Appendix C

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: Comms Gateway

Trade Mark: Acorn Stairlifts

Test Model: T715 Comms Gateway

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

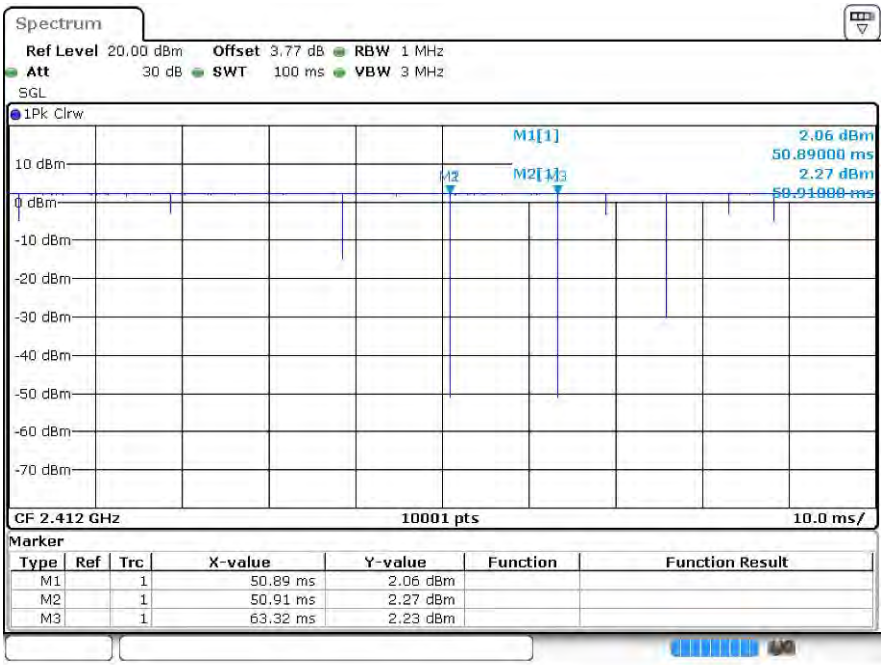
1.1 Test Result

Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	1/T (kHz)
b	2412	Ant1	99.97	0.08
b	2437	Ant1	99.96	0.08
b	2462	Ant1	99.96	0.08
g	2412	Ant1	99.4	0.49
g	2437	Ant1	99.4	0.48
g	2462	Ant1	99.42	0.48
n20	2412	Ant1	99.36	0.52
n20	2437	Ant1	99.36	0.52
n20	2462	Ant1	99.37	0.52

