

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

General Description of EUT	
Product Name:	Ultra Pro
Test Model:	Ultra Pro
Sample ID:	202212-0219-1-2#
Environmental Conditions	
Temperature:	25℃
Relative Humidity:	55%
Test Voltage:	DC 3.7V
Test Engineer:	Huang jian ping
Note: For a more detailed features description, please refer to the report TBR-C-202212-0219-51 The report only show the worst case data.	

Contents

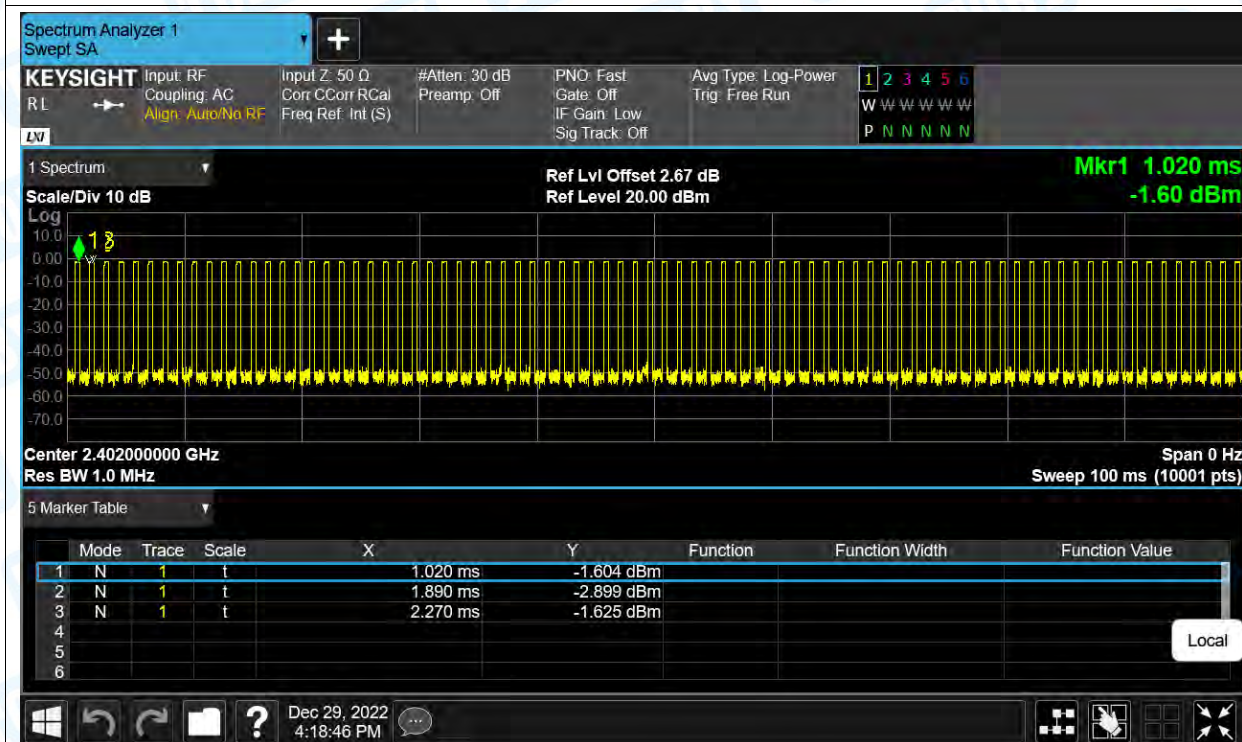
1. Duty Cycle	3
2. Maximum Conducted Output Power	9
3. -20dB Bandwidth	15
4. Occupied Channel Bandwidth	21
5. Band Edge	27
6. Band Edge(Hopping)	34
7. Conducted RF Spurious Emission	41
8. Restrict Band	51
9. Carrier Frequencies Separation	58
10. Number of Hopping Channel	61
11. Dwell Time	64

1. Duty Cycle

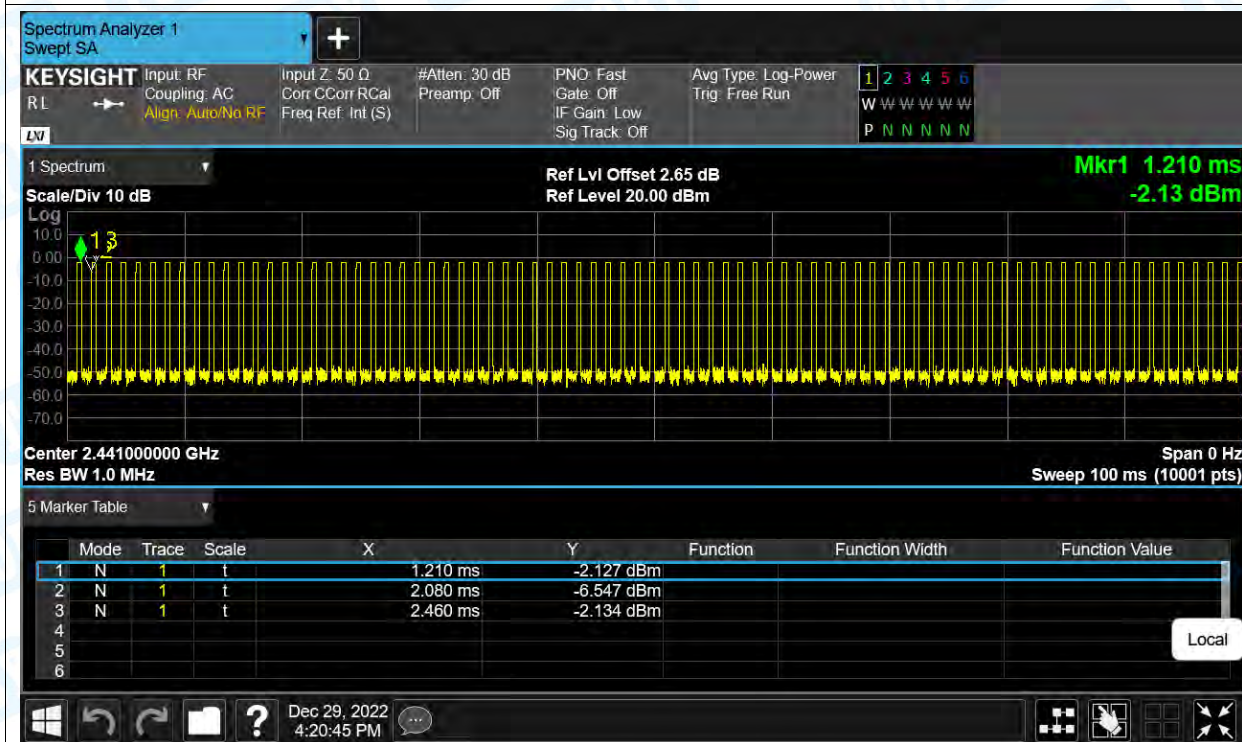
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2441	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2480	Ant1	30.4	5.17	2.63
NVNT	2-DH1	2402	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2441	Ant1	30.4	5.17	2.63
NVNT	2-DH1	2480	Ant1	30.4	5.17	2.63
NVNT	3-DH1	2402	Ant1	31.2	5.06	2.56
NVNT	3-DH1	2441	Ant1	31.2	5.06	2.56
NVNT	3-DH1	2480	Ant1	31.2	5.06	2.56

