

Appendix A: Test Results of 2.4GHz Wi-Fi

APPENDIX A: TEST RESULTS OF 2.4GHZ WI-FI.....	1
APPENDIX A.1: TEST RESULTS OF MAXIMUM PEAK CONDUCTED OUTPUT POWER.....	2
APPENDIX A.2: TEST RESULTS OF CONDUCTED POWER SPECTRAL DENSITY.....	3
APPENDIX A.3: TEST RESULTS OF 6dB BANDWIDTH	22
APPENDIX A.4: TEST RESULTS OF 99% BANDWIDTH.....	29
APPENDIX A.5: TEST RESULTS OF CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 kHz BANDWIDTH	36
<i>Band Edge</i>	36
<i>Conducted Spurious Emission</i>	41
APPENDIX A.6: TEST RESULTS OF RADIATED SPURIOUS EMISSIONS	54
30MHz - 1GHz (<i>Worst case</i>)	54
1GHz - 18GHz.....	56

Appendix A.1: Test Results of Maximum Peak Conducted Output Power

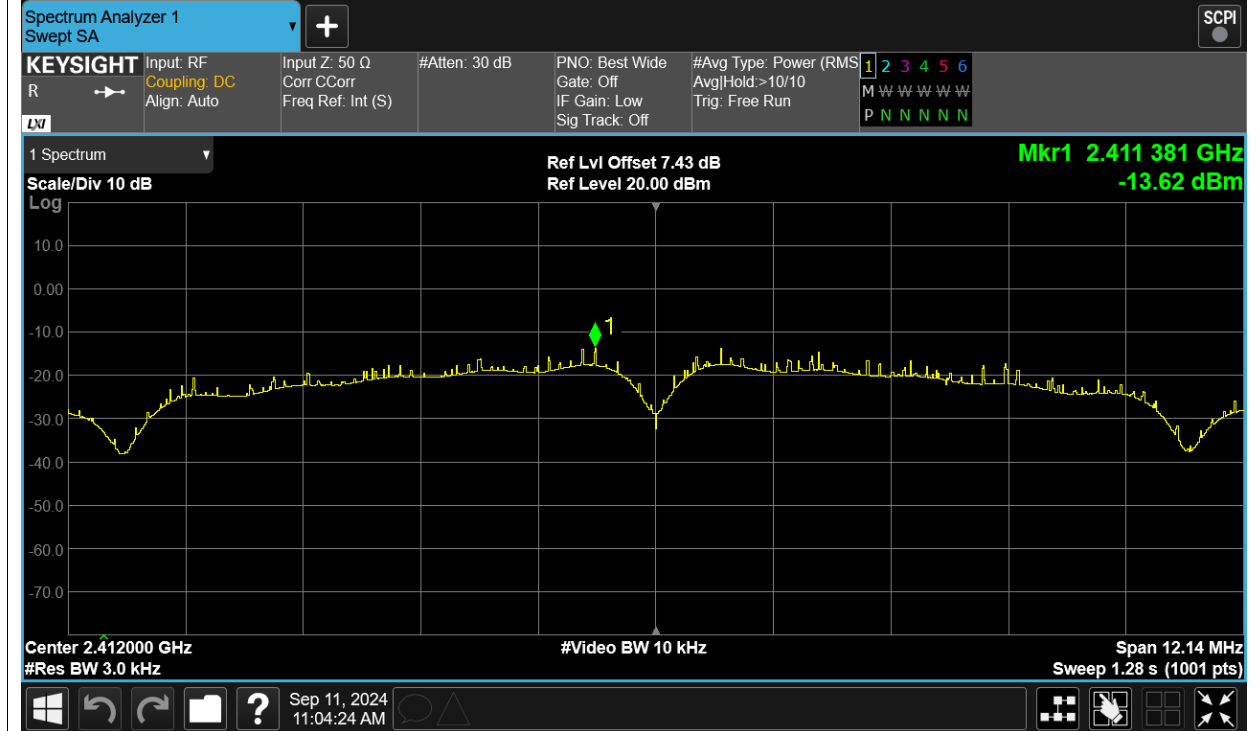
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	13.413	0.01	13.42	30	Pass
NVNT	b	2437	Ant1	14.864	0.01	14.87	30	Pass
NVNT	b	2462	Ant1	14.742	0.01	14.75	30	Pass
NVNT	b	2412	Ant2	13.45	0.01	13.46	30	Pass
NVNT	b	2437	Ant2	14.356	0.01	14.37	30	Pass
NVNT	b	2462	Ant2	13.707	0.01	13.72	30	Pass
NVNT	g	2412	Ant1	13.822	0.08	13.90	30	Pass
NVNT	g	2437	Ant1	14.572	0.08	14.65	30	Pass
NVNT	g	2462	Ant1	13.777	0.08	13.86	30	Pass
NVNT	g	2412	Ant2	13.983	0.08	14.06	30	Pass
NVNT	g	2437	Ant2	13.987	0.08	14.07	30	Pass
NVNT	g	2462	Ant2	13.279	0.08	13.36	30	Pass
NVNT	n(HT20)	2412	Ant1	13.632	0.09	13.72	30	Pass
NVNT	n(HT20)	2437	Ant1	14.29	0.09	14.38	30	Pass
NVNT	n(HT20)	2462	Ant1	13.699	0.09	13.79	30	Pass
NVNT	n(HT20)	2412	Ant2	14.039	0.09	14.13	30	Pass
NVNT	n(HT20)	2437	Ant2	13.999	0.09	14.09	30	Pass
NVNT	n(HT20)	2462	Ant2	13.607	0.09	13.70	30	Pass
NVNT	n(HT20)	2412	Ant1	13.442	0.09	13.53	30	Pass
NVNT	n(HT20)	2412	Ant2	14.997	0.09	15.09	30	Pass
NVNT	n(HT20)	2412	Sum	17.299	0.09	17.39	30	Pass
NVNT	n(HT20)	2437	Ant1	13.618	0.09	13.71	30	Pass
NVNT	n(HT20)	2437	Ant2	13.668	0.09	13.76	30	Pass
NVNT	n(HT20)	2437	Sum	16.653	0.09	16.74	30	Pass
NVNT	n(HT20)	2462	Ant1	12.607	0.09	12.70	30	Pass
NVNT	n(HT20)	2462	Ant2	13.064	0.09	13.15	30	Pass
NVNT	n(HT20)	2462	Sum	15.852	0.09	15.94	30	Pass
NVNT	n(HT40)	2422	Ant1	14.029	0.27	14.30	30	Pass
NVNT	n(HT40)	2437	Ant1	14.578	0.27	14.85	30	Pass
NVNT	n(HT40)	2452	Ant1	14.067	0.27	14.34	30	Pass
NVNT	n(HT40)	2422	Ant2	13.517	0.27	13.79	30	Pass
NVNT	n(HT40)	2437	Ant2	13.603	0.27	13.87	30	Pass
NVNT	n(HT40)	2452	Ant2	13.355	0.27	13.63	30	Pass
NVNT	n(HT40)	2422	Ant1	11.388	0.27	11.66	30	Pass
NVNT	n(HT40)	2422	Ant2	12.677	0.27	12.95	30	Pass
NVNT	n(HT40)	2422	Sum	15.09	0.27	15.36	30	Pass
NVNT	n(HT40)	2437	Ant1	12.348	0.27	12.62	30	Pass
NVNT	n(HT40)	2437	Ant2	12.623	0.27	12.89	30	Pass
NVNT	n(HT40)	2437	Sum	15.498	0.27	15.77	30	Pass
NVNT	n(HT40)	2452	Ant1	11.675	0.27	11.95	30	Pass
NVNT	n(HT40)	2452	Ant2	12.048	0.27	12.32	30	Pass
NVNT	n(HT40)	2452	Sum	14.876	0.27	15.15	30	Pass

Appendix A.2: Test Results of Conducted Power Spectral Density

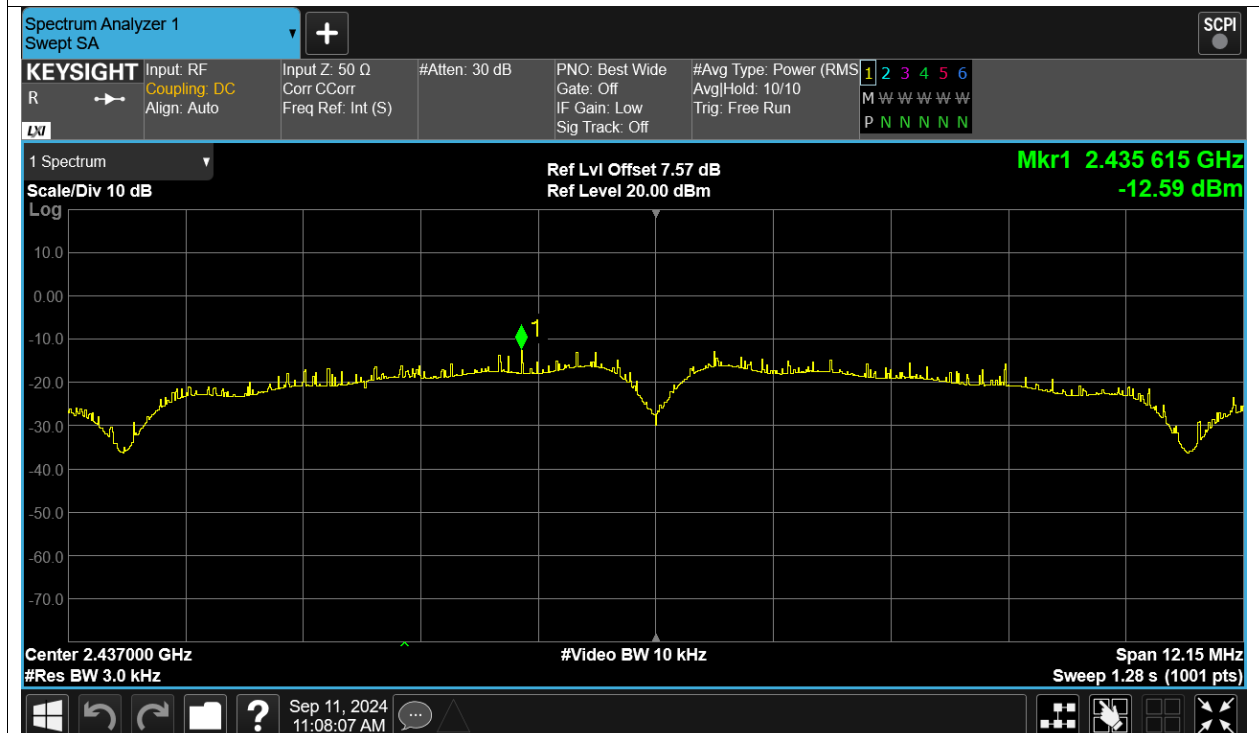
Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	-13.62	0.01	-13.61	8	Pass
NVNT	b	2437	Ant1	-12.59	0.01	-12.58	8	Pass
NVNT	b	2462	Ant1	-13.53	0.01	-13.52	8	Pass
NVNT	b	2412	Ant2	-12.35	0.01	-12.34	8	Pass
NVNT	b	2437	Ant2	-12.03	0.01	-12.02	8	Pass
NVNT	b	2462	Ant2	-12.64	0.01	-12.63	8	Pass
NVNT	g	2412	Ant1	-18.54	0.08	-18.46	8	Pass
NVNT	g	2437	Ant1	-18.75	0.08	-18.67	8	Pass
NVNT	g	2462	Ant1	-19.53	0.08	-19.45	8	Pass
NVNT	g	2412	Ant2	-18.64	0.08	-18.56	8	Pass
NVNT	g	2437	Ant2	-19.27	0.08	-19.19	8	Pass
NVNT	g	2462	Ant2	-19.29	0.08	-19.21	8	Pass
NVNT	n(HT20)	2412	Ant1	-18.04	0.09	-17.95	8	Pass
NVNT	n(HT20)	2437	Ant1	-17.57	0.09	-17.48	8	Pass
NVNT	n(HT20)	2462	Ant1	-18.17	0.09	-18.08	8	Pass
NVNT	n(HT20)	2412	Ant2	-16.92	0.09	-16.83	8	Pass
NVNT	n(HT20)	2437	Ant2	-17.76	0.09	-17.67	8	Pass
NVNT	n(HT20)	2462	Ant2	-19.18	0.09	-19.09	8	Pass
NVNT	n(HT20)	2412	Ant1	-19.30	0.09	-19.21	8	Pass
NVNT	n(HT20)	2412	Ant2	-17.70	0.09	-17.61	8	Pass
NVNT	n(HT20)	2412	Sum	-15.42	0.09	-15.33	8	Pass
NVNT	n(HT20)	2437	Ant1	-18.89	0.09	-18.8	8	Pass
NVNT	n(HT20)	2437	Ant2	-18.38	0.09	-18.29	8	Pass
NVNT	n(HT20)	2437	Sum	-15.62	0.09	-15.53	8	Pass
NVNT	n(HT20)	2462	Ant1	-19.33	0.09	-19.24	8	Pass
NVNT	n(HT20)	2462	Ant2	-18.82	0.09	-18.73	8	Pass
NVNT	n(HT20)	2462	Sum	-16.06	0.09	-15.97	8	Pass
NVNT	n(HT40)	2422	Ant1	-21.14	0.27	-20.87	8	Pass
NVNT	n(HT40)	2437	Ant1	-20.21	0.27	-19.94	8	Pass
NVNT	n(HT40)	2452	Ant1	-21.07	0.27	-20.8	8	Pass
NVNT	n(HT40)	2422	Ant2	-22.60	0.27	-22.33	8	Pass
NVNT	n(HT40)	2437	Ant2	-22.09	0.27	-21.82	8	Pass
NVNT	n(HT40)	2452	Ant2	-21.23	0.27	-20.96	8	Pass
NVNT	n(HT40)	2422	Ant1	-24.08	0.27	-23.81	8	Pass
NVNT	n(HT40)	2422	Ant2	-21.93	0.27	-21.66	8	Pass
NVNT	n(HT40)	2422	Sum	-19.86	0.27	-19.59	8	Pass
NVNT	n(HT40)	2437	Ant1	-22.03	0.27	-21.76	8	Pass
NVNT	n(HT40)	2437	Ant2	-22.52	0.27	-22.25	8	Pass
NVNT	n(HT40)	2437	Sum	-19.26	0.27	-18.99	8	Pass
NVNT	n(HT40)	2452	Ant1	-24.92	0.27	-24.65	8	Pass
NVNT	n(HT40)	2452	Ant2	-22.61	0.27	-22.34	8	Pass
NVNT	n(HT40)	2452	Sum	-20.60	0.27	-20.33	8	Pass

