Appendix E

RF Test Data for 5GWIFI B4(Conducted Measurement)

Product Name: Comms Gateway

Trade Mark: Acorn Stairlifts

Test Model: T715 Comms Gateway

Environmental Conditions

Temperature:	24.2° C
Relative Humidity:	51.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen

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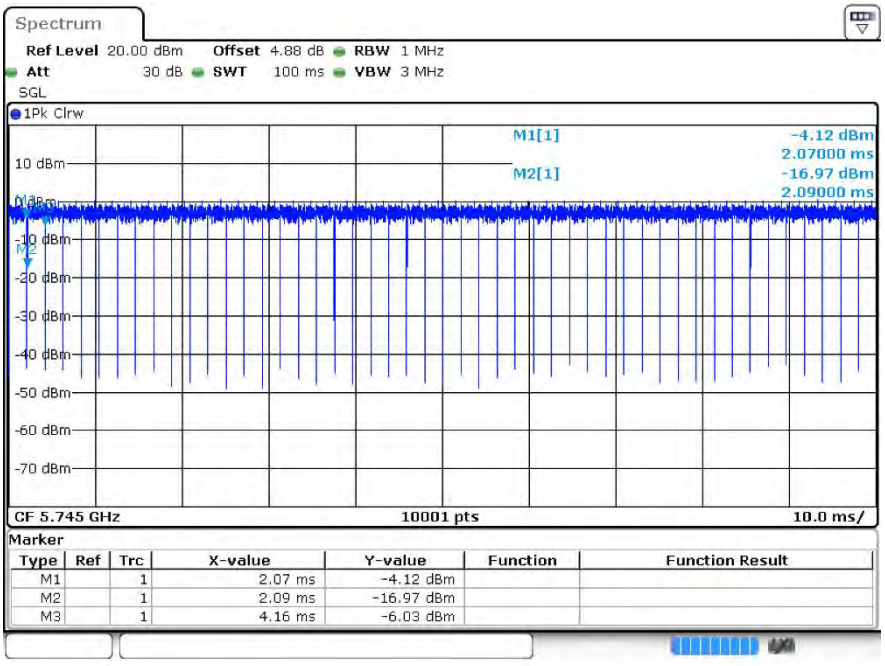
1 Duty Cycle

1.1 Test Result

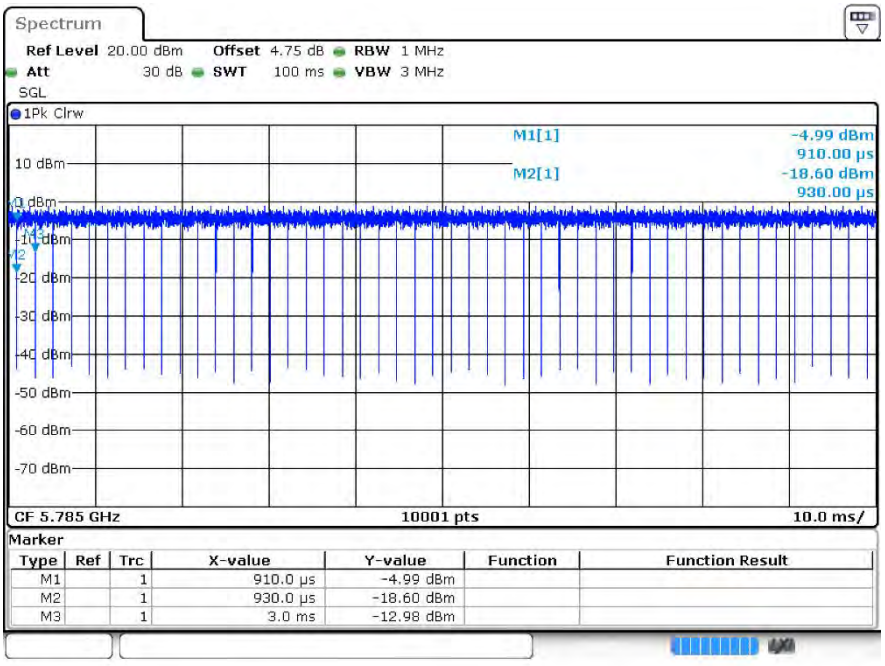
Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
a	5745	Ant1	99.46	0.02	0.48
a	5785	Ant1	99.48	0.02	0.48
a	5825	Ant1	99.47	0.02	0.49
n20	5745	Ant1	99.44	0.02	0.52
n20	5785	Ant1	99.45	0.02	0.52
n20	5825	Ant1	99.42	0.03	0.52
n40	5755	Ant1	98.05	0.09	1.06
n40	5795	Ant1	98.02	0.09	1.06
ac80	5775	Ant1	94.33	0.25	2.22

