



Appendix E

RF Test Data for 5.8GWIFI(Conducted Measurement)

Product Name: Carplay

Trade Mark: N/A

Test Model: G07

Environmental Conditions

Temperature:	24.5° C
Relative Humidity:	52.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Emiya lin
Supervised by:	Simba Huang



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1 Duty Cycle

1.1 Test Result

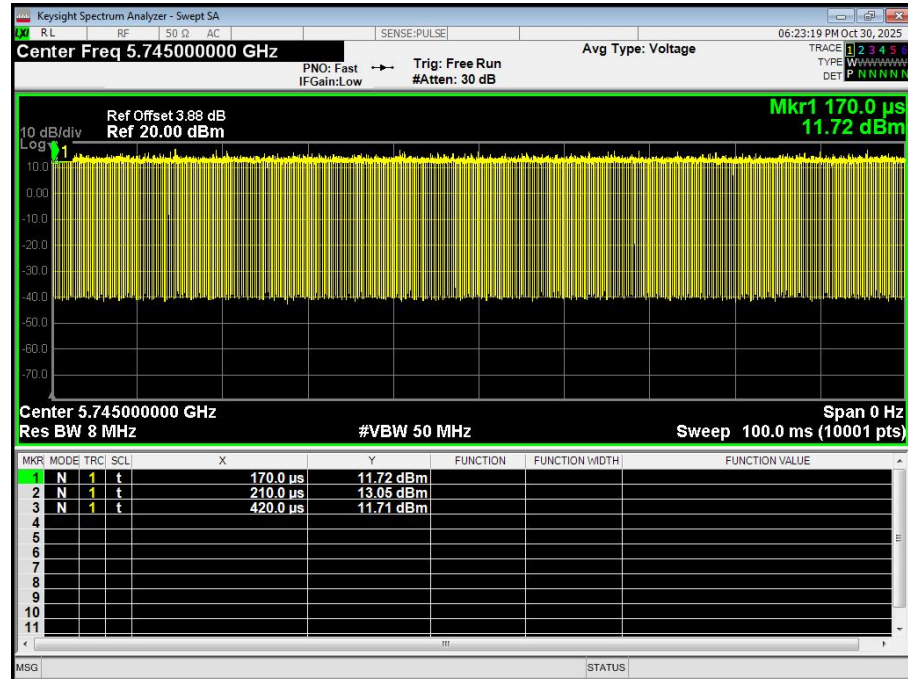
Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
a	5745	Ant1	86.91	0.61	4.76
a	5785	Ant1	86.79	0.62	4.76
a	5825	Ant1	86.8	0.61	4.76
n20	5745	Ant1	87.47	0.58	4.35
n20	5785	Ant1	87.48	0.58	4.35
n20	5825	Ant1	87.48	0.58	4.35
n40	5755	Ant1	88.02	0.55	4
n40	5795	Ant1	87.96	0.56	4.17



