Appendix C

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: M5Stack Core v2.7

Trade Mark: M5STACK

Test Model: K001-V27

Environmental Conditions

Temperature:	25.2° C
Relative Humidity:	52.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Emiya lin
Supervised by:	Simba Haung

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1 Duty Cycle

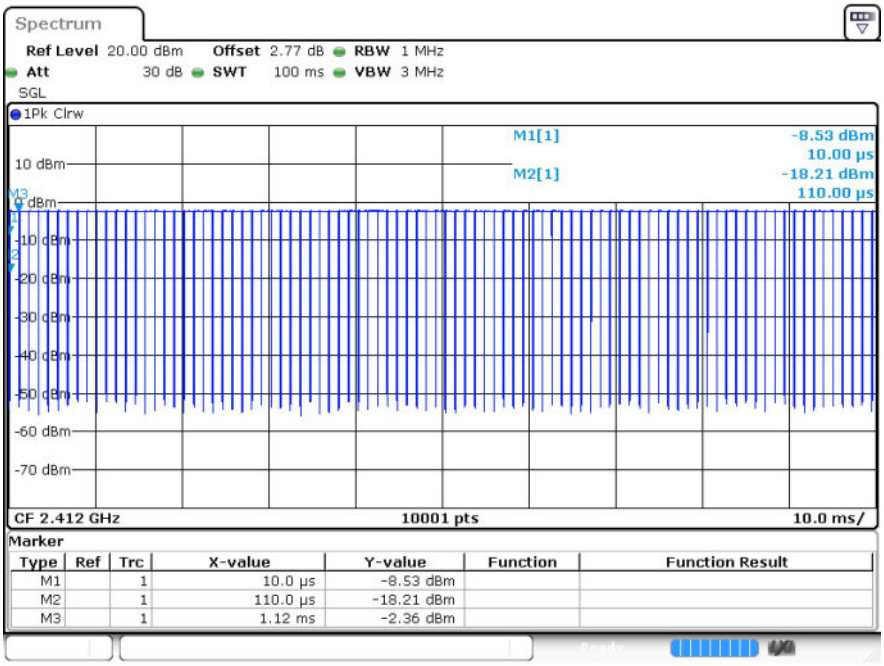
1.1 Test Result

Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor	1/T (kHz)
b	2412	Ant1	91.09	0.41	0.99
b	2437	Ant1	91.31	0.39	0.99
b	2462	Ant1	91.07	0.41	0.99
g	2412	Ant1	92.13	0.36	1.61
g	2437	Ant1	92.09	0.36	1.61
g	2462	Ant1	92.08	0.36	1.64
n20	2412	Ant1	91.99	0.36	1.64
n20	2437	Ant1	91.98	0.36	1.64
n20	2462	Ant1	91.92	0.37	1.61
n40	2422	Ant1	88.82	0.51	1.67
n40	2437	Ant1	89.16	0.5	1.67
n40	2452	Ant1	90.58	0.43	1.67

