Appendix C

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: Carplay

Trade Mark: N/A

Test Model: RC22

Environmental Conditions

Temperature:	24.6° 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

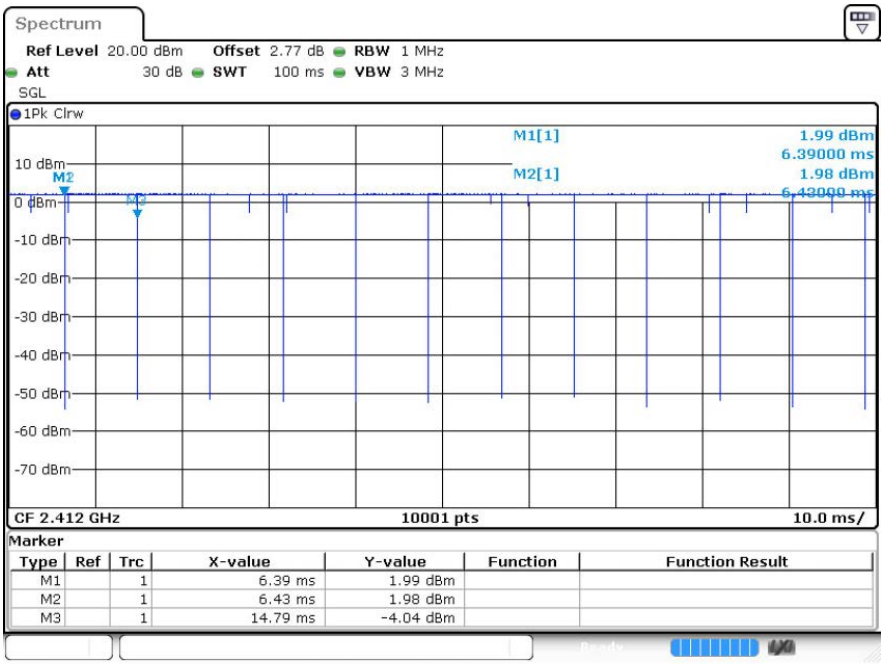
1.1 Test Result

Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor	1/T (kHz)
b	2412	Ant1	99.61	0.02	0.12
b	2437	Ant1	99.6	0.02	0.12
b	2462	Ant1	99.6	0.02	0.12
g	2412	Ant1	86.91	0.61	4.76
g	2437	Ant1	86.9	0.61	4.55
g	2462	Ant1	86.95	0.61	4.76
n20	2412	Ant1	87.54	0.58	4.35
n20	2437	Ant1	87.55	0.58	4.35
n20	2462	Ant1	87.53	0.58	4.35
n40	2422	Ant1	88.02	0.55	4
n40	2437	Ant1	88.02	0.55	4
n40	2452	Ant1	88.01	0.55	4.17

