

RF Test Data for Bluetooth(BDR+EDR) (Conducted Measurements)

General Description of EUT	
Product Name:	Soprano X1
Test Model:	Soprano X1
Sample ID:	202206-0362-01-06
Environmental Conditions	
Temperature:	25℃
Relative Humidity:	55%
Test Voltage:	DC 12V
Test Engineer:	Huang jian ping
Note: For a more detailed features description, please refer to the report TBR-C-202206-0362-16	

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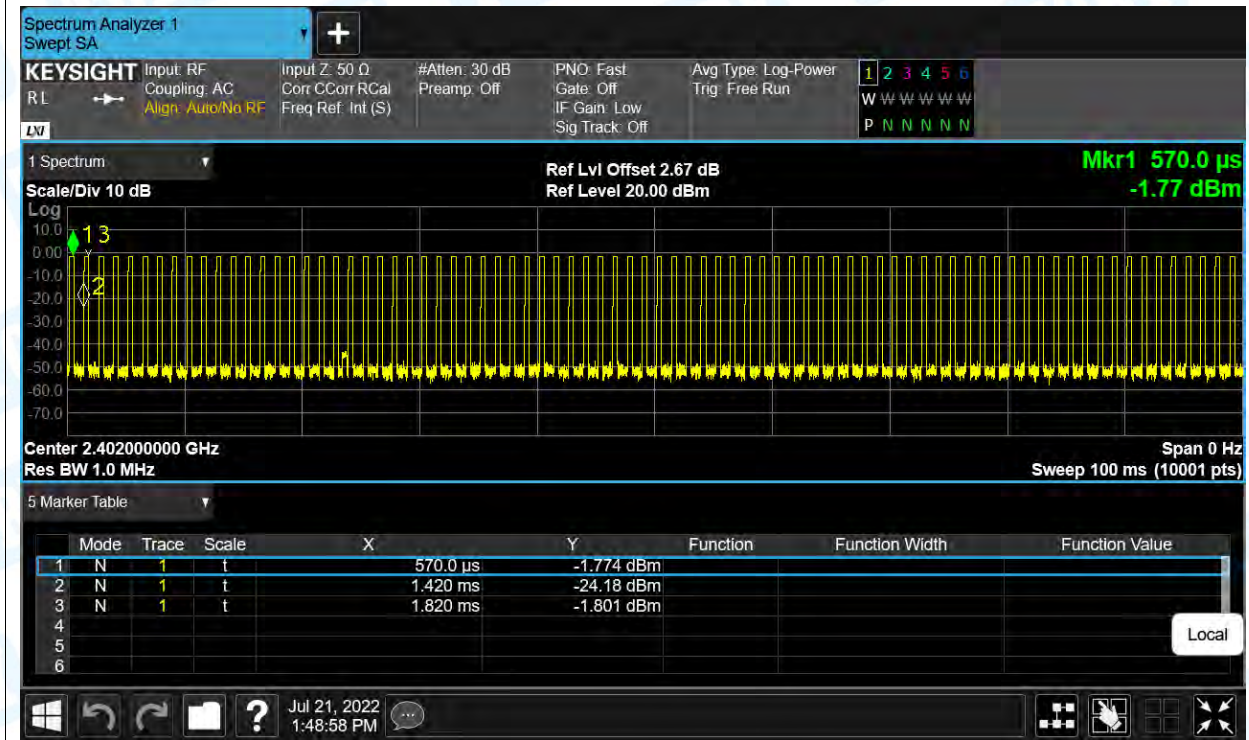
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1. Duty Cycle

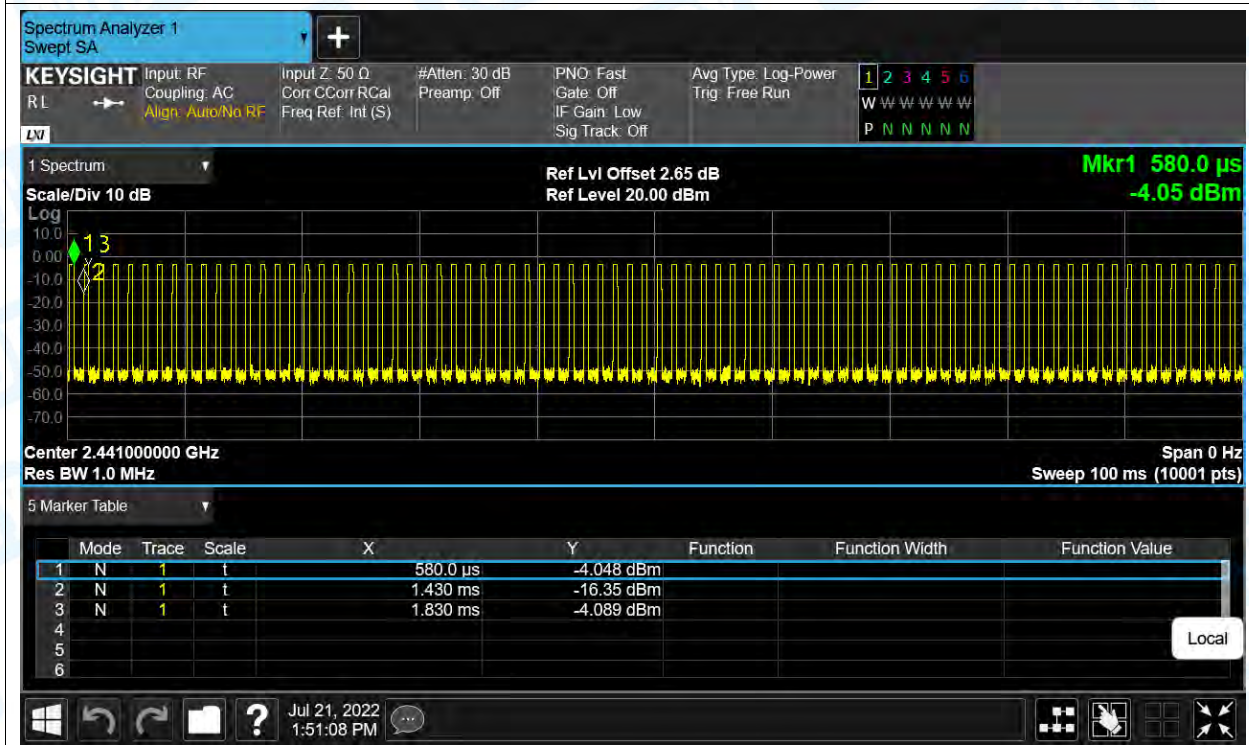
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	32.8	4.84	2.5
NVNT	1-DH1	2441	Ant1	32.6	4.87	2.5
NVNT	1-DH1	2480	Ant1	32.15	4.93	2.56
NVNT	2-DH1	2402	Ant1	33.61	4.74	2.44
NVNT	2-DH1	2441	Ant1	33.61	4.74	2.44
NVNT	2-DH1	2480	Ant1	32.8	4.84	2.5
NVNT	3-DH1	2402	Ant1	33.61	4.74	2.44
NVNT	3-DH1	2441	Ant1	33.11	4.8	2.44
NVNT	3-DH1	2480	Ant1	33.6	4.74	2.44

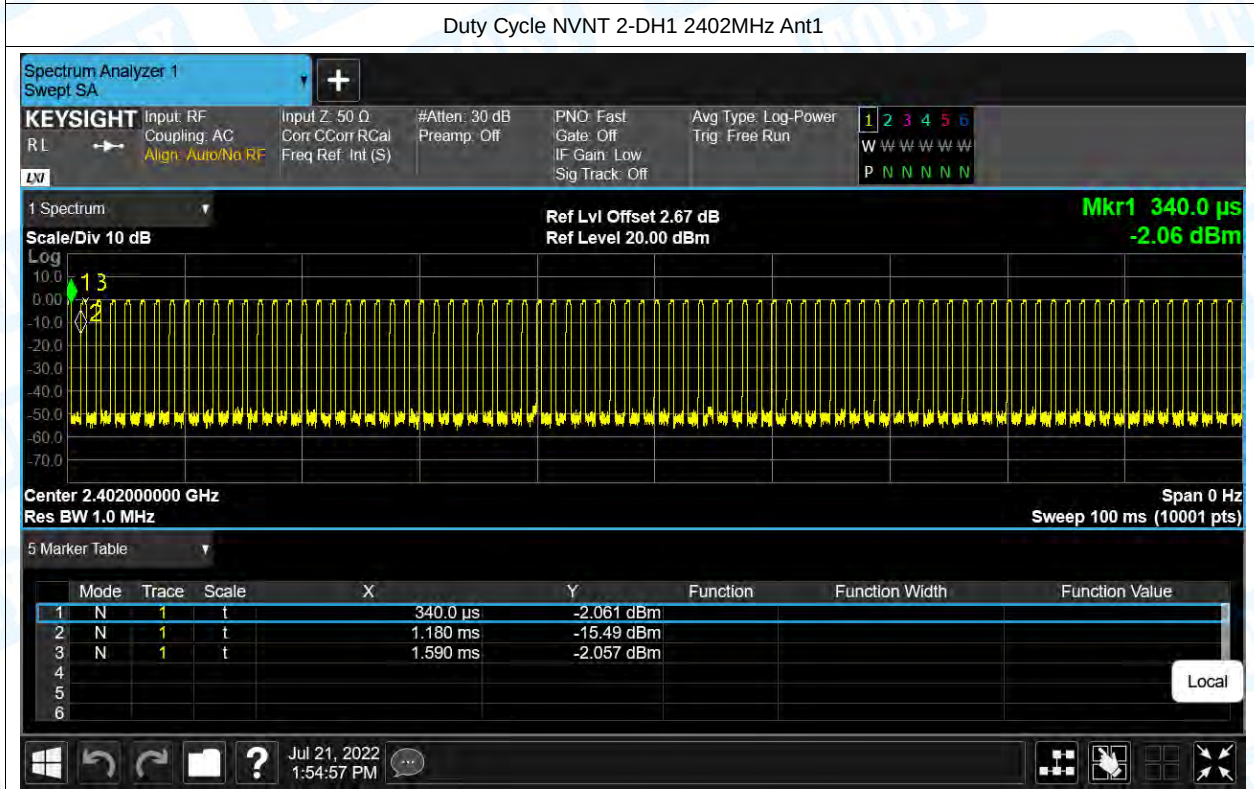
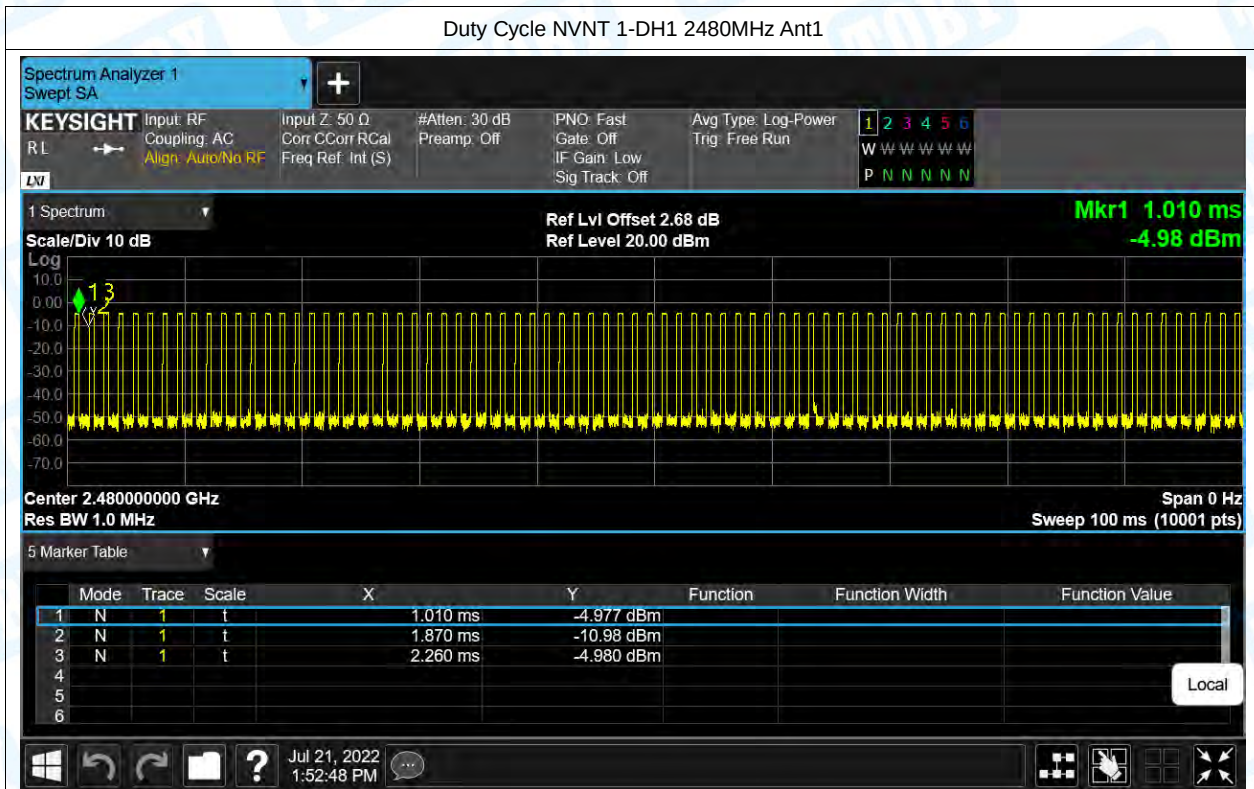
Test Graphs

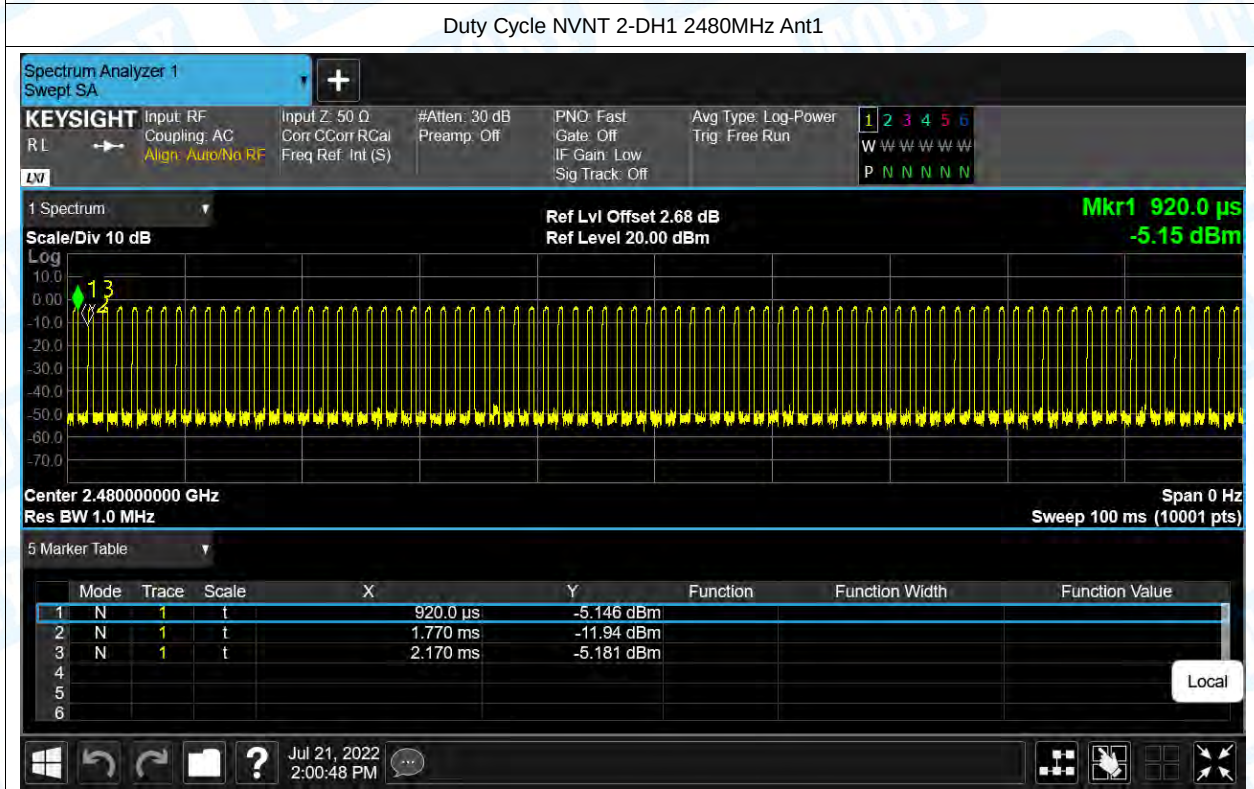
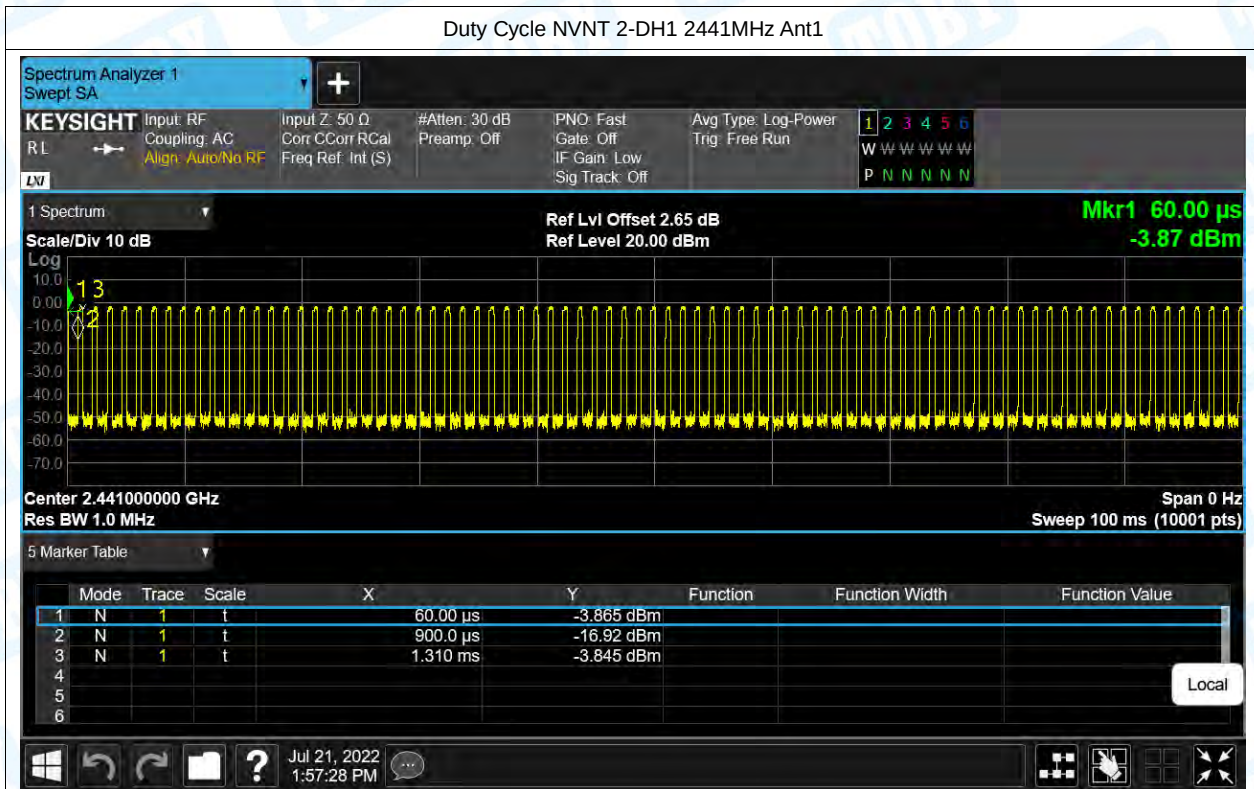
Duty Cycle NVNT 1-DH1 2402MHz Ant1

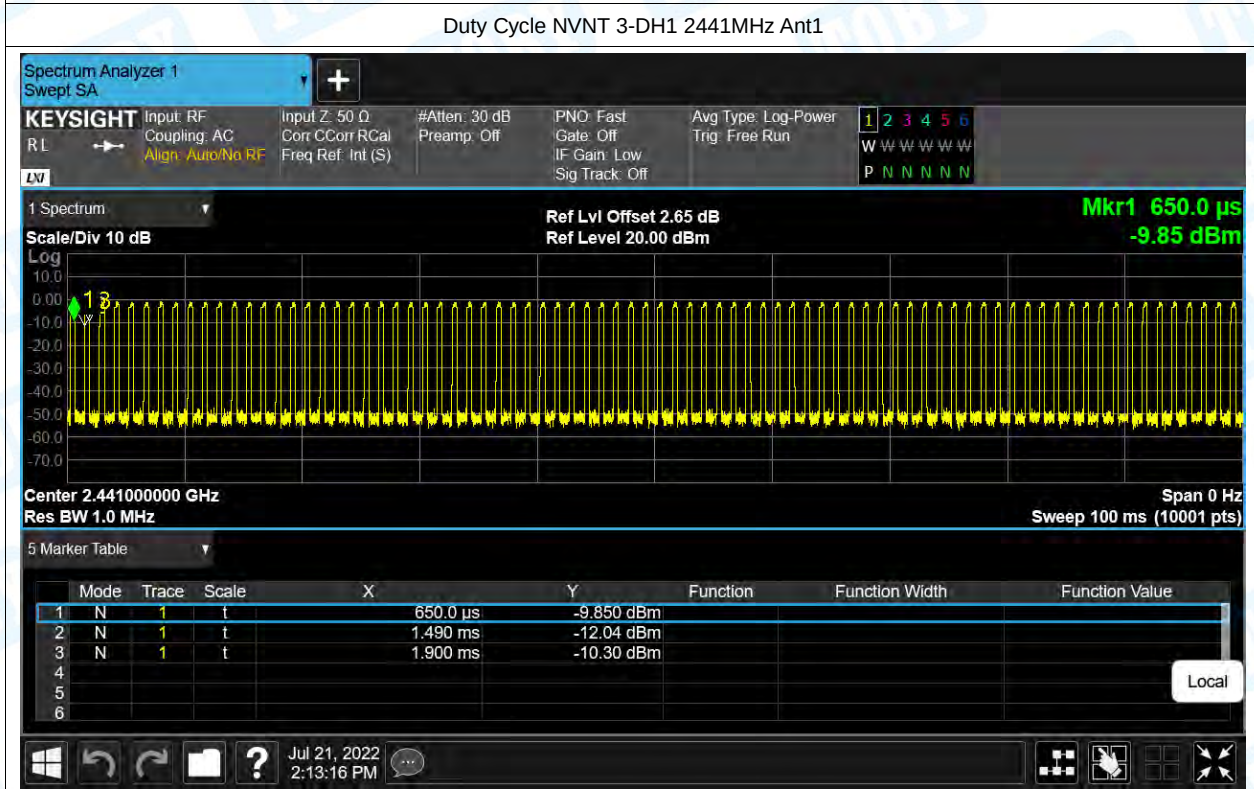
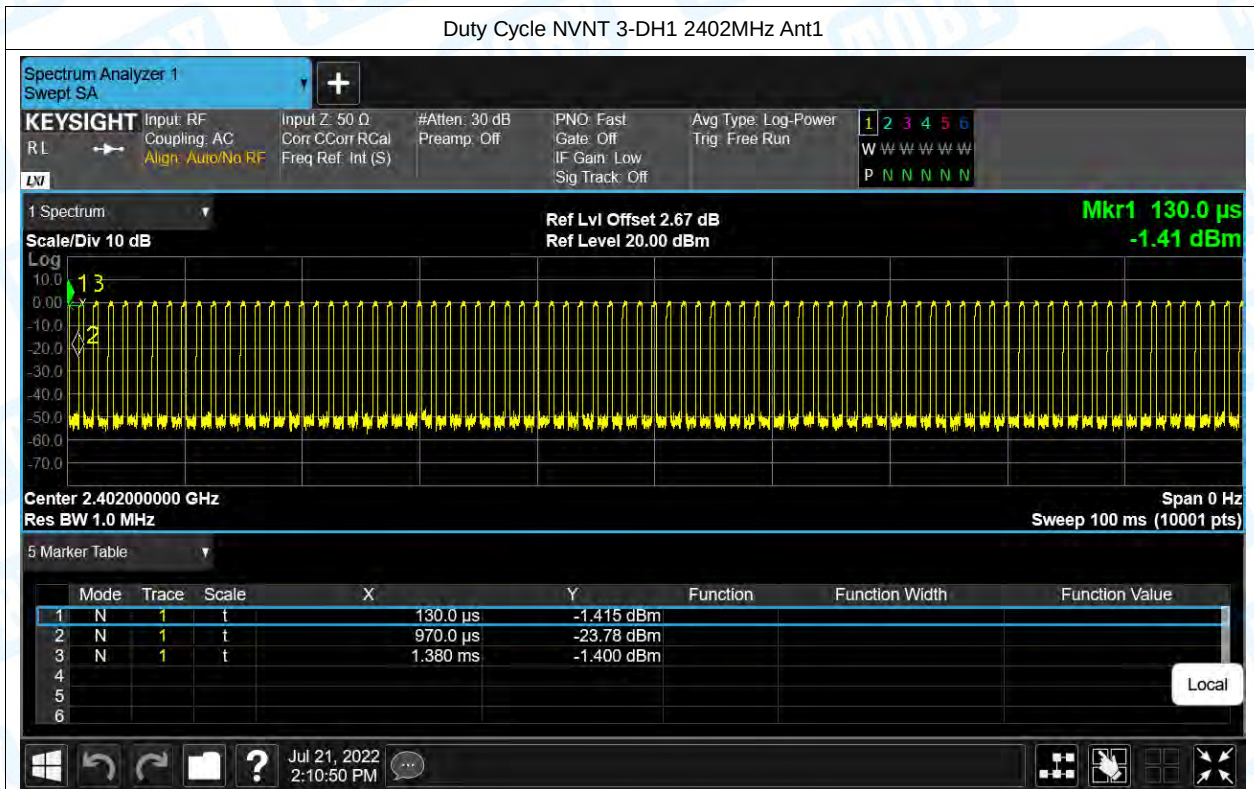


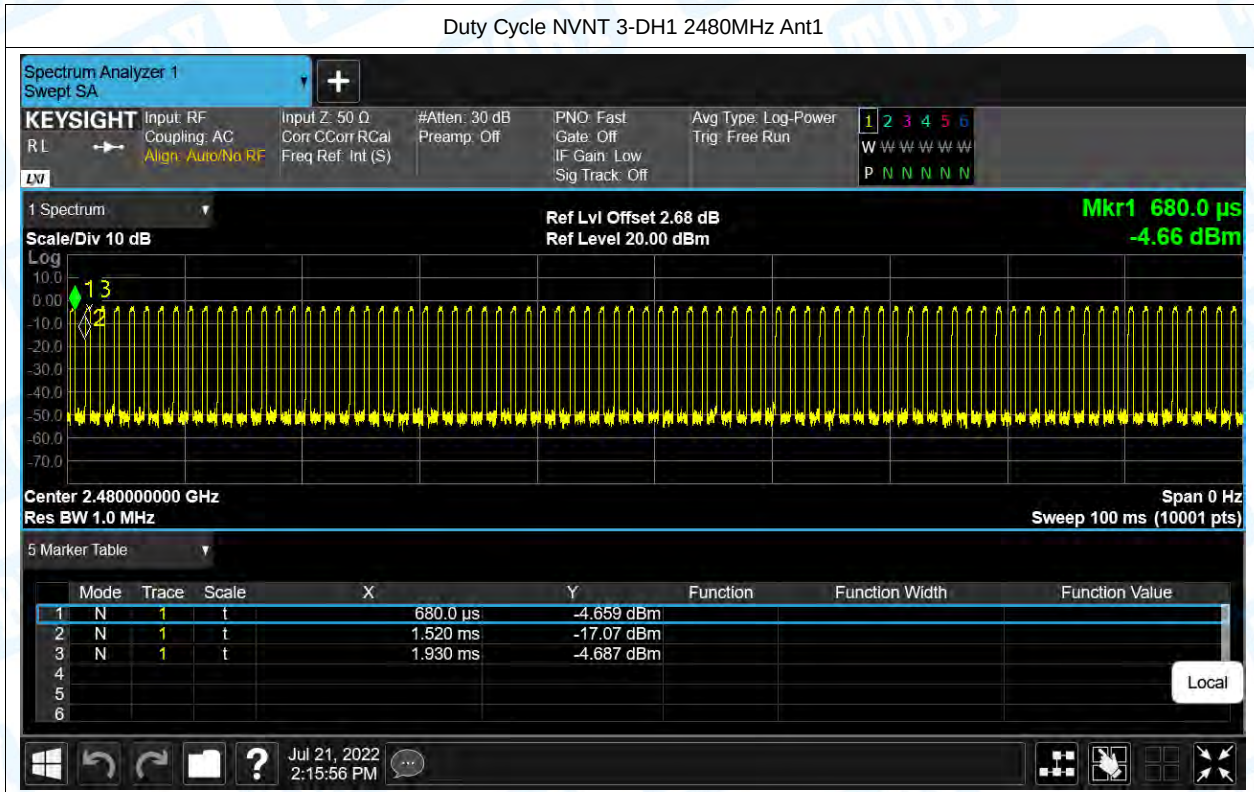
Duty Cycle NVNT 1-DH1 2441MHz Ant1











2. Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	-1.492	21	Pass
NVNT	1-DH1	2441	Ant1	-3.283	21	Pass
NVNT	1-DH1	2480	Ant1	-4.685	21	Pass
NVNT	2-DH1	2402	Ant1	0.579	21	Pass
NVNT	2-DH1	2441	Ant1	-1.21	21	Pass
NVNT	2-DH1	2480	Ant1	-2.599	21	Pass
NVNT	3-DH1	2402	Ant1	1.199	21	Pass
NVNT	3-DH1	2441	Ant1	-0.638	21	Pass
NVNT	3-DH1	2480	Ant1	-2.054	21	Pass