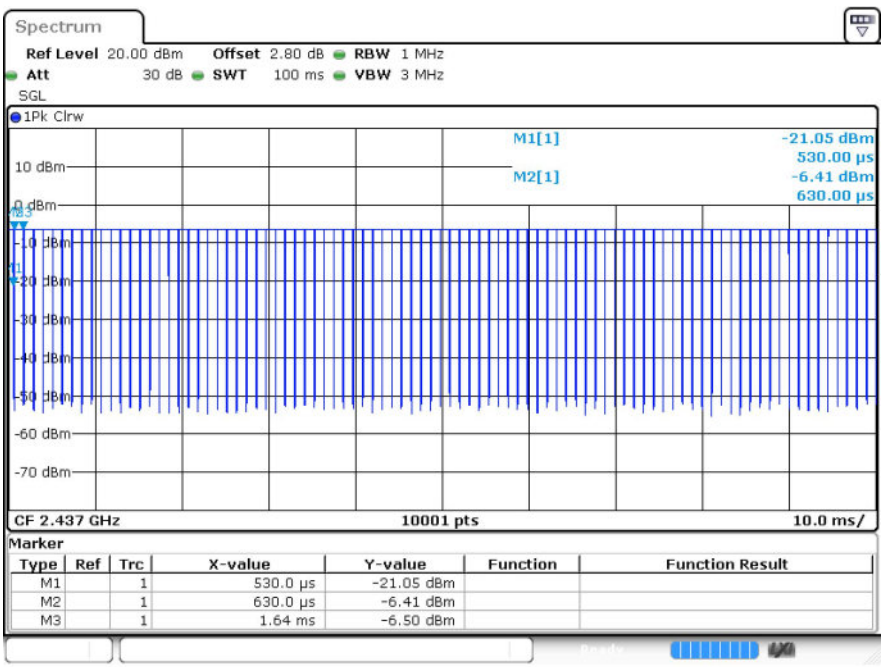
1.2 Test Graphs

Test Graphs

b 2412MHz Ant1

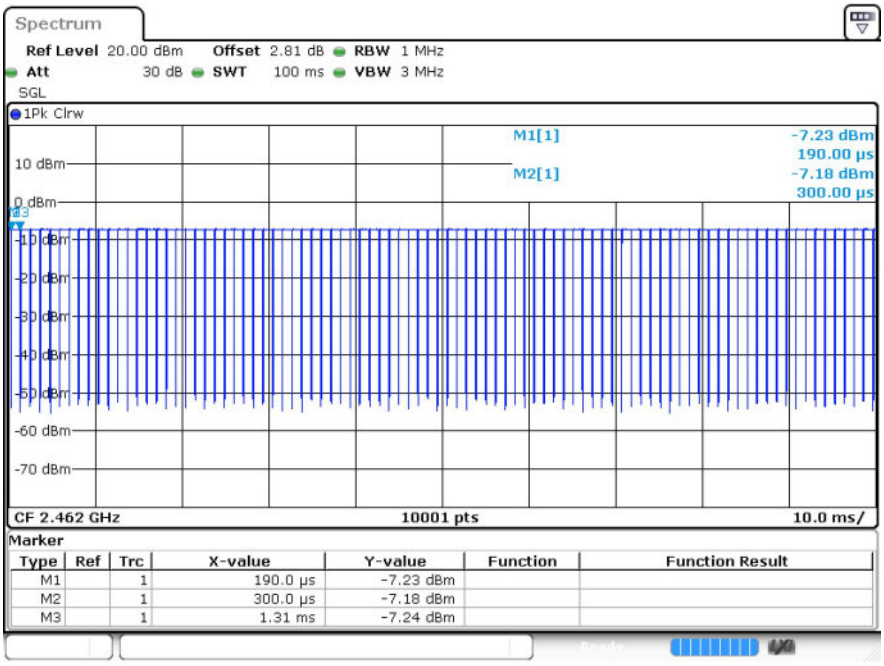


b 2437MHz Ant1

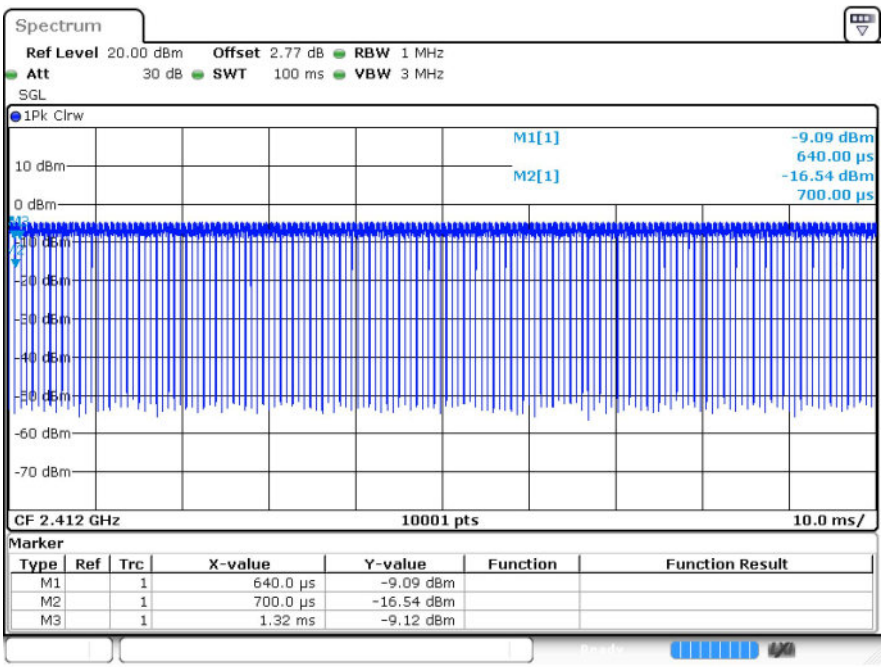


Test Graphs

b 2462MHz Ant1

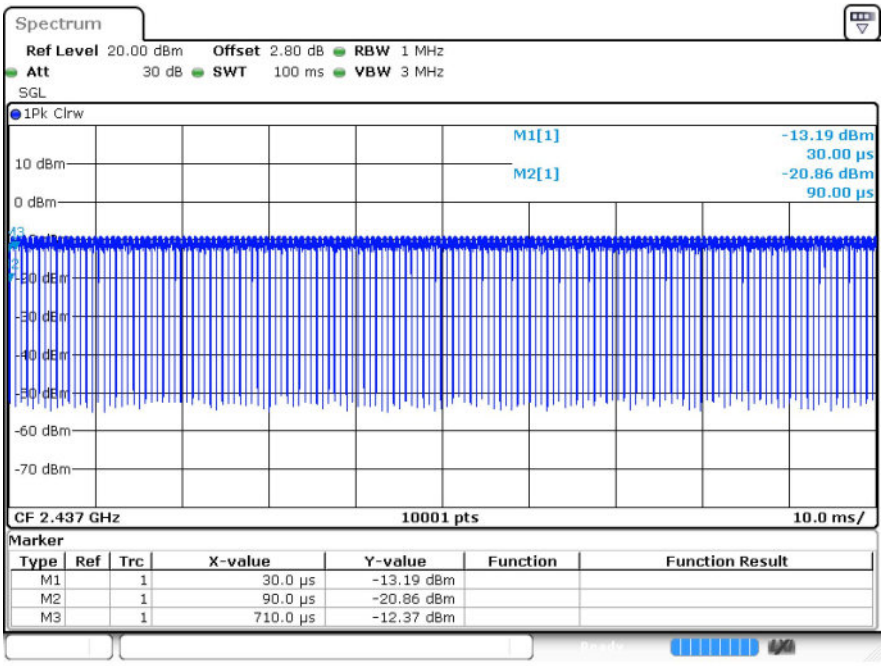


g 2412MHz Ant1

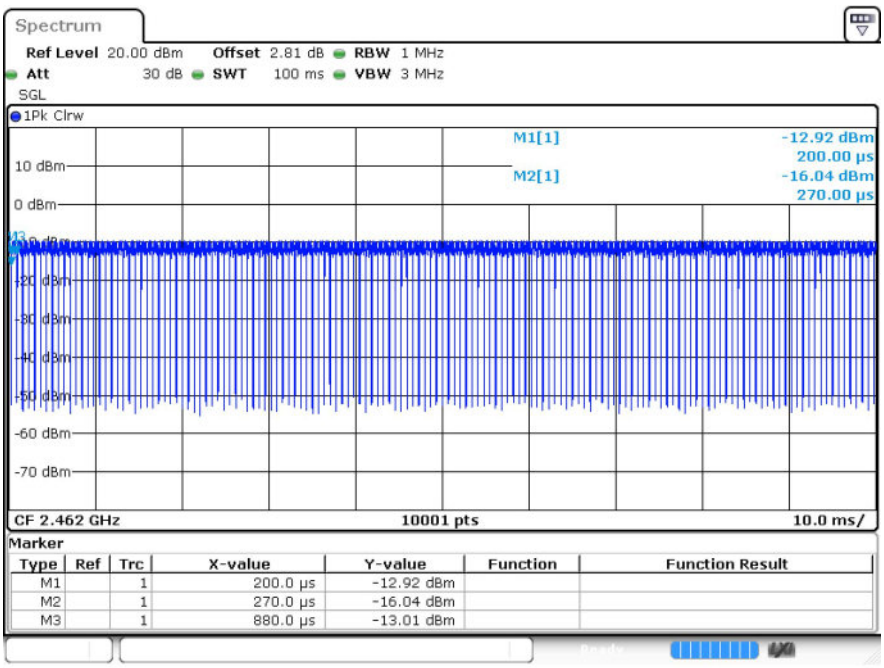


Test Graphs

g 2437MHz Ant1

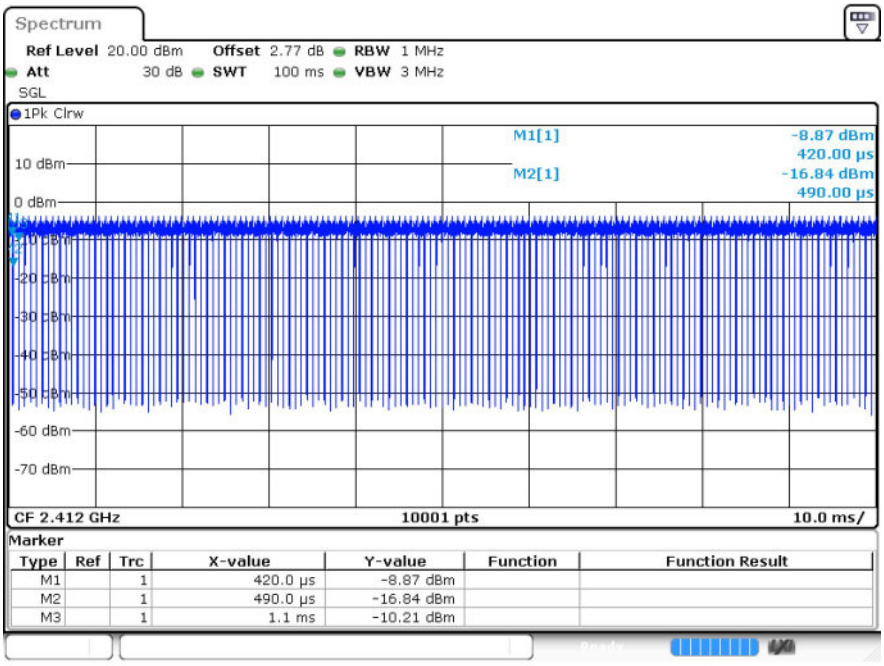


g 2462MHz Ant1

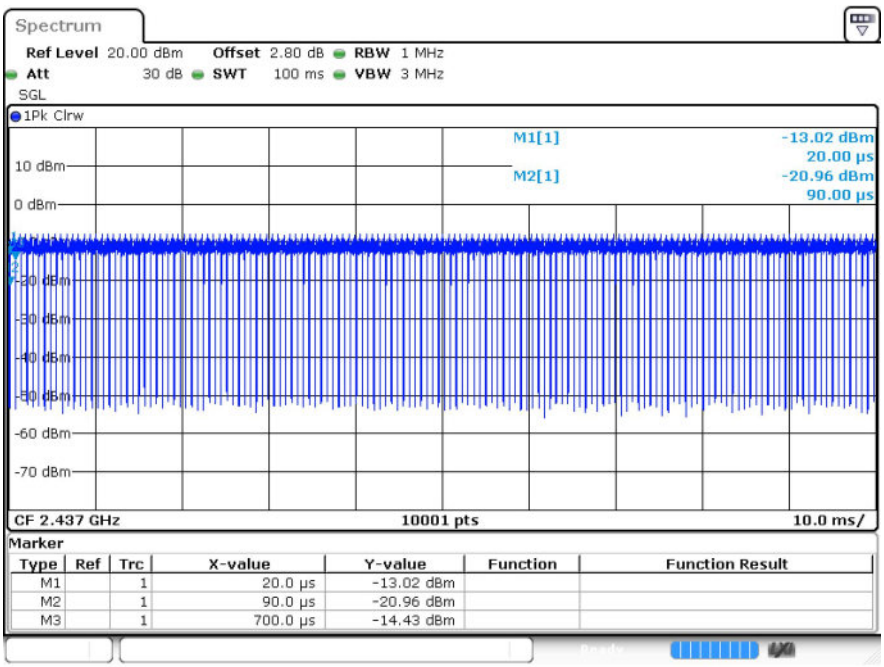


Test Graphs

n20 2412MHz Ant1

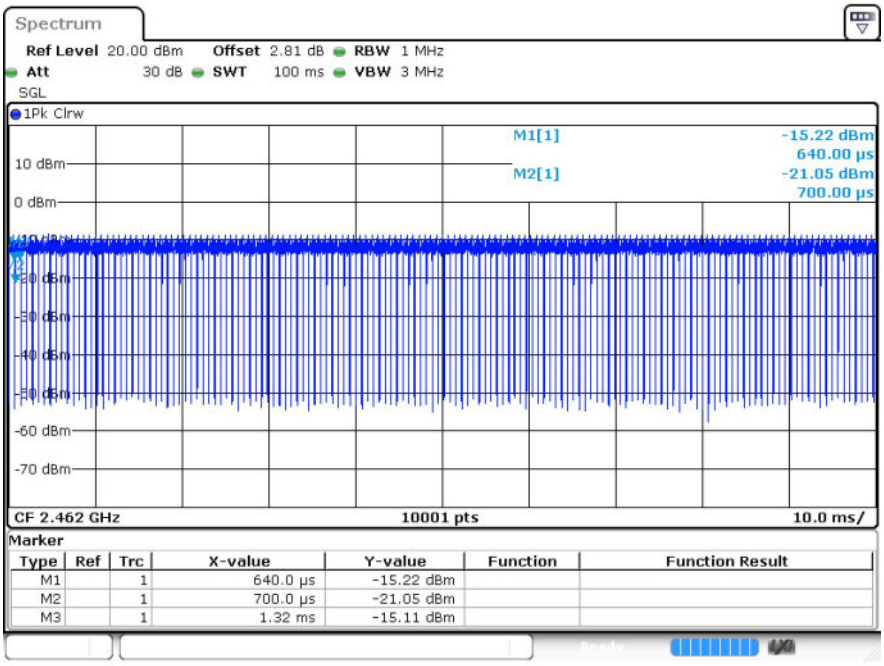


n20 2437MHz Ant1