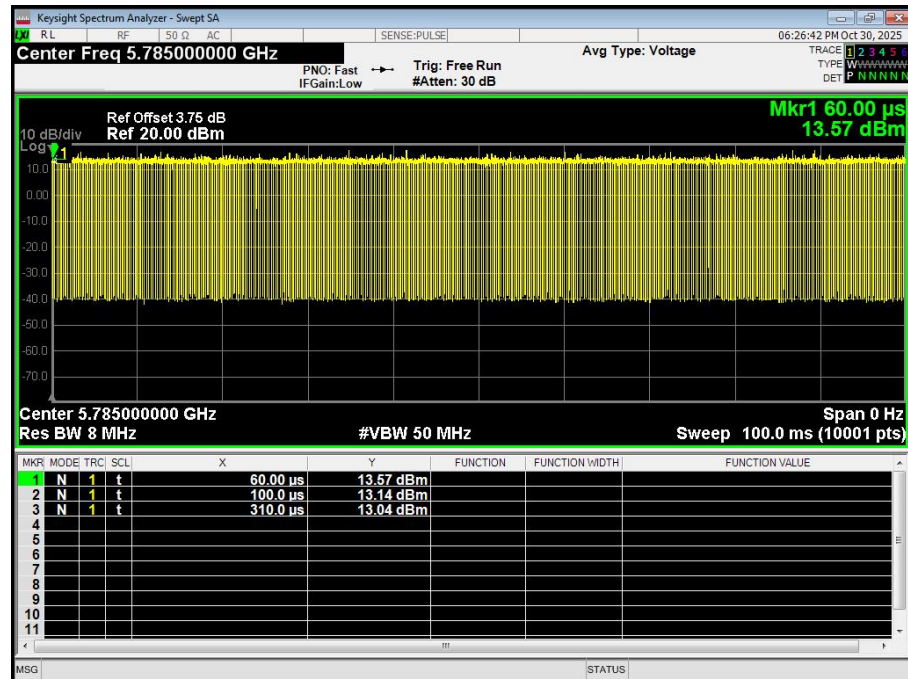
1.2 Test Graphs

Test Graphs

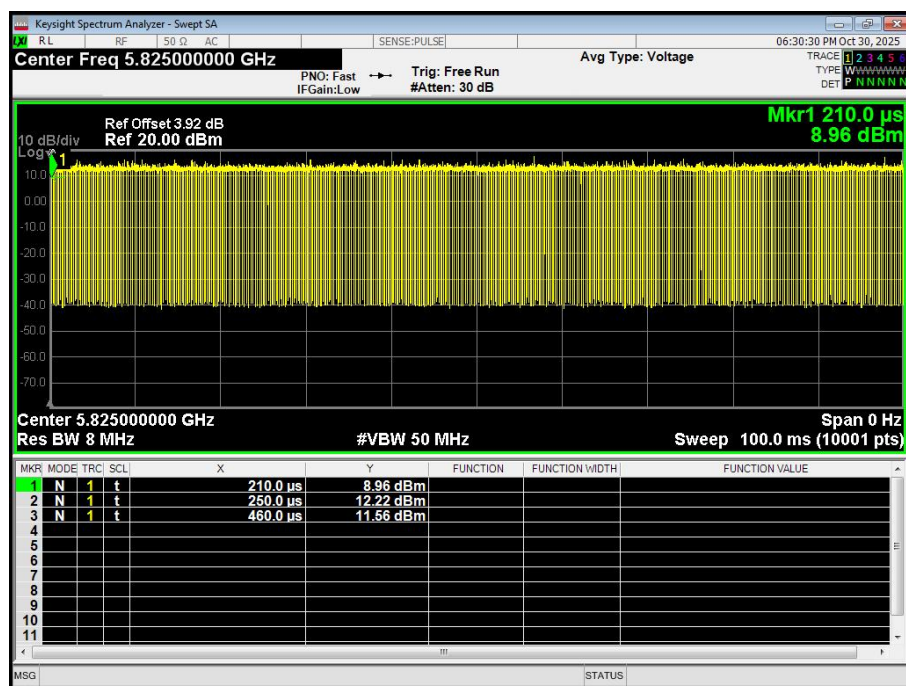
Duty Cycle a 5745MHz Ant1



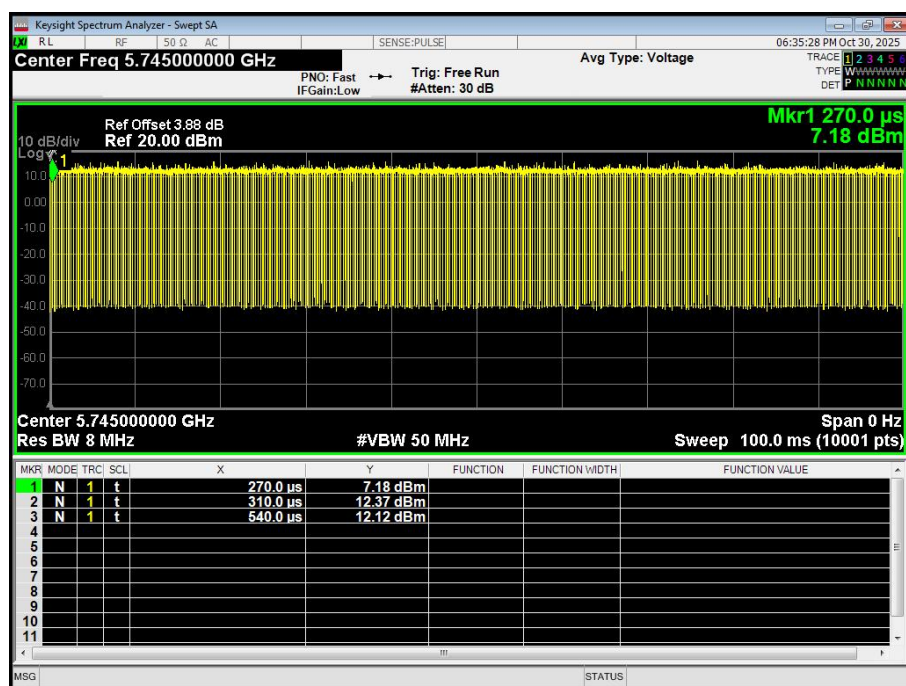
Duty Cycle a 5785MHz Ant1



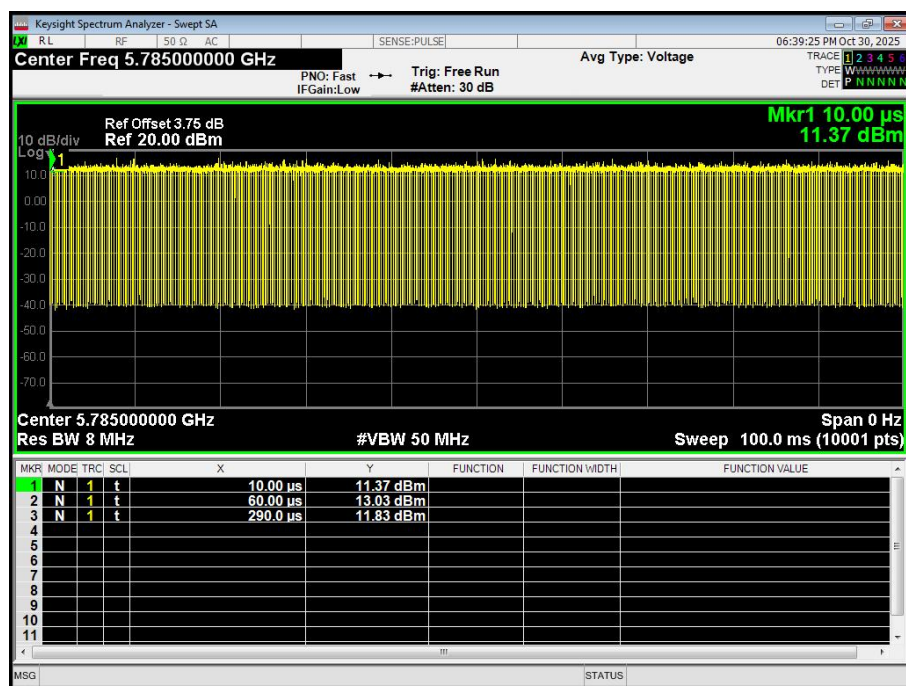
Duty Cycle a 5825MHz Ant1



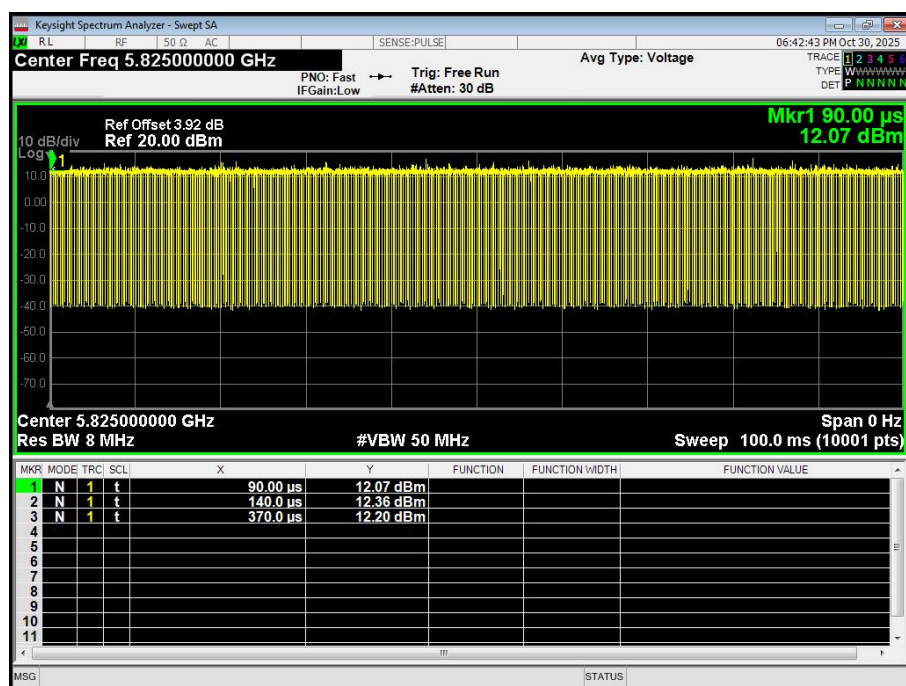
Duty Cycle n20 5745MHz Ant1



Duty Cycle n20 5785MHz Ant1

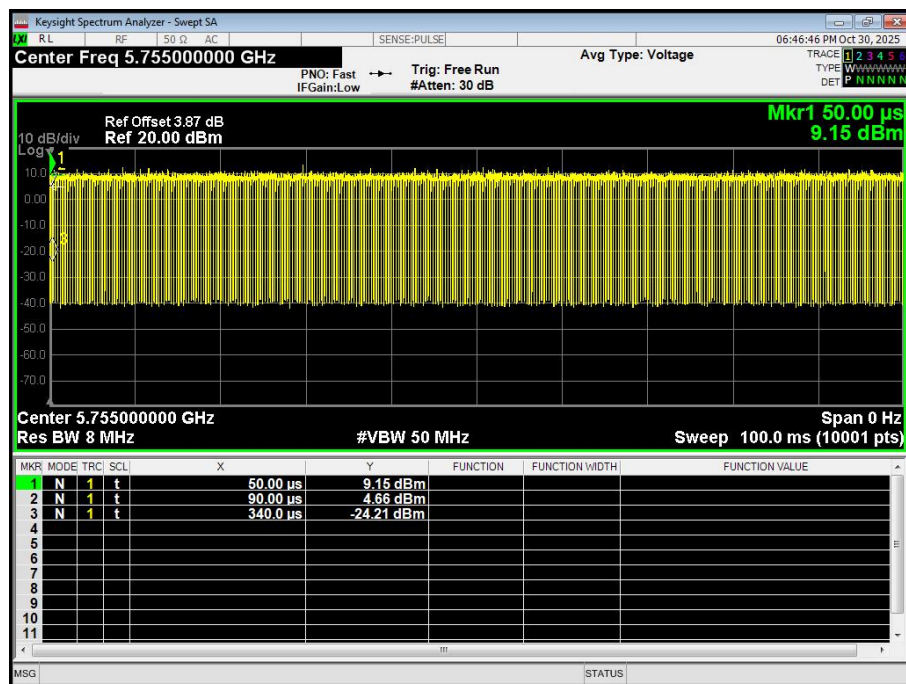


Duty Cycle n20 5825MHz Ant1

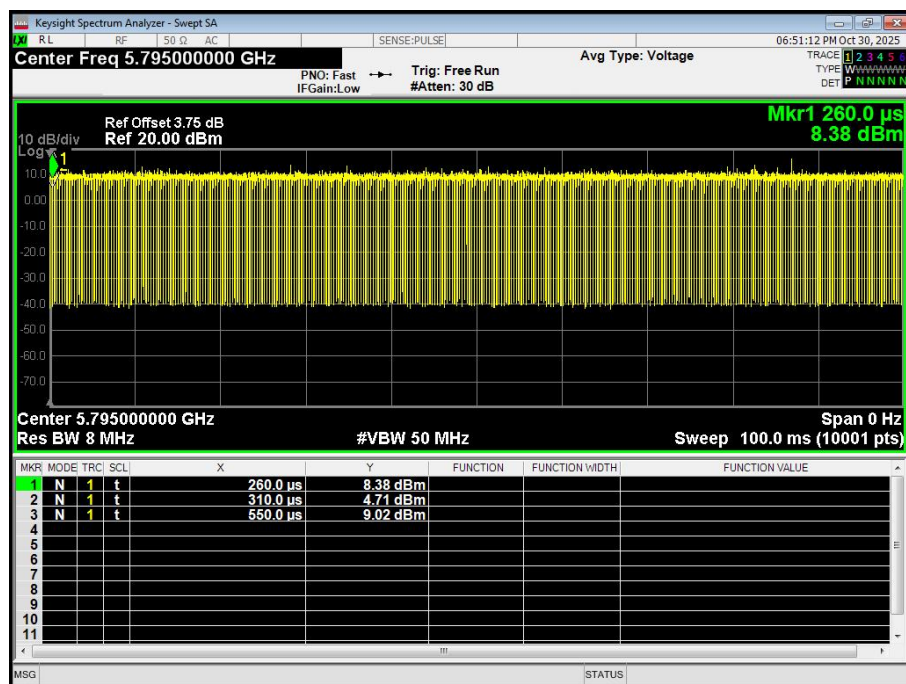




Duty Cycle n40 5755MHz Ant1



Duty Cycle n40 5795MHz Ant1





2 Maximum Conducted Output Power

2.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
a	5745	Ant1	13.97	30	Pass
a	5785	Ant1	14.31	30	Pass
a	5825	Ant1	13.68	30	Pass
n20	5745	Ant1	13.33	30	Pass
n20	5785	Ant1	13.7	30	Pass
n20	5825	Ant1	13.07	30	Pass
n40	5755	Ant1	13.11	30	Pass
n40	5795	Ant1	13.33	30	Pass

Note:

The duty factor has been compensated into the result.



3 -6dB Bandwidth

3.1 Test Result

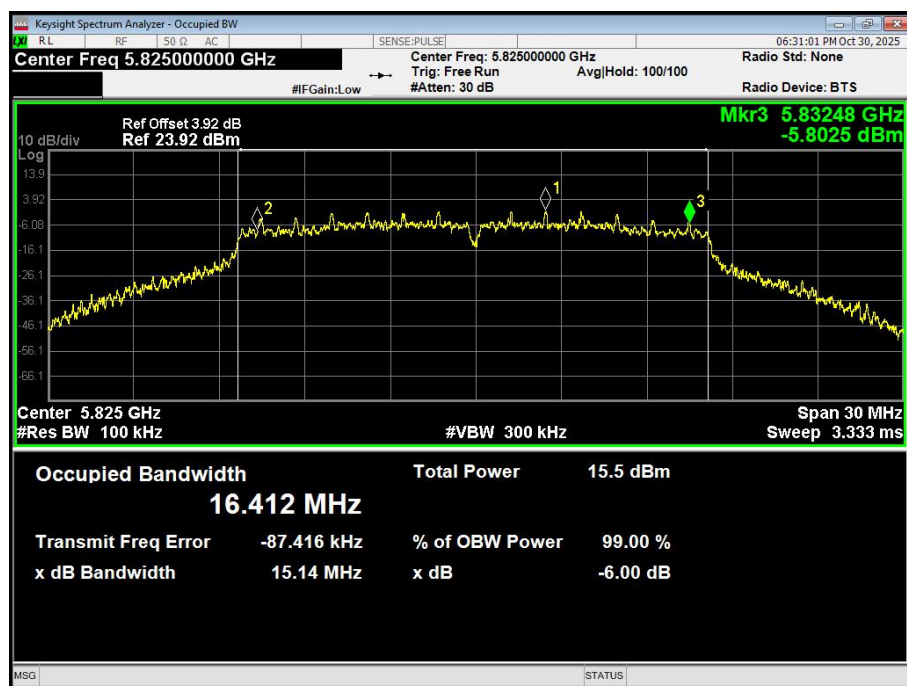
Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
a	5745	Ant1	15.128	0.5	Pass
a	5785	Ant1	15.128	0.5	Pass
a	5825	Ant1	15.135	0.5	Pass
n20	5745	Ant1	15.115	0.5	Pass
n20	5785	Ant1	15.129	0.5	Pass
n20	5825	Ant1	15.127	0.5	Pass
n40	5755	Ant1	35.098	0.5	Pass
n40	5795	Ant1	35.079	0.5	Pass

