Appendix B

RF Test Data for BT (BLE) (Conducted Measurement)

Product Name: Smart Watch

Trade Mark: SKYUP

Test Model: GT22

Environmental Conditions

Temperature:	25.8° 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

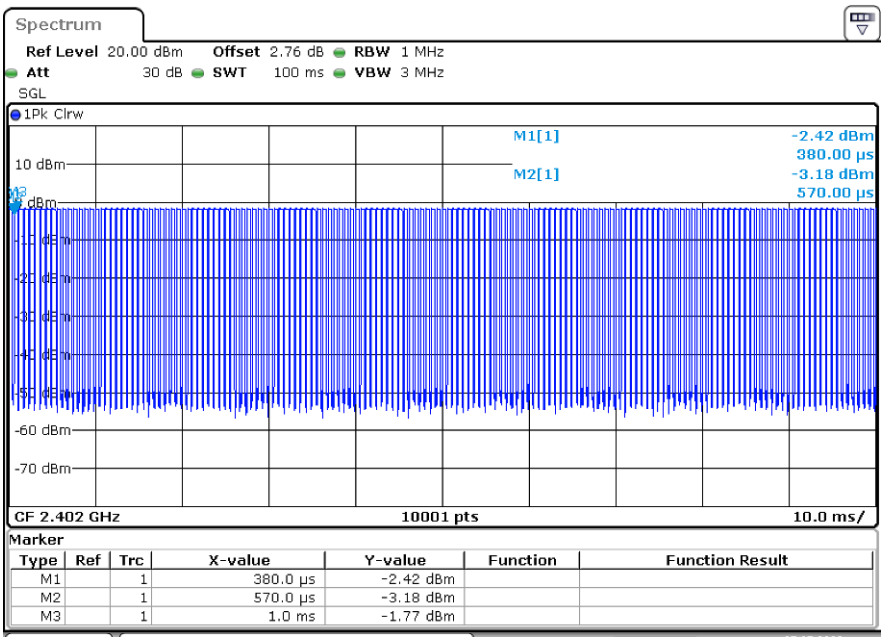
1.1 Test Result

Mode	Frequency (MHz)	Duty Cycle (%)	1/T (kHz)
BLE 1M	2402	70.4	2.33
BLE 1M	2440	69.85	2.33
BLE 1M	2480	69.6	2.38
BLE 2M	2402	41.6	4
BLE 2M	2440	41.61	4
BLE 2M	2480	41.6	4

