

Appendix B for 5GWIFI Test Data

Product Name: ATOTO Car Navigation Multimedia Receiver

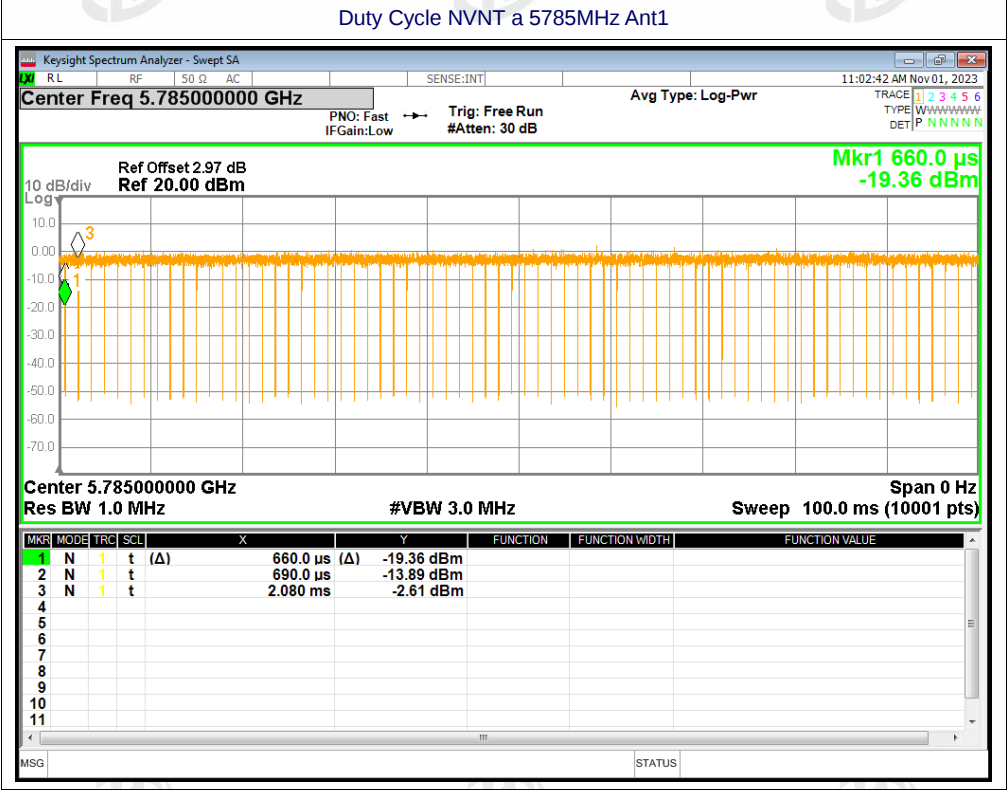
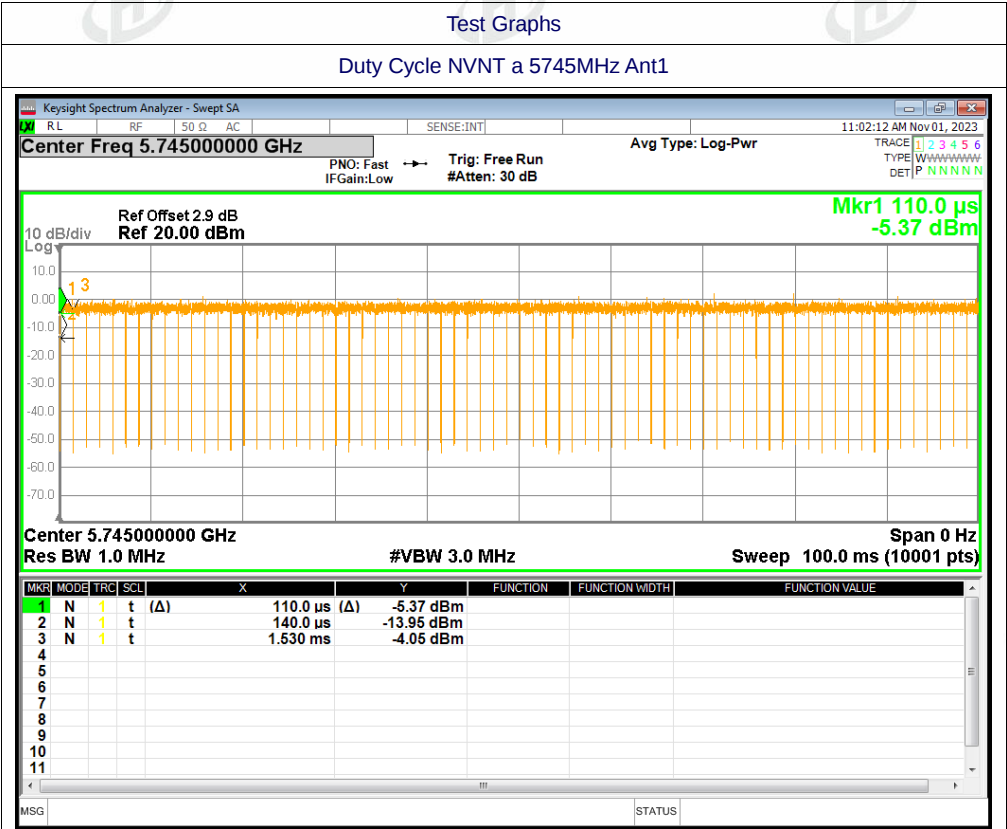
Test Model: P807SD

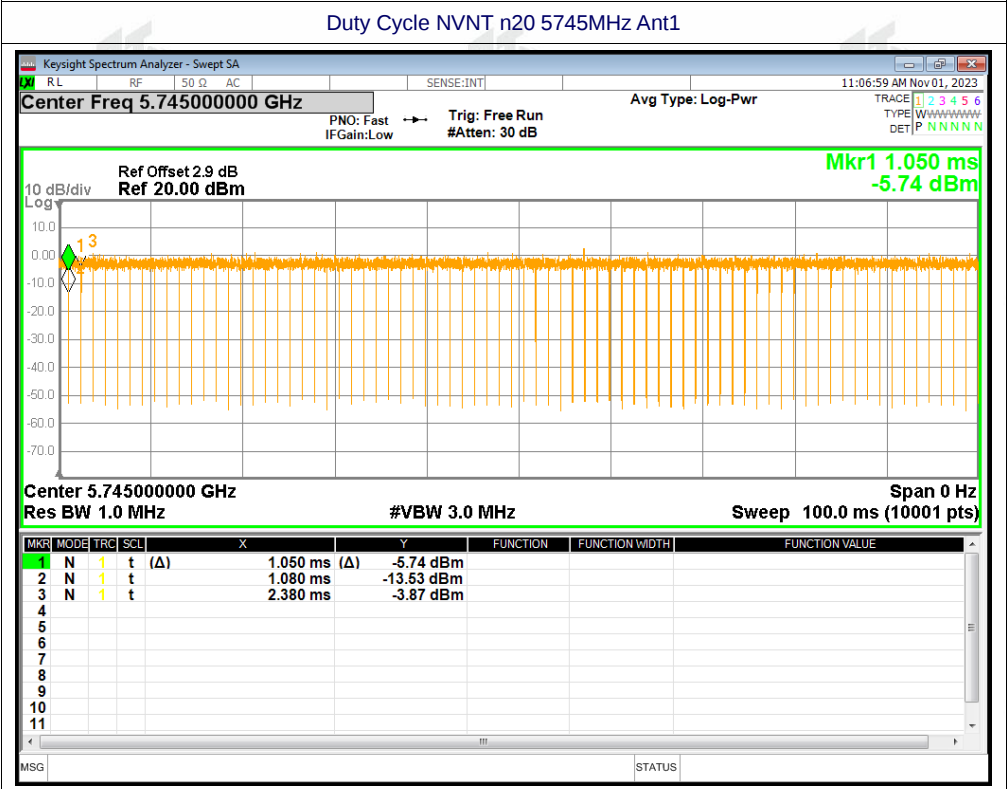
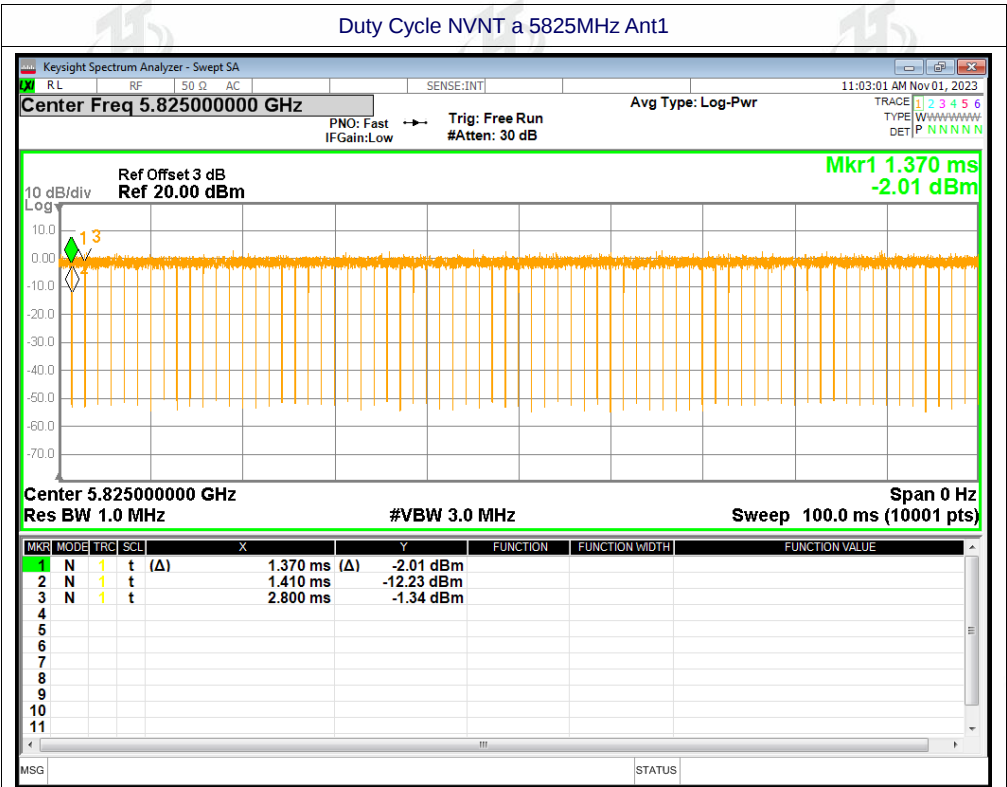
Environmental Conditions

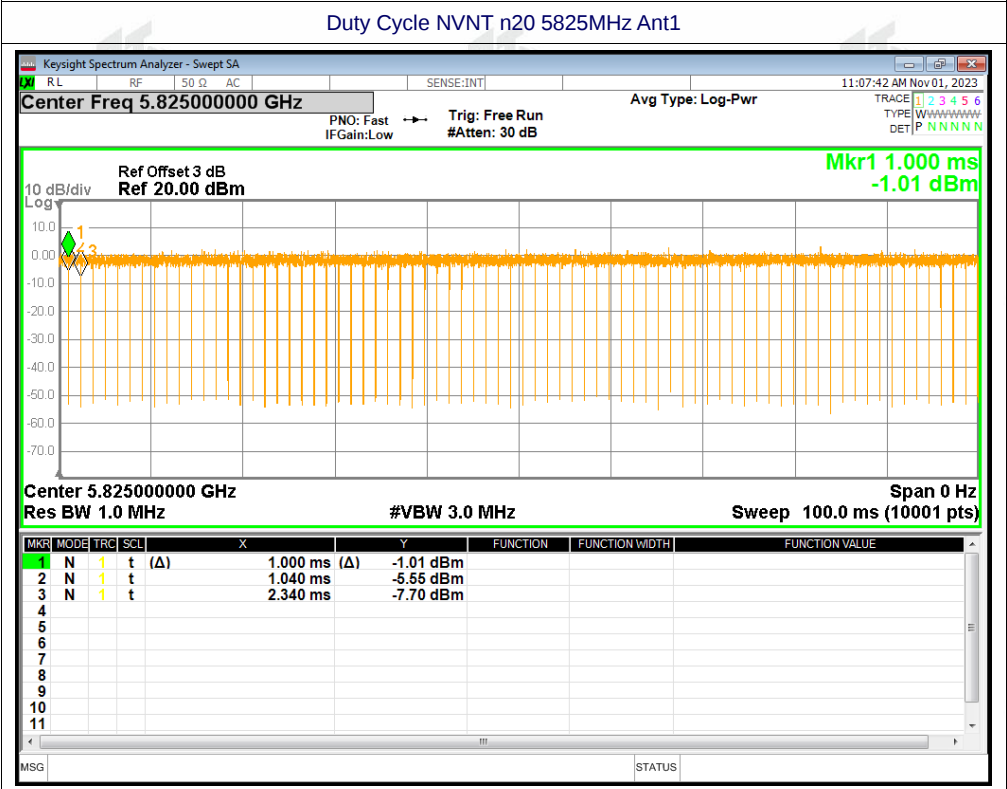
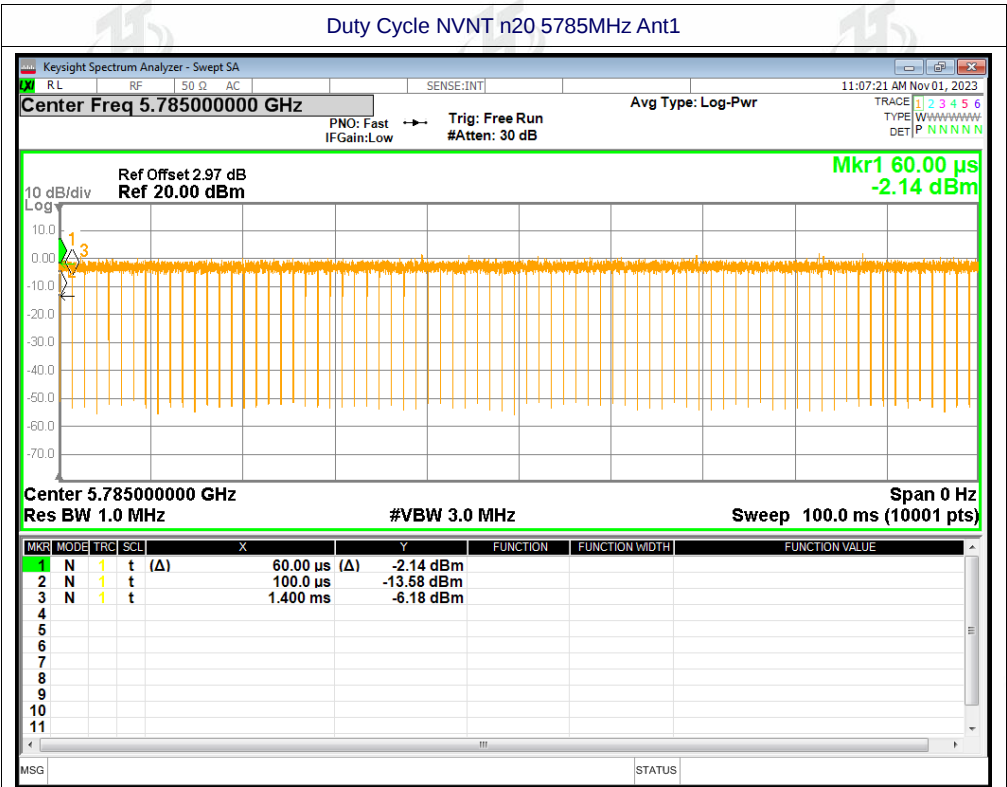
Temperature:	24.2℃
Relative Humidity:	53%
ATM Pressure:	101.0 kPa
Test Engineer:	Kimi Lu
Supervised by:	Baret Wu

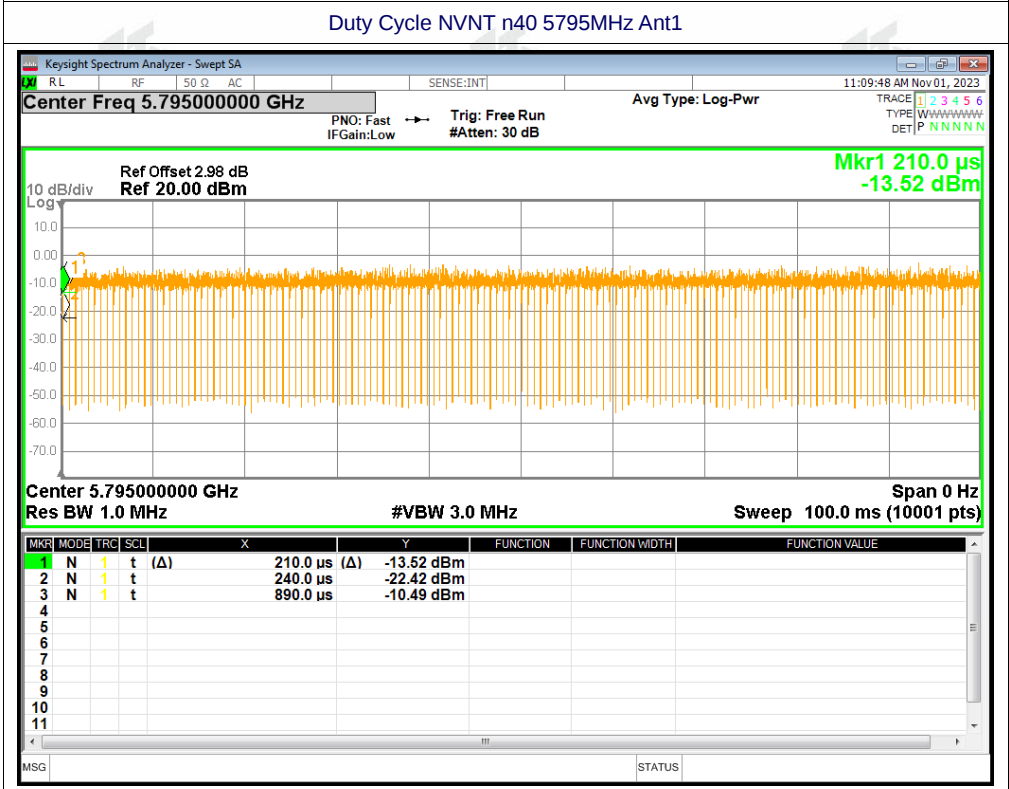
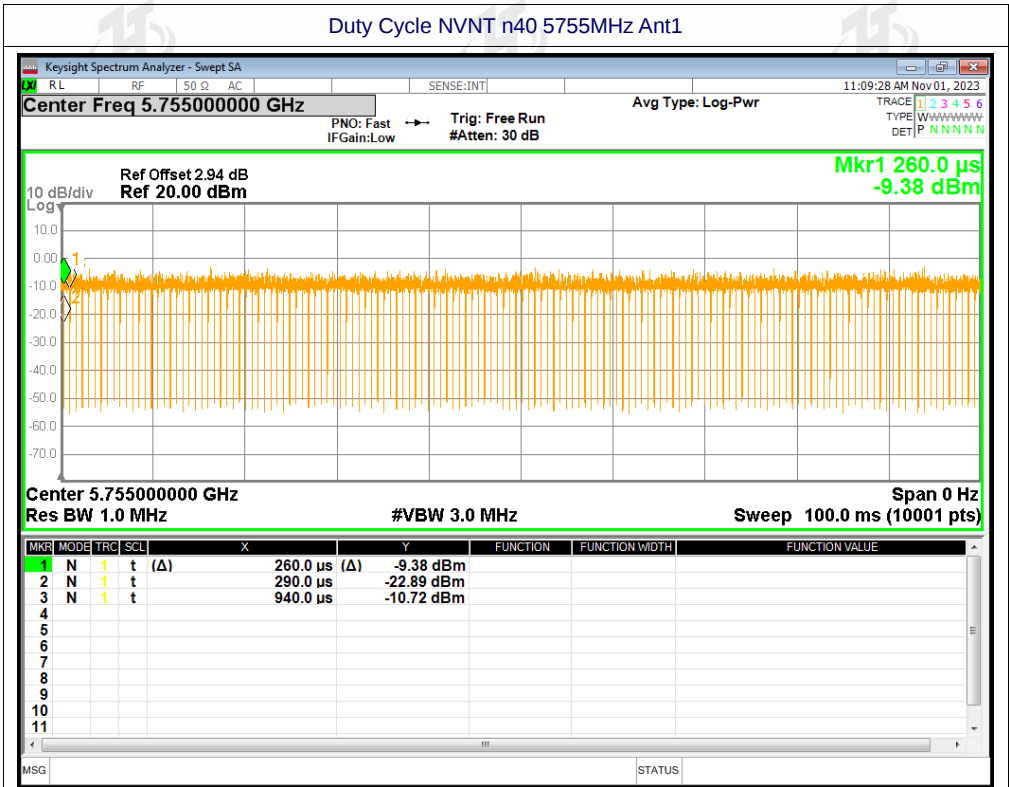
B1.Duty Cycle

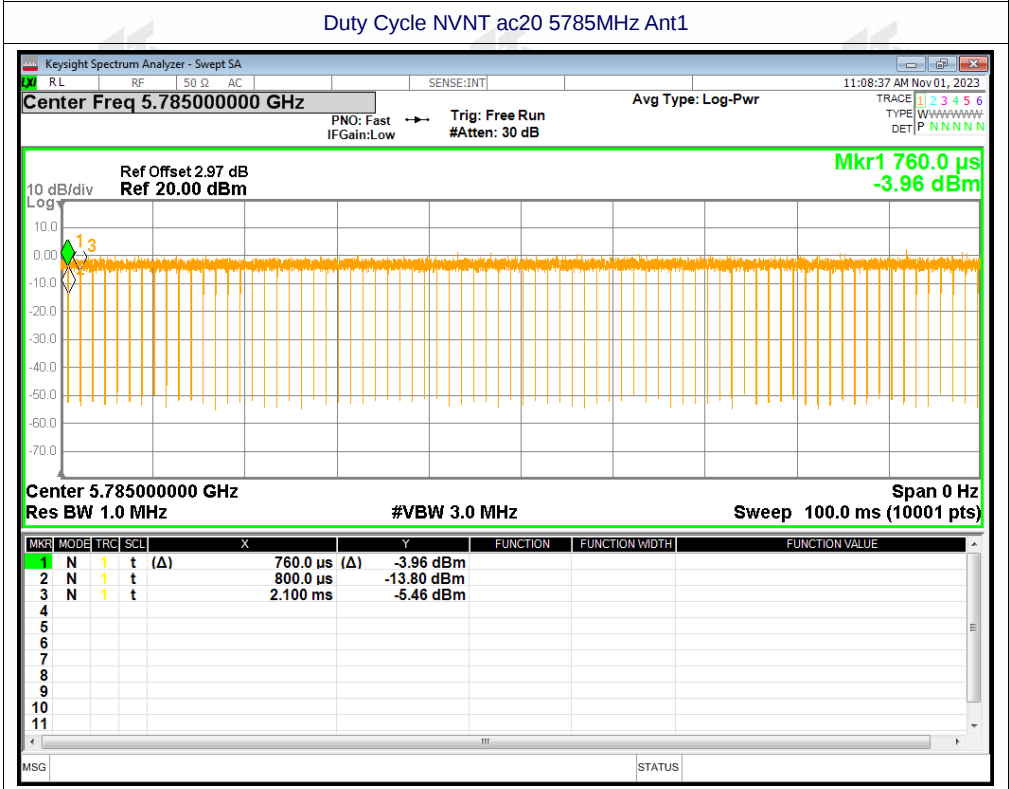
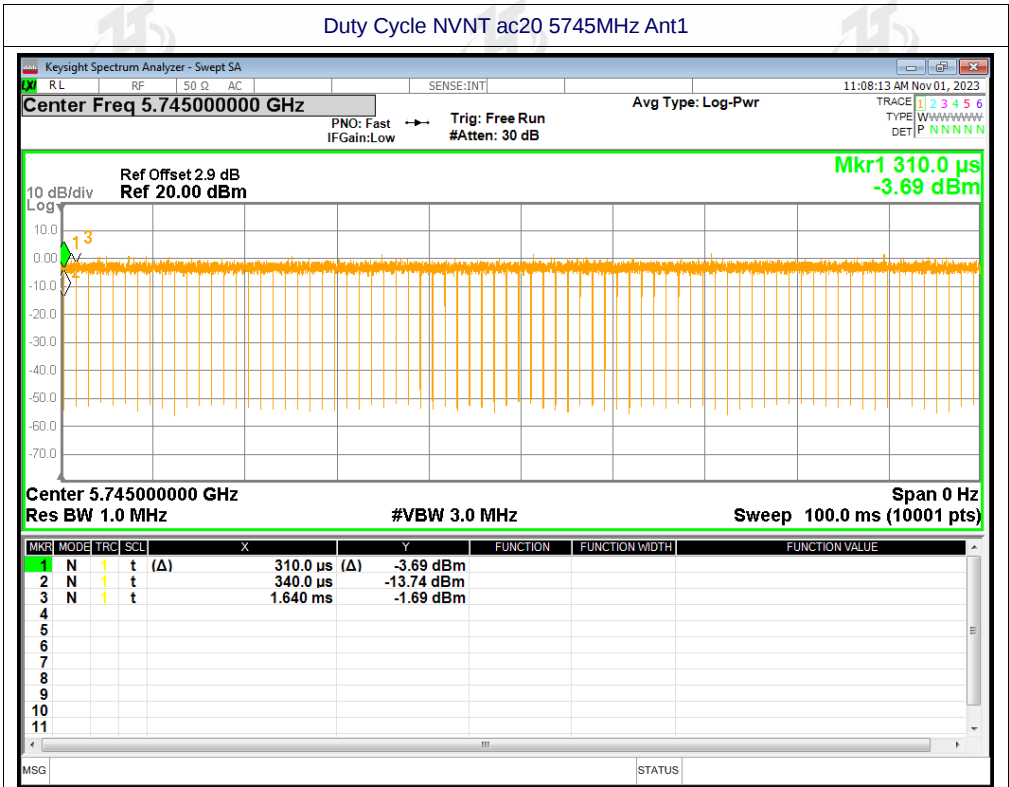
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)
NVNT	a	5745	Ant1	97.89	0.09
NVNT	a	5785	Ant1	97.89	0.09
NVNT	a	5825	Ant1	97.2	0.12
NVNT	n20	5745	Ant1	97.74	0.1
NVNT	n20	5785	Ant1	97.01	0.13
NVNT	n20	5825	Ant1	97.01	0.13
NVNT	n40	5755	Ant1	95.59	0.2
NVNT	n40	5795	Ant1	95.59	0.2
NVNT	ac20	5745	Ant1	97.74	0.1
NVNT	ac20	5785	Ant1	97.01	0.13
NVNT	ac20	5825	Ant1	97.01	0.13
NVNT	ac40	5755	Ant1	94.2	0.26
NVNT	ac40	5795	Ant1	94.2	0.26
NVNT	ac80	5775	Ant1	82.46	0.84

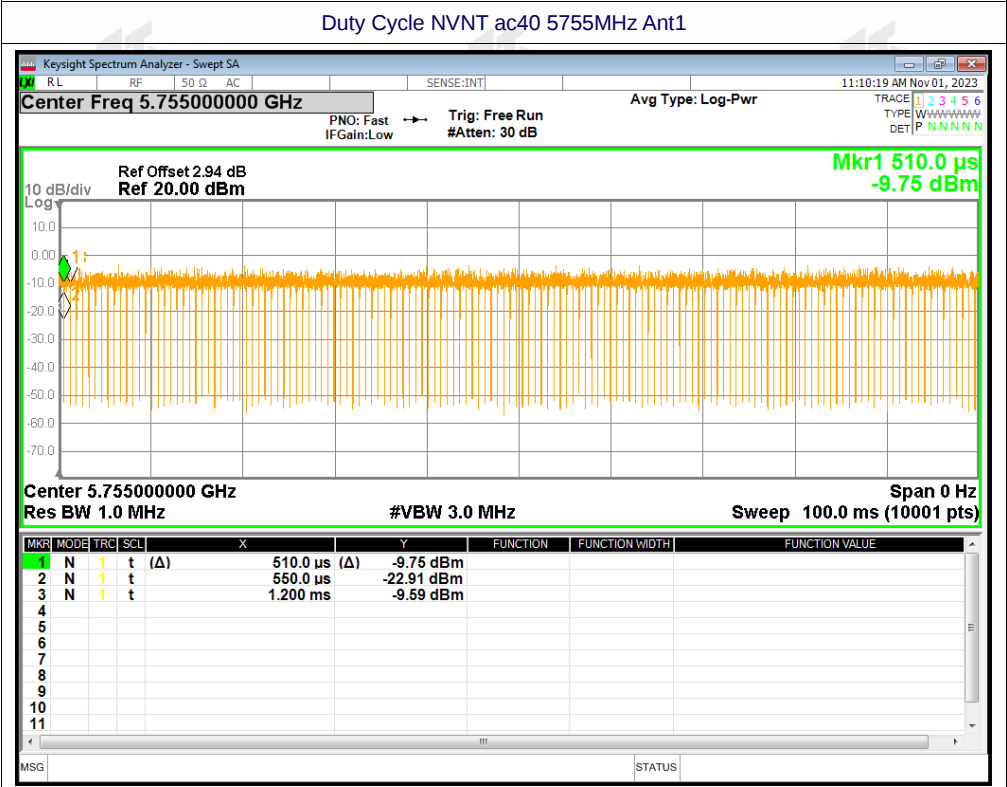
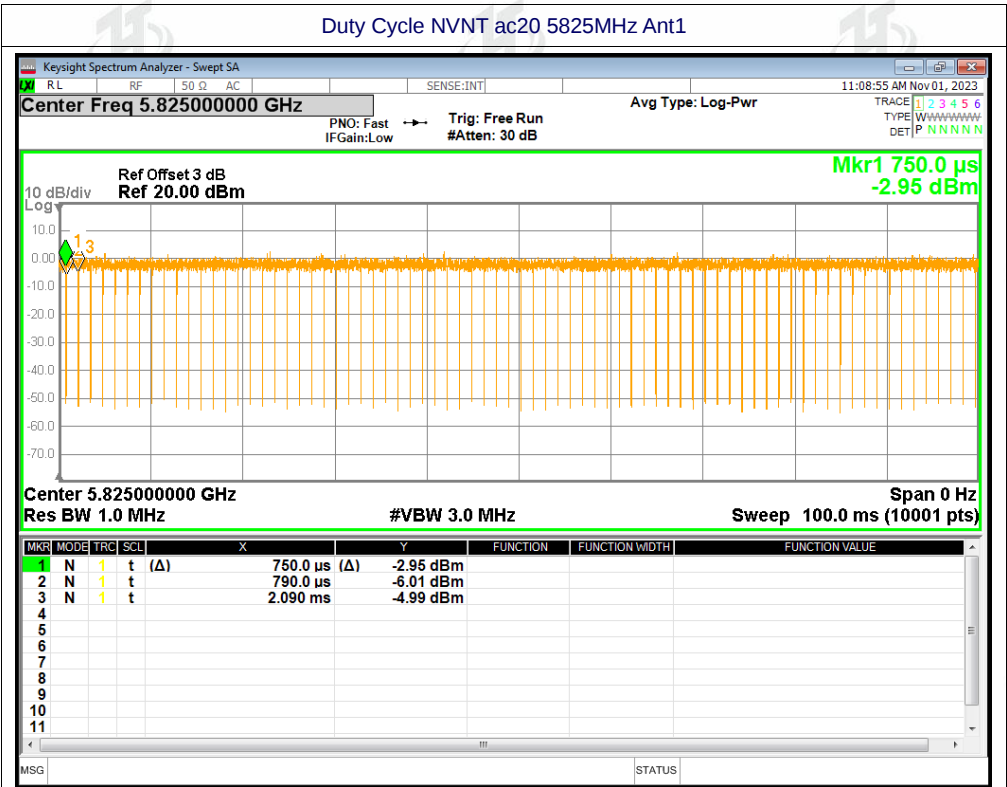




