



Appendix D

RF Test Data for B1WIFI(Conducted Measurement)

Product Name: Carplay

Trade Mark: N/A

Test Model: C03

Environmental Conditions

Temperature:	25.3℃
Relative Humidity:	52.5%
ATM Pressure:	101Kpa
Test Engineer:	Emiya lin
Supervised by:	Simba Haung



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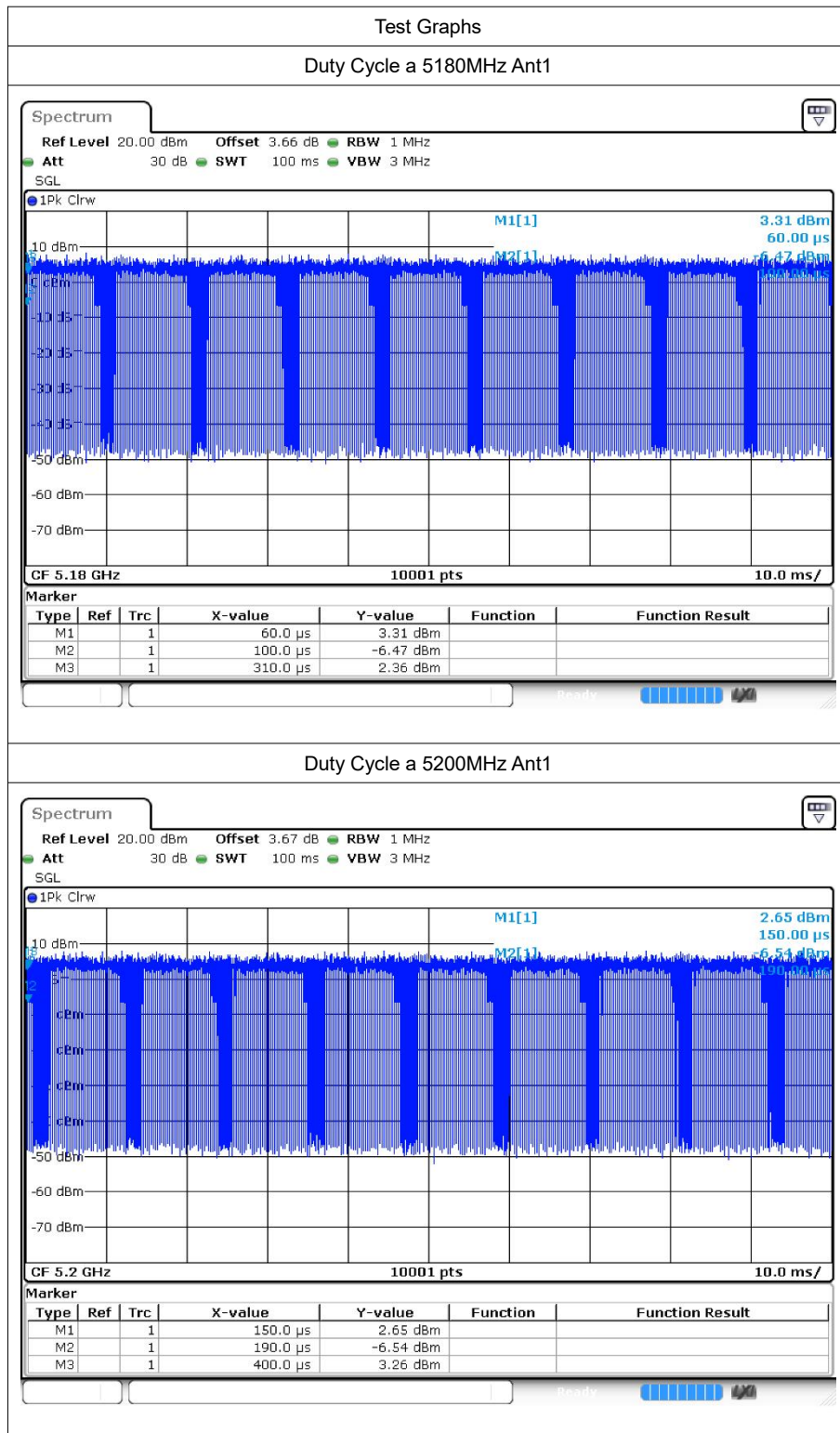
1 Duty Cycle

1.1 Test Result

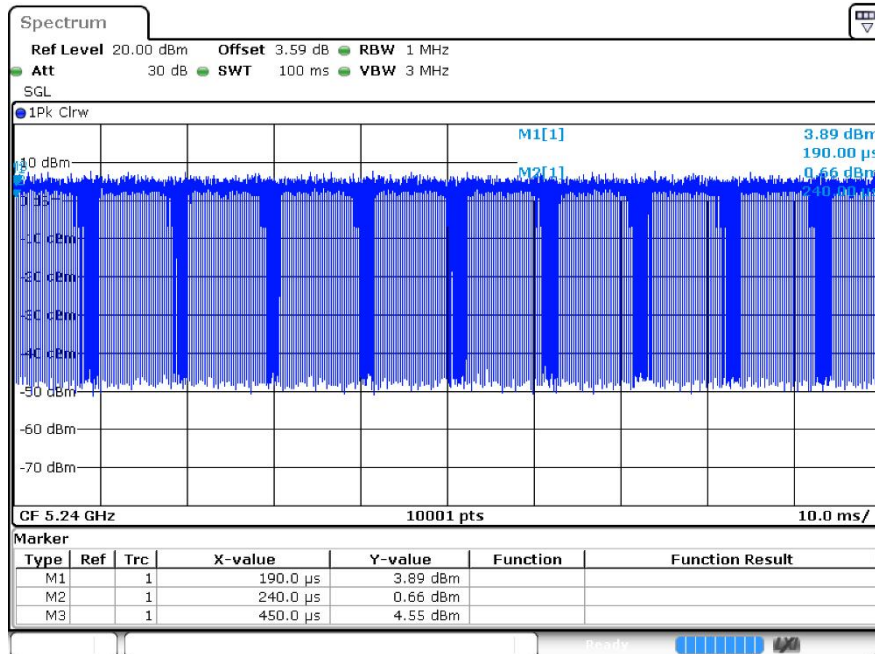
Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
a	5180	Ant1	87.05	0.6	4.76
a	5200	Ant1	87.08	0.6	4.76
a	5240	Ant1	86.91	0.61	4.76
n20	5180	Ant1	87.6	0.57	4.35
n20	5200	Ant1	87.64	0.57	4.35
n20	5240	Ant1	87.64	0.57	4.35
n40	5190	Ant1	88.13	0.55	4
n40	5230	Ant1	88.13	0.55	4.17



