



Appendix C

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: NM IOT compute module

Trade Mark: NMTech

Test Model: NMAxe

Environmental Conditions

Temperature:	24.6° C
Relative Humidity:	52.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Emiya lin
Supervised by:	Simba Haung



Contents

	Page
COVER PAGE	
1 Duty Cycle	3
1.1 Test Result	3
1.2 Test Graphs	4
2 Maximum Conducted Output Power	10
2.1 Test Result	10
3 -6dB Bandwidth	11
3.1 Test Result	11
3.2 Test Graphs	12
4 Maximum Power Spectral Density Level	18
4.1 Test Result	18
4.2 Test Graphs	19
5 Band Edge	25
5.1 Test Result	25
5.2 Test Graphs	26
6 Conducted RF Spurious Emission	34
6.1 Test Result	34
6.2 Test Graphs	35
7 Restrict Band	47
7.1 Test Result	47
7.2 Test Graphs	49

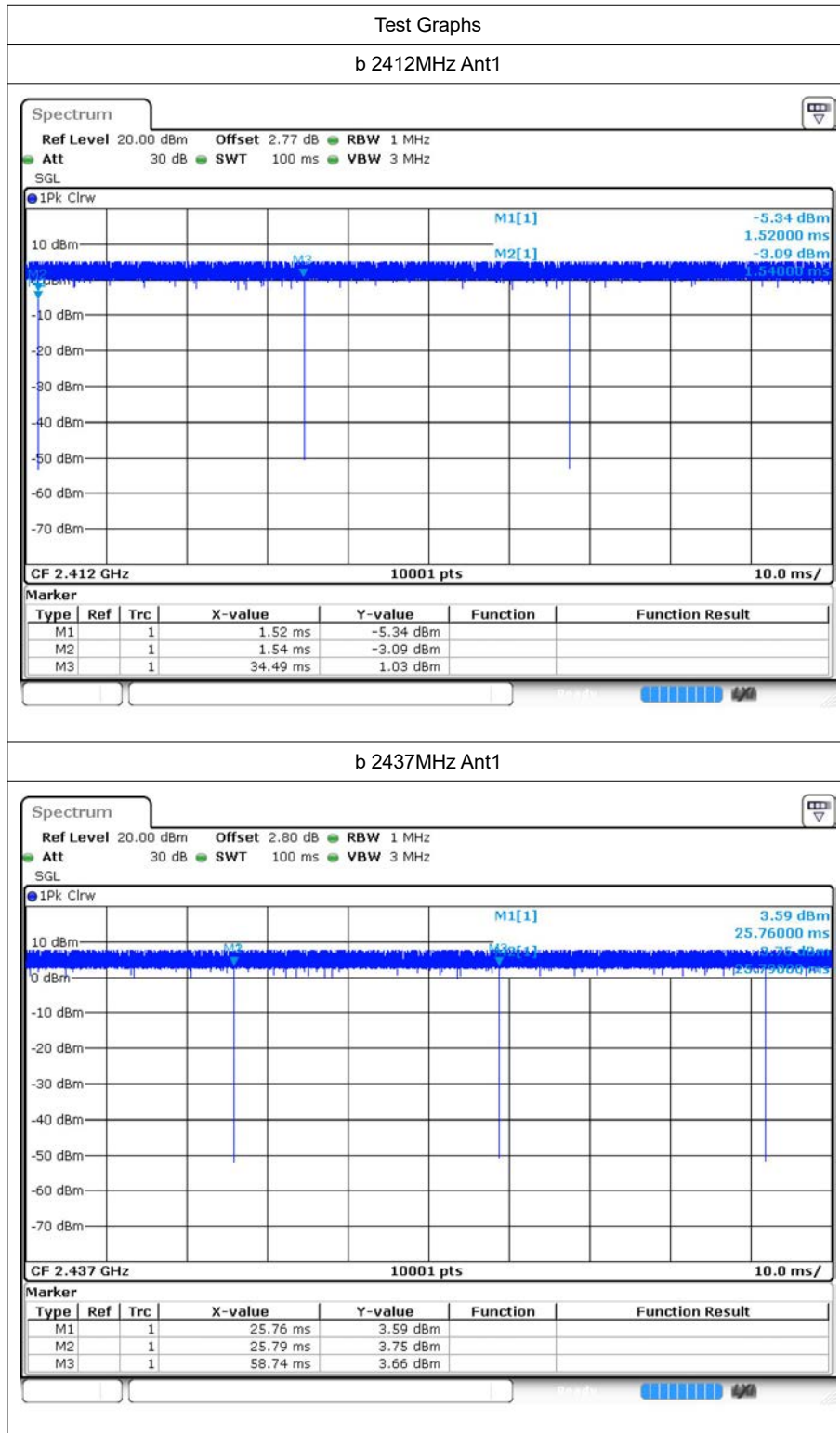


1 Duty Cycle

1.1 Test Result

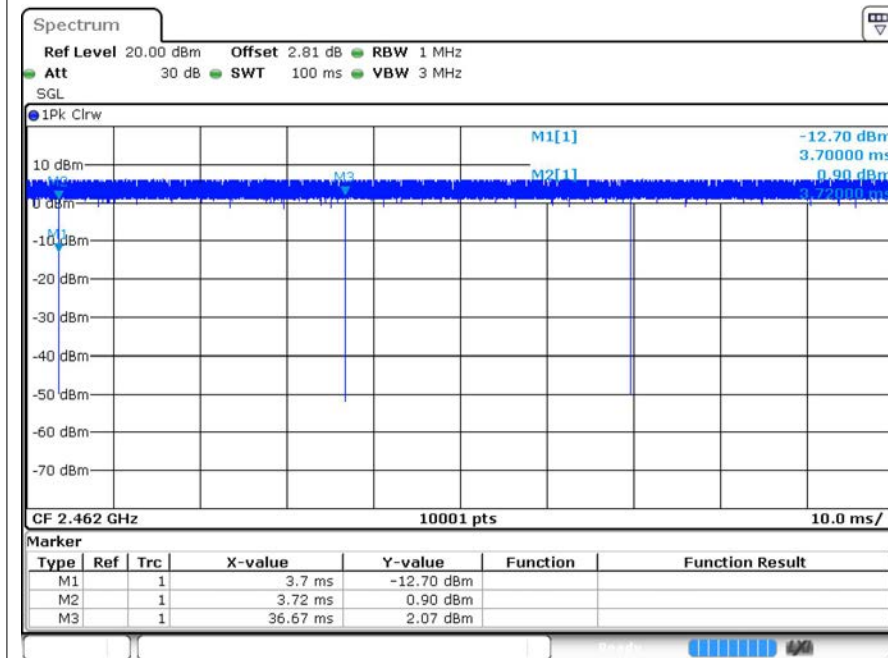
Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor	1/T (kHz)
b	2412	Ant1	99.95	0	0.03
b	2437	Ant1	99.94	0	0.03
b	2462	Ant1	99.95	0	0.03
g	2412	Ant1	99.77	0.01	0.18
g	2437	Ant1	99.75	0.01	0.18
g	2462	Ant1	99.76	0.01	0.18
n20	2412	Ant1	99.68	0.01	0.2
n20	2437	Ant1	99.69	0.01	0.2
n20	2462	Ant1	99.68	0.01	0.2
n40	2422	Ant1	99.07	0.04	0.41
n40	2437	Ant1	99.1	0.04	0.41
n40	2452	Ant1	99.08	0.04	0.4

1.2 Test Graphs

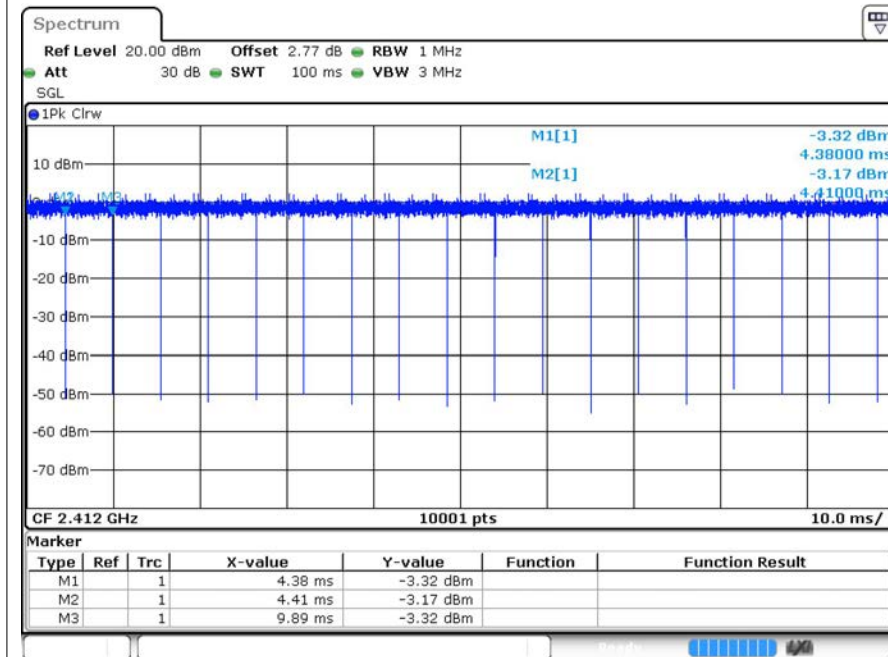


Test Graphs

b 2462MHz Ant1

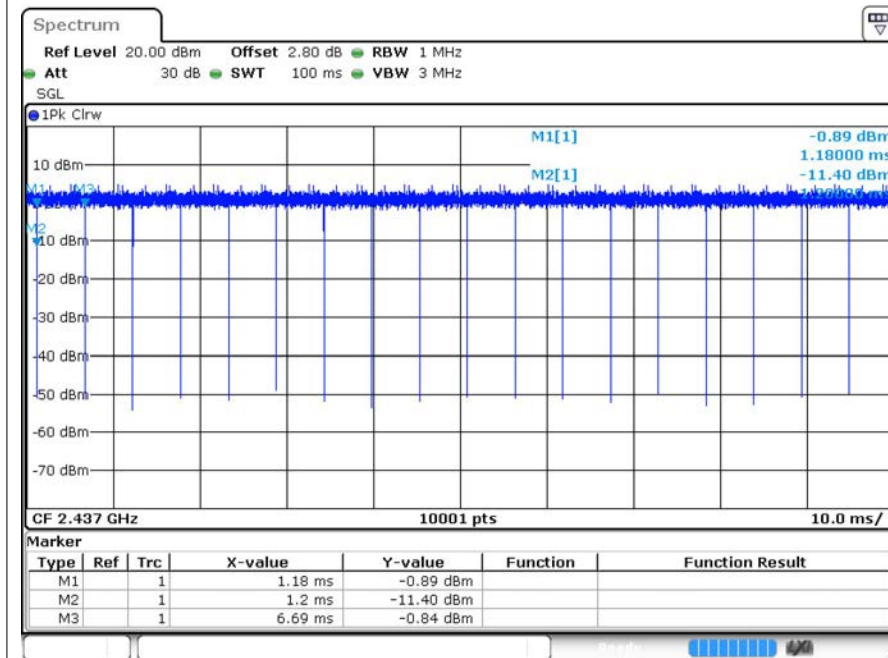


g 2412MHz Ant1

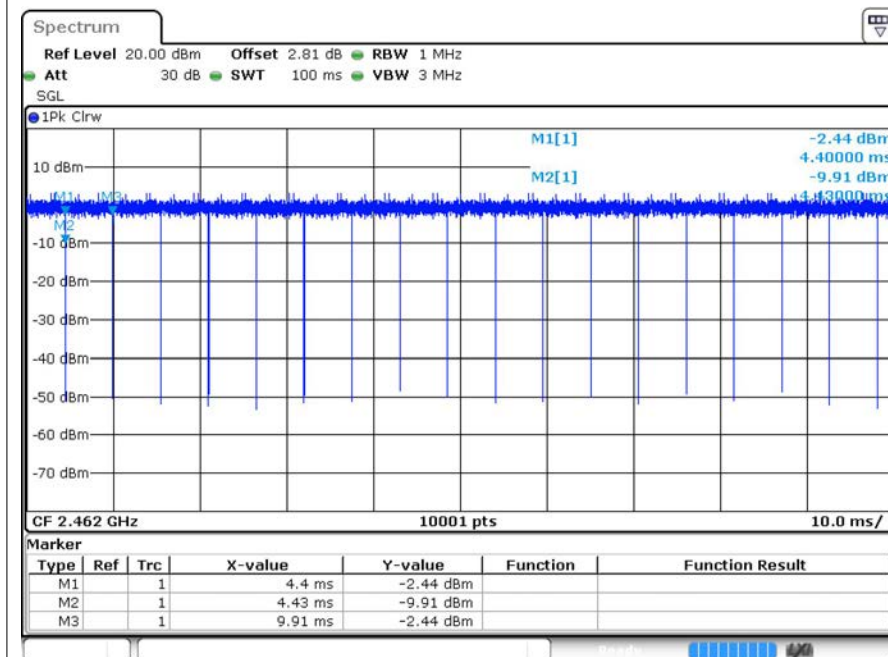


Test Graphs

g 2437MHz Ant1

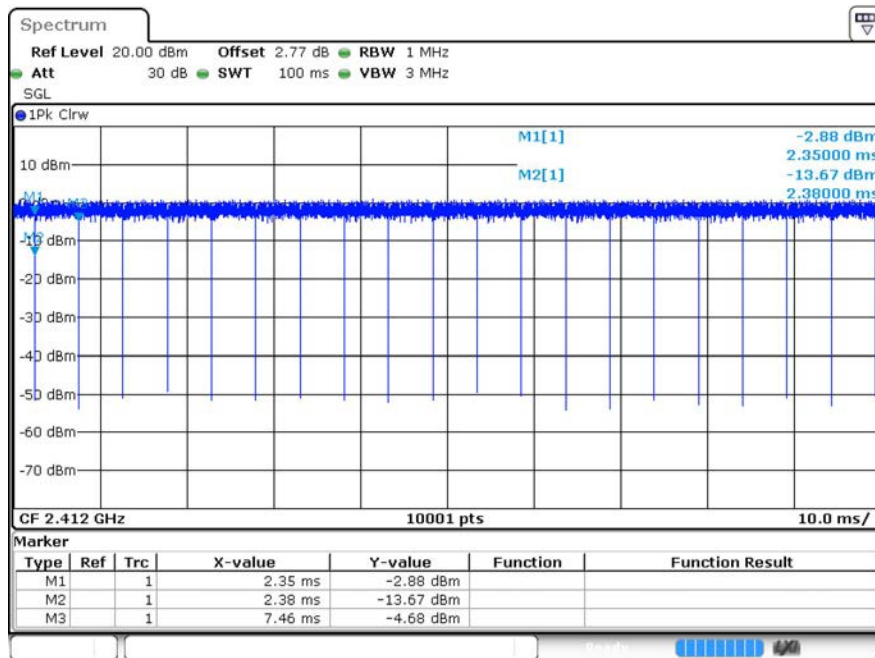


g 2462MHz Ant1

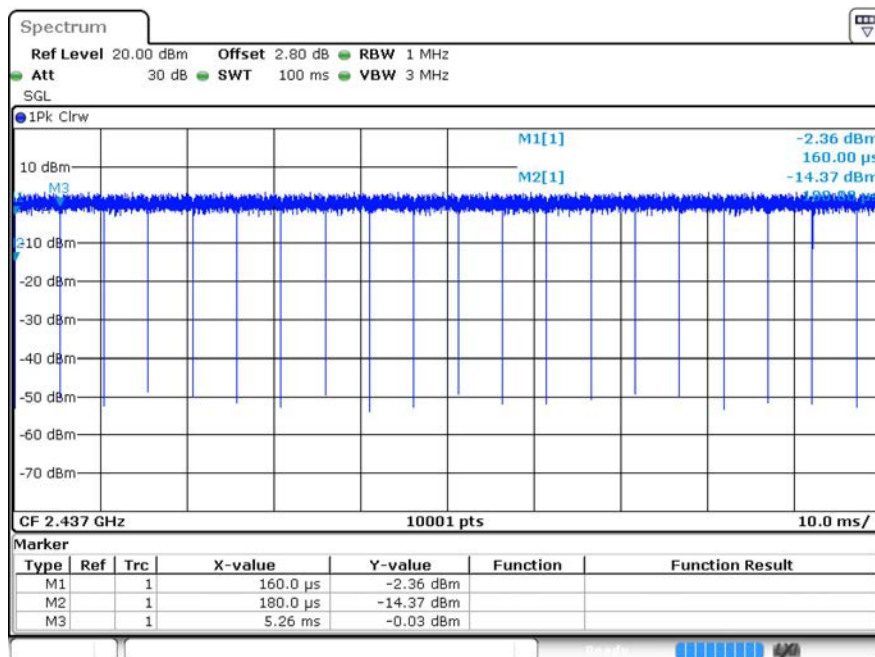


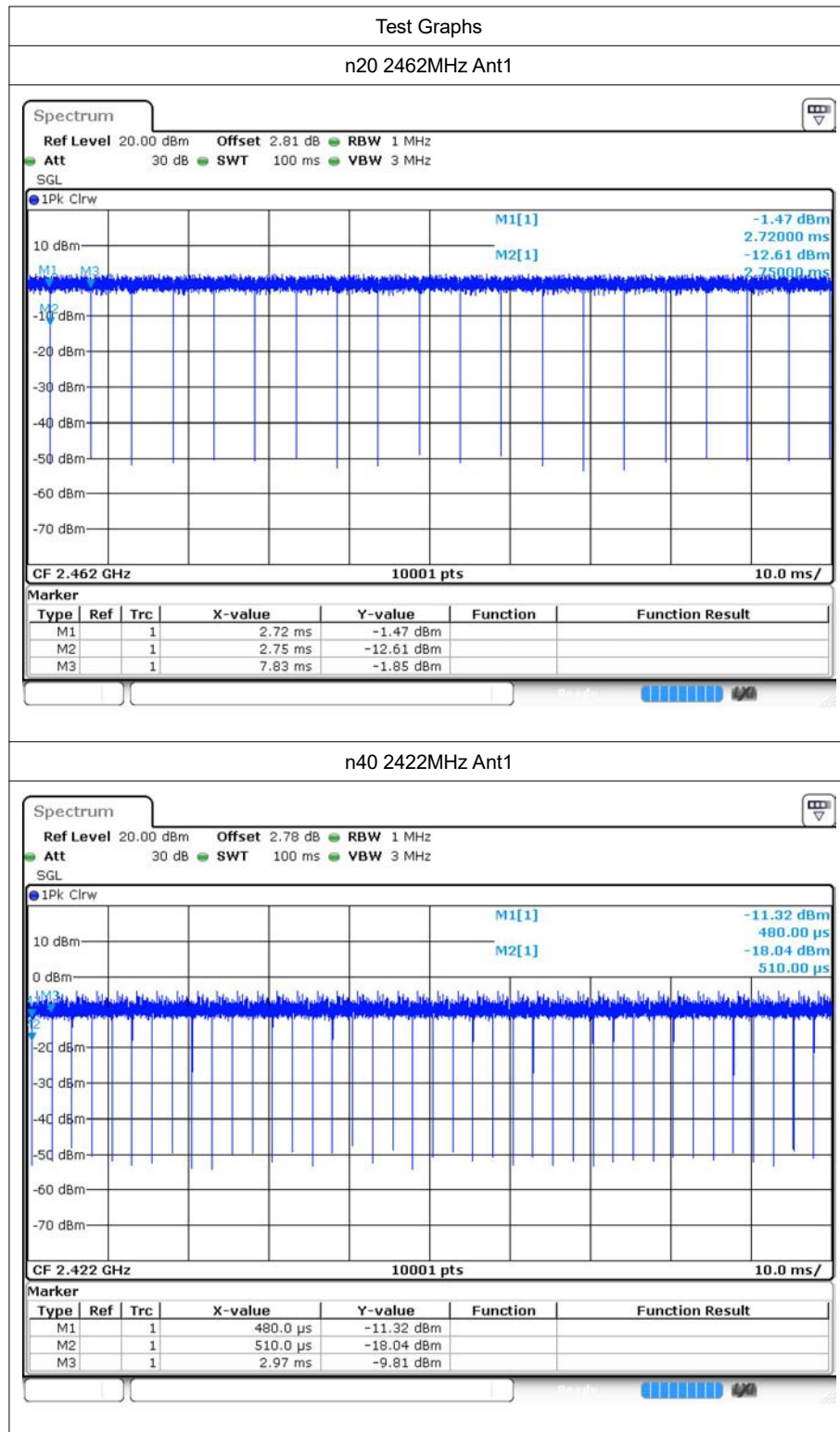
Test Graphs

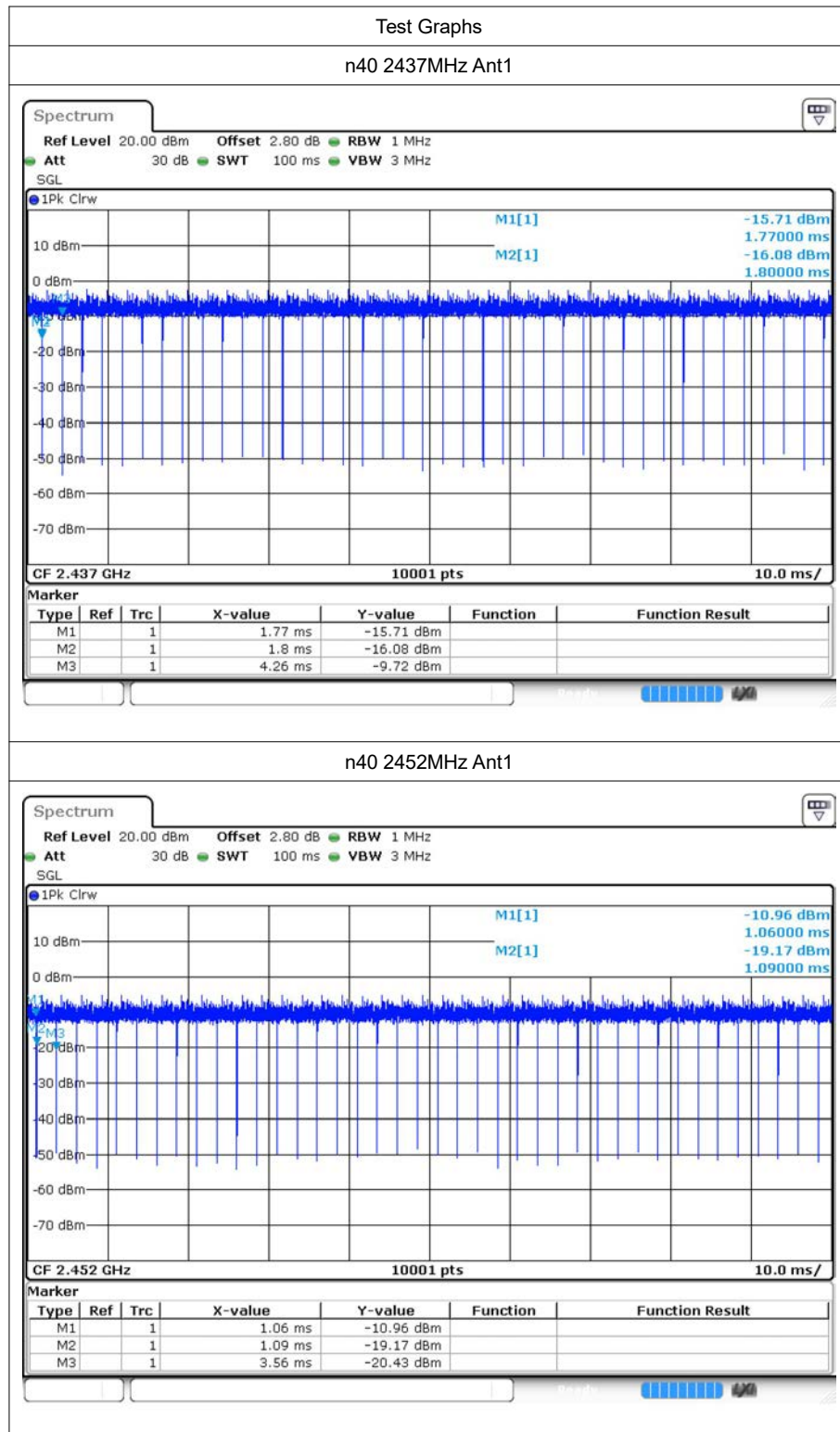
n20 2412MHz Ant1



n20 2437MHz Ant1







2 Maximum Conducted Output Power

2.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
b	2412	Ant1	12.51	30	Pass
b	2437	Ant1	15.32	30	Pass
b	2462	Ant1	13.56	30	Pass
g	2412	Ant1	11.65	30	Pass
g	2437	Ant1	13.86	30	Pass
g	2462	Ant1	12.5	30	Pass
n20	2412	Ant1	11.45	30	Pass
n20	2437	Ant1	13.69	30	Pass
n20	2462	Ant1	12.47	30	Pass
n40	2422	Ant1	11.44	30	Pass
n40	2437	Ant1	12.38	30	Pass
n40	2452	Ant1	10.28	30	Pass

