

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	Smart Watch
Test Model:	HD8C
Sample ID:	HC-C-202506-0052-02-3#
Environmental Conditions	
Temperature:	23.9℃
Relative Humidity:	48%
Test Voltage:	DC 5V
Test Engineer:	Lily Zhang
Note: For a more detailed features description, please refer to the report TBR-C-202507-0100-2 The report only show the worst case data.	

Contents

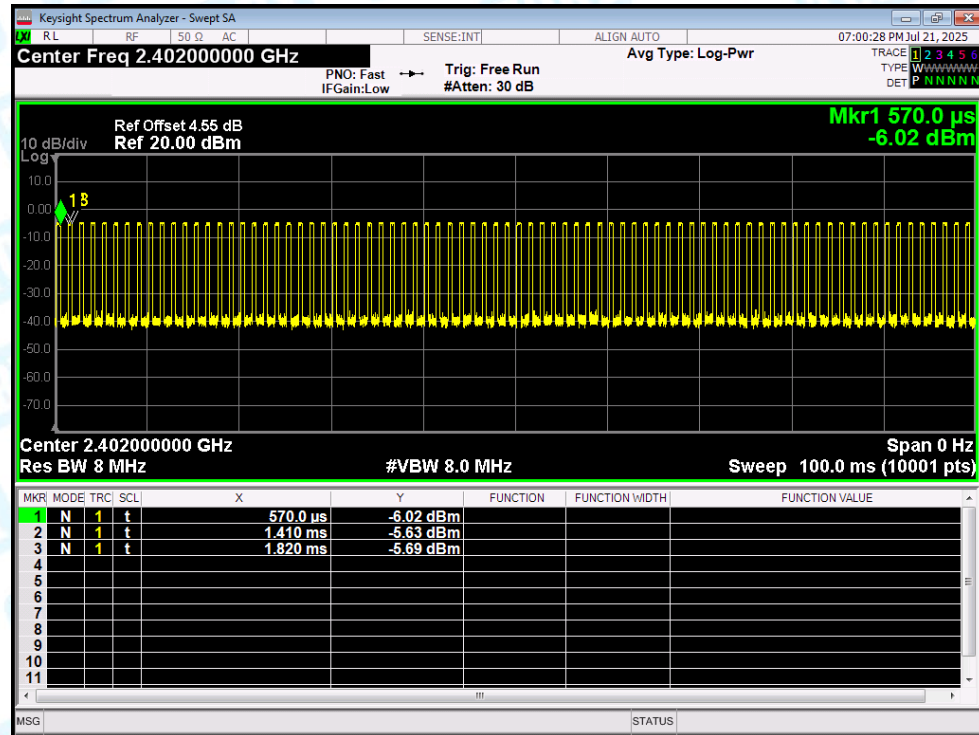
1. Duty Cycle.....	3
2. Maximum Conducted Output Power.....	12
3. -20dB Bandwidth.....	18
4. Occupied Channel Bandwidth.....	24
5. Band Edge.....	30
6. Band Edge(Hopping).....	37
7. Conducted RF Spurious Emission.....	44
8. Restrict Band.....	54
9. Carrier Frequencies Separation.....	61
10. Number of Hopping Channel.....	64
11. Dwell Time.....	67

1. Duty Cycle

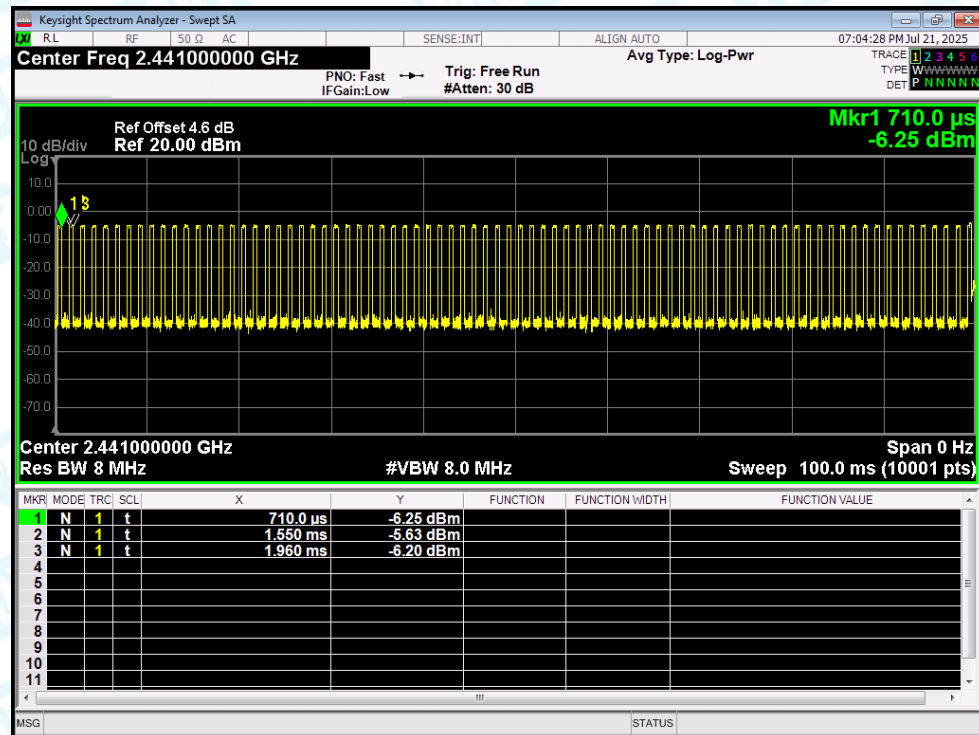
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	32.8	4.84	2.44
NVNT	1-DH1	2441	Ant1	32.8	4.84	2.44
NVNT	1-DH1	2480	Ant1	32	4.95	2.5
NVNT	1-DH3	2441	Ant1	66.8	1.75	0.6
NVNT	1-DH5	2441	Ant1	77.87	1.09	0.34
NVNT	2-DH1	2402	Ant1	32.8	4.84	2.44
NVNT	2-DH1	2441	Ant1	33.6	4.74	2.38
NVNT	2-DH1	2480	Ant1	32.8	4.84	2.44
NVNT	2-DH3	2441	Ant1	66.8	1.75	0.6
NVNT	2-DH5	2441	Ant1	77.87	1.09	0.34
NVNT	3-DH1	2402	Ant1	33.6	4.74	2.38
NVNT	3-DH1	2441	Ant1	32.8	4.84	2.44
NVNT	3-DH1	2480	Ant1	33.6	4.74	2.38
NVNT	3-DH3	2441	Ant1	66.8	1.75	0.6
NVNT	3-DH5	2441	Ant1	77.87	1.09	0.34