Test Graphs

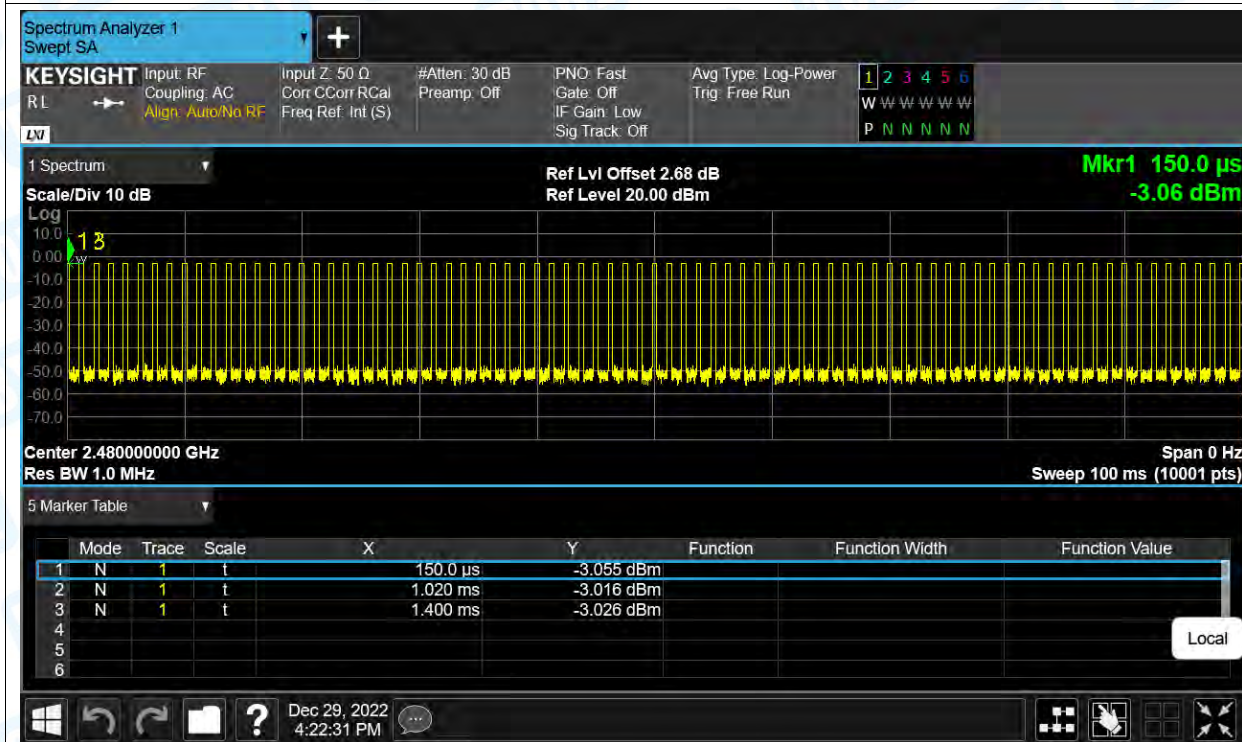
Duty Cycle NVNT 1-DH1 2402MHz Ant1



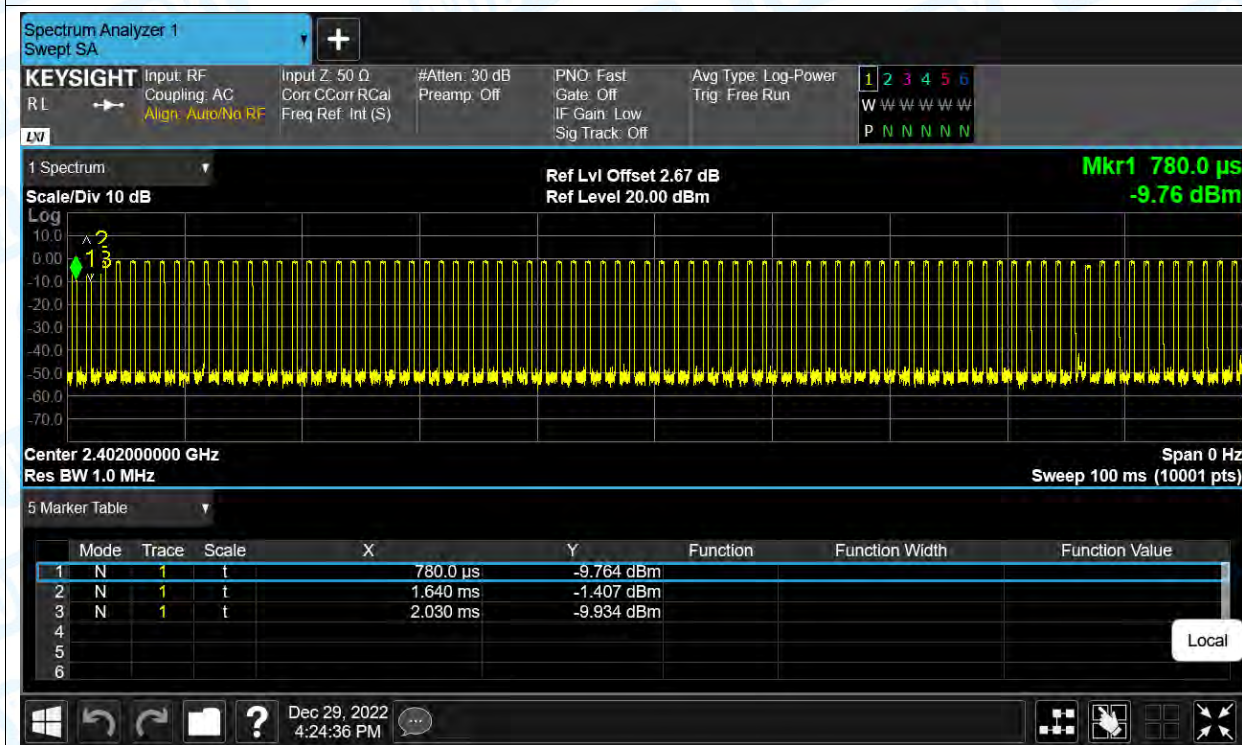
Duty Cycle NVNT 1-DH1 2441MHz Ant1



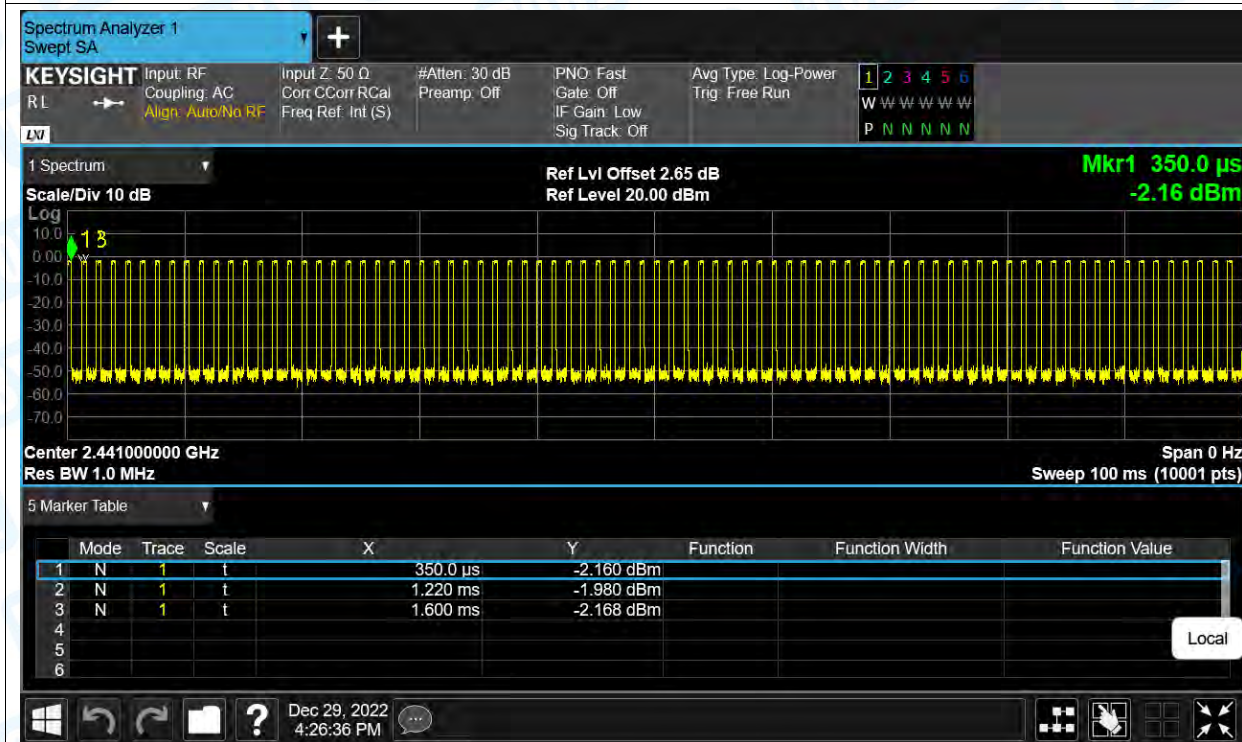
Duty Cycle NVNT 1-DH1 2480MHz Ant1



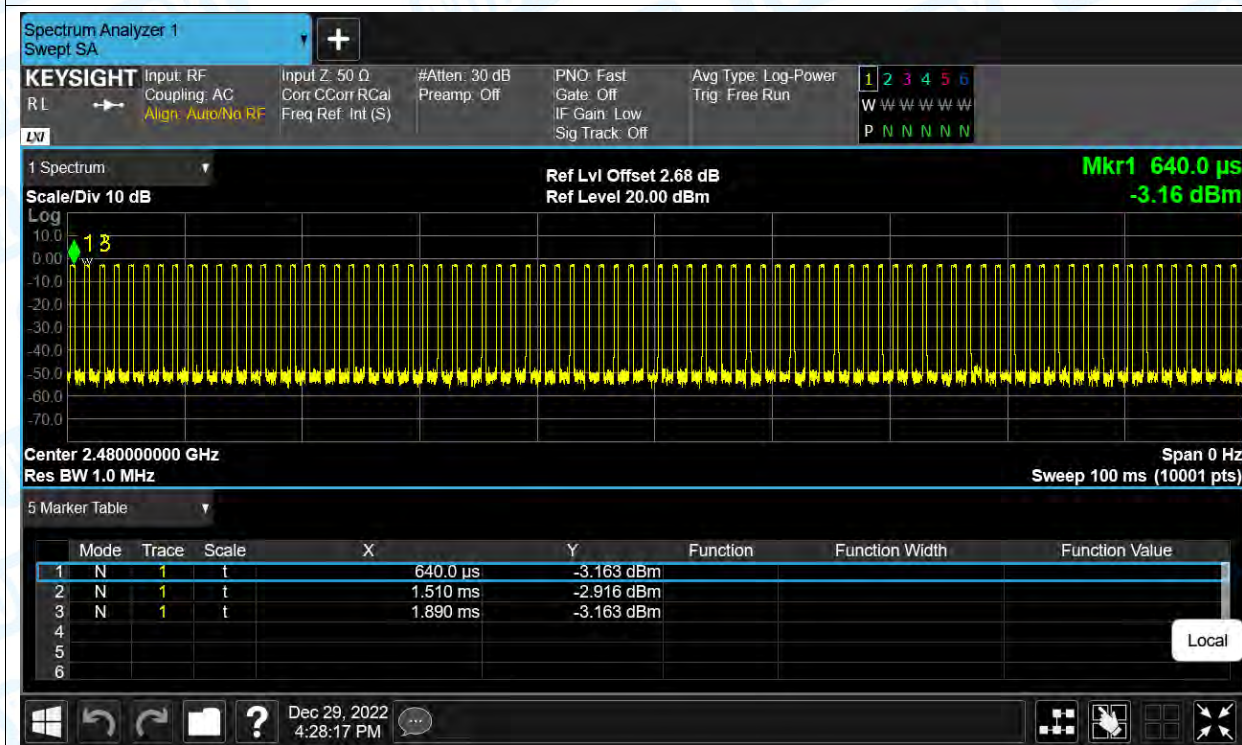
Duty Cycle NVNT 2-DH1 2402MHz Ant1



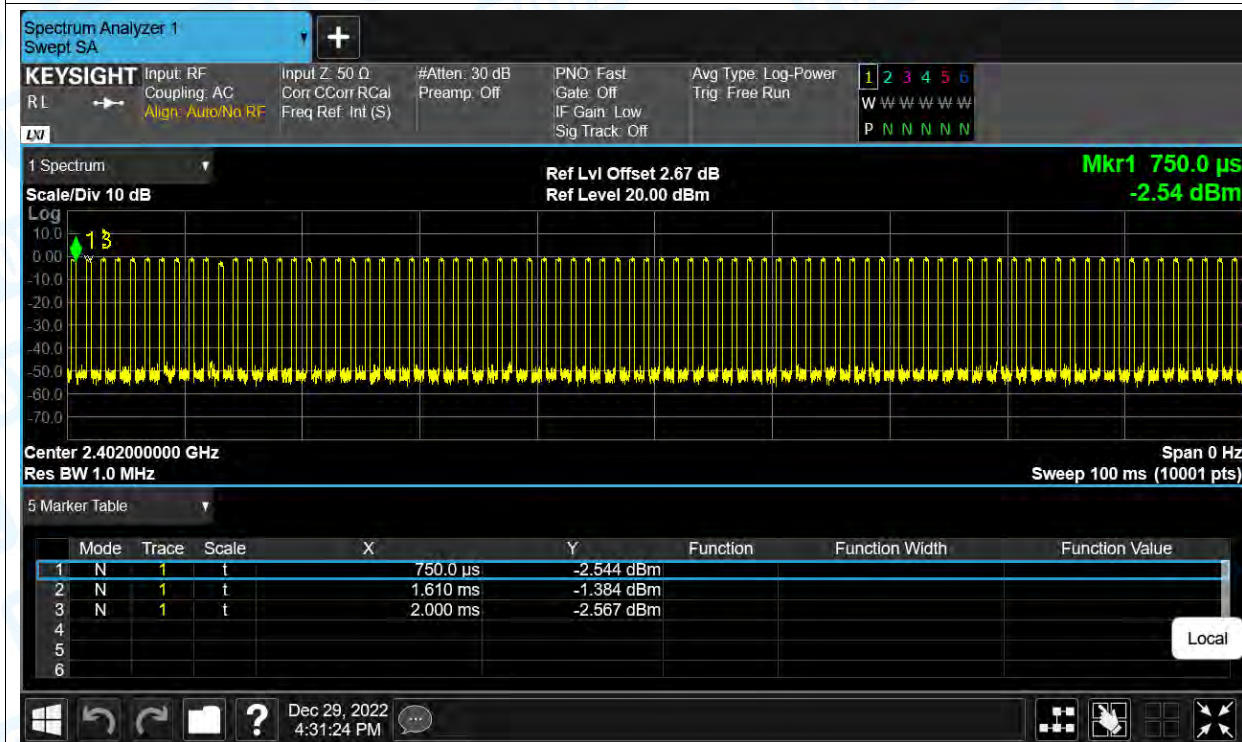
Duty Cycle NVNT 2-DH1 2441MHz Ant1



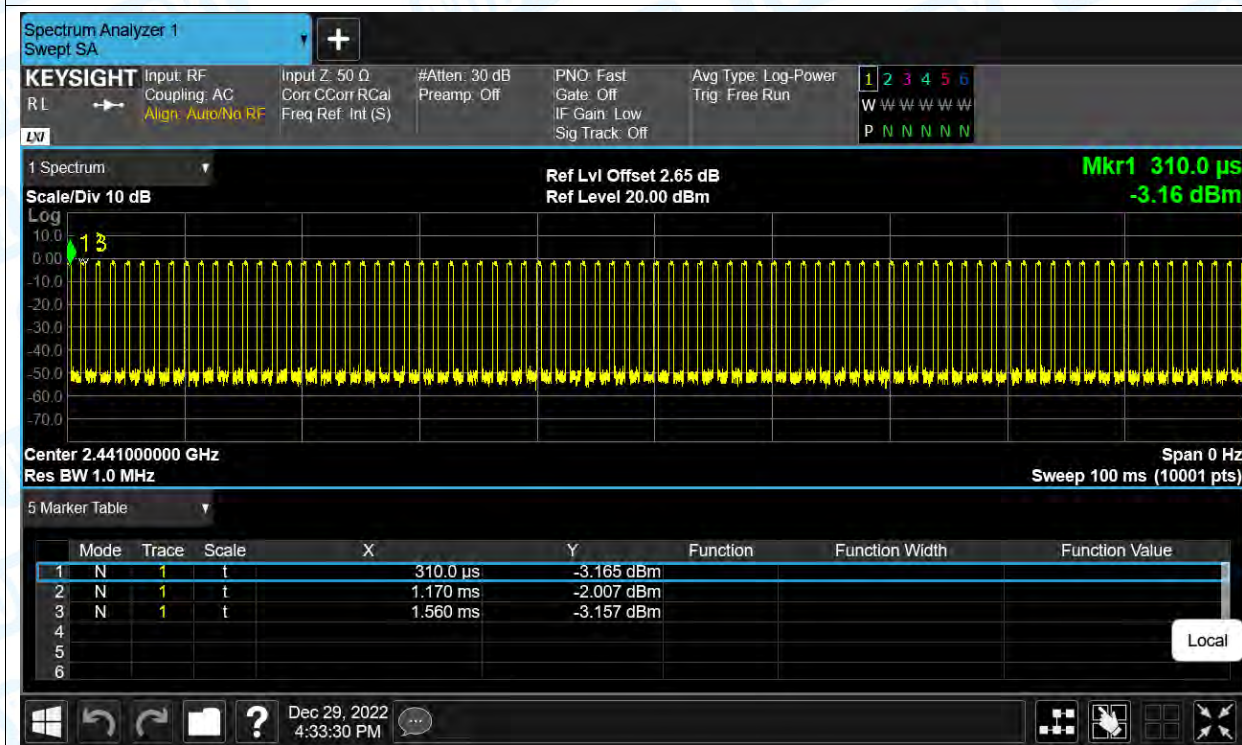
Duty Cycle NVNT 2-DH1 2480MHz Ant1

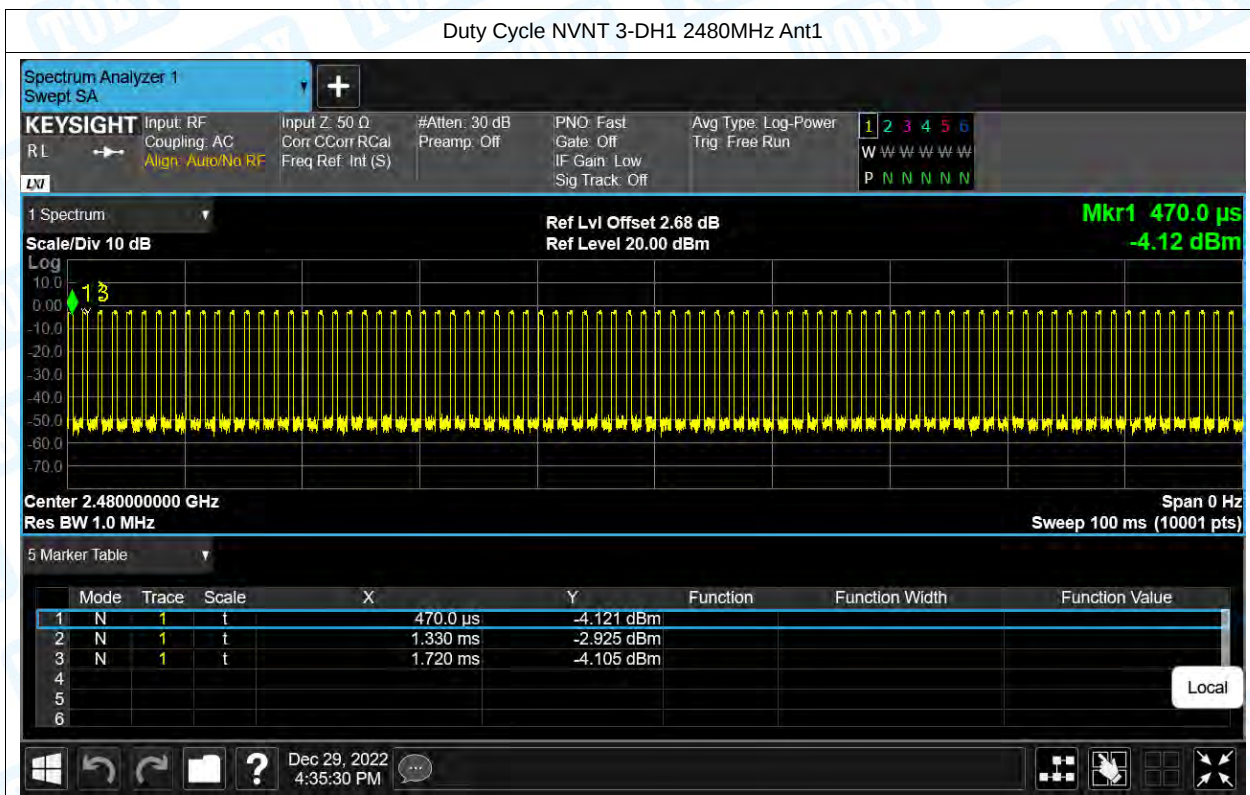


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1





2. Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	-1.409	21	Pass
NVNT	1-DH1	2441	Ant1	-1.955	21	Pass
NVNT	1-DH1	2480	Ant1	-2.84	21	Pass
NVNT	2-DH1	2402	Ant1	-0.645	21	Pass
NVNT	2-DH1	2441	Ant1	-1.238	21	Pass
NVNT	2-DH1	2480	Ant1	-2.123	21	Pass
NVNT	3-DH1	2402	Ant1	-0.107	21	Pass
NVNT	3-DH1	2441	Ant1	-0.724	21	Pass
NVNT	3-DH1	2480	Ant1	-1.621	21	Pass

Test Graphs

Power NVNT 1-DH1 2402MHz Ant1



Power NVNT 1-DH1 2441MHz Ant1



Power NVNT 1-DH1 2480MHz Ant1



Power NVNT 2-DH1 2402MHz Ant1



Power NVNT 2-DH1 2441MHz Ant1



Power NVNT 2-DH1 2480MHz Ant1



Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-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	1.03	0	Pass
NVNT	1-DH1	2441	Ant1	1.02	0	Pass
NVNT	1-DH1	2480	Ant1	1.02	0	Pass
NVNT	2-DH1	2402	Ant1	1.28	0	Pass
NVNT	2-DH1	2441	Ant1	1.27	0	Pass
NVNT	2-DH1	2480	Ant1	1.27	0	Pass
NVNT	3-DH1	2402	Ant1	1.25	0	Pass
NVNT	3-DH1	2441	Ant1	1.29	0	Pass
NVNT	3-DH1	2480	Ant1	1.26	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

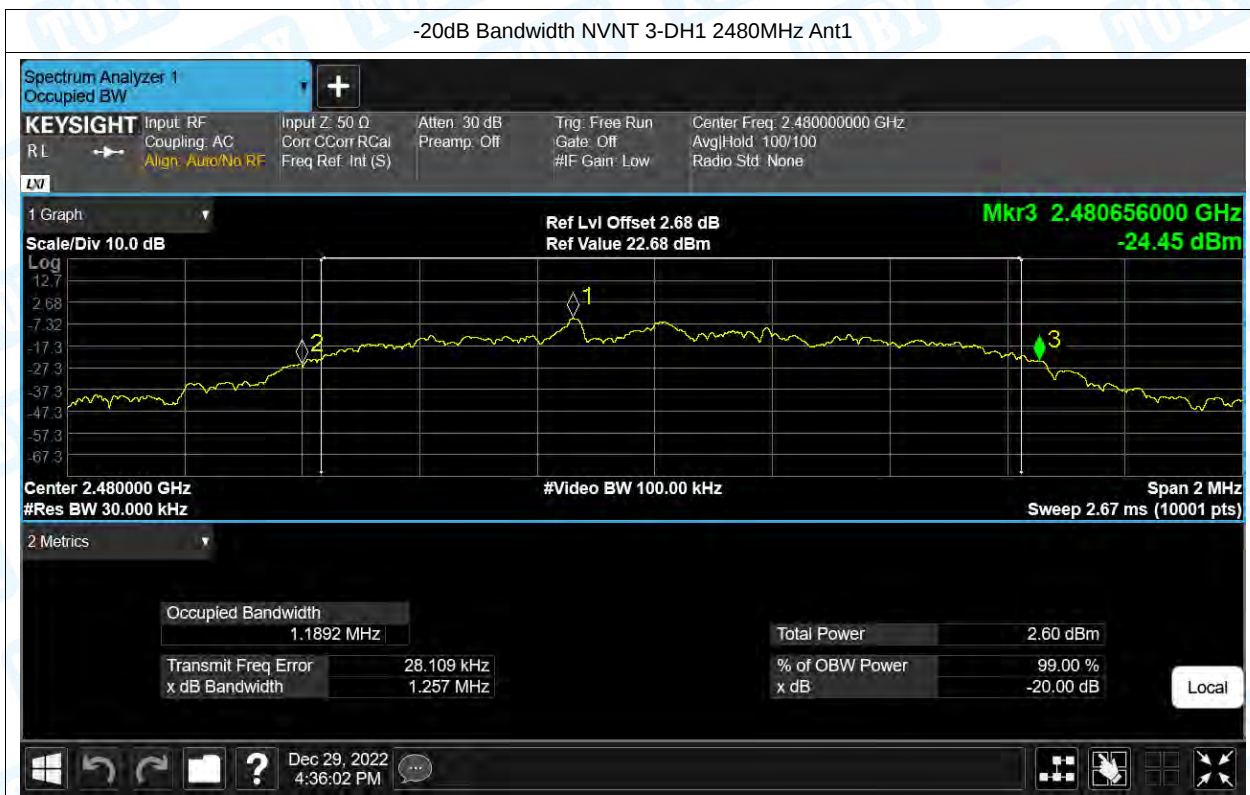


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1





4. Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.898
NVNT	1-DH1	2441	Ant1	0.947
NVNT	1-DH1	2480	Ant1	0.976
NVNT	2-DH1	2402	Ant1	1.186
NVNT	2-DH1	2441	Ant1	1.203
NVNT	2-DH1	2480	Ant1	1.21
NVNT	3-DH1	2402	Ant1	1.185
NVNT	3-DH1	2441	Ant1	1.185
NVNT	3-DH1	2480	Ant1	1.179