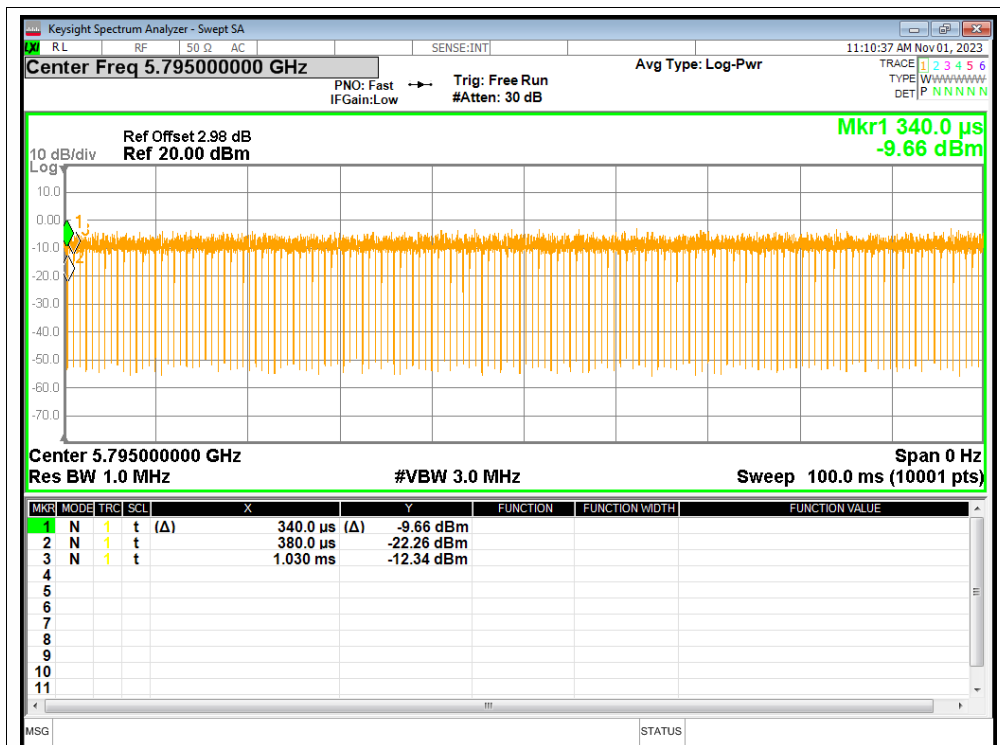




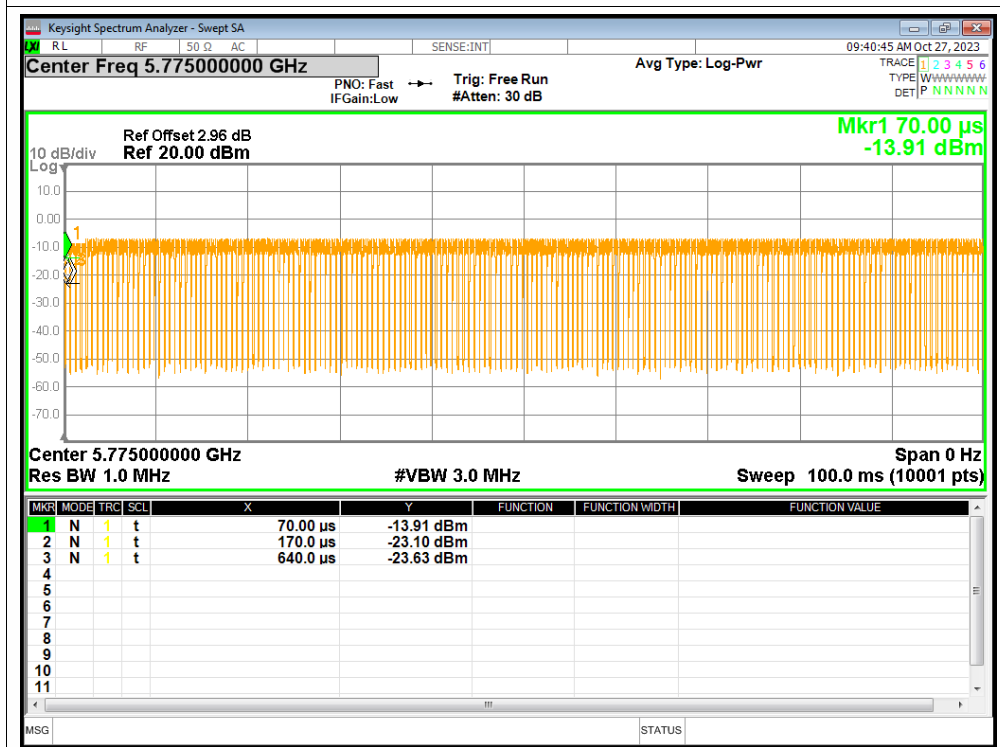




Duty Cycle NVNT ac40 5795MHz Ant1

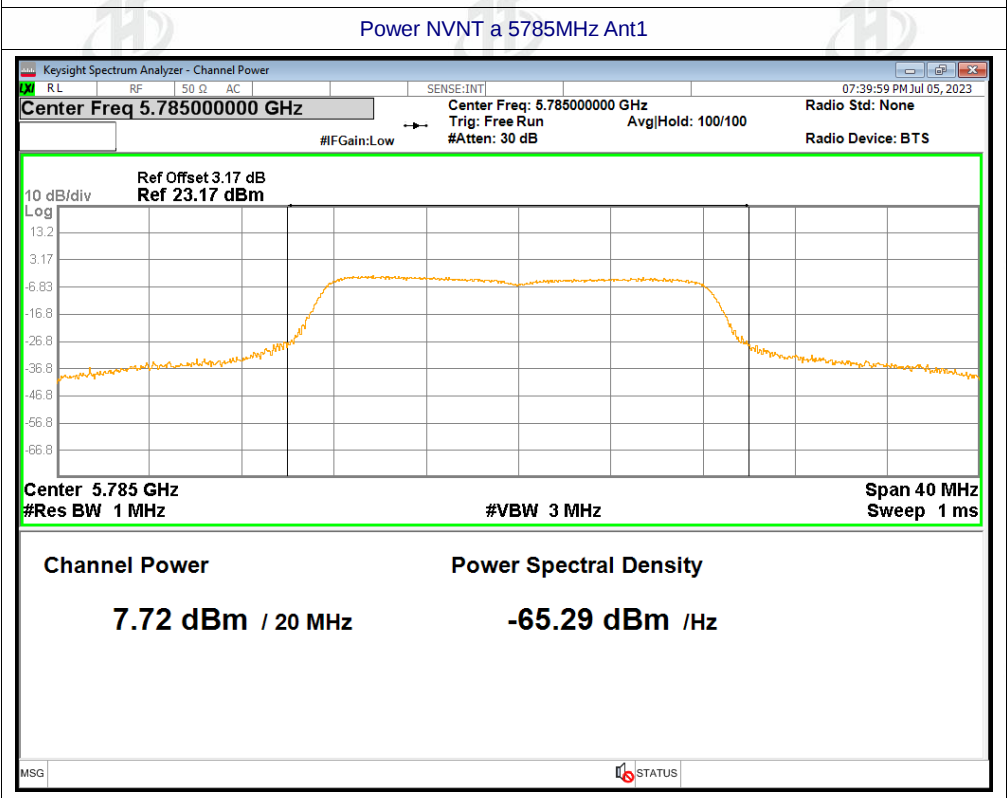
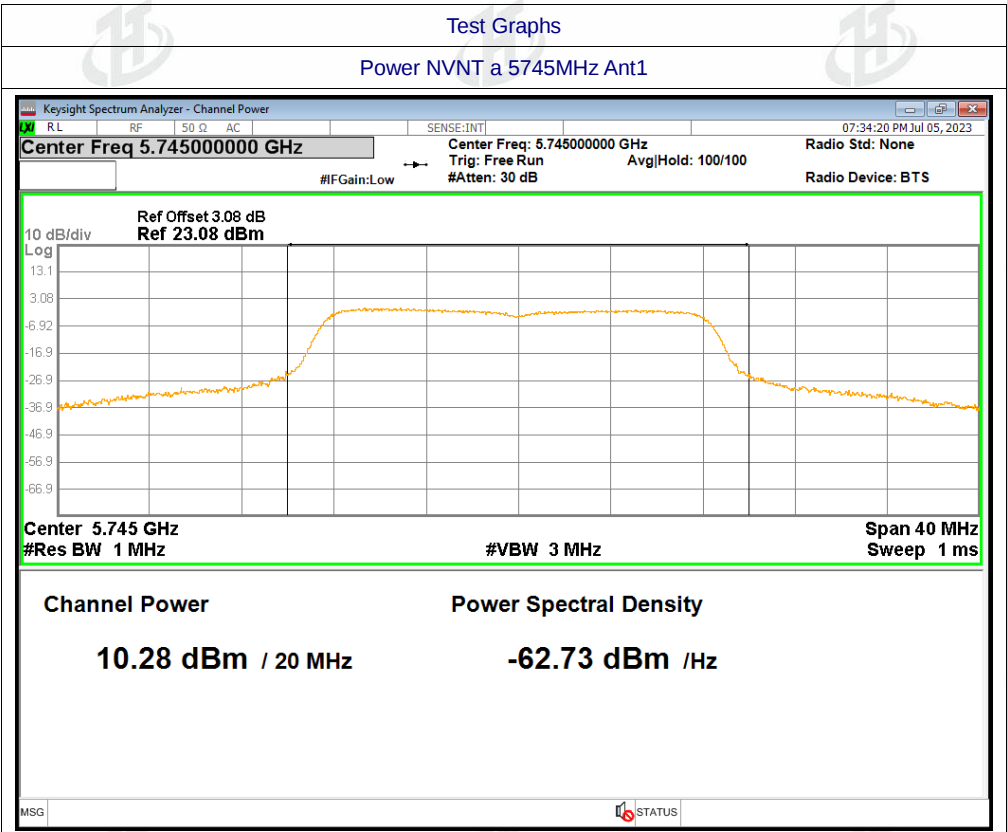


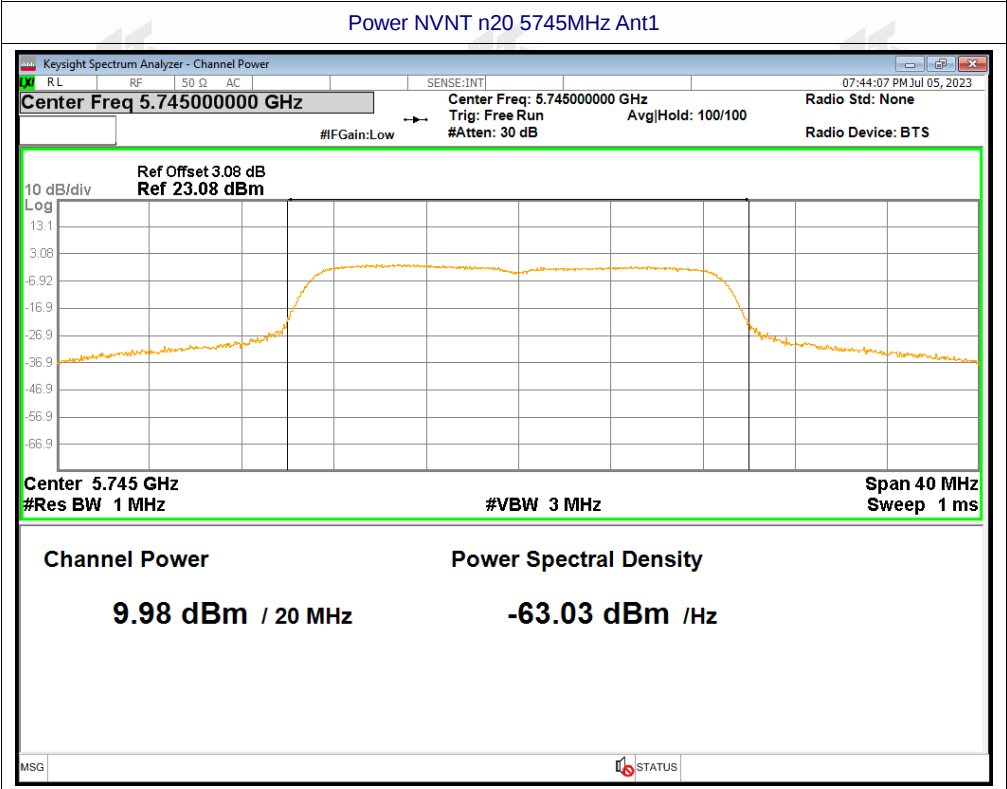
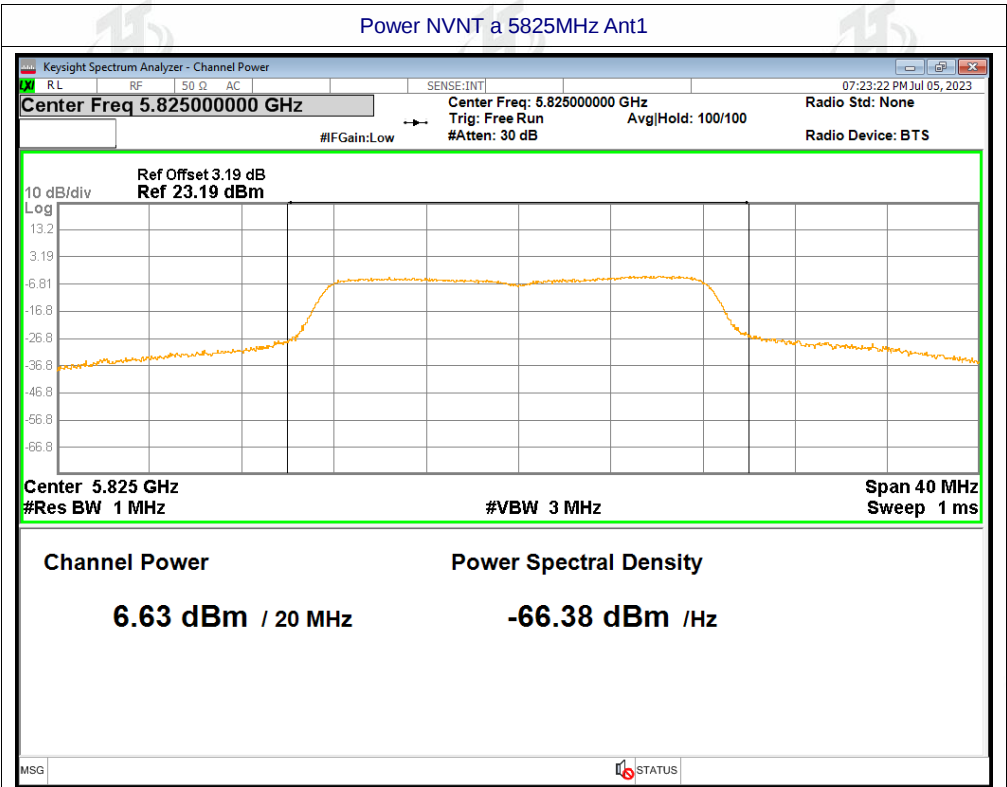
Duty Cycle NVNT ac80 5775MHz Ant1

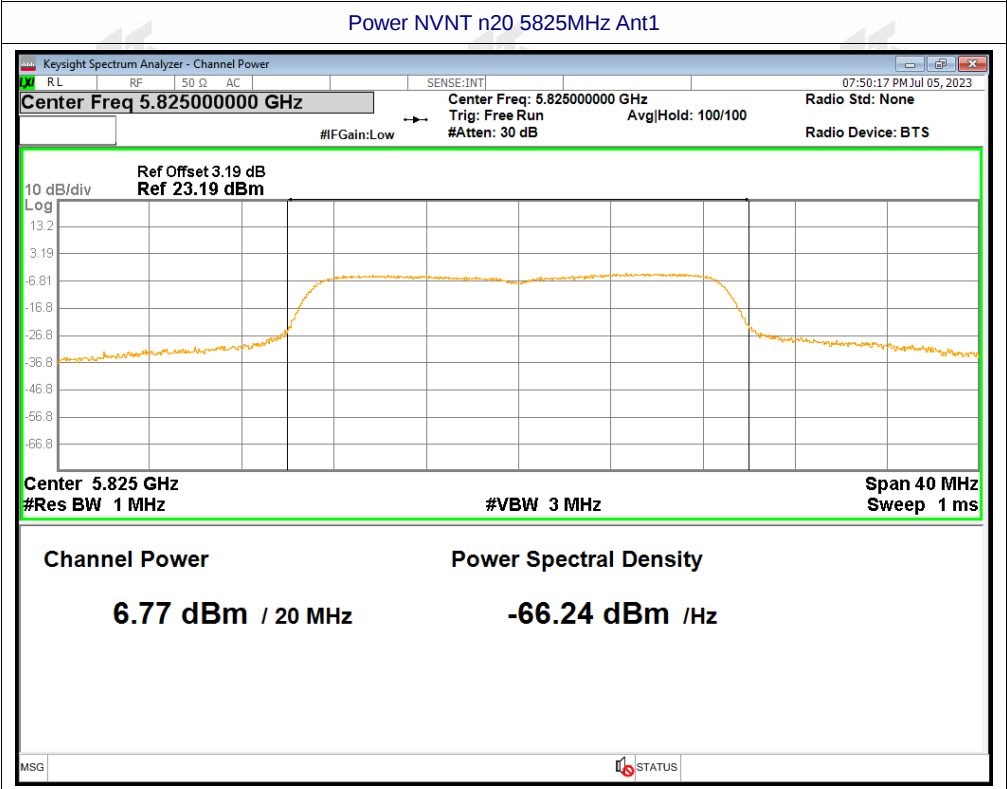
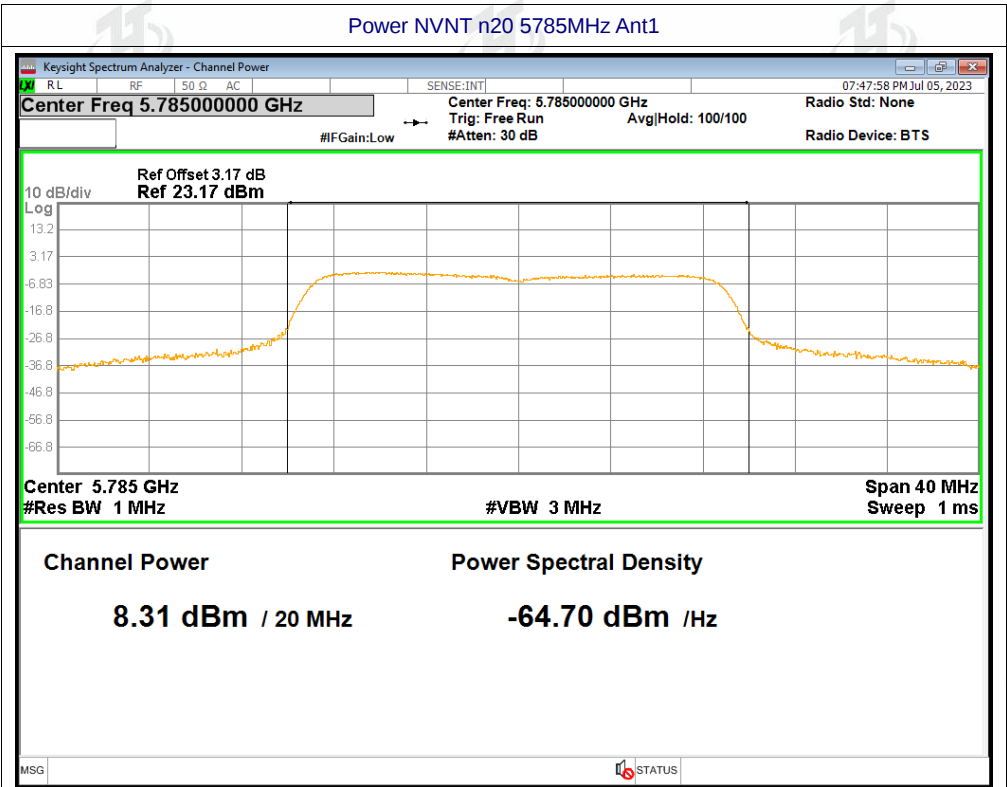


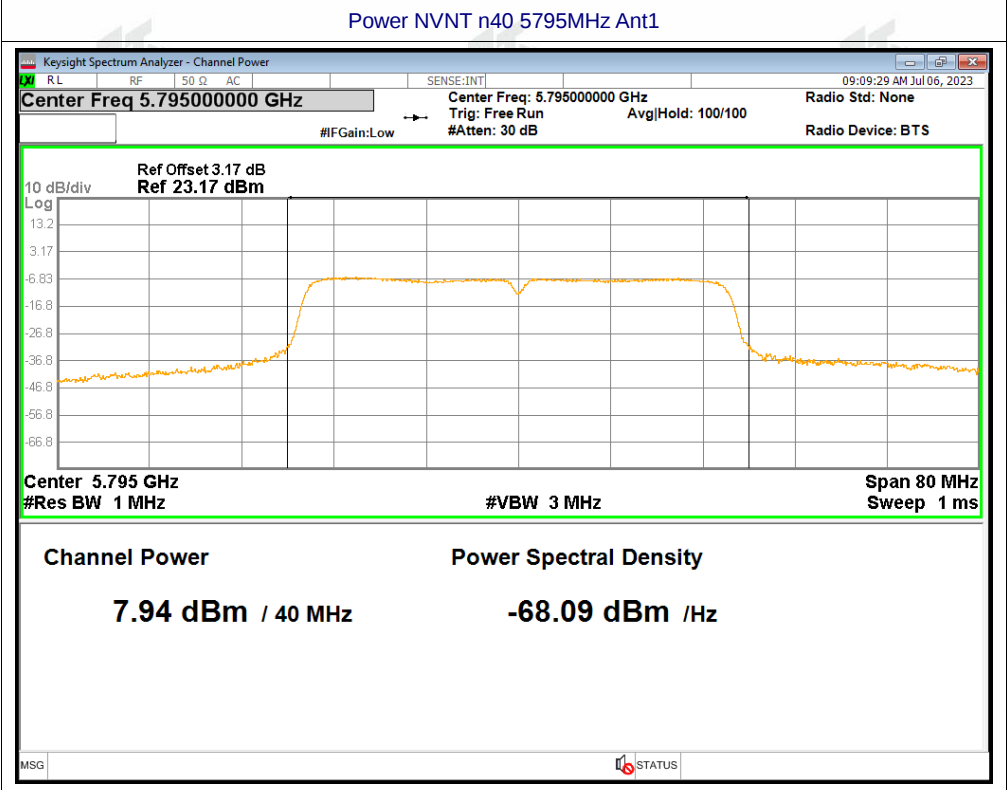
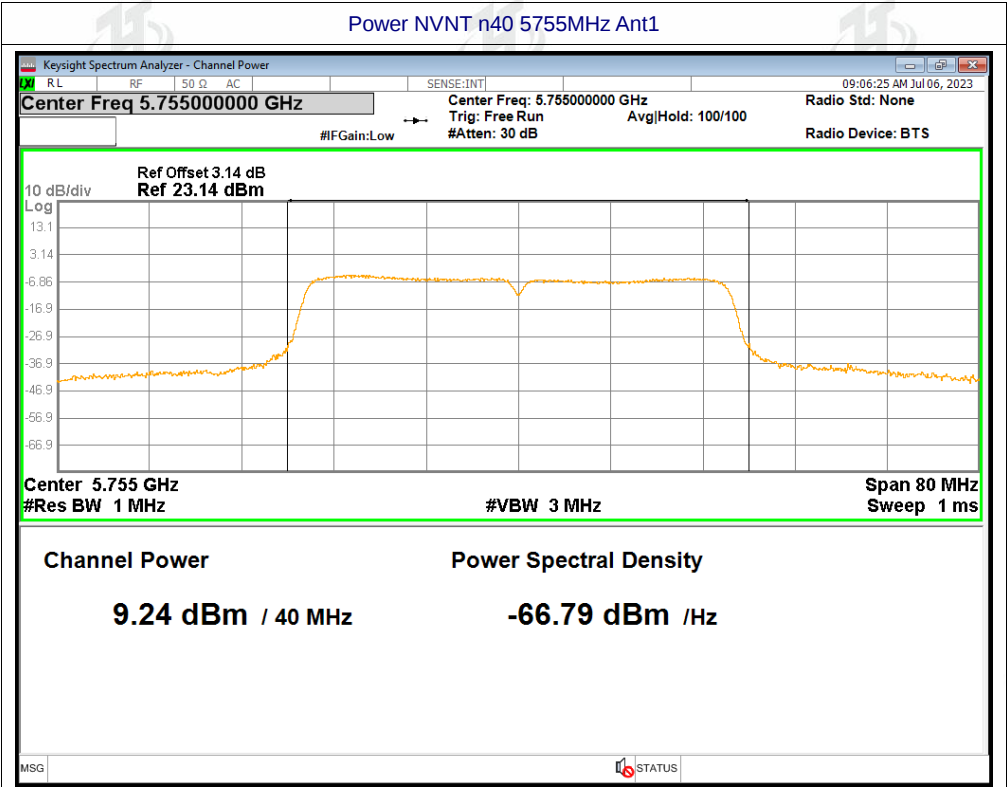
B2.Maximum Conducted Output Power

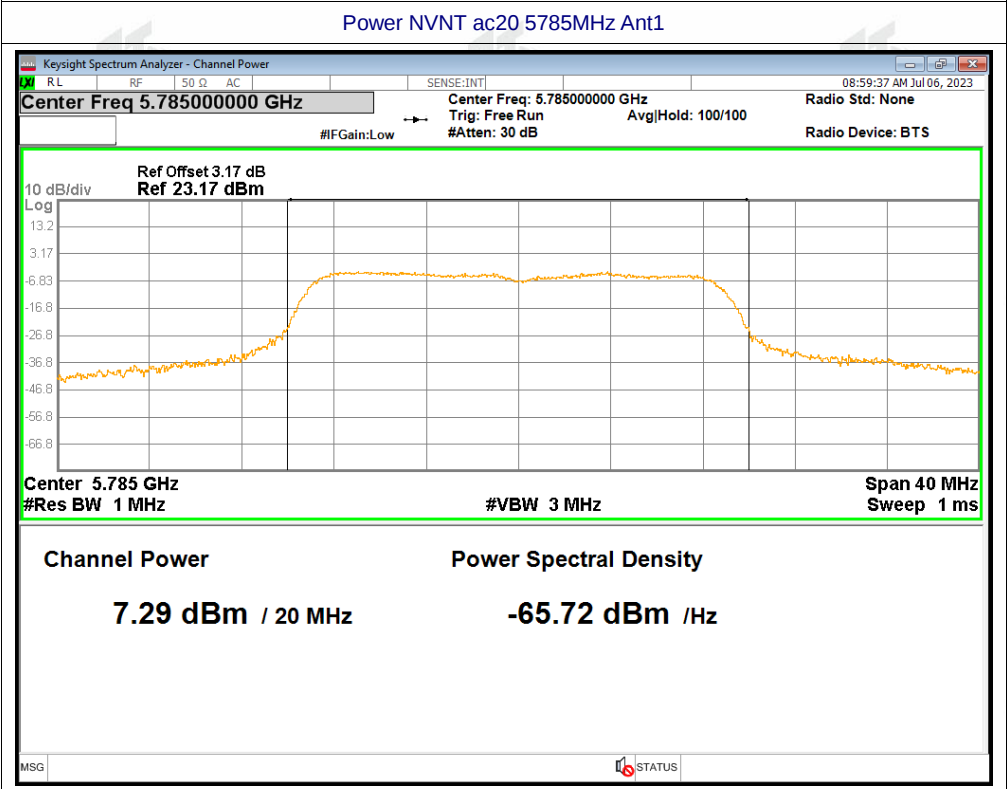
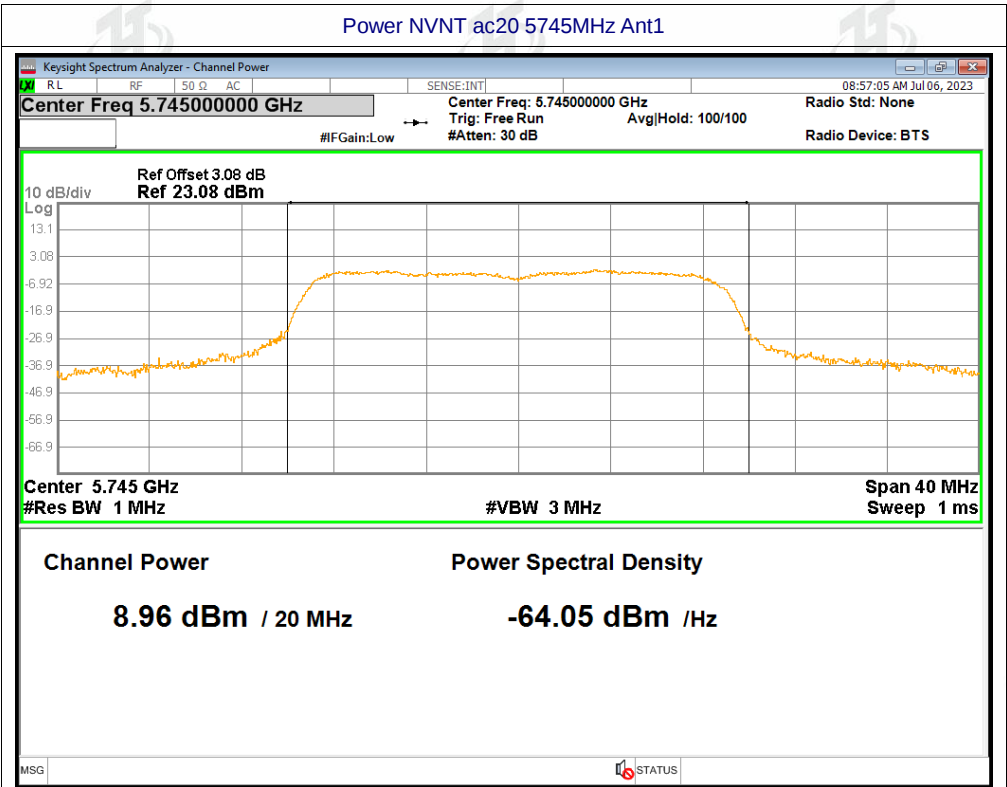
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	Ant1	10.28	0.09	10.37	30	Pass
NVNT	a	5785	Ant1	7.72	0.09	7.81	30	Pass
NVNT	a	5825	Ant1	6.63	0.12	6.75	30	Pass
NVNT	n20	5745	Ant1	9.98	0.1	10.08	30	Pass
NVNT	n20	5785	Ant1	8.31	0.13	8.44	30	Pass
NVNT	n20	5825	Ant1	6.77	0.13	6.9	30	Pass
NVNT	n40	5755	Ant1	9.24	0.2	9.44	30	Pass
NVNT	n40	5795	Ant1	7.94	0.2	8.14	30	Pass
NVNT	ac20	5745	Ant1	8.96	0.1	9.06	30	Pass
NVNT	ac20	5785	Ant1	7.29	0.13	7.42	30	Pass
NVNT	ac20	5825	Ant1	6.4	0.13	6.53	30	Pass
NVNT	ac40	5755	Ant1	8.86	0.26	9.12	30	Pass
NVNT	ac40	5795	Ant1	7.86	0.26	8.12	30	Pass
NVNT	ac80	5775	Ant1	8.67	0.84	9.51	30	Pass