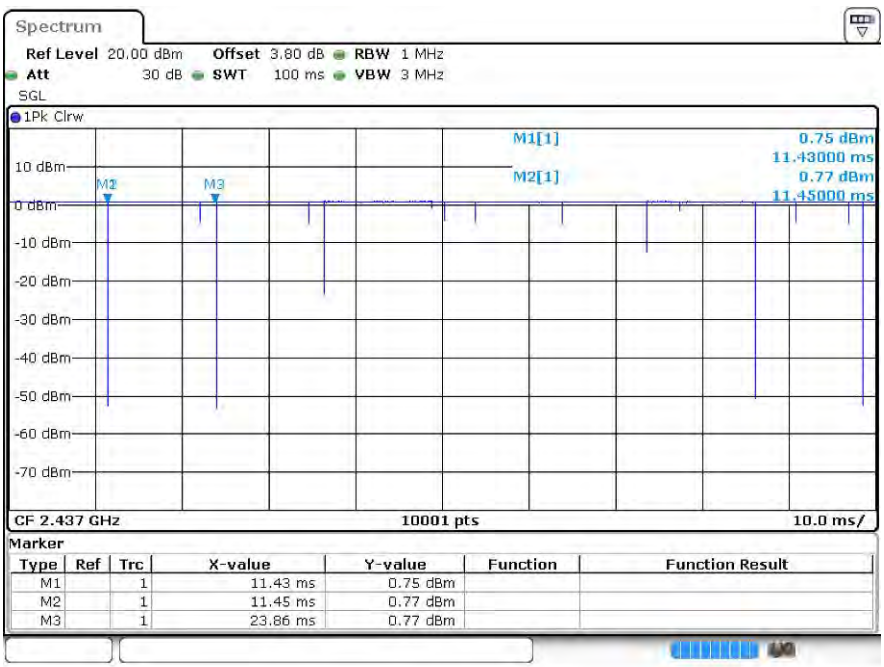
1.2 Test Graphs

Test Graphs

b 2412MHz Ant1

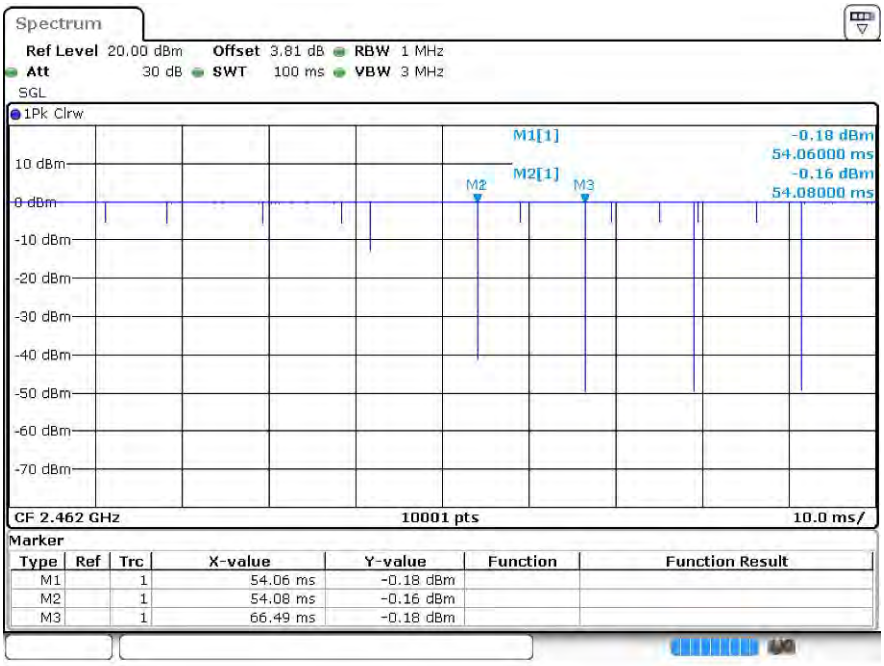


b 2437MHz Ant1

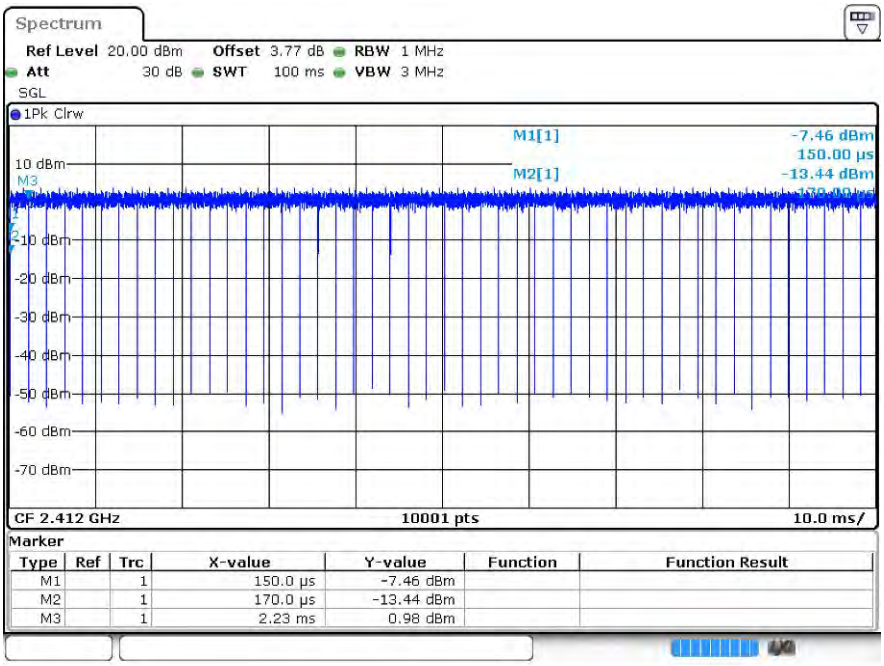


Test Graphs

b 2462MHz Ant1

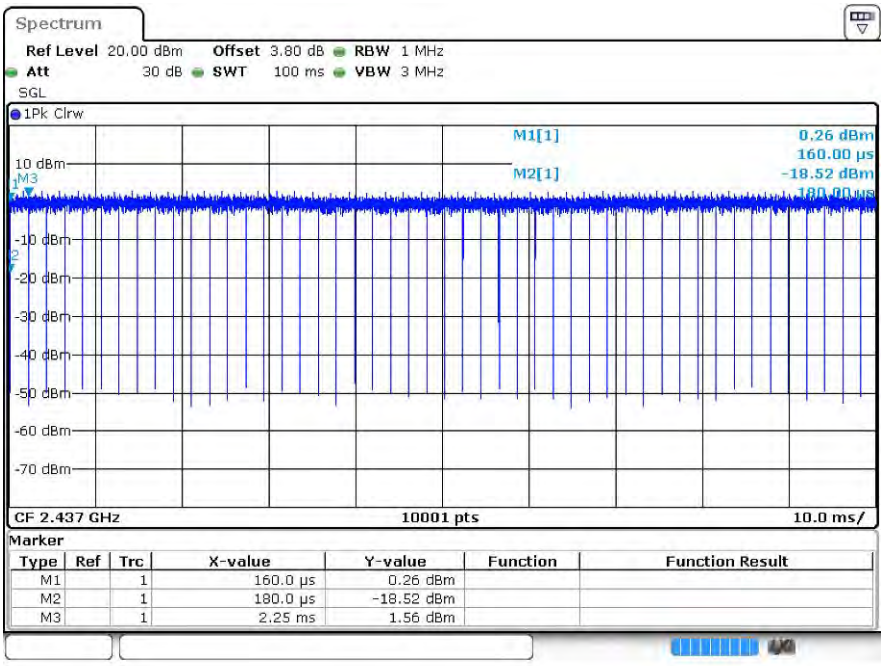


g 2412MHz Ant1

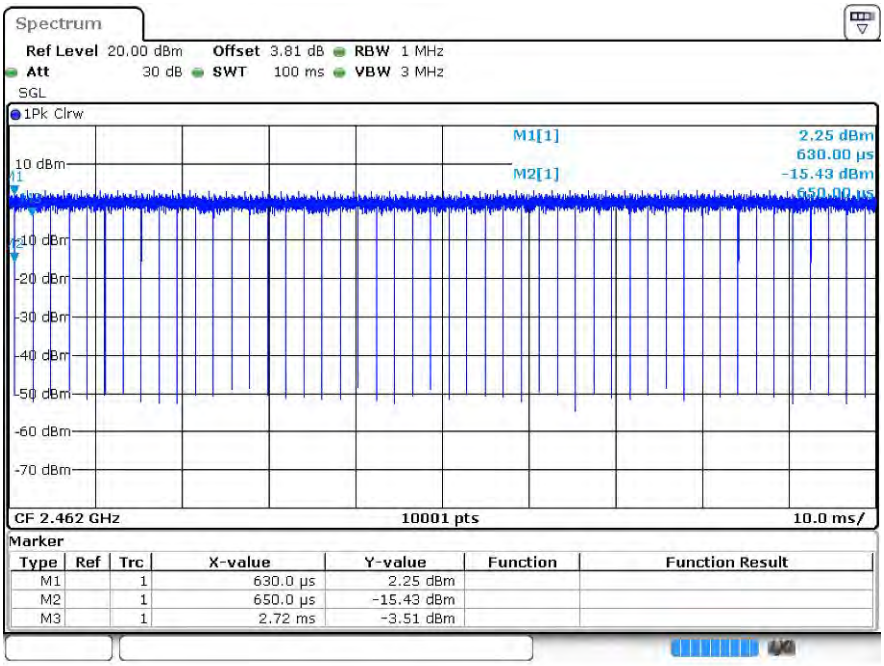


Test Graphs

g 2437MHz Ant1

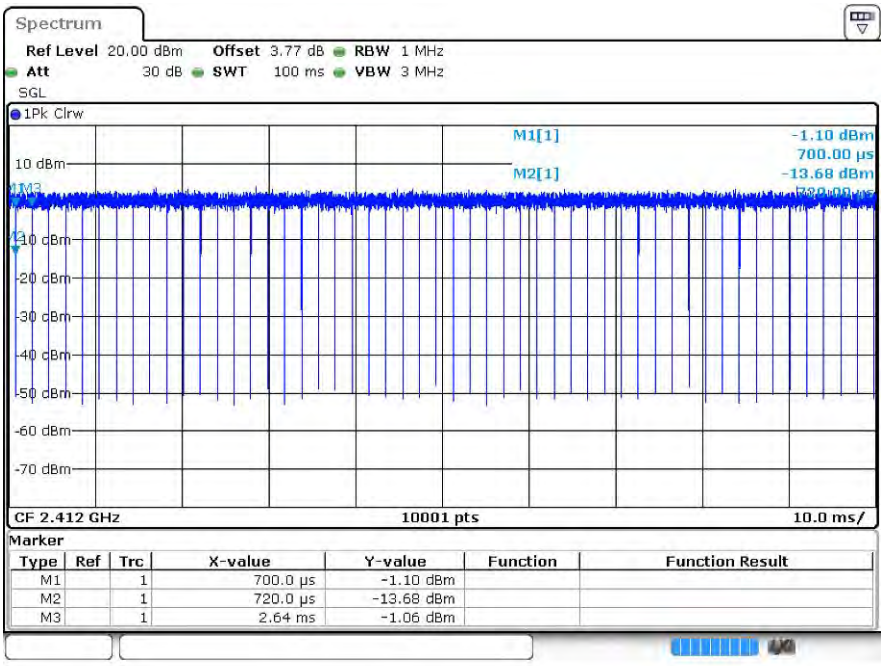


g 2462MHz Ant1

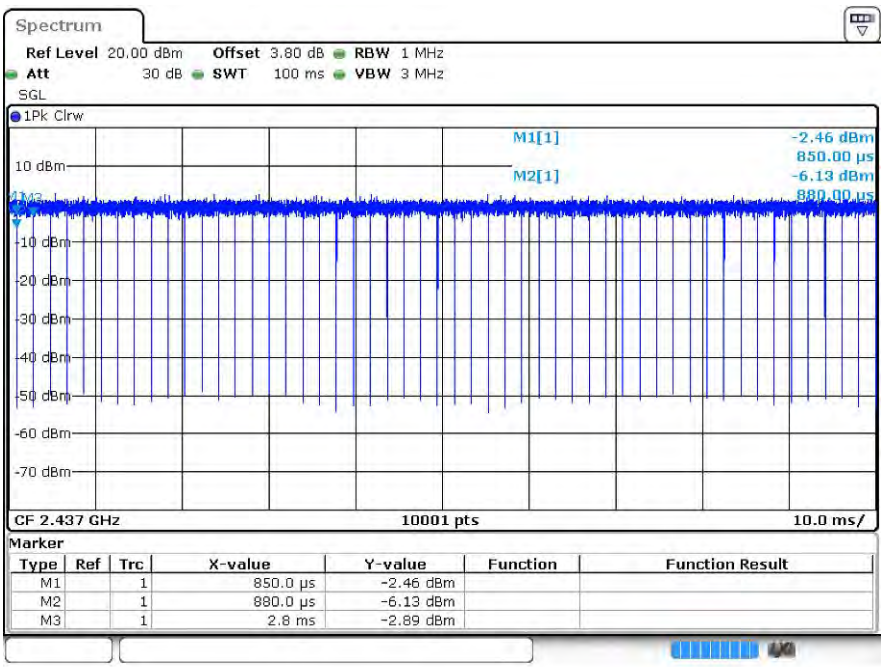


Test Graphs

n20 2412MHz Ant1

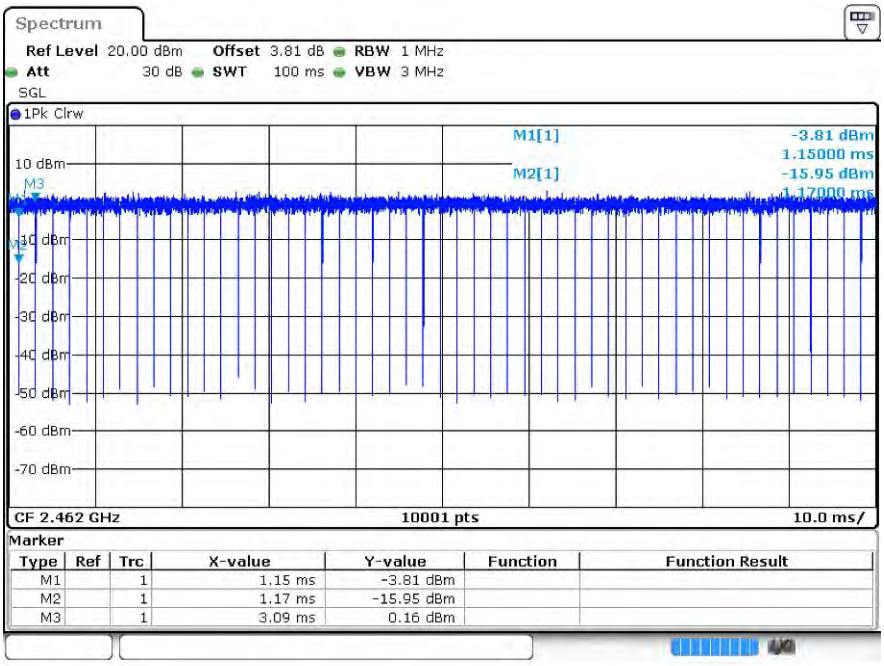


n20 2437MHz Ant1



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	9.76	30	Pass
b	2437	Ant1	8.77	30	Pass
b	2462	Ant1	9.67	30	Pass
g	2412	Ant1	9.96	30	Pass
g	2437	Ant1	7.97	30	Pass
g	2462	Ant1	7.5	30	Pass
n20	2412	Ant1	8.88	30	Pass
n20	2437	Ant1	7.7	30	Pass
n20	2462	Ant1	9.95	30	Pass

3 -6dB Bandwidth

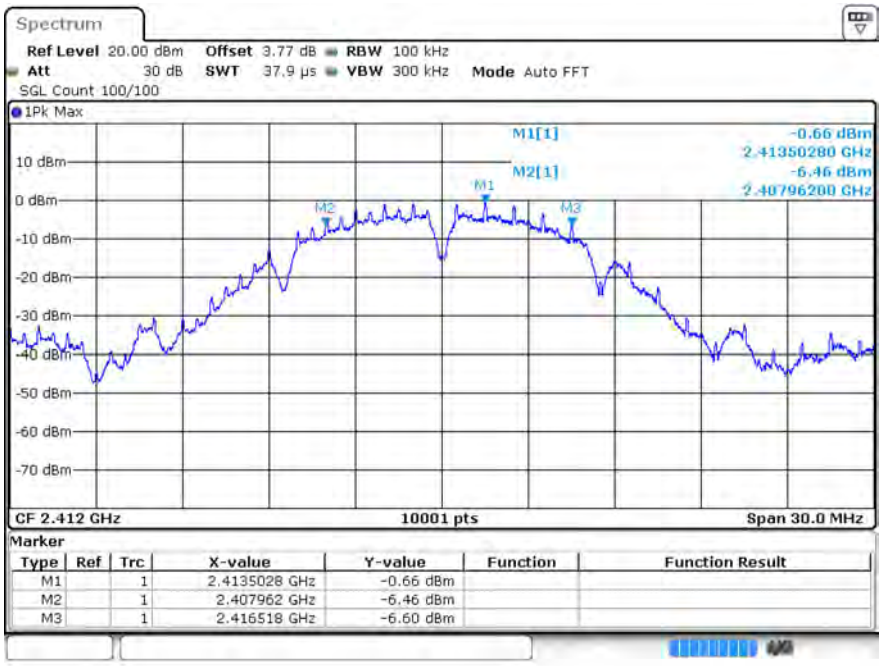
3.1 Test Result

Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
b	2412	Ant1	8.556	0.5	Pass
b	2437	Ant1	8.553	0.5	Pass
b	2462	Ant1	8.085	0.5	Pass
g	2412	Ant1	16.326	0.5	Pass
g	2437	Ant1	16.323	0.5	Pass
g	2462	Ant1	10.41	0.5	Pass
n20	2412	Ant1	17.577	0.5	Pass
n20	2437	Ant1	17.583	0.5	Pass
n20	2462	Ant1	10.932	0.5	Pass