Test Graphs

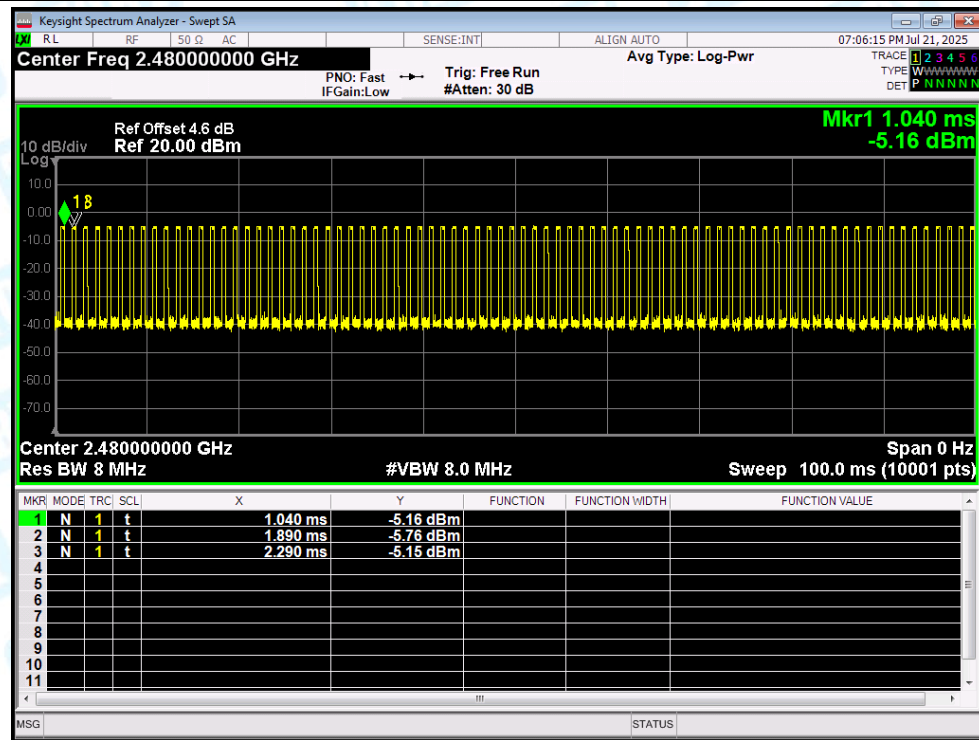
Duty Cycle NVNT 1-DH1 2402MHz Ant1



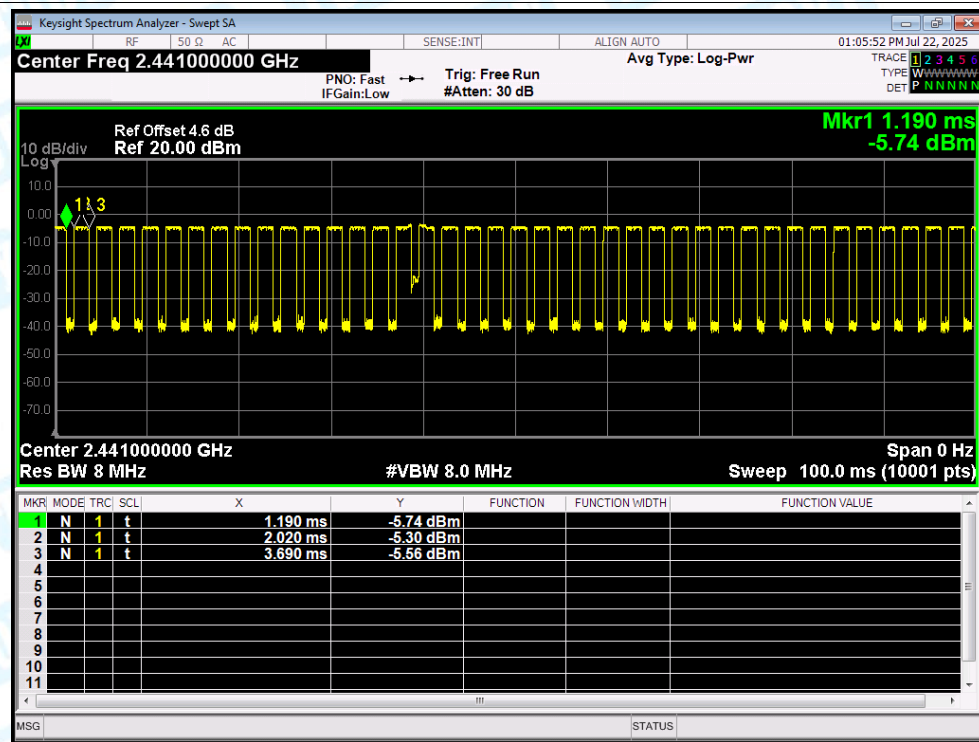
Duty Cycle NVNT 1-DH1 2441MHz Ant1



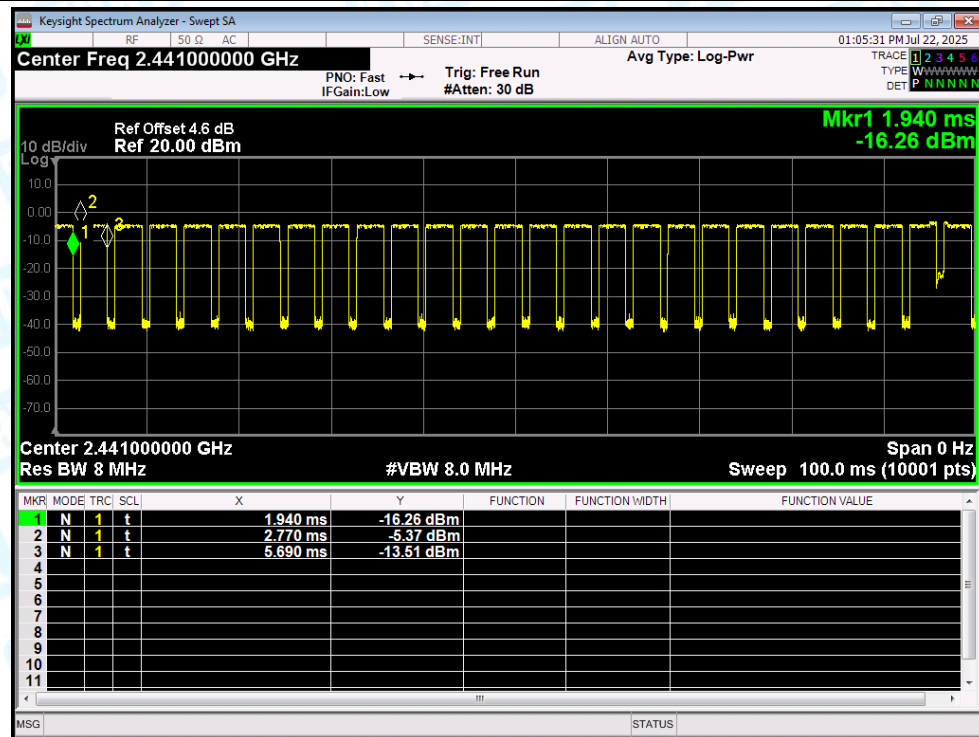
Duty Cycle NVNT 1-DH1 2480MHz Ant1



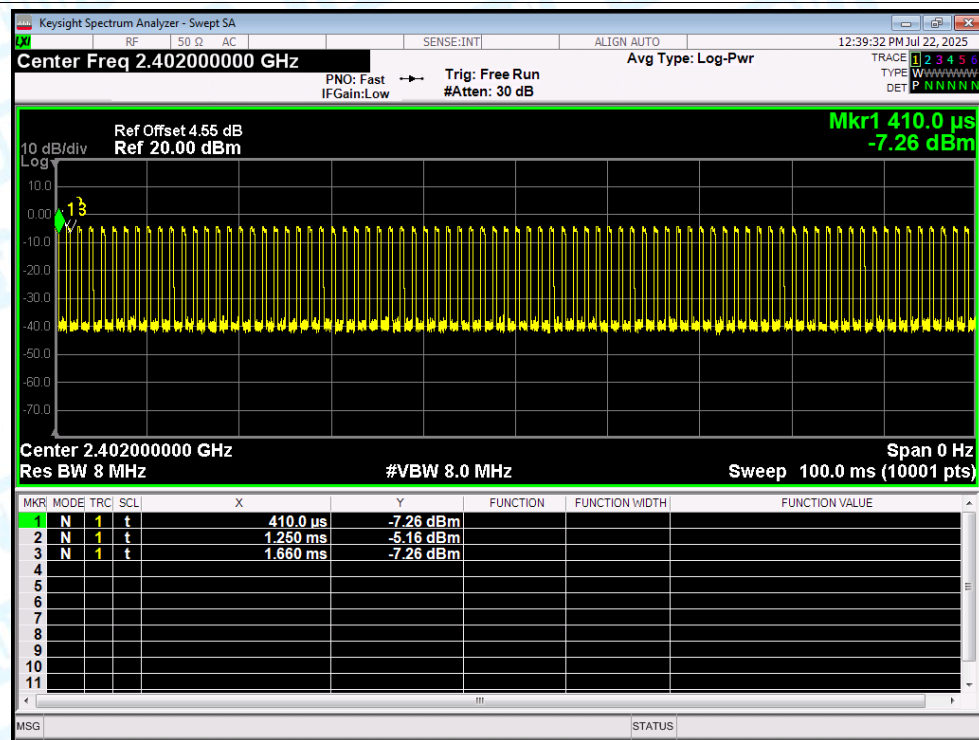
Duty Cycle NVNT 1-DH3 2441MHz Ant1



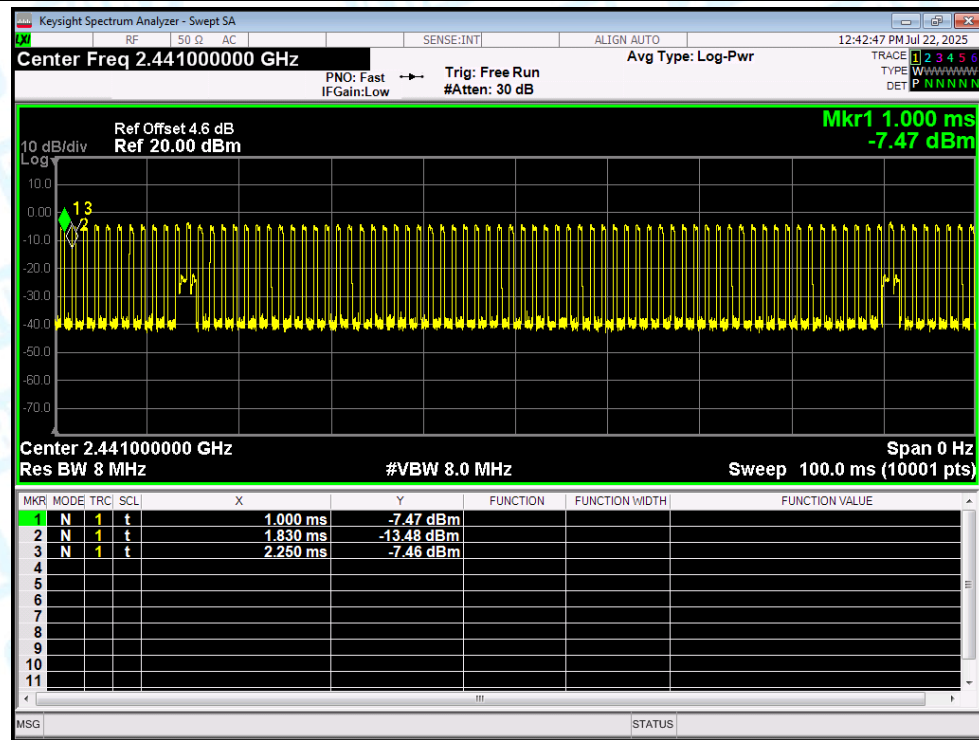
Duty Cycle NVNT 1-DH5 2441MHz Ant1



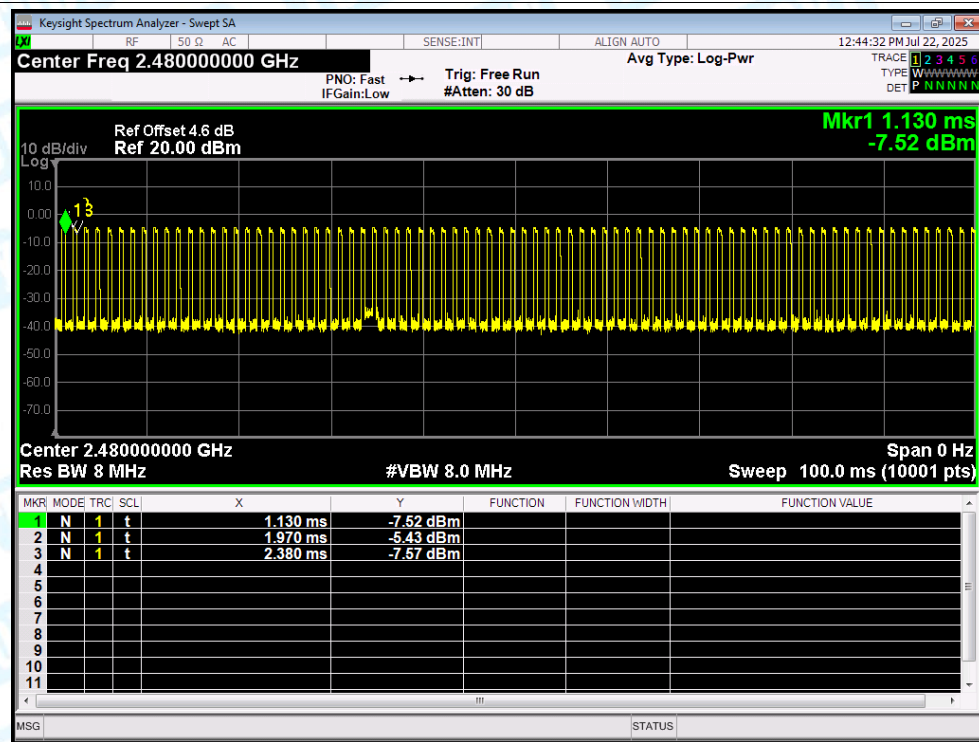
Duty Cycle NVNT 2-DH1 2402MHz Ant1



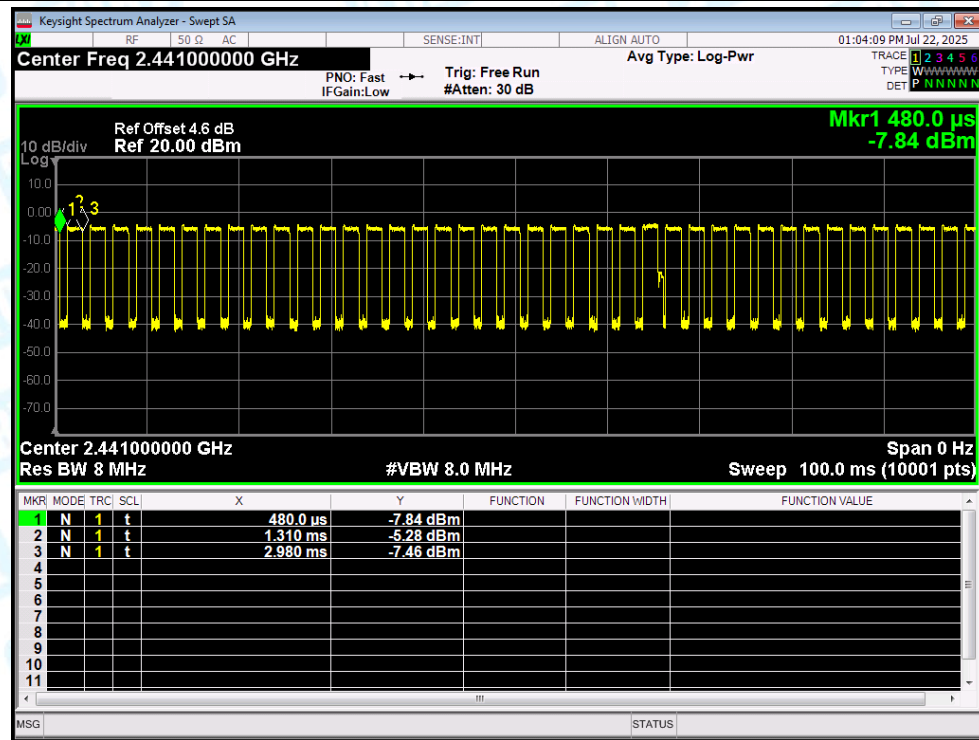
Duty Cycle NVNT 2-DH1 2441MHz Ant1



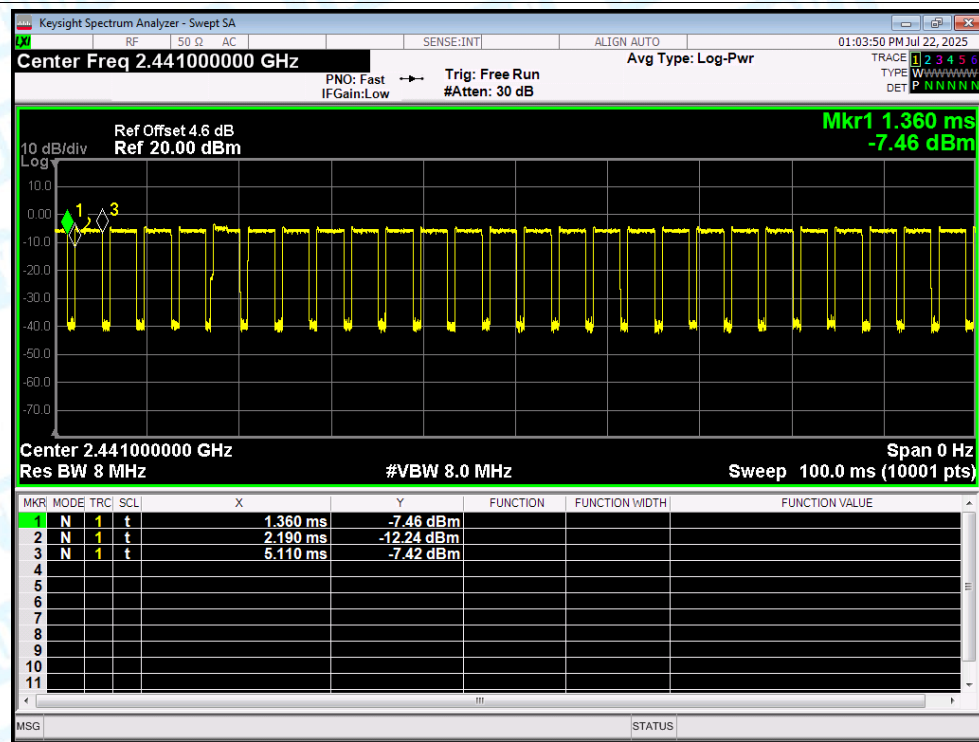
Duty Cycle NVNT 2-DH1 2480MHz Ant1



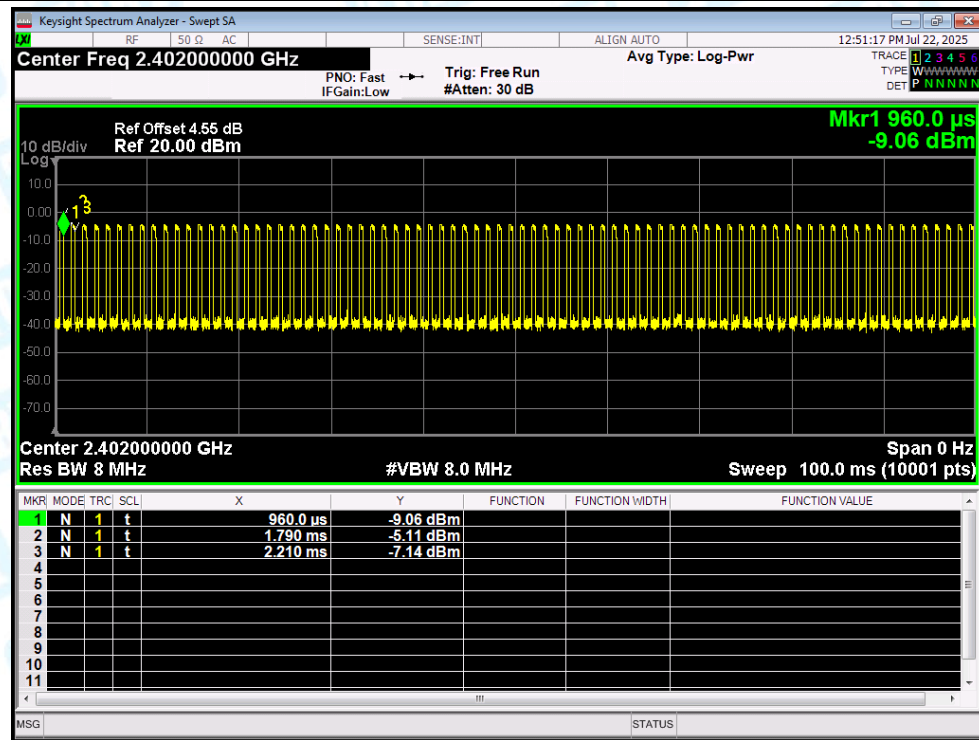
Duty Cycle NVNT 2-DH3 2441MHz Ant1



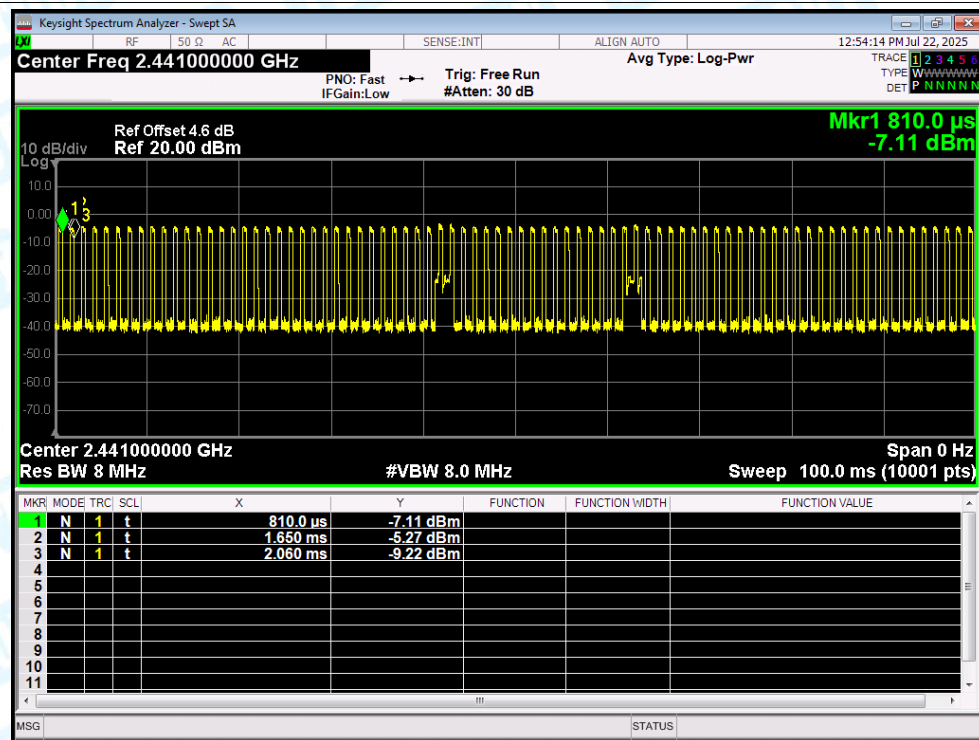
Duty Cycle NVNT 2-DH5 2441MHz Ant1



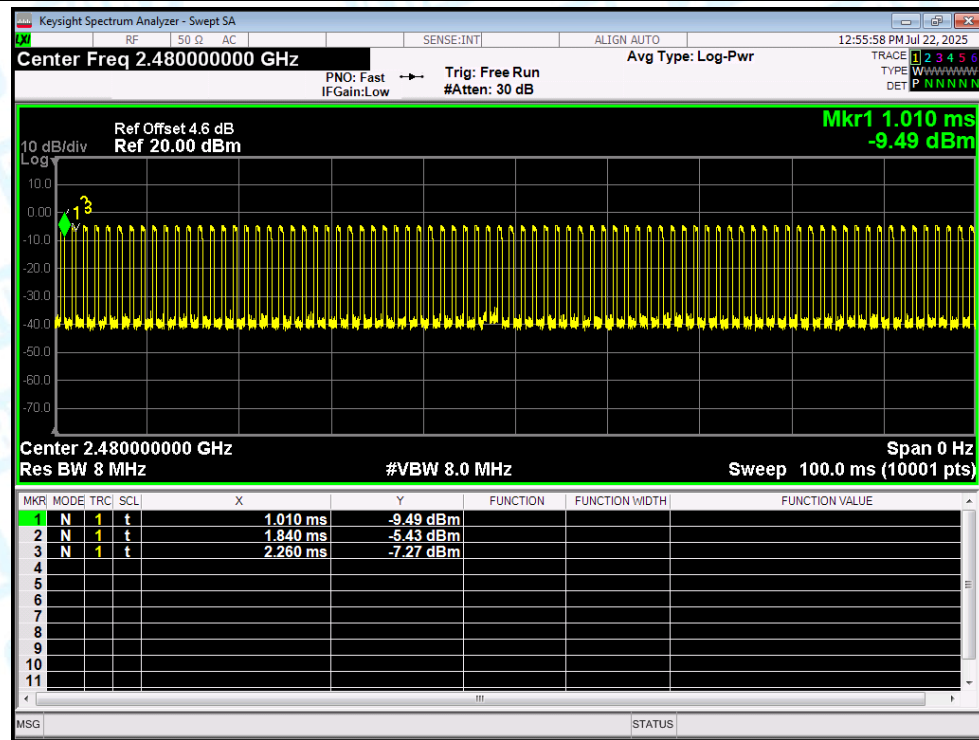
Duty Cycle NVNT 3-DH1 2402MHz Ant1



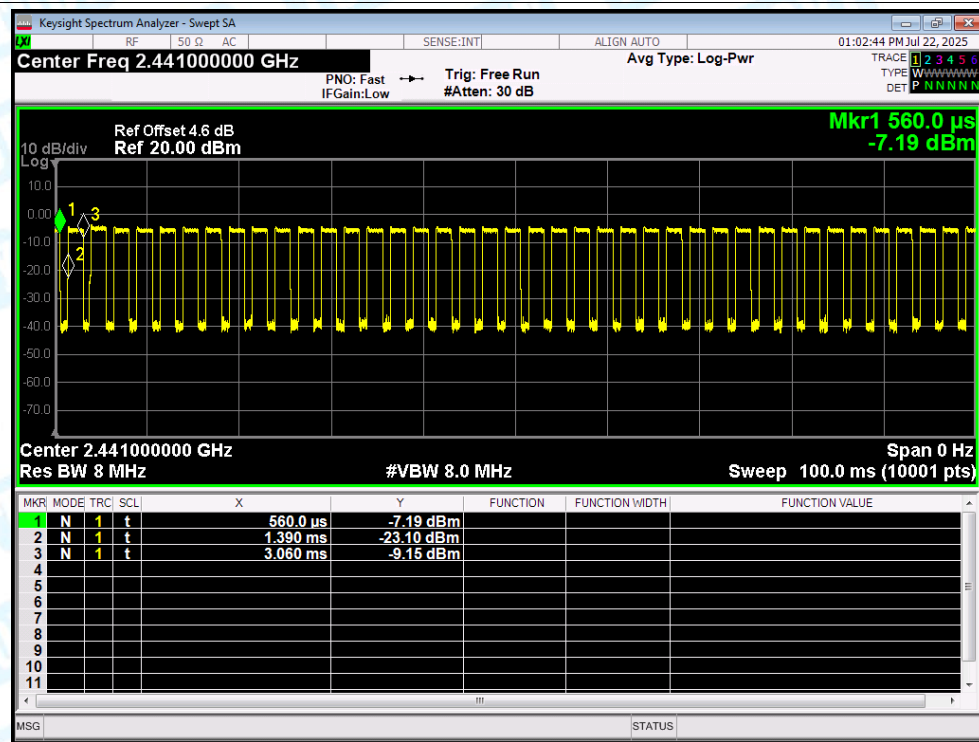
Duty Cycle NVNT 3-DH1 2441MHz Ant1

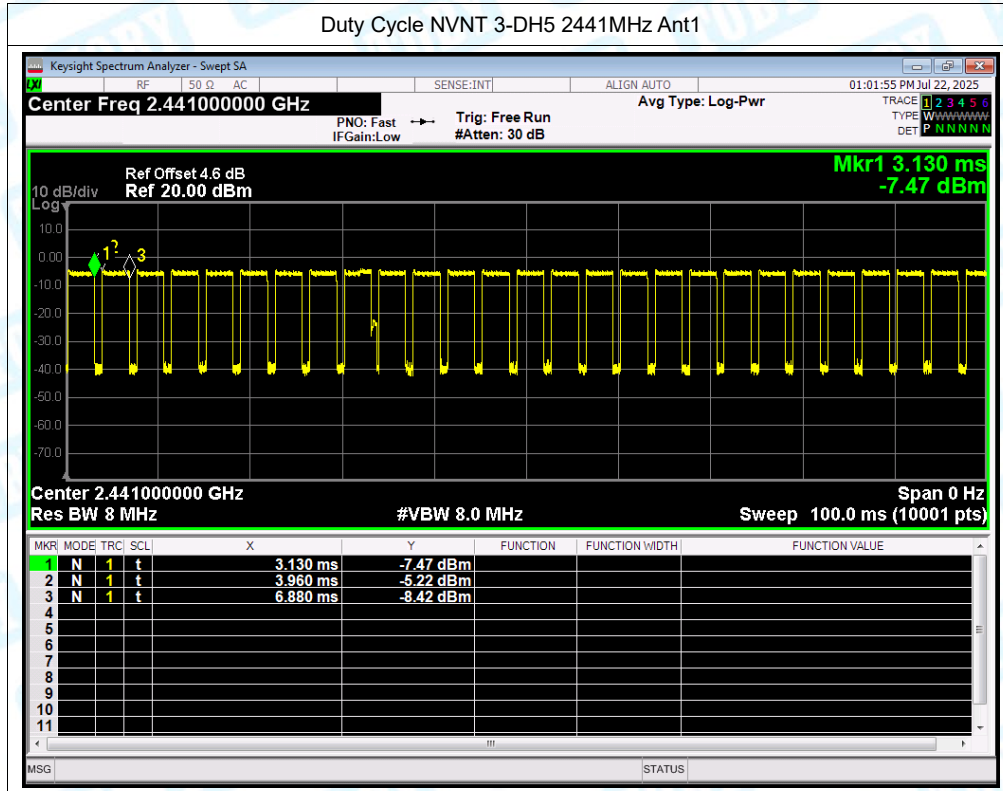


Duty Cycle NVNT 3-DH1 2480MHz Ant1



Duty Cycle NVNT 3-DH3 2441MHz Ant1



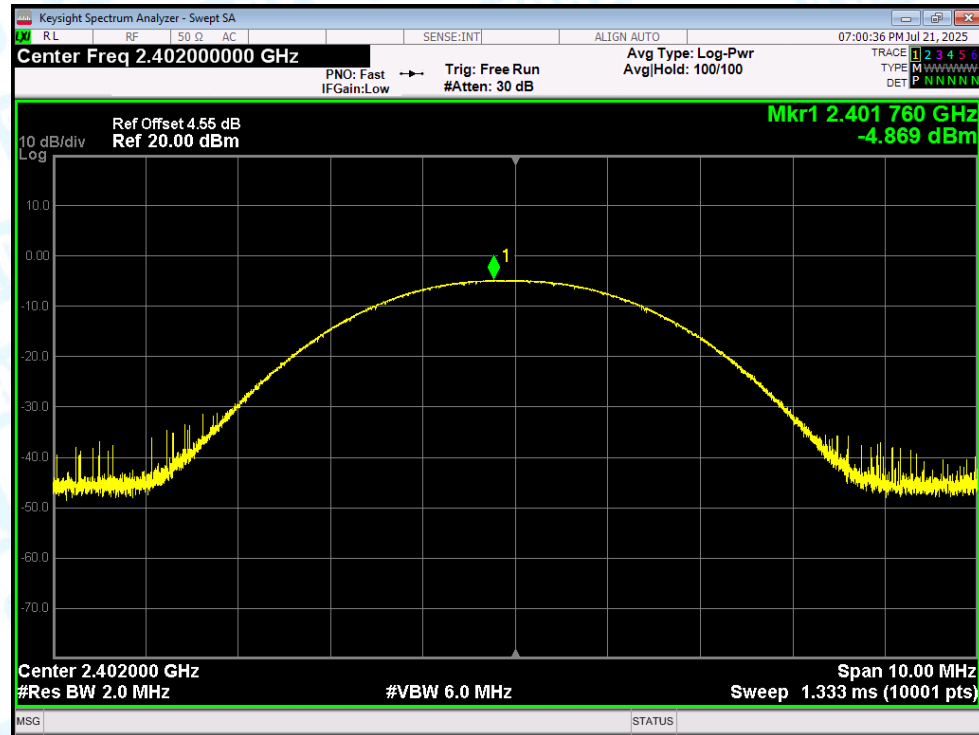


2. Maximum Conducted Output Power

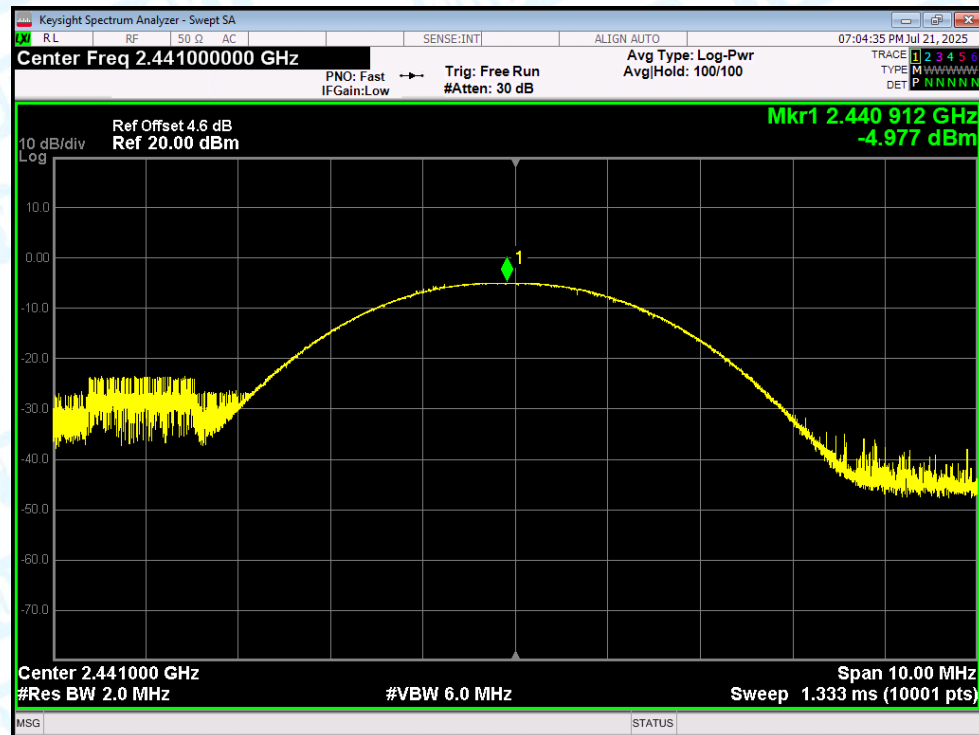
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	-4.869	21	Pass
NVNT	1-DH1	2441	Ant1	-4.977	21	Pass
NVNT	1-DH1	2480	Ant1	-5.041	21	Pass
NVNT	2-DH1	2402	Ant1	-4.431	21	Pass
NVNT	2-DH1	2441	Ant1	-4.587	21	Pass
NVNT	2-DH1	2480	Ant1	-4.72	21	Pass
NVNT	3-DH1	2402	Ant1	-4.379	21	Pass
NVNT	3-DH1	2441	Ant1	-4.543	21	Pass
NVNT	3-DH1	2480	Ant1	-4.687	21	Pass

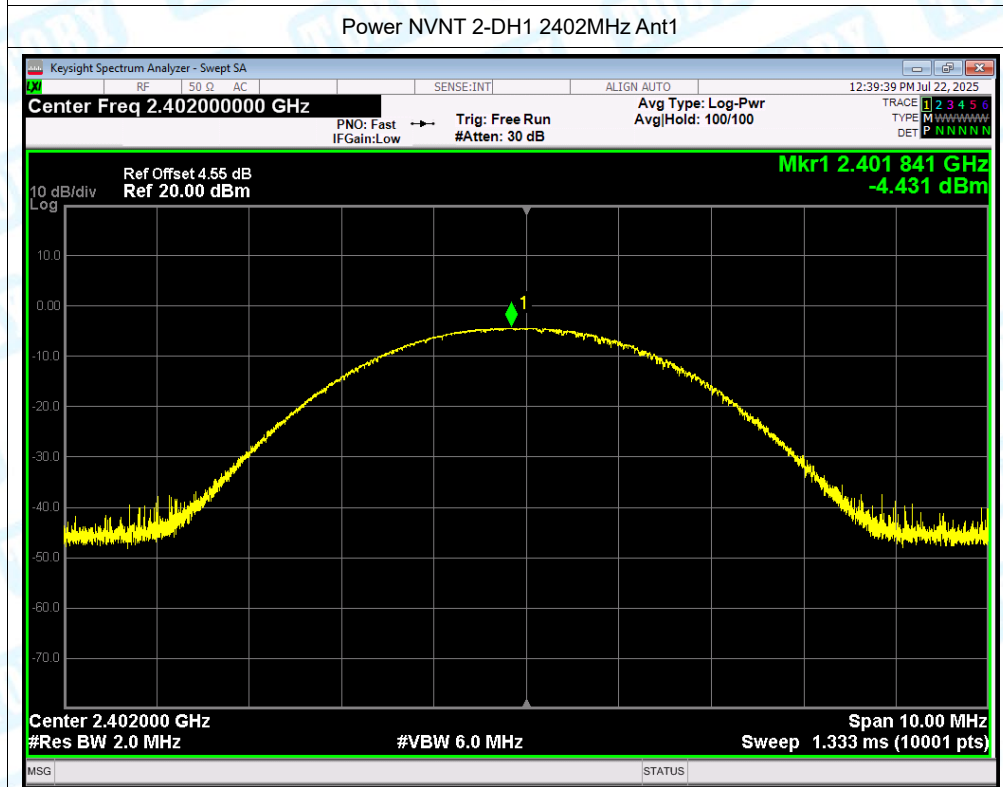
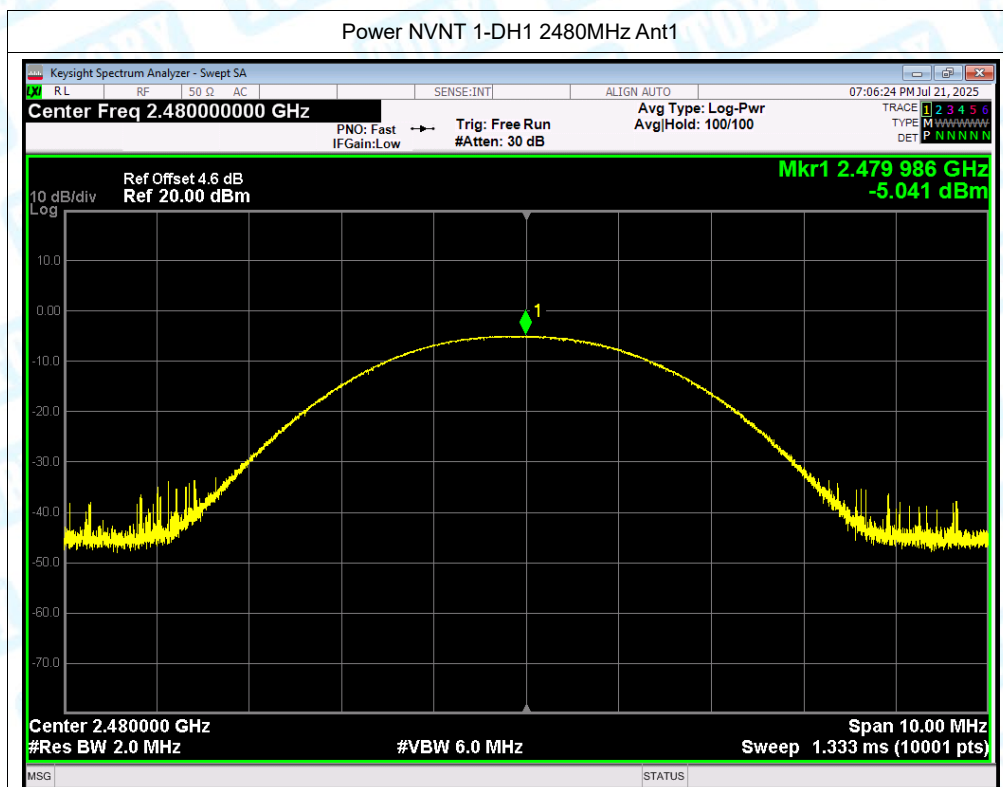
Test Graphs