1.2 Test Graphs

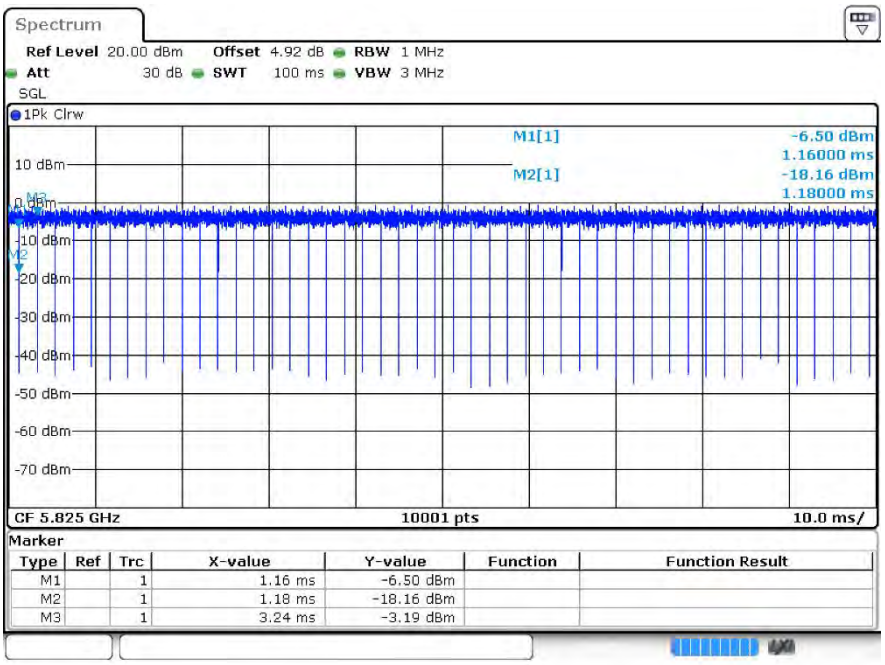
Test Graphs
Duty Cycle a 5745MHz Ant1



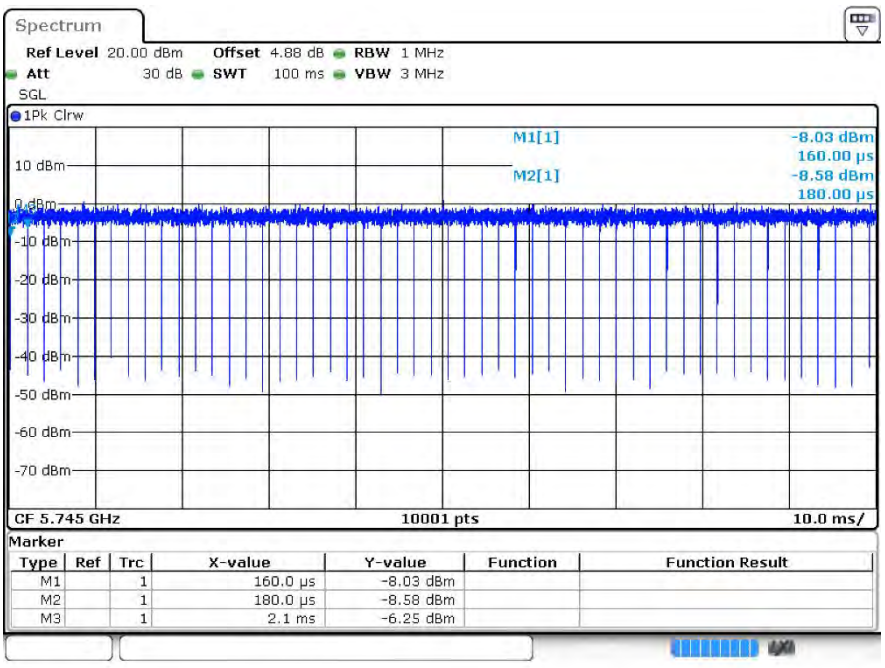
Duty Cycle a 5785MHz Ant1



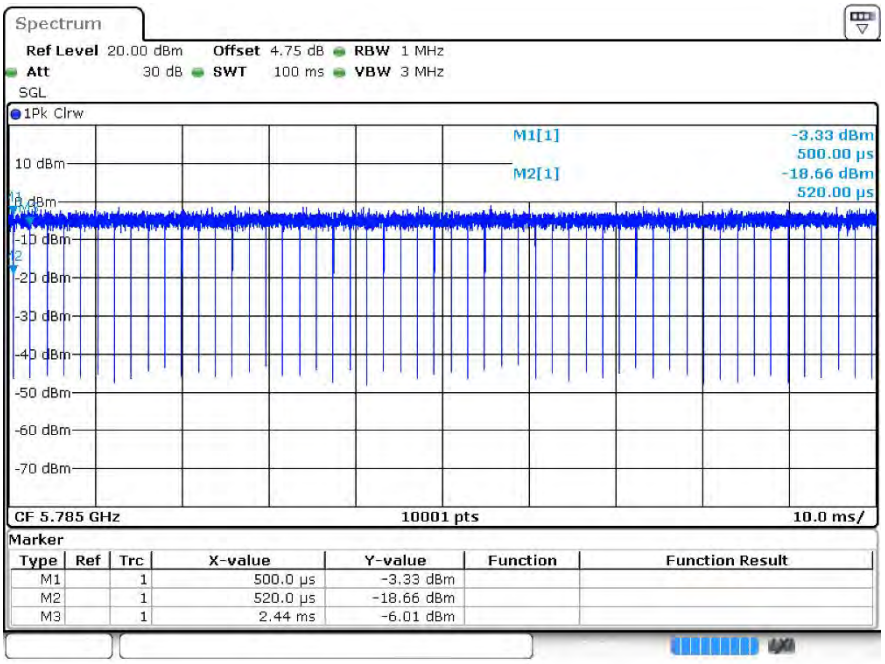
Duty Cycle a 5825MHz Ant1



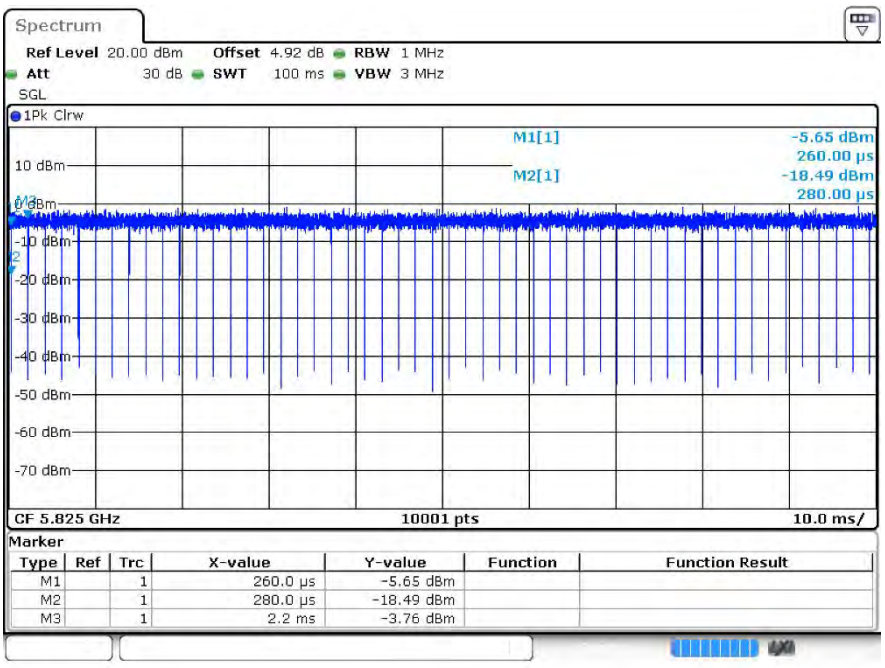
Duty Cycle n20 5745MHz Ant1



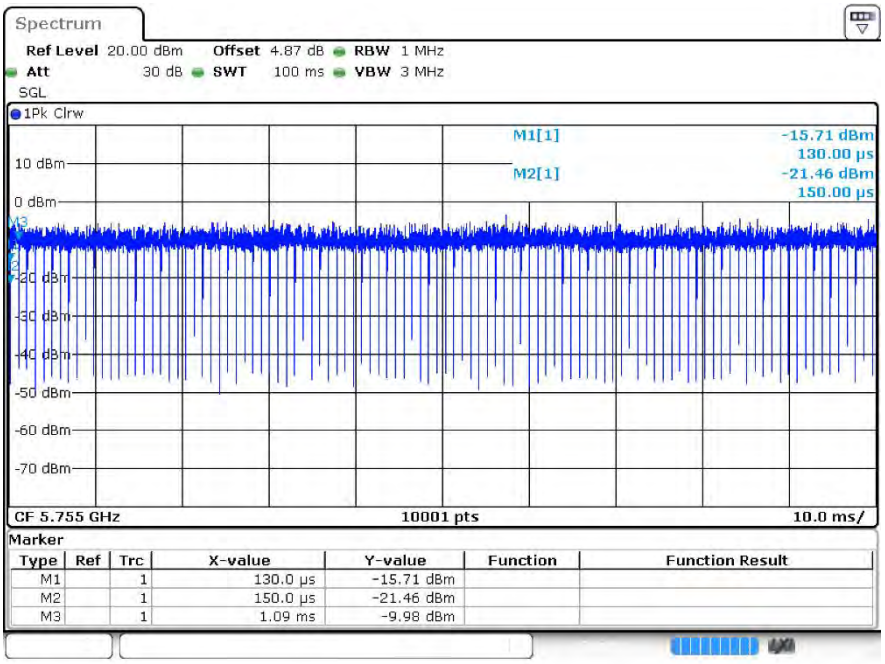
Duty Cycle n20 5785MHz Ant1



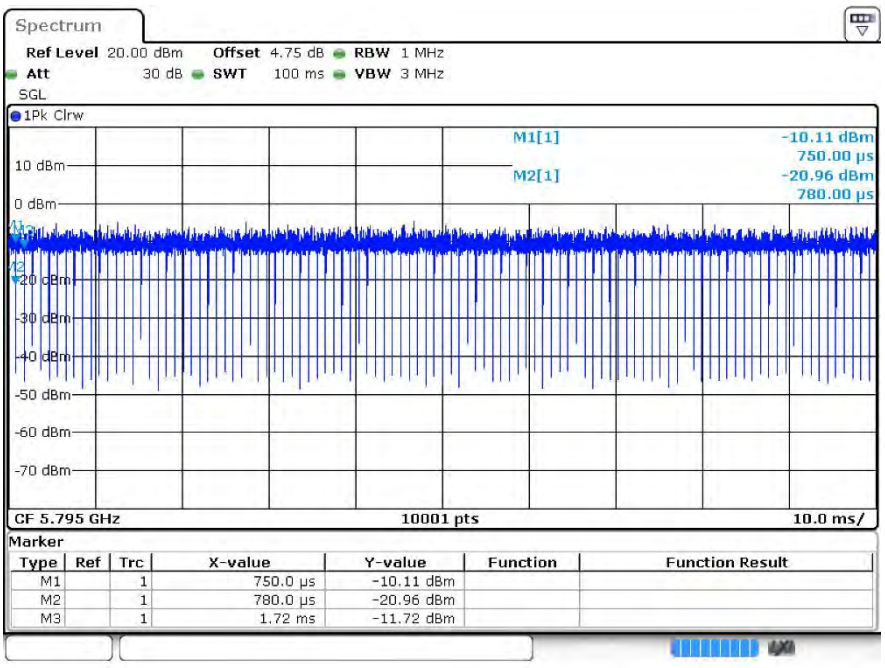
Duty Cycle n20 5825MHz Ant1



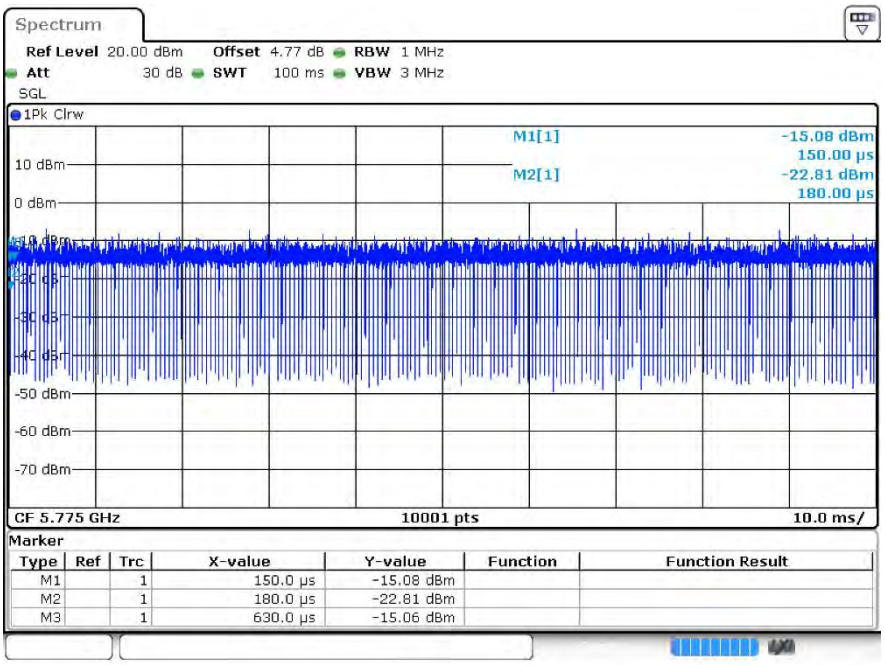
Duty Cycle n40 5755MHz Ant1



Duty Cycle n40 5795MHz Ant1



Duty Cycle ac80 5775MHz Ant1



2 Maximum Conducted Output Power

2.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
a	5745	Ant1	9.32	0.02	9.34	30	Pass
a	5785	Ant1	7.85	0.02	7.87	30	Pass
a	5825	Ant1	8.42	0.02	8.44	30	Pass
n20	5745	Ant1	9.03	0.02	9.05	30	Pass
n20	5785	Ant1	7.64	0.02	7.66	30	Pass
n20	5825	Ant1	8.02	0.03	8.05	30	Pass
n40	5755	Ant1	9.02	0.09	9.11	30	Pass
n40	5795	Ant1	9.56	0.09	9.65	30	Pass
ac80	5775	Ant1	9.33	0.25	9.58	30	Pass

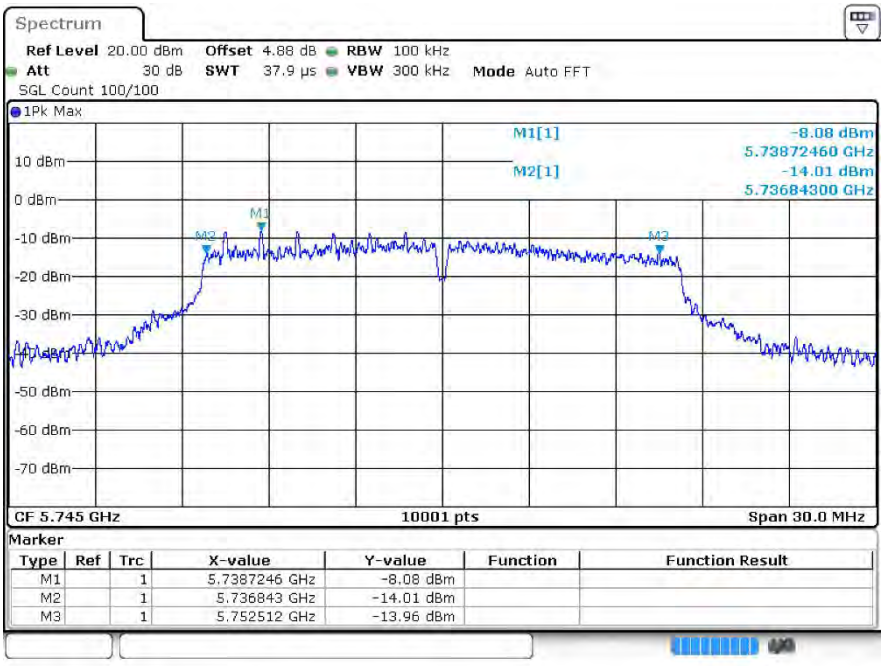
3 -6dB Bandwidth

3.1 Test Result

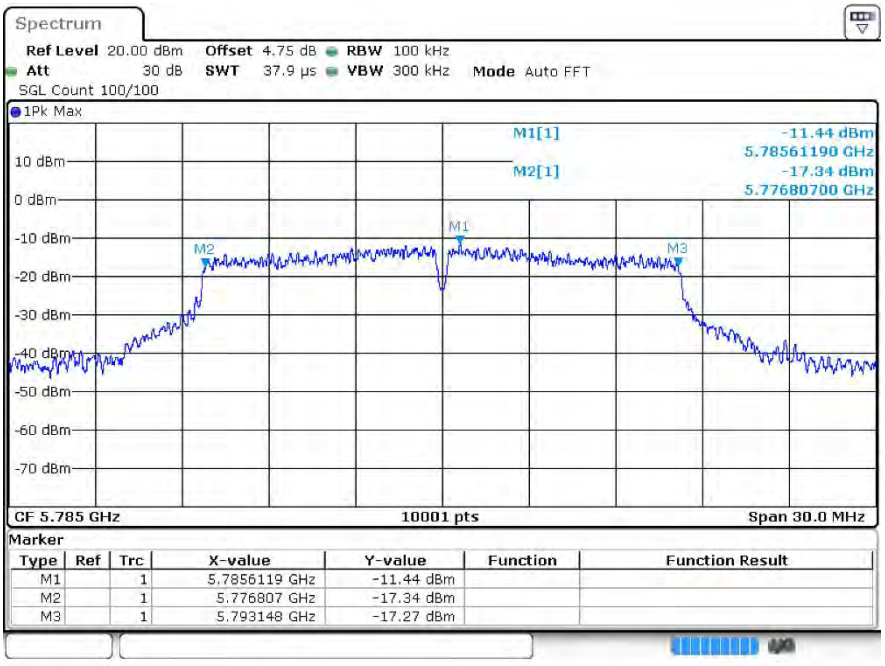
Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
a	5745	Ant1	15.669	0.5	Pass
a	5785	Ant1	16.341	0.5	Pass
a	5825	Ant1	16.356	0.5	Pass
n20	5745	Ant1	17.307	0.5	Pass
n20	5785	Ant1	17.574	0.5	Pass
n20	5825	Ant1	17.676	0.5	Pass
n40	5755	Ant1	36.336	0.5	Pass
n40	5795	Ant1	35.778	0.5	Pass
ac80	5775	Ant1	75.324	0.5	Pass

3.2 Test Graphs

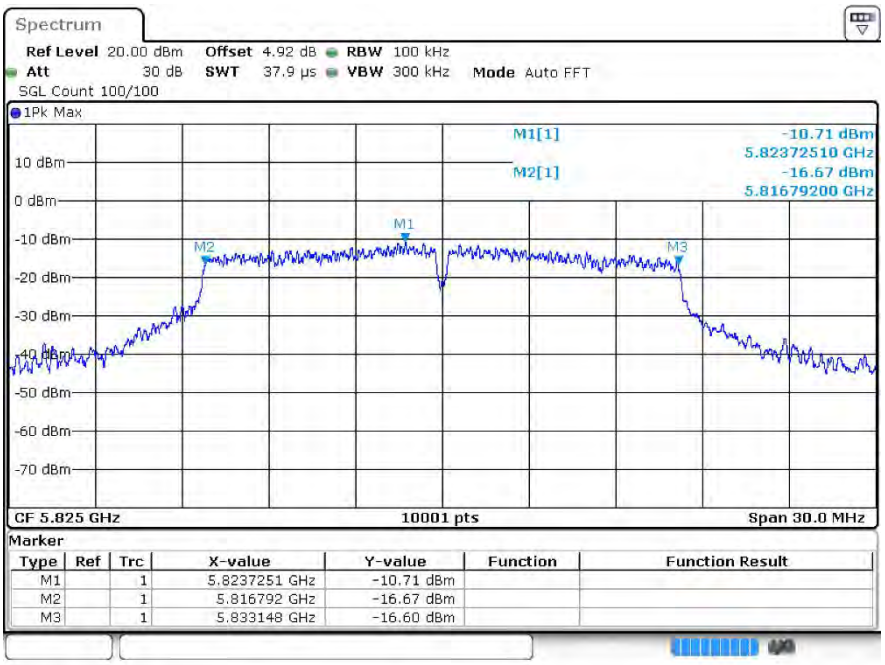
Test Graphs
-6dB Bandwidth a 5745MHz Ant1



