Appendix C

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: Smart Card Replicator

Trade Mark: COPYKEY

Test Model: COPYKEY-X5E

Environmental Conditions

Temperature:	25.7° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen

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1 Duty Cycle

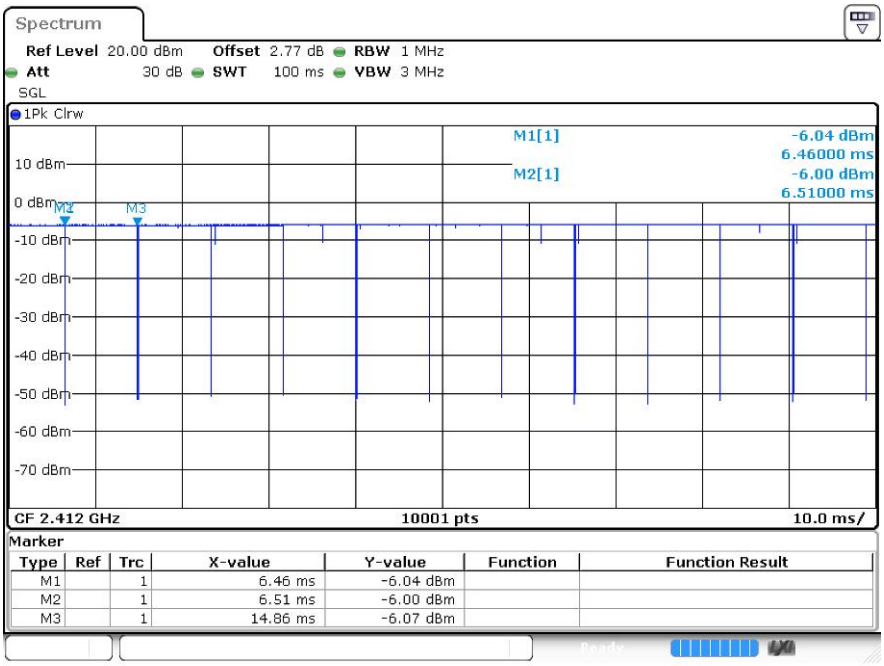
1.1 Test Result

Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	1/T (kHz)
b	2412	Ant1	99.59	0.12
b	2437	Ant1	99.63	0.12
b	2462	Ant1	99.6	0.12
g	2412	Ant1	86.5	4.55
g	2437	Ant1	86.75	4.76
g	2462	Ant1	86.88	4.55
n20	2412	Ant1	87.38	4.35
n20	2437	Ant1	87.39	4.35
n20	2462	Ant1	87.43	4.17

