Appendix C

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: FUTURE Wireless Display Adapter

Trade Mark: FUTURE

Test Model: FUTURE Wireless Display Adapter

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

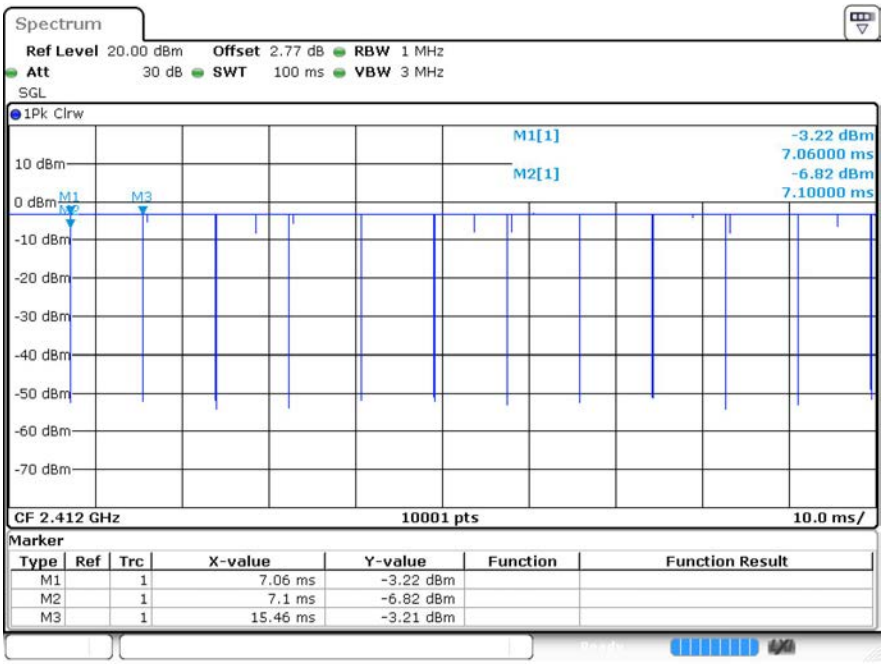
1.1 Test Result

Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor	1/T (kHz)
b	2412	Ant1	99.6	0.02	0.12
b	2437	Ant1	99.6	0.02	0.12
b	2462	Ant1	99.58	0.02	0.12
g	2412	Ant1	86.89	0.61	4.76
g	2437	Ant1	86.94	0.61	4.76
g	2462	Ant1	86.86	0.61	4.76
n20	2412	Ant1	87.47	0.58	4.35
n20	2437	Ant1	87.53	0.58	4.35
n20	2462	Ant1	87.53	0.58	4.35
n40	2422	Ant1	83.24	0.8	4.55
n40	2437	Ant1	87.47	0.58	4
n40	2452	Ant1	86.73	0.62	4
ax20	2412	Ant1	81.79	0.87	4.17
ax20	2437	Ant1	87.4	0.58	4.17
ax20	2462	Ant1	87.38	0.59	4.35
ax40	2422	Ant1	81.66	0.88	4.55
ax40	2437	Ant1	81.94	0.86	4.55
ax40	2452	Ant1	81.84	0.87	4.55

