Appendix C

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: Bluetooth Gateway

Trade Mark: UNISTYLE

Test Model: WG-01

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

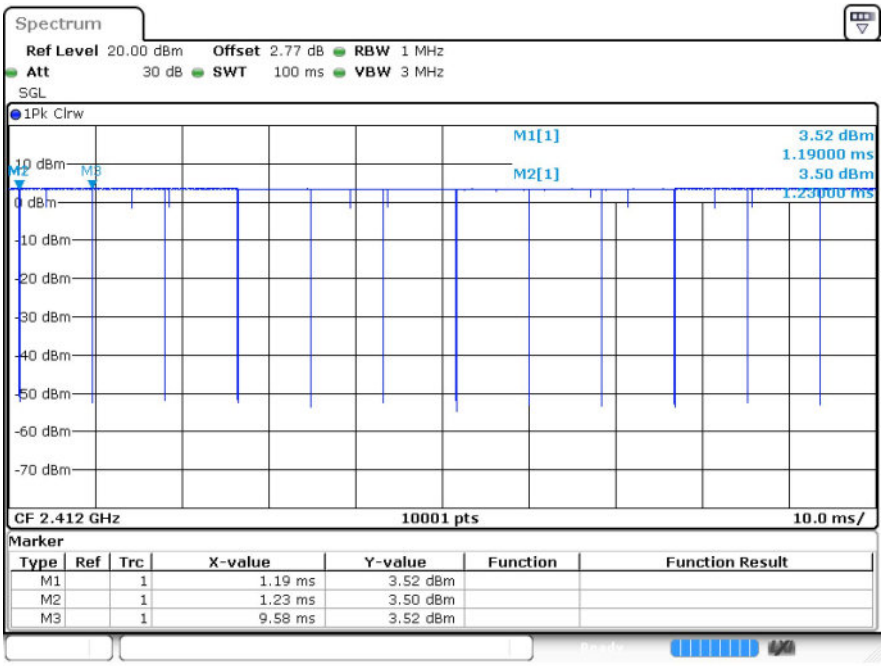
1.1 Test Result

Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor	1/T (kHz)
b	2412	Ant1	99.61	0.02	0.12
b	2437	Ant1	99.61	0.02	0.12
b	2462	Ant1	99.61	0.02	0.12
g	2412	Ant1	86.98	0.61	4.76
g	2437	Ant1	86.9	0.61	4.55
g	2462	Ant1	86.87	0.61	4.55
n20	2412	Ant1	87.56	0.58	4.35
n20	2437	Ant1	87.56	0.58	4.17
n20	2462	Ant1	87.55	0.58	4.17

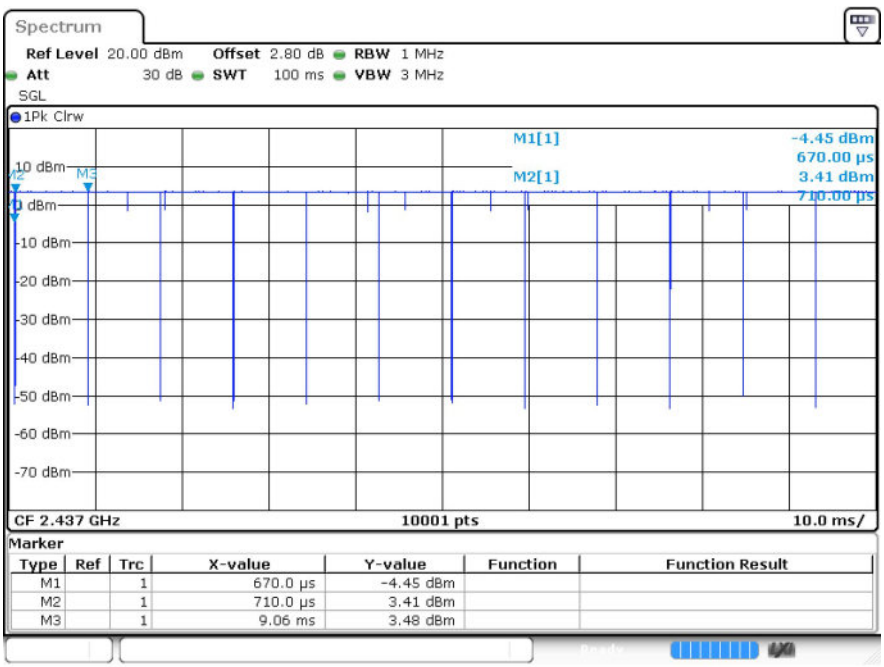
1.2 Test Graphs

Test Graphs

b 2412MHz Ant1

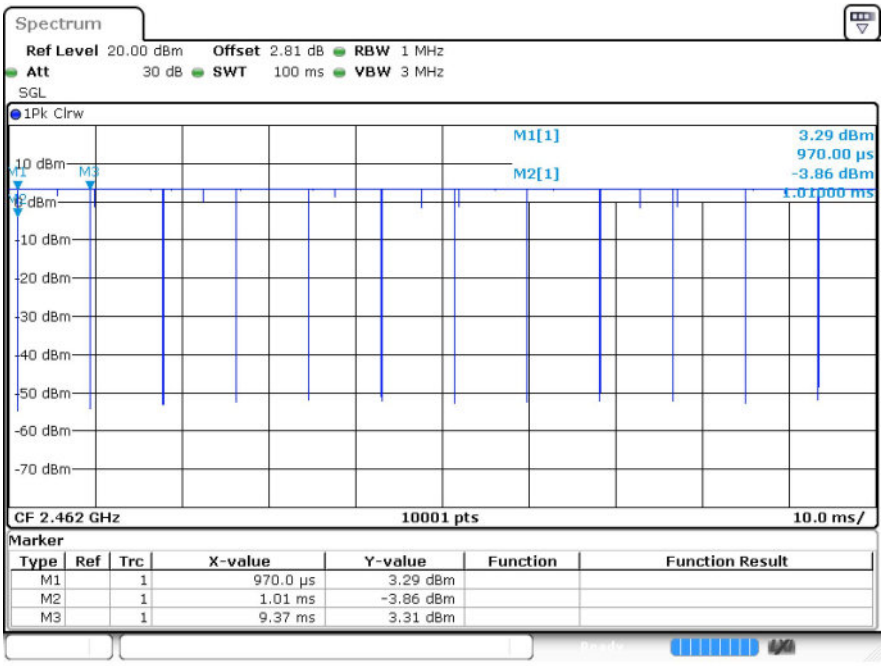


b 2437MHz Ant1

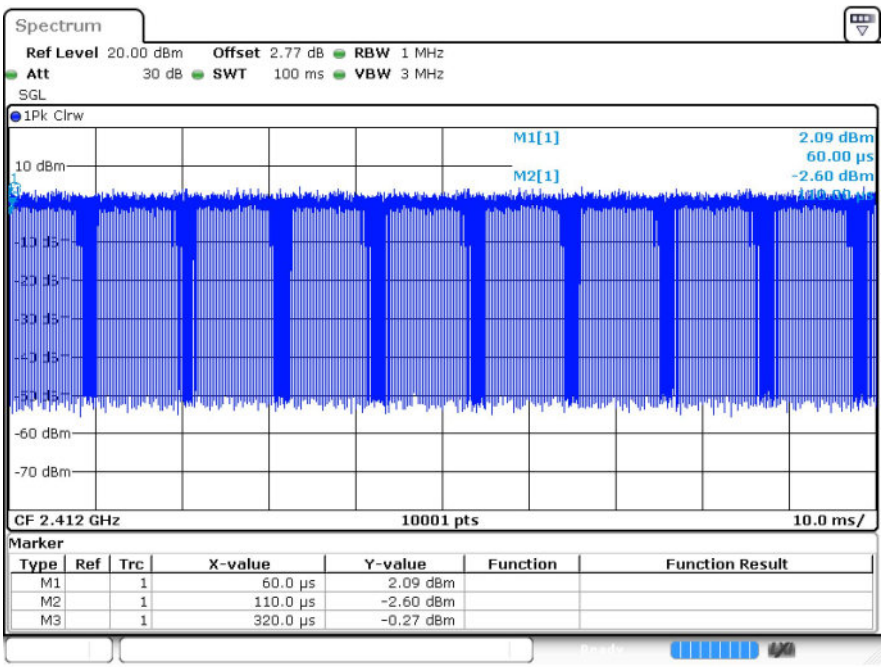


Test Graphs

b 2462MHz Ant1

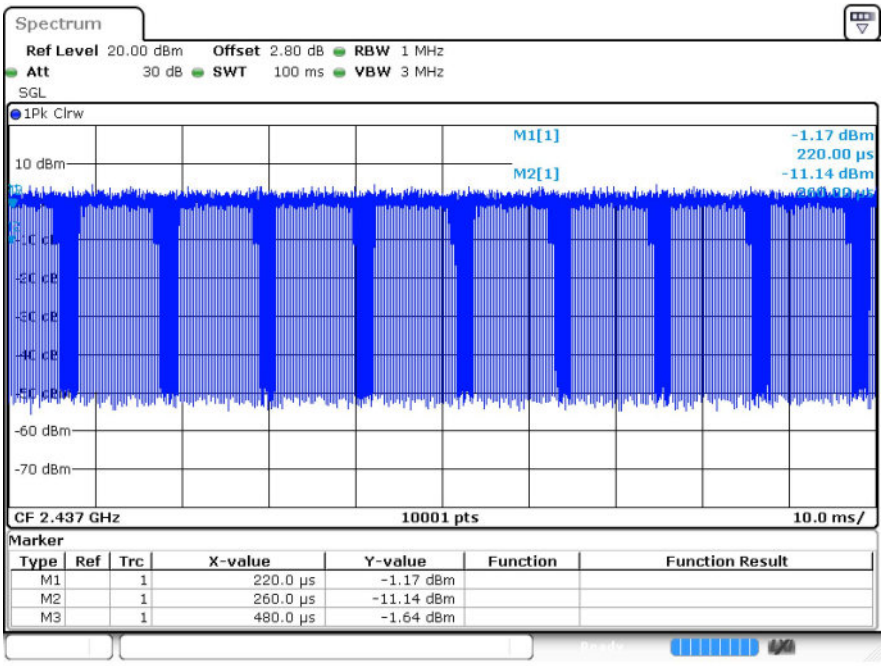


g 2412MHz Ant1

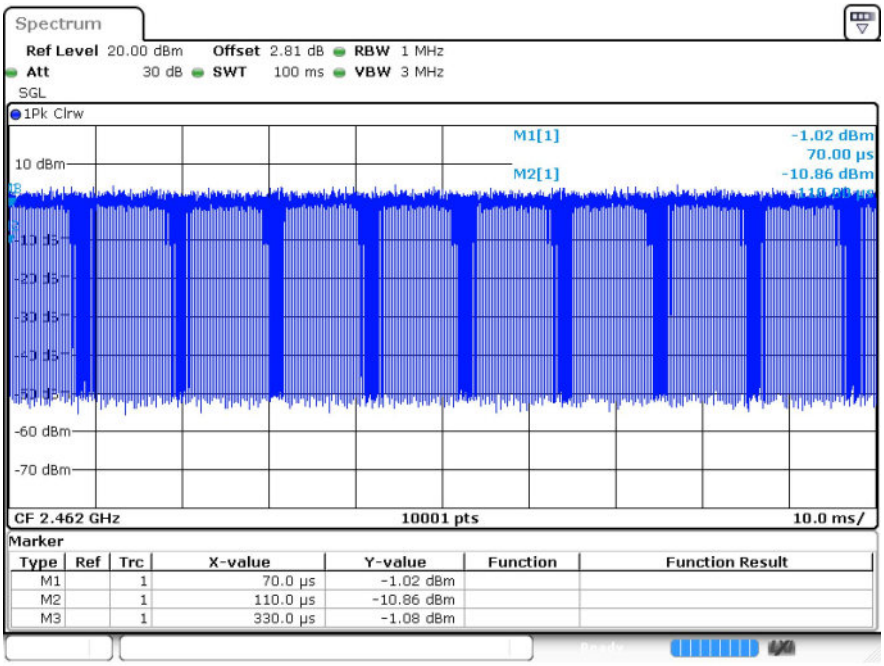


Test Graphs

g 2437MHz Ant1



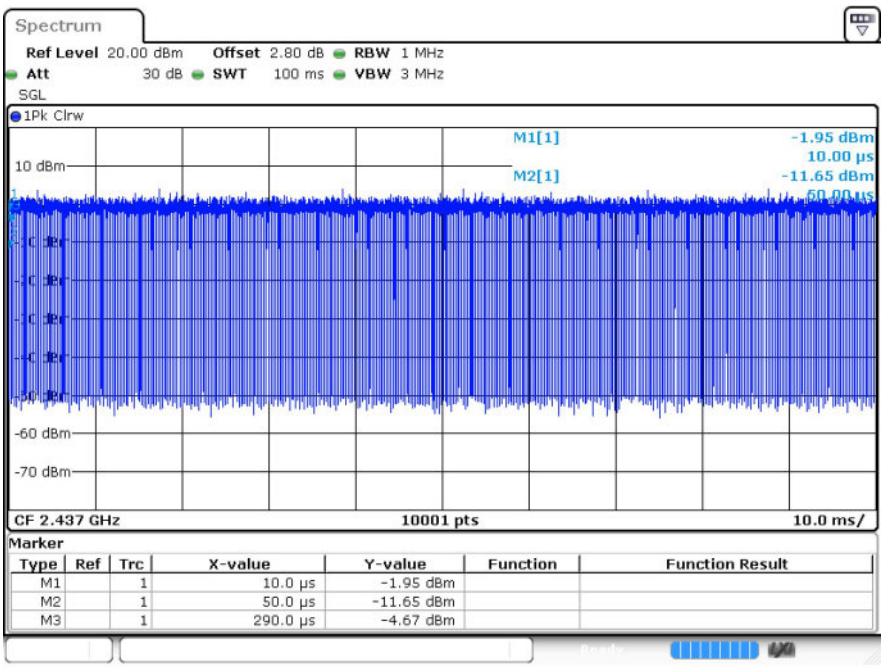
g 2462MHz Ant1



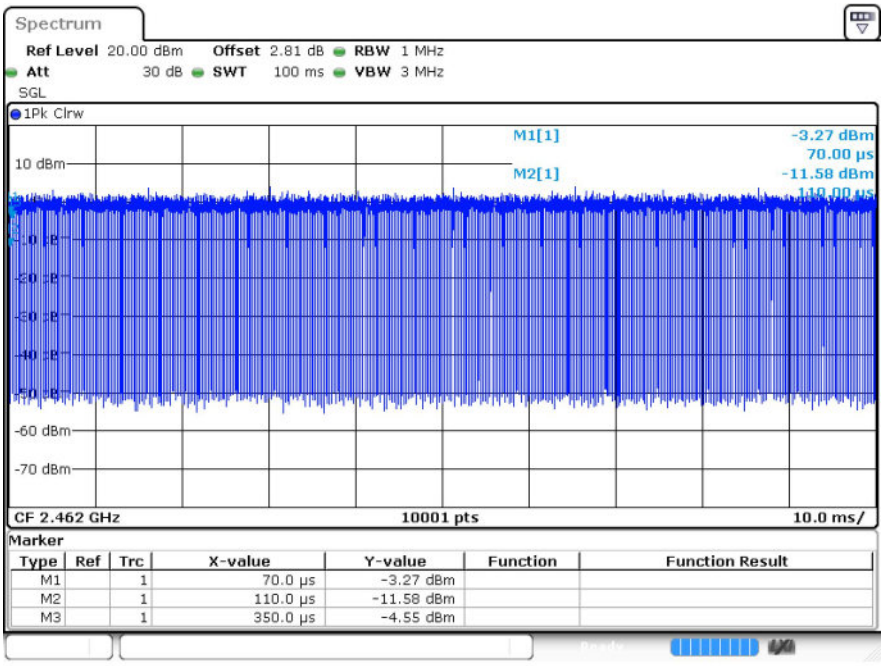
Test Graphs

n20 2412MHz Ant1

n20 2437MHz Ant1



Test Graphs
n20 2462MHz Ant1



2 Maximum Conducted Output Power

2.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
b	2412	Ant1	13.89	30	Pass
b	2437	Ant1	13.91	30	Pass
b	2462	Ant1	13.87	30	Pass
g	2412	Ant1	13.72	30	Pass
g	2437	Ant1	13.57	30	Pass
g	2462	Ant1	13.73	30	Pass
n20	2412	Ant1	12.98	30	Pass
n20	2437	Ant1	12.95	30	Pass
n20	2462	Ant1	12.86	30	Pass

