Appendix E

RF Test Data for 5.8GWIFI(Conducted Measurement)

Product Name: UV Photocuring 3D Printer

Trade Mark: ELEGOO

Test Model: Saturn 4 Ultra 16K

Environmental Conditions

Temperature:	24.8° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Emiya Lin
Supervised by:	Simba Huang

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1 Duty Cycle

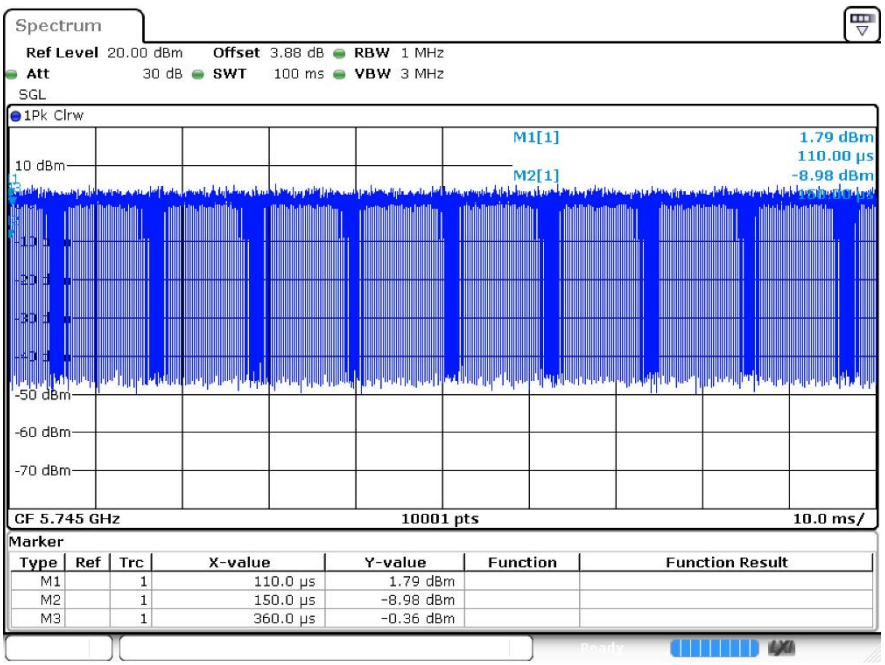
1.1 Test Result

Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
a	5745	Ant1	87	0.6	4.76
a	5785	Ant1	87.09	0.6	4.76
a	5825	Ant1	87.07	0.6	4.76
n20	5745	Ant1	87.63	0.57	4.35
n20	5785	Ant1	87.6	0.57	4.17
n20	5825	Ant1	87.55	0.58	4.35
n40	5755	Ant1	88.14	0.55	4
n40	5795	Ant1	88.1	0.55	4
ac20	5745	Ant1	87.21	0.59	4.55
ac20	5785	Ant1	87.2	0.59	4.35
ac20	5825	Ant1	87.21	0.59	4.55
ac40	5755	Ant1	86.94	0.61	4.35
ac40	5795	Ant1	87	0.6	4.55
ac80	5775	Ant1	86.99	0.61	4.35