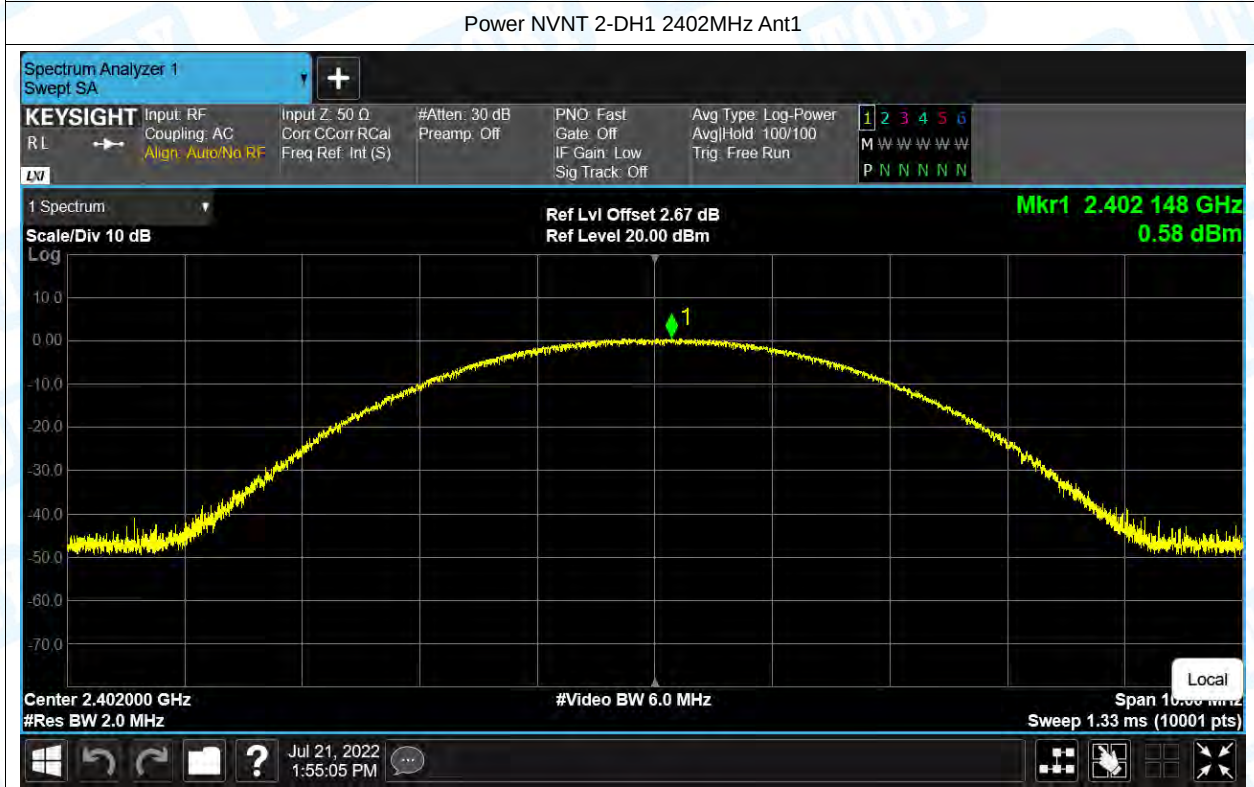
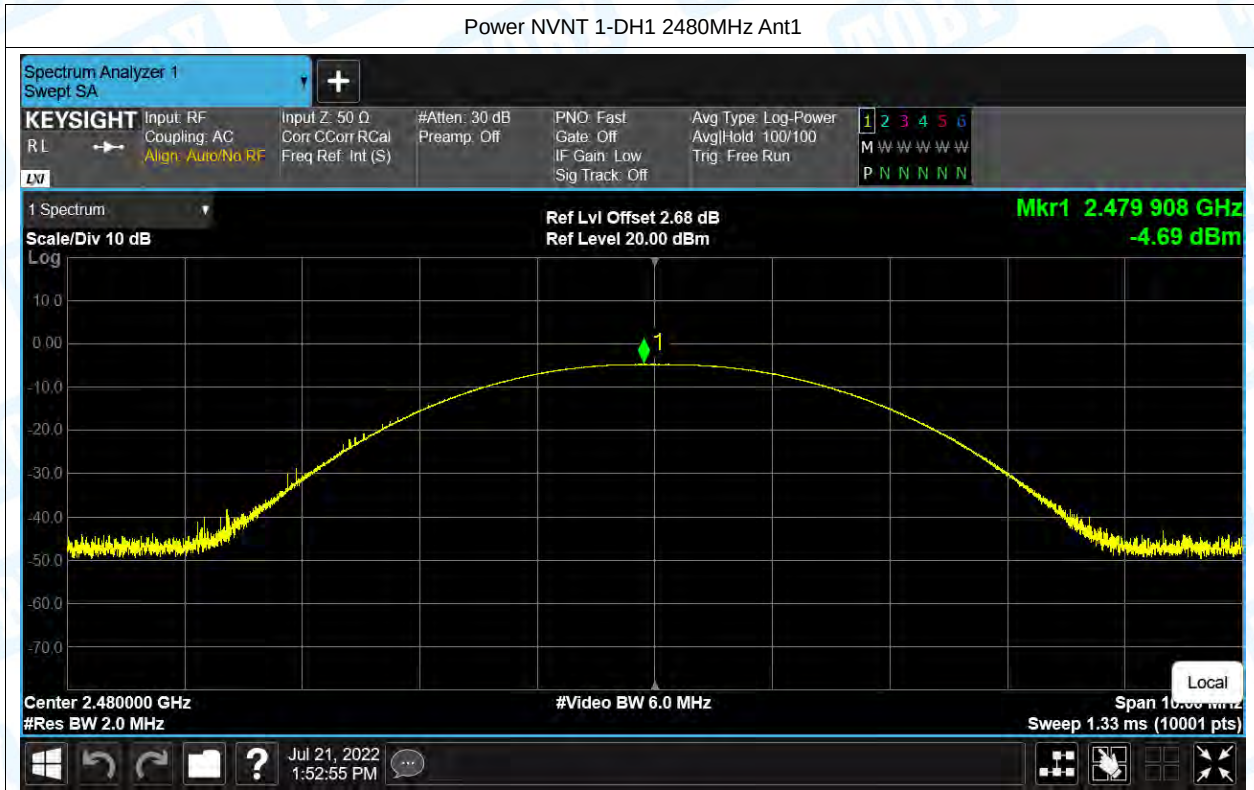
Test Graphs

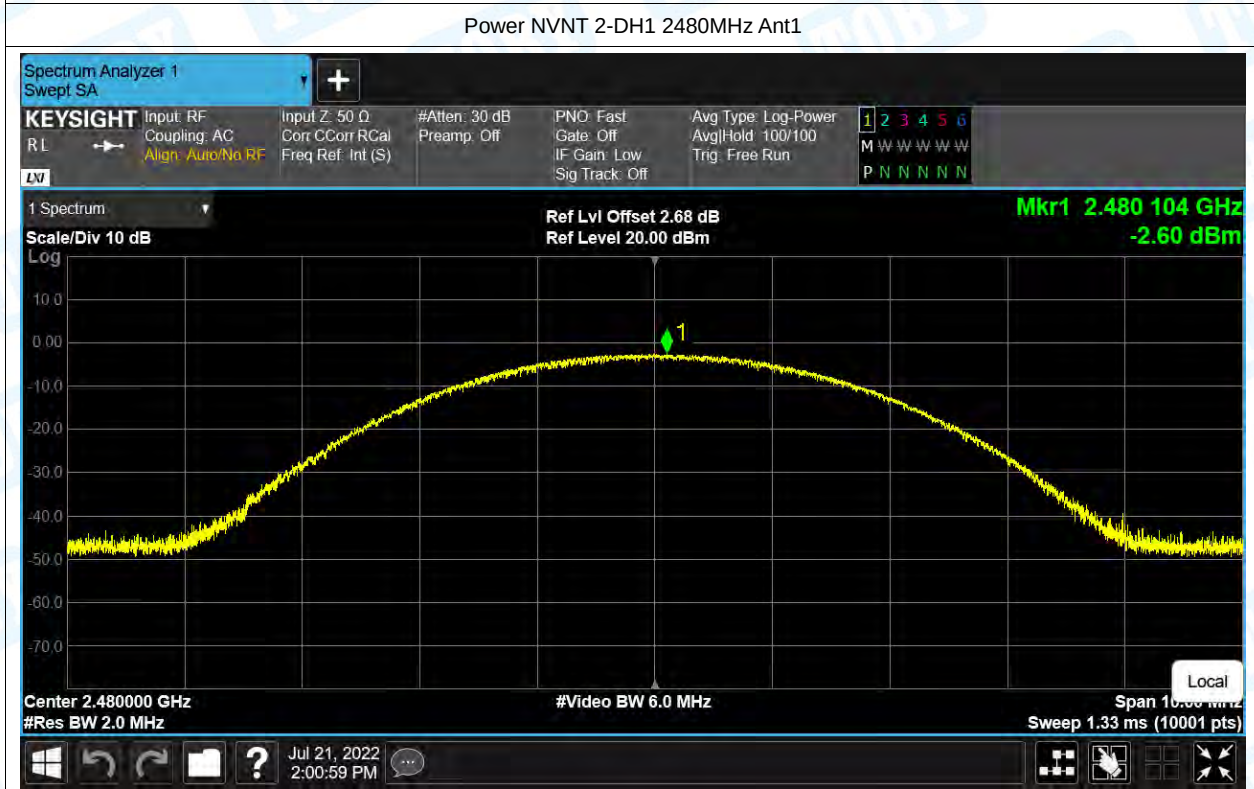
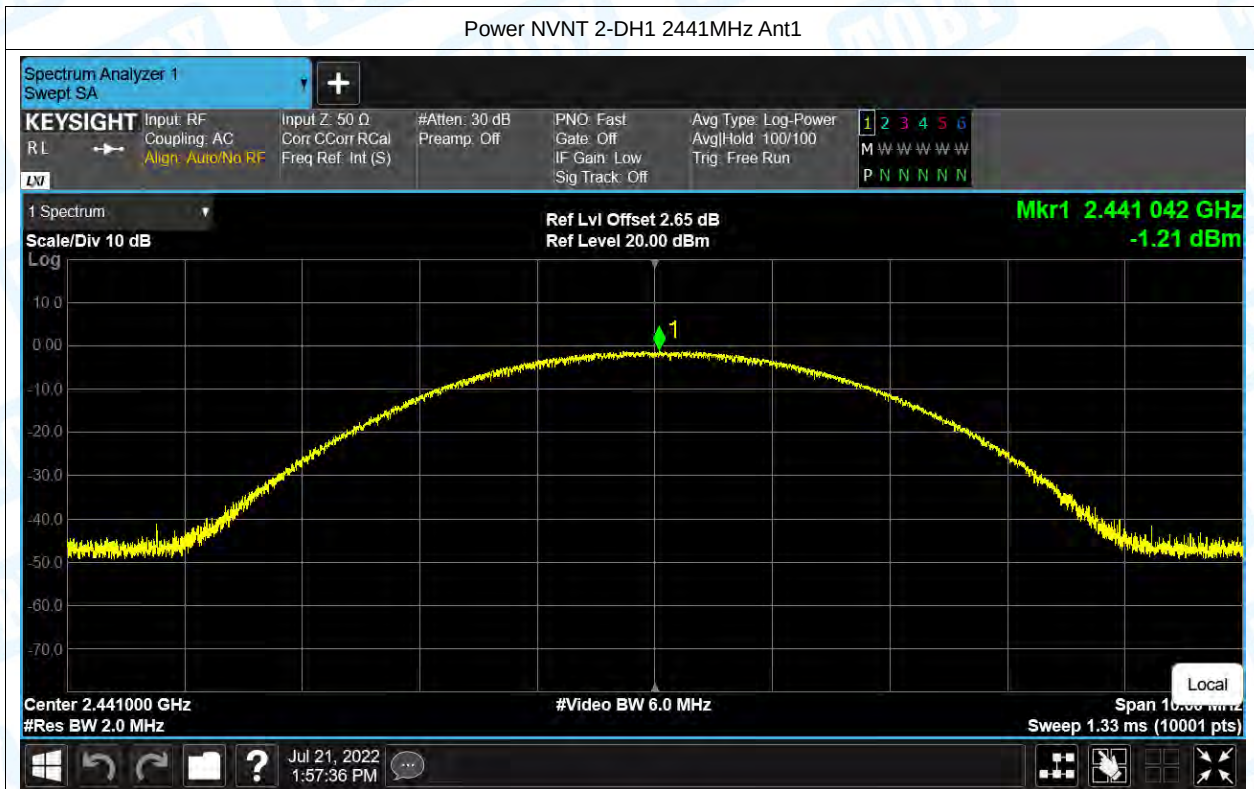
Power NVNT 1-DH1 2402MHz Ant1

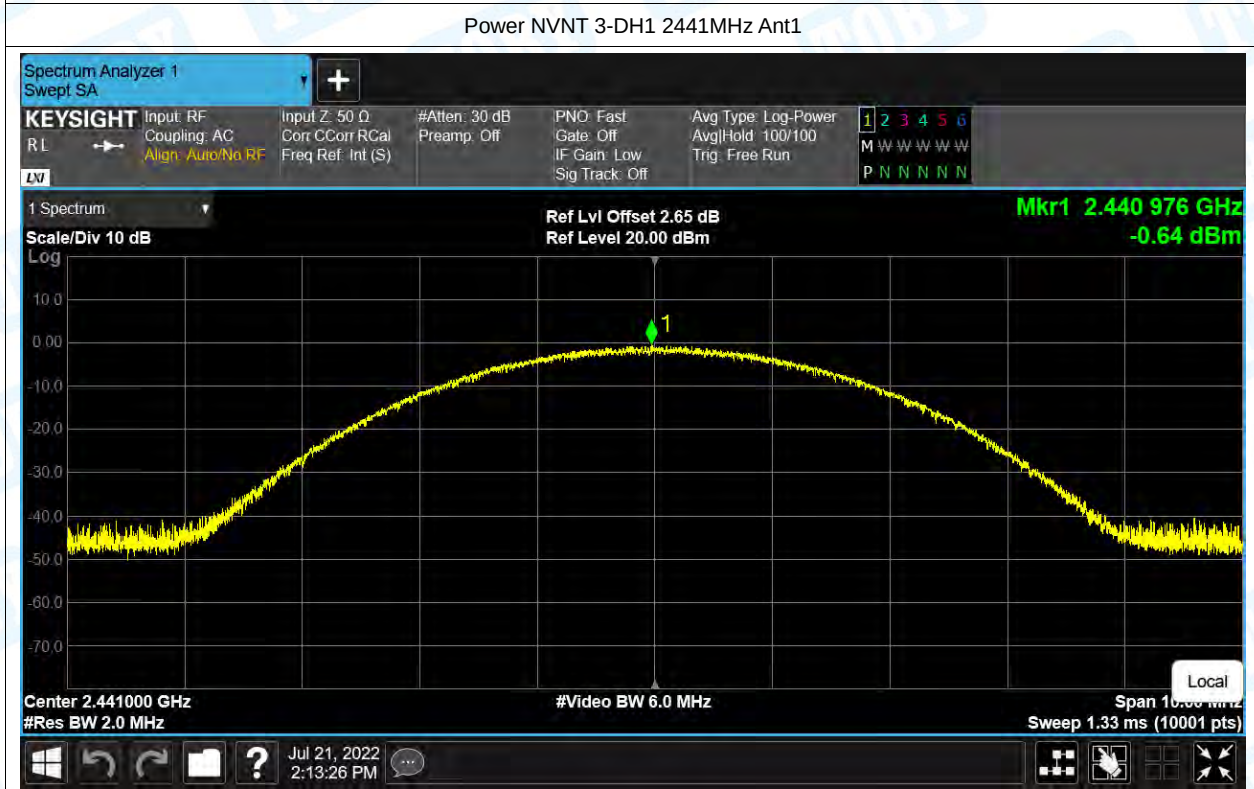


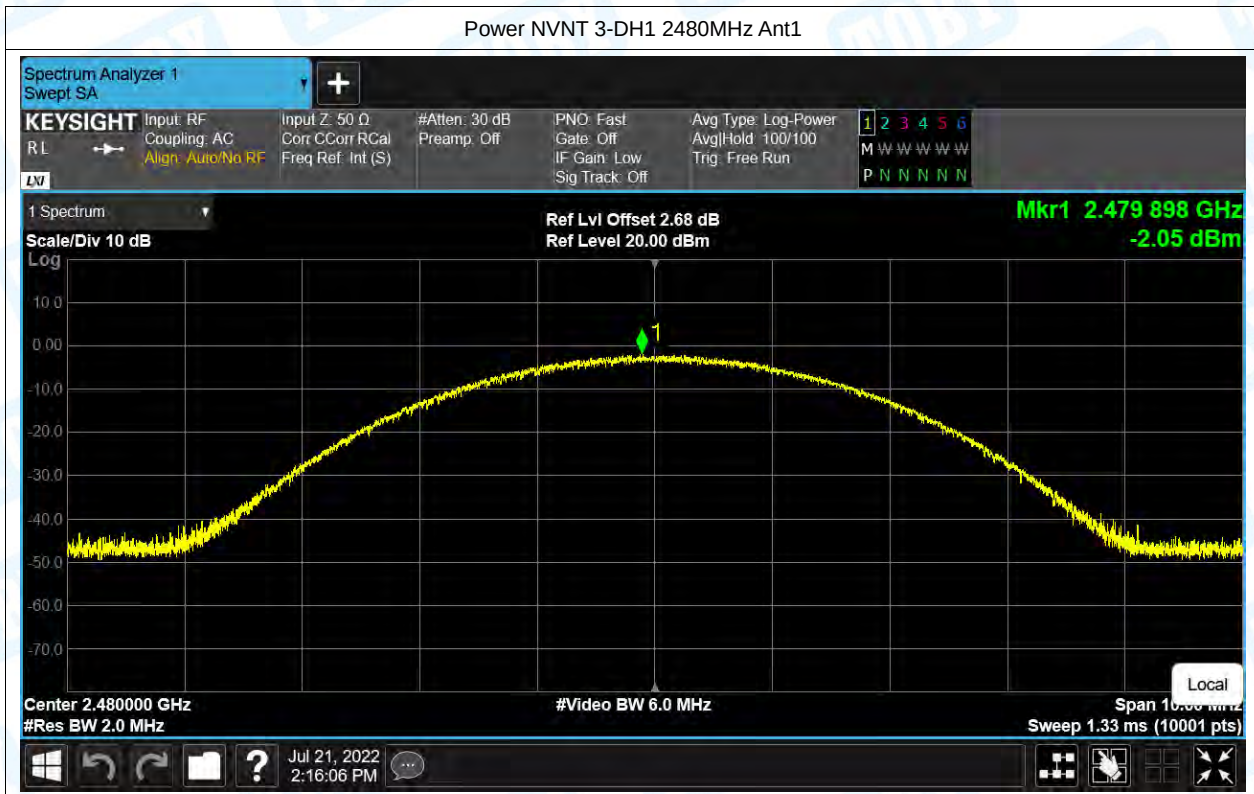
Power NVNT 1-DH1 2441MHz Ant1











3. -20dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.85	0	Pass
NVNT	1-DH1	2441	Ant1	0.88	0	Pass
NVNT	1-DH1	2480	Ant1	0.87	0	Pass
NVNT	2-DH1	2402	Ant1	1.31	0	Pass
NVNT	2-DH1	2441	Ant1	1.29	0	Pass
NVNT	2-DH1	2480	Ant1	1.3	0	Pass
NVNT	3-DH1	2402	Ant1	1.22	0	Pass
NVNT	3-DH1	2441	Ant1	1.22	0	Pass
NVNT	3-DH1	2480	Ant1	1.24	0	Pass

Test Graphs

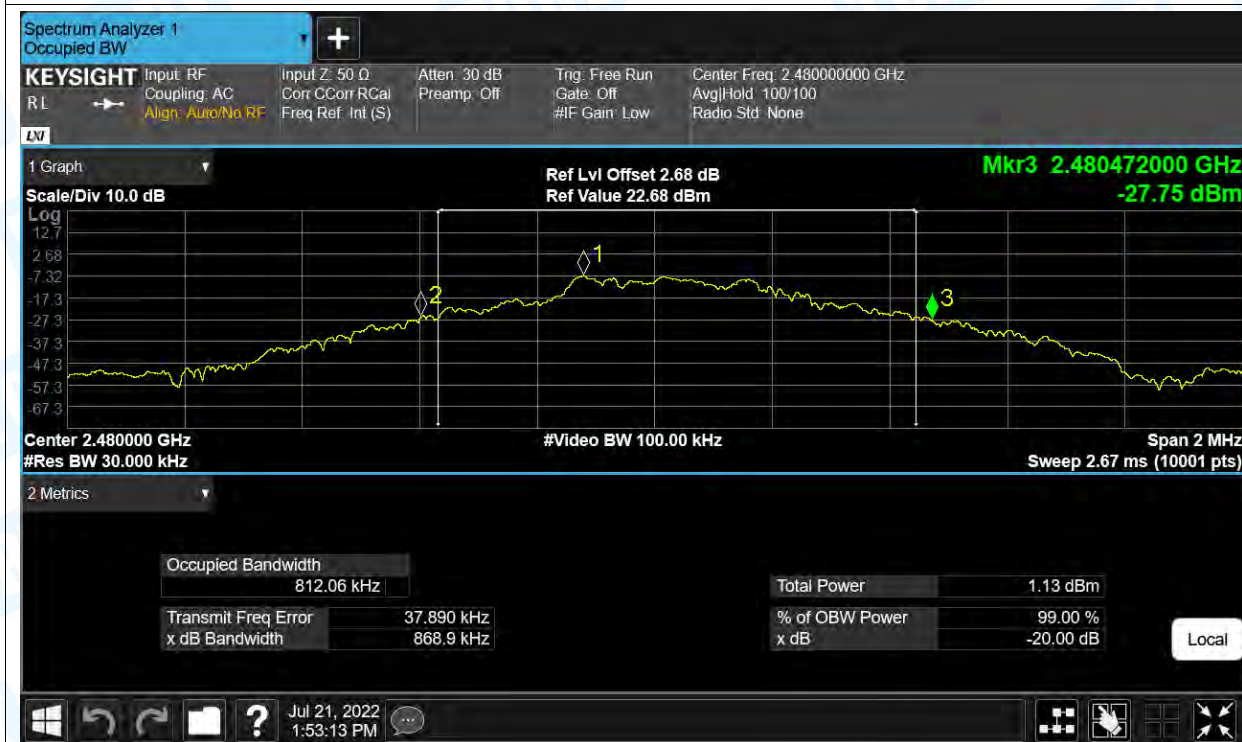
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

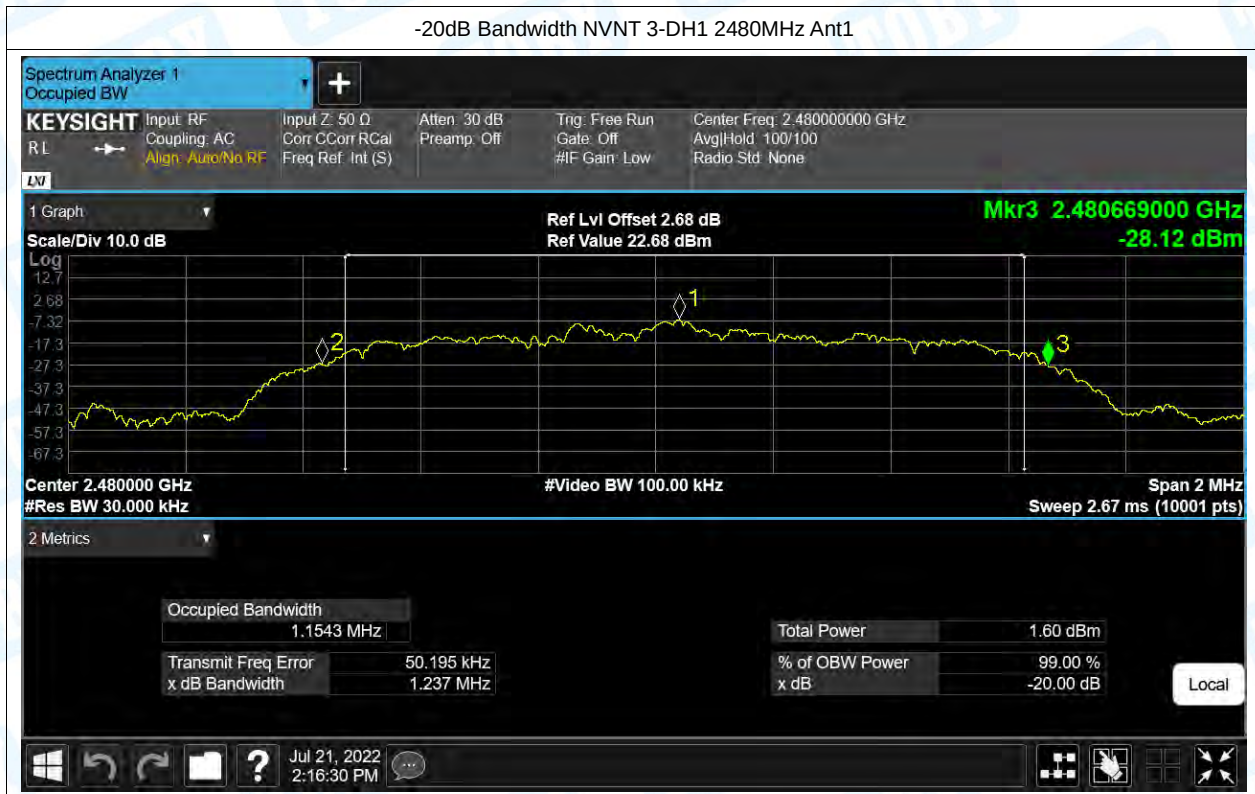


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1





4. Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.832
NVNT	1-DH1	2441	Ant1	0.82
NVNT	1-DH1	2480	Ant1	0.8
NVNT	2-DH1	2402	Ant1	1.152
NVNT	2-DH1	2441	Ant1	1.158
NVNT	2-DH1	2480	Ant1	1.163
NVNT	3-DH1	2402	Ant1	1.157
NVNT	3-DH1	2441	Ant1	1.157
NVNT	3-DH1	2480	Ant1	1.16