3 -6dB Bandwidth

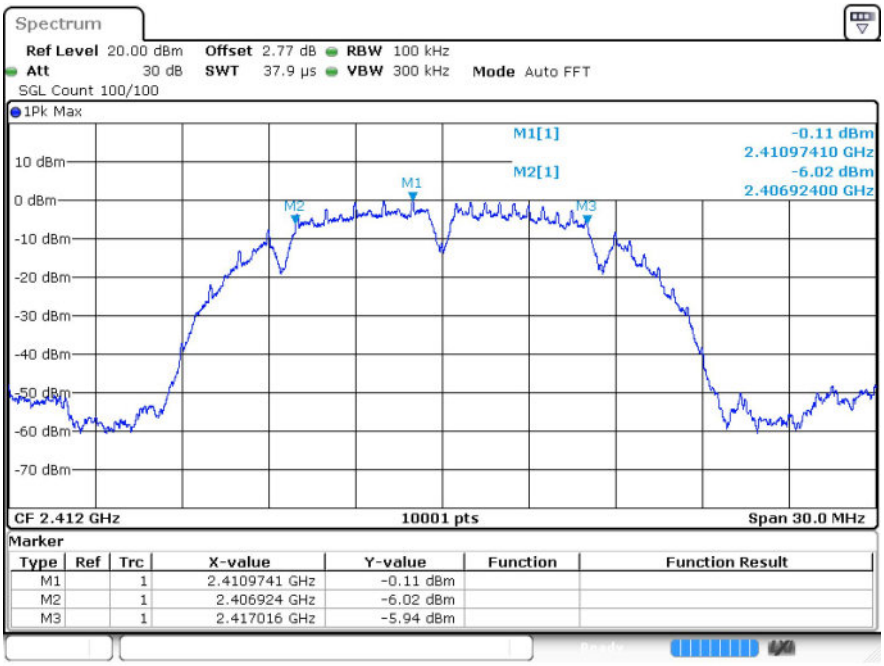
3.1 Test Result

Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
b	2412	Ant1	10.092	0.5	Pass
b	2437	Ant1	10.104	0.5	Pass
b	2462	Ant1	10.098	0.5	Pass
g	2412	Ant1	15.117	0.5	Pass
g	2437	Ant1	15.108	0.5	Pass
g	2462	Ant1	15.081	0.5	Pass
n20	2412	Ant1	15.102	0.5	Pass
n20	2437	Ant1	15.105	0.5	Pass
n20	2462	Ant1	15.099	0.5	Pass