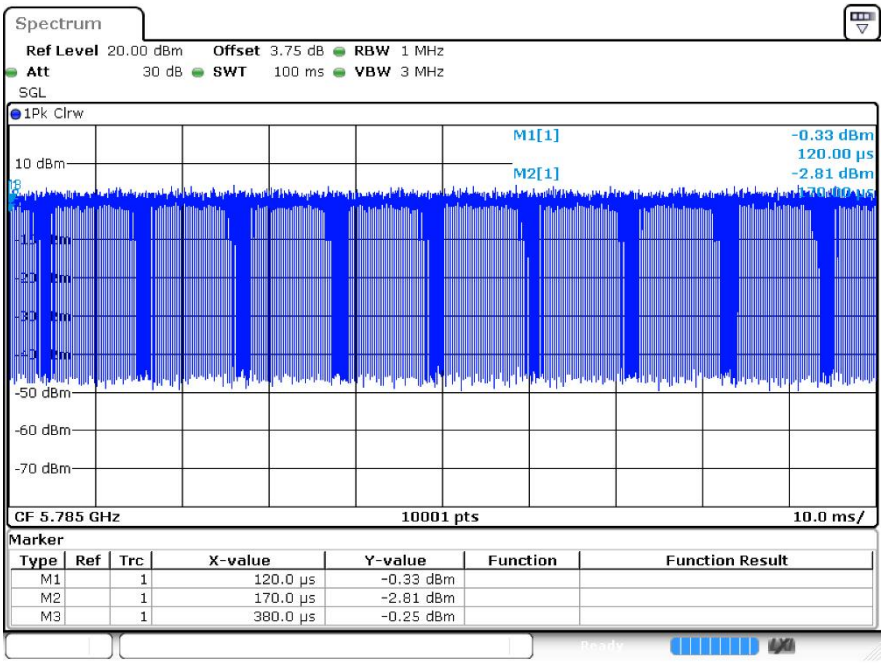
1.2 Test Graphs

Test Graphs

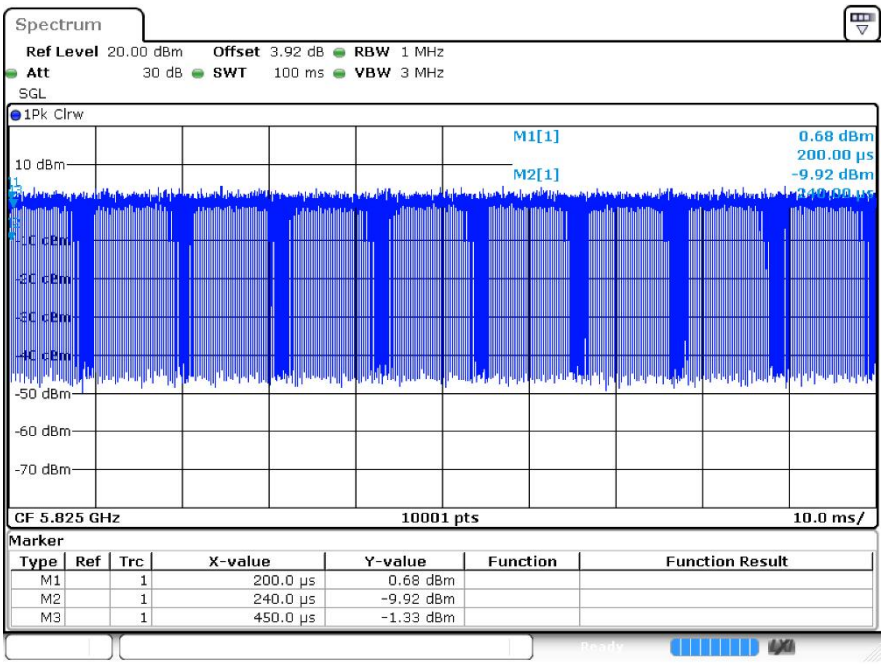
Duty Cycle a 5745MHz Ant1



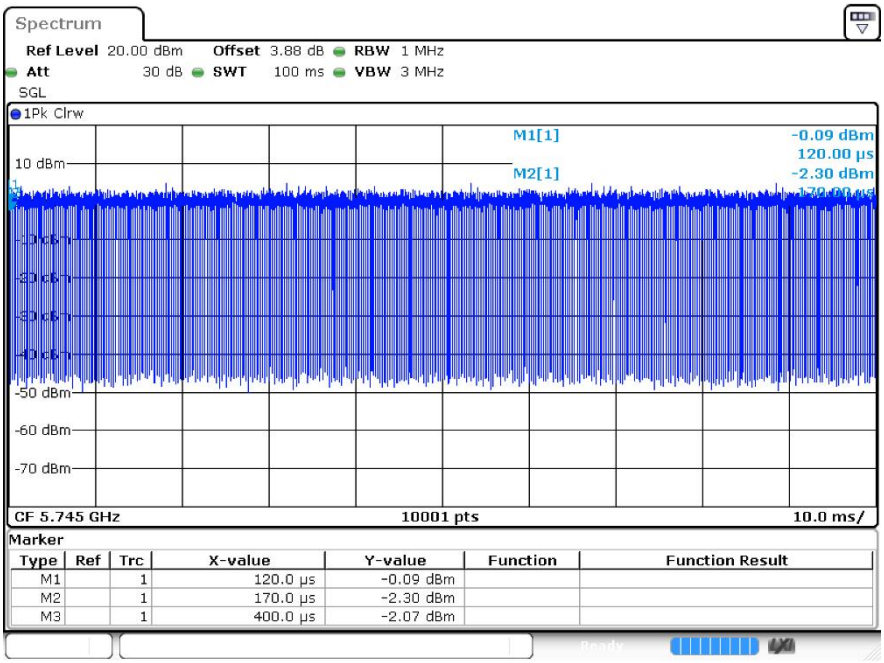
Duty Cycle a 5785MHz Ant1



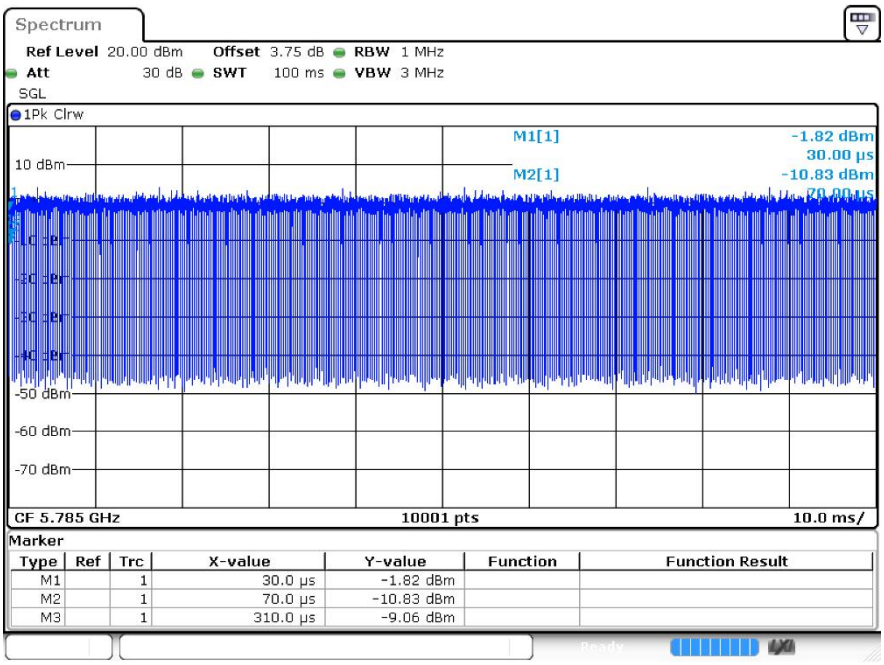
Duty Cycle a 5825MHz Ant1



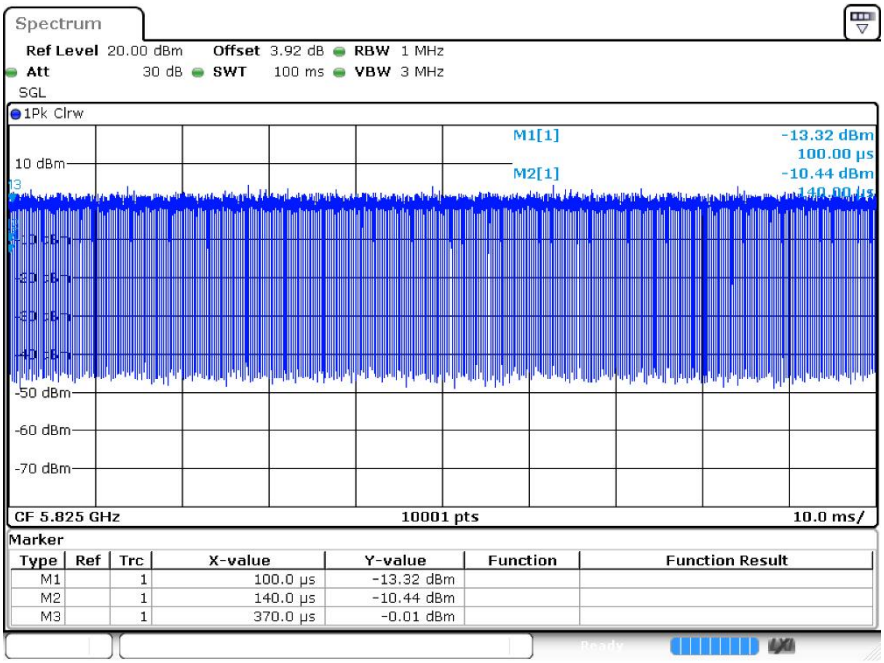
Duty Cycle n20 5745MHz Ant1



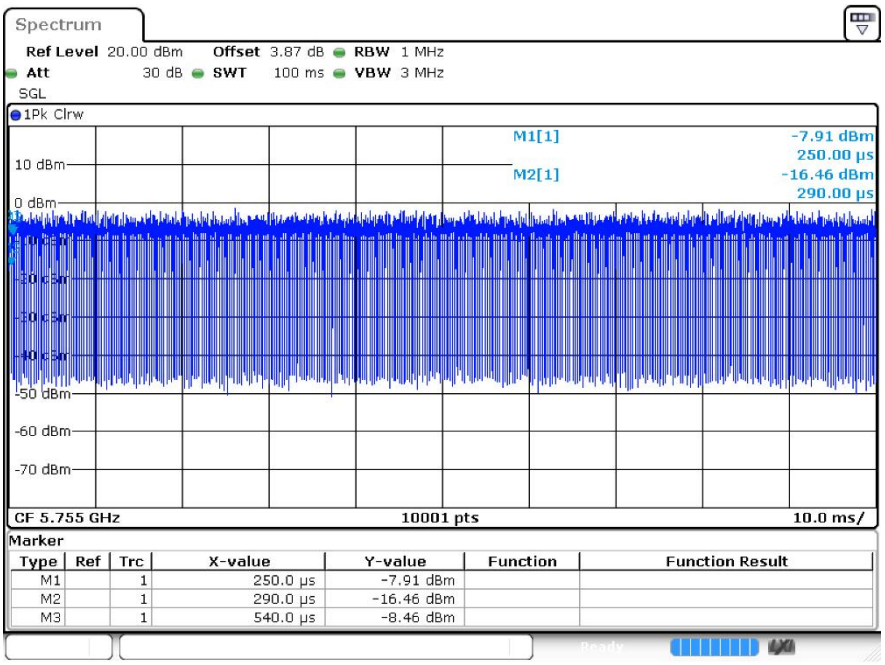
Duty Cycle n20 5785MHz Ant1



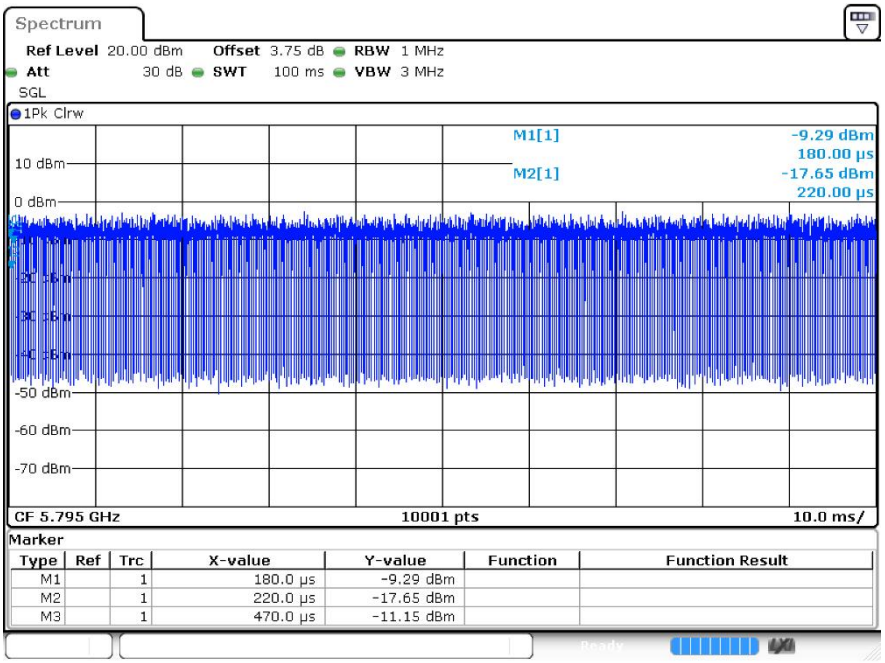
Duty Cycle n20 5825MHz Ant1



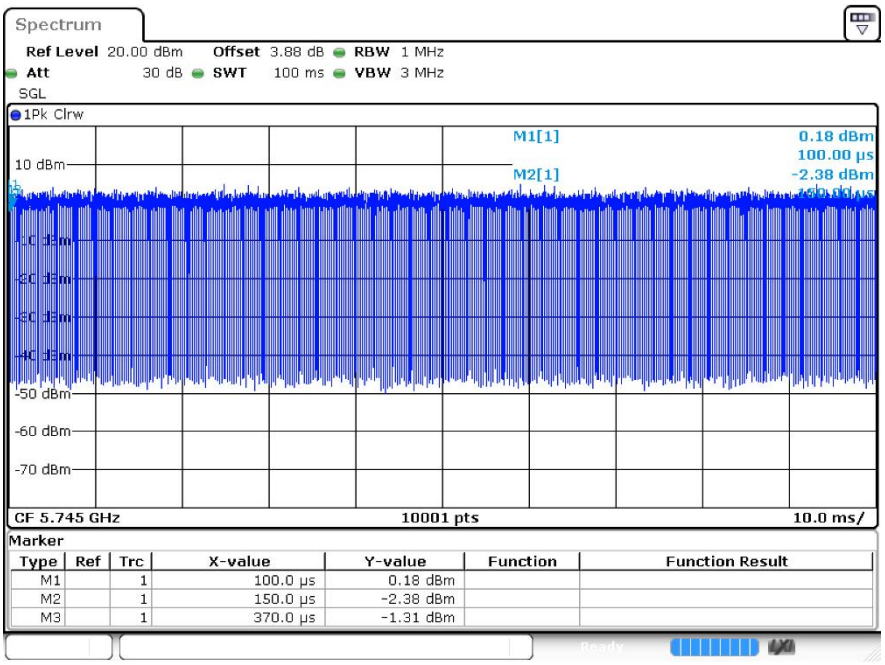
Duty Cycle n40 5755MHz Ant1



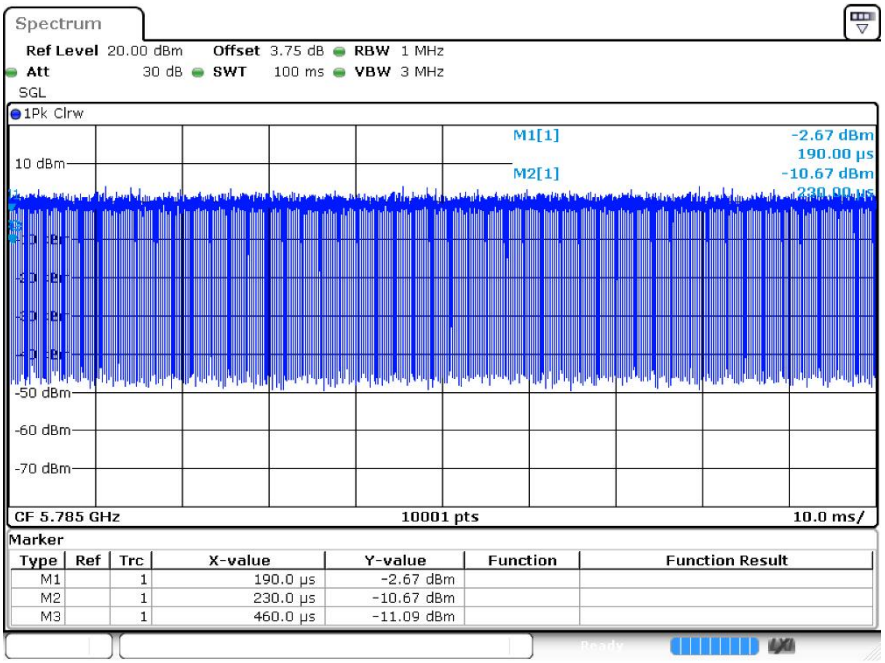
Duty Cycle n40 5795MHz Ant1



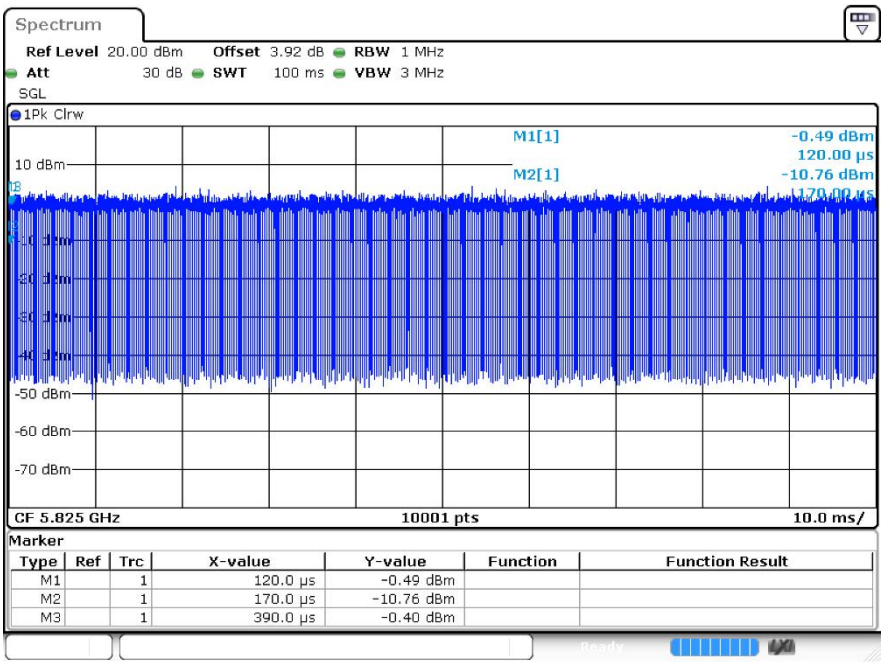
Duty Cycle ac20 5745MHz Ant1



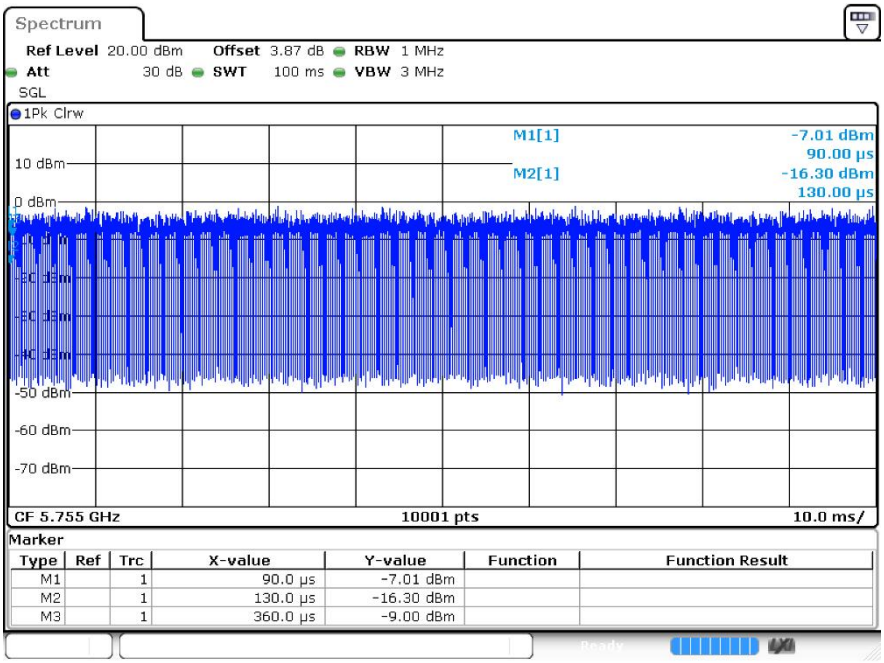
Duty Cycle ac20 5785MHz Ant1



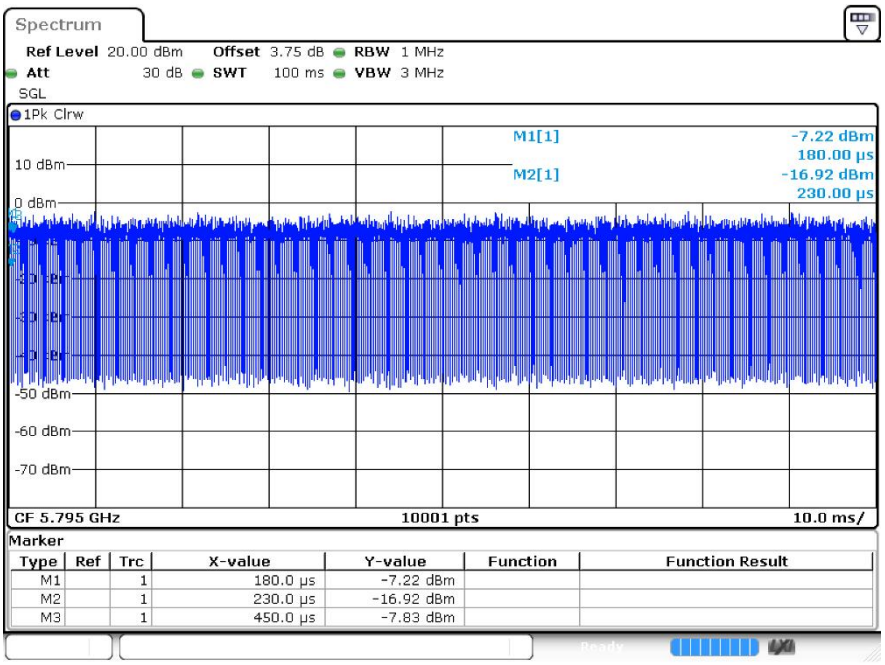
Duty Cycle ac20 5825MHz Ant1



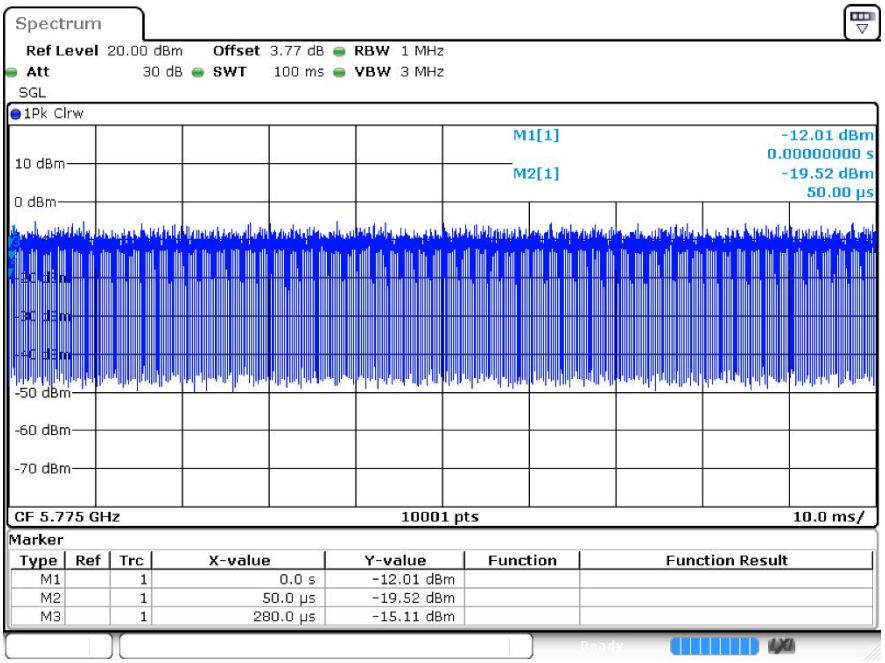
Duty Cycle ac40 5755MHz Ant1



Duty Cycle ac40 5795MHz Ant1



Duty Cycle ac80 5775MHz Ant1



2 Maximum Conducted Output Power