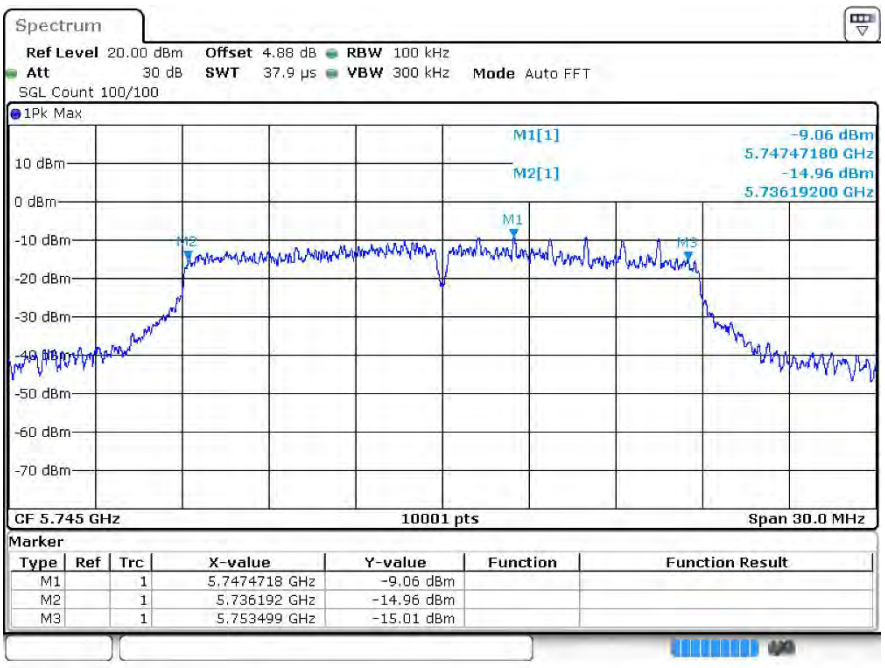
-6dB Bandwidth a 5785MHz Ant1



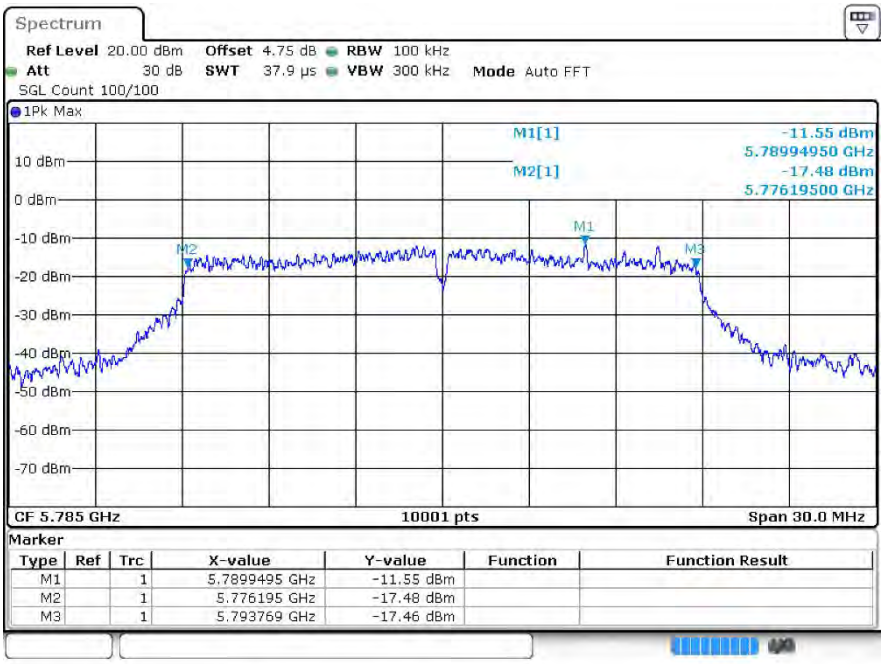
-6dB Bandwidth a 5825MHz Ant1



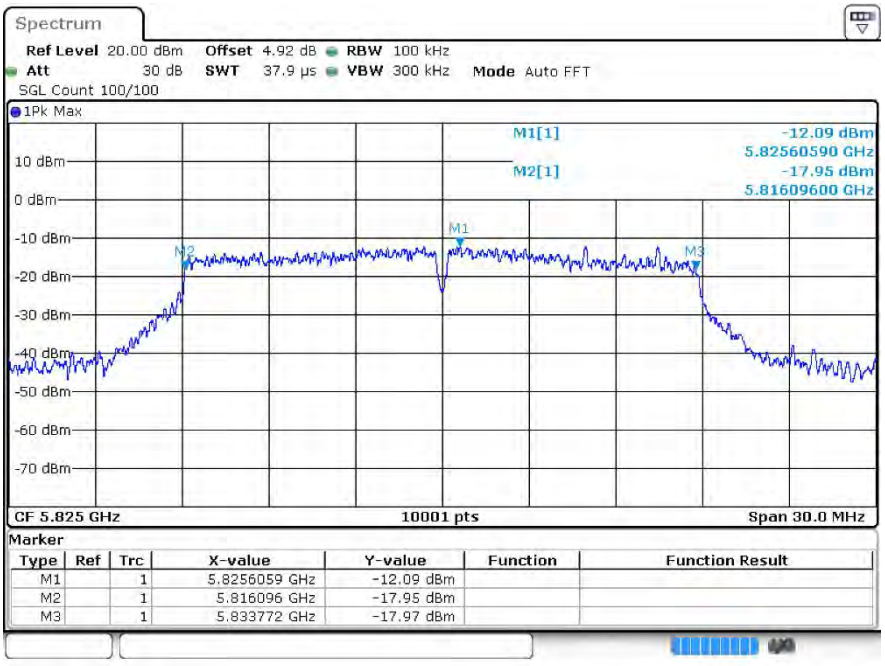
-6dB Bandwidth n20 5745MHz Ant1



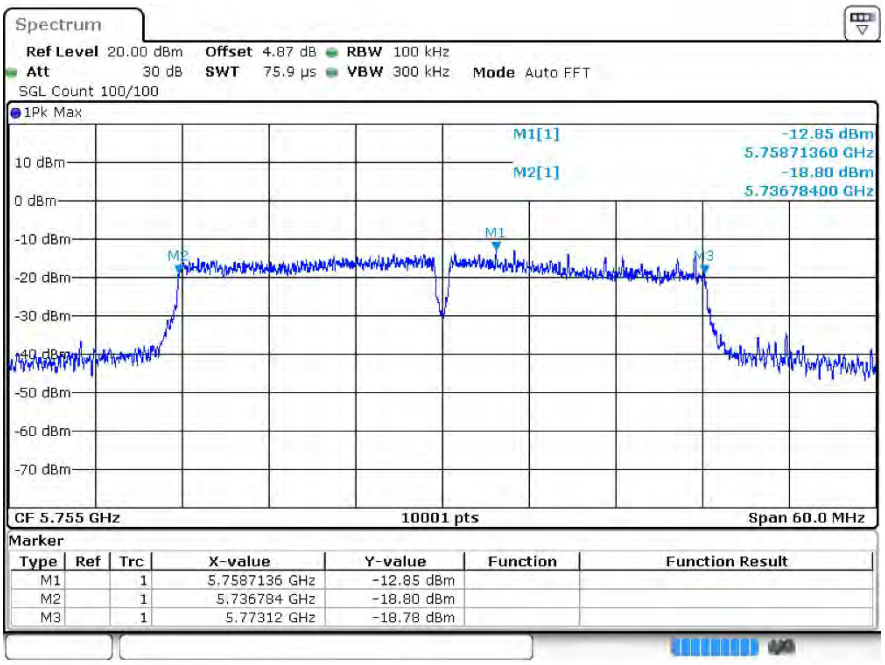
-6dB Bandwidth n20 5785MHz Ant1



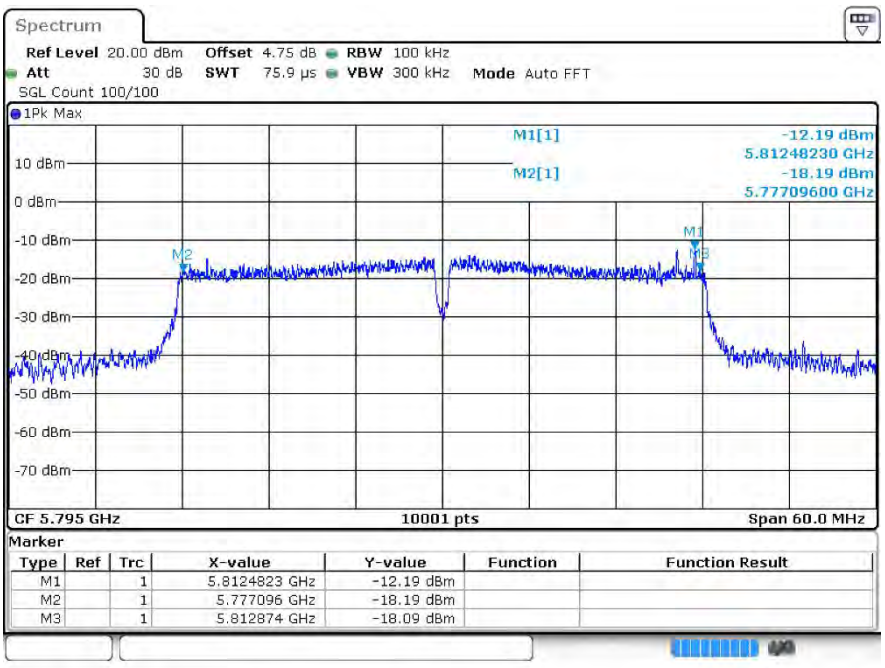
-6dB Bandwidth n20 5825MHz Ant1



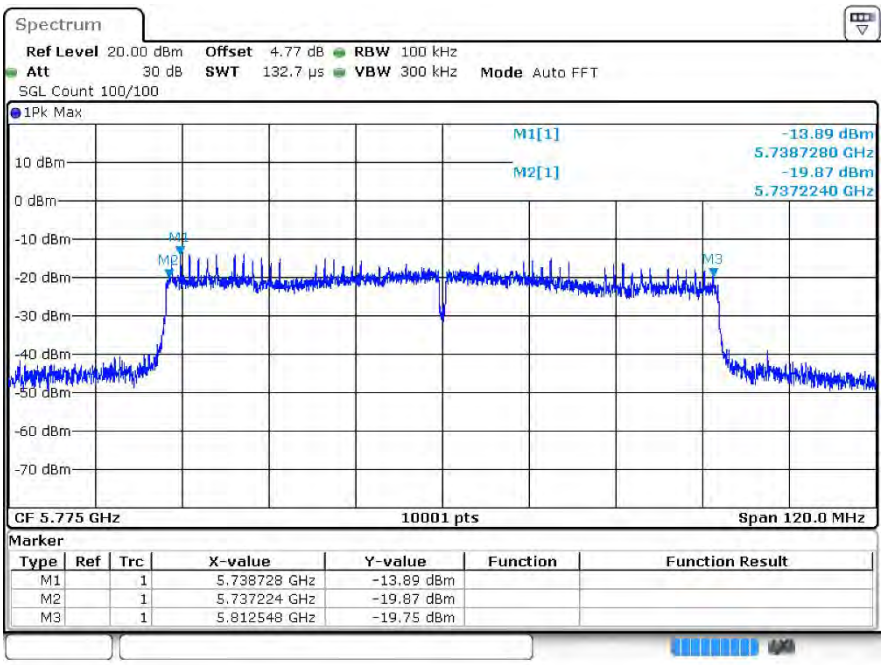
-6dB Bandwidth n40 5755MHz Ant1



-6dB Bandwidth n40 5795MHz Ant1



-6dB Bandwidth ac80 5775MHz Ant1

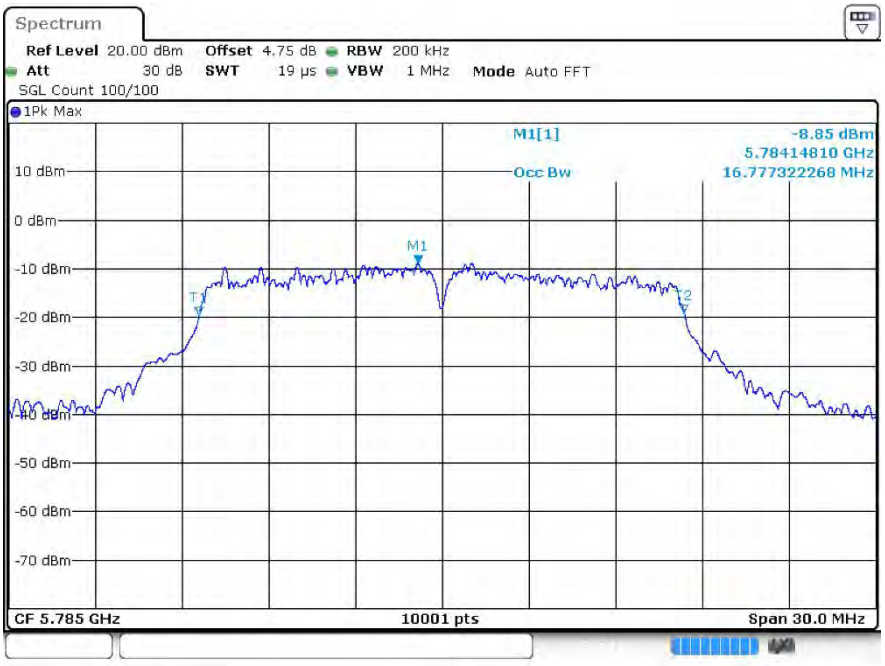


4 Occupied Channel Bandwidth

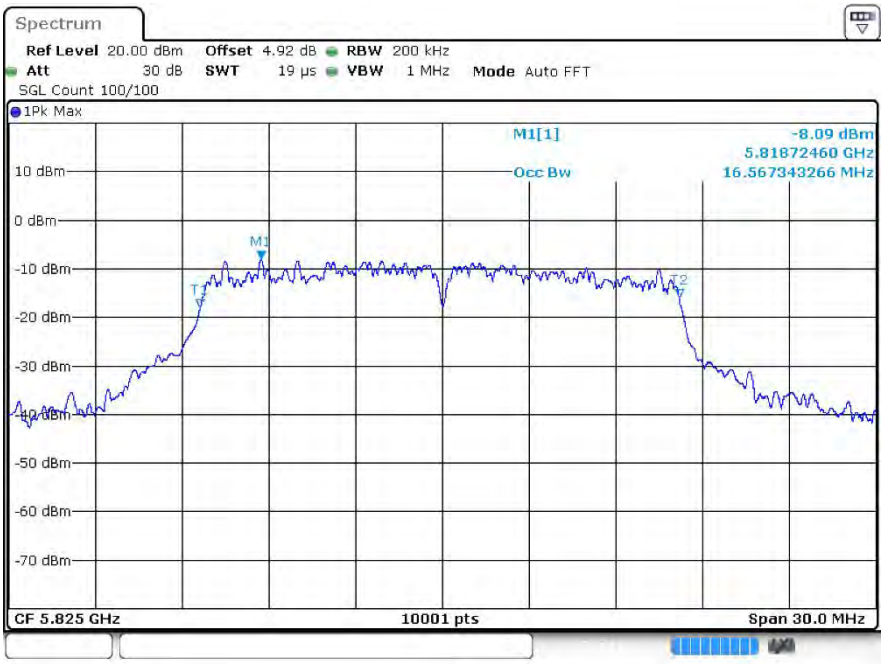
4.1 Test Result

Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
a	5745	Ant1	17.038
a	5785	Ant1	16.777
a	5825	Ant1	16.567
n20	5745	Ant1	17.794
n20	5785	Ant1	17.749
n20	5825	Ant1	17.911
n40	5755	Ant1	36.746
n40	5795	Ant1	36.398
ac80	5775	Ant1	75.892