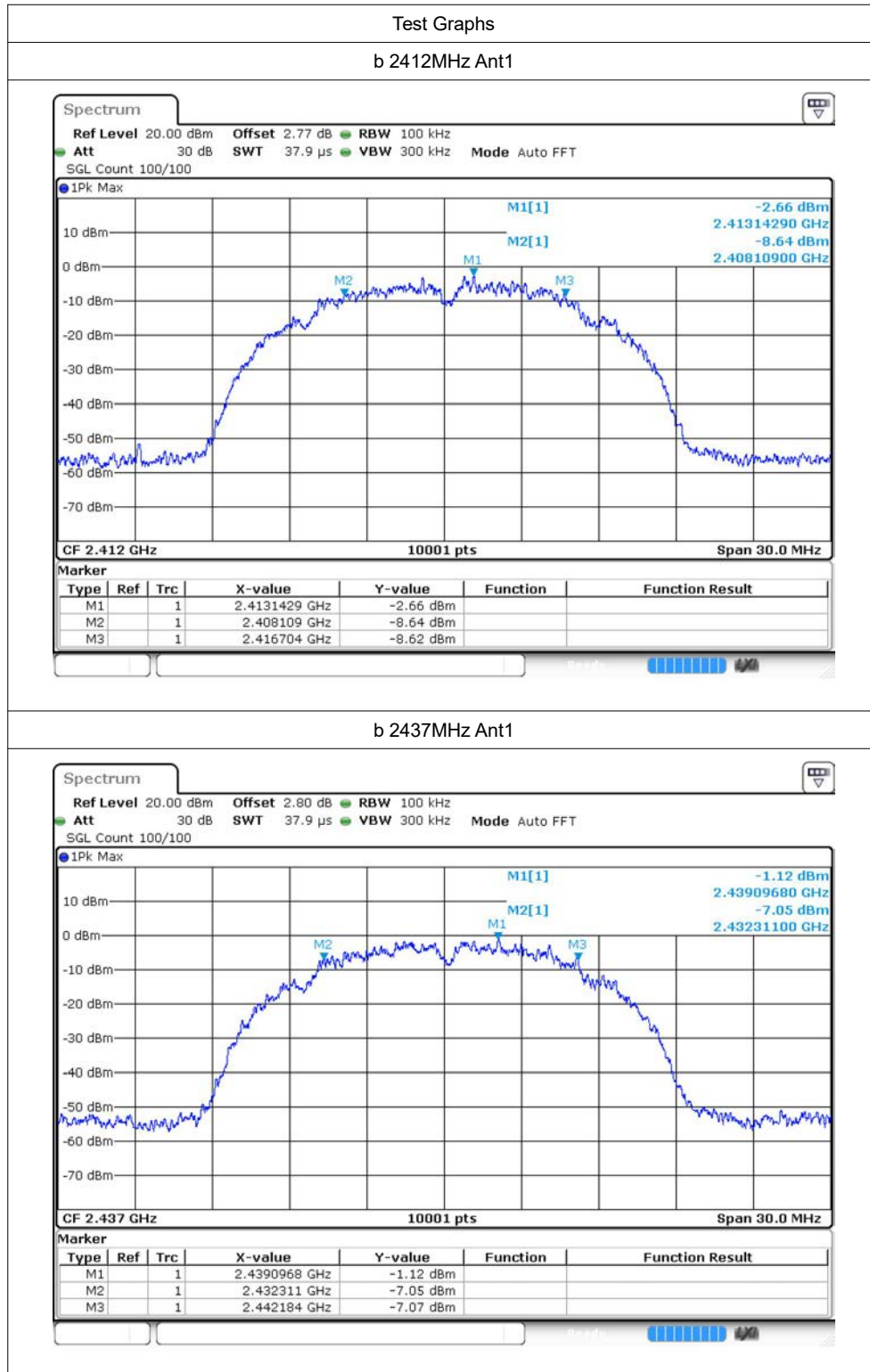


3 -6dB Bandwidth

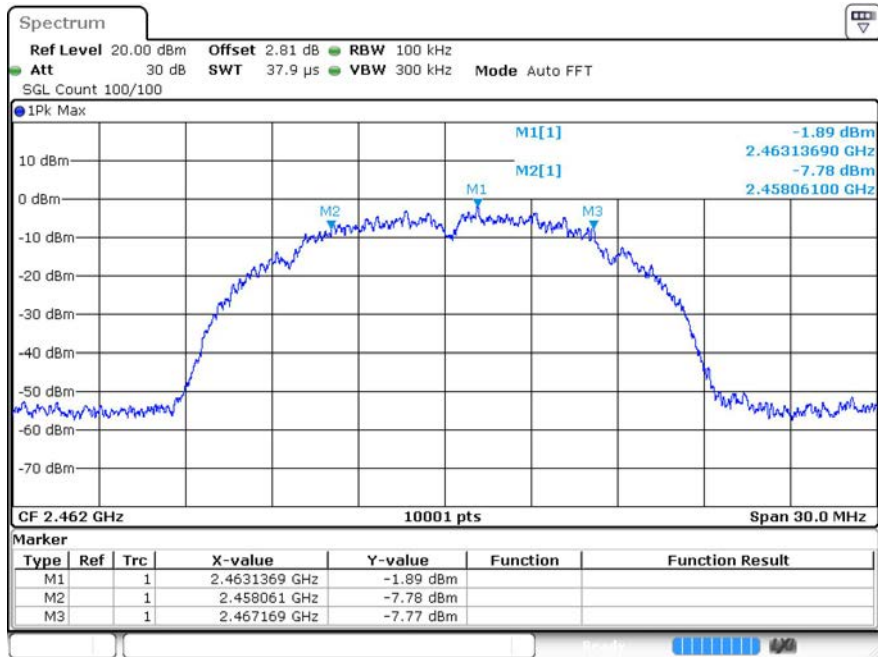
3.1 Test Result

Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
b	2412	Ant1	8.595	0.5	Pass
b	2437	Ant1	9.873	0.5	Pass
b	2462	Ant1	9.108	0.5	Pass
g	2412	Ant1	16.419	0.5	Pass
g	2437	Ant1	16.365	0.5	Pass
g	2462	Ant1	16.389	0.5	Pass
n20	2412	Ant1	17.097	0.5	Pass
n20	2437	Ant1	17.028	0.5	Pass
n20	2462	Ant1	17.286	0.5	Pass
n40	2422	Ant1	35.022	0.5	Pass
n40	2437	Ant1	34.038	0.5	Pass
n40	2452	Ant1	32.292	0.5	Pass