2.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
a	5745	Ant1	11.43	30	Pass
a	5785	Ant1	10.58	30	Pass
a	5825	Ant1	10.72	30	Pass
n20	5745	Ant1	10.82	30	Pass
n20	5785	Ant1	9.98	30	Pass
n20	5825	Ant1	10.14	30	Pass
n40	5755	Ant1	10.42	30	Pass
n40	5795	Ant1	9.47	30	Pass
ac20	5745	Ant1	10.86	30	Pass
ac20	5785	Ant1	9.94	30	Pass
ac20	5825	Ant1	10.11	30	Pass
ac40	5755	Ant1	10.48	30	Pass
ac40	5795	Ant1	9.5	30	Pass
ac80	5775	Ant1	9.88	30	Pass

Note:

The duty factor has been compensated into the result.

3 -6dB Bandwidth

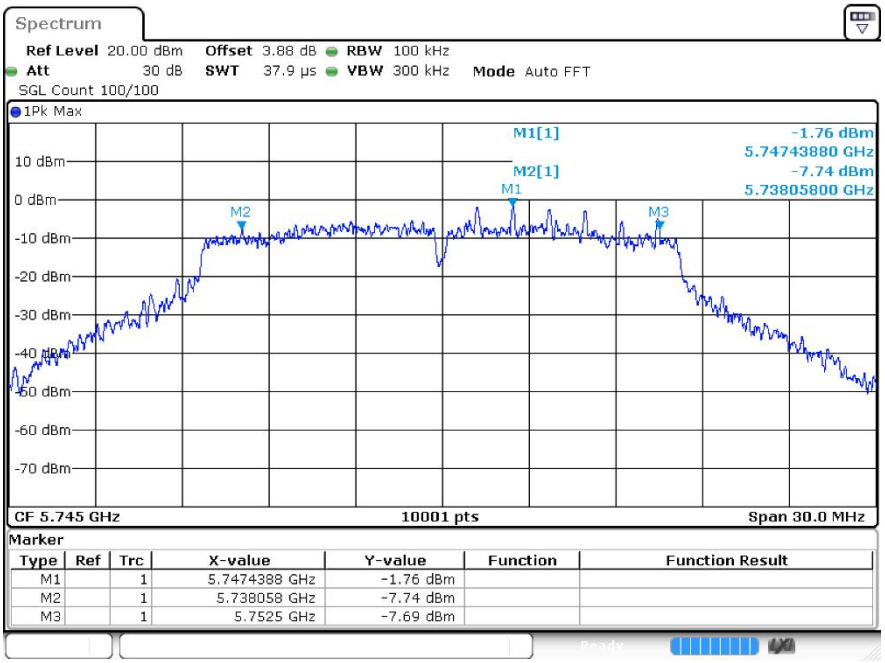
3.1 Test Result

Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
a	5745	Ant1	14.442	0.5	Pass
a	5785	Ant1	15.111	0.5	Pass
a	5825	Ant1	15.087	0.5	Pass
n20	5745	Ant1	15.027	0.5	Pass
n20	5785	Ant1	15.114	0.5	Pass
n20	5825	Ant1	15.114	0.5	Pass
n40	5755	Ant1	35.07	0.5	Pass
n40	5795	Ant1	35.088	0.5	Pass
ac20	5745	Ant1	15.687	0.5	Pass
ac20	5785	Ant1	15.114	0.5	Pass
ac20	5825	Ant1	15.096	0.5	Pass
ac40	5755	Ant1	31.338	0.5	Pass
ac40	5795	Ant1	35.082	0.5	Pass
ac80	5775	Ant1	75.048	0.5	Pass