Power NVNT 1-DH1 2402MHz Ant1

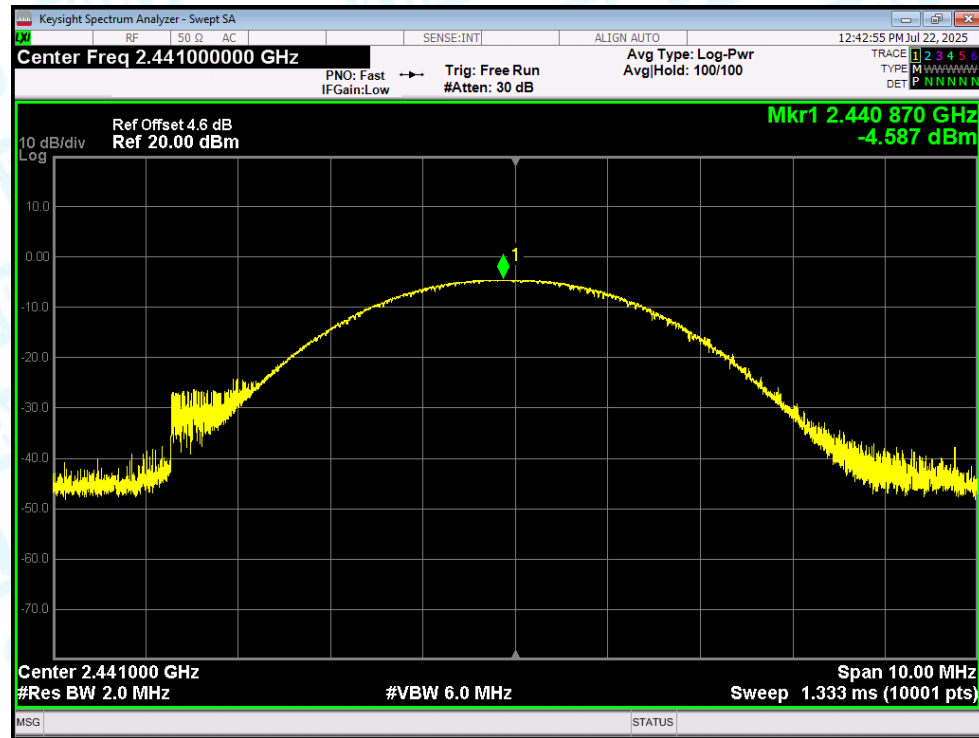


Power NVNT 1-DH1 2441MHz Ant1

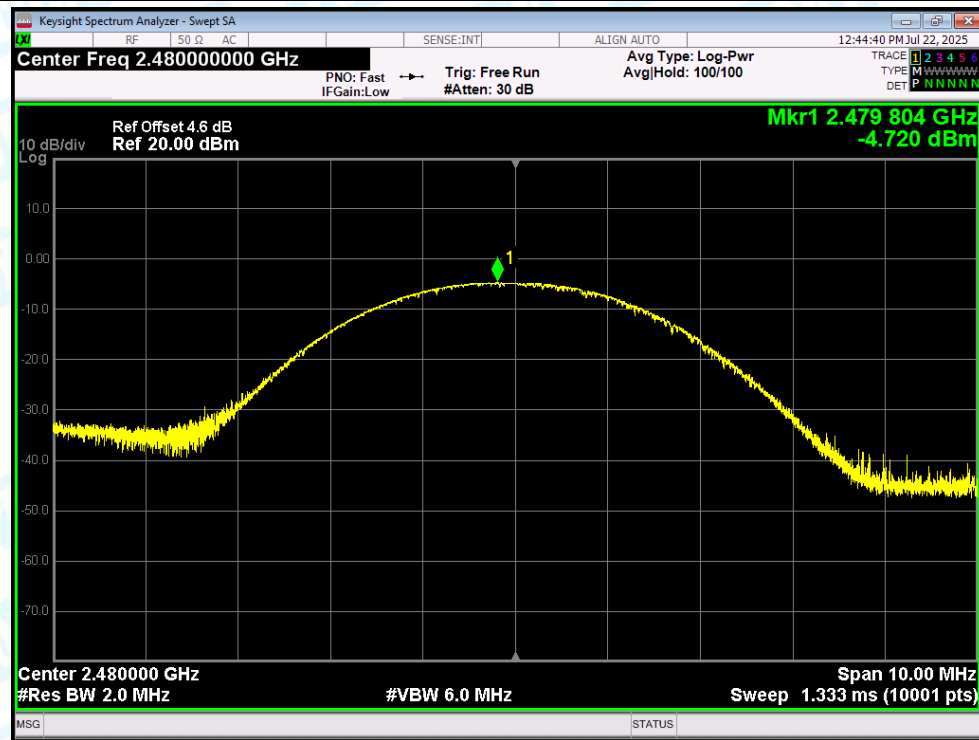




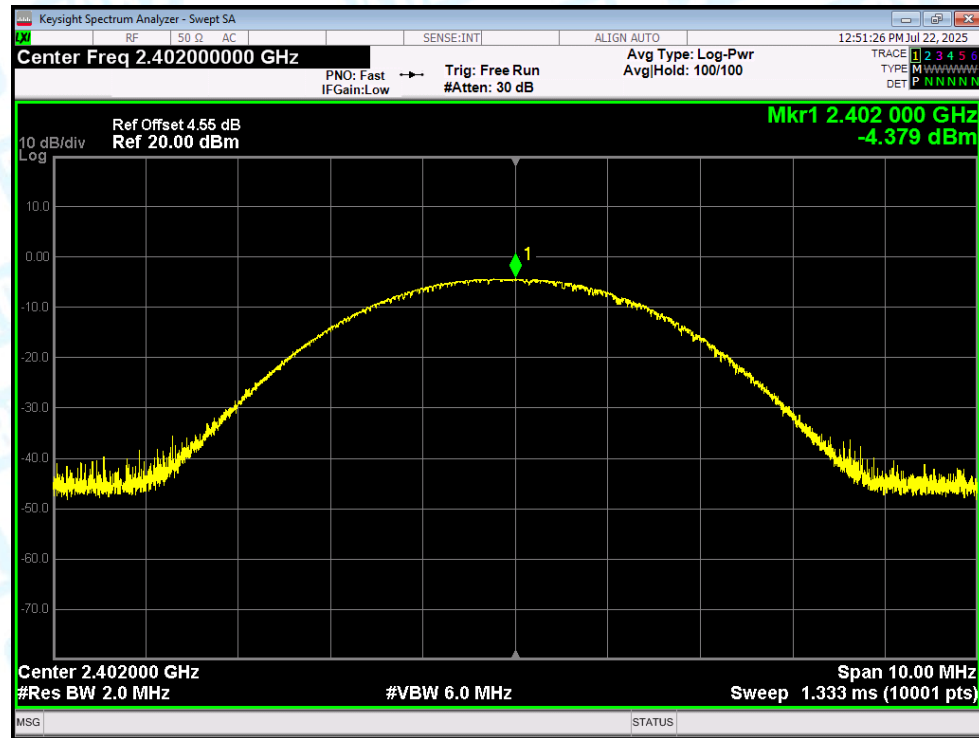
Power NVNT 2-DH1 2441MHz Ant1



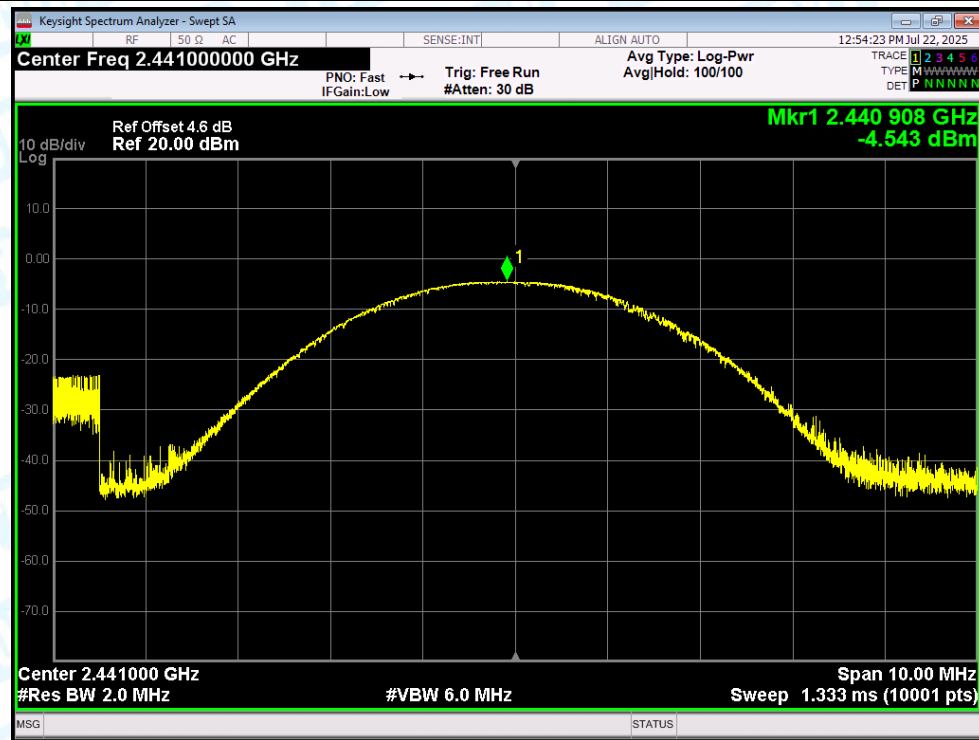
Power NVNT 2-DH1 2480MHz Ant1

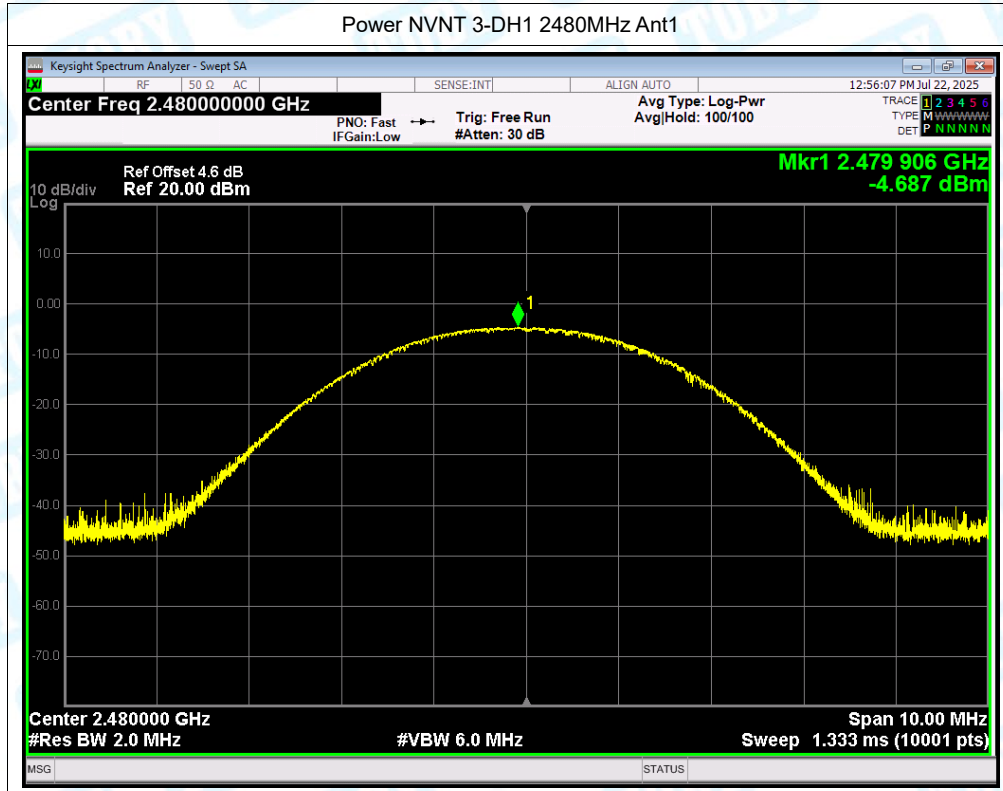


Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-DH1 2441MHz Ant1



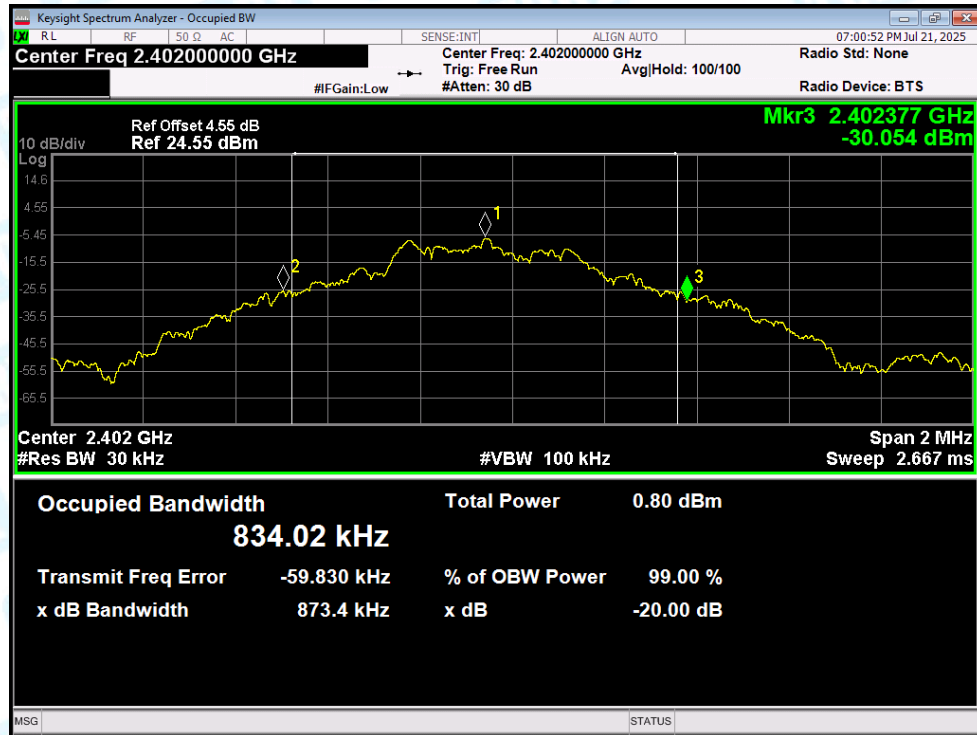


3. -20dB Bandwidth

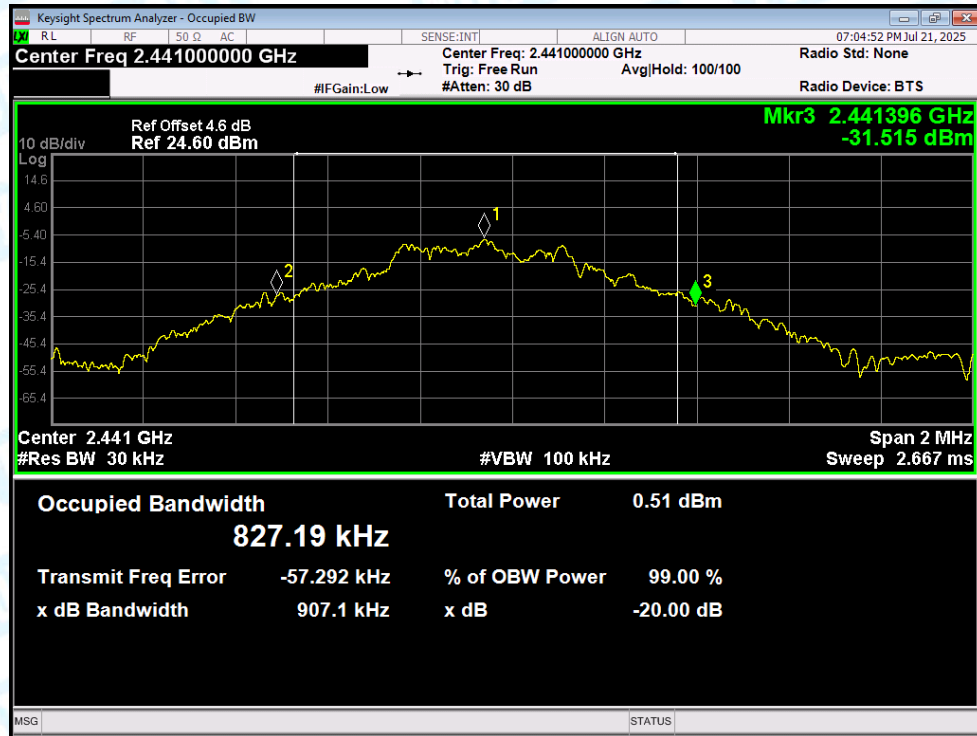
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.87	Pass
NVNT	1-DH1	2441	Ant1	0.91	Pass
NVNT	1-DH1	2480	Ant1	0.9	Pass
NVNT	2-DH1	2402	Ant1	1.18	Pass
NVNT	2-DH1	2441	Ant1	1.16	Pass
NVNT	2-DH1	2480	Ant1	1.18	Pass
NVNT	3-DH1	2402	Ant1	1.2	Pass
NVNT	3-DH1	2441	Ant1	1.16	Pass
NVNT	3-DH1	2480	Ant1	1.19	Pass

Test Graphs

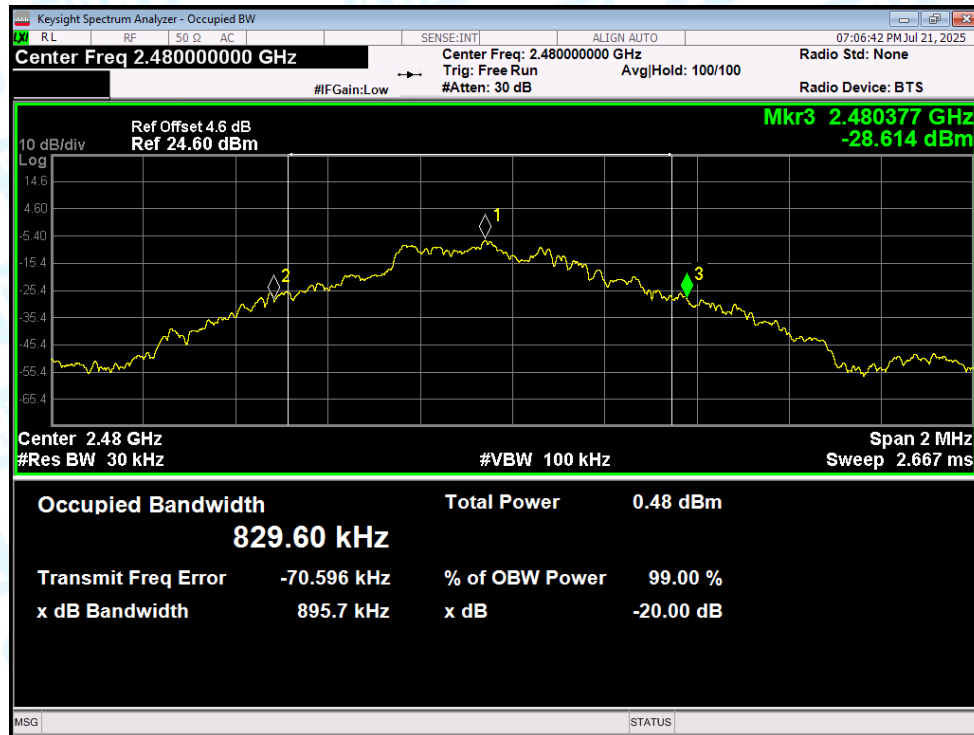
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



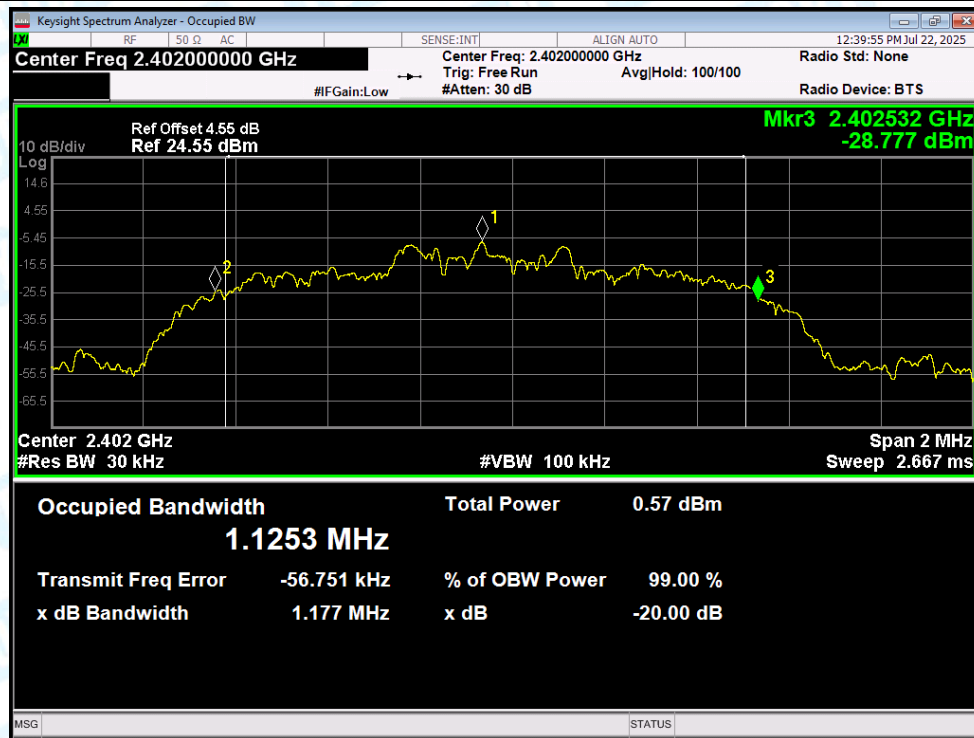
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



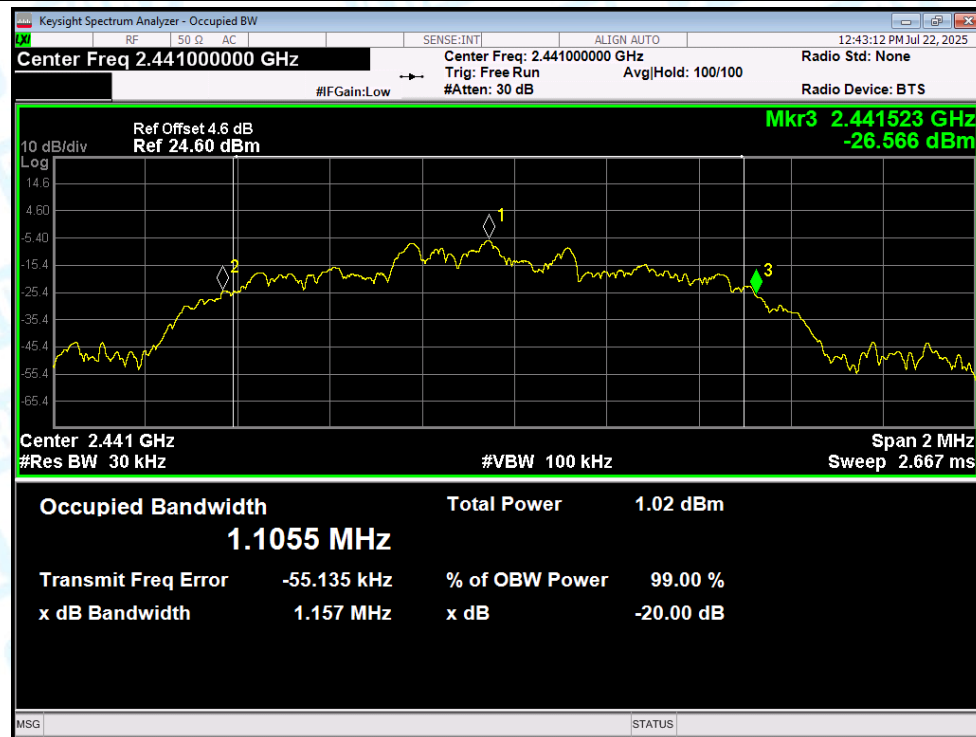
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



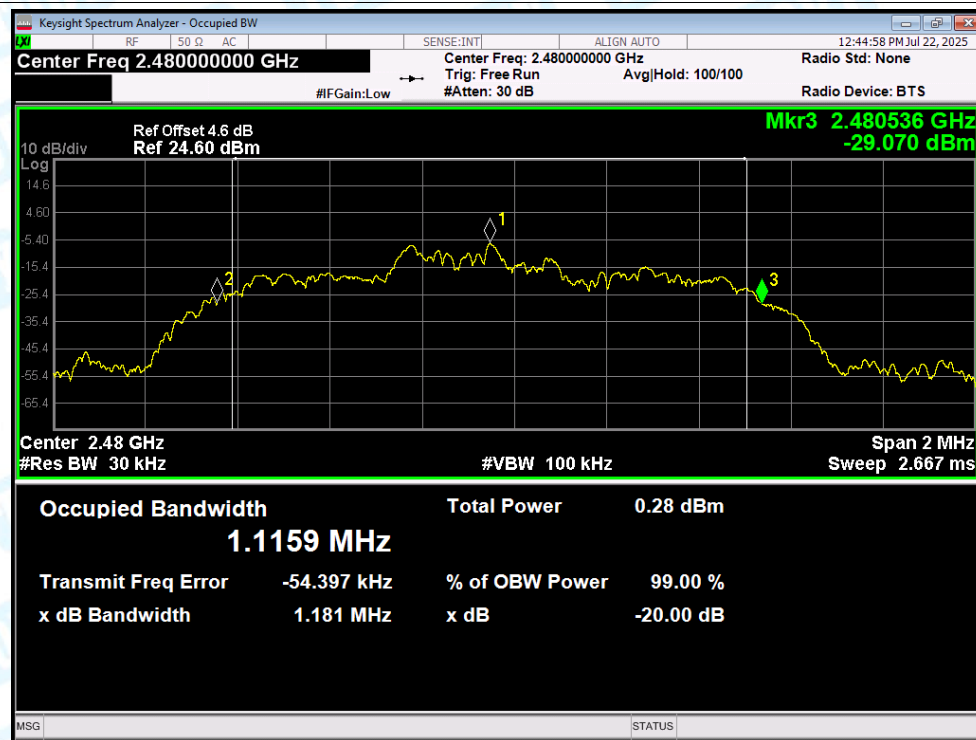
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



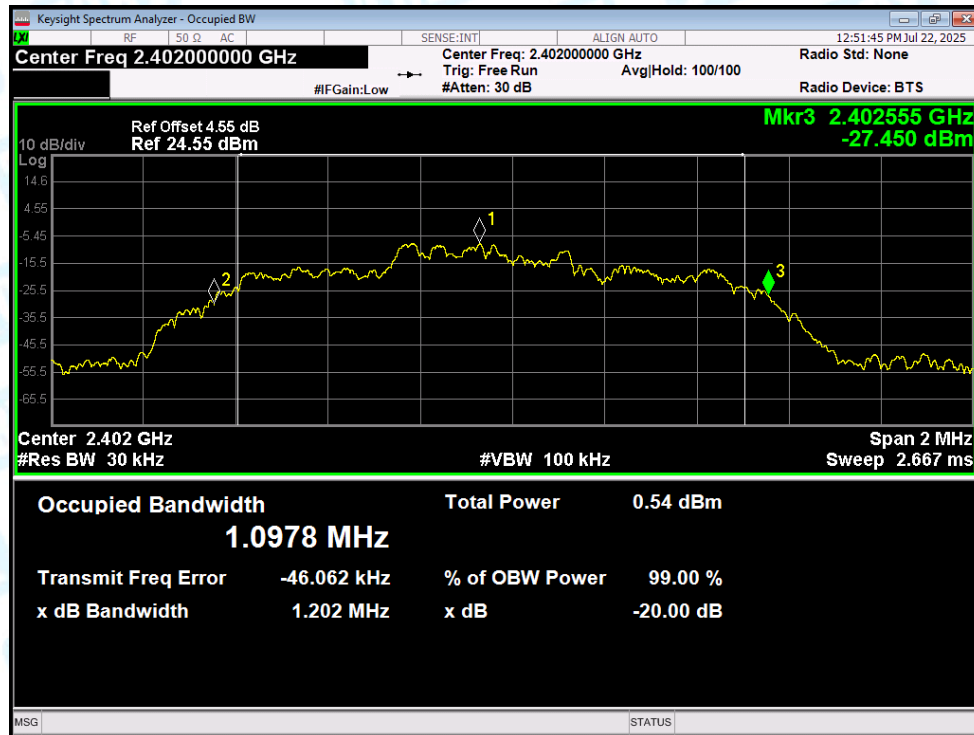
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



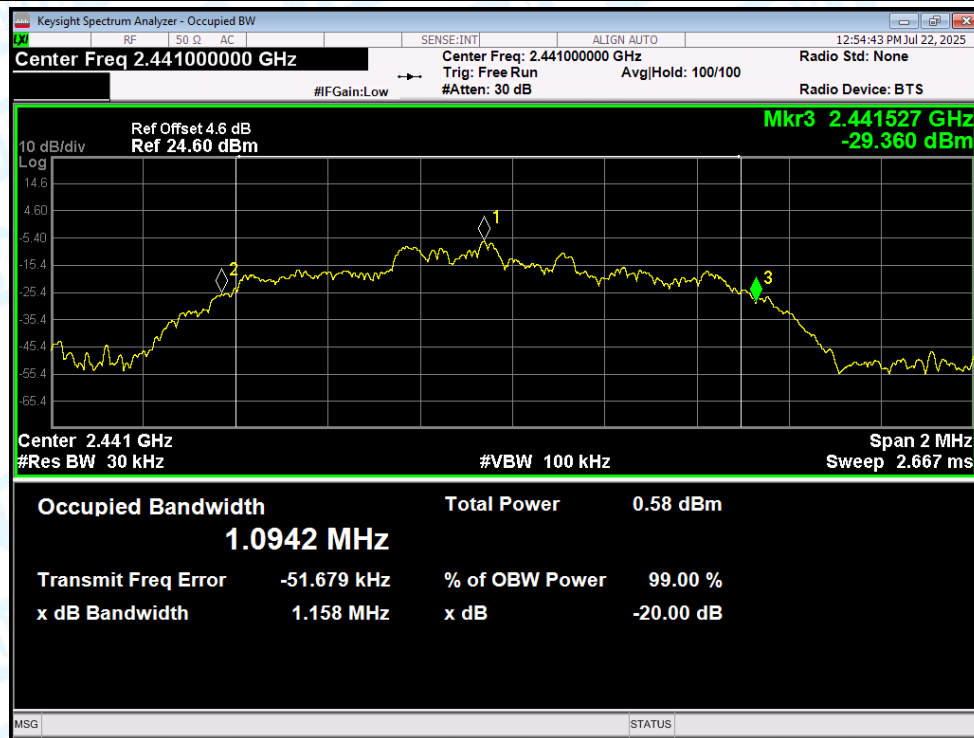
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

