

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

General Description of EUT	
Product Name:	WiFi & BT combo module
Test Model:	EWN-8822CSS3AH
Sample ID:	202206-0044-01-02#
Environmental Conditions	
Temperature:	25℃
Relative Humidity:	55%
Test Voltage:	DC 3.3V
Test Engineer:	Huangjianping
Note: For a more detailed features description, please refer to the report TBR-C-202206-0044-2	

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1. Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	7.87	21	Pass
NVNT	1-DH1	2441	Ant1	7.142	21	Pass
NVNT	1-DH1	2480	Ant1	6.375	21	Pass
NVNT	2-DH1	2402	Ant1	9.438	21	Pass
NVNT	2-DH1	2441	Ant1	8.63	21	Pass
NVNT	2-DH1	2480	Ant1	8.133	21	Pass
NVNT	3-DH1	2402	Ant1	10.173	21	Pass
NVNT	3-DH1	2441	Ant1	9.235	21	Pass
NVNT	3-DH1	2480	Ant1	8.877	21	Pass

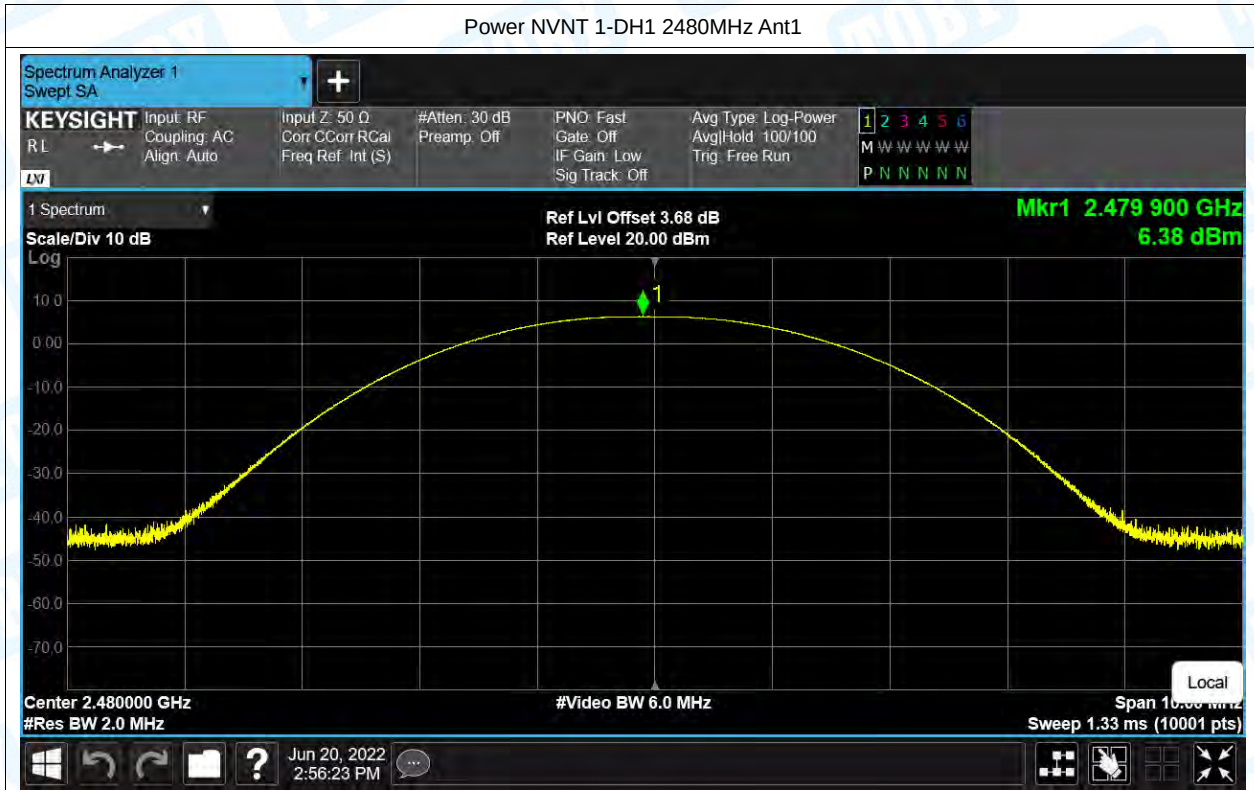
Test Graphs

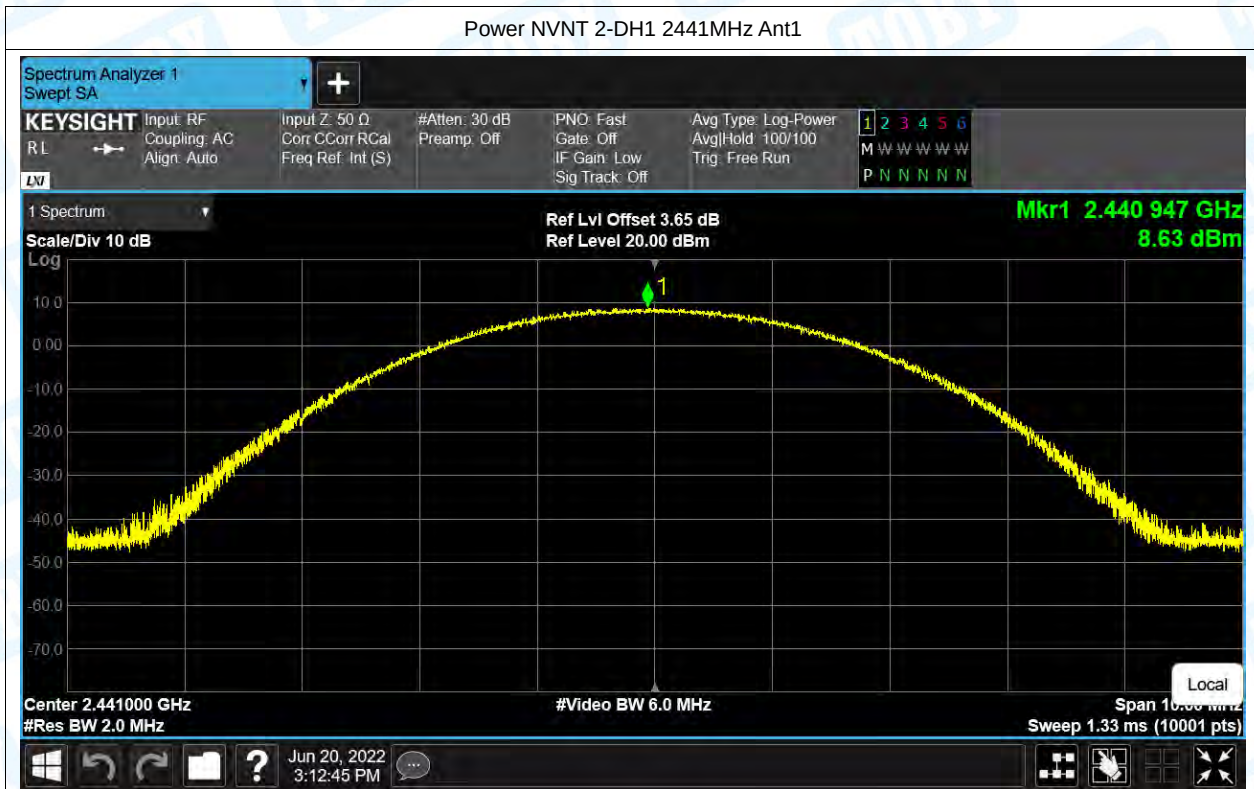
Power NVNT 1-DH1 2402MHz Ant1



Power NVNT 1-DH1 2441MHz Ant1











2. -20dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.92	0	Pass
NVNT	1-DH1	2441	Ant1	0.92	0	Pass
NVNT	1-DH1	2480	Ant1	0.93	0	Pass
NVNT	2-DH1	2402	Ant1	1.21	0	Pass
NVNT	2-DH1	2441	Ant1	1.22	0	Pass
NVNT	2-DH1	2480	Ant1	1.18	0	Pass
NVNT	3-DH1	2402	Ant1	1.2	0	Pass
NVNT	3-DH1	2441	Ant1	1.21	0	Pass
NVNT	3-DH1	2480	Ant1	1.21	0	Pass

Test Graphs

-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



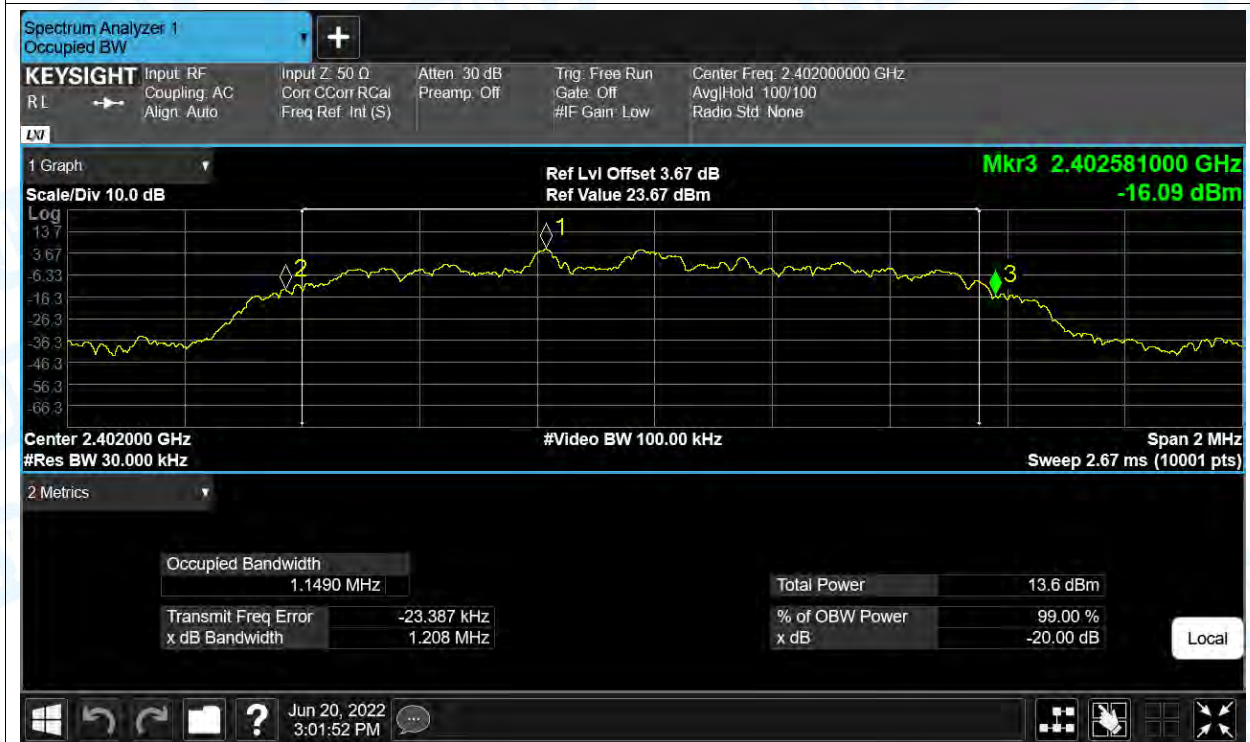
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



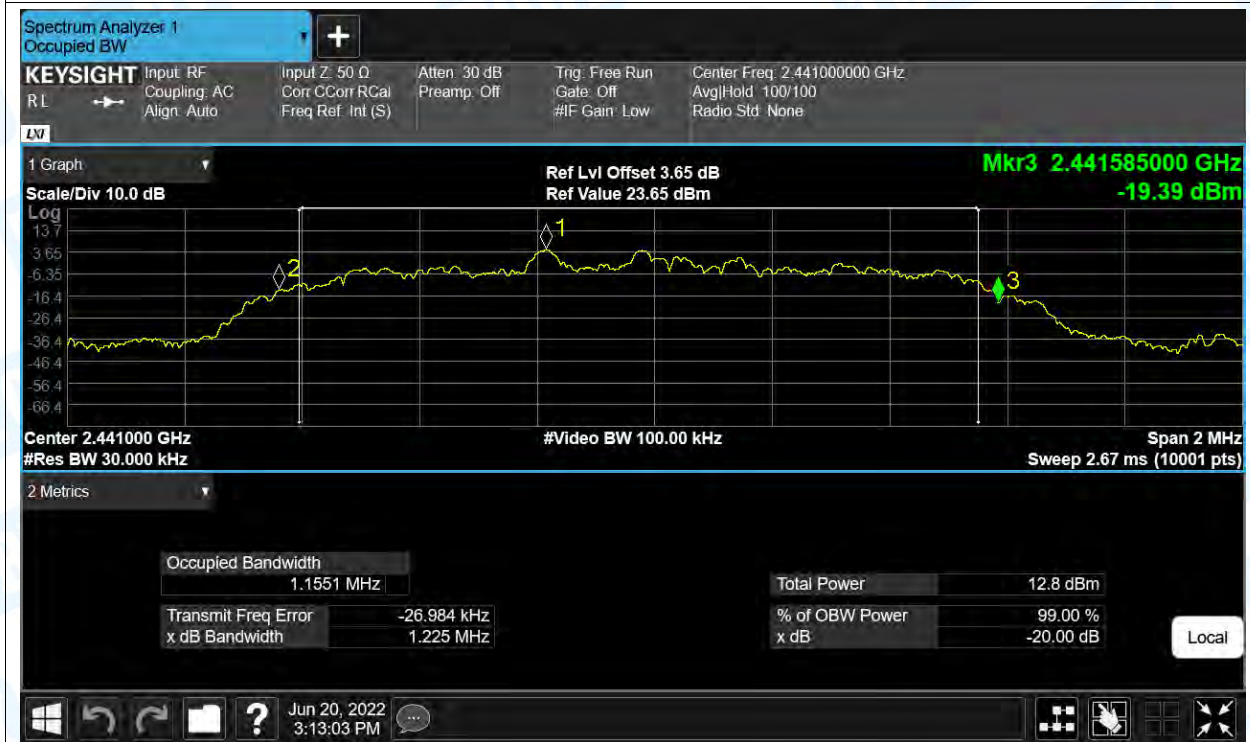
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



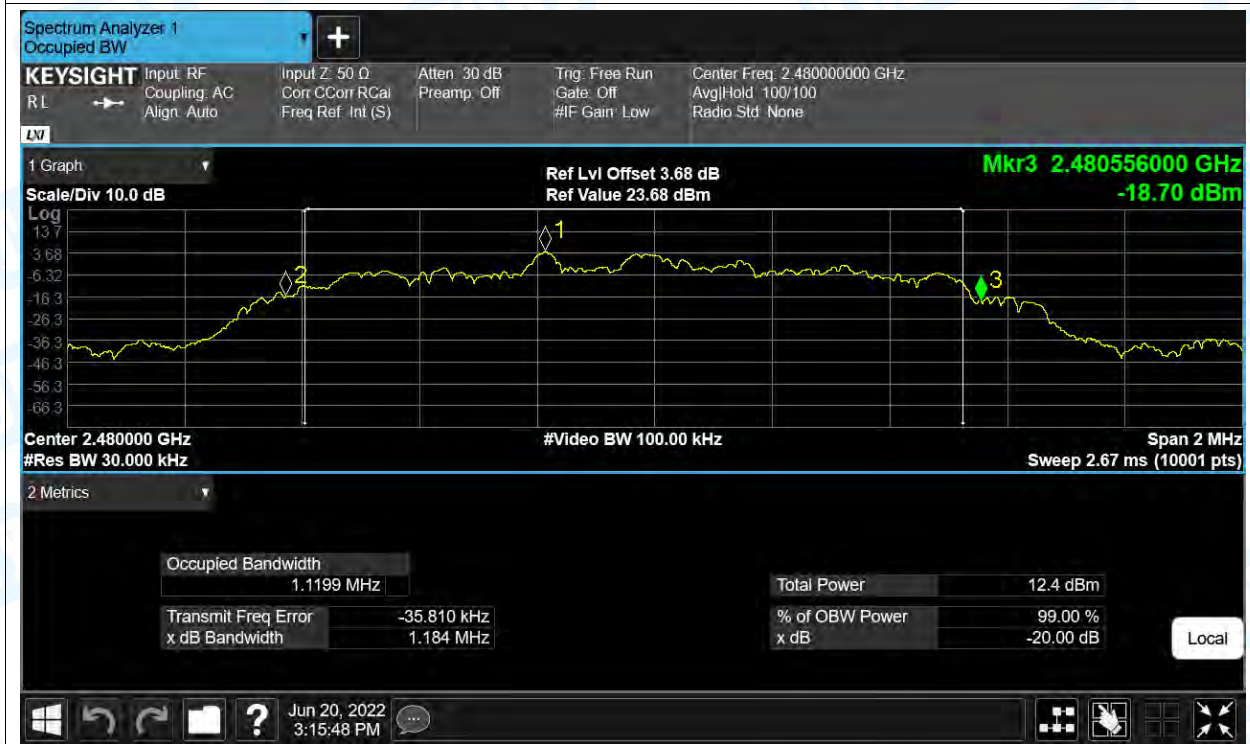
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



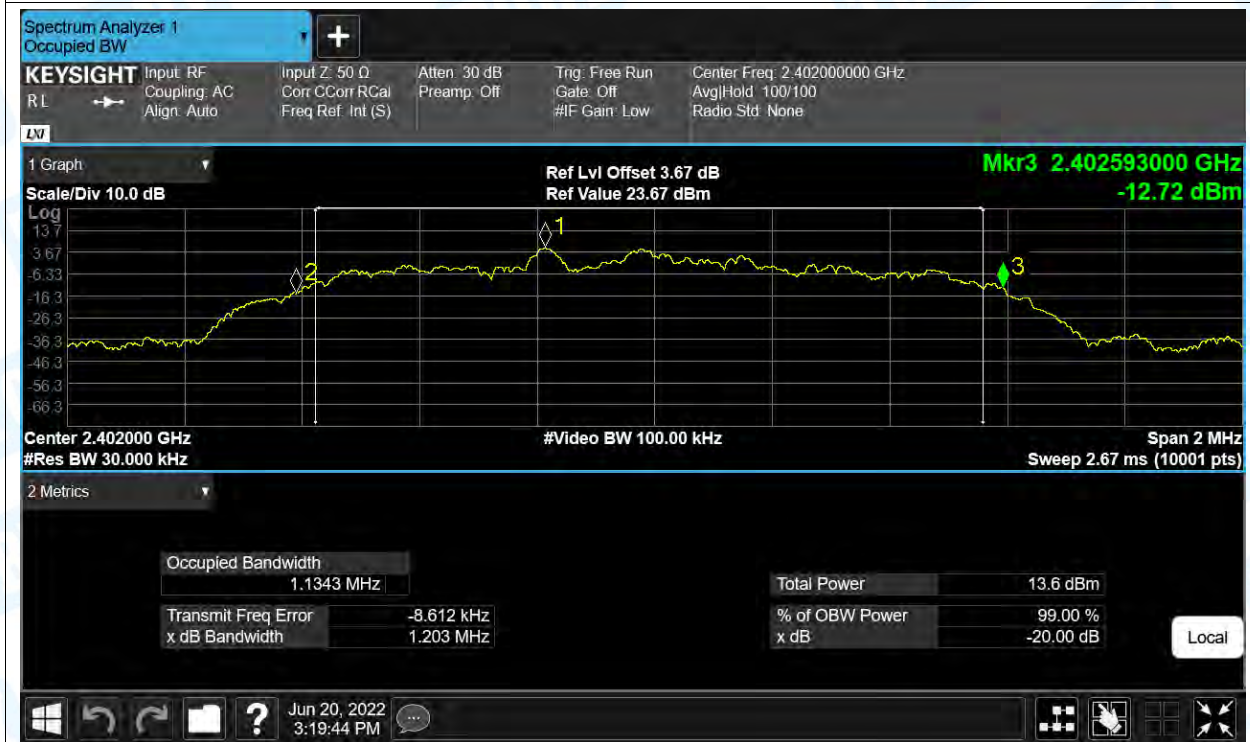
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