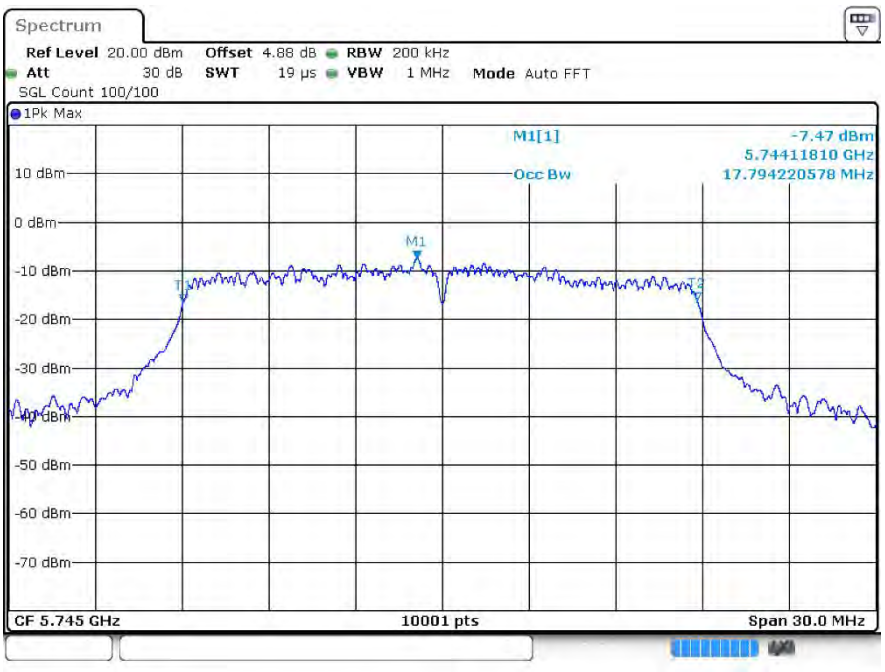
4.2 Test Graphs

Test Graphs
OBW a 5745MHz Ant1
OBW a 5785MHz Ant1


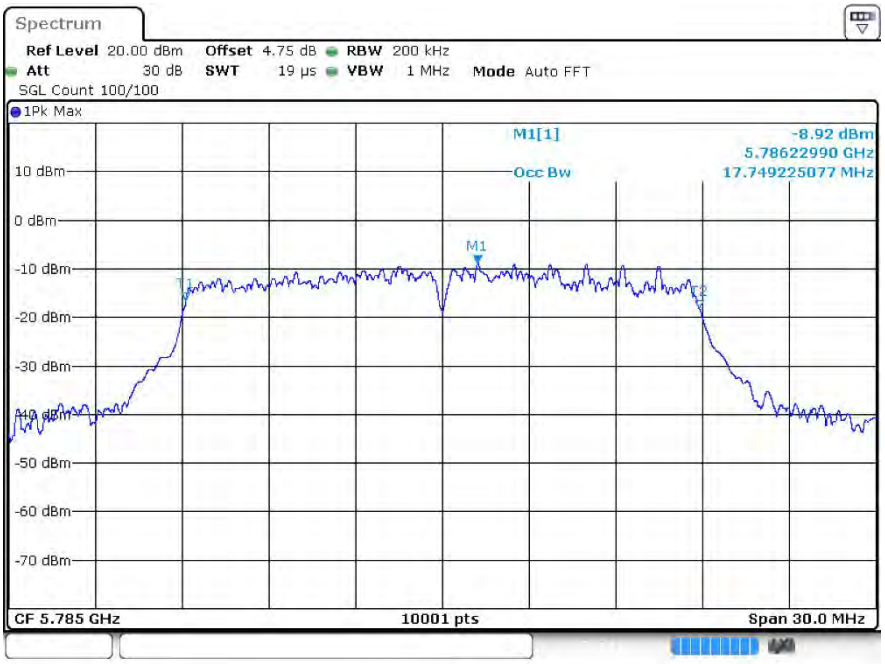
OBW a 5825MHz Ant1



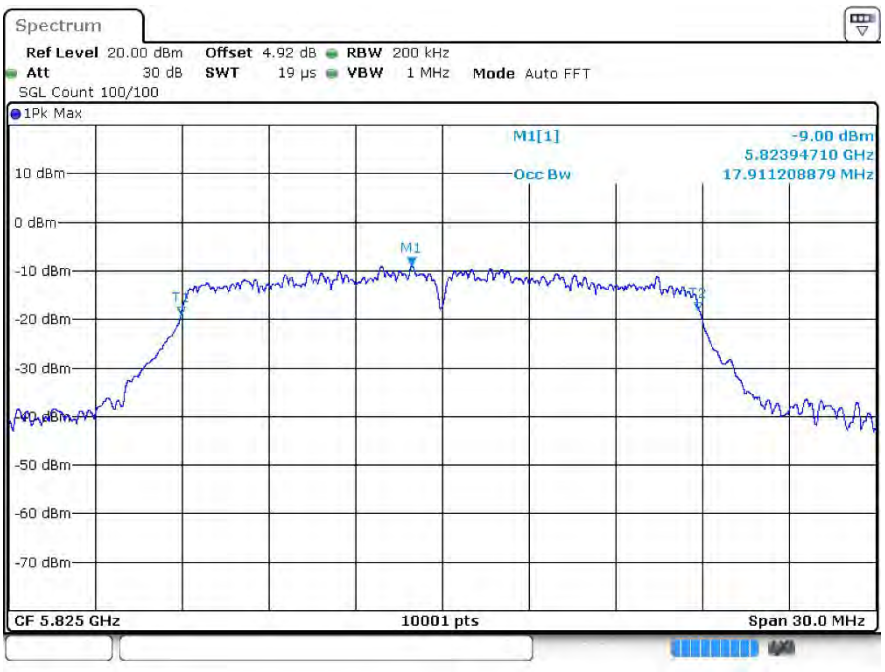
OBW n20 5745MHz Ant1



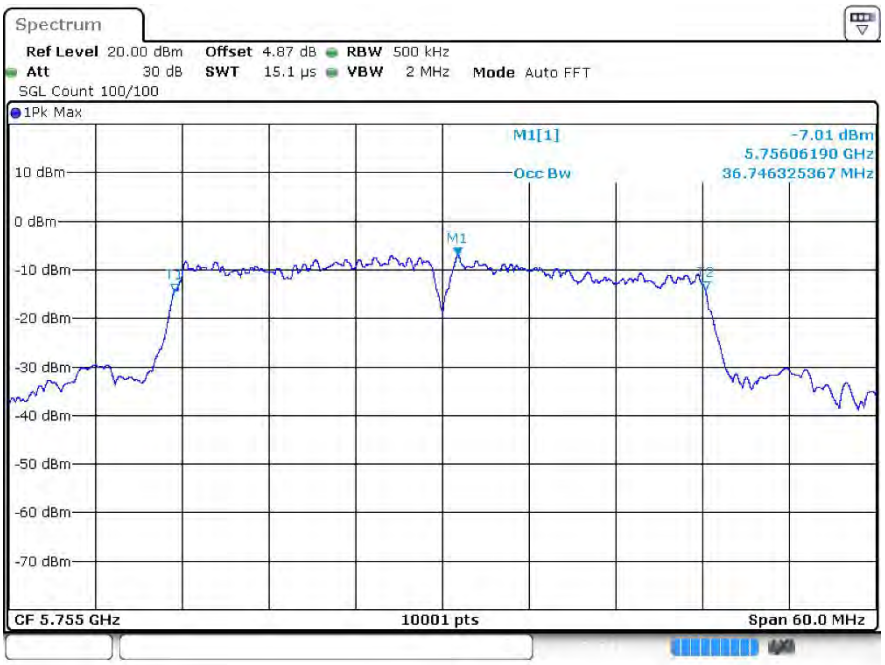
OBW n20 5785MHz Ant1



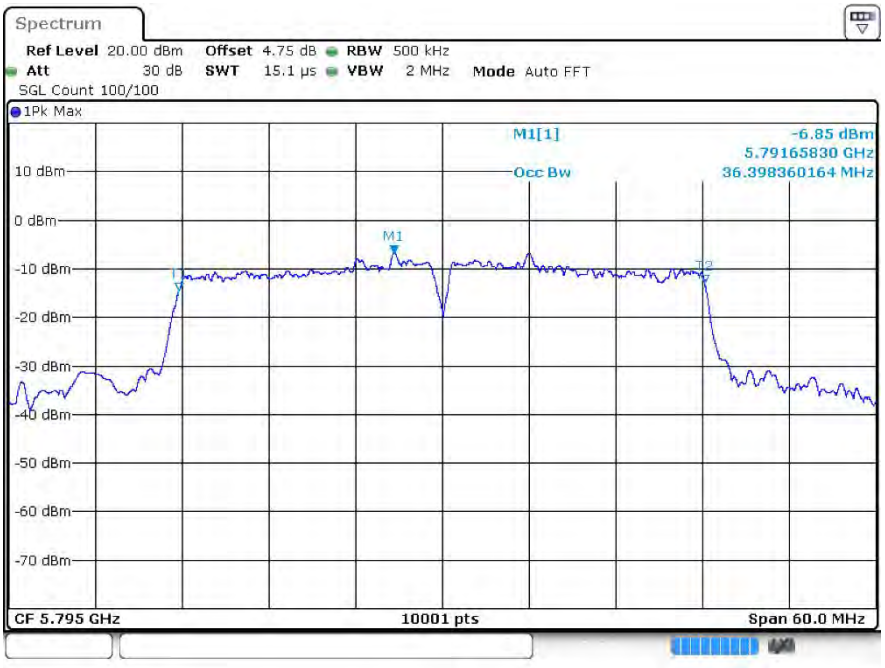
OBW n20 5825MHz Ant1



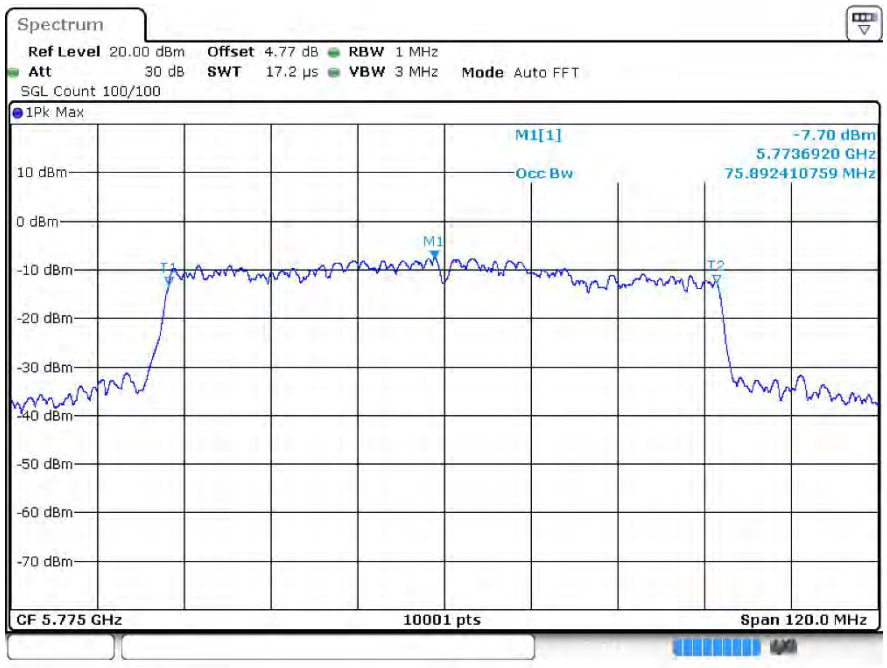
OBW n40 5755MHz Ant1



OBW n40 5795MHz Ant1



OBW ac80 5775MHz Ant1

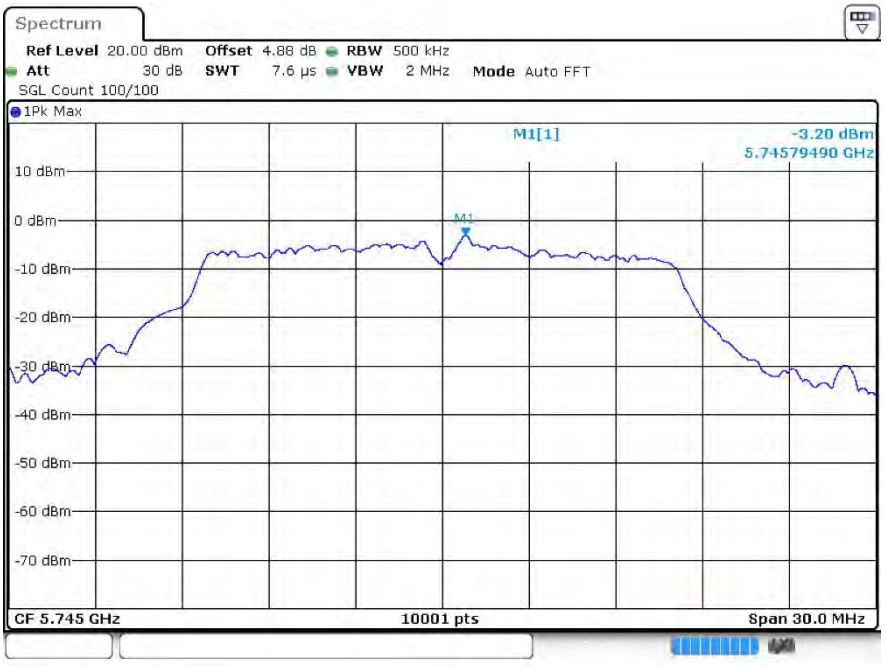
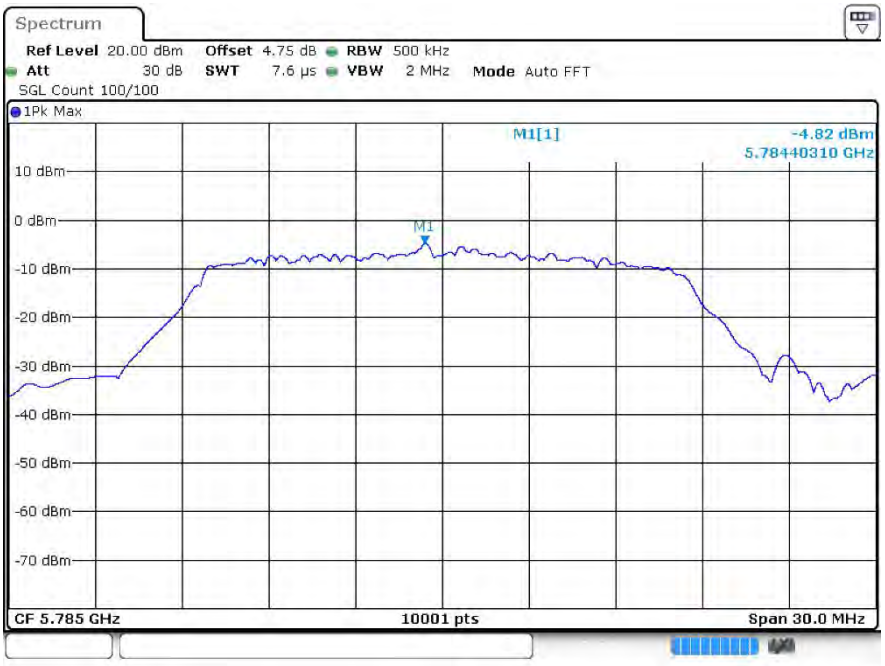


5 Maximum Power Spectral Density Level

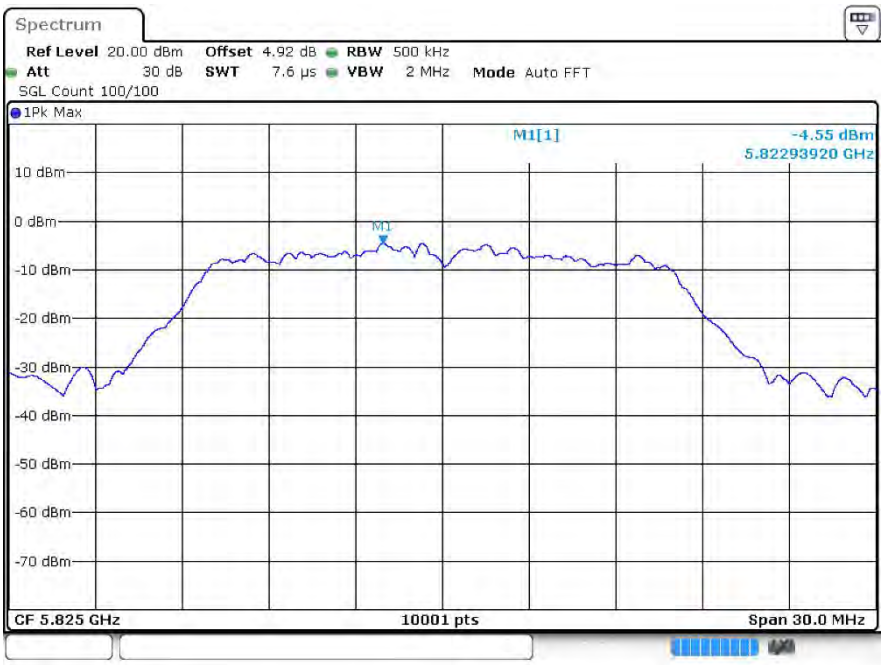
5.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
a	5745	Ant1	-3.22	0.02	-3.2	30	Pass
a	5785	Ant1	-4.84	0.02	-4.82	30	Pass
a	5825	Ant1	-4.57	0.02	-4.55	30	Pass
n20	5745	Ant1	-3.7	0.02	-3.68	30	Pass
n20	5785	Ant1	-5.9	0.02	-5.88	30	Pass
n20	5825	Ant1	-5.43	0.03	-5.41	30	Pass
n40	5755	Ant1	-6.84	0.09	-6.75	30	Pass
n40	5795	Ant1	-7.76	0.09	-7.67	30	Pass
ac80	5775	Ant1	-10.76	0.25	-10.51	30	Pass