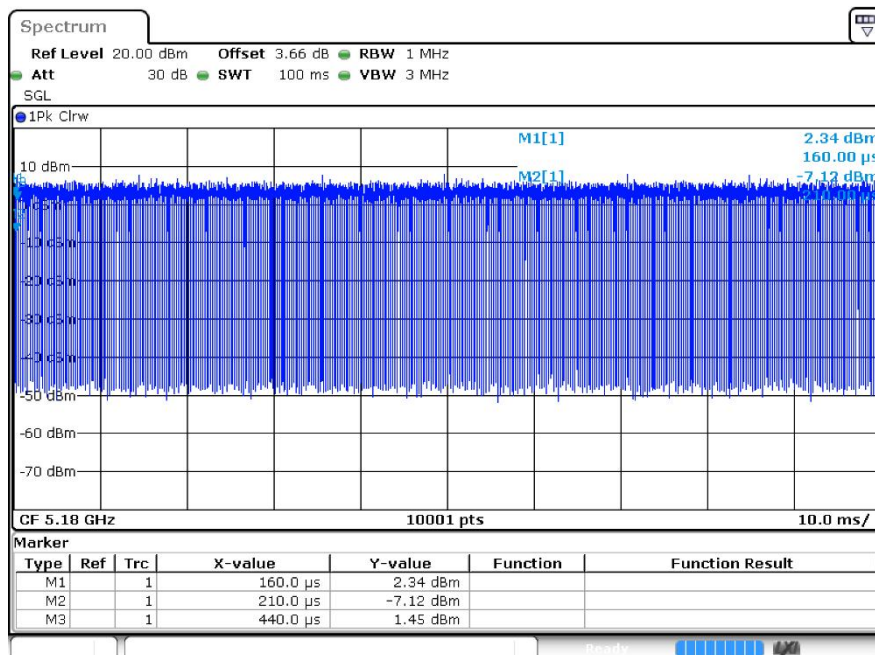
1.2 Test Graphs



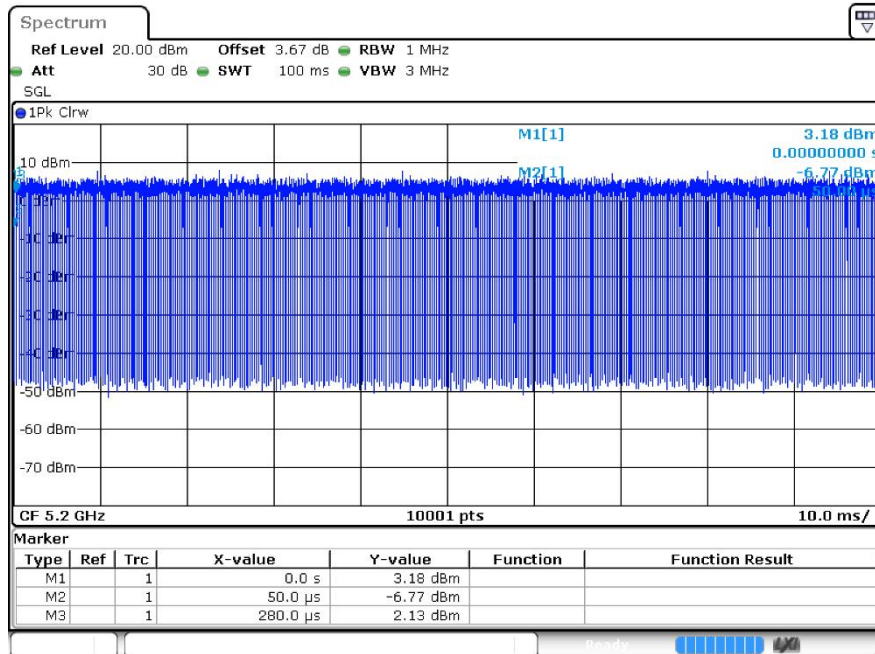
Duty Cycle a 5240MHz Ant1



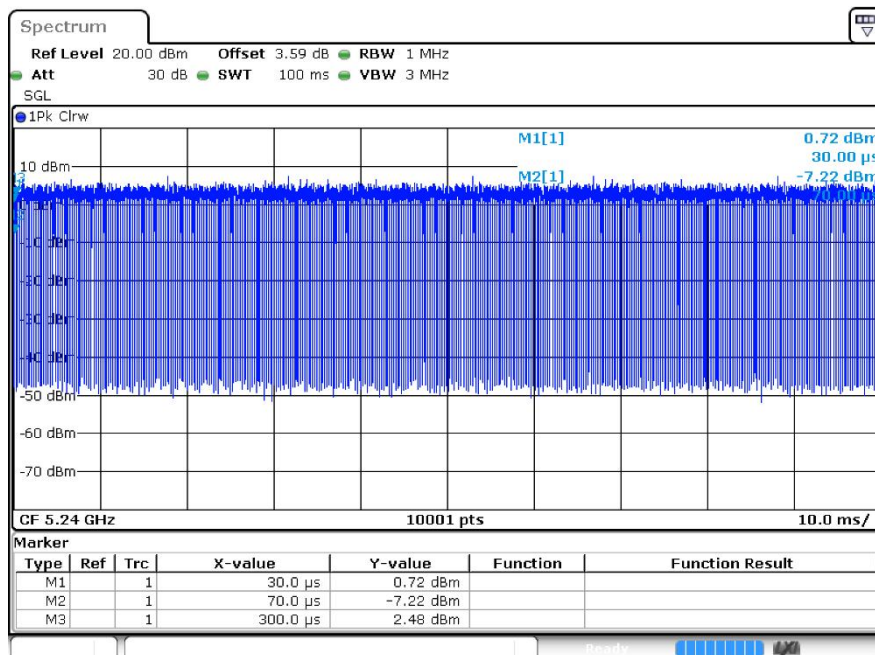
Duty Cycle n20 5180MHz Ant1



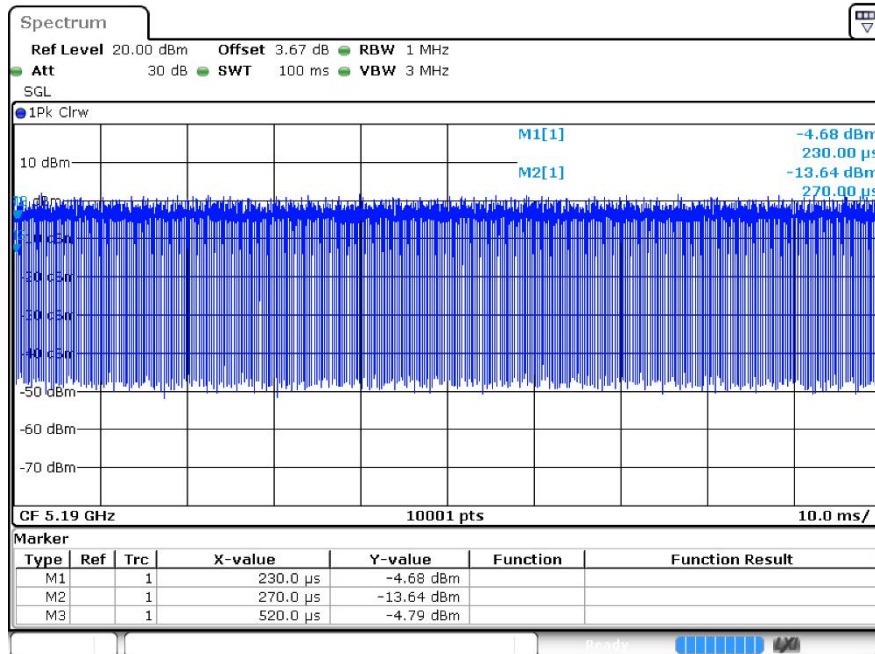
Duty Cycle n20 5200MHz Ant1



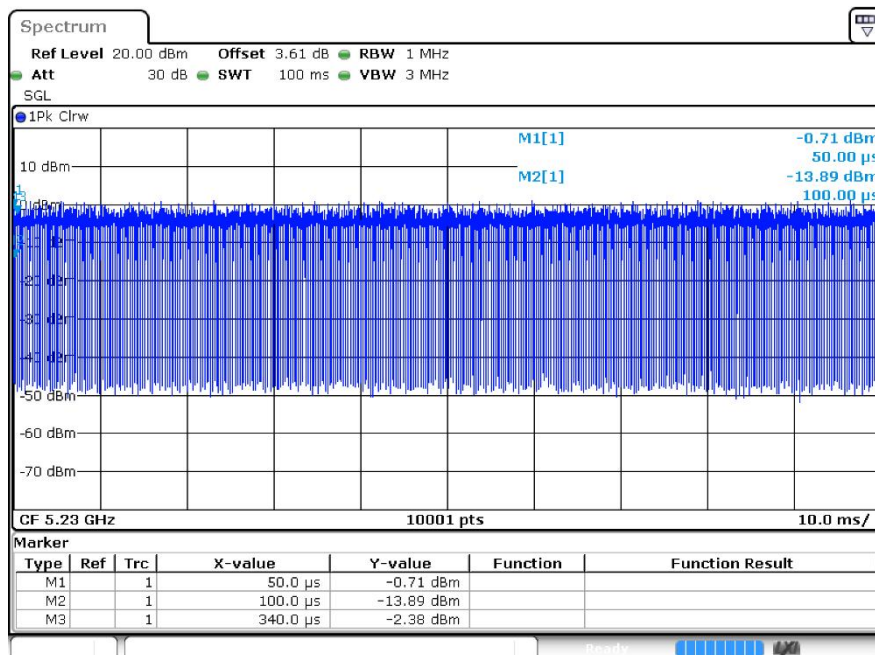
Duty Cycle n20 5240MHz Ant1



Duty Cycle n40 5190MHz Ant1



Duty Cycle n40 5230MHz Ant1



2 Maximum Conducted Output Power

2.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
a	5180	Ant1	14.43	24	Pass
a	5200	Ant1	14.38	24	Pass
a	5240	Ant1	14.01	24	Pass
n20	5180	Ant1	13.87	24	Pass