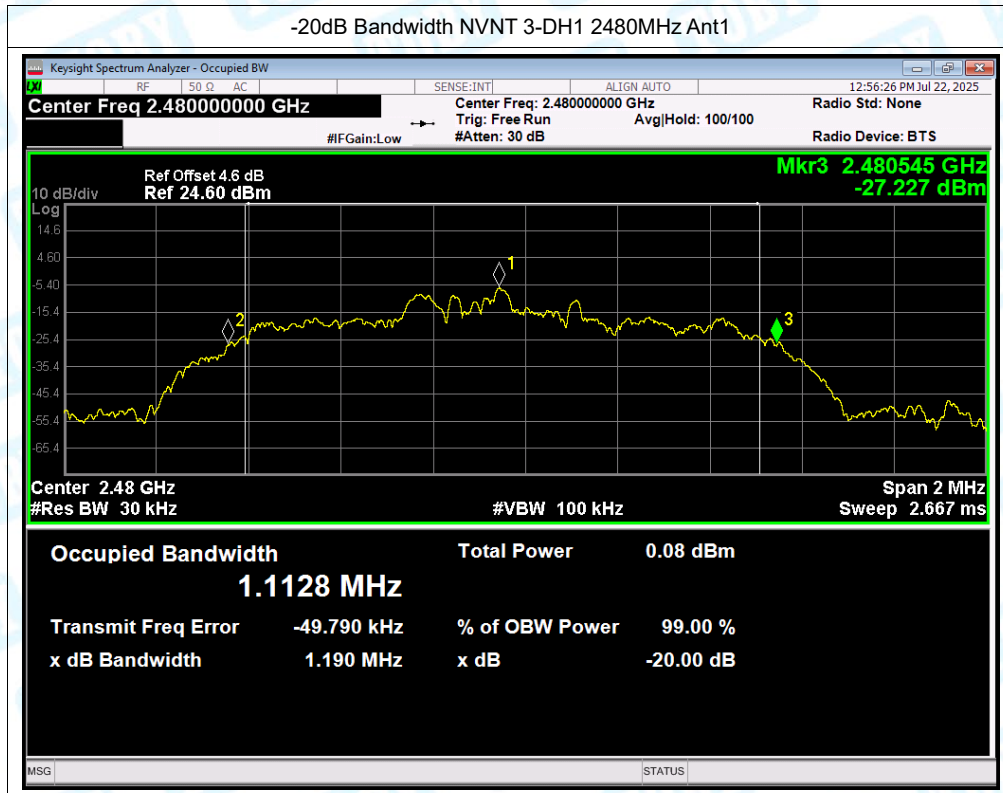


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



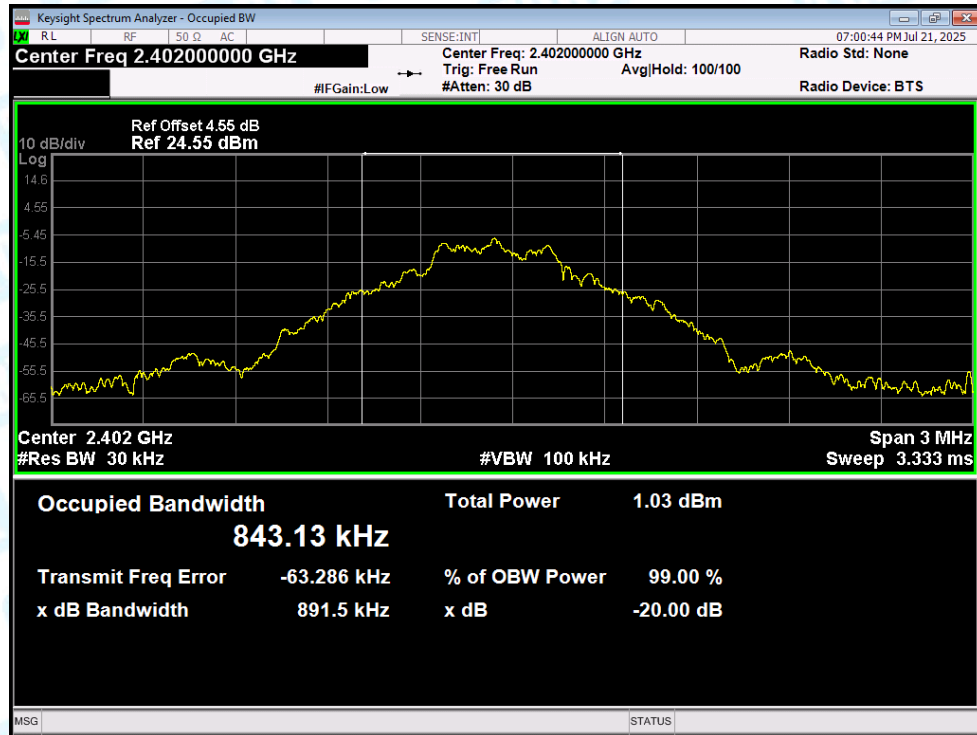


4. Occupied Channel Bandwidth

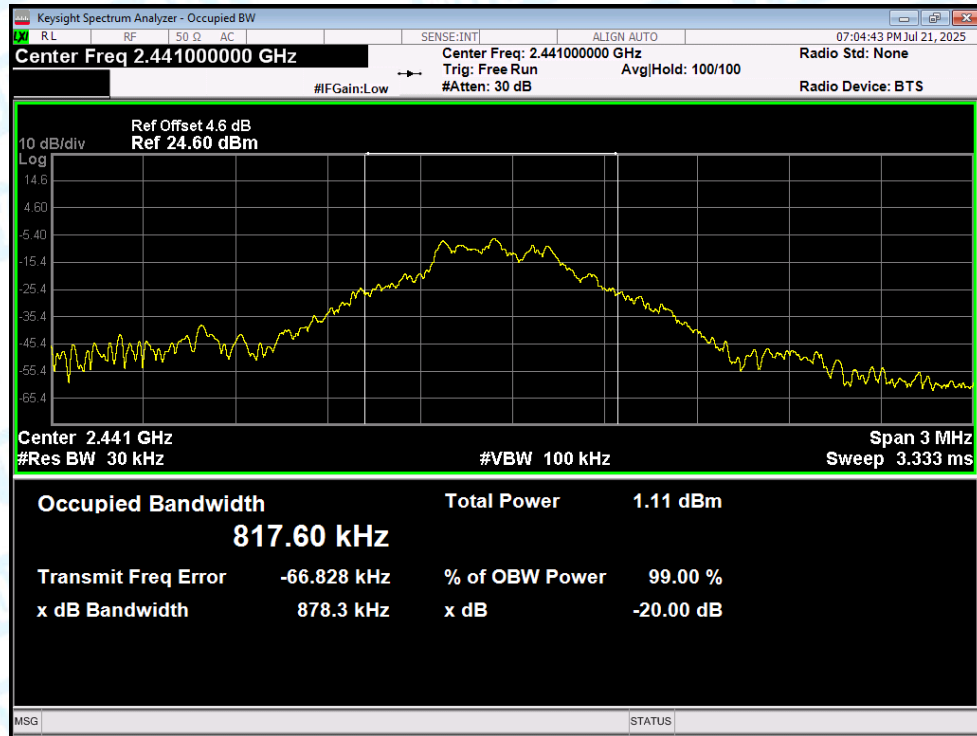
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.843
NVNT	1-DH1	2441	Ant1	0.818
NVNT	1-DH1	2480	Ant1	0.831
NVNT	2-DH1	2402	Ant1	1.114
NVNT	2-DH1	2441	Ant1	1.112
NVNT	2-DH1	2480	Ant1	1.116
NVNT	3-DH1	2402	Ant1	1.097
NVNT	3-DH1	2441	Ant1	1.106
NVNT	3-DH1	2480	Ant1	1.093

Test Graphs

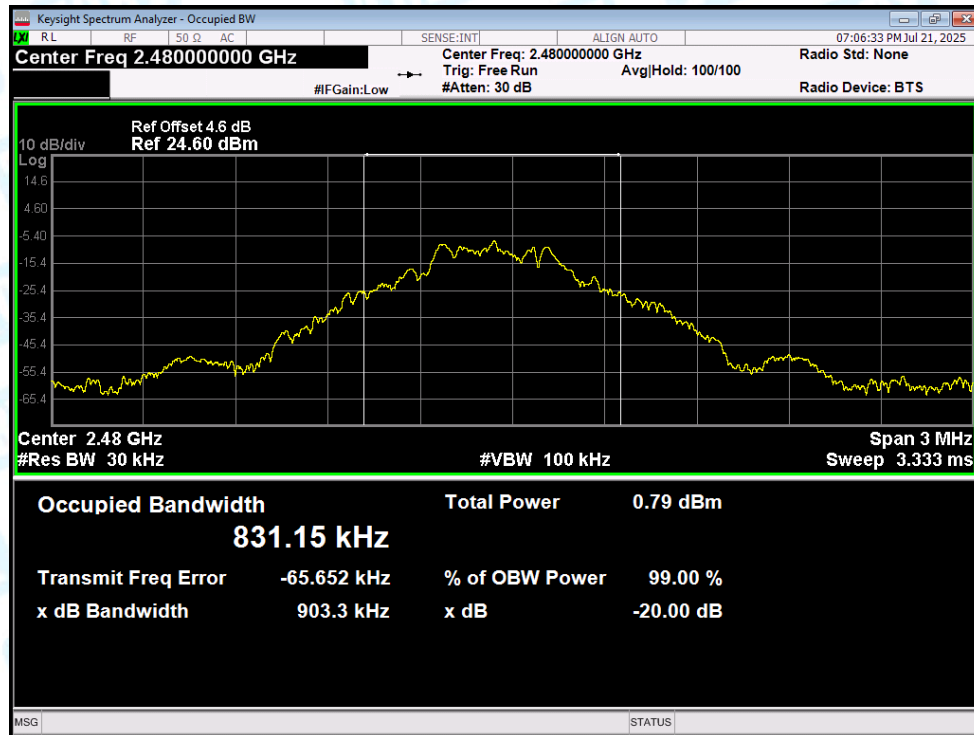
OBW NVNT 1-DH1 2402MHz Ant1



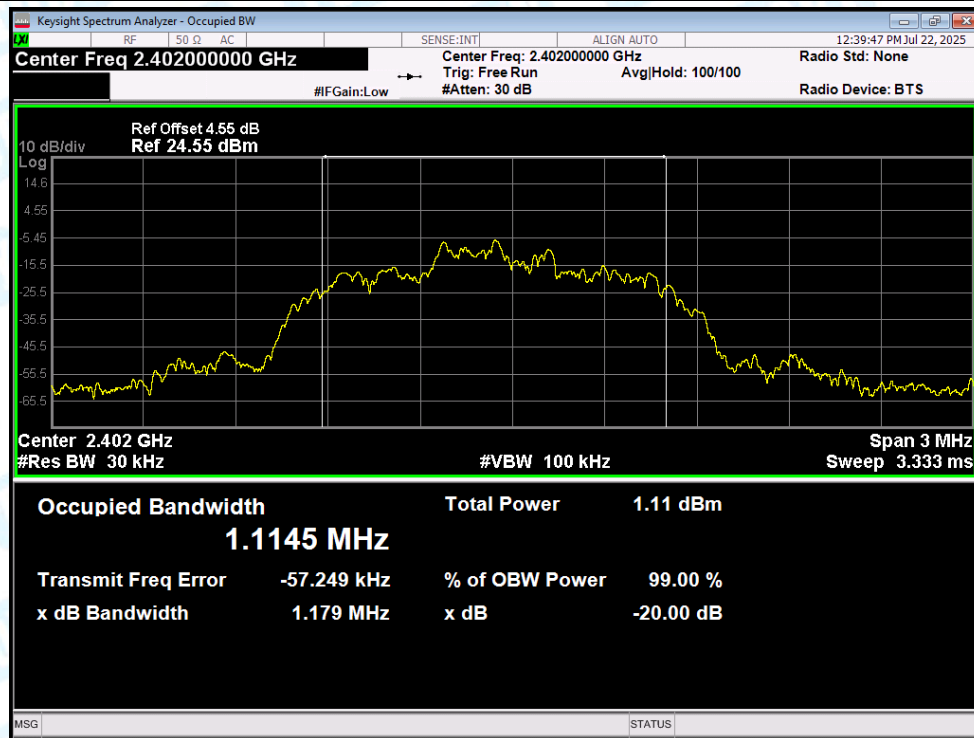
OBW NVNT 1-DH1 2441MHz Ant1



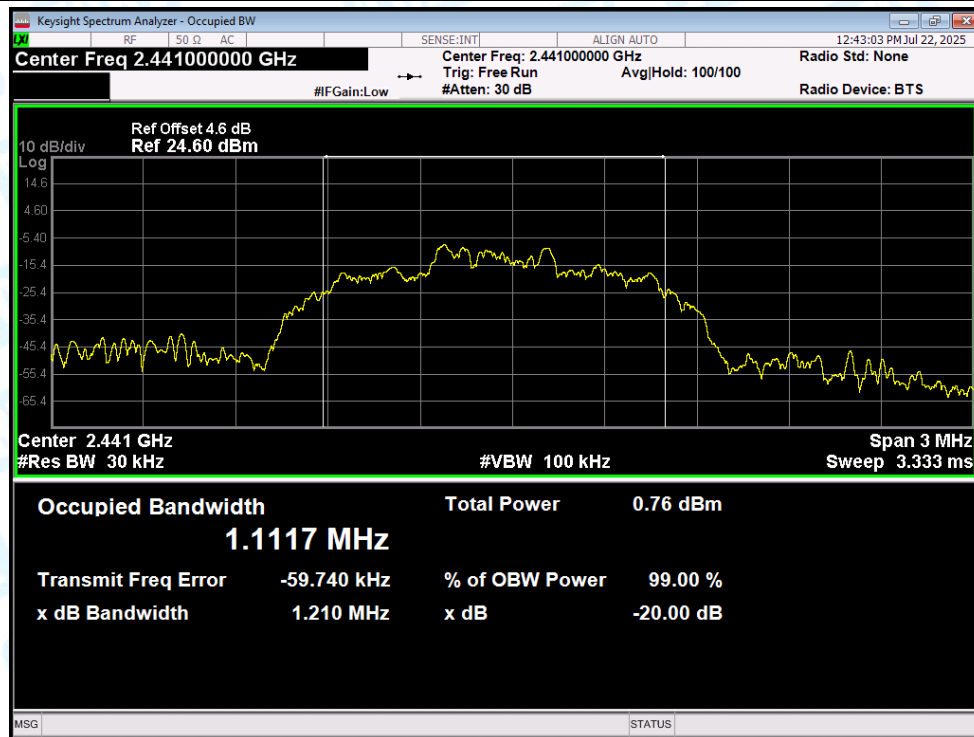
OBW NVNT 1-DH1 2480MHz Ant1



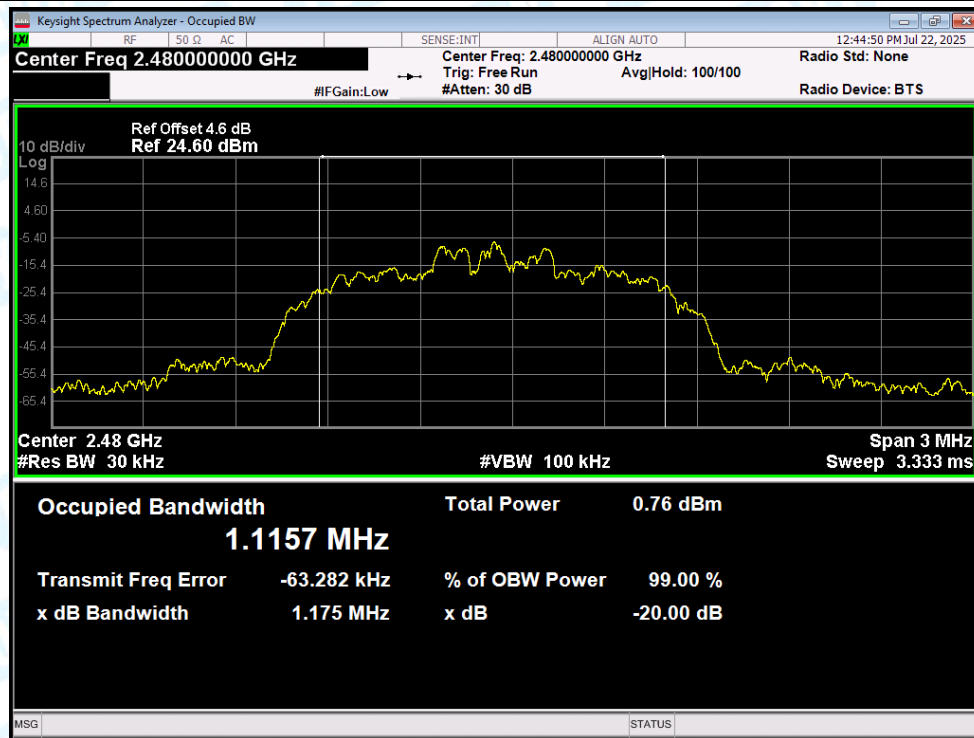
OBW NVNT 2-DH1 2402MHz Ant1



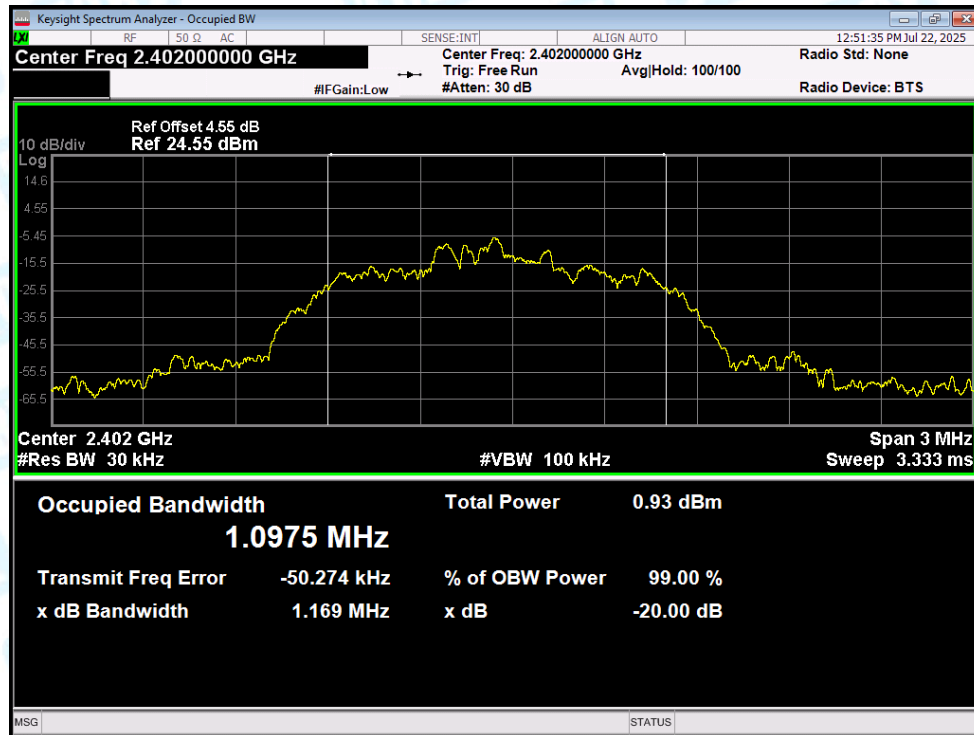
OBW NVNT 2-DH1 2441MHz Ant1



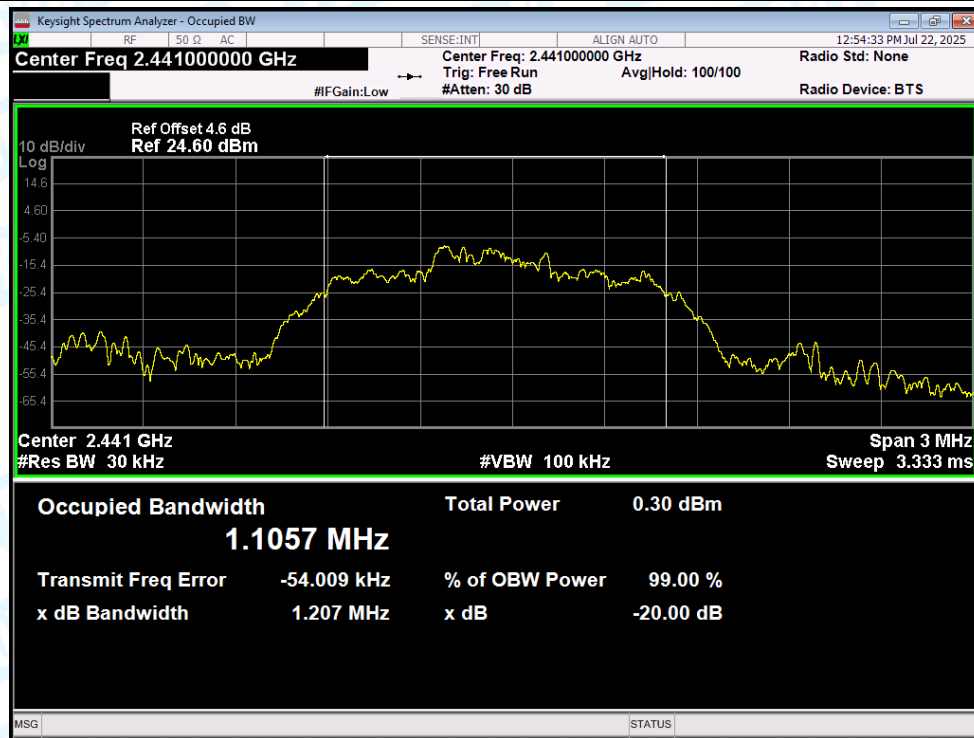
OBW NVNT 2-DH1 2480MHz Ant1

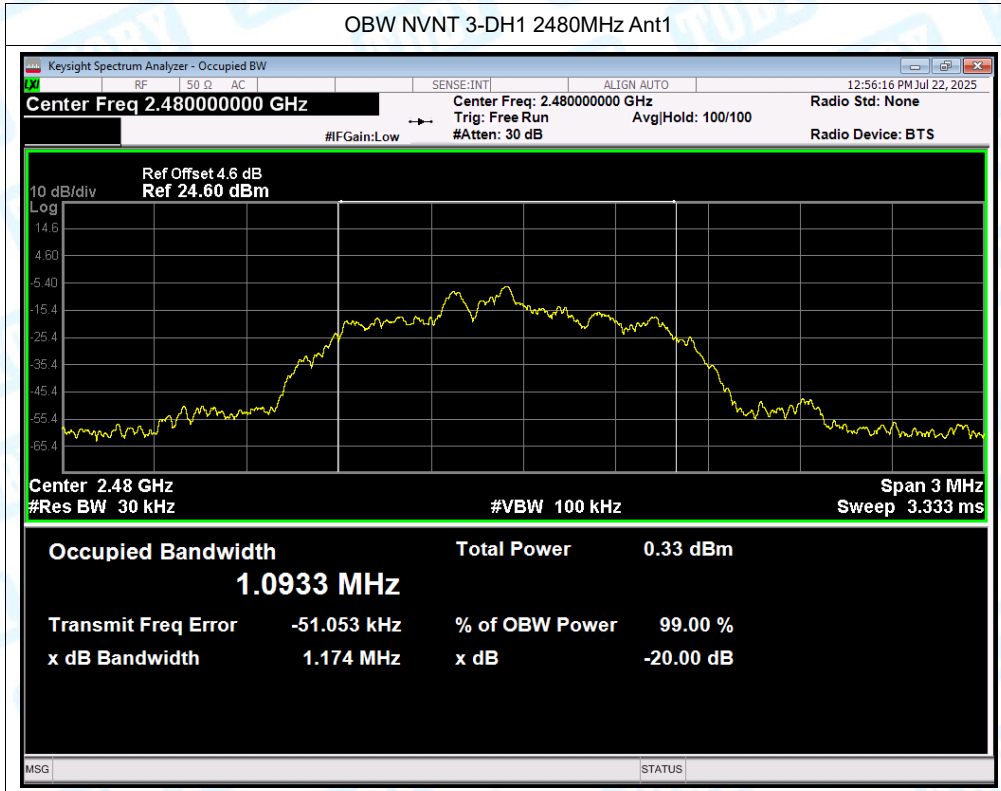


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



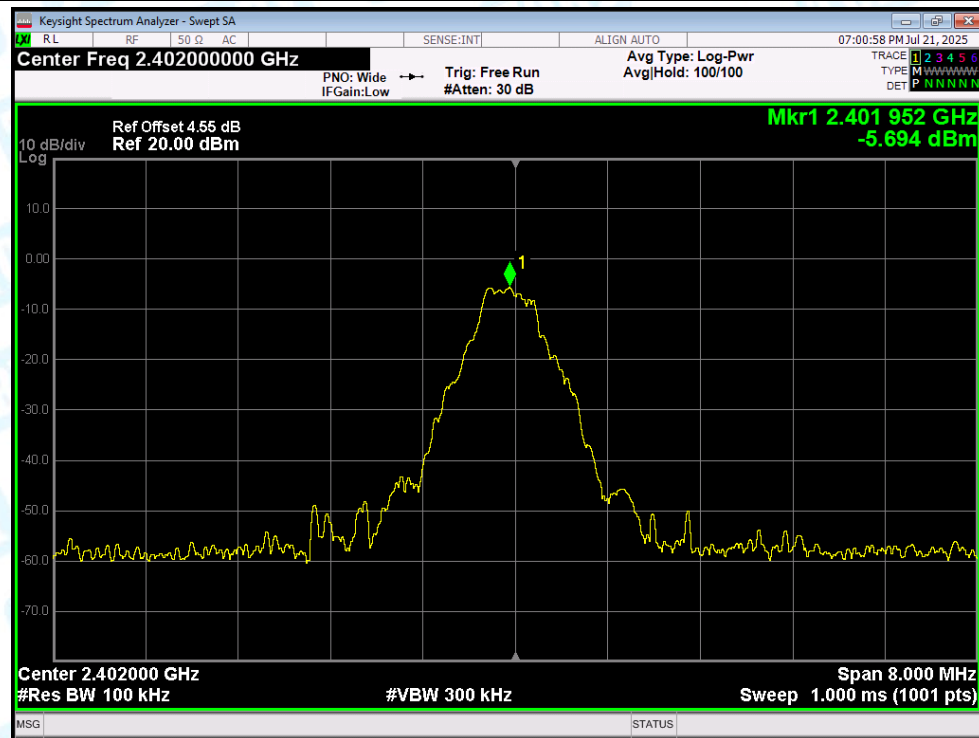


5. Band Edge

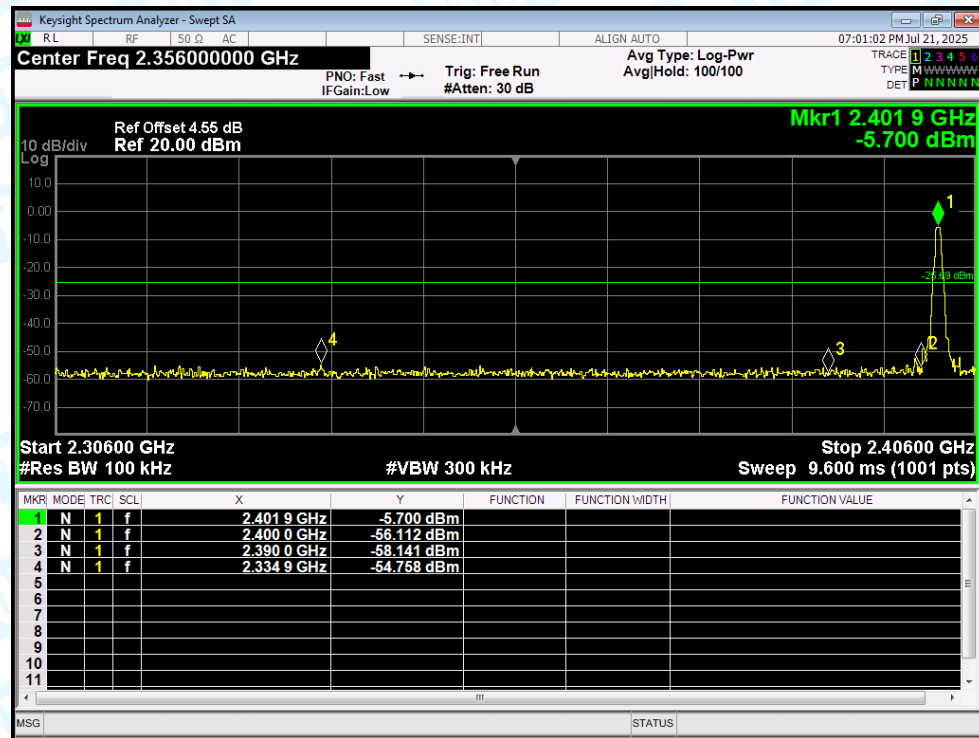
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-49.07	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-48.79	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-49.84	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-49.67	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-49.59	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-49.03	-20	Pass

Test Graphs

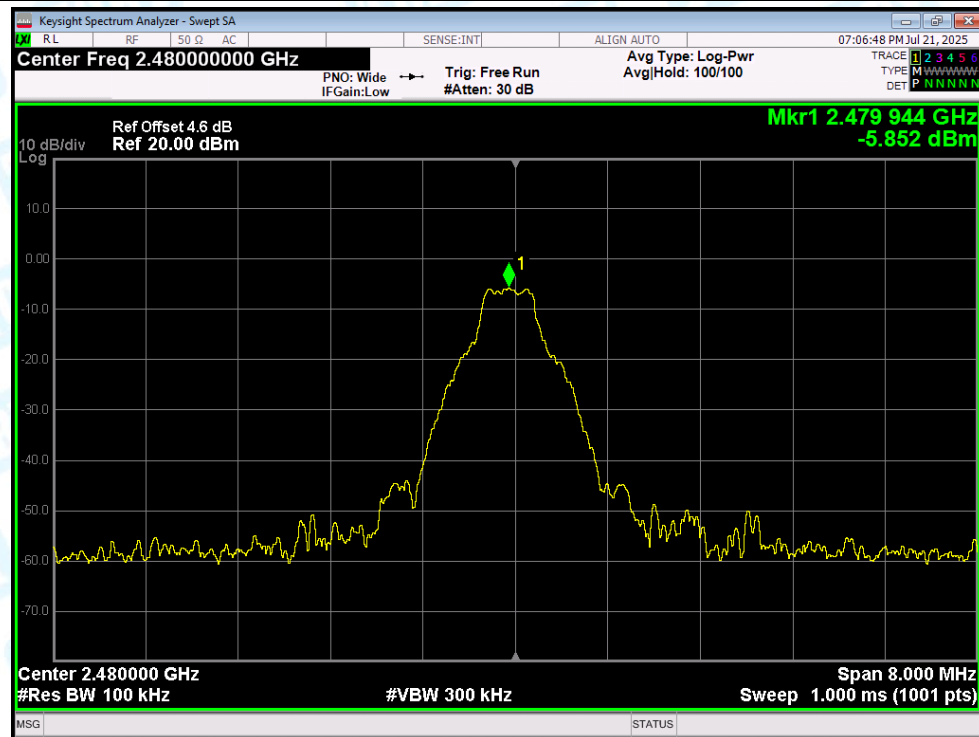
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