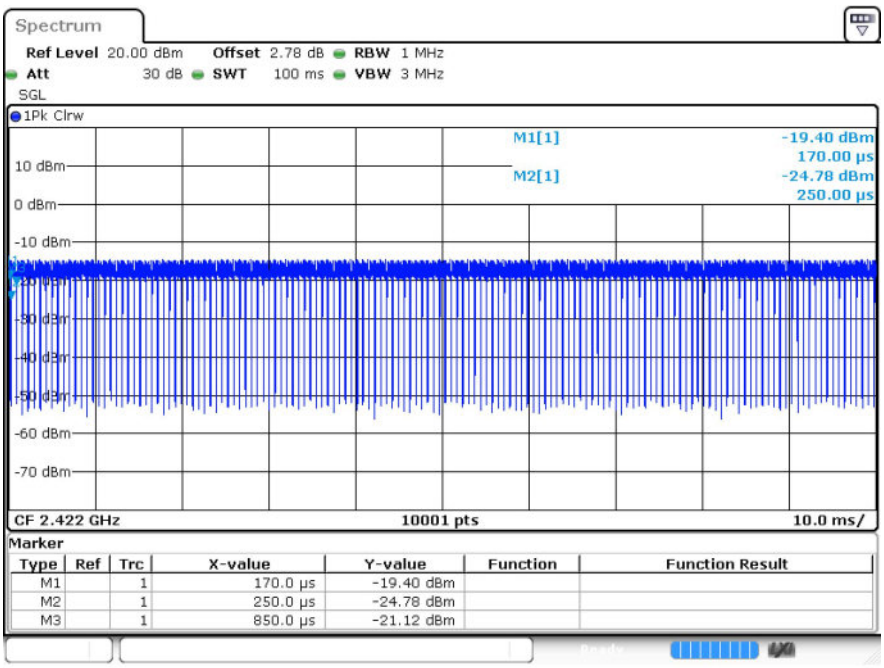


Test Graphs

n20 2462MHz Ant1

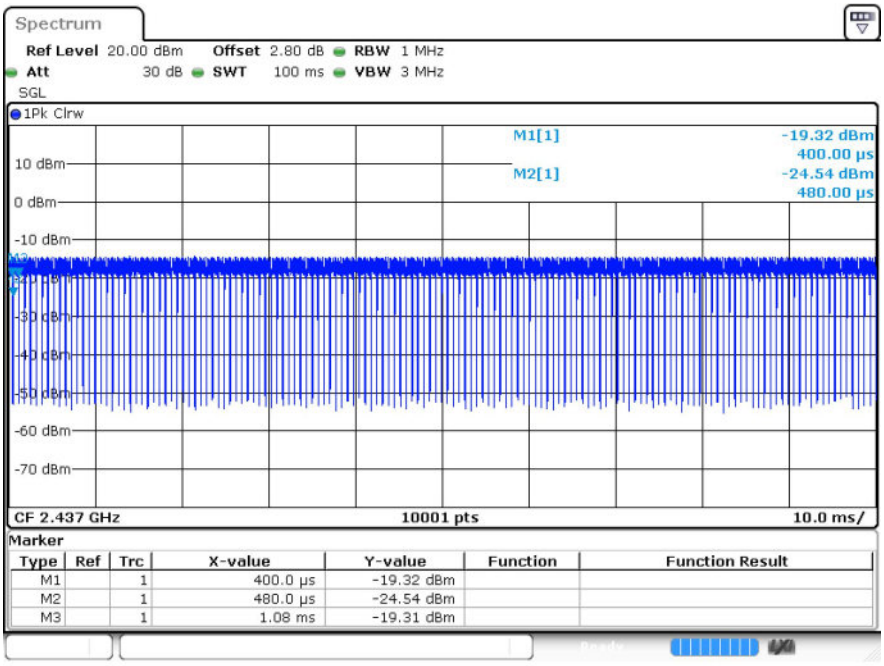


n40 2422MHz Ant1

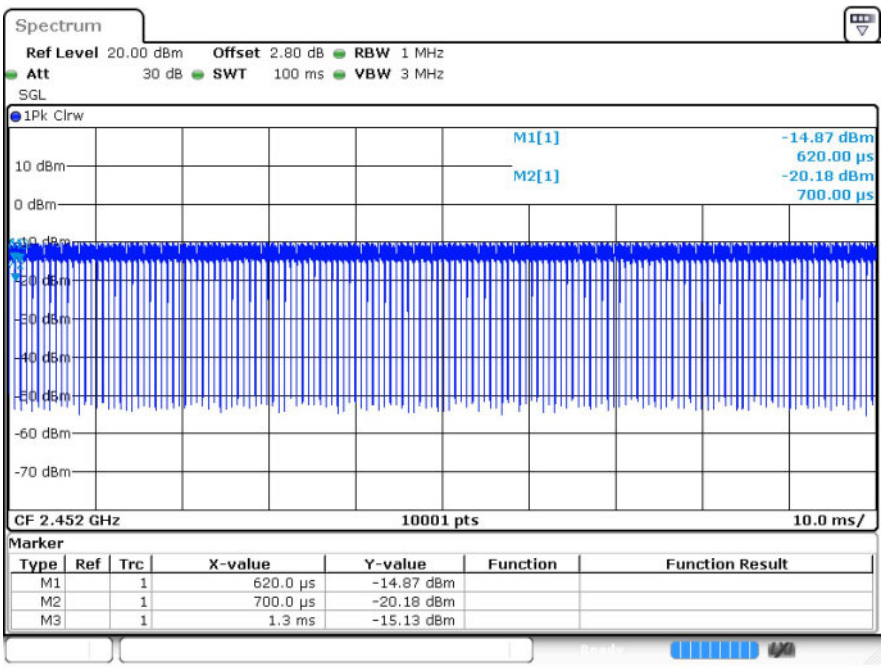


Test Graphs

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	7.08	30	Pass
b	2437	Ant1	3.56	30	Pass
b	2462	Ant1	2.77	30	Pass
g	2412	Ant1	6.12	30	Pass
g	2437	Ant1	3.8	30	Pass
g	2462	Ant1	3.02	30	Pass
n20	2412	Ant1	5.88	30	Pass
n20	2437	Ant1	3.86	30	Pass
n20	2462	Ant1	3.11	30	Pass
n40	2422	Ant1	5.82	30	Pass
n40	2437	Ant1	6.31	30	Pass
n40	2452	Ant1	6.15	30	Pass