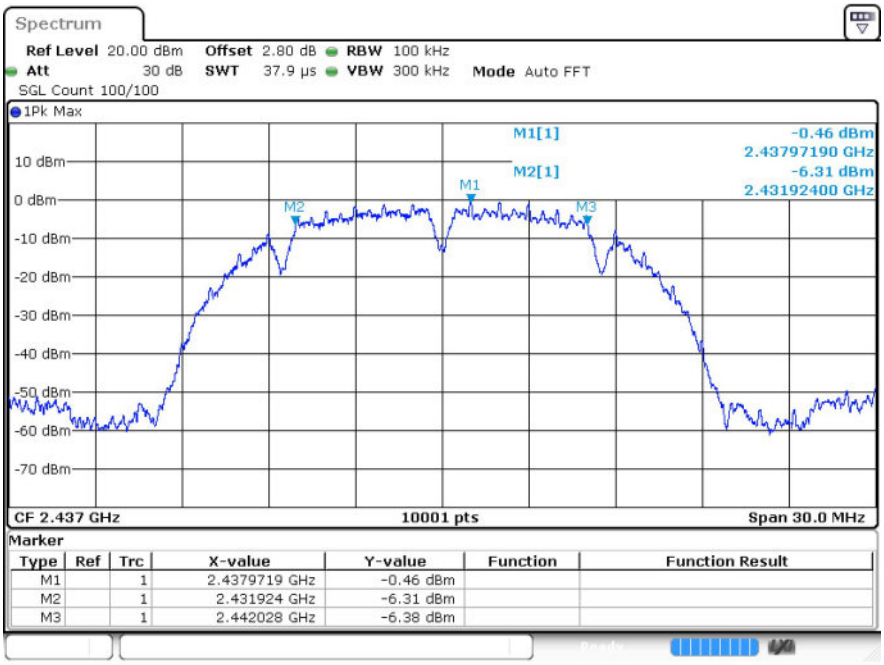
3.2 Test Graphs

Test Graphs

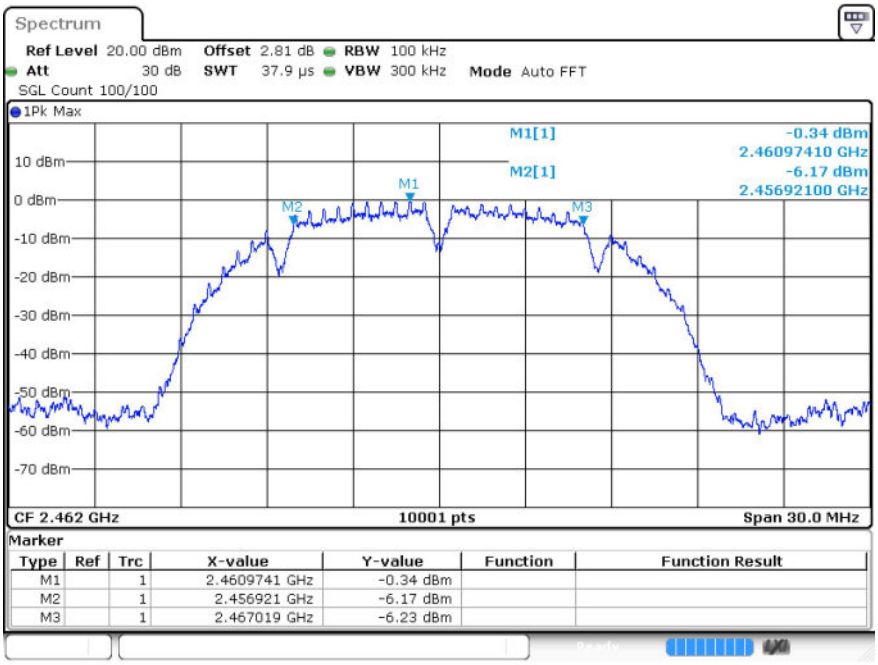
b 2412MHz Ant1



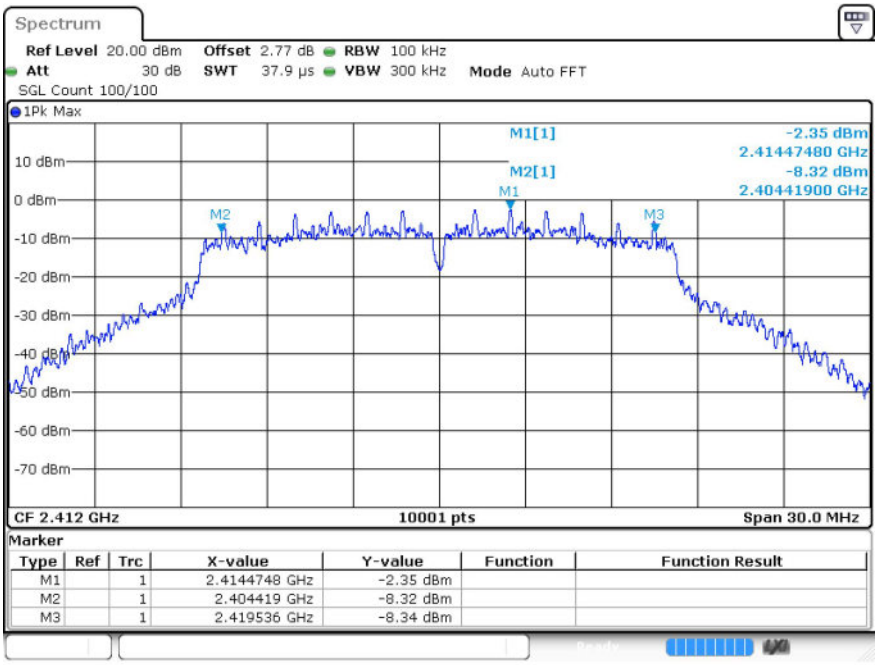
b 2437MHz Ant1



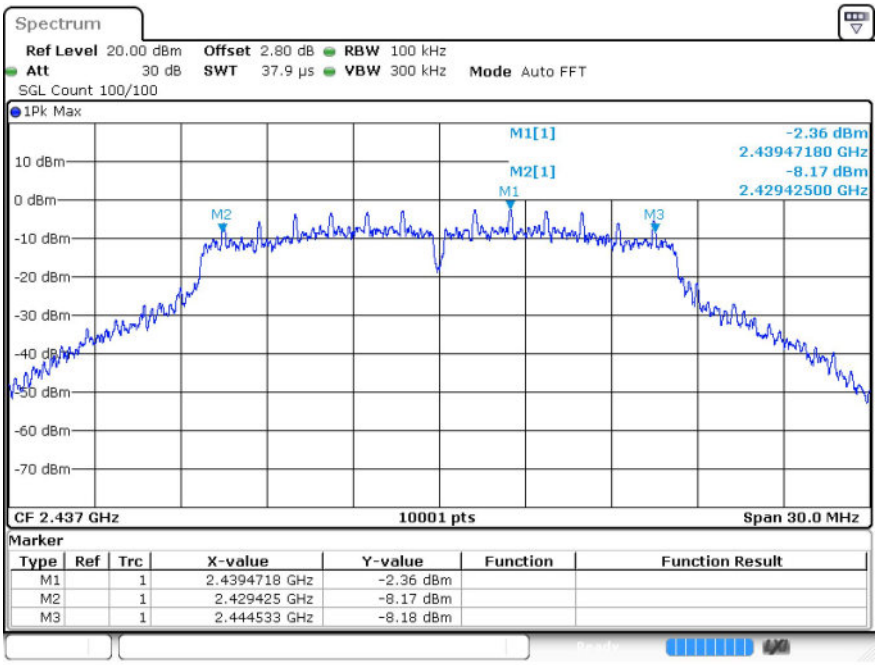
b 2462MHz Ant1



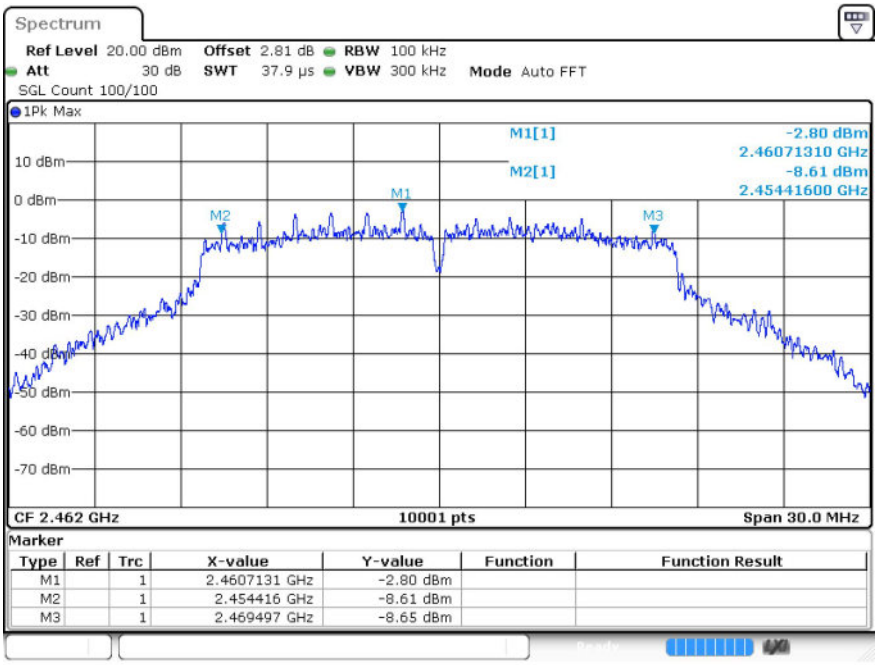
g 2412MHz Ant1



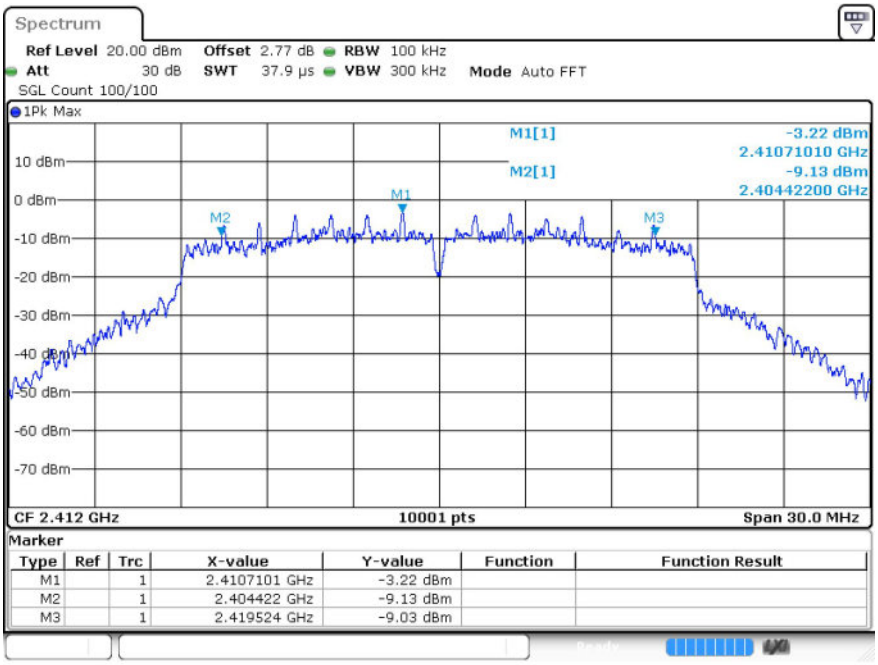
g 2437MHz Ant1



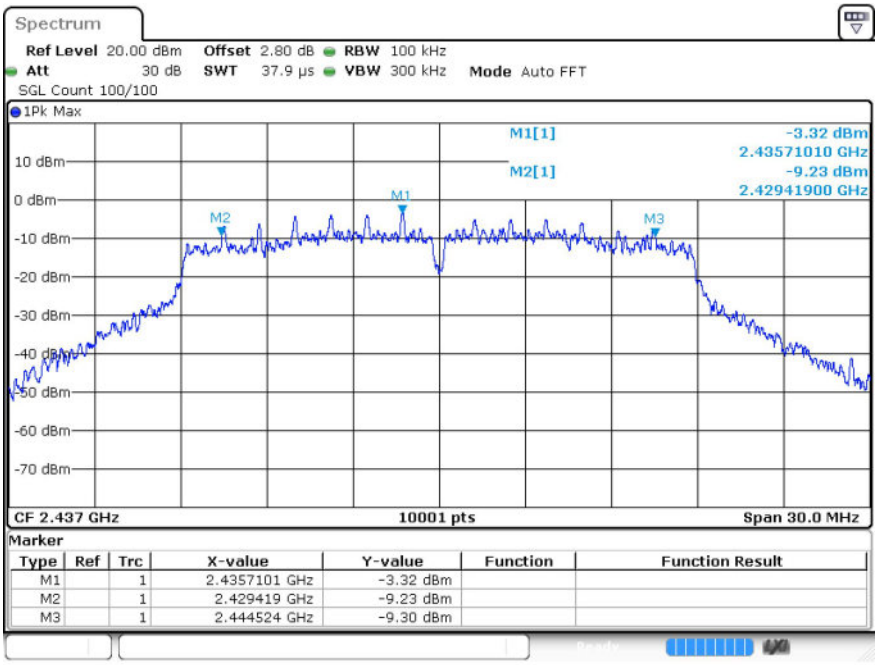
g 2462MHz Ant1



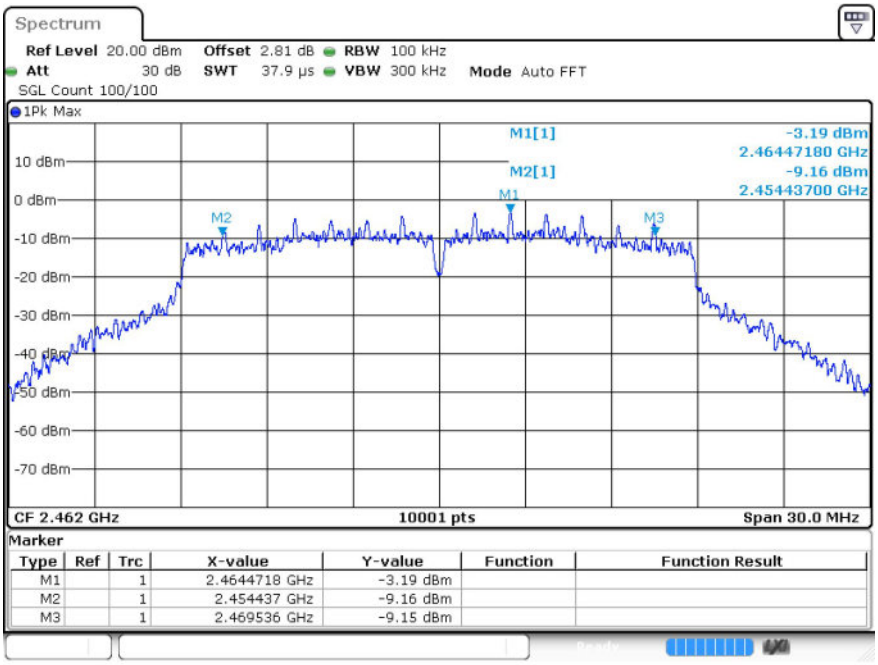
n20 2412MHz Ant1



n20 2437MHz Ant1



n20 2462MHz Ant1

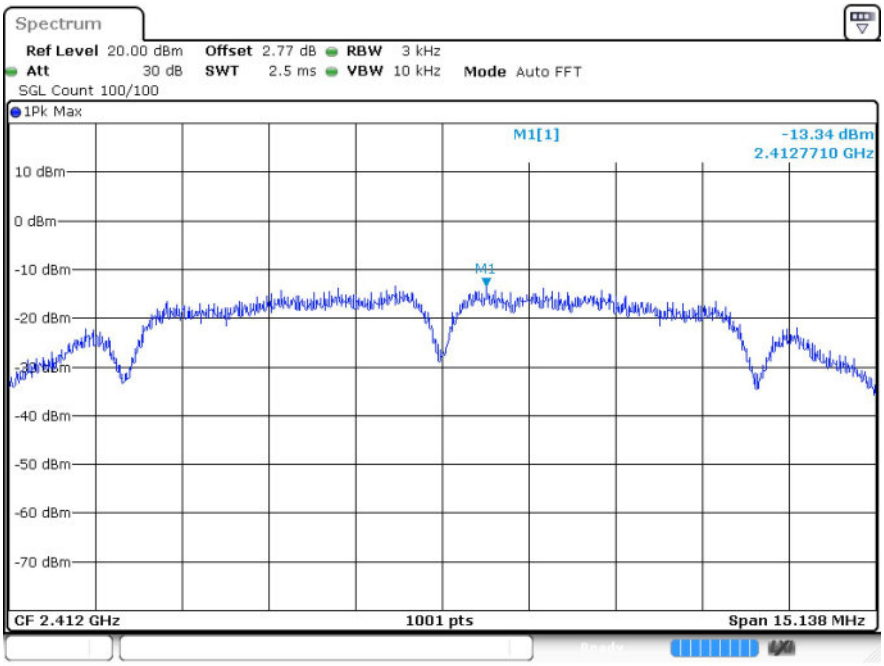
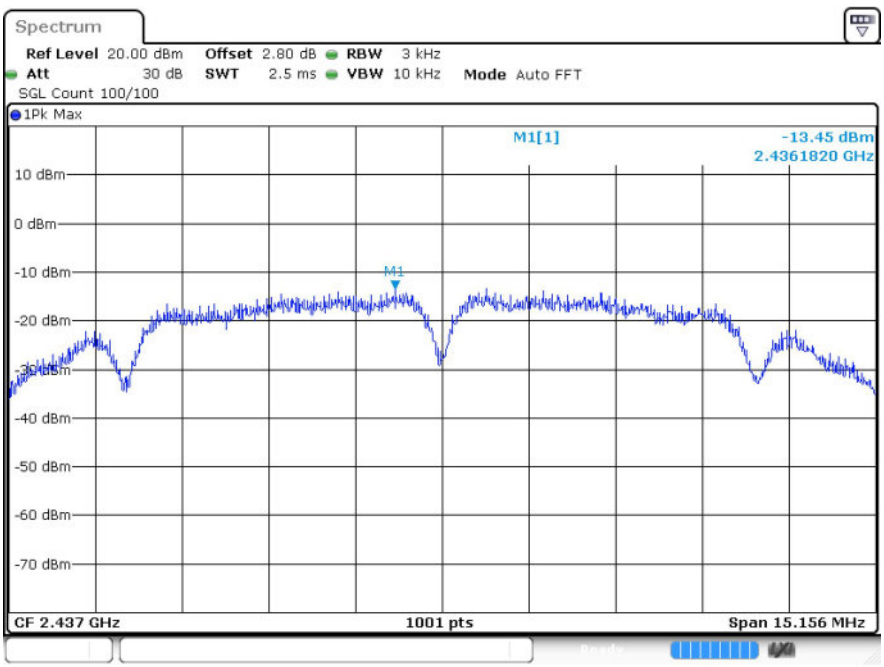


4 Maximum Power Spectral Density Level

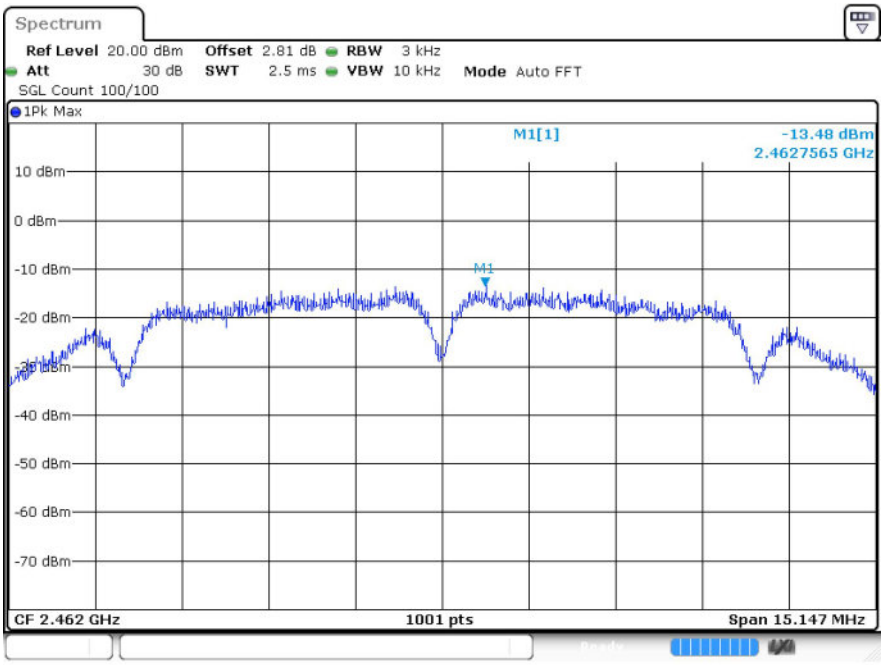
4.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3-100kHz)	Limit (dBm/3kHz)	Verdict
b	2412	Ant1	-13.34	≤8	Pass
b	2437	Ant1	-13.45	≤8	Pass
b	2462	Ant1	-13.48	≤8	Pass
g	2412	Ant1	-17.28	≤8	Pass
g	2437	Ant1	-17.25	≤8	Pass
g	2462	Ant1	-16.83	≤8	Pass
n20	2412	Ant1	-17.01	≤8	Pass
n20	2437	Ant1	-18.01	≤8	Pass
n20	2462	Ant1	-17.82	≤8	Pass

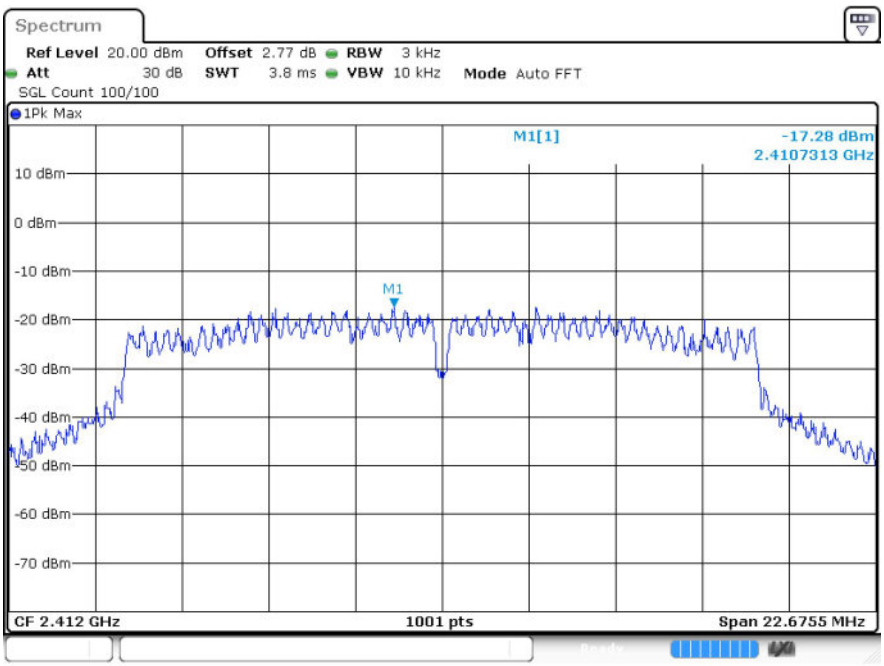
4.2 Test Graphs

Test Graphs
b 2412MHz Ant1

b 2437MHz Ant1


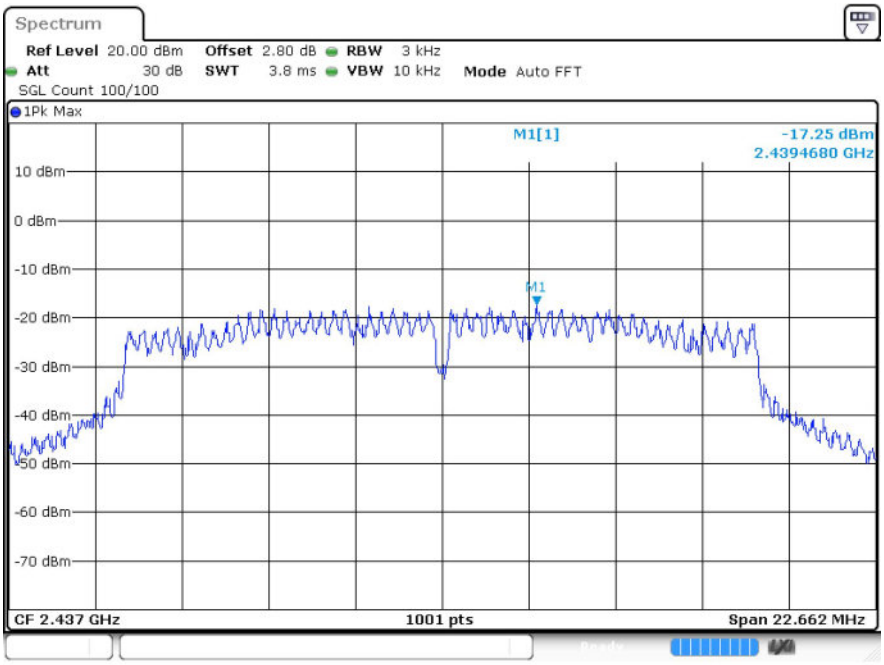
b 2462MHz Ant1



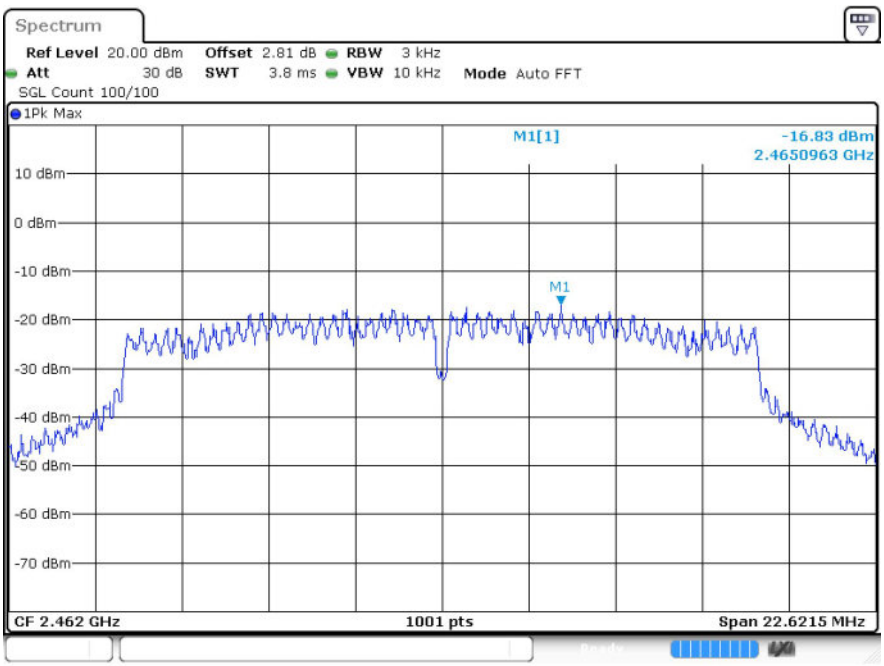
g 2412MHz Ant1



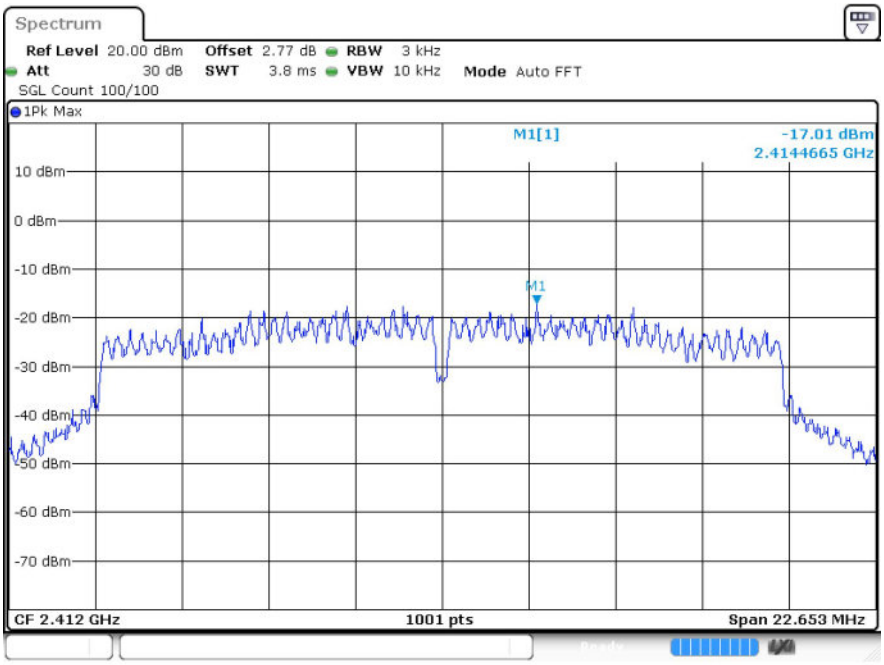
g 2437MHz Ant1



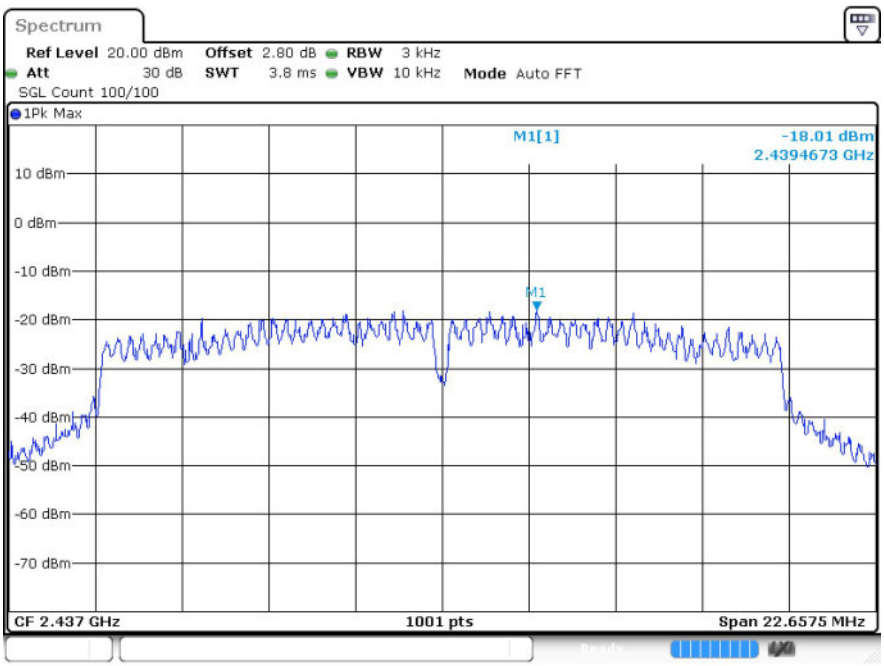
g 2462MHz Ant1



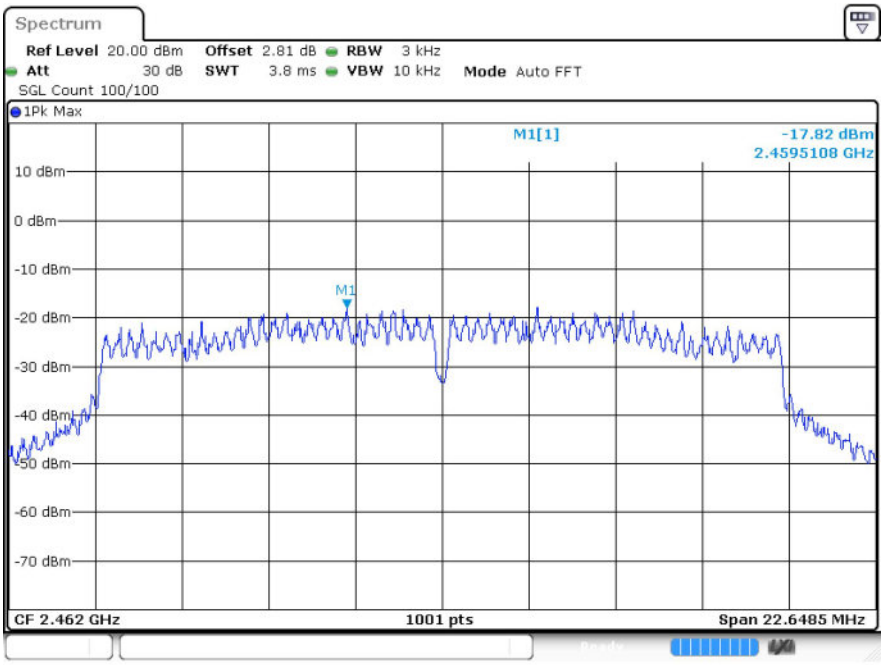
n20 2412MHz Ant1



n20 2437MHz Ant1



n20 2462MHz Ant1



5 Band Edge

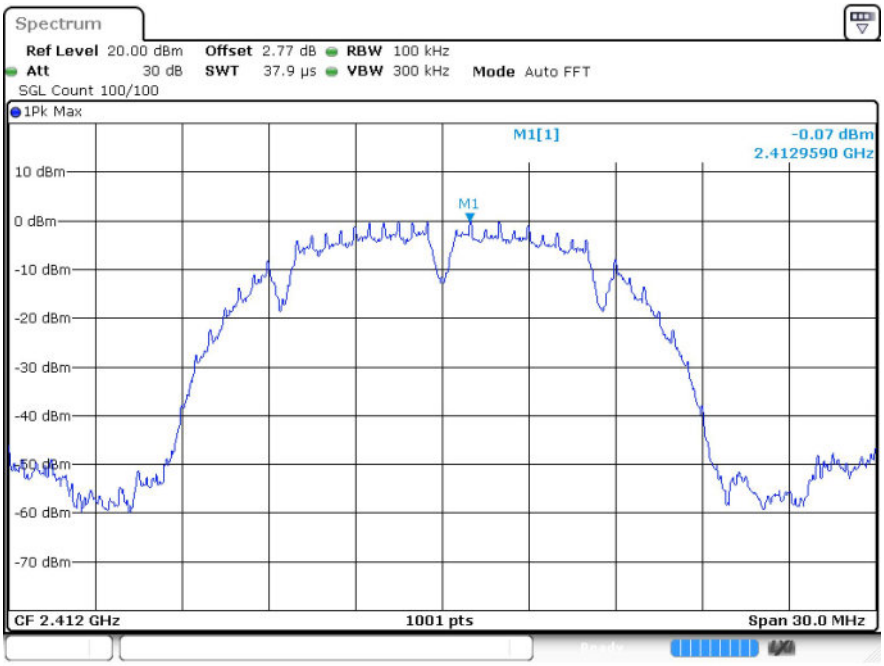
5.1 Test Result

Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-52.56	-20	Pass
b	2462	Ant1	-54.41	-20	Pass
g	2412	Ant1	-51.07	-20	Pass
g	2462	Ant1	-52.96	-20	Pass
n20	2412	Ant1	-51.96	-20	Pass
n20	2462	Ant1	-52.47	-20	Pass