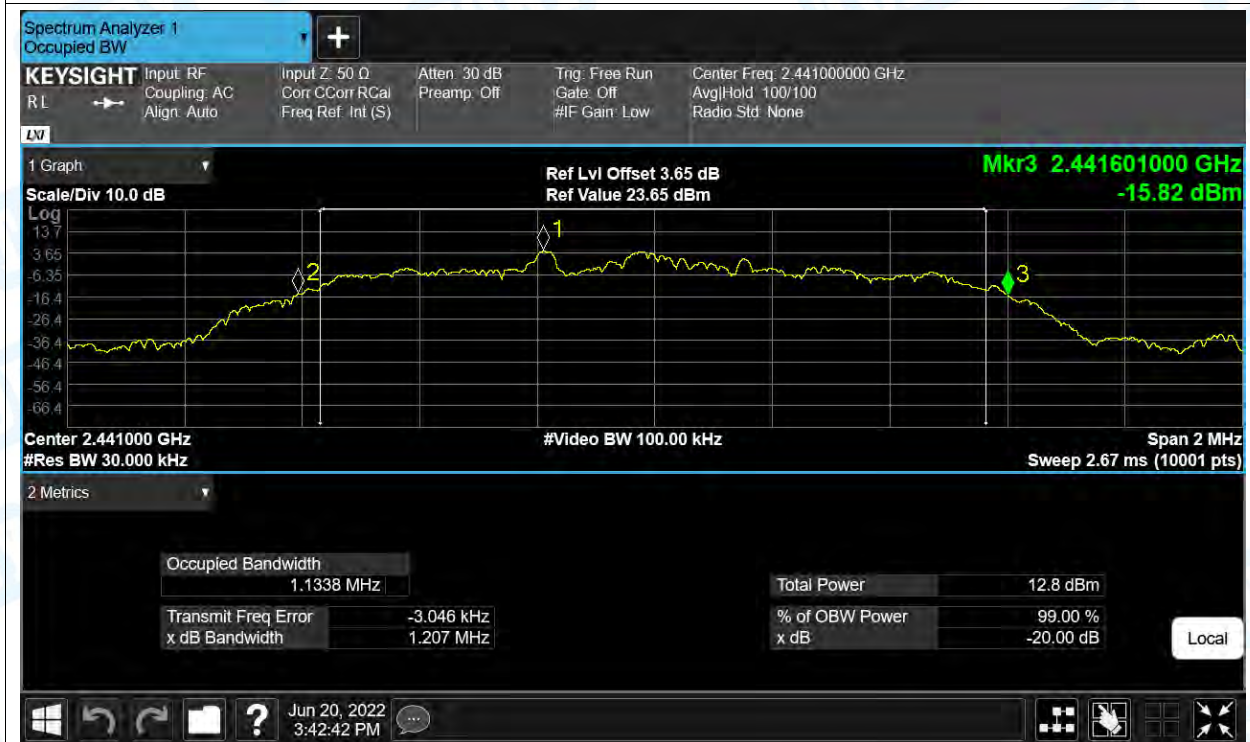
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

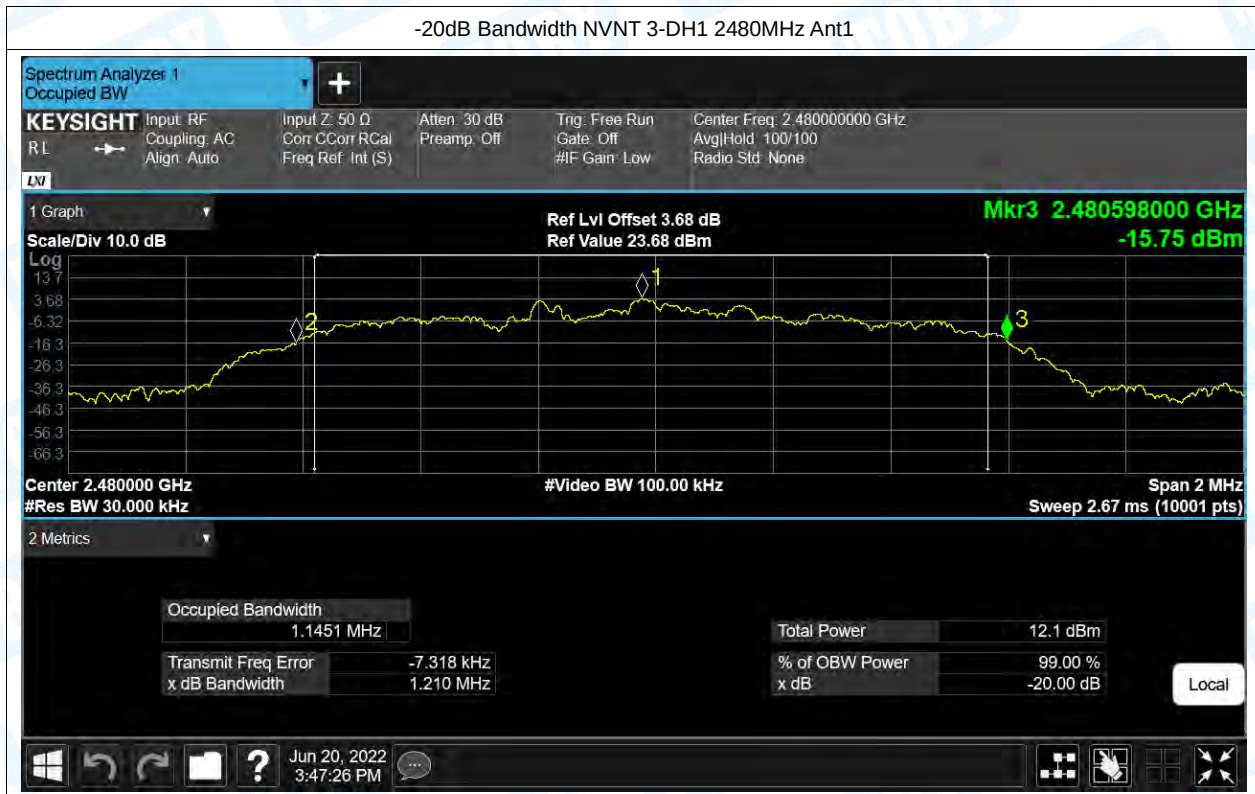


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1





3. Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.87
NVNT	1-DH1	2441	Ant1	0.825
NVNT	1-DH1	2480	Ant1	0.865
NVNT	2-DH1	2402	Ant1	1.151
NVNT	2-DH1	2441	Ant1	1.136
NVNT	2-DH1	2480	Ant1	1.147
NVNT	3-DH1	2402	Ant1	1.135
NVNT	3-DH1	2441	Ant1	1.133
NVNT	3-DH1	2480	Ant1	1.143

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





4. Band Edge

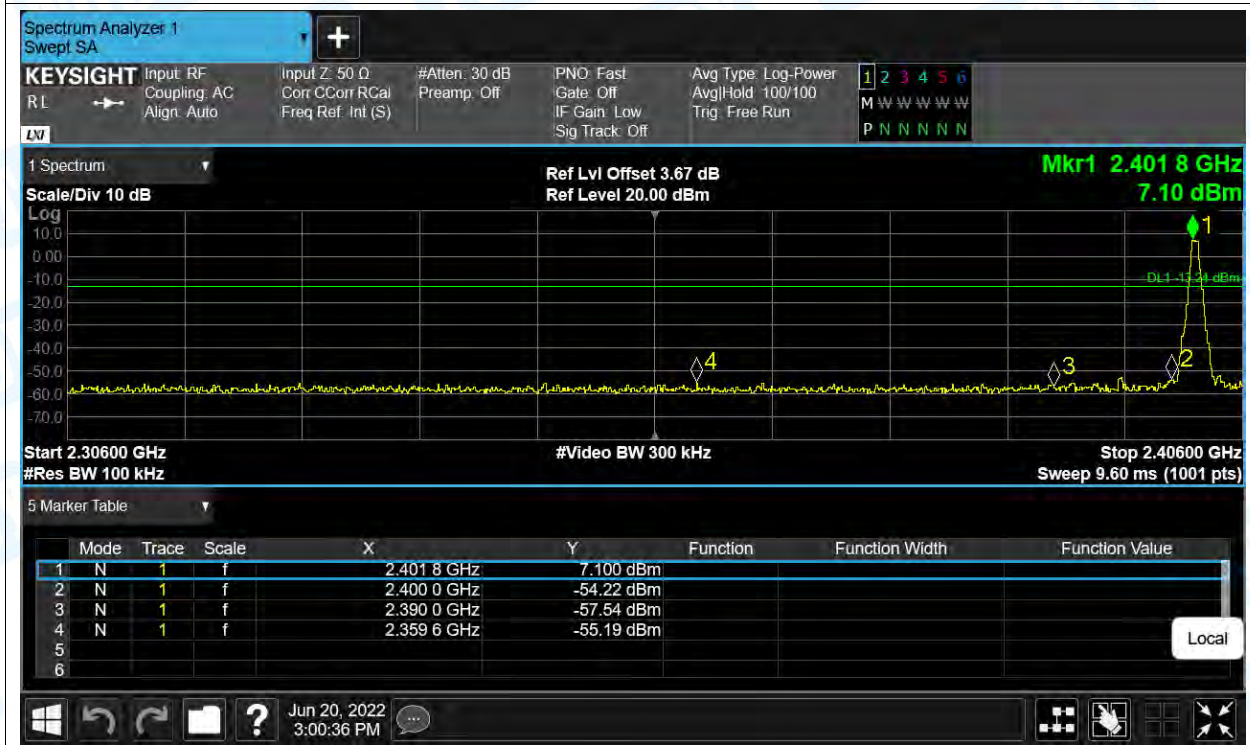
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-61.95	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-59.13	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-63.01	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-60.34	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-62.14	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-59.97	-20	Pass

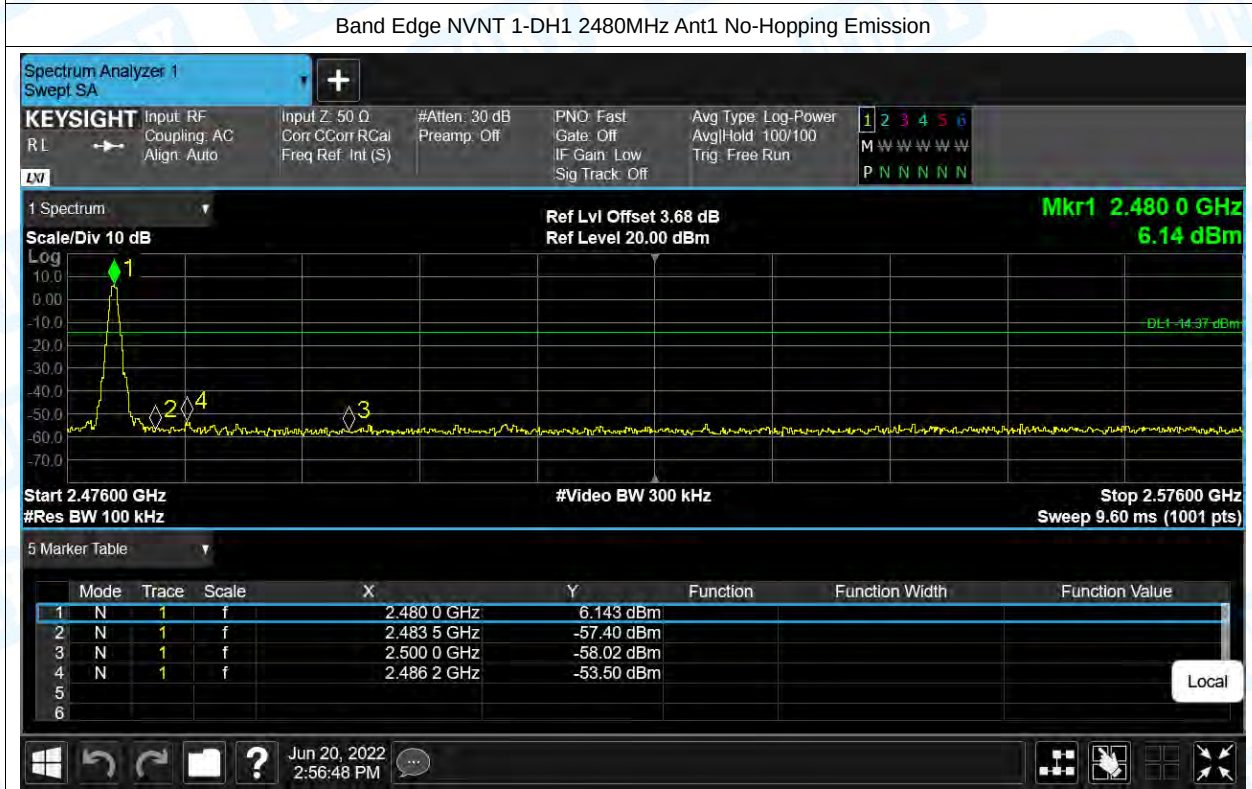
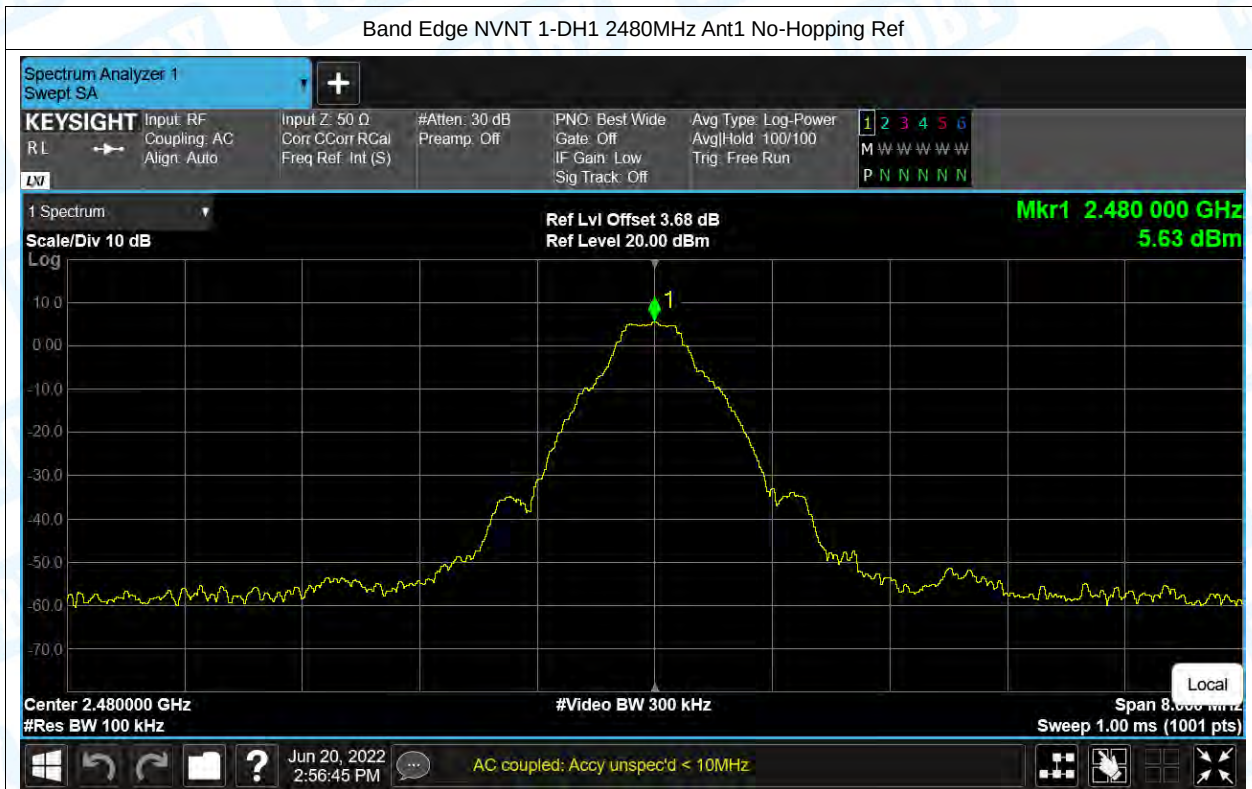
Test Graphs