Test Graphs

OBW NVNT 1-DH1 2402MHz Ant1



OBW NVNT 1-DH1 2441MHz Ant1



OBW NVNT 1-DH1 2480MHz Ant1



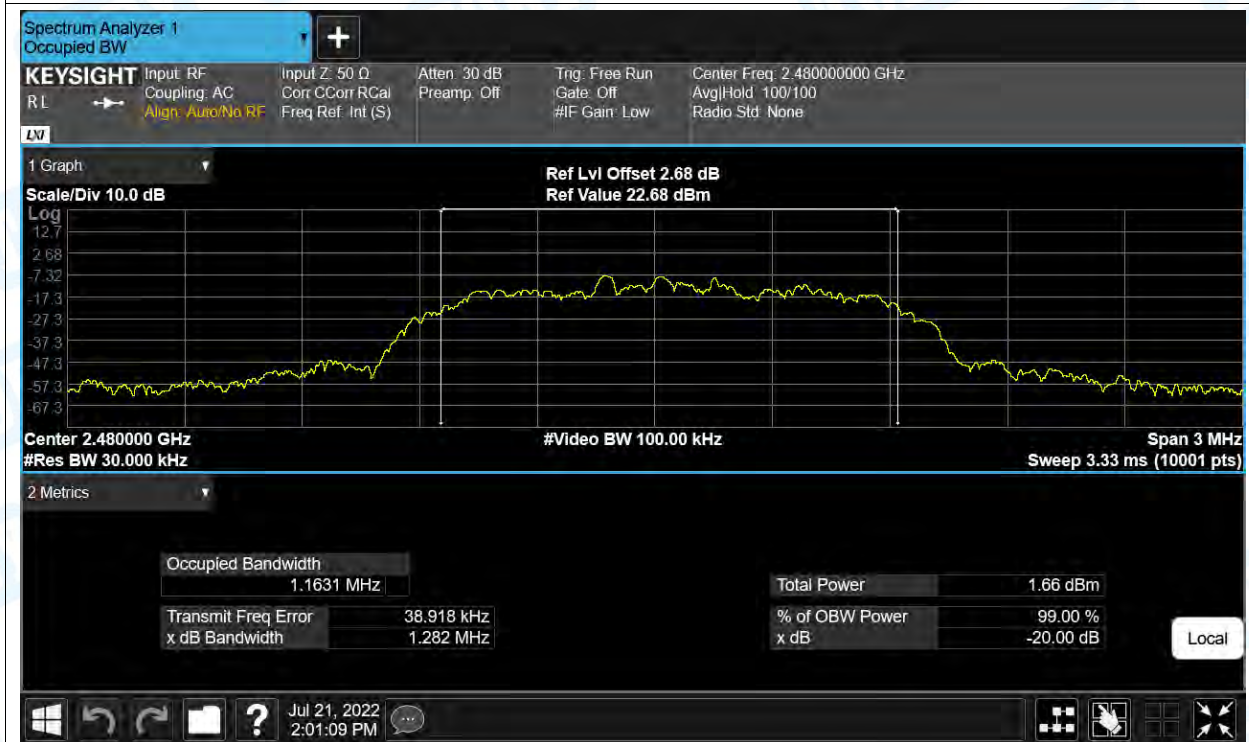
OBW NVNT 2-DH1 2402MHz Ant1



OBW NVNT 2-DH1 2441MHz Ant1



OBW NVNT 2-DH1 2480MHz Ant1



OBW NVNT 3-DH1 2402MHz Ant1



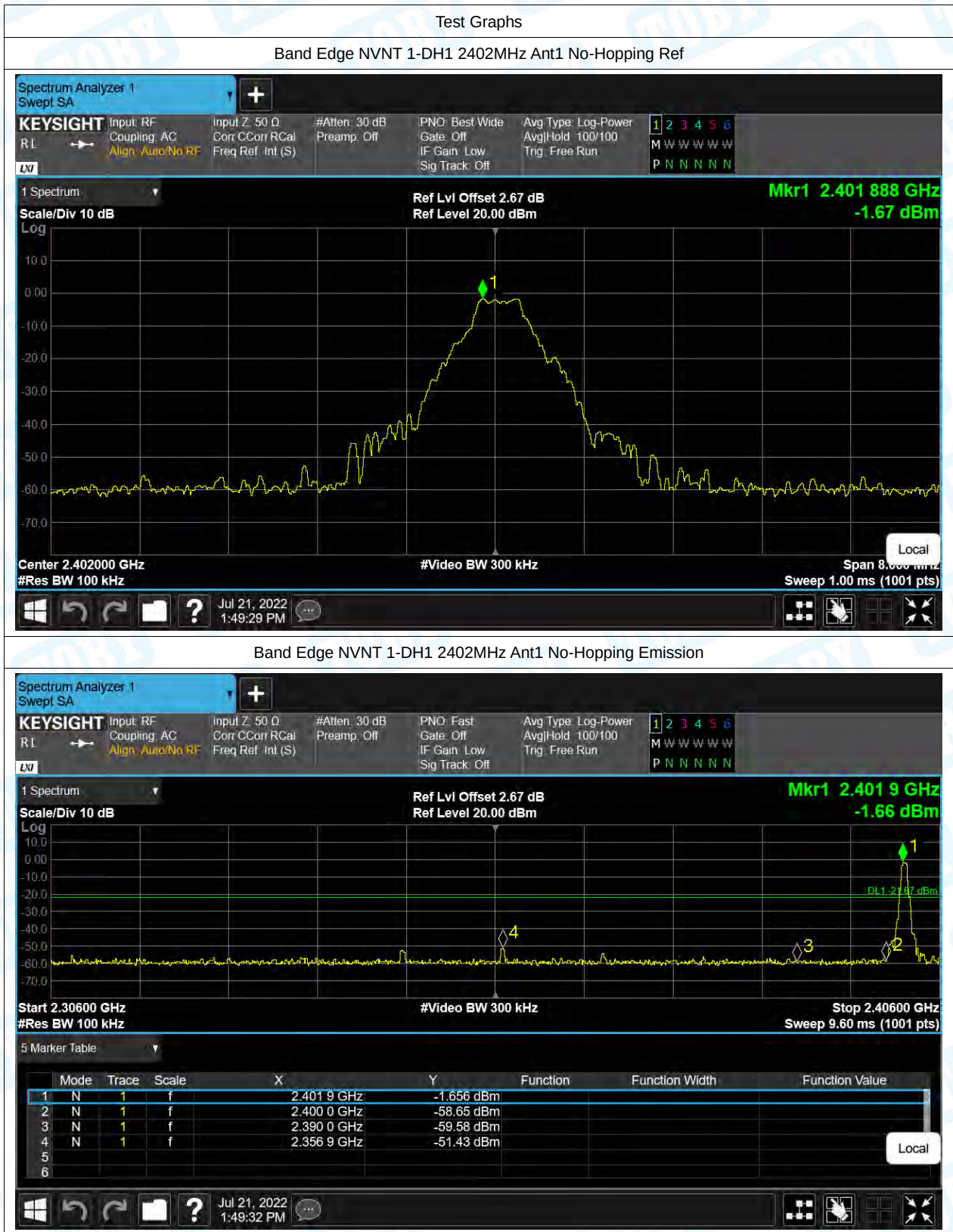
OBW NVNT 3-DH1 2441MHz Ant1

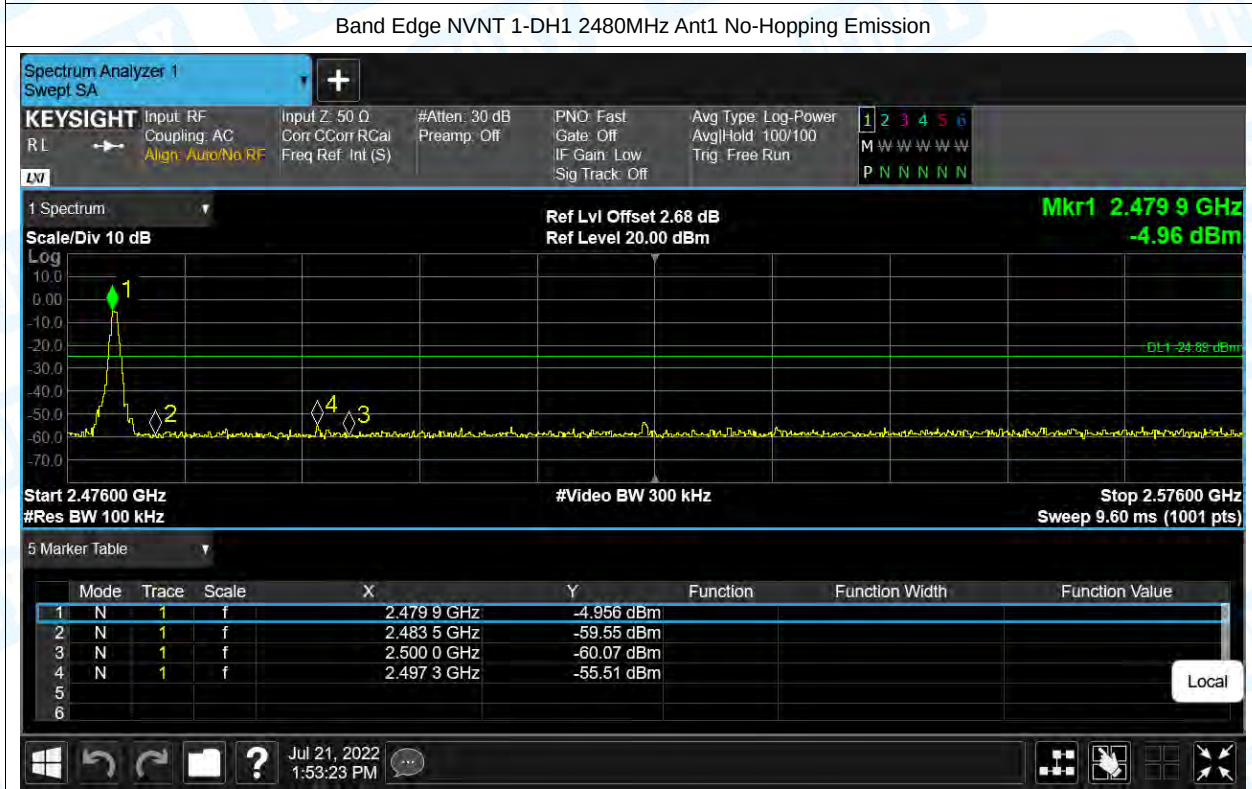
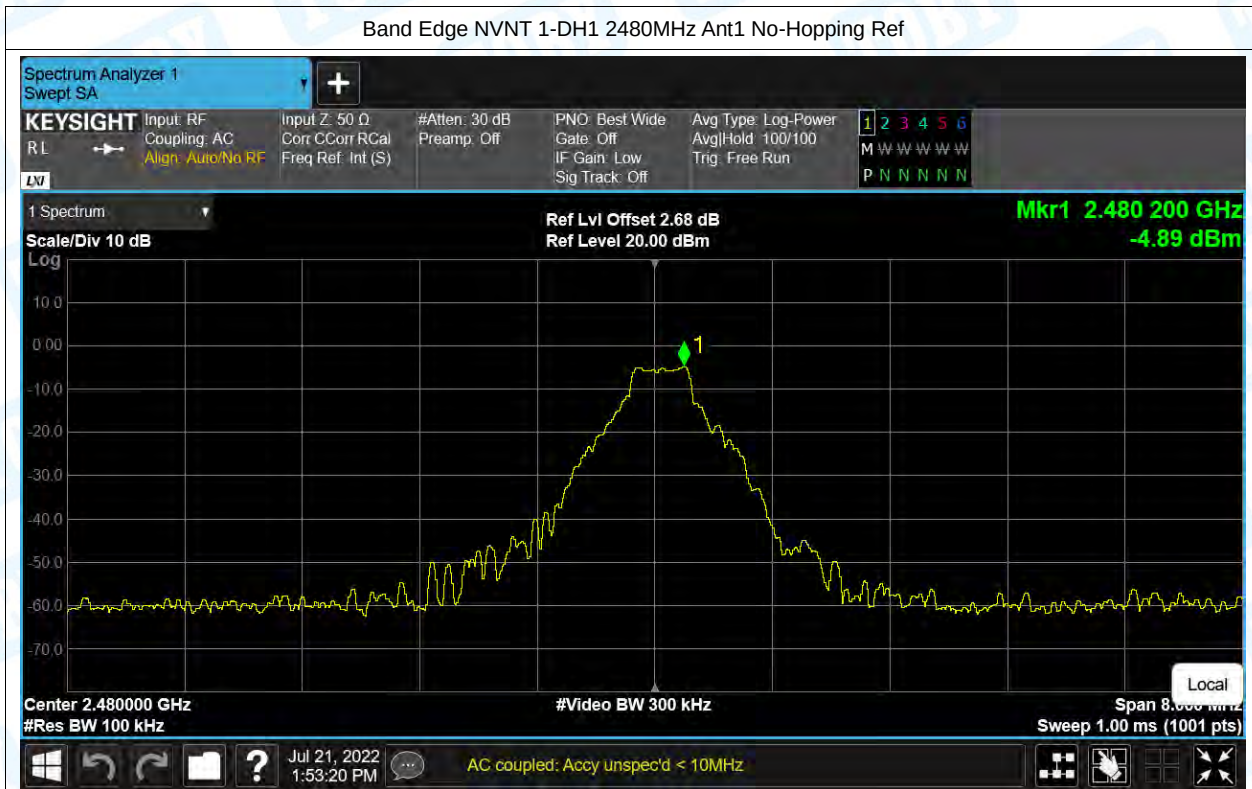


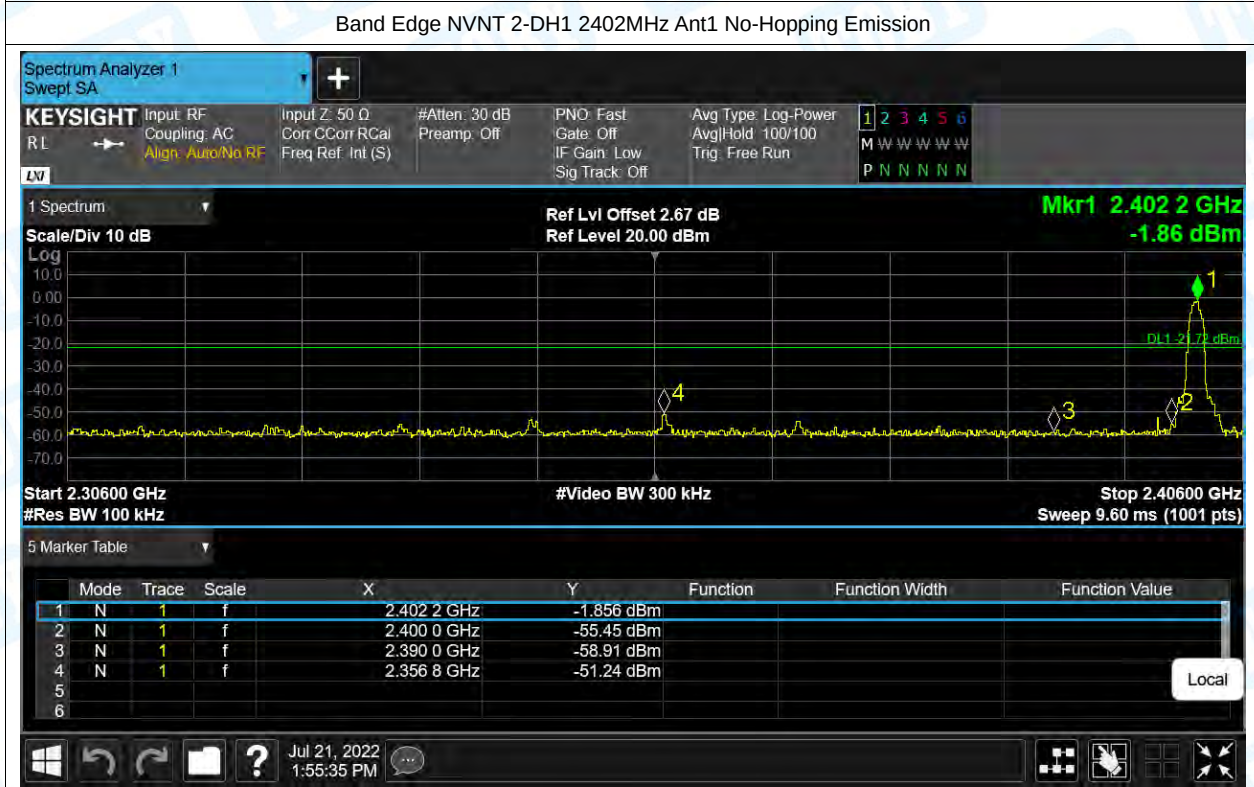
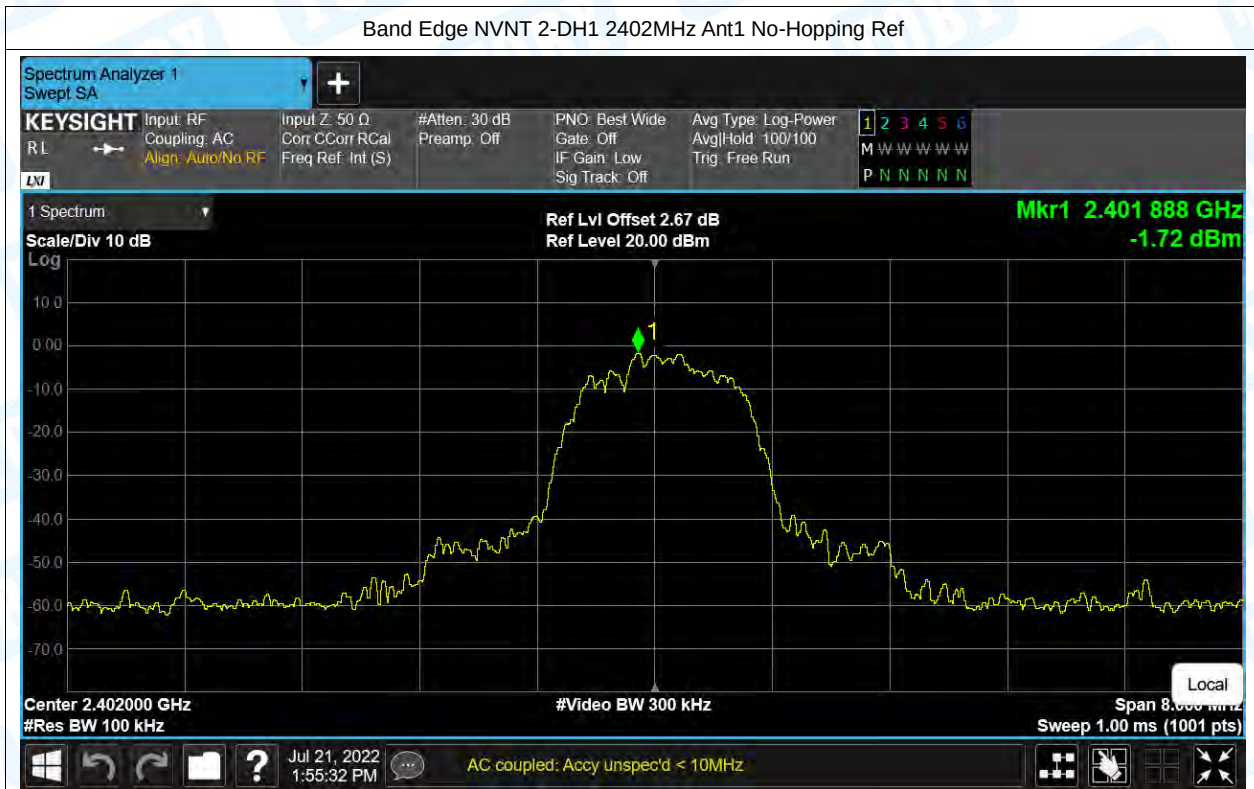


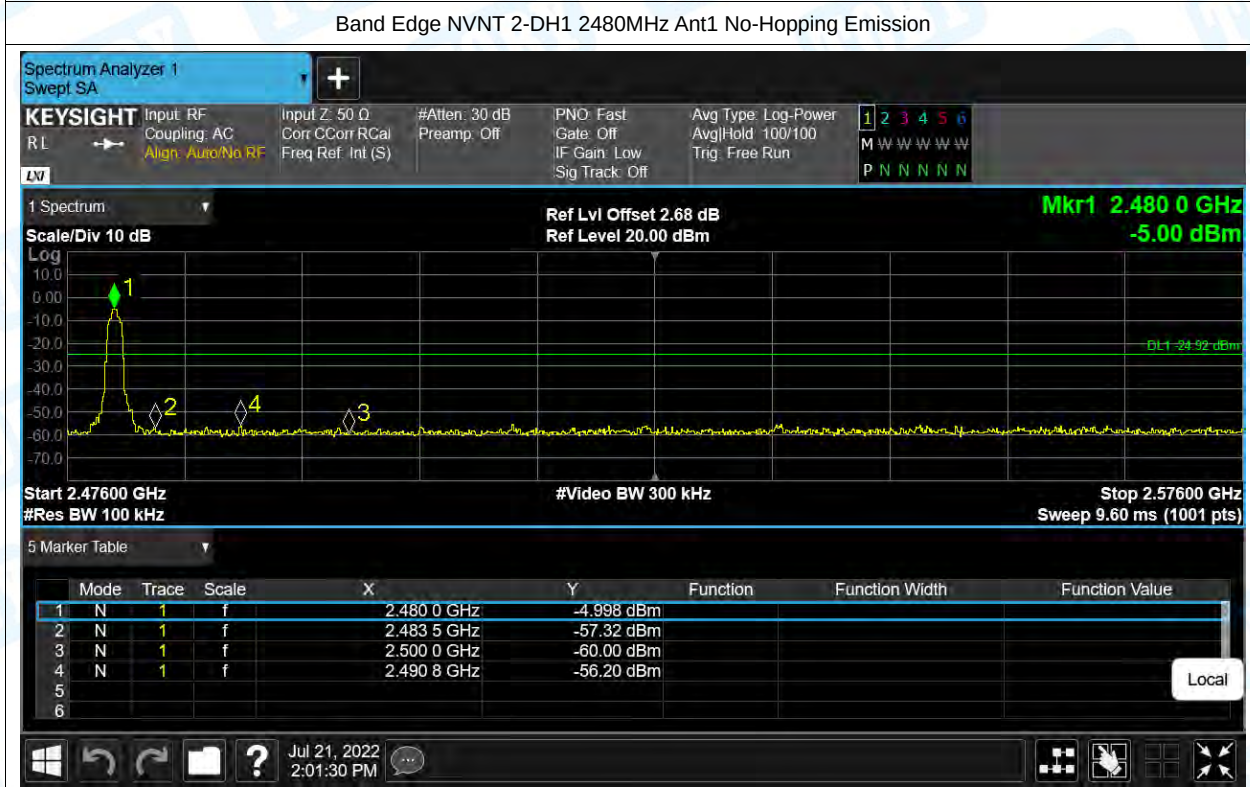
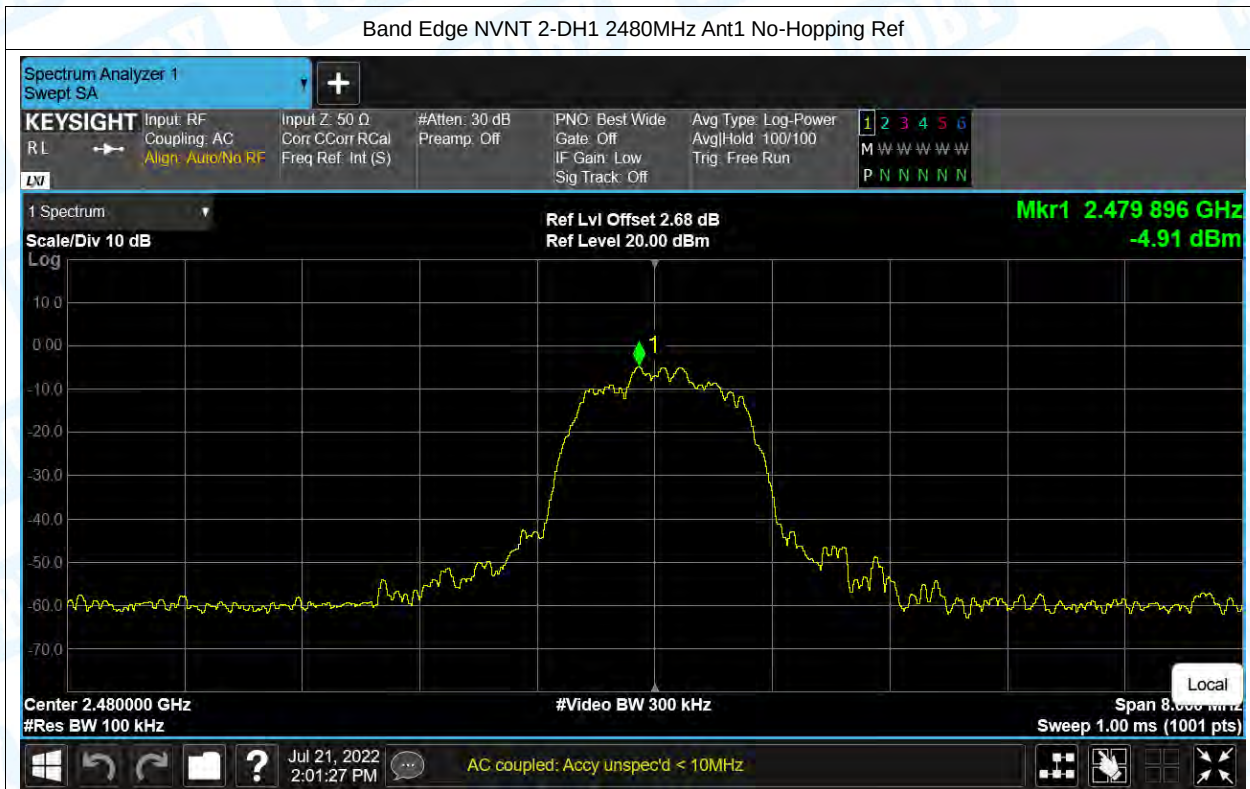
5. Band Edge

