Appendix D

RF Test Data for B1-B3WIFI(Conducted Measurement)

Product Name: Carplay/Carplay dash camera

Trade Mark: N/A

Test Model: RC13

Environmental Conditions

Temperature:	24.6° C
Relative Humidity:	52.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen

Contents

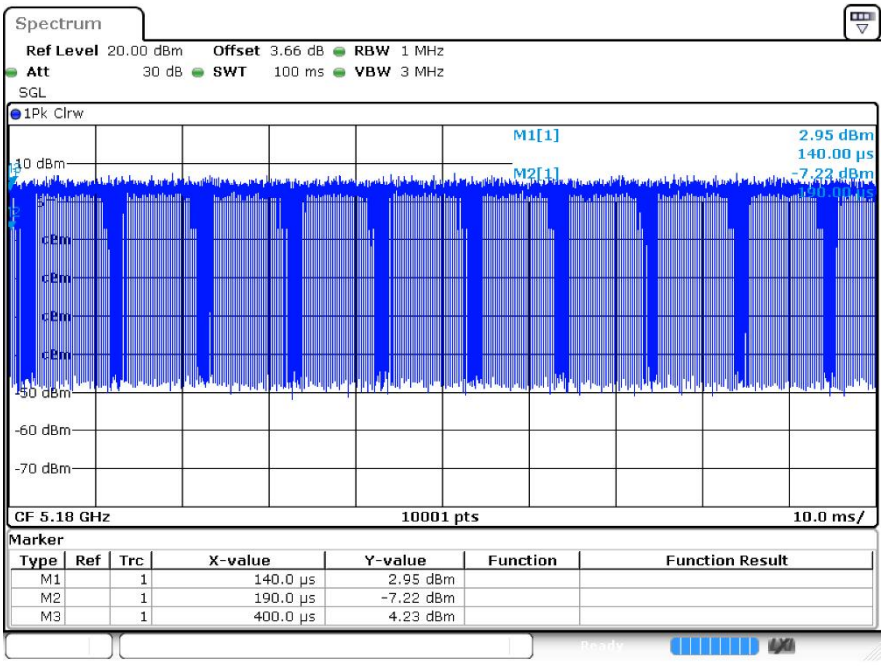
1 Duty Cycle

1.1 Test Result

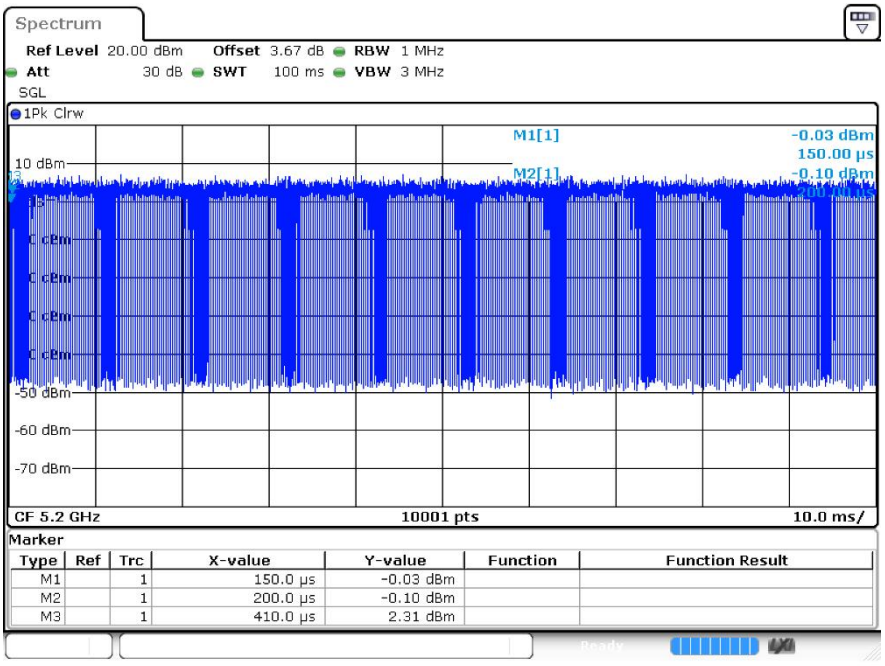
Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
a	5180	Ant1	86.96	0.61	4.76
a	5200	Ant1	86.89	0.61	4.76
a	5240	Ant1	86.9	0.61	4.55
n20	5180	Ant1	87.64	0.57	4.35
n20	5200	Ant1	87.57	0.58	4.35
n20	5240	Ant1	87.6	0.57	4.35
ac20	5180	Ant1	87.28	0.59	4.35
ac20	5200	Ant1	87.44	0.58	4.35
ac20	5240	Ant1	87.29	0.59	4.35