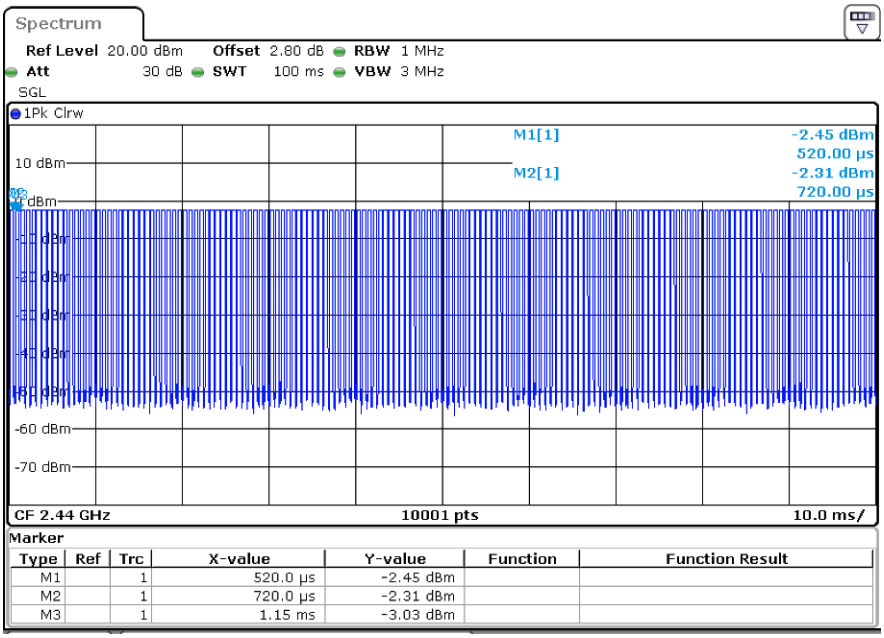
1.2 Test Graphs

Test Graphs

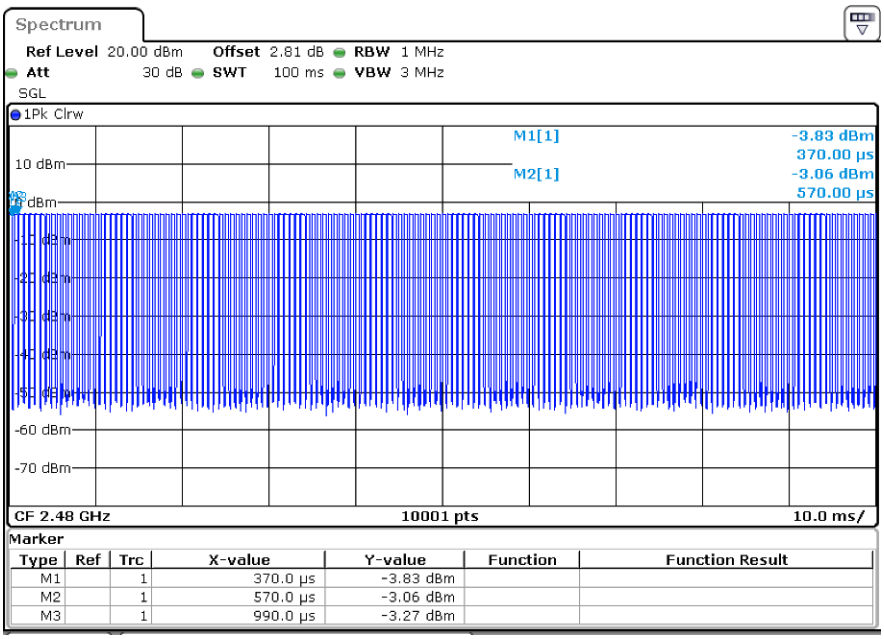
BLE 1M 2402MHz



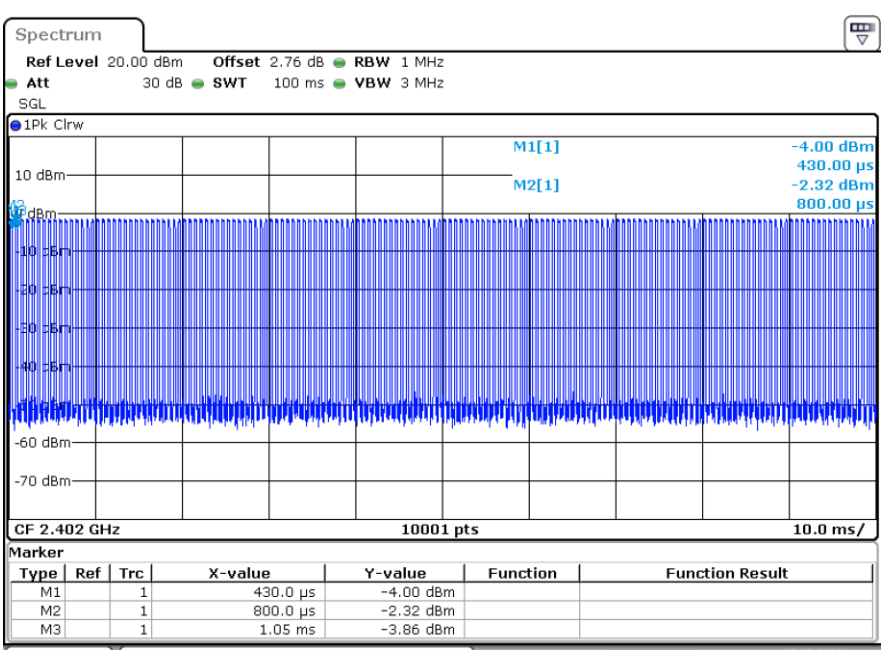
BLE 1M 2440MHz



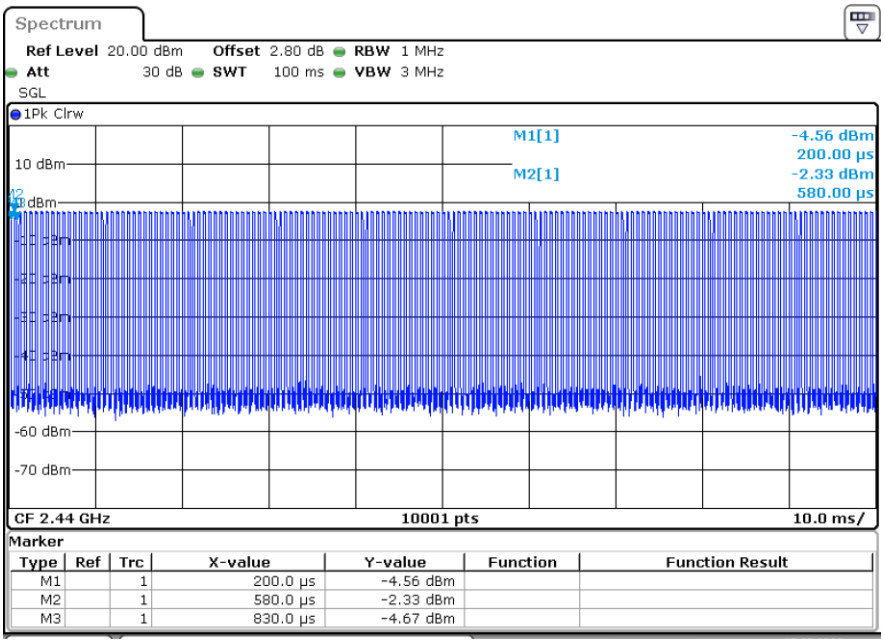
BLE 1M 2480MHz



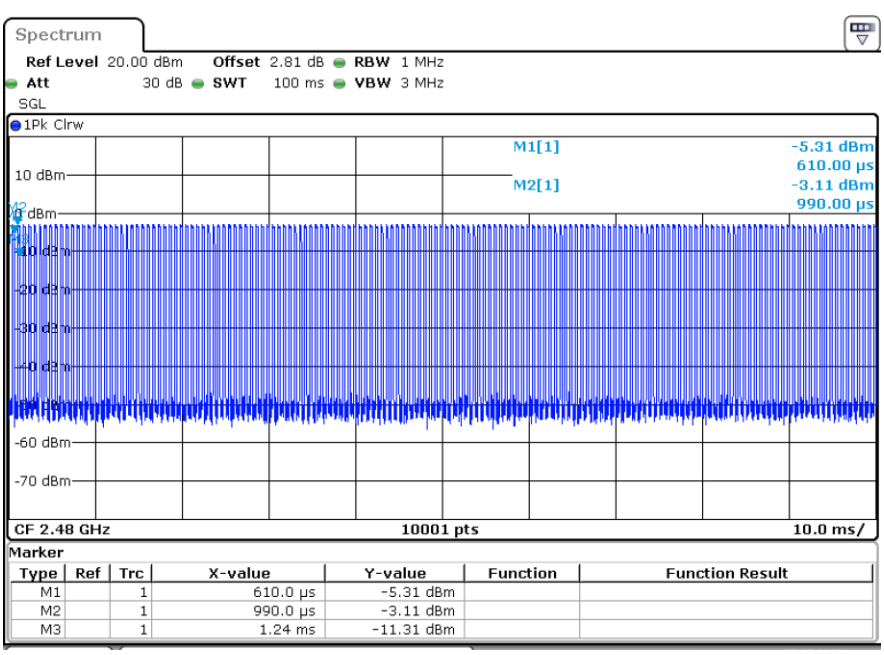
BLE 2M 2402MHz



BLE 2M 2440MHz



BLE 2M 2480MHz



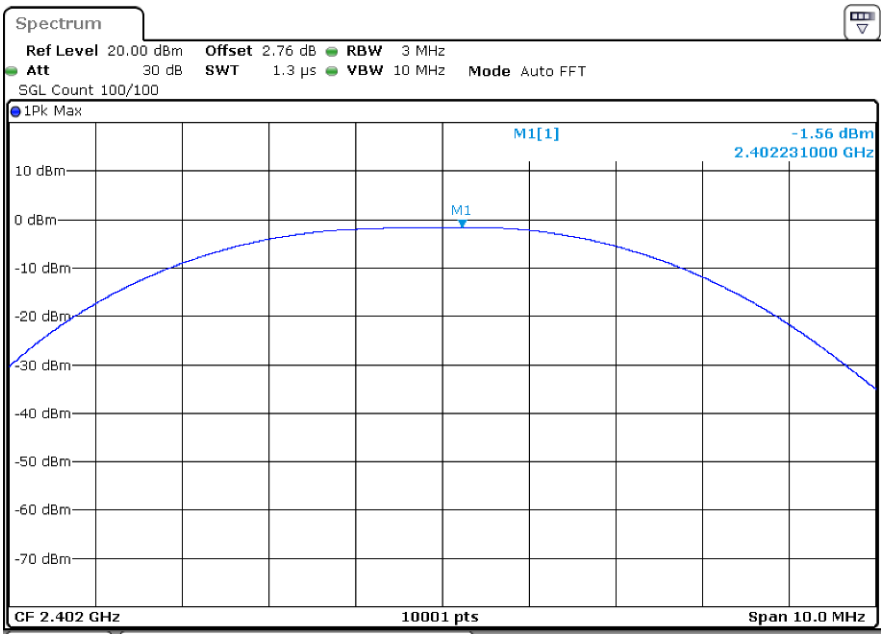
2 Maximum Conducted Output Power

2.1 Test Result

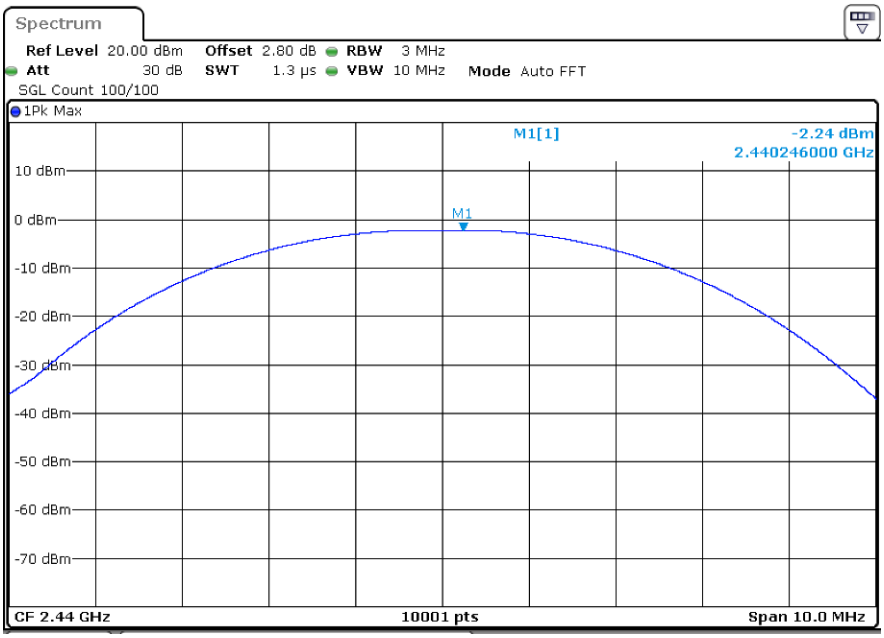
Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
BLE 1M	2402	-1.56	30	Pass
BLE 1M	2440	-2.24	30	Pass
BLE 1M	2480	-3.03	30	Pass
BLE 2M	2402	-1.53	30	Pass
BLE 2M	2440	-2.2	30	Pass
BLE 2M	2480	-3.01	30	Pass

2.2 Test Graphs

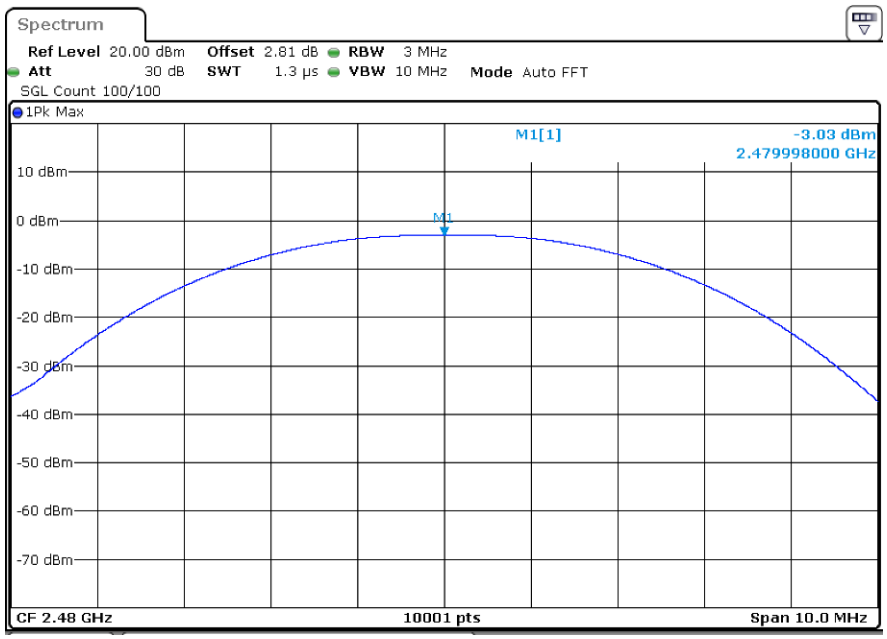
Test Graphs
BLE 1M 2402MHz



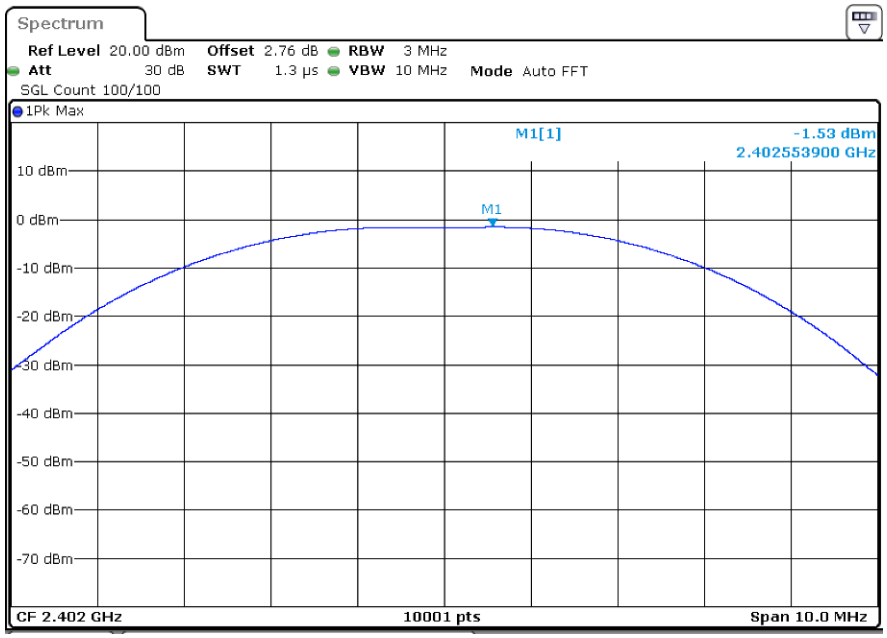
BLE 1M 2440MHz



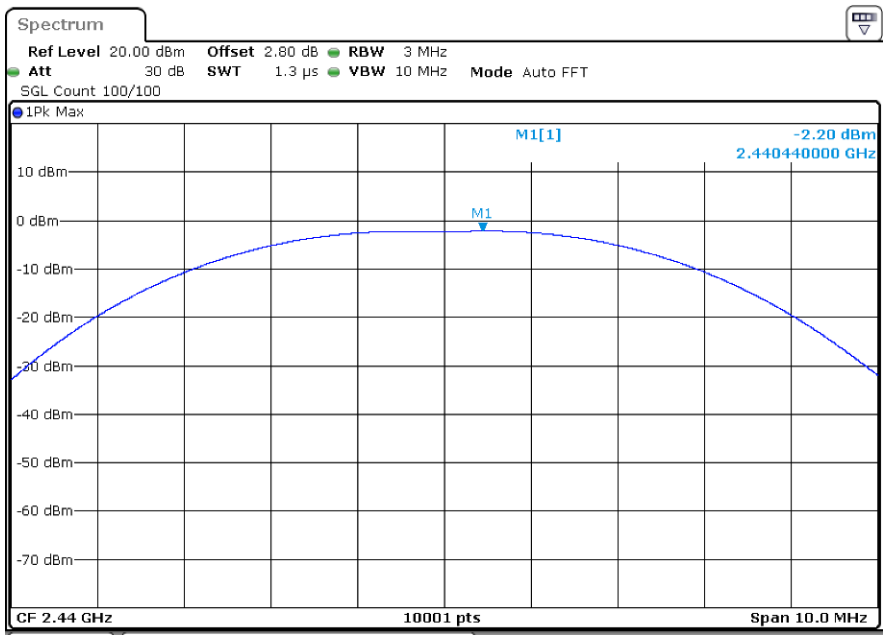
BLE 1M 2480MHz



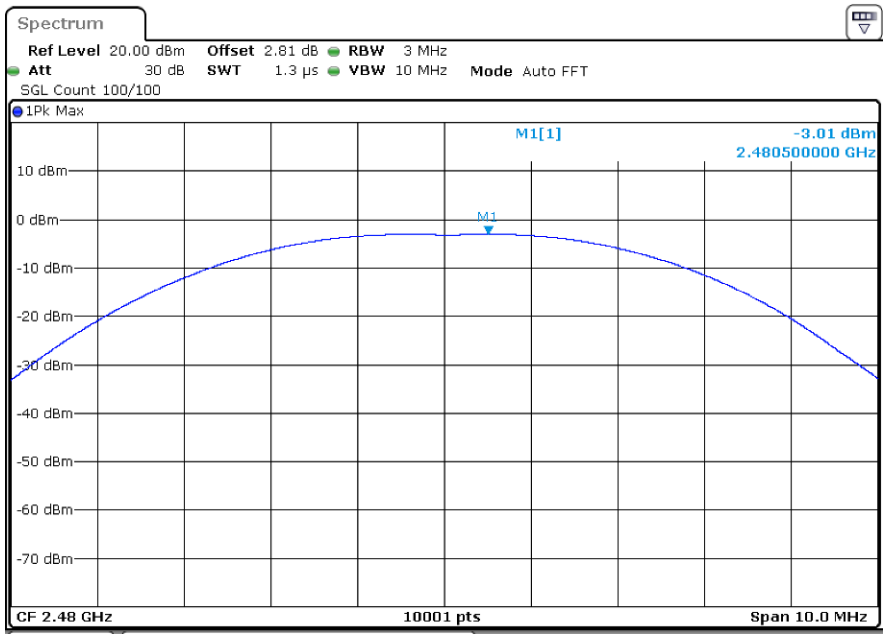
BLE 2M 2402MHz



BLE 2M 2440MHz



BLE 2M 2480MHz



3 -6dB Bandwidth

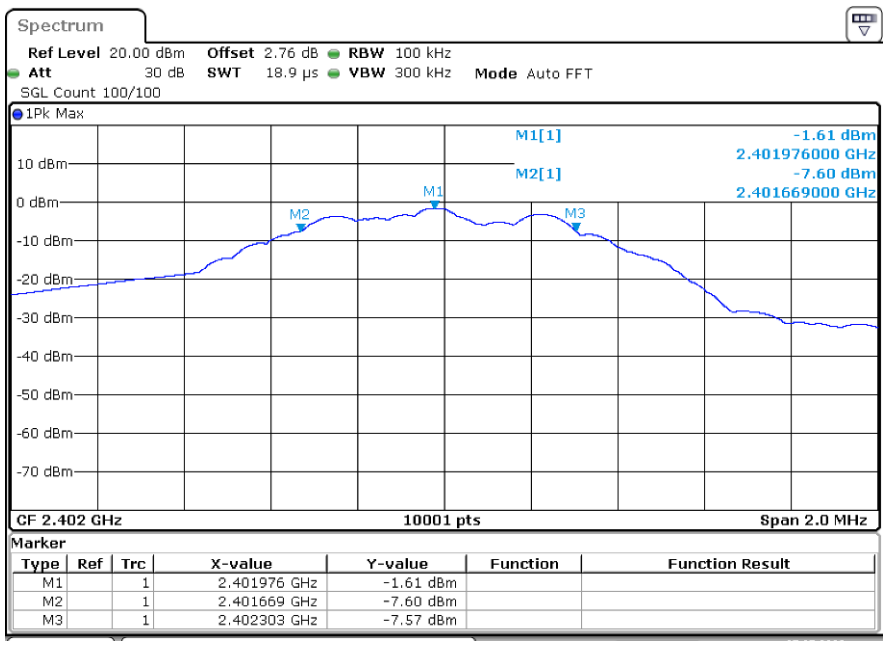
3.1 Test Result

Mode	Frequency (MHz)	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
BLE 1M	2402	0.634	0.5	Pass
BLE 1M	2440	0.639	0.5	Pass
BLE 1M	2480	0.674	0.5	Pass
BLE 2M	2402	1.03	0.5	Pass
BLE 2M	2440	0.985	0.5	Pass
BLE 2M	2480	1.018	0.5	Pass