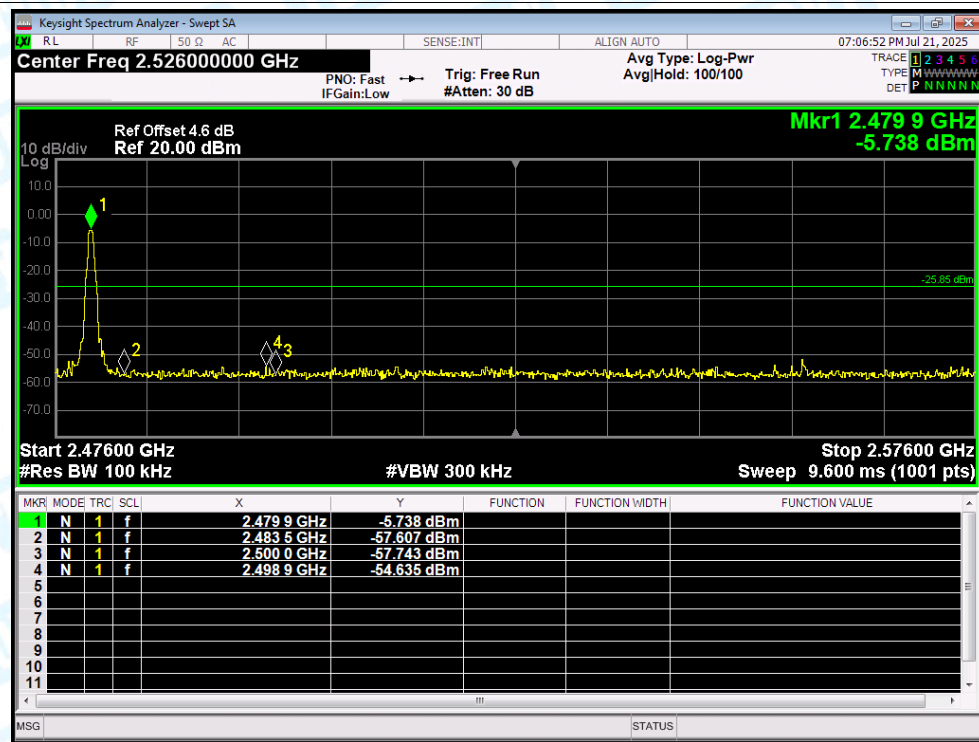
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission

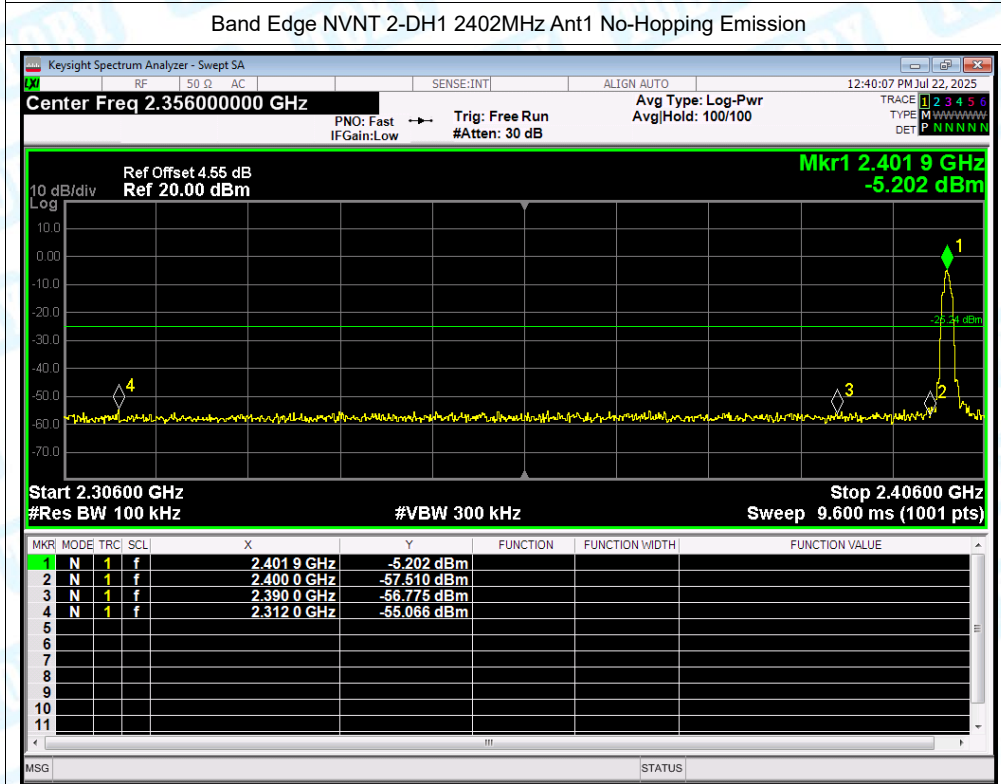
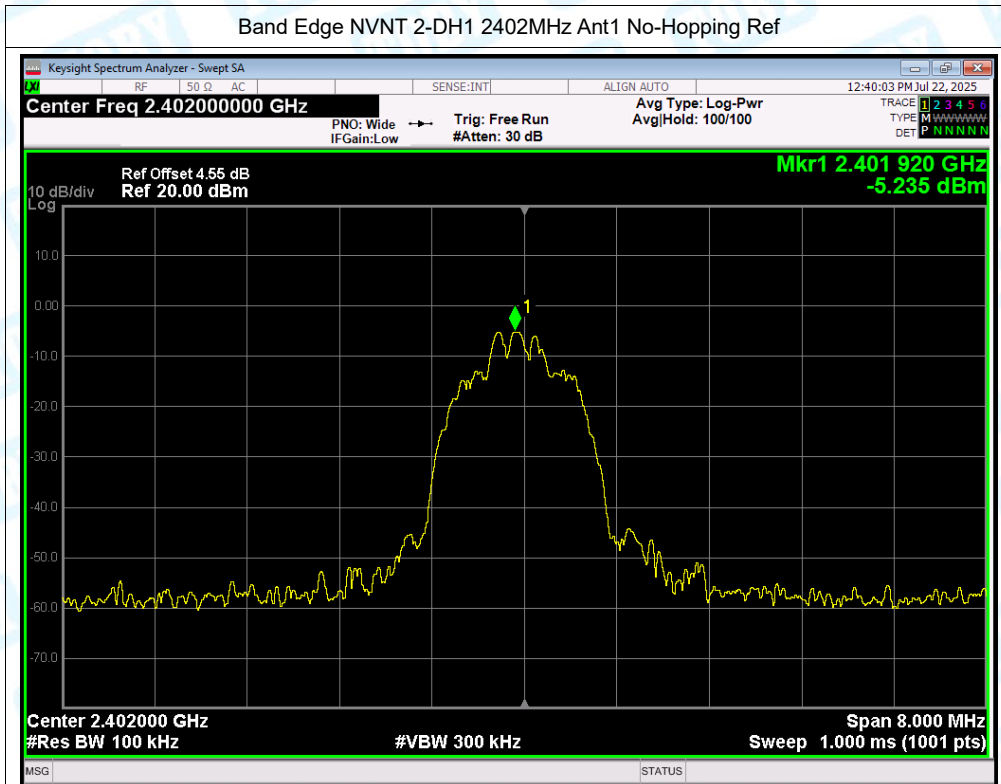


Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Ref

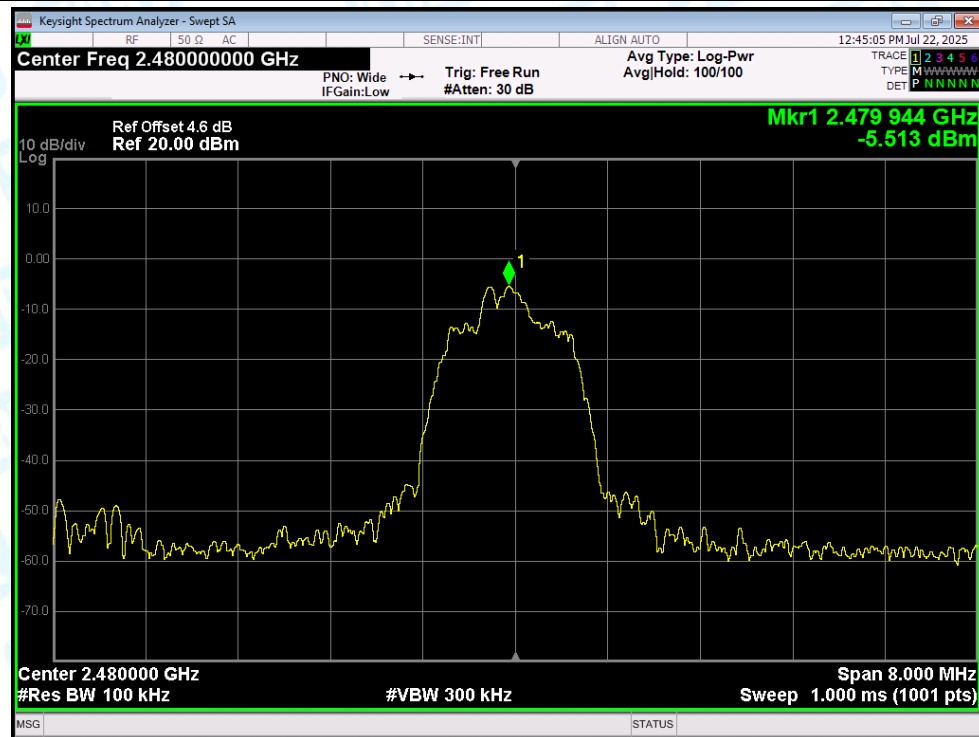


Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Emission

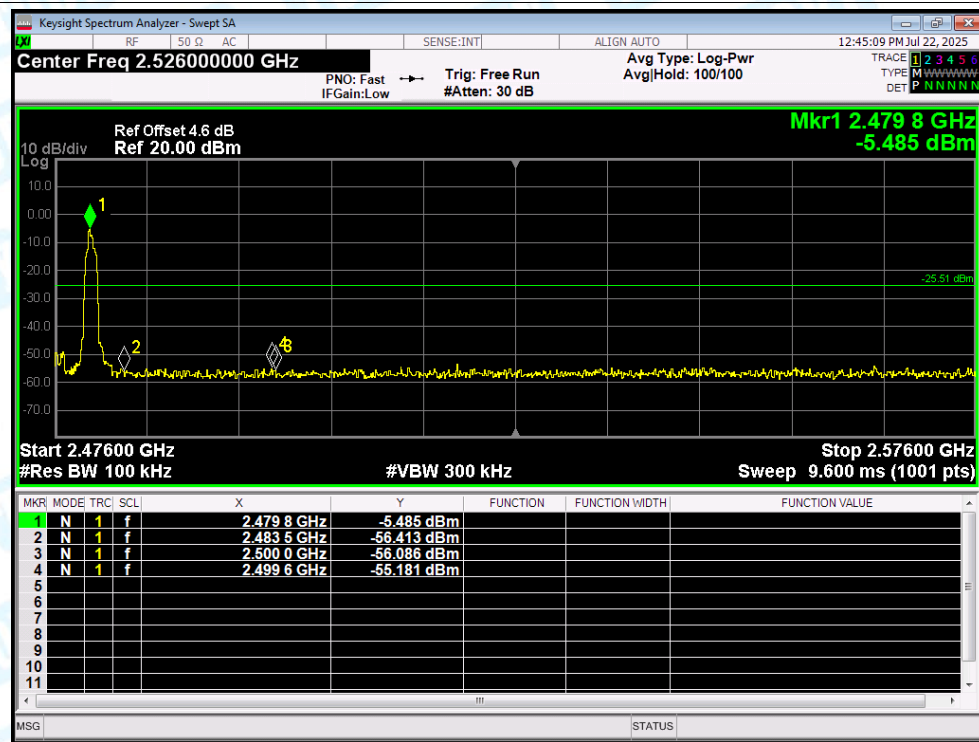




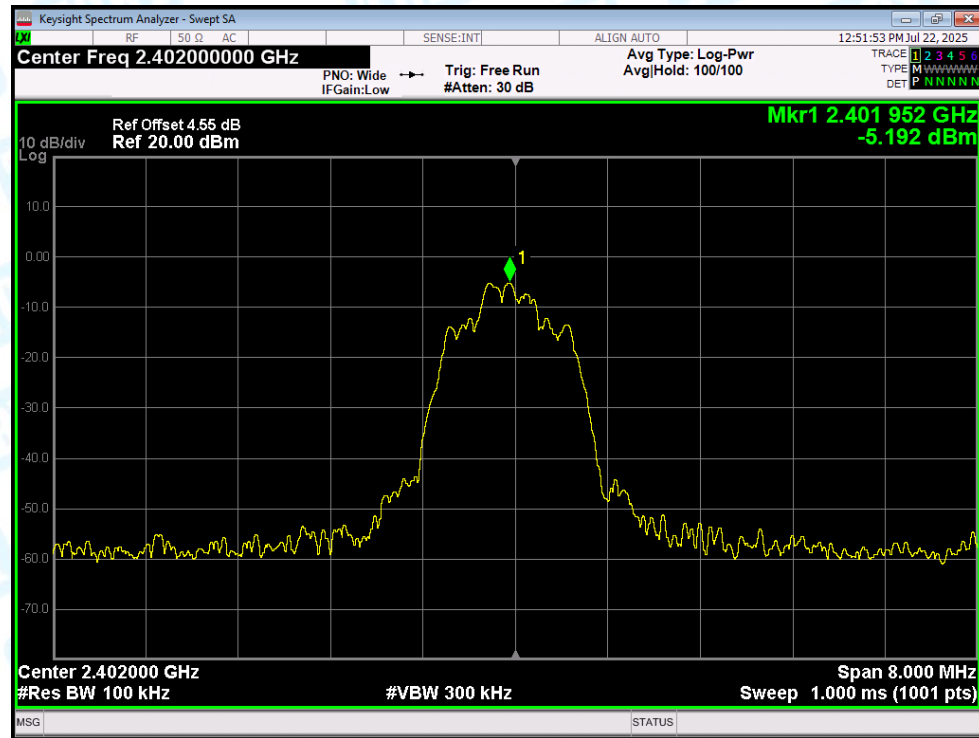
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Ref



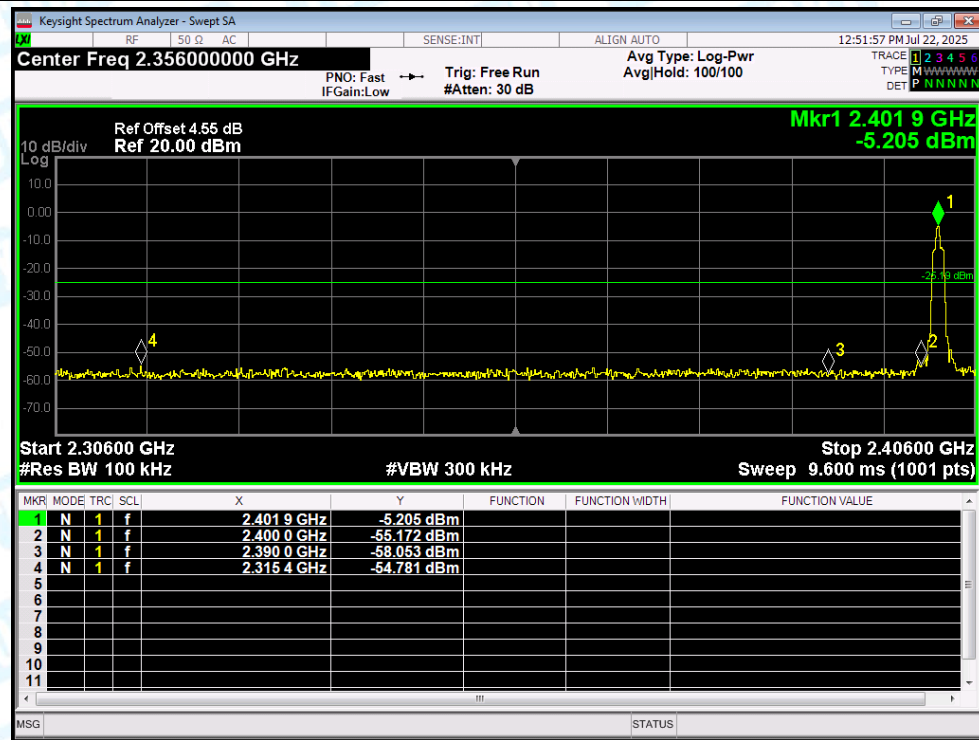
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission



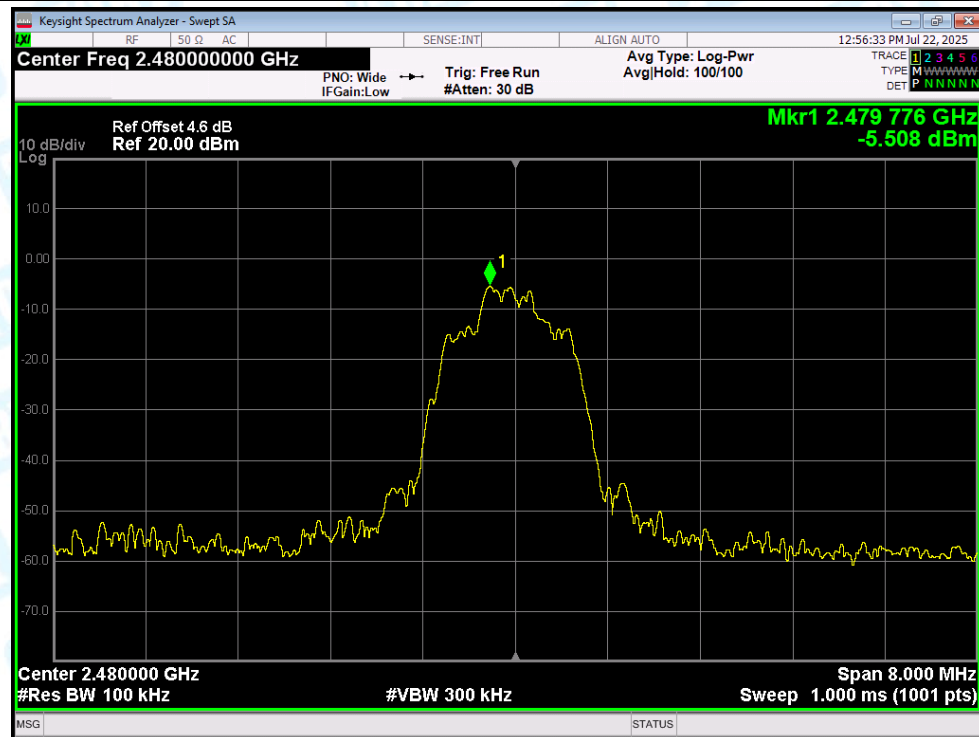
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



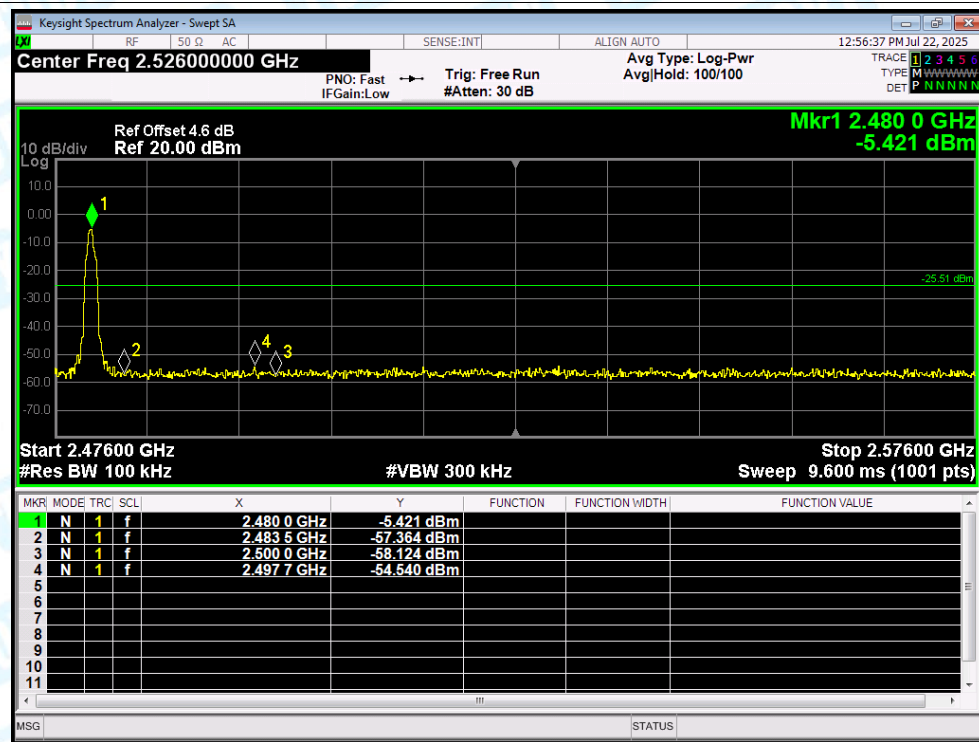
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



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



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

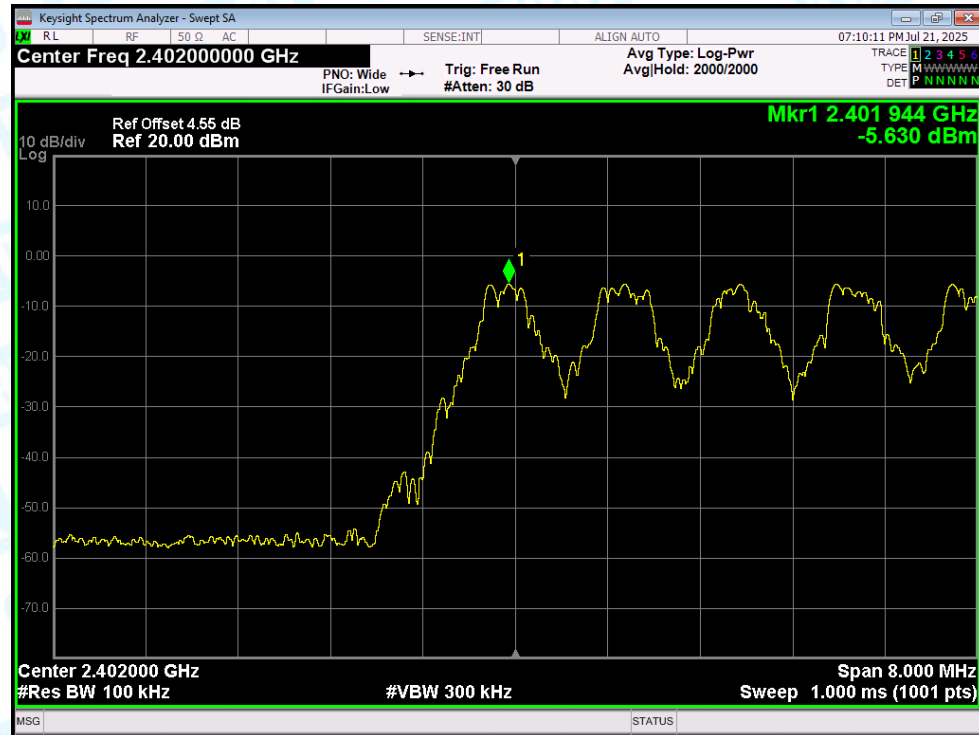


6. Band Edge(Hopping)

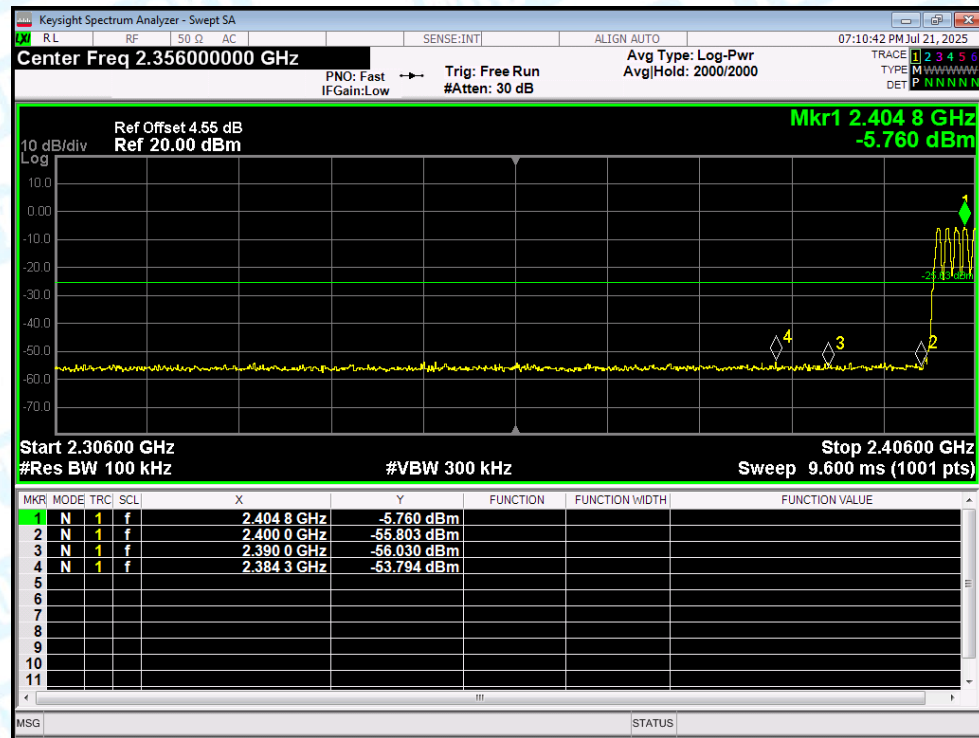
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-48.16	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-48.3	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-48.69	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-47.56	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-48.9	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-48.4	-20	Pass

