Appendix C-2

RF Test Data for 2.4GWIFI(Conducted Measurement)

Product Name: Smart Electronic Blackboard

Trade Mark: INDOTA

Test Model: IN-TVH4K

Environmental Conditions

Temperature:	25.3° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen

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1 Duty Cycle

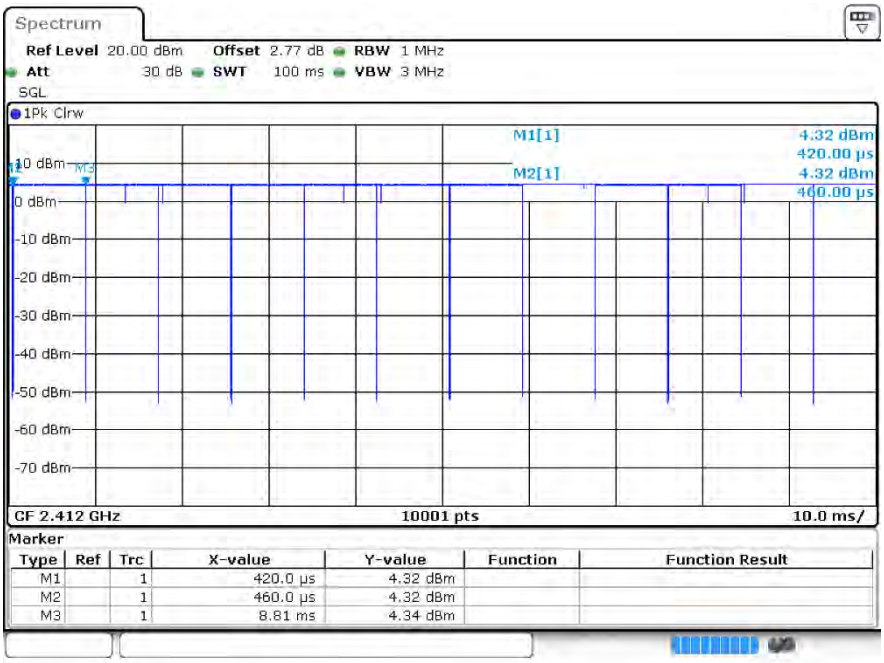
1.1 Test Result

Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	1/T (kHz)
b	2412	Ant1	99.6	0.12
b	2437	Ant1	99.59	0.12
b	2462	Ant1	99.59	0.12
g	2412	Ant1	99.6	0.12
g	2437	Ant1	99.59	0.12
g	2462	Ant1	99.59	0.12
n20	2412	Ant1	92.94	2.27
n20	2437	Ant1	93.03	2.22
n20	2462	Ant1	92.87	2.22
n40	2422	Ant1	92.92	2.27
n40	2437	Ant1	92.9	2.22
n40	2452	Ant1	92.89	2.27
b	2412	Ant2	99.6	0.12
b	2437	Ant2	99.61	0.12
b	2462	Ant2	99.61	0.12
g	2412	Ant2	99.6	0.12
g	2437	Ant2	99.61	0.12
g	2462	Ant2	99.61	0.12
n20	2412	Ant2	92.88	2.27
n20	2437	Ant2	93.03	2.22
n20	2462	Ant2	92.99	2.22
n40	2422	Ant2	92.94	2.27
n40	2437	Ant2	92.93	2.27
n40	2452	Ant2	92.94	2.27

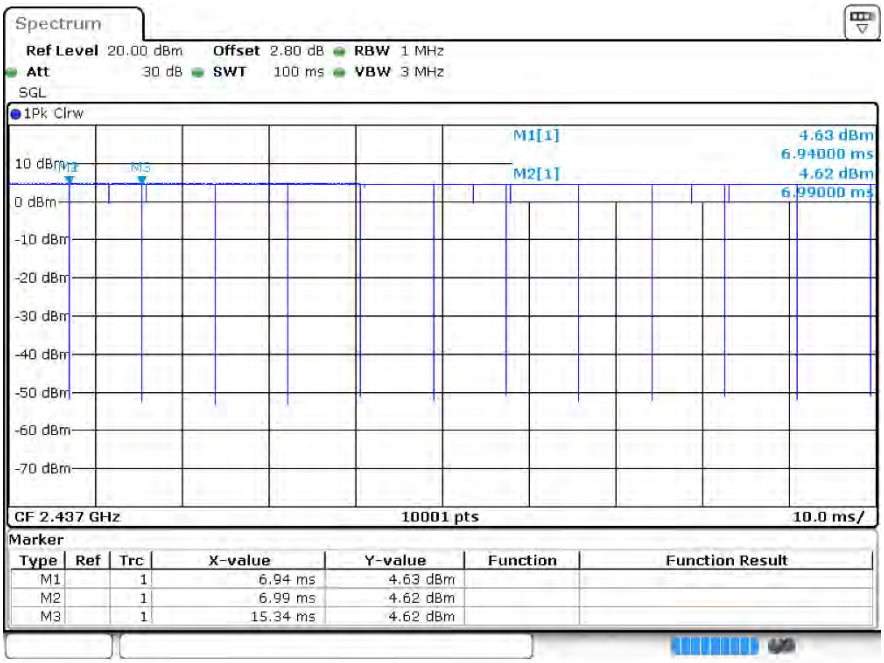
1.2 Test Graphs

Test Graphs

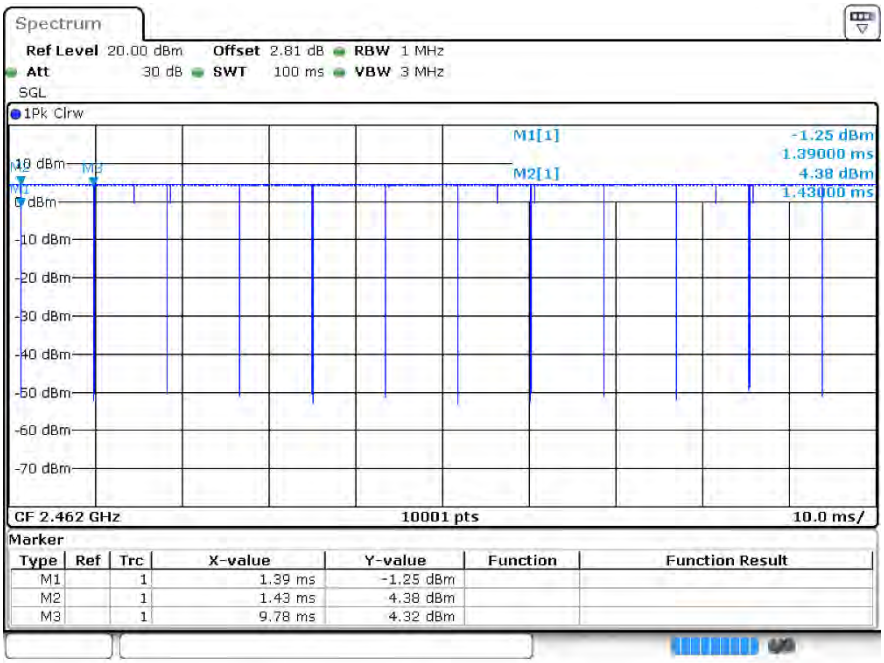
Duty Cycleb 2412MHz Ant1



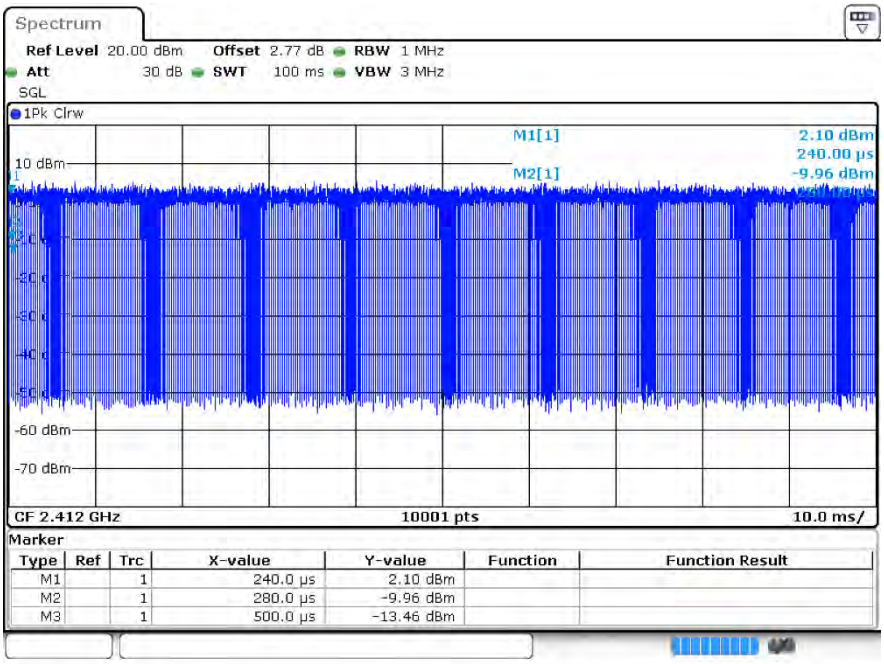
Duty Cycleb 2437MHz Ant1



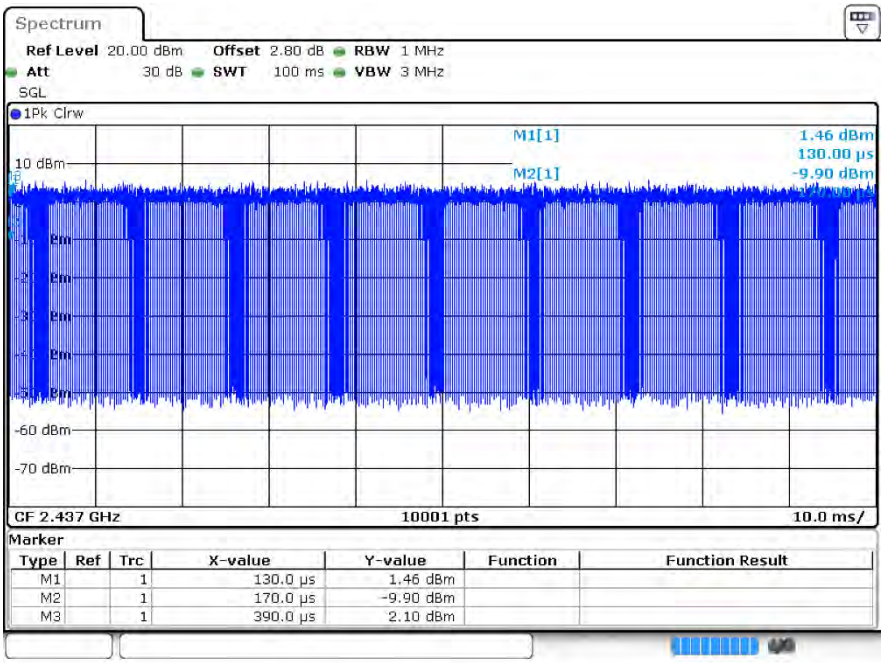
Duty Cycleb 2462MHz Ant1



Duty Cycleg 2412MHz Ant1



Duty Cycleg 2437MHz Ant1



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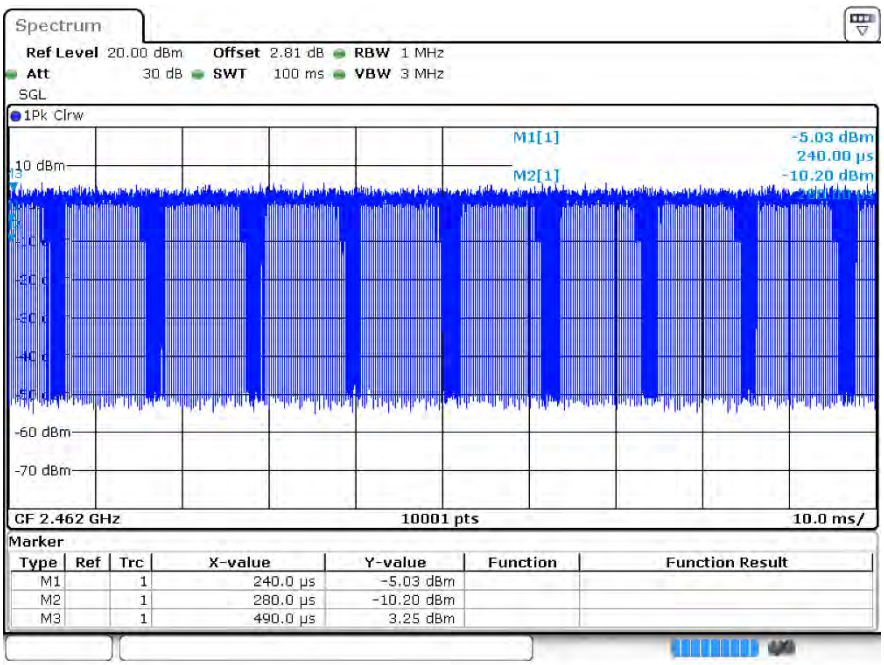
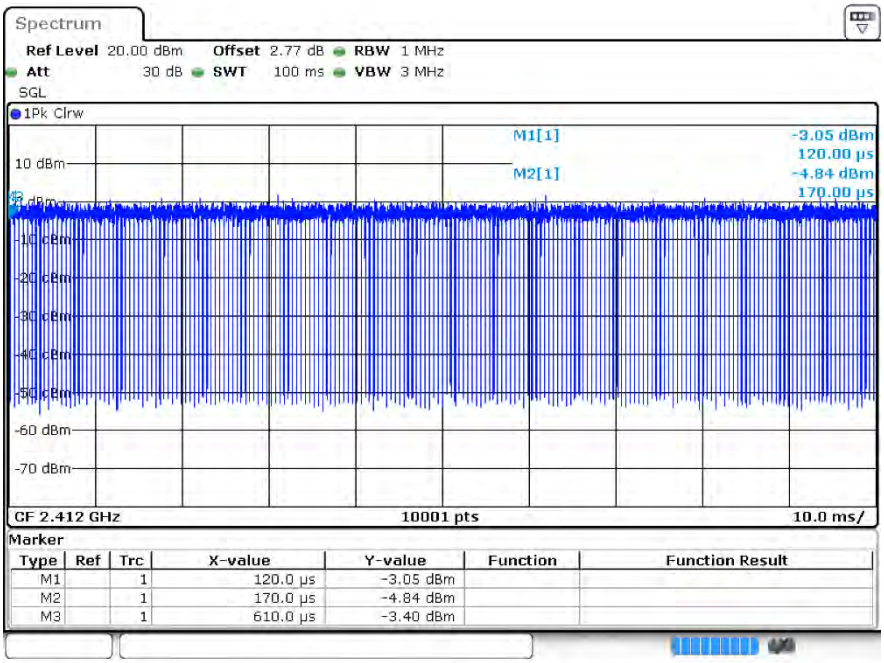


Duty Cyclen20 2412MHz Ant1



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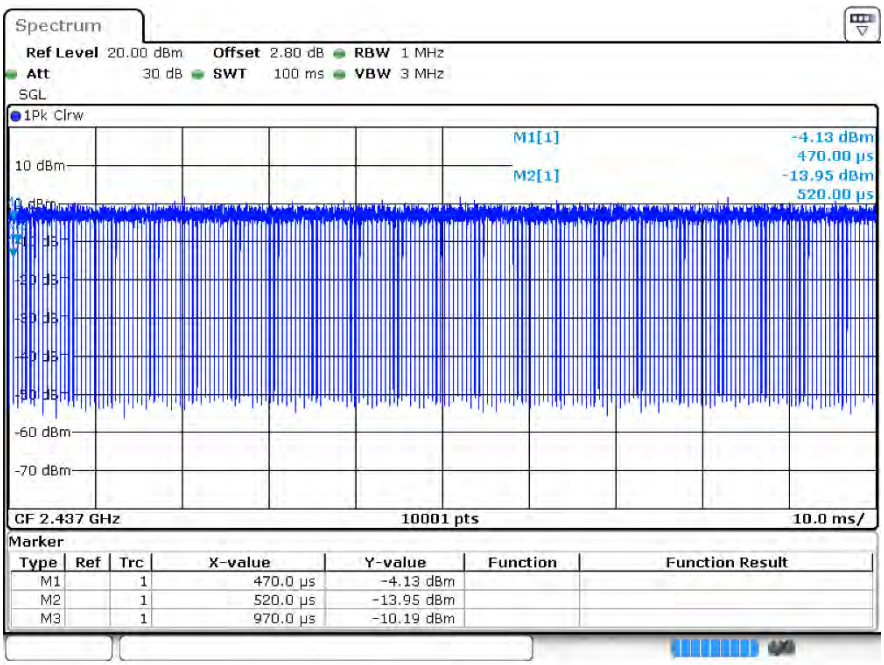

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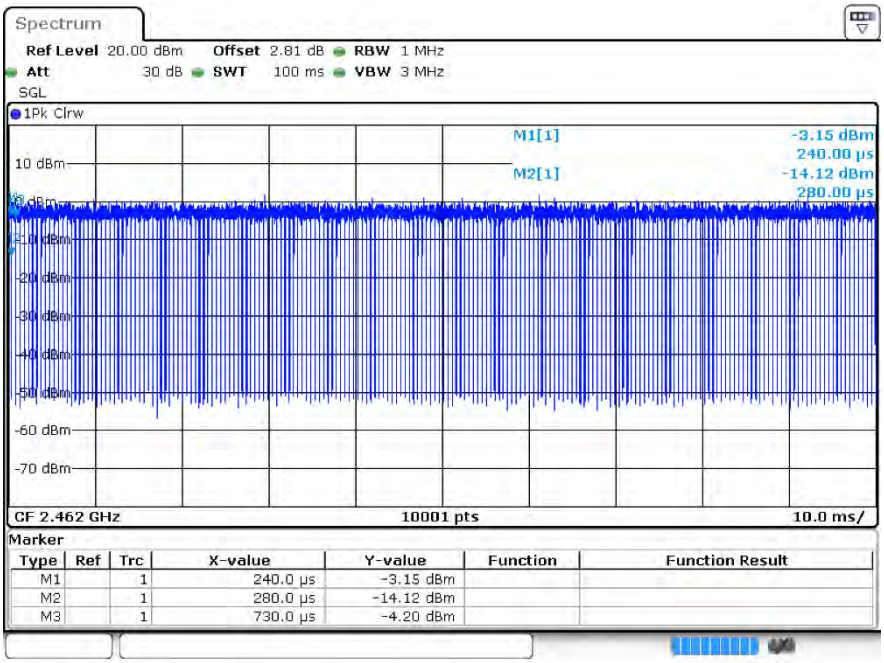
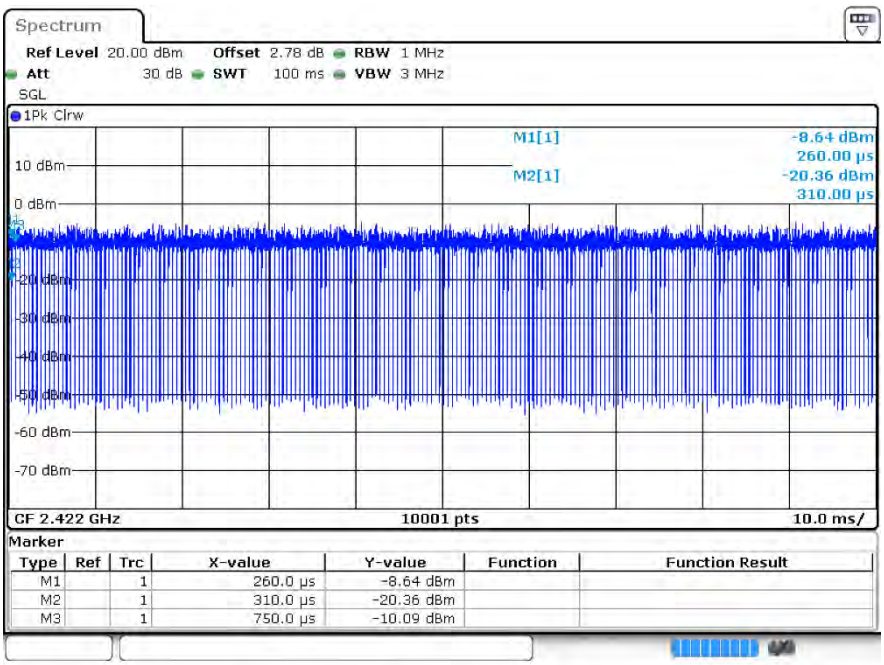
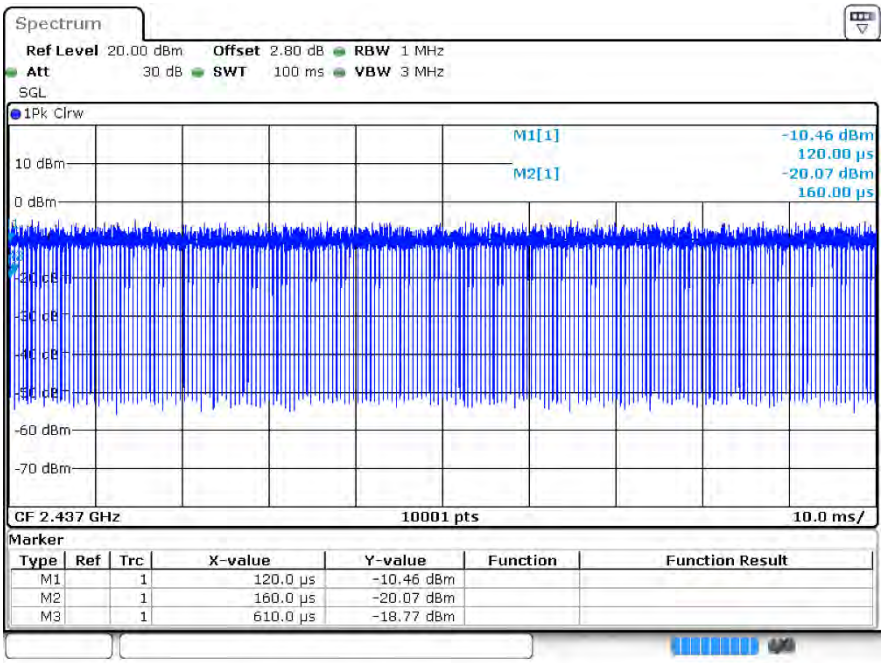


