Appendix C

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: Advertising Player

Trade Mark: N/A

Test Model: ZA108T

Environmental Conditions

Temperature:	25.2° C
Relative Humidity:	53.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen

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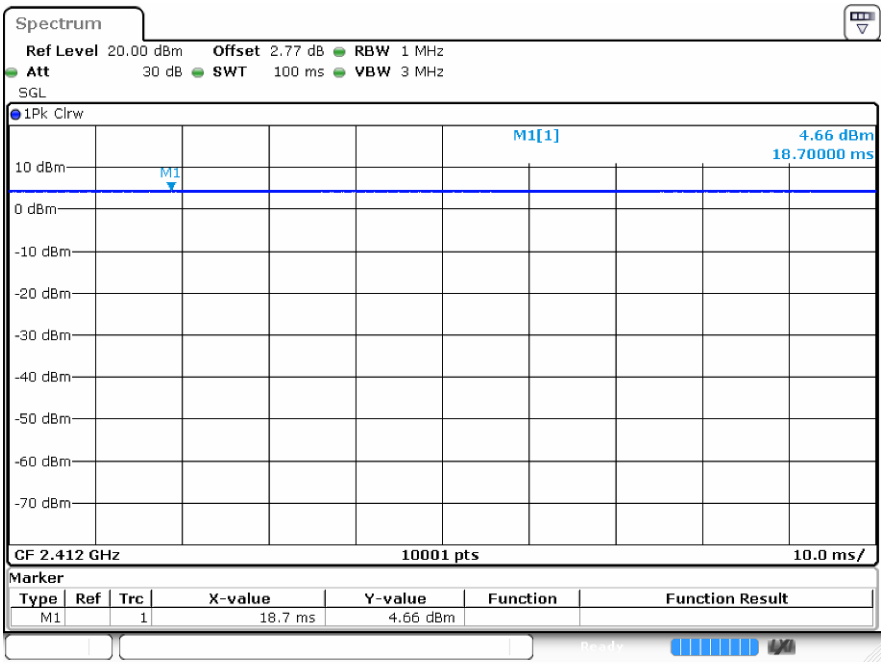
1 Duty Cycle

1.1 Test Result

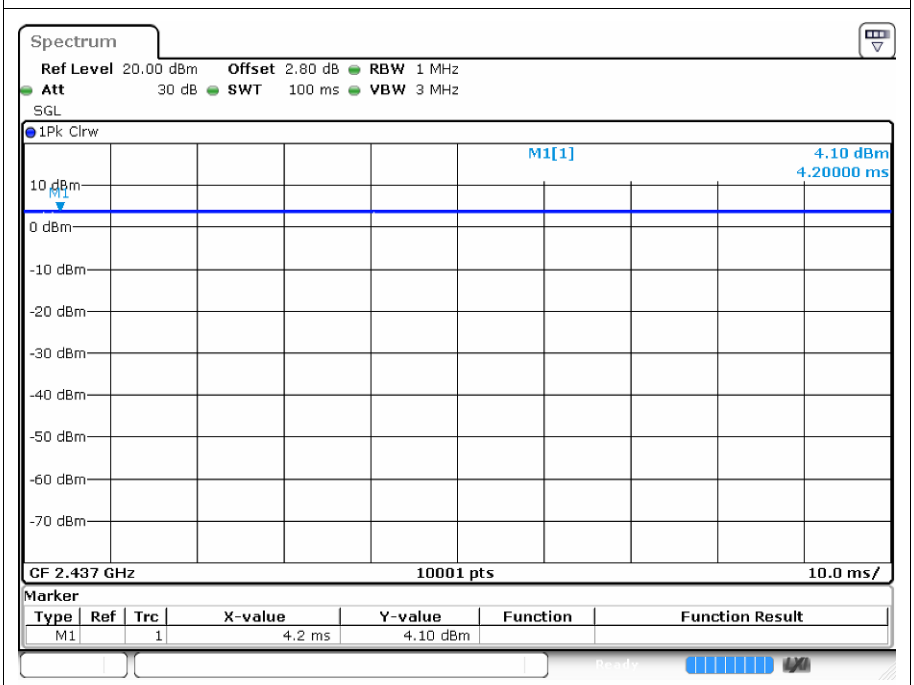
Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	1/T (kHz)
b	2412	Ant1	100	0.01
b	2437	Ant1	100	0.01
b	2462	Ant1	100	0.01
g	2412	Ant1	100	0.01
g	2437	Ant1	100	0.01
g	2462	Ant1	100	0.01
n20	2412	Ant1	100	0.01
n20	2437	Ant1	100	0.01
n20	2462	Ant1	100	0.01
n40	2422	Ant1	100	0.01
n40	2437	Ant1	100	0.01
n40	2452	Ant1	100	0.01

1.2 Test Graphs

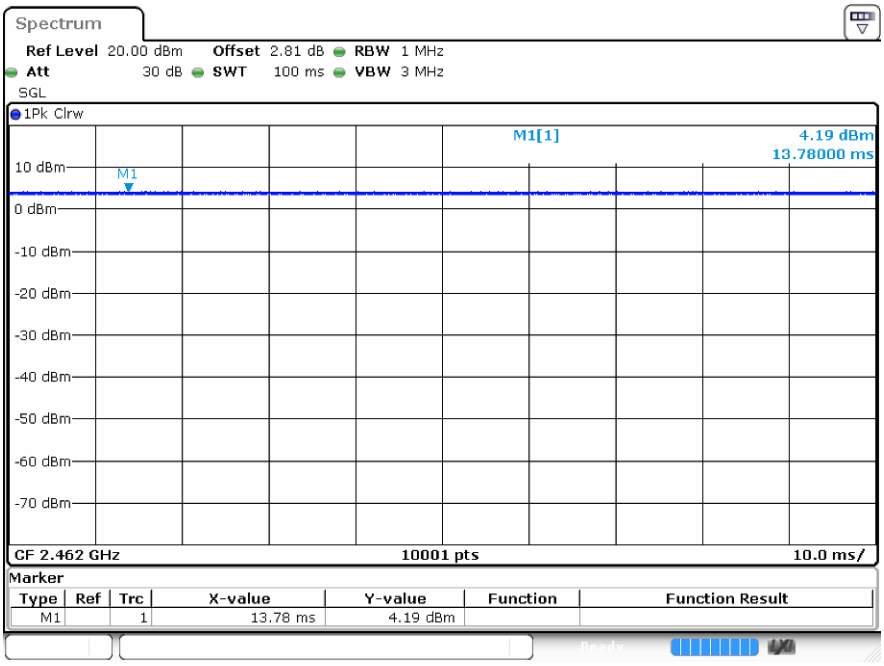
Test Graphs
b 2412MHz Ant1



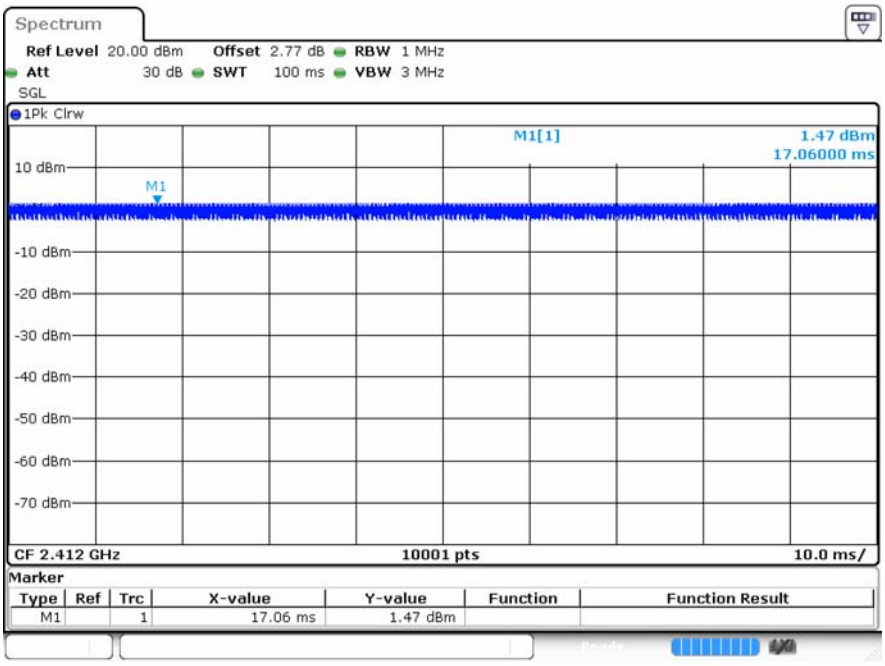
b 2437MHz Ant1



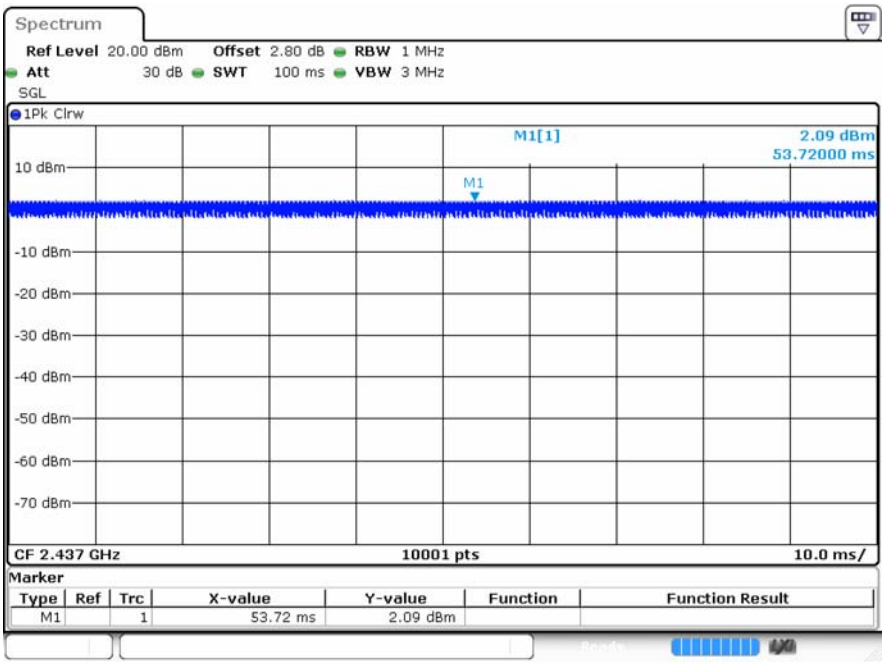
Test Graphs
b 2462MHz Ant1



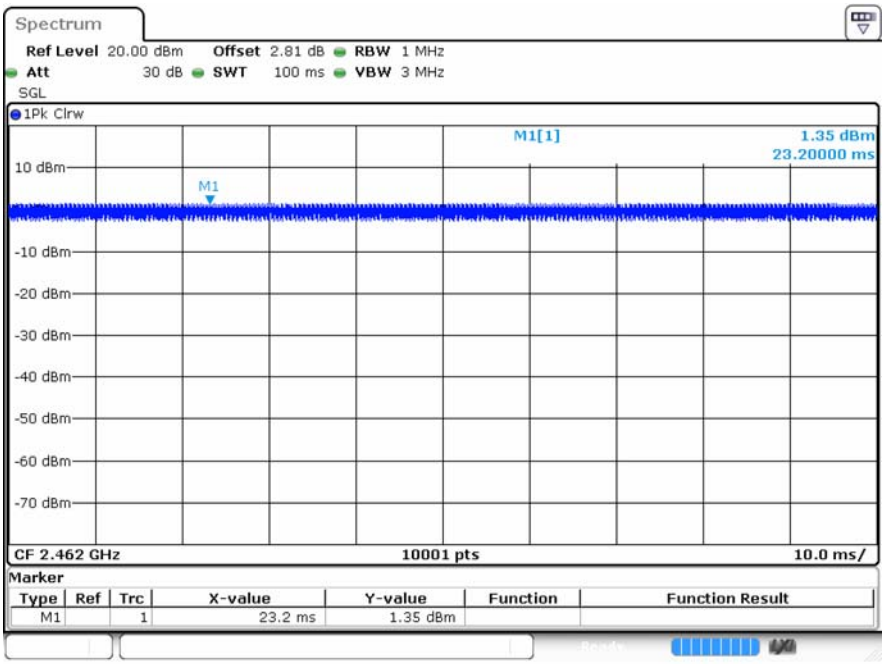
g 2412MHz Ant1



Test Graphs
g 2437MHz Ant1

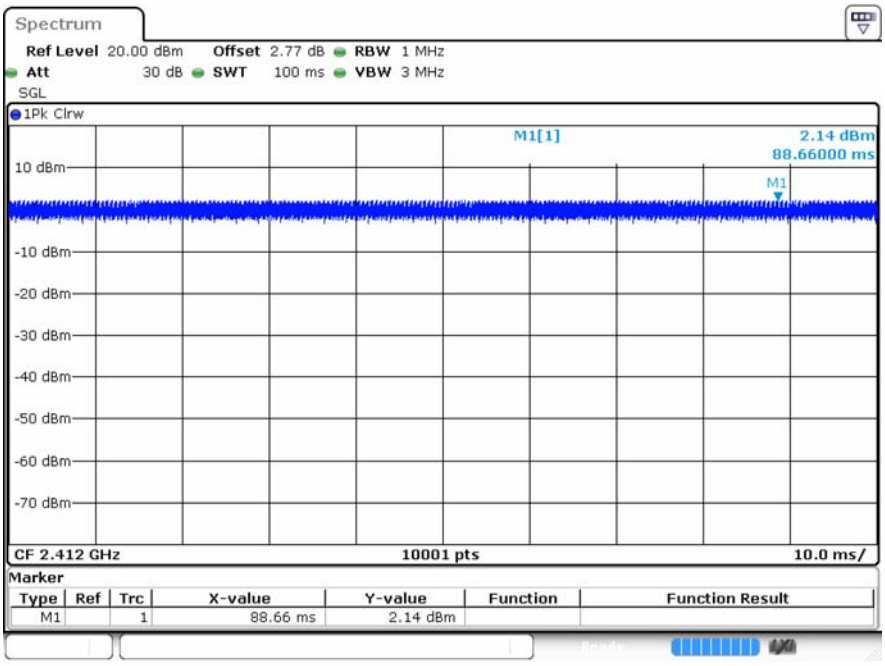


g 2462MHz Ant1

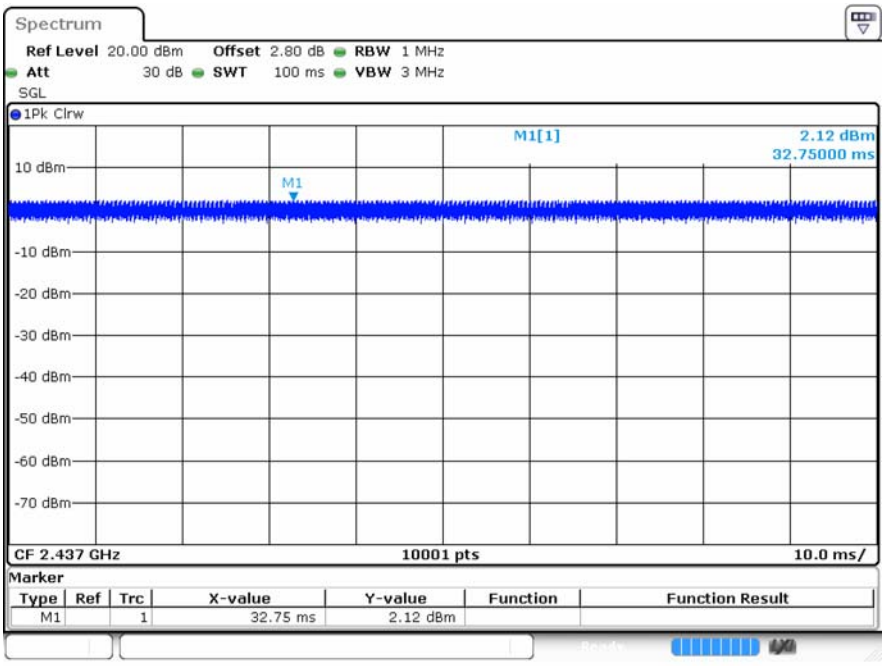


Test Graphs

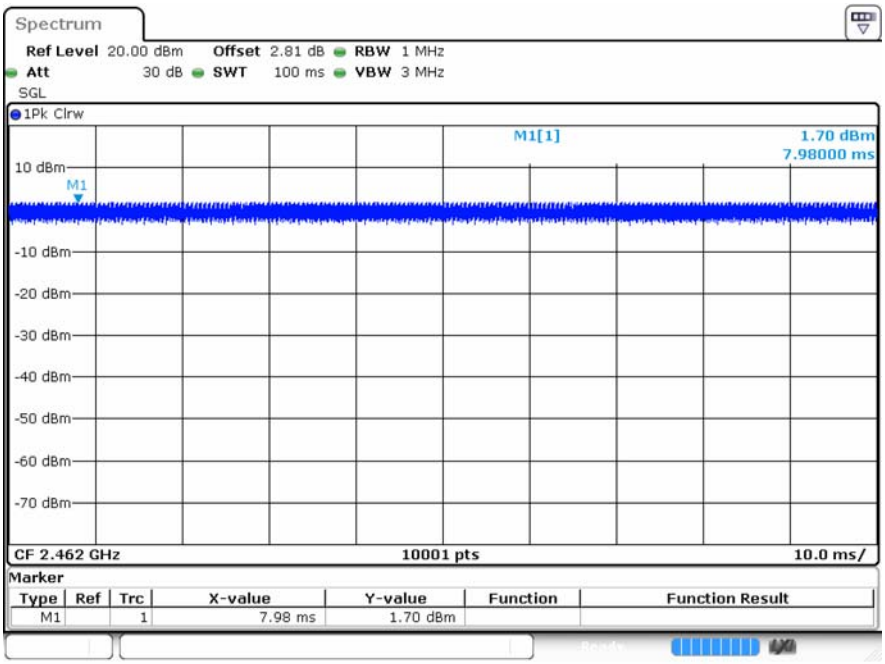
n20 2412MHz Ant1



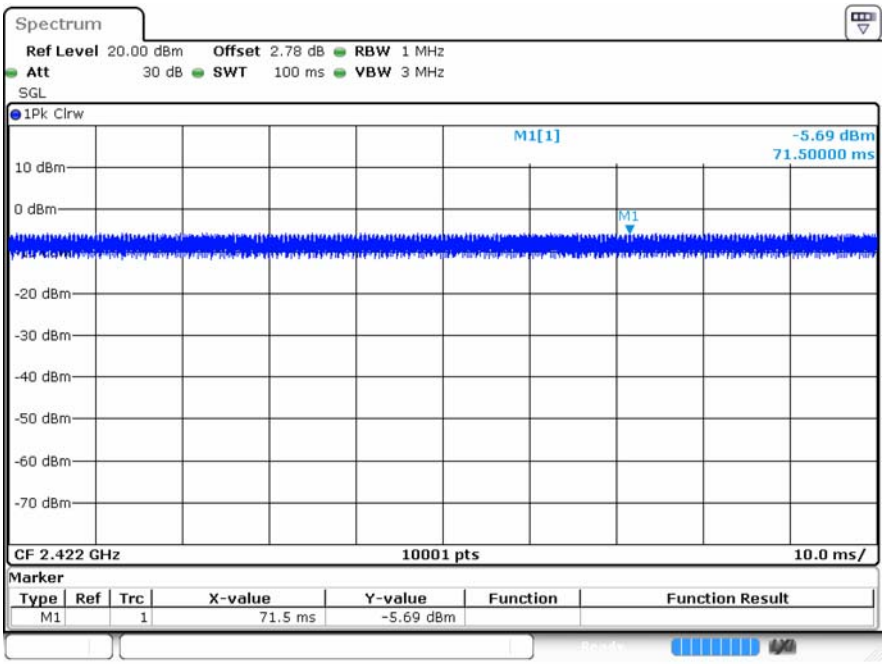
n20 2437MHz Ant1



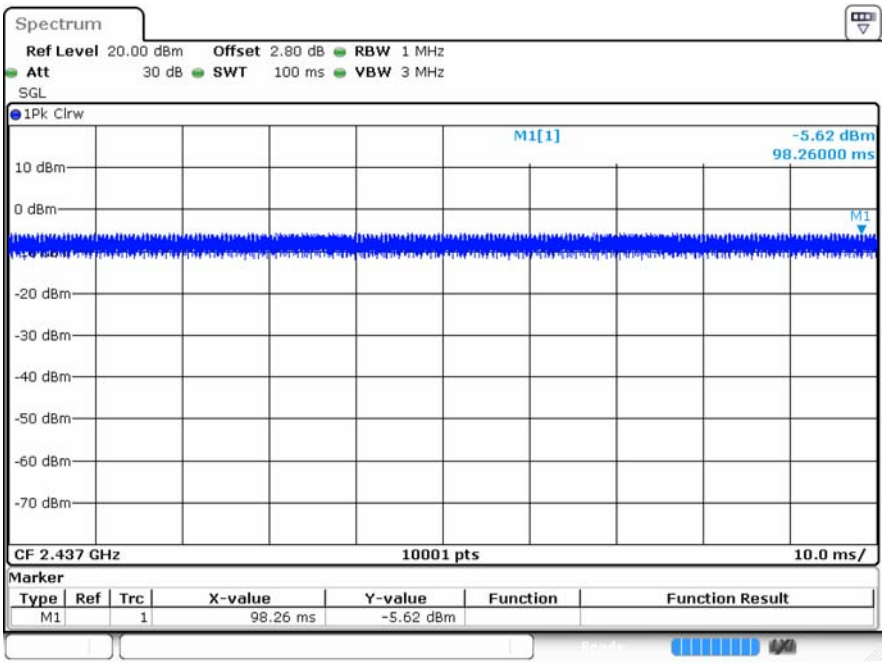
Test Graphs
n20 2462MHz Ant1



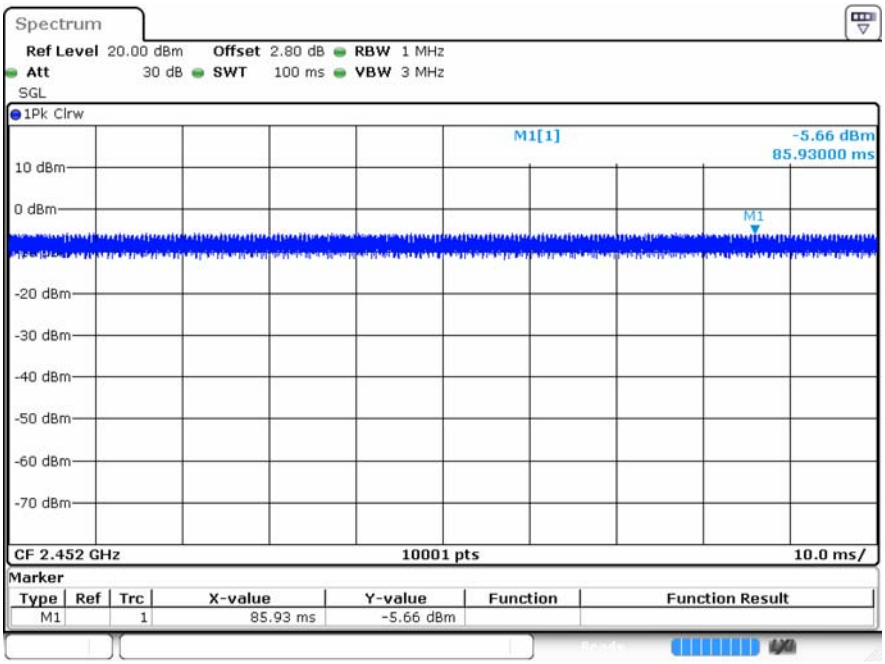
n40 2422MHz Ant1



Test Graphs
n40 2437MHz Ant1



n40 2452MHz Ant1



2 Maximum Conducted Output Power

2.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
b	2412	Ant1	9.35	30	Pass
b	2437	Ant1	8.87	30	Pass
b	2462	Ant1	8.85	30	Pass
g	2412	Ant1	8.92	30	Pass
g	2437	Ant1	9.16	30	Pass
g	2462	Ant1	8.53	30	Pass
n20	2412	Ant1	8.95	30	Pass
n20	2437	Ant1	8.83	30	Pass
n20	2462	Ant1	8.49	30	Pass
n40	2422	Ant1	8.49	30	Pass
n40	2437	Ant1	8.45	30	Pass
n40	2452	Ant1	8.3	30	Pass