Test Graphs

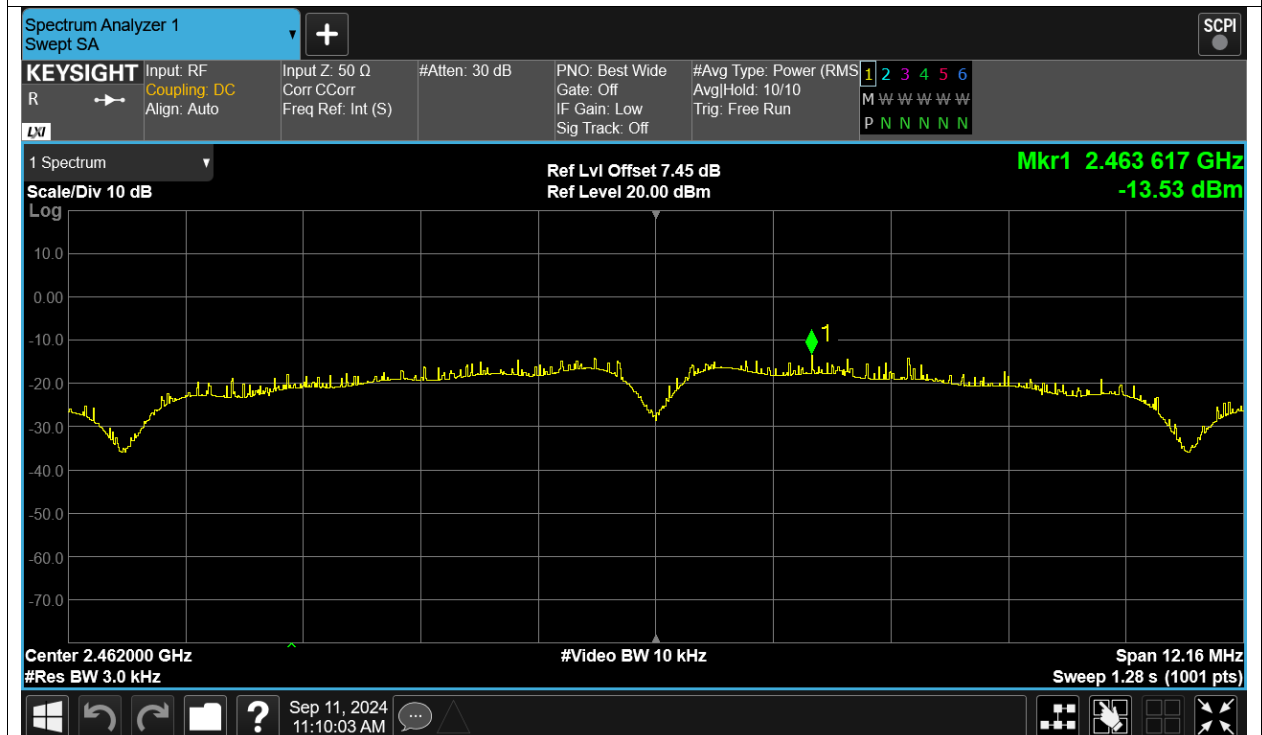
PSD NVNT b 2412MHz Ant1



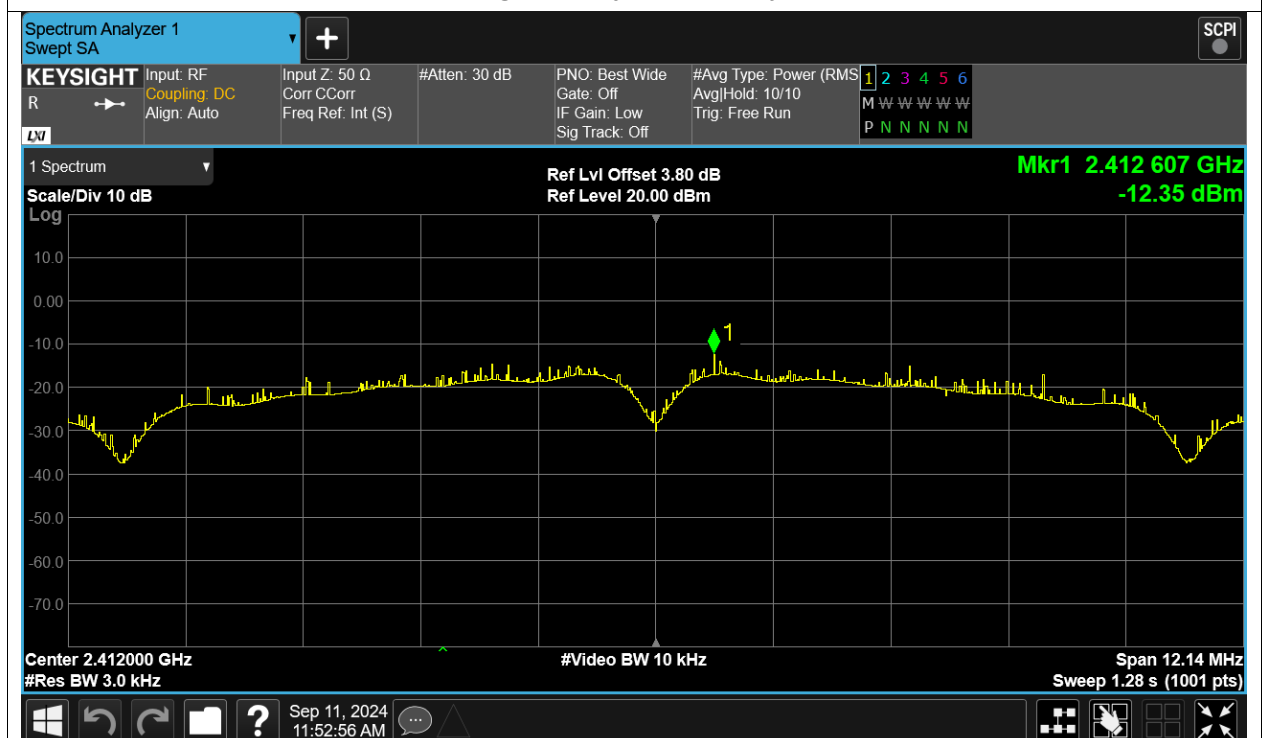
PSD NVNT b 2437MHz Ant1



PSD NVNT b 2462MHz Ant1



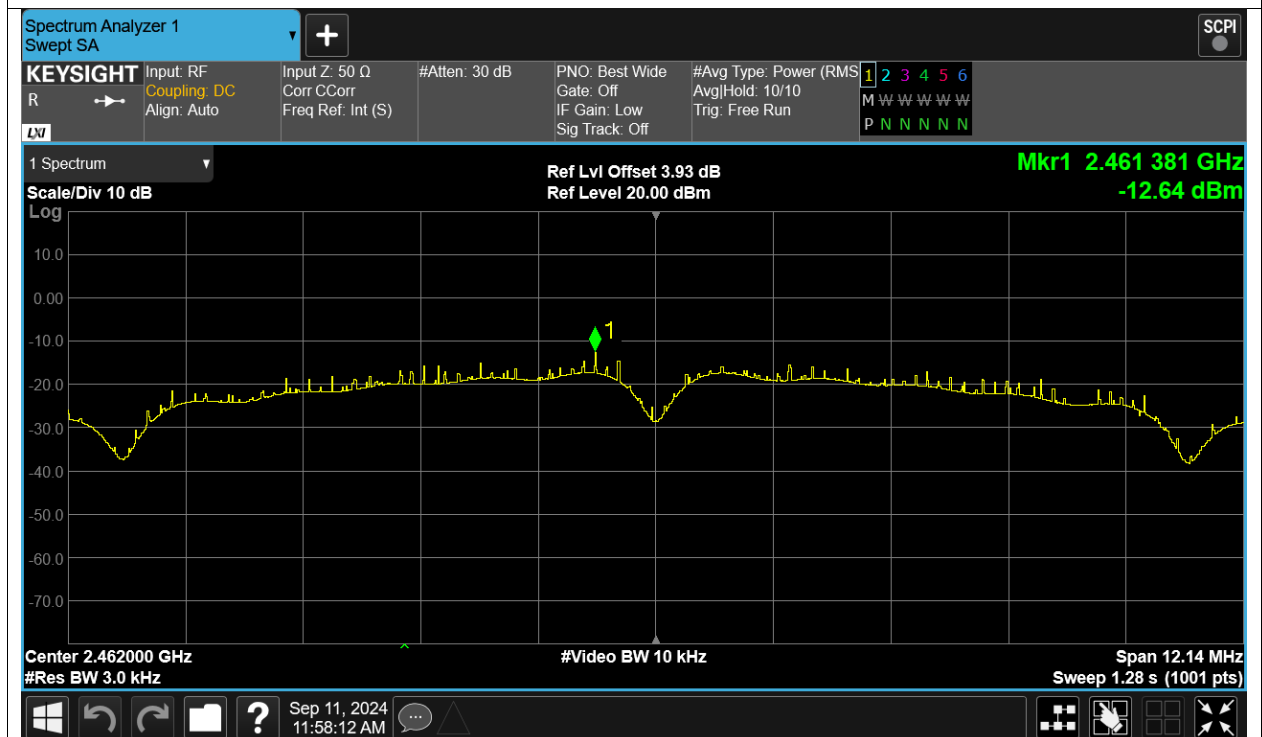
PSD NVNT b 2412MHz Ant2



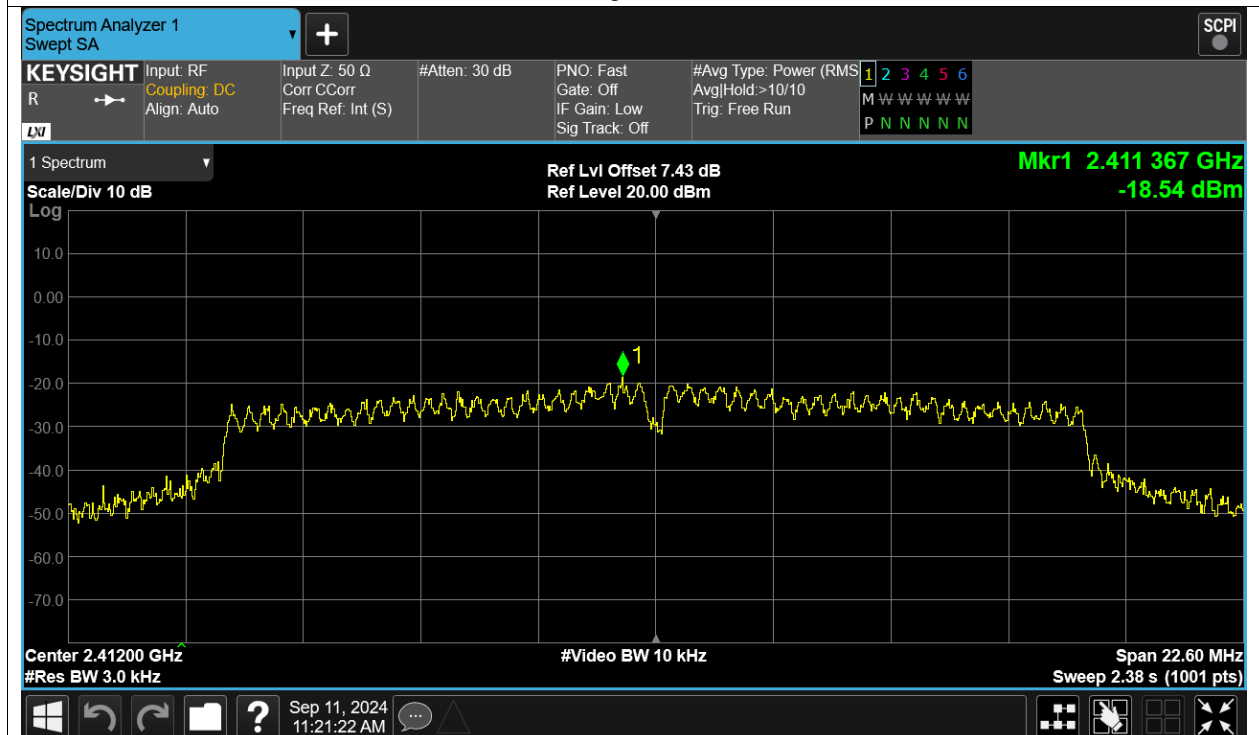
PSD NVNT b 2437MHz Ant2



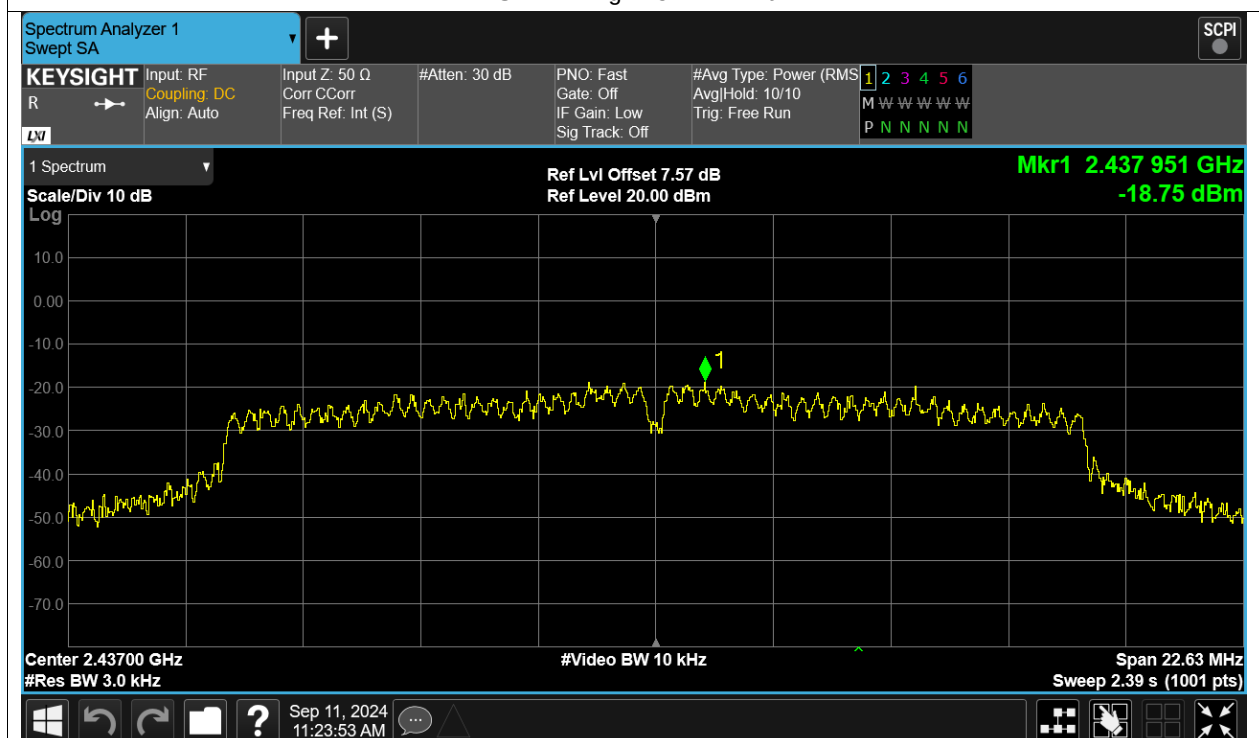
PSD NVNT b 2462MHz Ant2



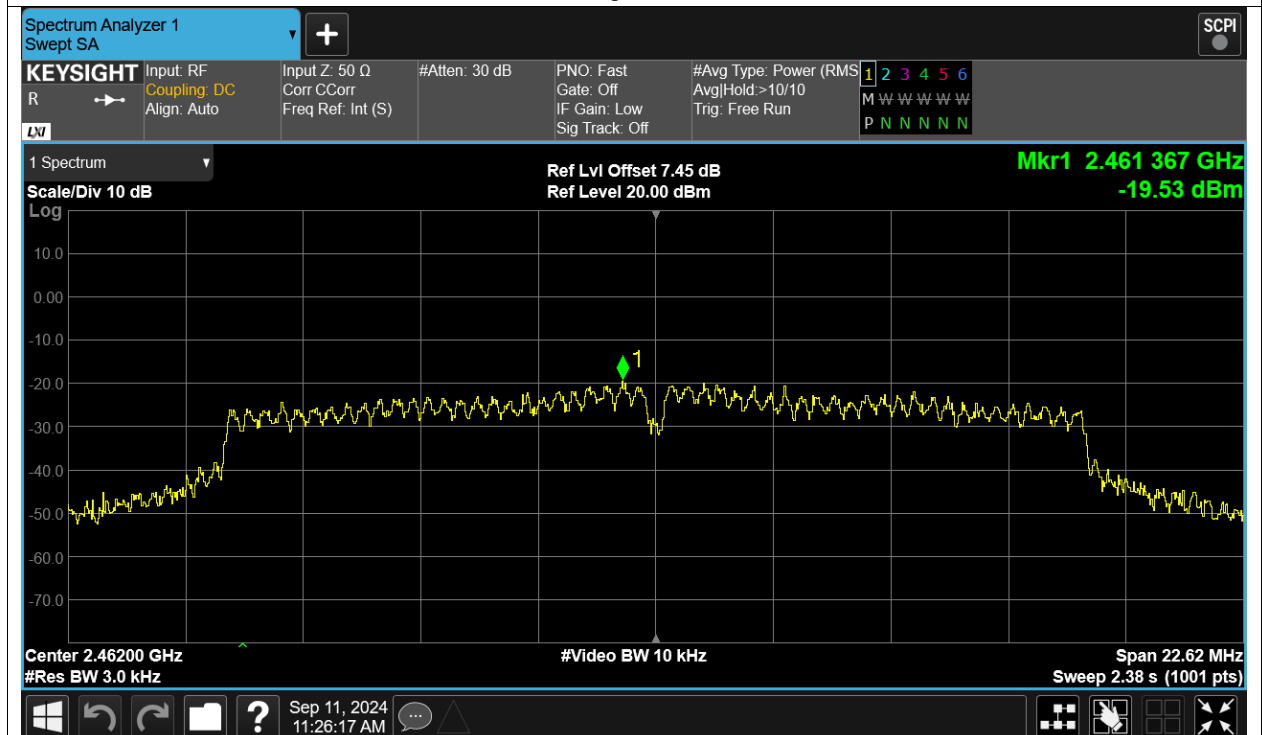
PSD NVNT g 2412MHz Ant1



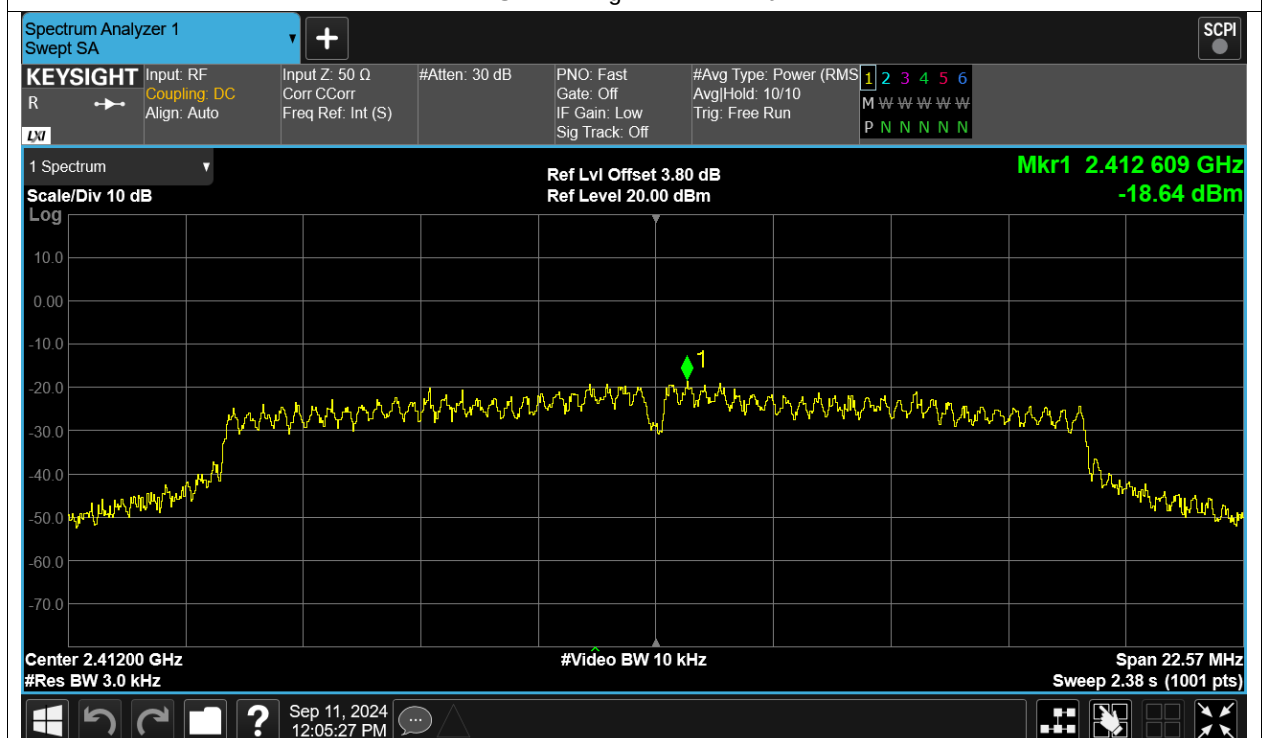
PSD NVNT g 2437MHz Ant1

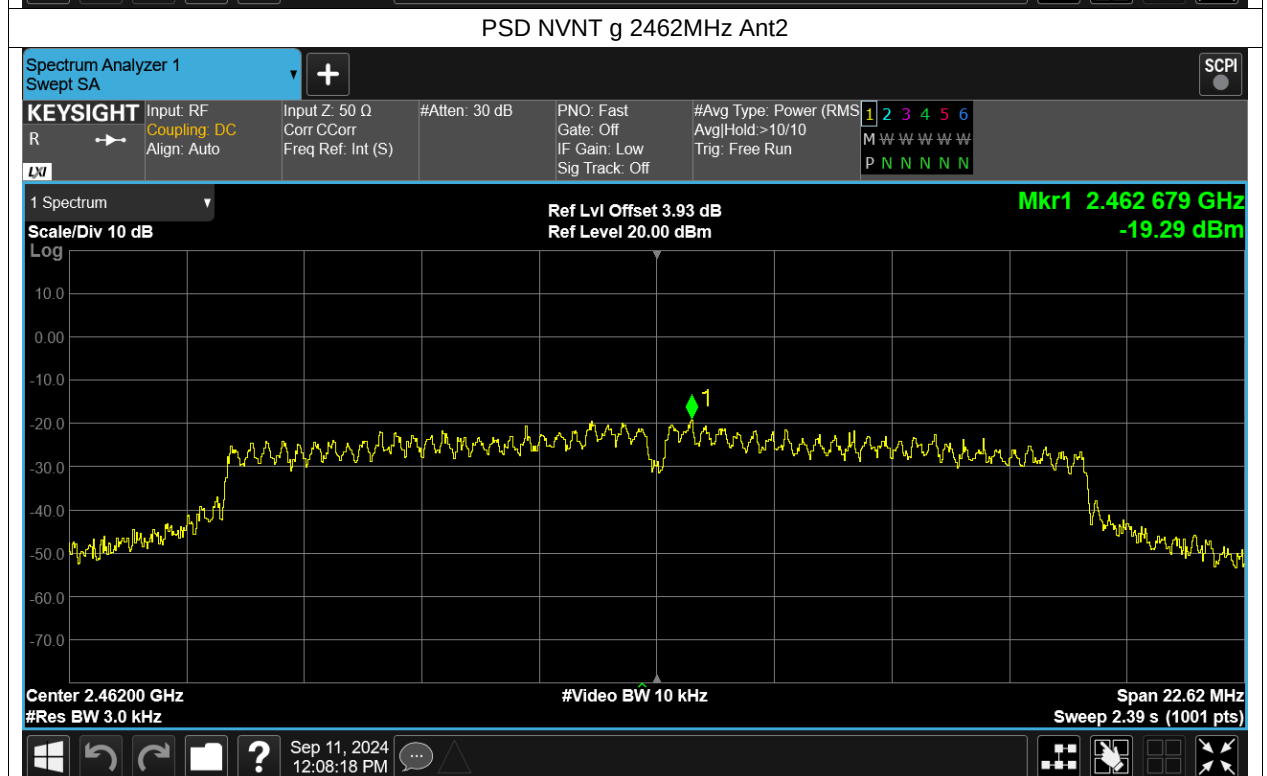
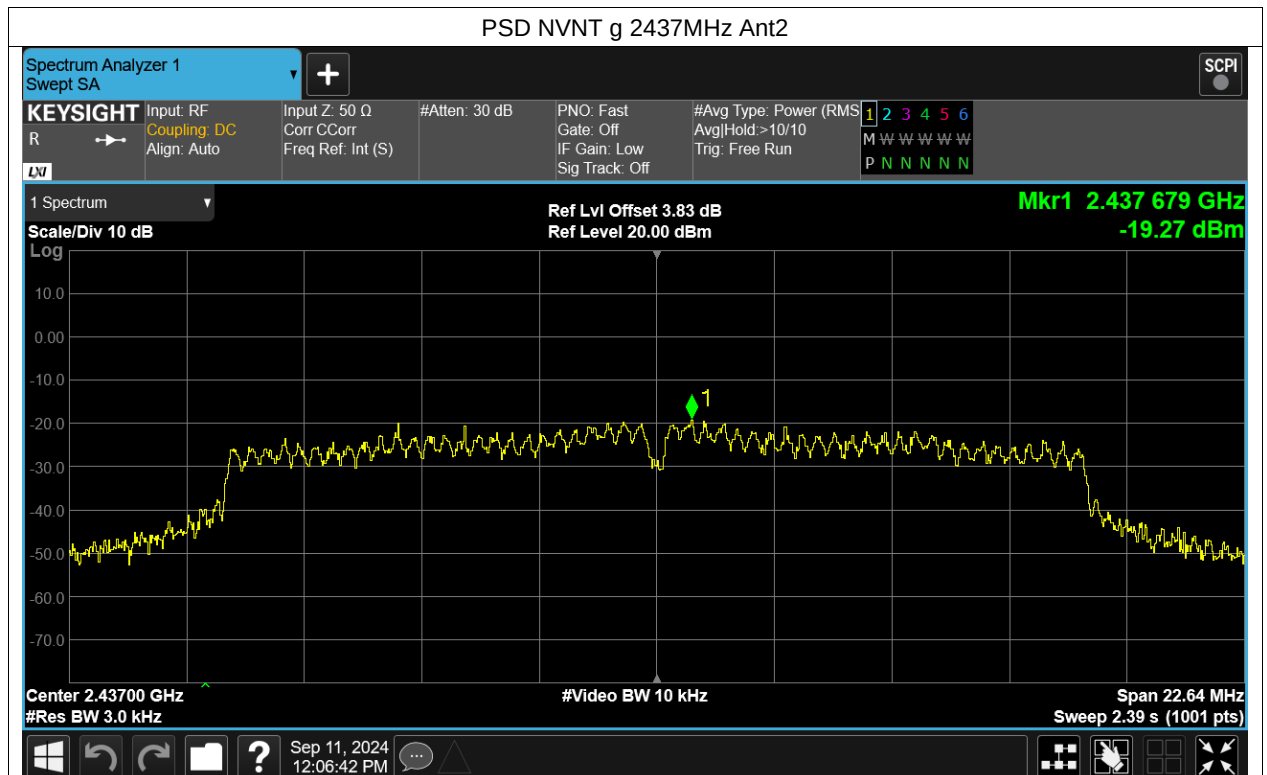


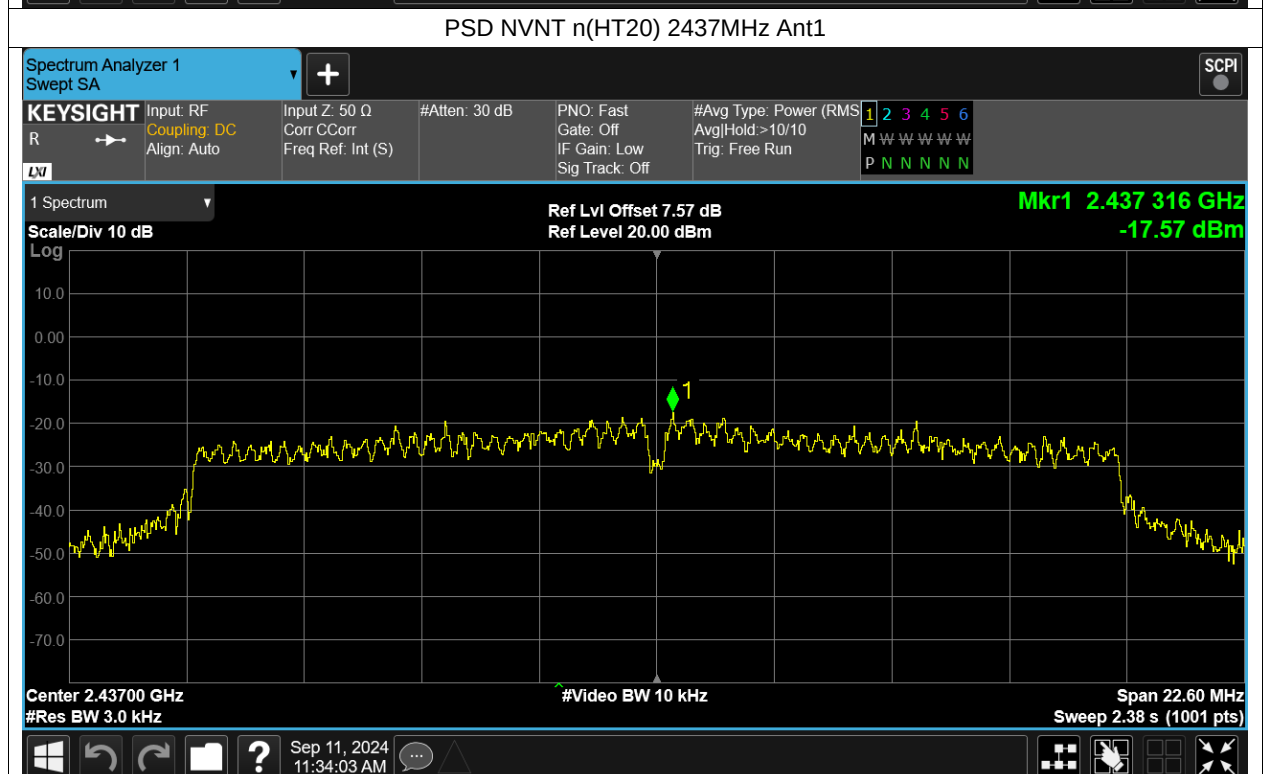
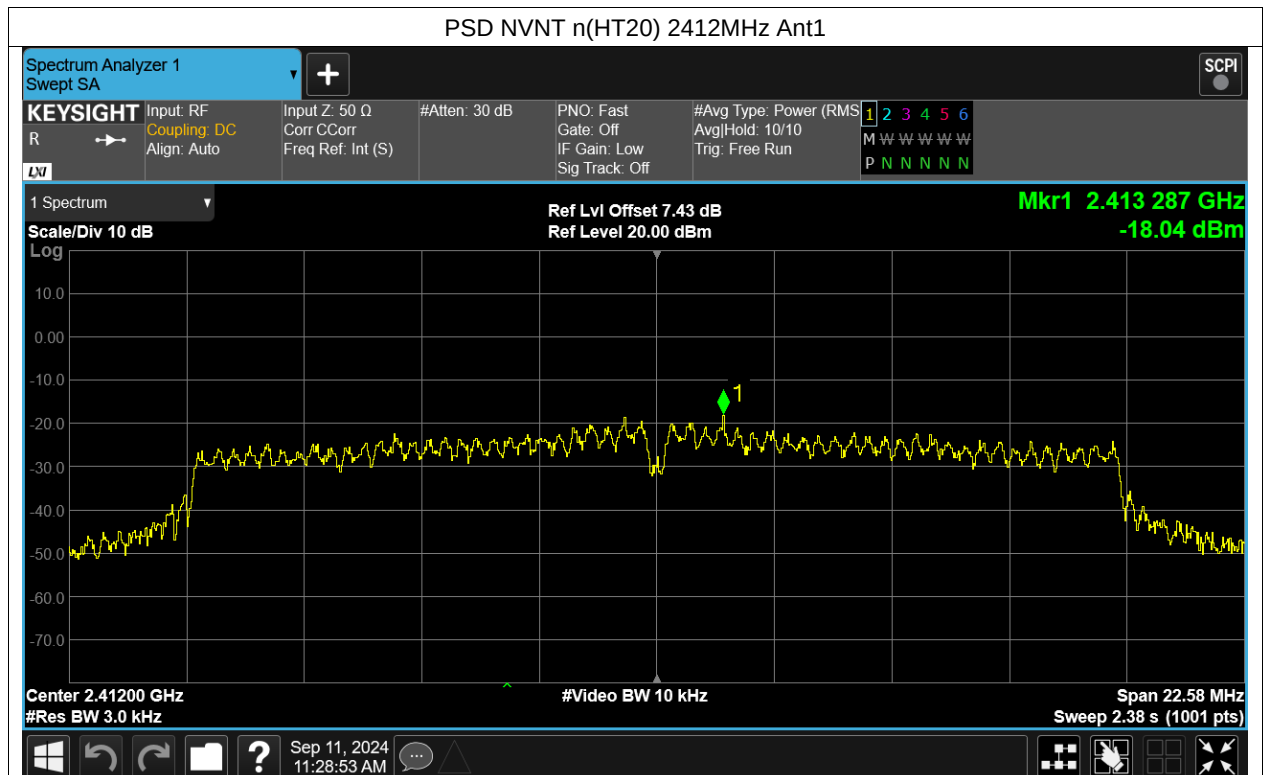
PSD NVNT g 2462MHz Ant1

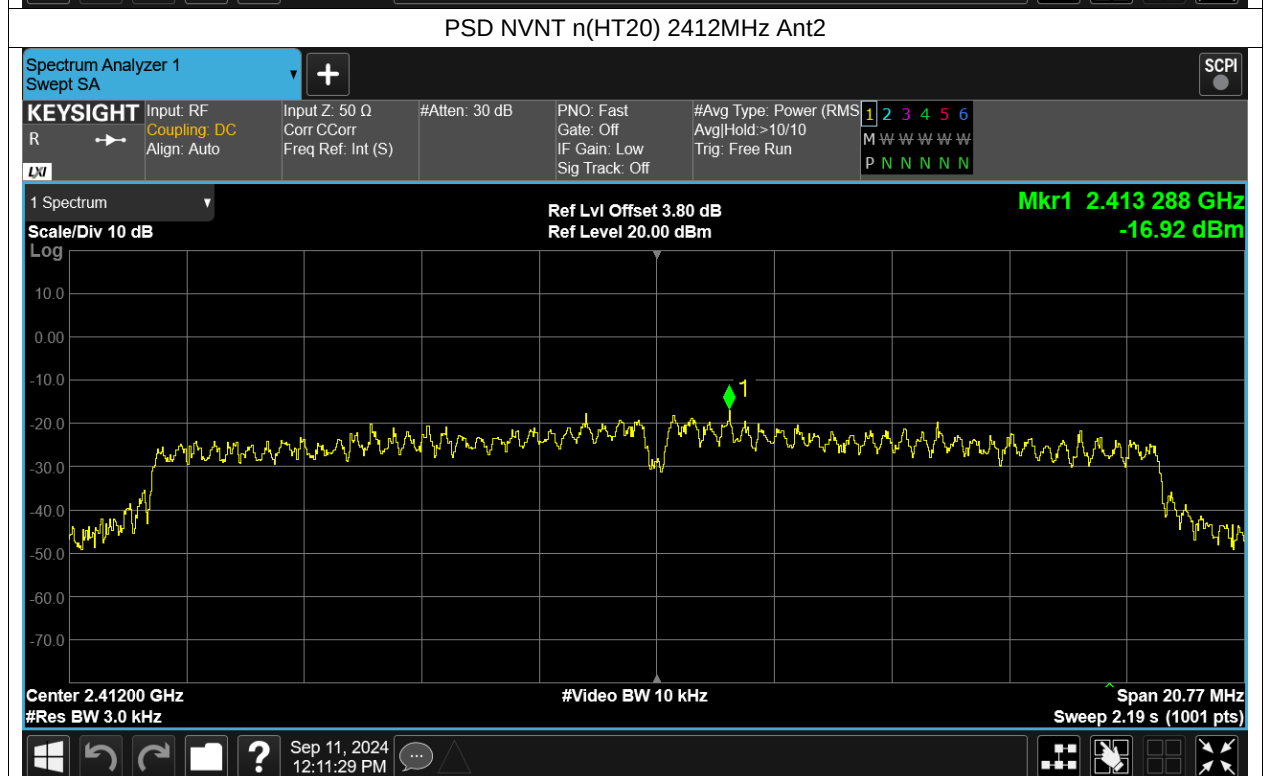
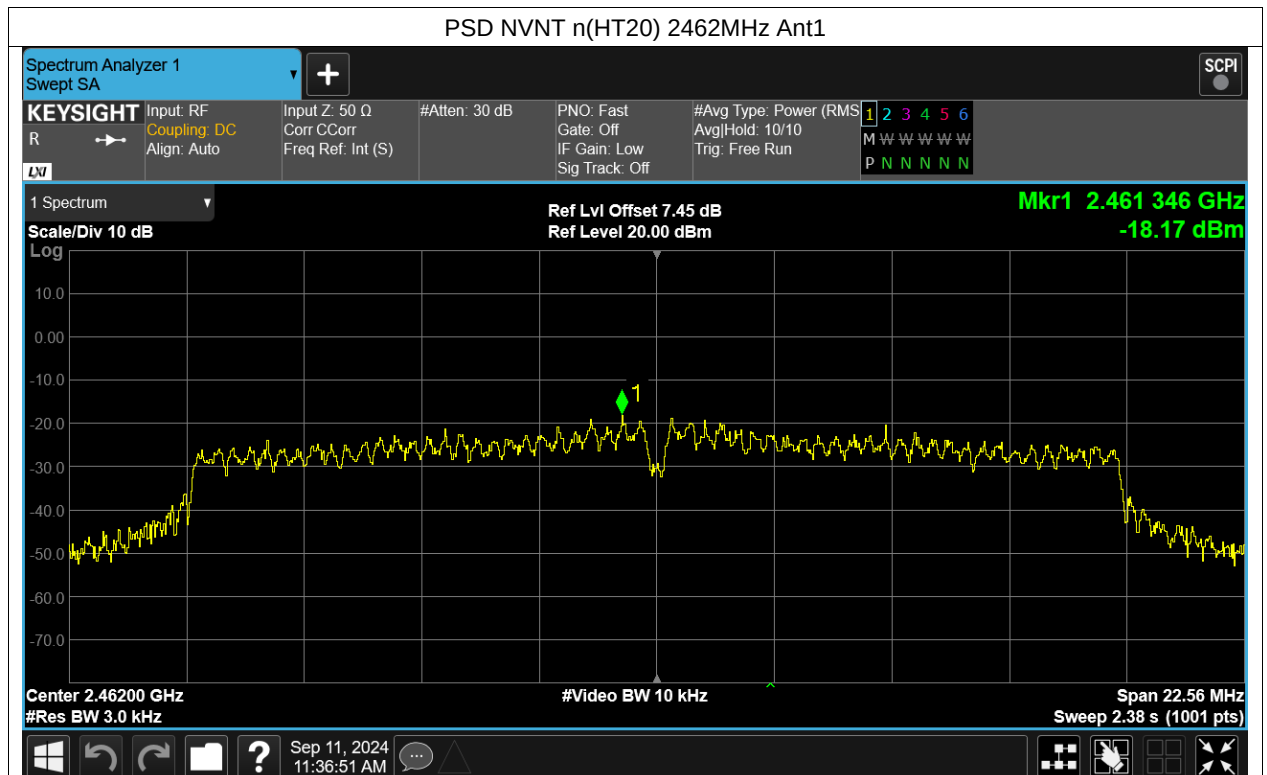


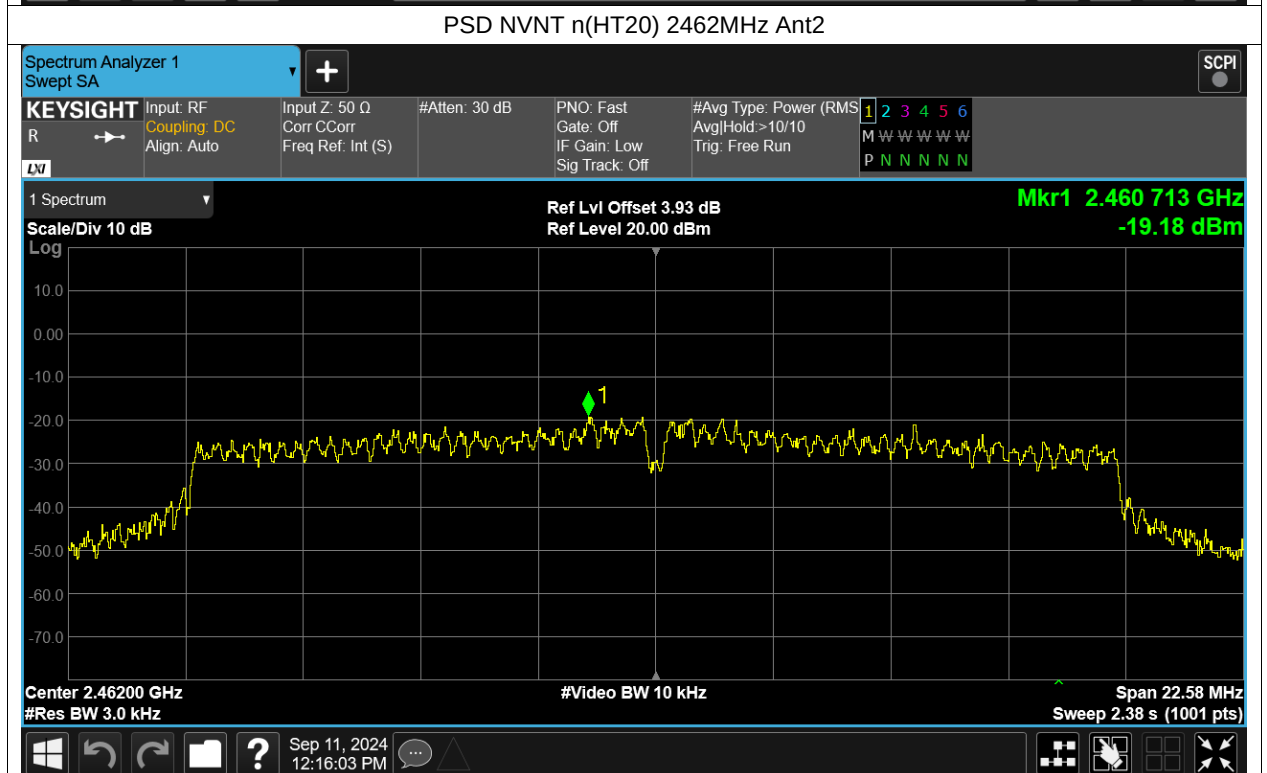
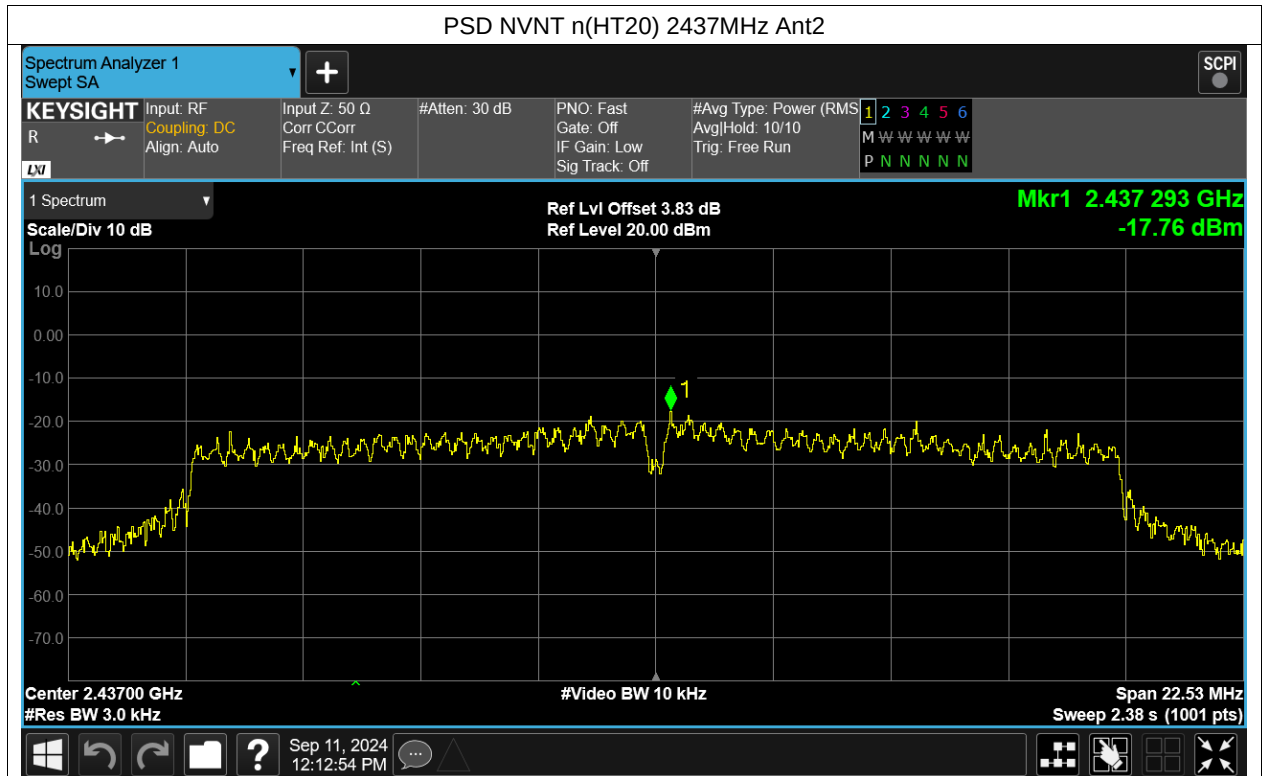
PSD NVNT g 2412MHz Ant2

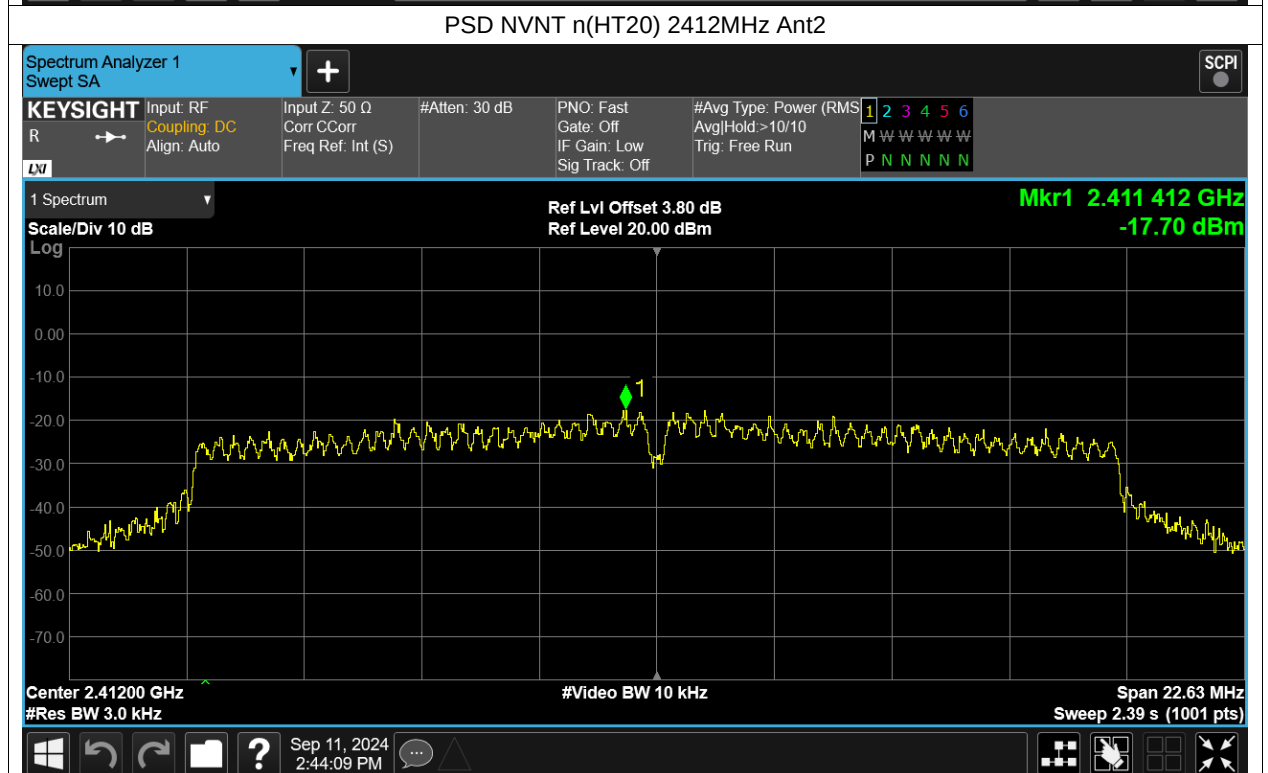
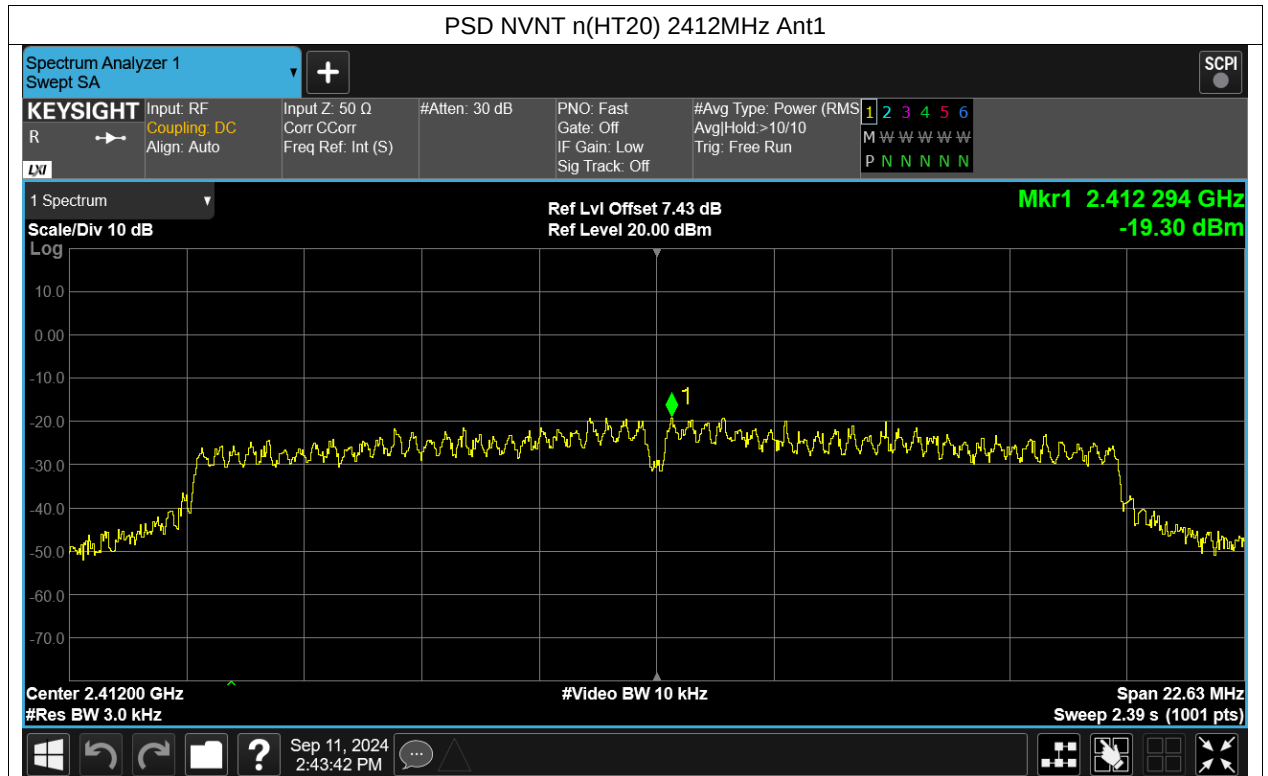