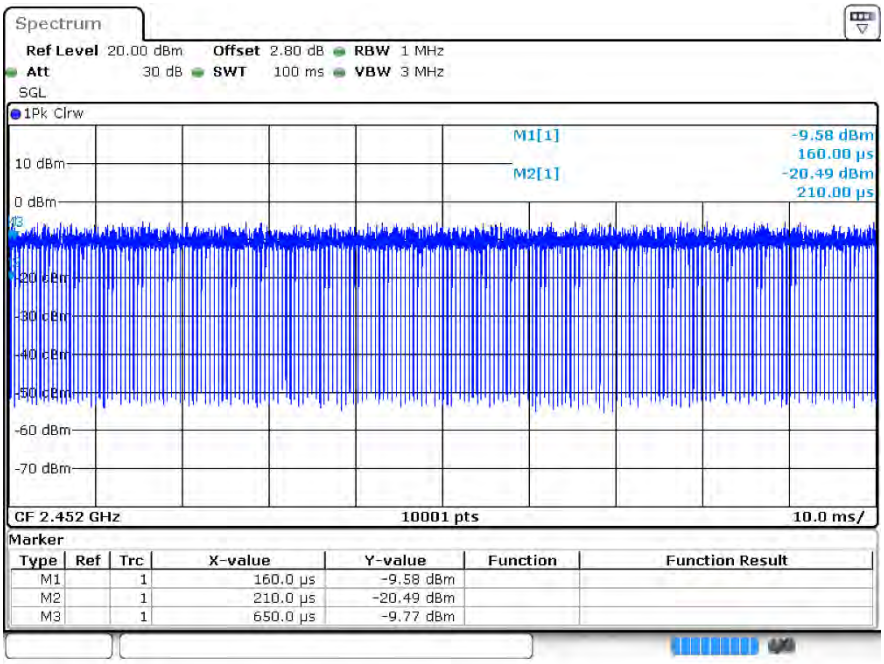
Duty Cyclen40 2422MHz Ant1



Duty Cyclen40 2437MHz Ant1

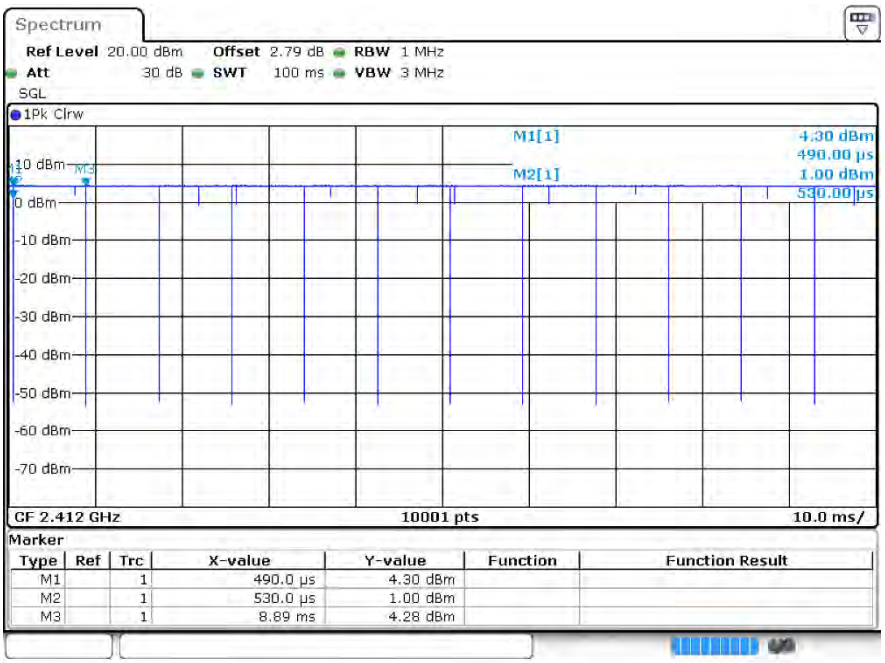


Duty Cyclen40 2452MHz Ant1

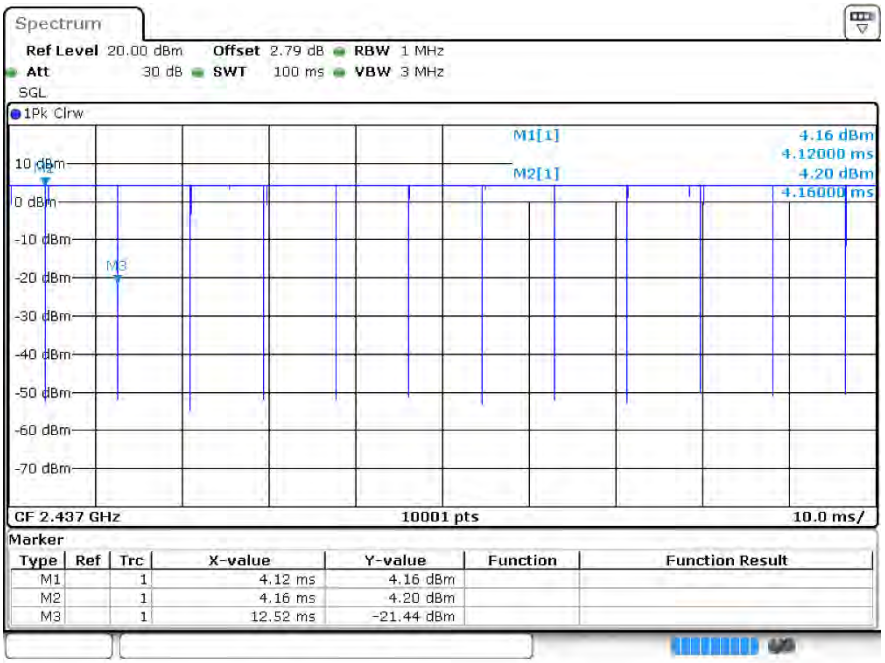


Test Graphs

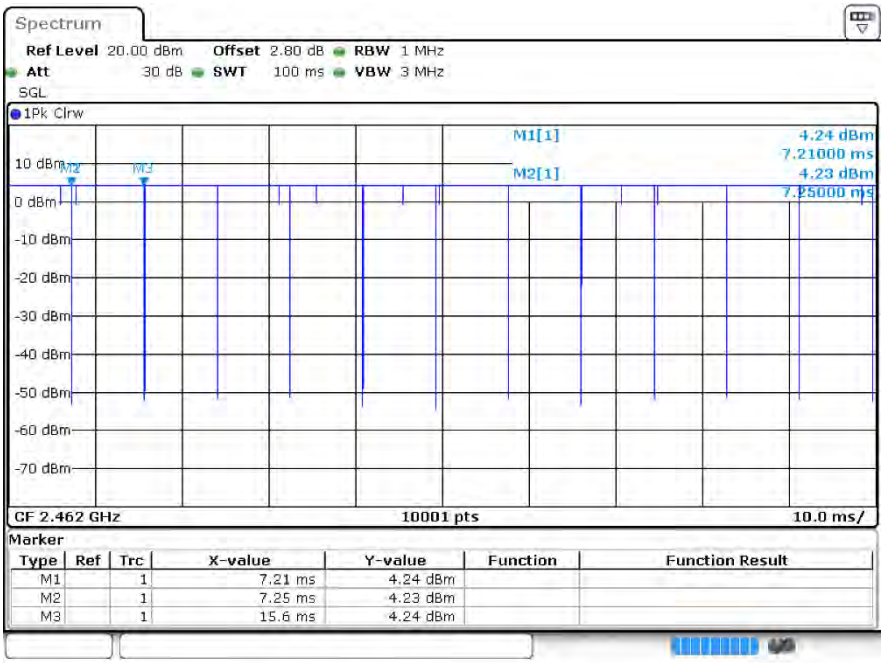
Duty Cycleb 2412MHz Ant2



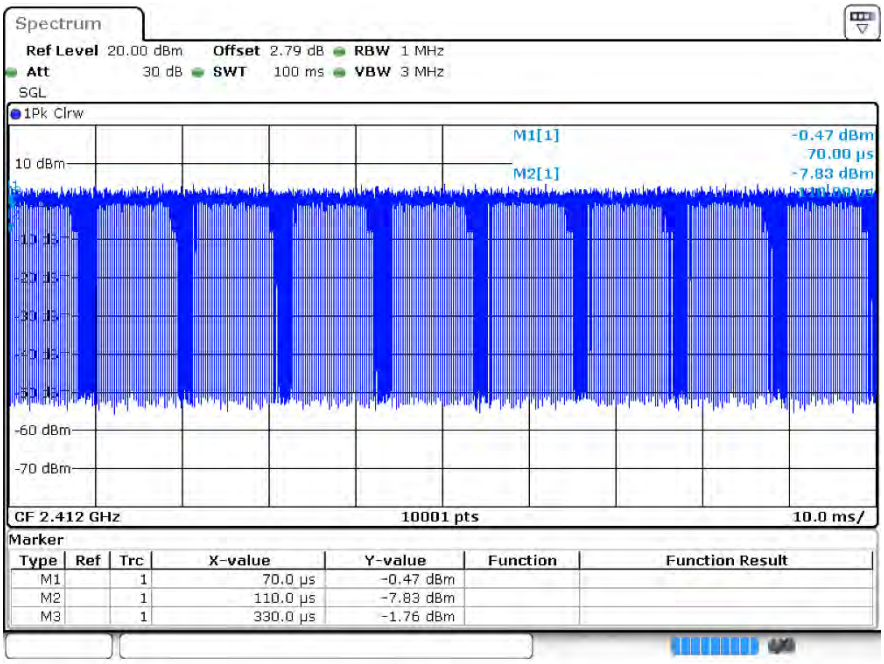
Duty Cycleb 2437MHz Ant2



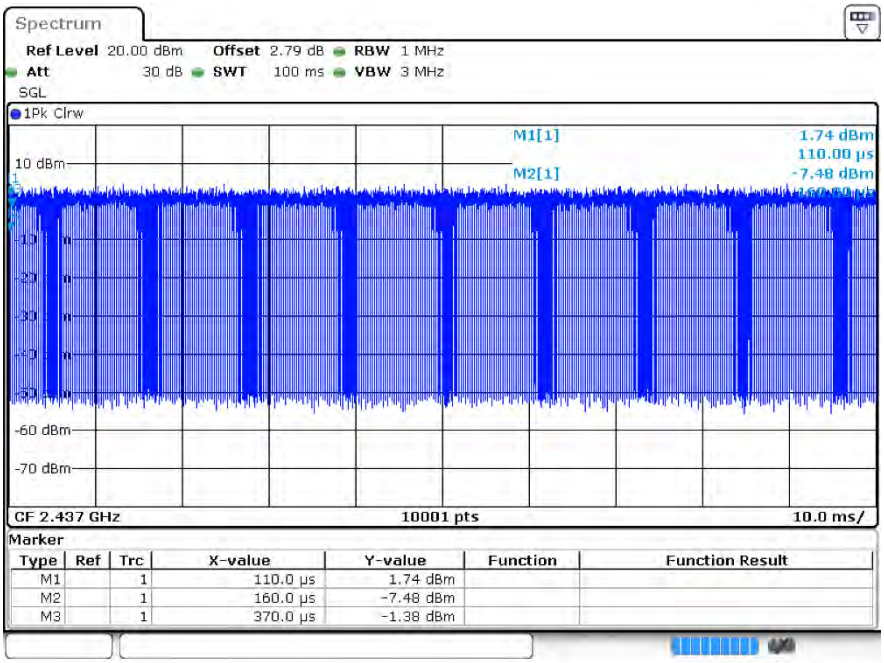
Duty Cycleb 2462MHz Ant2



Duty Cycleg 2412MHz Ant2

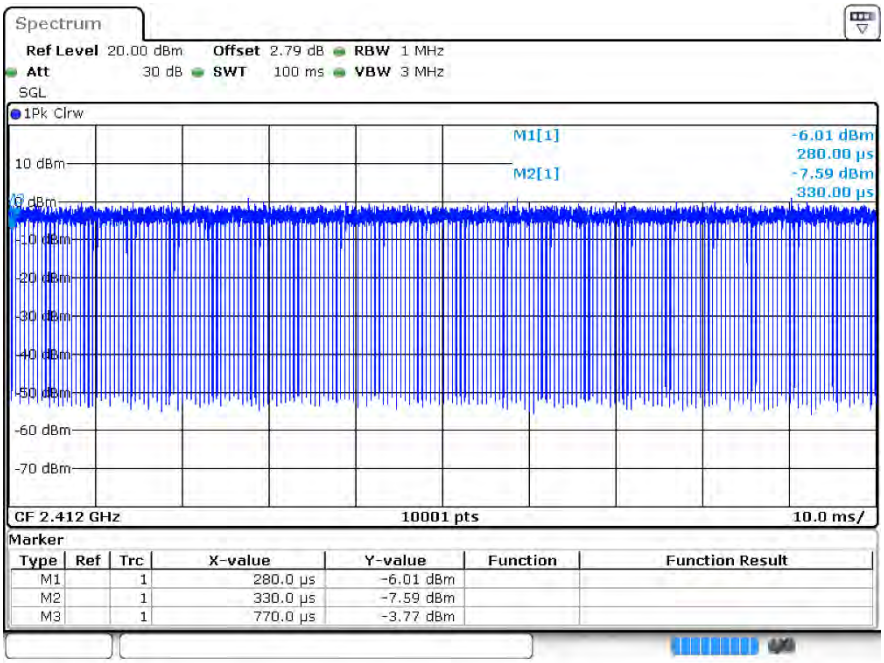


Duty Cycleg 2437MHz Ant2

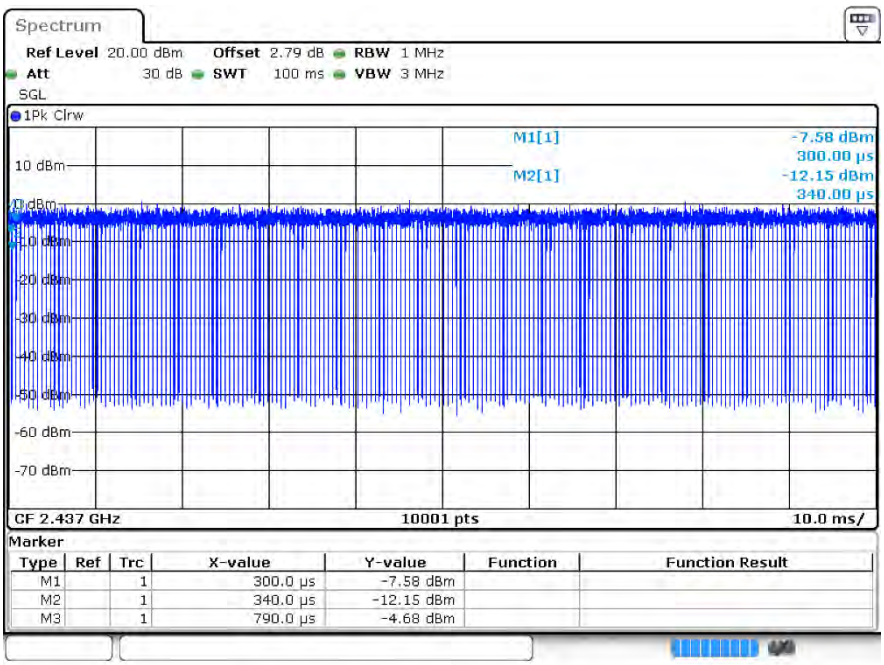


Duty Cycleg 2462MHz Ant2

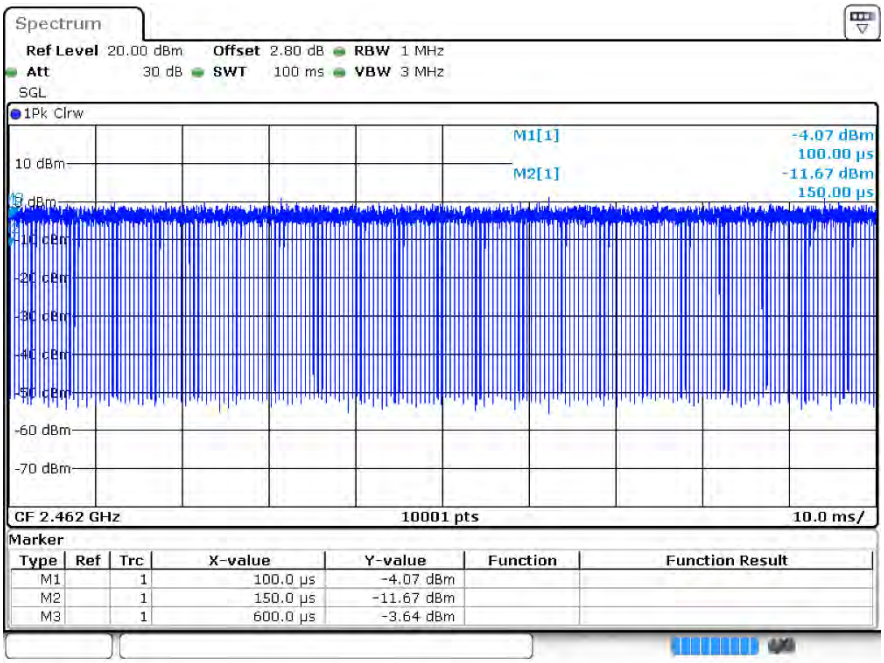
Duty Cyclen20 2412MHz Ant2



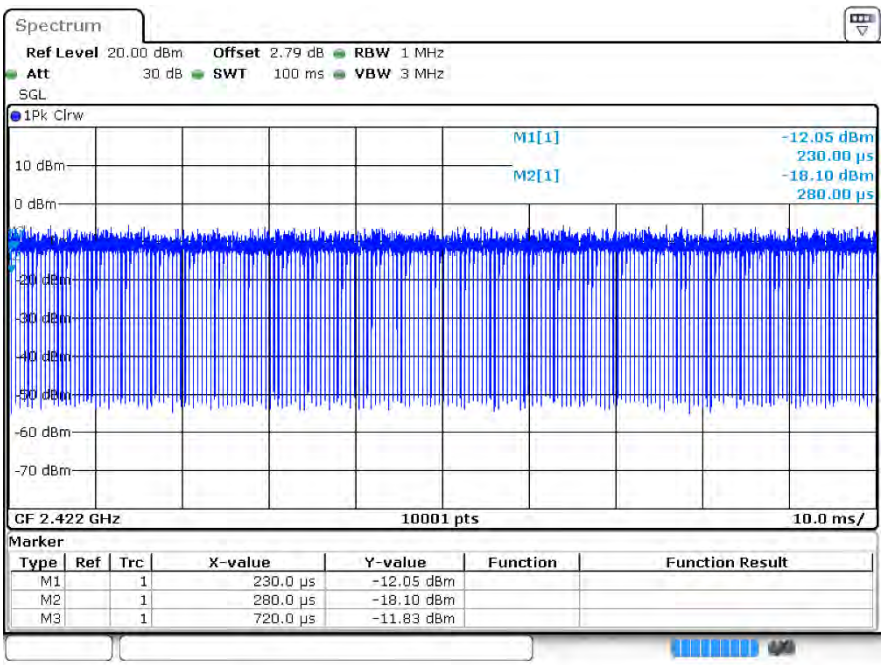
Duty Cyclen20 2437MHz Ant2



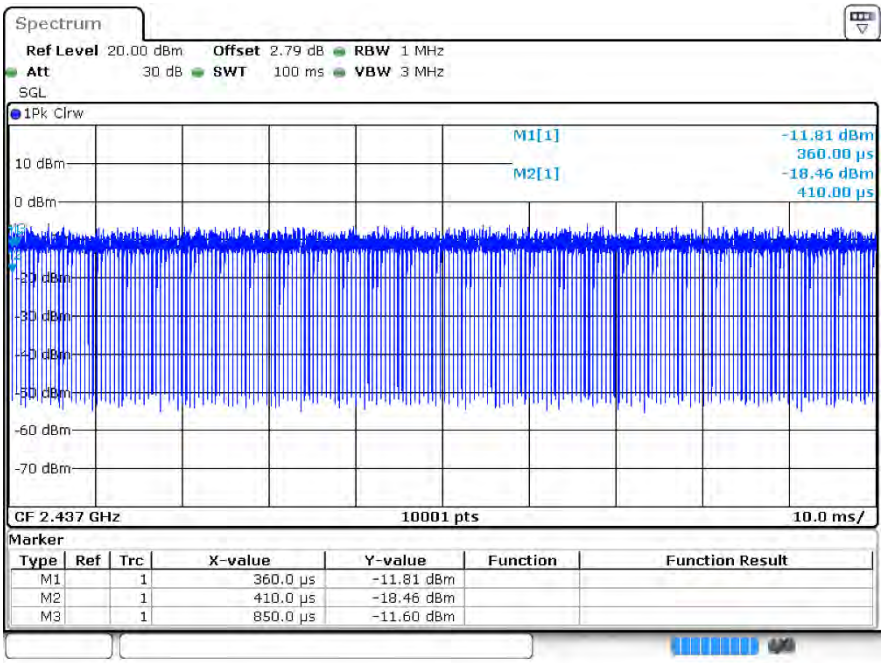
Duty Cyclen20 2462MHz Ant2



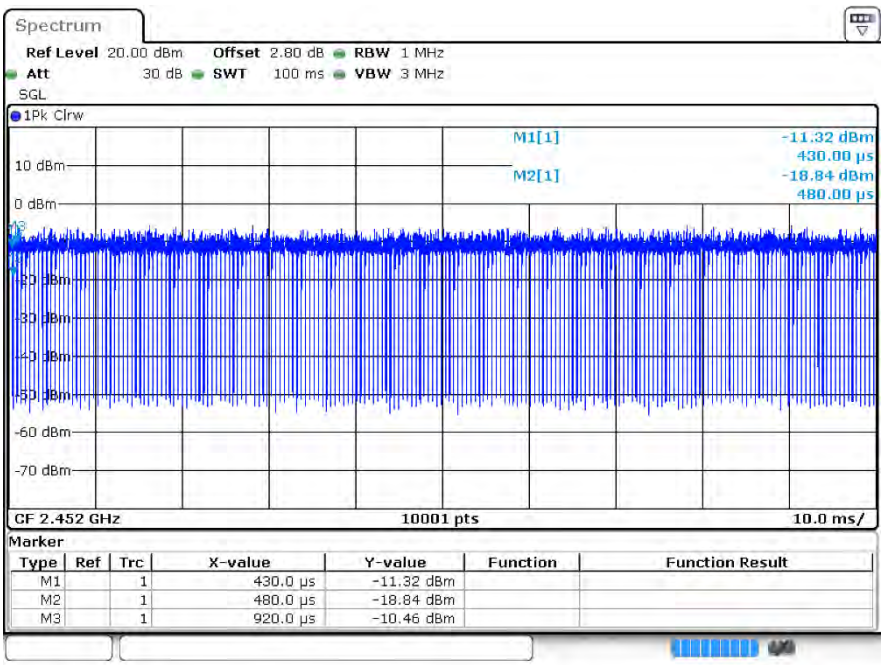
Duty Cyclen40 2422MHz Ant2



Duty Cyclen40 2437MHz Ant2



Duty Cyclen40 2452MHz Ant2



2 Maximum Conducted Output Power

2.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
b	2412	Ant1	14.97	30	Pass
b	2437	Ant1	15	30	Pass
b	2462	Ant1	14.89	30	Pass
b	2412	Ant2	14.8	30	Pass
b	2437	Ant2	14.75	30	Pass
b	2462	Ant2	13.81	30	Pass
g	2412	Ant1	14.64	30	Pass
g	2437	Ant1	14.65	30	Pass
g	2462	Ant1	14.64	30	Pass
g	2412	Ant2	14.12	30	Pass
g	2437	Ant2	14.06	30	Pass
g	2462	Ant2	14.02	30	Pass
n20	2412	Ant1	11.86	30	Pass
n20	2437	Ant1	11.66	30	Pass
n20	2462	Ant1	11.61	30	Pass
n20	2412	Ant2	10.94	30	Pass
n20	2437	Ant2	10.96	30	Pass
n20	2462	Ant2	10.9	30	Pass
n20	2412	Sum	14.43	28.49	Pass
n20	2437	Sum	14.33	28.49	Pass
n20	2462	Sum	14.28	28.49	Pass
n40	2422	Ant1	11.57	30	Pass
n40	2437	Ant1	11.41	30	Pass
n40	2452	Ant1	11.36	30	Pass
n40	2422	Ant2	10.62	30	Pass
n40	2437	Ant2	10.56	30	Pass
n40	2452	Ant2	10.43	30	Pass
n40	2422	Sum	14.13	28.49	Pass
n40	2437	Sum	14.02	28.49	Pass
n40	2452	Sum	13.93	28.49	Pass

3 -6dB Bandwidth

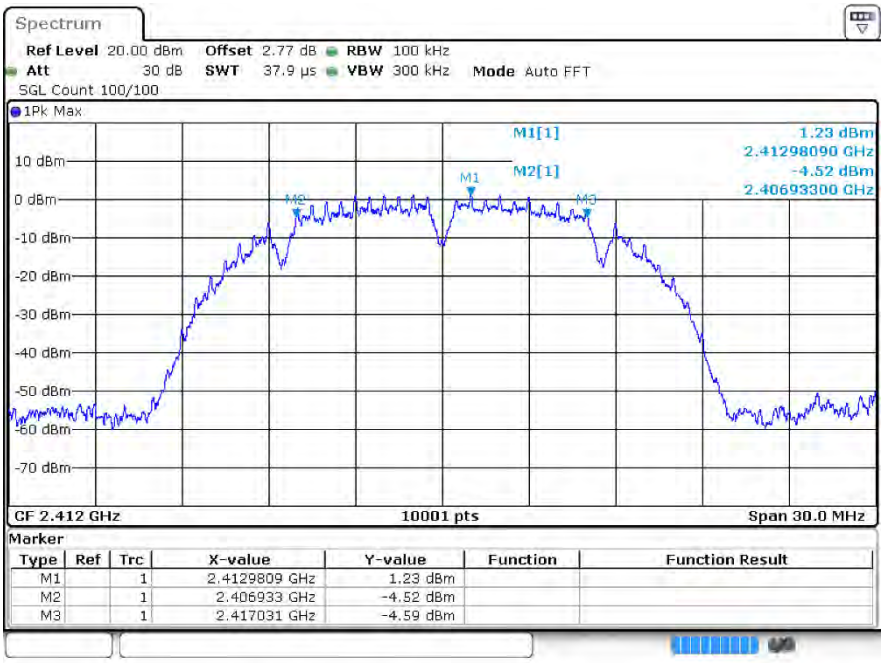
3.1 Test Result

Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
b	2412	Ant1	10.098	0.5	Pass
b	2437	Ant1	10.107	0.5	Pass
b	2462	Ant1	10.092	0.5	Pass
g	2412	Ant1	14.442	0.5	Pass
g	2437	Ant1	15.336	0.5	Pass
g	2462	Ant1	15.114	0.5	Pass
n20	2412	Ant1	16.293	0.5	Pass
n20	2437	Ant1	15.063	0.5	Pass
n20	2462	Ant1	15.063	0.5	Pass
n40	2422	Ant1	35.088	0.5	Pass
n40	2437	Ant1	35.076	0.5	Pass
n40	2452	Ant1	35.058	0.5	Pass
b	2412	Ant2	10.071	0.5	Pass
b	2437	Ant2	10.098	0.5	Pass
b	2462	Ant2	10.086	0.5	Pass
g	2412	Ant2	15.105	0.5	Pass
g	2437	Ant2	15.108	0.5	Pass
g	2462	Ant2	15.099	0.5	Pass
n20	2412	Ant2	15.405	0.5	Pass
n20	2437	Ant2	15.027	0.5	Pass
n20	2462	Ant2	15.126	0.5	Pass
n40	2422	Ant2	34.98	0.5	Pass
n40	2437	Ant2	35.07	0.5	Pass
n40	2452	Ant2	35.064	0.5	Pass