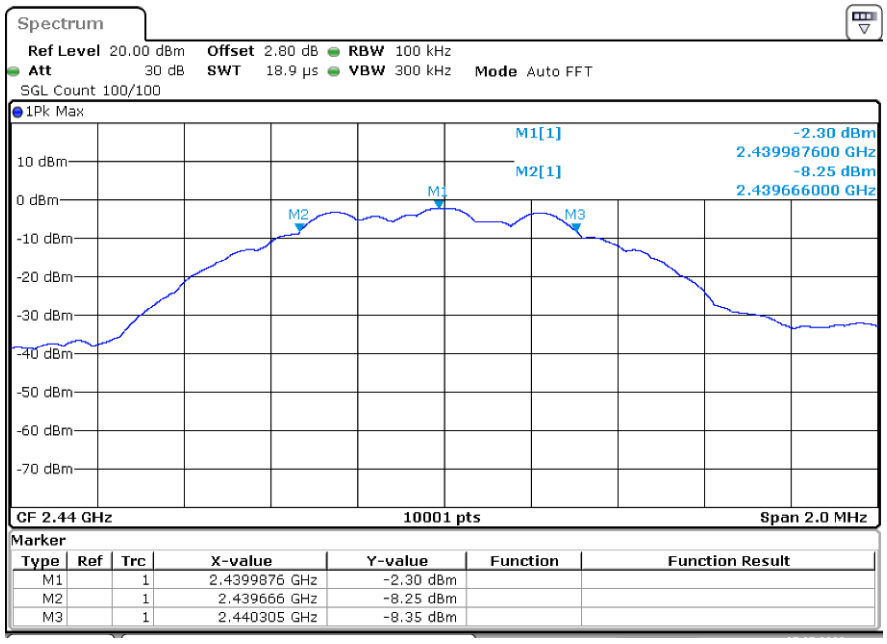
3.2 Test Graphs

Test Graphs

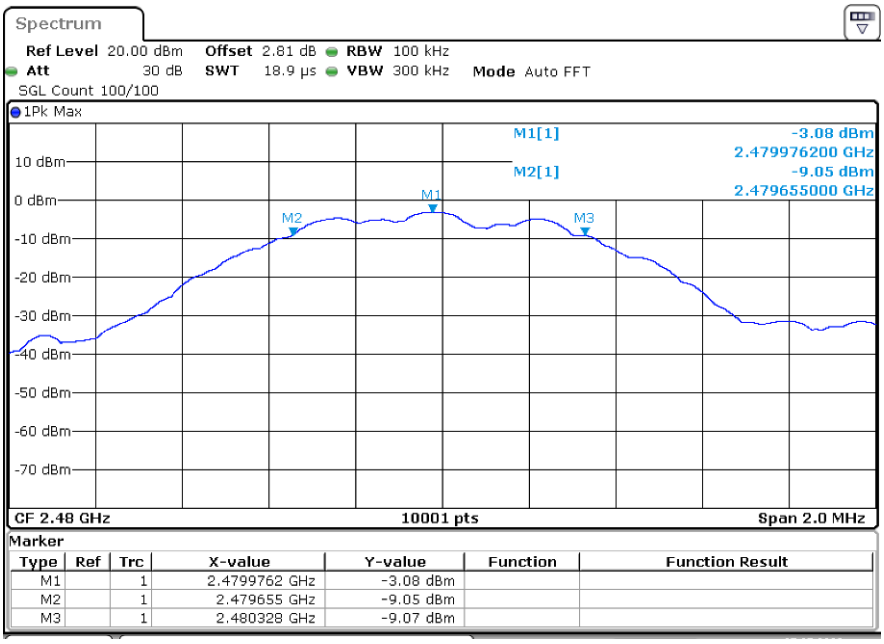
BLE 1M 2402MHz



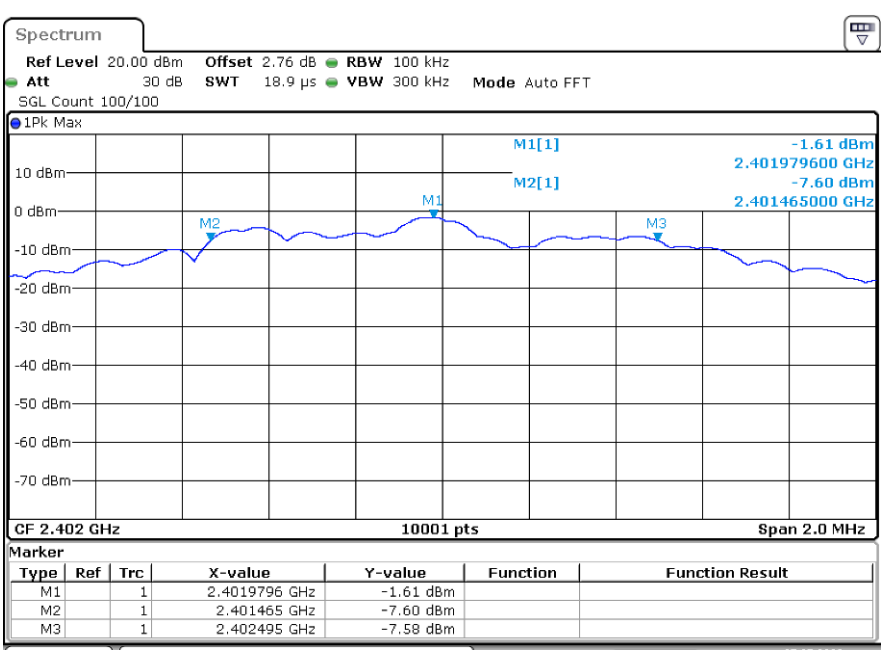
BLE 1M 2440MHz



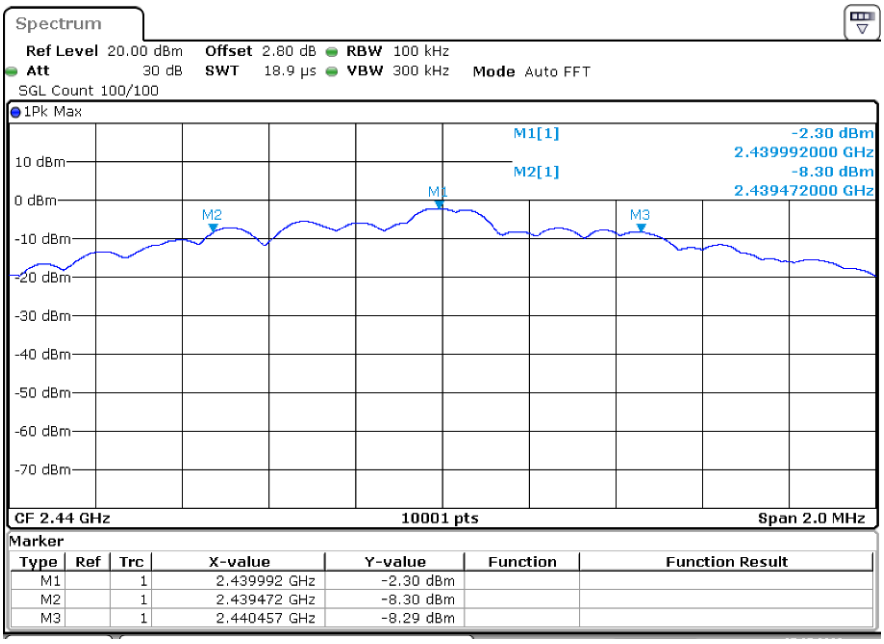
BLE 1M 2480MHz



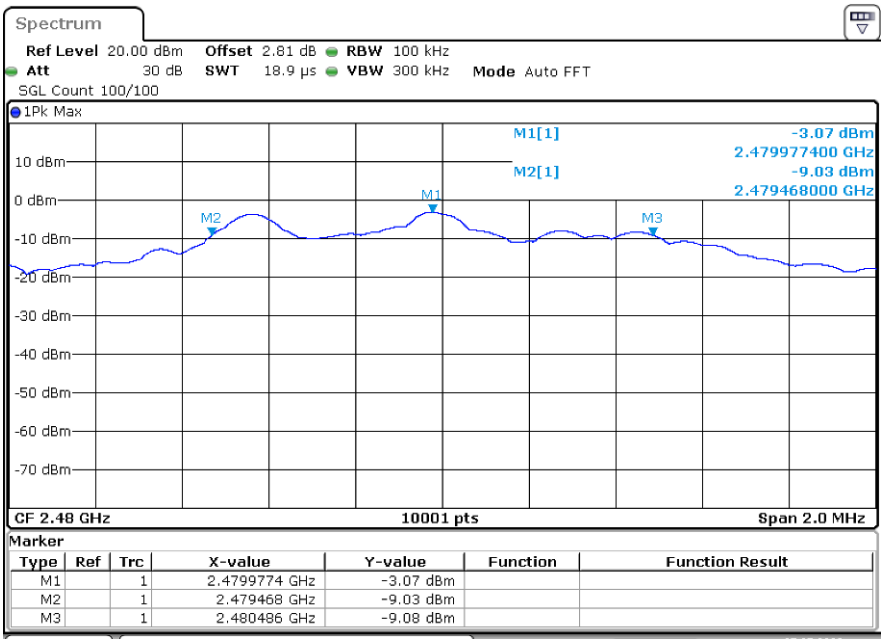
BLE 2M 2402MHz



BLE 2M 2440MHz



BLE 2M 2480MHz



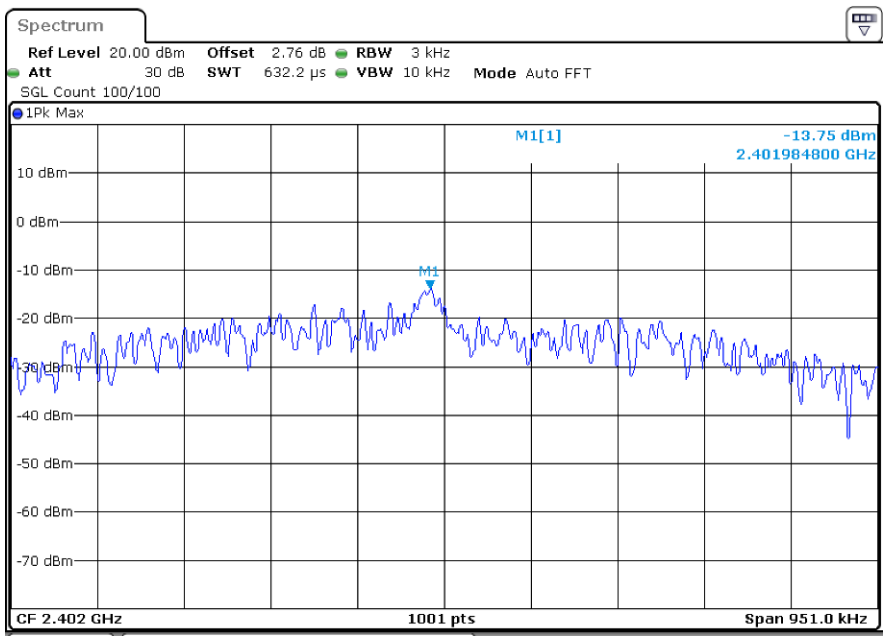
4 Maximum Power Spectral Density Level

4.1 Test Result

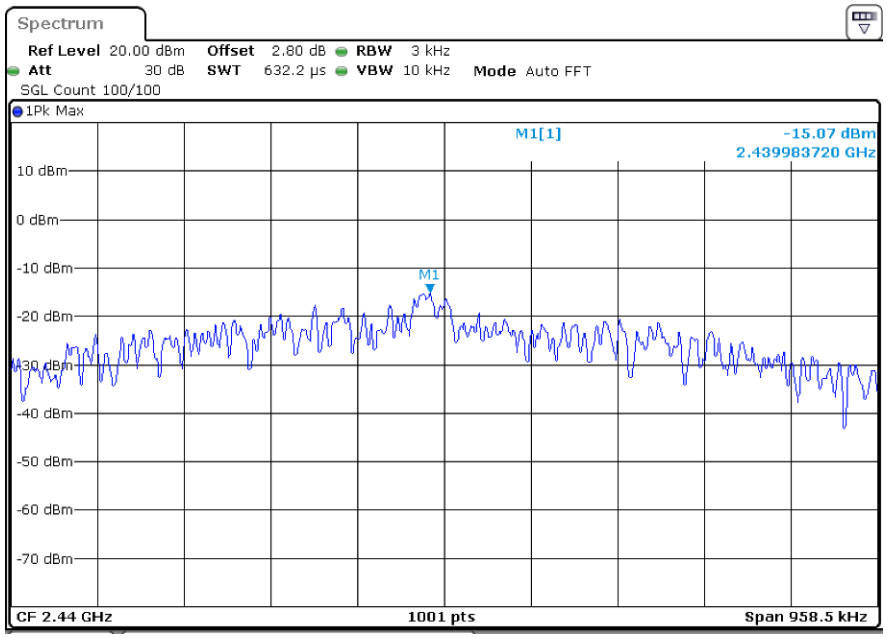
Mode	Frequency (MHz)	Conducted PSD (dBm/3-100kHz)	Limit (dBm/3kHz)	Verdict
BLE 1M	2402	-13.75	≤8	Pass
BLE 1M	2440	-15.07	≤8	Pass
BLE 1M	2480	-15.19	≤8	Pass
BLE 2M	2402	-13.97	≤8	Pass
BLE 2M	2440	-15.7	≤8	Pass
BLE 2M	2480	-16.26	≤8	Pass