3.2 Test Graphs

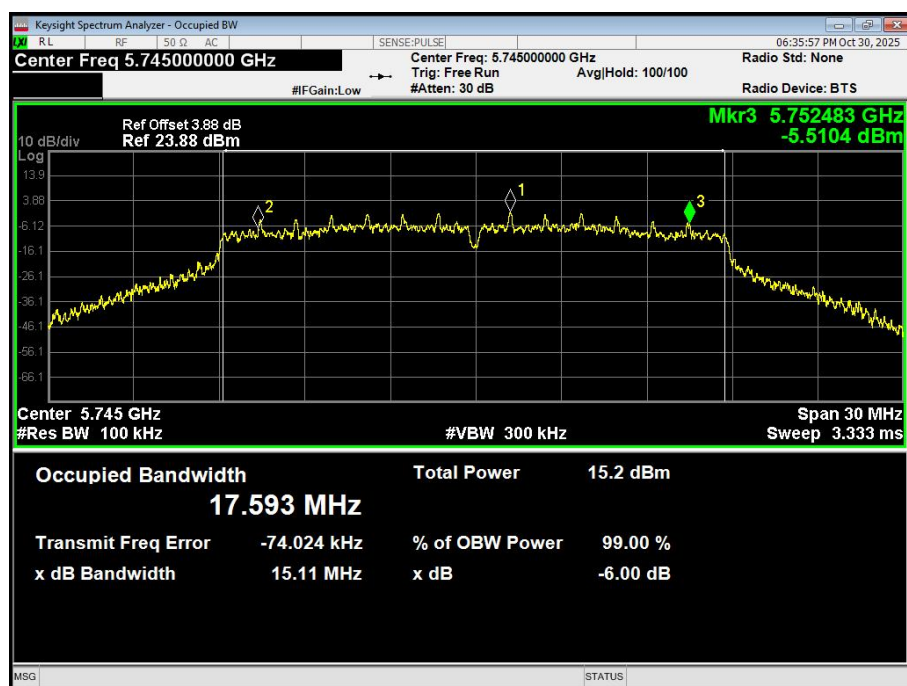




-6dB Bandwidth a 5825MHz Ant1

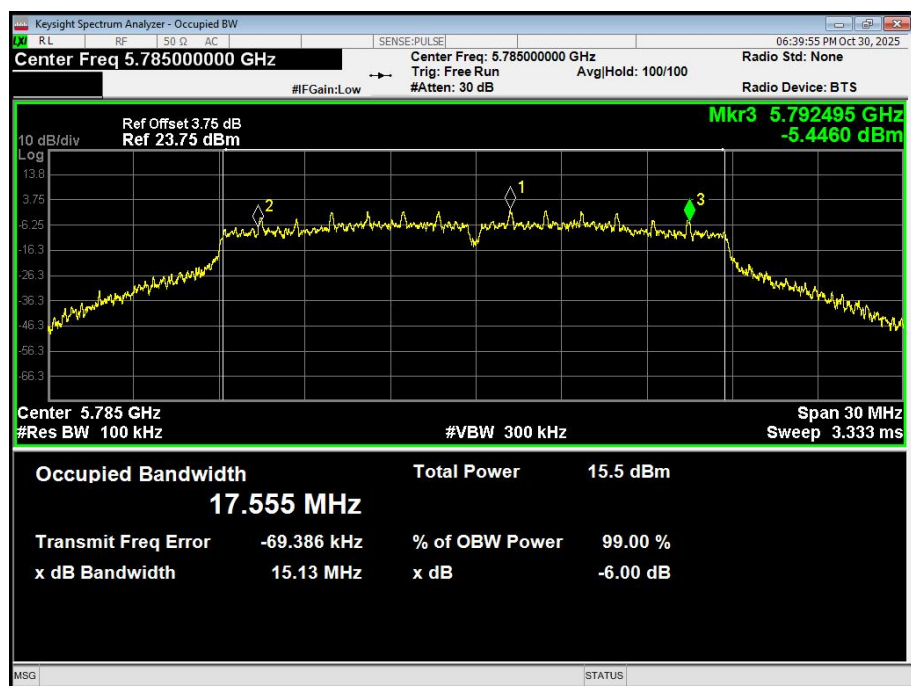


-6dB Bandwidth n20 5745MHz Ant1

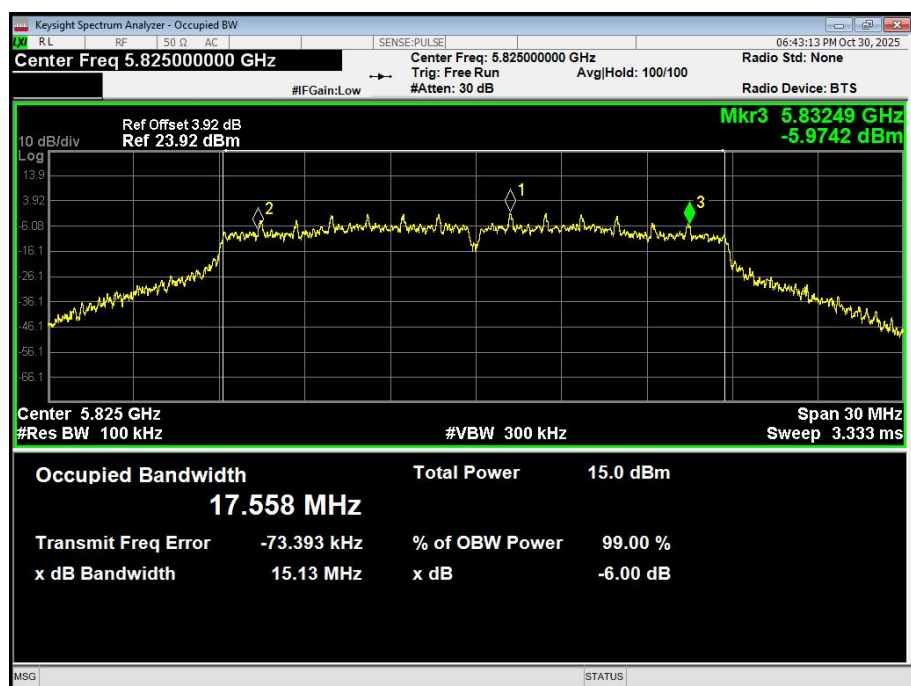




-6dB Bandwidth n20 5785MHz Ant1

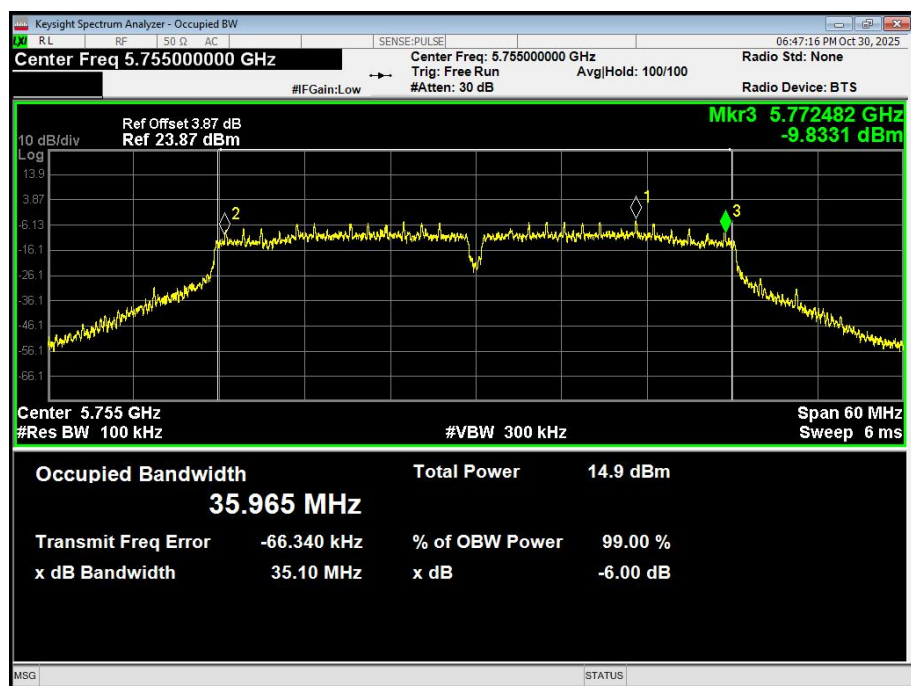


-6dB Bandwidth n20 5825MHz Ant1





-6dB Bandwidth n40 5755MHz Ant1



-6dB Bandwidth n40 5795MHz Ant1



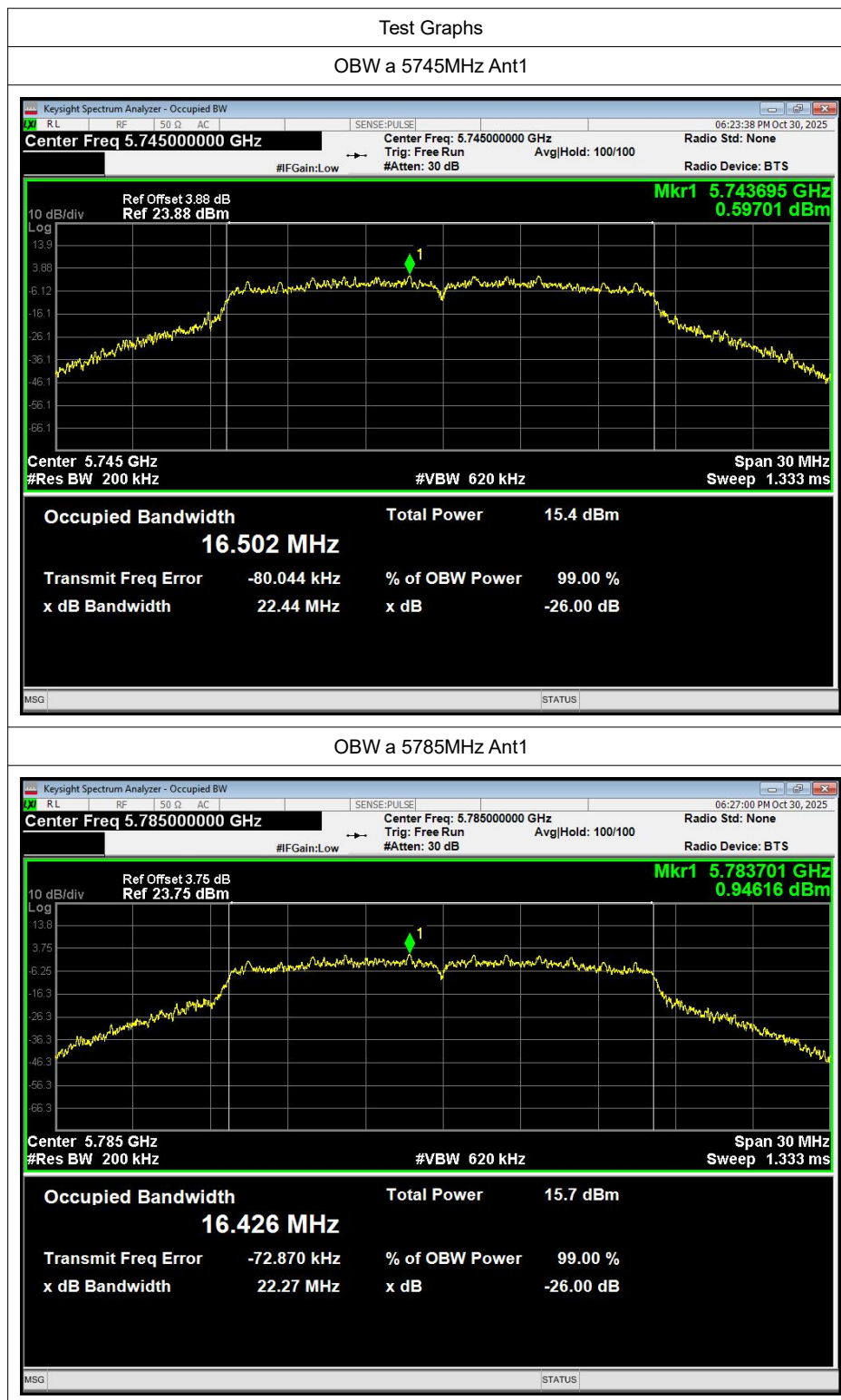


4 Occupied Channel Bandwidth

4.1 Test Result

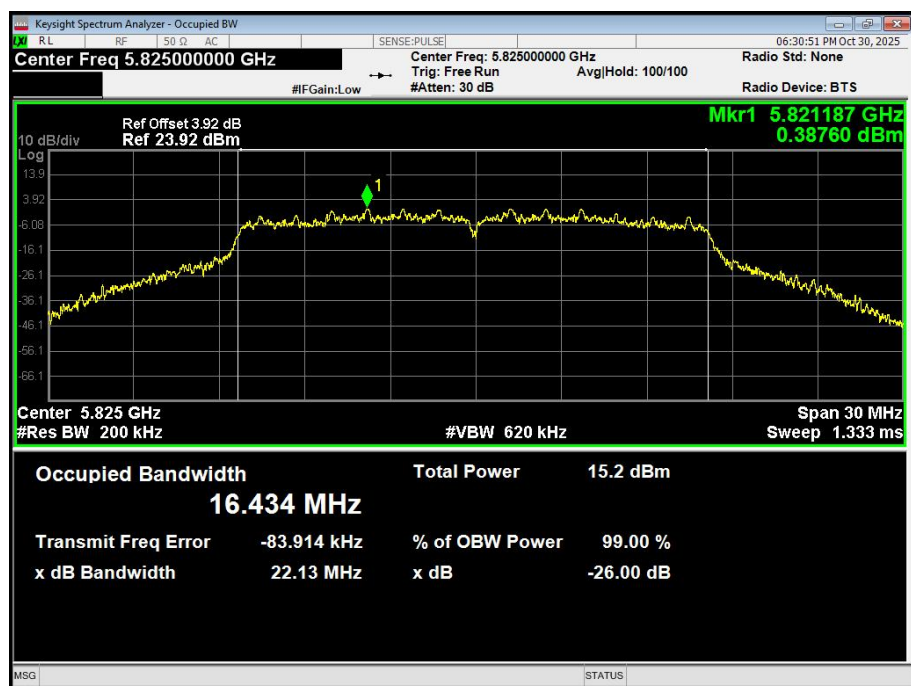
Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
a	5745	Ant1	16.502
a	5785	Ant1	16.426
a	5825	Ant1	16.434
n20	5745	Ant1	17.621
n20	5785	Ant1	17.602
n20	5825	Ant1	17.635
n40	5755	Ant1	36.072
n40	5795	Ant1	35.999

