

Appendix A

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: Smart Ground Lights

Test Model: BYR-OGSL-ST-12D-28M, BYR-GD-ST-15D-15M

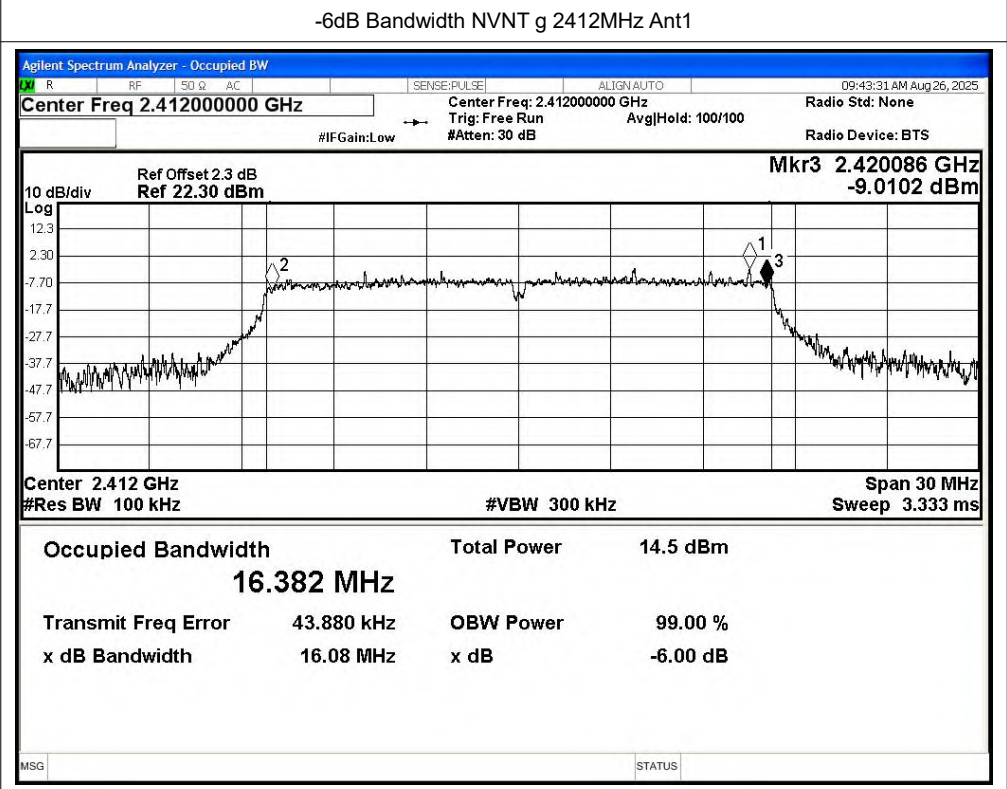
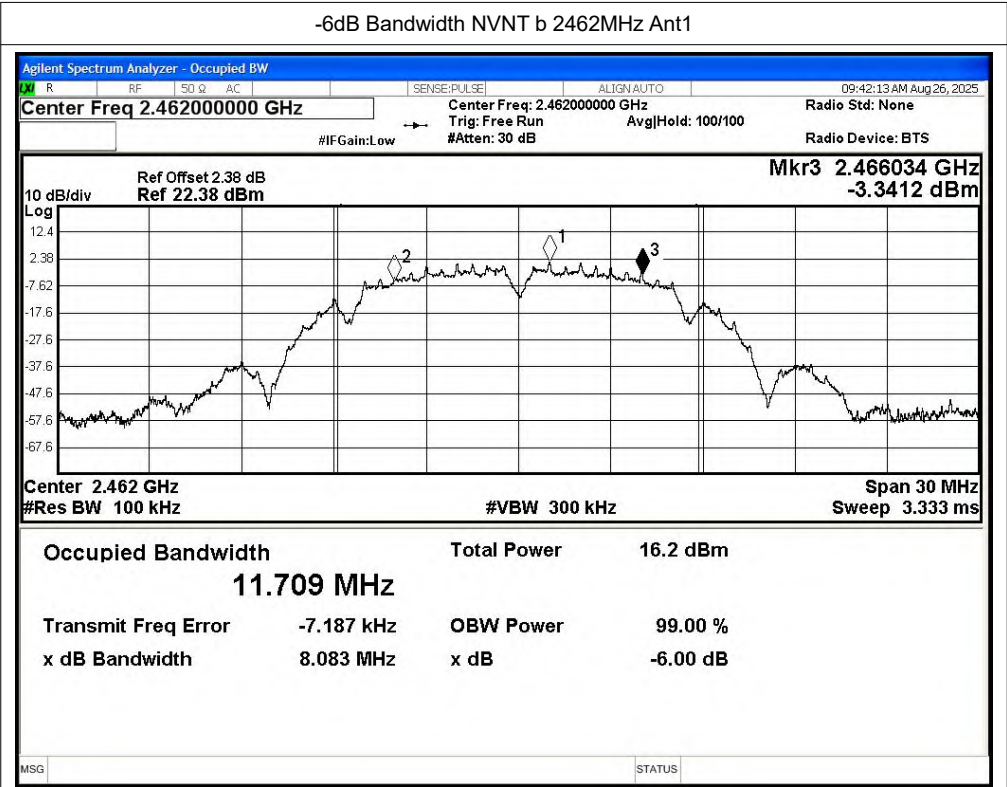
Environmental Conditions

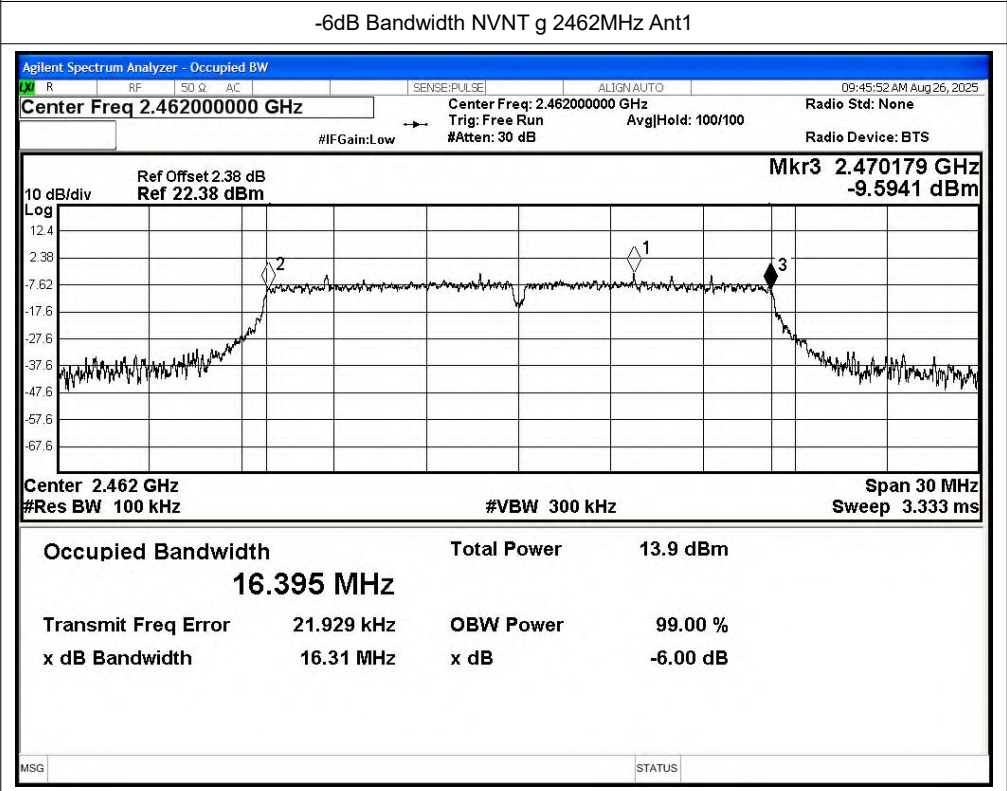
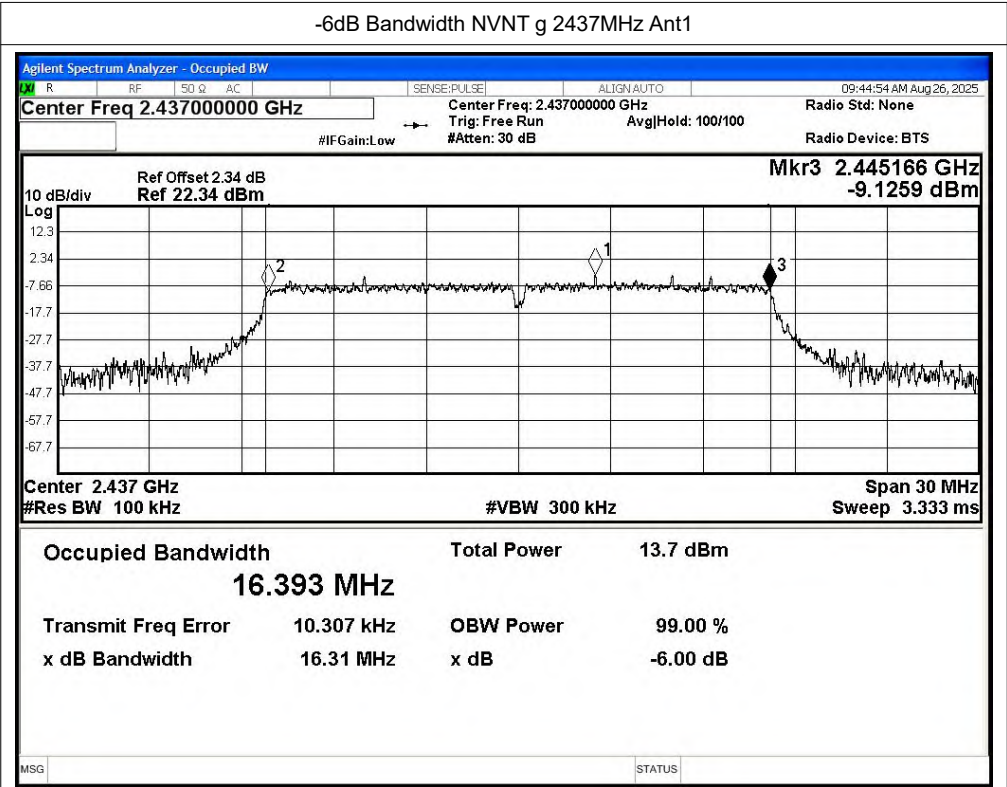
Temperature:	23.8° C
Relative Humidity:	52.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Jone Lee
Supervised by:	Fengliu Tang

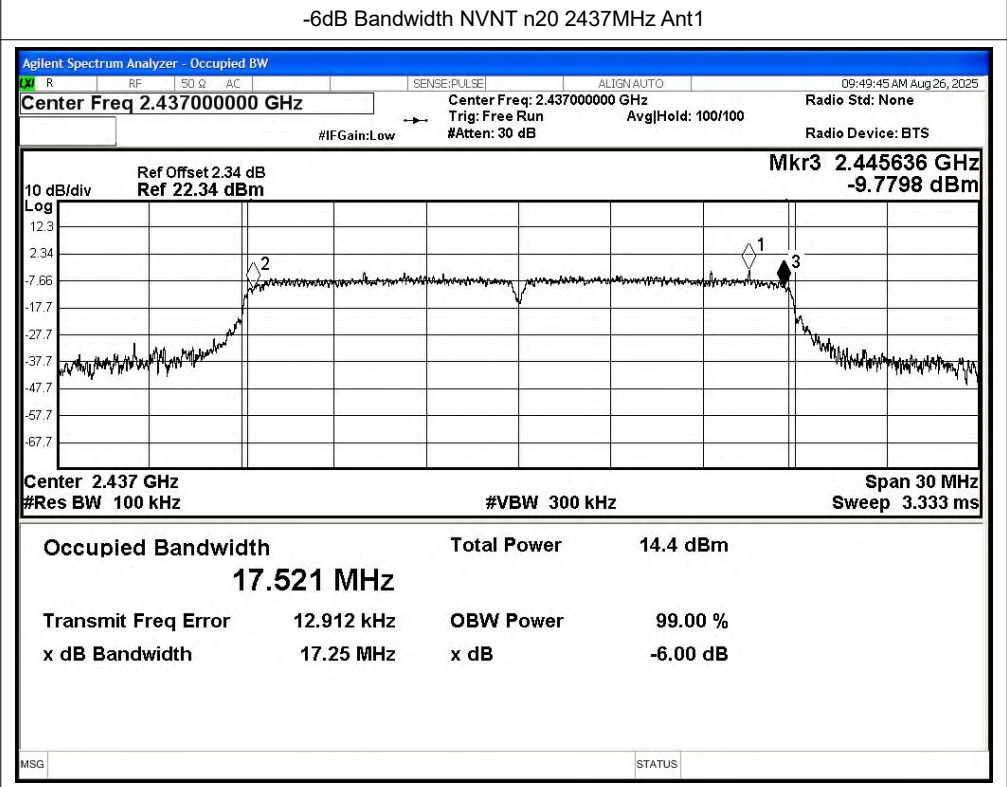
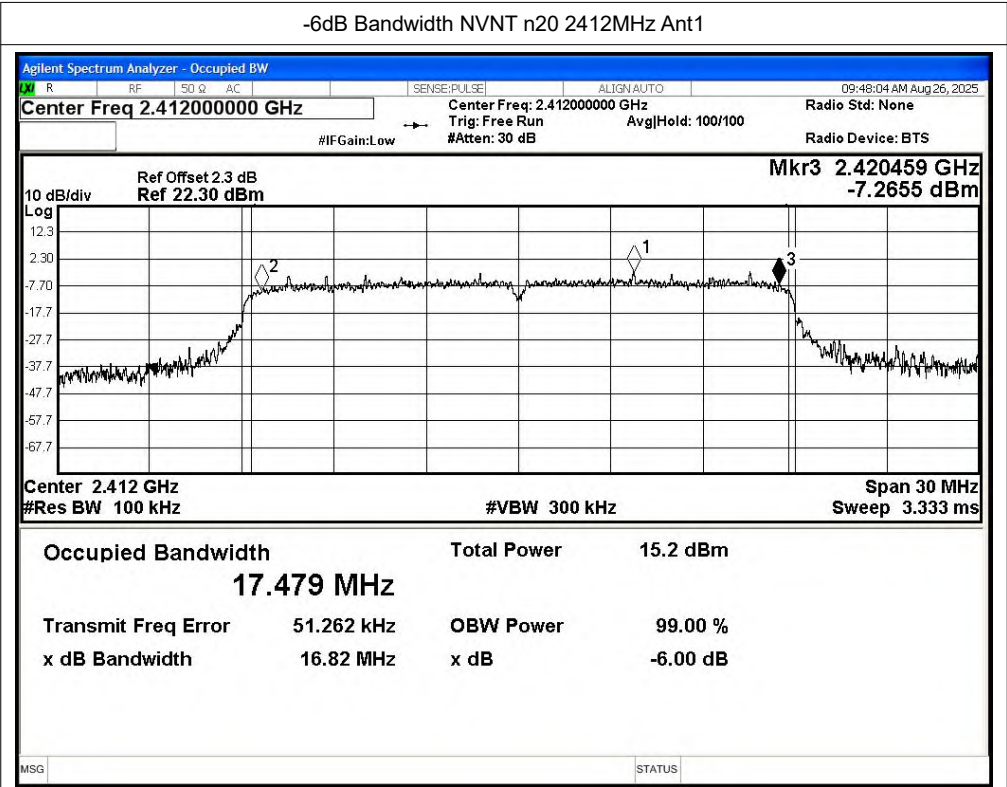
A.1 -6dB Bandwidth

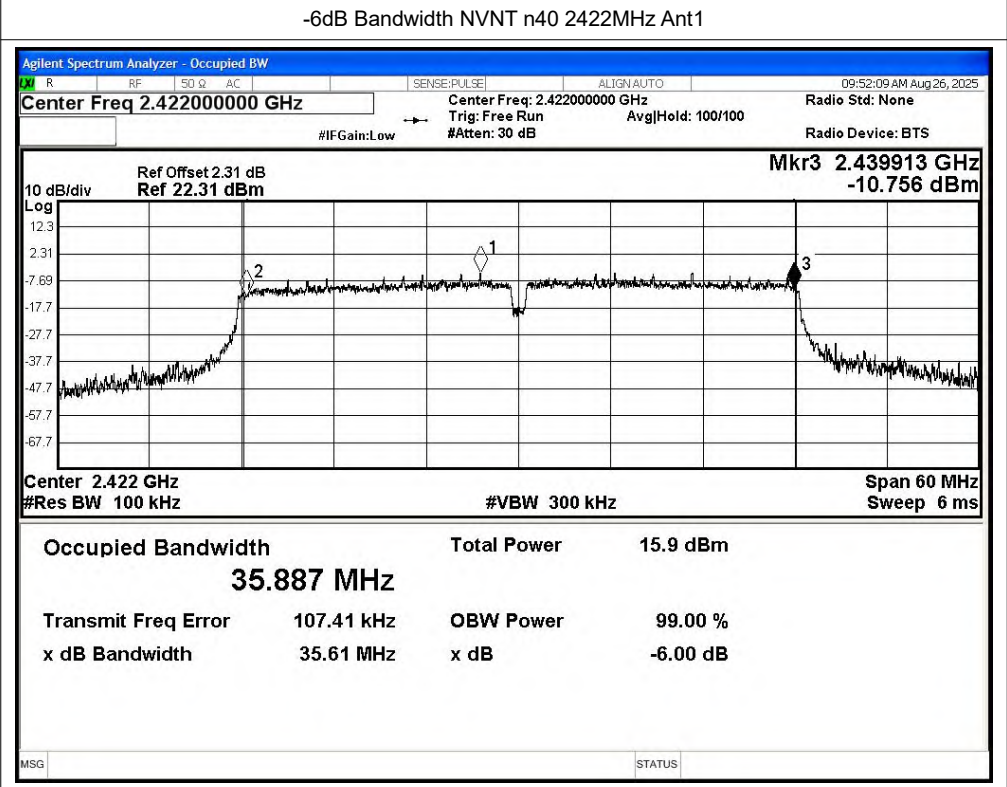
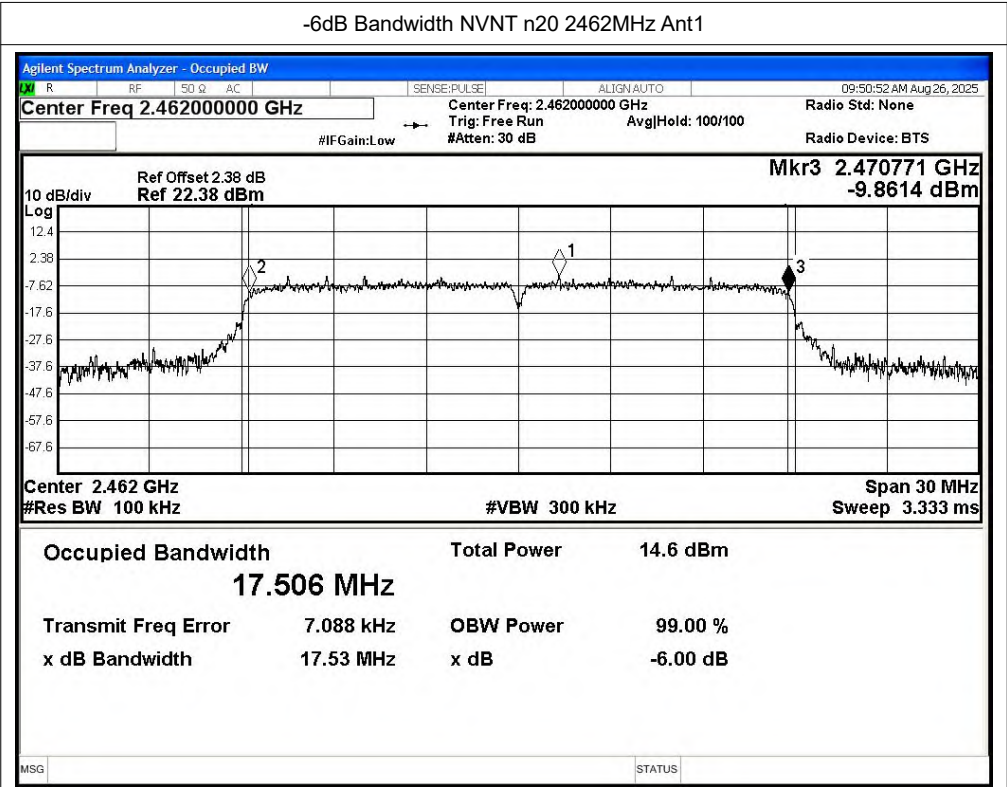
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	8.124	≥ 0.5	Pass
NVNT	b	2437	Ant1	8.546	≥ 0.5	Pass
NVNT	b	2462	Ant1	8.083	≥ 0.5	Pass
NVNT	g	2412	Ant1	16.084	≥ 0.5	Pass
NVNT	g	2437	Ant1	16.311	≥ 0.5	Pass
NVNT	g	2462	Ant1	16.314	≥ 0.5	Pass
NVNT	n20	2412	Ant1	16.815	≥ 0.5	Pass
NVNT	n20	2437	Ant1	17.245	≥ 0.5	Pass
NVNT	n20	2462	Ant1	17.528	≥ 0.5	Pass
NVNT	n40	2422	Ant1	35.611	≥ 0.5	Pass
NVNT	n40	2437	Ant1	35.125	≥ 0.5	Pass
NVNT	n40	2452	Ant1	35.464	≥ 0.5	Pass