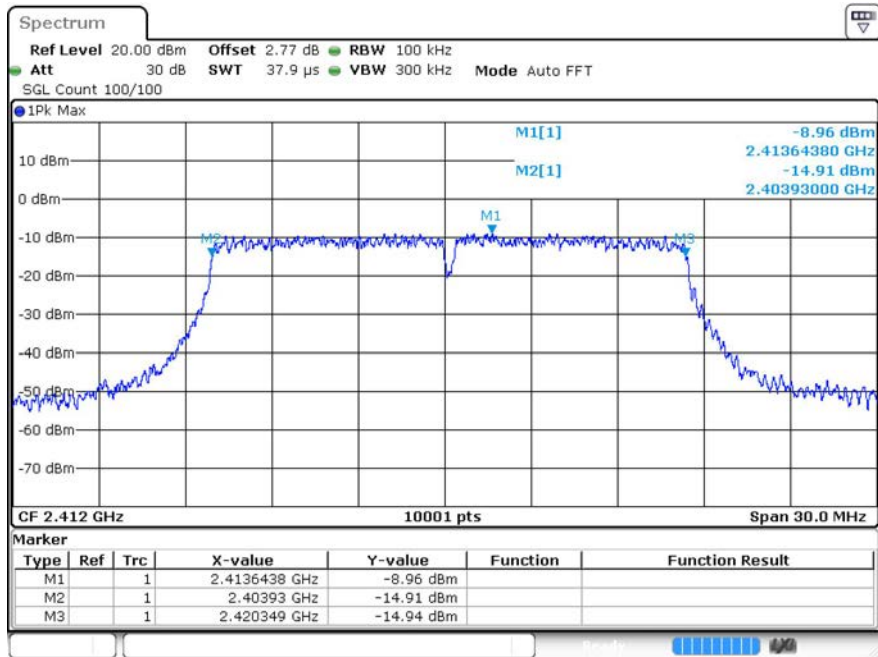
3.2 Test Graphs



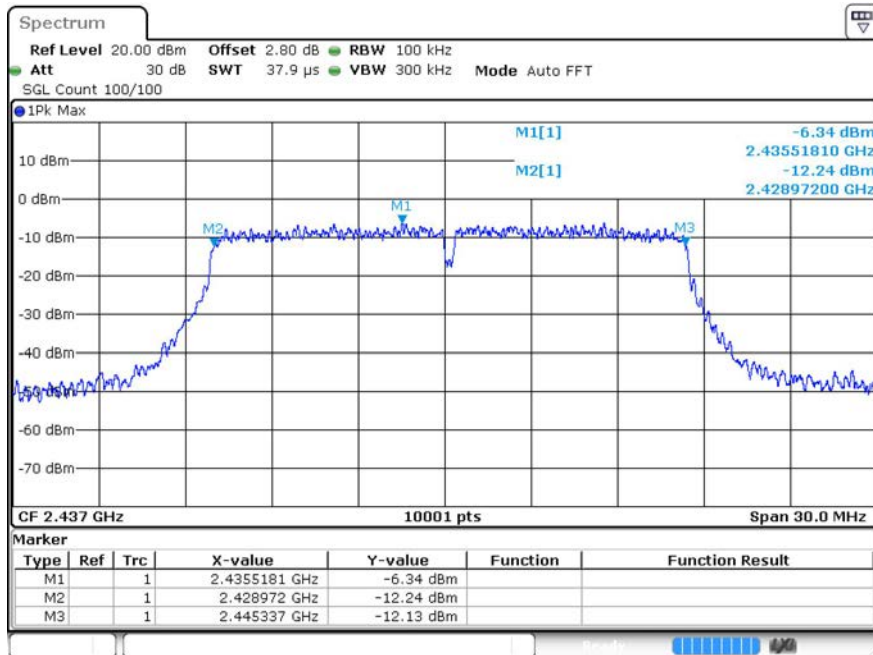
b 2462MHz Ant1



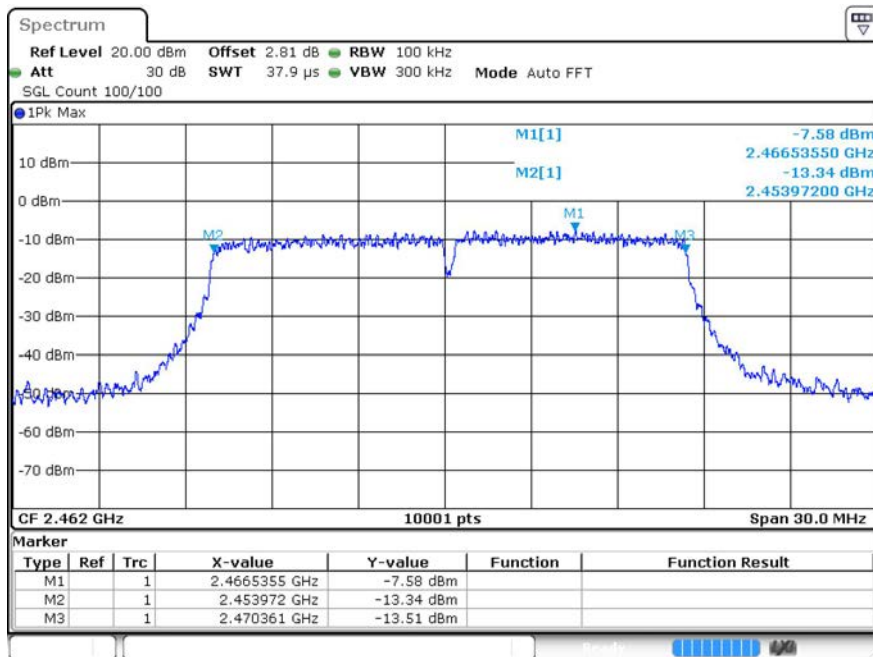
g 2412MHz Ant1



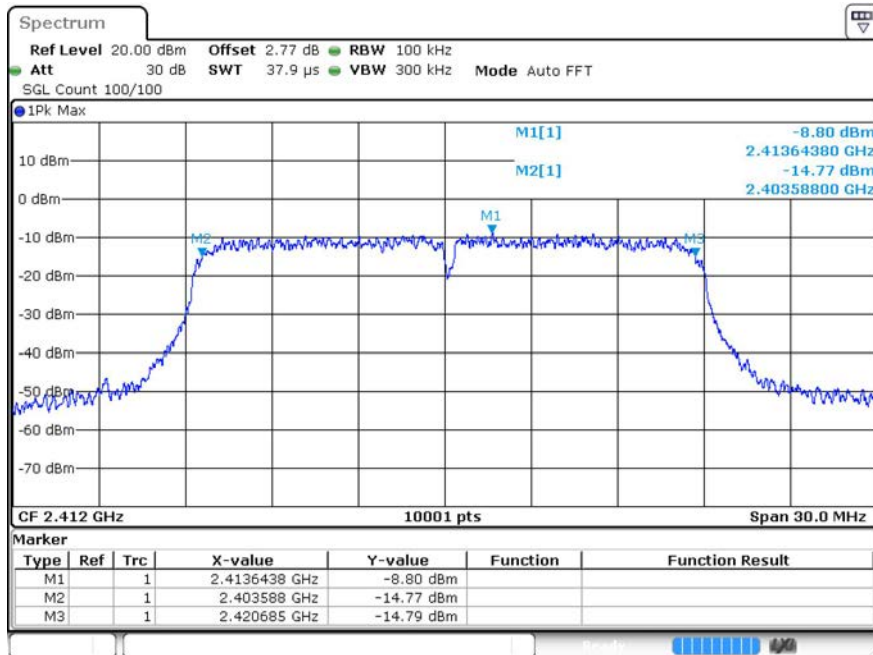
g 2437MHz Ant1



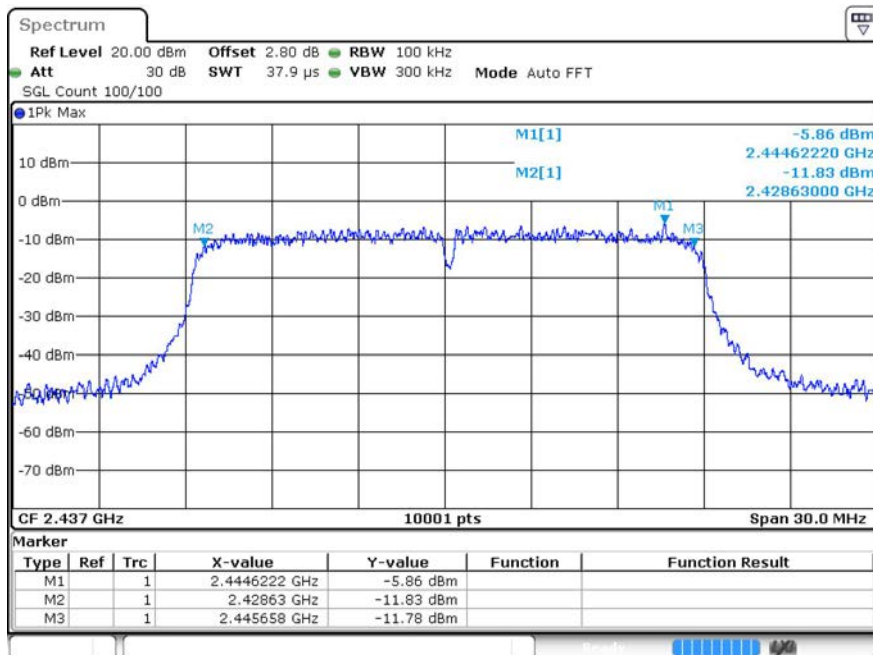
g 2462MHz Ant1



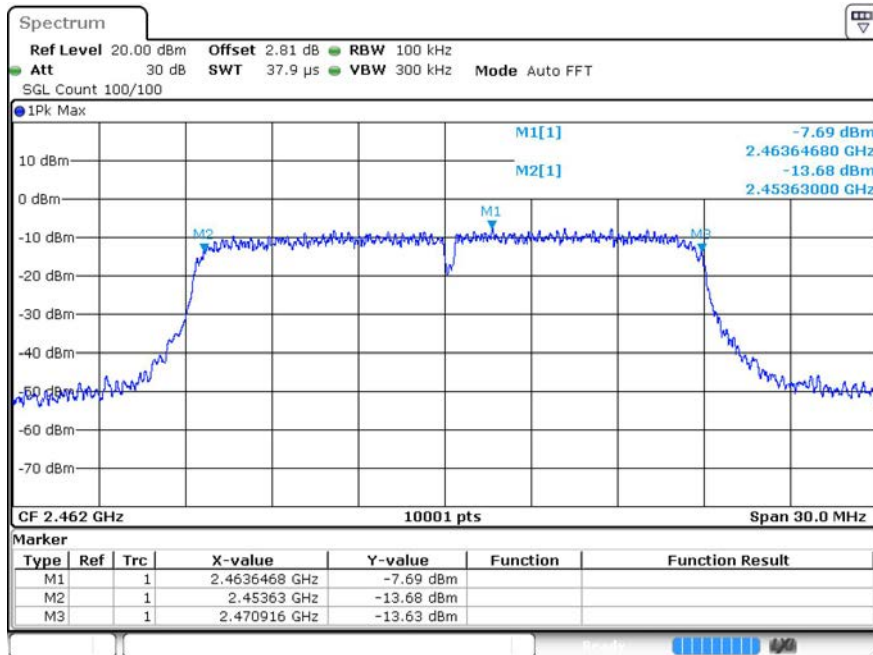
n20 2412MHz Ant1



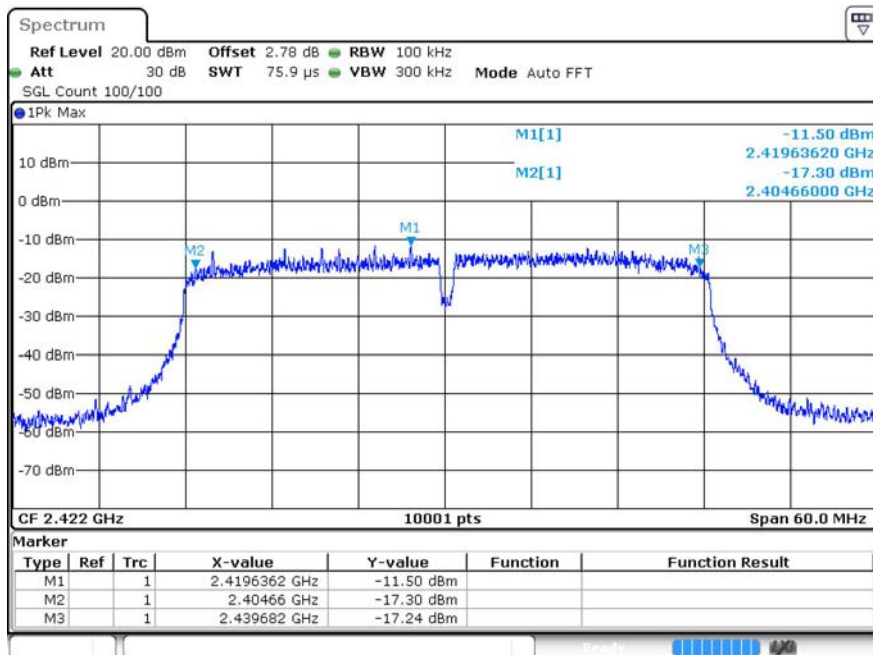
n20 2437MHz Ant1



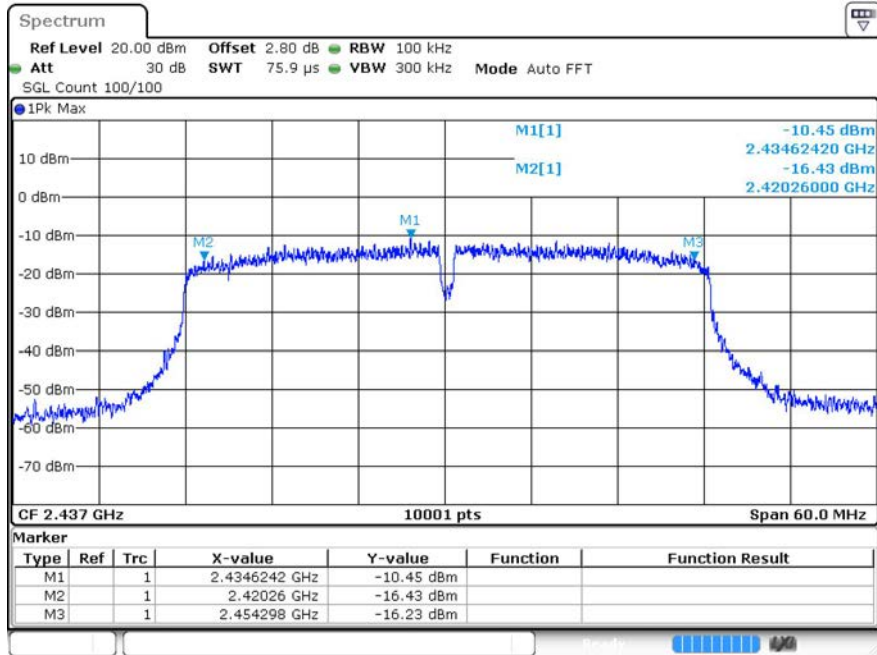
n20 2462MHz Ant1



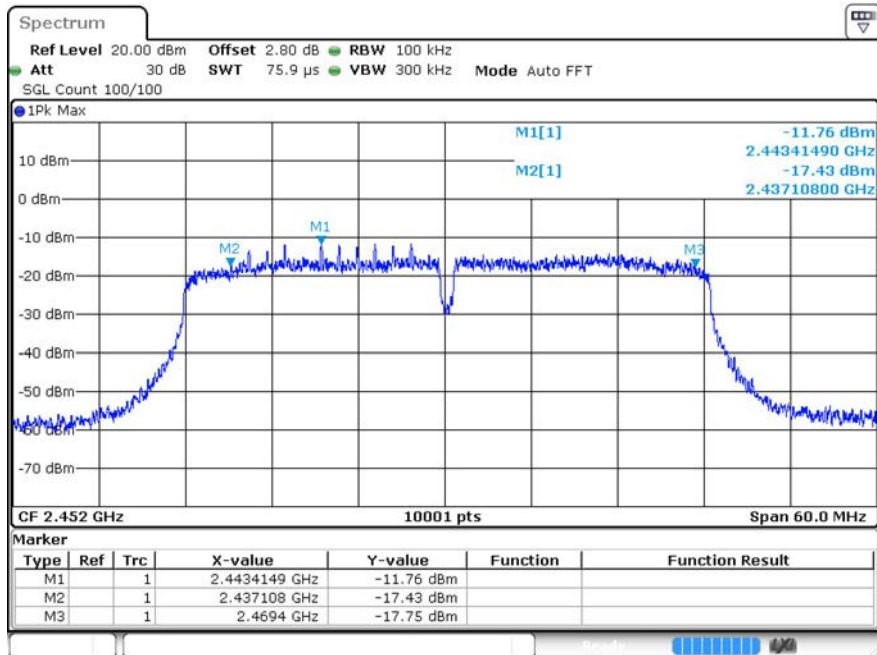
n40 2422MHz Ant1



n40 2437MHz Ant1



n40 2452MHz Ant1

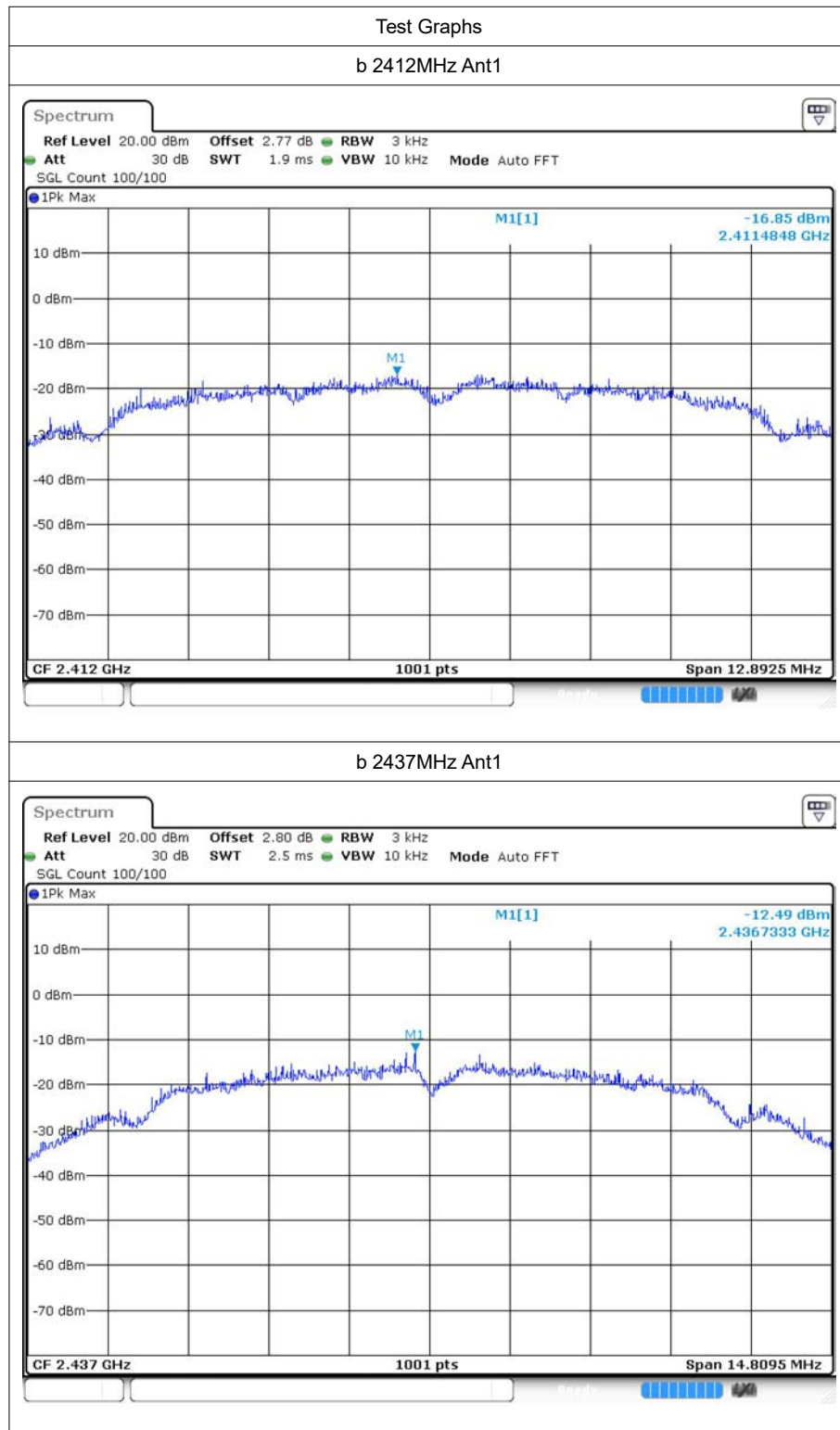


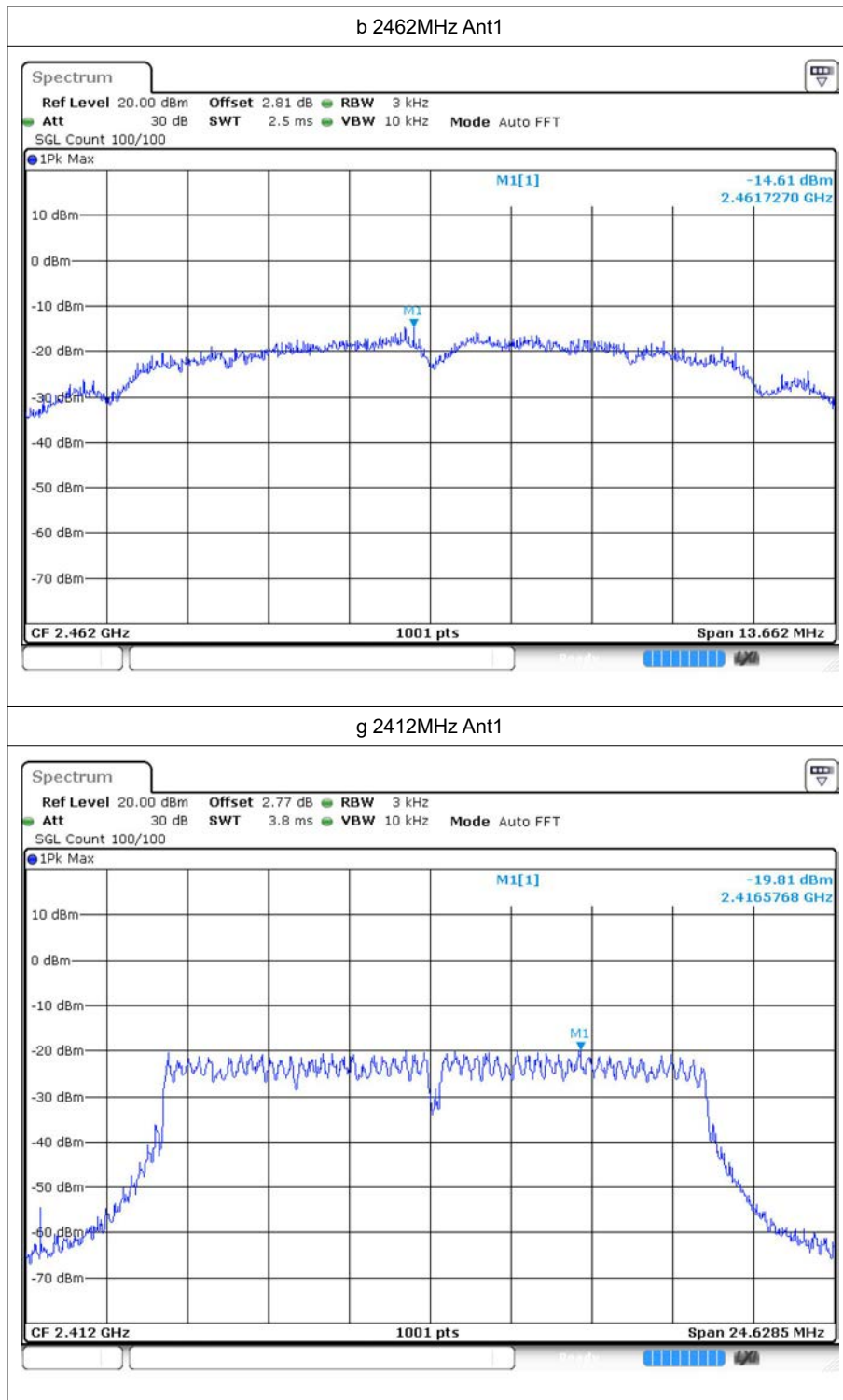
4 Maximum Power Spectral Density Level

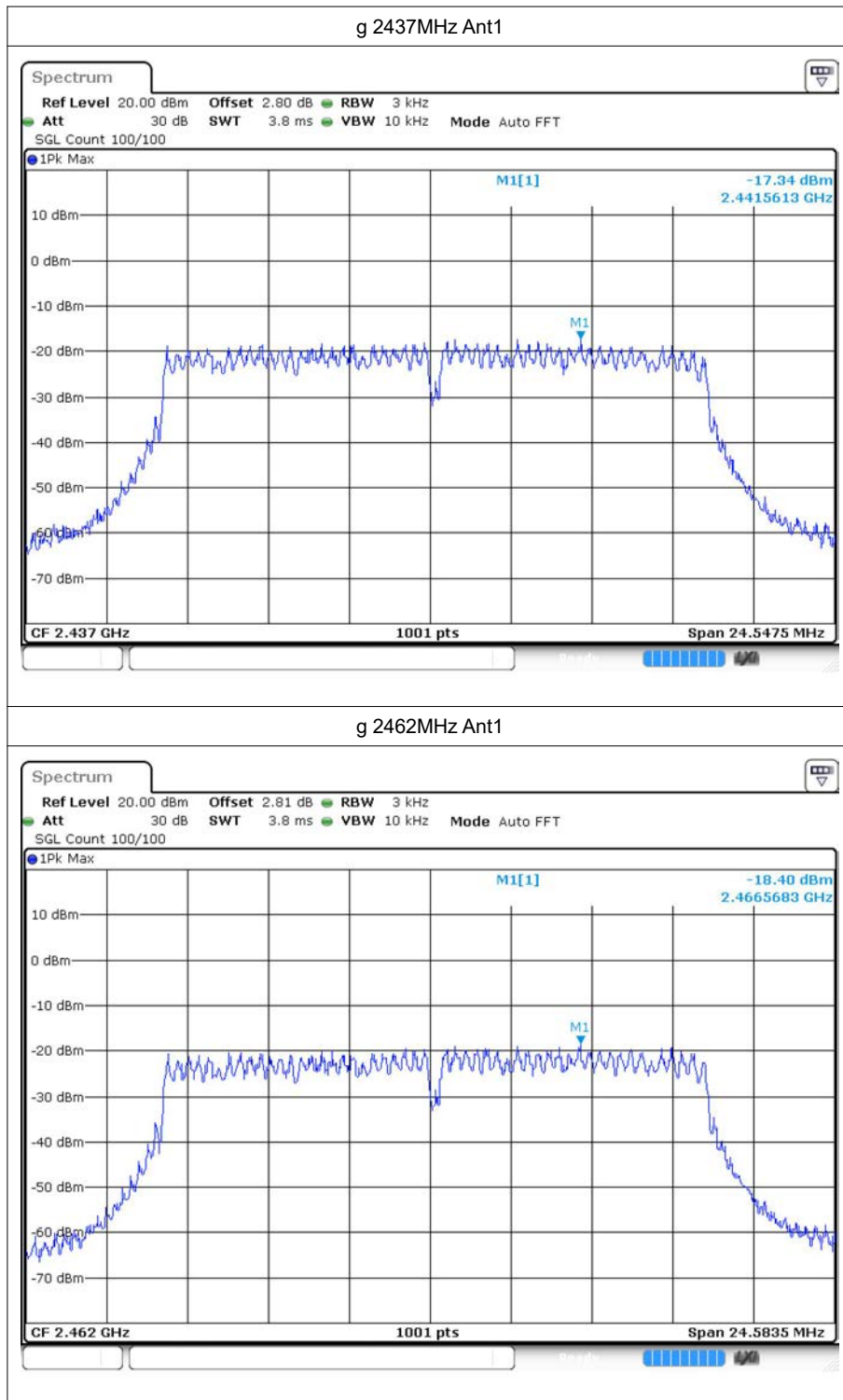
4.1 Test Result

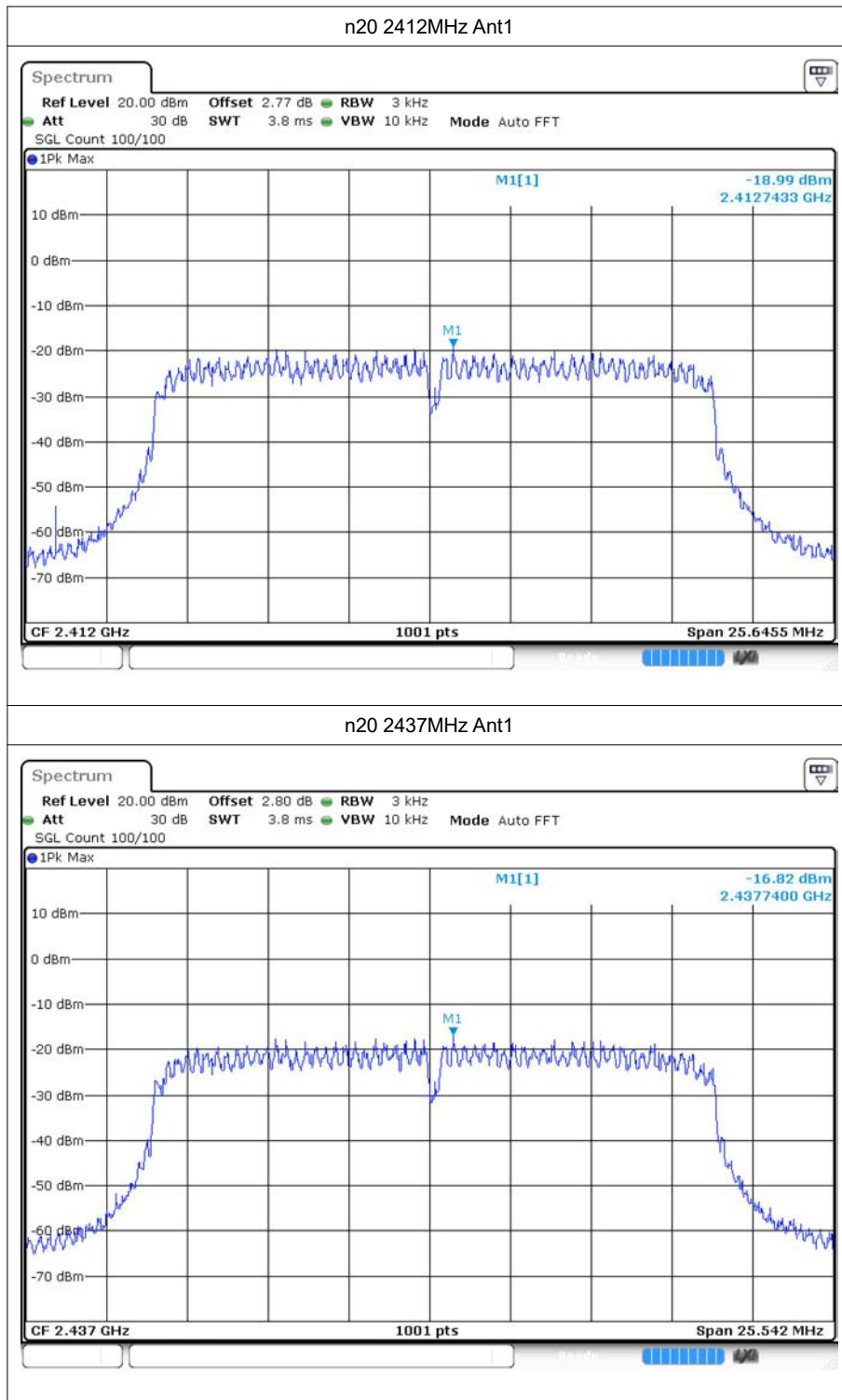
Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3-100kHz)	Limit (dBm/3kHz)	Verdict
b	2412	Ant1	-16.85	≤ 8	Pass
b	2437	Ant1	-12.49	≤ 8	Pass
b	2462	Ant1	-14.61	≤ 8	Pass
g	2412	Ant1	-19.81	≤ 8	Pass
g	2437	Ant1	-17.34	≤ 8	Pass
g	2462	Ant1	-18.4	≤ 8	Pass
n20	2412	Ant1	-18.99	≤ 8	Pass
n20	2437	Ant1	-16.82	≤ 8	Pass
n20	2462	Ant1	-17.97	≤ 8	Pass
n40	2422	Ant1	-23.59	≤ 8	Pass
n40	2437	Ant1	-21.99	≤ 8	Pass
n40	2452	Ant1	-24.79	≤ 8	Pass