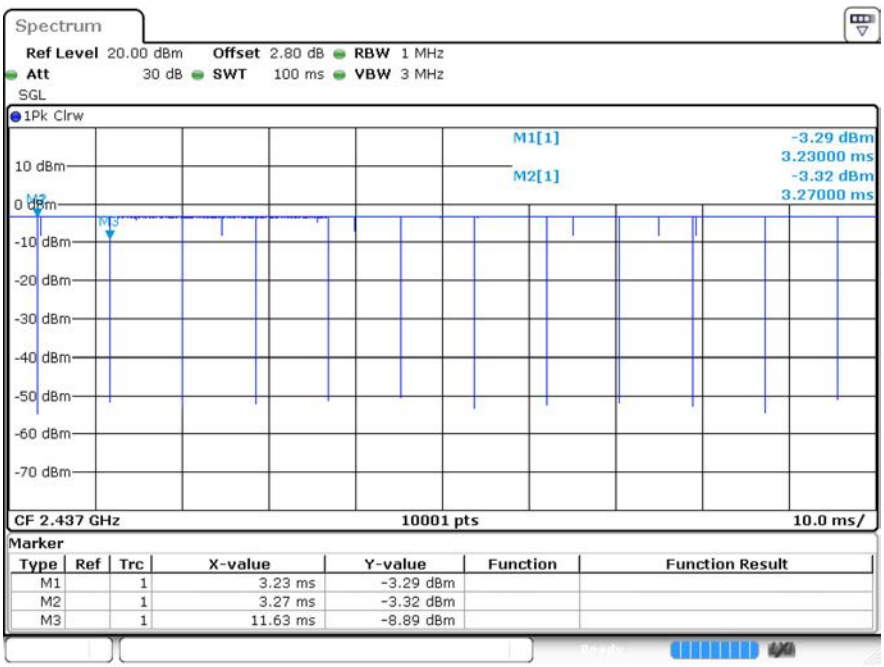
1.2 Test Graphs

Test Graphs

b 2412MHz Ant1

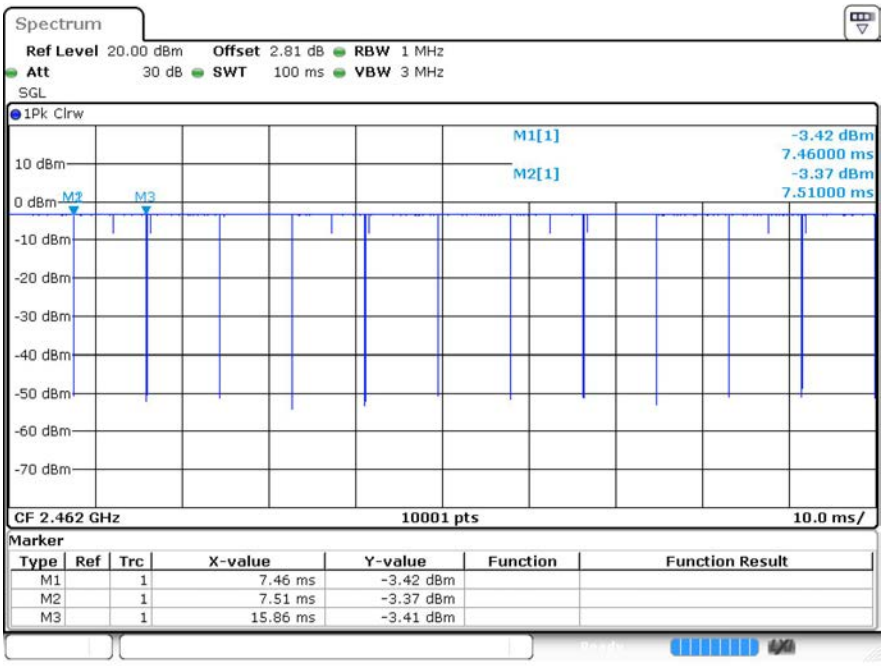


b 2437MHz Ant1

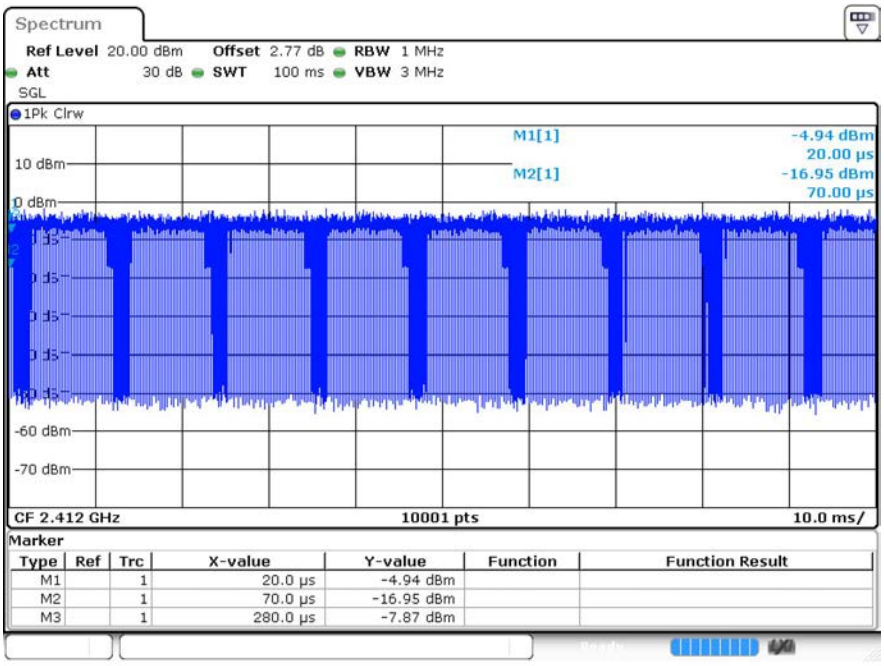


Test Graphs

b 2462MHz Ant1

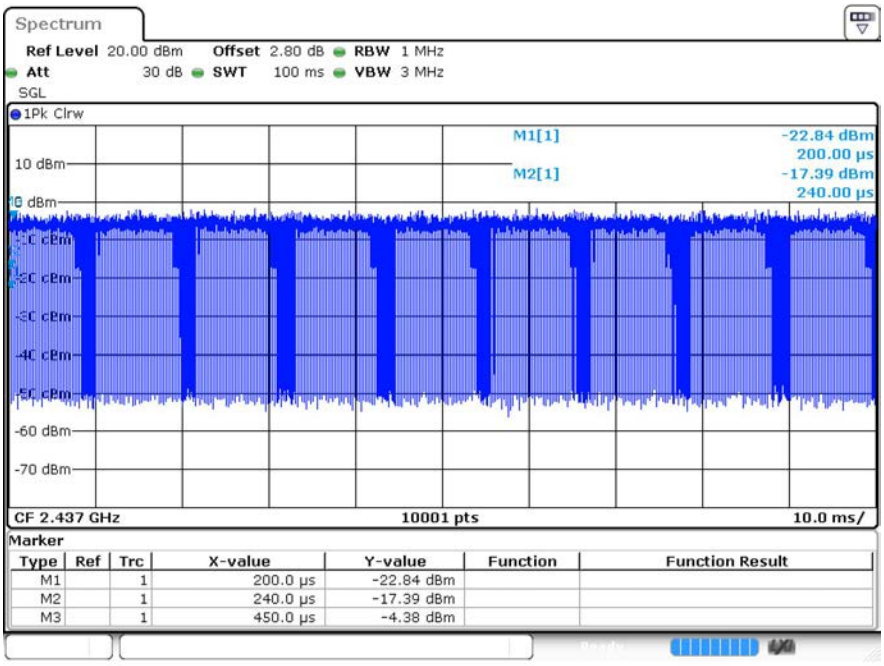


g 2412MHz Ant1

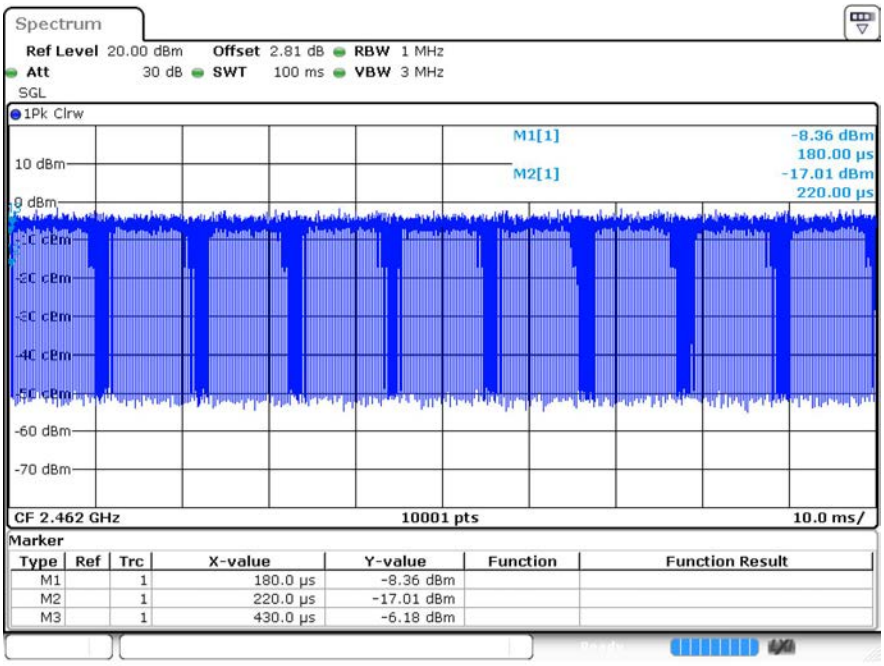


Test Graphs

g 2437MHz Ant1

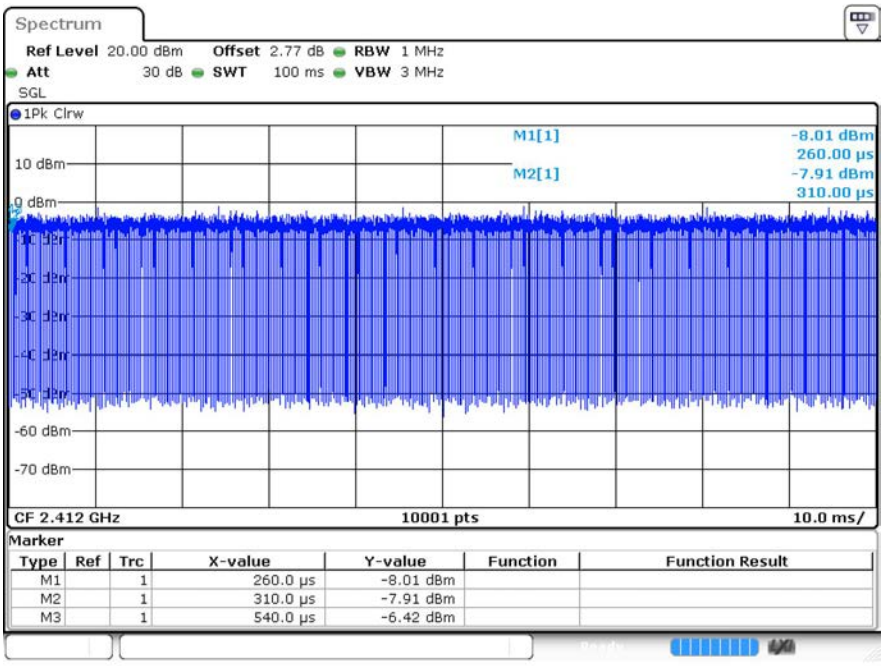


g 2462MHz Ant1

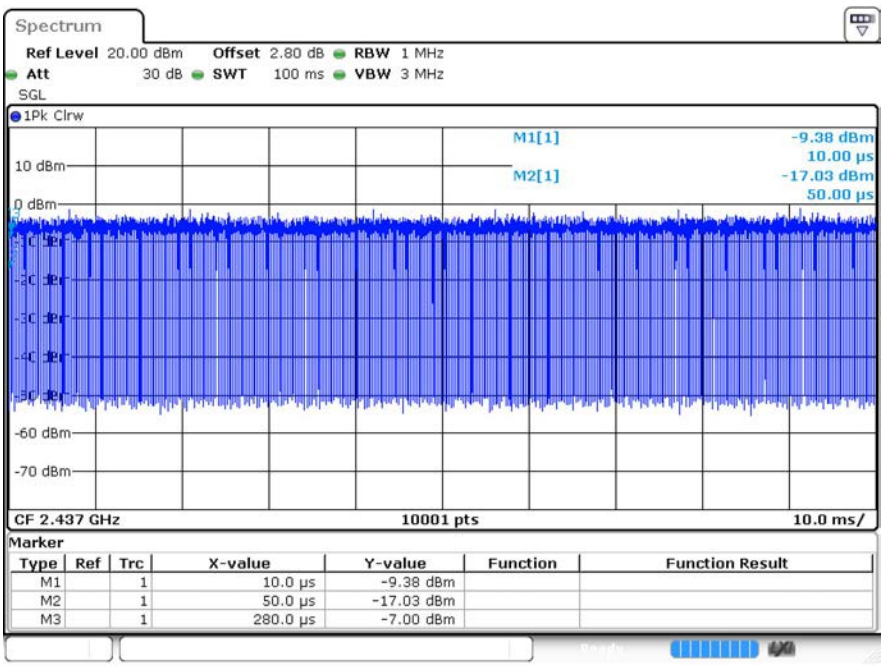


Test Graphs

n20 2412MHz Ant1

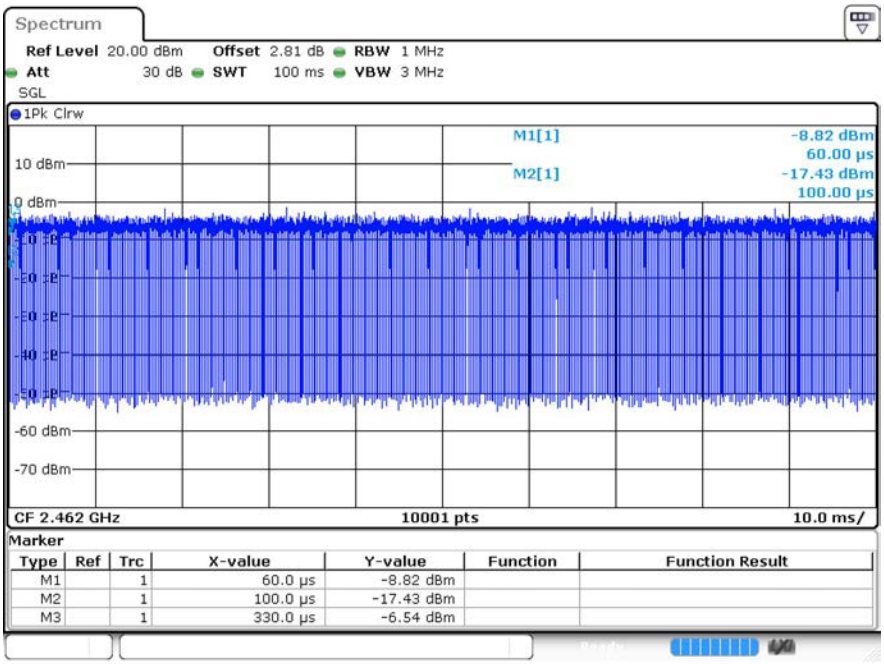


n20 2437MHz Ant1

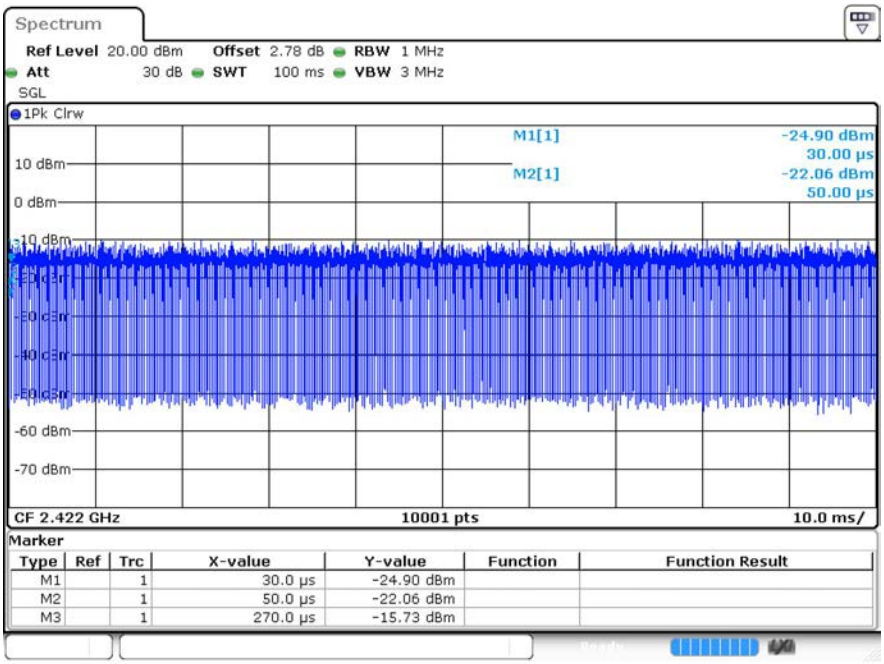


Test Graphs

n20 2462MHz Ant1

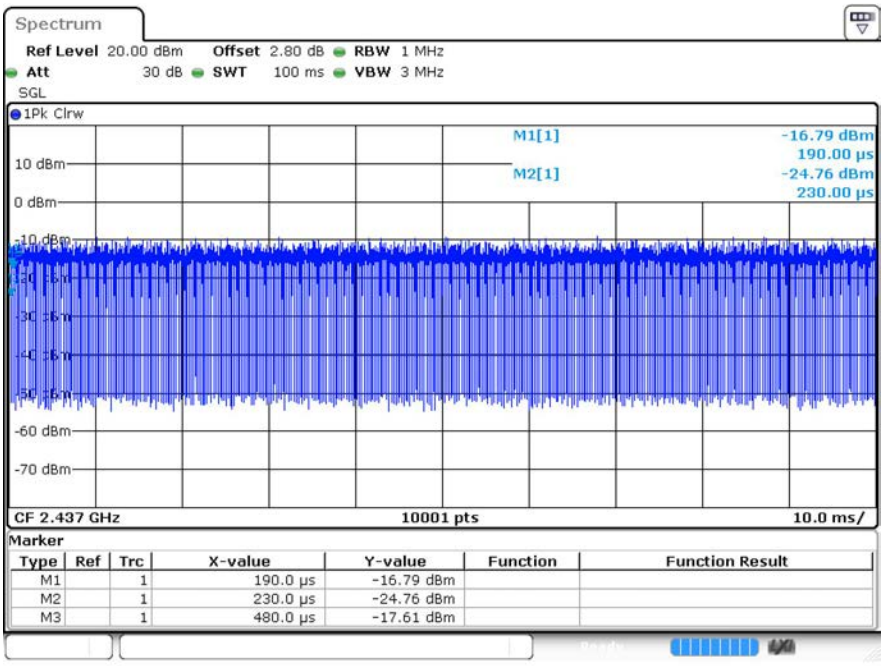


n40 2422MHz Ant1

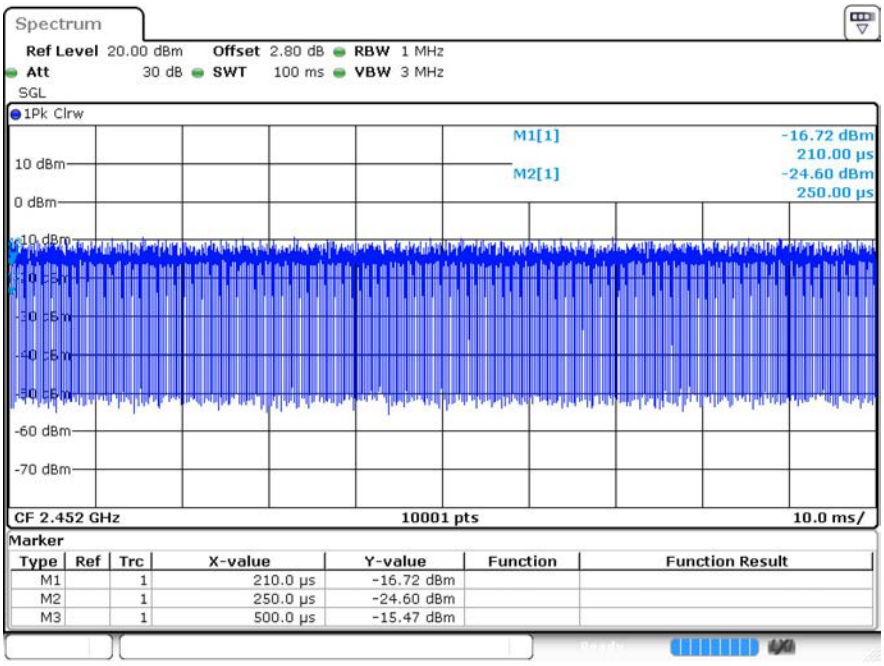


Test Graphs

n40 2437MHz Ant1

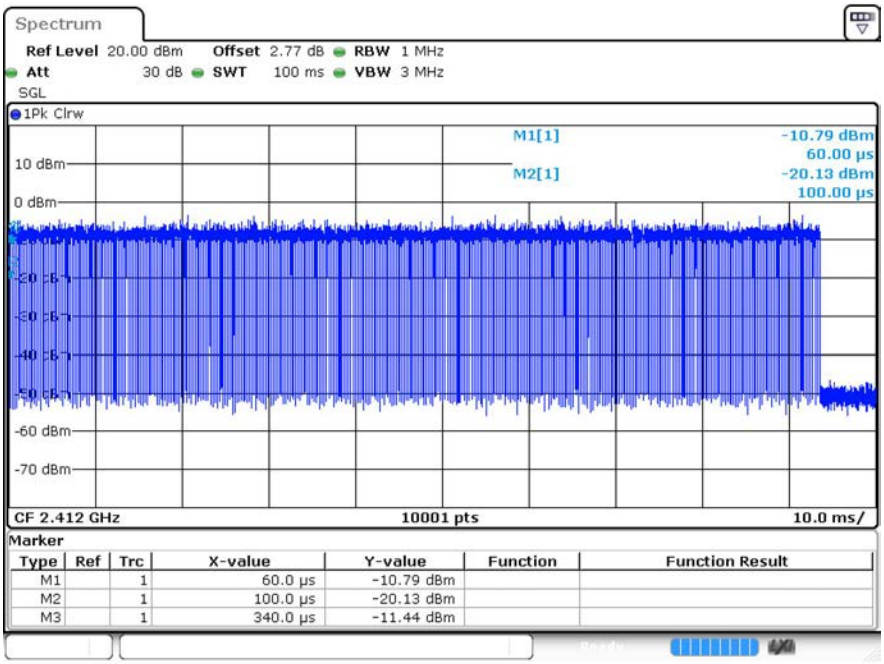


n40 2452MHz Ant1



Test Graphs

ax20 2412MHz Ant1



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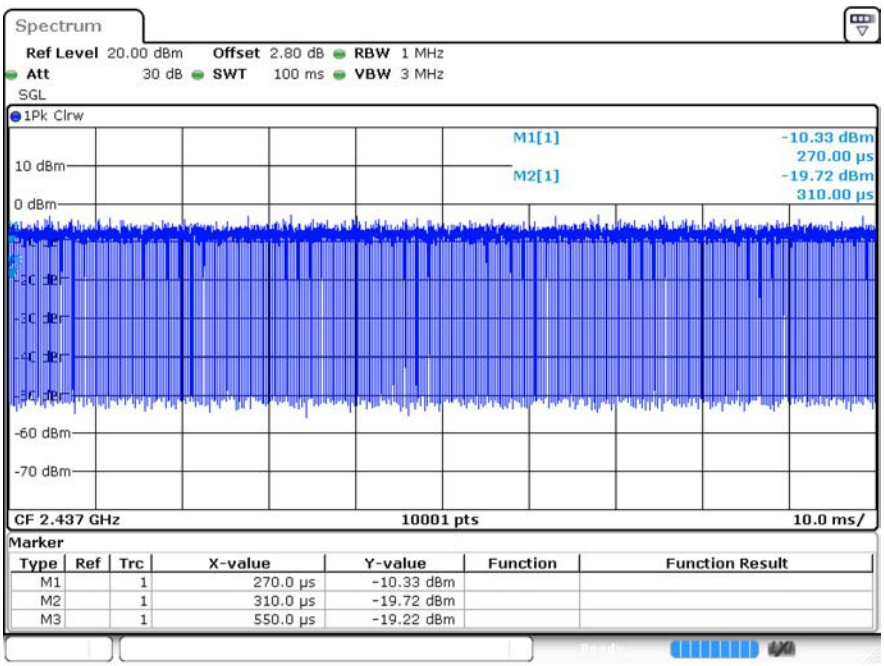
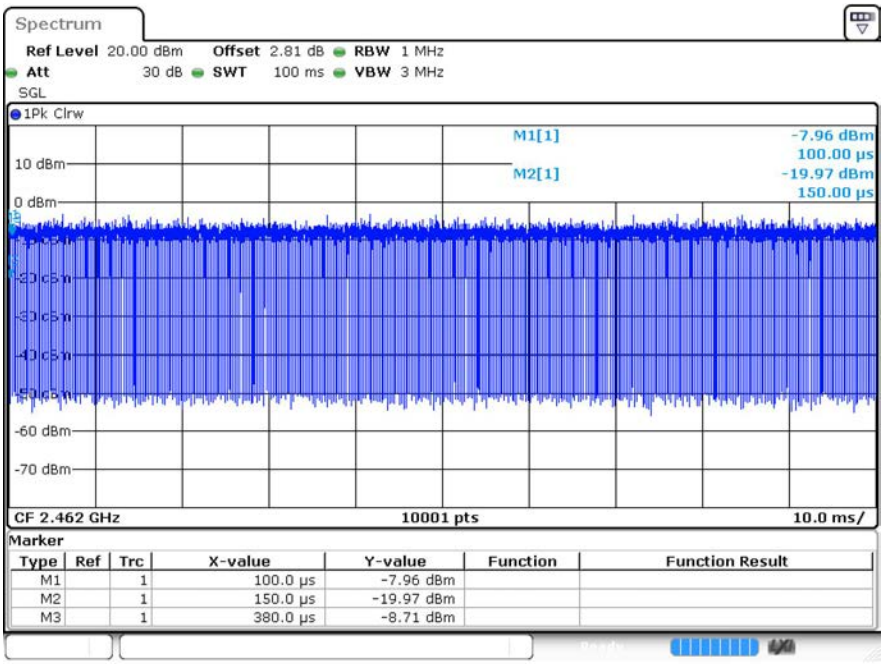


Test Graphs

ax20 2462MHz Ant1



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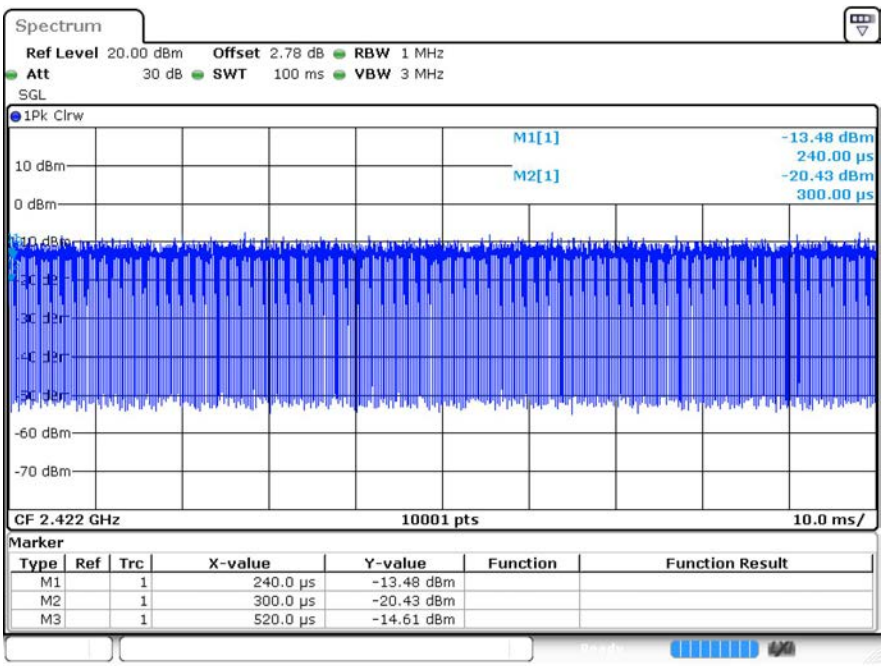
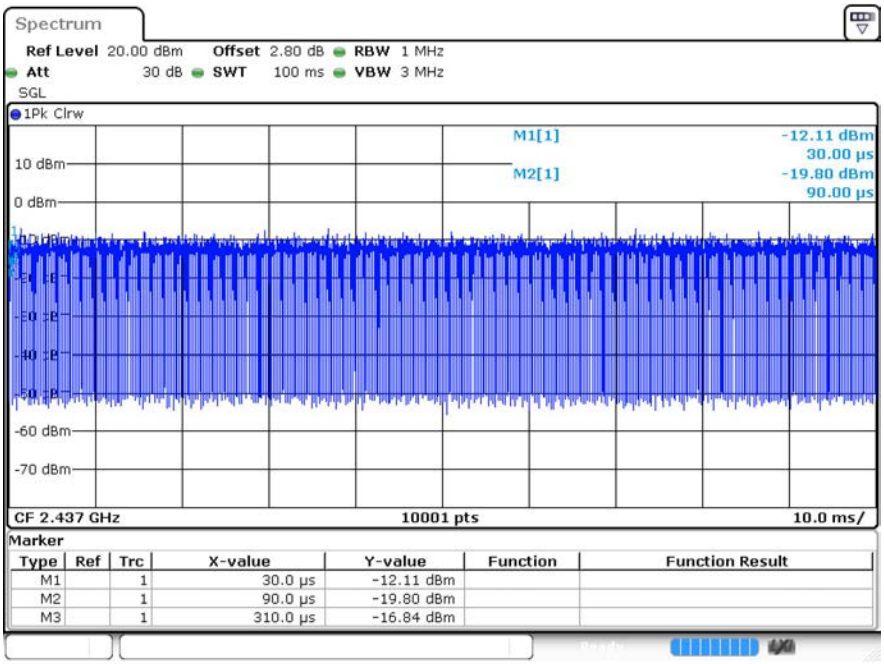
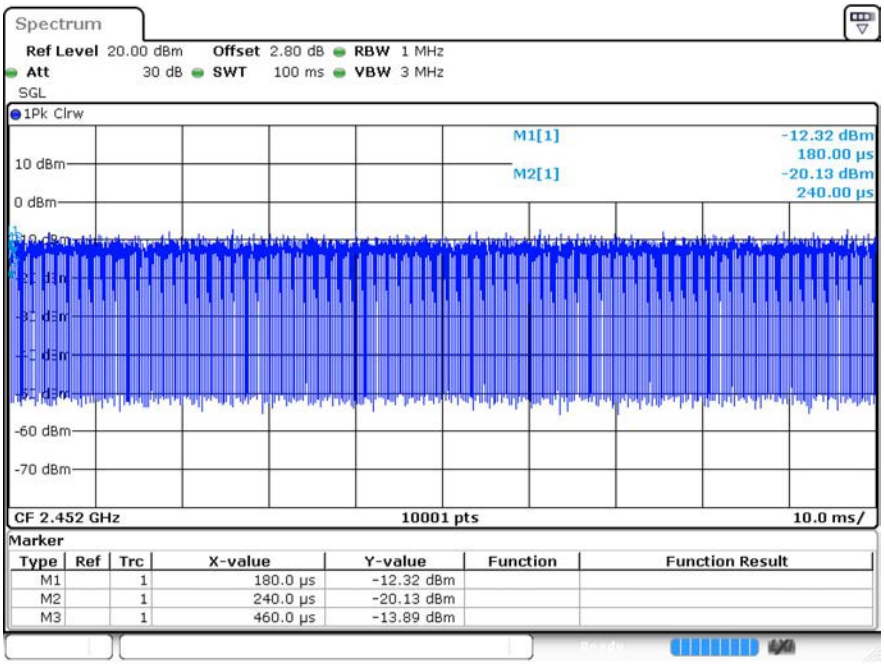


Test Graphs

ax40 2437MHz Ant1



ax40 2452MHz Ant1



2 Maximum Conducted Output Power

2.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
b	2412	Ant1	7.51	30	Pass
b	2437	Ant1	7.25	30	Pass
b	2462	Ant1	7.34	30	Pass
g	2412	Ant1	7.59	30	Pass
g	2437	Ant1	7.24	30	Pass
g	2462	Ant1	7.51	30	Pass
n20	2412	Ant1	7.4	30	Pass
n20	2437	Ant1	7.41	30	Pass
n20	2462	Ant1	7.4	30	Pass
n40	2422	Ant1	6.63	30	Pass
n40	2437	Ant1	7.06	30	Pass
n40	2452	Ant1	7.11	30	Pass
ax20	2412	Ant1	6.16	30	Pass
ax20	2437	Ant1	6.72	30	Pass
ax20	2462	Ant1	6.56	30	Pass
ax40	2422	Ant1	6.4	30	Pass
ax40	2437	Ant1	6.53	30	Pass
ax40	2452	Ant1	6.57	30	Pass

3 -6dB Bandwidth

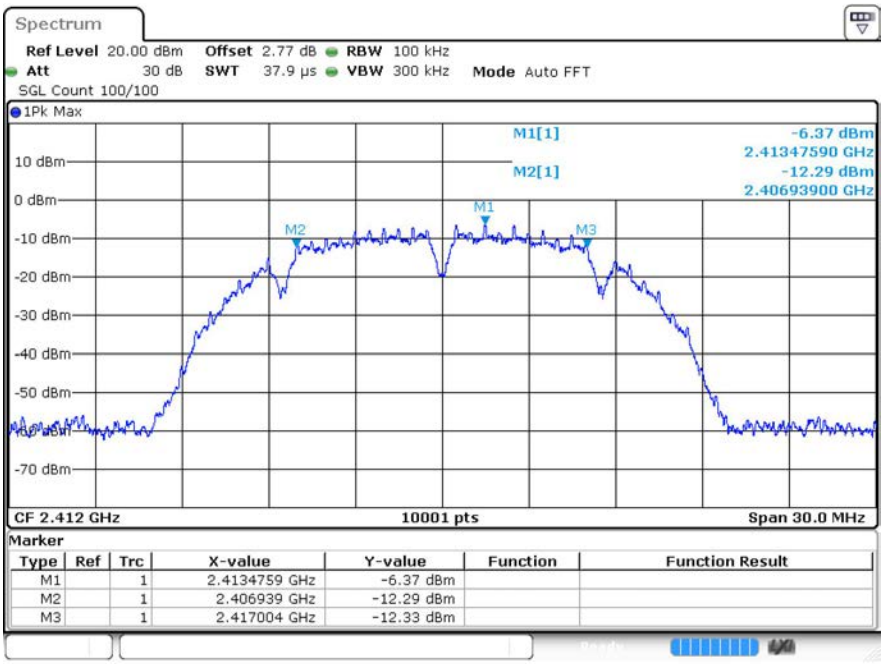
3.1 Test Result

Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
b	2412	Ant1	10.065	0.5	Pass
b	2437	Ant1	10.071	0.5	Pass
b	2462	Ant1	10.089	0.5	Pass
g	2412	Ant1	15.111	0.5	Pass
g	2437	Ant1	15.093	0.5	Pass
g	2462	Ant1	15.117	0.5	Pass
n20	2412	Ant1	12.657	0.5	Pass
n20	2437	Ant1	15.036	0.5	Pass
n20	2462	Ant1	15.117	0.5	Pass
n40	2422	Ant1	35.076	0.5	Pass
n40	2437	Ant1	31.32	0.5	Pass
n40	2452	Ant1	35.082	0.5	Pass
ax20	2412	Ant1	15.09	0.5	Pass
ax20	2437	Ant1	15.111	0.5	Pass
ax20	2462	Ant1	15.096	0.5	Pass
ax40	2422	Ant1	35.082	0.5	Pass
ax40	2437	Ant1	35.052	0.5	Pass
ax40	2452	Ant1	35.082	0.5	Pass