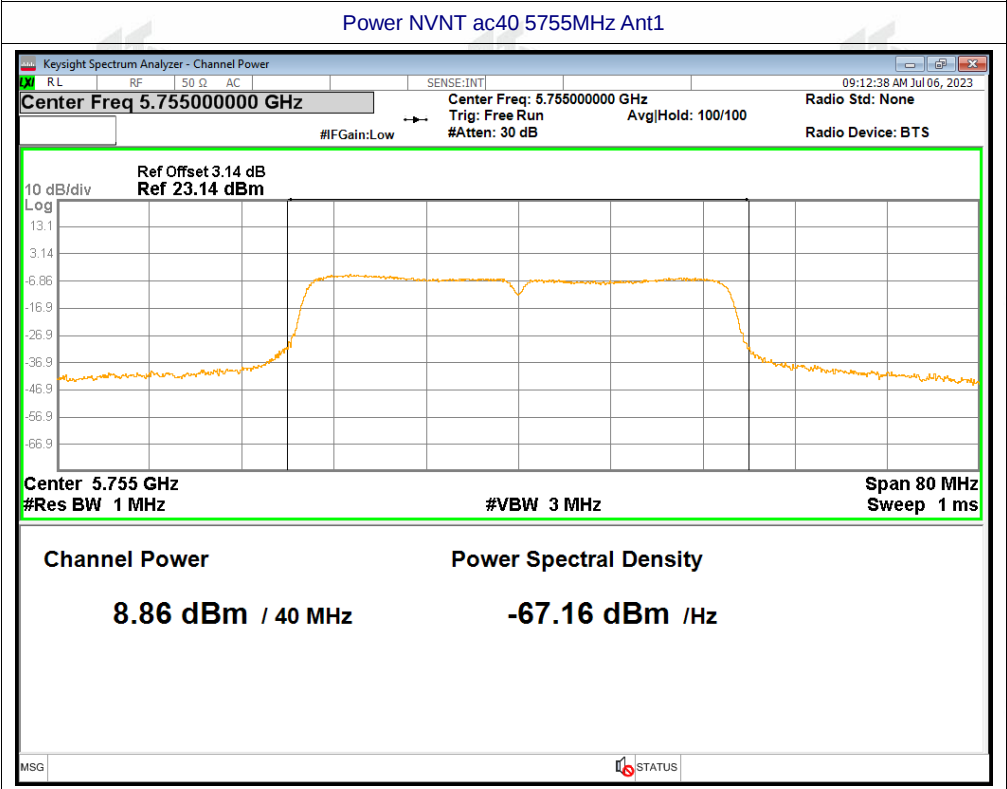
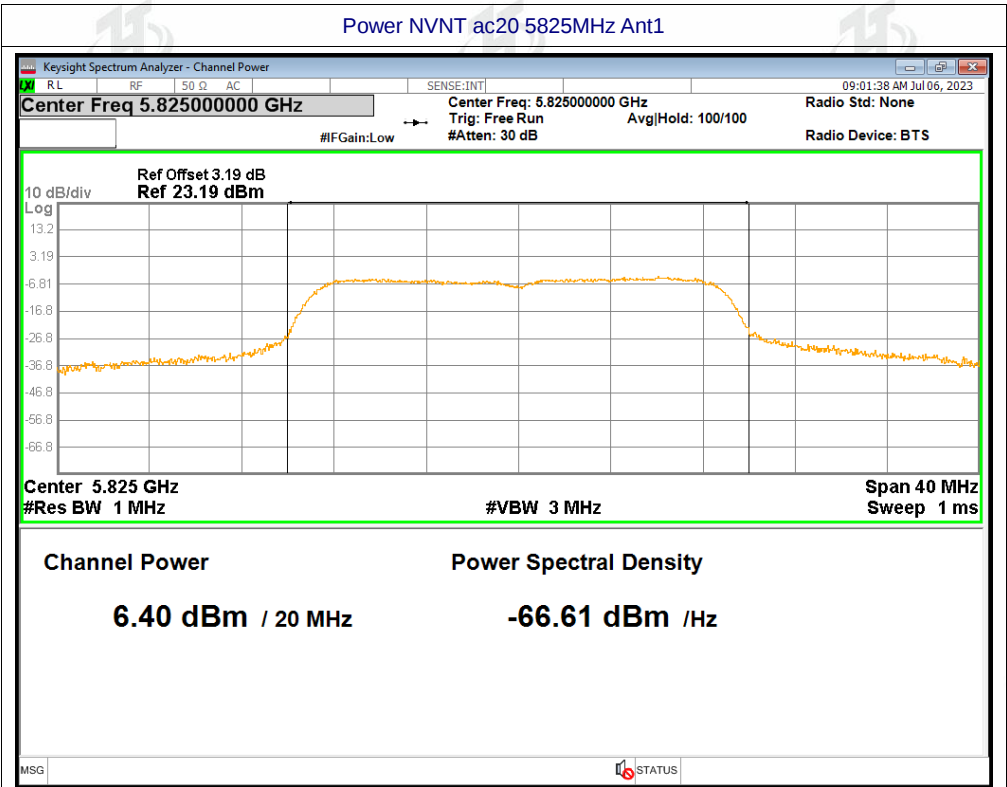


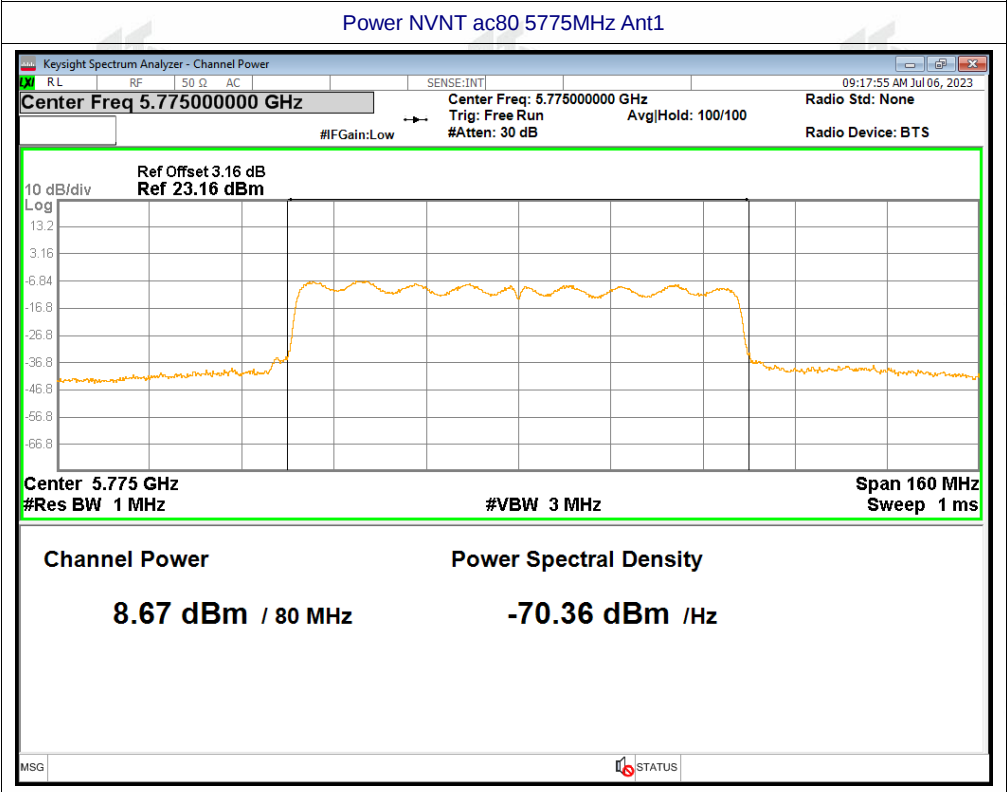
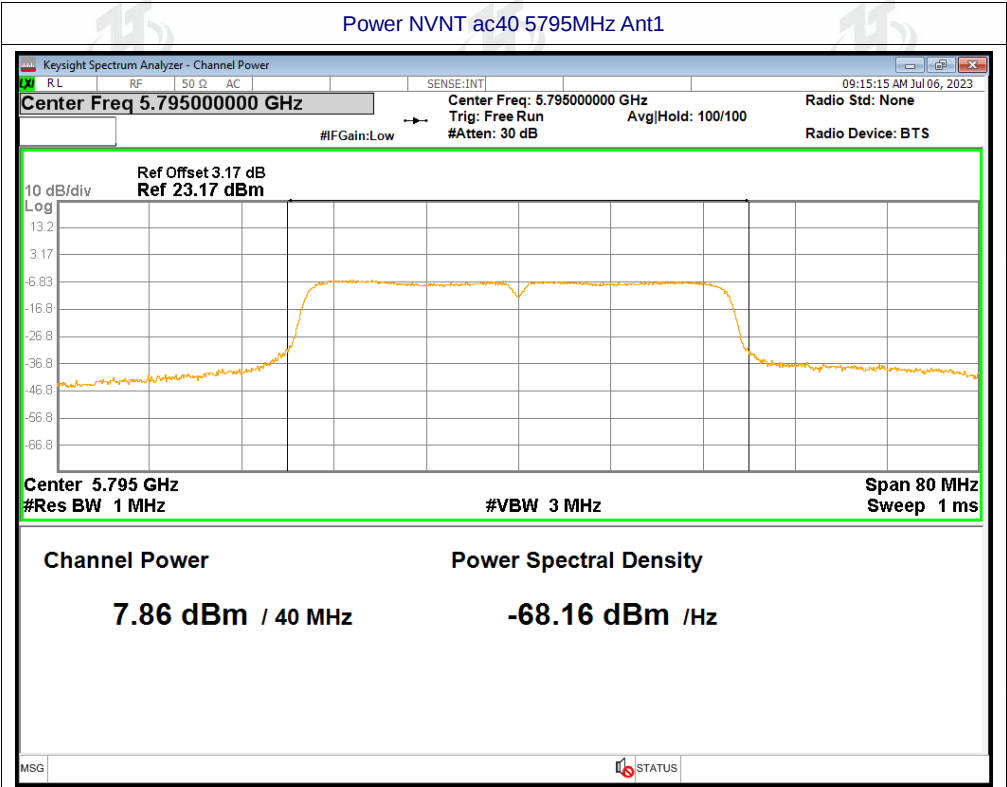






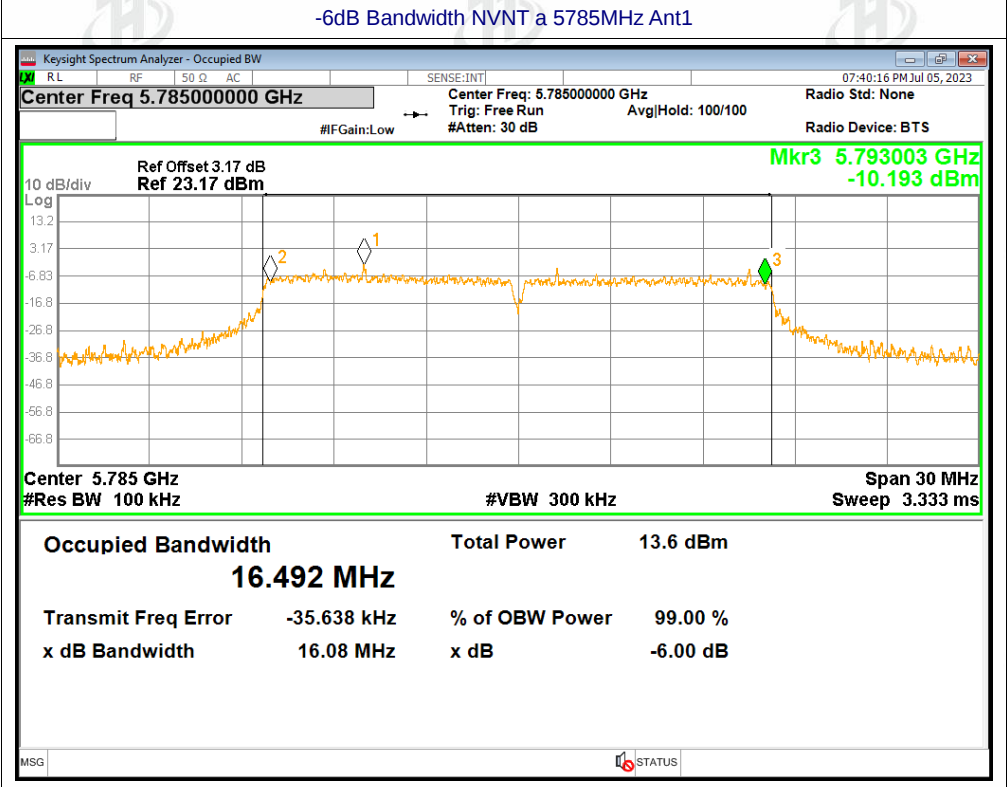
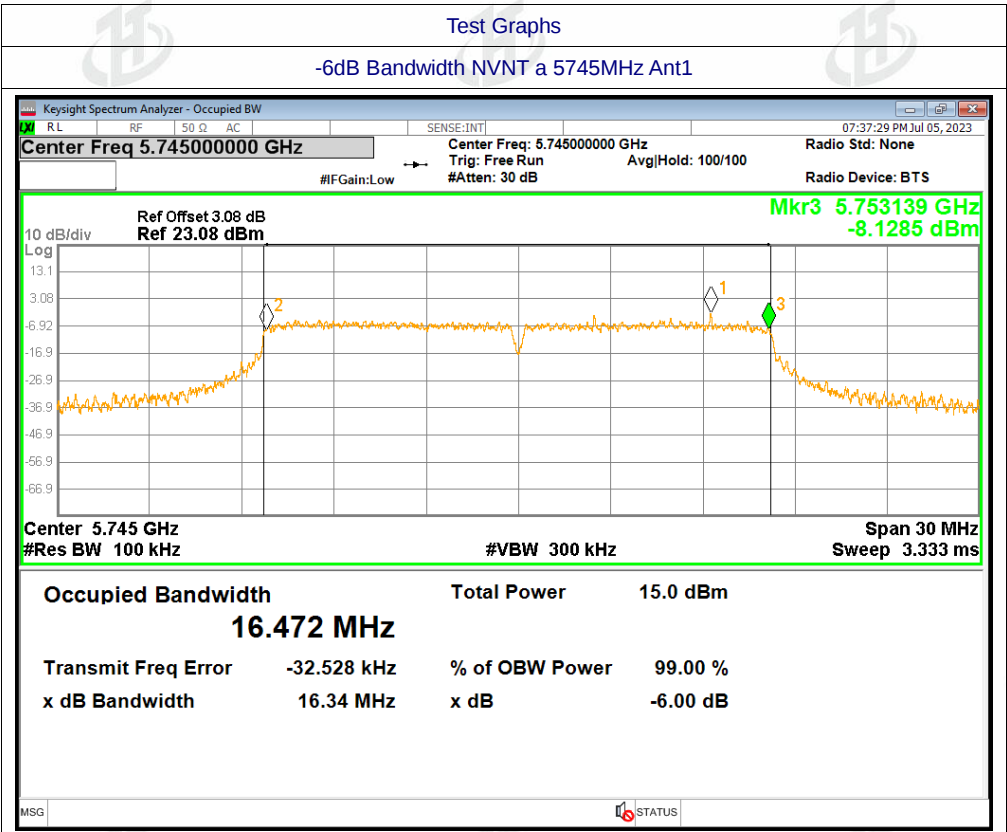


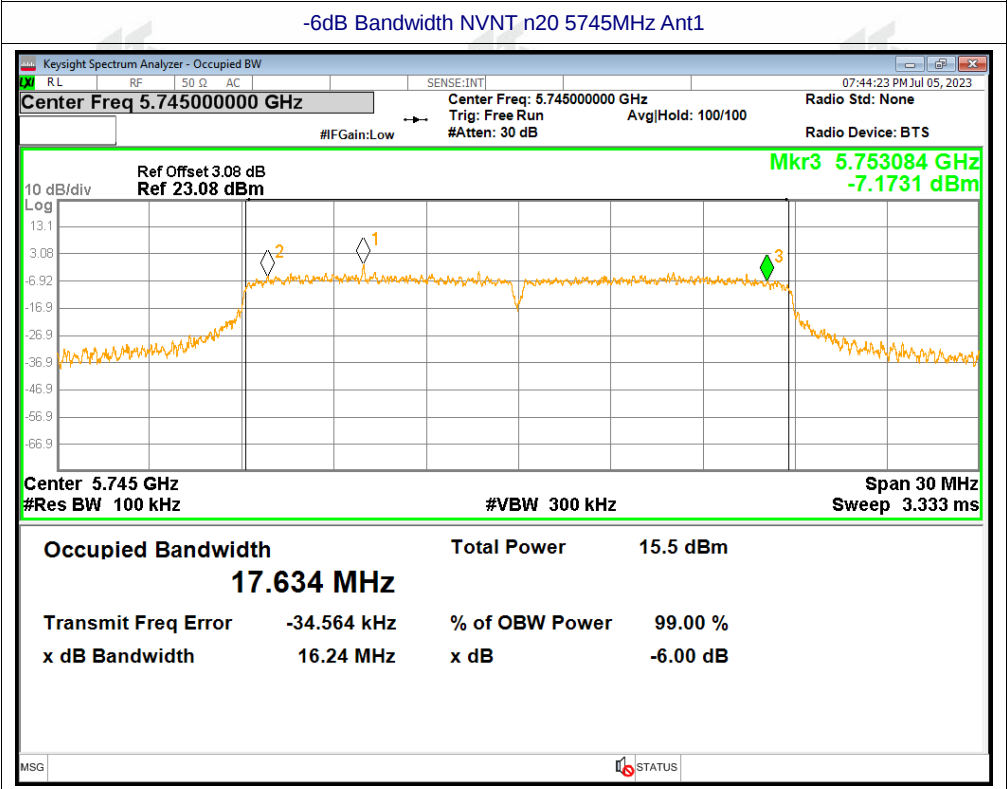
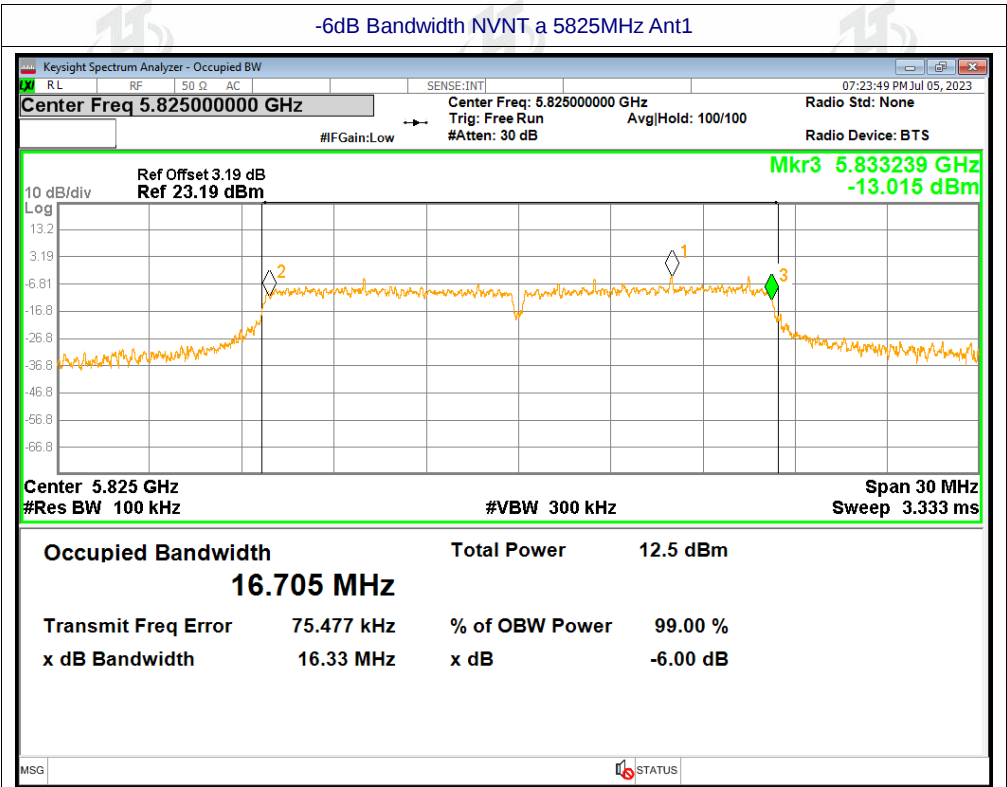


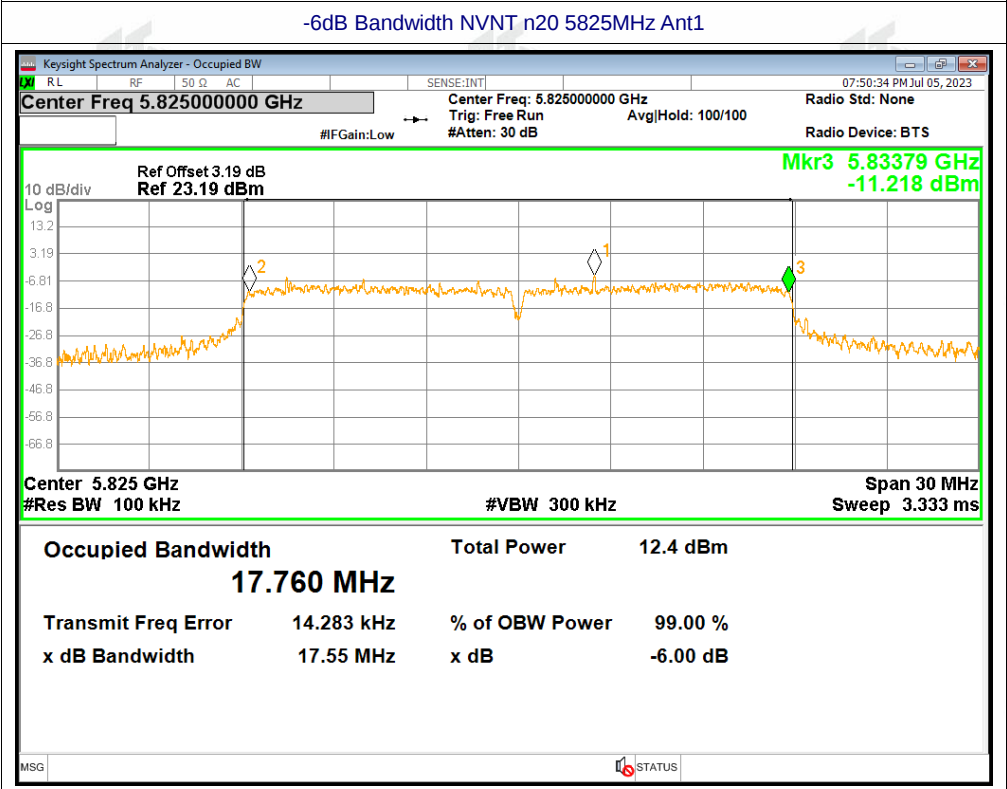
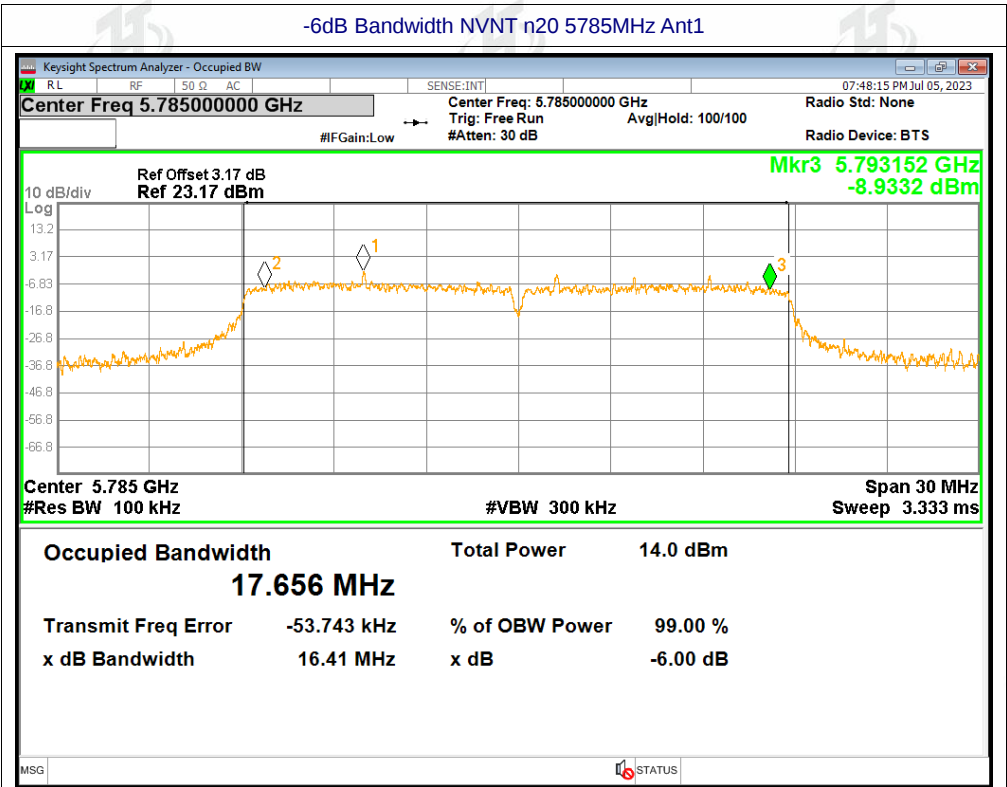


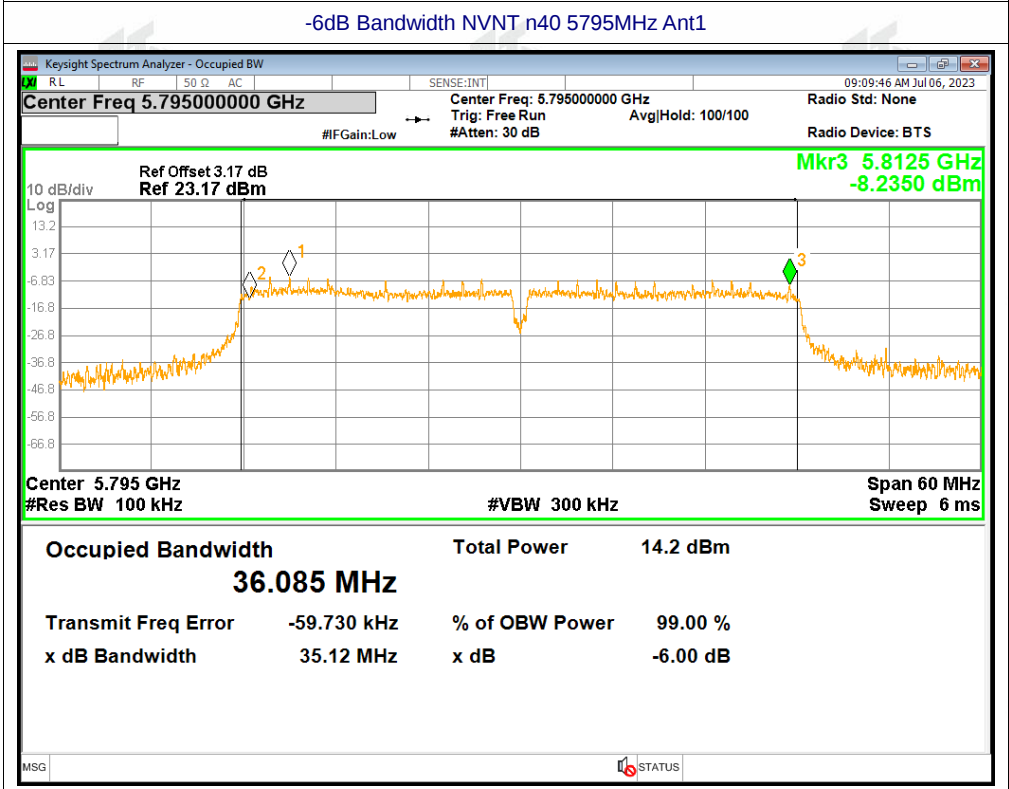
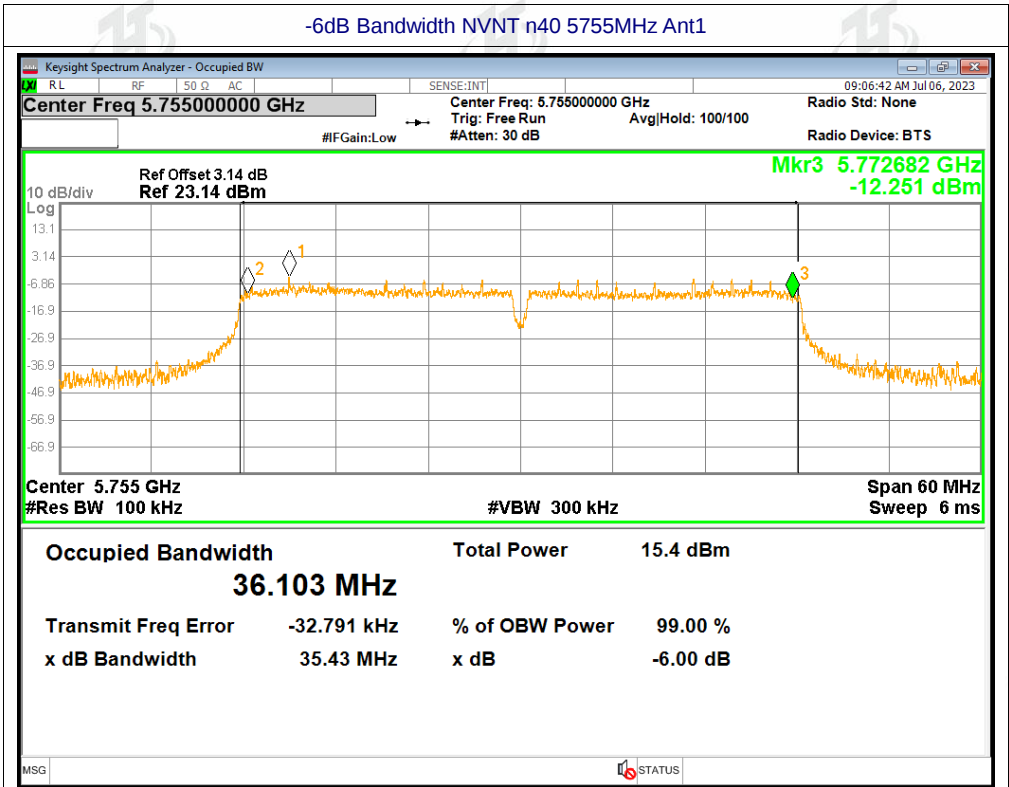
B3.-6dB Bandwidth