4.2 Test Graphs

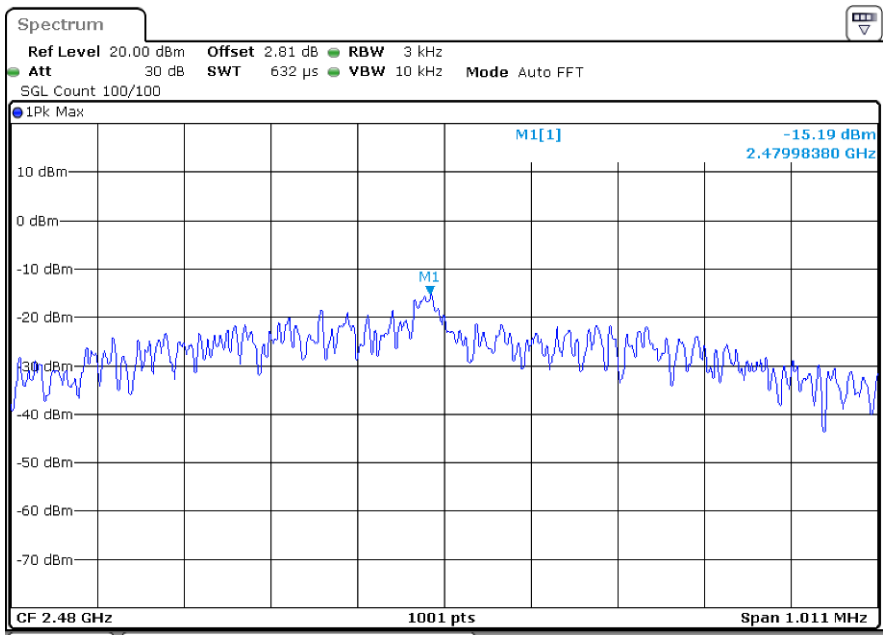
Test Graphs
BLE 1M 2402MHz



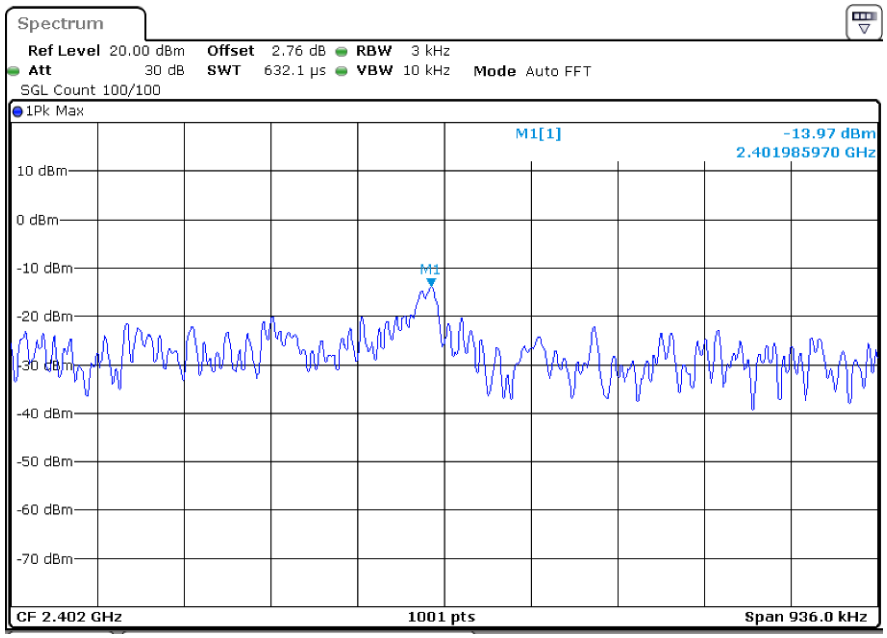
BLE 1M 2440MHz



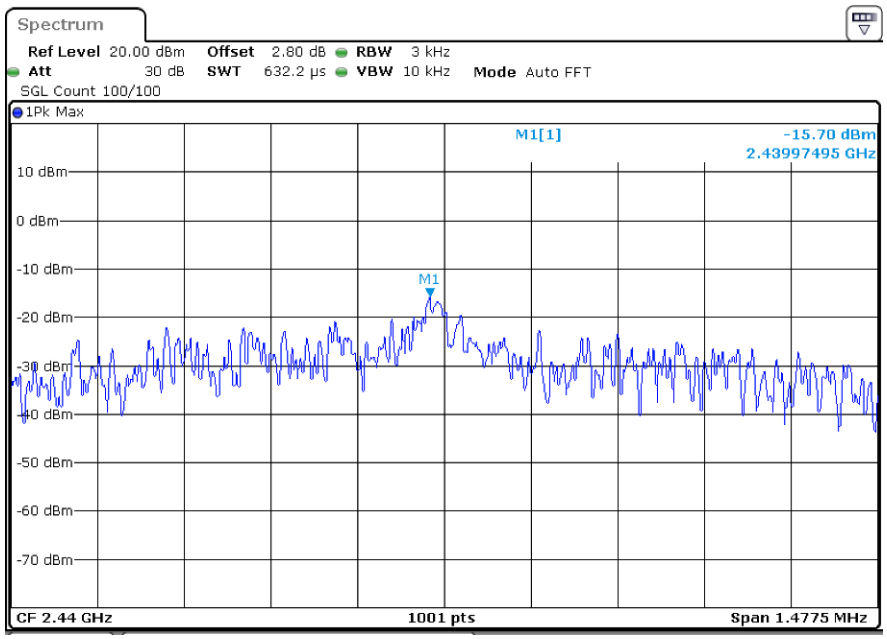
BLE 1M 2480MHz



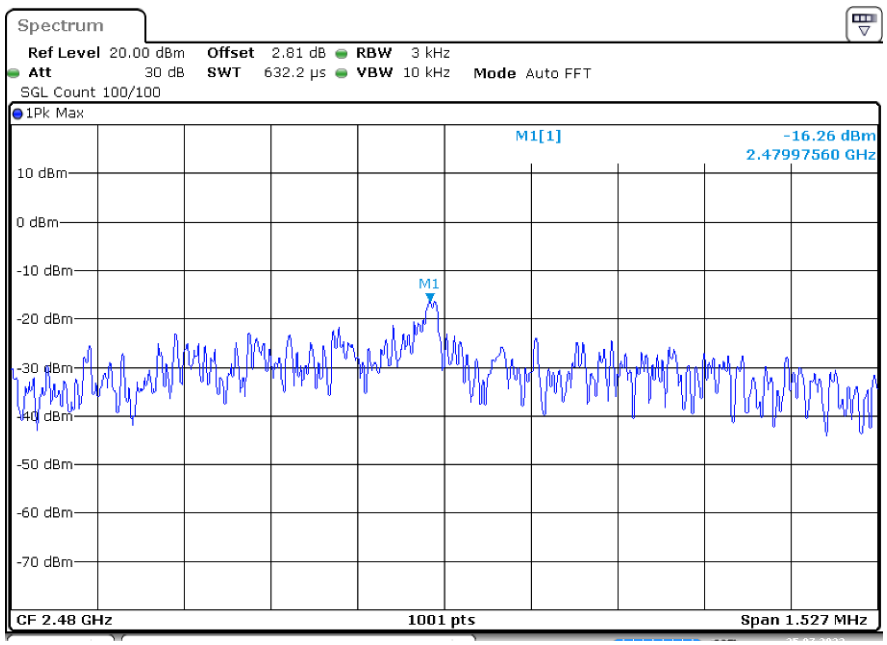
BLE 2M 2402MHz



BLE 2M 2440MHz



BLE 2M 2480MHz



5 Band Edge

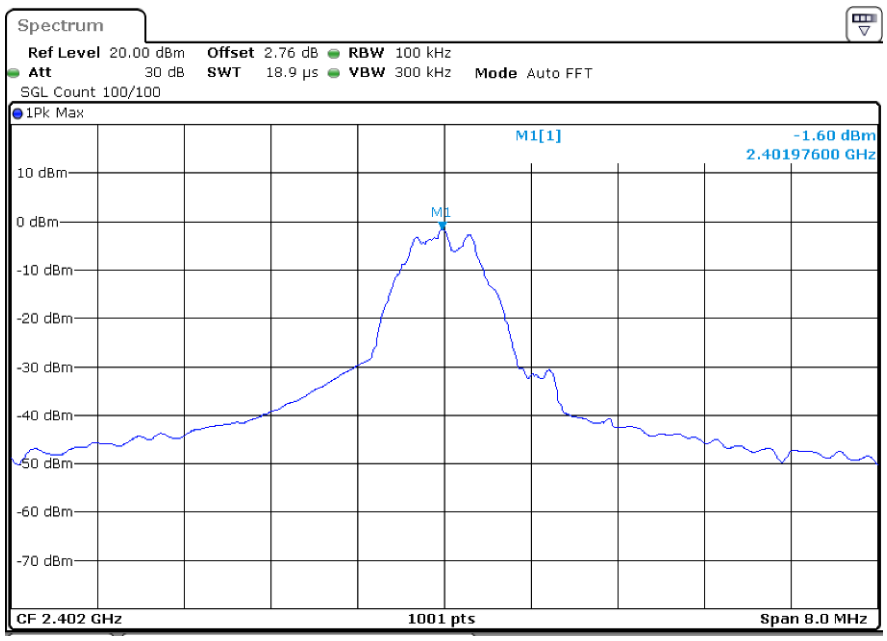
5.1 Test Result

Mode	Frequency (MHz)	Max Value (dBc)	Limit (dBc)	Verdict
BLE 1M	2402	-50.2	-20	Pass
BLE 1M	2480	-45.09	-20	Pass
BLE 2M	2402	-51.63	-20	Pass
BLE 2M	2480	-45.32	-20	Pass