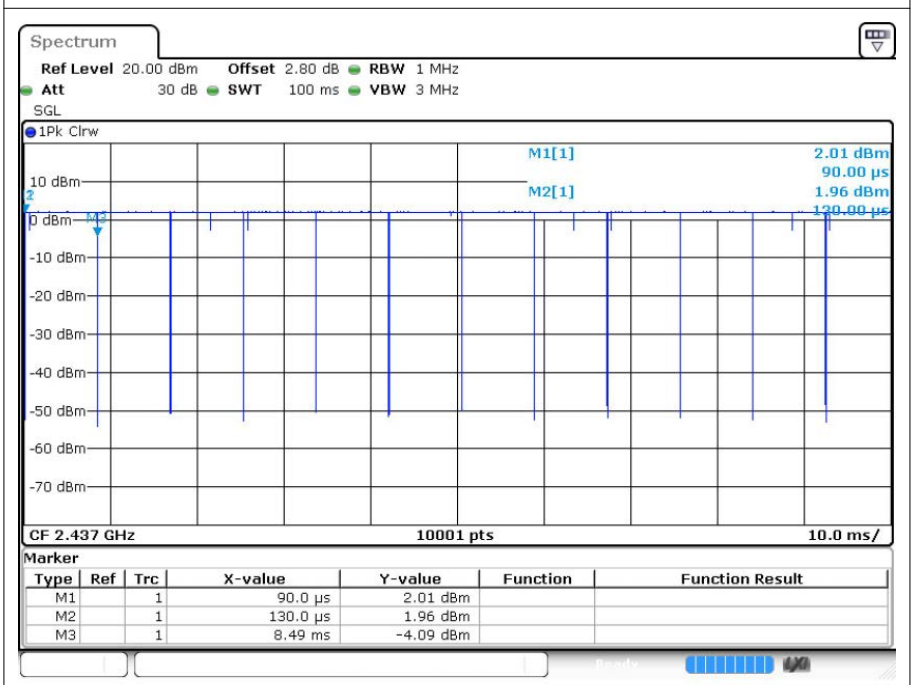
1.2 Test Graphs

Test Graphs

b 2412MHz Ant1

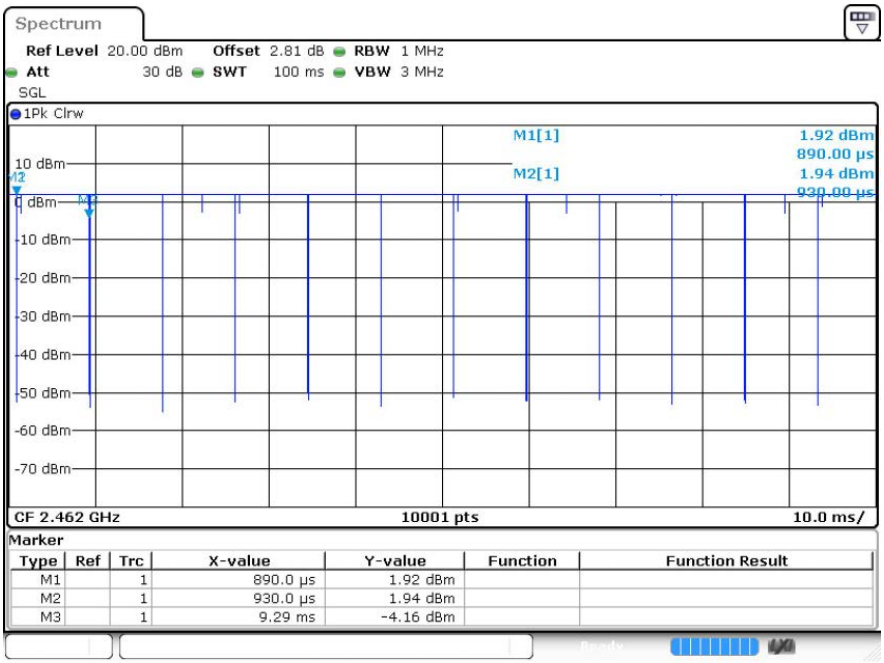


b 2437MHz Ant1

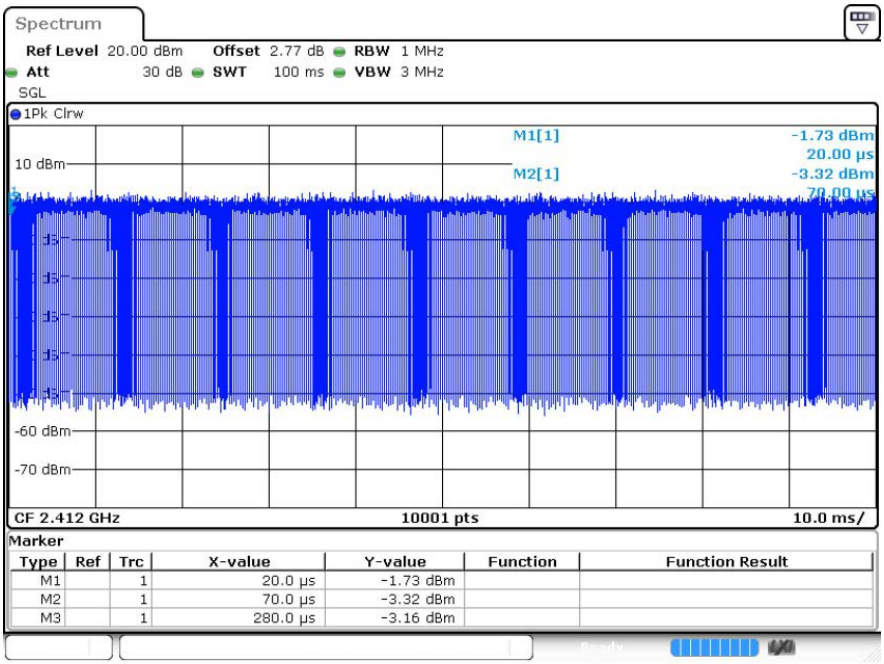


Test Graphs

b 2462MHz Ant1

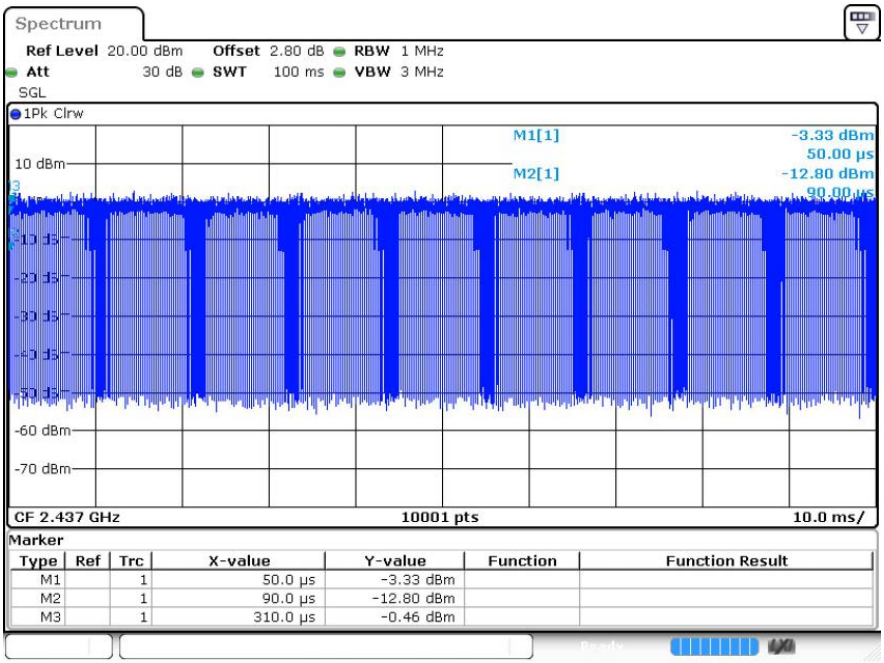


g 2412MHz Ant1

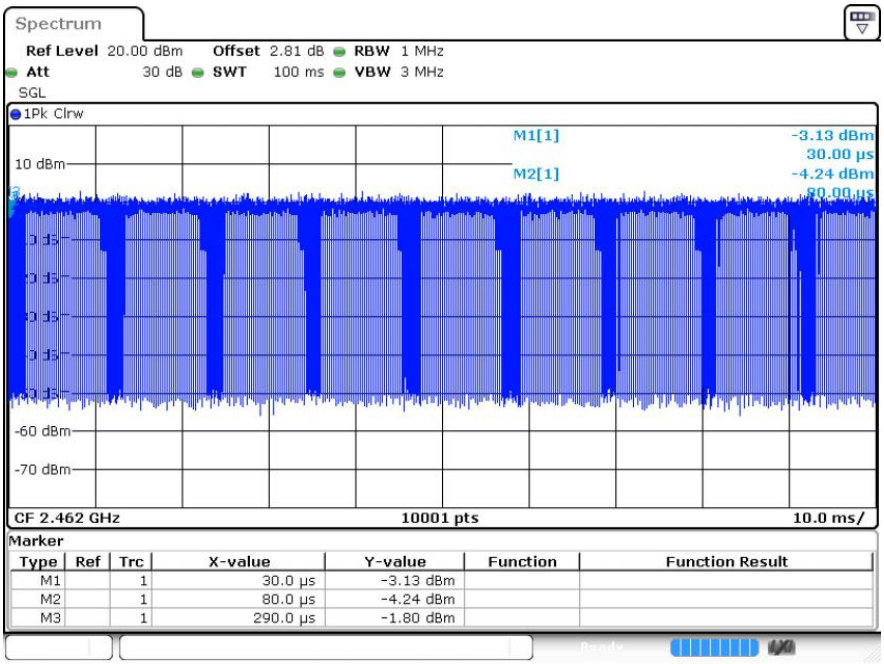


Test Graphs

g 2437MHz Ant1

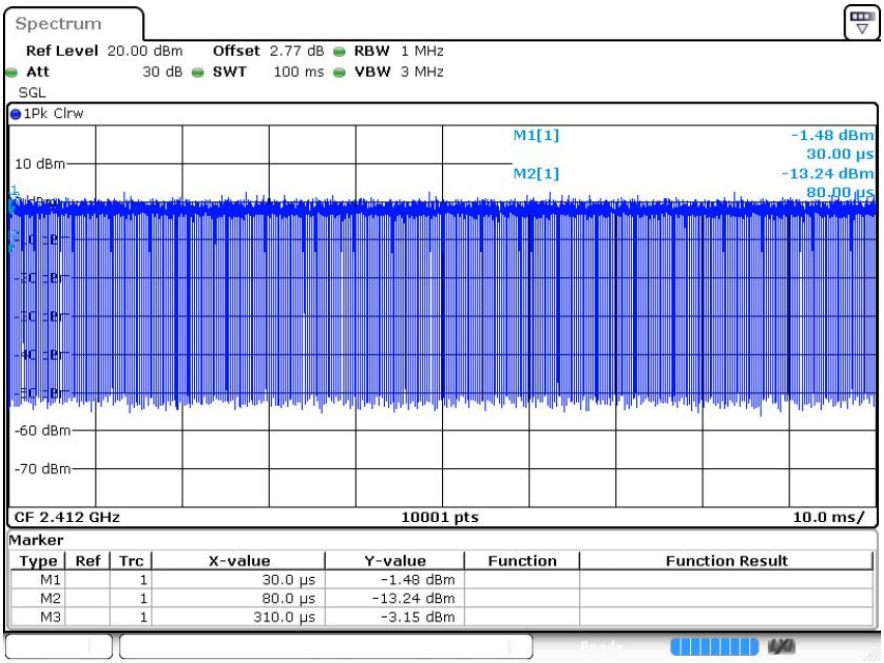


g 2462MHz Ant1

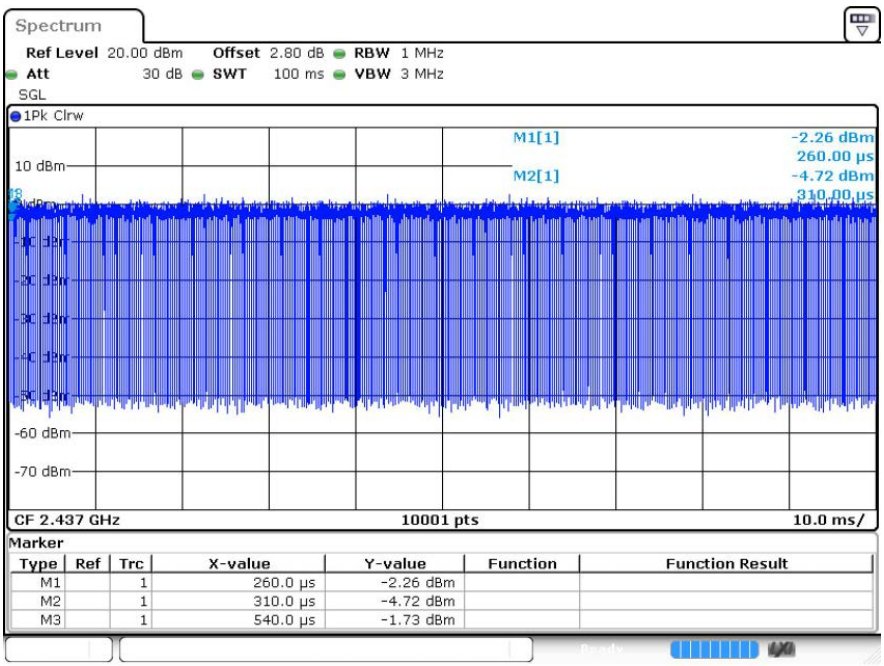


Test Graphs

n20 2412MHz Ant1

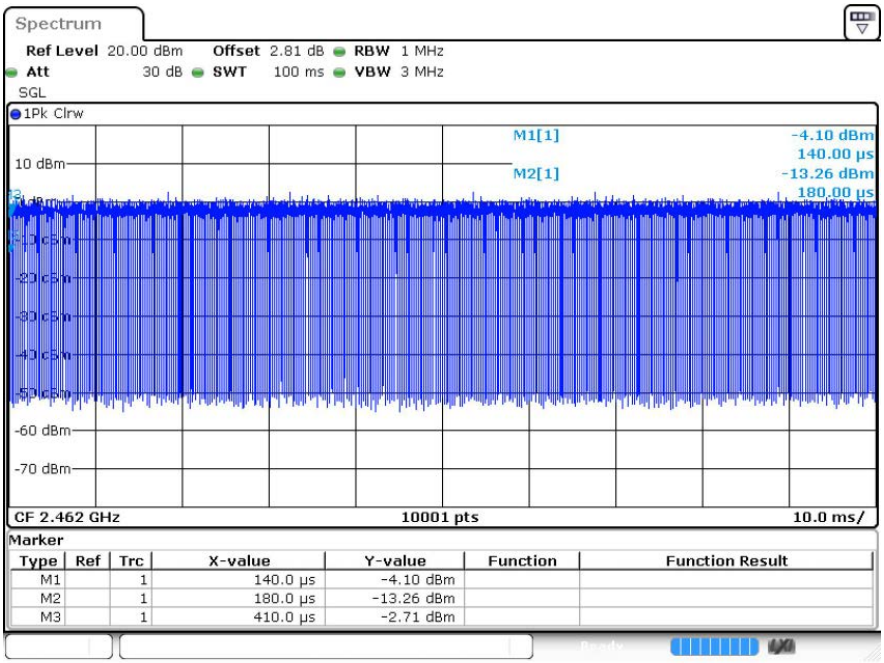


n20 2437MHz Ant1

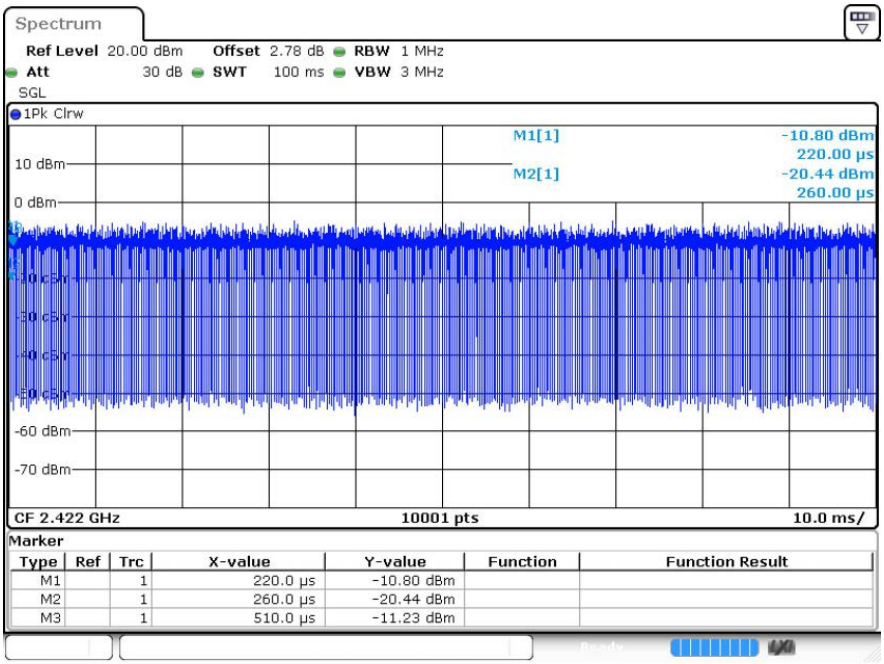


Test Graphs

n20 2462MHz Ant1

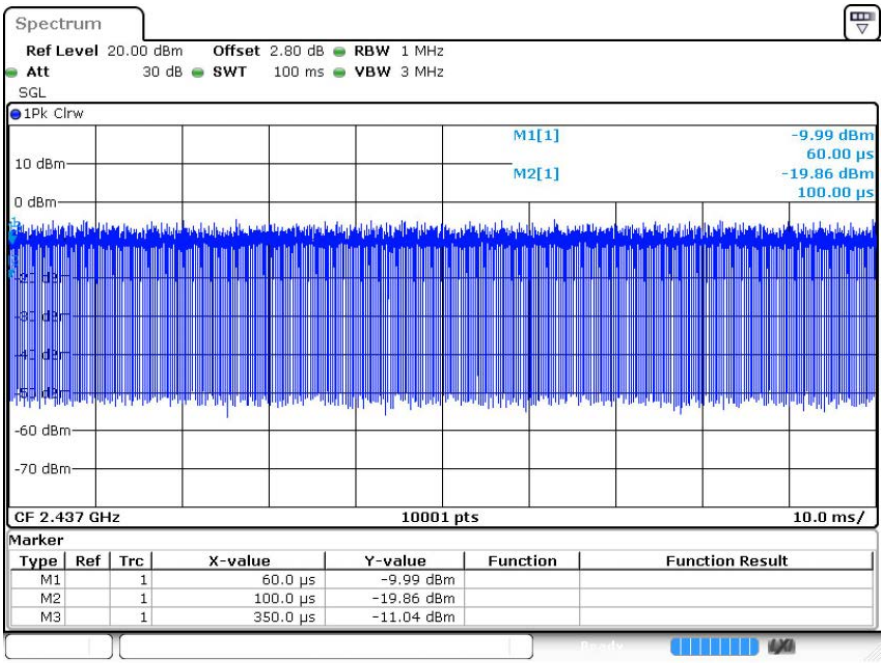


n40 2422MHz Ant1

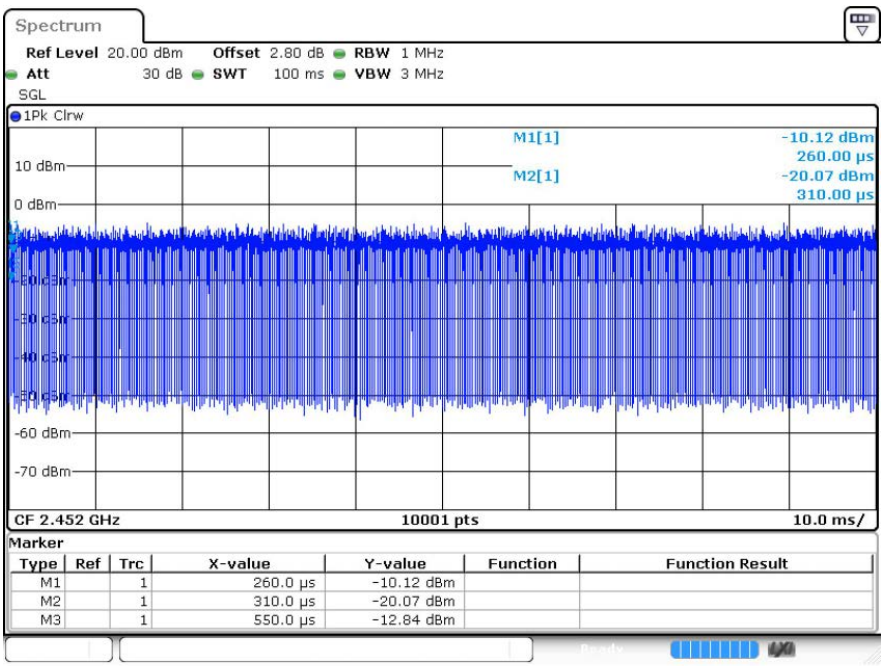


Test Graphs

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	12.5	30	Pass
b	2437	Ant1	12.48	30	Pass
b	2462	Ant1	12.46	30	Pass
g	2412	Ant1	12.18	30	Pass
g	2437	Ant1	11.97	30	Pass
g	2462	Ant1	12	30	Pass
n20	2412	Ant1	11.7	30	Pass
n20	2437	Ant1	11.51	30	Pass
n20	2462	Ant1	11.48	30	Pass
n40	2422	Ant1	11.46	30	Pass
n40	2437	Ant1	11.38	30	Pass
n40	2452	Ant1	11.44	30	Pass

3 -6dB Bandwidth

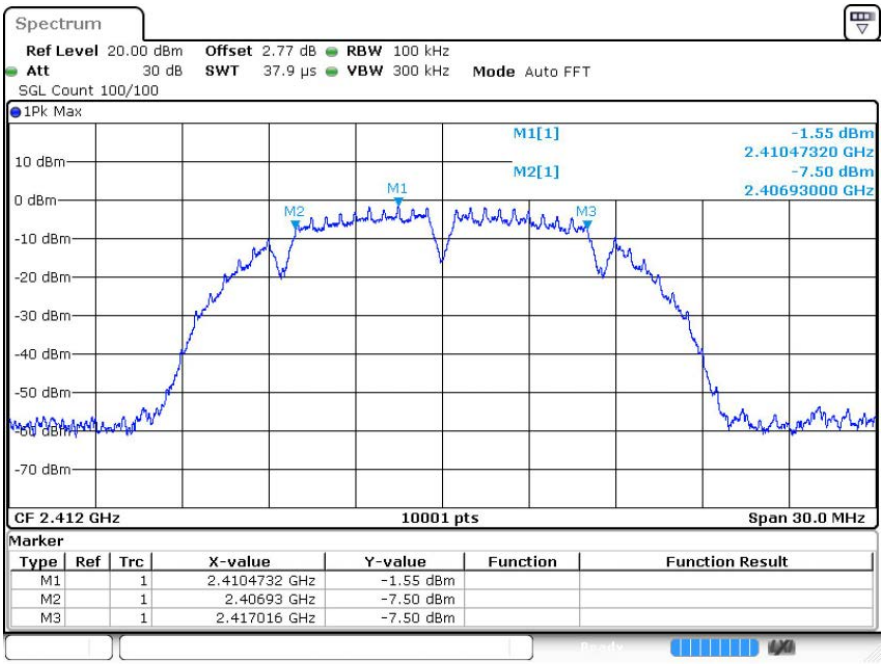
3.1 Test Result

Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
b	2412	Ant1	10.086	0.5	Pass
b	2437	Ant1	10.062	0.5	Pass
b	2462	Ant1	10.119	0.5	Pass
g	2412	Ant1	15.114	0.5	Pass
g	2437	Ant1	15.114	0.5	Pass
g	2462	Ant1	15.108	0.5	Pass
n20	2412	Ant1	15.102	0.5	Pass
n20	2437	Ant1	15.114	0.5	Pass
n20	2462	Ant1	15.114	0.5	Pass
n40	2422	Ant1	35.082	0.5	Pass
n40	2437	Ant1	35.082	0.5	Pass
n40	2452	Ant1	35.082	0.5	Pass