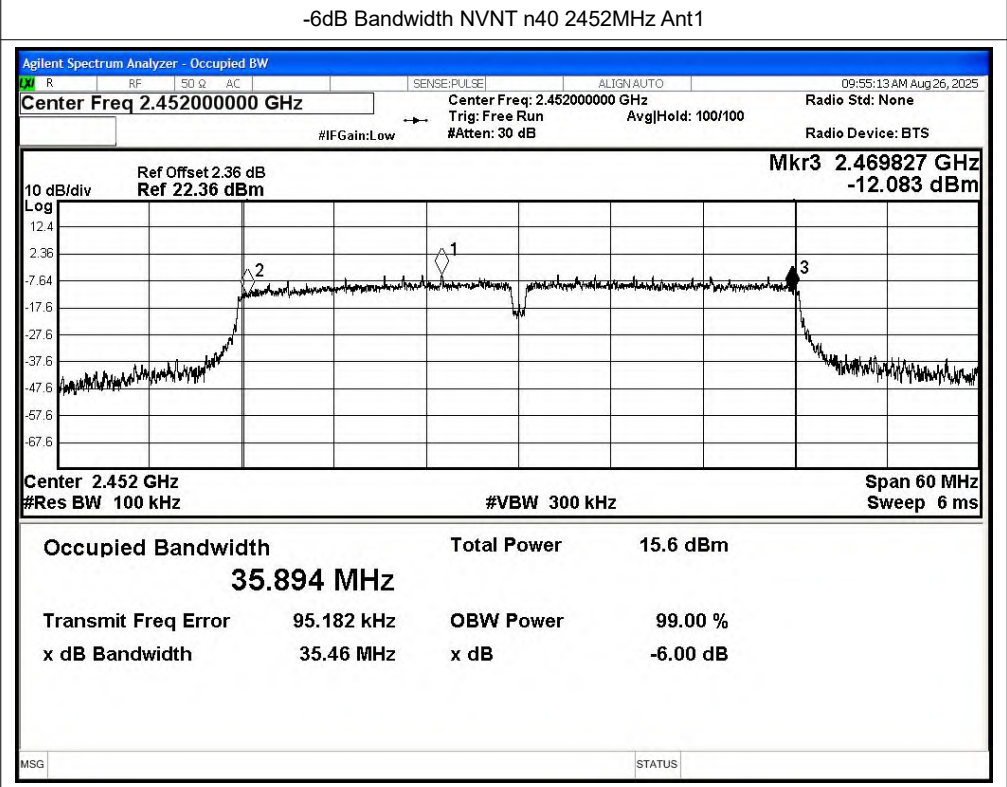
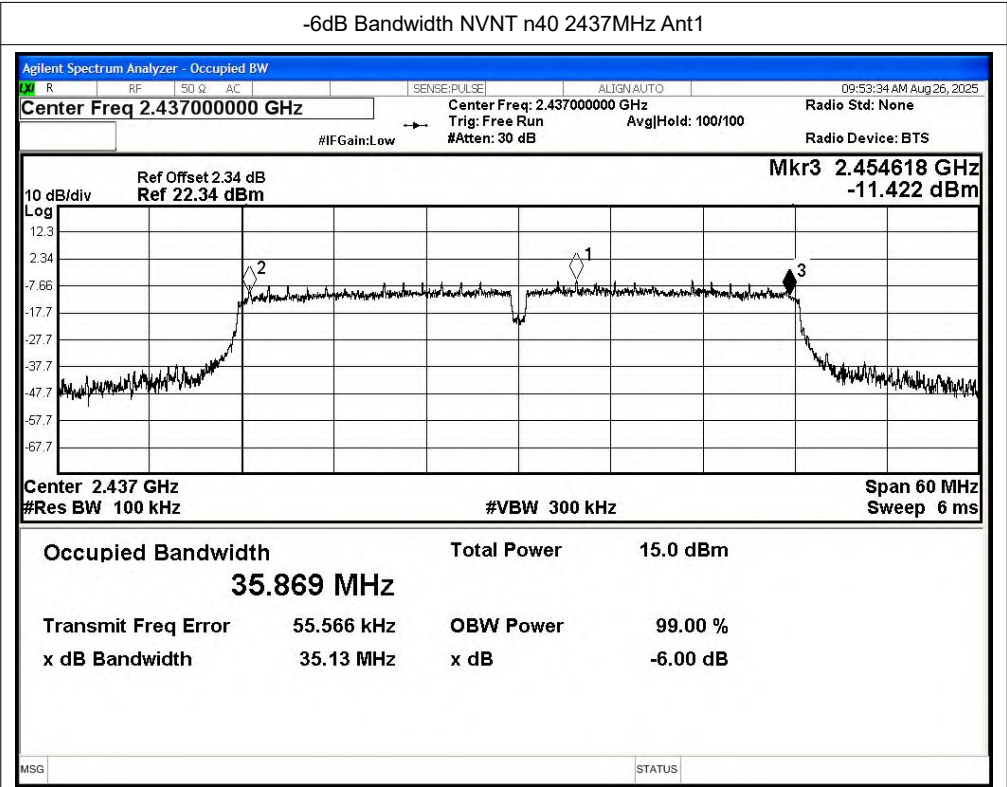












A.2 Maximum Peak Conducted Output Power

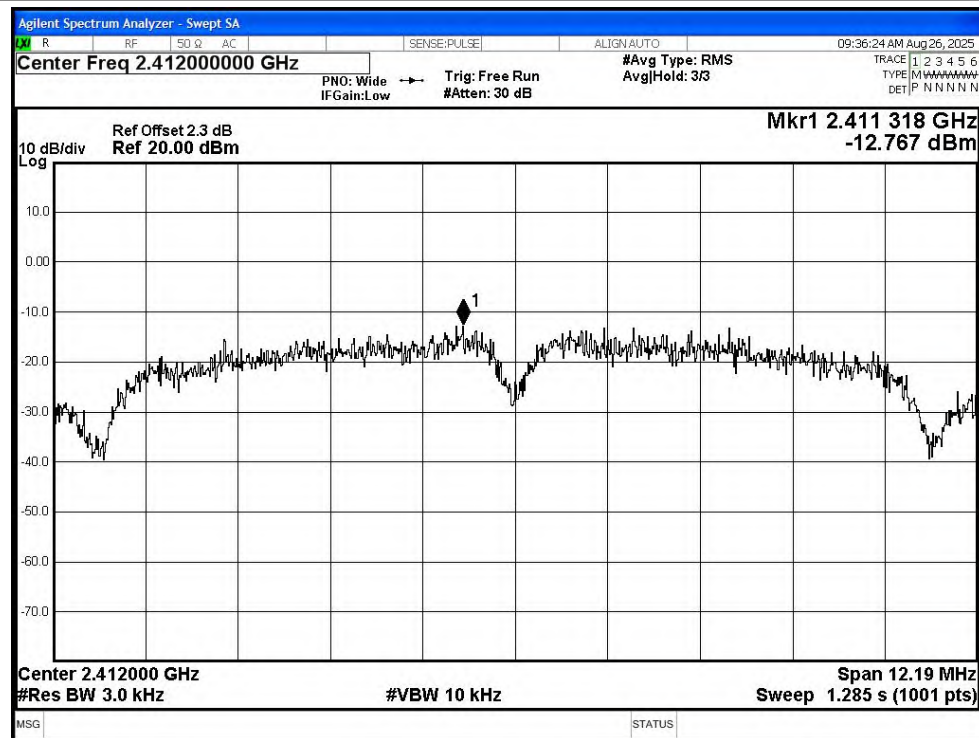
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	11.70	30	Pass
NVNT	b	2437	Ant1	10.76	30	Pass
NVNT	b	2462	Ant1	11.16	30	Pass
NVNT	g	2412	Ant1	13.19	30	Pass
NVNT	g	2437	Ant1	12.47	30	Pass
NVNT	g	2462	Ant1	12.70	30	Pass
NVNT	n20	2412	Ant1	13.83	30	Pass
NVNT	n20	2437	Ant1	12.92	30	Pass
NVNT	n20	2462	Ant1	13.15	30	Pass
NVNT	n40	2422	Ant1	14.30	30	Pass
NVNT	n40	2437	Ant1	13.24	30	Pass
NVNT	n40	2452	Ant1	13.89	30	Pass

A.3 Maximum Power Spectral Density Level

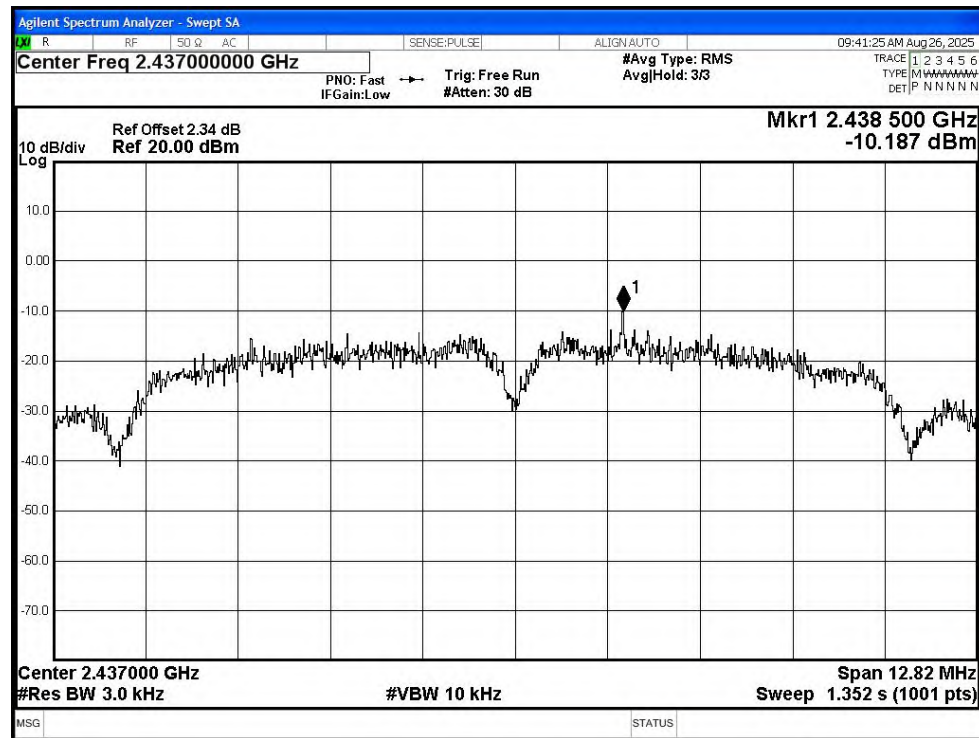
Condition	Mode	Frequency (MHz)	Antenna	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	b	2412	Ant1	-12.77	8	Pass
NVNT	b	2437	Ant1	-10.19	8	Pass
NVNT	b	2462	Ant1	-13.81	8	Pass
NVNT	g	2412	Ant1	-16.2	8	Pass
NVNT	g	2437	Ant1	-18.01	8	Pass
NVNT	g	2462	Ant1	-18.07	8	Pass
NVNT	n20	2412	Ant1	-17.18	8	Pass
NVNT	n20	2437	Ant1	-17.11	8	Pass
NVNT	n20	2462	Ant1	-17.19	8	Pass
NVNT	n40	2422	Ant1	-17.45	8	Pass
NVNT	n40	2437	Ant1	-19.97	8	Pass
NVNT	n40	2452	Ant1	-19.2	8	Pass

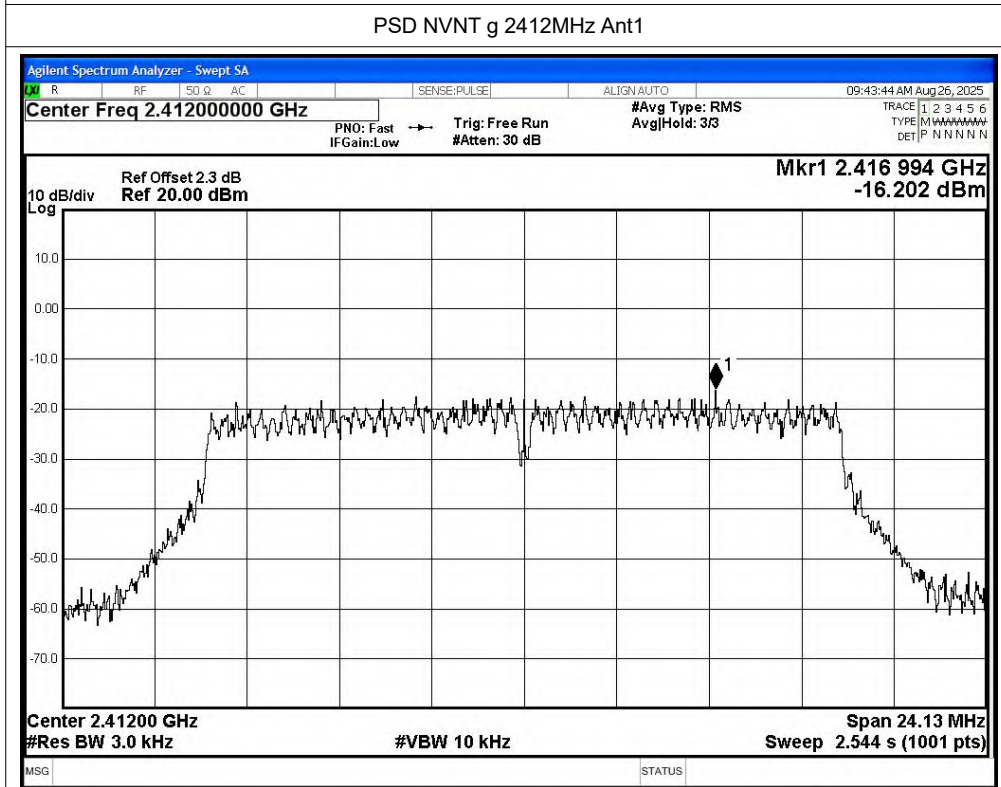
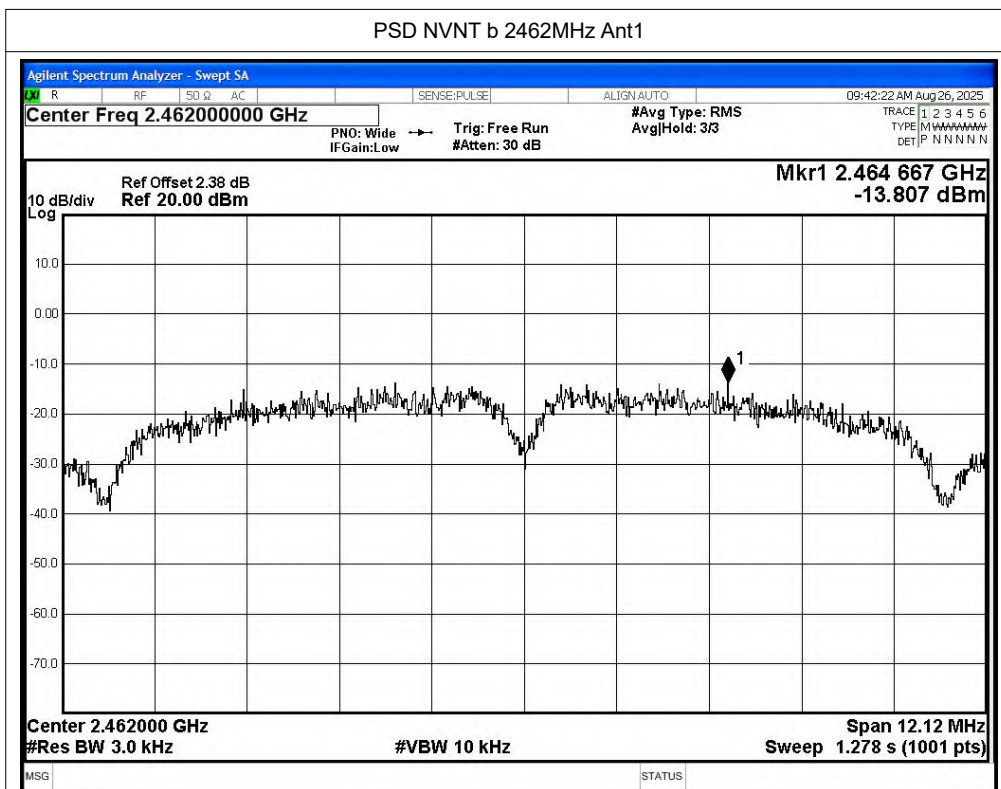
Test Graphs

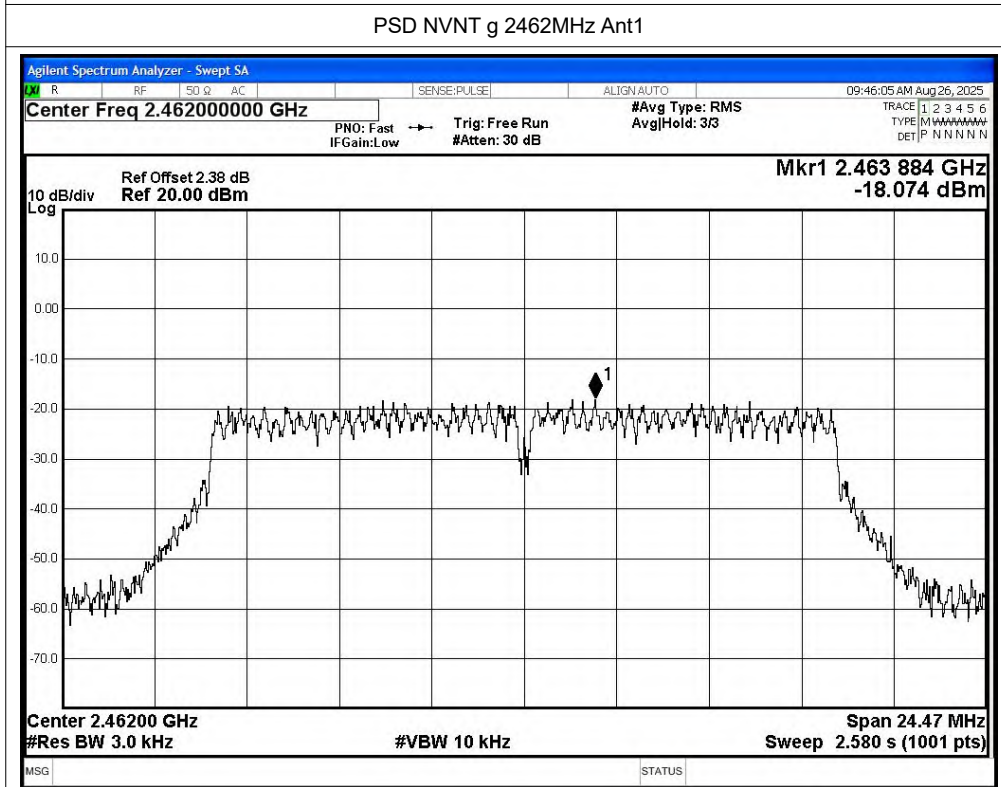
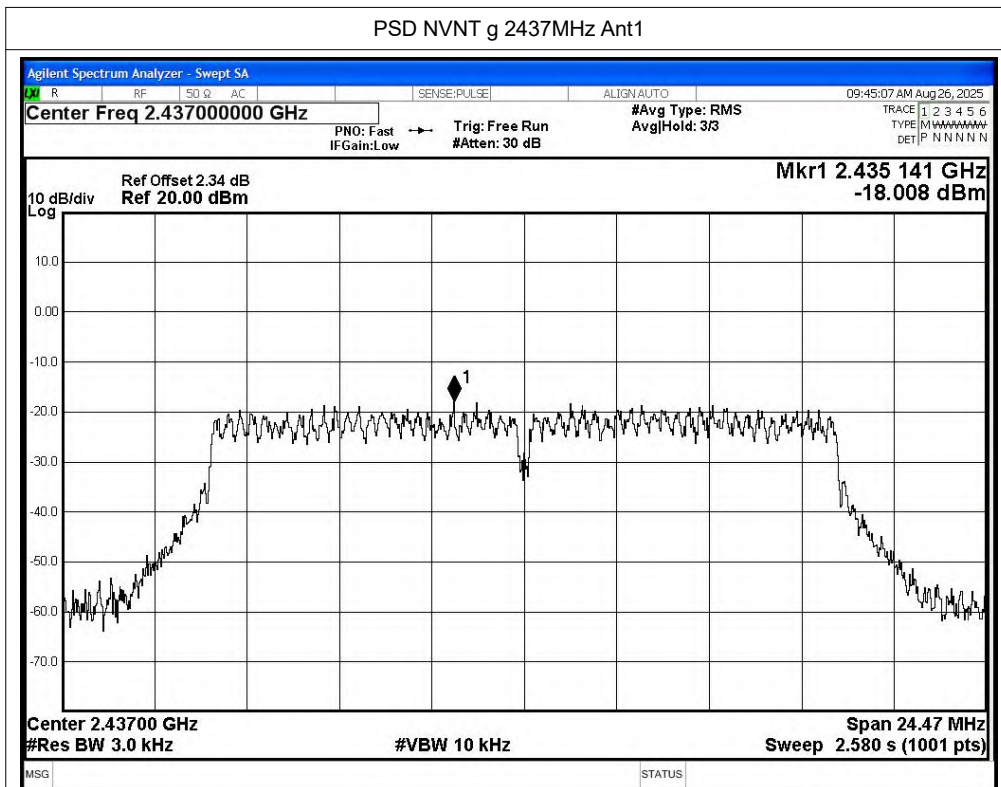
PSD NVNT b 2412MHz Ant1

