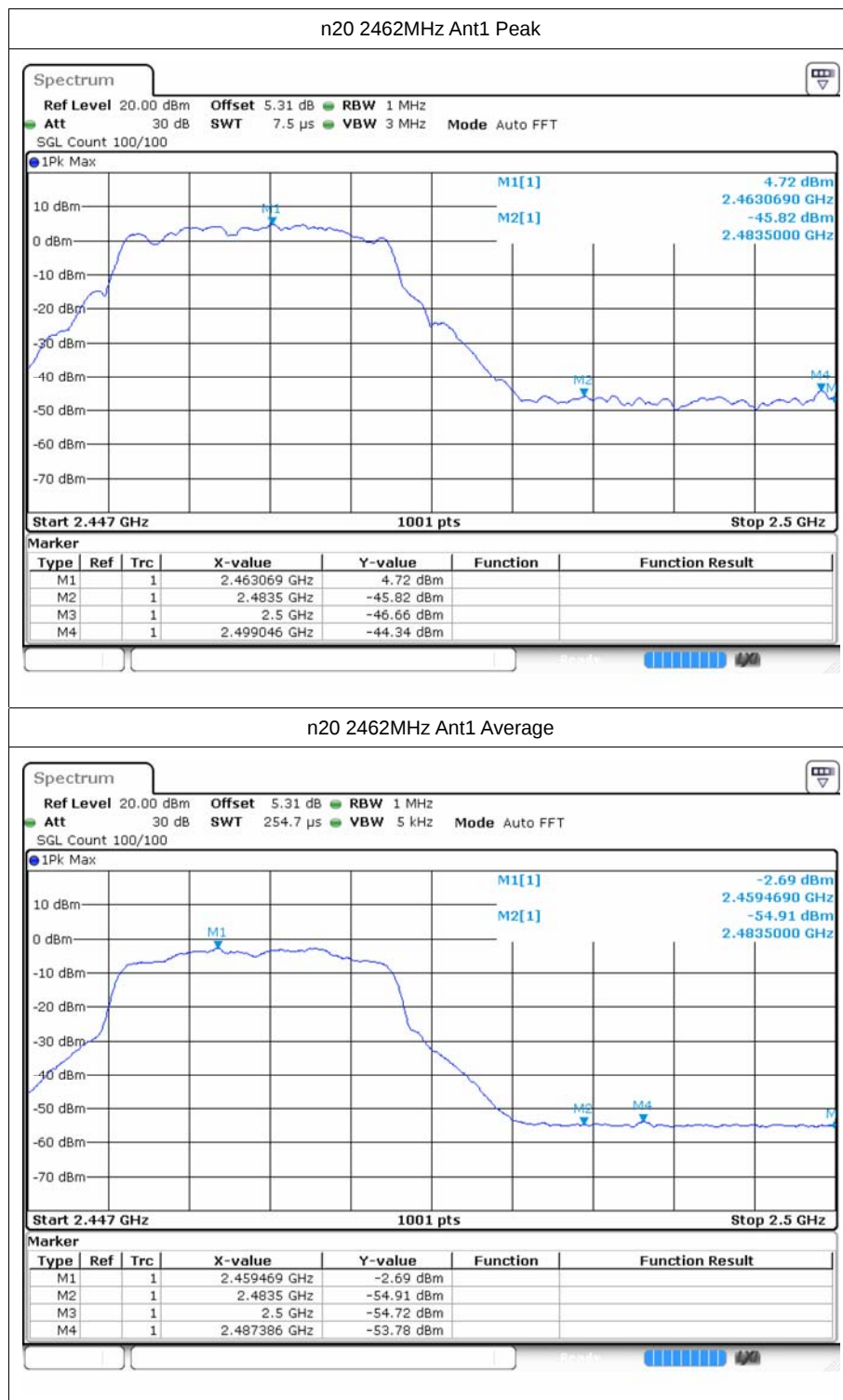