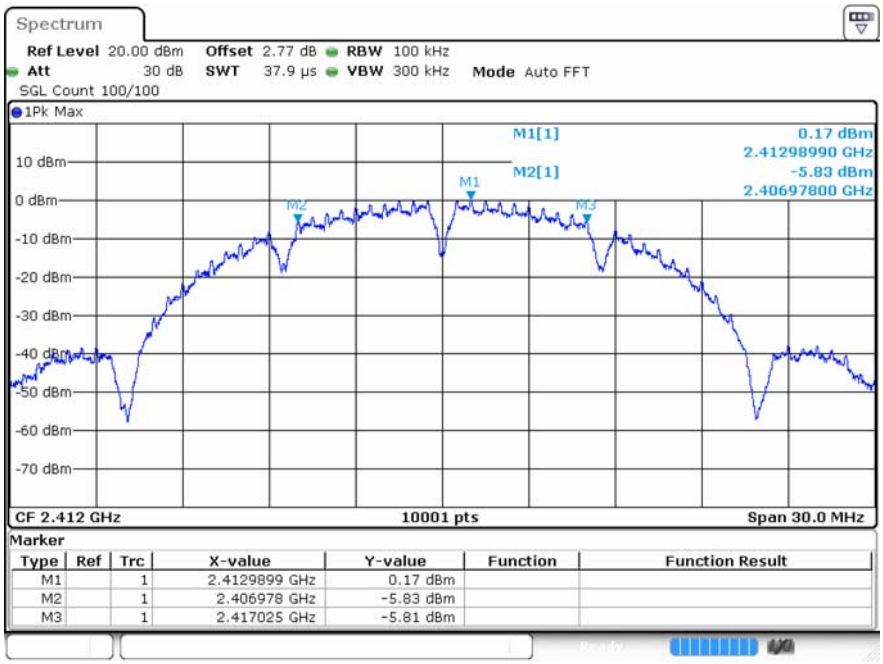
3 -6dB Bandwidth

3.1 Test Result

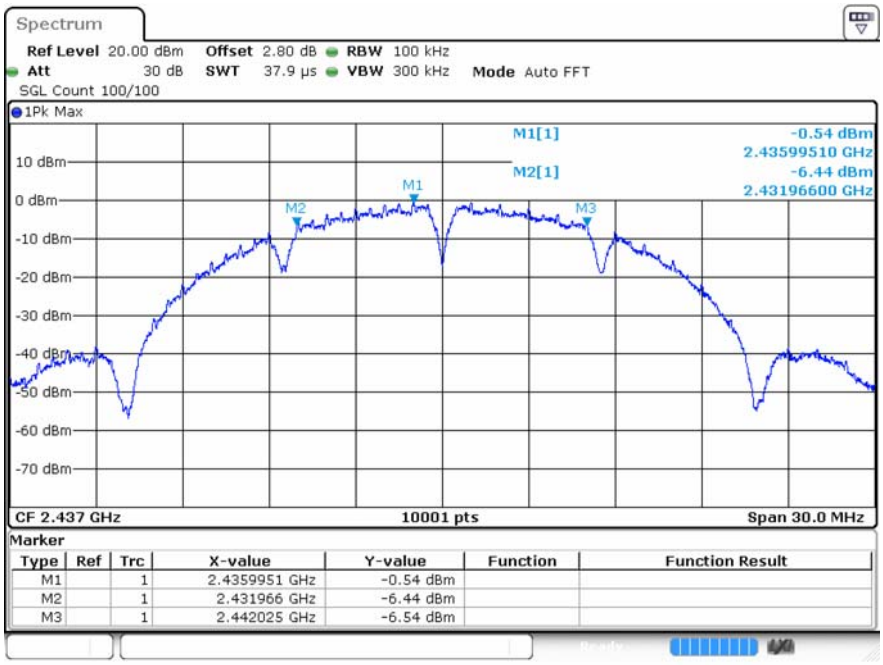
Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
b	2412	Ant1	10.047	0.5	Pass
b	2437	Ant1	10.059	0.5	Pass
b	2462	Ant1	9.576	0.5	Pass
g	2412	Ant1	16.554	0.5	Pass
g	2437	Ant1	16.551	0.5	Pass
g	2462	Ant1	16.548	0.5	Pass
n20	2412	Ant1	17.79	0.5	Pass
n20	2437	Ant1	17.805	0.5	Pass
n20	2462	Ant1	17.793	0.5	Pass
n40	2422	Ant1	36.372	0.5	Pass
n40	2437	Ant1	36.372	0.5	Pass
n40	2452	Ant1	36.378	0.5	Pass