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

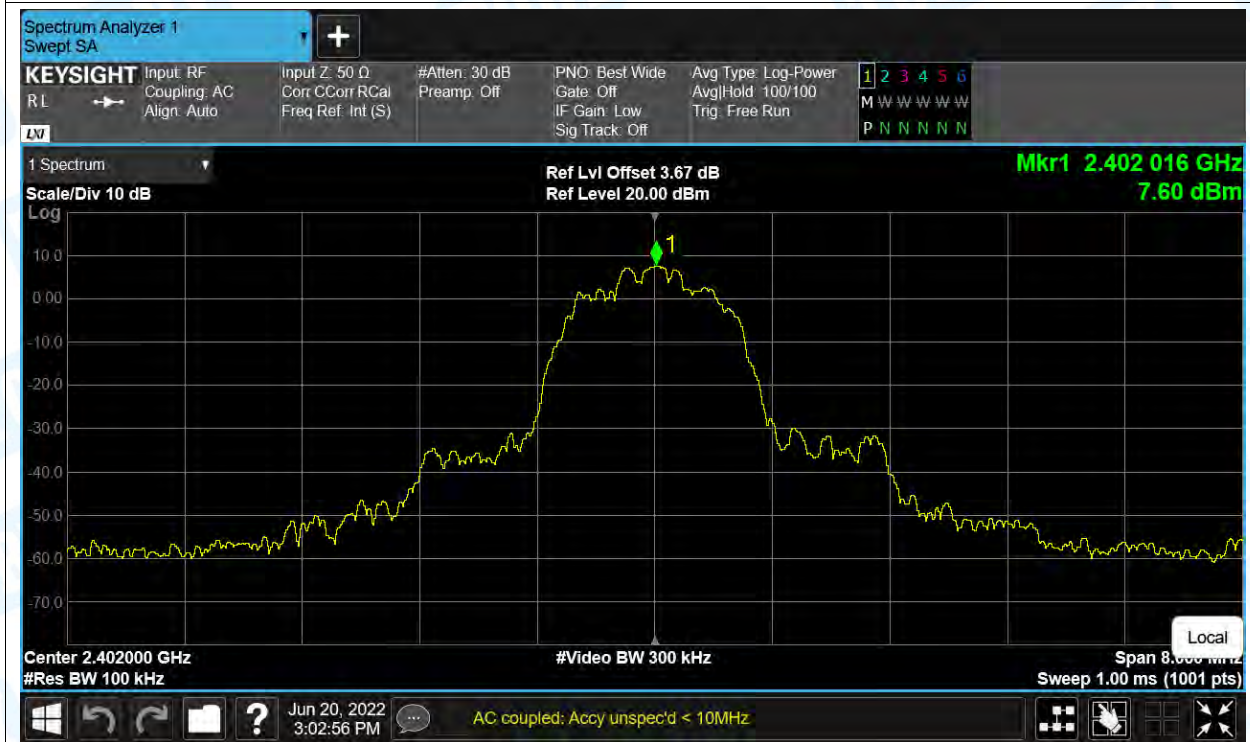


Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission

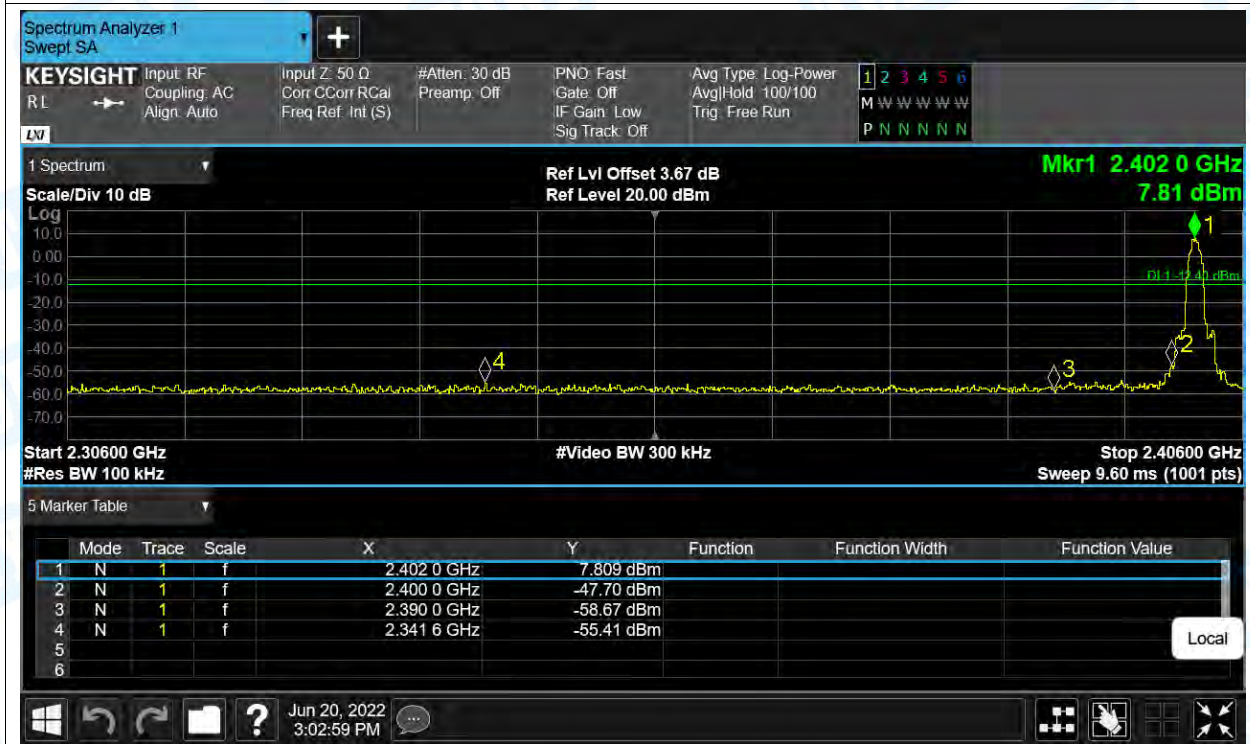




Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



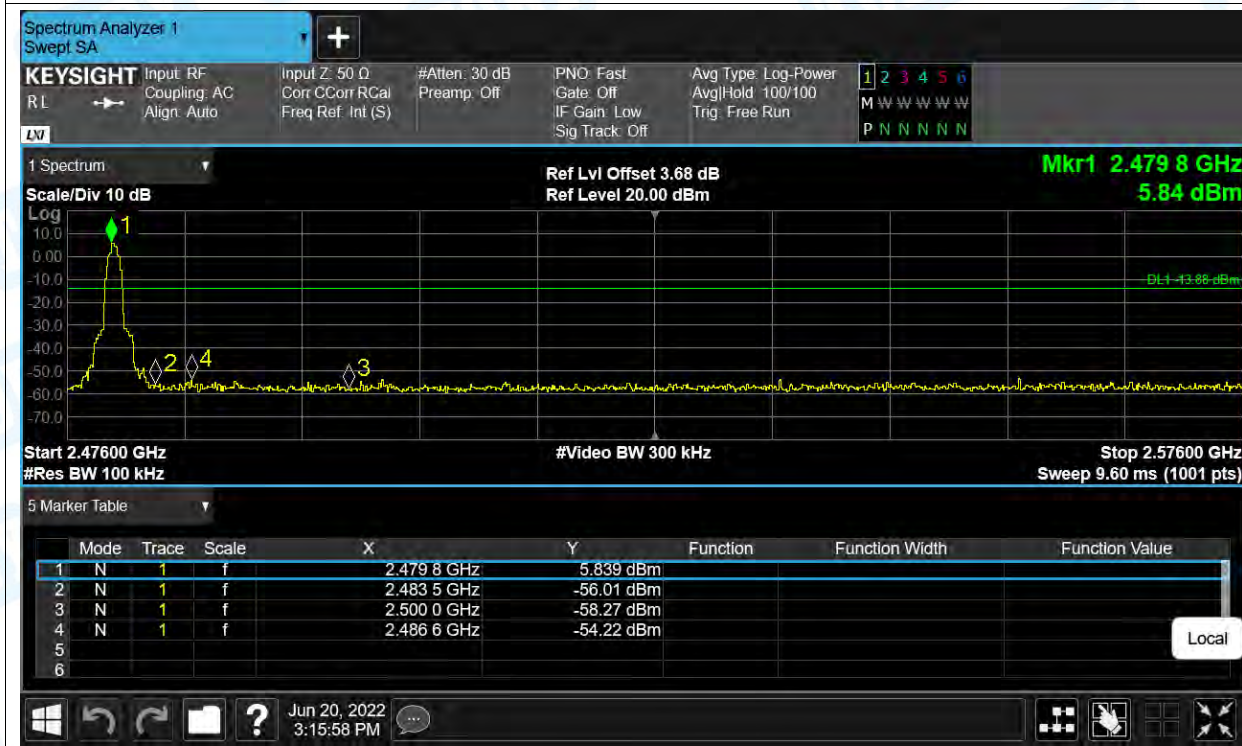
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission

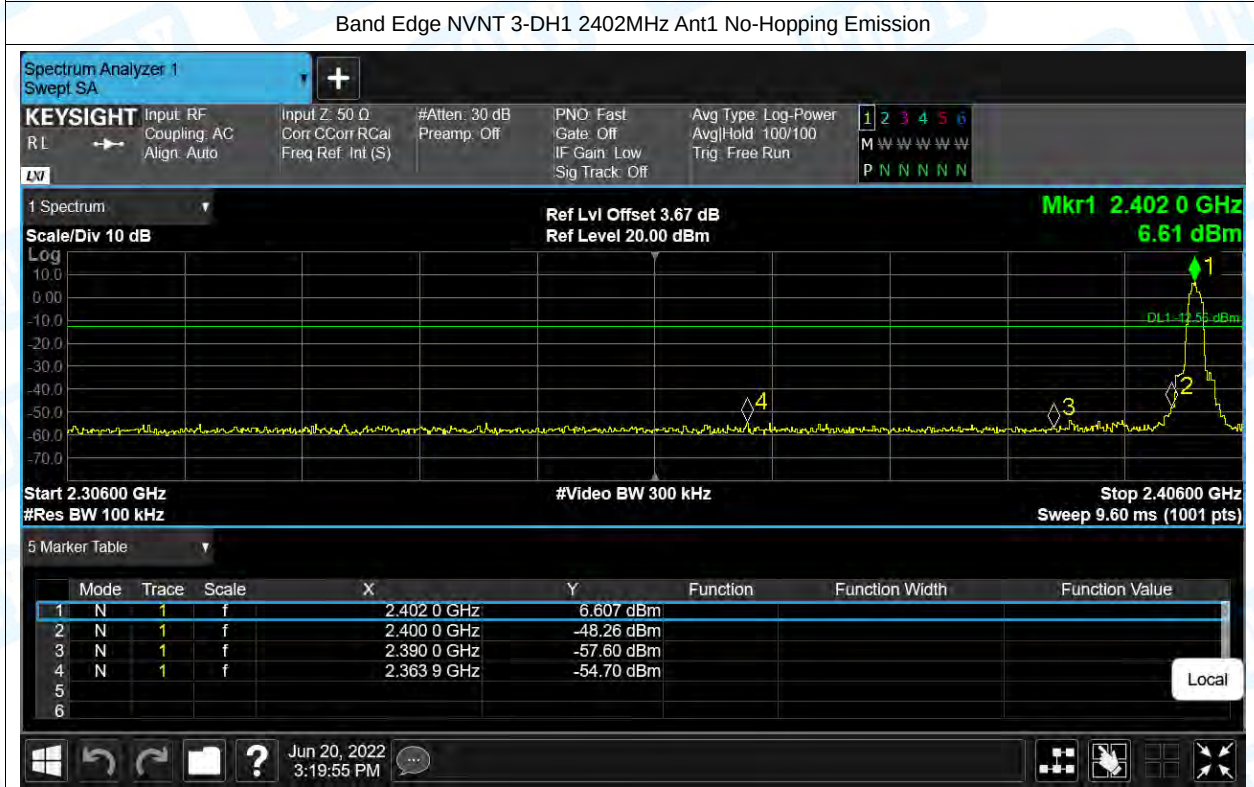
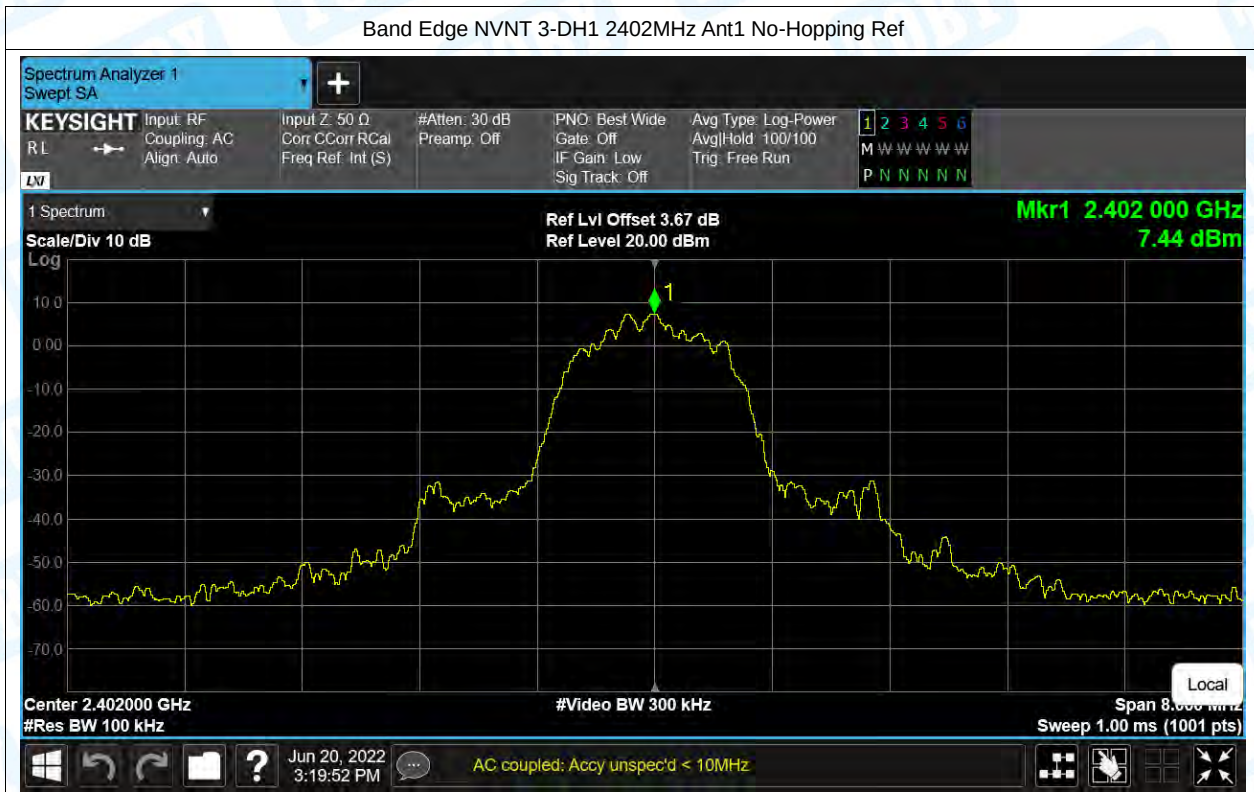


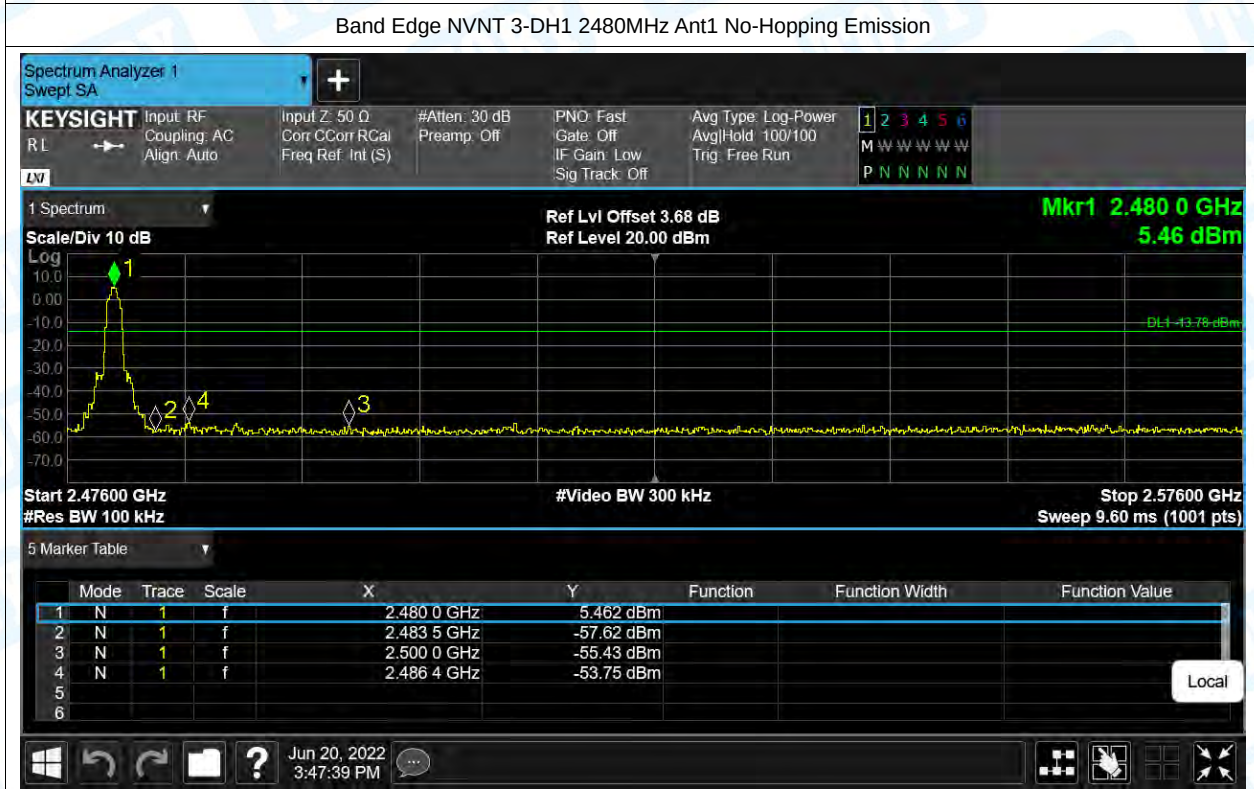
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Ref



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







5. Band Edge(Hopping)

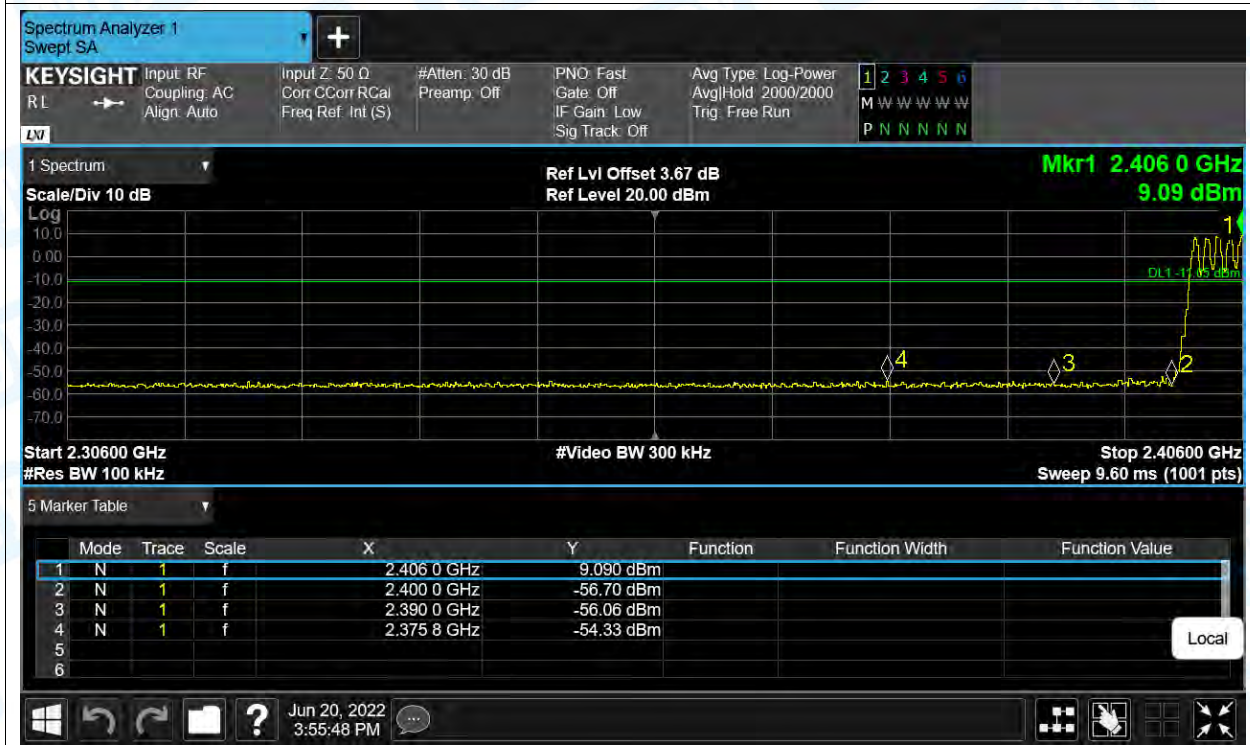
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-63.28	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-61.27	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-63.55	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-56.72	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-63.5	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-58.34	-20	Pass