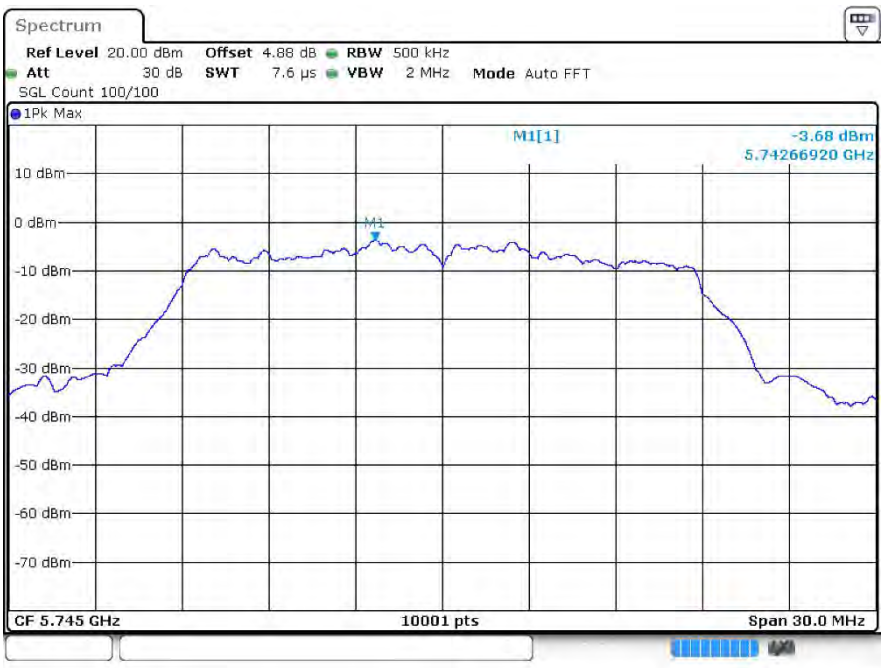
5.2 Test Graphs

Test Graphs
PSD a 5745MHz Ant1

PSD a 5785MHz Ant1


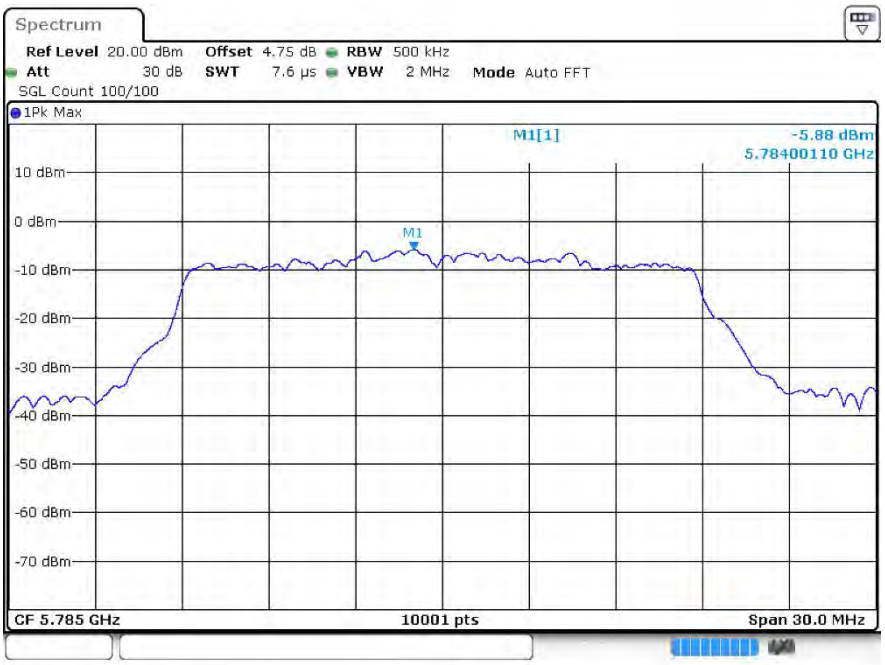
PSD a 5825MHz Ant1



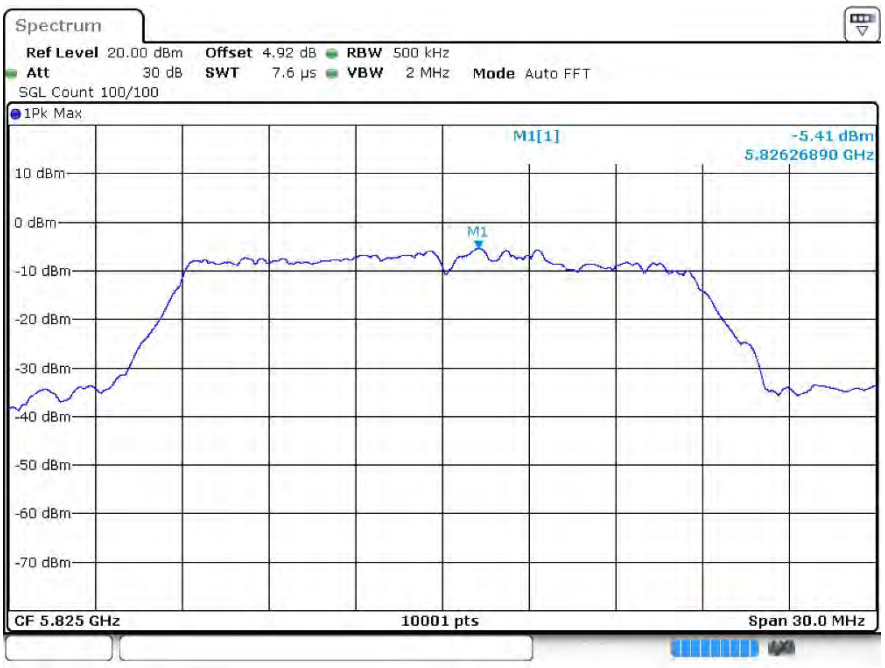
PSD n20 5745MHz Ant1



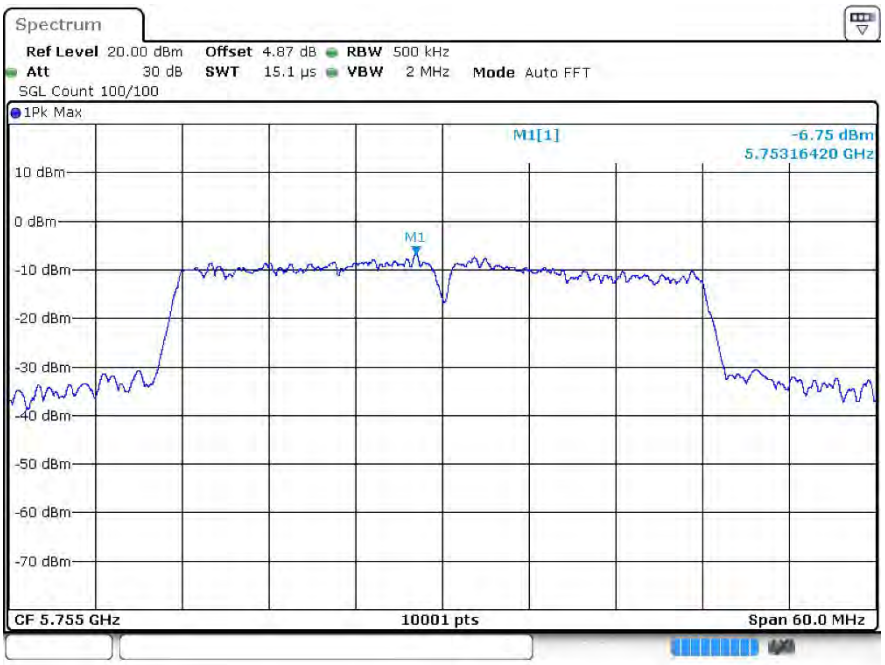
PSD n20 5785MHz Ant1



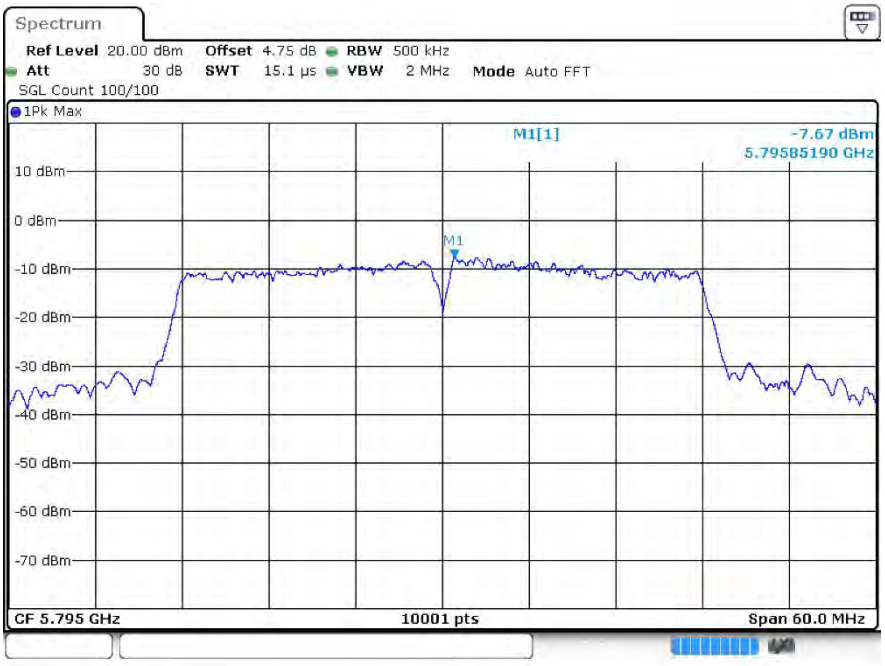
PSD n20 5825MHz Ant1



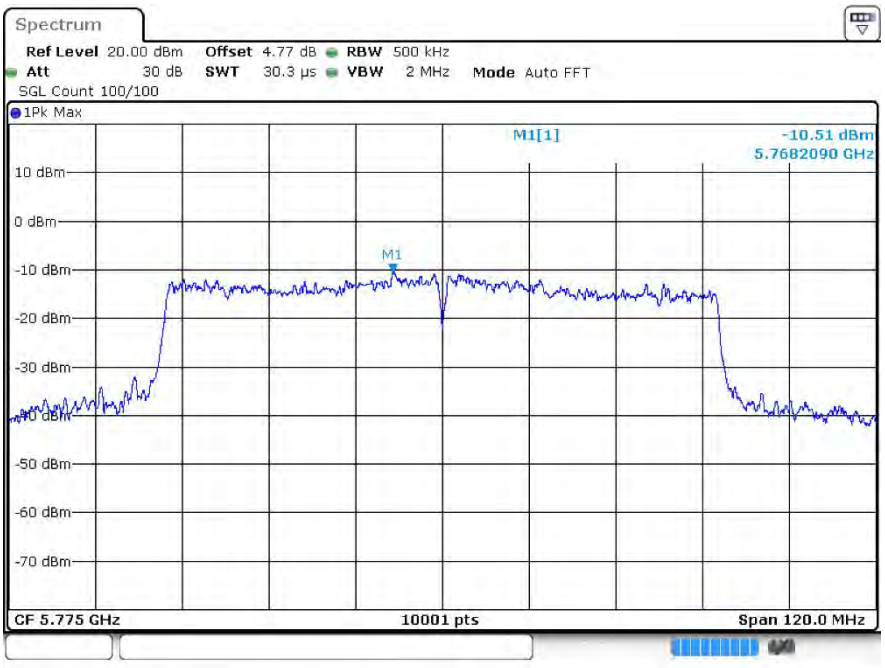
PSD n40 5755MHz Ant1



PSD n40 5795MHz Ant1



PSD ac80 5775MHz 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	5745	Ant1	5744.96	-40000	-6.96	25	Pass
20C 120V	a	5745	Ant1	5744.94	-60000	-10.44	25	Pass
20C 138V	a	5745	Ant1	5744.96	-40000	-6.96	25	Pass
-20C 120V	a	5745	Ant1	5744.98	-20000	-3.48	25	Pass
-10C 120V	a	5745	Ant1	5744.98	-20000	-3.48	25	Pass
0C 120V	a	5745	Ant1	5744.98	-20000	-3.48	25	Pass
10C 120V	a	5745	Ant1	5744.96	-40000	-6.96	25	Pass
30C 120V	a	5745	Ant1	5744.98	-20000	-3.48	25	Pass
40C 120V	a	5745	Ant1	5744.98	-20000	-3.48	25	Pass
50C 120V	a	5745	Ant1	5744.98	-20000	-3.48	25	Pass
20C 102V	a	5785	Ant1	5784.98	-20000	-3.46	25	Pass
20C 120V	a	5785	Ant1	5785	0	0	25	Pass
20C 138V	a	5785	Ant1	5784.98	-20000	-3.46	25	Pass
-20C 120V	a	5785	Ant1	5784.96	-40000	-6.91	25	Pass
-10C 120V	a	5785	Ant1	5784.98	-20000	-3.46	25	Pass
0C 120V	a	5785	Ant1	5784.98	-20000	-3.46	25	Pass
10C 120V	a	5785	Ant1	5784.96	-40000	-6.91	25	Pass
30C 120V	a	5785	Ant1	5785	0	0	25	Pass
40C 120V	a	5785	Ant1	5785	0	0	25	Pass
50C 120V	a	5785	Ant1	5784.96	-40000	-6.91	25	Pass
20C 102V	a	5825	Ant1	5824.96	-40000	-6.87	25	Pass
20C 120V	a	5825	Ant1	5824.96	-40000	-6.87	25	Pass
20C 138V	a	5825	Ant1	5824.98	-20000	-3.43	25	Pass
-20C 120V	a	5825	Ant1	5824.98	-20000	-3.43	25	Pass
-10C 120V	a	5825	Ant1	5824.96	-40000	-6.87	25	Pass
0C 120V	a	5825	Ant1	5824.96	-40000	-6.87	25	Pass
10C 120V	a	5825	Ant1	5824.98	-20000	-3.43	25	Pass
30C 120V	a	5825	Ant1	5824.96	-40000	-6.87	25	Pass
40C 120V	a	5825	Ant1	5824.96	-40000	-6.87	25	Pass
50C 120V	a	5825	Ant1	5824.98	-20000	-3.43	25	Pass
20C 102V	n20	5745	Ant1	5744.98	-20000	-3.48	25	Pass
20C 120V	n20	5745	Ant1	5744.98	-20000	-3.48	25	Pass
20C 138V	n20	5745	Ant1	5744.96	-40000	-6.96	25	Pass
-20C 120V	n20	5745	Ant1	5744.96	-40000	-6.96	25	Pass
-10C 120V	n20	5745	Ant1	5744.98	-20000	-3.48	25	Pass

0C 120V	n20	5745	Ant1	5744.98	-20000	-3.48	25	Pass
10C 120V	n20	5745	Ant1	5744.94	-60000	-10.44	25	Pass
30C 120V	n20	5745	Ant1	5744.98	-20000	-3.48	25	Pass
40C 120V	n20	5745	Ant1	5744.96	-40000	-6.96	25	Pass
50C 120V	n20	5745	Ant1	5744.98	-20000	-3.48	25	Pass
20C 102V	n20	5785	Ant1	5784.98	-20000	-3.46	25	Pass
20C 120V	n20	5785	Ant1	5785	0	0	25	Pass
20C 138V	n20	5785	Ant1	5784.96	-40000	-6.91	25	Pass
-20C 120V	n20	5785	Ant1	5784.96	-40000	-6.91	25	Pass
-10C 120V	n20	5785	Ant1	5784.98	-20000	-3.46	25	Pass
0C 120V	n20	5785	Ant1	5784.98	-20000	-3.46	25	Pass
10C 120V	n20	5785	Ant1	5784.98	-20000	-3.46	25	Pass
30C 120V	n20	5785	Ant1	5784.98	-20000	-3.46	25	Pass
40C 120V	n20	5785	Ant1	5784.98	-20000	-3.46	25	Pass
50C 120V	n20	5785	Ant1	5785	0	0	25	Pass
20C 102V	n20	5825	Ant1	5824.98	-20000	-3.43	25	Pass
20C 120V	n20	5825	Ant1	5824.98	-20000	-3.43	25	Pass
20C 138V	n20	5825	Ant1	5824.96	-40000	-6.87	25	Pass
-20C 120V	n20	5825	Ant1	5824.96	-40000	-6.87	25	Pass
-10C 120V	n20	5825	Ant1	5824.98	-20000	-3.43	25	Pass
0C 120V	n20	5825	Ant1	5824.96	-40000	-6.87	25	Pass
10C 120V	n20	5825	Ant1	5825	0	0	25	Pass
30C 120V	n20	5825	Ant1	5824.98	-20000	-3.43	25	Pass
40C 120V	n20	5825	Ant1	5824.96	-40000	-6.87	25	Pass
50C 120V	n20	5825	Ant1	5824.98	-20000	-3.43	25	Pass
20C 102V	n40	5755	Ant1	5754.96	-40000	-6.95	25	Pass
20C 120V	n40	5755	Ant1	5754.96	-40000	-6.95	25	Pass
20C 138V	n40	5755	Ant1	5754.96	-40000	-6.95	25	Pass
-20C 120V	n40	5755	Ant1	5755	0	0	25	Pass
-10C 120V	n40	5755	Ant1	5754.96	-40000	-6.95	25	Pass
0C 120V	n40	5755	Ant1	5754.96	-40000	-6.95	25	Pass
10C 120V	n40	5755	Ant1	5754.92	-80000	-13.9	25	Pass
30C 120V	n40	5755	Ant1	5754.96	-40000	-6.95	25	Pass
40C 120V	n40	5755	Ant1	5754.96	-40000	-6.95	25	Pass
50C 120V	n40	5755	Ant1	5754.96	-40000	-6.95	25	Pass
20C 102V	n40	5795	Ant1	5794.96	-40000	-6.9	25	Pass
20C 120V	n40	5795	Ant1	5795	0	0	25	Pass
20C 138V	n40	5795	Ant1	5795	0	0	25	Pass
-20C 120V	n40	5795	Ant1	5794.96	-40000	-6.9	25	Pass
-10C 120V	n40	5795	Ant1	5795	0	0	25	Pass
0C 120V	n40	5795	Ant1	5794.96	-40000	-6.9	25	Pass
10C 120V	n40	5795	Ant1	5795	0	0	25	Pass
30C 120V	n40	5795	Ant1	5795	0	0	25	Pass

40C 120V	n40	5795	Ant1	5794.96	-40000	-6.9	25	Pass
50C 120V	n40	5795	Ant1	5794.96	-40000	-6.9	25	Pass
20C 102V	ac80	5775	Ant1	5775	0	0	25	Pass
20C 120V	ac80	5775	Ant1	5775	0	0	25	Pass
20C 138V	ac80	5775	Ant1	5775	0	0	25	Pass
-20C 120V	ac80	5775	Ant1	5775	0	0	25	Pass
-10C 120V	ac80	5775	Ant1	5774.92	-80000	-13.85	25	Pass
0C 120V	ac80	5775	Ant1	5775	0	0	25	Pass
10C 120V	ac80	5775	Ant1	5775	0	0	25	Pass
30C 120V	ac80	5775	Ant1	5775	0	0	25	Pass
40C 120V	ac80	5775	Ant1	5774.92	-80000	-13.85	25	Pass
50C 120V	ac80	5775	Ant1	5775	0	0	25	Pass

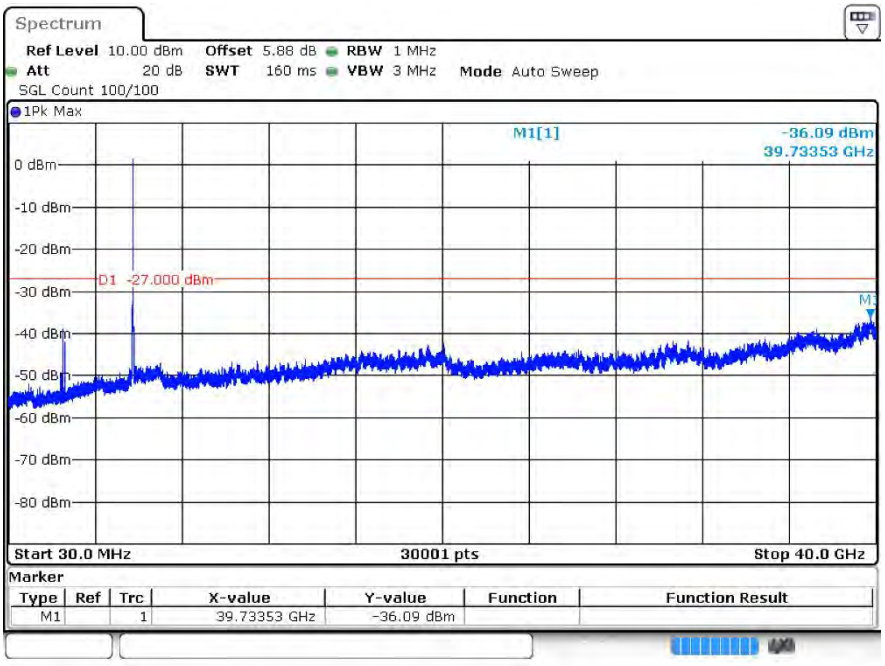
7 Conducted RF Spurious Emission

7.1 Test Result

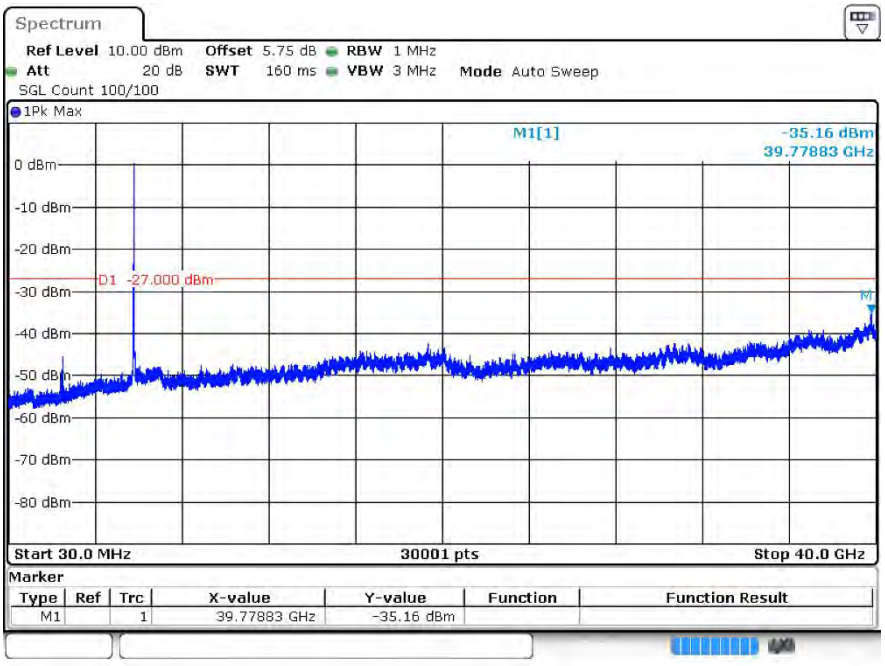
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
a	5745	Ant1	-36.08	-27	Pass
a	5785	Ant1	-35.16	-27	Pass
a	5825	Ant1	-35.84	-27	Pass
n20	5745	Ant1	-36.2	-27	Pass
n20	5785	Ant1	-35.9	-27	Pass
n20	5825	Ant1	-35.64	-27	Pass
n40	5755	Ant1	-36.51	-27	Pass
n40	5795	Ant1	-35.59	-27	Pass
ac80	5775	Ant1	-36.76	-27	Pass