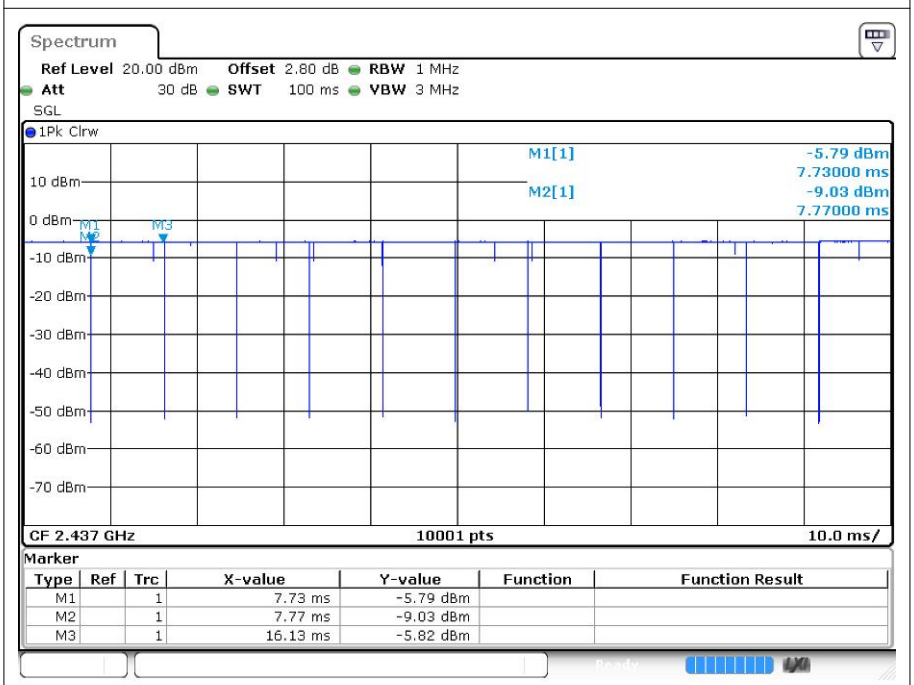
1.2 Test Graphs

Test Graphs

b 2412MHz Ant1

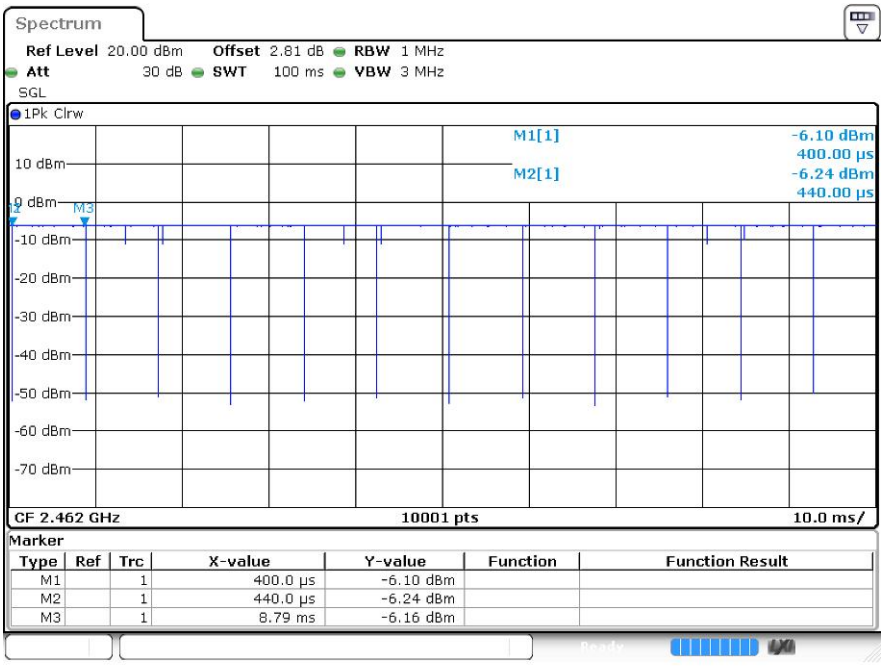


b 2437MHz Ant1

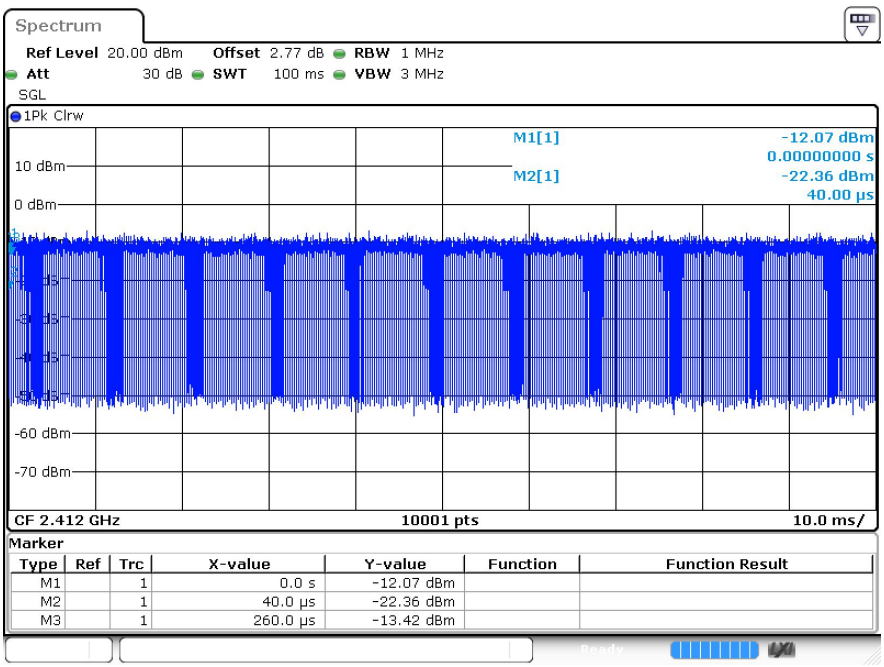


Test Graphs

b 2462MHz Ant1

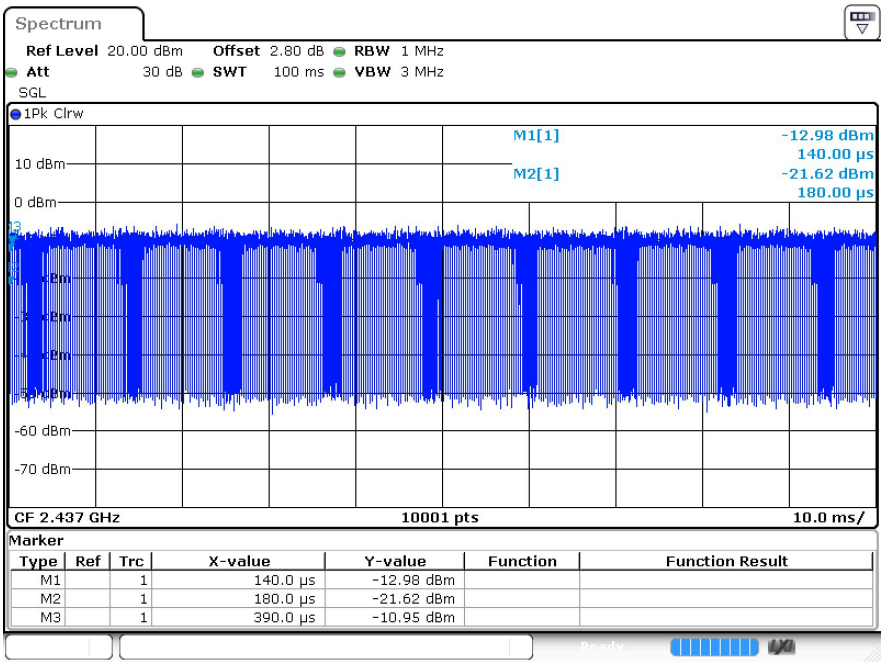


g 2412MHz Ant1

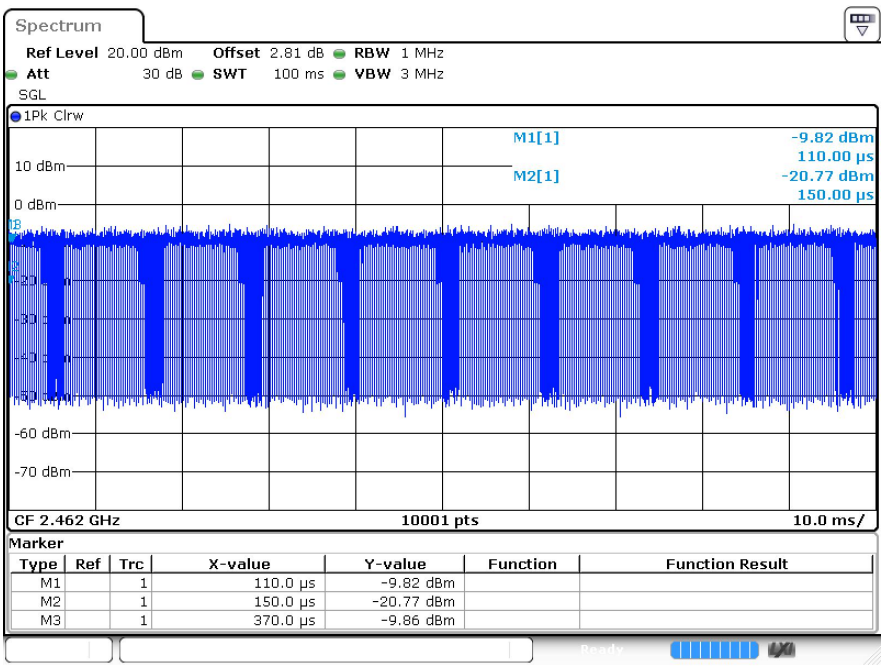


Test Graphs

g 2437MHz Ant1

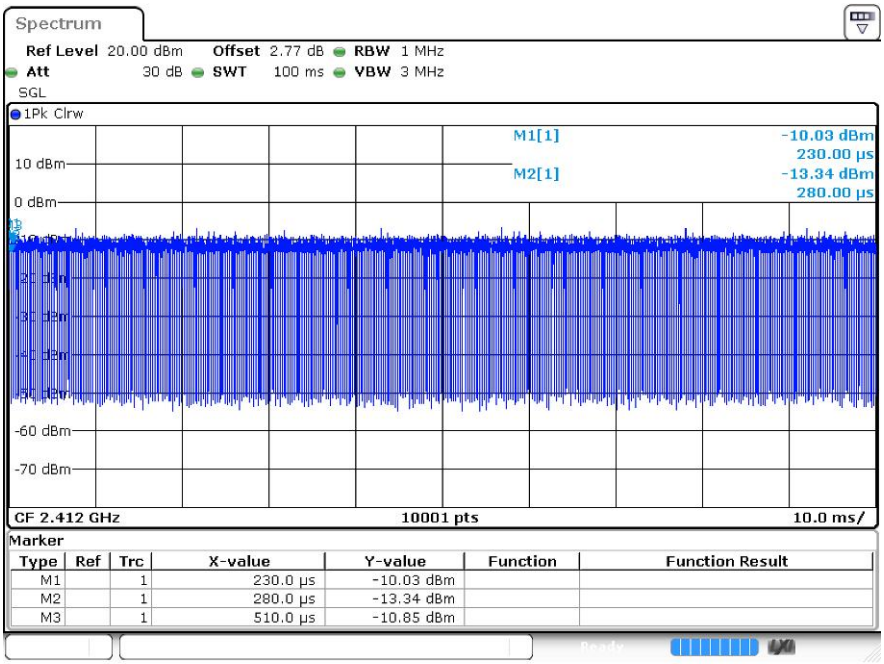


g 2462MHz Ant1

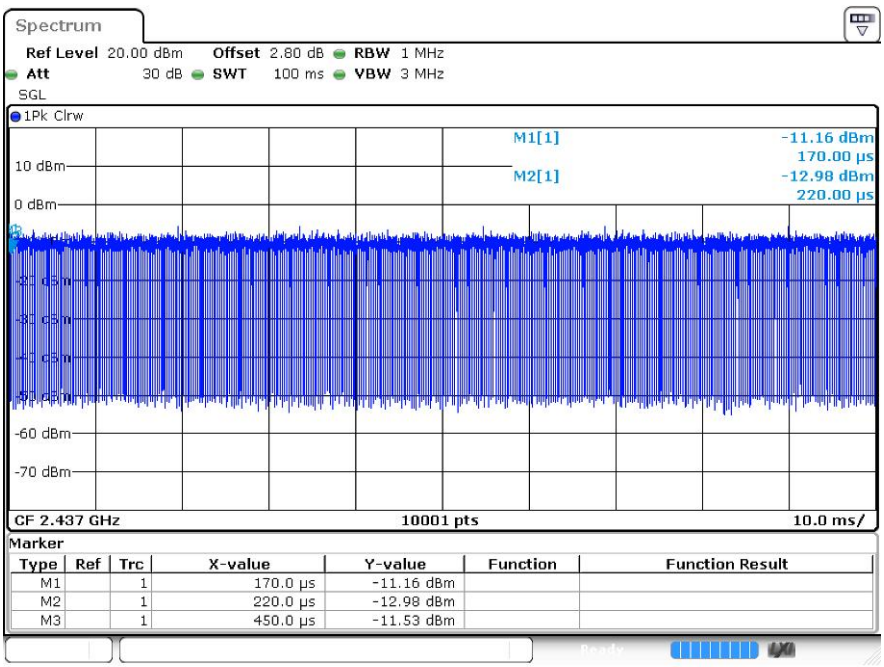


Test Graphs

n20 2412MHz Ant1

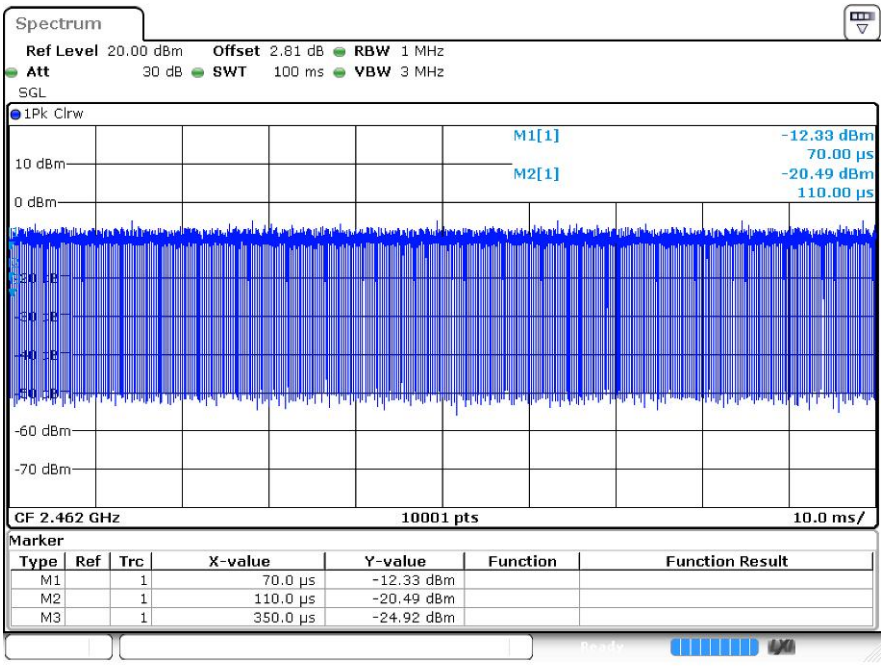


n20 2437MHz Ant1



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	2.84	30	Pass