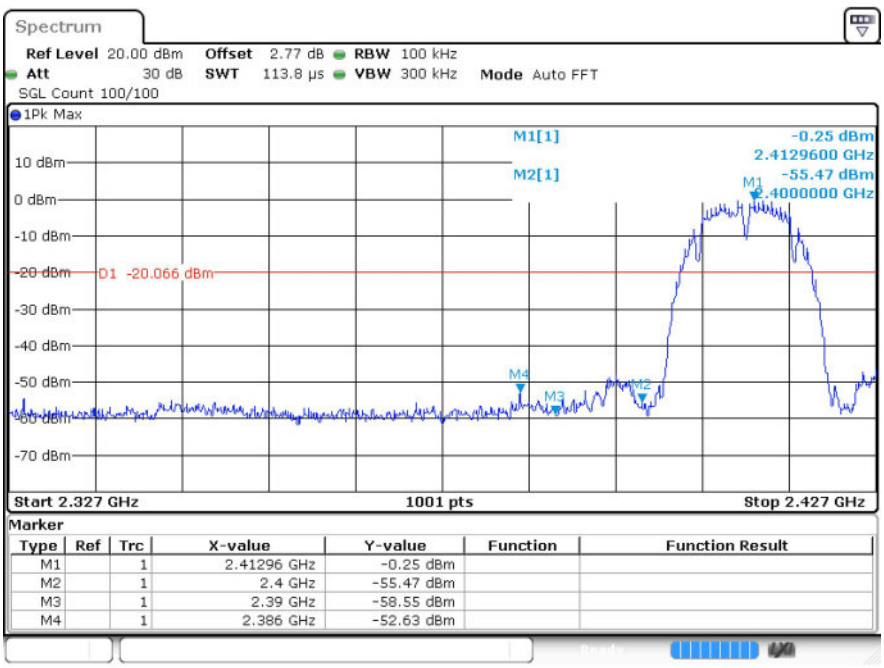
5.2 Test Graphs

Test Graphs

b 2412MHz Ant1 Ref



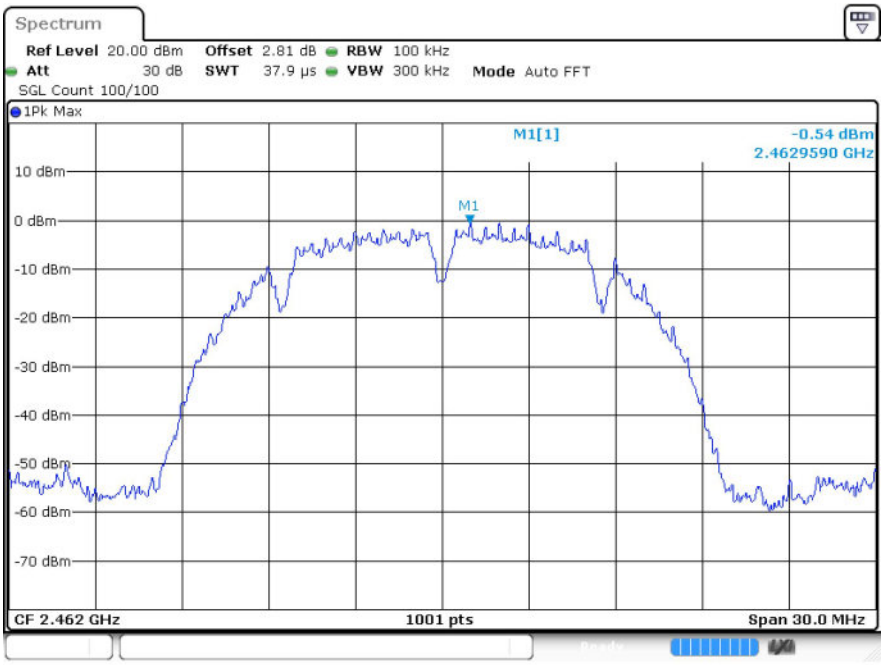
b 2412MHz Ant1 Emission



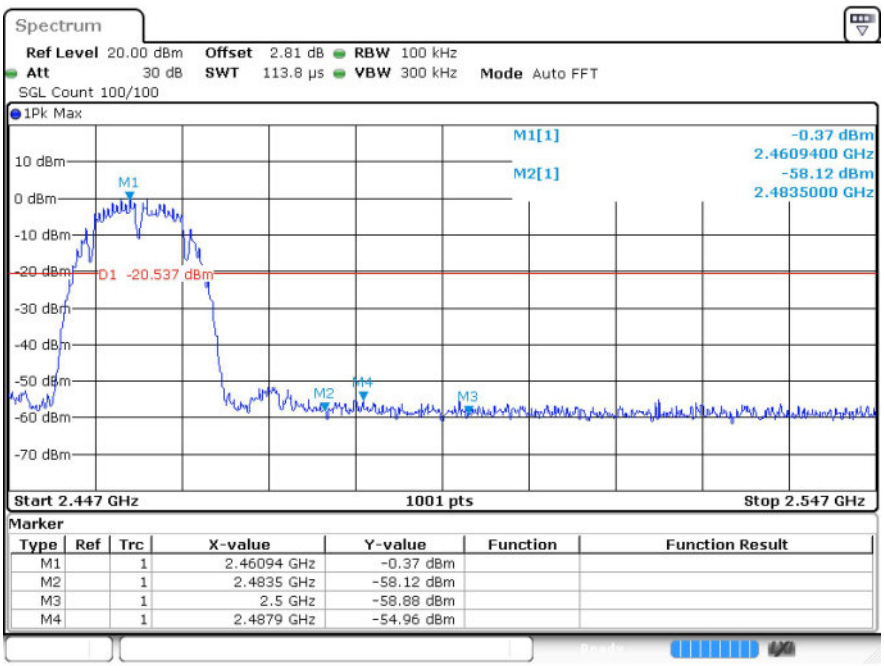
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41296 GHz	-0.25 dBm		
M2		1	2.4 GHz	-55.47 dBm		
M3		1	2.39 GHz	-58.55 dBm		
M4		1	2.386 GHz	-52.63 dBm		

b 2462MHz Ant1 Ref

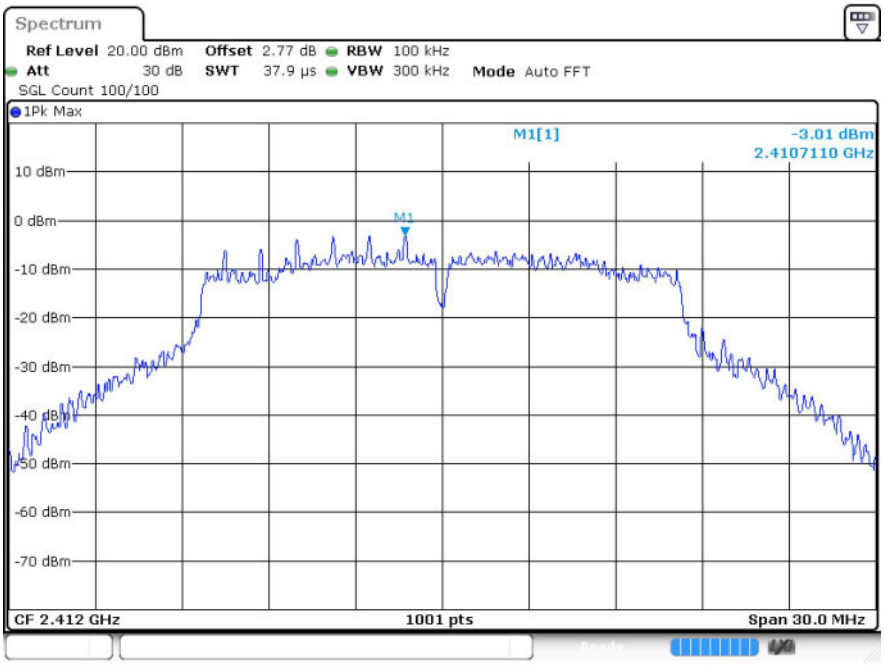


b 2462MHz Ant1 Emission

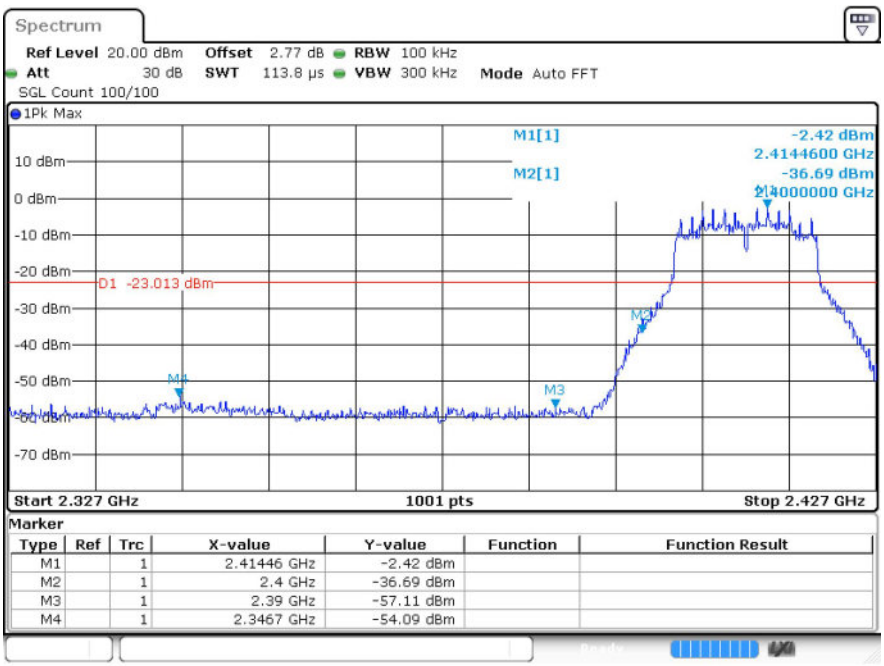


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46094 GHz	-0.37 dBm		
M2		1	2.4835 GHz	-58.12 dBm		
M3		1	2.5 GHz	-58.88 dBm		
M4		1	2.4879 GHz	-54.96 dBm		

g 2412MHz Ant1 Ref



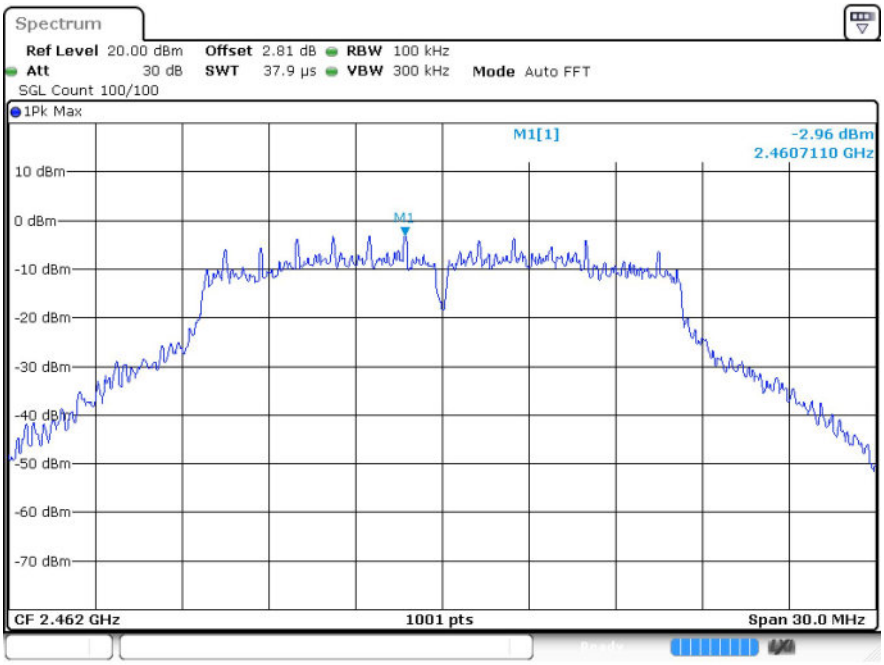
g 2412MHz Ant1 Emission



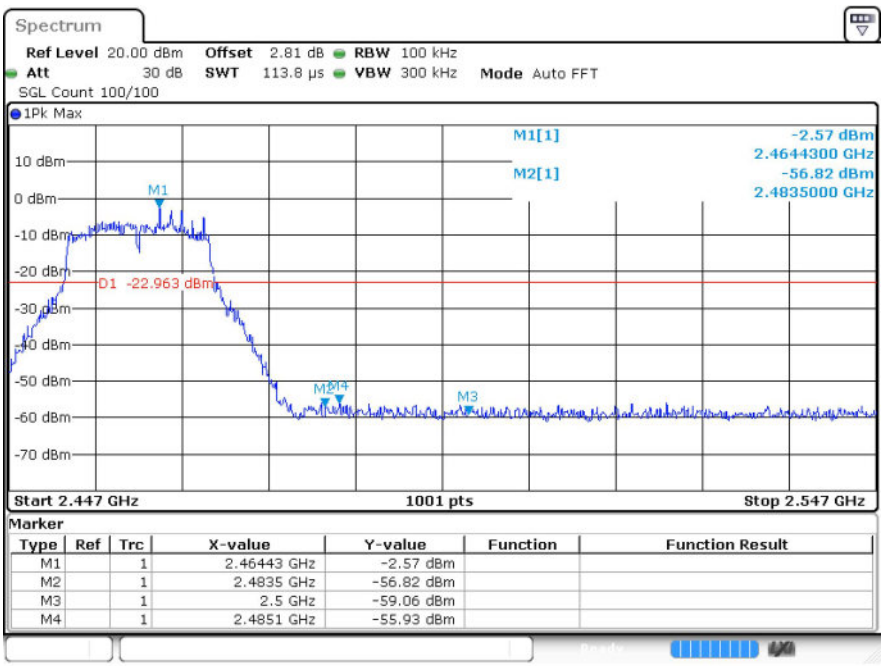
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41446 GHz	-2.42 dBm		
M2		1	2.4 GHz	-36.69 dBm		
M3		1	2.39 GHz	-57.11 dBm		
M4		1	2.3467 GHz	-54.09 dBm		