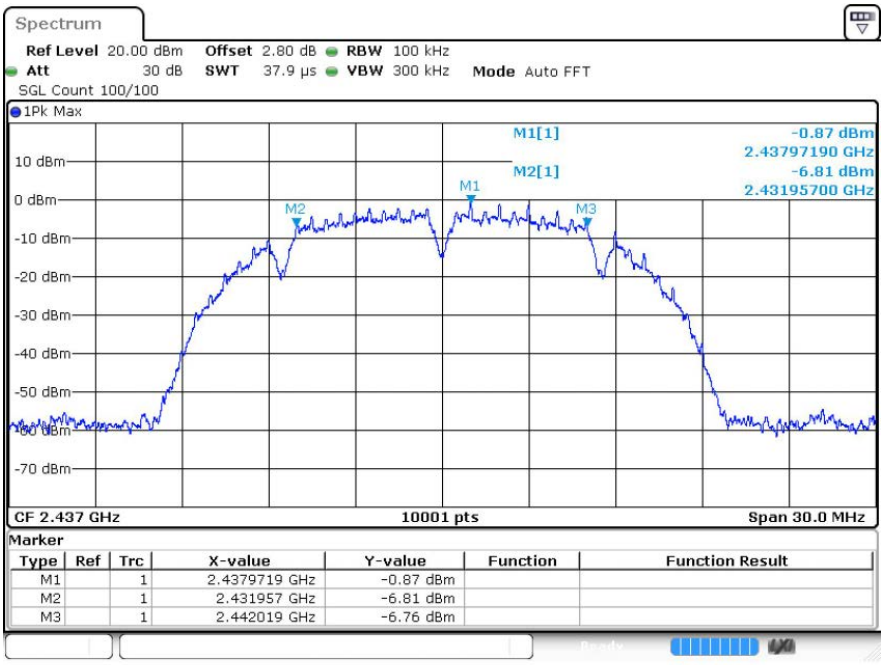
3.2 Test Graphs

Test Graphs

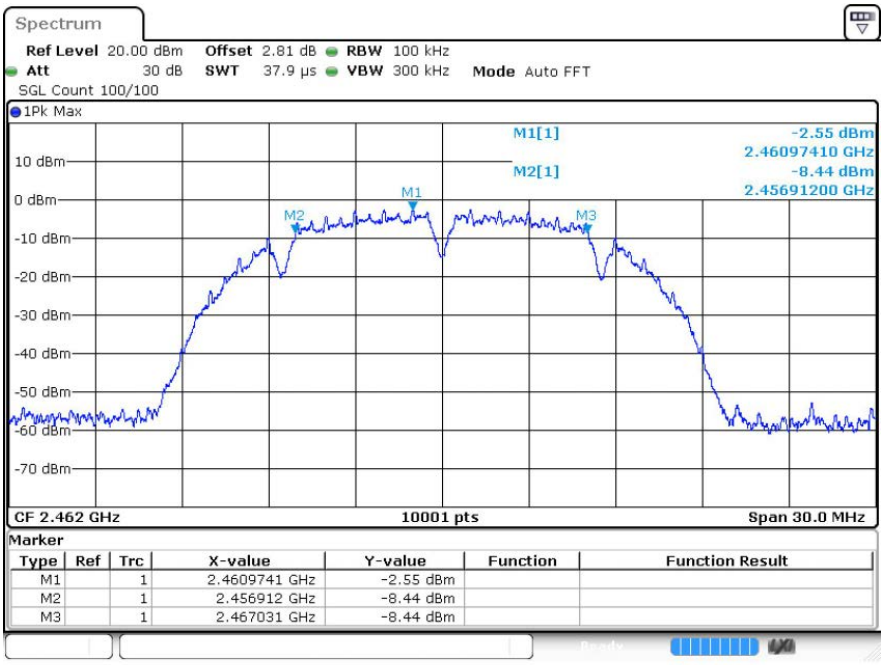
b 2412MHz Ant1



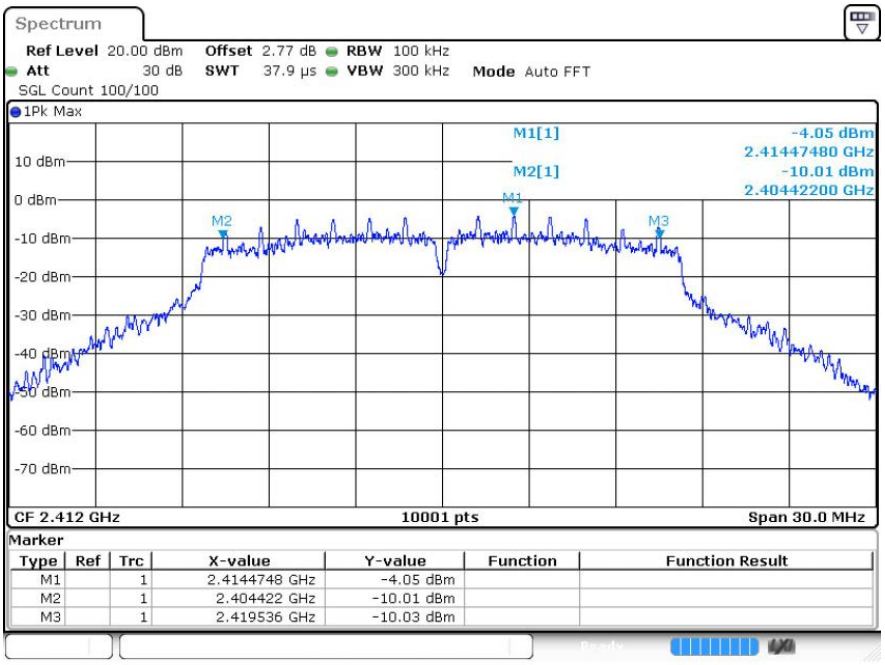
b 2437MHz Ant1



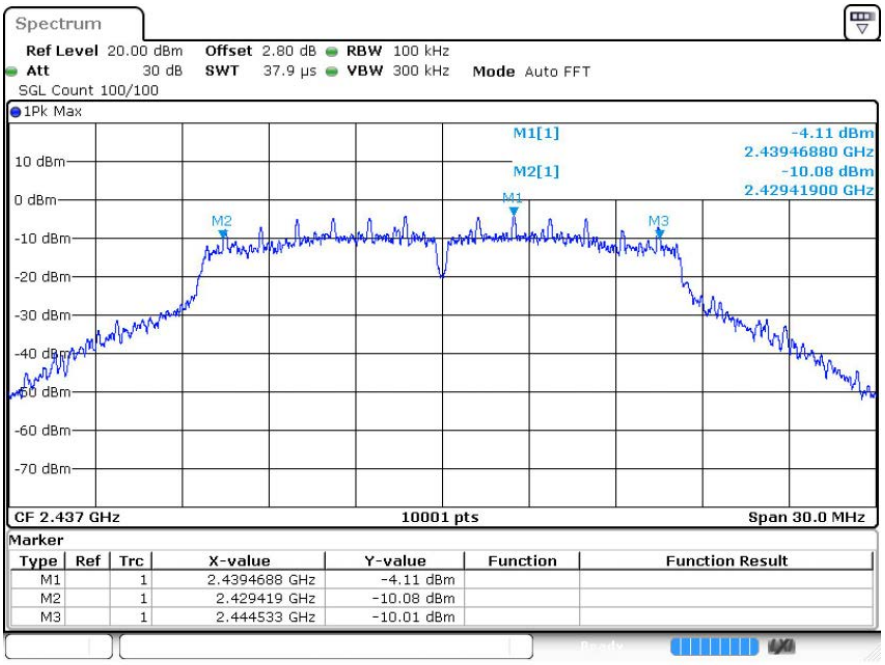
b 2462MHz Ant1



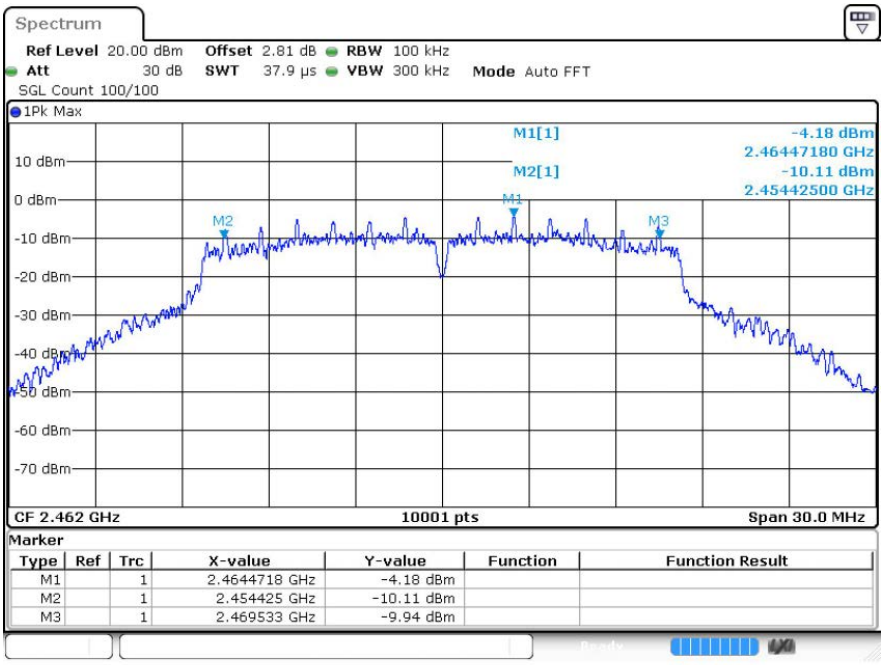
g 2412MHz Ant1



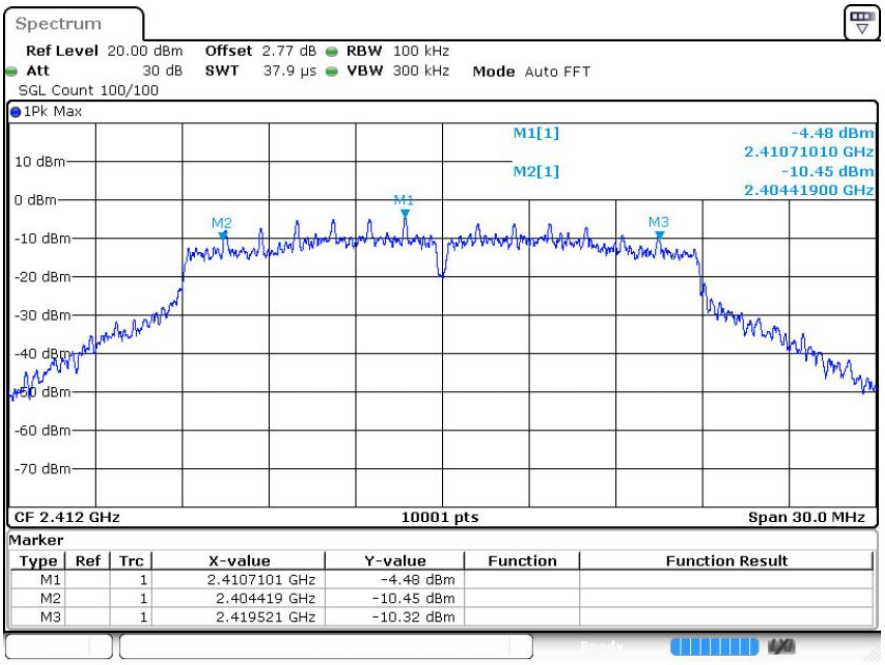
g 2437MHz Ant1



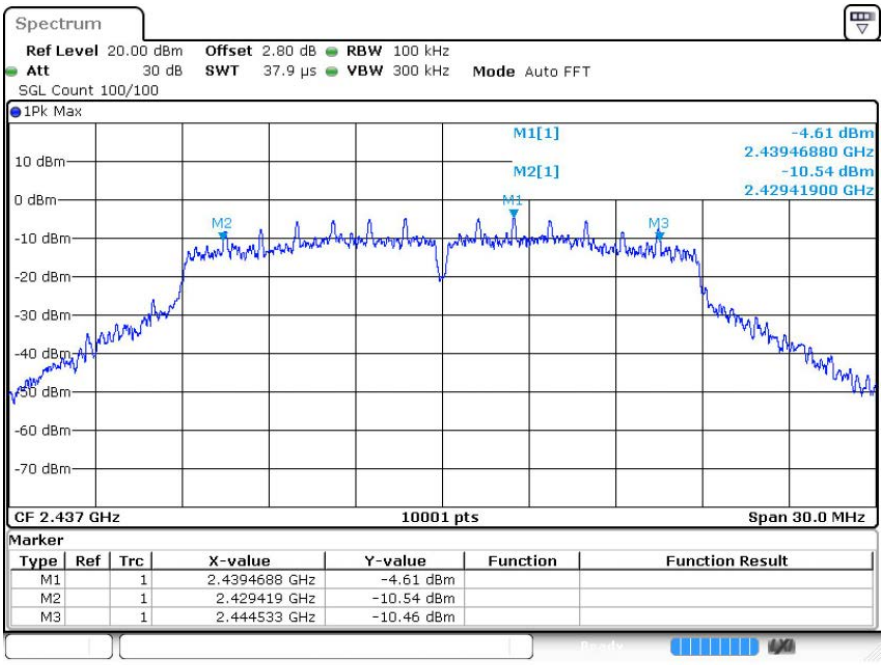
g 2462MHz Ant1



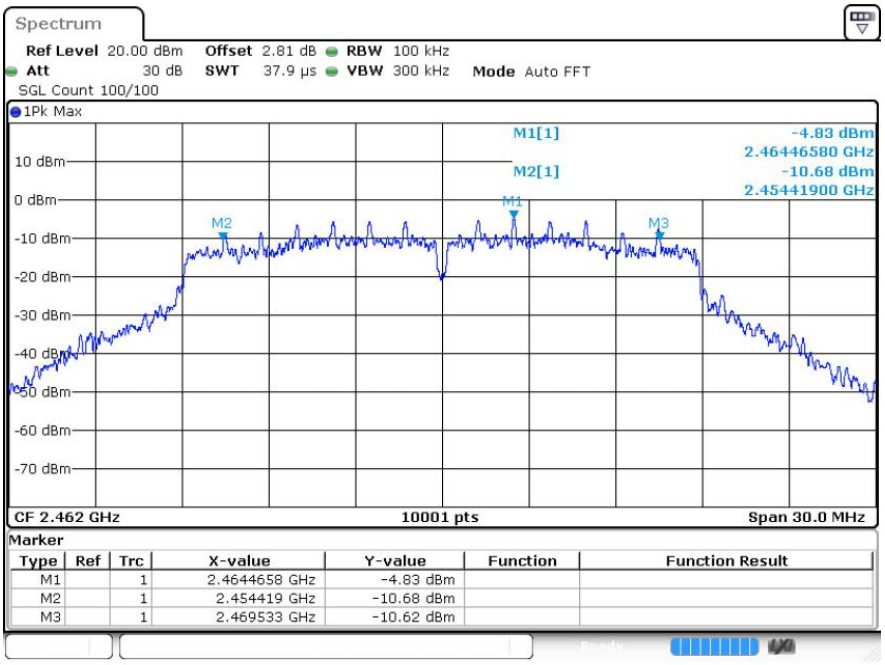
n20 2412MHz Ant1



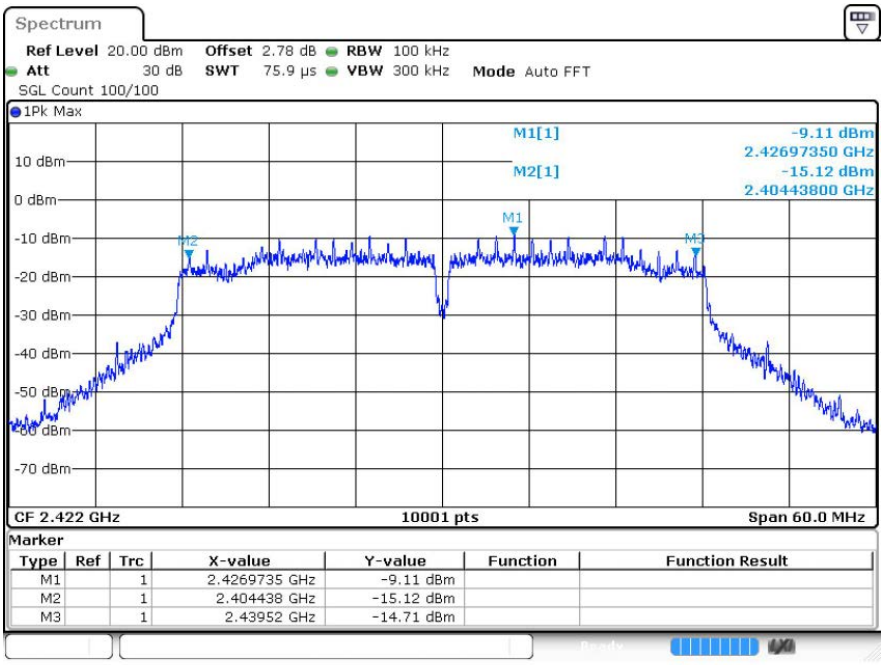
n20 2437MHz Ant1



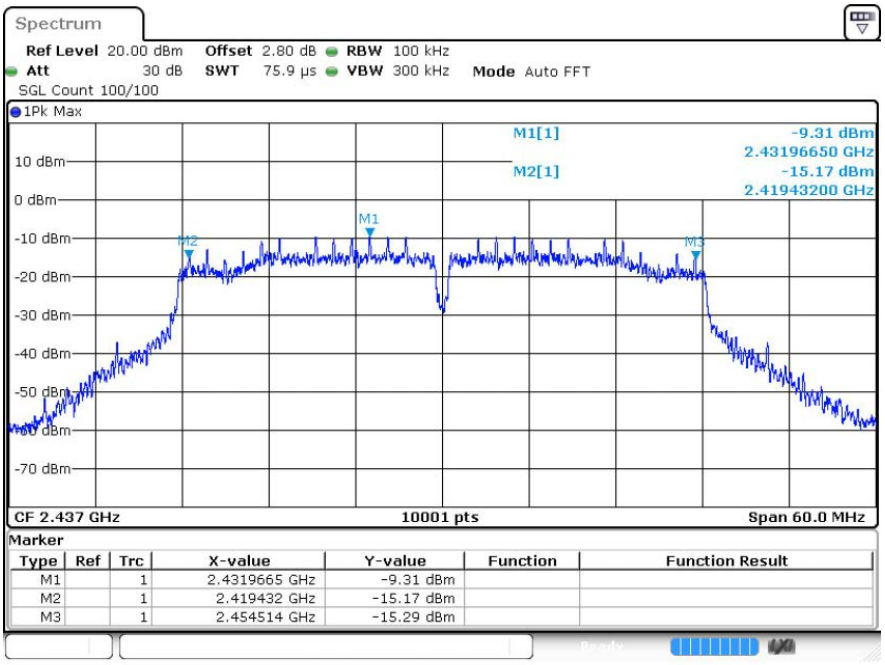
n20 2462MHz Ant1



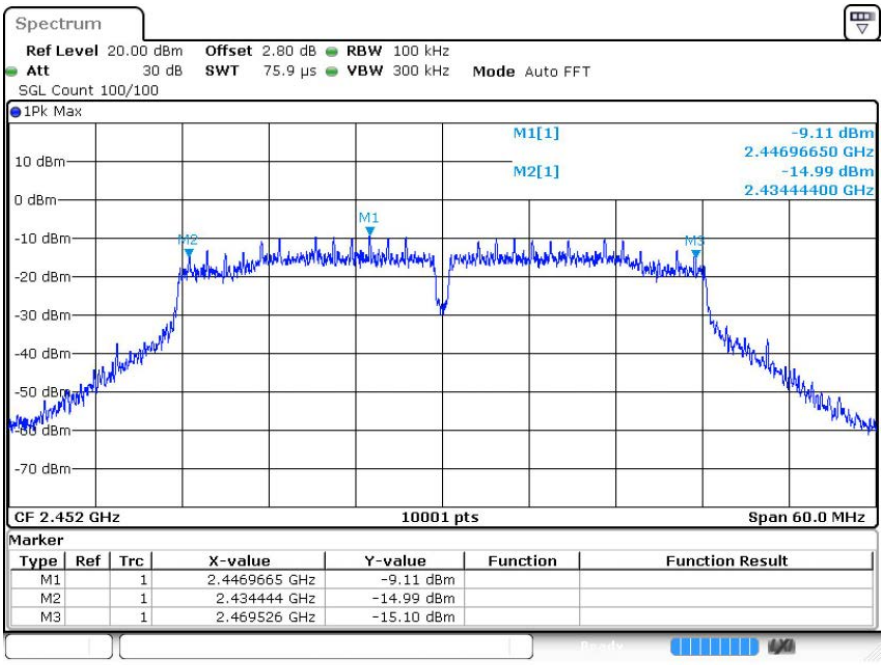
n40 2422MHz Ant1



n40 2437MHz Ant1



n40 2452MHz Ant1

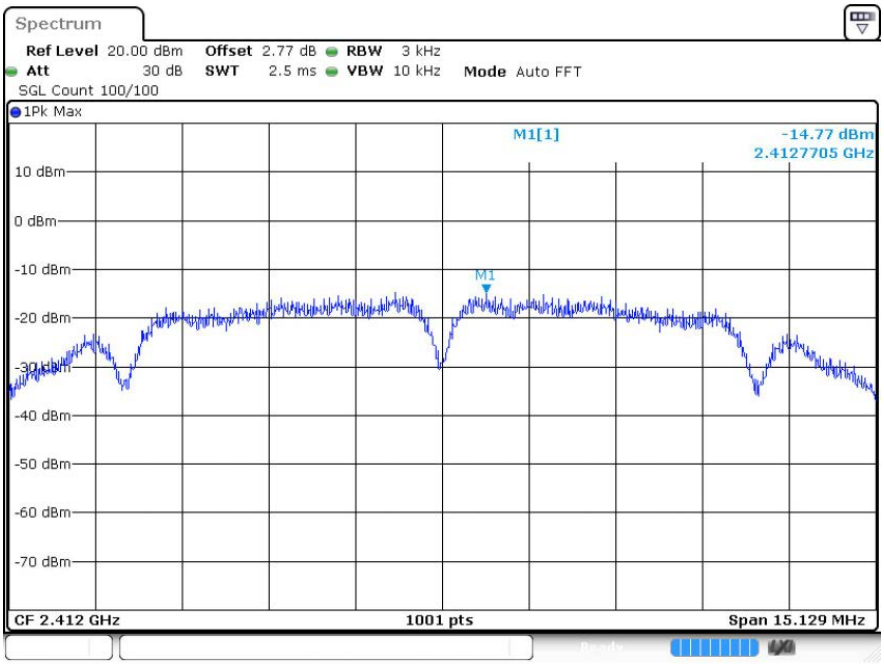
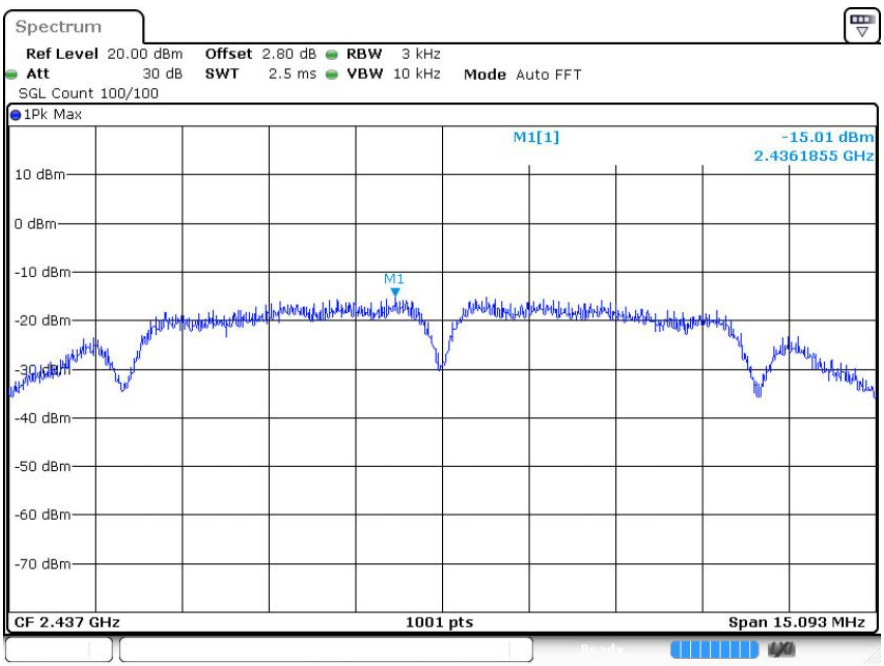


4 Maximum Power Spectral Density Level

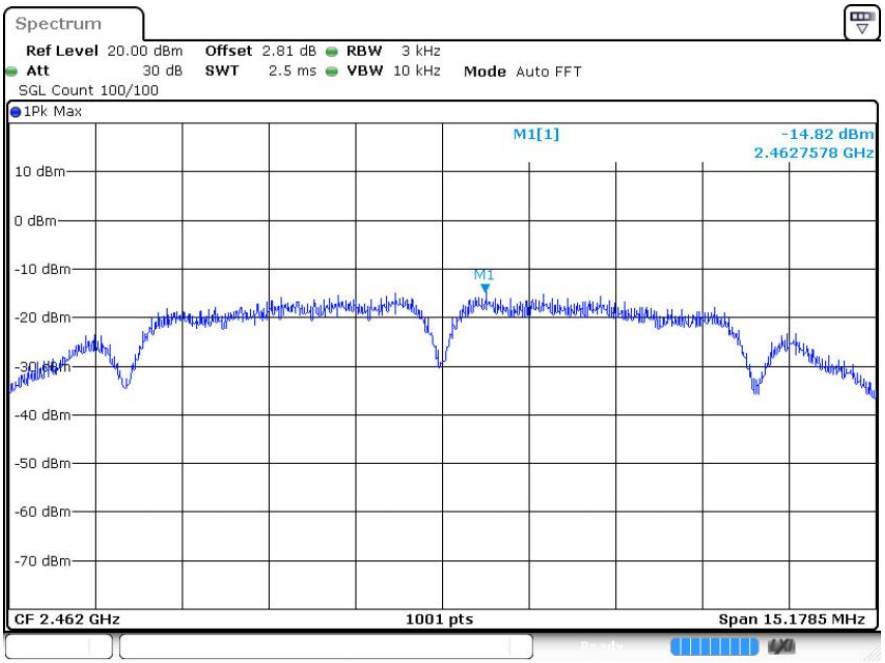
4.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3-100kHz)	Limit (dBm/3kHz)	Verdict
b	2412	Ant1	-14.77	≤8	Pass
b	2437	Ant1	-15.01	≤8	Pass
b	2462	Ant1	-14.82	≤8	Pass
g	2412	Ant1	-18.49	≤8	Pass
g	2437	Ant1	-19.61	≤8	Pass
g	2462	Ant1	-18.53	≤8	Pass
n20	2412	Ant1	-19.22	≤8	Pass
n20	2437	Ant1	-18.38	≤8	Pass
n20	2462	Ant1	-18.94	≤8	Pass
n40	2422	Ant1	-23.47	≤8	Pass
n40	2437	Ant1	-23.38	≤8	Pass
n40	2452	Ant1	-23.37	≤8	Pass

