Appendix A

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: POS Terminal

Trade Mark:

Test Model: TP50

Environmental Conditions

Temperature:	24.2° C
Relative Humidity:	51.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen

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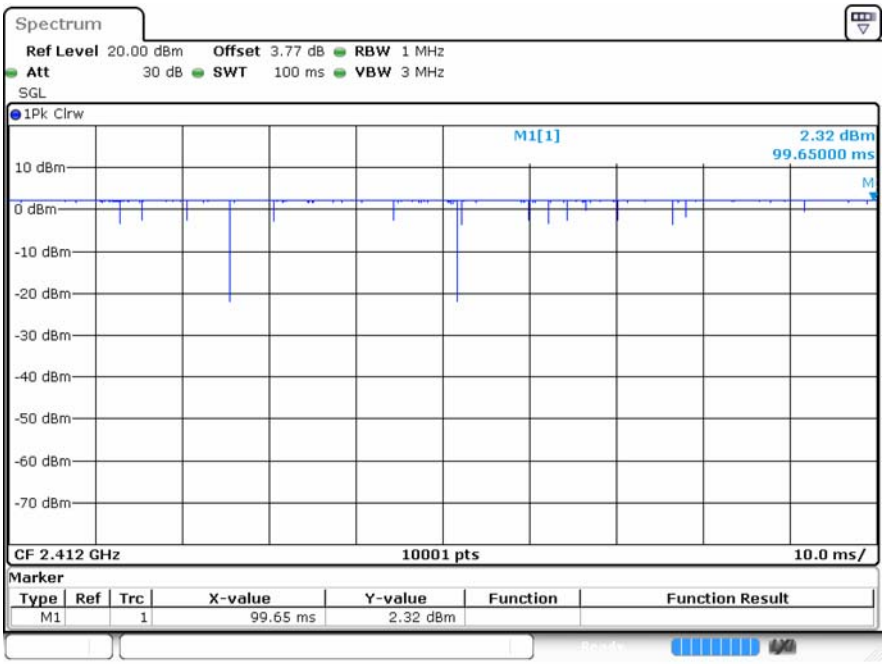
1 Duty Cycle

1.1 Test Result

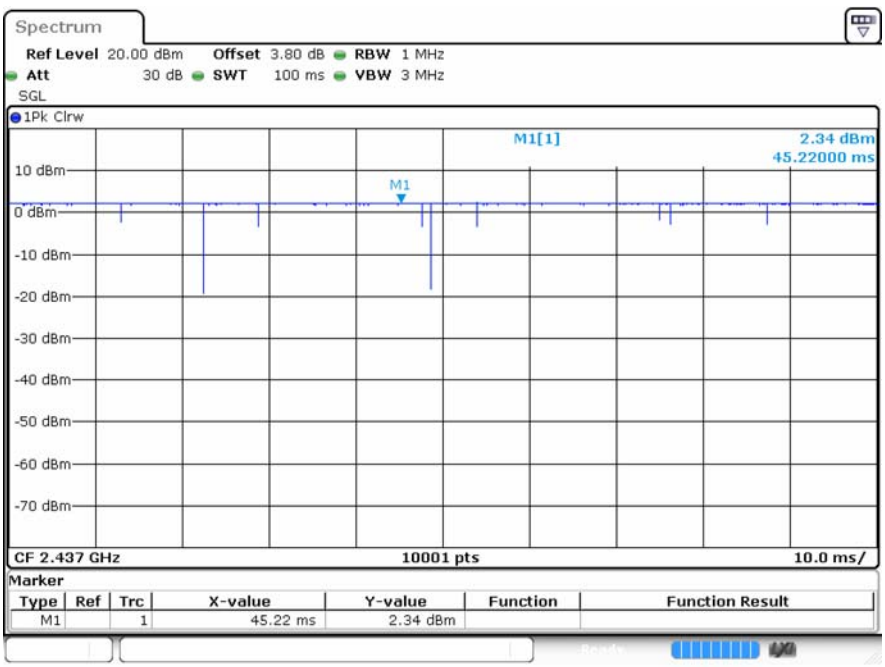
Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	1/T (kHz)
b	2412	Ant1	100	0
b	2437	Ant1	100	0
b	2462	Ant1	100	0
g	2412	Ant1	100	0
g	2437	Ant1	100	0
g	2462	Ant1	100	0
n20	2412	Ant1	100	0
n20	2437	Ant1	100	0
n20	2462	Ant1	100	0

1.2 Test Graphs

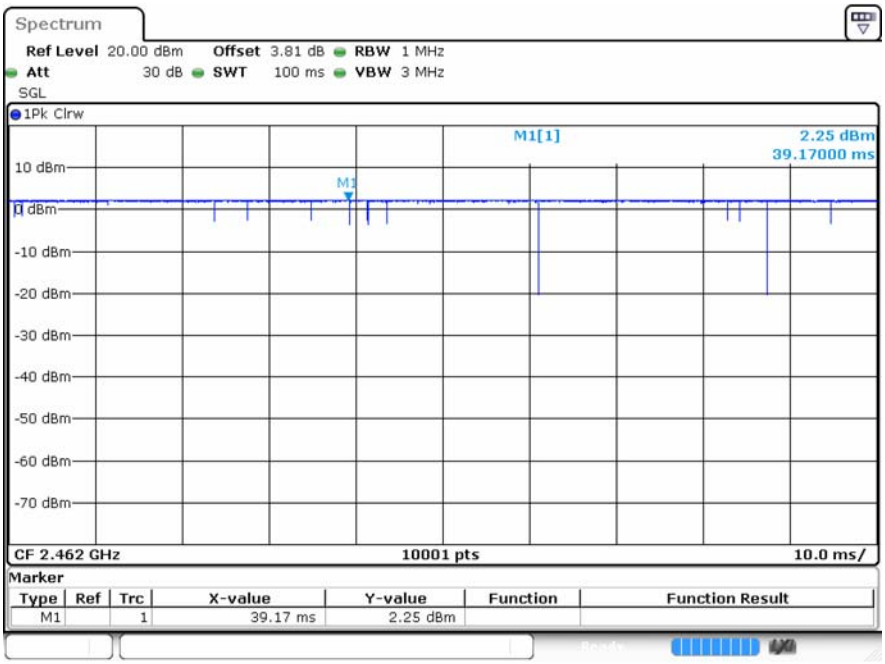
Test Graphs
b 2412MHz Ant1



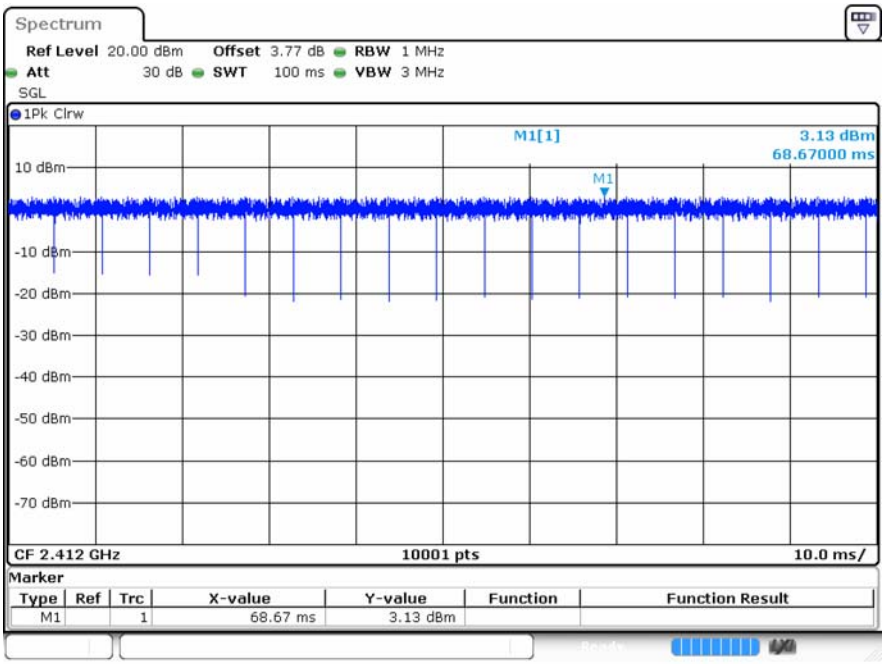
b 2437MHz Ant1



Test Graphs
b 2462MHz Ant1

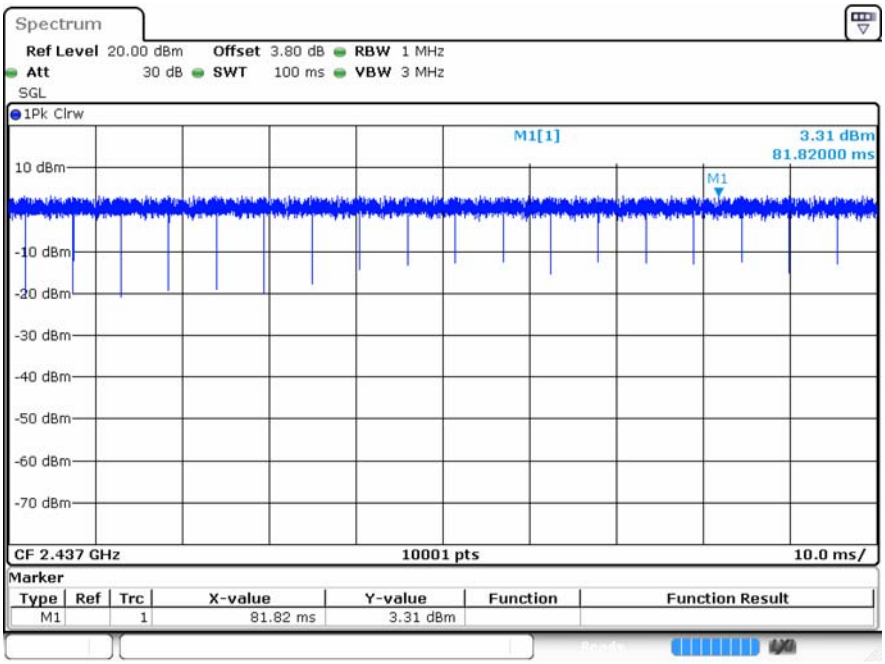


g 2412MHz Ant1

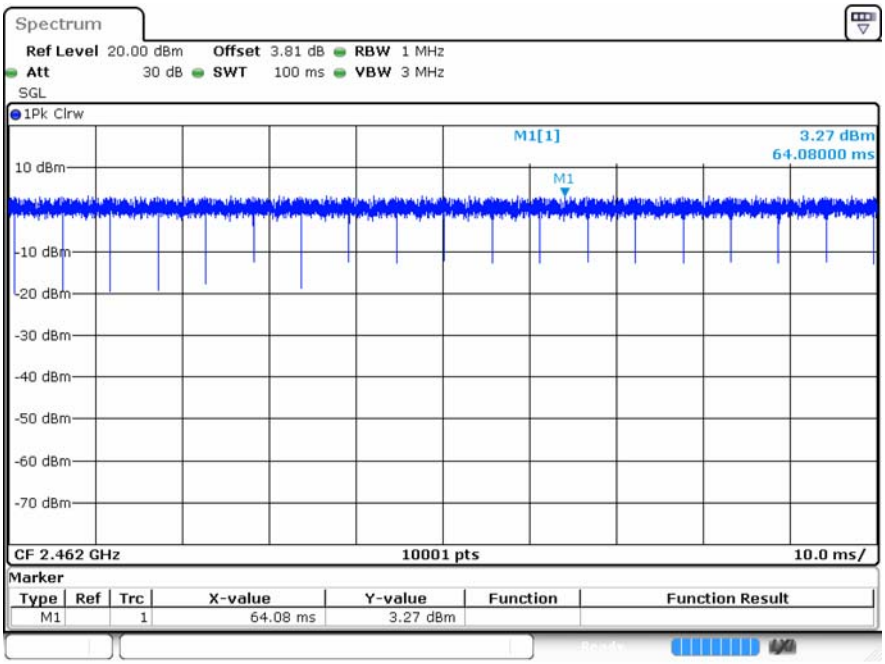


Test Graphs

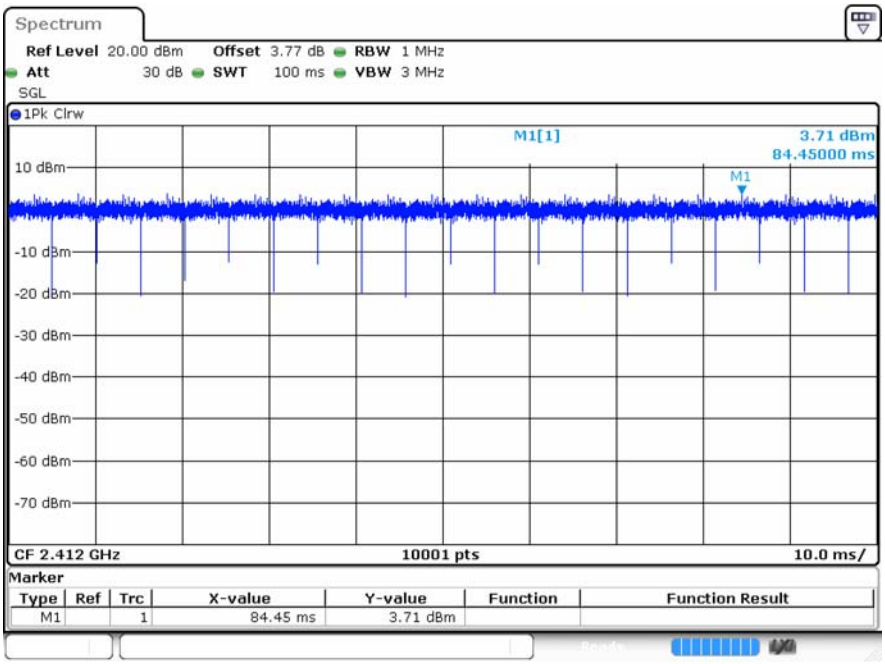
g 2437MHz Ant1



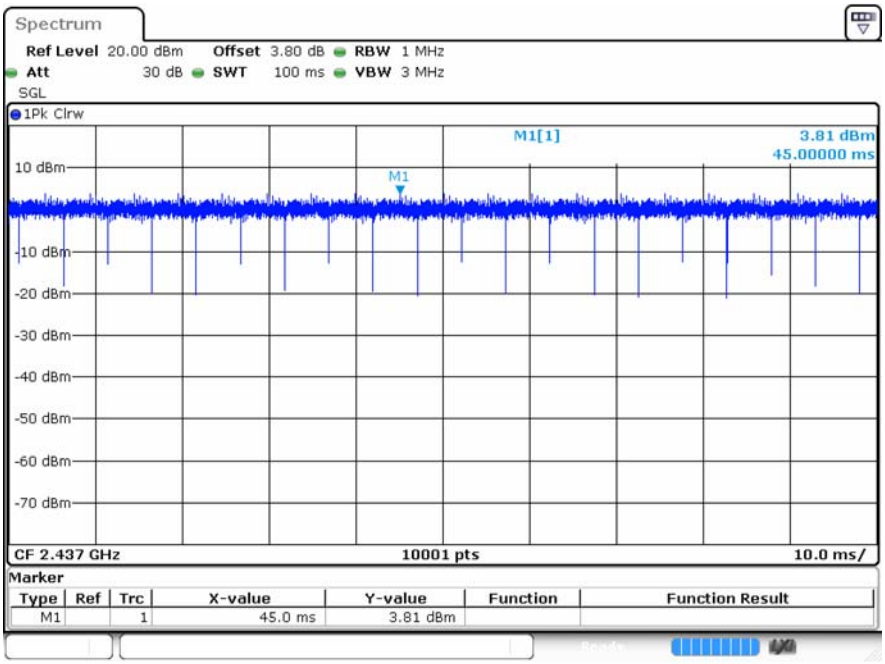
g 2462MHz Ant1



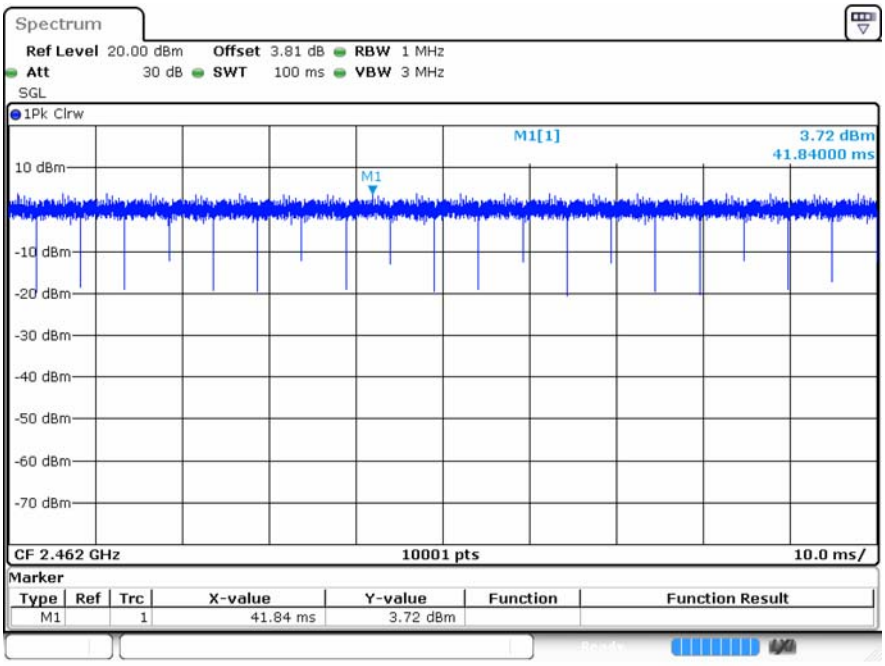
Test Graphs
n20 2412MHz Ant1



n20 2437MHz Ant1



Test Graphs
n20 2462MHz Ant1



2 Maximum Conducted Output Power

2.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
b	2412	Ant1	11.98	30	Pass
b	2437	Ant1	11.97	30	Pass
b	2462	Ant1	11.9	30	Pass
g	2412	Ant1	13.82	30	Pass
g	2437	Ant1	13.76	30	Pass
g	2462	Ant1	13.85	30	Pass
n20	2412	Ant1	13.74	30	Pass
n20	2437	Ant1	13.8	30	Pass
n20	2462	Ant1	13.73	30	Pass