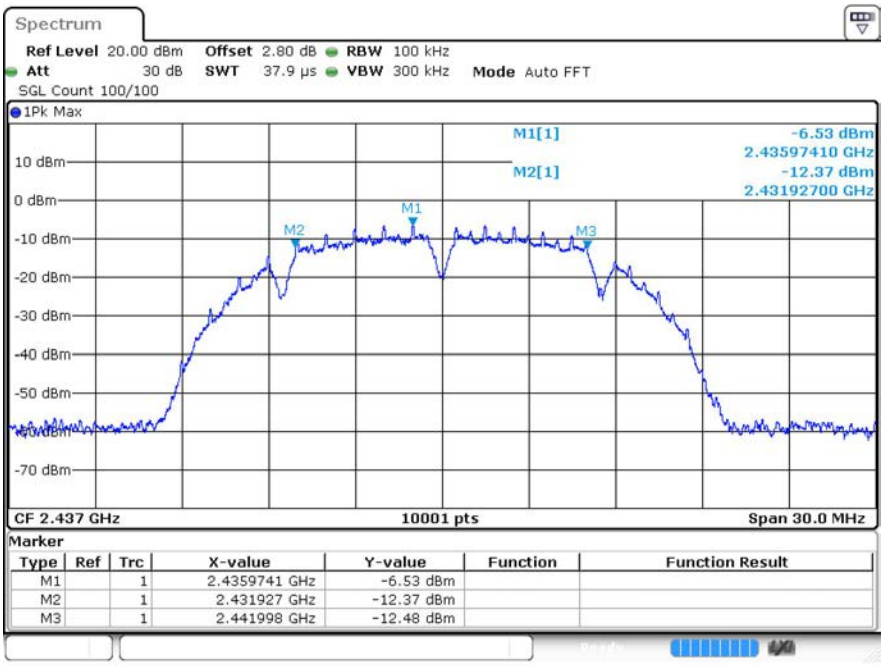
3.2 Test Graphs

Test Graphs

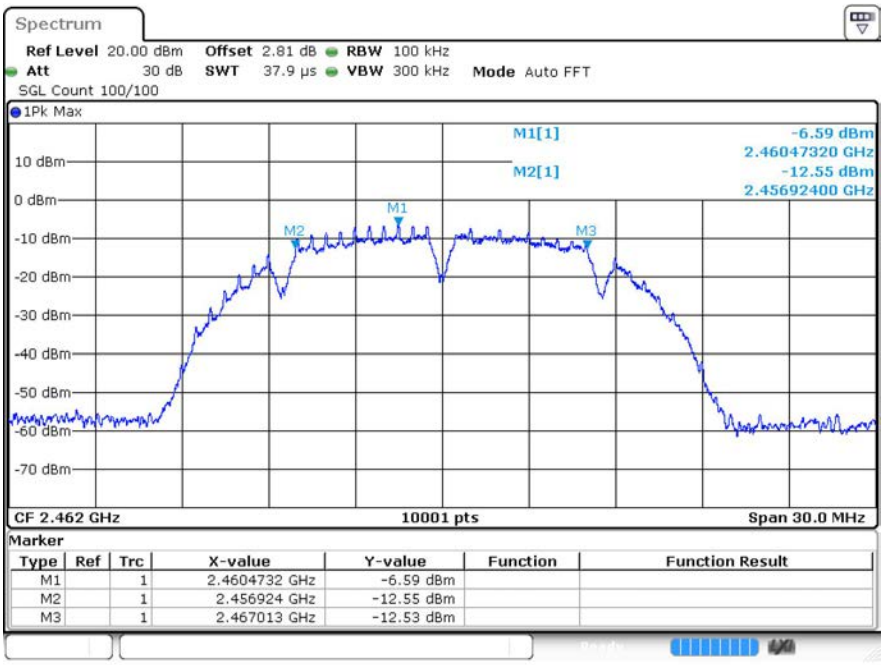
b 2412MHz Ant1



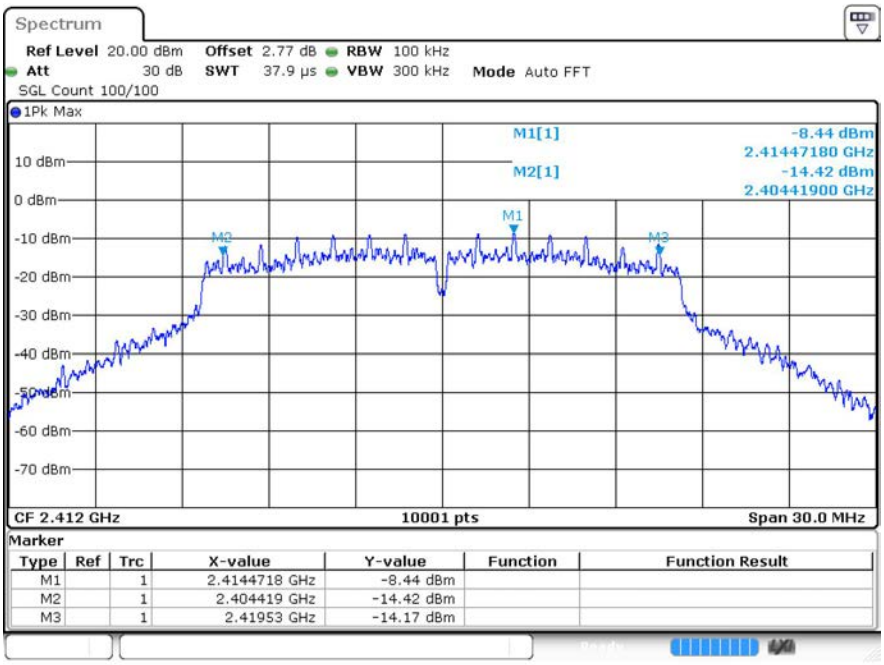
b 2437MHz Ant1



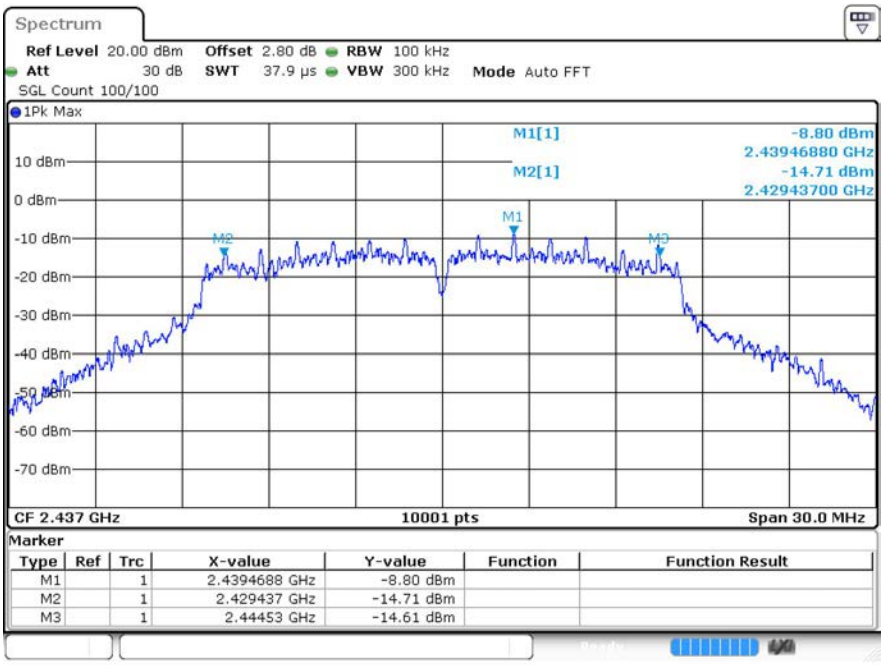
b 2462MHz Ant1



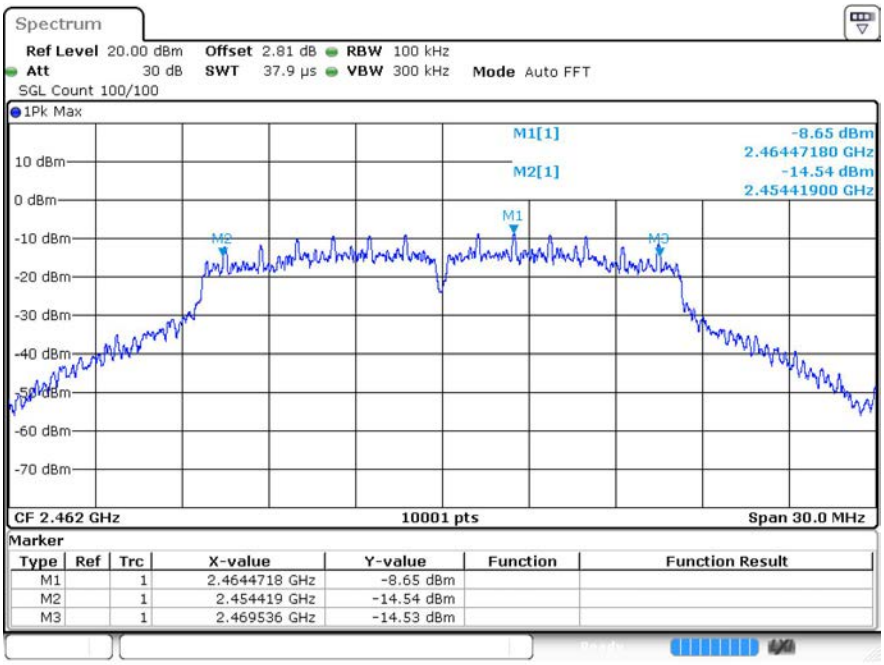
g 2412MHz Ant1



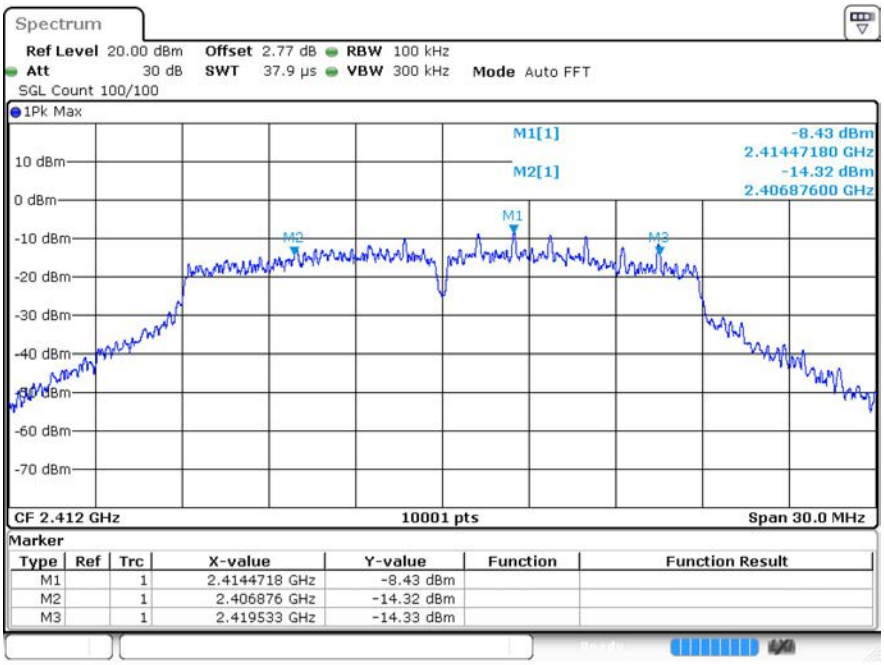
g 2437MHz Ant1



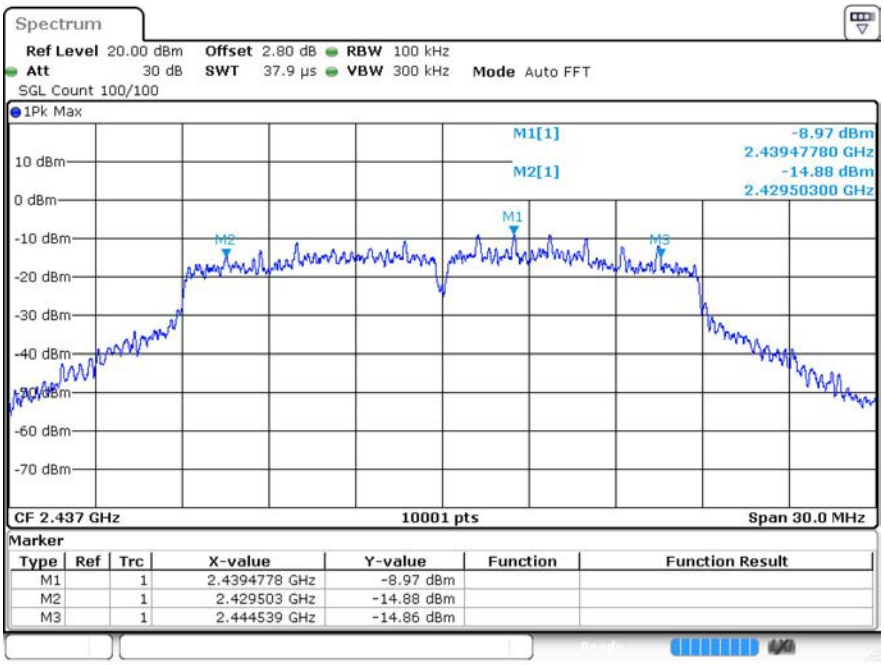
g 2462MHz Ant1



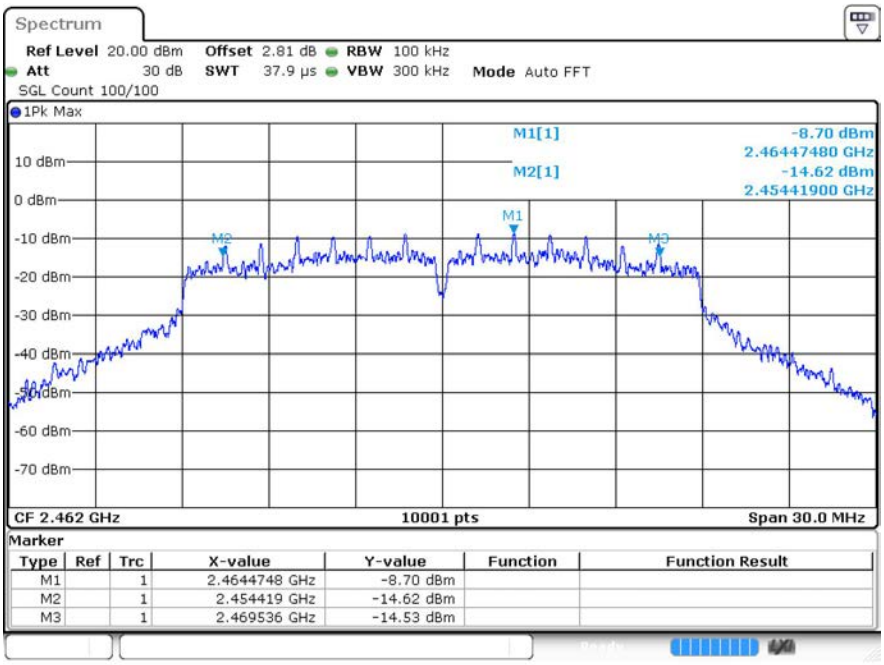
n20 2412MHz Ant1



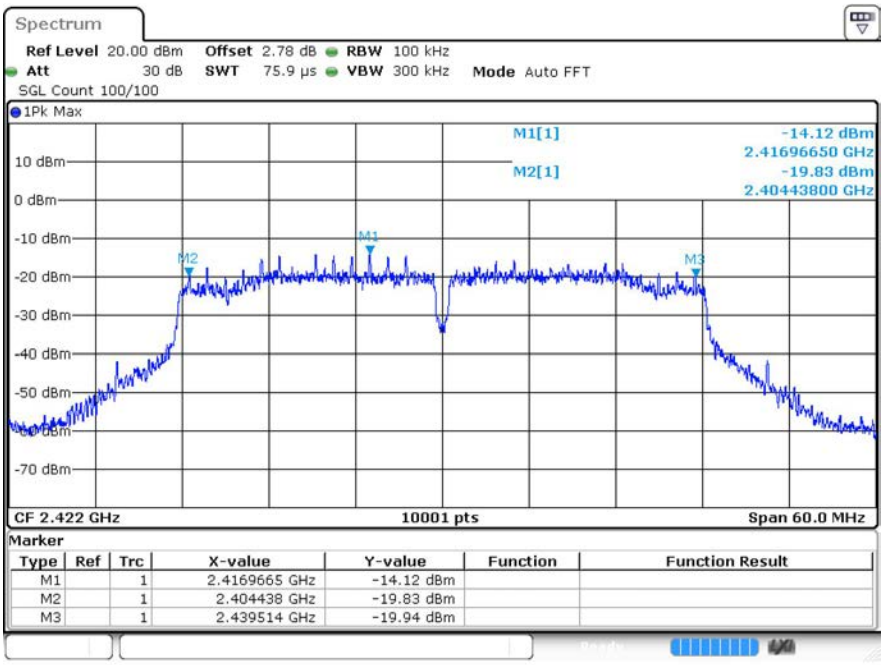
n20 2437MHz Ant1



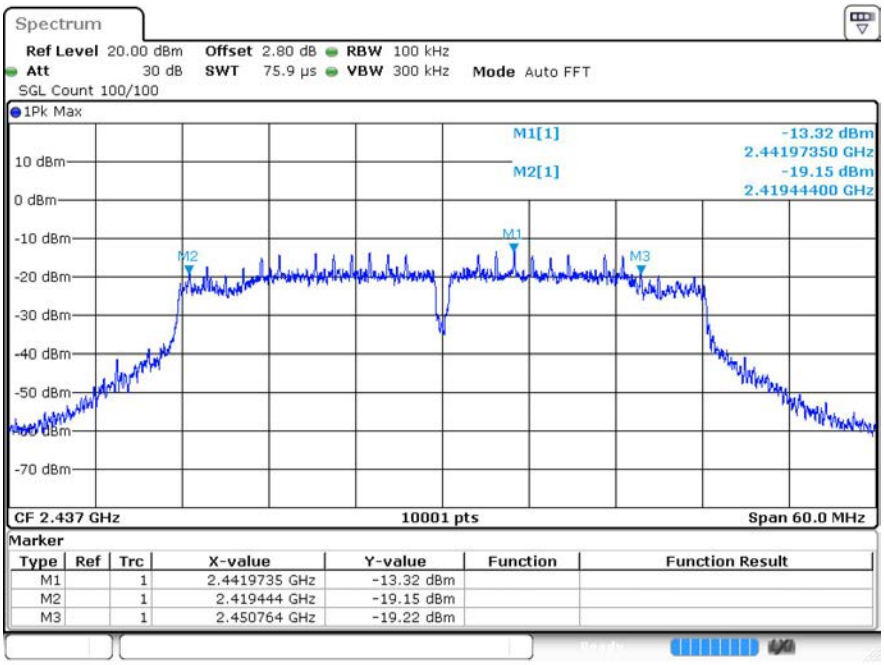
n20 2462MHz Ant1



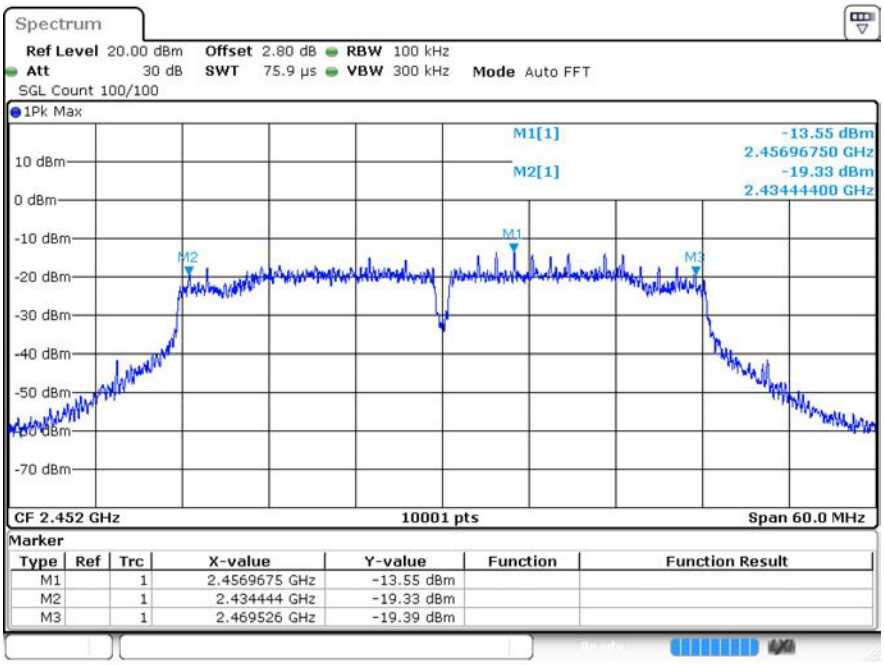
n40 2422MHz Ant1



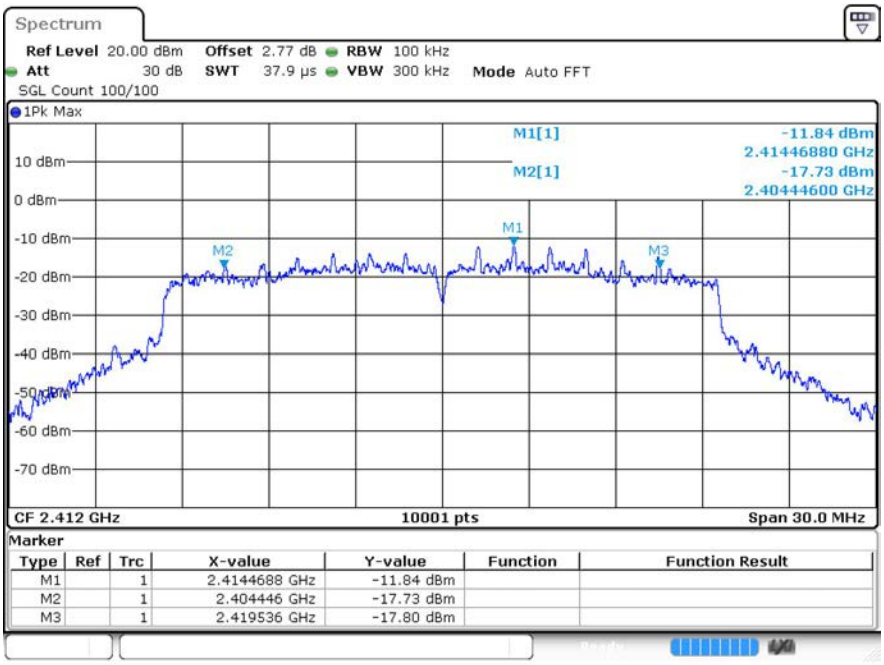
n40 2437MHz Ant1



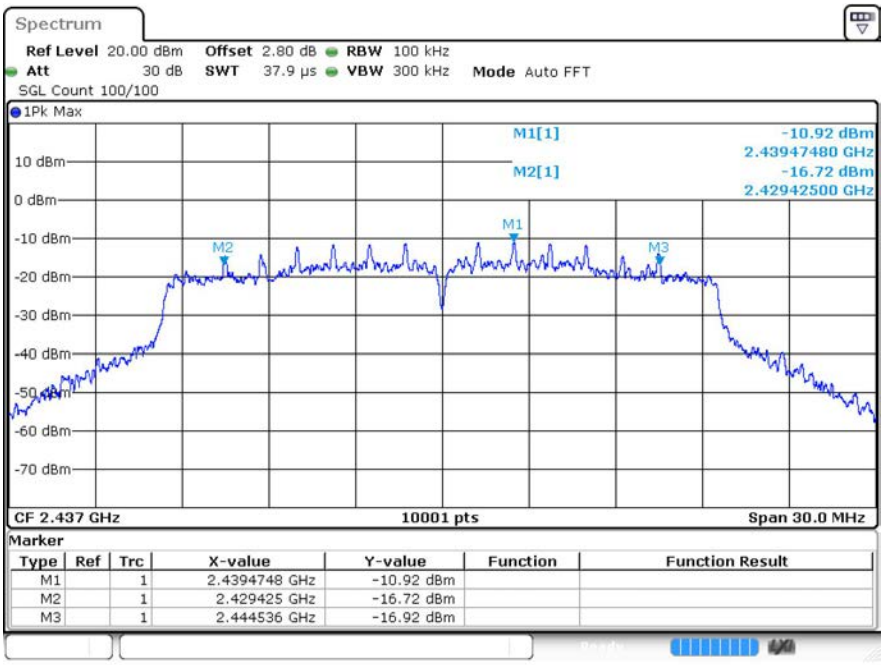
n40 2452MHz Ant1



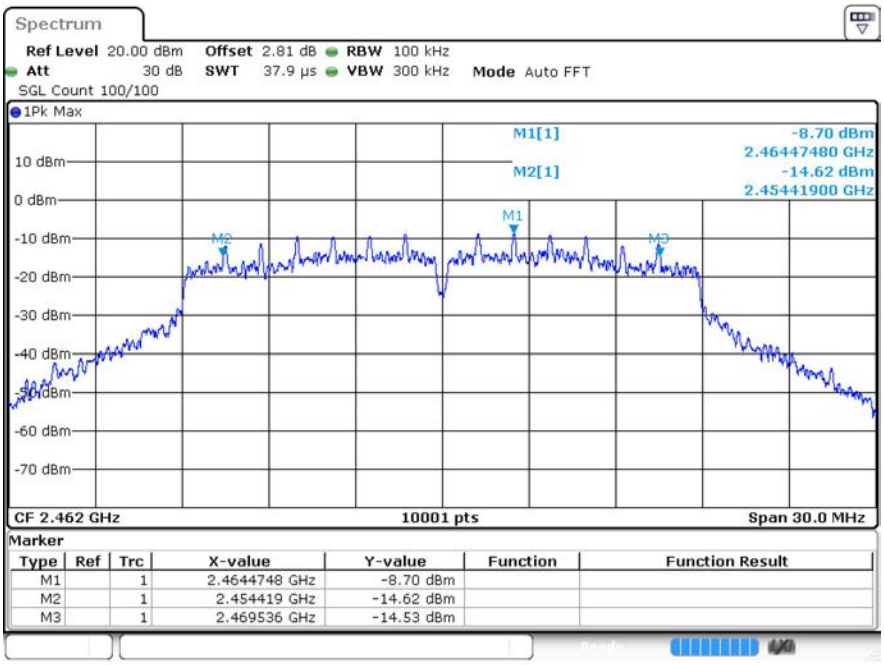
ax20 2412MHz Ant1



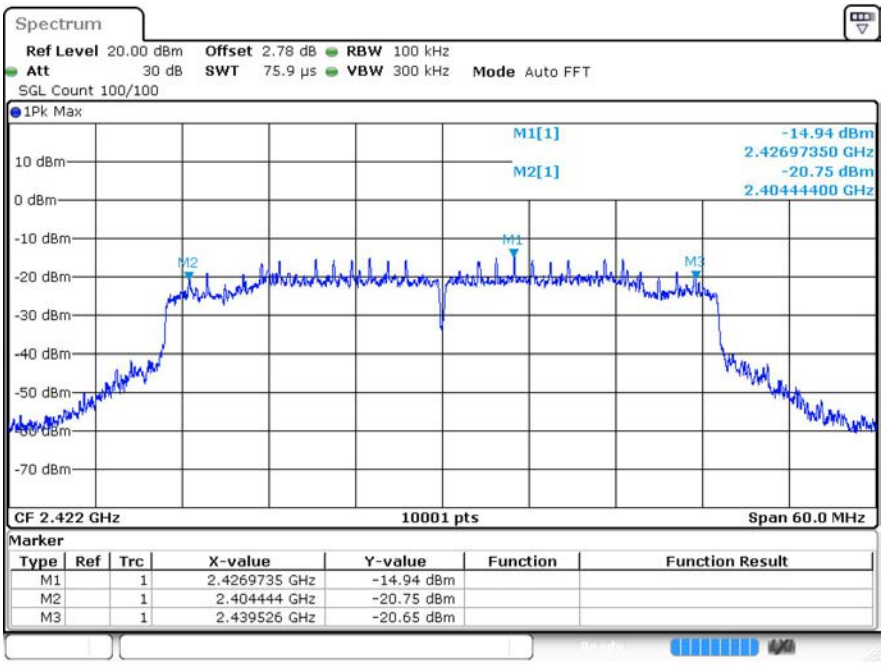
ax20 2437MHz Ant1