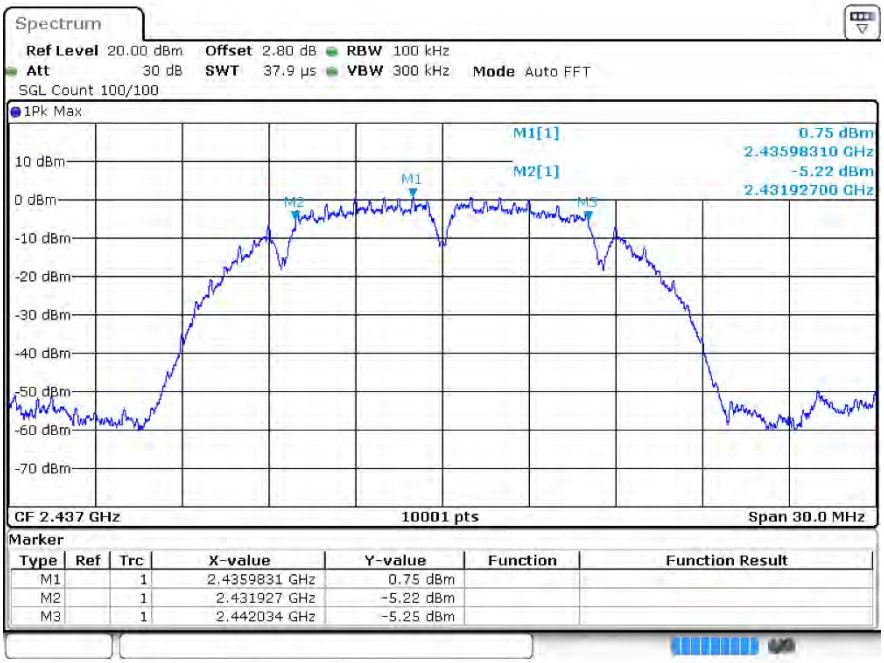
3.2 Test Graphs

Test Graphs

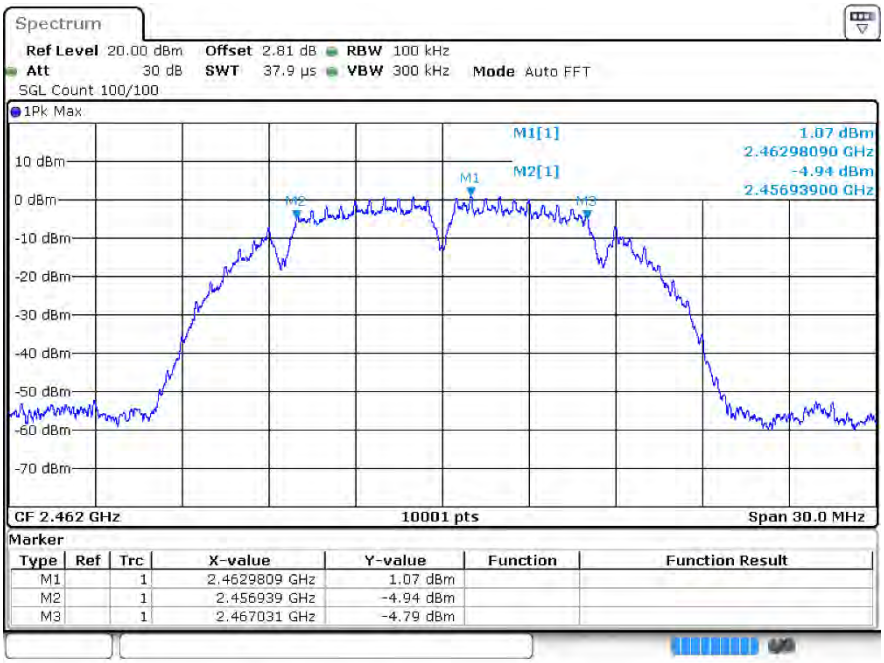
b 2412MHz Ant1



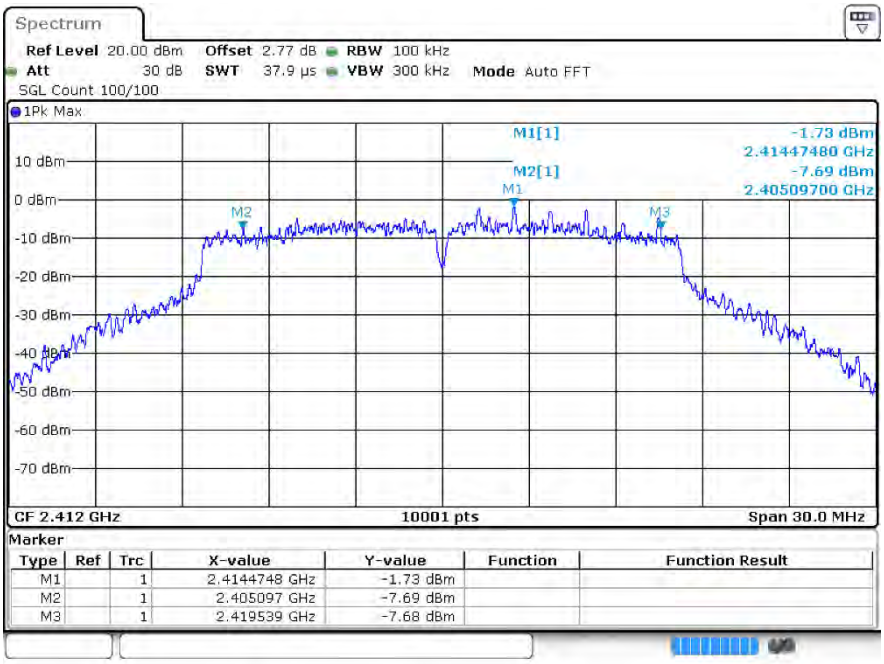
b 2437MHz Ant1



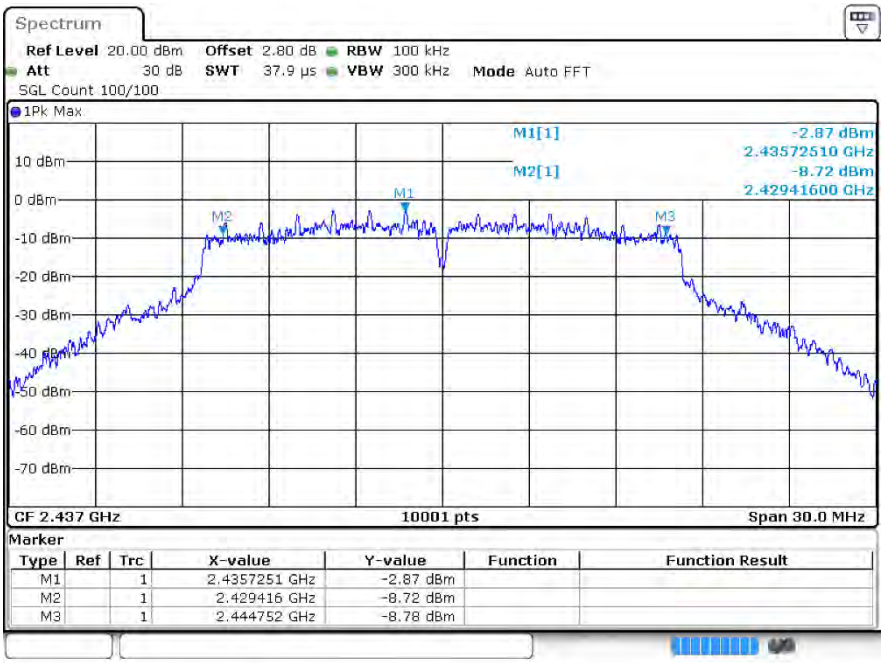
b 2462MHz Ant1



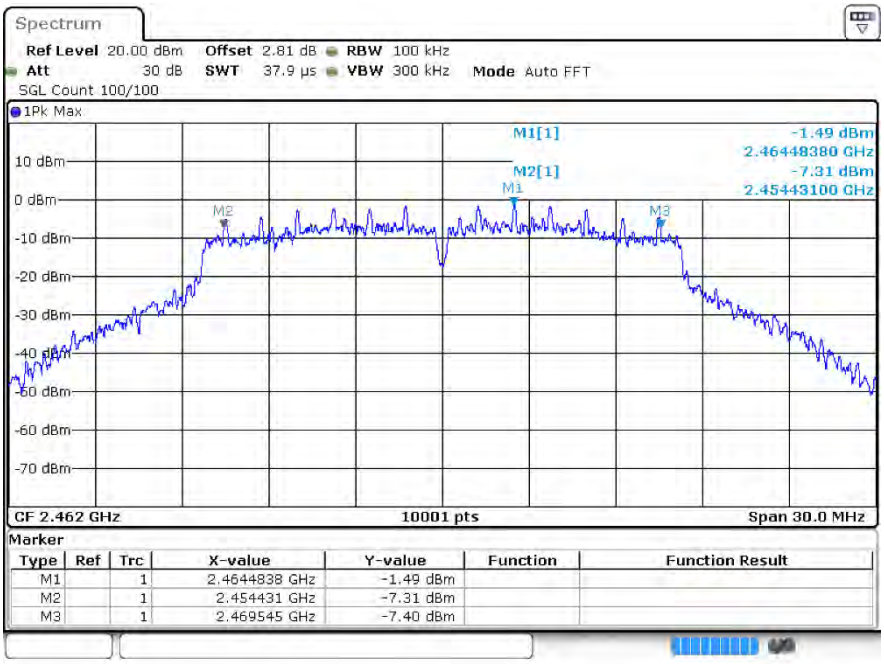
g 2412MHz Ant1



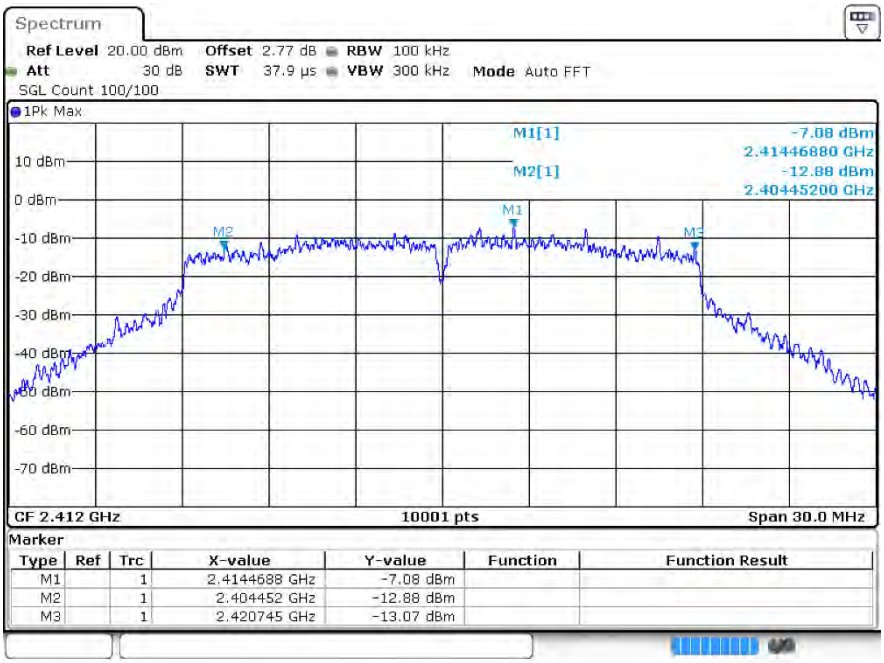
g 2437MHz Ant1



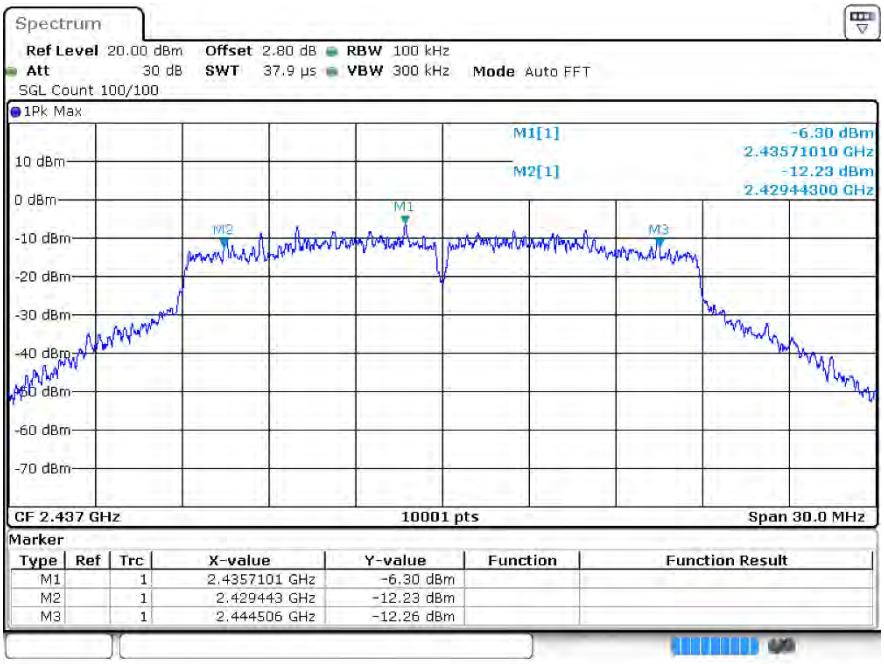
g 2462MHz Ant1



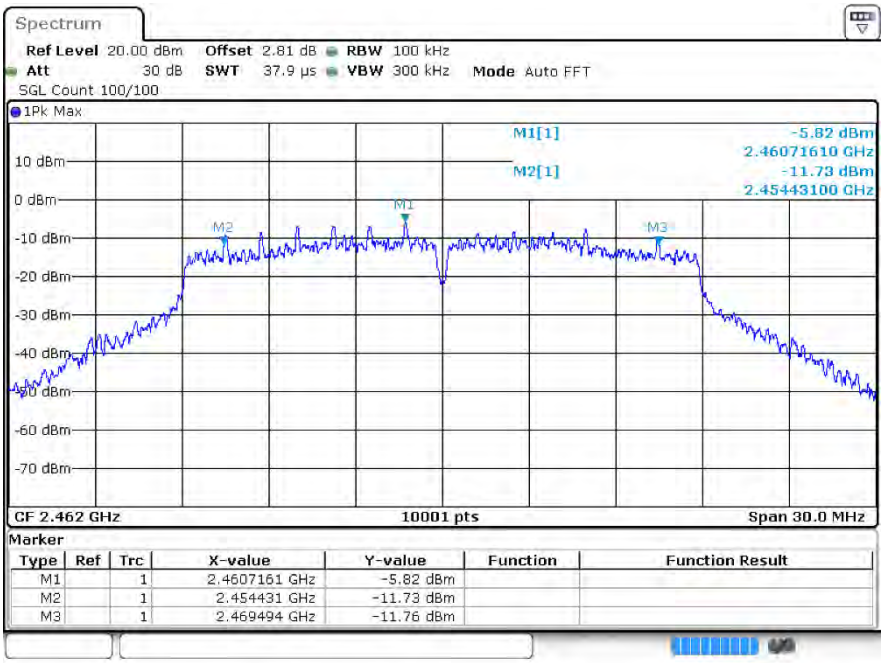
n20 2412MHz Ant1



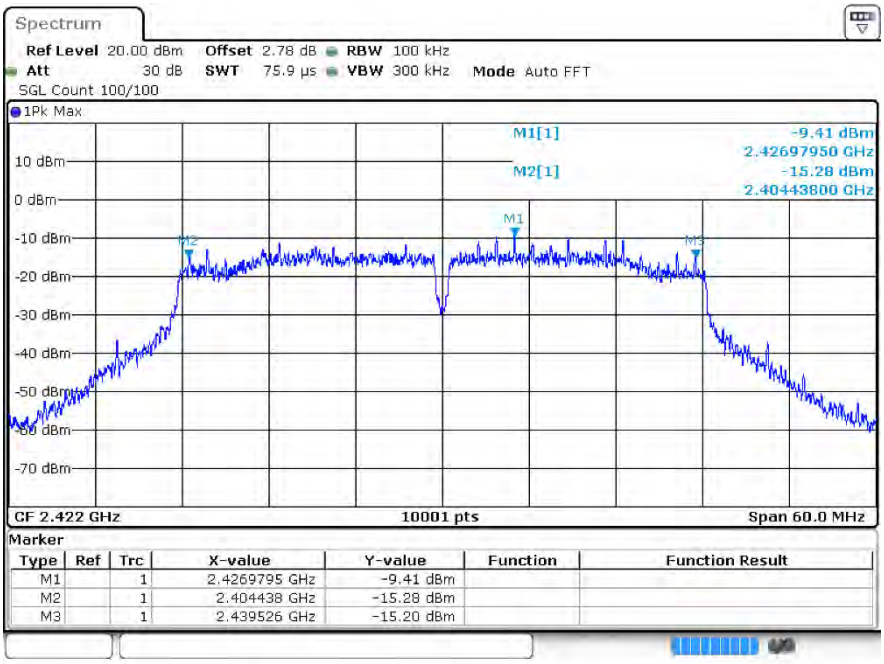
n20 2437MHz Ant1



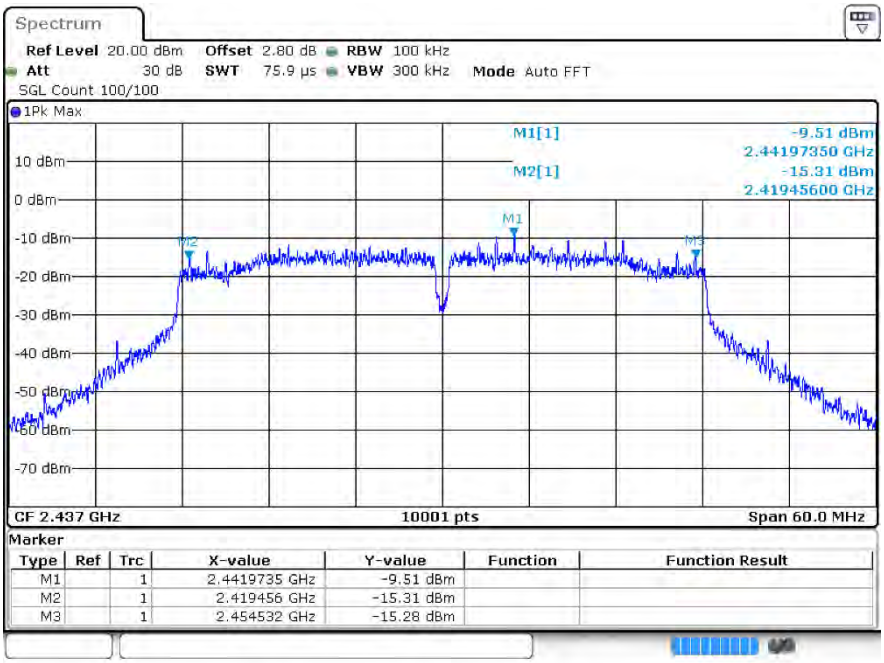
n20 2462MHz Ant1



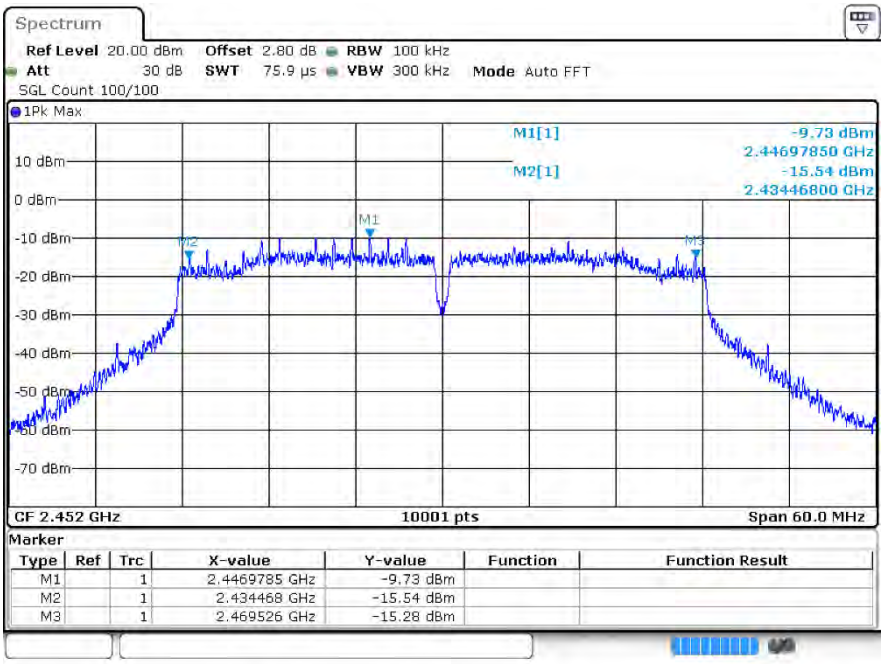
n40 2422MHz Ant1



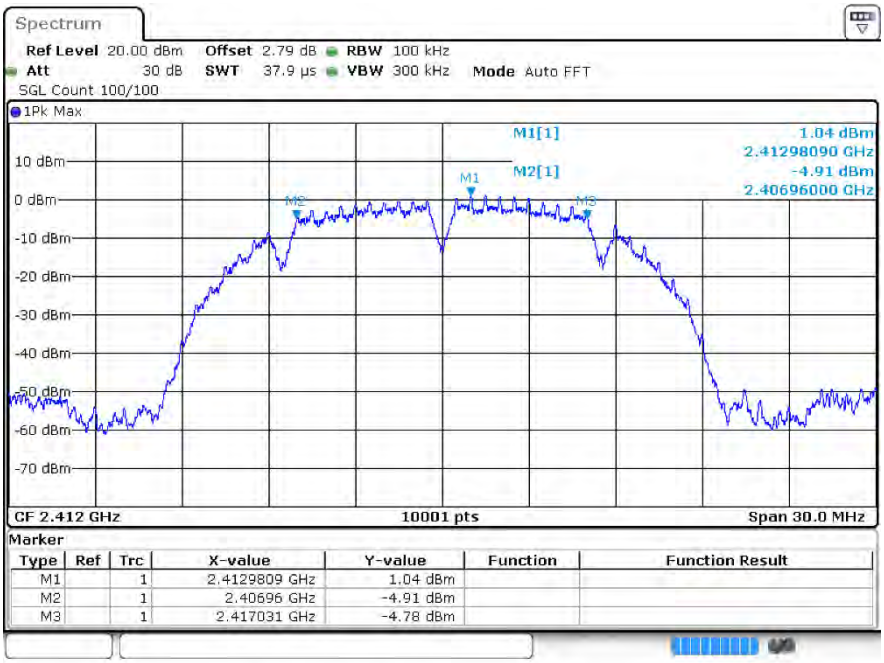
n40 2437MHz Ant1



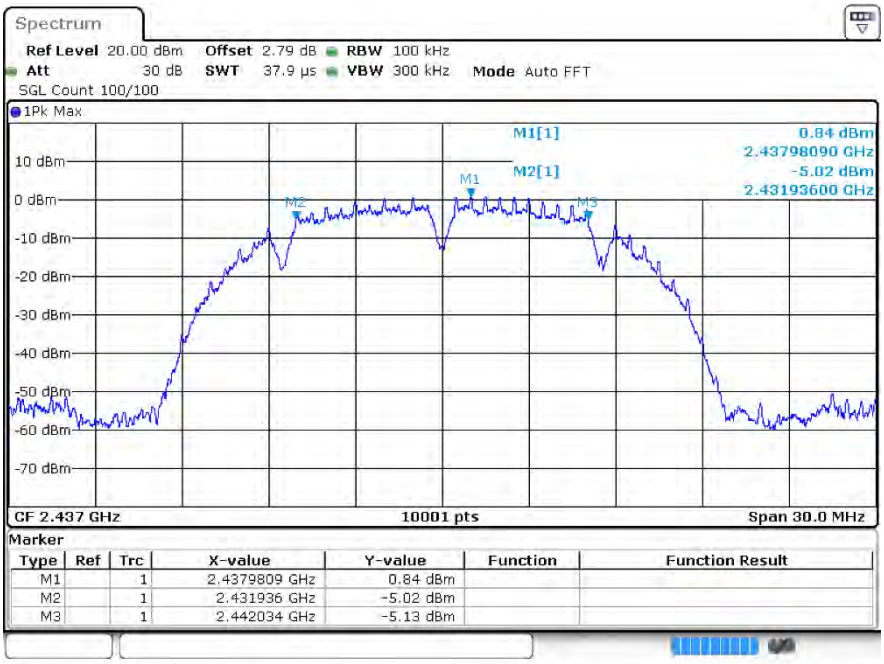
n40 2452MHz Ant1



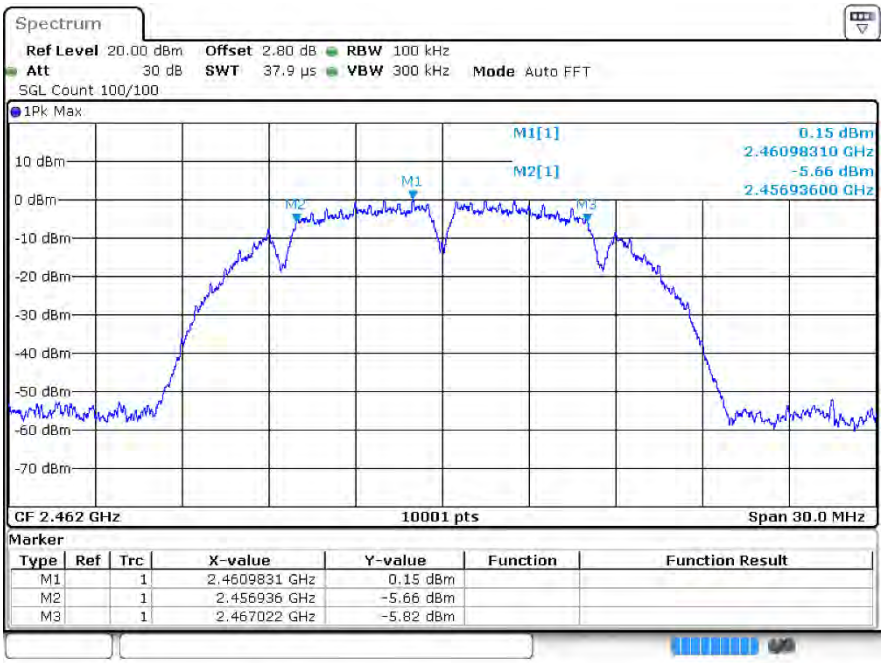
b 2412MHz Ant2



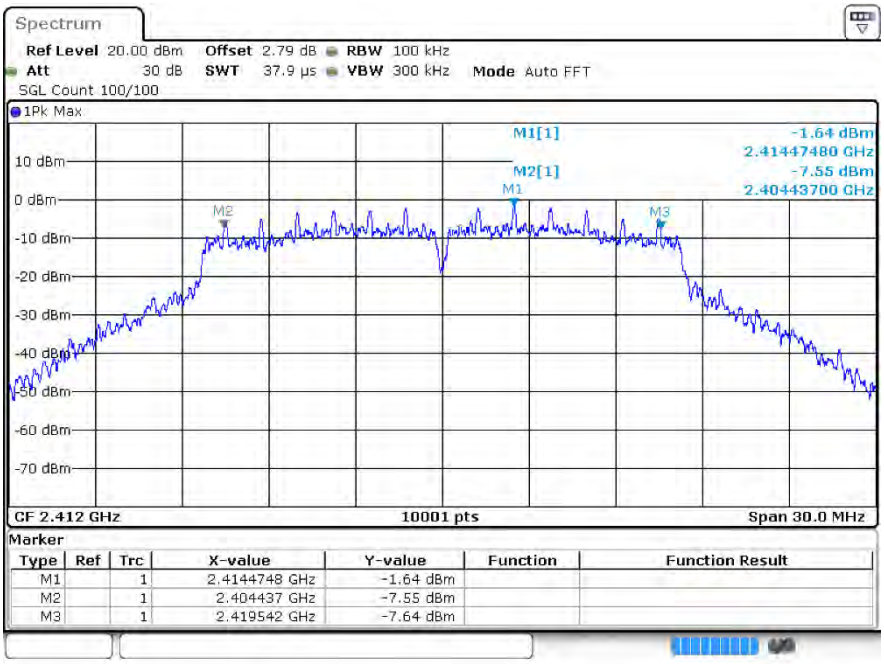
b 2437MHz Ant2



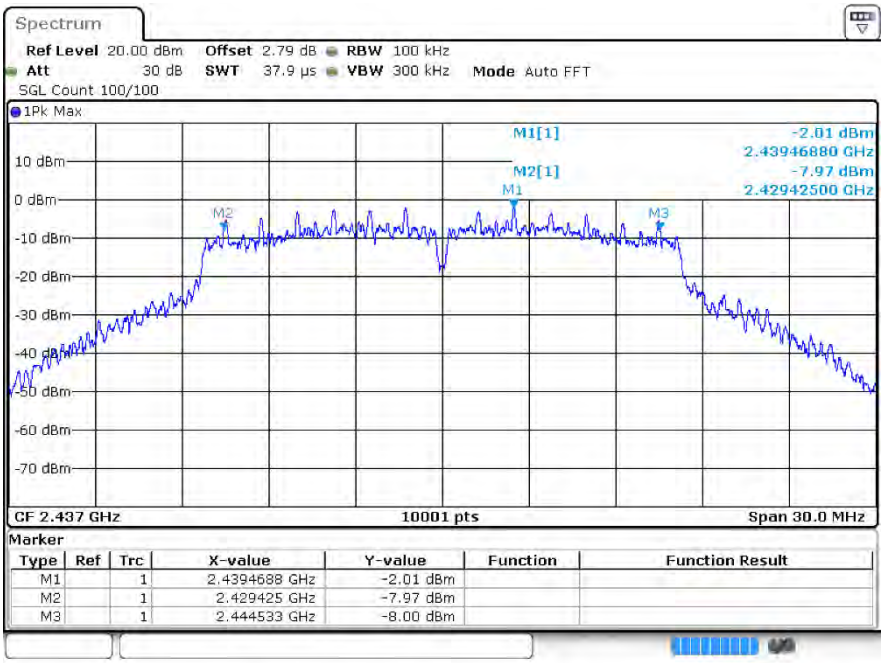
b 2462MHz Ant2



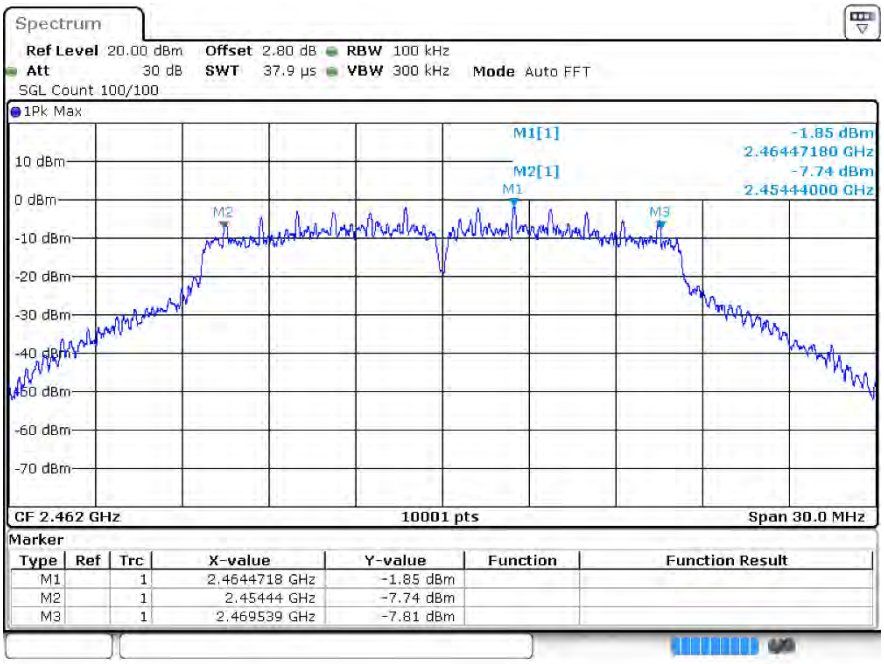
g 2412MHz Ant2



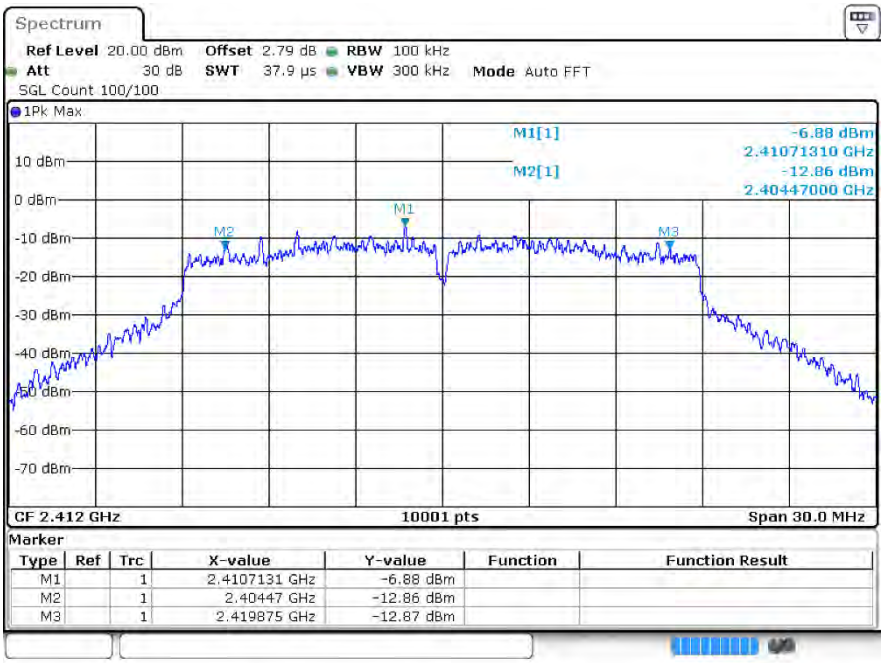
g 2437MHz Ant2



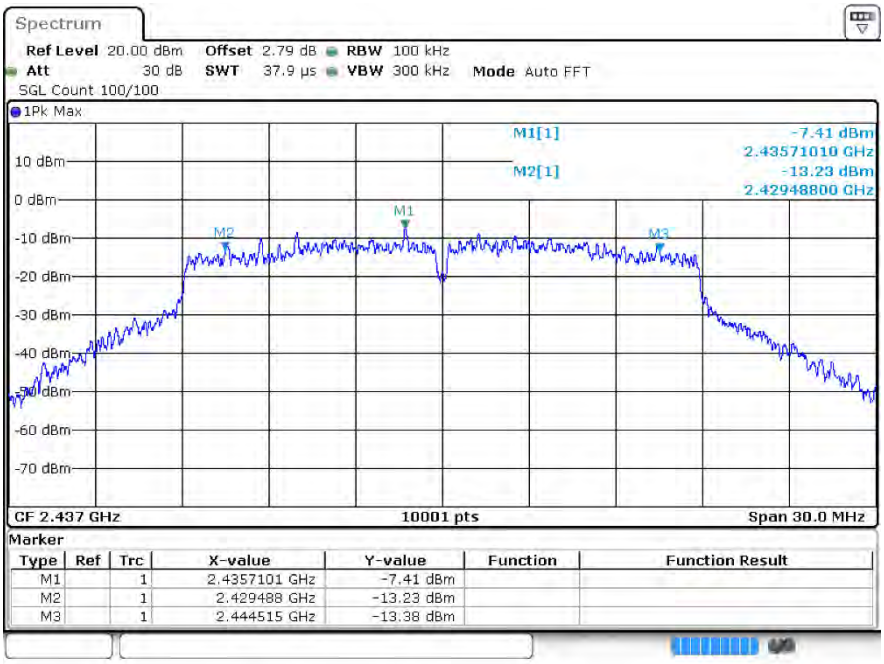
g 2462MHz Ant2



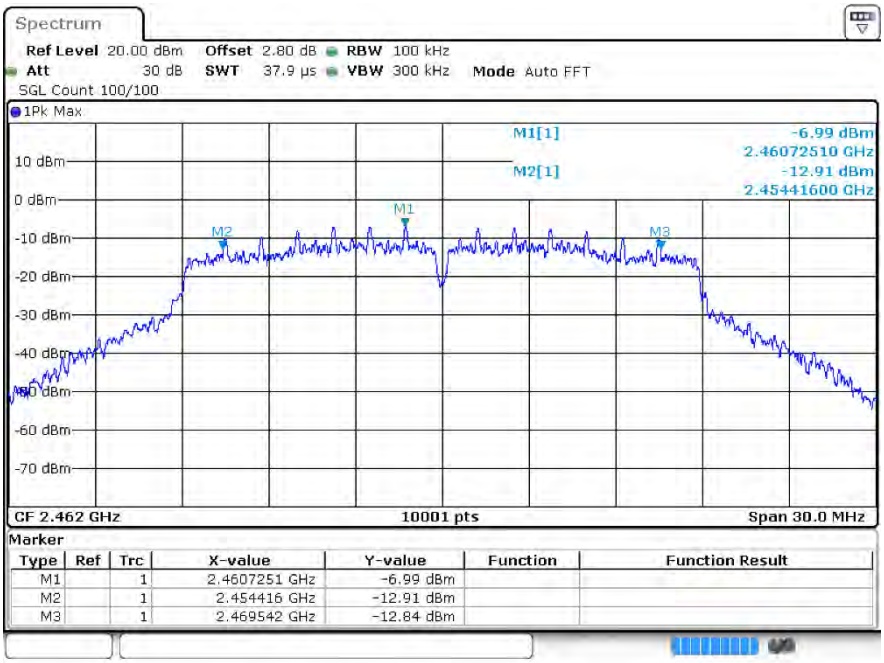
n20 2412MHz Ant2



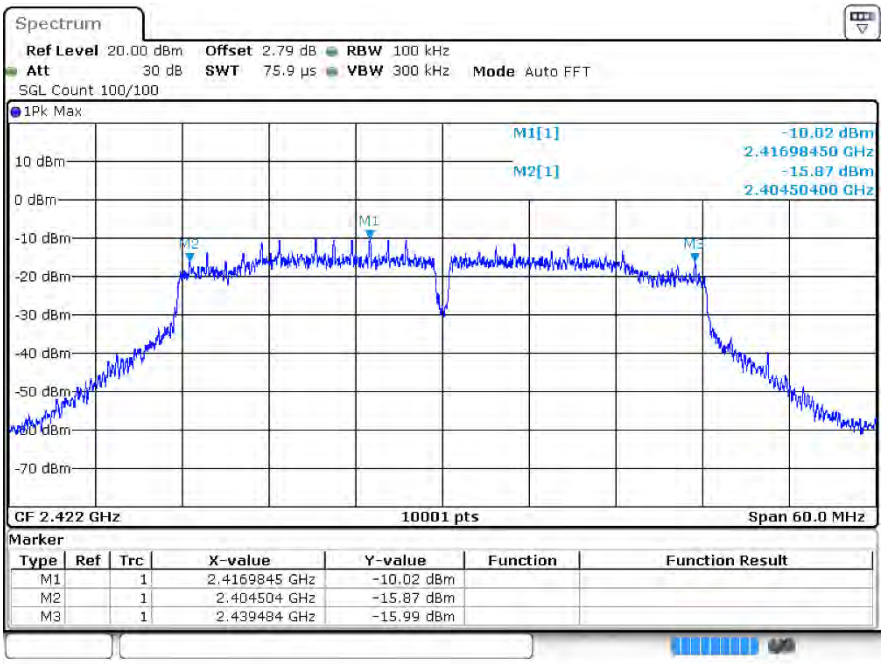
n20 2437MHz Ant2