b	2437	Ant1	2.52	30	Pass
b	2462	Ant1	2.46	30	Pass
g	2412	Ant1	1.16	30	Pass
g	2437	Ant1	1.25	30	Pass
g	2462	Ant1	1.94	30	Pass
n20	2412	Ant1	1.2	30	Pass
n20	2437	Ant1	1.17	30	Pass
n20	2462	Ant1	1.92	30	Pass

3 -6dB Bandwidth

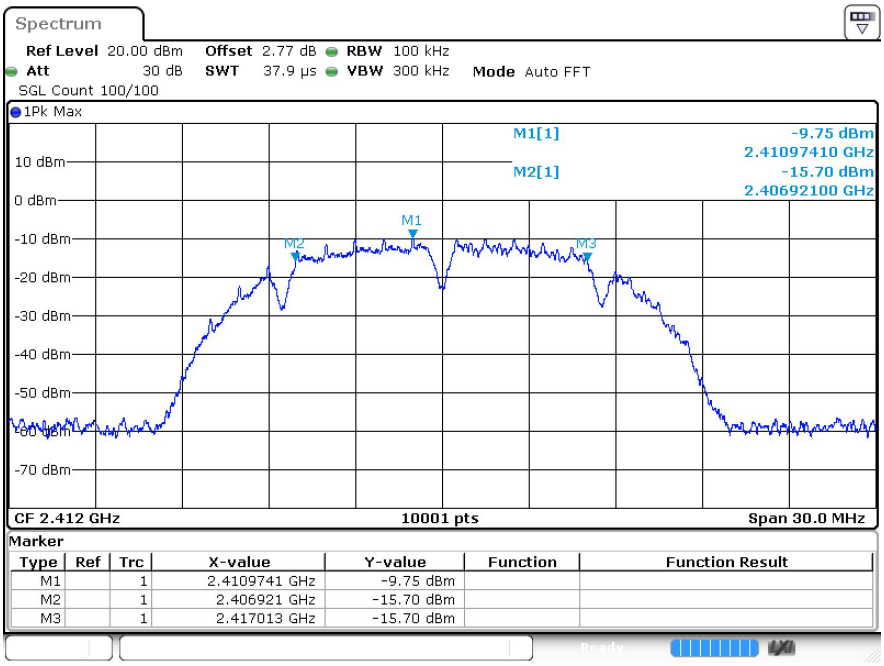
3.1 Test Result

Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
b	2412	Ant1	10.092	0.5	Pass
b	2437	Ant1	10.092	0.5	Pass
b	2462	Ant1	10.089	0.5	Pass
g	2412	Ant1	15.09	0.5	Pass
g	2437	Ant1	15.099	0.5	Pass
g	2462	Ant1	15.108	0.5	Pass
n20	2412	Ant1	13.878	0.5	Pass
n20	2437	Ant1	15.114	0.5	Pass
n20	2462	Ant1	15.111	0.5	Pass