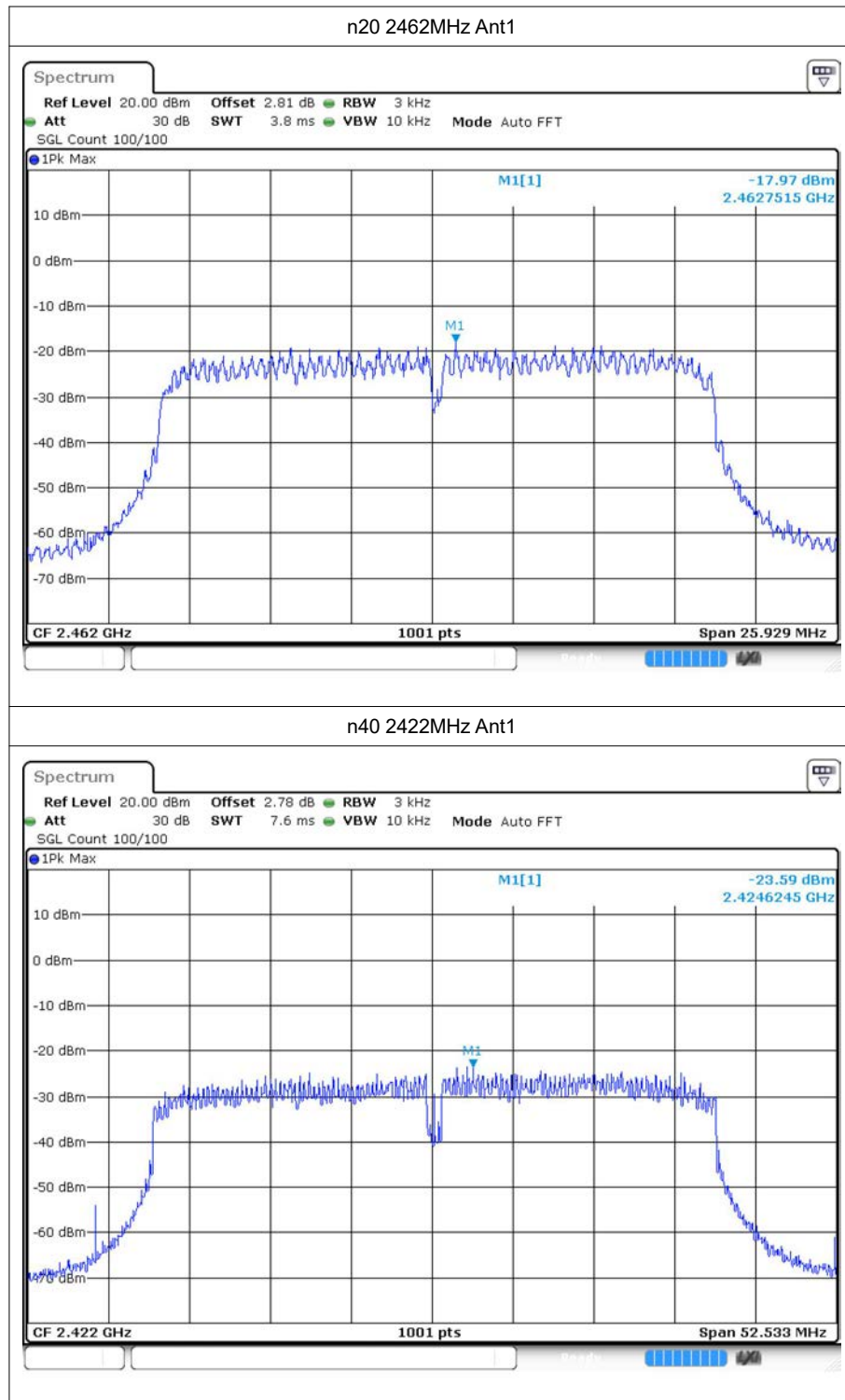
4.2 Test Graphs

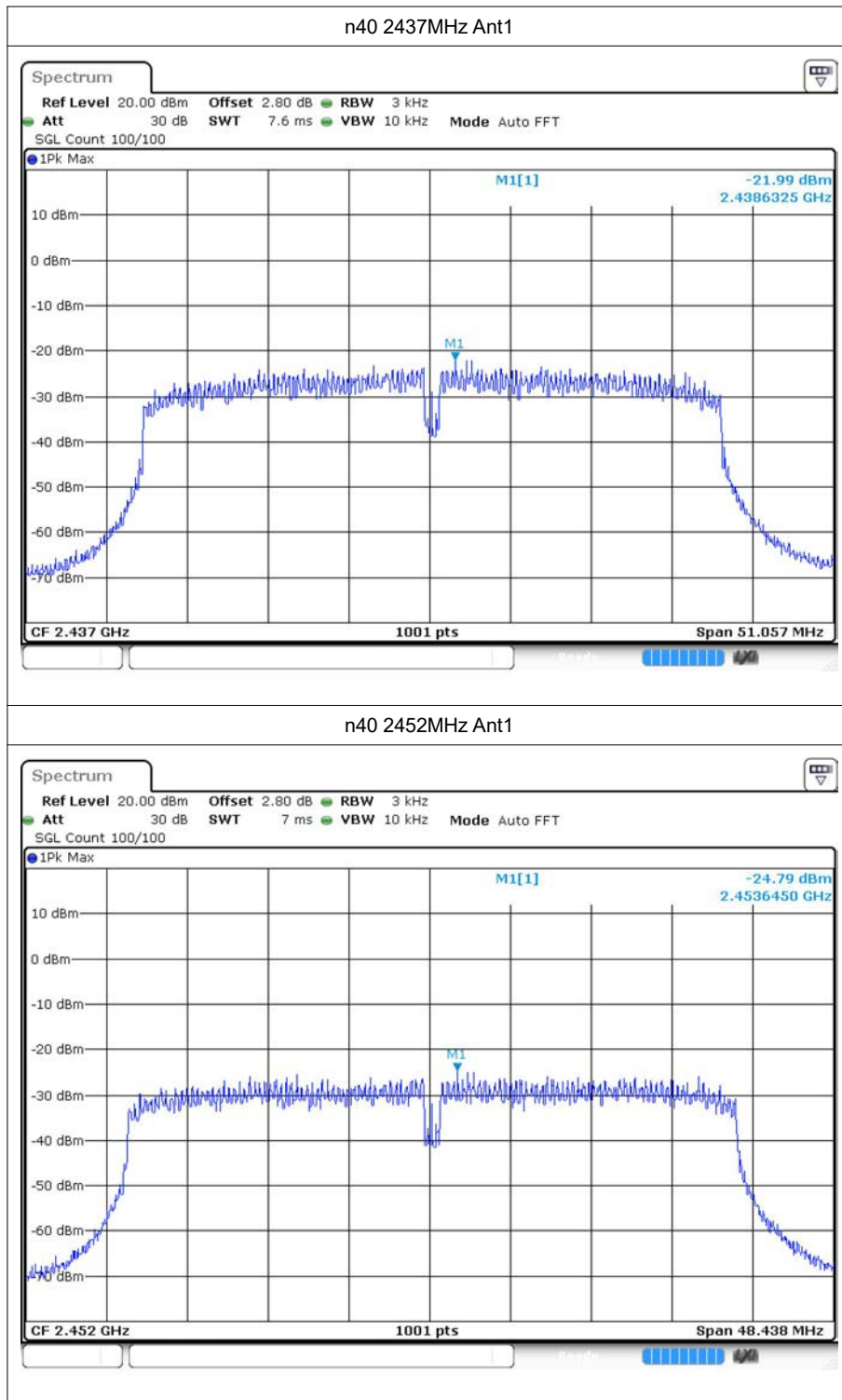












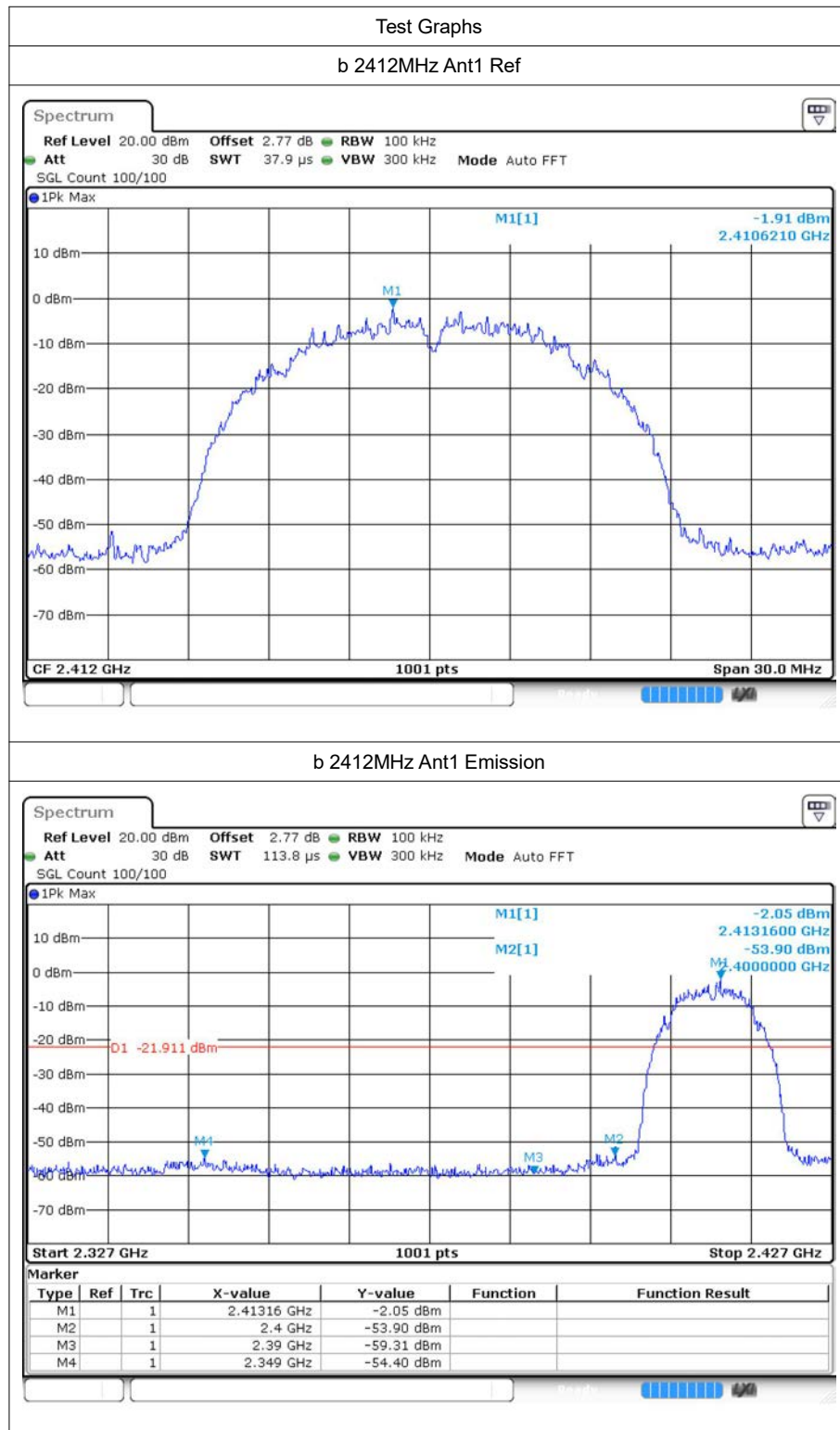


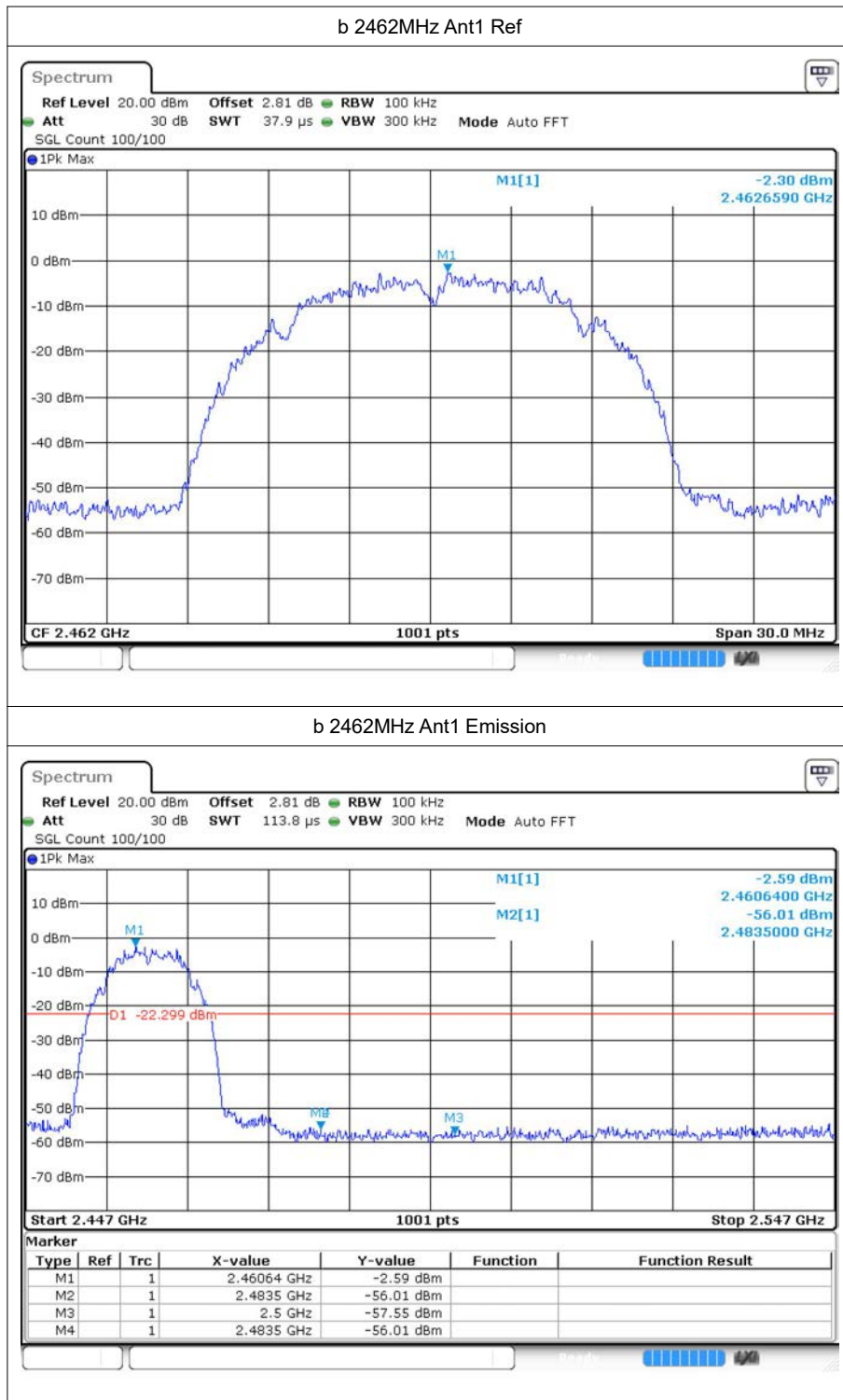
5 Band Edge

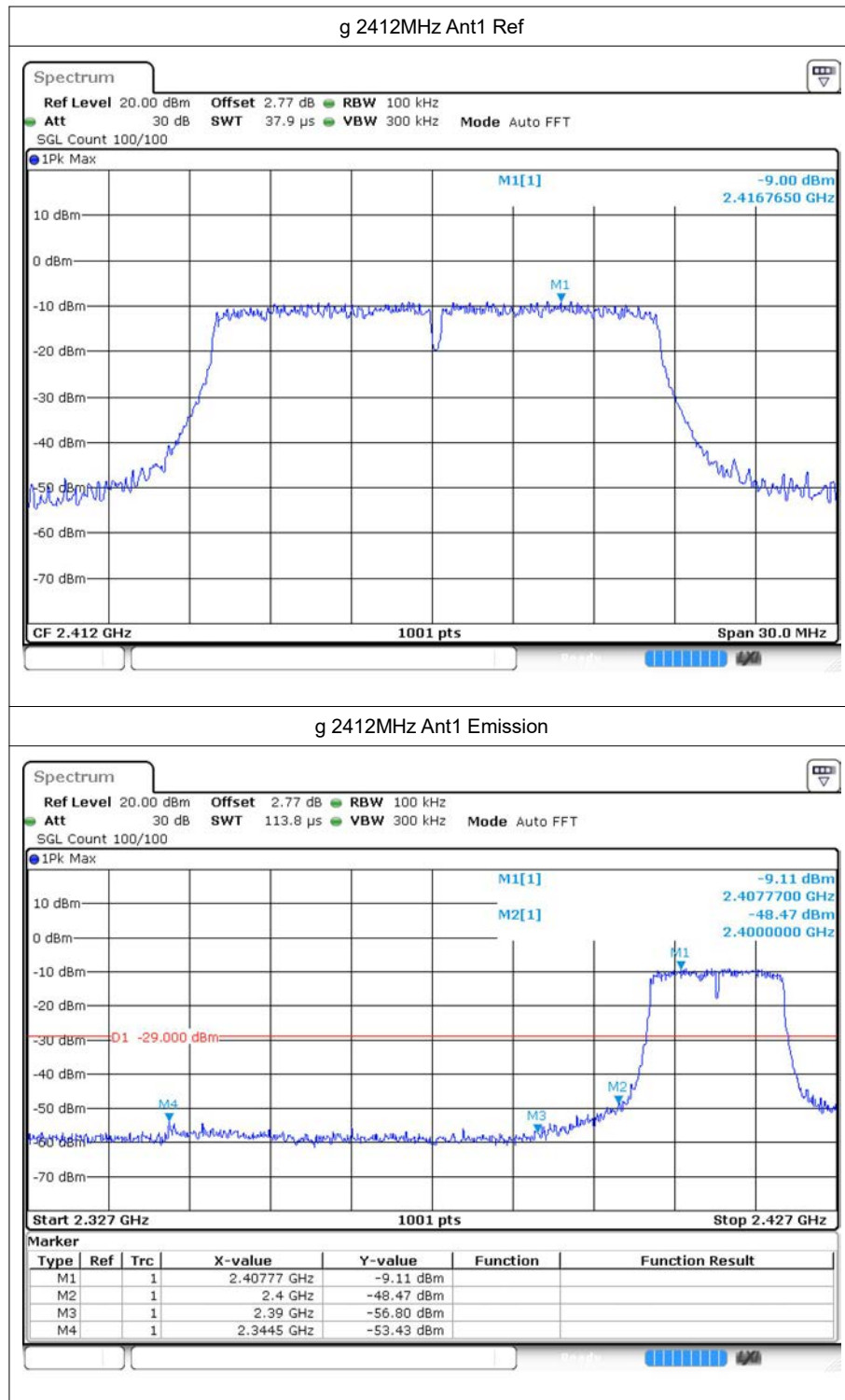
5.1 Test Result

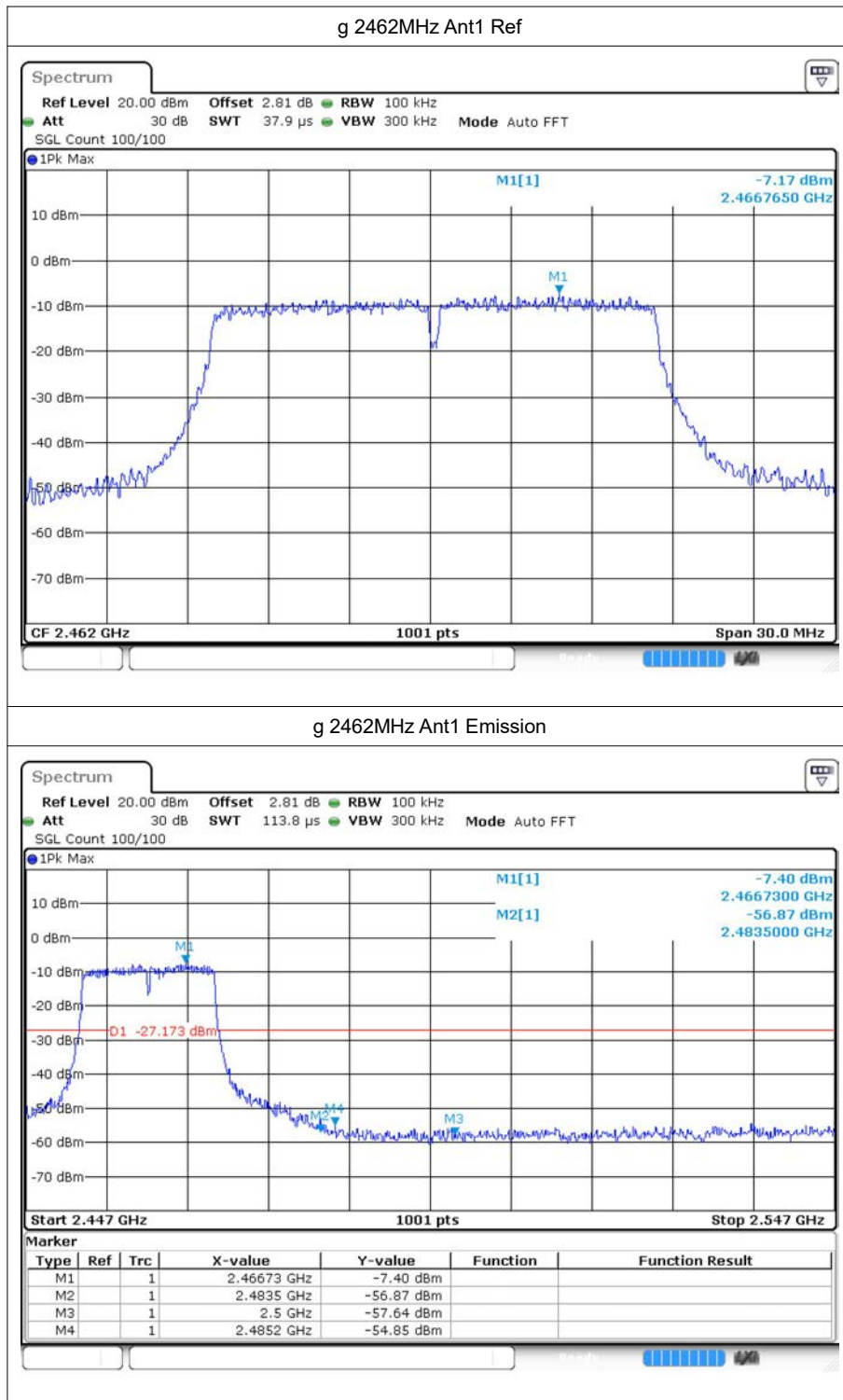
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-52.49	-20	Pass
b	2462	Ant1	-53.7	-20	Pass
g	2412	Ant1	-44.43	-20	Pass
g	2462	Ant1	-47.67	-20	Pass
n20	2412	Ant1	-45.74	-20	Pass
n20	2462	Ant1	-46.94	-20	Pass
n40	2422	Ant1	-44.97	-20	Pass
n40	2452	Ant1	-41.69	-20	Pass