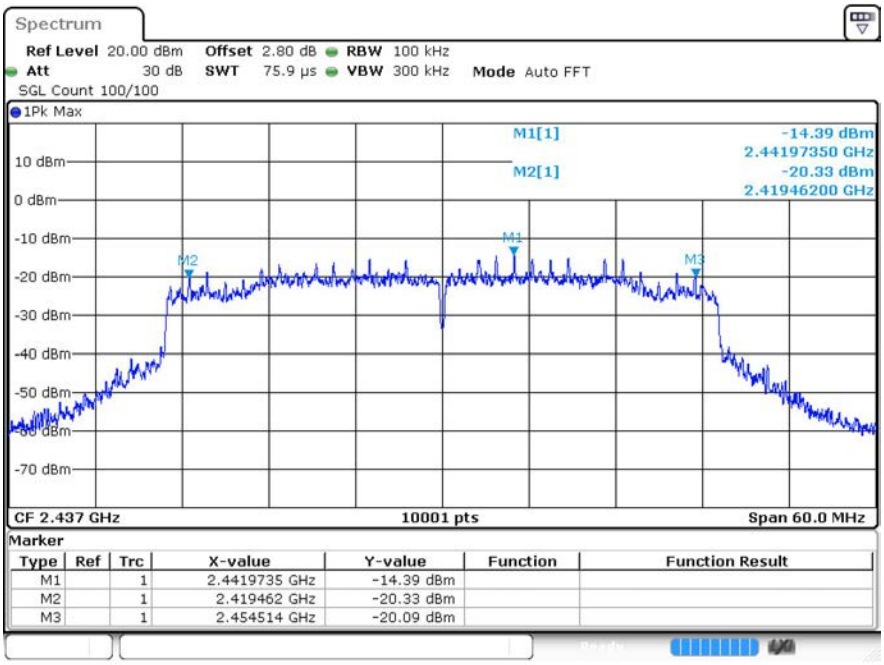
ax20 2462MHz Ant1



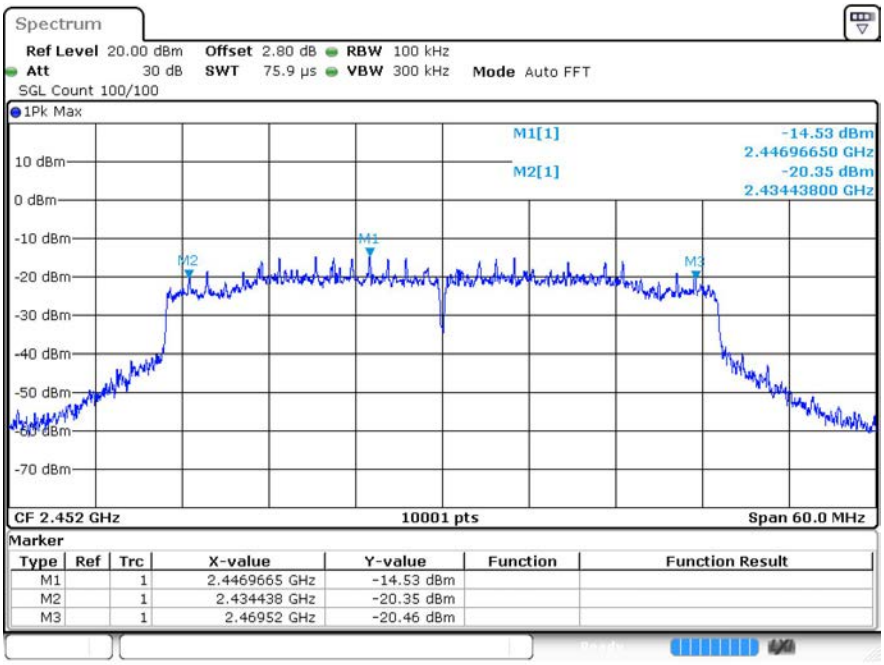
ax40 2422MHz Ant1



ax40 2437MHz Ant1



ax40 2452MHz Ant1

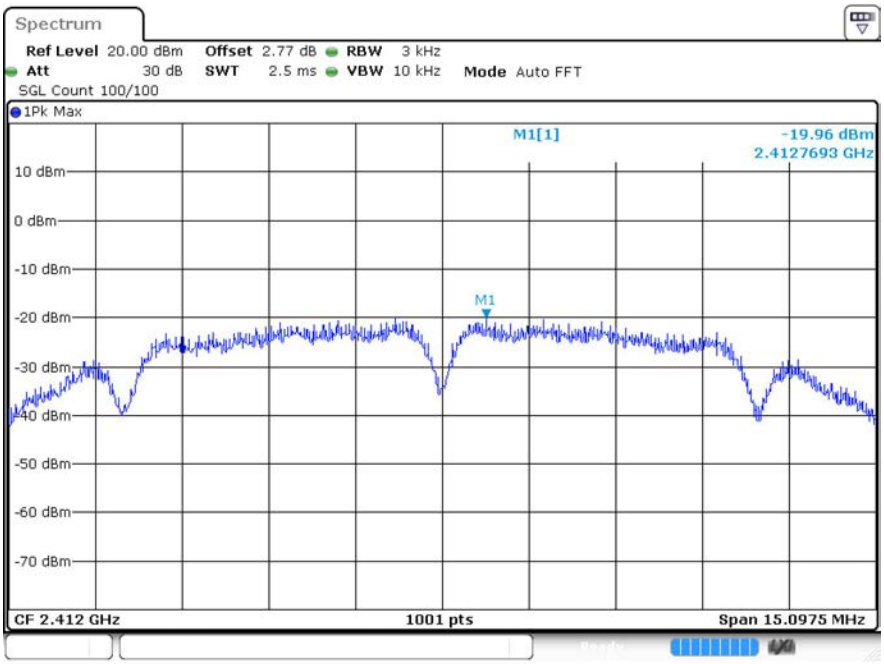
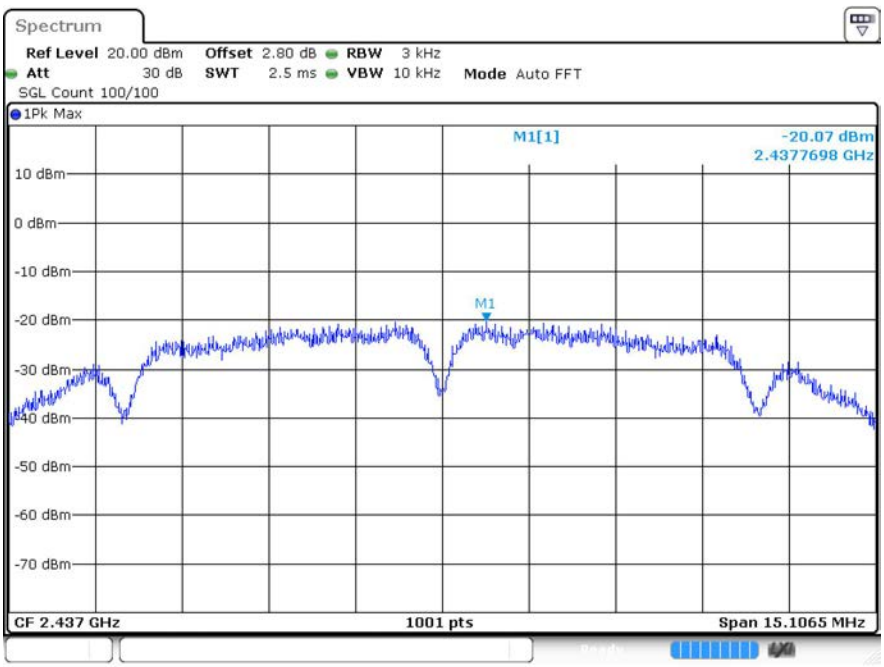


4 Maximum Power Spectral Density Level

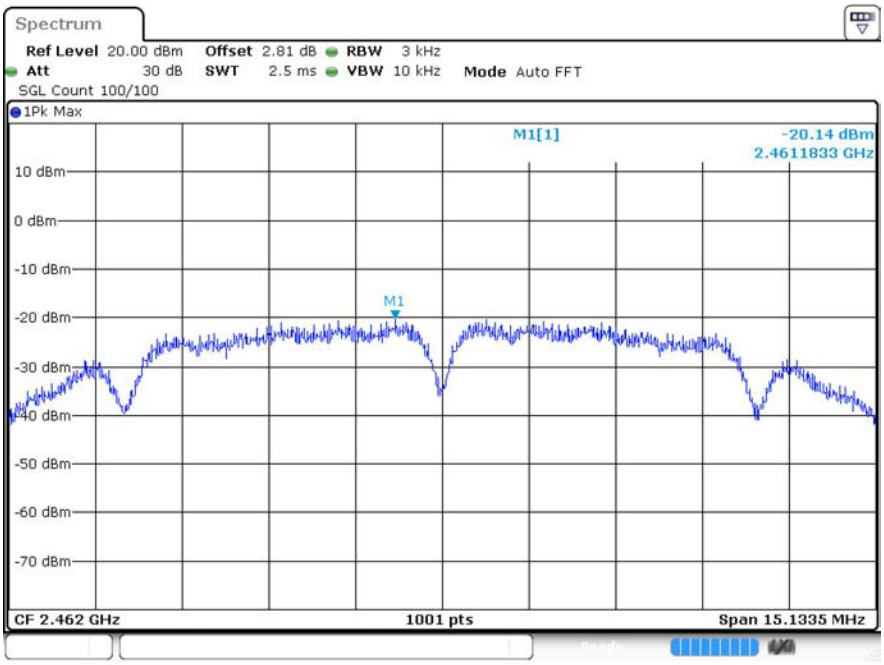
4.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3-100kHz)	Limit (dBm/3kHz)	Verdict
b	2412	Ant1	-19.96	≤8	Pass
b	2437	Ant1	-20.07	≤8	Pass
b	2462	Ant1	-20.14	≤8	Pass
g	2412	Ant1	-23.97	≤8	Pass
g	2437	Ant1	-23.75	≤8	Pass
g	2462	Ant1	-23.79	≤8	Pass
n20	2412	Ant1	-23.72	≤8	Pass
n20	2437	Ant1	-23.36	≤8	Pass
n20	2462	Ant1	-23.26	≤8	Pass
n40	2422	Ant1	-28.12	≤8	Pass
n40	2437	Ant1	-26.8	≤8	Pass
n40	2452	Ant1	-27.51	≤8	Pass
ax20	2412	Ant1	-11.55	≤8	Pass
ax20	2437	Ant1	-11.2	≤8	Pass
ax20	2462	Ant1	-11.32	≤8	Pass
ax40	2422	Ant1	-15.26	≤8	Pass
ax40	2437	Ant1	-15.06	≤8	Pass
ax40	2452	Ant1	-14.77	≤8	Pass