3 -6dB Bandwidth

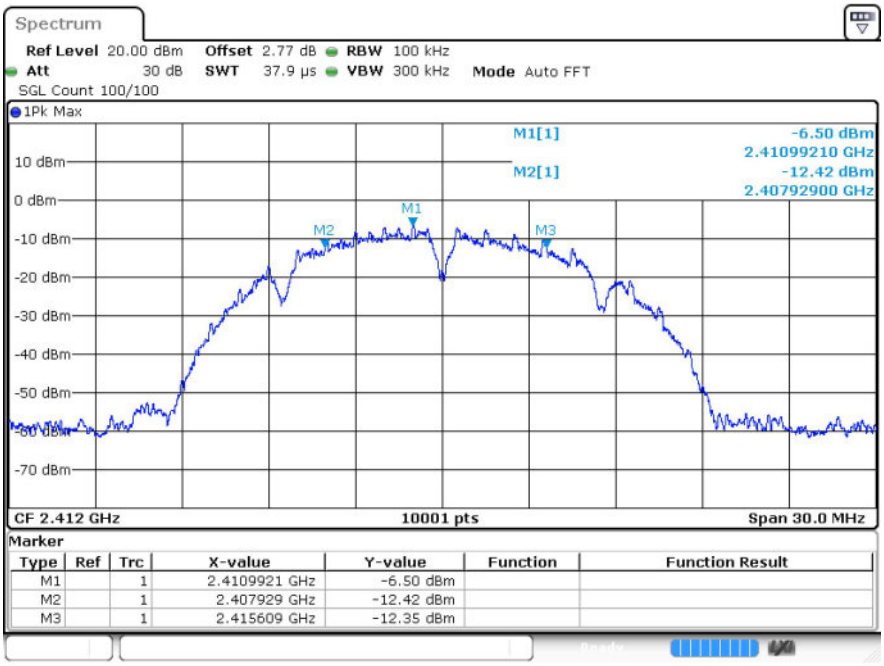
3.1 Test Result

Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
b	2412	Ant1	7.68	0.5	Pass
b	2437	Ant1	9.579	0.5	Pass
b	2462	Ant1	9.579	0.5	Pass
g	2412	Ant1	15.081	0.5	Pass
g	2437	Ant1	15.798	0.5	Pass
g	2462	Ant1	15.786	0.5	Pass
n20	2412	Ant1	15.636	0.5	Pass
n20	2437	Ant1	16.398	0.5	Pass
n20	2462	Ant1	17.682	0.5	Pass
n40	2422	Ant1	35.484	0.5	Pass
n40	2437	Ant1	35.664	0.5	Pass
n40	2452	Ant1	33.846	0.5	Pass