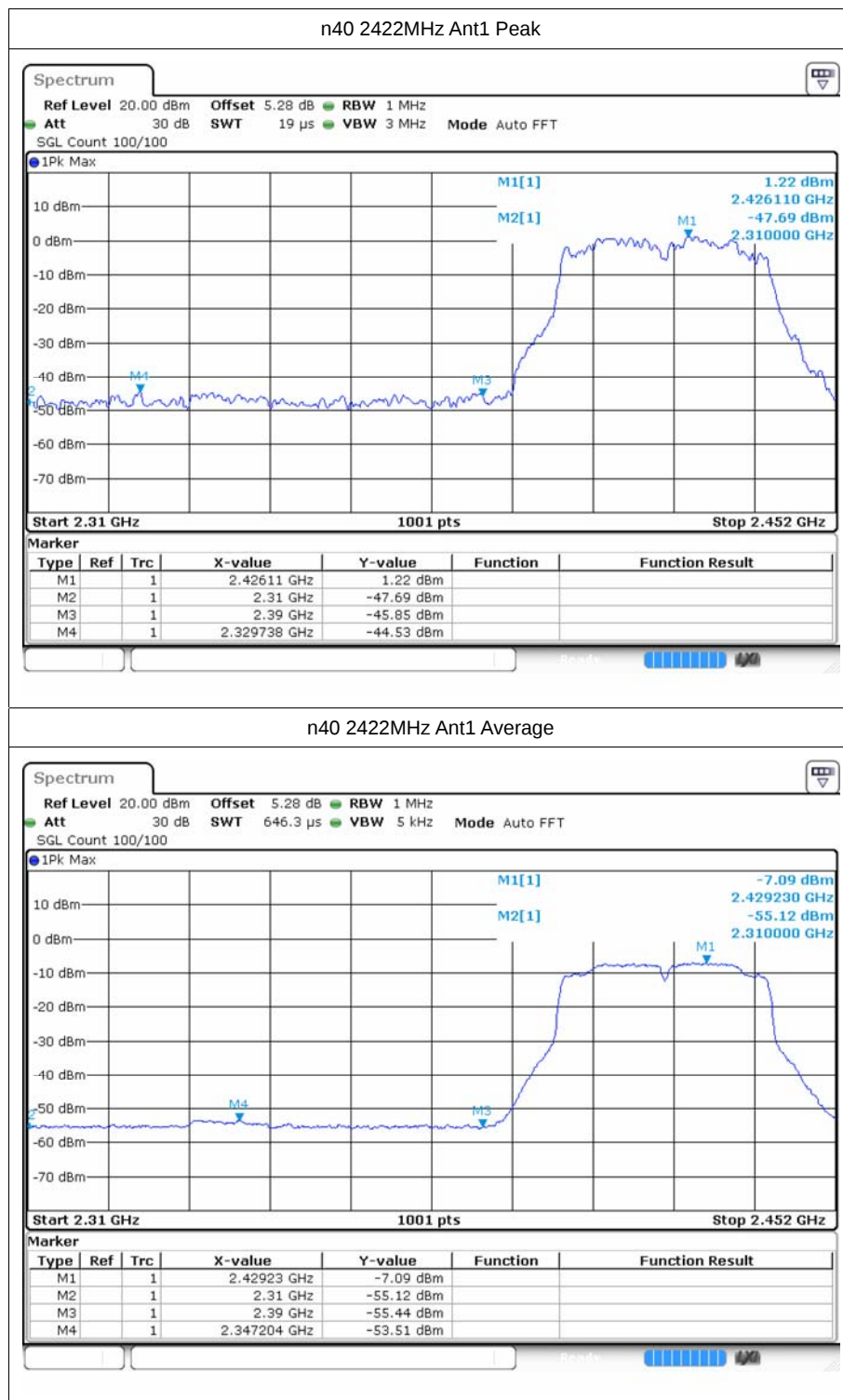














---The End---