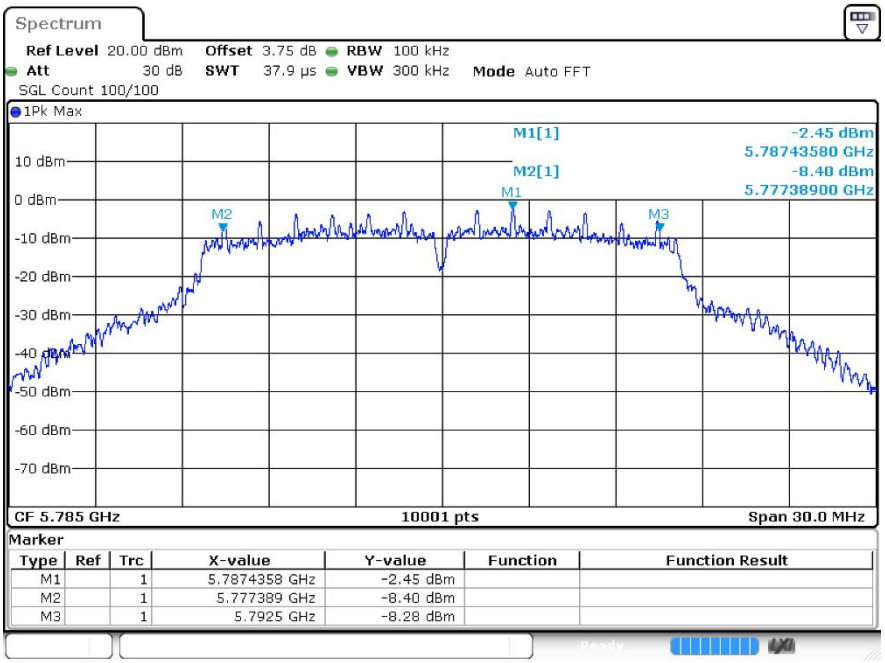
3.2 Test Graphs

Test Graphs

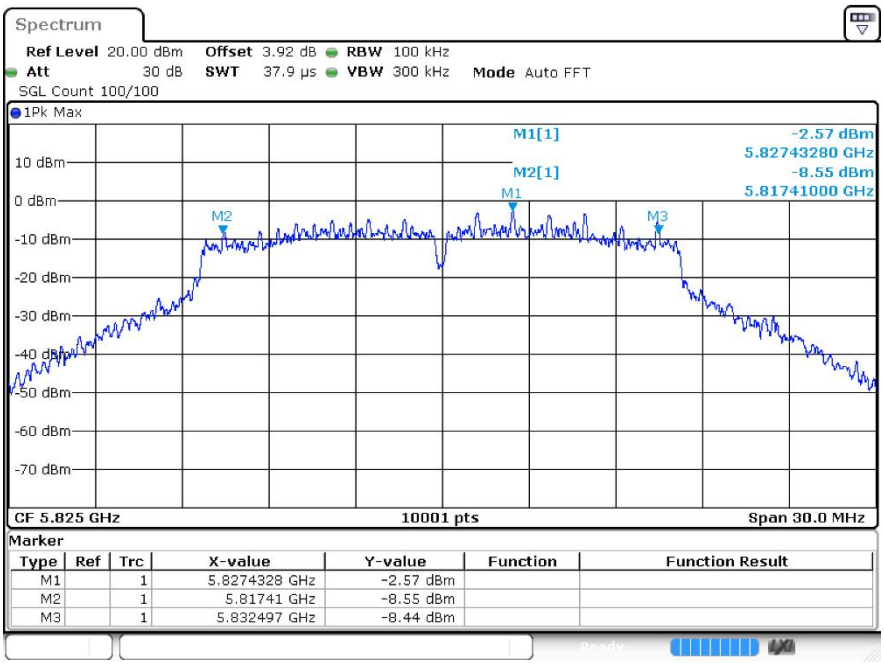
-6dB Bandwidth a 5745MHz Ant1



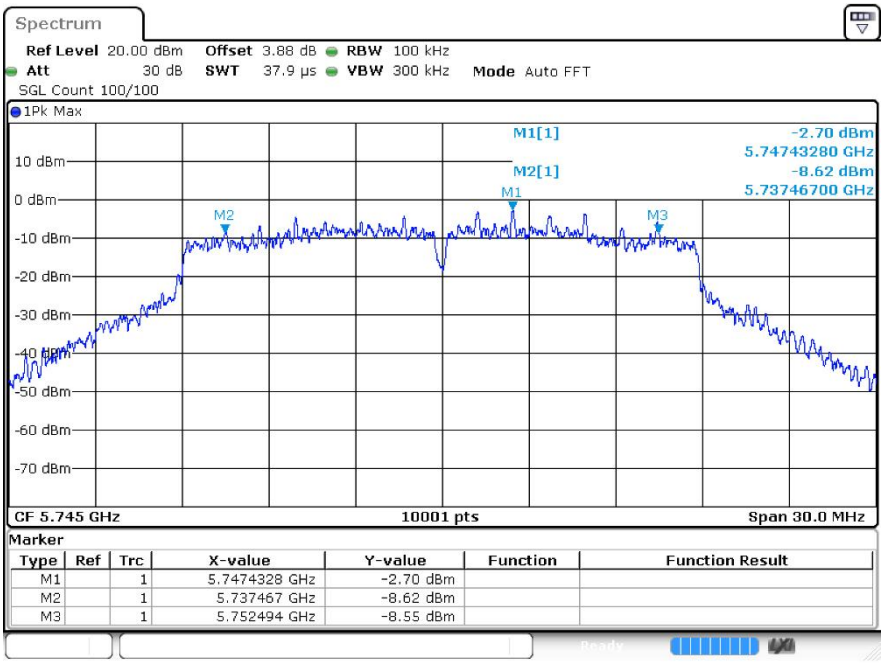
-6dB Bandwidth a 5785MHz Ant1



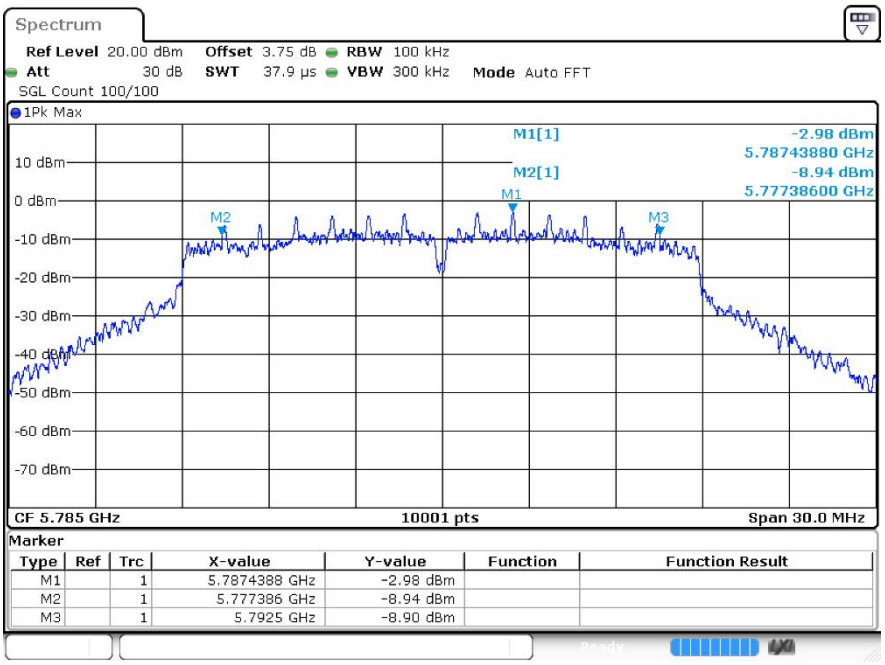
-6dB Bandwidth a 5825MHz Ant1



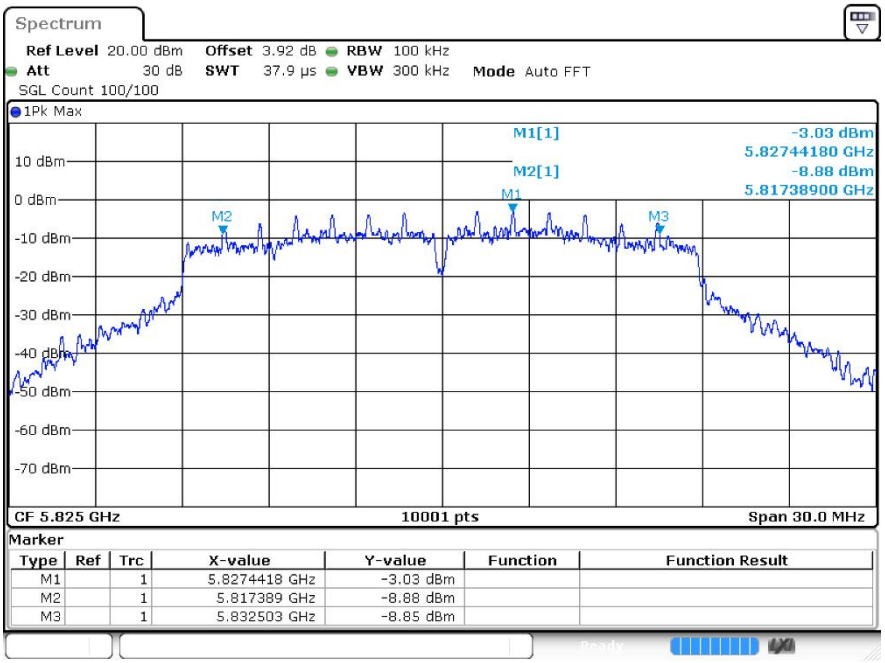
-6dB Bandwidth n20 5745MHz Ant1



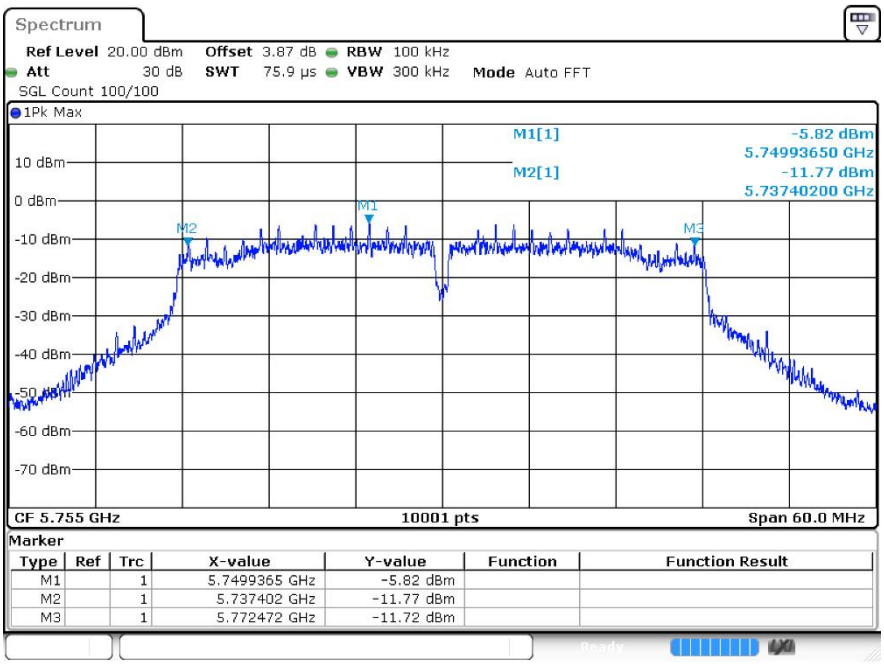
-6dB Bandwidth n20 5785MHz Ant1



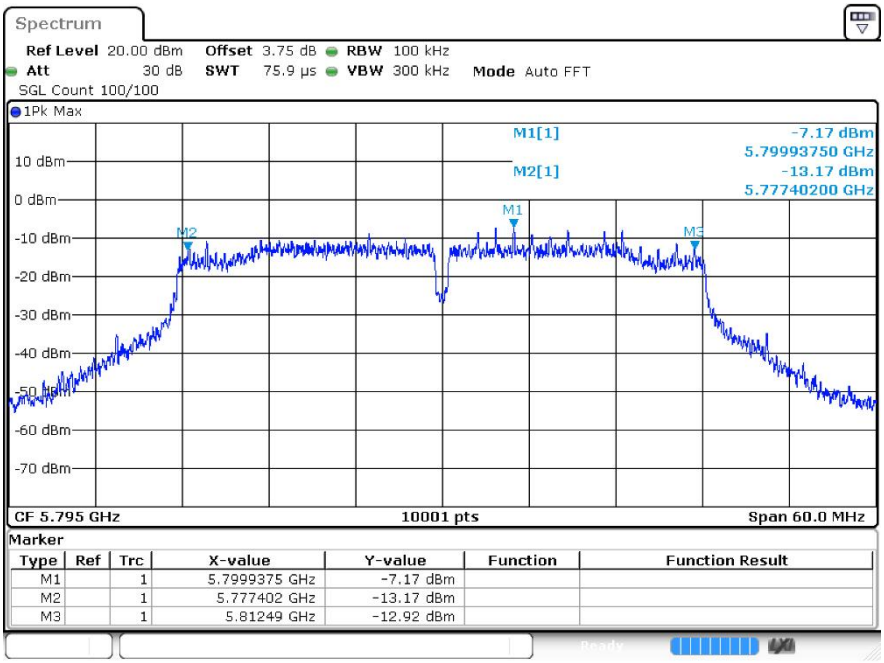
-6dB Bandwidth n20 5825MHz Ant1



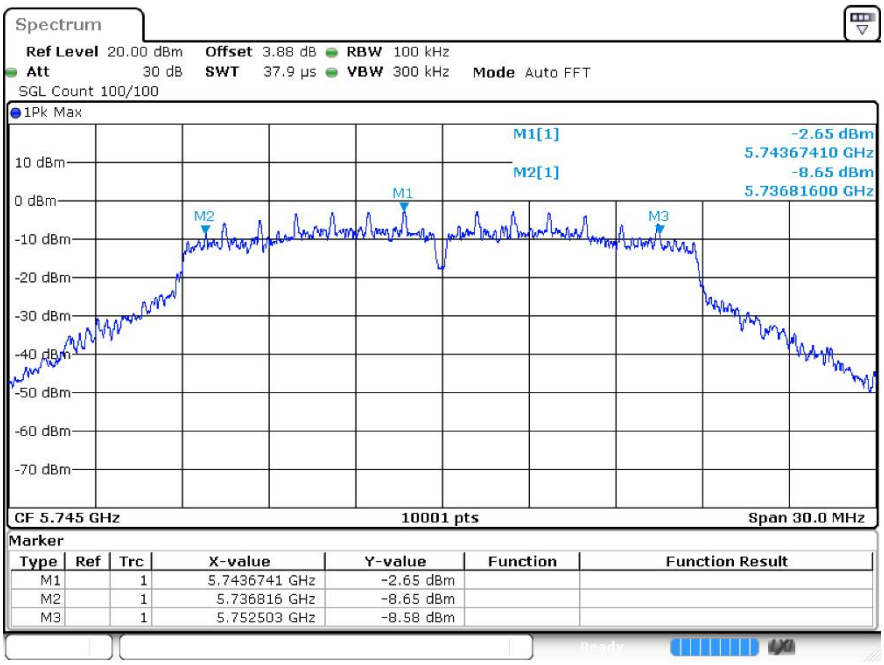
-6dB Bandwidth n40 5755MHz Ant1



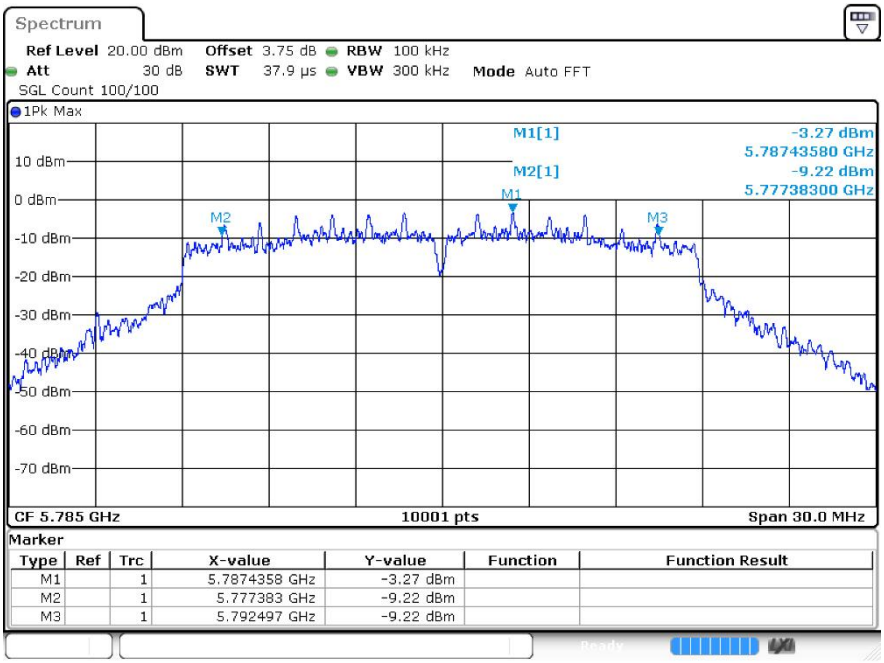
-6dB Bandwidth n40 5795MHz Ant1



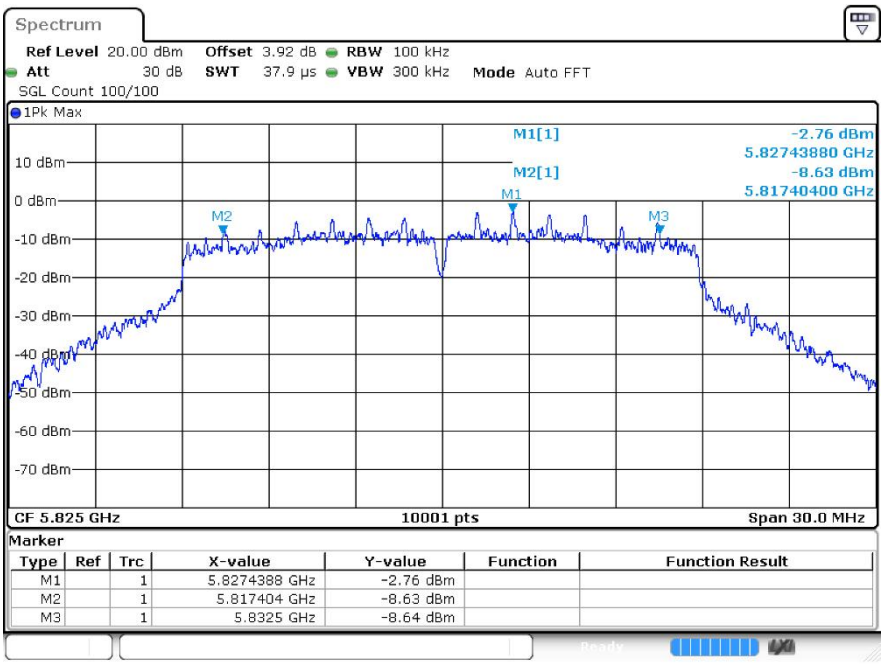
-6dB Bandwidth ac20 5745MHz Ant1