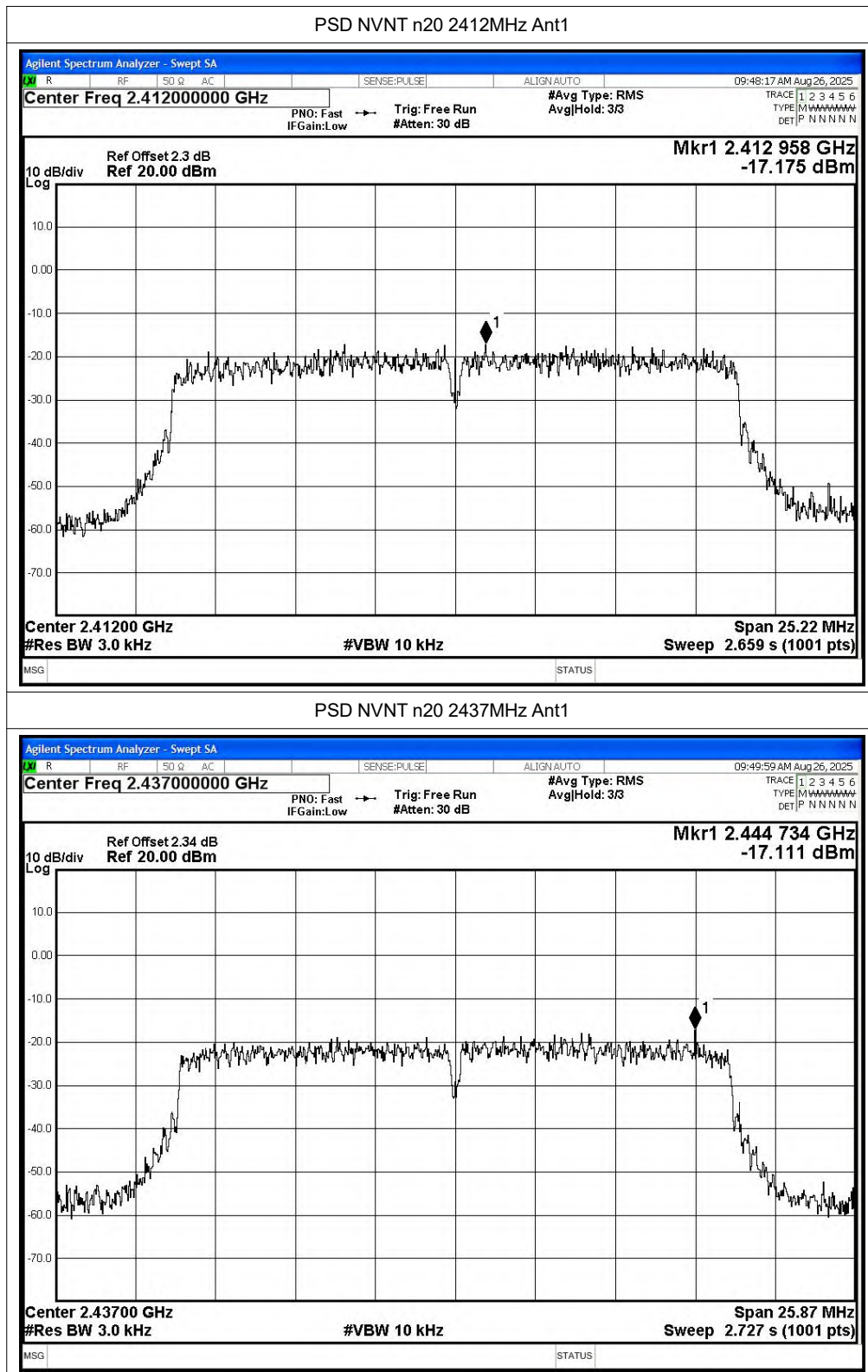


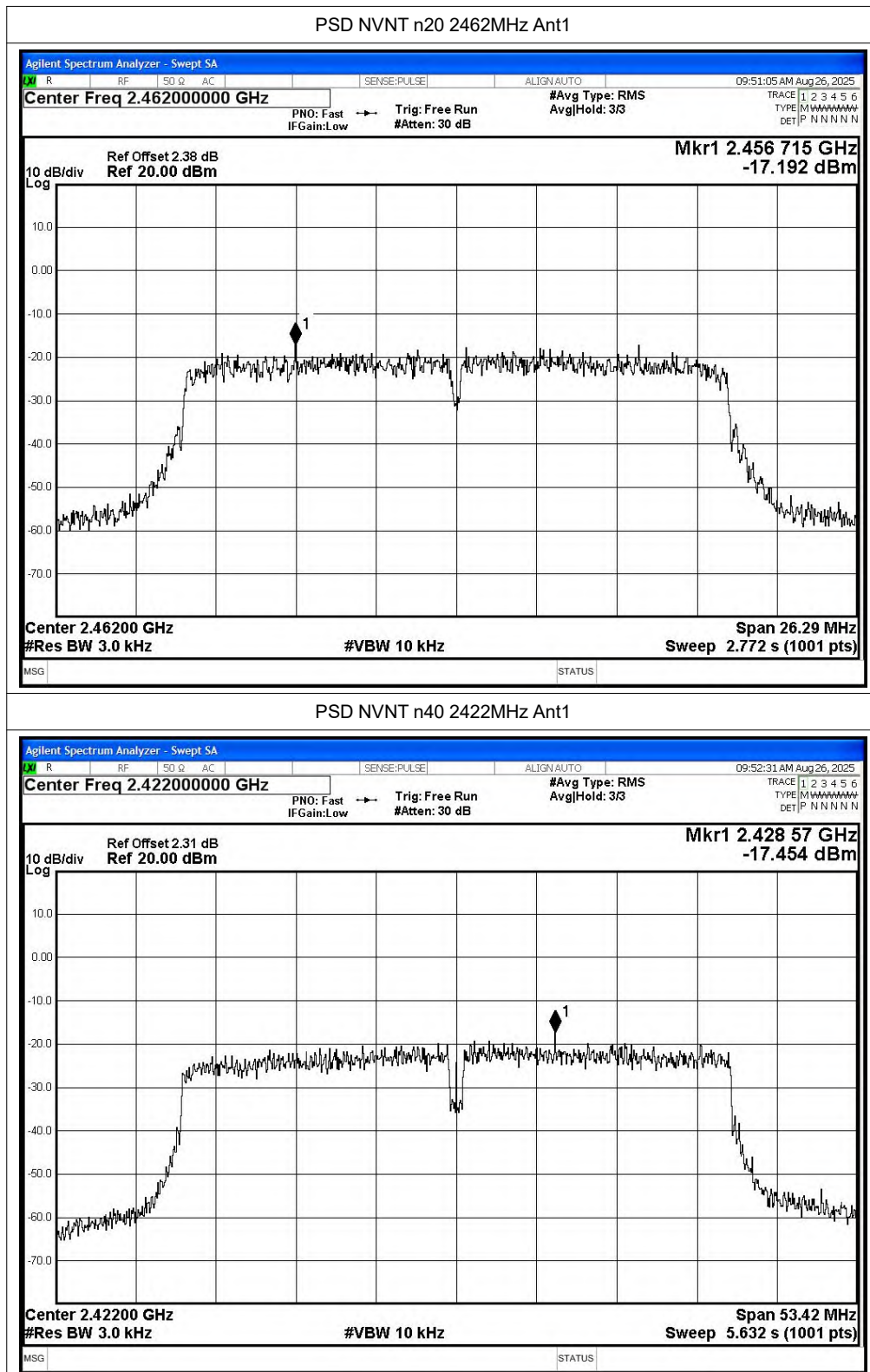
PSD NVNT b 2437MHz Ant1

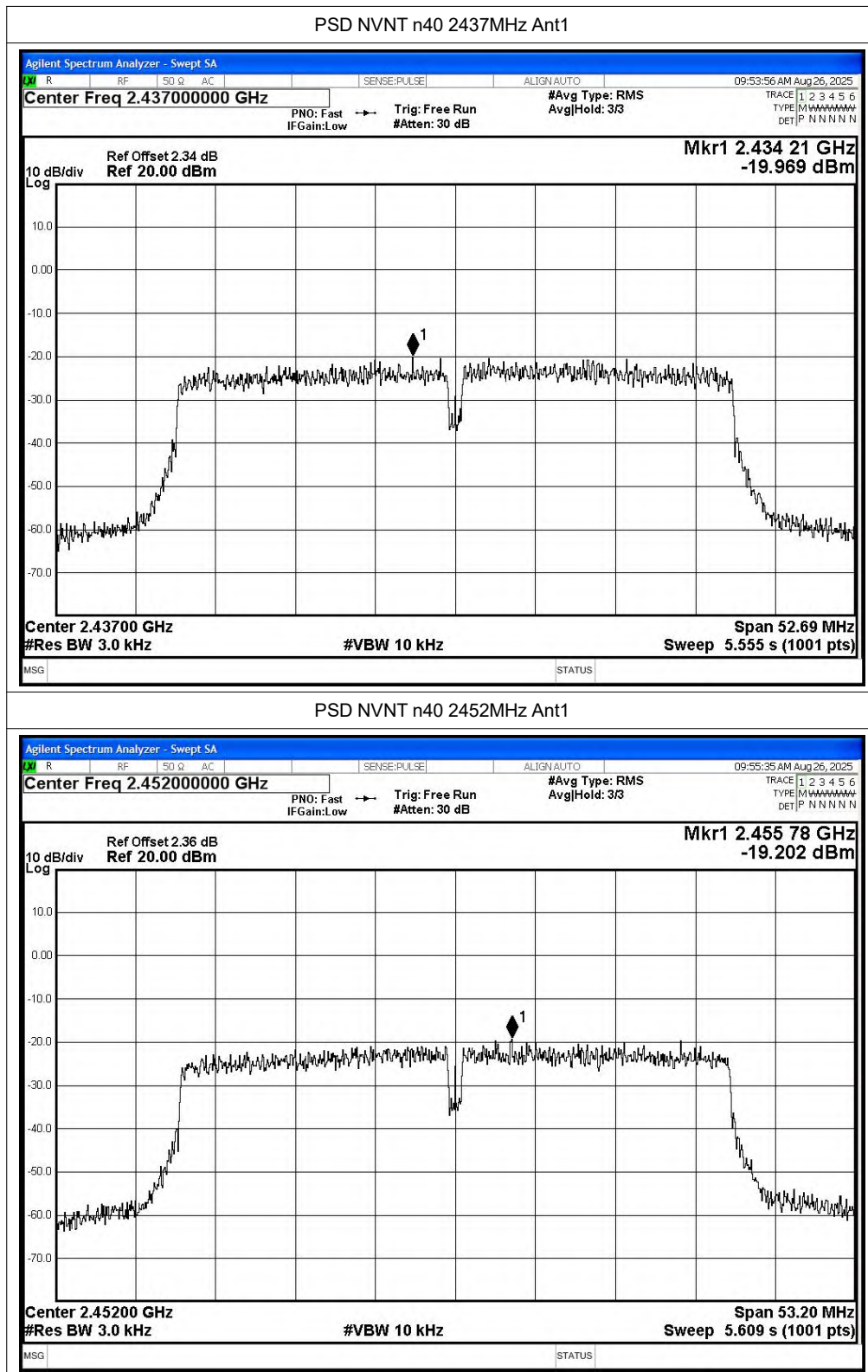






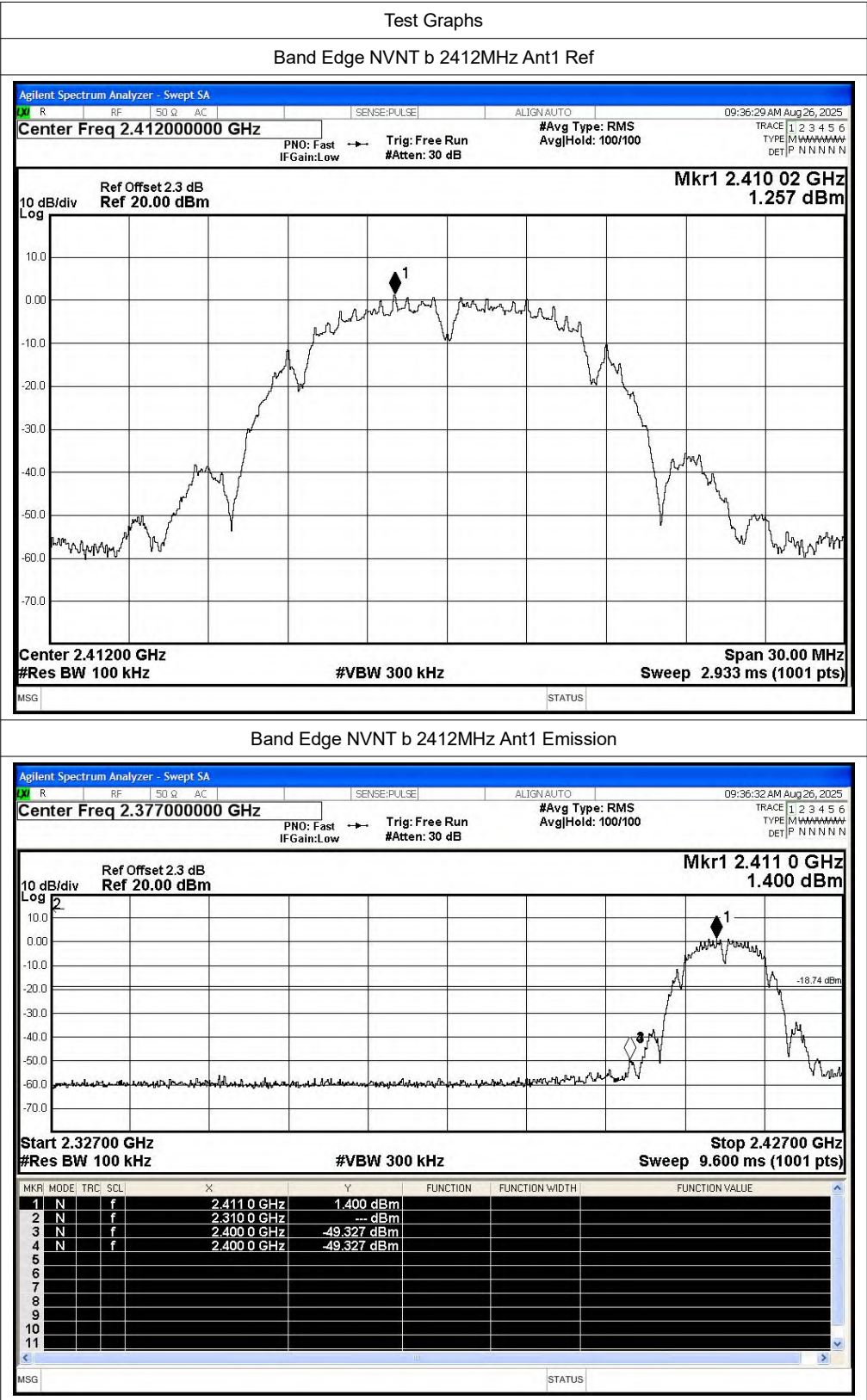




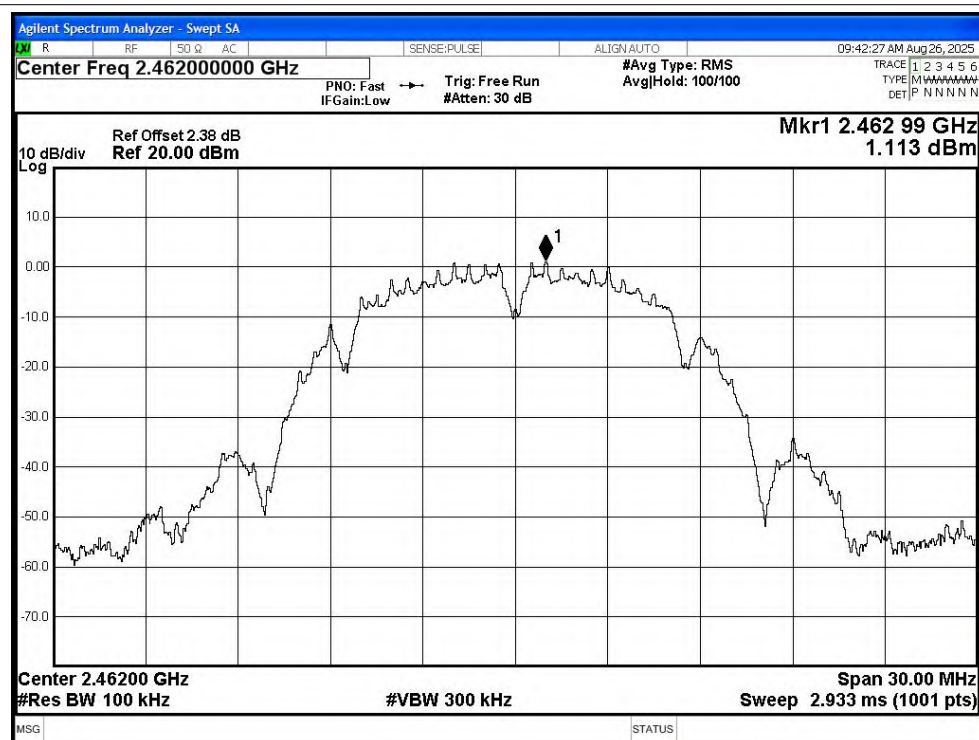


A.4 Band Edge

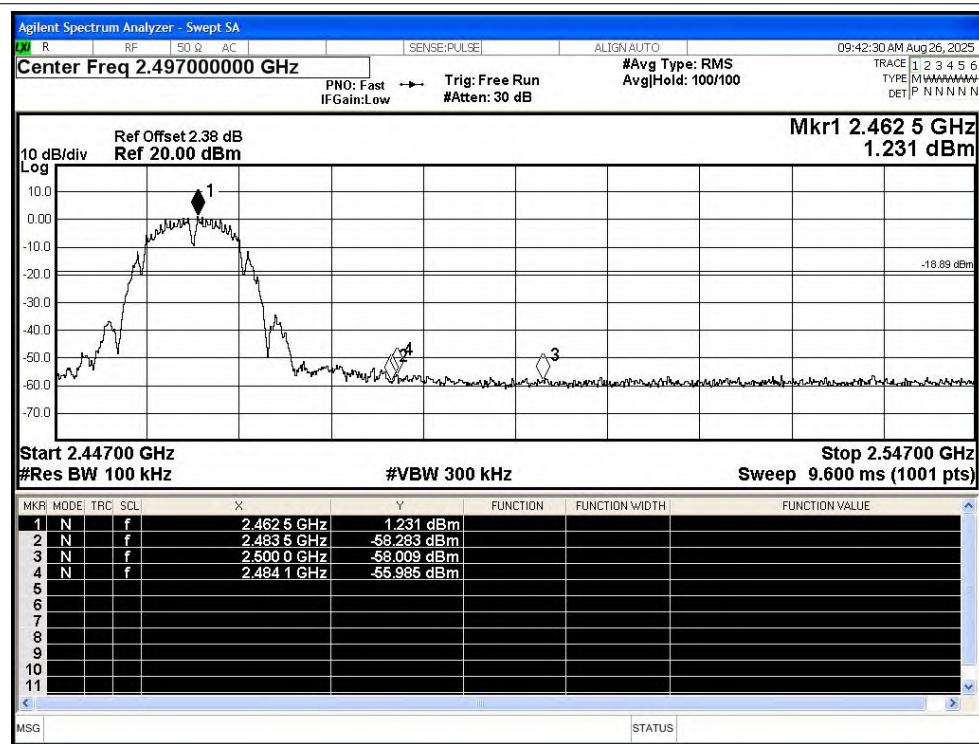
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-50.58	-20	Pass
NVNT	b	2462	Ant1	-57.1	-20	Pass
NVNT	g	2412	Ant1	-33.12	-20	Pass
NVNT	g	2462	Ant1	-41.46	-20	Pass
NVNT	n20	2412	Ant1	-33.04	-20	Pass
NVNT	n20	2462	Ant1	-42.66	-20	Pass
NVNT	n40	2422	Ant1	-34.06	-20	Pass
NVNT	n40	2452	Ant1	-37.4	-20	Pass