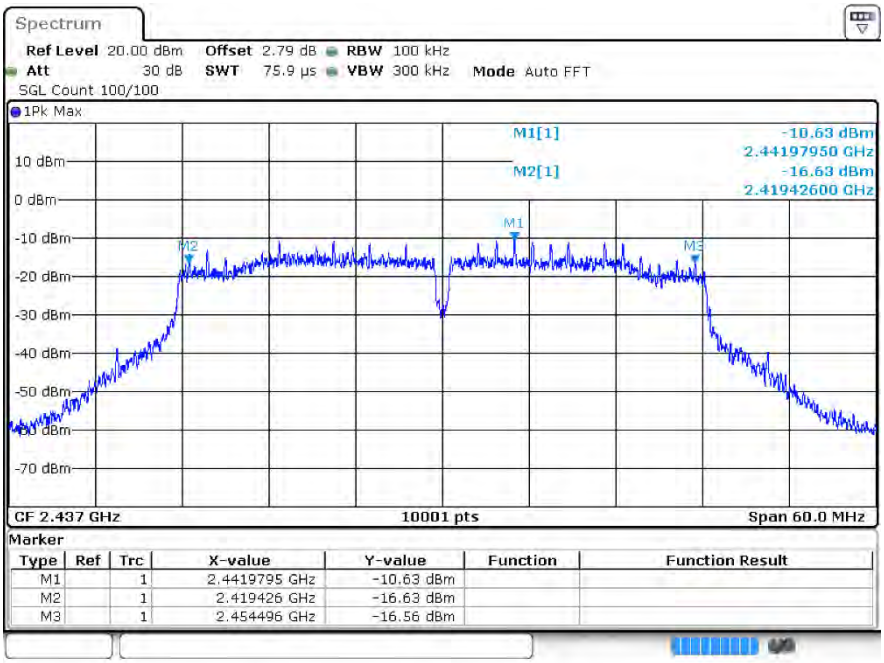
n20 2462MHz Ant2



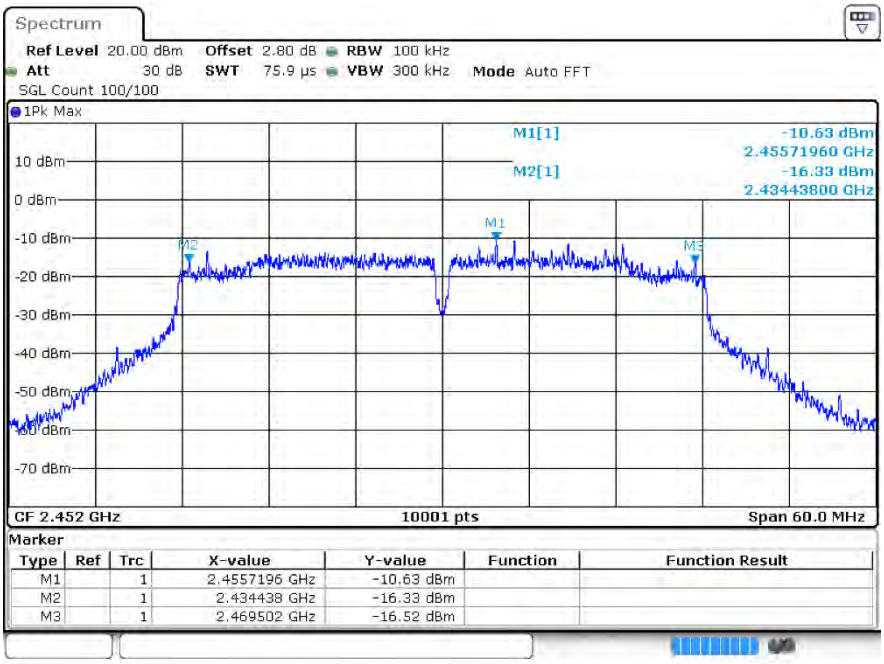
n40 2422MHz Ant2



n40 2437MHz Ant2



n40 2452MHz Ant2

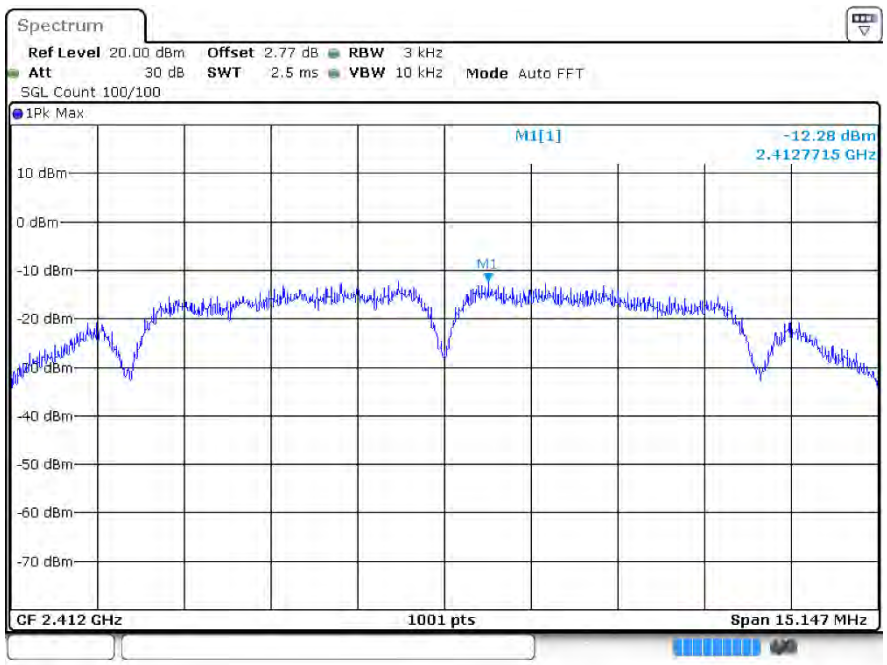
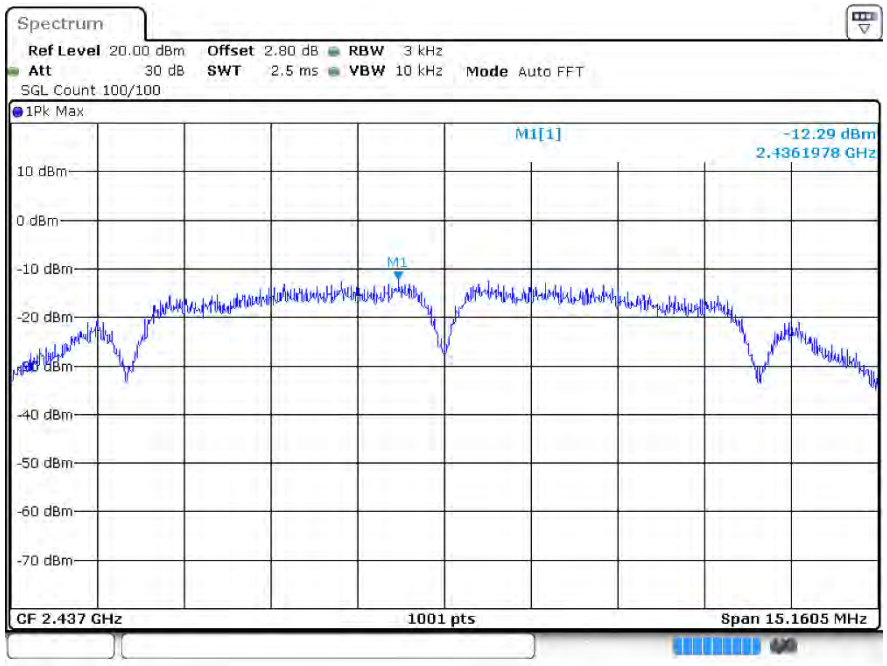


4 Maximum Power Spectral Density Level

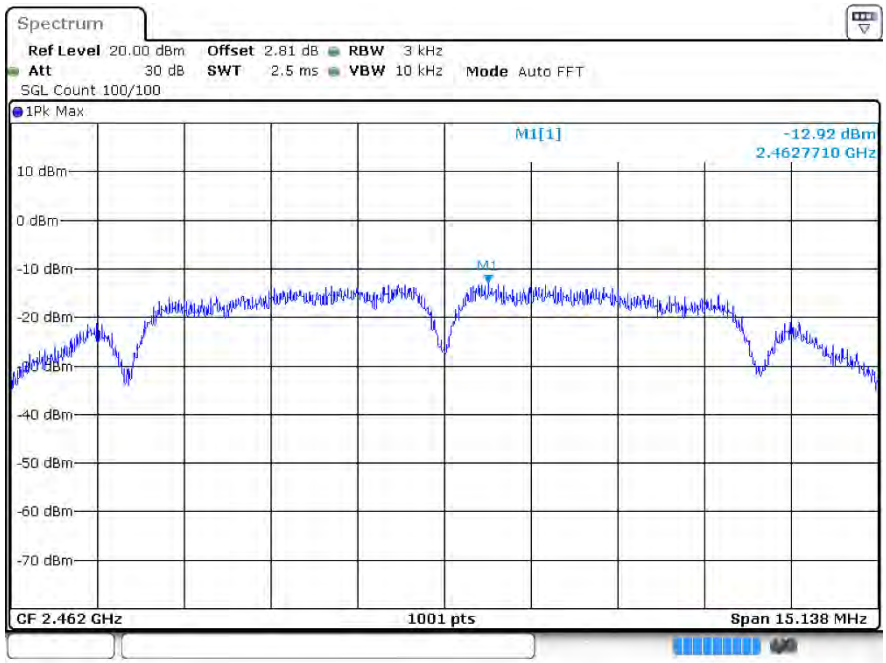
4.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3-100kHz)	Limit (dBm/3kHz)	Verdict
b	2412	Ant1	-12.28	≤8	Pass
b	2437	Ant1	-12.29	≤8	Pass
b	2462	Ant1	-12.92	≤8	Pass
g	2412	Ant1	-15.56	≤8	Pass
g	2437	Ant1	-16.39	≤8	Pass
g	2462	Ant1	-15.83	≤8	Pass
n20	2412	Ant1	-18.67	≤8	Pass
n20	2437	Ant1	-20.42	≤8	Pass
n20	2462	Ant1	-19.42	≤8	Pass
n40	2422	Ant1	-21.95	≤8	Pass
n40	2437	Ant1	-23.67	≤8	Pass
n40	2452	Ant1	-23.05	≤8	Pass
b	2412	Ant2	-12.54	≤8	Pass
b	2437	Ant2	-12.61	≤8	Pass
b	2462	Ant2	-12.54	≤8	Pass
g	2412	Ant2	-15.99	≤8	Pass
g	2437	Ant2	-16.93	≤8	Pass
g	2462	Ant2	-16.85	≤8	Pass
n20	2412	Ant2	-20.58	≤8	Pass
n20	2437	Ant2	-20.92	≤8	Pass
n20	2462	Ant2	-20.78	≤8	Pass
n40	2422	Ant2	-23.74	≤8	Pass
n40	2437	Ant2	-22.78	≤8	Pass
n40	2452	Ant2	-24.28	≤8	Pass
n20	2412	Sum	-16.51	≤6.49	Pass
n20	2437	Sum	-17.65	≤6.49	Pass
n20	2462	Sum	-17.04	≤6.49	Pass
n40	2422	Sum	-19.74	≤6.49	Pass
n40	2437	Sum	-20.19	≤6.49	Pass
n40	2452	Sum	-20.61	≤6.49	Pass