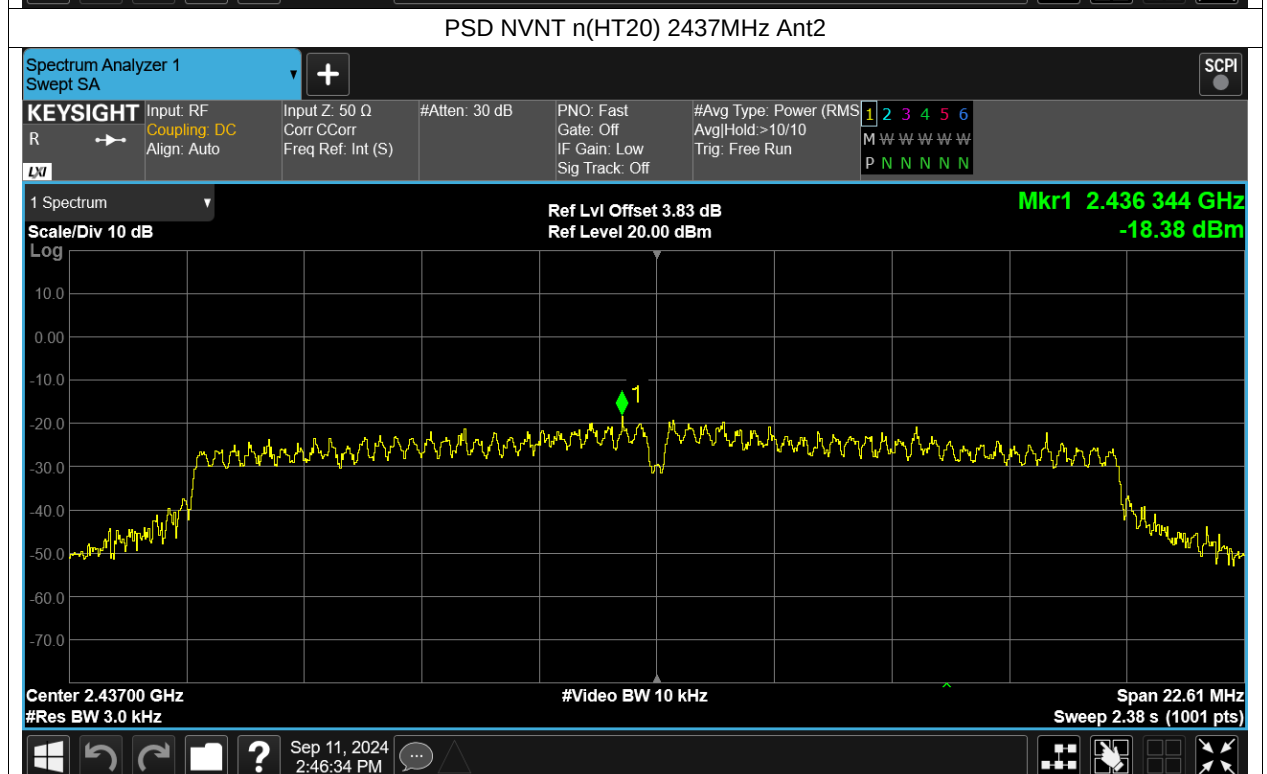
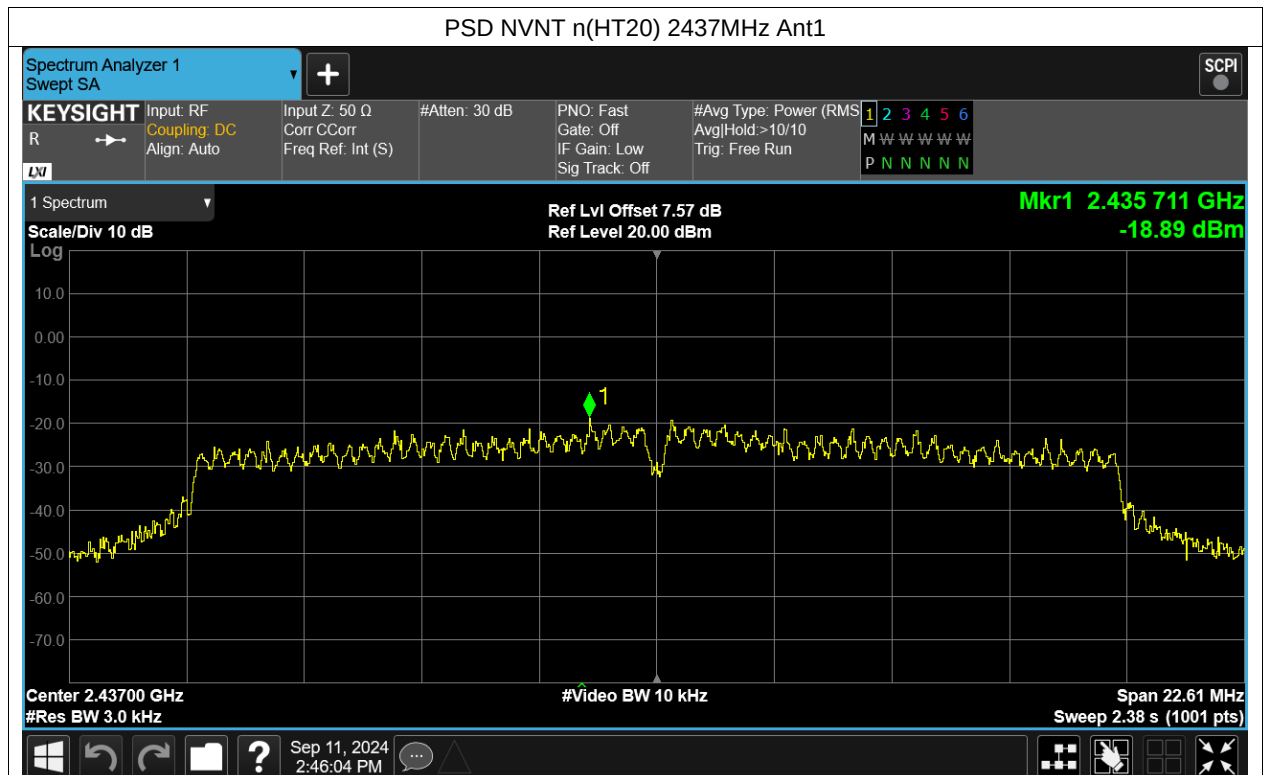


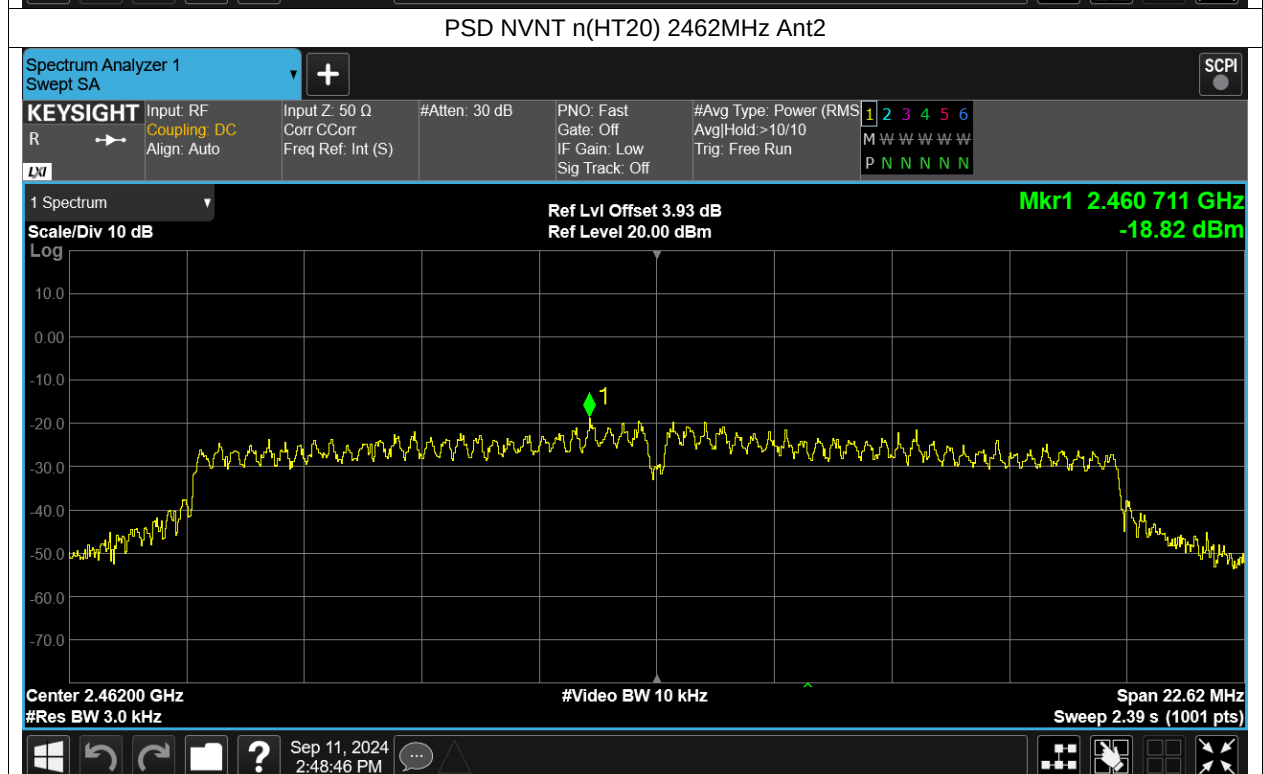
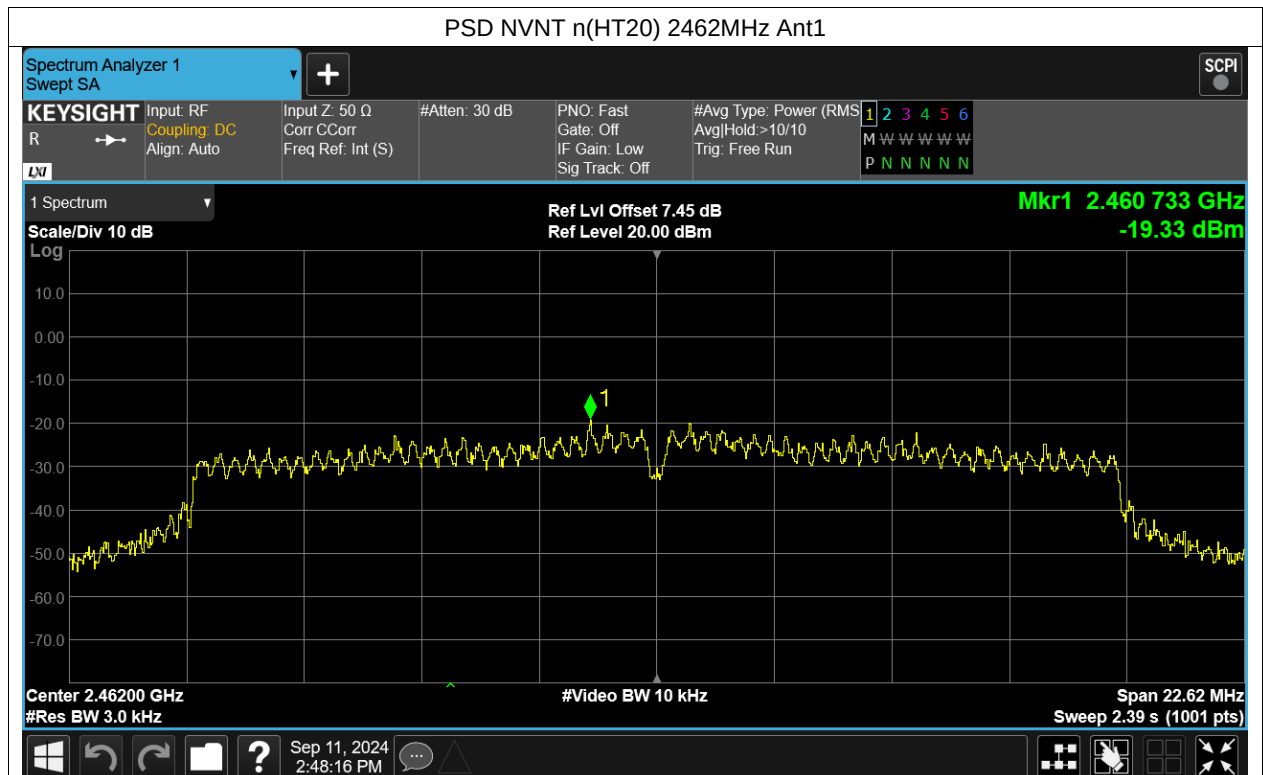


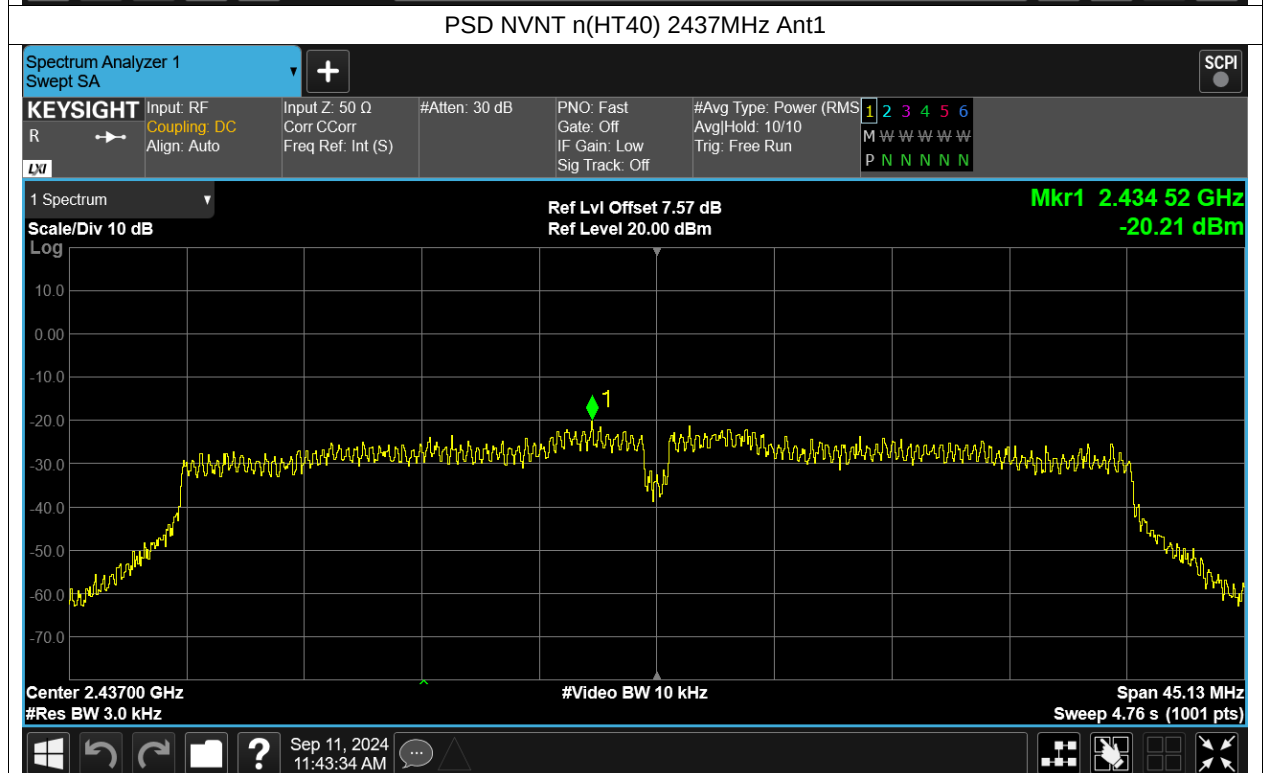
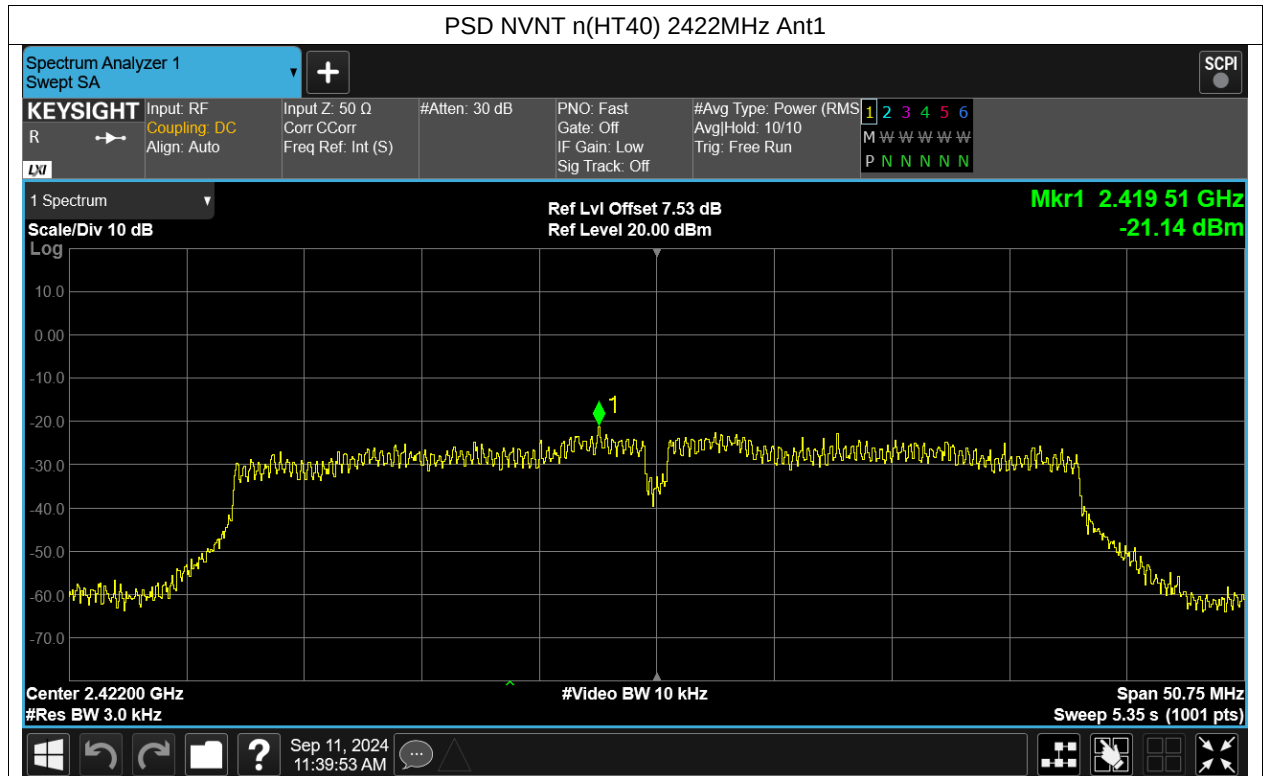


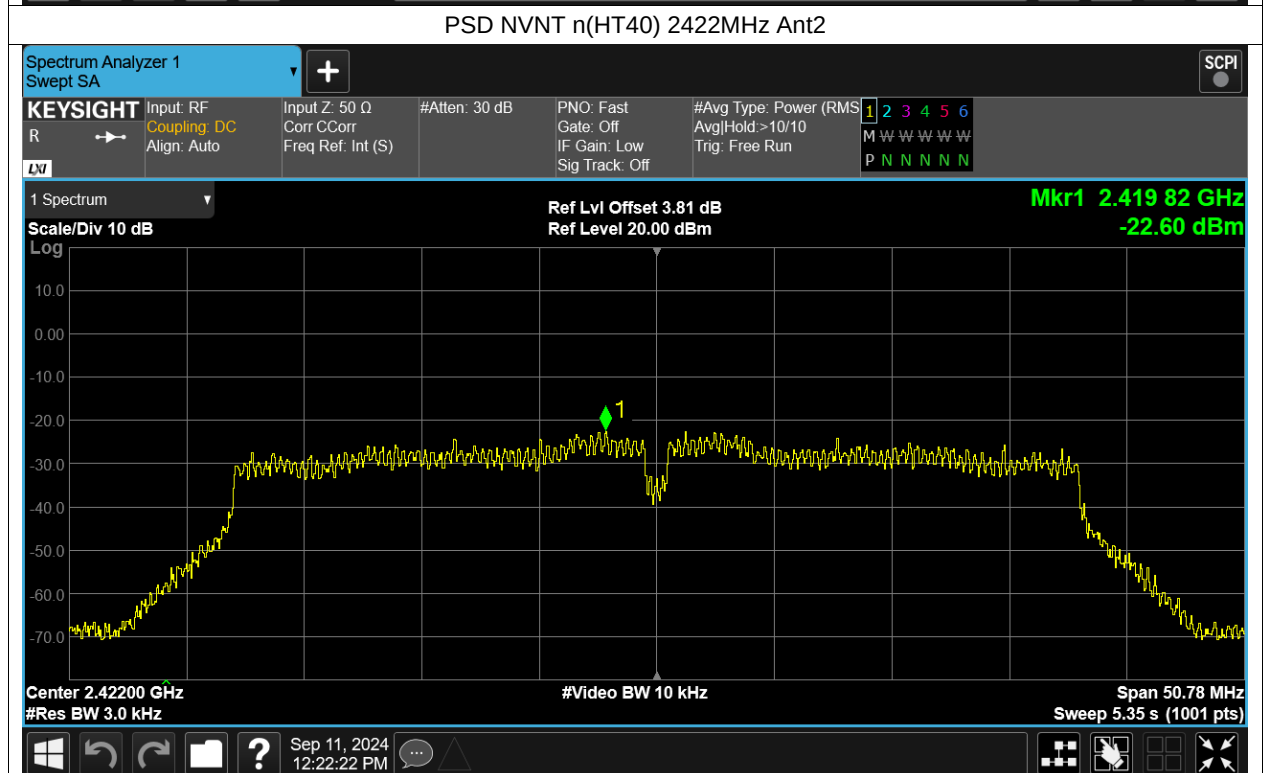
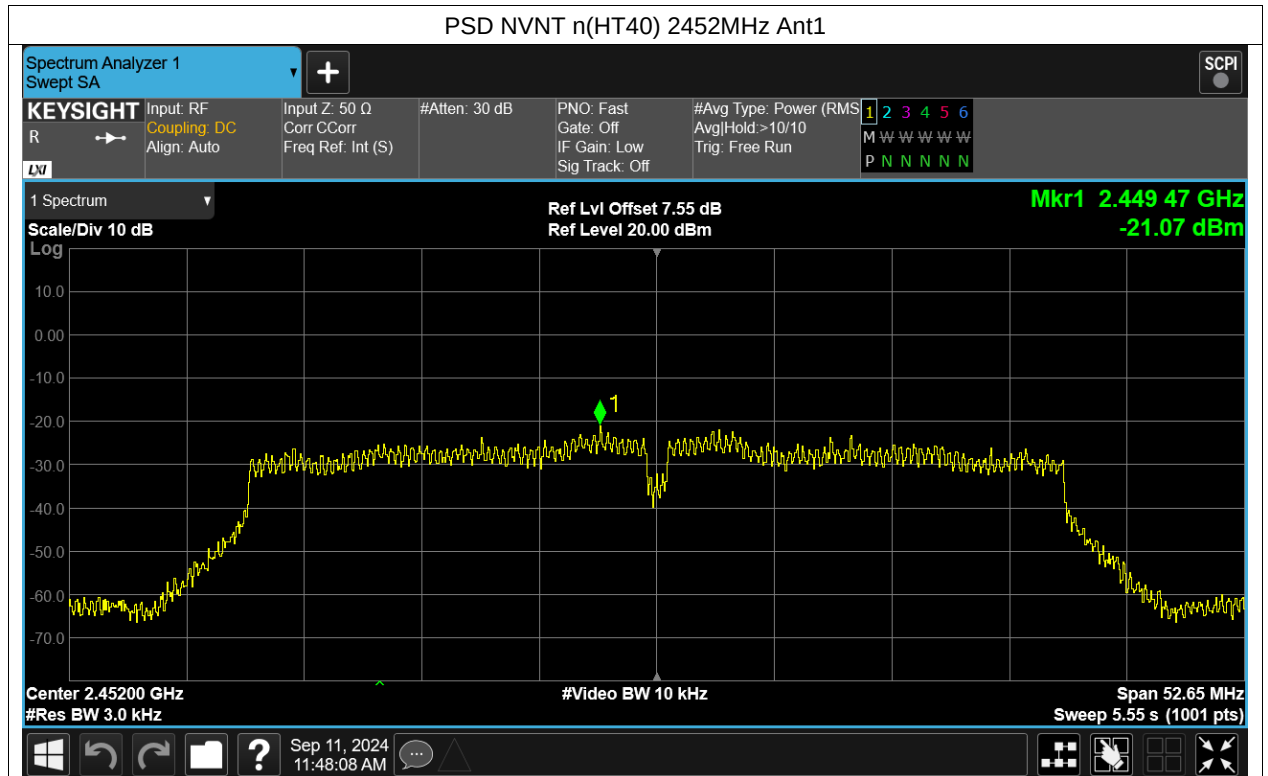


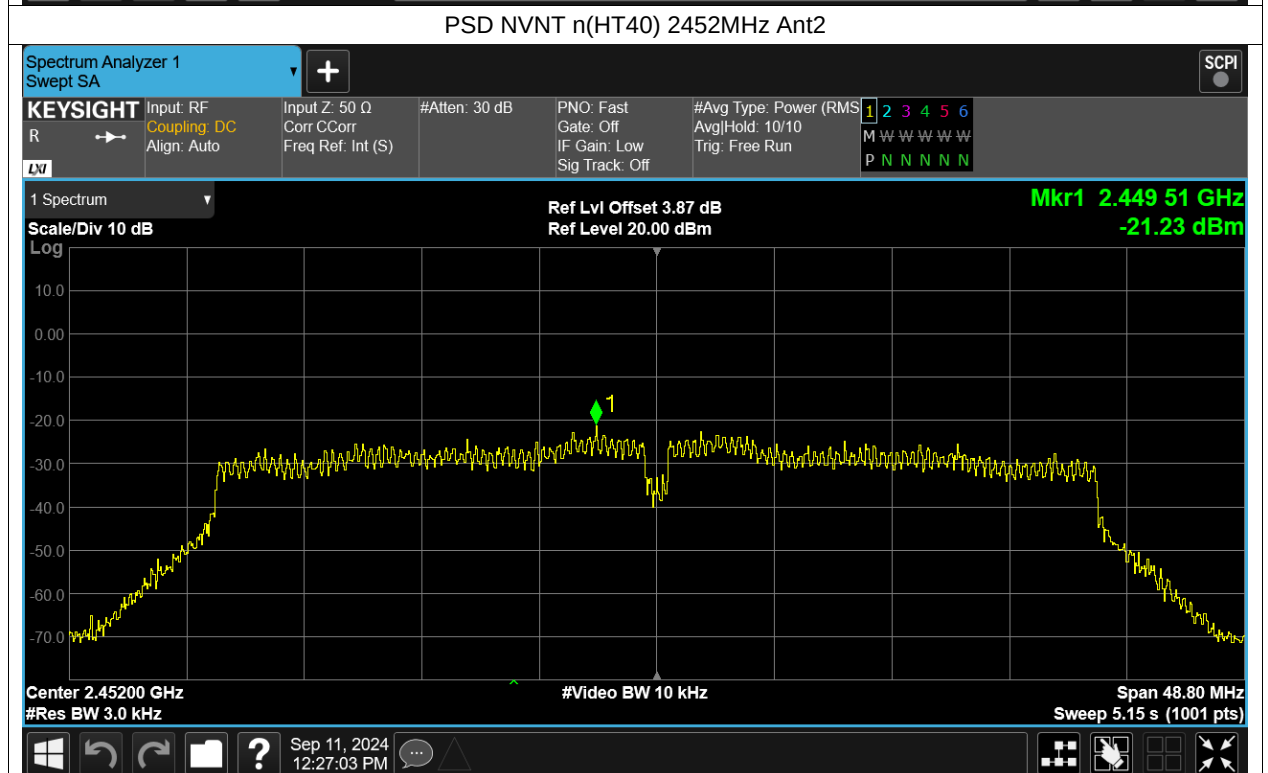
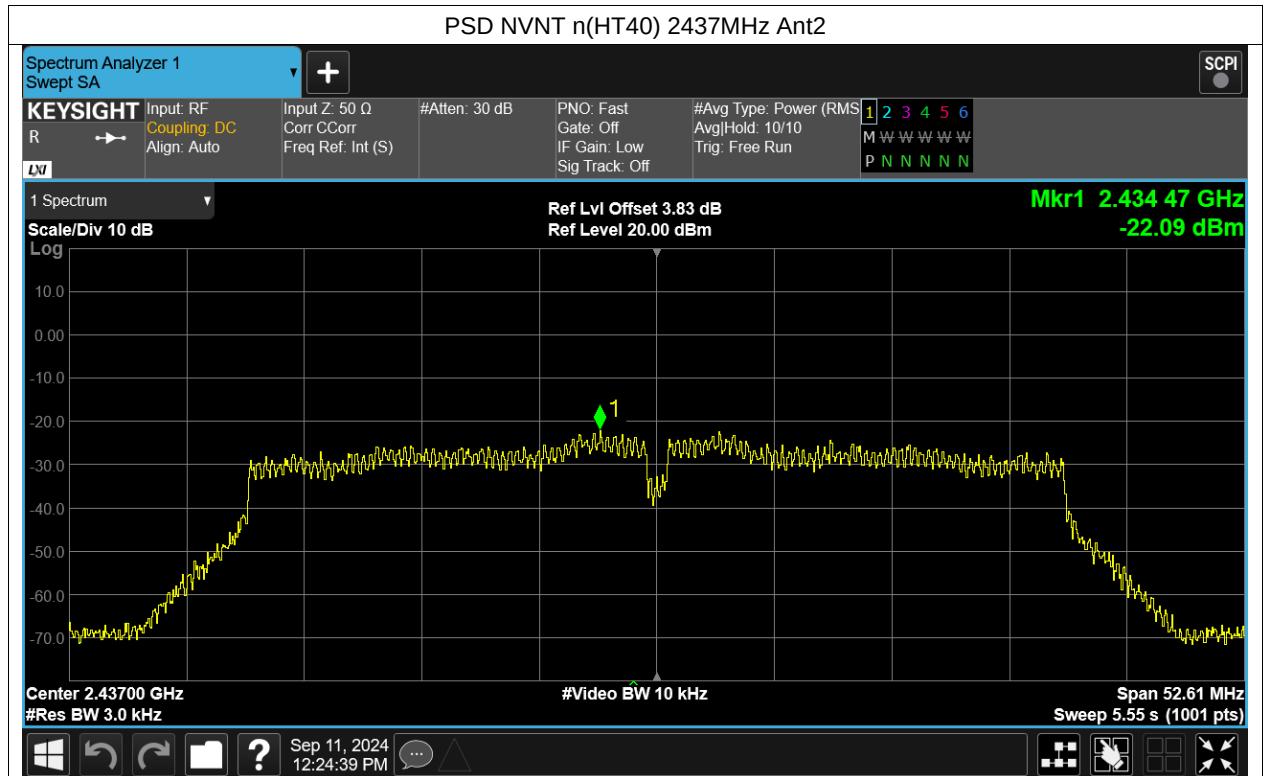


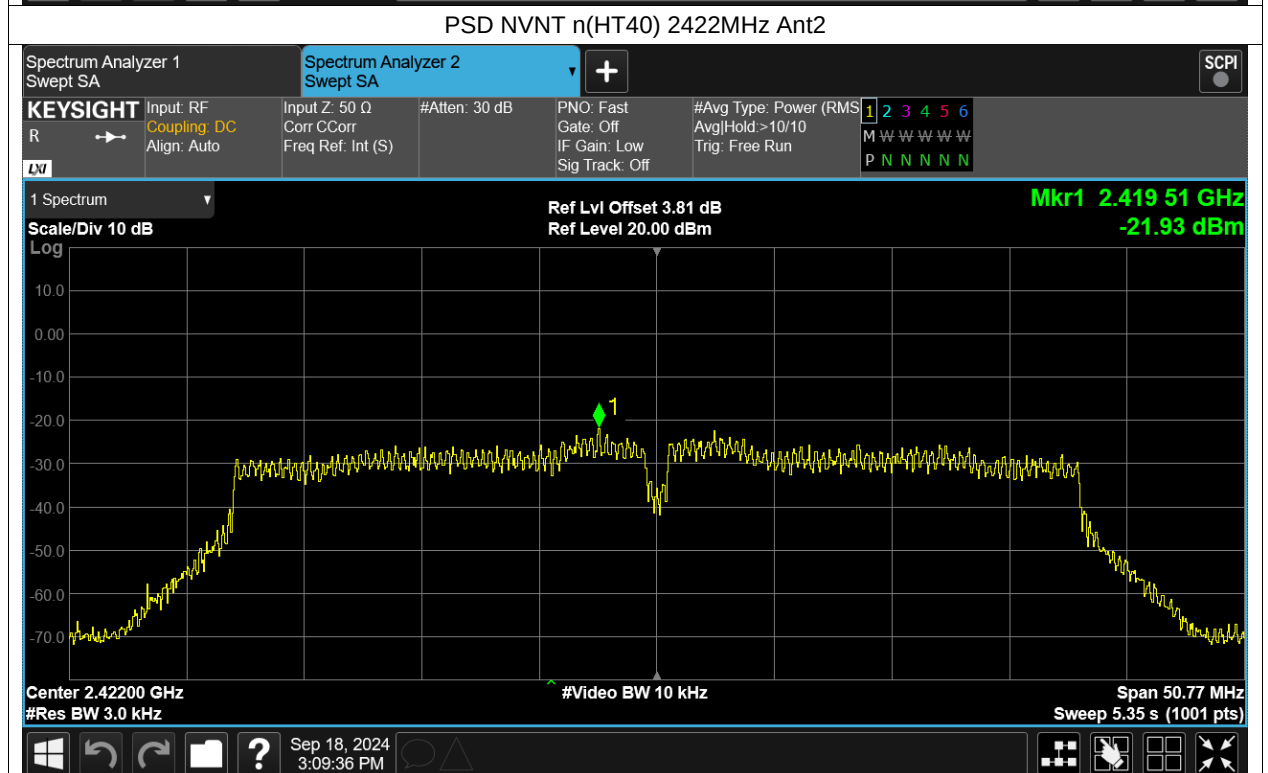
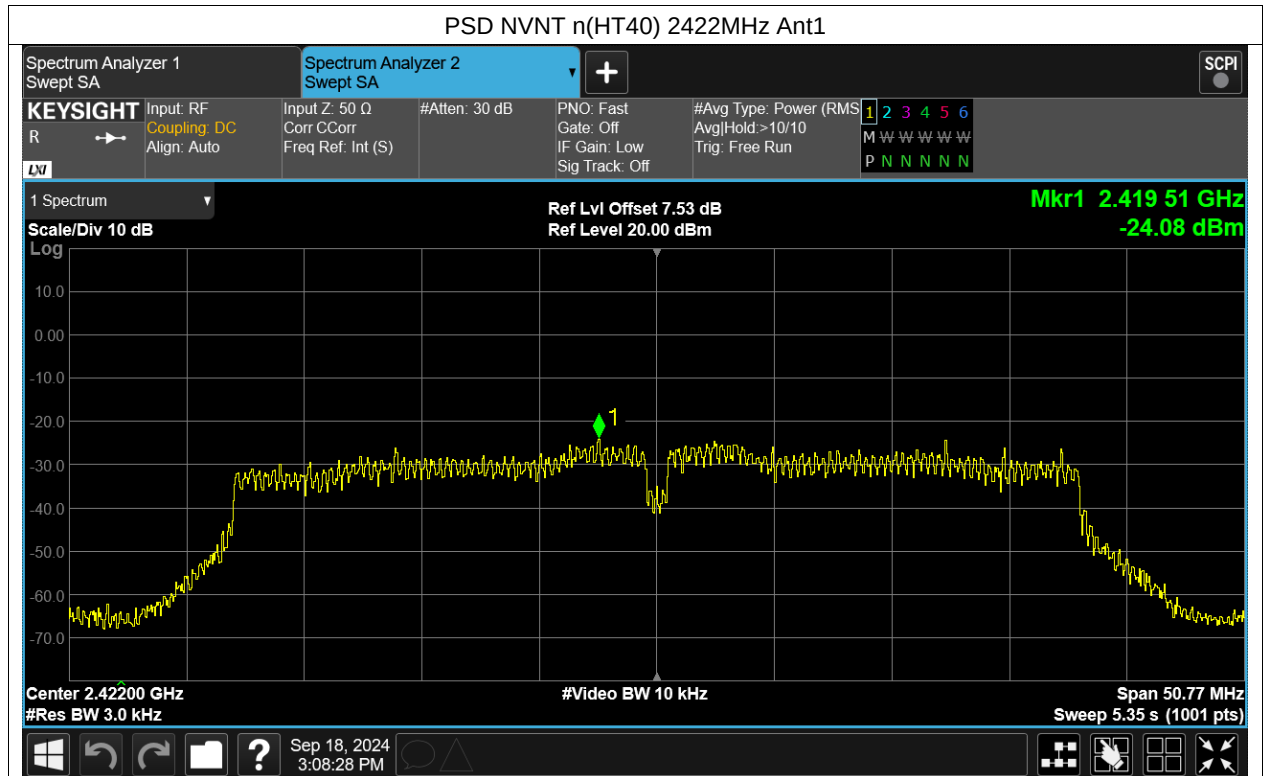