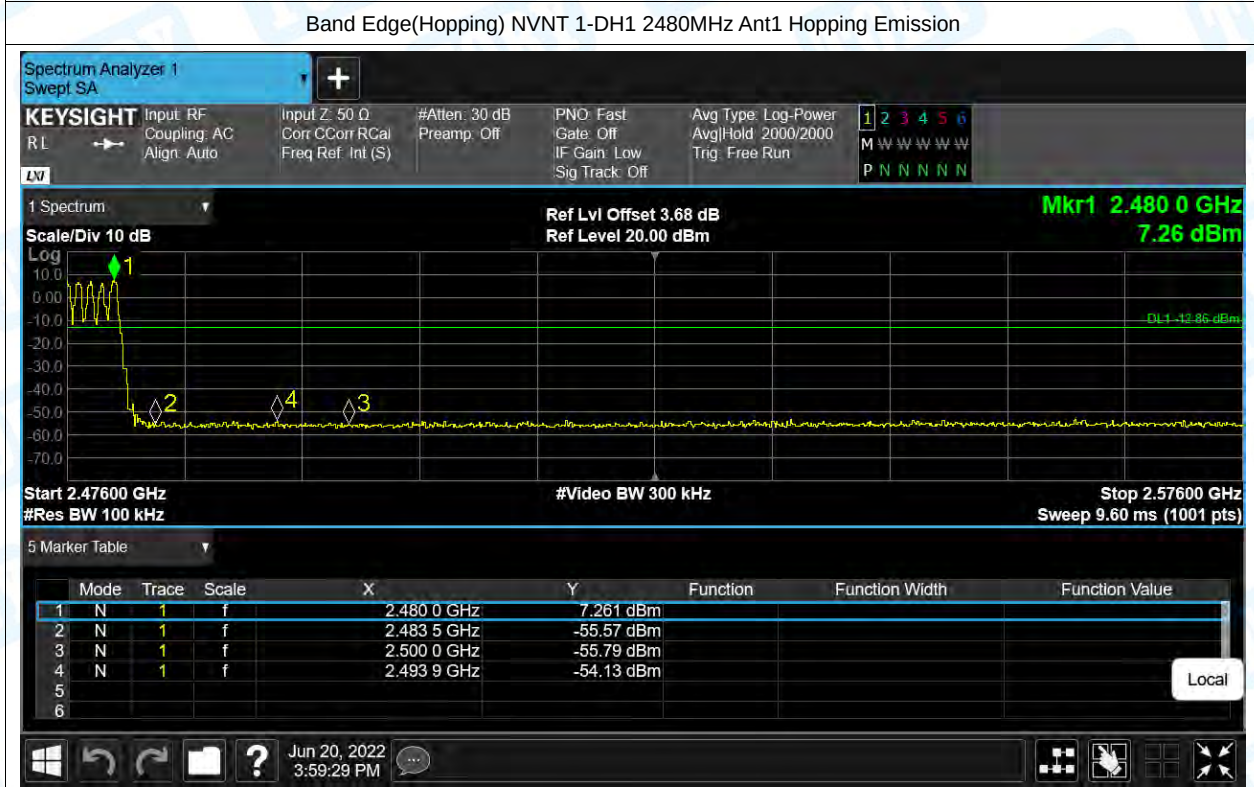
Test Graphs

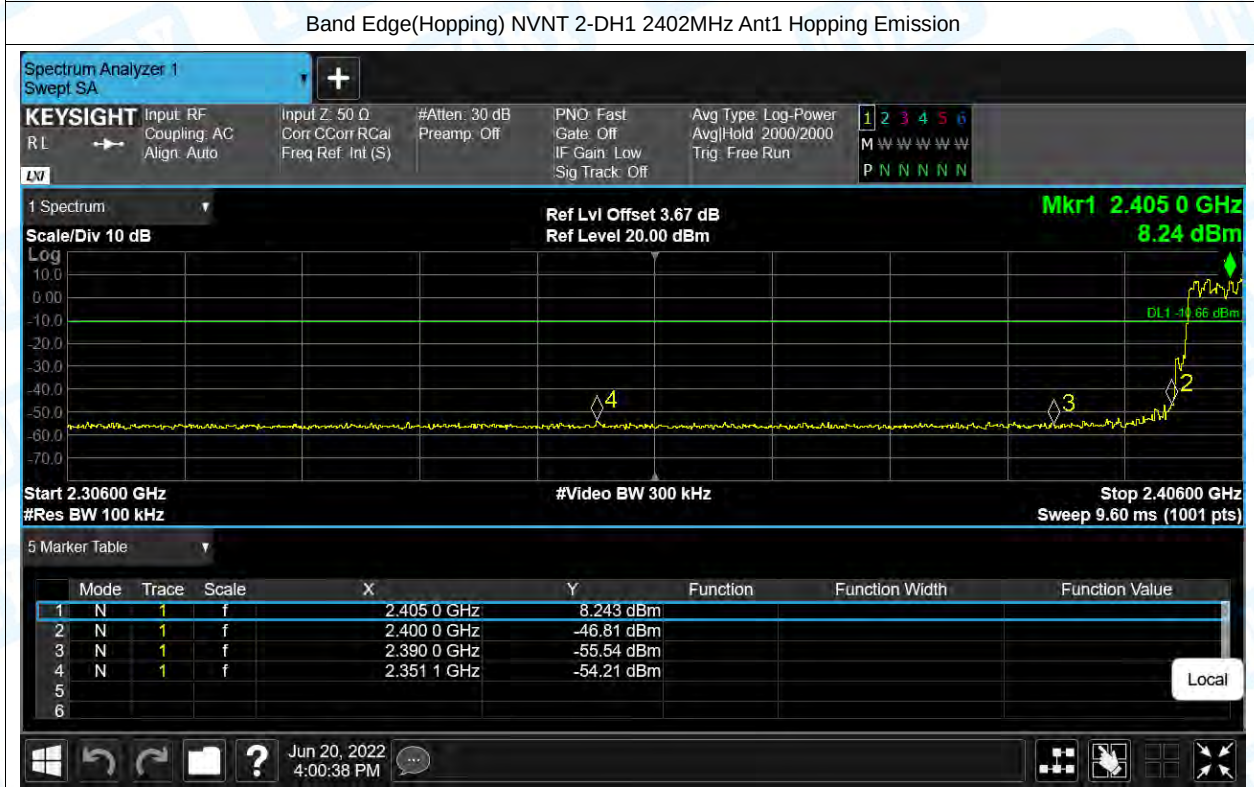
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Ref

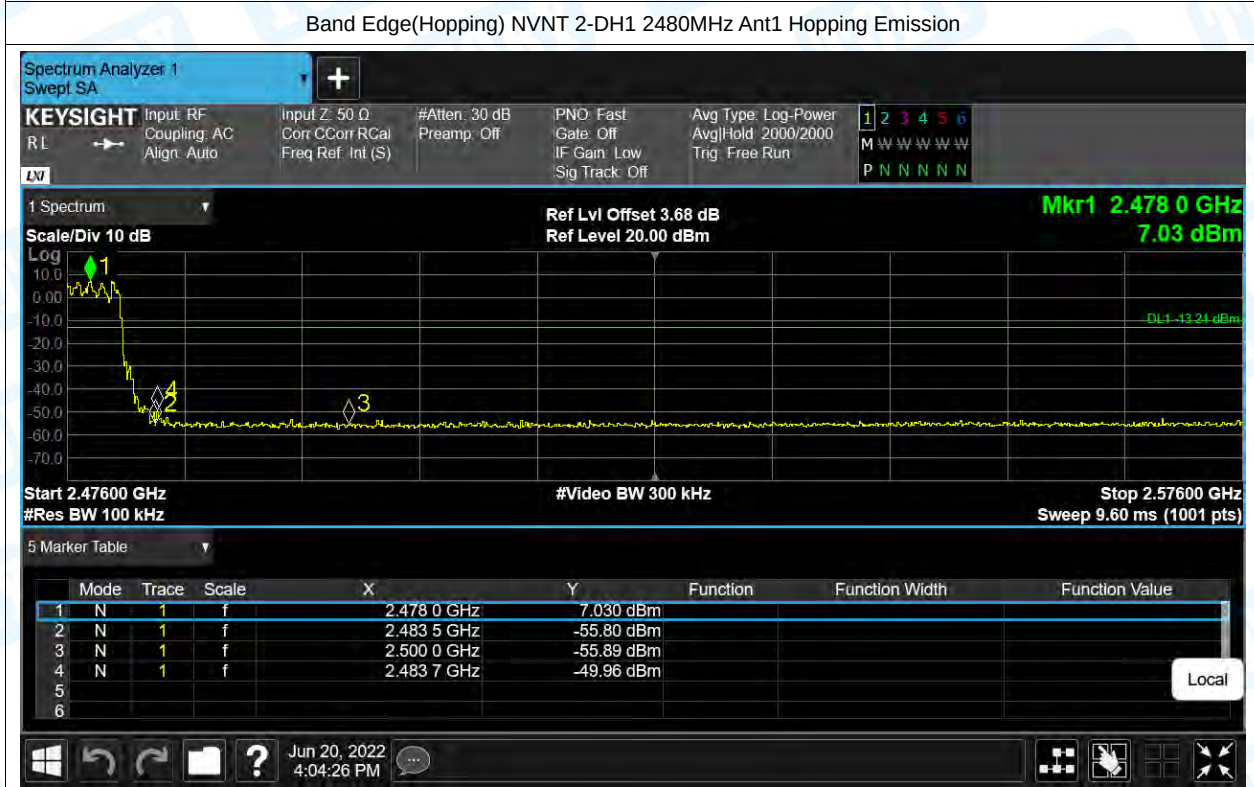


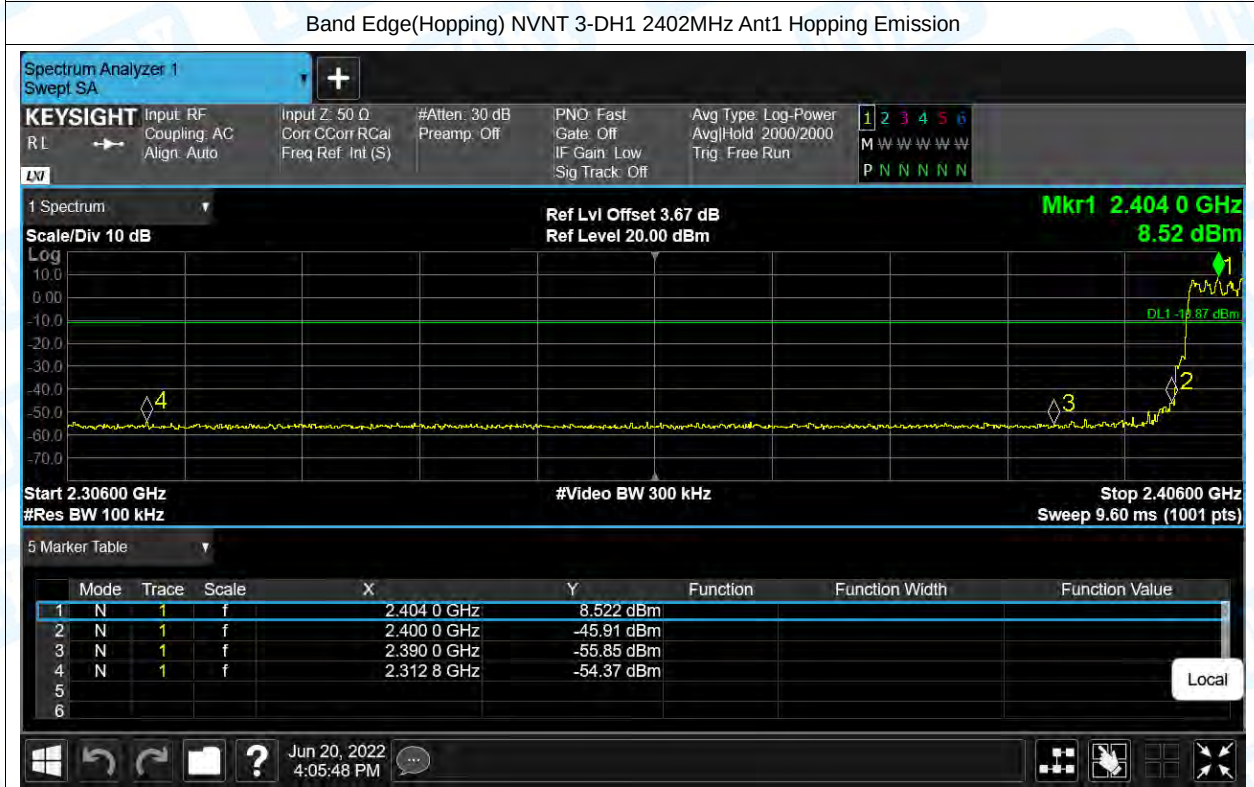
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission

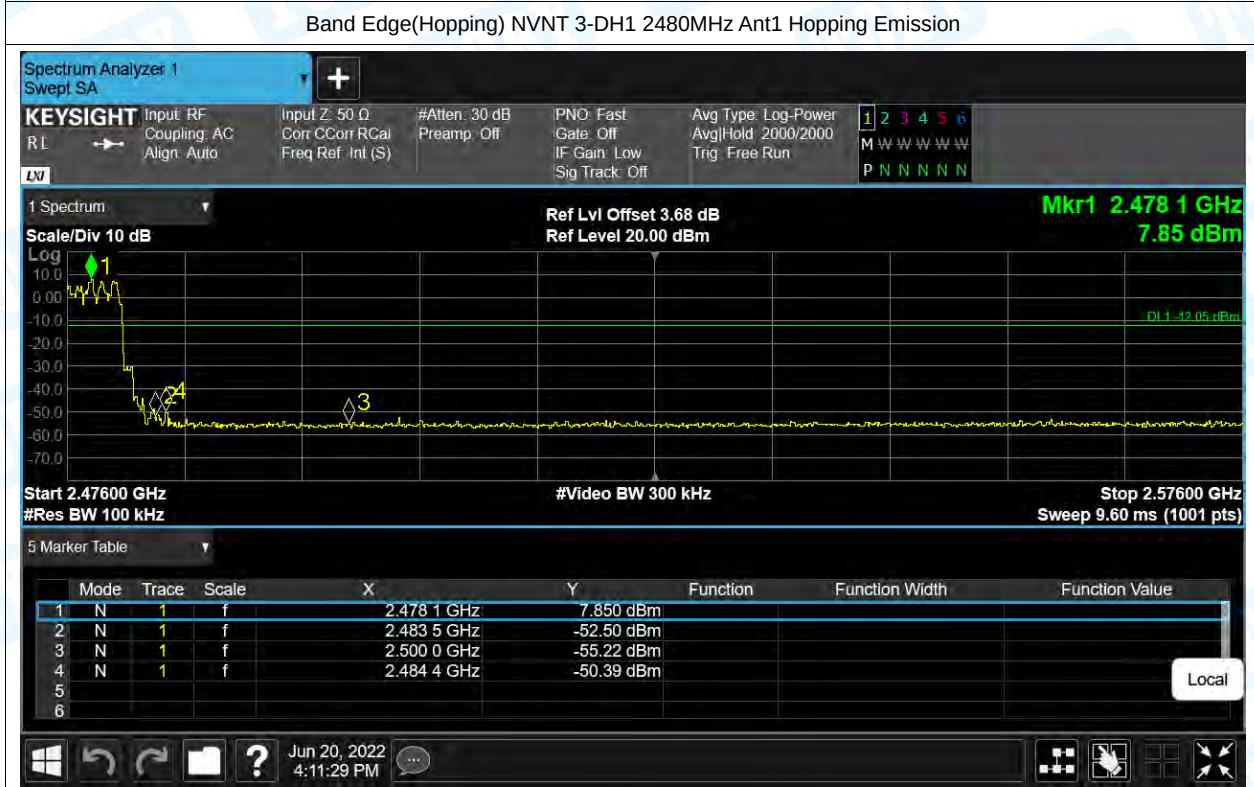






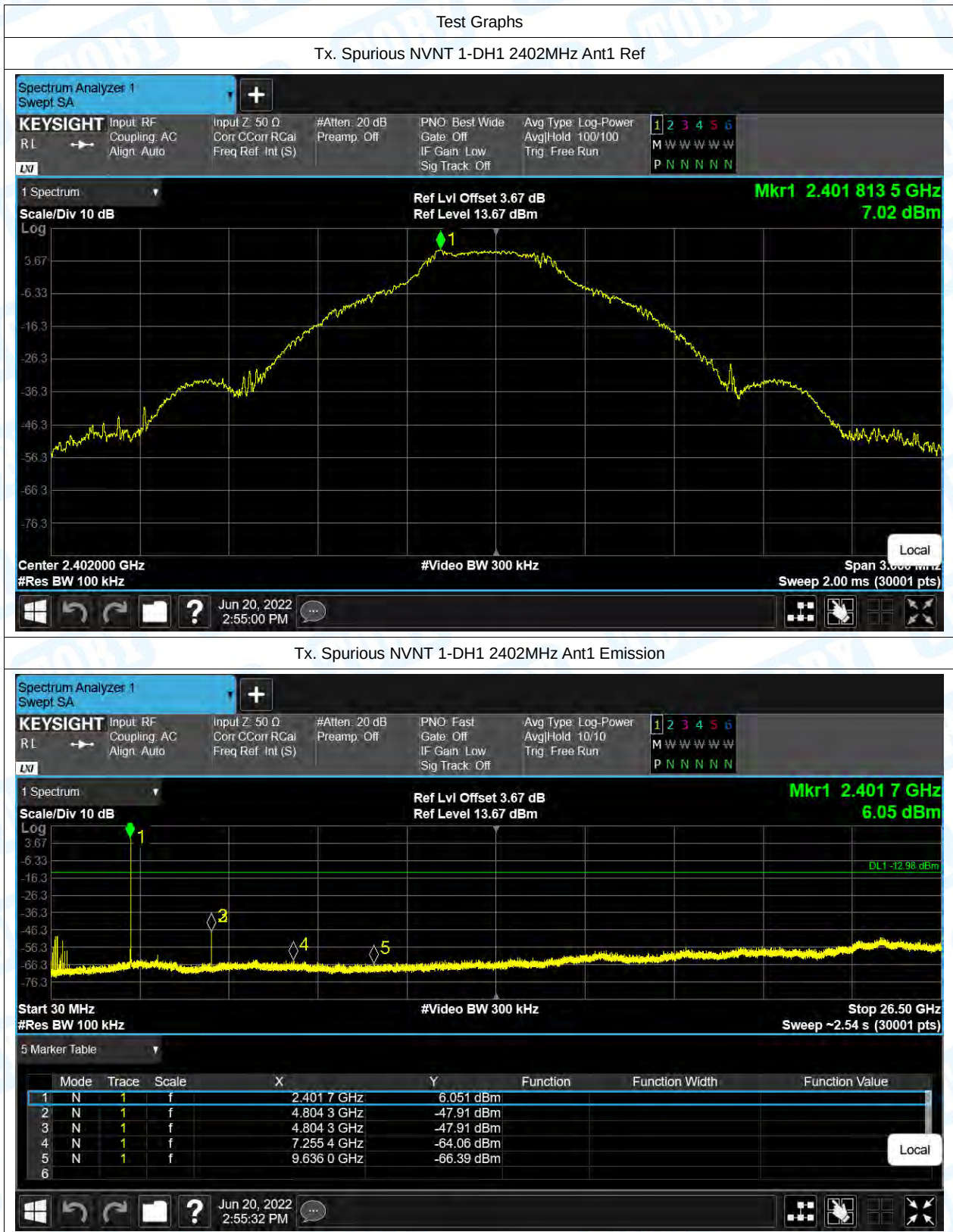






6. Conducted RF Spurious Emission

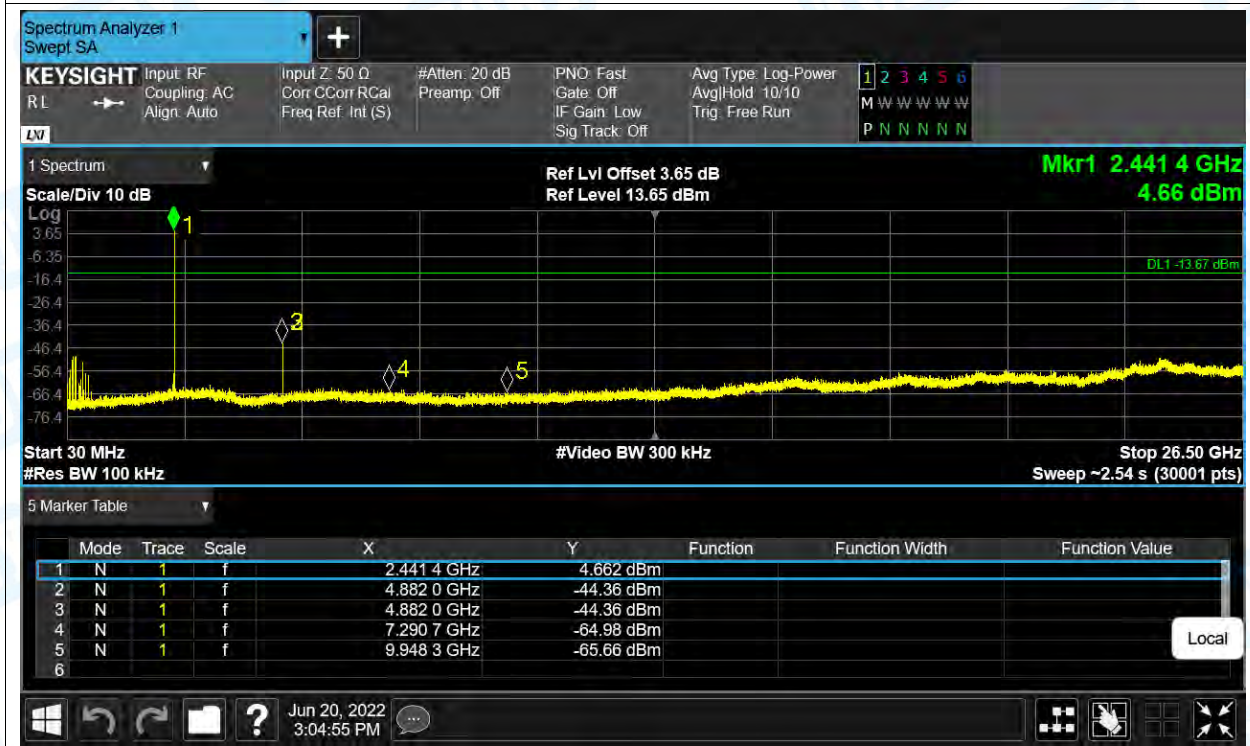
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-54.93	-20	Pass
NVNT	1-DH1	2441	Ant1	-50.69	-20	Pass
NVNT	1-DH1	2480	Ant1	-52.56	-20	Pass
NVNT	2-DH1	2402	Ant1	-52.45	-20	Pass
NVNT	2-DH1	2441	Ant1	-52.08	-20	Pass
NVNT	2-DH1	2480	Ant1	-53.1	-20	Pass
NVNT	3-DH1	2402	Ant1	-55.35	-20	Pass
NVNT	3-DH1	2441	Ant1	-54.91	-20	Pass
NVNT	3-DH1	2480	Ant1	-54.15	-20	Pass