Test Graphs

OBW NVNT 1-DH1 2402MHz Ant1



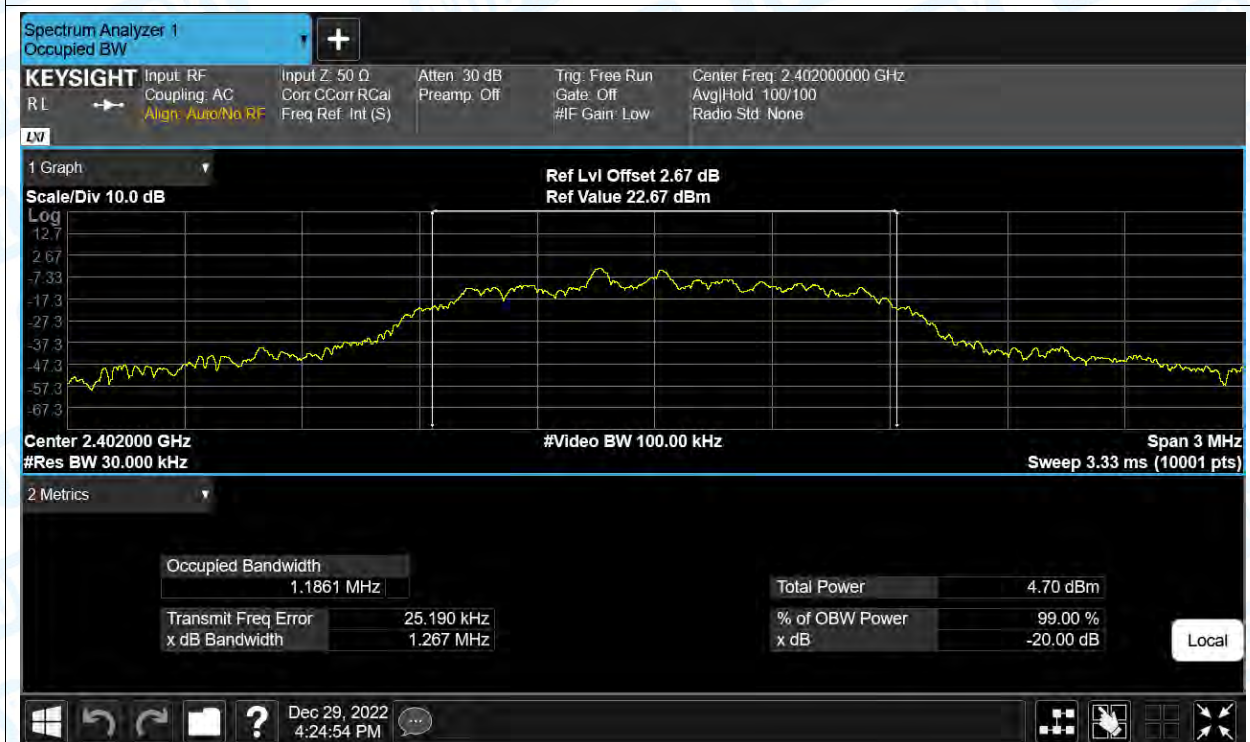
OBW NVNT 1-DH1 2441MHz Ant1



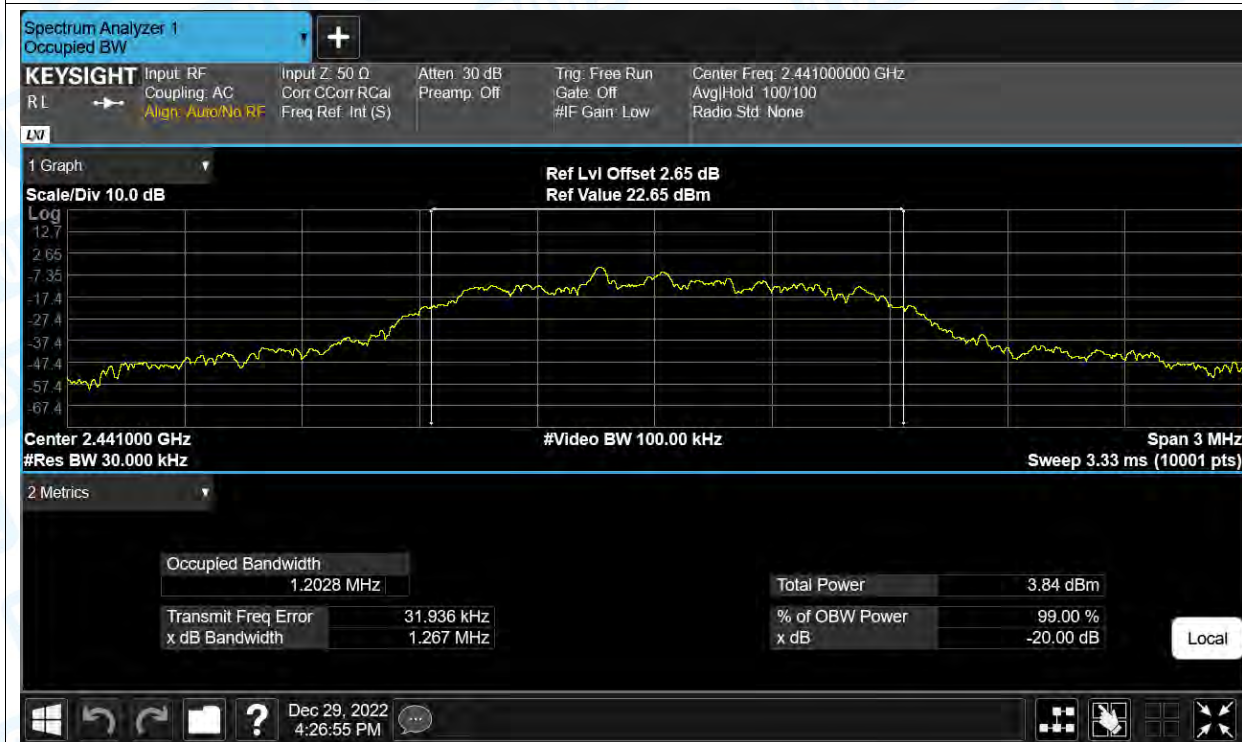
OBW NVNT 1-DH1 2480MHz Ant1



OBW NVNT 2-DH1 2402MHz Ant1



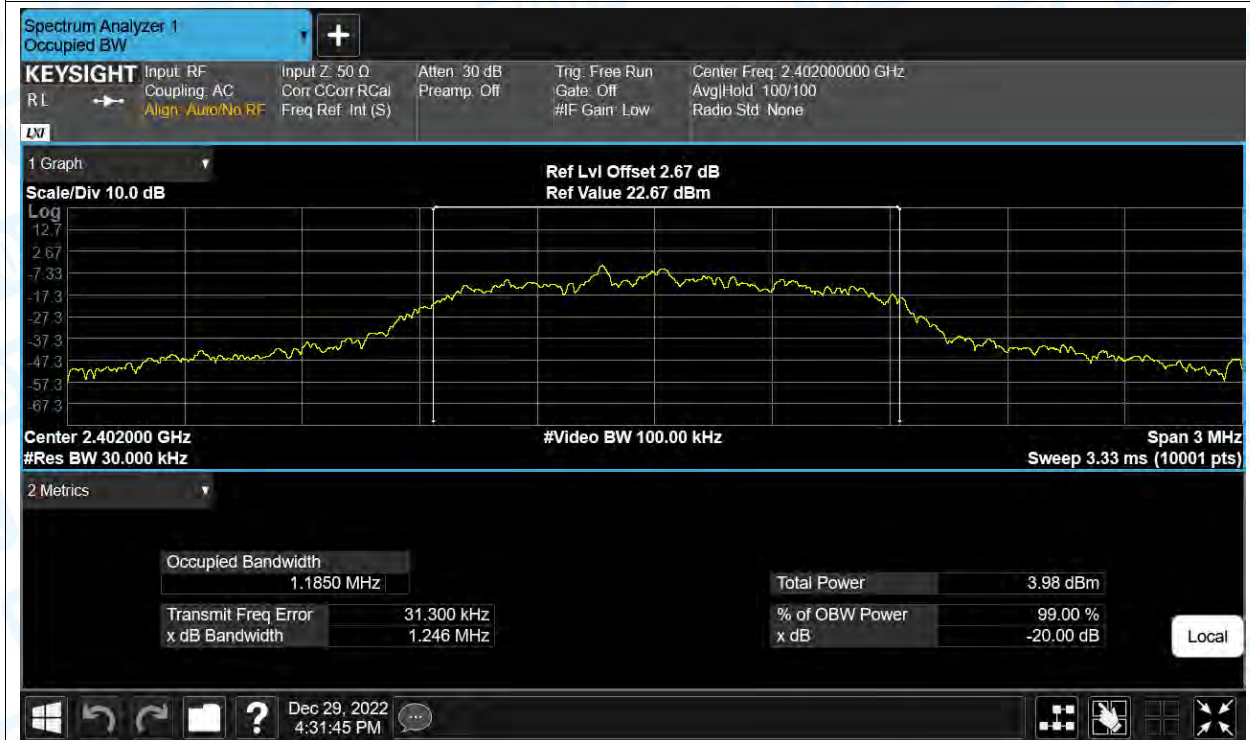
OBW NVNT 2-DH1 2441MHz Ant1



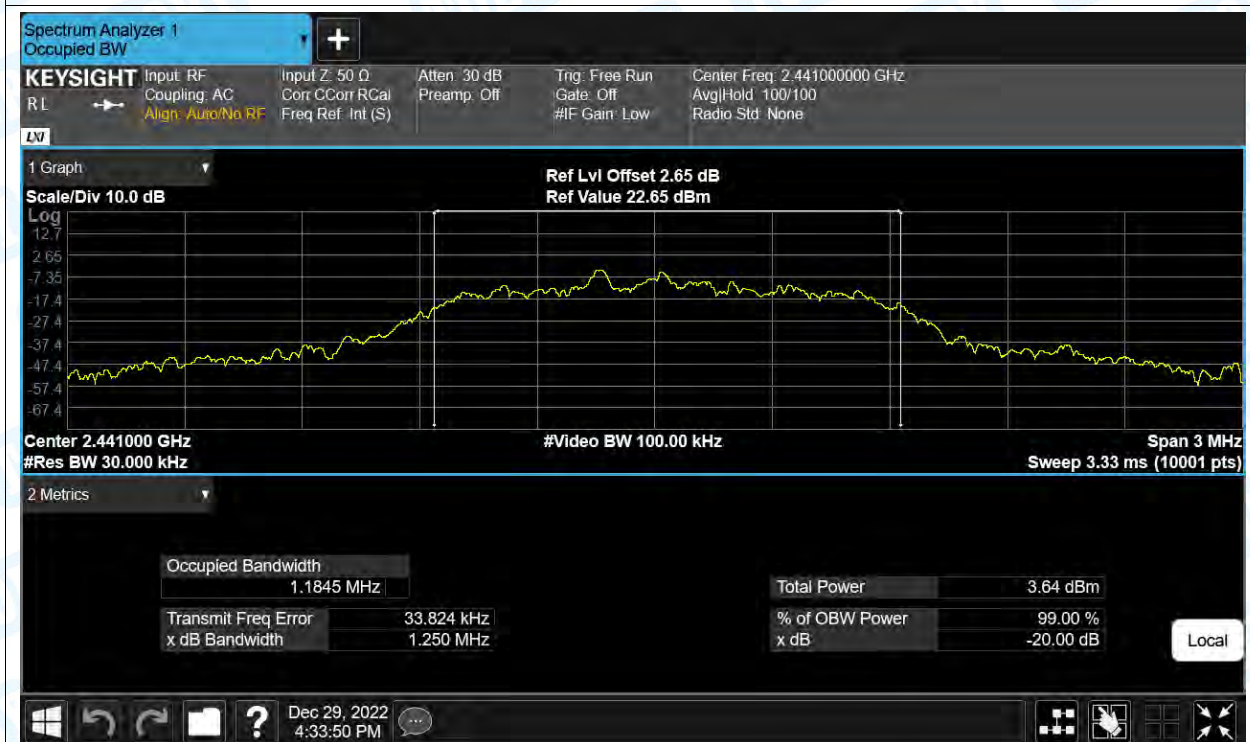
OBW NVNT 2-DH1 2480MHz Ant1



OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



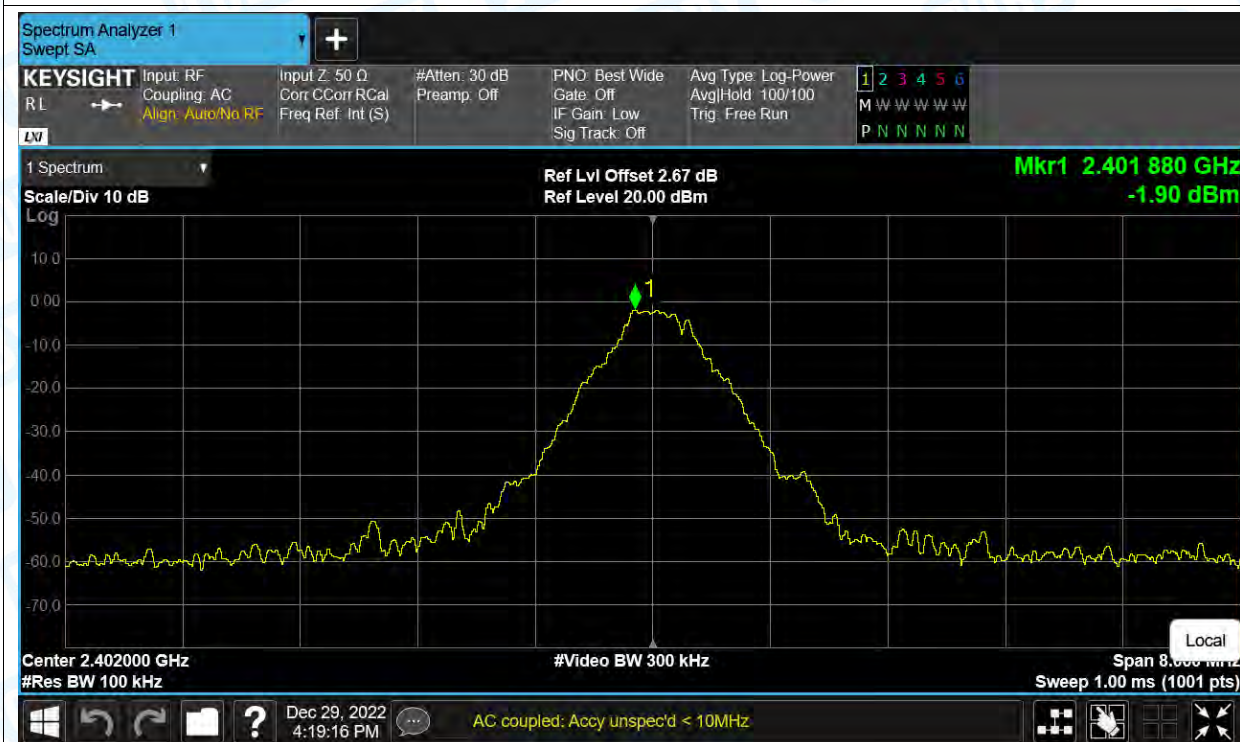


5. Band Edge

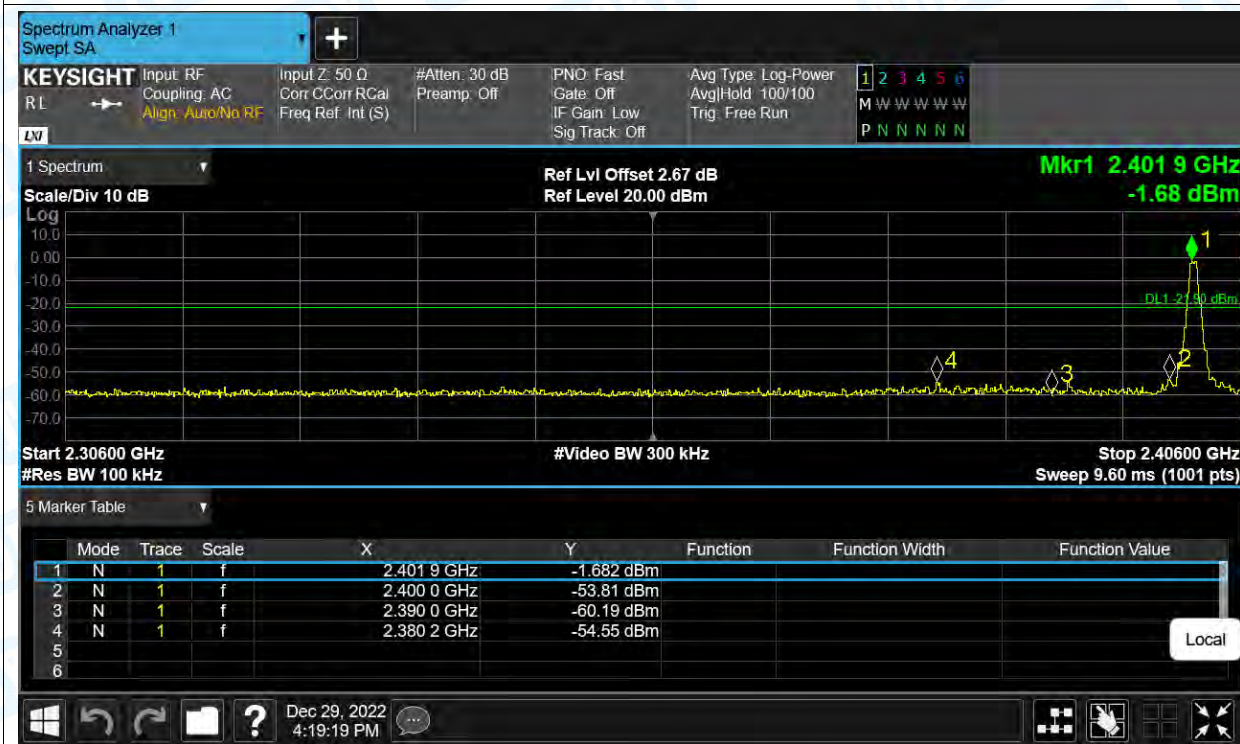
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-52.65	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-52.3	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-53.85	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-52.71	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-53.05	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-51.43	-20	Pass

Test Graphs

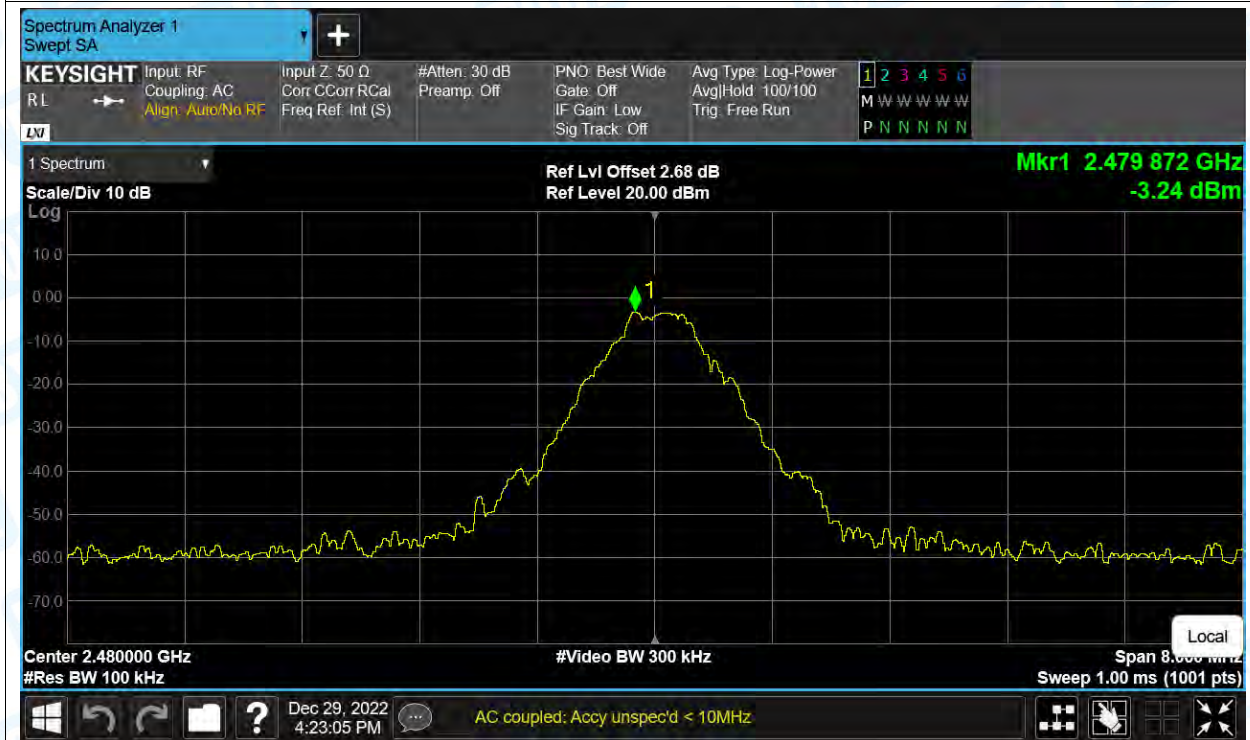
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



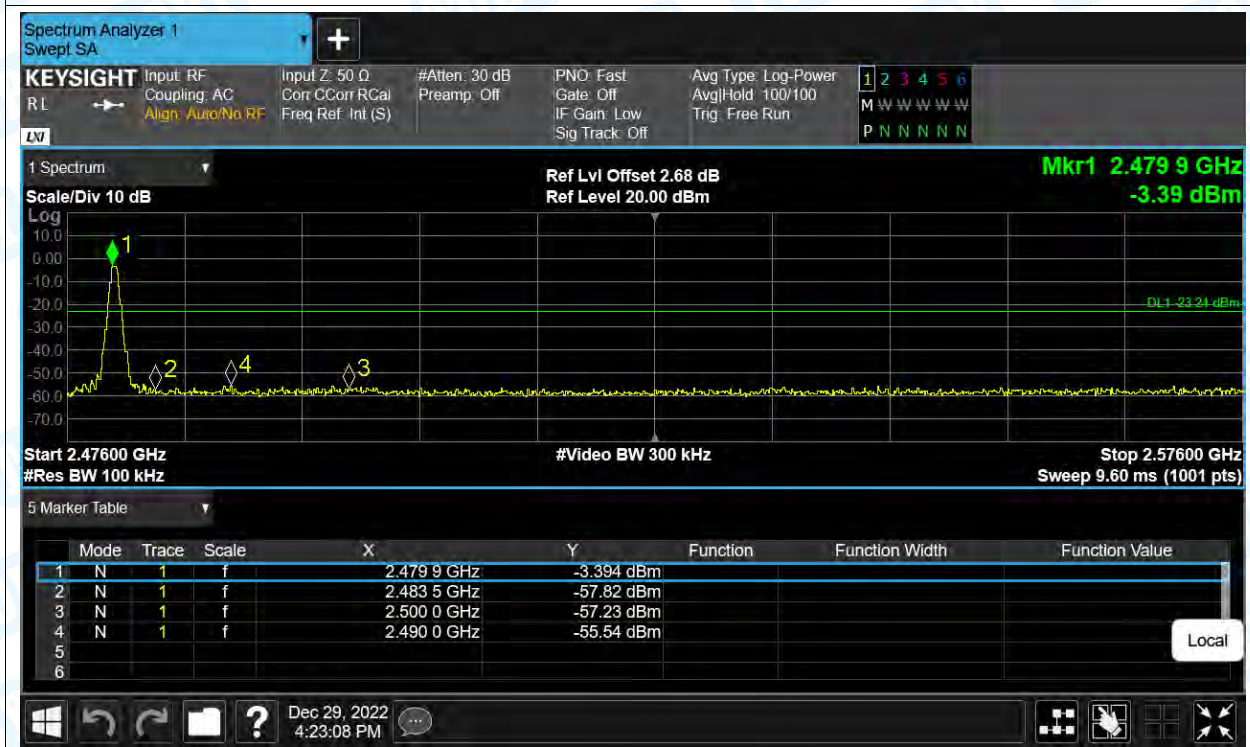
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Ref



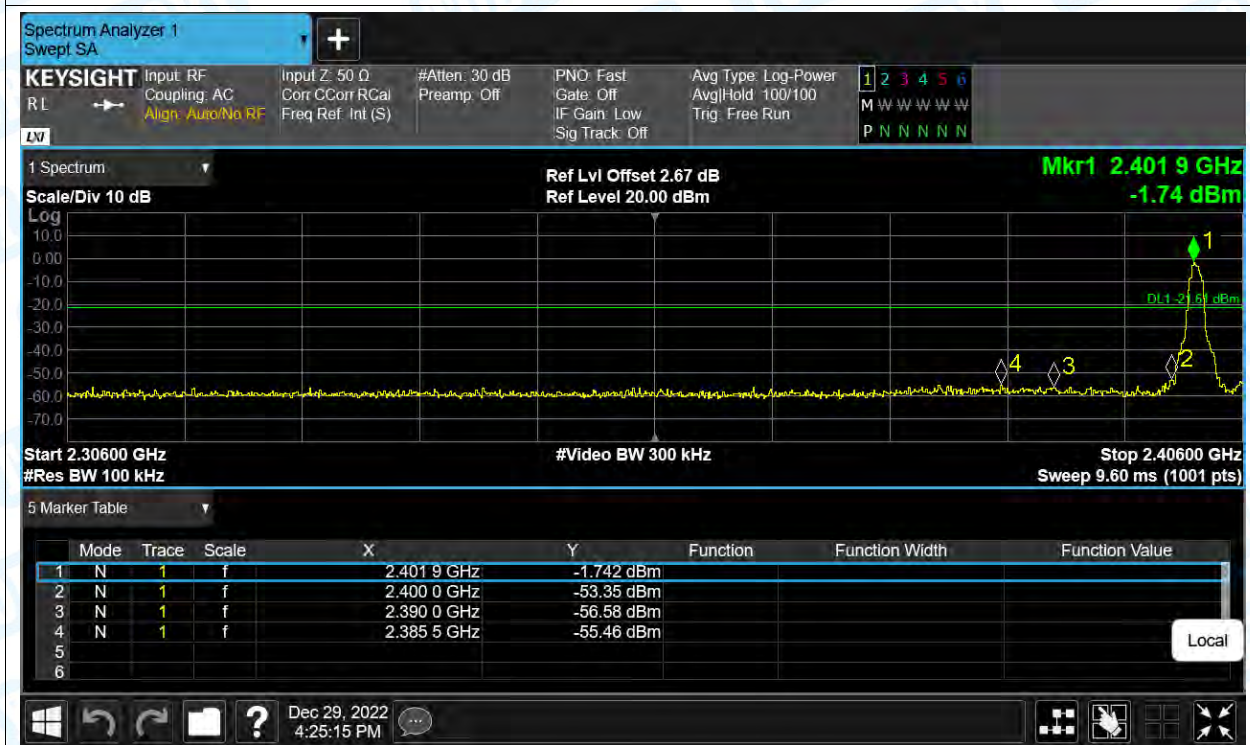
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Emission



Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



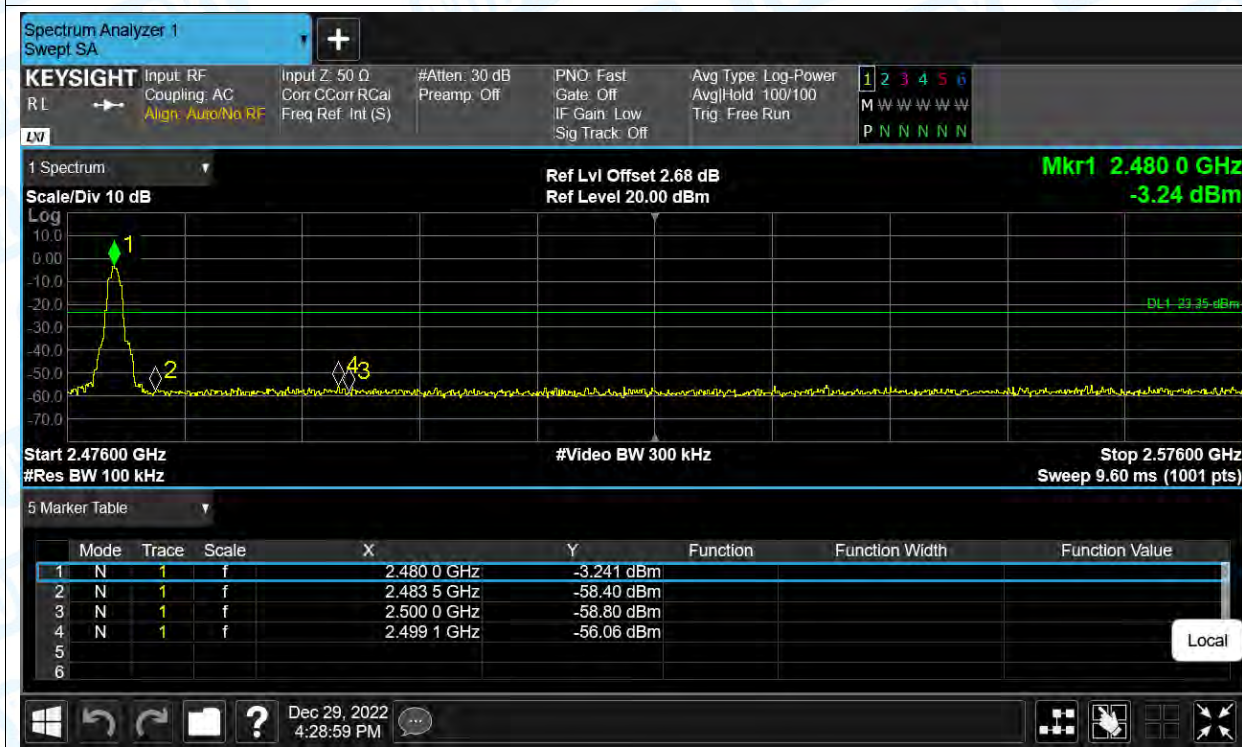
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission



Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Ref



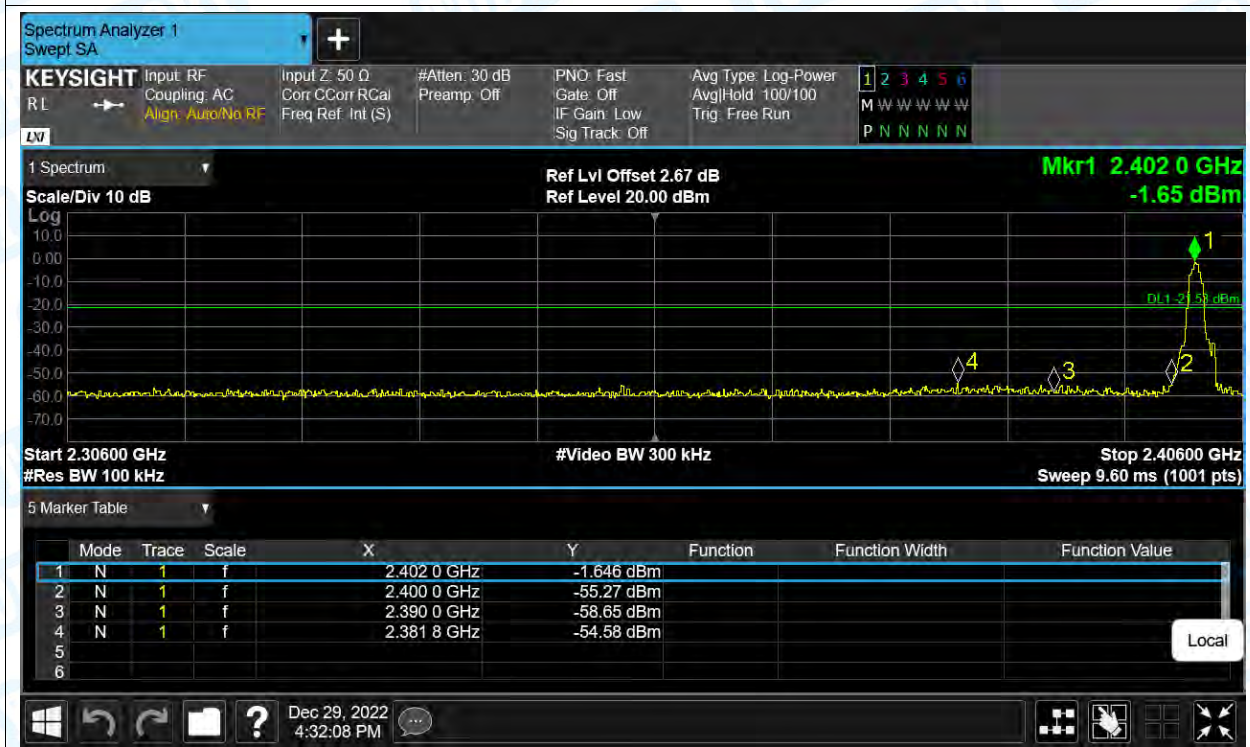
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission



Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



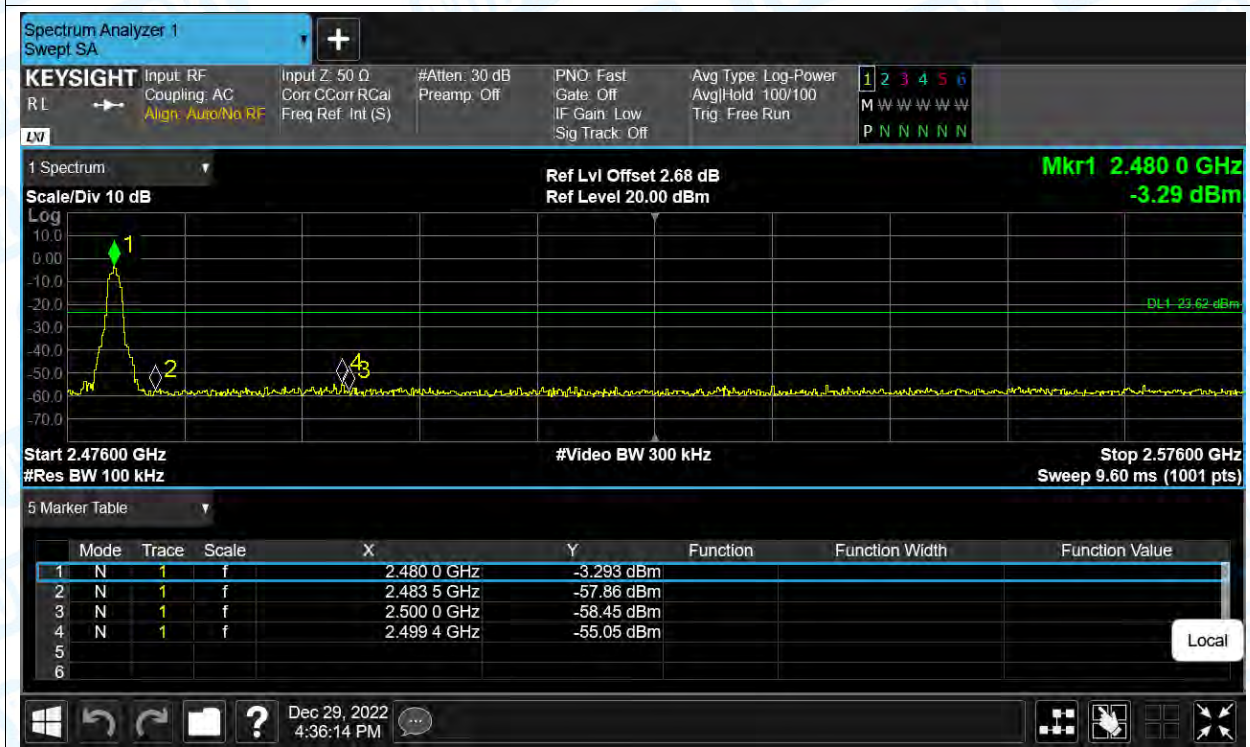
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



Band Edge NVNT 3-DH1 2480MHz Ant1 No-Hopping Ref



Band Edge NVNT 3-DH1 2480MHz Ant1 No-Hopping Emission



6. Band Edge(Hopping)

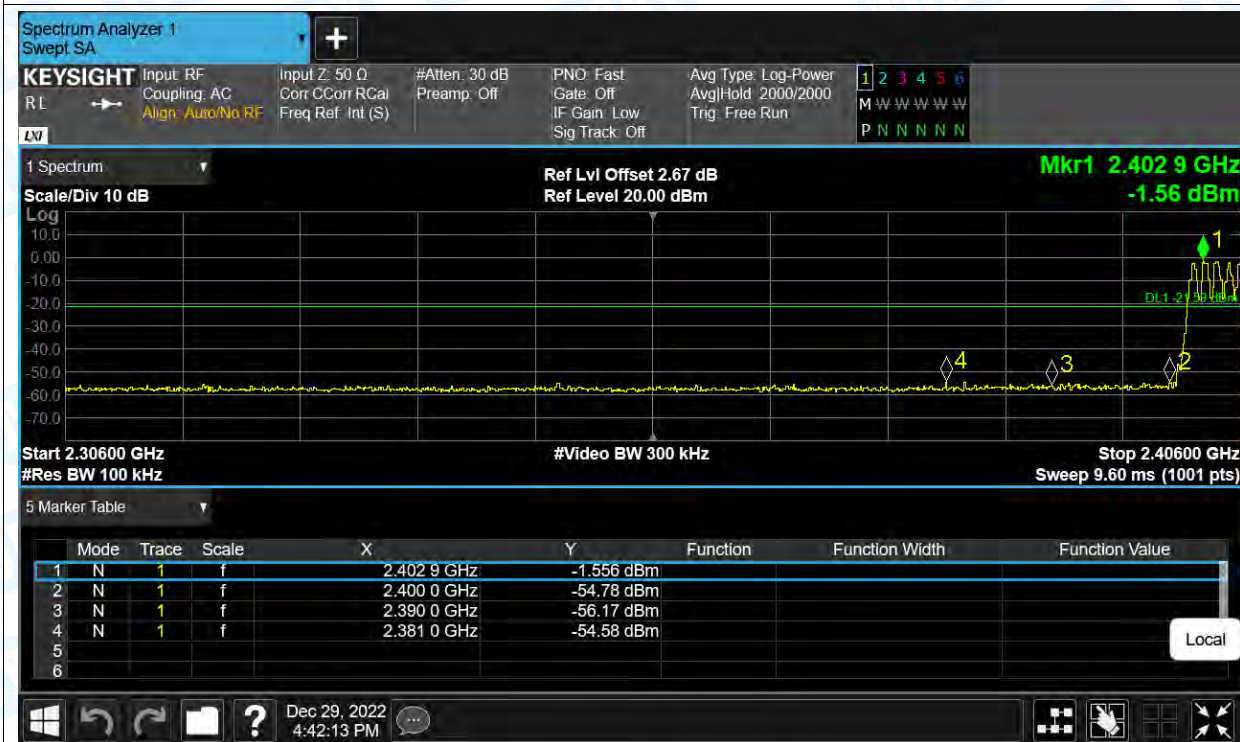
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-52.99	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-51.9	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-51.23	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-51.73	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-53.31	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-51.53	-20	Pass

Test Graphs

Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Ref



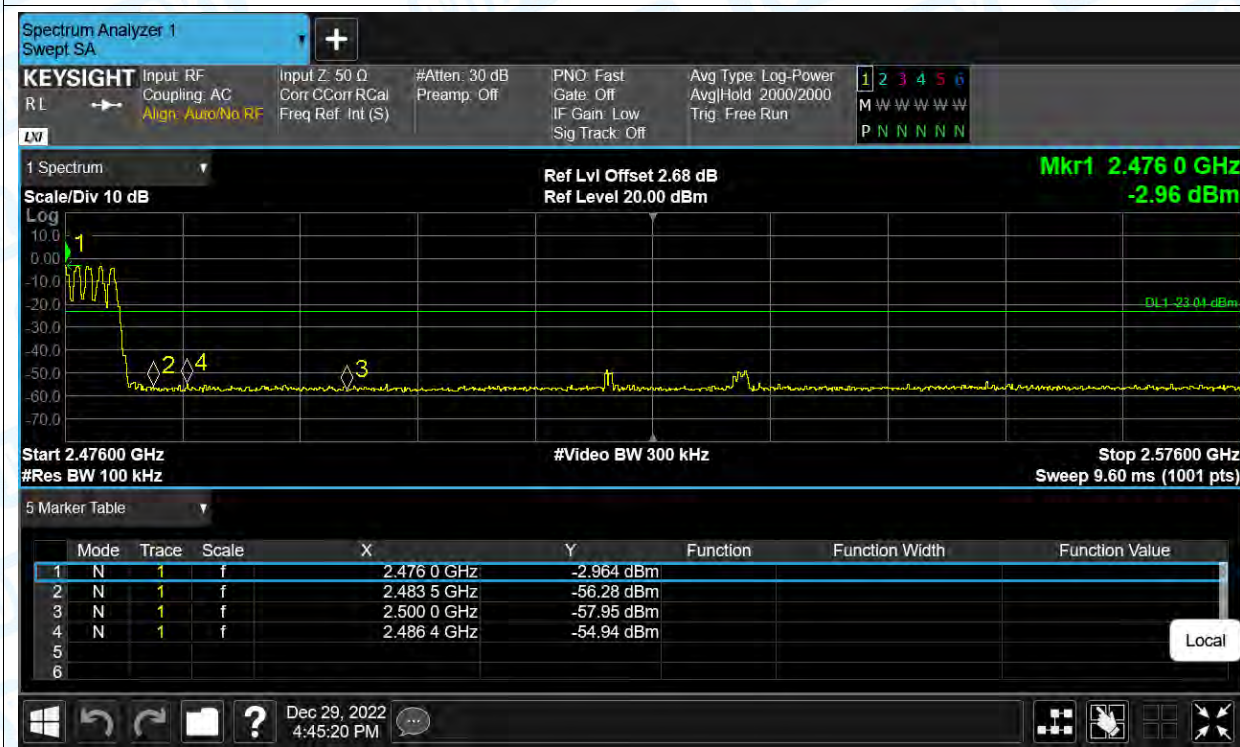
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Ref



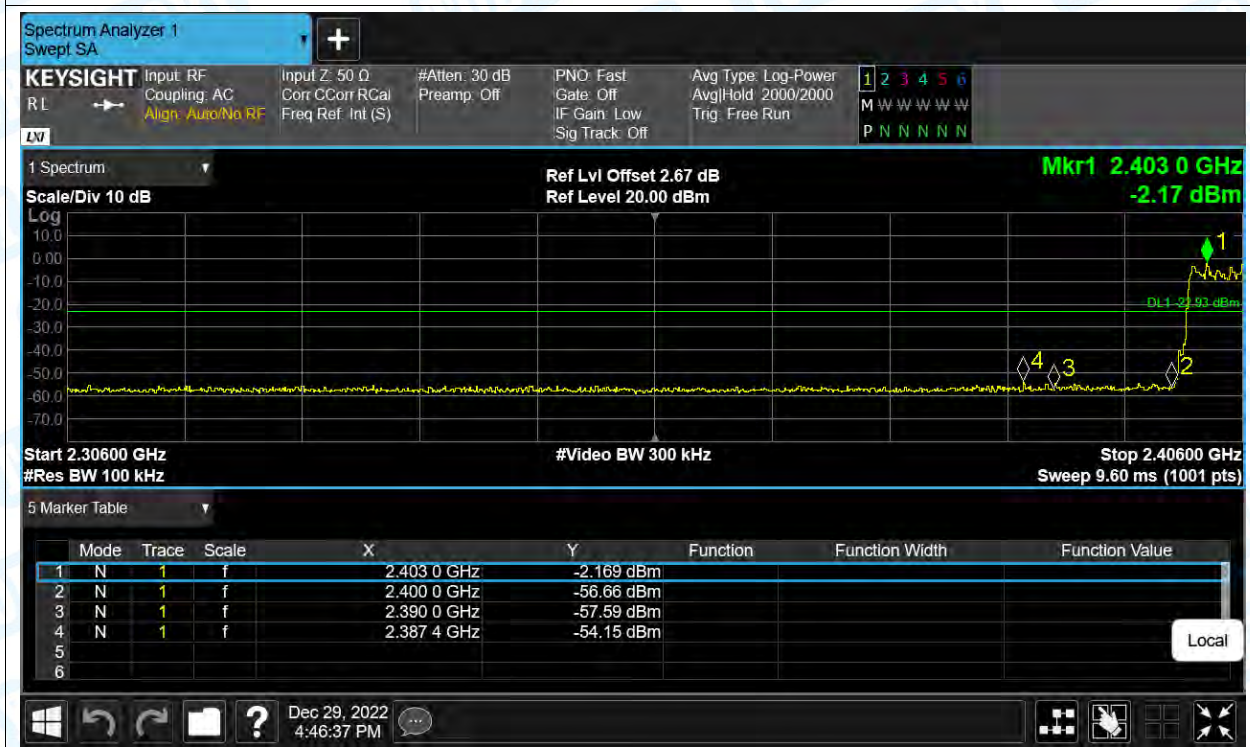
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Ref



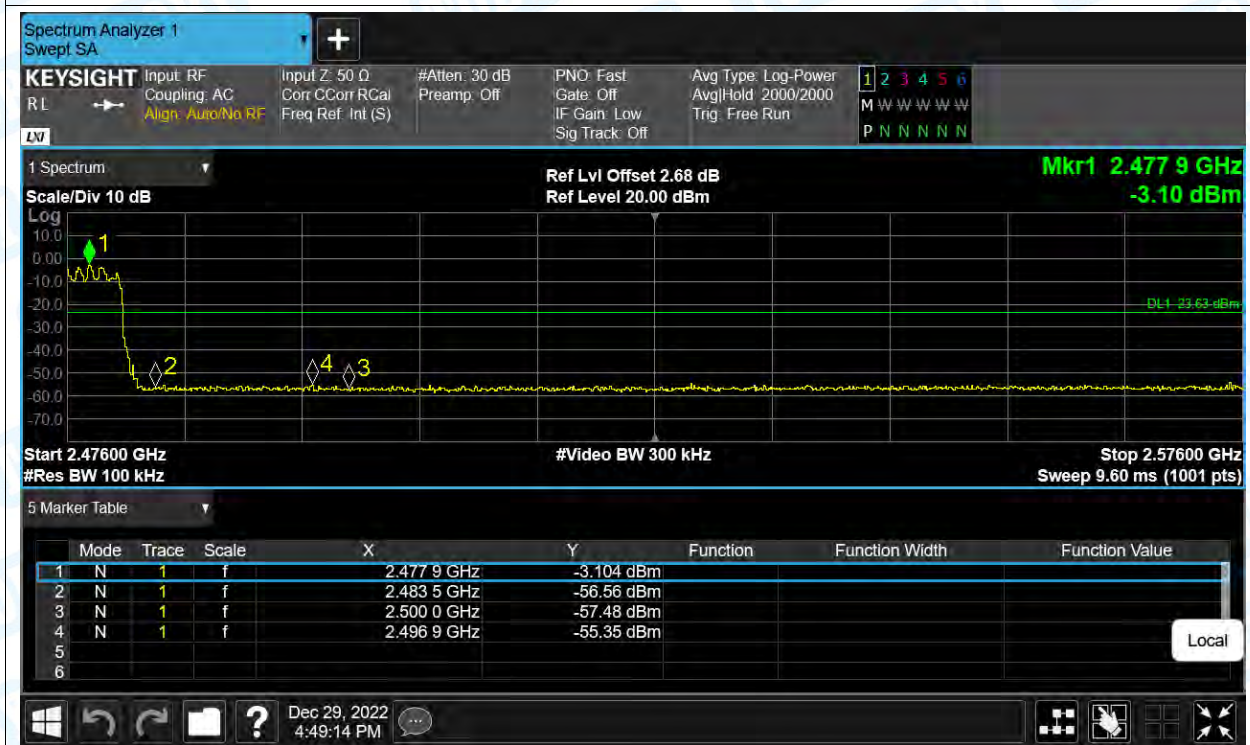
Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Ref



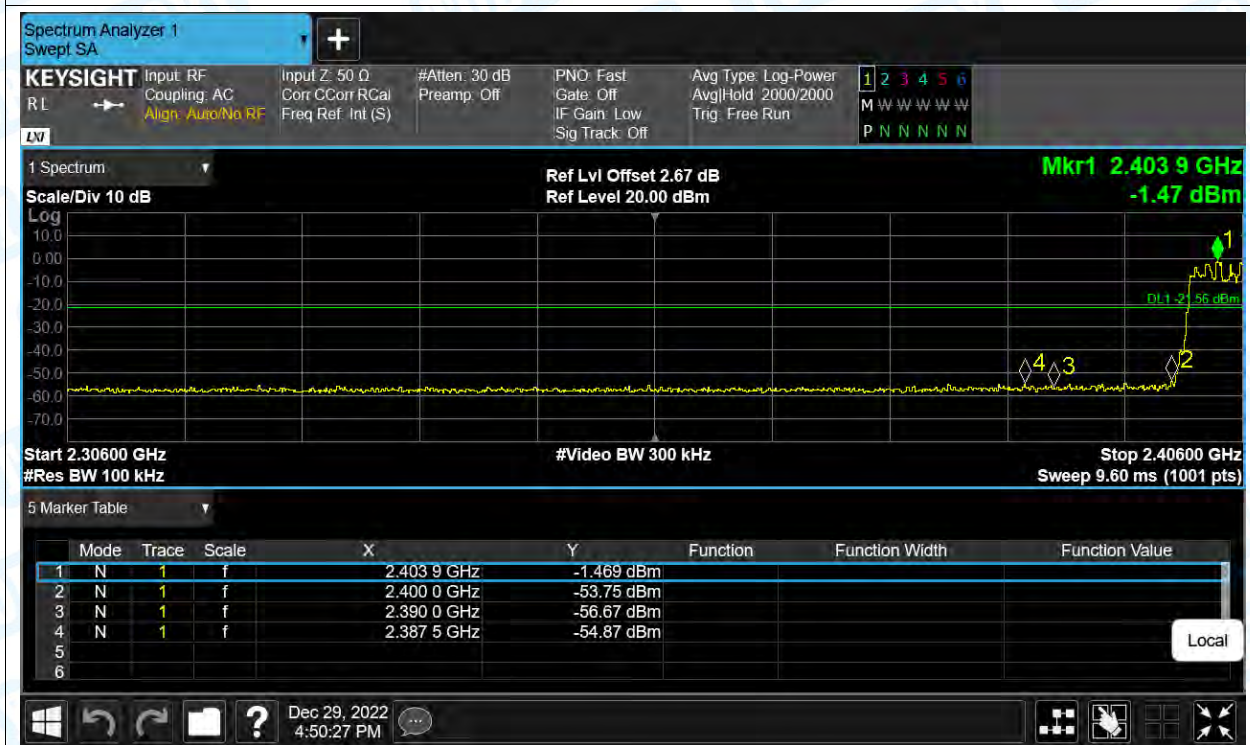
Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Ref