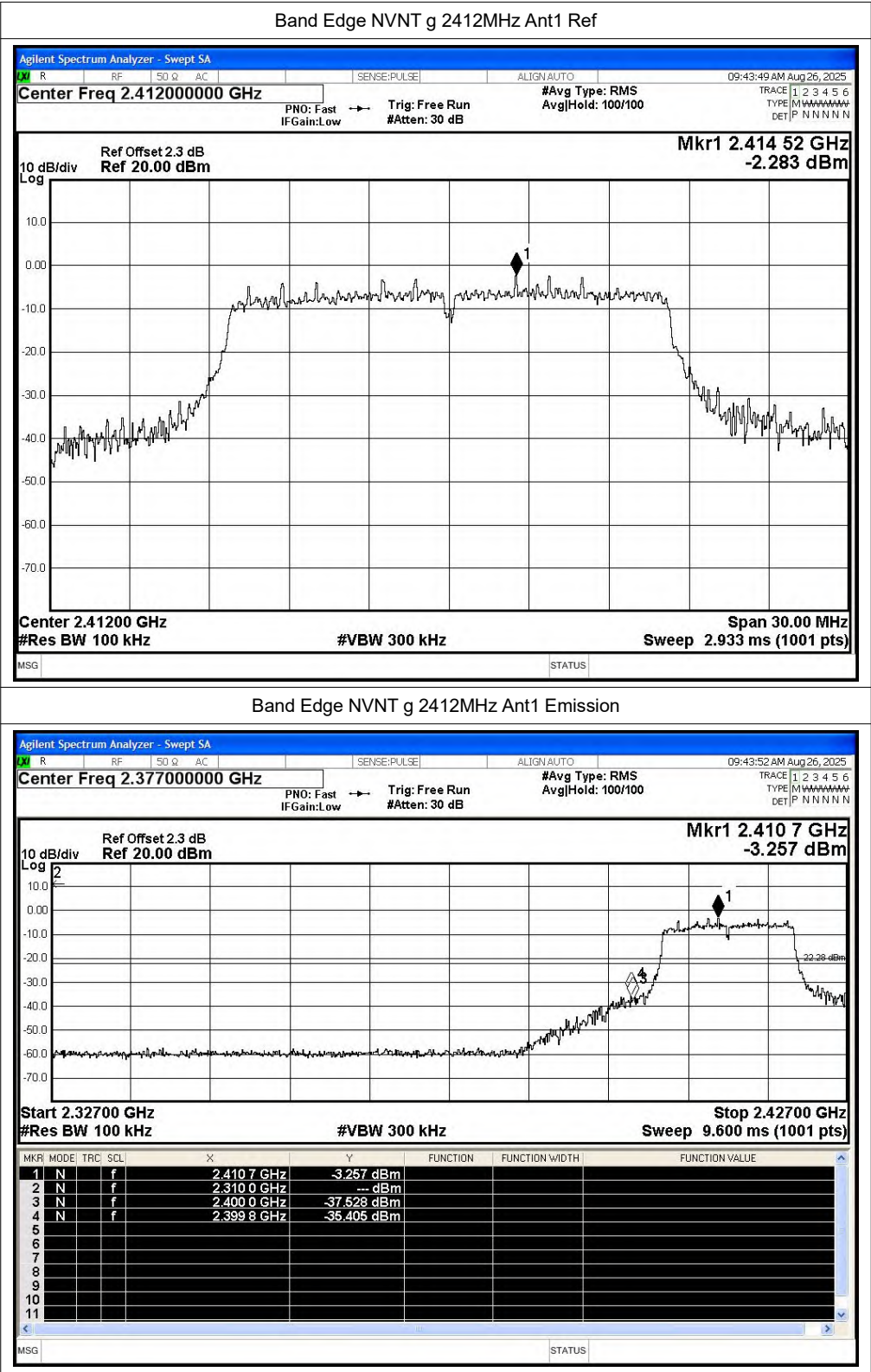


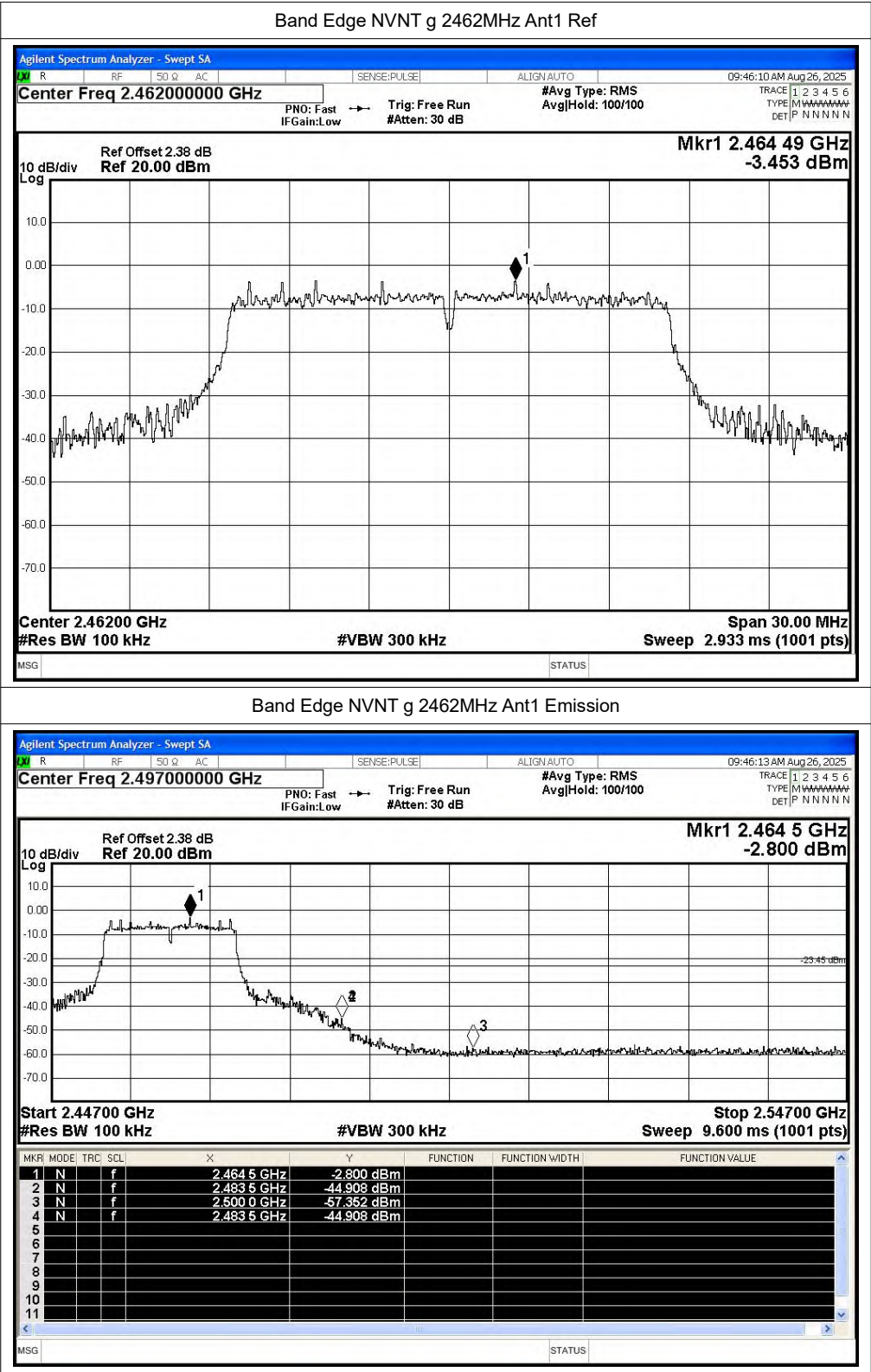
Band Edge NVNT b 2462MHz Ant1 Ref

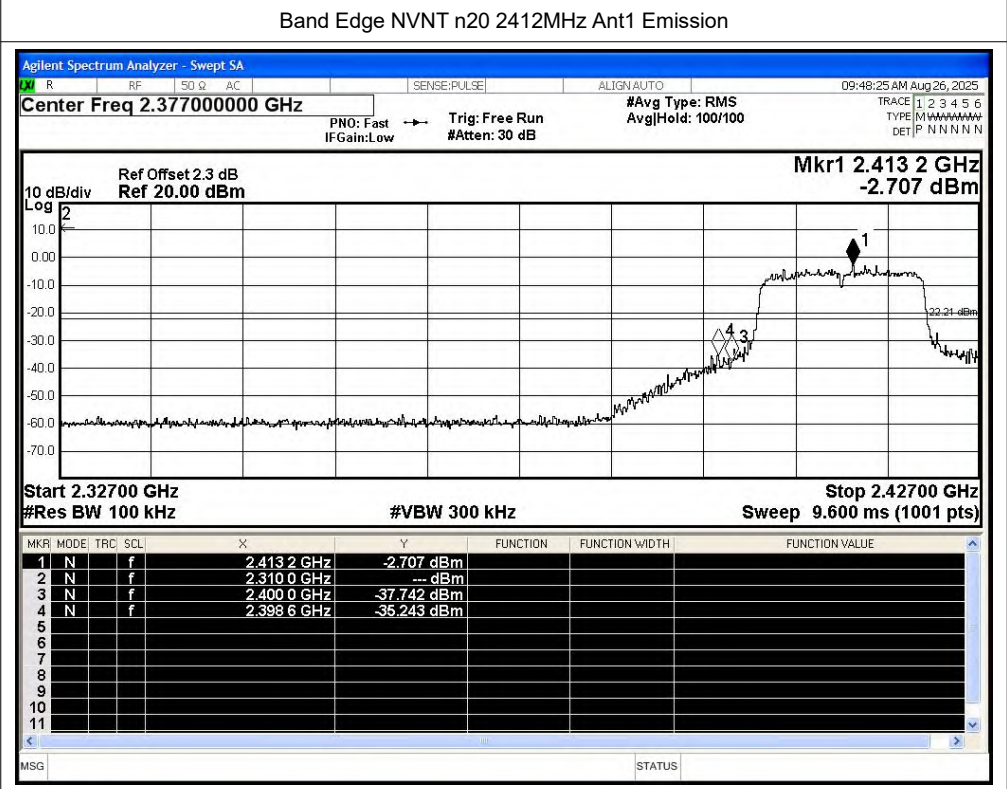
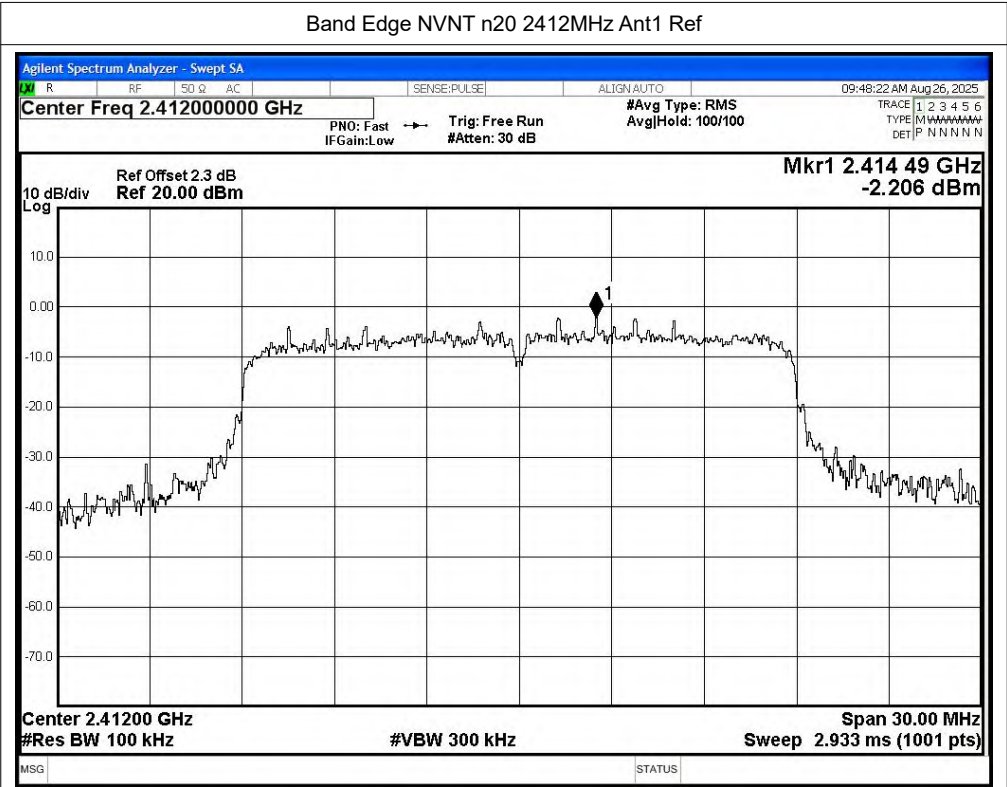