3.2 Test Graphs

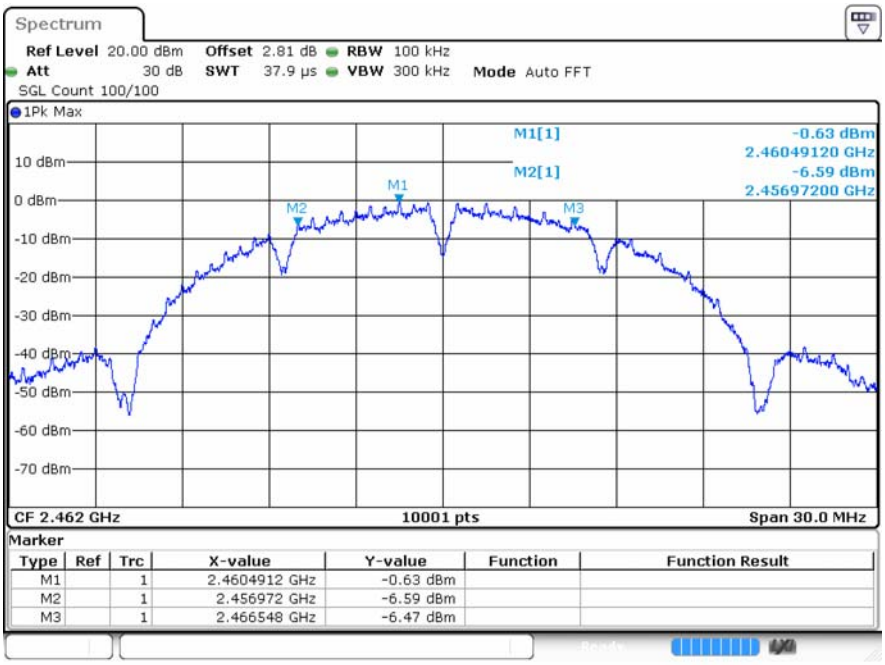
Test Graphs
b 2412MHz Ant1



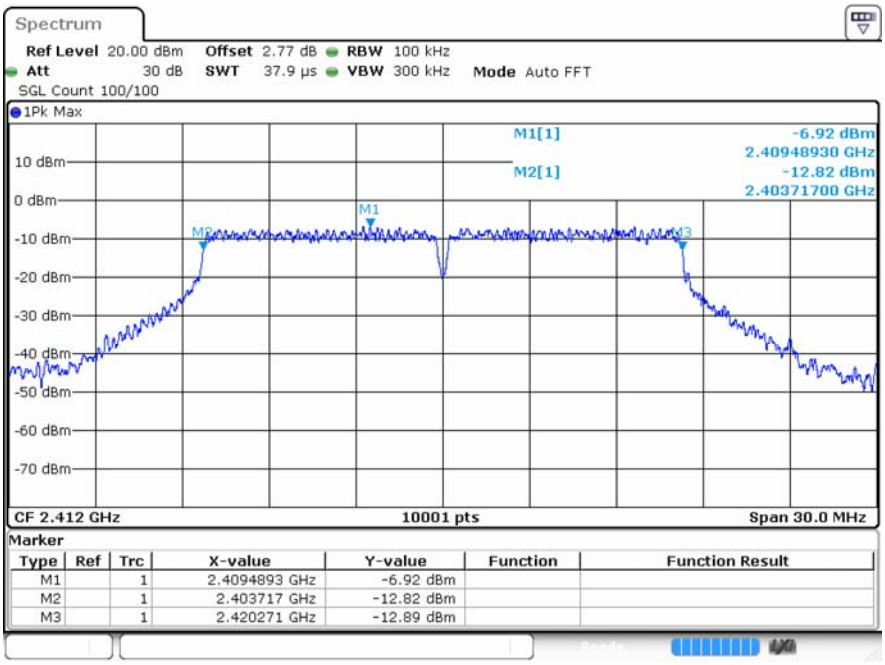
b 2437MHz Ant1



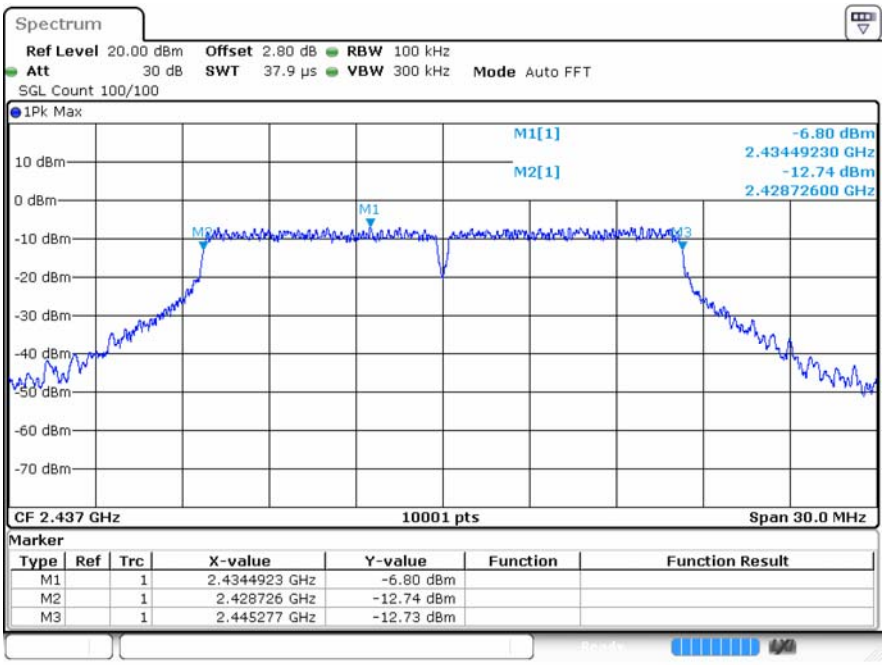
b 2462MHz Ant1



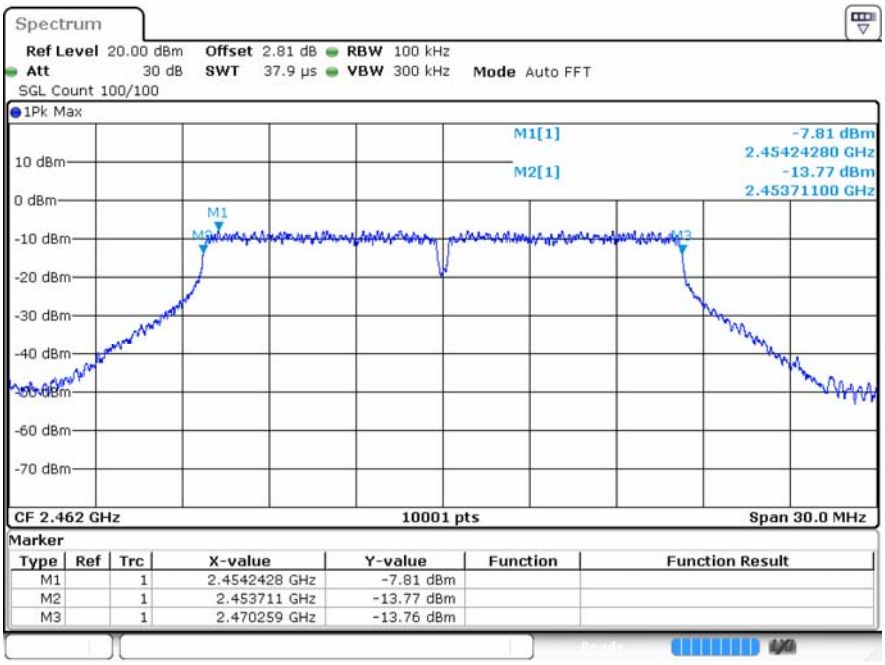
g 2412MHz Ant1



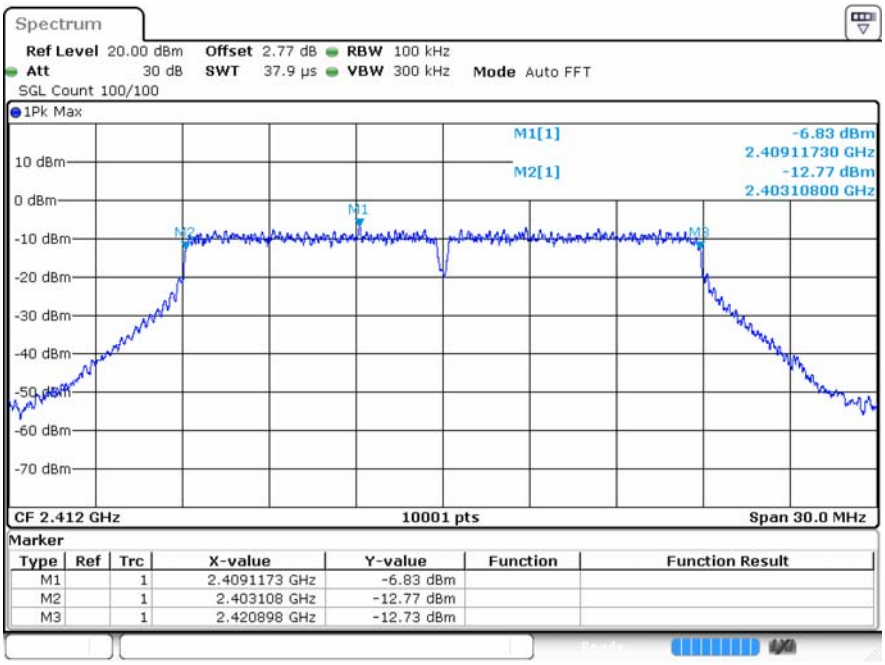
g 2437MHz Ant1



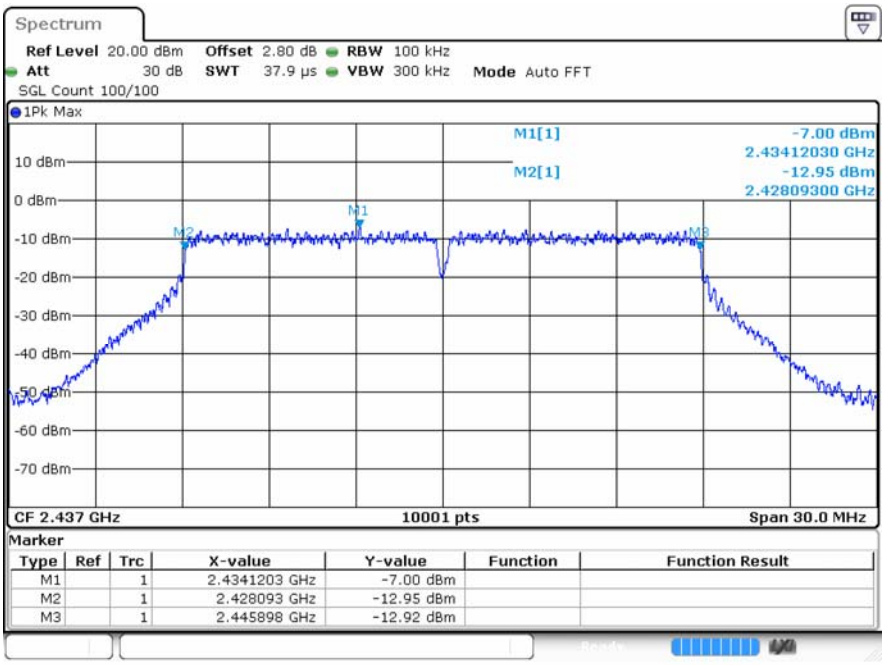
g 2462MHz Ant1



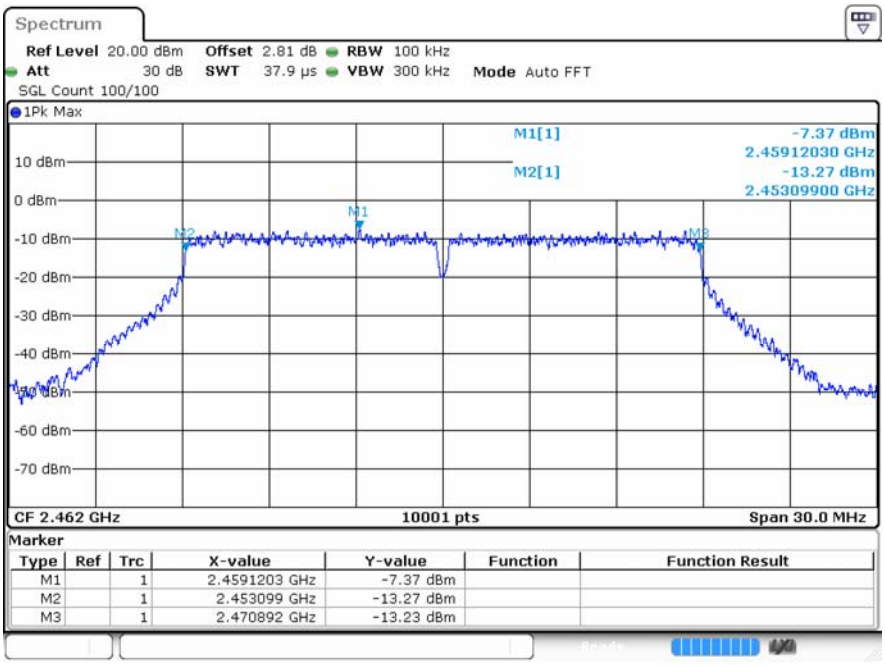
n20 2412MHz Ant1



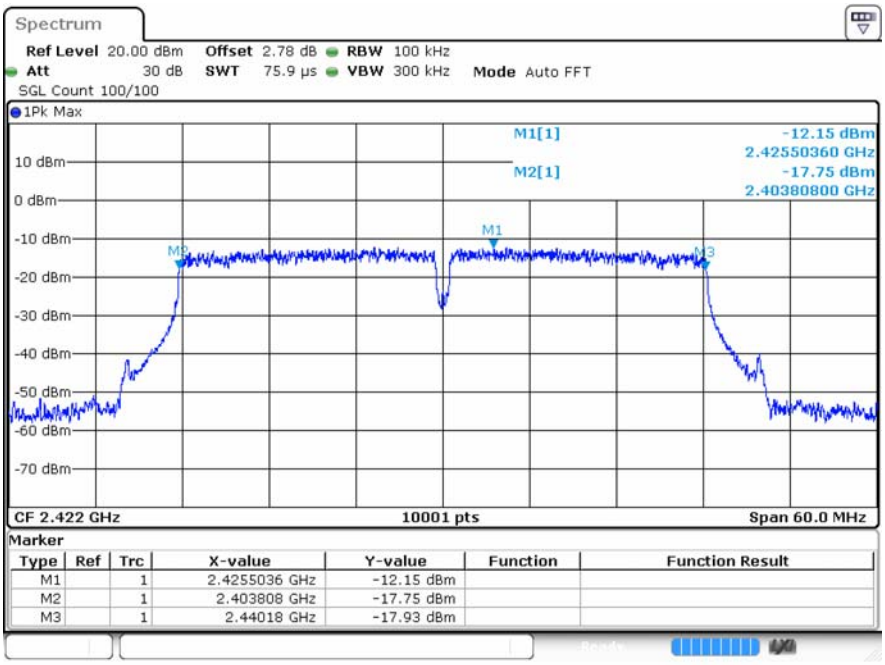
n20 2437MHz Ant1



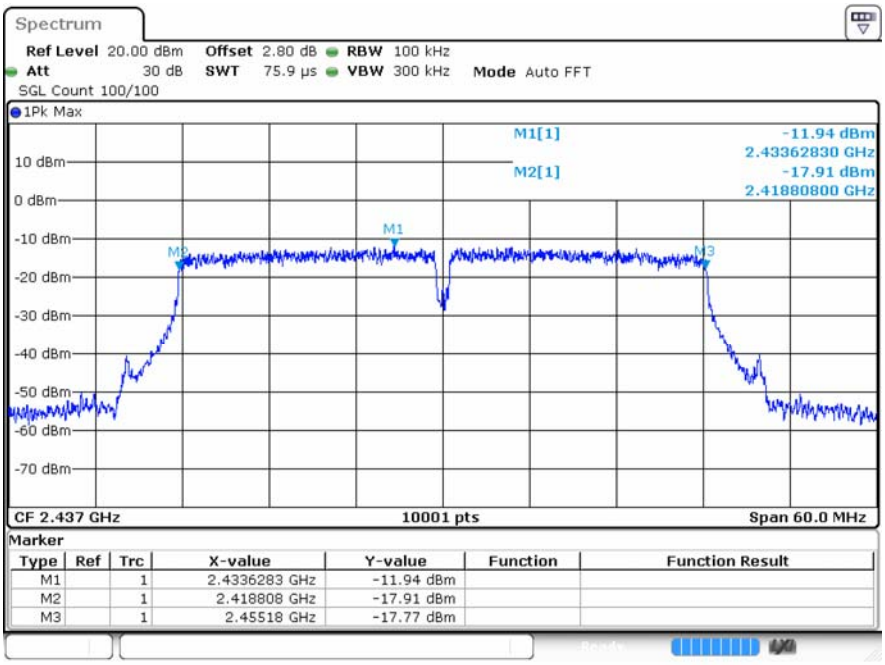
n20 2462MHz Ant1



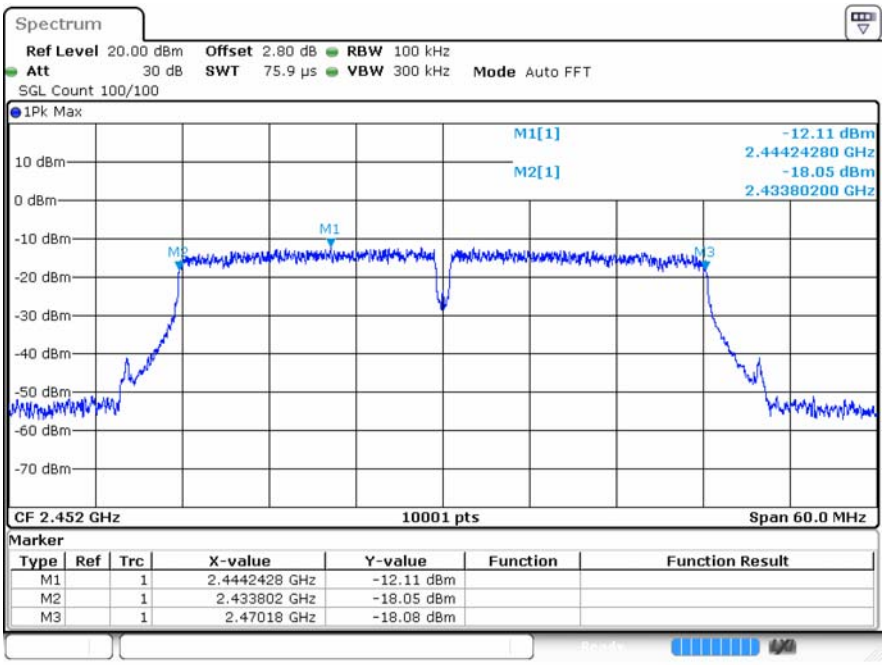
n40 2422MHz Ant1



n40 2437MHz Ant1



n40 2452MHz Ant1

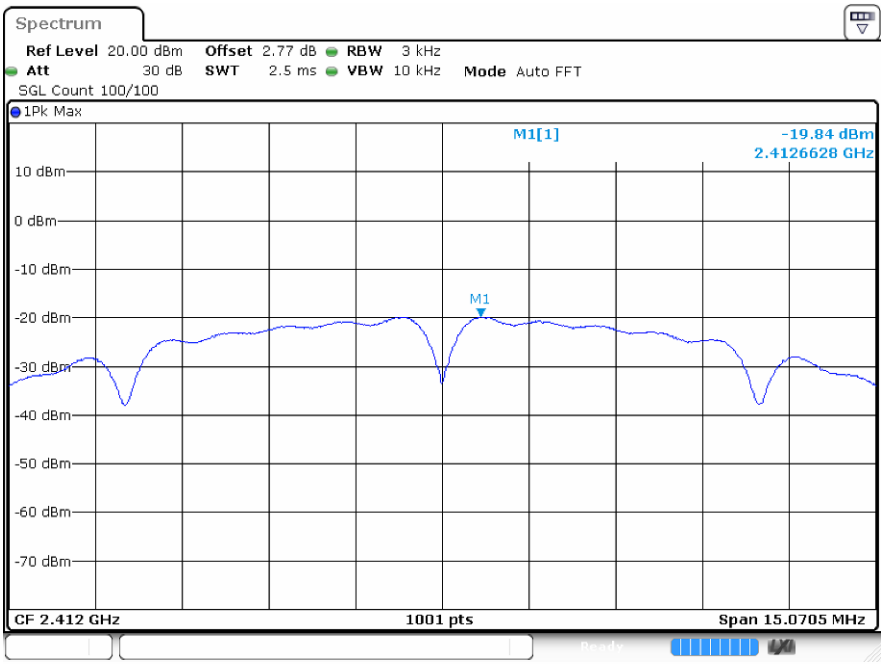
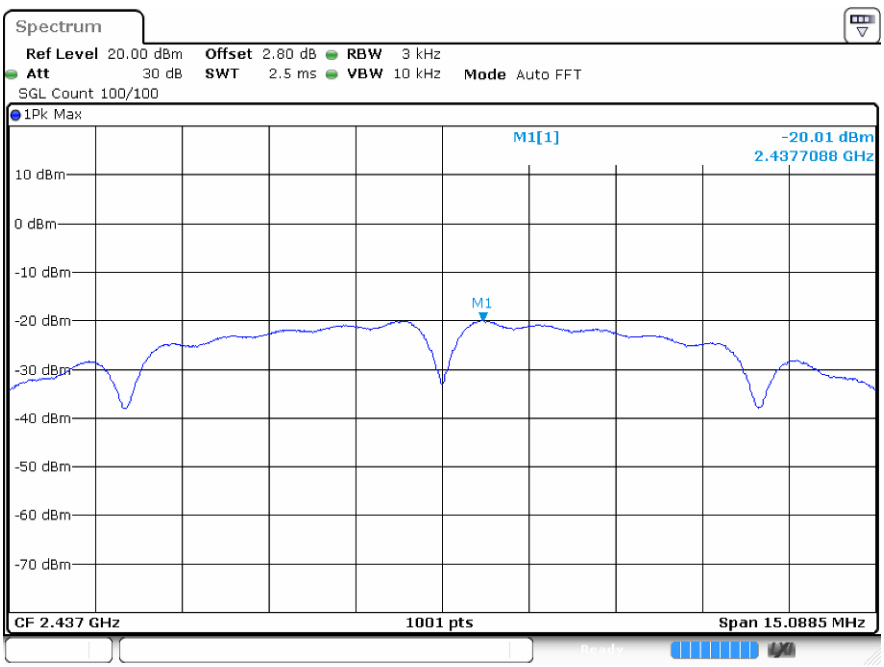


4 Maximum Power Spectral Density Level

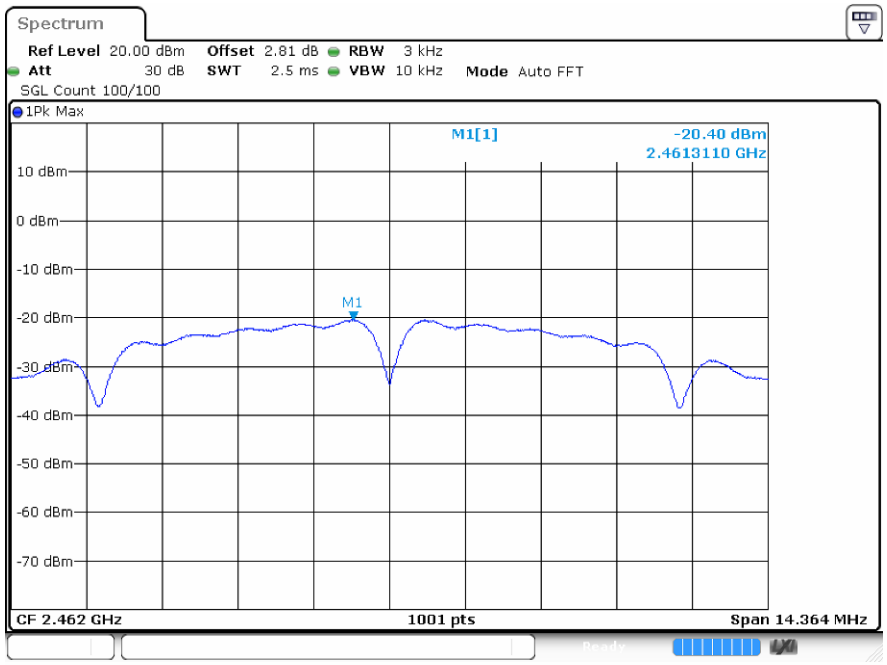
4.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3-100kHz)	Limit (dBm/3kHz)	Verdict
b	2412	Ant1	-19.84	≤8	Pass
b	2437	Ant1	-20.01	≤8	Pass
b	2462	Ant1	-20.4	≤8	Pass
g	2412	Ant1	-21.44	≤8	Pass
g	2437	Ant1	-14.7	≤8	Pass
g	2462	Ant1	-21.8	≤8	Pass
n20	2412	Ant1	-20.91	≤8	Pass
n20	2437	Ant1	-20.84	≤8	Pass
n20	2462	Ant1	-21.05	≤8	Pass
n40	2422	Ant1	-22.98	≤8	Pass
n40	2437	Ant1	-23.1	≤8	Pass
n40	2452	Ant1	-22.97	≤8	Pass