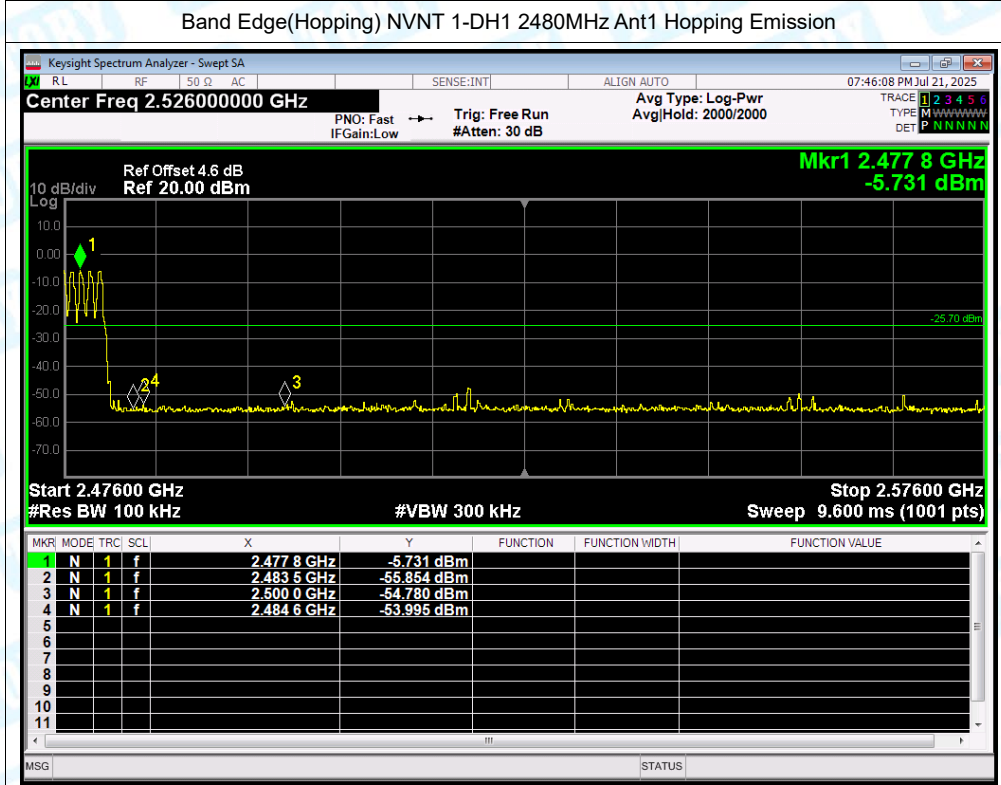
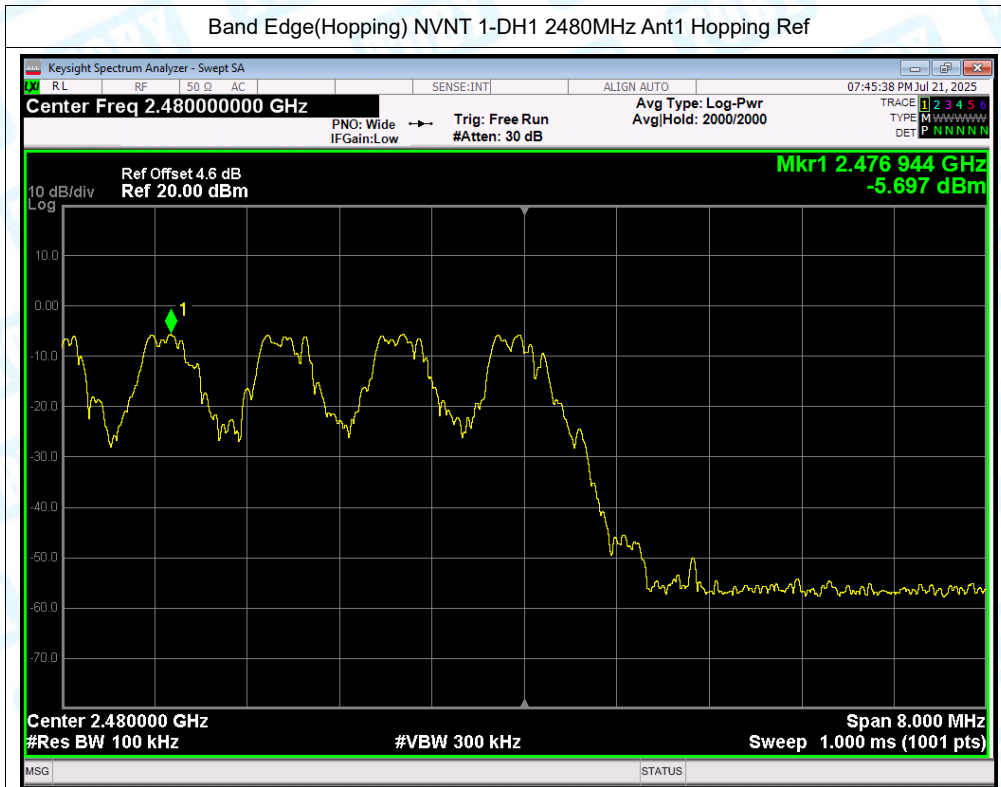
Test Graphs

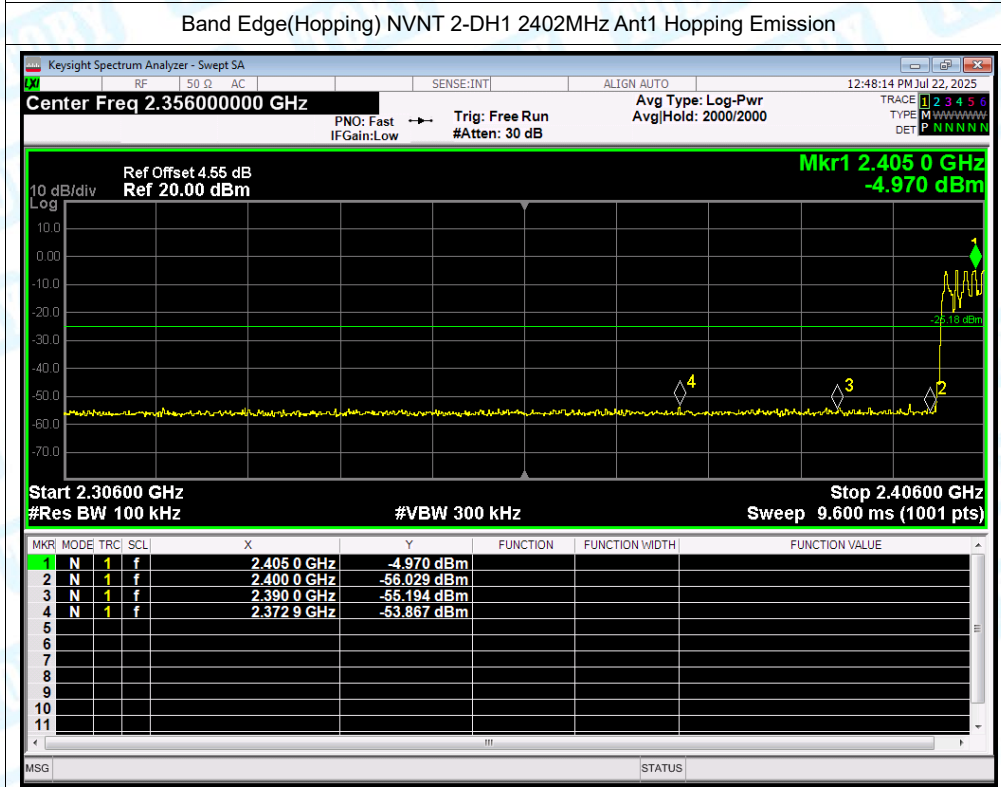
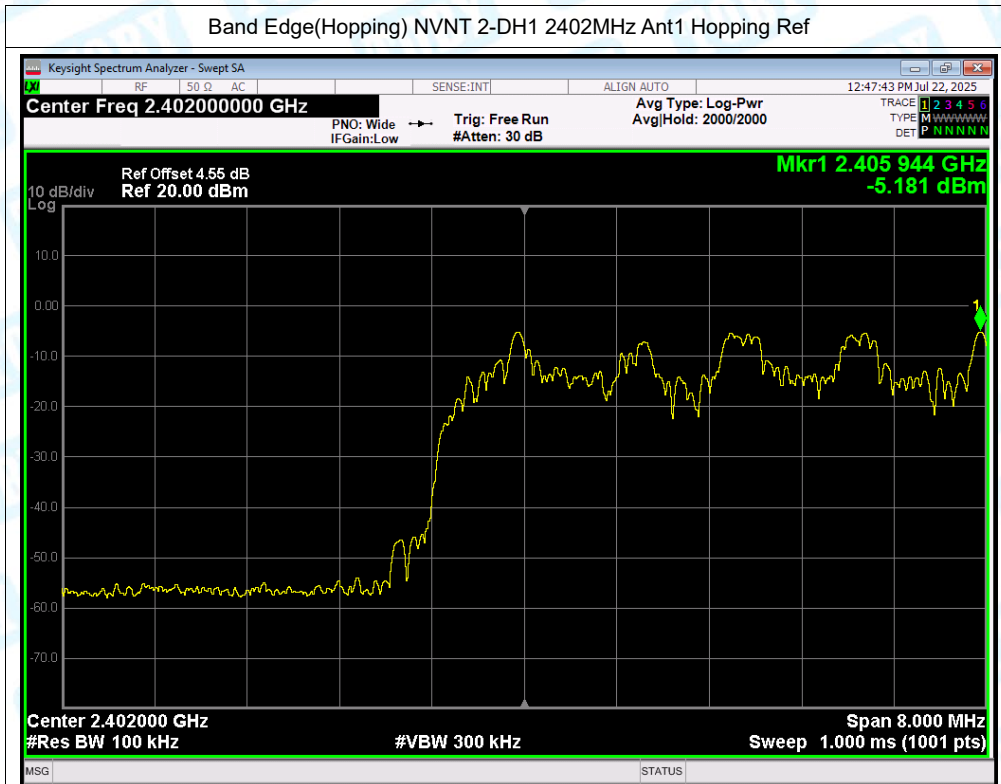
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Ref

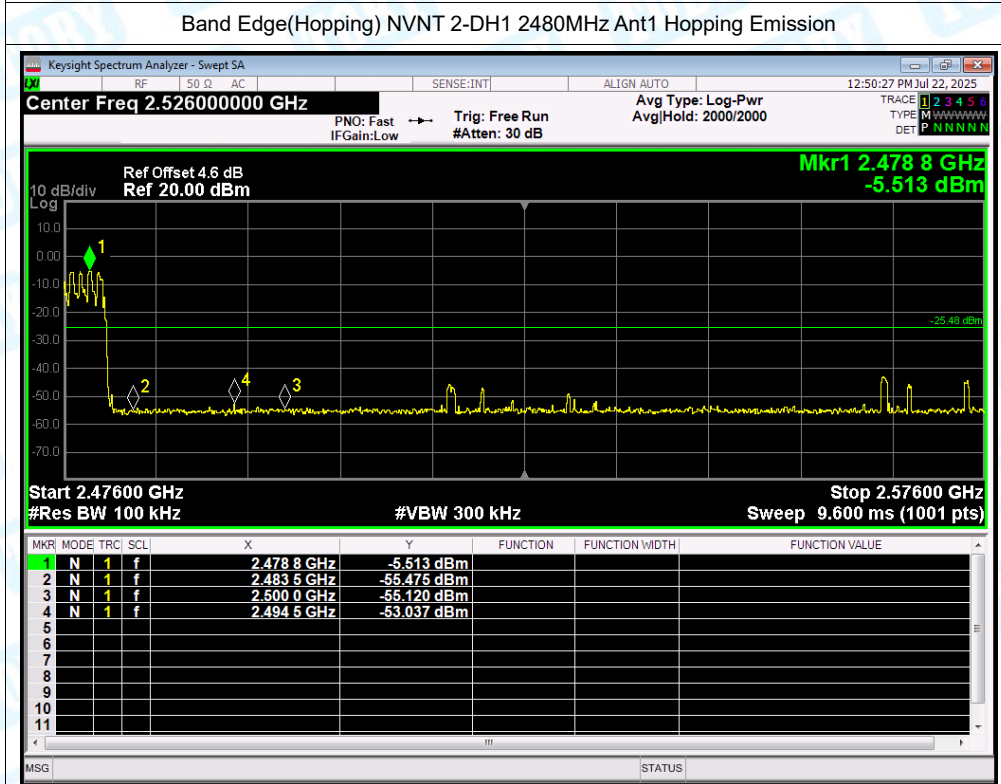
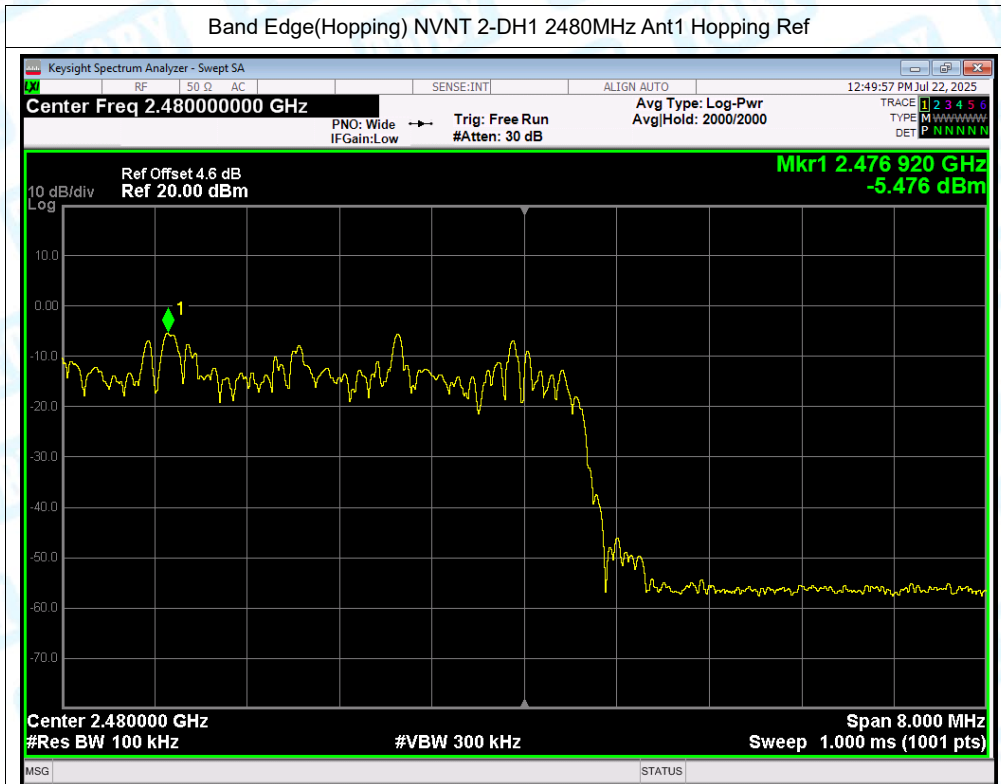


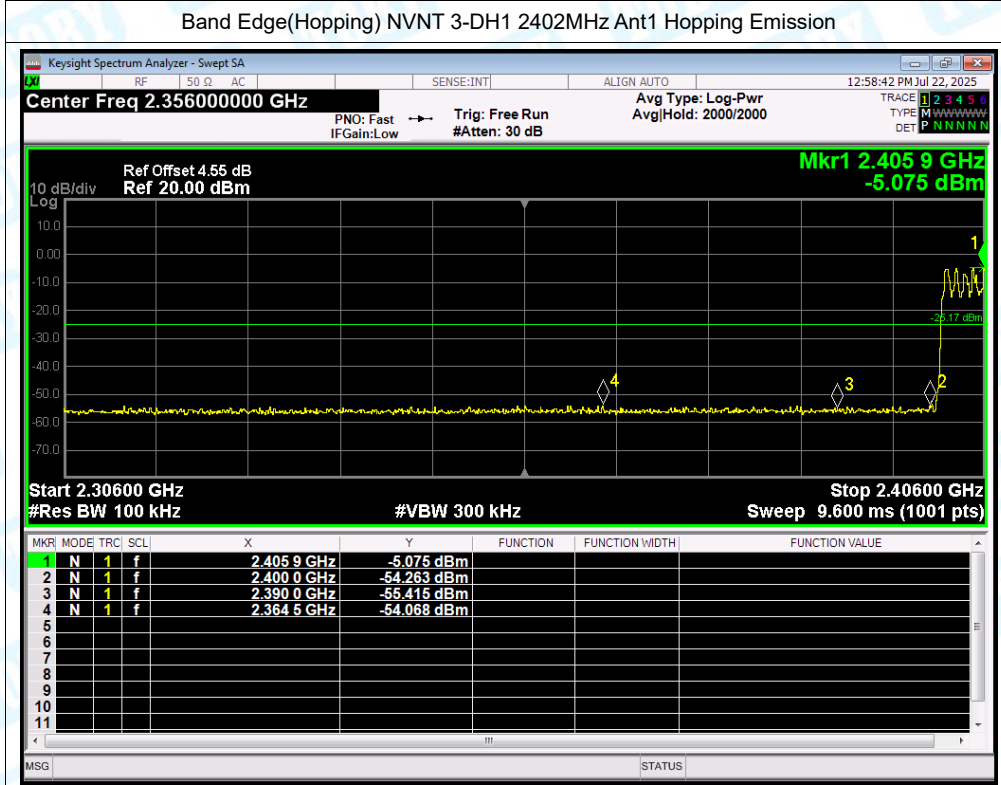
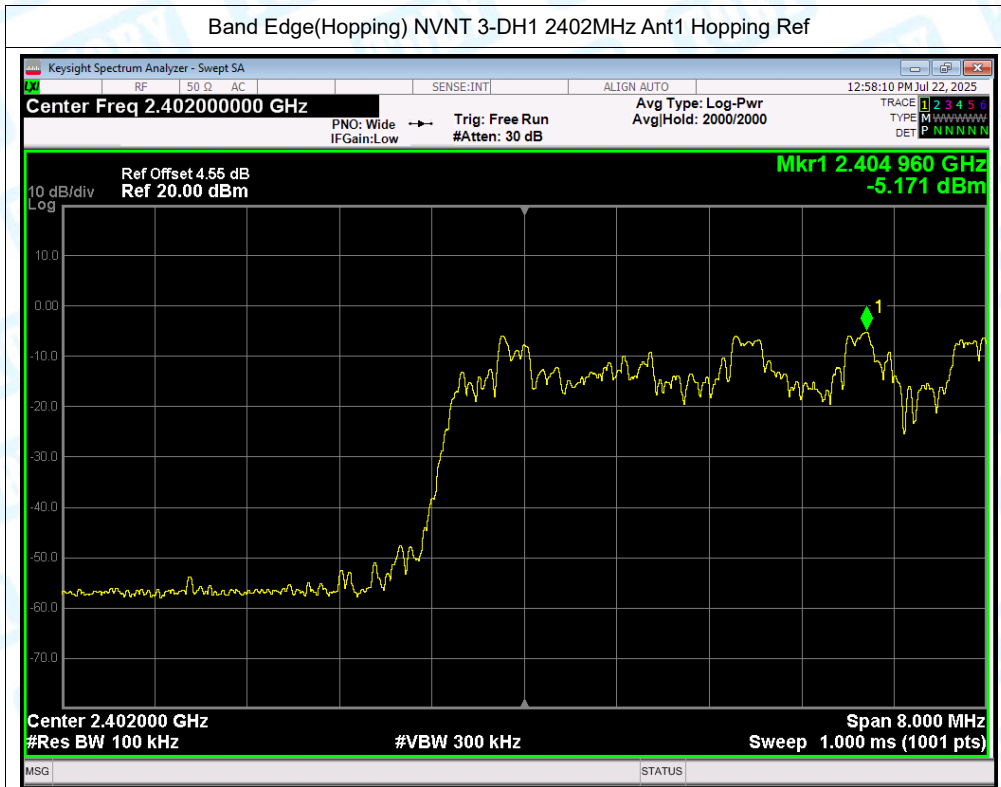
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission

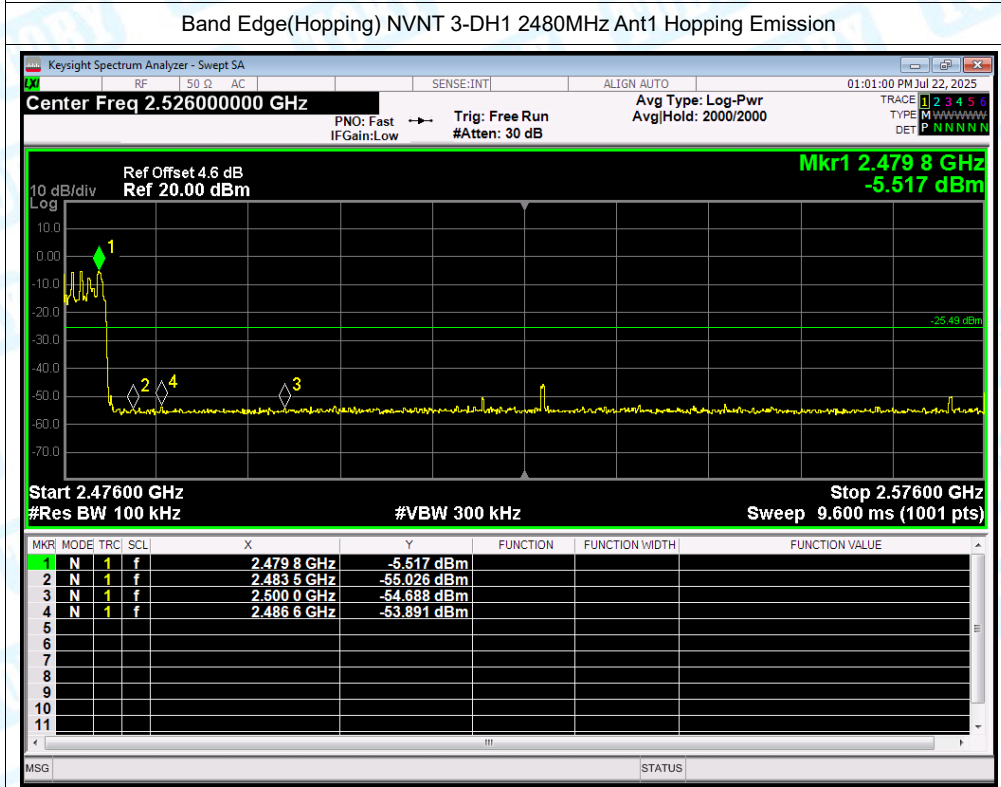
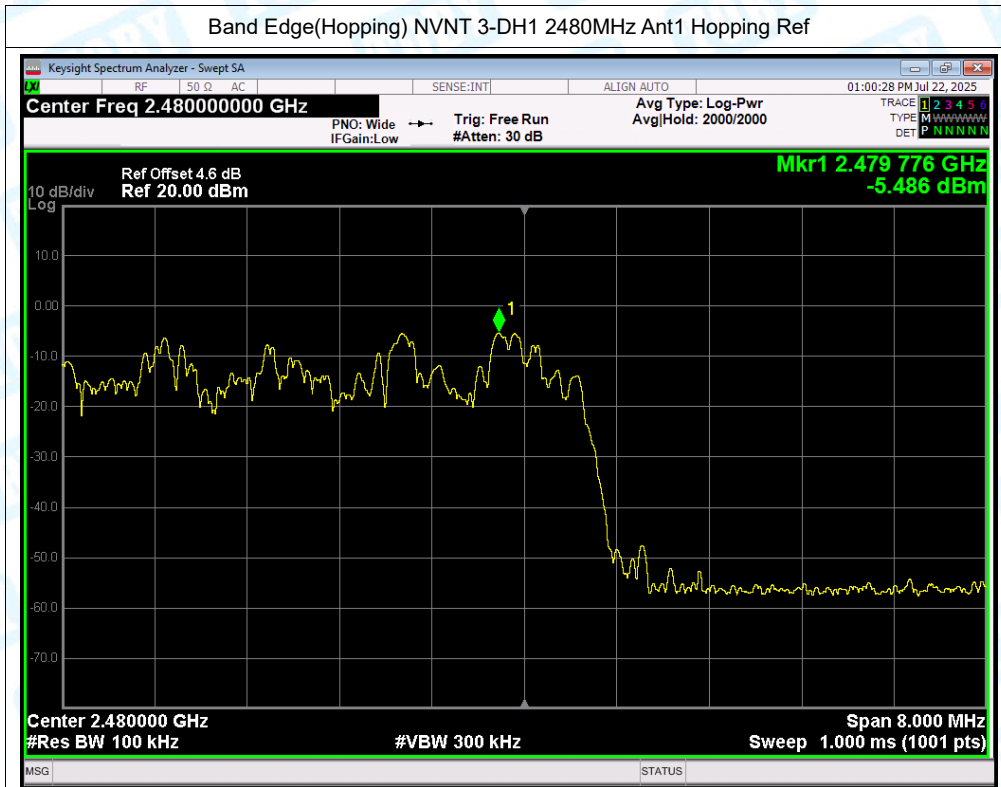










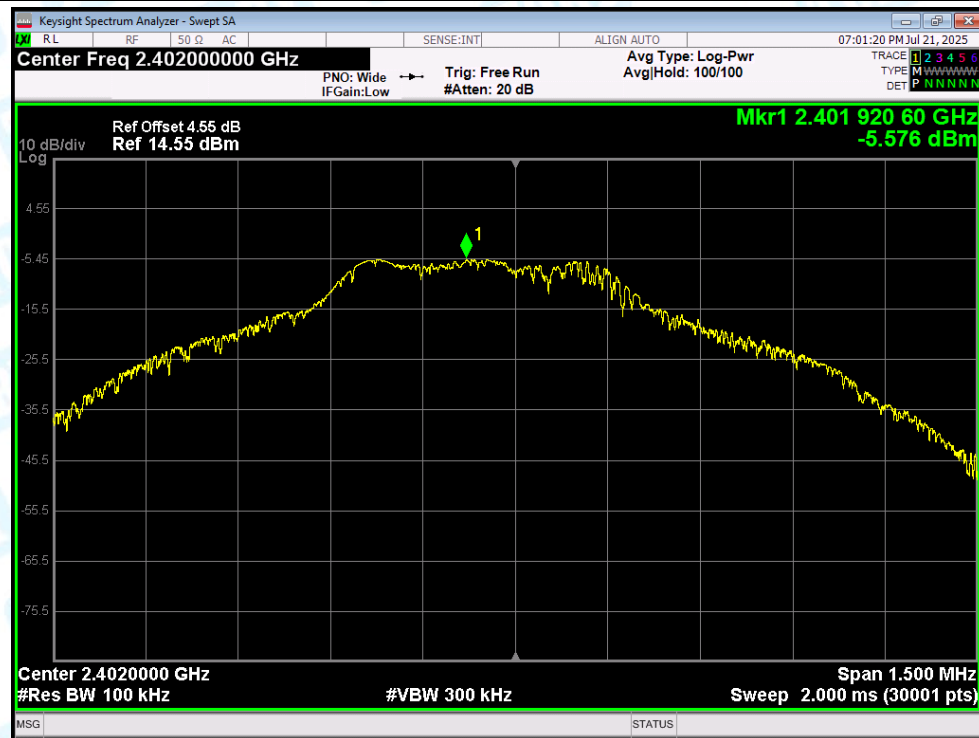


7. Conducted RF Spurious Emission

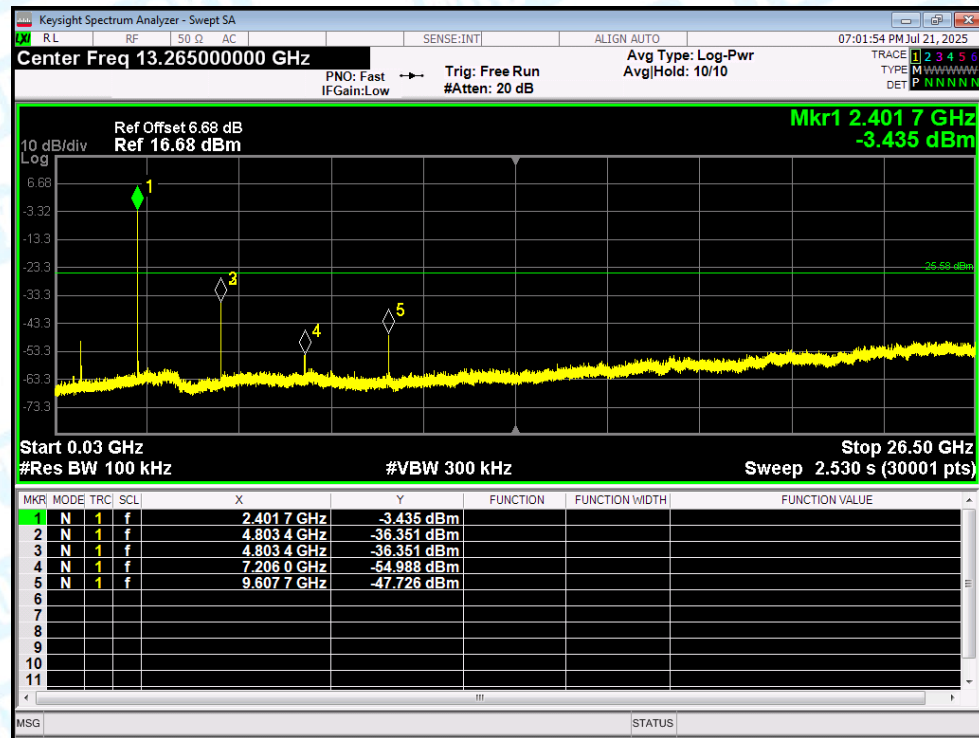
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-30.77	-20	Pass
NVNT	1-DH1	2441	Ant1	-28.18	-20	Pass
NVNT	1-DH1	2480	Ant1	-28.62	-20	Pass
NVNT	2-DH1	2402	Ant1	-30.91	-20	Pass
NVNT	2-DH1	2441	Ant1	-40.34	-20	Pass
NVNT	2-DH1	2480	Ant1	-29.31	-20	Pass
NVNT	3-DH1	2402	Ant1	-39.48	-20	Pass
NVNT	3-DH1	2441	Ant1	-32.06	-20	Pass
NVNT	3-DH1	2480	Ant1	-37.26	-20	Pass