7.2 Test Graphs

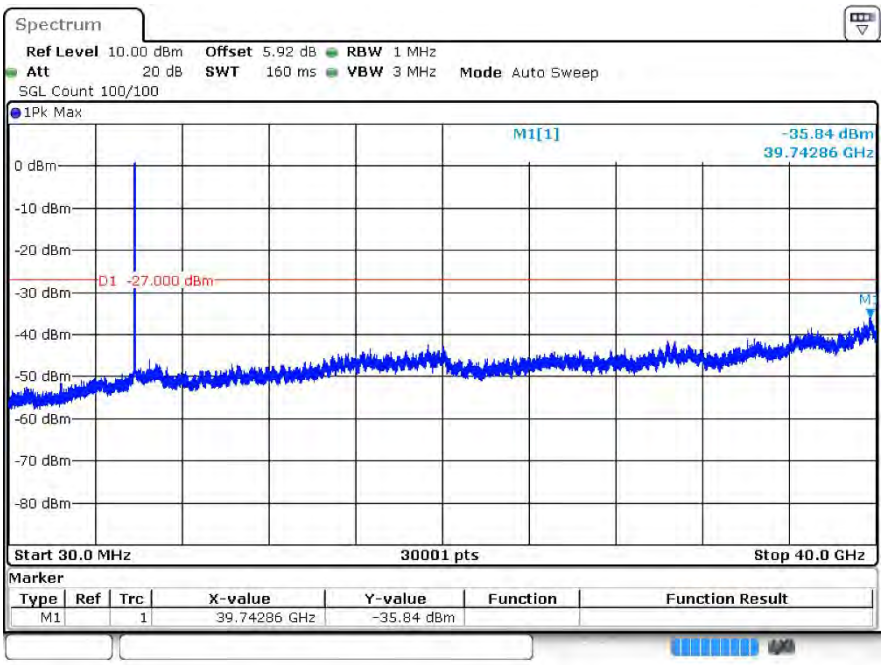
Test Graphs
Tx. Spurious a 5745MHz Ant1 Emission