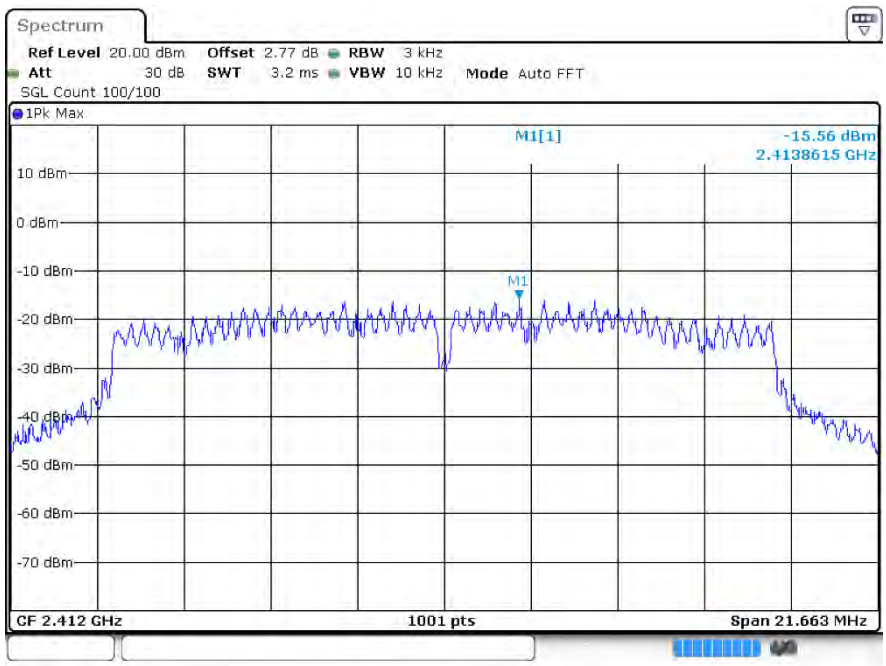
4.2 Test Graphs

Test Graphs
PSDb 2412MHz Ant1

PSD b 2437MHz Ant1


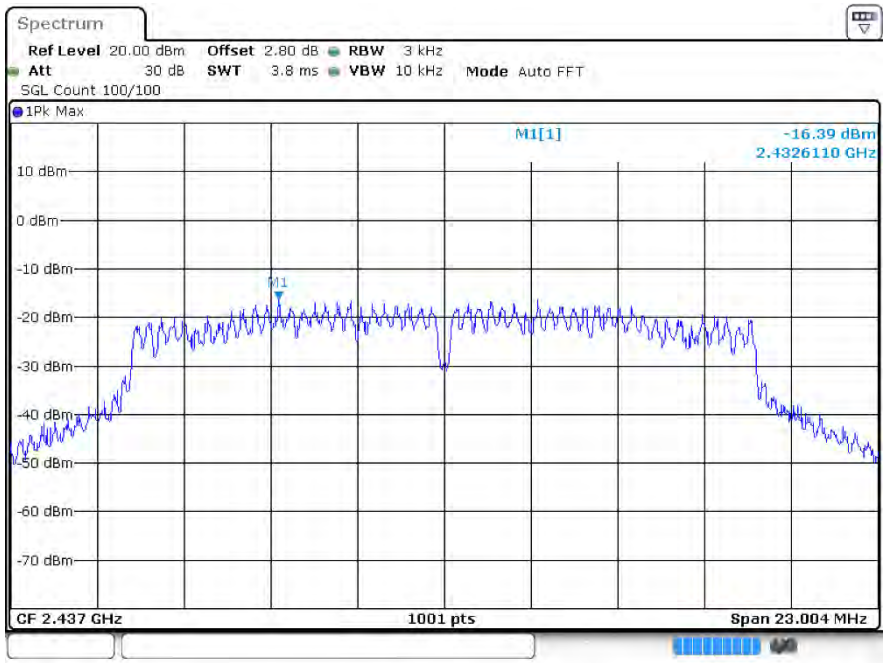
PSD b 2462MHz Ant1



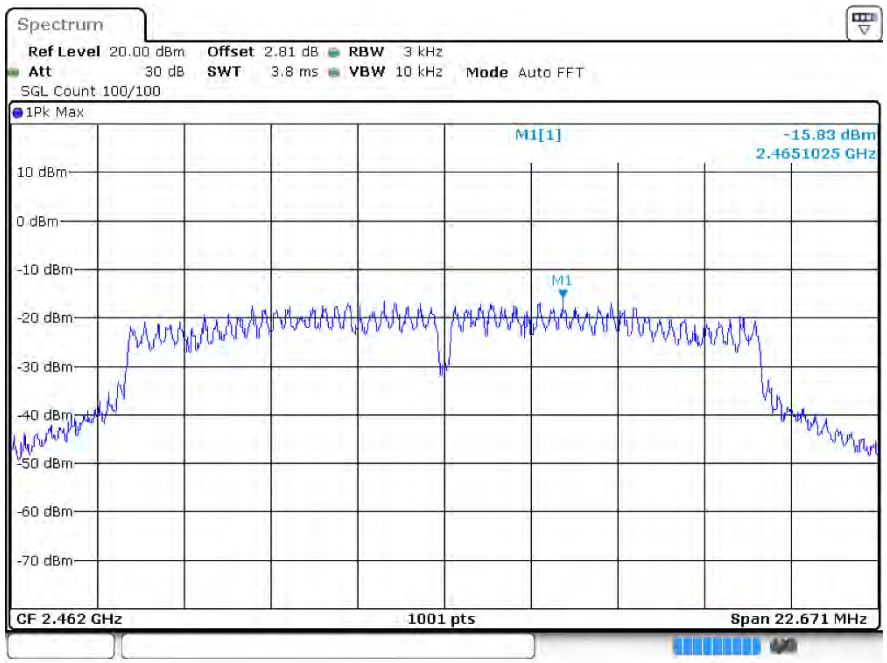
PSD g 2412MHz Ant1



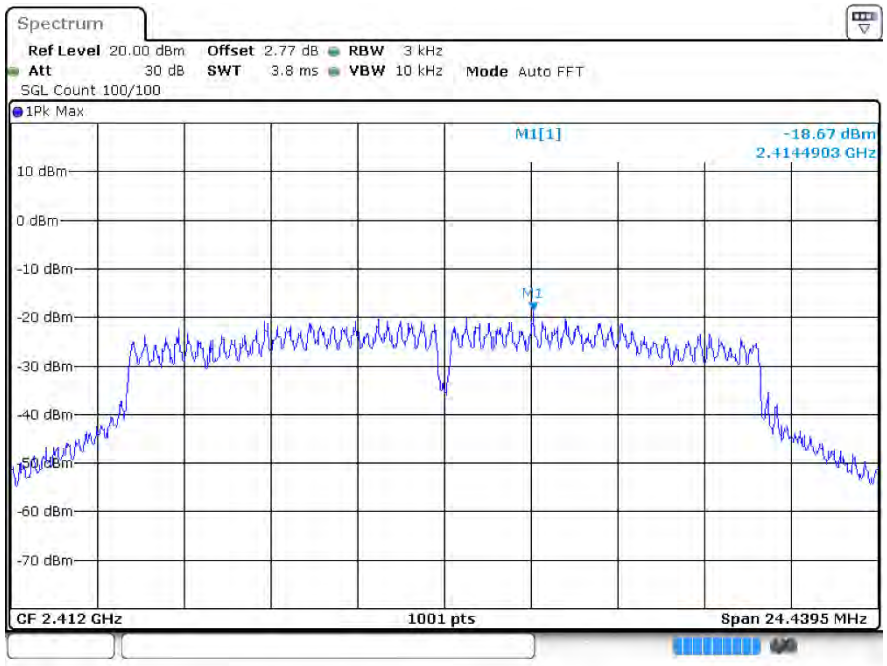
PSD g 2437MHz Ant1



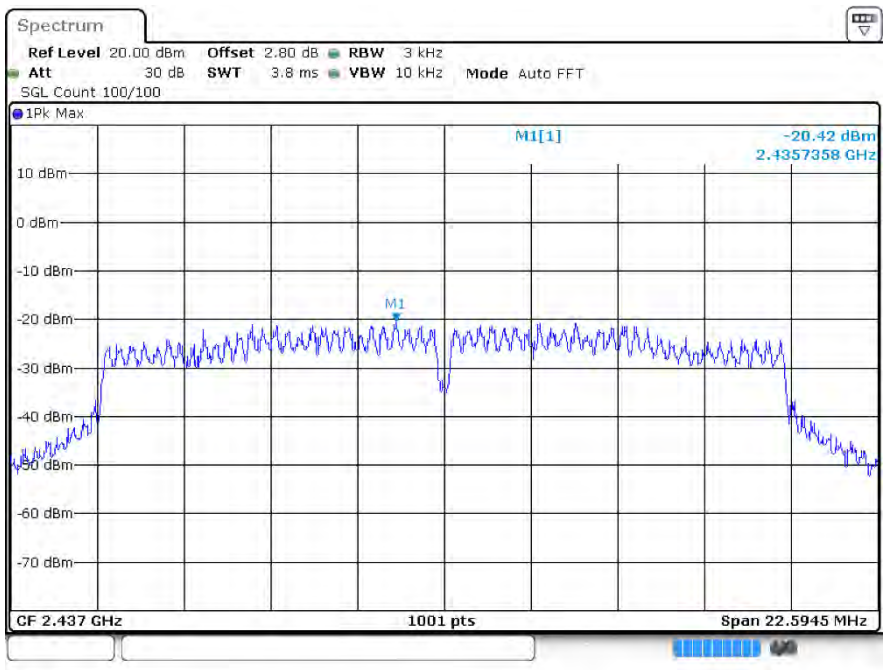
PSD g 2462MHz Ant1



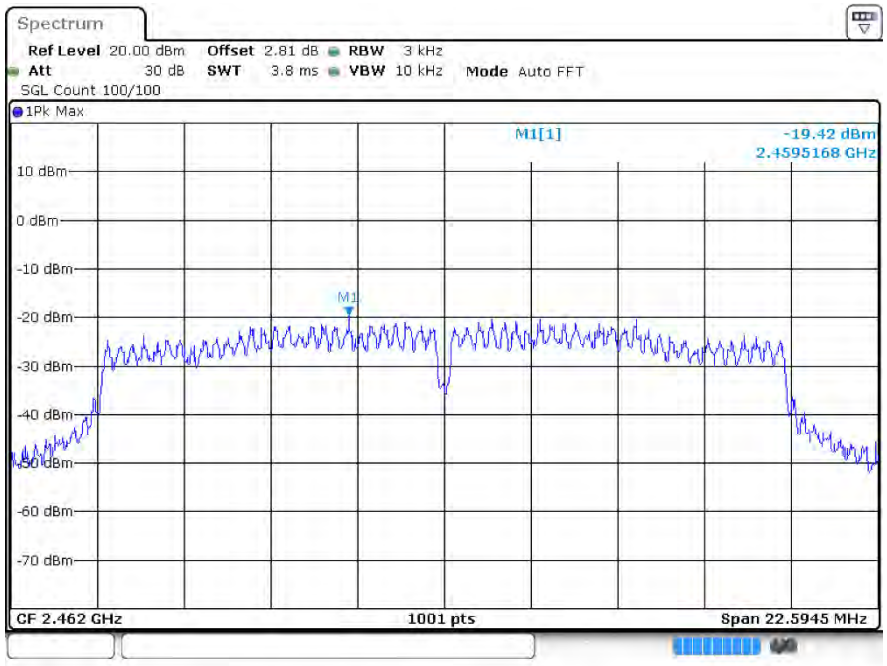
PSD n20 2412MHz Ant1



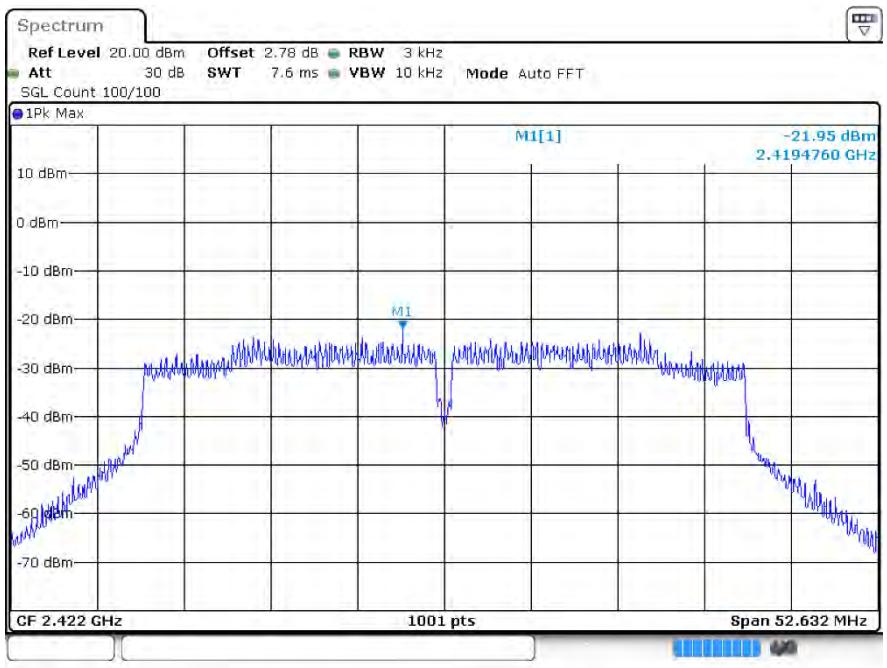
PSD n20 2437MHz Ant1



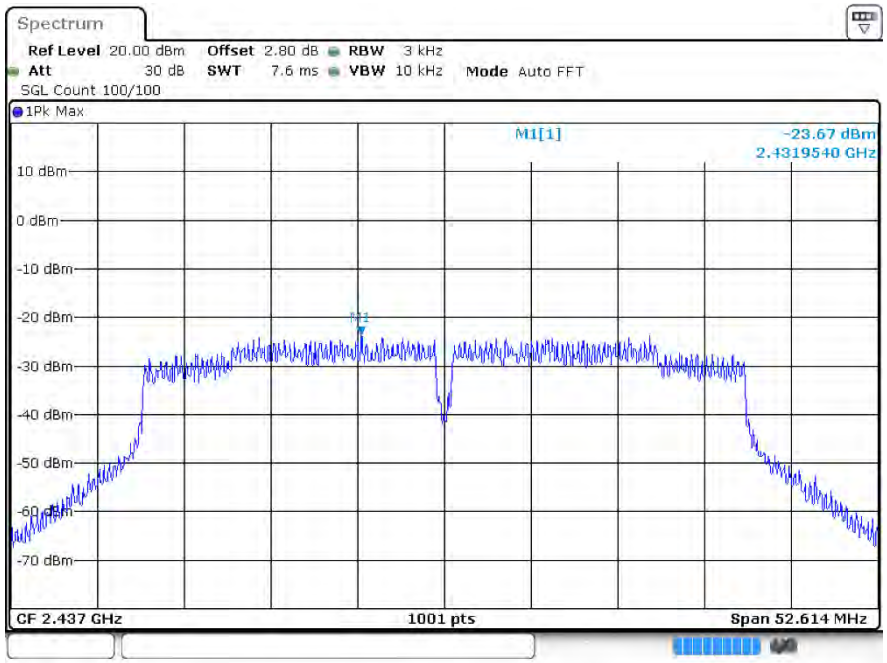
PSD n20 2462MHz Ant1



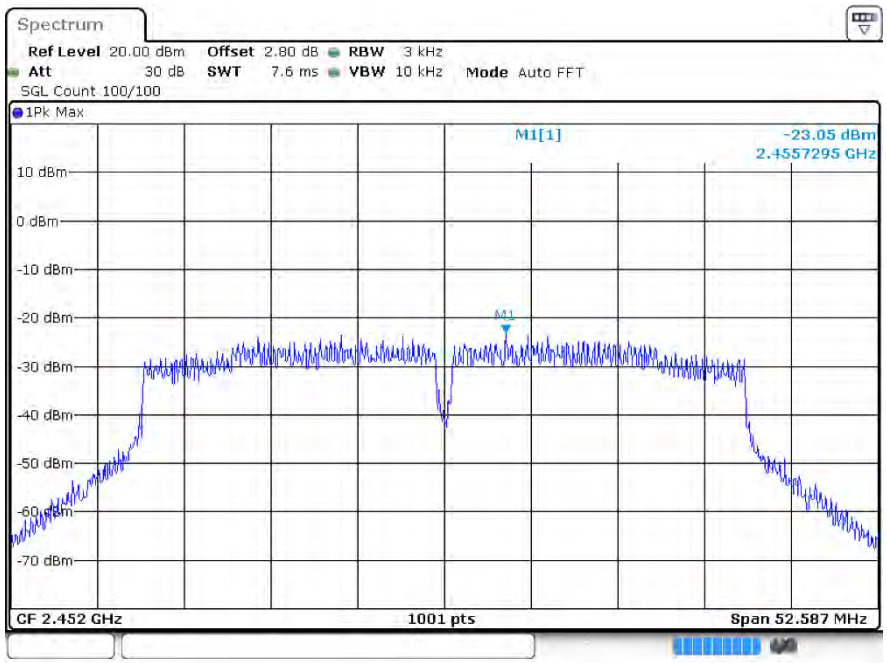
PSD n40 2422MHz Ant1



PSD n40 2437MHz Ant1



PSD n40 2452MHz Ant1



5 Band Edge

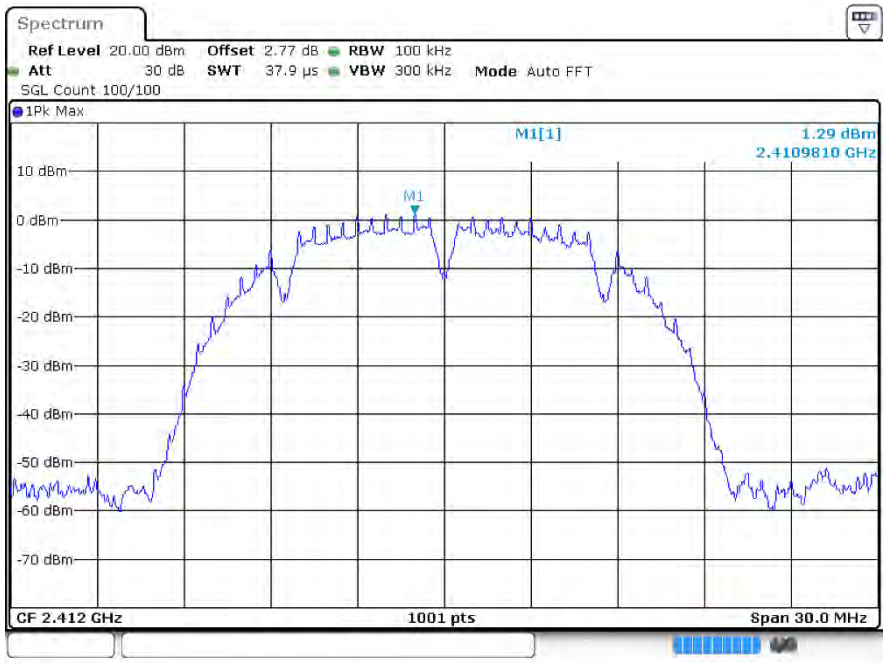
5.1 Test Result

Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-55.48	-20	-55.48
b	2462	Ant1	-57.22	-20	Pass
g	2412	Ant1	-53.2	-20	Pass
g	2462	Ant1	-54.04	-20	Pass
n20	2412	Ant1	-48.44	-20	Pass
n20	2462	Ant1	-50.09	-20	Pass
n40	2422	Ant1	-46.88	-20	Pass
n40	2452	Ant1	-46.18	-20	Pass
b	2412	Ant2	-55.41	-20	-55.41
b	2462	Ant2	-56.5	-20	Pass
g	2412	Ant2	-53.52	-20	Pass
g	2462	Ant2	-53.48	-20	Pass
n20	2412	Ant2	-47.63	-20	Pass
n20	2462	Ant2	-49.46	-20	Pass
n40	2422	Ant2	-45.21	-20	Pass
n40	2452	Ant2	-44.25	-20	Pass