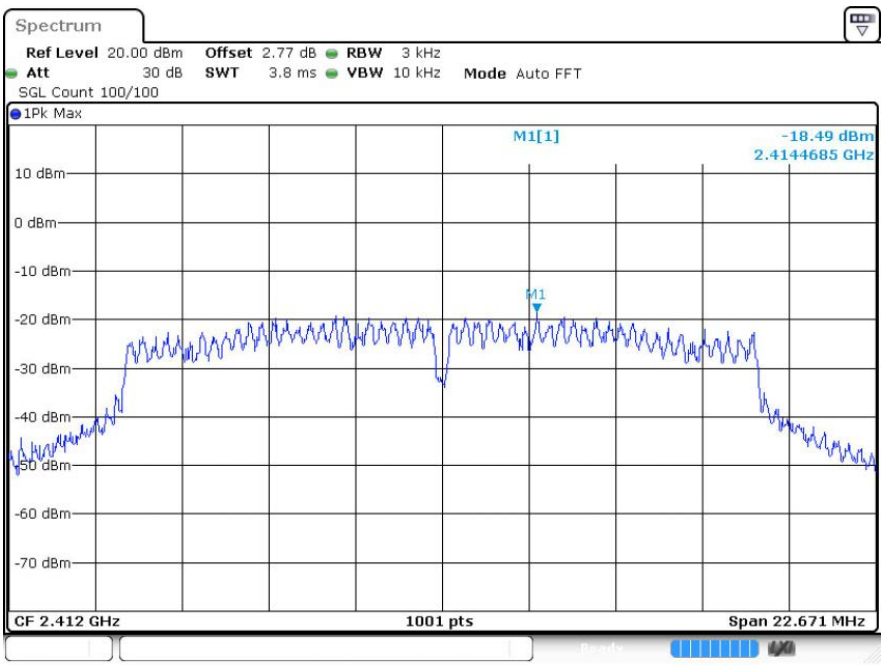
4.2 Test Graphs

Test Graphs
b 2412MHz Ant1

b 2437MHz Ant1


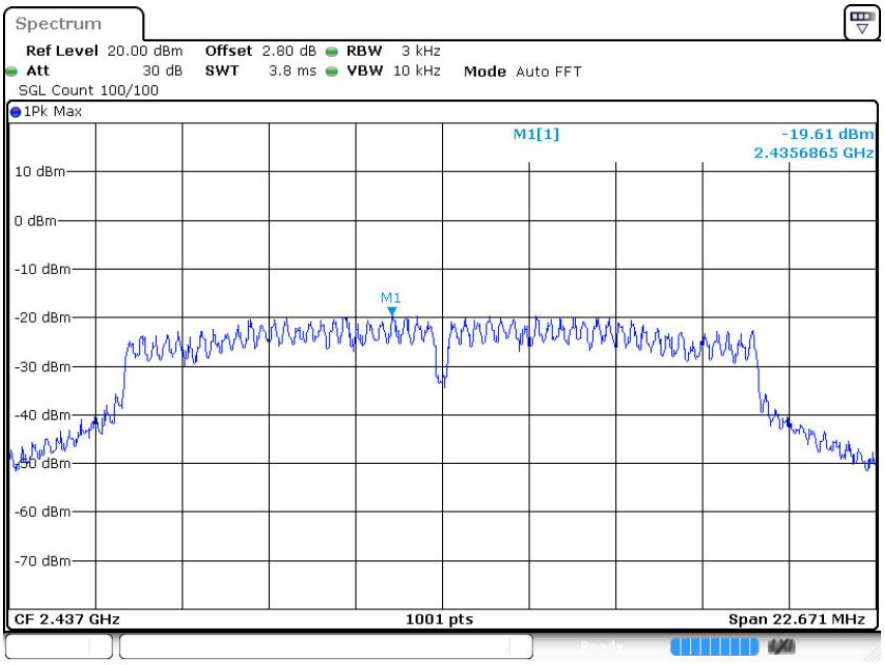
b 2462MHz Ant1



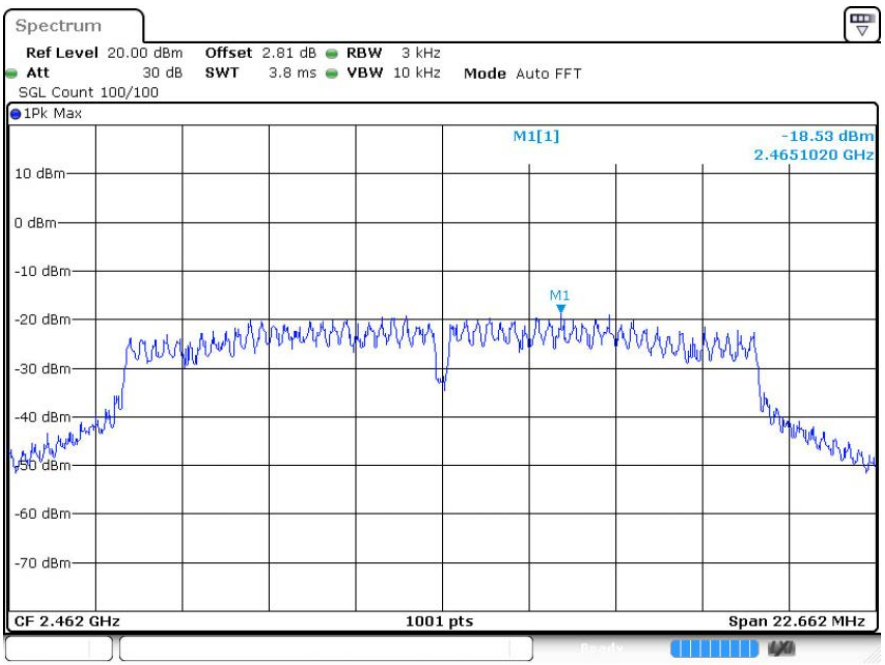
g 2412MHz Ant1



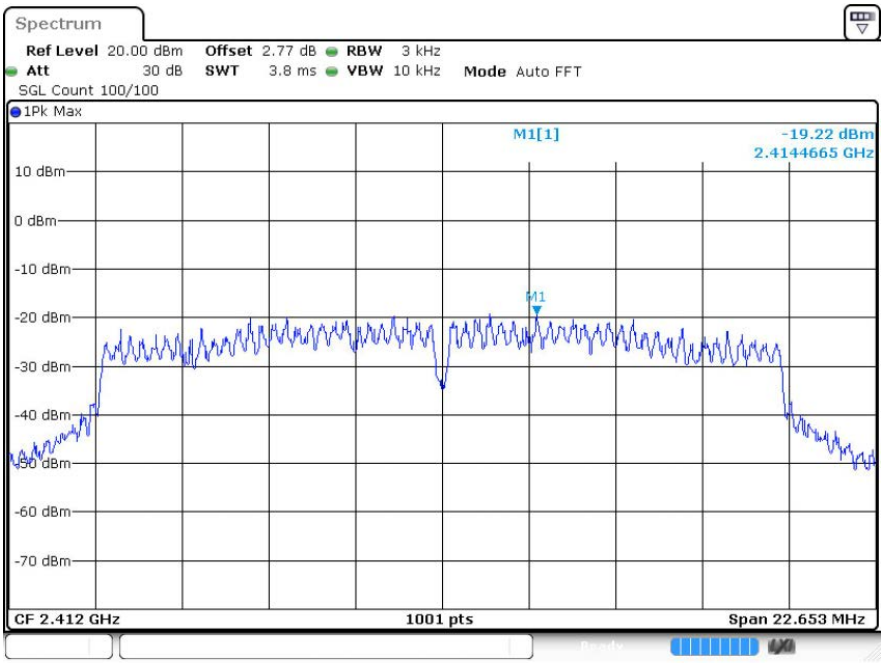
g 2437MHz Ant1



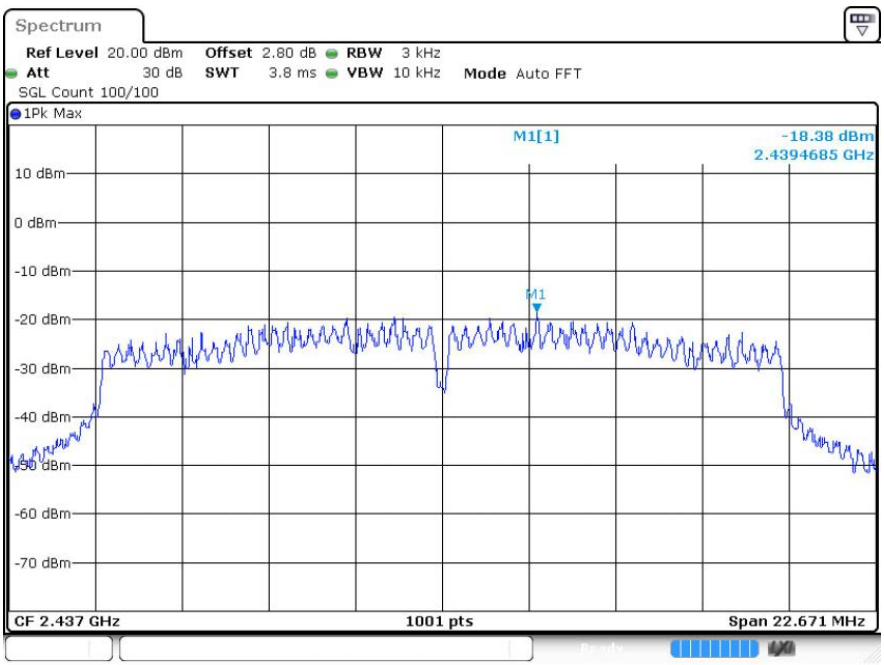
g 2462MHz Ant1



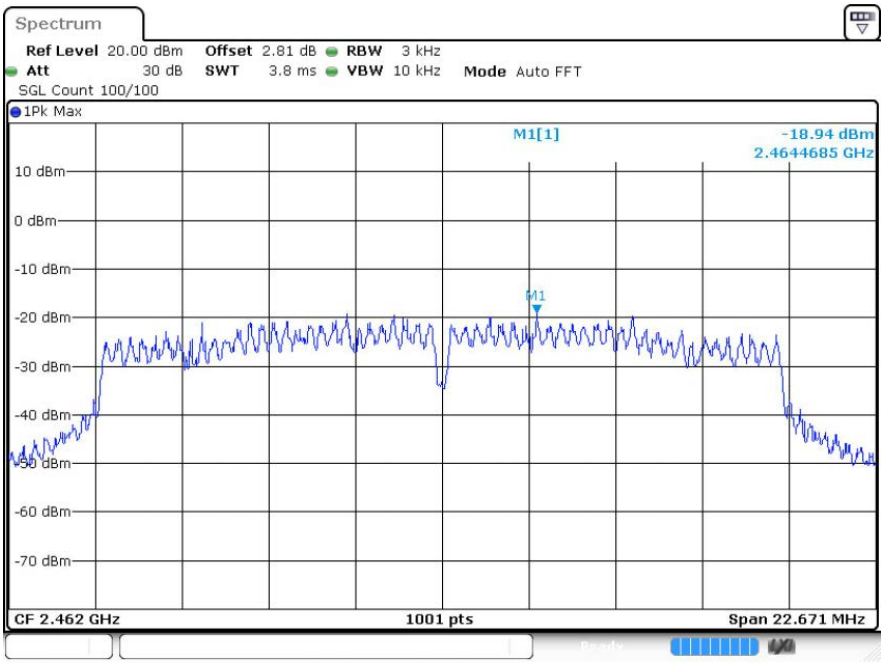
n20 2412MHz Ant1



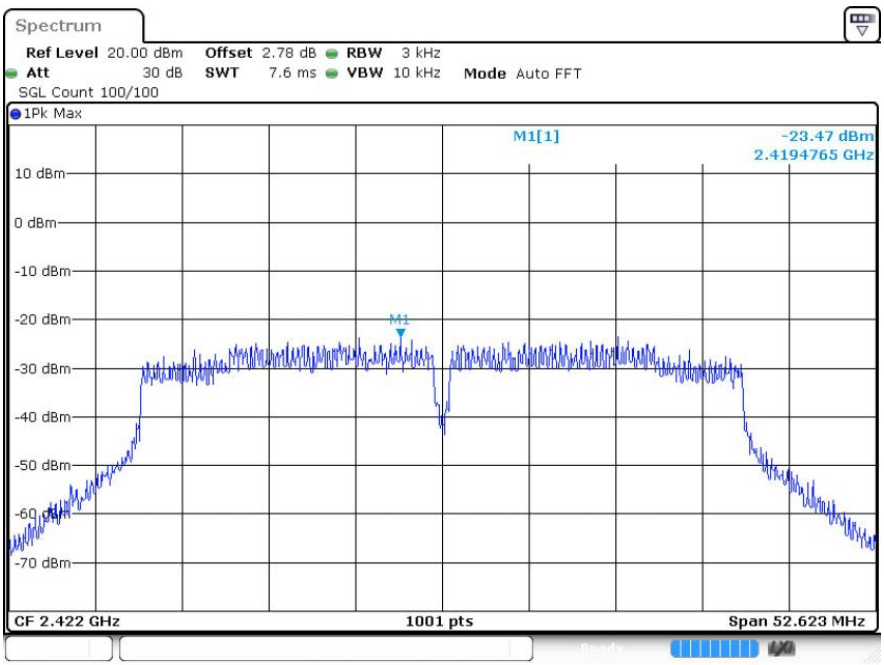
n20 2437MHz Ant1



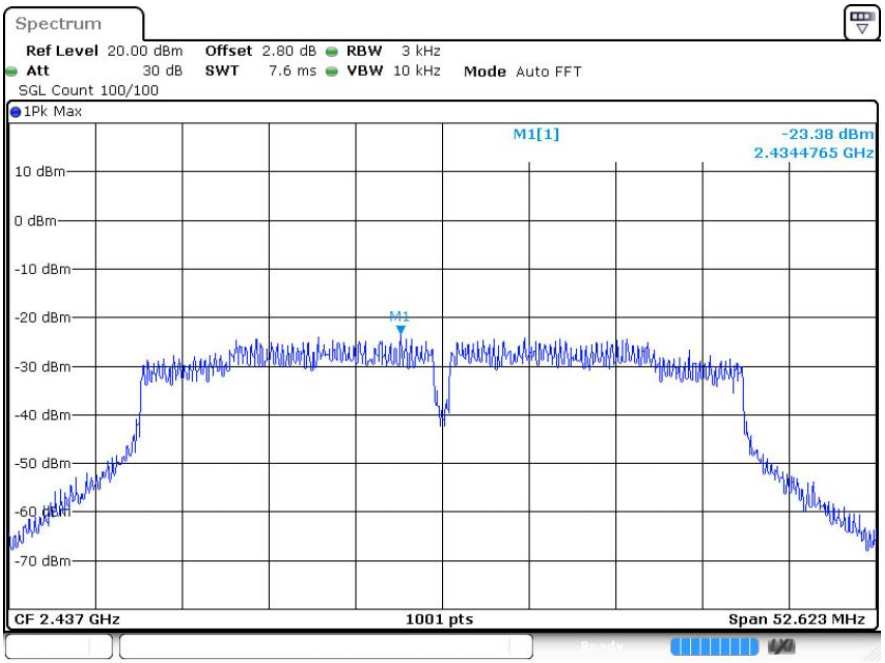
n20 2462MHz Ant1



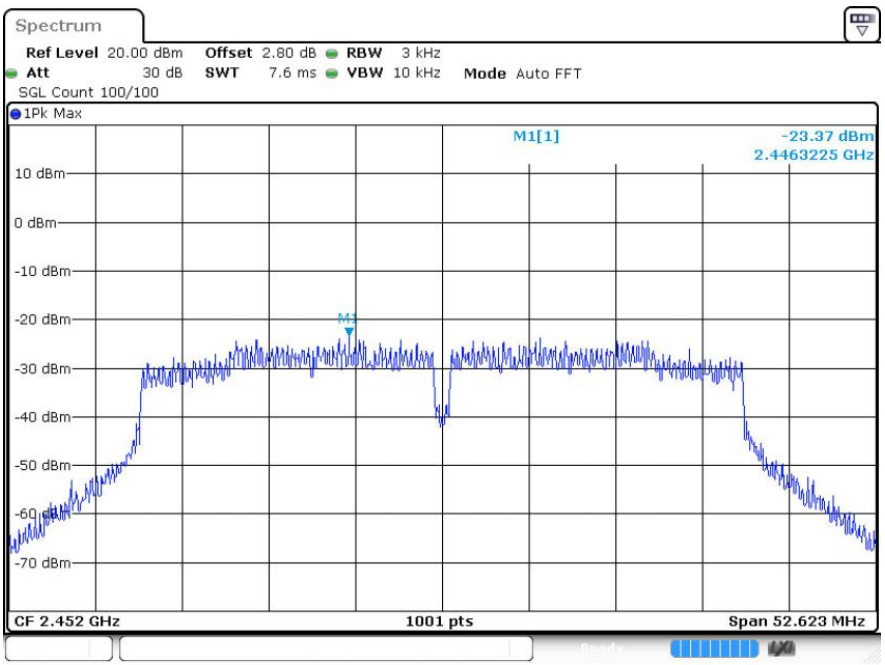
n40 2422MHz Ant1



n40 2437MHz Ant1



n40 2452MHz Ant1



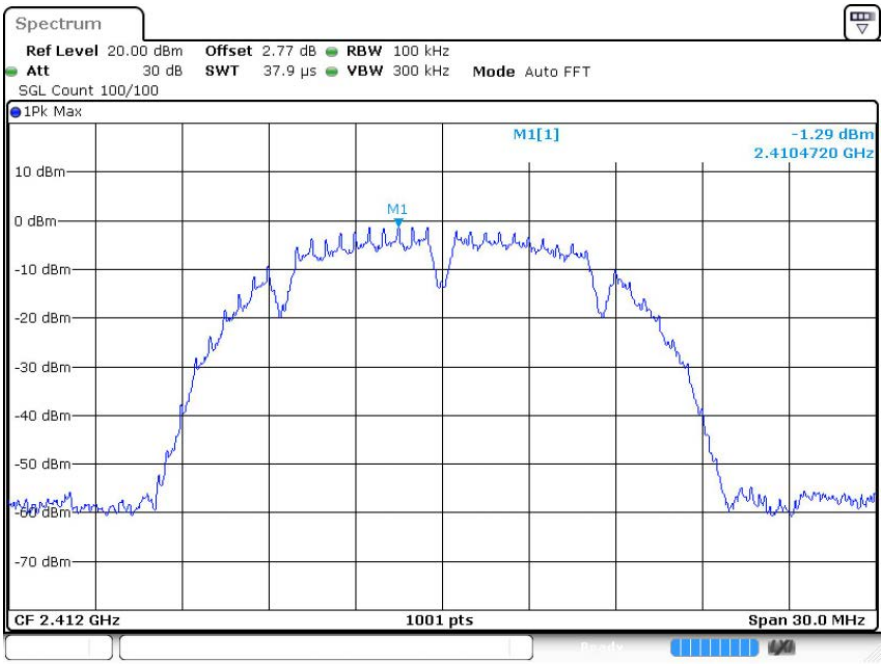
5 Band Edge

5.1 Test Result