Test Graphs

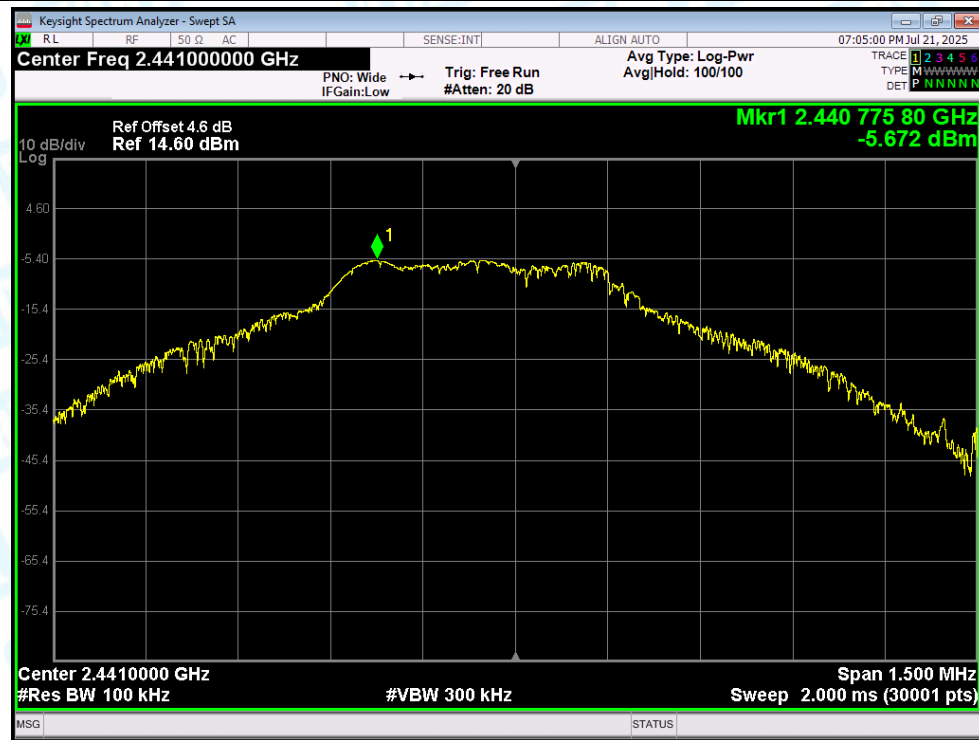
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



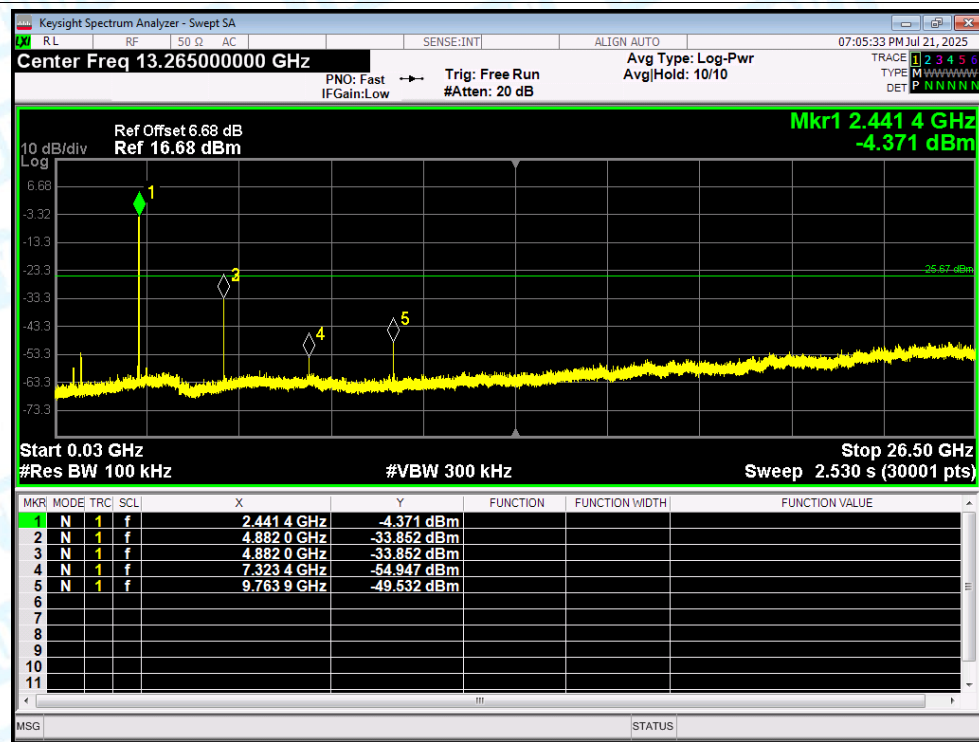
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



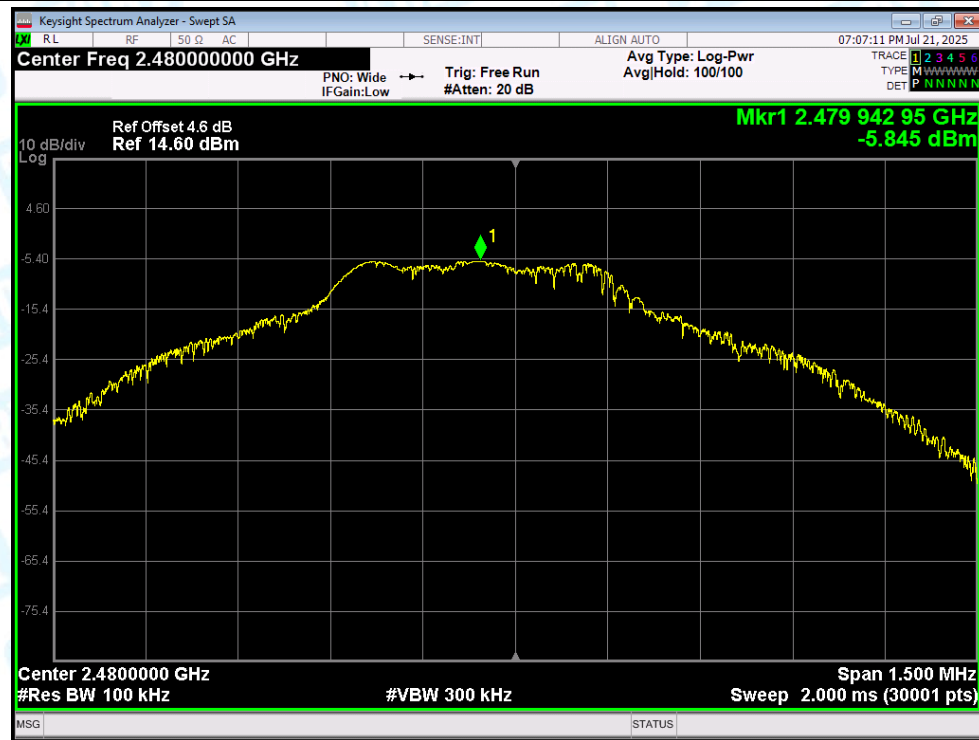
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



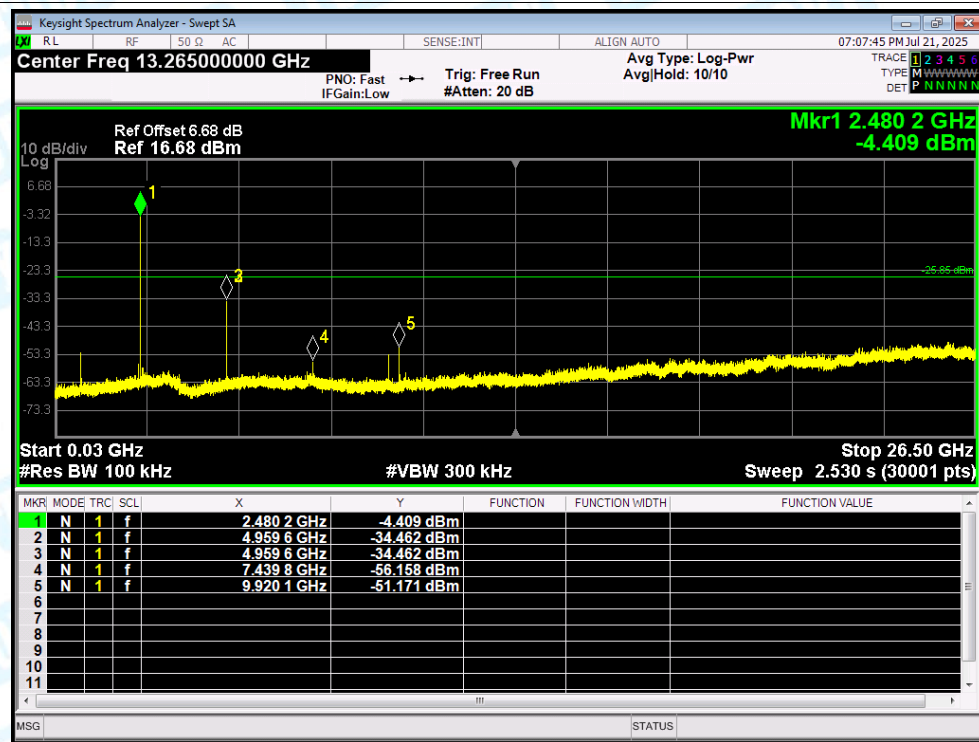
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



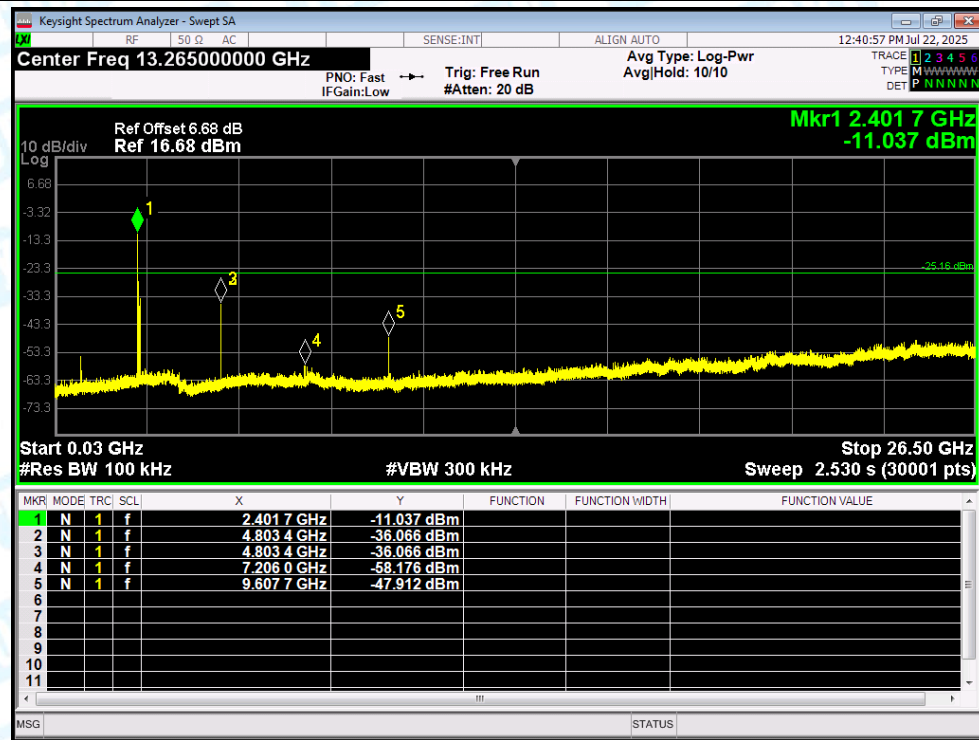
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



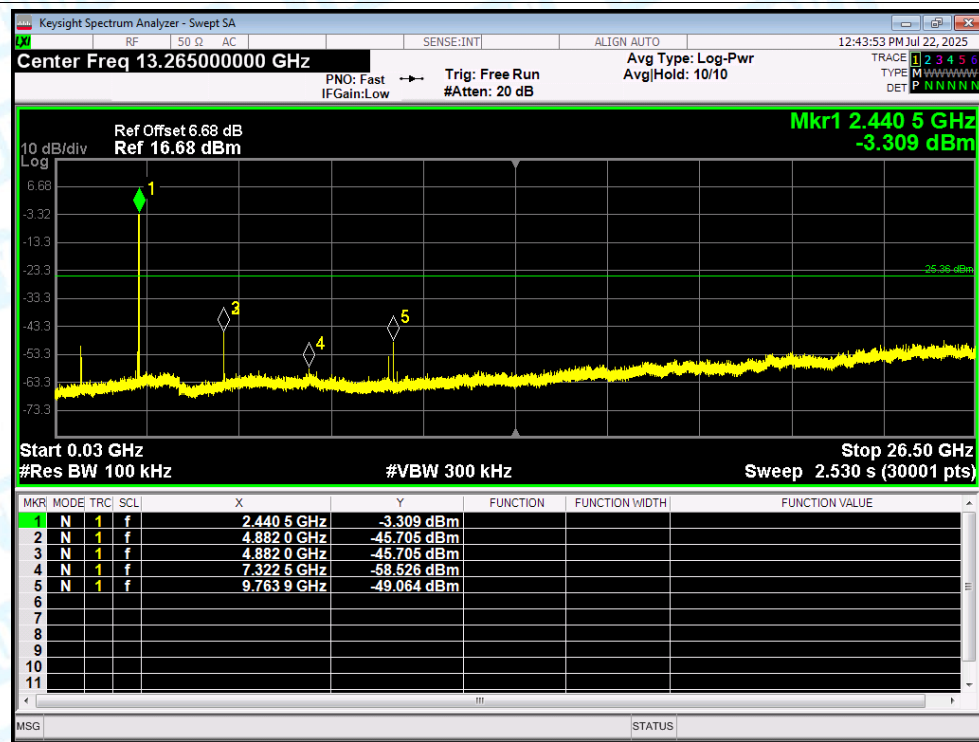
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



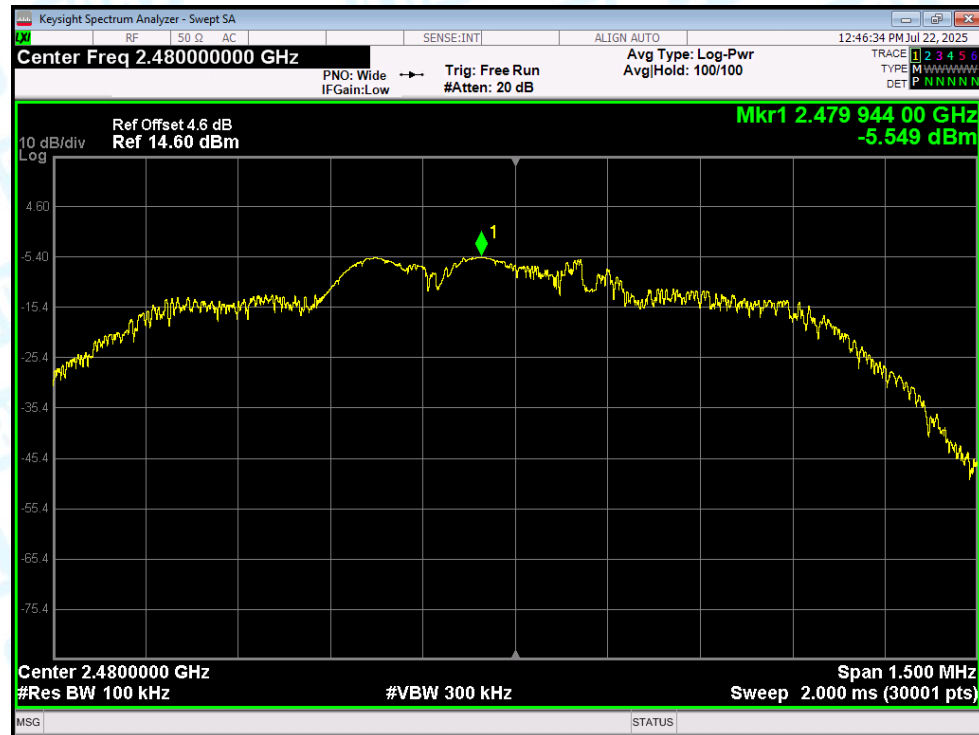
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



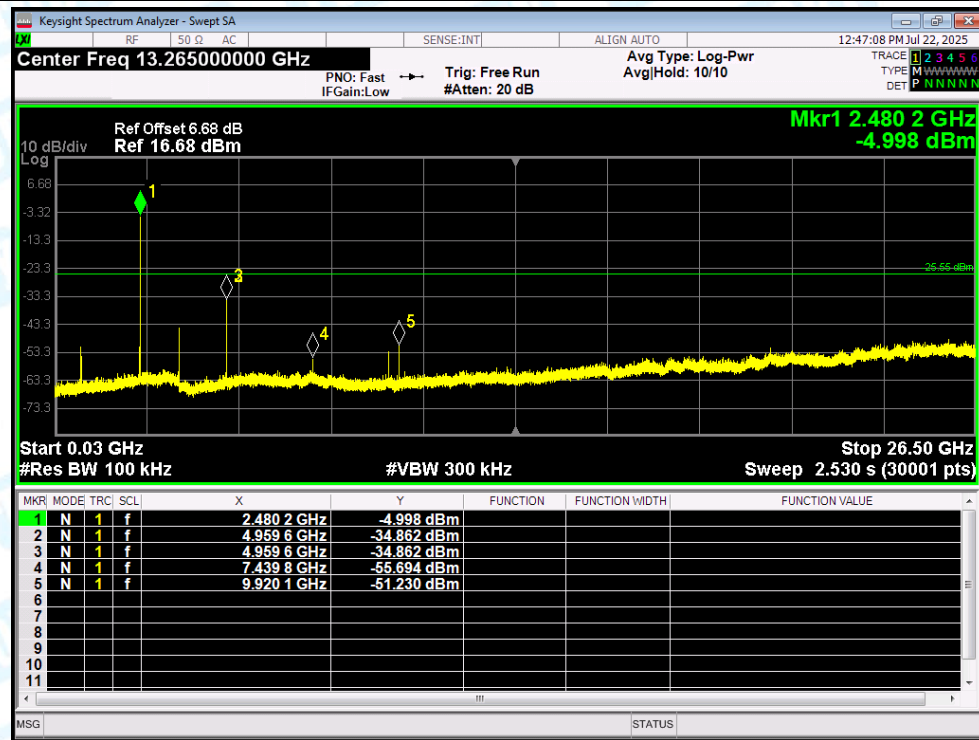
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



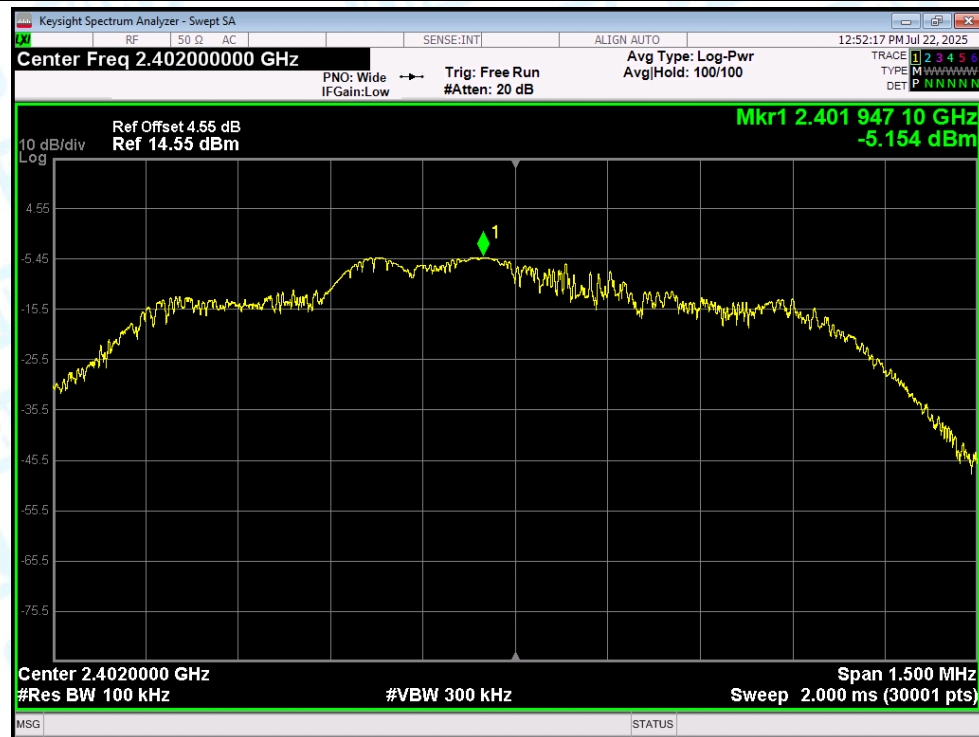
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



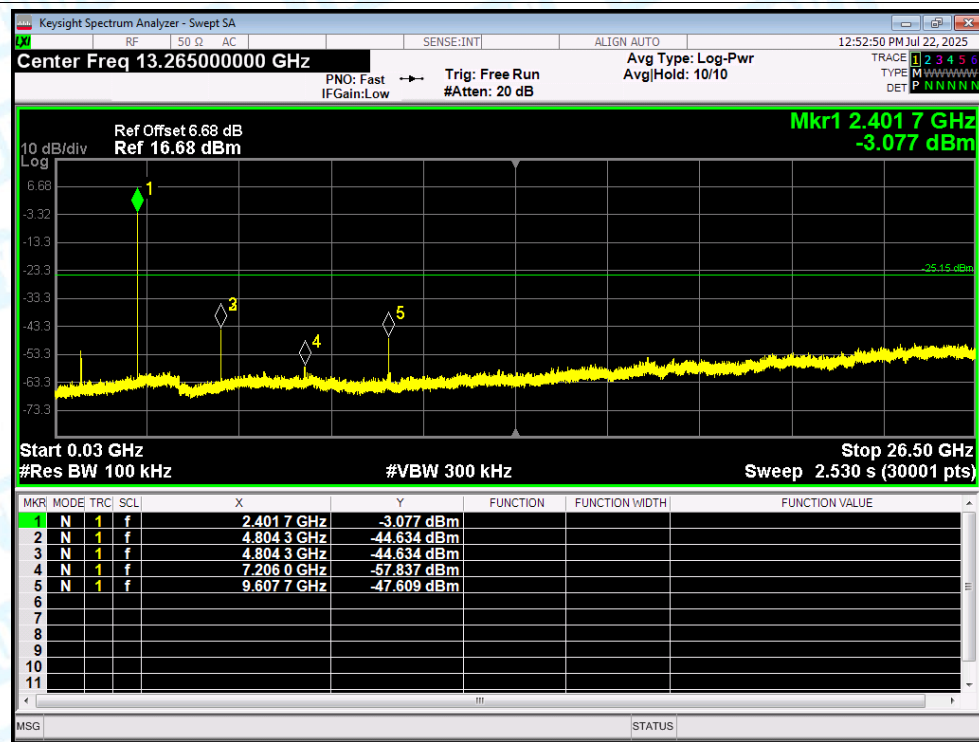
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



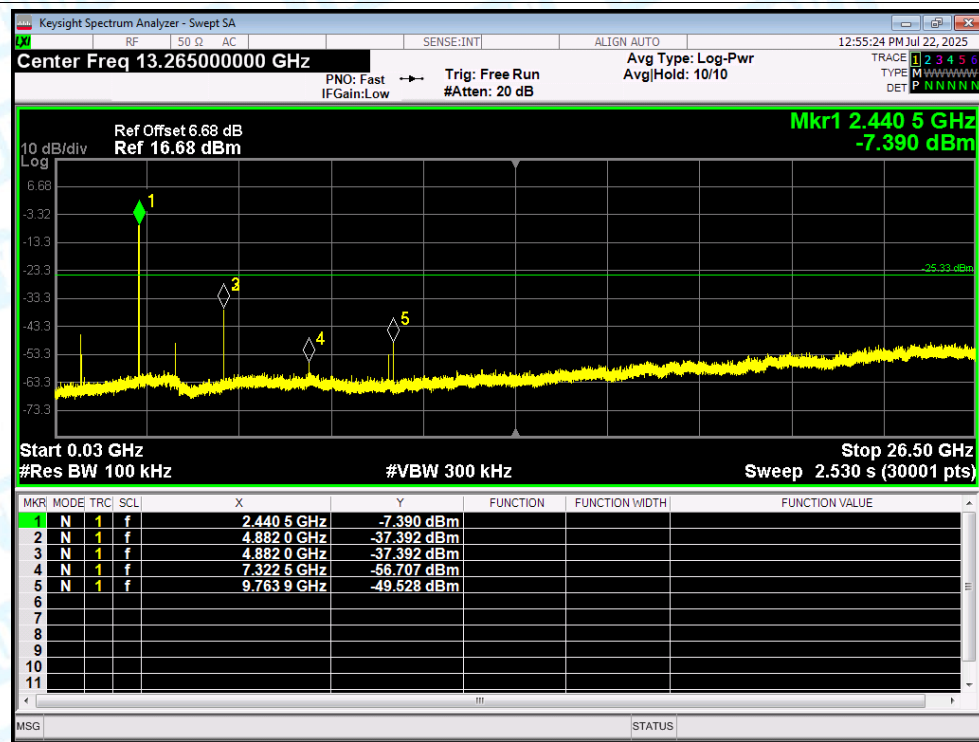
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