1.2 Test Graphs

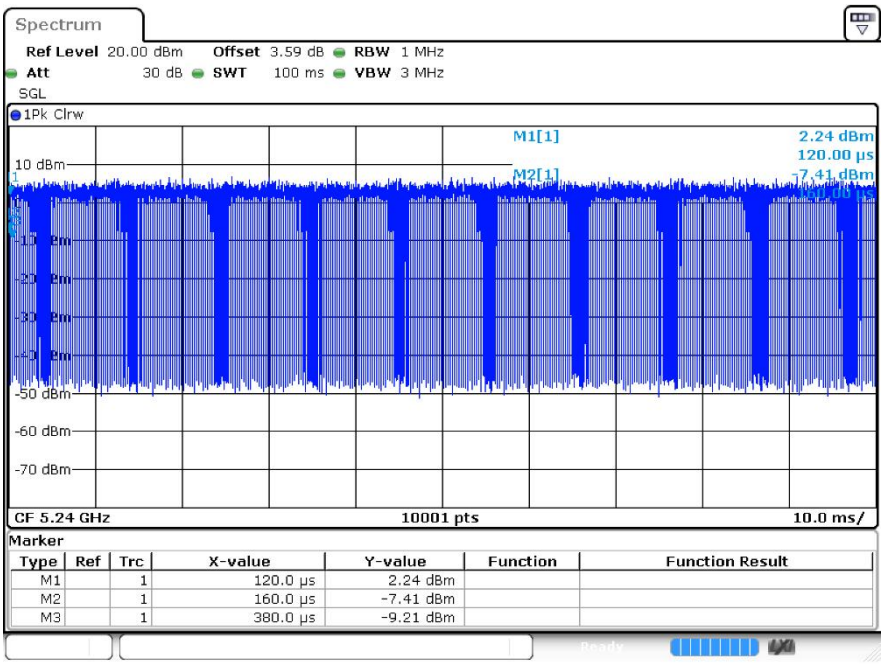
Test Graphs
Duty Cyclea 5180MHz Ant1



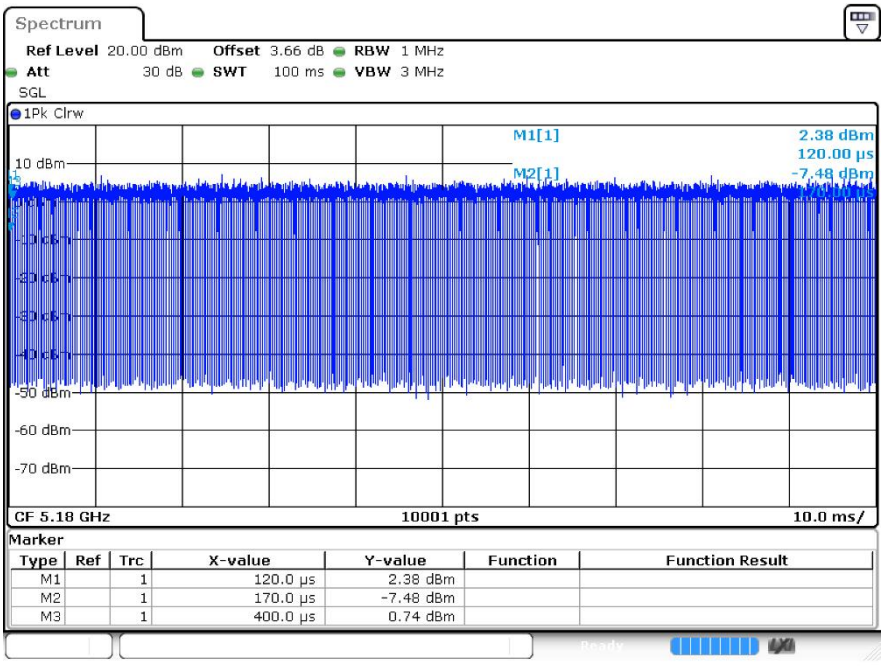
Duty Cycle a 5200MHz Ant1



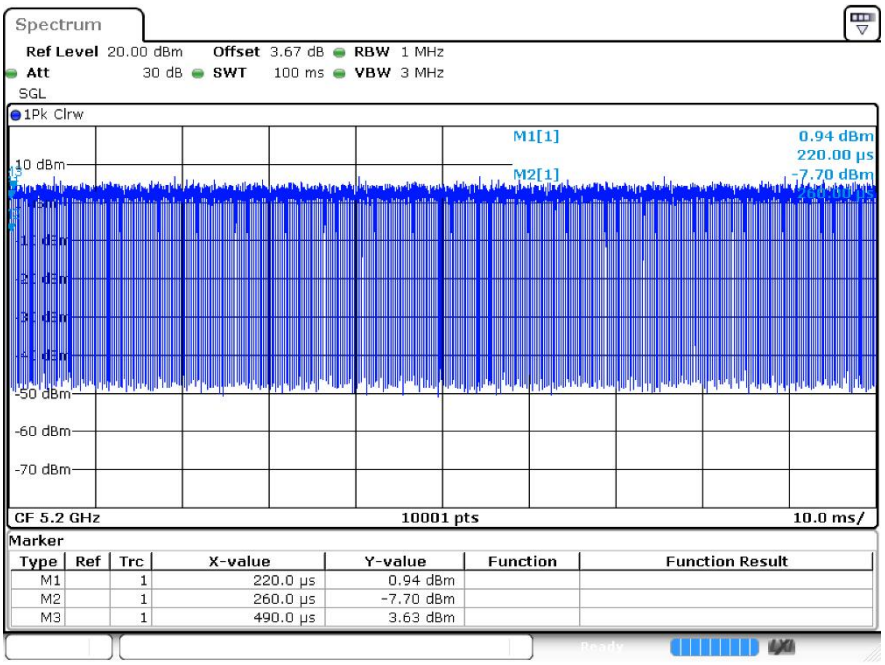
Duty Cyclea 5240MHz Ant1



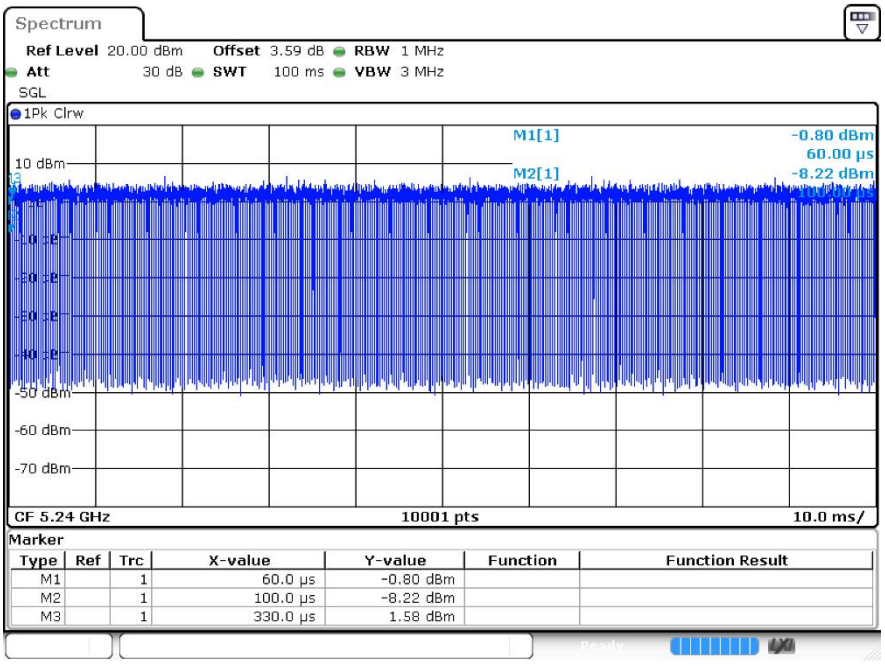
Duty Cycle n20 5180MHz Ant1



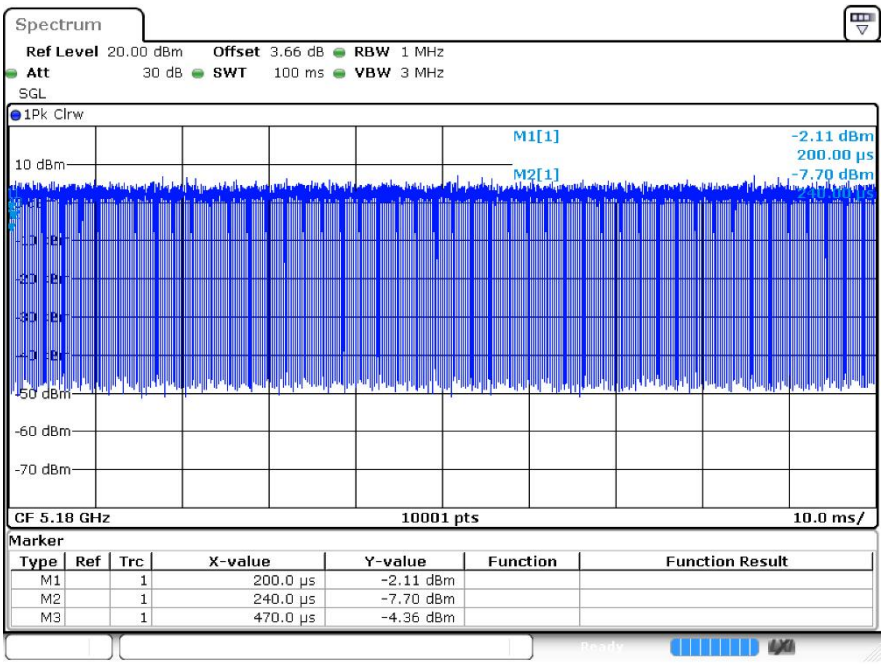
Duty Cycle n20 5200MHz Ant1



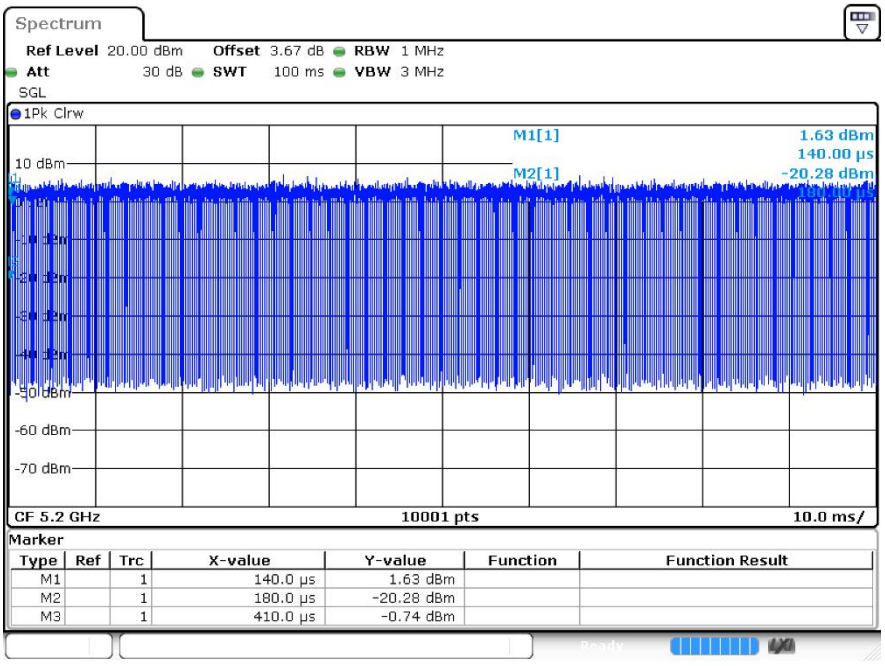
Duty Cycle n20 5240MHz Ant1



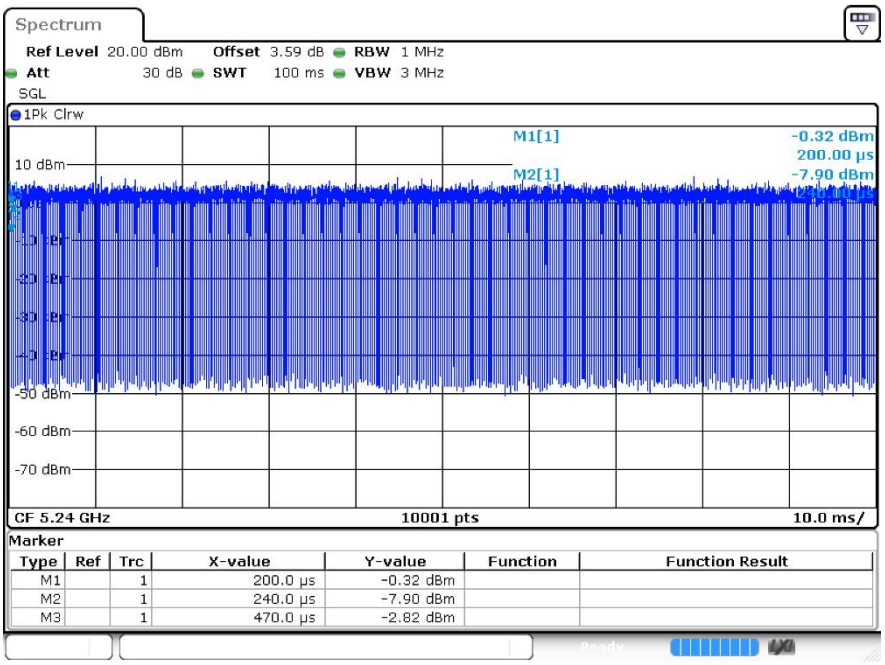
Duty Cycle ac20 5180MHz Ant1



Duty Cycle ac20 5200MHz Ant1



Duty Cycle ac20 5240MHz Ant1



2 Maximum Conducted Output Power

2.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
a	5180	Ant1	13.59	24	Pass
a	5200	Ant1	13.43	24	Pass
a	5240	Ant1	13.06	24	Pass
n20	5180	Ant1	12.91	24	Pass
n20	5200	Ant1	12.91	24	Pass
n20	5240	Ant1	12.6	24	Pass
ac20	5180	Ant1	12.99	24	Pass
ac20	5200	Ant1	12.85	24	Pass
ac20	5240	Ant1	12.63	24	Pass

Note:

The duty factor has been compensated into the result.

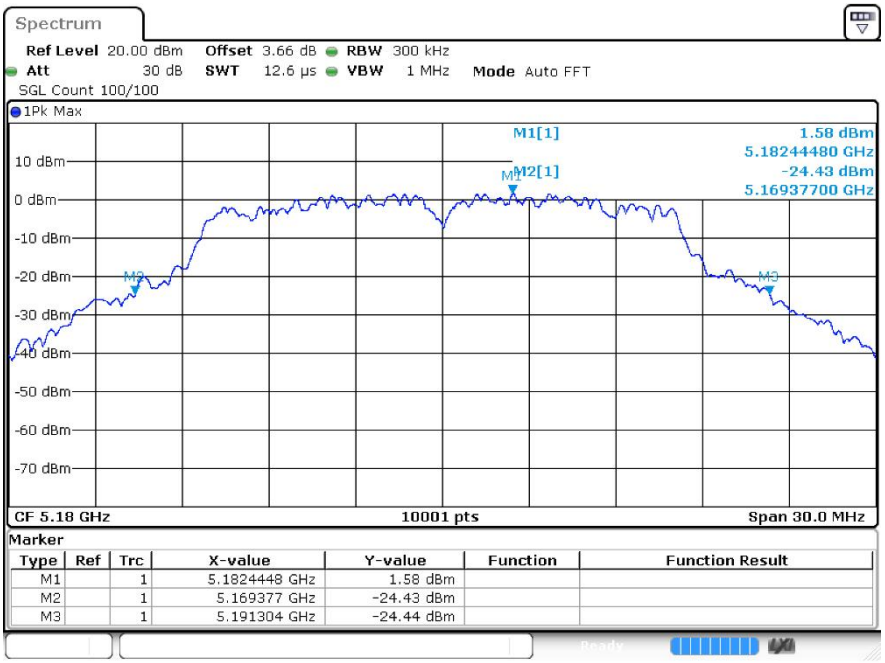
3 -26dB Bandwidth

3.1 Test Result

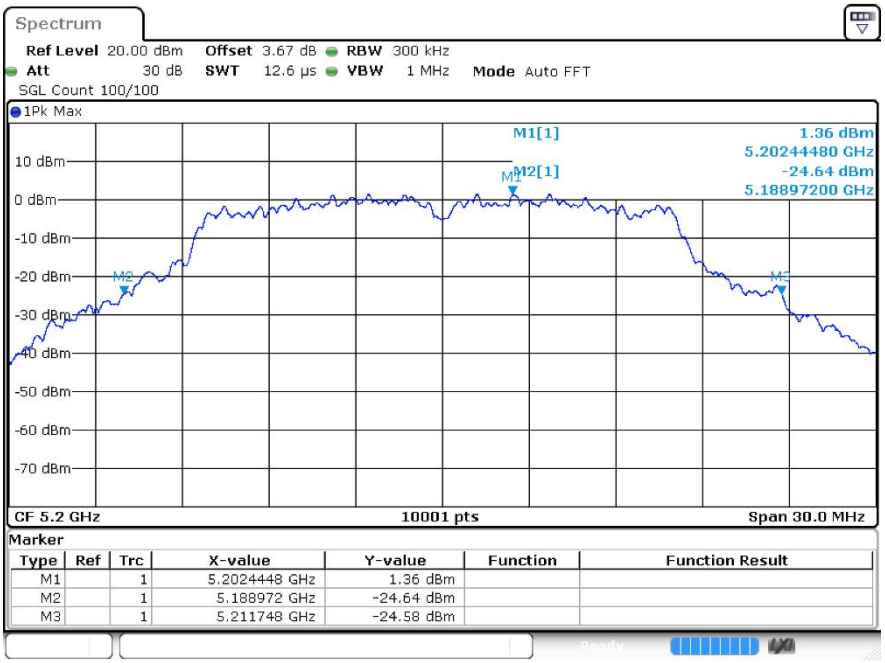
Mode	Frequency (MHz)	Antenna	-26 dB Bandwidth (MHz)	Limit -26 dB Bandwidth (MHz)	Verdict
a	5180	Ant1	21.927	0.5	Pass
a	5200	Ant1	22.776	0.5	Pass
a	5240	Ant1	22.311	0.5	Pass
n20	5180	Ant1	22.512	0.5	Pass
n20	5200	Ant1	22.431	0.5	Pass
n20	5240	Ant1	21.792	0.5	Pass
ac20	5180	Ant1	22.971	0.5	Pass
ac20	5200	Ant1	23.097	0.5	Pass
ac20	5240	Ant1	23.673	0.5	Pass