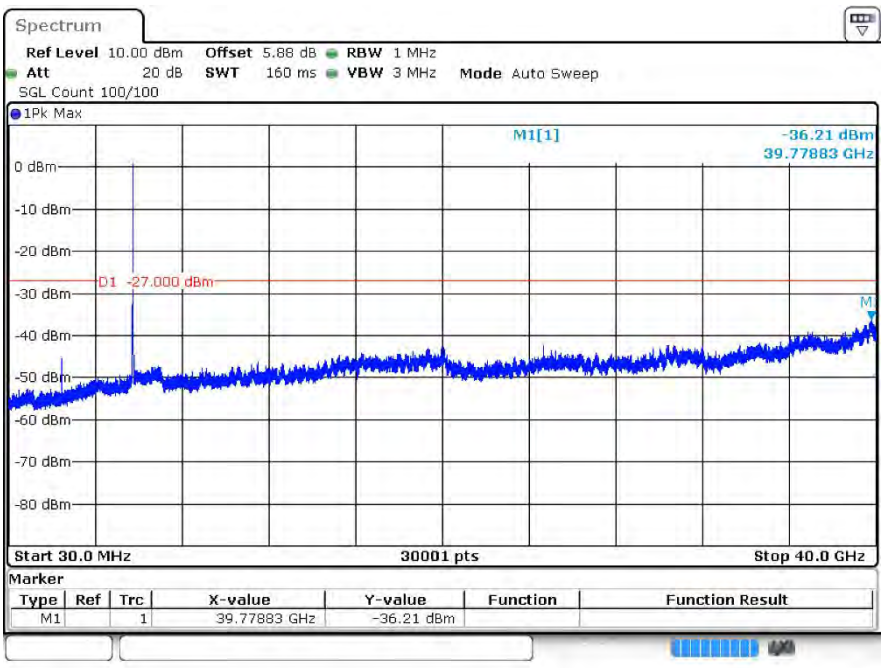
Tx. Spurious a 5785MHz Ant1 Emission



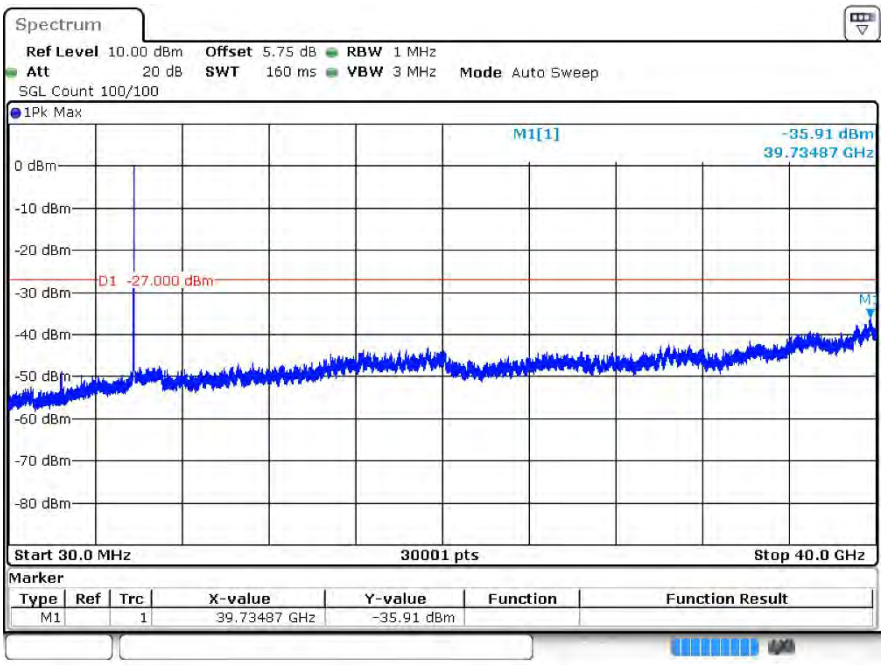
Tx. Spurious a 5825MHz Ant1 Emission



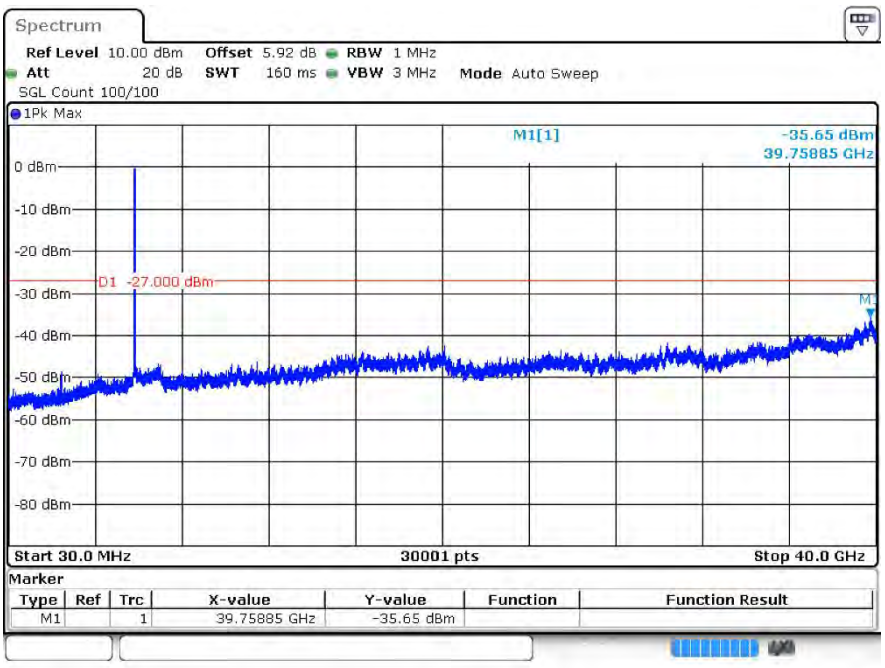
Tx. Spurious n20 5745MHz Ant1 Emission



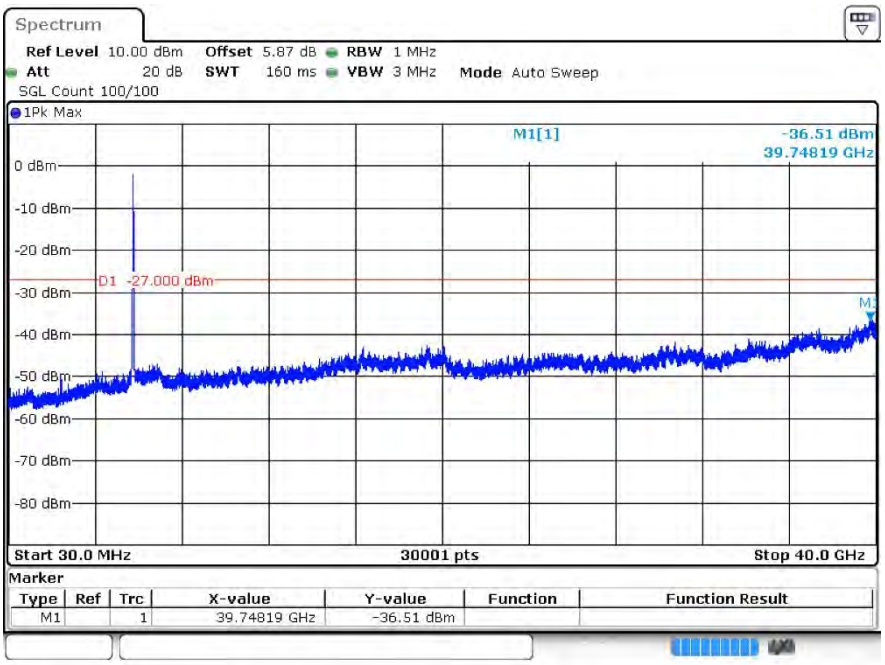
Tx. Spurious n20 5785MHz Ant1 Emission



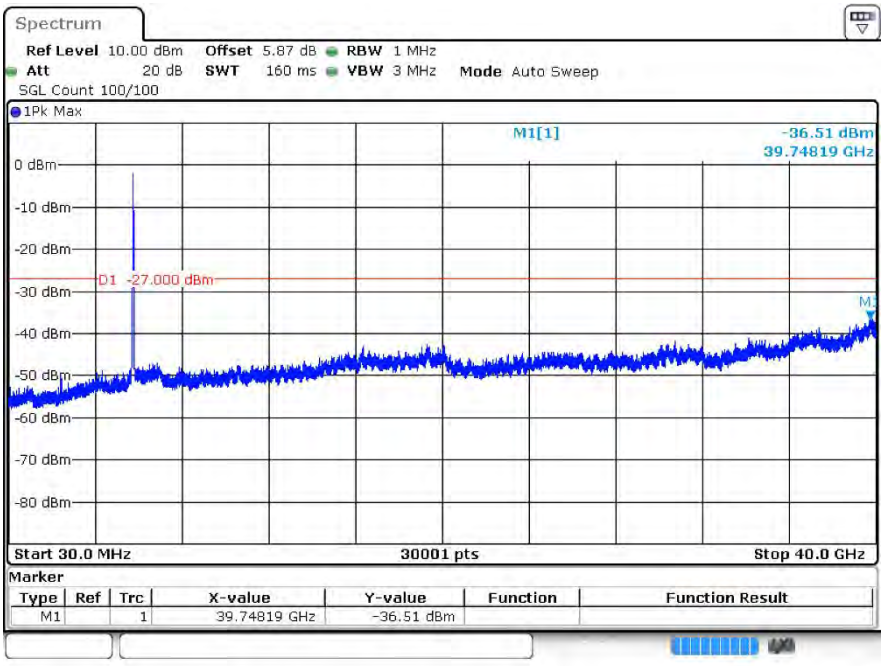
Tx. Spurious n20 5825MHz Ant1 Emission



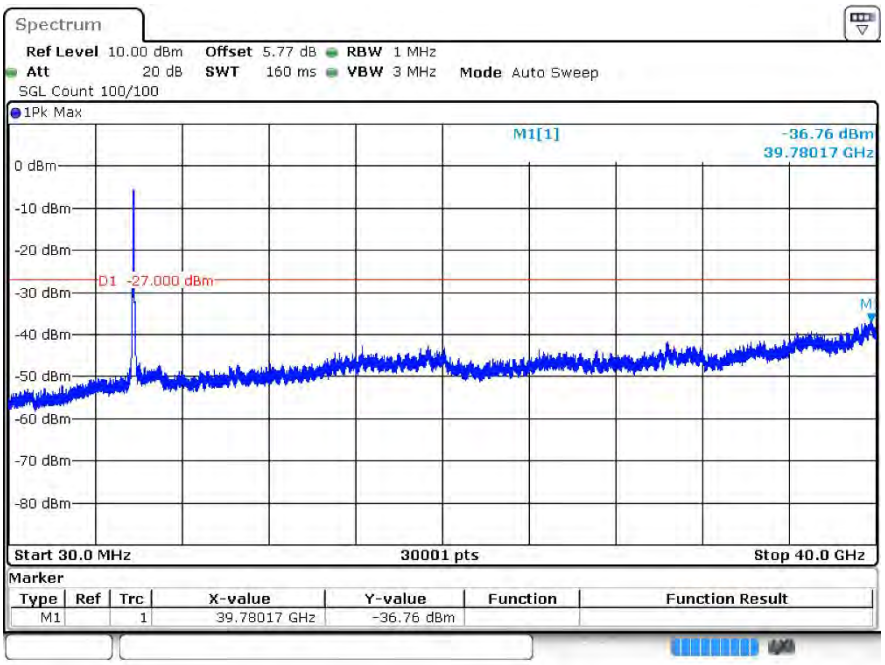
Tx. Spurious n40 5755MHz Ant1 Emission



Tx. Spurious n40 5795MHz Ant1 Emission



Tx. Spurious ac80 5775MHz Ant1 Emission



8 Restrict Band

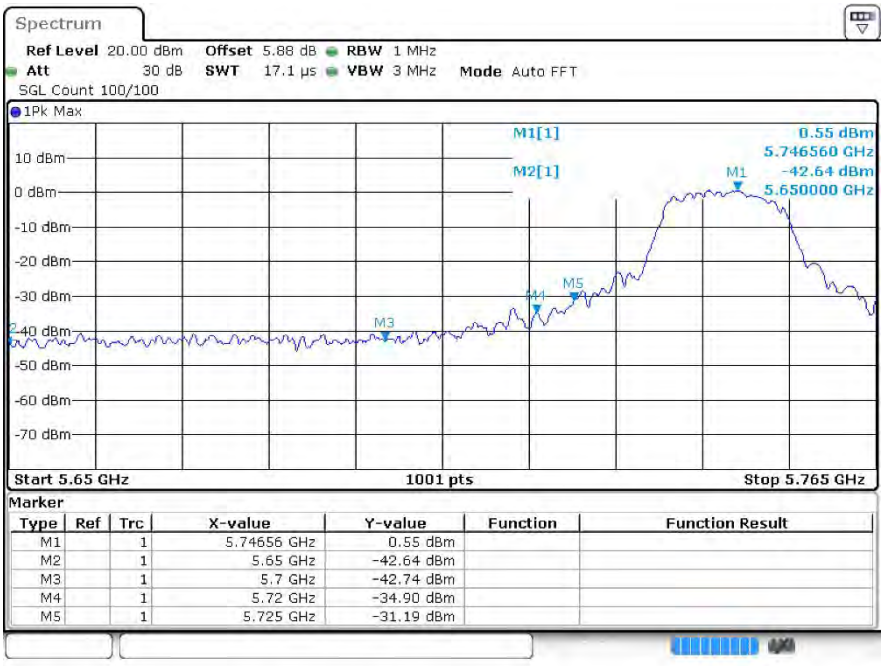
8.1 Test Result

Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	ERIP (dBm)	Detector	Limit (dBm/MHz)	Verdict
a	5745	Ant1	5650	-45.85	3.21	-42.64	Peak	-27	Pass
a	5745	Ant1	5700	-45.95	3.21	-42.74	Peak	-27	Pass
a	5745	Ant1	5720	-38.1	3.21	-34.89	Peak	-27	Pass
a	5745	Ant1	5725	-34.12	3.21	-30.91	Peak	-27	Pass
a	5825	Ant1	5850	-44.08	3.21	-40.87	Peak	-27	Pass
a	5825	Ant1	5855	-44.43	3.21	-41.22	Peak	-27	Pass
a	5825	Ant1	5875	-45.78	3.21	-42.57	Peak	-27	Pass
a	5825	Ant1	5925	-44.2	3.21	-40.99	Peak	-27	Pass
n20	5745	Ant1	5650	-45.86	3.21	-42.65	Peak	-27	Pass
n20	5745	Ant1	5700	-46.64	3.21	-43.43	Peak	-27	Pass
n20	5745	Ant1	5720	-42.62	3.21	-39.41	Peak	-27	Pass
n20	5745	Ant1	5725	-39.98	3.21	-36.77	Peak	-27	Pass
n20	5825	Ant1	5850	-43.98	3.21	-40.77	Peak	-27	Pass
n20	5825	Ant1	5855	-41.45	3.21	-38.24	Peak	-27	Pass
n20	5825	Ant1	5875	-45.1	3.21	-41.89	Peak	-27	Pass
n20	5825	Ant1	5925	-45.62	3.21	-42.41	Peak	-27	Pass
n40	5755	Ant1	5650	-45.89	3.21	-42.68	Peak	-27	Pass
n40	5755	Ant1	5700	-44.55	3.21	-41.34	Peak	-27	Pass
n40	5755	Ant1	5720	-36.38	3.21	-33.17	Peak	-27	Pass
n40	5755	Ant1	5725	-34.01	3.21	-30.8	Peak	-27	Pass
n40	5795	Ant1	5850	-46.12	3.21	-42.91	Peak	-27	Pass
n40	5795	Ant1	5855	-46.79	3.21	-43.58	Peak	-27	Pass
n40	5795	Ant1	5875	-45.6	3.21	-42.39	Peak	-27	Pass
n40	5795	Ant1	5925	-44.04	3.21	-40.83	Peak	-27	Pass
ac80	5775	Ant1	5650	-45.73	3.21	-42.52	Peak	-27	Pass
ac80	5775	Ant1	5700	-42.31	3.21	-39.1	Peak	-27	Pass
ac80	5775	Ant1	5720	-37.24	3.21	-34.03	Peak	-27	Pass
ac80	5775	Ant1	5725	-36.93	3.21	-33.72	Peak	-27	Pass
ac80	5775	Ant1	5850	-42.21	3.21	-39	Peak	-27	Pass
ac80	5775	Ant1	5855	-45.34	3.21	-42.13	Peak	-27	Pass
ac80	5775	Ant1	5875	-46.32	3.21	-43.11	Peak	-27	Pass
ac80	5775	Ant1	5925	-45.59	3.21	-42.38	Peak	-27	Pass

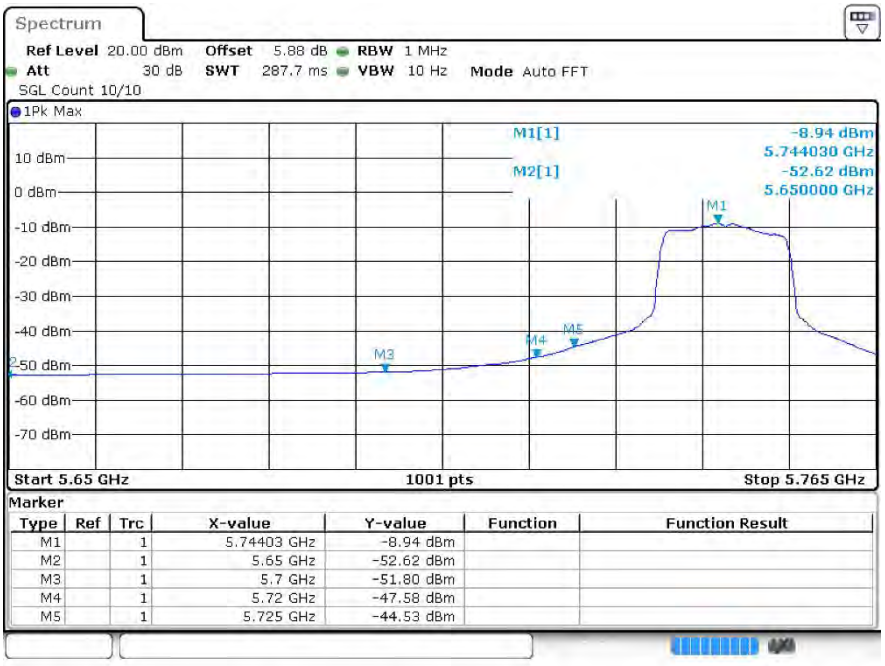
Note : Antenna gain has been compensated in plot.

8.2 Test Graphs

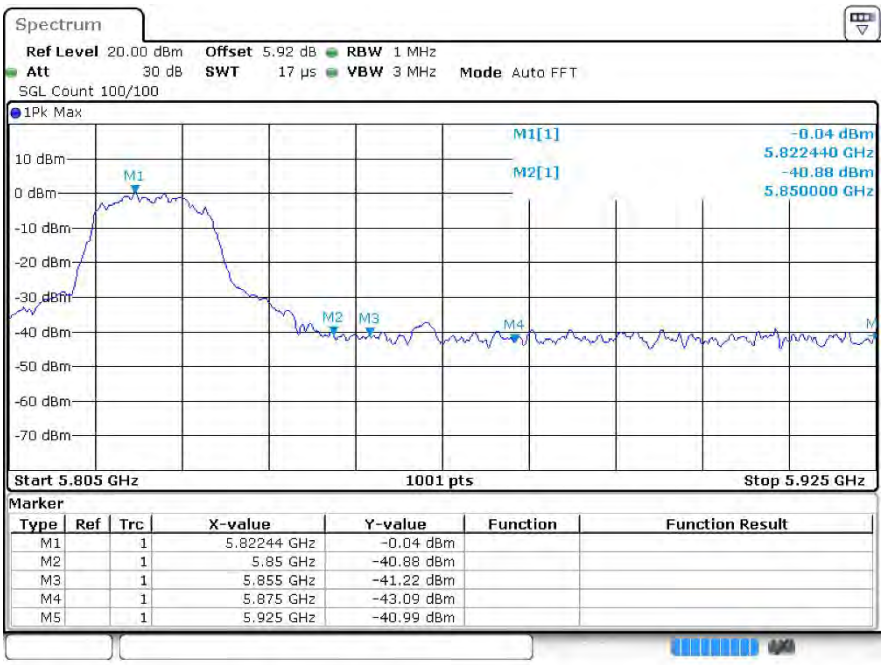
Test Graphs
Restrict Band a 5745MHz Ant1 Peak