4.2 Test Graphs

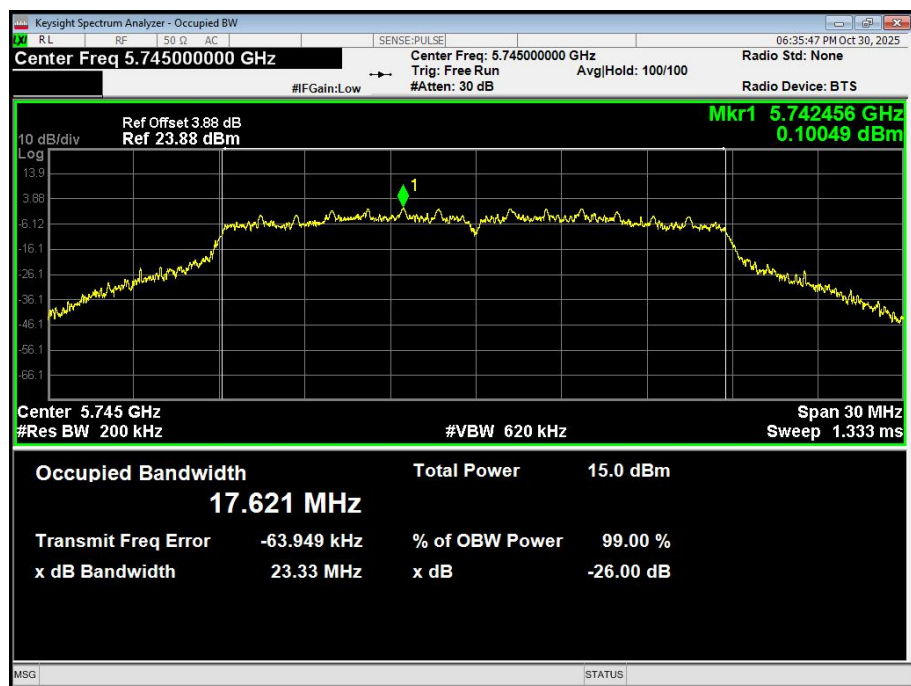




OBW a 5825MHz Ant1

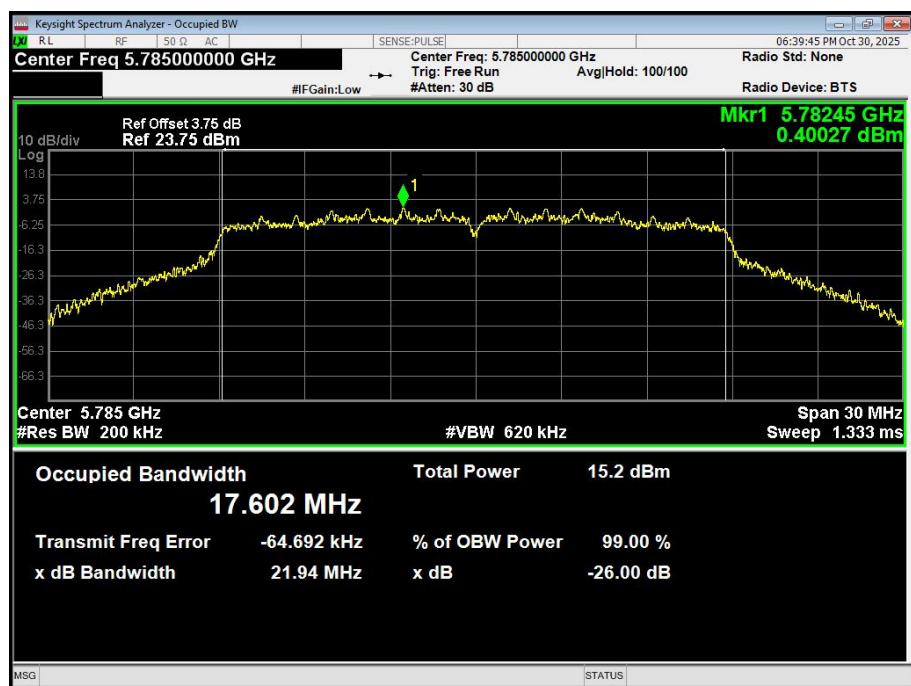


OBW n20 5745MHz Ant1

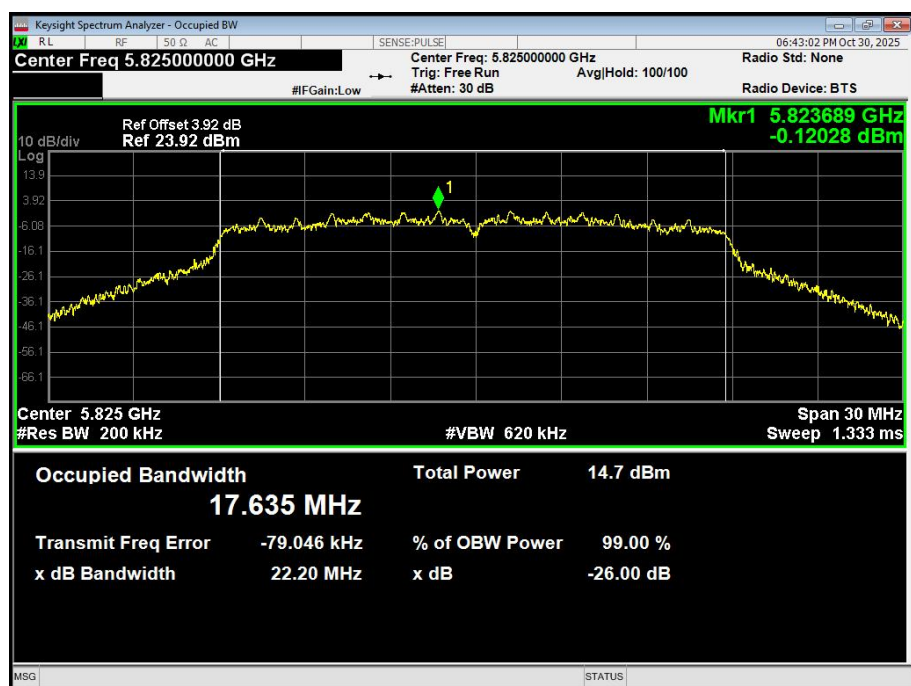




OBW n20 5785MHz Ant1

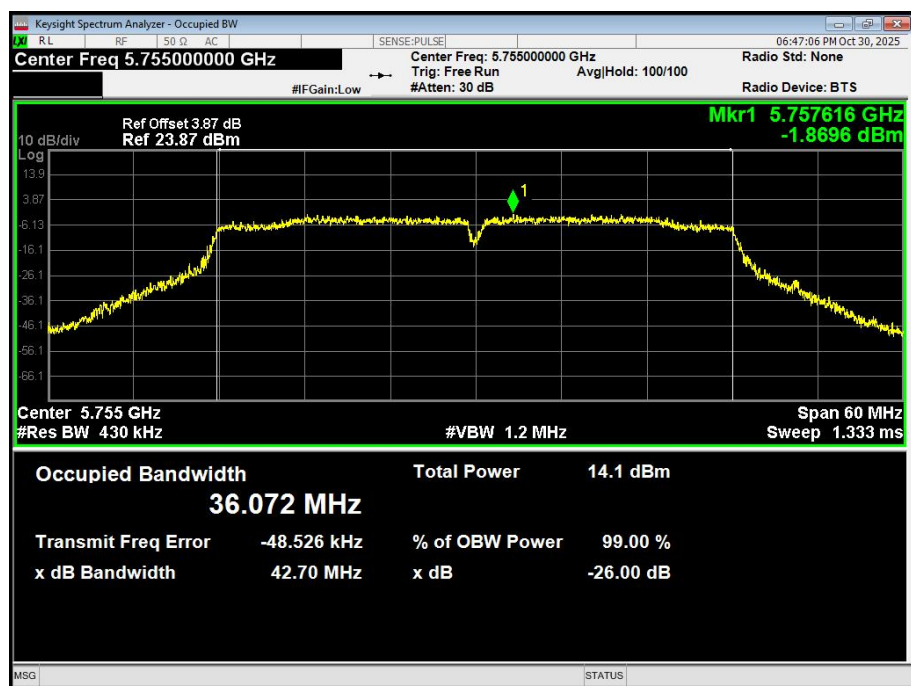


OBW n20 5825MHz Ant1





OBW n40 5755MHz Ant1



OBW n40 5795MHz Ant1



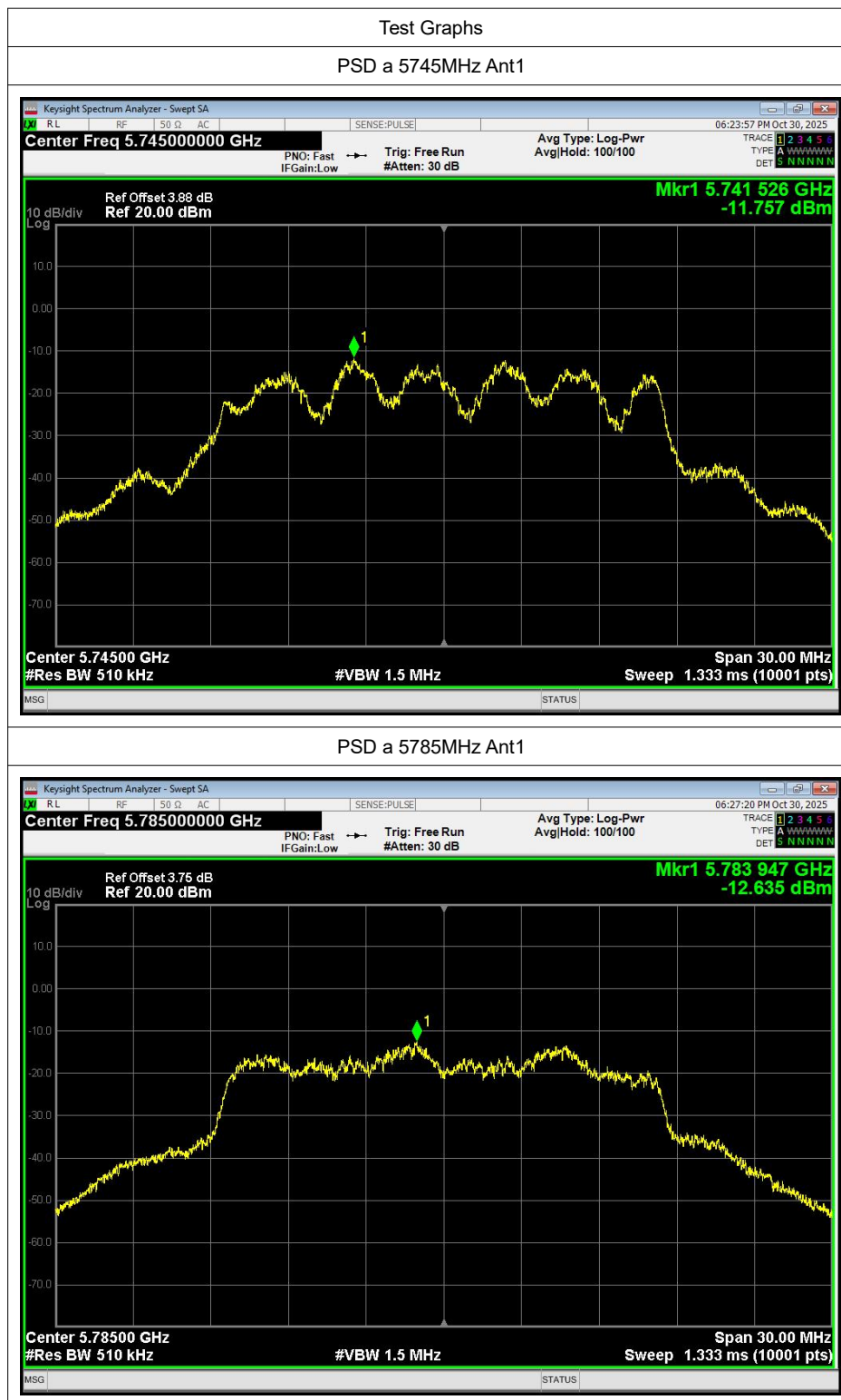


5 Maximum Power Spectral Density Level

5.1 Test Result

Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
a	5745	Ant1	-11.76	0.61	-11.15	30	Pass
a	5785	Ant1	-12.64	0.62	-12.02	30	Pass
a	5825	Ant1	-11.71	0.61	-11.1	30	Pass
n20	5745	Ant1	-11.89	0.58	-11.31	30	Pass
n20	5785	Ant1	-14.15	0.58	-13.57	30	Pass
n20	5825	Ant1	-11.28	0.58	-10.7	30	Pass
n40	5755	Ant1	-16.6	0.55	-16.05	30	Pass
n40	5795	Ant1	-17.2	0.56	-16.64	30	Pass