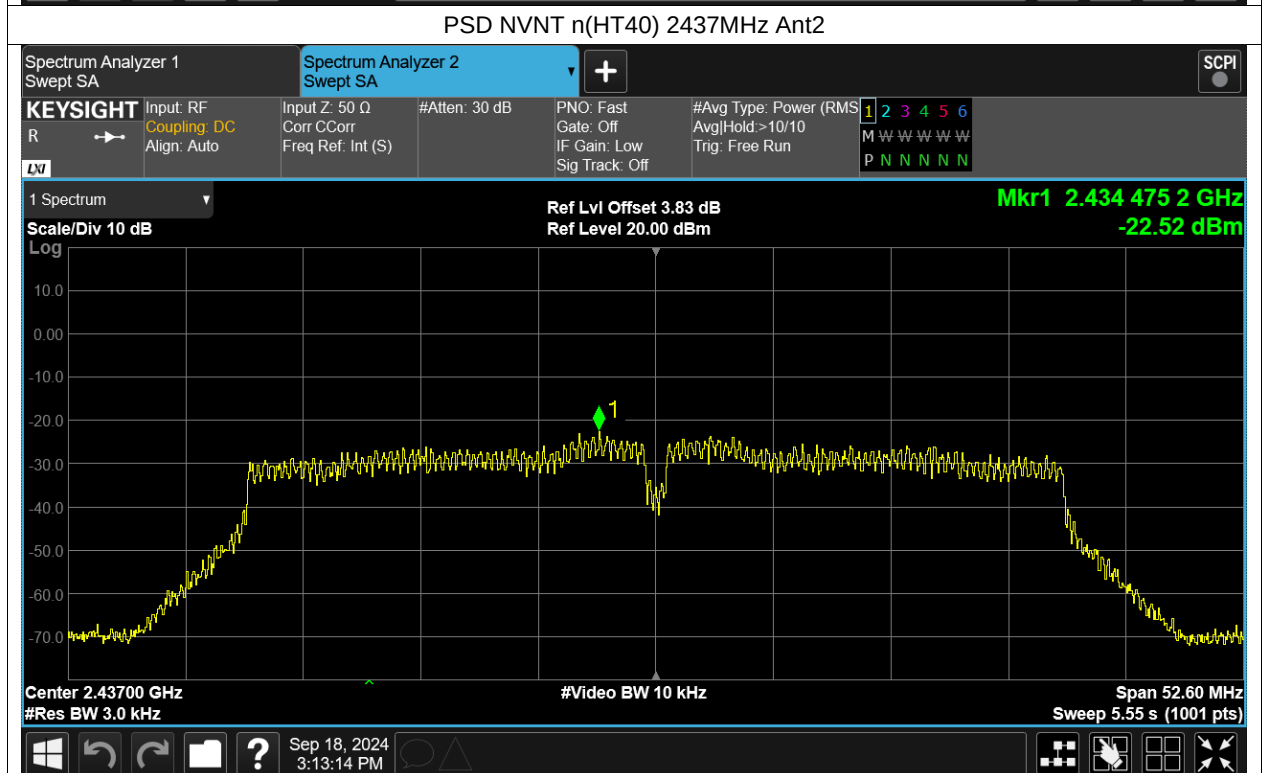
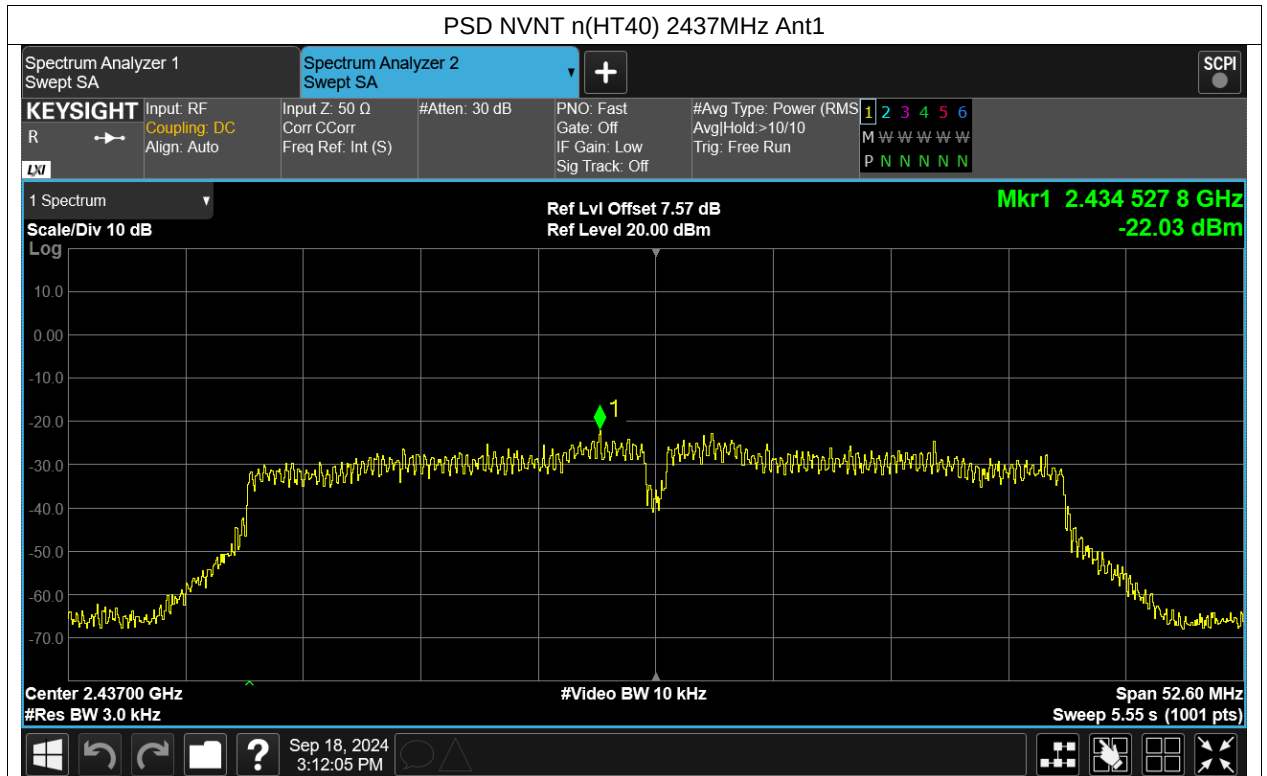


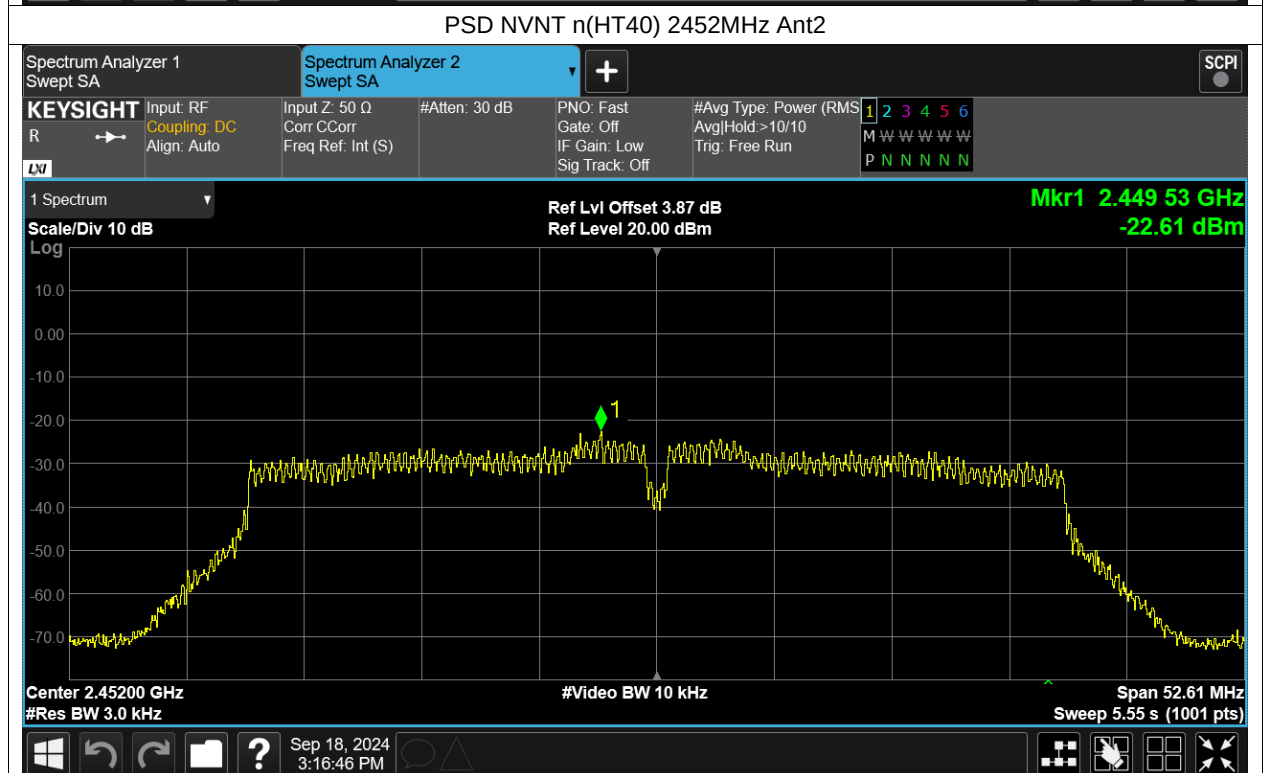
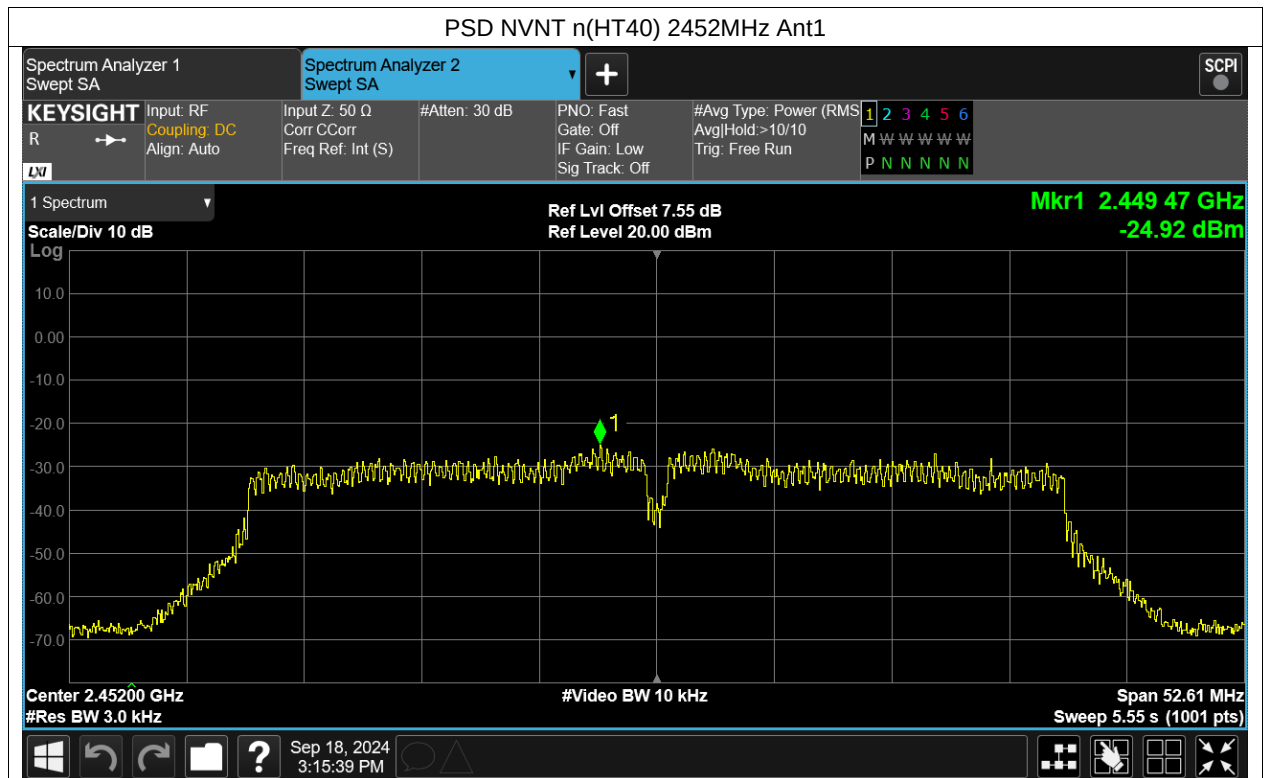










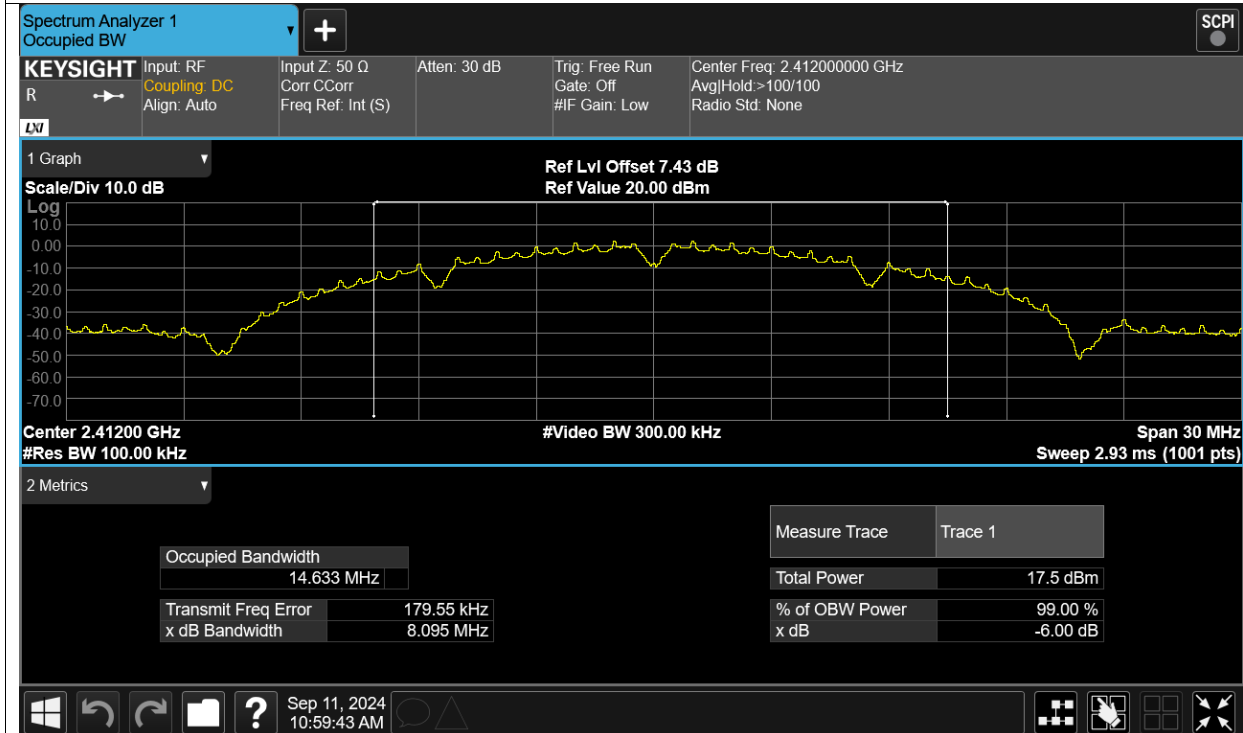


Appendix A.3: Test Results of 6dB Bandwidth

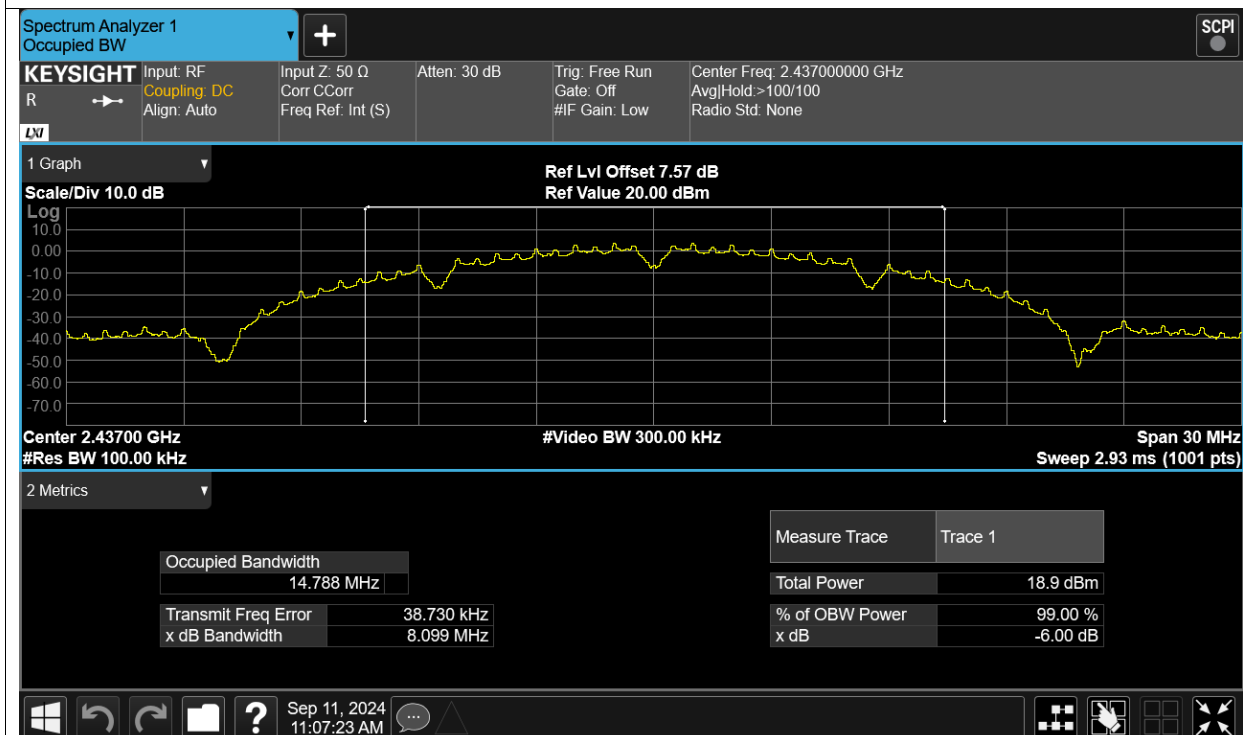
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	8.095	0.5	Pass
NVNT	b	2437	Ant1	8.099	0.5	Pass
NVNT	b	2462	Ant1	8.106	0.5	Pass
NVNT	g	2412	Ant1	15.07	0.5	Pass
NVNT	g	2437	Ant1	15.09	0.5	Pass
NVNT	g	2462	Ant1	15.08	0.5	Pass
NVNT	n(HT20)	2412	Ant1	15.05	0.5	Pass
NVNT	n(HT20)	2437	Ant1	15.07	0.5	Pass
NVNT	n(HT20)	2462	Ant1	15.04	0.5	Pass
NVNT	n(HT40)	2422	Ant1	33.83	0.5	Pass
NVNT	n(HT40)	2437	Ant1	30.09	0.5	Pass
NVNT	n(HT40)	2452	Ant1	35.10	0.5	Pass

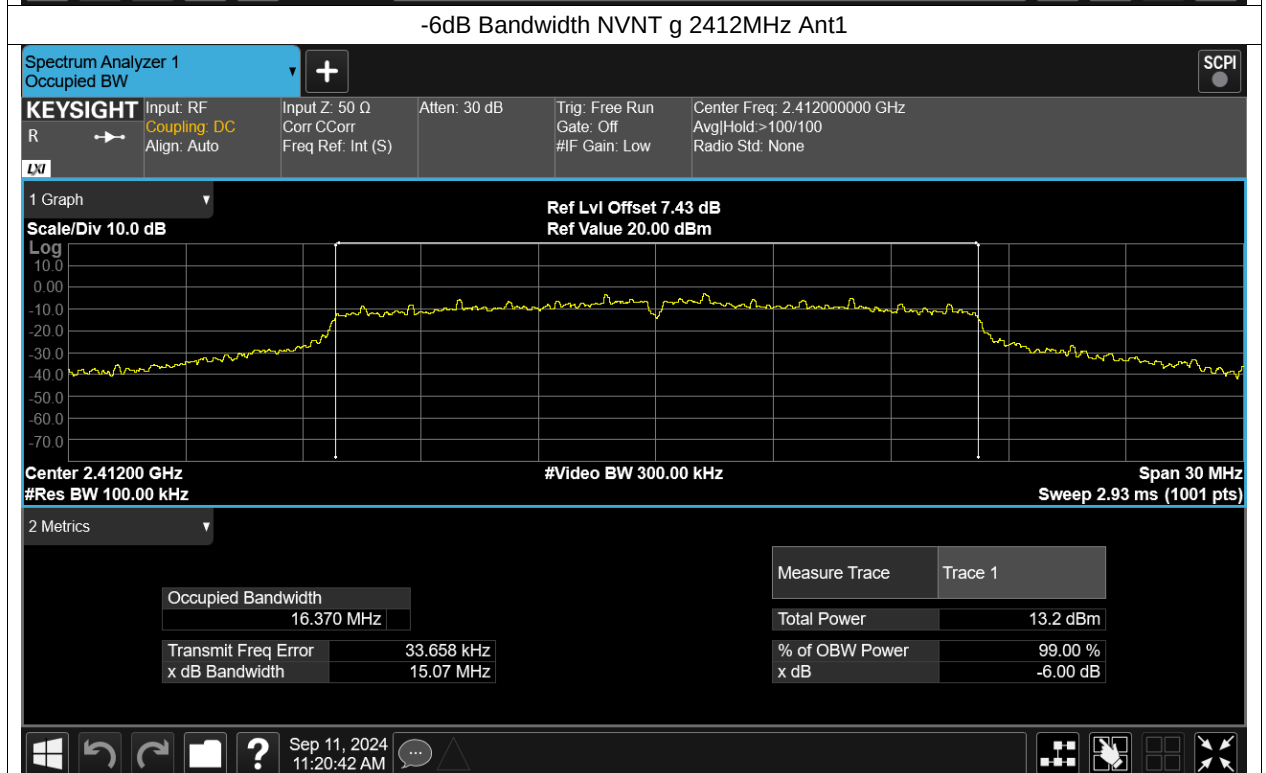
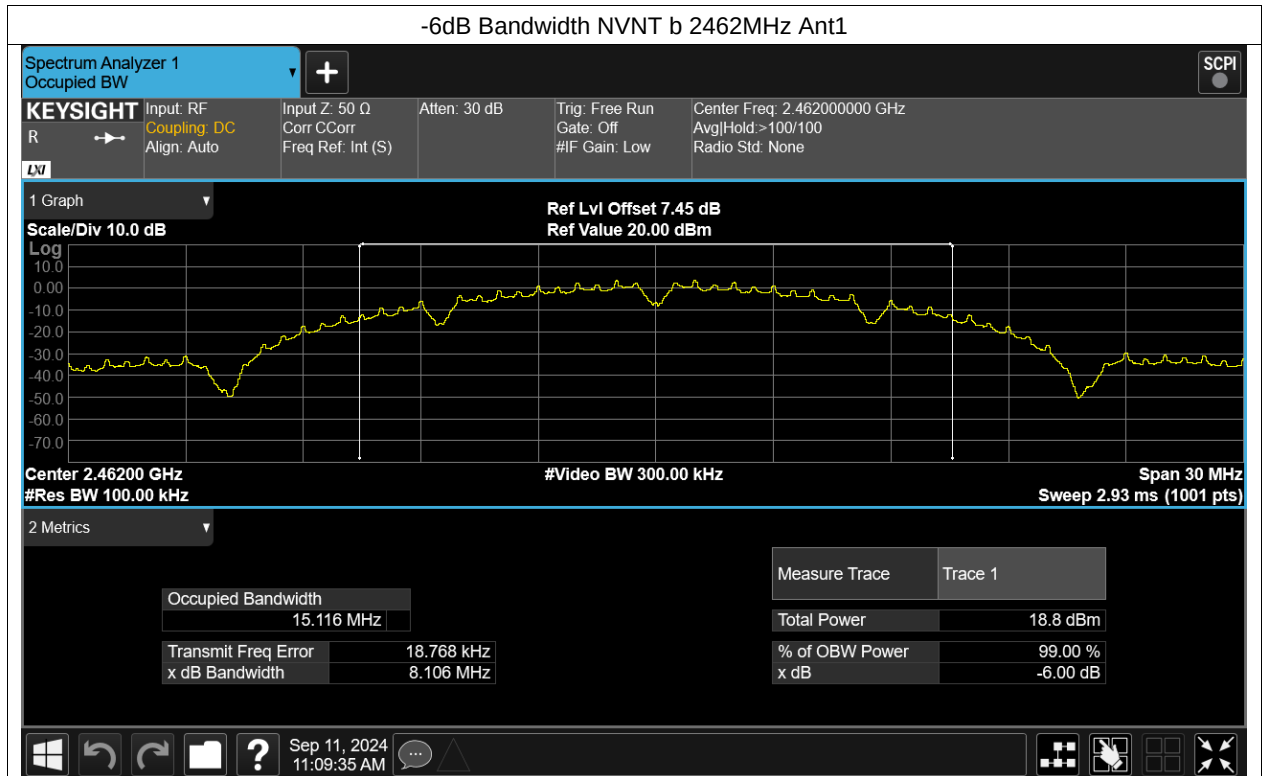
Test Graphs

-6dB Bandwidth NVNT b 2412MHz Ant1

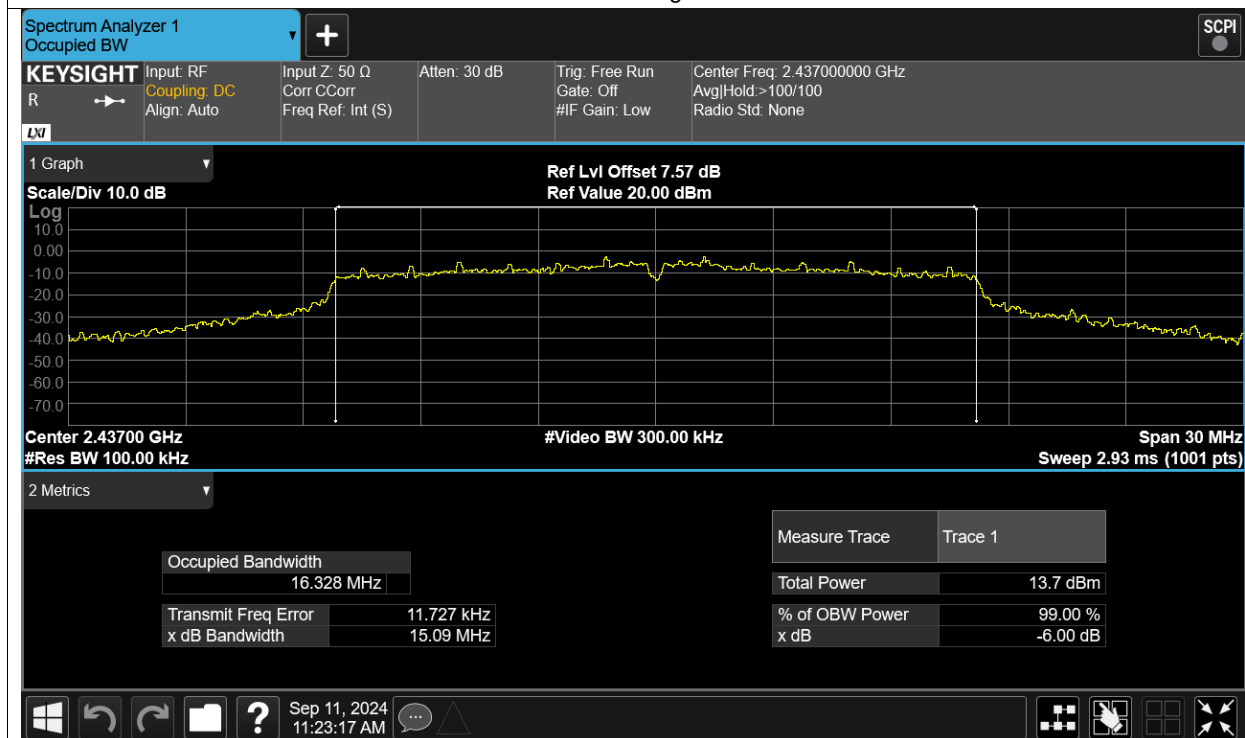


-6dB Bandwidth NVNT b 2437MHz Ant1

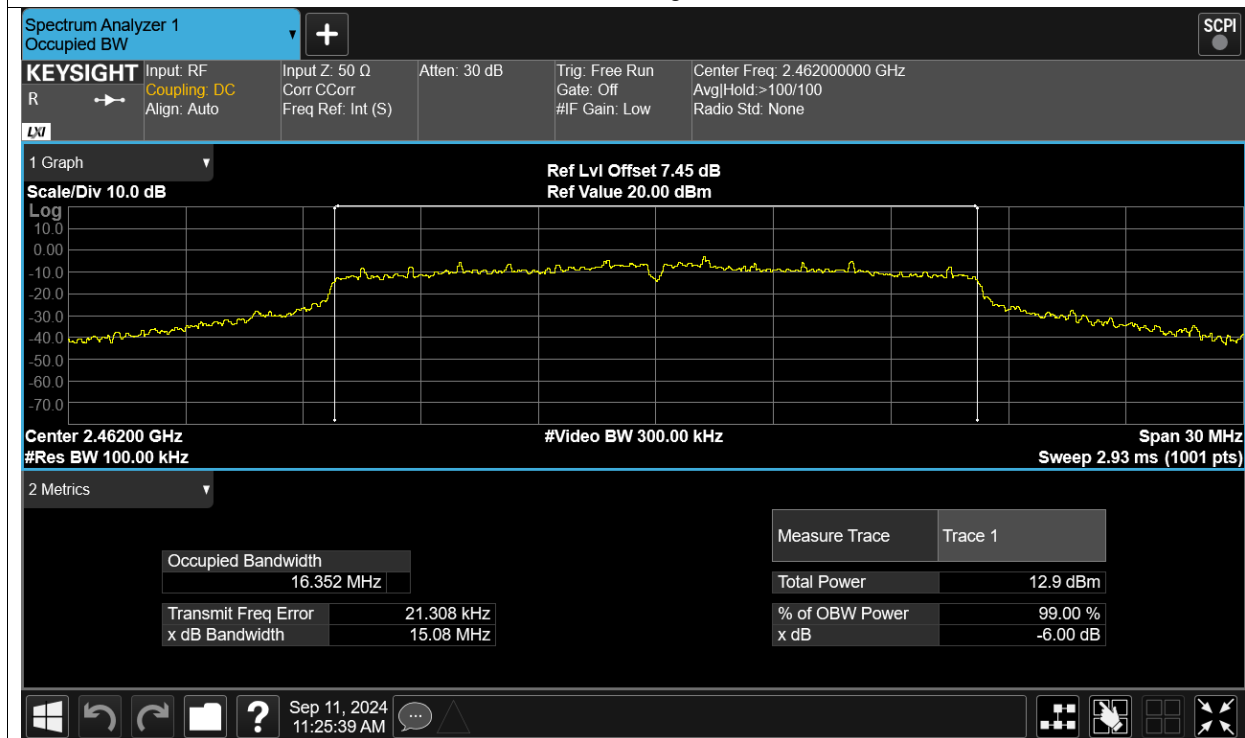


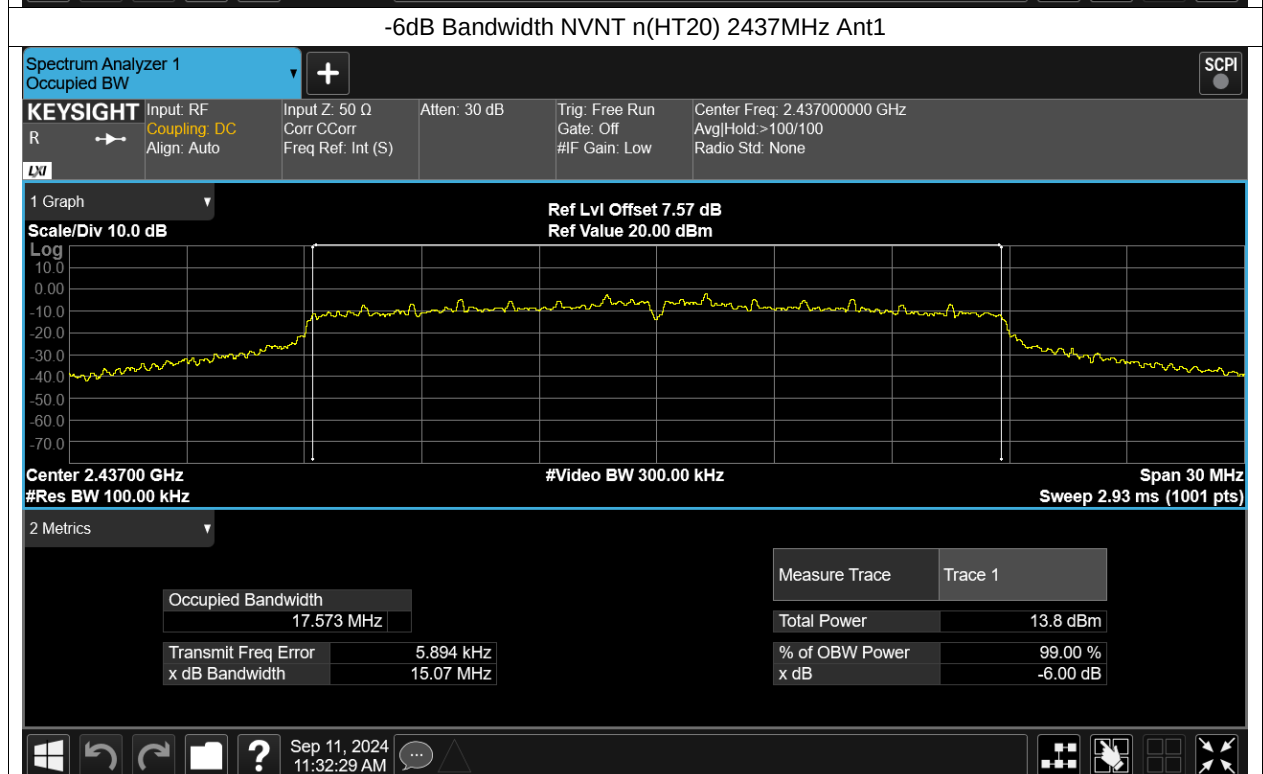
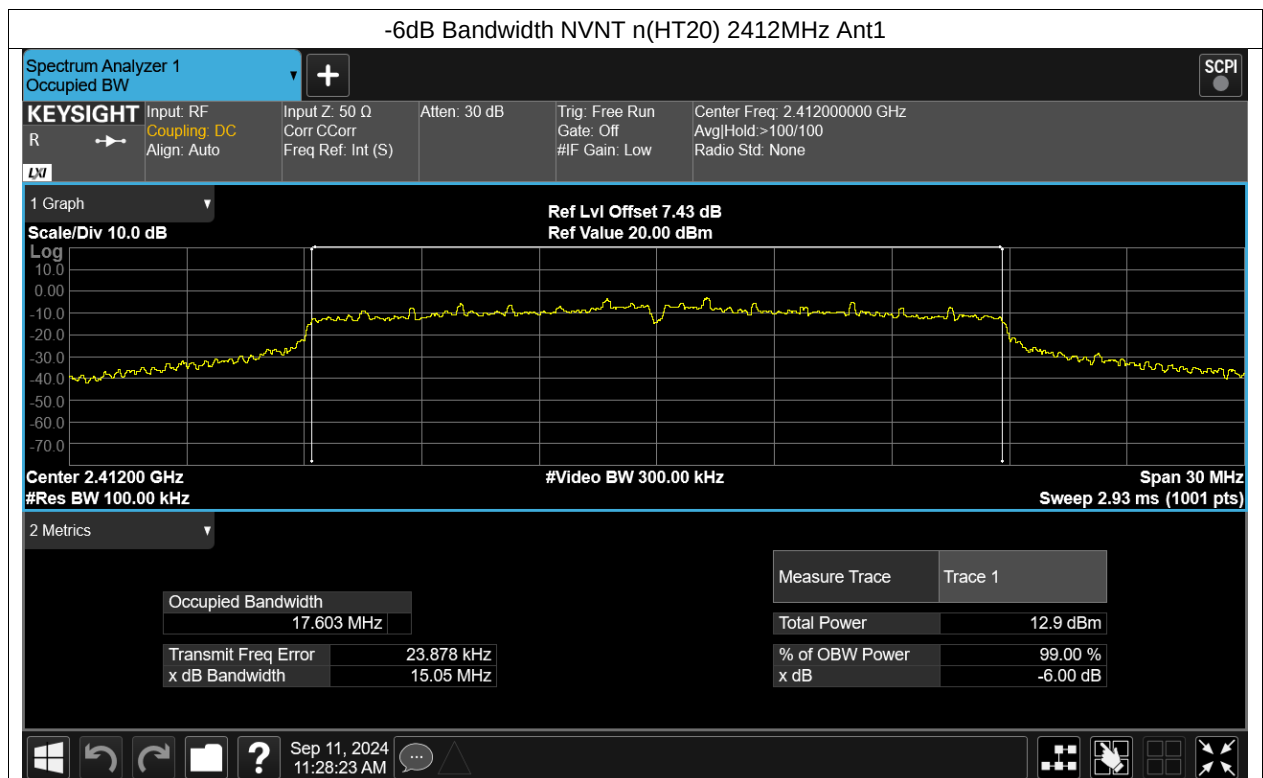