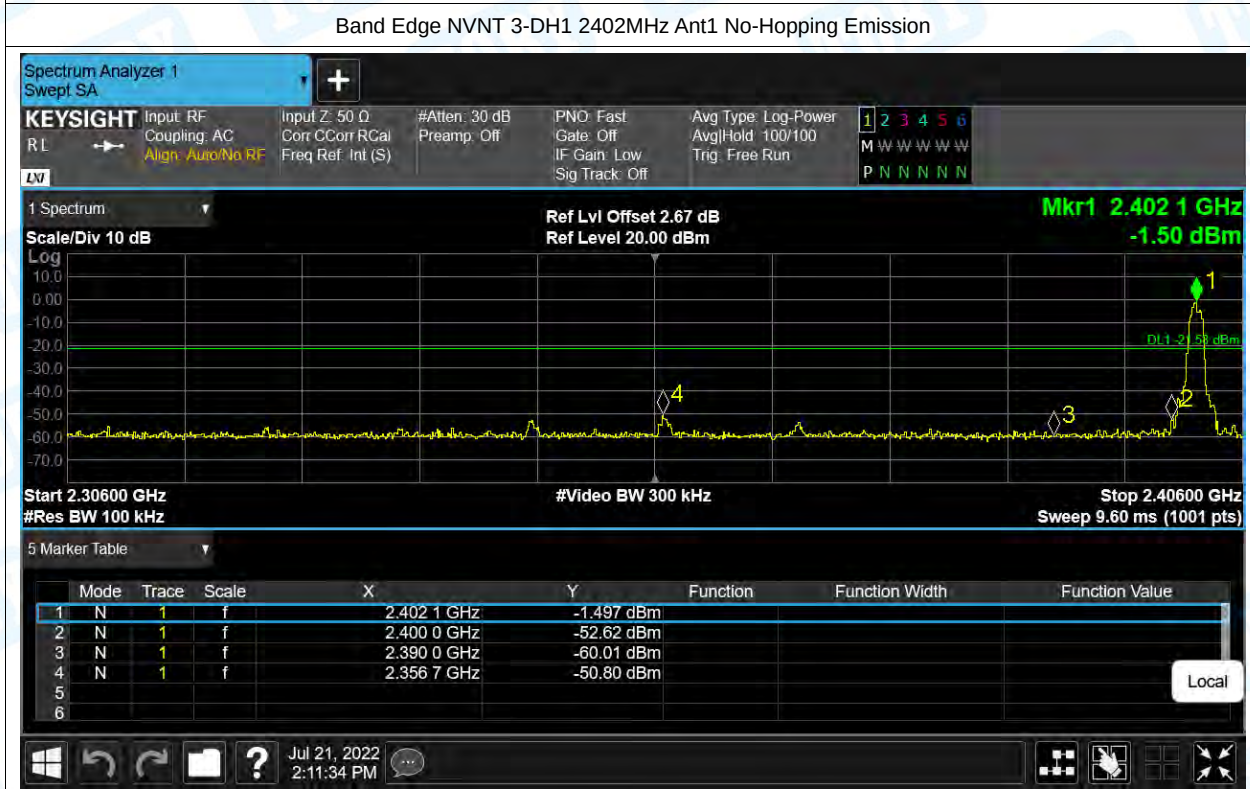
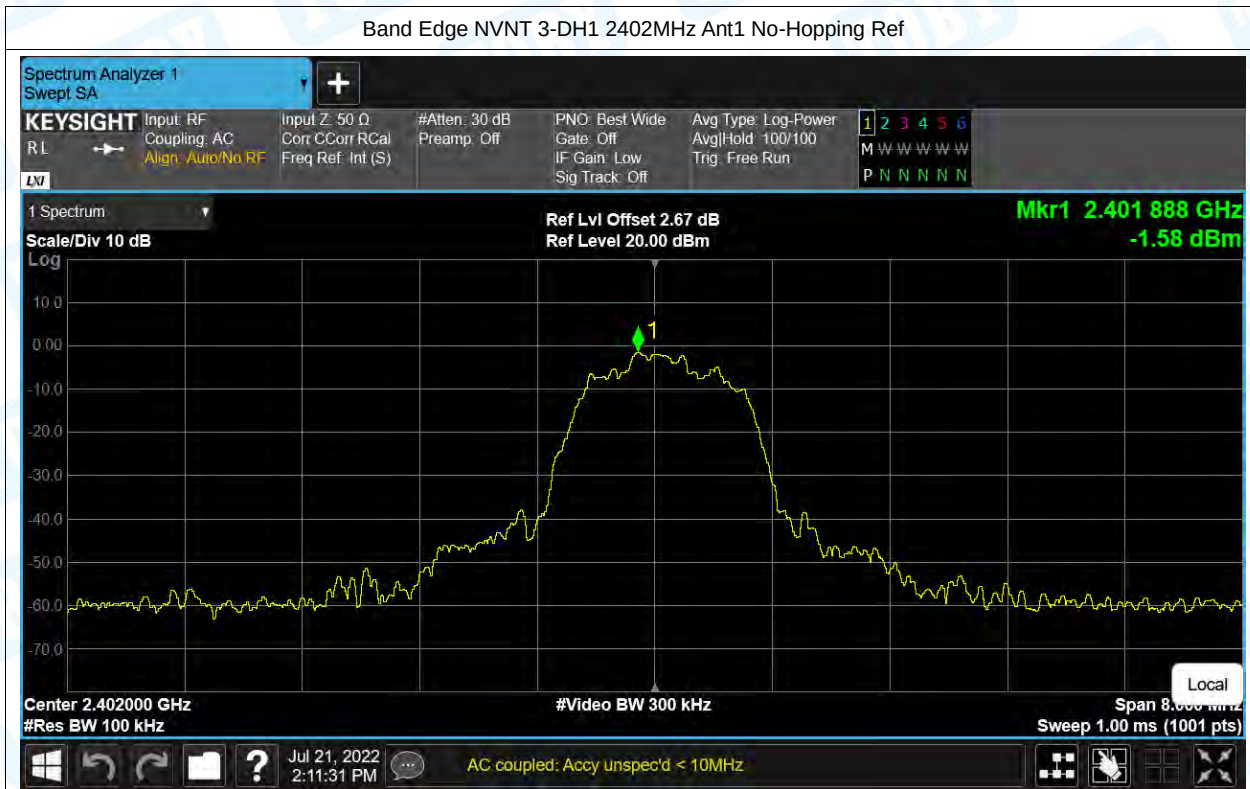
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-49.76	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-50.62	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-49.52	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-51.29	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-49.22	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-51.58	-20	Pass

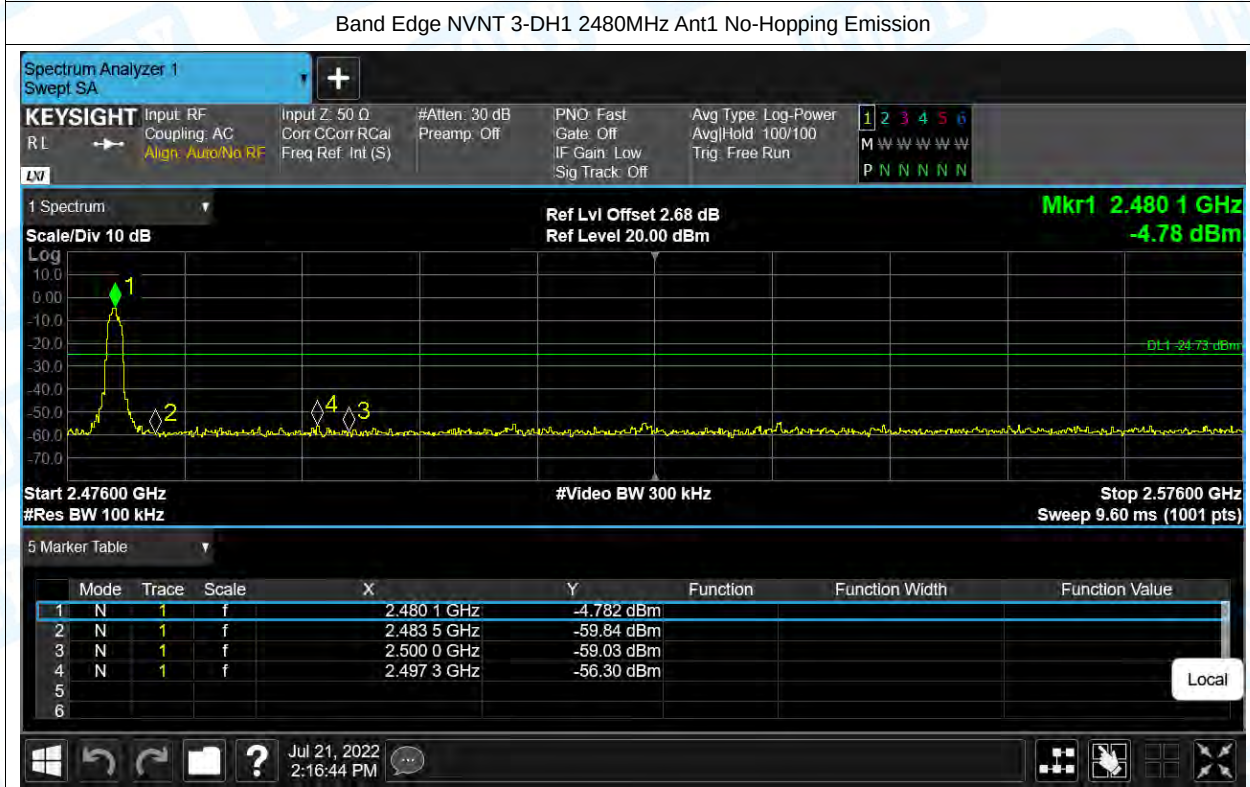
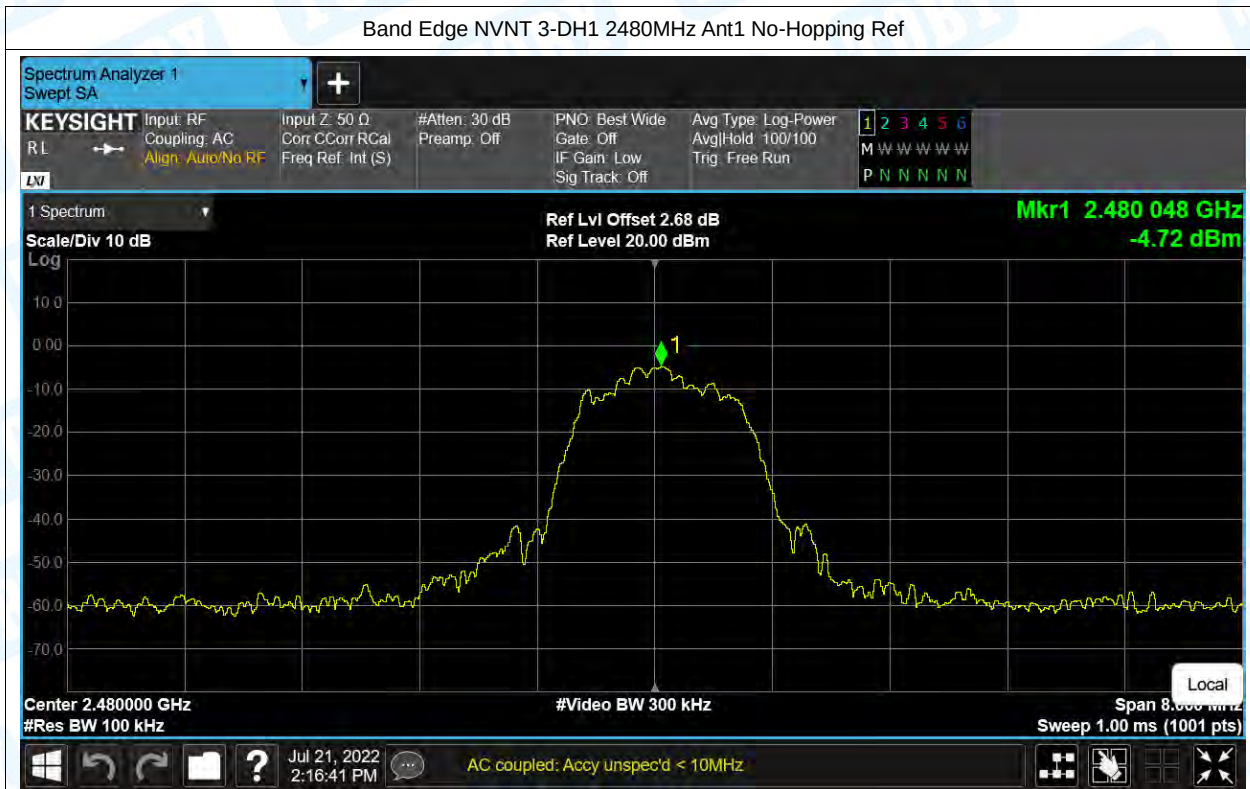








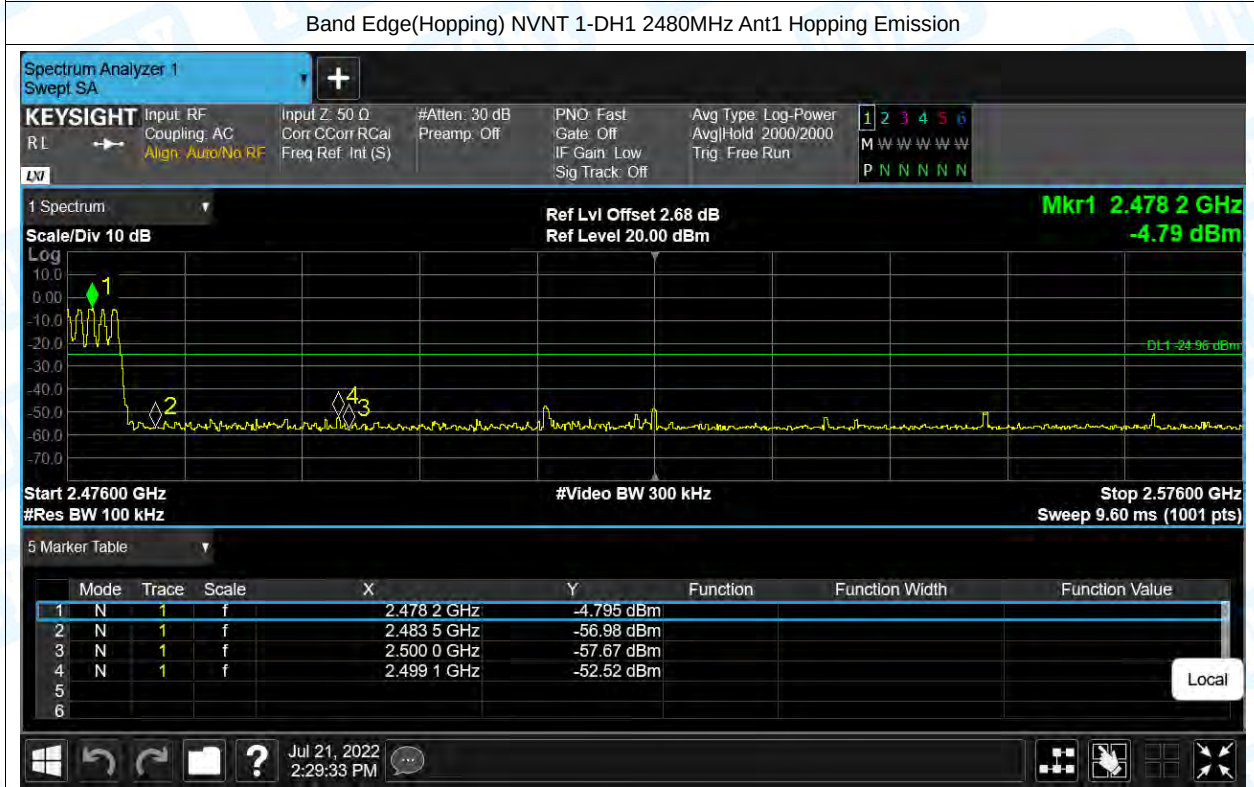


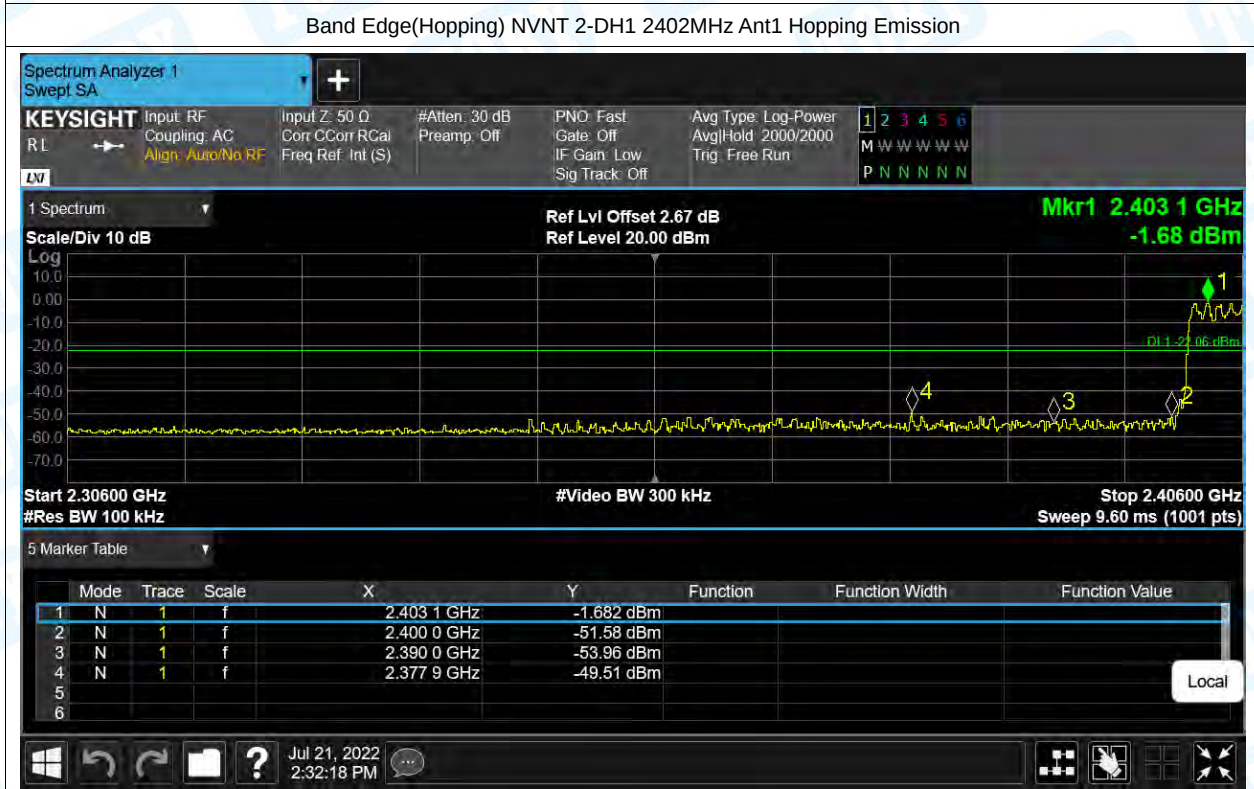
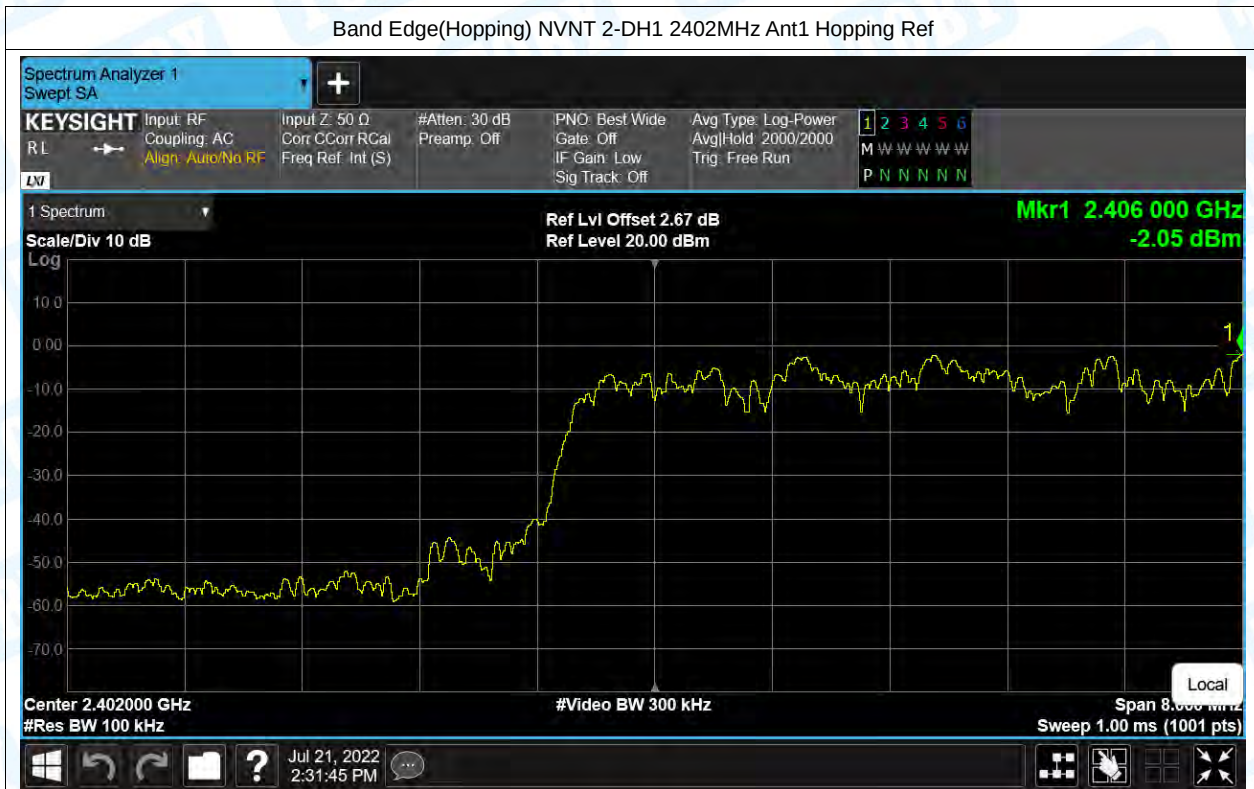


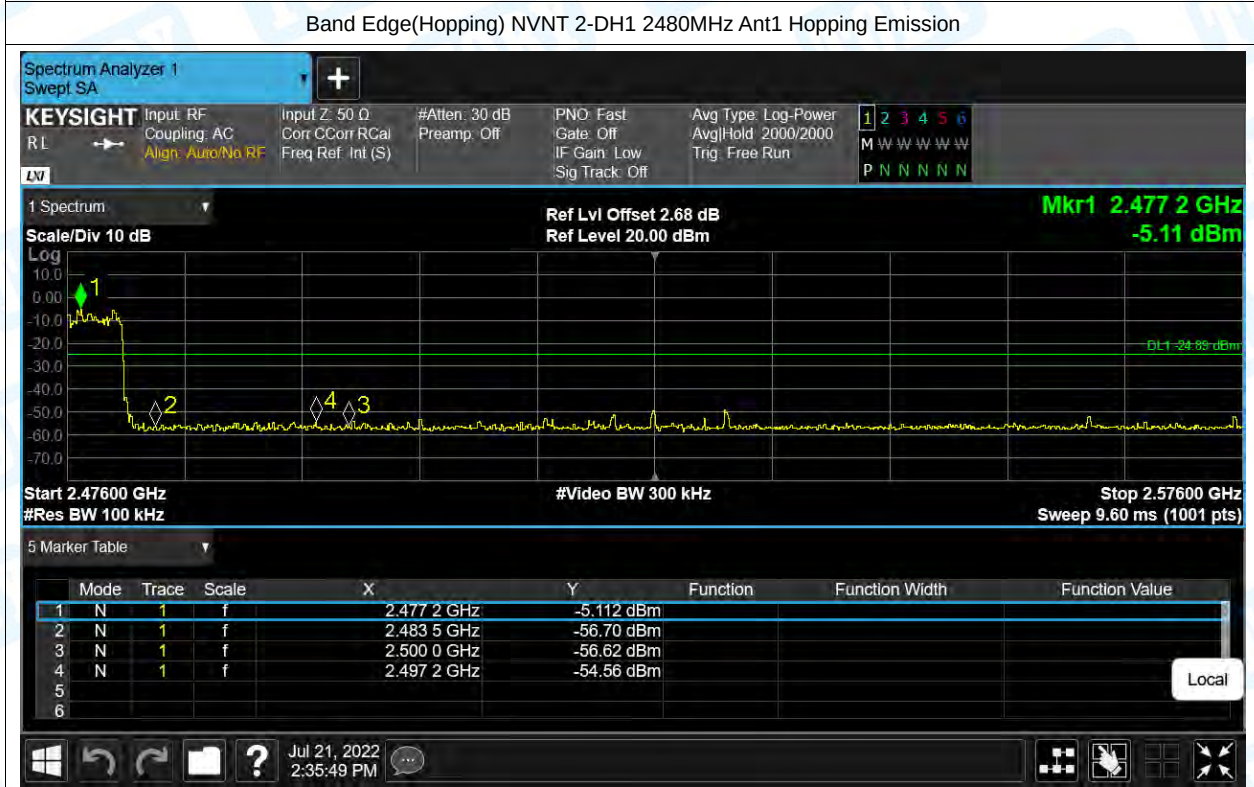
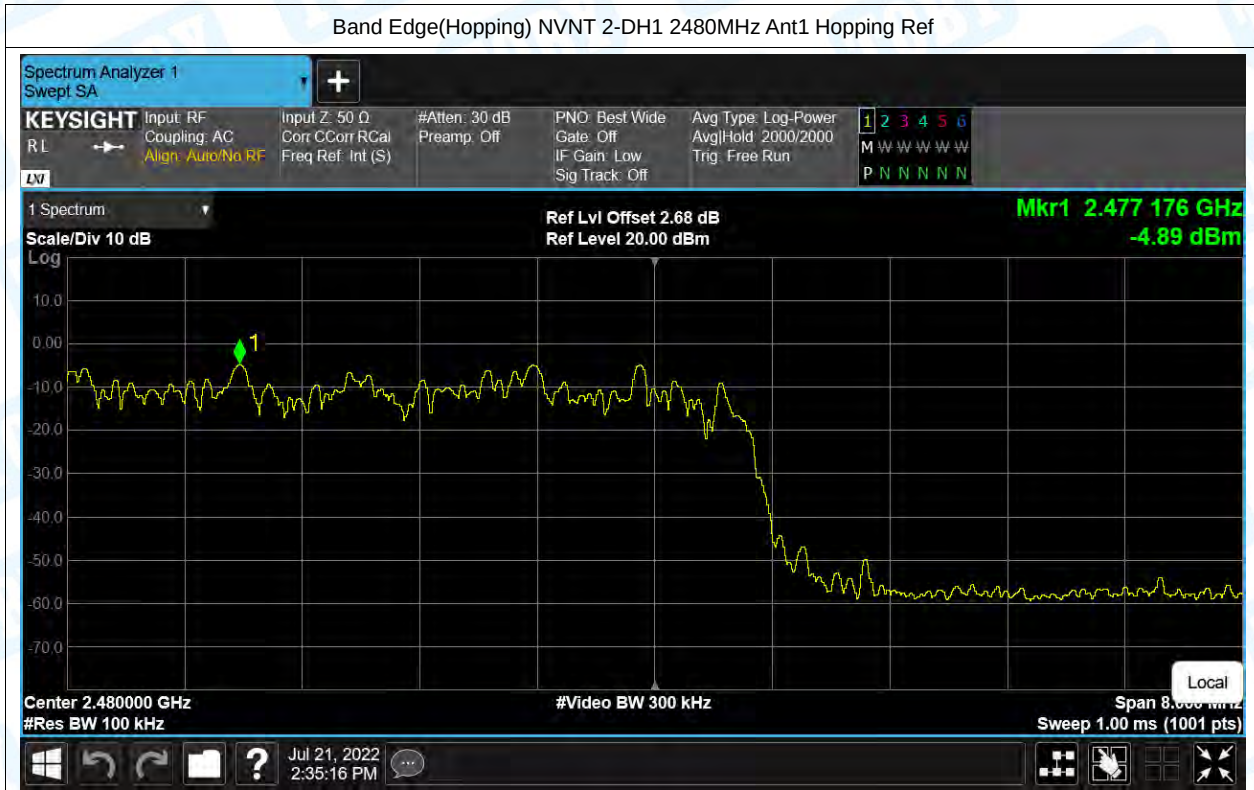
6. Band Edge(Hopping)