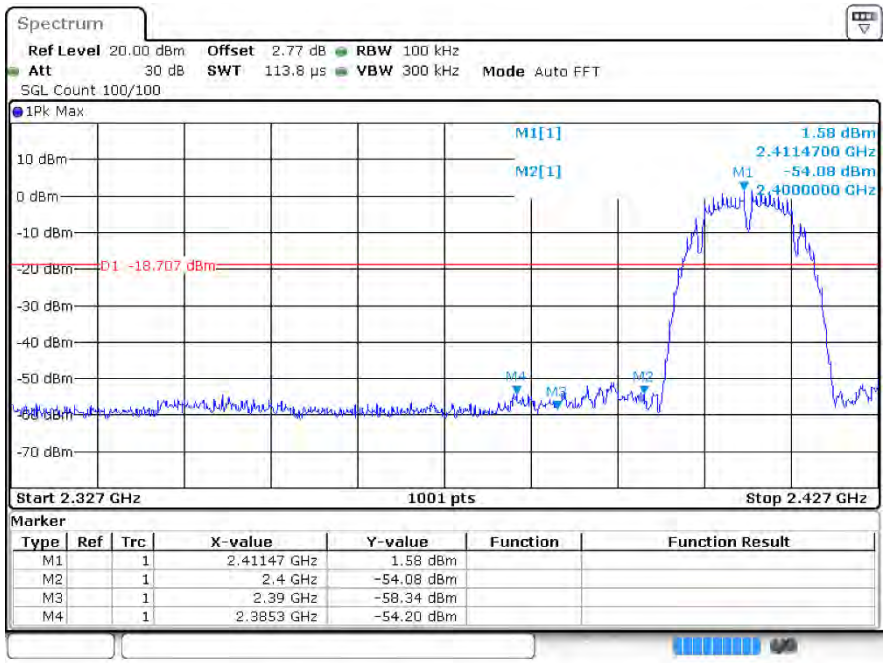
5.2 Test Graphs

Test Graphs

b 2412MHz Ant1 Ref

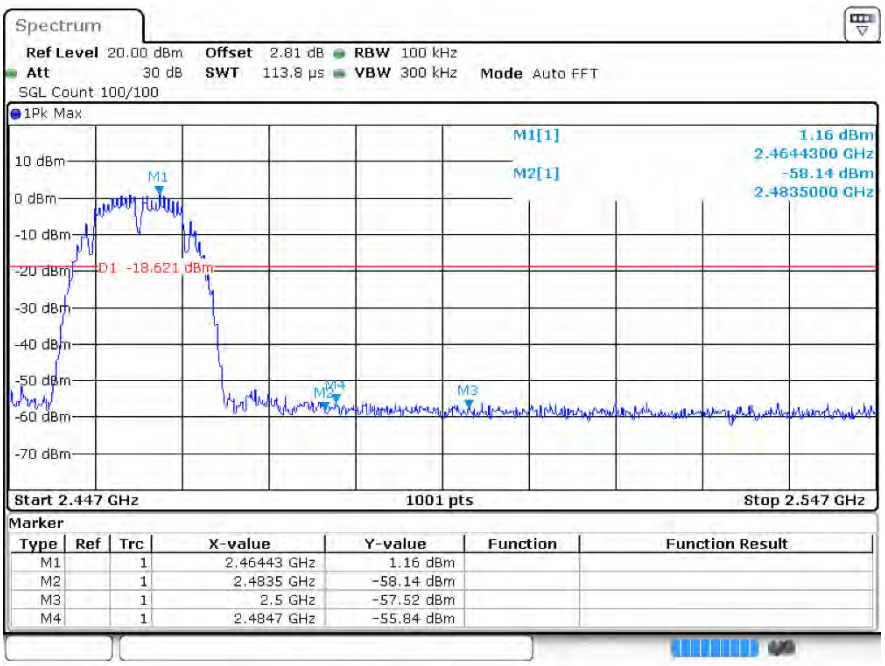


b 2412MHz Ant1 Emission



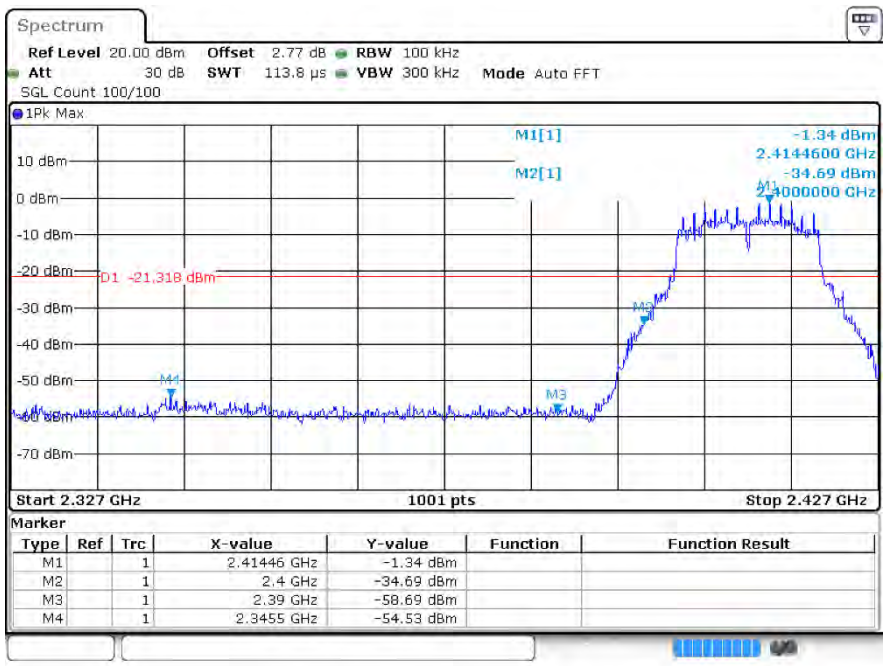
b 2462MHz Ant1 Ref

b 2462MHz Ant1 Emission

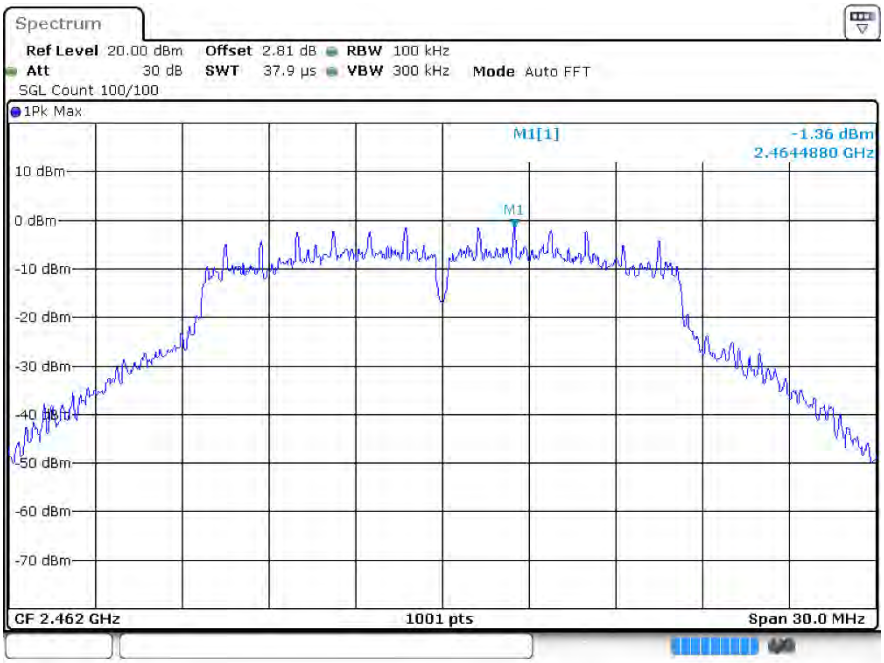


g 2412MHz Ant1 Ref

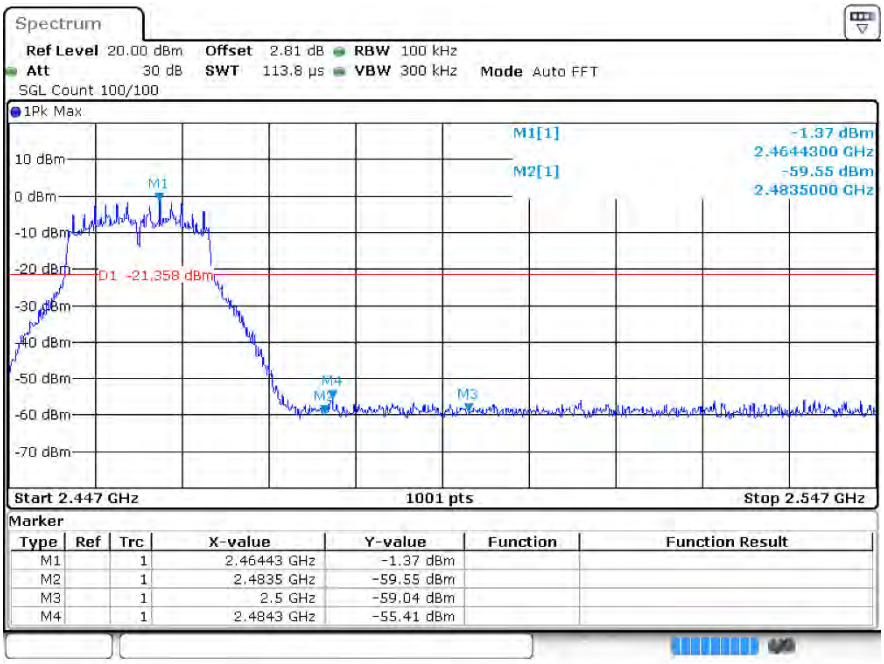
g 2412MHz Ant1 Emission



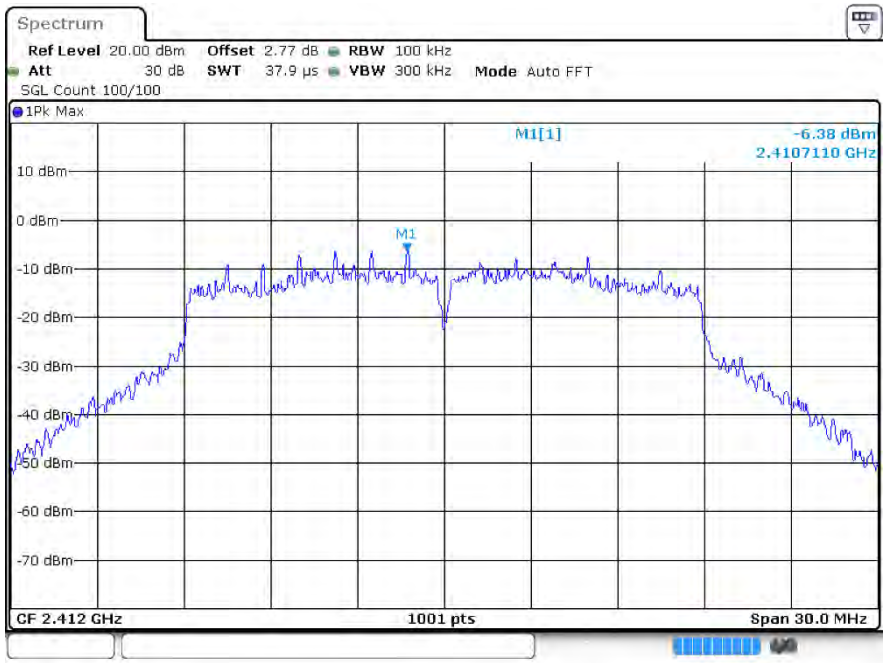
g 2462MHz Ant1 Ref



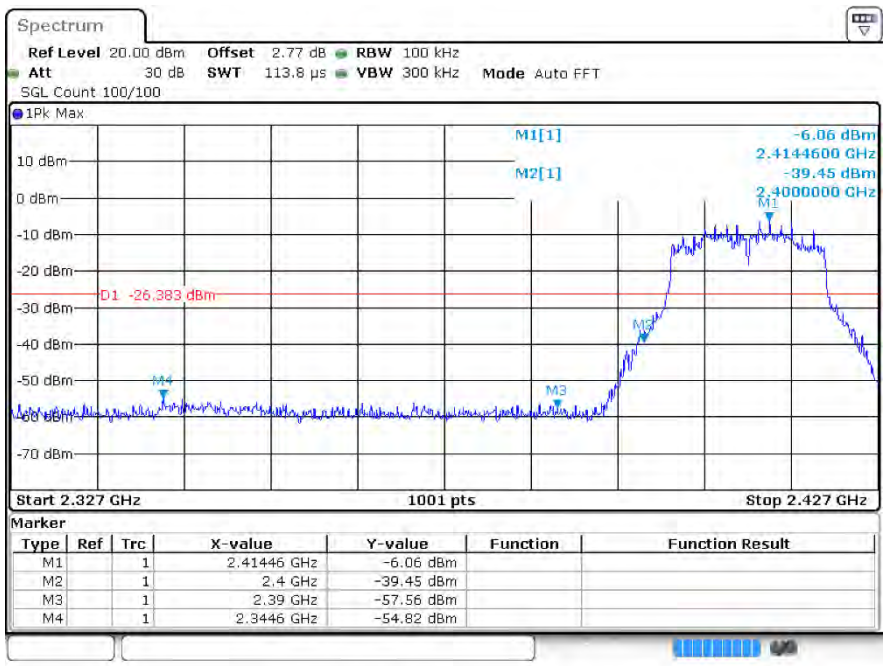
g 2462MHz Ant1 Emission



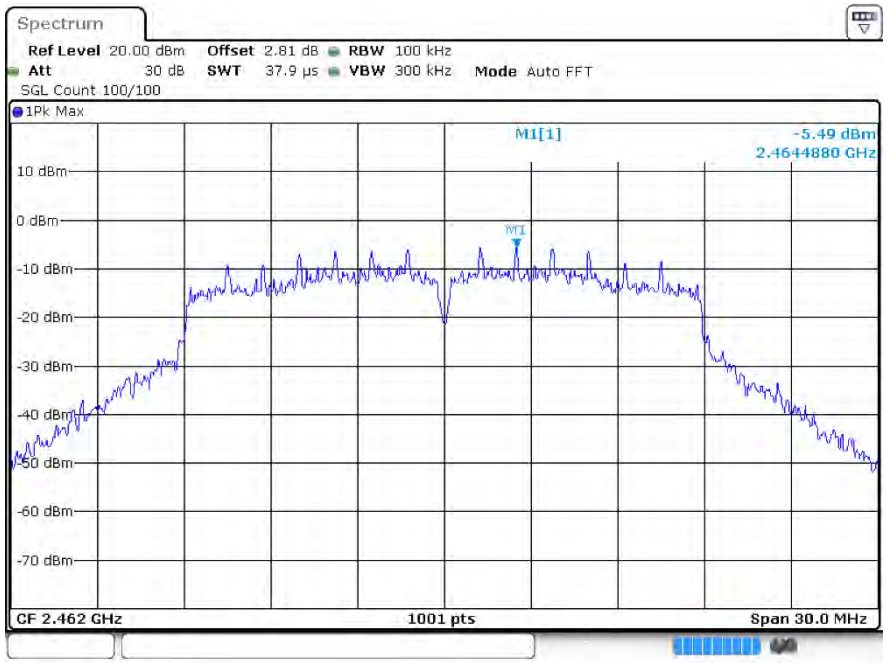
n20 2412MHz Ant1 Ref



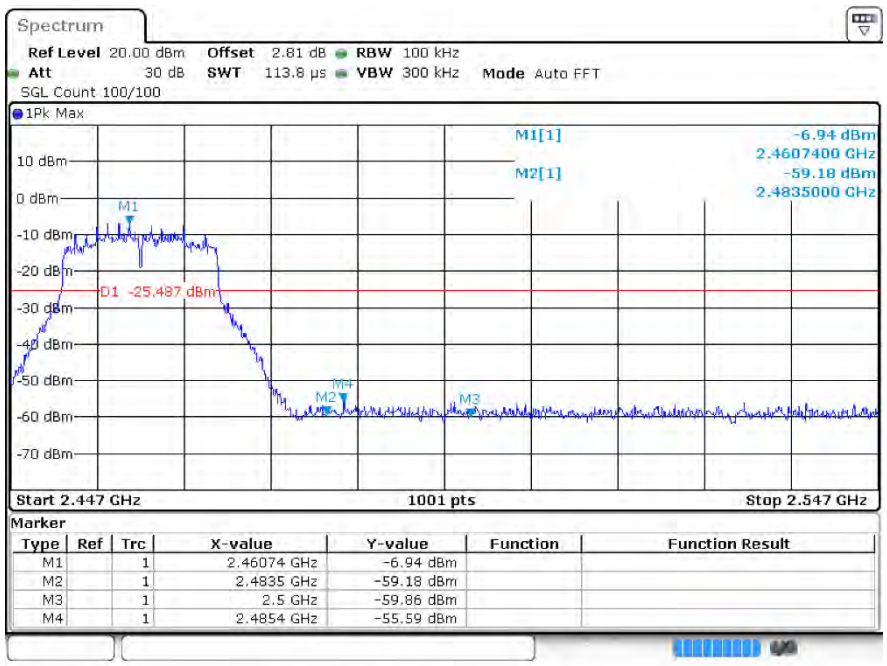
n20 2412MHz Ant1 Emission



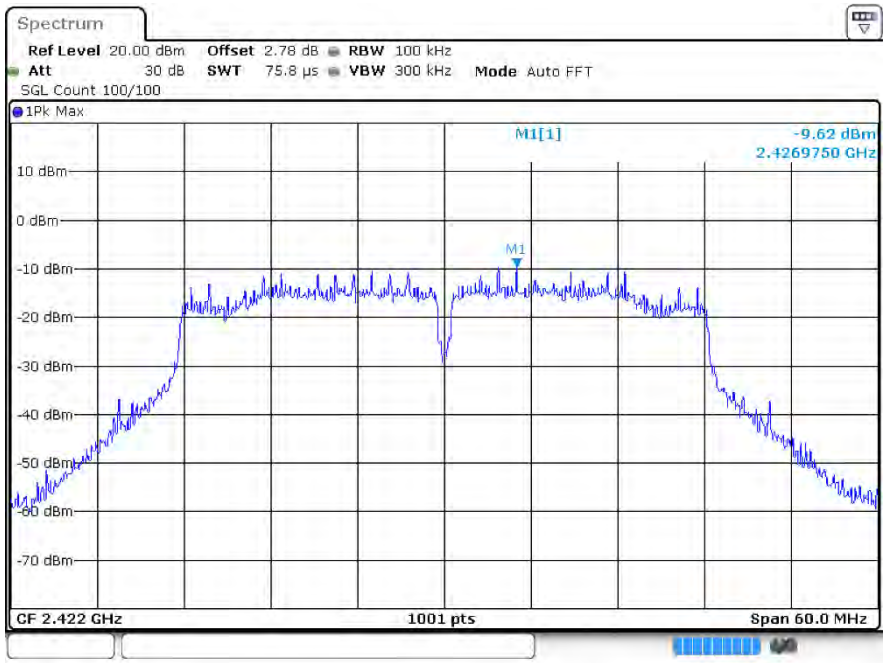
n20 2462MHz Ant1 Ref



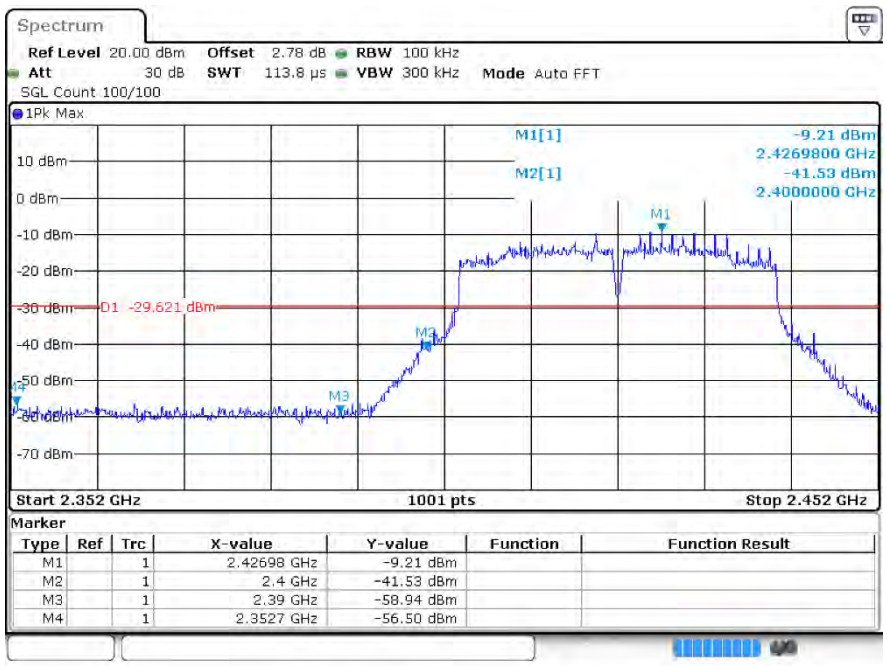
n20 2462MHz Ant1 Emission



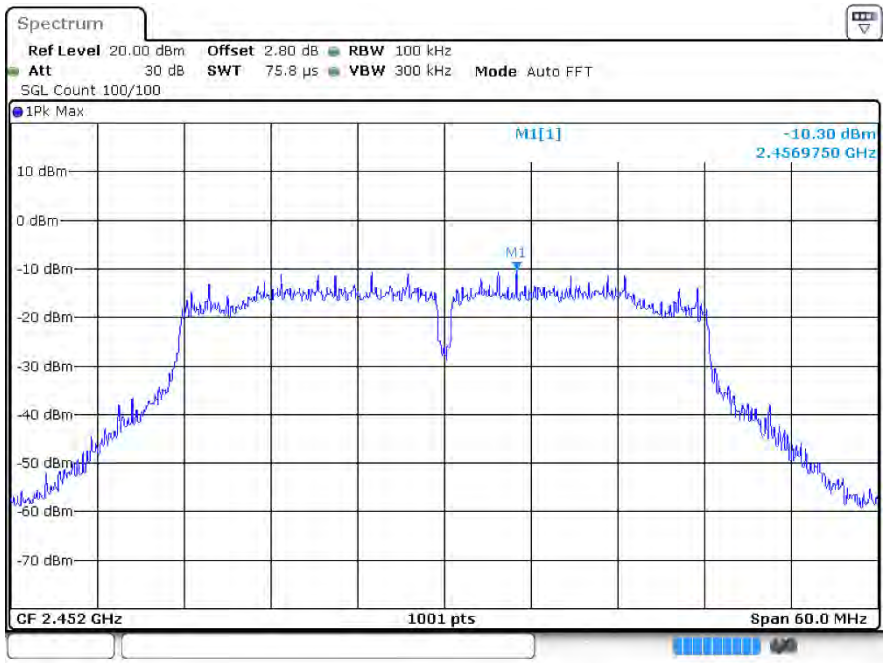
n40 2422MHz Ant1 Ref



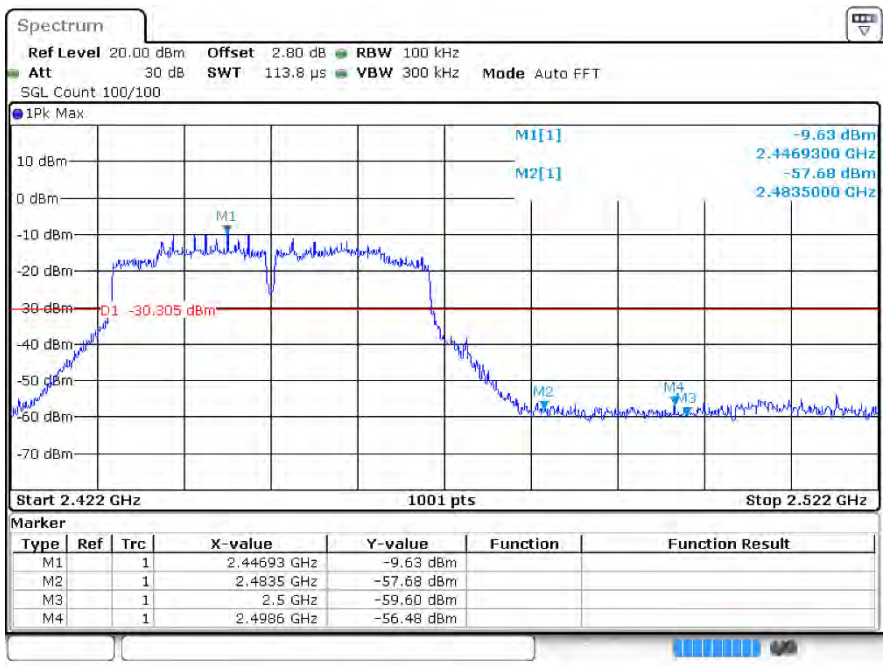
n40 2422MHz Ant1 Emission



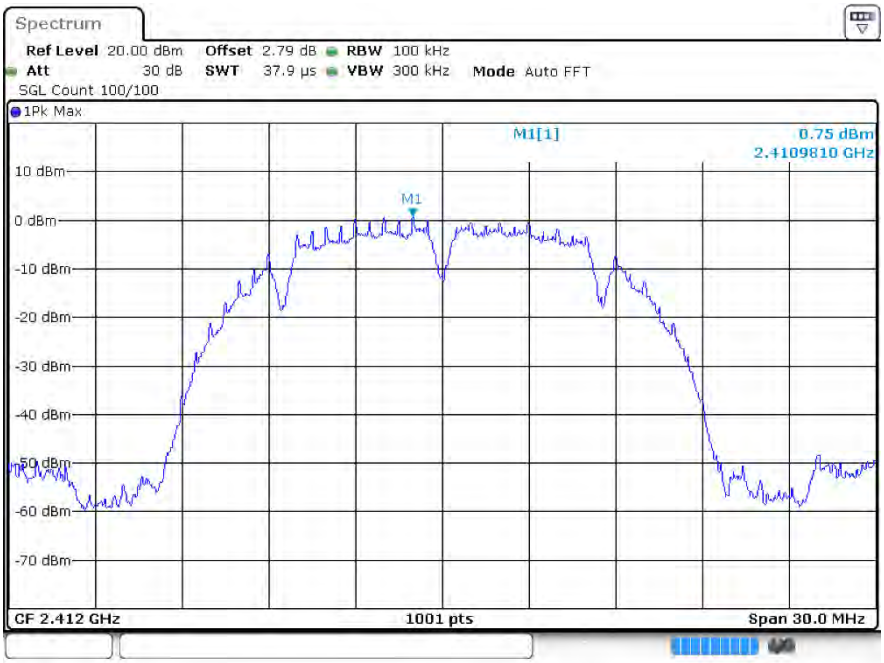
n40 2452MHz Ant1 Ref



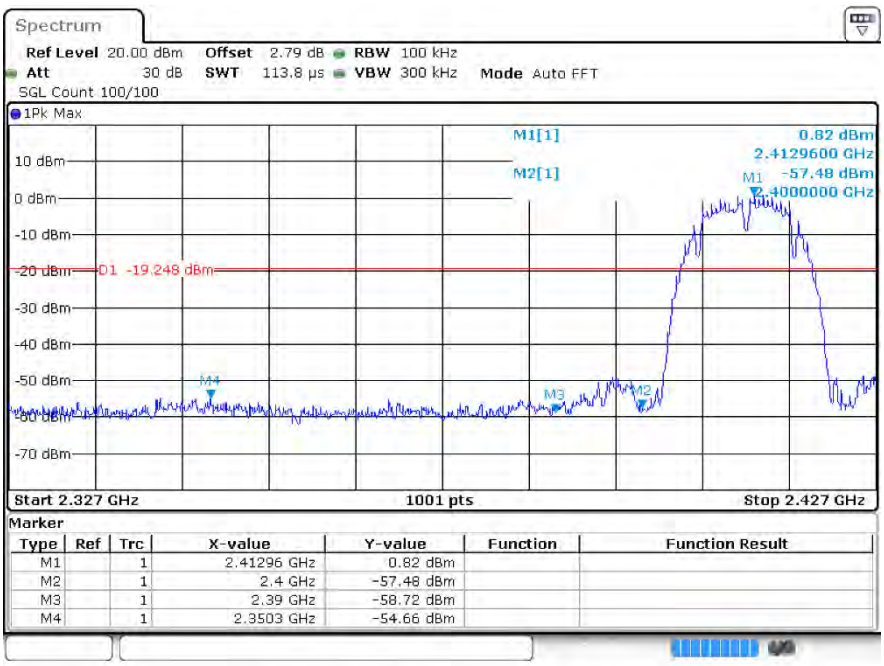
n40 2452MHz Ant1 Emission



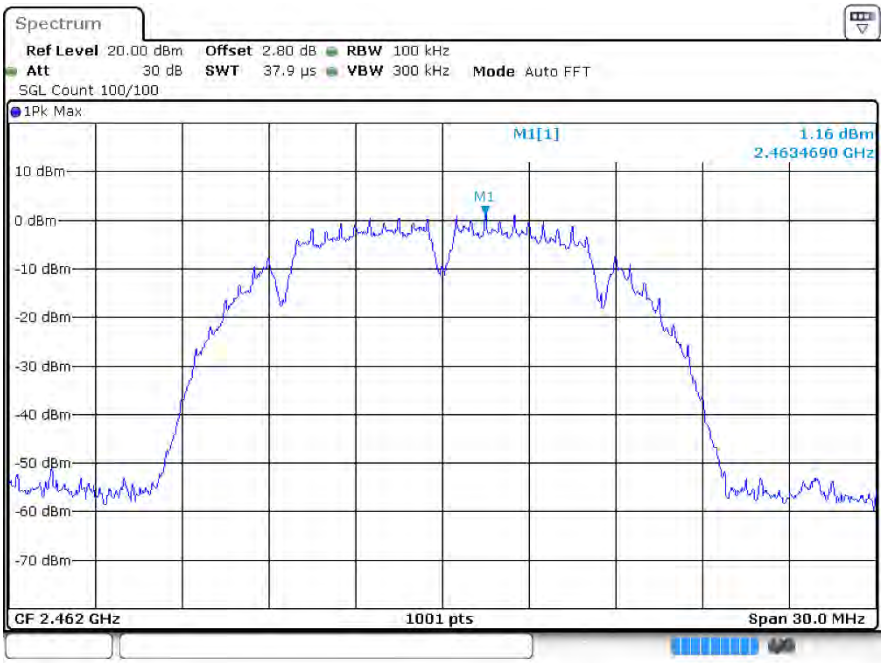
b 2412MHz Ant2 Ref



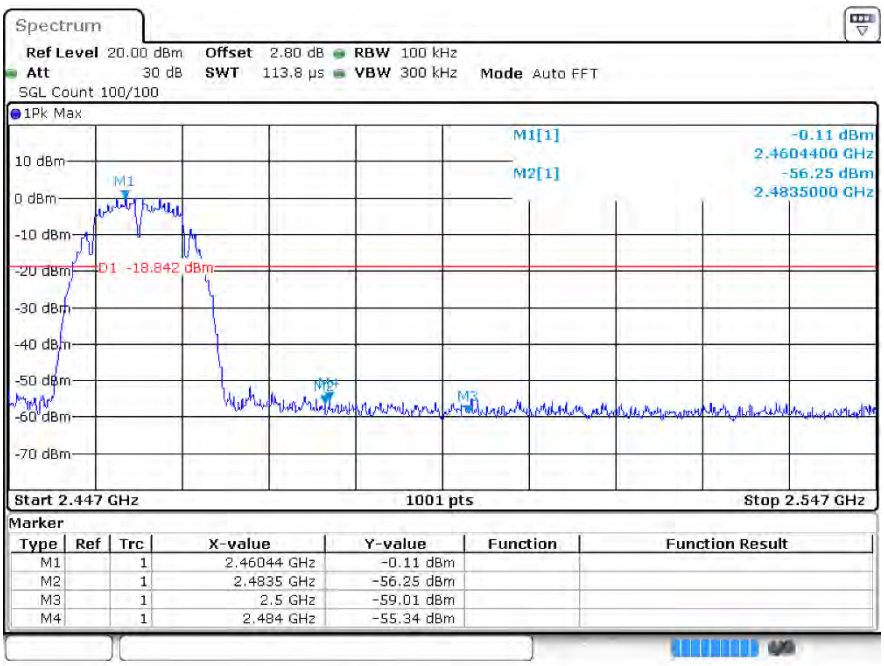
b 2412MHz Ant2 Emission



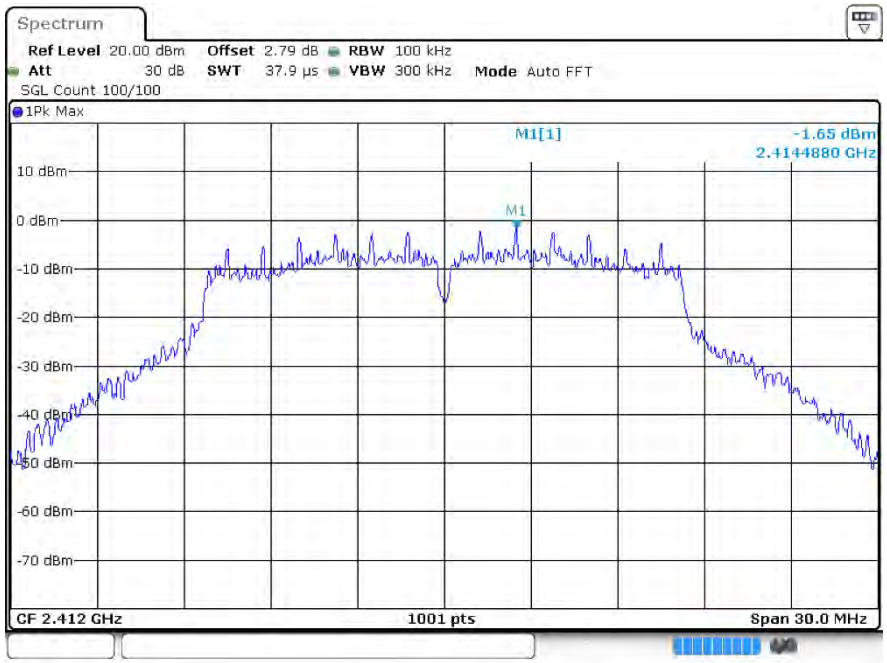
b 2462MHz Ant2 Ref



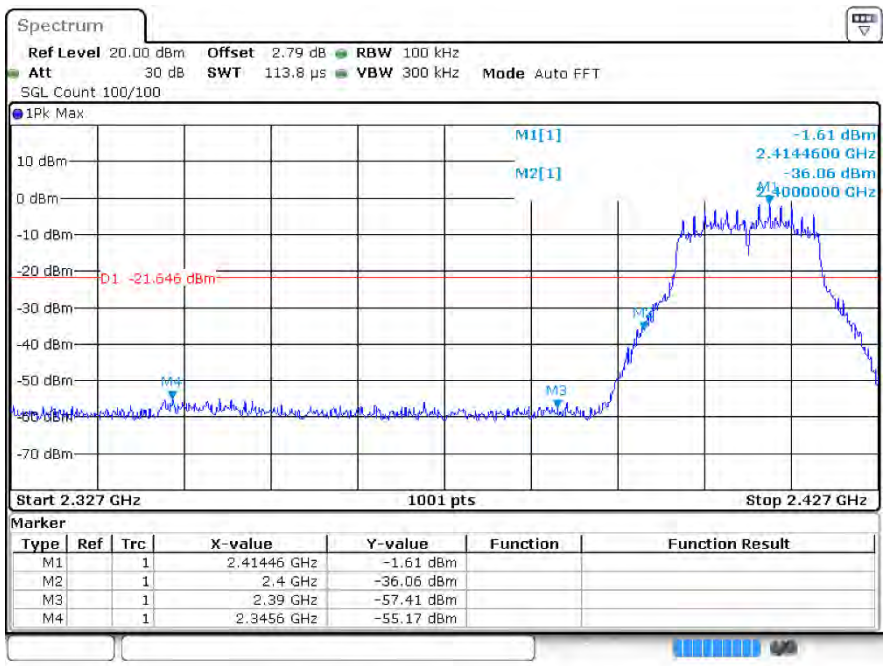
b 2462MHz Ant2 Emission



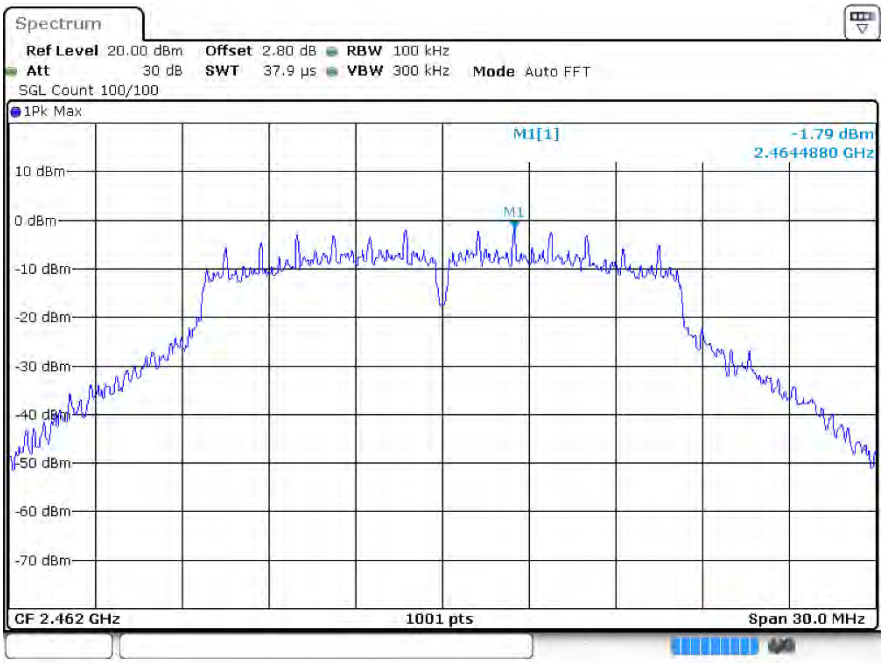
g 2412MHz Ant2 Ref



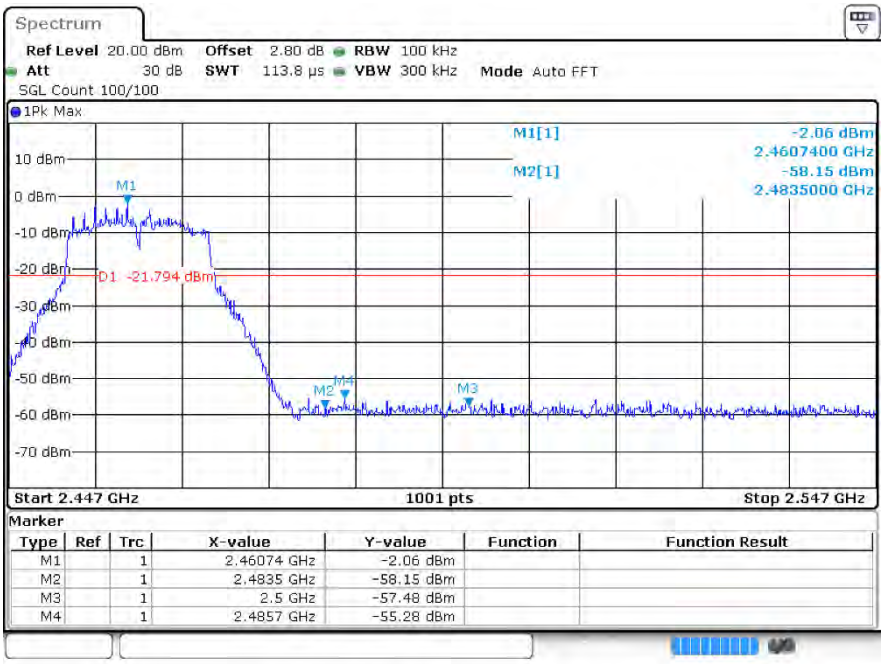
g 2412MHz Ant2 Emission



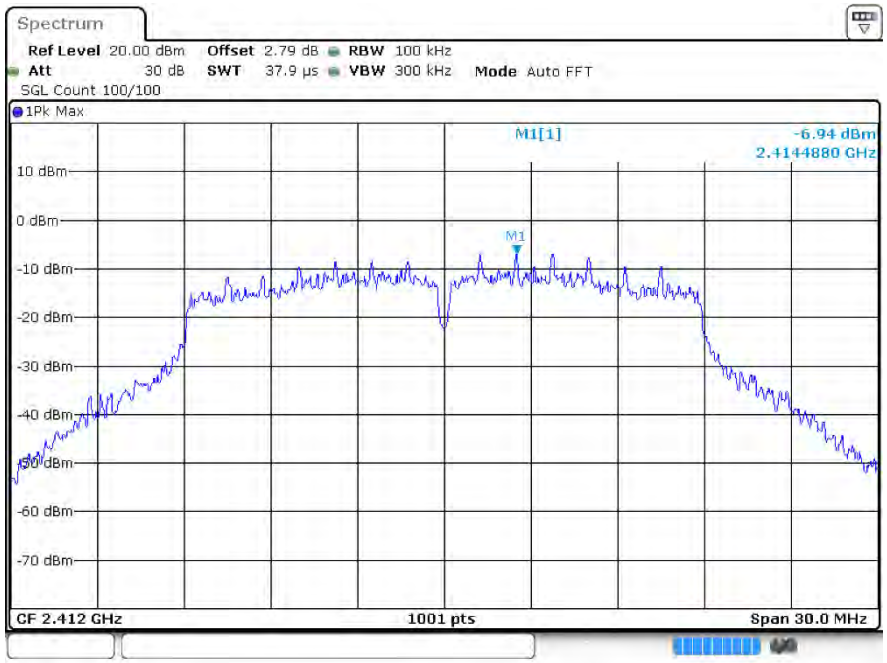
g 2462MHz Ant2 Ref



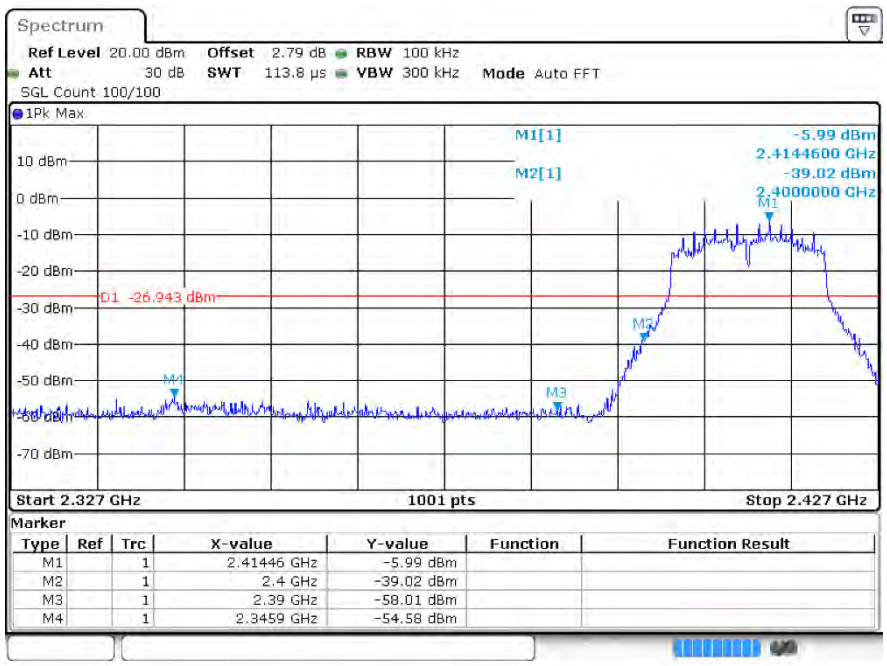
g 2462MHz Ant2 Emission



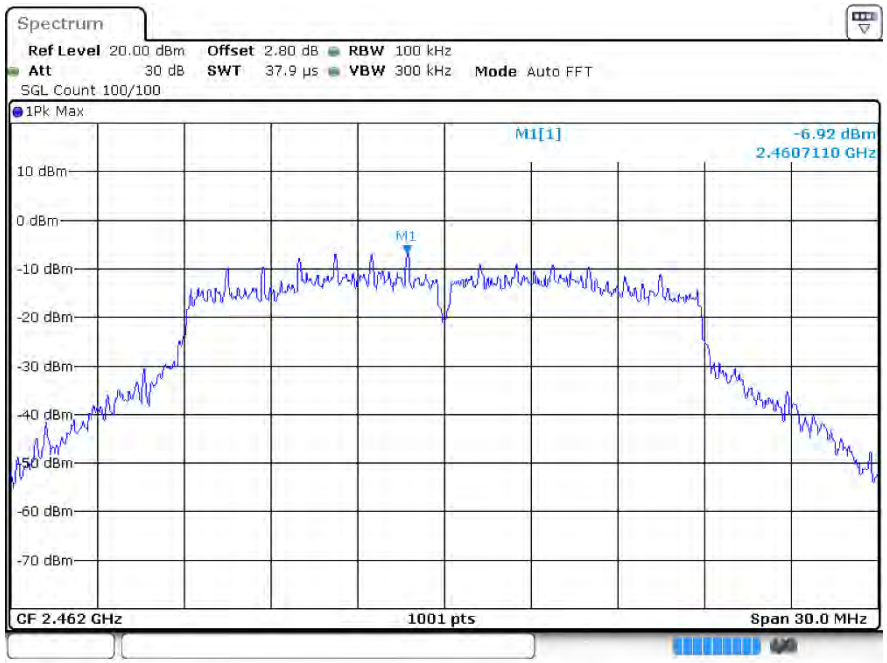
n20 2412MHz Ant2 Ref



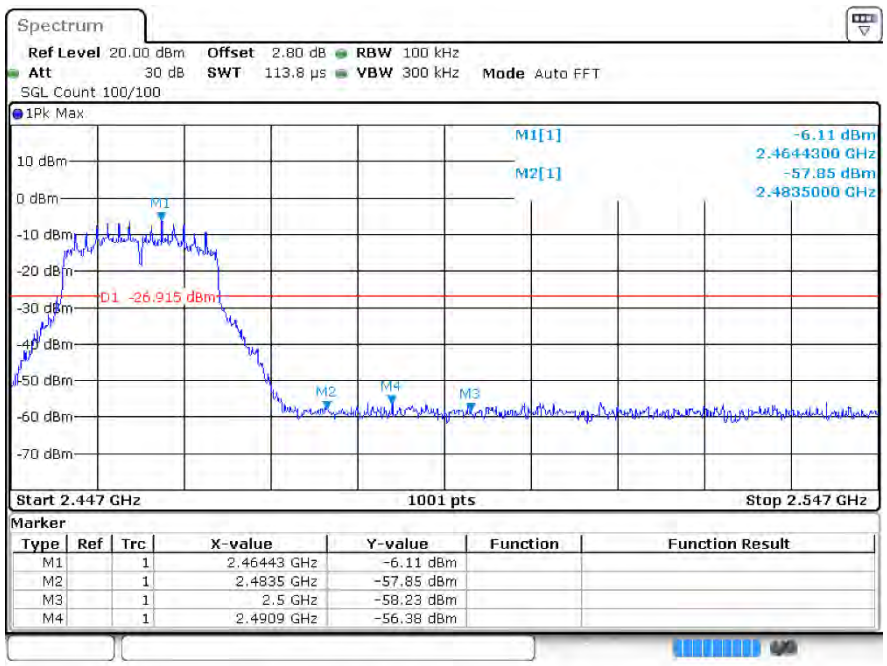
n20 2412MHz Ant2 Emission



n20 2462MHz Ant2 Ref



n20 2462MHz Ant2 Emission



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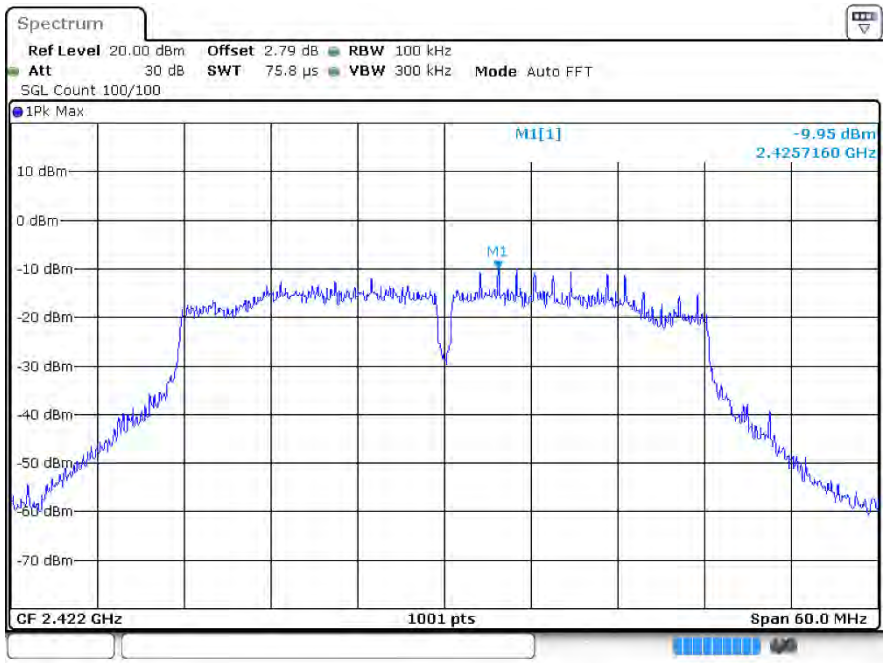