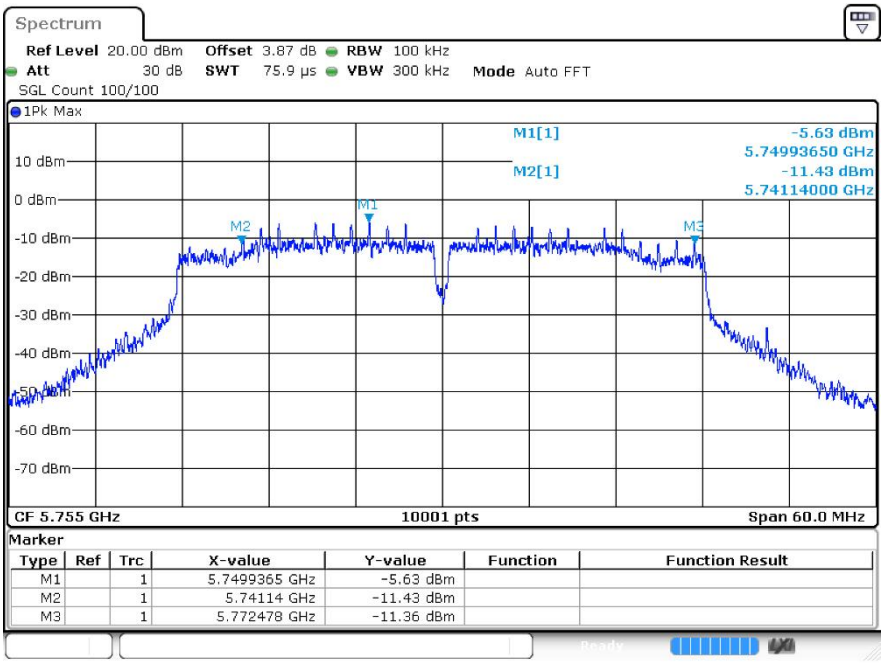
-6dB Bandwidth ac20 5785MHz Ant1



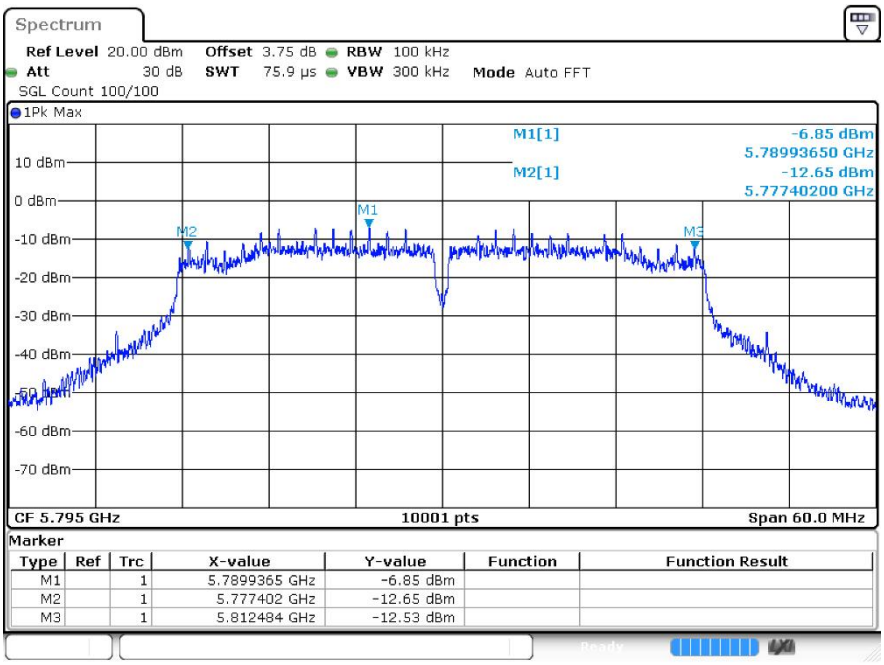
-6dB Bandwidth ac20 5825MHz Ant1



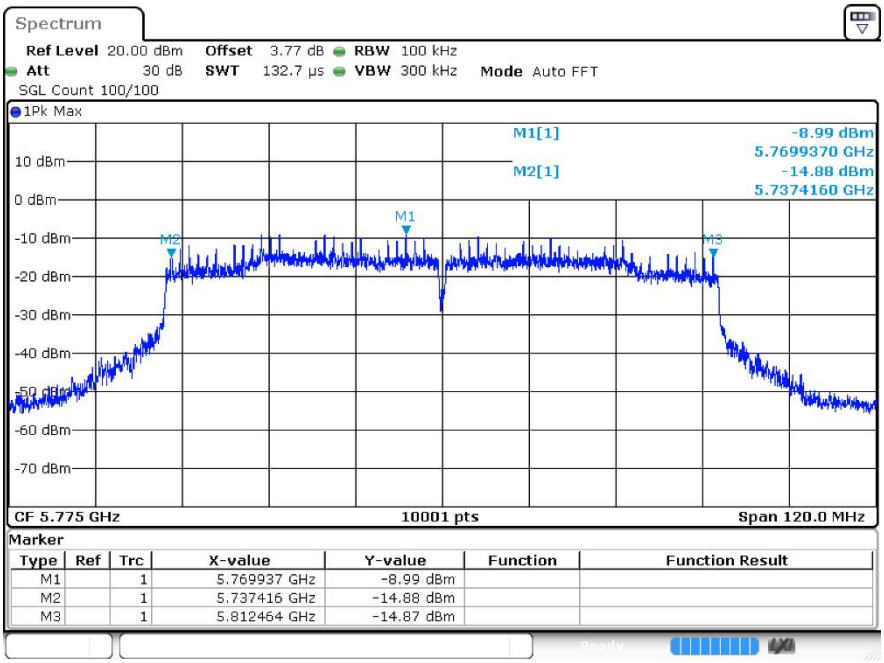
-6dB Bandwidth ac40 5755MHz Ant1



-6dB Bandwidth ac40 5795MHz Ant1



-6dB Bandwidth ac80 5775MHz Ant1



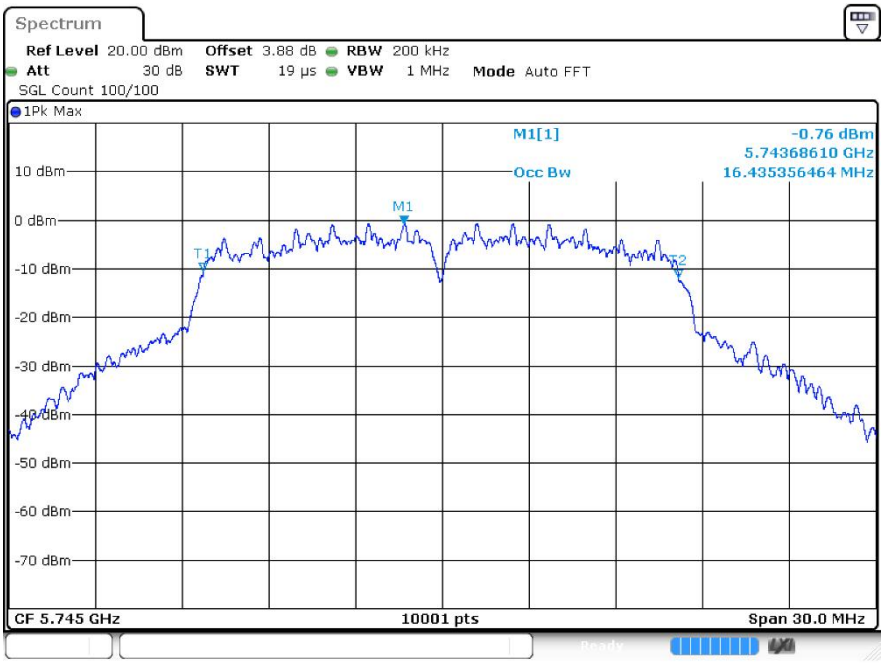
4 Occupied Channel Bandwidth

4.1 Test Result

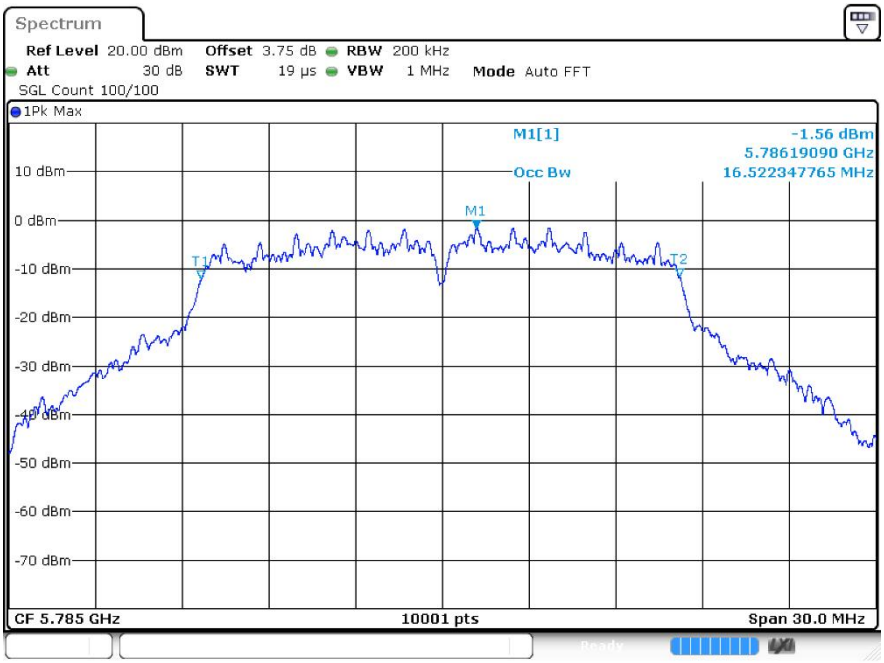
Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
a	5745	Ant1	16.435
a	5785	Ant1	16.522
a	5825	Ant1	16.414
n20	5745	Ant1	17.641
n20	5785	Ant1	17.617
n20	5825	Ant1	17.557
n40	5755	Ant1	36.062
n40	5795	Ant1	36.02
ac20	5745	Ant1	17.65
ac20	5785	Ant1	17.626
ac20	5825	Ant1	17.632
ac40	5755	Ant1	35.996
ac40	5795	Ant1	36.002
ac80	5775	Ant1	75.268