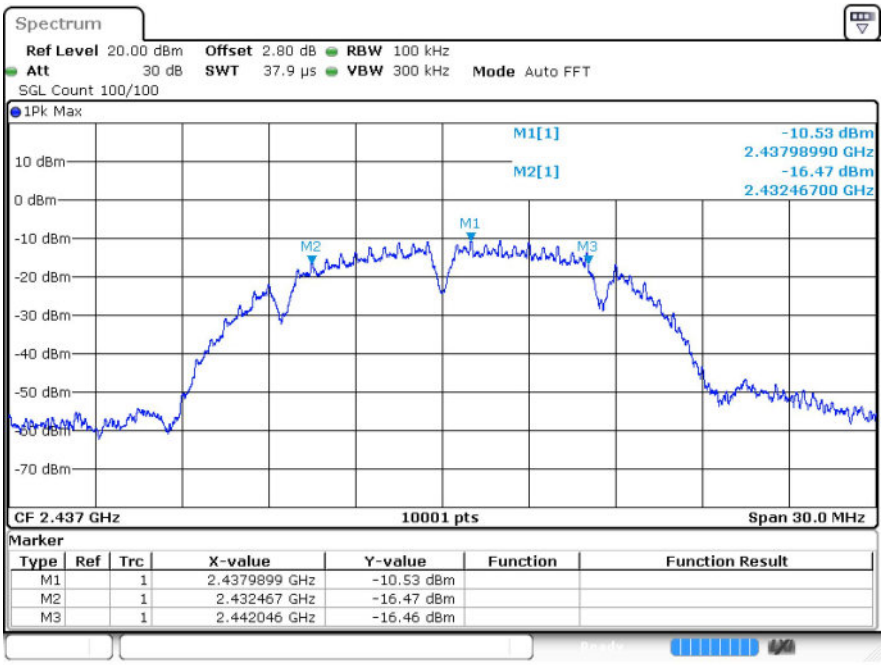
3.2 Test Graphs

Test Graphs

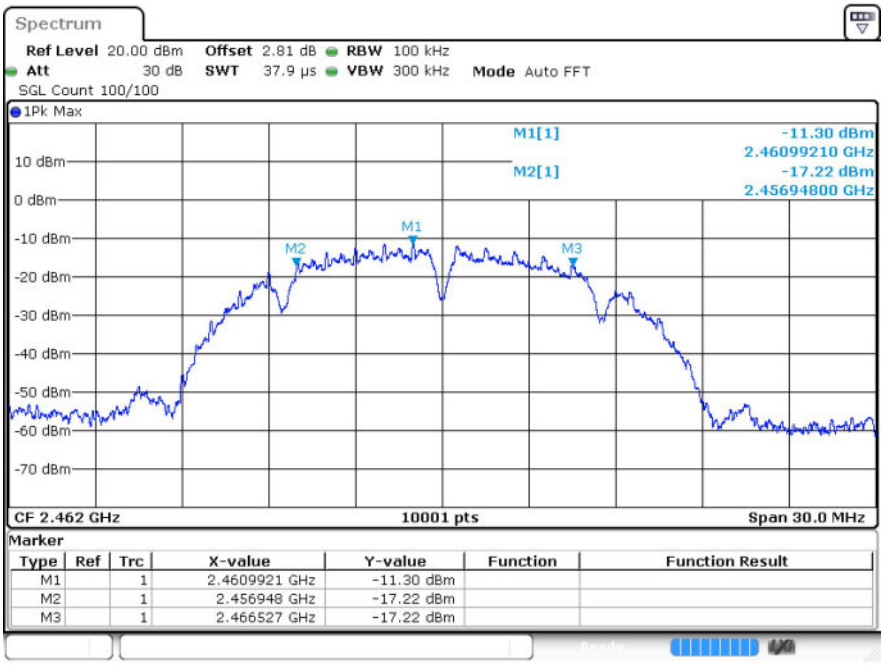
b 2412MHz Ant1



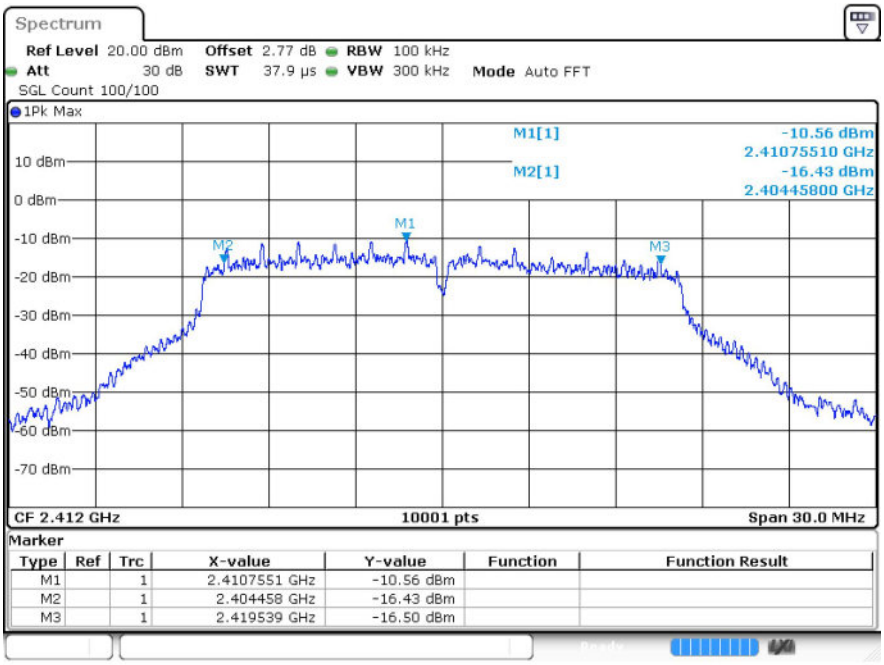
b 2437MHz Ant1



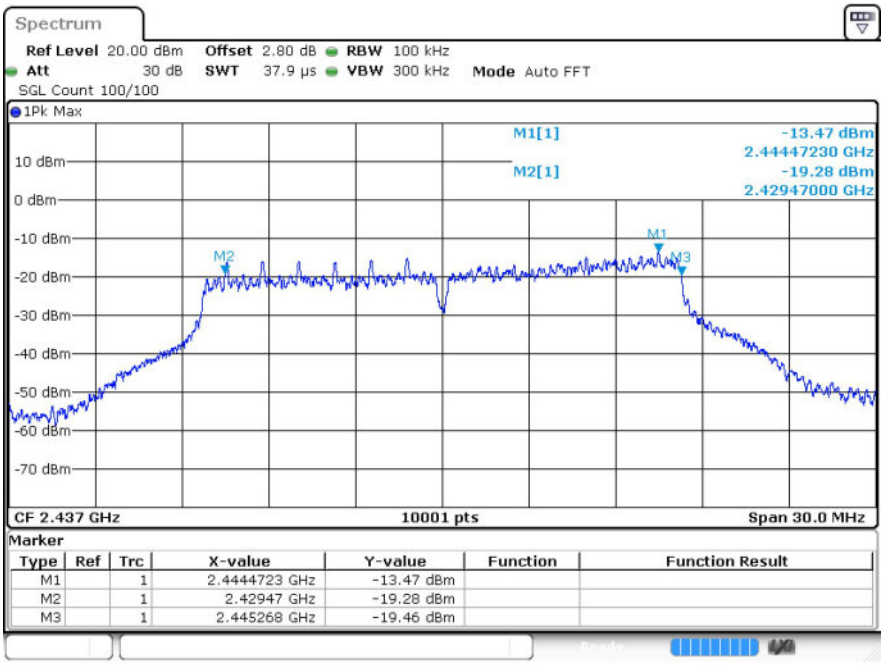
b 2462MHz Ant1



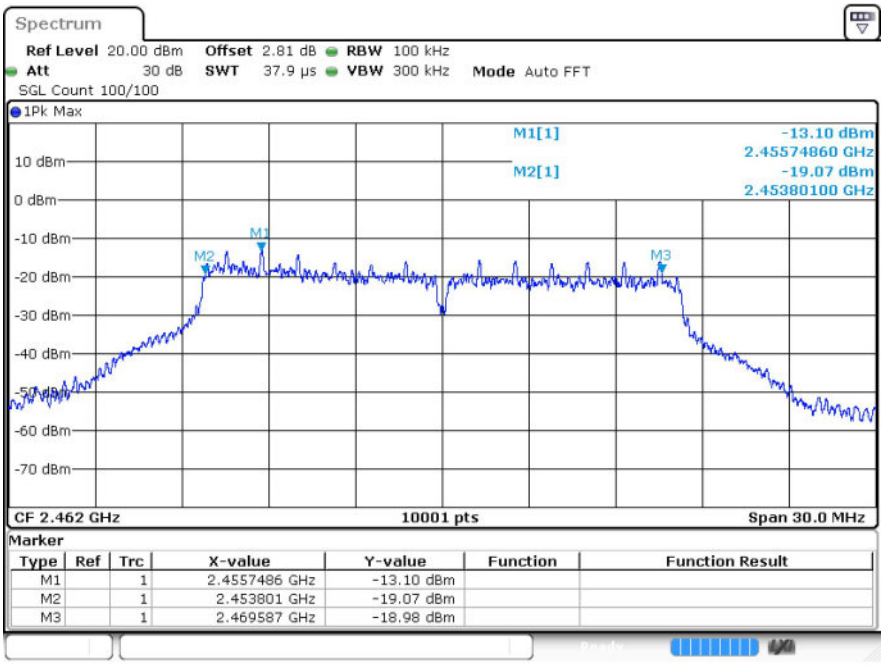
g 2412MHz Ant1



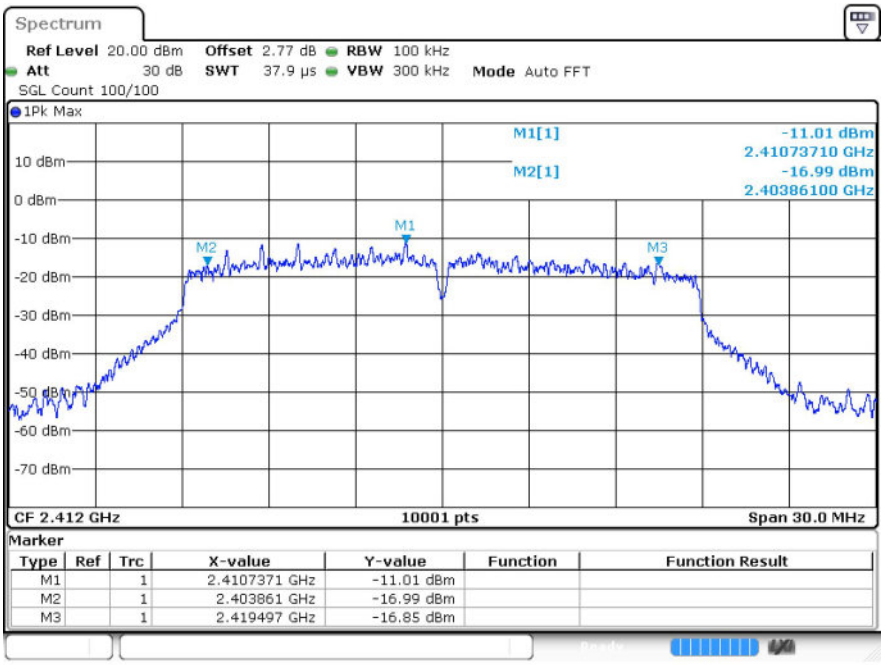
g 2437MHz Ant1



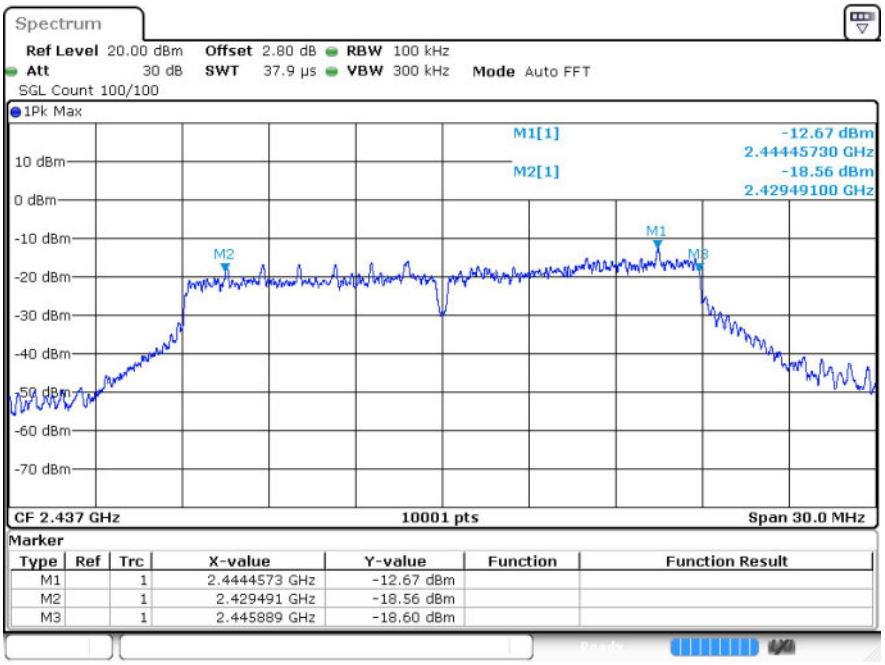
g 2462MHz Ant1



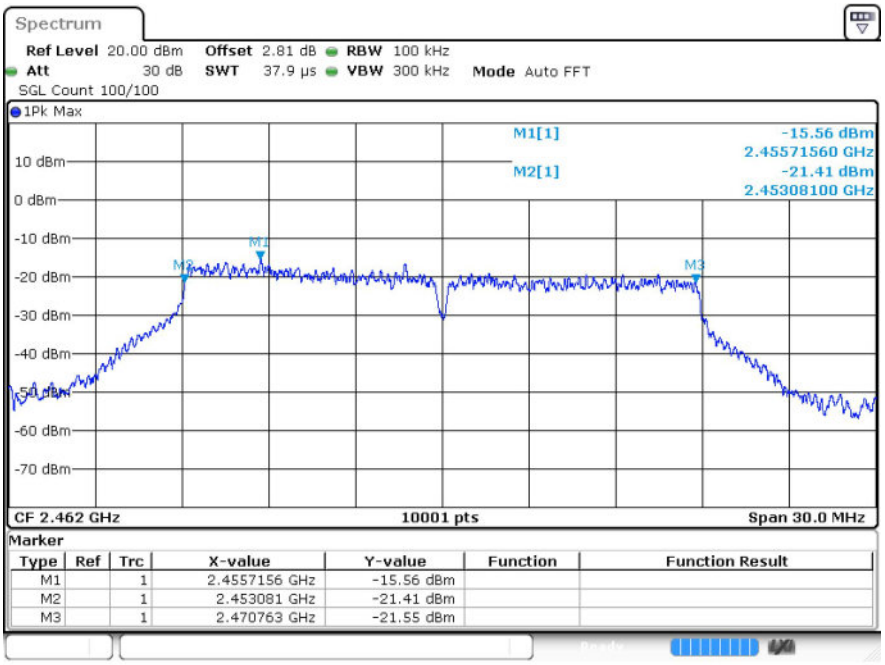
n20 2412MHz Ant1



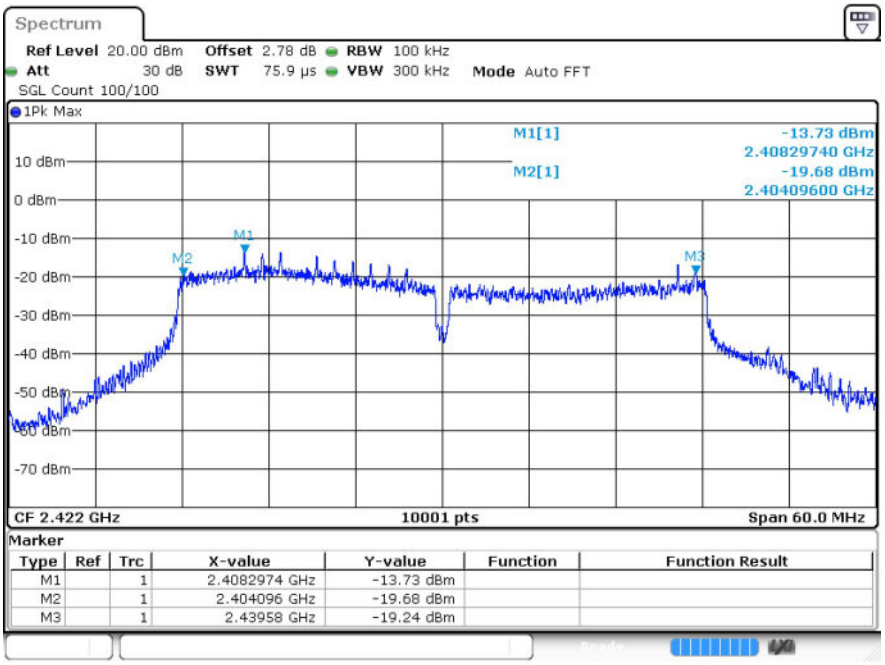
n20 2437MHz Ant1



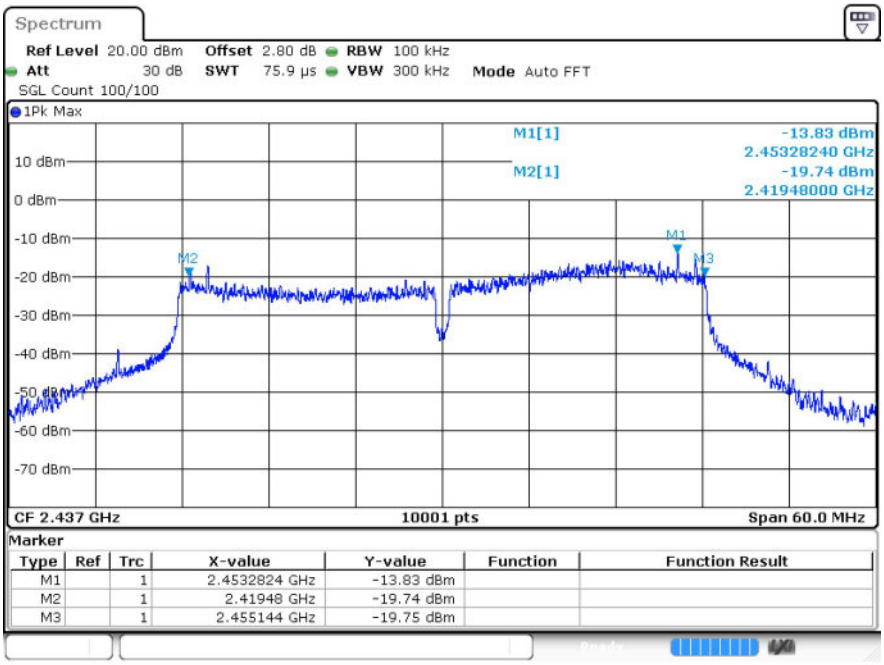
n20 2462MHz Ant1



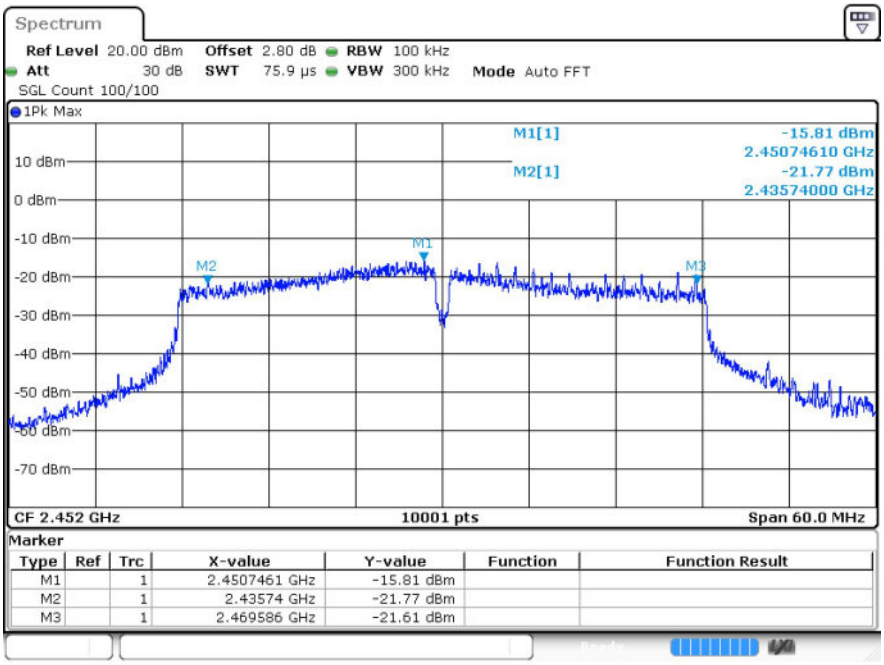