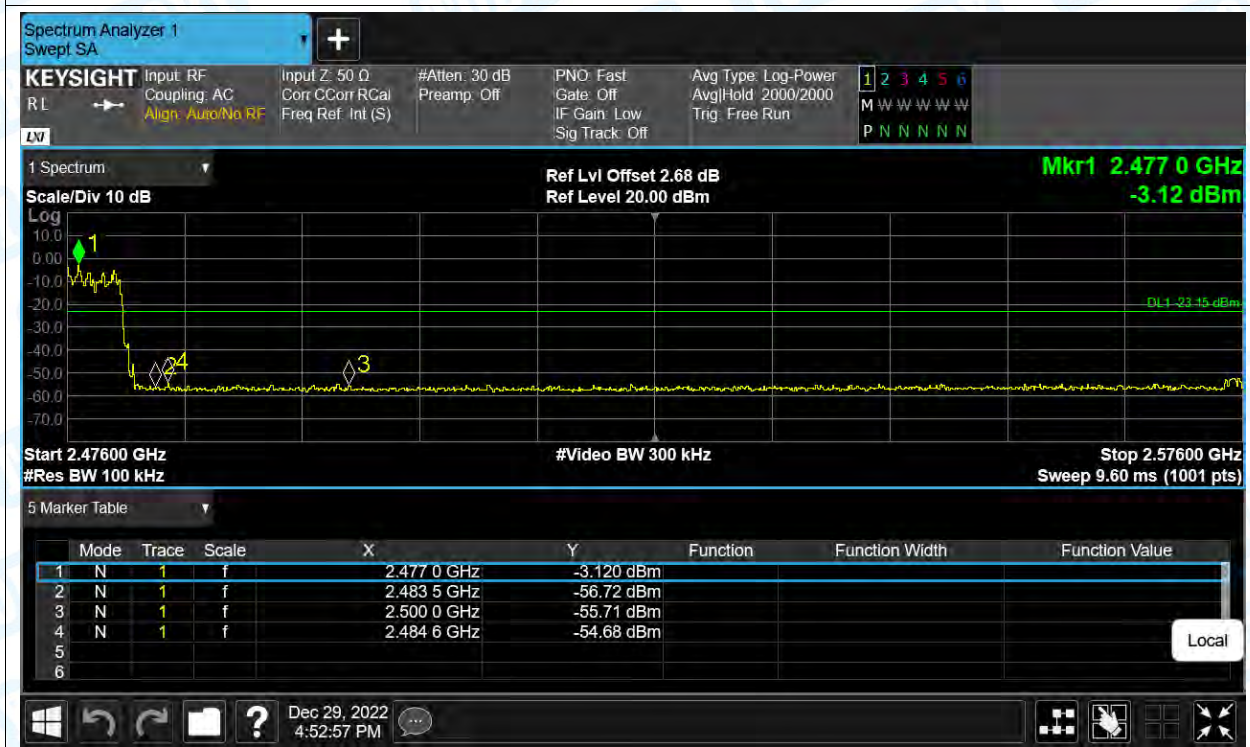
Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 3-DH1 2480MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 3-DH1 2480MHz Ant1 Hopping Emission

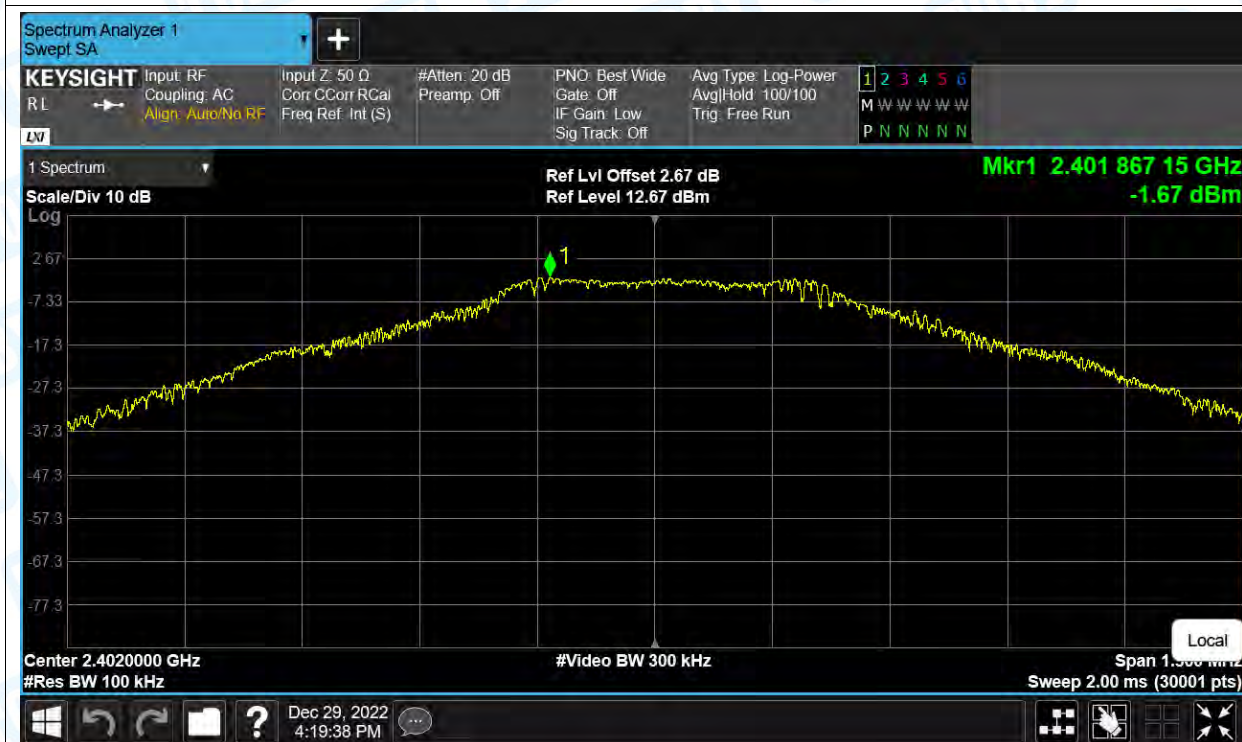


7. Conducted RF Spurious Emission

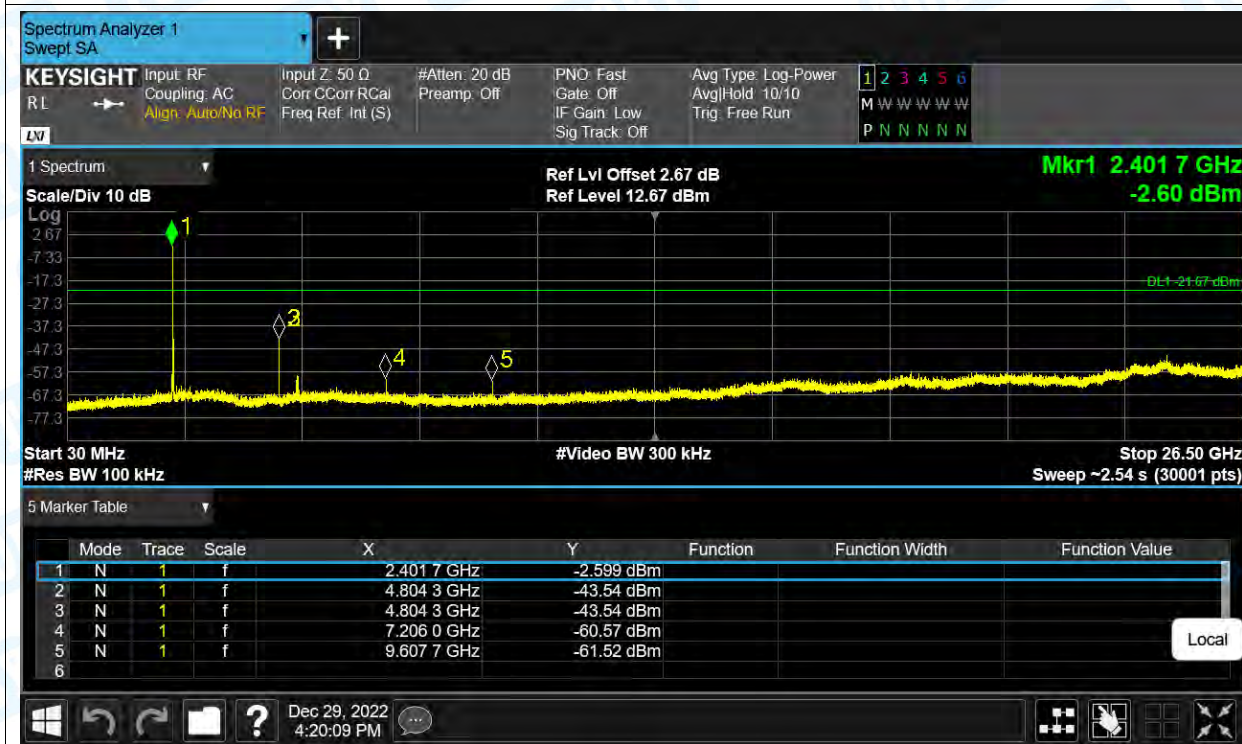
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-41.87	-20	Pass
NVNT	1-DH1	2441	Ant1	-43.31	-20	Pass
NVNT	1-DH1	2480	Ant1	-36.6	-20	Pass
NVNT	2-DH1	2402	Ant1	-49.72	-20	Pass
NVNT	2-DH1	2441	Ant1	-41.48	-20	Pass
NVNT	2-DH1	2480	Ant1	-41.13	-20	Pass
NVNT	3-DH1	2402	Ant1	-49.07	-20	Pass
NVNT	3-DH1	2441	Ant1	-42.02	-20	Pass
NVNT	3-DH1	2480	Ant1	-40.12	-20	Pass

Test Graphs

Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



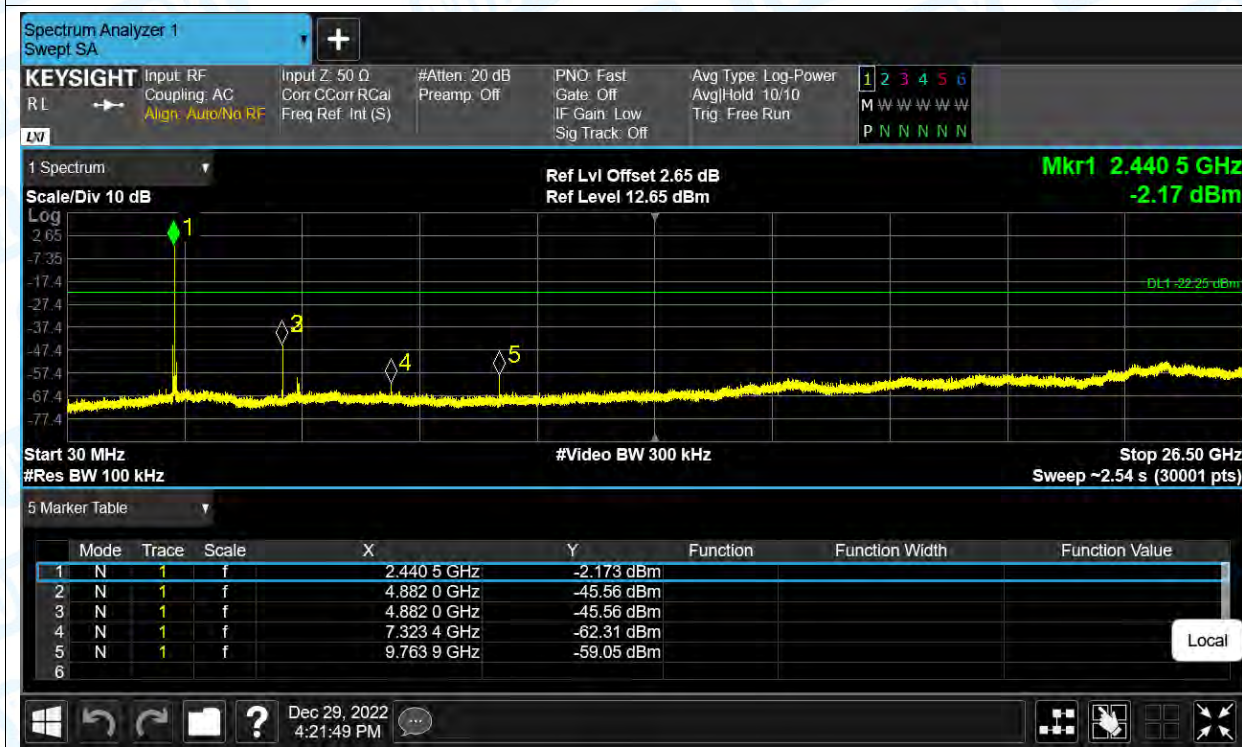
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



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



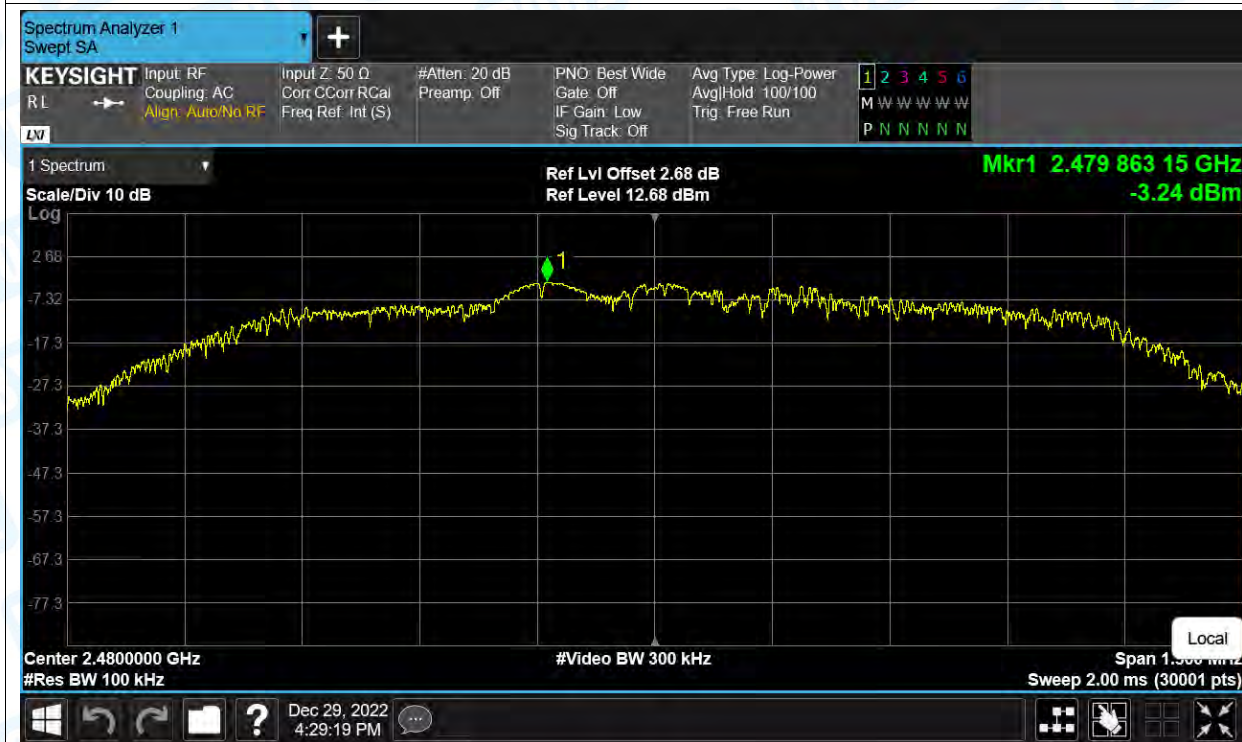
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

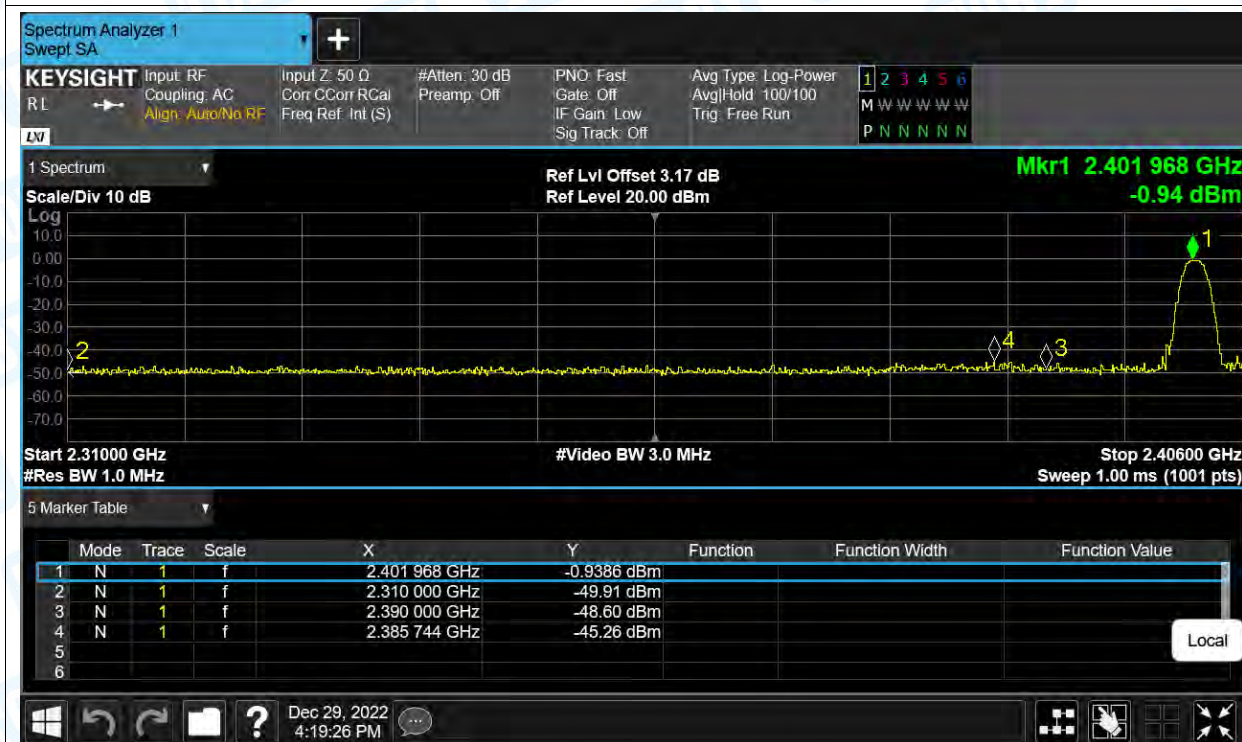


8. Restrict Band

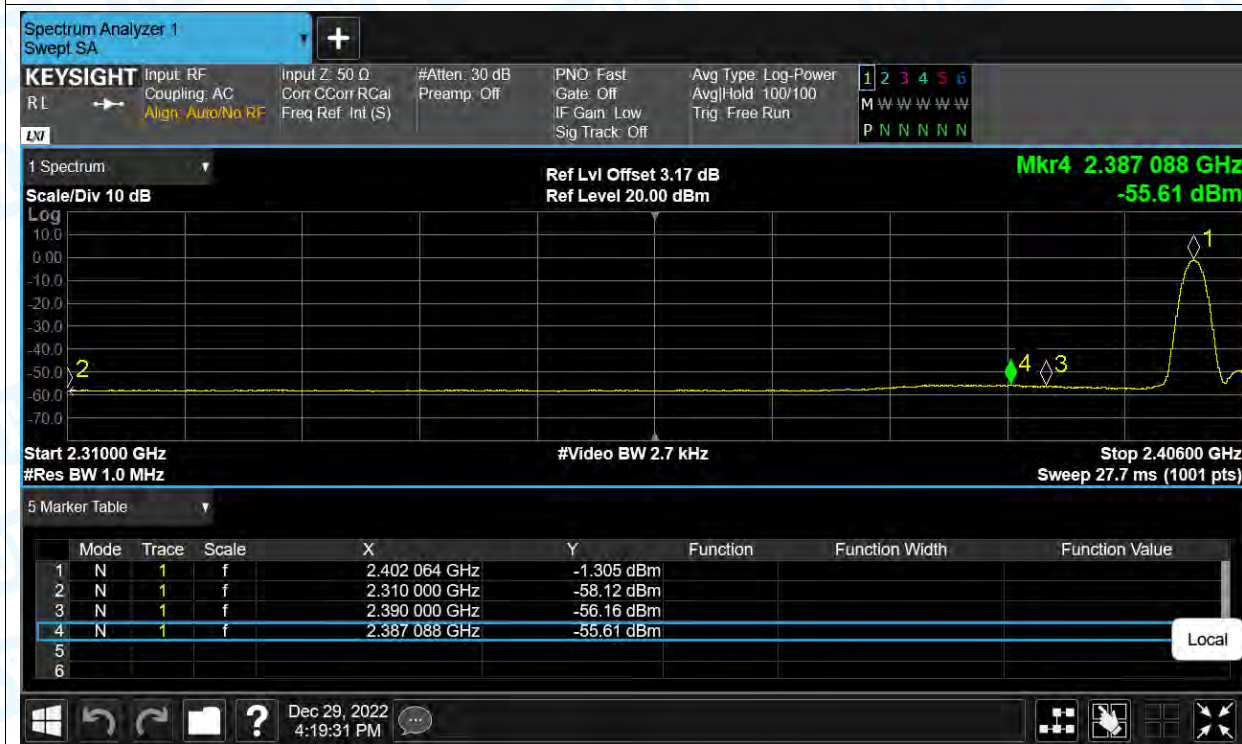
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-49.91	2	47.35	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-58.12	2	39.14	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2385.744	-45.26	2	52	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2387.088	-55.61	2	41.65	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-48.16	2	49.1	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-56.47	2	40.79	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-48.35	2	48.91	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-56.96	2	40.3	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.968	-43.97	2	53.29	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2499.112	-56.06	2	41.2	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-47.55	2	49.71	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-56.63	2	40.63	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-49.37	2	47.89	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-58.21	2	39.05	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2382.288	-44.97	2	52.29	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2380.08	-55.42	2	41.84	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-48.31	2	48.95	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-56.38	2	40.88	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-48.8	2	48.46	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-56.81	2	40.45	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2497.24	-45.09	2	52.17	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2496.592	-55.98	2	41.28	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-46.54	2	50.72	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-56.51	2	40.75	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-48.75	2	48.51	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-58.21	2	39.05	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2382.48	-44.62	2	52.64	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2381.904	-55.22	2	42.04	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-48.51	2	48.75	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-56.16	2	41.1	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-47.54	2	49.72	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-56.85	2	40.41	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2495.872	-44.89	2	52.37	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2496.232	-56.2	2	41.06	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-46.9	2	50.36	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-56.87	2	40.39	Average	54	Pass