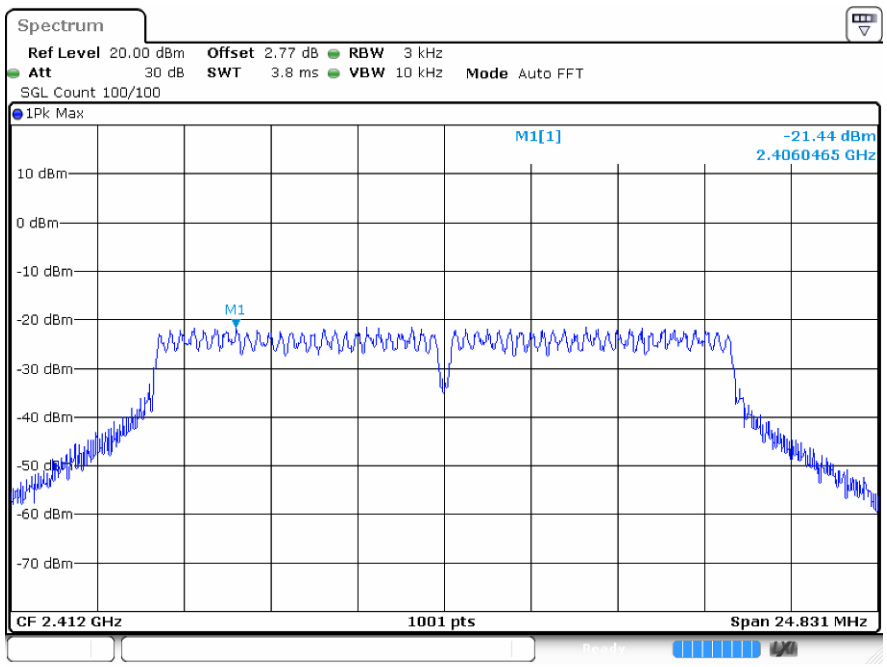
4.2 Test Graphs

Test Graphs
b 2412MHz Ant1

b 2437MHz Ant1


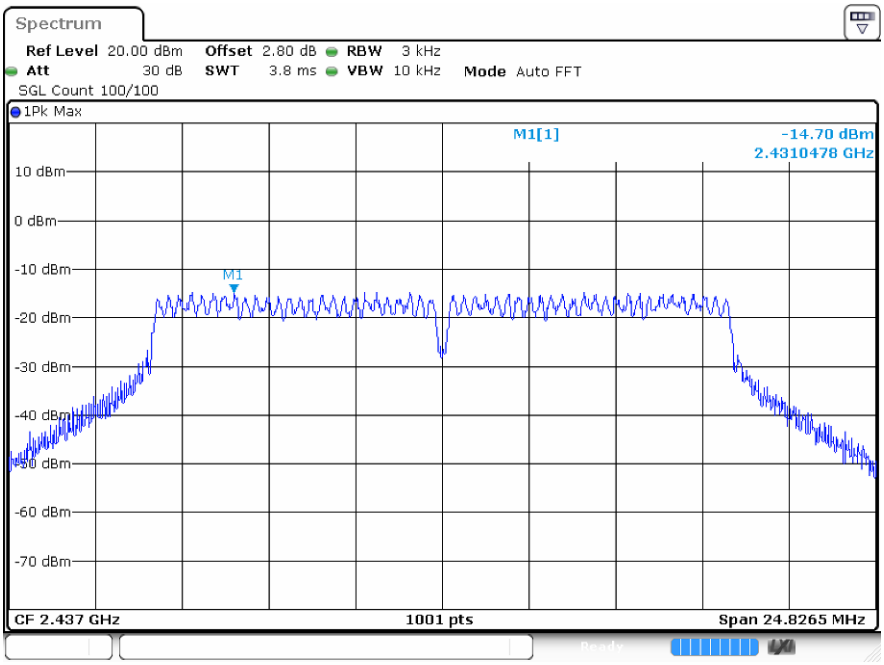
b 2462MHz Ant1



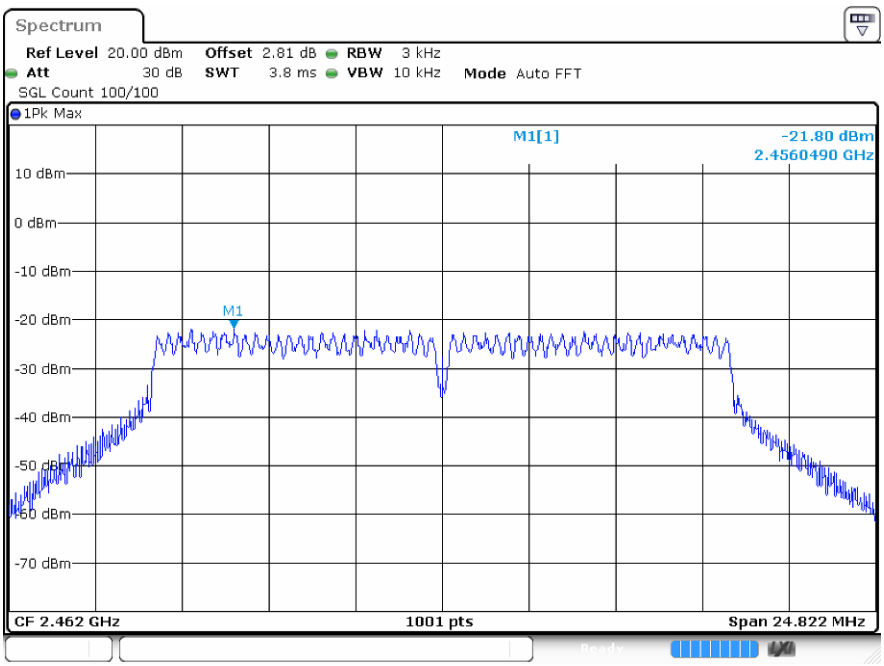
g 2412MHz Ant1



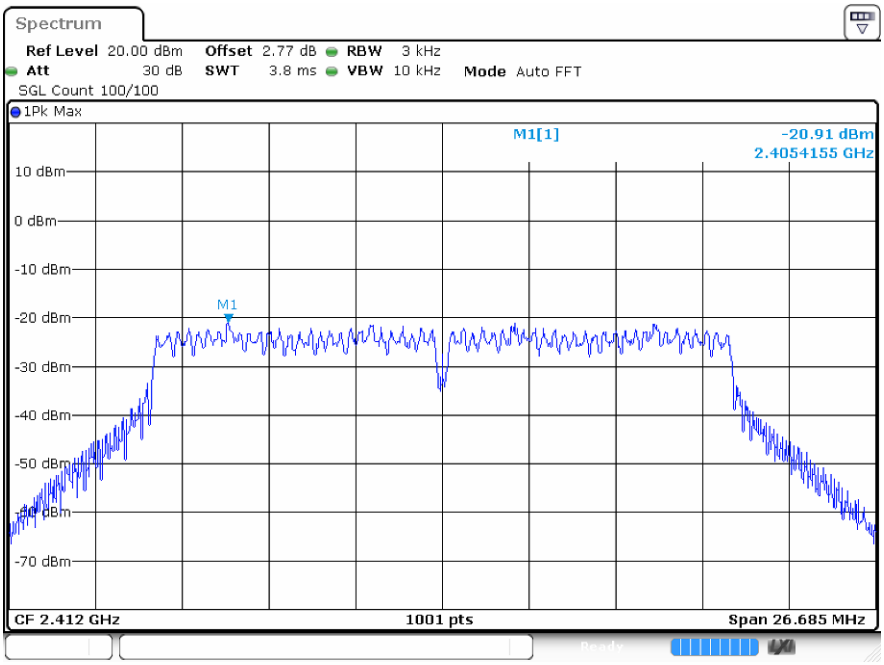
g 2437MHz Ant1



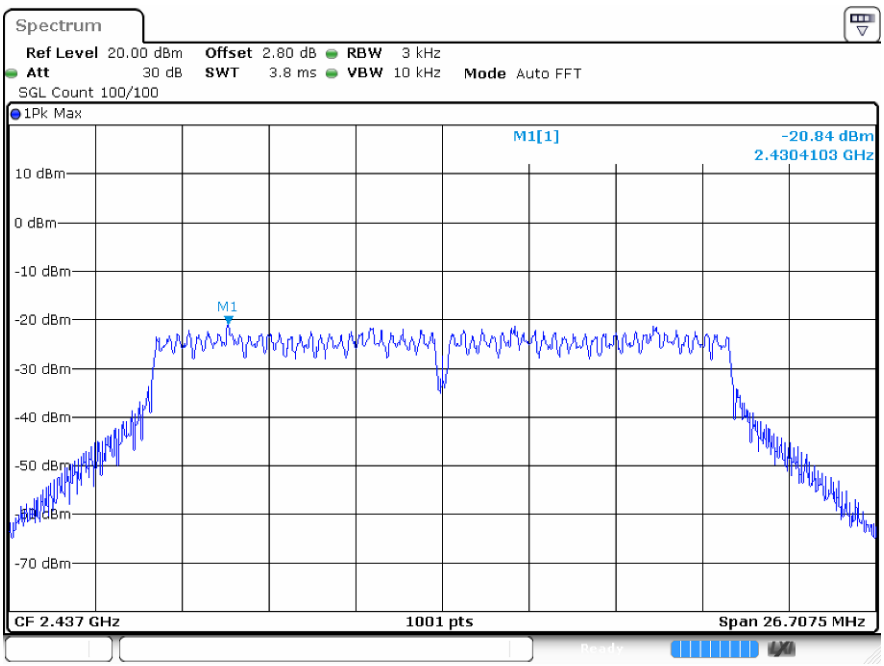
g 2462MHz Ant1



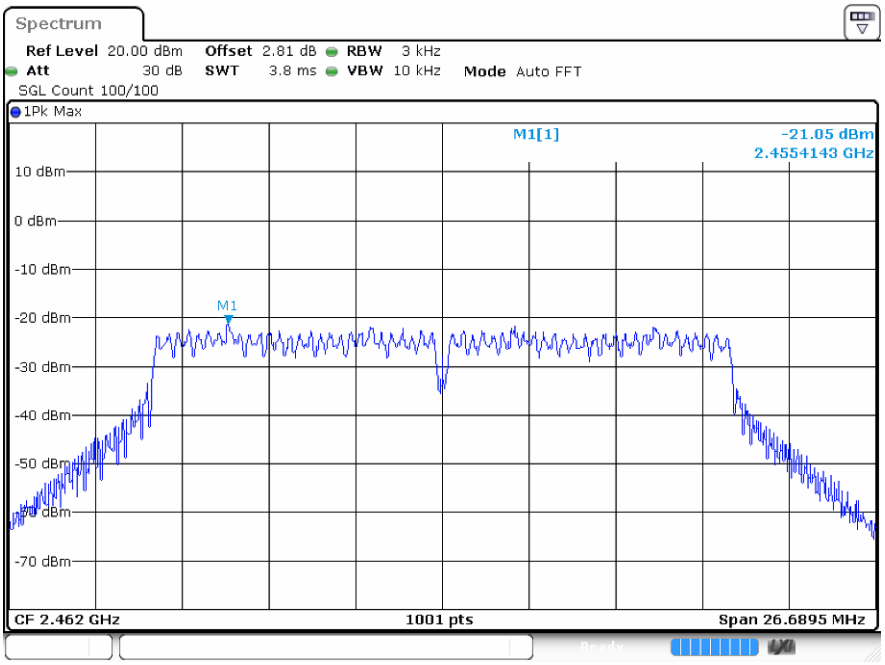
n20 2412MHz Ant1



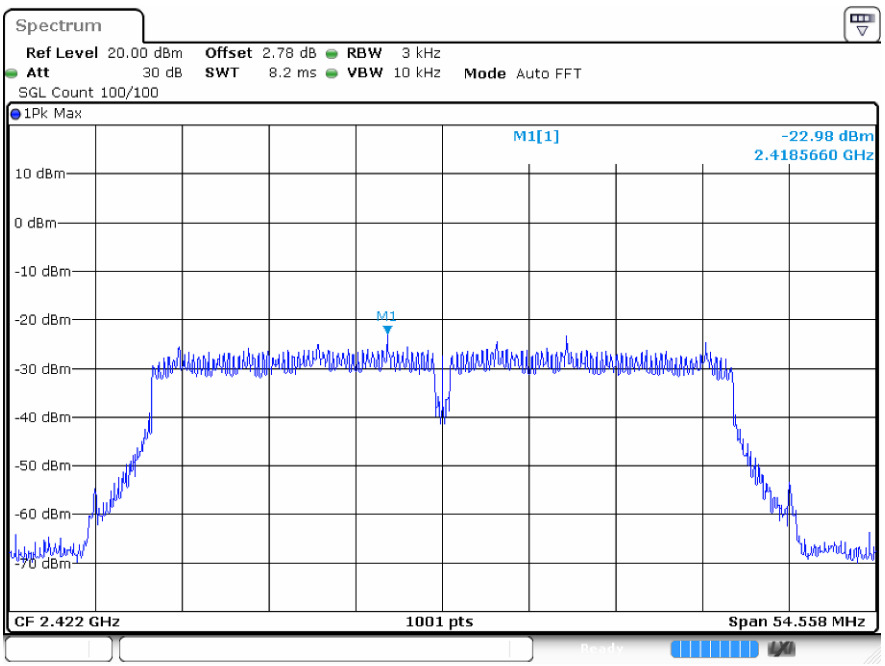
n20 2437MHz Ant1



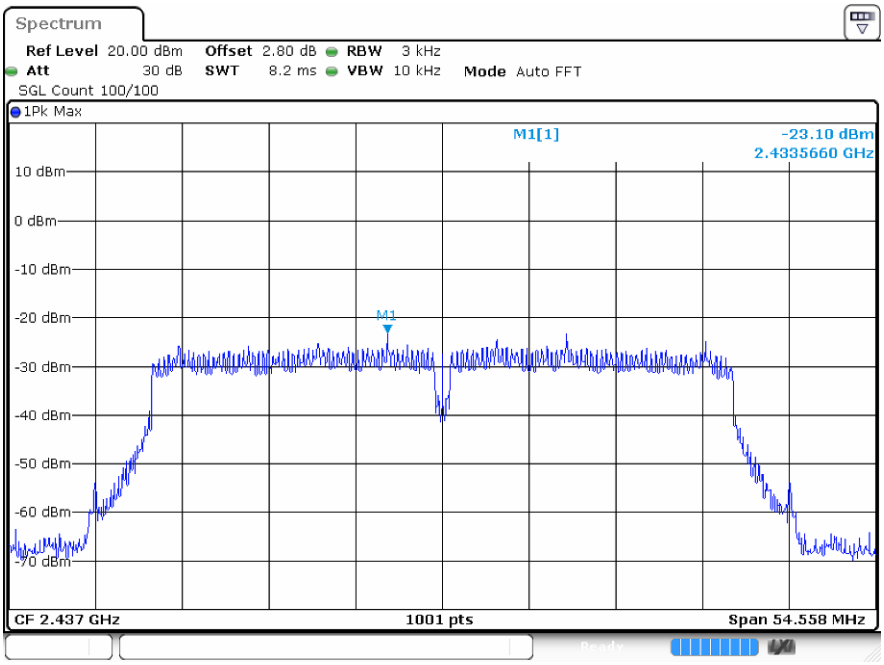
n20 2462MHz Ant1



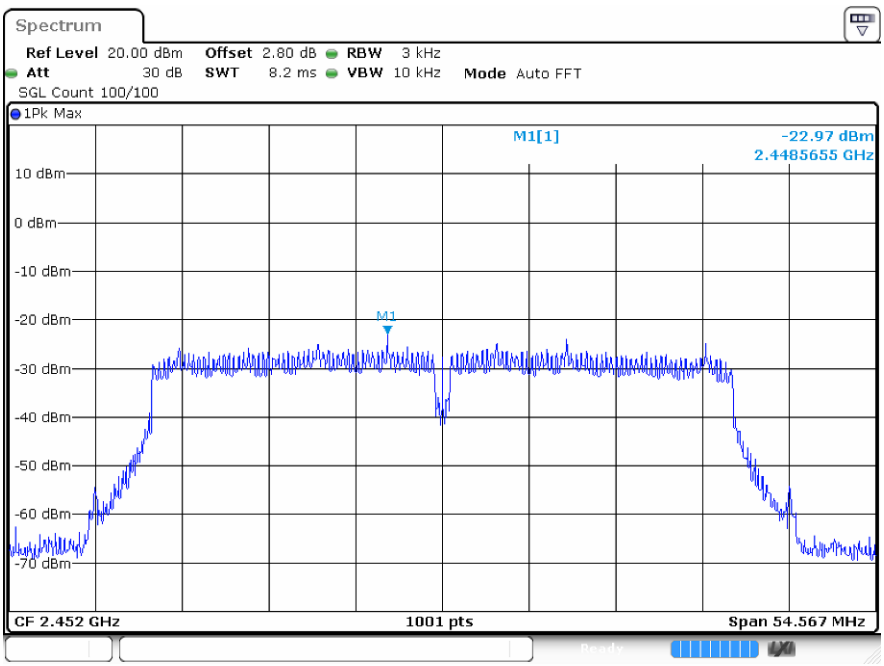
n40 2422MHz Ant1



n40 2437MHz Ant1



n40 2452MHz Ant1



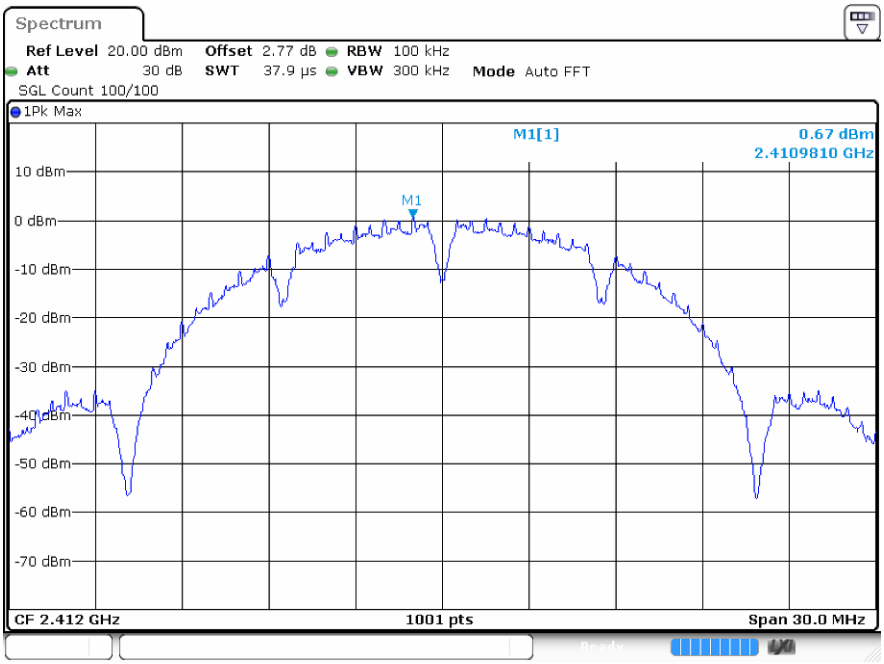
5 Band Edge

5.1 Test Result

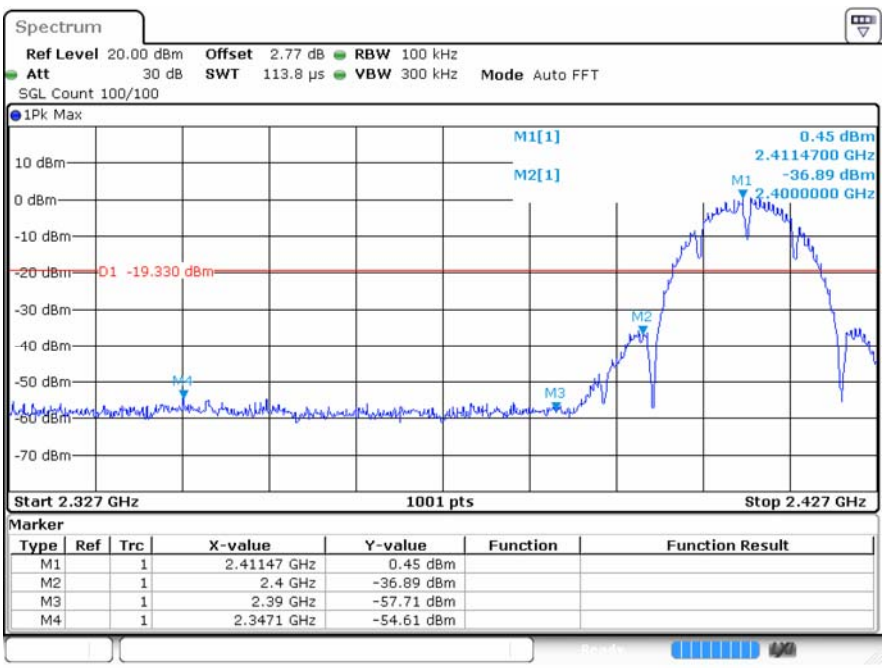
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-55.27	-20	-55.27
b	2462	Ant1	-55.16	-20	Pass
g	2412	Ant1	-46.3	-20	Pass
g	2462	Ant1	-47.76	-20	Pass
n20	2412	Ant1	-47.84	-20	Pass
n20	2462	Ant1	-46.33	-20	Pass
n40	2422	Ant1	-41.61	-20	Pass
n40	2452	Ant1	-41.3	-20	Pass

5.2 Test Graphs

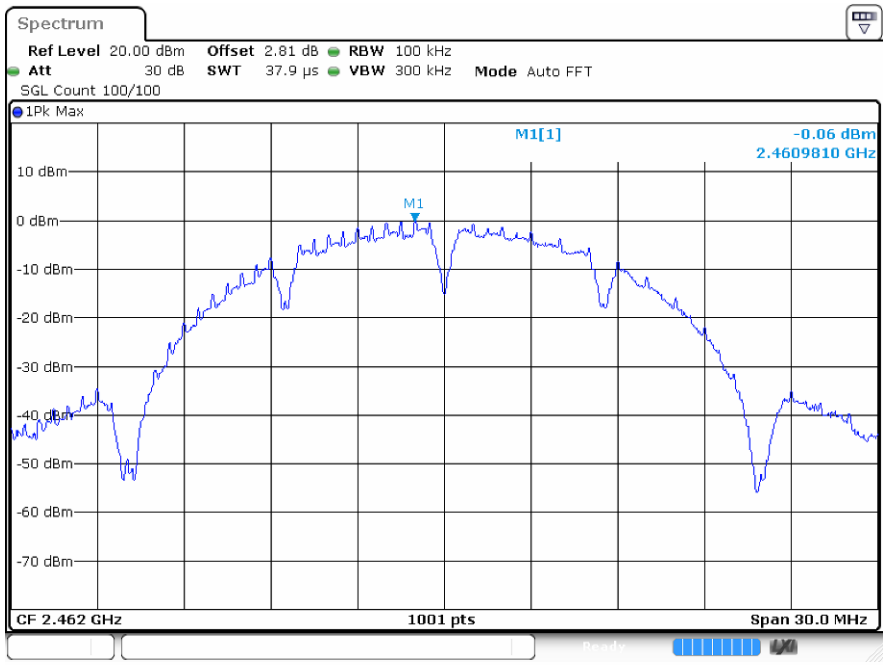
Test Graphs
b 2412MHz Ant1 Ref



b 2412MHz Ant1 Emission



b 2462MHz Ant1 Ref

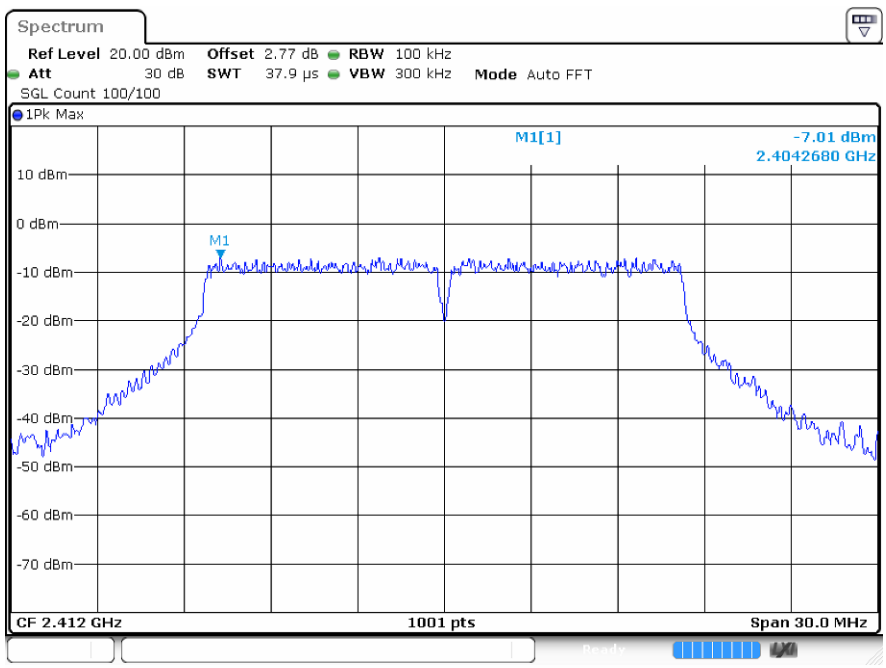


b 2462MHz Ant1 Emission

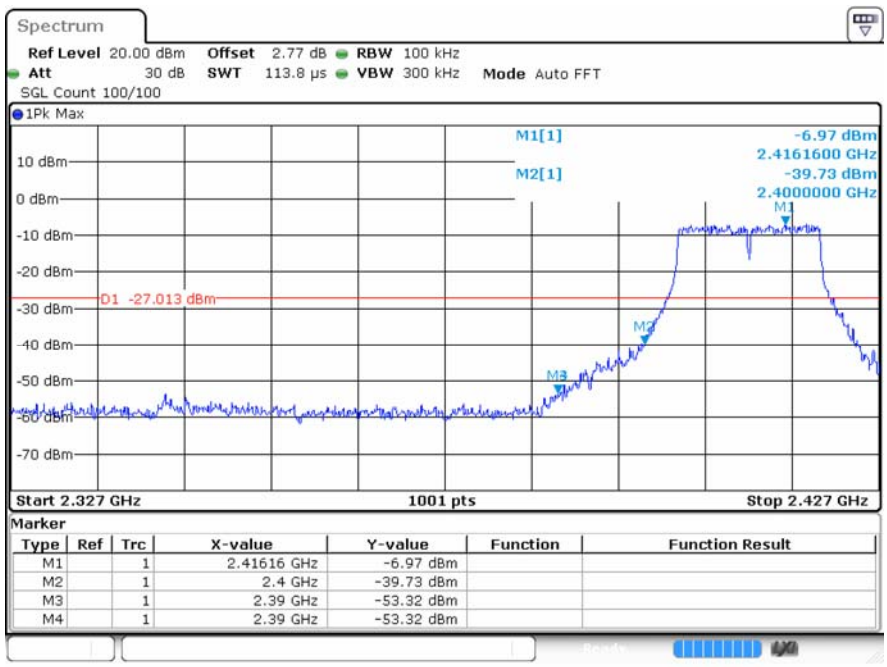
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46154 GHz	0.01 dBm		
M2		1	2.4835 GHz	-57.96 dBm		
M3		1	2.5 GHz	-58.73 dBm		
M4		1	2.4887 GHz	-55.23 dBm		

g 2412MHz Ant1 Ref

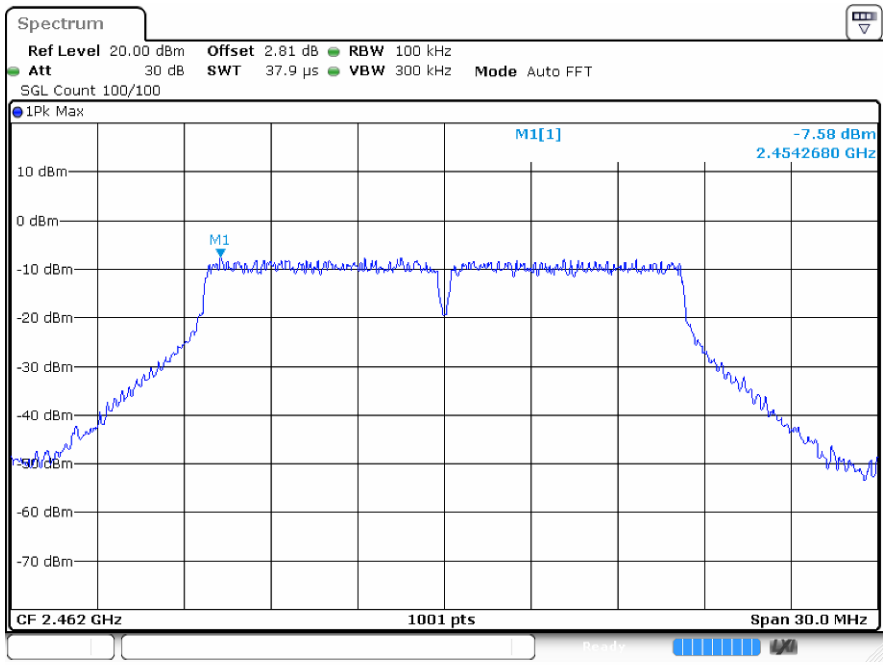


g 2412MHz Ant1 Emission

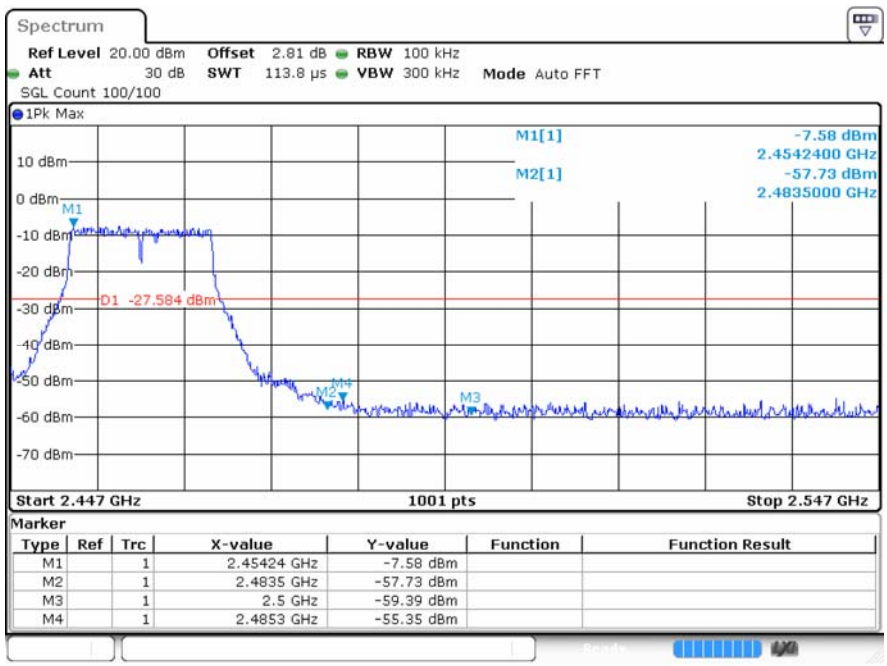


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41616 GHz	-6.97 dBm		
M2		1	2.4 GHz	-39.73 dBm		
M3		1	2.39 GHz	-53.32 dBm		
M4		1	2.39 GHz	-53.32 dBm		

g 2462MHz Ant1 Ref



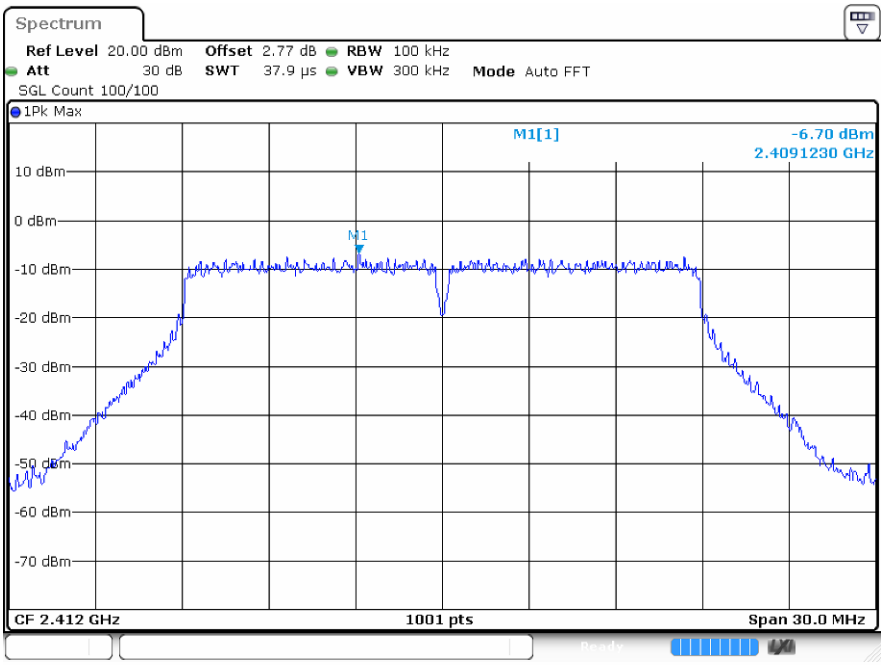
g 2462MHz Ant1 Emission



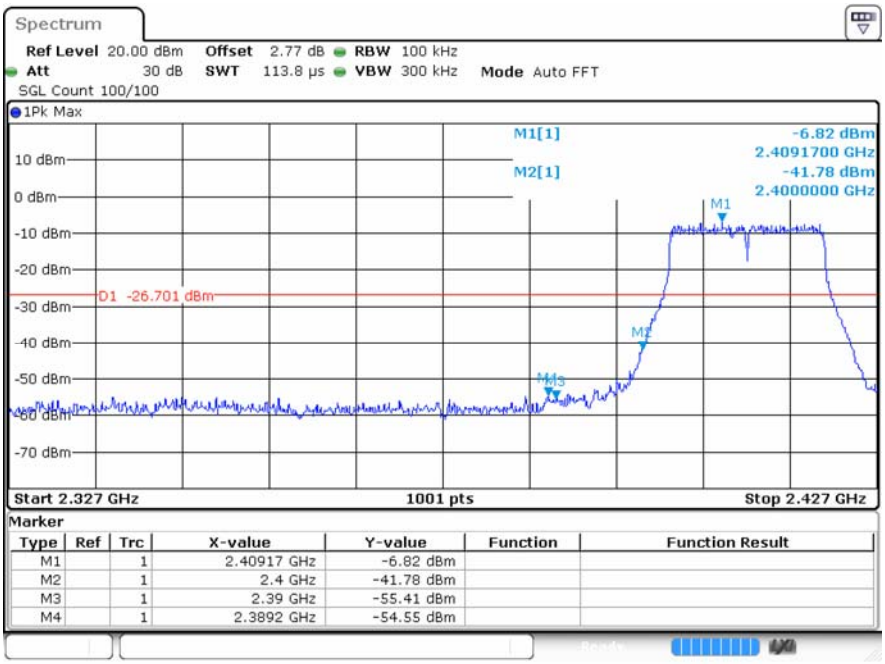
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45424 GHz	-7.58 dBm		
M2		1	2.4835 GHz	-57.73 dBm		
M3		1	2.5 GHz	-59.39 dBm		
M4		1	2.4853 GHz	-55.35 dBm		