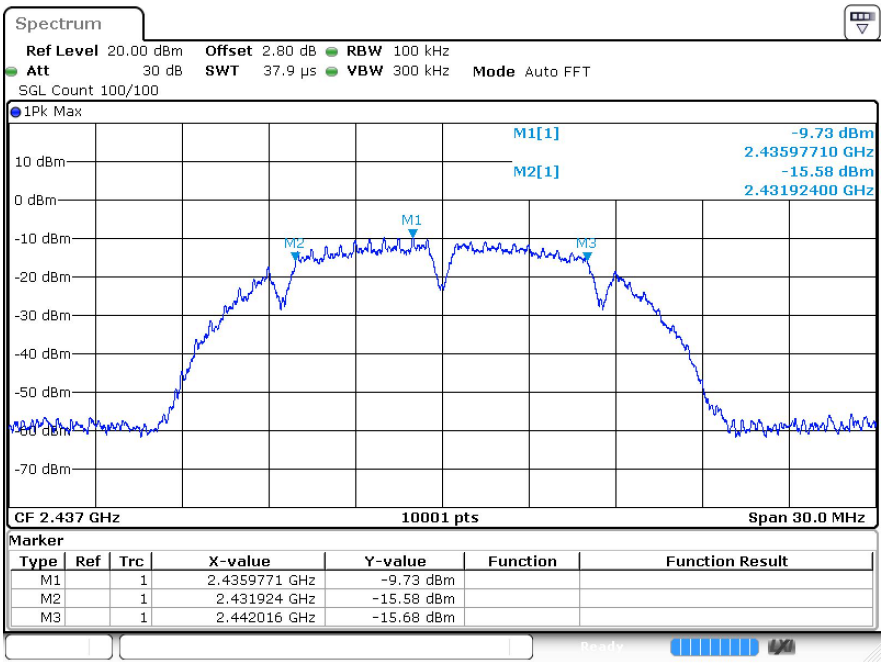
3.2 Test Graphs

Test Graphs

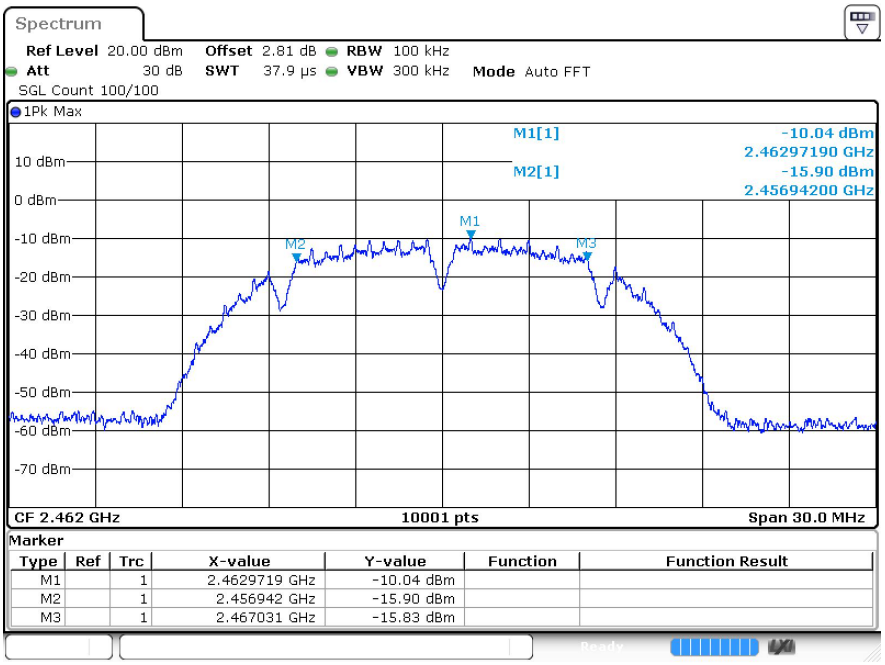
b 2412MHz Ant1



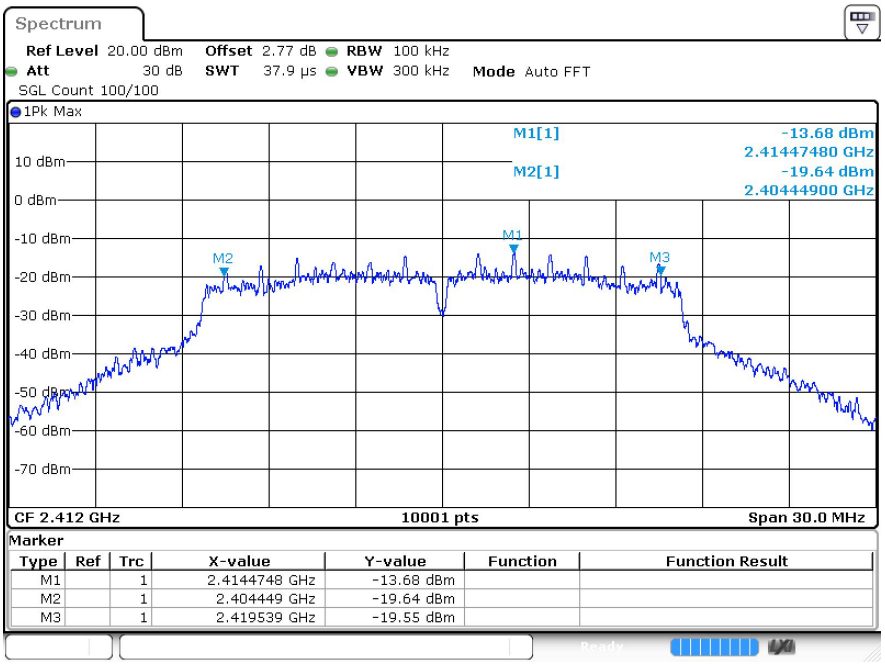
b 2437MHz Ant1



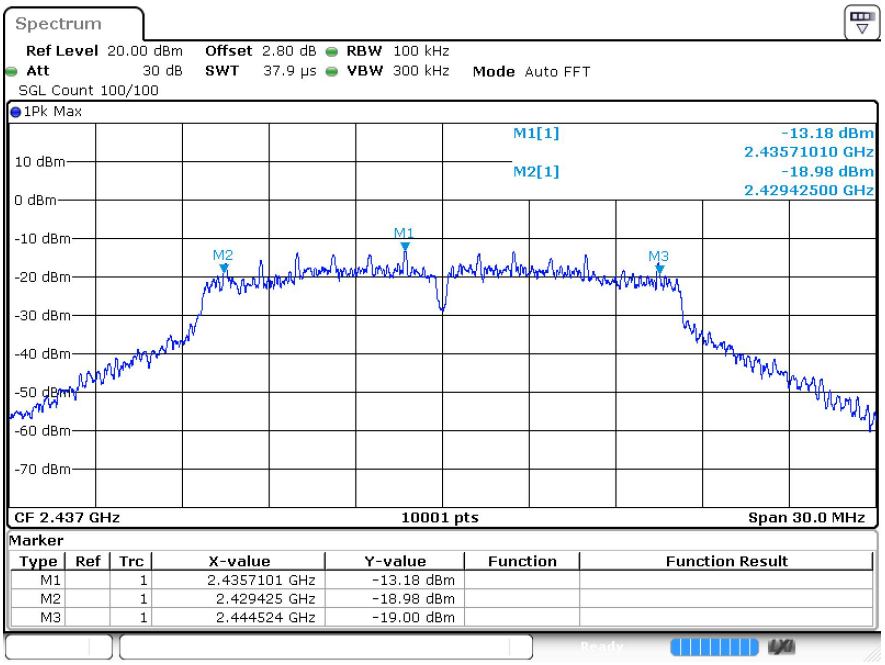
b 2462MHz Ant1



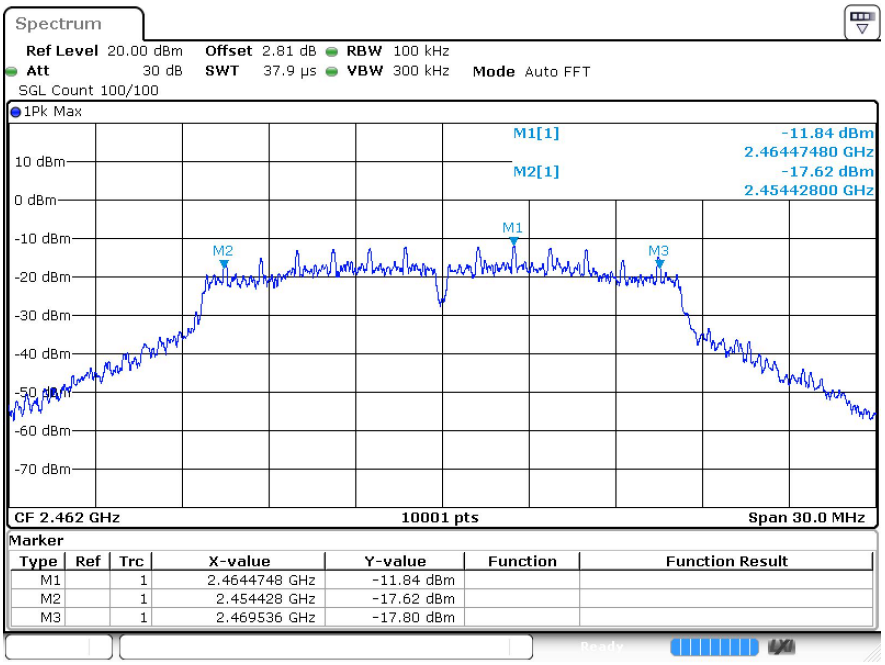
g 2412MHz Ant1



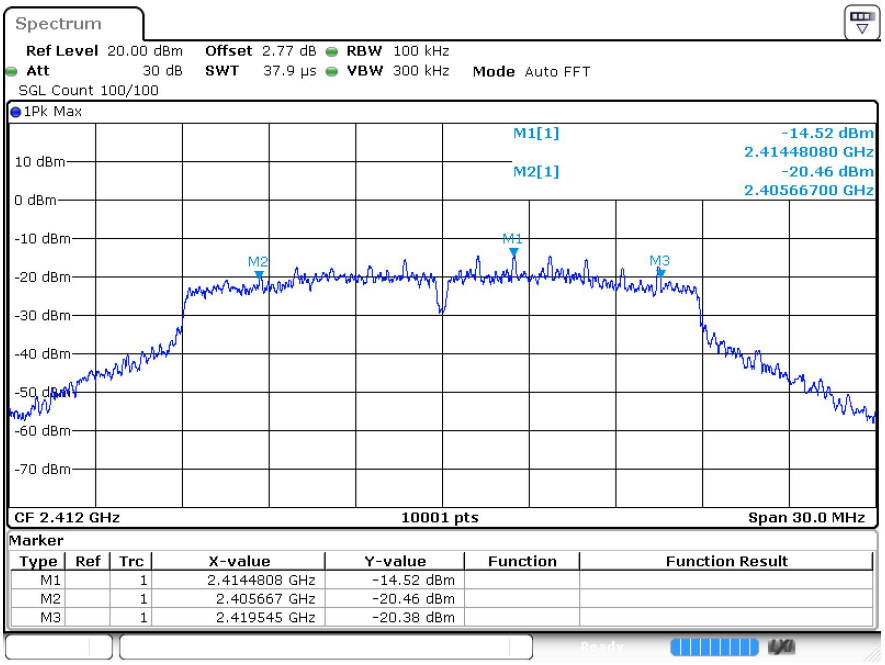
g 2437MHz Ant1



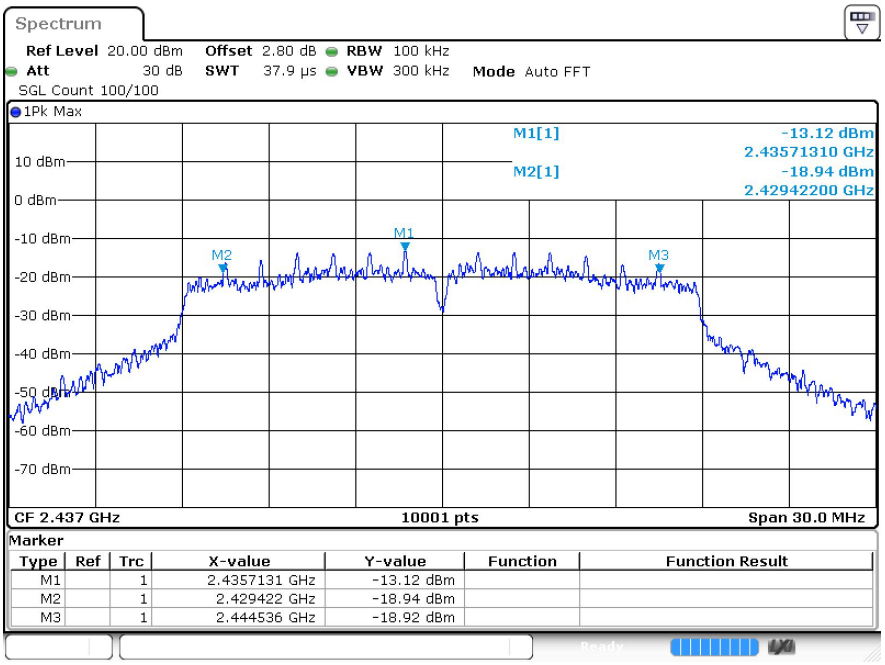
g 2462MHz Ant1



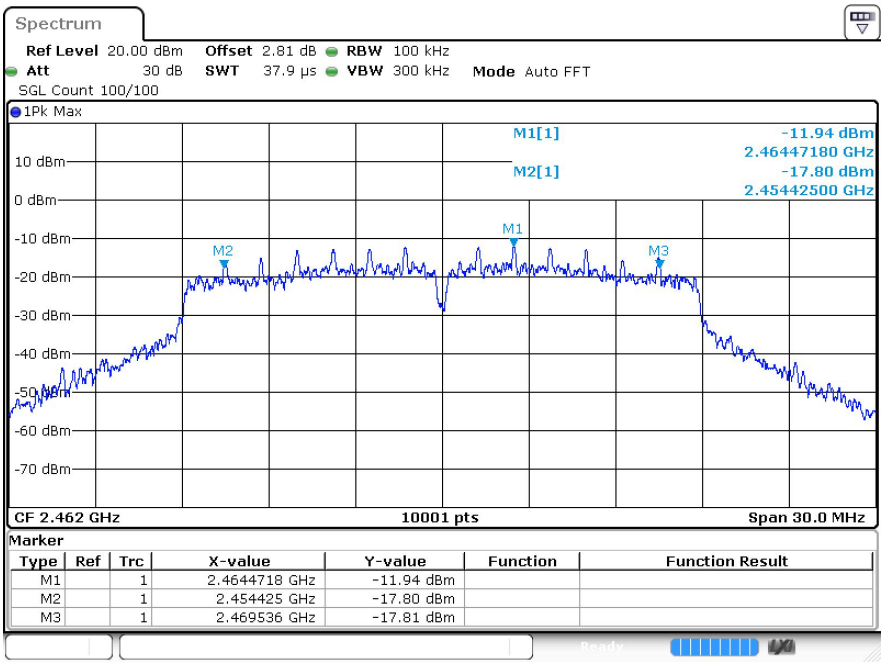