Test Graphs

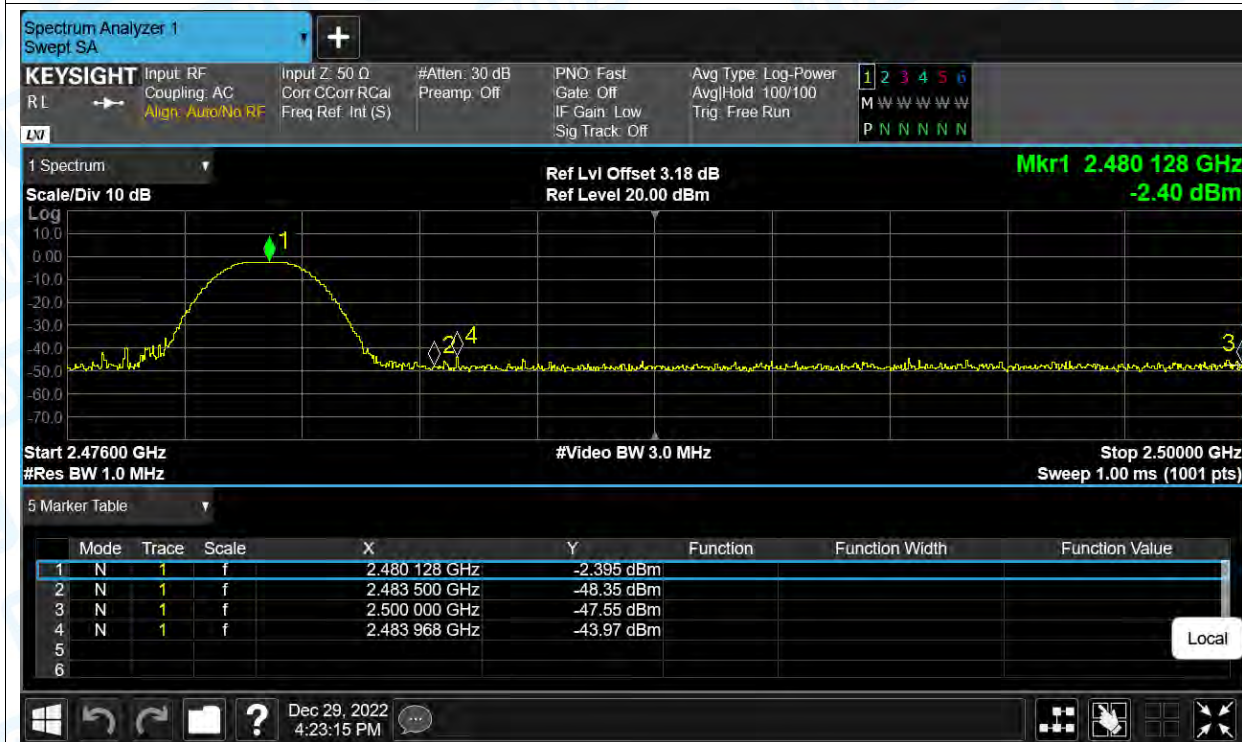
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



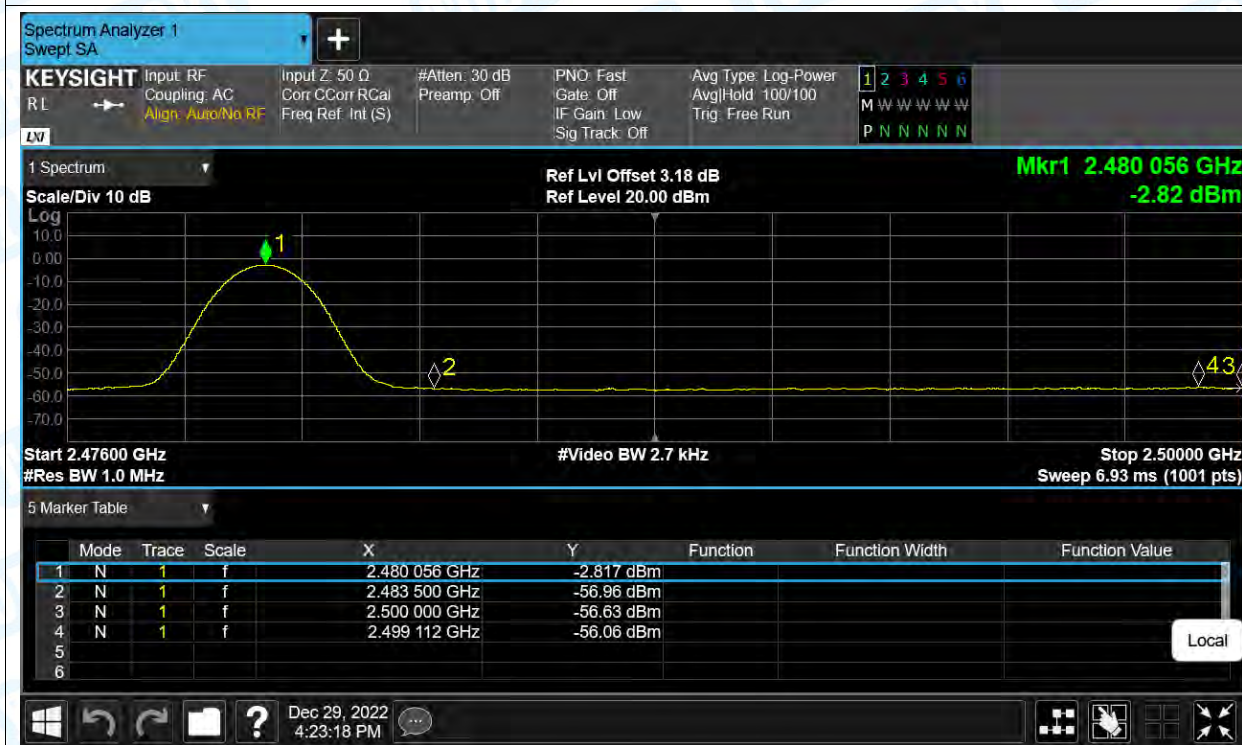
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



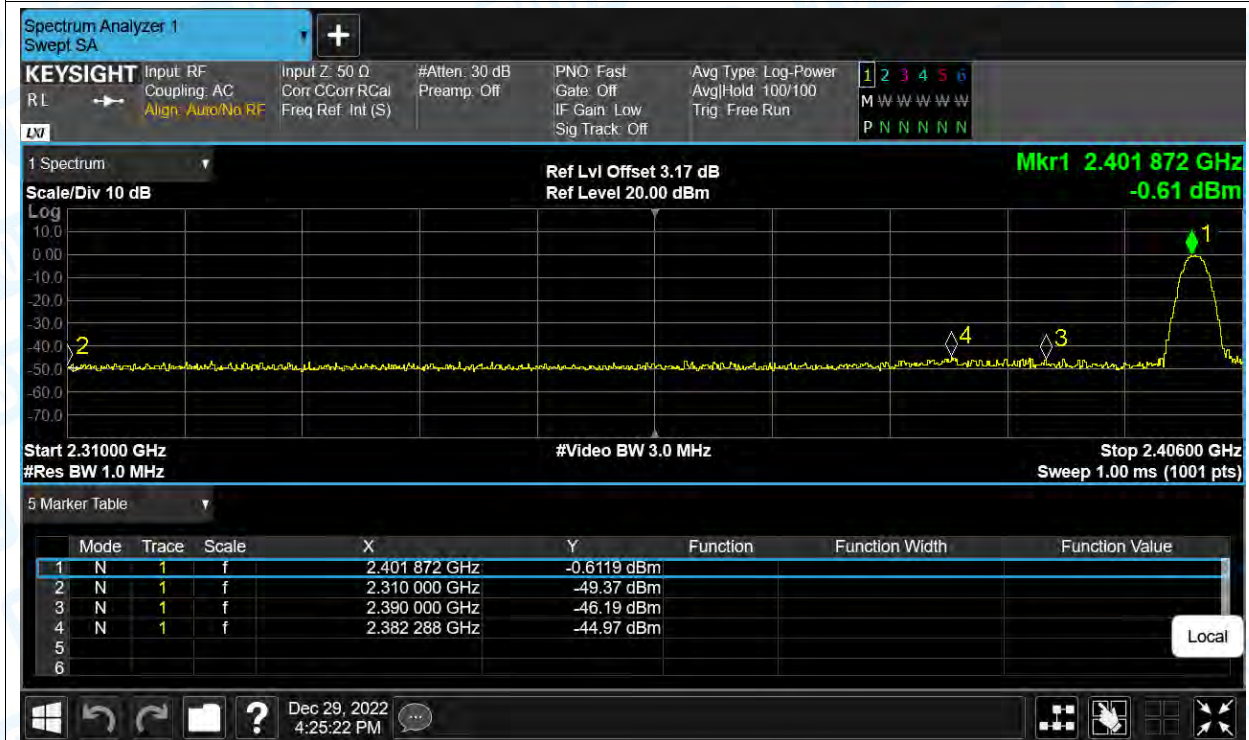
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



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



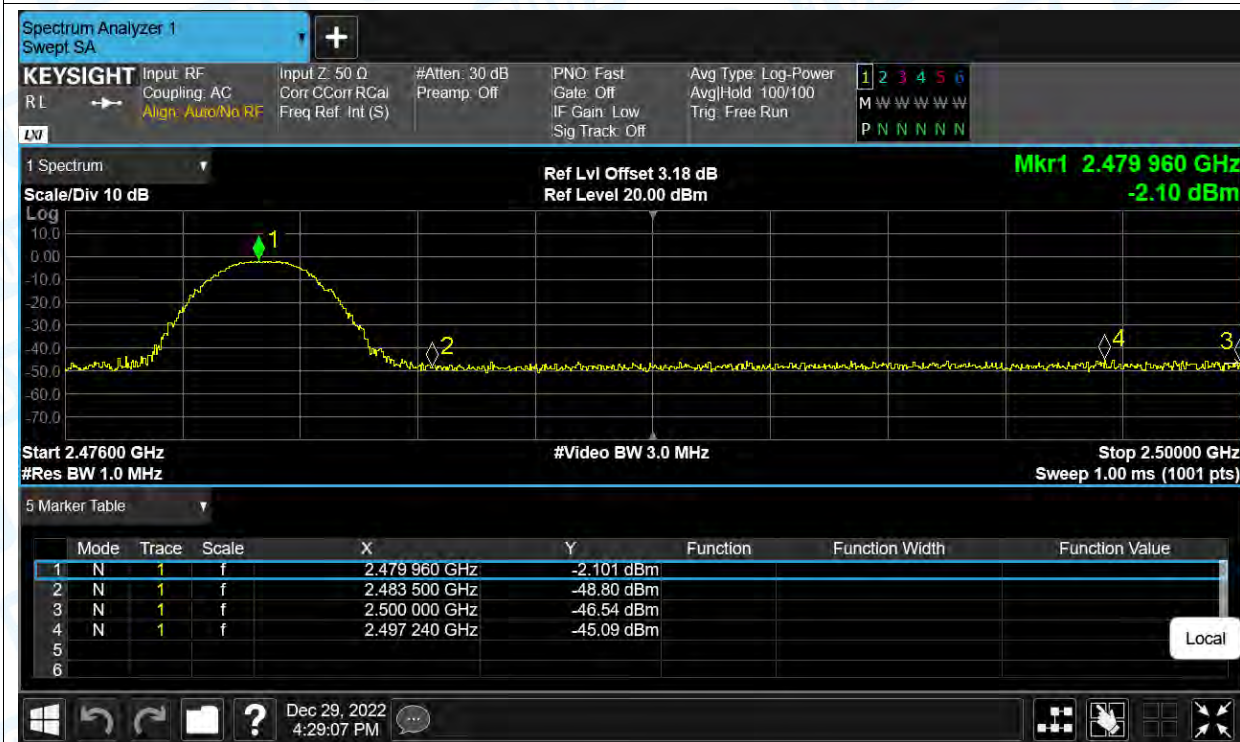
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



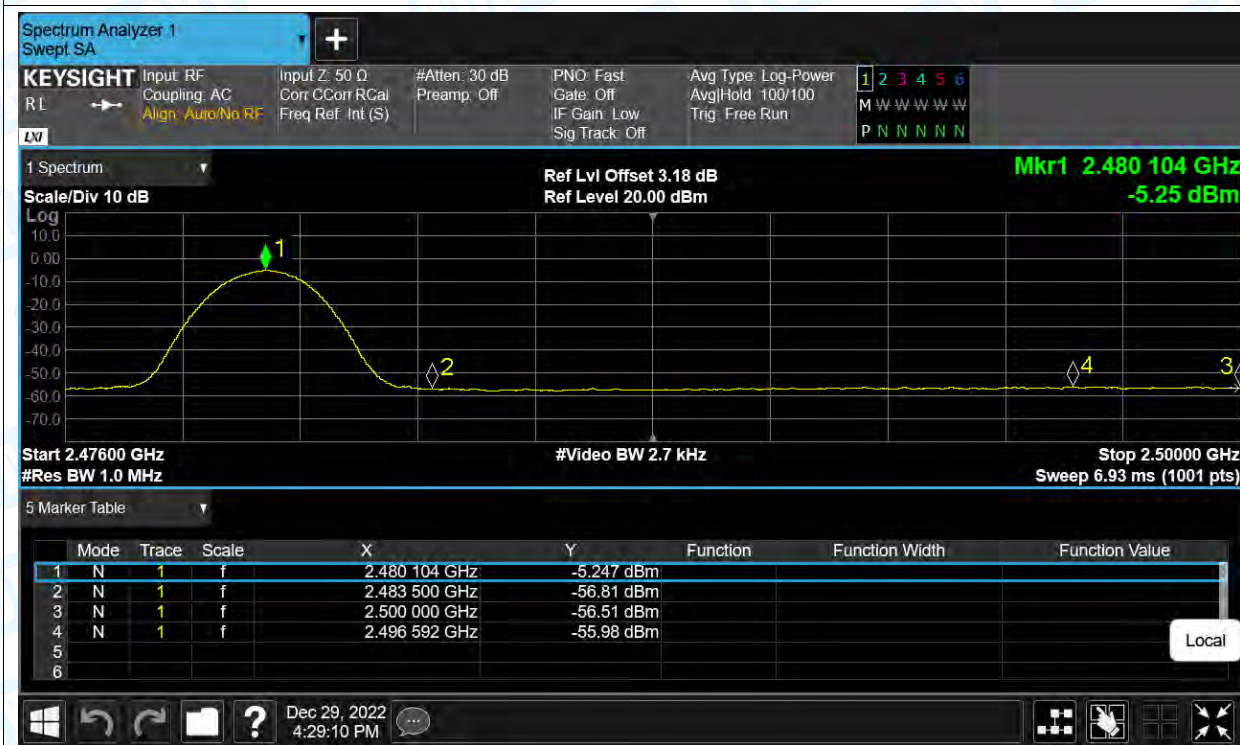
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



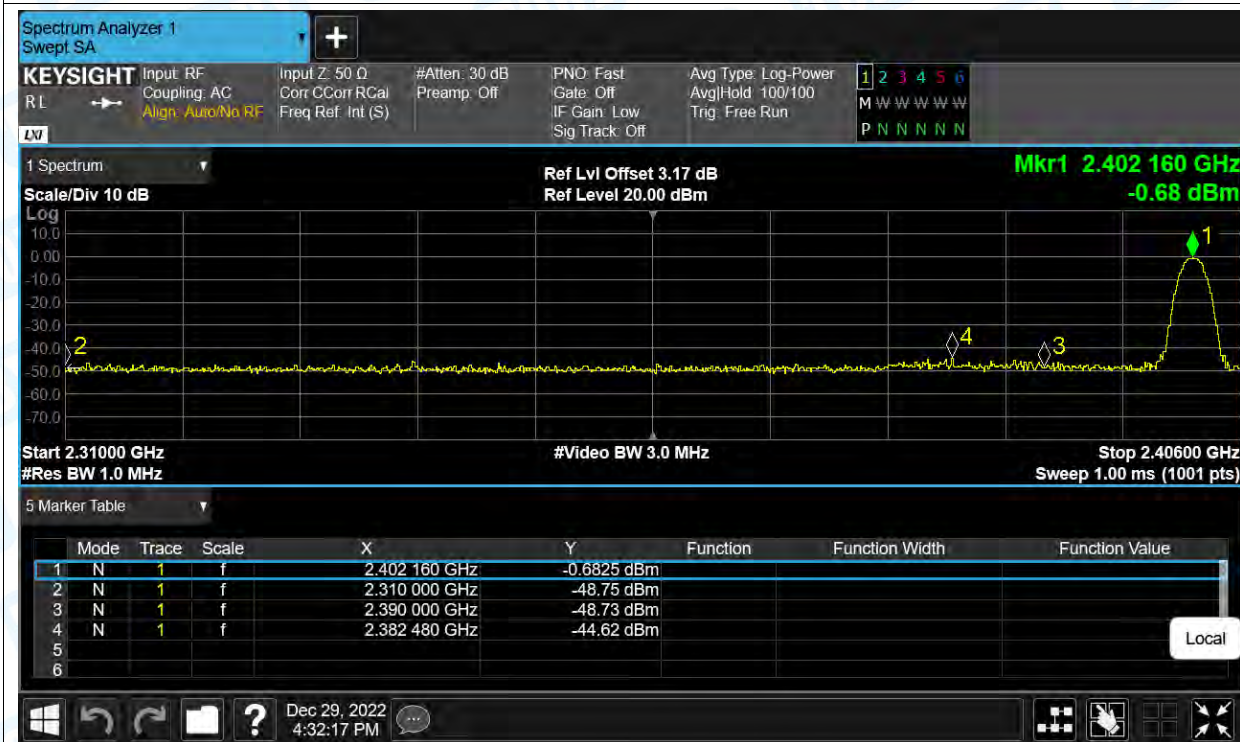
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



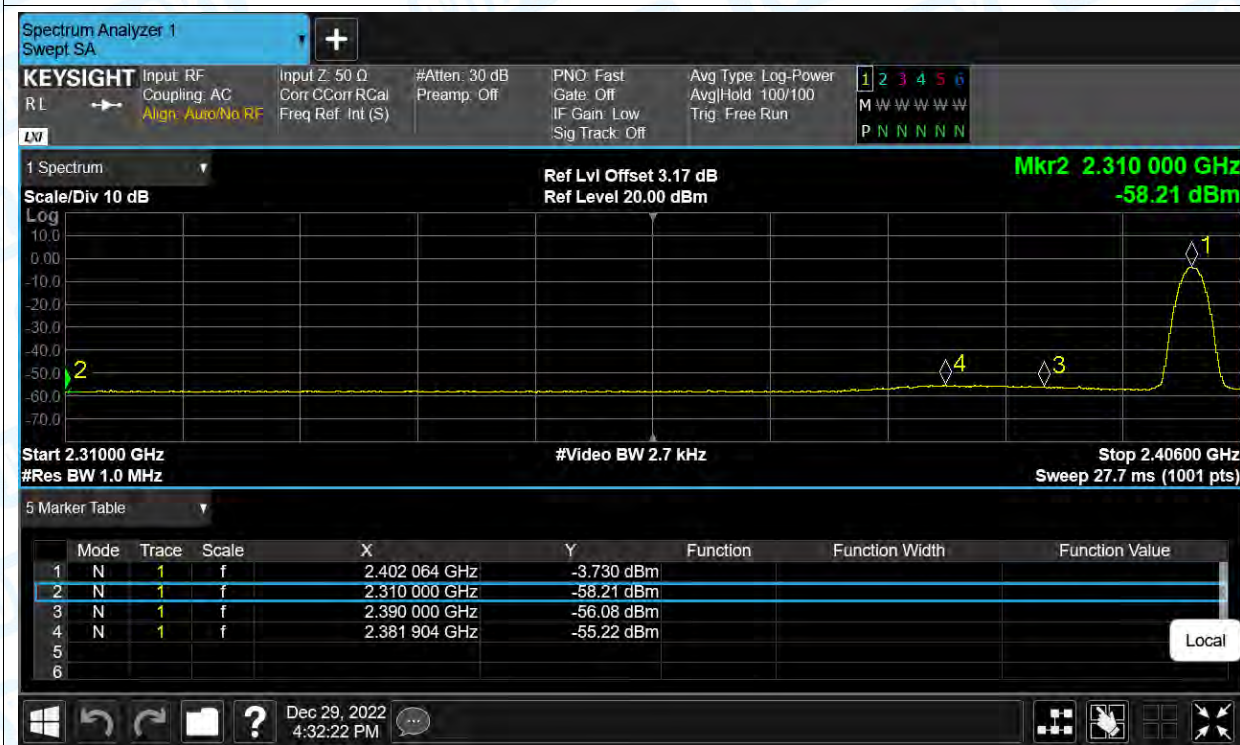
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