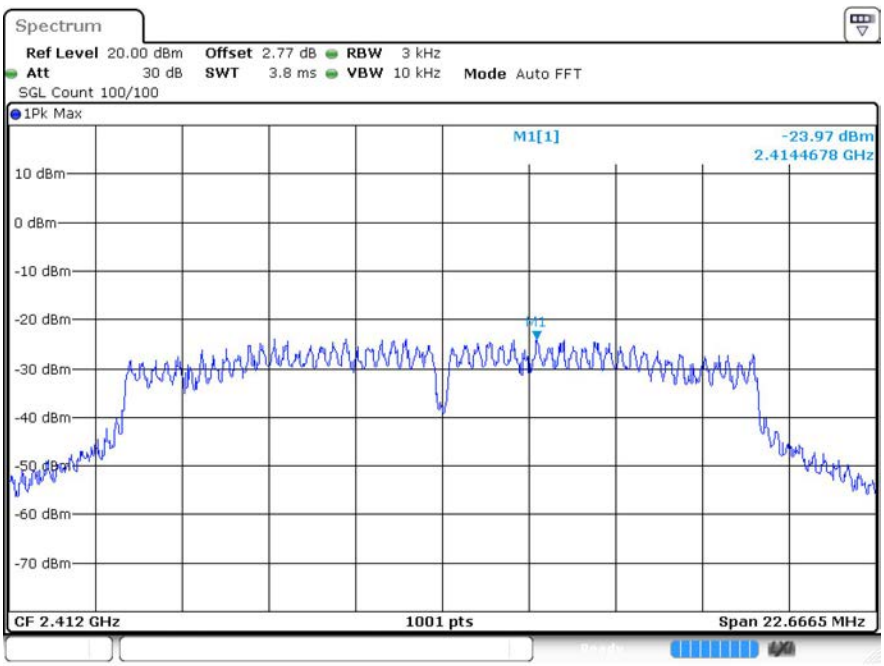
4.2 Test Graphs

Test Graphs
b 2412MHz Ant1

b 2437MHz Ant1


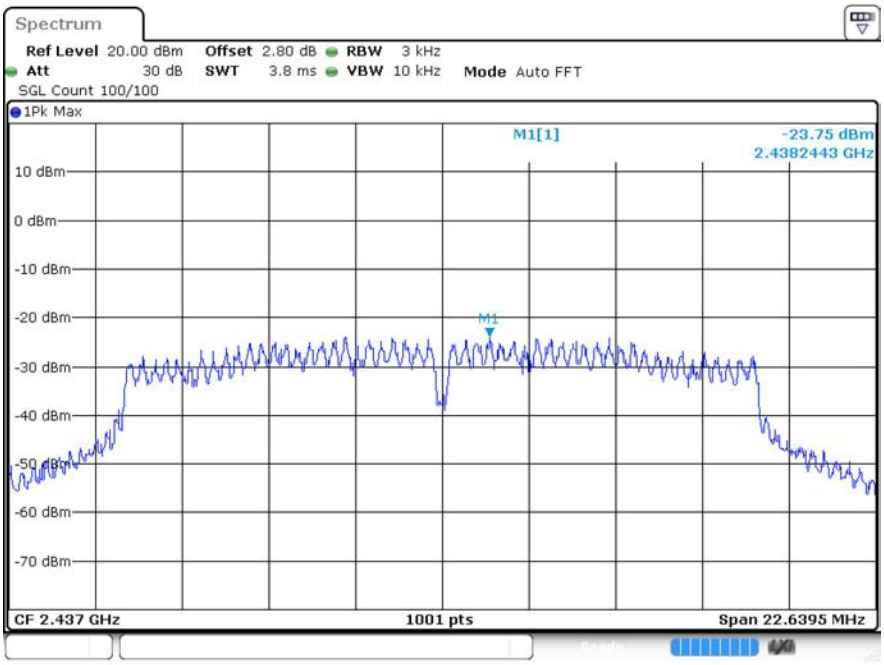
b 2462MHz Ant1



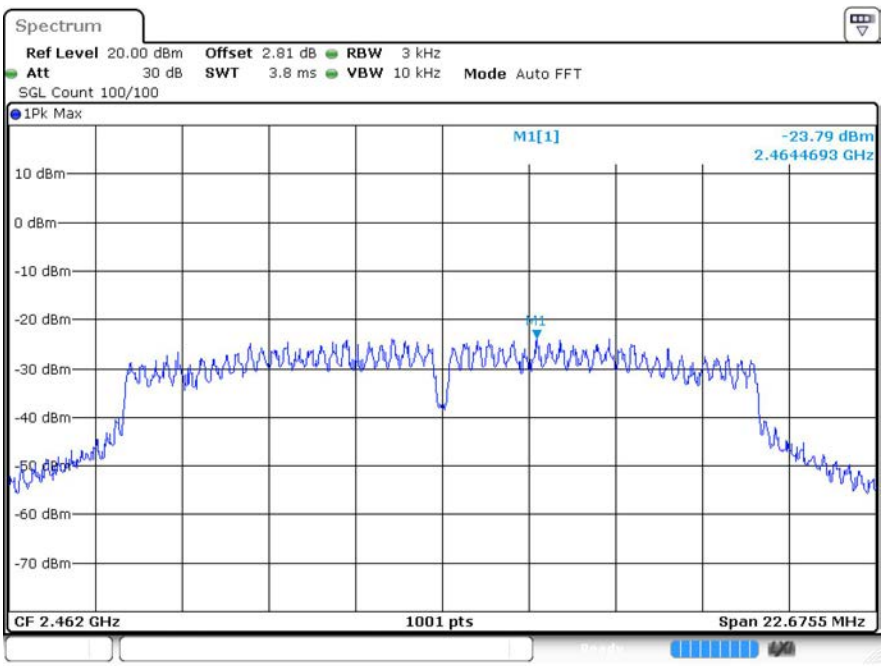
g 2412MHz Ant1



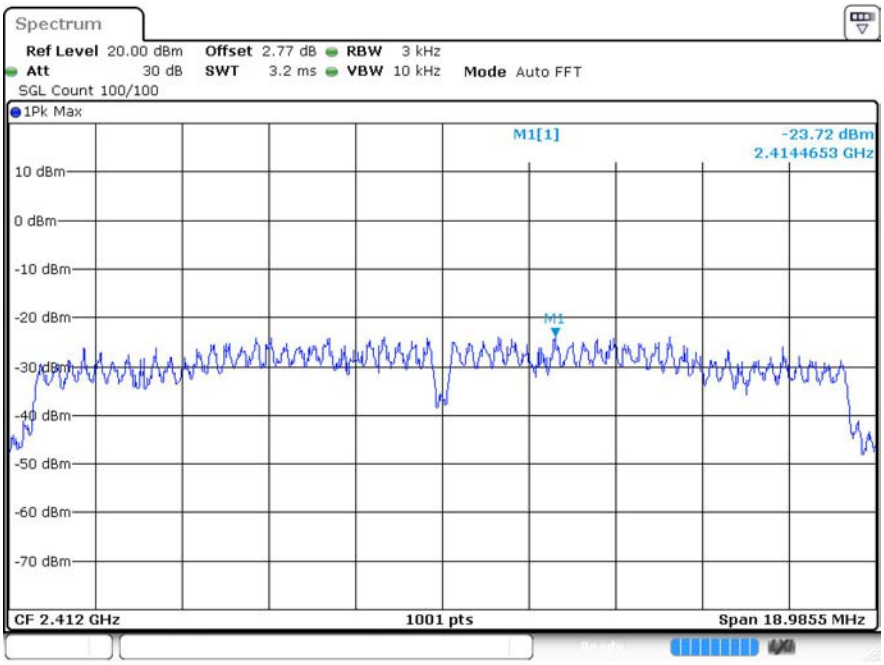
g 2437MHz Ant1



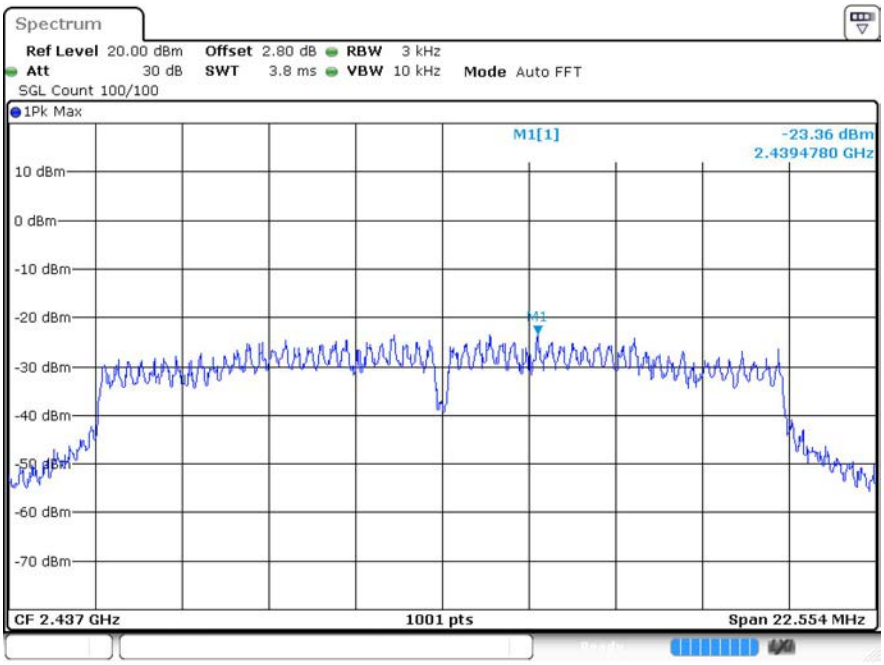
g 2462MHz Ant1



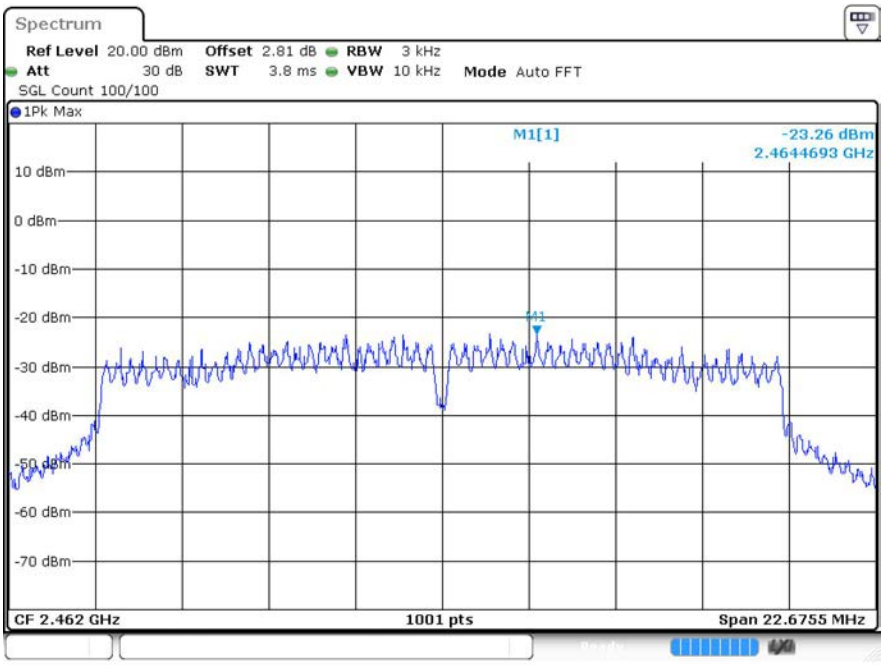
n20 2412MHz Ant1



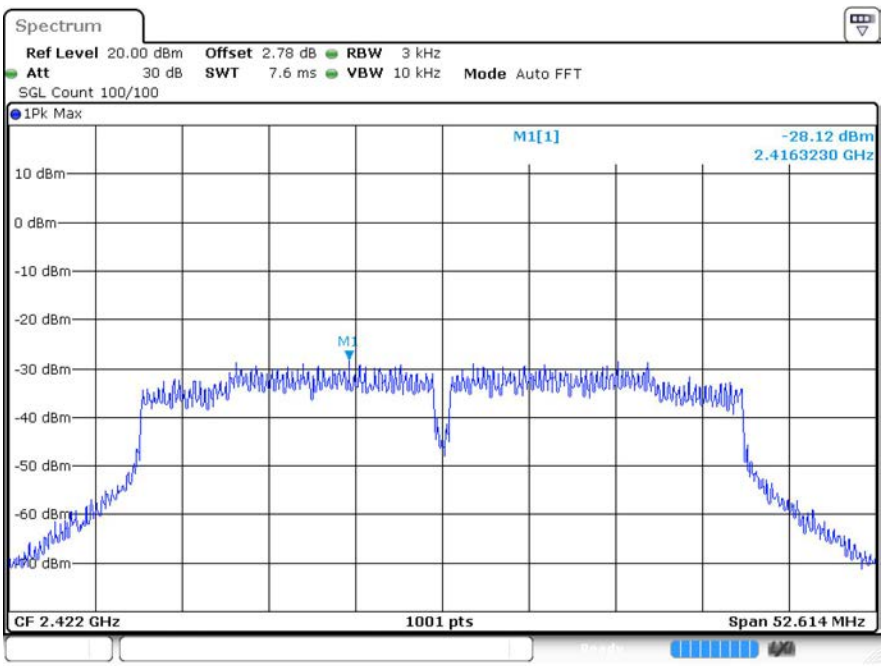
n20 2437MHz Ant1



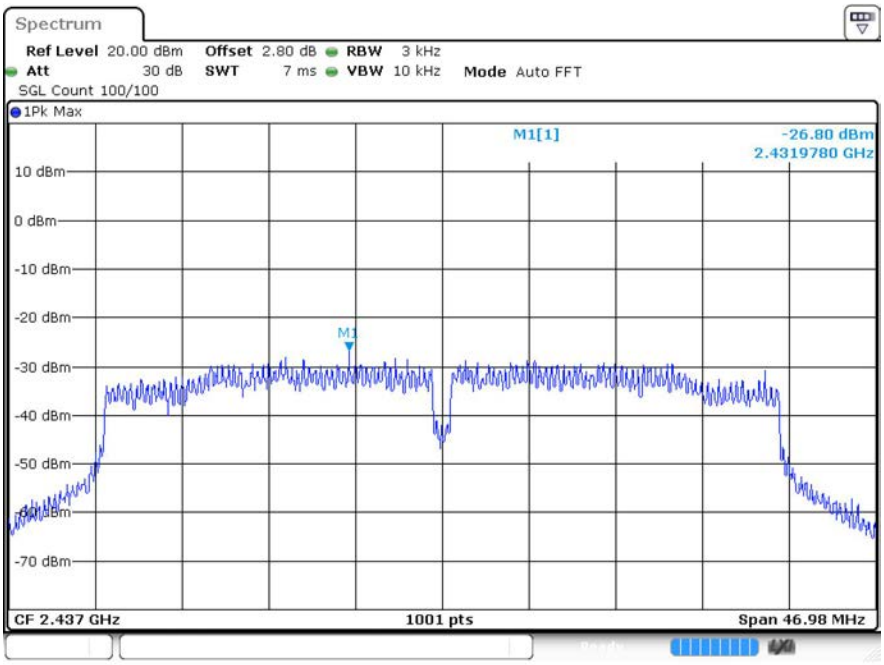
n20 2462MHz Ant1



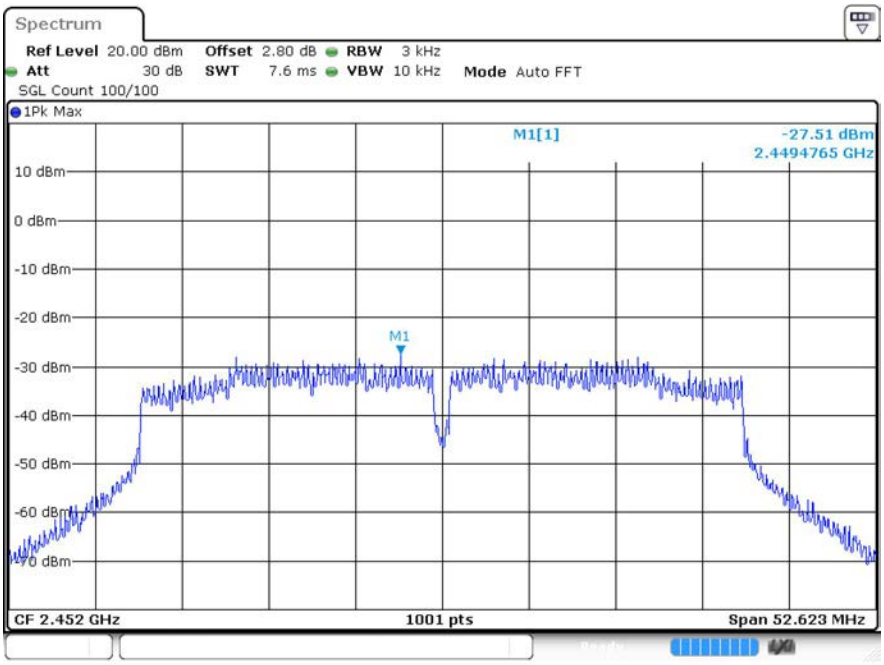
n40 2422MHz Ant1



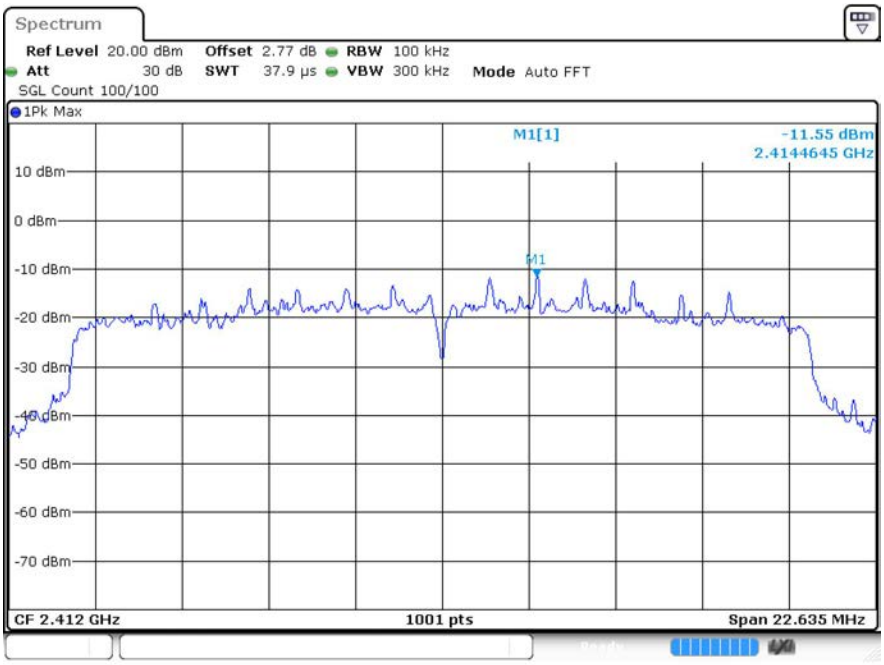
n40 2437MHz Ant1



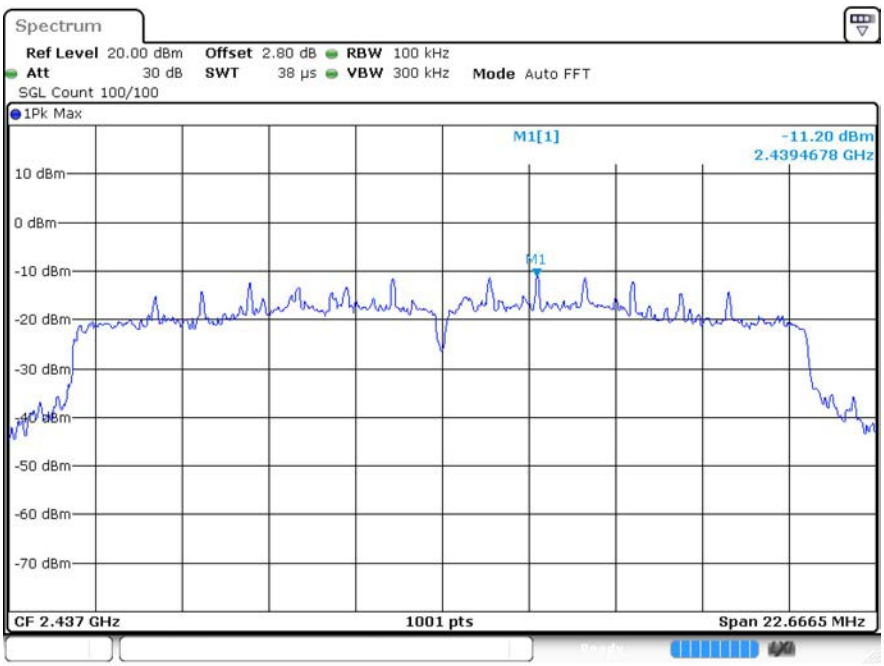
n40 2452MHz Ant1



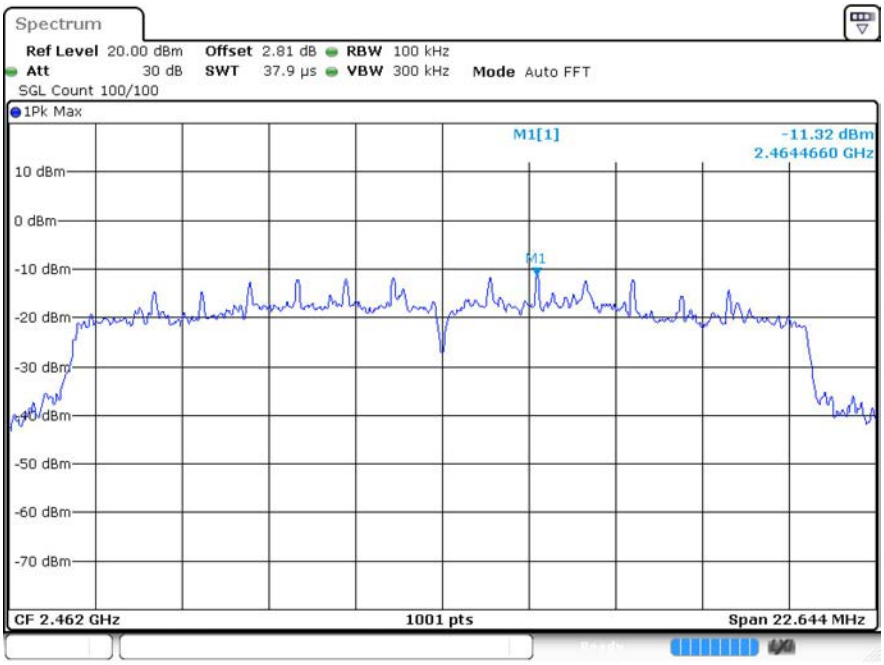
ax20 2412MHz Ant1



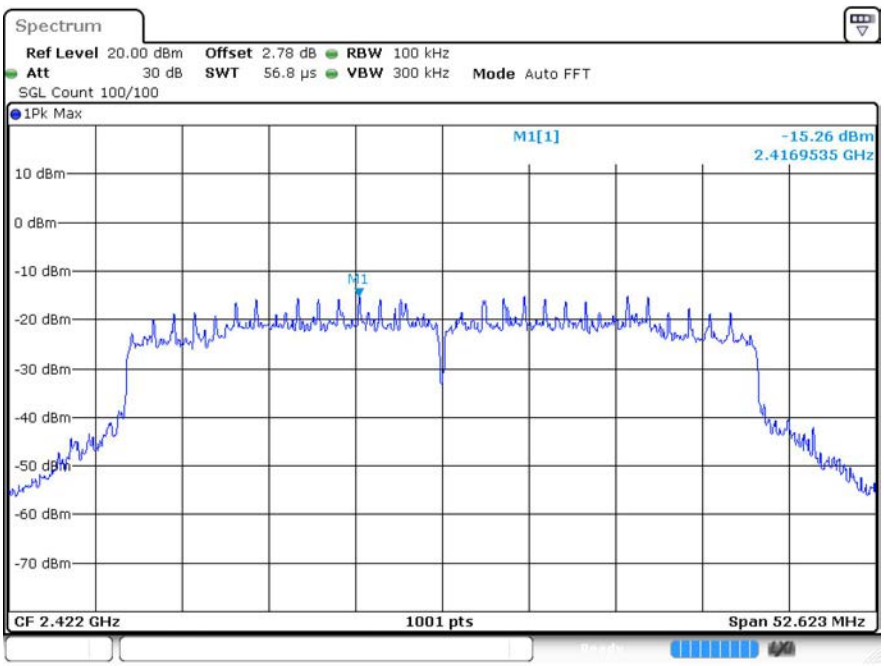
ax20 2437MHz Ant1



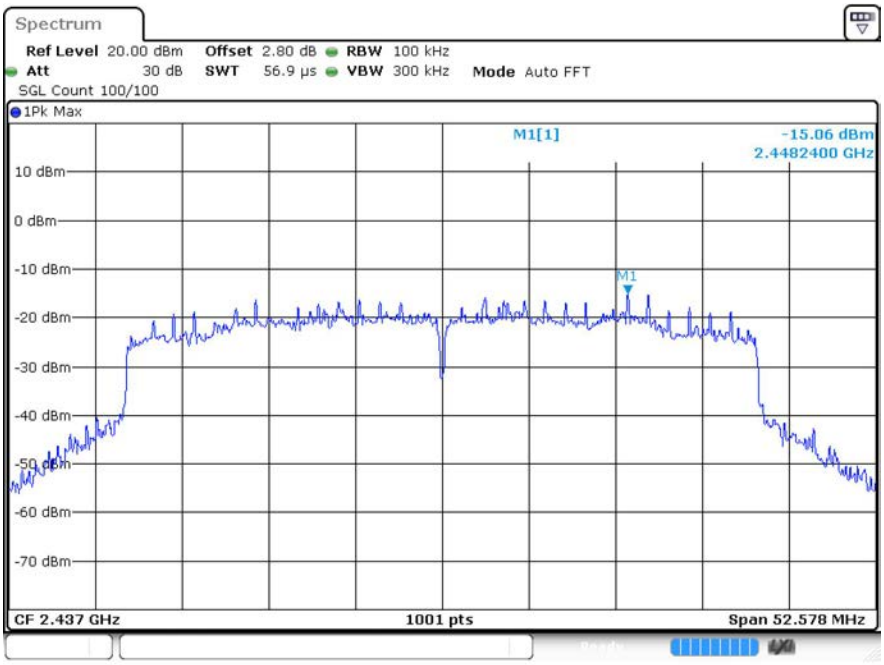
ax20 2462MHz Ant1



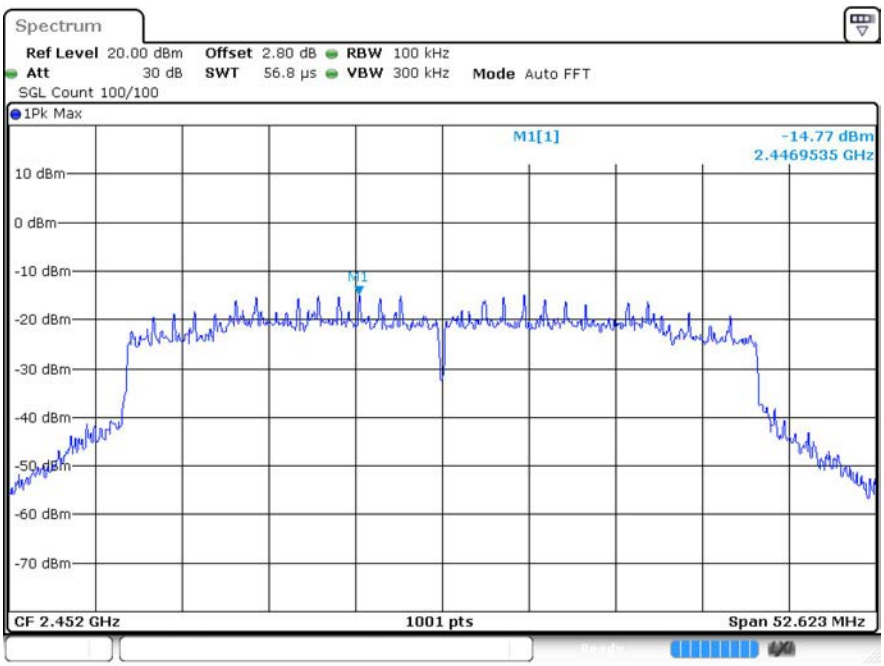
ax40 2422MHz Ant1



ax40 2437MHz Ant1



ax40 2452MHz Ant1



5 Band Edge

5.1 Test Result

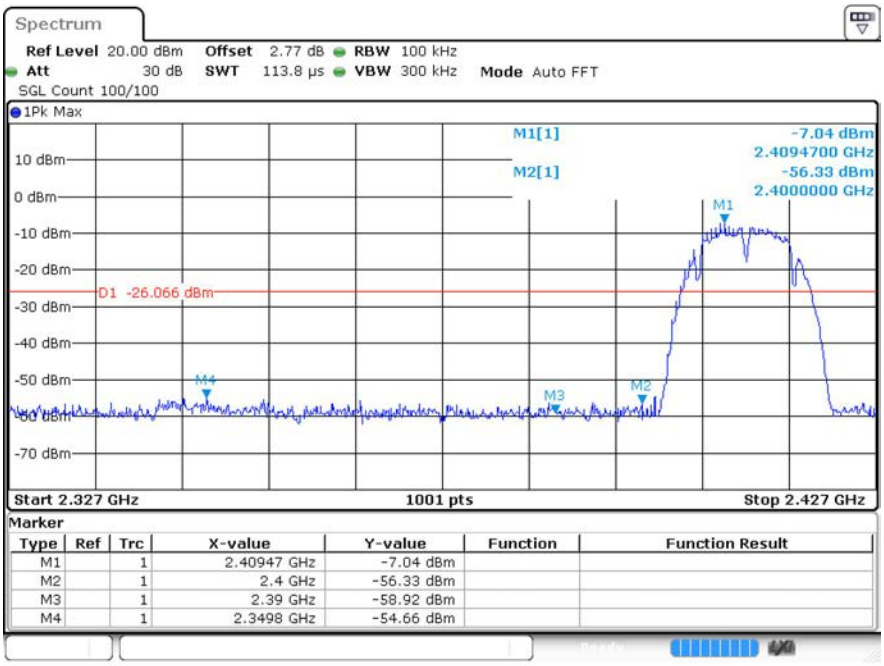
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-48.59	-20	Pass
b	2462	Ant1	-49.95	-20	Pass
g	2412	Ant1	-47.04	-20	Pass
g	2462	Ant1	-47.29	-20	Pass
n20	2412	Ant1	-45.81	-20	Pass
n20	2462	Ant1	-46.83	-20	Pass
n40	2422	Ant1	-41.73	-20	Pass
n40	2452	Ant1	-42.39	-20	Pass
ax20	2412	Ant1	-43.62	-20	Pass
ax20	2462	Ant1	-44.48	-20	Pass
ax40	2422	Ant1	-41.16	-20	Pass
ax40	2452	Ant1	-39.96	-20	Pass

5.2 Test Graphs

Test Graphs

b 2412MHz Ant1 Ref

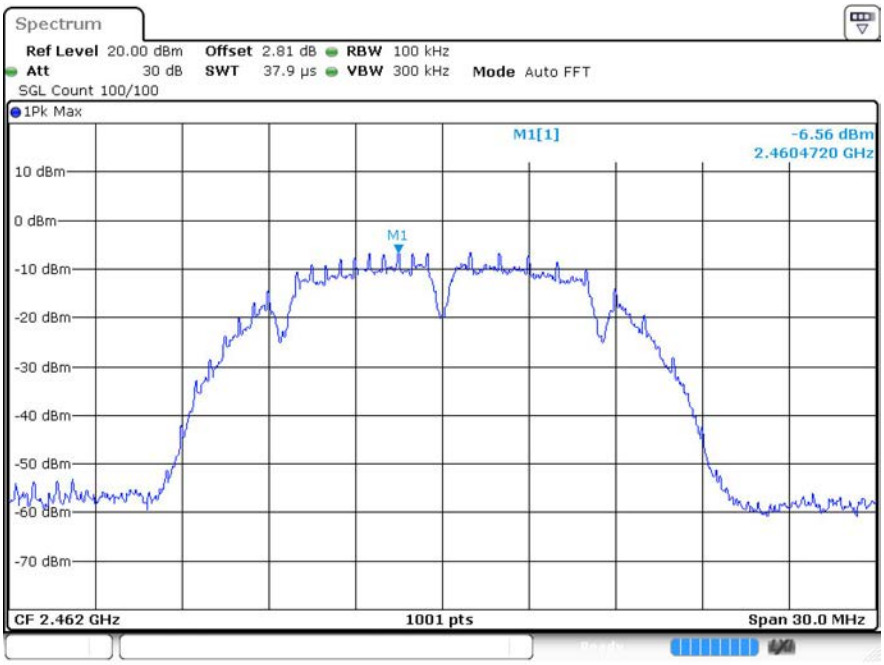
b 2412MHz Ant1 Emission



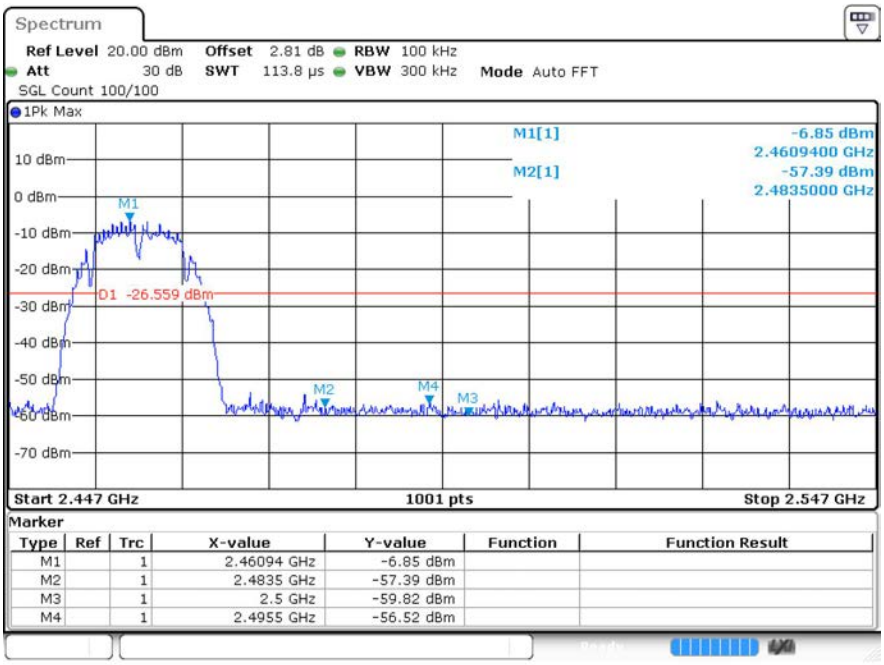
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40947 GHz	-7.04 dBm		
M2		1	2.4 GHz	-56.33 dBm		
M3		1	2.39 GHz	-58.92 dBm		
M4		1	2.3498 GHz	-54.66 dBm		