n20 2412MHz Ant1



n20 2437MHz Ant1



n20 2462MHz Ant1



4 Maximum Power Spectral Density Level

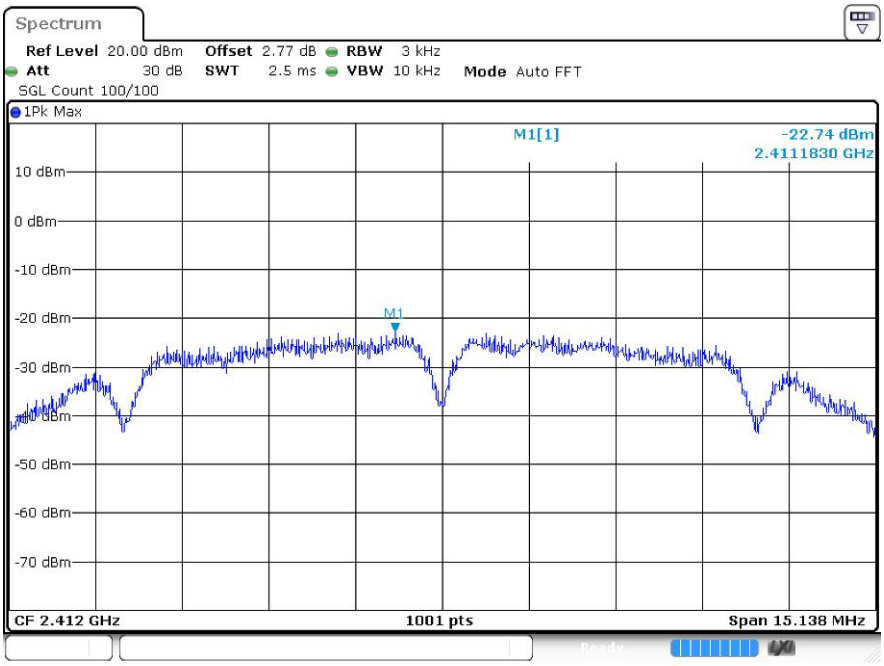
4.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3-100kHz)	Limit (dBm/3kHz)	Verdict
b	2412	Ant1	-22.74	≤8	Pass
b	2437	Ant1	-22.59	≤8	Pass
b	2462	Ant1	-22.85	≤8	Pass
g	2412	Ant1	-27.93	≤8	Pass
g	2437	Ant1	-28.09	≤8	Pass
g	2462	Ant1	-27.08	≤8	Pass
n20	2412	Ant1	-28.21	≤8	Pass
n20	2437	Ant1	-27.69	≤8	Pass
n20	2462	Ant1	-26.92	≤8	Pass