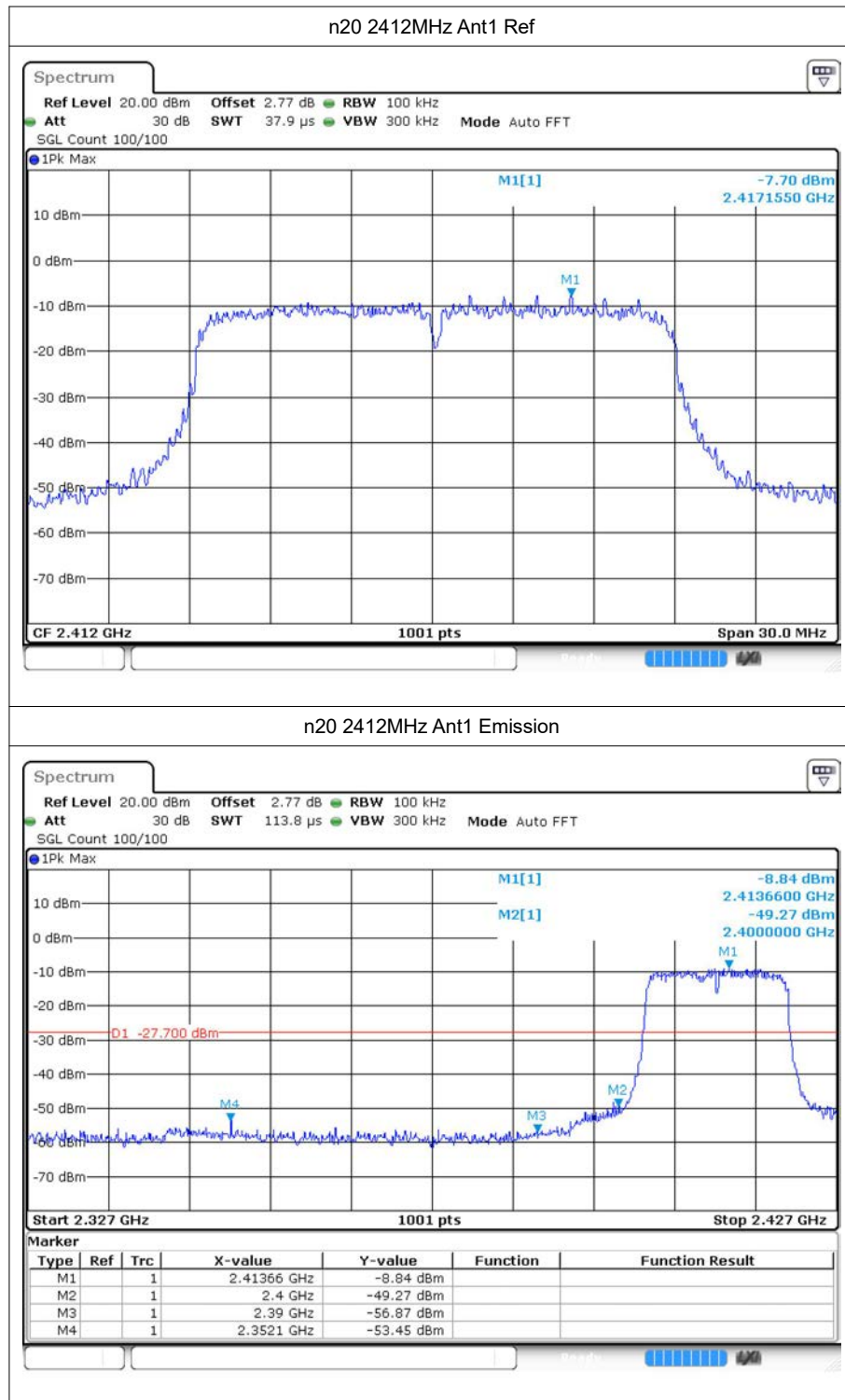
5.2 Test Graphs

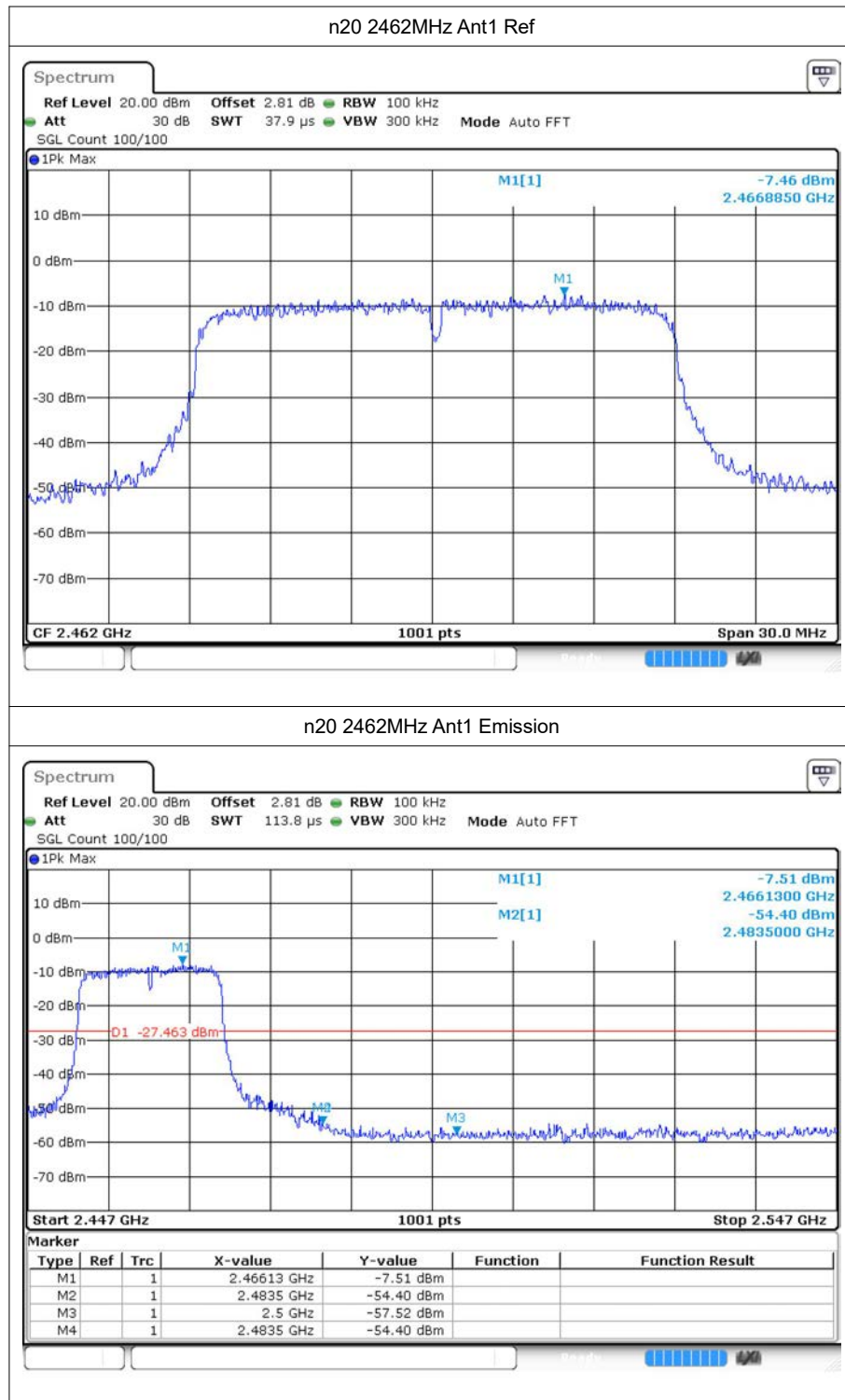


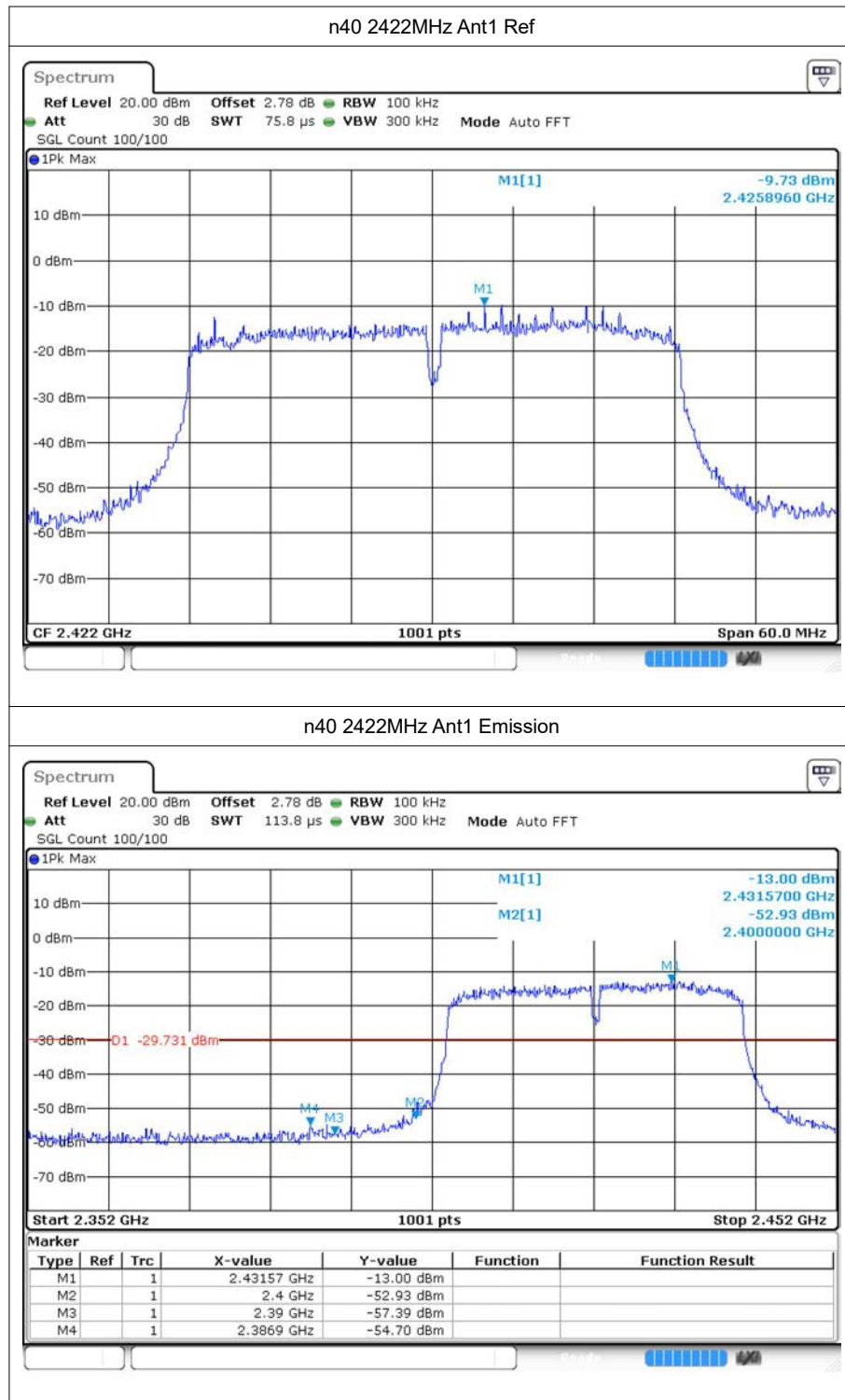


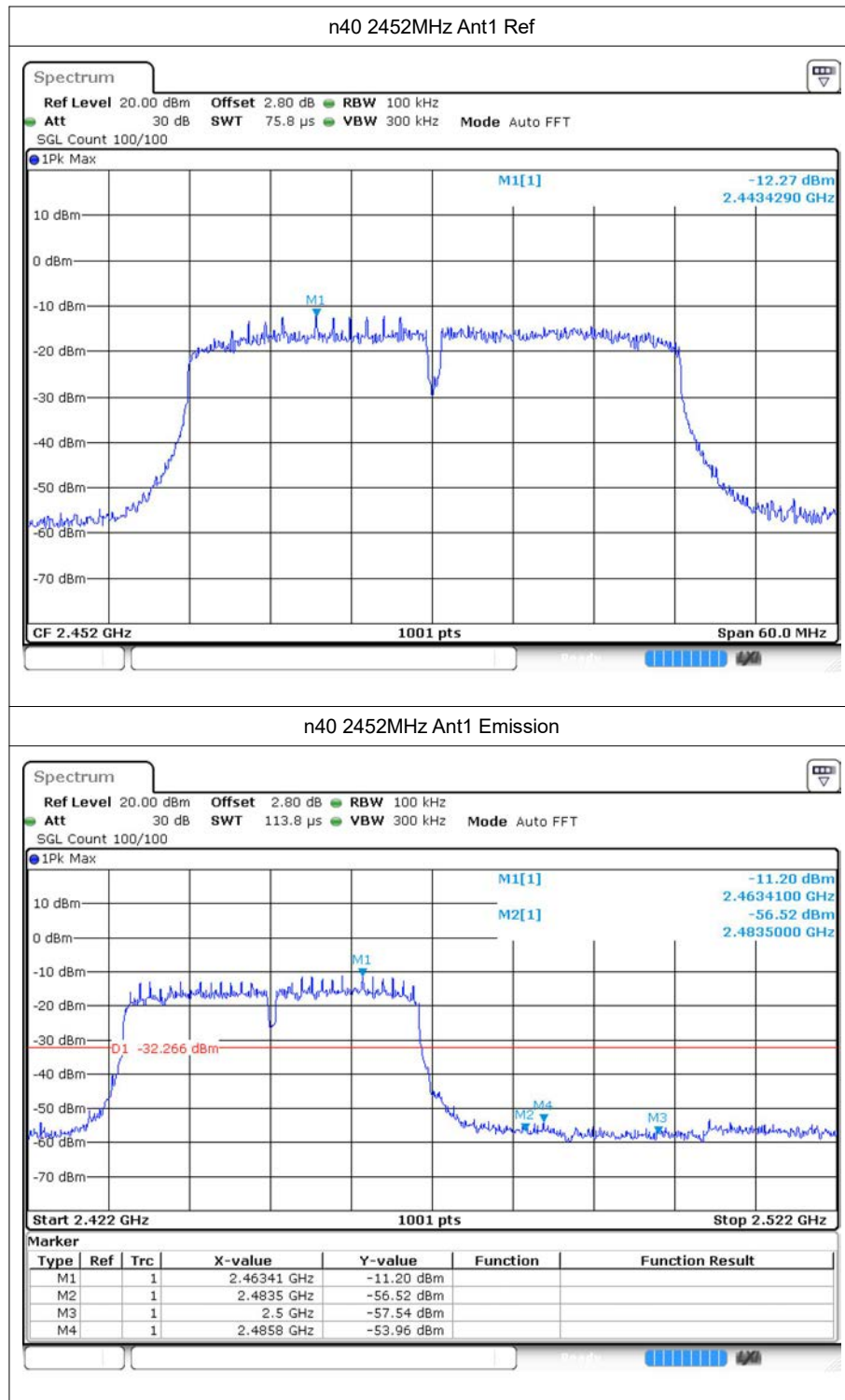












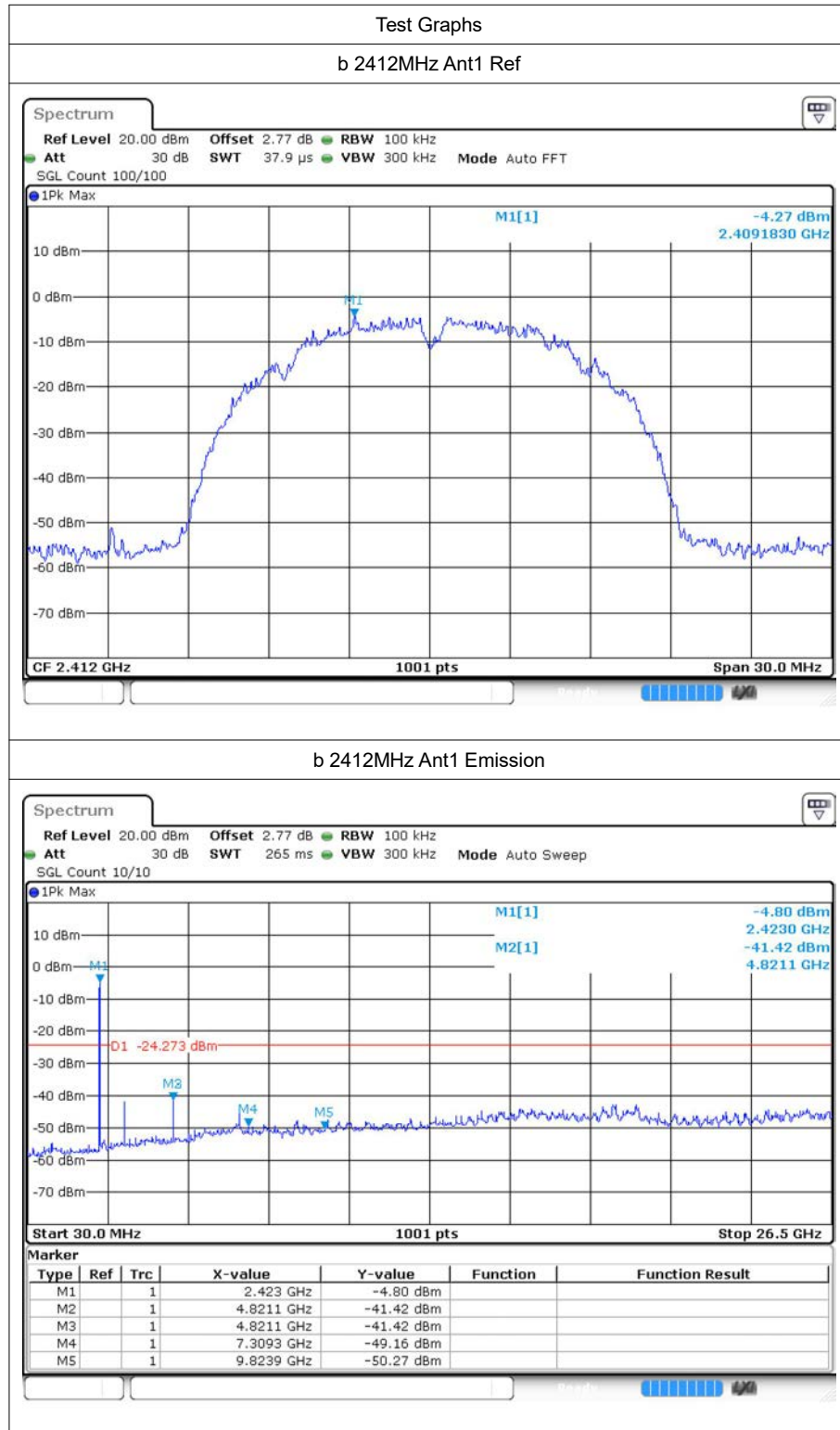


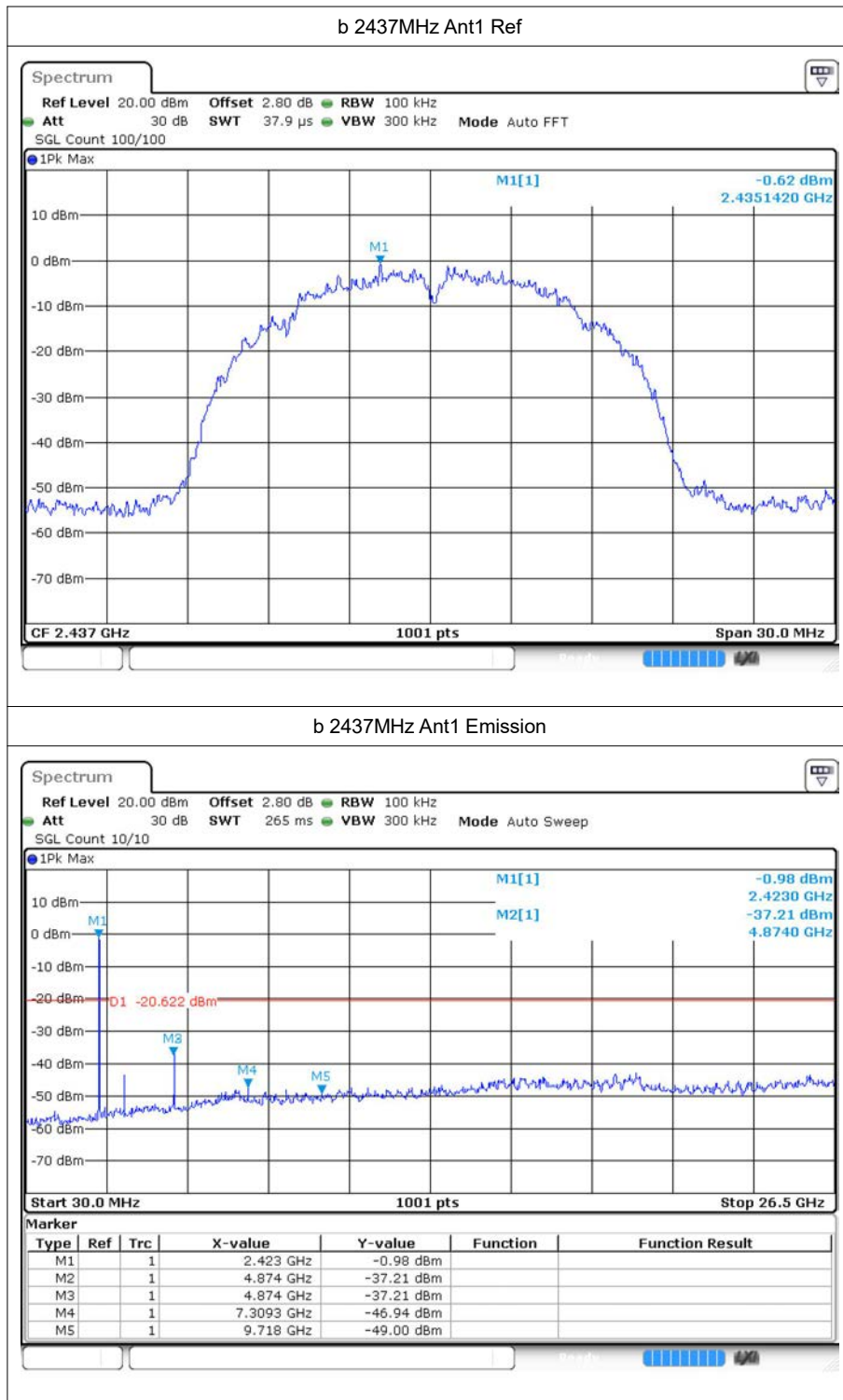
6 Conducted RF Spurious Emission

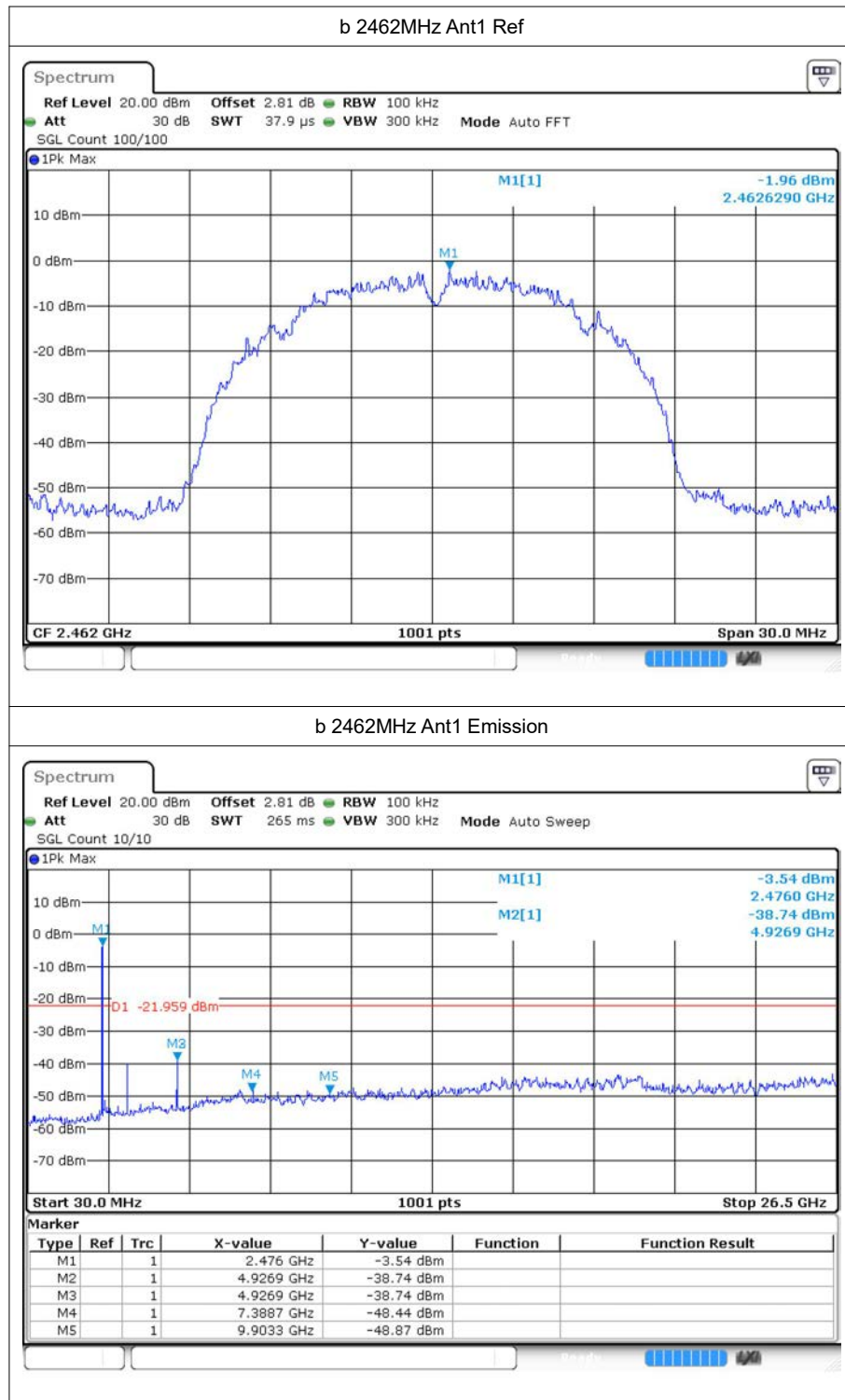
6.1 Test Result

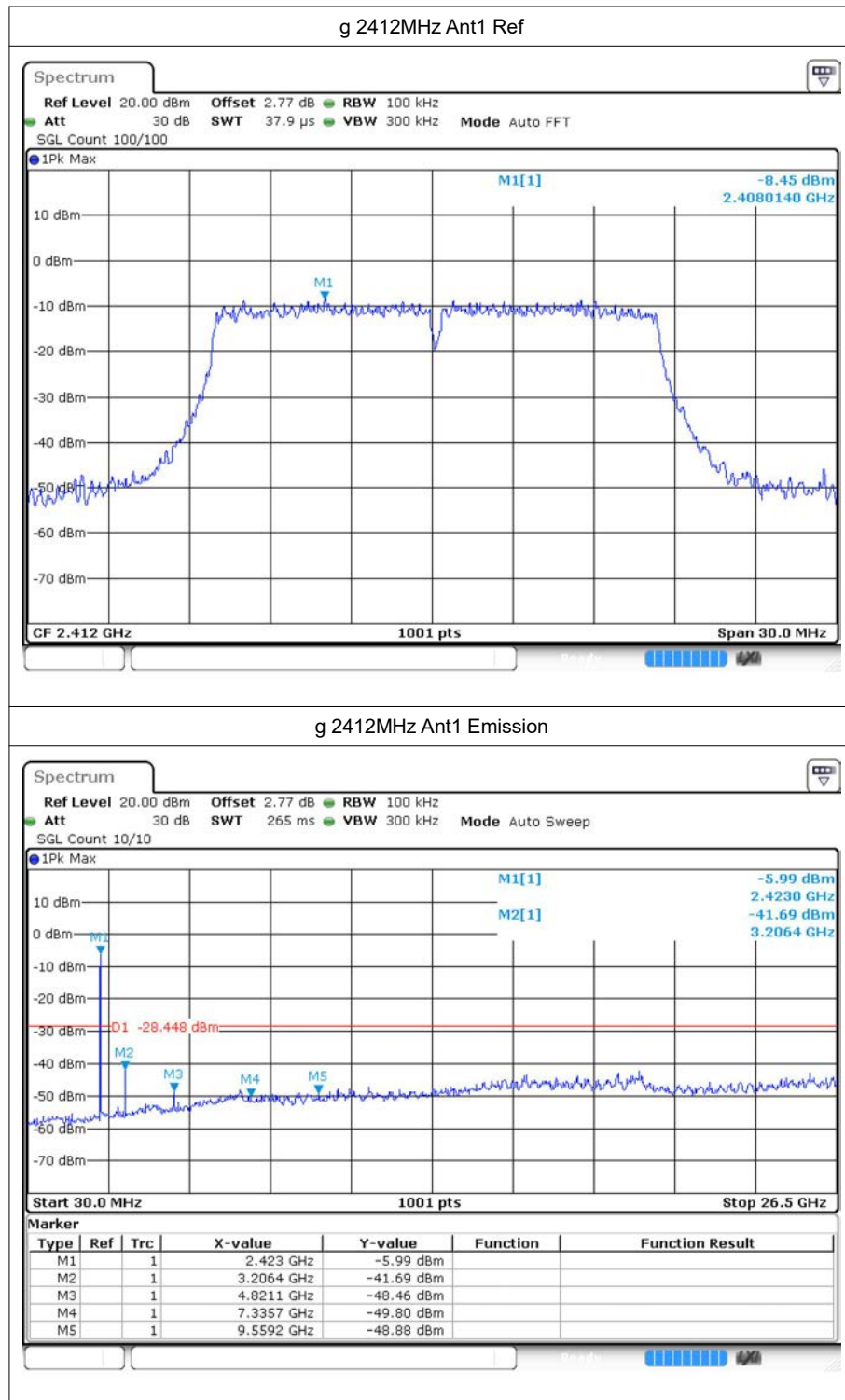
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-37.14	-20	Pass
b	2437	Ant1	-36.59	-20	Pass
b	2462	Ant1	-36.77	-20	Pass
g	2412	Ant1	-33.23	-20	Pass
g	2437	Ant1	-36.75	-20	Pass
g	2462	Ant1	-32.5	-20	Pass
n20	2412	Ant1	-36.06	-20	Pass
n20	2437	Ant1	-36.82	-20	Pass
n20	2462	Ant1	-34.43	-20	Pass
n40	2422	Ant1	-31.19	-20	Pass
n40	2437	Ant1	-34.72	-20	Pass
n40	2452	Ant1	-26.13	-20	Pass