5.2 Test Graphs



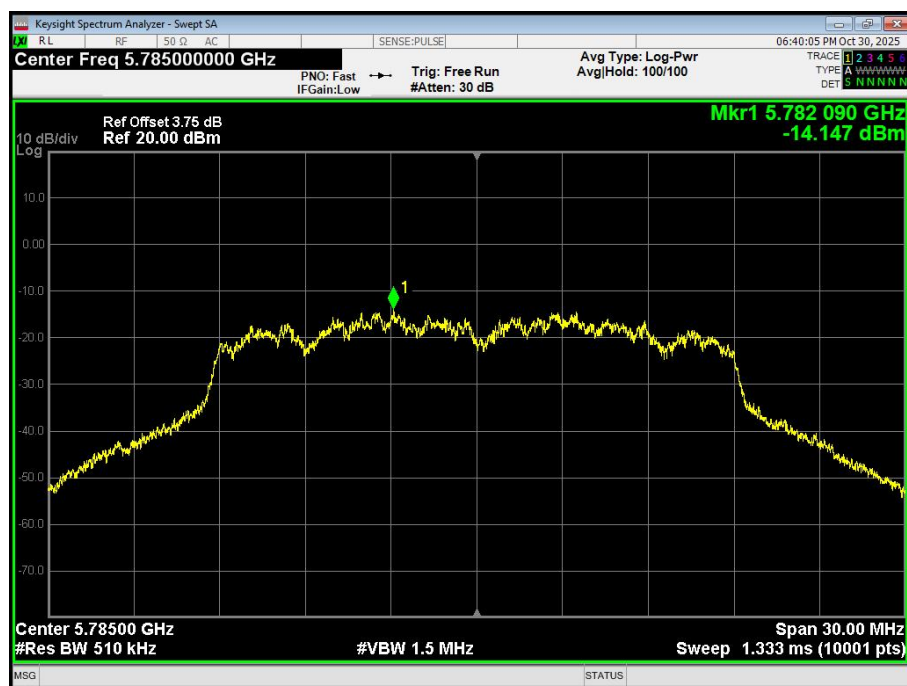
PSD a 5825MHz Ant1



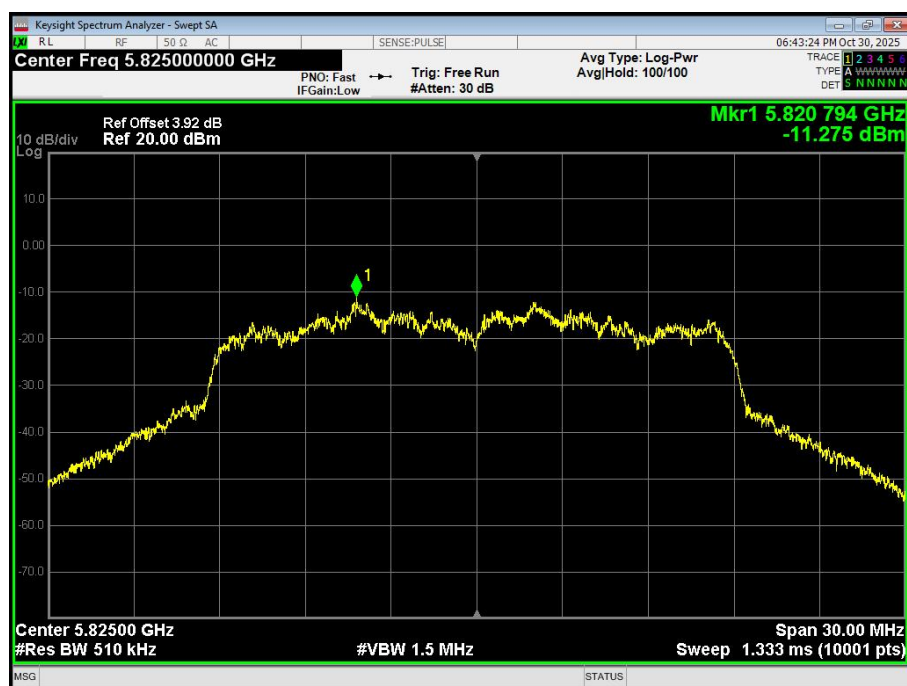
PSD n20 5745MHz Ant1



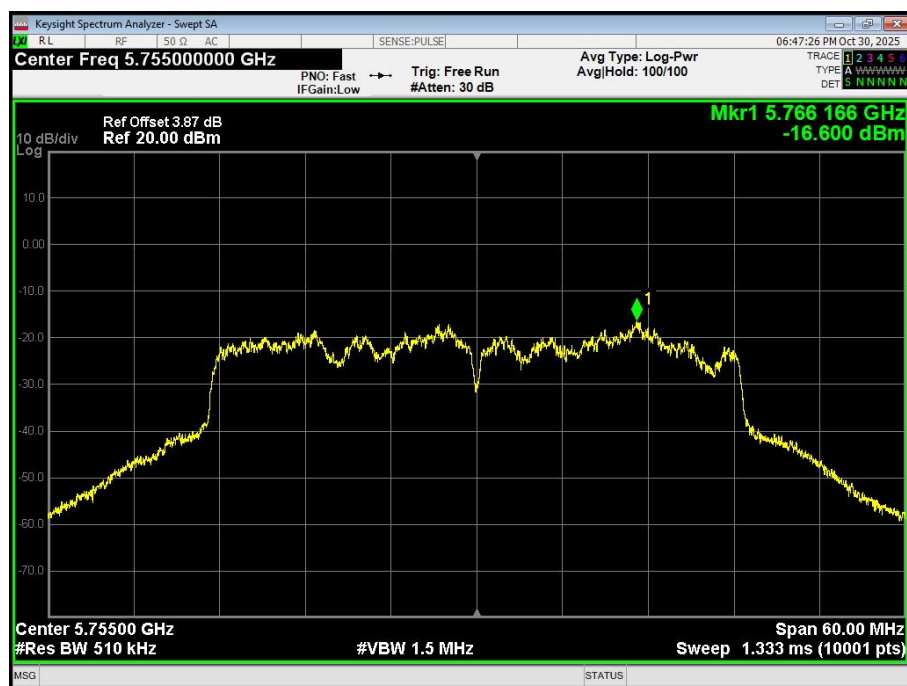
PSD n20 5785MHz Ant1



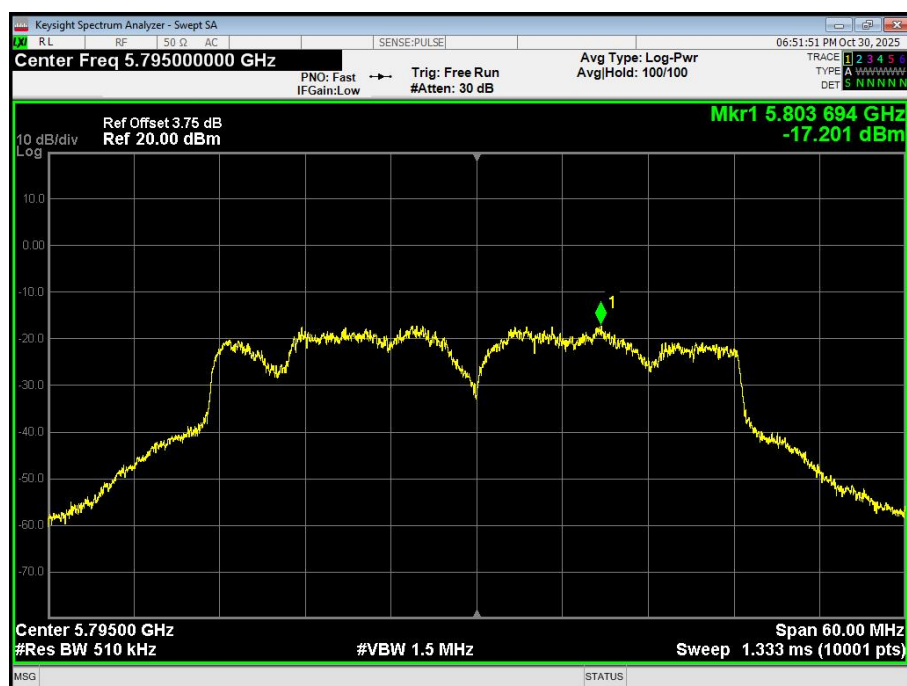
PSD n20 5825MHz Ant1



PSD n40 5755MHz Ant1



PSD n40 5795MHz 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	5744.92	-80000	-13.93	25	Pass
20C 120V	a	5745	Ant1	5744.94	-60000	-10.44	25	Pass
20C 138V	a	5745	Ant1	5744.92	-80000	-13.93	25	Pass
-20C 120V	a	5745	Ant1	5744.94	-60000	-10.44	25	Pass
-10C 120V	a	5745	Ant1	5744.94	-60000	-10.44	25	Pass
0C 120V	a	5745	Ant1	5744.92	-80000	-13.93	25	Pass
10C 120V	a	5745	Ant1	5744.94	-60000	-10.44	25	Pass
30C 120V	a	5745	Ant1	5744.96	-40000	-6.96	25	Pass
40C 120V	a	5745	Ant1	5744.92	-80000	-13.93	25	Pass
50C 120V	a	5745	Ant1	5744.96	-40000	-6.96	25	Pass
20C 102V	a	5785	Ant1	5784.94	-60000	-10.37	25	Pass
20C 120V	a	5785	Ant1	5784.9	-100000	-17.29	25	Pass
20C 138V	a	5785	Ant1	5784.96	-40000	-6.91	25	Pass
-20C 120V	a	5785	Ant1	5784.94	-60000	-10.37	25	Pass
-10C 120V	a	5785	Ant1	5784.92	-80000	-13.83	25	Pass
0C 120V	a	5785	Ant1	5784.94	-60000	-10.37	25	Pass
10C 120V	a	5785	Ant1	5784.94	-60000	-10.37	25	Pass
30C 120V	a	5785	Ant1	5784.94	-60000	-10.37	25	Pass
40C 120V	a	5785	Ant1	5784.92	-80000	-13.83	25	Pass
50C 120V	a	5785	Ant1	5784.94	-60000	-10.37	25	Pass
20C 102V	a	5825	Ant1	5824.92	-80000	-13.73	25	Pass
20C 120V	a	5825	Ant1	5824.94	-60000	-10.3	25	Pass
20C 138V	a	5825	Ant1	5824.94	-60000	-10.3	25	Pass
-20C 120V	a	5825	Ant1	5824.96	-40000	-6.87	25	Pass
-10C 120V	a	5825	Ant1	5824.94	-60000	-10.3	25	Pass
0C 120V	a	5825	Ant1	5824.92	-80000	-13.73	25	Pass
10C 120V	a	5825	Ant1	5824.92	-80000	-13.73	25	Pass
30C 120V	a	5825	Ant1	5824.94	-60000	-10.3	25	Pass
40C 120V	a	5825	Ant1	5824.94	-60000	-10.3	25	Pass
50C 120V	a	5825	Ant1	5824.94	-60000	-10.3	25	Pass
20C 102V	n20	5745	Ant1	5744.92	-80000	-13.93	25	Pass
20C 120V	n20	5745	Ant1	5744.92	-80000	-13.93	25	Pass
20C 138V	n20	5745	Ant1	5744.94	-60000	-10.44	25	Pass
-20C 120V	n20	5745	Ant1	5744.92	-80000	-13.93	25	Pass
-10C 120V	n20	5745	Ant1	5744.92	-80000	-13.93	25	Pass



0C 120V	n20	5745	Ant1	5744.96	-40000	-6.96	25	Pass
10C 120V	n20	5745	Ant1	5744.94	-60000	-10.44	25	Pass
30C 120V	n20	5745	Ant1	5744.96	-40000	-6.96	25	Pass
40C 120V	n20	5745	Ant1	5744.94	-60000	-10.44	25	Pass