3 -6dB Bandwidth

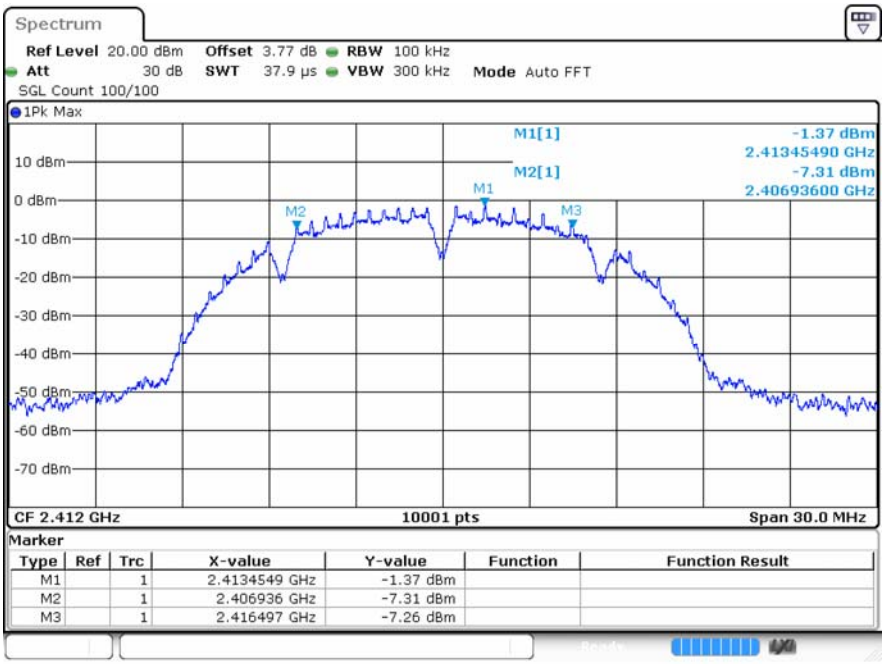
3.1 Test Result

Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
b	2412	Ant1	9.561	0.5	Pass
b	2437	Ant1	9.537	0.5	Pass
b	2462	Ant1	9.57	0.5	Pass
g	2412	Ant1	16.551	0.5	Pass
g	2437	Ant1	16.563	0.5	Pass
g	2462	Ant1	16.551	0.5	Pass
n20	2412	Ant1	17.793	0.5	Pass
n20	2437	Ant1	17.526	0.5	Pass
n20	2462	Ant1	17.562	0.5	Pass