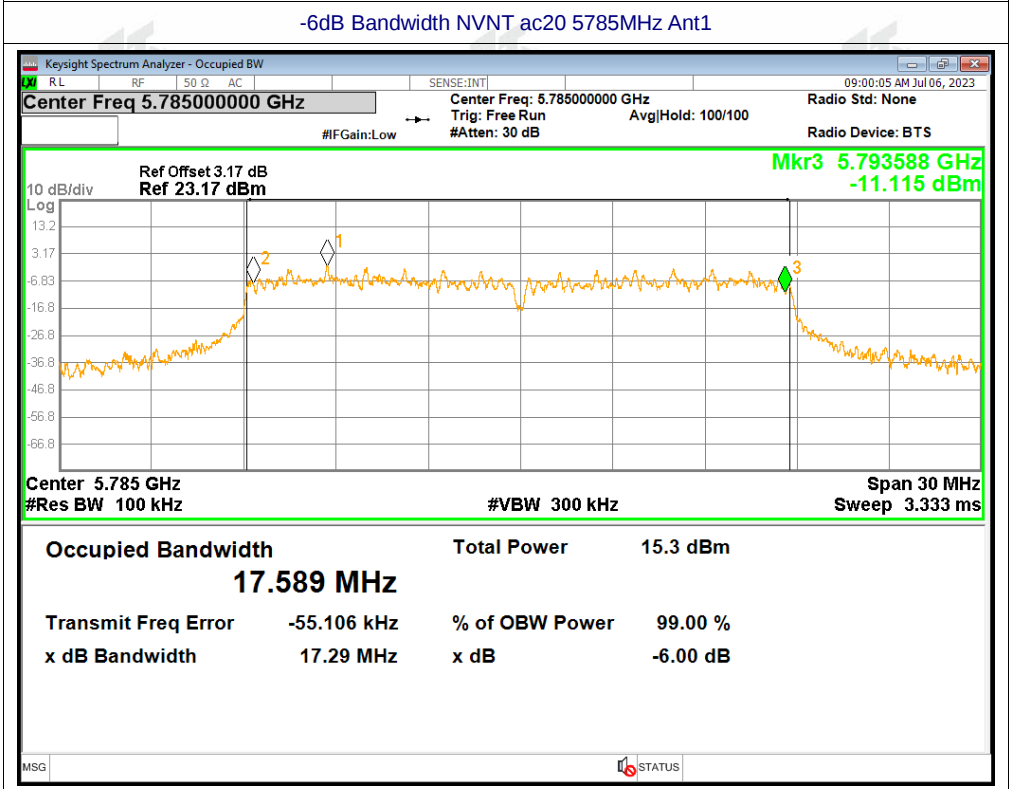
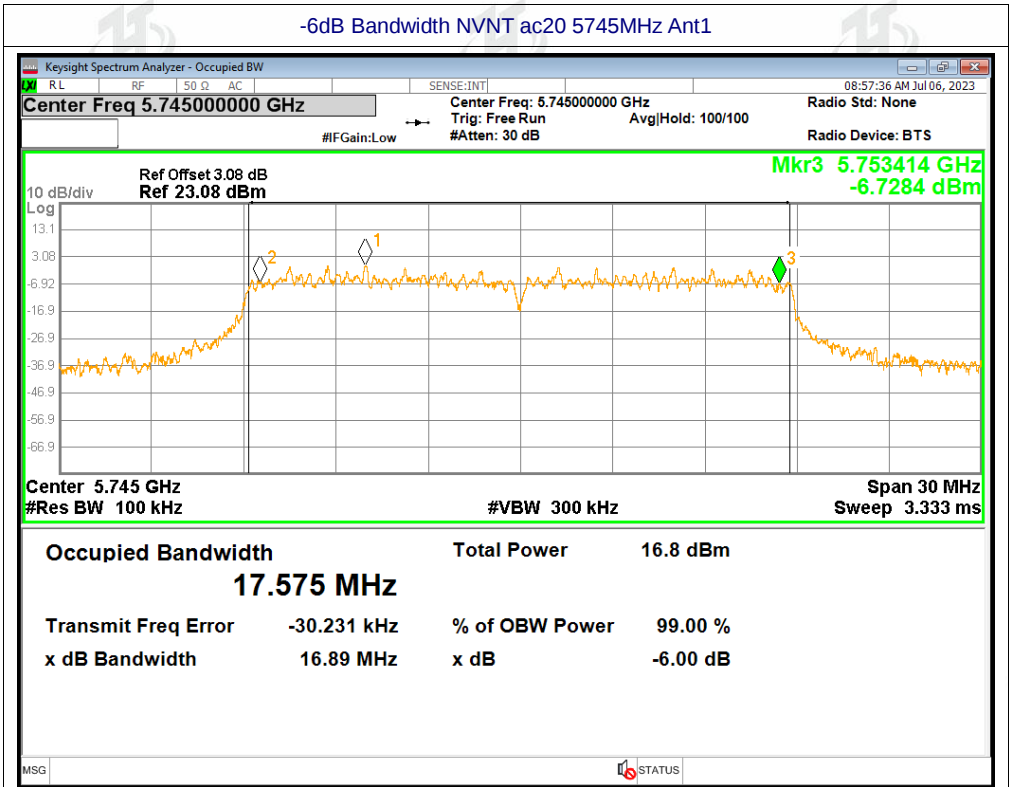
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	a	5745	Ant1	16.34	0.5	Pass
NVNT	a	5785	Ant1	16.08	0.5	Pass
NVNT	a	5825	Ant1	16.33	0.5	Pass
NVNT	n20	5745	Ant1	16.24	0.5	Pass
NVNT	n20	5785	Ant1	16.41	0.5	Pass
NVNT	n20	5825	Ant1	17.55	0.5	Pass
NVNT	n40	5755	Ant1	35.43	0.5	Pass
NVNT	n40	5795	Ant1	35.12	0.5	Pass
NVNT	ac20	5745	Ant1	16.89	0.5	Pass
NVNT	ac20	5785	Ant1	17.29	0.5	Pass
NVNT	ac20	5825	Ant1	17.11	0.5	Pass
NVNT	ac40	5755	Ant1	35.28	0.5	Pass
NVNT	ac40	5795	Ant1	35.43	0.5	Pass
NVNT	ac80	5775	Ant1	75.06	0.5	Pass

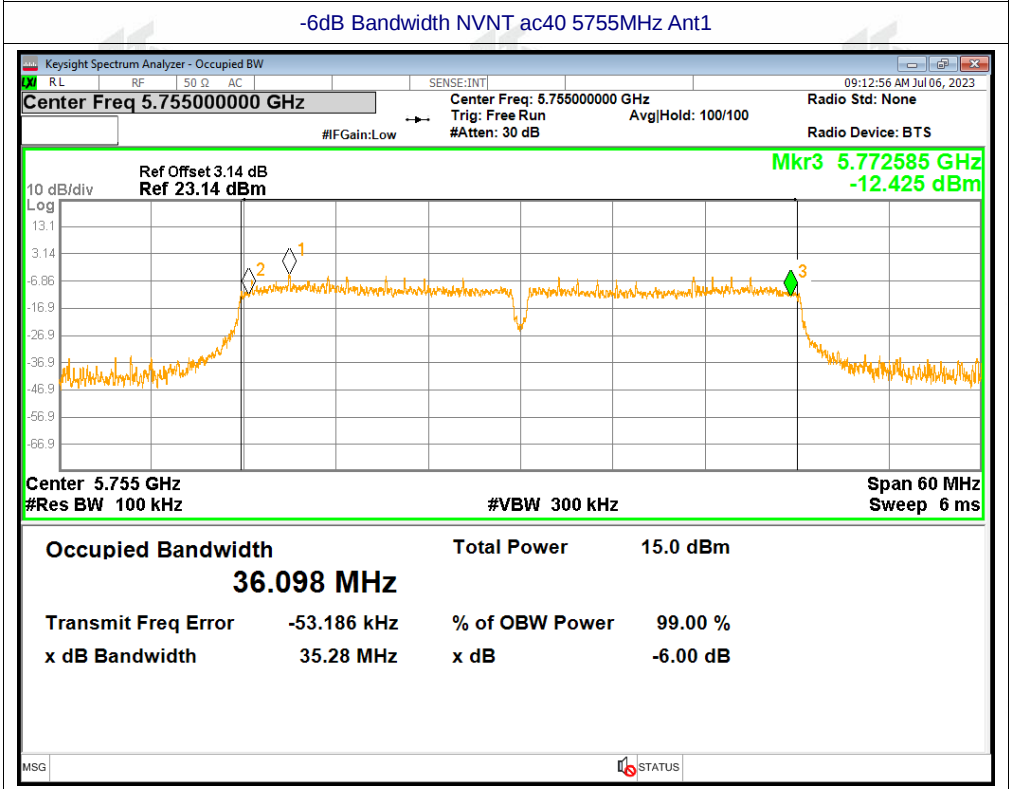
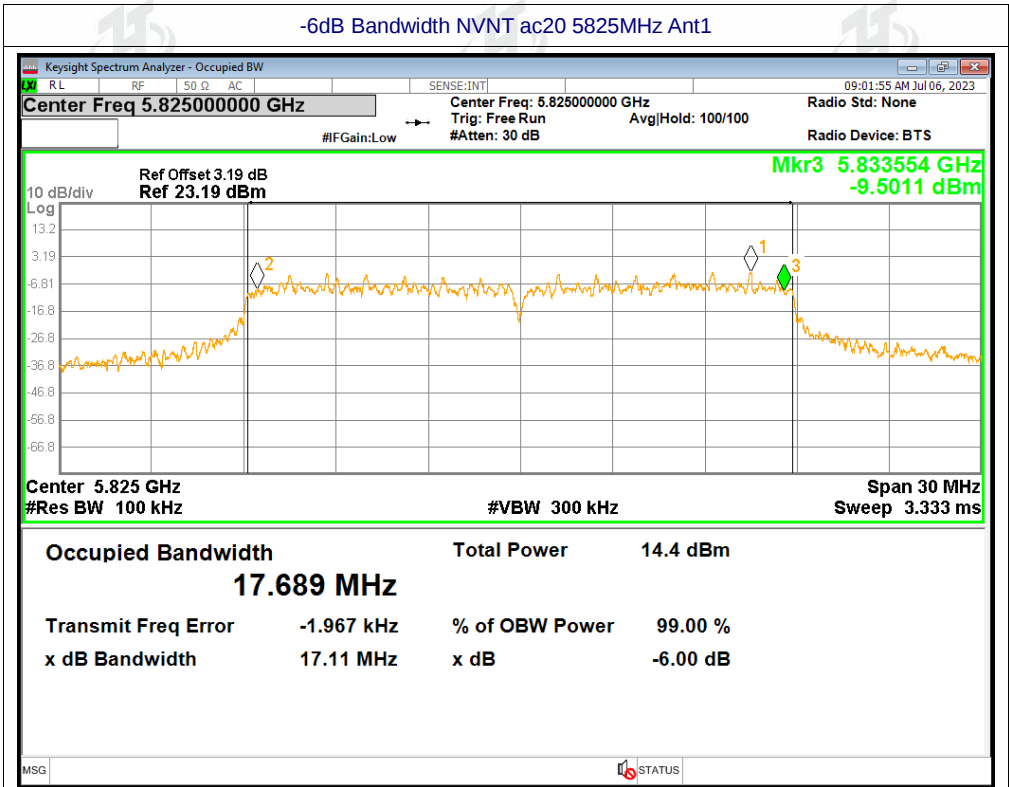


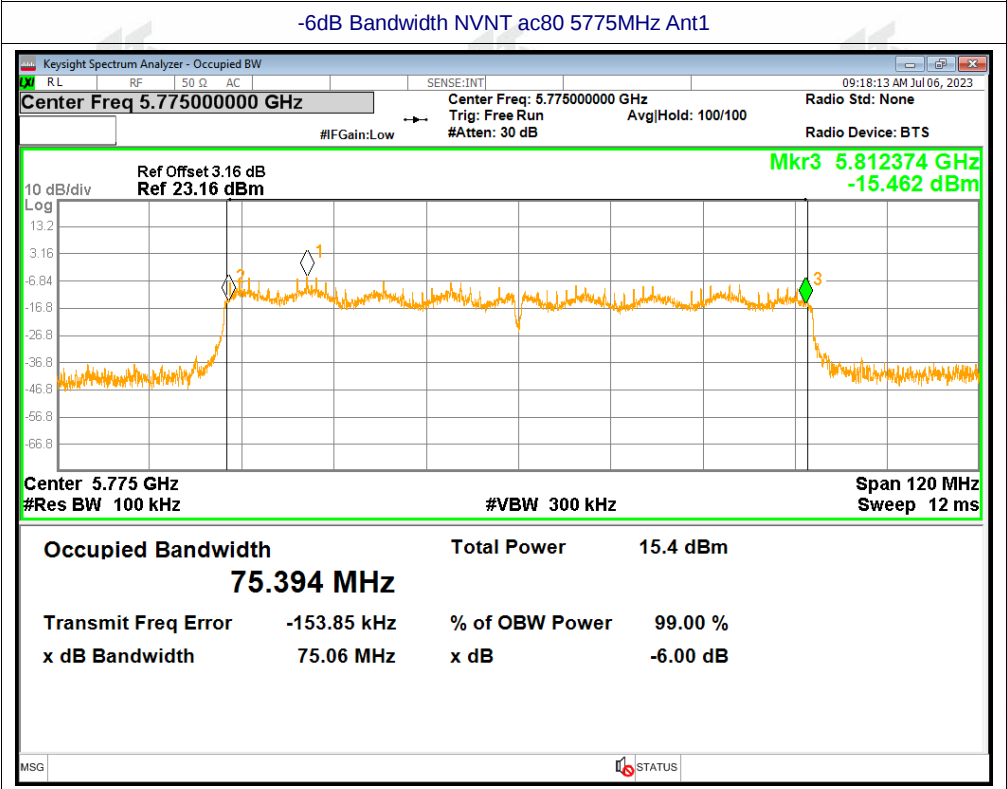
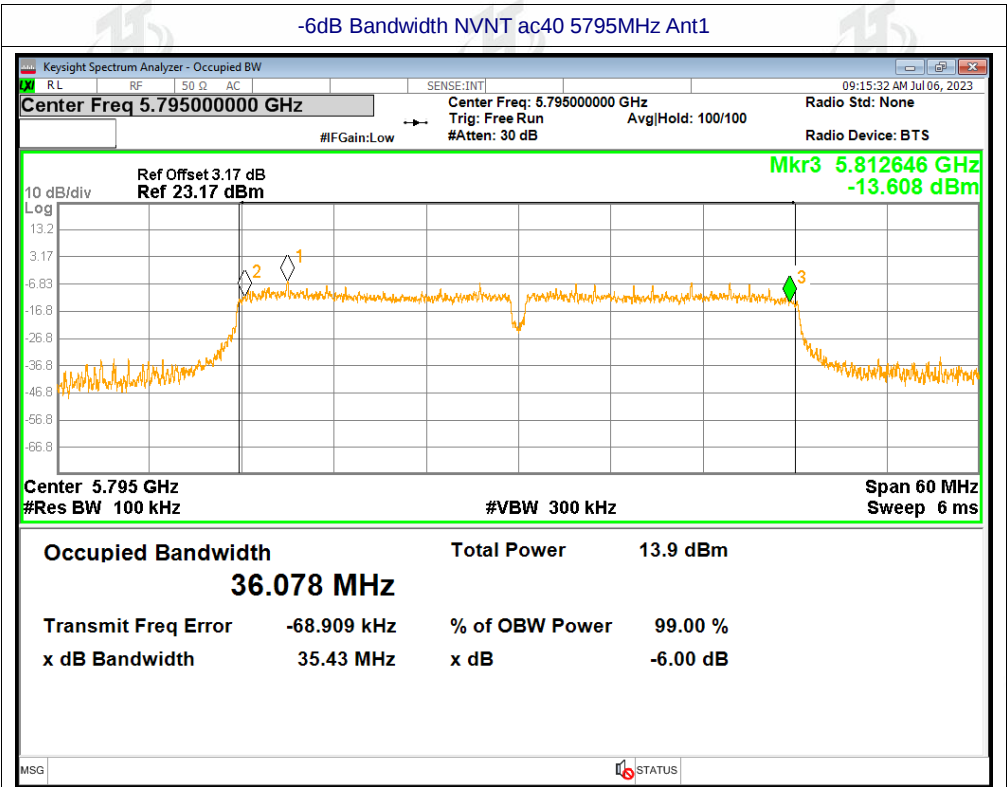






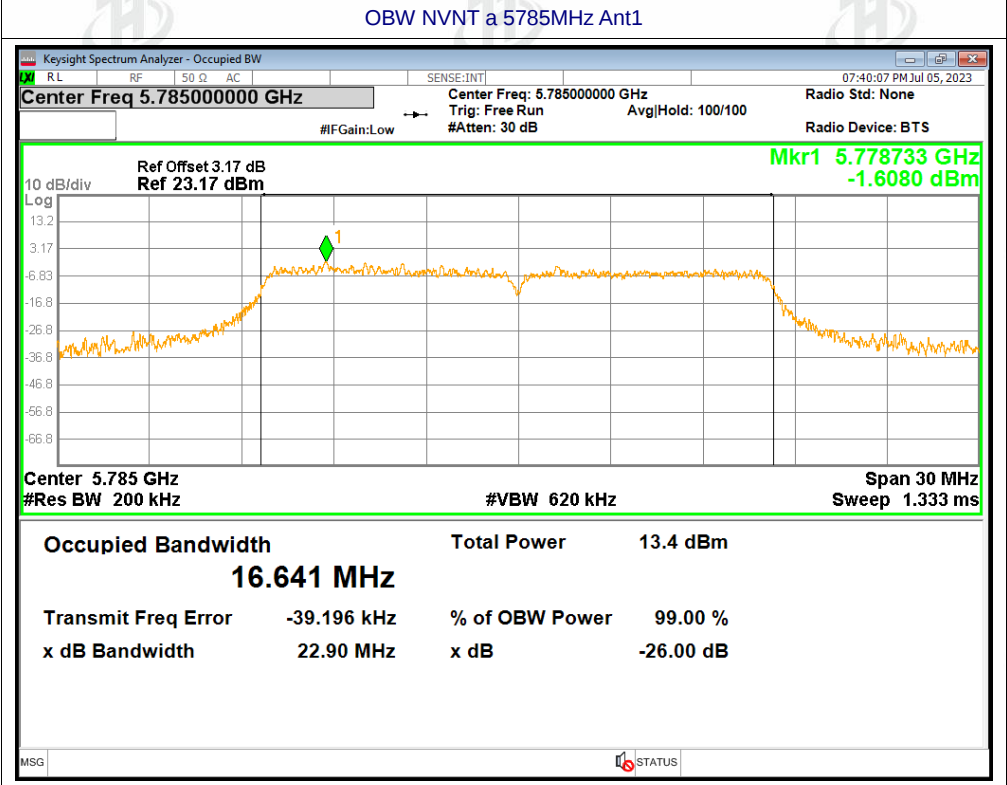
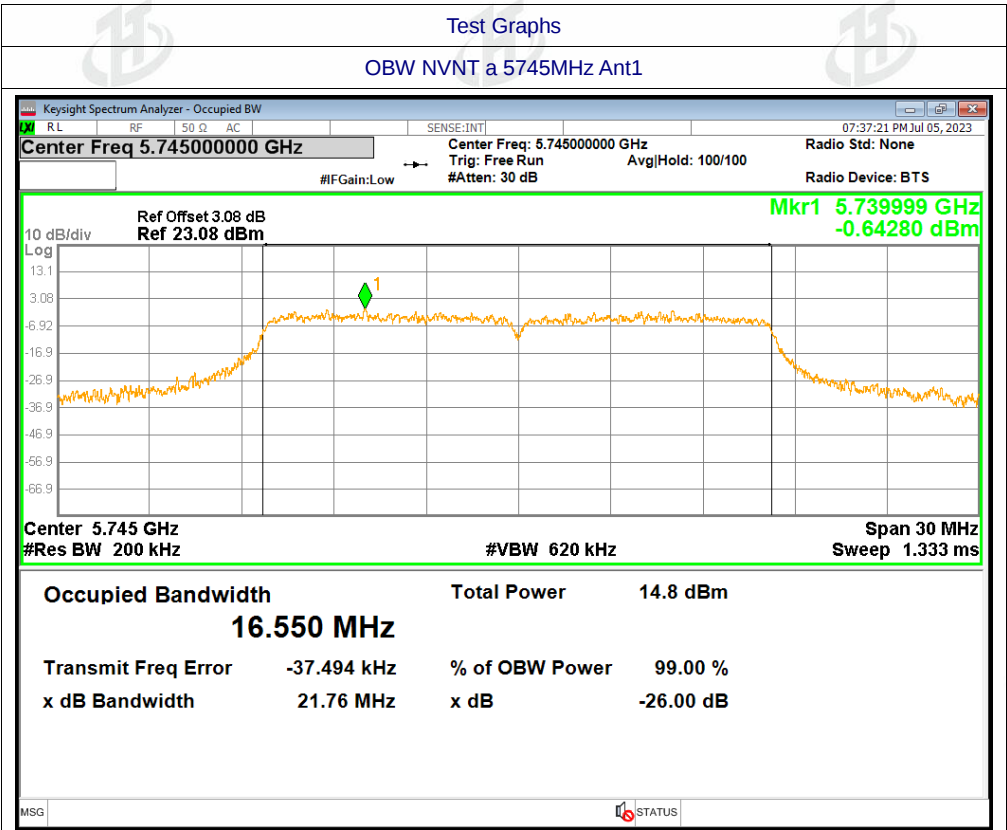


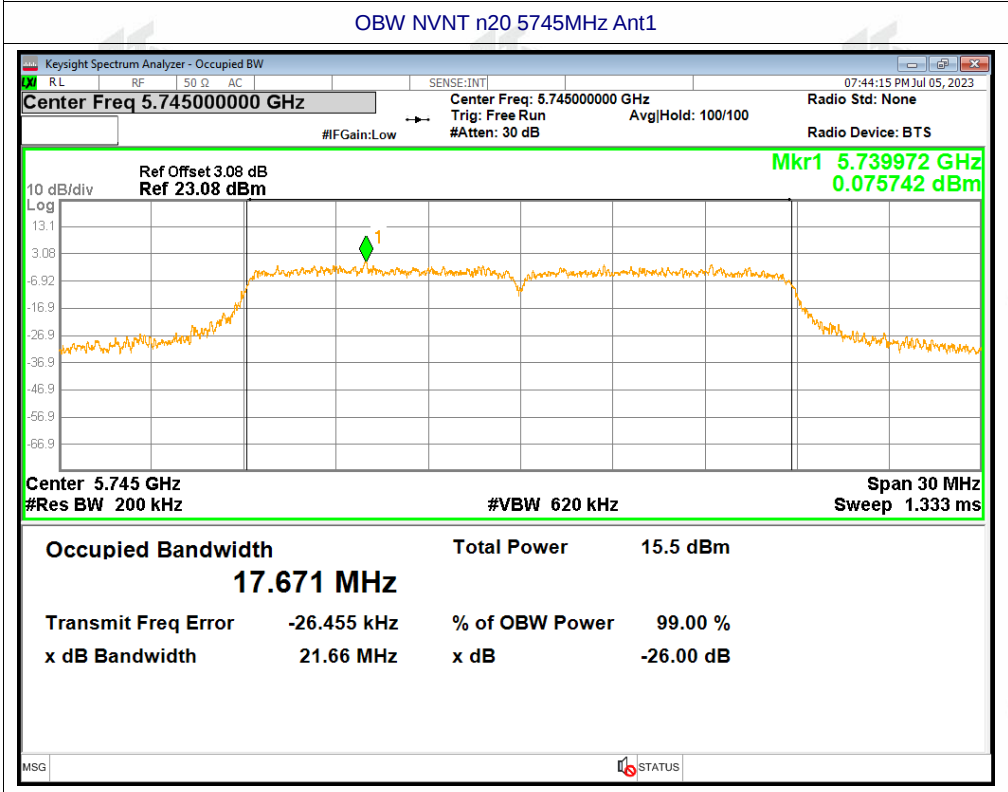
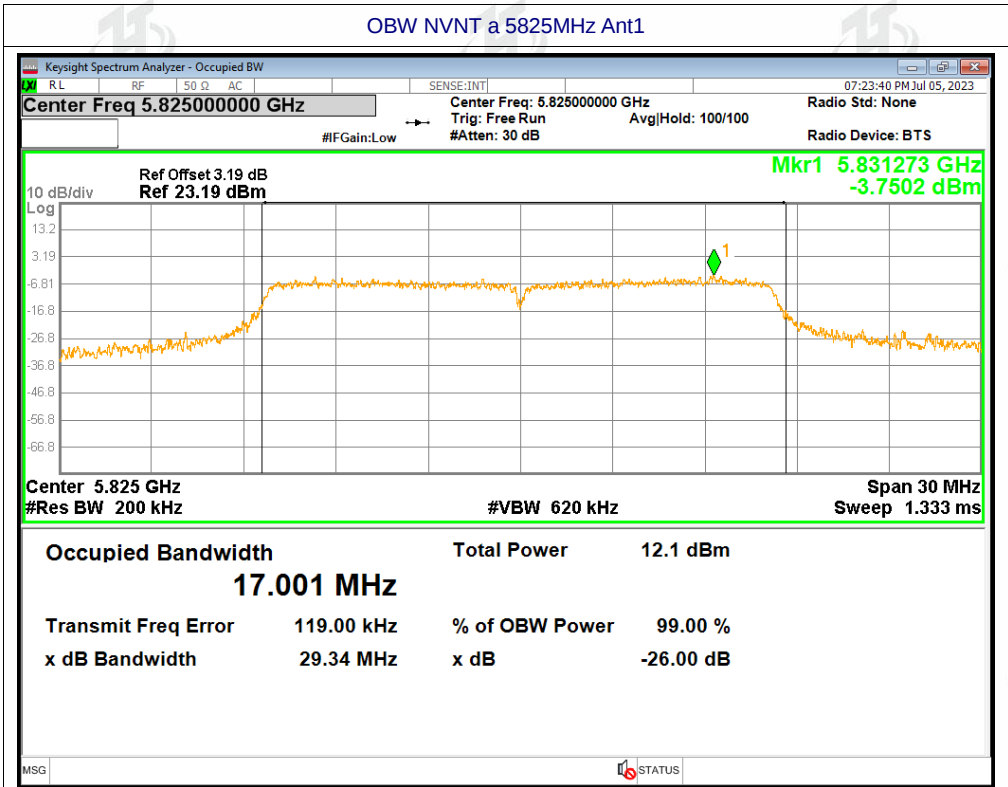


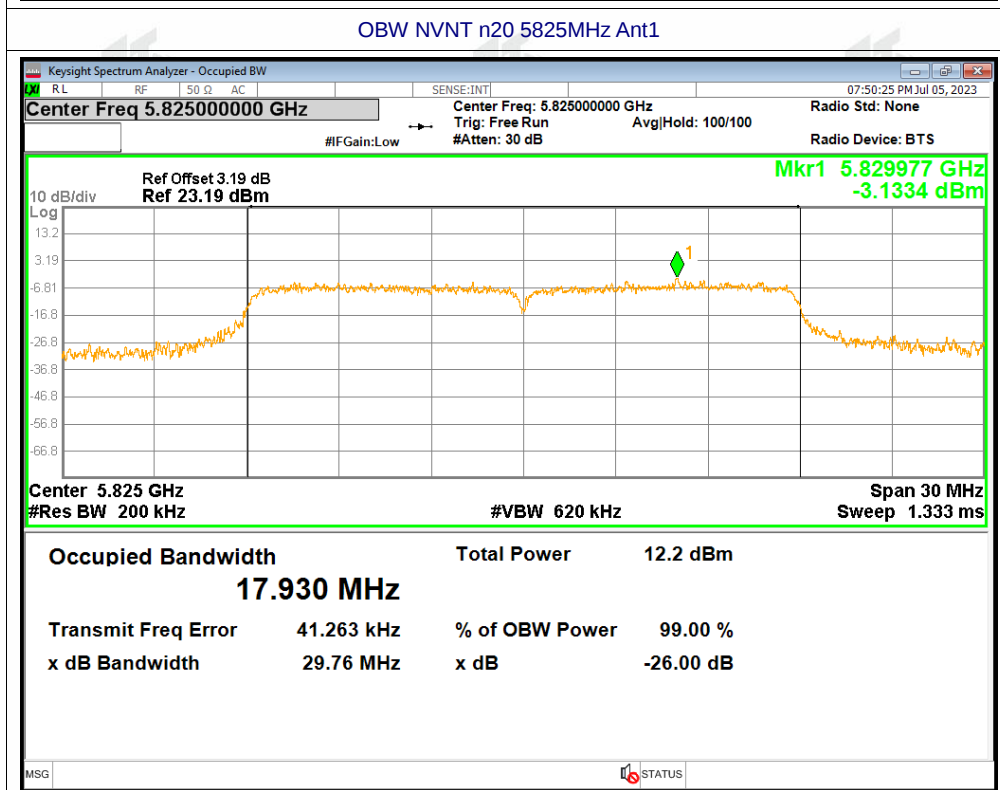
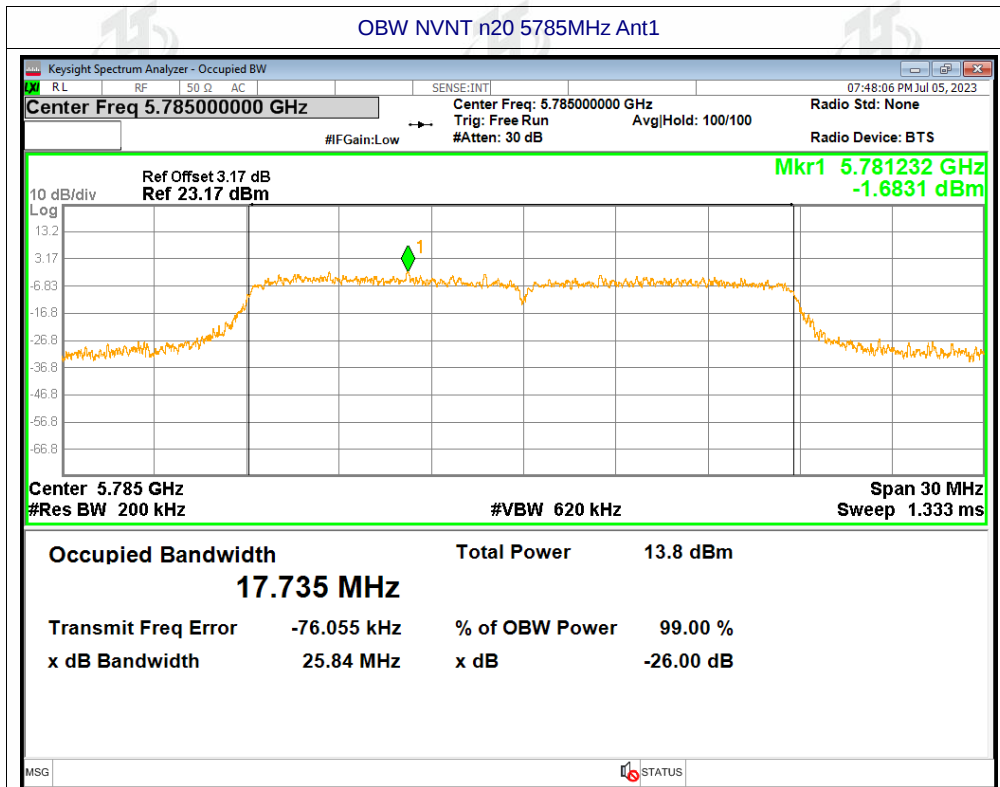