3.2 Test Graphs

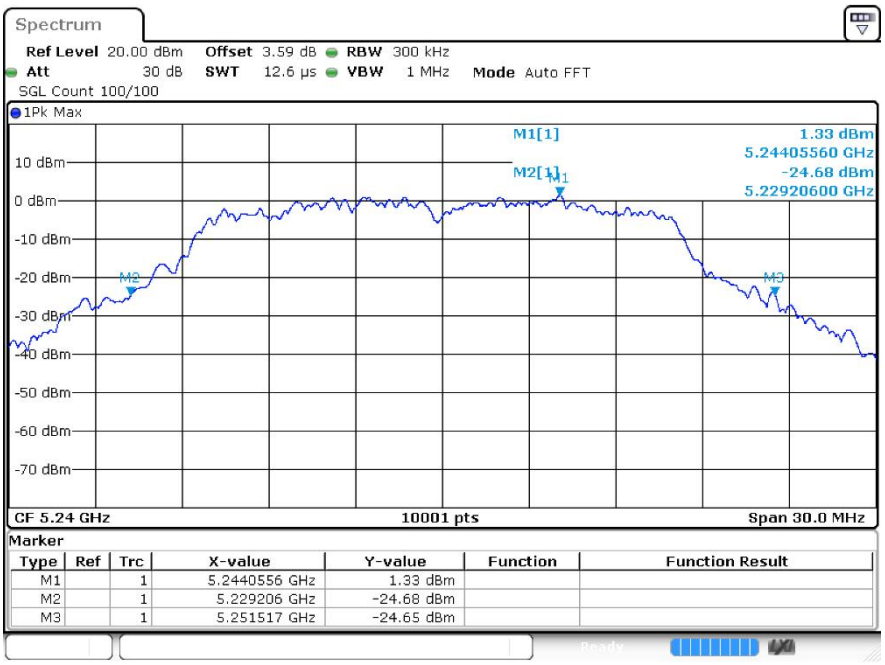
Test Graphs
-26dB Bandwidtha 5180MHz Ant1