n20	5200	Ant1	13.8	24	Pass
n20	5240	Ant1	13.53	24	Pass
n40	5190	Ant1	13.77	24	Pass
n40	5230	Ant1	13.43	24	Pass

Note:

The duty factor has been compensated into the result.

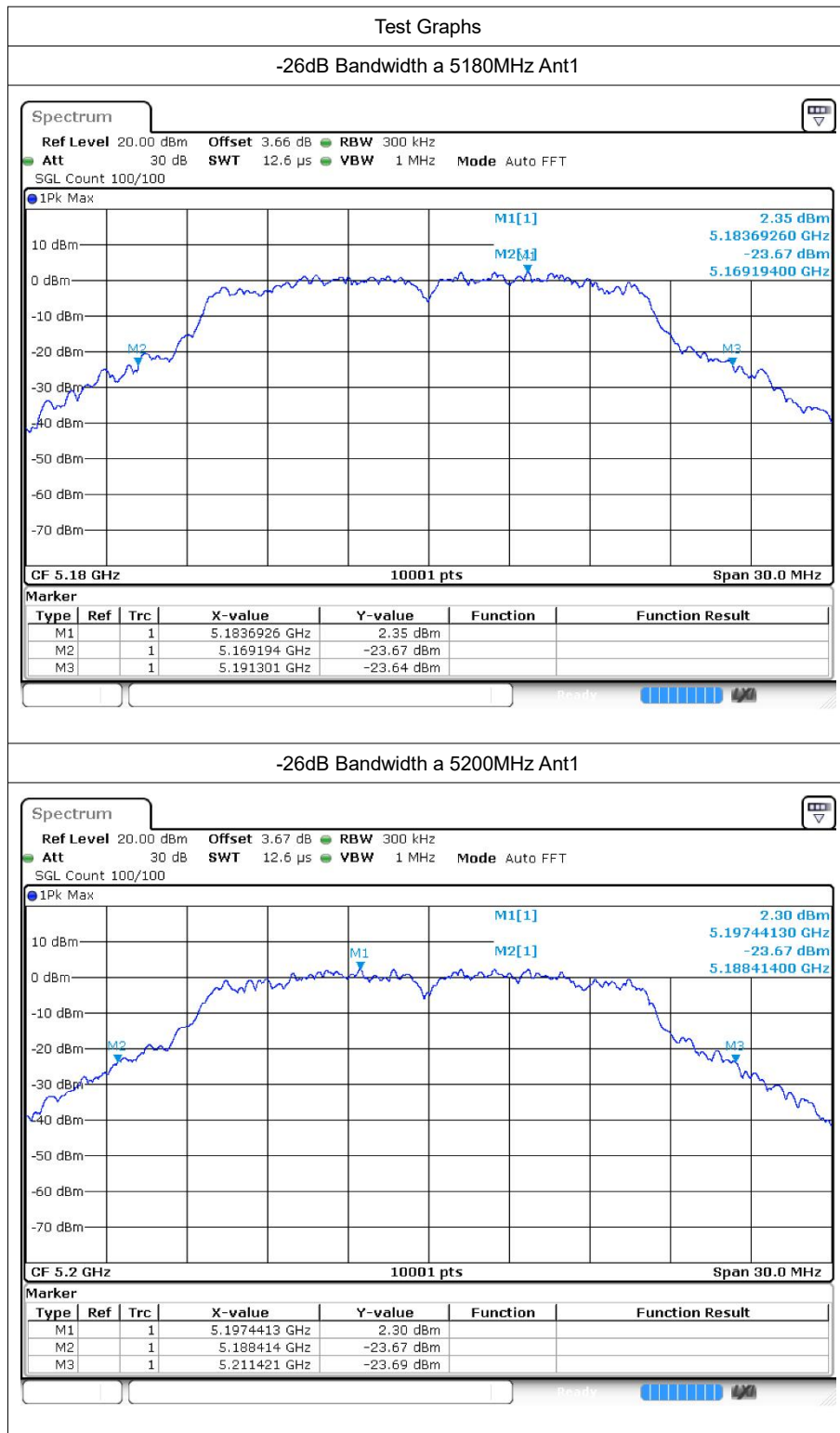


3 -26dB Bandwidth

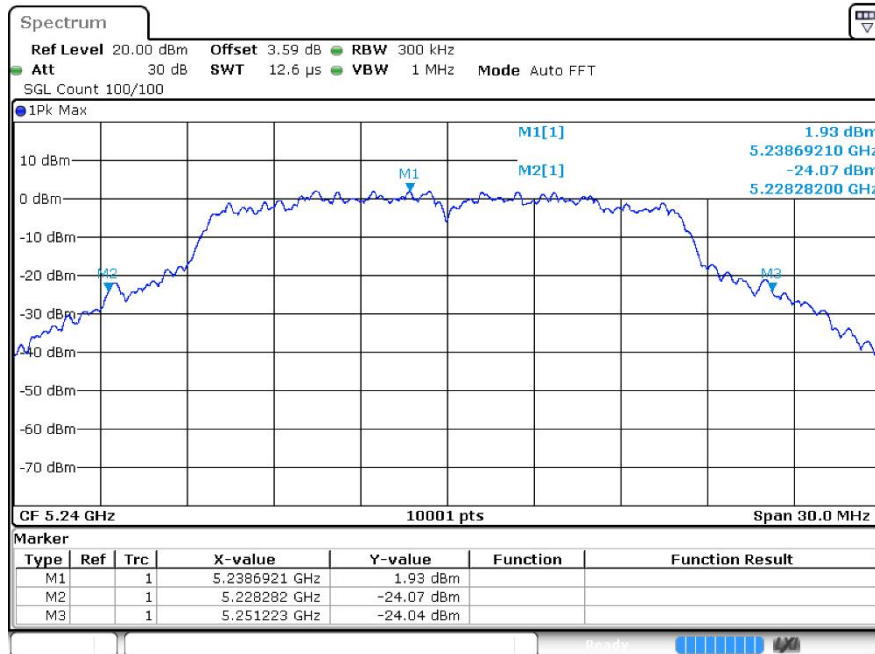
3.1 Test Result

Mode	Frequency (MHz)	Antenna	-26 dB Bandwidth (MHz)	Limit -26 dB Bandwidth (MHz)	Verdict
a	5180	Ant1	22.107	0.5	Pass
a	5200	Ant1	23.007	0.5	Pass
a	5240	Ant1	22.941	0.5	Pass
n20	5180	Ant1	22.452	0.5	Pass
n20	5200	Ant1	23.19	0.5	Pass
n20	5240	Ant1	22.65	0.5	Pass
n40	5190	Ant1	42.792	0.5	Pass
n40	5230	Ant1	42.018	0.5	Pass