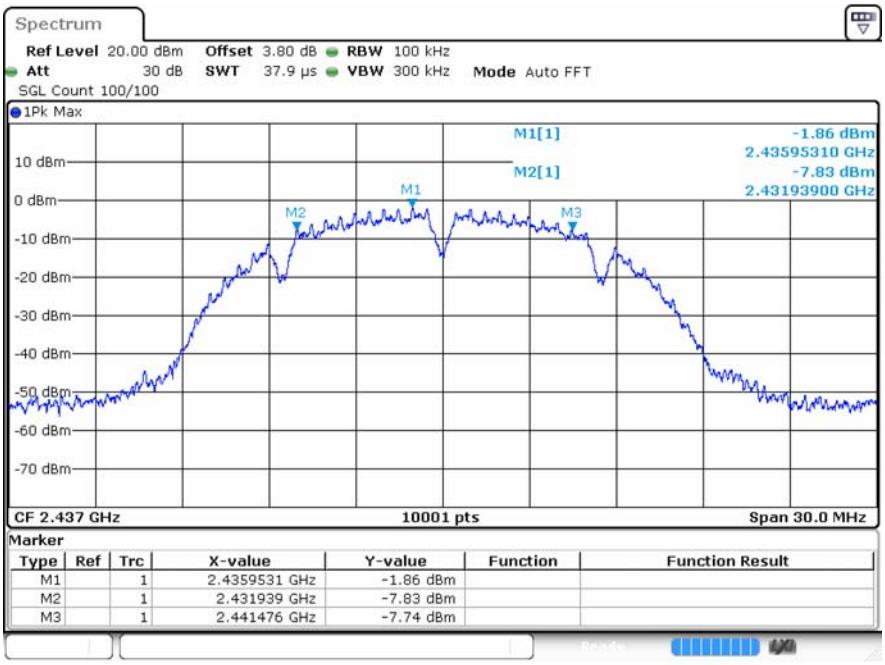
3.2 Test Graphs

Test Graphs

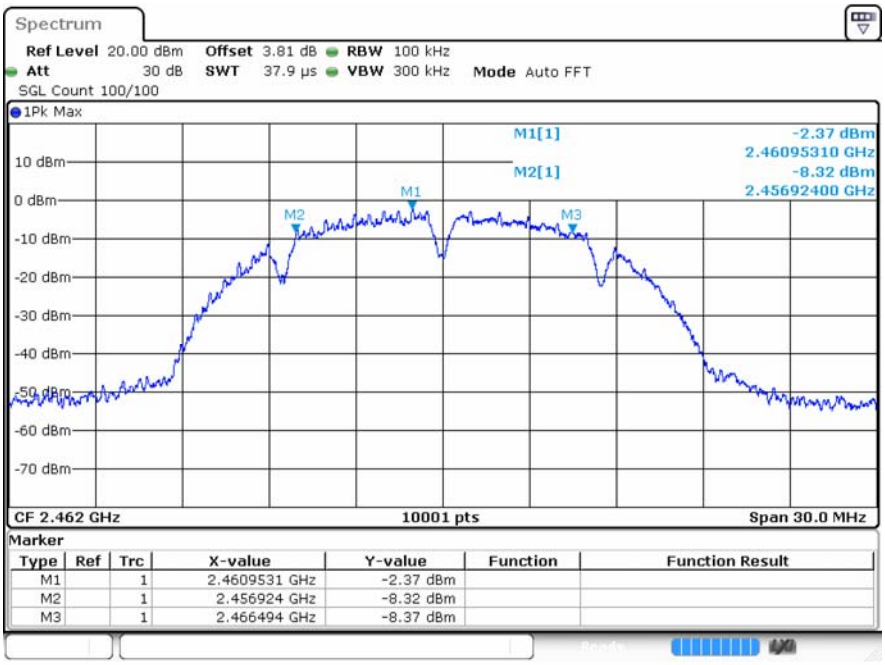
b 2412MHz Ant1



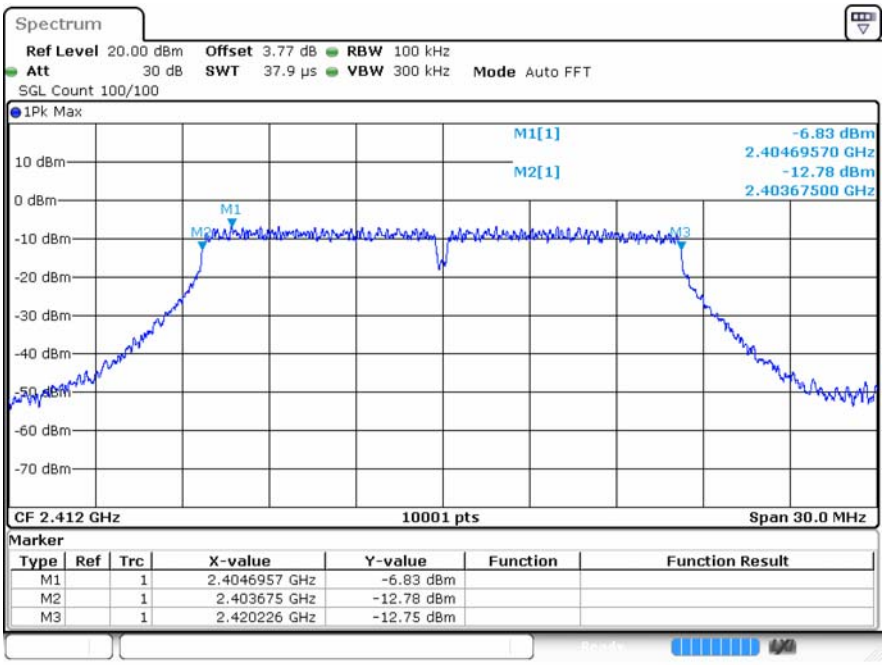
b 2437MHz Ant1



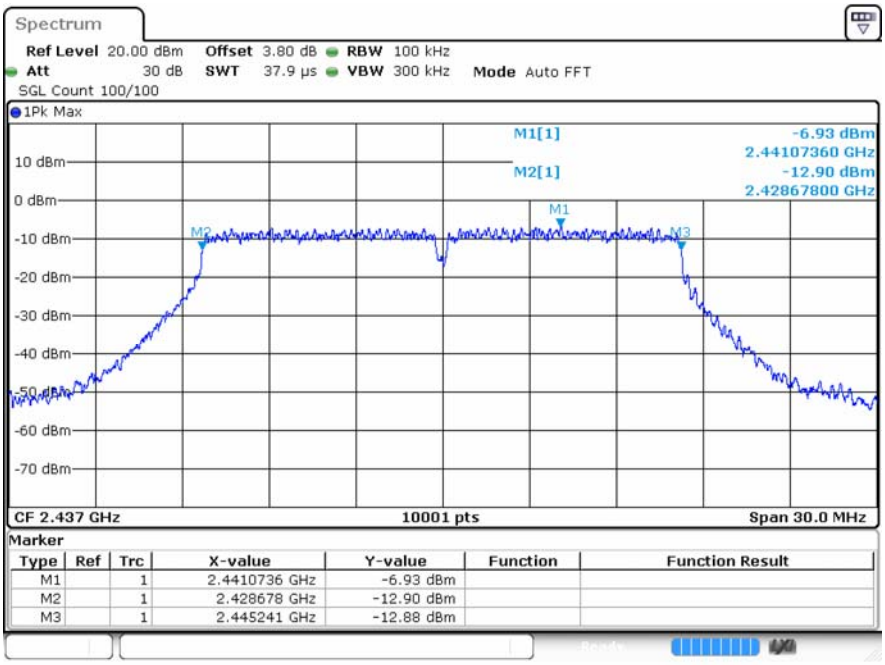
b 2462MHz Ant1



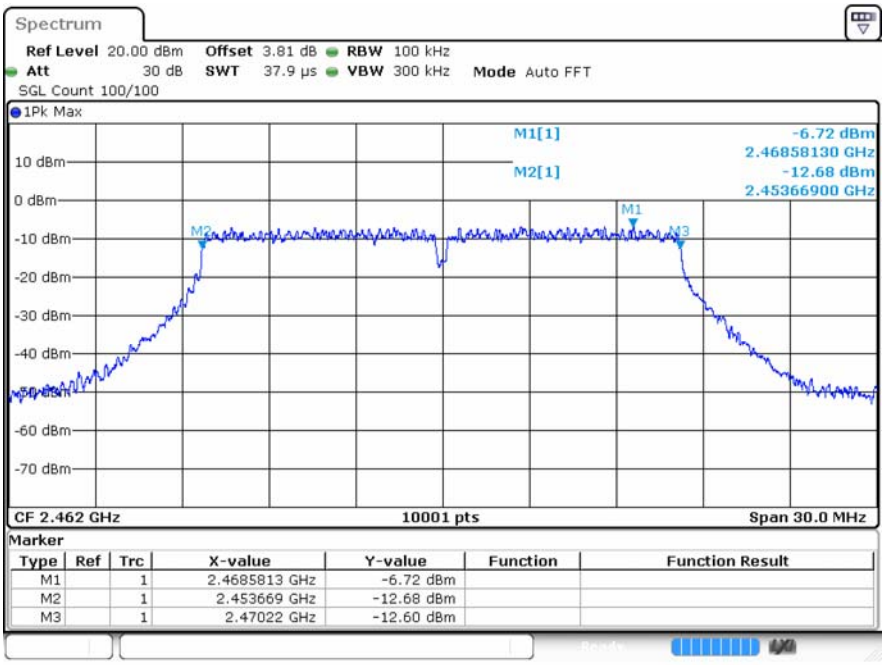
g 2412MHz Ant1



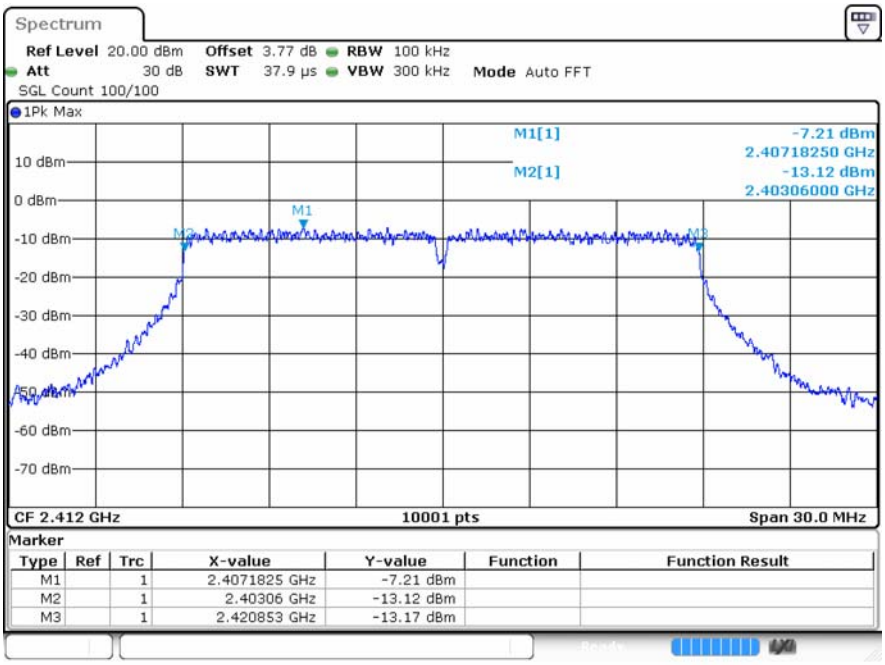
g 2437MHz Ant1



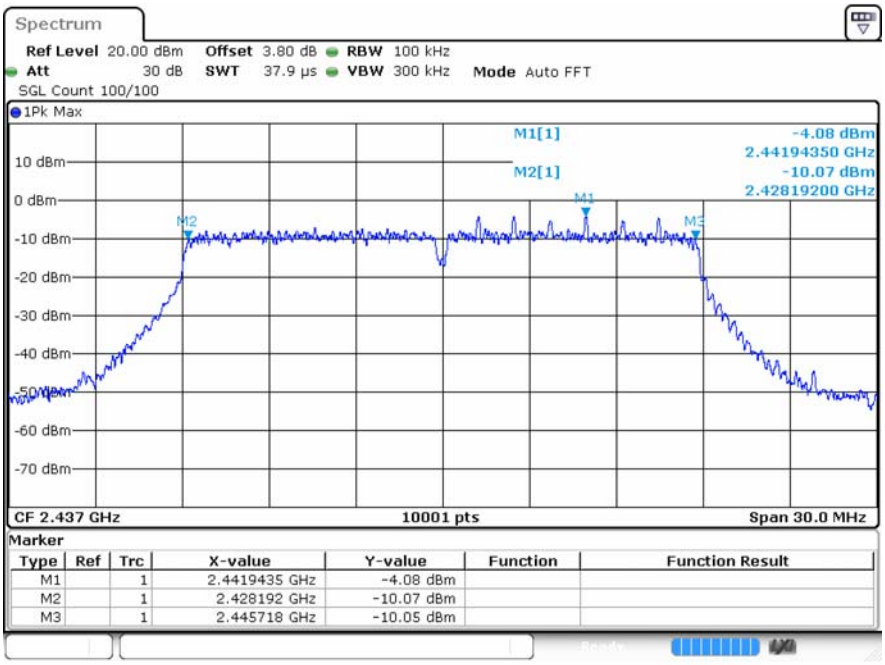
g 2462MHz Ant1



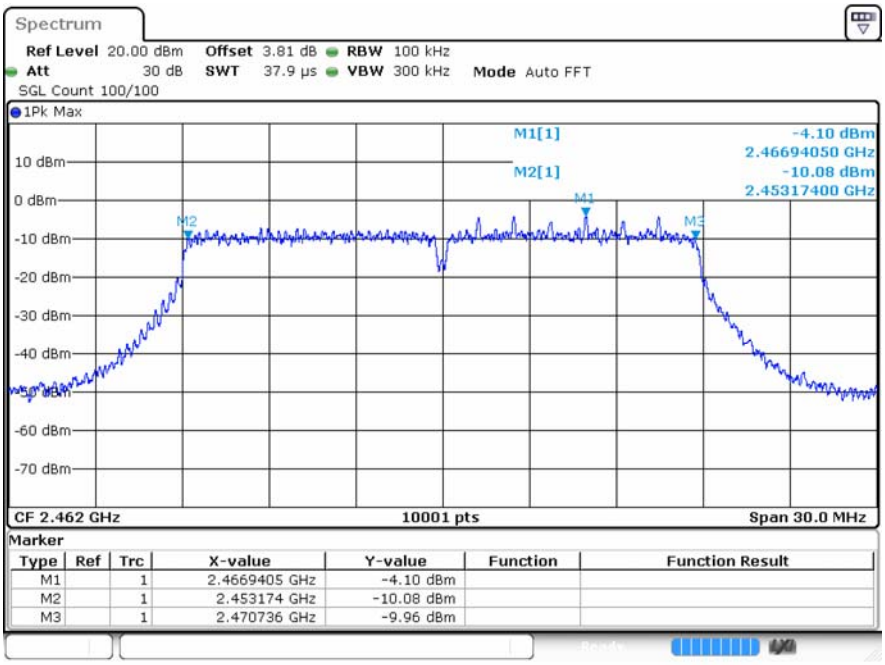
n20 2412MHz Ant1



n20 2437MHz Ant1



n20 2462MHz Ant1

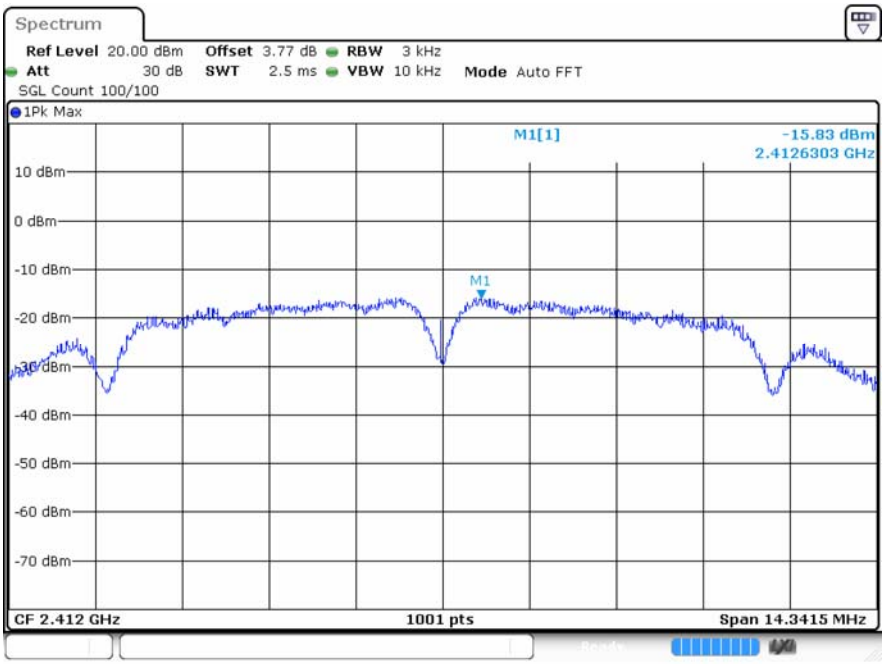
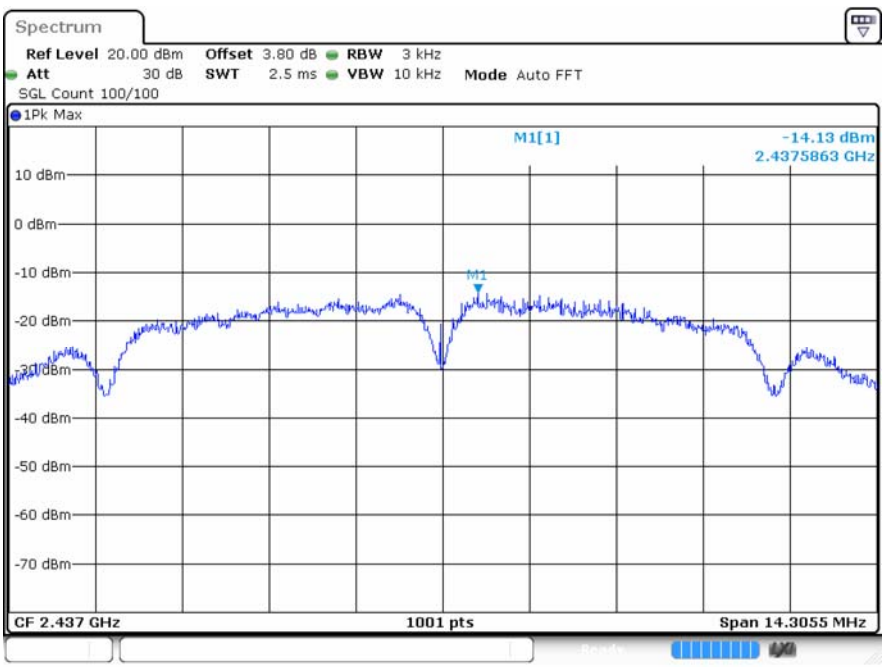


4 Maximum Power Spectral Density Level

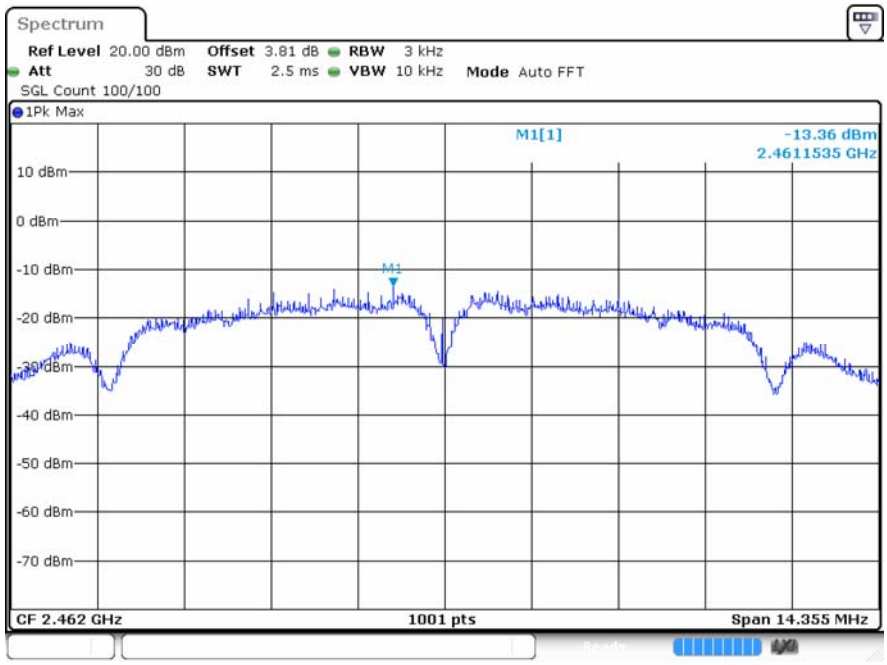
4.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3-100kHz)	Limit (dBm/3kHz)	Verdict
b	2412	Ant1	-15.83	≤8	Pass
b	2437	Ant1	-14.13	≤8	Pass
b	2462	Ant1	-13.36	≤8	Pass
g	2412	Ant1	-17.46	≤8	Pass
g	2437	Ant1	-17.29	≤8	Pass
g	2462	Ant1	-17.35	≤8	Pass
n20	2412	Ant1	-16.65	≤8	Pass
n20	2437	Ant1	-16.44	≤8	Pass
n20	2462	Ant1	-16.32	≤8	Pass