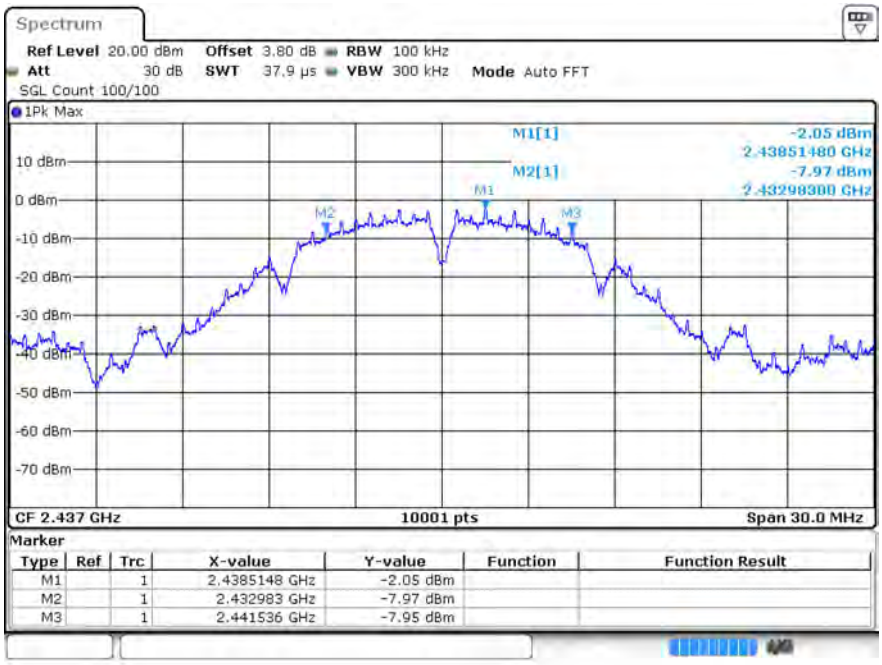
3.2 Test Graphs

Test Graphs

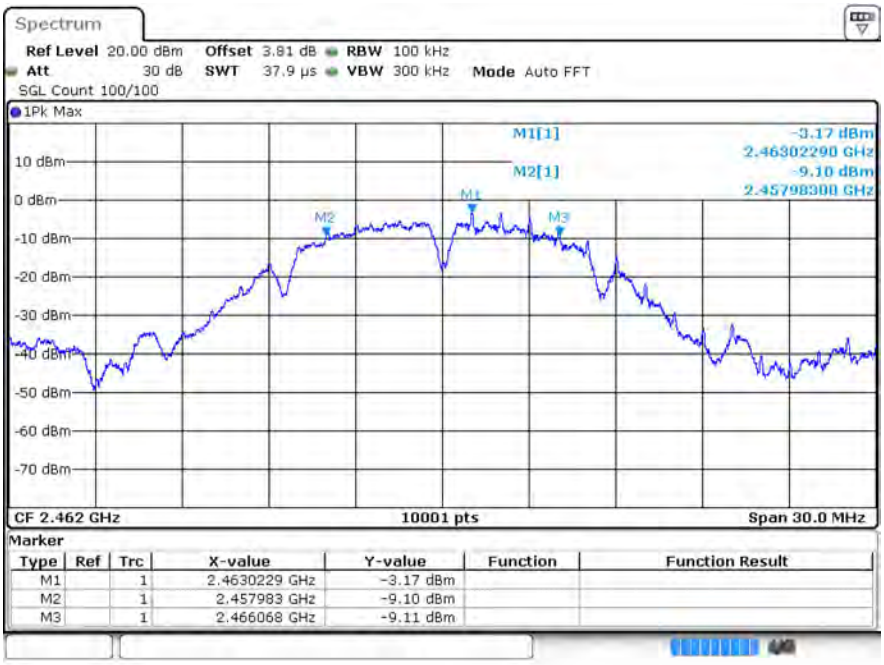
b 2412MHz Ant1



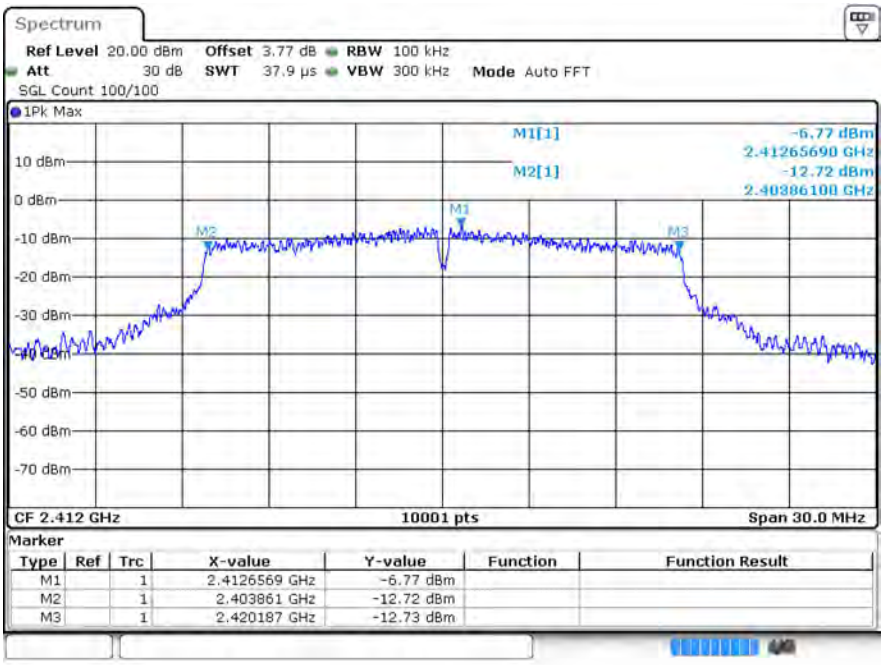
b 2437MHz Ant1



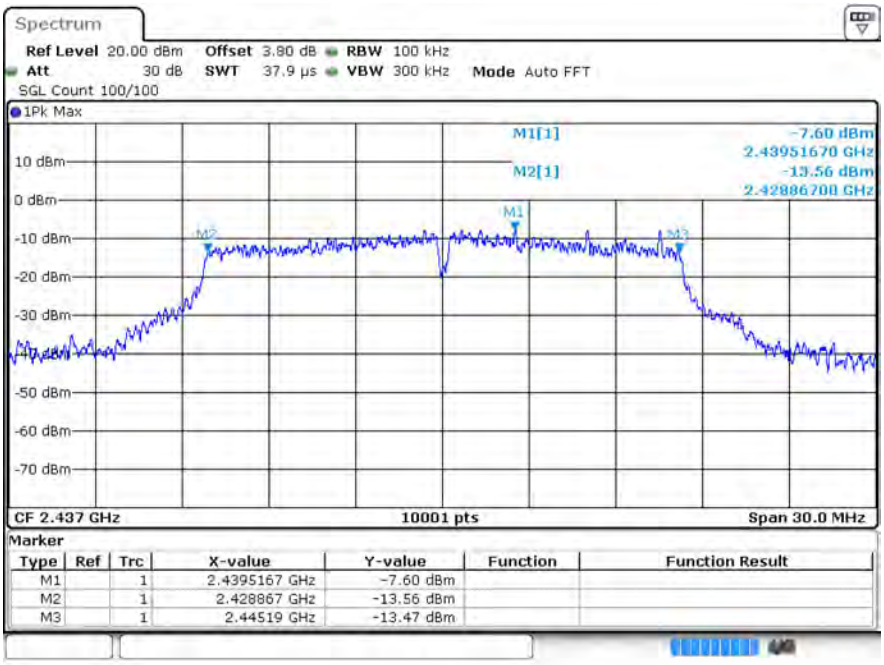
b 2462MHz Ant1



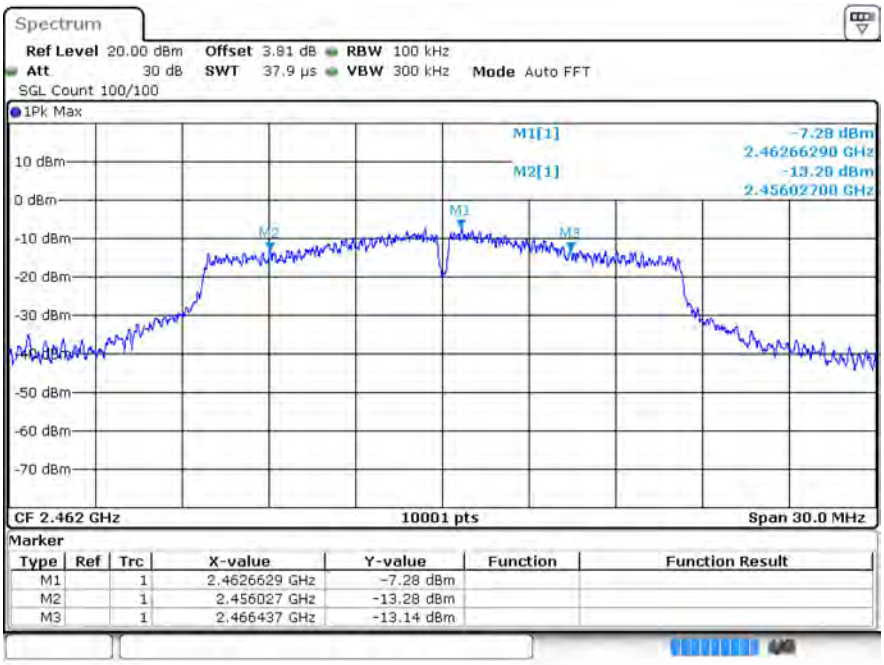
g 2412MHz Ant1



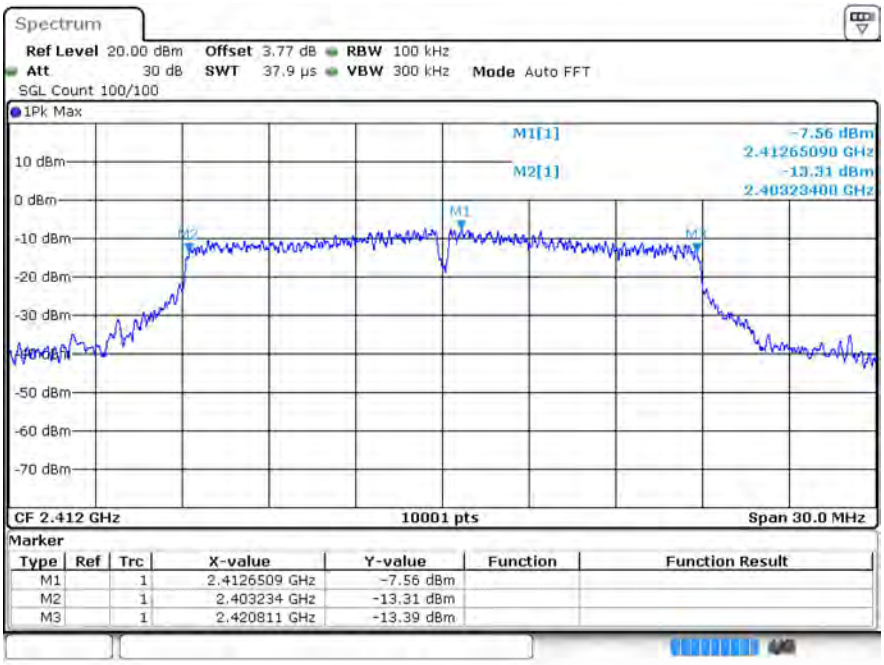
g 2437MHz Ant1



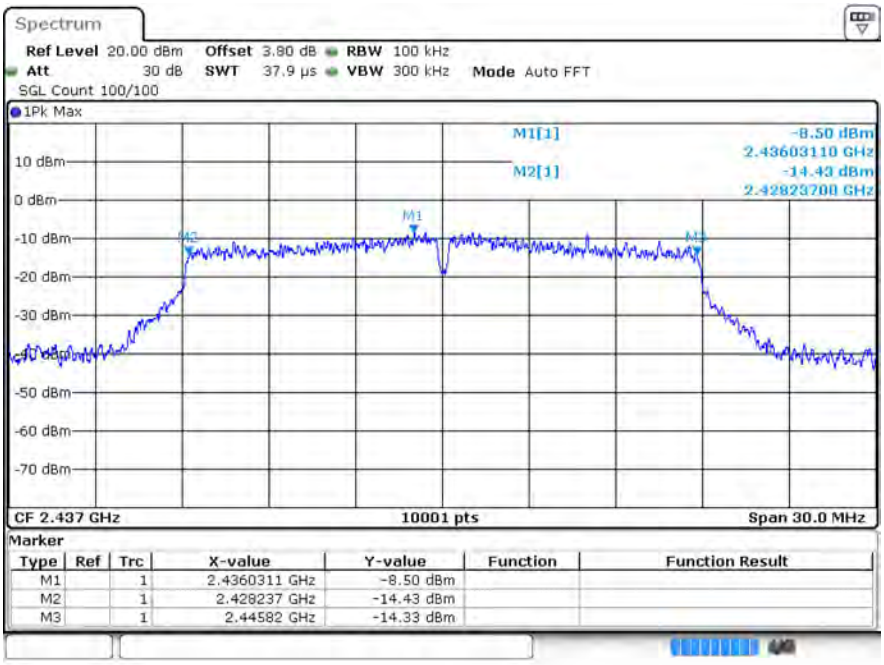
g 2462MHz Ant1



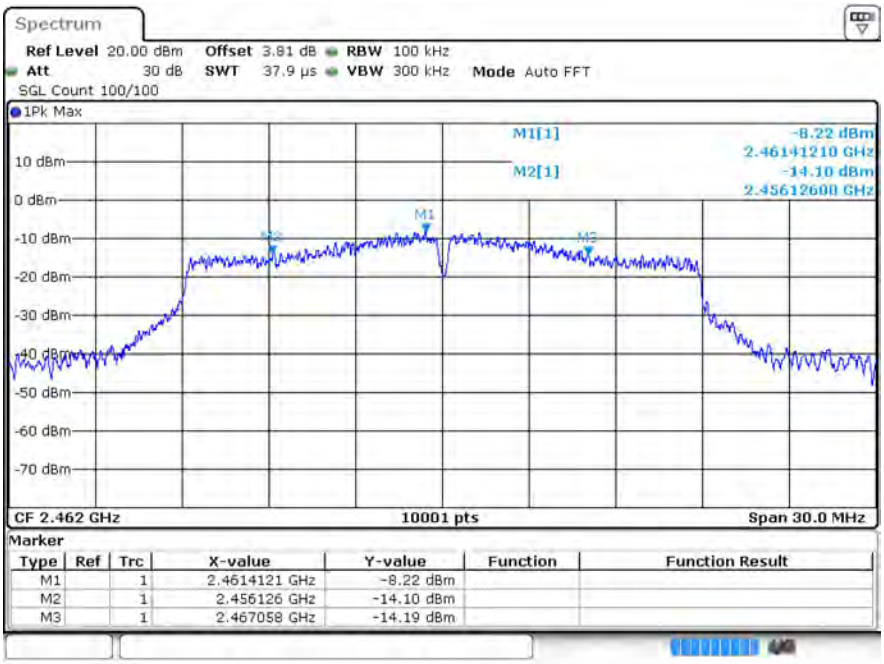
n20 2412MHz Ant1



n20 2437MHz Ant1



n20 2462MHz Ant1

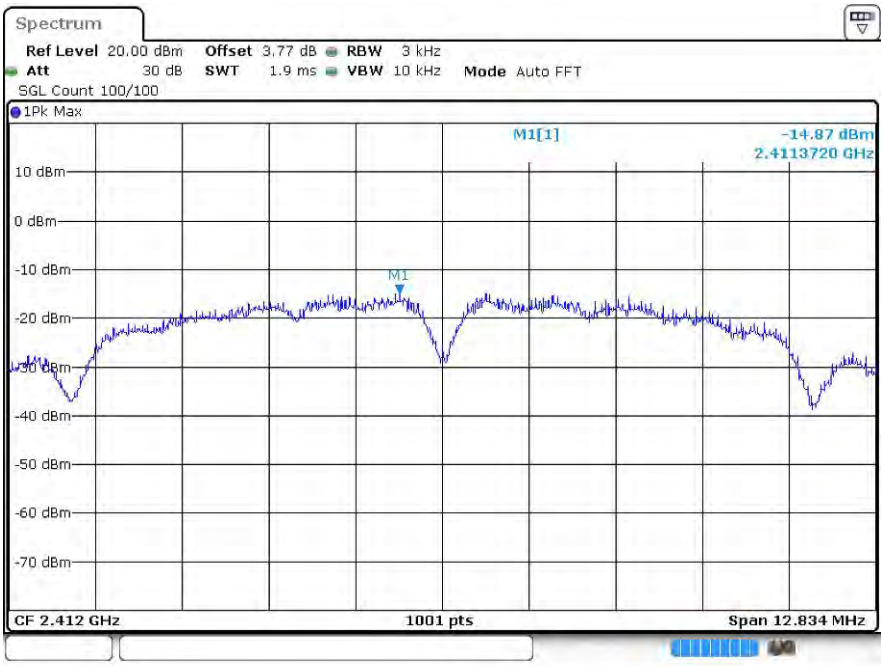
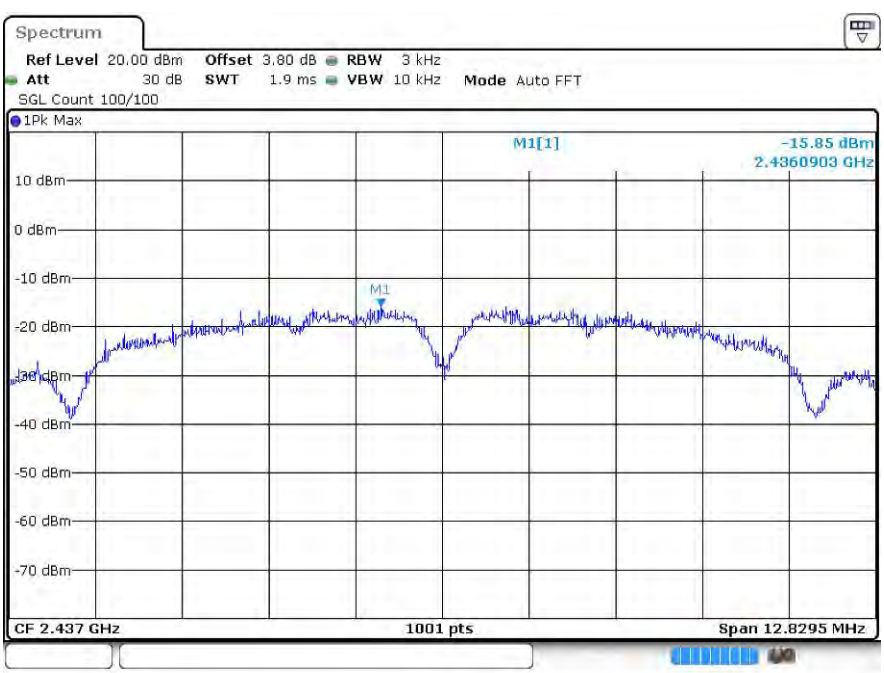


4 Maximum Power Spectral Density Level

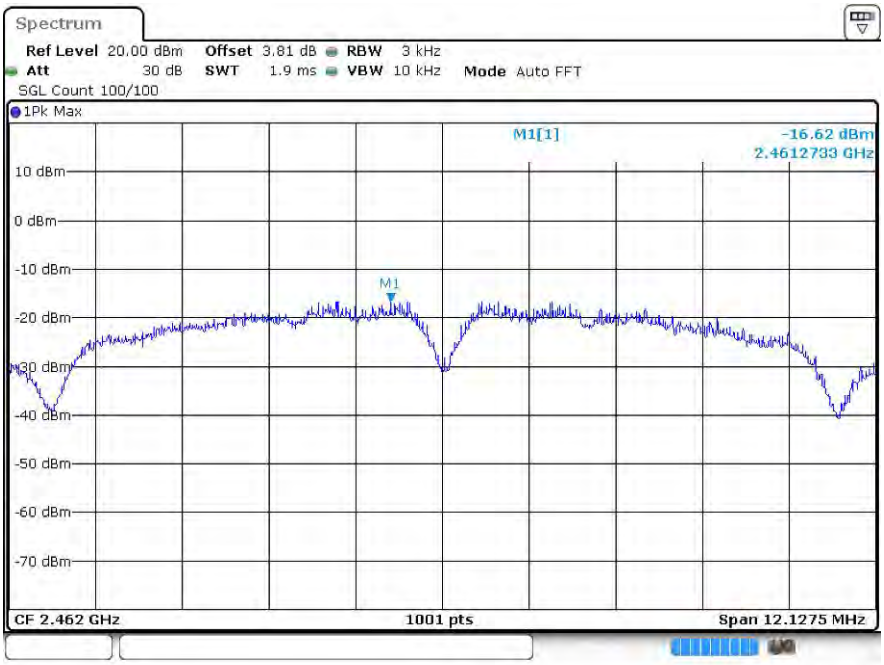
4.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3-100kHz)	Limit (dBm/3kHz)	Verdict
b	2412	Ant1	-14.87	≤8	Pass
b	2437	Ant1	-15.85	≤8	Pass
b	2462	Ant1	-16.62	≤8	Pass
g	2412	Ant1	-17.23	≤8	Pass
g	2437	Ant1	-18.24	≤8	Pass
g	2462	Ant1	-18.21	≤8	Pass
n20	2412	Ant1	-17.59	≤8	Pass
n20	2437	Ant1	-19.2	≤8	Pass
n20	2462	Ant1	-18.23	≤8	Pass