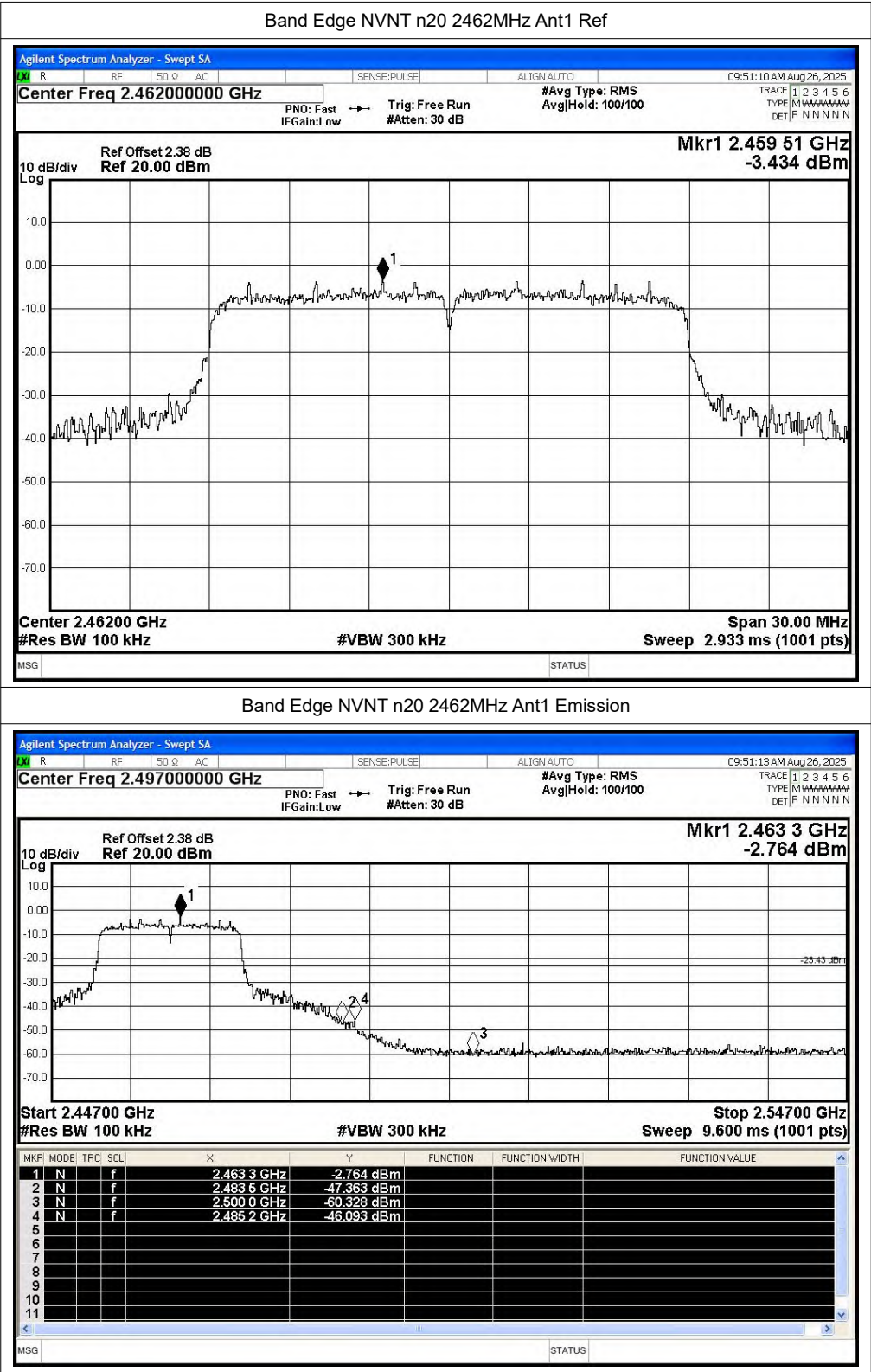
Band Edge NVNT b 2462MHz Ant1 Emission

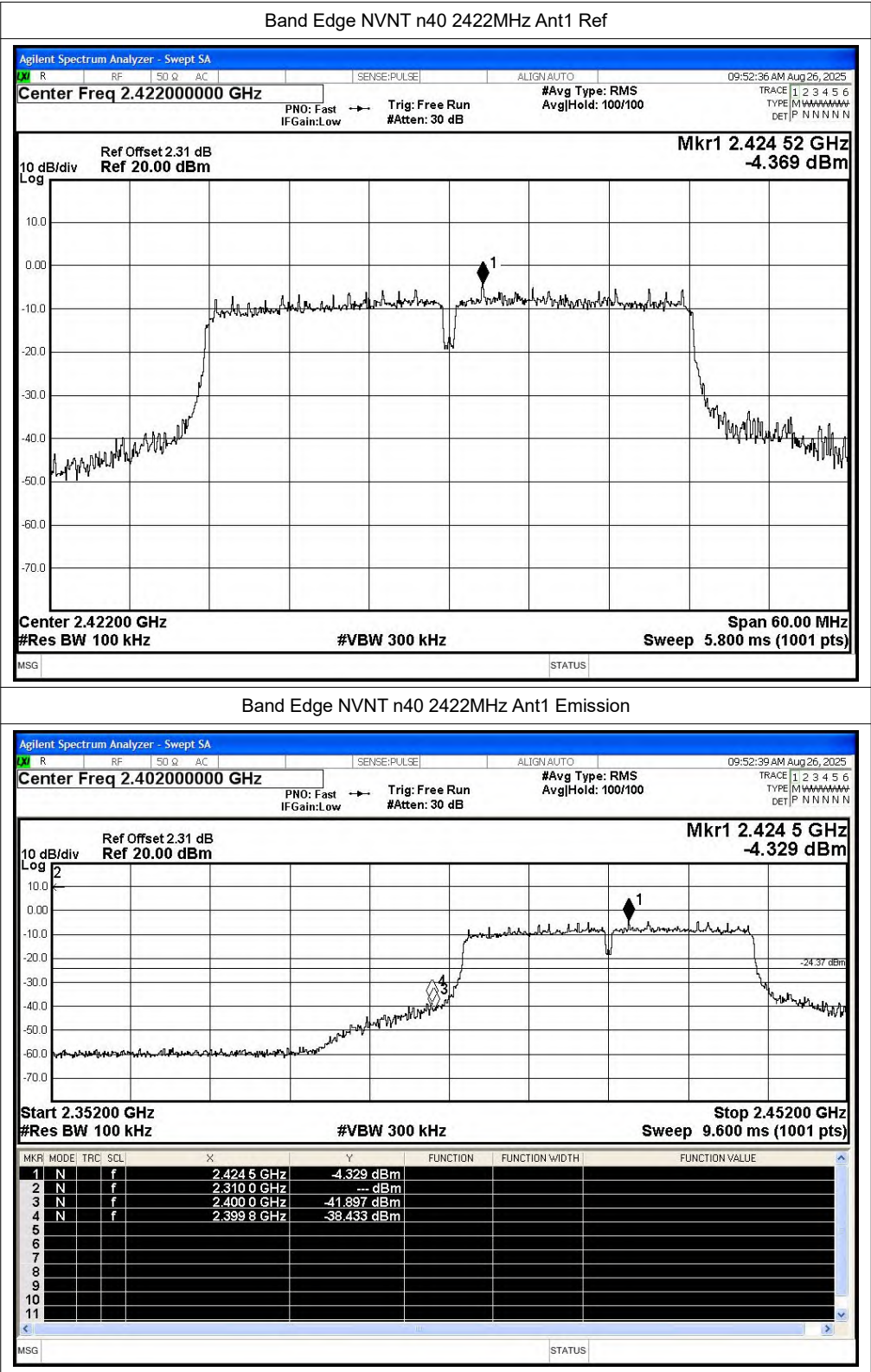


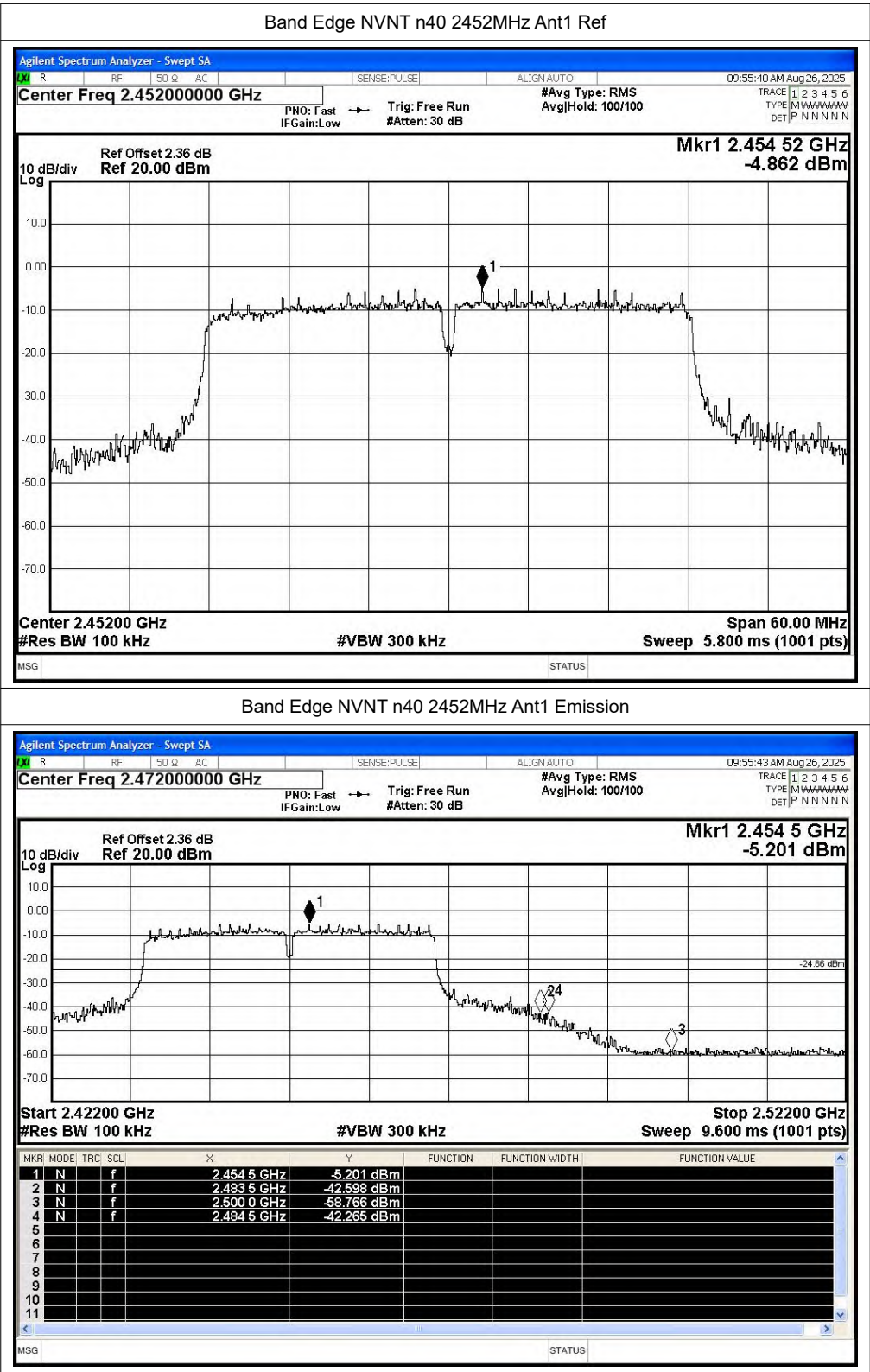






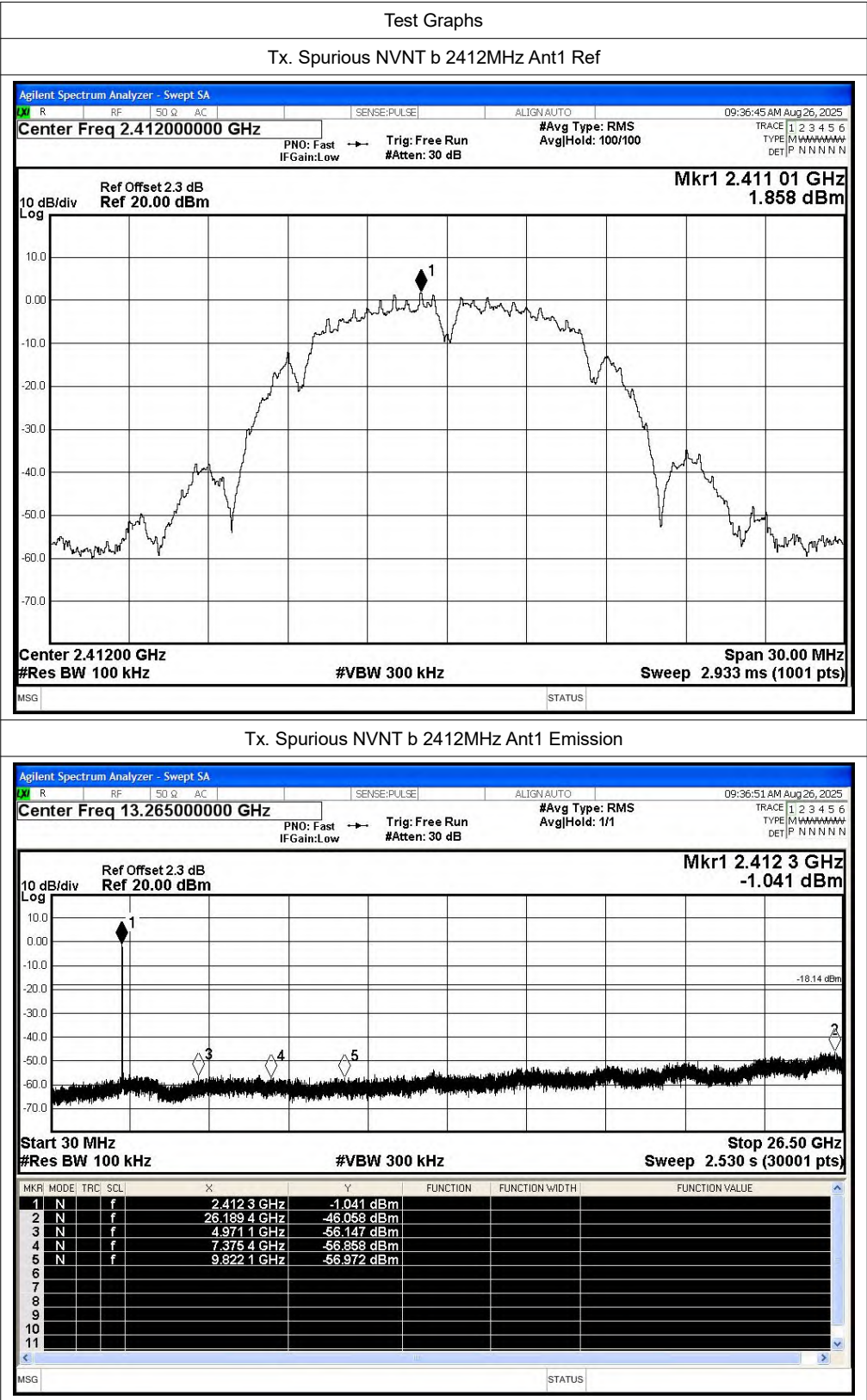




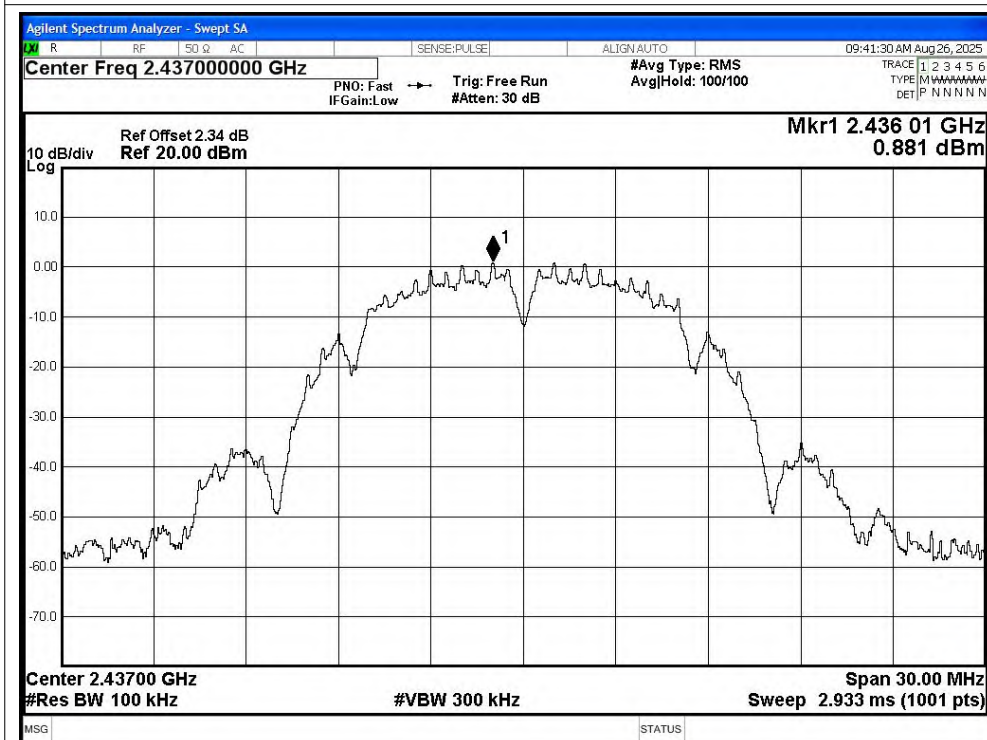


A.5 Conducted RF Spurious Emission

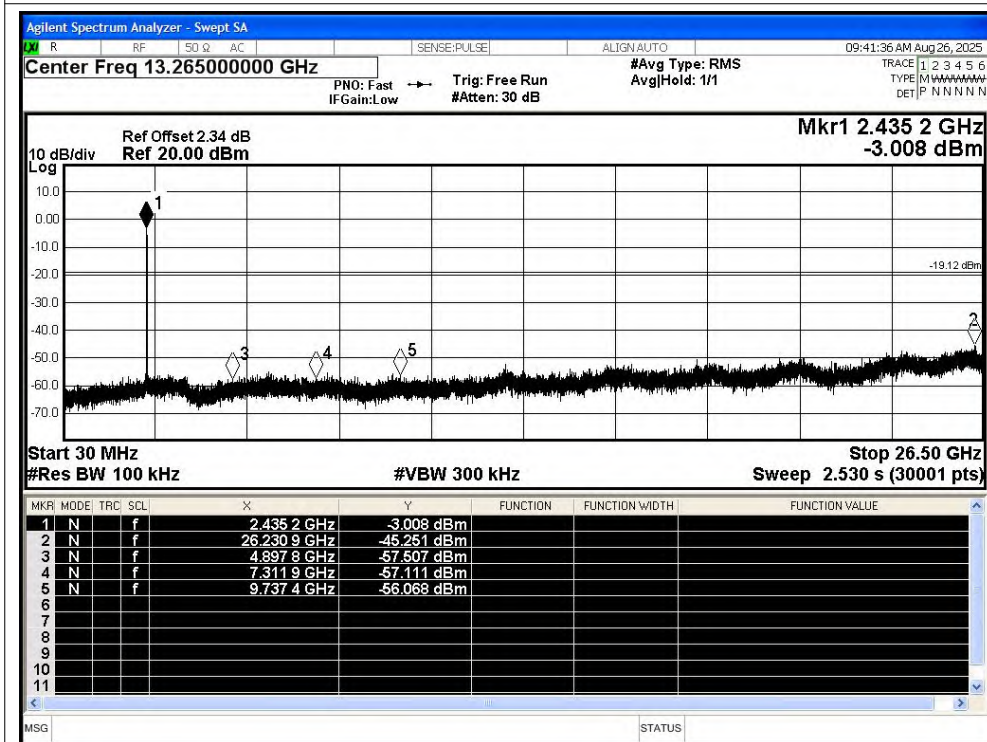
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-47.92	-20	Pass
NVNT	b	2437	Ant1	-46.13	-20	Pass
NVNT	b	2462	Ant1	-46.55	-20	Pass
NVNT	g	2412	Ant1	-42.49	-20	Pass
NVNT	g	2437	Ant1	-41.9	-20	Pass
NVNT	g	2462	Ant1	-42.74	-20	Pass
NVNT	n20	2412	Ant1	-42.56	-20	Pass
NVNT	n20	2437	Ant1	-43.38	-20	Pass
NVNT	n20	2462	Ant1	-41.64	-20	Pass
NVNT	n40	2422	Ant1	-38.62	-20	Pass
NVNT	n40	2437	Ant1	-39.83	-20	Pass
NVNT	n40	2452	Ant1	-37.21	-20	Pass



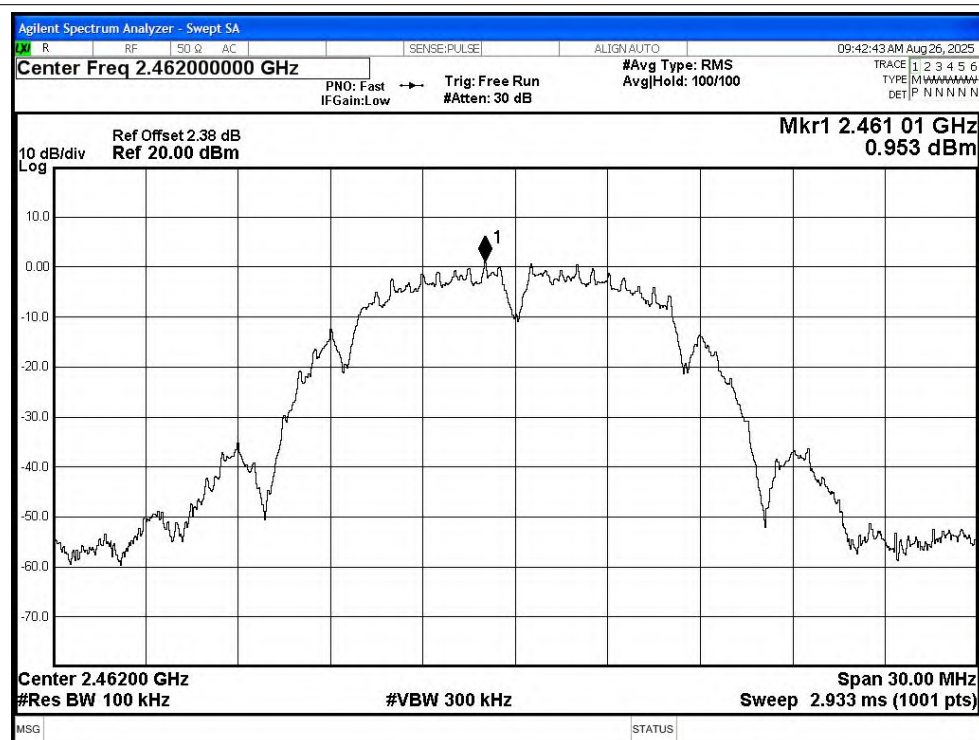
Tx. Spurious NVNT b 2437MHz Ant1 Ref



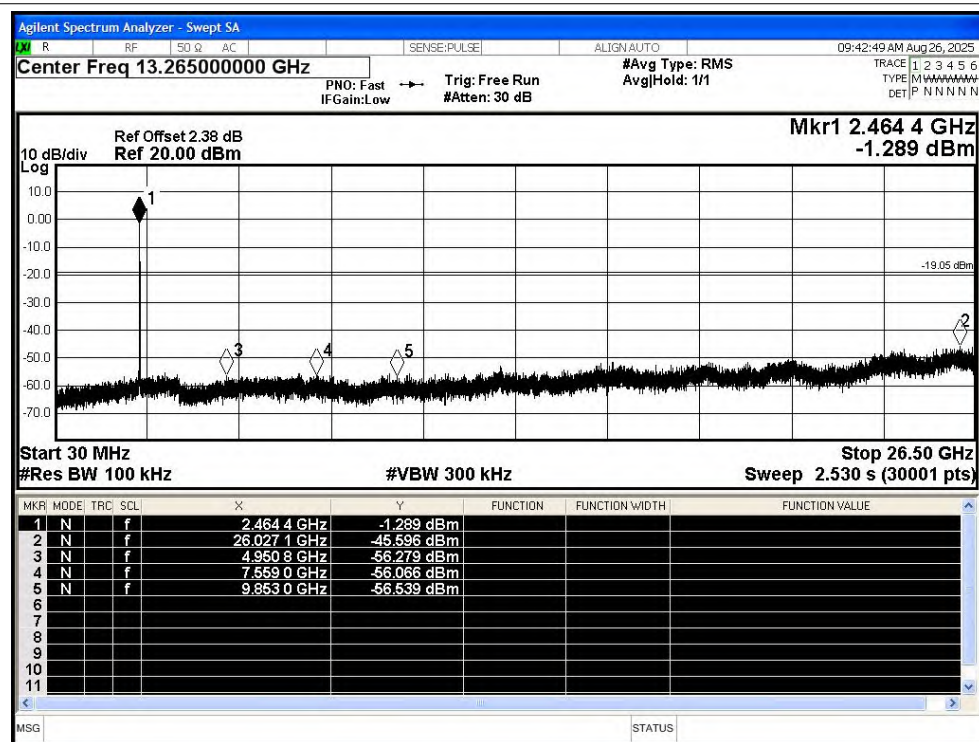
Tx. Spurious NVNT b 2437MHz Ant1 Emission



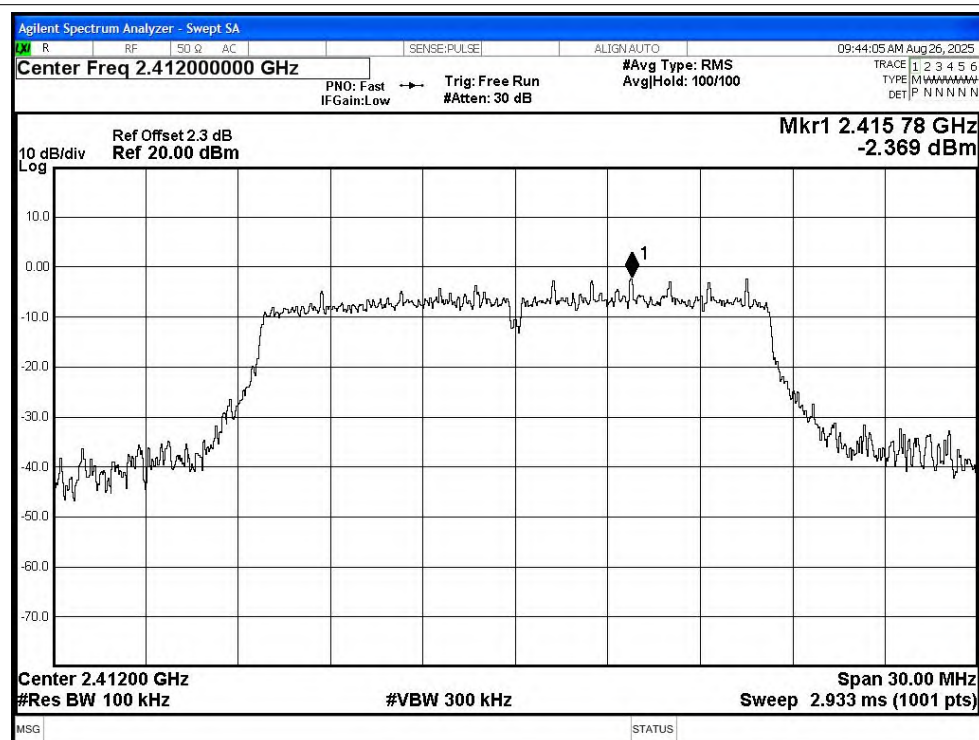
Tx. Spurious NVNT b 2462MHz Ant1 Ref



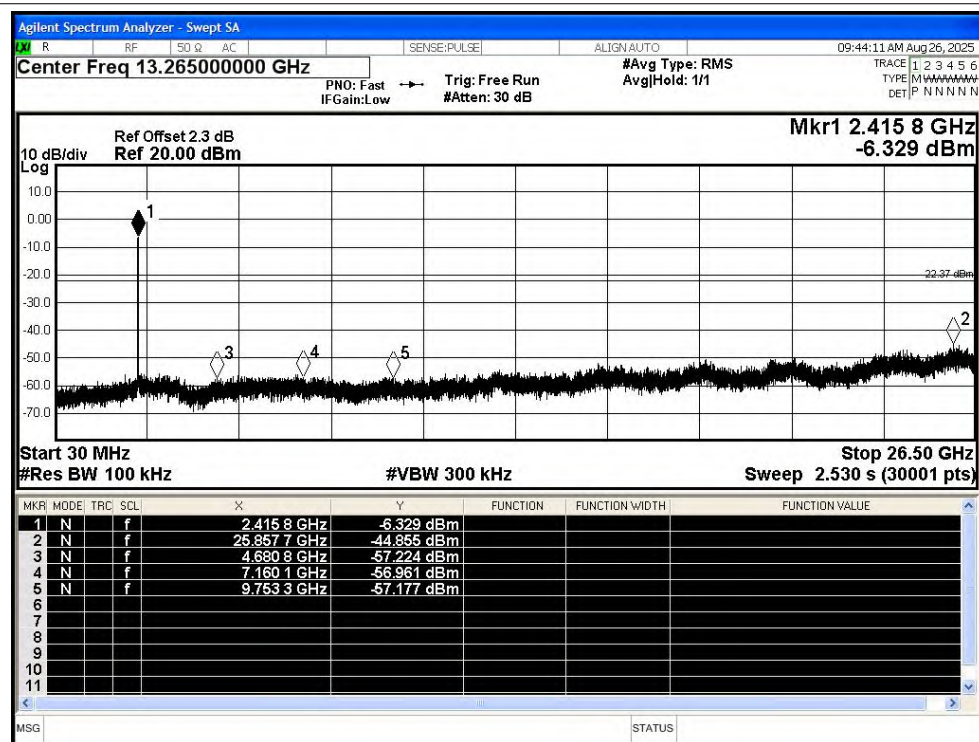
Tx. Spurious NVNT b 2462MHz Ant1 Emission