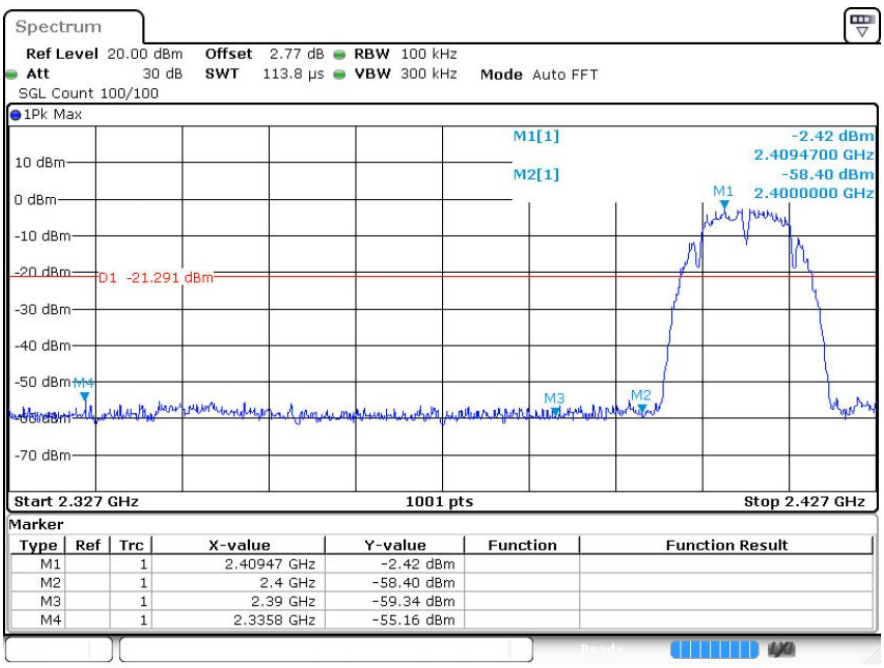
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-53.86	-20	Pass
b	2462	Ant1	-54.22	-20	Pass
g	2412	Ant1	-51.3	-20	Pass
g	2462	Ant1	-52.7	-20	Pass
n20	2412	Ant1	-50.24	-20	Pass
n20	2462	Ant1	-50.47	-20	Pass
n40	2422	Ant1	-47.01	-20	Pass
n40	2452	Ant1	-46.71	-20	Pass

5.2 Test Graphs

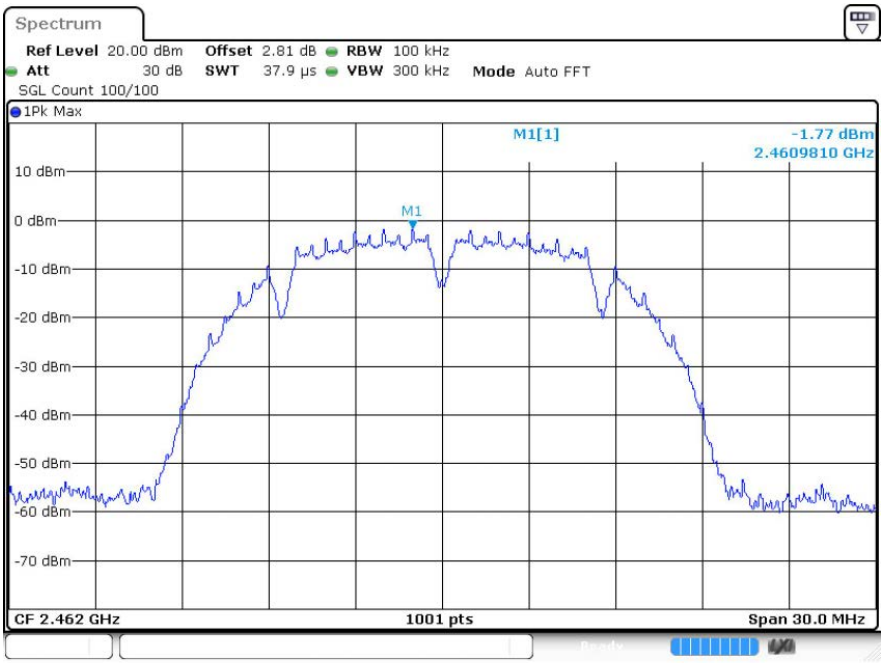
Test Graphs
b 2412MHz Ant1 Ref



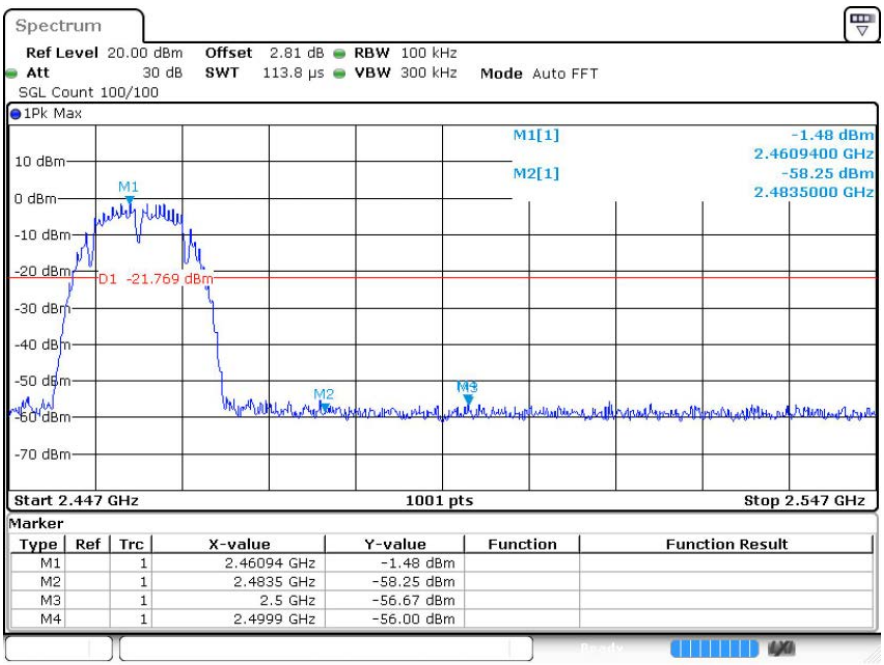
b 2412MHz Ant1 Emission



b 2462MHz Ant1 Ref



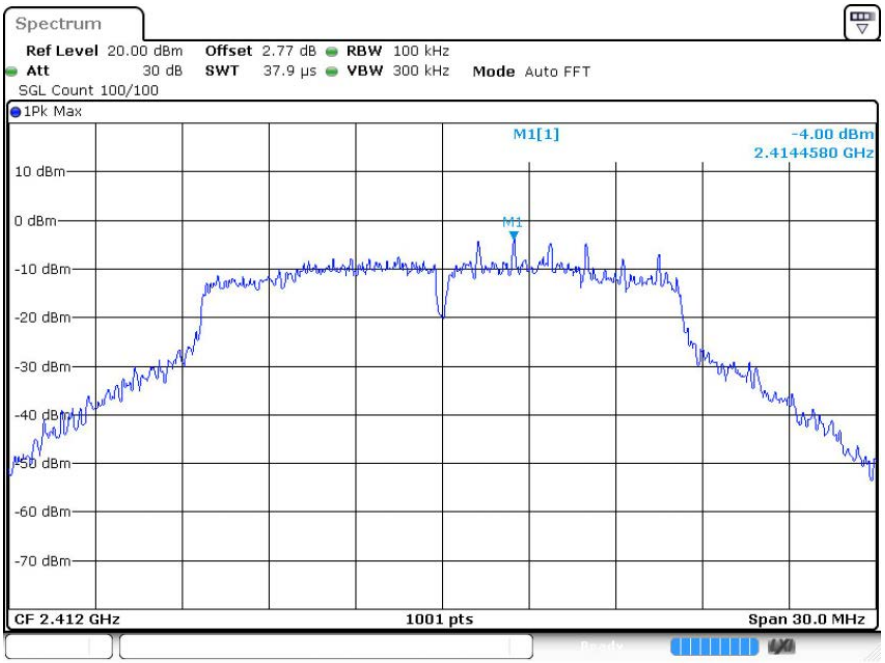
b 2462MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46094 GHz	-1.48 dBm		
M2		1	2.4835 GHz	-58.25 dBm		
M3		1	2.5 GHz	-56.67 dBm		
M4		1	2.4999 GHz	-56.00 dBm		