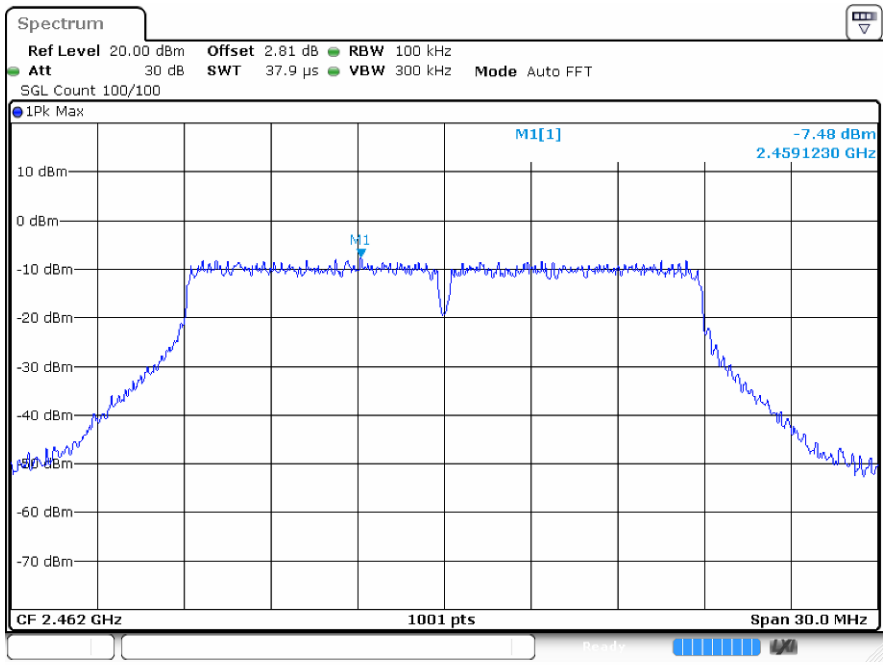
n20 2412MHz Ant1 Ref



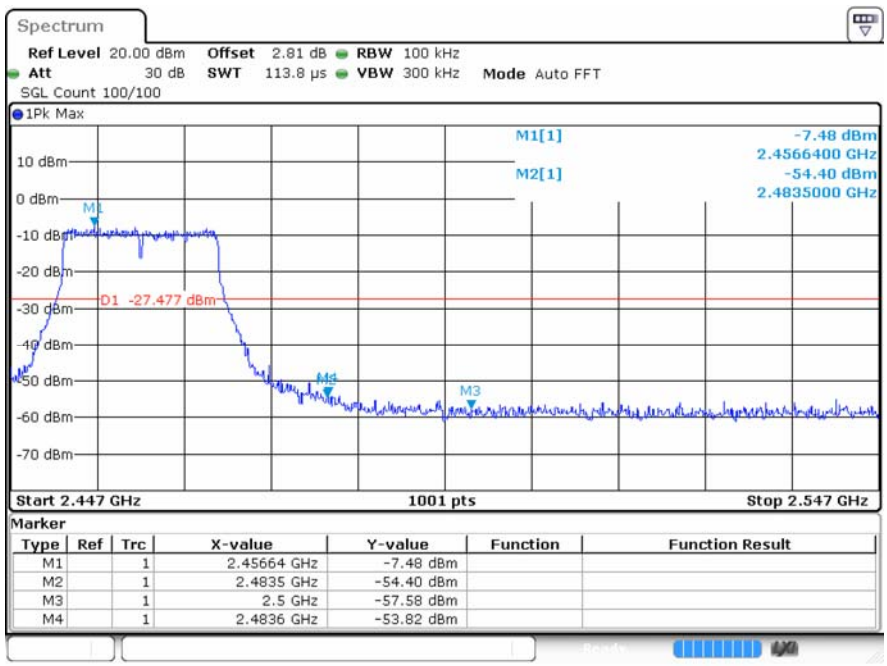
n20 2412MHz Ant1 Emission



n20 2462MHz Ant1 Ref



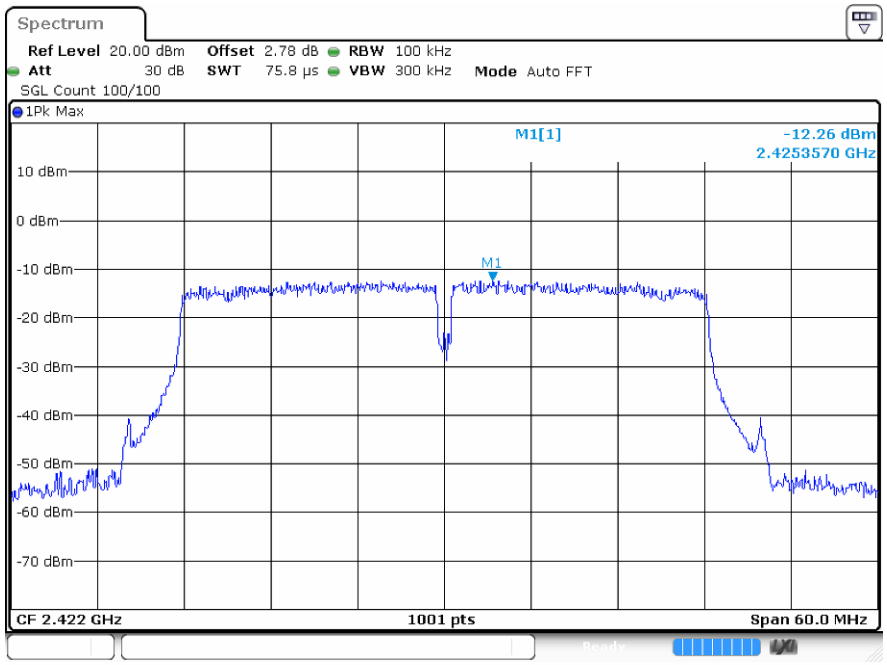
n20 2462MHz Ant1 Emission



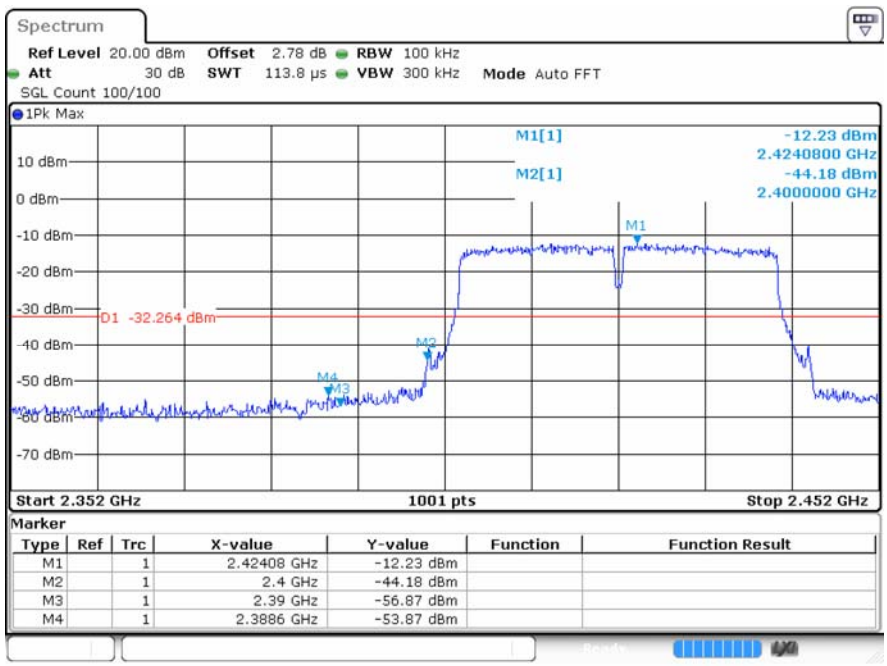
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45664 GHz	-7.48 dBm		
M2		1	2.4835 GHz	-54.40 dBm		
M3		1	2.5 GHz	-57.58 dBm		
M4		1	2.4836 GHz	-53.82 dBm		

n40 2422MHz Ant1 Ref



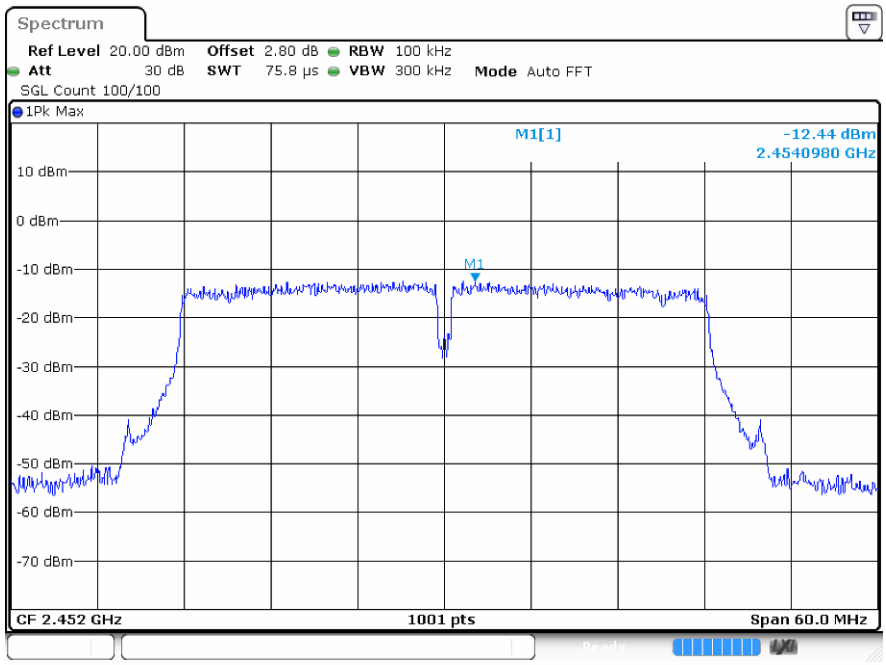
n40 2422MHz Ant1 Emission



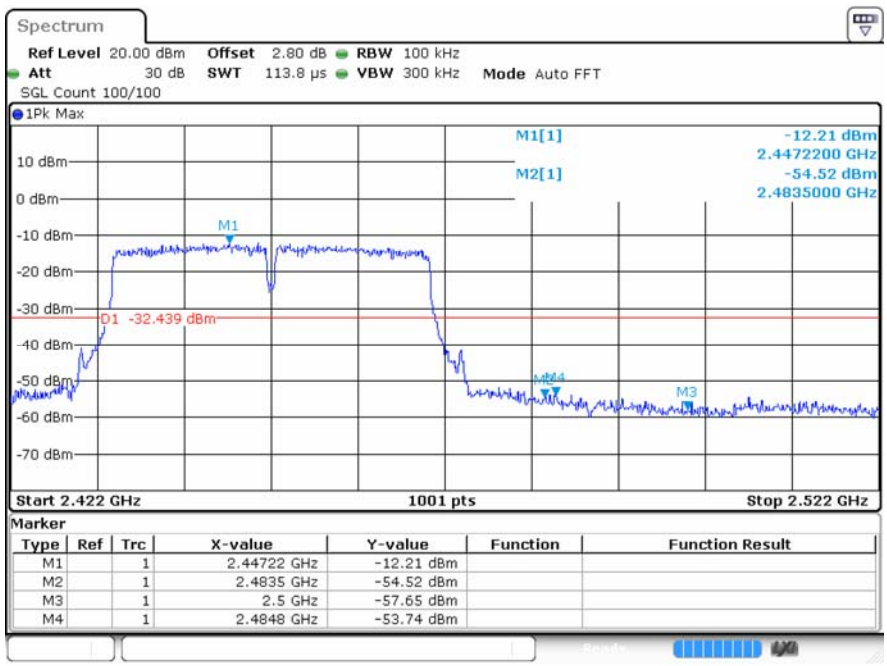
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.42408 GHz	-12.23 dBm		
M2		1	2.4 GHz	-44.18 dBm		
M3		1	2.39 GHz	-56.87 dBm		
M4		1	2.3886 GHz	-53.87 dBm		

n40 2452MHz Ant1 Ref



n40 2452MHz Ant1 Emission



6 Conducted RF Spurious Emission

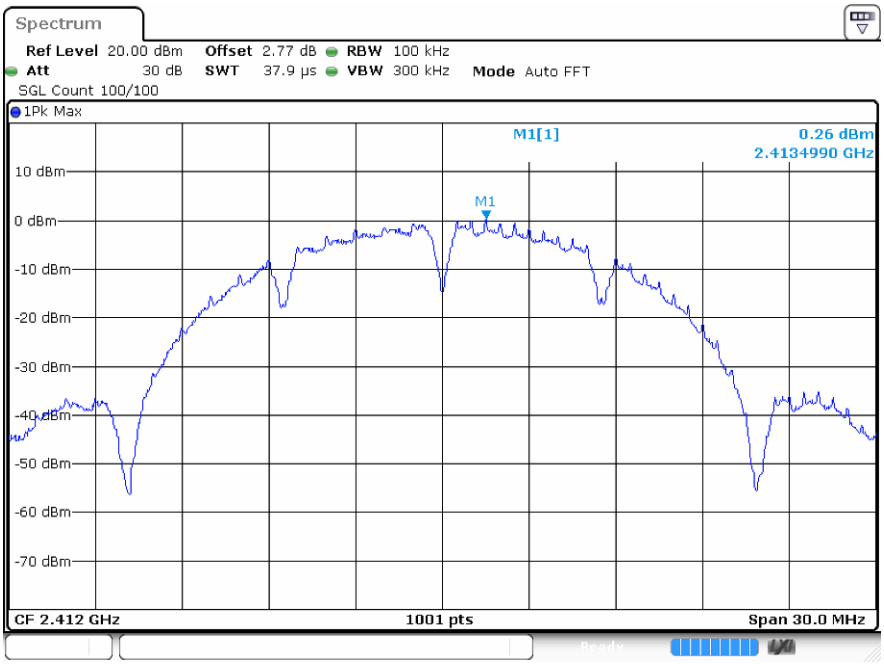
6.1 Test Result

Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-47.14	-20	Pass
b	2437	Ant1	-46.63	-20	Pass
b	2462	Ant1	-45.6	-20	Pass
g	2412	Ant1	-45.19	-20	Pass
g	2437	Ant1	-45.54	-20	Pass
g	2462	Ant1	-38.42	-20	Pass
n20	2412	Ant1	-39.08	-20	Pass
n20	2437	Ant1	-38	-20	Pass
n20	2462	Ant1	-38.38	-20	Pass
n40	2422	Ant1	-33.64	-20	Pass
n40	2437	Ant1	-33.51	-20	Pass
n40	2452	Ant1	-34.43	-20	Pass

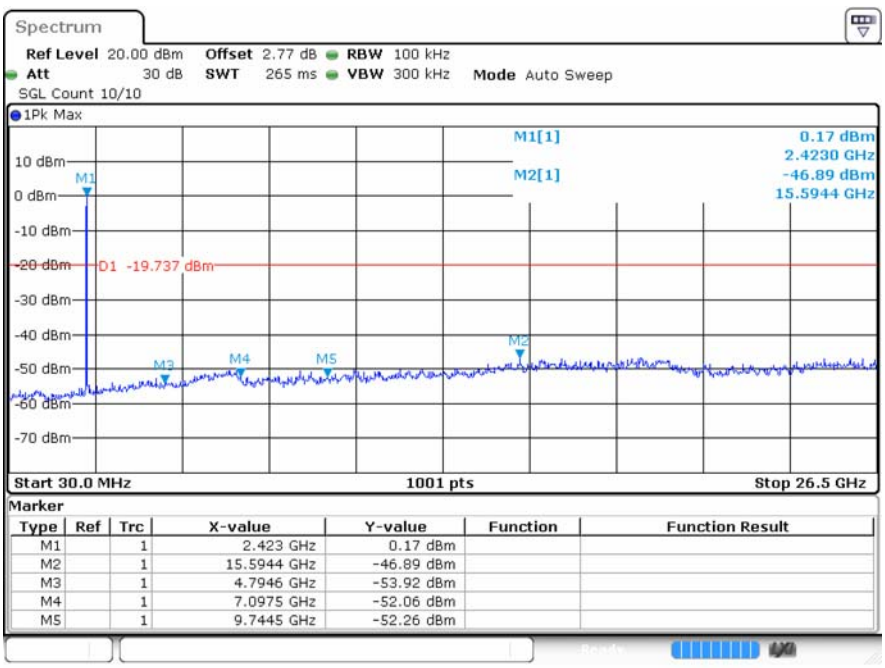
6.2 Test Graphs

Test Graphs

b 2412MHz Ant1 Ref



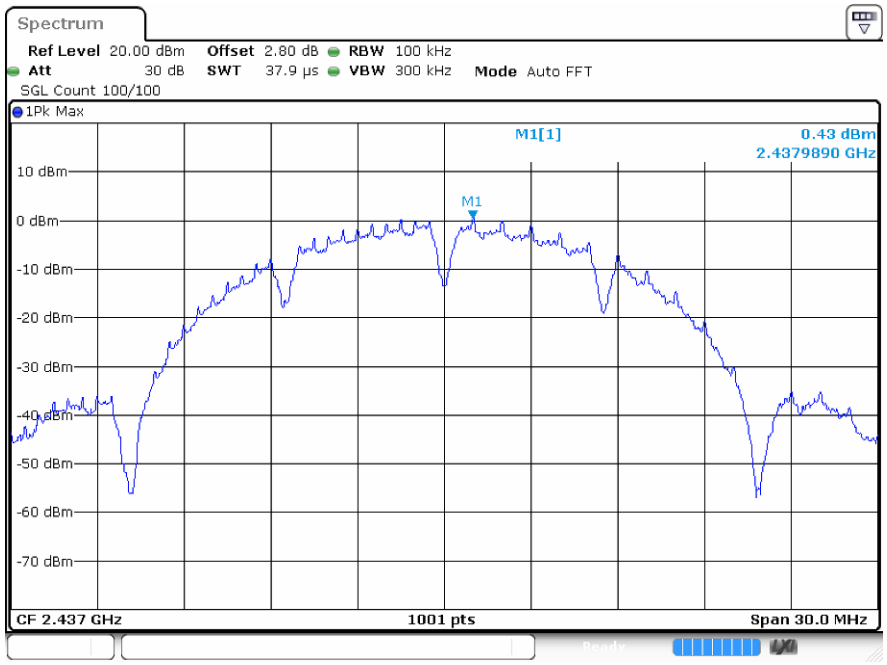
b 2412MHz Ant1 Emission



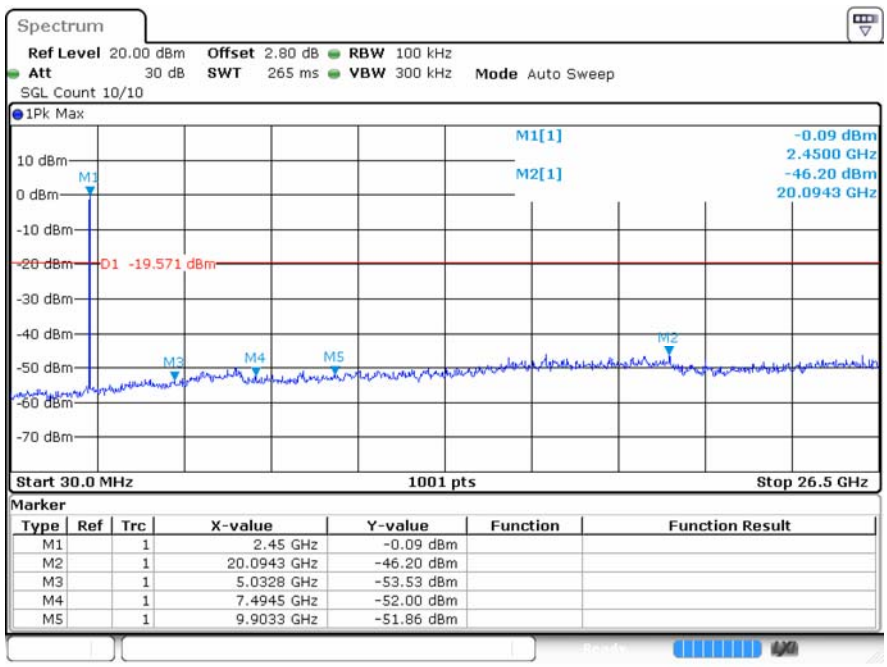
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.423 GHz	0.17 dBm		
M2		1	15.5944 GHz	-46.89 dBm		
M3		1	4.7946 GHz	-53.92 dBm		
M4		1	7.0975 GHz	-52.06 dBm		
M5		1	9.7445 GHz	-52.26 dBm		