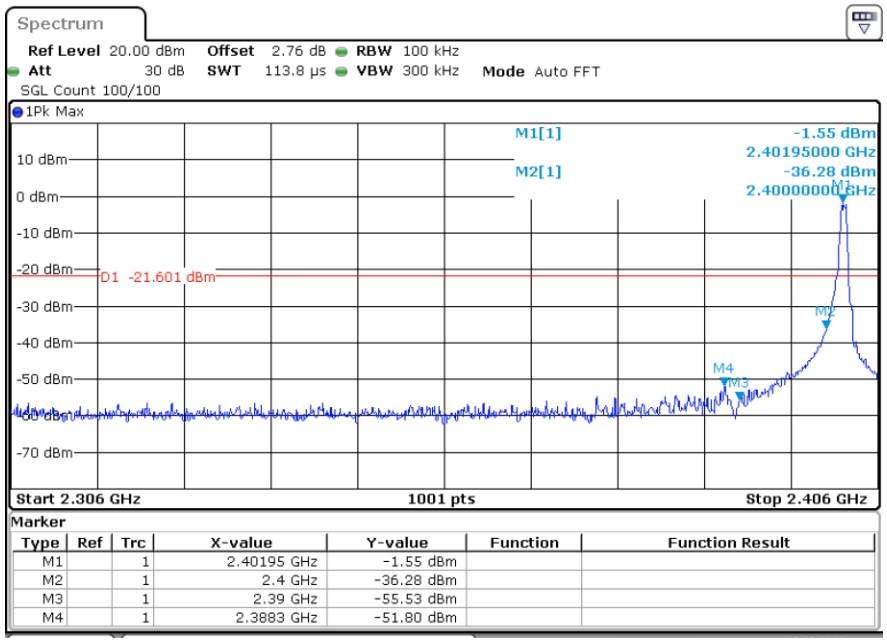
5.2 Test Graphs

Test Graphs

BLE 1M 2402MHz Ref



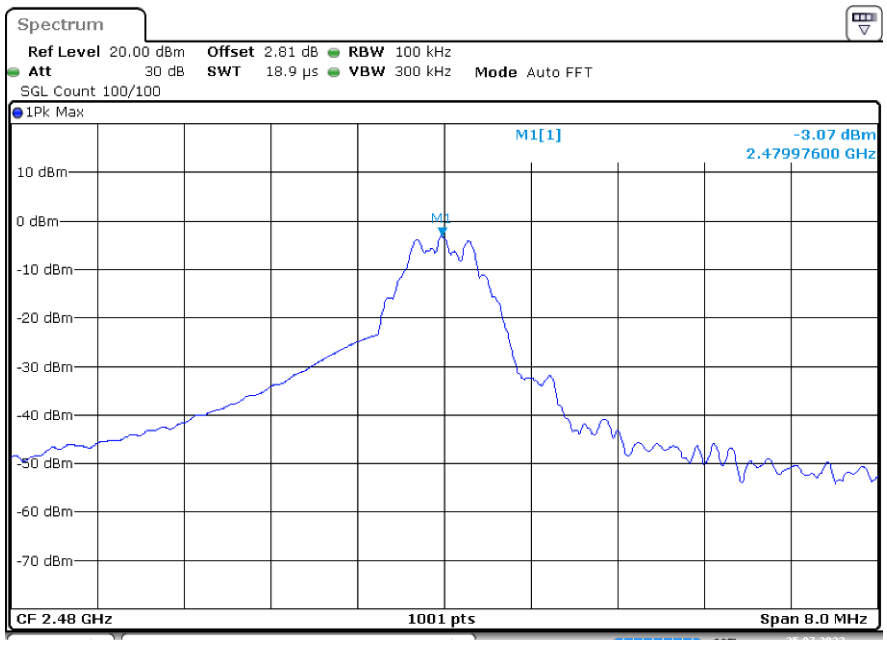
BLE 1M 2402MHz Emission



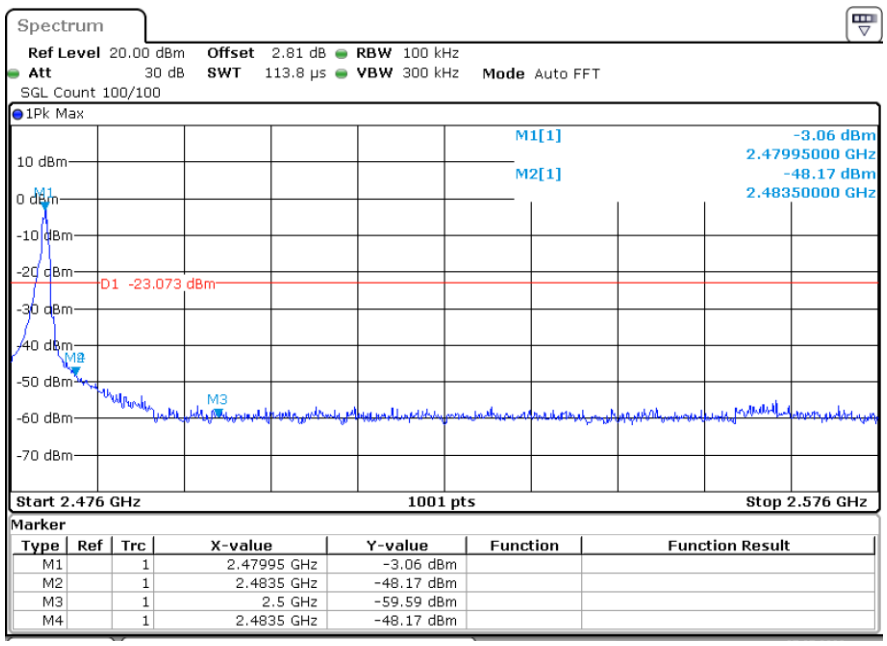
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40195 GHz	-1.55 dBm		
M2		1	2.4 GHz	-36.28 dBm		
M3		1	2.39 GHz	-55.53 dBm		
M4		1	2.3883 GHz	-51.80 dBm		

BLE 1M 2480MHz Ref

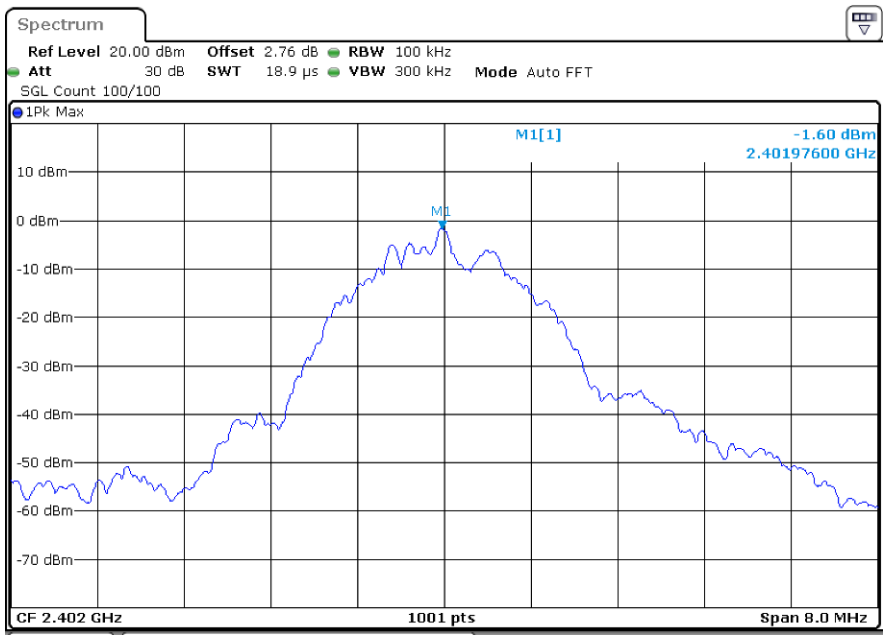


BLE 1M 2480MHz Emission

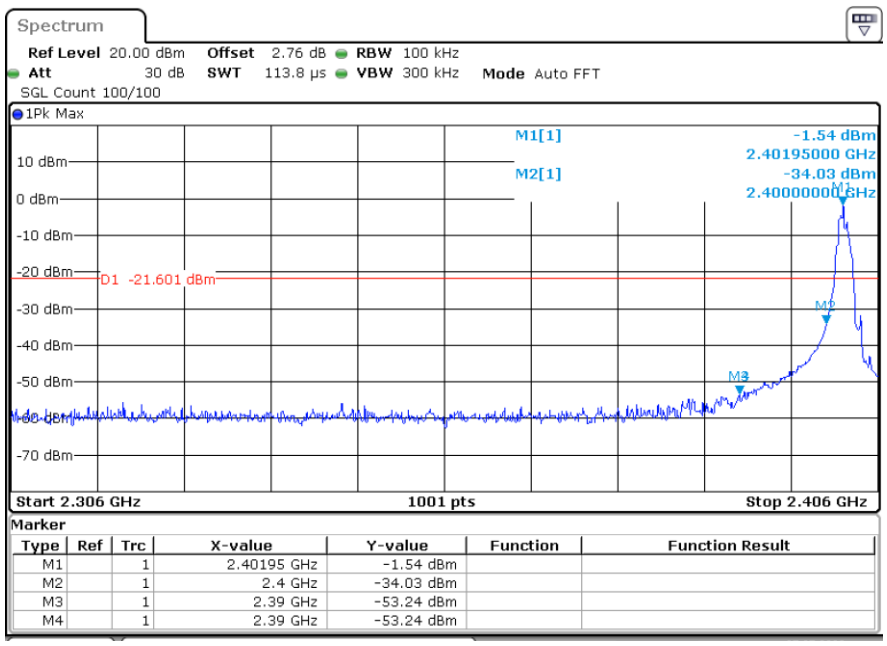


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47995 GHz	-3.06 dBm		
M2		1	2.4835 GHz	-48.17 dBm		
M3		1	2.5 GHz	-59.59 dBm		
M4		1	2.4835 GHz	-48.17 dBm		

BLE 2M 2402MHz Ref



BLE 2M 2402MHz Emission

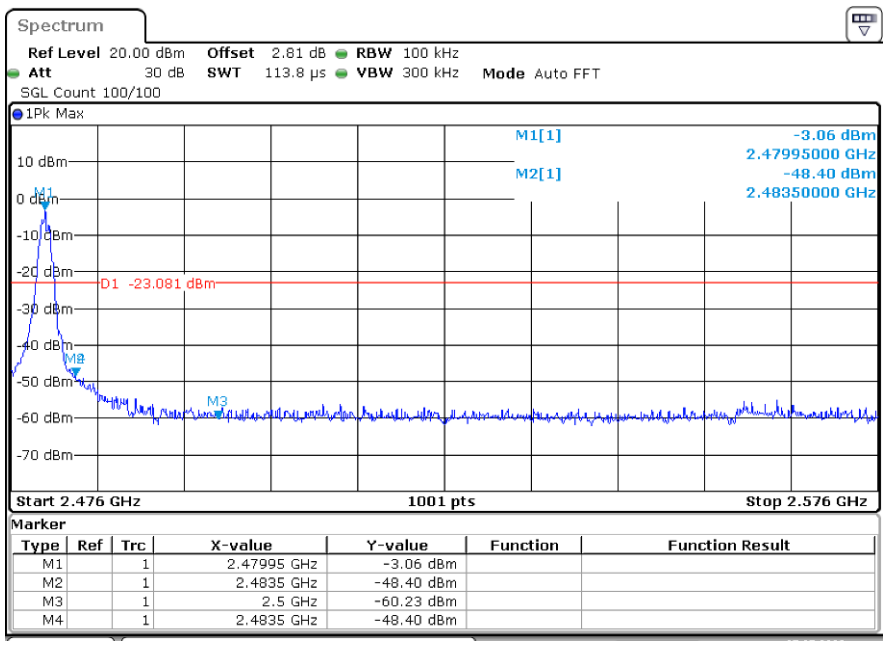


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40195 GHz	-1.54 dBm		
M2		1	2.4 GHz	-34.03 dBm		
M3		1	2.39 GHz	-53.24 dBm		
M4		1	2.39 GHz	-53.24 dBm		

BLE 2M 2480MHz Ref

BLE 2M 2480MHz Emission



Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47995 GHz	-3.06 dBm		
M2		1	2.4835 GHz	-48.40 dBm		
M3		1	2.5 GHz	-60.23 dBm		
M4		1	2.4835 GHz	-48.40 dBm		

6 Conducted RF Spurious Emission

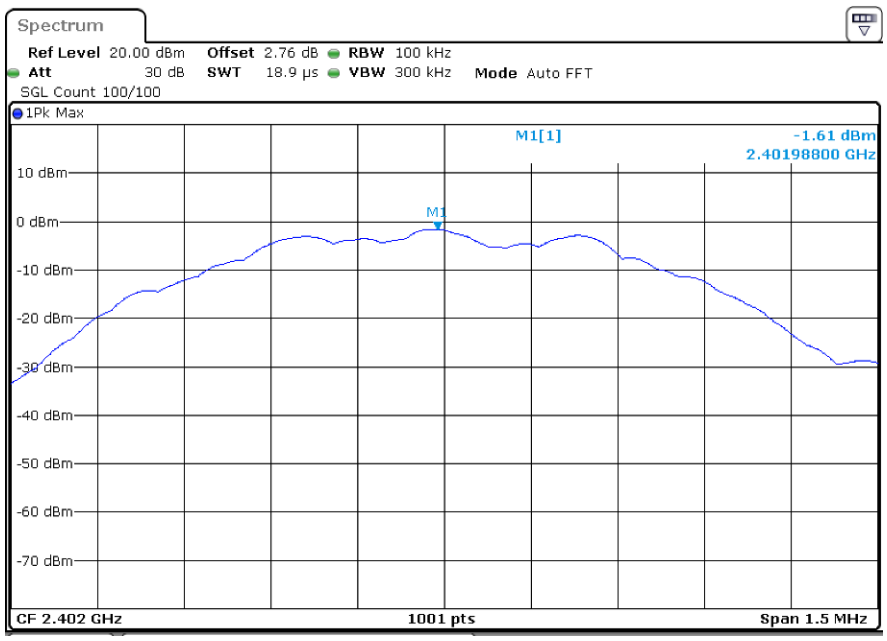
6.1 Test Result

Mode	Frequency (MHz)	Max Value (dBc)	Limit (dBc)	Verdict
BLE 1M	2402	-42.04	-20	Pass
BLE 1M	2440	-41.11	-20	Pass
BLE 1M	2480	-42.3	-20	Pass
BLE 2M	2402	-44.1	-20	Pass
BLE 2M	2440	-42.16	-20	Pass
BLE 2M	2480	-42.81	-20	Pass