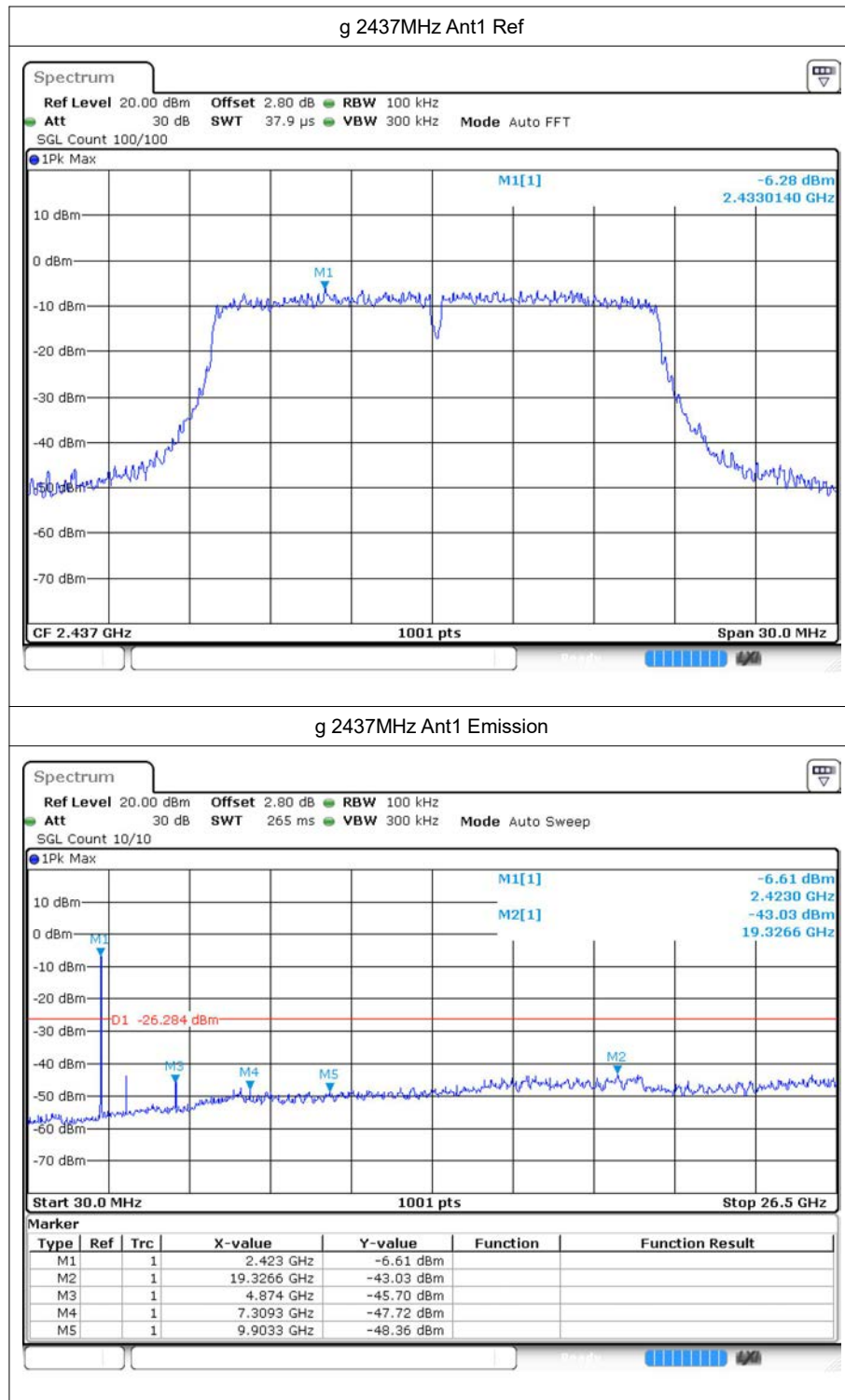
6.2 Test Graphs

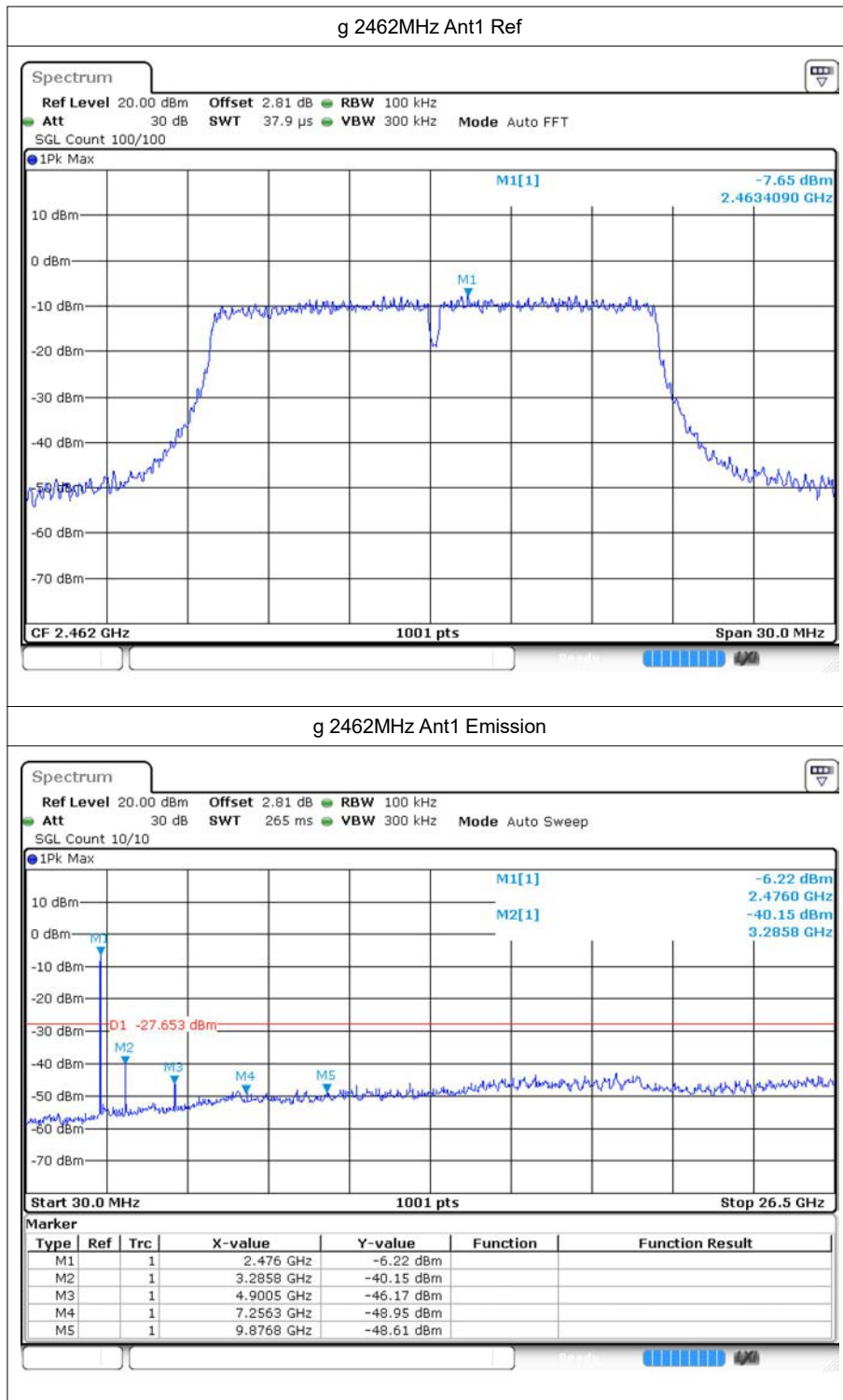


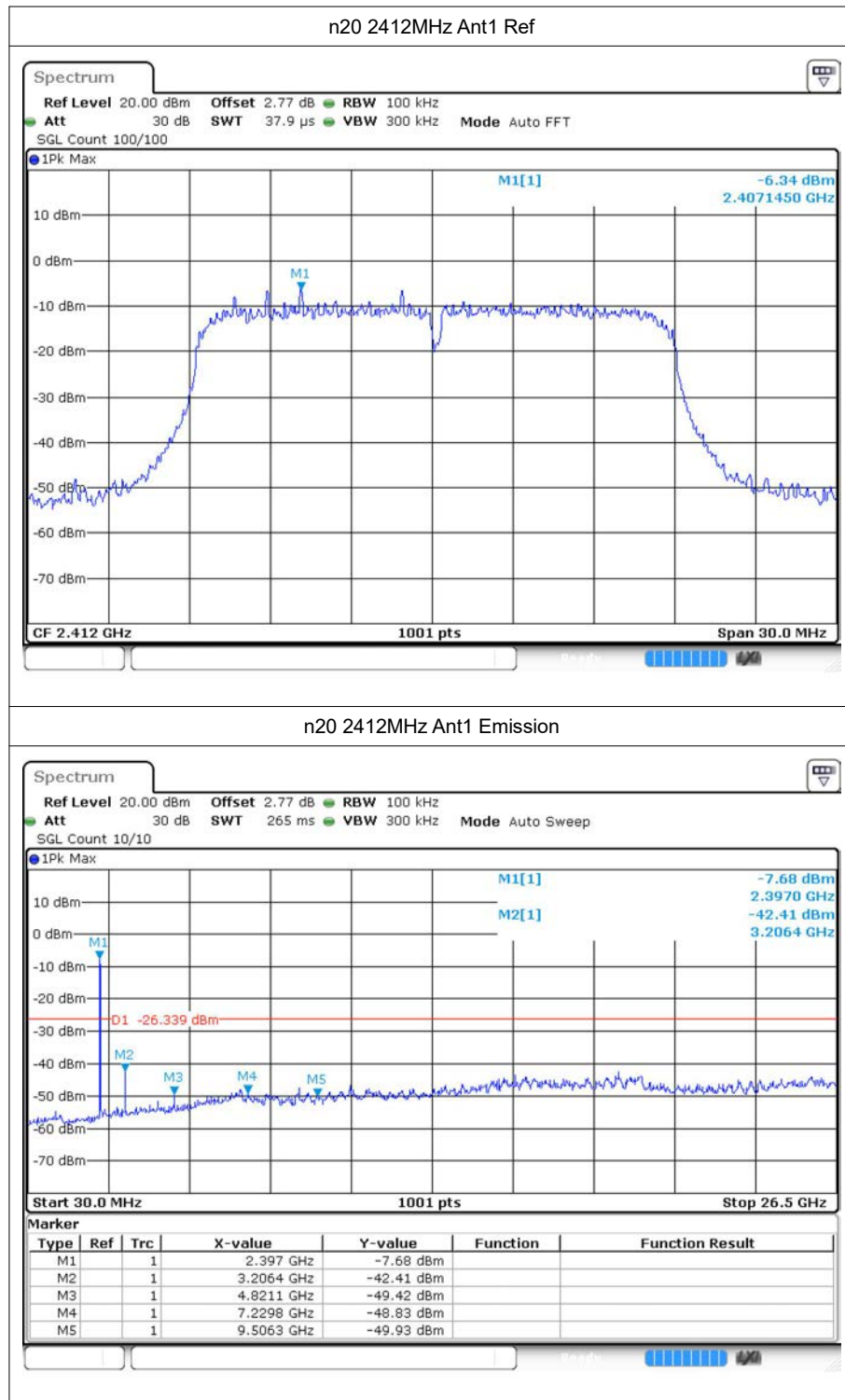


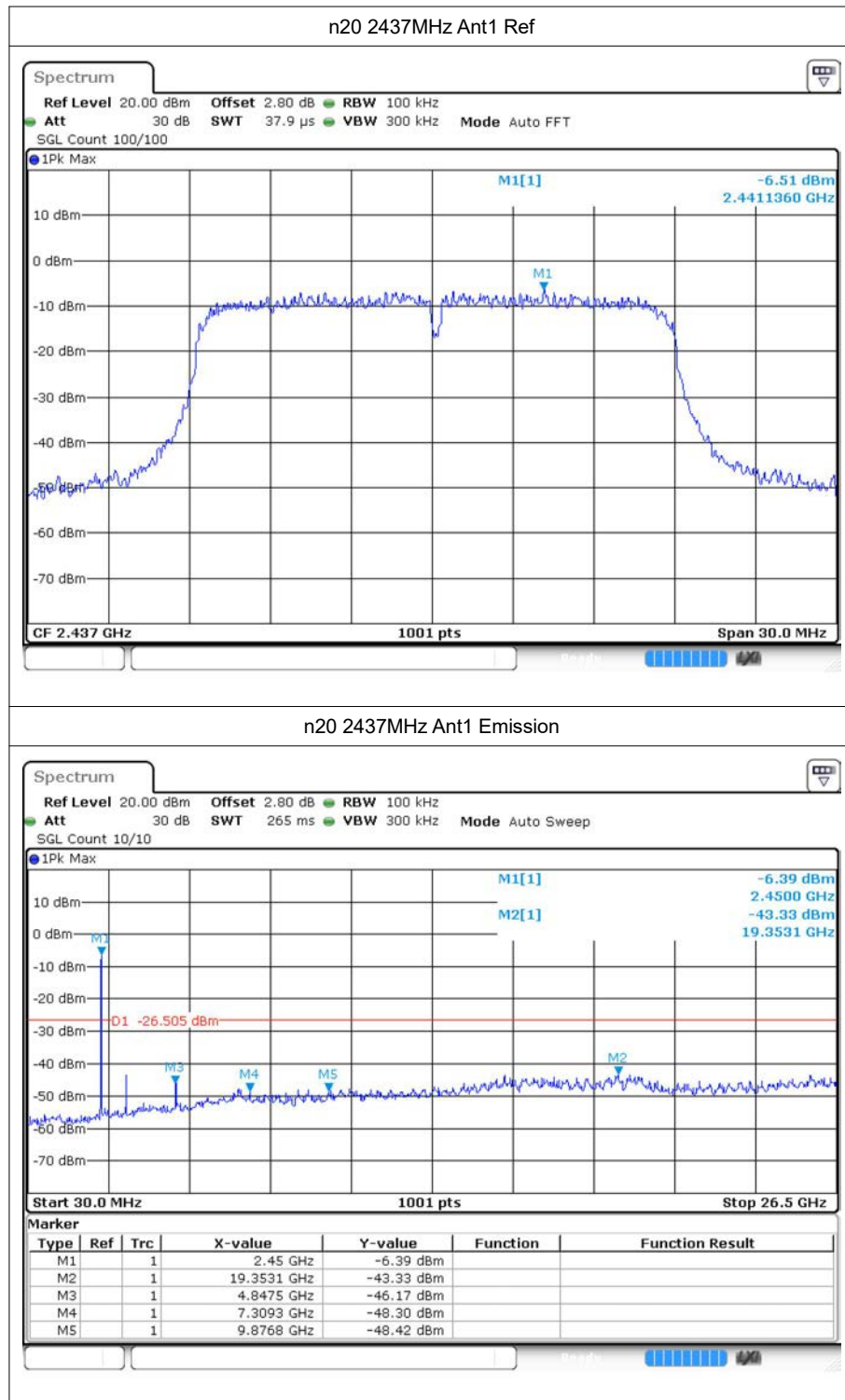


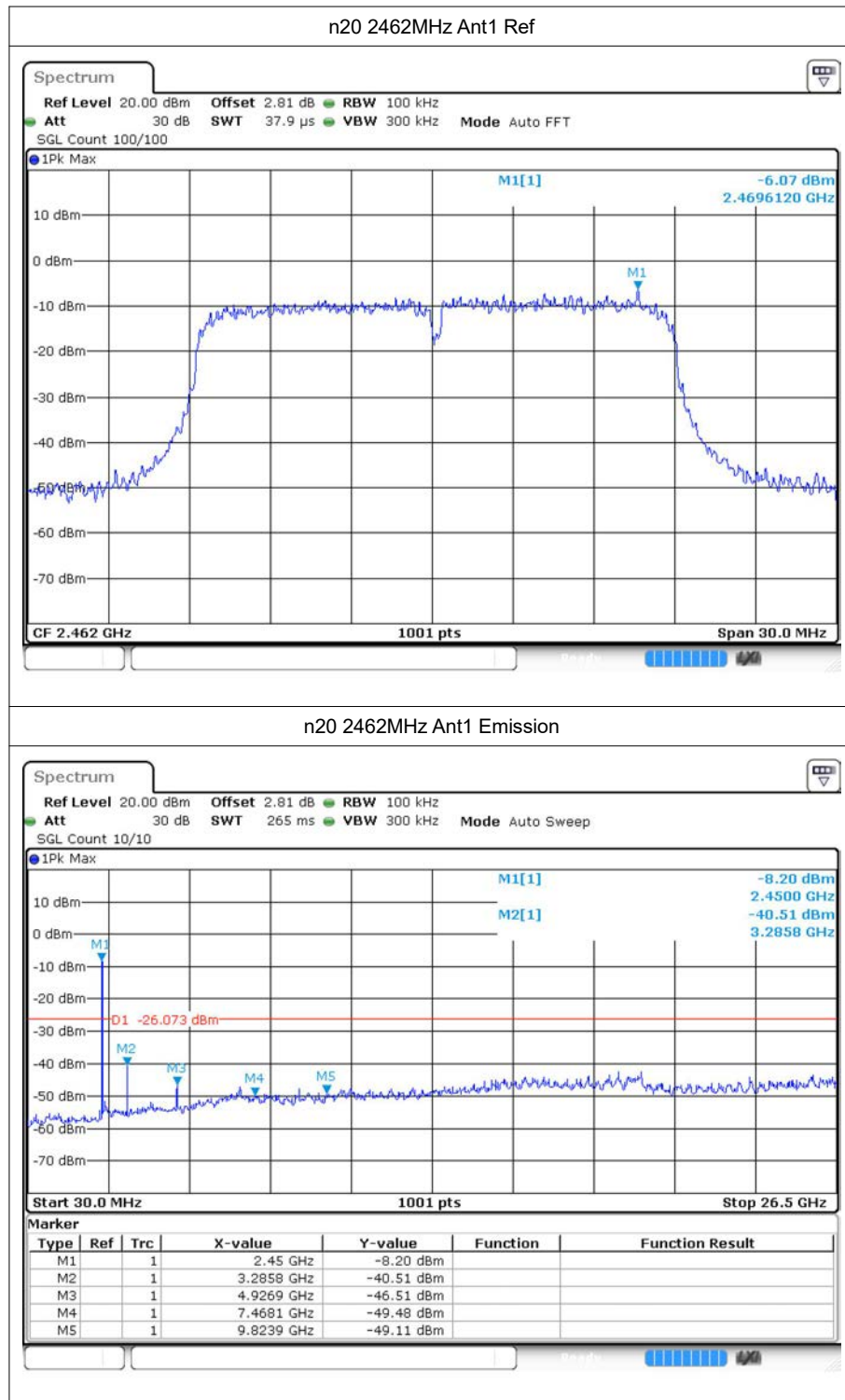


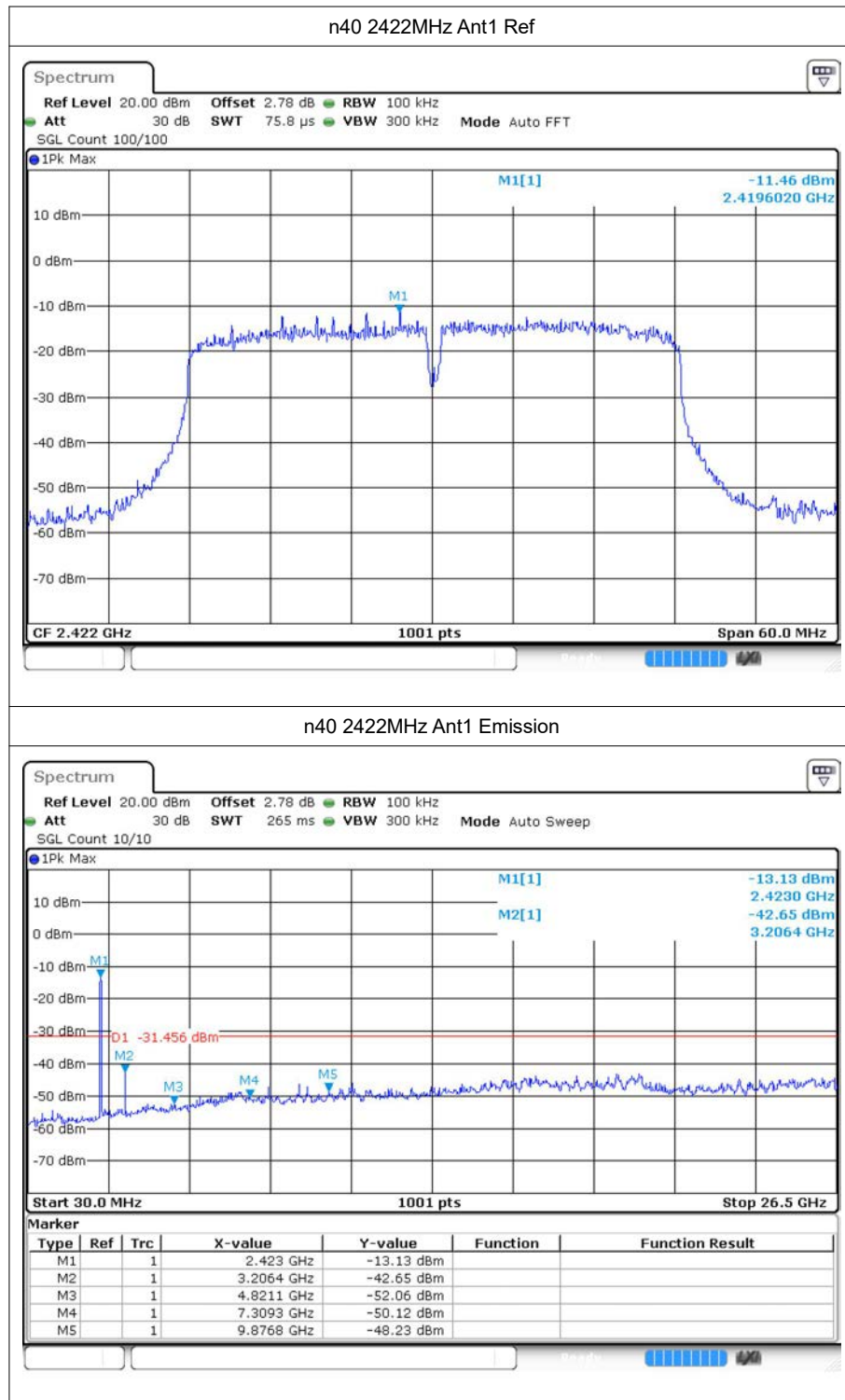


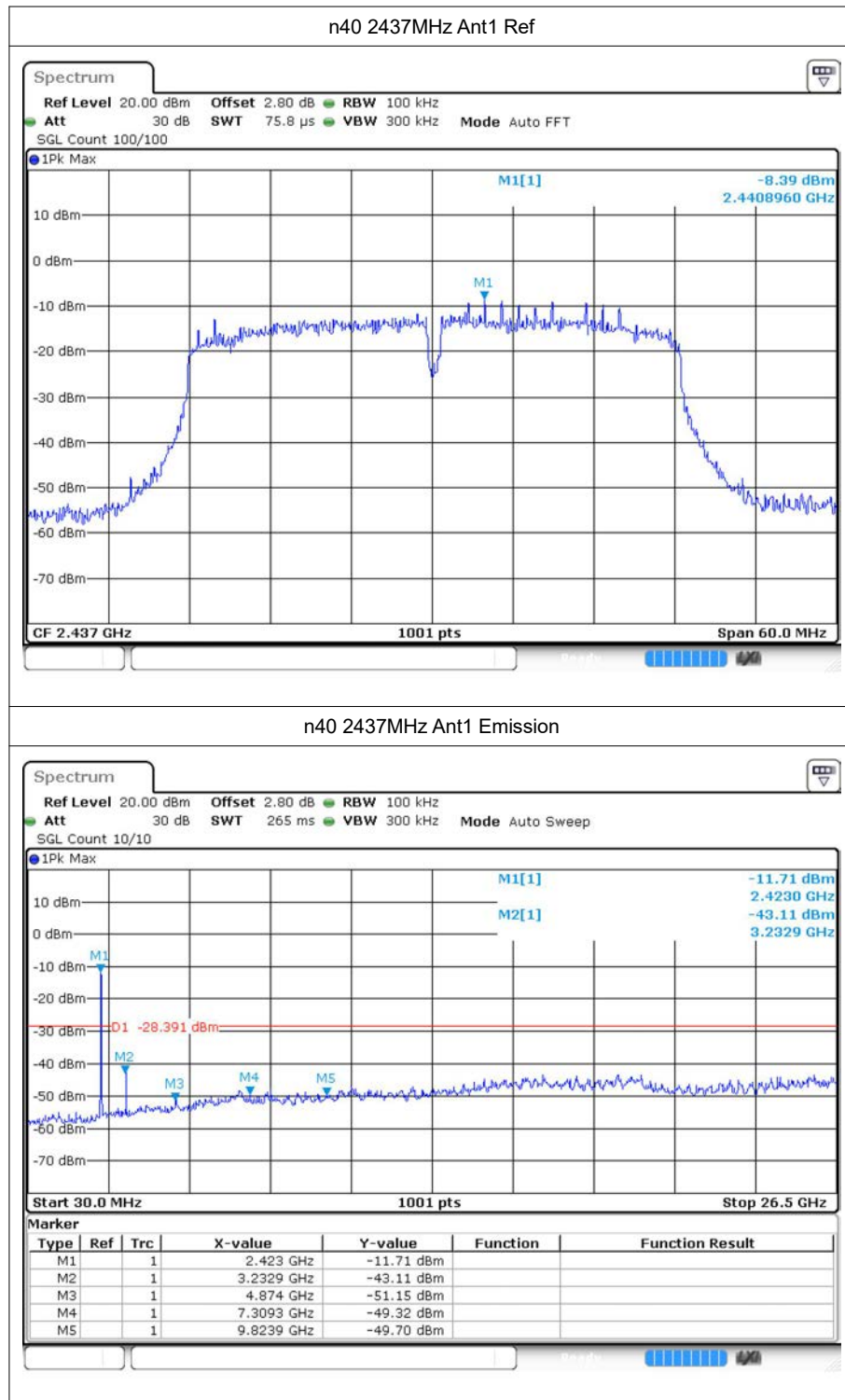


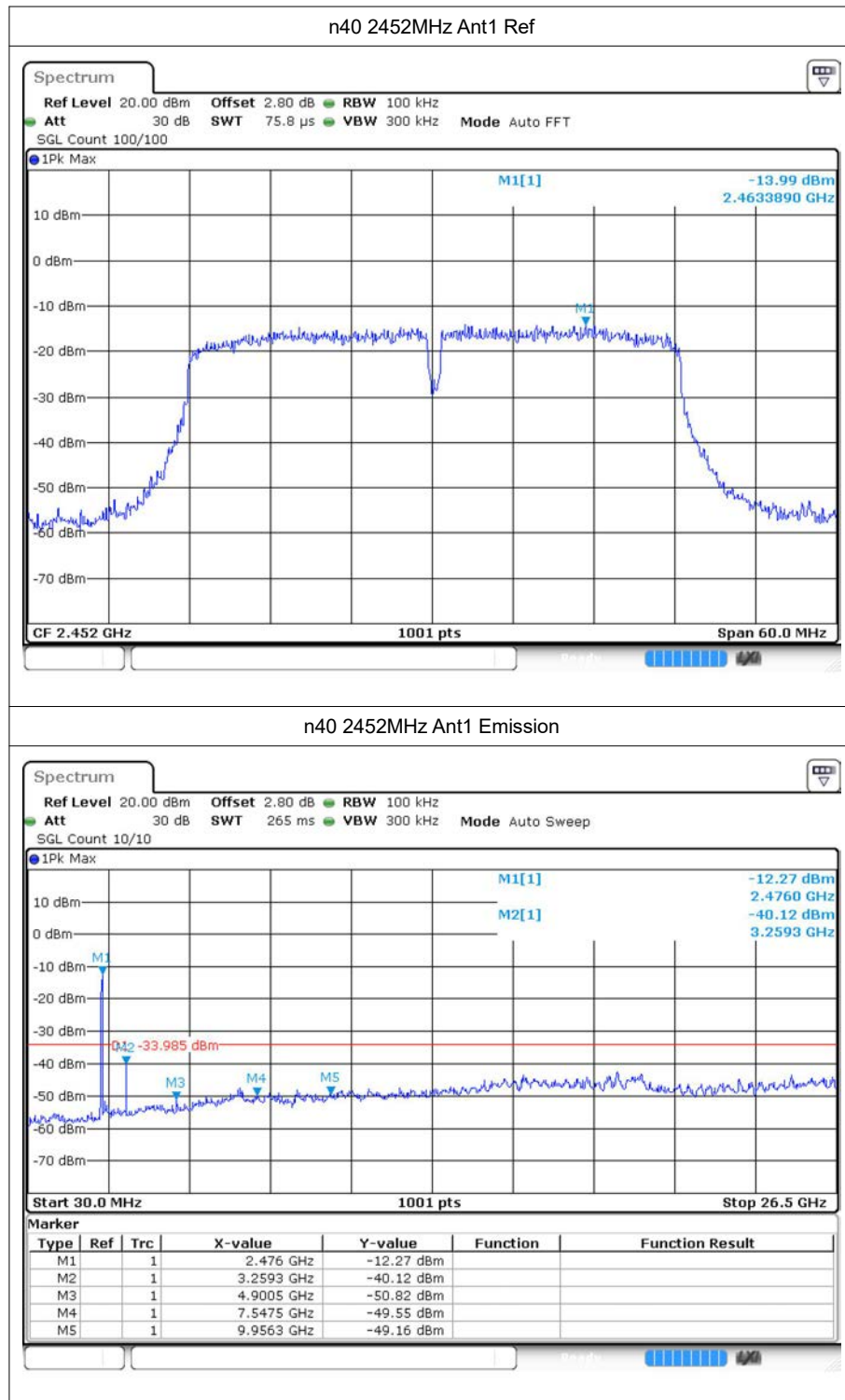














7 Restrict Band

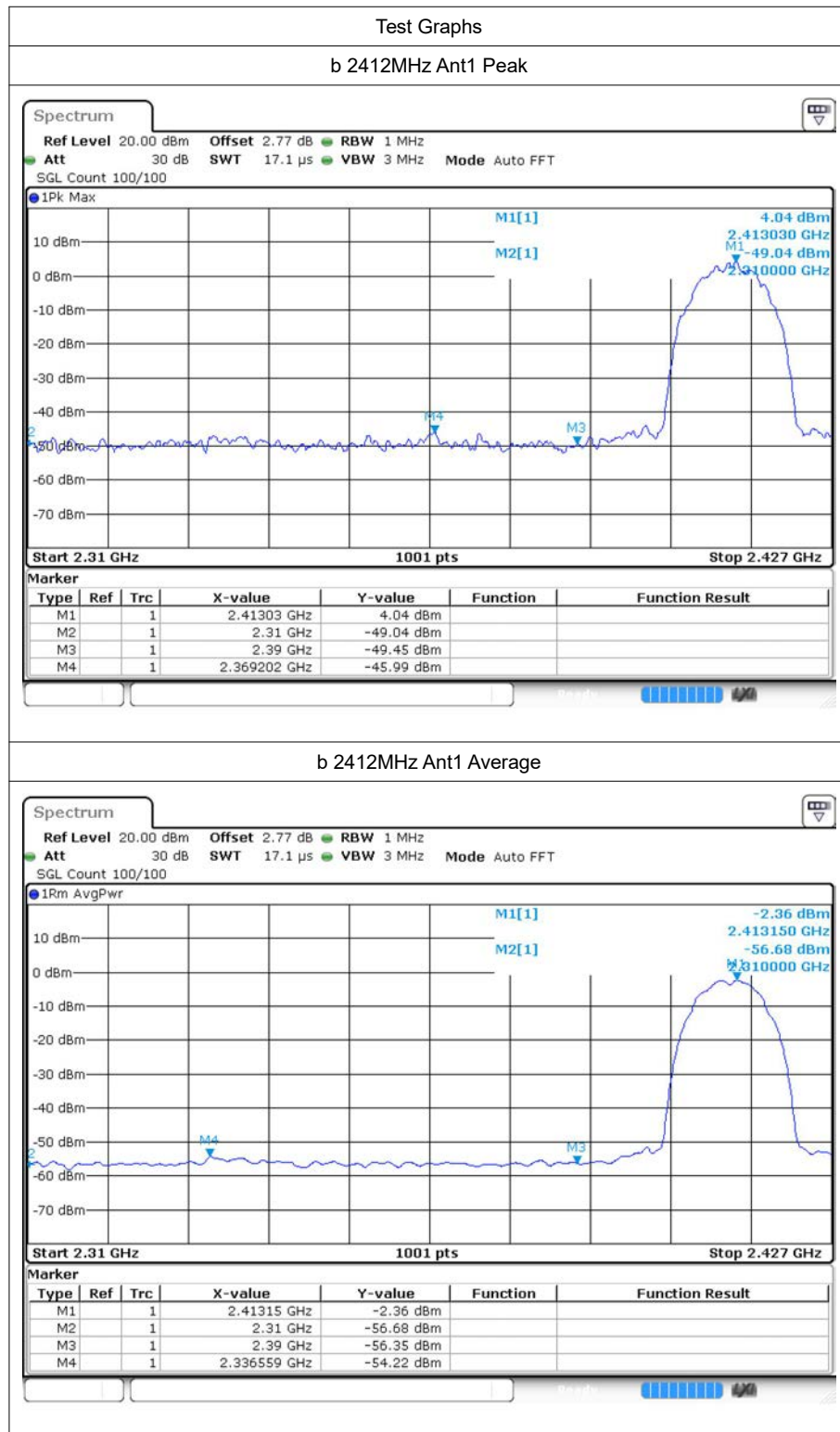
7.1 Test Result

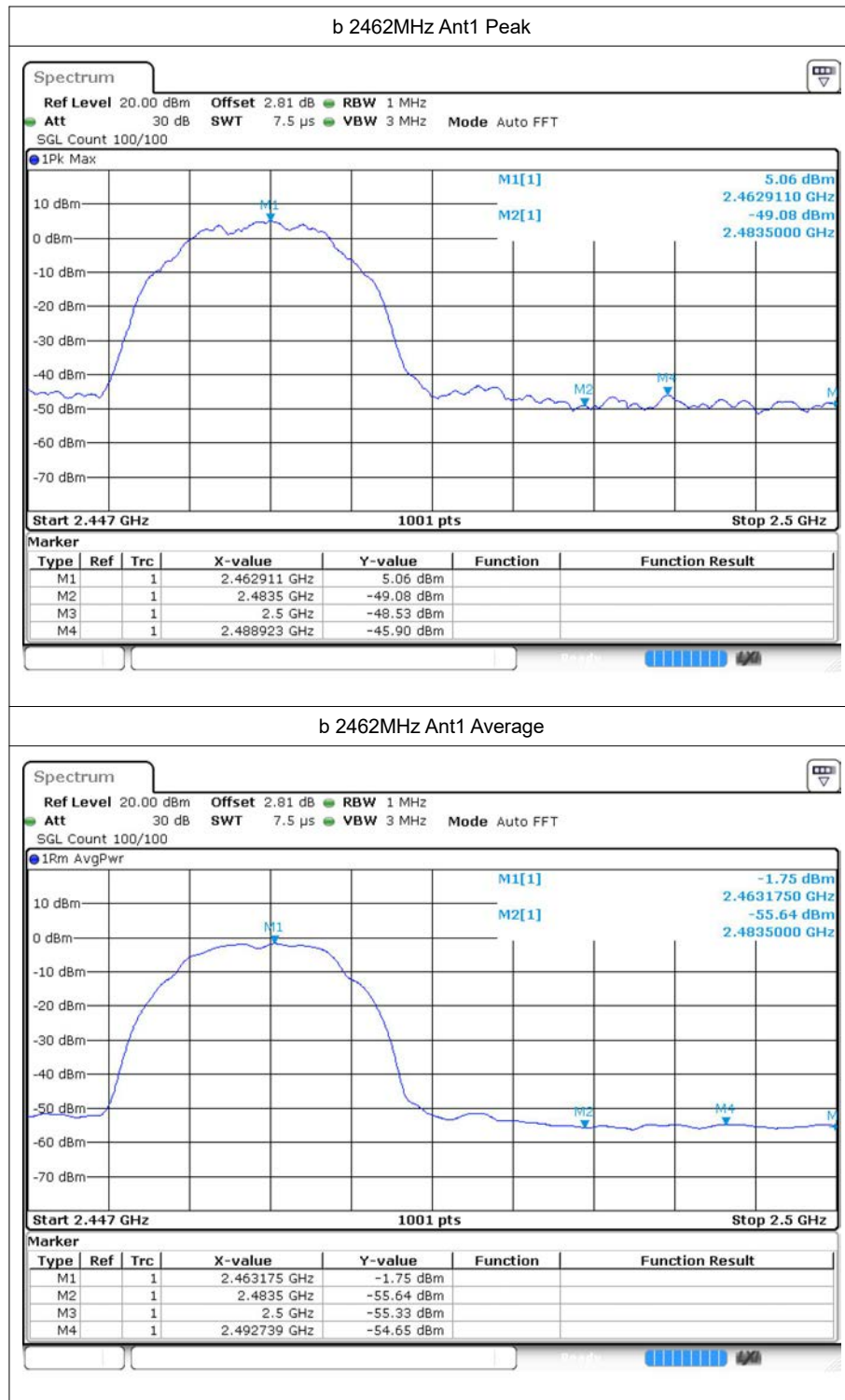
Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
b	2412	Ant1	2310	-49.04	2	-	48.22	Peak	74	Pass
b	2412	Ant1	2310	-56.68	2	0	40.58	Average	54	Pass
b	2412	Ant1	2369.202	-45.98	2	-	51.28	Peak	74	Pass
b	2412	Ant1	2336.559	-54.21	2	0	43.05	Average	54	Pass
b	2412	Ant1	2390	-49.45	2	-	47.81	Peak	74	Pass
b	2412	Ant1	2390	-56.35	2	0	40.91	Average	54	Pass
b	2462	Ant1	2483.5	-49.08	2	-	48.18	Peak	74	Pass
b	2462	Ant1	2483.5	-55.64	2	0	41.62	Average	54	Pass
b	2462	Ant1	2488.923	-45.89	2	-	51.37	Peak	74	Pass
b	2462	Ant1	2492.739	-54.64	2	0	42.62	Average	54	Pass
b	2462	Ant1	2500	-48.53	2	-	48.73	Peak	74	Pass
b	2462	Ant1	2500	-55.33	2	0	41.93	Average	54	Pass