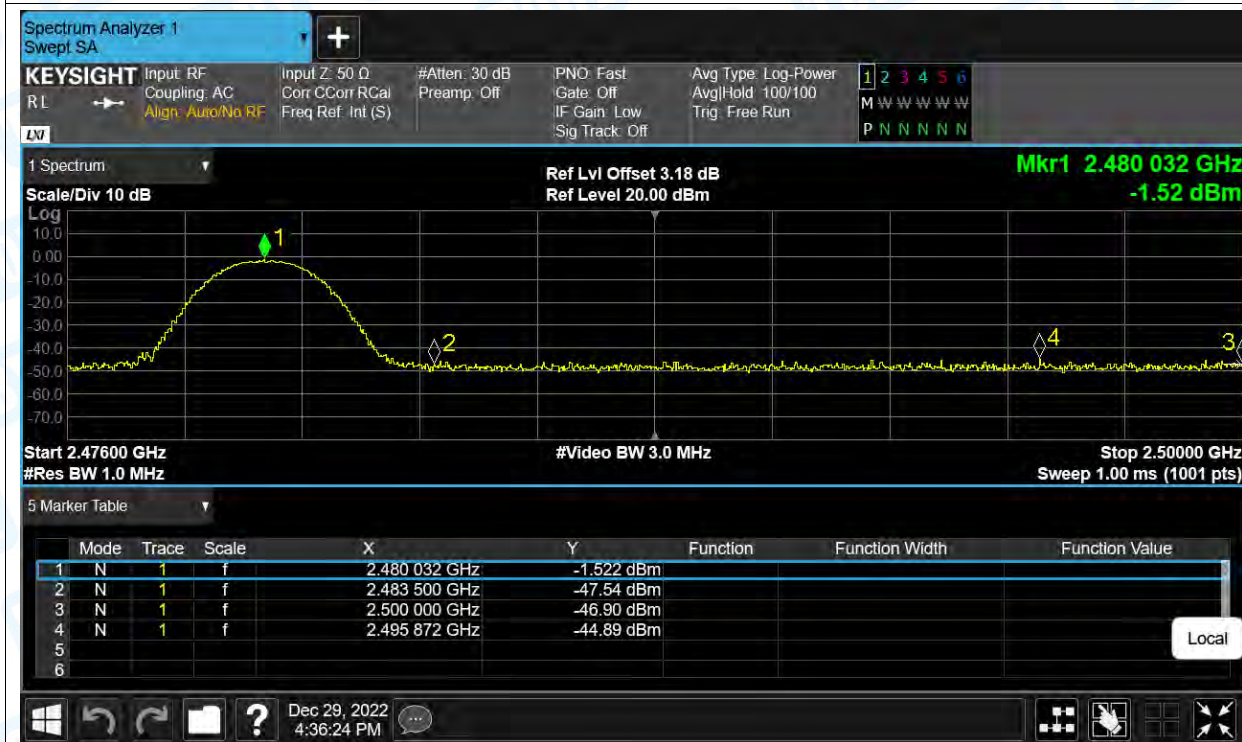
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



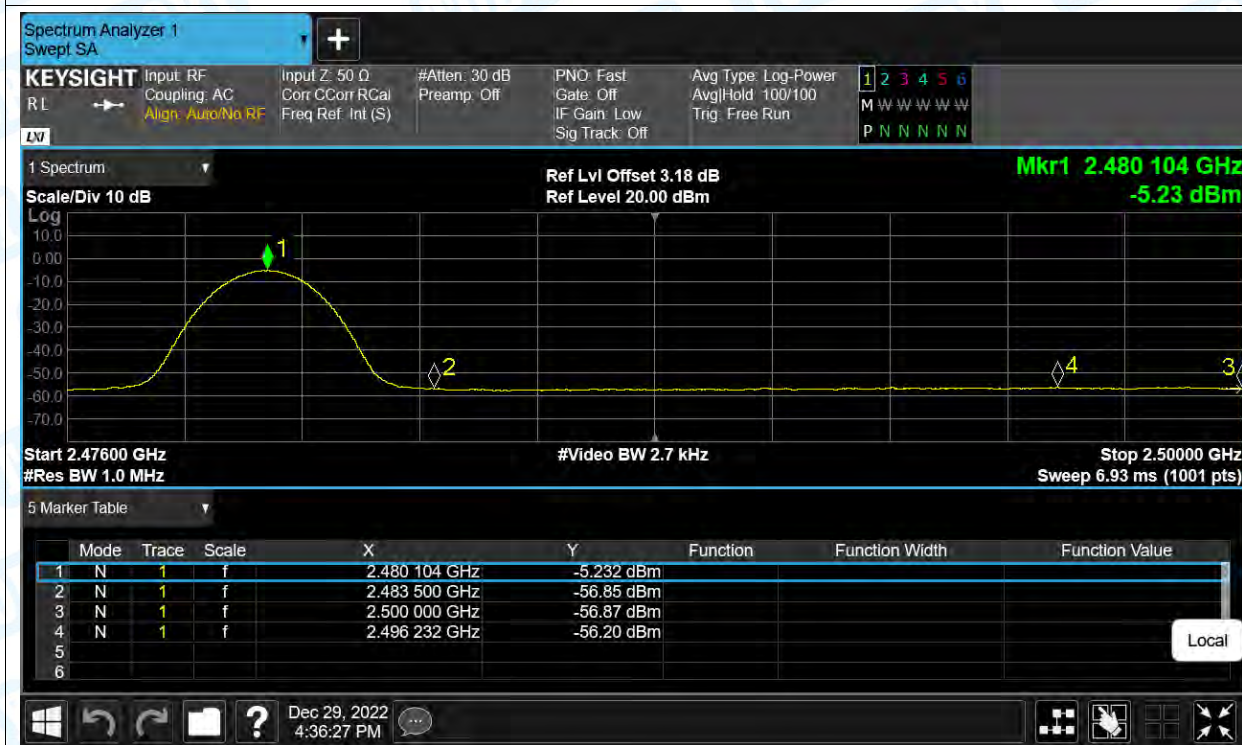
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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



9. Carrier Frequencies Separation

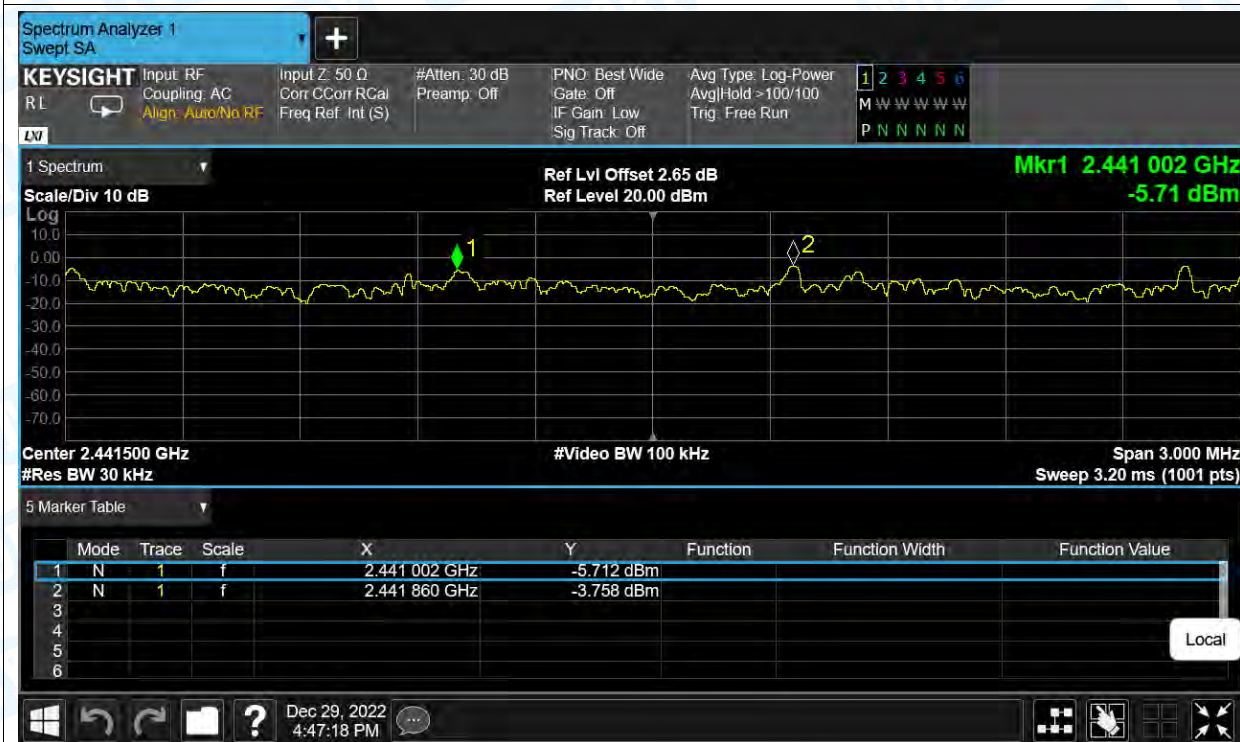
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2441.02	2441.857	0.837	0.68	Pass
NVNT	2-DH1	Ant1	2441.002	2441.86	0.858	0.847	Pass
NVNT	3-DH1	Ant1	2440.849	2441.872	1.023	0.86	Pass

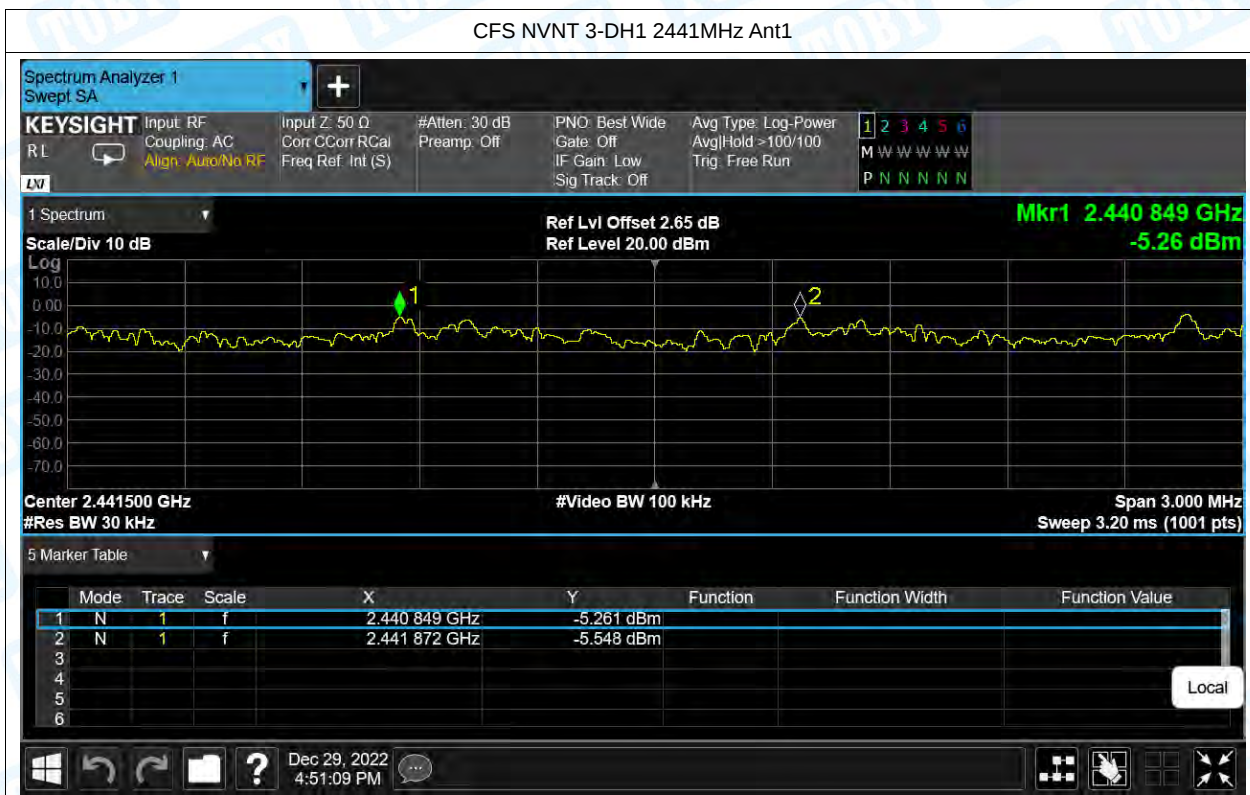
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



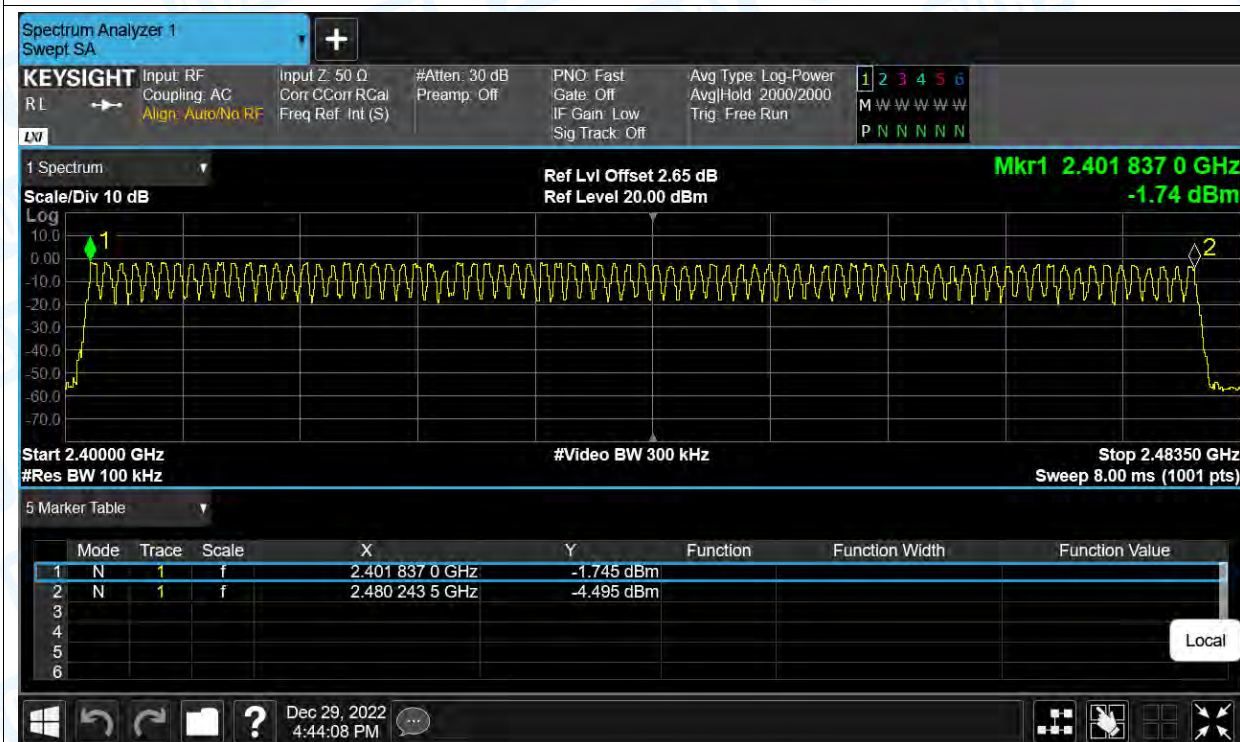


10. Number of Hopping Channel

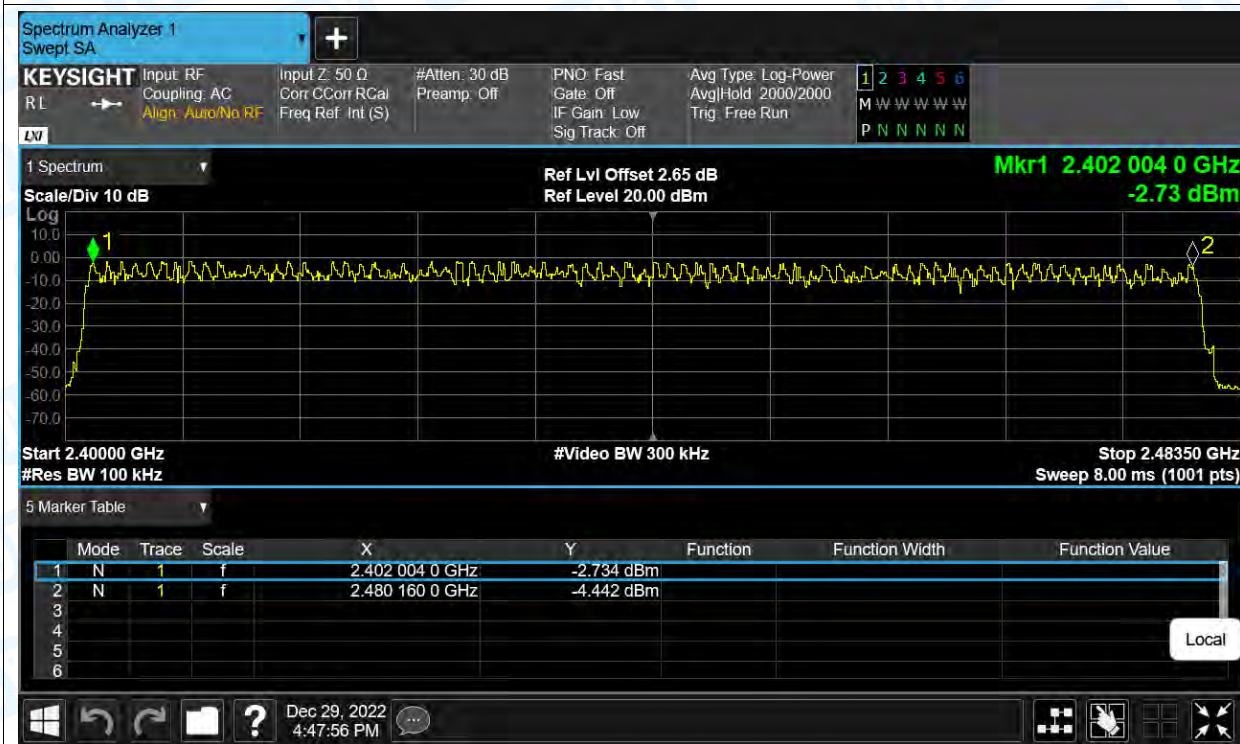
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

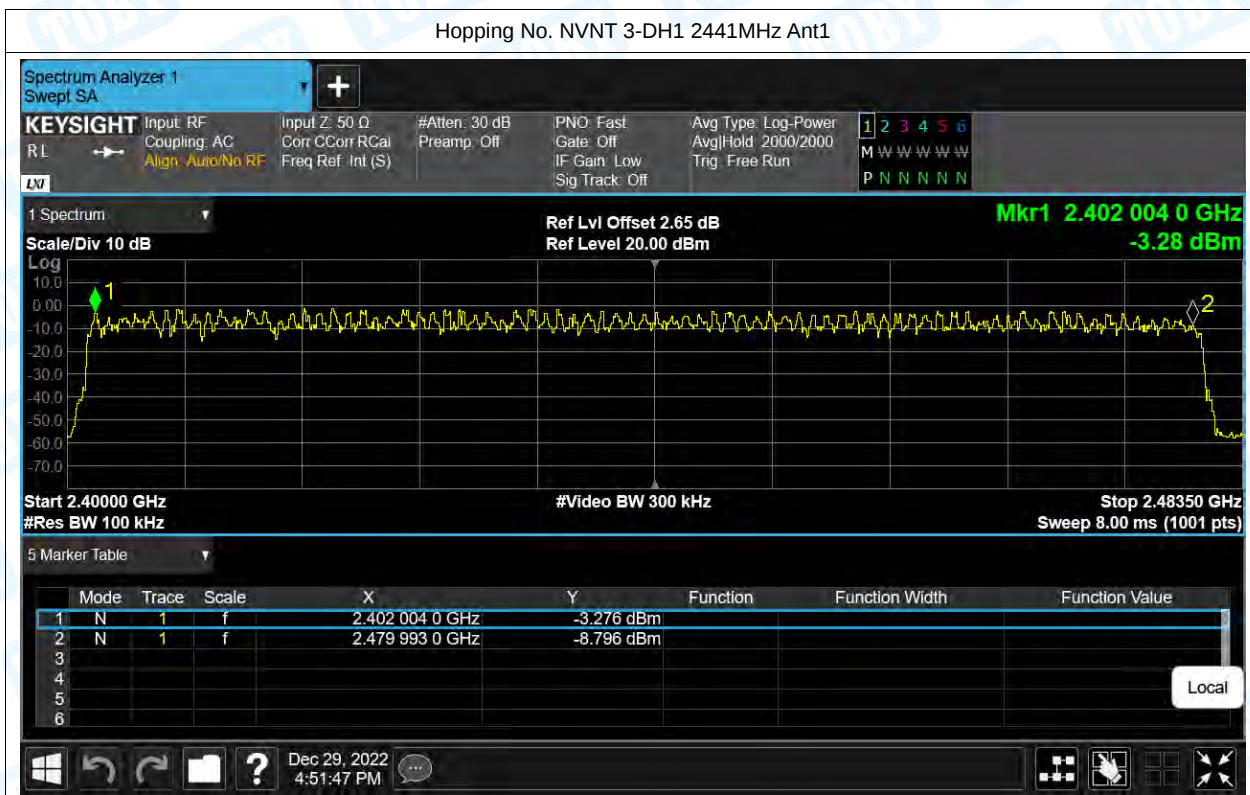
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1