n40 2422MHz Ant1



n40 2437MHz Ant1



n40 2452MHz Ant1

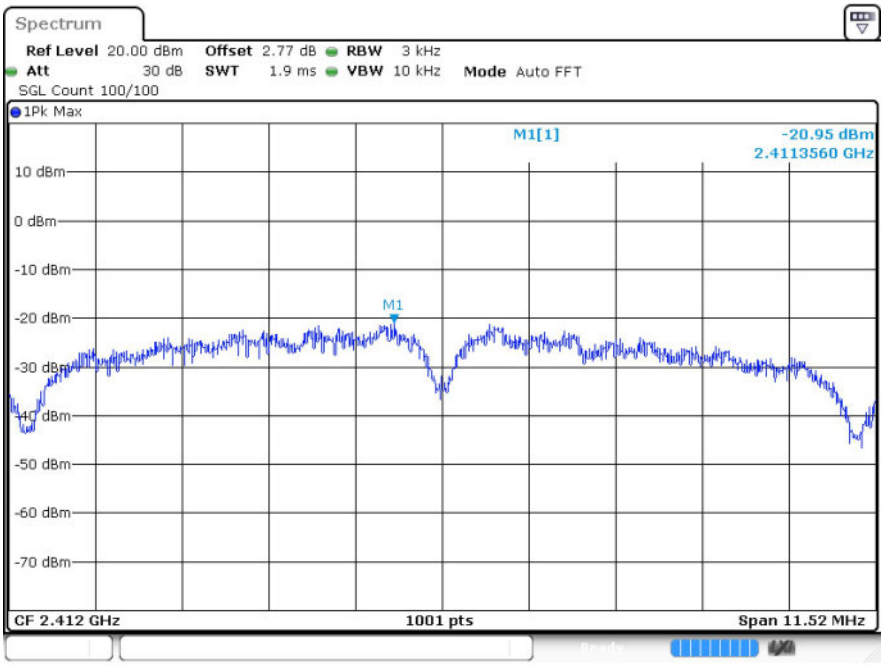
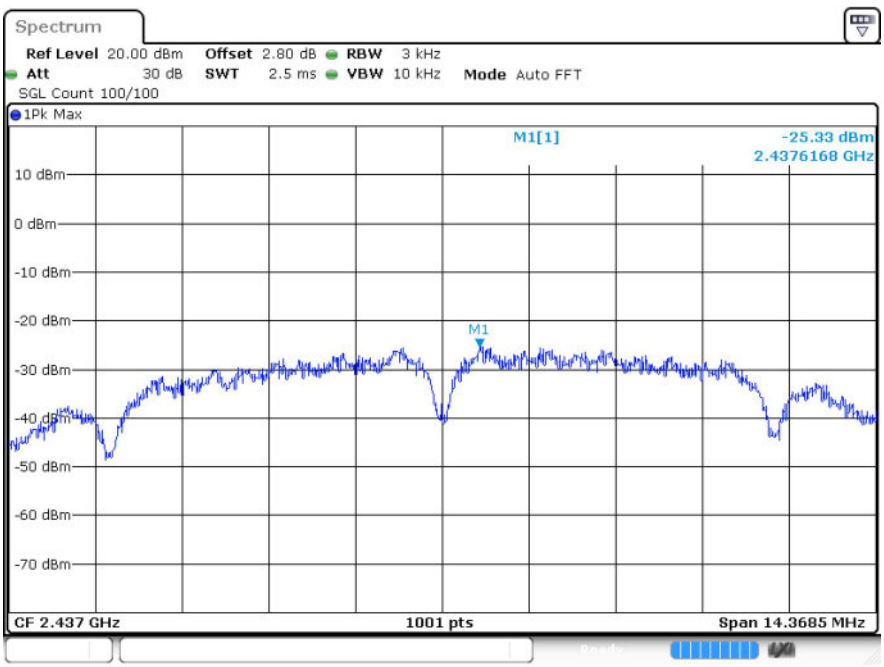


4 Maximum Power Spectral Density Level

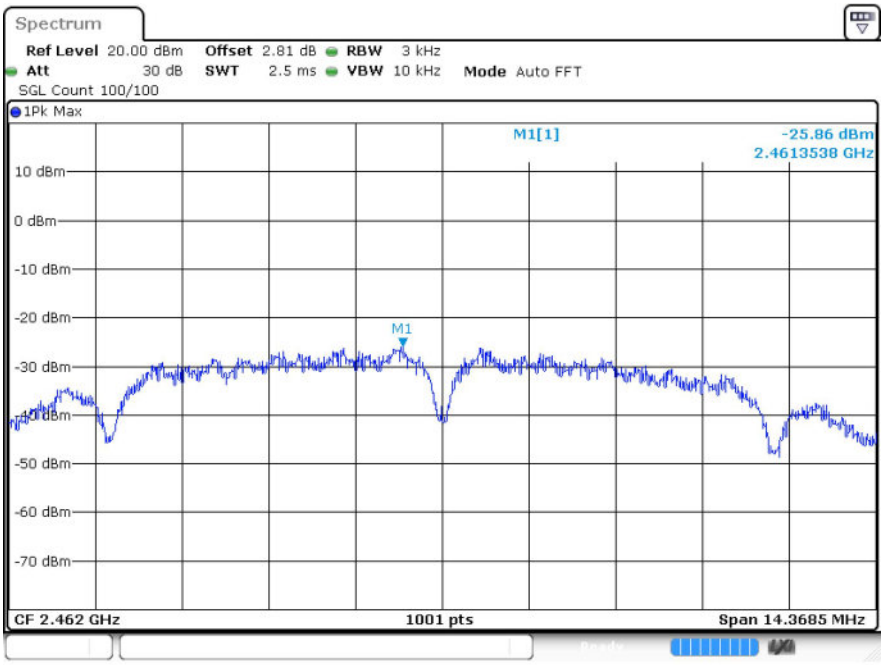
4.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3-100kHz)	Limit (dBm/3kHz)	Verdict
b	2412	Ant1	-20.95	≤8	Pass
b	2437	Ant1	-25.33	≤8	Pass
b	2462	Ant1	-25.86	≤8	Pass
g	2412	Ant1	-25.67	≤8	Pass
g	2437	Ant1	-26.98	≤8	Pass
g	2462	Ant1	-26.98	≤8	Pass
n20	2412	Ant1	-25.02	≤8	Pass
n20	2437	Ant1	-26.69	≤8	Pass
n20	2462	Ant1	-26.7	≤8	Pass
n40	2422	Ant1	-27.89	≤8	Pass
n40	2437	Ant1	-28.05	≤8	Pass
n40	2452	Ant1	-27.92	≤8	Pass