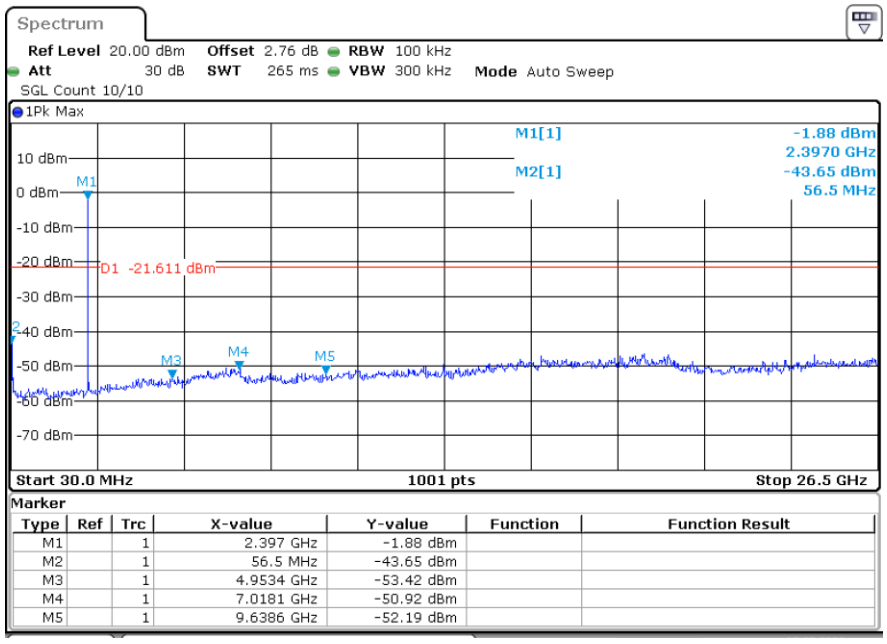
6.2 Test Graphs

Test Graphs

BLE 1M 2402MHz Ref



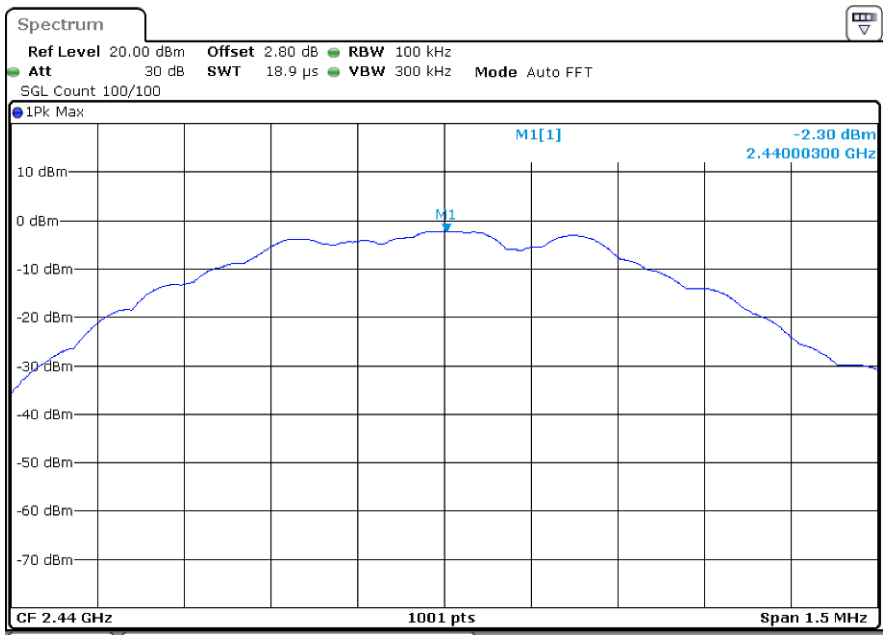
BLE 1M 2402MHz Emission



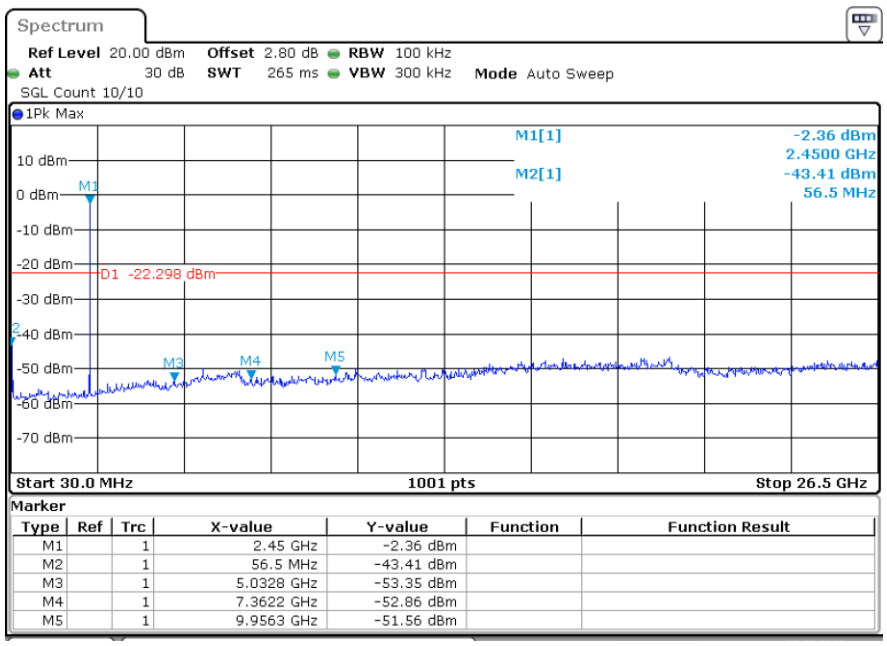
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.397 GHz	-1.88 dBm		
M2		1	56.5 MHz	-43.65 dBm		
M3		1	4.9534 GHz	-53.42 dBm		
M4		1	7.0181 GHz	-50.92 dBm		
M5		1	9.6386 GHz	-52.19 dBm		

BLE 1M 2440MHz Ref



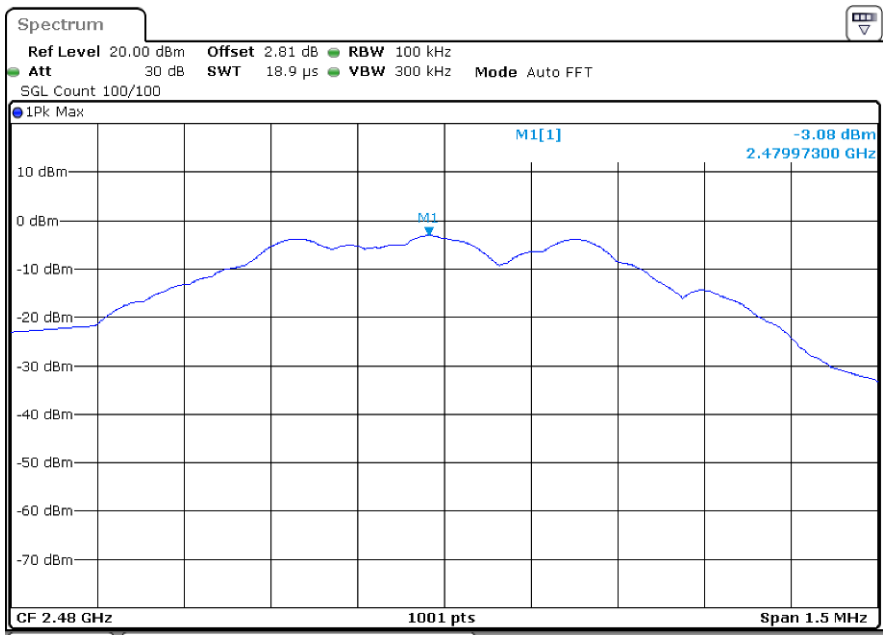
BLE 1M 2440MHz Emission



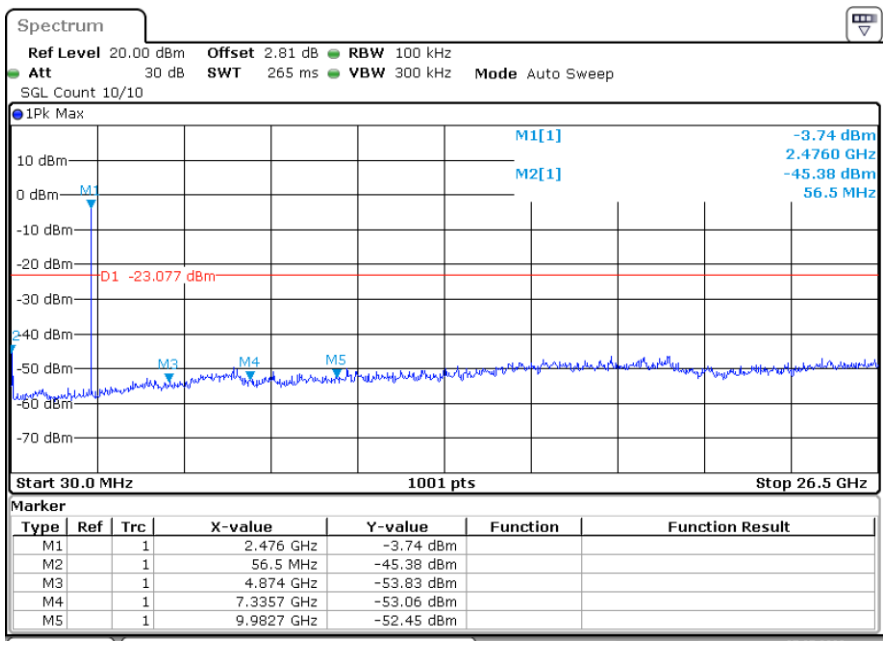
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-2.36 dBm		
M2		1	56.5 MHz	-43.41 dBm		
M3		1	5.0328 GHz	-53.35 dBm		
M4		1	7.3622 GHz	-52.86 dBm		
M5		1	9.9563 GHz	-51.56 dBm		

BLE 1M 2480MHz Ref



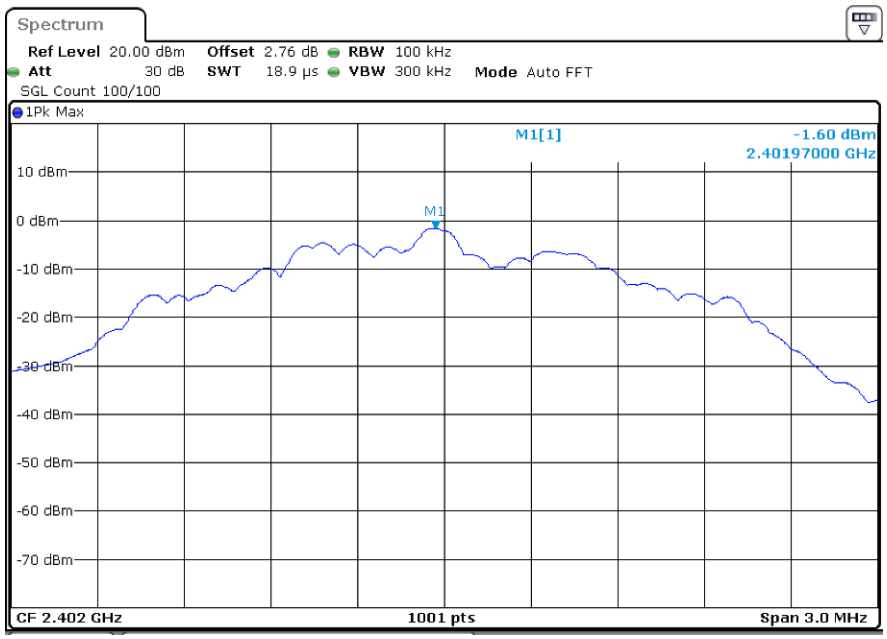
BLE 1M 2480MHz Emission



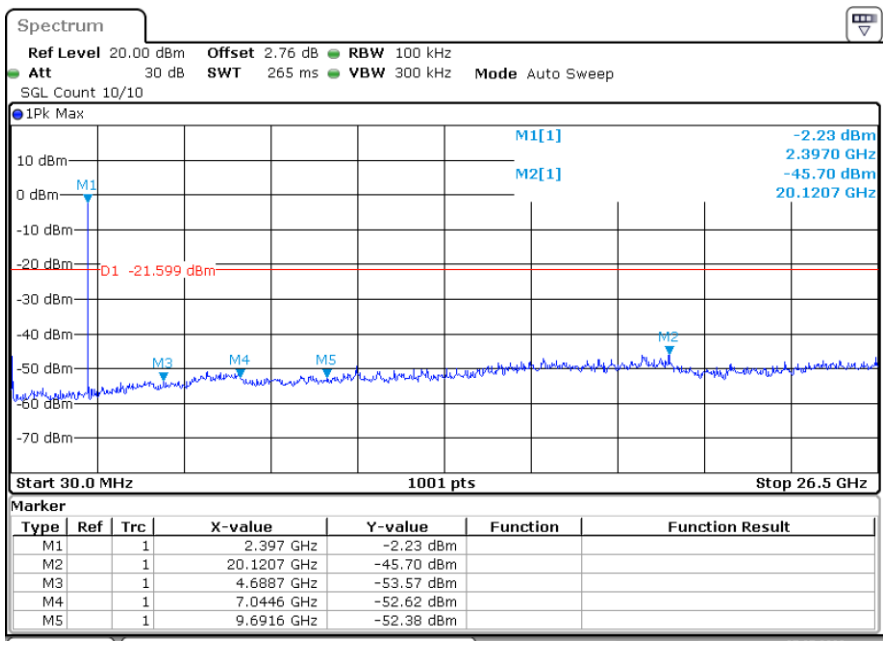
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.476 GHz	-3.74 dBm		
M2		1	56.5 MHz	-45.38 dBm		
M3		1	4.874 GHz	-53.83 dBm		
M4		1	7.3357 GHz	-53.06 dBm		
M5		1	9.9827 GHz	-52.45 dBm		