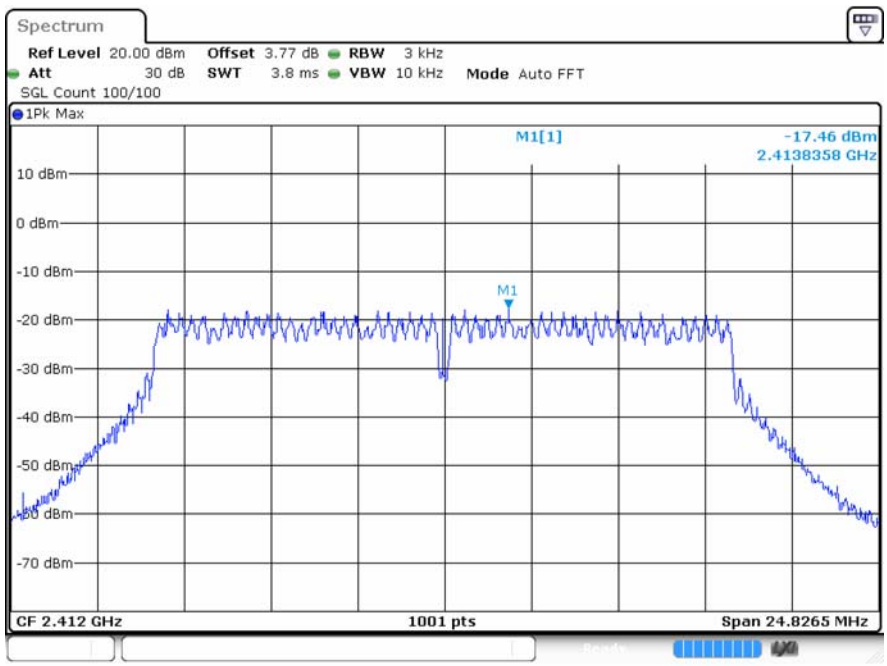
4.2 Test Graphs

Test Graphs
b 2412MHz Ant1

b 2437MHz Ant1


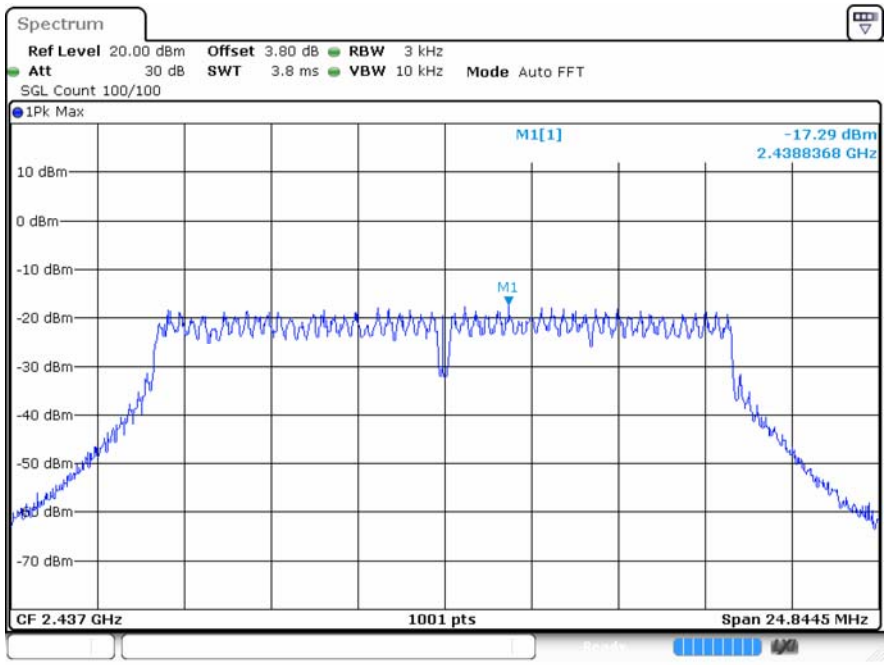
b 2462MHz Ant1



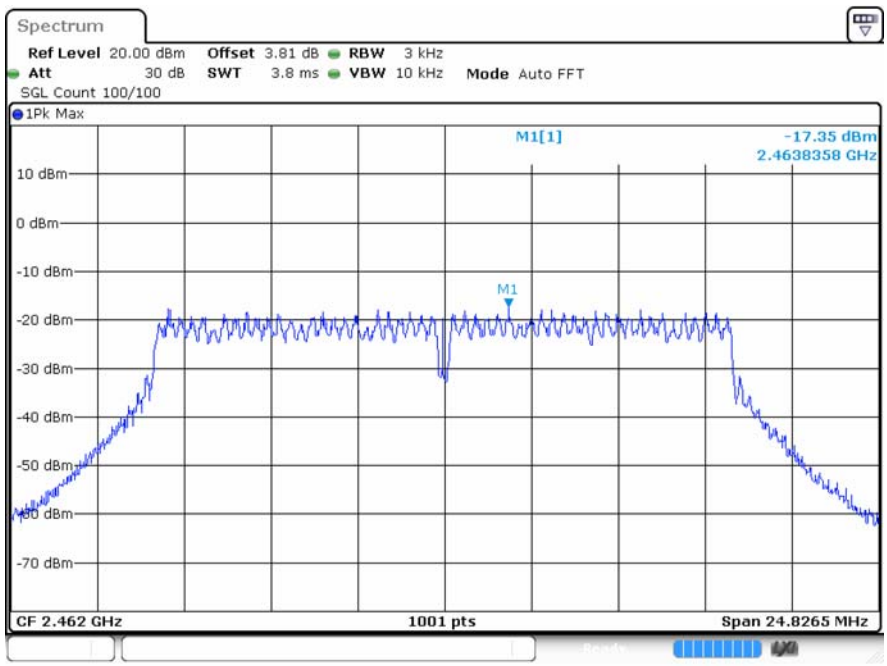
g 2412MHz Ant1



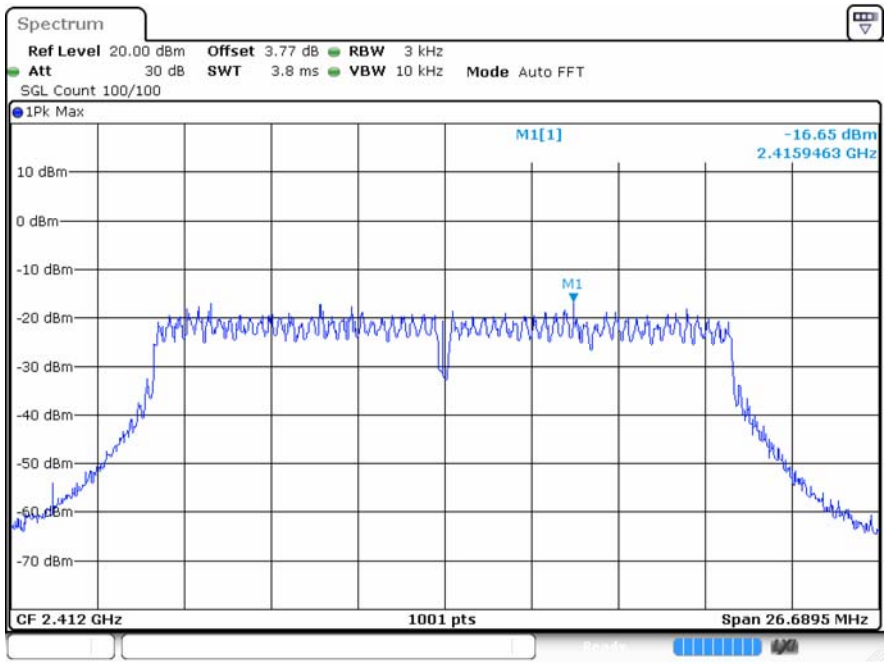
g 2437MHz Ant1



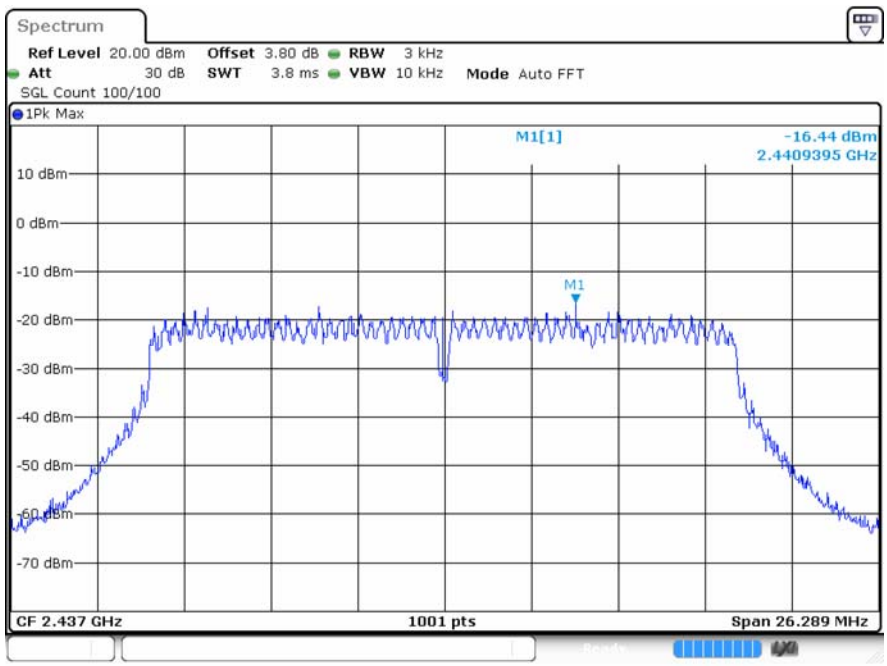
g 2462MHz Ant1



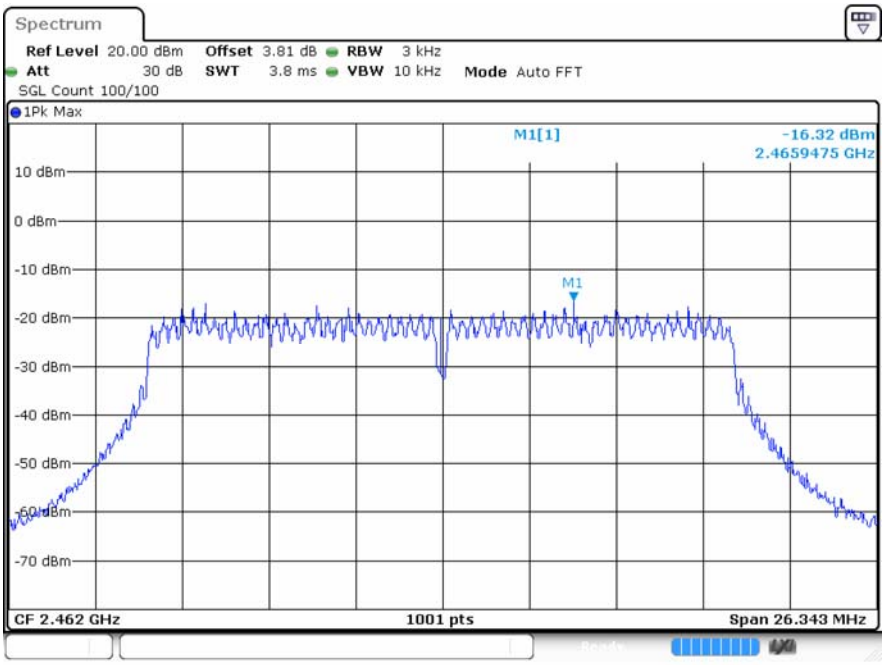
n20 2412MHz Ant1



n20 2437MHz Ant1



n20 2462MHz Ant1



5 Band Edge

5.1 Test Result

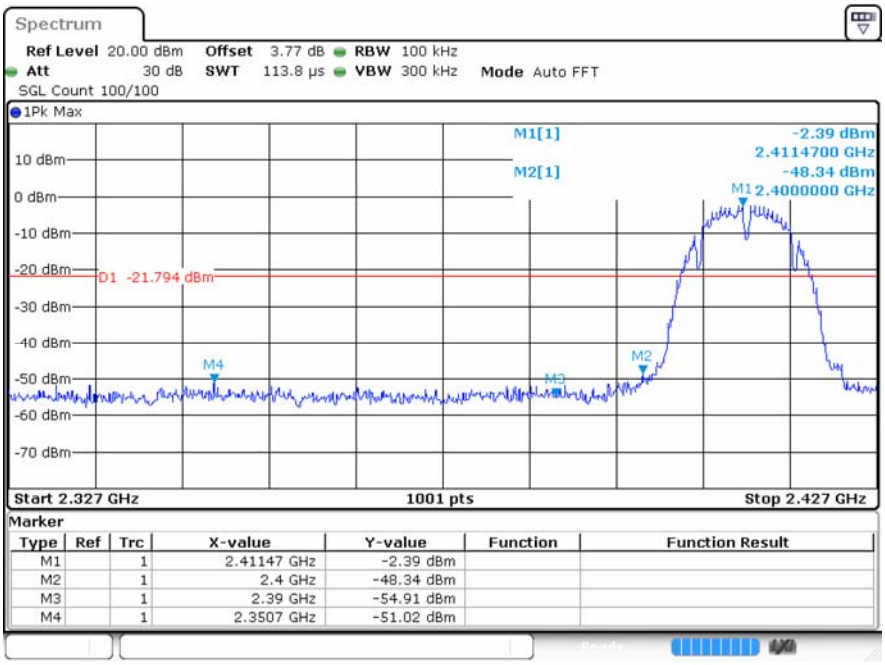
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-49.23	-20	-49.23
b	2462	Ant1	-50.21	-20	Pass
g	2412	Ant1	-43.88	-20	Pass
g	2462	Ant1	-45.38	-20	Pass
n20	2412	Ant1	-44.02	-20	Pass
n20	2462	Ant1	-47.89	-20	Pass

5.2 Test Graphs

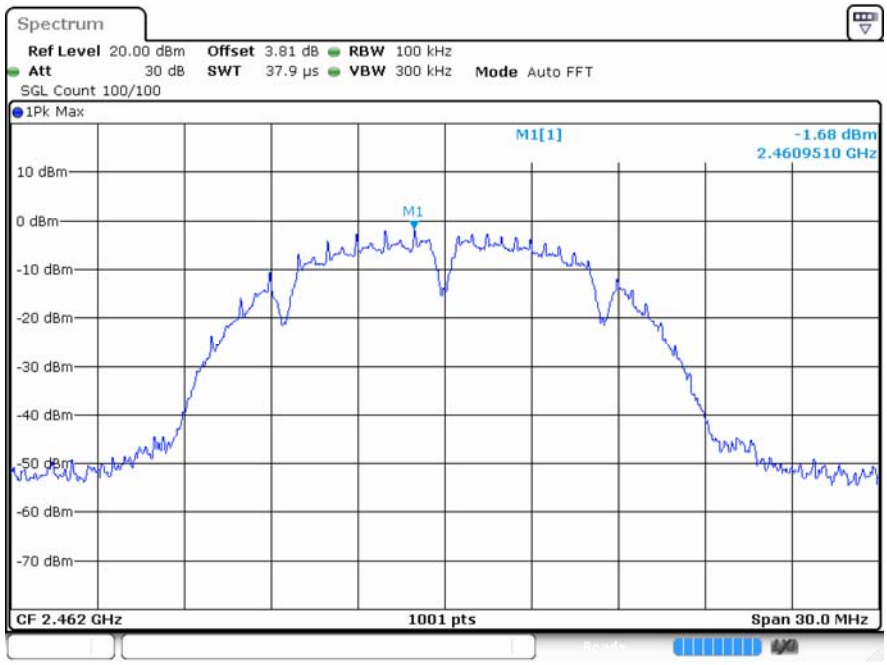
Test Graphs

b 2412MHz Ant1 Ref

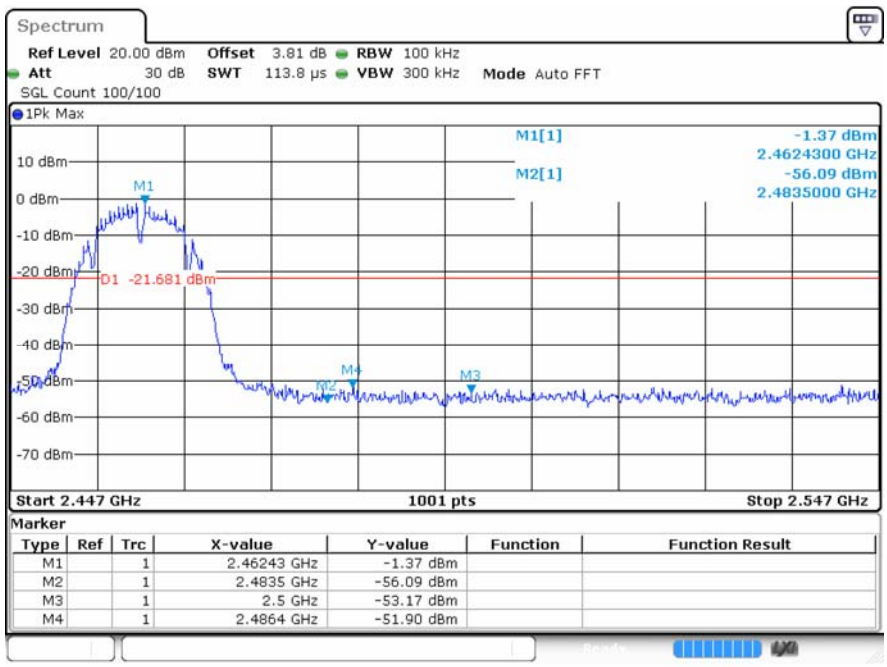
b 2412MHz Ant1 Emission



b 2462MHz Ant1 Ref



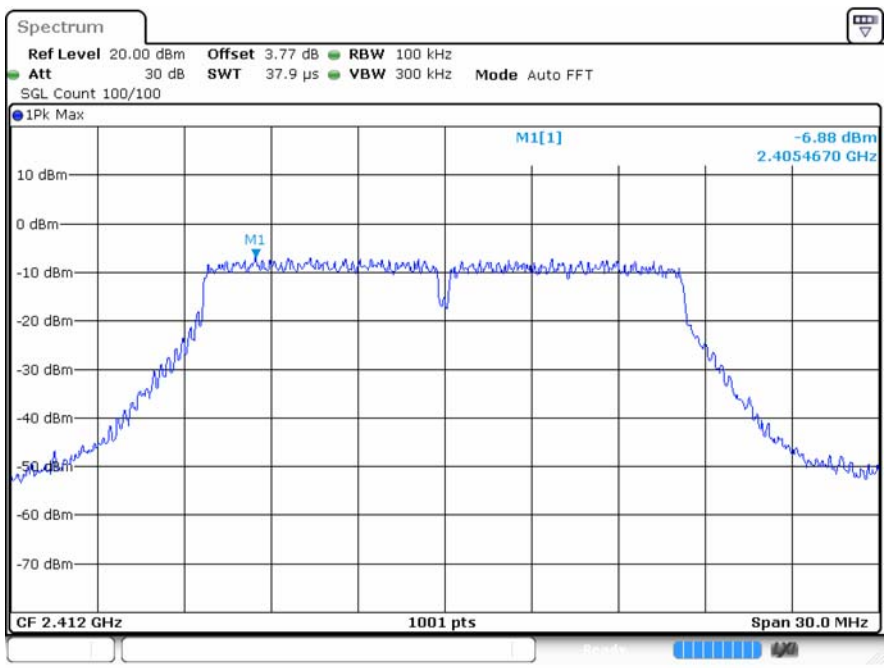
b 2462MHz Ant1 Emission



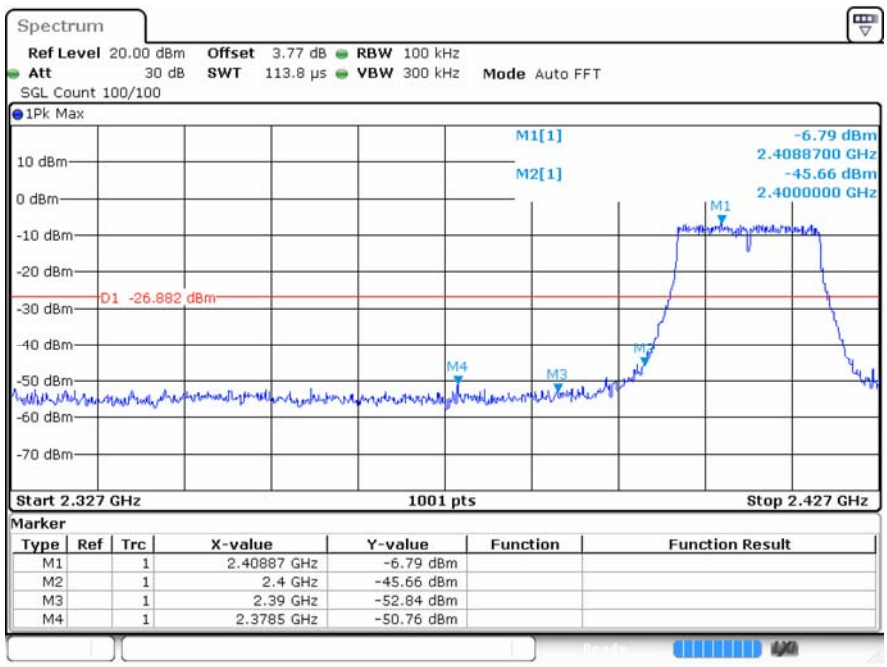
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46243 GHz	-1.37 dBm		
M2		1	2.4835 GHz	-56.09 dBm		
M3		1	2.5 GHz	-53.17 dBm		
M4		1	2.4864 GHz	-51.90 dBm		

g 2412MHz Ant1 Ref

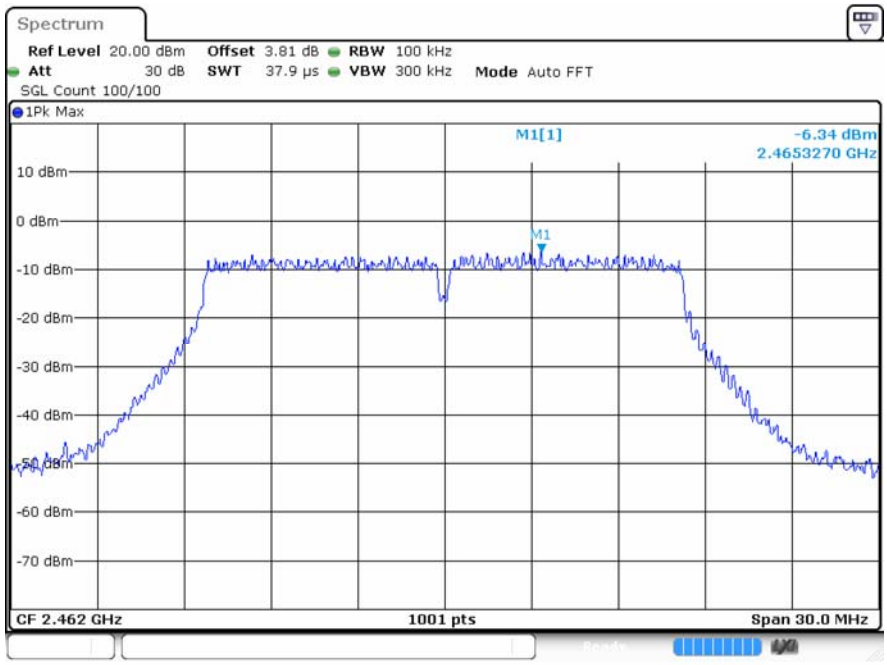


g 2412MHz Ant1 Emission

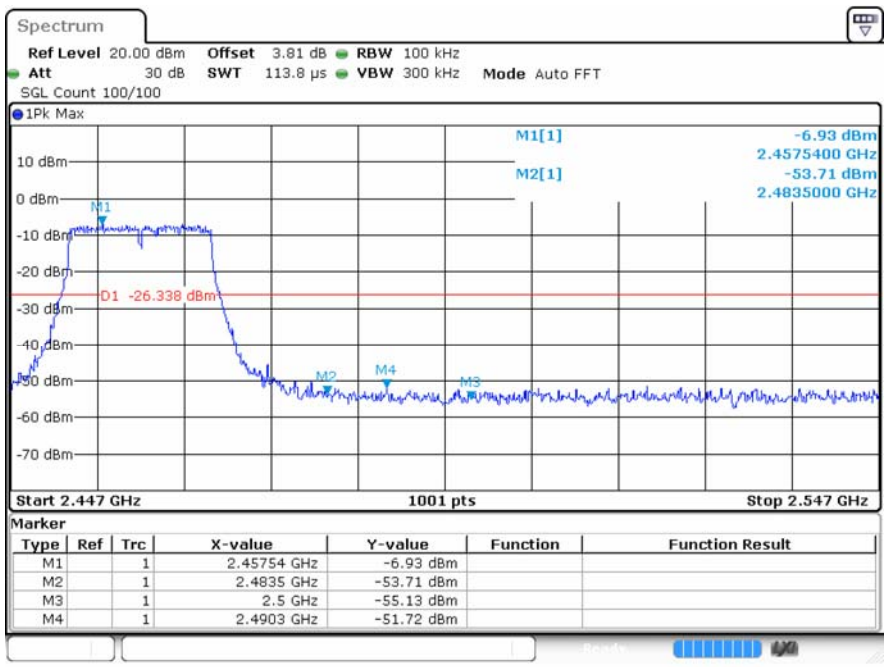


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40887 GHz	-6.79 dBm		
M2		1	2.4 GHz	-45.66 dBm		
M3		1	2.39 GHz	-52.84 dBm		
M4		1	2.3785 GHz	-50.76 dBm		