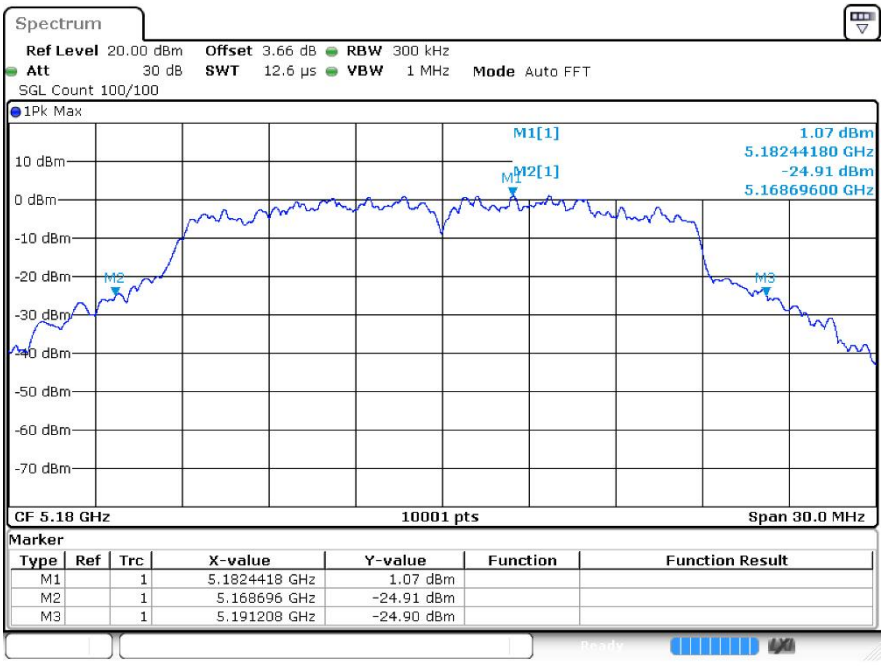
-26dB Bandwidtha 5200MHz Ant1



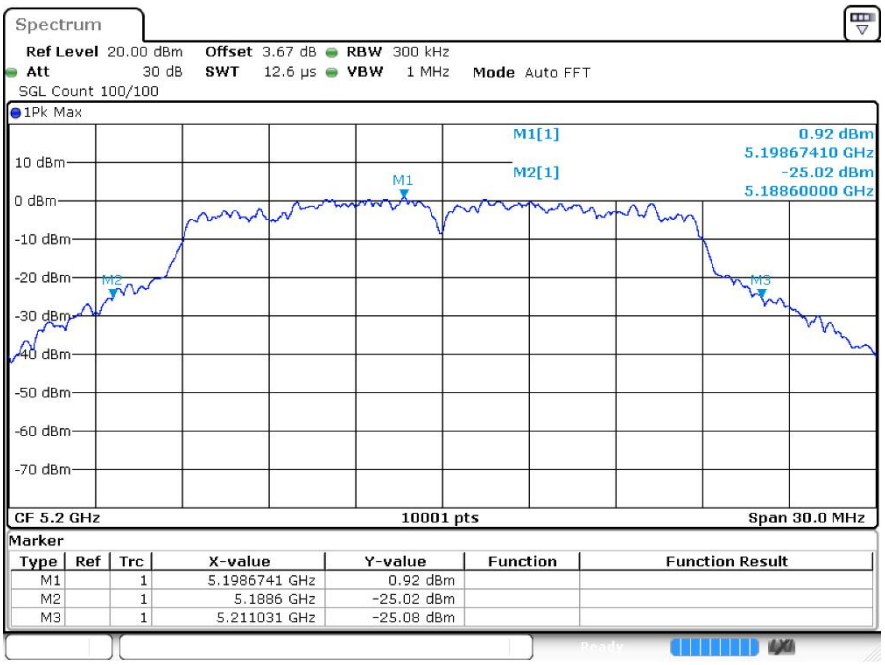
-26dB Bandwidtha 5240MHz Ant1



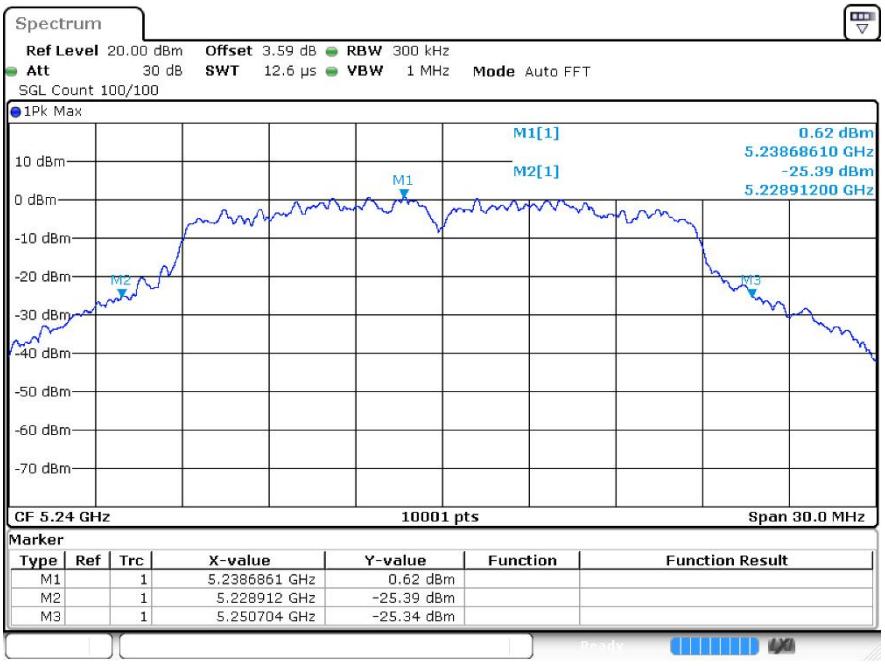
-26dB Bandwidth n20 5180MHz Ant1



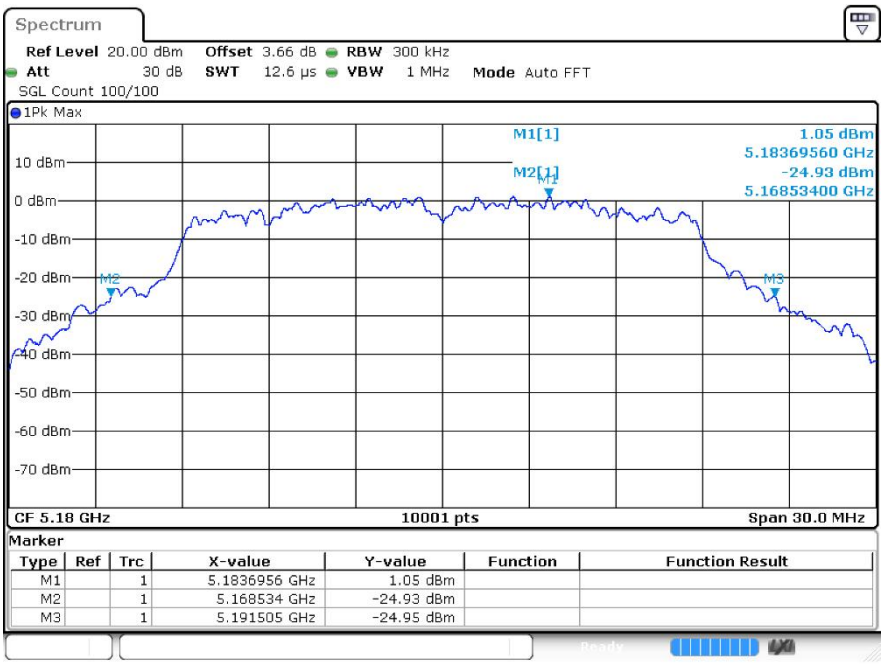
-26dB Bandwidth n20 5200MHz Ant1



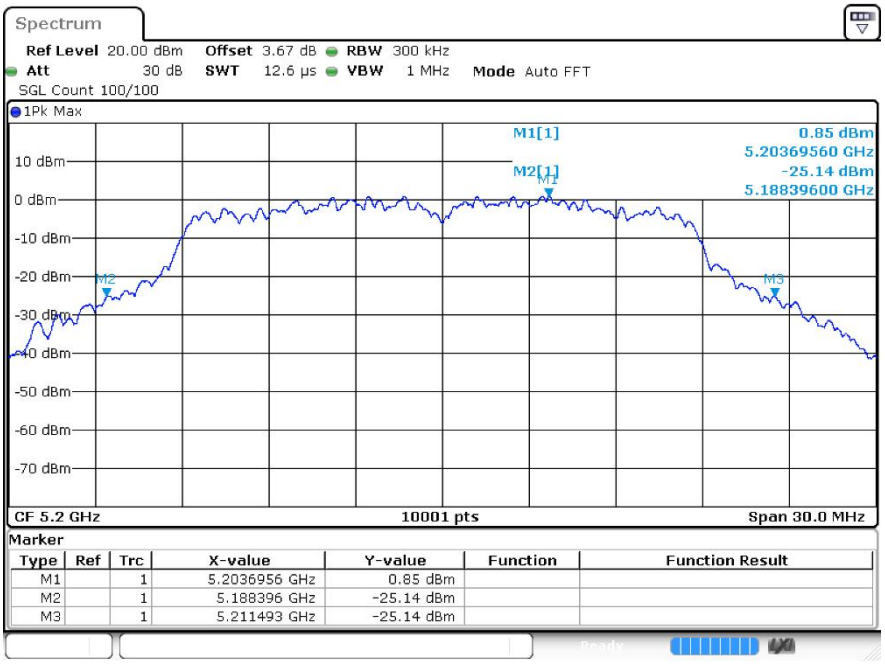
-26dB Bandwidth n20 5240MHz Ant1



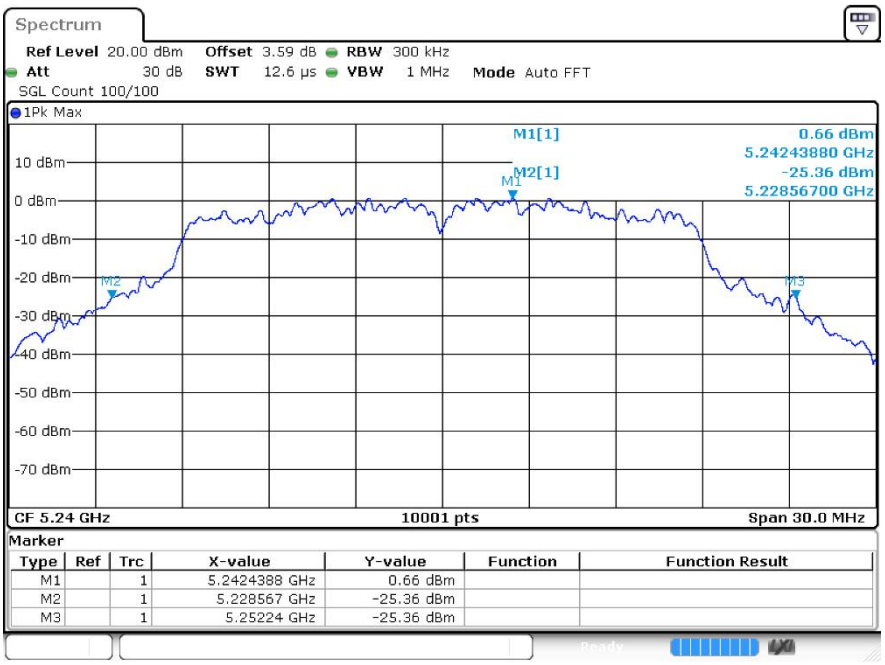
-26dB Bandwidth ac20 5180MHz Ant1



-26dB Bandwidth ac20 5200MHz Ant1



-26dB Bandwidth ac20 5240MHz Ant1



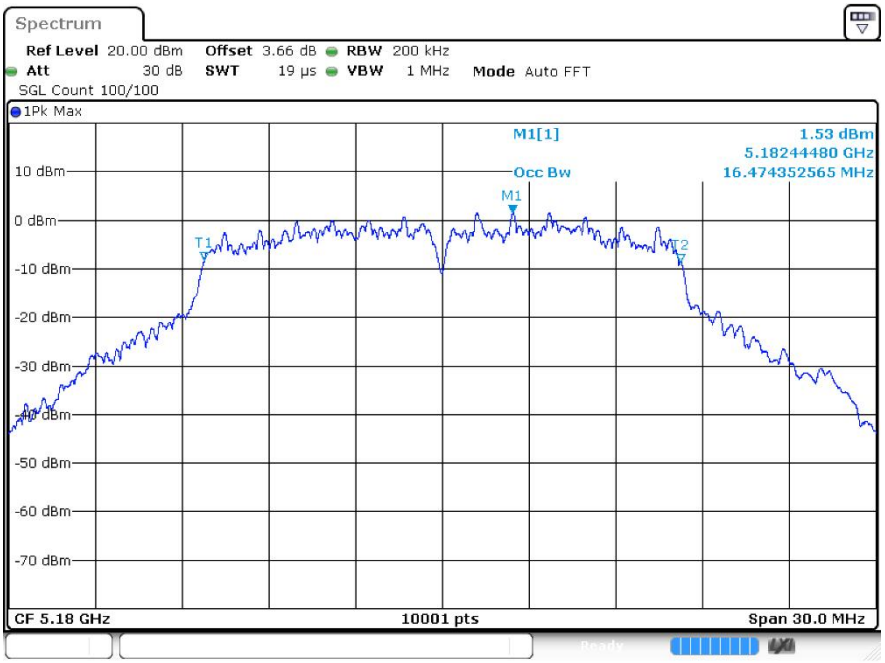
4 Occupied Channel Bandwidth

4.1 Test Result

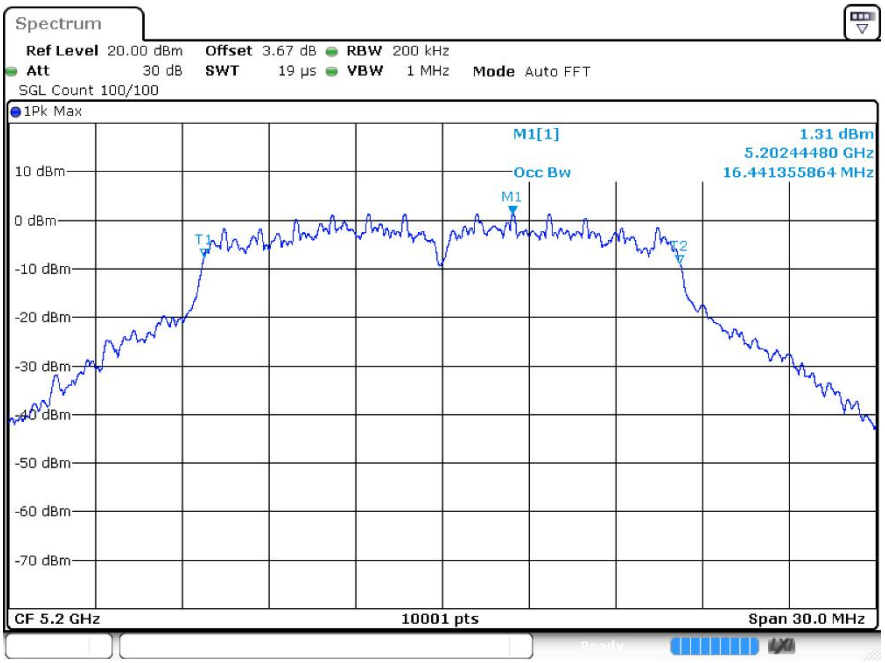
Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
a	5180	Ant1	16.474
a	5200	Ant1	16.441
a	5240	Ant1	16.564
n20	5180	Ant1	17.566
n20	5200	Ant1	17.635
n20	5240	Ant1	17.596
ac20	5180	Ant1	17.593
ac20	5200	Ant1	17.608
ac20	5240	Ant1	17.611