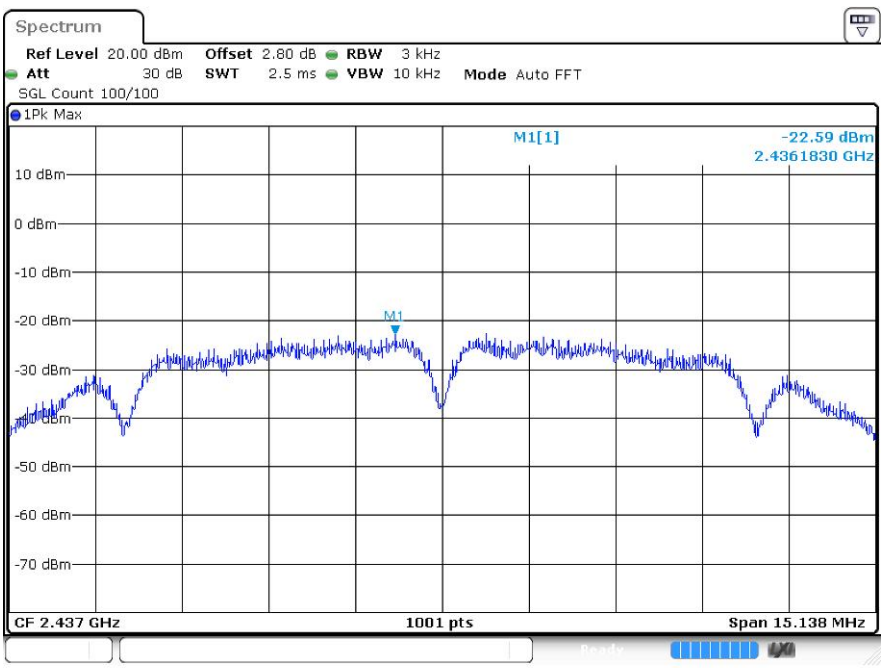
4.2 Test Graphs

Test Graphs

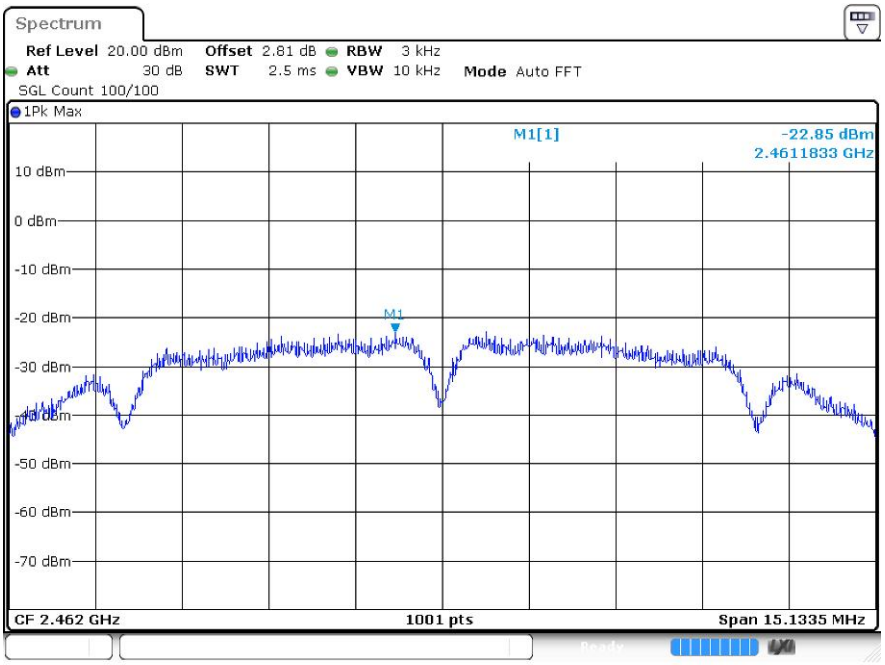
b 2412MHz Ant1



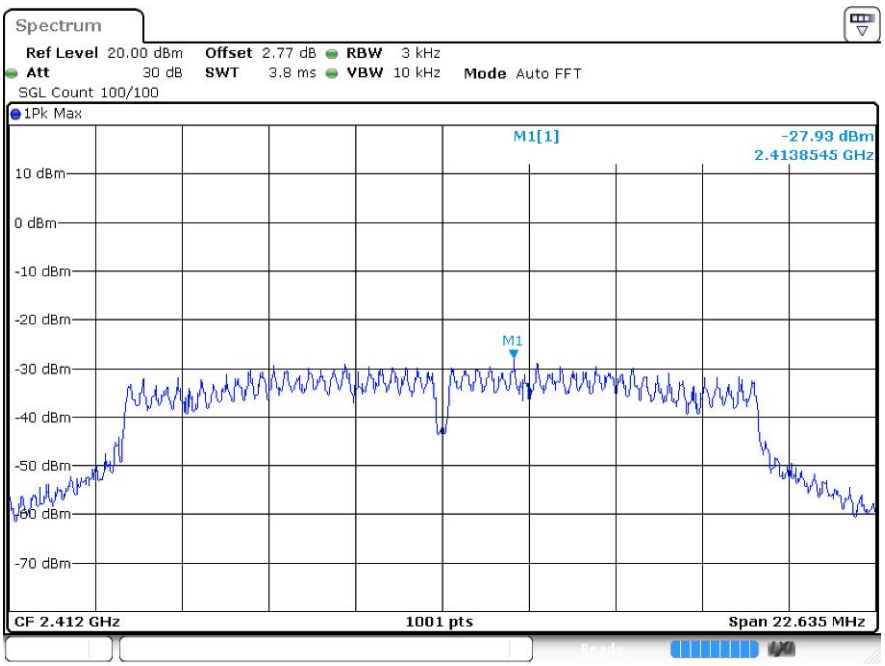
b 2437MHz Ant1



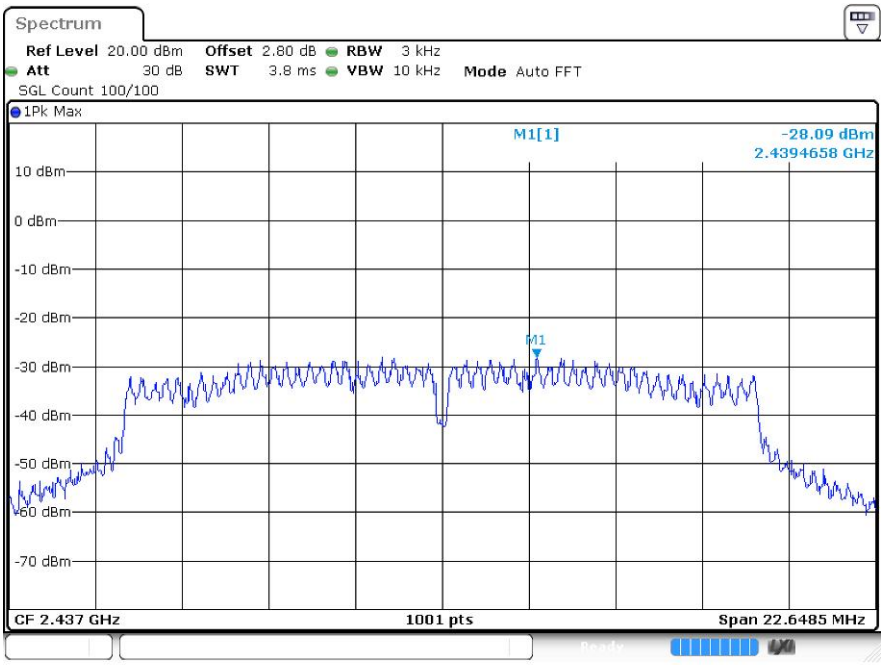
b 2462MHz Ant1



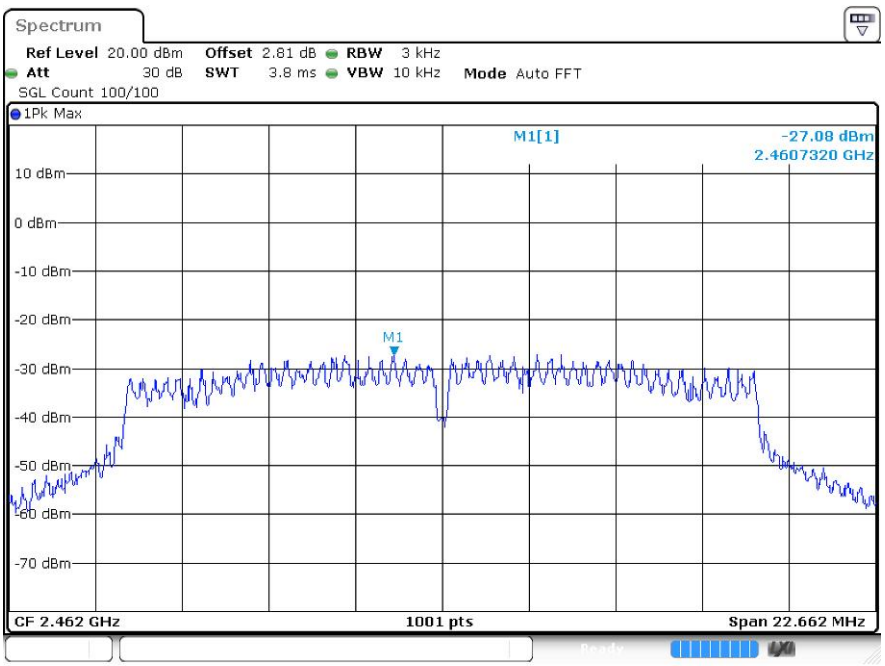
g 2412MHz Ant1



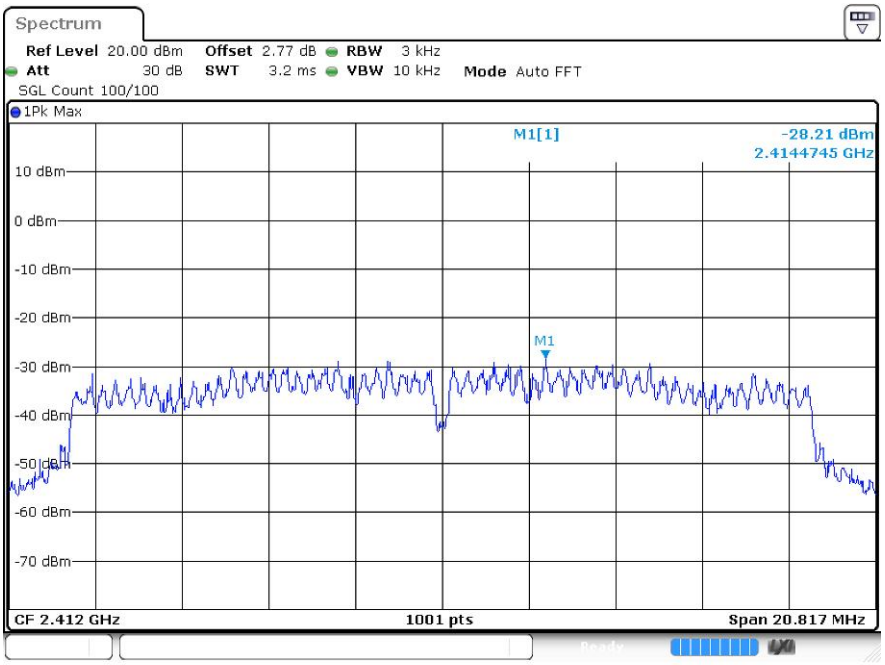
g 2437MHz Ant1



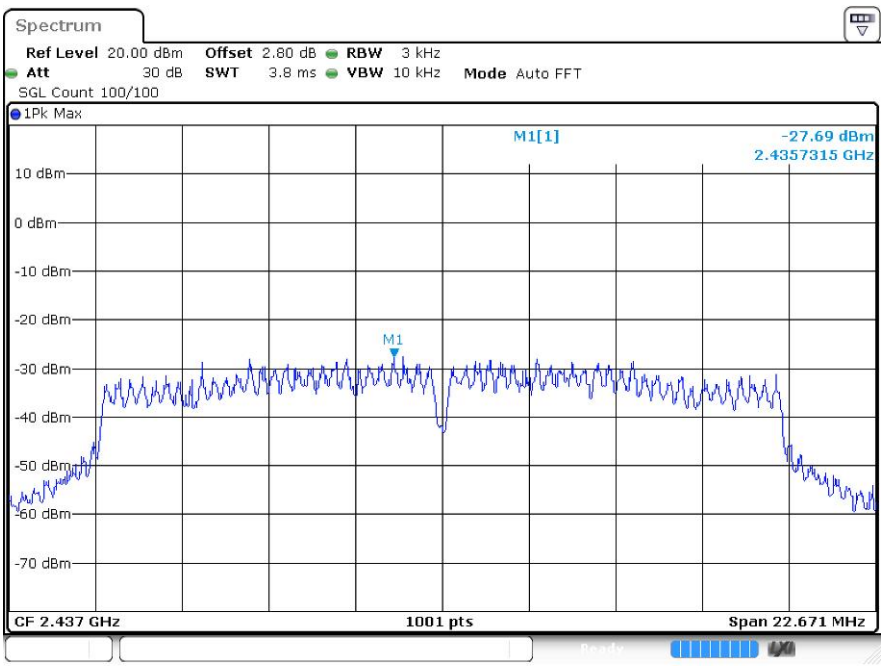
g 2462MHz Ant1



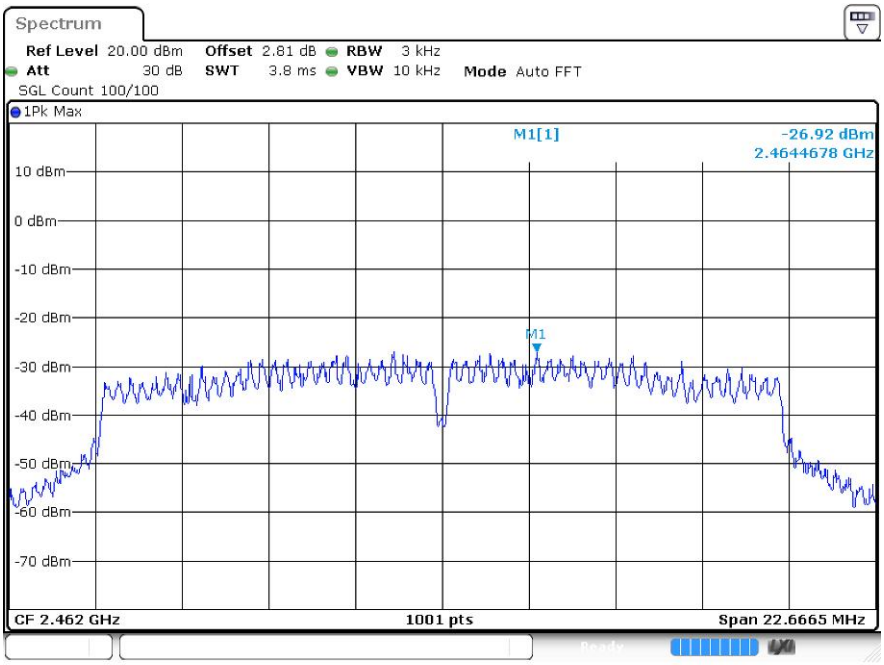
n20 2412MHz Ant1



n20 2437MHz Ant1



n20 2462MHz Ant1



5 Band Edge

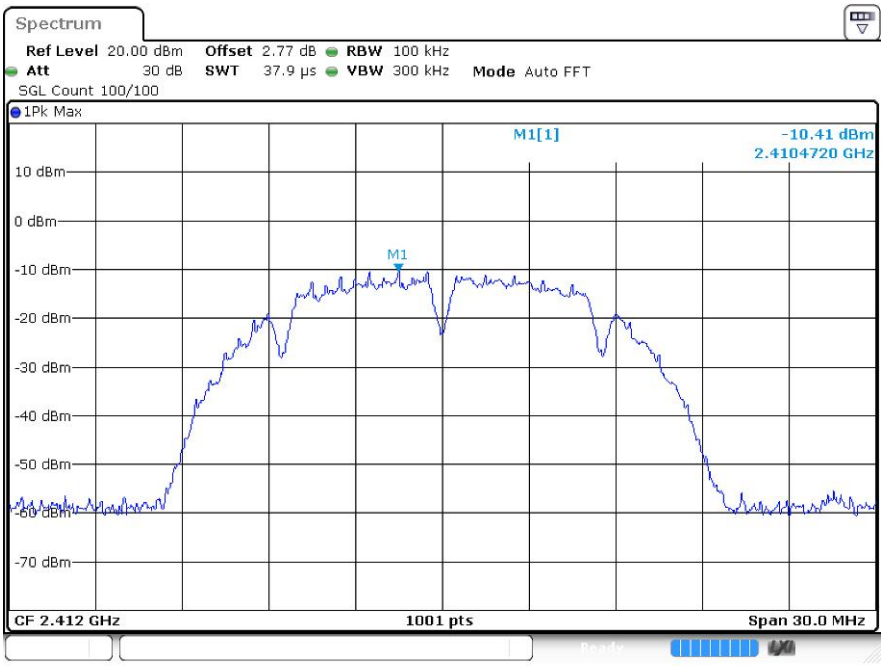
5.1 Test Result

Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-43.37	-20	-43.37
b	2462	Ant1	-45.37	-20	Pass
g	2412	Ant1	-39.39	-20	Pass
g	2462	Ant1	-43.54	-20	Pass
n20	2412	Ant1	-39.77	-20	Pass
n20	2462	Ant1	-42.65	-20	Pass