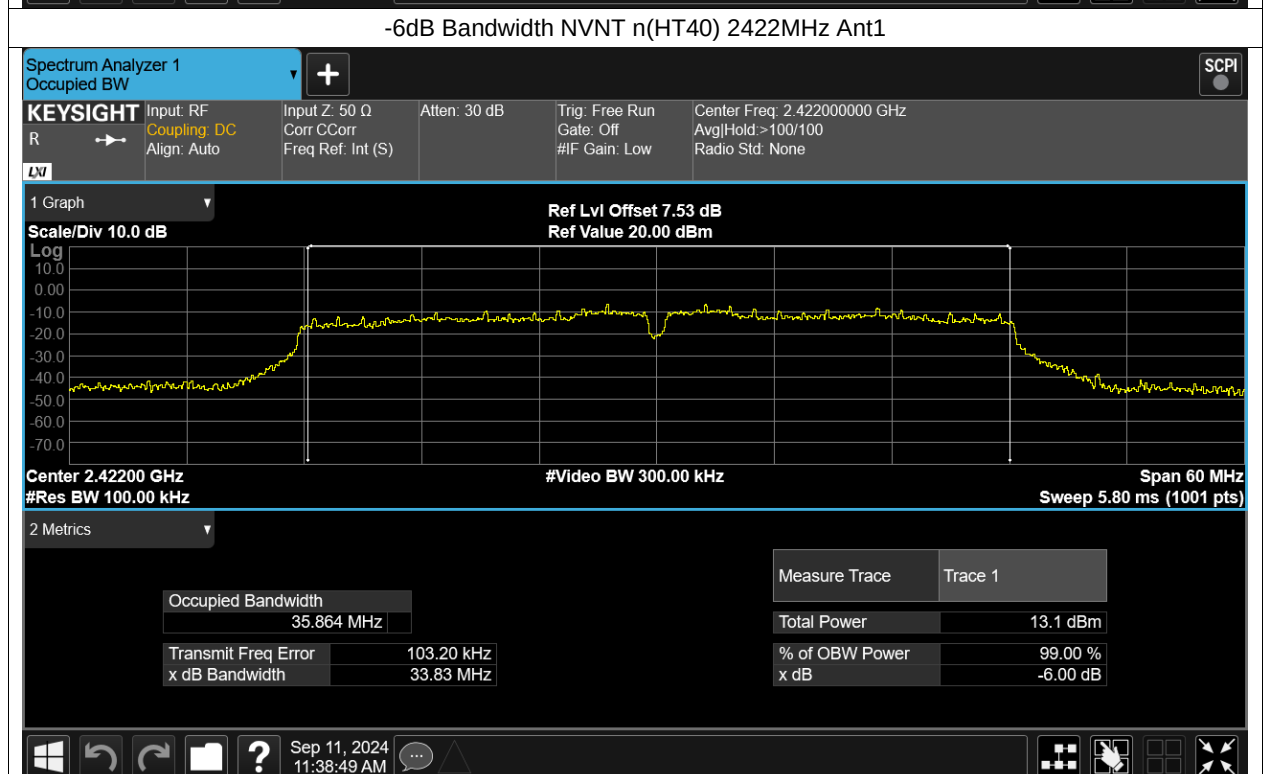
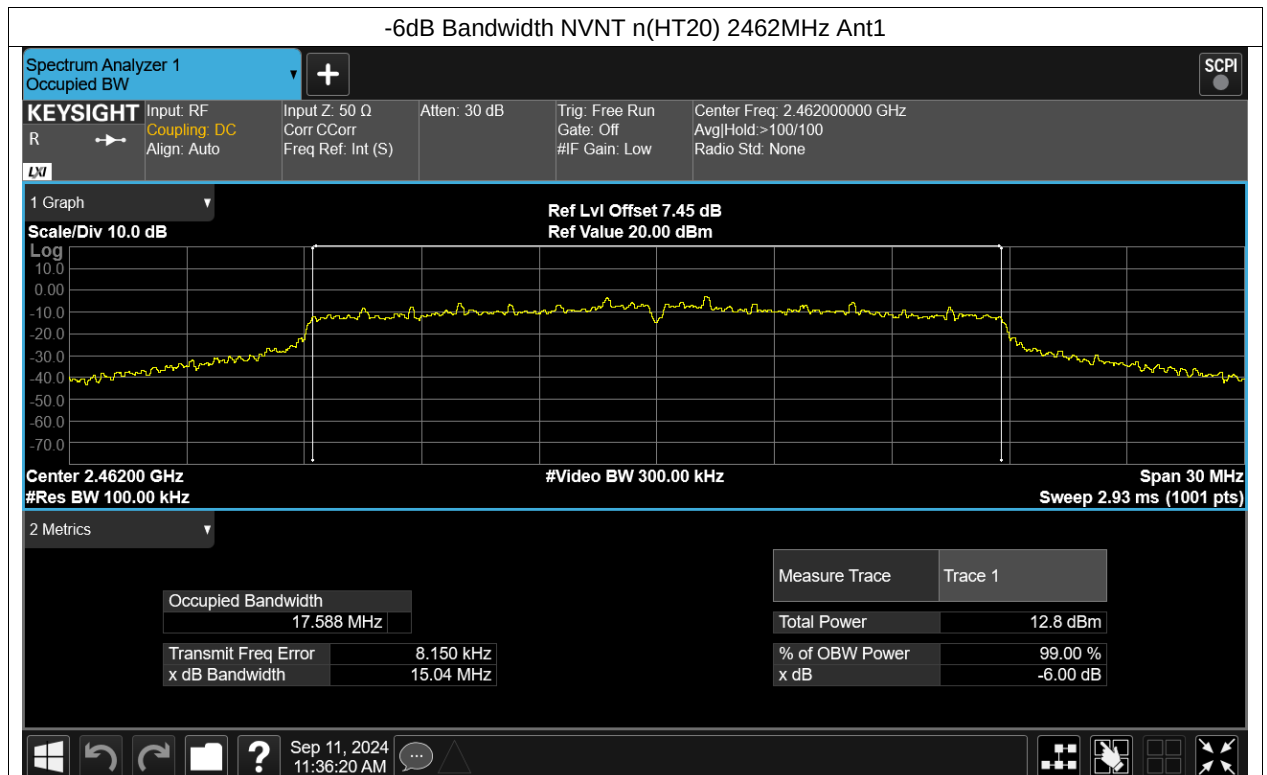
-6dB Bandwidth NVNT g 2437MHz Ant1



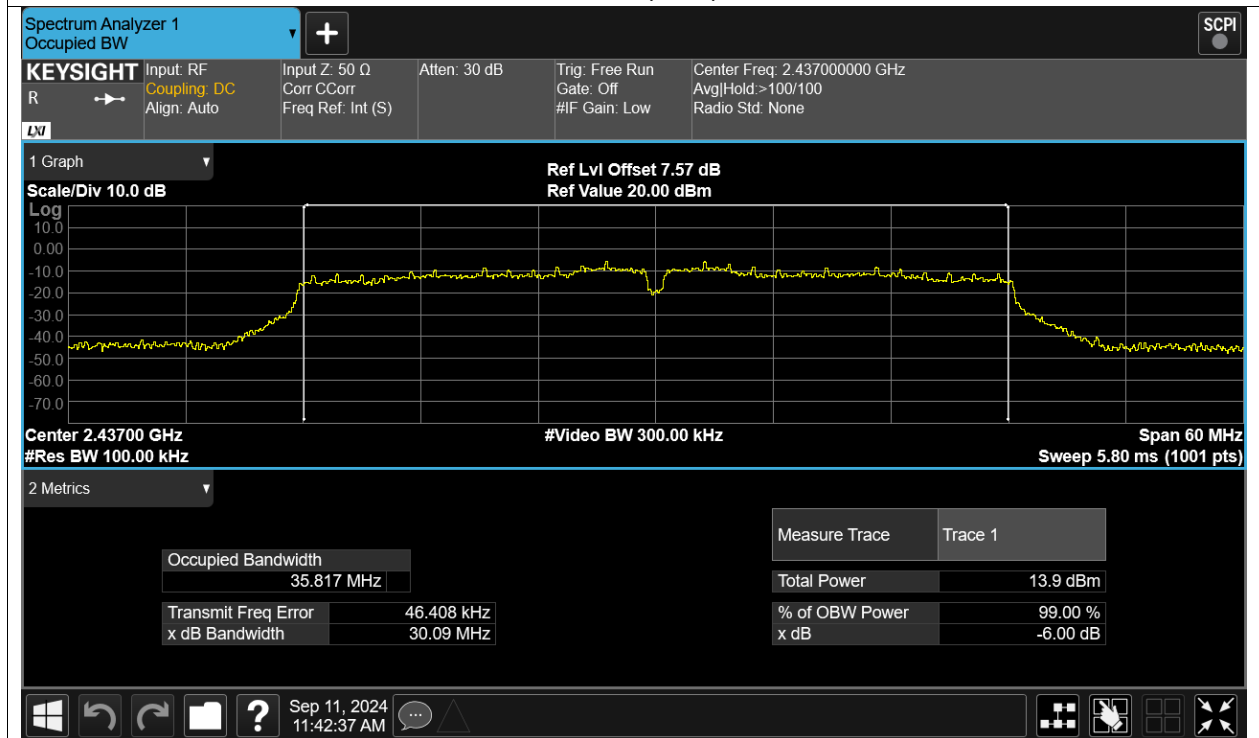
-6dB Bandwidth NVNT g 2462MHz Ant1



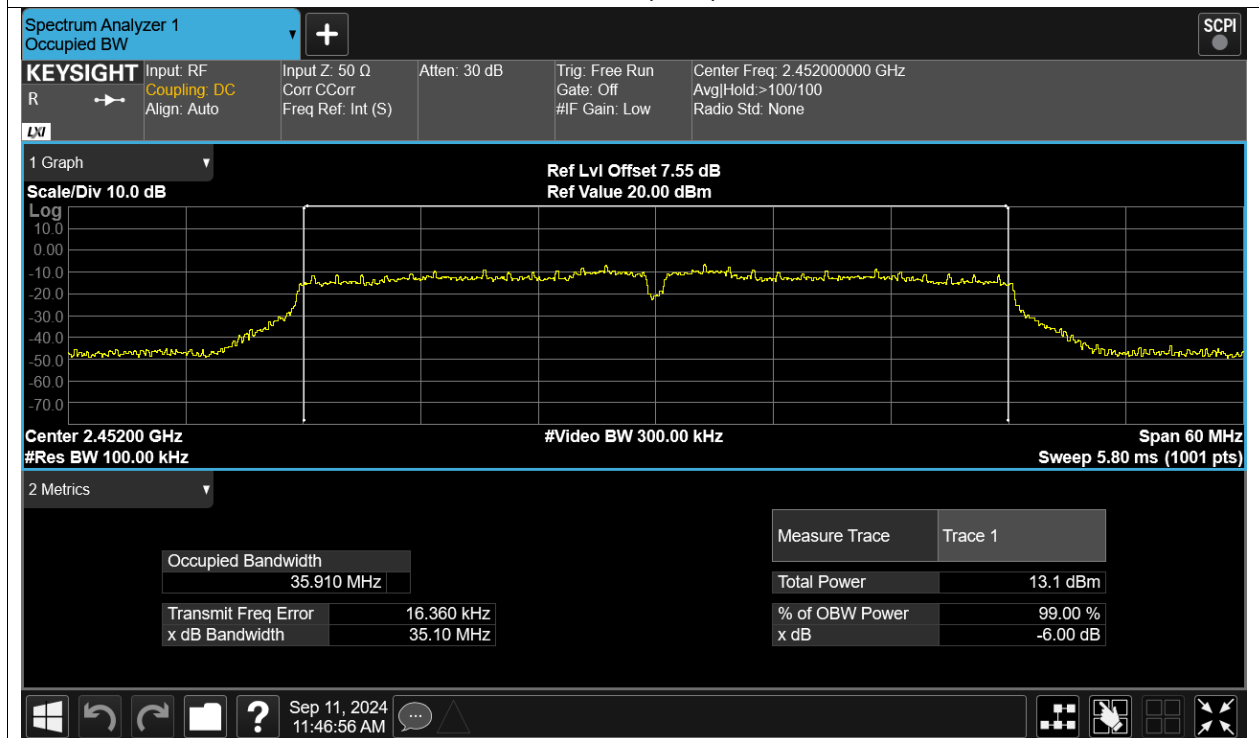




-6dB Bandwidth NVNT n(HT40) 2437MHz Ant1



-6dB Bandwidth NVNT n(HT40) 2452MHz Ant1

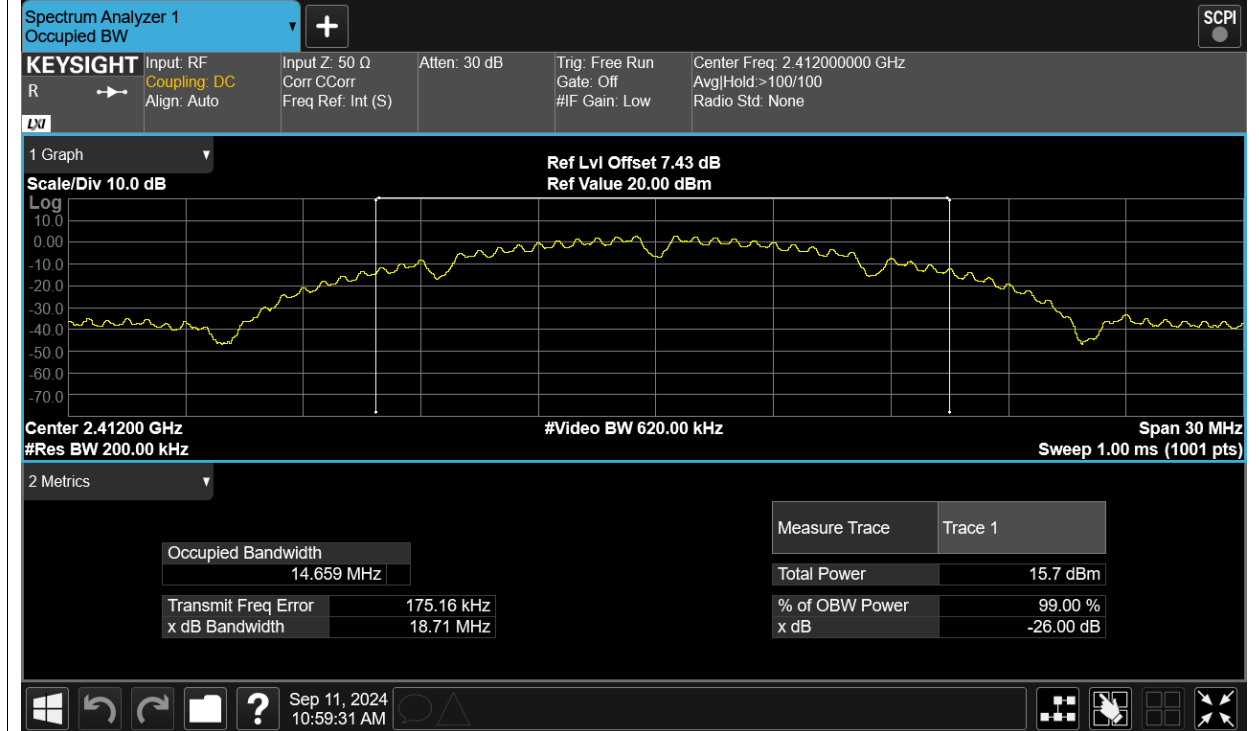


Appendix A.4: Test Results of 99% Bandwidth

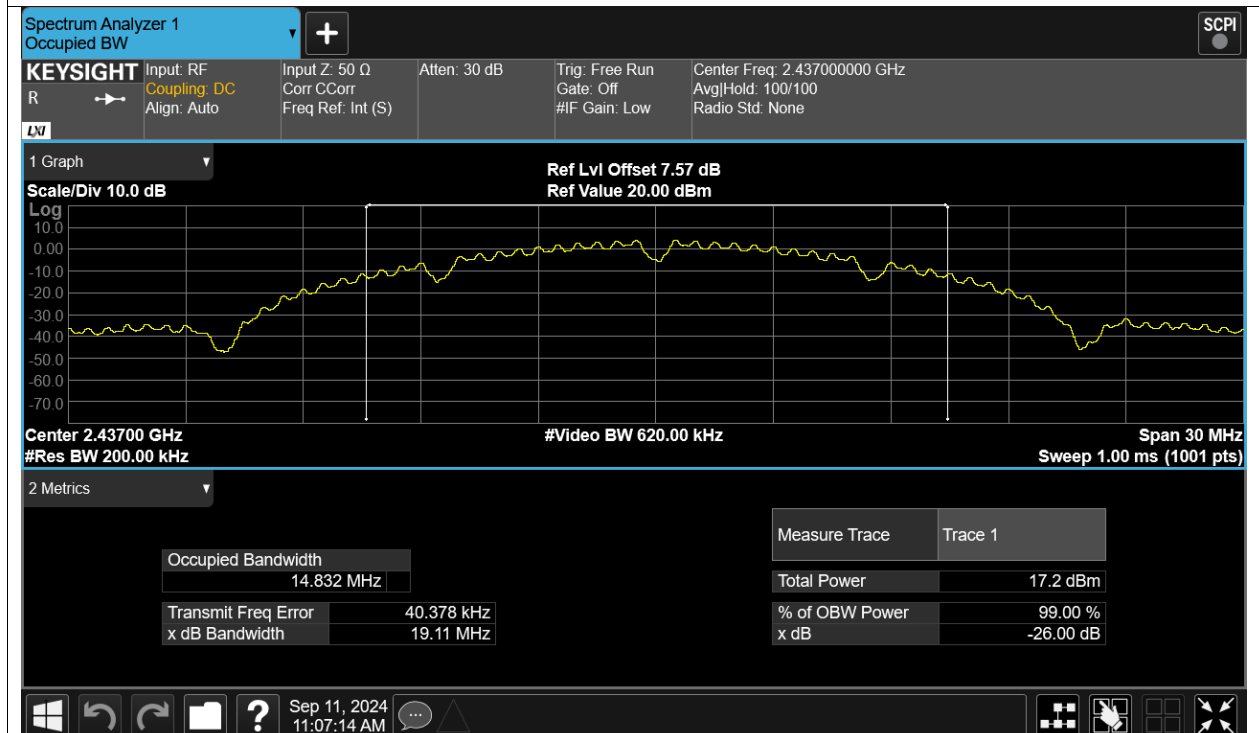
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	b	2412	Ant1	14.659
NVNT	b	2437	Ant1	14.832
NVNT	b	2462	Ant1	15.115
NVNT	g	2412	Ant1	16.440
NVNT	g	2437	Ant1	16.370
NVNT	g	2462	Ant1	16.385
NVNT	n(HT20)	2412	Ant1	17.659
NVNT	n(HT20)	2437	Ant1	17.606
NVNT	n(HT20)	2462	Ant1	17.630
NVNT	n(HT40)	2422	Ant1	35.911
NVNT	n(HT40)	2437	Ant1	35.857
NVNT	n(HT40)	2452	Ant1	36.029