4.2 Test Graphs

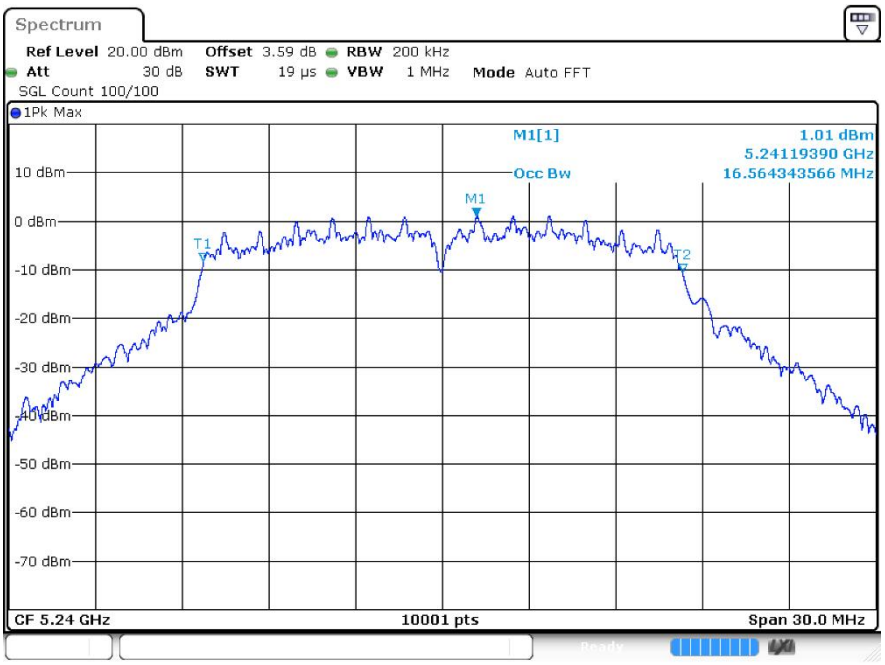
Test Graphs
OBWa 5180MHz Ant1



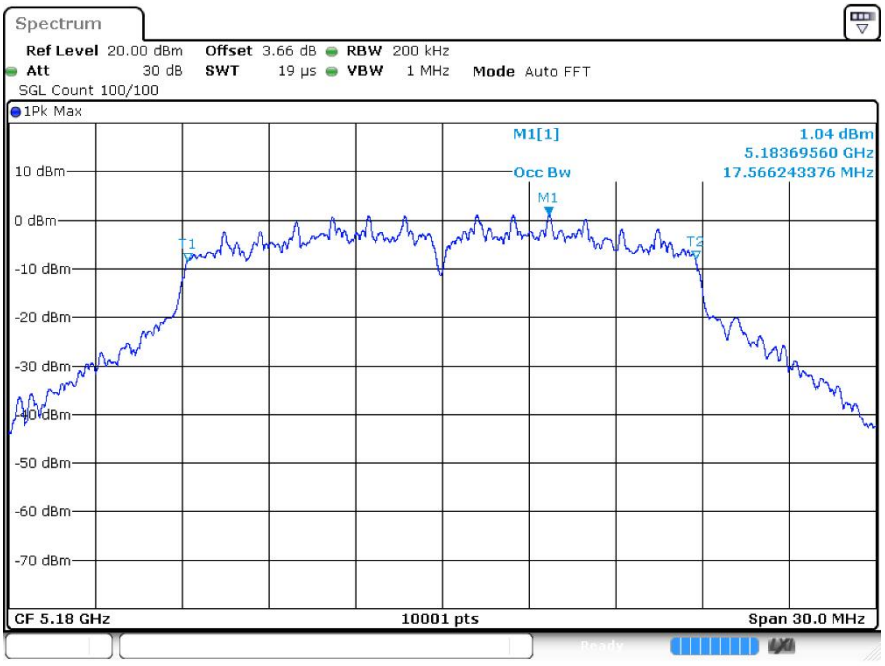
OBWa 5200MHz Ant1



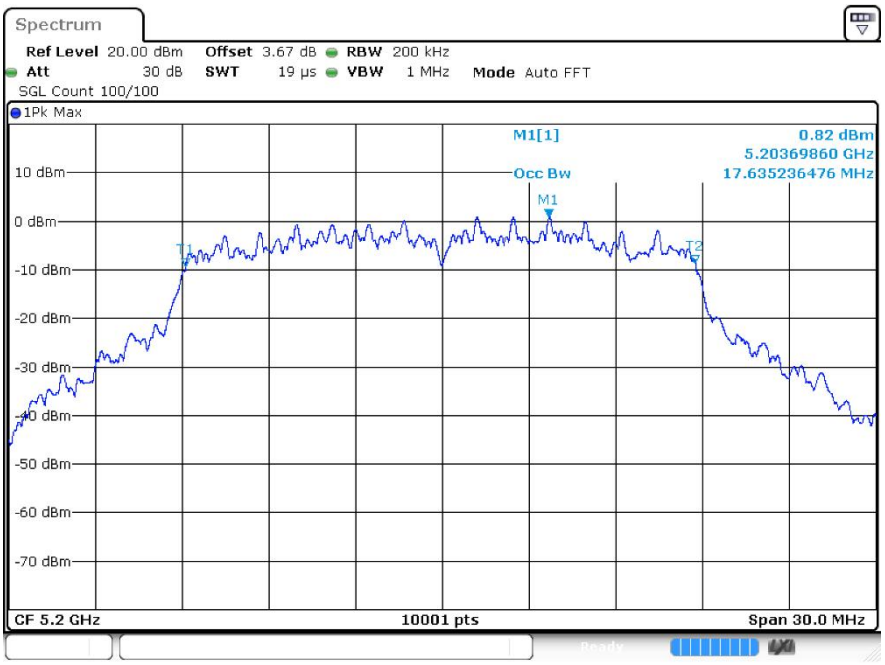
OBWa 5240MHz Ant1



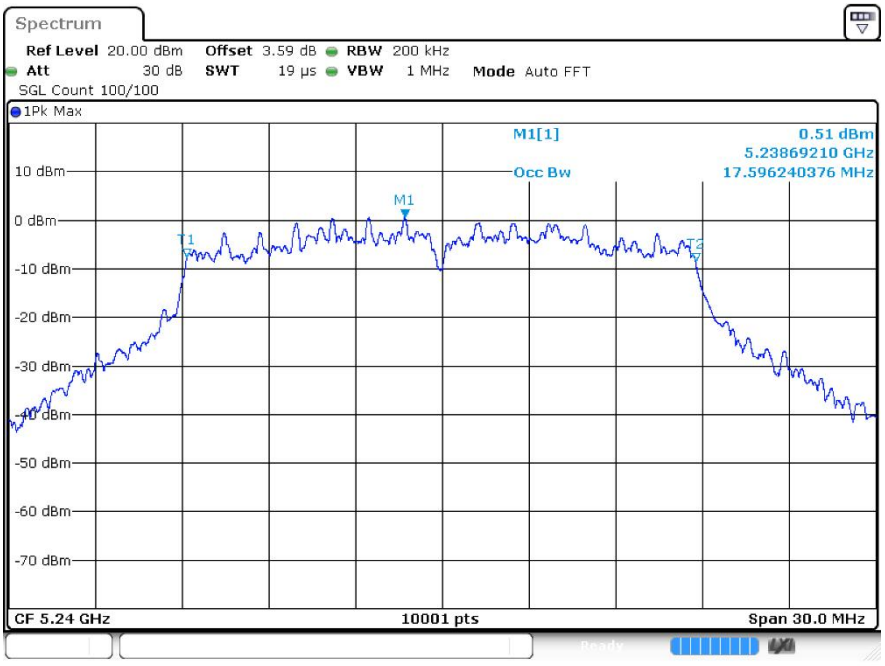
OBW n20 5180MHz Ant1



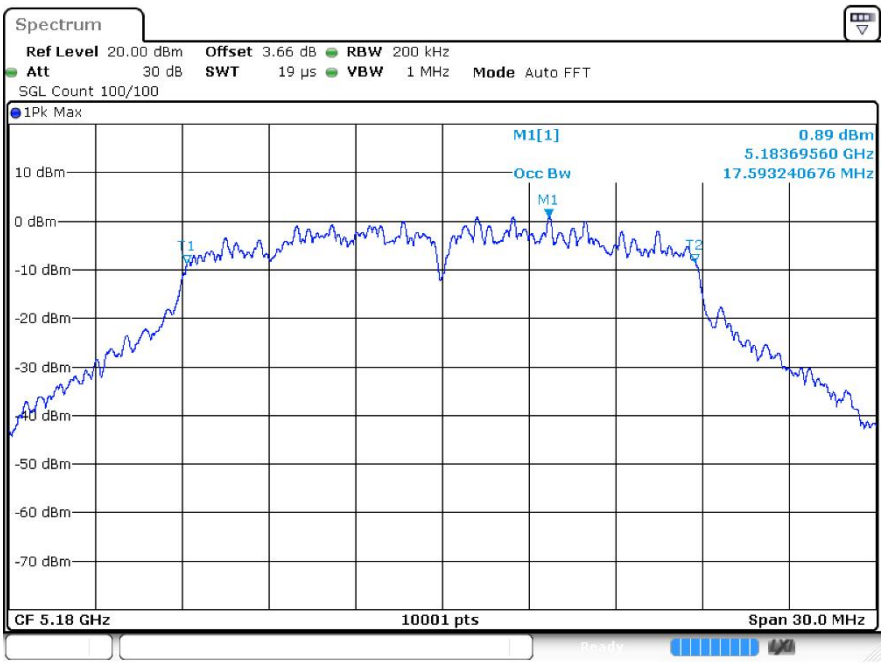
OBW n20 5200MHz Ant1



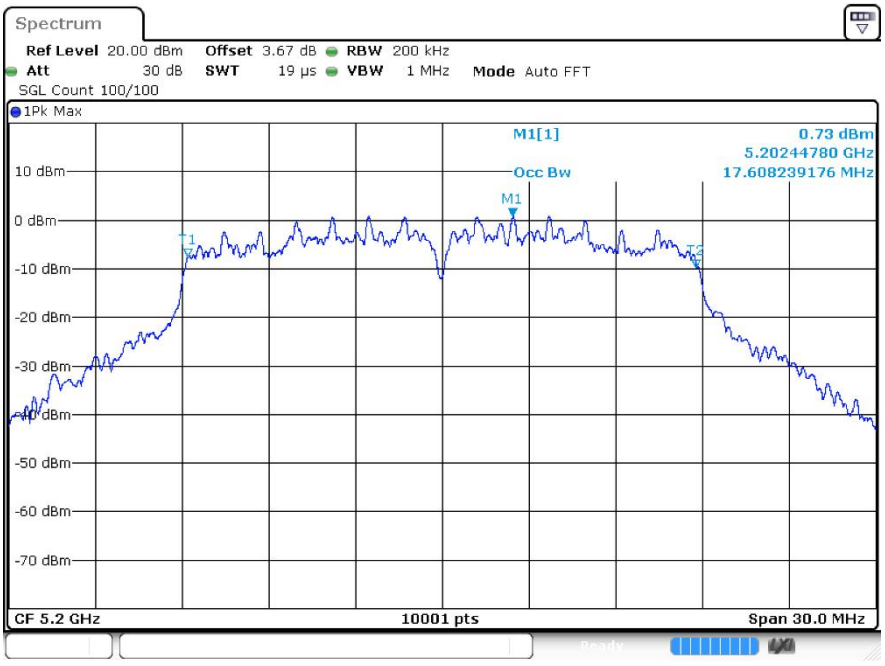
OBW n20 5240MHz Ant1



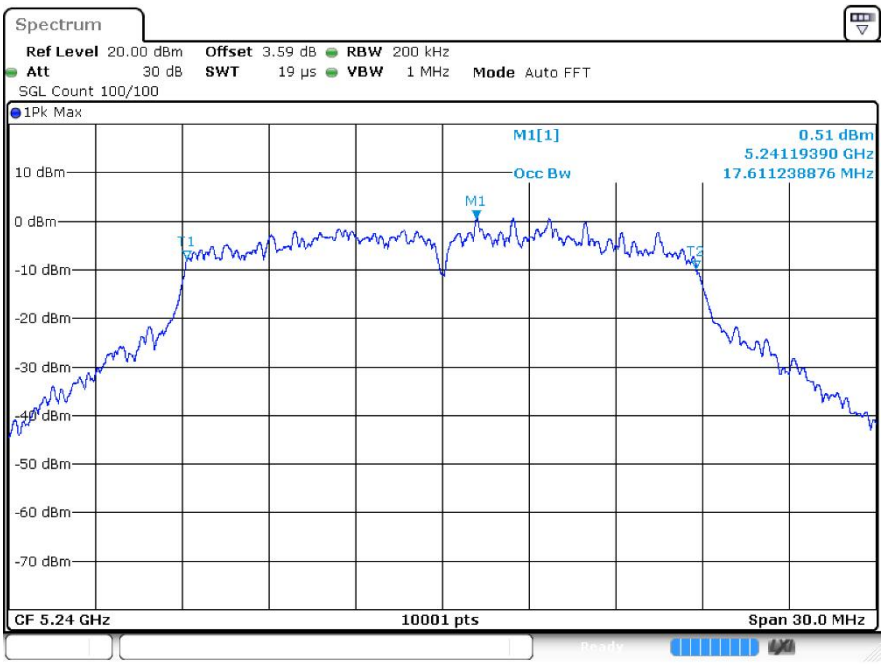
OBW ac20 5180MHz Ant1



OBW ac20 5200MHz Ant1



OBW ac20 5240MHz Ant1

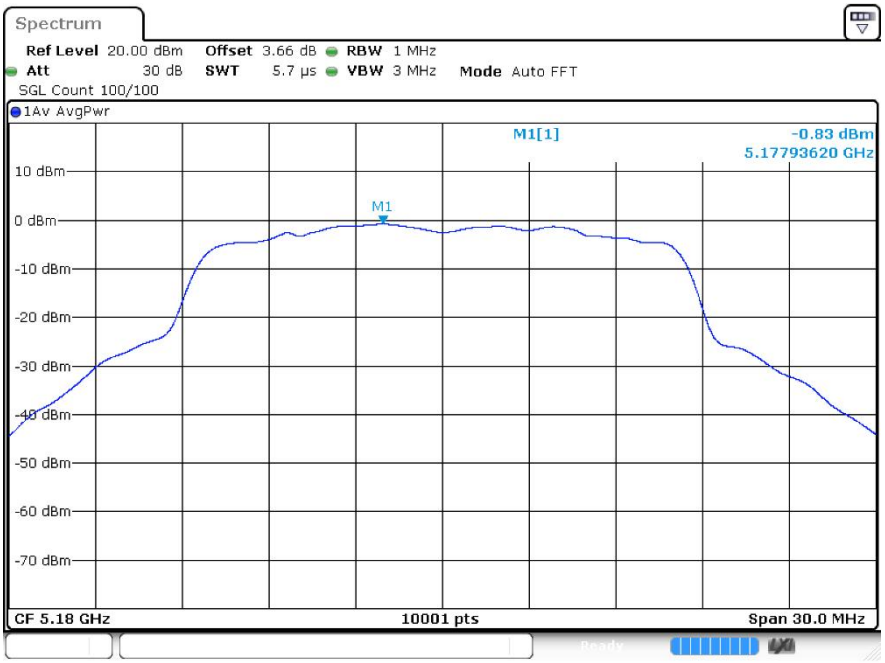