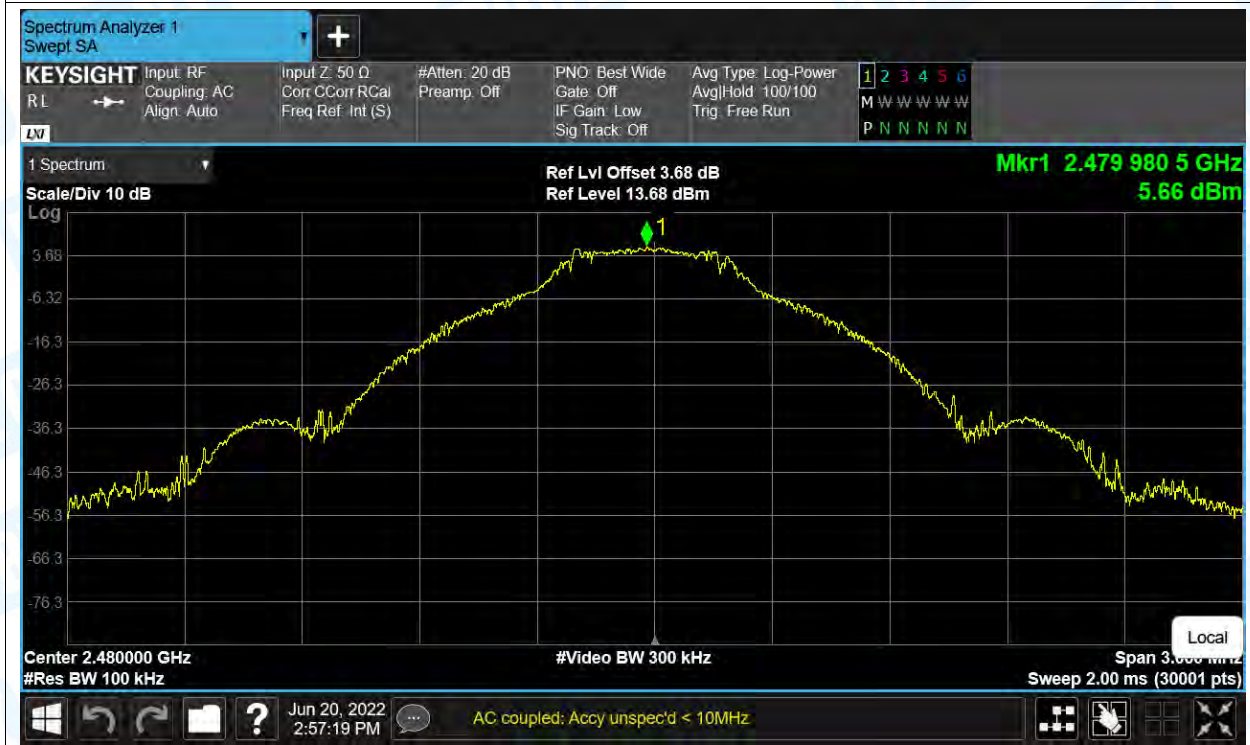
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



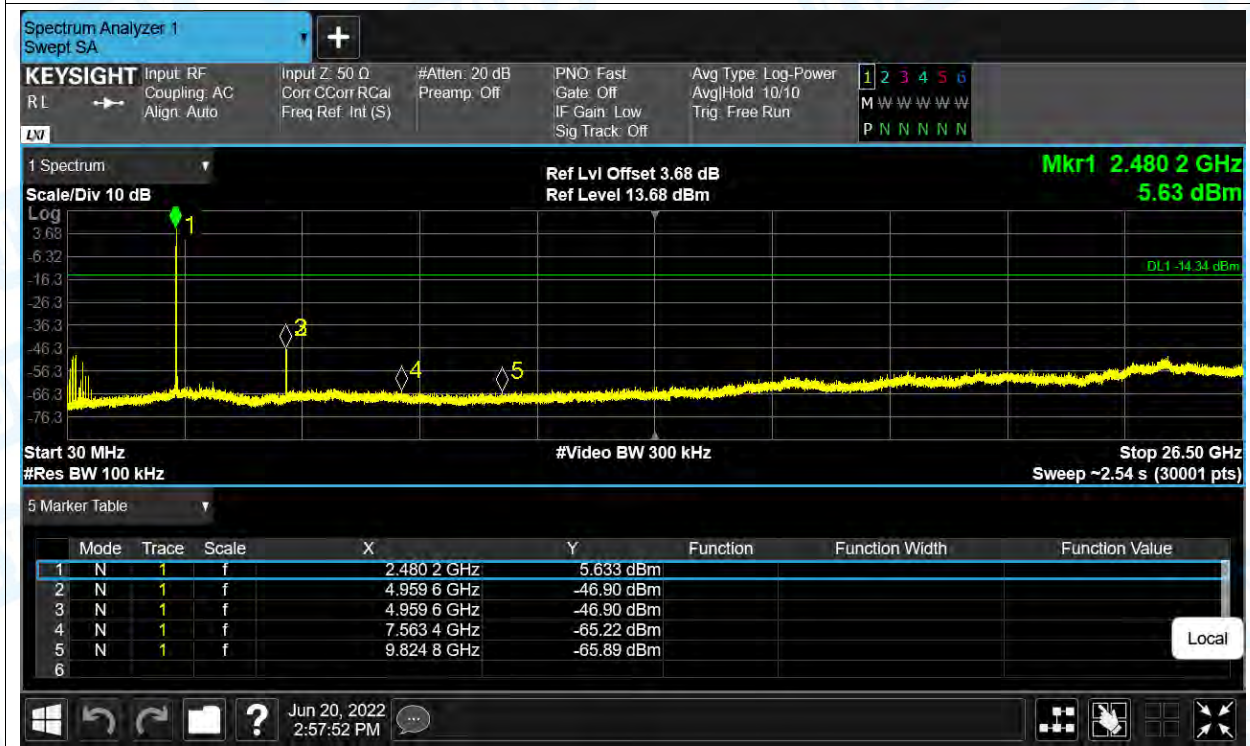
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



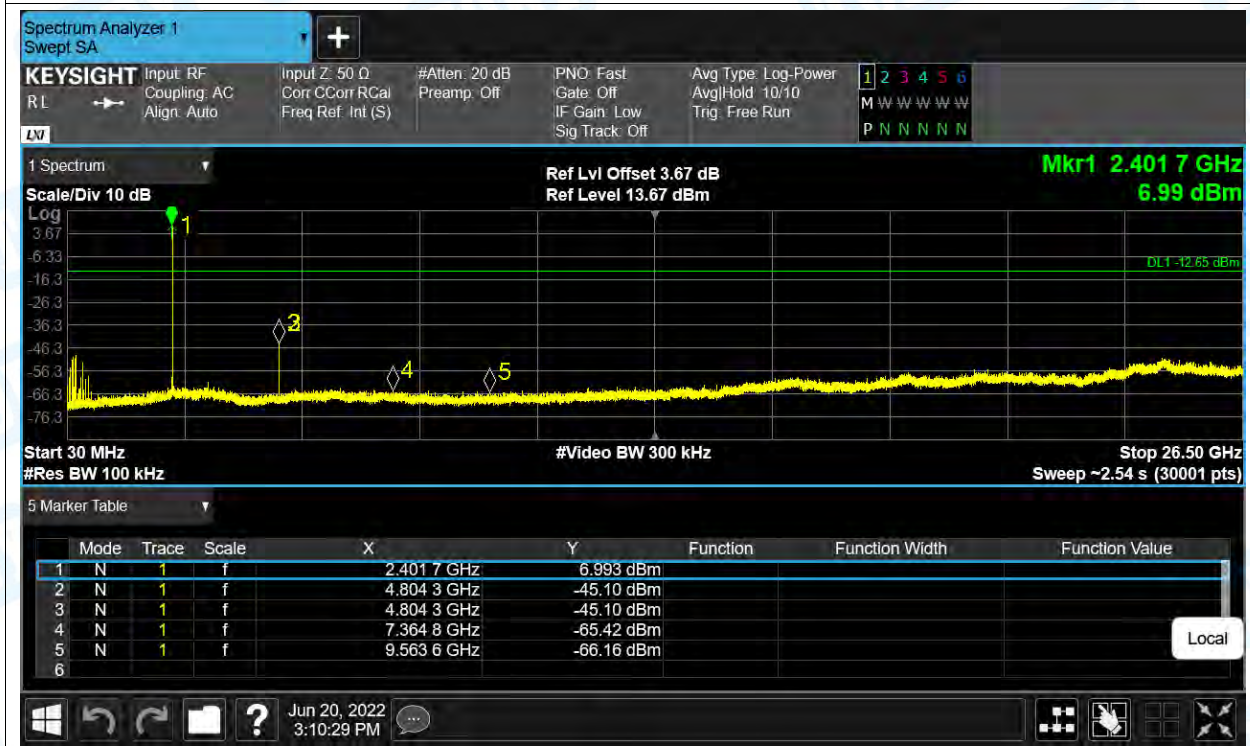
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



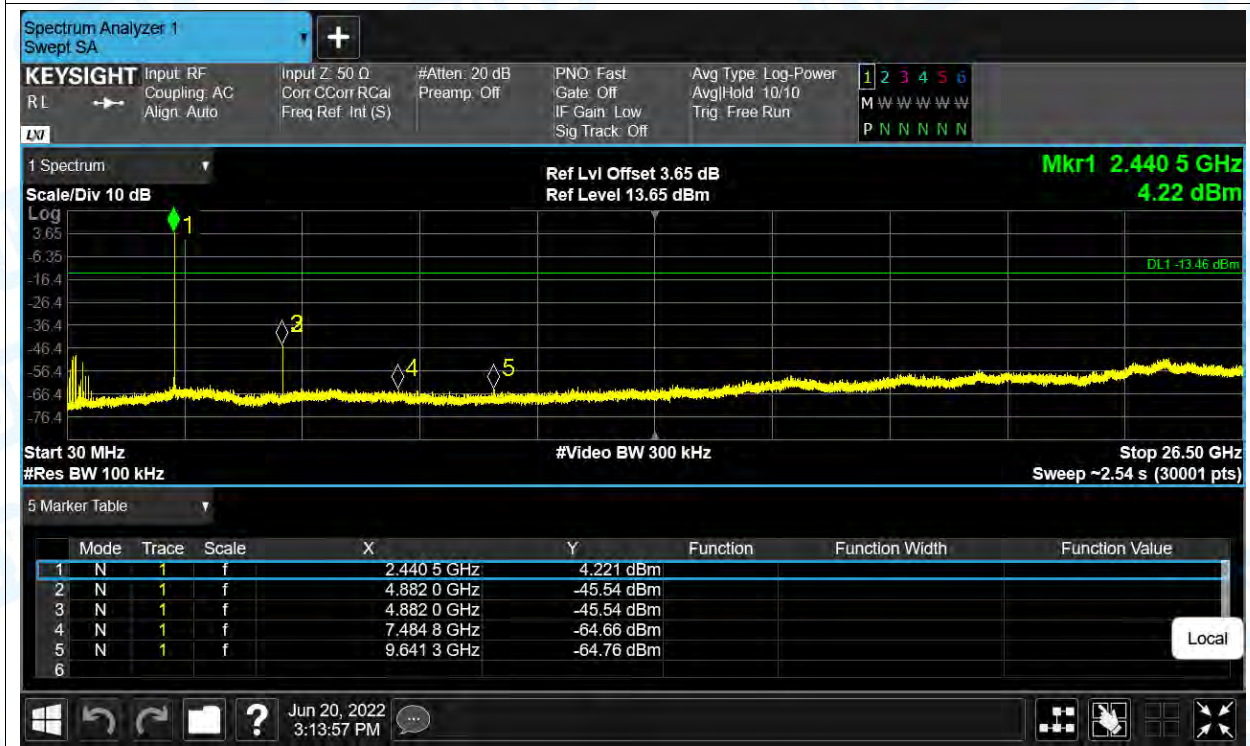
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



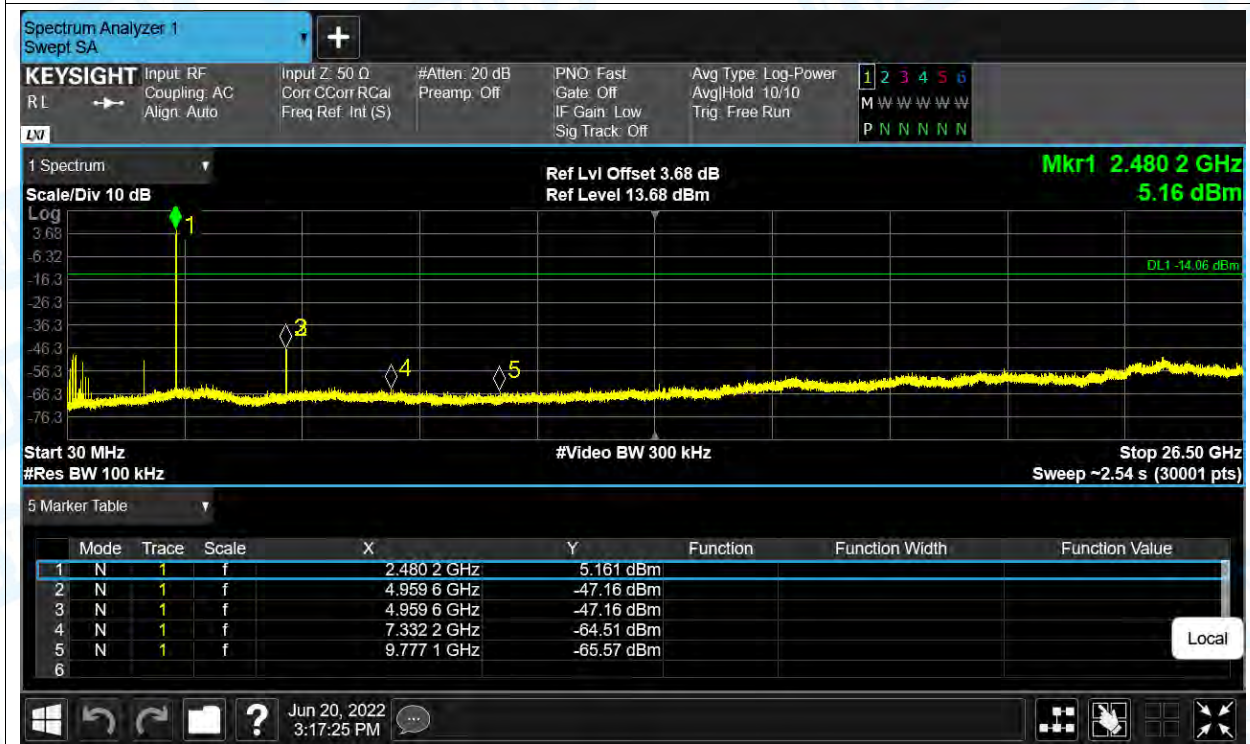
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



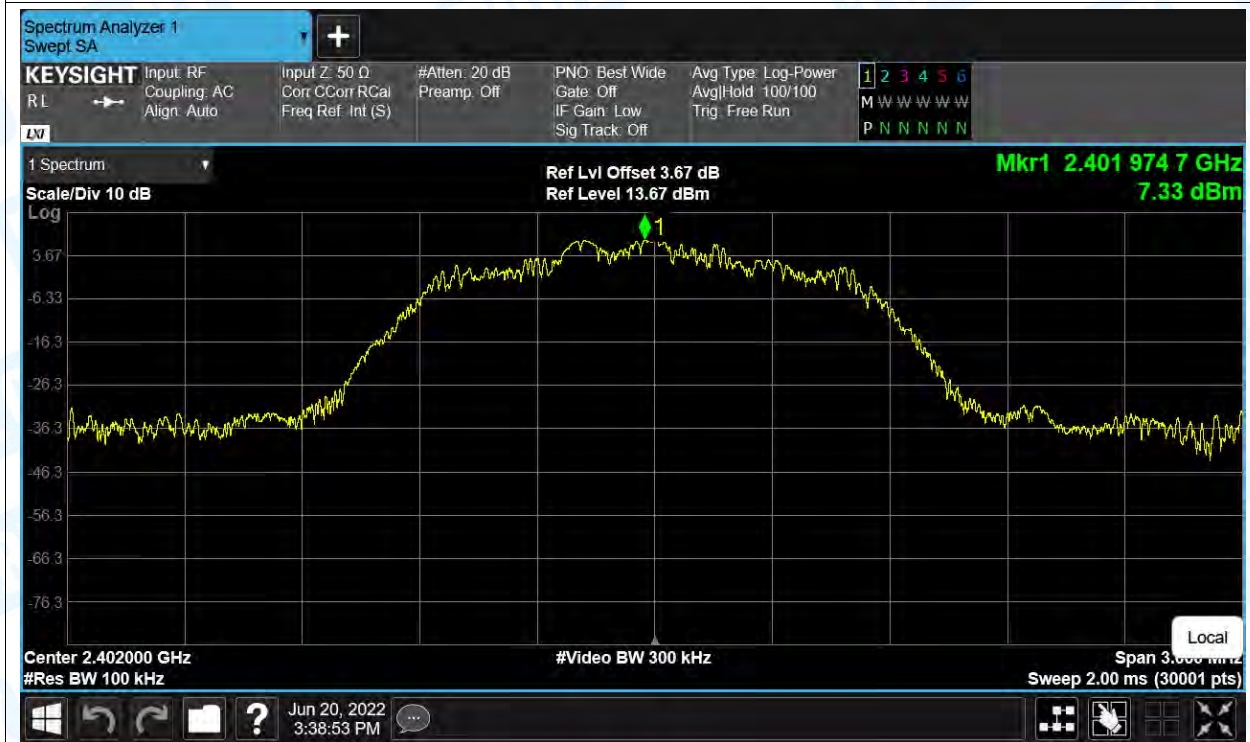
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



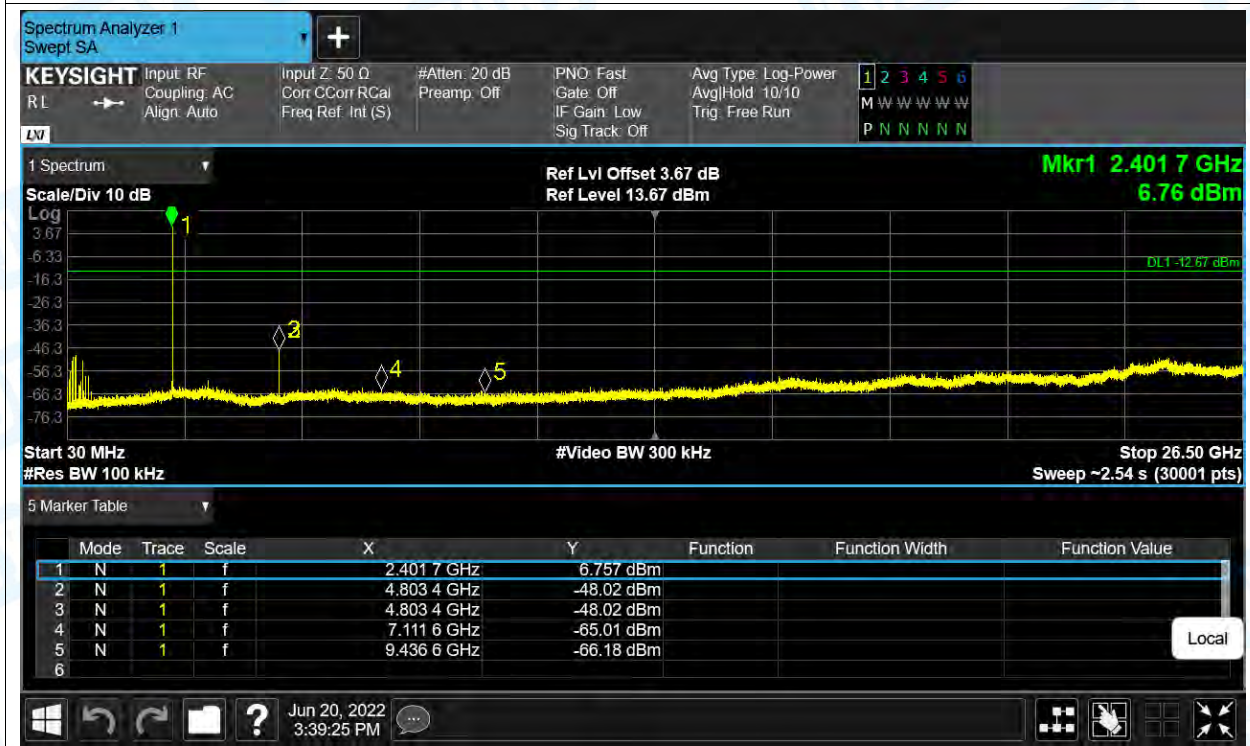
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