Test Graphs

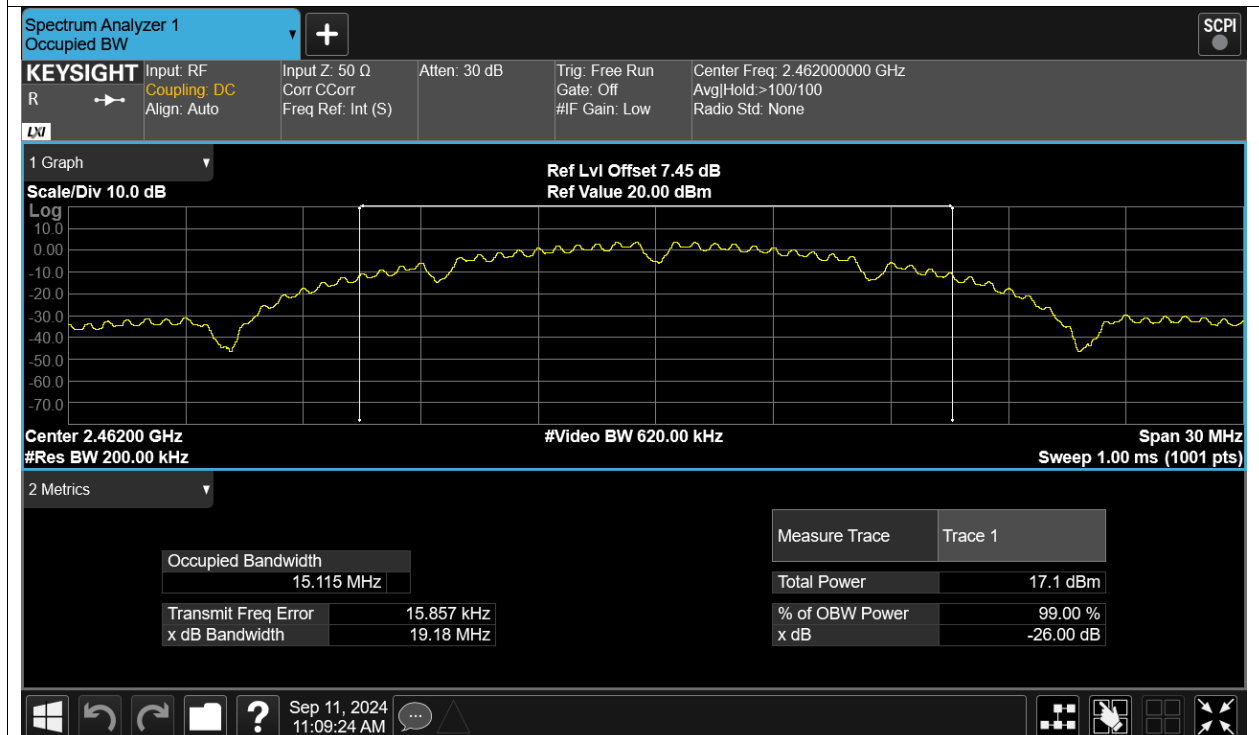
OBW NVNT b 2412MHz Ant1



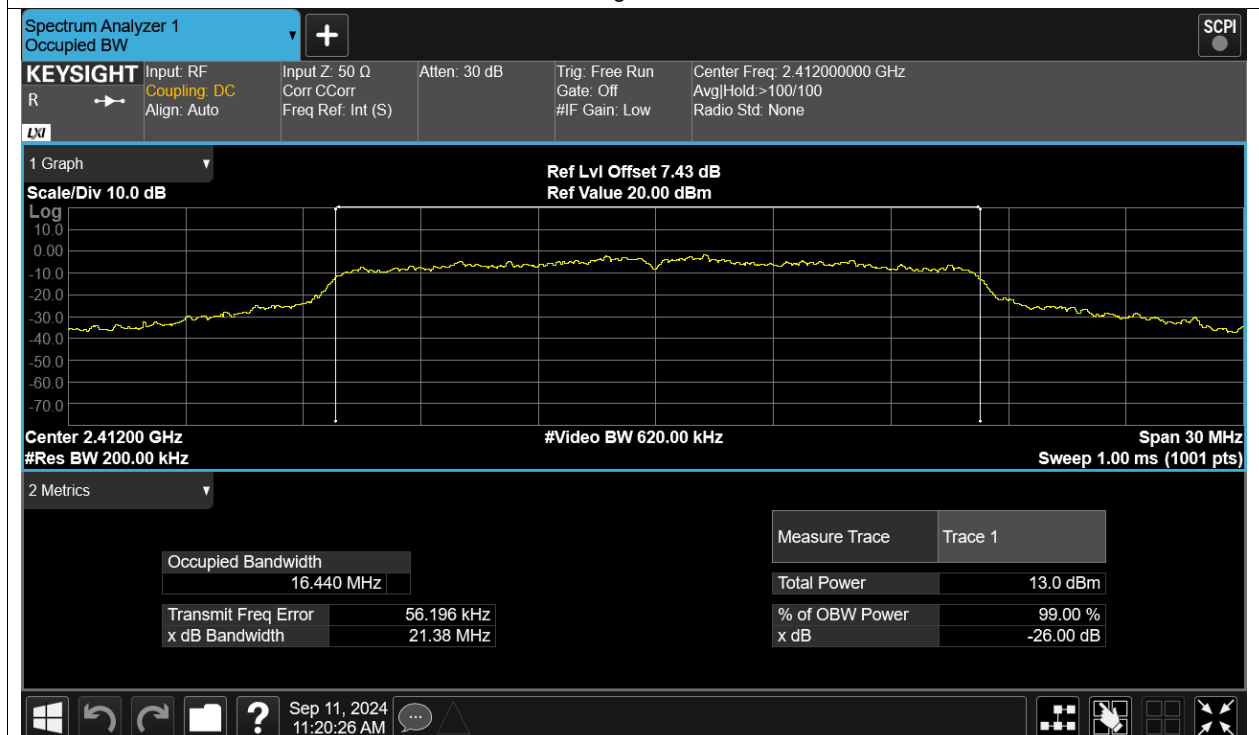
OBW NVNT b 2437MHz Ant1



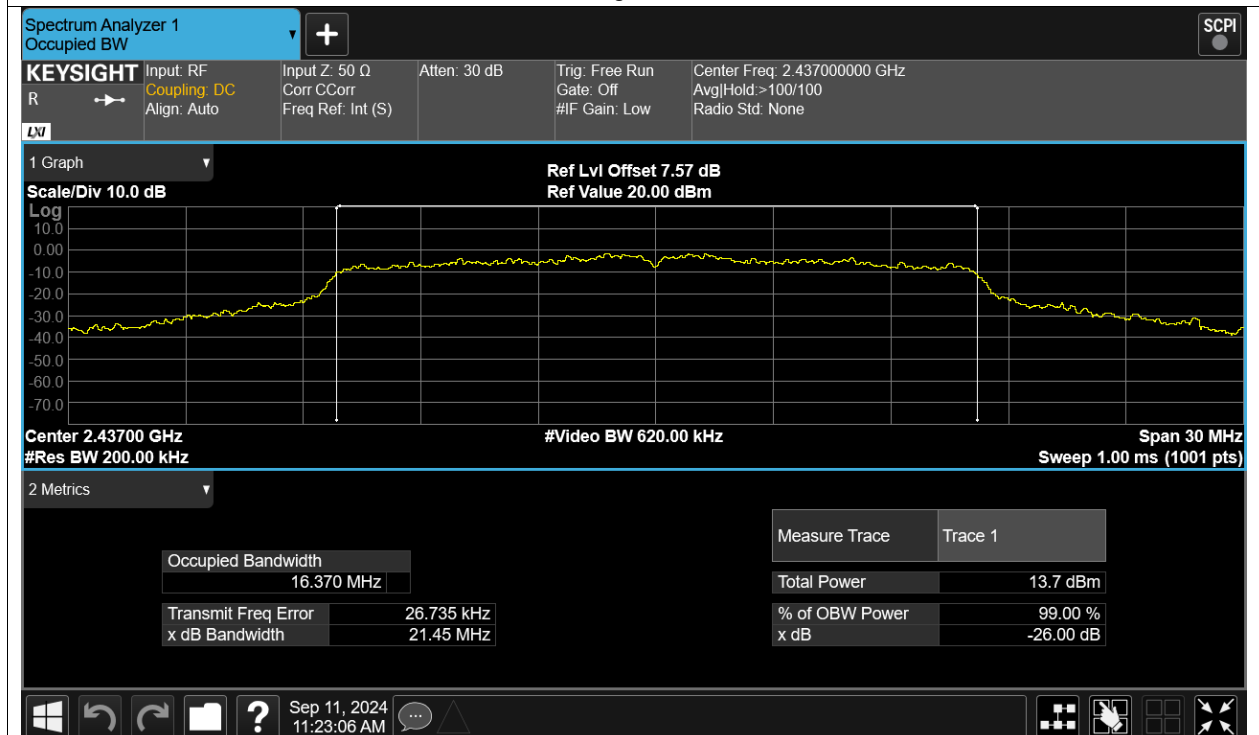
OBW NVNT b 2462MHz Ant1



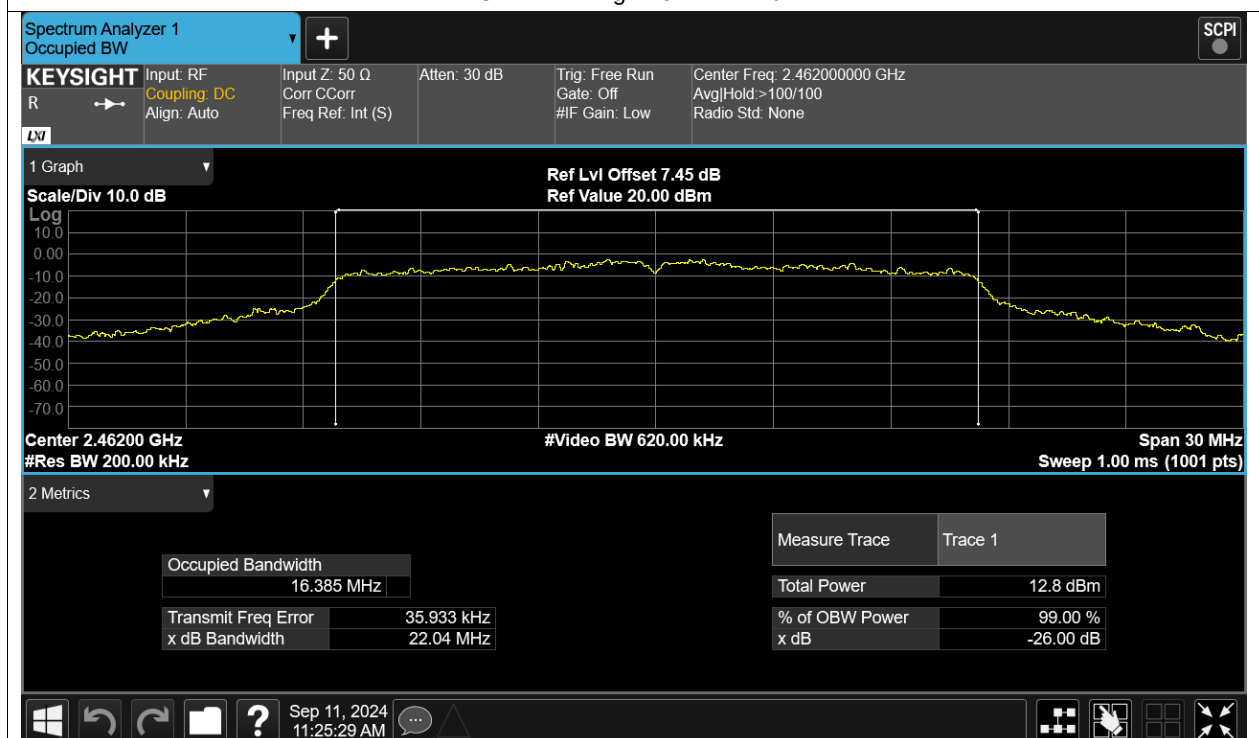
OBW NVNT g 2412MHz Ant1

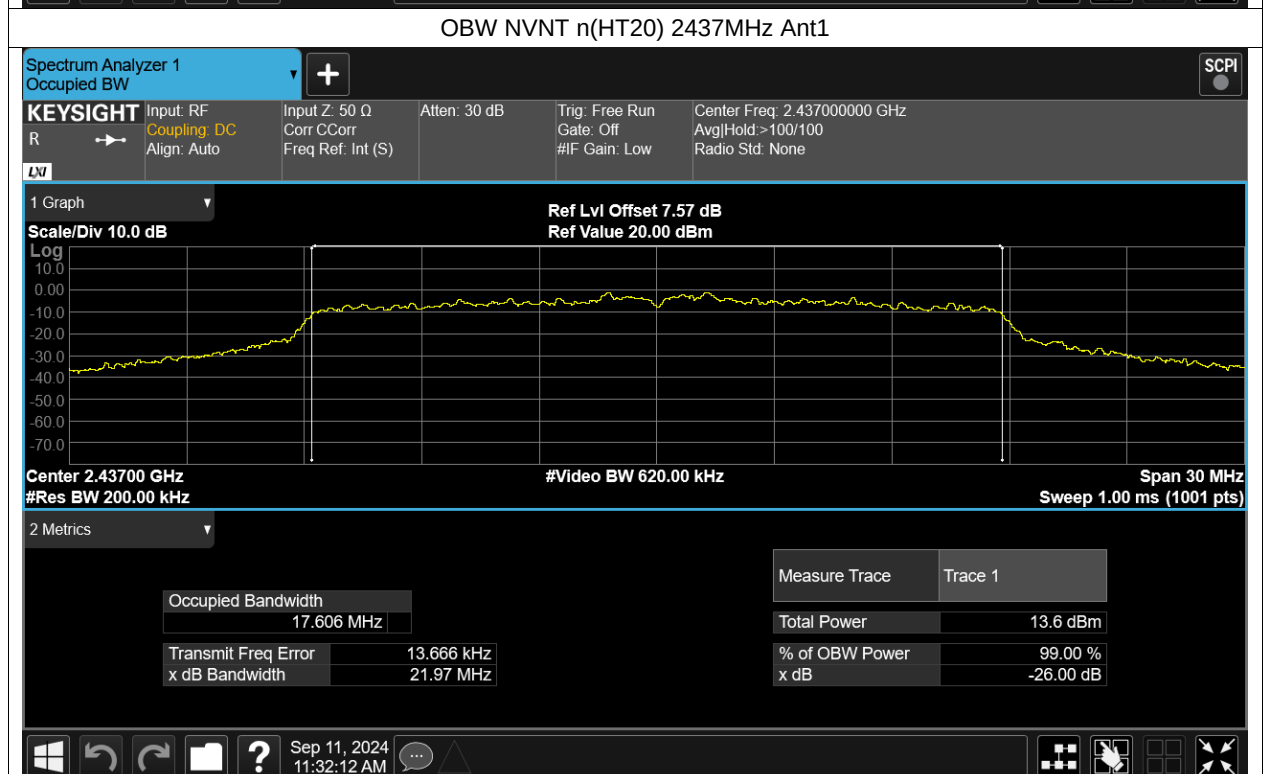
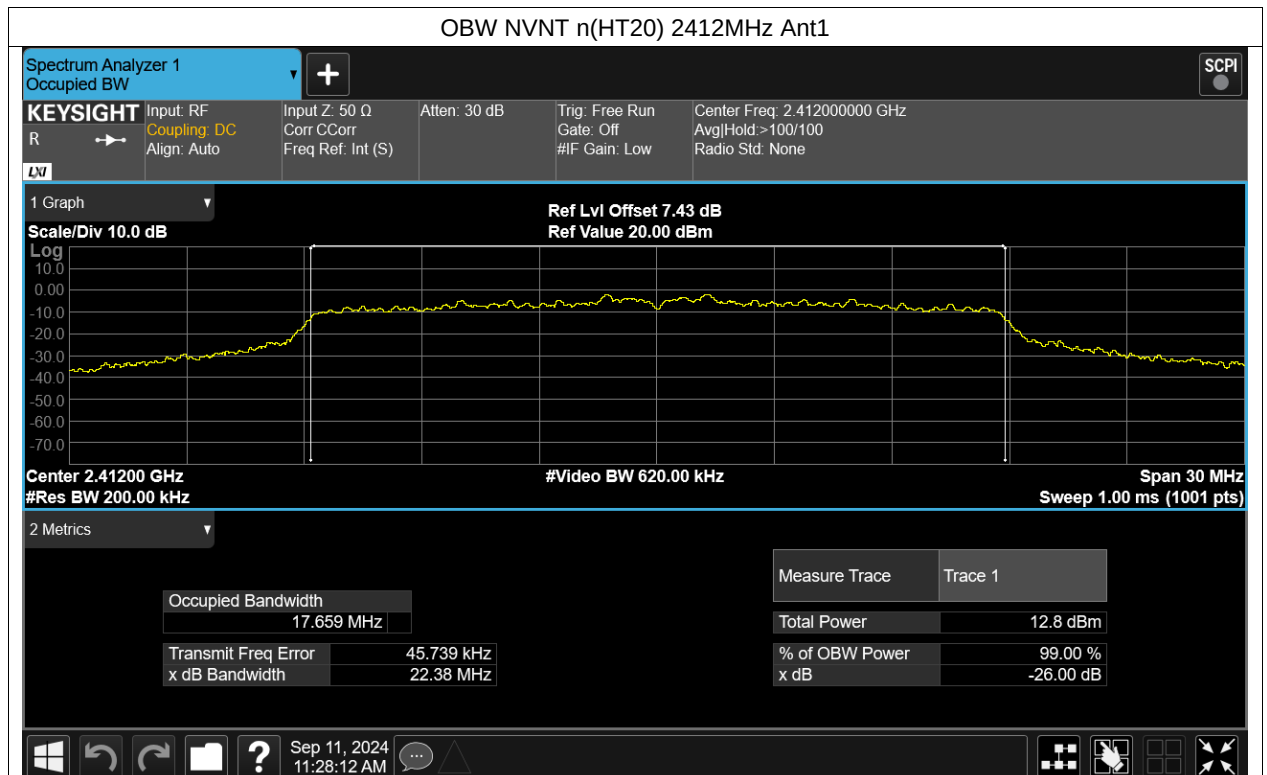


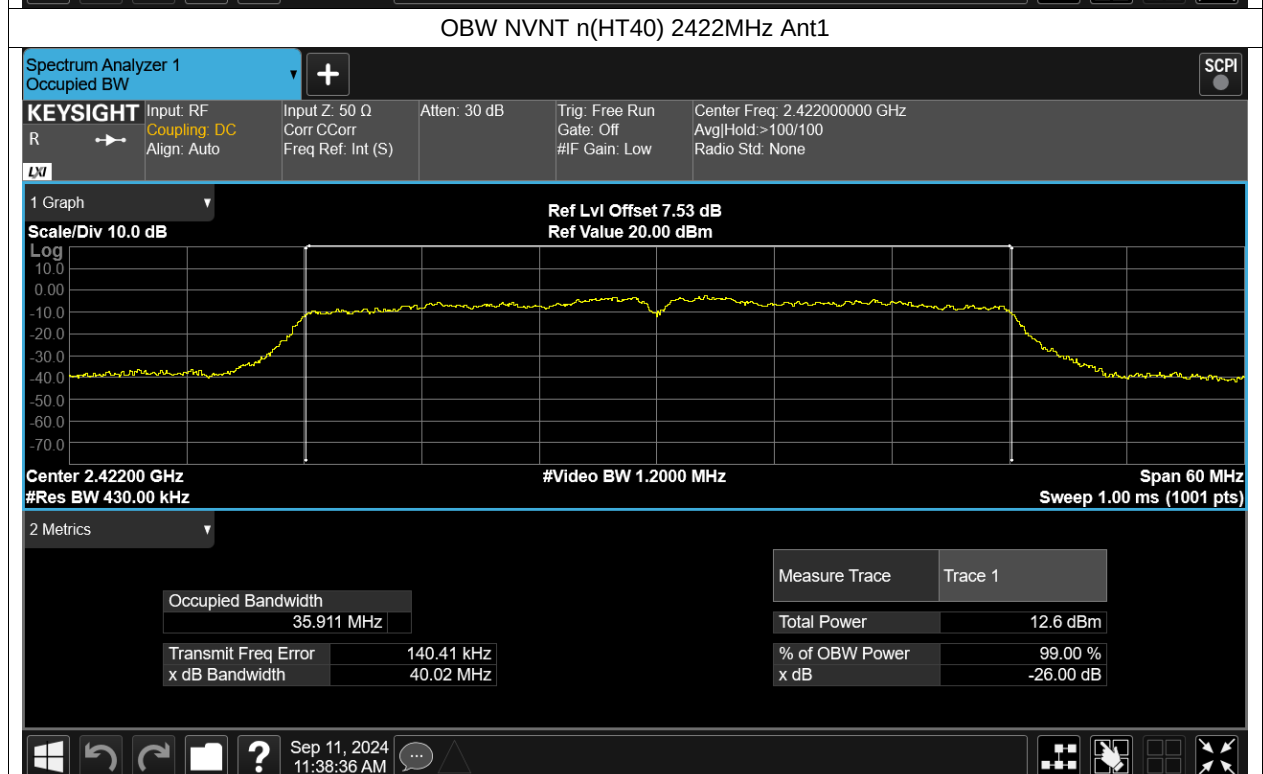
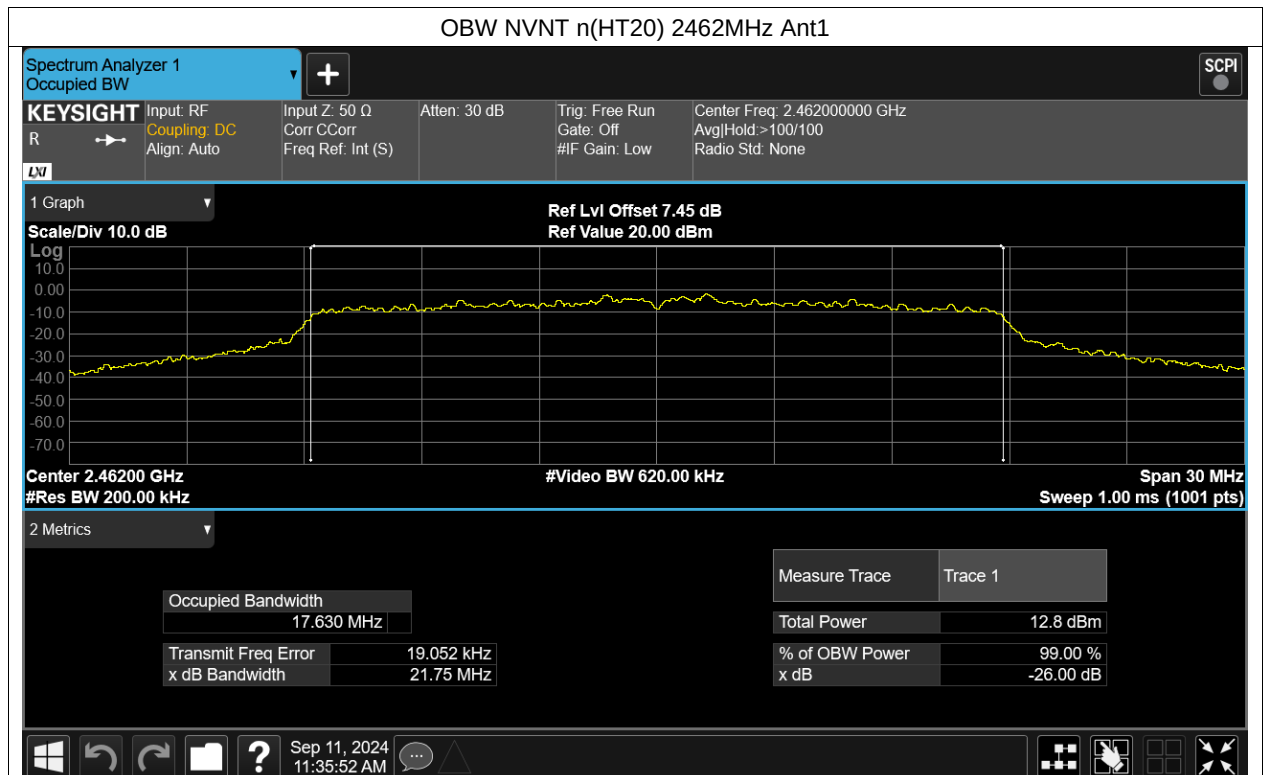
OBW NVNT g 2437MHz Ant1

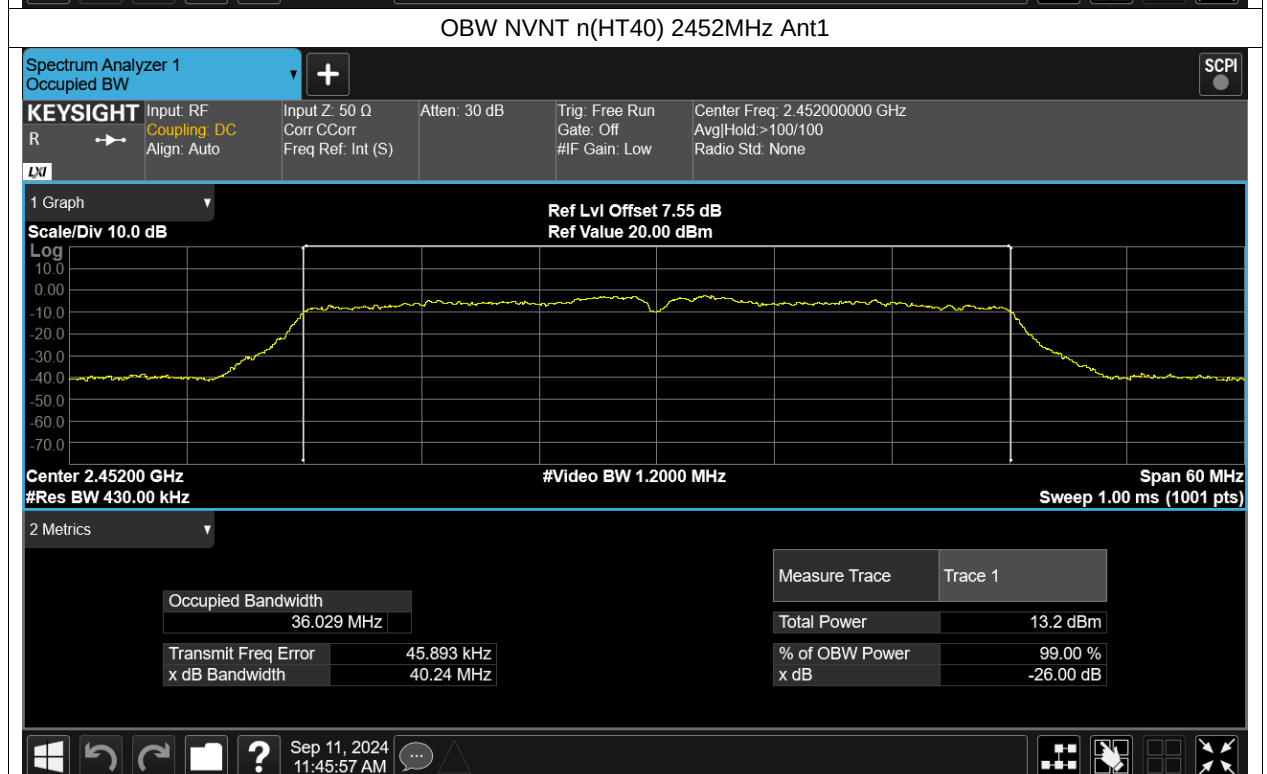
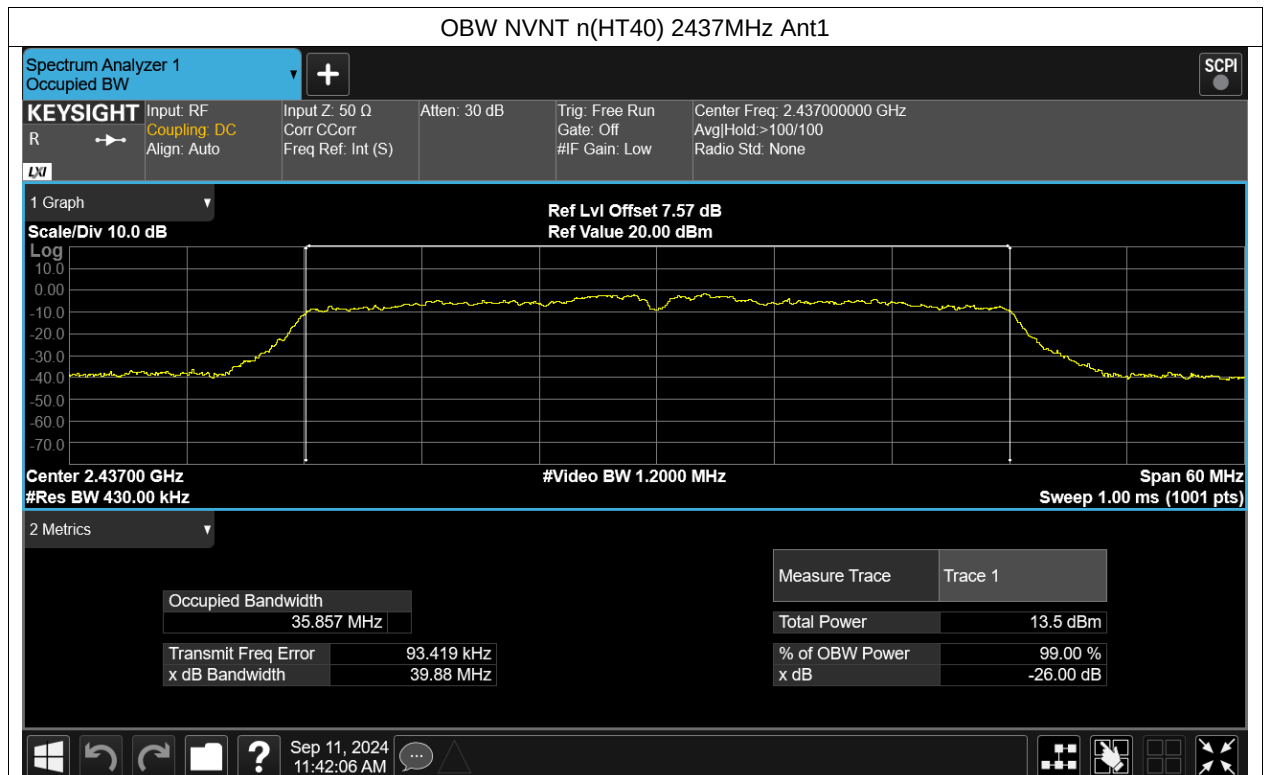


OBW NVNT g 2462MHz Ant1









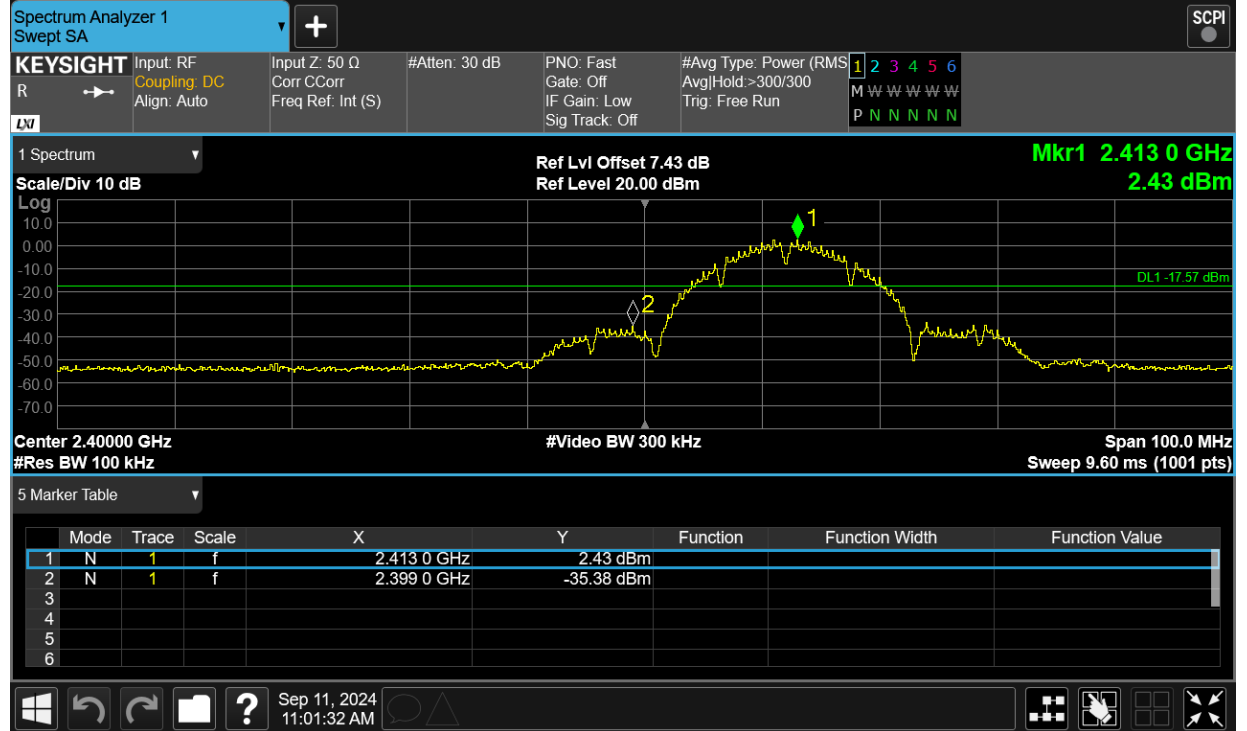
Appendix A.5: Test Results of Conducted Spurious Emissions Measured in 100 kHz Bandwidth

Band Edge

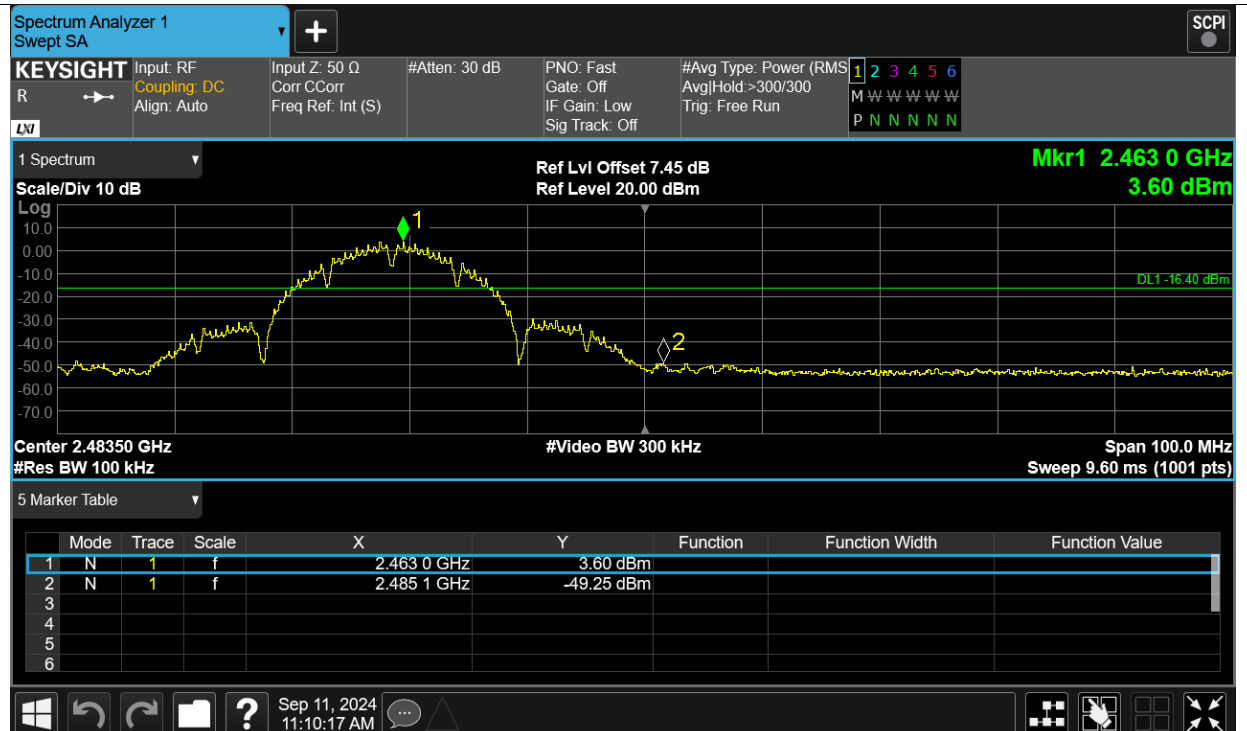
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-37.81	-20	Pass
NVNT	b	2462	Ant1	-52.85	-20	Pass
NVNT	g	2412	Ant1	-31.09	-20	Pass
NVNT	g	2462	Ant1	-47.9	-20	Pass
NVNT	n(HT20)	2412	Ant1	-29.66	-20	Pass
NVNT	n(HT20)	2462	Ant1	-46.31	-20	Pass
NVNT	n(HT40)	2422	Ant1	-34.78	-20	Pass
NVNT	n(HT40)	2452	Ant1	-37.74	-20	Pass

Test Graphs

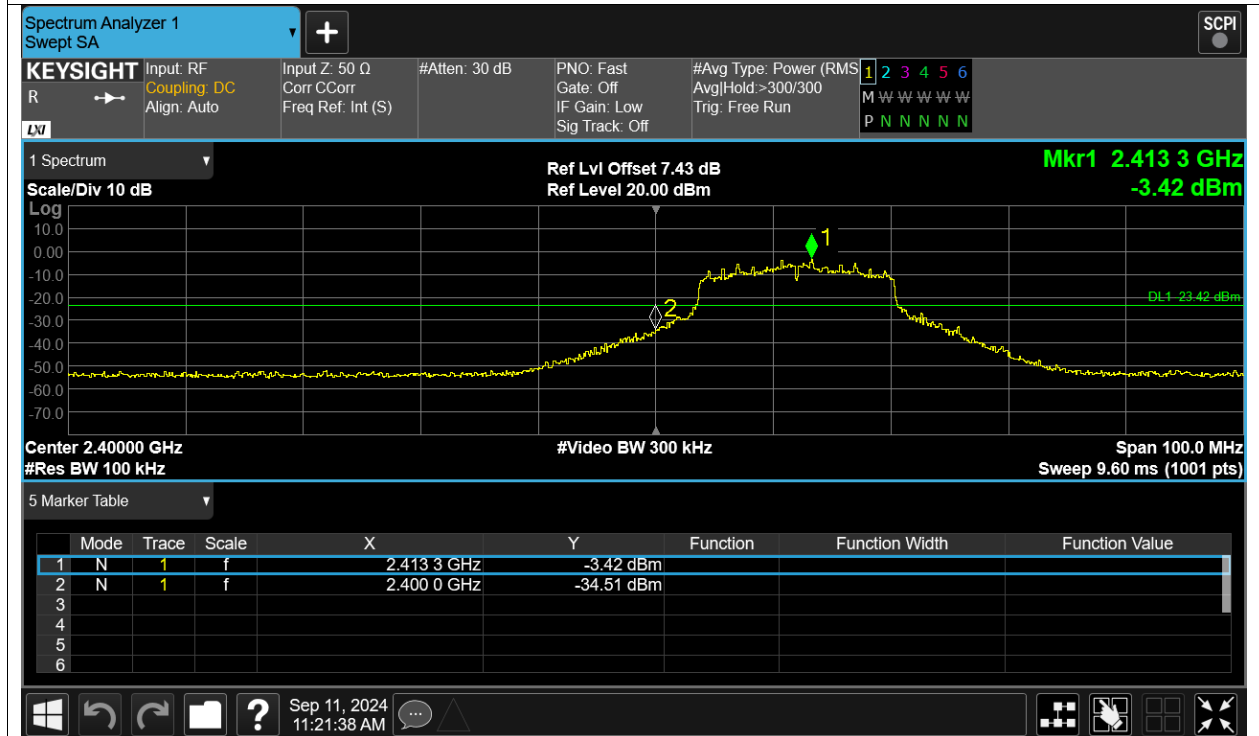
Band Edge NVNT b 2412MHz Ant1 Emission



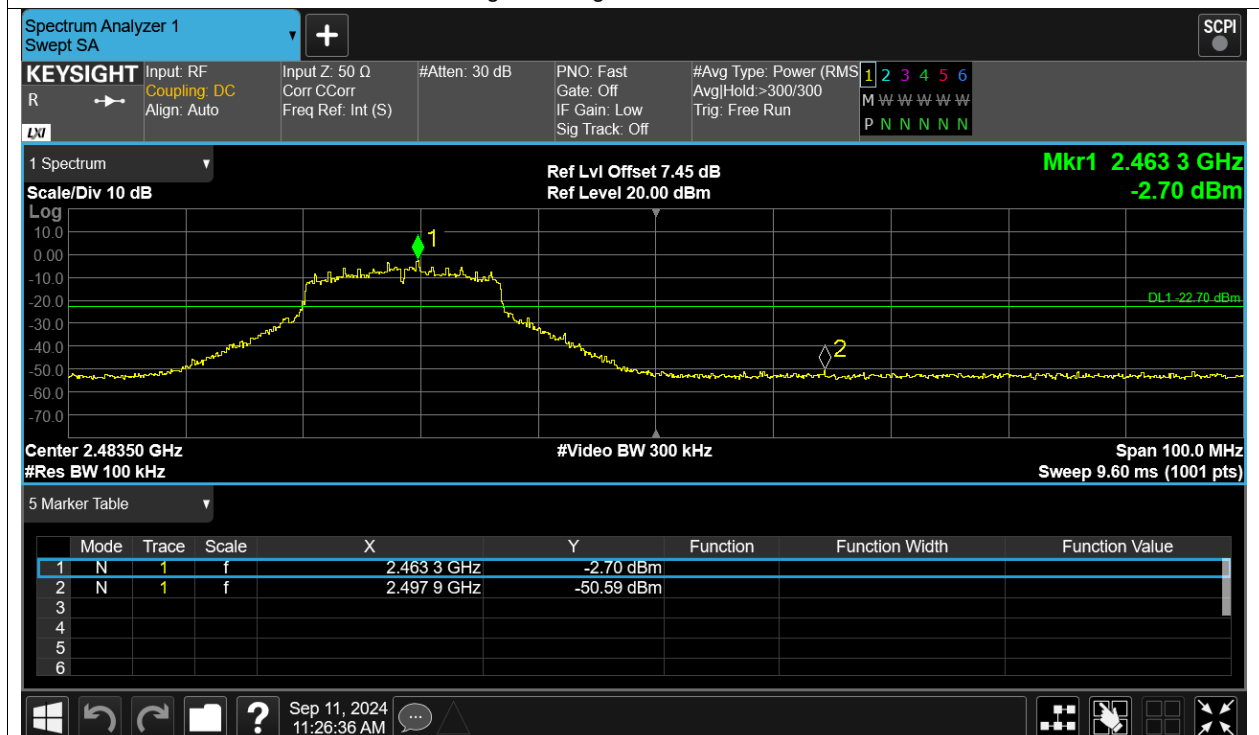
Band Edge NVNT b 2462MHz Ant1 Emission



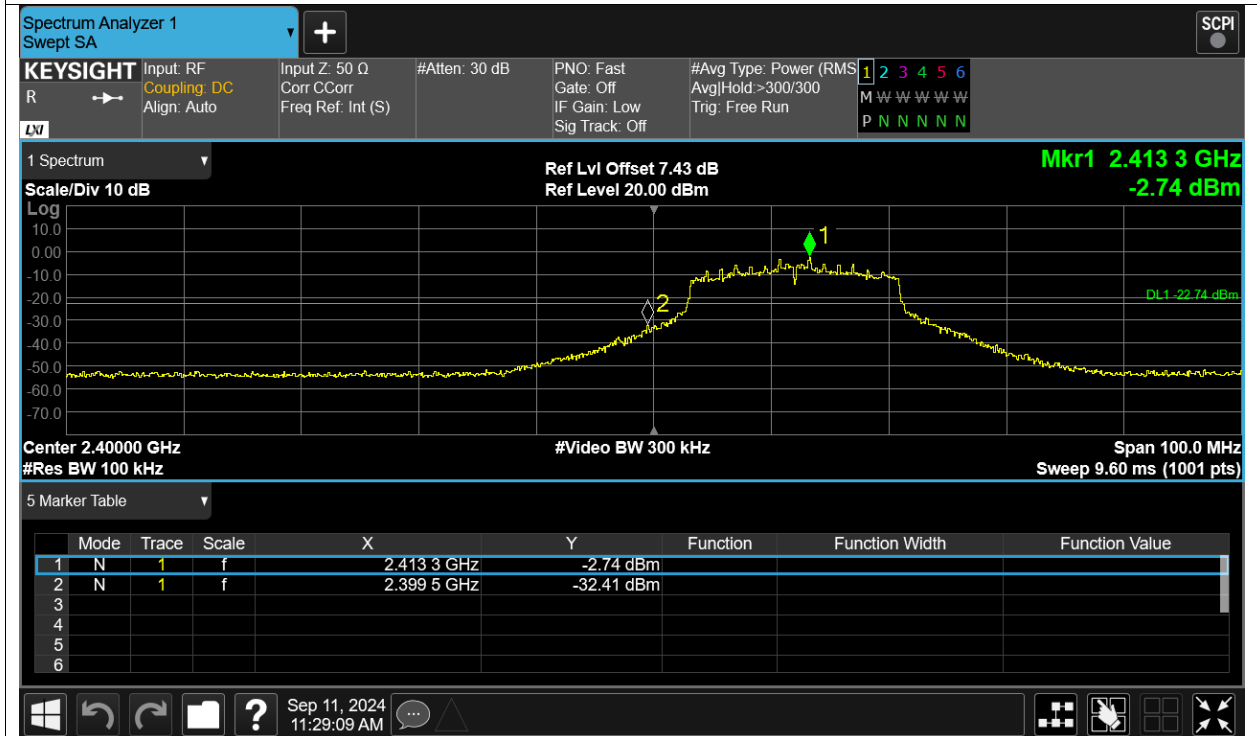
Band Edge NVNT g 2412MHz Ant1 Emission



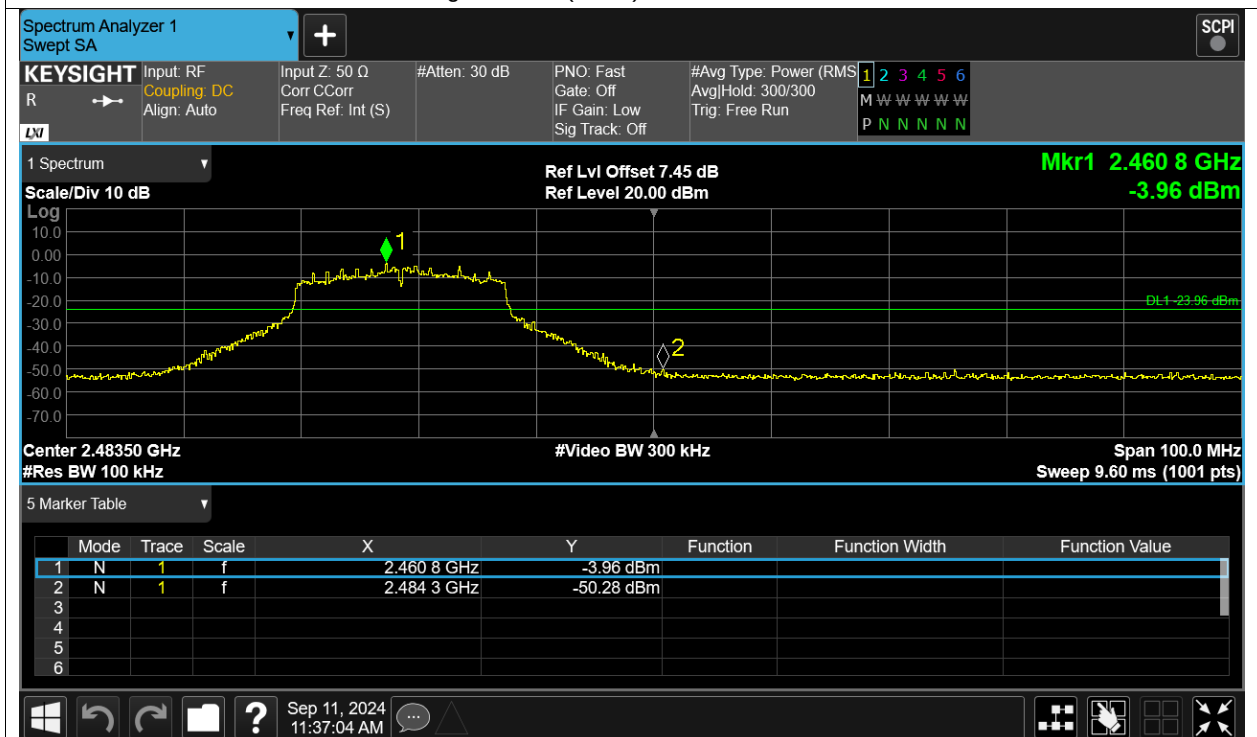
Band Edge NVNT g 2462MHz Ant1 Emission



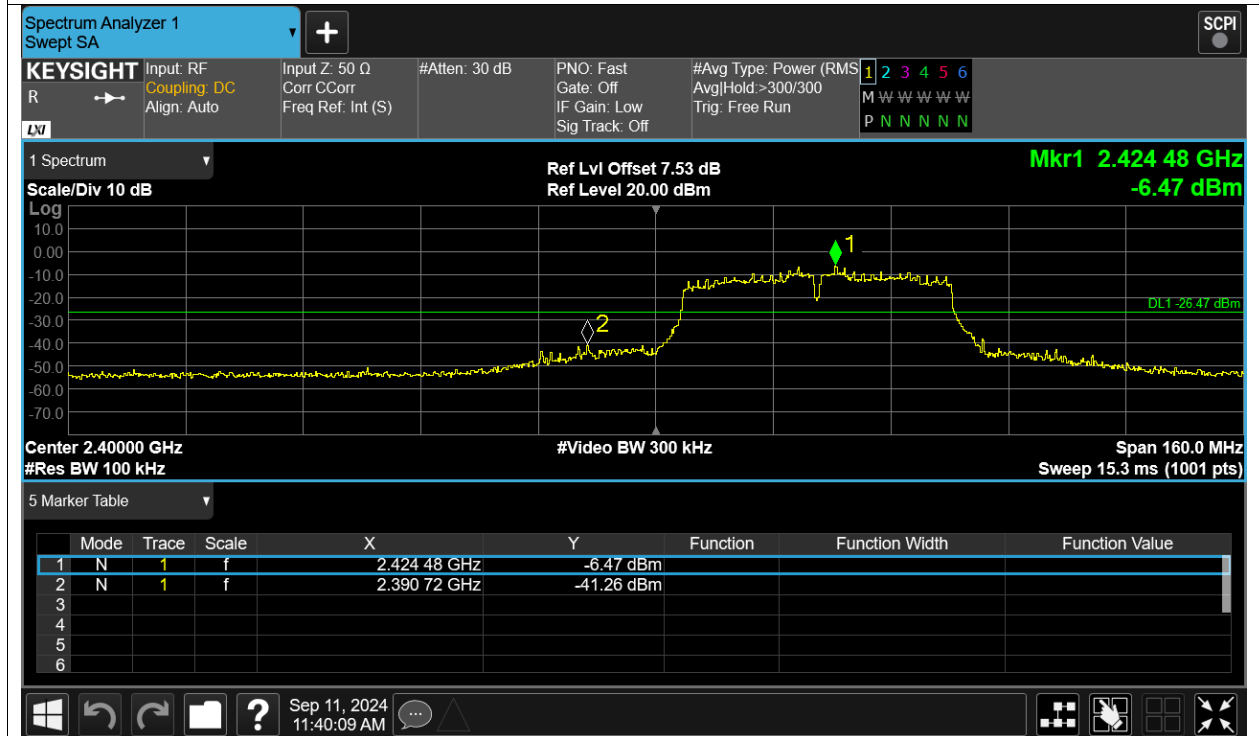
Band Edge NVNT n(HT20) 2412MHz Ant1 Emission