g 2462MHz Ant1 Ref

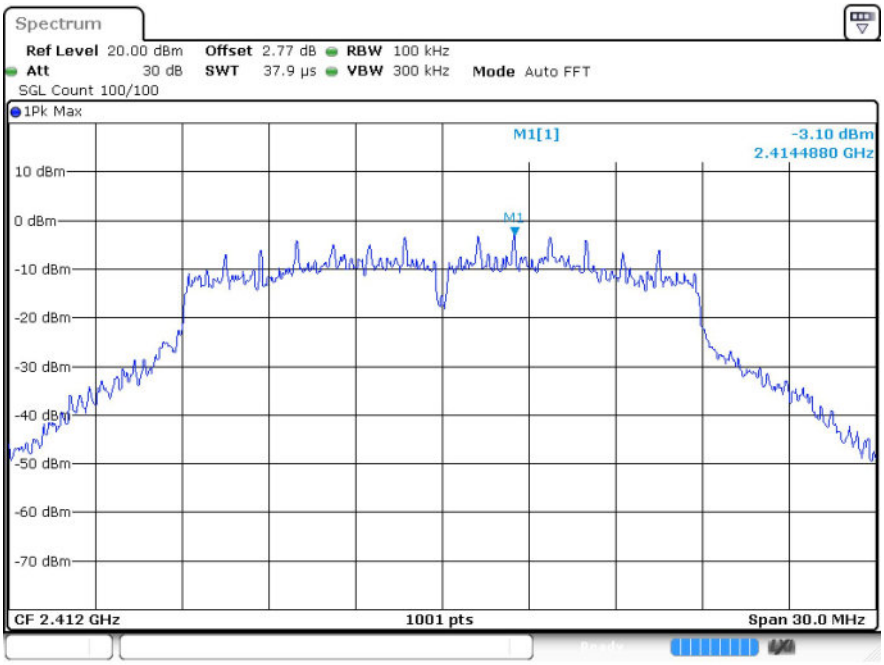


g 2462MHz Ant1 Emission

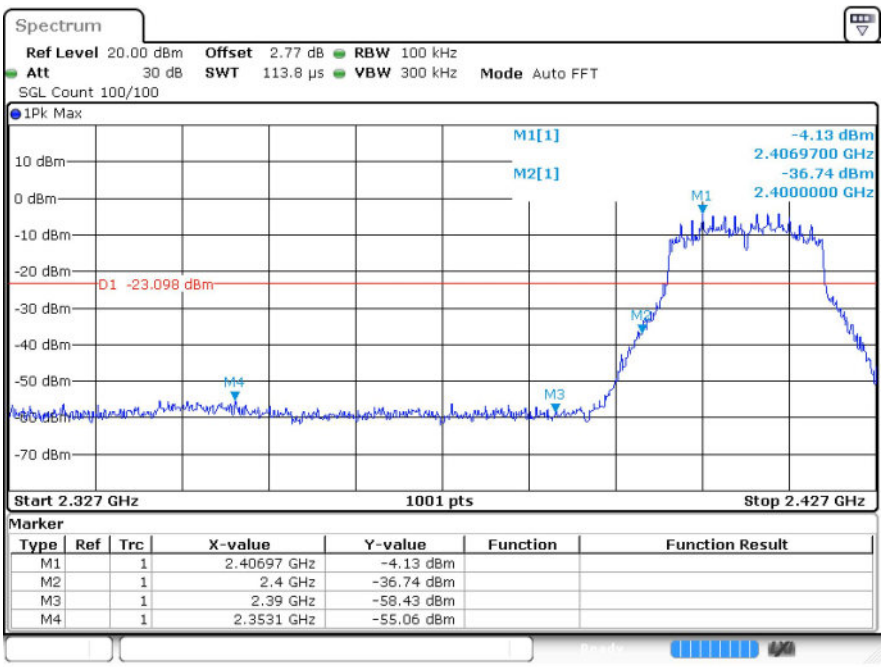


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46443 GHz	-2.57 dBm		
M2		1	2.4835 GHz	-56.82 dBm		
M3		1	2.5 GHz	-59.06 dBm		
M4		1	2.4851 GHz	-55.93 dBm		

n20 2412MHz Ant1 Ref

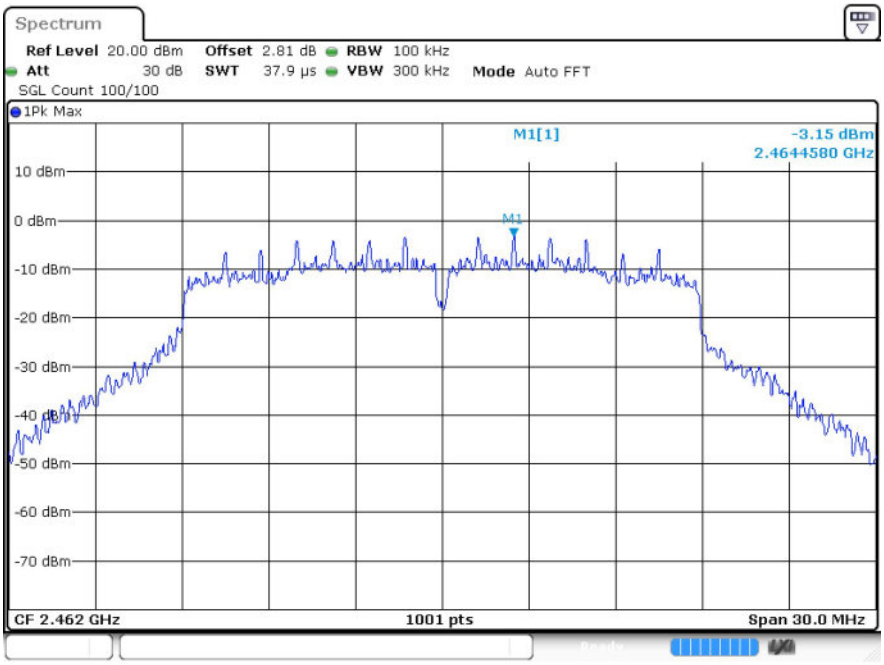


n20 2412MHz Ant1 Emission

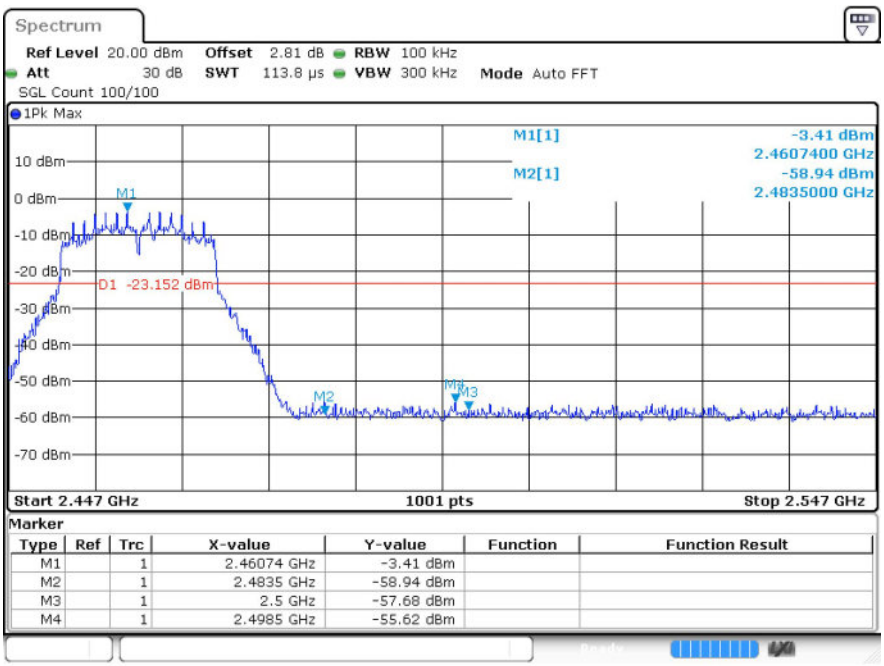


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40697 GHz	-4.13 dBm		
M2		1	2.4 GHz	-36.74 dBm		
M3		1	2.39 GHz	-58.43 dBm		
M4		1	2.3531 GHz	-55.06 dBm		

n20 2462MHz Ant1 Ref



n20 2462MHz Ant1 Emission



6 Conducted RF Spurious Emission

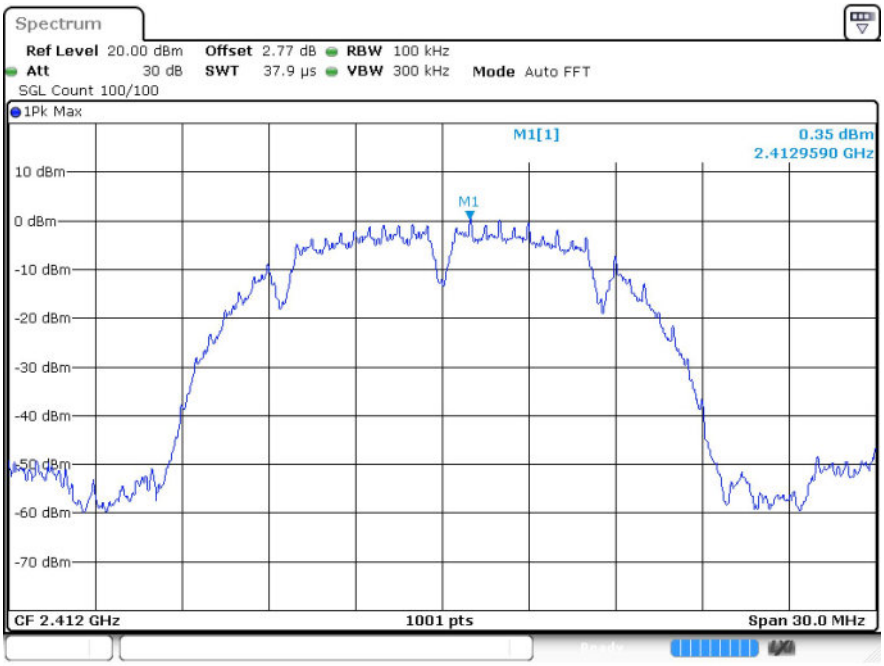
6.1 Test Result

Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-44	-20	Pass
b	2437	Ant1	-42.44	-20	Pass
b	2462	Ant1	-42.89	-20	Pass
g	2412	Ant1	-40.7	-20	Pass
g	2437	Ant1	-40.82	-20	Pass
g	2462	Ant1	-40.29	-20	Pass
n20	2412	Ant1	-39.63	-20	Pass
n20	2437	Ant1	-40.17	-20	Pass
n20	2462	Ant1	-39.48	-20	Pass

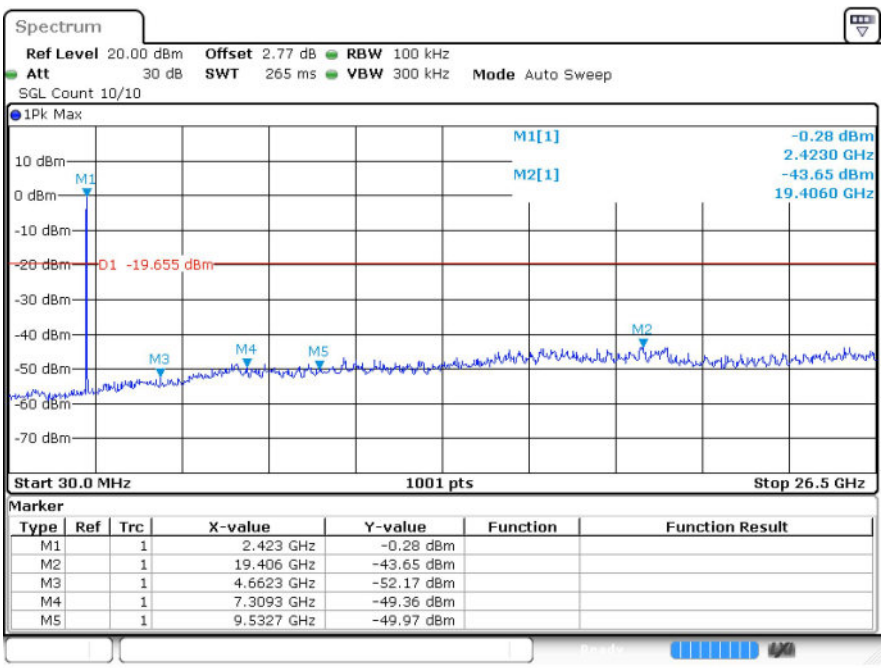
6.2 Test Graphs

Test Graphs

b 2412MHz Ant1 Ref

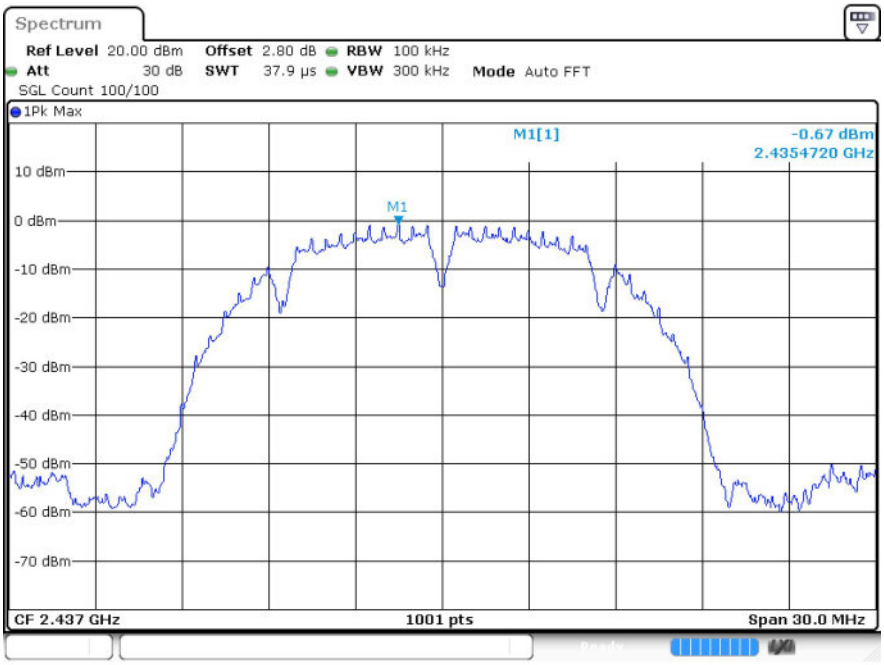


b 2412MHz Ant1 Emission

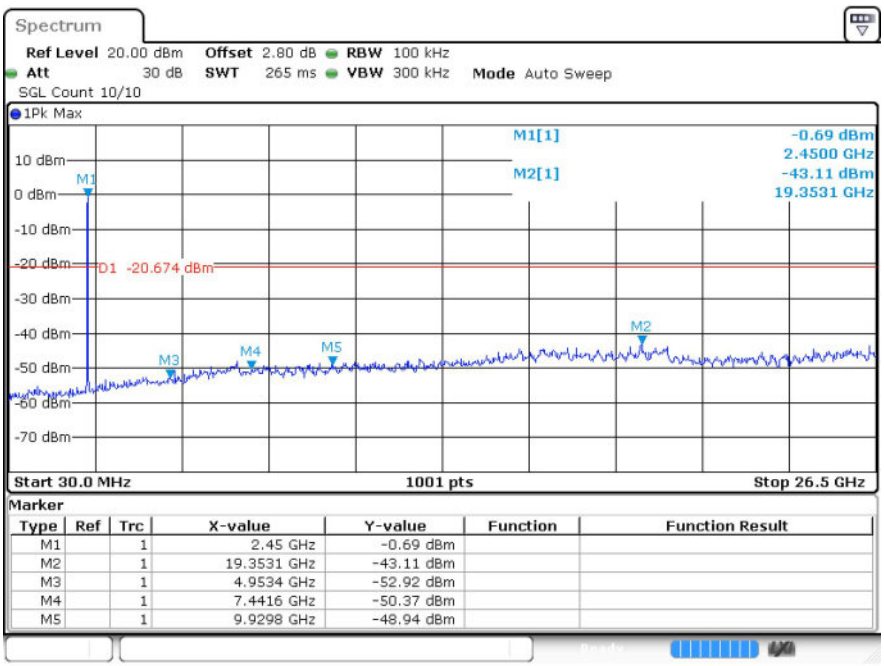


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.423 GHz	-0.28 dBm		
M2		1	19.406 GHz	-43.65 dBm		
M3		1	4.6623 GHz	-52.17 dBm		
M4		1	7.3093 GHz	-49.36 dBm		
M5		1	9.5327 GHz	-49.97 dBm		