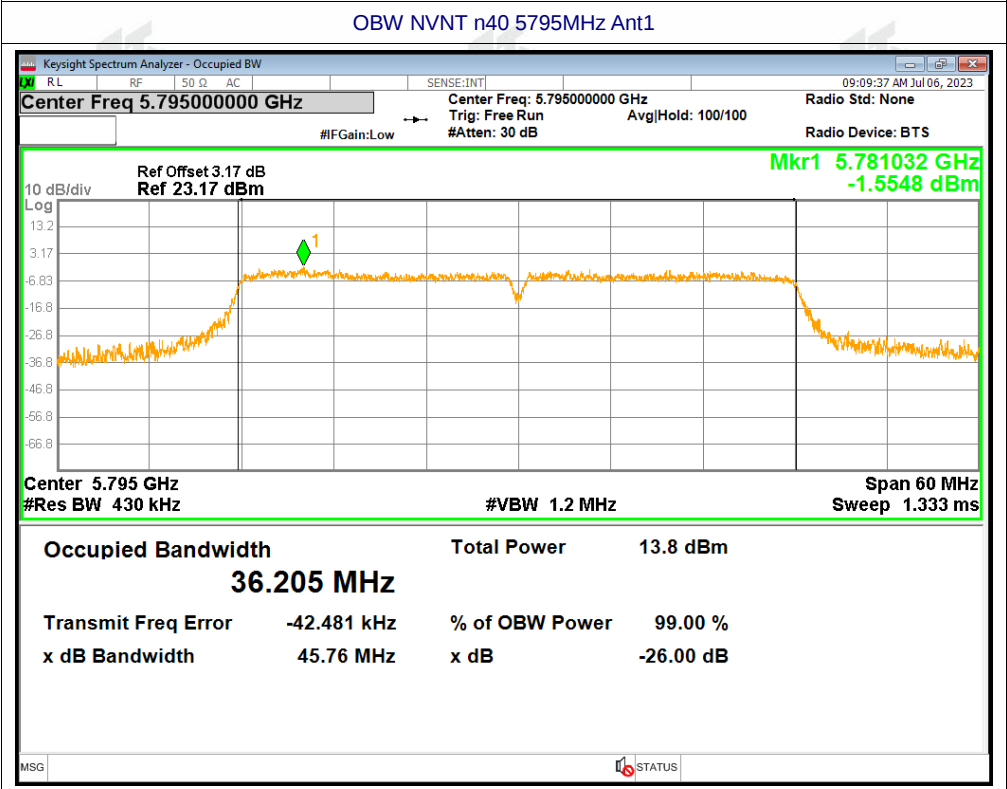
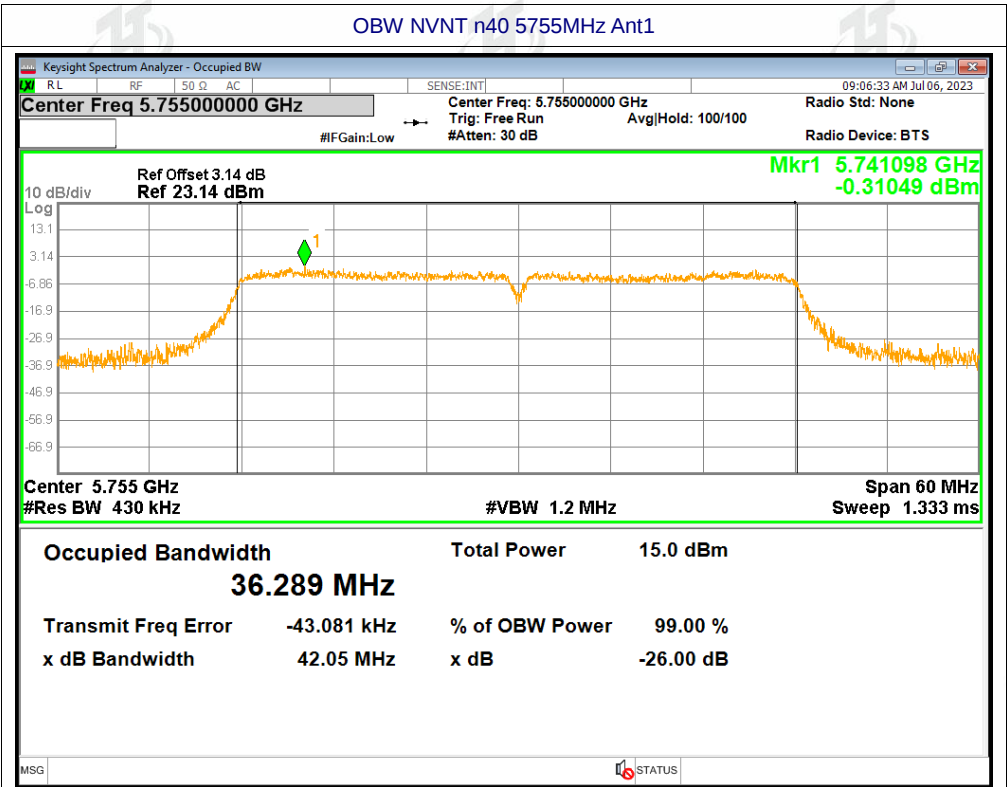
B4.Occupied Channel Bandwidth

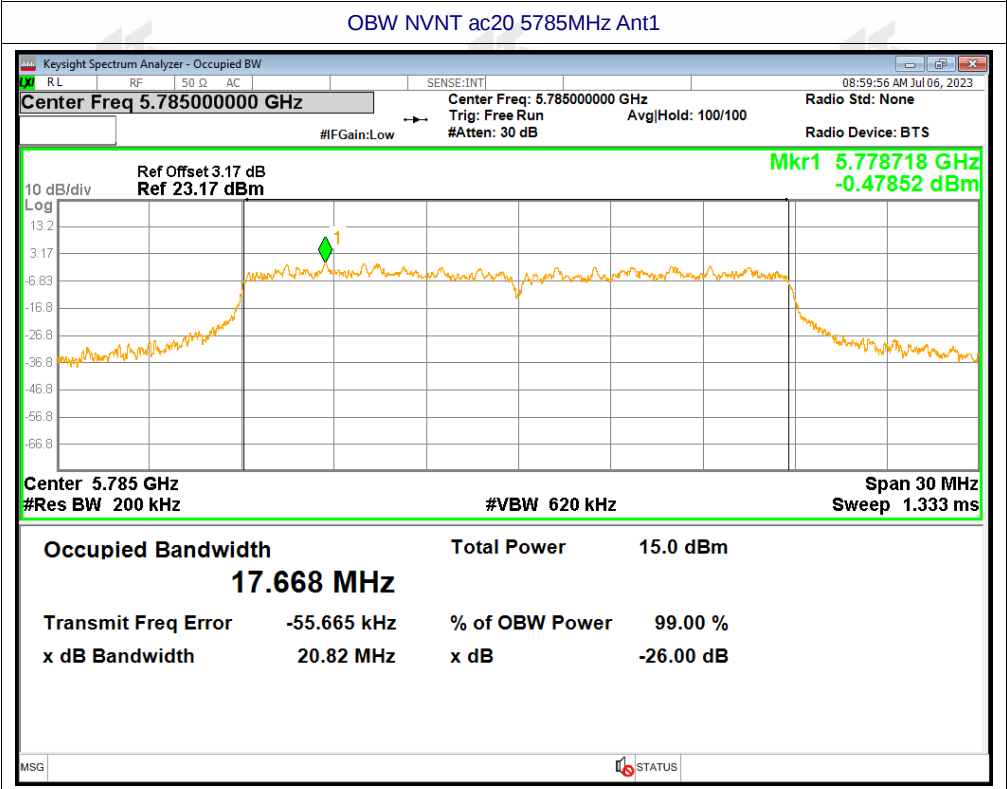
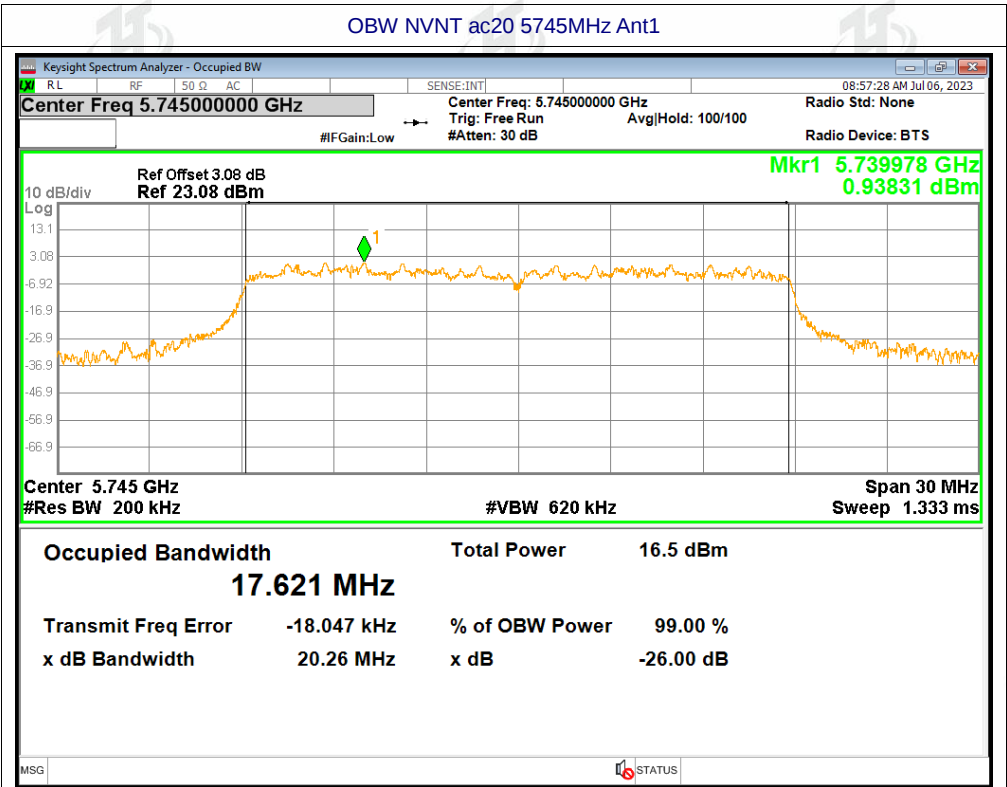
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	a	5745	Ant1	16.55
NVNT	a	5785	Ant1	16.641
NVNT	a	5825	Ant1	17.001
NVNT	n20	5745	Ant1	17.671
NVNT	n20	5785	Ant1	17.735
NVNT	n20	5825	Ant1	17.93
NVNT	n40	5755	Ant1	36.289
NVNT	n40	5795	Ant1	36.205
NVNT	ac20	5745	Ant1	17.621
NVNT	ac20	5785	Ant1	17.668
NVNT	ac20	5825	Ant1	17.803
NVNT	ac40	5755	Ant1	36.248
NVNT	ac40	5795	Ant1	36.234
NVNT	ac80	5775	Ant1	75.646

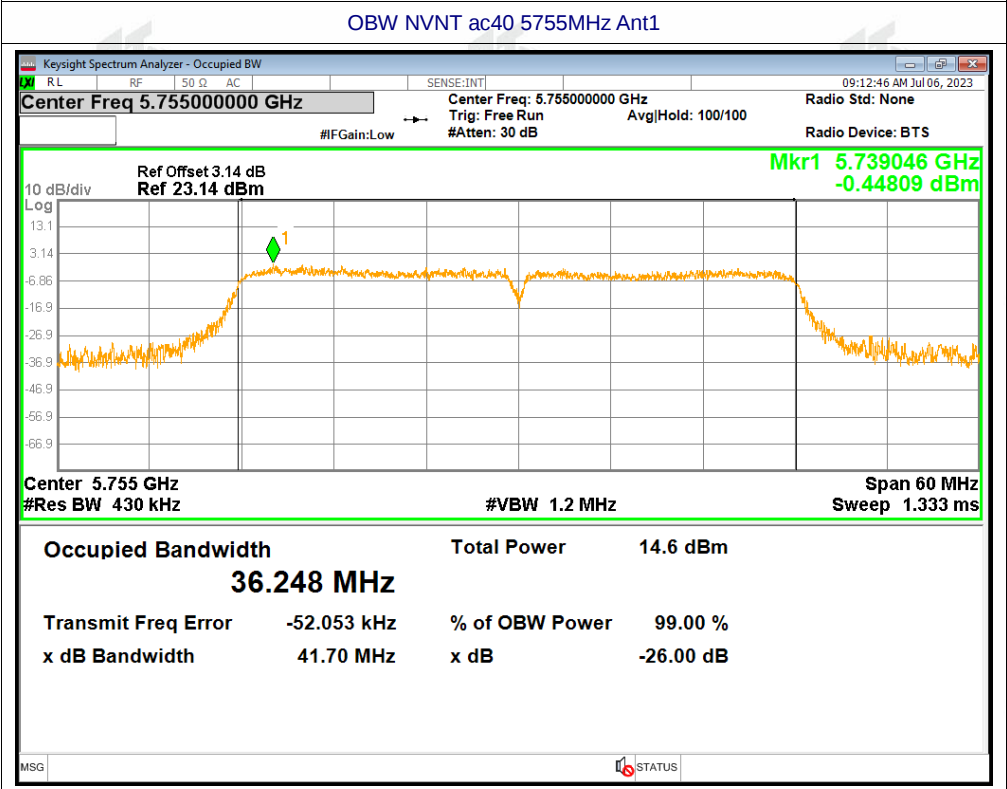
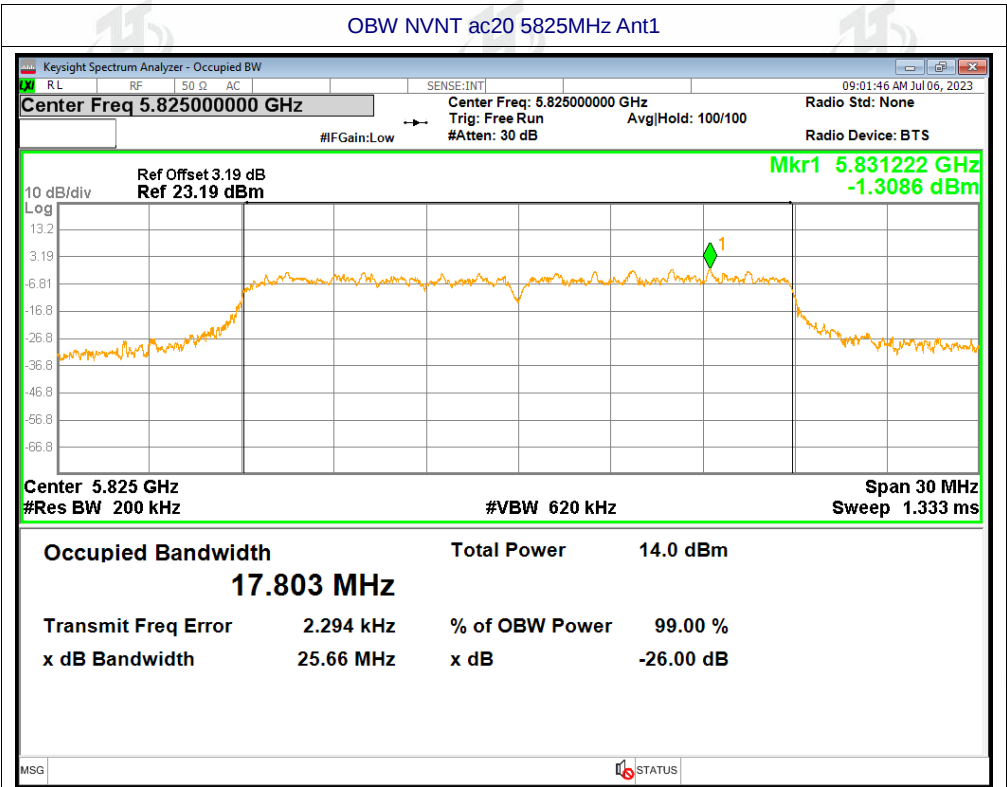


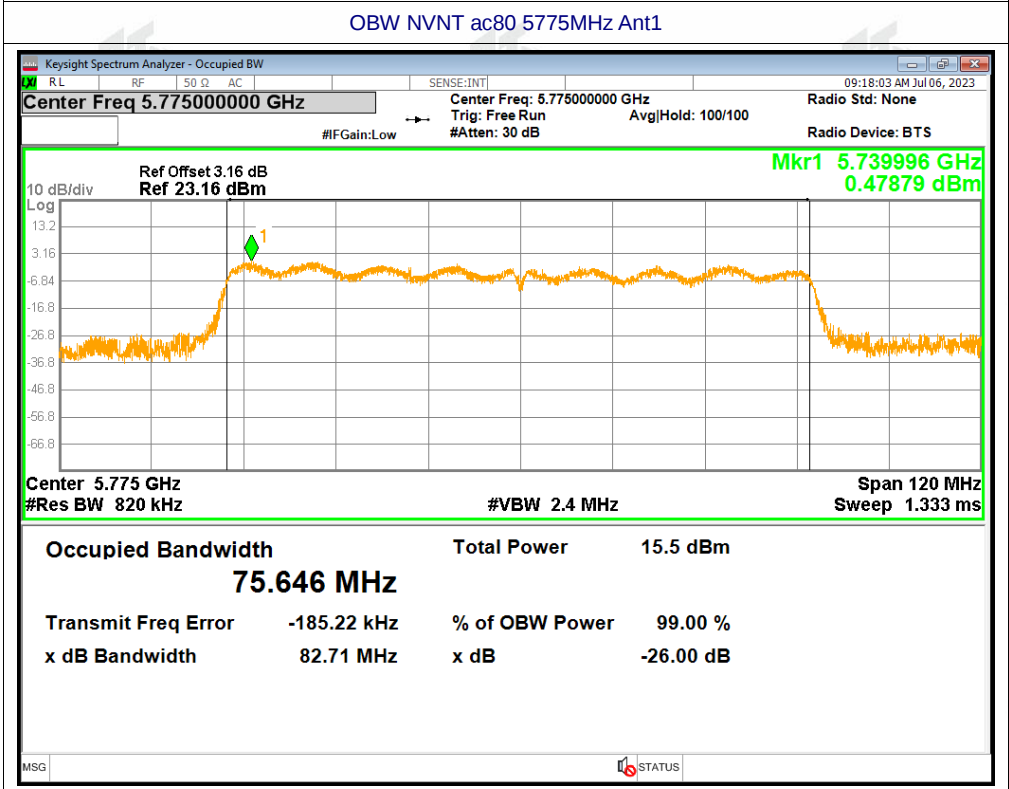
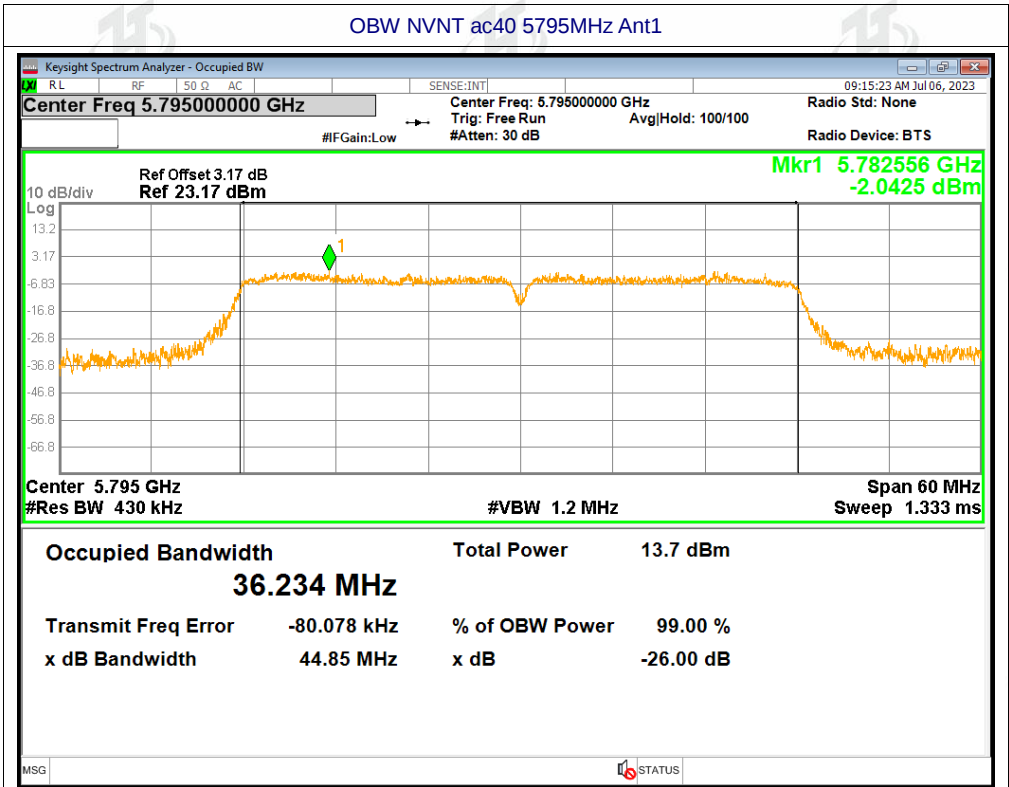






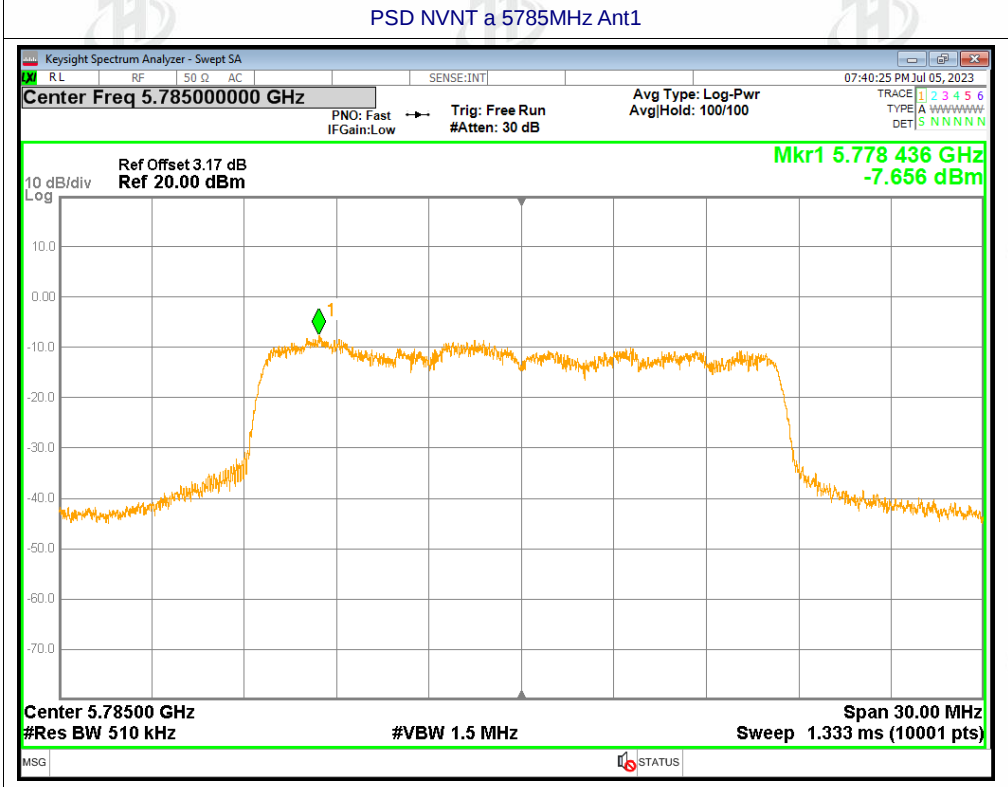
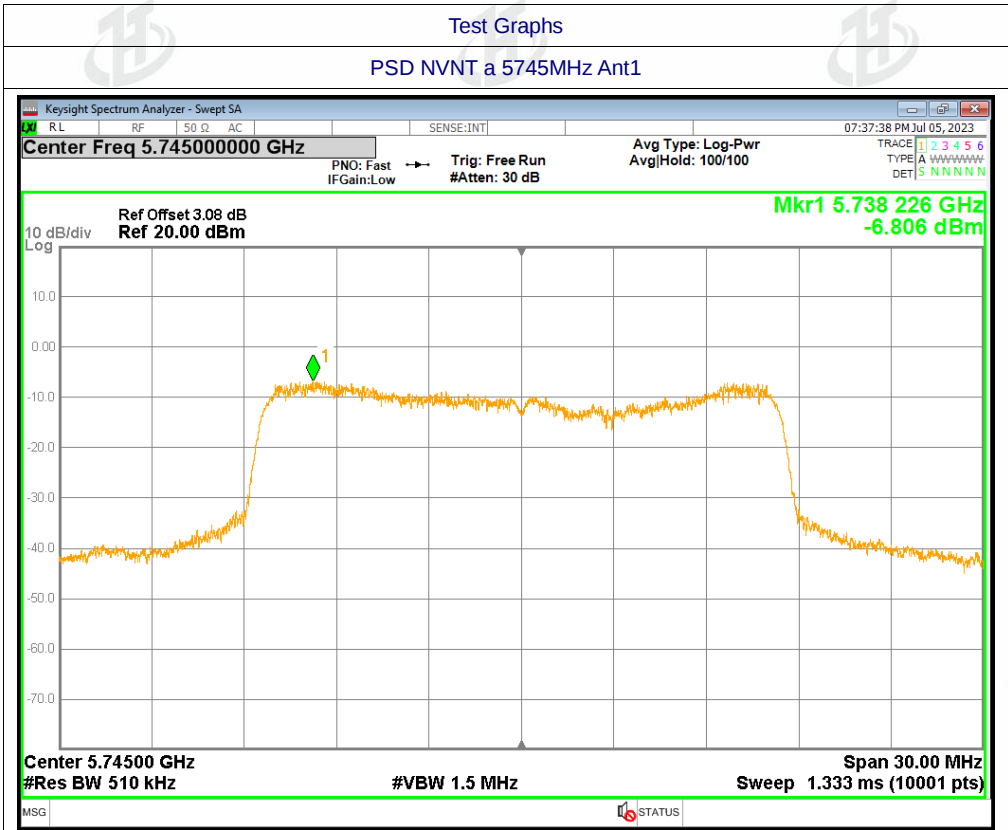


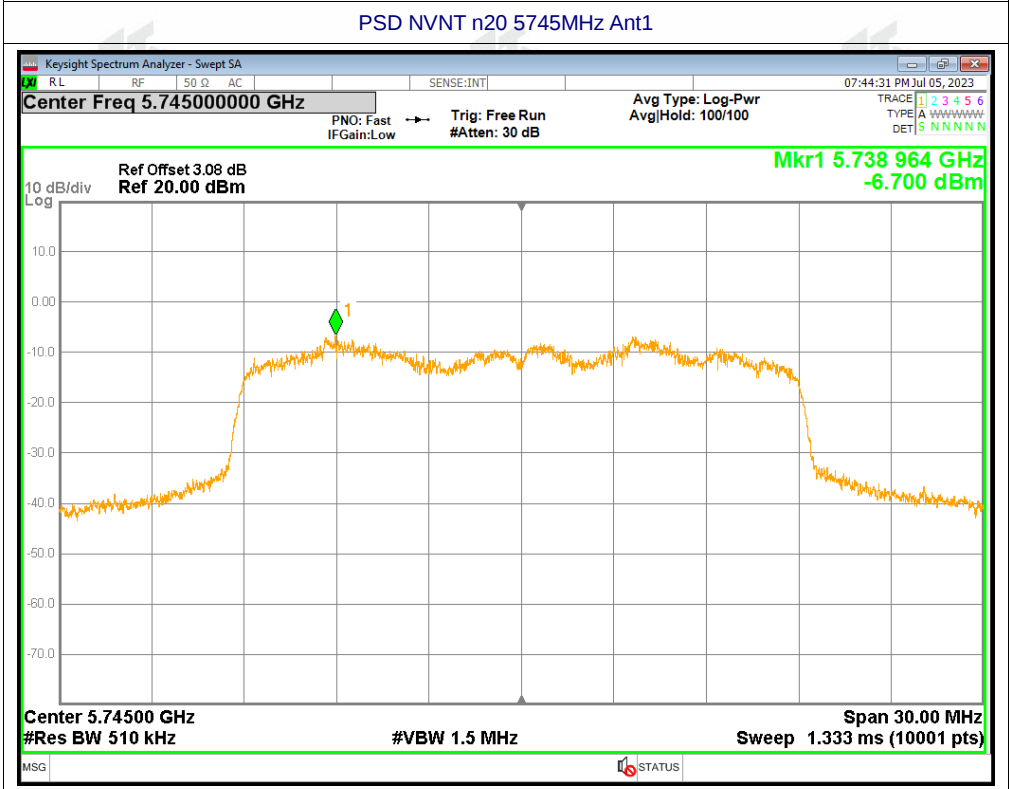
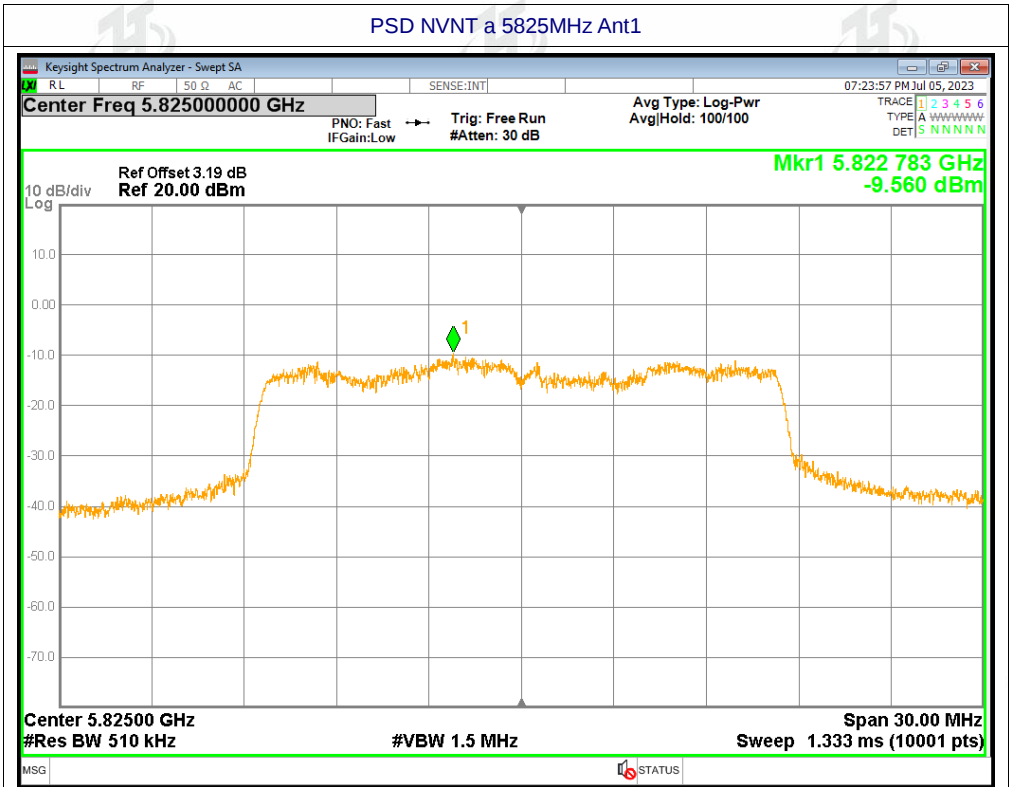