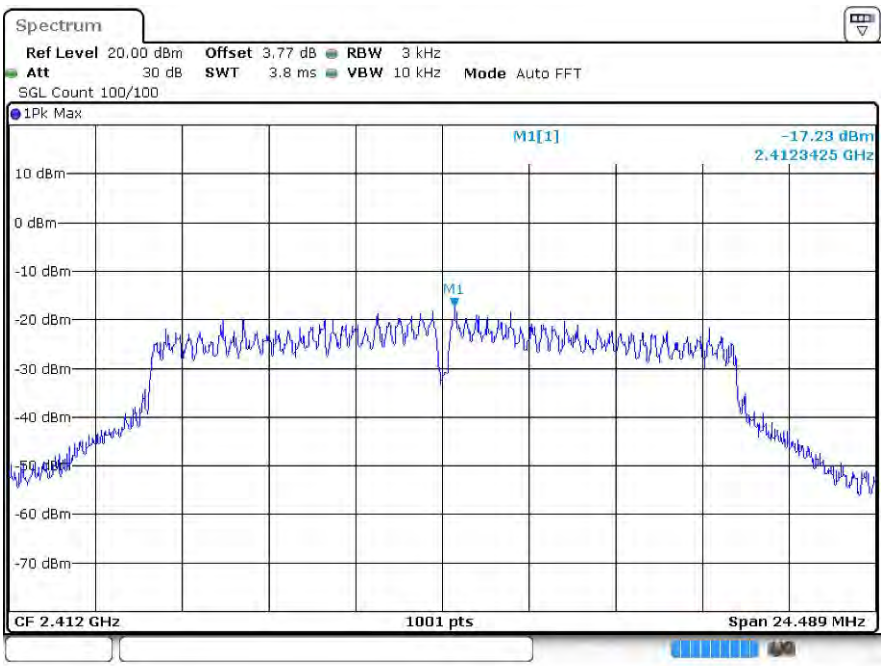
4.2 Test Graphs

Test Graphs
b 2412MHz Ant1

b 2437MHz Ant1


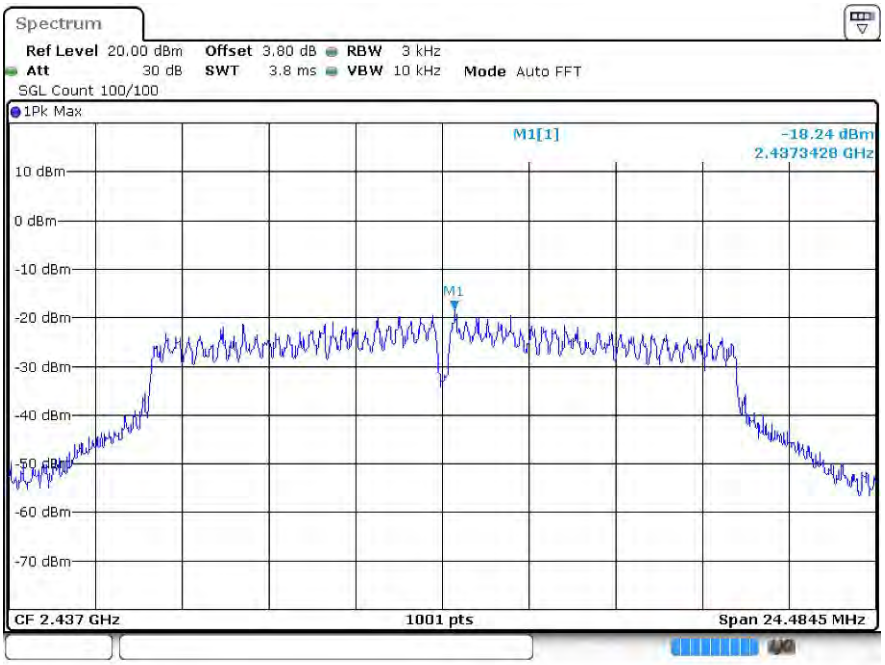
b 2462MHz Ant1



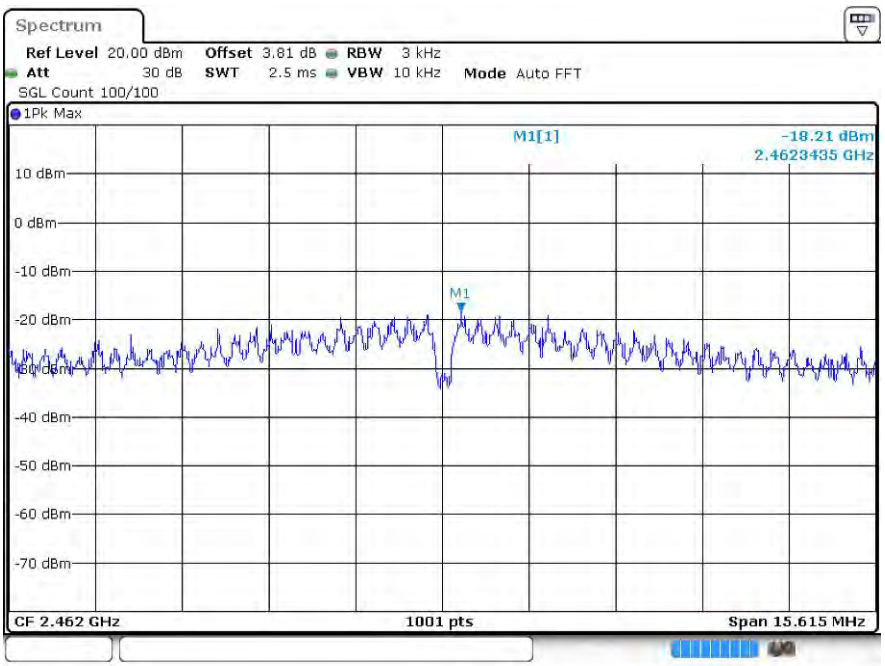
g 2412MHz Ant1



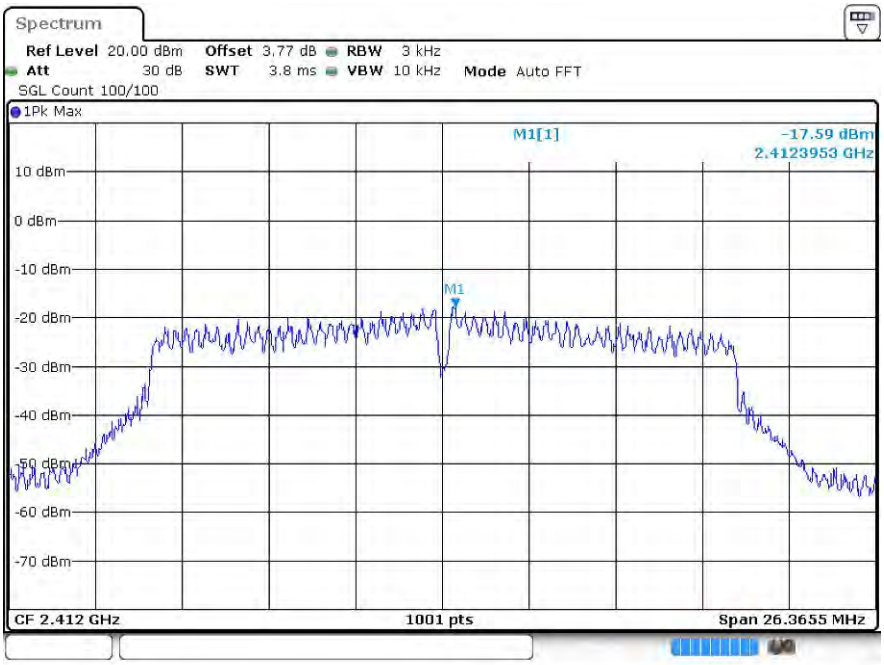
g 2437MHz Ant1



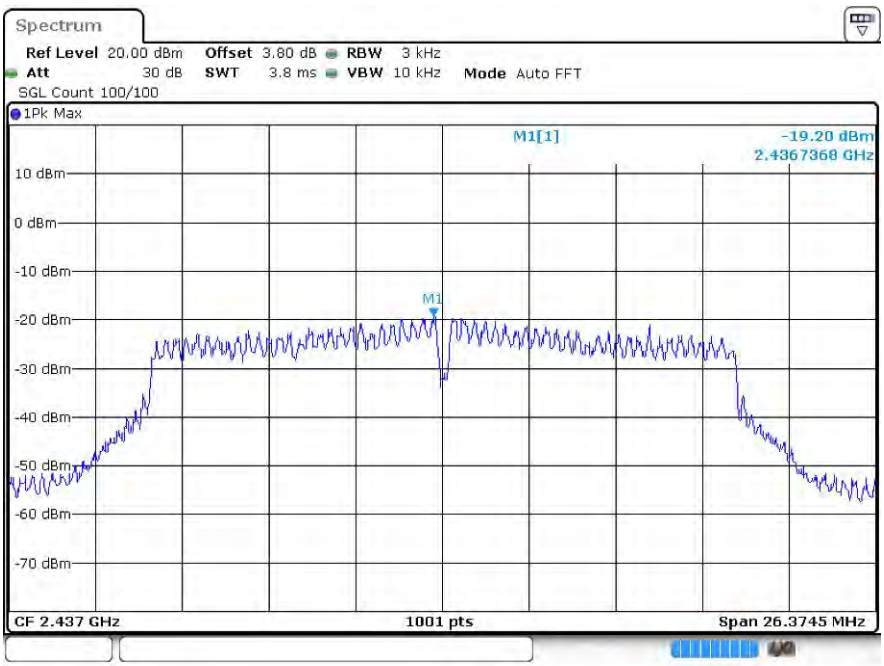
g 2462MHz Ant1



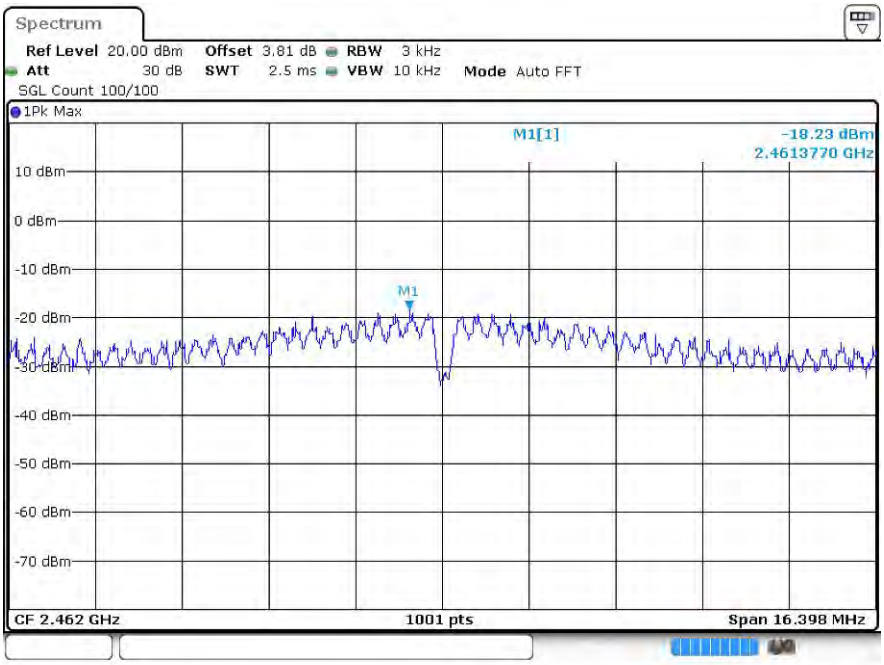
n20 2412MHz Ant1



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	-49.93	-20	Pass
b	2462	Ant1	-46.38	-20	Pass
g	2412	Ant1	-36.78	-20	Pass
g	2462	Ant1	-35.93	-20	Pass
n20	2412	Ant1	-37.42	-20	Pass
n20	2462	Ant1	-40.24	-20	Pass

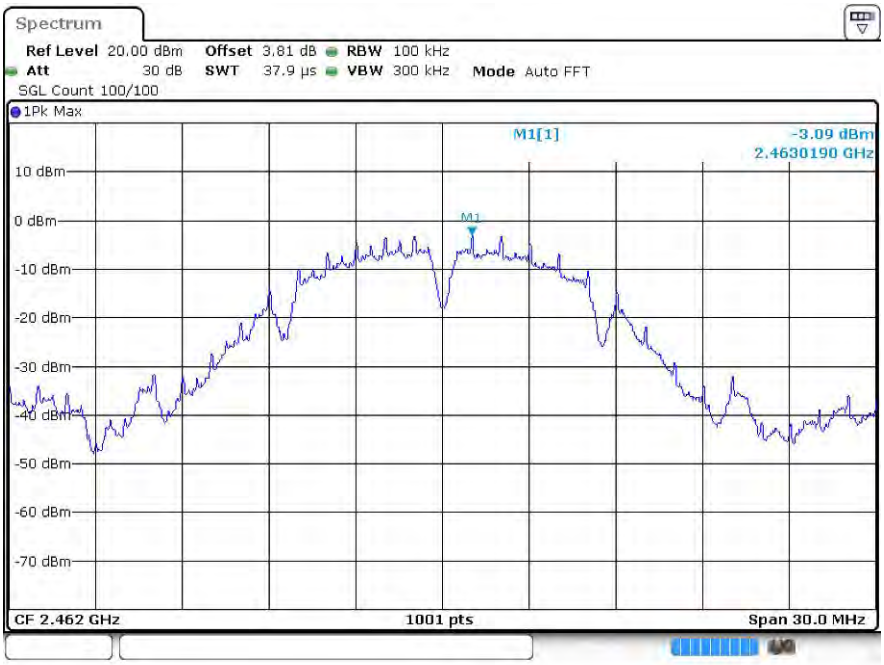
5.2 Test Graphs

Test Graphs

b 2412MHz Ant1 Ref

b 2412MHz Ant1 Emission

b 2462MHz Ant1 Ref

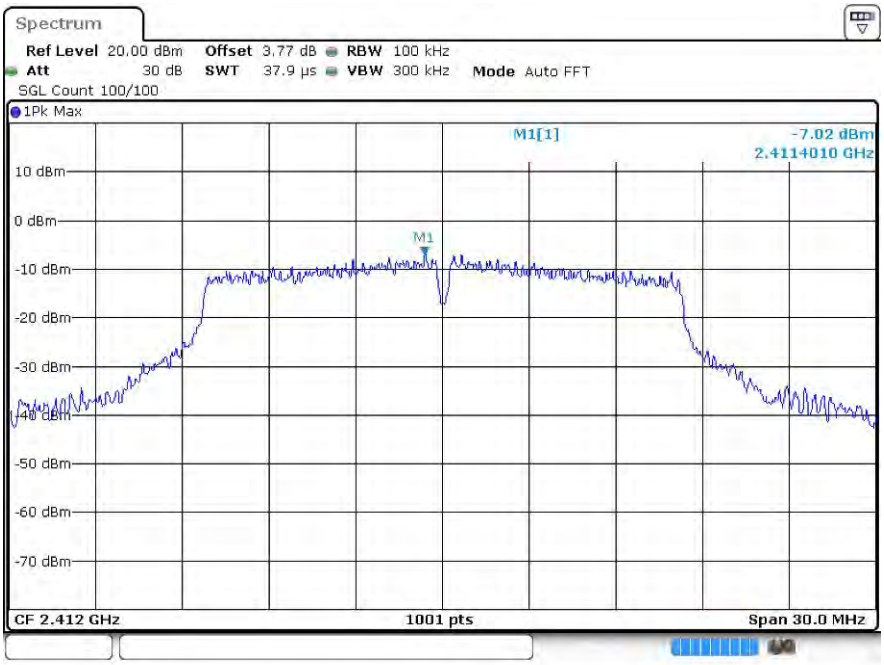


b 2462MHz Ant1 Emission

Marker

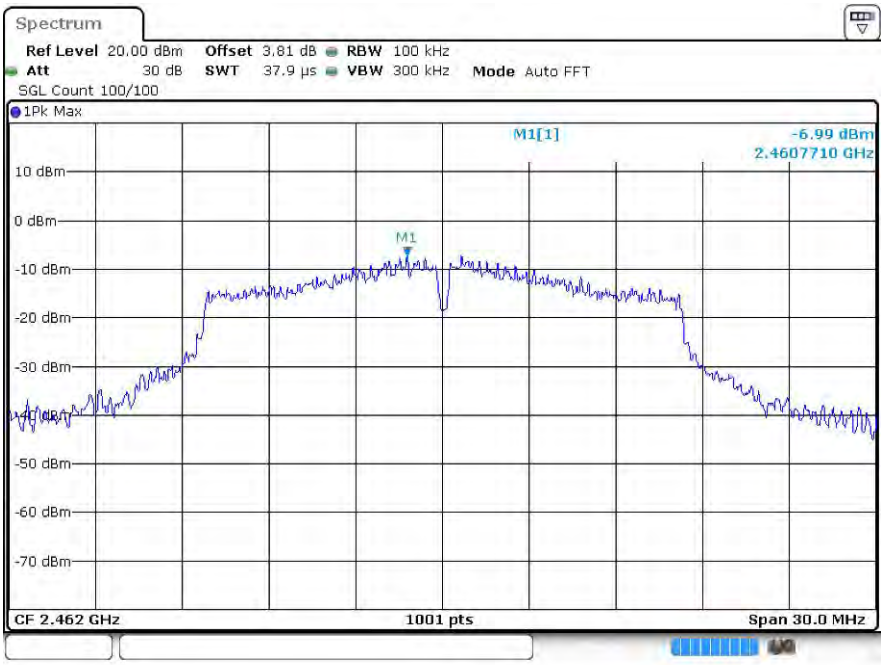
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46054 GHz	-3.08 dBm		
M2		1	2.4835 GHz	-49.47 dBm		
M3		1	2.5 GHz	-59.27 dBm		
M4		1	2.4835 GHz	-49.47 dBm		