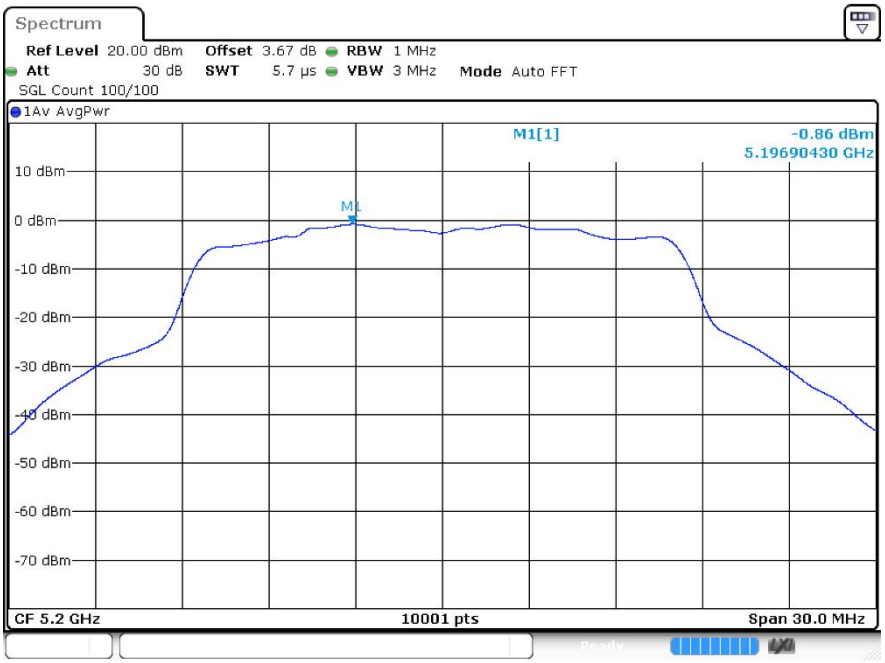


5 Maximum Power Spectral Density Level

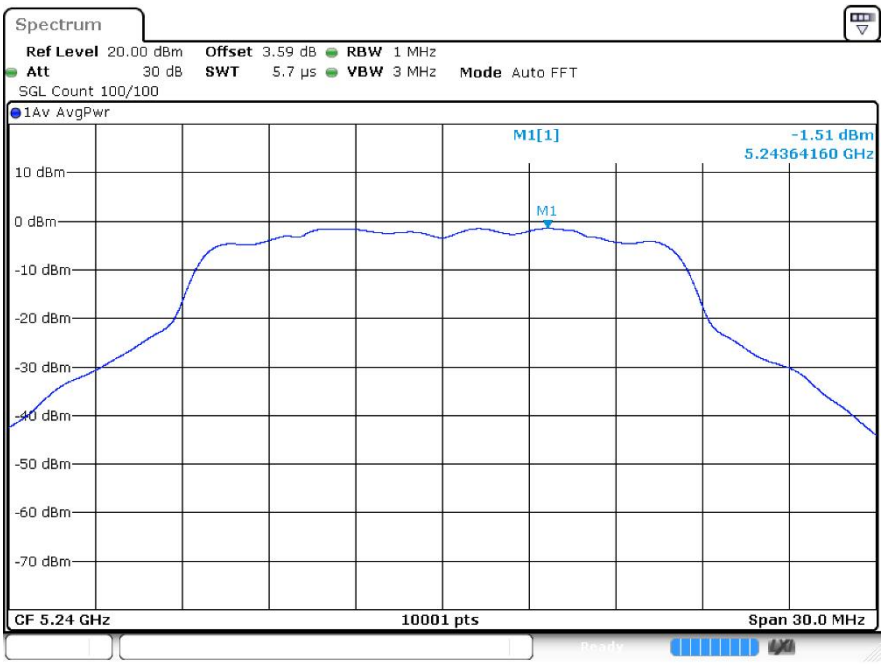
5.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
a	5180	Ant1	-0.83	0.61	-0.22	11	Pass
a	5200	Ant1	-0.86	0.61	-0.25	11	Pass
a	5240	Ant1	-1.51	0.61	-0.9	11	Pass
n20	5180	Ant1	-2.28	0.57	-1.71	11	Pass
n20	5200	Ant1	-2.09	0.58	-1.51	11	Pass
n20	5240	Ant1	-1.75	0.57	-1.18	11	Pass
ac20	5180	Ant1	-1.66	0.59	-1.07	11	Pass
ac20	5200	Ant1	-1.56	0.58	-0.98	11	Pass
ac20	5240	Ant1	-1.36	0.59	-0.77	11	Pass