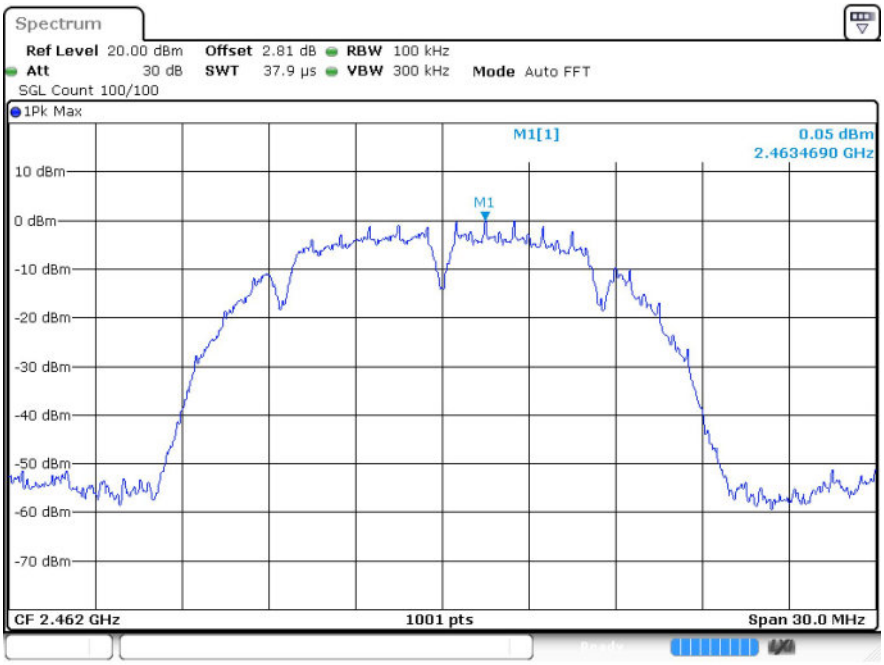
b 2437MHz Ant1 Ref



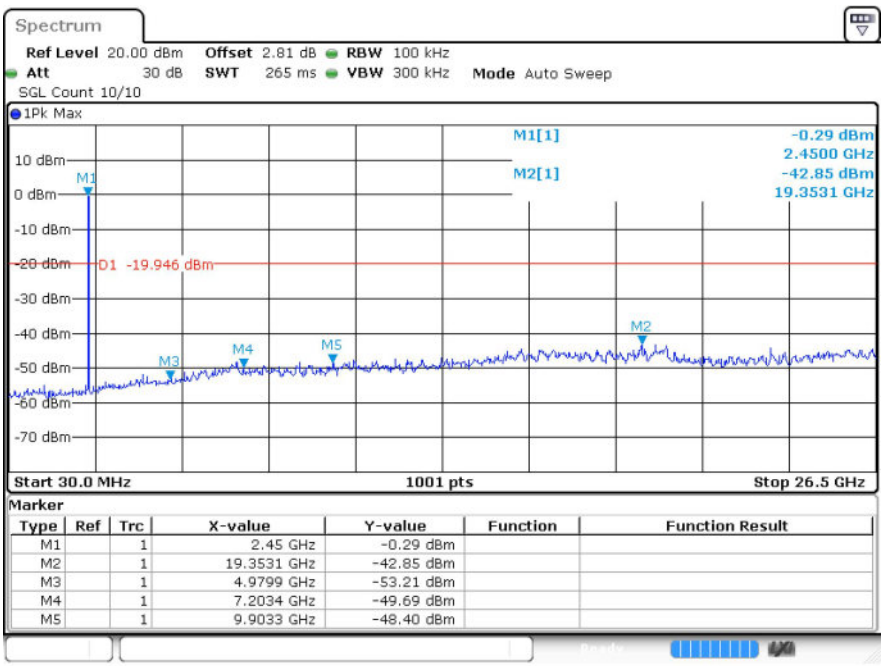
b 2437MHz Ant1 Emission



b 2462MHz Ant1 Ref



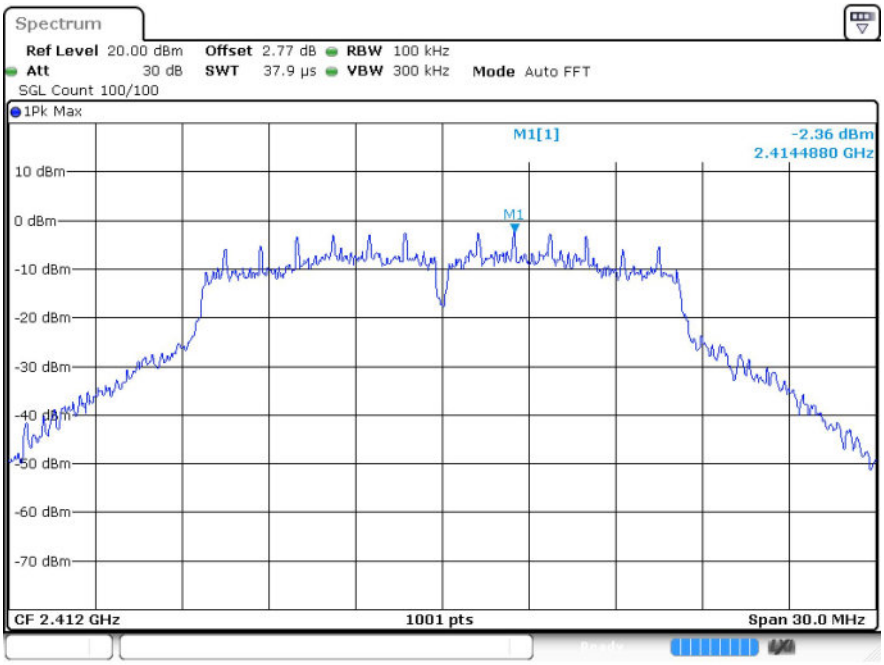
b 2462MHz Ant1 Emission



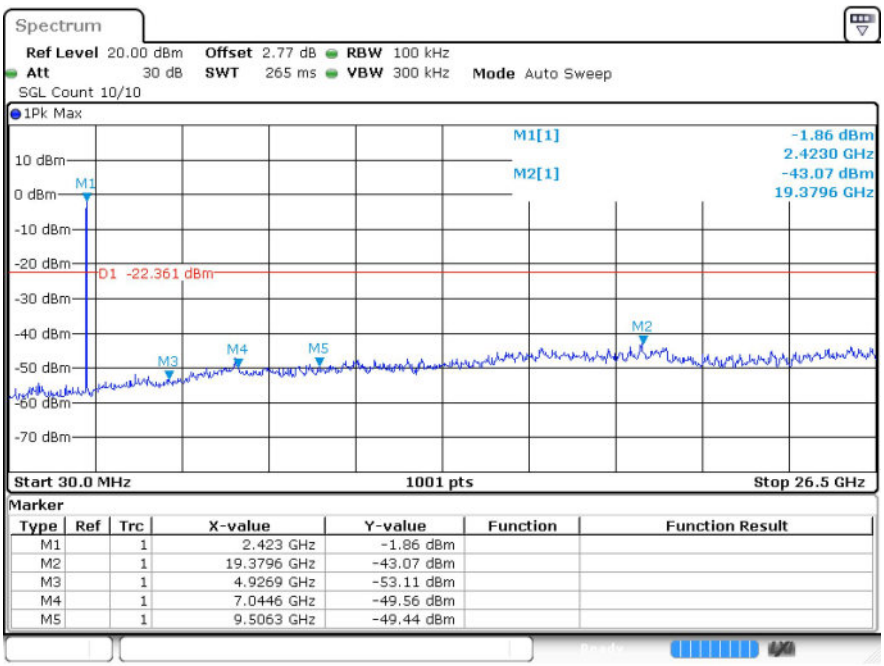
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-0.29 dBm		
M2		1	19.3531 GHz	-42.85 dBm		
M3		1	4.9799 GHz	-53.21 dBm		
M4		1	7.2034 GHz	-49.69 dBm		
M5		1	9.9033 GHz	-48.40 dBm		

g 2412MHz Ant1 Ref



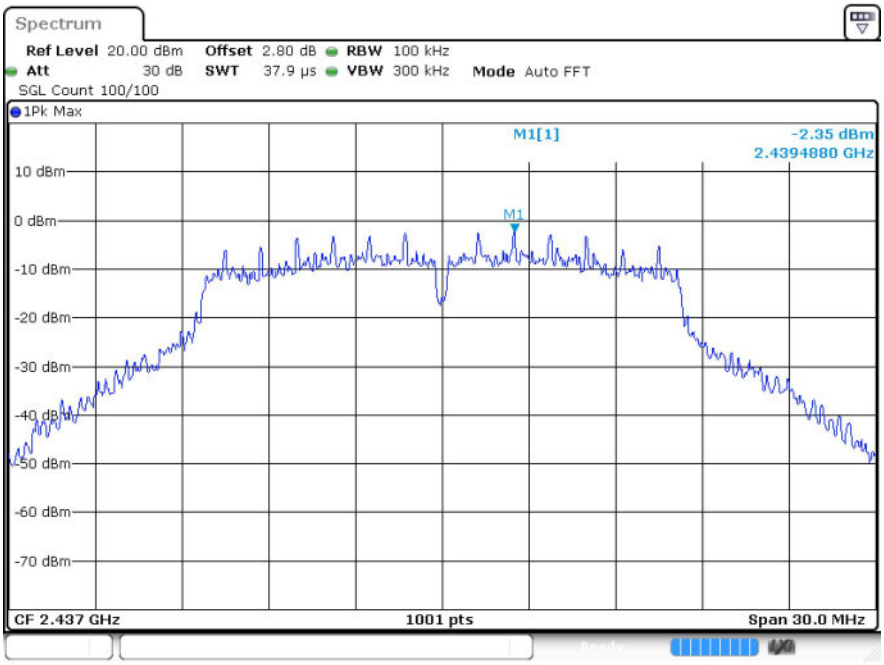
g 2412MHz Ant1 Emission



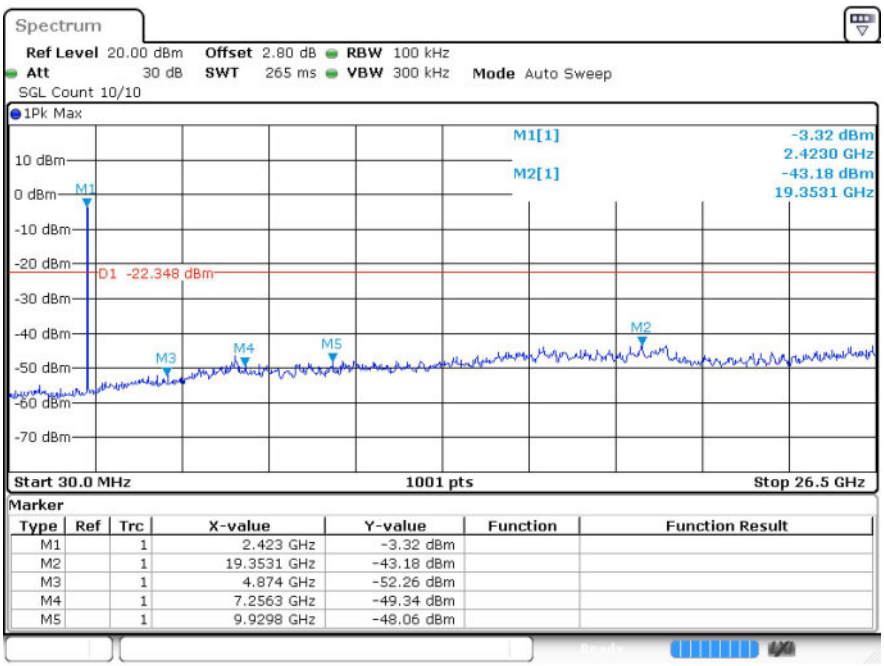
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.423 GHz	-1.86 dBm		
M2		1	19.3796 GHz	-43.07 dBm		
M3		1	4.9269 GHz	-53.11 dBm		
M4		1	7.0446 GHz	-49.56 dBm		
M5		1	9.5063 GHz	-49.44 dBm		

g 2437MHz Ant1 Ref



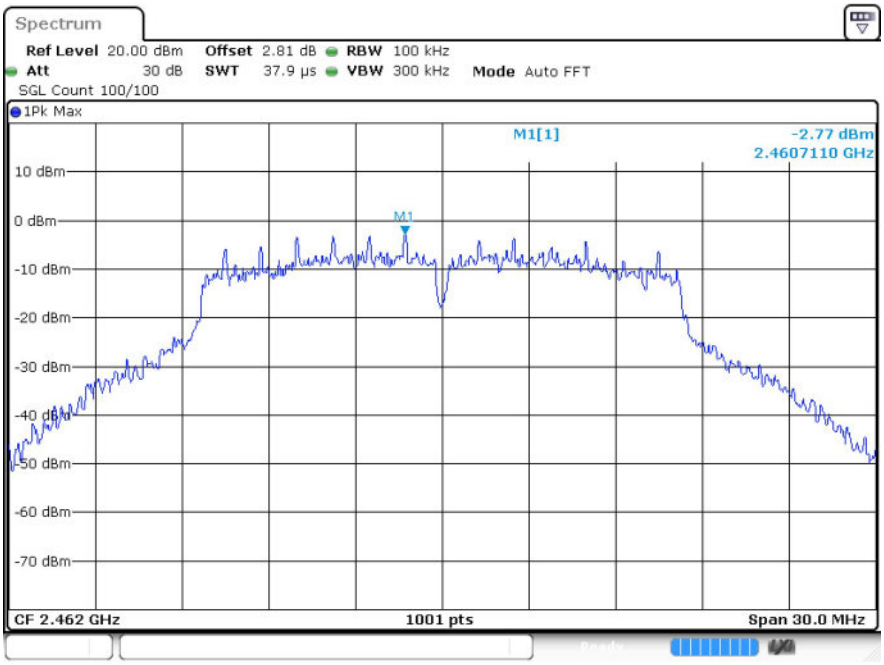
g 2437MHz Ant1 Emission



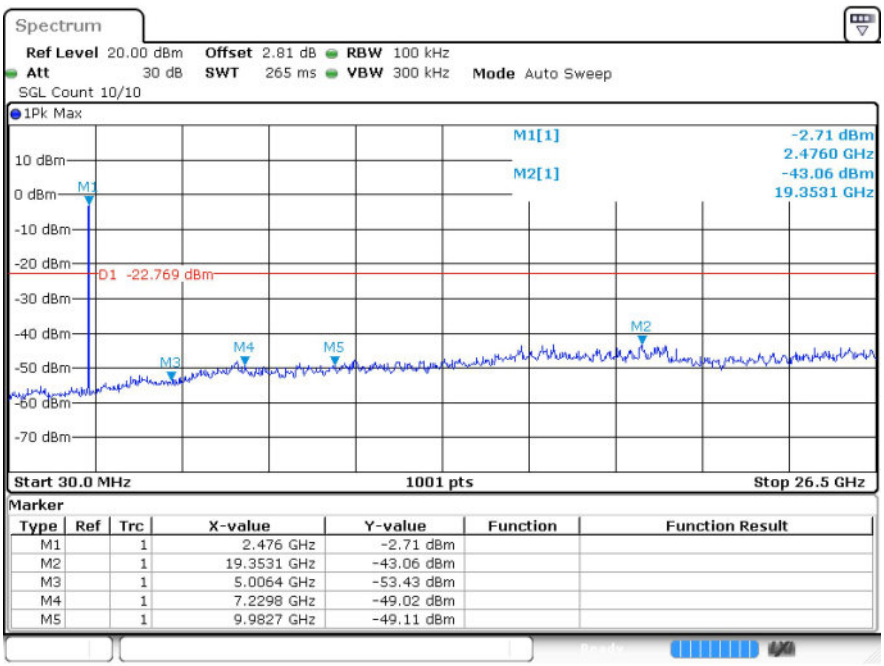
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.423 GHz	-3.32 dBm		
M2		1	19.3531 GHz	-43.18 dBm		
M3		1	4.874 GHz	-52.26 dBm		
M4		1	7.2563 GHz	-49.34 dBm		
M5		1	9.9298 GHz	-48.06 dBm		

g 2462MHz Ant1 Ref



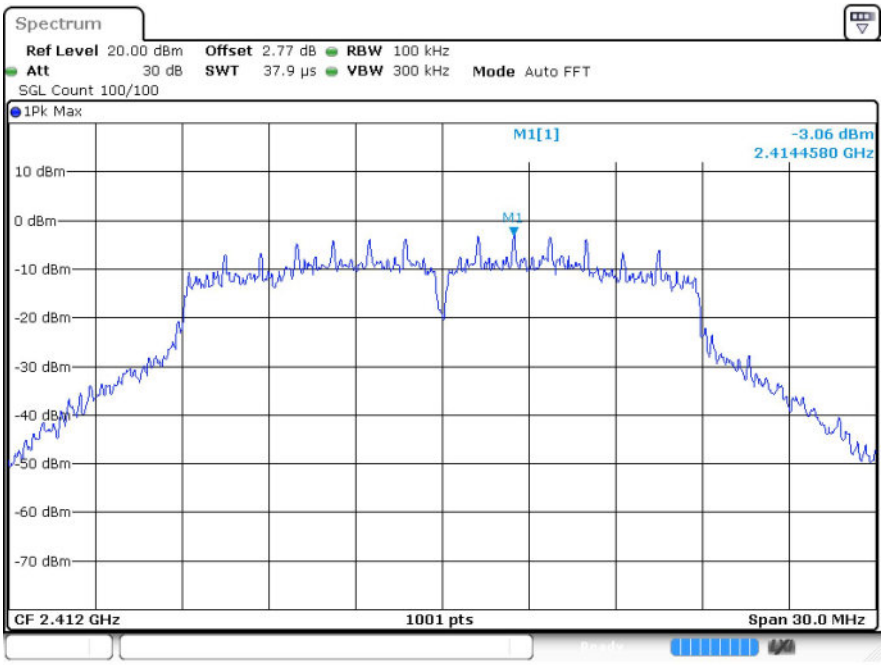
g 2462MHz Ant1 Emission



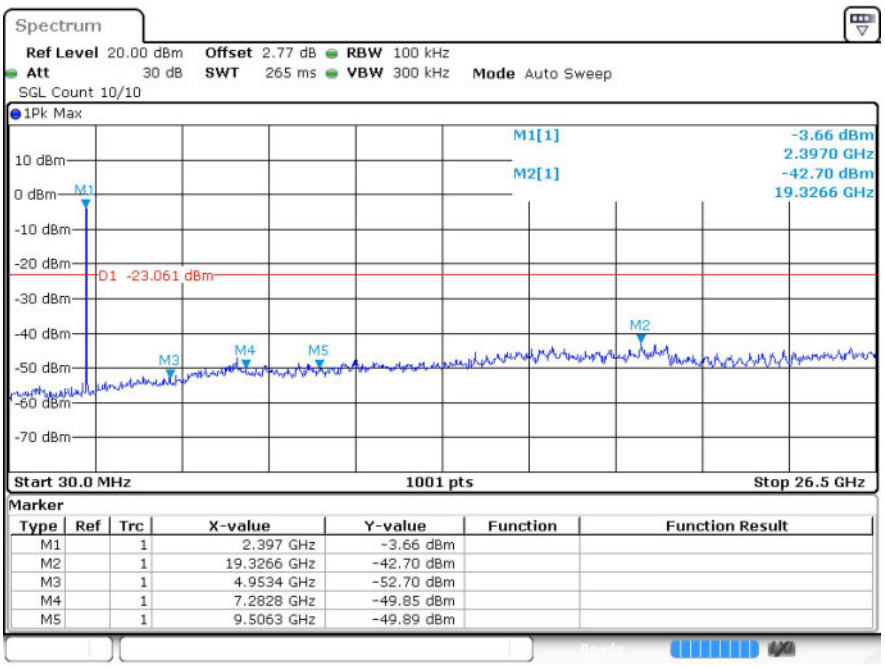
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.476 GHz	-2.71 dBm		
M2		1	19.3531 GHz	-43.06 dBm		
M3		1	5.0064 GHz	-53.43 dBm		
M4		1	7.2298 GHz	-49.02 dBm		
M5		1	9.9827 GHz	-49.11 dBm		