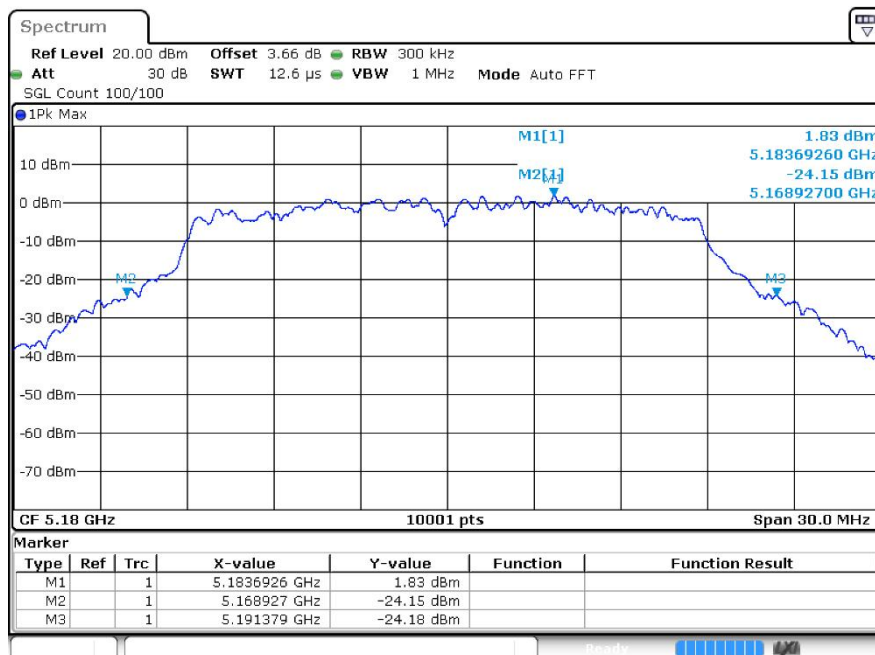
3.2 Test Graphs



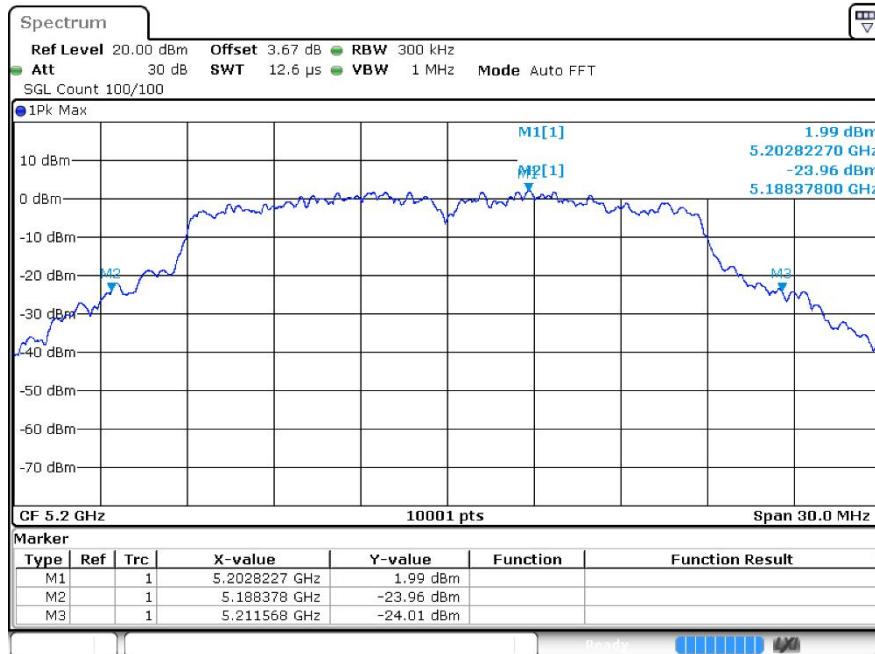
-26dB Bandwidth a 5240MHz Ant1



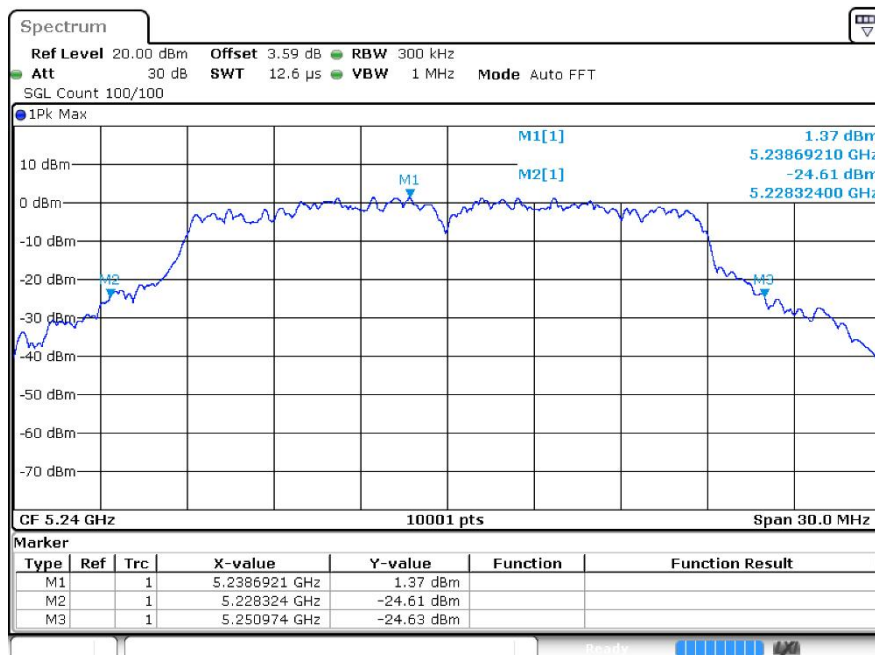
-26dB Bandwidth n20 5180MHz Ant1



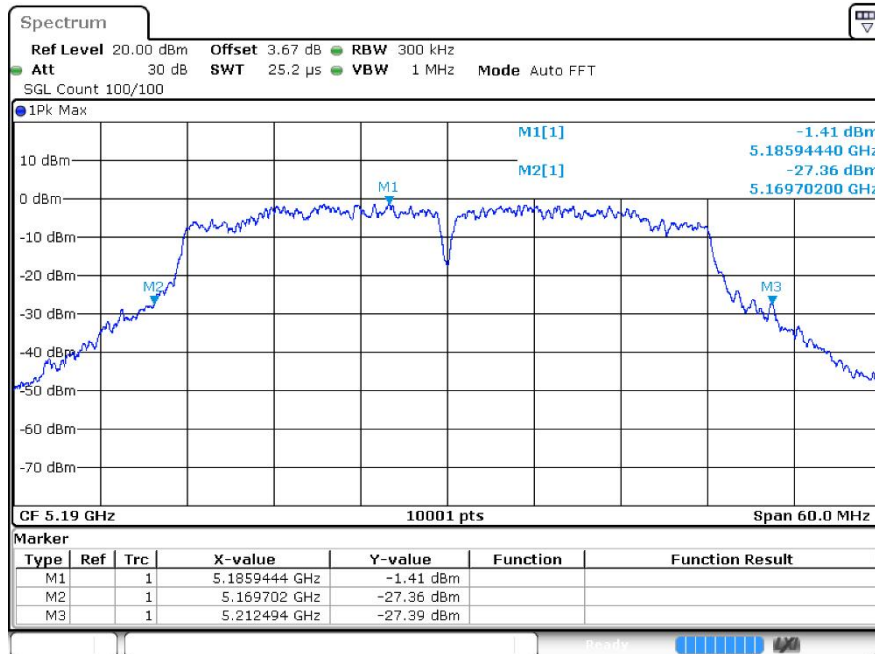
-26dB Bandwidth n20 5200MHz Ant1



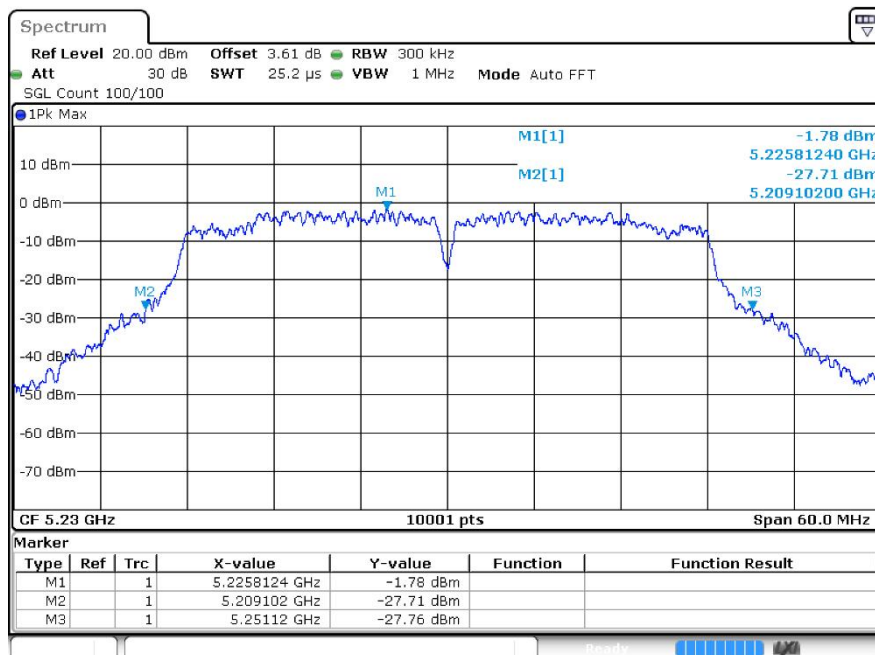
-26dB Bandwidth n20 5240MHz Ant1



-26dB Bandwidth n40 5190MHz Ant1



-26dB Bandwidth n40 5230MHz Ant1



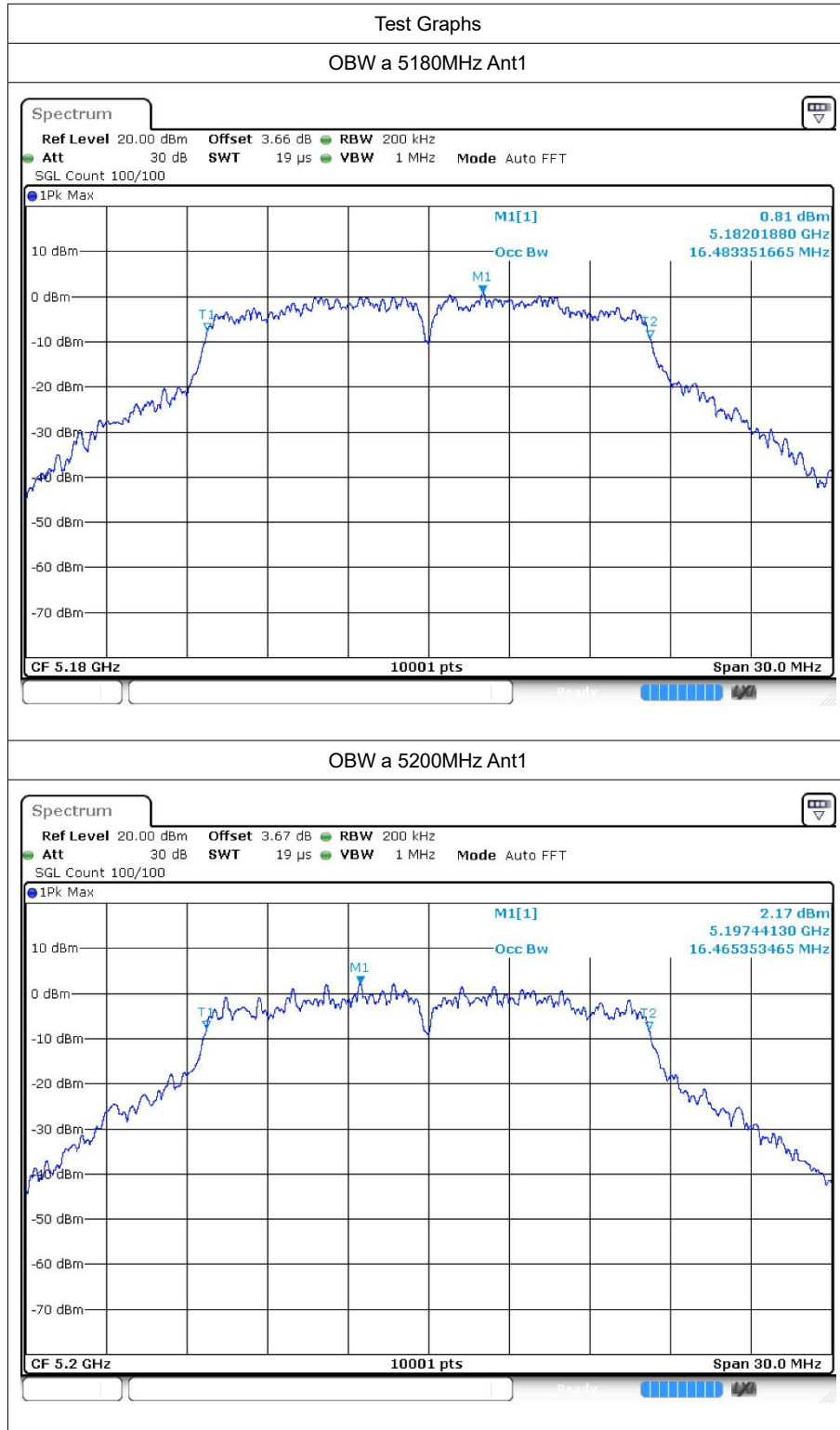


4 Occupied Channel Bandwidth

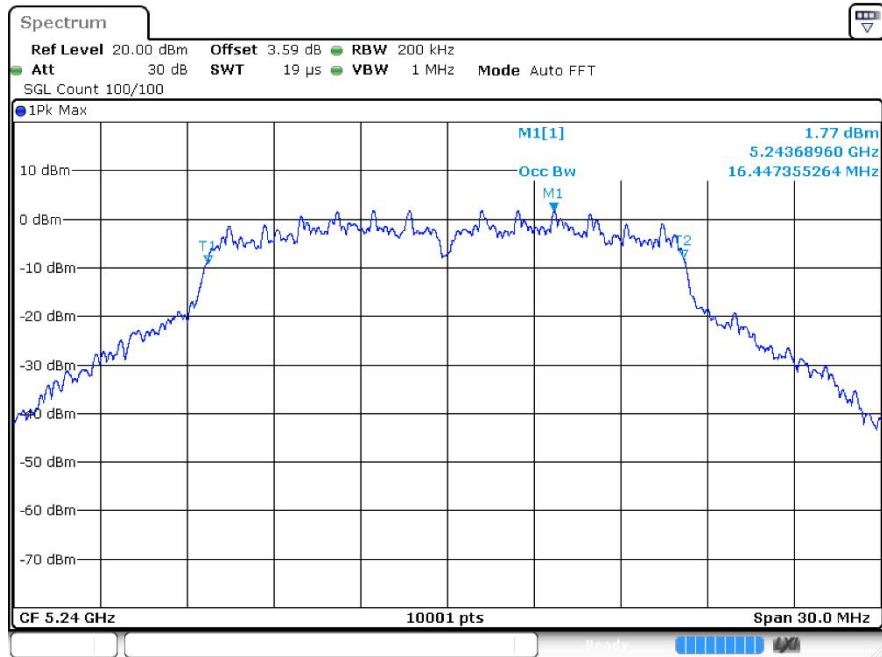
4.1 Test Result

Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
a	5180	Ant1	16.483
a	5200	Ant1	16.465
a	5240	Ant1	16.447
n20	5180	Ant1	17.563
n20	5200	Ant1	17.575
n20	5240	Ant1	17.68
n40	5190	Ant1	35.966
n40	5230	Ant1	36.146