g 2412MHz Ant1 Ref

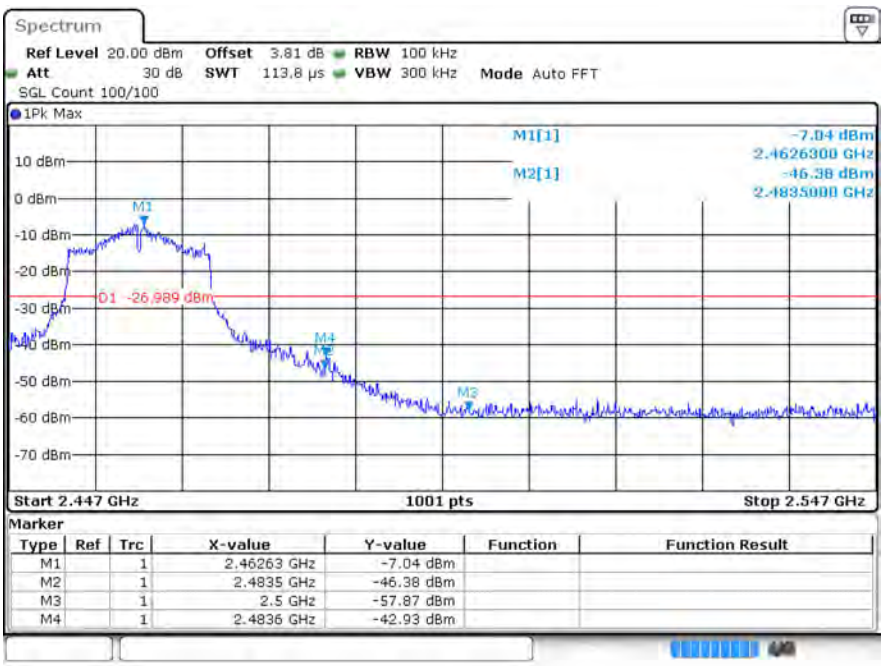


g 2412MHz Ant1 Emission

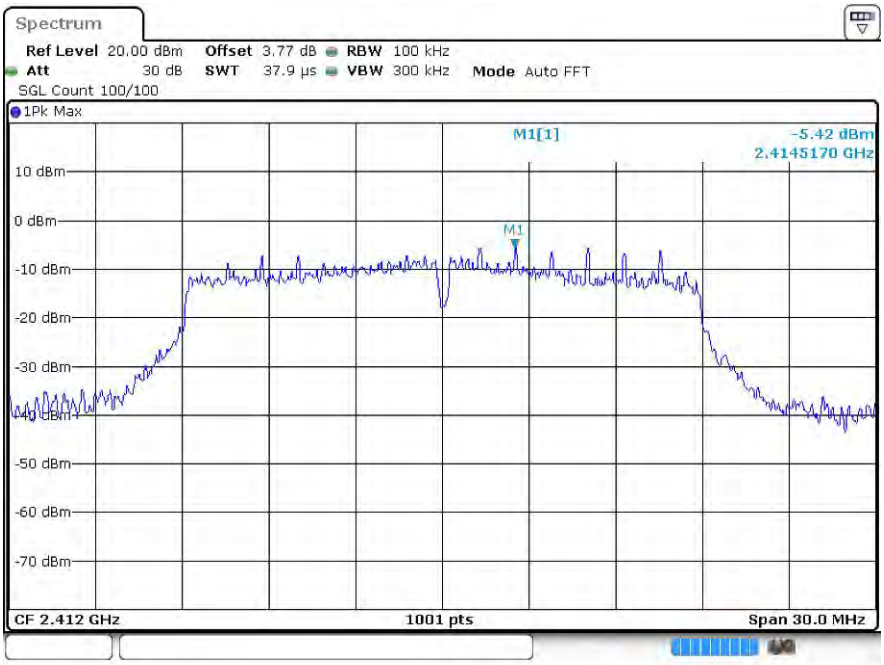
g 2462MHz Ant1 Ref



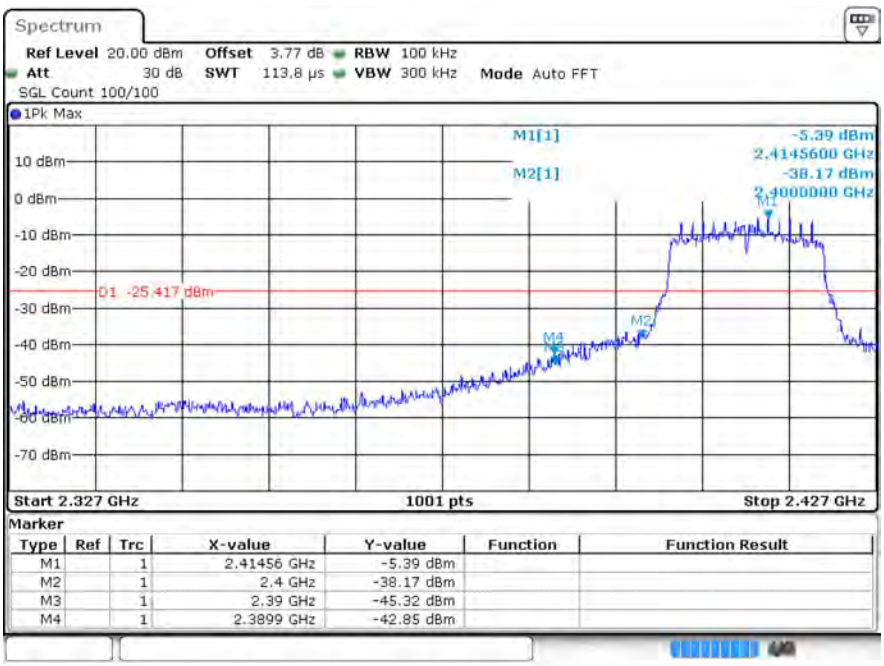
g 2462MHz Ant1 Emission



n20 2412MHz Ant1 Ref



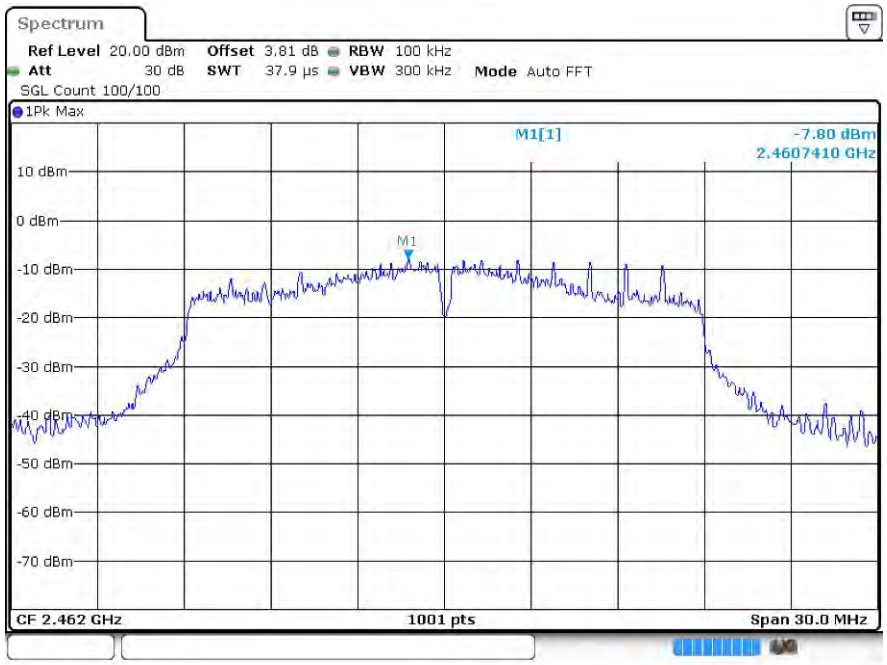
n20 2412MHz Ant1 Emission



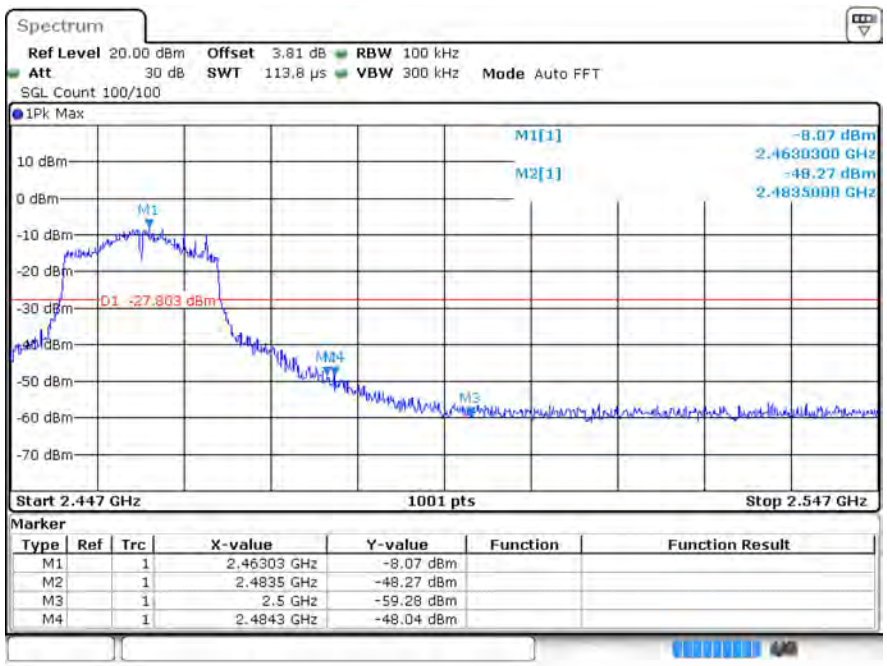
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41456 GHz	-5.39 dBm		
M2		1	2.4 GHz	-38.17 dBm		
M3		1	2.39 GHz	-45.32 dBm		
M4		1	2.3899 GHz	-42.85 dBm		

n20 2462MHz Ant1 Ref



n20 2462MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46303 GHz	-8.07 dBm		
M2		1	2.4835 GHz	-48.27 dBm		
M3		1	2.5 GHz	-59.28 dBm		
M4		1	2.4843 GHz	-48.04 dBm		

6 Conducted RF Spurious Emission

6.1 Test Result

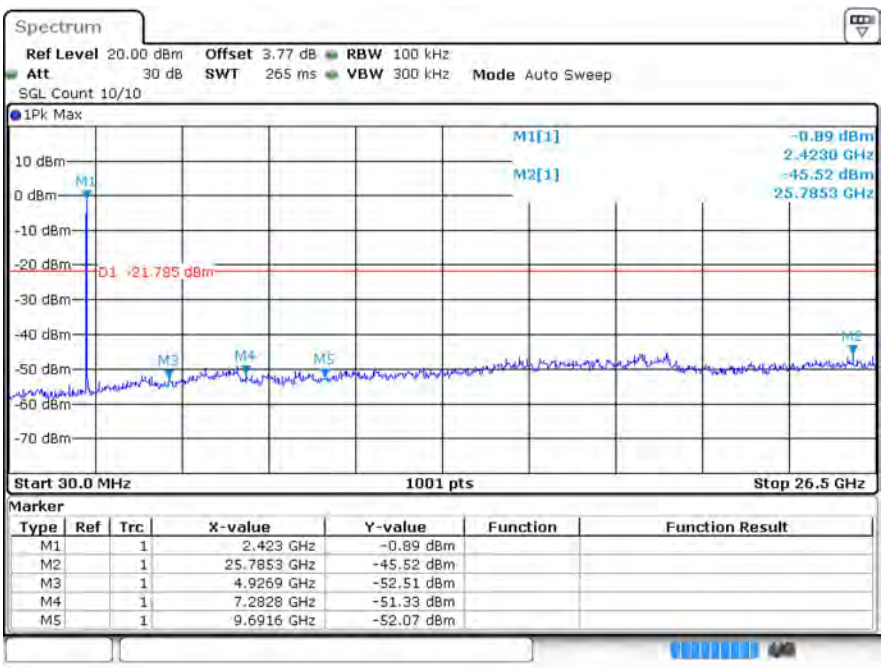
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-43.73	-20	Pass
b	2437	Ant1	-42.77	-20	Pass
b	2462	Ant1	-42.14	-20	Pass
g	2412	Ant1	-39.83	-20	Pass
g	2437	Ant1	-37.82	-20	Pass
g	2462	Ant1	-37.63	-20	Pass
n20	2412	Ant1	-37.99	-20	Pass
n20	2437	Ant1	-38.39	-20	Pass
n20	2462	Ant1	-38.1	-20	Pass