g 2412MHz Ant1 Ref

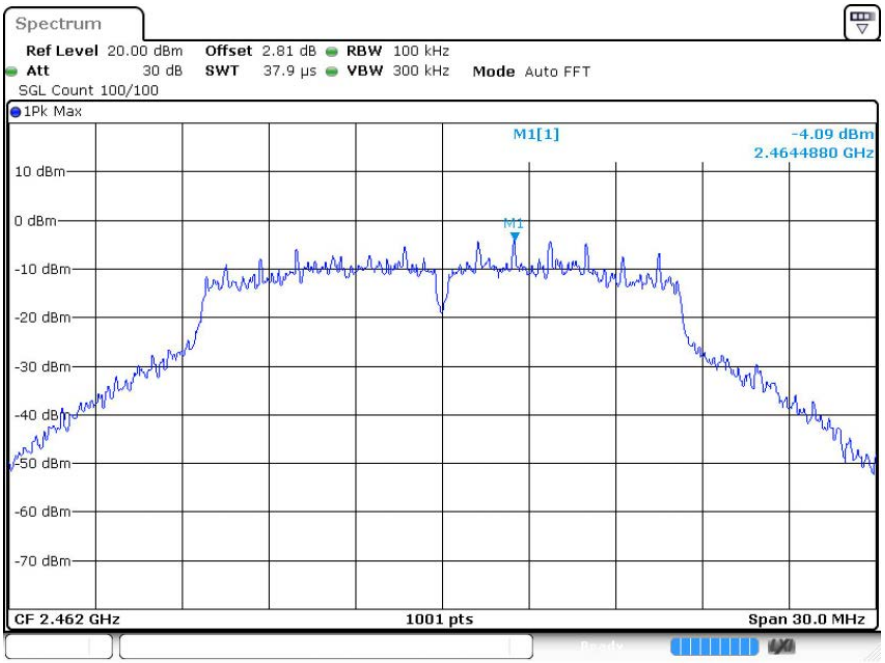


g 2412MHz Ant1 Emission

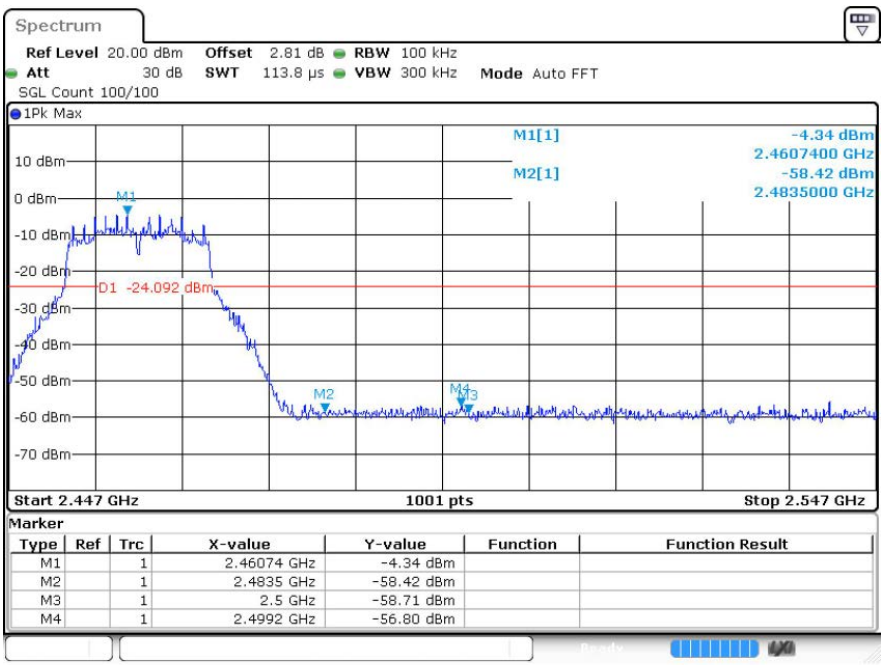
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40697 GHz	-4.91 dBm		
M2		1	2.4 GHz	-36.64 dBm		
M3		1	2.39 GHz	-59.46 dBm		
M4		1	2.345 GHz	-55.31 dBm		

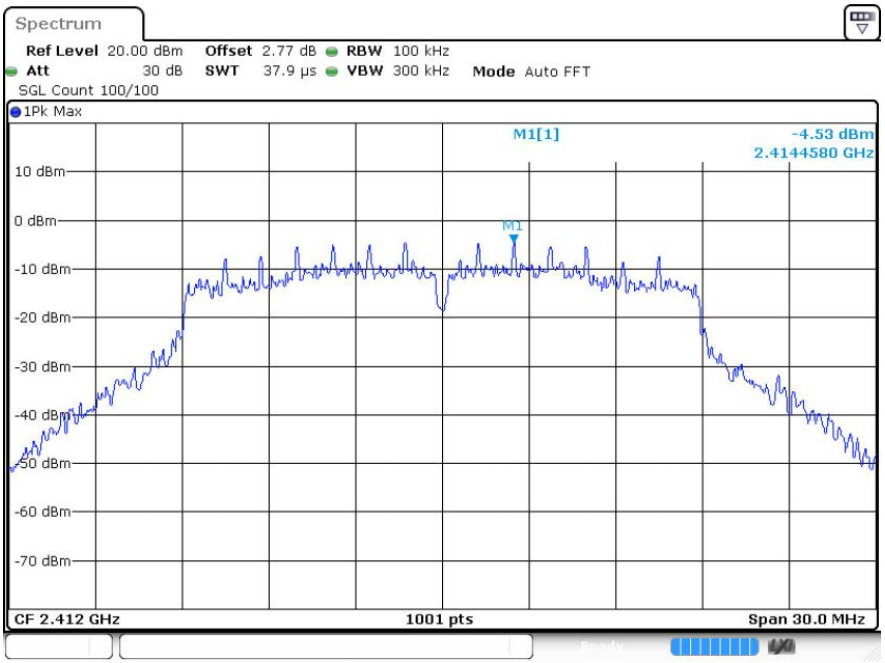
g 2462MHz Ant1 Ref



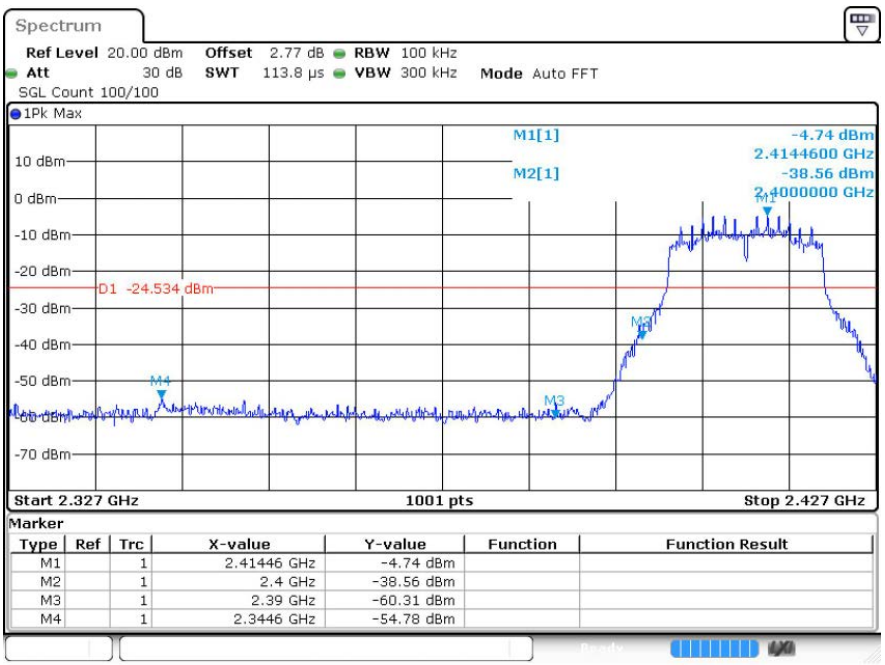
g 2462MHz Ant1 Emission



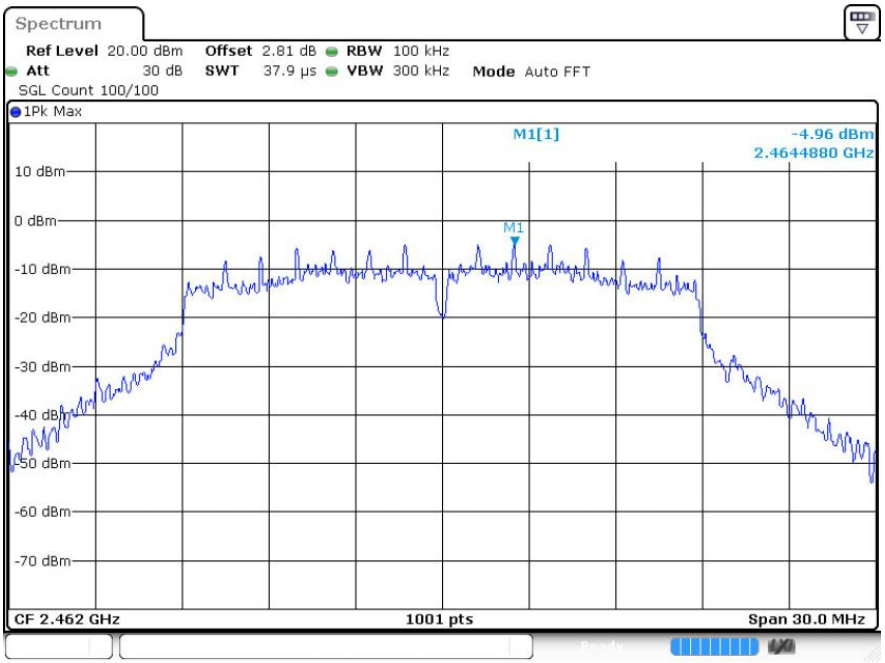
n20 2412MHz Ant1 Ref



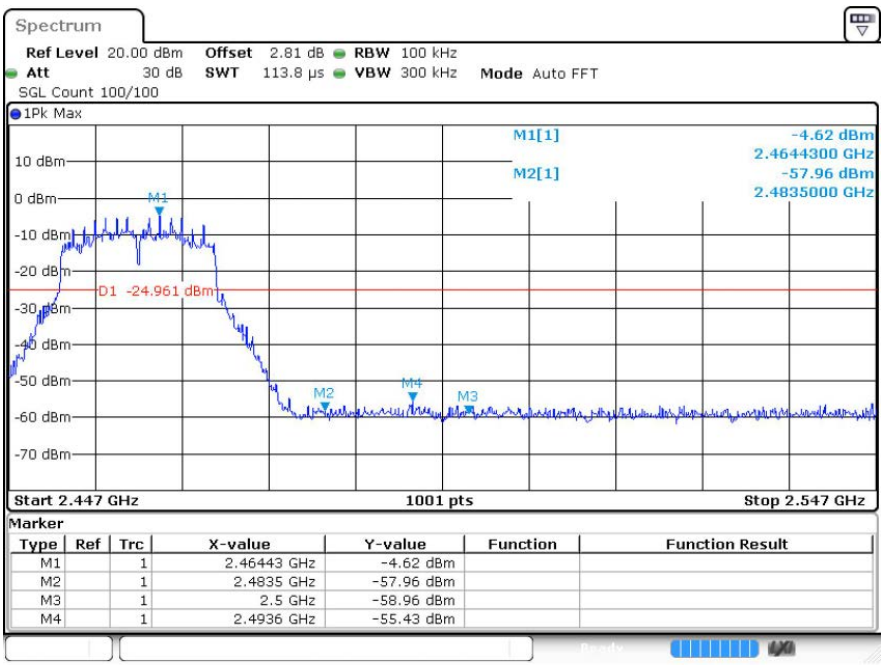
n20 2412MHz Ant1 Emission



n20 2462MHz Ant1 Ref



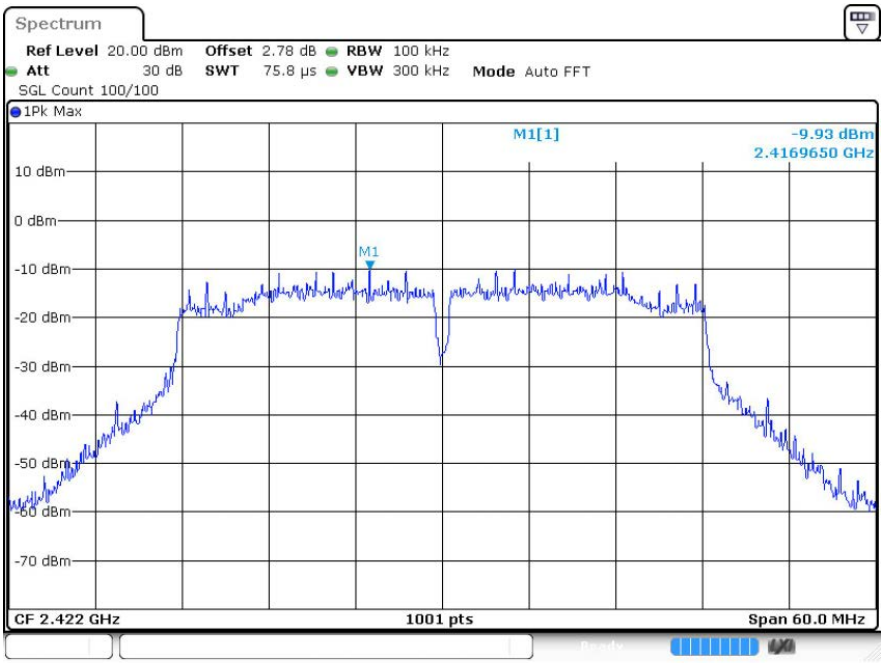
n20 2462MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46443 GHz	-4.62 dBm		
M2		1	2.4835 GHz	-57.96 dBm		
M3		1	2.5 GHz	-58.96 dBm		
M4		1	2.4936 GHz	-55.43 dBm		

n40 2422MHz Ant1 Ref

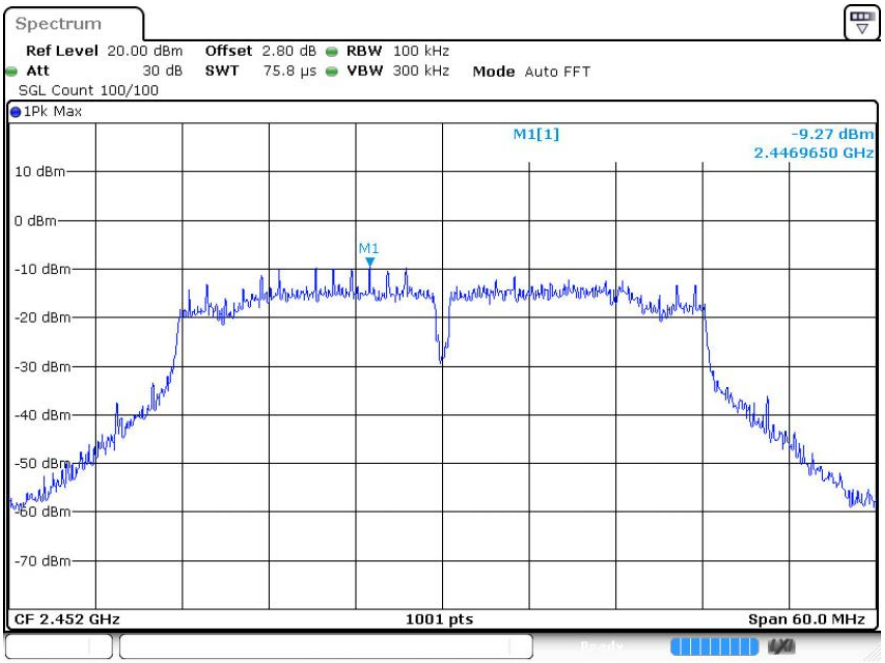


n40 2422MHz Ant1 Emission

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41699 GHz	-9.02 dBm		
M2		1	2.4 GHz	-43.84 dBm		
M3		1	2.39 GHz	-58.72 dBm		
M4		1	2.3623 GHz	-56.95 dBm		

n40 2452MHz Ant1 Ref



n40 2452MHz Ant1 Emission

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.44693 GHz	-9.28 dBm		
M2		1	2.4835 GHz	-58.28 dBm		
M3		1	2.5 GHz	-58.26 dBm		
M4		1	2.4949 GHz	-55.99 dBm		