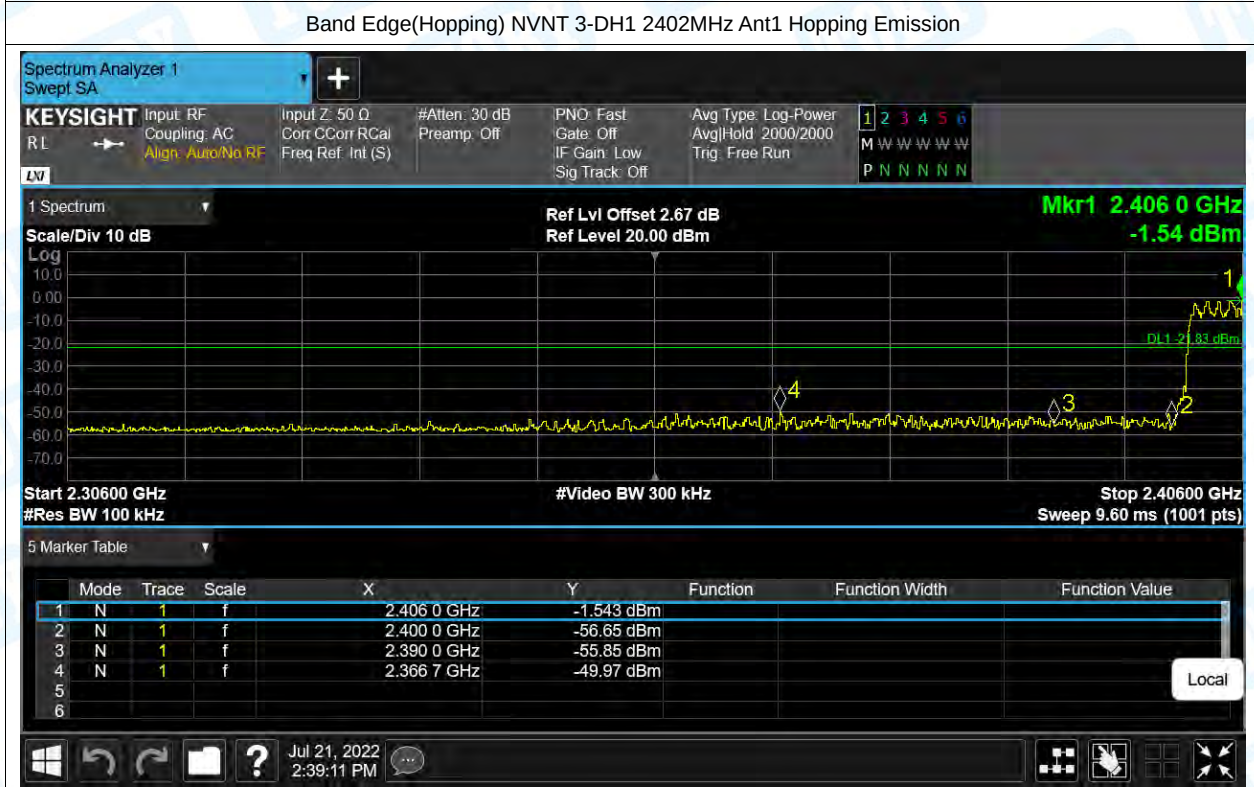
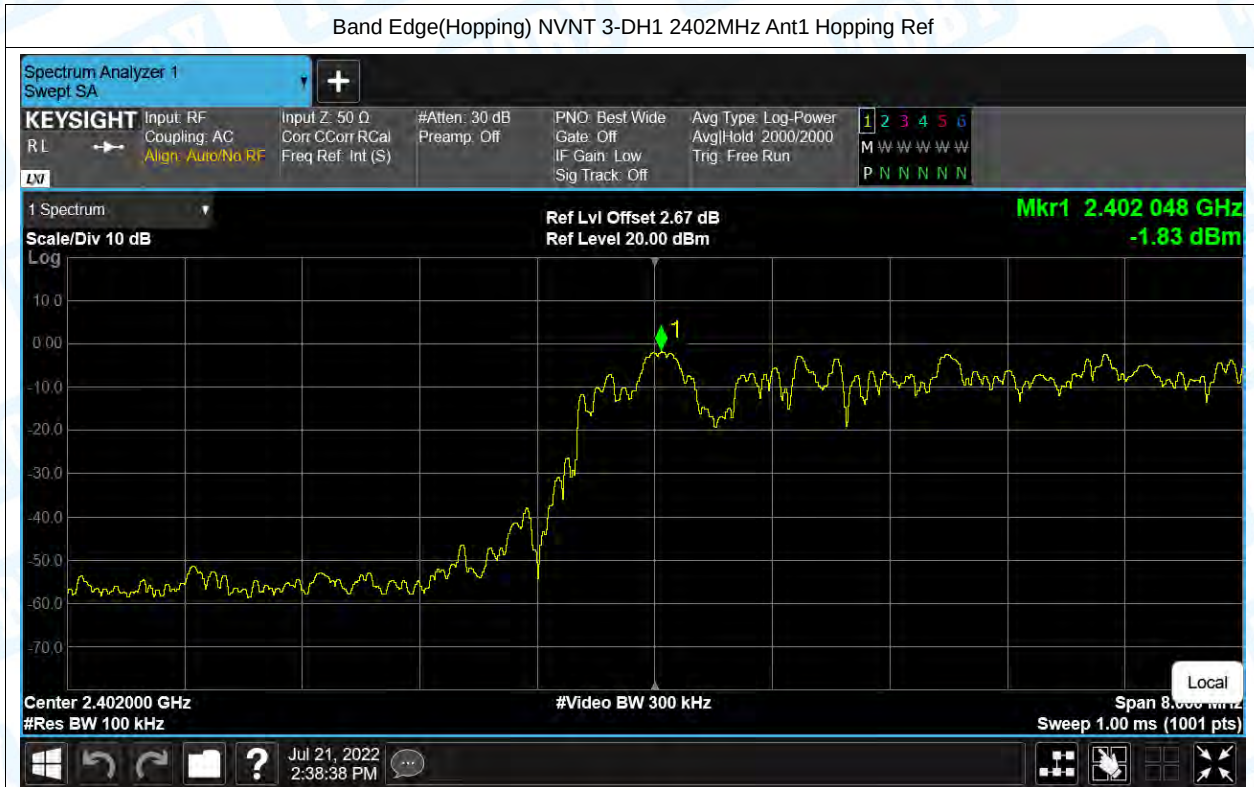
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-48.54	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-47.56	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-47.46	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-49.67	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-48.15	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-49.13	-20	Pass

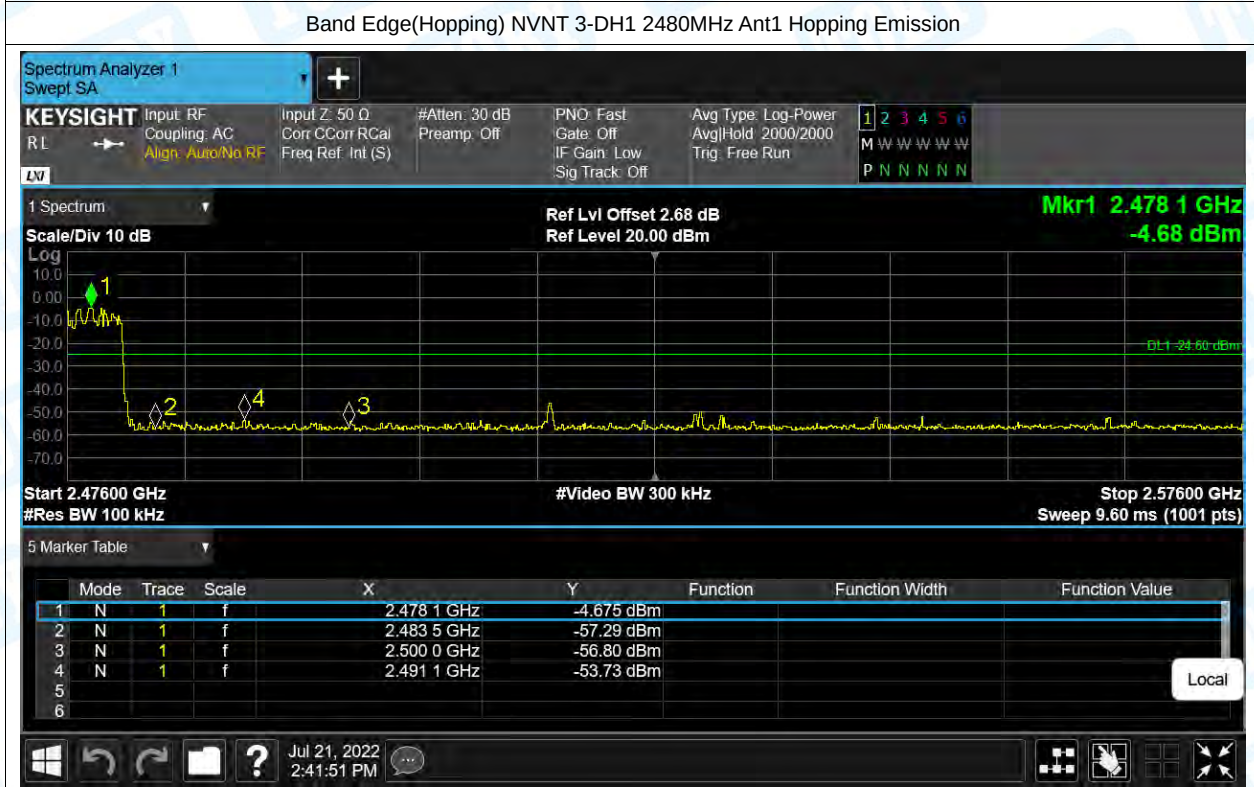






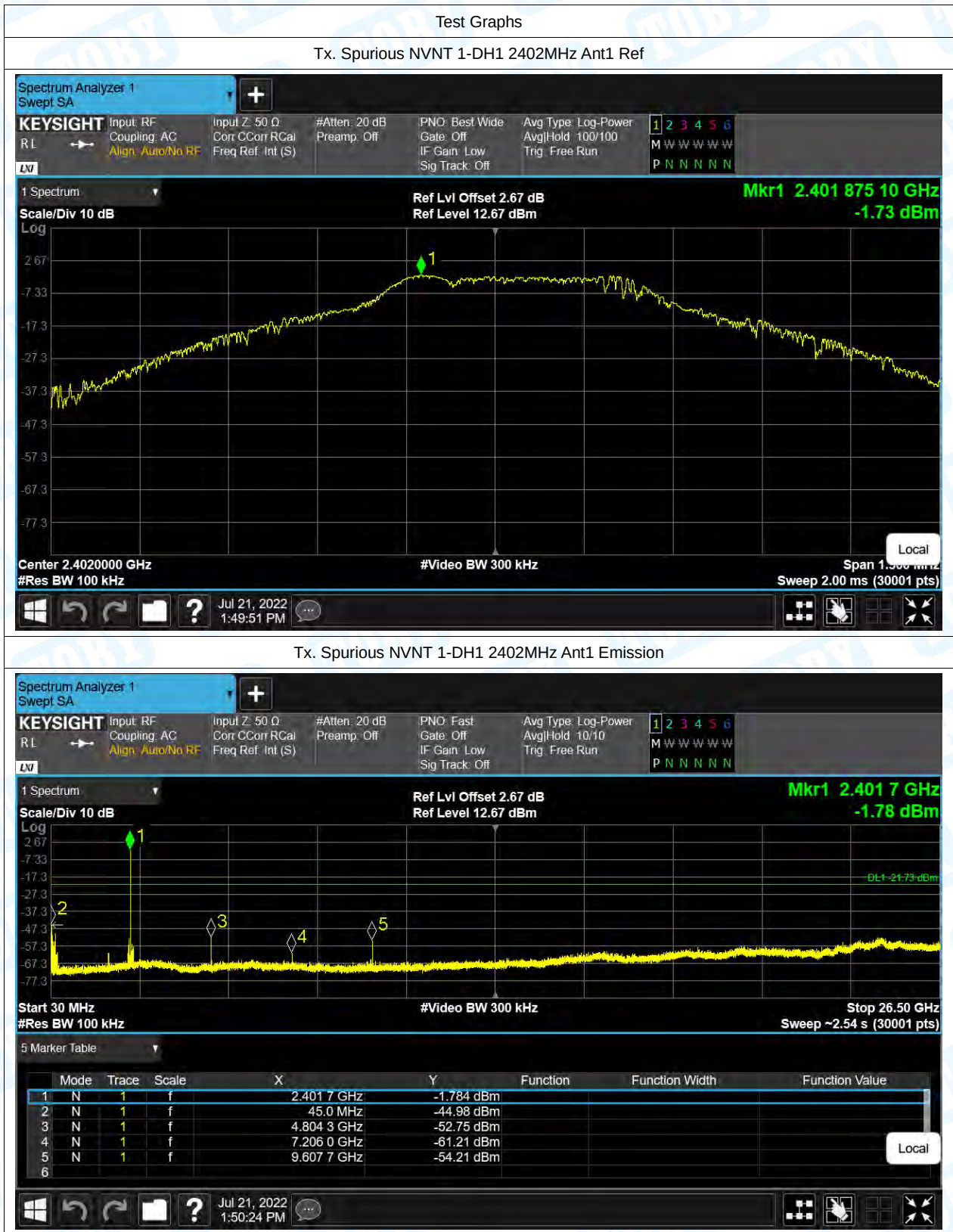






7. Conducted RF Spurious Emission

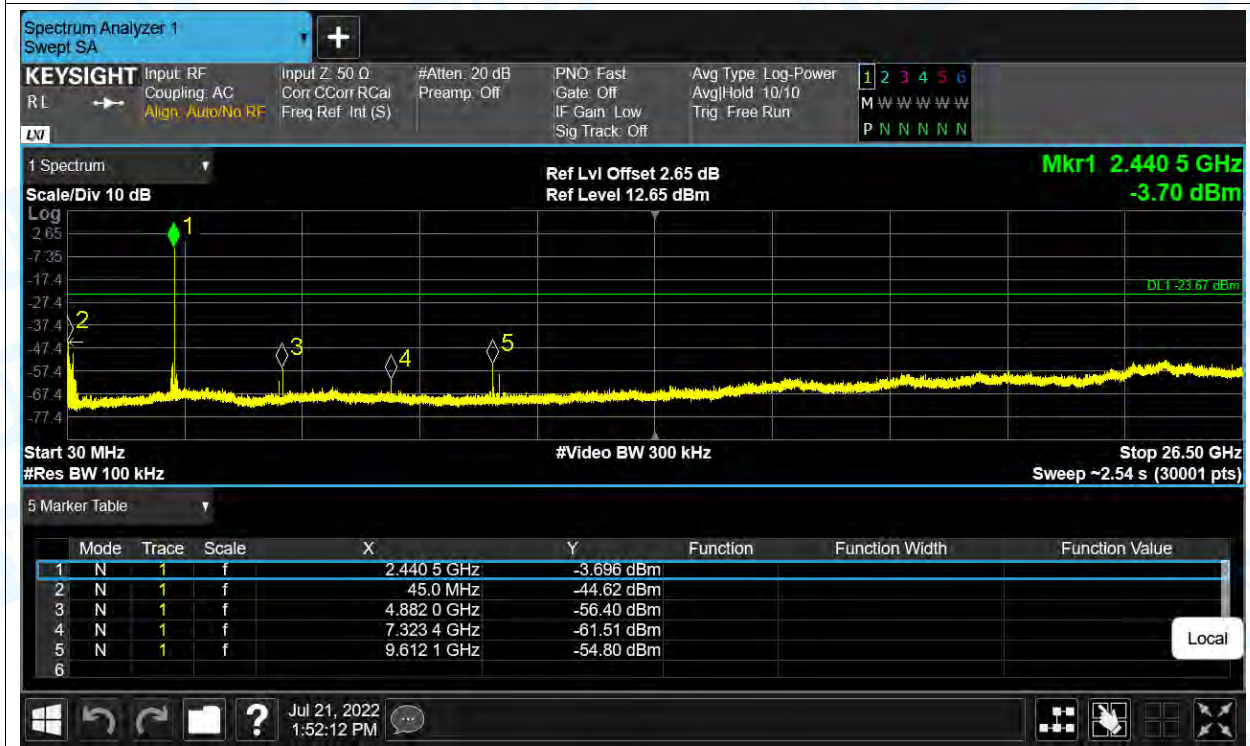
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-43.25	-20	Pass
NVNT	1-DH1	2441	Ant1	-40.95	-20	Pass
NVNT	1-DH1	2480	Ant1	-39.8	-20	Pass
NVNT	2-DH1	2402	Ant1	-43.11	-20	Pass
NVNT	2-DH1	2441	Ant1	-41.05	-20	Pass
NVNT	2-DH1	2480	Ant1	-39.5	-20	Pass
NVNT	3-DH1	2402	Ant1	-42.9	-20	Pass
NVNT	3-DH1	2441	Ant1	-41.48	-20	Pass
NVNT	3-DH1	2480	Ant1	-39.76	-20	Pass



Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



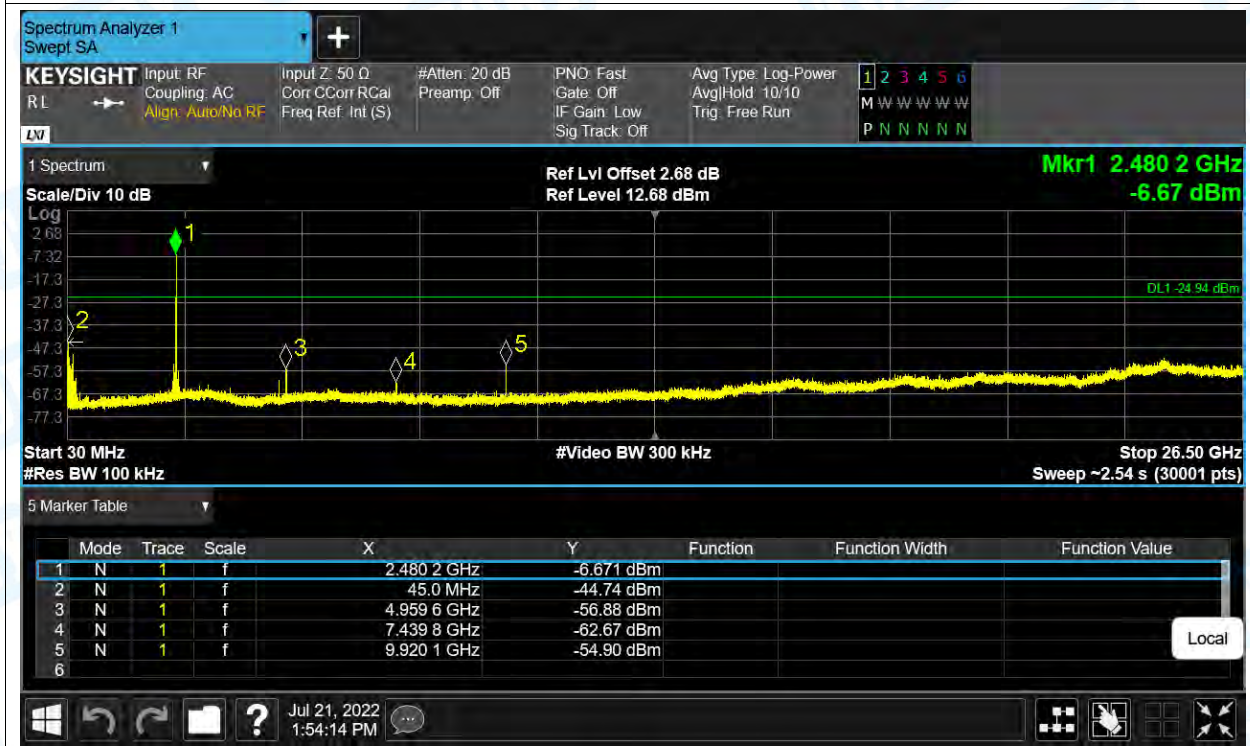
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Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



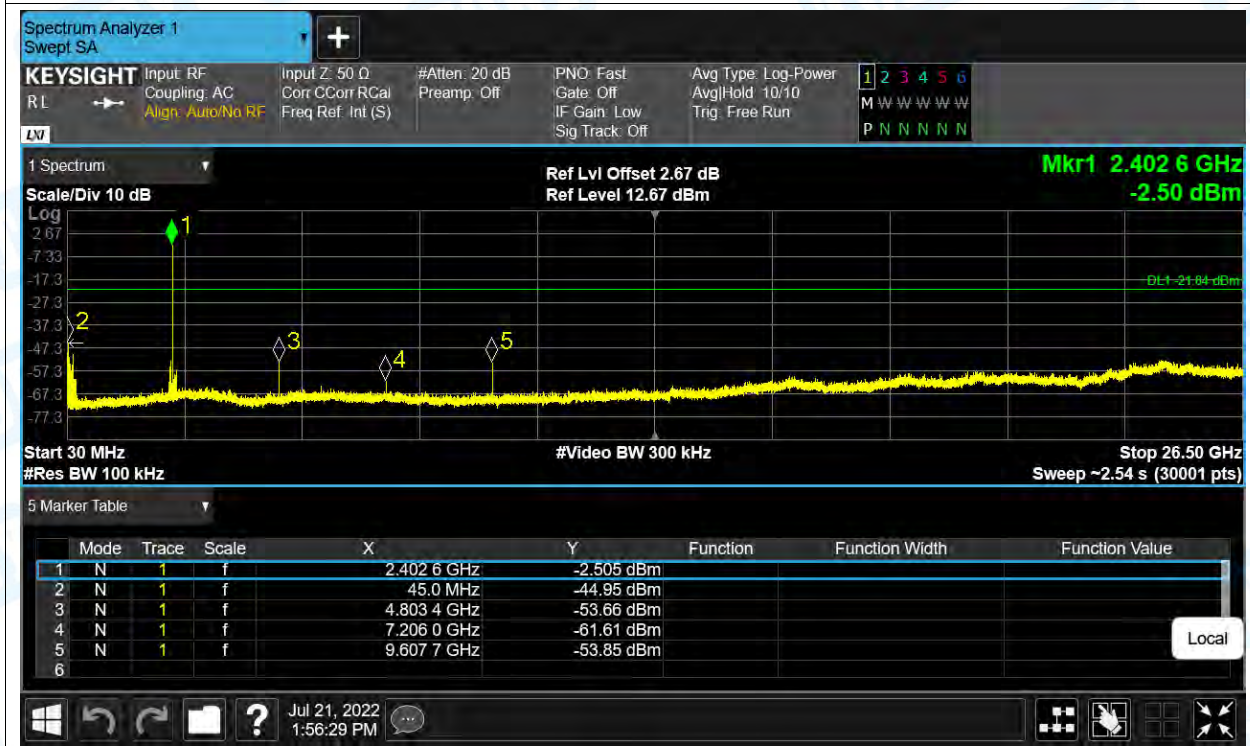
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



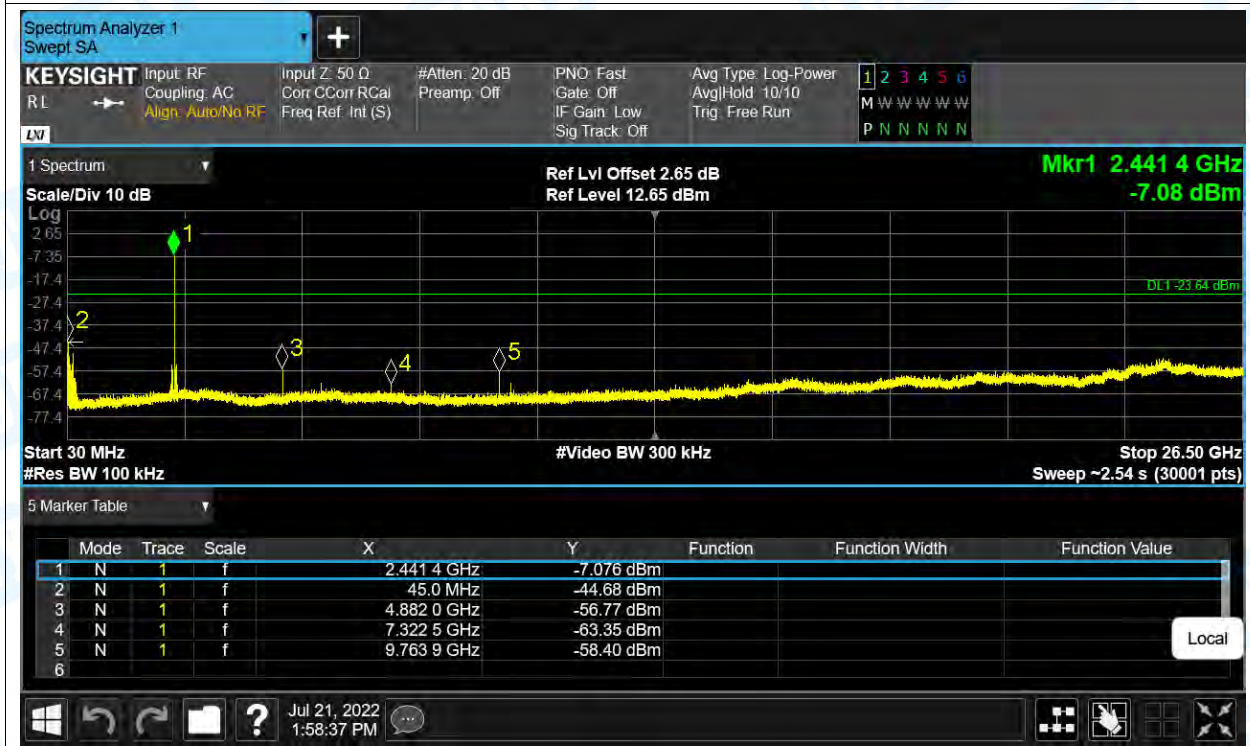
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



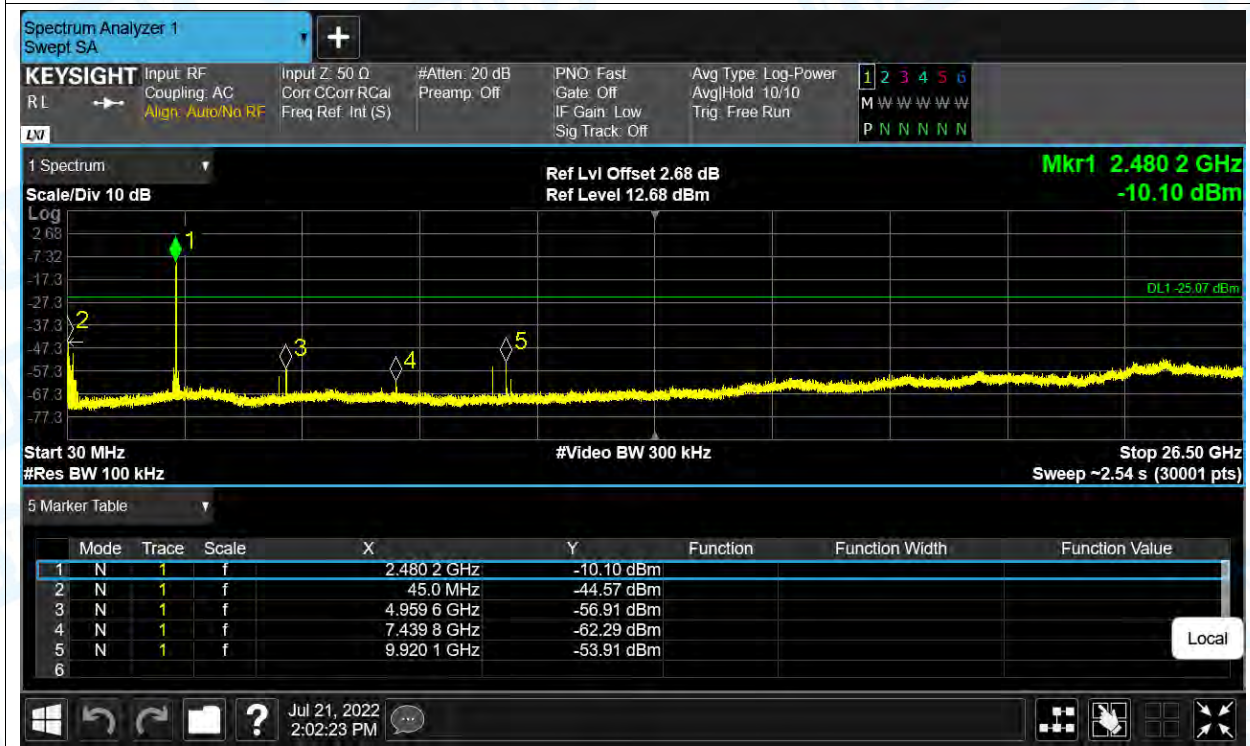
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