6.2 Test Graphs

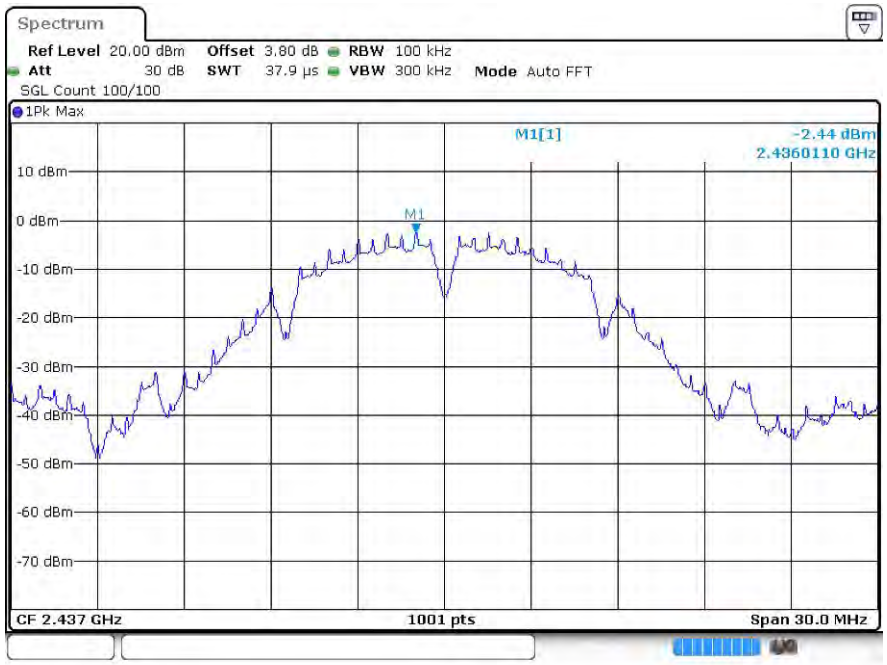
Test Graphs

b 2412MHz Ant1 Ref

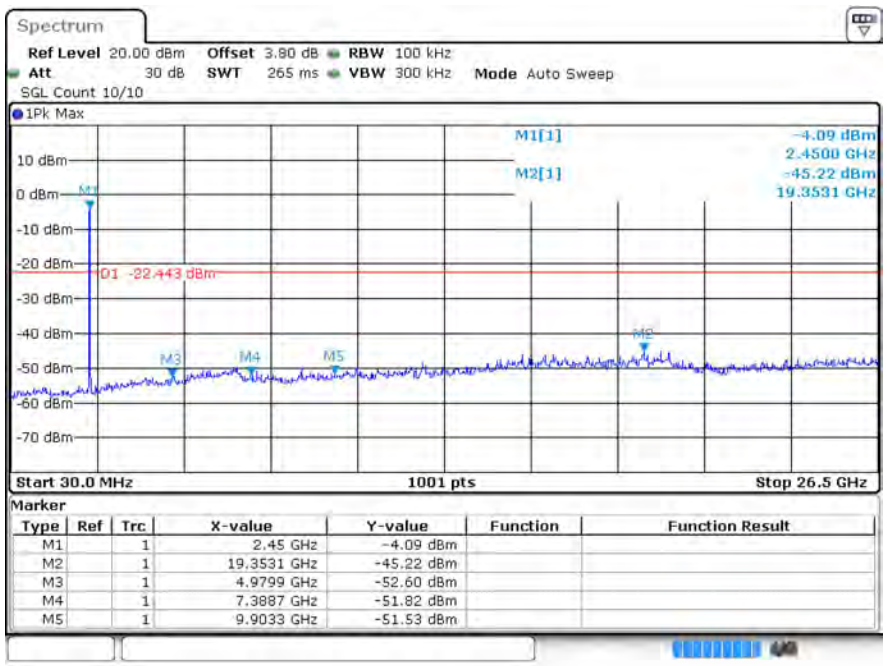
b 2412MHz Ant1 Emission



b 2437MHz Ant1 Ref

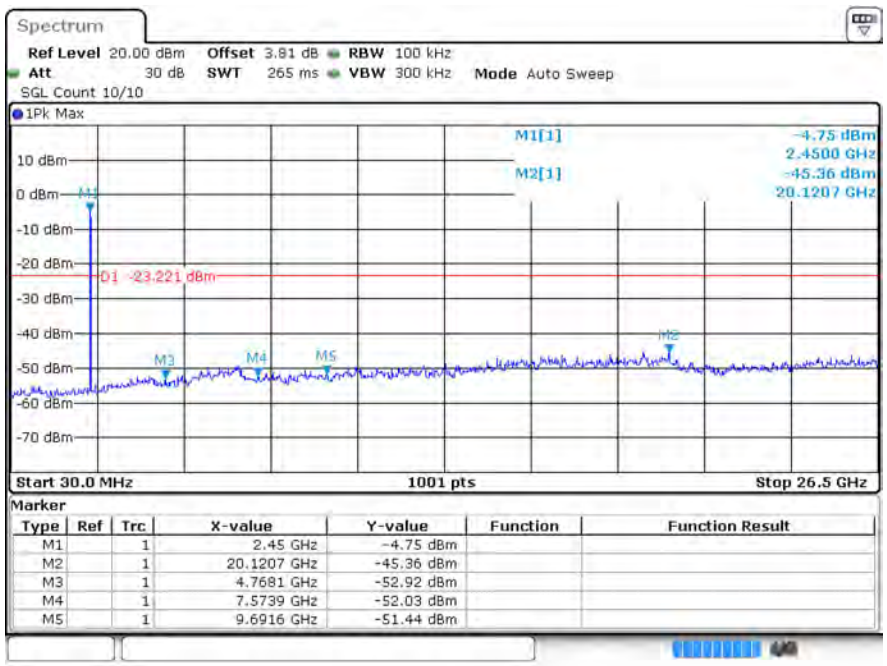


b 2437MHz Ant1 Emission



b 2462MHz Ant1 Ref

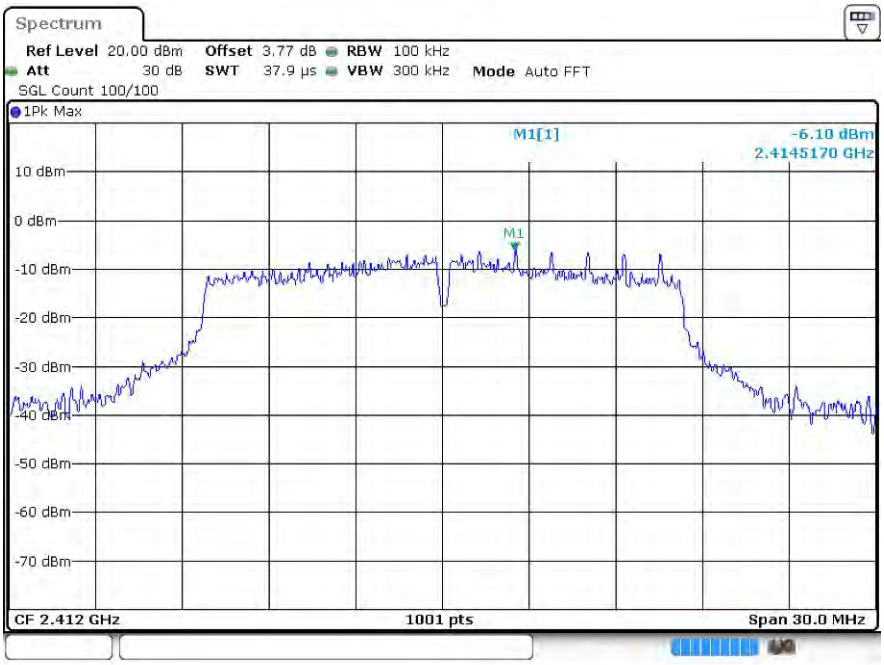
b 2462MHz Ant1 Emission



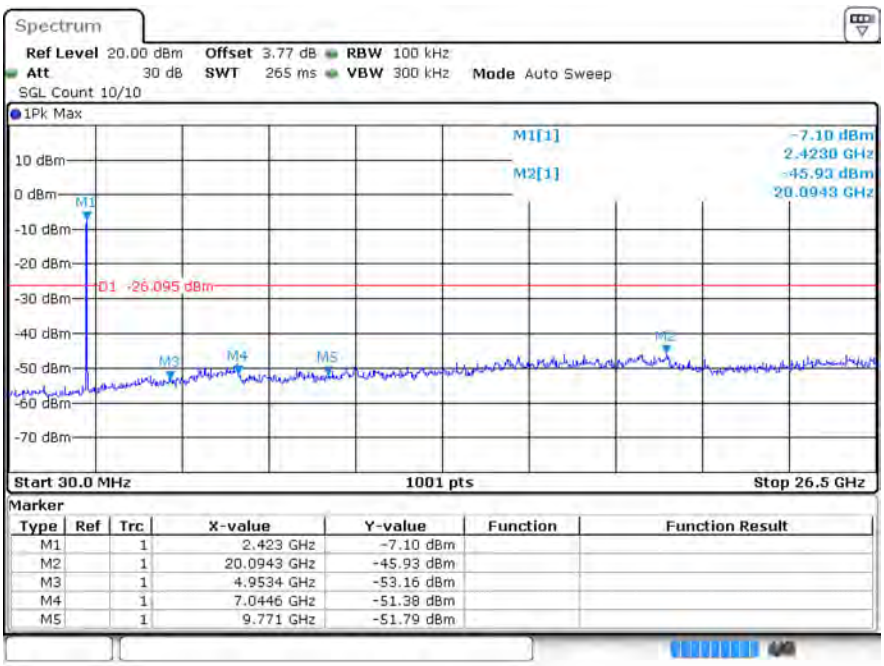
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-4.75 dBm		
M2		1	20.1207 GHz	-45.36 dBm		
M3		1	4.7681 GHz	-52.92 dBm		
M4		1	7.5739 GHz	-52.03 dBm		
M5		1	9.6916 GHz	-51.44 dBm		

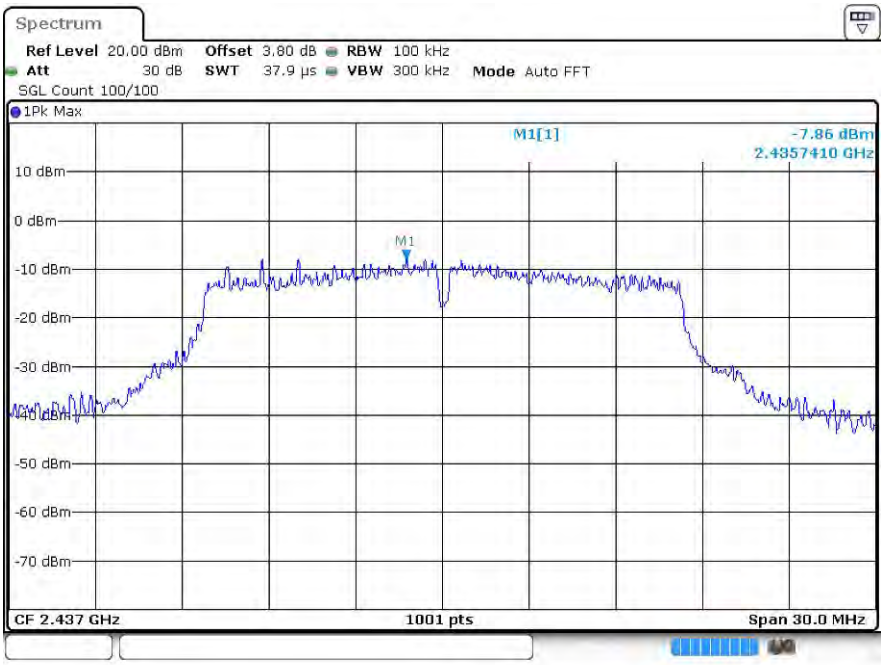
g 2412MHz Ant1 Ref



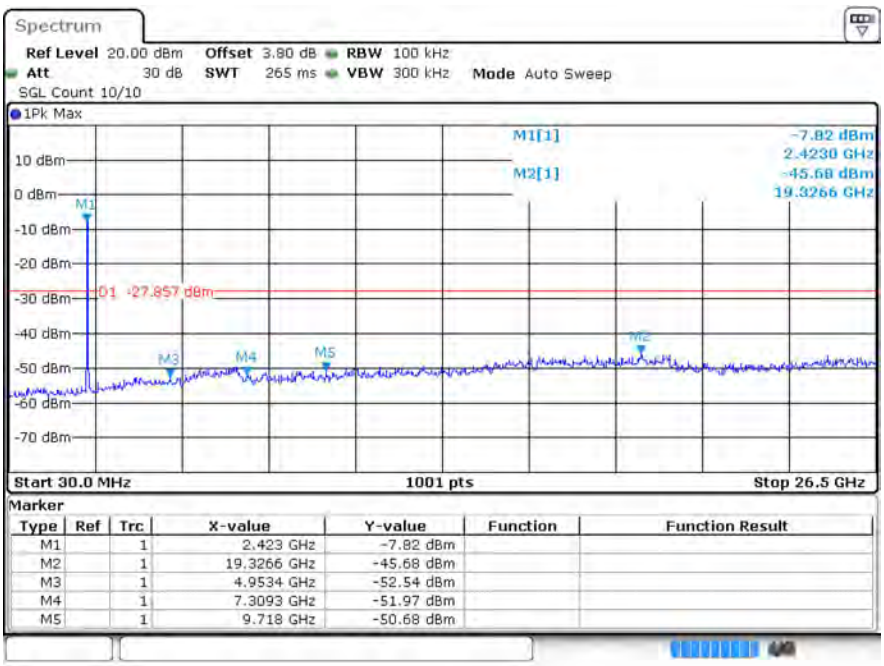
g 2412MHz Ant1 Emission



g 2437MHz Ant1 Ref



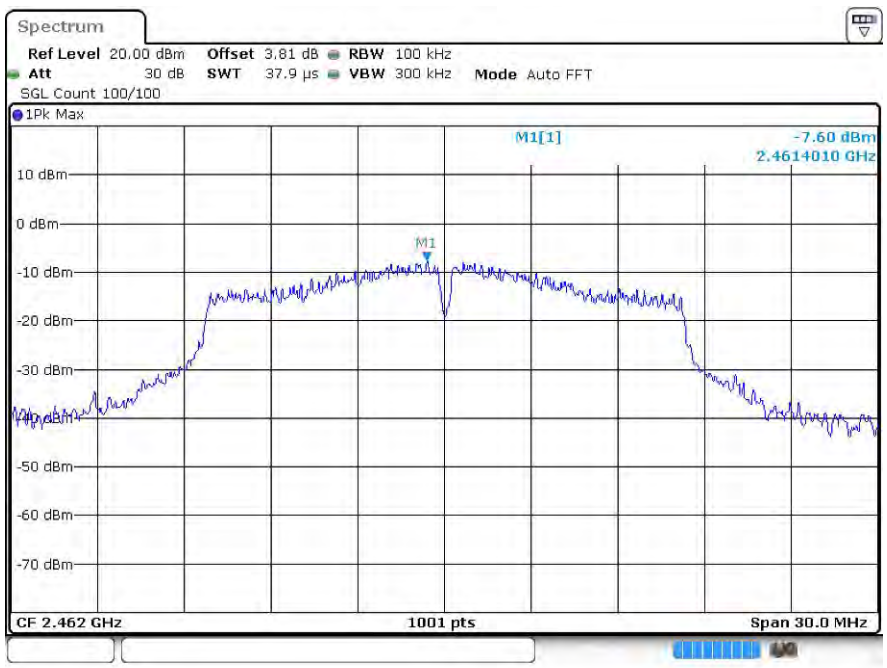
g 2437MHz Ant1 Emission



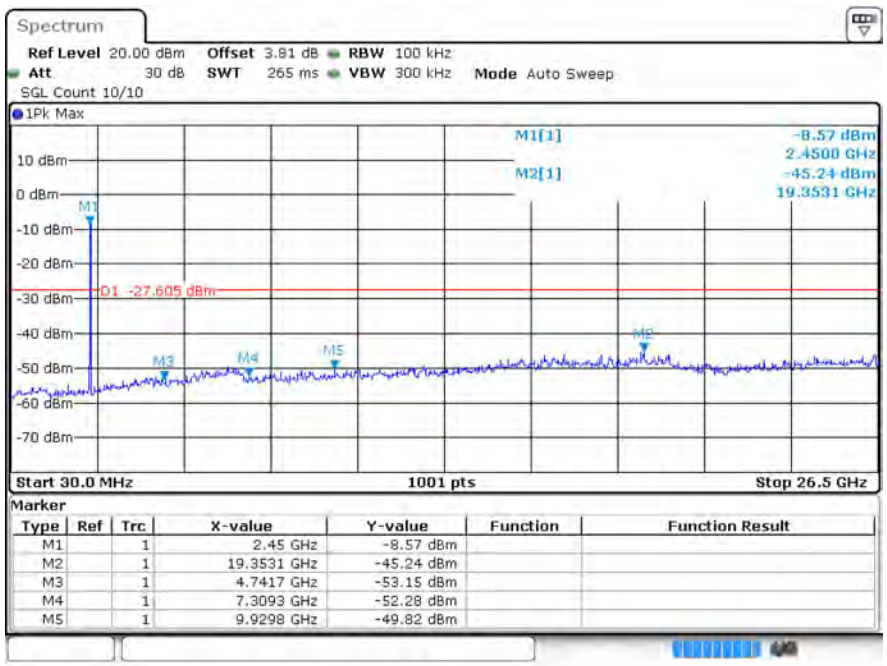
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.423 GHz	-7.82 dBm		
M2		1	19.3266 GHz	-45.68 dBm		
M3		1	4.9534 GHz	-52.54 dBm		
M4		1	7.3093 GHz	-51.97 dBm		
M5		1	9.718 GHz	-50.68 dBm		