4.2 Test Graphs

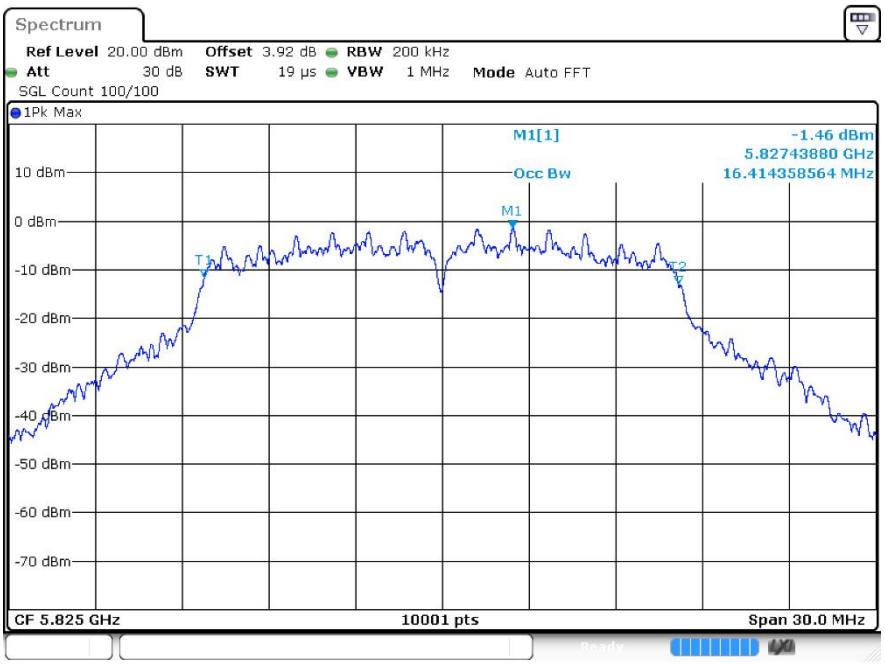
Test Graphs
OBW a 5745MHz Ant1



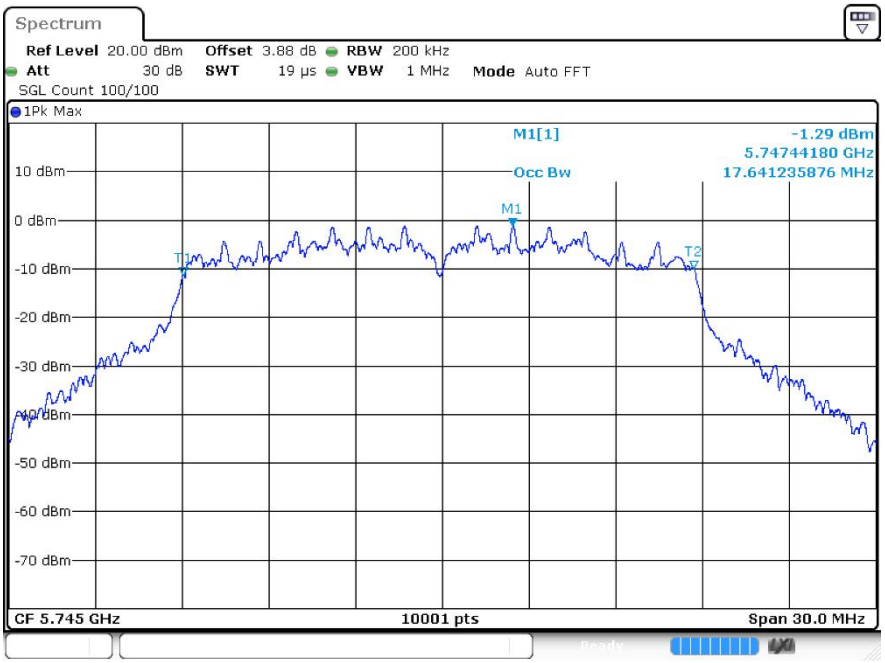
OBW a 5785MHz Ant1



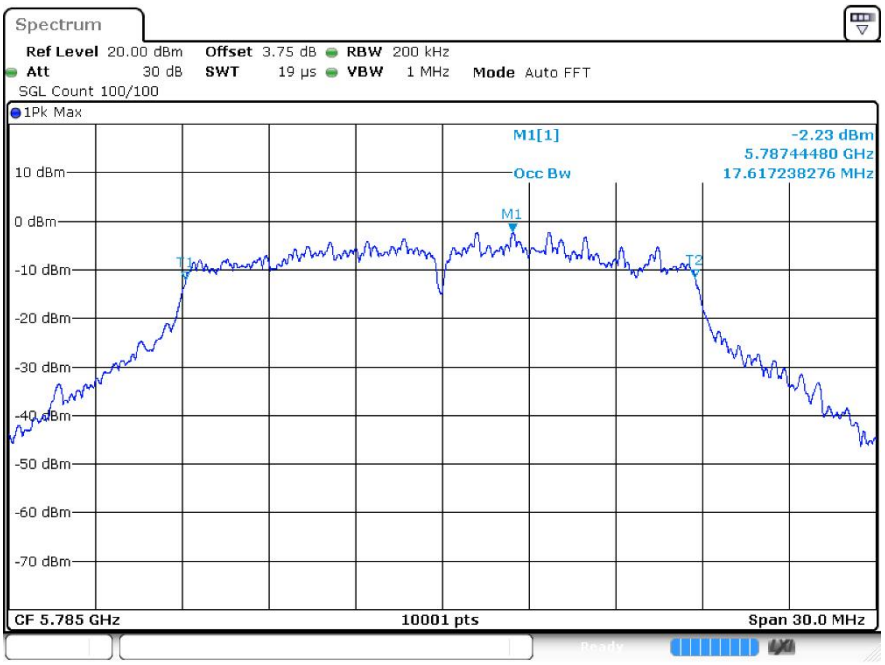
OBW a 5825MHz Ant1



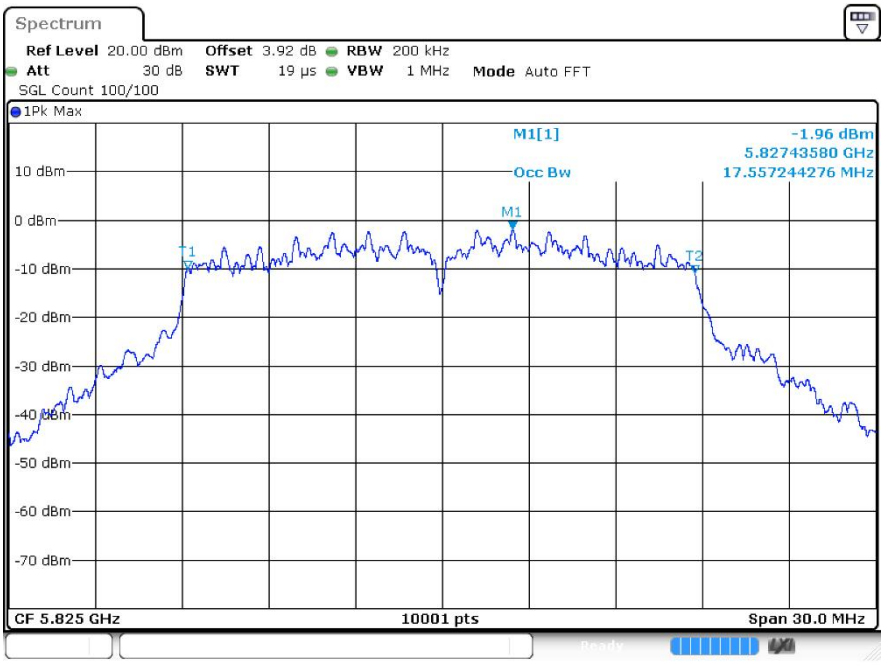
OBW n20 5745MHz Ant1



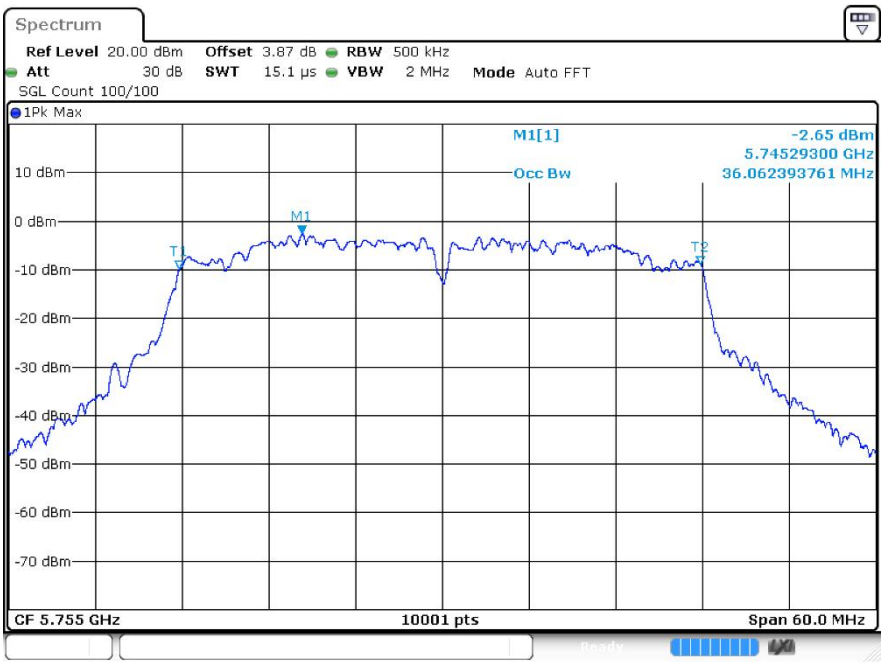
OBW n20 5785MHz Ant1



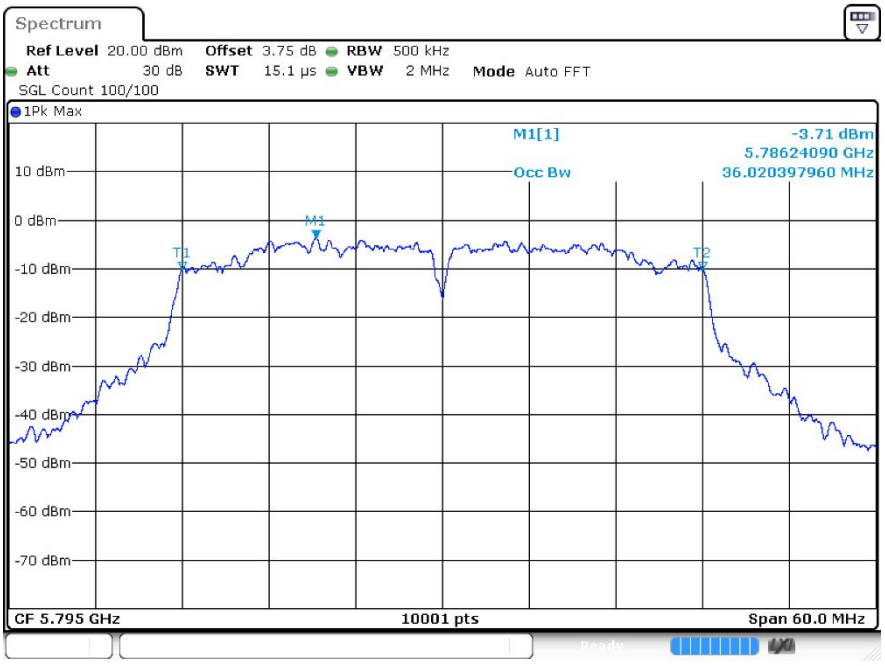
OBW n20 5825MHz Ant1



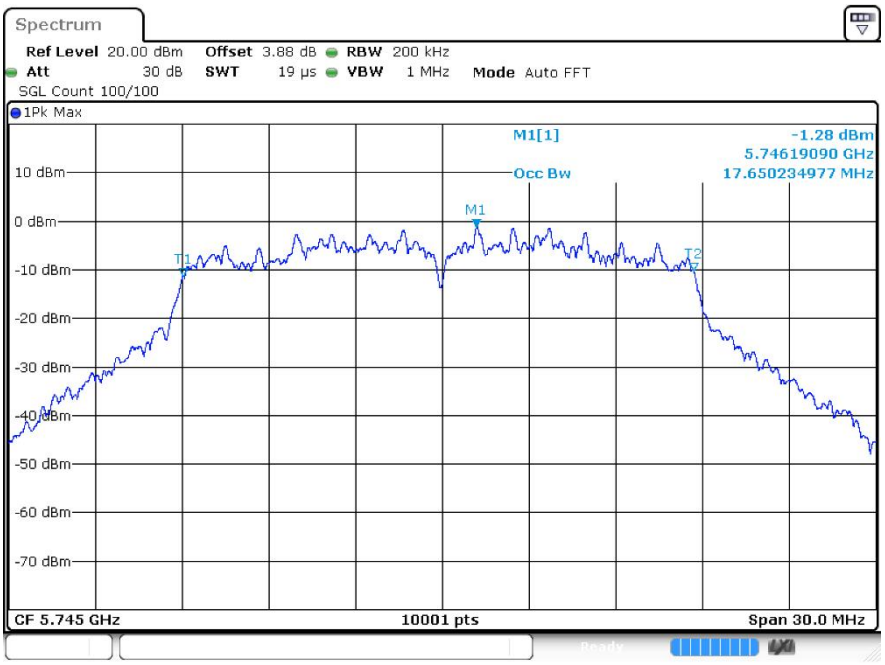
OBW n40 5755MHz Ant1



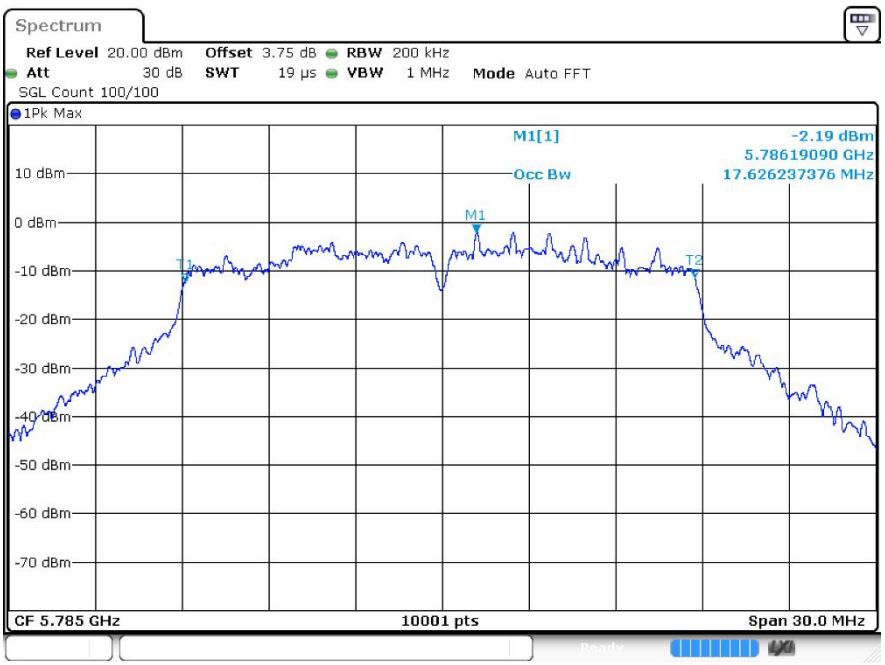
OBW n40 5795MHz Ant1



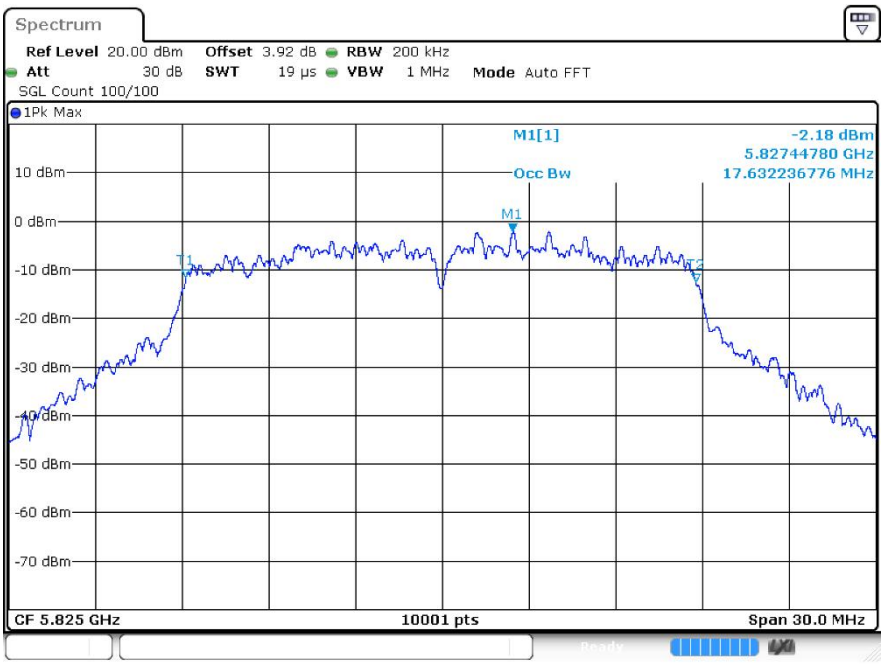
OBW ac20 5745MHz Ant1