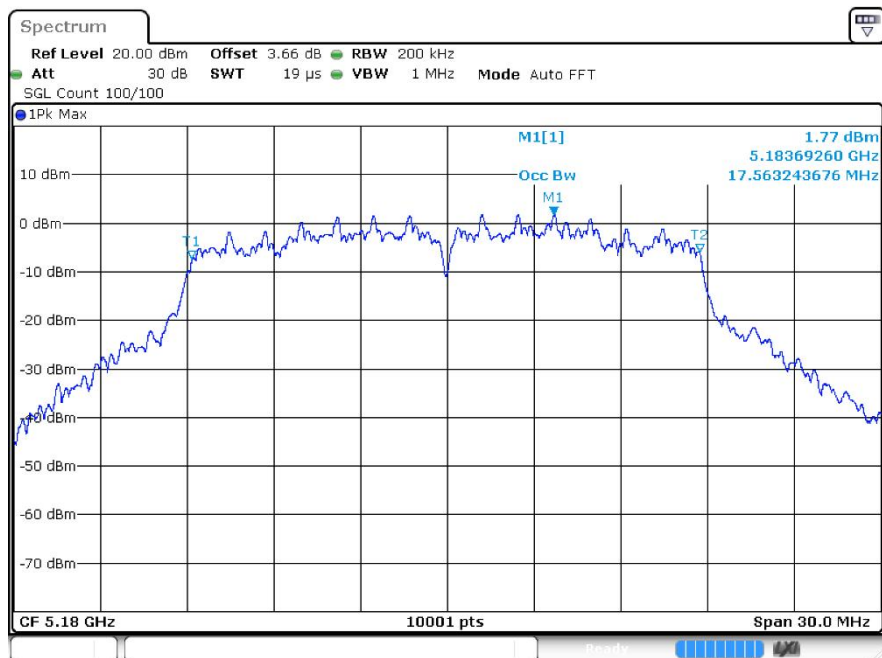
4.2 Test Graphs



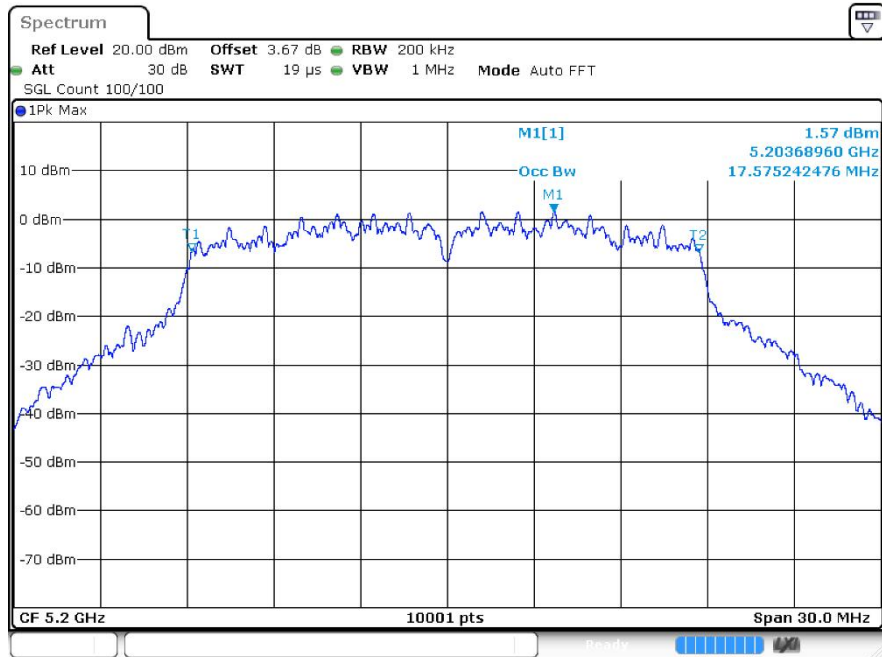
OBW a 5240MHz Ant1



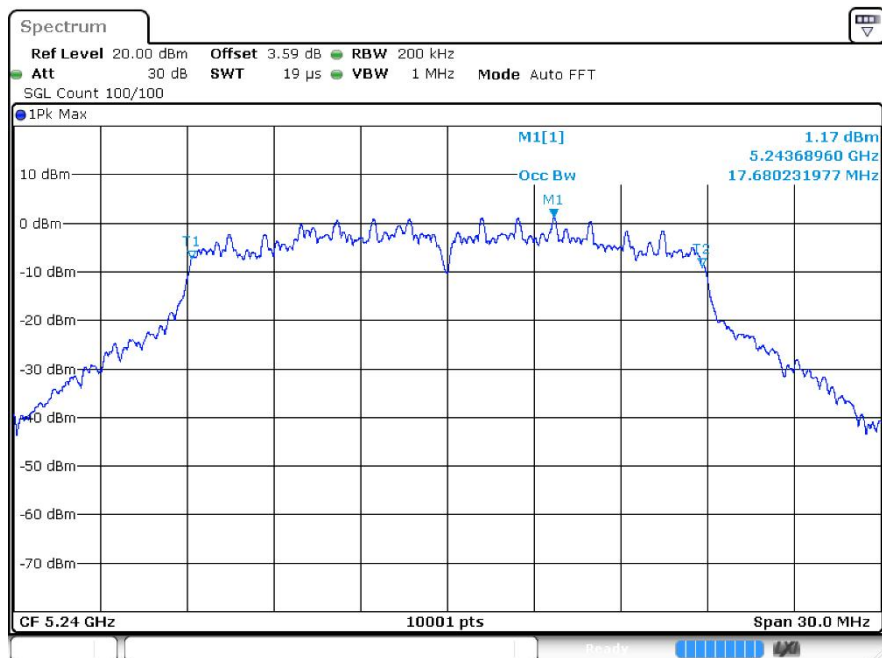
OBW n20 5180MHz Ant1



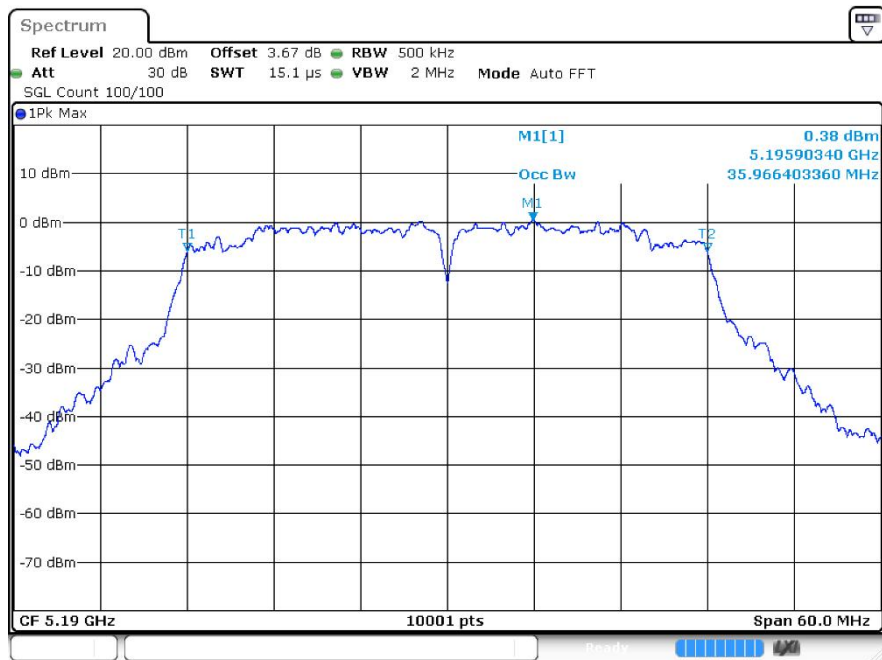
OBW n20 5200MHz Ant1



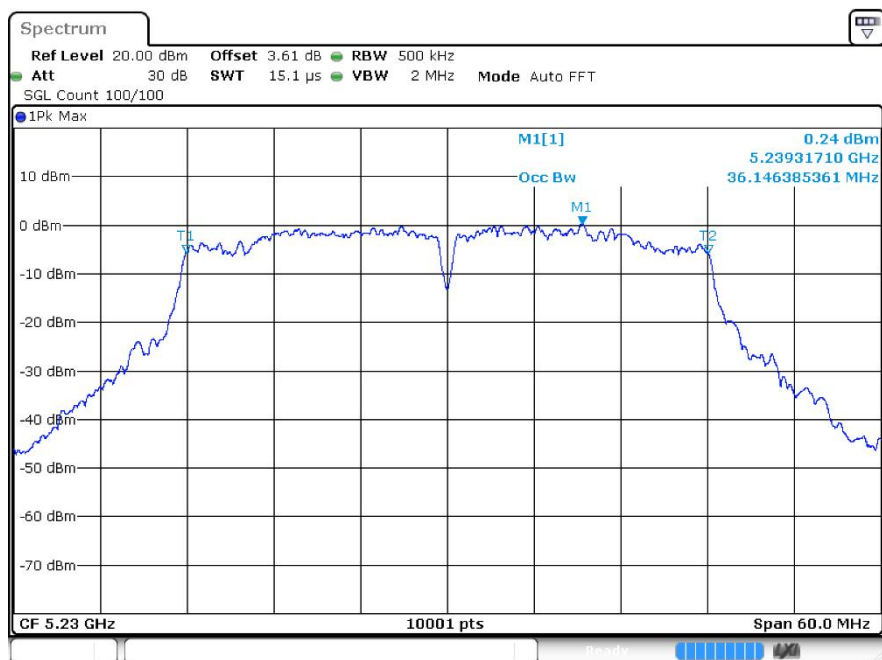
OBW n20 5240MHz Ant1



OBW n40 5190MHz Ant1



OBW n40 5230MHz Ant1

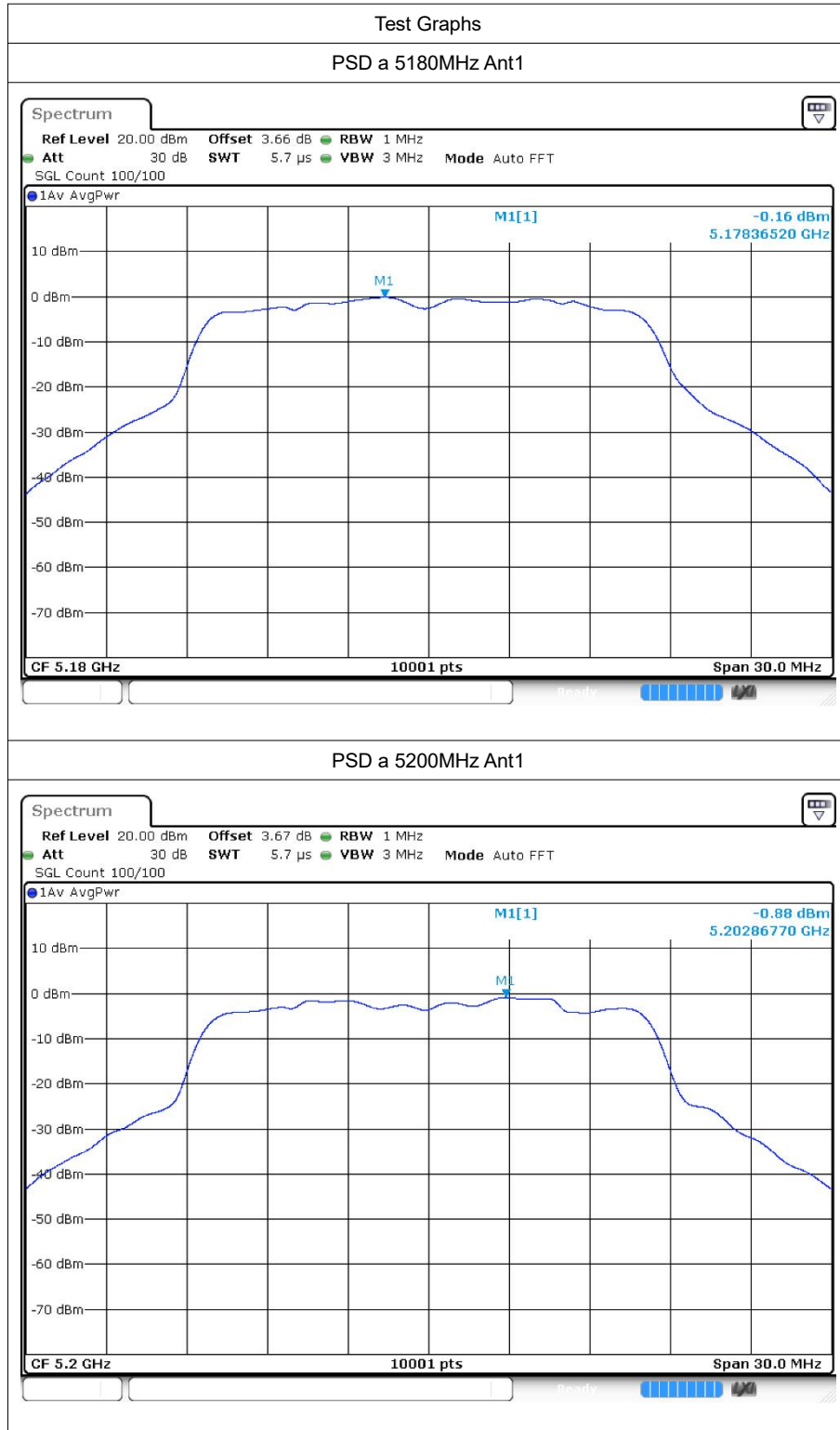


5 Maximum Power Spectral Density Level

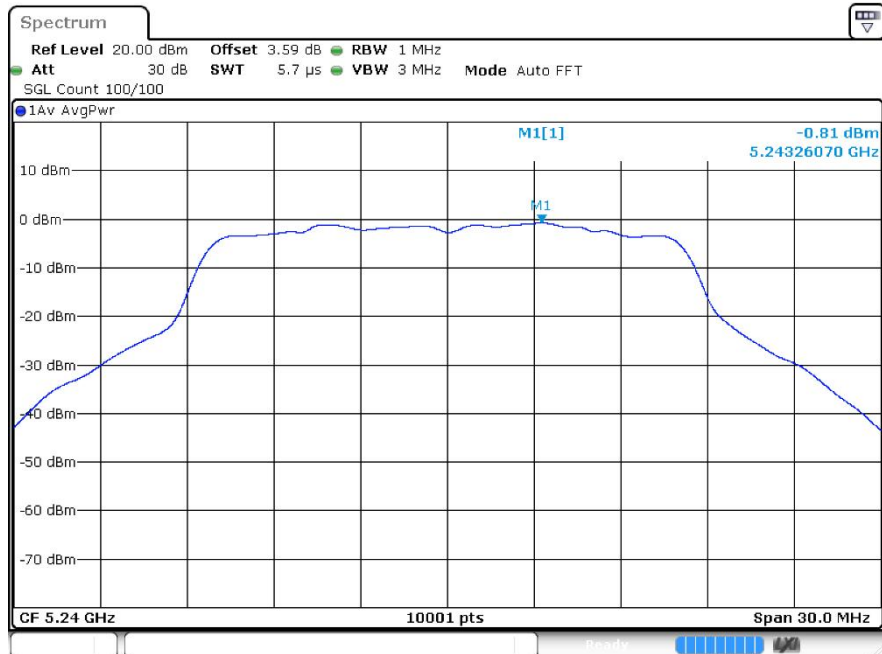
5.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
a	5180	Ant1	-0.16	0.6	0.44	11	Pass
a	5200	Ant1	-0.88	0.6	-0.28	11	Pass
a	5240	Ant1	-0.81	0.61	-0.2	11	Pass
n20	5180	Ant1	-0.83	0.57	-0.26	11	Pass
n20	5200	Ant1	-0.13	0.57	0.44	11	Pass
n20	5240	Ant1	-1.42	0.57	-0.85	11	Pass
n40	5190	Ant1	-3.94	0.55	-3.39	11	Pass
n40	5230	Ant1	-4.99	0.55	-4.44	11	Pass