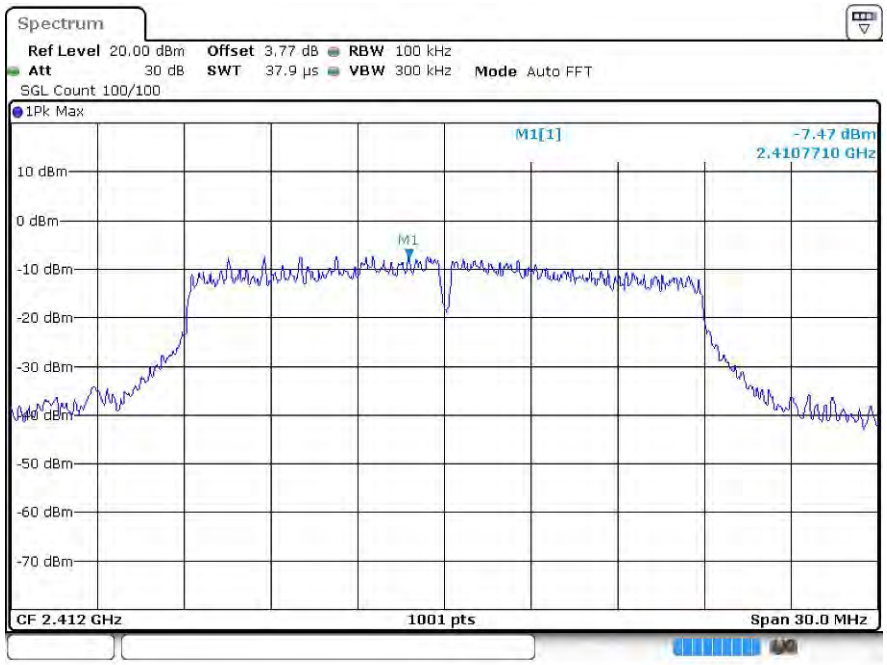
g 2462MHz Ant1 Ref



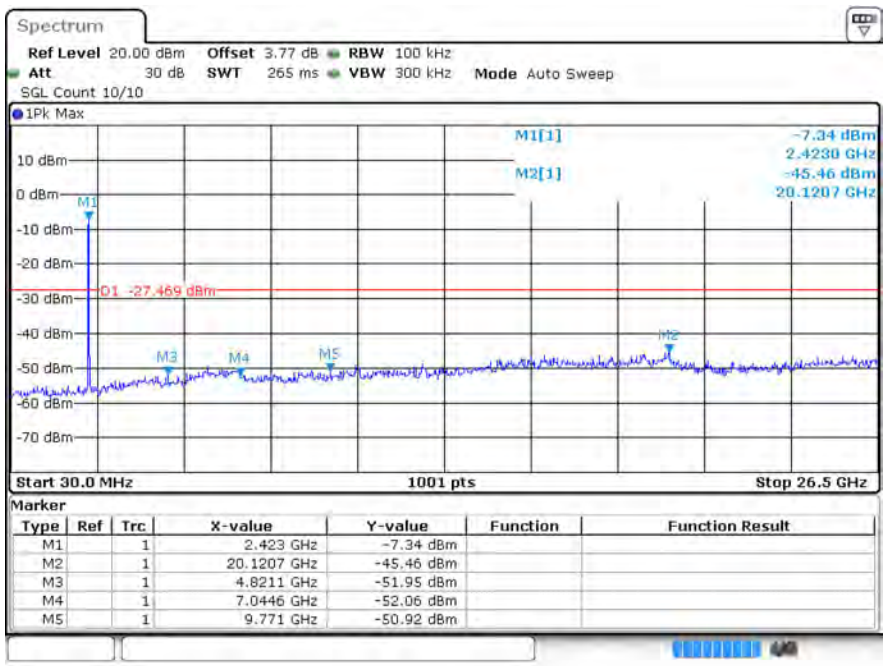
g 2462MHz Ant1 Emission



n20 2412MHz Ant1 Ref



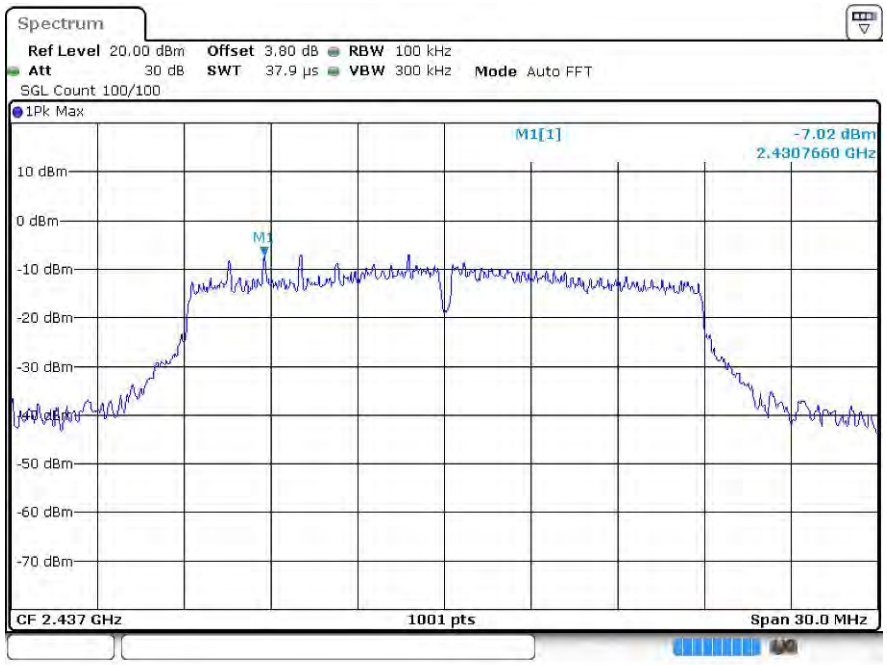
n20 2412MHz Ant1 Emission



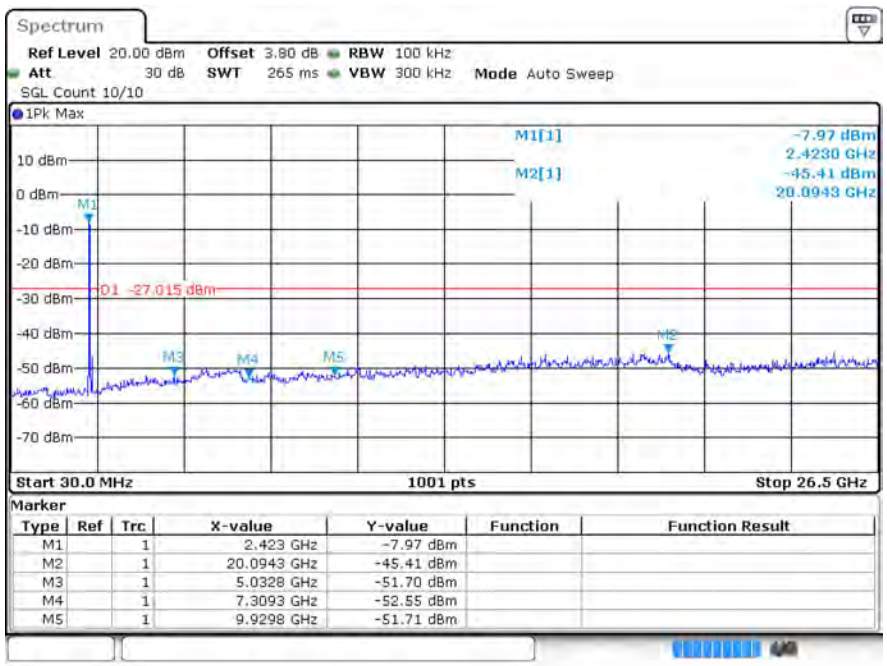
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.423 GHz	-7.34 dBm		
M2		1	20.1207 GHz	-45.46 dBm		
M3		1	4.8211 GHz	-51.95 dBm		
M4		1	7.0446 GHz	-52.06 dBm		
M5		1	9.771 GHz	-50.92 dBm		

n20 2437MHz Ant1 Ref



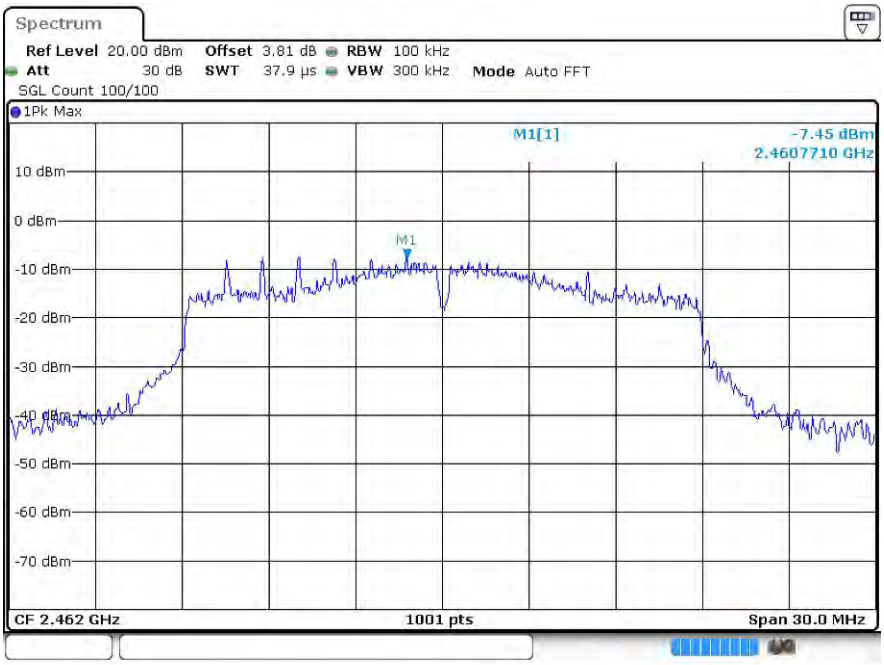
n20 2437MHz Ant1 Emission



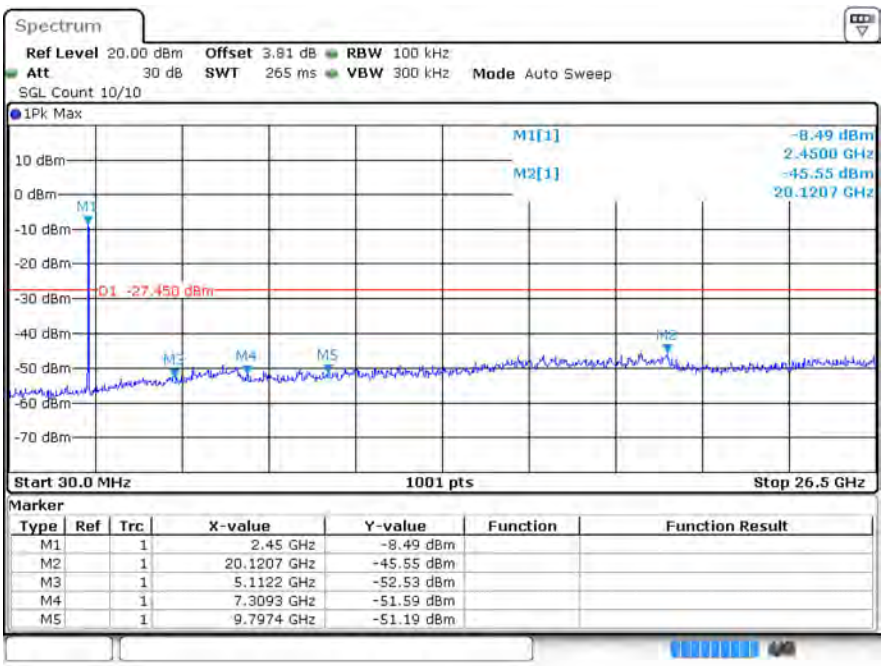
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.423 GHz	-7.97 dBm		
M2		1	20.0943 GHz	-45.41 dBm		
M3		1	5.0328 GHz	-51.70 dBm		
M4		1	7.3093 GHz	-52.55 dBm		
M5		1	9.9298 GHz	-51.71 dBm		

n20 2462MHz Ant1 Ref



n20 2462MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-8.49 dBm		
M2		1	20.1207 GHz	-45.55 dBm		
M3		1	5.1122 GHz	-52.53 dBm		
M4		1	7.3093 GHz	-51.59 dBm		
M5		1	9.7974 GHz	-51.19 dBm		

7 Restrict Band

7.1 Test Result

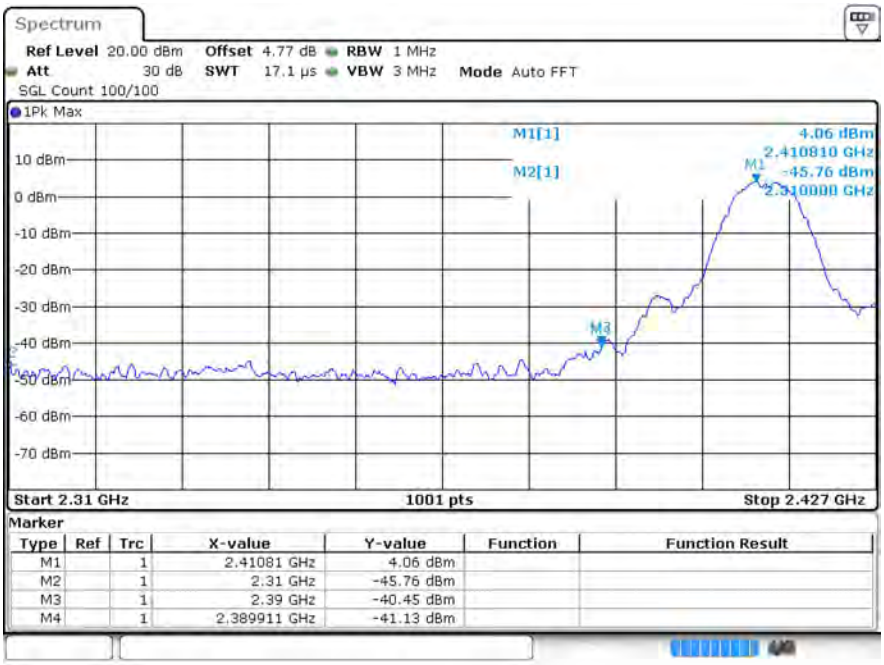
Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
b	2412	Ant1	2310	-45.75	3.21	52.69	Peak	74	Pass
b	2412	Ant1	2310	-57.67	3.21	40.77	Average	54	Pass
b	2412	Ant1	2389.911	-41.13	3.21	57.31	Peak	74	Pass
b	2412	Ant1	2387.337	-49.26	3.21	49.18	Average	54	Pass
b	2412	Ant1	2390	-40.44	3.21	58	Peak	74	Pass
b	2412	Ant1	2390	-48.77	3.21	49.67	Average	54	Pass
b	2462	Ant1	2483.5	-43.16	3.21	55.28	Peak	74	54.1
b	2462	Ant1	2483.5	-48.04	3.21	50.4	Average	54	Pass
b	2462	Ant1	2487.651	-42.14	3.21	56.3	Peak	74	Pass
b	2462	Ant1	2483.517	-48.04	3.21	50.4	Average	54	Pass
b	2462	Ant1	2500	-48.11	3.21	50.33	Peak	74	Pass
b	2462	Ant1	2500	-57.29	3.21	41.15	Average	54	Pass
g	2412	Ant1	2310	-45.17	3.21	53.27	Peak	74	Pass
g	2412	Ant1	2310	-56.5	3.21	41.94	Average	54	Pass
g	2412	Ant1	2388.858	-33.76	3.21	64.68	Peak	74	Pass
g	2412	Ant1	2389.911	-45.2	3.21	53.24	Average	54	Pass
g	2412	Ant1	2390	-34.06	3.21	64.38	Peak	74	Pass
g	2412	Ant1	2390	-45.22	3.21	53.22	Average	54	Pass
g	2462	Ant1	2483.5	-34.47	3.21	63.97	Peak	74	Pass
g	2462	Ant1	2483.5	-46.39	3.21	52.05	Average	54	Pass
g	2462	Ant1	2487.651	-34.44	3.21	64	Peak	74	Pass
g	2462	Ant1	2483.835	-46.09	3.21	52.35	Average	54	Pass
g	2462	Ant1	2500	-44.72	3.21	53.72	Peak	74	Pass
g	2462	Ant1	2500	-56.22	3.21	42.22	Average	54	Pass
n20	2412	Ant1	2310	-48.6	3.21	49.84	Peak	74	Pass
n20	2412	Ant1	2310	-57.28	3.21	41.16	Average	54	Pass
n20	2412	Ant1	2389.911	-32.61	3.21	65.83	Peak	74	Pass
n20	2412	Ant1	2389.56	-48.65	3.21	49.79	Average	54	Pass
n20	2412	Ant1	2390	-32.46	3.21	65.98	Peak	74	Pass
n20	2412	Ant1	2390	-48.95	3.21	49.49	Average	54	Pass
n20	2462	Ant1	2483.5	-39.28	3.21	59.16	Peak	74	Pass
n20	2462	Ant1	2483.5	-48.83	3.21	49.61	Average	54	Pass
n20	2462	Ant1	2483.517	-39.28	3.21	59.16	Peak	74	Pass
n20	2462	Ant1	2483.57	-48.78	3.21	49.66	Average	54	Pass

n20	2462	Ant1	2500	-46.37	3.21	52.07	Peak	74	Pass
n20	2462	Ant1	2500	-56.25	3.21	42.19	Average	54	Pass