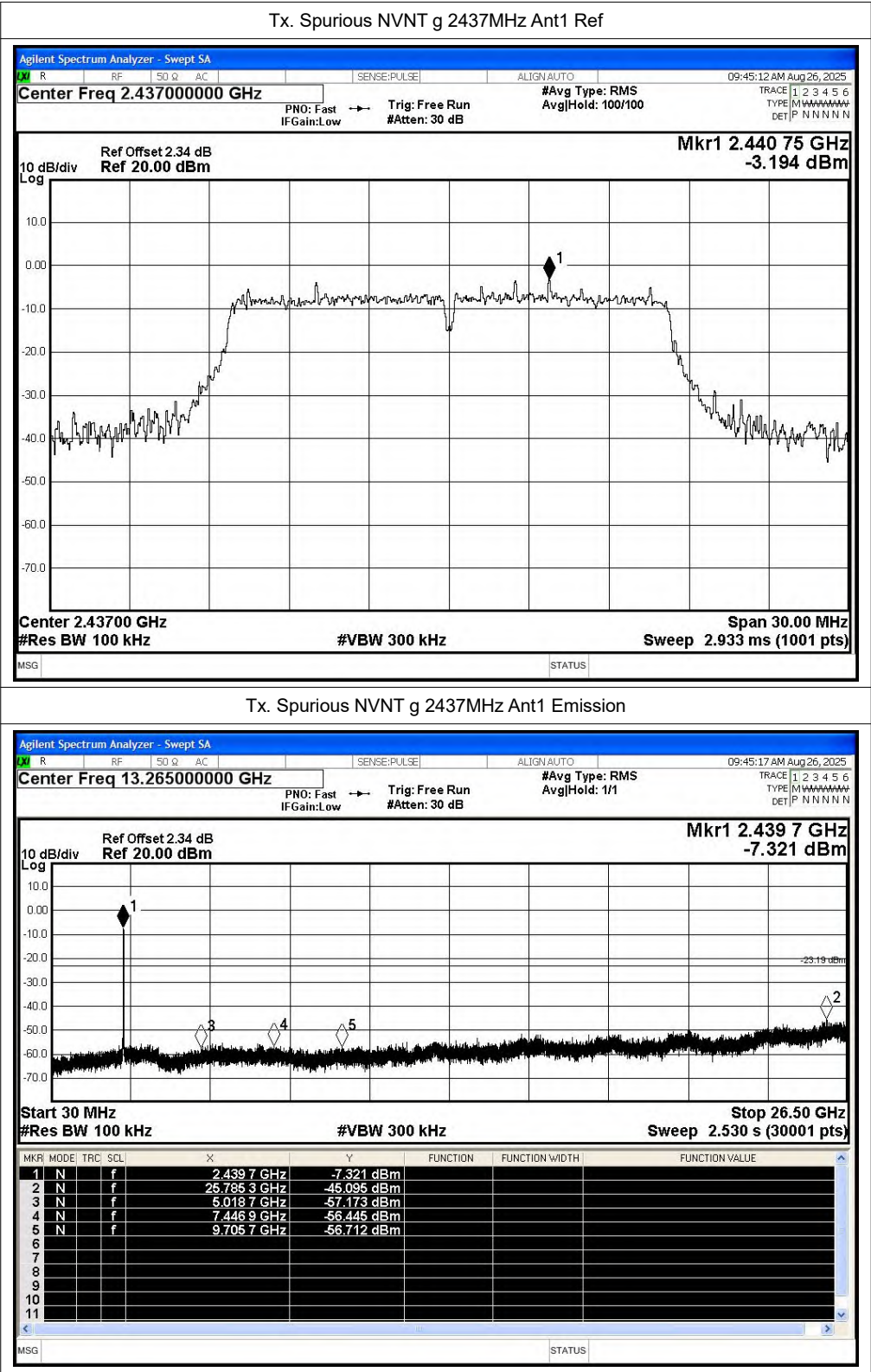


Tx. Spurious NVNT g 2412MHz Ant1 Ref

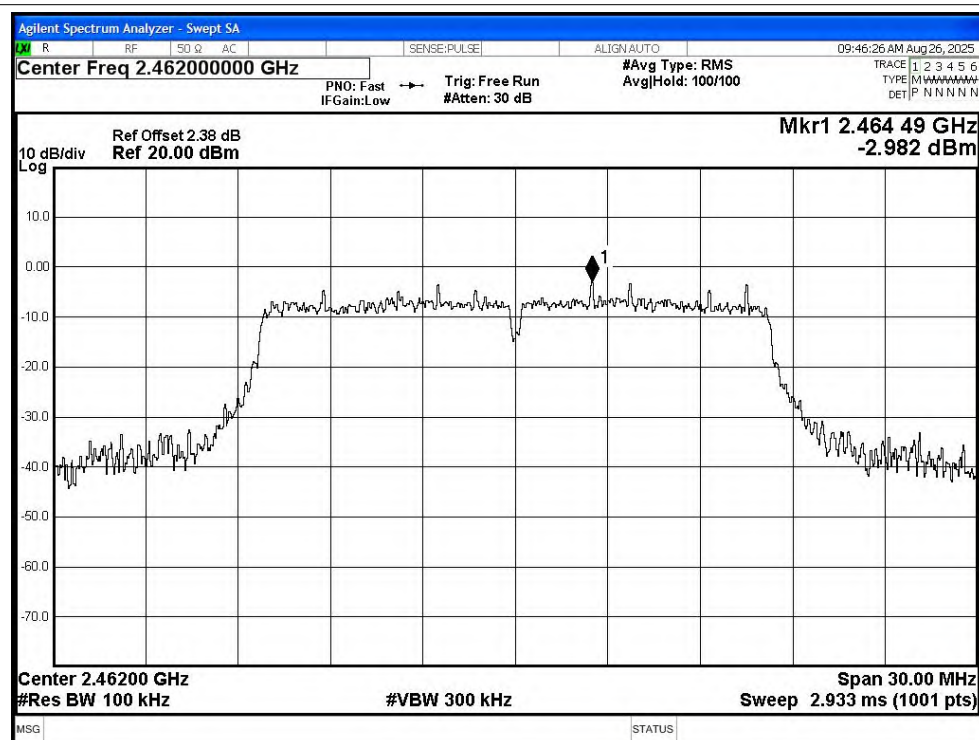


Tx. Spurious NVNT g 2412MHz Ant1 Emission

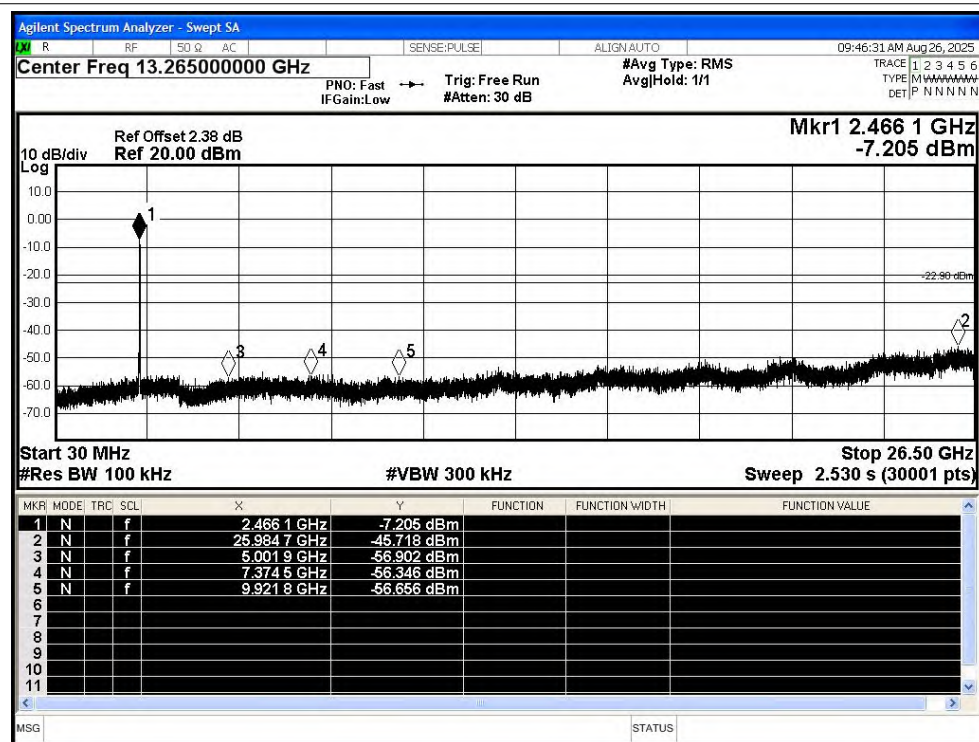


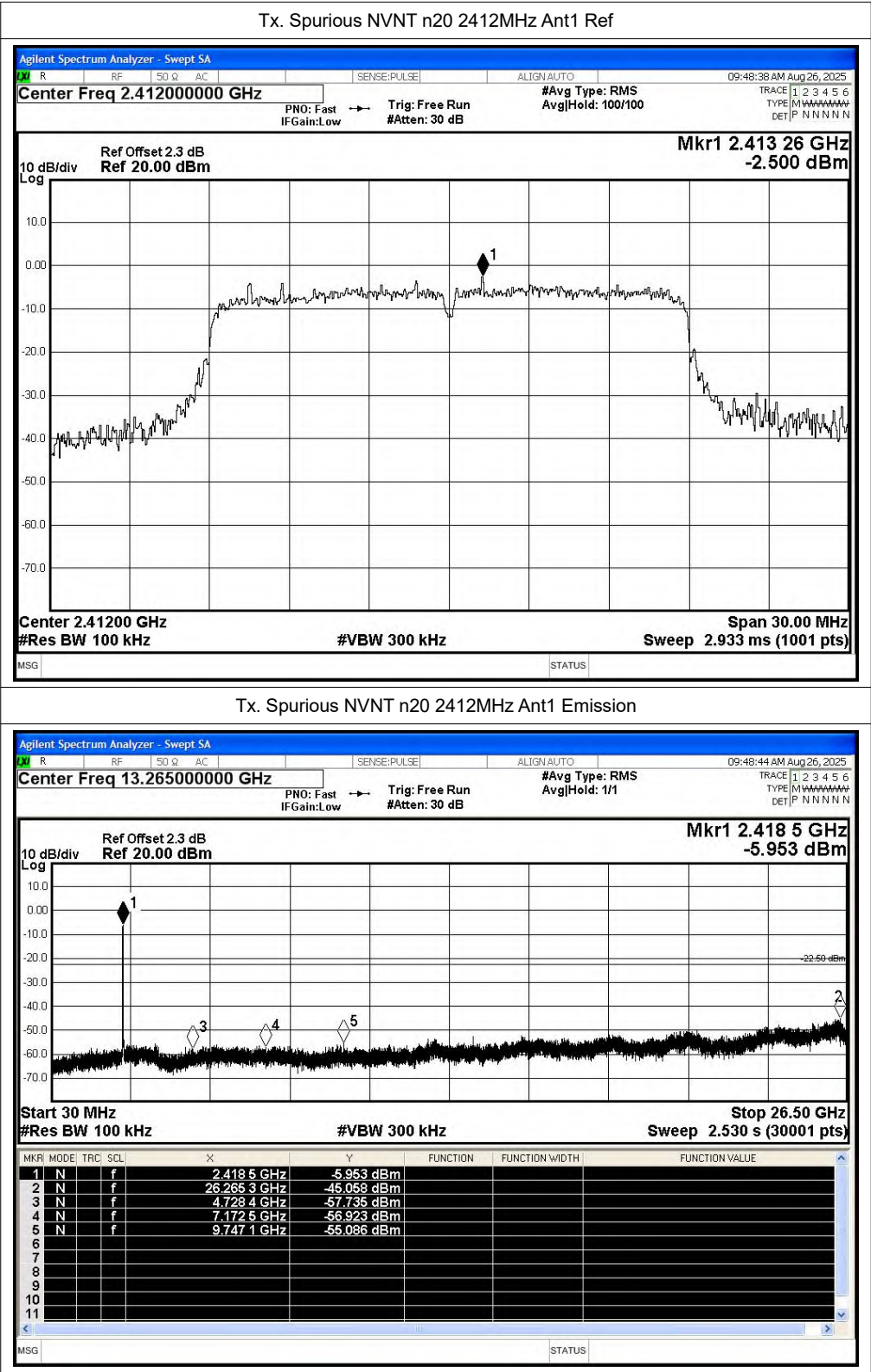


Tx. Spurious NVNT g 2462MHz Ant1 Ref

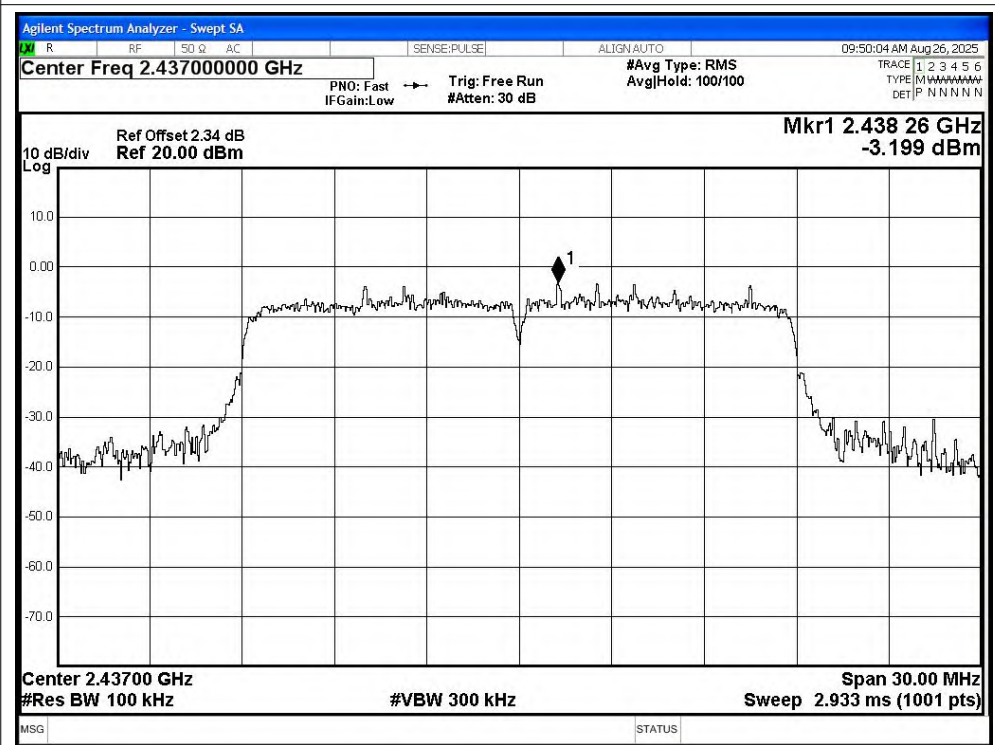


Tx. Spurious NVNT g 2462MHz Ant1 Emission

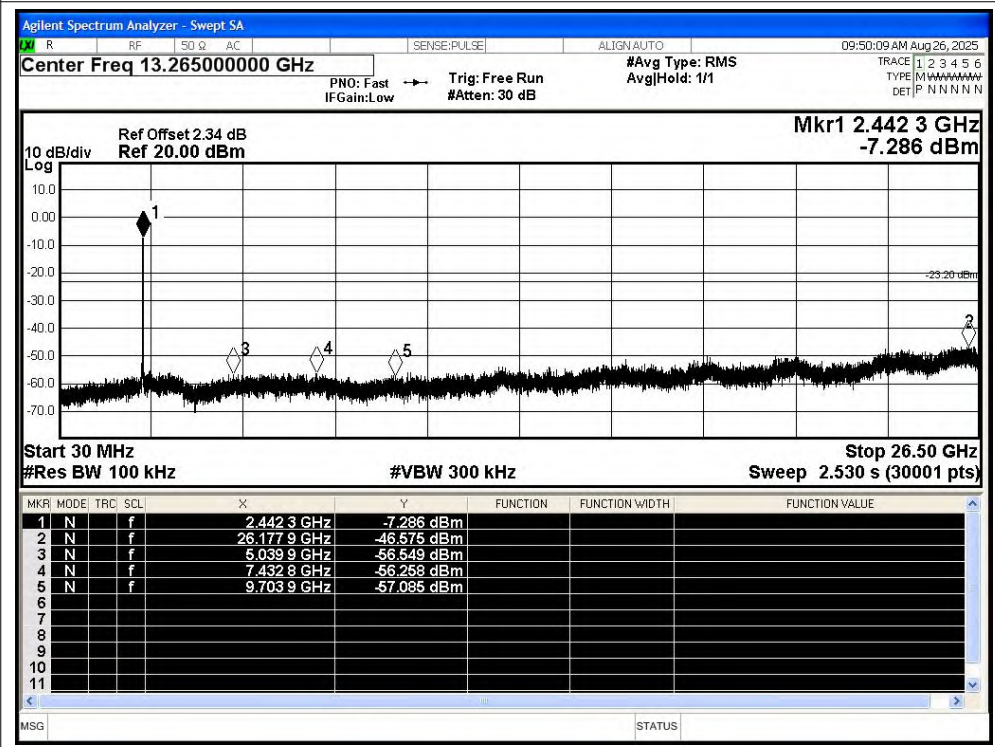


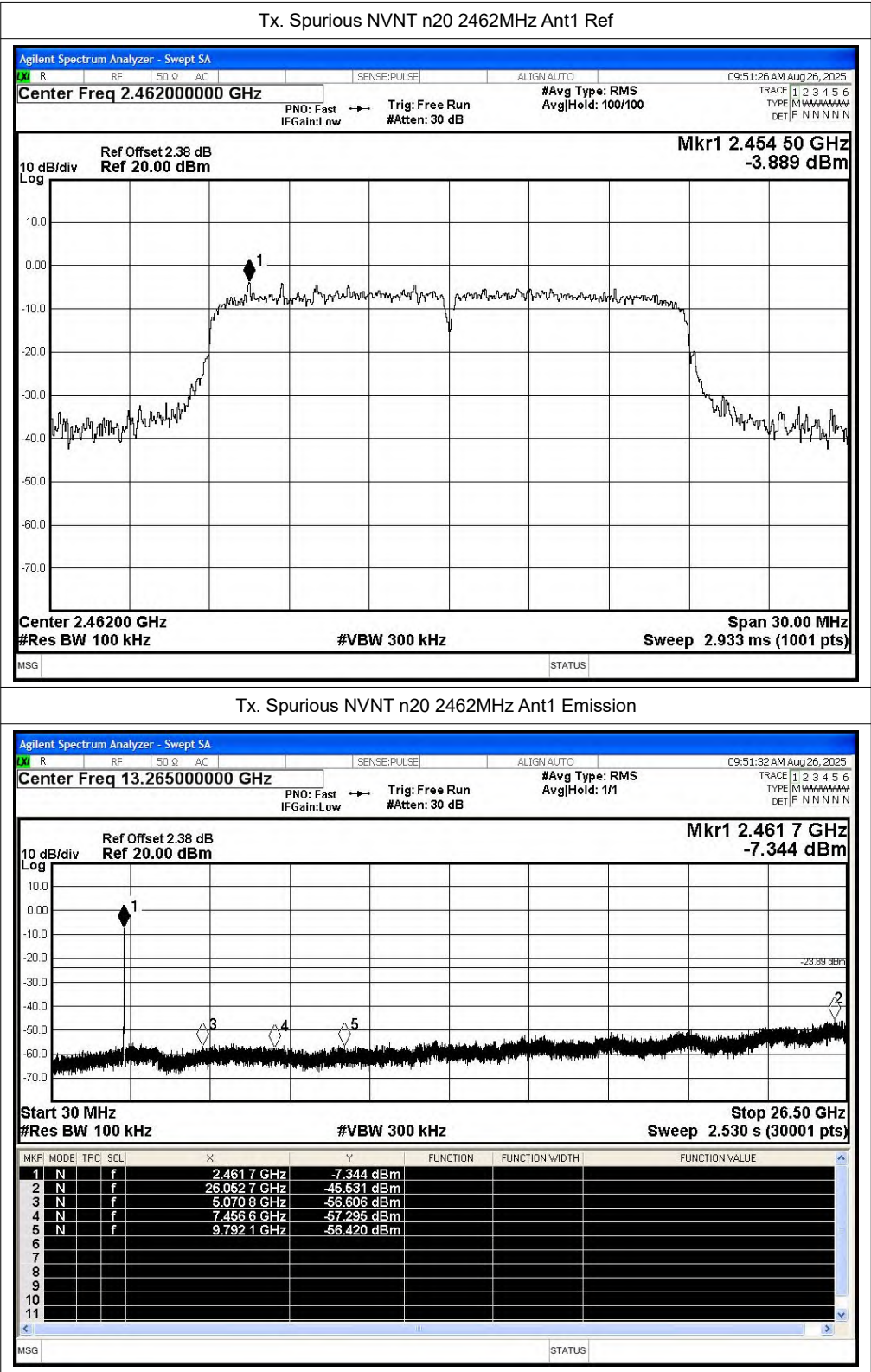


Tx. Spurious NVNT n20 2437MHz Ant1 Ref