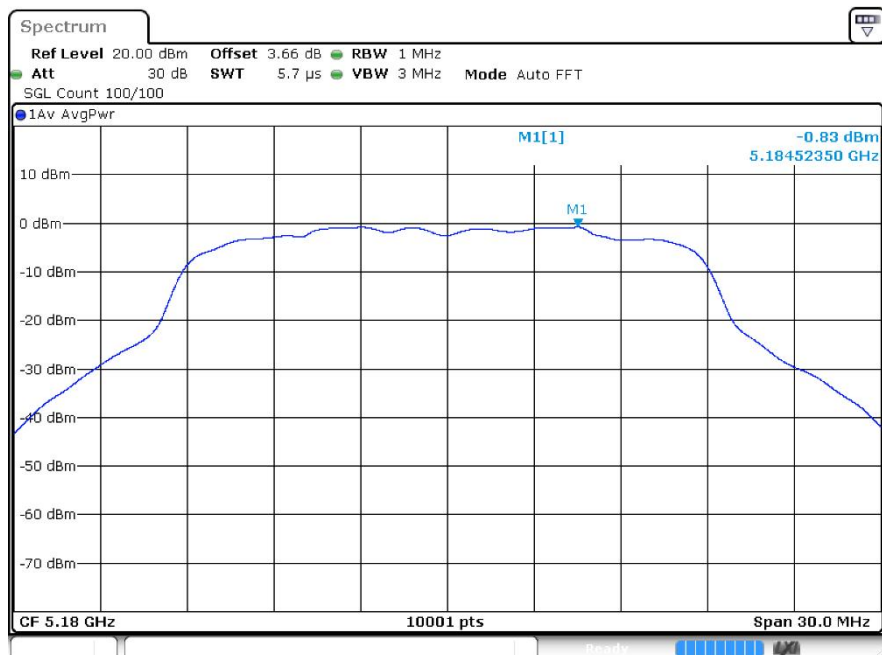
5.2 Test Graphs



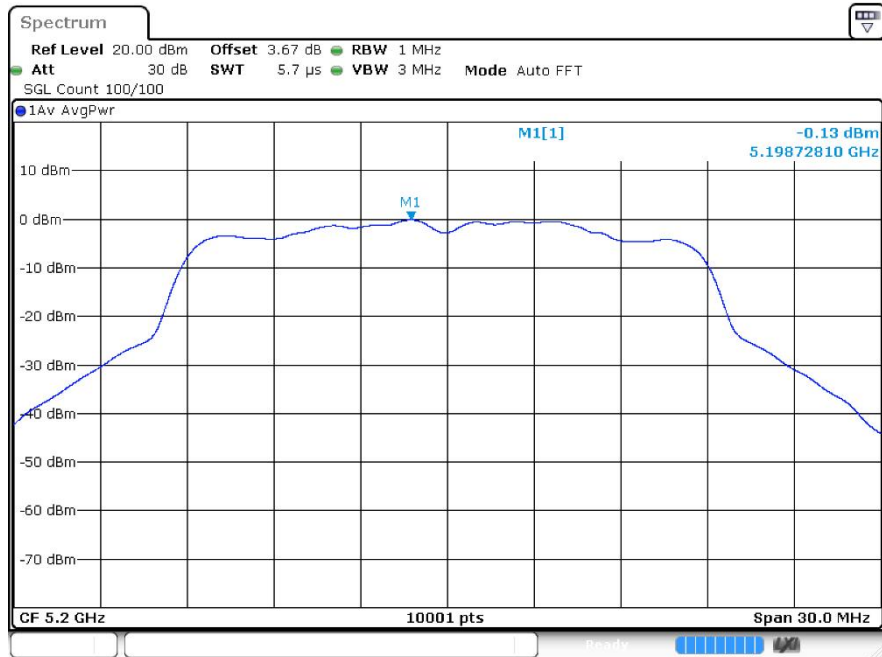
PSD a 5240MHz Ant1



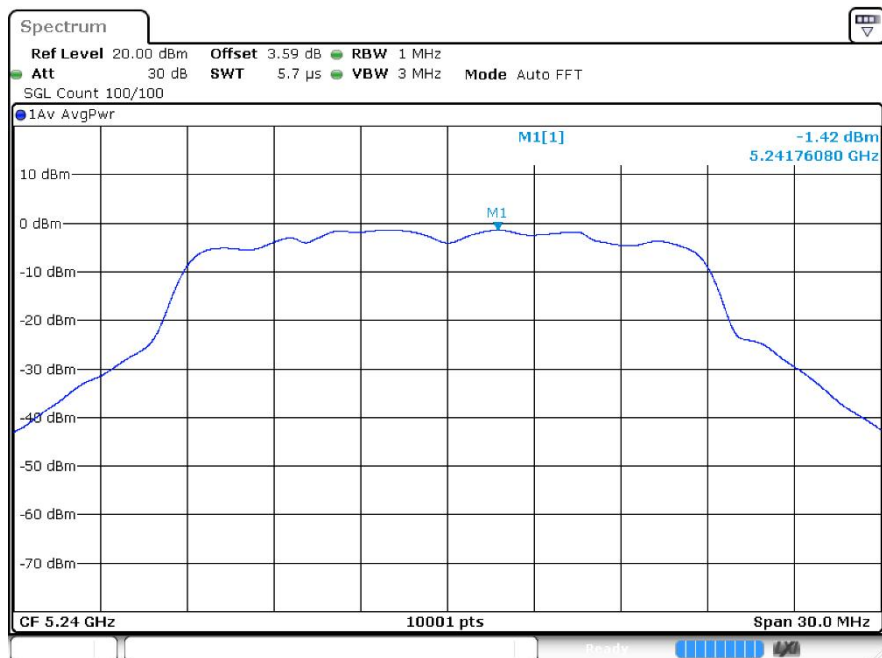
PSD n20 5180MHz Ant1



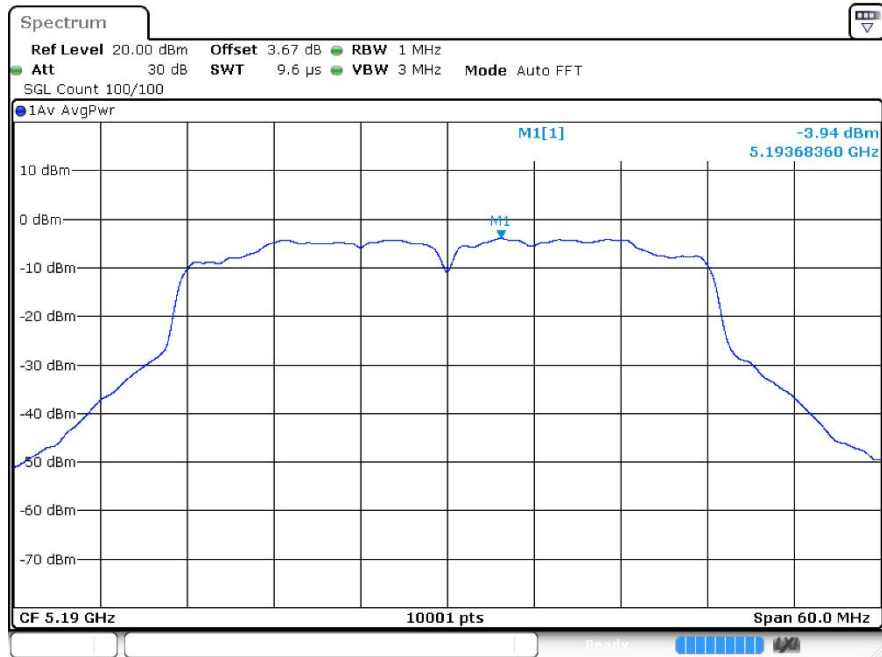
PSD n20 5200MHz Ant1



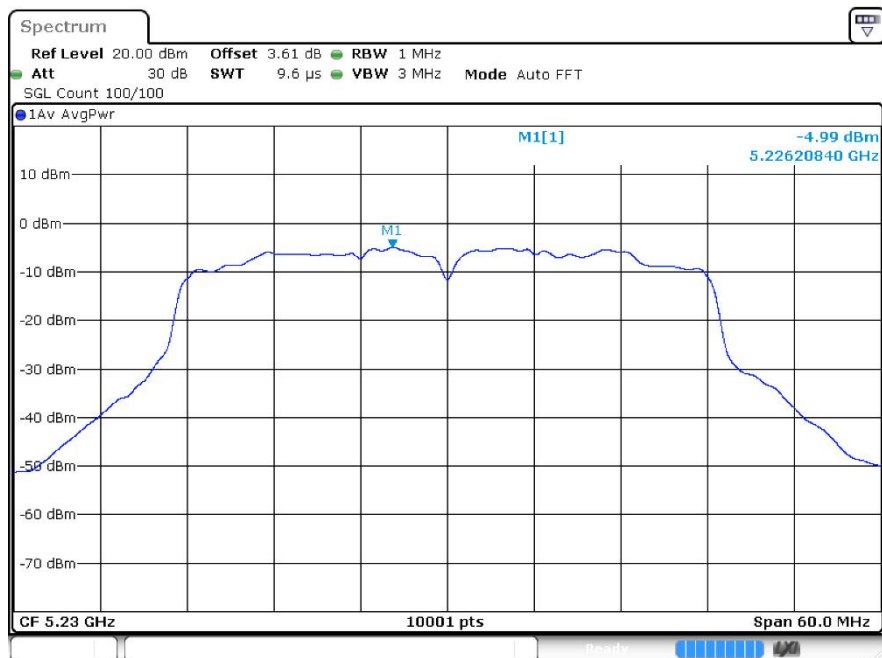
PSD n20 5240MHz Ant1



PSD n40 5190MHz Ant1



PSD n40 5230MHz Ant1





6 Frequency Stability

6.1 Test Result

Condition	Mode	Frequency (MHz)	Antenna	Measured Frequency (MHz)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
20C 102V	a	5180	Ant1	5179.96	-40000	-7.72	25	Pass
20C 120V	a	5180	Ant1	5179.92	-80000	-15.44	25	Pass
20C 138V	a	5180	Ant1	5179.94	-60000	-11.58	25	Pass
-20C 120V	a	5180	Ant1	5179.94	-60000	-11.58	25	Pass
-10C 120V	a	5180	Ant1	5179.94	-60000	-11.58	25	Pass
0C 120V	a	5180	Ant1	5179.96	-40000	-7.72	25	Pass
10C 120V	a	5180	Ant1	5179.92	-80000	-15.44	25	Pass
30C 120V	a	5180	Ant1	5179.98	-20000	-3.86	25	Pass
40C 120V	a	5180	Ant1	5179.96	-40000	-7.72	25	Pass
50C 120V	a	5180	Ant1	5179.98	-20000	-3.86	25	Pass
20C 102V	a	5200	Ant1	5199.96	-40000	-7.69	25	Pass
20C 120V	a	5200	Ant1	5199.96	-40000	-7.69	25	Pass
20C 138V	a	5200	Ant1	5199.96	-40000	-7.69	25	Pass
-20C 120V	a	5200	Ant1	5199.96	-40000	-7.69	25	Pass
-10C 120V	a	5200	Ant1	5199.94	-60000	-11.54	25	Pass
0C 120V	a	5200	Ant1	5199.96	-40000	-7.69	25	Pass
10C 120V	a	5200	Ant1	5199.96	-40000	-7.69	25	Pass
30C 120V	a	5200	Ant1	5199.94	-60000	-11.54	25	Pass
40C 120V	a	5200	Ant1	5199.94	-60000	-11.54	25	Pass
20C 102V	a	5200	Ant1	5199.96	-40000	-7.69	25	Pass
20C 102V	a	5240	Ant1	5239.96	-40000	-7.63	25	Pass
20C 120V	a	5240	Ant1	5239.96	-40000	-7.63	25	Pass
20C 138V	a	5240	Ant1	5239.94	-60000	-11.45	25	Pass
-20C 120V	a	5240	Ant1	5239.94	-60000	-11.45	25	Pass
-10C 120V	a	5240	Ant1	5239.92	-80000	-15.27	25	Pass
0C 120V	a	5240	Ant1	5239.94	-60000	-11.45	25	Pass
10C 120V	a	5240	Ant1	5239.96	-40000	-7.63	25	Pass
30C 120V	a	5240	Ant1	5239.96	-40000	-7.63	25	Pass
40C 120V	a	5240	Ant1	5239.94	-60000	-11.45	25	Pass
50C 120V	a	5240	Ant1	5239.92	-80000	-15.27	25	Pass
20C 102V	n20	5180	Ant1	5179.94	-60000	-11.58	25	Pass
20C 120V	n20	5180	Ant1	5179.96	-40000	-7.72	25	Pass
20C 138V	n20	5180	Ant1	5179.94	-60000	-11.58	25	Pass
-20C 120V	n20	5180	Ant1	5179.94	-60000	-11.58	25	Pass
-10C 120V	n20	5180	Ant1	5179.98	-20000	-3.86	25	Pass



0C 120V	n20	5180	Ant1	5179.96	-40000	-7.72	25	Pass
10C 120V	n20	5180	Ant1	5179.94	-60000	-11.58	25	Pass
30C 120V	n20	5180	Ant1	5179.96	-40000	-7.72	25	Pass
40C 120V	n20	5180	Ant1	5179.96	-40000	-7.72	25	Pass
50C 120V	n20	5180	Ant1	5179.94	-60000	-11.58	25	Pass