n20 2412MHz Ant1 Ref



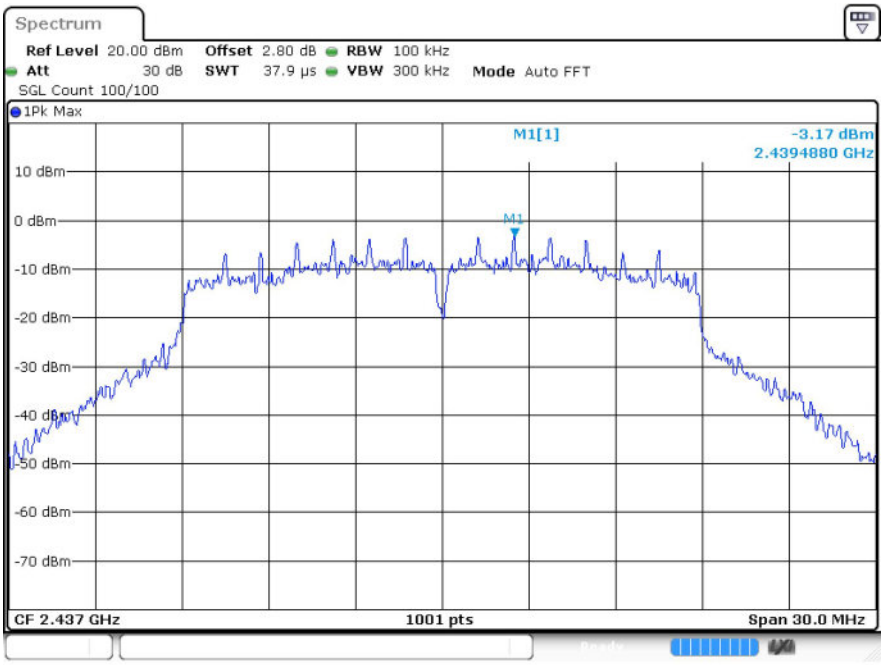
n20 2412MHz Ant1 Emission



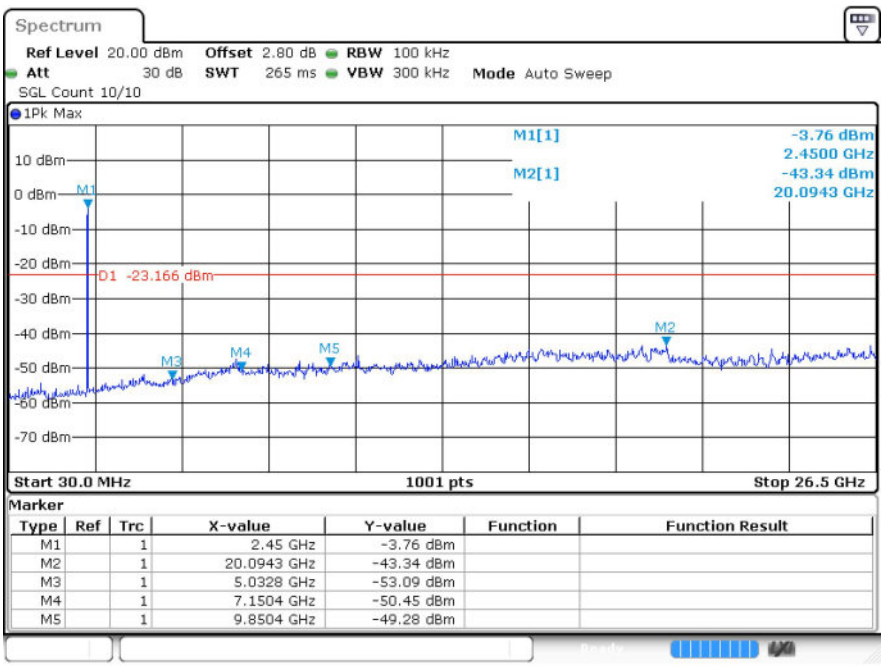
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.397 GHz	-3.66 dBm		
M2		1	19.3266 GHz	-42.70 dBm		
M3		1	4.9534 GHz	-52.70 dBm		
M4		1	7.2828 GHz	-49.85 dBm		
M5		1	9.5063 GHz	-49.89 dBm		

n20 2437MHz Ant1 Ref



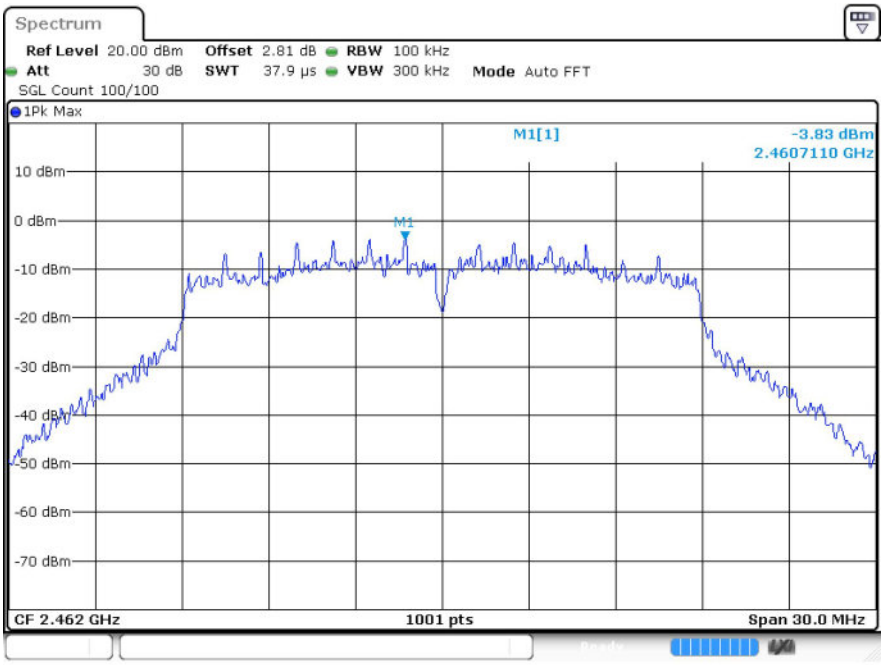
n20 2437MHz Ant1 Emission



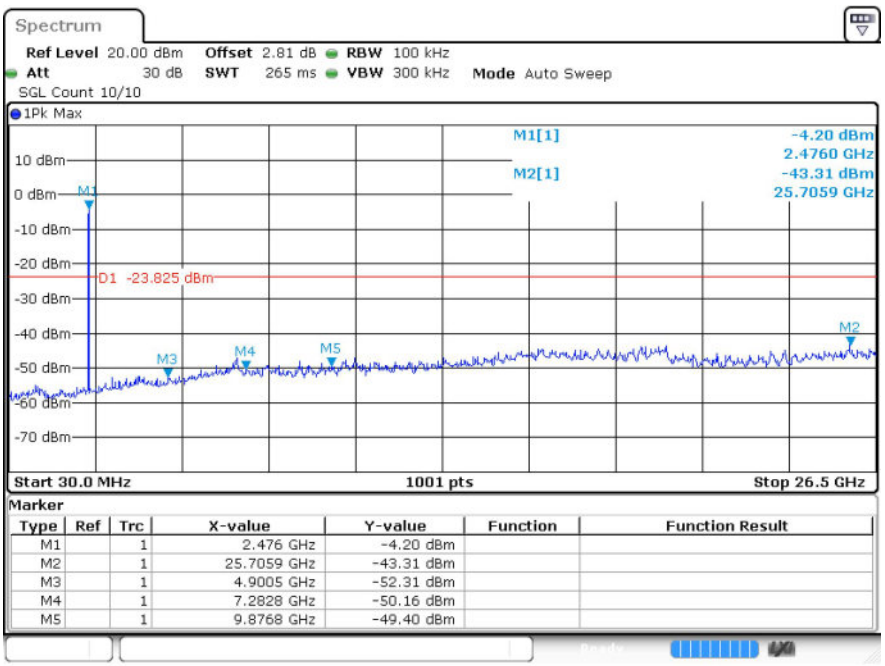
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-3.76 dBm		
M2		1	20.0943 GHz	-43.34 dBm		
M3		1	5.0328 GHz	-53.09 dBm		
M4		1	7.1504 GHz	-50.45 dBm		
M5		1	9.8504 GHz	-49.28 dBm		

n20 2462MHz Ant1 Ref



n20 2462MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.476 GHz	-4.20 dBm		
M2		1	25.7059 GHz	-43.31 dBm		
M3		1	4.9005 GHz	-52.31 dBm		
M4		1	7.2828 GHz	-50.16 dBm		
M5		1	9.8768 GHz	-49.40 dBm		

7 Restrict Band

7.1 Test Result

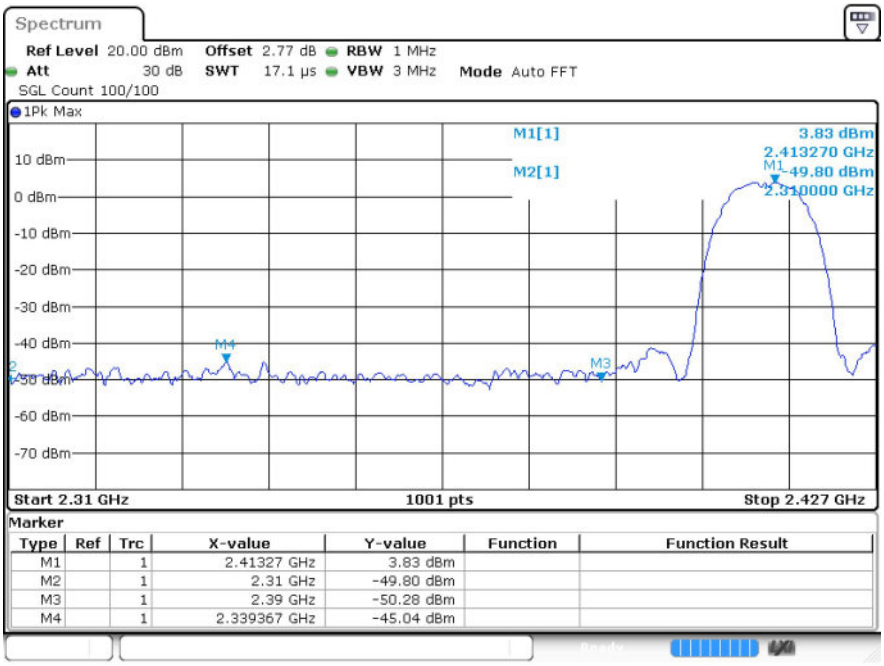
Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
b	2412	Ant1	2310	-49.8	2	-	47.46	Peak	74	Pass
b	2412	Ant1	2310	-56.36	2	0	40.9	Average	54	Pass
b	2412	Ant1	2339.367	-45.03	2	-	52.23	Peak	74	Pass
b	2412	Ant1	2386.635	-53.57	2	0	43.69	Average	54	Pass
b	2412	Ant1	2390	-50.28	2	-	46.98	Peak	74	Pass
b	2412	Ant1	2390	-55.93	2	0	41.33	Average	54	Pass
b	2462	Ant1	2483.5	-49.06	2	-	48.2	Peak	74	Pass
b	2462	Ant1	2483.5	-55.79	2	0	41.47	Average	54	Pass
b	2462	Ant1	2494.647	-46.1	2	-	51.16	Peak	74	Pass
b	2462	Ant1	2486.909	-54.88	2	0	42.38	Average	54	Pass
b	2462	Ant1	2500	-49.16	2	-	48.1	Peak	74	Pass
b	2462	Ant1	2500	-55.74	2	0	41.52	Average	54	Pass
g	2412	Ant1	2310	-49.55	2	-	47.71	Peak	74	Pass
g	2412	Ant1	2310	-57.4	2	0.61	40.47	Average	54	Pass
g	2412	Ant1	2341.356	-45.67	2	-	51.59	Peak	74	Pass
g	2412	Ant1	2338.314	-54.75	2	0.61	43.12	Average	54	Pass
g	2412	Ant1	2390	-50.61	2	-	46.98	Peak	74	Pass
g	2412	Ant1	2390	-56.23	2	0.61	41.64	Average	54	Pass
g	2462	Ant1	2483.5	-49.38	2	-	47.88	Peak	74	Pass
g	2462	Ant1	2483.5	-55.44	2	0.61	42.43	Average	54	Pass
g	2462	Ant1	2494.647	-45.09	2	-	52.17	Peak	74	Pass
g	2462	Ant1	2484.365	-54.7	2	0.61	43.17	Average	54	Pass
g	2462	Ant1	2500	-50.82	2	-	48.1	Peak	74	Pass
g	2462	Ant1	2500	-55.98	2	0.61	41.89	Average	54	Pass
n20	2412	Ant1	2310	-49.72	2	-	47.54	Peak	74	Pass
n20	2412	Ant1	2310	-56.97	2	0.58	40.87	Average	54	Pass
n20	2412	Ant1	2355.045	-45.88	2	-	51.38	Peak	74	Pass
n20	2412	Ant1	2344.749	-54.73	2	0.58	43.11	Average	54	Pass
n20	2412	Ant1	2390	-49	2	-	48.26	Peak	74	Pass
n20	2412	Ant1	2390	-56.52	2	0.58	41.32	Average	54	Pass
n20	2462	Ant1	2483.5	-50.51	2	-	46.75	Peak	74	Pass
n20	2462	Ant1	2483.5	-55.35	2	0.58	42.49	Average	54	Pass
n20	2462	Ant1	2485.478	-45.7	2	-	51.56	Peak	74	Pass
n20	2462	Ant1	2483.517	-55.34	2	0.58	42.5	Average	54	Pass

n20	2462	Ant1	2500	-50.38	2	-	46.88	Peak	74	Pass
n20	2462	Ant1	2500	-56.07	2	0.58	41.77	Average	54	Pass