b 2462MHz Ant1 Ref



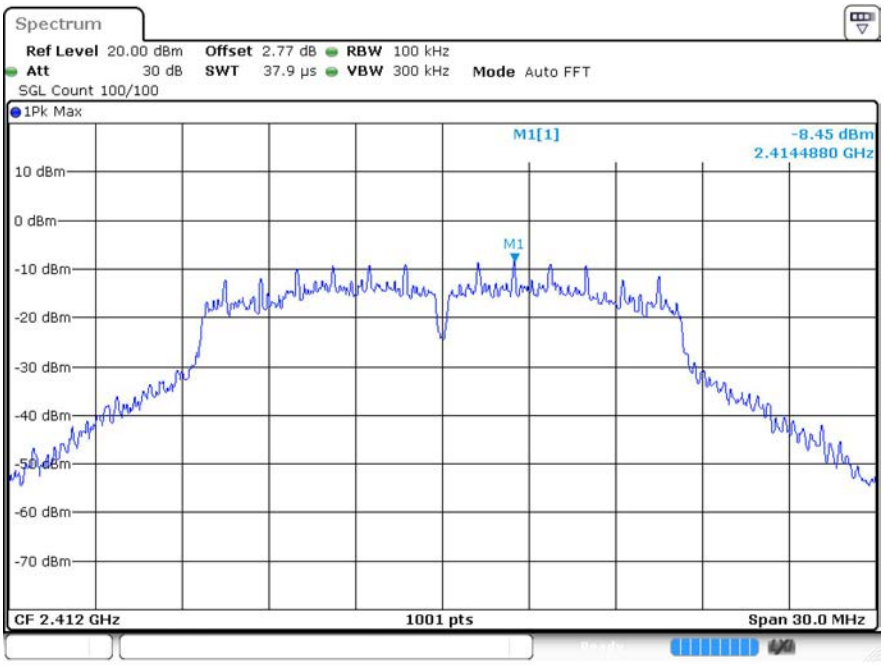
b 2462MHz Ant1 Emission



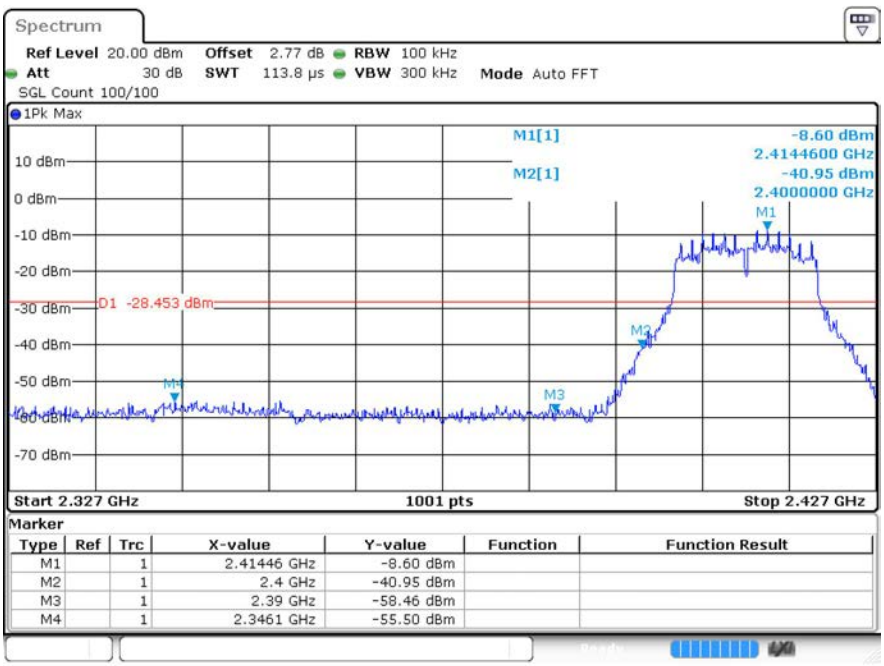
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46094 GHz	-6.85 dBm		
M2		1	2.4835 GHz	-57.39 dBm		
M3		1	2.5 GHz	-59.82 dBm		
M4		1	2.4955 GHz	-56.52 dBm		

g 2412MHz Ant1 Ref

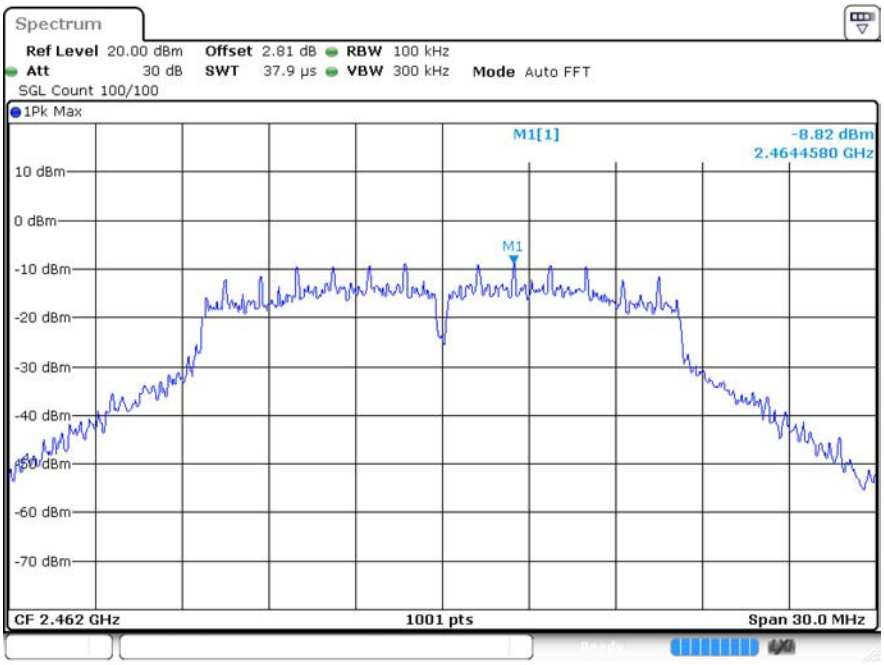


g 2412MHz Ant1 Emission

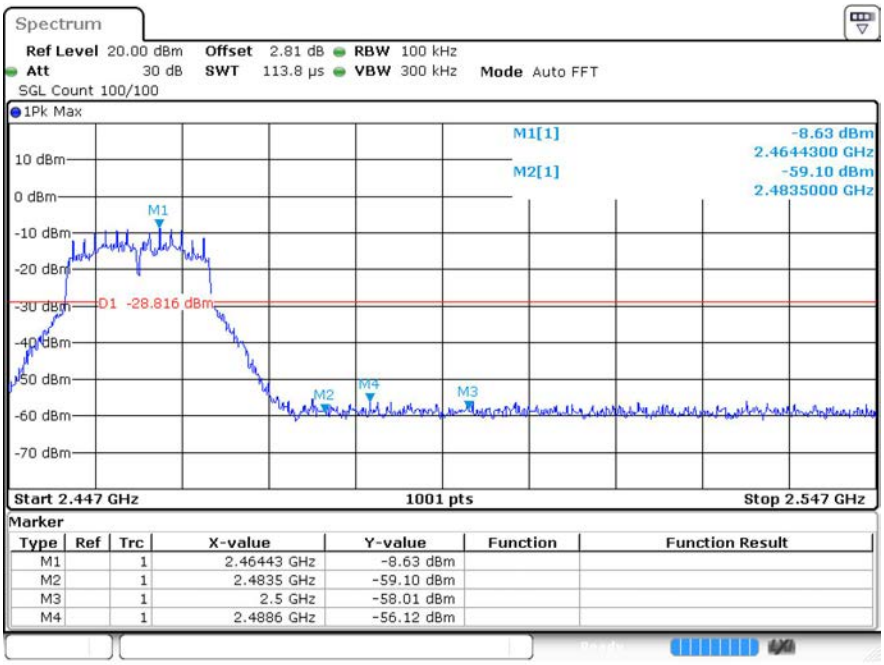


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41446 GHz	-8.60 dBm		
M2		1	2.4 GHz	-40.95 dBm		
M3		1	2.39 GHz	-58.46 dBm		
M4		1	2.3461 GHz	-55.50 dBm		

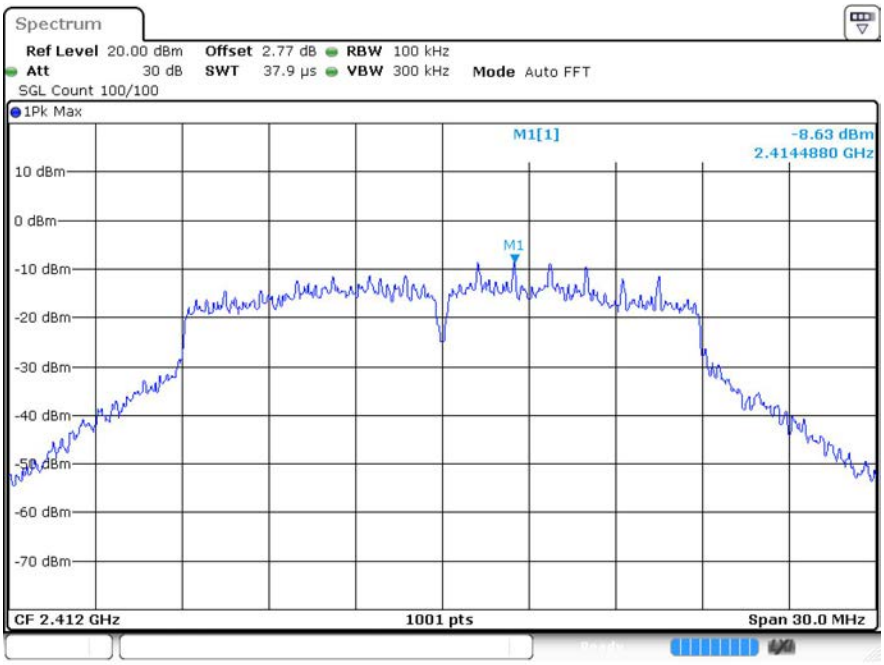
g 2462MHz Ant1 Ref



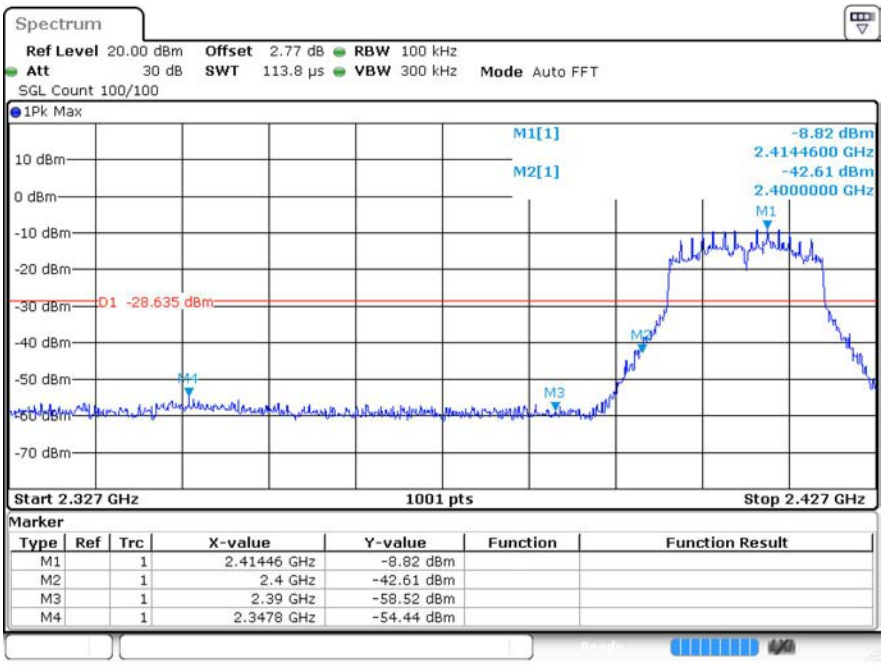
g 2462MHz Ant1 Emission



n20 2412MHz Ant1 Ref



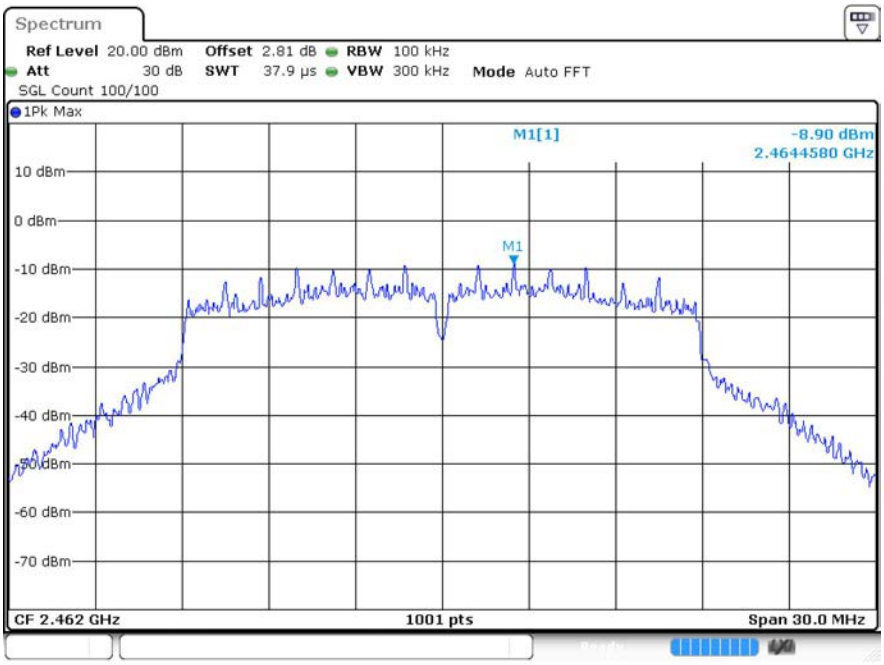
n20 2412MHz Ant1 Emission



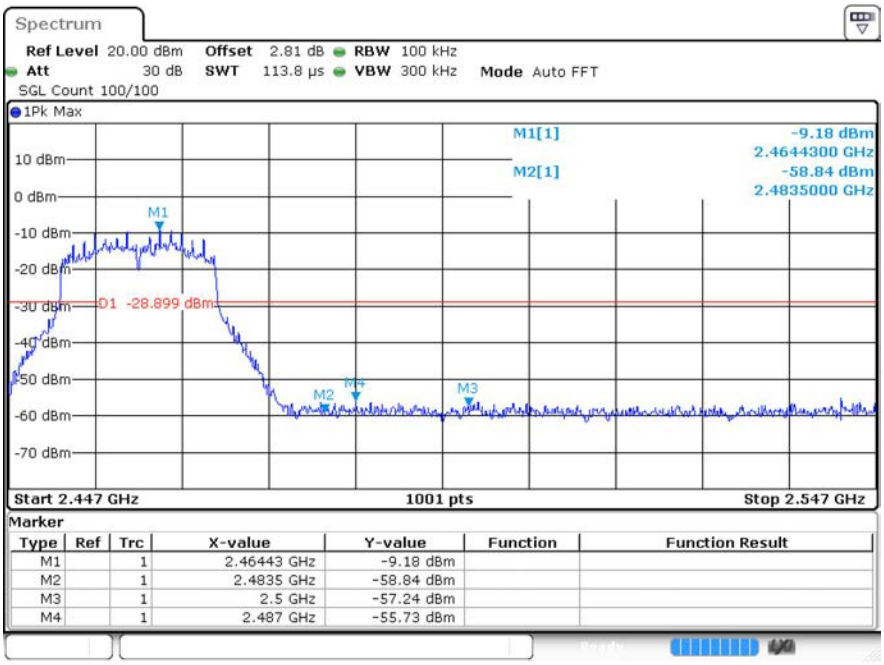
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41446 GHz	-8.82 dBm		
M2		1	2.4 GHz	-42.61 dBm		
M3		1	2.39 GHz	-58.52 dBm		
M4		1	2.3478 GHz	-54.44 dBm		

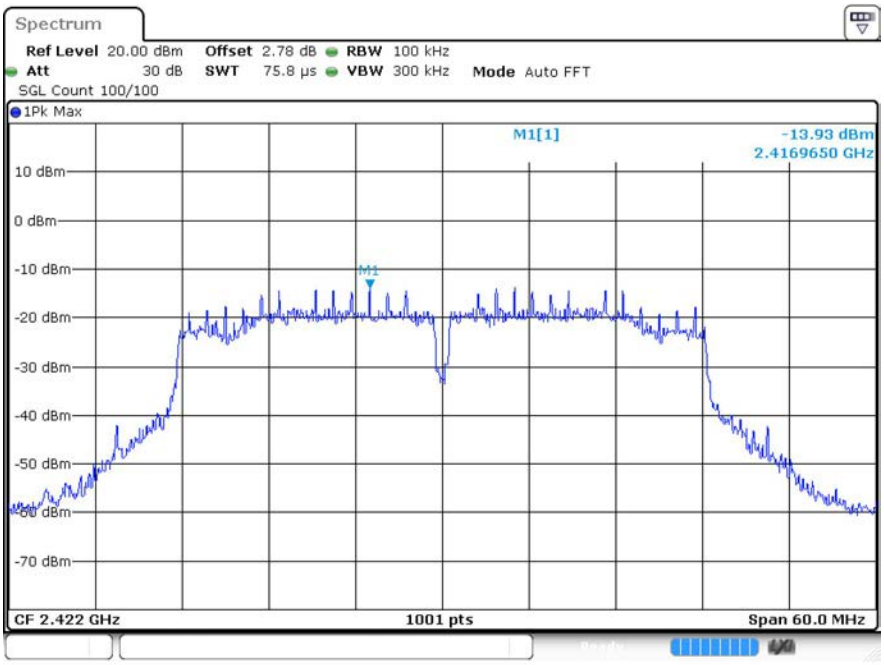
n20 2462MHz Ant1 Ref



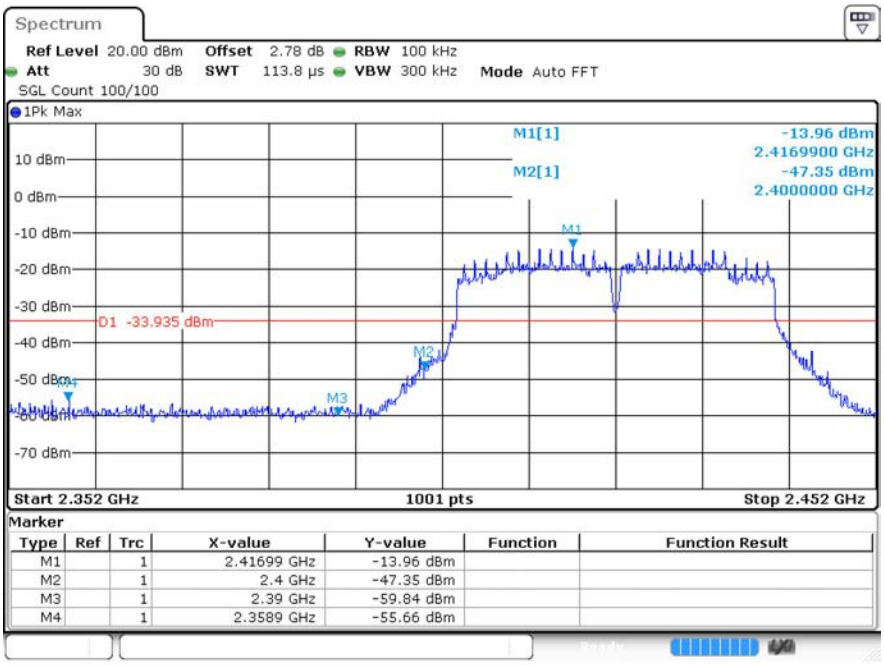
n20 2462MHz Ant1 Emission



n40 2422MHz Ant1 Ref



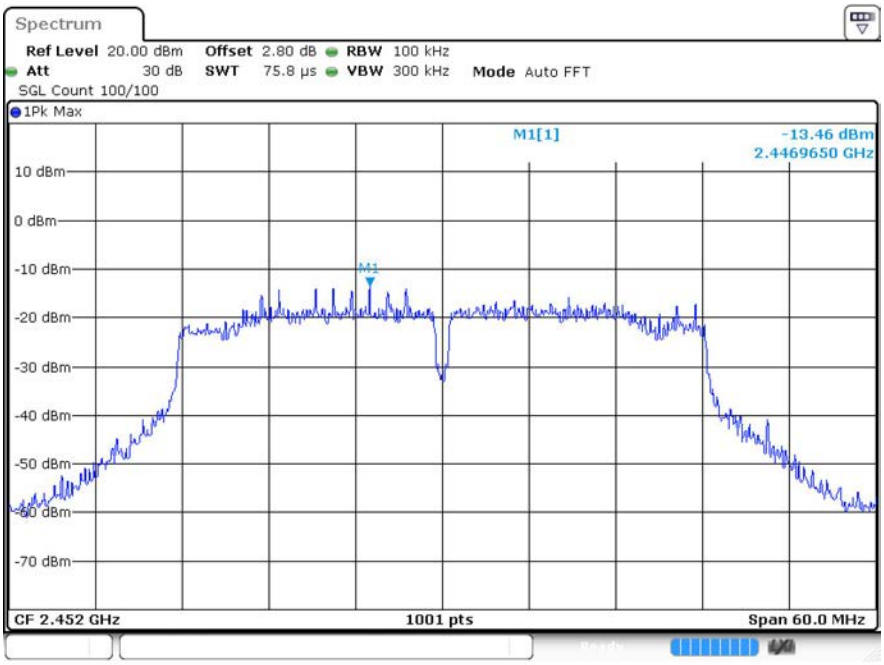
n40 2422MHz Ant1 Emission



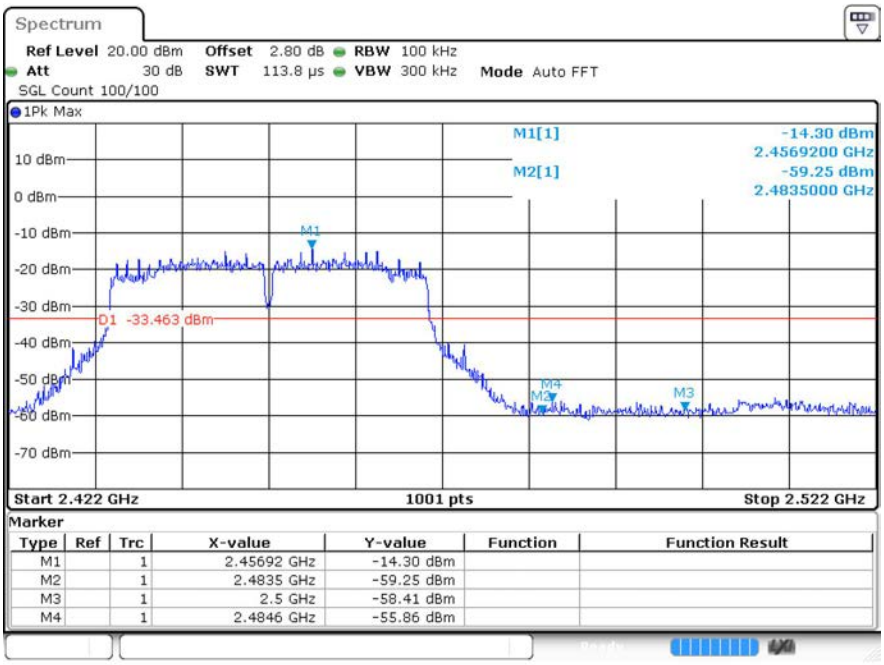
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41699 GHz	-13.96 dBm		
M2		1	2.4 GHz	-47.35 dBm		
M3		1	2.39 GHz	-59.84 dBm		
M4		1	2.3589 GHz	-55.66 dBm		