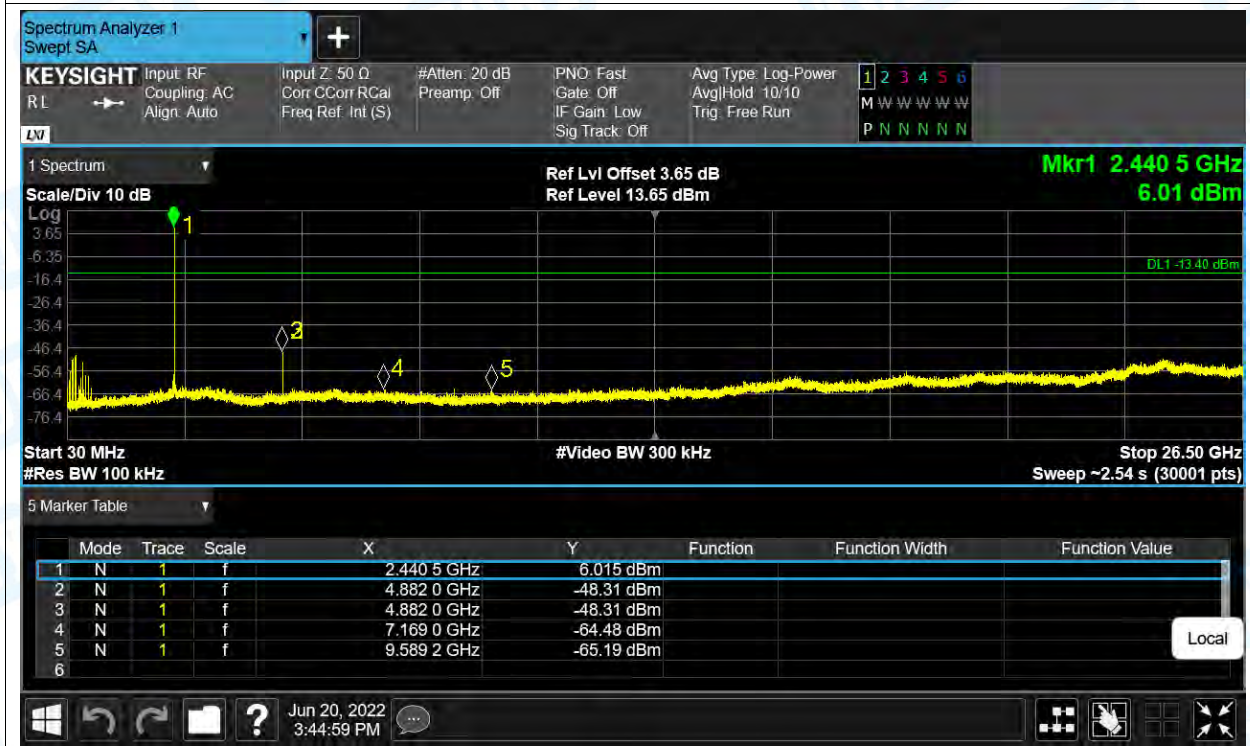
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



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

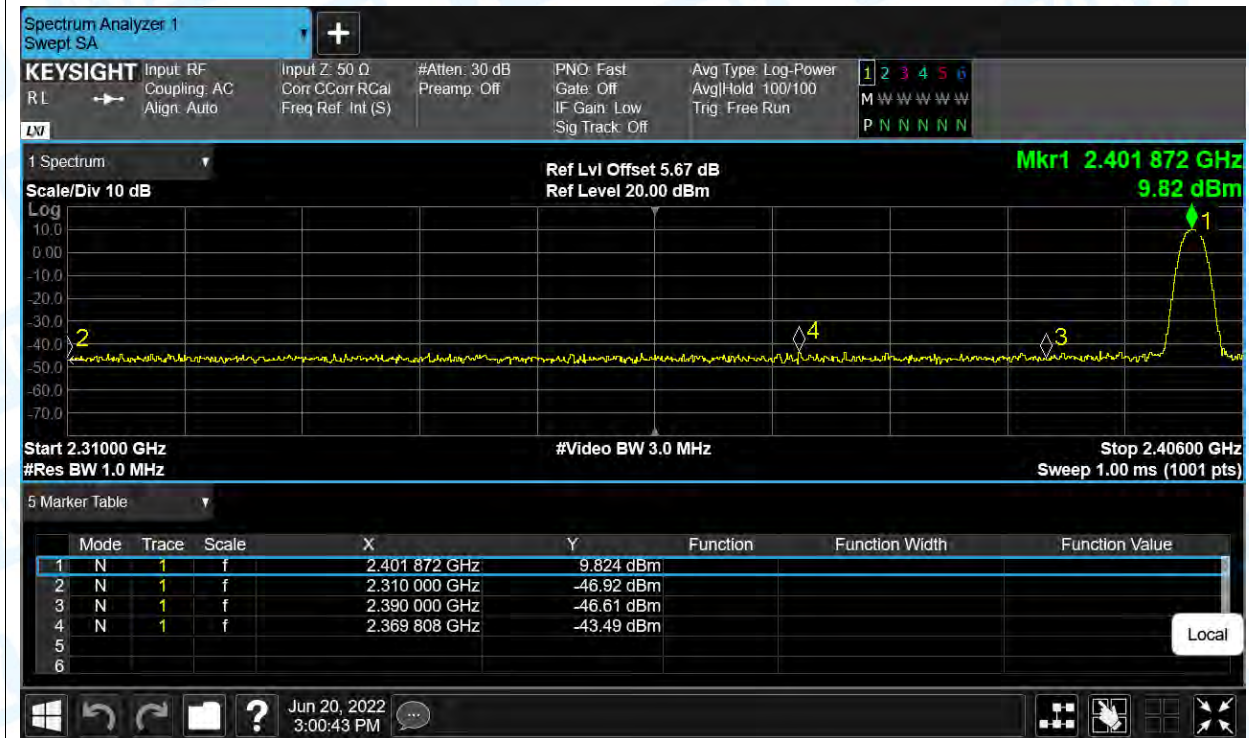


7. Restrict Band

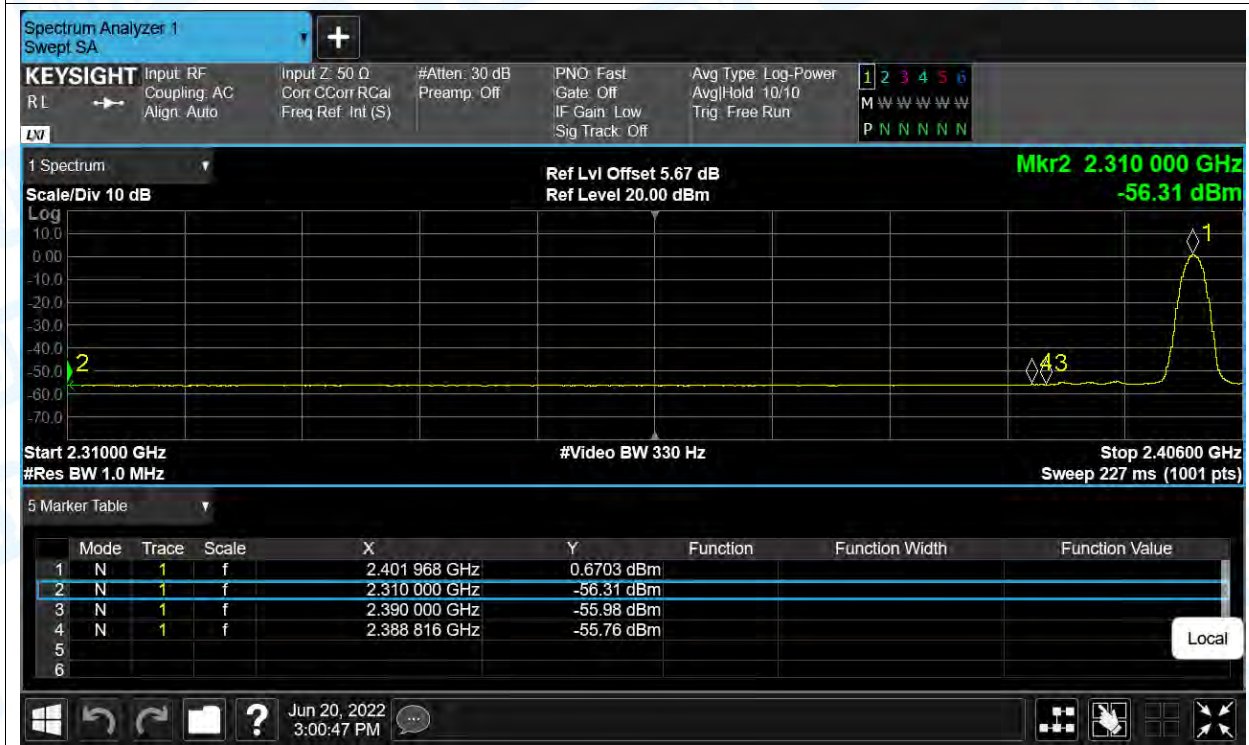
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-46.92	2	50.34	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.31	2	40.95	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2369.808	-43.49	2	53.77	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2388.816	-55.76	2	41.5	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-46.88	2	50.38	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-56.02	2	41.24	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-45.75	2	51.51	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-55.01	2	42.25	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2486.344	-42.53	2	54.73	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2486.152	-53.94	2	43.32	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-45.14	2	52.12	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-55.87	2	41.39	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-47.42	2	49.84	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.4	2	40.86	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2383.056	-43.4	2	53.86	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2389.776	-55.75	2	41.51	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-44.66	2	52.6	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-55.93	2	41.33	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-45.17	2	52.09	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-55.22	2	42.04	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2486.416	-42.21	2	55.05	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2486.344	-54.64	2	42.62	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-46.62	2	50.64	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.71	2	41.55	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-46.6	2	50.66	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-56.15	2	41.11	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2325.264	-43.28	2	53.98	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2389.488	-55.71	2	41.55	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-46.39	2	50.87	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-55.72	2	41.54	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-44.32	2	52.94	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-55.27	2	41.99	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2498.2	-42	2	55.26	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2486.296	-54.59	2	42.67	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-47.47	2	49.79	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.92	2	41.34	Average	54	Pass

Test Graphs

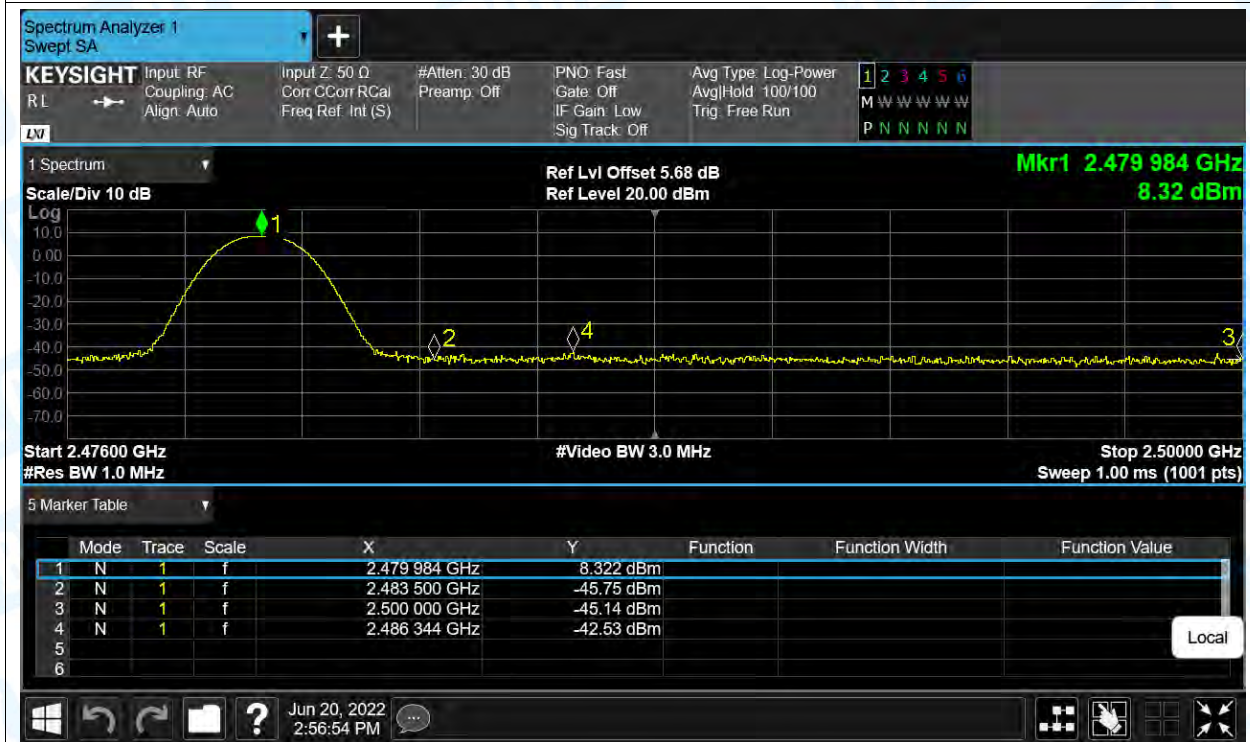
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



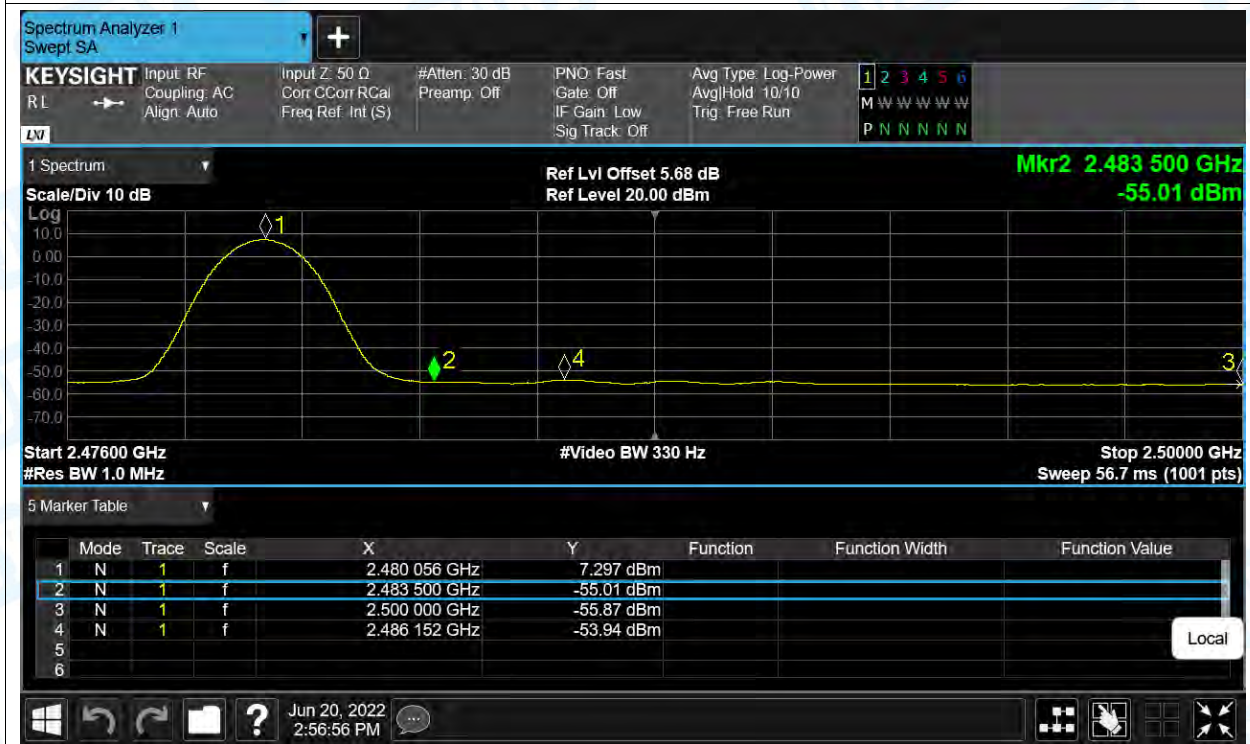
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



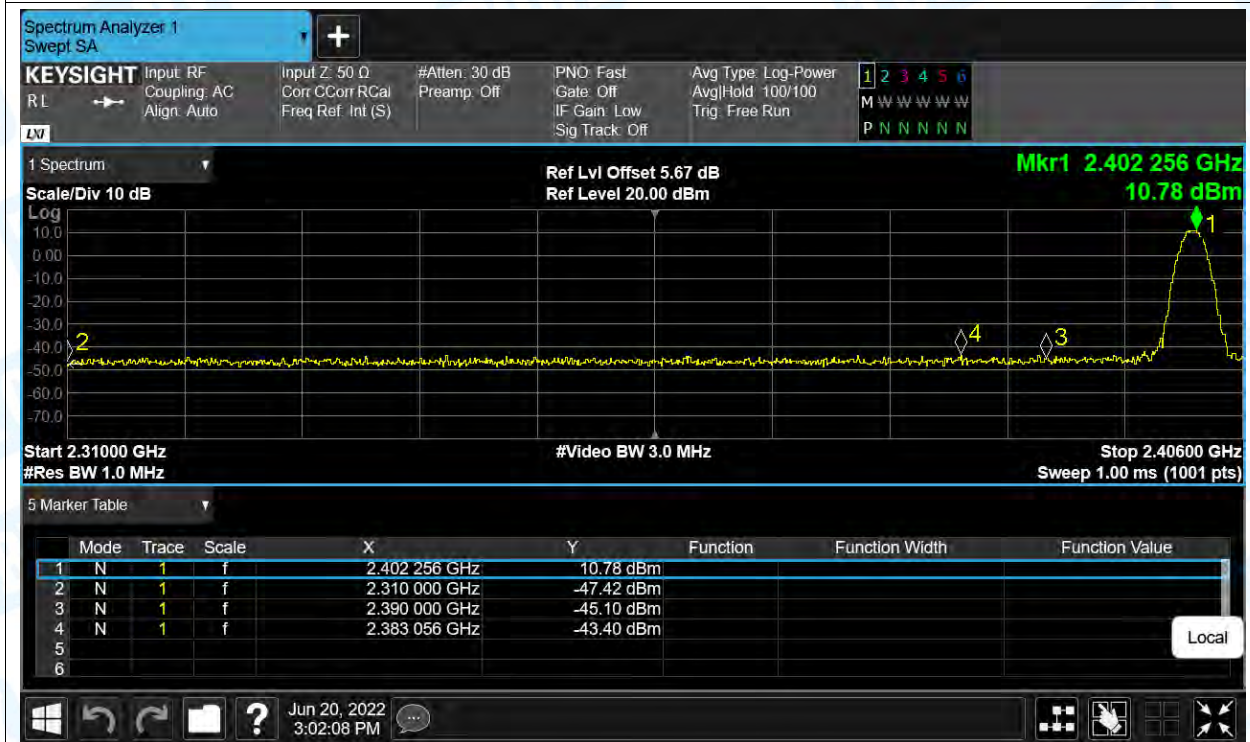
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