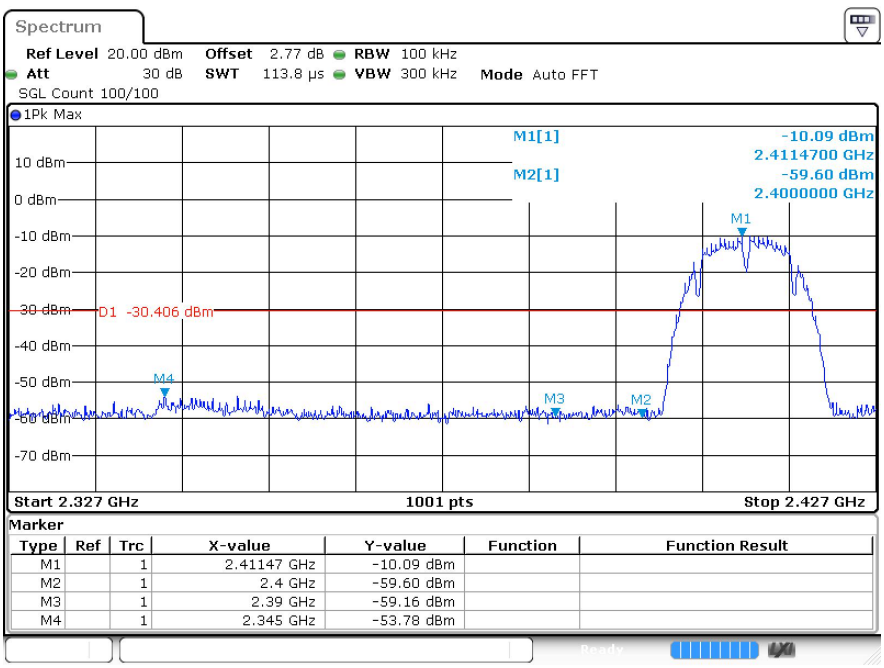
5.2 Test Graphs

Test Graphs

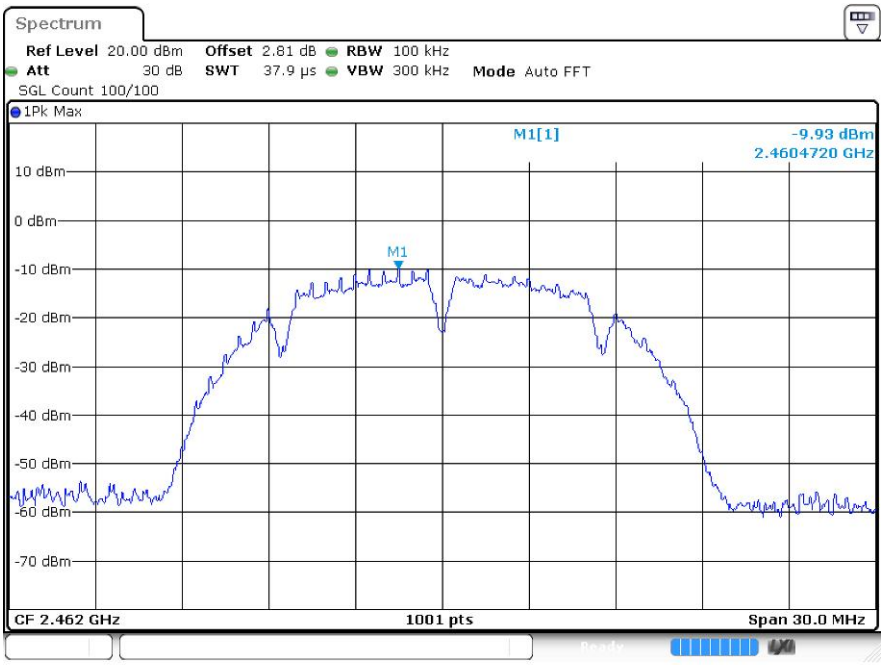
b 2412MHz Ant1 Ref



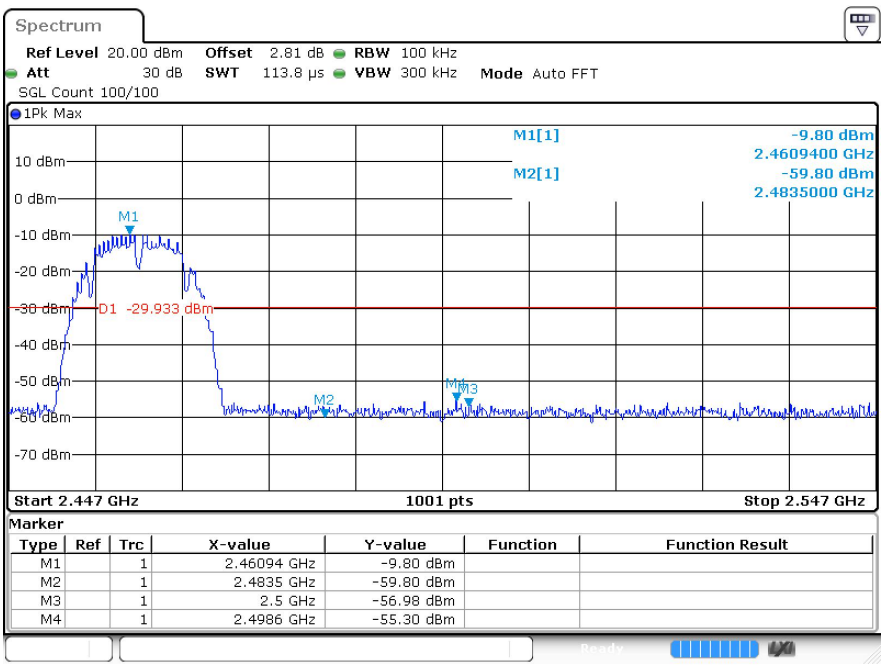
b 2412MHz Ant1 Emission



b 2462MHz Ant1 Ref



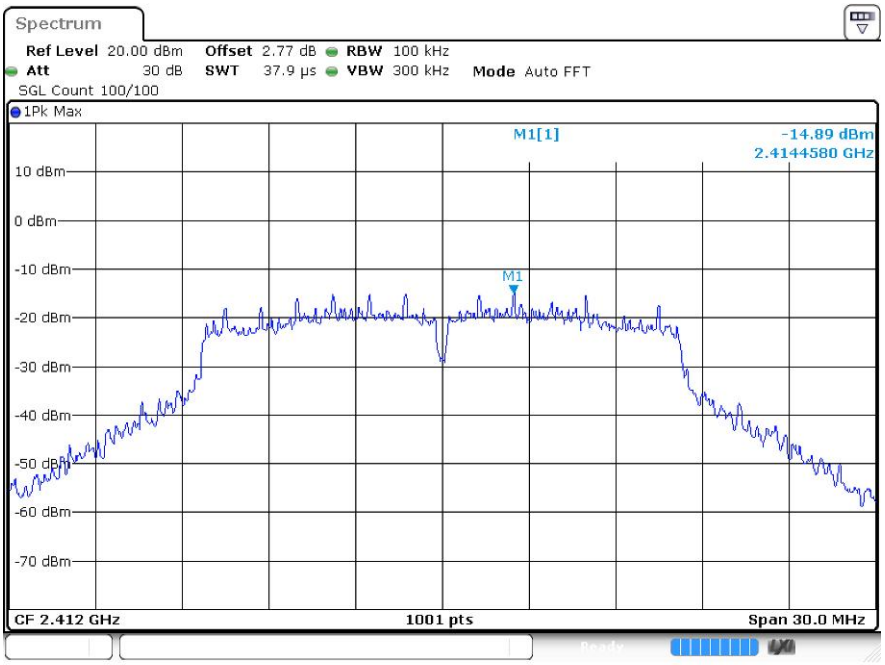
b 2462MHz Ant1 Emission



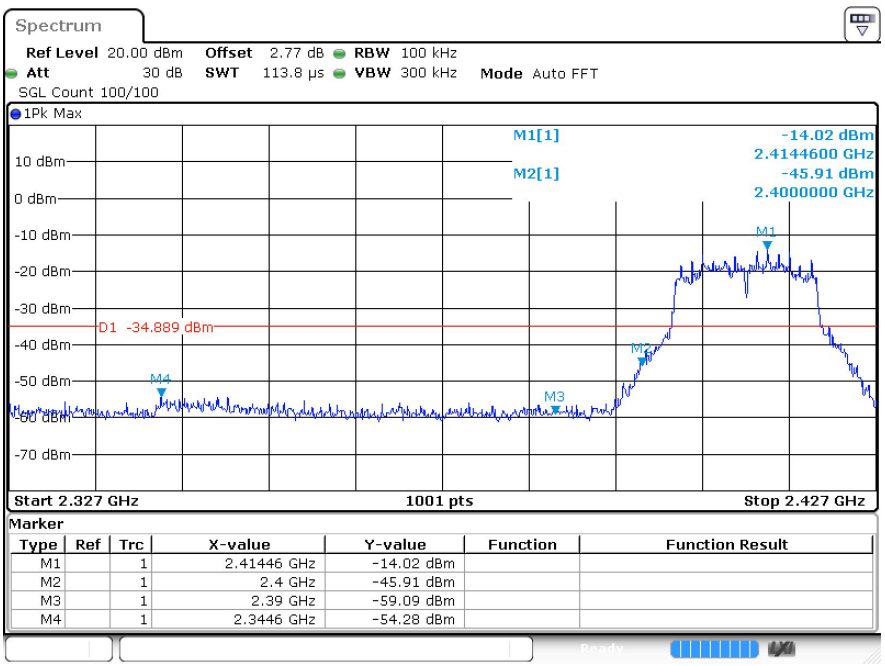
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46094 GHz	-9.80 dBm		
M2		1	2.4835 GHz	-59.80 dBm		
M3		1	2.5 GHz	-56.98 dBm		
M4		1	2.4986 GHz	-55.30 dBm		

g 2412MHz Ant1 Ref



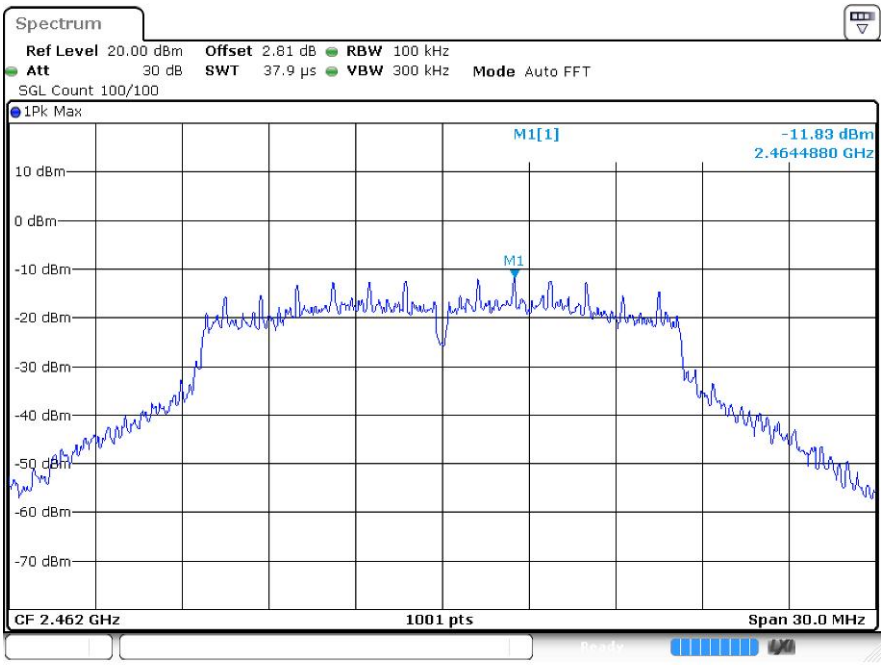
g 2412MHz Ant1 Emission



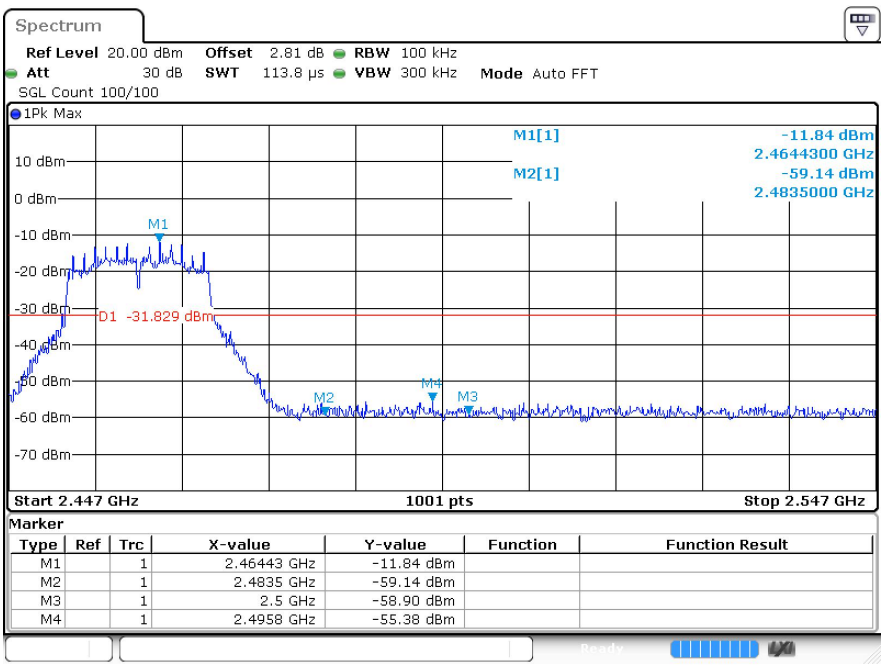
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41446 GHz	-14.02 dBm		
M2		1	2.4 GHz	-45.91 dBm		
M3		1	2.39 GHz	-59.09 dBm		
M4		1	2.3446 GHz	-54.28 dBm		