50C 120V	n20	5745	Ant1	5744.96	-40000	-6.96	25	Pass
20C 102V	n20	5785	Ant1	5784.94	-60000	-10.37	25	Pass
20C 120V	n20	5785	Ant1	5784.92	-80000	-13.83	25	Pass
20C 138V	n20	5785	Ant1	5784.94	-60000	-10.37	25	Pass
-20C 120V	n20	5785	Ant1	5784.96	-40000	-6.91	25	Pass
-10C 120V	n20	5785	Ant1	5784.94	-60000	-10.37	25	Pass
0C 120V	n20	5785	Ant1	5784.92	-80000	-13.83	25	Pass
10C 120V	n20	5785	Ant1	5784.92	-80000	-13.83	25	Pass
30C 120V	n20	5785	Ant1	5784.96	-40000	-6.91	25	Pass
40C 120V	n20	5785	Ant1	5784.92	-80000	-13.83	25	Pass
50C 120V	n20	5785	Ant1	5784.96	-40000	-6.91	25	Pass
20C 102V	n20	5825	Ant1	5824.92	-80000	-13.73	25	Pass
20C 120V	n20	5825	Ant1	5824.96	-40000	-6.87	25	Pass
20C 138V	n20	5825	Ant1	5824.94	-60000	-10.3	25	Pass
-20C 120V	n20	5825	Ant1	5824.94	-60000	-10.3	25	Pass
-10C 120V	n20	5825	Ant1	5824.92	-80000	-13.73	25	Pass
0C 120V	n20	5825	Ant1	5824.94	-60000	-10.3	25	Pass
10C 120V	n20	5825	Ant1	5824.92	-80000	-13.73	25	Pass
30C 120V	n20	5825	Ant1	5824.94	-60000	-10.3	25	Pass
40C 120V	n20	5825	Ant1	5824.94	-60000	-10.3	25	Pass
50C 120V	n20	5825	Ant1	5824.9	-100000	-17.17	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	5754.96	-40000	-6.95	25	Pass
-10C 120V	n40	5755	Ant1	5754.88	-120000	-20.85	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	5754.92	-80000	-13.9	25	Pass
50C 120V	n40	5755	Ant1	5754.92	-80000	-13.9	25	Pass
20C 102V	n40	5795	Ant1	5794.96	-40000	-6.9	25	Pass
20C 120V	n40	5795	Ant1	5794.88	-120000	-20.71	25	Pass
20C 138V	n40	5795	Ant1	5794.88	-120000	-20.71	25	Pass
-20C 120V	n40	5795	Ant1	5794.92	-80000	-13.81	25	Pass
-10C 120V	n40	5795	Ant1	5794.96	-40000	-6.9	25	Pass
0C 120V	n40	5795	Ant1	5794.96	-40000	-6.9	25	Pass
10C 120V	n40	5795	Ant1	5794.96	-40000	-6.9	25	Pass
30C 120V	n40	5795	Ant1	5794.92	-80000	-13.81	25	Pass



40C 120V	n40	5795	Ant1	5794.92	-80000	-13.81	25	Pass
50C 120V	n40	5795	Ant1	5794.92	-80000	-13.81	25	Pass

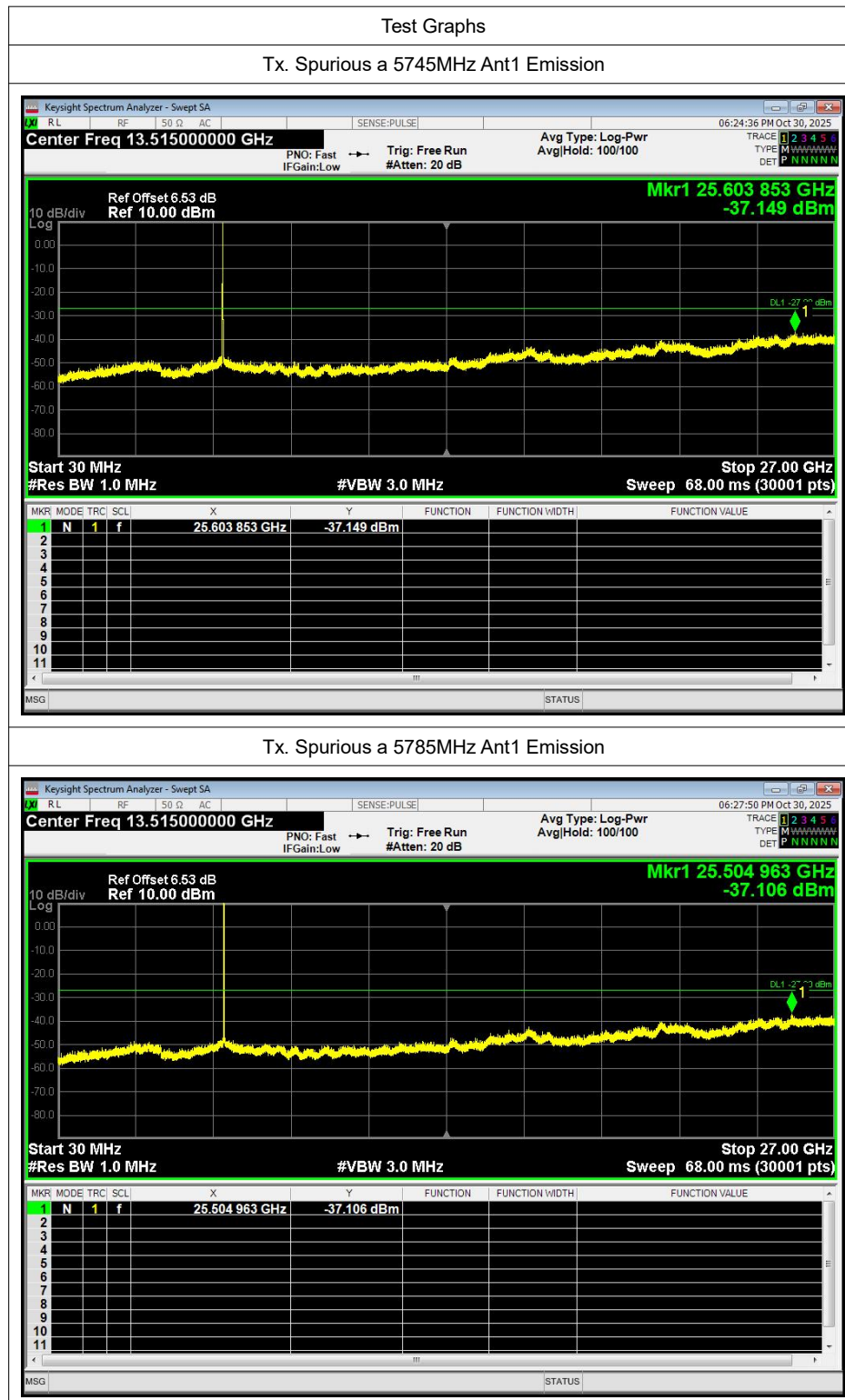


7 Conducted RF Spurious Emission

7.1 Test Result

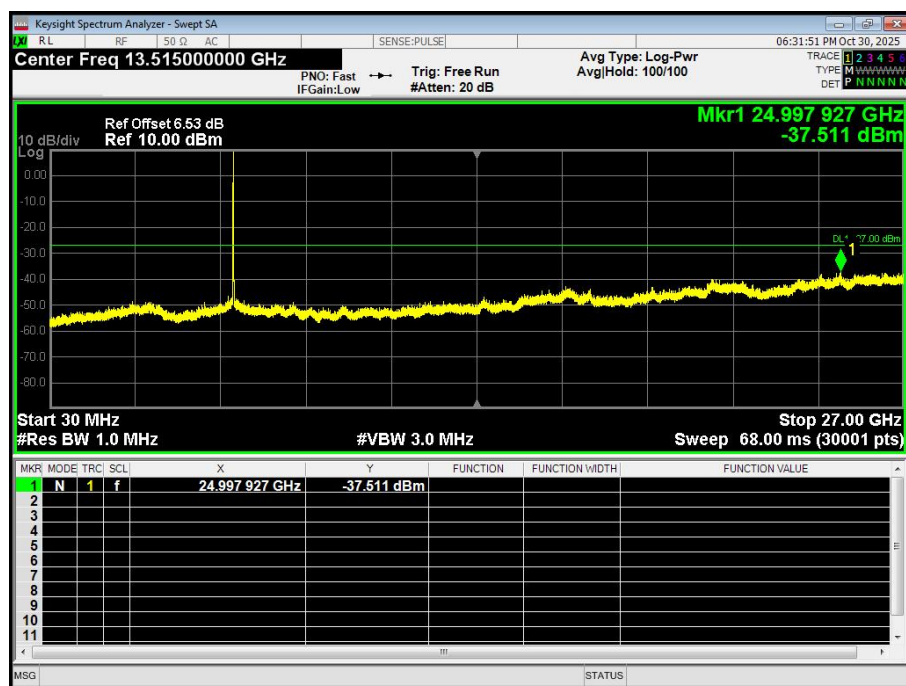
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
a	5745	Ant1	-37.14	-27	Pass
a	5785	Ant1	-37.1	-27	Pass
a	5825	Ant1	-37.51	-27	Pass
n20	5745	Ant1	-37.24	-27	Pass
n20	5785	Ant1	-37.44	-27	Pass
n20	5825	Ant1	-37.21	-27	Pass
n40	5755	Ant1	-37.81	-27	Pass
n40	5795	Ant1	-37.54	-27	Pass