20C 102V	n20	5200	Ant1	5199.94	-60000	-11.54	25	Pass
20C 120V	n20	5200	Ant1	5199.96	-40000	-7.69	25	Pass
20C 138V	n20	5200	Ant1	5199.96	-40000	-7.69	25	Pass
-20C 120V	n20	5200	Ant1	5199.94	-60000	-11.54	25	Pass
-10C 120V	n20	5200	Ant1	5199.96	-40000	-7.69	25	Pass
0C 120V	n20	5200	Ant1	5199.94	-60000	-11.54	25	Pass
10C 120V	n20	5200	Ant1	5199.96	-40000	-7.69	25	Pass
30C 120V	n20	5200	Ant1	5199.92	-80000	-15.38	25	Pass
40C 120V	n20	5200	Ant1	5199.96	-40000	-7.69	25	Pass
50C 120V	n20	5200	Ant1	5199.96	-40000	-7.69	25	Pass
20C 102V	n20	5240	Ant1	5239.96	-40000	-7.63	25	Pass
20C 120V	n20	5240	Ant1	5239.94	-60000	-11.45	25	Pass
20C 138V	n20	5240	Ant1	5239.94	-60000	-11.45	25	Pass
-20C 120V	n20	5240	Ant1	5239.96	-40000	-7.63	25	Pass
-10C 120V	n20	5240	Ant1	5239.92	-80000	-15.27	25	Pass
0C 120V	n20	5240	Ant1	5239.98	-20000	-3.82	25	Pass
10C 120V	n20	5240	Ant1	5239.94	-60000	-11.45	25	Pass
30C 120V	n20	5240	Ant1	5239.94	-60000	-11.45	25	Pass
40C 120V	n20	5240	Ant1	5239.98	-20000	-3.82	25	Pass
50C 120V	n20	5240	Ant1	5239.96	-40000	-7.63	25	Pass
20C 102V	n40	5190	Ant1	5189.96	-40000	-7.71	25	Pass
20C 120V	n40	5190	Ant1	5189.92	-80000	-15.41	25	Pass
20C 138V	n40	5190	Ant1	5189.88	-120000	-23.12	25	Pass
-20C 120V	n40	5190	Ant1	5189.96	-40000	-7.71	25	Pass
-10C 120V	n40	5190	Ant1	5189.96	-40000	-7.71	25	Pass
0C 120V	n40	5190	Ant1	5189.96	-40000	-7.71	25	Pass
10C 120V	n40	5190	Ant1	5189.92	-80000	-15.41	25	Pass
30C 120V	n40	5190	Ant1	5189.96	-40000	-7.71	25	Pass
40C 120V	n40	5190	Ant1	5189.96	-40000	-7.71	25	Pass
50C 120V	n40	5190	Ant1	5189.96	-40000	-7.71	25	Pass
20C 102V	n40	5230	Ant1	5229.96	-40000	-7.65	25	Pass
20C 120V	n40	5230	Ant1	5229.92	-80000	-15.3	25	Pass
20C 138V	n40	5230	Ant1	5229.92	-80000	-15.3	25	Pass
-20C 120V	n40	5230	Ant1	5229.96	-40000	-7.65	25	Pass
-10C 120V	n40	5230	Ant1	5229.92	-80000	-15.3	25	Pass
0C 120V	n40	5230	Ant1	5229.92	-80000	-15.3	25	Pass
10C 120V	n40	5230	Ant1	5229.96	-40000	-7.65	25	Pass
30C 120V	n40	5230	Ant1	5229.92	-80000	-15.3	25	Pass



40C 120V	n40	5230	Ant1	5229.96	-40000	-7.65	25	Pass
50C 120V	n40	5230	Ant1	5229.96	-40000	-7.65	25	Pass

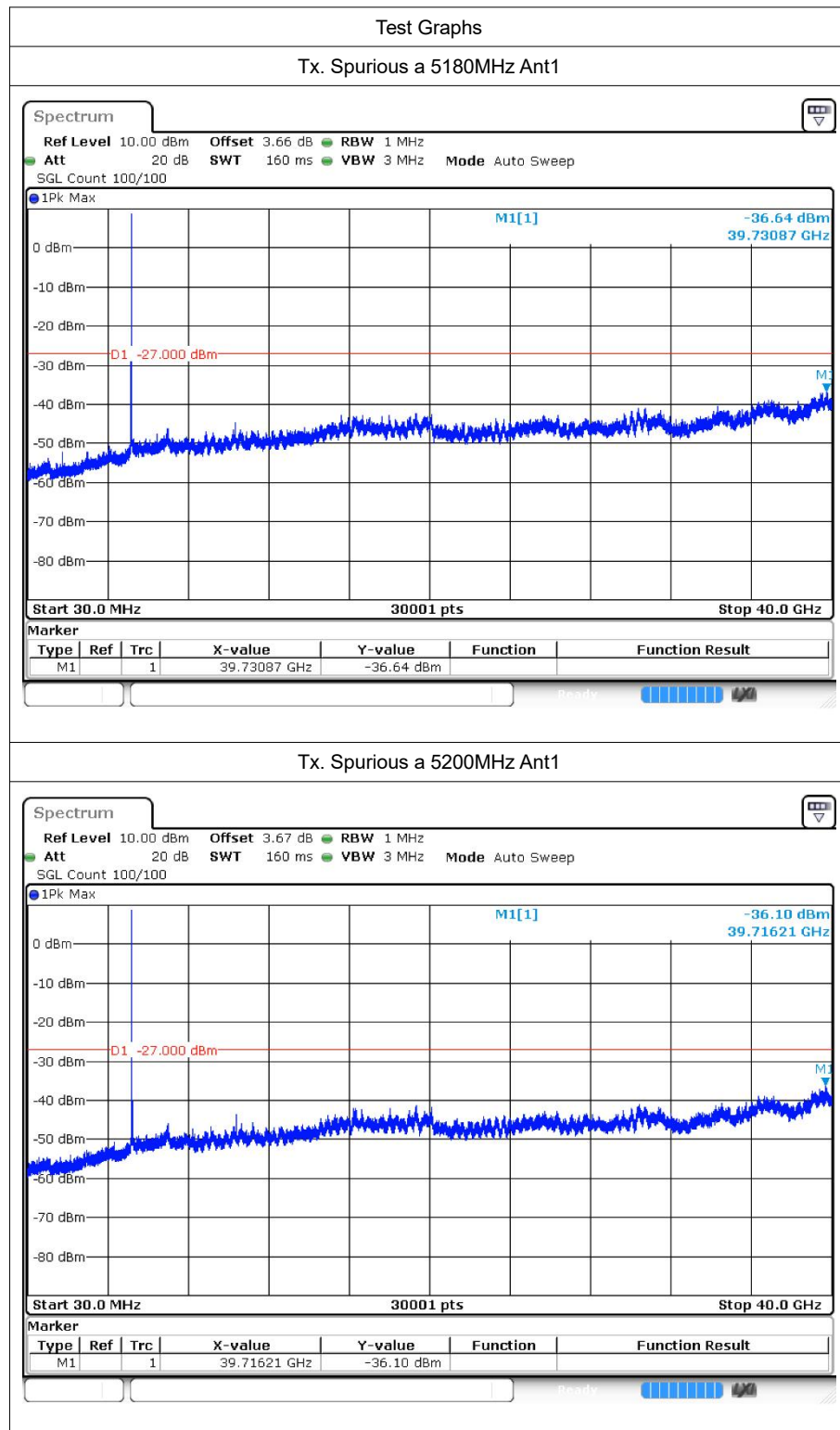


7 Conducted RF Spurious Emission

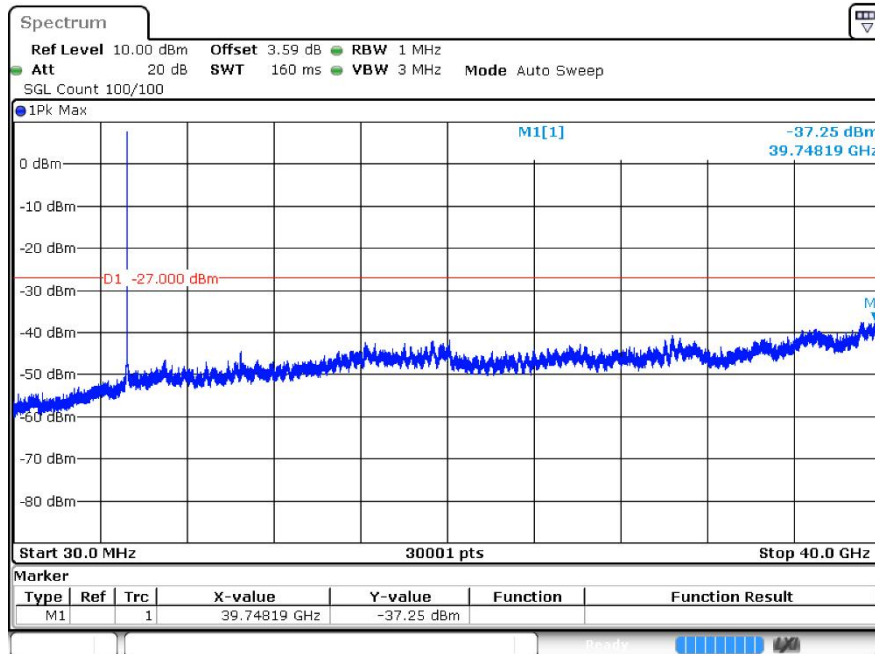
7.1 Test Result

Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
a	5180	Ant1	-36.64	-27	Pass
a	5200	Ant1	-36.1	-27	Pass
a	5240	Ant1	-37.24	-27	Pass
n20	5180	Ant1	-36.95	-27	Pass
n20	5200	Ant1	-36.82	-27	Pass
n20	5240	Ant1	-36.77	-27	Pass
n40	5190	Ant1	-37.09	-27	Pass
n40	5230	Ant1	-35.81	-27	Pass