g 2462MHz Ant1 Ref



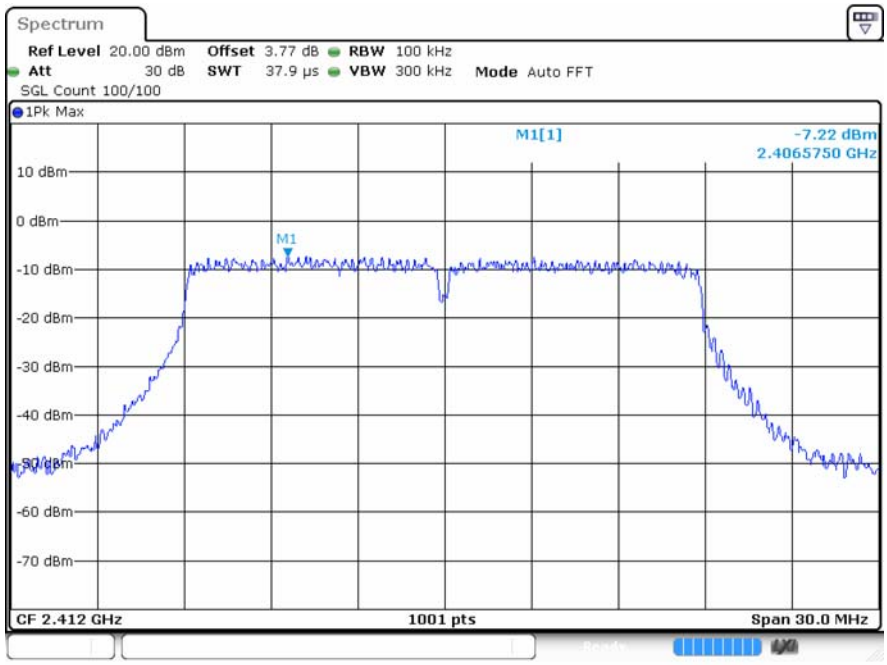
g 2462MHz Ant1 Emission



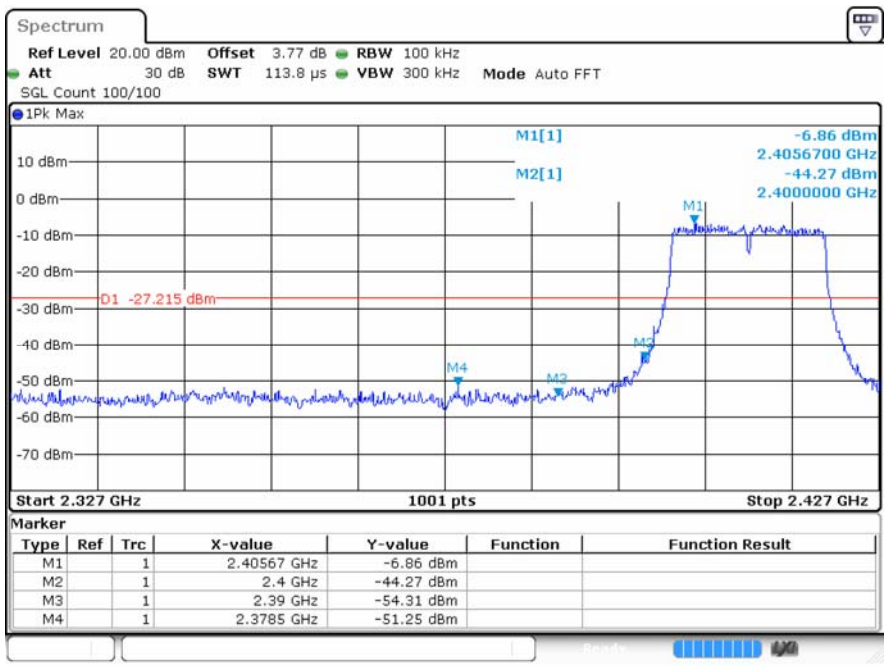
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45754 GHz	-6.93 dBm		
M2		1	2.4835 GHz	-53.71 dBm		
M3		1	2.5 GHz	-55.13 dBm		
M4		1	2.4903 GHz	-51.72 dBm		

n20 2412MHz Ant1 Ref



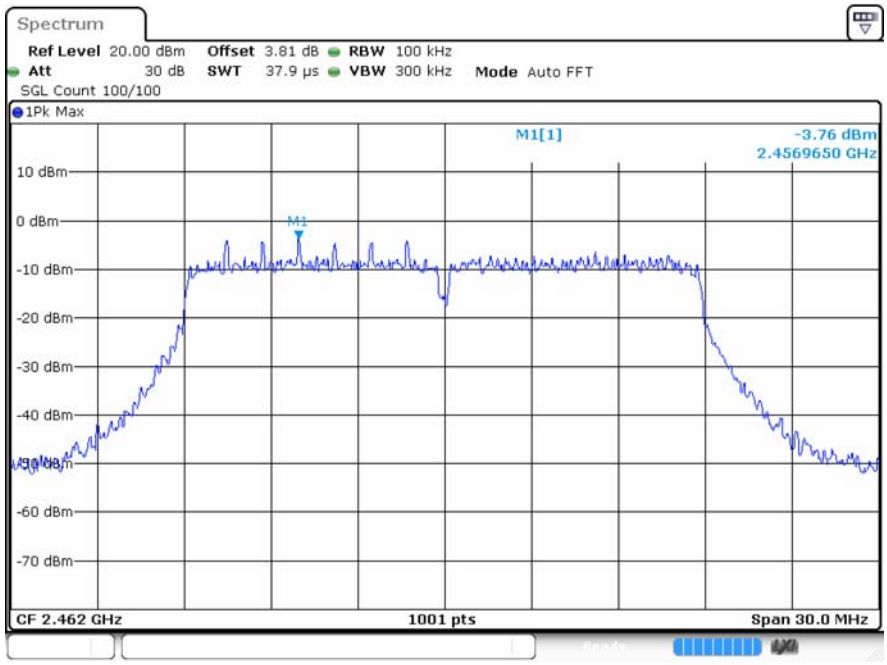
n20 2412MHz Ant1 Emission



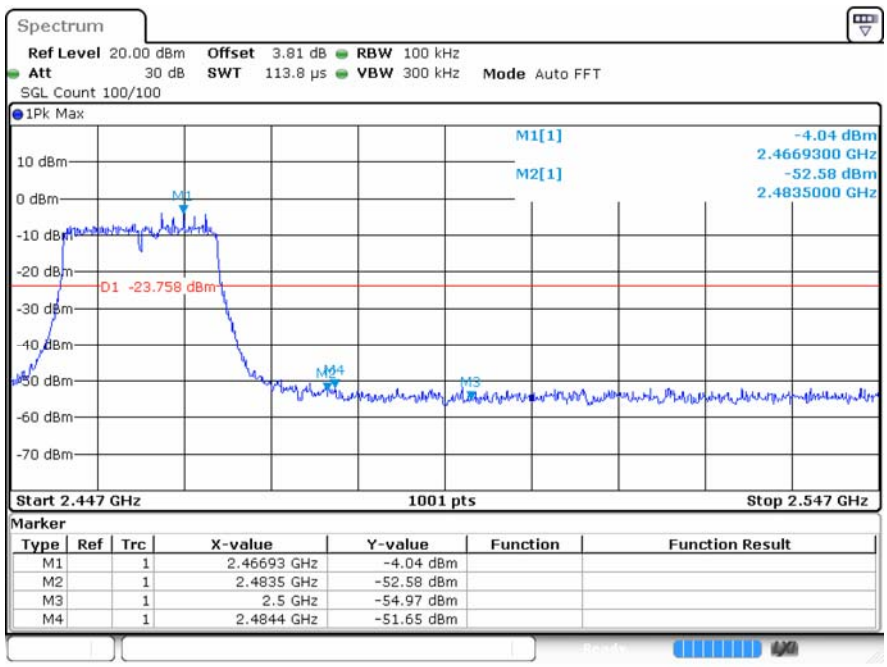
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40567 GHz	-6.86 dBm		
M2		1	2.4 GHz	-44.27 dBm		
M3		1	2.39 GHz	-54.31 dBm		
M4		1	2.3785 GHz	-51.25 dBm		

n20 2462MHz Ant1 Ref



n20 2462MHz Ant1 Emission



6 Conducted RF Spurious Emission

6.1 Test Result

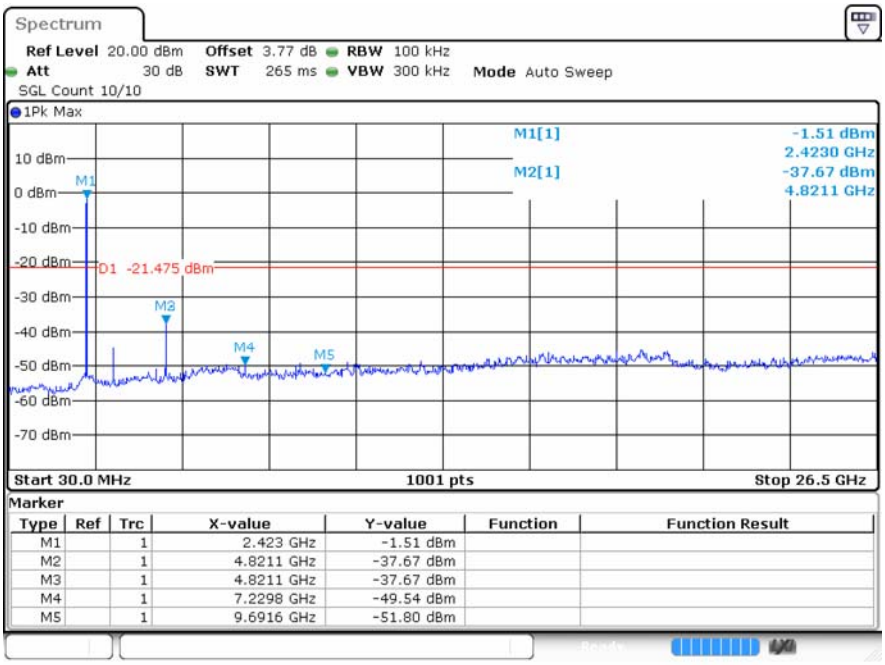
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-36.19	-20	Pass
b	2437	Ant1	-35.22	-20	Pass
b	2462	Ant1	-34.42	-20	Pass
g	2412	Ant1	-38.11	-20	Pass
g	2437	Ant1	-38.22	-20	Pass
g	2462	Ant1	-41.06	-20	Pass
n20	2412	Ant1	-38.37	-20	Pass
n20	2437	Ant1	-38.43	-20	Pass
n20	2462	Ant1	-37.04	-20	Pass

6.2 Test Graphs

Test Graphs

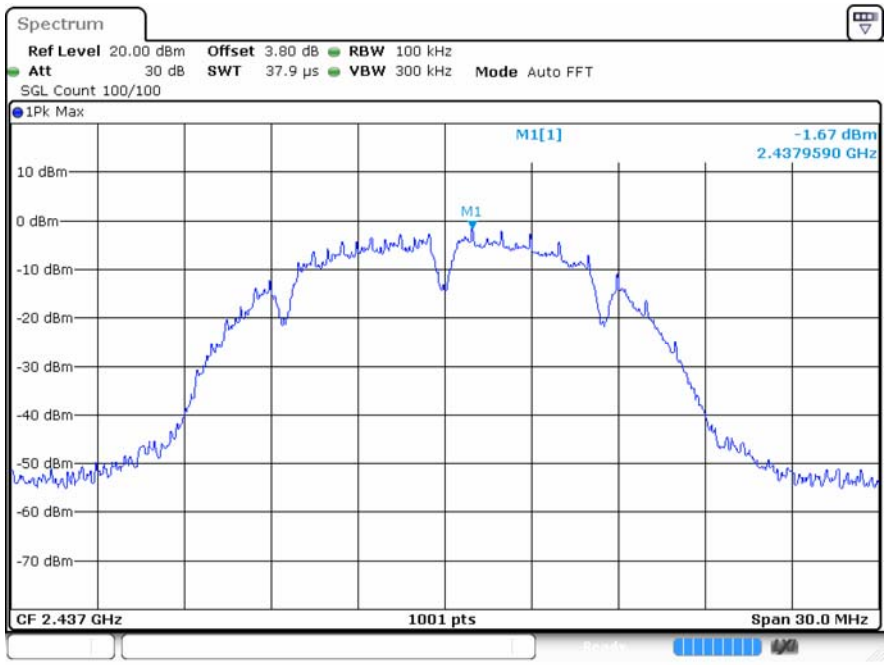
b 2412MHz Ant1 Ref

b 2412MHz Ant1 Emission

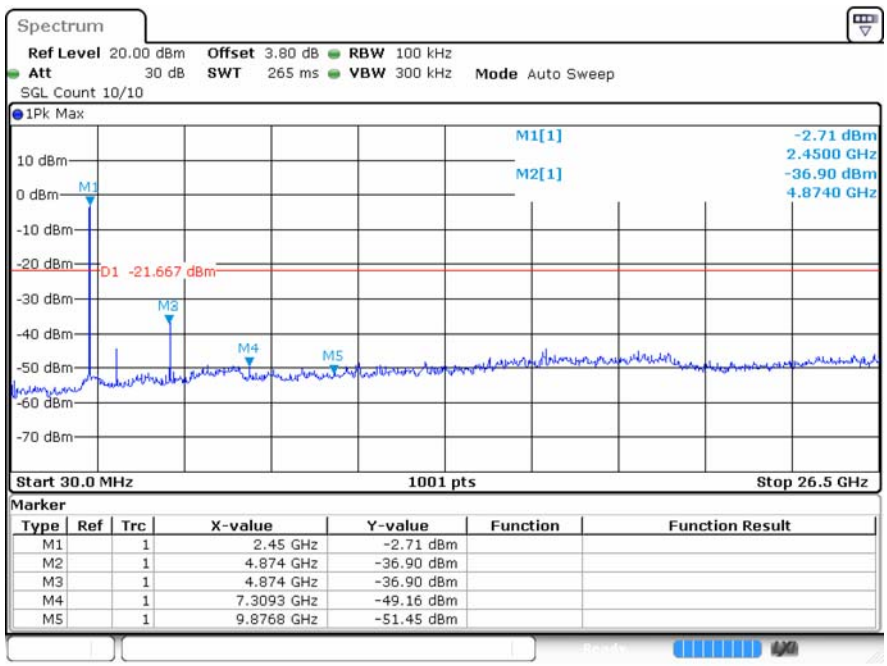


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.423 GHz	-1.51 dBm		
M2		1	4.8211 GHz	-37.67 dBm		
M3		1	4.8211 GHz	-37.67 dBm		
M4		1	7.2298 GHz	-49.54 dBm		
M5		1	9.6916 GHz	-51.80 dBm		

b 2437MHz Ant1 Ref



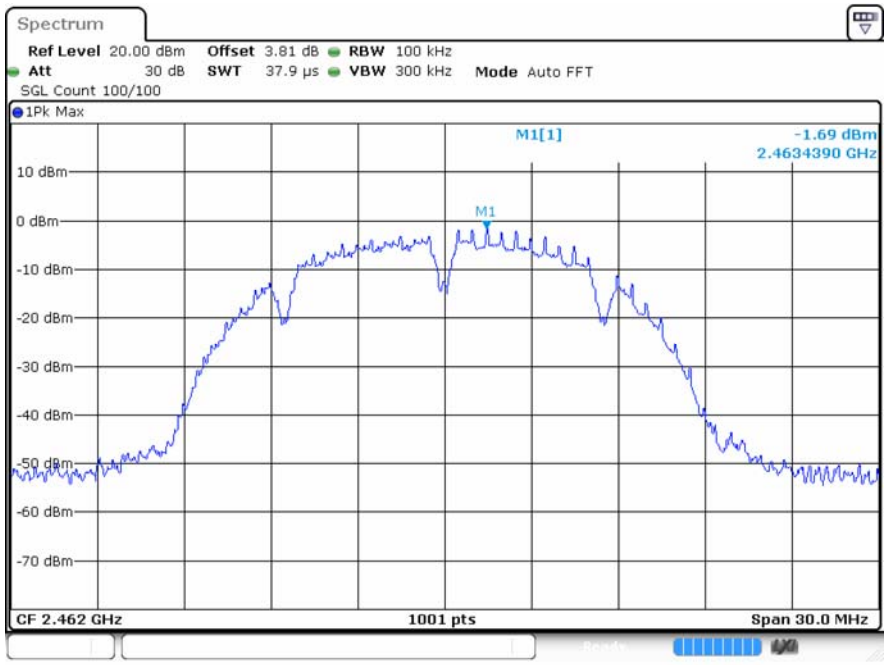
b 2437MHz Ant1 Emission



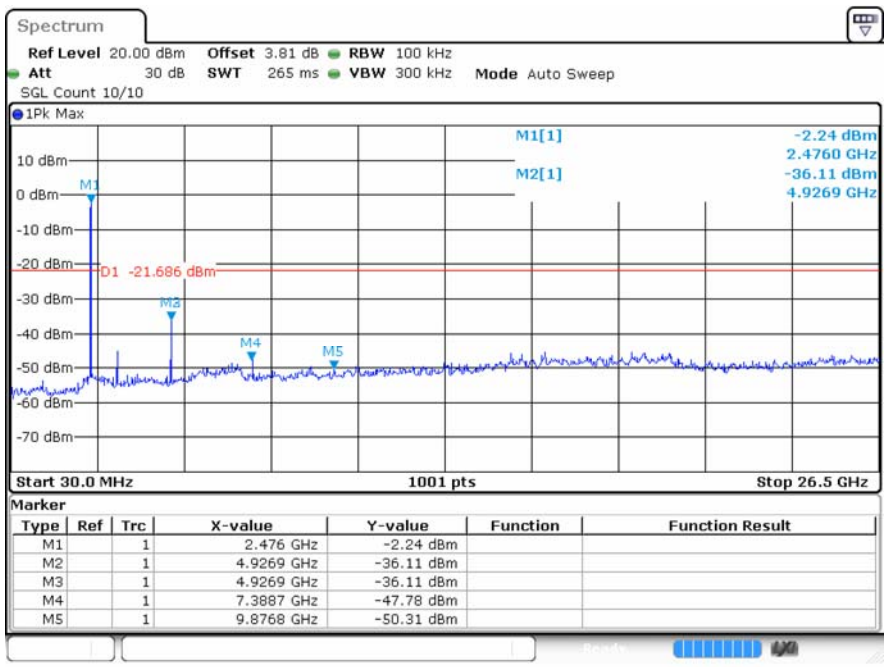
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-2.71 dBm		
M2		1	4.874 GHz	-36.90 dBm		
M3		1	4.874 GHz	-36.90 dBm		
M4		1	7.3093 GHz	-49.16 dBm		
M5		1	9.8768 GHz	-51.45 dBm		