7.2 Test Graphs

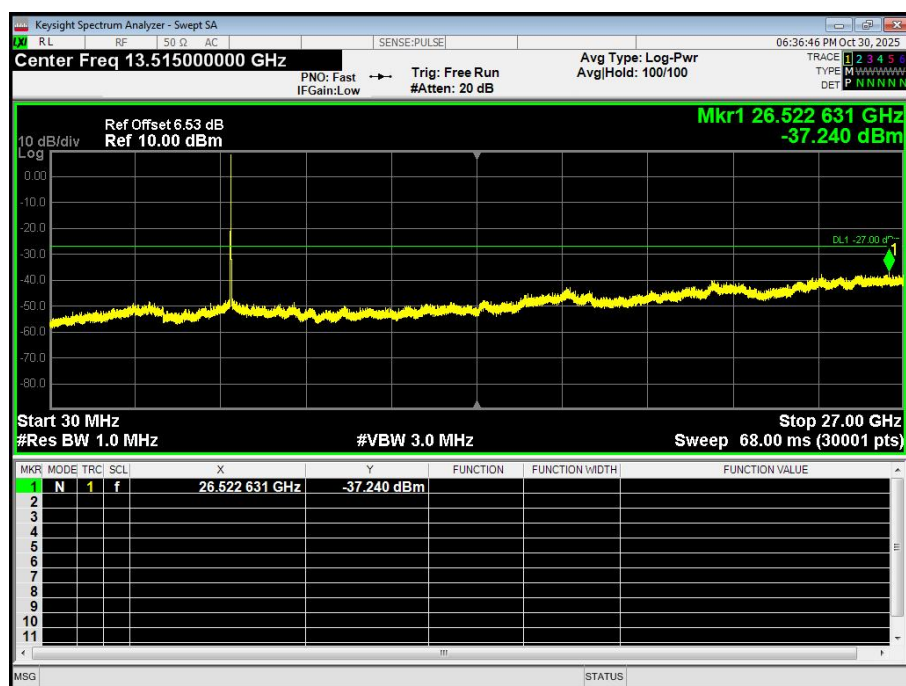




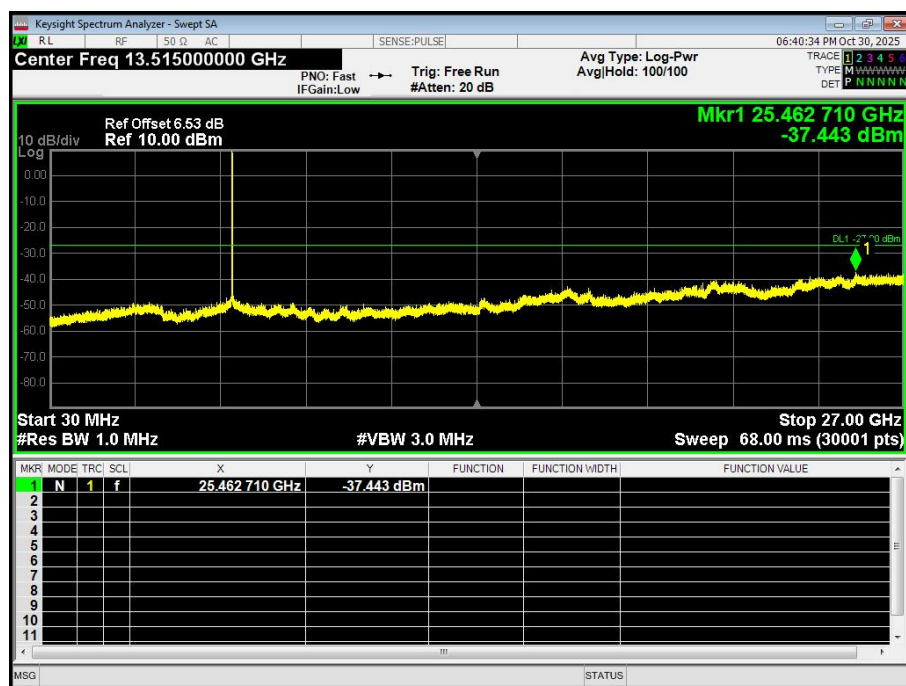
Tx. Spurious a 5825MHz Ant1 Emission



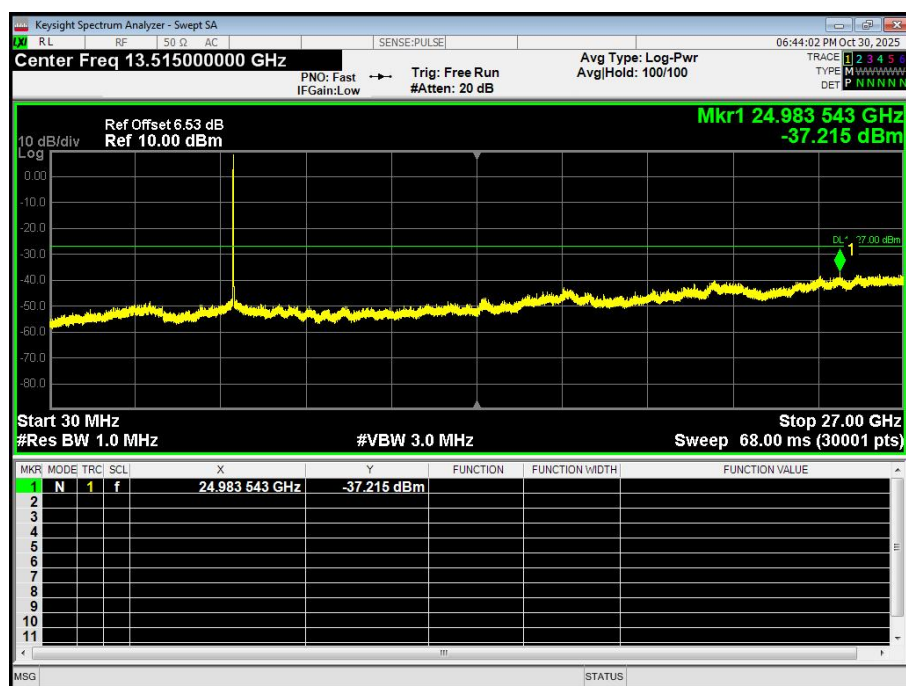
Tx. Spurious n20 5745MHz Ant1 Emission



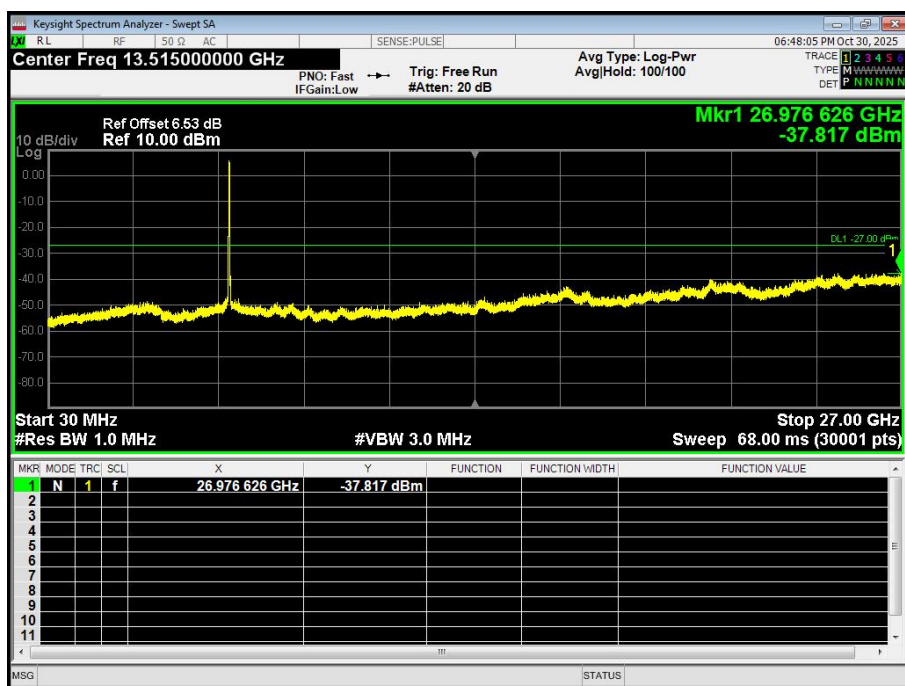
Tx. Spurious n20 5785MHz Ant1 Emission



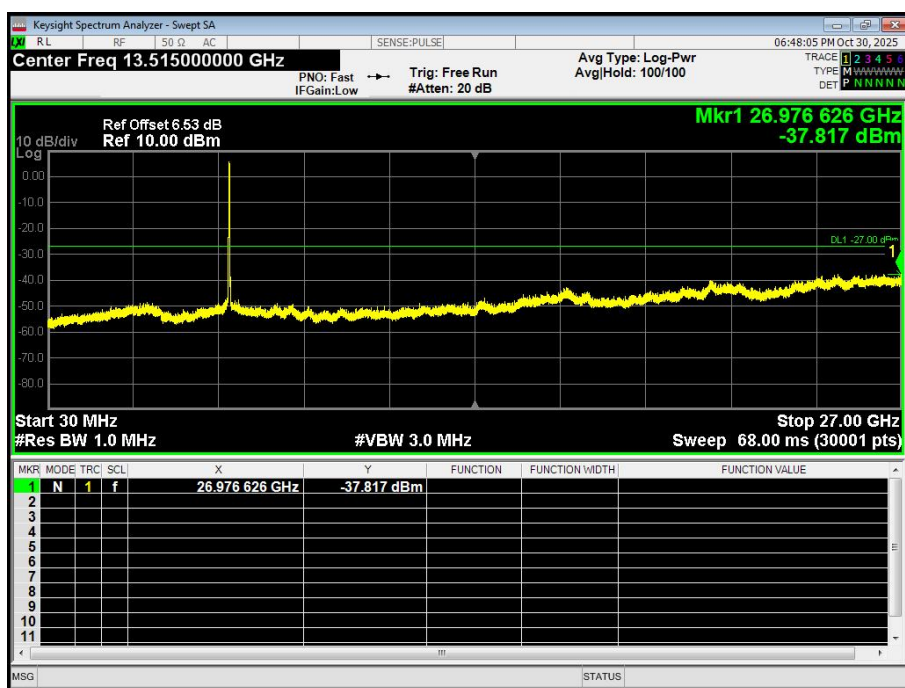
Tx. Spurious n20 5825MHz Ant1 Emission



Tx. Spurious n40 5755MHz Ant1 Emission



Tx. Spurious n40 5795MHz Ant1 Emission





8 Restrict Band

8.1 Test Result

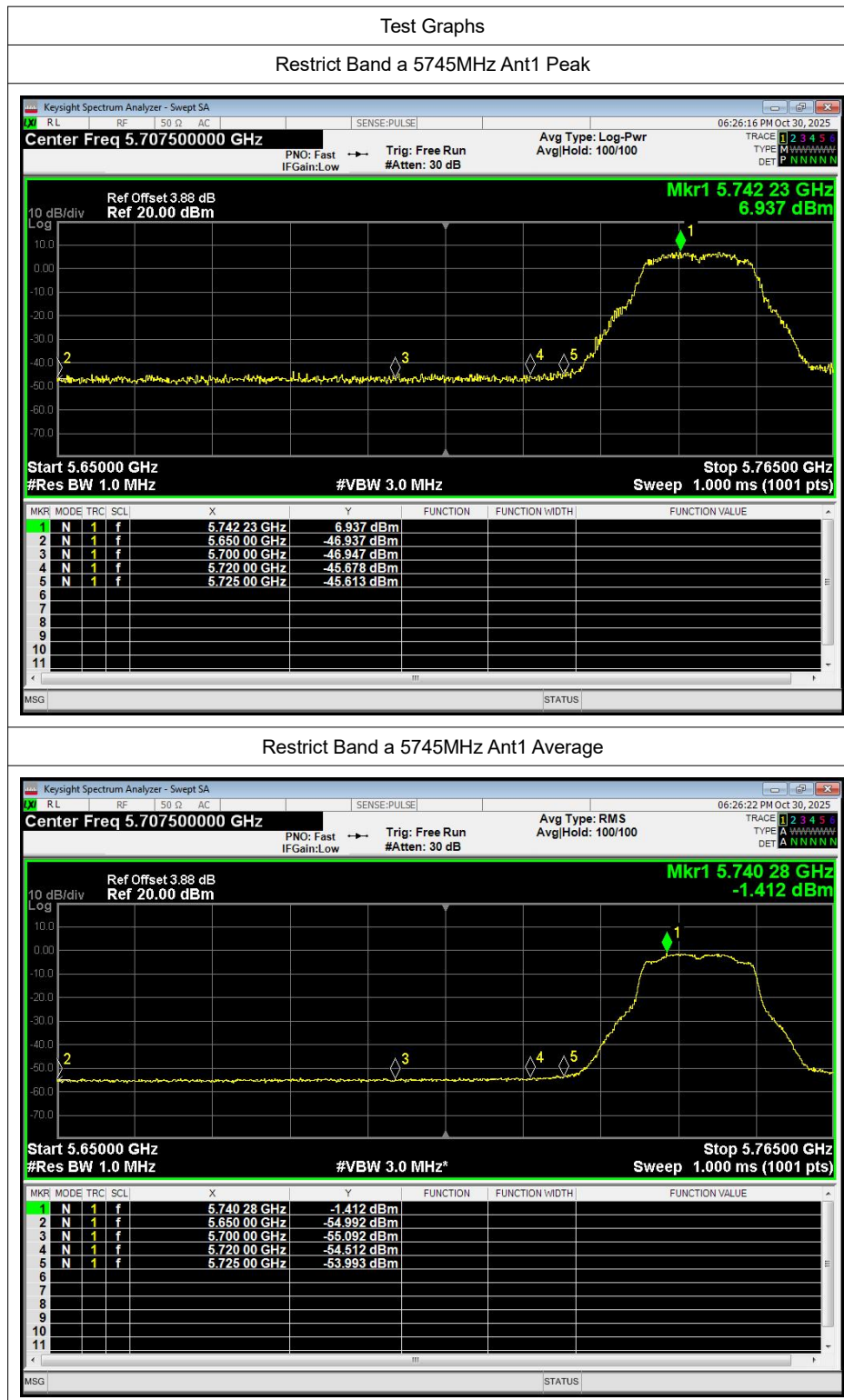
Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor	EIRP Power (dBm)	Detector	Limit (dBm)	Verdict
a	5745	Ant1	5650	-46.94	2.67	-	50.96	Peak	-27	Pass
a	5745	Ant1	5650	-54.99	2.67	0.61	43.52	Average	-27	Pass
a	5745	Ant1	5700	-46.95	2.67	-	50.95	Peak	10	Pass
a	5745	Ant1	5700	-55.09	2.67	0.61	43.42	Average	10	Pass
a	5745	Ant1	5720	-45.68	2.67	-	52.22	Peak	15.6	Pass
a	5745	Ant1	5720	-54.51	2.67	0.61	44	Average	15.6	Pass
a	5745	Ant1	5725	-45.61	2.67	-	52.29	Peak	27	Pass
a	5745	Ant1	5725	-53.99	2.67	0.61	44.52	Average	27	Pass
a	5825	Ant1	5850	-47.25	2.67	-	50.65	Peak	27	Pass
a	5825	Ant1	5850	-54.46	2.67	0.61	44.05	Average	27	Pass
a	5825	Ant1	5855	-48.04	2.67	-	49.86	Peak	15.6	Pass
a	5825	Ant1	5855	-54.71	2.67	0.61	43.8	Average	15.6	Pass
a	5825	Ant1	5875	-47.3	2.67	-	50.6	Peak	10	Pass
a	5825	Ant1	5875	-54.1	2.67	0.61	44.41	Average	10	Pass
a	5825	Ant1	5925	-46.92	2.67	-	50.98	Peak	-27	Pass
a	5825	Ant1	5925	-55.08	2.67	0.61	43.43	Average	-27	Pass
n20	5745	Ant1	5650	-48.04	2.67	-	49.86	Peak	-27	Pass
n20	5745	Ant1	5650	-56.04	2.67	0.58	42.44	Average	-27	Pass
n20	5745	Ant1	5700	-48.18	2.67	-	49.72	Peak	10	Pass
n20	5745	Ant1	5700	-55.46	2.67	0.58	43.02	Average	10	Pass