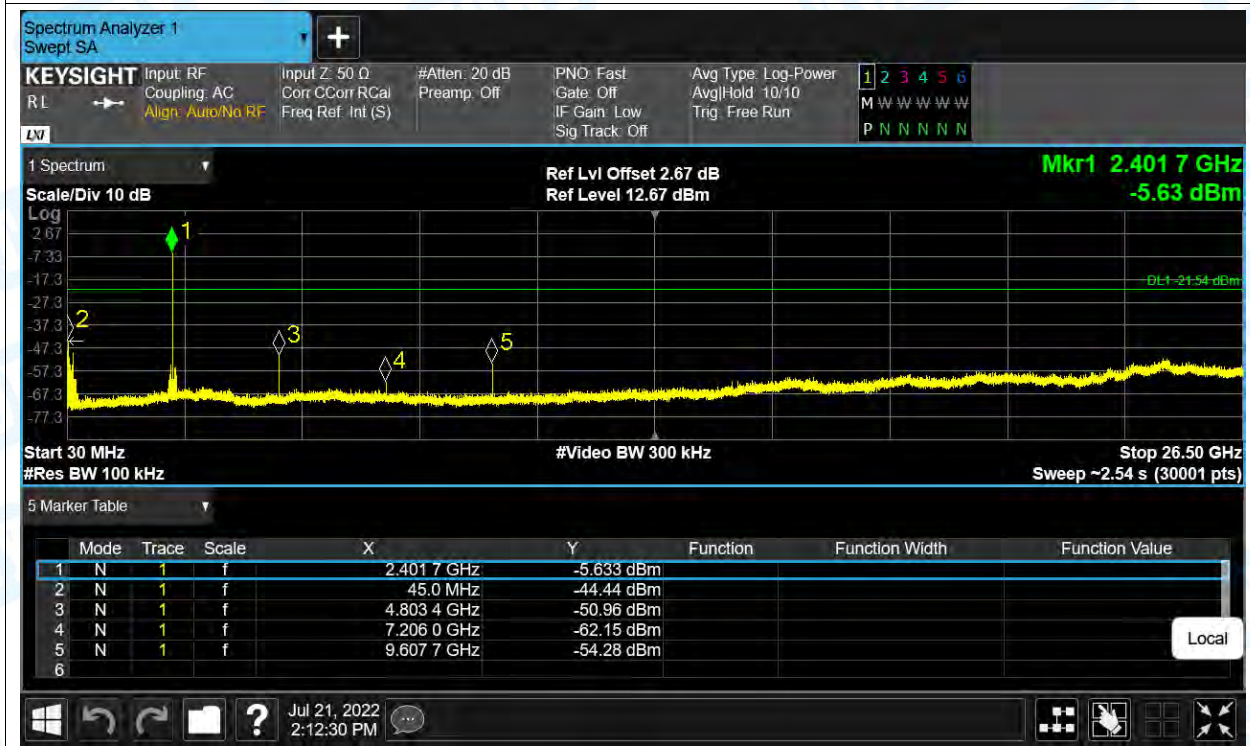
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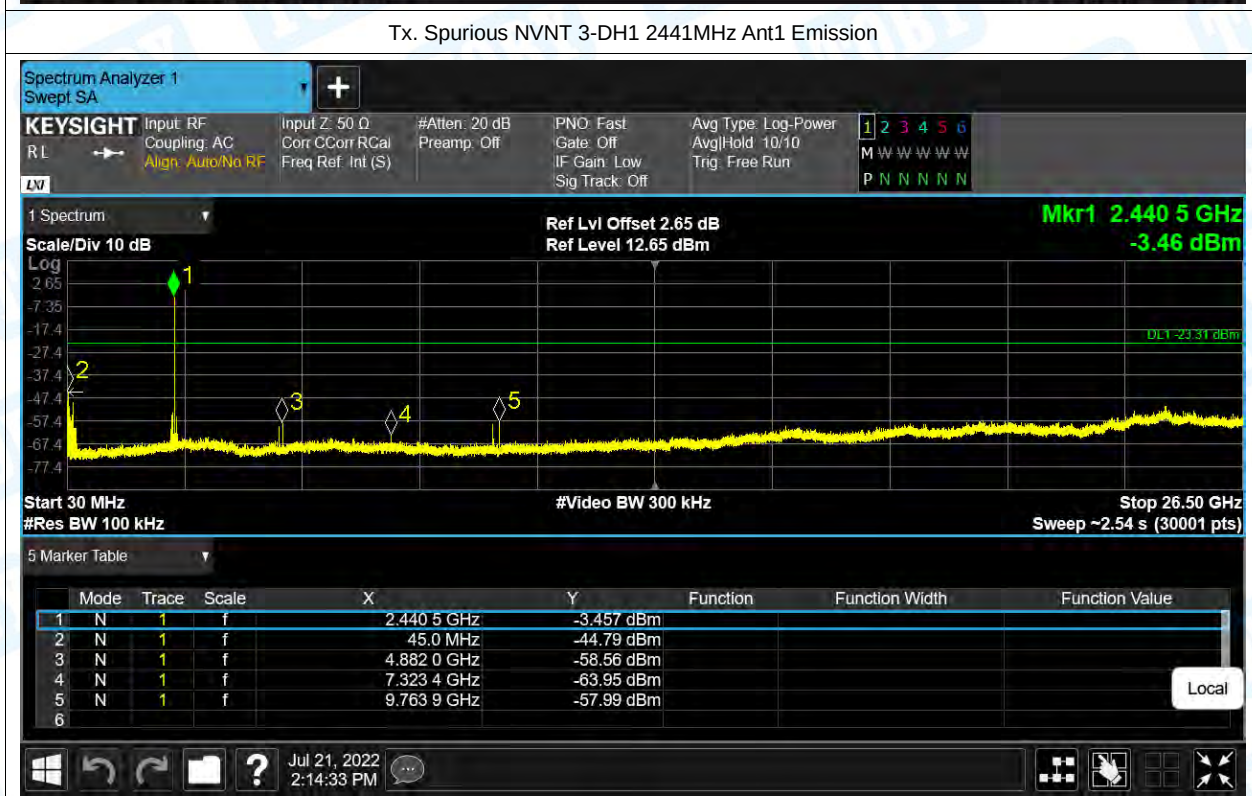
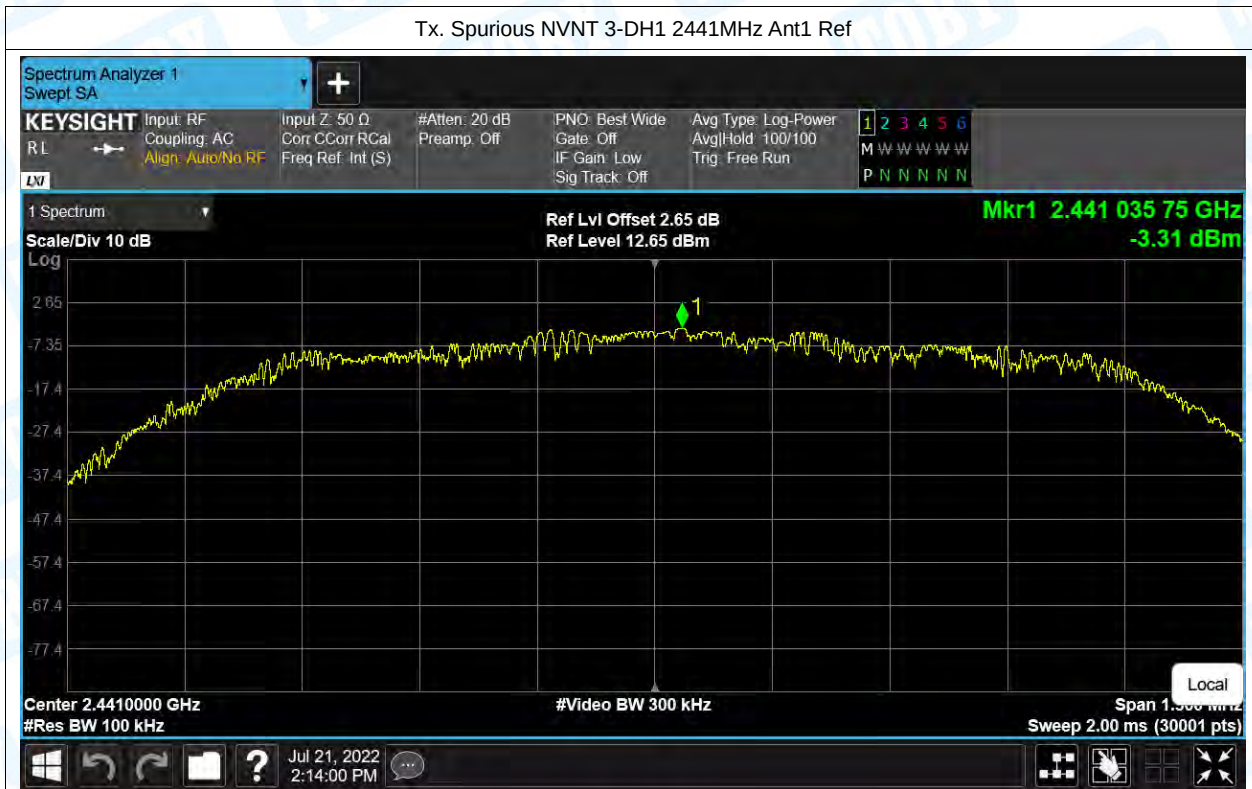


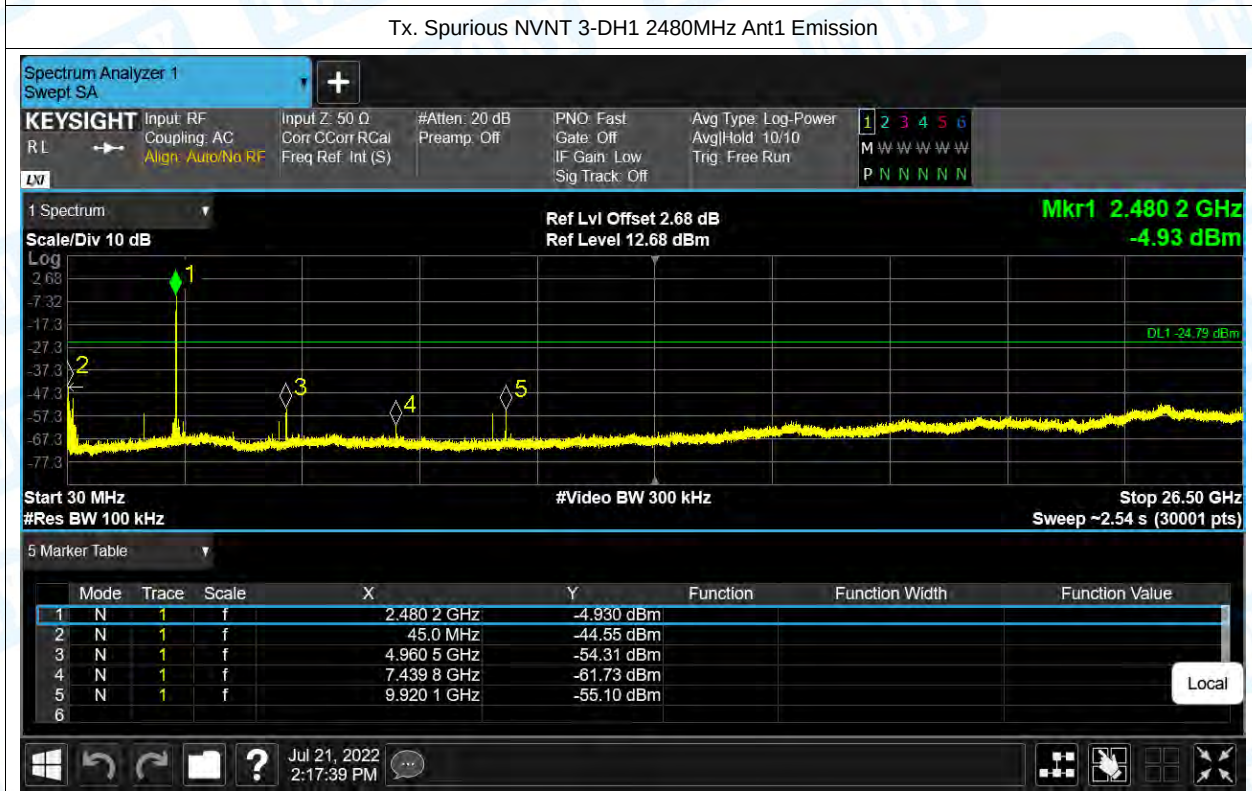
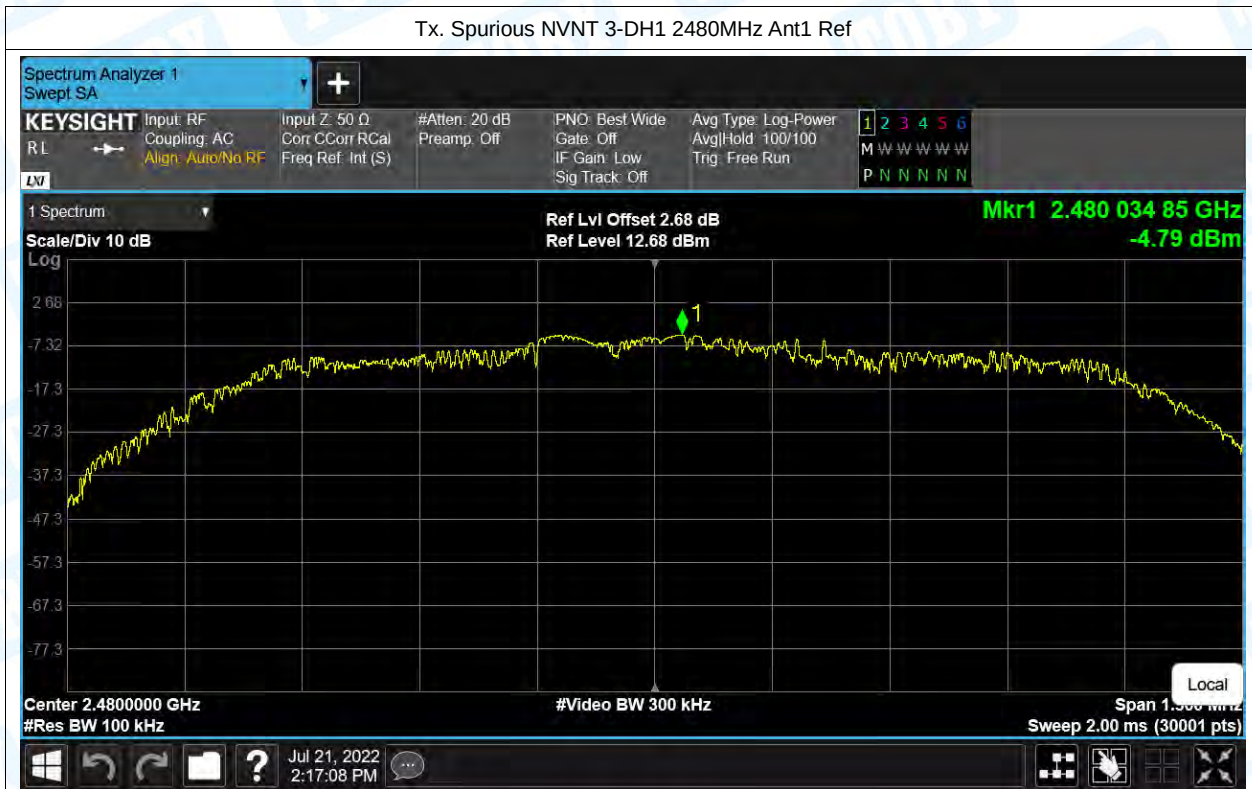
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission





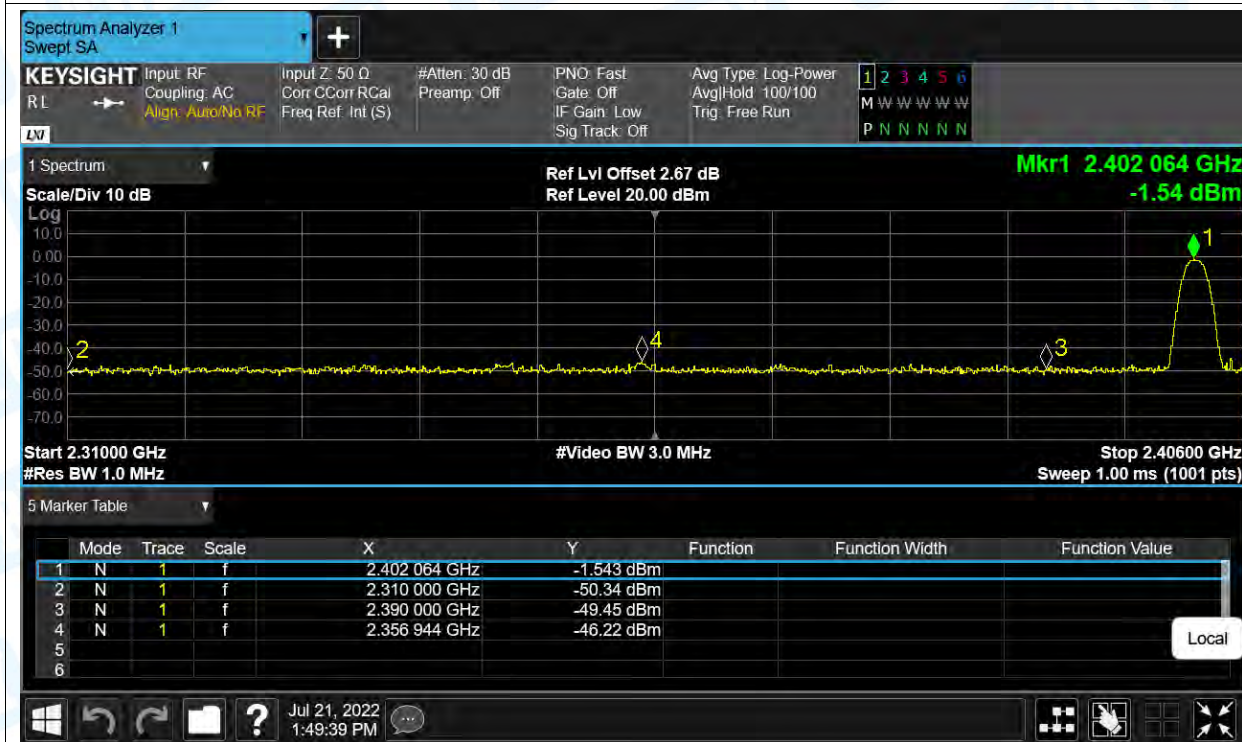


8. Restrict Band

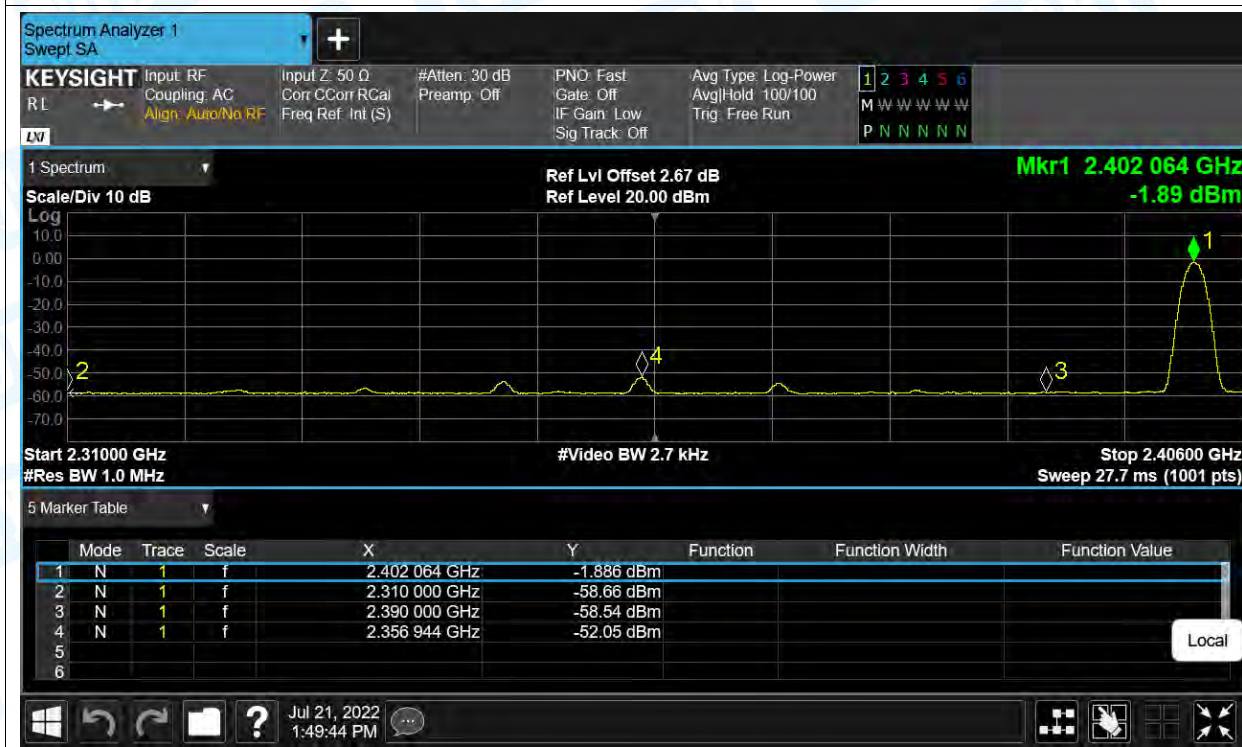
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-50.34	2	46.92	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-58.66	2	38.6	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2356.944	-46.22	2	51.04	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2356.944	-52.05	2	45.21	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-49.37	2	47.89	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-58.82	2	38.44	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-48.44	2	48.82	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-58.55	2	38.71	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2490.136	-45.71	2	51.55	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2491.552	-58.03	2	39.23	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-49.01	2	48.25	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-58.31	2	38.95	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-51	2	46.26	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-58.88	2	38.38	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2357.136	-45.92	2	51.34	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2356.848	-52.84	2	44.42	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-47.15	2	50.11	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-58.35	2	38.91	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-49.65	2	47.61	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-58.6	2	38.66	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2498.776	-47.28	2	49.98	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2487.208	-57.75	2	39.51	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-49.3	2	47.96	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-58.71	2	38.55	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-50.68	2	46.58	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-58.51	2	38.75	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2357.04	-45.65	2	51.61	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2356.848	-52.64	2	44.62	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-49.74	2	47.52	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-58.77	2	38.49	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-50.59	2	46.67	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-58.37	2	38.89	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2491.864	-45.87	2	51.39	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2498.992	-57.99	2	39.27	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-49.97	2	47.29	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-58.72	2	38.54	Average	54	Pass

Test Graphs

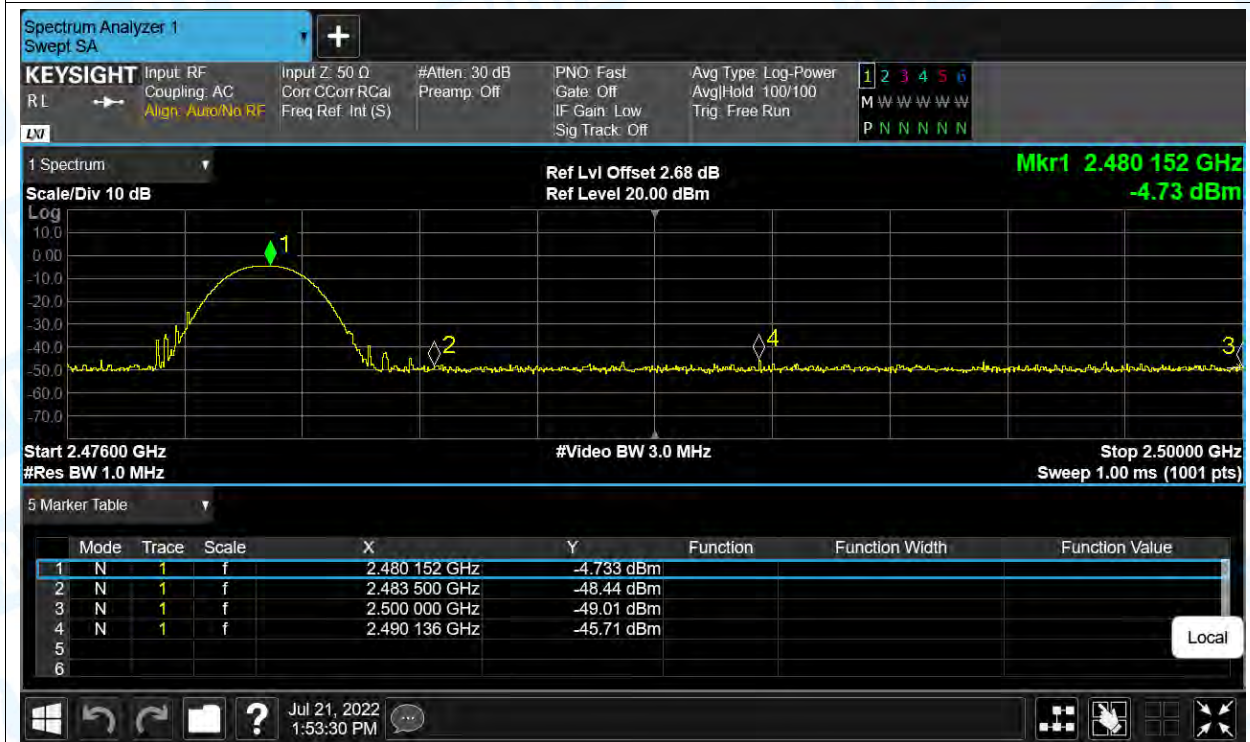
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



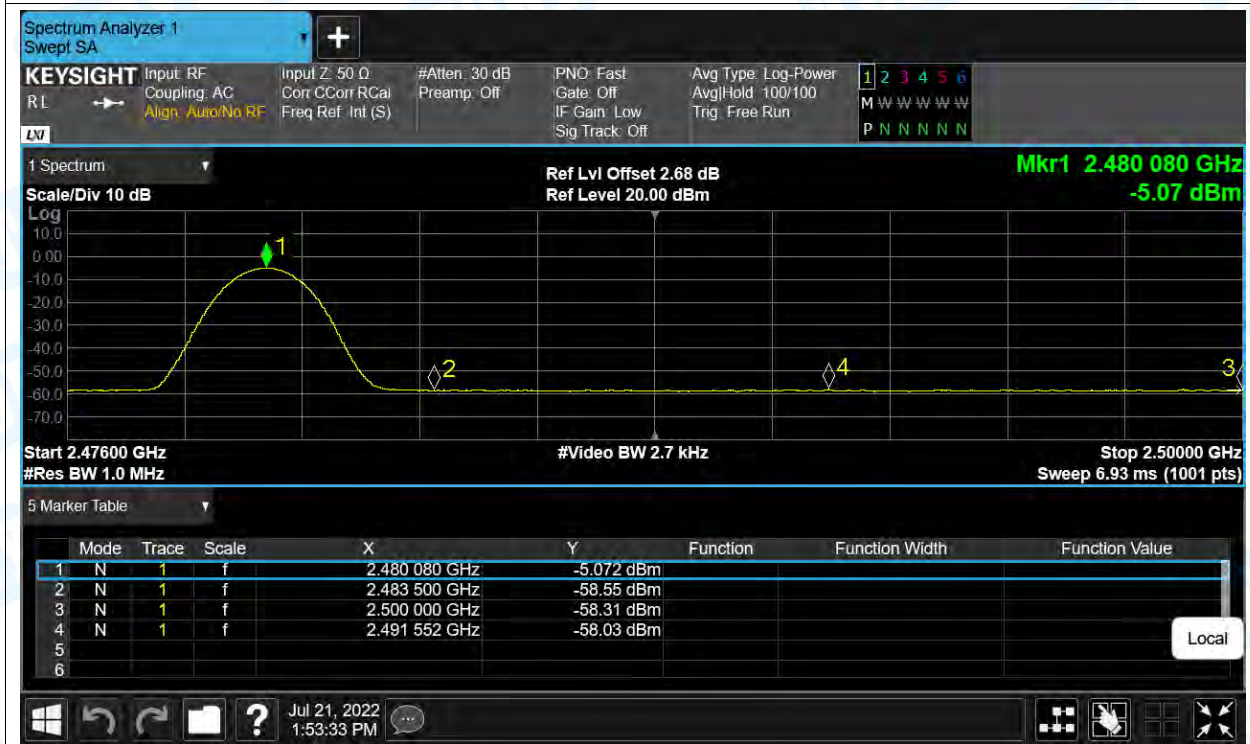
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



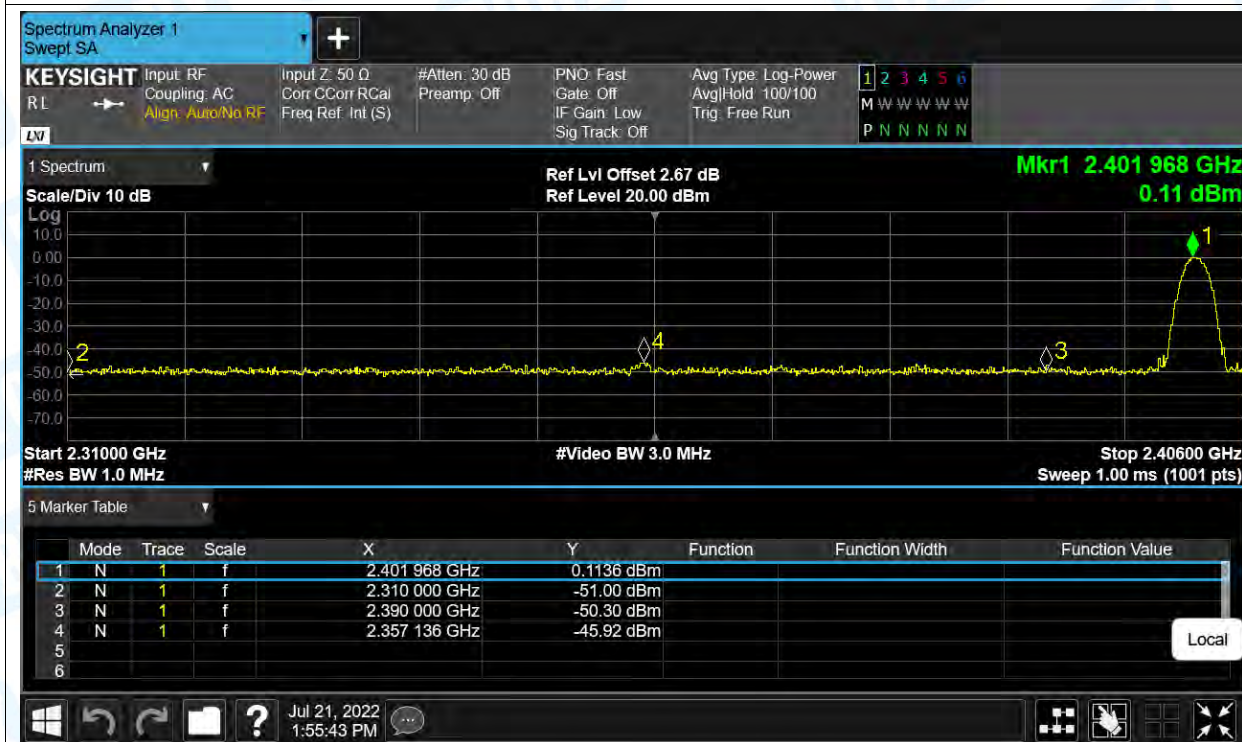
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