6 Conducted RF Spurious Emission

6.1 Test Result

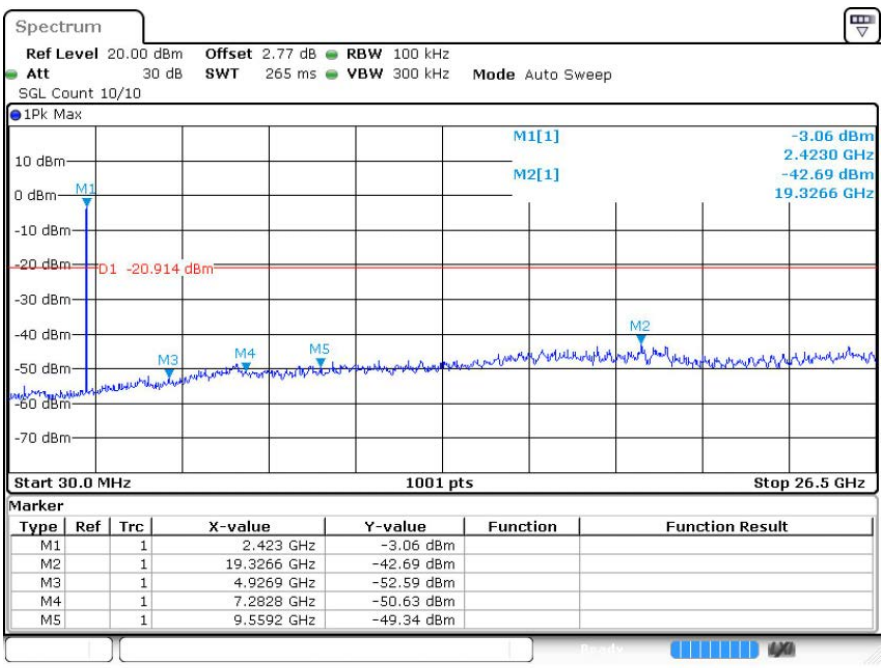
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-41.77	-20	Pass
b	2437	Ant1	-41.08	-20	Pass
b	2462	Ant1	-42.36	-20	Pass
g	2412	Ant1	-38.11	-20	Pass
g	2437	Ant1	-39.11	-20	Pass
g	2462	Ant1	-37.57	-20	Pass
n20	2412	Ant1	-38.68	-20	Pass
n20	2437	Ant1	-39.31	-20	Pass
n20	2462	Ant1	-38.68	-20	Pass
n40	2422	Ant1	-33.9	-20	Pass
n40	2437	Ant1	-33.39	-20	Pass
n40	2452	Ant1	-34.51	-20	Pass

6.2 Test Graphs

Test Graphs

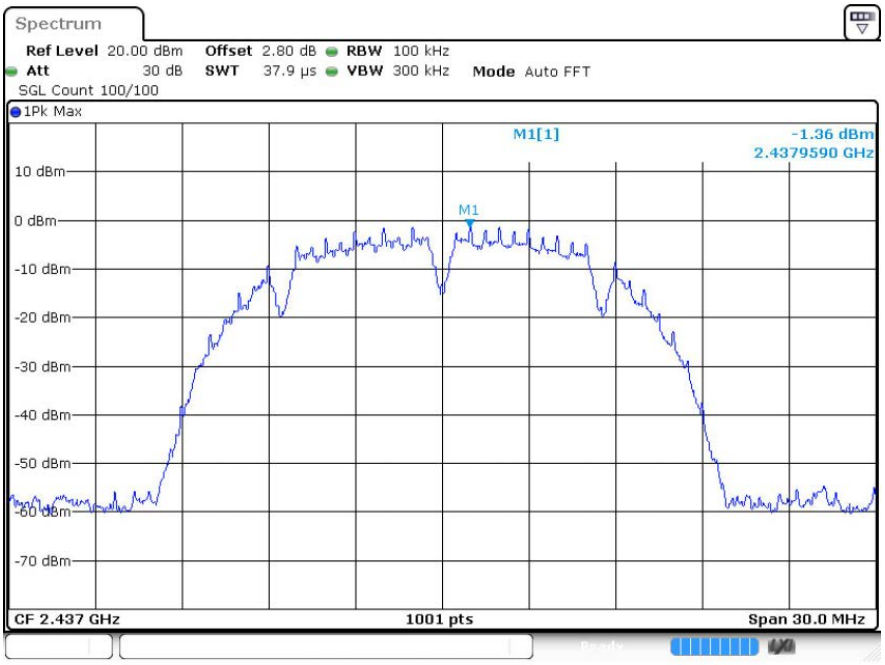
b 2412MHz Ant1 Ref

b 2412MHz Ant1 Emission

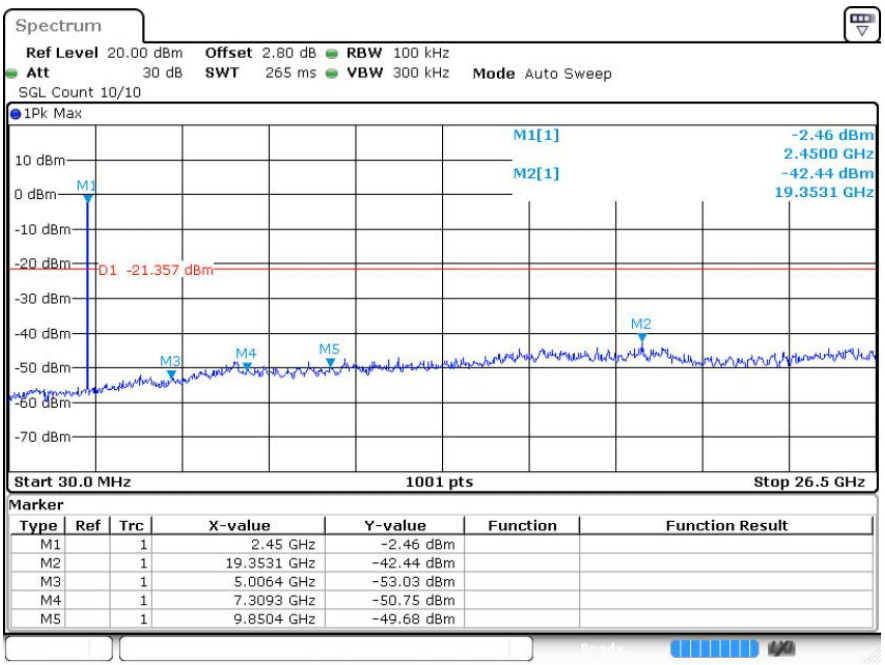


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.423 GHz	-3.06 dBm		
M2		1	19.3266 GHz	-42.69 dBm		
M3		1	4.9269 GHz	-52.59 dBm		
M4		1	7.2828 GHz	-50.63 dBm		
M5		1	9.5592 GHz	-49.34 dBm		

b 2437MHz Ant1 Ref



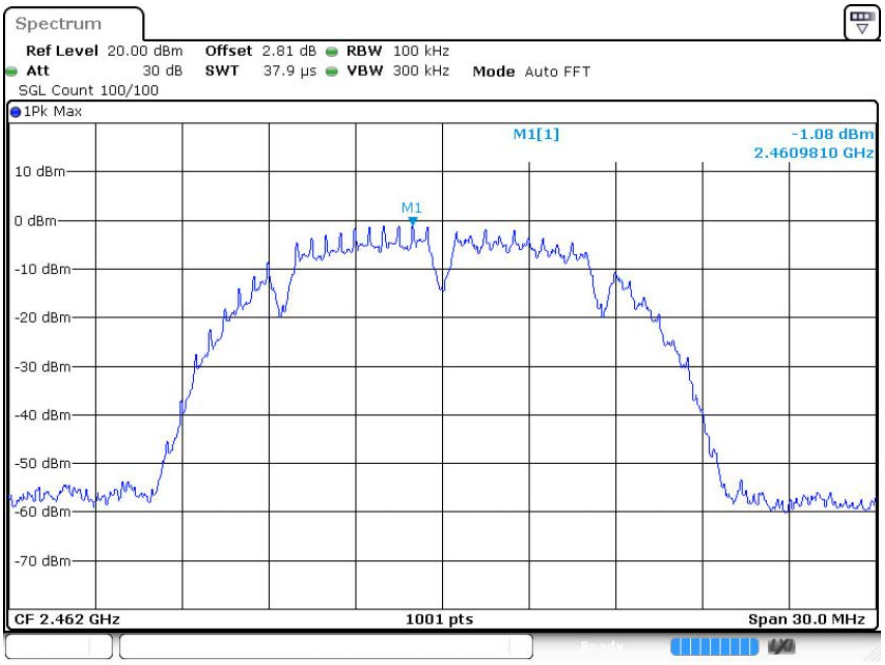
b 2437MHz Ant1 Emission



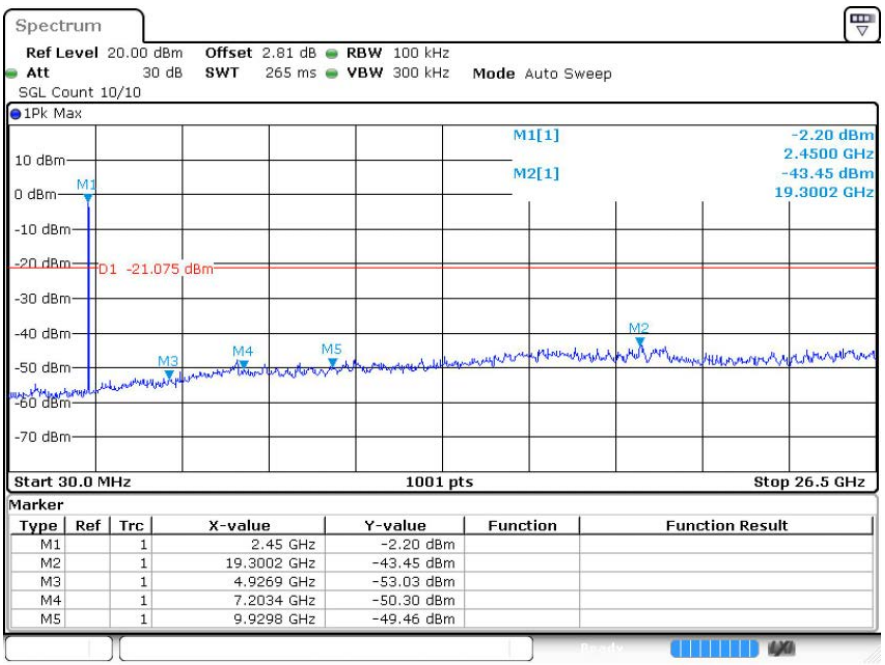
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-2.46 dBm		
M2		1	19.3531 GHz	-42.44 dBm		
M3		1	5.0064 GHz	-53.03 dBm		
M4		1	7.3093 GHz	-50.75 dBm		
M5		1	9.8504 GHz	-49.68 dBm		