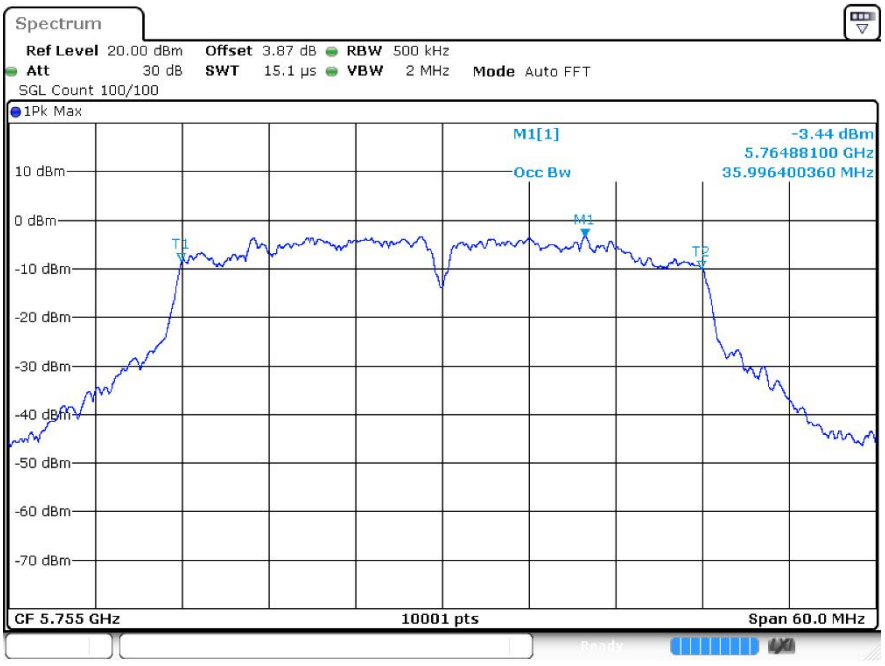
OBW ac20 5785MHz Ant1



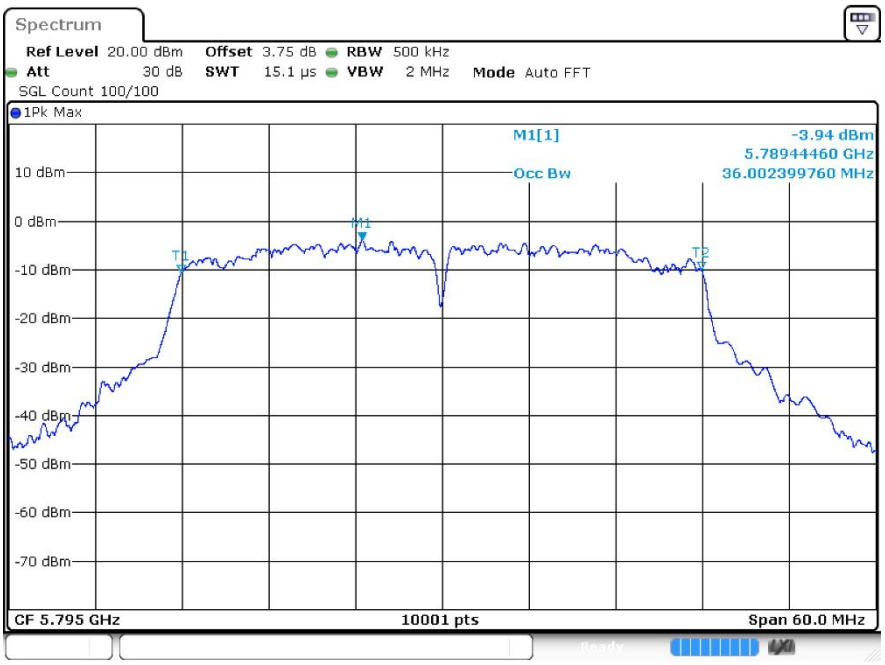
OBW ac20 5825MHz Ant1



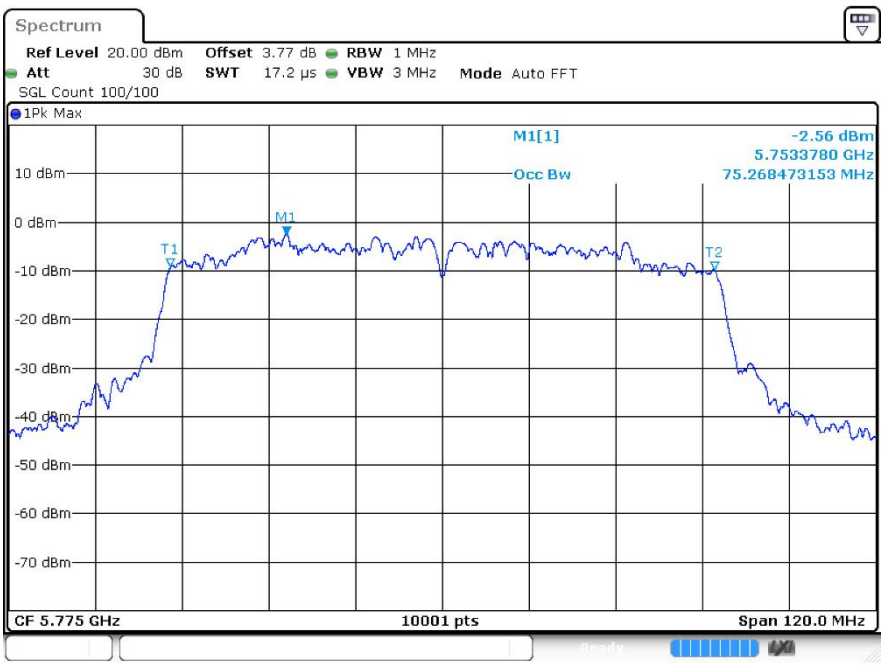
OBW ac40 5755MHz Ant1



OBW ac40 5795MHz Ant1



OBW ac80 5775MHz Ant1



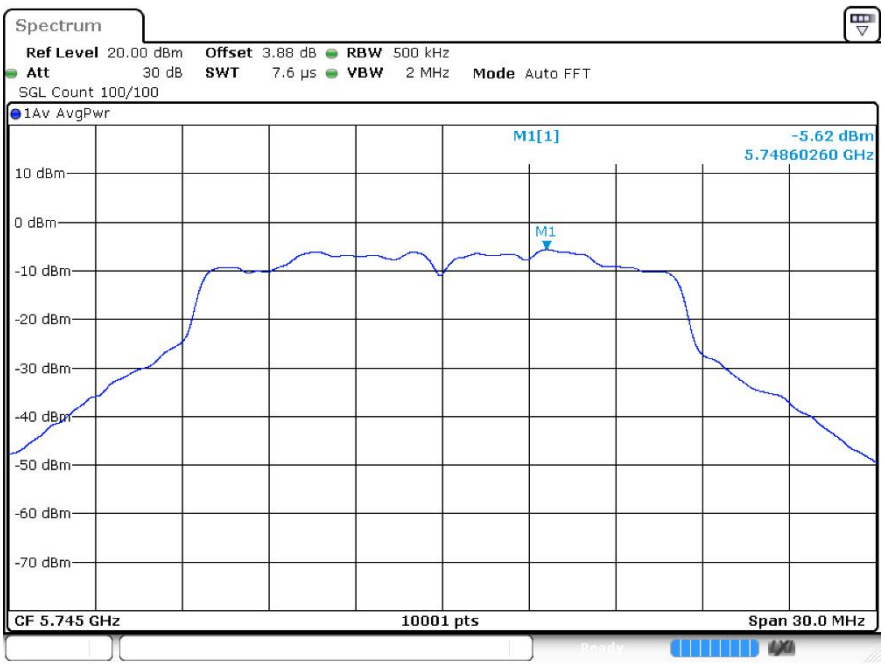
5 Maximum Power Spectral Density Level

5.1 Test Result

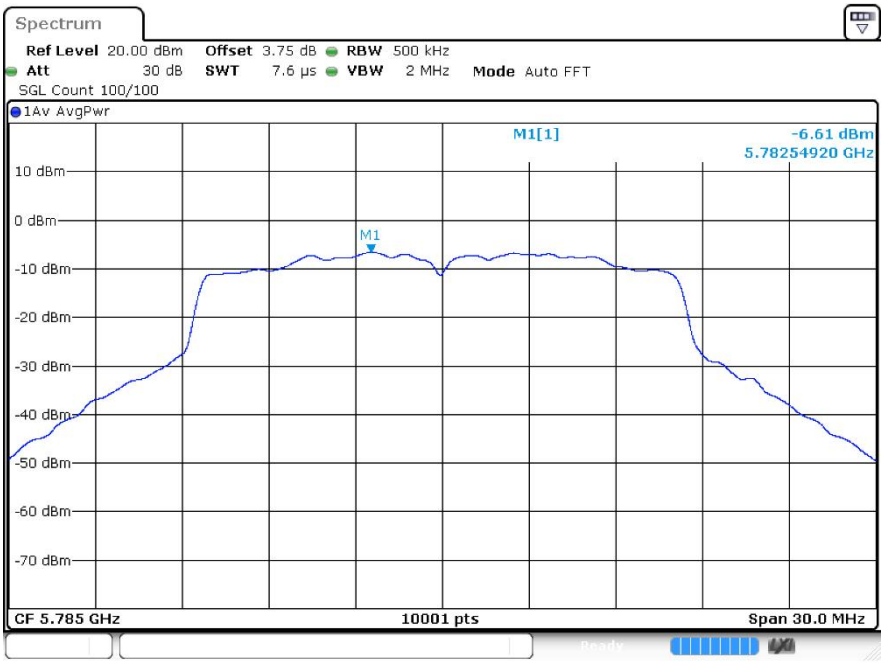
Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
a	5745	Ant1	-5.62	0.6	-5.02	30	Pass
a	5785	Ant1	-6.61	0.6	-6.01	30	Pass
a	5825	Ant1	-6.65	0.6	-6.05	30	Pass
n20	5745	Ant1	-6.22	0.57	-5.65	30	Pass