g	2412	Ant1	2310	-48.09	2	-	49.17	Peak	74	Pass
g	2412	Ant1	2310	-56.27	2	0	40.99	Average	54	Pass
g	2412	Ant1	2339.484	-44.84	2	-	52.42	Peak	74	Pass
g	2412	Ant1	2341.707	-54.48	2	0	42.78	Average	54	Pass
g	2412	Ant1	2390	-49.5	2	-	47.81	Peak	74	Pass
g	2412	Ant1	2390	-55.55	2	0	41.71	Average	54	Pass
g	2462	Ant1	2483.5	-45.2	2	-	52.06	Peak	74	Pass
g	2462	Ant1	2483.5	-53.78	2	0	43.48	Average	54	Pass
g	2462	Ant1	2488.923	-45.19	2	-	52.07	Peak	74	Pass
g	2462	Ant1	2484.736	-53.62	2	0	43.64	Average	54	Pass
g	2462	Ant1	2500	-49.51	2	-	48.73	Peak	74	Pass
g	2462	Ant1	2500	-55.72	2	0	41.54	Average	54	Pass
n20	2412	Ant1	2310	-50.56	2	-	46.7	Peak	74	Pass
n20	2412	Ant1	2310	-56.53	2	0	40.73	Average	54	Pass
n20	2412	Ant1	2343.813	-46.02	2	-	51.24	Peak	74	Pass
n20	2412	Ant1	2340.654	-54.5	2	0	42.76	Average	54	Pass
n20	2412	Ant1	2390	-48.06	2	-	49.2	Peak	74	Pass
n20	2412	Ant1	2390	-55.11	2	0	42.15	Average	54	Pass
n20	2462	Ant1	2483.5	-44.14	2	-	53.12	Peak	74	Pass
n20	2462	Ant1	2483.5	-52.18	2	0	45.08	Average	54	Pass
n20	2462	Ant1	2483.517	-44.14	2	-	53.12	Peak	74	Pass
n20	2462	Ant1	2483.517	-52.18	2	0	45.08	Average	54	Pass