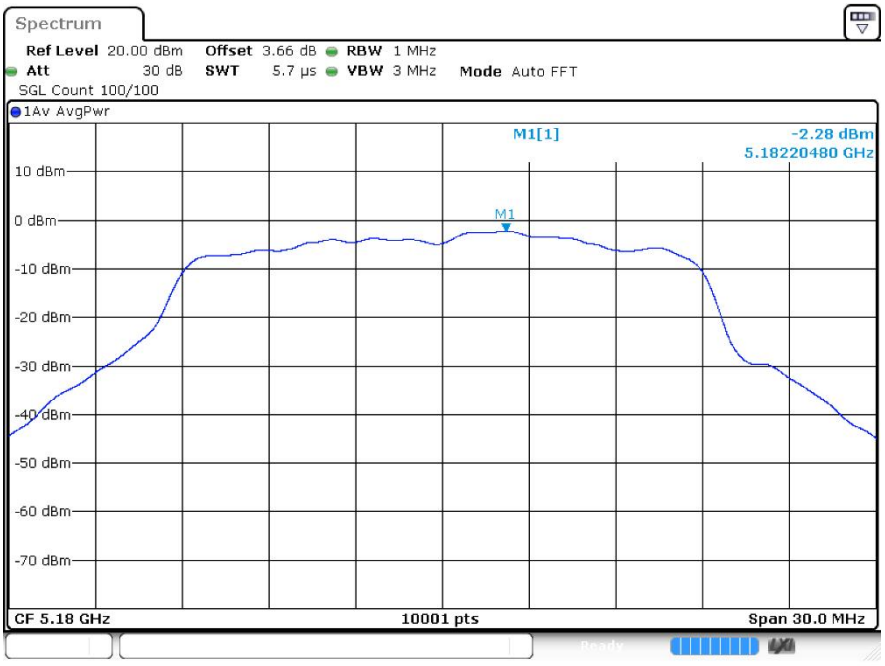
5.2 Test Graphs

Test Graphs
PSDa 5180MHz Ant1

PSD a 5200MHz Ant1


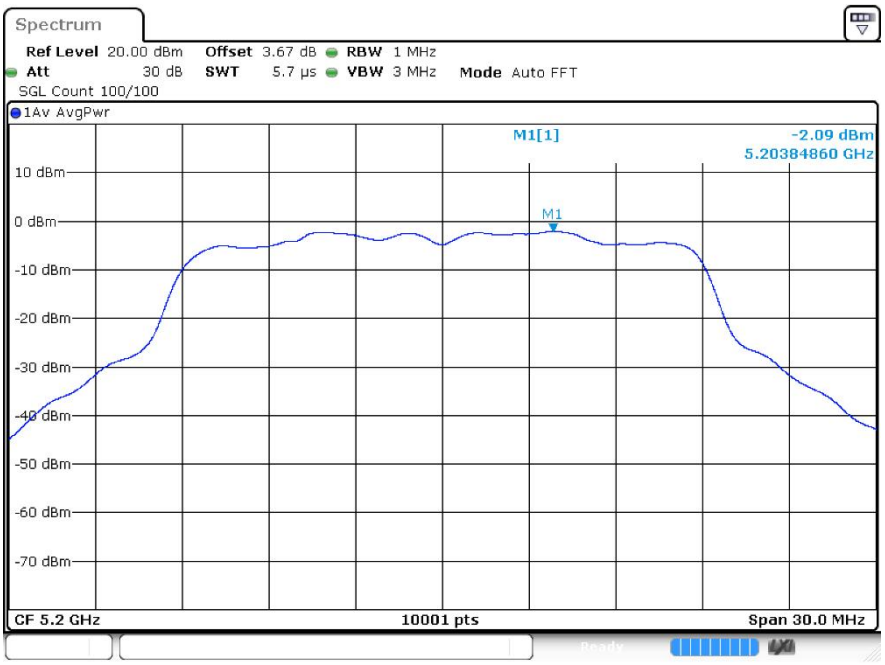
PSDa 5240MHz Ant1



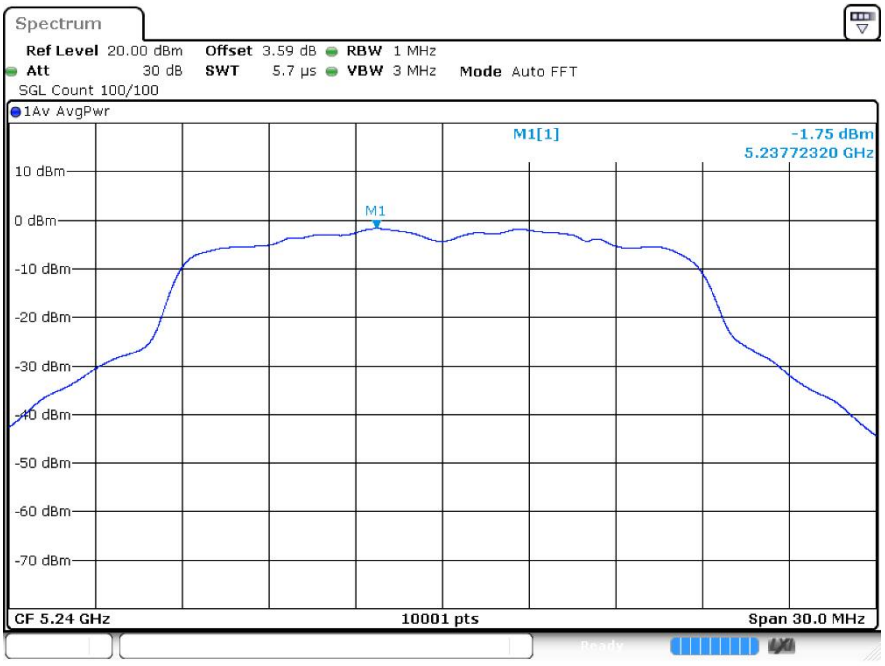
PSD n20 5180MHz Ant1



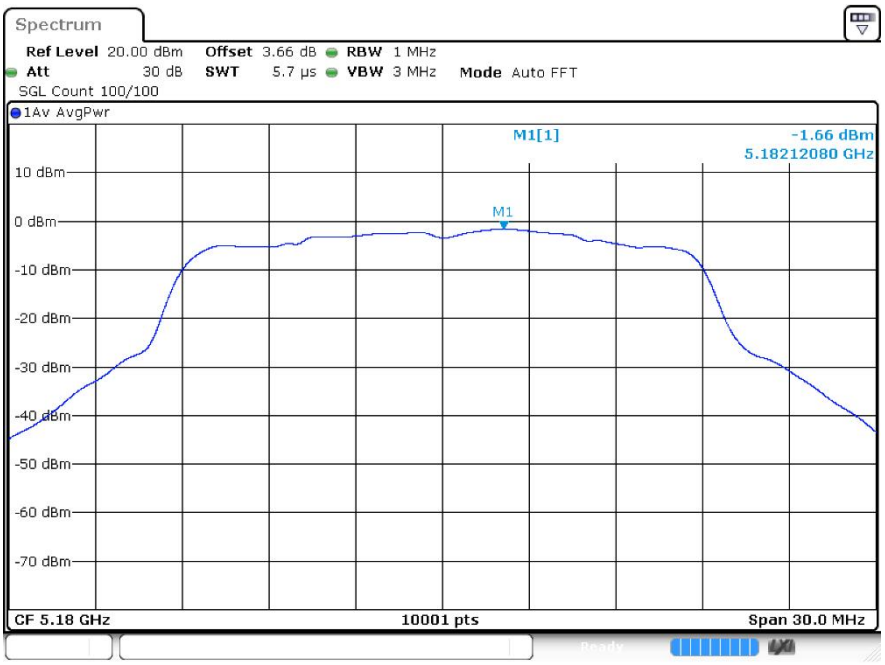
PSD n20 5200MHz Ant1



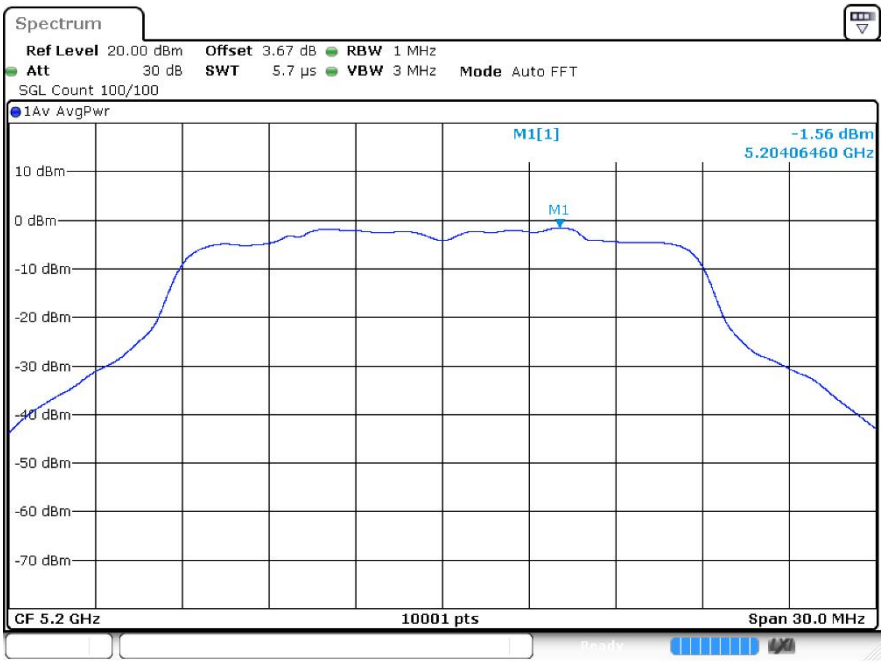
PSD n20 5240MHz Ant1



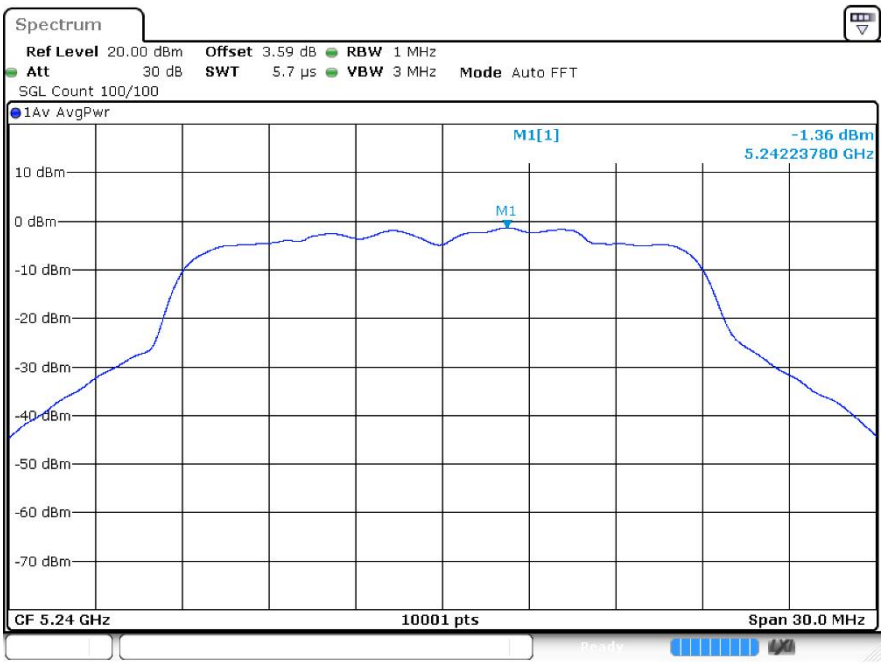
PSD ac20 5180MHz Ant1



PSD ac20 5200MHz Ant1



PSD ac20 5240MHz 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	5179.92	-80000	-15.44	25	Pass
20C 120V	a	5180	Ant1	5179.96	-40000	-7.72	25	Pass
20C 138V	a	5180	Ant1	5179.98	-20000	-3.86	25	Pass
-20C 120V	a	5180	Ant1	5179.96	-40000	-7.72	25	Pass
-10C 120V	a	5180	Ant1	5179.96	-40000	-7.72	25	Pass
0C 120V	a	5180	Ant1	5179.96	-40000	-7.72	25	Pass
10C 120V	a	5180	Ant1	5179.96	-40000	-7.72	25	Pass
30C 120V	a	5180	Ant1	5179.96	-40000	-7.72	25	Pass
40C 120V	a	5180	Ant1	5179.94	-60000	-11.58	25	Pass
50C 120V	a	5180	Ant1	5179.96	-40000	-7.72	25	Pass
20C 102V	a	5200	Ant1	5199.94	-60000	-11.54	25	Pass
20C 120V	a	5200	Ant1	5199.92	-80000	-15.38	25	Pass
20C 138V	a	5200	Ant1	5199.94	-60000	-11.54	25	Pass
-20C 120V	a	5200	Ant1	5199.94	-60000	-11.54	25	Pass
-10C 120V	a	5200	Ant1	5199.96	-40000	-7.69	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	5199.96	-40000	-7.69	25	Pass
40C 120V	a	5200	Ant1	5199.96	-40000	-7.69	25	Pass
20C 102V	a	5200	Ant1	5199.94	-60000	-11.54	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	5239.96	-40000	-7.63	25	Pass
-20C 120V	a	5240	Ant1	5239.94	-60000	-11.45	25	Pass
-10C 120V	a	5240	Ant1	5239.94	-60000	-11.45	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	5239.94	-60000	-11.45	25	Pass
40C 120V	a	5240	Ant1	5239.92	-80000	-15.27	25	Pass
50C 120V	a	5240	Ant1	5239.94	-60000	-11.45	25	Pass
20C 102V	n20	5180	Ant1	5179.98	-20000	-3.86	25	Pass
20C 120V	n20	5180	Ant1	5179.94	-60000	-11.58	25	Pass
20C 138V	n20	5180	Ant1	5179.96	-40000	-7.72	25	Pass
-20C 120V	n20	5180	Ant1	5179.92	-80000	-15.44	25	Pass
-10C 120V	n20	5180	Ant1	5179.96	-40000	-7.72	25	Pass

0C 120V	n20	5180	Ant1	5179.92	-80000	-15.44	25	Pass
10C 120V	n20	5180	Ant1	5179.92	-80000	-15.44	25	Pass
30C 120V	n20	5180	Ant1	5179.94	-60000	-11.58	25	Pass
40C 120V	n20	5180	Ant1	5179.94	-60000	-11.58	25	Pass
50C 120V	n20	5180	Ant1	5179.98	-20000	-3.86	25	Pass
20C 102V	n20	5200	Ant1	5199.92	-80000	-15.38	25	Pass
20C 120V	n20	5200	Ant1	5199.94	-60000	-11.54	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	5199.92	-80000	-15.38	25	Pass
0C 120V	n20	5200	Ant1	5199.96	-40000	-7.69	25	Pass
10C 120V	n20	5200	Ant1	5199.96	-40000	-7.69	25	Pass
30C 120V	n20	5200	Ant1	5199.96	-40000	-7.69	25	Pass
40C 120V	n20	5200	Ant1	5199.94	-60000	-11.54	25	Pass
50C 120V	n20	5200	Ant1	5199.96	-40000	-7.69	25	Pass
20C 102V	n20	5240	Ant1	5239.94	-60000	-11.45	25	Pass
20C 120V	n20	5240	Ant1	5239.94	-60000	-11.45	25	Pass
20C 138V	n20	5240	Ant1	5239.96	-40000	-7.63	25	Pass
-20C 120V	n20	5240	Ant1	5239.98	-20000	-3.82	25	Pass
-10C 120V	n20	5240	Ant1	5239.94	-60000	-11.45	25	Pass
0C 120V	n20	5240	Ant1	5239.94	-60000	-11.45	25	Pass
10C 120V	n20	5240	Ant1	5239.96	-40000	-7.63	25	Pass
30C 120V	n20	5240	Ant1	5239.96	-40000	-7.63	25	Pass
40C 120V	n20	5240	Ant1	5239.96	-40000	-7.63	25	Pass
50C 120V	n20	5240	Ant1	5239.98	-20000	-3.82	25	Pass
20C 102V	ac20	5180	Ant1	5179.94	-60000	-11.58	25	Pass
20C 120V	ac20	5180	Ant1	5180.02	20000	3.86	25	Pass
20C 138V	ac20	5180	Ant1	5179.92	-80000	-15.44	25	Pass
-20C 120V	ac20	5180	Ant1	5179.96	-40000	-7.72	25	Pass
-10C 120V	ac20	5180	Ant1	5179.94	-60000	-11.58	25	Pass
0C 120V	ac20	5180	Ant1	5179.96	-40000	-7.72	25	Pass
10C 120V	ac20	5180	Ant1	5179.92	-80000	-15.44	25	Pass
30C 120V	ac20	5180	Ant1	5179.96	-40000	-7.72	25	Pass
40C 120V	ac20	5180	Ant1	5179.98	-20000	-3.86	25	Pass
50C 120V	ac20	5180	Ant1	5179.98	-20000	-3.86	25	Pass
20C 102V	ac20	5200	Ant1	5199.94	-60000	-11.54	25	Pass
20C 120V	ac20	5200	Ant1	5199.96	-40000	-7.69	25	Pass
20C 138V	ac20	5200	Ant1	5199.92	-80000	-15.38	25	Pass
-20C 120V	ac20	5200	Ant1	5199.94	-60000	-11.54	25	Pass
-10C 120V	ac20	5200	Ant1	5199.94	-60000	-11.54	25	Pass
0C 120V	ac20	5200	Ant1	5199.92	-80000	-15.38	25	Pass
10C 120V	ac20	5200	Ant1	5199.94	-60000	-11.54	25	Pass
30C 120V	ac20	5200	Ant1	5199.94	-60000	-11.54	25	Pass