7.2 Test Graphs

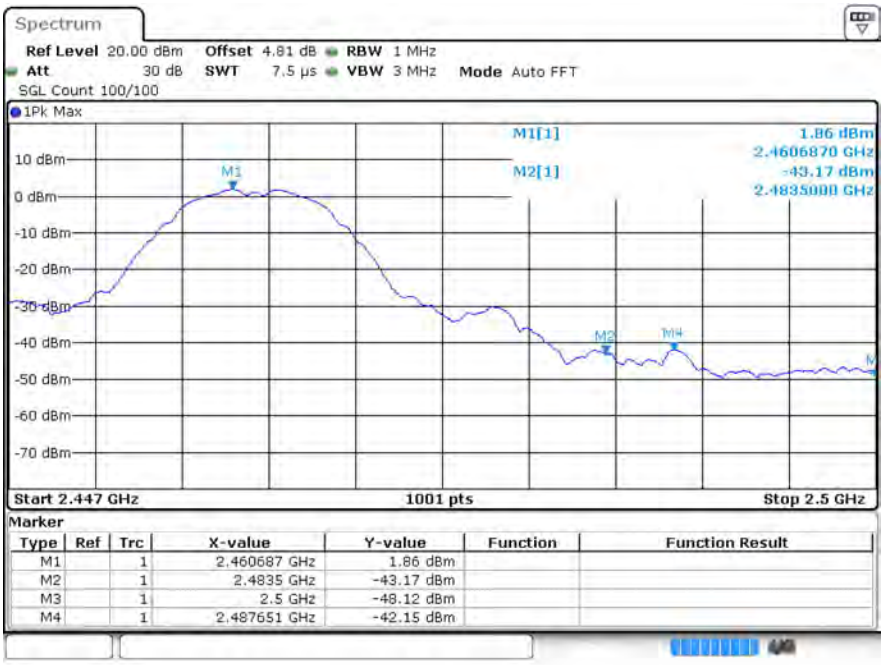
Test Graphs

b 2412MHz Ant1 Peak



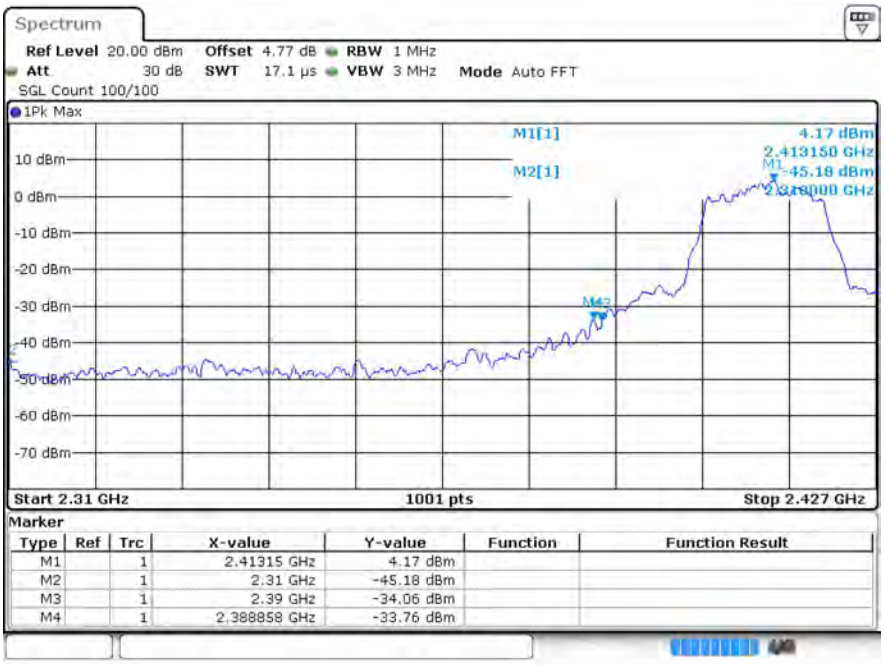
b 2412MHz Ant1 Average

b 2462MHz Ant1 Peak



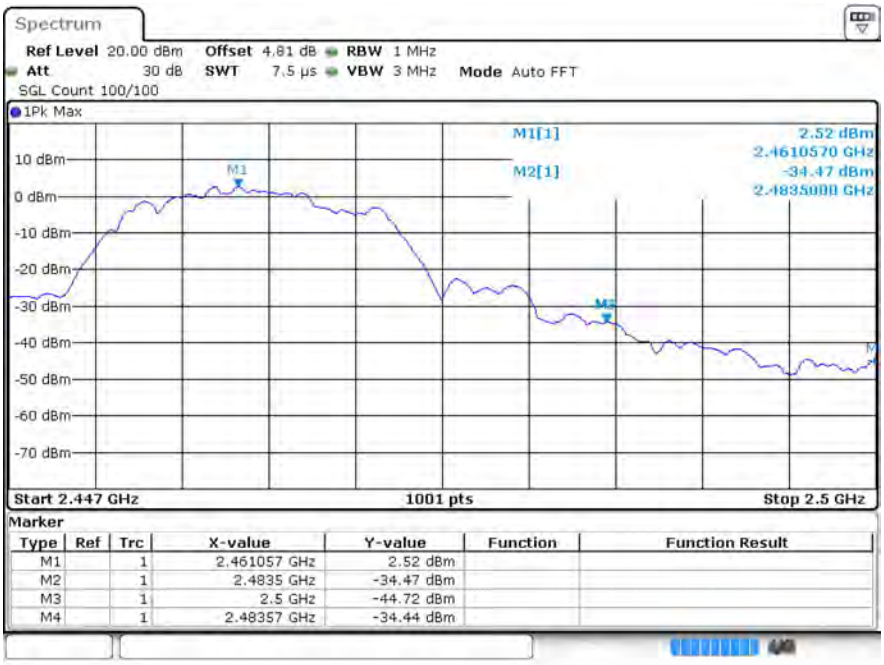
b 2462MHz Ant1 Average

g 2412MHz Ant1 Peak

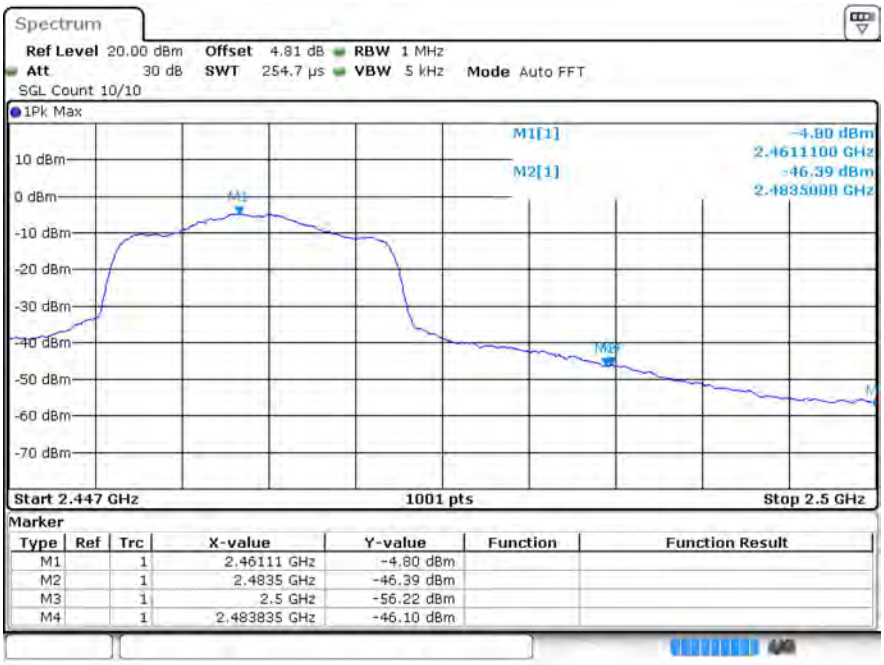


g 2412MHz Ant1 Average

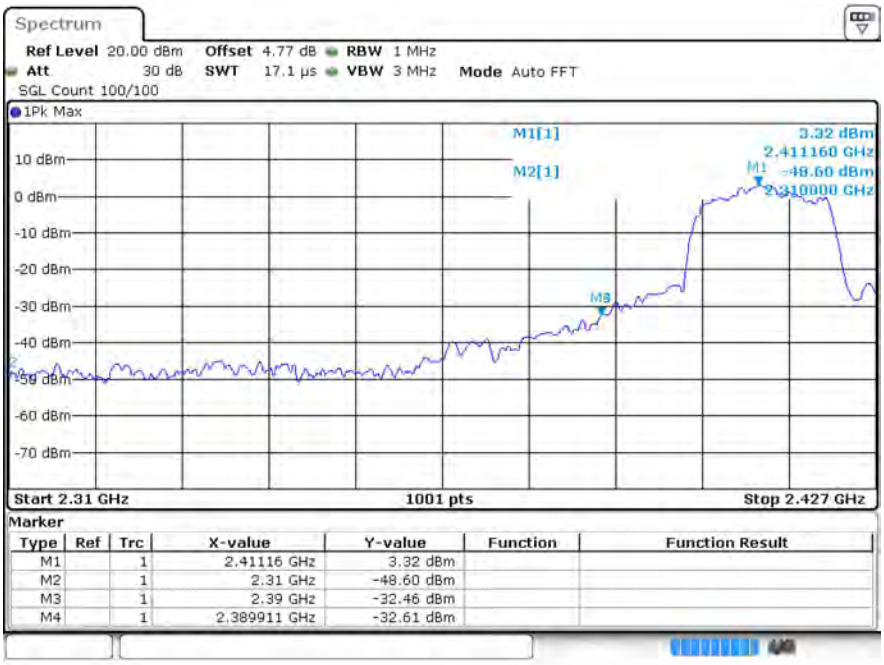
g 2462MHz Ant1 Peak



g 2462MHz Ant1 Average

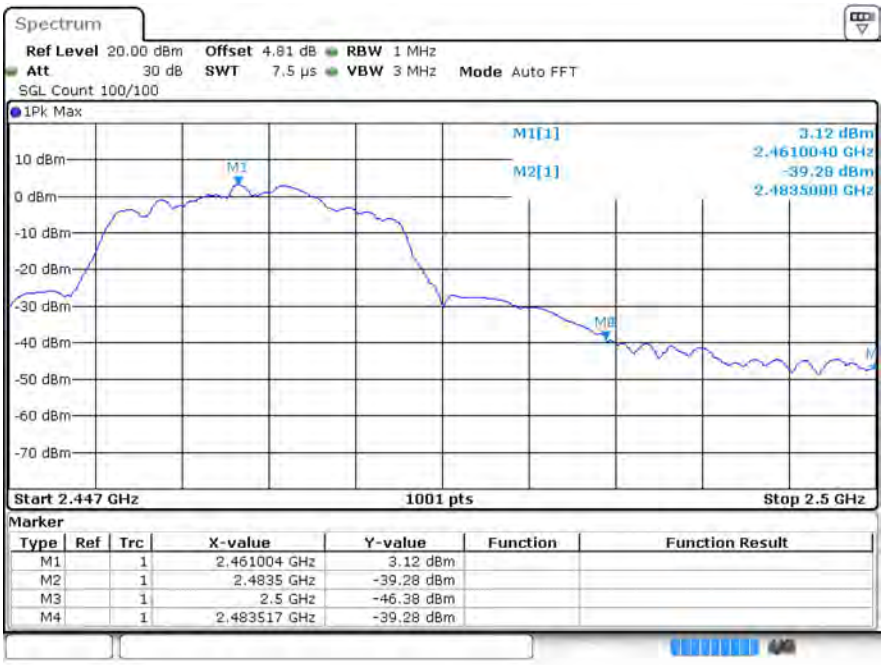


n20 2412MHz Ant1 Peak

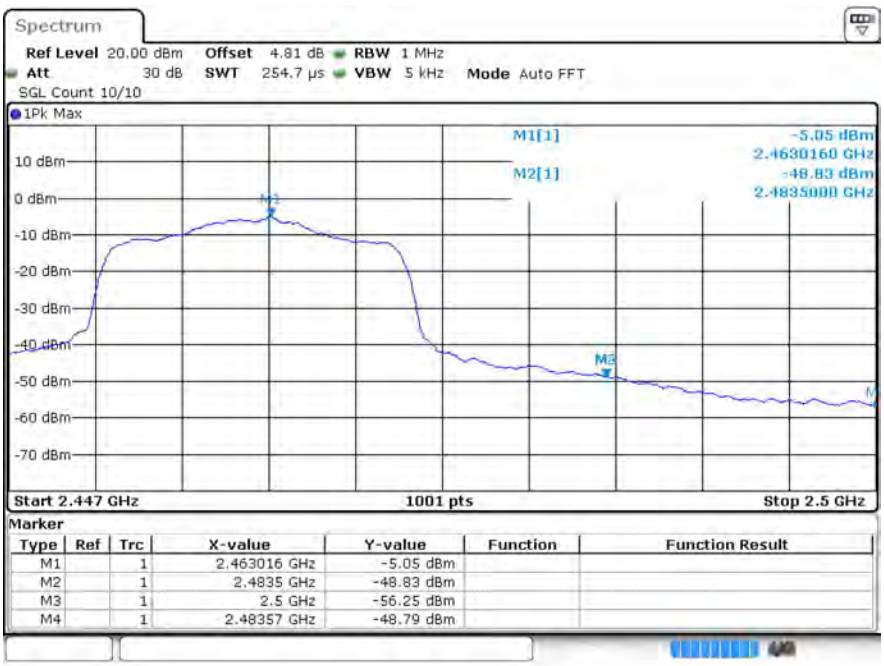


n20 2412MHz Ant1 Average

n20 2462MHz Ant1 Peak



n20 2462MHz Ant1 Average



---The End---