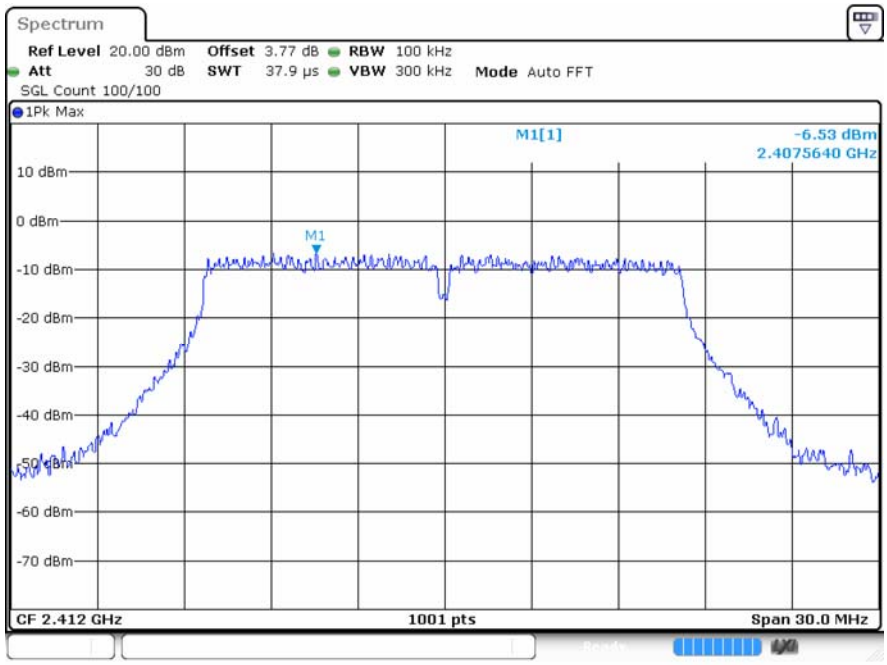
b 2462MHz Ant1 Ref



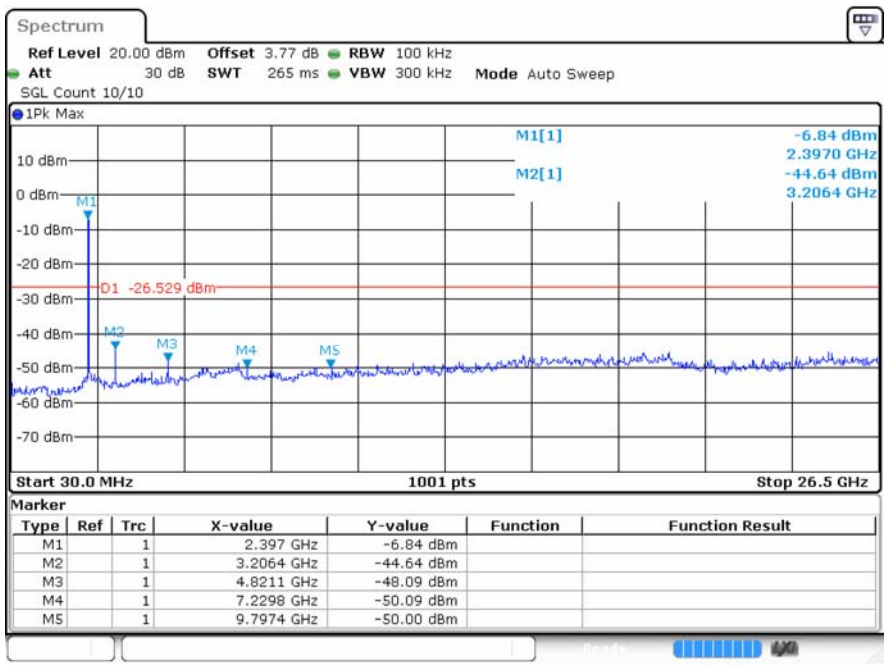
b 2462MHz Ant1 Emission



g 2412MHz Ant1 Ref



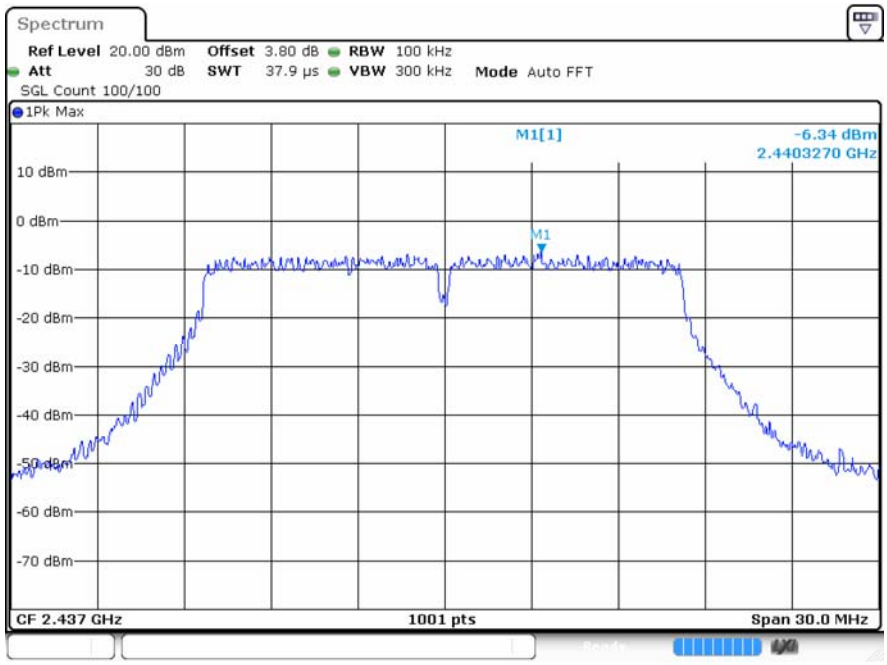
g 2412MHz Ant1 Emission



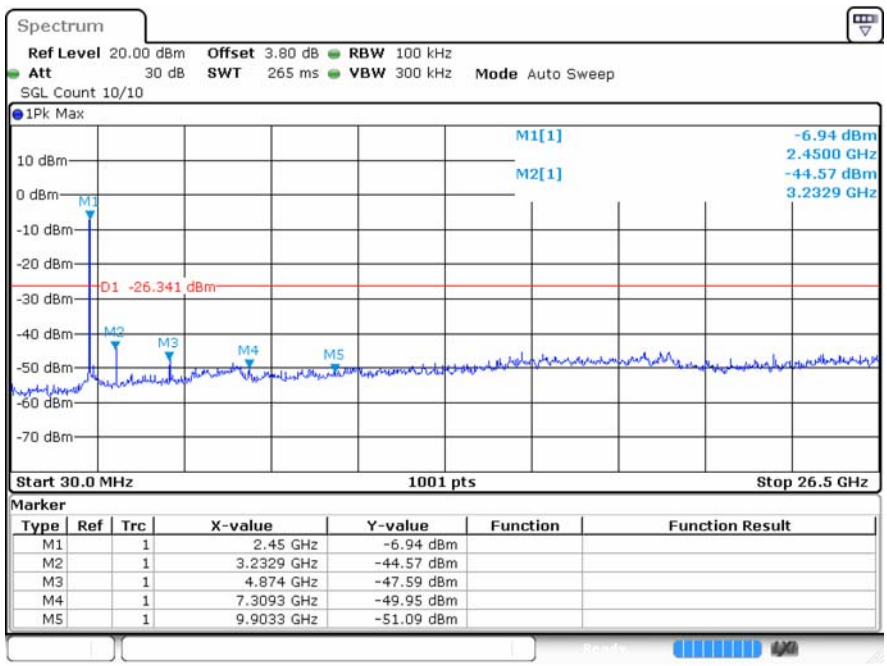
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.397 GHz	-6.84 dBm		
M2		1	3.2064 GHz	-44.64 dBm		
M3		1	4.8211 GHz	-48.09 dBm		
M4		1	7.2298 GHz	-50.09 dBm		
M5		1	9.7974 GHz	-50.00 dBm		

g 2437MHz Ant1 Ref



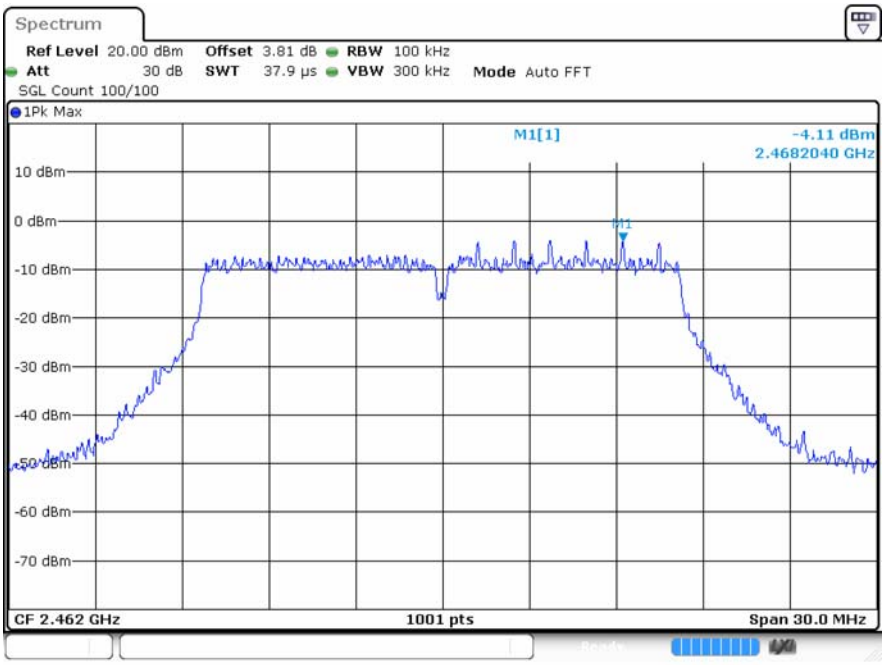
g 2437MHz Ant1 Emission



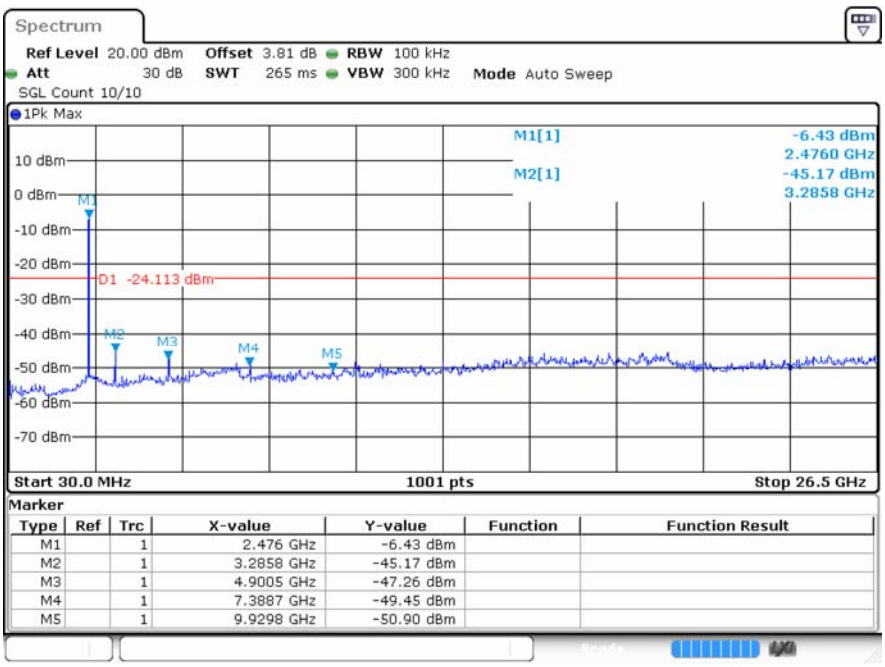
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-6.94 dBm		
M2		1	3.2329 GHz	-44.57 dBm		
M3		1	4.874 GHz	-47.59 dBm		
M4		1	7.3093 GHz	-49.95 dBm		
M5		1	9.9033 GHz	-51.09 dBm		

g 2462MHz Ant1 Ref



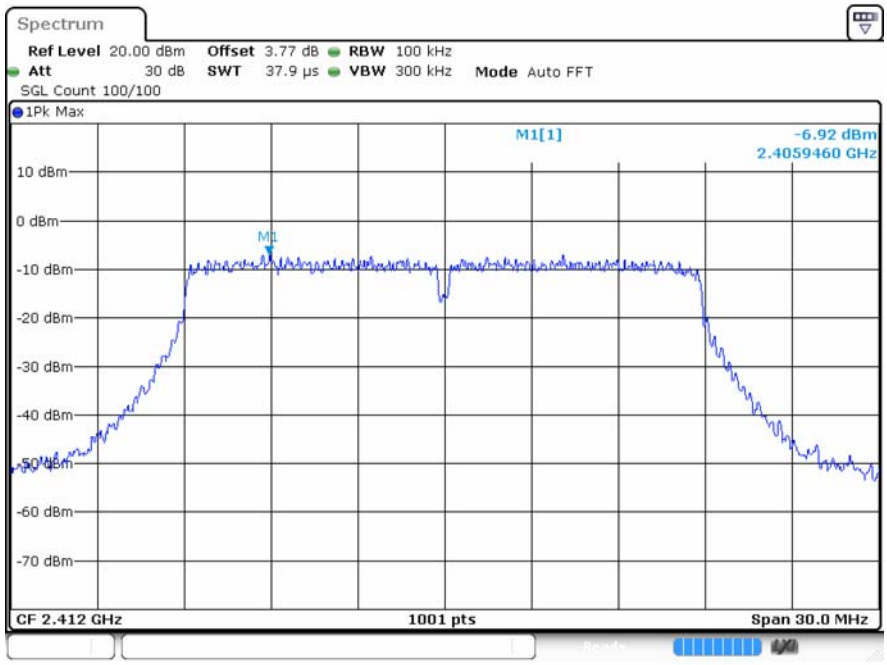
g 2462MHz Ant1 Emission



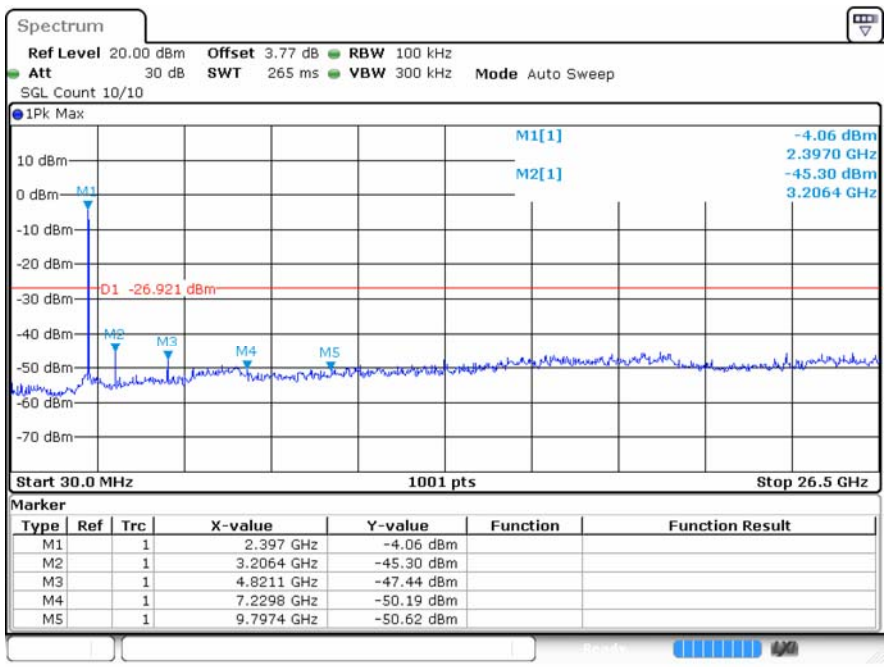
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.476 GHz	-6.43 dBm		
M2		1	3.2858 GHz	-45.17 dBm		
M3		1	4.9005 GHz	-47.26 dBm		
M4		1	7.3887 GHz	-49.45 dBm		
M5		1	9.9298 GHz	-50.90 dBm		