n40 2452MHz Ant1 Ref

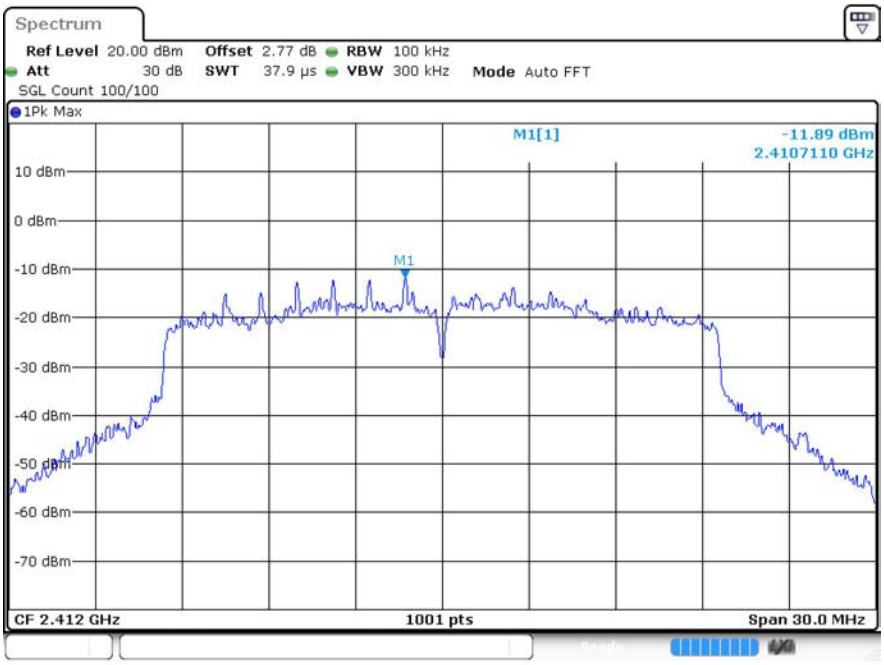


n40 2452MHz Ant1 Emission

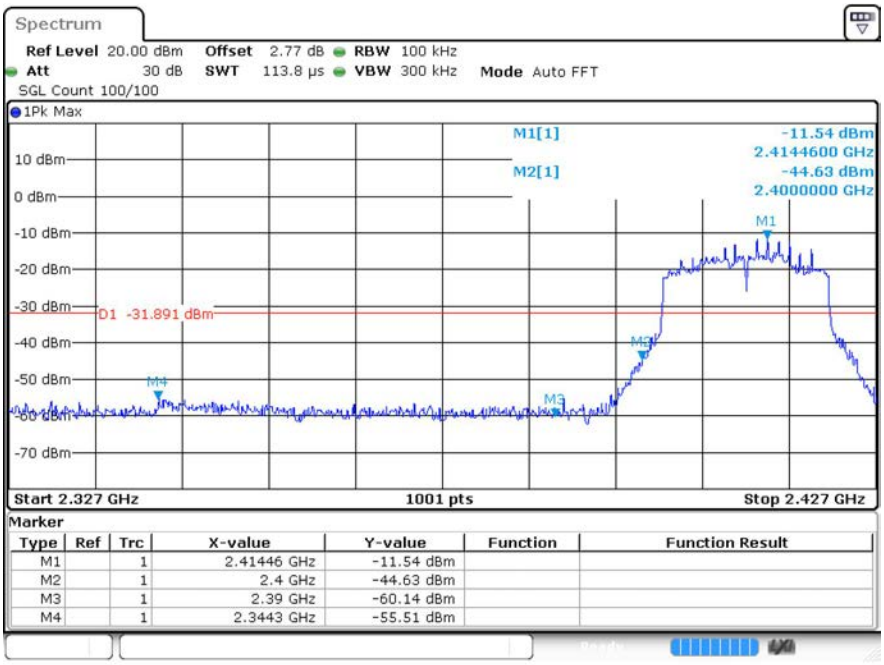


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45692 GHz	-14.30 dBm		
M2		1	2.4835 GHz	-59.25 dBm		
M3		1	2.5 GHz	-58.41 dBm		
M4		1	2.4846 GHz	-55.86 dBm		

ax20 2412MHz Ant1 Ref



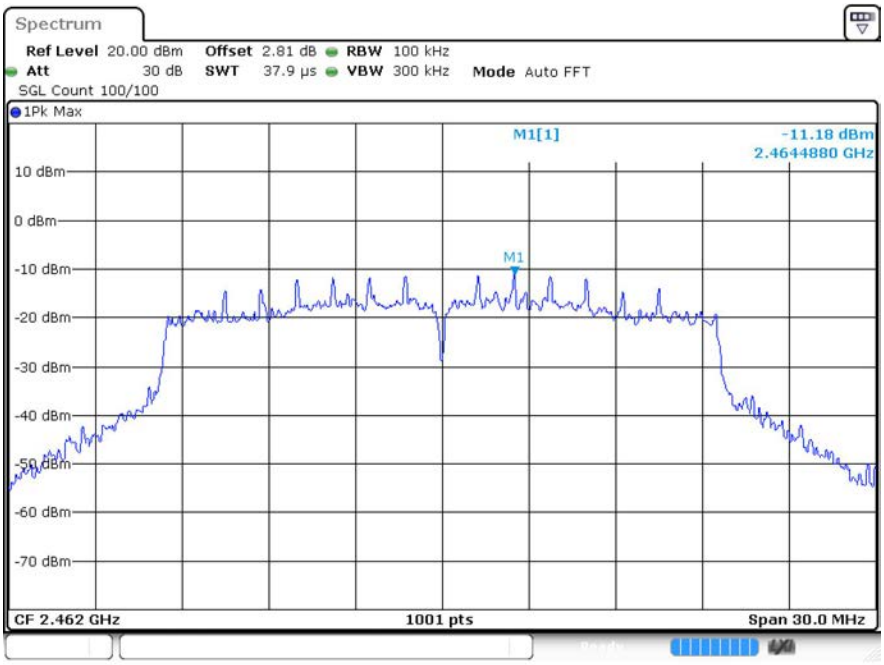
ax20 2412MHz Ant1 Emission



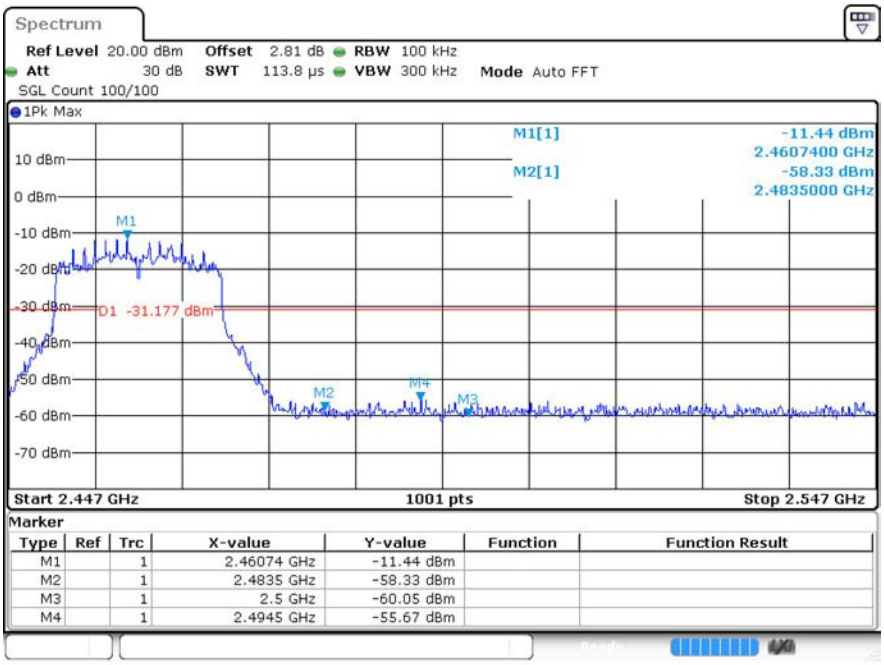
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41446 GHz	-11.54 dBm		
M2		1	2.4 GHz	-44.63 dBm		
M3		1	2.39 GHz	-60.14 dBm		
M4		1	2.3443 GHz	-55.51 dBm		

ax20 2462MHz Ant1 Ref



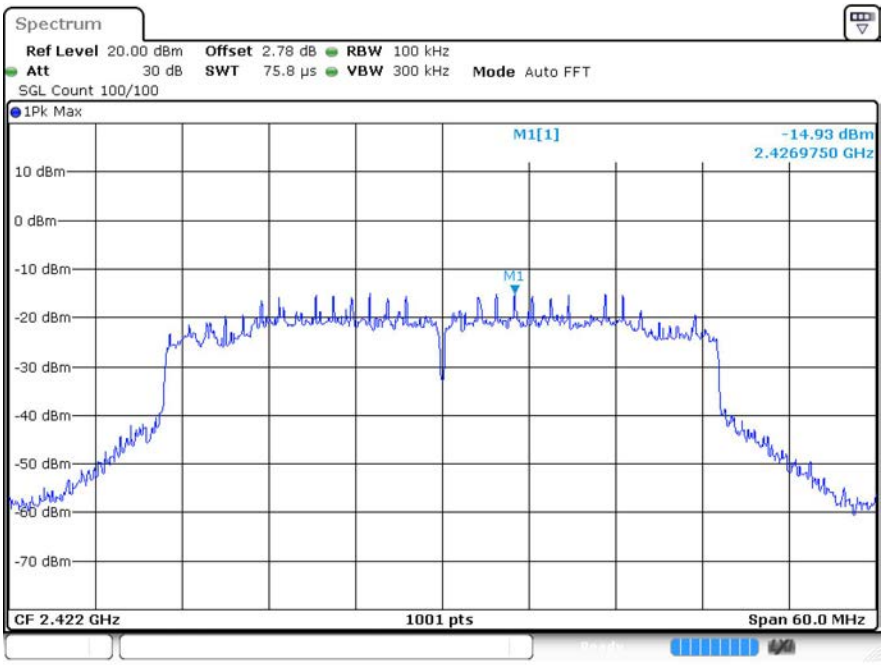
ax20 2462MHz Ant1 Emission



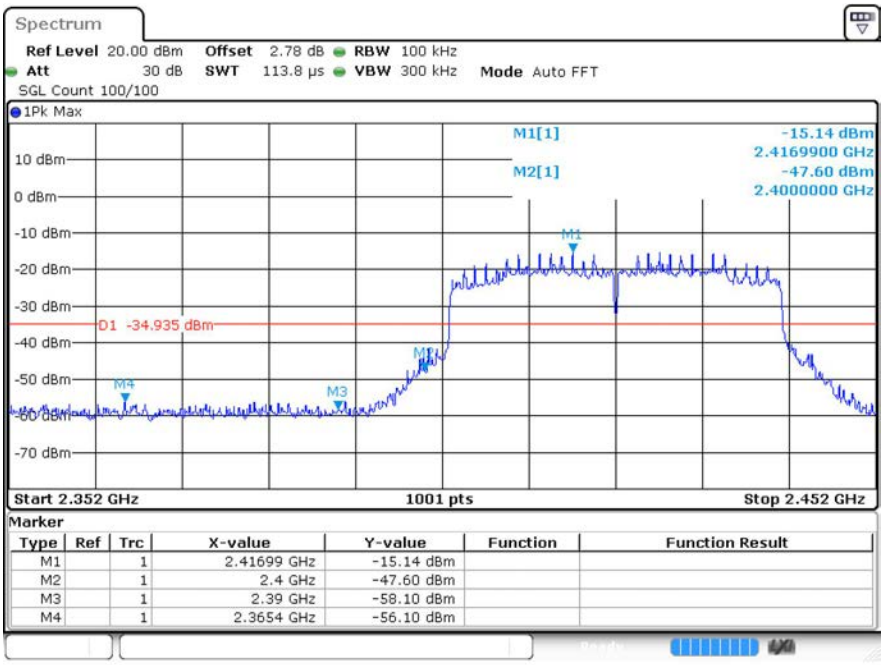
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46074 GHz	-11.44 dBm		
M2		1	2.4835 GHz	-58.33 dBm		
M3		1	2.5 GHz	-60.05 dBm		
M4		1	2.4945 GHz	-55.67 dBm		

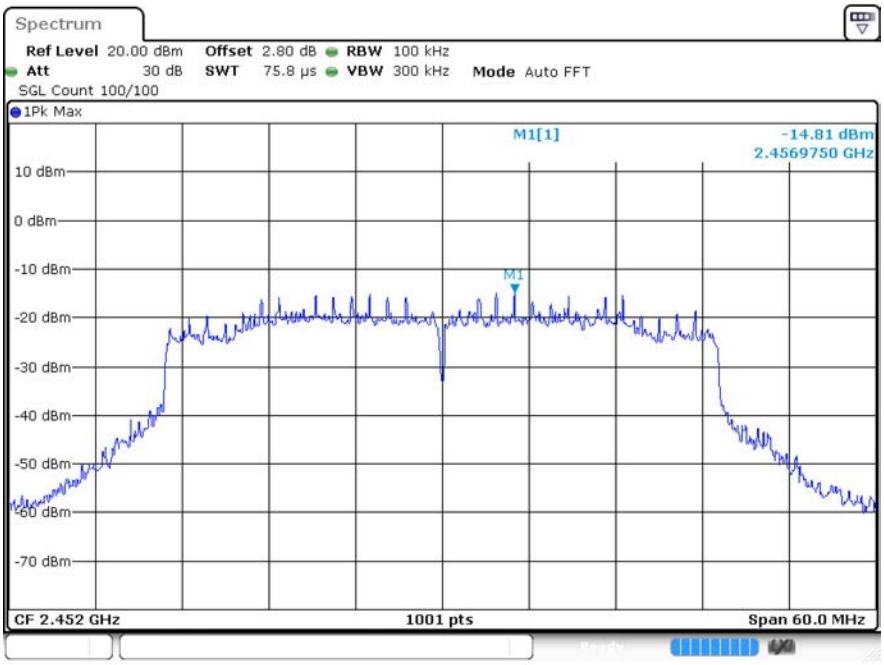
ax40 2422MHz Ant1 Ref



ax40 2422MHz Ant1 Emission



ax40 2452MHz Ant1 Ref



ax40 2452MHz Ant1 Emission

6 Conducted RF Spurious Emission

6.1 Test Result

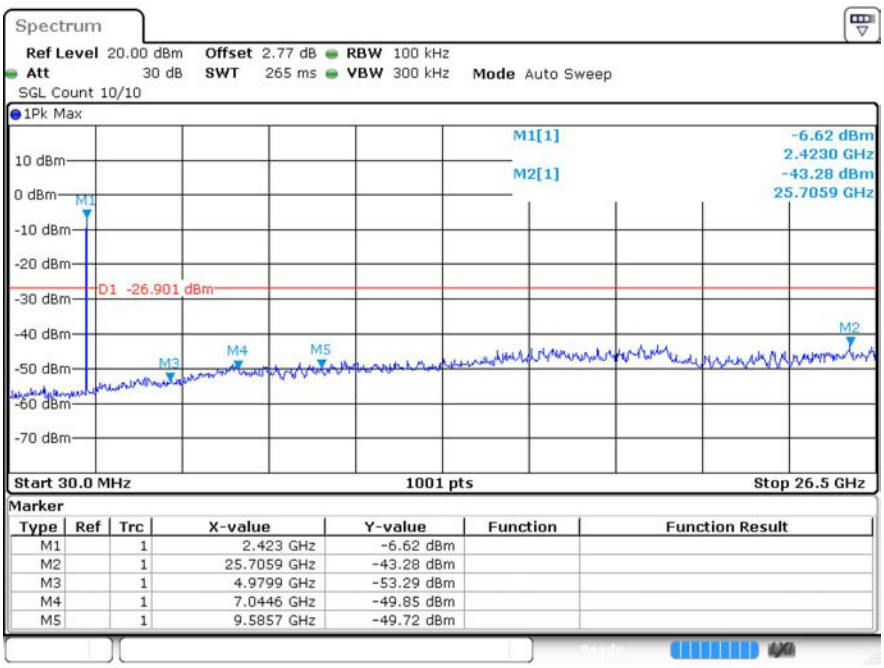
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-36.37	-20	Pass
b	2437	Ant1	-36.57	-20	Pass
b	2462	Ant1	-35.18	-20	Pass
g	2412	Ant1	-34.31	-20	Pass
g	2437	Ant1	-34.04	-20	Pass
g	2462	Ant1	-32.89	-20	Pass
n20	2412	Ant1	-34.83	-20	Pass
n20	2437	Ant1	-33.28	-20	Pass
n20	2462	Ant1	-34.4	-20	Pass
n40	2422	Ant1	-27.8	-20	Pass
n40	2437	Ant1	-29.79	-20	Pass
n40	2452	Ant1	-28.14	-20	Pass
ax20	2412	Ant1	-31.34	-20	Pass
ax20	2437	Ant1	-32.18	-20	Pass
ax20	2462	Ant1	-31.57	-20	Pass
ax40	2422	Ant1	-27.25	-20	Pass
ax40	2437	Ant1	-27.05	-20	Pass
ax40	2452	Ant1	-27.97	-20	Pass