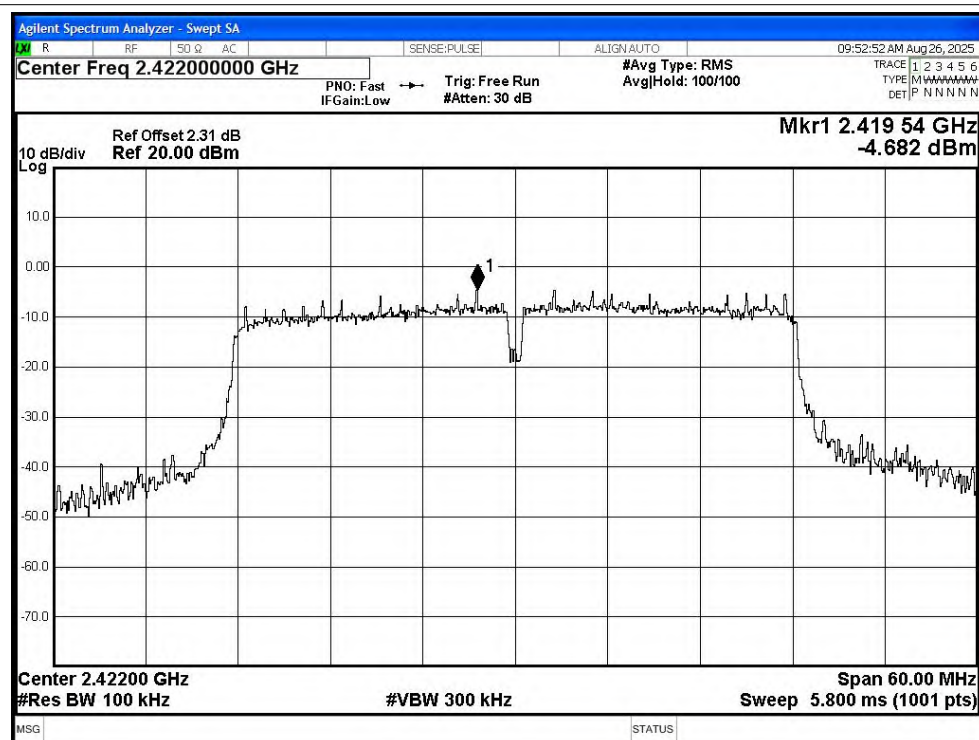


Tx. Spurious NVNT n20 2437MHz Ant1 Emission

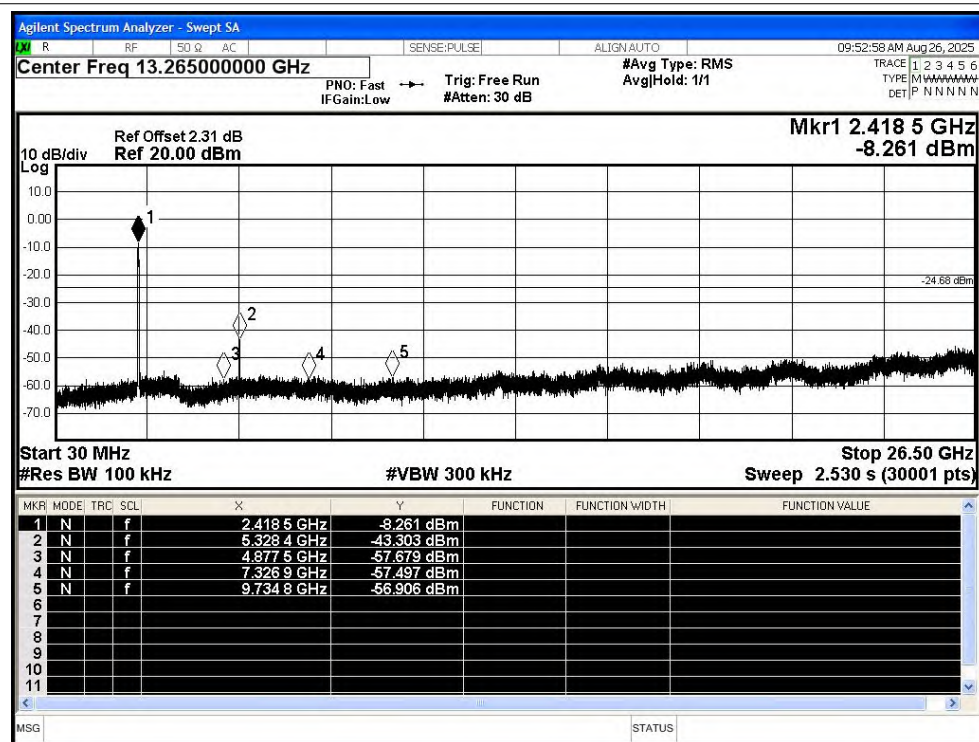


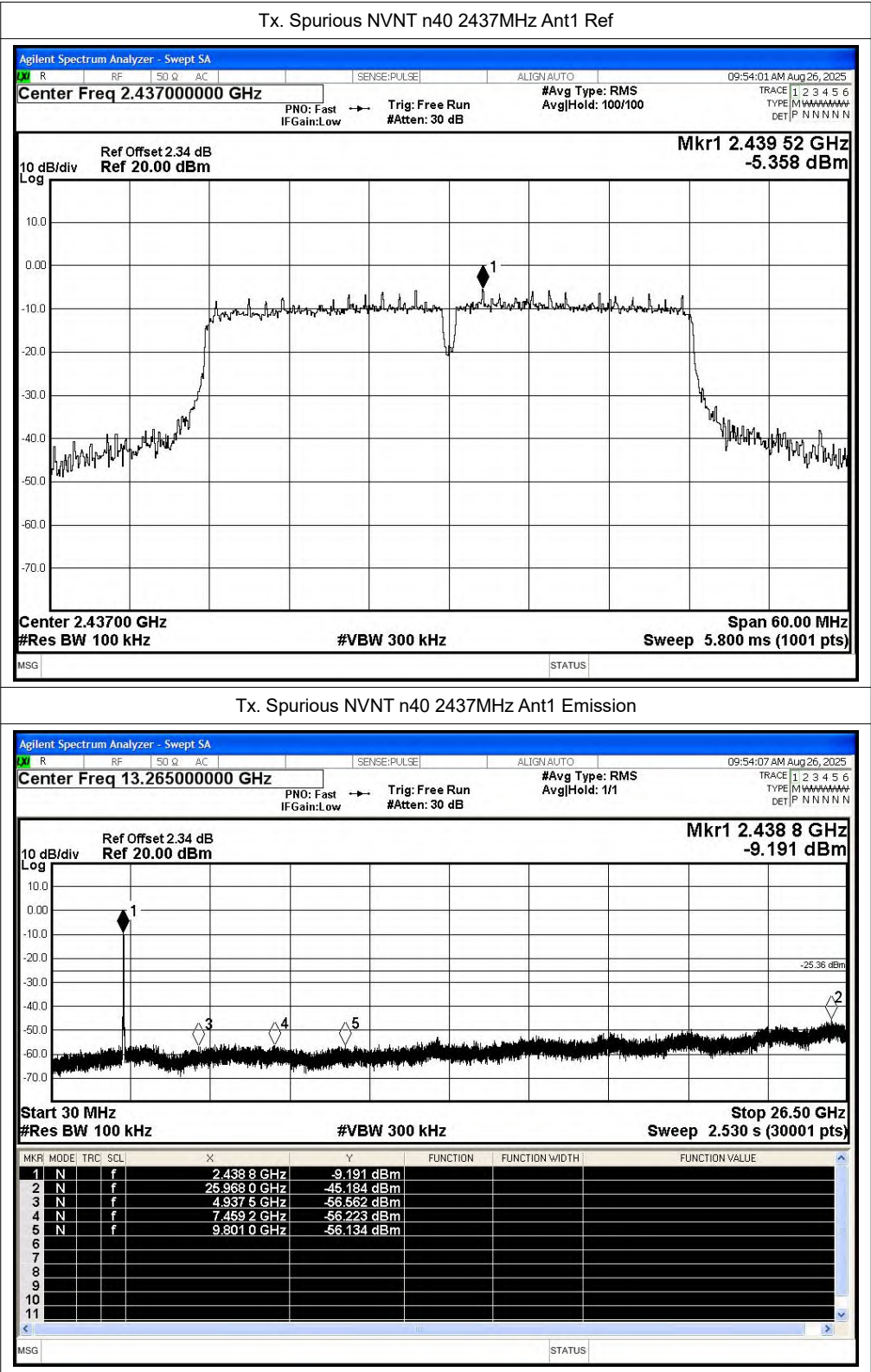


Tx. Spurious NVNT n40 2422MHz Ant1 Ref

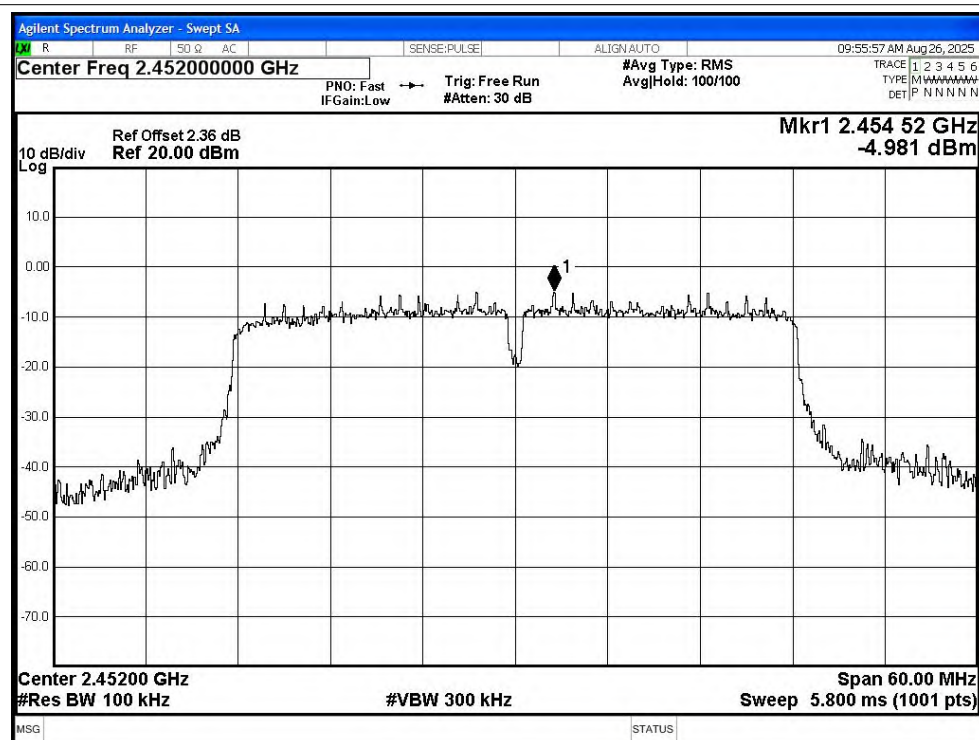


Tx. Spurious NVNT n40 2422MHz Ant1 Emission

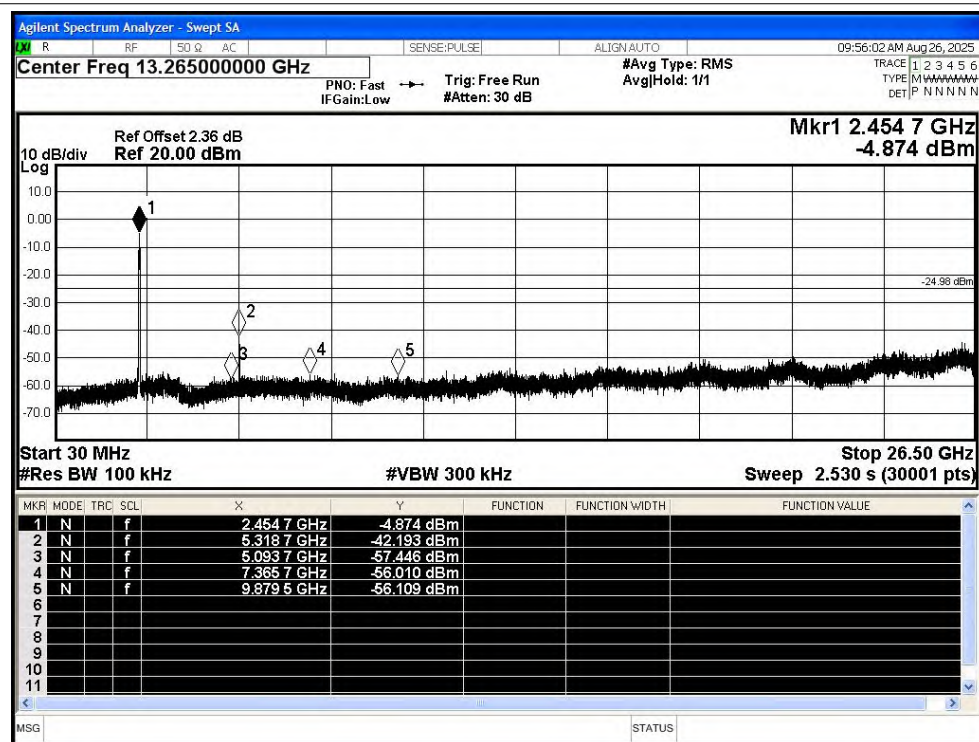




Tx. Spurious NVNT n40 2452MHz Ant1 Ref

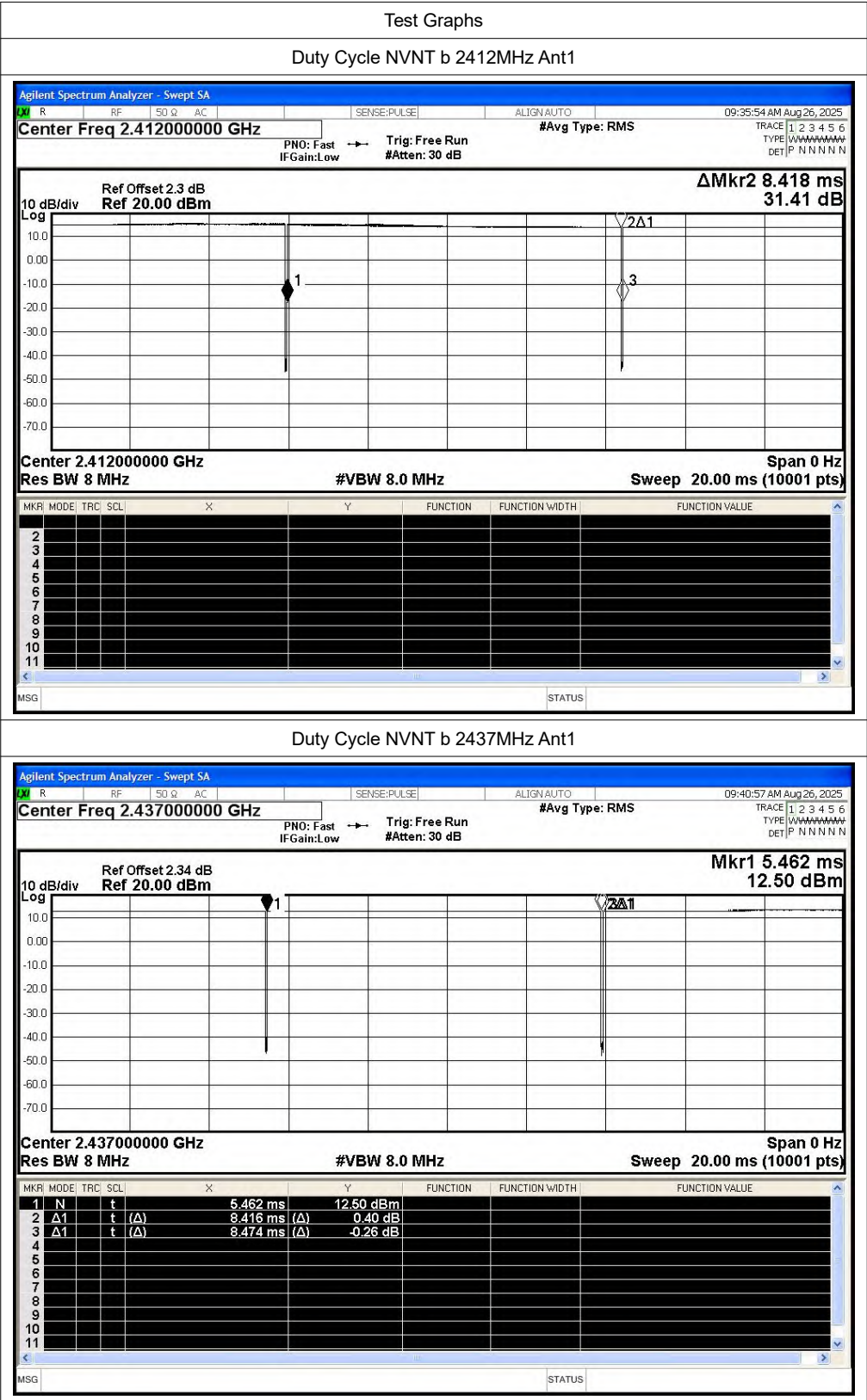


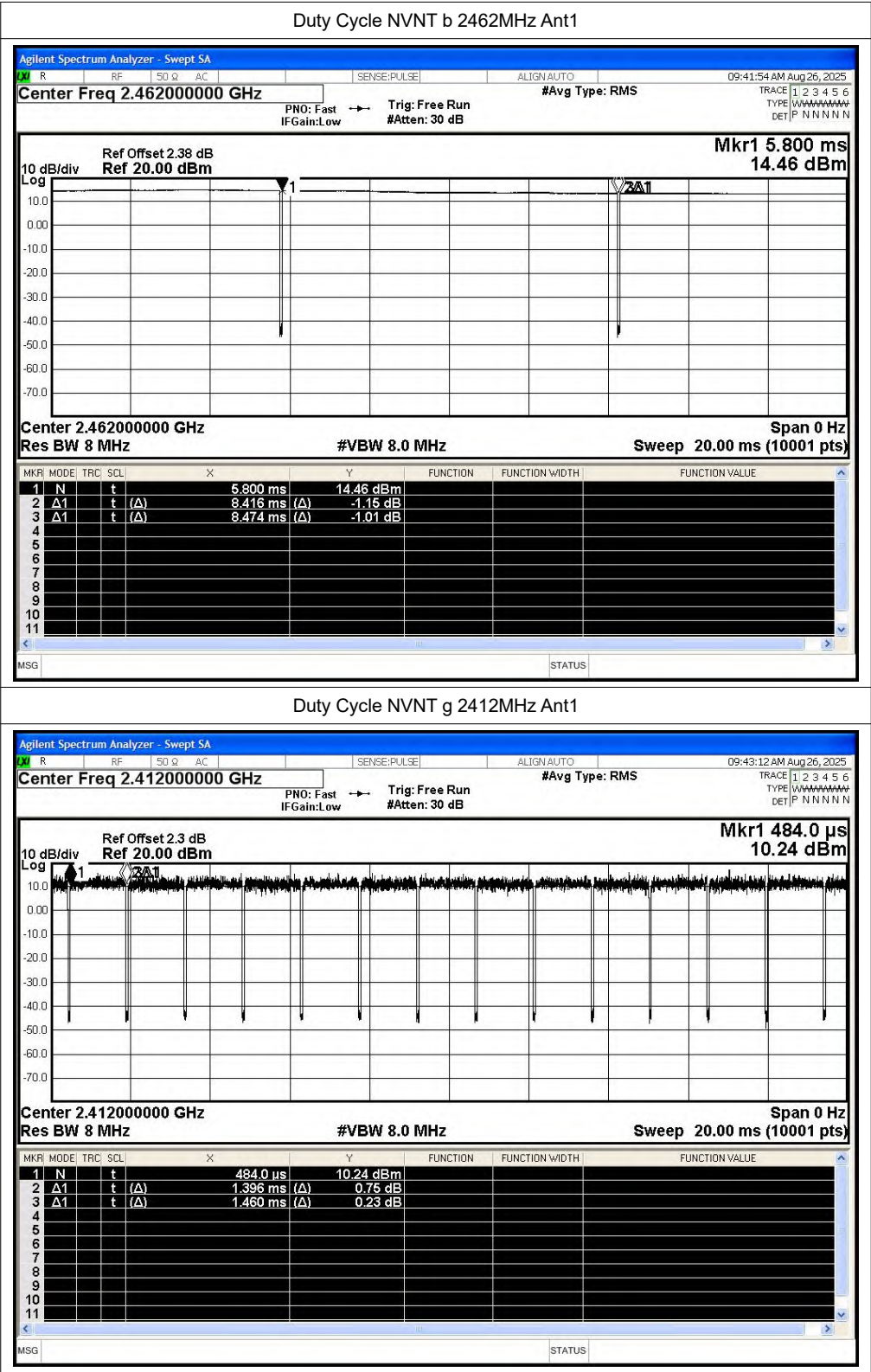
Tx. Spurious NVNT n40 2452MHz Ant1 Emission