BLE 2M 2402MHz Ref



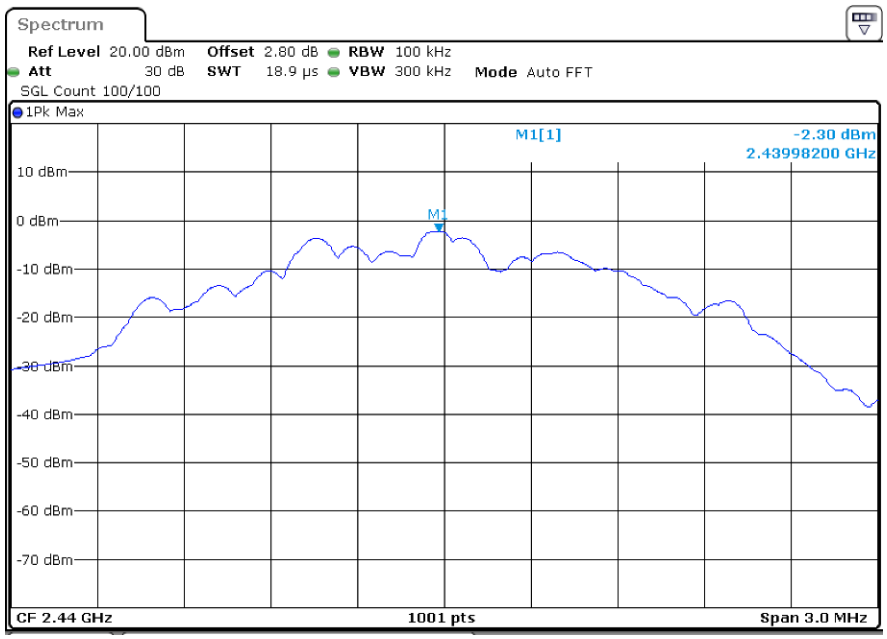
BLE 2M 2402MHz Emission



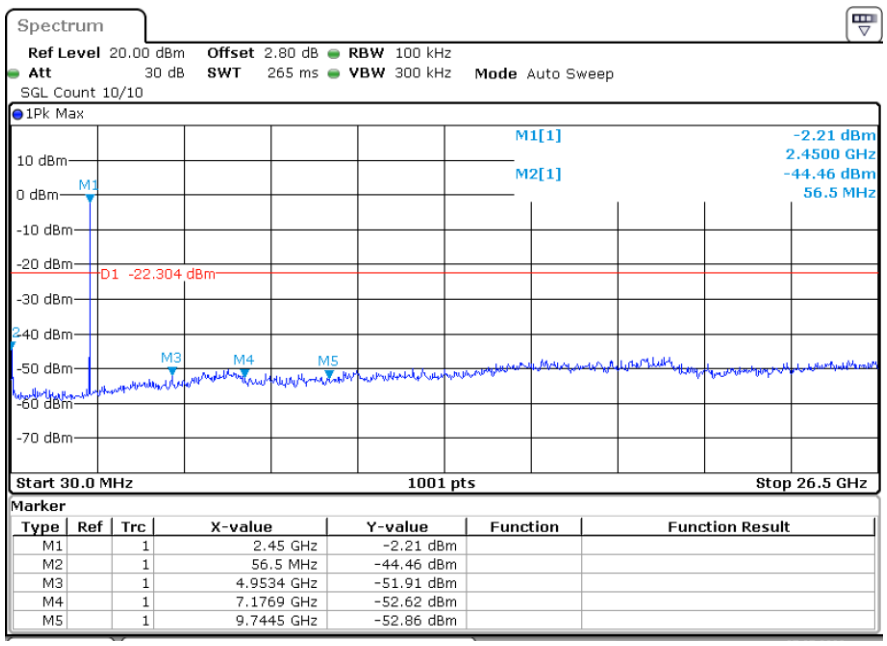
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.397 GHz	-2.23 dBm		
M2		1	20.1207 GHz	-45.70 dBm		
M3		1	4.6887 GHz	-53.57 dBm		
M4		1	7.0446 GHz	-52.62 dBm		
M5		1	9.6916 GHz	-52.38 dBm		

BLE 2M 2440MHz Ref



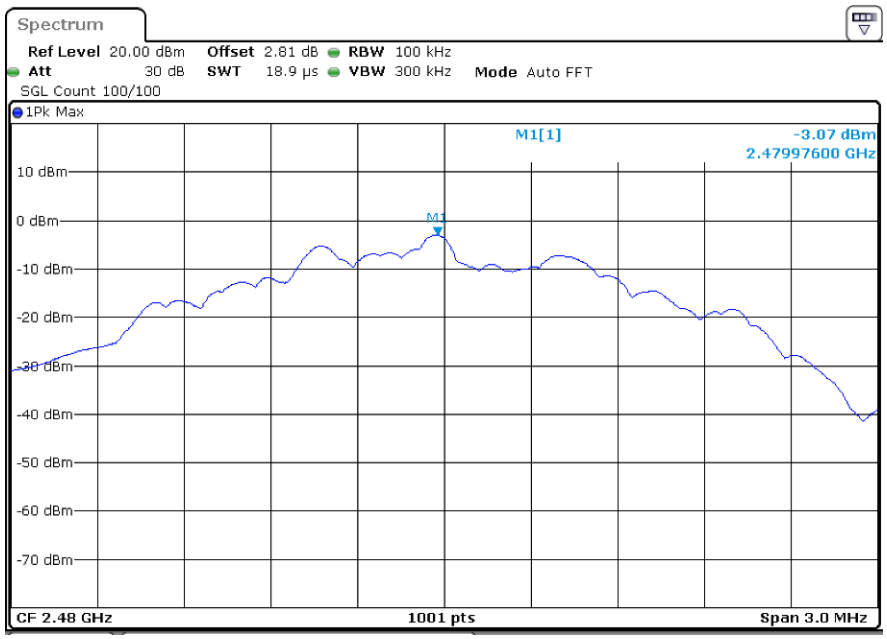
BLE 2M 2440MHz Emission



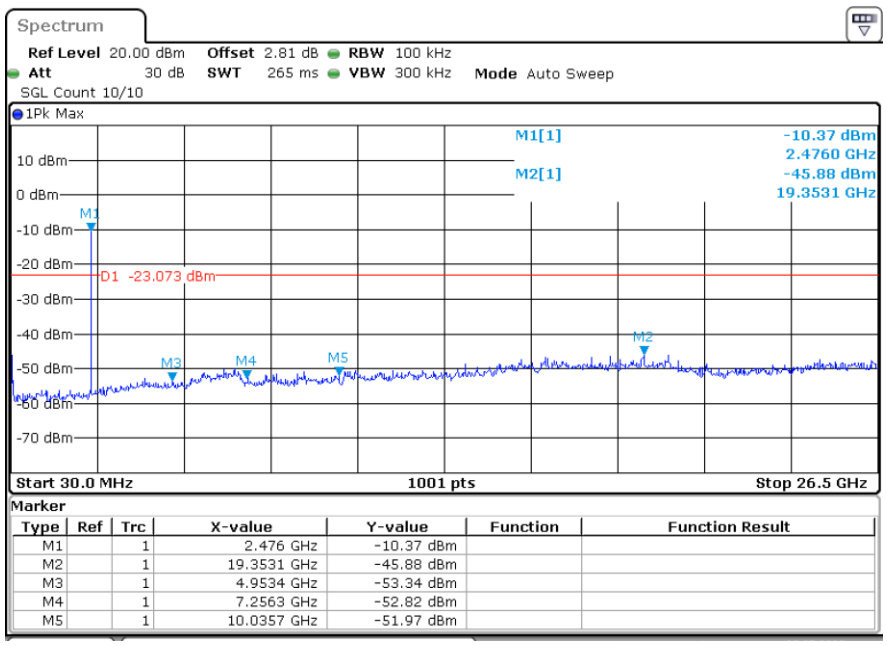
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45 GHz	-2.21 dBm		
M2		1	56.5 MHz	-44.46 dBm		
M3		1	4.9534 GHz	-51.91 dBm		
M4		1	7.1769 GHz	-52.62 dBm		
M5		1	9.7445 GHz	-52.86 dBm		

BLE 2M 2480MHz Ref



BLE 2M 2480MHz Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.476 GHz	-10.37 dBm		
M2		1	19.3531 GHz	-45.88 dBm		
M3		1	4.9534 GHz	-53.34 dBm		
M4		1	7.2563 GHz	-52.82 dBm		
M5		1	10.0357 GHz	-51.97 dBm		

7 Restrict Band

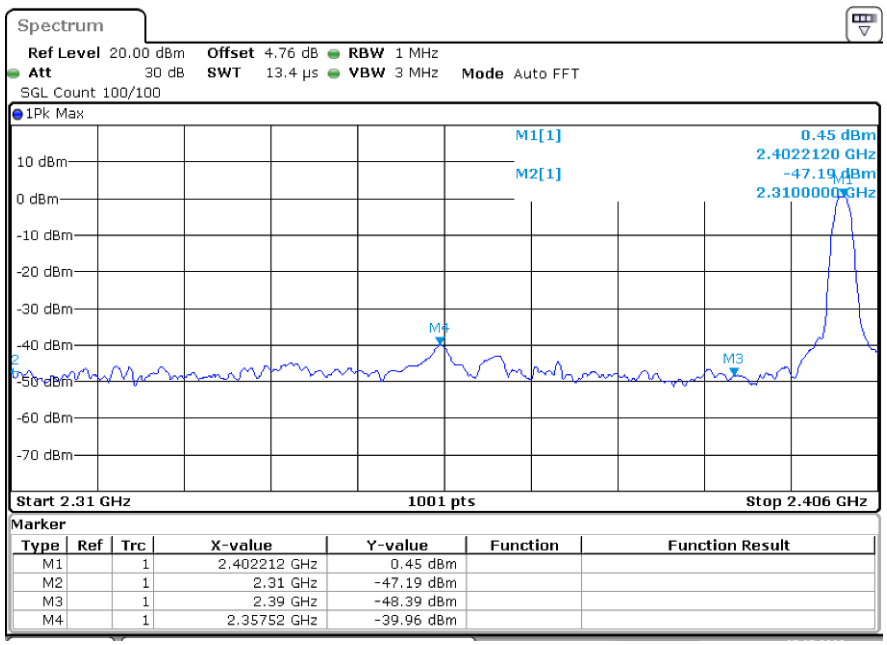
7.1 Test Result

Mode	Frequency (MHz)	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
BLE 1M	2402	2310	-47.18	2	50.08	Peak	74	Pass
BLE 1M	2402	2310	-56.56	2	40.7	Average	54	Pass
BLE 1M	2402	2357.52	-39.95	2	57.31	Peak	74	Pass
BLE 1M	2402	2340.144	-54.43	2	42.83	Average	54	Pass
BLE 1M	2402	2390	-48.39	2	48.87	Peak	74	Pass
BLE 1M	2402	2390	-56.3	2	40.96	Average	54	Pass
BLE 1M	2480	2483.5	-43.69	2	53.57	Peak	74	Pass
BLE 1M	2480	2483.5	-51.82	2	45.44	Average	54	Pass
BLE 1M	2480	2488.792	-35	2	62.26	Peak	74	Pass
BLE 1M	2480	2483.512	-51.82	2	45.44	Average	54	Pass
BLE 1M	2480	2500	-44	2	53.26	Peak	74	Pass
BLE 1M	2480	2500	-55.69	2	41.57	Average	54	Pass
BLE 2M	2402	2310	-49.74	2	47.52	Peak	74	Pass
BLE 2M	2402	2310	-55.96	2	41.3	Average	54	Pass
BLE 2M	2402	2376.144	-40.9	2	56.36	Peak	74	Pass
BLE 2M	2402	2339.856	-54.03	2	43.23	Average	54	Pass
BLE 2M	2402	2390	-49.03	2	48.23	Peak	74	Pass
BLE 2M	2402	2390	-55.84	2	41.42	Average	54	Pass
BLE 2M	2480	2483.5	-30.37	2	66.89	Peak	74	Pass
BLE 2M	2480	2483.5	-49.87	2	47.39	Average	54	Pass
BLE 2M	2480	2483.512	-30.37	2	66.89	Peak	74	Pass
BLE 2M	2480	2483.512	-49.87	2	47.39	Average	54	Pass
BLE 2M	2480	2500	-47.28	2	49.98	Peak	74	Pass
BLE 2M	2480	2500	-56.05	2	41.21	Average	54	Pass

7.2 Test Graphs

Test Graphs

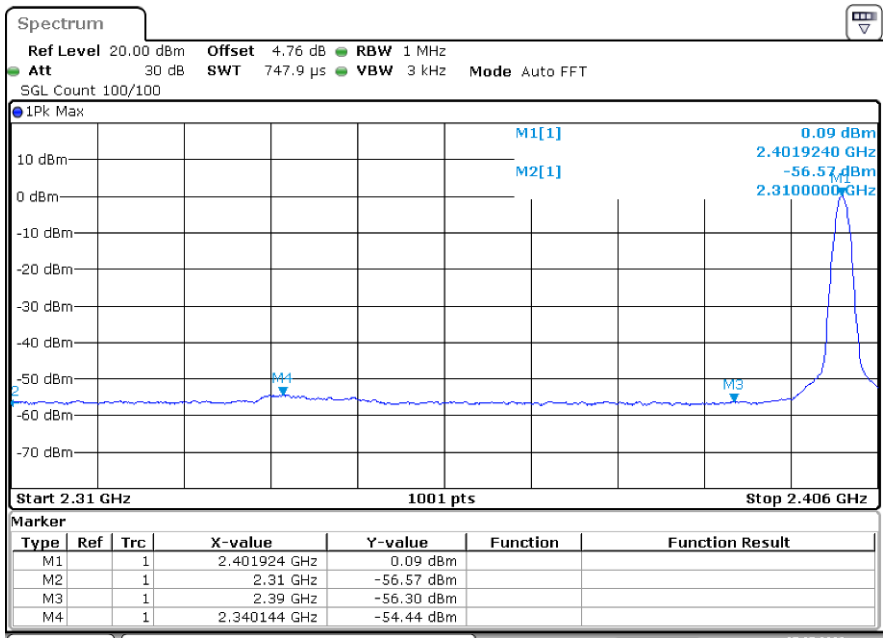
BLE 1M 2402MHz Peak



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.402212 GHz	0.45 dBm		
M2		1	2.31 GHz	-47.19 dBm		
M3		1	2.39 GHz	-48.39 dBm		
M4		1	2.35752 GHz	-39.96 dBm		