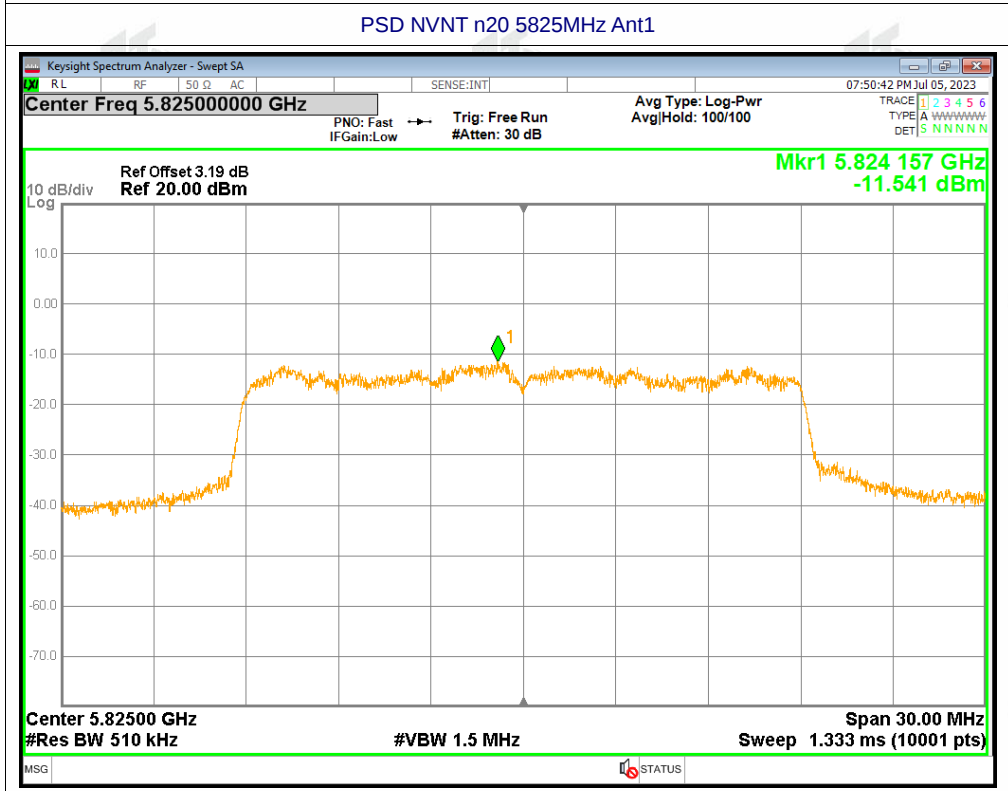
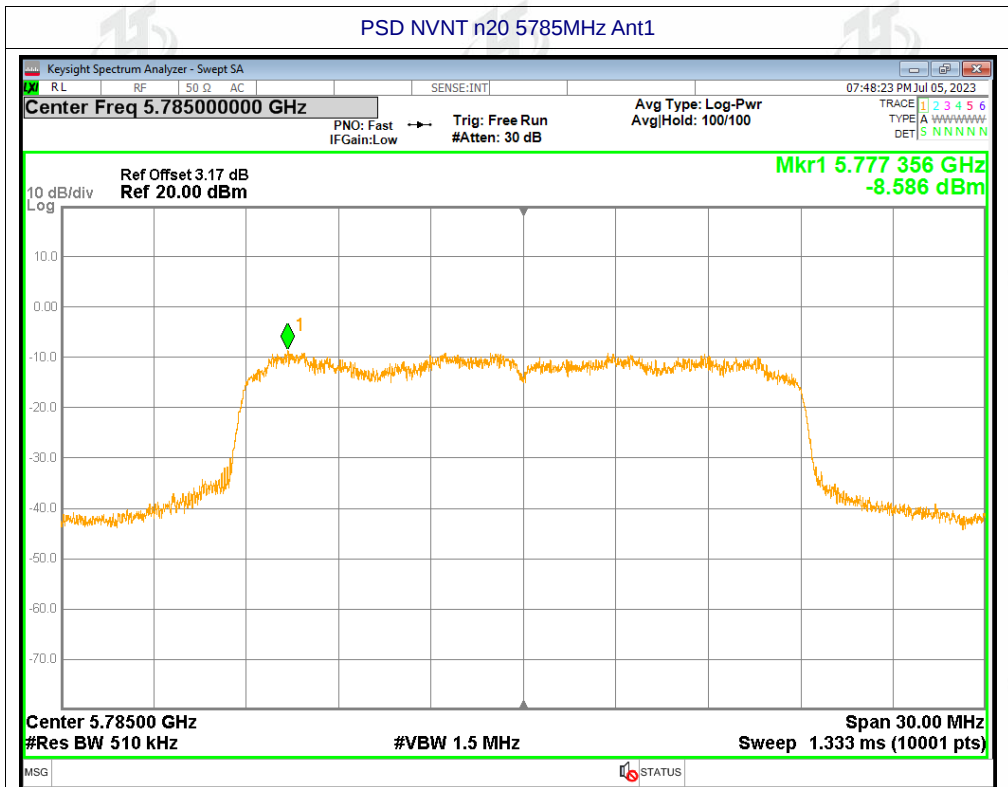


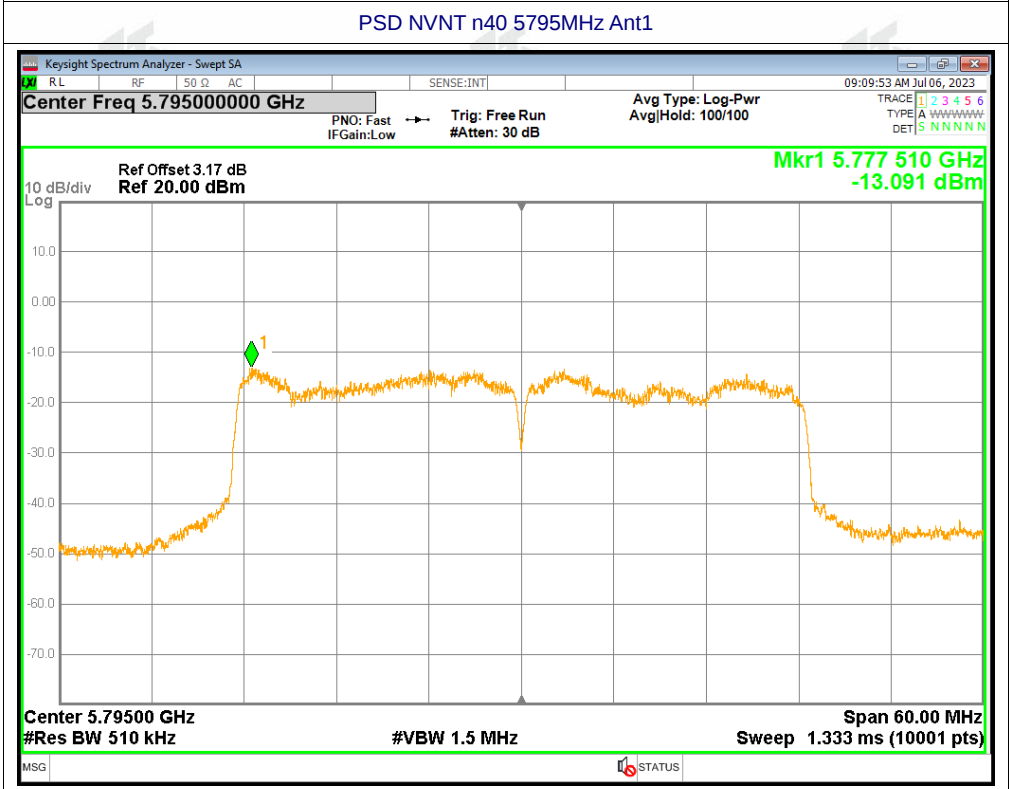
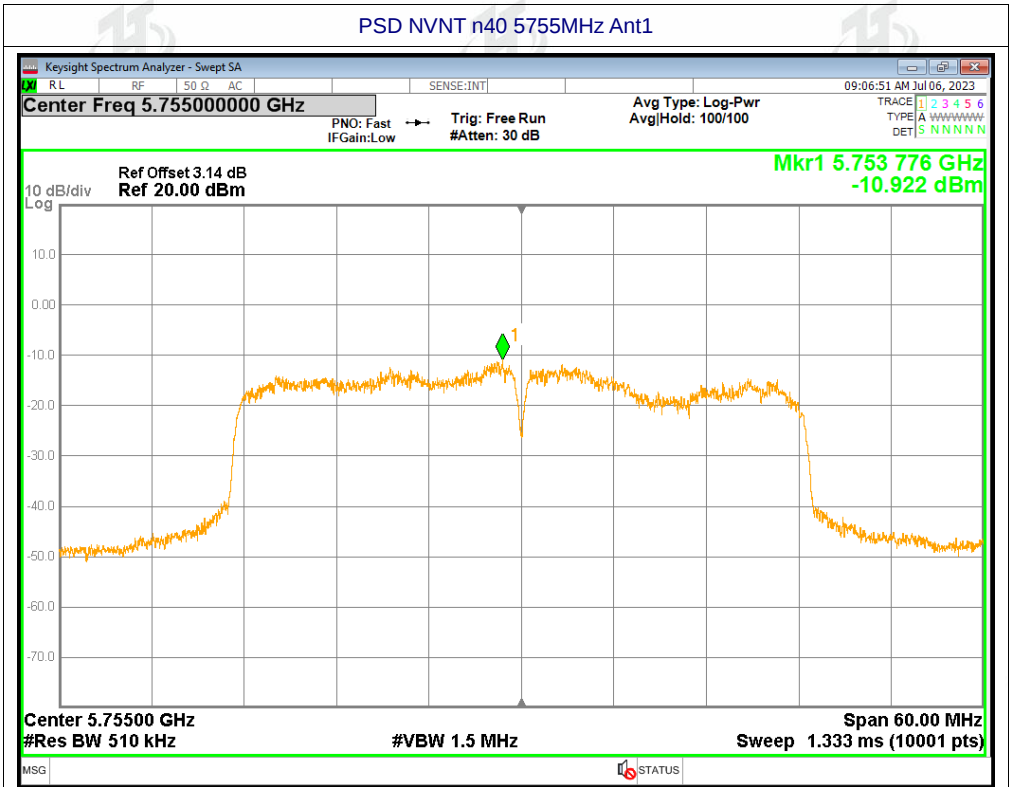
B5.Maximum Power Spectral Density Level

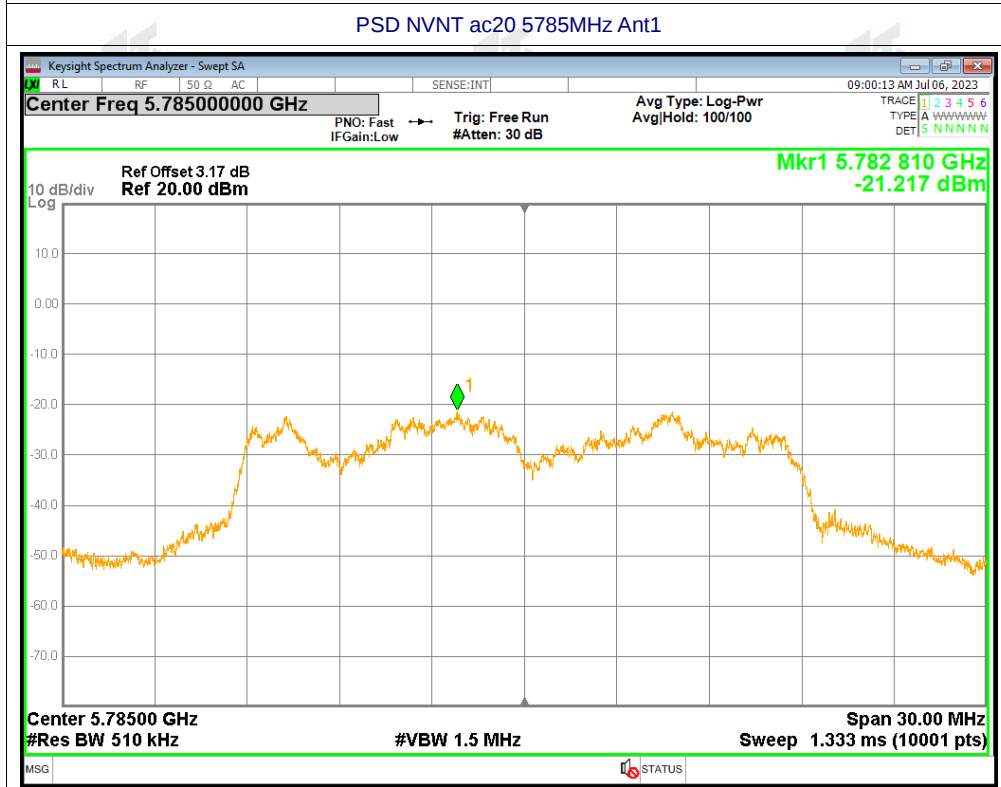
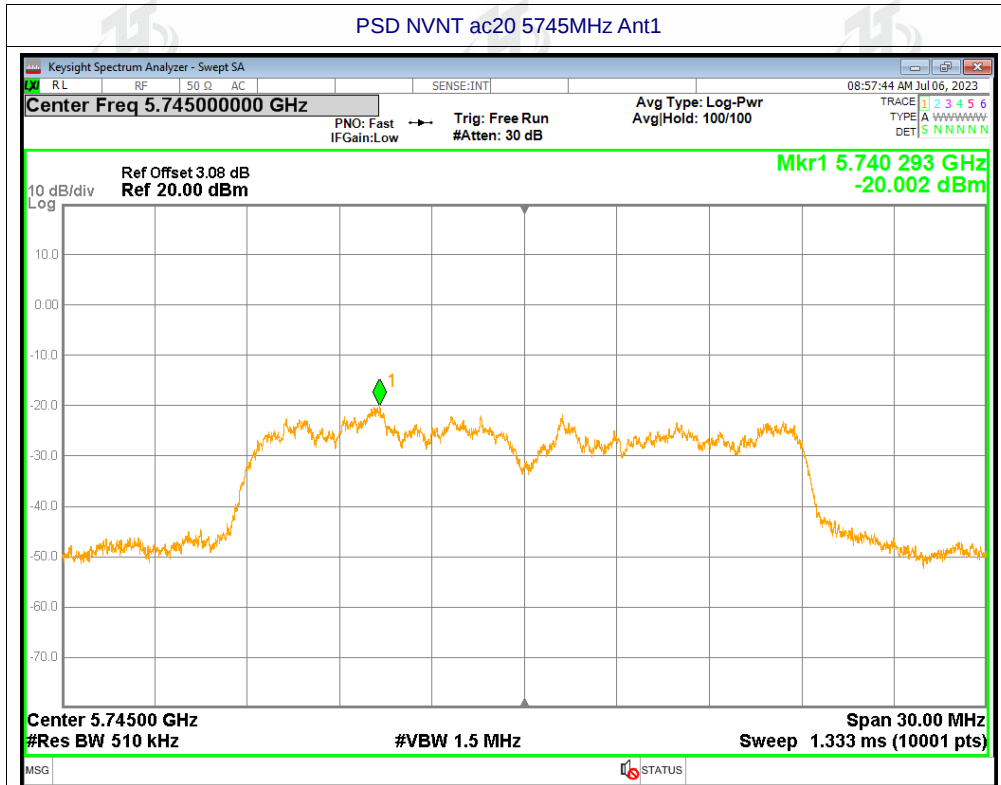
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	Ant1	-6.81	0.09	-6.72	30	Pass
NVNT	a	5785	Ant1	-7.66	0.09	-7.57	30	Pass
NVNT	a	5825	Ant1	-9.56	0.12	-9.44	30	Pass
NVNT	n20	5745	Ant1	-6.7	0.1	-6.6	30	Pass
NVNT	n20	5785	Ant1	-8.59	0.13	-8.46	30	Pass
NVNT	n20	5825	Ant1	-11.54	0.13	-11.41	30	Pass
NVNT	n40	5755	Ant1	-10.92	0.2	-10.72	30	Pass
NVNT	n40	5795	Ant1	-13.09	0.2	-12.89	30	Pass
NVNT	ac20	5745	Ant1	-20	0.1	-19.9	30	Pass
NVNT	ac20	5785	Ant1	-21.22	0.13	-21.09	30	Pass
NVNT	ac20	5825	Ant1	-21.09	0.13	-20.96	30	Pass
NVNT	ac40	5755	Ant1	-11.9	0.26	-11.64	30	Pass
NVNT	ac40	5795	Ant1	-13.55	0.26	-13.29	30	Pass
NVNT	ac80	5775	Ant1	-16.14	0.84	-15.3	30	Pass

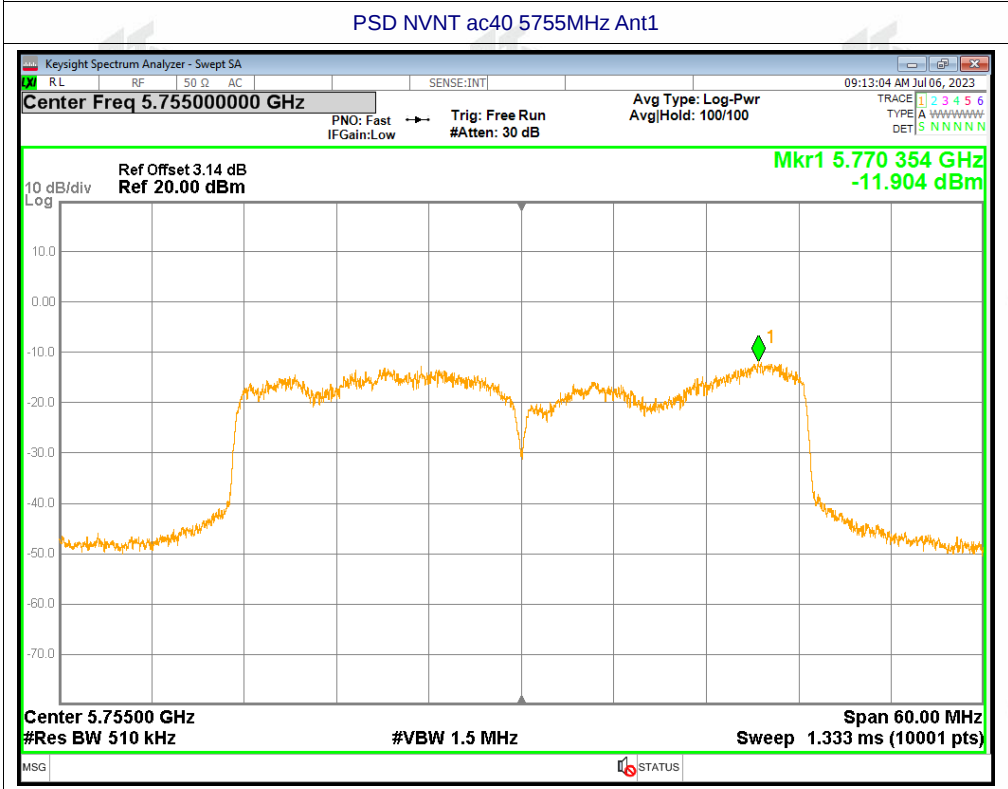
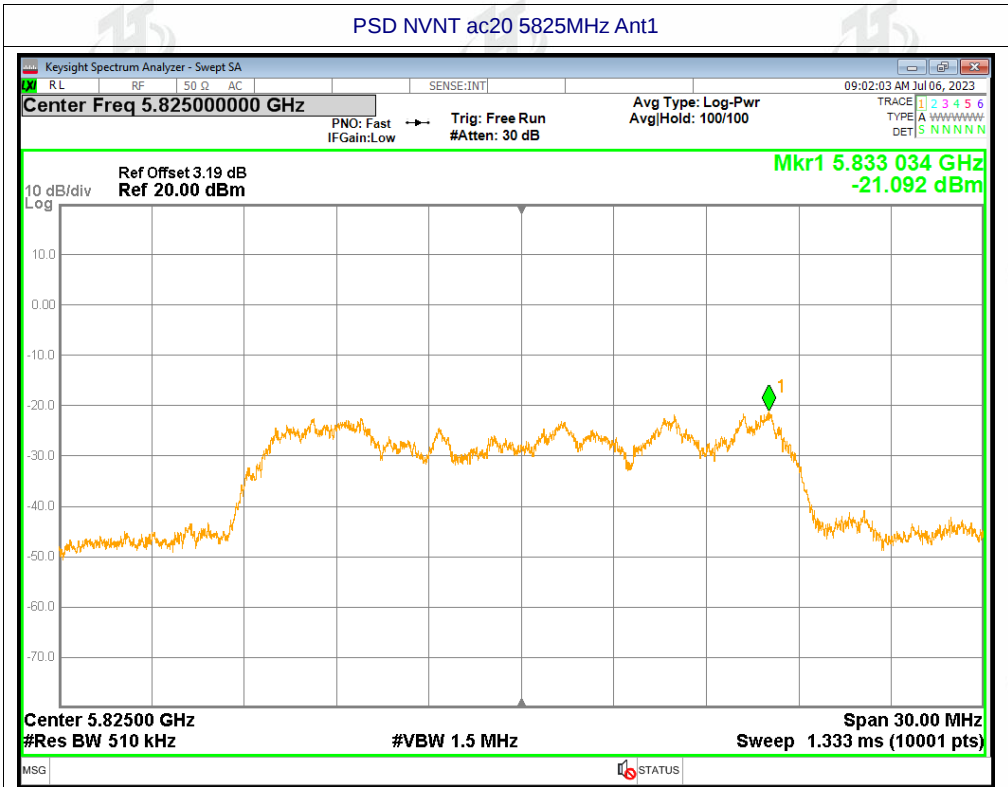


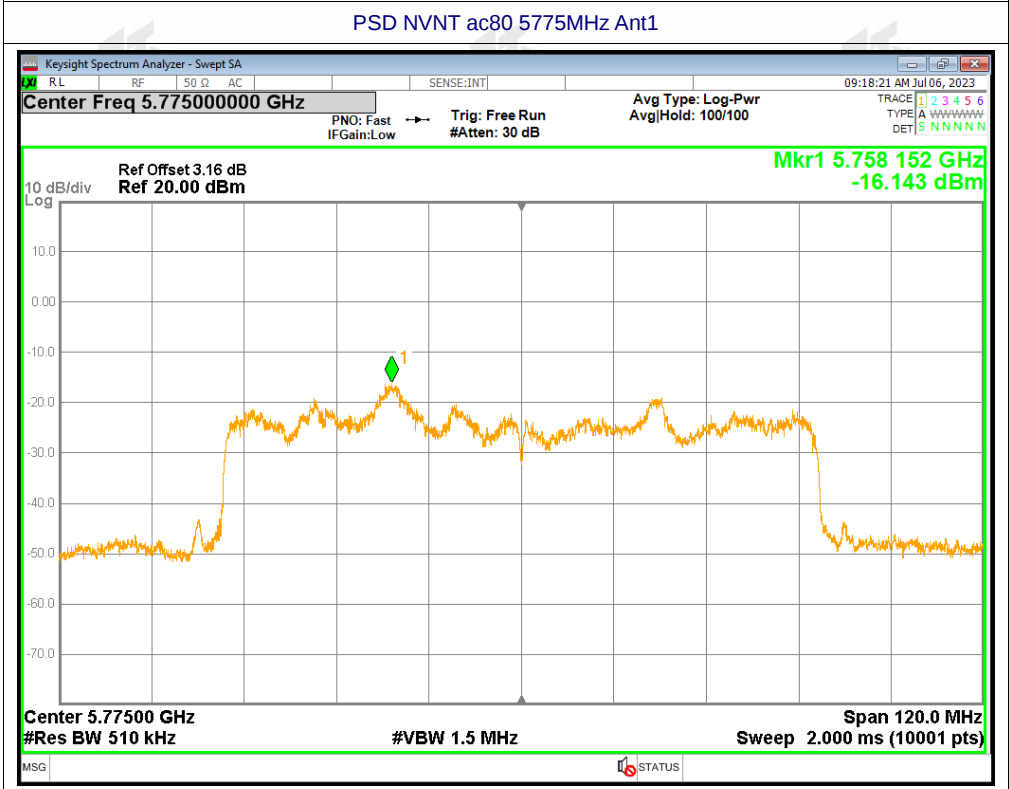
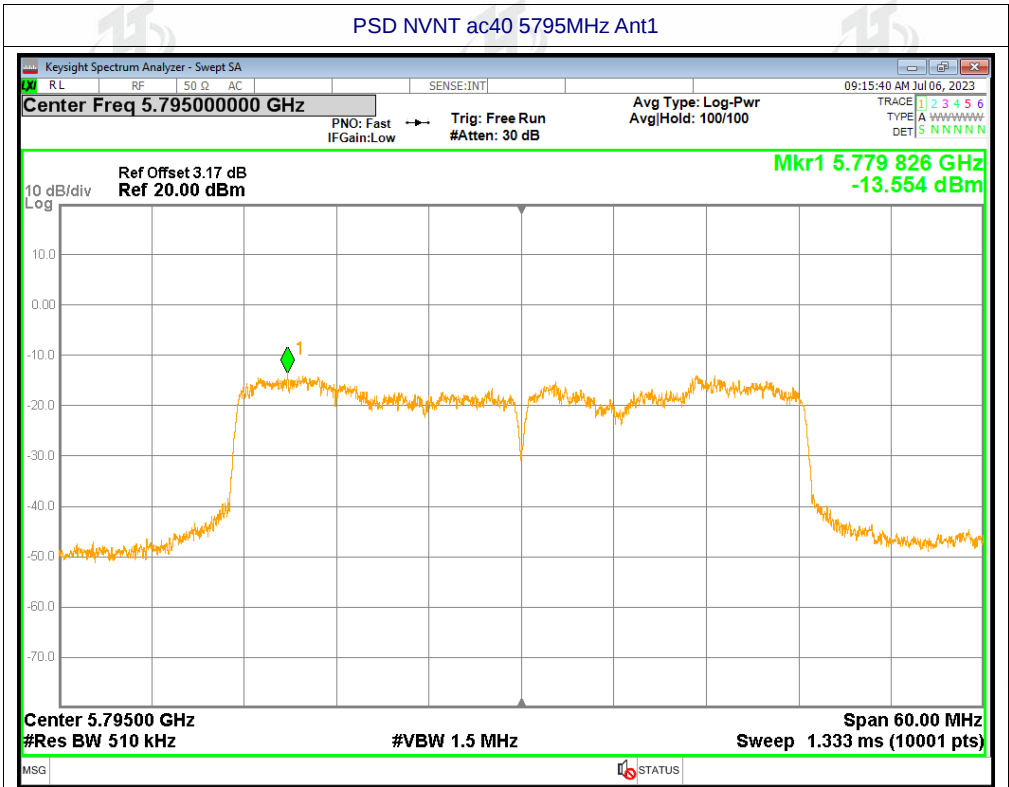










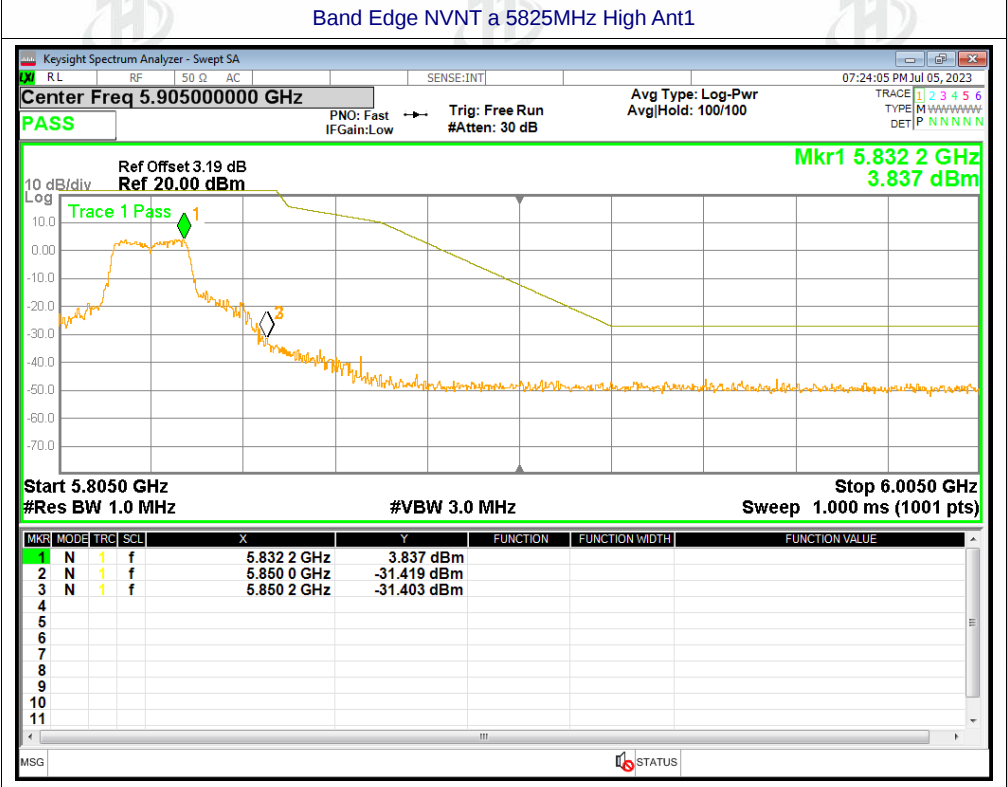
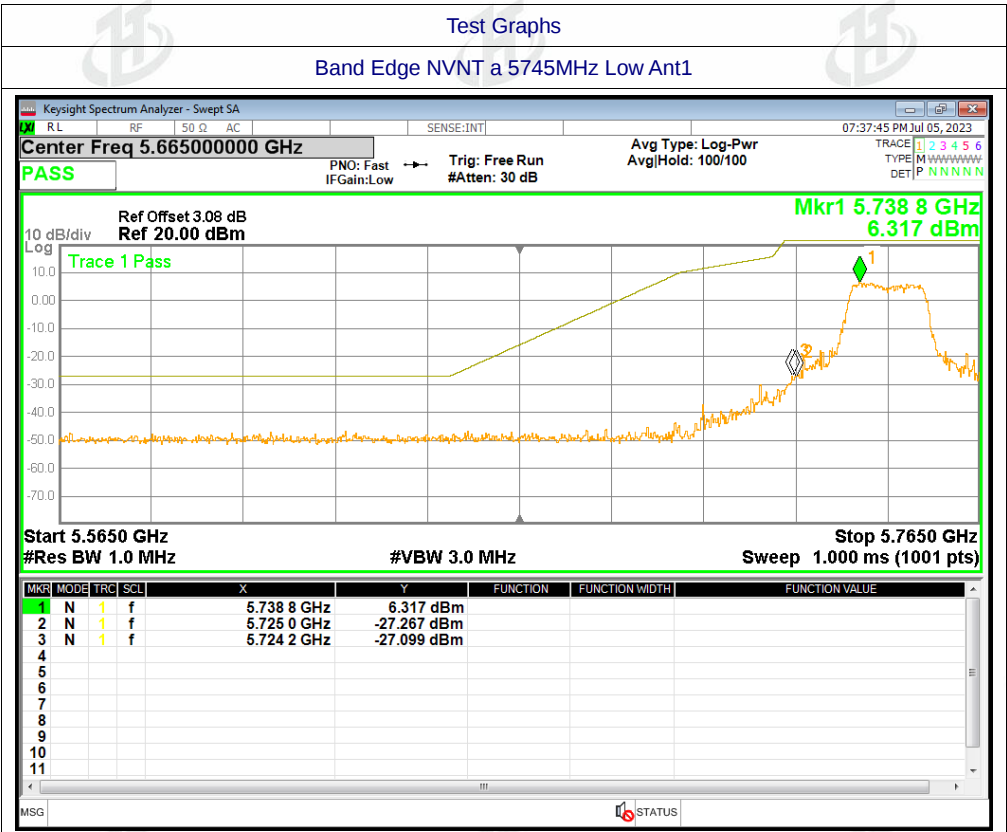