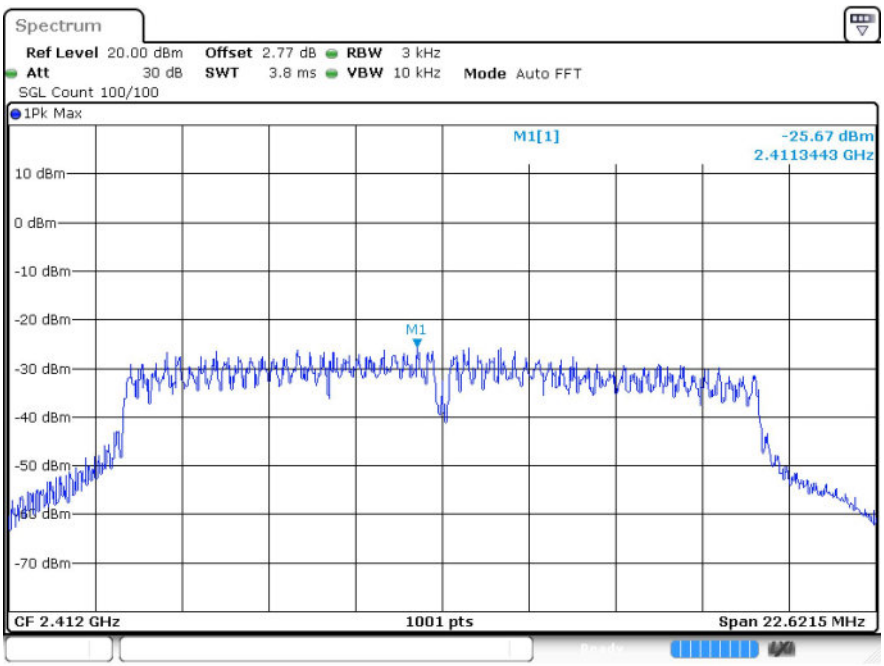
4.2 Test Graphs

Test Graphs
b 2412MHz Ant1

b 2437MHz Ant1


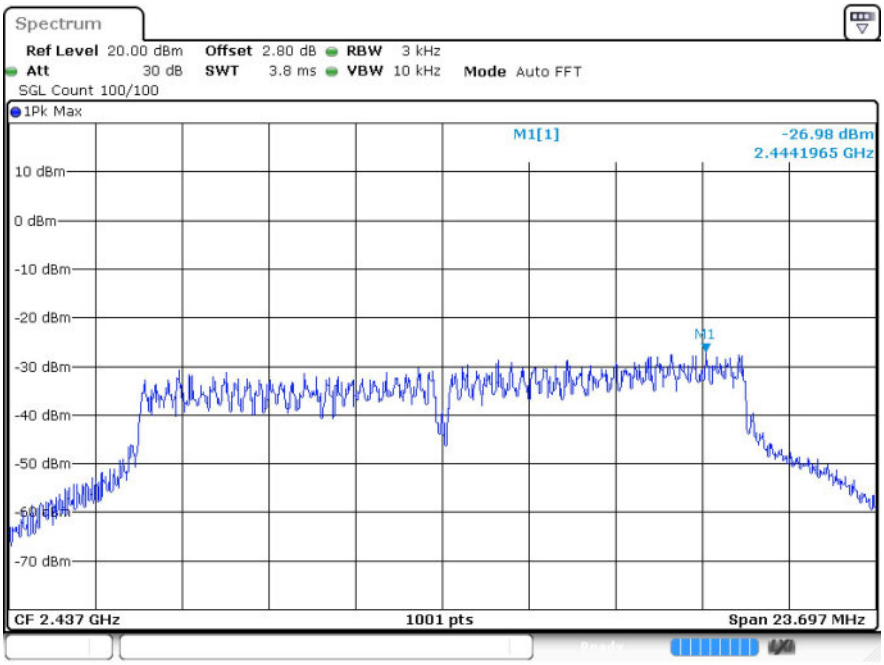
b 2462MHz Ant1



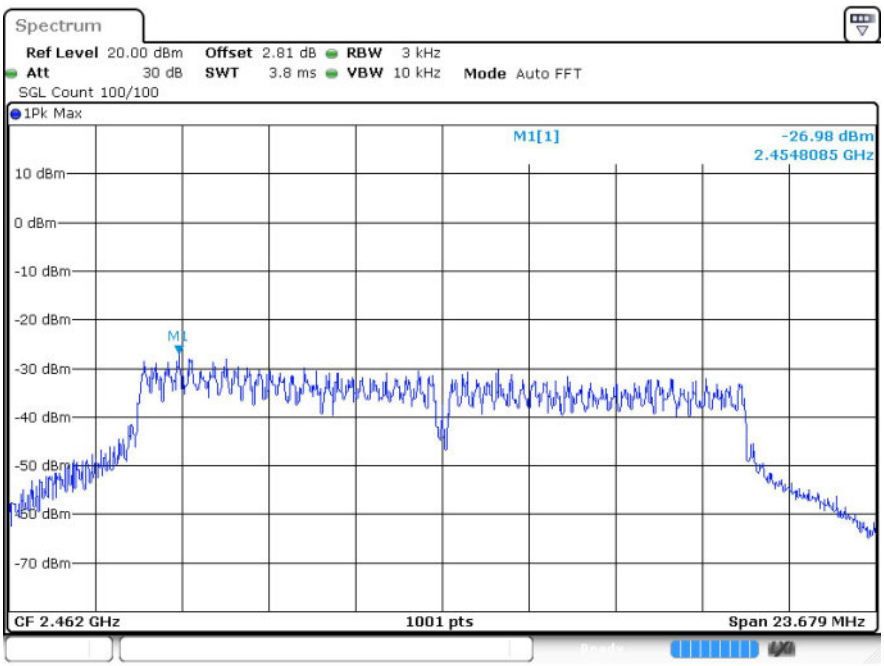
g 2412MHz Ant1



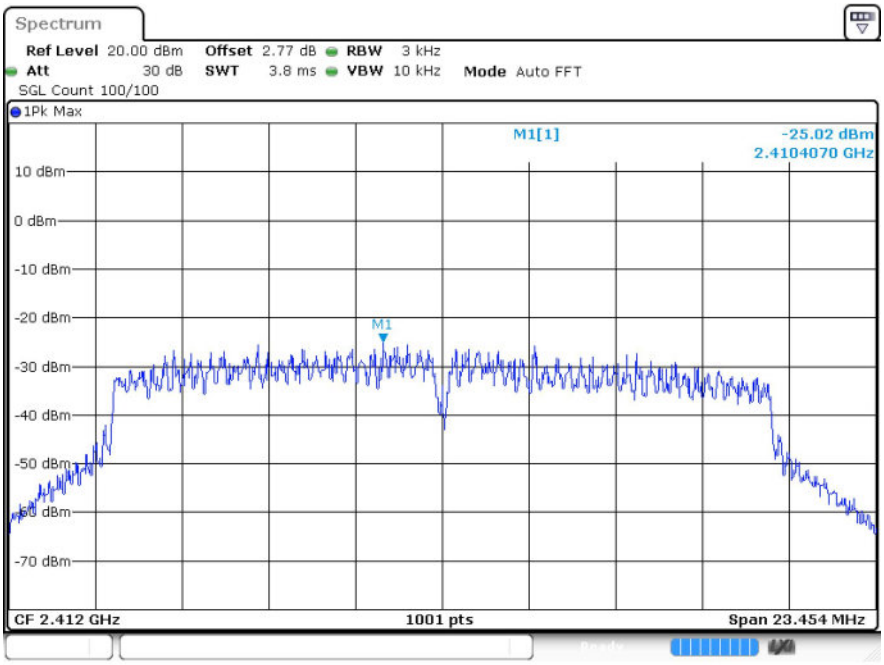
g 2437MHz Ant1



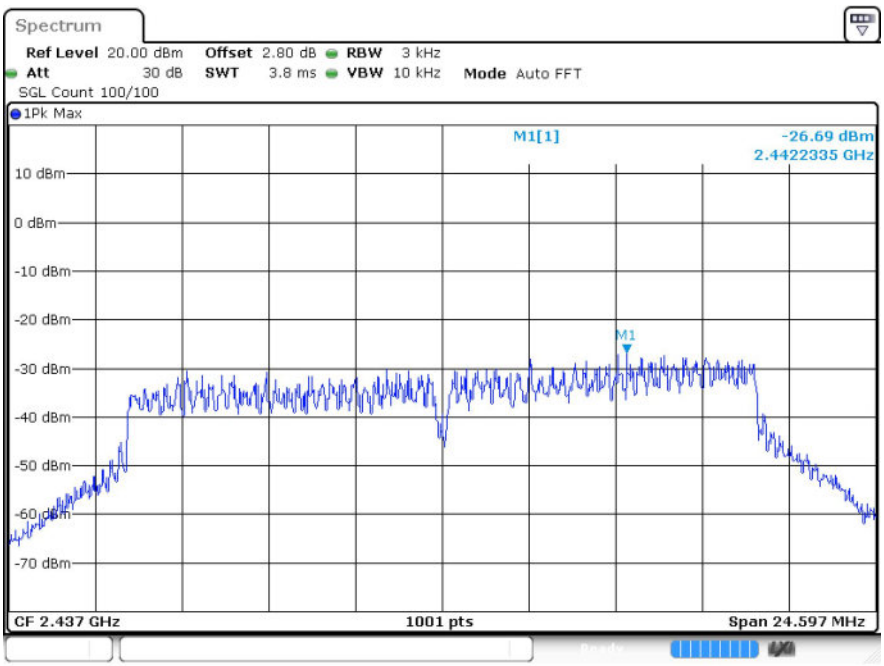
g 2462MHz Ant1



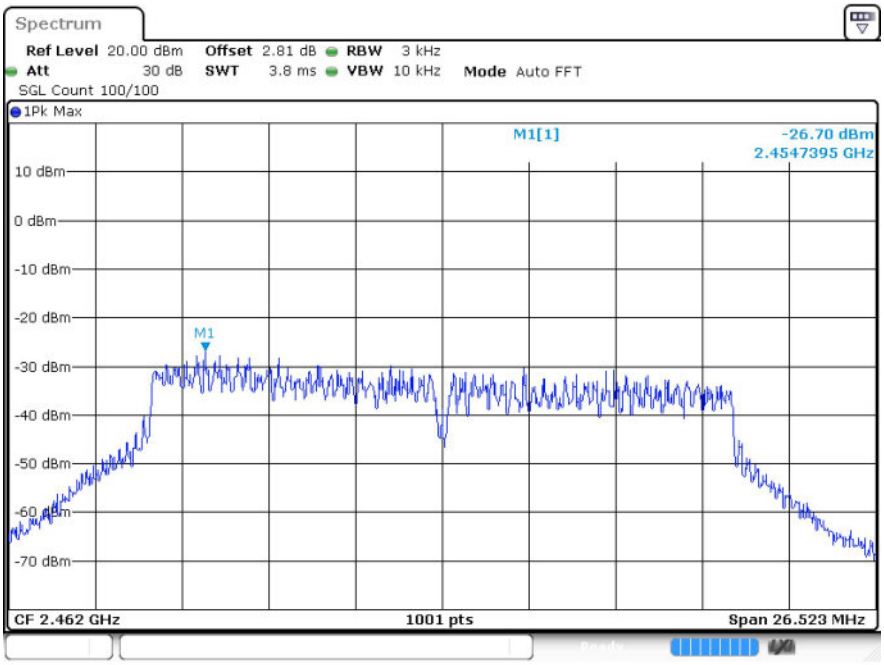
n20 2412MHz Ant1



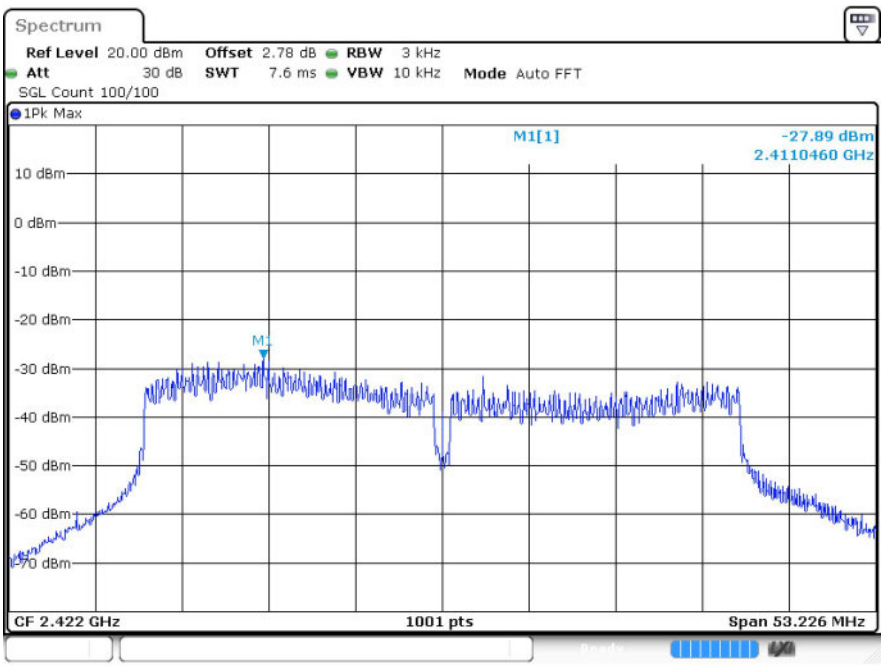
n20 2437MHz Ant1



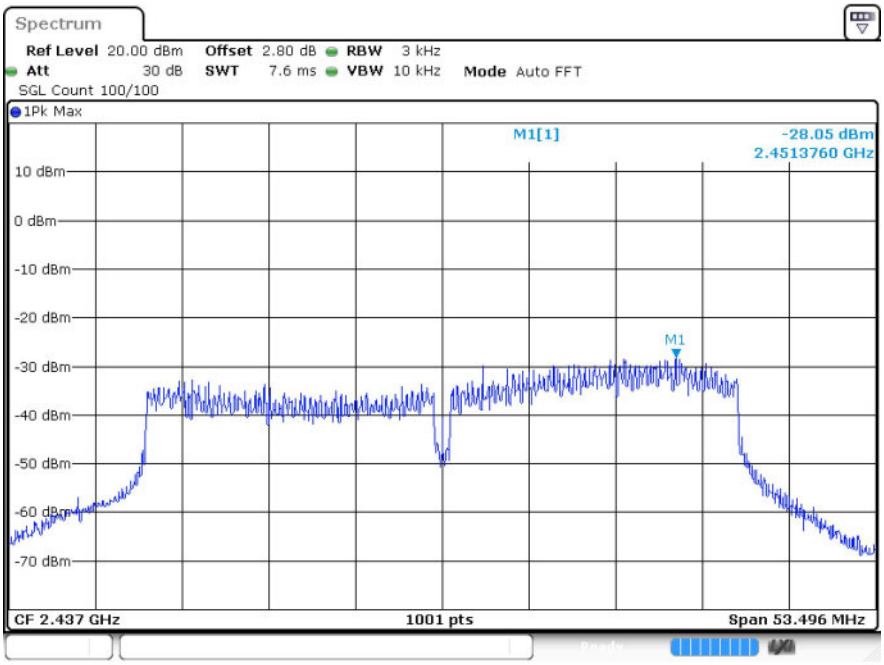
n20 2462MHz Ant1



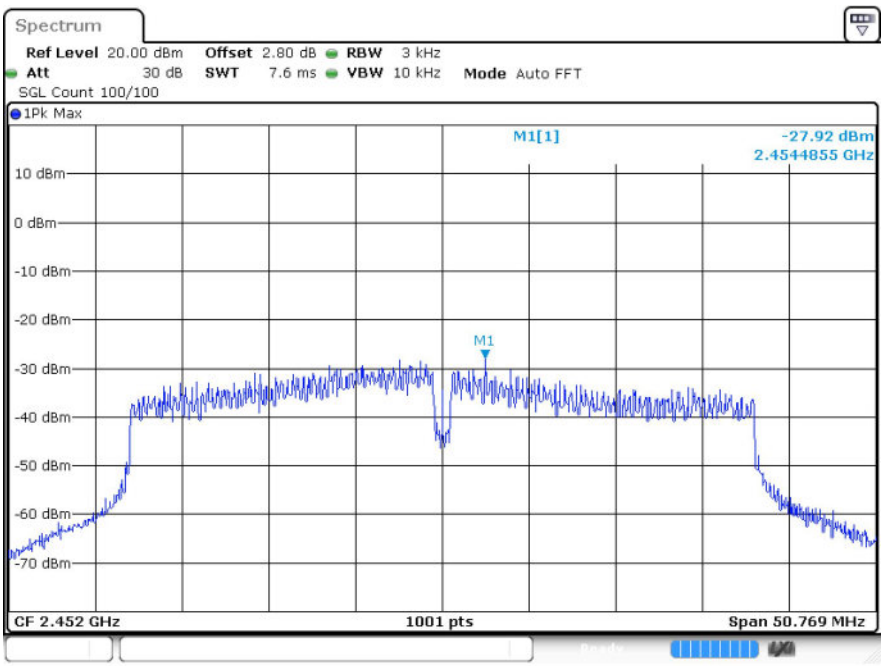
n40 2422MHz Ant1



n40 2437MHz Ant1



n40 2452MHz Ant1



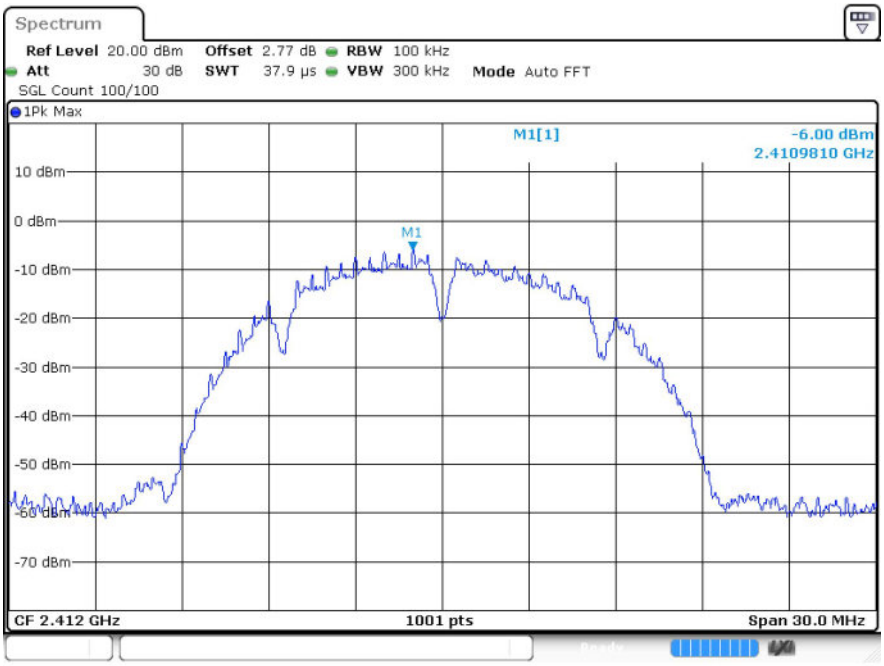
5 Band Edge

5.1 Test Result

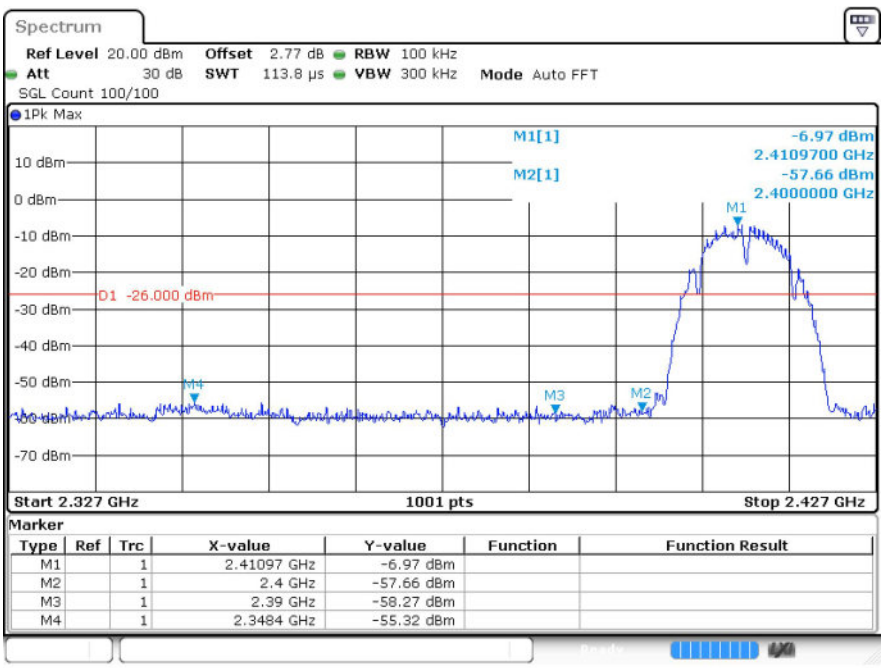
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-49.32	-20	Pass
b	2462	Ant1	-43.47	-20	Pass
g	2412	Ant1	-44.39	-20	Pass
g	2462	Ant1	-41.04	-20	Pass
n20	2412	Ant1	-42.92	-20	Pass
n20	2462	Ant1	-40.47	-20	Pass
n40	2422	Ant1	-41.04	-20	Pass
n40	2452	Ant1	-37.25	-20	Pass