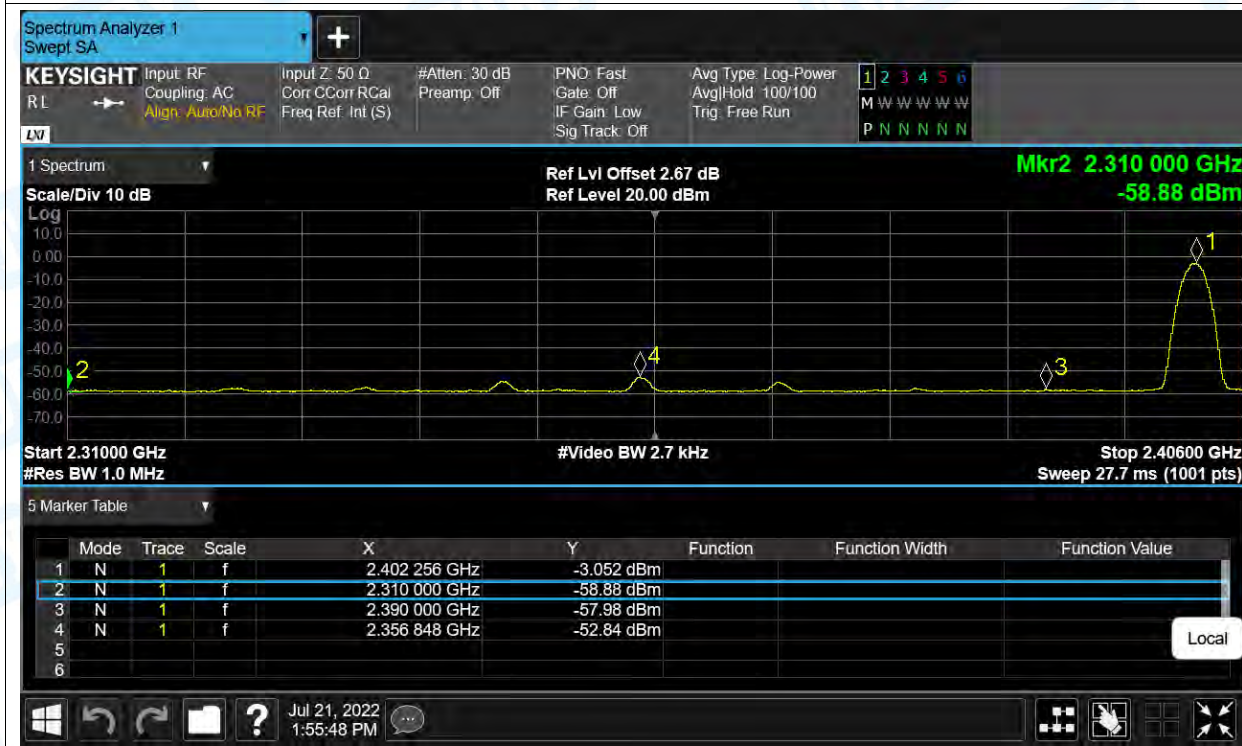
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



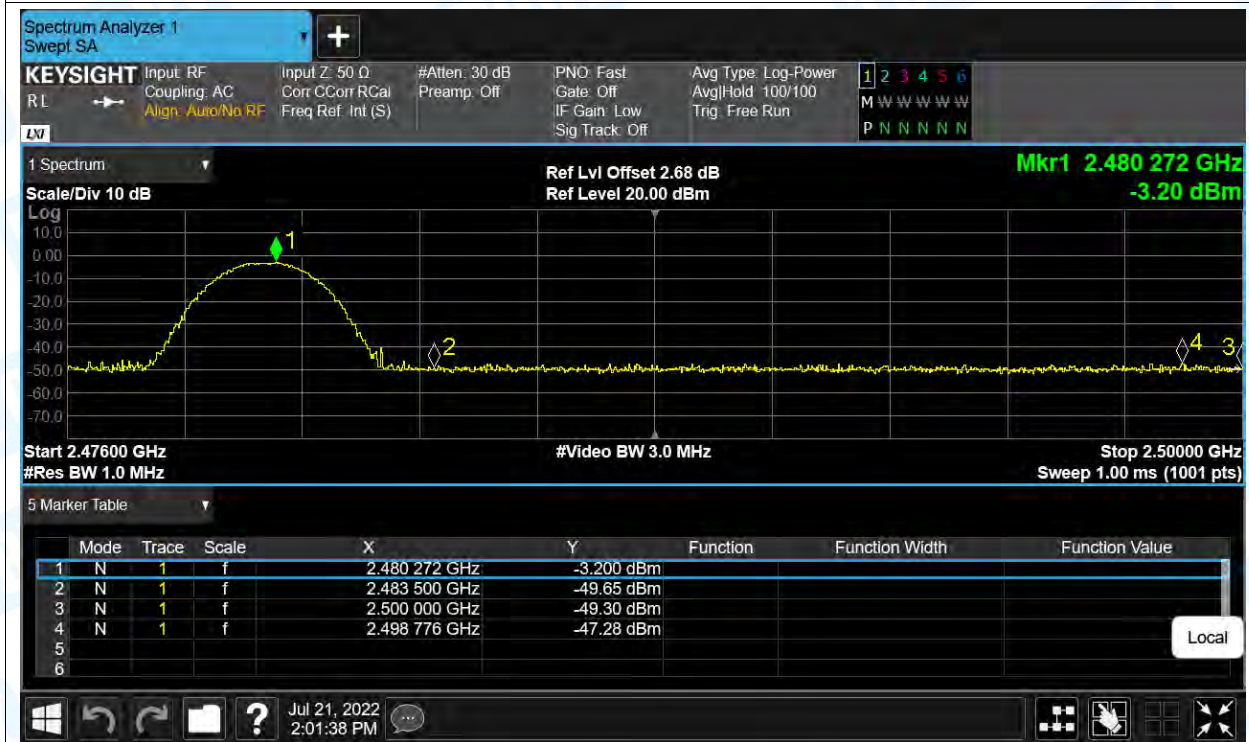
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



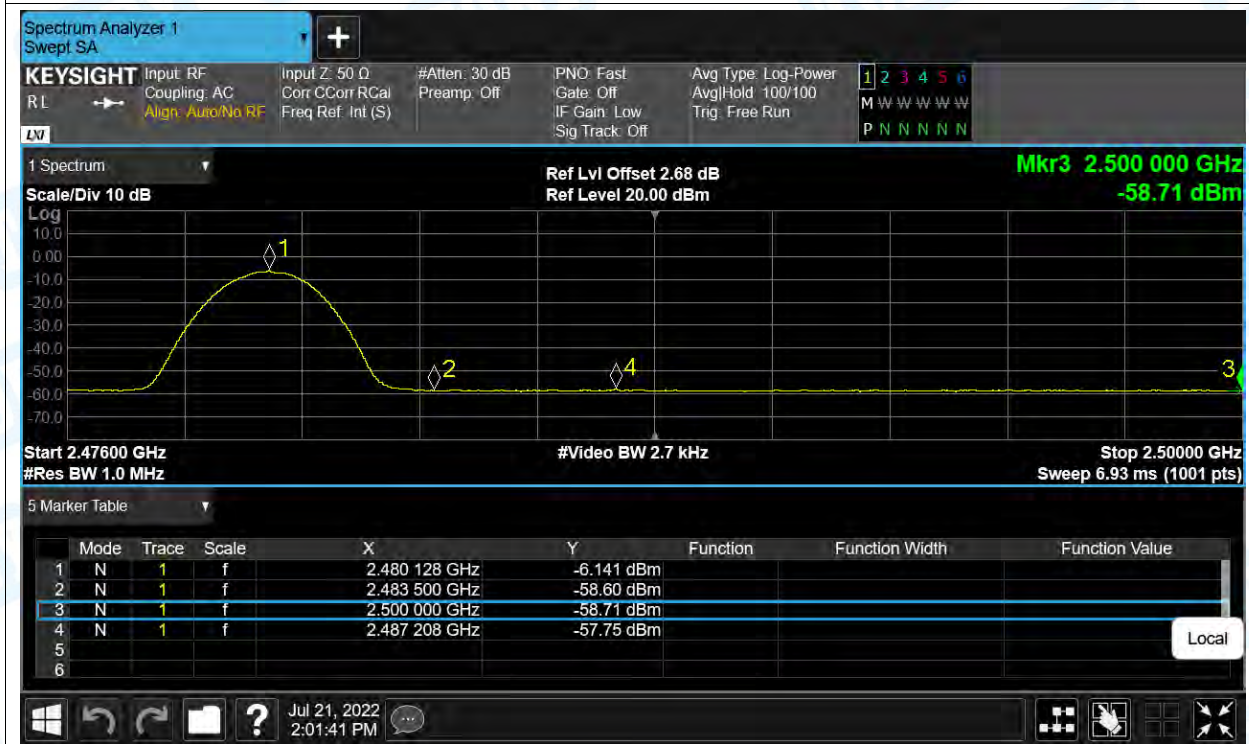
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



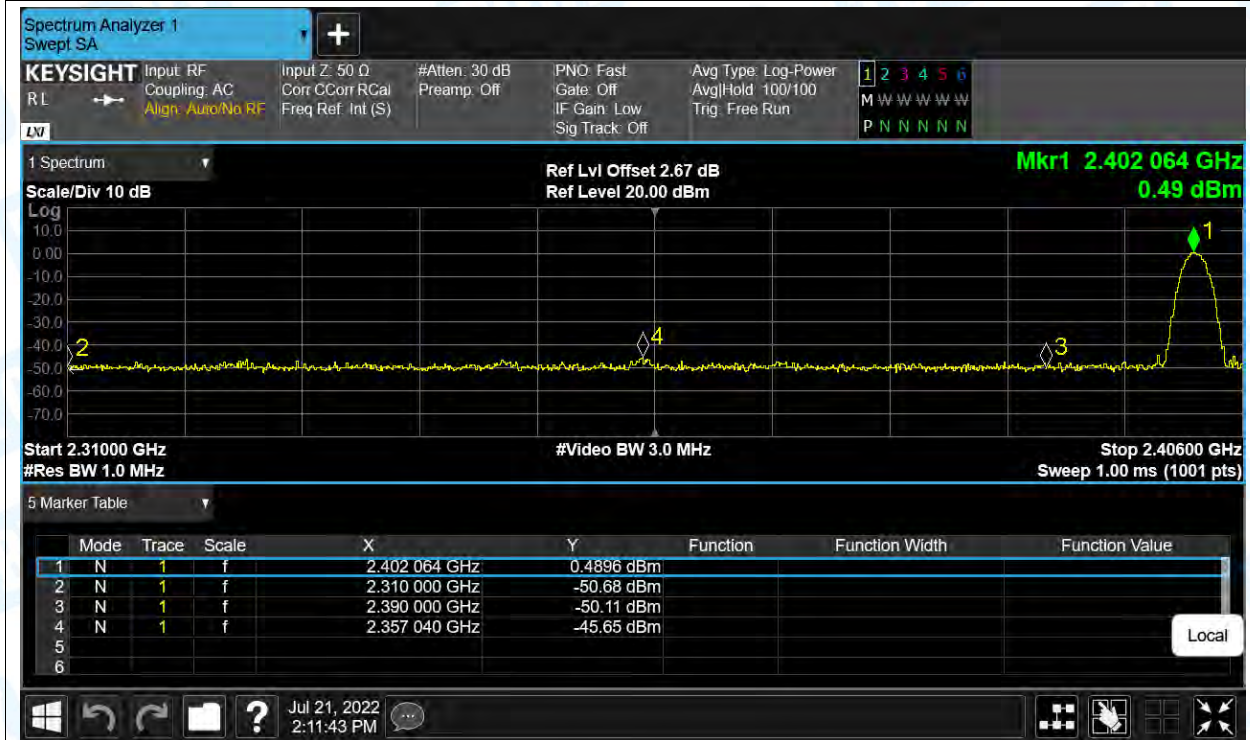
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



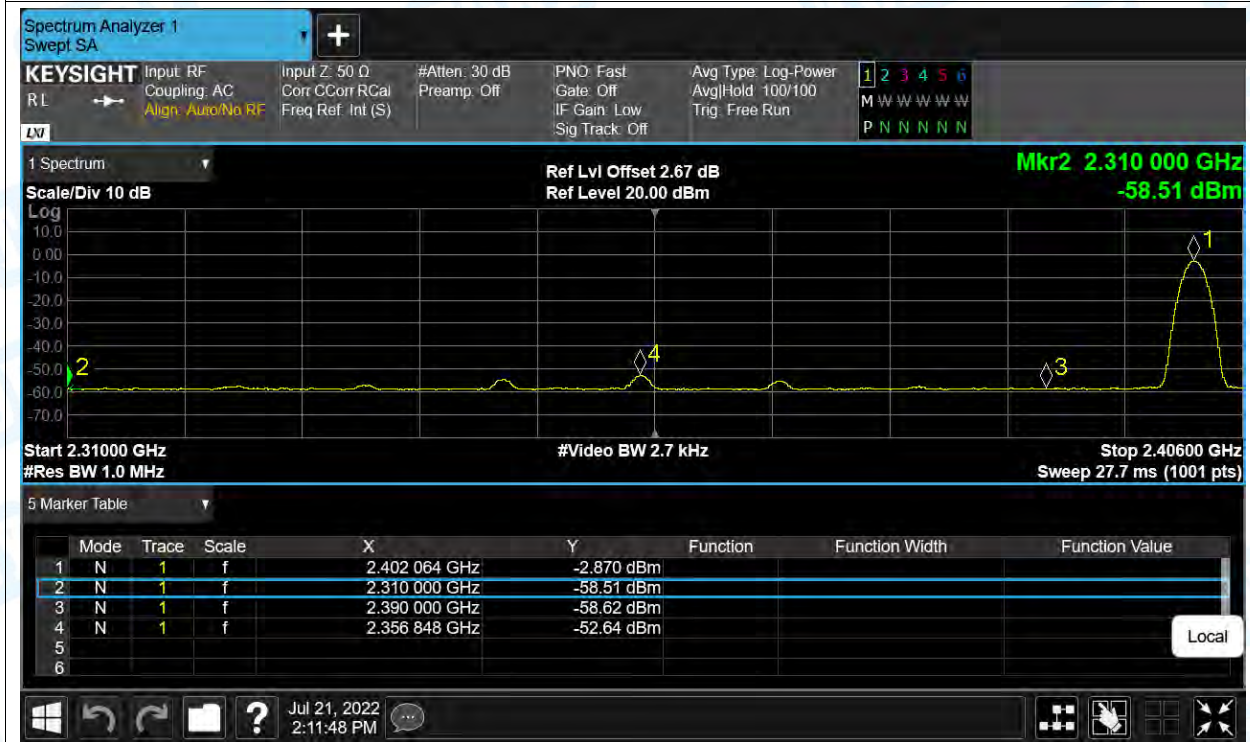
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



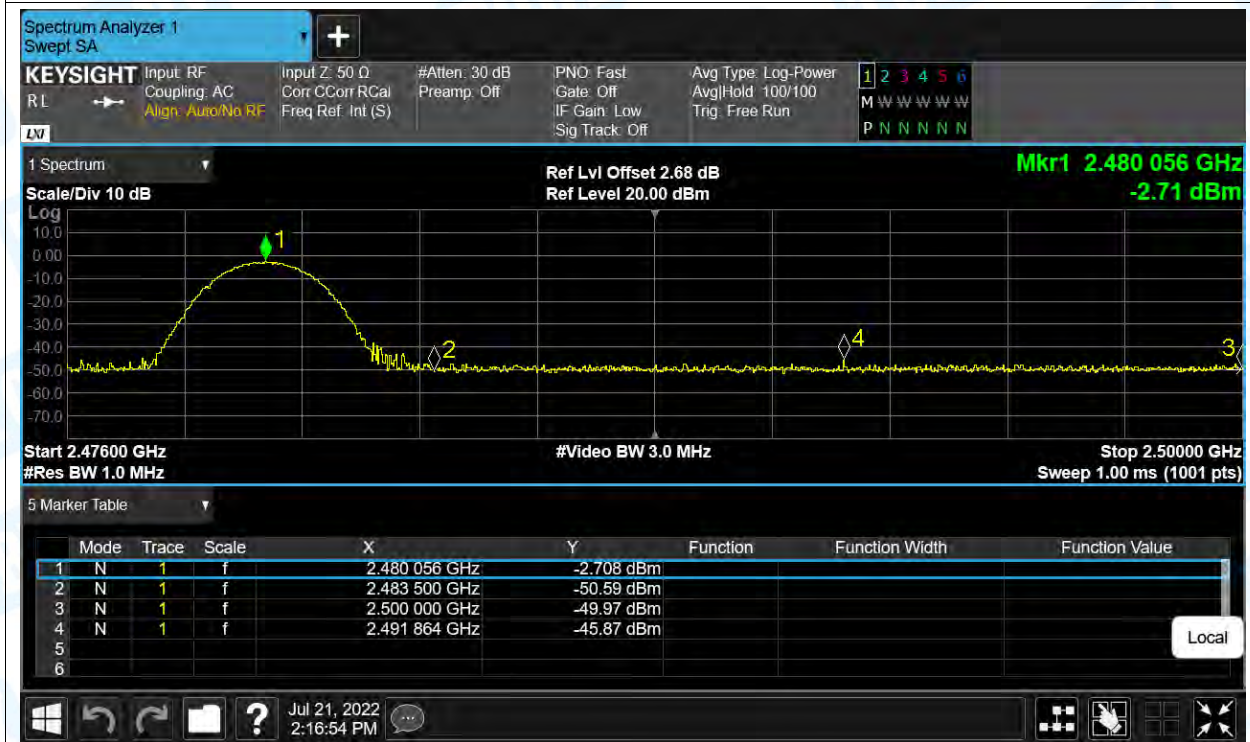
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



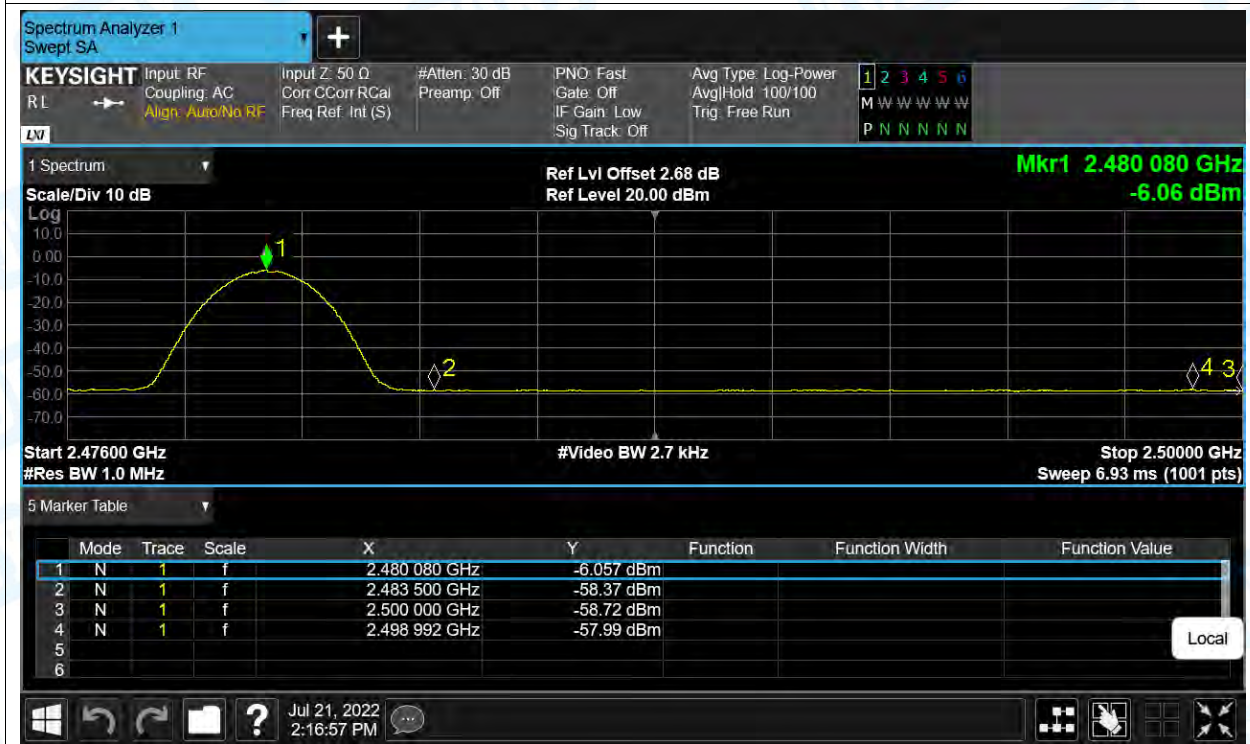
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



Restrict Band NVNT 3-DH1 2480MHz Ant1 No-Hopping Peak



Restrict Band NVNT 3-DH1 2480MHz Ant1 No-Hopping Average



9. Carrier Frequencies Separation

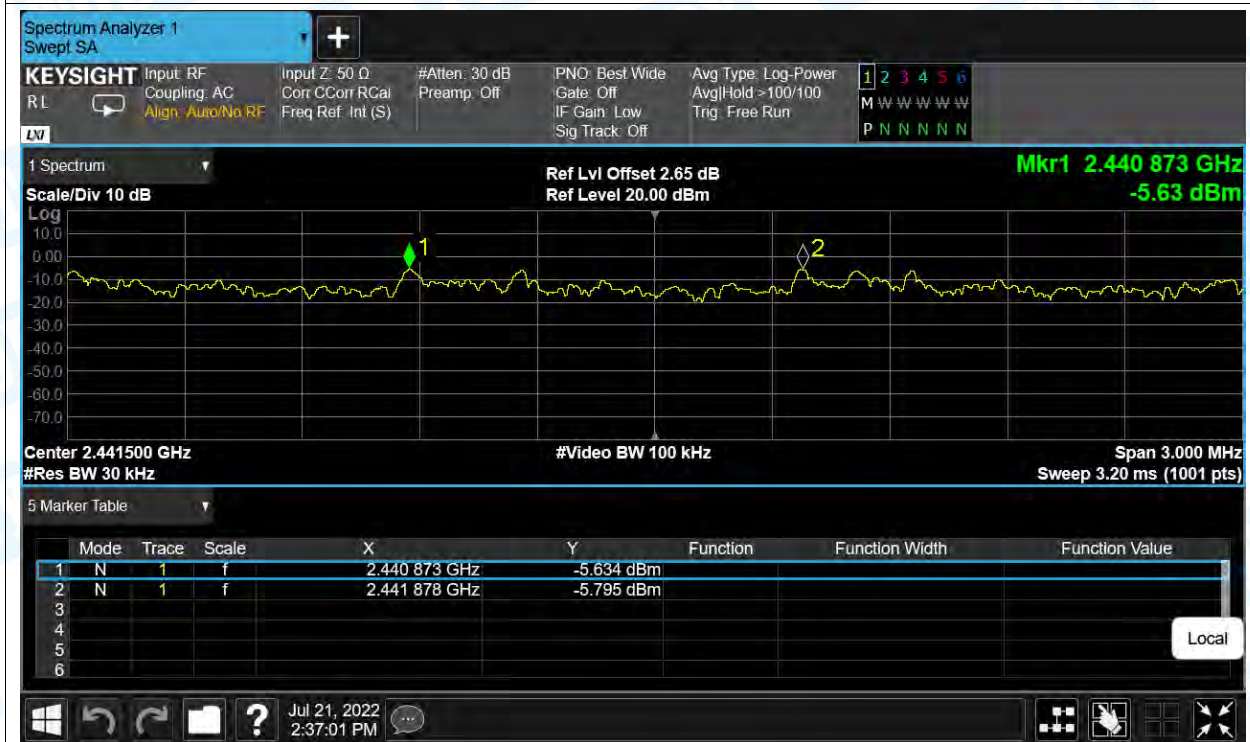
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.876	2442.013	1.137	0.587	Pass
NVNT	2-DH1	Ant1	2440.873	2441.878	1.005	0.86	Pass
NVNT	3-DH1	Ant1	2440.873	2441.875	1.002	0.813	Pass

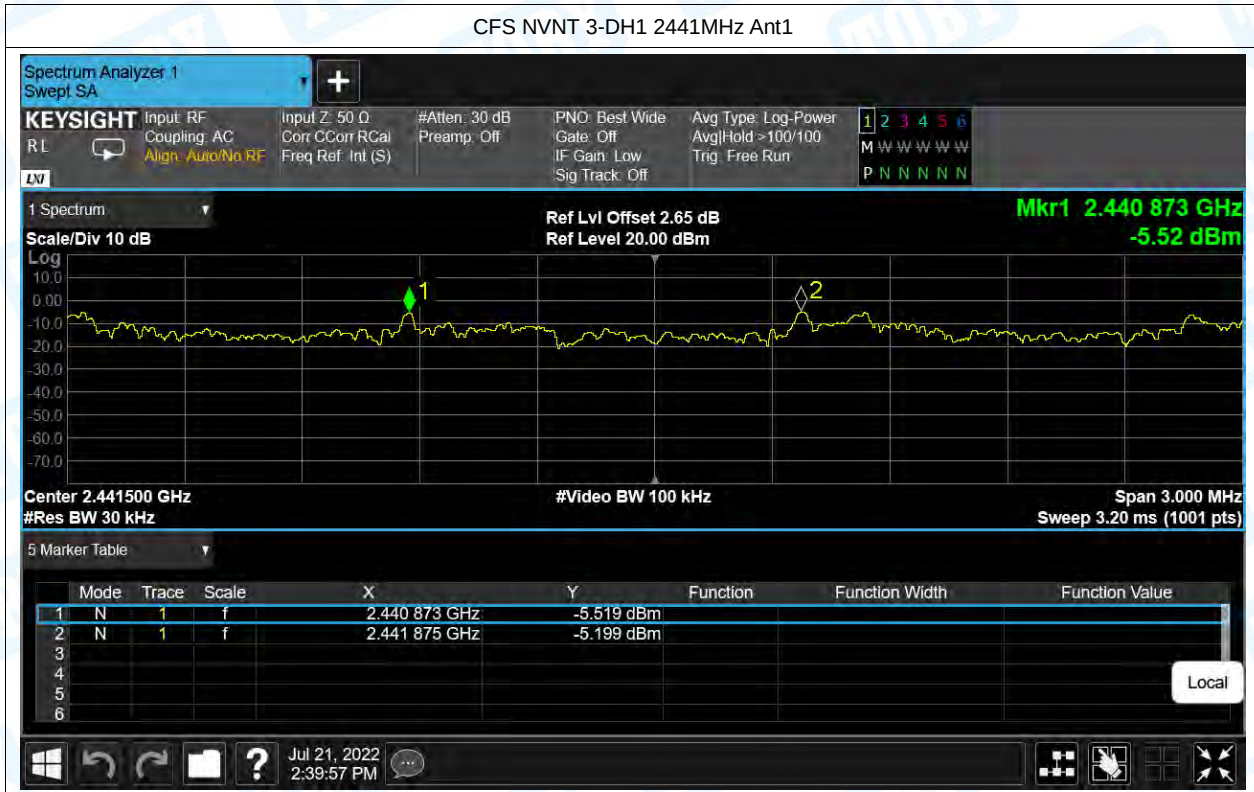
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