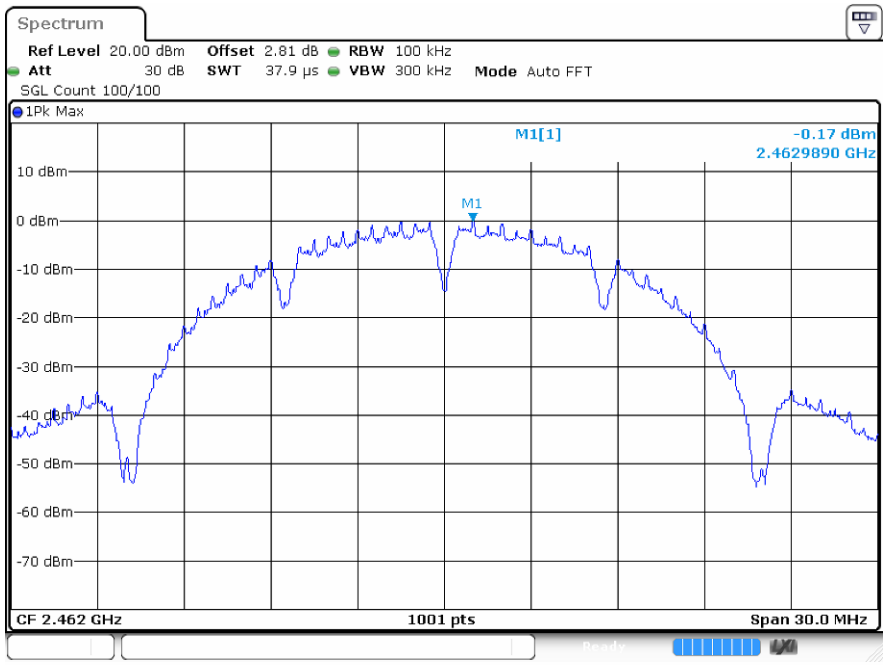
b 2437MHz Ant1 Ref



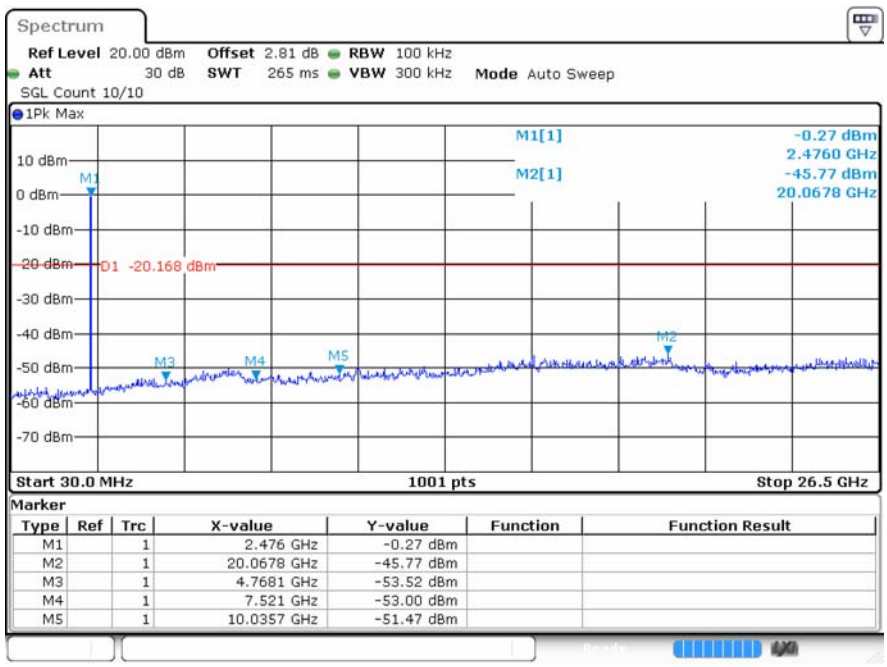
b 2437MHz Ant1 Emission



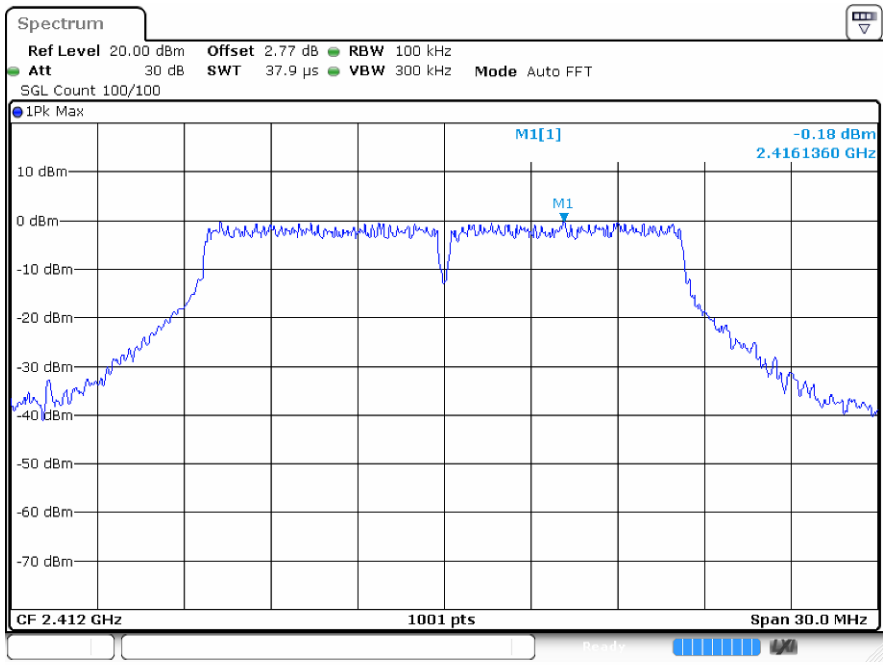
b 2462MHz Ant1 Ref



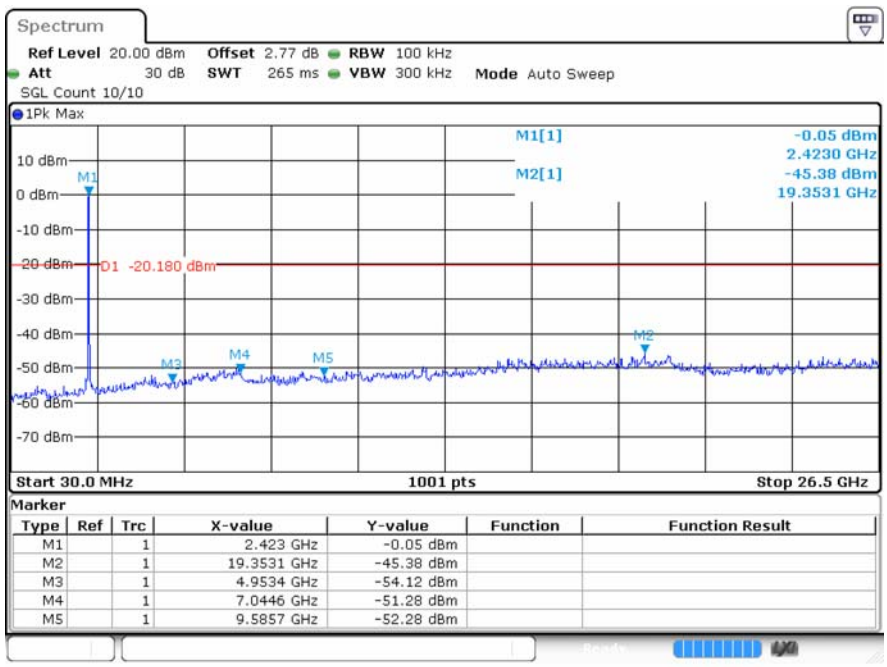
b 2462MHz Ant1 Emission



g 2412MHz Ant1 Ref



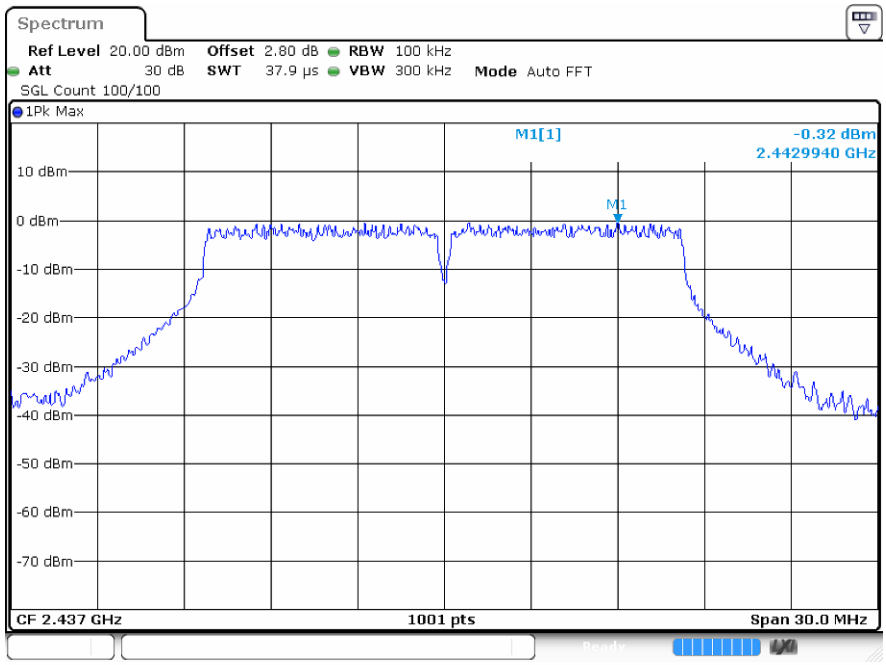
g 2412MHz Ant1 Emission



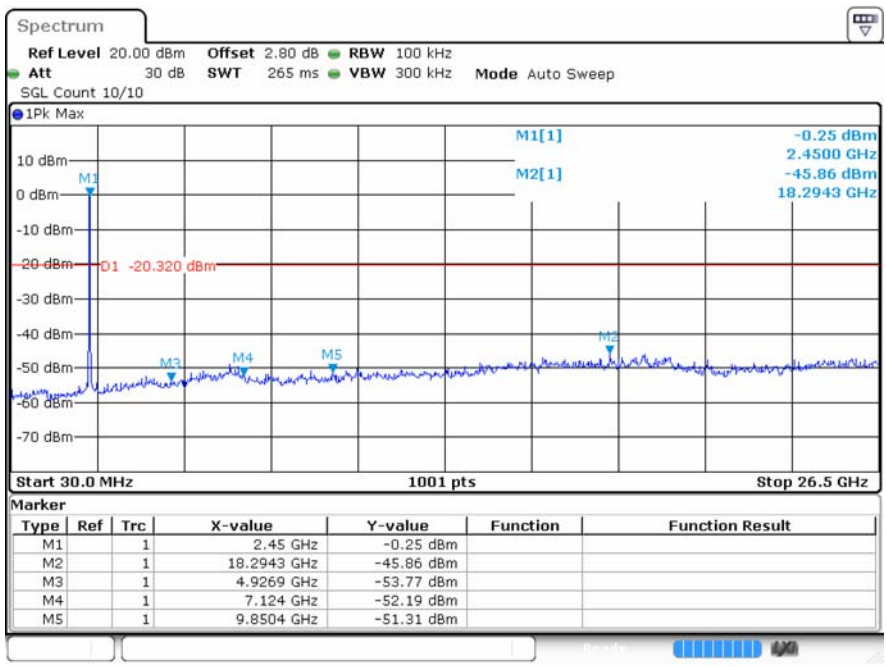
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.423 GHz	-0.05 dBm		
M2		1	19.3531 GHz	-45.38 dBm		
M3		1	4.9534 GHz	-54.12 dBm		
M4		1	7.0446 GHz	-51.28 dBm		
M5		1	9.5857 GHz	-52.28 dBm		

g 2437MHz Ant1 Ref



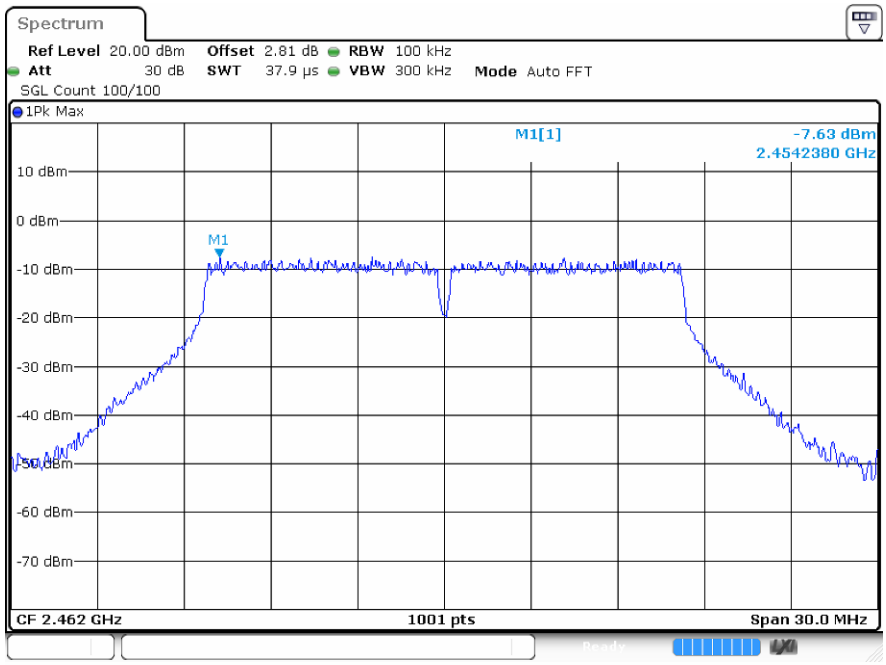
g 2437MHz Ant1 Emission



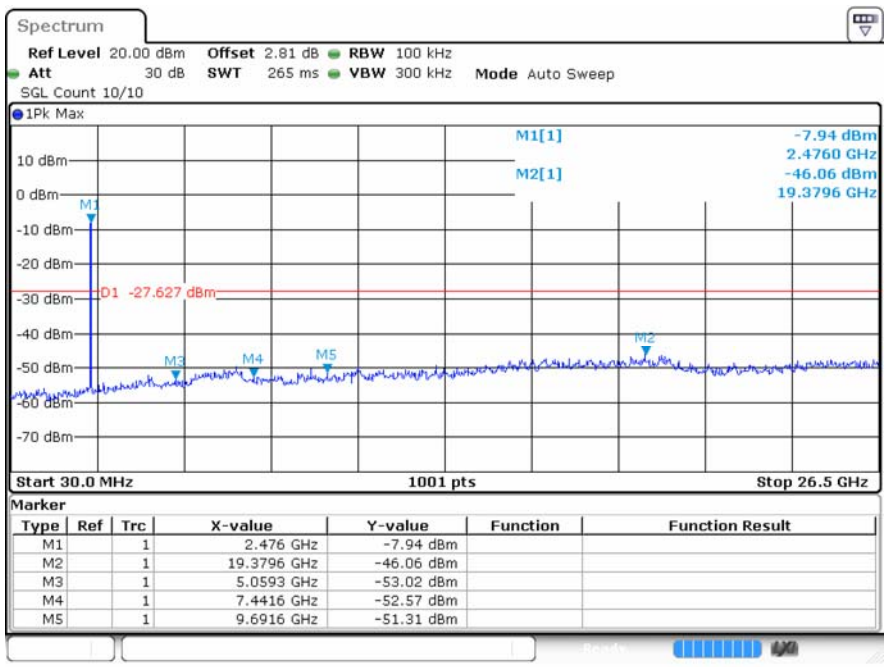
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-0.25 dBm		
M2		1	18.2943 GHz	-45.86 dBm		
M3		1	4.9269 GHz	-53.77 dBm		
M4		1	7.124 GHz	-52.19 dBm		
M5		1	9.8504 GHz	-51.31 dBm		

g 2462MHz Ant1 Ref



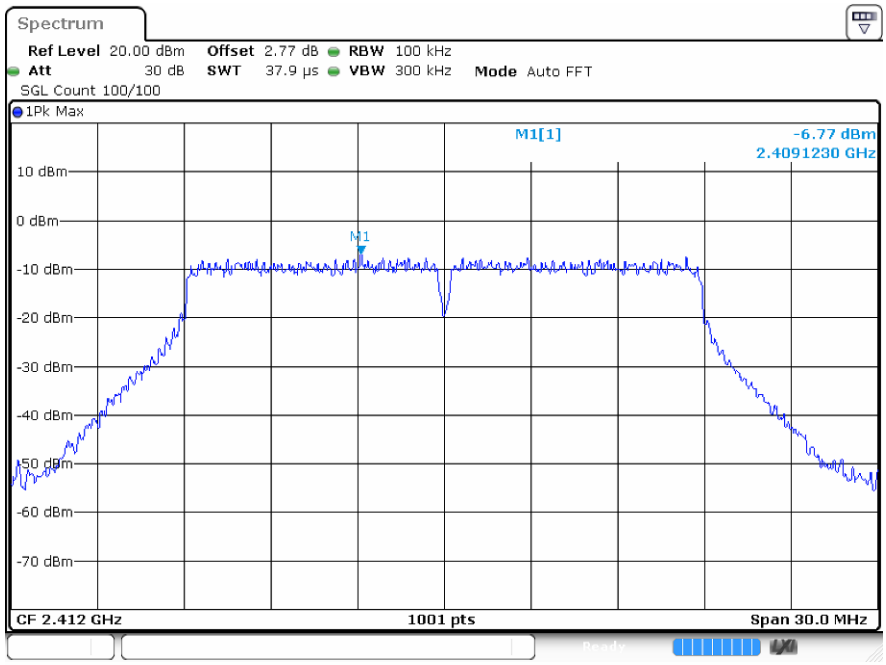
g 2462MHz Ant1 Emission



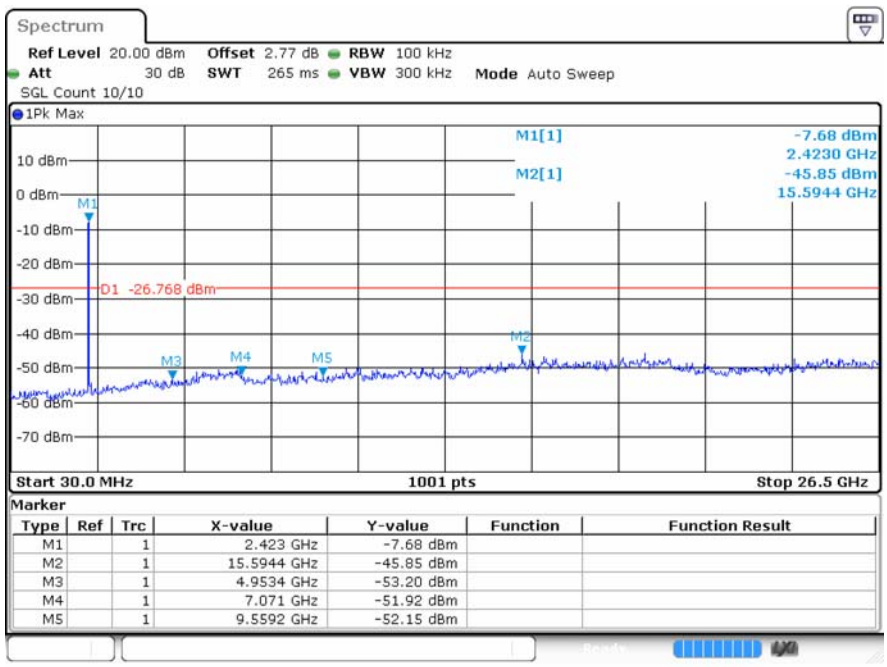
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.476 GHz	-7.94 dBm		
M2		1	19.3796 GHz	-46.06 dBm		
M3		1	5.0593 GHz	-53.02 dBm		
M4		1	7.4416 GHz	-52.57 dBm		
M5		1	9.6916 GHz	-51.31 dBm		

n20 2412MHz Ant1 Ref



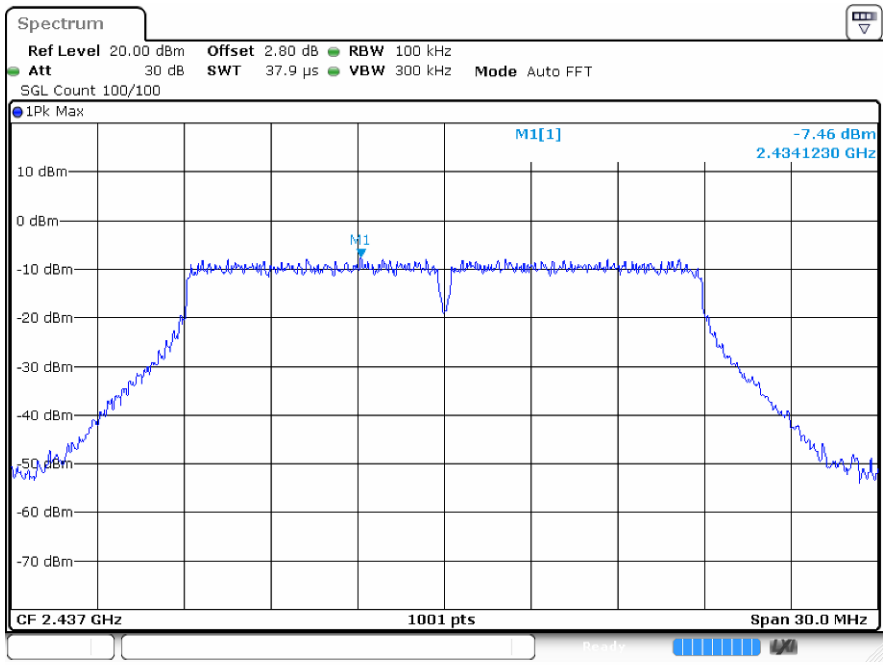
n20 2412MHz Ant1 Emission



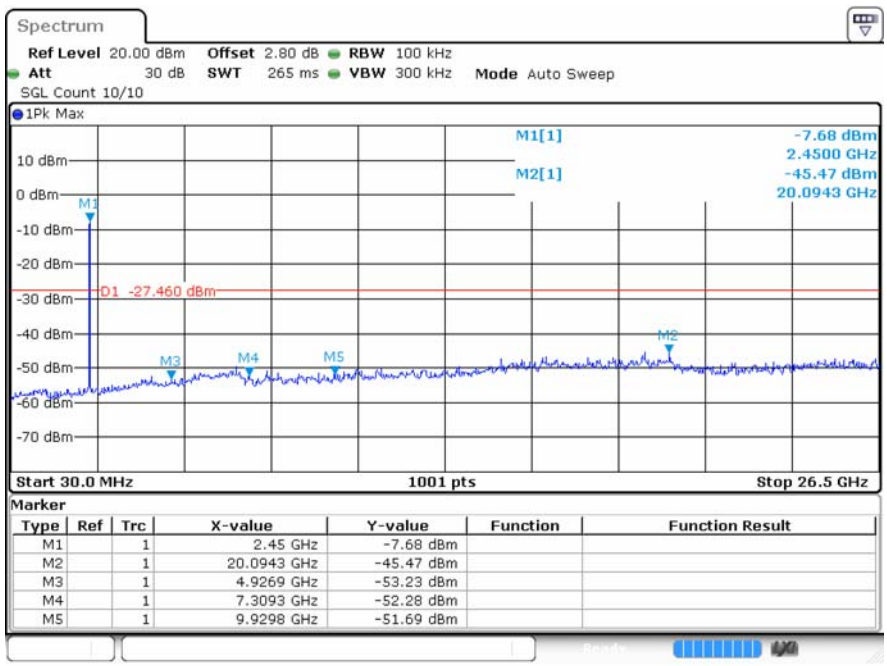
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.423 GHz	-7.68 dBm		
M2		1	15.5944 GHz	-45.85 dBm		
M3		1	4.9534 GHz	-53.20 dBm		
M4		1	7.071 GHz	-51.92 dBm		
M5		1	9.5592 GHz	-52.15 dBm		

n20 2437MHz Ant1 Ref



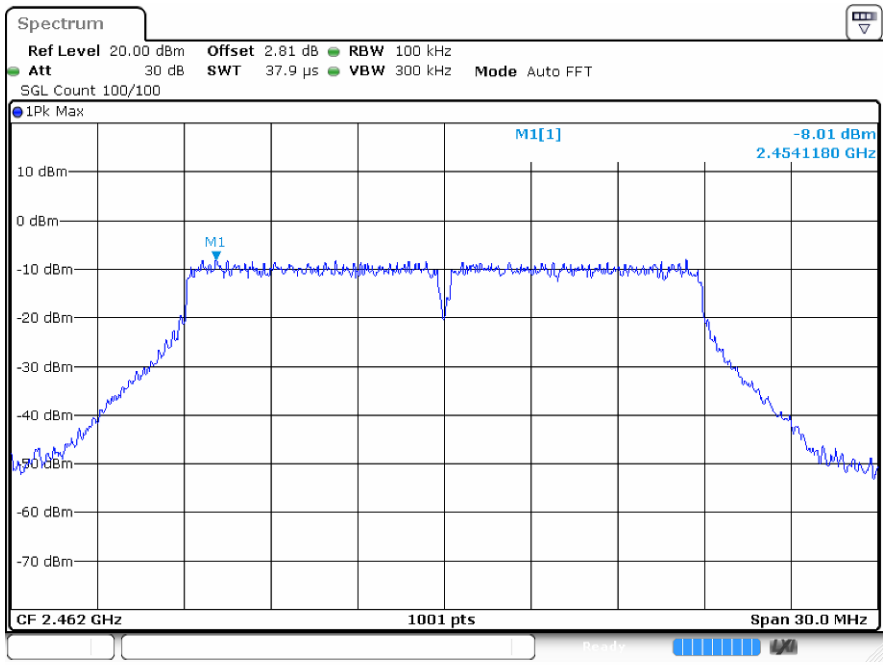
n20 2437MHz Ant1 Emission



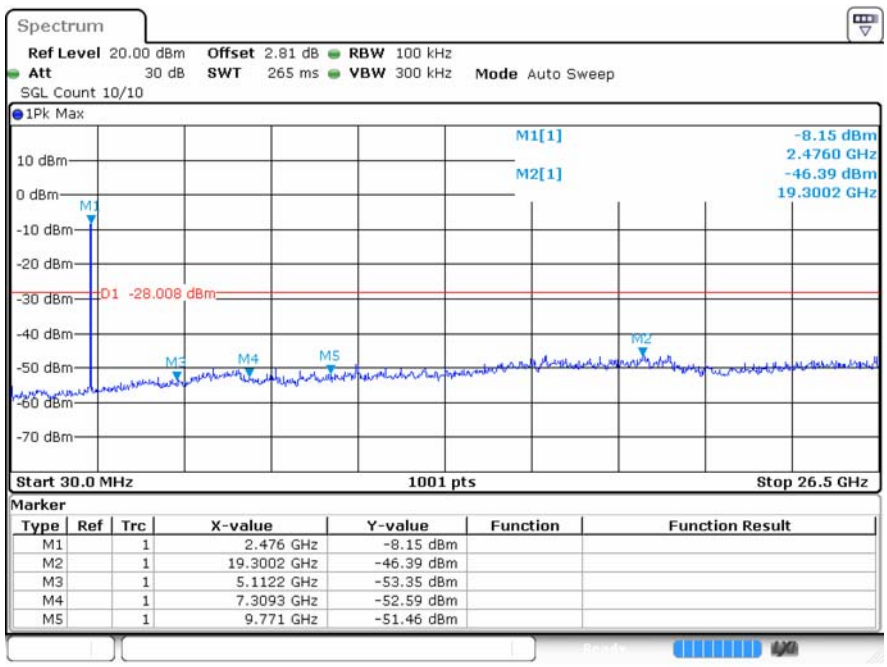
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-7.68 dBm		
M2		1	20.0943 GHz	-45.47 dBm		
M3		1	4.9269 GHz	-53.23 dBm		
M4		1	7.3093 GHz	-52.28 dBm		
M5		1	9.9298 GHz	-51.69 dBm		