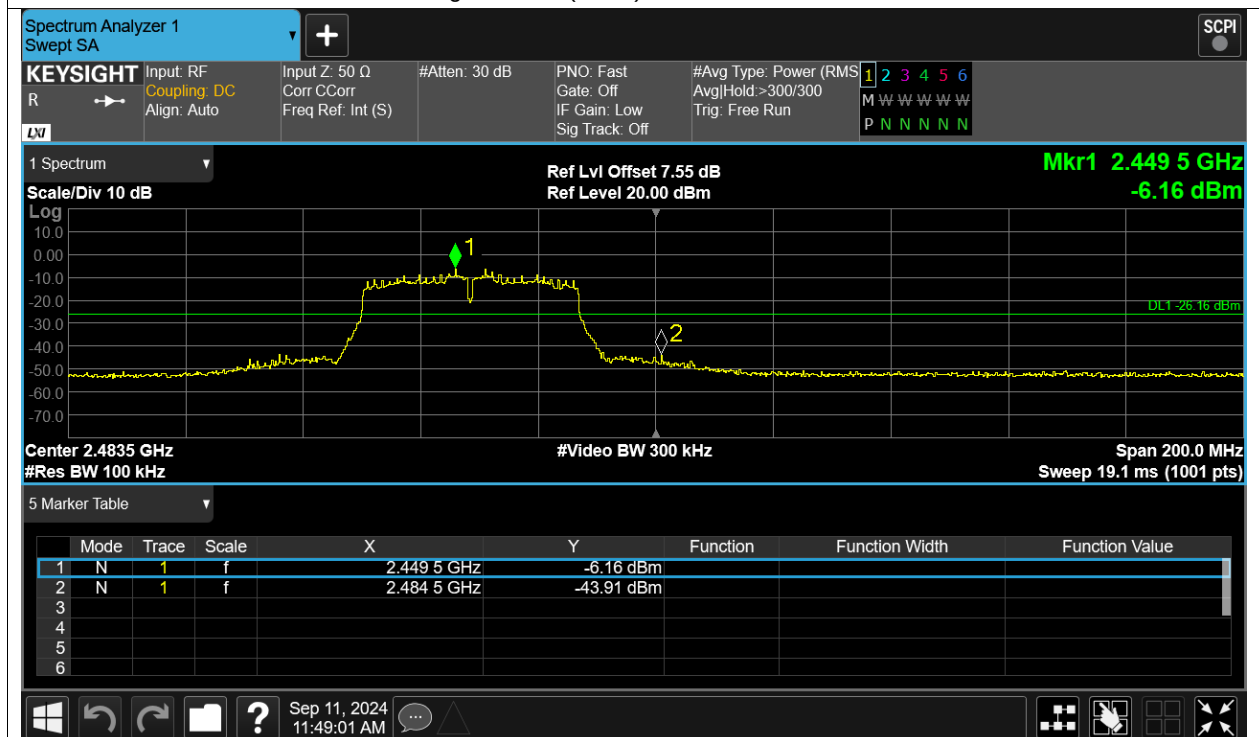
Band Edge NVNT n(HT20) 2462MHz Ant1 Emission



Band Edge NVNT n(HT40) 2422MHz Ant1 Emission



Band Edge NVNT n(HT40) 2452MHz Ant1 Emission

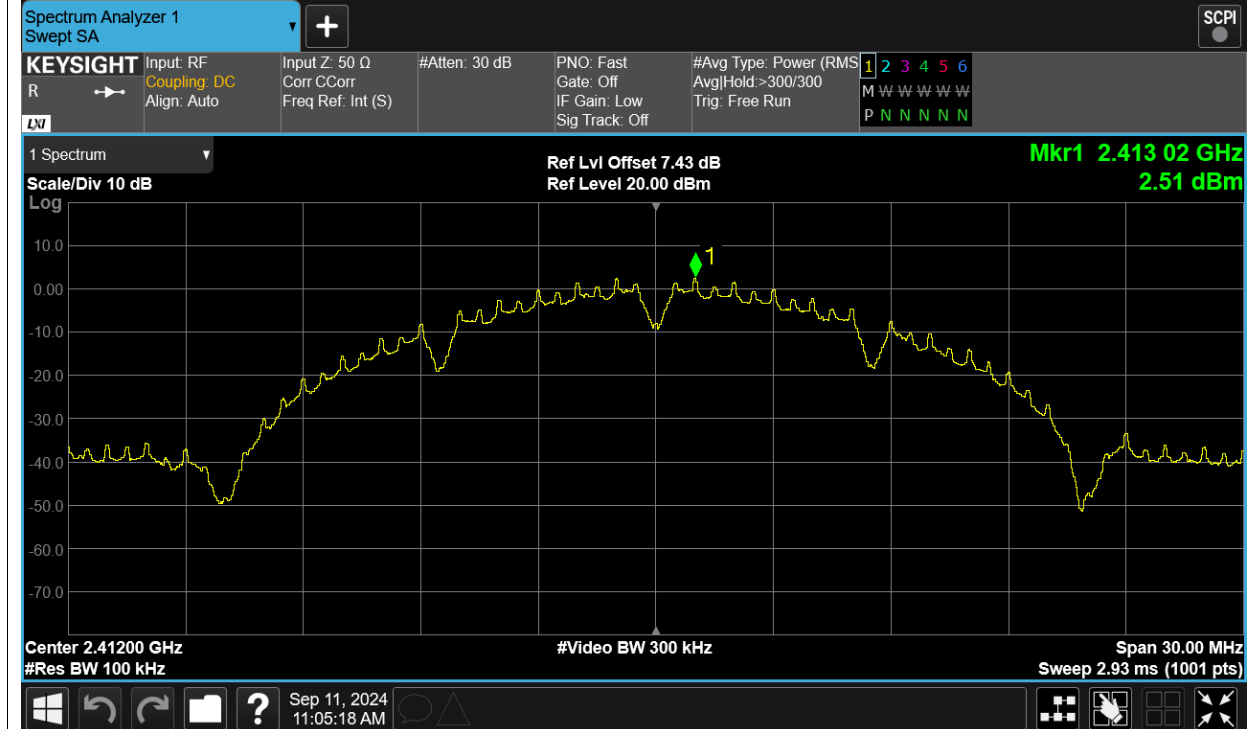


Conducted Spurious Emission

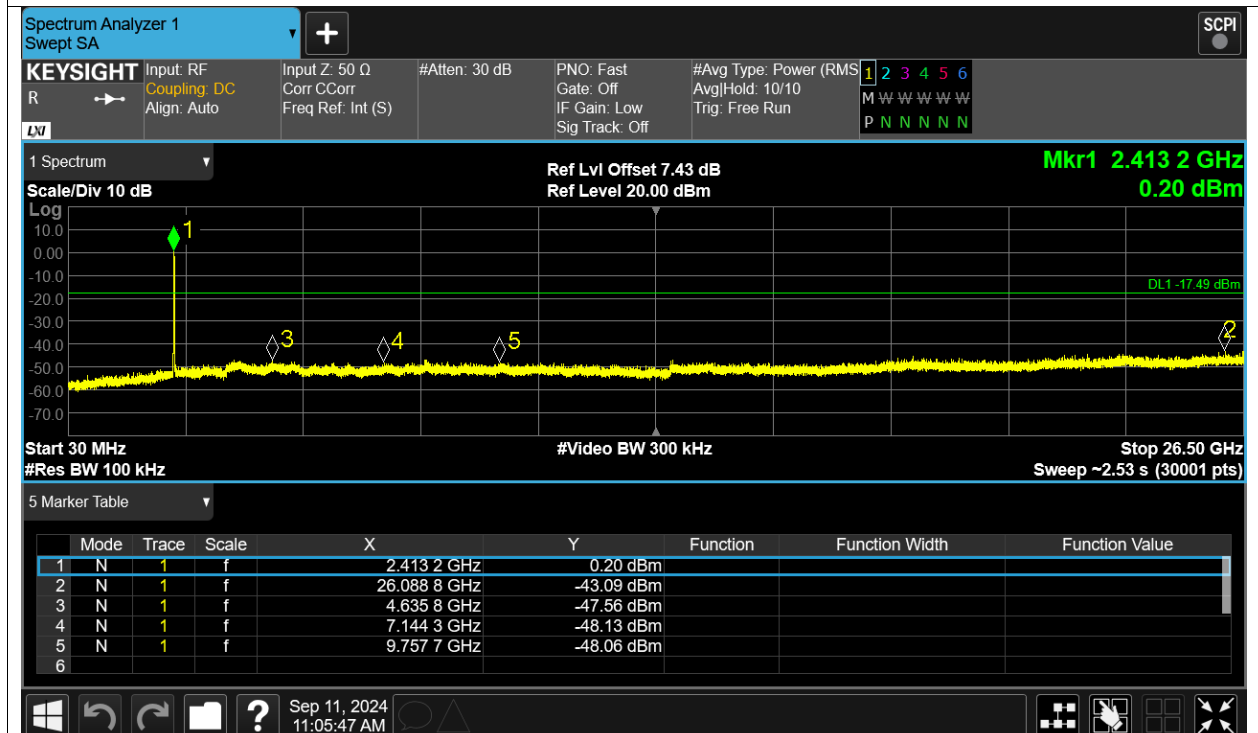
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-45.6	-20	Pass
NVNT	b	2437	Ant1	-47.56	-20	Pass
NVNT	b	2462	Ant1	-47.13	-20	Pass
NVNT	g	2412	Ant1	-40.82	-20	Pass
NVNT	g	2437	Ant1	-41.33	-20	Pass
NVNT	g	2462	Ant1	-40.22	-20	Pass
NVNT	n(HT20)	2412	Ant1	-40.92	-20	Pass
NVNT	n(HT20)	2437	Ant1	-41.42	-20	Pass
NVNT	n(HT20)	2462	Ant1	-41.42	-20	Pass
NVNT	n(HT40)	2422	Ant1	-36.92	-20	Pass
NVNT	n(HT40)	2437	Ant1	-38.21	-20	Pass
NVNT	n(HT40)	2452	Ant1	-37.3	-20	Pass

Test Graphs

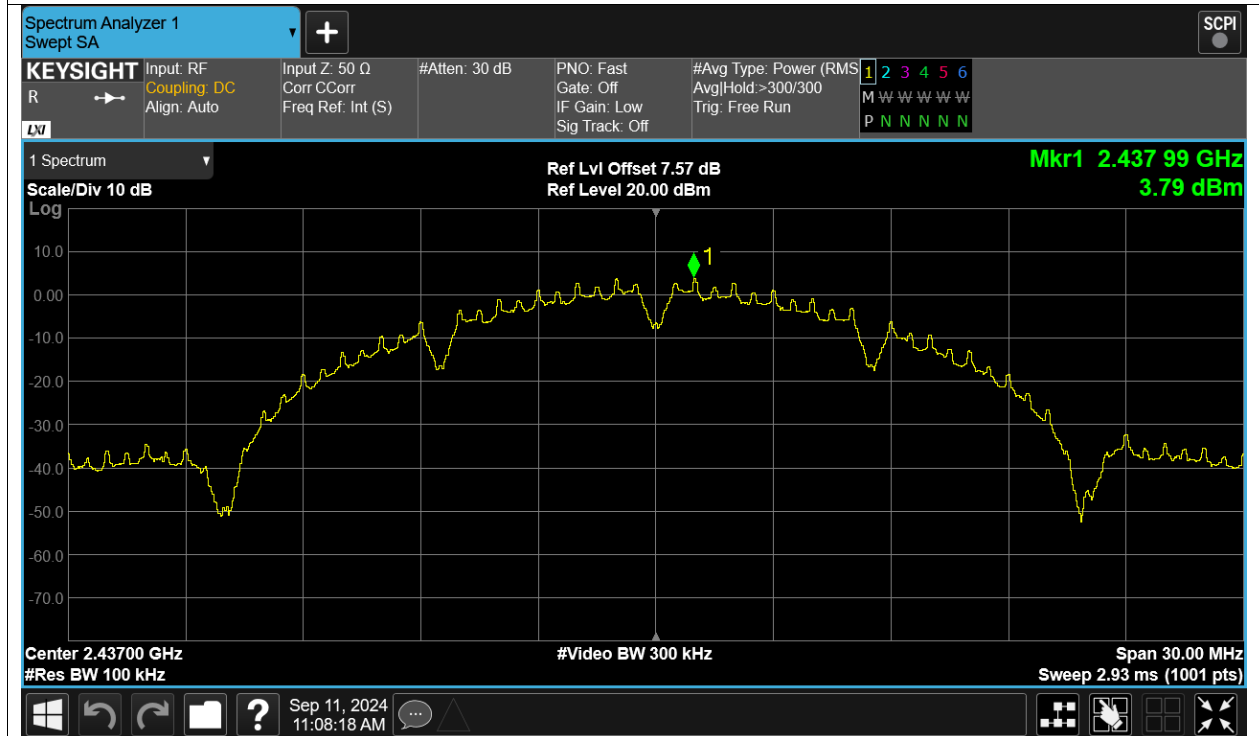
Tx. Spurious NVNT b 2412MHz Ant1 Ref



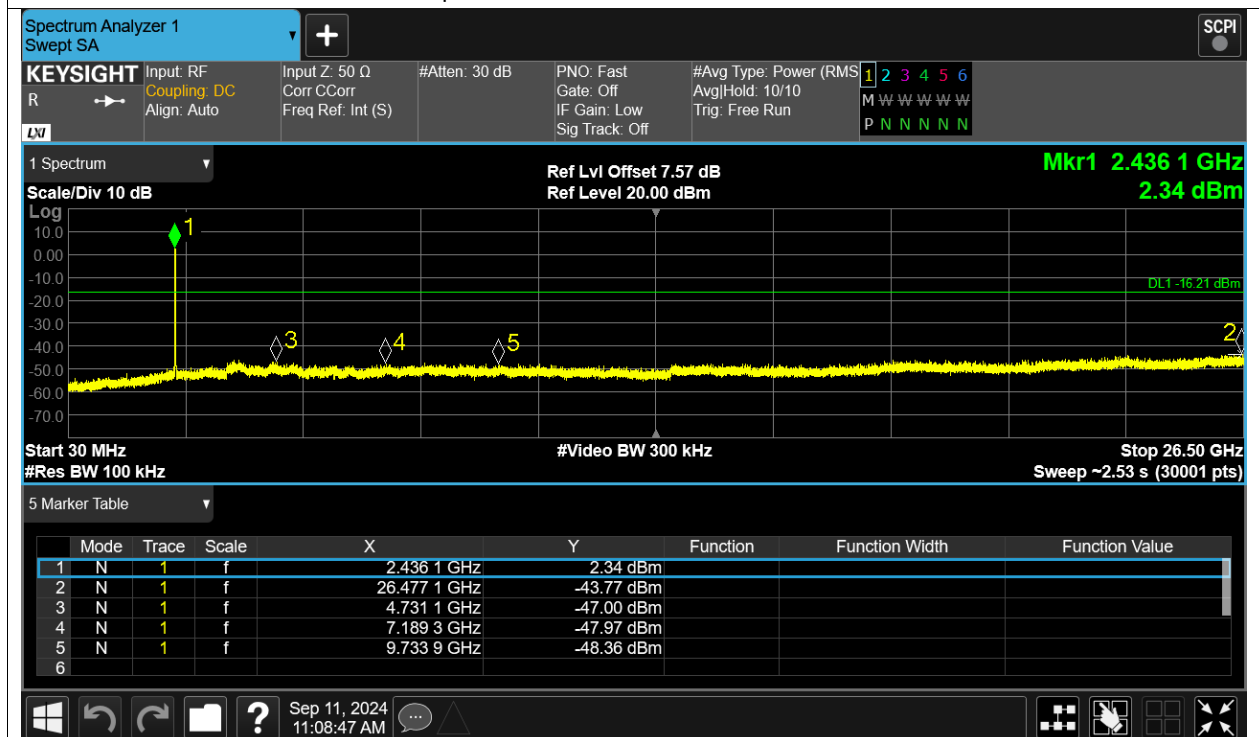
Tx. Spurious NVNT b 2412MHz Ant1 Emission



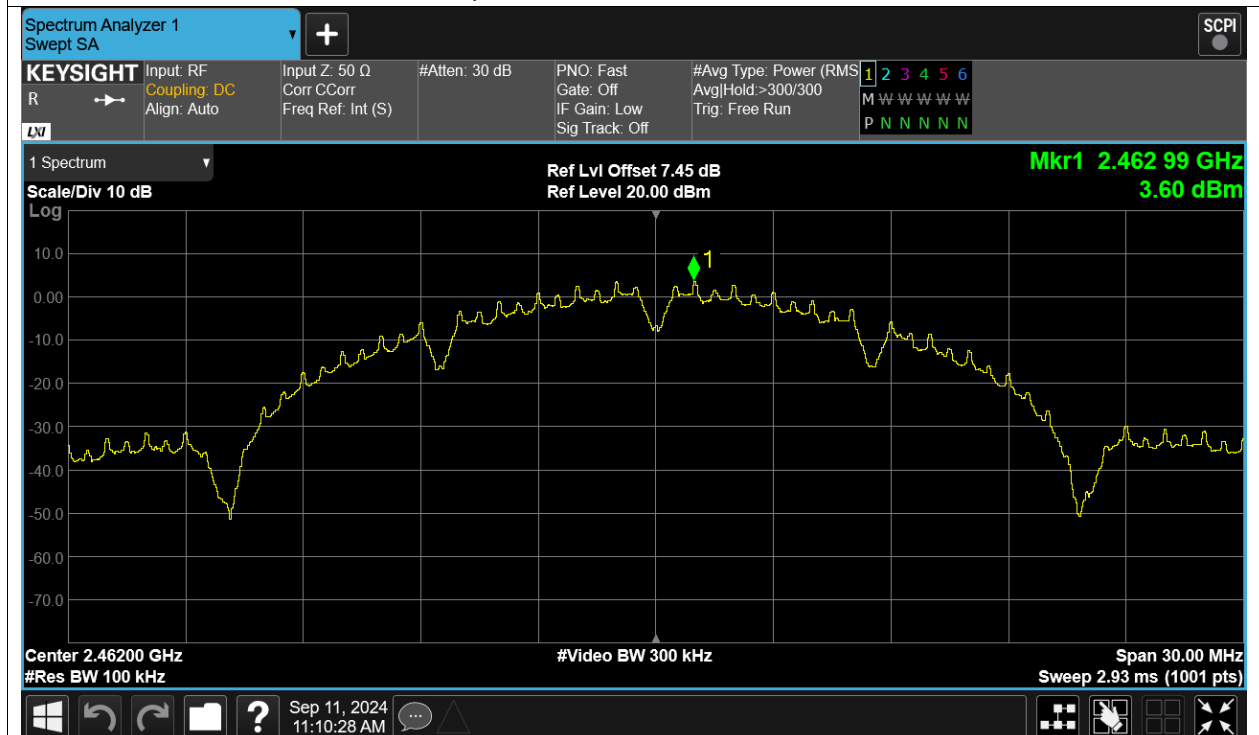
Tx. Spurious NVNT b 2437MHz Ant1 Ref



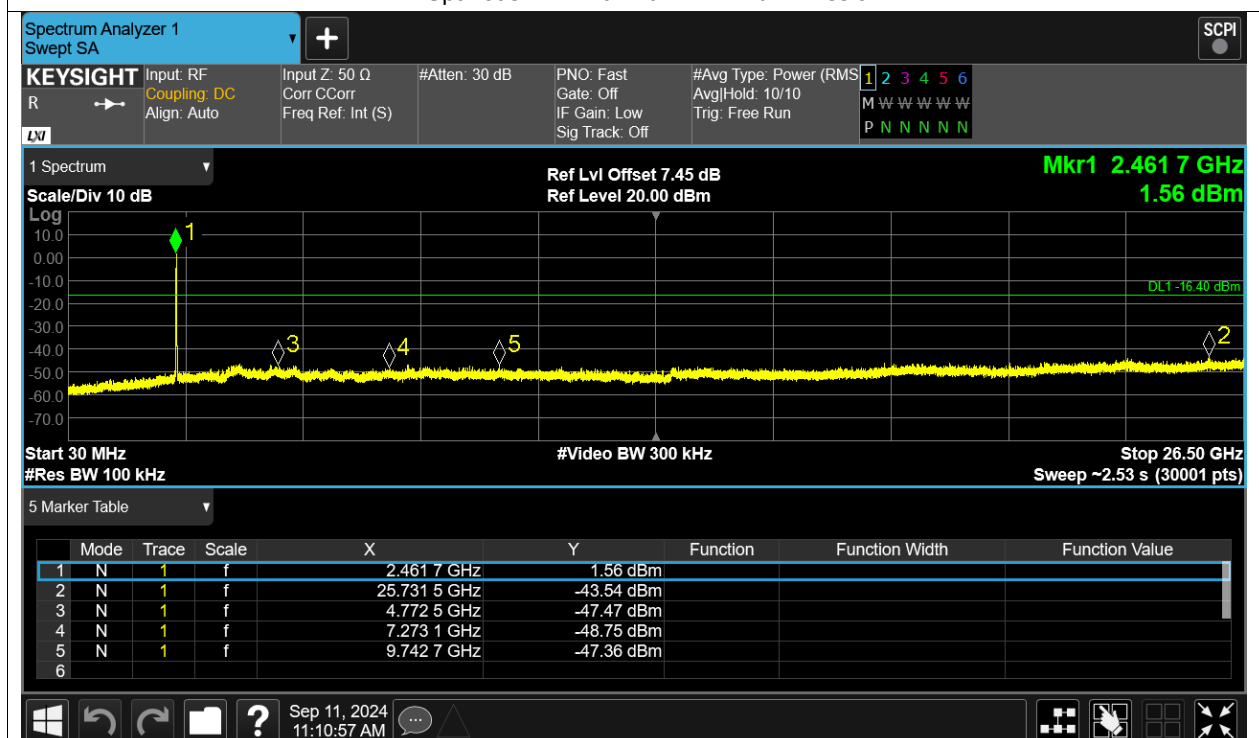
Tx. Spurious NVNT b 2437MHz Ant1 Emission



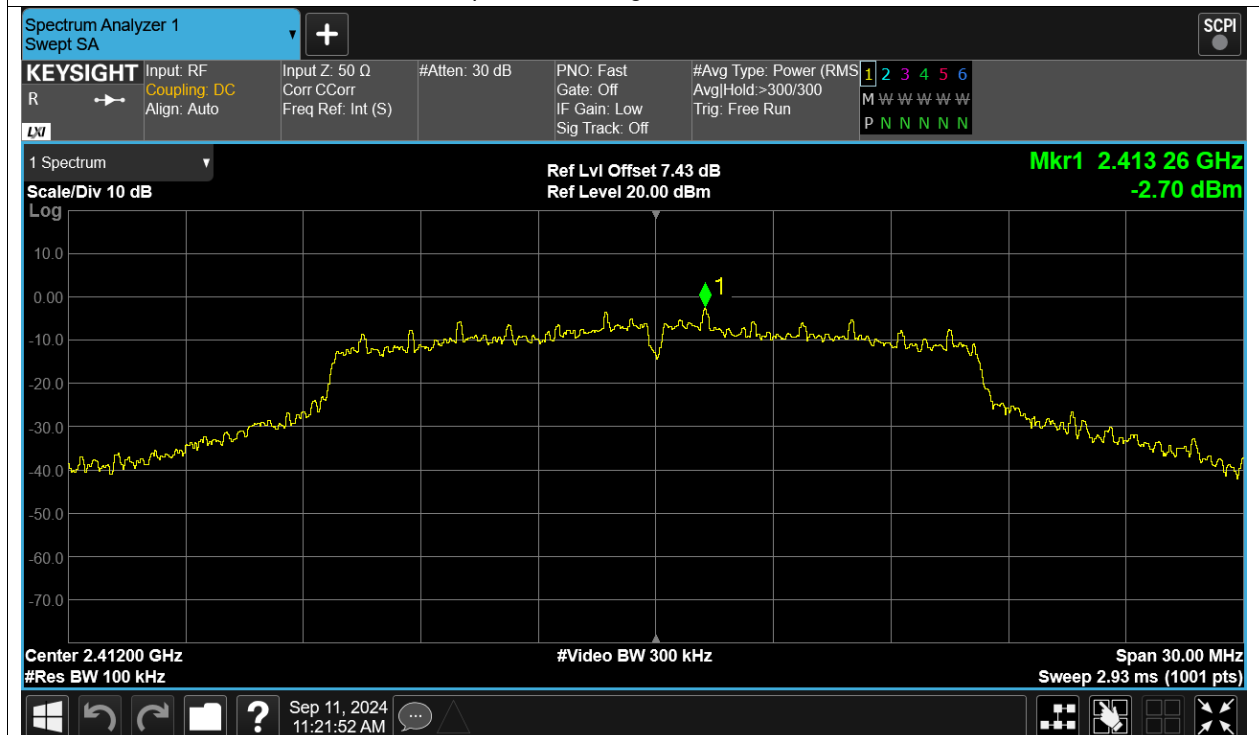
Tx. Spurious NVNT b 2462MHz Ant1 Ref



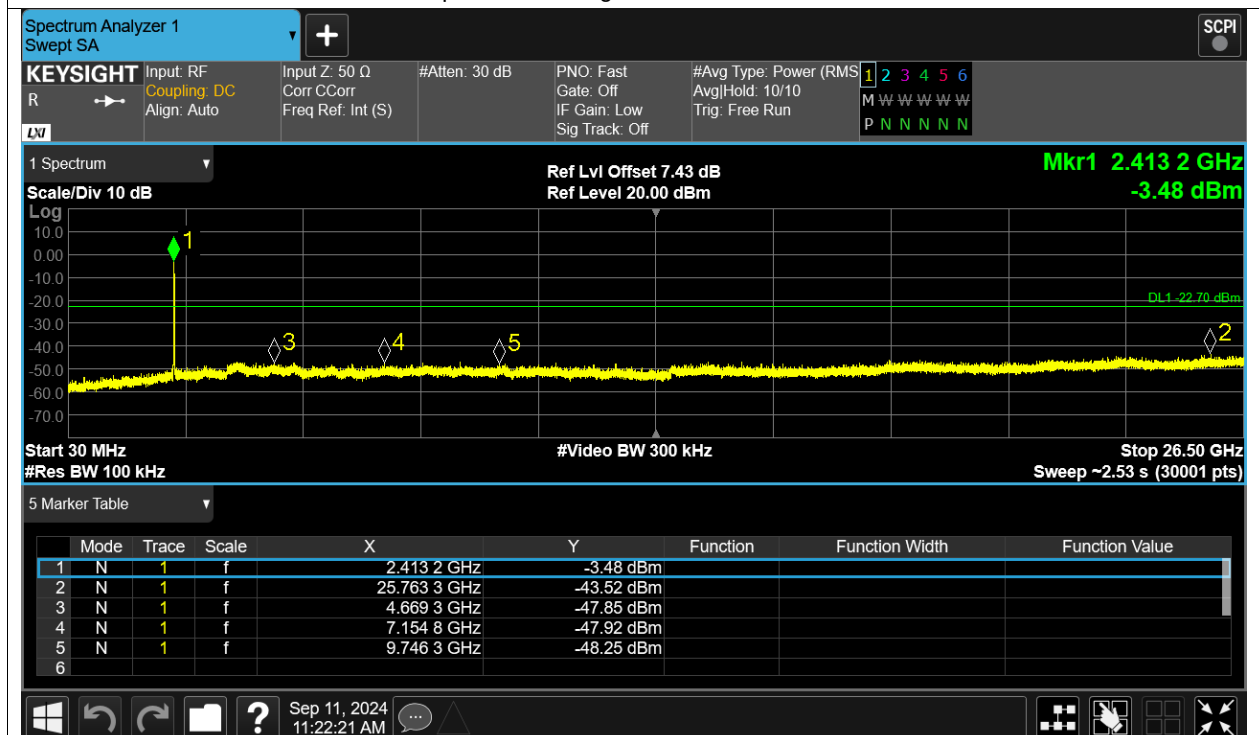
Tx. Spurious NVNT b 2462MHz Ant1 Emission