40C 120V	ac20	5200	Ant1	5199.94	-60000	-11.54	25	Pass
50C 120V	ac20	5200	Ant1	5199.96	-40000	-7.69	25	Pass
20C 102V	ac20	5240	Ant1	5239.94	-60000	-11.45	25	Pass
20C 120V	ac20	5240	Ant1	5239.94	-60000	-11.45	25	Pass
20C 138V	ac20	5240	Ant1	5239.92	-80000	-15.27	25	Pass
-20C 120V	ac20	5240	Ant1	5239.96	-40000	-7.63	25	Pass
-10C 120V	ac20	5240	Ant1	5239.94	-60000	-11.45	25	Pass
0C 120V	ac20	5240	Ant1	5239.96	-40000	-7.63	25	Pass
10C 120V	ac20	5240	Ant1	5239.96	-40000	-7.63	25	Pass
30C 120V	ac20	5240	Ant1	5239.96	-40000	-7.63	25	Pass
40C 120V	ac20	5240	Ant1	5239.96	-40000	-7.63	25	Pass
50C 120V	ac20	5240	Ant1	5239.94	-60000	-11.45	25	Pass

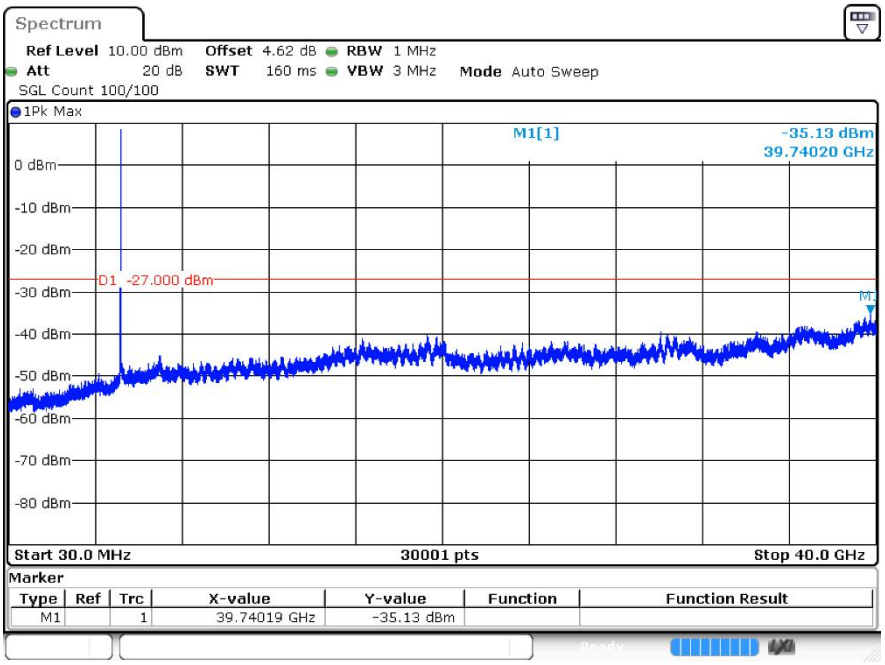
7 Conducted RF Spurious Emission

7.1 Test Result

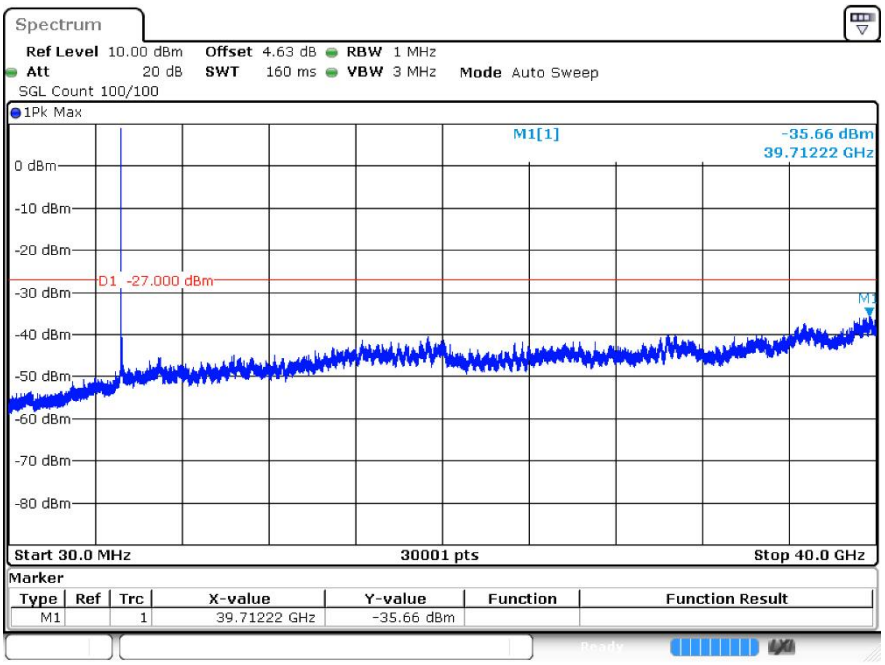
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
a	5180	Ant1	-35.12	-27	Pass
a	5200	Ant1	-35.65	-27	Pass
a	5240	Ant1	-36.05	-27	Pass
n20	5180	Ant1	-35.93	-27	Pass
n20	5200	Ant1	-35.53	-27	Pass
n20	5240	Ant1	-35.75	-27	Pass
ac20	5180	Ant1	-35.68	-27	Pass
ac20	5200	Ant1	-35.96	-27	Pass
ac20	5240	Ant1	-35.82	-27	Pass

7.2 Test Graphs

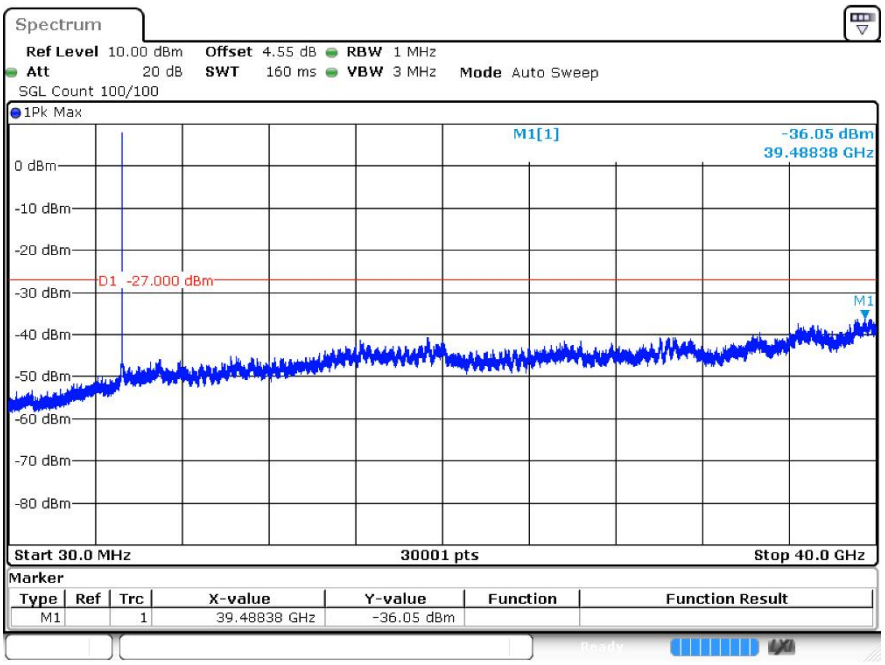
Test Graphs
Tx. Spuriousa 5180MHz Ant1



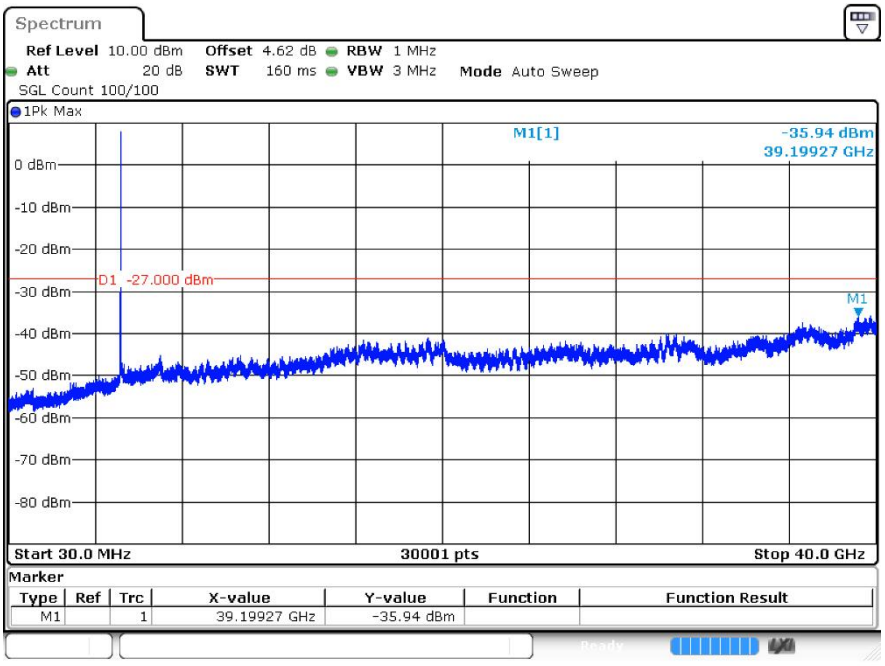
Tx. Spuriousa 5200MHz Ant1



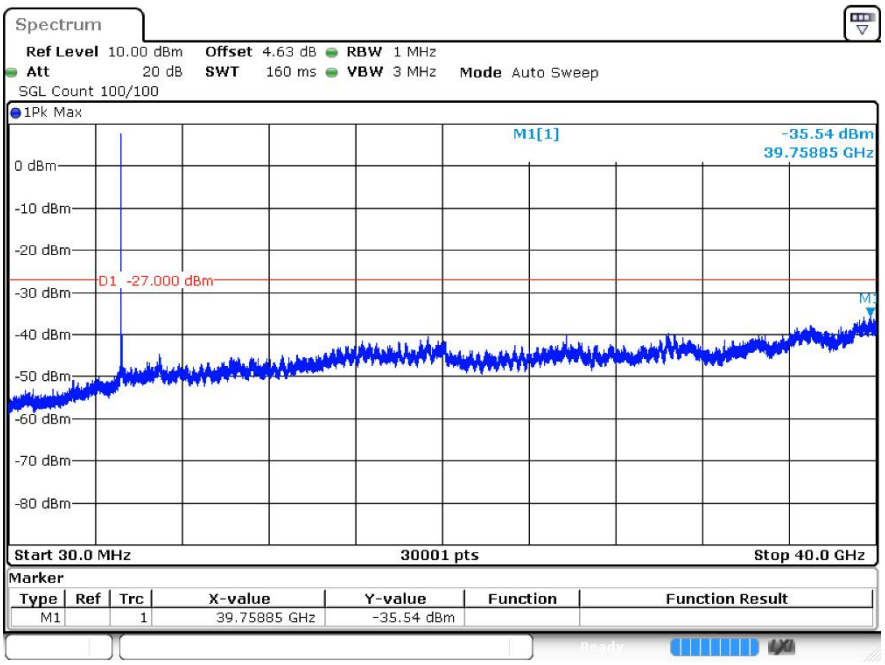
Tx. Spuriousa 5240MHz Ant1



Tx. Spurious n20 5180MHz Ant1



Tx. Spurious n20 5200MHz Ant1



Tx. Spurious n20 5240MHz Ant1