n20 2462MHz Ant1 Ref



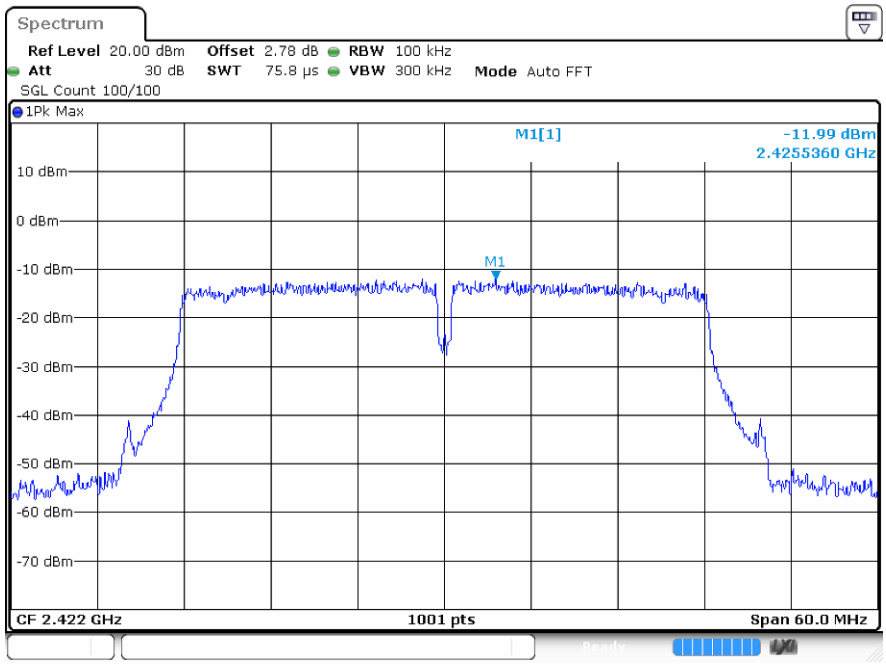
n20 2462MHz Ant1 Emission



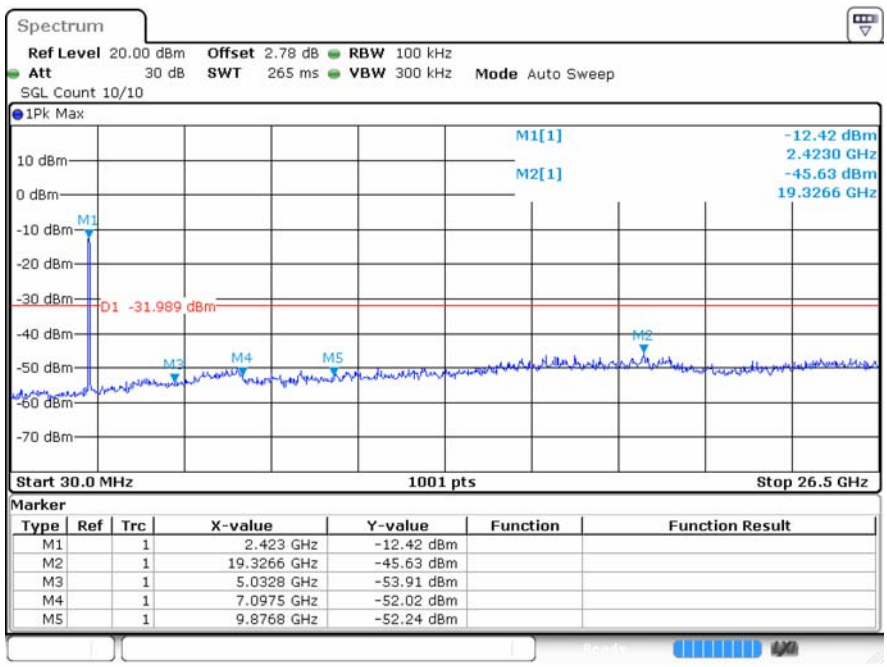
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.476 GHz	-8.15 dBm		
M2		1	19.3002 GHz	-46.39 dBm		
M3		1	5.1122 GHz	-53.35 dBm		
M4		1	7.3093 GHz	-52.59 dBm		
M5		1	9.771 GHz	-51.46 dBm		

n40 2422MHz Ant1 Ref



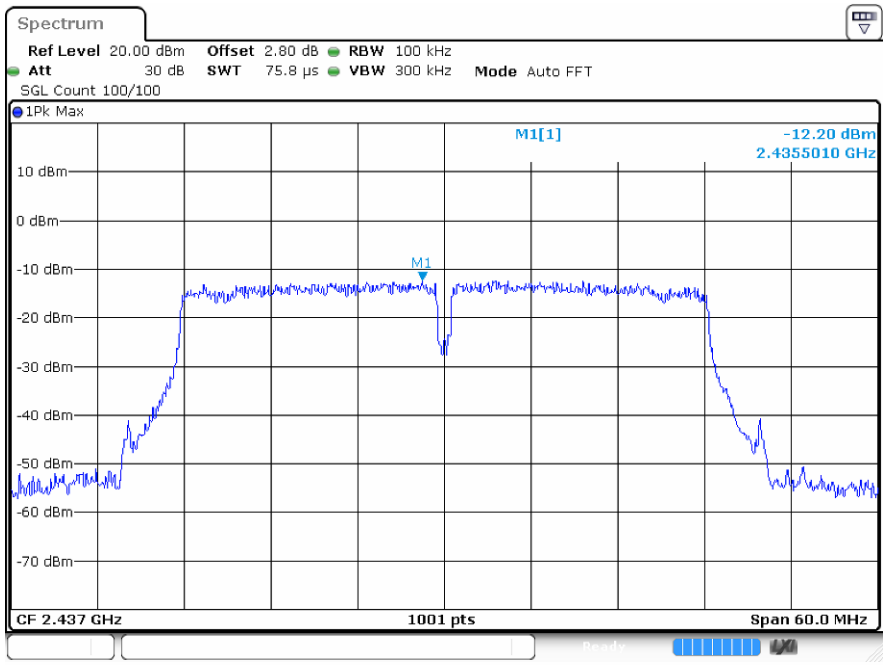
n40 2422MHz Ant1 Emission



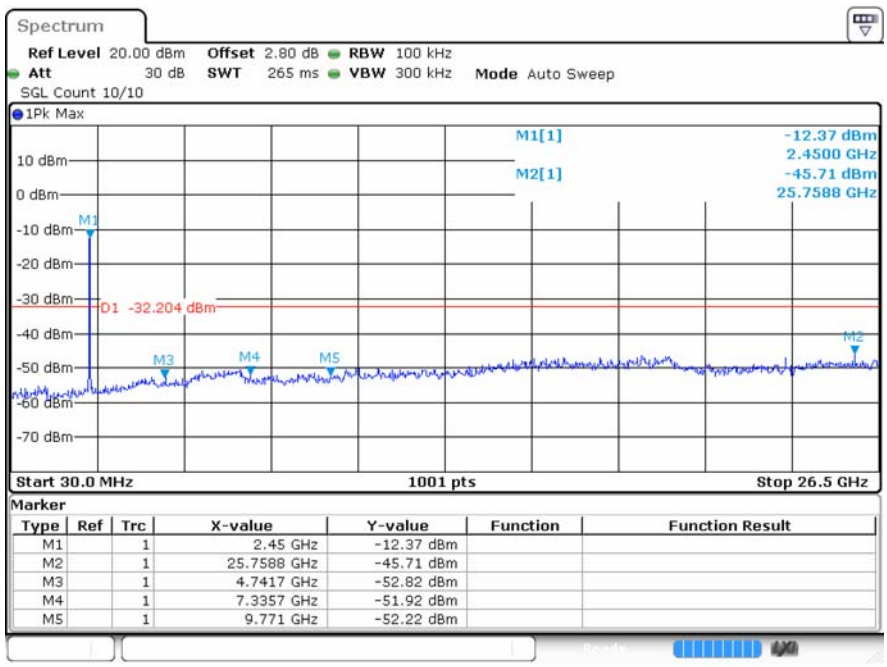
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.423 GHz	-12.42 dBm		
M2		1	19.3266 GHz	-45.63 dBm		
M3		1	5.0328 GHz	-53.91 dBm		
M4		1	7.0975 GHz	-52.02 dBm		
M5		1	9.8768 GHz	-52.24 dBm		

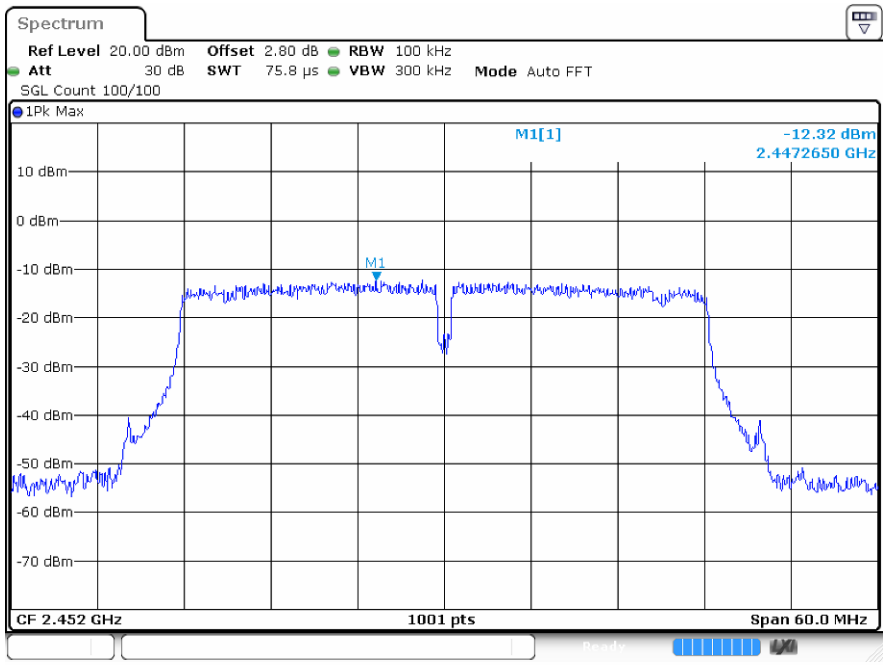
n40 2437MHz Ant1 Ref



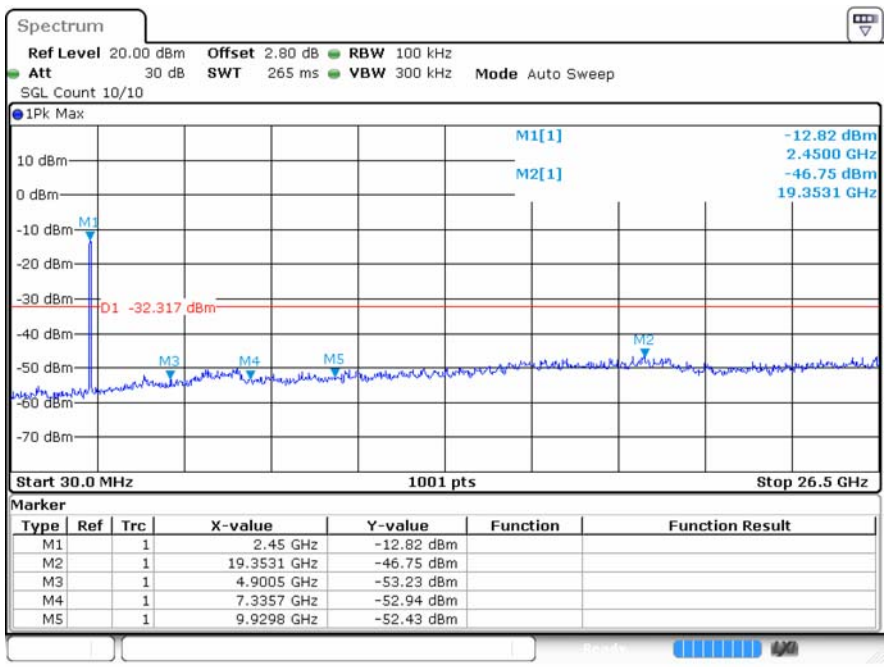
n40 2437MHz Ant1 Emission



n40 2452MHz Ant1 Ref



n40 2452MHz Ant1 Emission



7 Restrict Band

7.1 Test Result

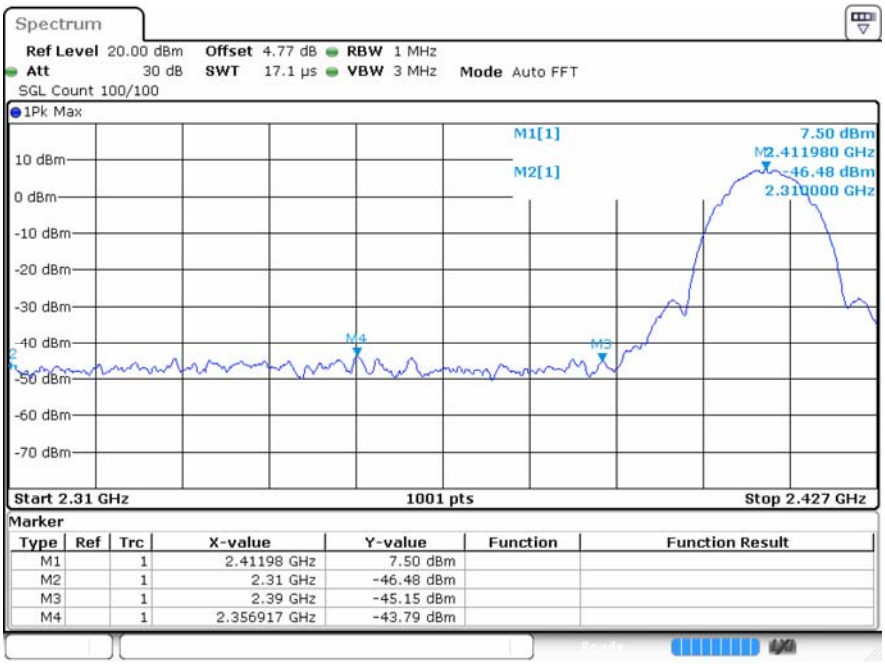
Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
b	2412	Ant1	2310	-46.48	2	50.78	Peak	74	Pass
b	2412	Ant1	2310	-56.14	2	41.12	Average	54	Pass
b	2412	Ant1	2356.917	-43.78	2	53.48	Peak	74	Pass
b	2412	Ant1	2336.559	-54.54	2	42.72	Average	54	Pass
b	2412	Ant1	2390	-45.15	2	52.11	Peak	74	Pass
b	2412	Ant1	2390	-55.94	2	41.32	Average	54	Pass
b	2462	Ant1	2483.5	-45.62	2	51.64	Peak	74	51.64
b	2462	Ant1	2483.5	-55.65	2	41.61	Average	54	Pass
b	2462	Ant1	2483.994	-44.04	2	53.22	Peak	74	Pass
b	2462	Ant1	2487.545	-54.73	2	42.53	Average	54	Pass
b	2462	Ant1	2500	-46.52	2	50.74	Peak	74	Pass
b	2462	Ant1	2500	-56.46	2	40.8	Average	54	Pass
g	2412	Ant1	2310	-46.88	2	50.38	Peak	74	Pass
g	2412	Ant1	2310	-56.25	2	41.01	Average	54	Pass
g	2412	Ant1	2328.954	-44.67	2	52.59	Peak	74	Pass
g	2412	Ant1	2337.261	-53.44	2	43.82	Average	54	Pass
g	2412	Ant1	2390	-44.75	2	52.11	Peak	74	Pass
g	2412	Ant1	2390	-54.71	2	42.55	Average	54	Pass
g	2462	Ant1	2483.5	-44.7	2	52.56	Peak	74	Pass
g	2462	Ant1	2483.5	-53.41	2	43.85	Average	54	Pass
g	2462	Ant1	2483.994	-43.22	2	54.04	Peak	74	Pass
g	2462	Ant1	2483.517	-53.41	2	43.85	Average	54	Pass
g	2462	Ant1	2500	-46.33	2	50.74	Peak	74	Pass
g	2462	Ant1	2500	-55.25	2	42.01	Average	54	Pass
n20	2412	Ant1	2310	-47.18	2	50.08	Peak	74	Pass
n20	2412	Ant1	2310	-56.62	2	40.64	Average	54	Pass
n20	2412	Ant1	2338.08	-43.49	2	53.77	Peak	74	Pass
n20	2412	Ant1	2337.612	-53.33	2	43.93	Average	54	Pass
n20	2412	Ant1	2390	-45.91	2	51.35	Peak	74	Pass
n20	2412	Ant1	2390	-54.1	2	43.16	Average	54	Pass
n20	2462	Ant1	2483.5	-37.88	2	59.38	Peak	74	Pass
n20	2462	Ant1	2483.5	-52.81	2	44.45	Average	54	Pass
n20	2462	Ant1	2483.517	-37.88	2	59.38	Peak	74	Pass
n20	2462	Ant1	2483.517	-52.81	2	44.45	Average	54	Pass

n20	2462	Ant1	2500	-44.98	2	52.28	Peak	74	Pass
n20	2462	Ant1	2500	-55.48	2	41.78	Average	54	Pass
n40	2422	Ant1	2310	-48.58	2	48.68	Peak	74	Pass
n40	2422	Ant1	2310	-56.35	2	40.91	Average	54	Pass
n40	2422	Ant1	2389.946	-42.04	2	55.22	Peak	74	Pass
n40	2422	Ant1	2389.662	-53.03	2	44.23	Average	54	Pass
n40	2422	Ant1	2390	-42.14	2	55.12	Peak	74	Pass
n40	2422	Ant1	2390	-53.39	2	43.87	Average	54	Pass
n40	2452	Ant1	2483.5	-43.23	2	54.03	Peak	74	Pass
n40	2452	Ant1	2483.5	-53.15	2	44.11	Average	54	Pass
n40	2452	Ant1	2483.542	-43.23	2	54.03	Peak	74	Pass
n40	2452	Ant1	2486.35	-52.71	2	44.55	Average	54	Pass
n40	2452	Ant1	2500	-46.23	2	51.03	Peak	74	Pass
n40	2452	Ant1	2500	-55.21	2	42.05	Average	54	Pass