n20 2412MHz Ant1 Ref



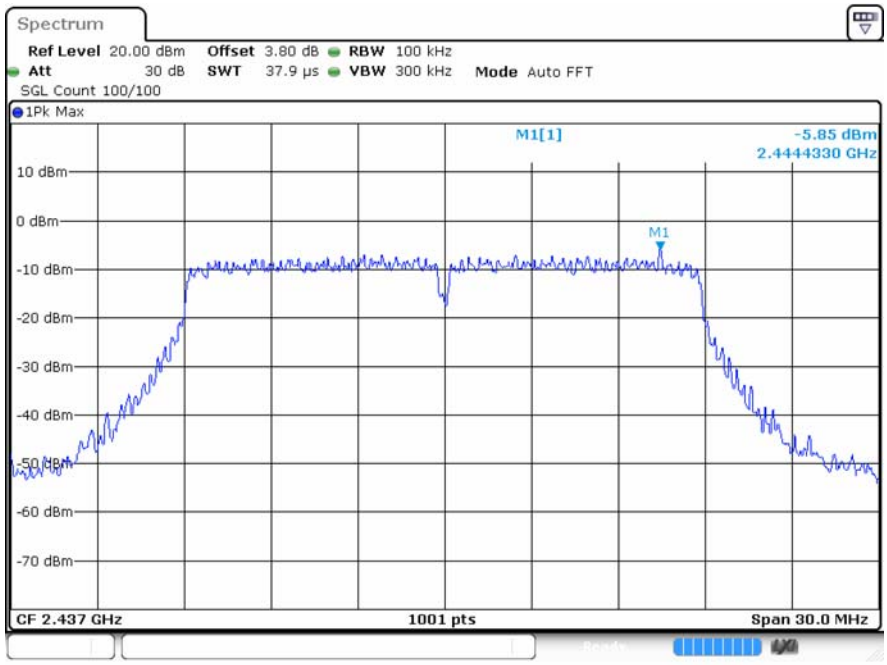
n20 2412MHz Ant1 Emission



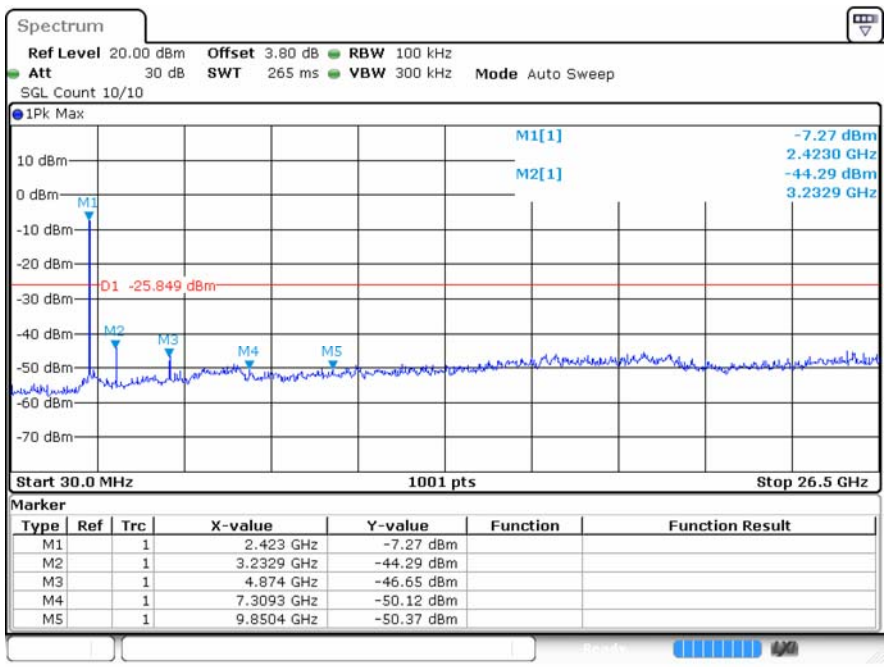
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.397 GHz	-4.06 dBm		
M2		1	3.2064 GHz	-45.30 dBm		
M3		1	4.8211 GHz	-47.44 dBm		
M4		1	7.2298 GHz	-50.19 dBm		
M5		1	9.7974 GHz	-50.62 dBm		

n20 2437MHz Ant1 Ref



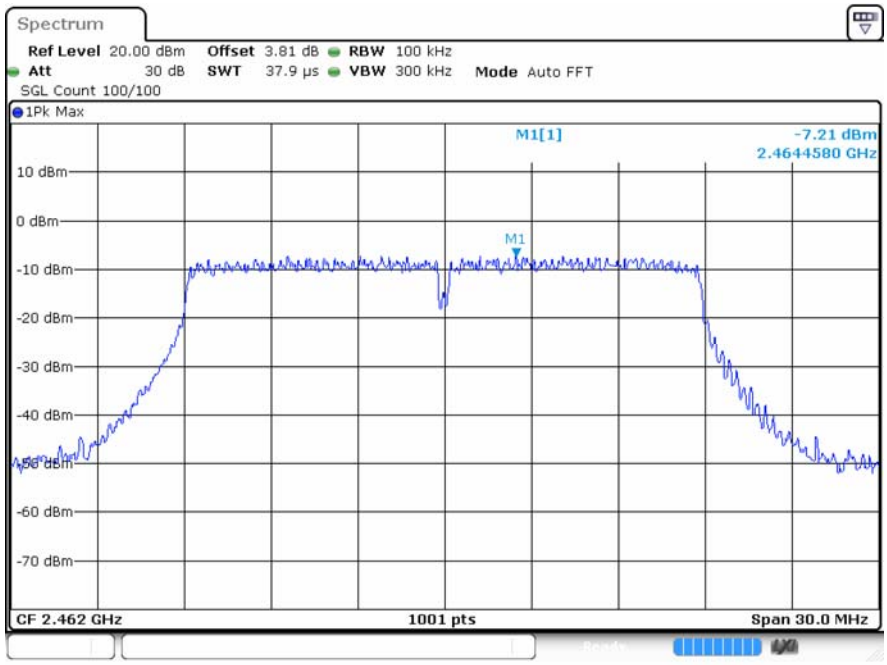
n20 2437MHz Ant1 Emission



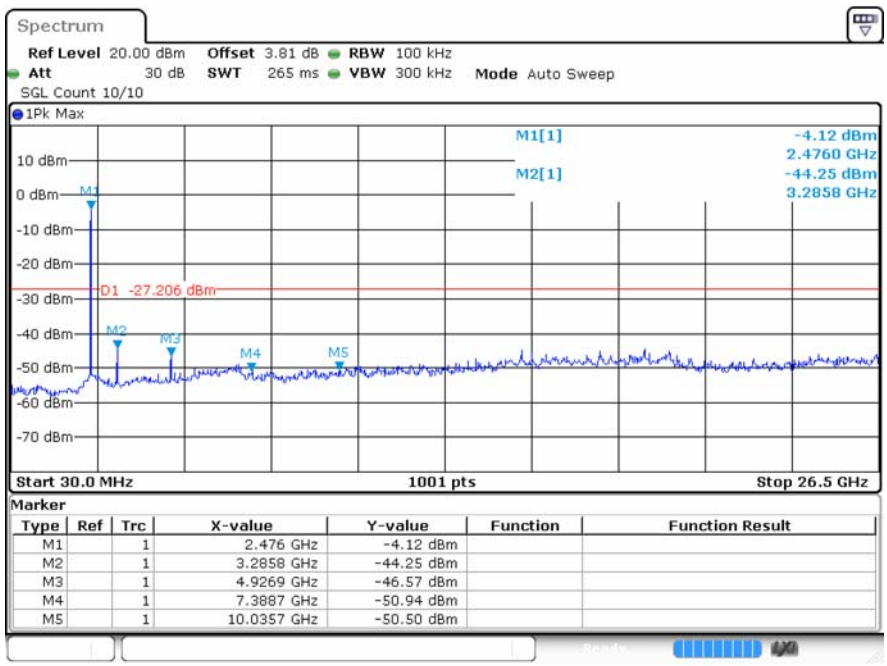
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.423 GHz	-7.27 dBm		
M2		1	3.2329 GHz	-44.29 dBm		
M3		1	4.874 GHz	-46.65 dBm		
M4		1	7.3093 GHz	-50.12 dBm		
M5		1	9.8504 GHz	-50.37 dBm		

n20 2462MHz Ant1 Ref



n20 2462MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.476 GHz	-4.12 dBm		
M2		1	3.2858 GHz	-44.25 dBm		
M3		1	4.9269 GHz	-46.57 dBm		
M4		1	7.3887 GHz	-50.94 dBm		
M5		1	10.0357 GHz	-50.50 dBm		

7 Restrict Band

7.1 Test Result

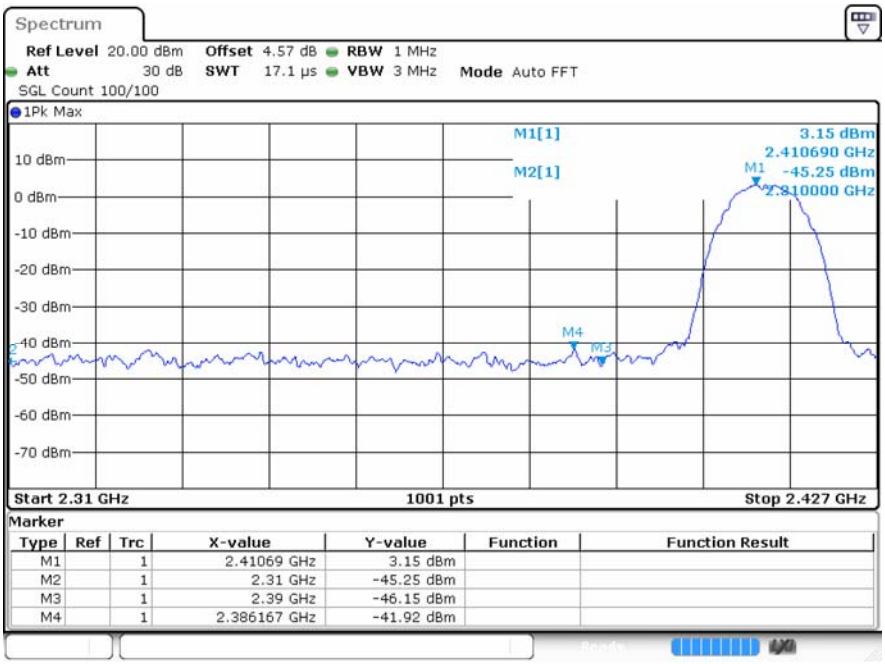
Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
b	2412	Ant1	2310	-45.24	2	52.02	Peak	74	Pass
b	2412	Ant1	2310	-54.7	2	42.56	Average	54	Pass
b	2412	Ant1	2386.167	-41.92	2	55.34	Peak	74	Pass
b	2412	Ant1	2320.062	-52.95	2	44.31	Average	54	Pass
b	2412	Ant1	2390	-46.15	2	51.11	Peak	74	Pass
b	2412	Ant1	2390	-53.44	2	43.82	Average	54	Pass
b	2462	Ant1	2483.5	-43.9	2	53.36	Peak	74	53.36
b	2462	Ant1	2483.5	-53.55	2	43.71	Average	54	Pass
b	2462	Ant1	2484.471	-42.8	2	54.46	Peak	74	Pass
b	2462	Ant1	2484.418	-53.49	2	43.77	Average	54	Pass
b	2462	Ant1	2500	-45.62	2	51.64	Peak	74	Pass
b	2462	Ant1	2500	-53.67	2	43.59	Average	54	Pass
g	2412	Ant1	2310	-46.28	2	50.98	Peak	74	Pass
g	2412	Ant1	2310	-54.12	2	43.14	Average	54	Pass
g	2412	Ant1	2380.551	-41.22	2	56.04	Peak	74	Pass
g	2412	Ant1	2386.401	-52.29	2	44.97	Average	54	Pass
g	2412	Ant1	2390	-43.13	2	51.11	Peak	74	Pass
g	2412	Ant1	2390	-52.88	2	44.38	Average	54	Pass
g	2462	Ant1	2483.5	-44.54	2	52.72	Peak	74	Pass
g	2462	Ant1	2483.5	-51.63	2	45.63	Average	54	Pass
g	2462	Ant1	2484.471	-41.43	2	55.83	Peak	74	Pass
g	2462	Ant1	2483.517	-51.63	2	45.63	Average	54	Pass
g	2462	Ant1	2500	-43.83	2	51.64	Peak	74	Pass
g	2462	Ant1	2500	-52.98	2	44.28	Average	54	Pass
n20	2412	Ant1	2310	-45.08	2	52.18	Peak	74	Pass
n20	2412	Ant1	2310	-53.92	2	43.34	Average	54	Pass
n20	2412	Ant1	2359.725	-41.6	2	55.66	Peak	74	Pass
n20	2412	Ant1	2336.559	-51.72	2	45.54	Average	54	Pass
n20	2412	Ant1	2390	-44.2	2	53.06	Peak	74	Pass
n20	2412	Ant1	2390	-52.63	2	44.63	Average	54	Pass
n20	2462	Ant1	2483.5	-44.41	2	52.85	Peak	74	Pass
n20	2462	Ant1	2483.5	-51.82	2	45.44	Average	54	Pass
n20	2462	Ant1	2485.478	-42.27	2	54.99	Peak	74	Pass
n20	2462	Ant1	2483.517	-51.82	2	45.44	Average	54	Pass

n20	2462	Ant1	2500	-45.23	2	52.03	Peak	74	Pass
n20	2462	Ant1	2500	-53.12	2	44.14	Average	54	Pass