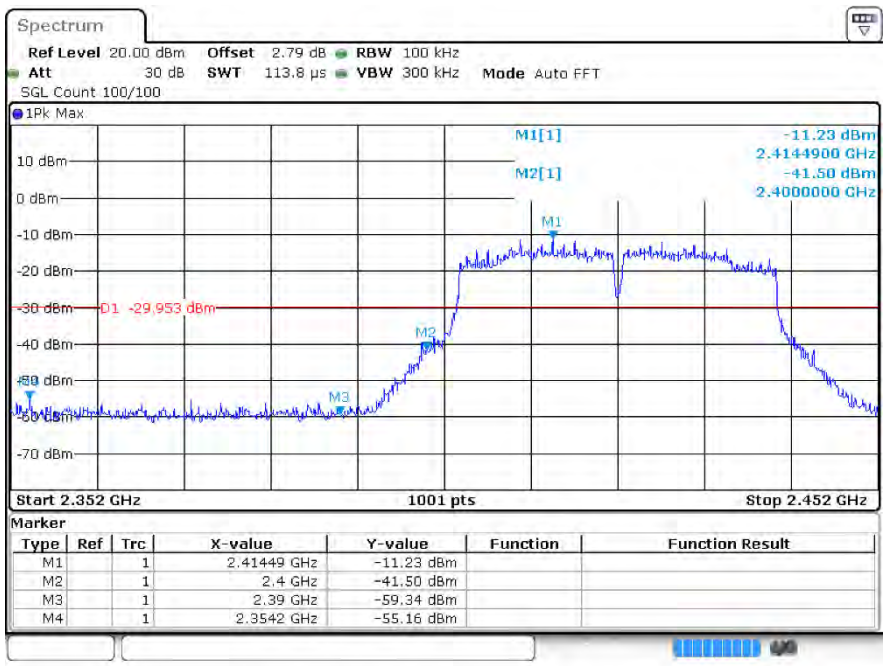
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46443 GHz	-6.11 dBm		
M2		1	2.4835 GHz	-57.85 dBm		
M3		1	2.5 GHz	-58.23 dBm		
M4		1	2.4909 GHz	-56.38 dBm		

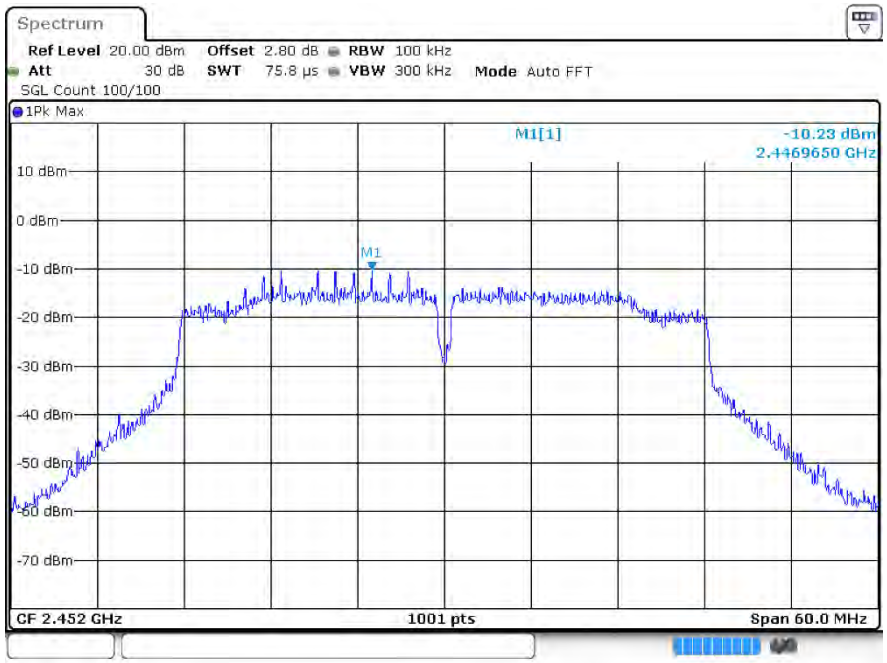
n40 2422MHz Ant2 Ref



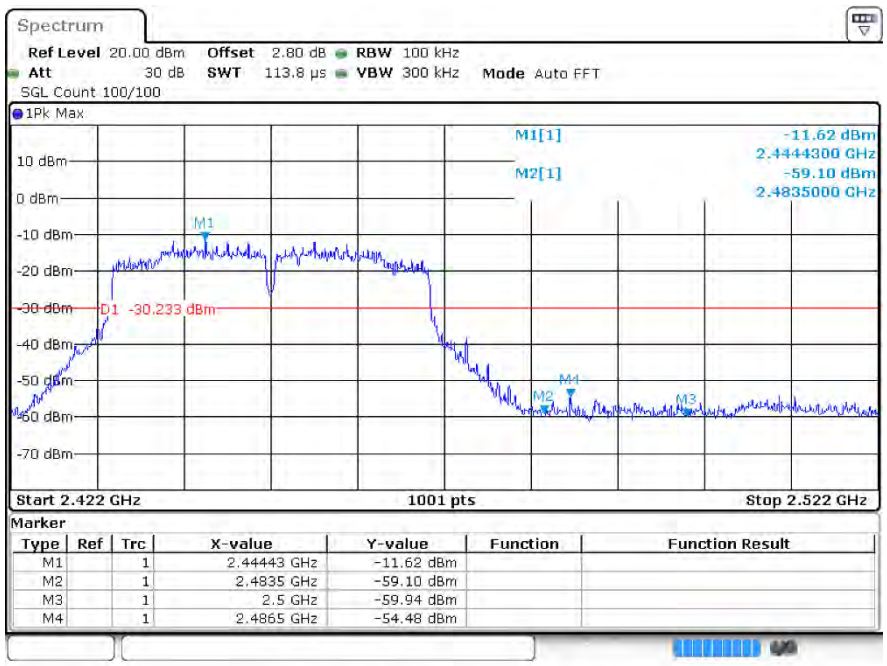
n40 2422MHz Ant2 Emission



n40 2452MHz Ant2 Ref



n40 2452MHz Ant2 Emission



6 Conducted RF Spurious Emission

6.1 Test Result

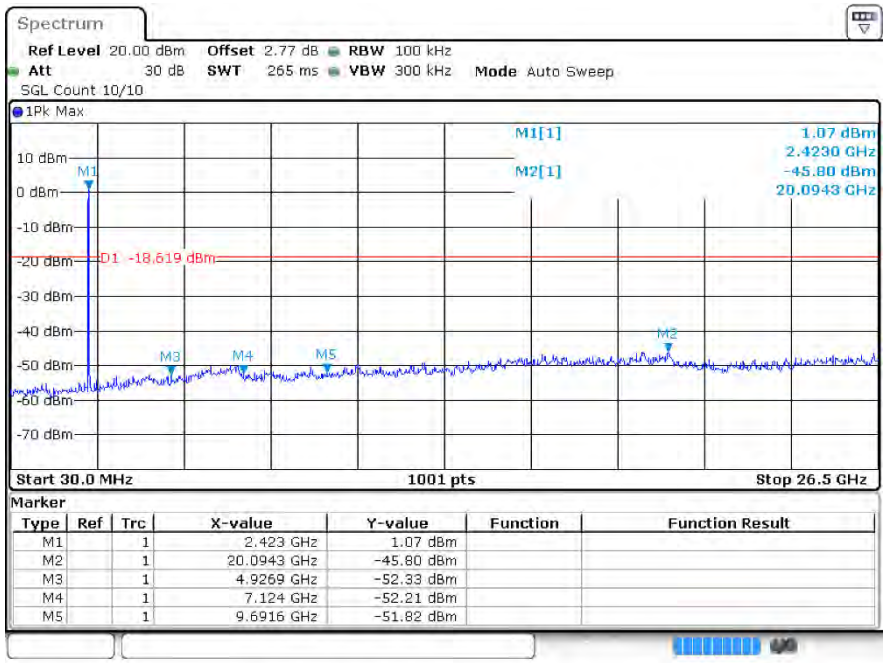
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-47.18	-20	Pass
b	2437	Ant1	-46.92	-20	Pass
b	2462	Ant1	-46.23	-20	Pass
g	2412	Ant1	-44.42	-20	Pass
g	2437	Ant1	-44.75	-20	Pass
g	2462	Ant1	-44.3	-20	Pass
n20	2412	Ant1	-39.74	-20	Pass
n20	2437	Ant1	-39.85	-20	Pass
n20	2462	Ant1	-39.54	-20	Pass
n40	2422	Ant1	-35.12	-20	Pass
n40	2437	Ant1	-34.73	-20	Pass
n40	2452	Ant1	-35.61	-20	Pass
b	2412	Ant2	-45.41	-20	Pass
b	2437	Ant2	-46.55	-20	Pass
b	2462	Ant2	-44.91	-20	Pass
g	2412	Ant2	-42.95	-20	Pass
g	2437	Ant2	-43.81	-20	Pass
g	2462	Ant2	-43.17	-20	Pass
n20	2412	Ant2	-39.77	-20	Pass
n20	2437	Ant2	-39.84	-20	Pass
n20	2462	Ant2	-38.19	-20	Pass
n40	2422	Ant2	-34.22	-20	Pass
n40	2437	Ant2	-35.58	-20	Pass
n40	2452	Ant2	-35.22	-20	Pass

6.2 Test Graphs

Test Graphs

b 2412MHz Ant1 Ref

b 2412MHz Ant1 Emission

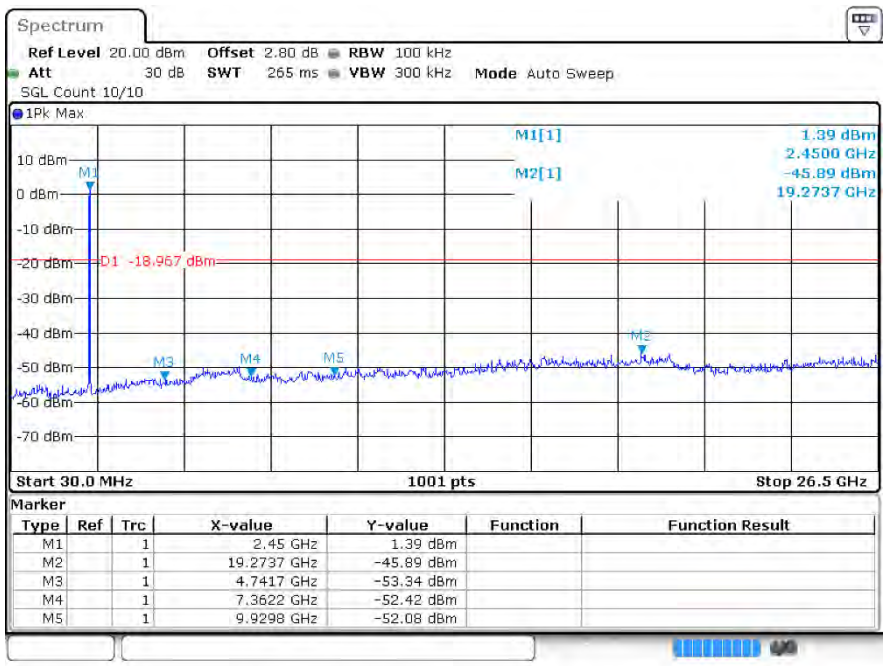


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.423 GHz	1.07 dBm		
M2		1	20.0943 GHz	-45.80 dBm		
M3		1	4.9269 GHz	-52.33 dBm		
M4		1	7.124 GHz	-52.21 dBm		
M5		1	9.6916 GHz	-51.82 dBm		

b 2437MHz Ant1 Ref

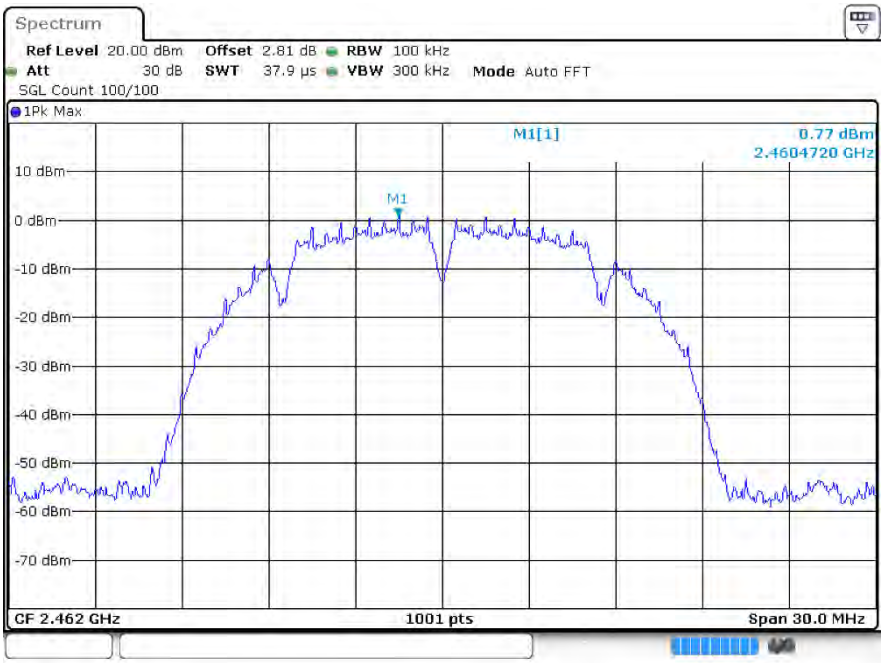
b 2437MHz Ant1 Emission



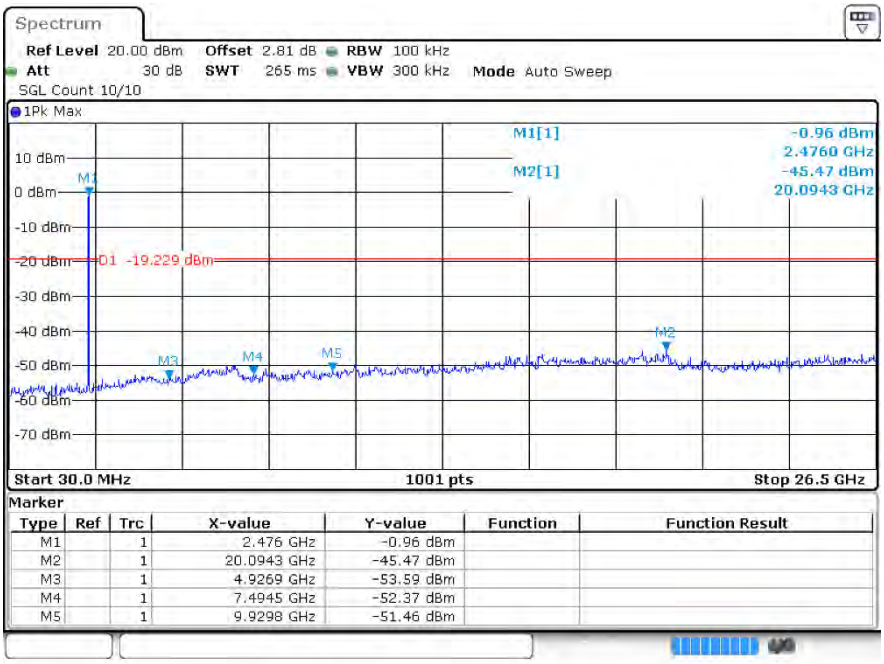
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	1.39 dBm		
M2		1	19.2737 GHz	-45.89 dBm		
M3		1	4.7417 GHz	-53.34 dBm		
M4		1	7.3622 GHz	-52.42 dBm		
M5		1	9.9298 GHz	-52.08 dBm		