5.2 Test Graphs

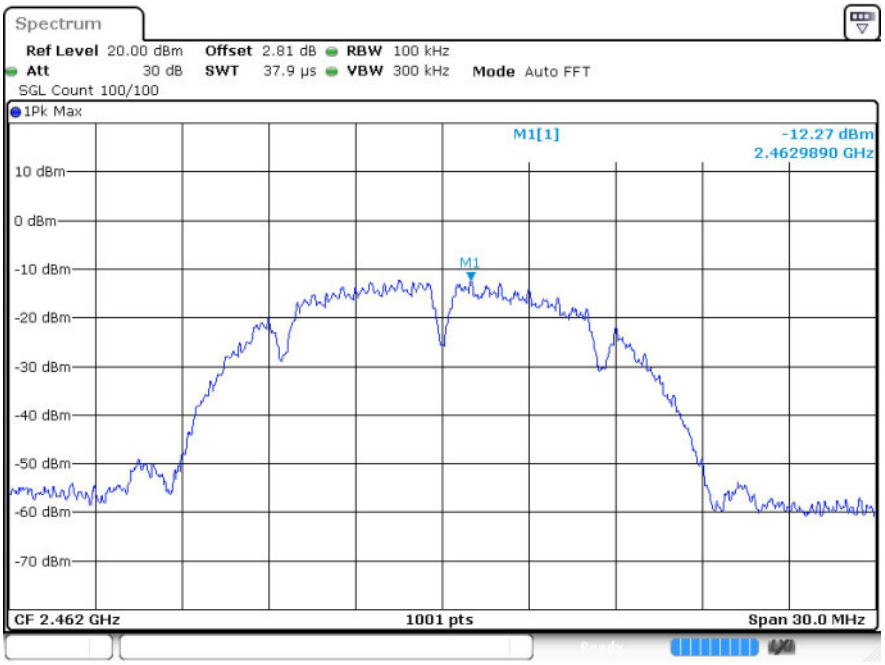
Test Graphs
b 2412MHz Ant1 Ref



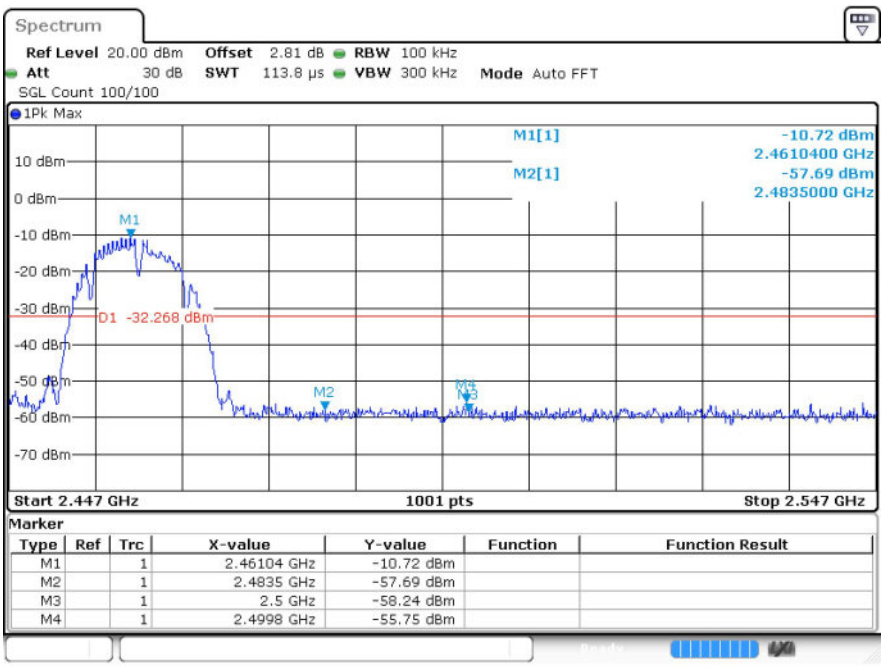
b 2412MHz Ant1 Emission



b 2462MHz Ant1 Ref

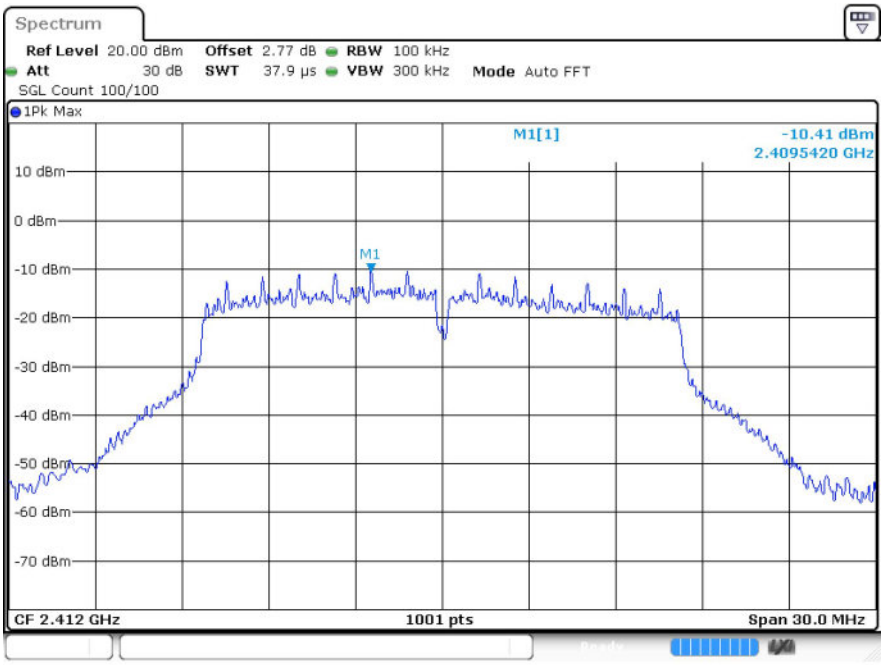


b 2462MHz Ant1 Emission

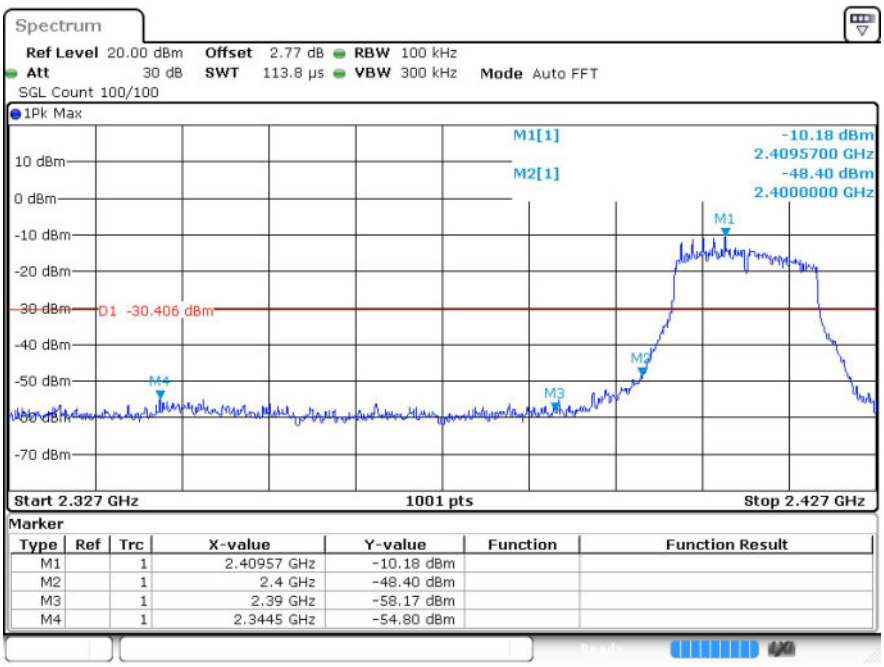


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46104 GHz	-10.72 dBm		
M2		1	2.4835 GHz	-57.69 dBm		
M3		1	2.5 GHz	-58.24 dBm		
M4		1	2.4998 GHz	-55.75 dBm		

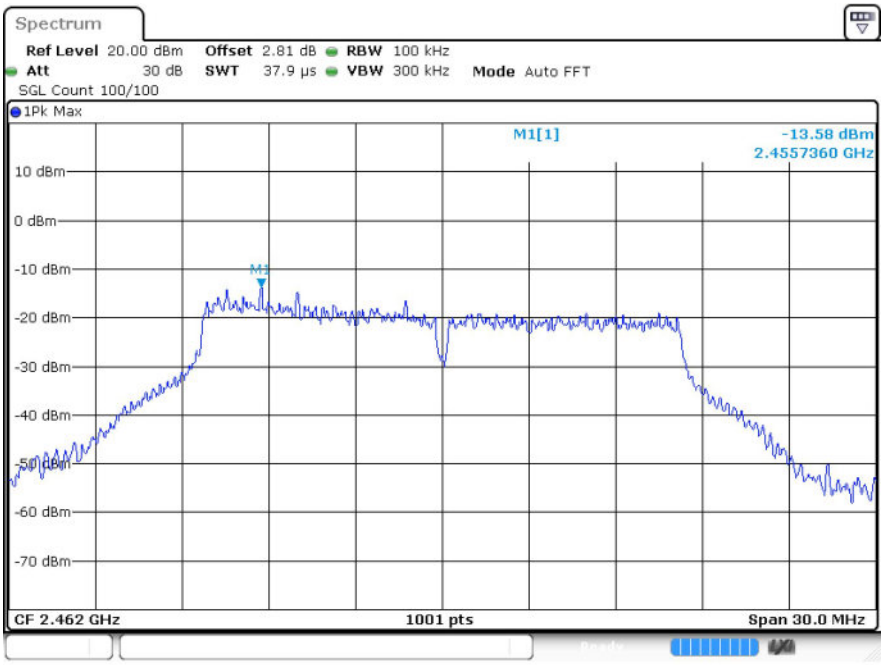
g 2412MHz Ant1 Ref



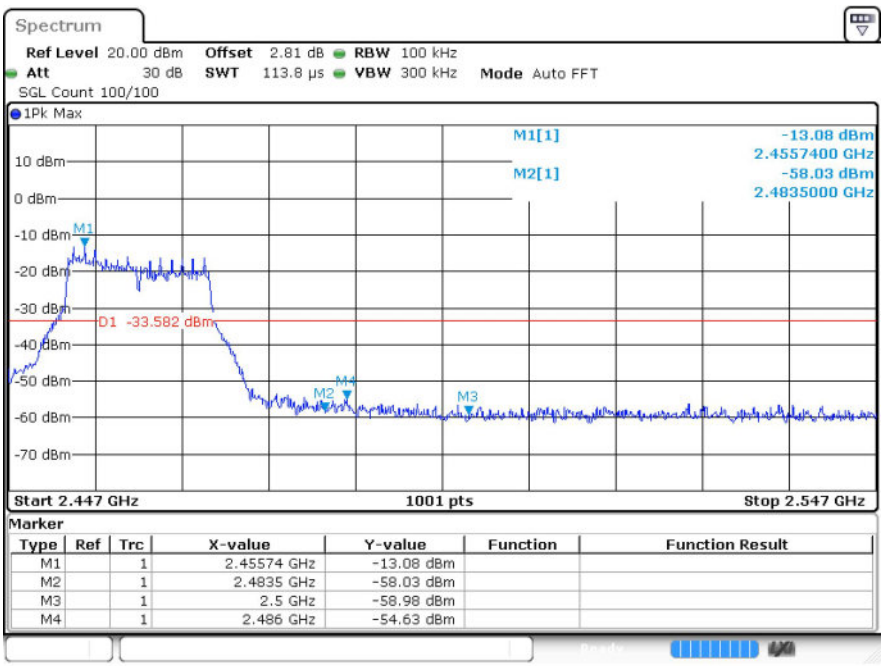
g 2412MHz Ant1 Emission



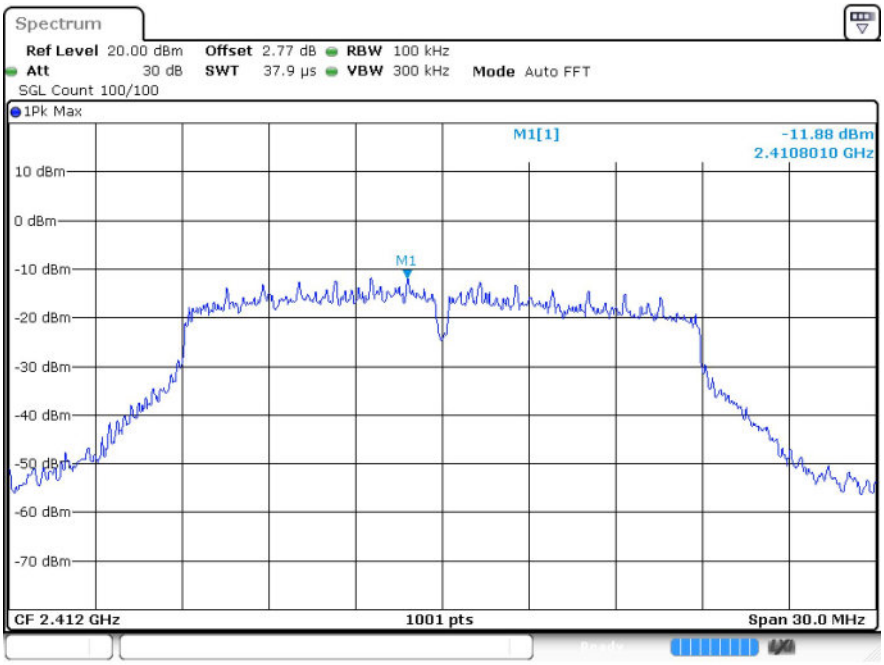
g 2462MHz Ant1 Ref



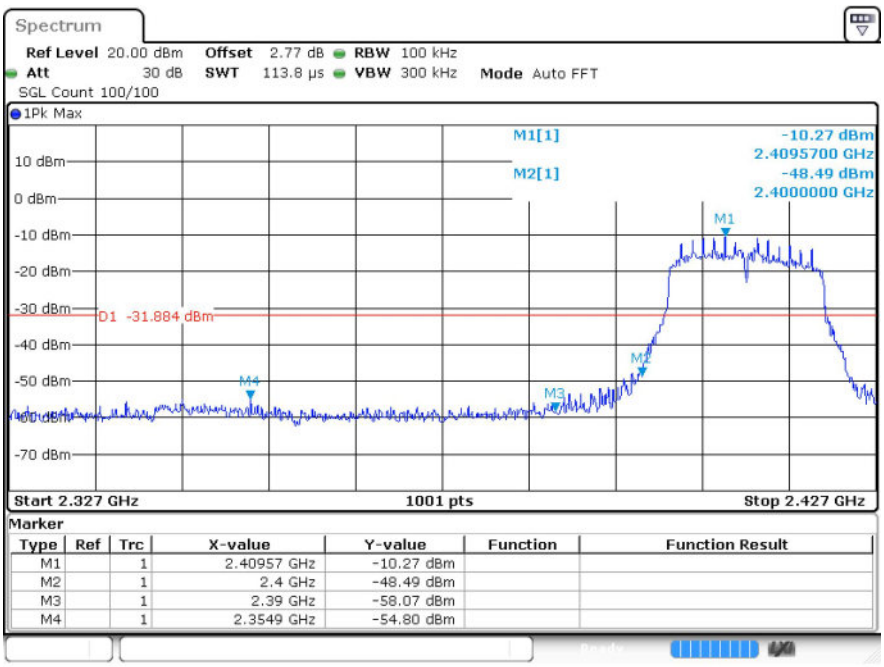
g 2462MHz Ant1 Emission



n20 2412MHz Ant1 Ref



n20 2412MHz Ant1 Emission



Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40957 GHz	-10.27 dBm		
M2		1	2.4 GHz	-48.49 dBm		
M3		1	2.39 GHz	-58.07 dBm		
M4		1	2.3549 GHz	-54.80 dBm		