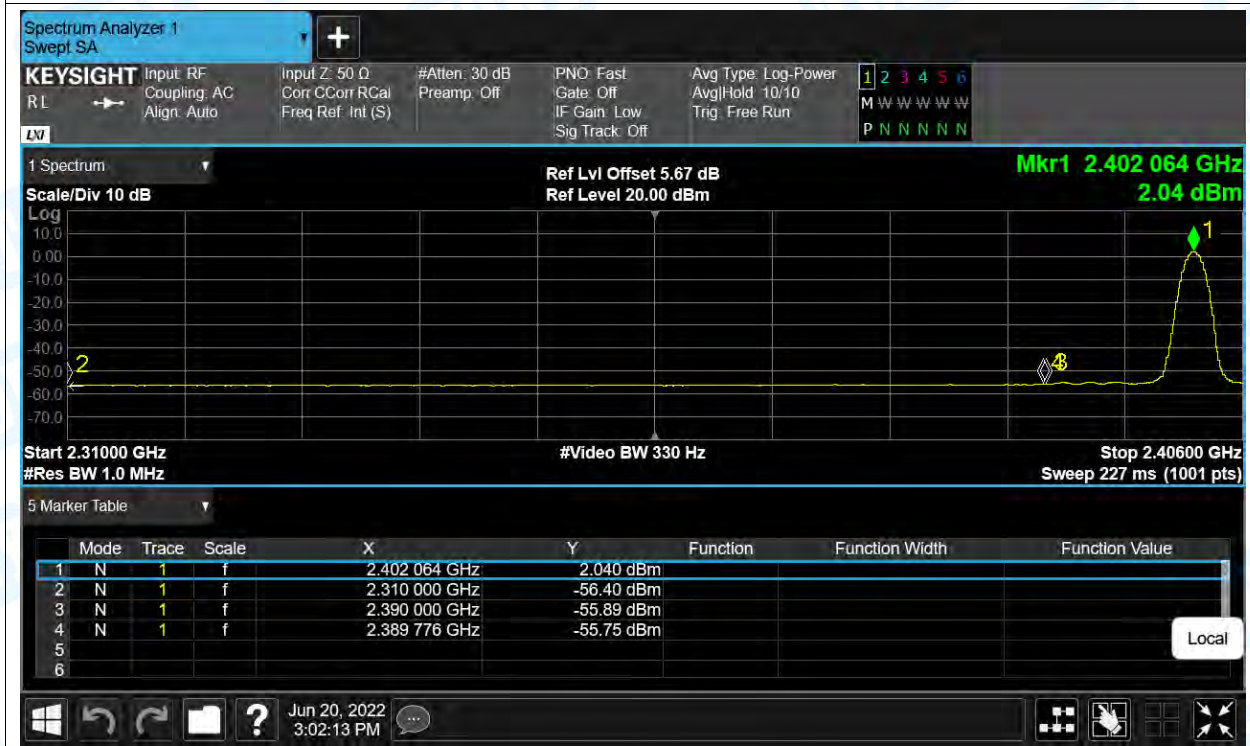
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



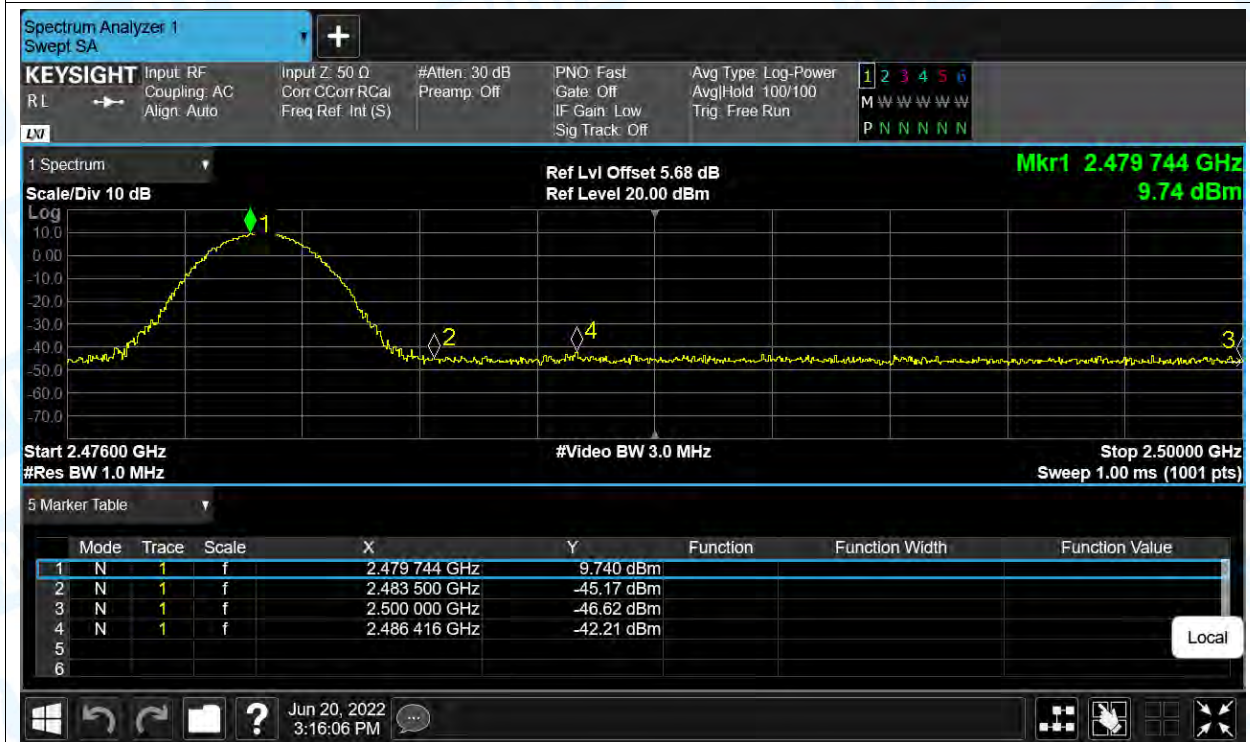
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



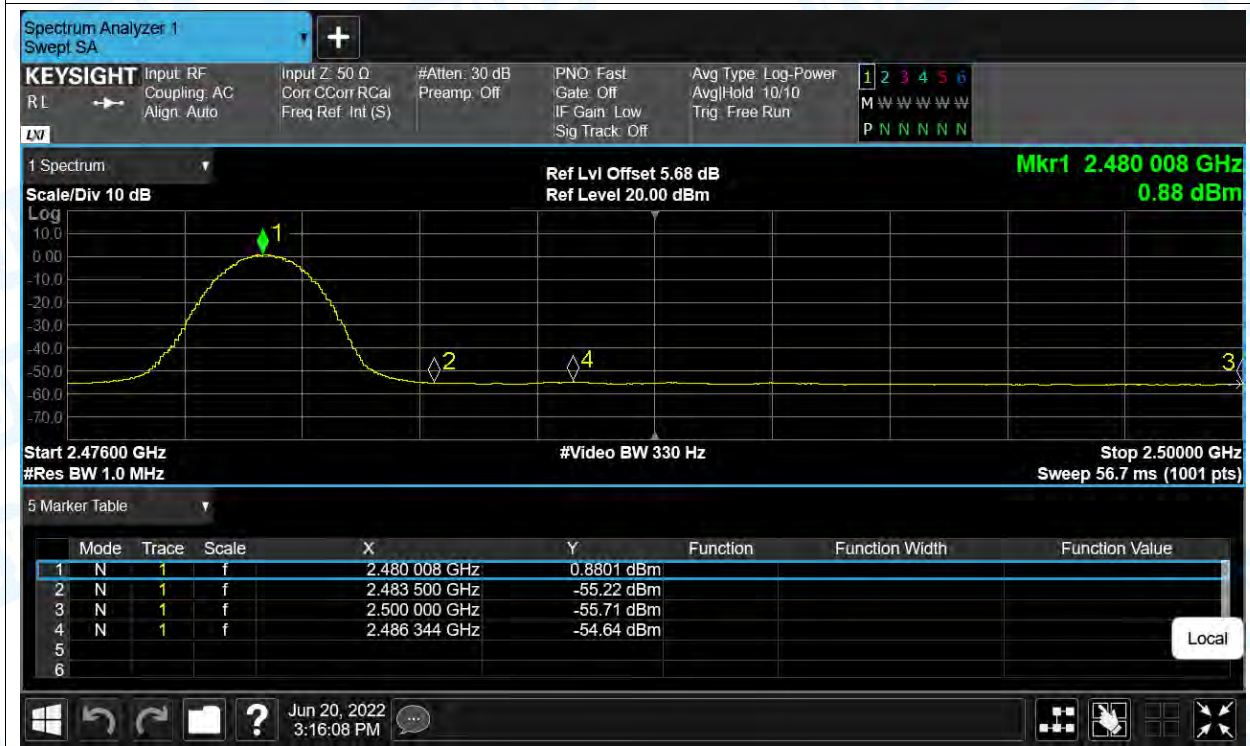
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



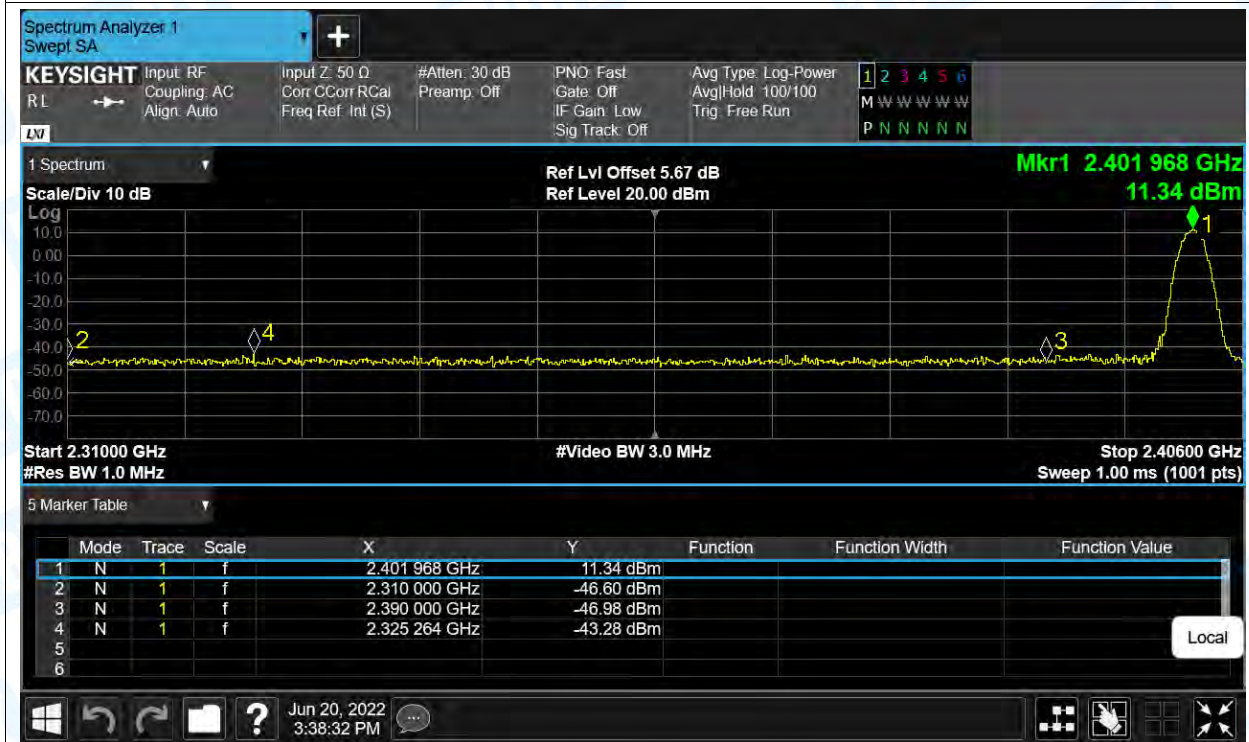
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



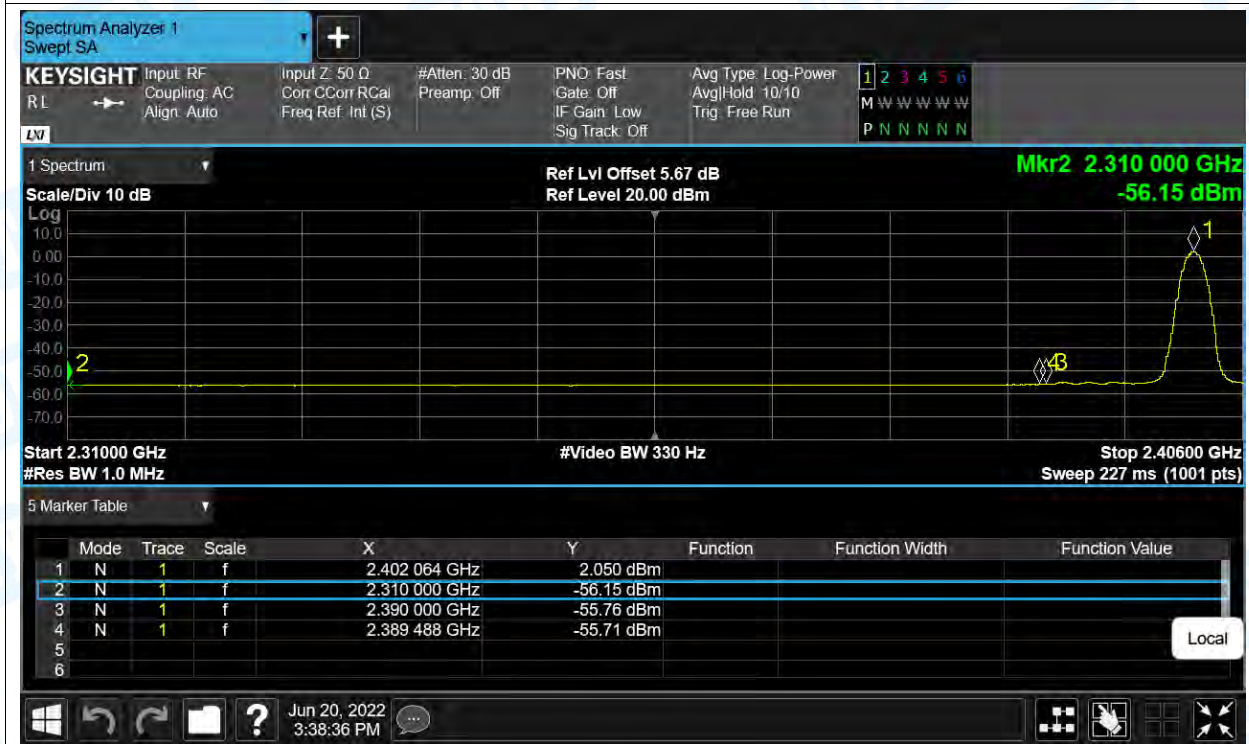
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



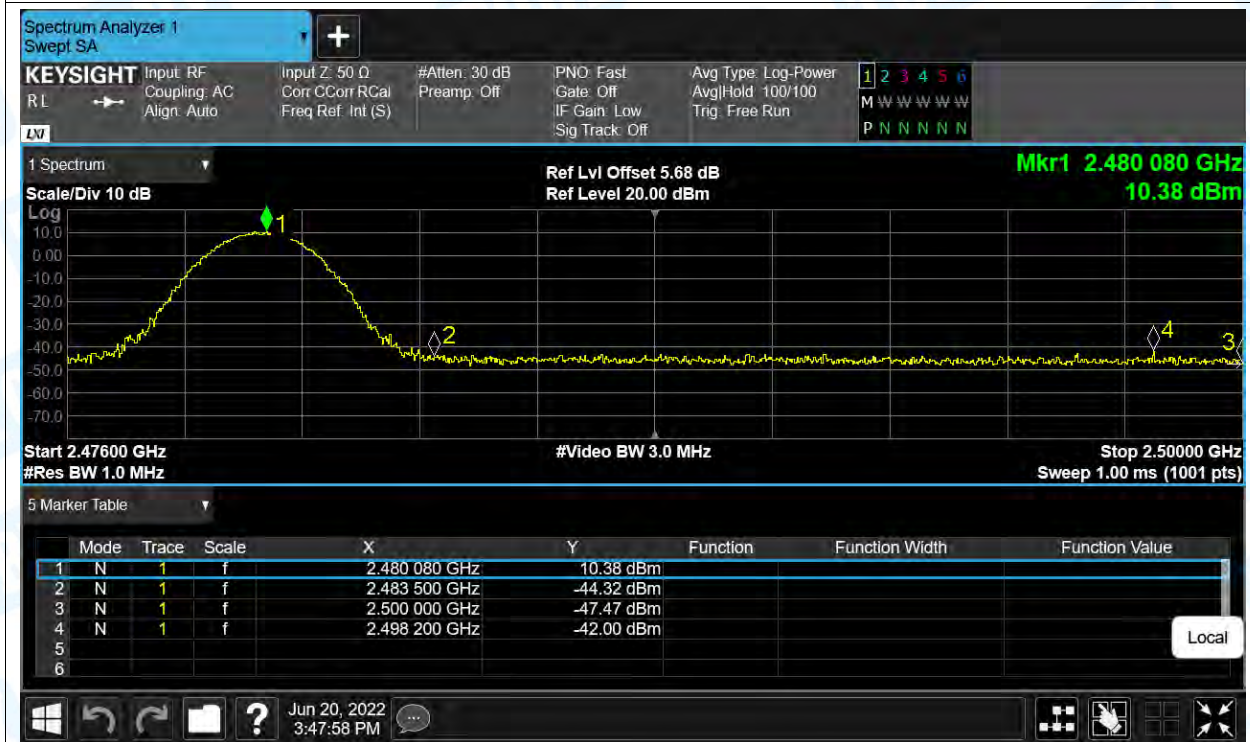
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