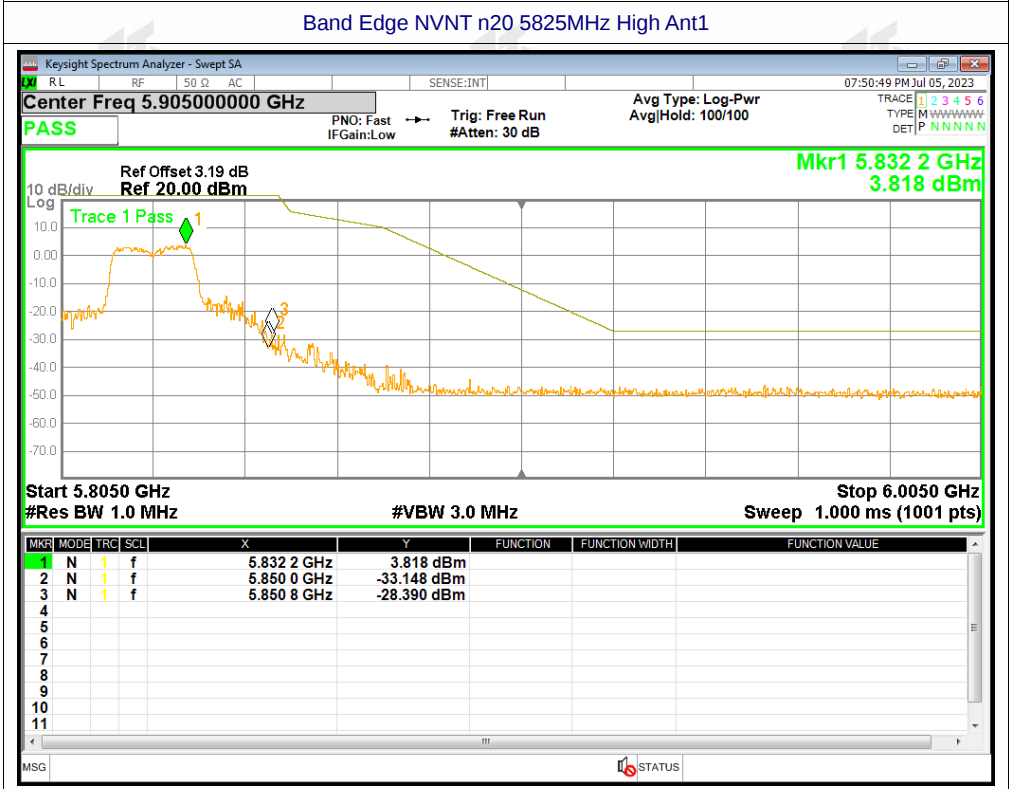
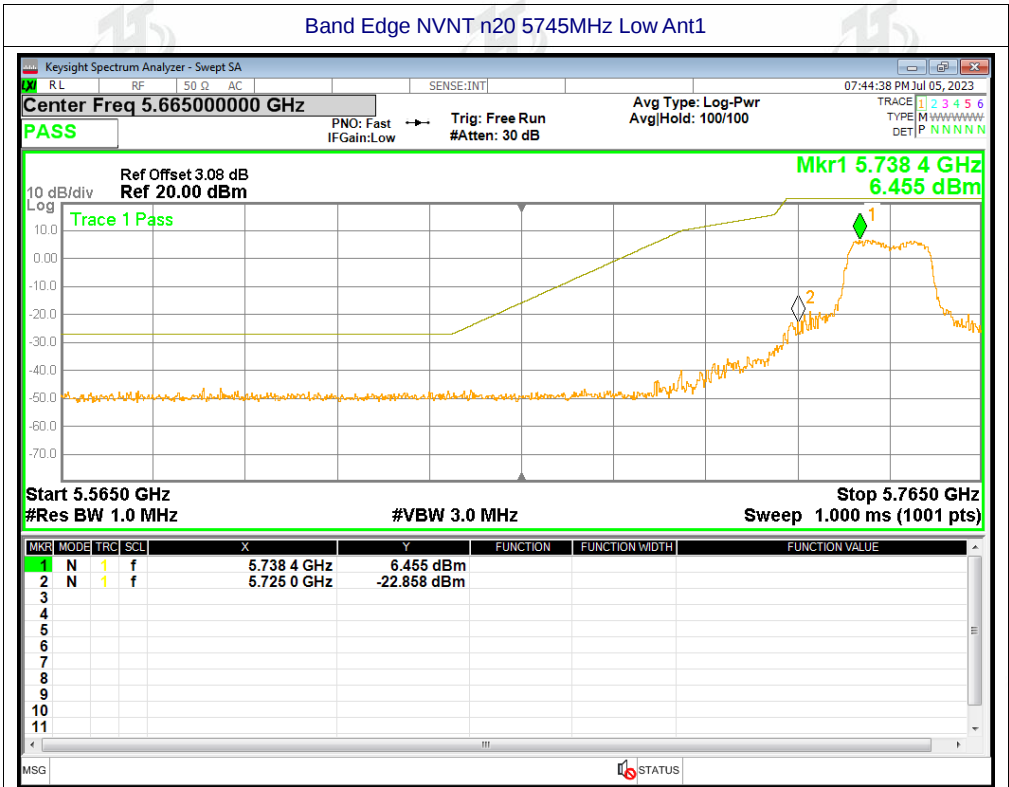
B6.Band Edge

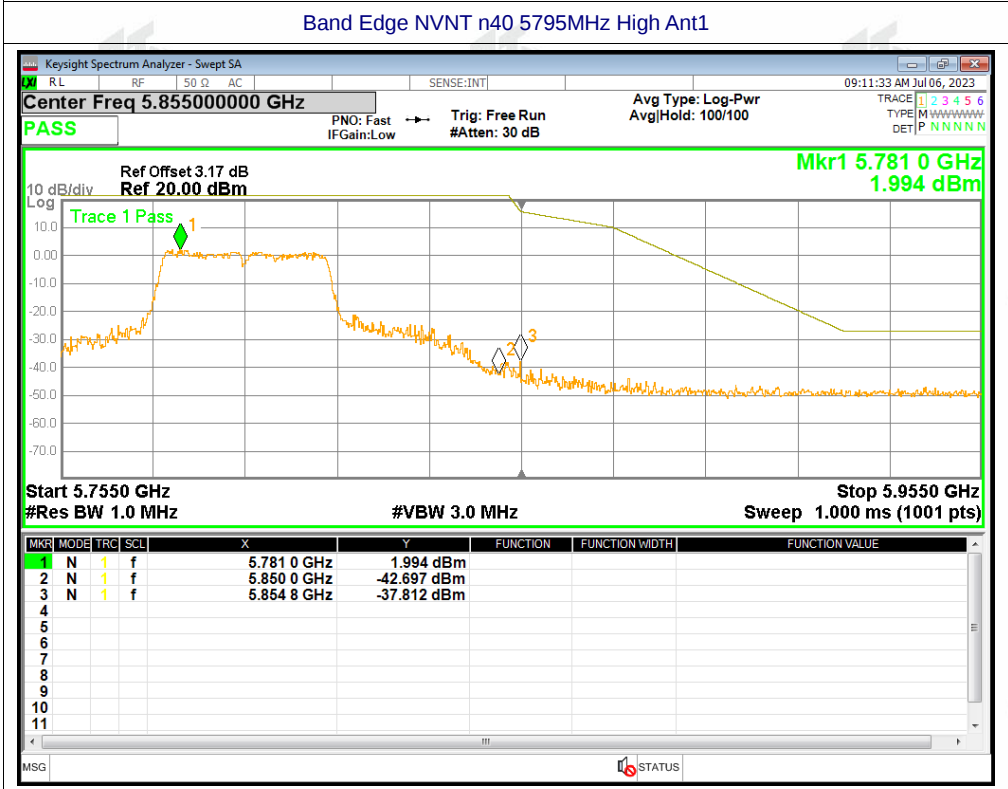
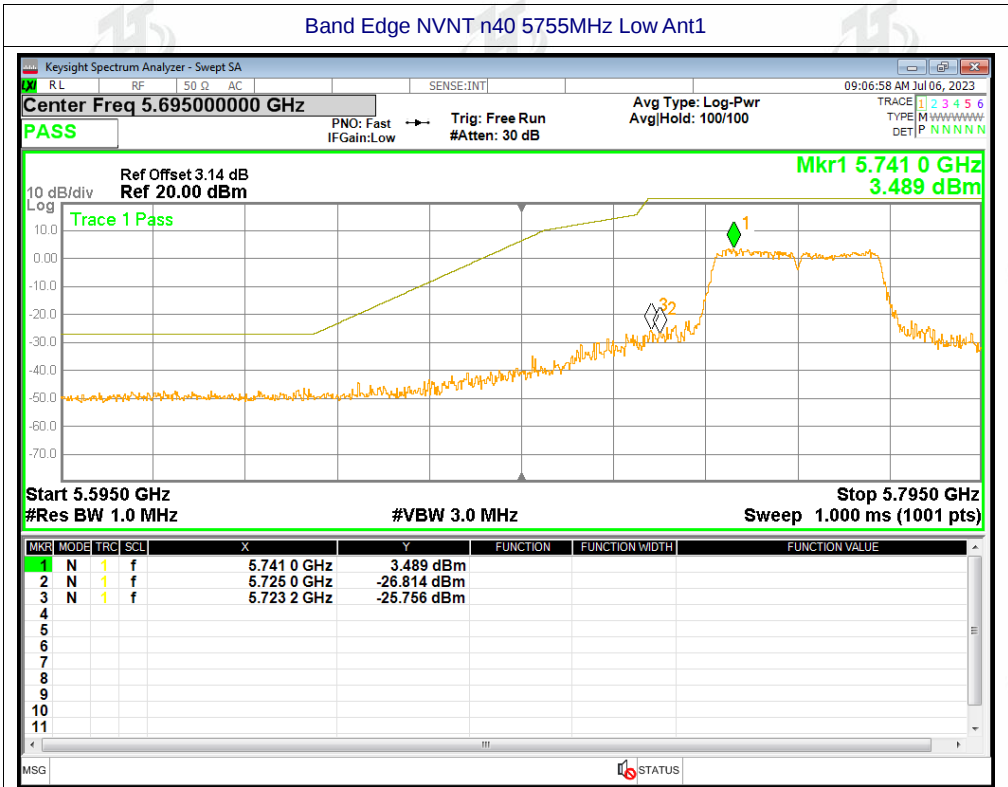
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	Ant1	-27.09	Refer to below test plot	Pass
NVNT	a	5825	Ant1	-31.4	Refer to below test plot	Pass
NVNT	n20	5745	Ant1	-22.85	Refer to below test plot	Pass
NVNT	n20	5825	Ant1	-28.38	Refer to below test plot	Pass
NVNT	n40	5755	Ant1	-25.75	Refer to below test plot	Pass
NVNT	n40	5795	Ant1	-37.81	Refer to below test plot	Pass
NVNT	ac20	5745	Ant1	-24	Refer to below test plot	Pass
NVNT	ac20	5825	Ant1	-31.14	Refer to below test plot	Pass
NVNT	ac40	5755	Ant1	-25.04	Refer to below test plot	Pass
NVNT	ac40	5795	Ant1	-36.19	Refer to below test plot	Pass

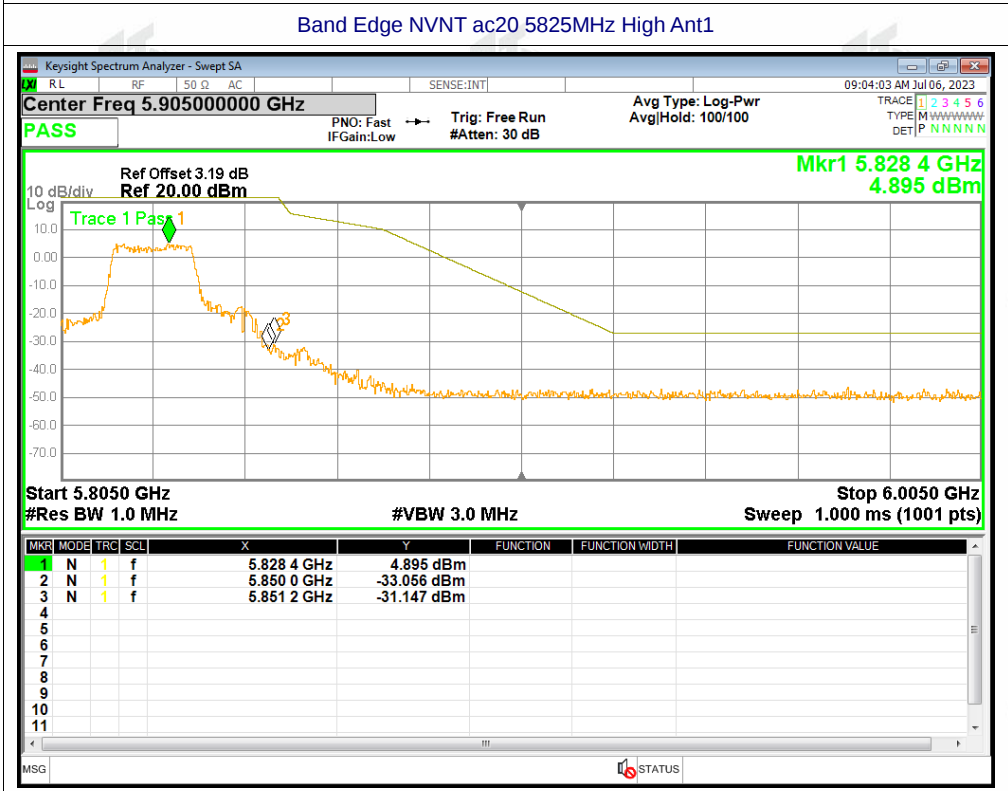
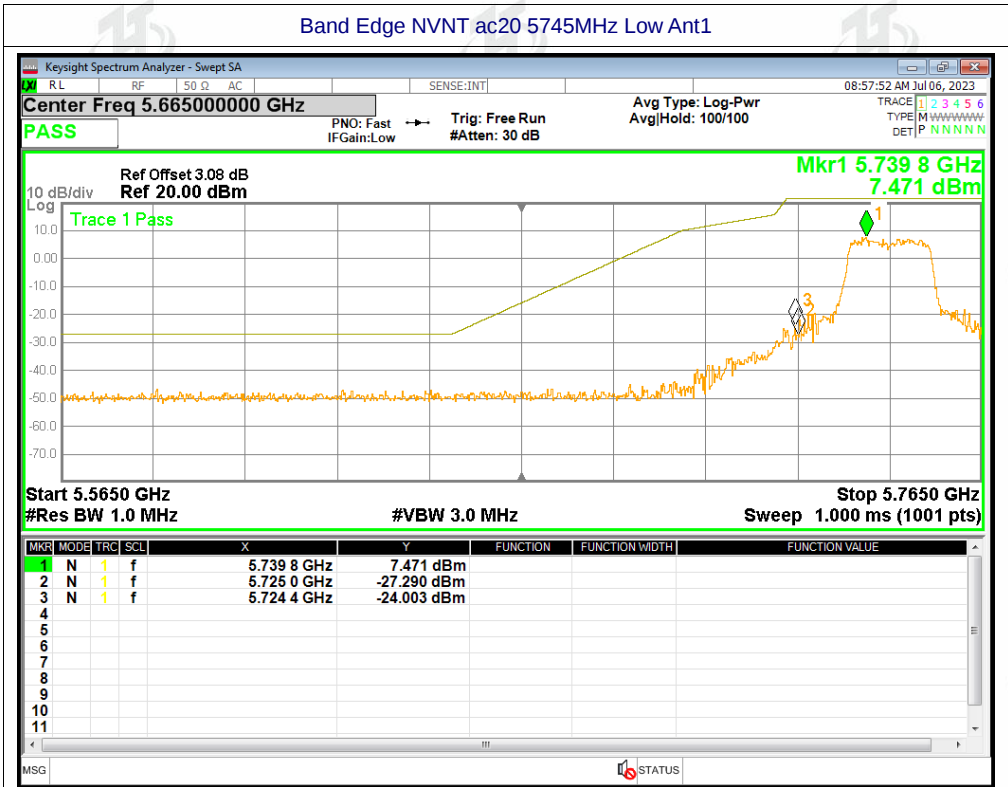
Note:

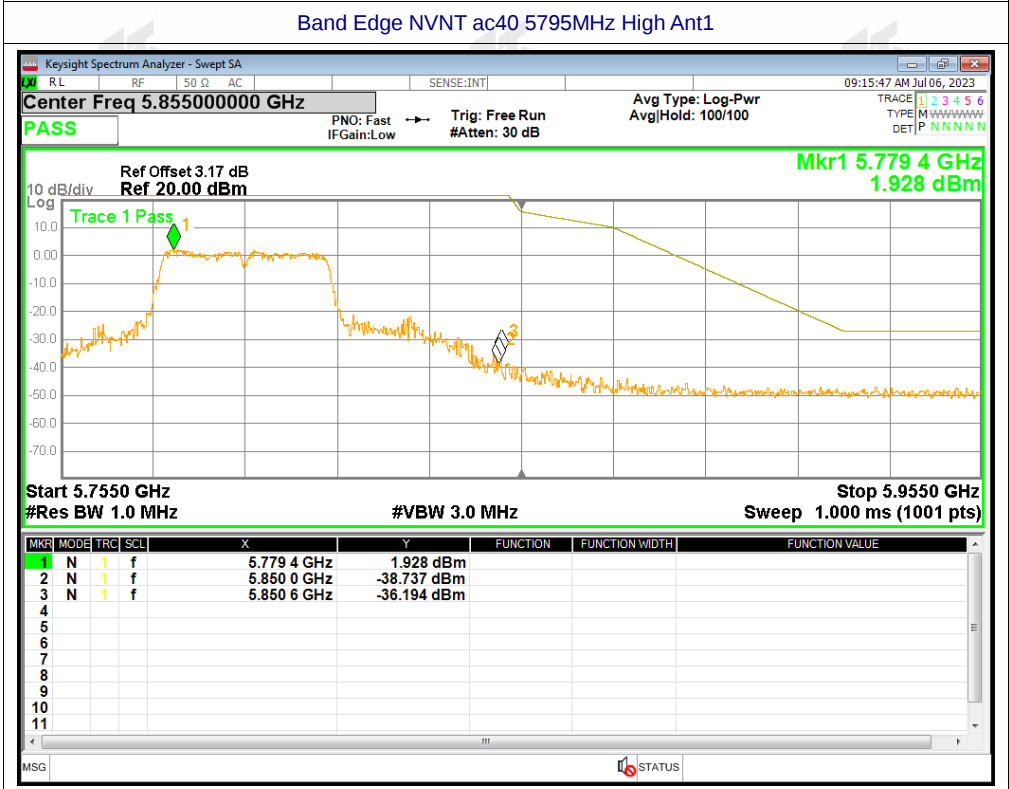
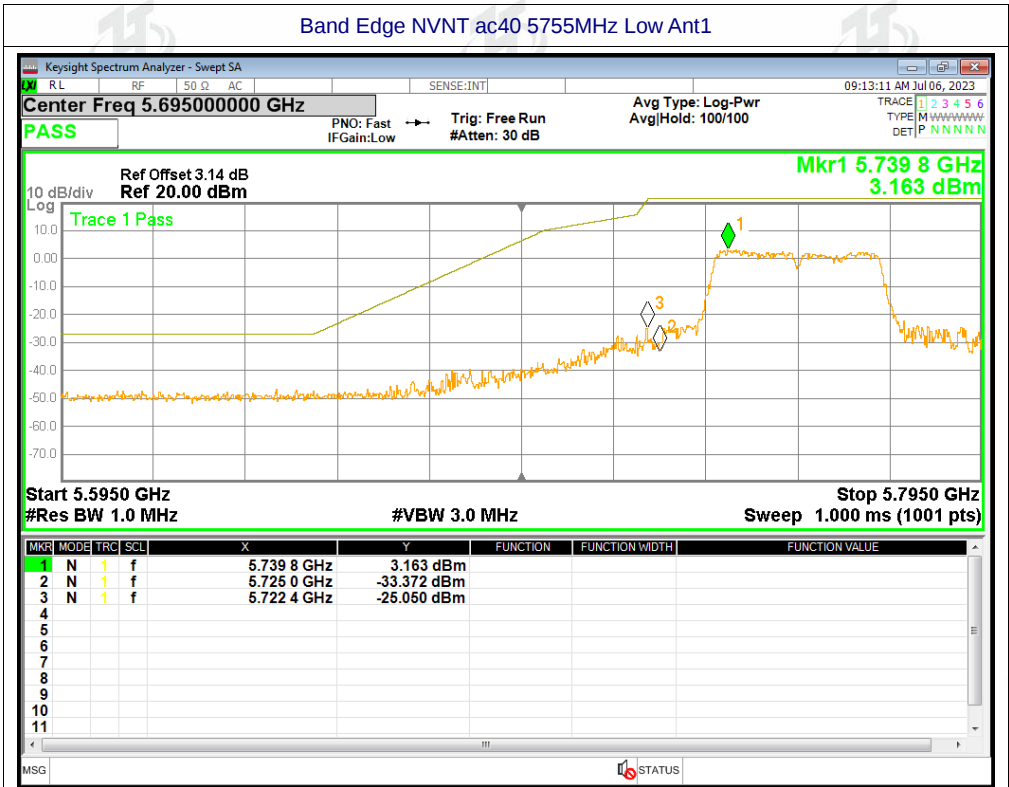
1. The Antenna Gain is compensated in the graph.











B7.Frequency Stability

Voltage							
Test Mode	Channel	Voltage [Vdc]	Temperature (°C)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
a	5745	NV	NT	-20000	-3.48	Within 5725-5850MH z	Pass
		LV	NT	-20000	-3.48		
		HV	NT	-20000	-3.48		
	5785	NV	NT	-20000	-3.46		
		LV	NT	-20000	-3.46		
		HV	NT	-20000	-3.46		
	5825	NV	NT	-20000	-3.43		
		LV	NT	-20000	-3.43		
		HV	NT	-20000	-3.43		
n20	5745	NV	NT	0	0		
		LV	NT	0	0		
		HV	NT	0	0		
	5785	NV	NT	-20000	-3.46		
		LV	NT	-20000	-3.46		
		HV	NT	-20000	-3.46		
	5825	NV	NT	-40000	-6.87		
		LV	NT	-40000	-6.87		
		HV	NT	-40000	-6.87		
ac20	5745	NV	NT	-60000	-10.44		
		LV	NT	-60000	-10.44		
		HV	NT	-60000	-10.44		
	5785	NV	NT	-40000	-6.91		
		LV	NT	-40000	-6.91		
		HV	NT	-40000	-6.91		
	5825	NV	NT	0	0		
		LV	NT	0	0		
		HV	NT	0	0		

n40	5755	NV	NT	0	0	Within 5725-5850MHz	Pass
		LV	NT	0	0		
		HV	NT	0	0		
	5795	NV	NT	0	0		
		LV	NT	0	0		
		HV	NT	0	0		
ac40	5755	NV	NT	-40000	-6.95		
		LV	NT	-40000	-6.95		
		HV	NT	-40000	-6.95		
	5795	NV	NT	-80000	-13.81		
		LV	NT	-80000	-13.81		
		HV	NT	-80000	-13.81		
ac80	5775	NV	NT	-80000	-13.85		
		LV	NT	-80000	-13.85		
		HV	NT	-80000	-13.85		

Temperature							
Test Mode	Channel	Voltage [Vdc]	Temperature (°C)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
a	5745	NV	-20	-20000	-3.48	Within 5725-5850MHz	Pass
		NV	-10	-20000	-3.48		
		NV	0	-20000	-3.48		
		NV	20	-20000	-3.48		
		NV	30	-20000	-3.48		
		NV	50	-20000	-3.48		
		NV	60	-20000	-3.48		
	5785	NV	-20	-20000	-3.46		
		NV	-10	-20000	-3.46		
		NV	0	-20000	-3.46		
		NV	20	-20000	-3.46		
		NV	30	-20000	-3.46		
		NV	50	-20000	-3.46		
		NV	60	-20000	-3.46		
	5825	NV	-20	-20000	-3.43		
		NV	-10	-20000	-3.43		
		NV	0	-20000	-3.43		
		NV	20	-20000	-3.43		
		NV	30	-20000	-3.43		
		NV	50	-20000	-3.43		
		NV	60	-20000	-3.43		
N20	5745	NV	-20	0	0		
		NV	-10	0	0		
		NV	0	0	0		
		NV	20	0	0		
		NV	30	0	0		
		NV	50	0	0		
		NV	60	0	0		
	5785	NV	-20	-20000	-3.46		
		NV	-10	-20000	-3.46		
		NV	0	-20000	-3.46		
		NV	20	-20000	-3.46		

		NV	30	-20000	-3.46		
		NV	50	-20000	-3.46		
		NV	60	-20000	-3.46		

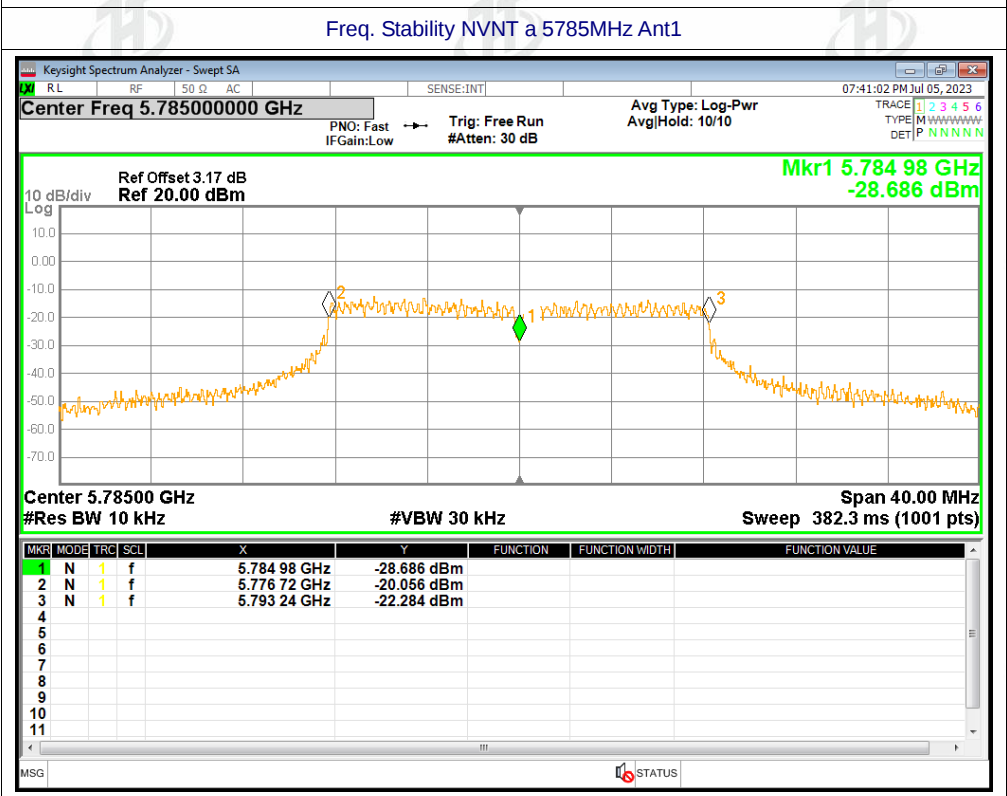
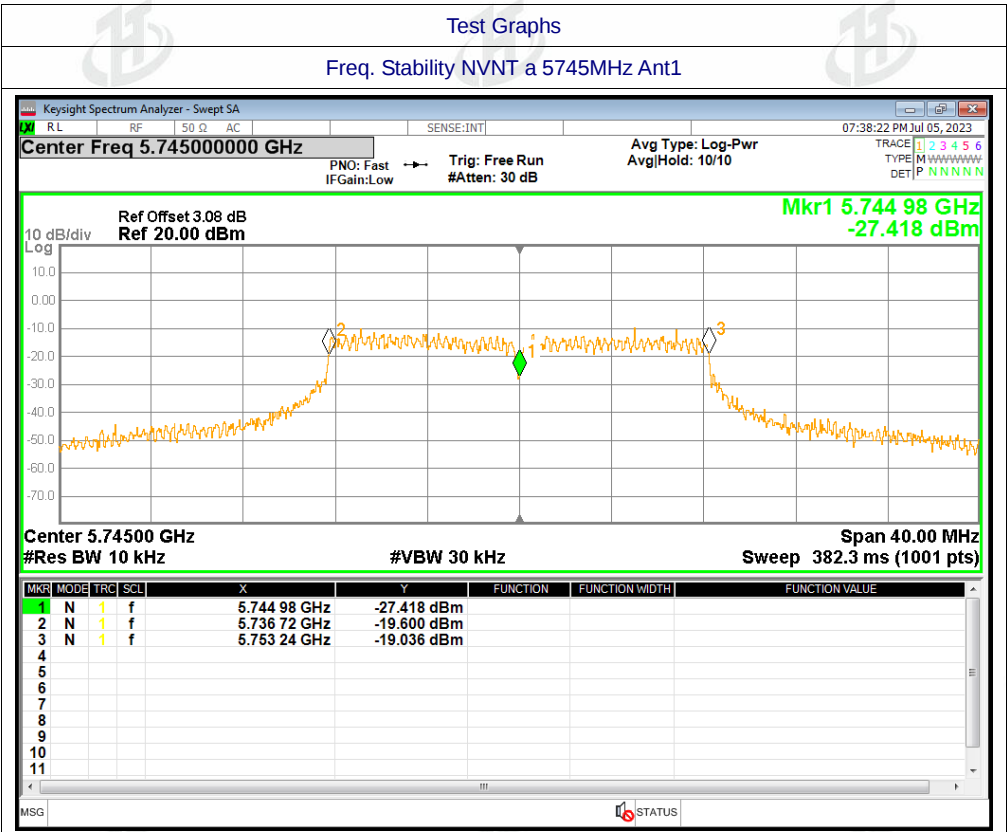
	5825	NV	-20	-40000	-6.87		
		NV	-10	-40000	-6.87		
		NV	0	-40000	-6.87		
		NV	20	-40000	-6.87		
		NV	30	-40000	-6.87		
		NV	50	-40000	-6.87		
		NV	60	-40000	-6.87		
ac20	5745	NV	-20	-60000	-10.44		
		NV	-10	-60000	-10.44		
		NV	0	-60000	-10.44		
		NV	20	-60000	-10.44		
		NV	30	-60000	-10.44		
		NV	50	-60000	-10.44		
		NV	60	-60000	-10.44		
	5785	NV	-20	-40000	-6.91		
		NV	-10	-40000	-6.91		
		NV	0	-40000	-6.91		
		NV	20	-40000	-6.91		
		NV	30	-40000	-6.91		
		NV	50	-40000	-6.91		
		NV	60	-40000	-6.91		
	5825	NV	-20	0	0		
		NV	-10	0	0		
		NV	0	0	0		
		NV	20	0	0		
		NV	30	0	0		
		NV	50	0	0		
		NV	60	0	0		
N40	5755	NV	-20	-40000	-6.95		
		NV	-10	-40000	-6.95		
		NV	0	-40000	-6.95		
		NV	20	-40000	-6.95		