n20	5785	Ant1	-8.92	0.57	-8.35	30	Pass
n20	5825	Ant1	-6.78	0.58	-6.2	30	Pass
n40	5755	Ant1	-9.9	0.55	-9.35	30	Pass
n40	5795	Ant1	-10.97	0.55	-10.42	30	Pass
ac20	5745	Ant1	-6.19	0.59	-5.6	30	Pass
ac20	5785	Ant1	-6.87	0.59	-6.28	30	Pass
ac20	5825	Ant1	-6.68	0.59	-6.09	30	Pass
ac40	5755	Ant1	-10.02	0.61	-9.41	30	Pass
ac40	5795	Ant1	-10.79	0.6	-10.19	30	Pass
ac80	5775	Ant1	-13.36	0.61	-12.75	30	Pass

5.2 Test Graphs

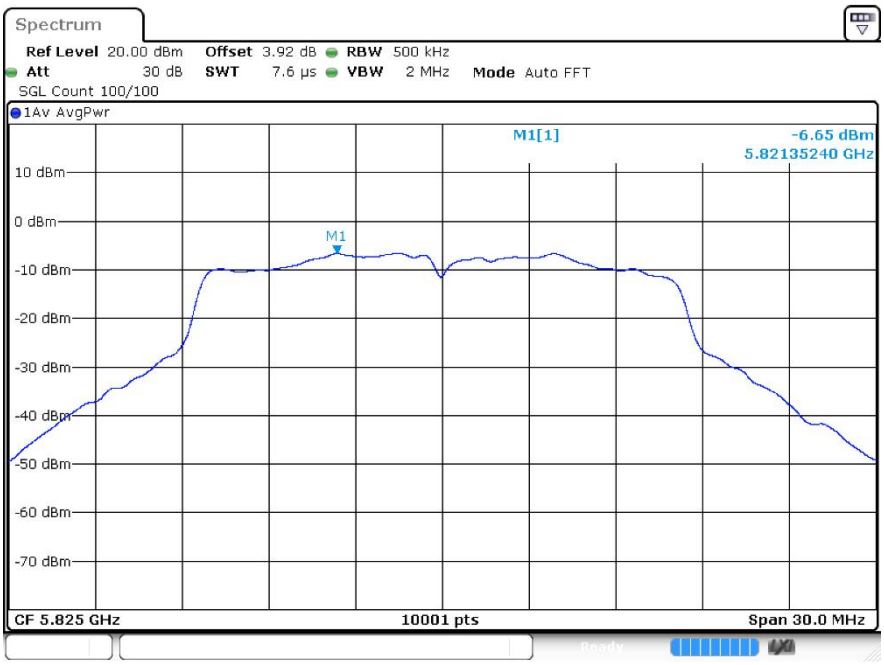
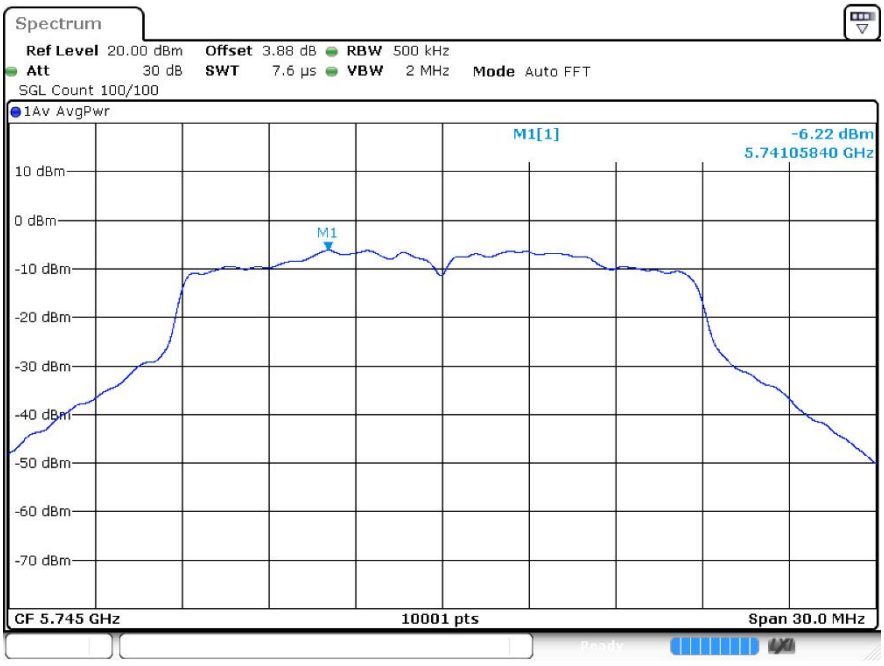
Test Graphs
PSD a 5745MHz Ant1



PSD a 5785MHz Ant1



PSD a 5825MHz Ant1



PSD n20 5745MHz Ant1