b 2462MHz Ant1 Ref



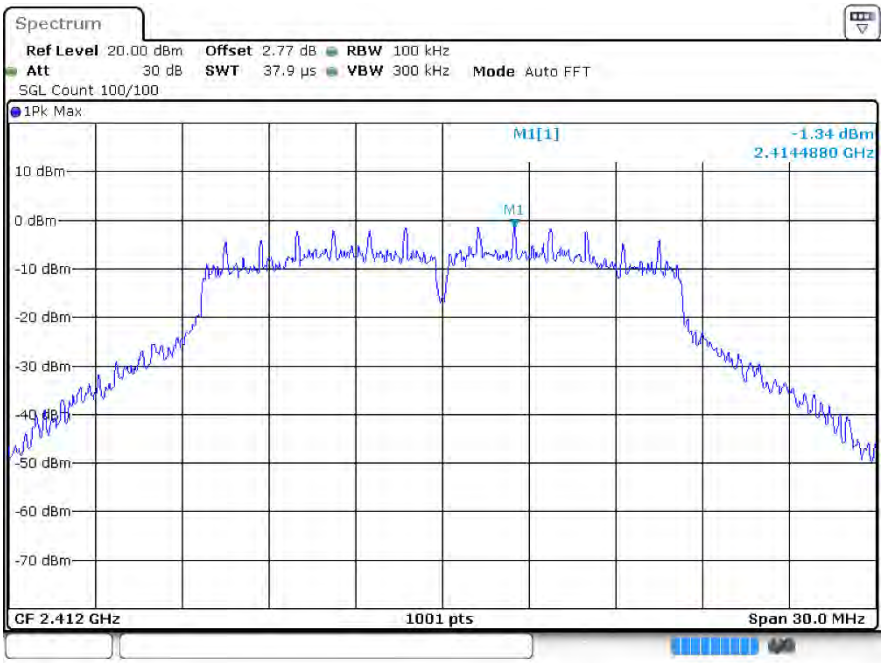
b 2462MHz Ant1 Emission



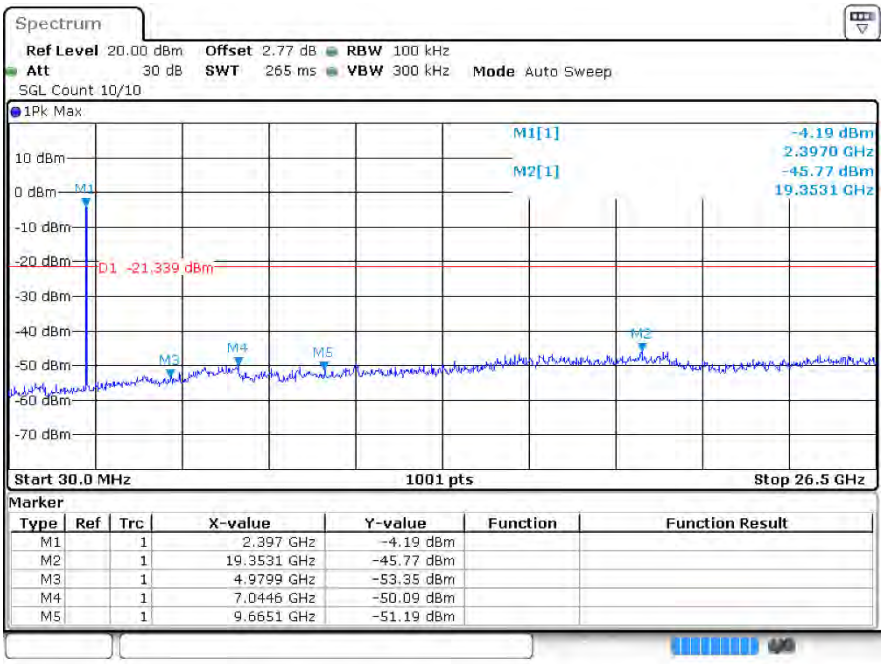
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.476 GHz	-0.96 dBm		
M2		1	20.0943 GHz	-45.47 dBm		
M3		1	4.9269 GHz	-53.59 dBm		
M4		1	7.4945 GHz	-52.37 dBm		
M5		1	9.9298 GHz	-51.46 dBm		

g 2412MHz Ant1 Ref

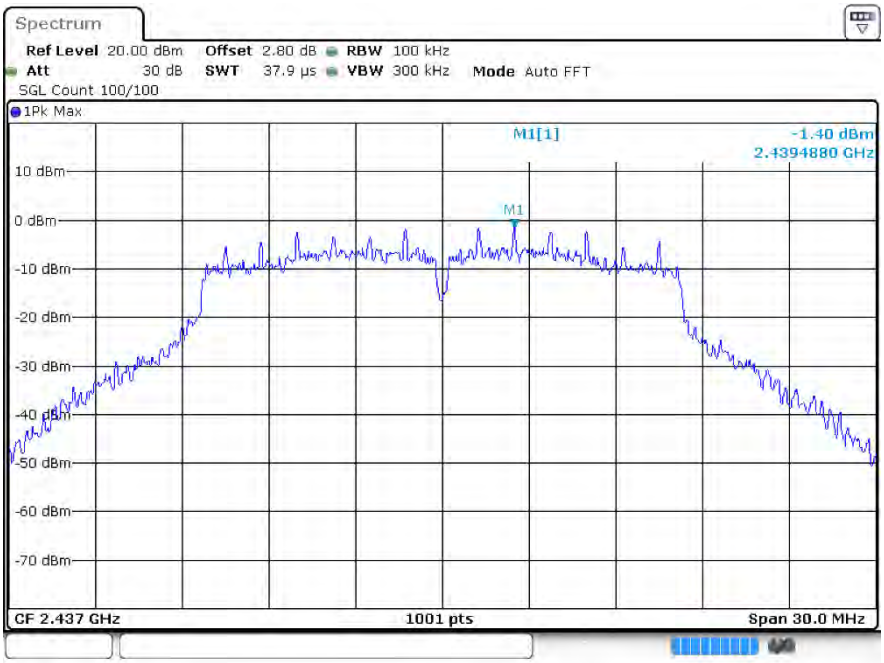


g 2412MHz Ant1 Emission

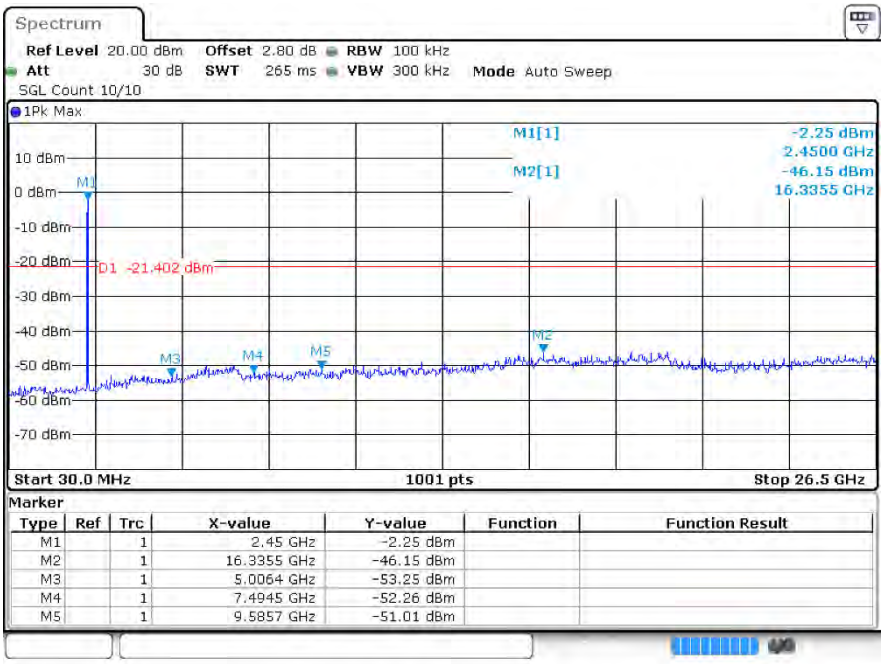


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.397 GHz	-4.19 dBm		
M2		1	19.3531 GHz	-45.77 dBm		
M3		1	4.9799 GHz	-53.35 dBm		
M4		1	7.0446 GHz	-50.09 dBm		
M5		1	9.6651 GHz	-51.19 dBm		

g 2437MHz Ant1 Ref



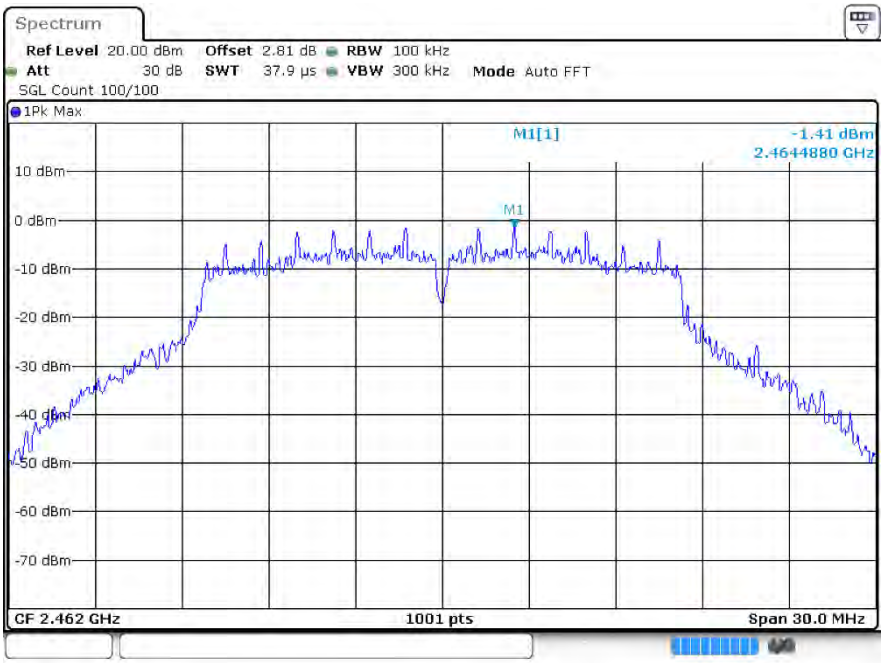
g 2437MHz Ant1 Emission



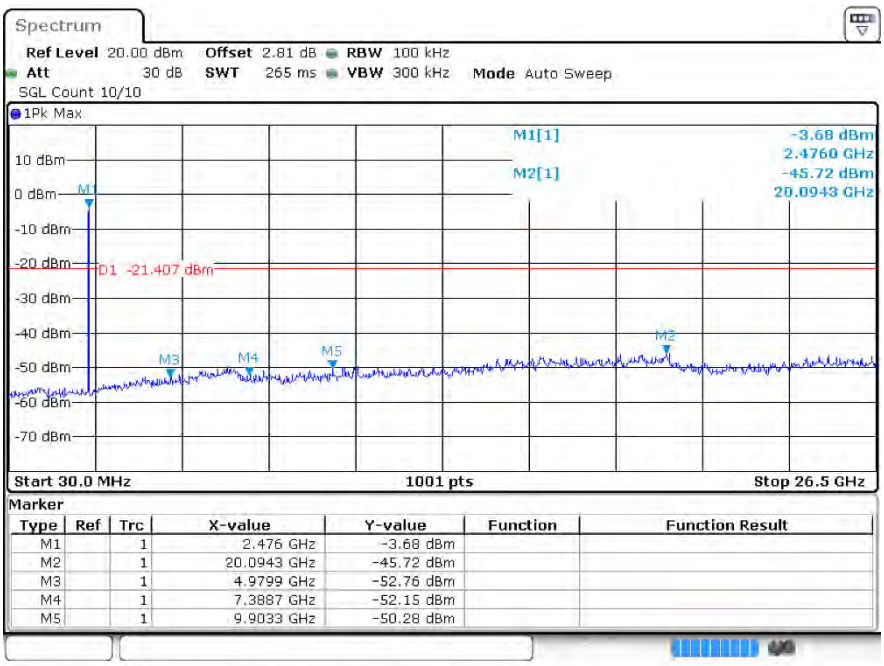
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-2.25 dBm		
M2		1	16.3355 GHz	-46.15 dBm		
M3		1	5.0064 GHz	-53.25 dBm		
M4		1	7.4945 GHz	-52.26 dBm		
M5		1	9.5857 GHz	-51.01 dBm		

g 2462MHz Ant1 Ref



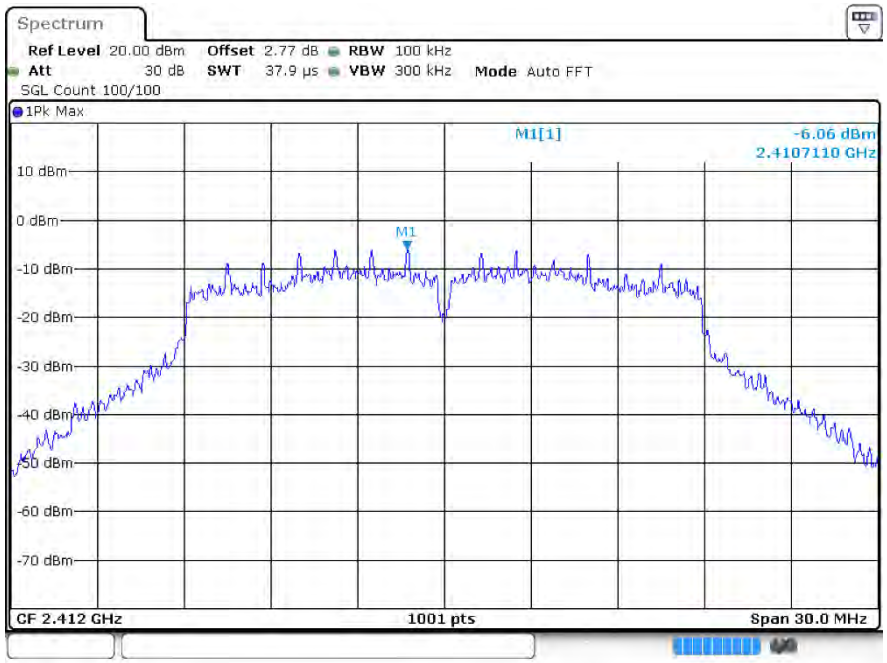
g 2462MHz Ant1 Emission



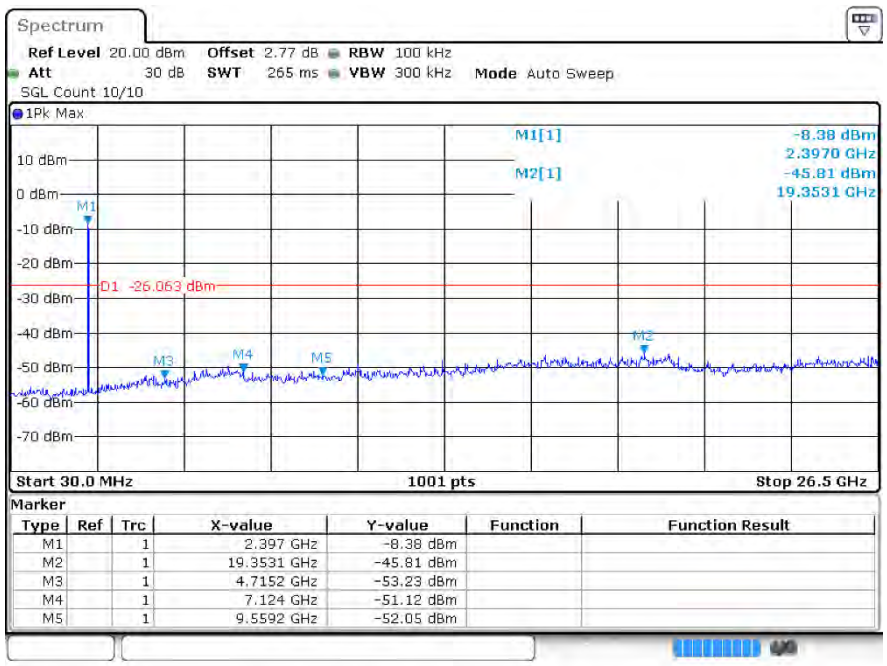
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.476 GHz	-3.68 dBm		
M2		1	20.0943 GHz	-45.72 dBm		
M3		1	4.9799 GHz	-52.76 dBm		
M4		1	7.3887 GHz	-52.15 dBm		
M5		1	9.9033 GHz	-50.28 dBm		

n20 2412MHz Ant1 Ref



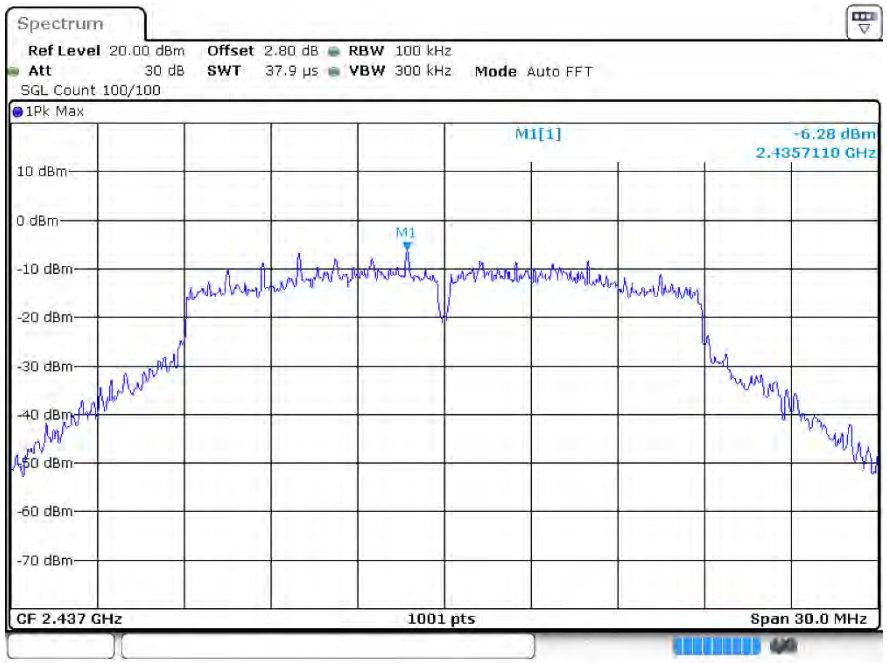
n20 2412MHz Ant1 Emission



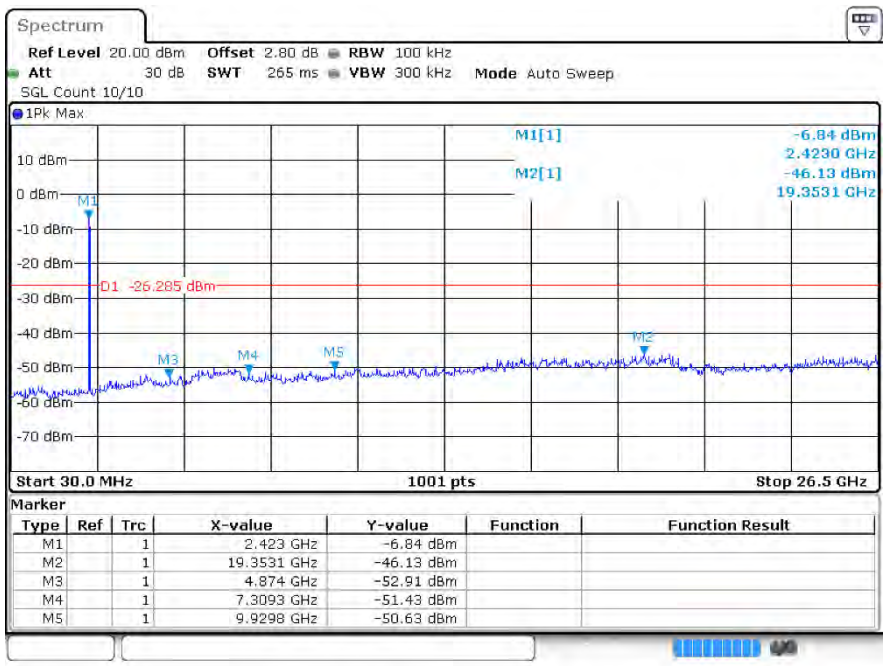
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.397 GHz	-8.38 dBm		
M2		1	19.3531 GHz	-45.81 dBm		
M3		1	4.7152 GHz	-53.23 dBm		
M4		1	7.124 GHz	-51.12 dBm		
M5		1	9.5592 GHz	-52.05 dBm		

n20 2437MHz Ant1 Ref



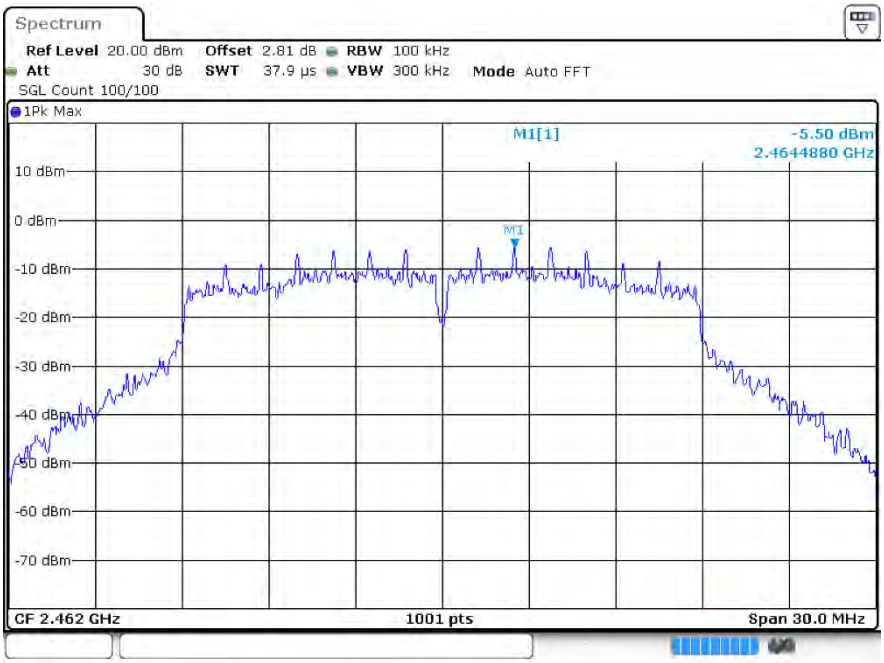
n20 2437MHz Ant1 Emission



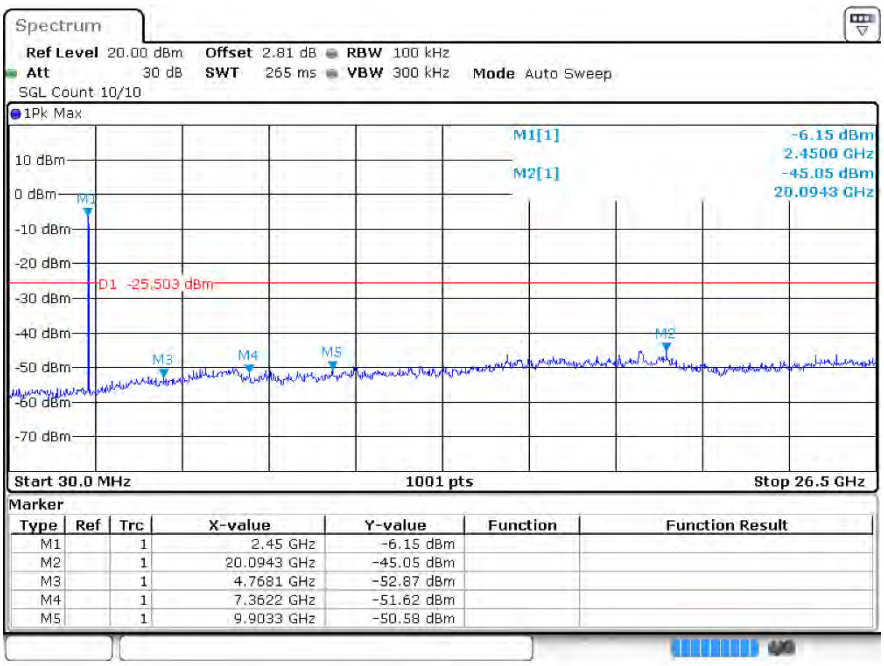
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.423 GHz	-6.84 dBm		
M2		1	19.3531 GHz	-46.13 dBm		
M3		1	4.874 GHz	-52.91 dBm		
M4		1	7.3093 GHz	-51.43 dBm		
M5		1	9.9298 GHz	-50.63 dBm		

n20 2462MHz Ant1 Ref



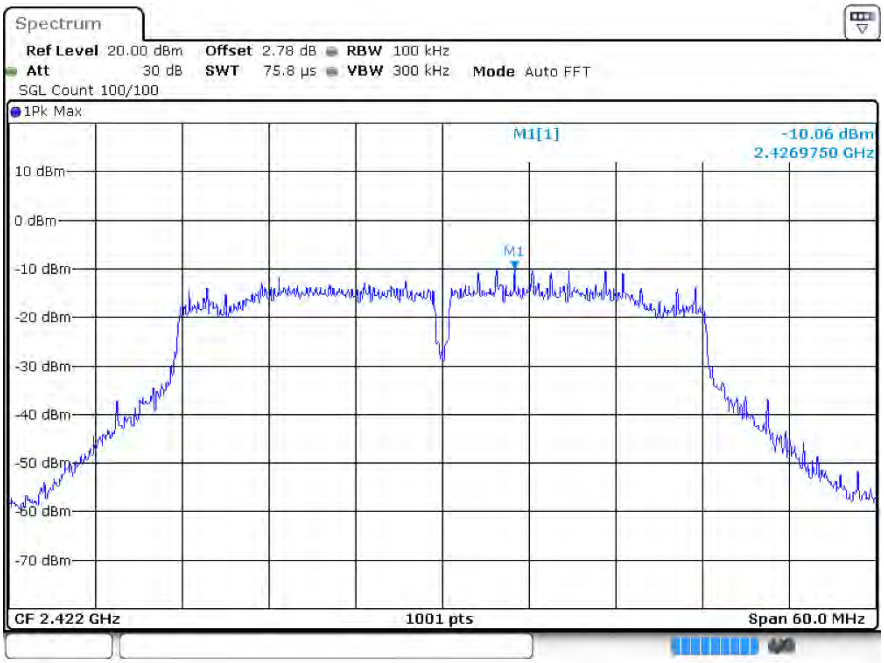
n20 2462MHz Ant1 Emission



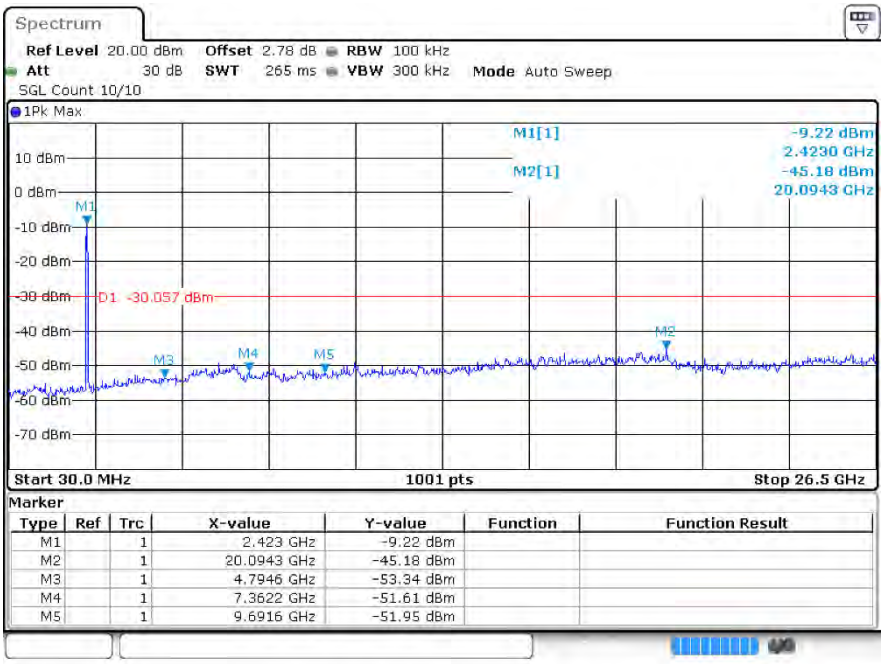
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-6.15 dBm		
M2		1	20.0943 GHz	-45.05 dBm		
M3		1	4.7681 GHz	-52.87 dBm		
M4		1	7.3622 GHz	-51.62 dBm		
M5		1	9.9033 GHz	-50.58 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	-9.22 dBm		
M2		1	20.0943 GHz	-45.18 dBm		
M3		1	4.7946 GHz	-53.34 dBm		
M4		1	7.3622 GHz	-51.61 dBm		
M5		1	9.6916 GHz	-51.95 dBm		