n20	5745	Ant1	5720	-44.95	2.67	-	52.95	Peak	15.6	Pass
n20	5745	Ant1	5720	-54.4	2.67	0.58	44.08	Average	15.6	Pass
n20	5745	Ant1	5725	-44.76	2.67	-	53.14	Peak	27	Pass
n20	5745	Ant1	5725	-53.42	2.67	0.58	45.06	Average	27	Pass
n20	5825	Ant1	5850	-47.17	2.67	-	50.73	Peak	27	Pass
n20	5825	Ant1	5850	-54.45	2.67	0.58	44.03	Average	27	Pass
n20	5825	Ant1	5855	-46.26	2.67	-	51.64	Peak	15.6	Pass
n20	5825	Ant1	5855	-54.41	2.67	0.58	44.07	Average	15.6	Pass
n20	5825	Ant1	5875	-45.16	2.67	-	52.74	Peak	10	Pass
n20	5825	Ant1	5875	-54.92	2.67	0.58	43.56	Average	10	Pass
n20	5825	Ant1	5925	-47.06	2.67	-	50.84	Peak	-27	Pass
n20	5825	Ant1	5925	-54.98	2.67	0.58	43.5	Average	-27	Pass
n40	5755	Ant1	5650	-47.08	2.67	-	50.82	Peak	-27	Pass
n40	5755	Ant1	5650	-55.74	2.67	0.55	42.71	Average	-27	Pass
n40	5755	Ant1	5700	-46.07	2.67	-	51.83	Peak	10	Pass



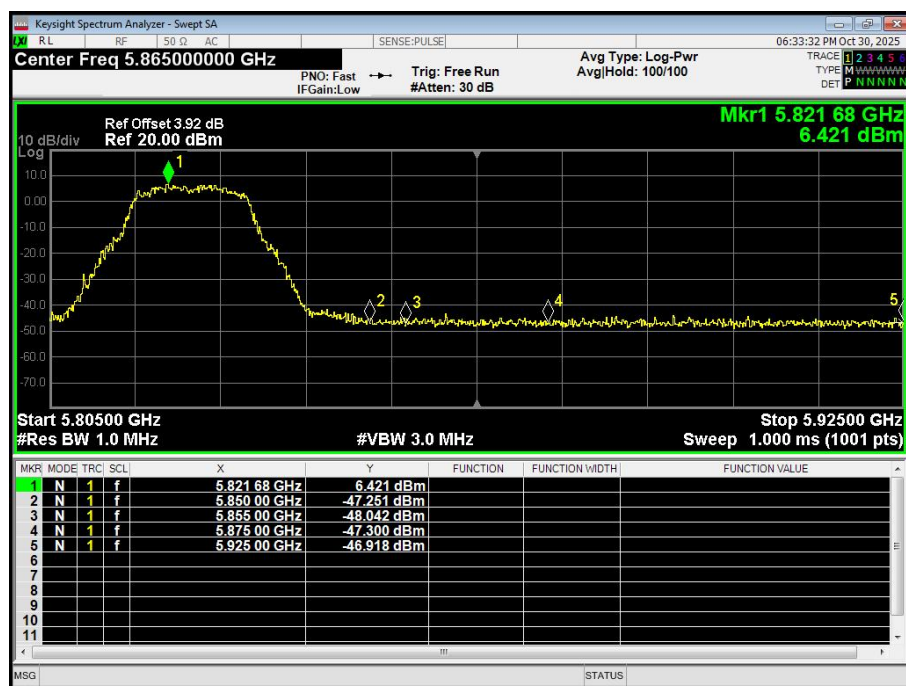
n40	5755	Ant1	5700	-54.67	2.67	0.55	43.78	Average	10	Pass
n40	5755	Ant1	5720	-45.92	2.67	-	51.98	Peak	15.6	Pass
n40	5755	Ant1	5720	-53.83	2.67	0.55	44.62	Average	15.6	Pass
n40	5755	Ant1	5725	-42.02	2.67	-	55.88	Peak	27	Pass
n40	5755	Ant1	5725	-52.2	2.67	0.55	46.25	Average	27	Pass
n40	5795	Ant1	5850	-46.03	2.67	-	51.87	Peak	27	Pass
n40	5795	Ant1	5850	-54.93	2.67	0.56	43.53	Average	27	Pass
n40	5795	Ant1	5855	-46.46	2.67	-	51.44	Peak	15.6	Pass
n40	5795	Ant1	5855	-54.34	2.67	0.56	44.12	Average	15.6	Pass
n40	5795	Ant1	5875	-47.52	2.67	-	50.38	Peak	10	Pass
n40	5795	Ant1	5875	-55.05	2.67	0.56	43.41	Average	10	Pass
n40	5795	Ant1	5925	-48.41	2.67	-	49.49	Peak	-27	Pass
n40	5795	Ant1	5925	-55.51	2.67	0.56	42.95	Average	-27	Pass



8.2 Test Graphs



Restrict Band a 5825MHz Ant1 Peak



Restrict Band a 5825MHz Ant1 Average