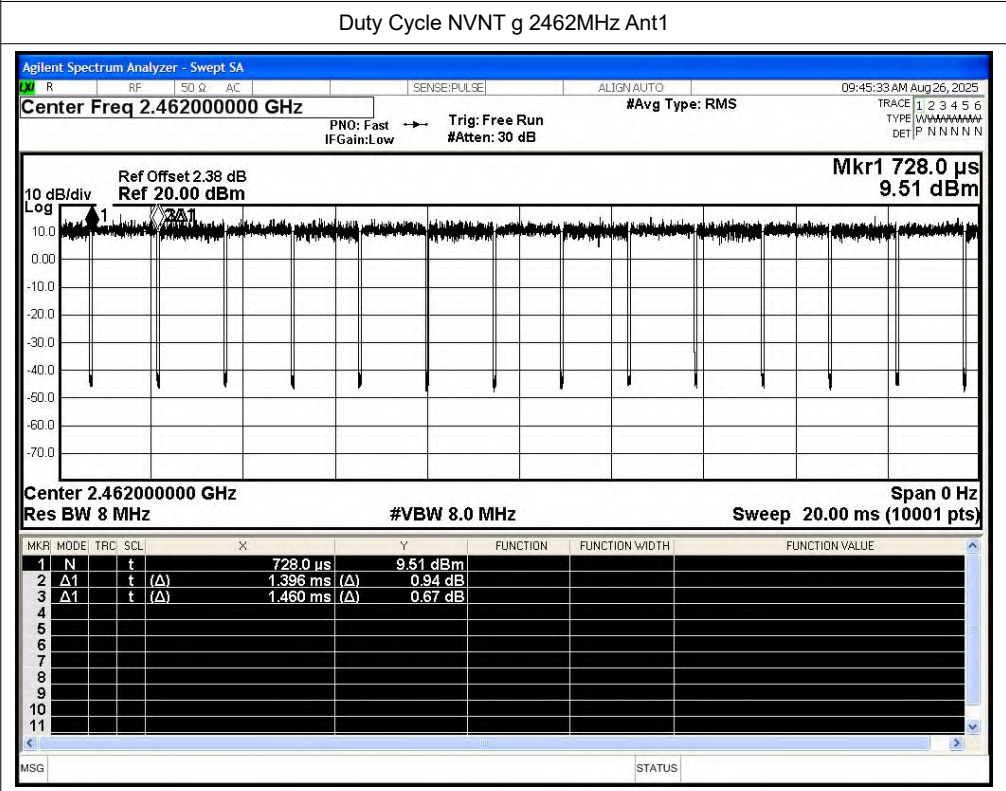
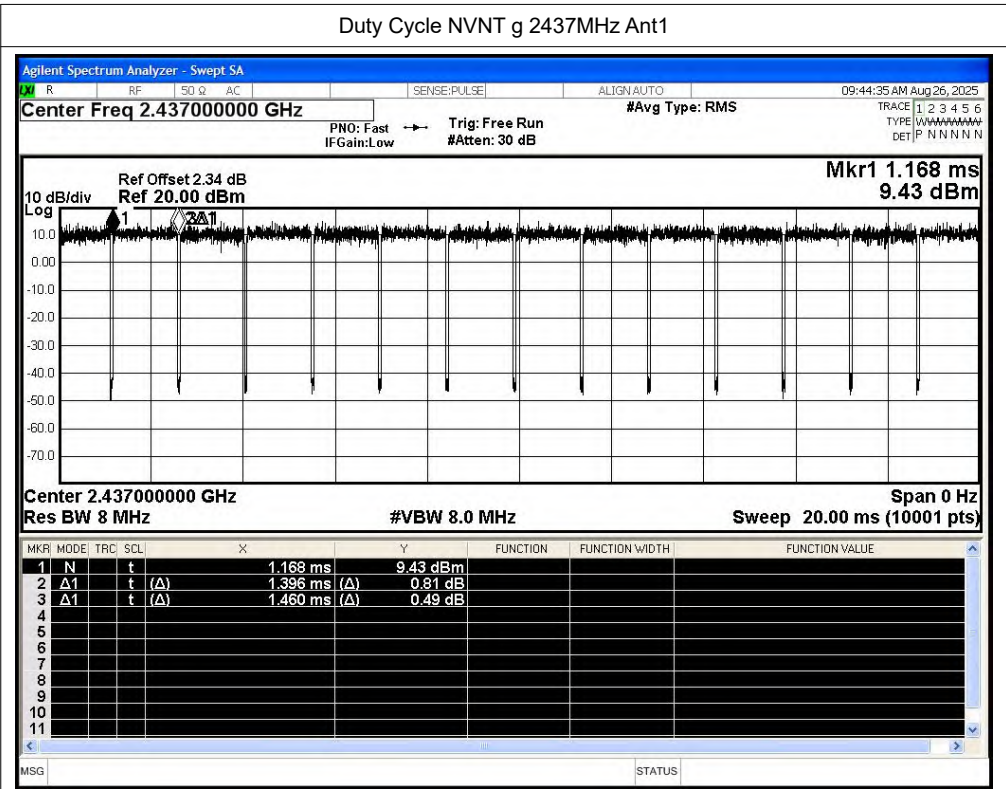


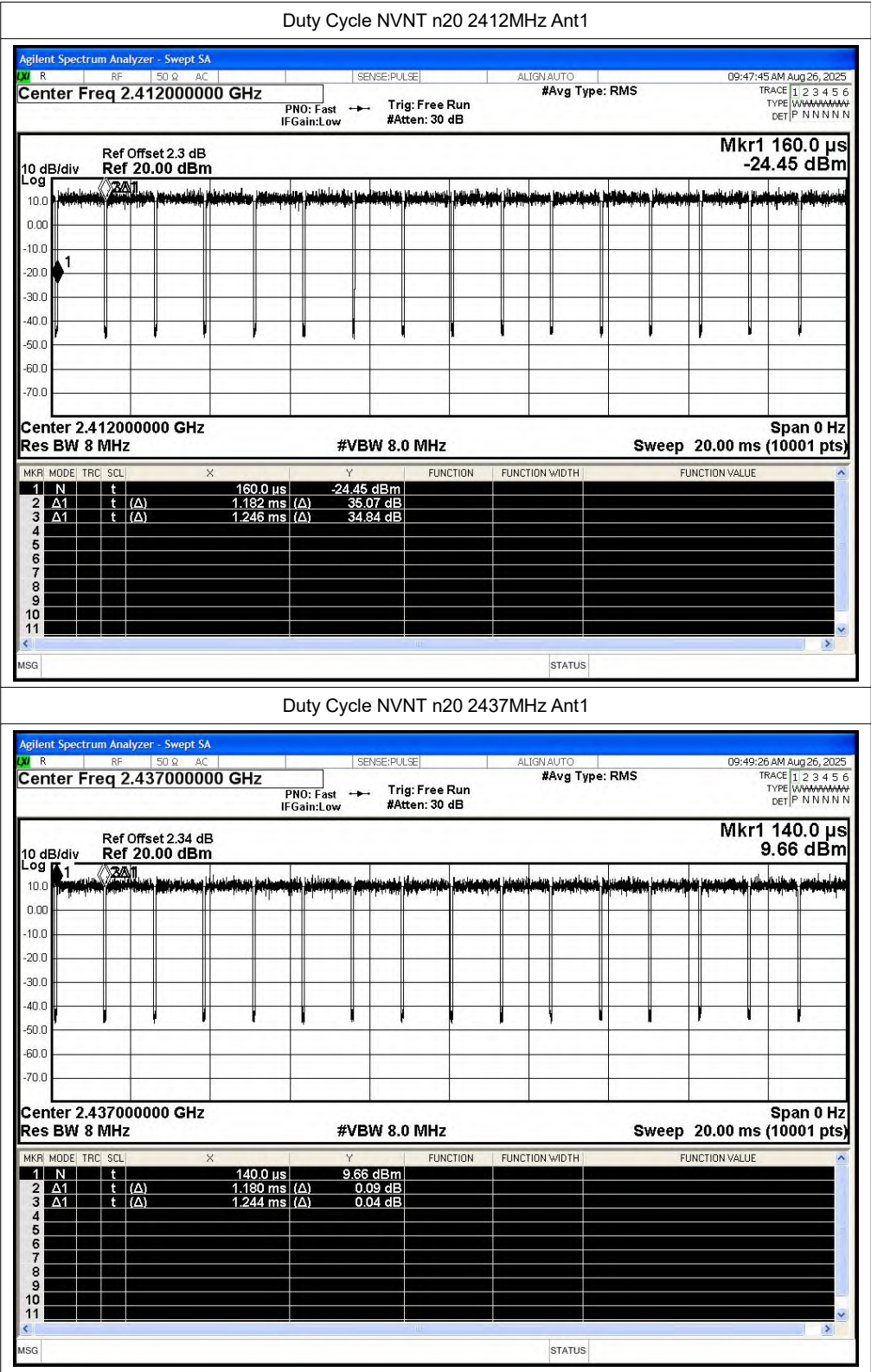
A.6 Duty Cycle

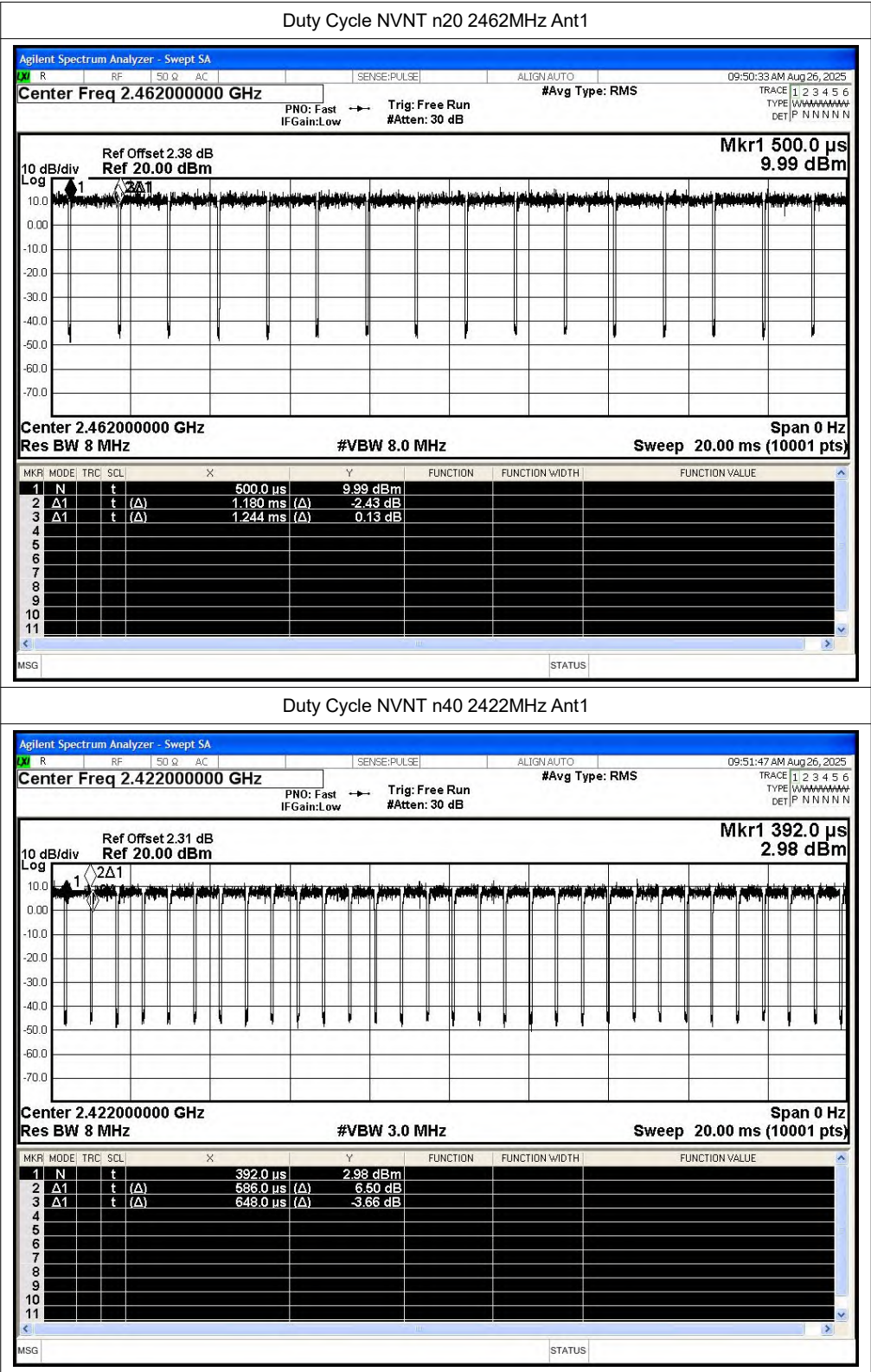
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	b	2412	Ant1	99.34	0	0.12
NVNT	b	2437	Ant1	99.32	0	0.12
NVNT	b	2462	Ant1	99.32	0	0.12
NVNT	g	2412	Ant1	95.62	0.19	0.72
NVNT	g	2437	Ant1	95.62	0.19	0.72
NVNT	g	2462	Ant1	95.62	0.19	0.72
NVNT	n20	2412	Ant1	94.86	0.23	0.85
NVNT	n20	2437	Ant1	94.86	0.23	0.85
NVNT	n20	2462	Ant1	94.86	0.23	0.85
NVNT	n40	2422	Ant1	90.43	0.44	1.71
NVNT	n40	2437	Ant1	90.46	0.44	1.7
NVNT	n40	2452	Ant1	90.43	0.44	1.71

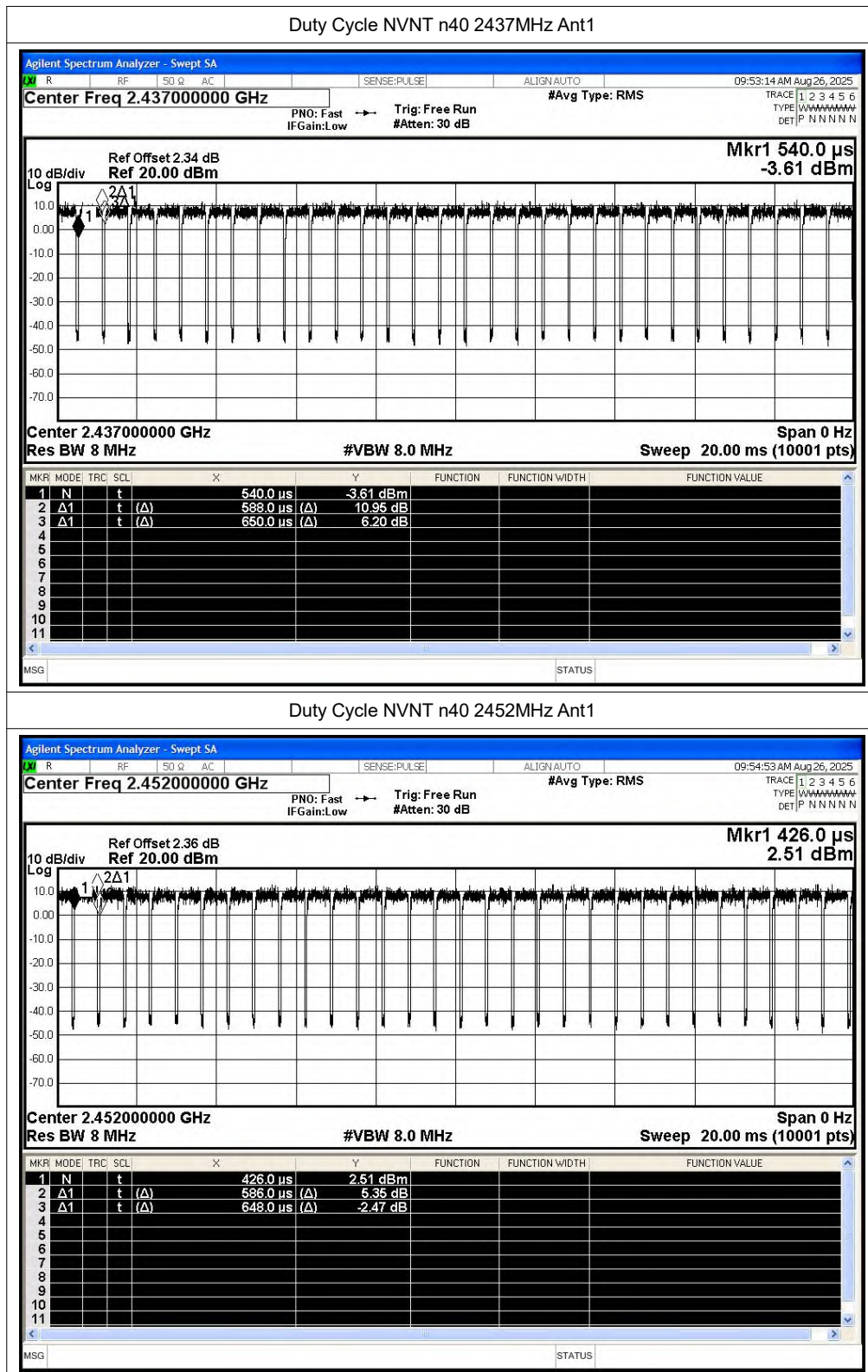












A.7 Restrict Band

Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	b	2412	Ant1	2310	-50.75	4.5121	-	49.02	Peak	74	Pass
NVNT	b	2412	Ant1	2310	-58.33	4.5121	0	41.44	Average	54	Pass
NVNT	b	2412	Ant1	2363.82	-46.5	4.5121	-	53.27	Peak	74	Pass
NVNT	b	2412	Ant1	2389.092	-56.23	4.5121	0	43.54	Average	54	Pass
NVNT	b	2412	Ant1	2390	-49.23	4.5121	-	50.54	Peak	74	Pass
NVNT	b	2412	Ant1	2390	-57.44	4.5121	0	42.33	Average	54	Pass
NVNT	b	2462	Ant1	2483.5	-47.16	4.5121	-	52.61	Peak	74	Pass
NVNT	b	2462	Ant1	2483.5	-55.51	4.5121	0	44.26	Average	54	Pass
NVNT	b	2462	Ant1	2485.001	-40.44	4.5121	-	59.33	Peak	74	Pass
NVNT	b	2462	Ant1	2485.69	-55.27	4.5121	0	44.50	Average	54	Pass
NVNT	b	2462	Ant1	2500	-49.92	4.5121	-	49.85	Peak	74	Pass
NVNT	b	2462	Ant1	2500	-57.99	4.5121	0	41.78	Average	54	Pass
NVNT	g	2412	Ant1	2310	-49.72	4.5121	-	50.05	Peak	74	Pass
NVNT	g	2412	Ant1	2310	-58.97	4.5121	0.19	40.99	Average	54	Pass
NVNT	g	2412	Ant1	2388.975	-35.88	4.5121	-	63.89	Peak	74	Pass
NVNT	g	2412	Ant1	2389.911	-53.14	4.5121	0.19	46.82	Average	54	Pass
NVNT	g	2412	Ant1	2390	-35.88	4.5121	-	63.89	Peak	74	Pass
NVNT	g	2412	Ant1	2390	-53.59	4.5121	0.19	46.37	Average	54	Pass
NVNT	g	2462	Ant1	2483.5	-32.75	4.5121	-	67.02	Peak	74	Pass
NVNT	g	2462	Ant1	2483.5	-50.59	4.5121	0.19	49.37	Average	54	Pass
NVNT	g	2462	Ant1	2483.517	-32.75	4.5121	-	67.02	Peak	74	Pass
NVNT	g	2462	Ant1	2483.941	-50.02	4.5121	0.19	49.94	Average	54	Pass
NVNT	g	2462	Ant1	2500	-49.33	4.5121	-	50.44	Peak	74	Pass
NVNT	g	2462	Ant1	2500	-58	4.5121	0.19	41.96	Average	54	Pass
NVNT	n20	2412	Ant1	2310	-49.22	4.5121	-	50.55	Peak	74	Pass
NVNT	n20	2412	Ant1	2310	-58.64	4.5121	0.23	41.36	Average	54	Pass
NVNT	n20	2412	Ant1	2389.56	-35.82	4.5121	-	63.95	Peak	74	Pass
NVNT	n20	2412	Ant1	2389.443	-51.76	4.5121	0.23	48.24	Average	54	Pass
NVNT	n20	2412	Ant1	2390	-37.78	4.5121	-	61.99	Peak	74	Pass
NVNT	n20	2412	Ant1	2390	-49.76	4.5121	0.23	50.24	Average	54	Pass
NVNT	n20	2462	Ant1	2483.5	-39.12	4.5121	-	60.65	Peak	74	Pass
NVNT	n20	2462	Ant1	2483.5	-52.52	4.5121	0.23	47.48	Average	54	Pass
NVNT	n20	2462	Ant1	2483.57	-38.63	4.5121	-	61.14	Peak	74	Pass
NVNT	n20	2462	Ant1	2483.517	-52.52	4.5121	0.23	47.48	Average	54	Pass
NVNT	n20	2462	Ant1	2500	-48.06	4.5121	-	51.71	Peak	74	Pass
NVNT	n20	2462	Ant1	2500	-57.54	4.5121	0.23	42.46	Average	54	Pass
NVNT	n40	2422	Ant1	2310	-51.76	4.5121	-	48.01	Peak	74	Pass

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NVNT	n40	2422	Ant1	2310	-58.56	4.5121	0.44	41.65	Average	54	Pass
NVNT	n40	2422	Ant1	2389.52	-35.29	4.5121	-	64.48	Peak	74	Pass
NVNT	n40	2422	Ant1	2389.946	-50.62	4.5121	0.44	49.59	Average	54	Pass
NVNT	n40	2422	Ant1	2390	-37.68	4.5121	-	62.09	Peak	74	Pass
NVNT	n40	2422	Ant1	2390	-50.62	4.5121	0.44	49.59	Average	54	Pass
NVNT	n40	2452	Ant1	2483.5	-39.92	4.5121	-	59.85	Peak	74	Pass
NVNT	n40	2452	Ant1	2483.5	-51.52	4.5121	0.44	48.69	Average	54	Pass
NVNT	n40	2452	Ant1	2483.698	-34.79	4.5121	-	64.98	Peak	74	Pass
NVNT	n40	2452	Ant1	2483.542	-50.62	4.5121	0.44	49.59	Average	54	Pass
NVNT	n40	2452	Ant1	2500	-49.88	4.5121	-	49.89	Peak	74	Pass
NVNT	n40	2452	Ant1	2500	-58.01	4.5121	0.44	42.20	Average	54	Pass