11. Dwell Time

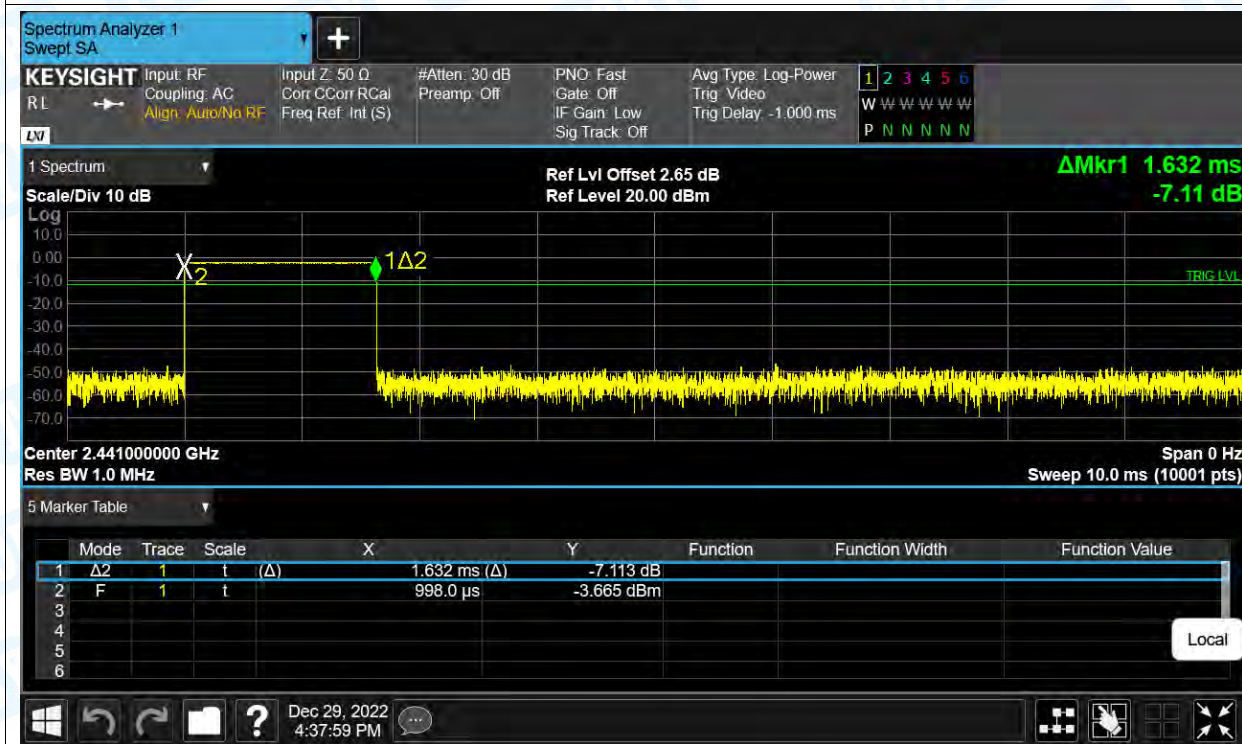
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.373	119.36	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.632	261.12	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.879	307.093	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.386	123.52	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.637	261.92	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.885	307.733	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.386	123.52	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.636	261.76	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.887	307.947	31600	400	Pass

Test Graphs

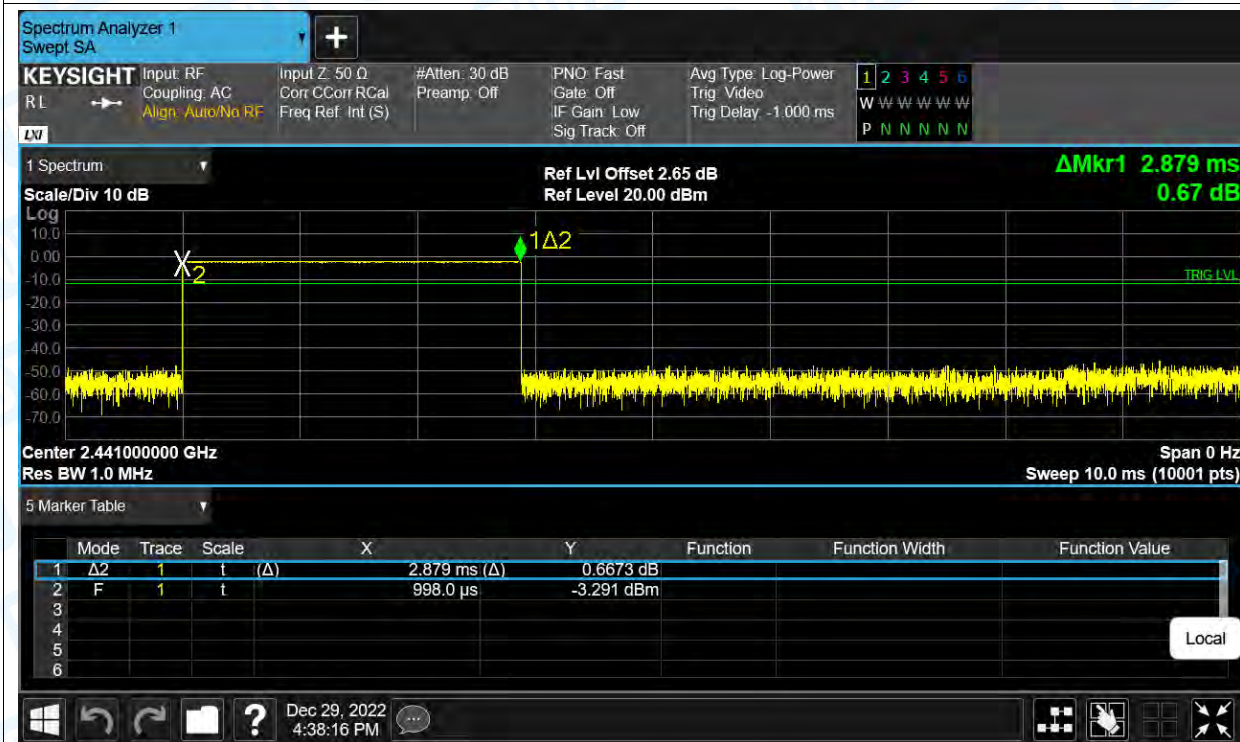
Dwell NVNT 1-DH1 2441MHz Ant1



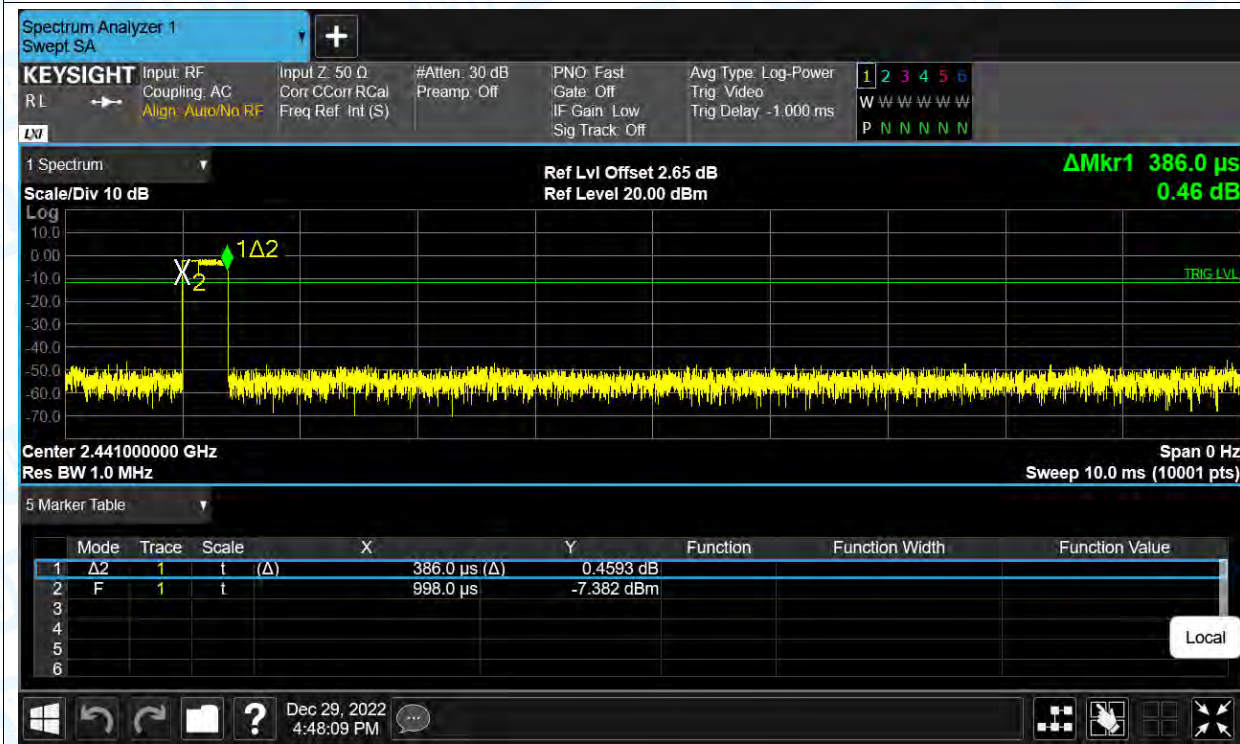
Dwell NVNT 1-DH3 2441MHz Ant1



Dwell NVNT 1-DH5 2441MHz Ant1



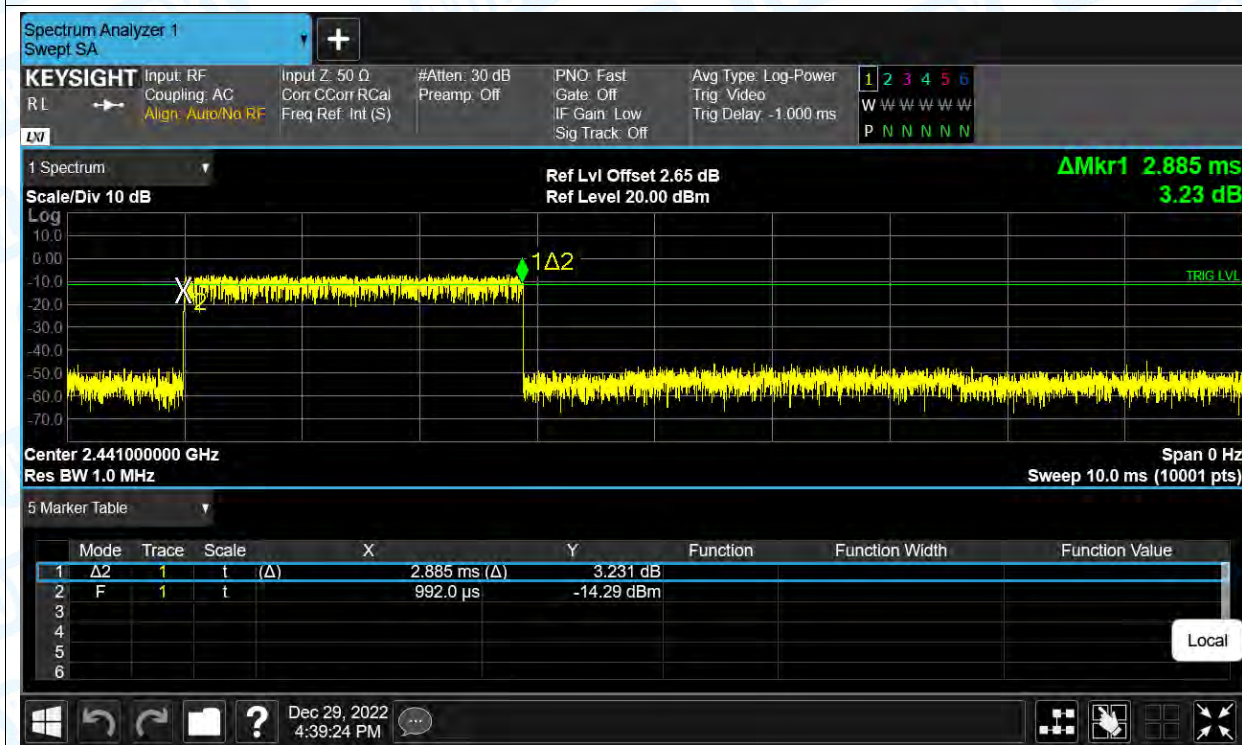
Dwell NVNT 2-DH1 2441MHz Ant1



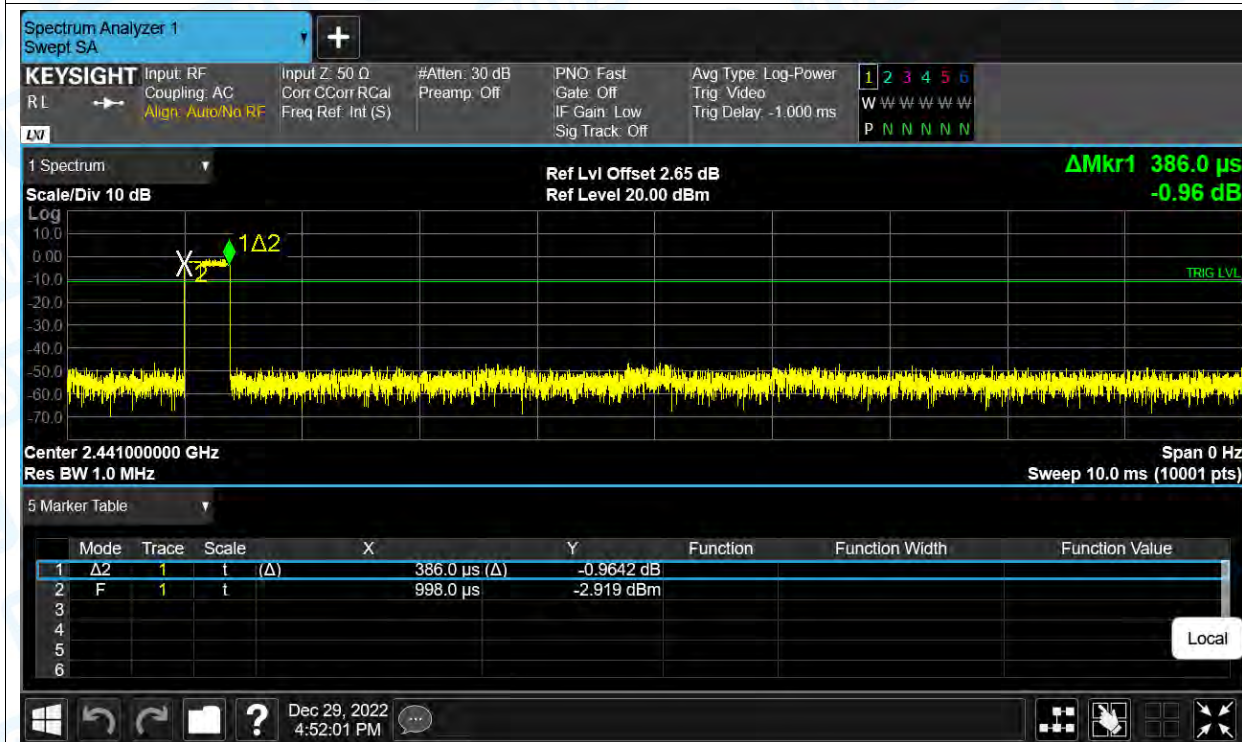
Dwell NVNT 2-DH3 2441MHz Ant1



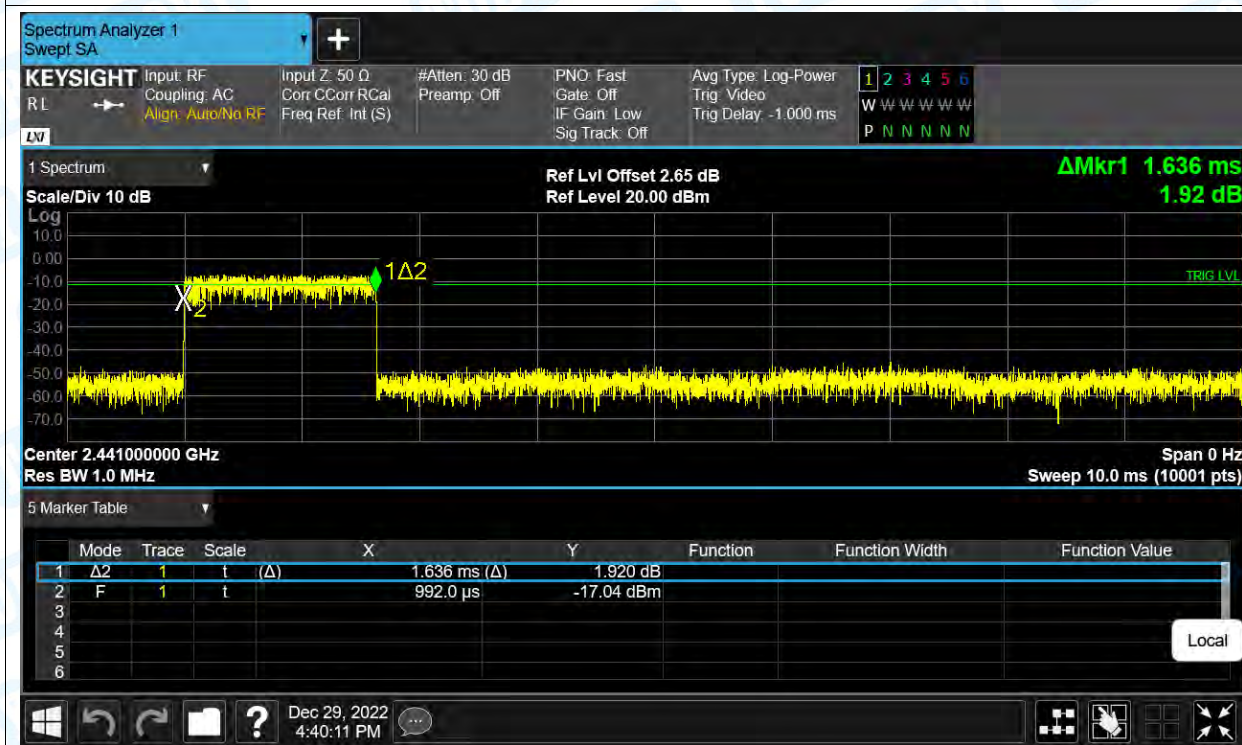
Dwell NVNT 2-DH5 2441MHz Ant1

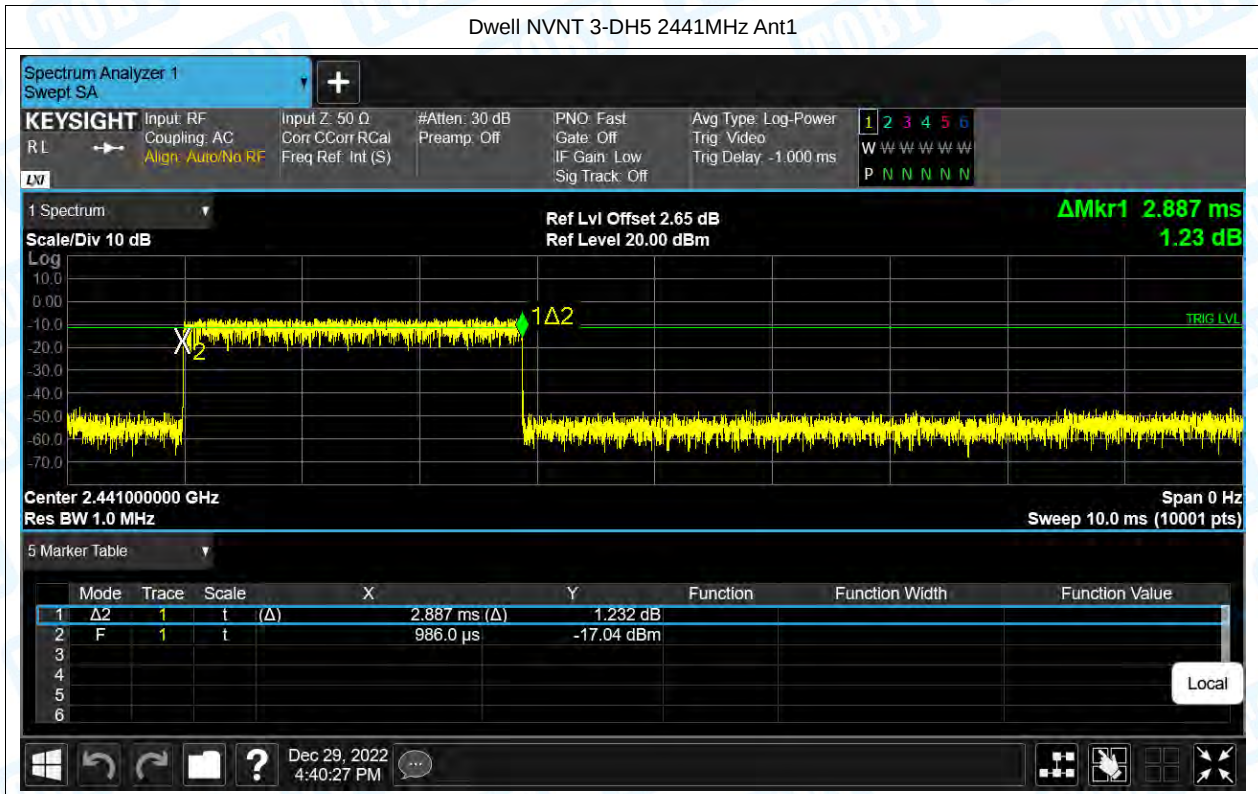


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





-----END OF THE REPORT-----