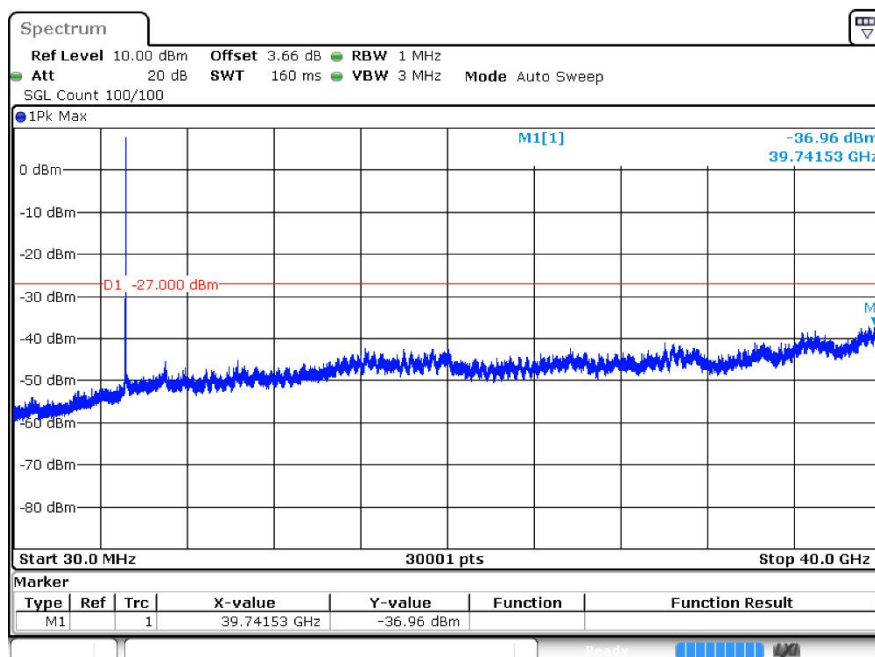
7.2 Test Graphs



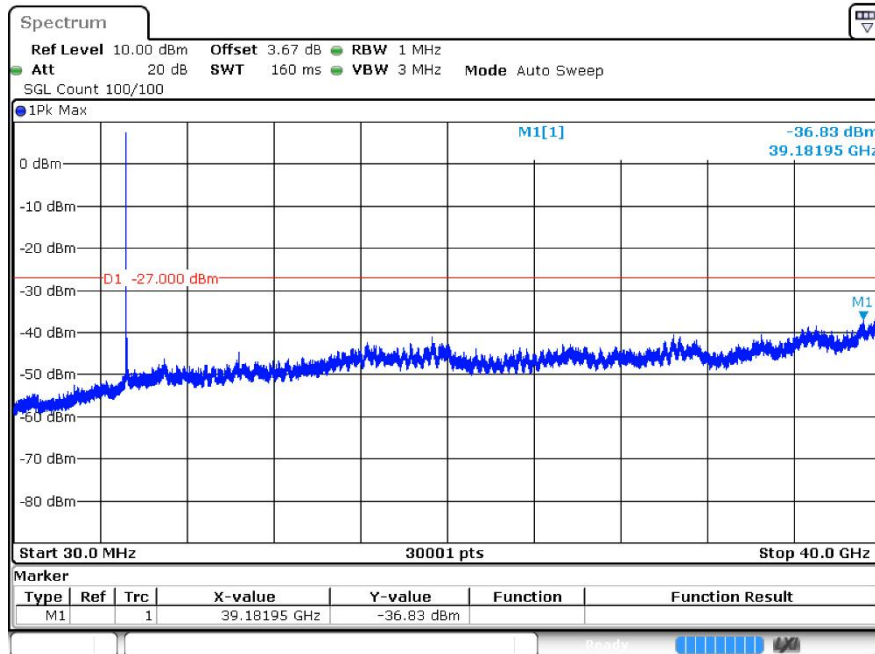
Tx. Spurious a 5240MHz Ant1



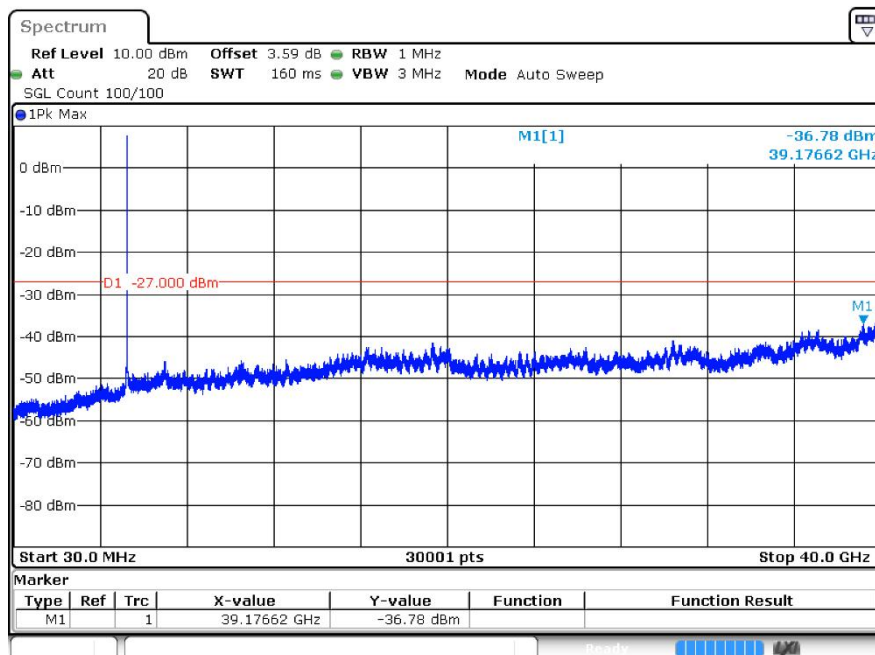
Tx. Spurious n20 5180MHz Ant1



Tx. Spurious n20 5200MHz Ant1

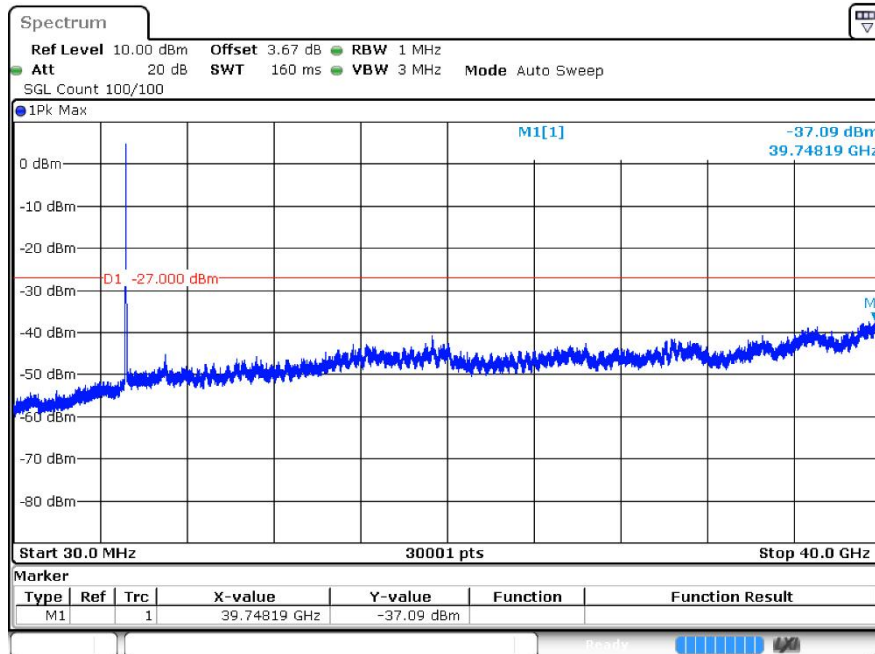


Tx. Spurious n20 5240MHz Ant1

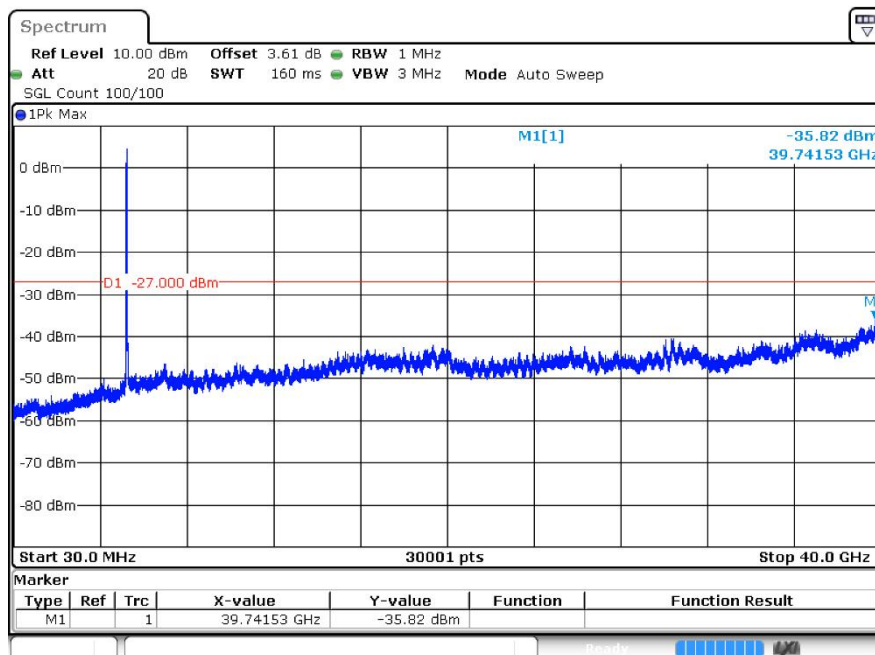




Tx. Spurious n40 5190MHz Ant1



Tx. Spurious n40 5230MHz Ant1



---The End---