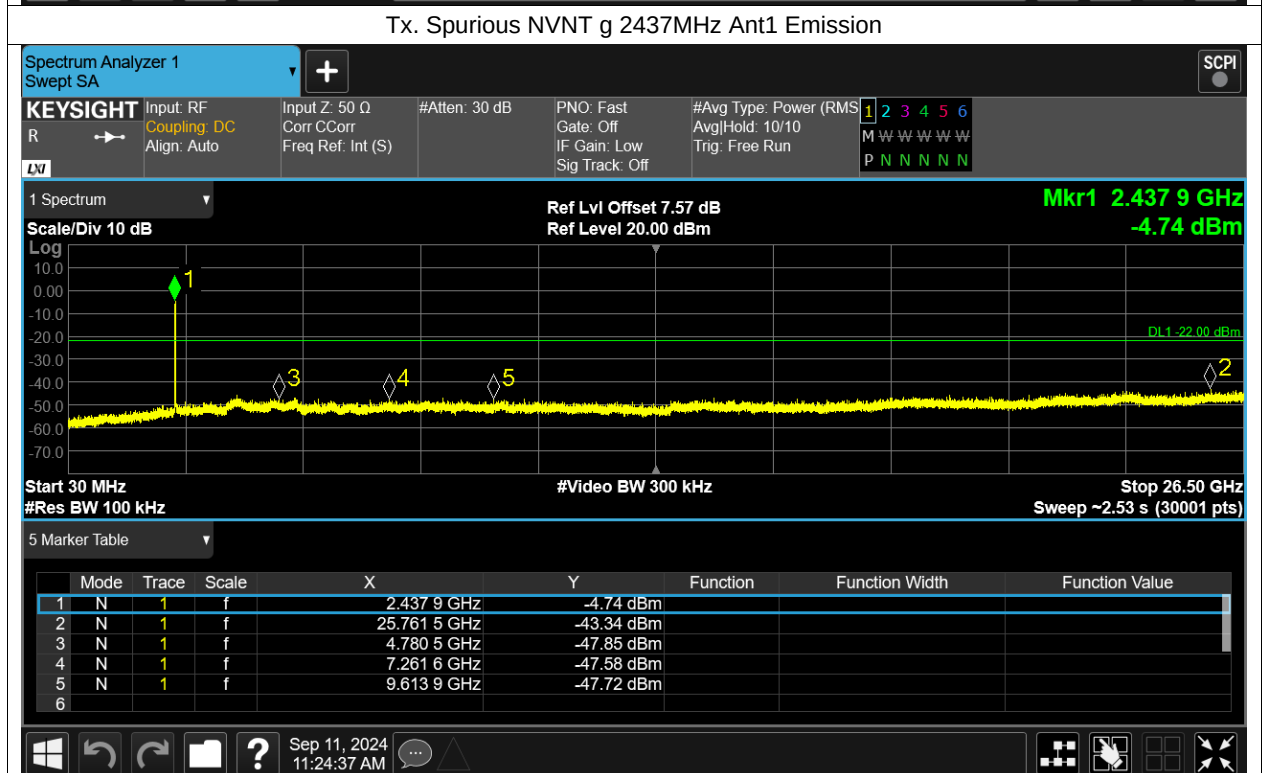
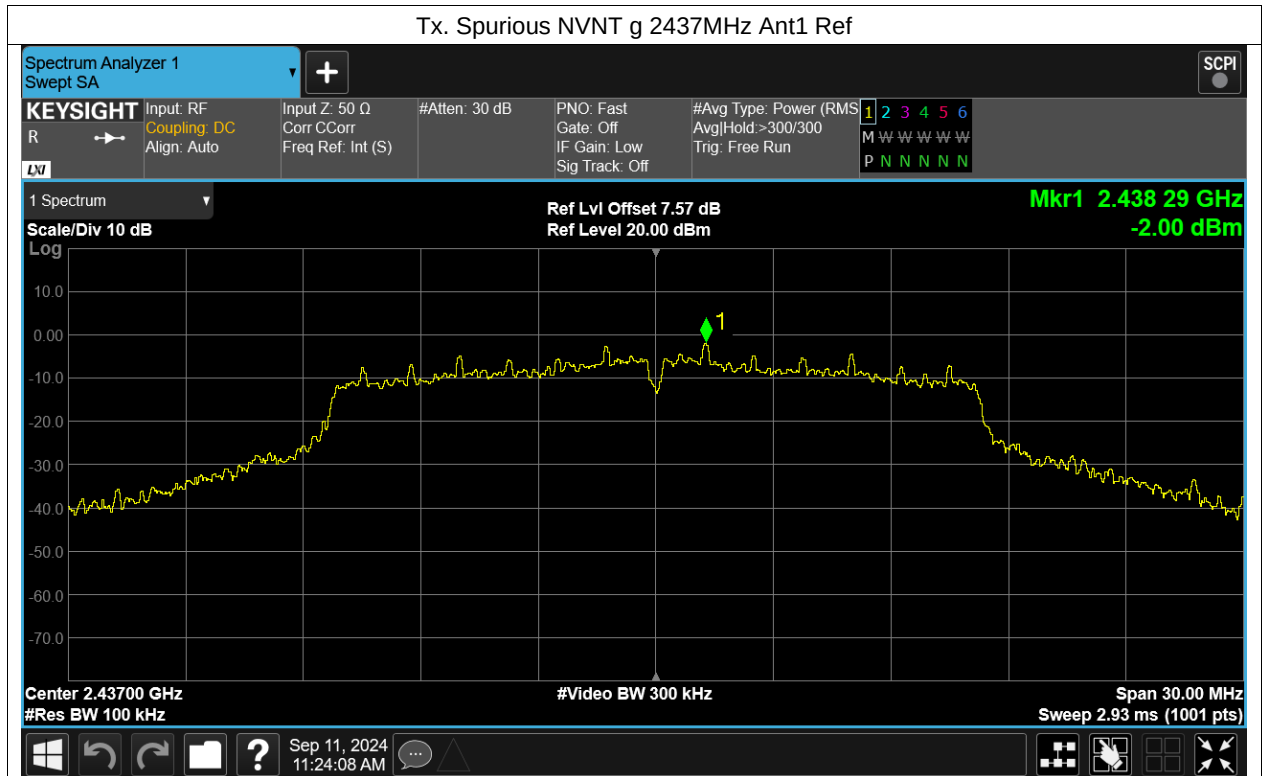


Tx. Spurious NVNT g 2412MHz Ant1 Ref

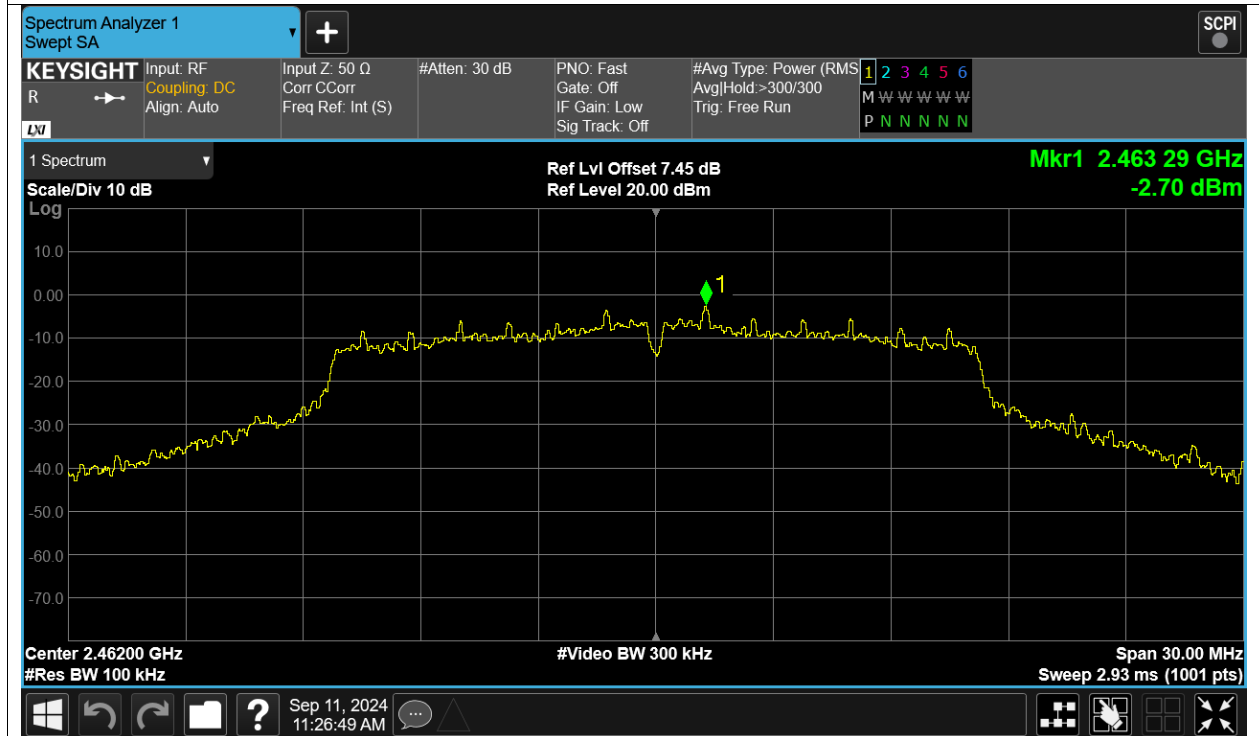


Tx. Spurious NVNT g 2412MHz Ant1 Emission

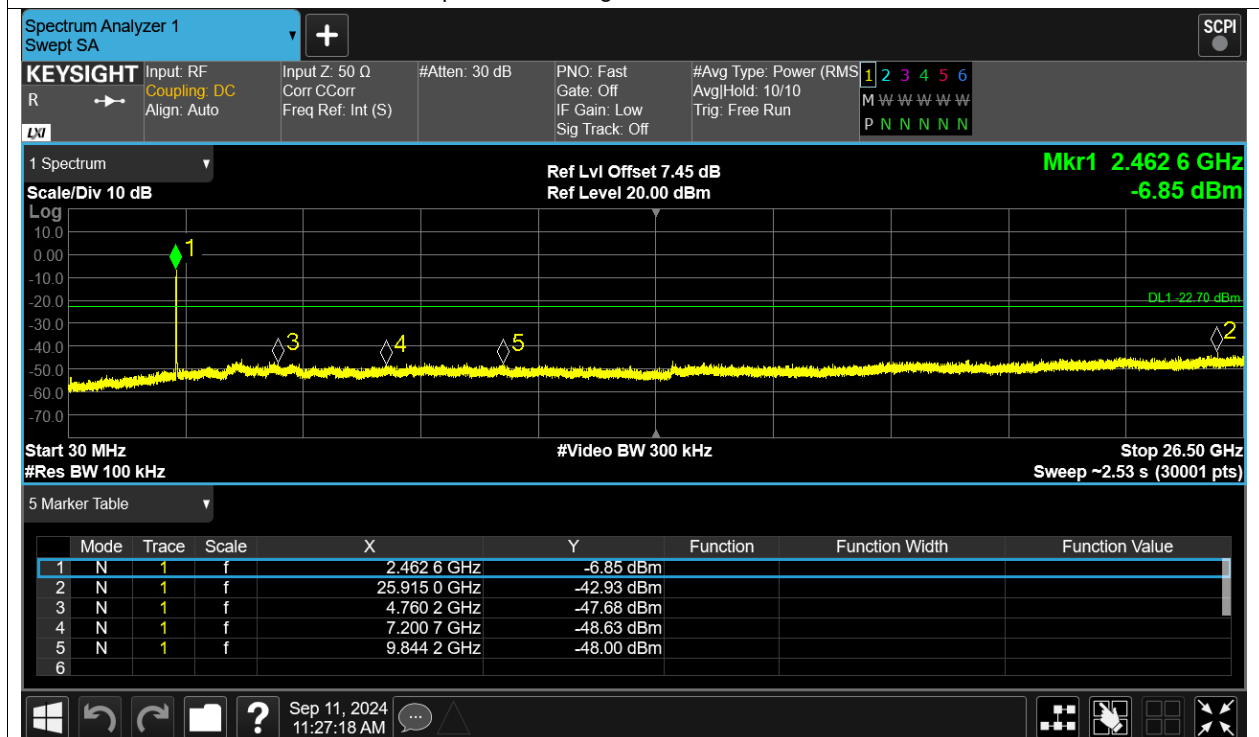




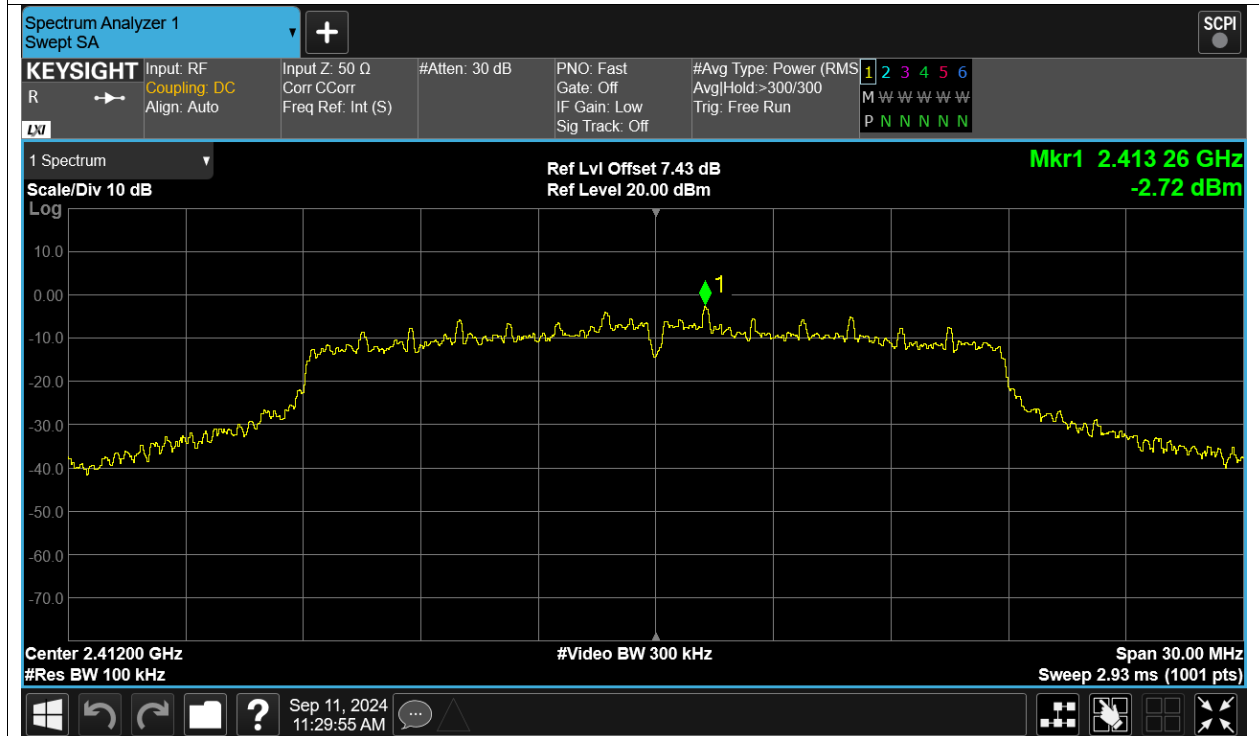
Tx. Spurious NVNT g 2462MHz Ant1 Ref



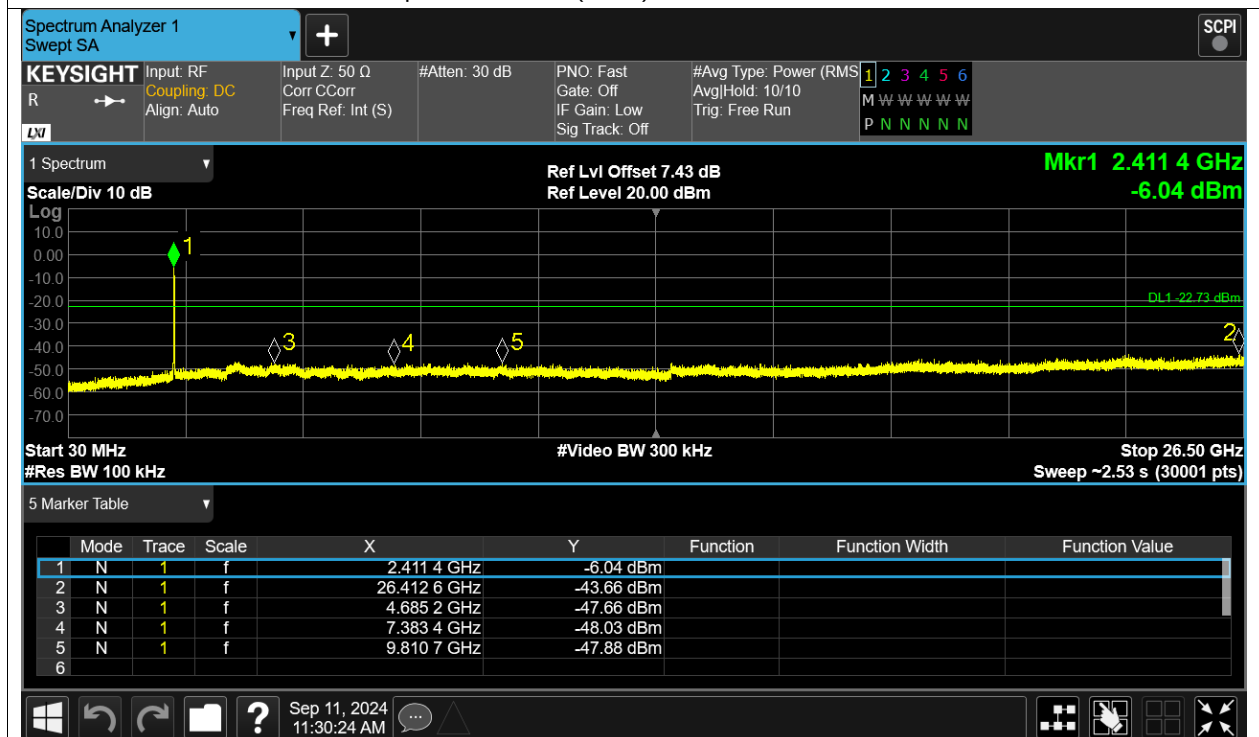
Tx. Spurious NVNT g 2462MHz Ant1 Emission



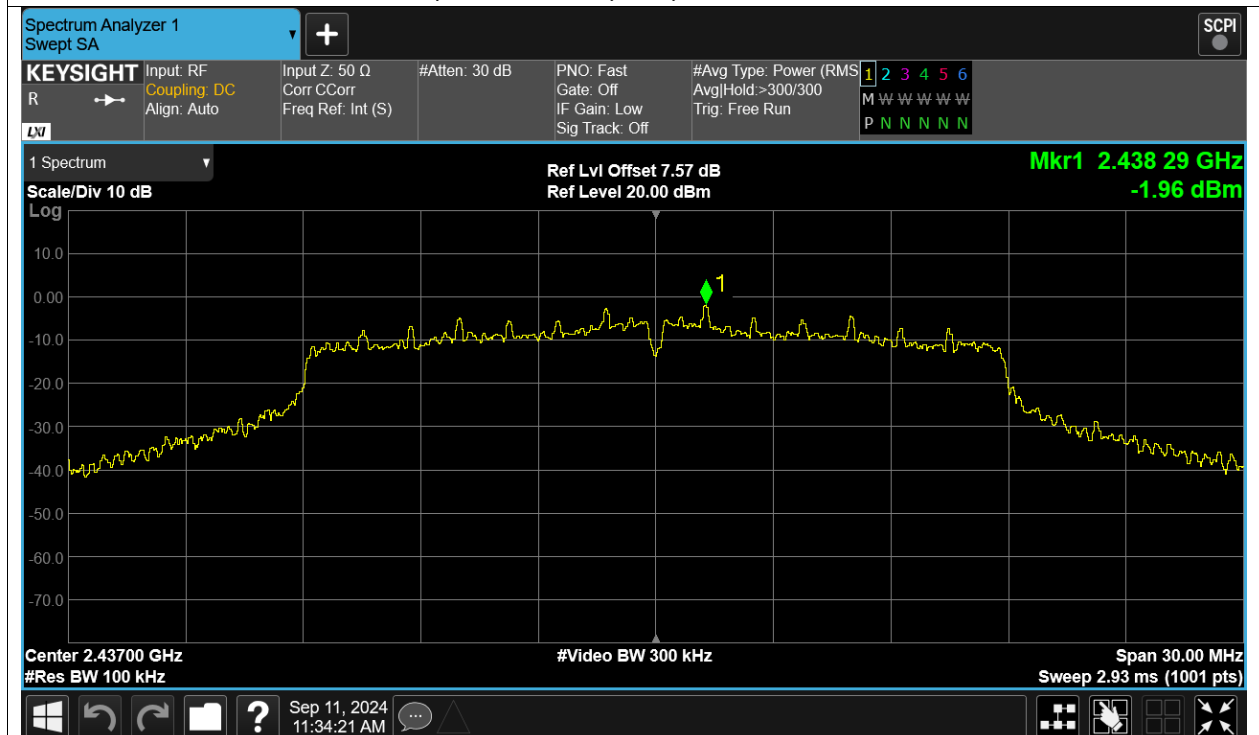
Tx. Spurious NVNT n(HT20) 2412MHz Ant1 Ref



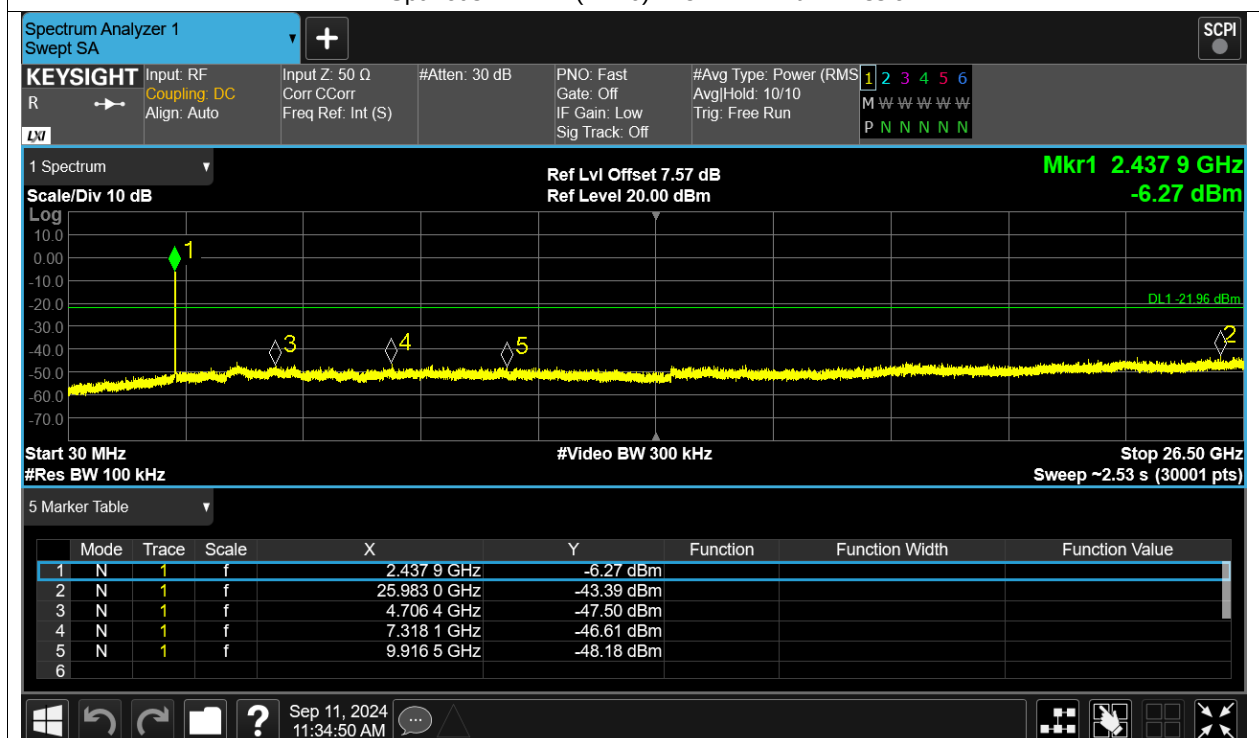
Tx. Spurious NVNT n(HT20) 2412MHz Ant1 Emission



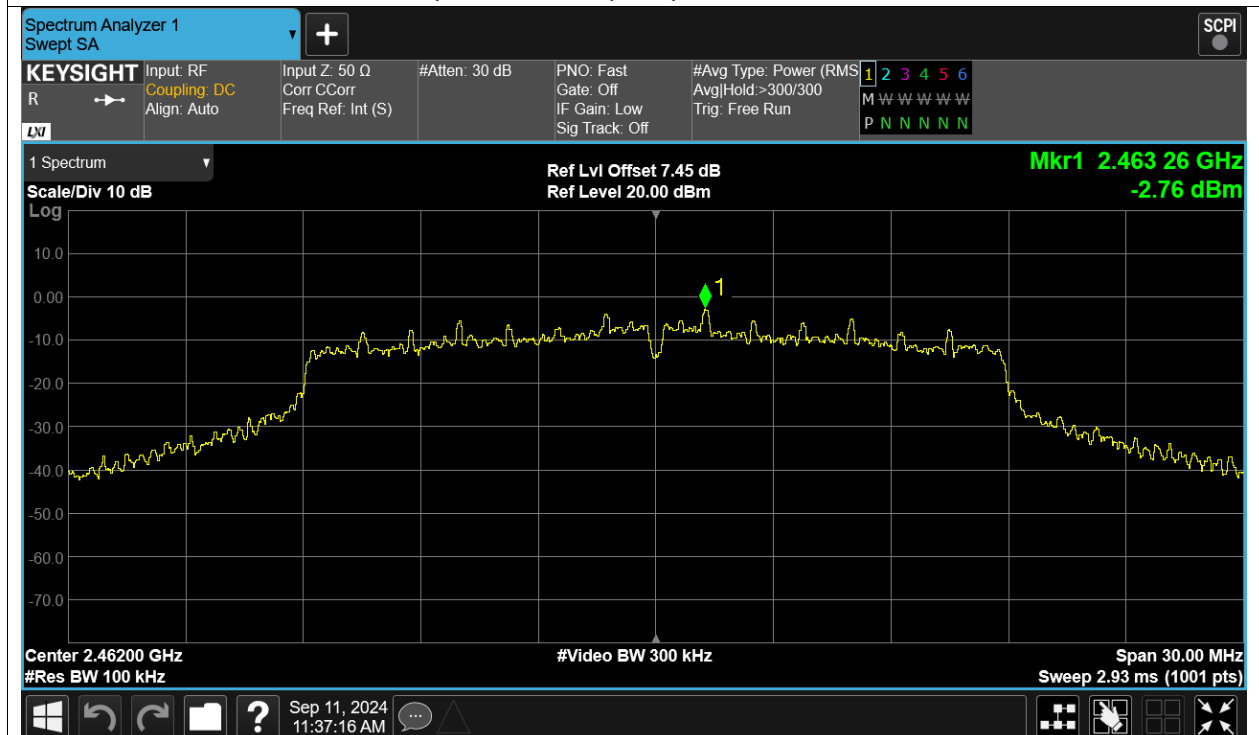
Tx. Spurious NVNT n(HT20) 2437MHz Ant1 Ref



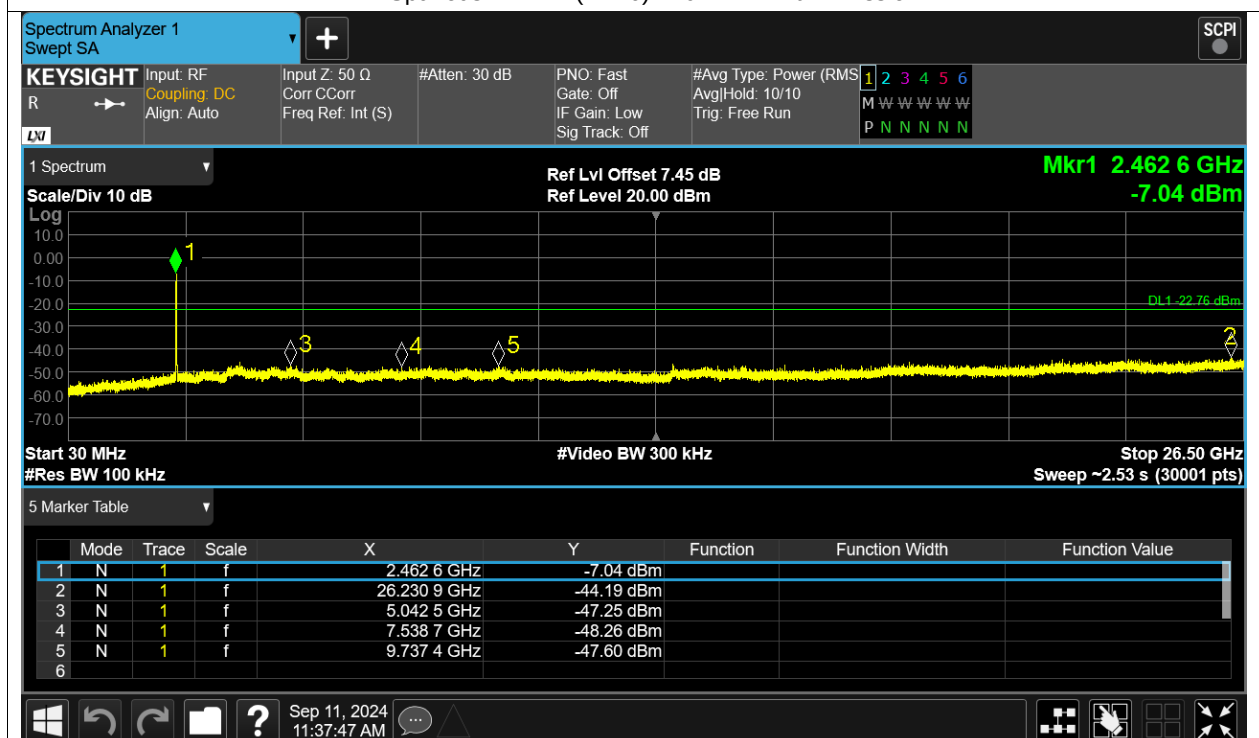
Tx. Spurious NVNT n(HT20) 2437MHz Ant1 Emission



Tx. Spurious NVNT n(HT20) 2462MHz Ant1 Ref



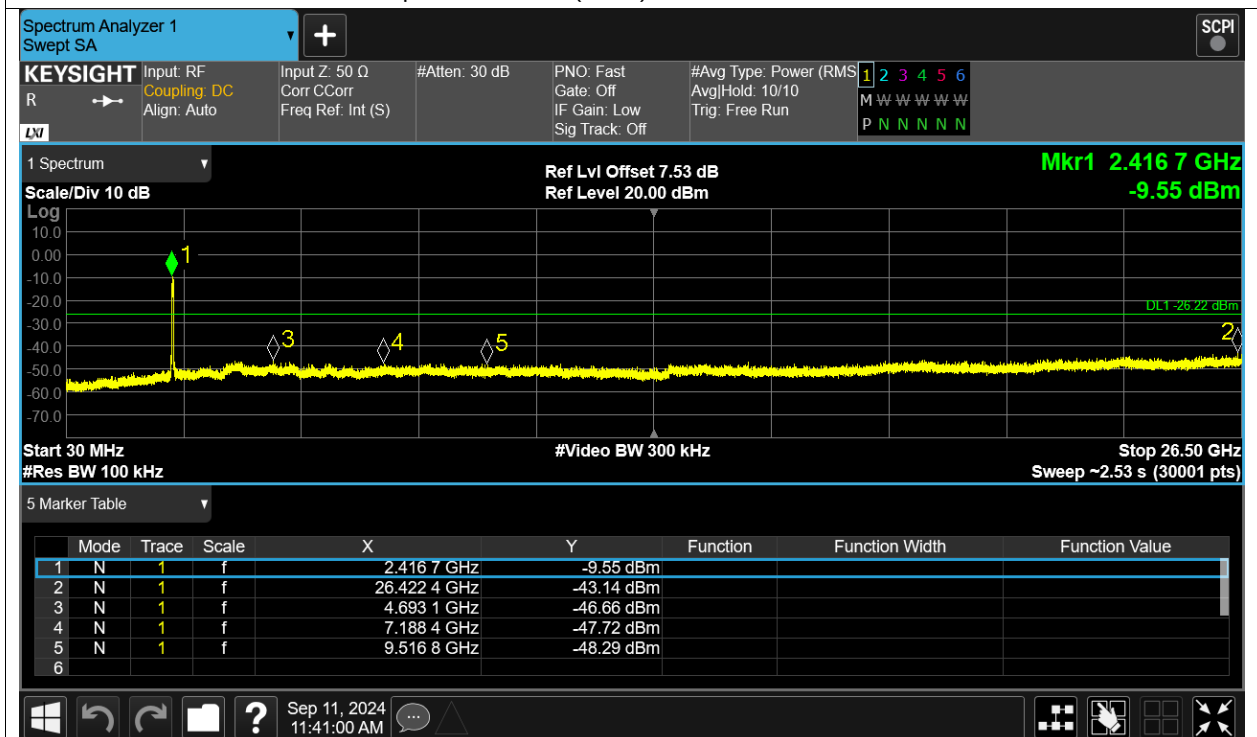
Tx. Spurious NVNT n(HT20) 2462MHz Ant1 Emission



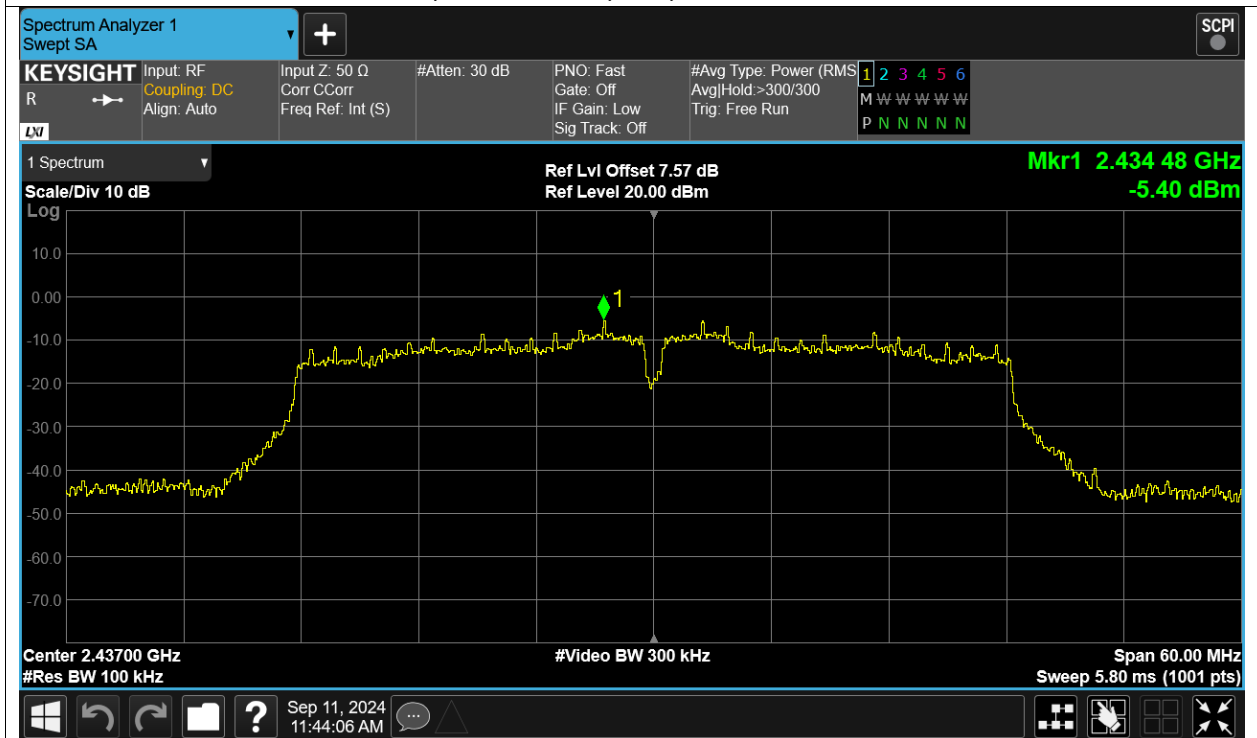
Tx. Spurious NVNT n(HT40) 2422MHz Ant1 Ref



Tx. Spurious NVNT n(HT40) 2422MHz Ant1 Emission



Tx. Spurious NVNT n(HT40) 2437MHz Ant1 Ref



Tx. Spurious NVNT n(HT40) 2437MHz Ant1 Emission