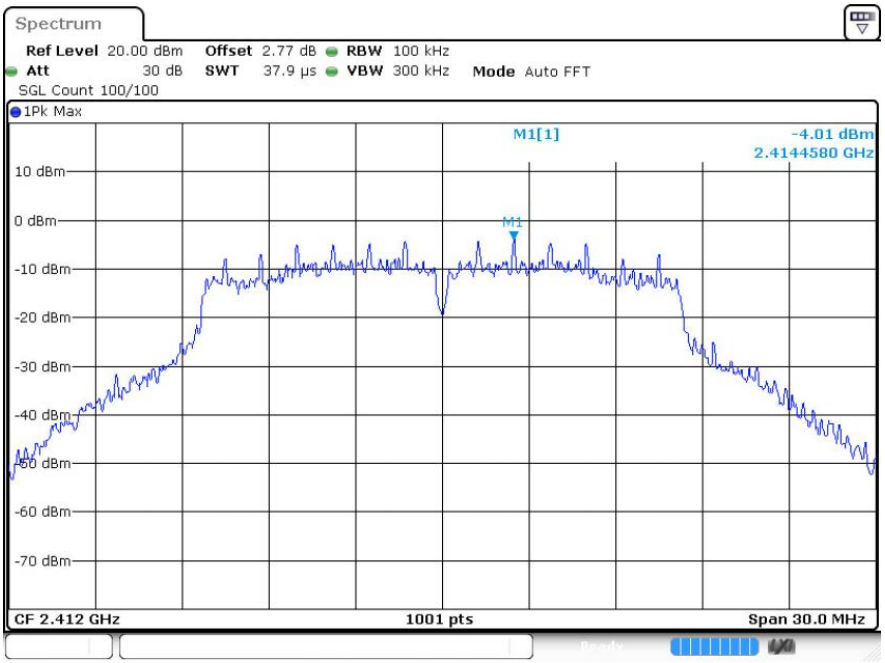
b 2462MHz Ant1 Ref



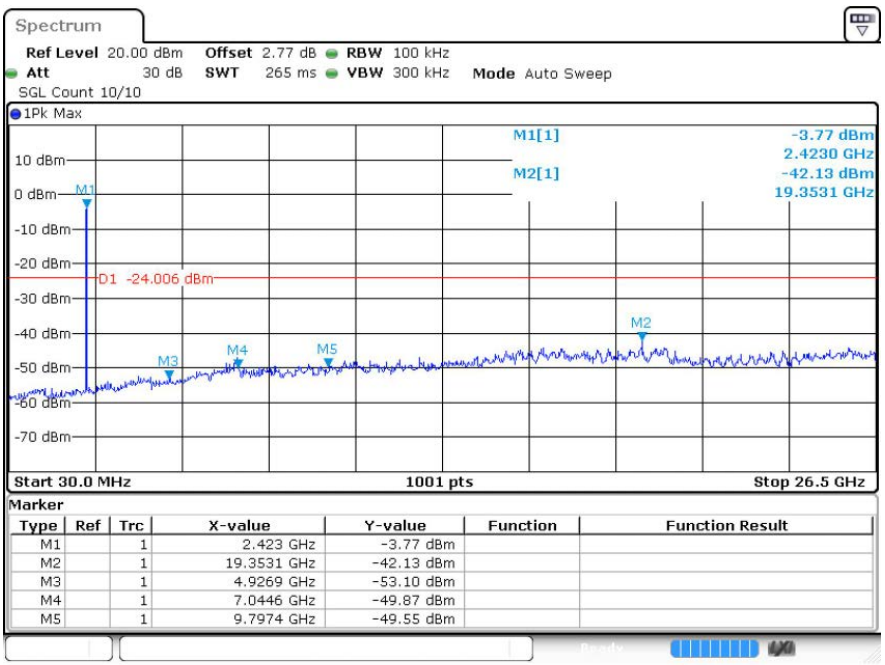
b 2462MHz Ant1 Emission



g 2412MHz Ant1 Ref



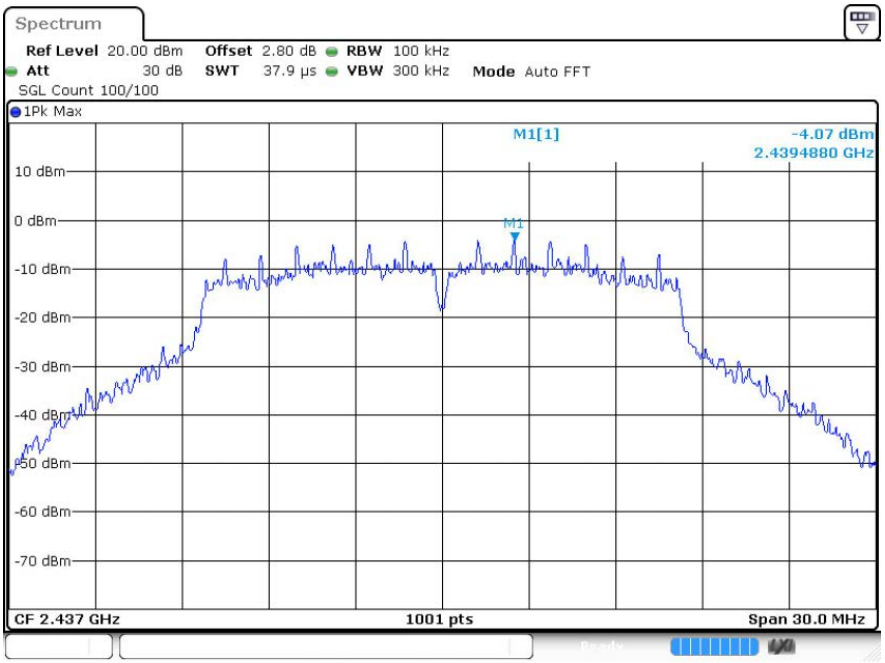
g 2412MHz Ant1 Emission



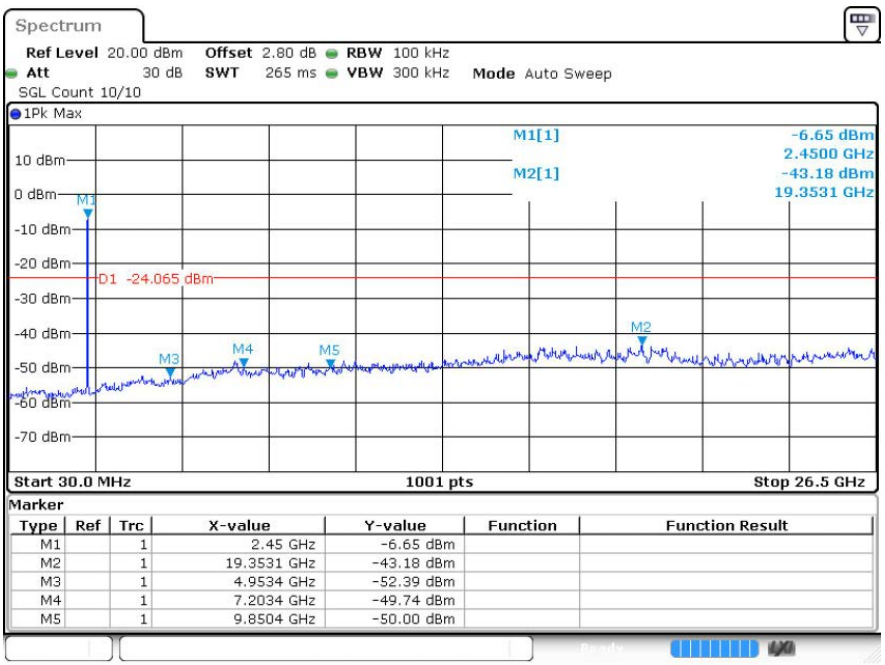
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.423 GHz	-3.77 dBm		
M2		1	19.3531 GHz	-42.13 dBm		
M3		1	4.9269 GHz	-53.10 dBm		
M4		1	7.0446 GHz	-49.87 dBm		
M5		1	9.7974 GHz	-49.55 dBm		

g 2437MHz Ant1 Ref



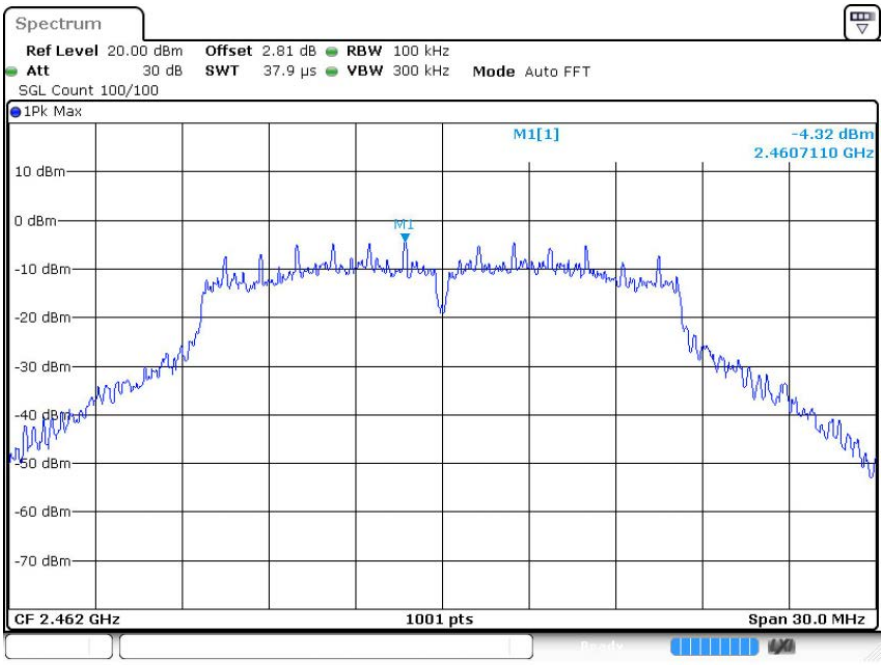
g 2437MHz Ant1 Emission



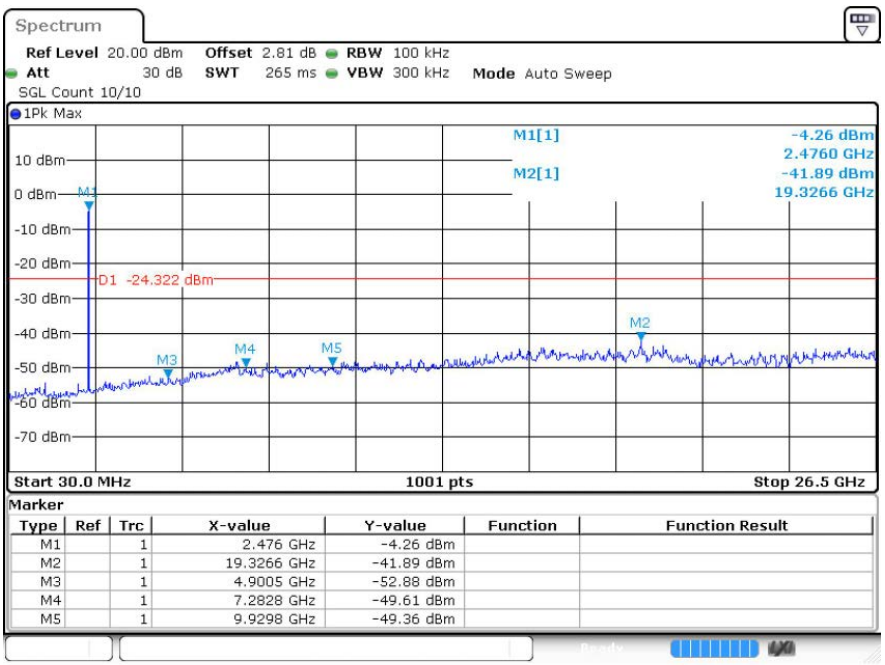
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-6.65 dBm		
M2		1	19.3531 GHz	-43.18 dBm		
M3		1	4.9534 GHz	-52.39 dBm		
M4		1	7.2034 GHz	-49.74 dBm		
M5		1	9.8504 GHz	-50.00 dBm		

g 2462MHz Ant1 Ref



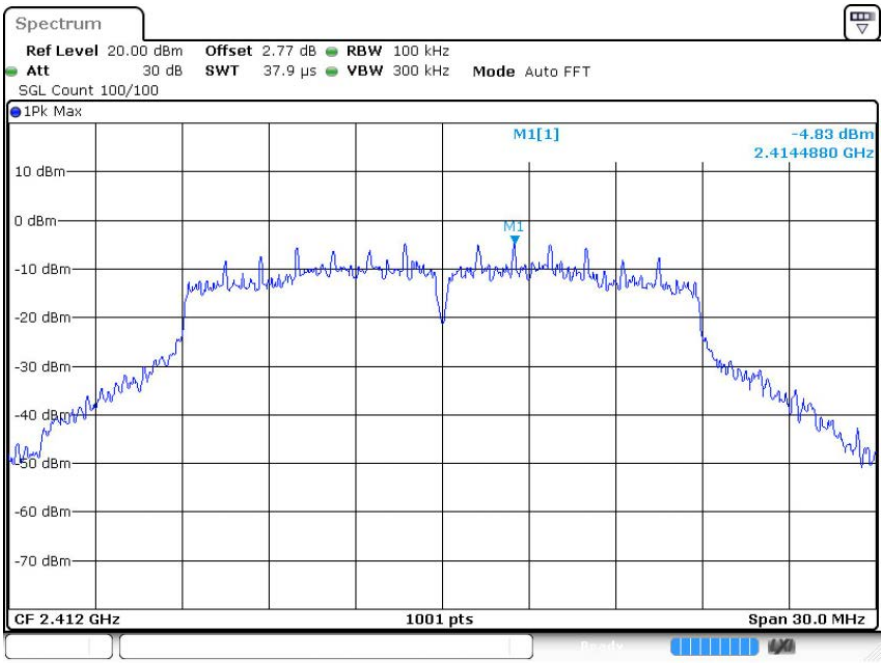
g 2462MHz Ant1 Emission



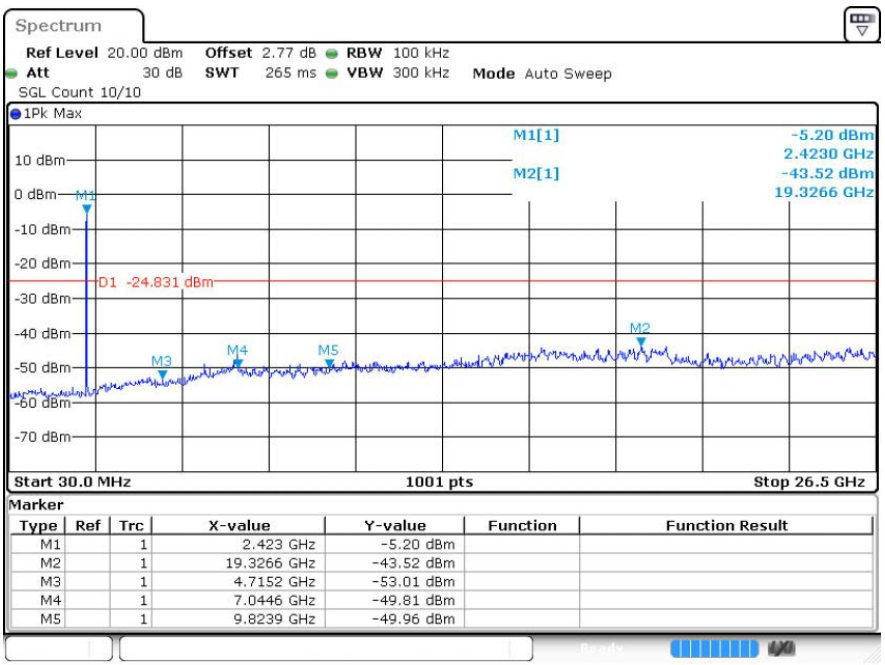
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.476 GHz	-4.26 dBm		
M2		1	19.3266 GHz	-41.89 dBm		
M3		1	4.9005 GHz	-52.88 dBm		
M4		1	7.2828 GHz	-49.61 dBm		
M5		1	9.9298 GHz	-49.36 dBm		

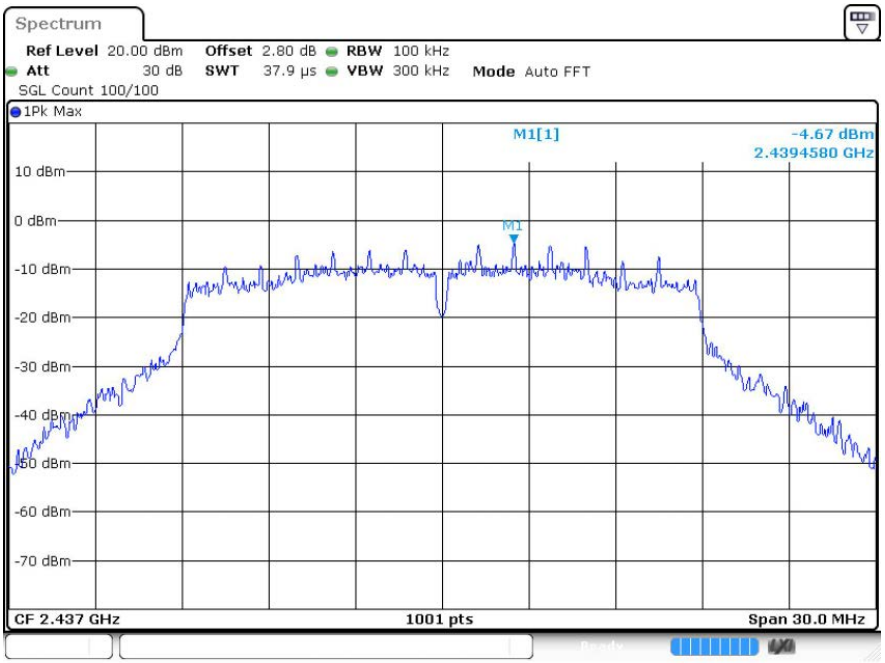
n20 2412MHz Ant1 Ref



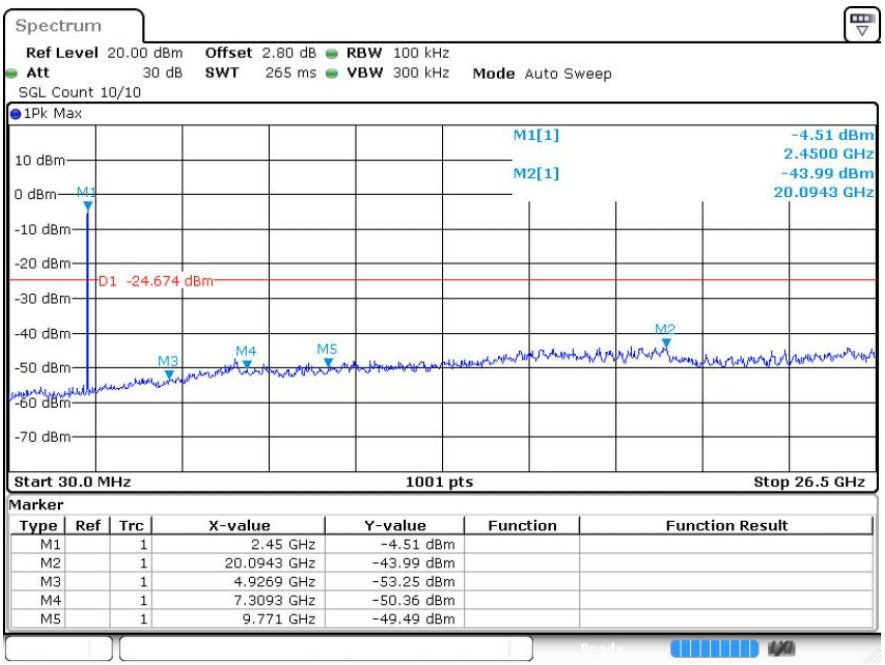
n20 2412MHz Ant1 Emission



n20 2437MHz Ant1 Ref



n20 2437MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-4.51 dBm		
M2		1	20.0943 GHz	-43.99 dBm		
M3		1	4.9269 GHz	-53.25 dBm		
M4		1	7.3093 GHz	-50.36 dBm		
M5		1	9.771 GHz	-49.49 dBm		