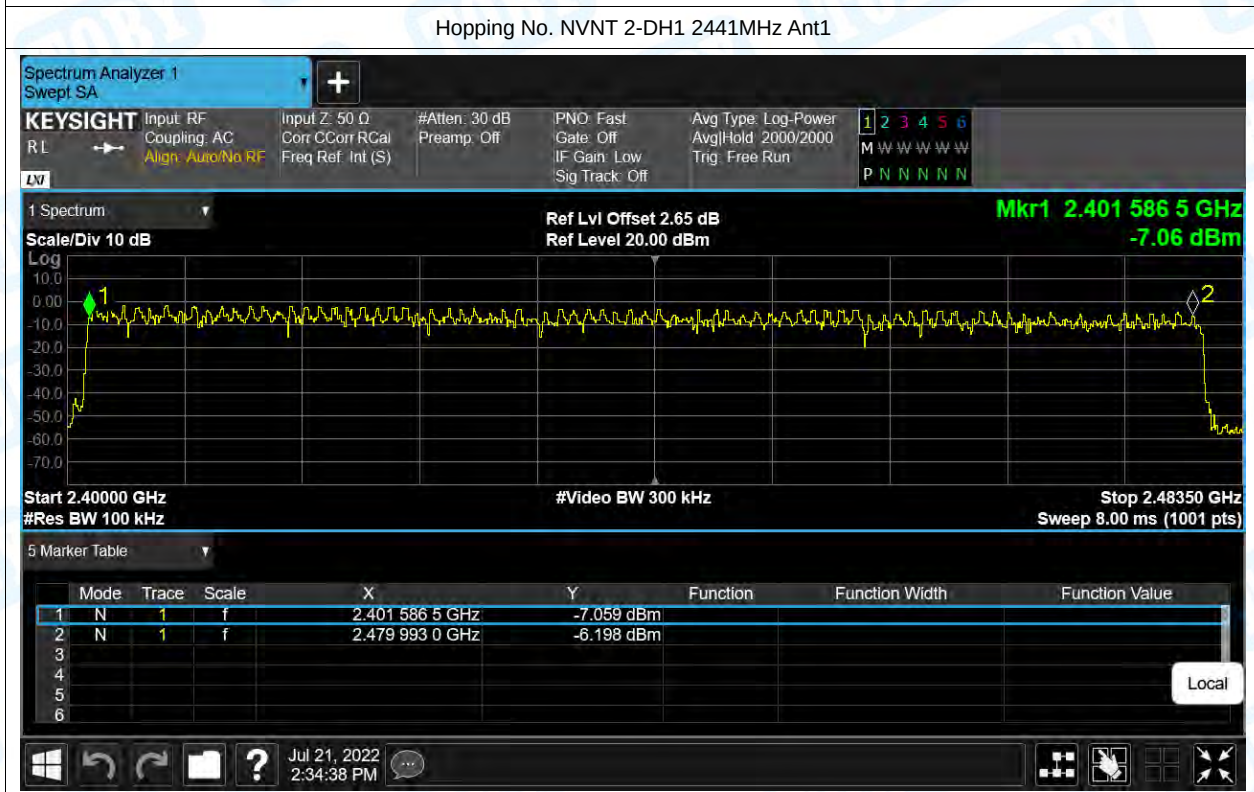
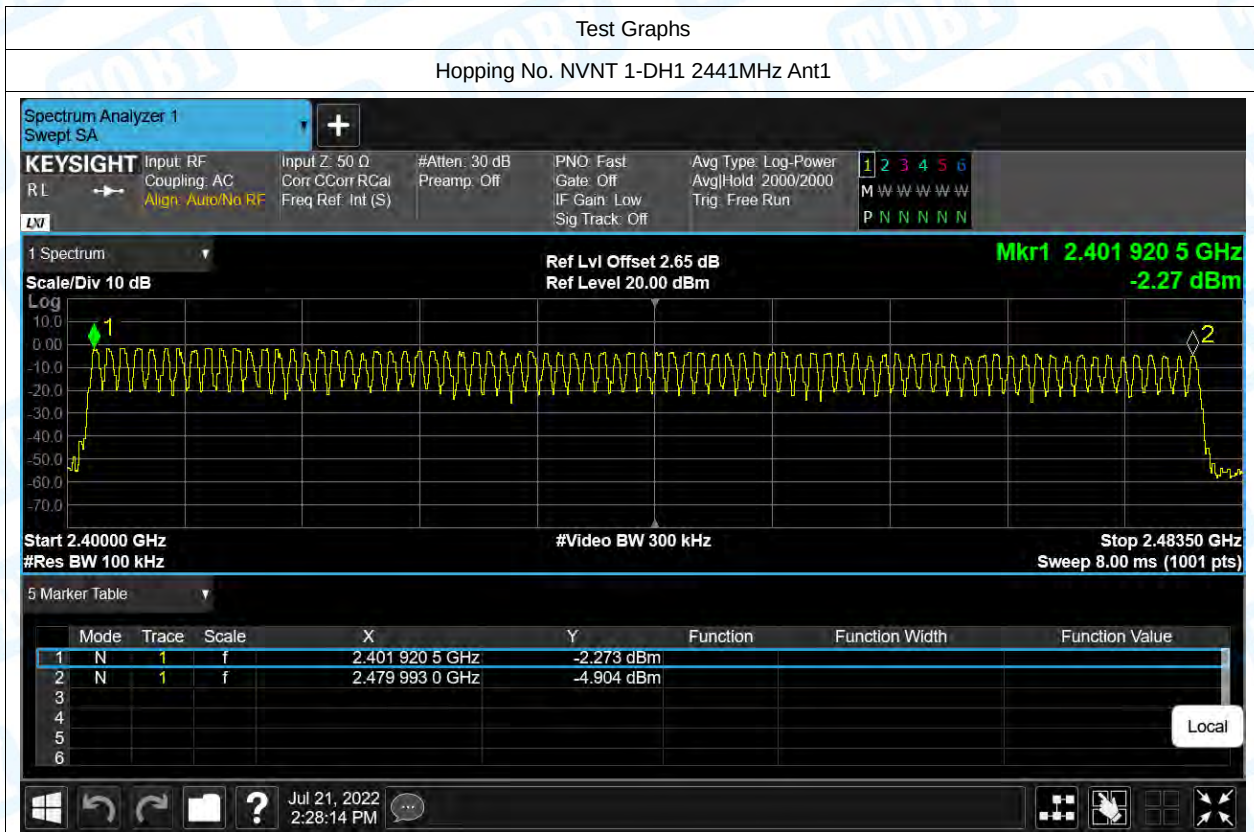
CFS NVNT 2-DH1 2441MHz Ant1

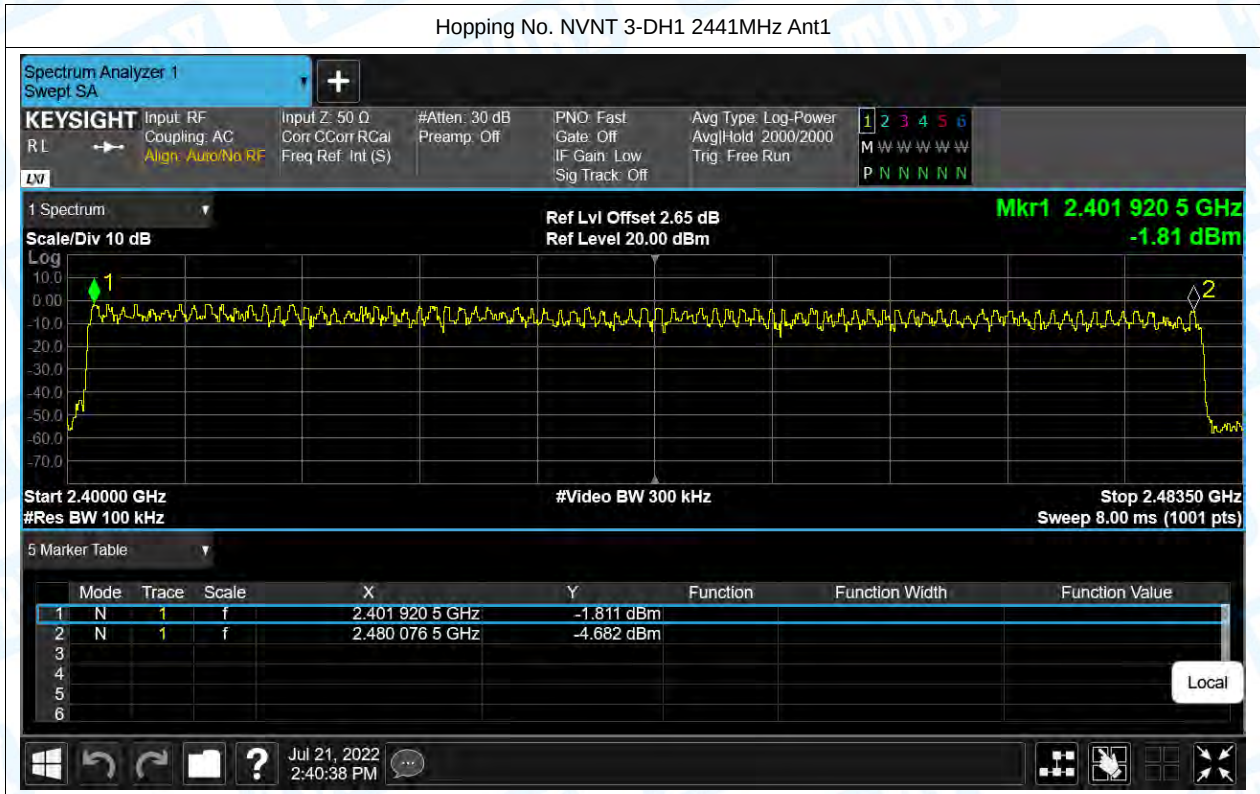




10. Number of Hopping Channel

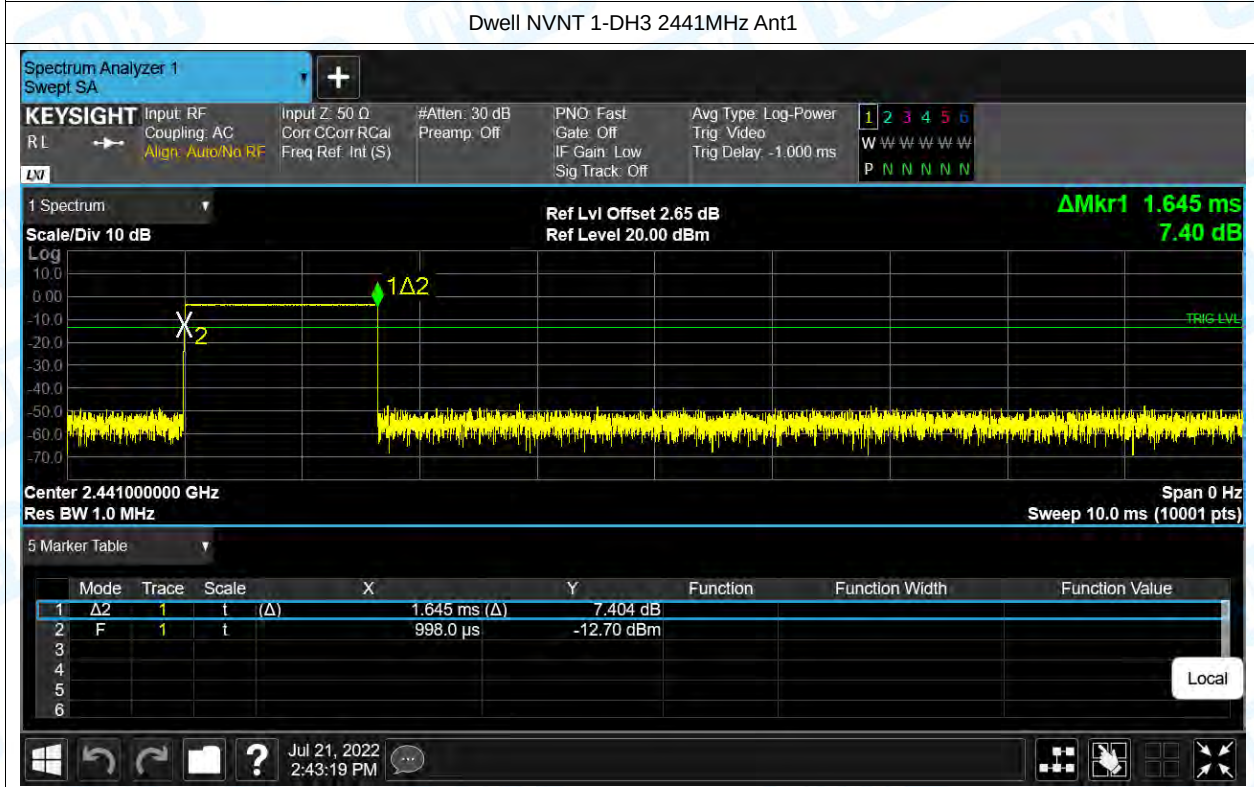
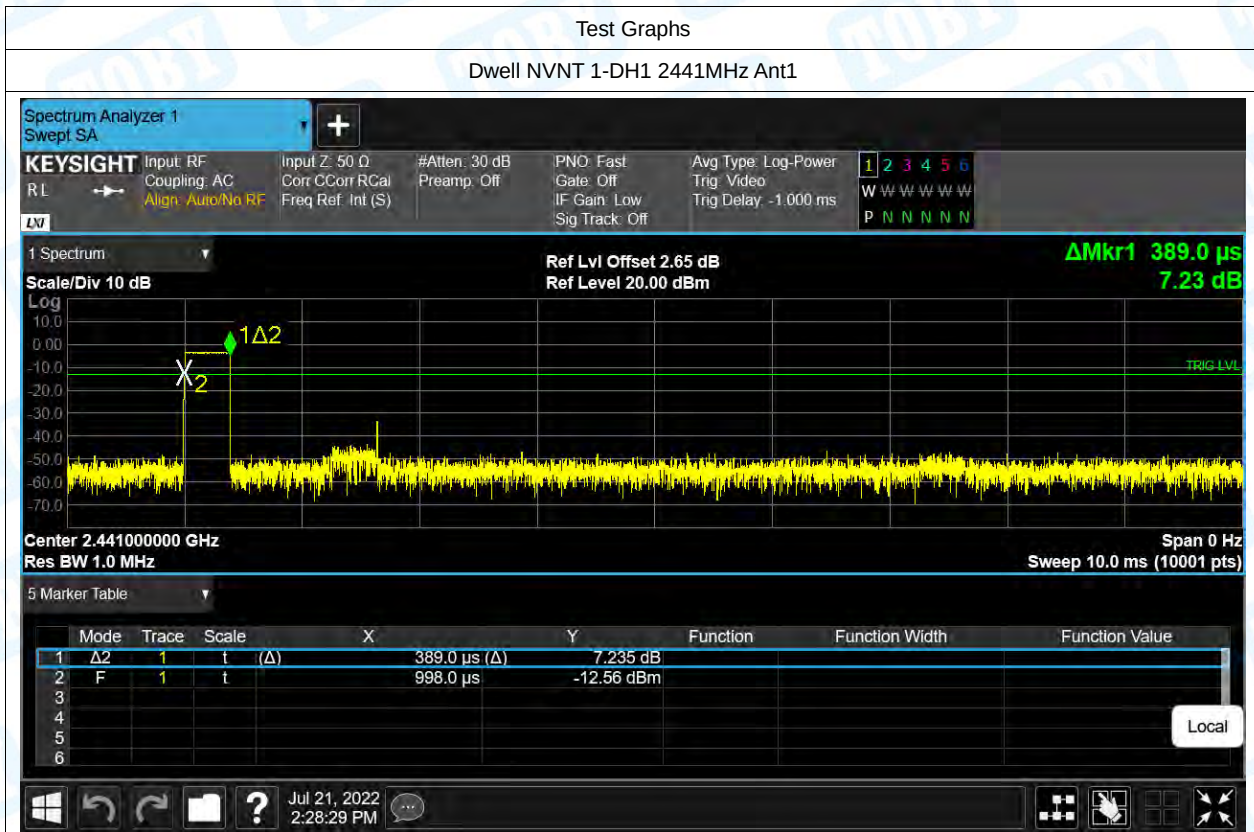
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

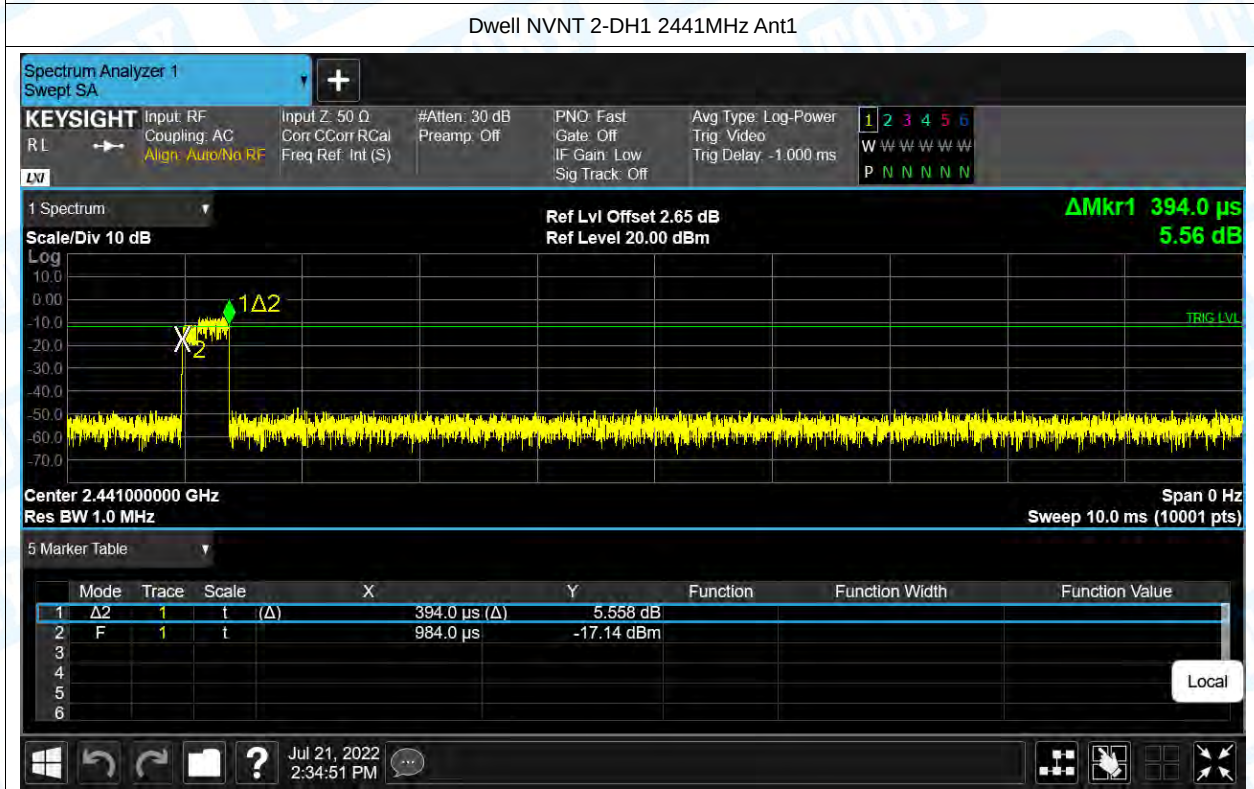


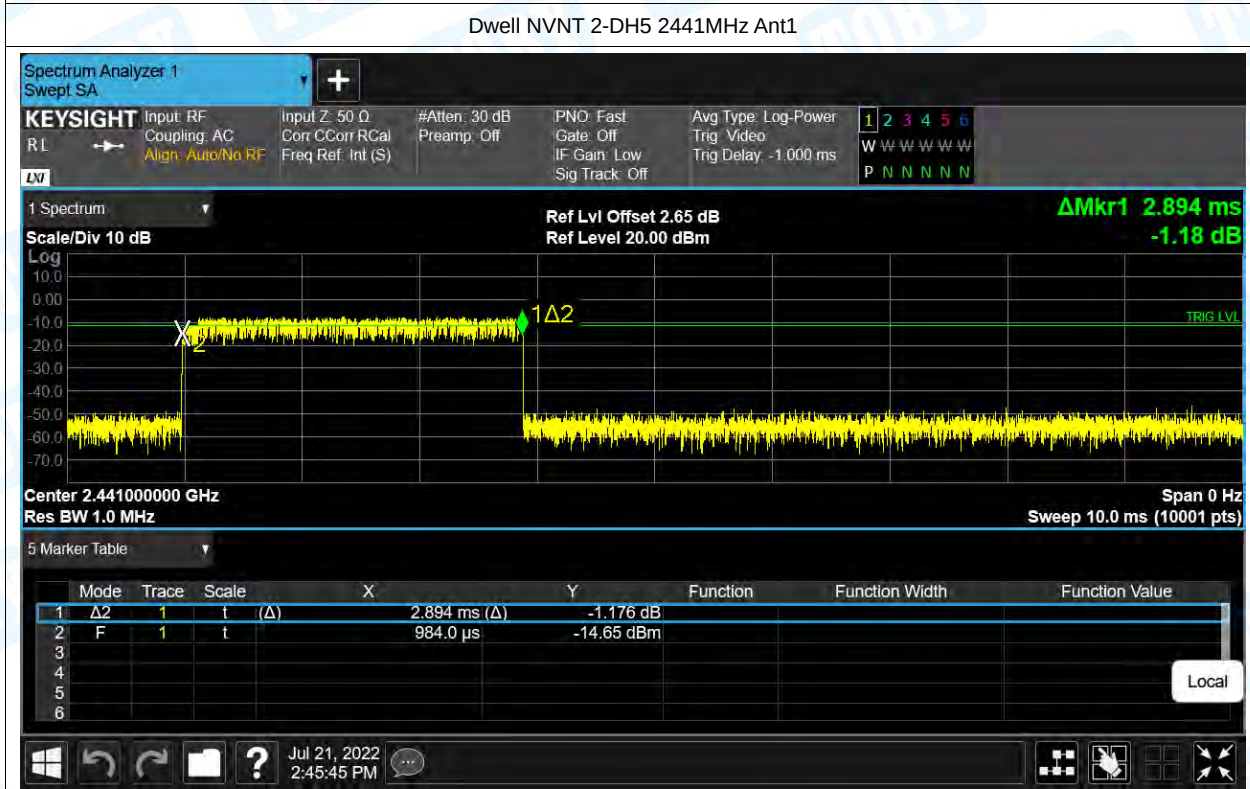
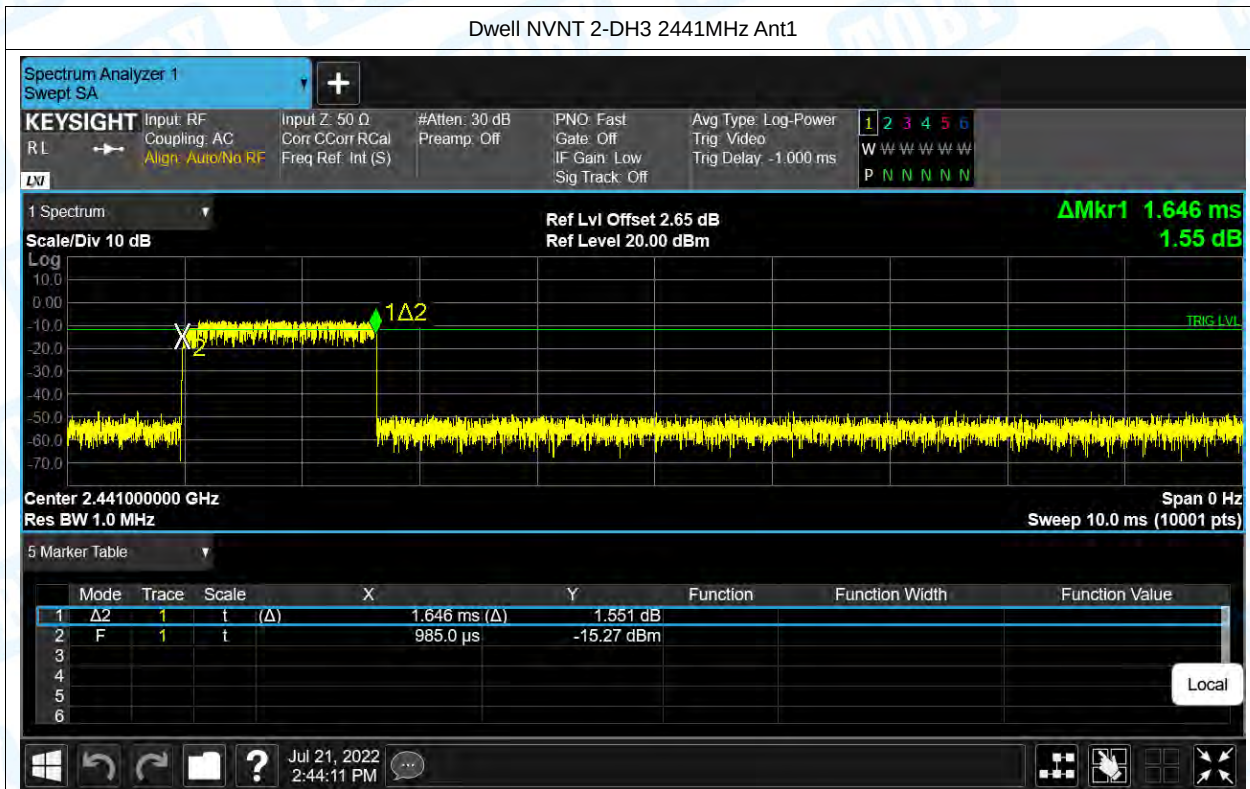


11. Dwell Time

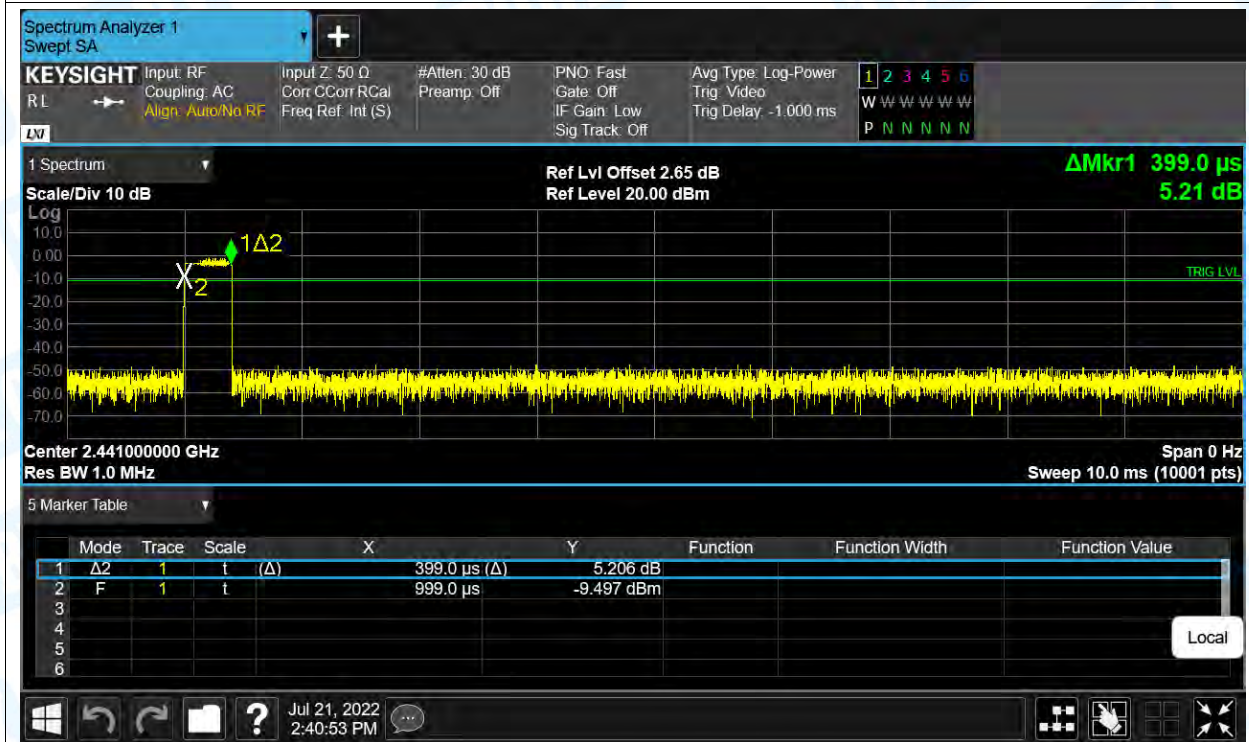
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.389	124.48	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.645	263.2	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.89	308.267	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.394	126.08	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.646	263.36	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.894	308.693	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.399	127.68	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.646	263.36	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.897	309.013	31600	400	Pass







Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1