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



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

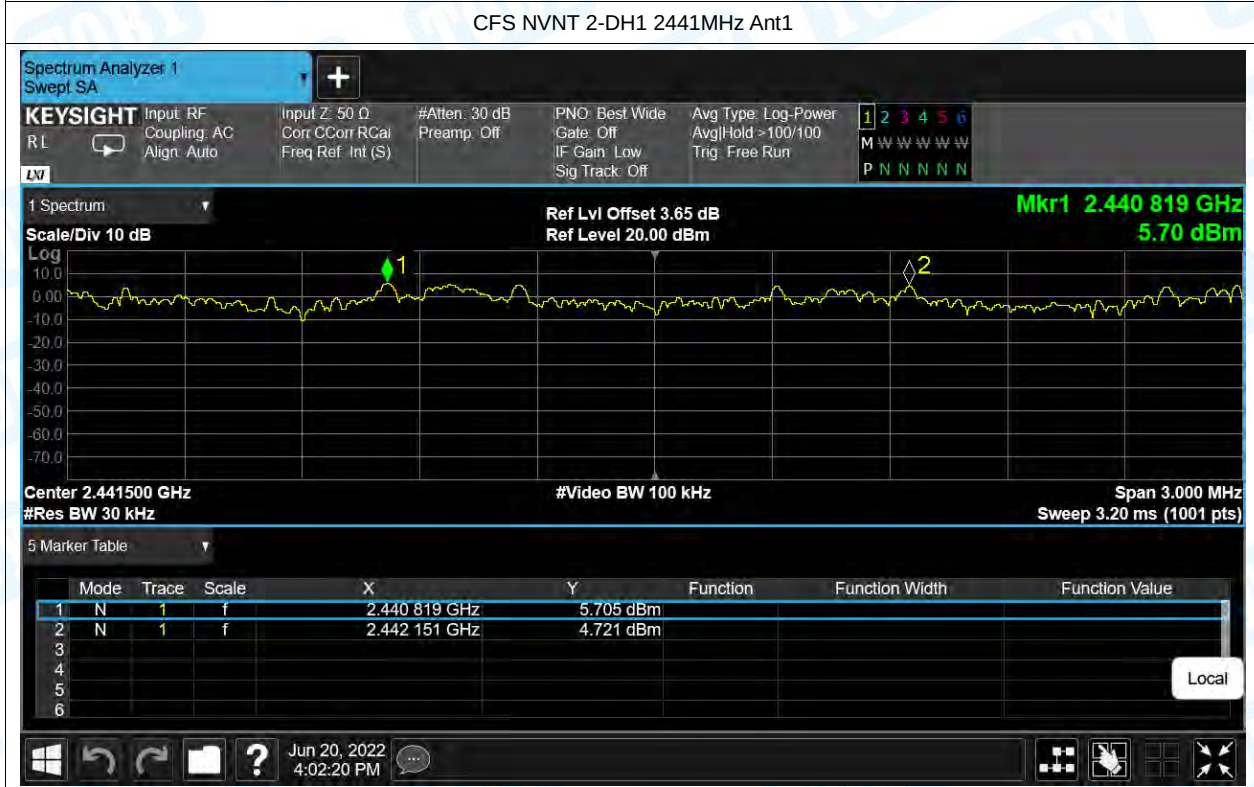
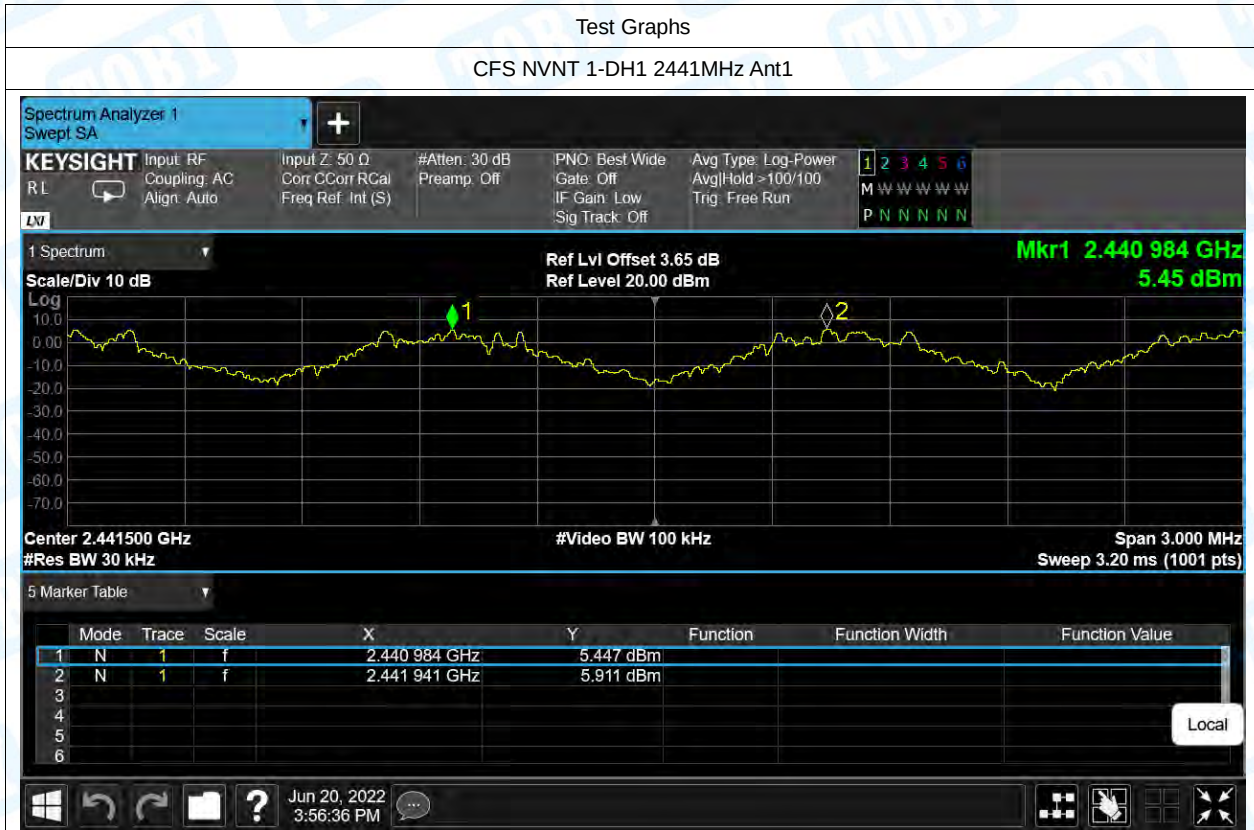


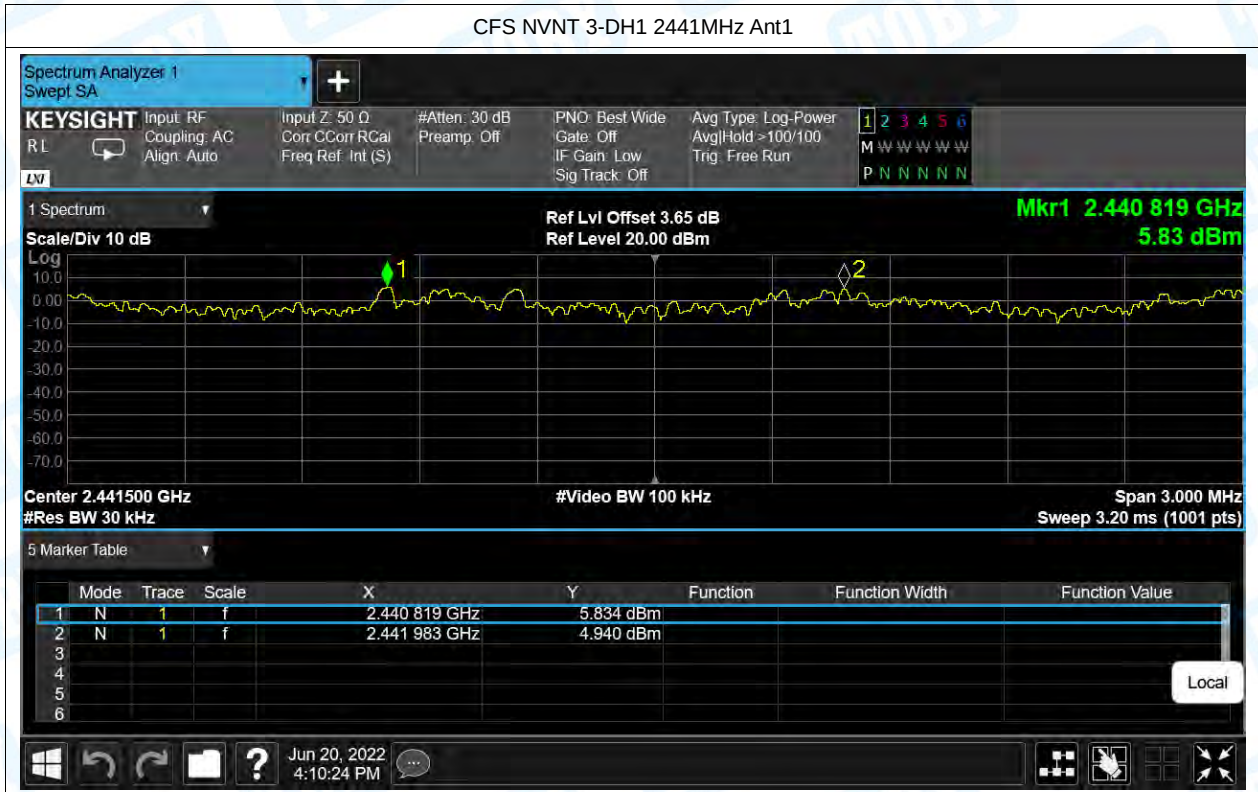
Restrict Band NVNT 3-DH1 2480MHz Ant1 No-Hopping Average



8. Carrier Frequencies Separation

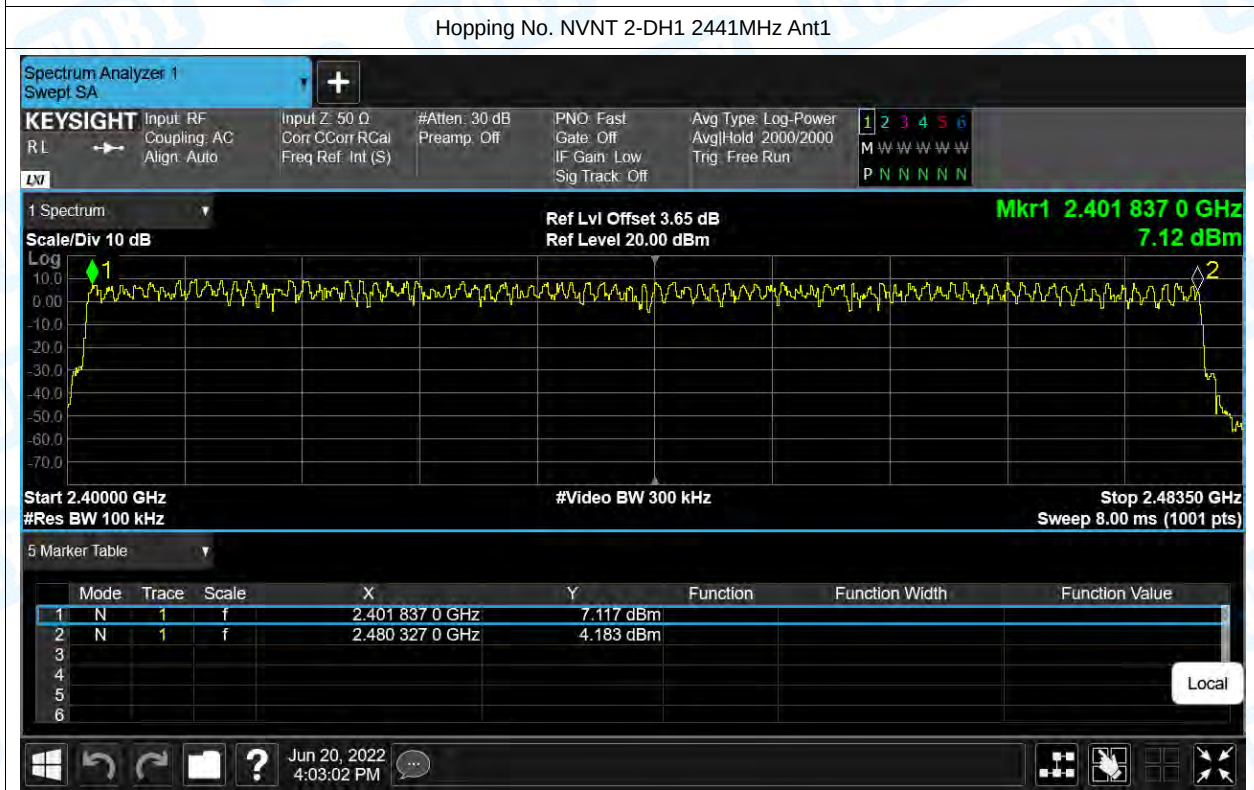
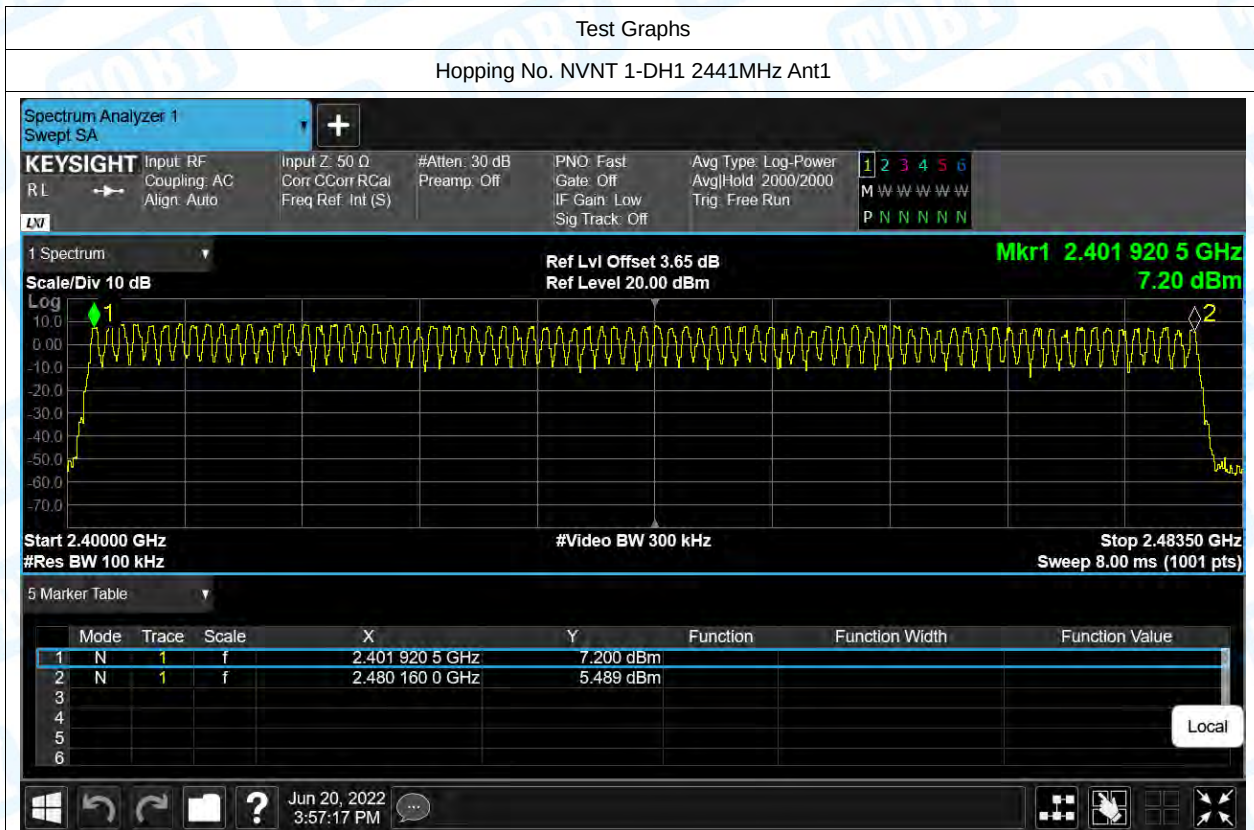
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.984	2441.941	0.957	0.613	Pass
NVNT	2-DH1	Ant1	2440.819	2442.151	1.332	0.813	Pass
NVNT	3-DH1	Ant1	2440.819	2441.983	1.164	0.807	Pass

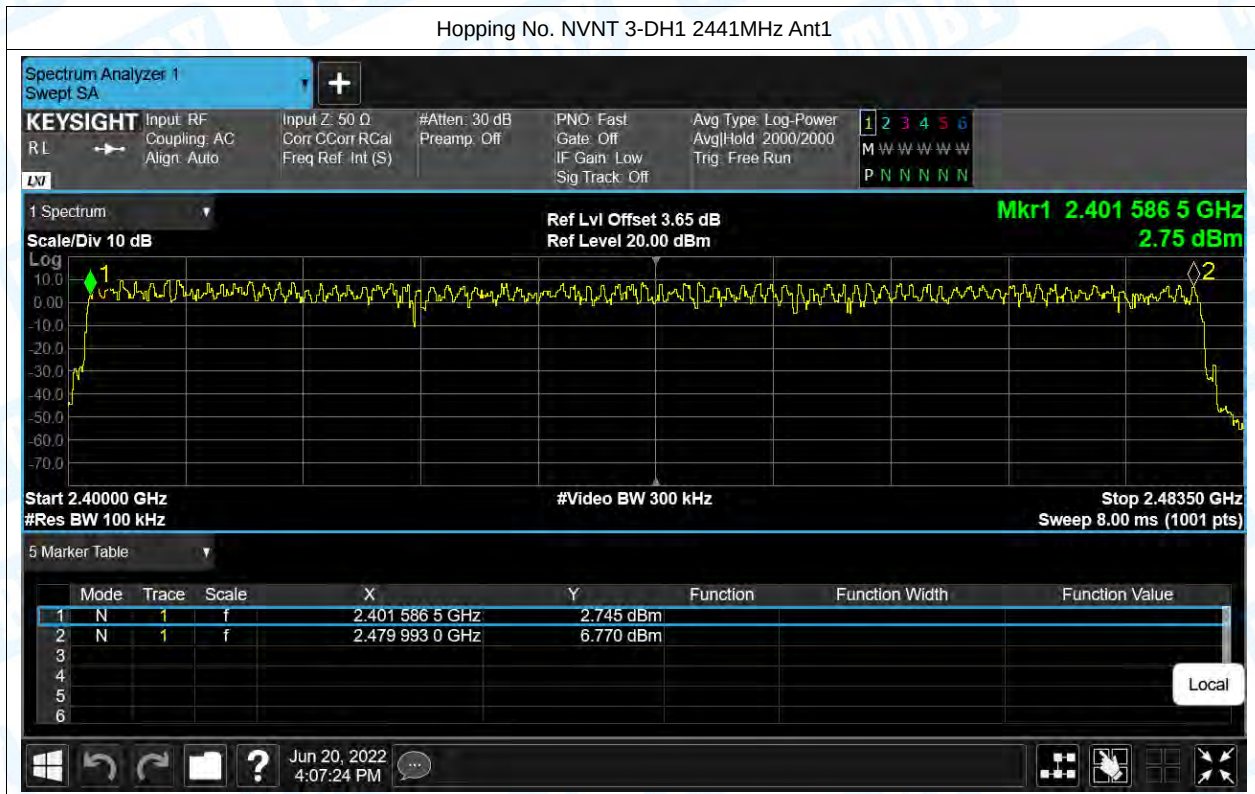




9. Number of Hopping Channel

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



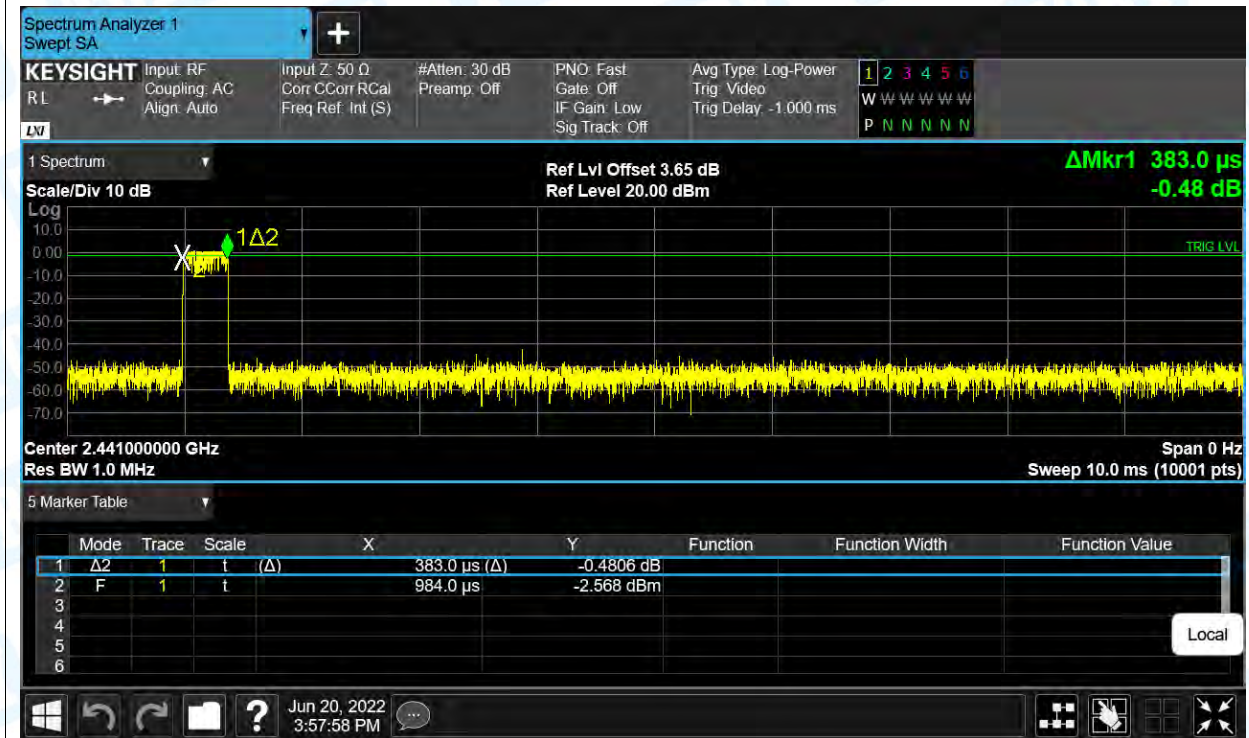


10. Dwell Time

Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.383	122.56	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.639	262.24	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.887	307.947	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.391	125.12	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.643	262.88	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.891	308.373	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.391	125.12	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.642	262.72	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.893	308.587	31600	400	Pass

Test Graphs

Dwell NVNT 1-DH1 2441MHz Ant1



Dwell NVNT 1-DH3 2441MHz Ant1