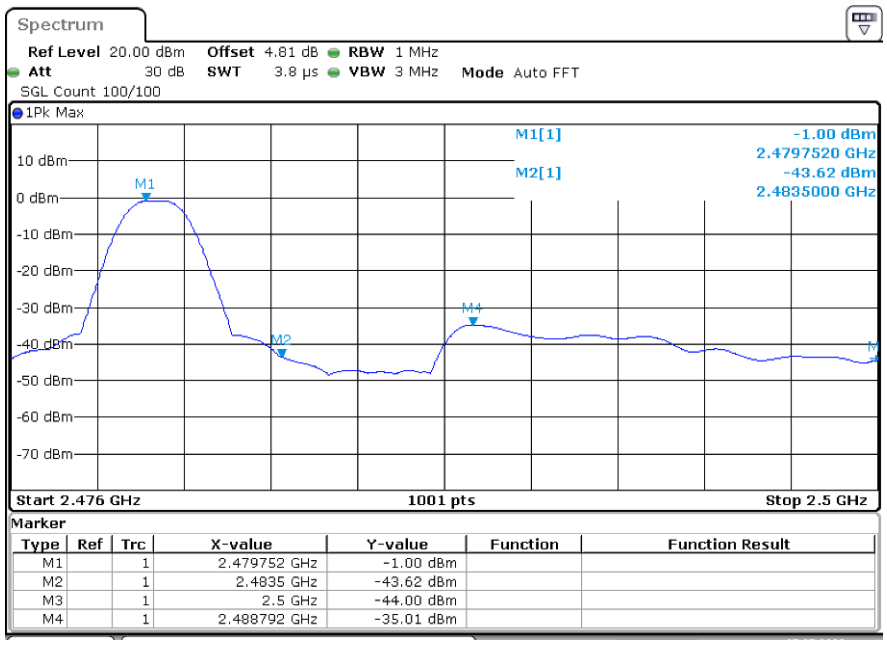
BLE 1M 2402MHz Average



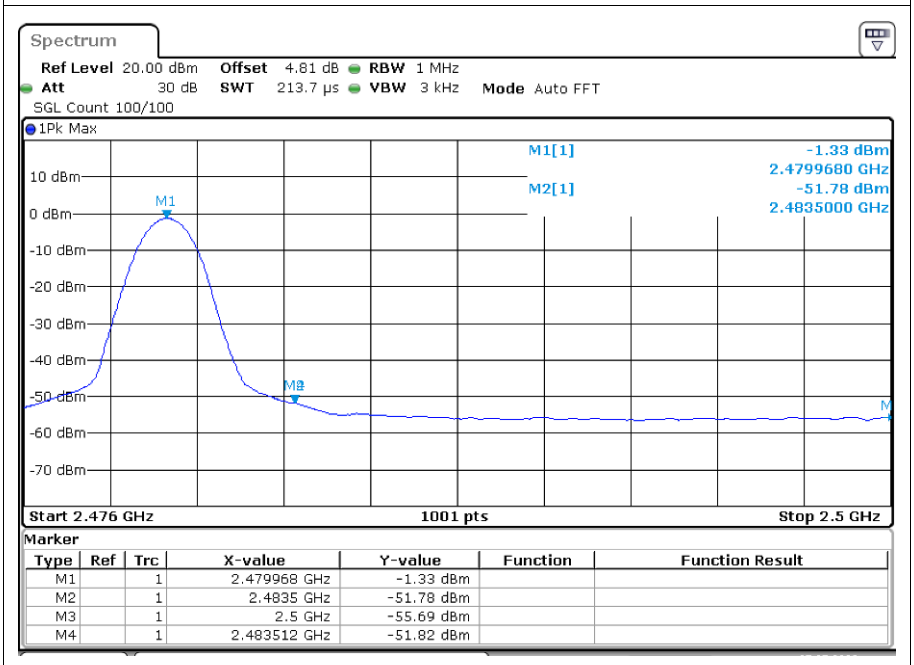
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.401924 GHz	0.09 dBm		
M2		1	2.31 GHz	-56.57 dBm		
M3		1	2.39 GHz	-56.30 dBm		
M4		1	2.340144 GHz	-54.44 dBm		

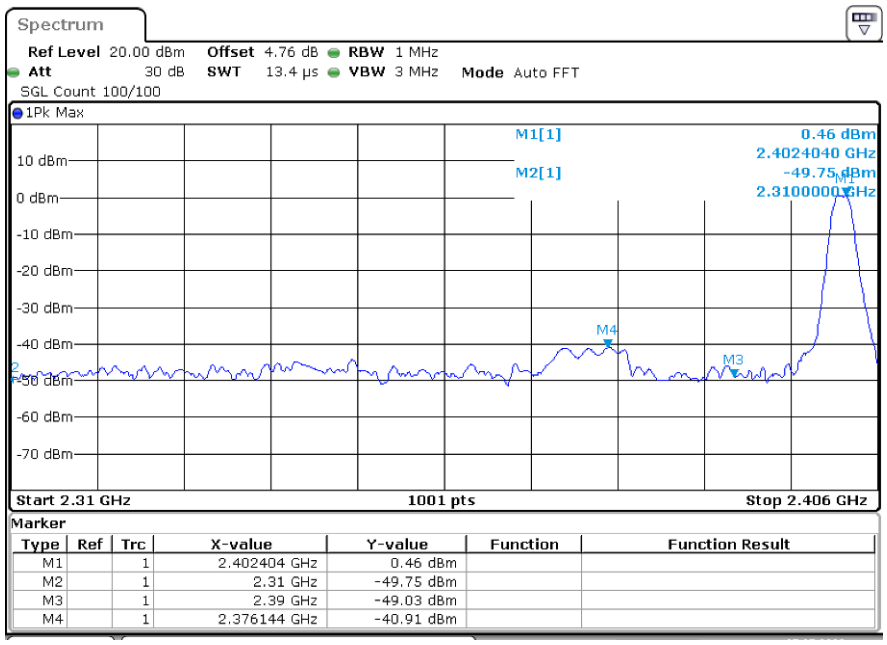
BLE 1M 2480MHz Peak



BLE 1M 2480MHz Average



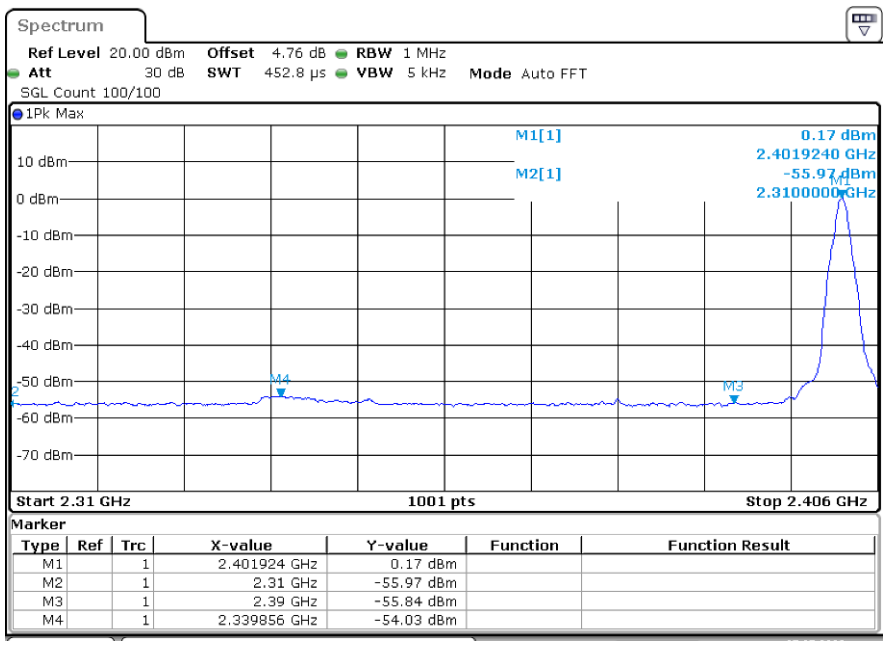
BLE 2M 2402MHz Peak



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.402404 GHz	0.46 dBm		
M2		1	2.31 GHz	-49.75 dBm		
M3		1	2.39 GHz	-49.03 dBm		
M4		1	2.376144 GHz	-40.91 dBm		

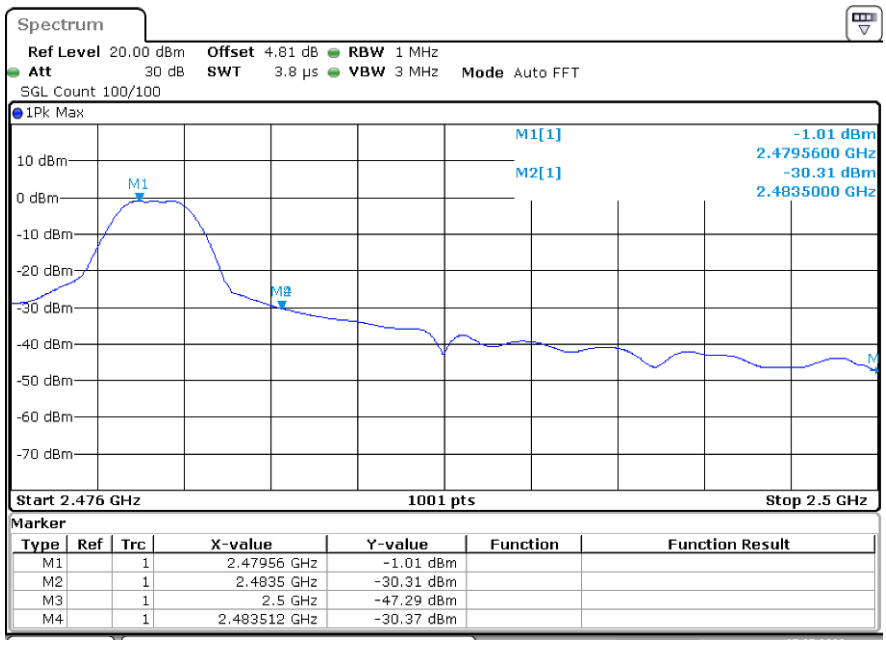
BLE 2M 2402MHz Average



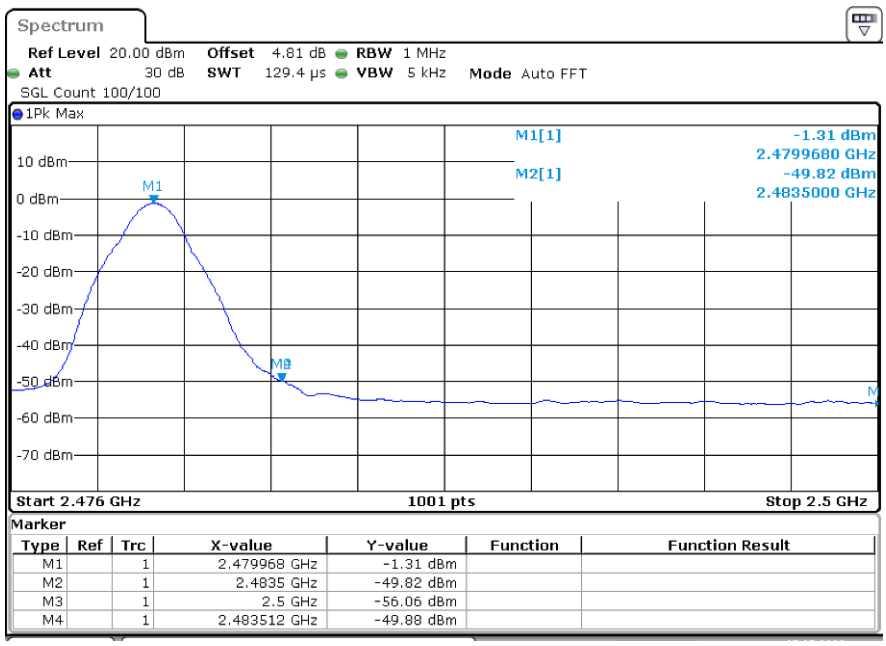
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.401924 GHz	0.17 dBm		
M2		1	2.31 GHz	-55.97 dBm		
M3		1	2.39 GHz	-55.84 dBm		
M4		1	2.339856 GHz	-54.03 dBm		

BLE 2M 2480MHz Peak



BLE 2M 2480MHz Average



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