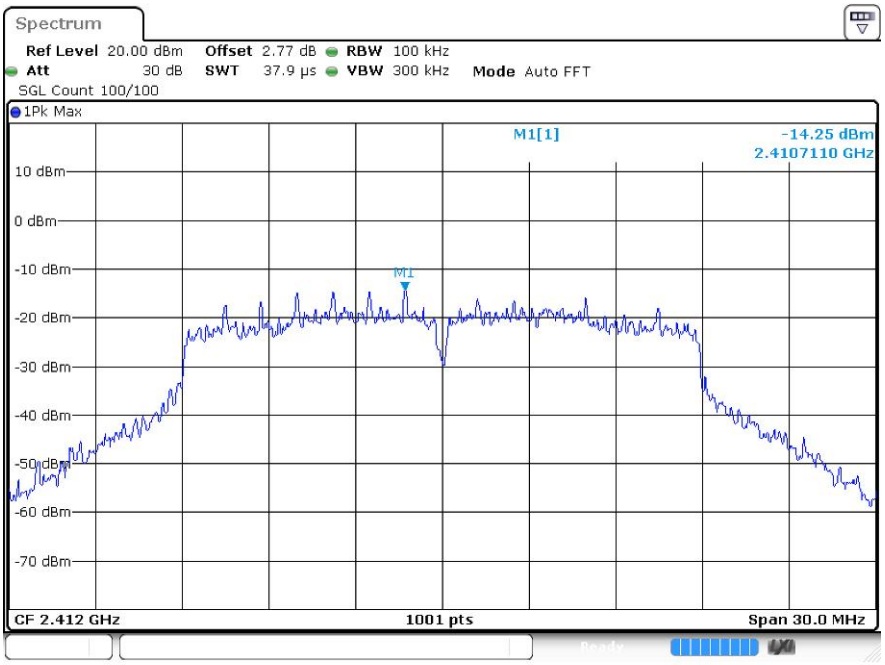
g 2462MHz Ant1 Ref



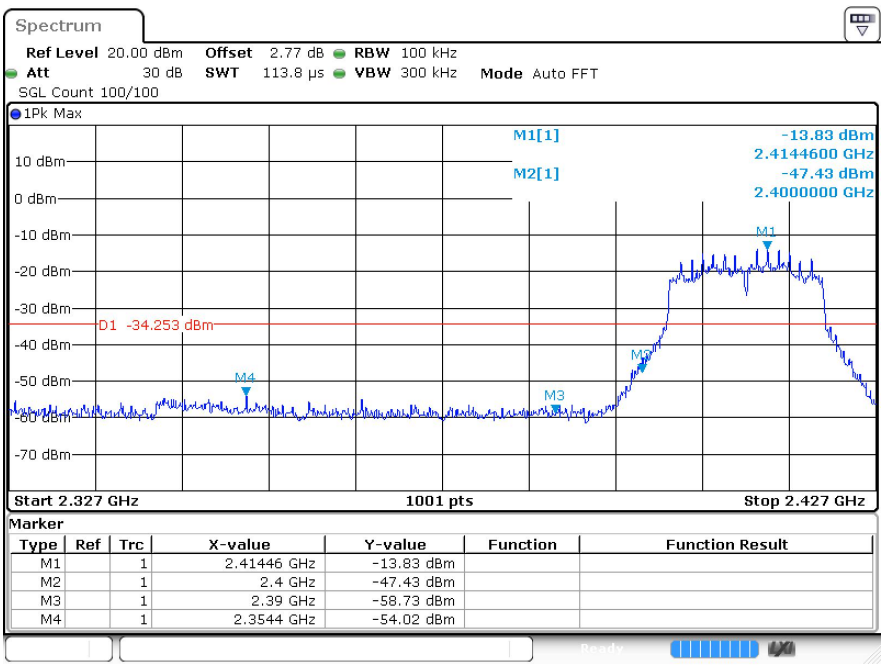
g 2462MHz Ant1 Emission



n20 2412MHz Ant1 Ref



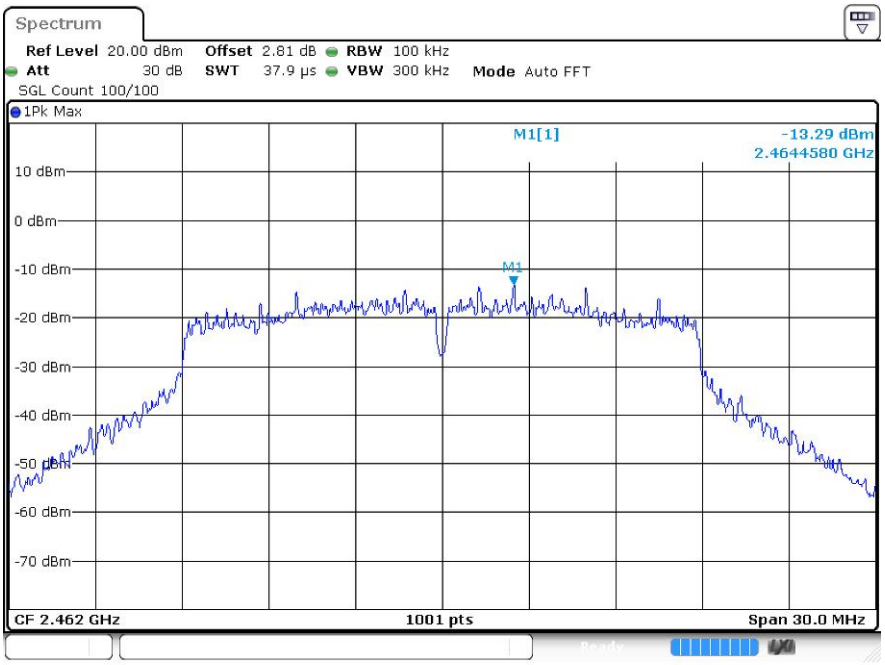
n20 2412MHz Ant1 Emission



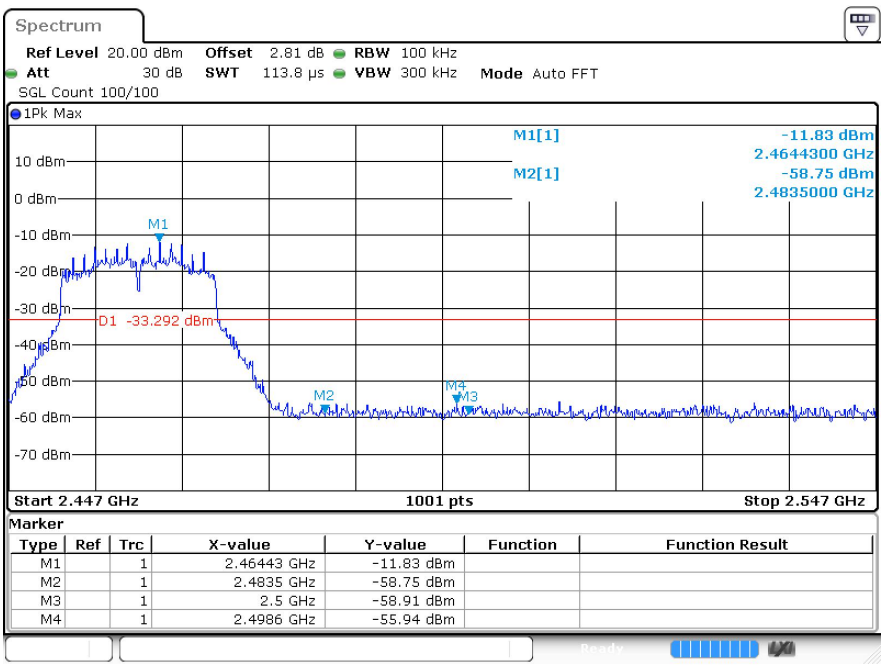
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41446 GHz	-13.83 dBm		
M2		1	2.4 GHz	-47.43 dBm		
M3		1	2.39 GHz	-58.73 dBm		
M4		1	2.3544 GHz	-54.02 dBm		

n20 2462MHz Ant1 Ref



n20 2462MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46443 GHz	-11.83 dBm		
M2		1	2.4835 GHz	-58.75 dBm		
M3		1	2.5 GHz	-58.91 dBm		
M4		1	2.4986 GHz	-55.94 dBm		

6 Conducted RF Spurious Emission

6.1 Test Result

Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-33.63	-20	Pass
b	2437	Ant1	-34.05	-20	Pass
b	2462	Ant1	-33.13	-20	Pass
g	2412	Ant1	-27.72	-20	Pass
g	2437	Ant1	-29.54	-20	Pass
g	2462	Ant1	-30.88	-20	Pass
n20	2412	Ant1	-29.03	-20	Pass
n20	2437	Ant1	-28.03	-20	Pass
n20	2462	Ant1	-29.58	-20	Pass