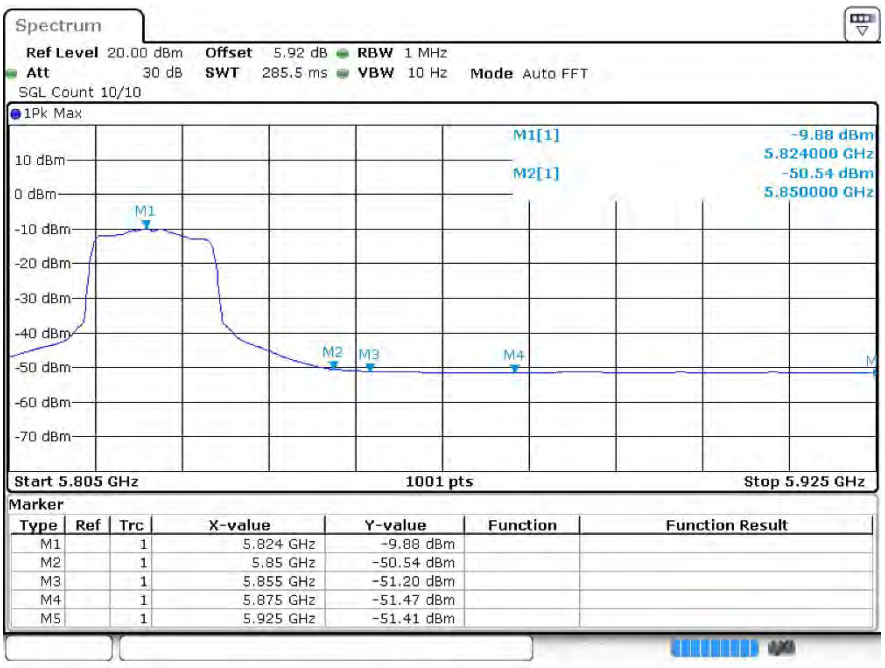
Restrict Band a 5745MHz Ant1 Average



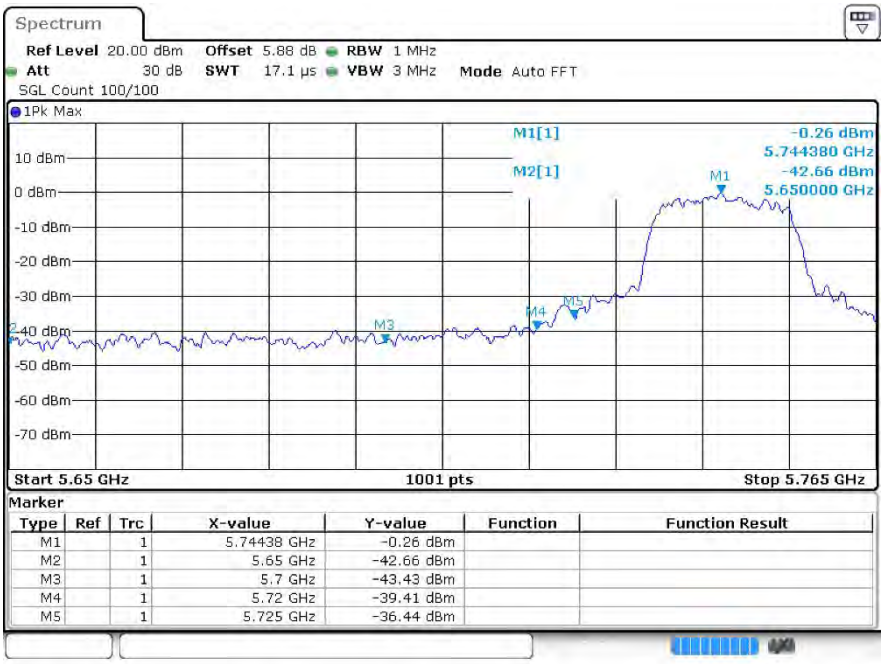
Restrict Band a 5825MHz Ant1 Peak



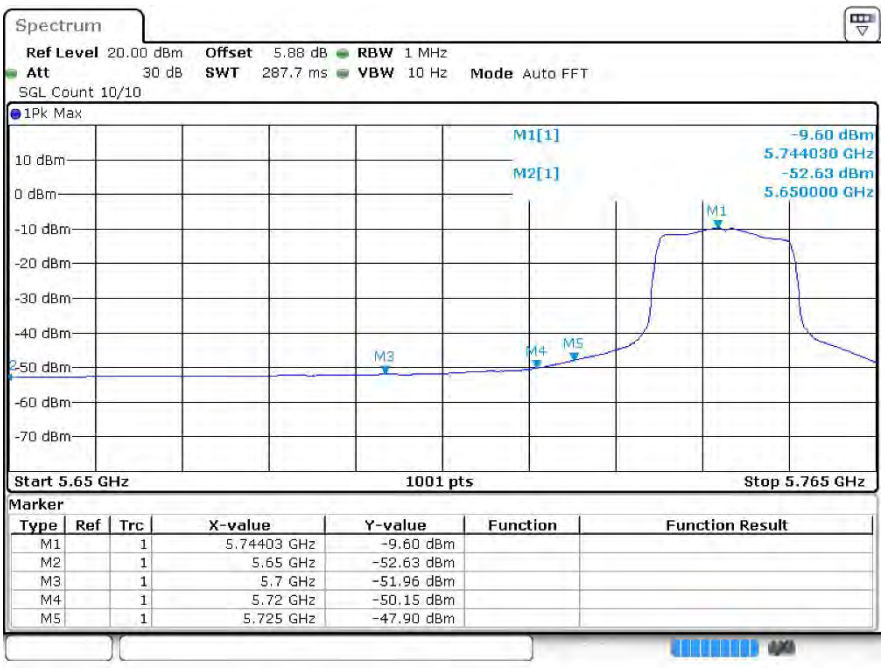
Restrict Band a 5825MHz Ant1 Average



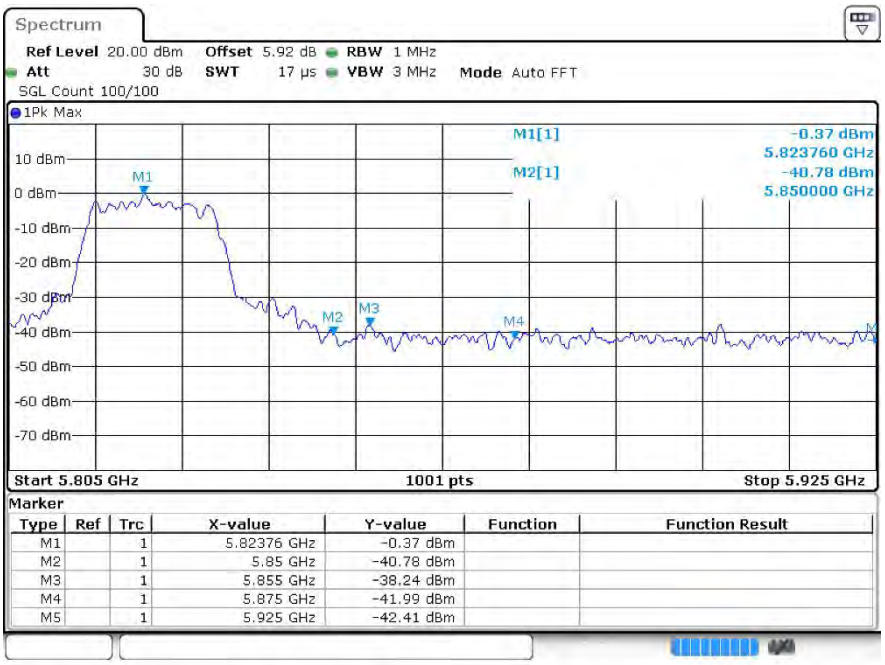
Restrict Band n20 5745MHz Ant1 Peak



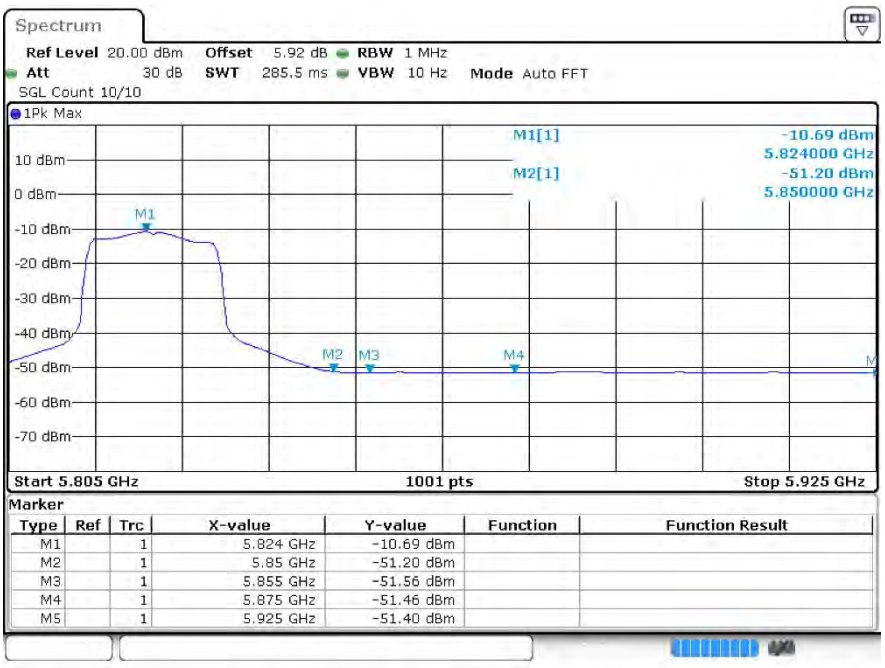
Restrict Band n20 5745MHz Ant1 Average



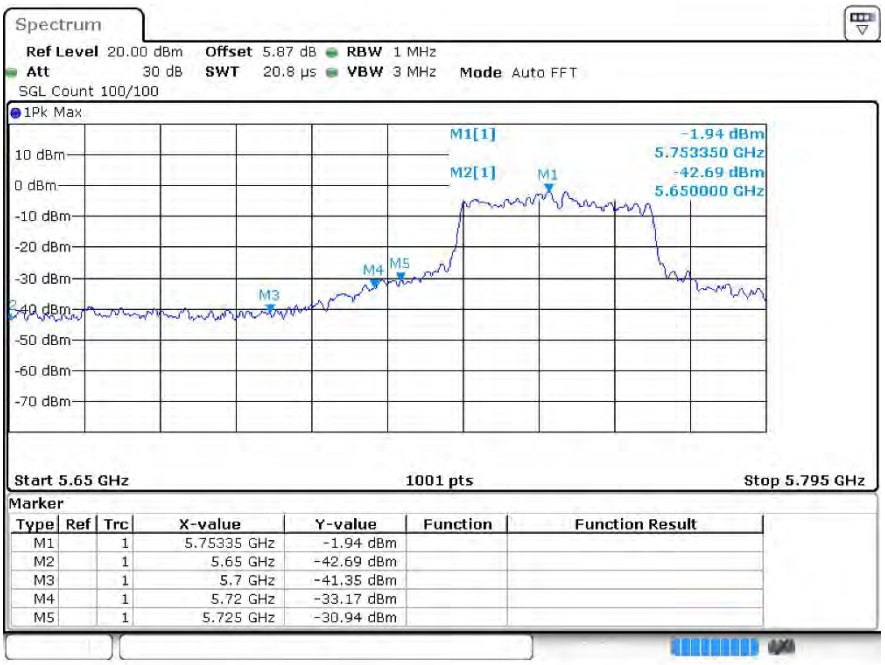
Restrict Band n20 5825MHz Ant1 Peak



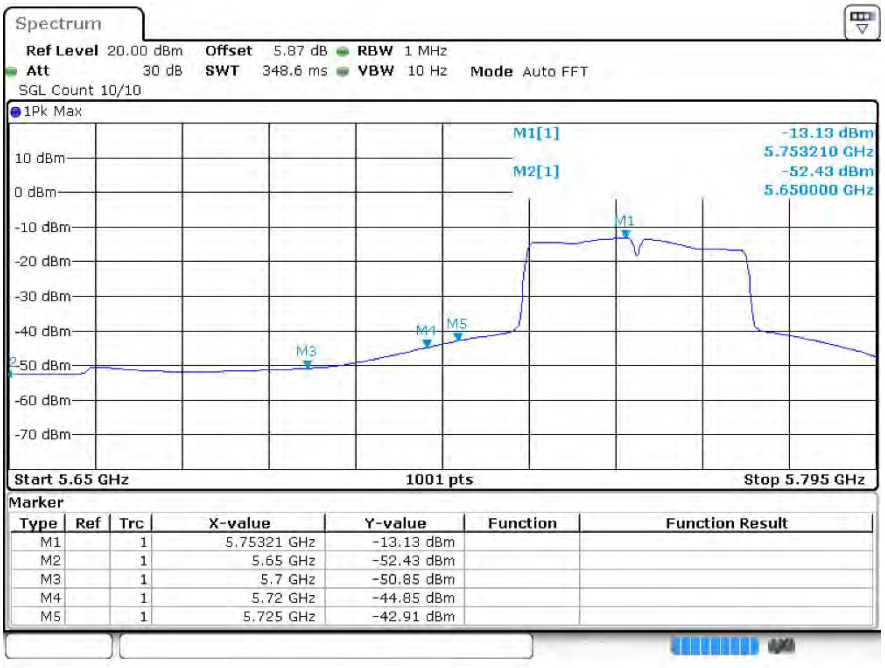
Restrict Band n20 5825MHz Ant1 Average



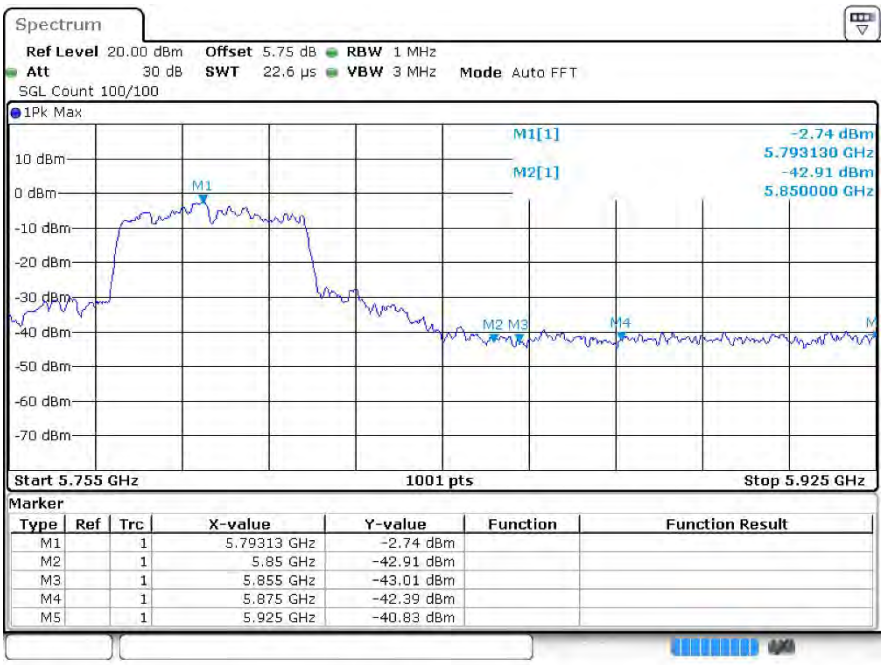
Restrict Band n40 5755MHz Ant1 Peak



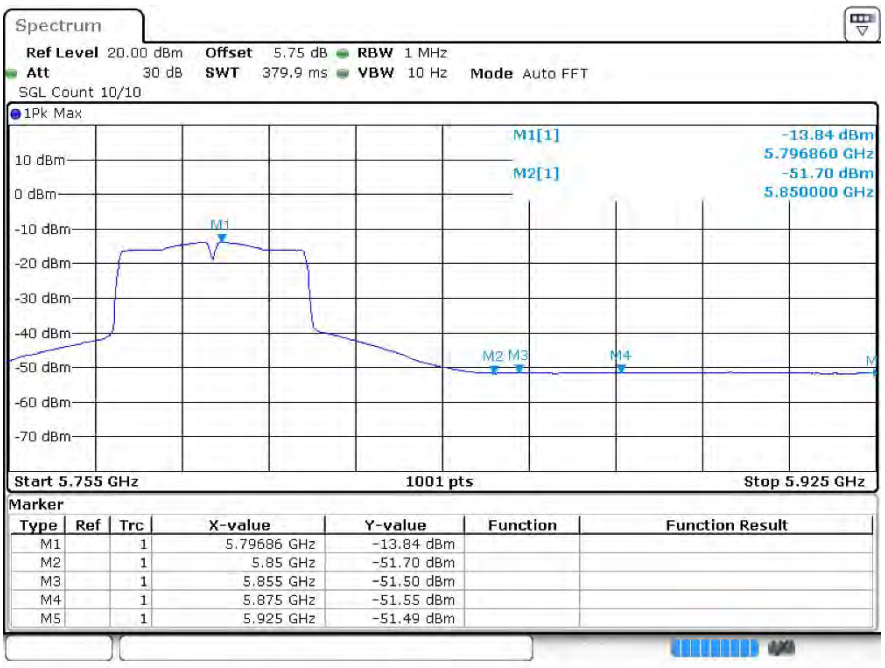
Restrict Band n40 5755MHz Ant1 Average



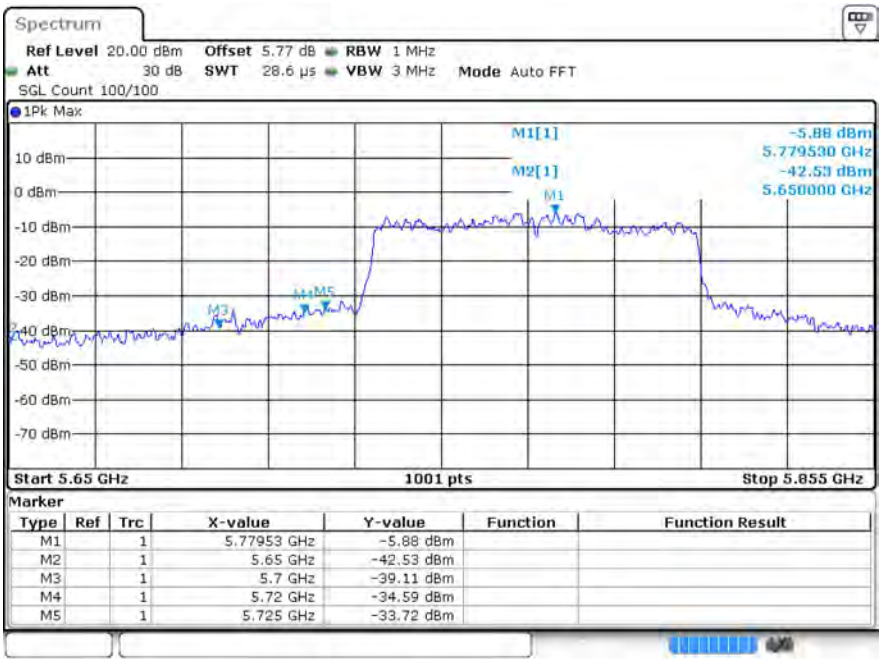
Restrict Band n40 5795MHz Ant1 Peak



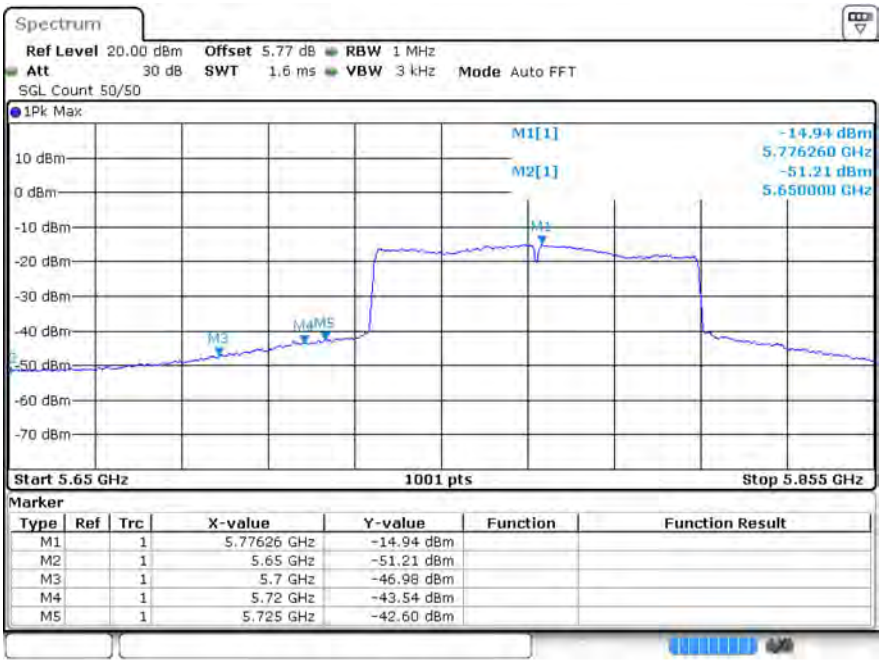
Restrict Band n40 5795MHz Ant1 Average



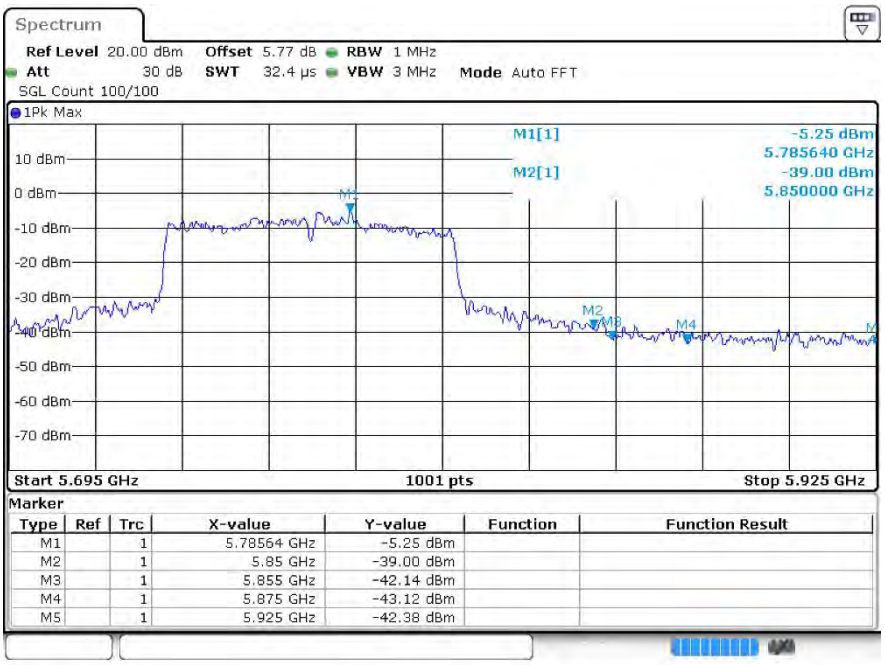
Restrict Band ac80 5775MHz Ant1 Peak



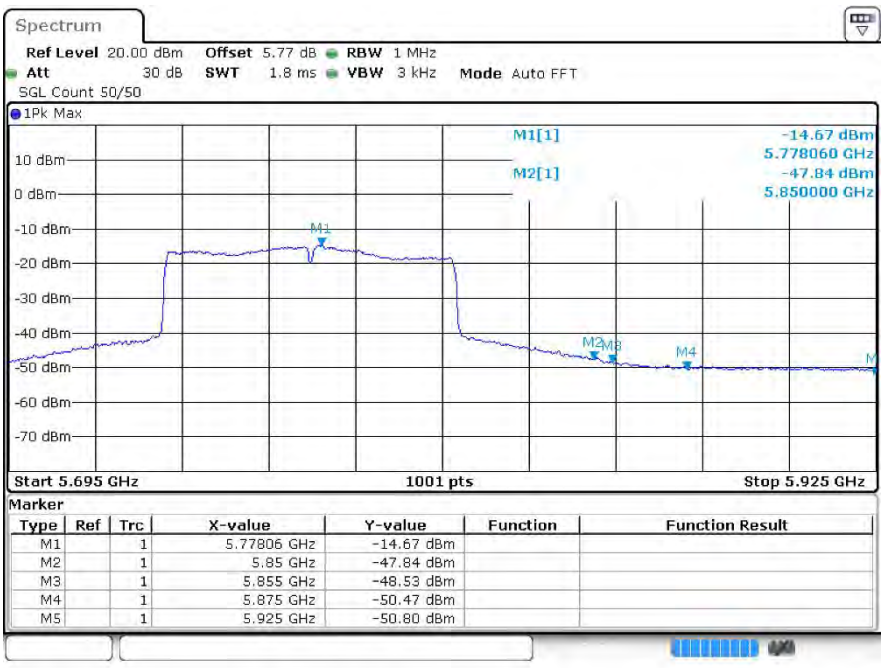
Restrict Band ac80 5775MHz Ant1 Average



Restrict Band ac80 5775MHz Ant1 Peak



Restrict Band ac80 5775MHz Ant1 Average



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