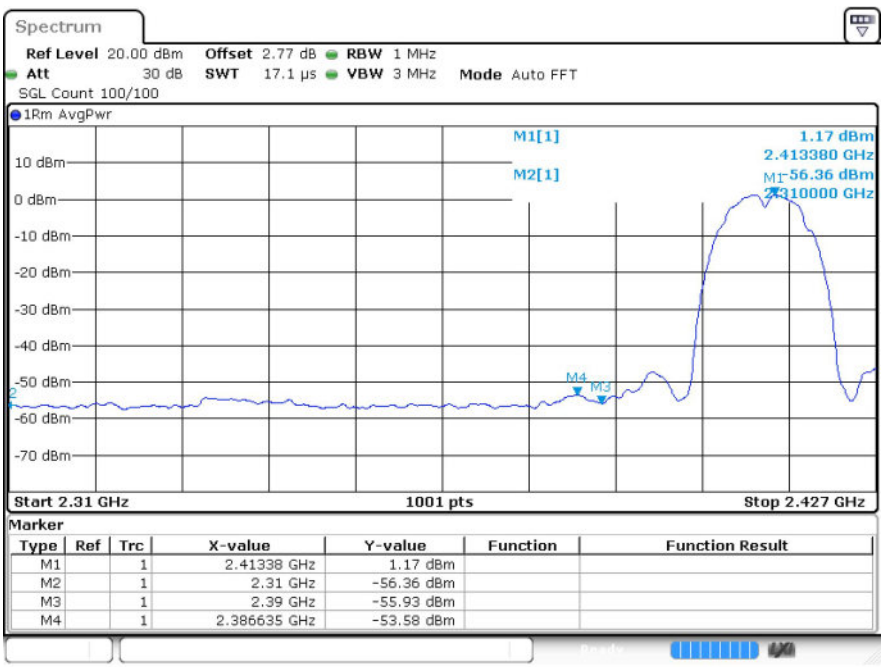
7.2 Test Graphs

Test Graphs

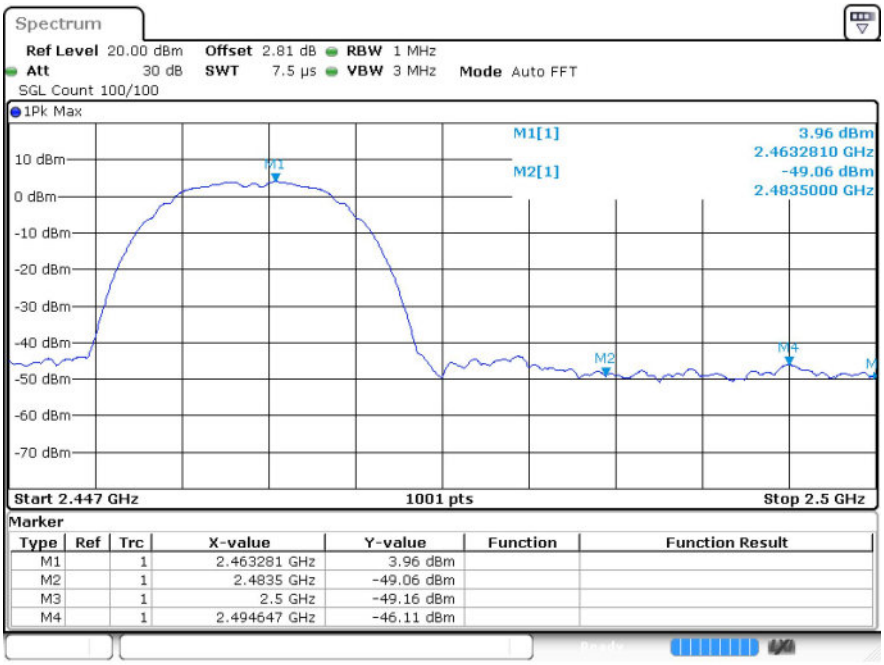
b 2412MHz Ant1 Peak



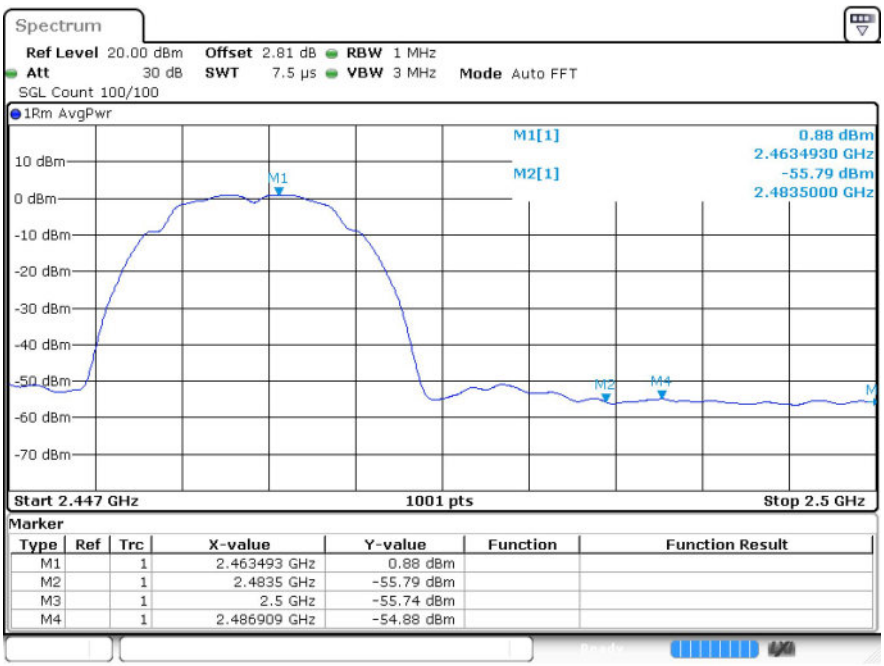
b 2412MHz Ant1 Average



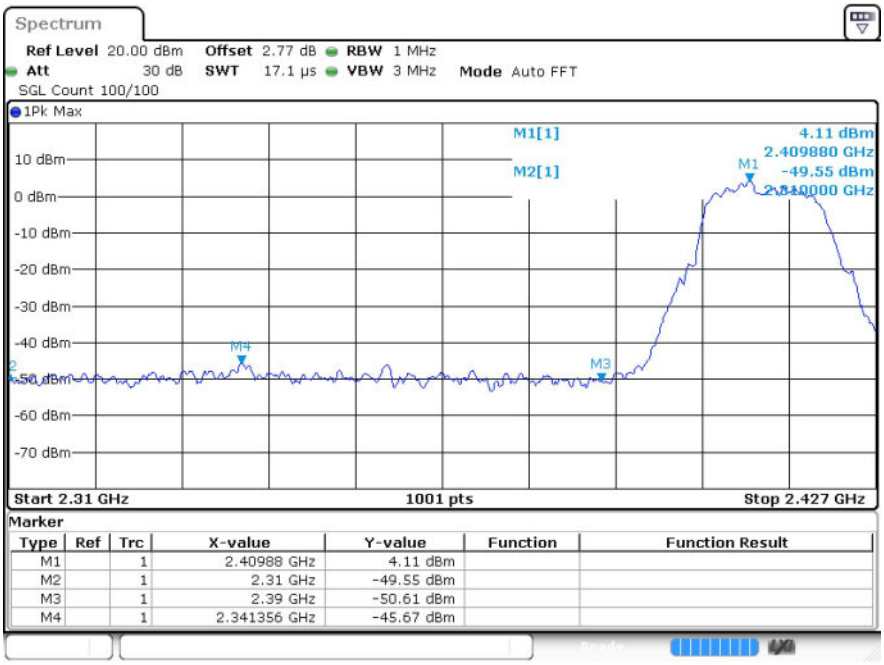
b 2462MHz Ant1 Peak



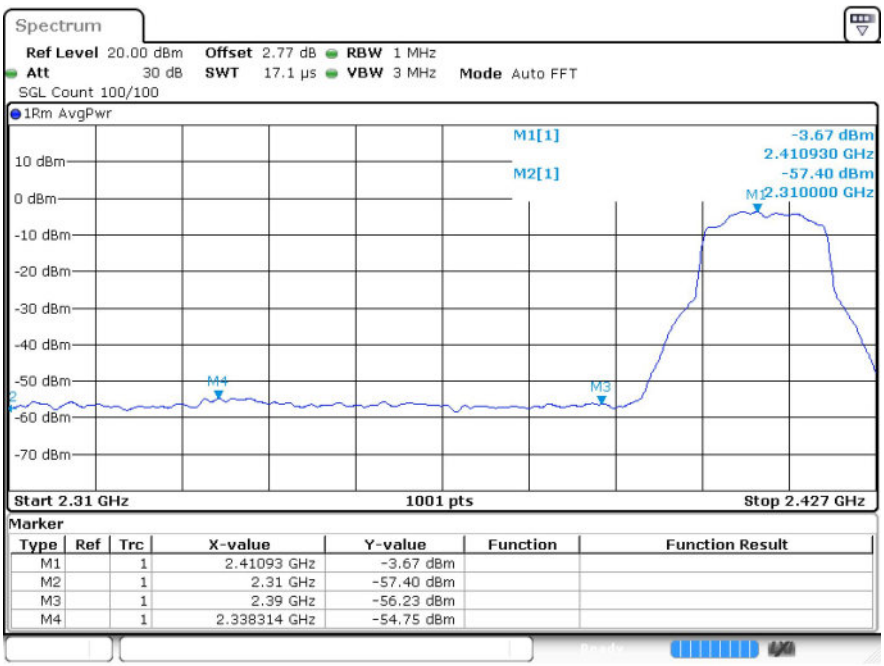
b 2462MHz Ant1 Average



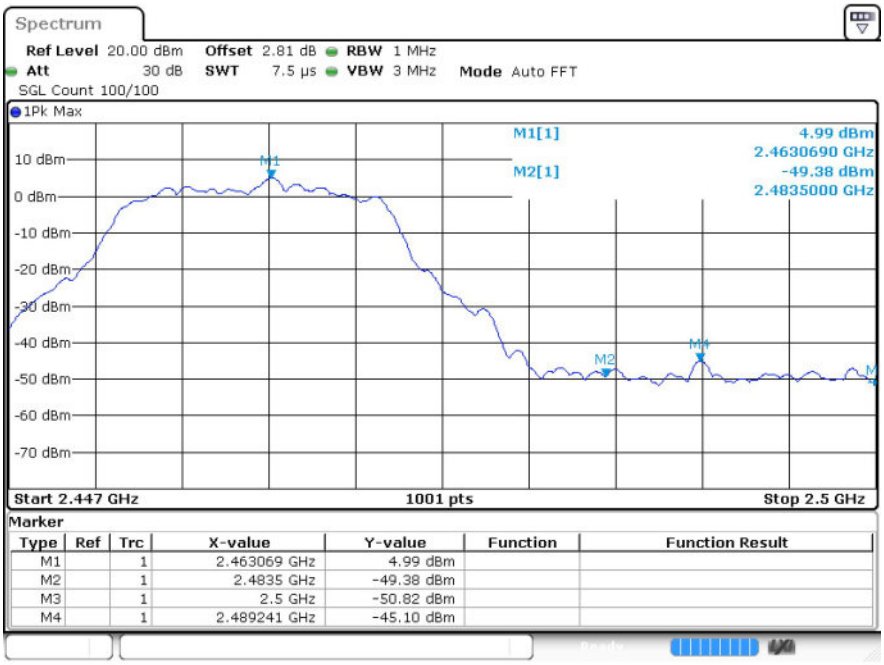
g 2412MHz Ant1 Peak



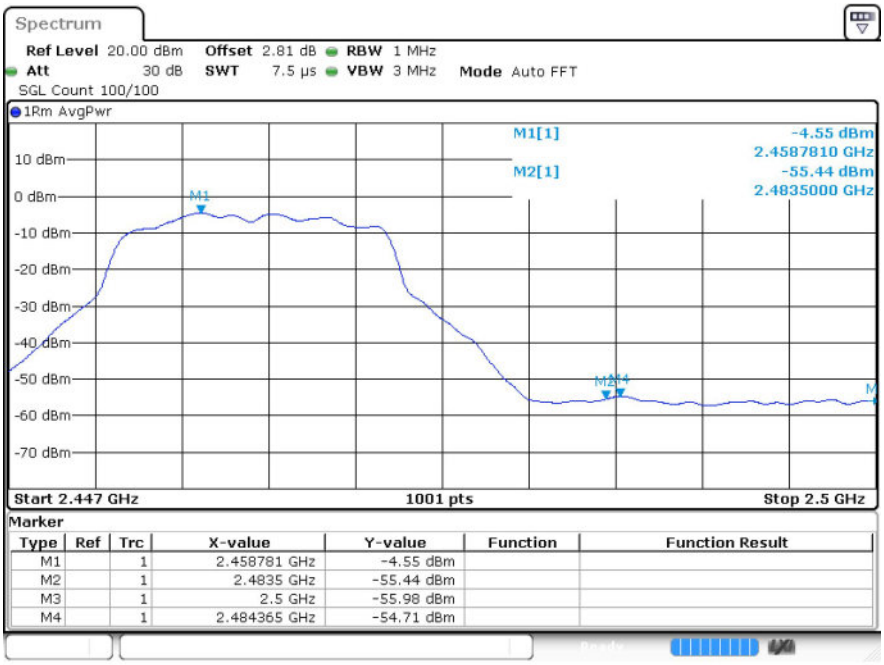
g 2412MHz Ant1 Average



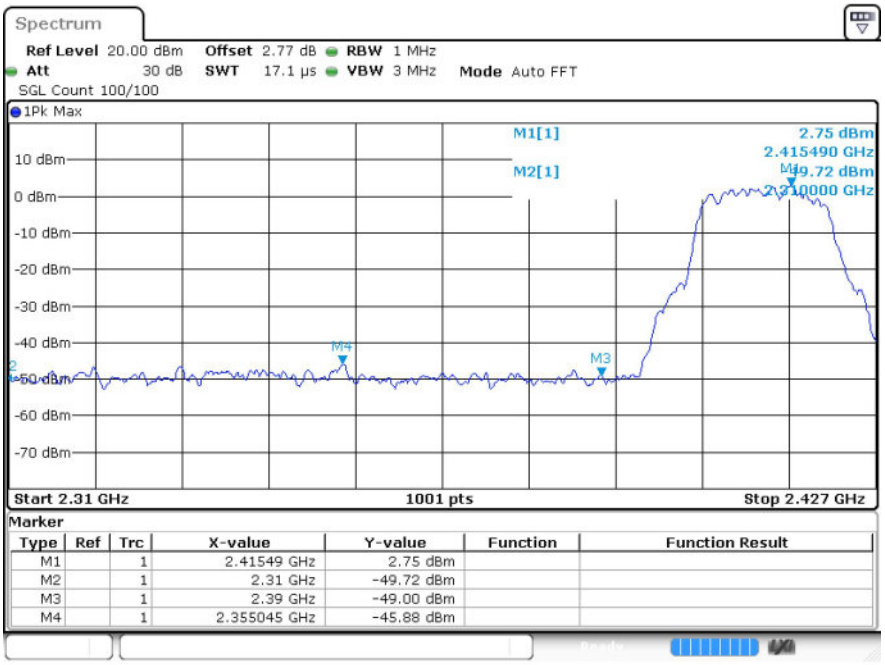
g 2462MHz Ant1 Peak



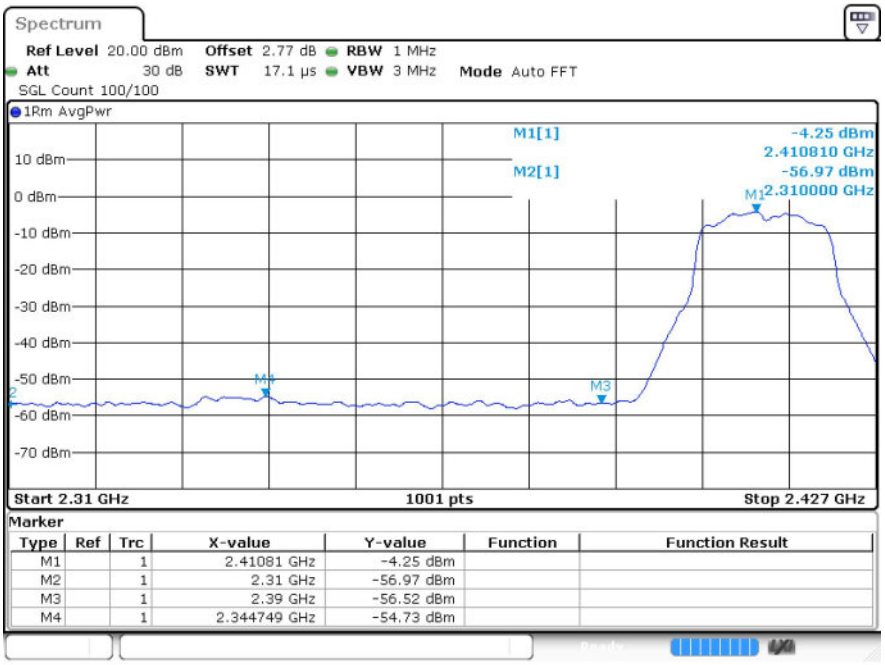
g 2462MHz Ant1 Average



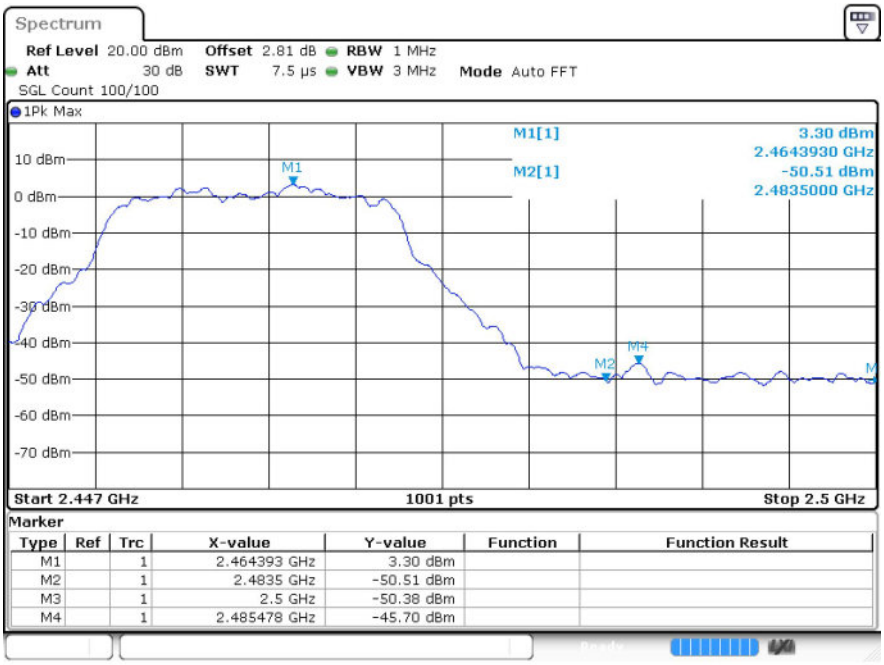
n20 2412MHz Ant1 Peak



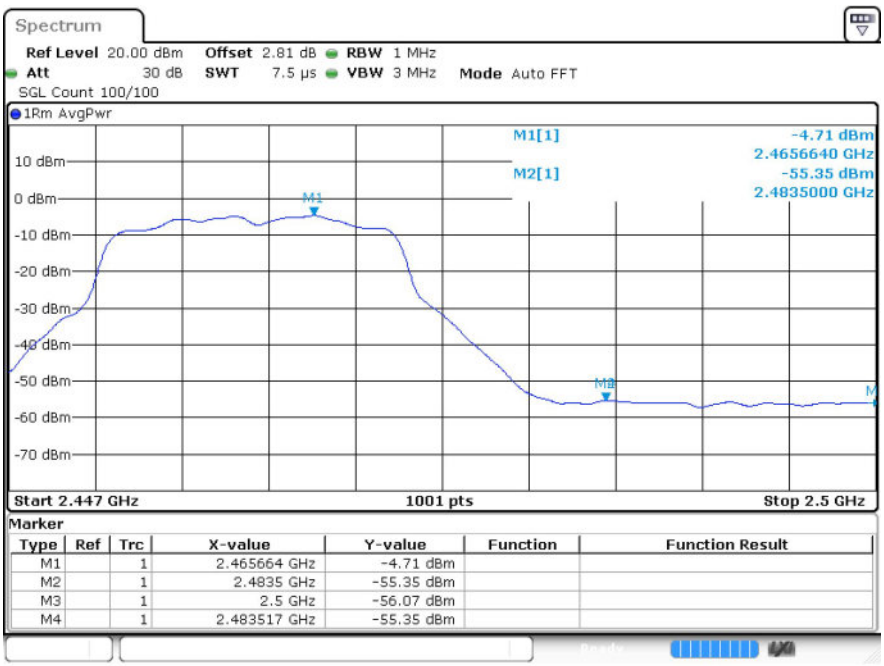
n20 2412MHz Ant1 Average



n20 2462MHz Ant1 Peak



n20 2462MHz Ant1 Average



---The End---