6.2 Test Graphs

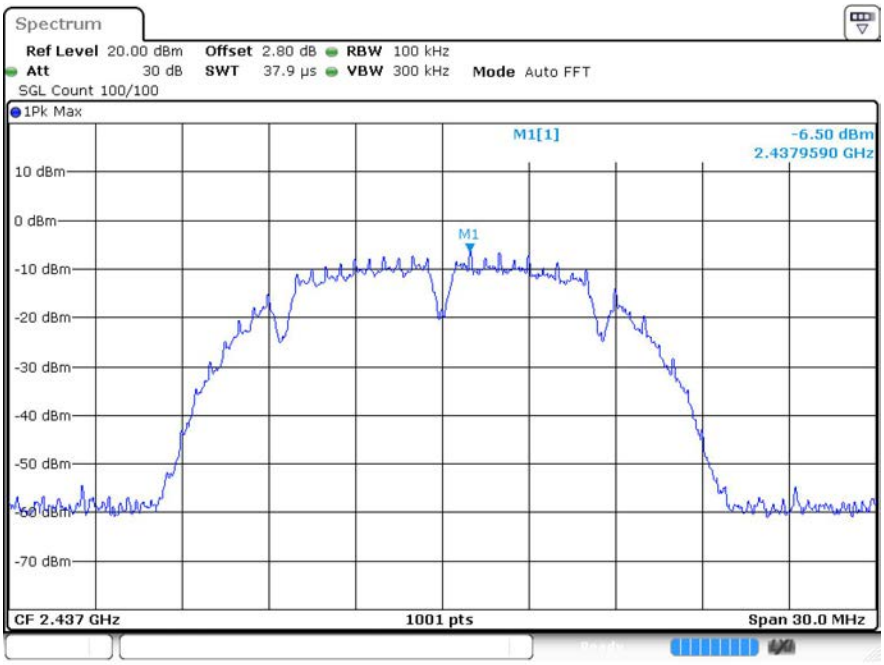
Test Graphs

b 2412MHz Ant1 Ref

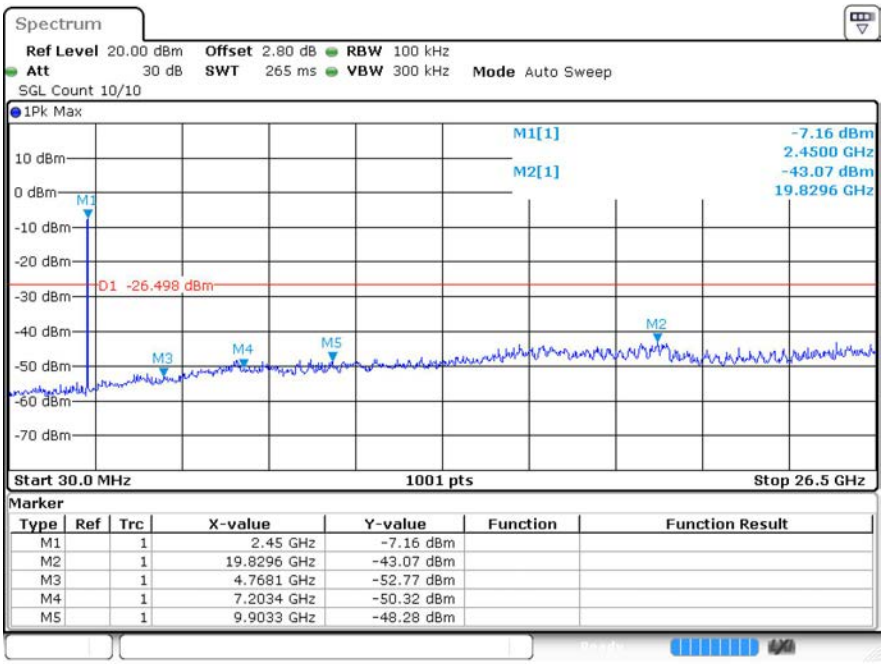
b 2412MHz Ant1 Emission



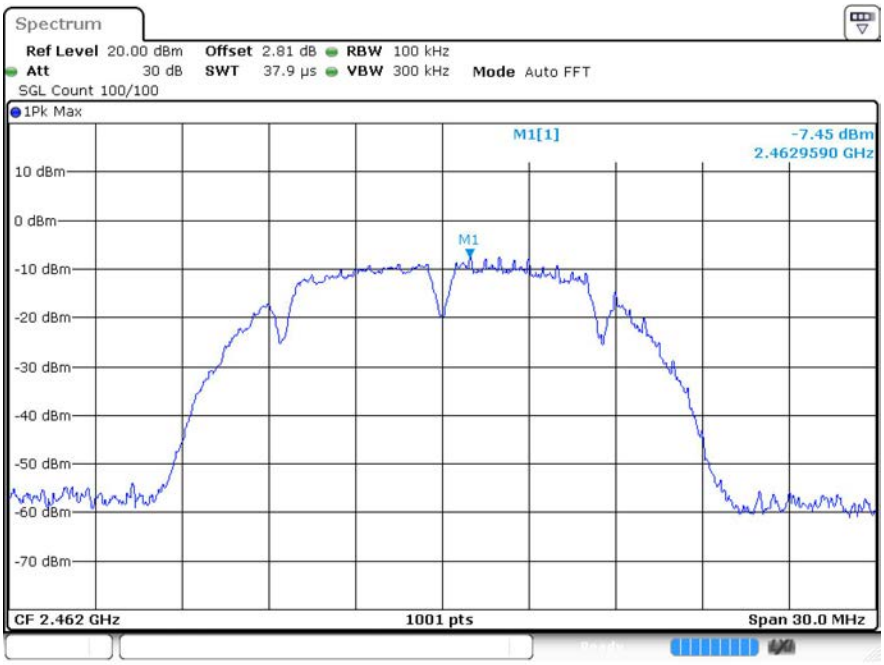
b 2437MHz Ant1 Ref



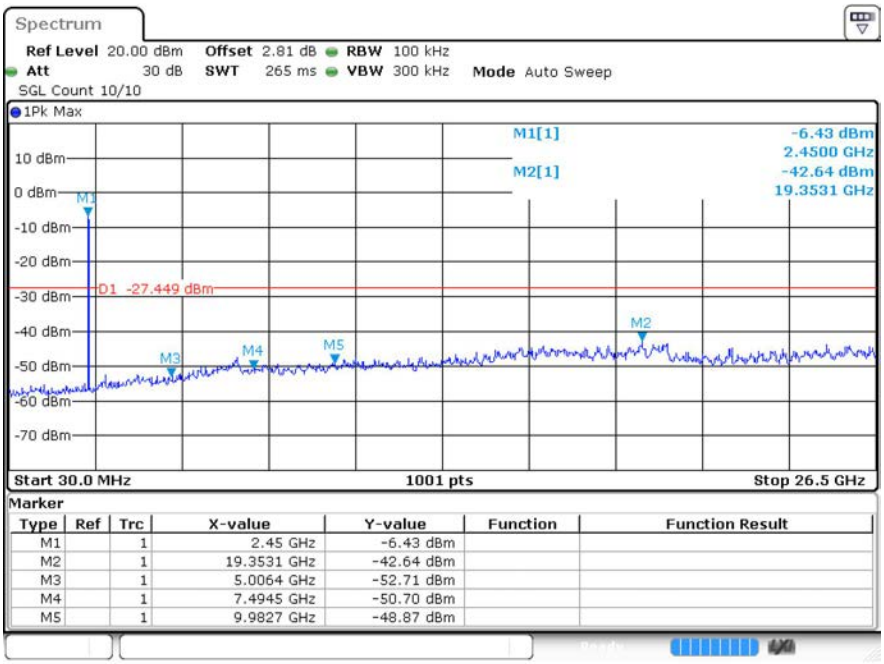
b 2437MHz Ant1 Emission



b 2462MHz Ant1 Ref



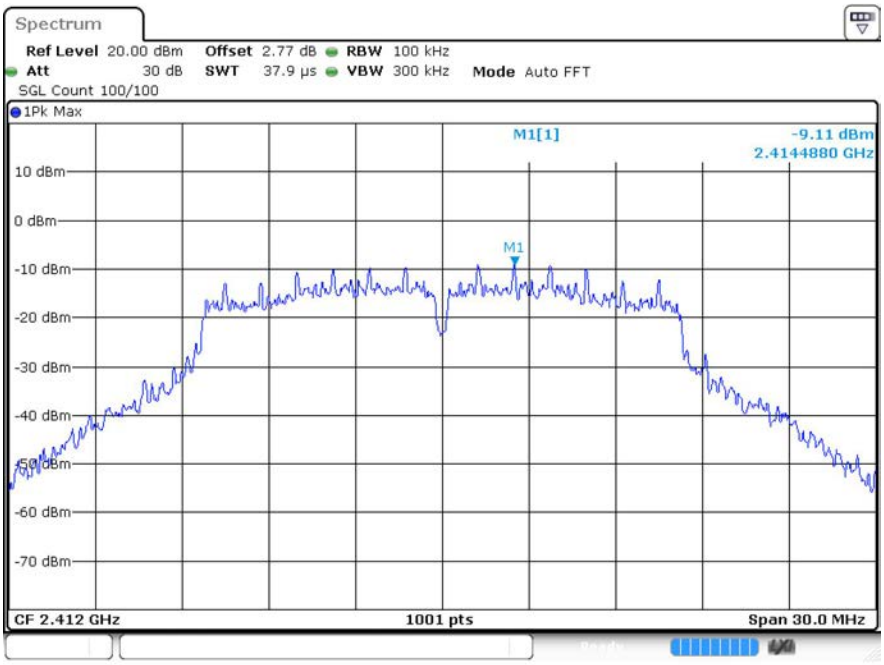
b 2462MHz Ant1 Emission



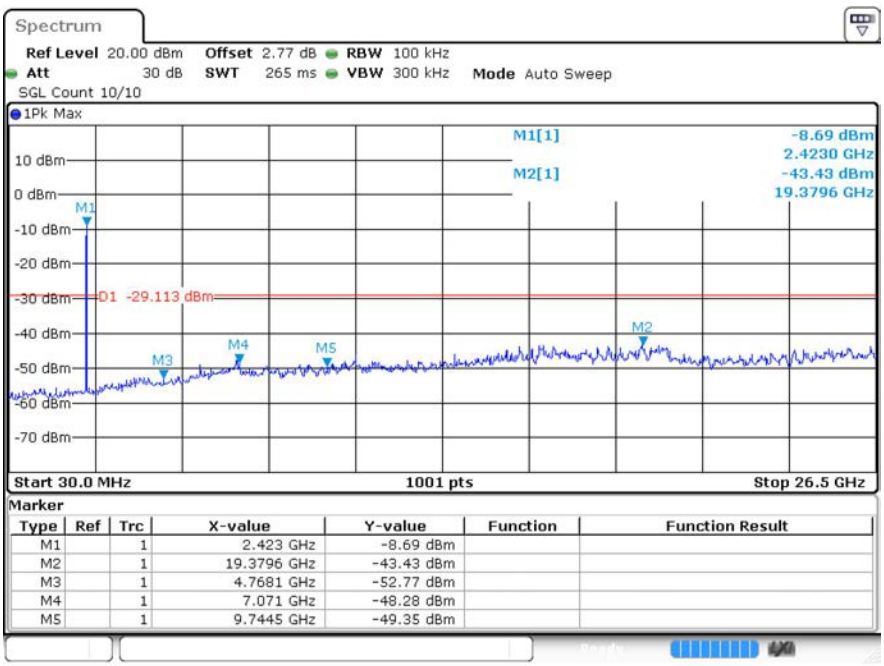
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-6.43 dBm		
M2		1	19.3531 GHz	-42.64 dBm		
M3		1	5.0064 GHz	-52.71 dBm		
M4		1	7.4945 GHz	-50.70 dBm		
M5		1	9.9827 GHz	-48.87 dBm		

g 2412MHz Ant1 Ref



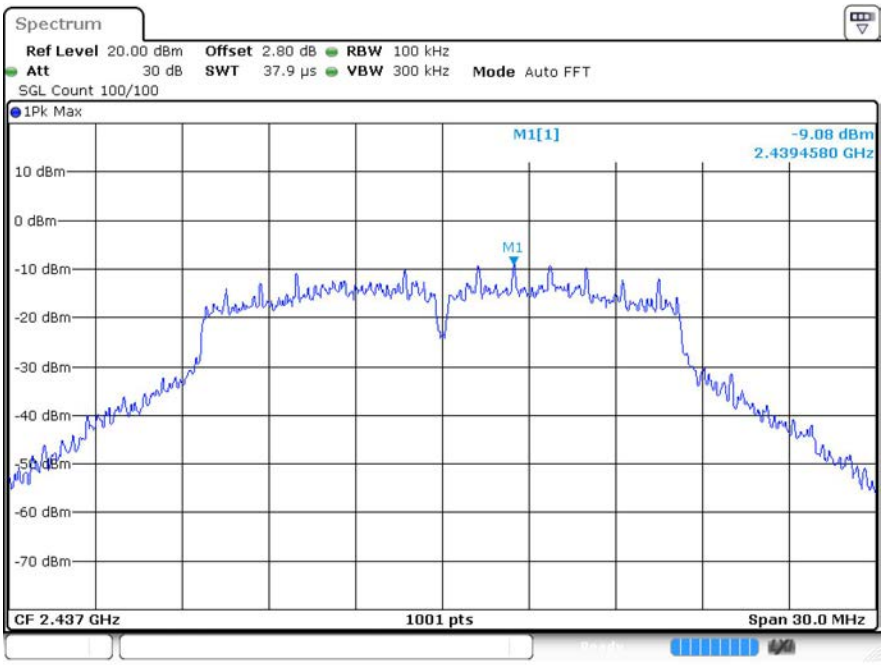
g 2412MHz Ant1 Emission



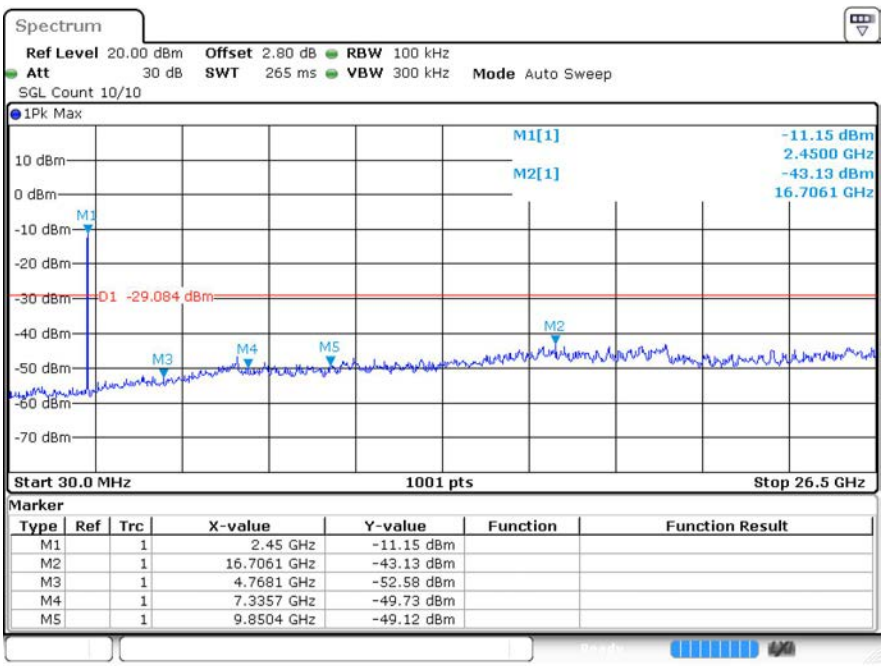
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.423 GHz	-8.69 dBm		
M2		1	19.3796 GHz	-43.43 dBm		
M3		1	4.7681 GHz	-52.77 dBm		
M4		1	7.071 GHz	-48.28 dBm		
M5		1	9.7445 GHz	-49.35 dBm		

g 2437MHz Ant1 Ref



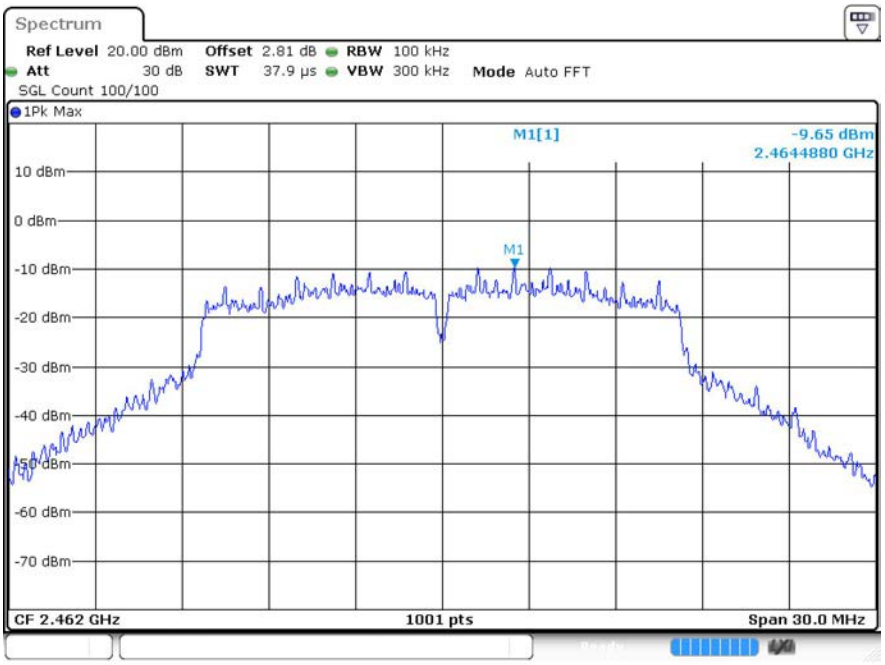
g 2437MHz Ant1 Emission



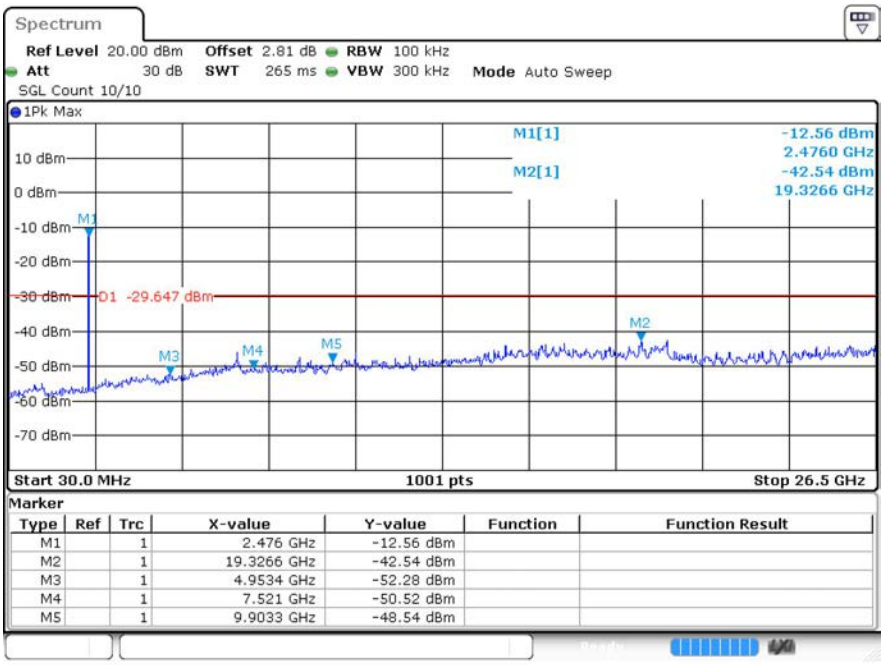
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-11.15 dBm		
M2		1	16.7061 GHz	-43.13 dBm		
M3		1	4.7681 GHz	-52.58 dBm		
M4		1	7.3357 GHz	-49.73 dBm		
M5		1	9.8504 GHz	-49.12 dBm		

g 2462MHz Ant1 Ref



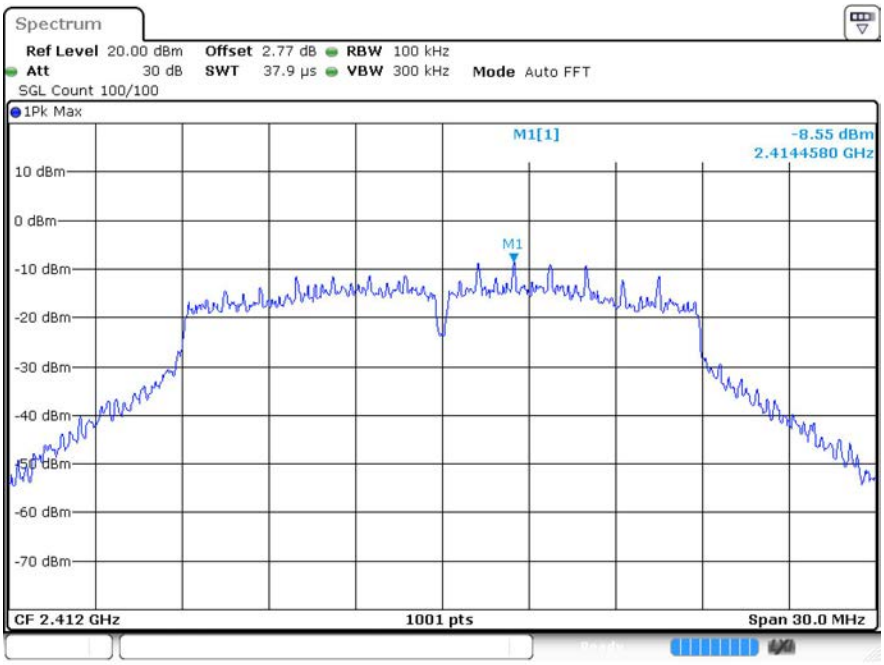
g 2462MHz Ant1 Emission



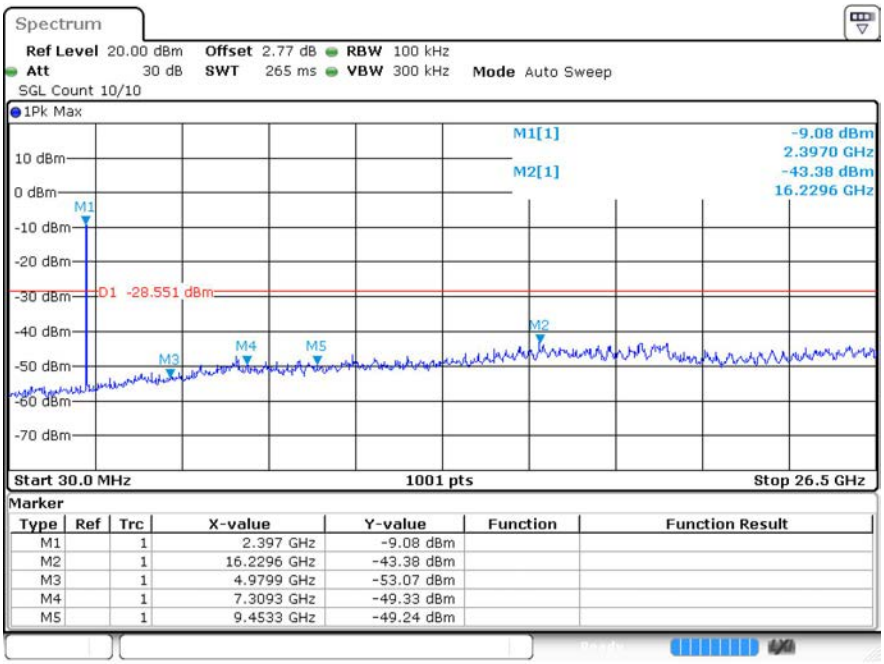
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.476 GHz	-12.56 dBm		
M2		1	19.3266 GHz	-42.54 dBm		
M3		1	4.9534 GHz	-52.28 dBm		
M4		1	7.521 GHz	-50.52 dBm		
M5		1	9.9033 GHz	-48.54 dBm		

n20 2412MHz Ant1 Ref



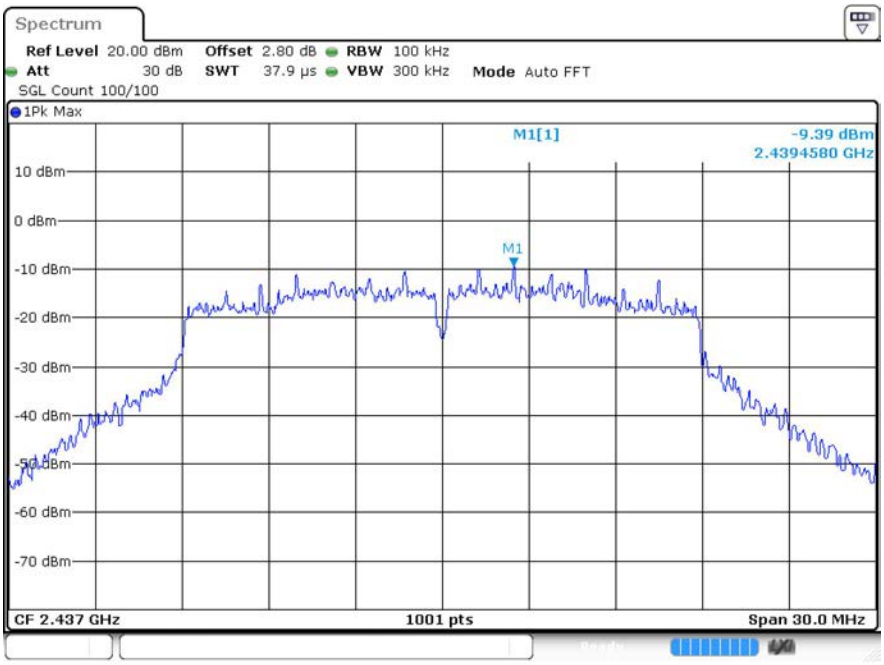
n20 2412MHz Ant1 Emission



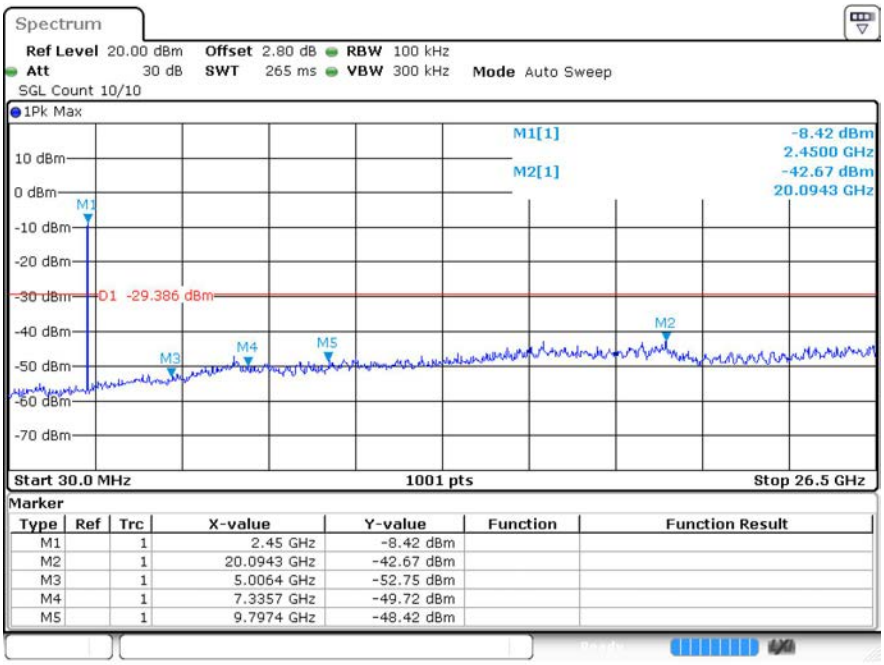
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.397 GHz	-9.08 dBm		
M2		1	16.2296 GHz	-43.38 dBm		
M3		1	4.9799 GHz	-53.07 dBm		
M4		1	7.3093 GHz	-49.33 dBm		
M5		1	9.4533 GHz	-49.24 dBm		

n20 2437MHz Ant1 Ref



n20 2437MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-8.42 dBm		
M2		1	20.0943 GHz	-42.67 dBm		
M3		1	5.0064 GHz	-52.75 dBm		
M4		1	7.3357 GHz	-49.72 dBm		
M5		1	9.7974 GHz	-48.42 dBm		