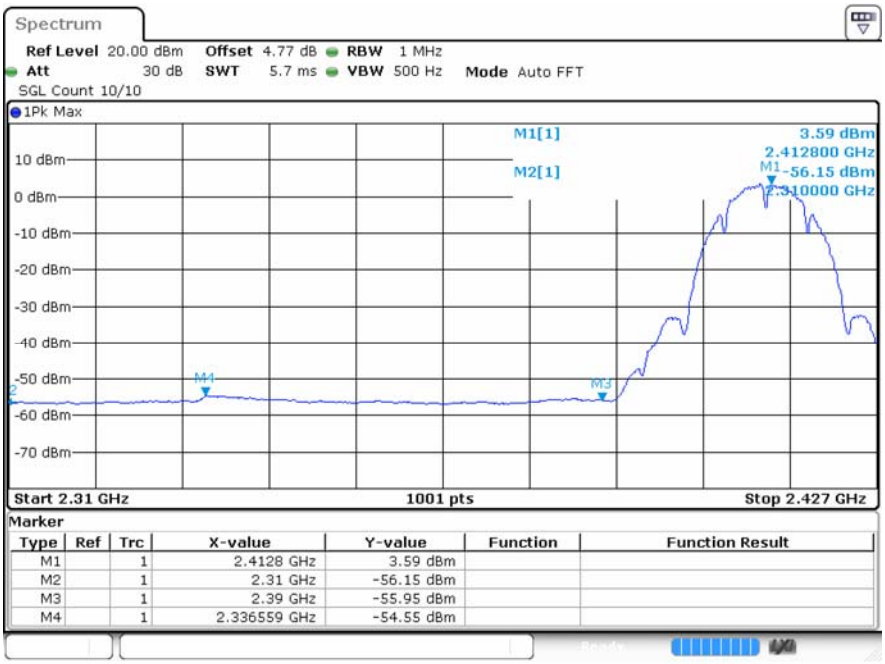
7.2 Test Graphs

Test Graphs

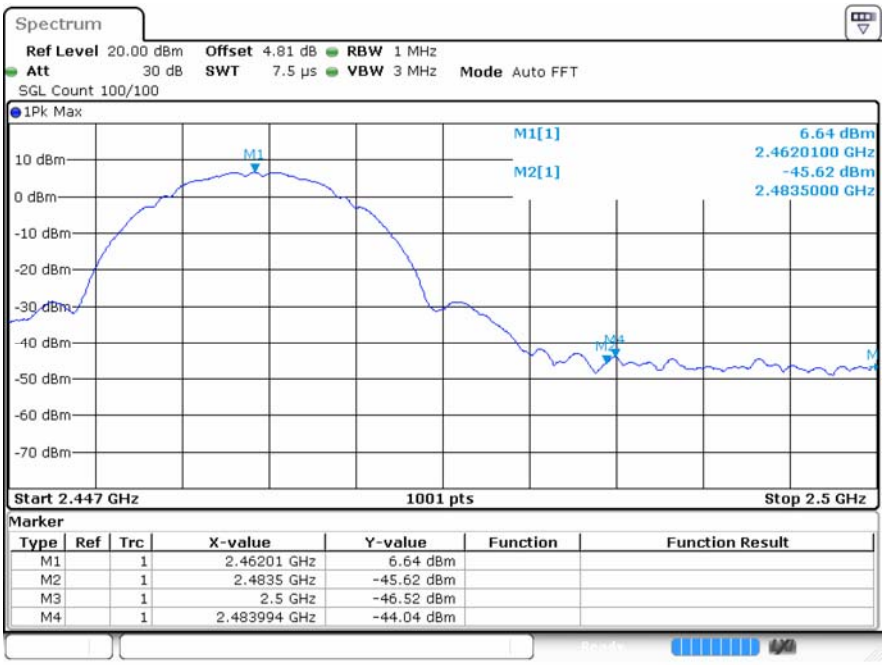
b 2412MHz Ant1 Peak



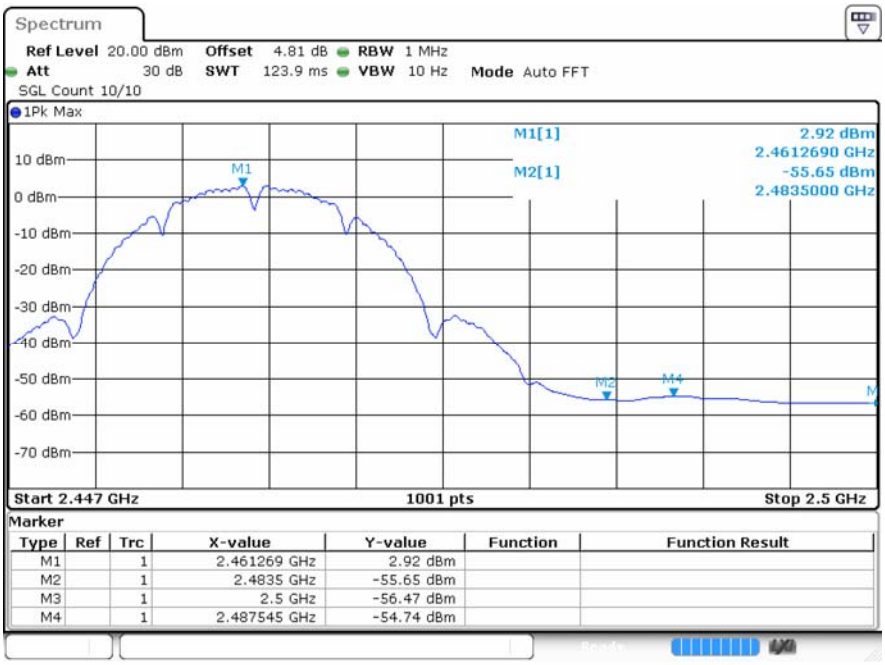
b 2412MHz Ant1 Average



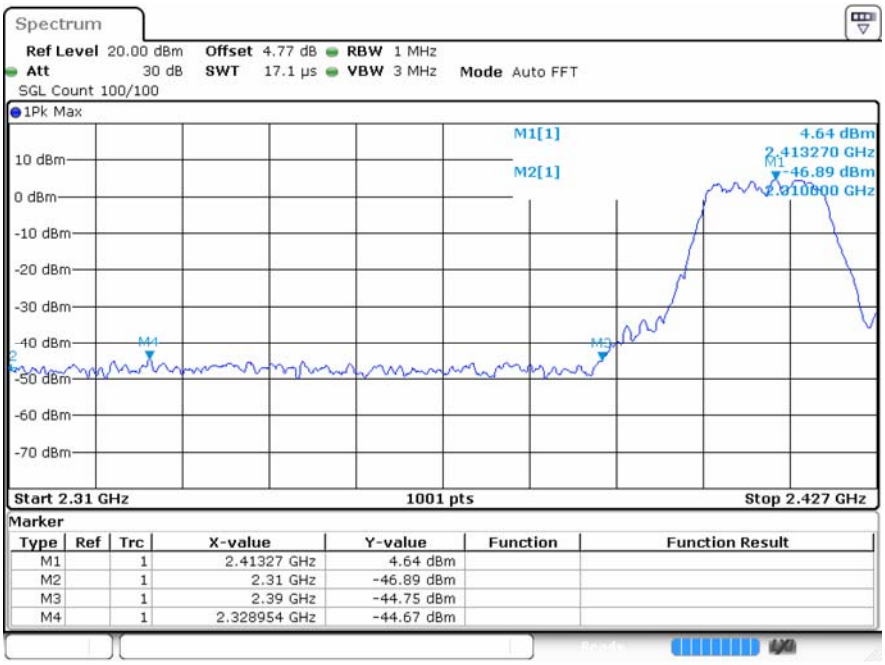
b 2462MHz Ant1 Peak



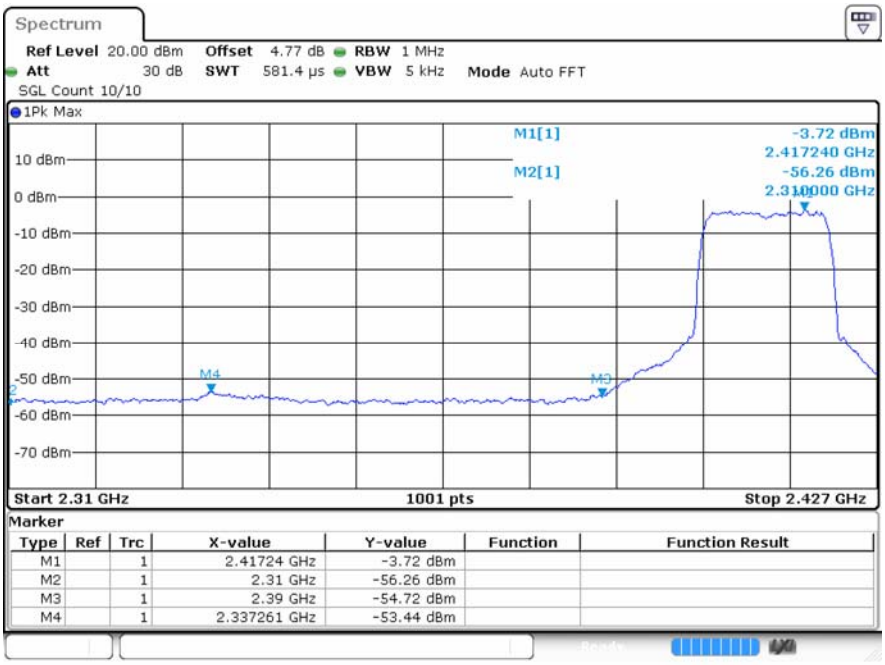
b 2462MHz Ant1 Average



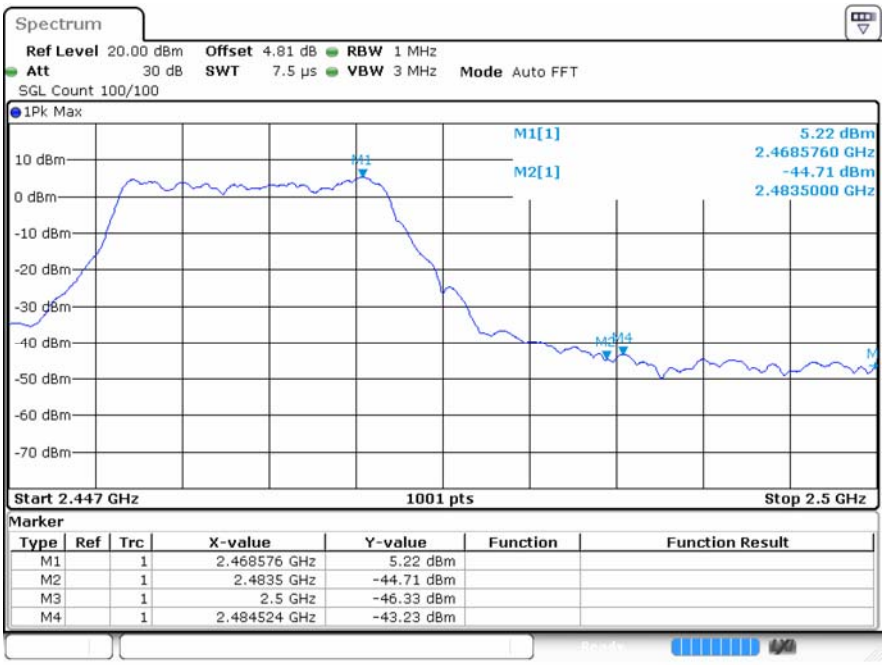
g 2412MHz Ant1 Peak



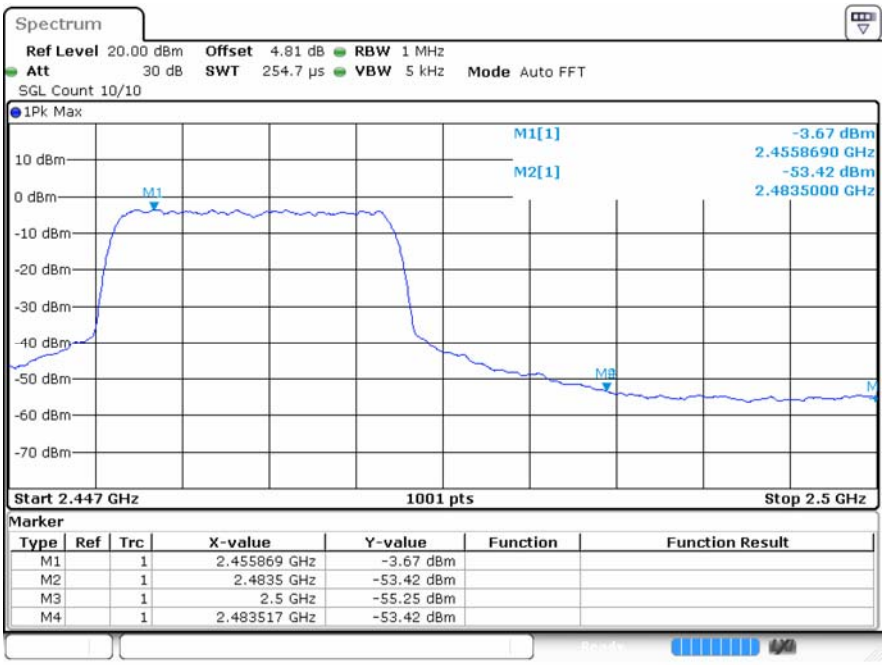
g 2412MHz Ant1 Average



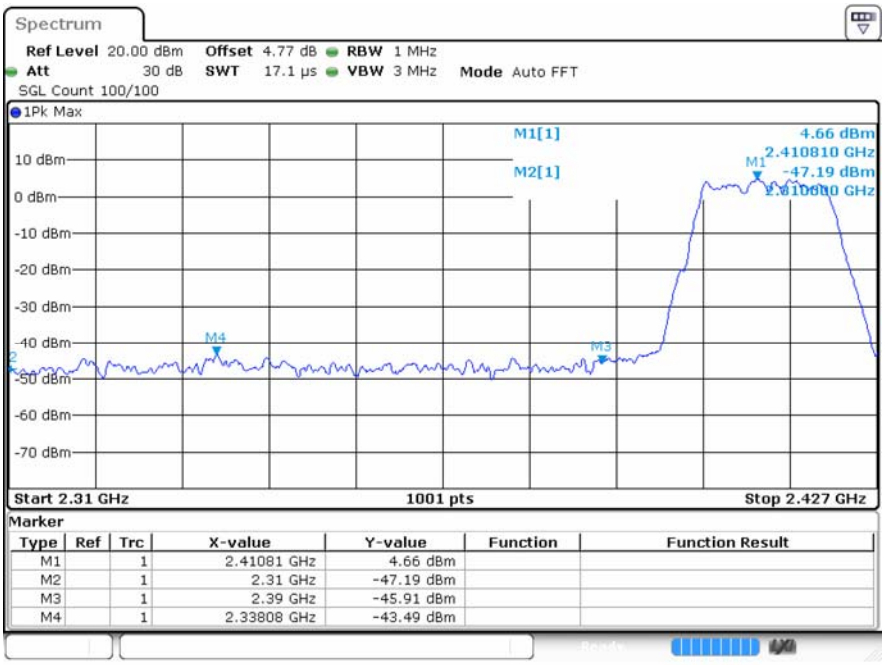
g 2462MHz Ant1 Peak



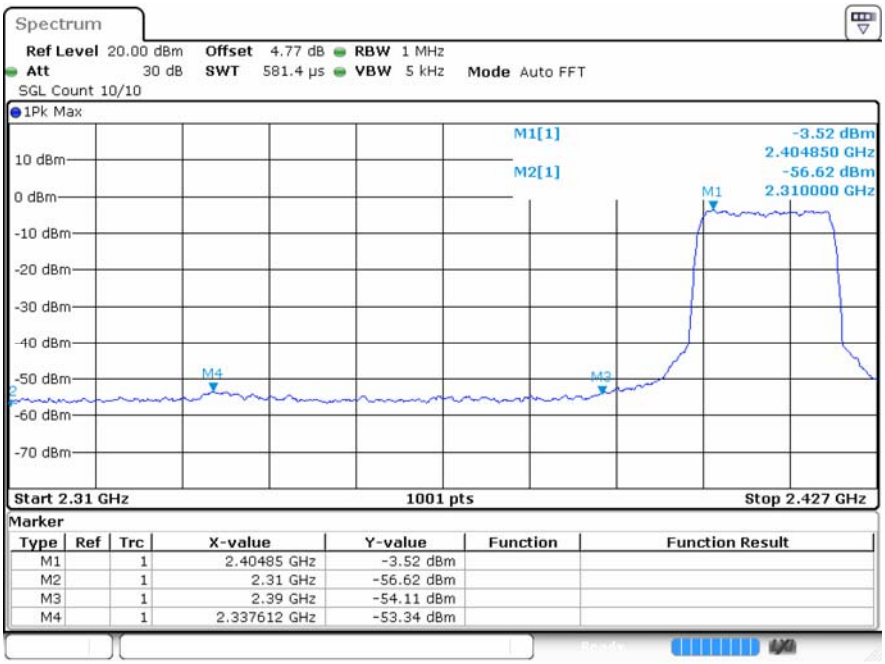
g 2462MHz Ant1 Average



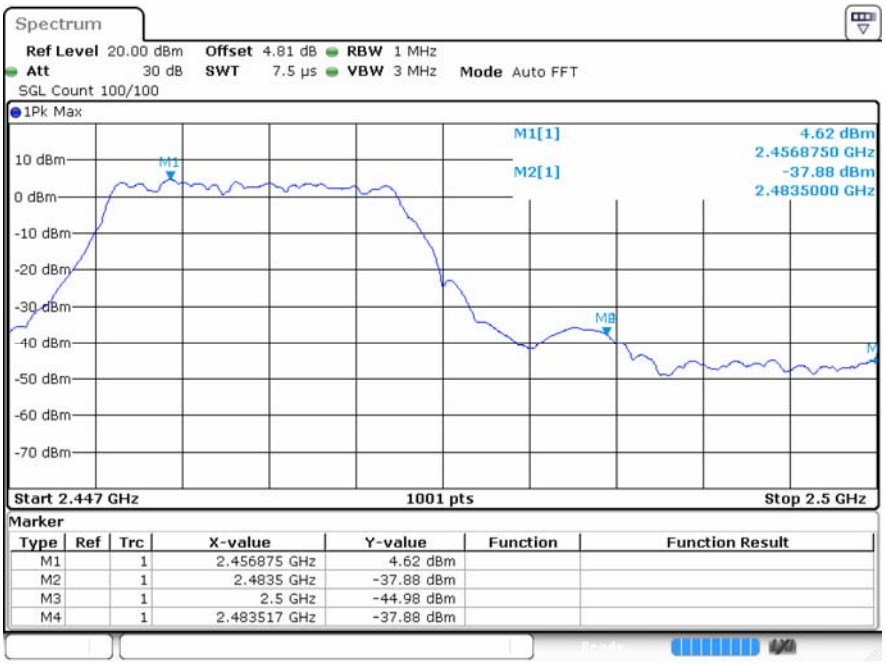
n20 2412MHz Ant1 Peak



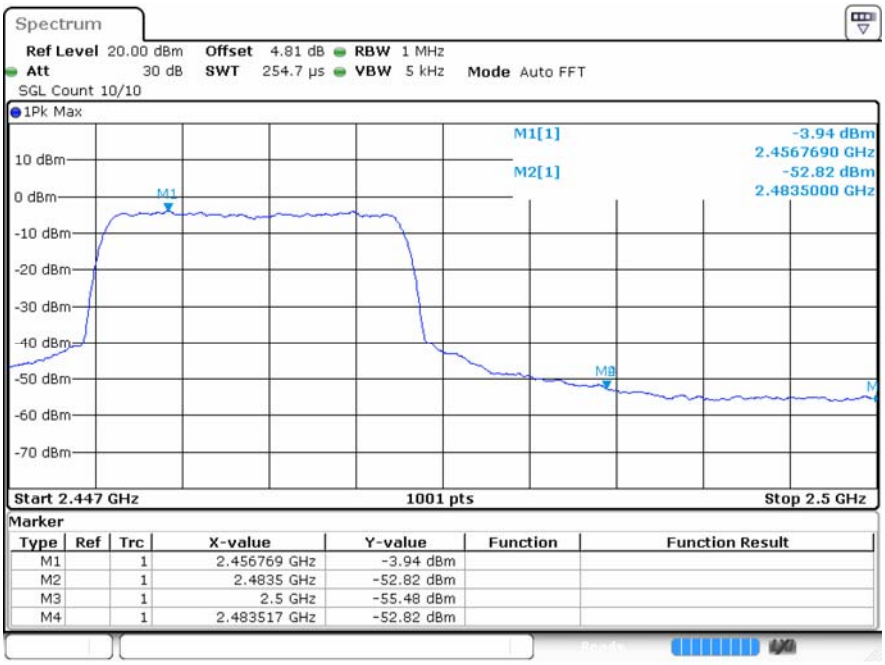
n20 2412MHz Ant1 Average



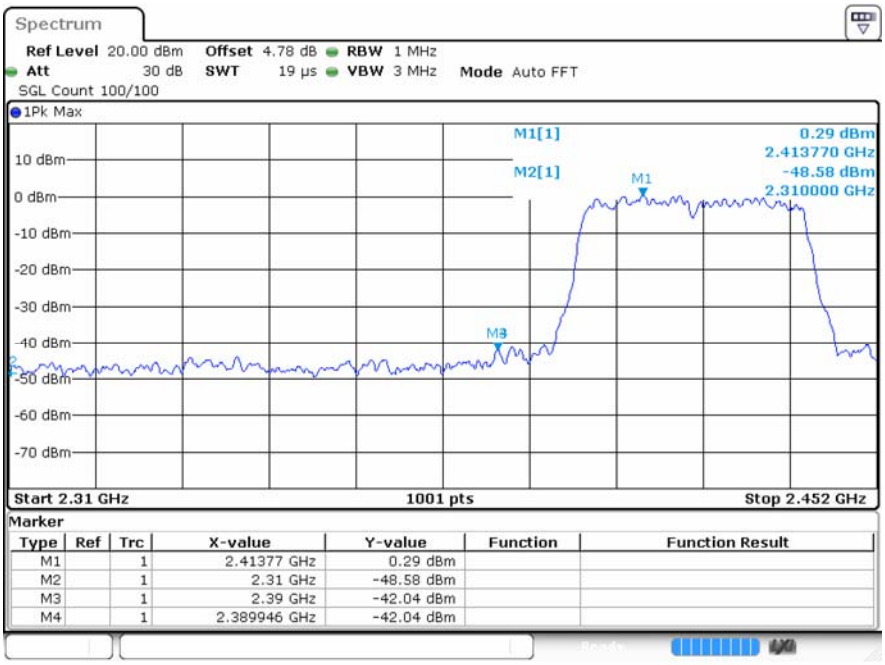
n20 2462MHz Ant1 Peak



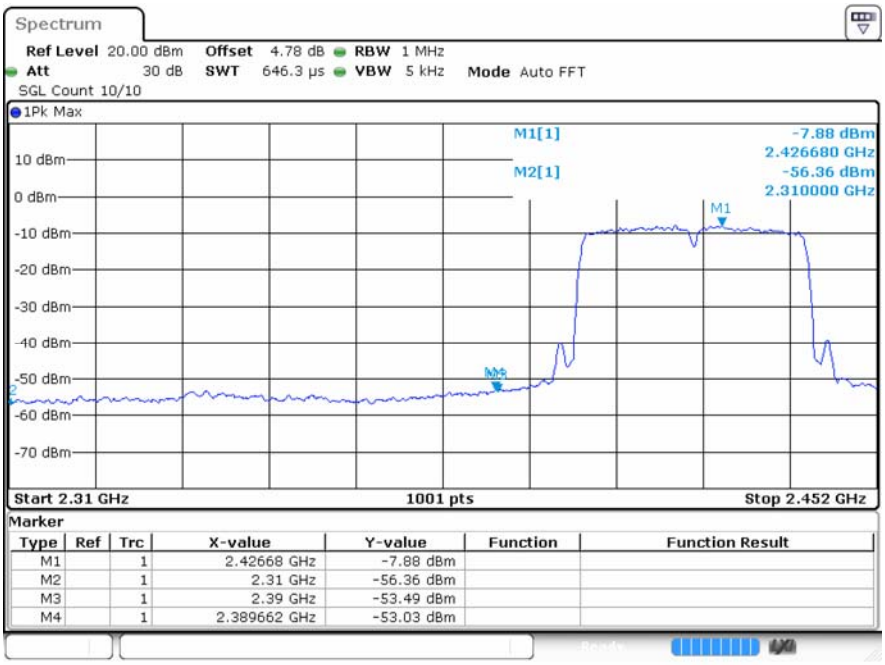
n20 2462MHz Ant1 Average



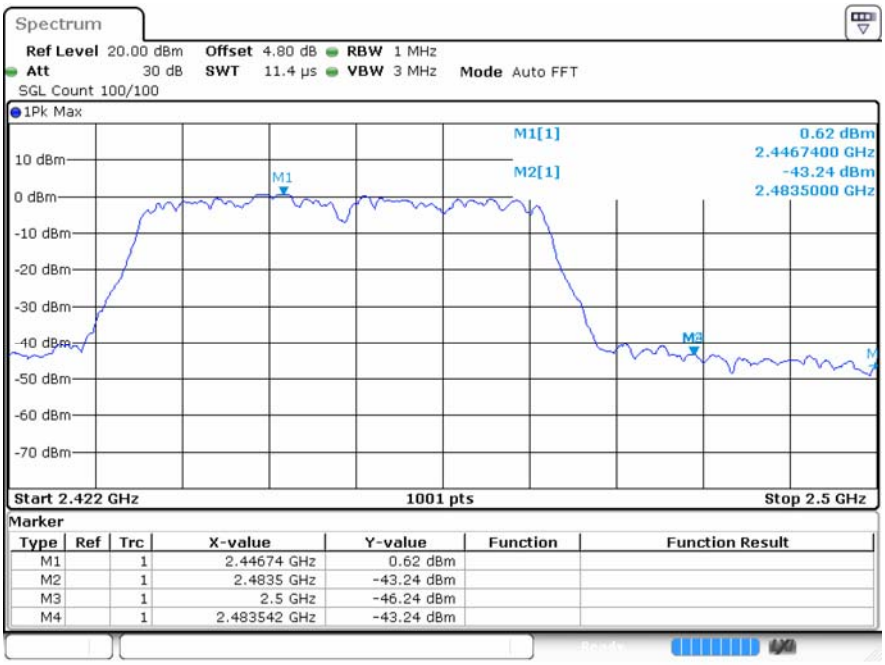
n40 2422MHz Ant1 Peak



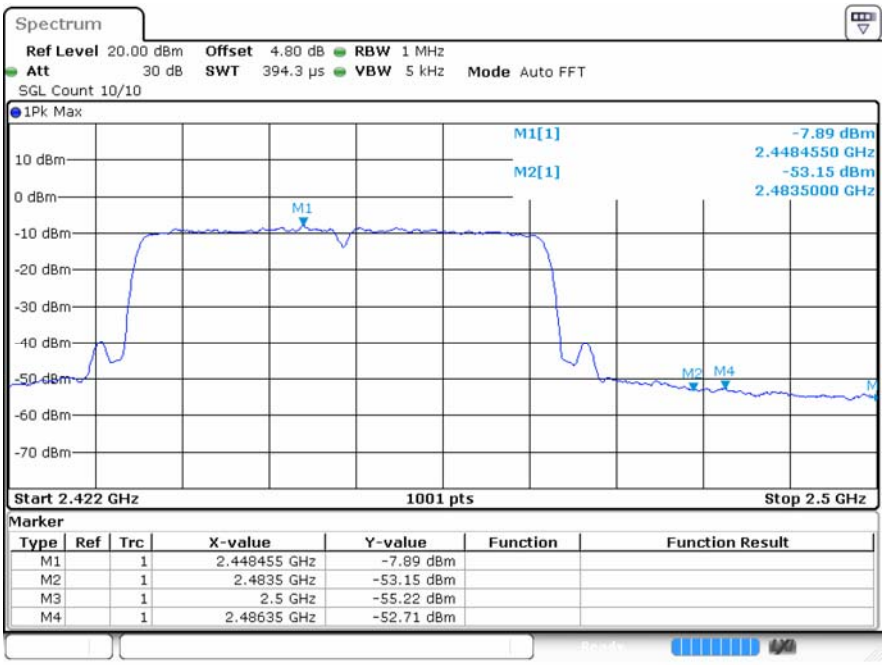
n40 2422MHz Ant1 Average



n40 2452MHz Ant1 Peak



n40 2452MHz Ant1 Average



---The End---