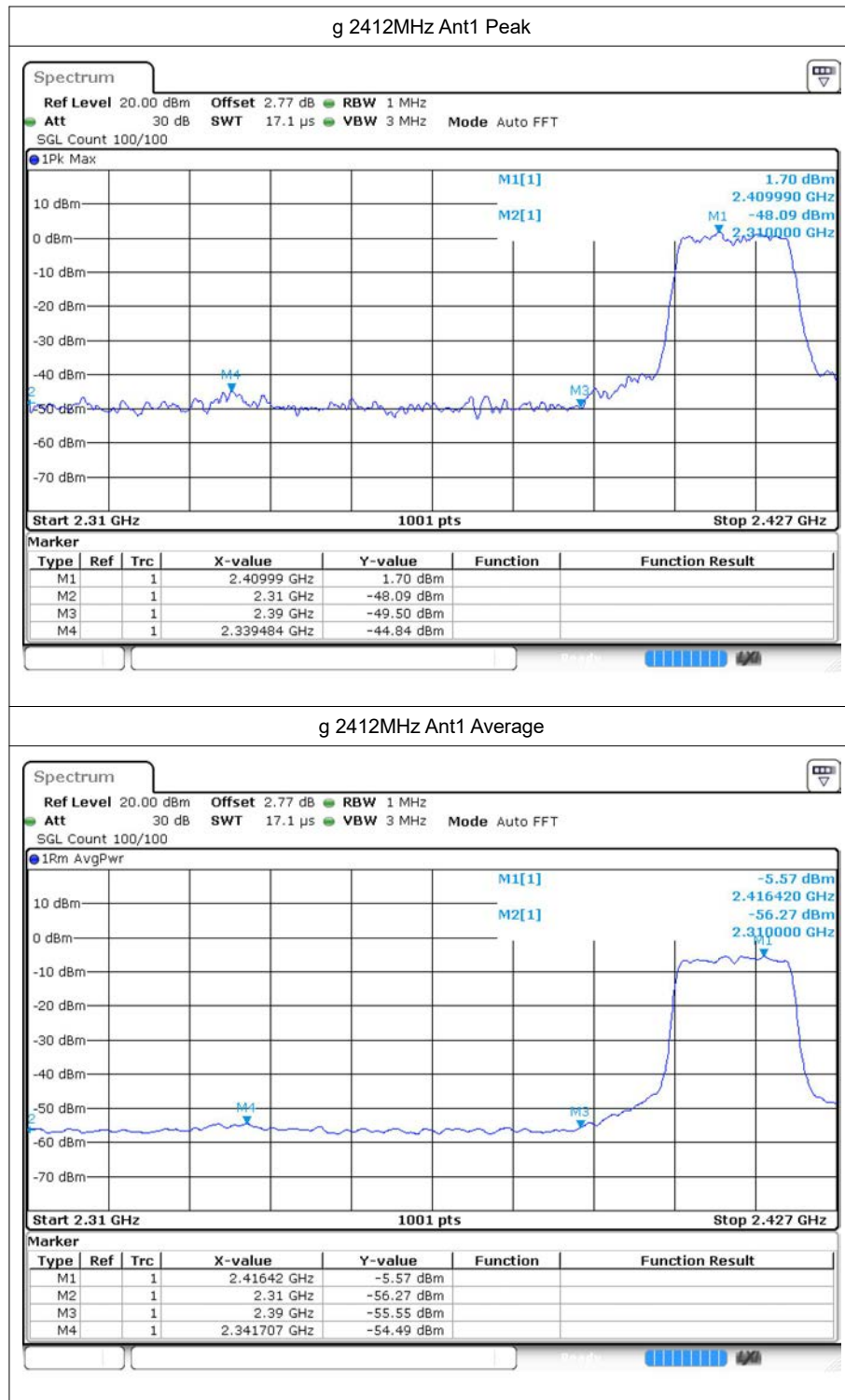


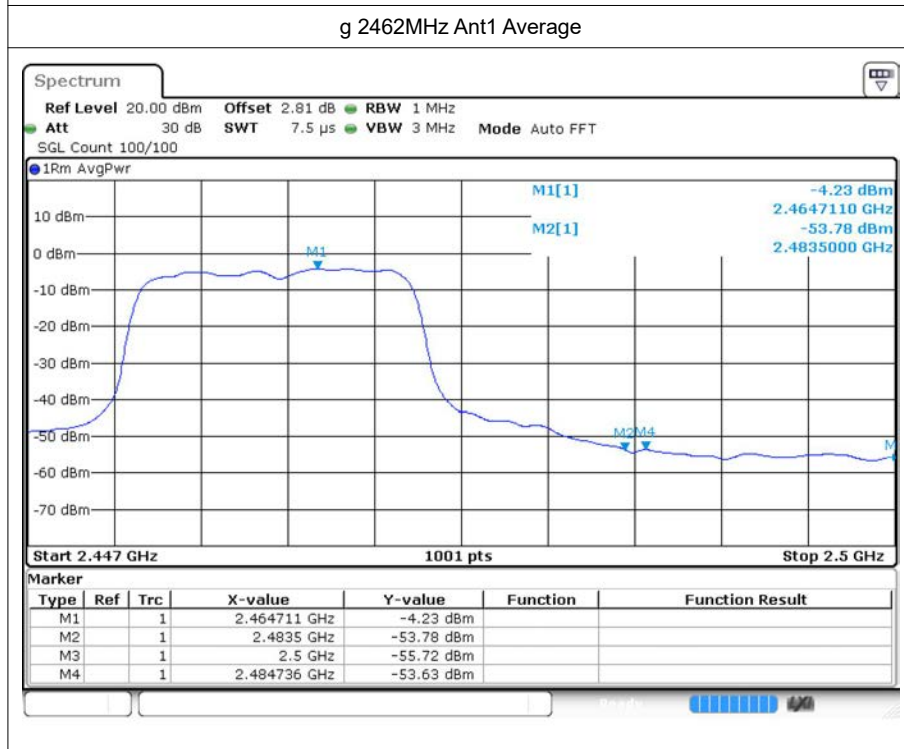
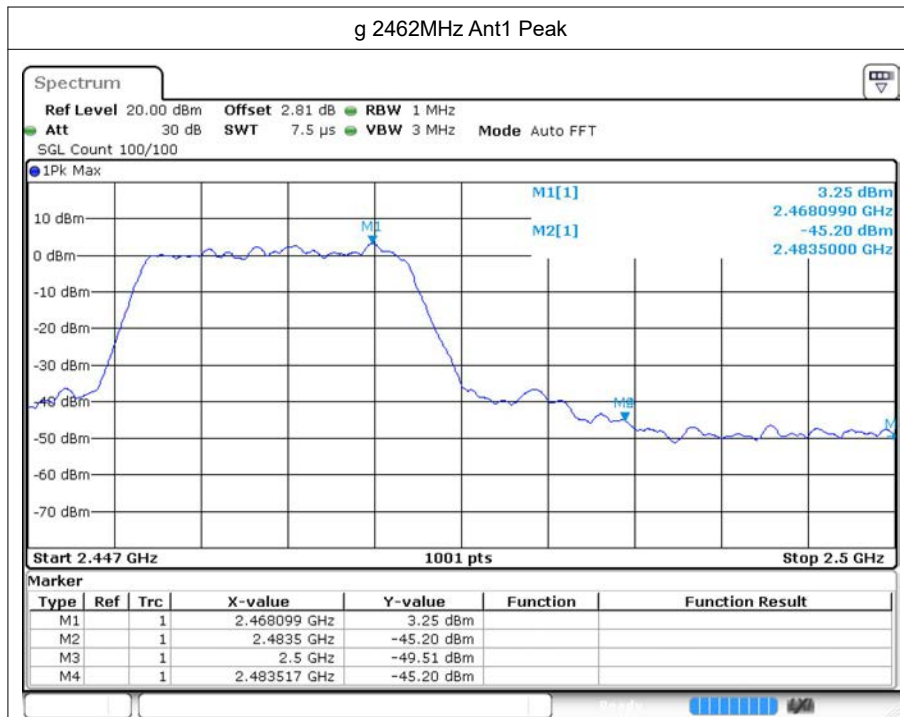
n20	2462	Ant1	2500	-49.6	2	-	47.66	Peak	74	Pass
n20	2462	Ant1	2500	-54.74	2	0	42.52	Average	54	Pass
n40	2422	Ant1	2310	-49.82	2	-	47.44	Peak	74	Pass
n40	2422	Ant1	2310	-55.94	2	0	41.32	Average	54	Pass
n40	2422	Ant1	2370.492	-45.75	2	-	51.51	Peak	74	Pass
n40	2422	Ant1	2340.246	-53.57	2	0	43.69	Average	54	Pass
n40	2422	Ant1	2390	-49.56	2	-	47.7	Peak	74	Pass
n40	2422	Ant1	2390	-55.43	2	0	41.83	Average	54	Pass
n40	2452	Ant1	2483.5	-45.69	2	-	51.57	Peak	74	Pass
n40	2452	Ant1	2483.5	-54.01	2	0	43.25	Average	54	Pass
n40	2452	Ant1	2487.676	-45.54	2	-	51.72	Peak	74	Pass
n40	2452	Ant1	2491.576	-53.49	2	0	43.77	Average	54	Pass
n40	2452	Ant1	2500	-49.53	2	-	47.73	Peak	74	Pass
n40	2452	Ant1	2500	-55.31	2	0	41.95	Average	54	Pass

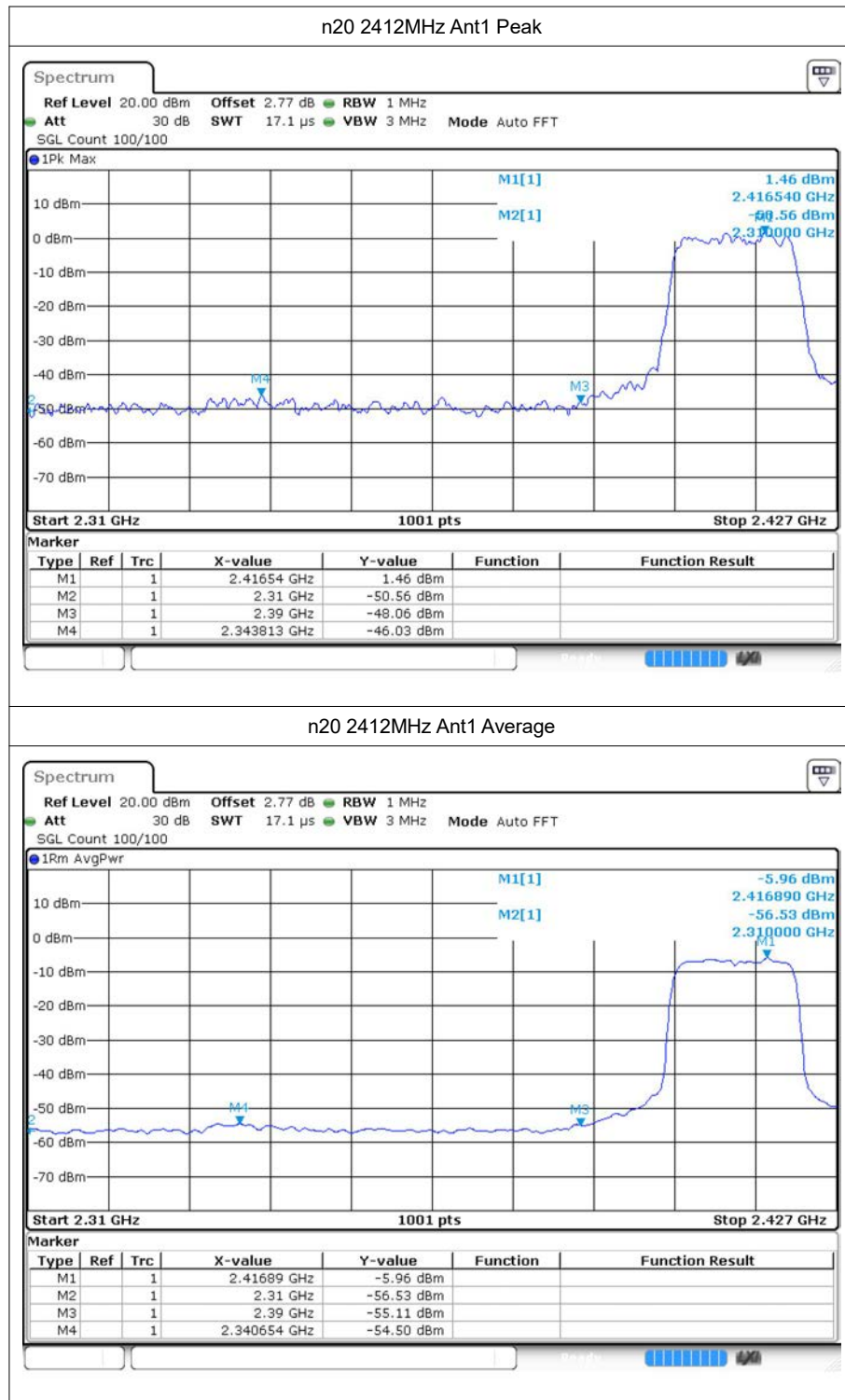
7.2 Test Graphs

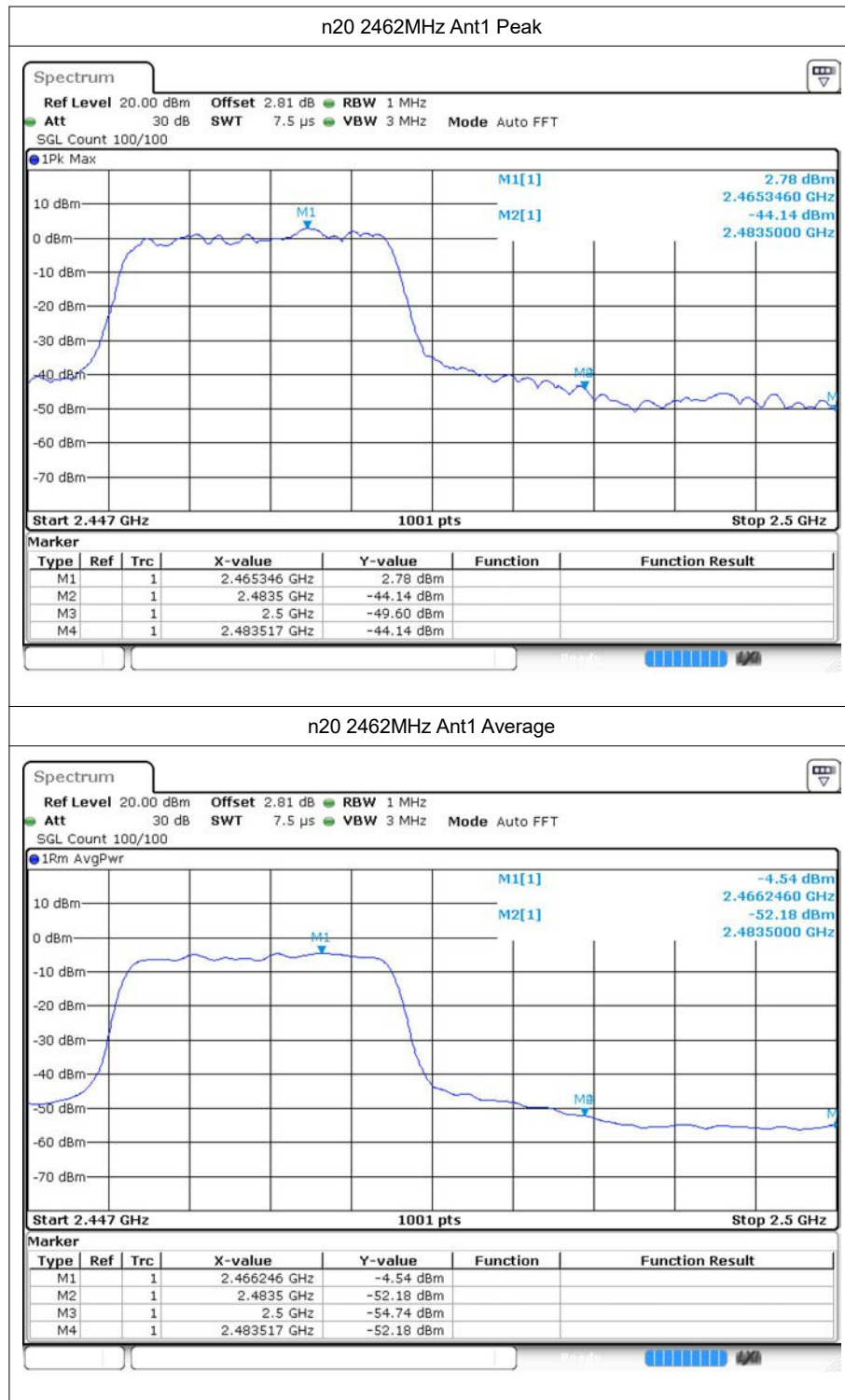


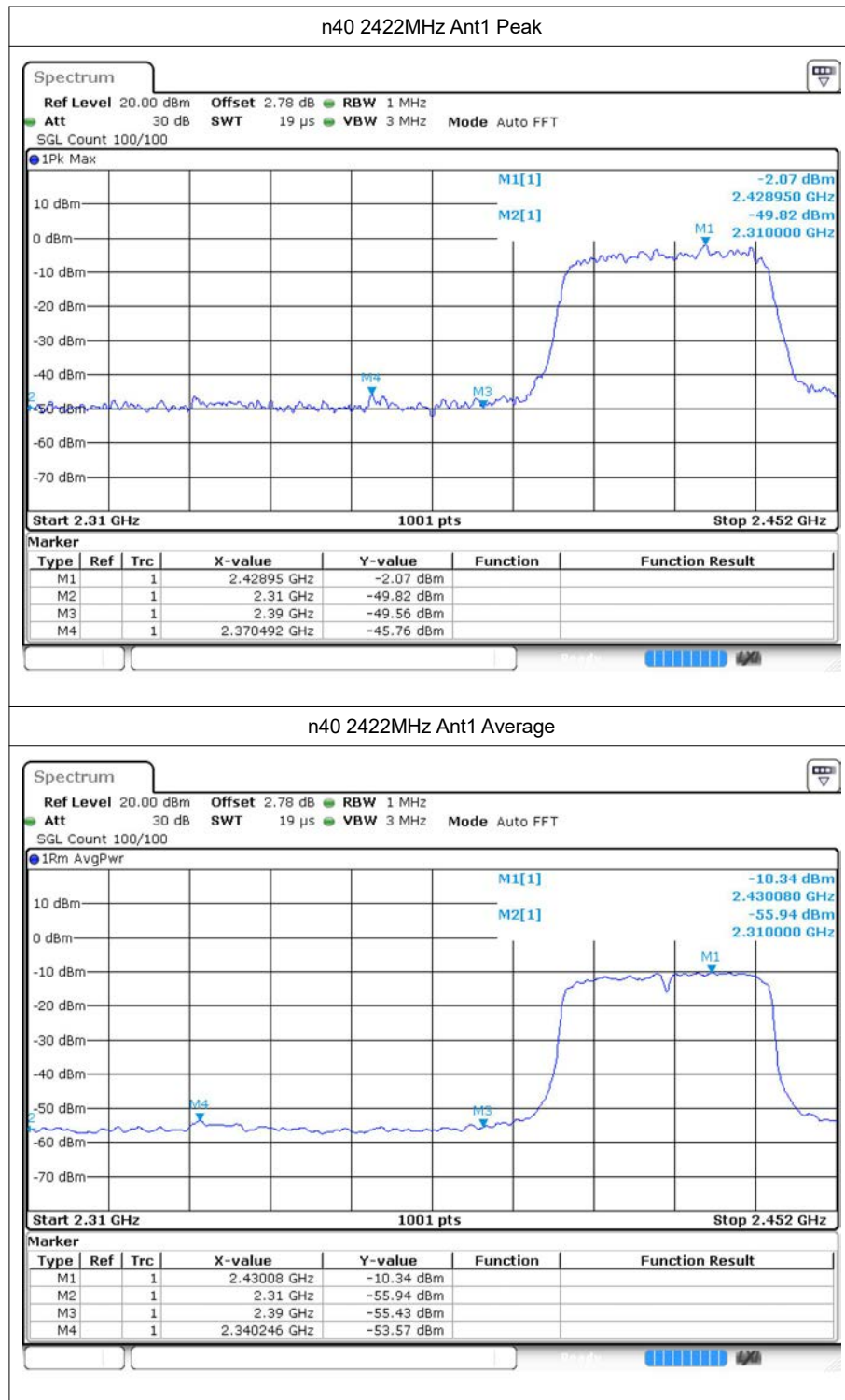


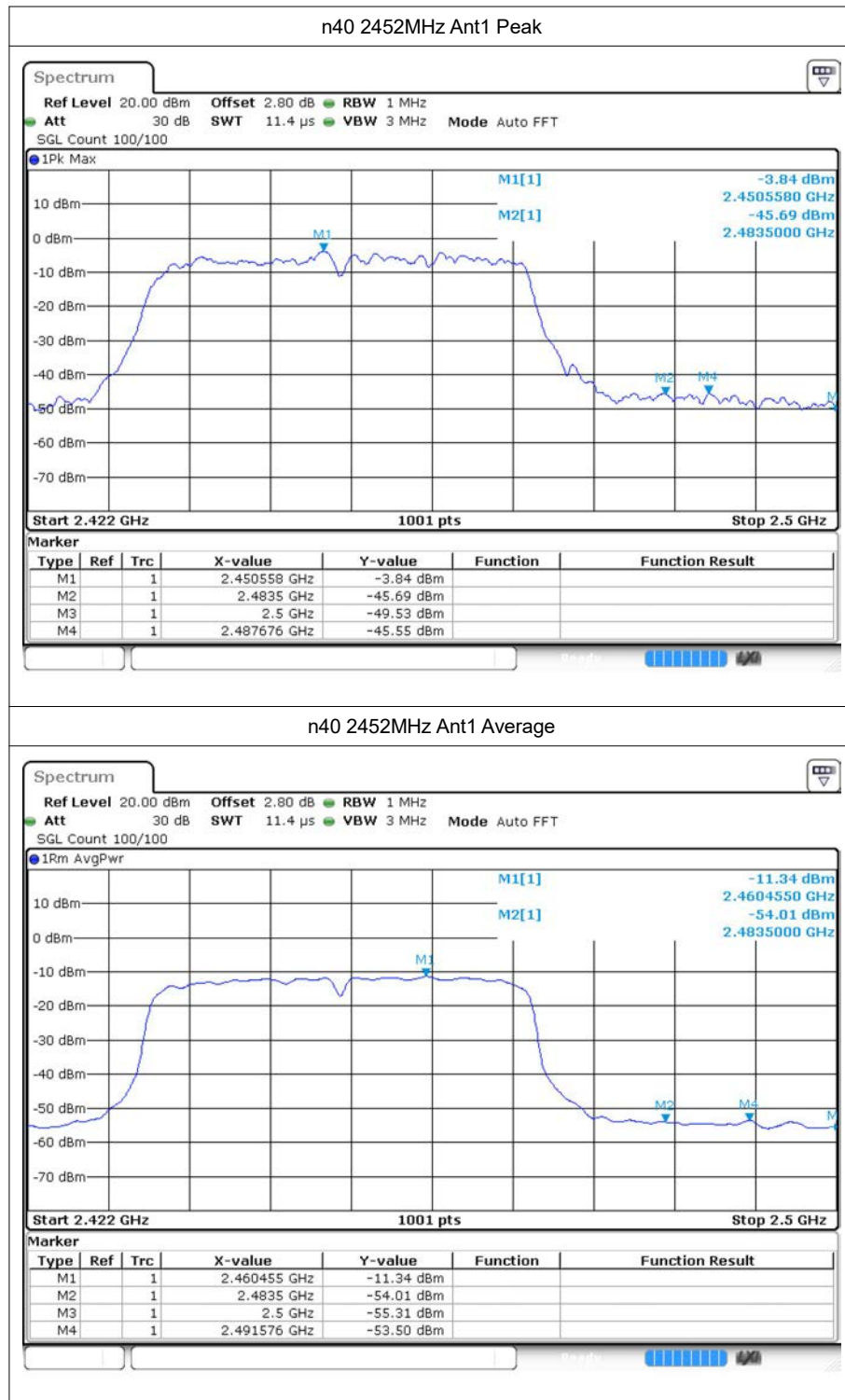












---The End---