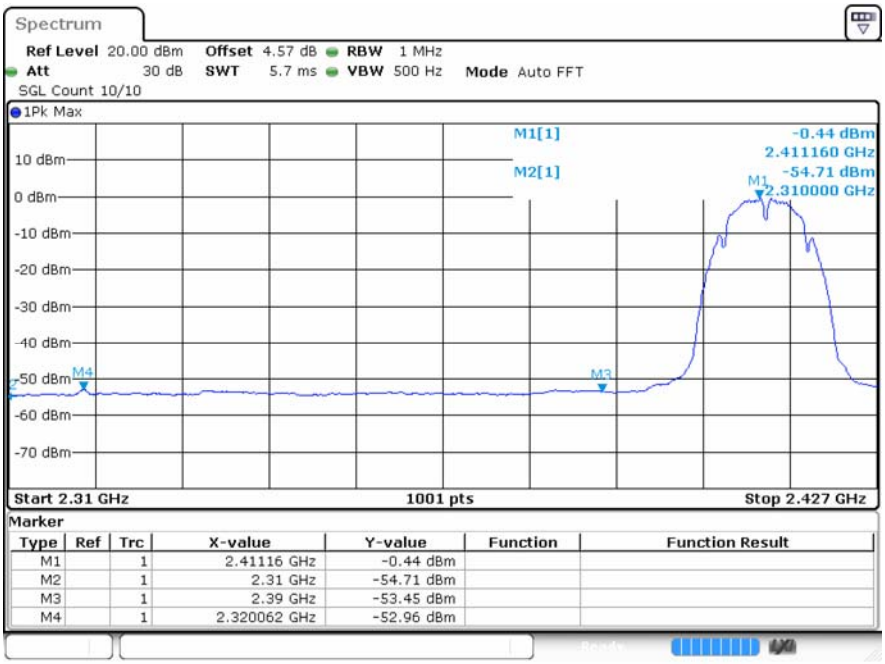
Test Graphs

Test Graphs

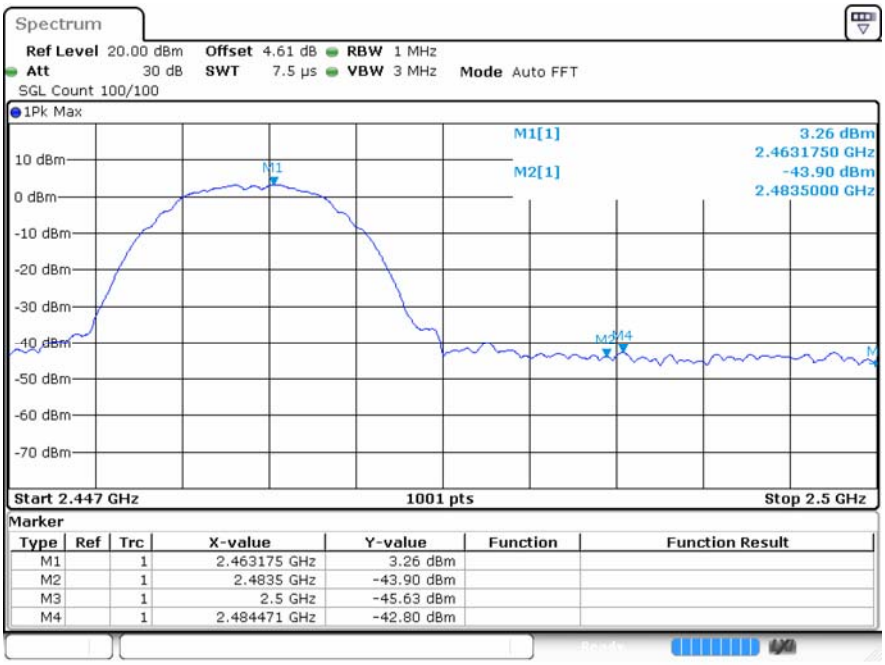
b 2412MHz Ant1 Peak



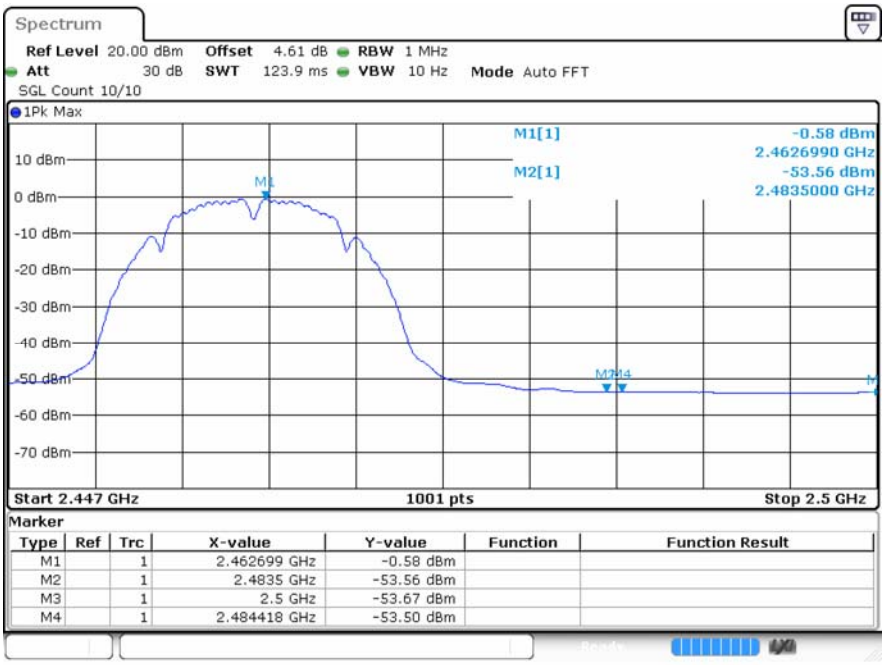
b 2412MHz Ant1 Average



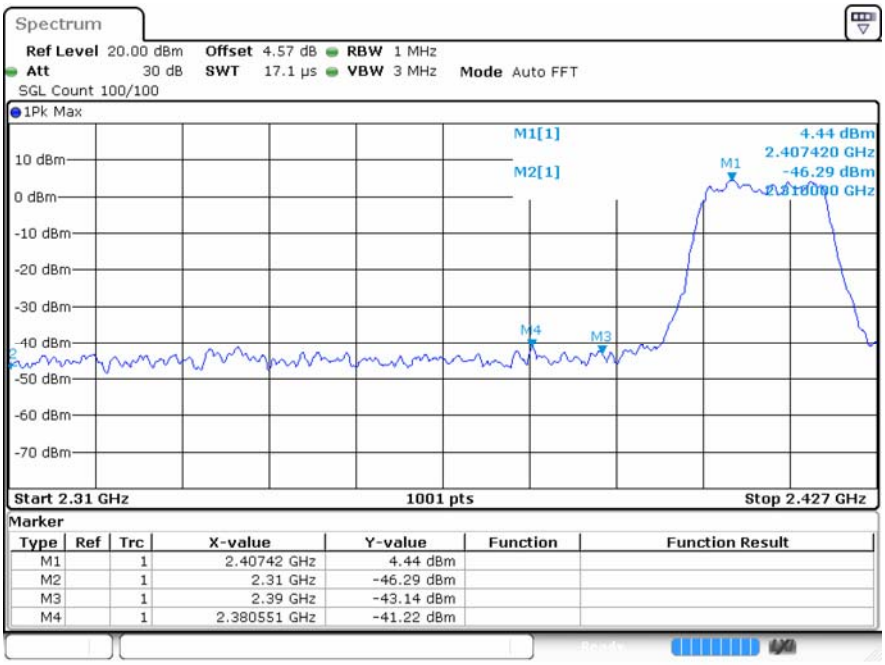
b 2462MHz Ant1 Peak



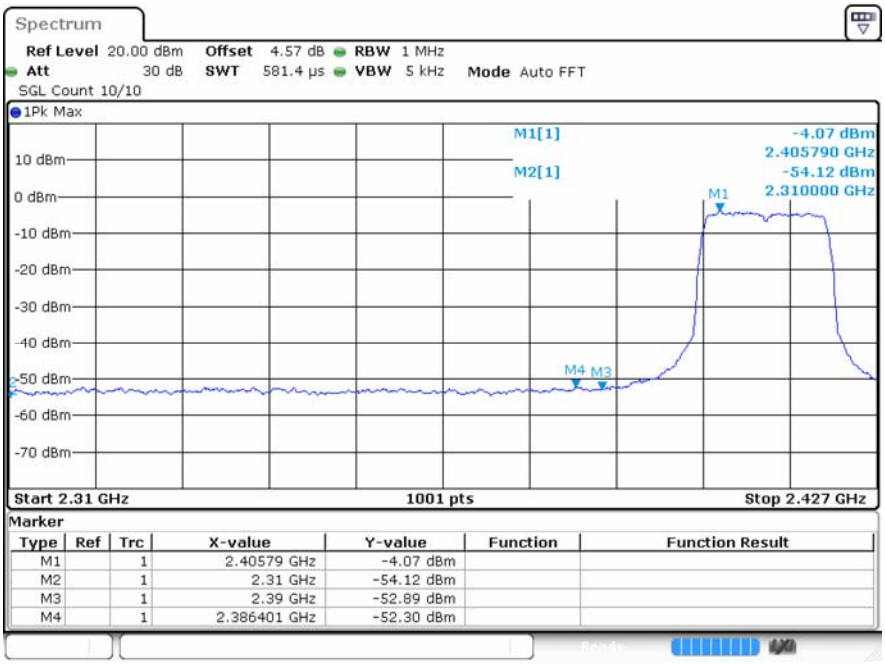
b 2462MHz Ant1 Average



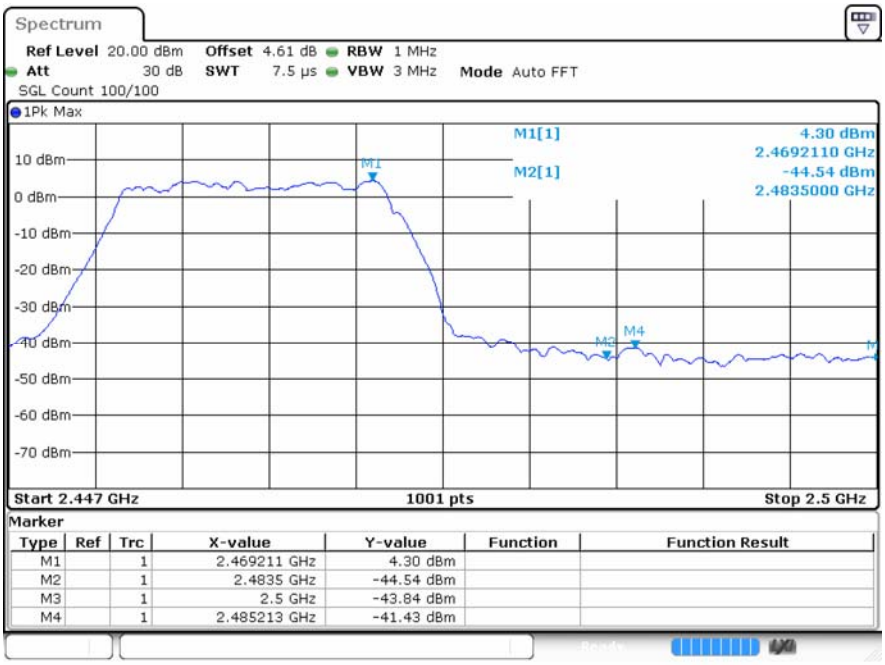
g 2412MHz Ant1 Peak



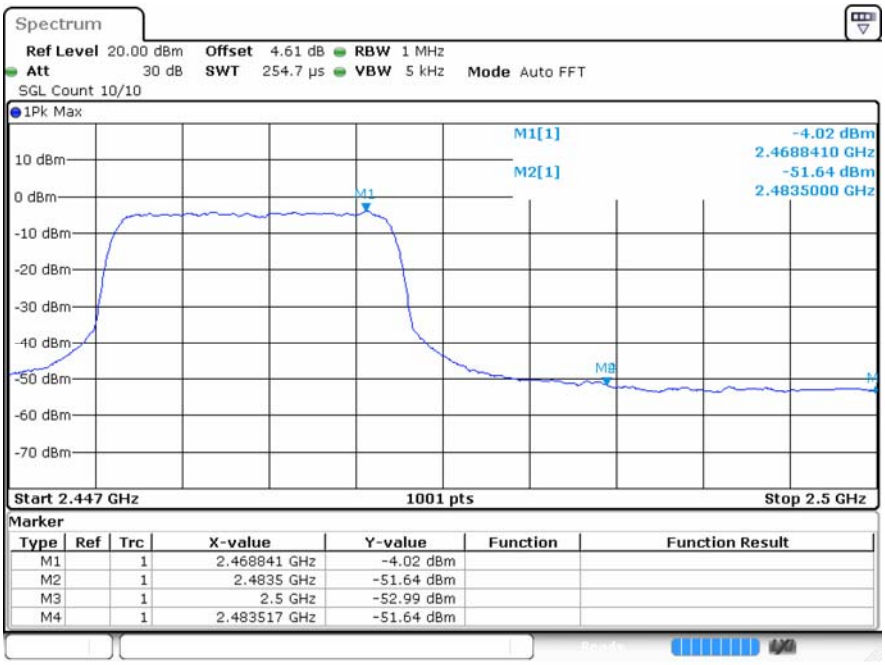
g 2412MHz Ant1 Average



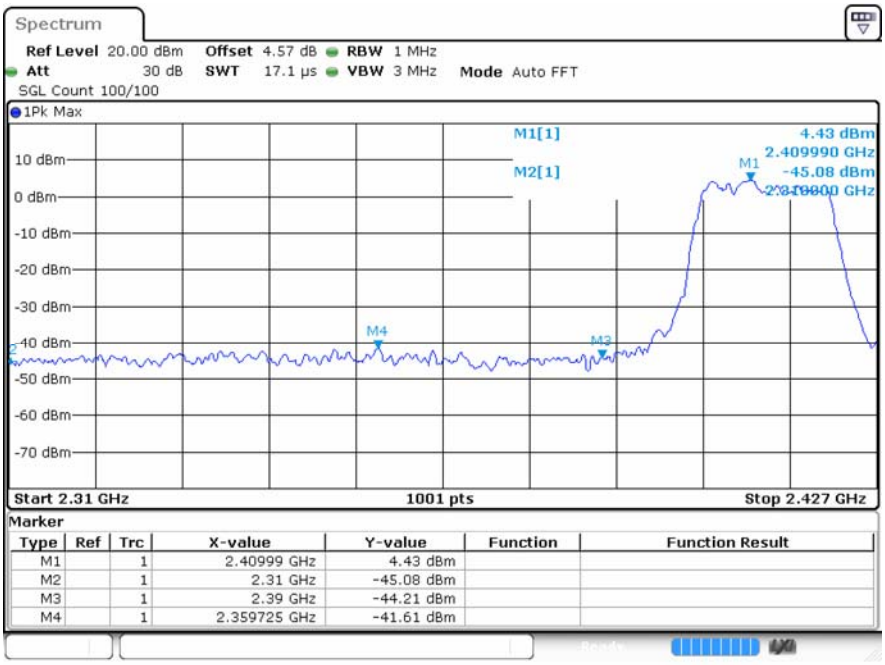
g 2462MHz Ant1 Peak



g 2462MHz Ant1 Average



n20 2412MHz Ant1 Peak



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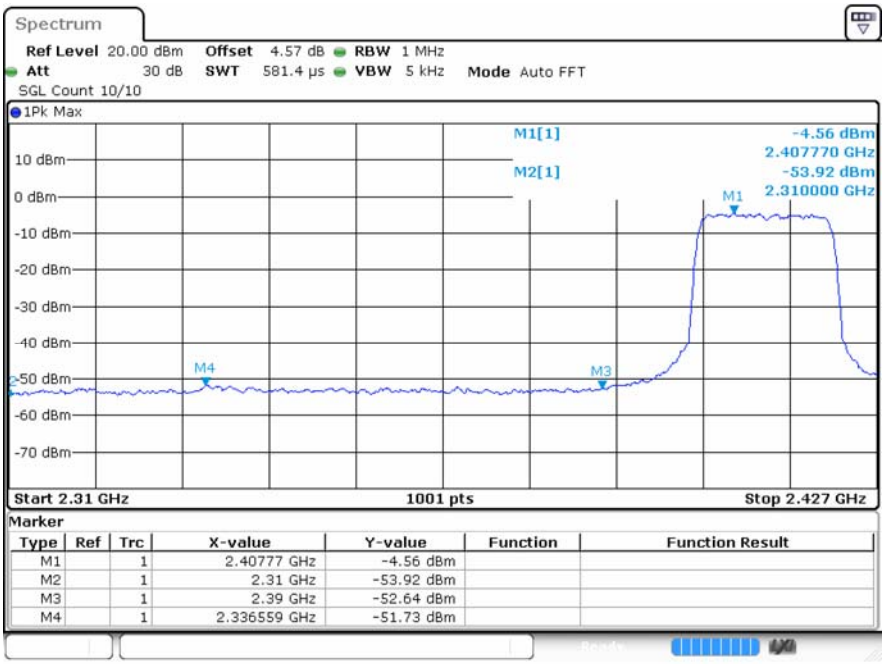
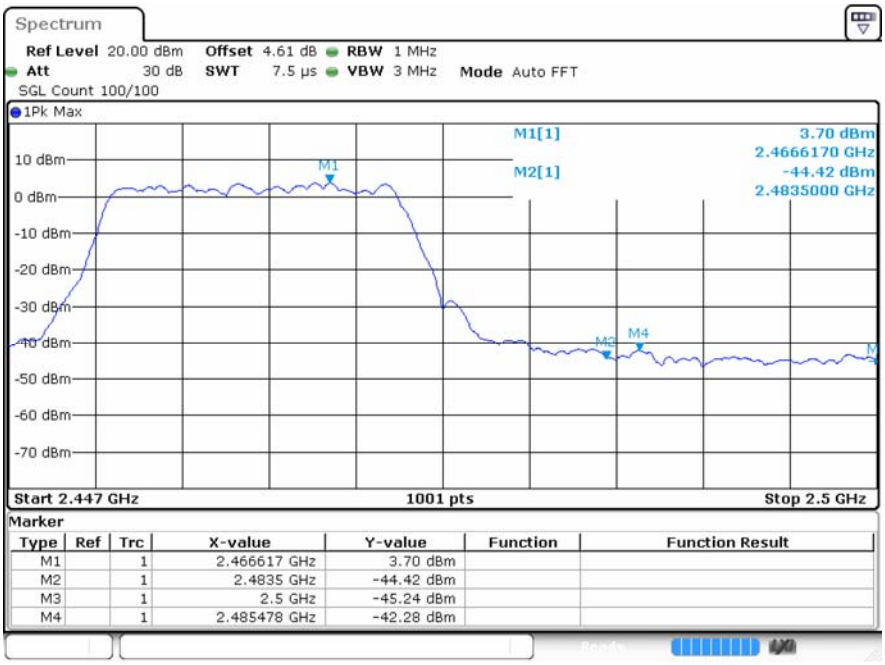


n20 2462MHz Ant1 Peak



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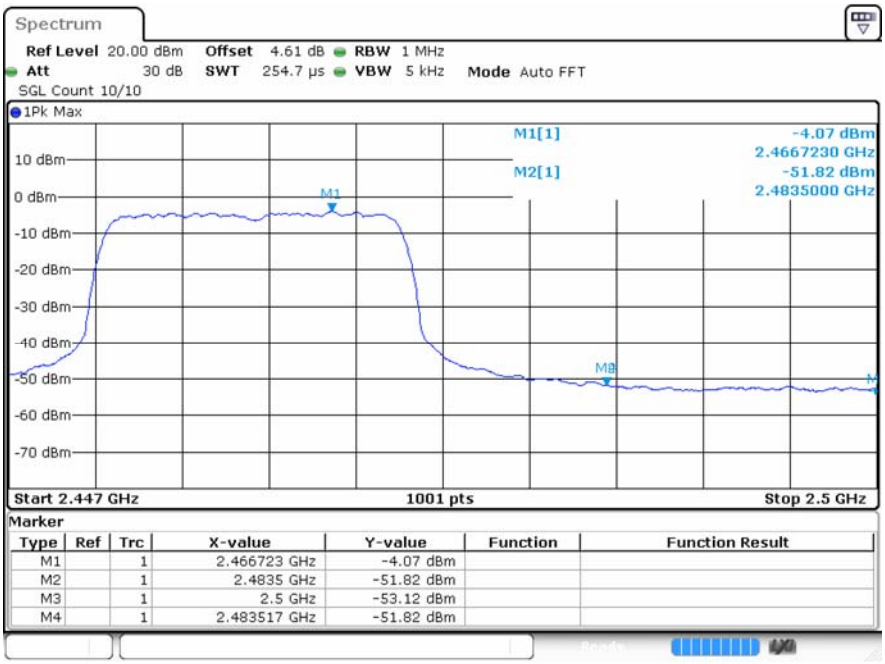

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