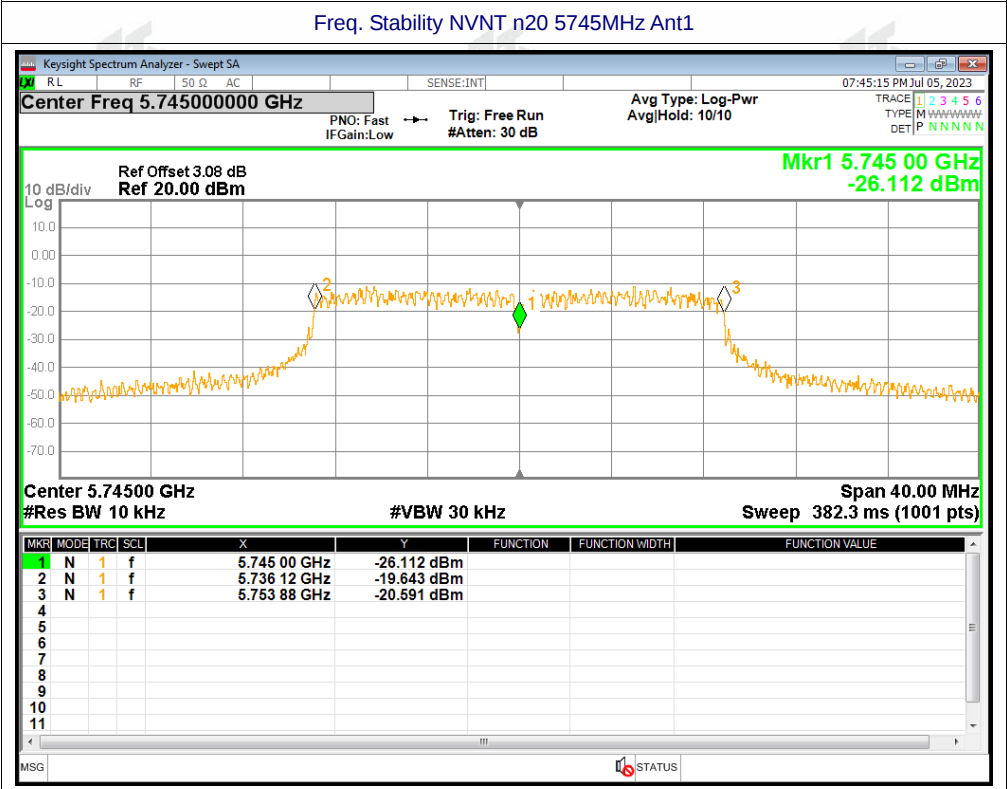
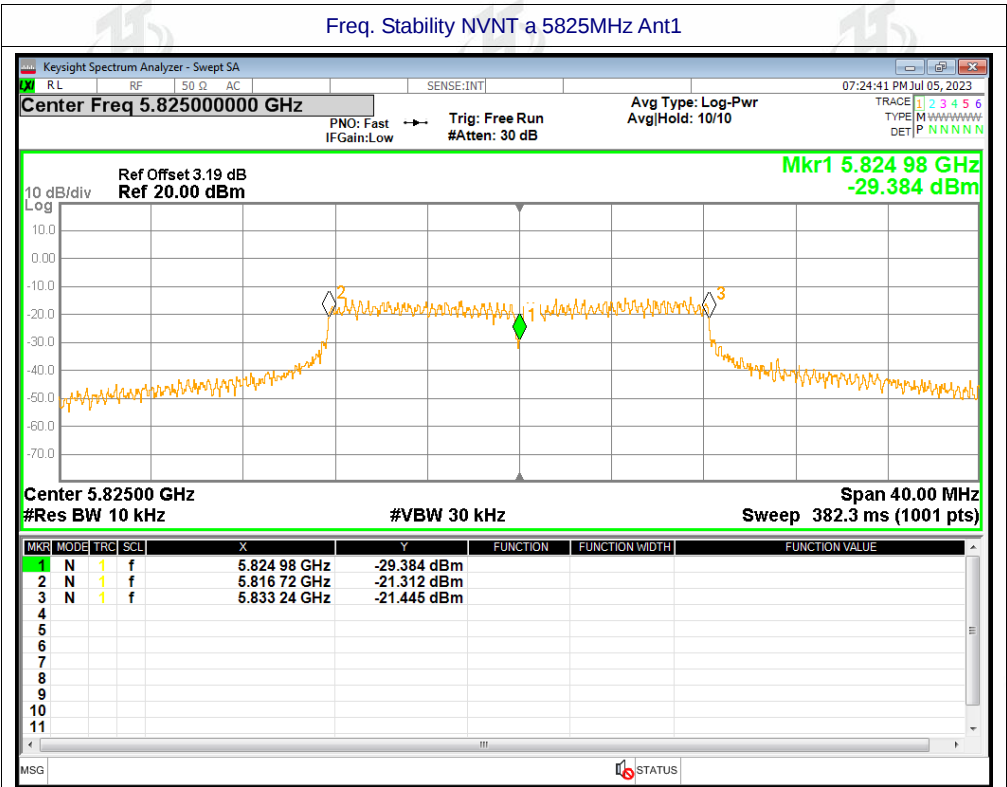
		NV	30	-40000	-6.95		
		NV	50	-40000	-6.95		
		NV	60	-40000	-6.95		

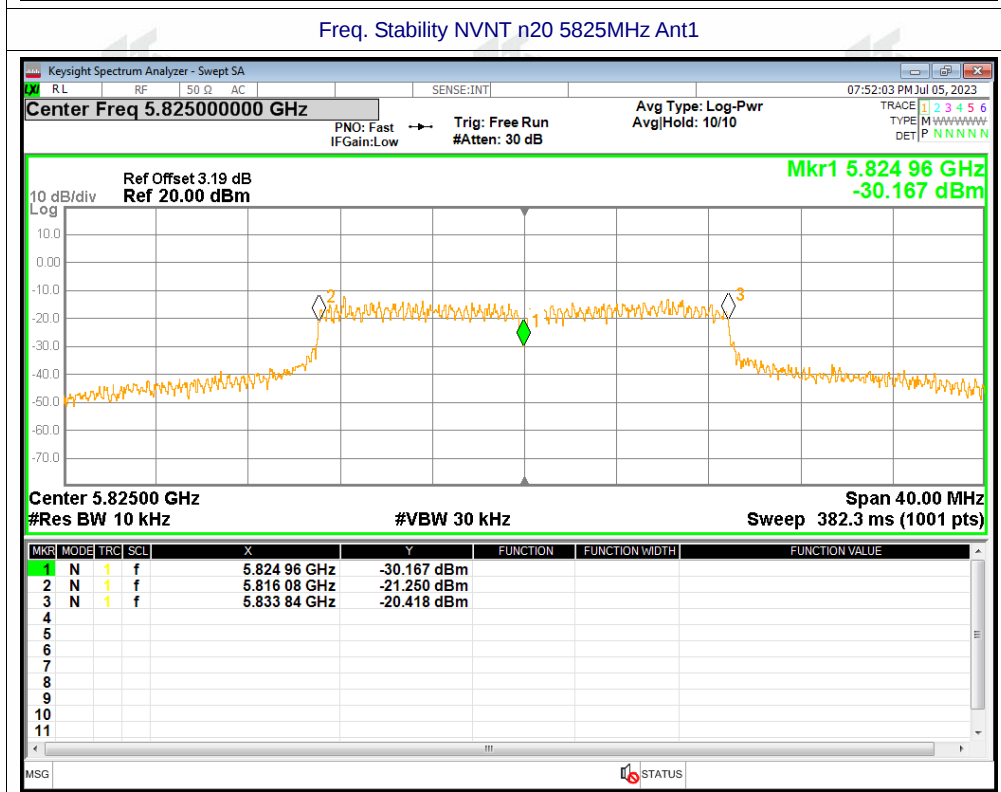
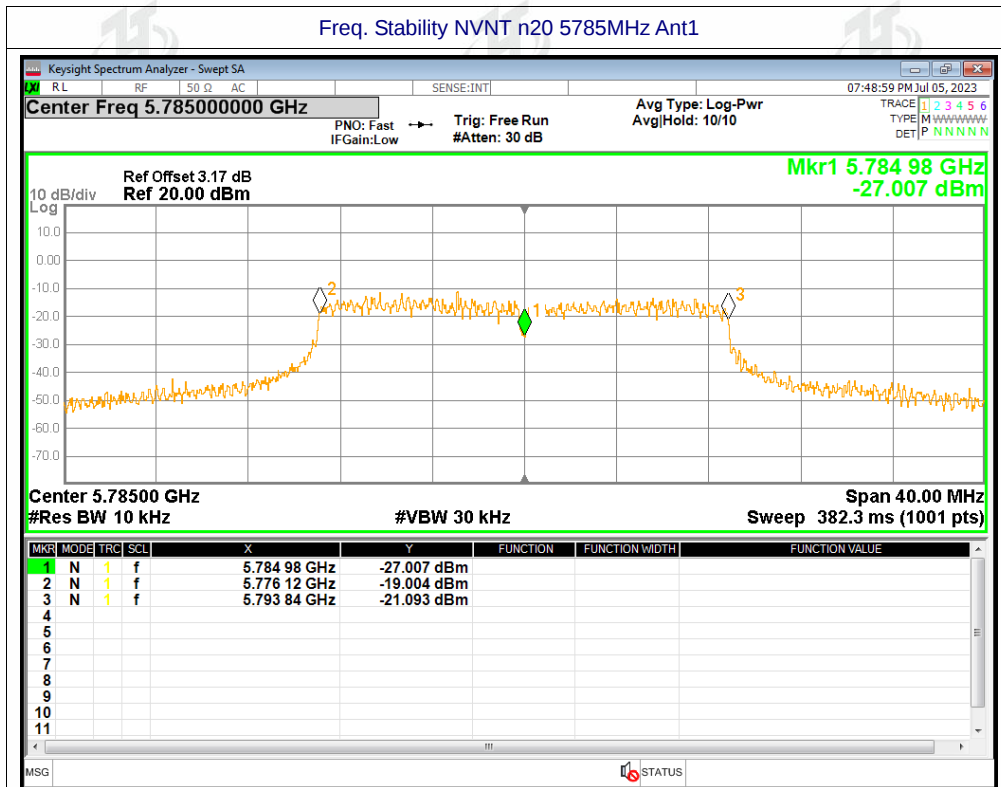
N40	5795	NV	-20	-40000	-6.9	Within 5725-5850MHz	Pass
		NV	-10	-40000	-6.9		
		NV	0	-40000	-6.9		
		NV	20	-40000	-6.9		
		NV	30	-40000	-6.9		
		NV	50	-40000	-6.9		
		NV	60	-40000	-6.9		
ac40	5755	NV	-20	-40000	-6.95		
		NV	-10	-40000	-6.95		
		NV	0	-40000	-6.95		
		NV	20	-40000	-6.95		
		NV	30	-40000	-6.95		
		NV	50	-40000	-6.95		
		NV	60	-40000	-6.95		
	5795	NV	-20	-80000	-13.81		
		NV	-10	-80000	-13.81		
		NV	0	-80000	-13.81		
		NV	20	-80000	-13.81		
		NV	30	-80000	-13.81		
		NV	50	-80000	-13.81		
		NV	60	-80000	-13.81		
ac80	5775	NV	-20	-80000	-13.85		
		NV	-10	-80000	-13.85		
		NV	0	-80000	-13.85		
		NV	20	-80000	-13.85		
		NV	30	-80000	-13.85		
		NV	50	-80000	-13.85		
		NV	60	-80000	-13.85		

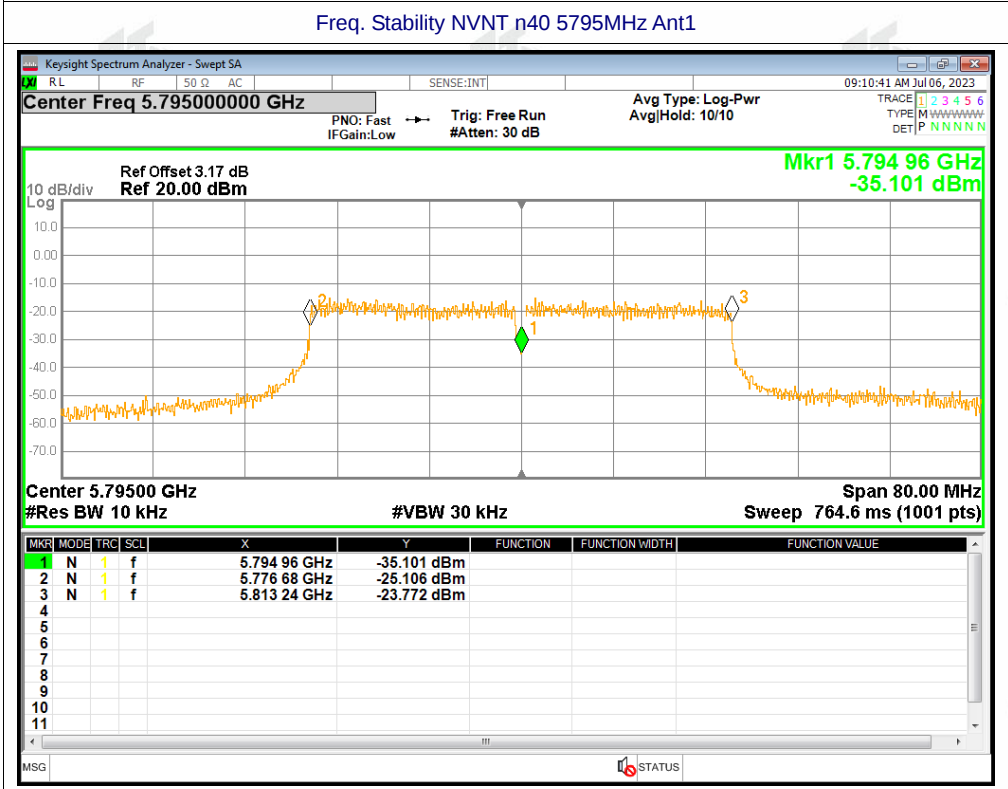
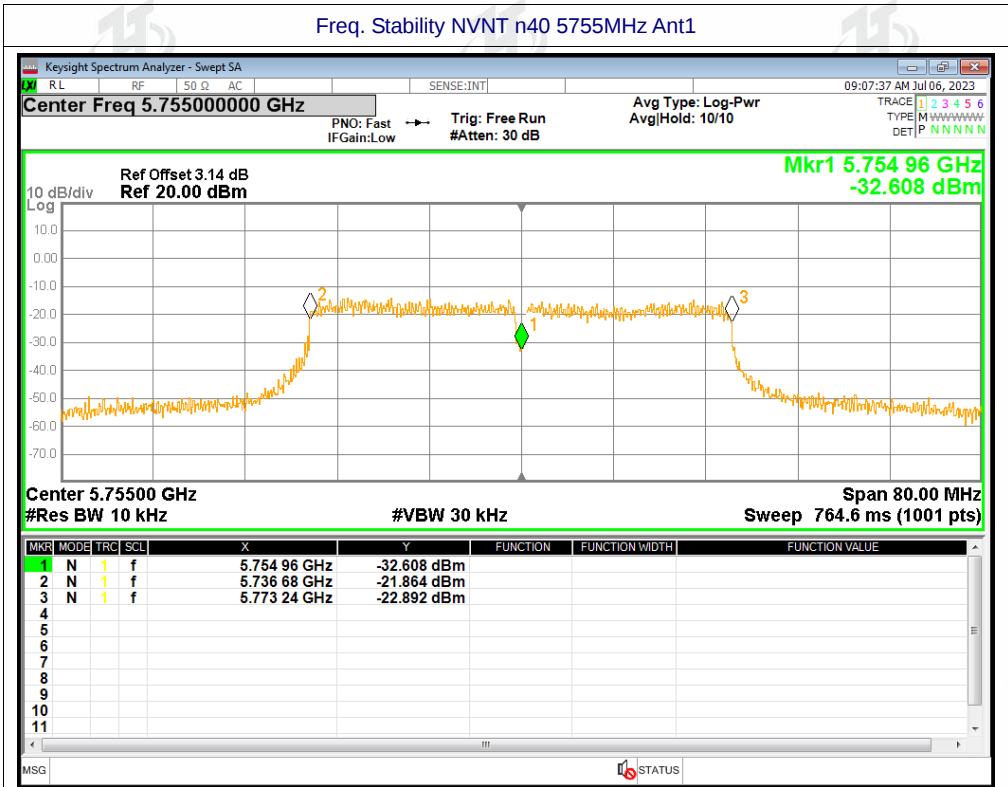
Note: Test temperature: -20° to + 60°

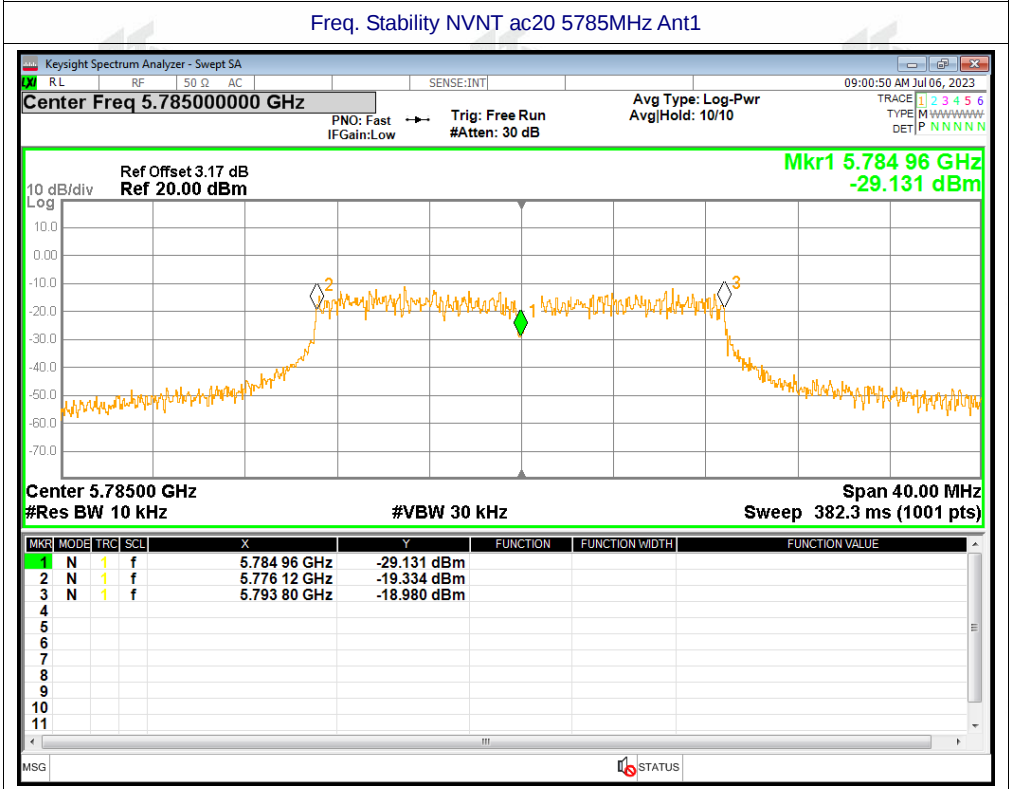
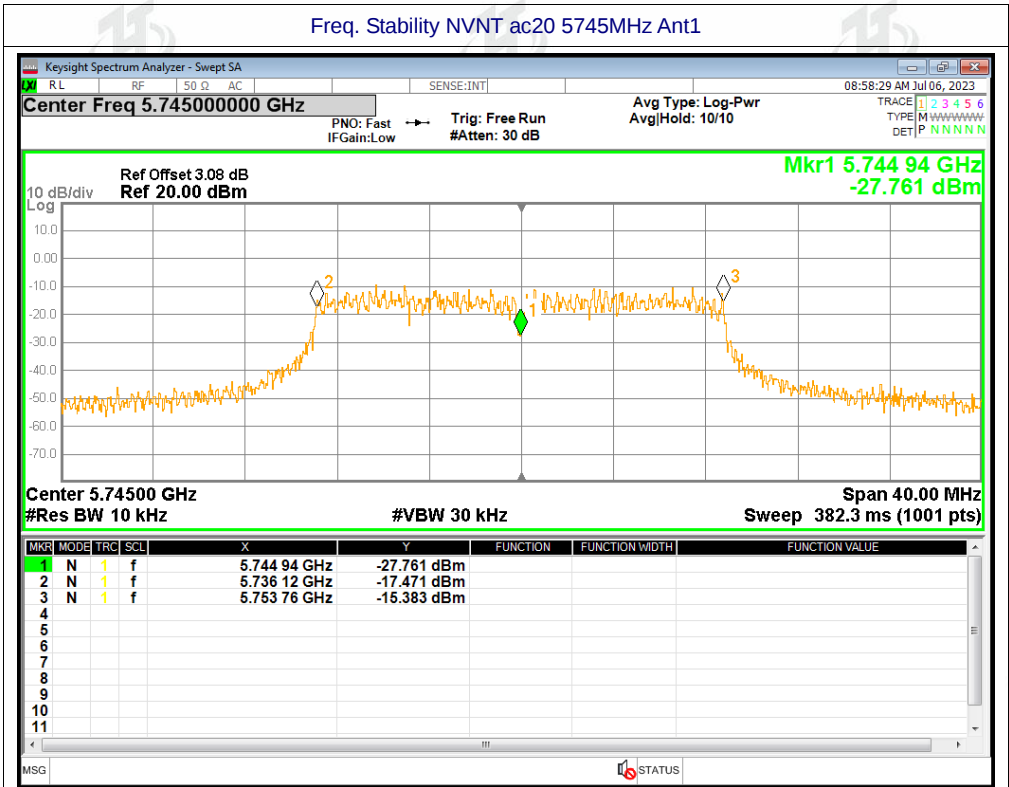
At room temperature, the test results are the worst, only reflecting the test results at room temperature.

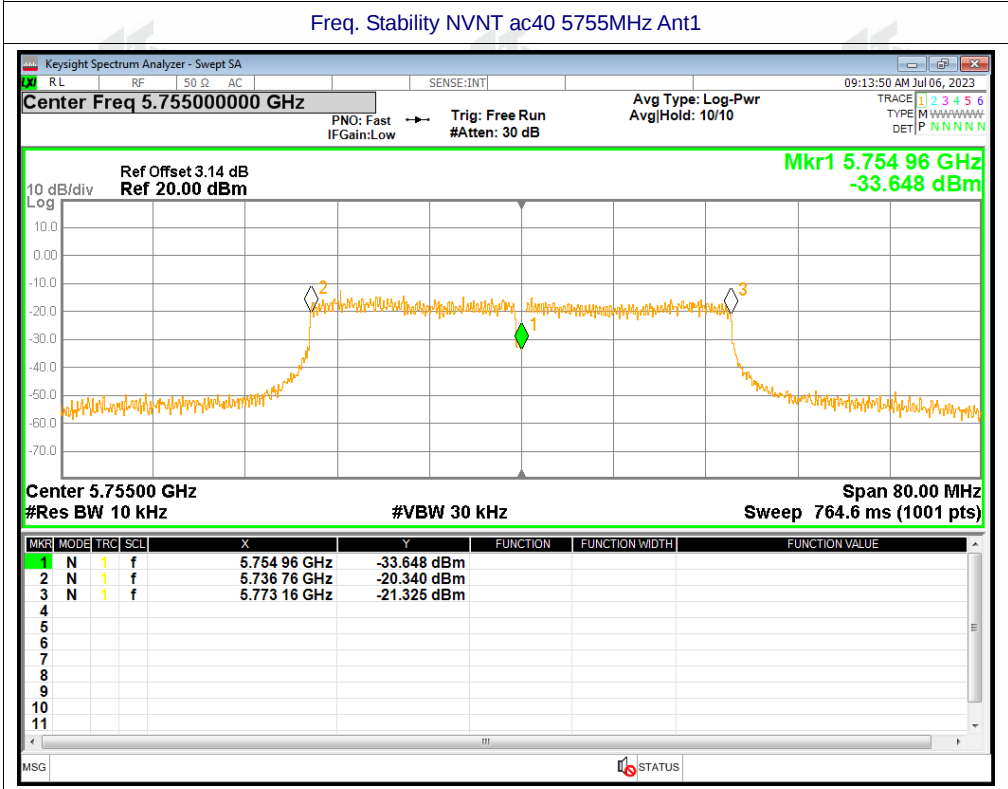
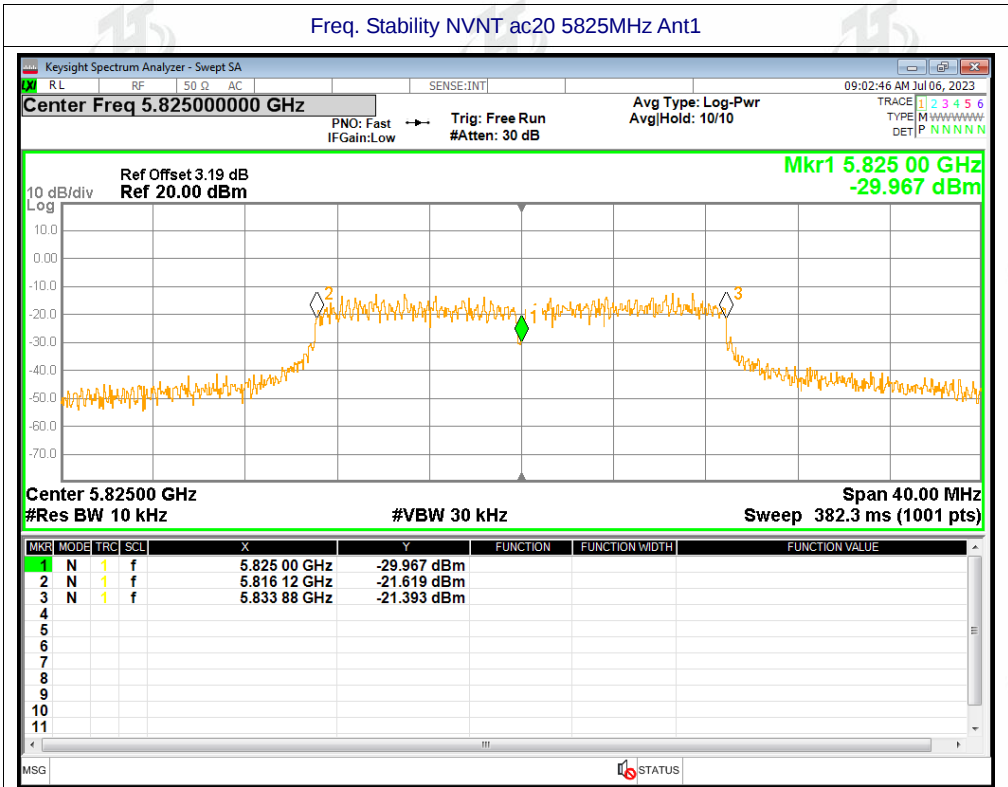


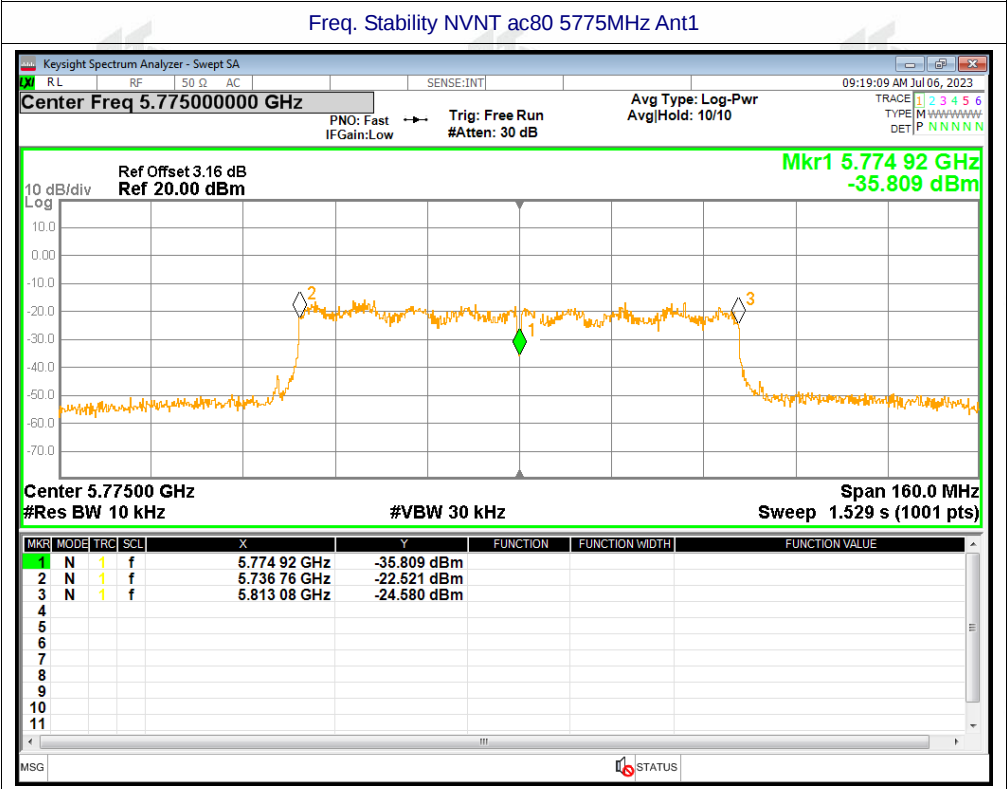
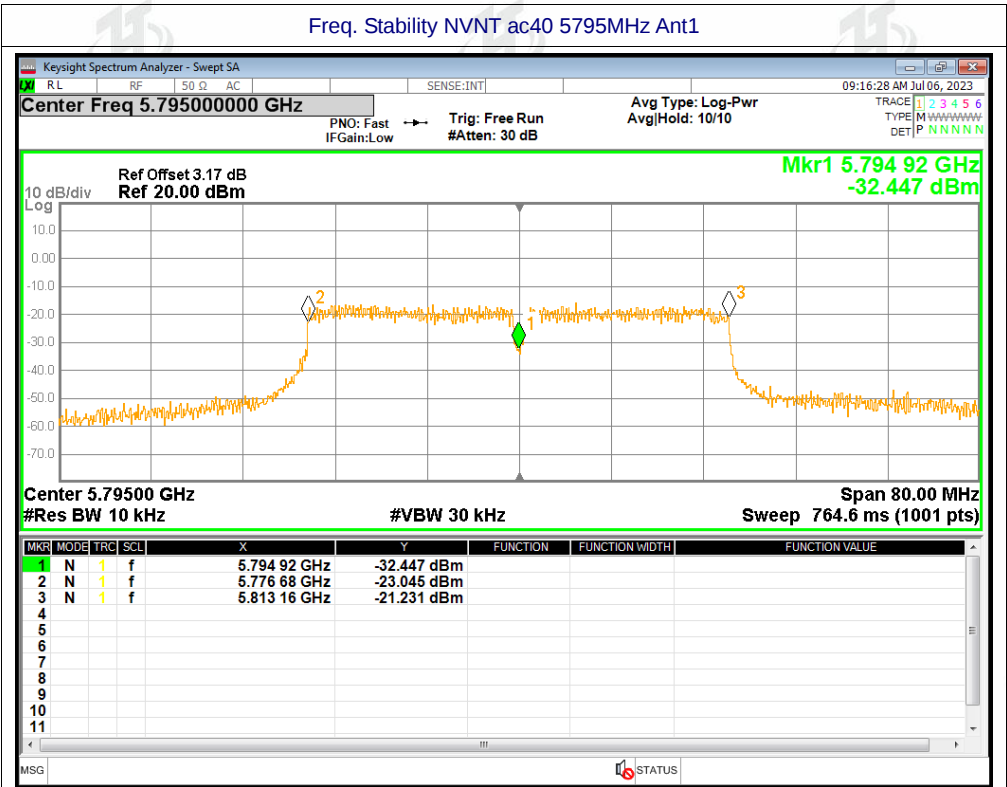












B8.Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Frequency (GHz)	Max Value (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	0.3-1	-36.52	-27	pass
			1-5.575	-35.85	-27	pass
			5.575-5.625	-34.79	-27 to 10	pass
			5.625-5.645	-34.03	10 to 15.6	pass
			5.645-5.650	-30.57	15.6 to 27	pass
			5.850-5.855	-30.46	27 to 15.6	pass
			5.855-5.875	-34.16	15.6 to 10	pass
			5.875-5.925	-34.51	10 to -27	pass
			5.925-27G	-36.02	-27	pass
		5825	0.3-1	-36.06	-27	pass
			1-5.575	-35.63	-27	pass
			5.575-5.625	-34.49	-27 to 10	pass
			5.625-5.645	-34.16	10 to 15.6	pass
			5.645-5.650	-30.59	15.6 to 27	pass
			5.850-5.855	-30.38	27 to 15.6	pass
			5.855-5.875	-34.41	15.6 to 10	pass
			5.875-5.925	-34.59	10 to -27	pass
			5.925-27G	-36.52	-27	pass

NOTE: All the modes had been tested, just worst case(802.11 a) recorded in the report.