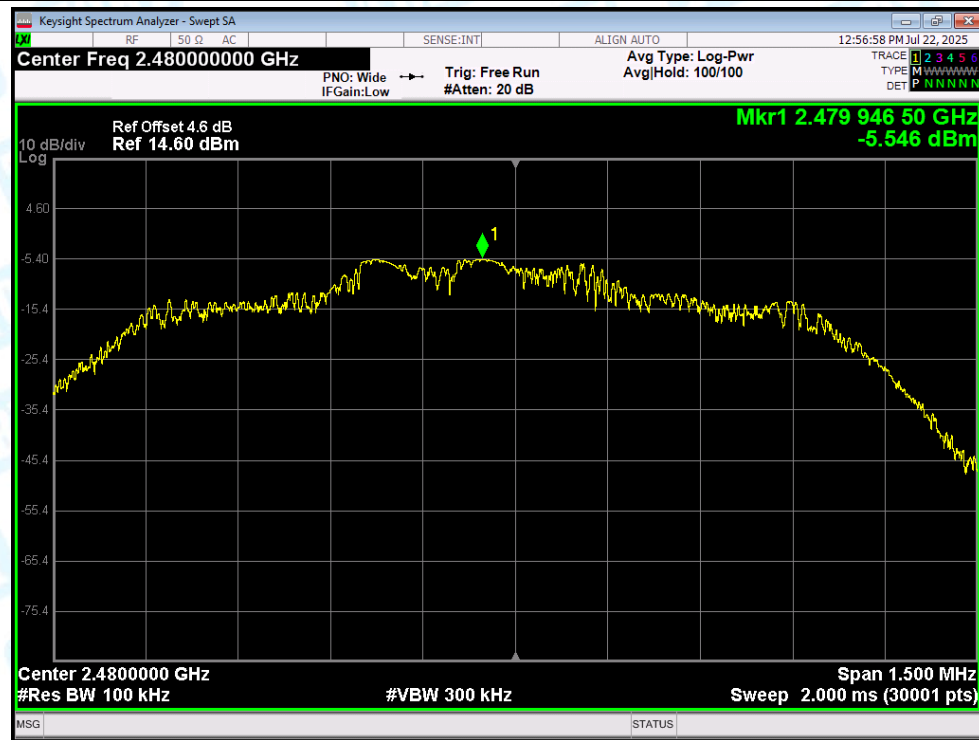
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



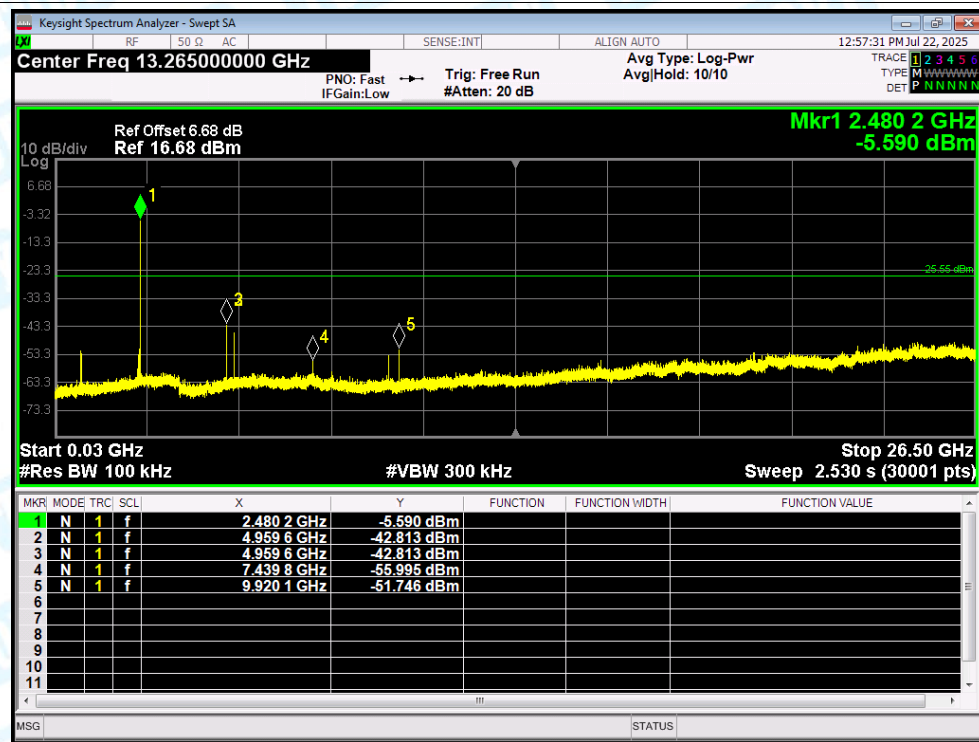
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

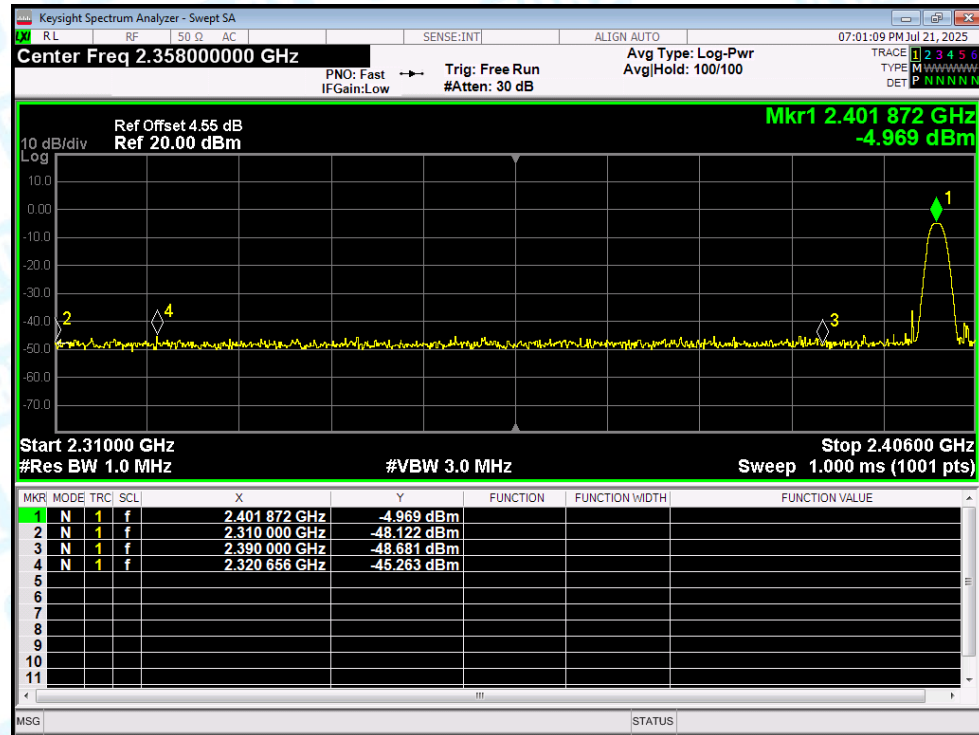


8. Restrict Band

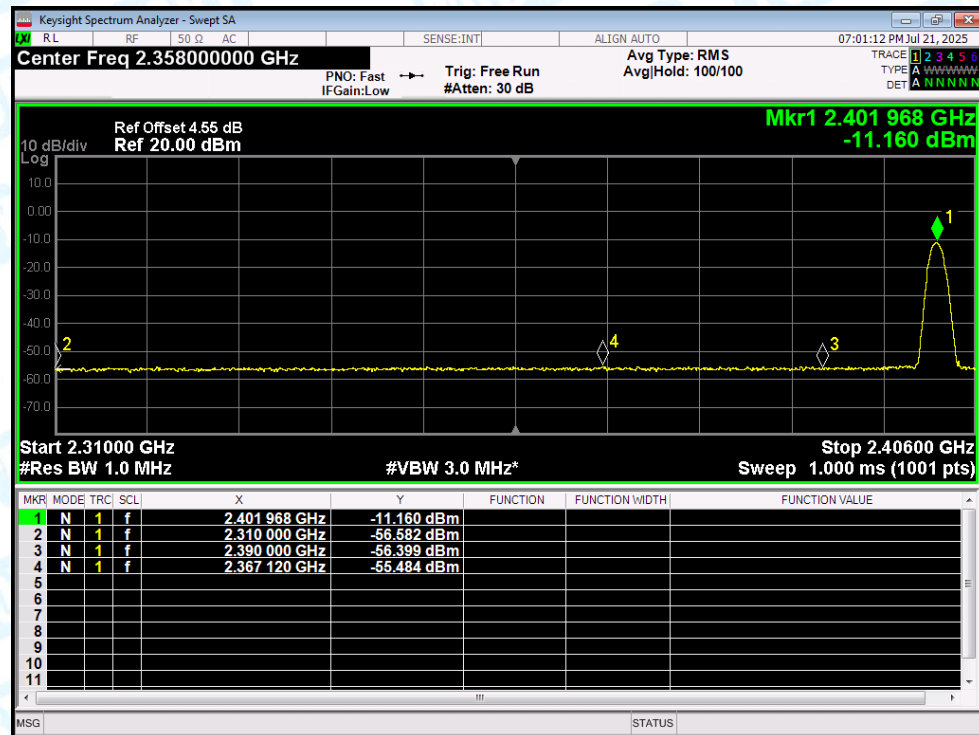
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-48.12	2	-	49.14	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.58	2	4.84	45.52	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2320.656	-45.26	2	-	52	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2367.12	-55.48	2	4.84	46.62	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-48.68	2	-	48.58	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-56.4	2	4.84	45.7	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-47.52	2	-	49.74	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-55.82	2	4.95	46.39	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2491.648	-44.19	2	-	53.07	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.824	-54.88	2	4.95	47.33	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-48.8	2	-	48.46	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-55.43	2	4.95	46.78	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-48.14	2	-	49.12	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.87	2	4.84	45.23	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2355.696	-45.14	2	-	52.12	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2388.144	-55.36	2	4.84	46.74	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-46.52	2	-	50.74	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-56.65	2	4.84	45.45	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-46.56	2	-	50.7	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-55.53	2	4.84	46.57	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2499.808	-44.44	2	-	52.82	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2484.328	-54.64	2	4.84	47.46	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-48.29	2	-	48.97	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.6	2	4.84	46.5	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-49.94	2	-	47.32	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-56.04	2	4.74	45.96	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2356.656	-45.28	2	-	51.98	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2383.344	-55.29	2	4.74	46.71	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-49.16	2	-	48.1	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-56.33	2	4.74	45.67	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-48.53	2	-	48.73	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-56.44	2	4.74	45.56	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.656	-43.34	2	-	53.92	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2487.184	-54.9	2	4.74	47.1	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-47.81	2	-	49.45	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.2	2	4.74	46.8	Average	54	Pass

Test Graphs

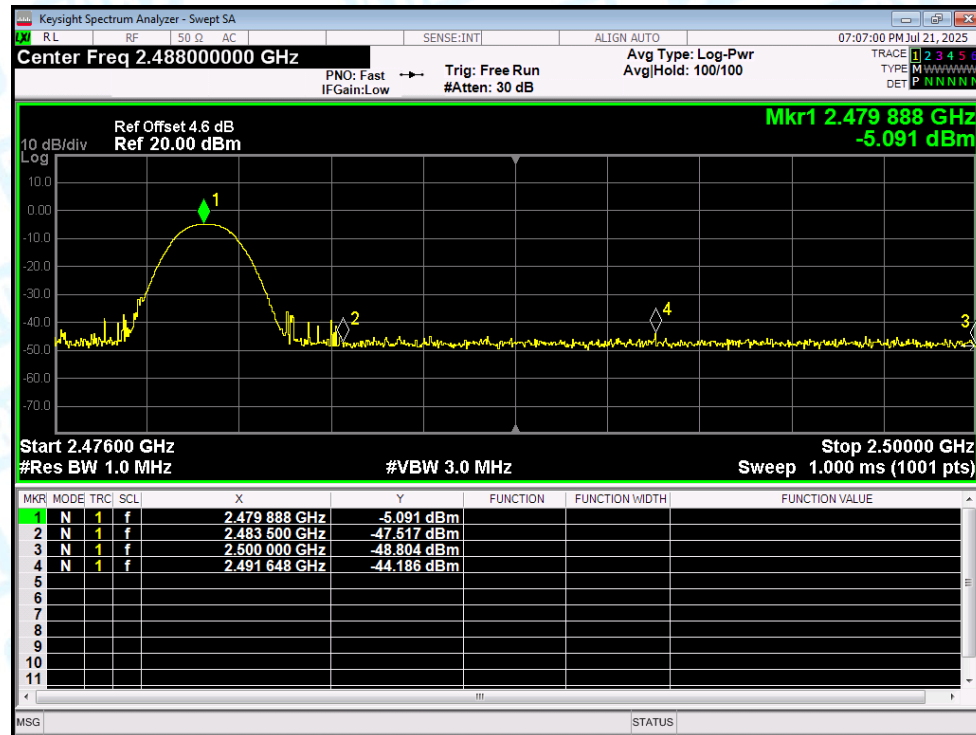
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



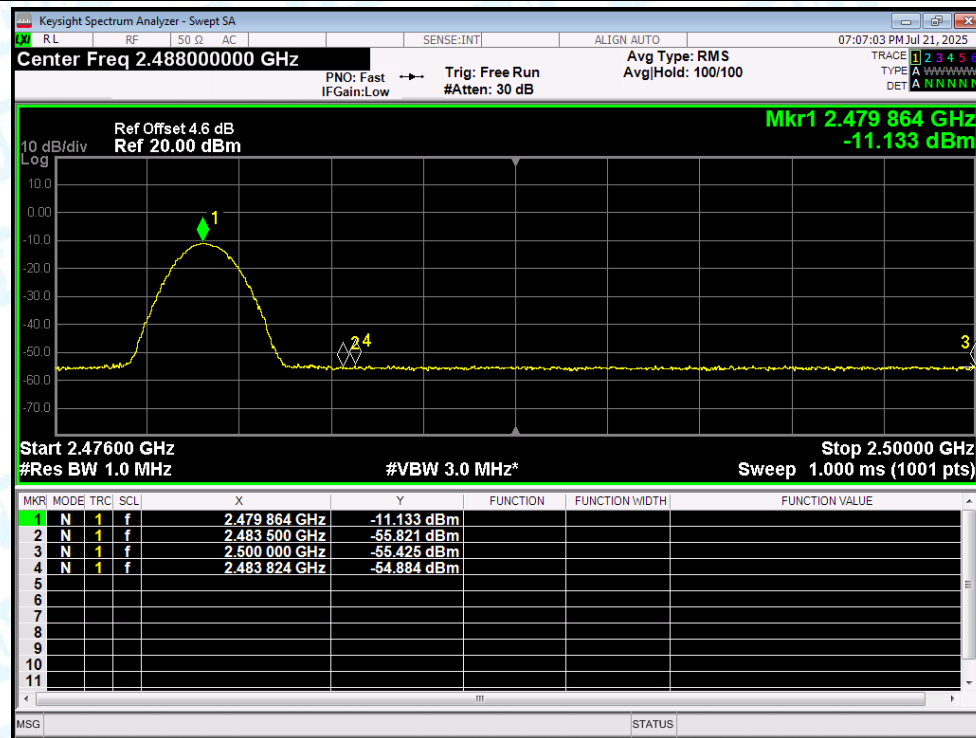
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



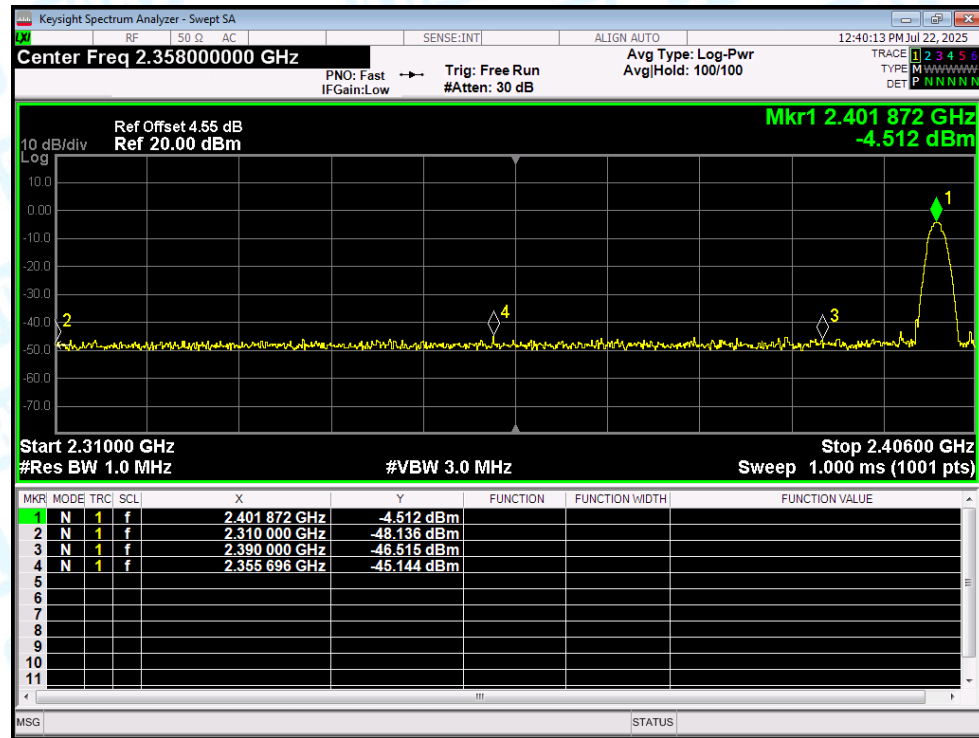
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



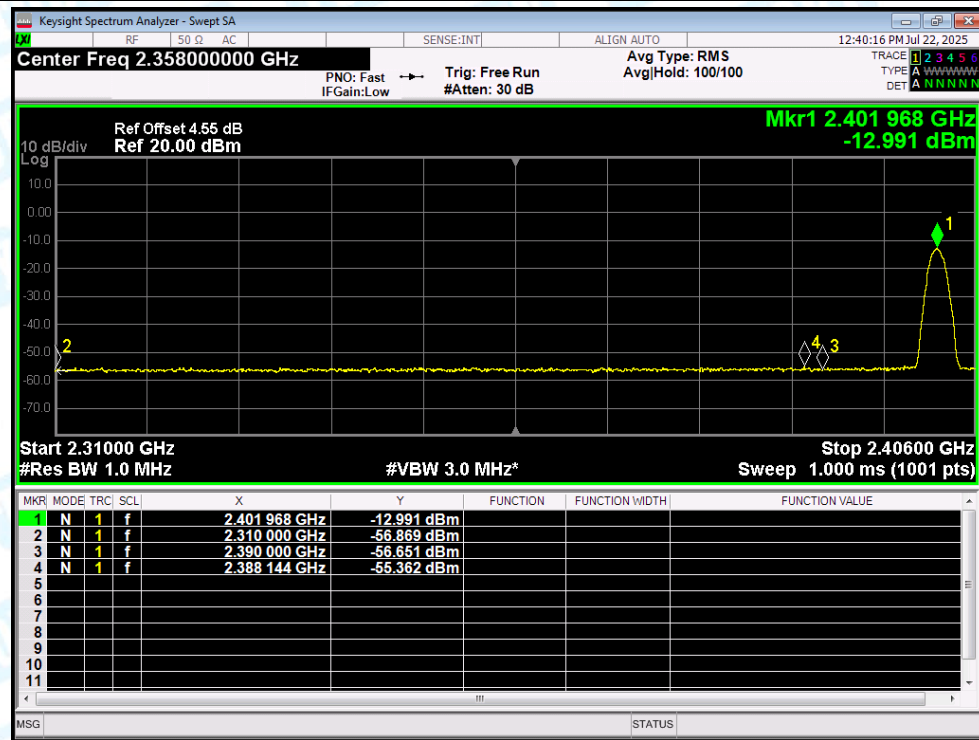
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



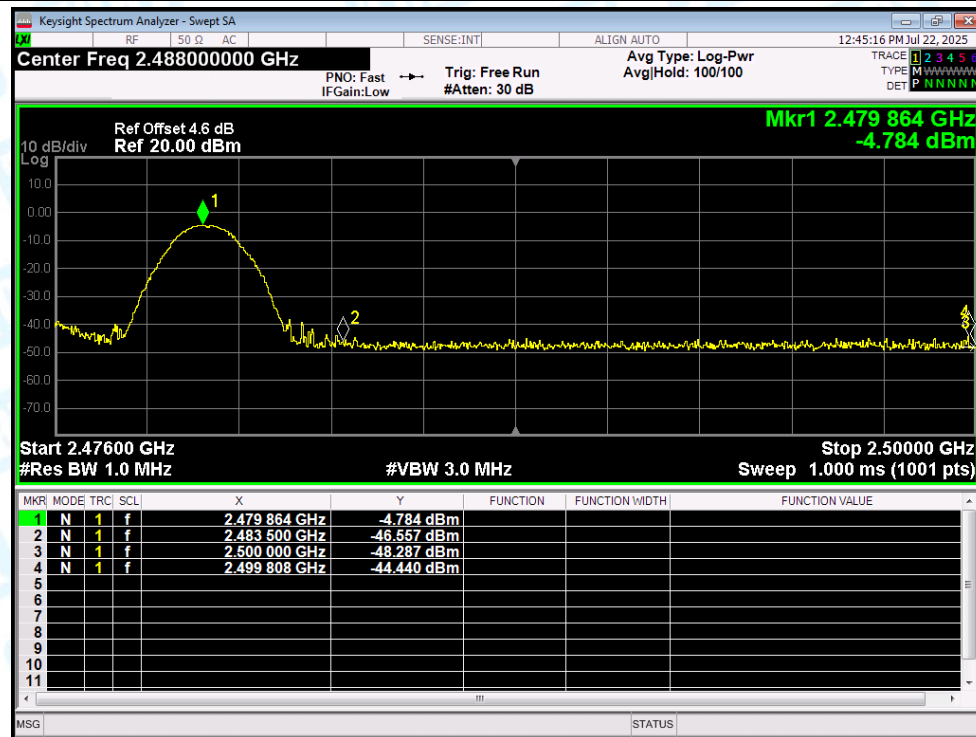
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



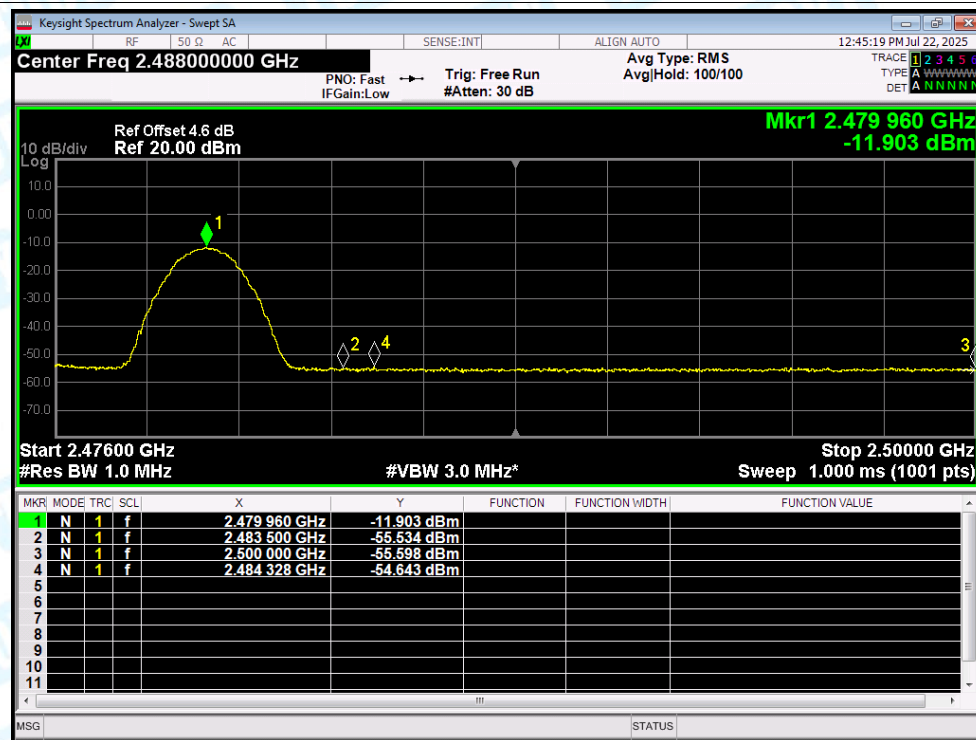
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



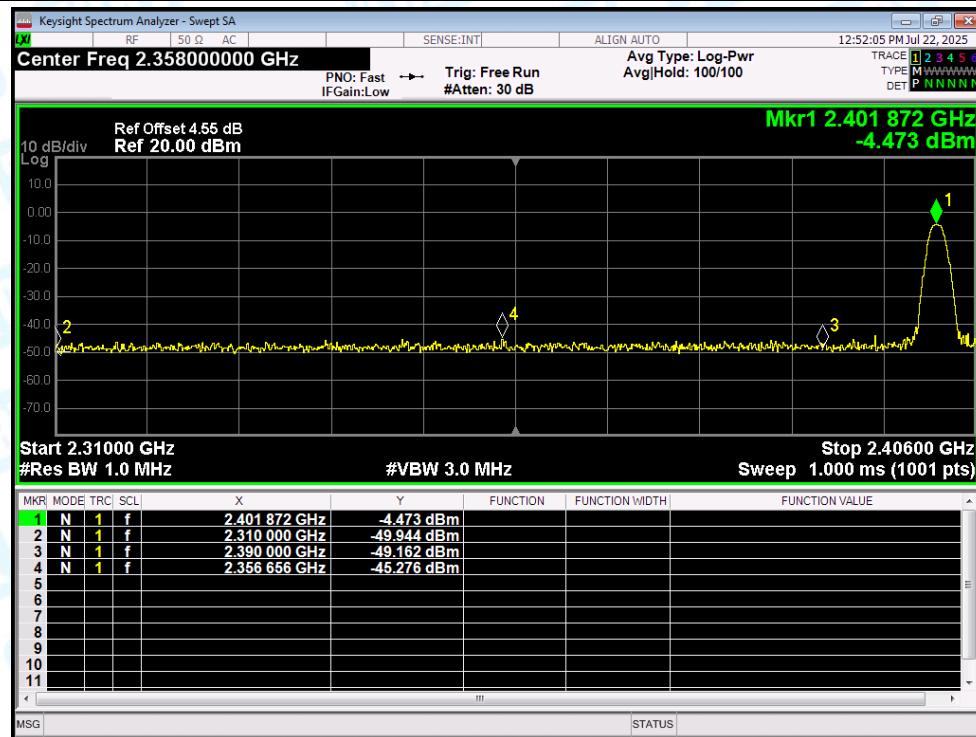
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



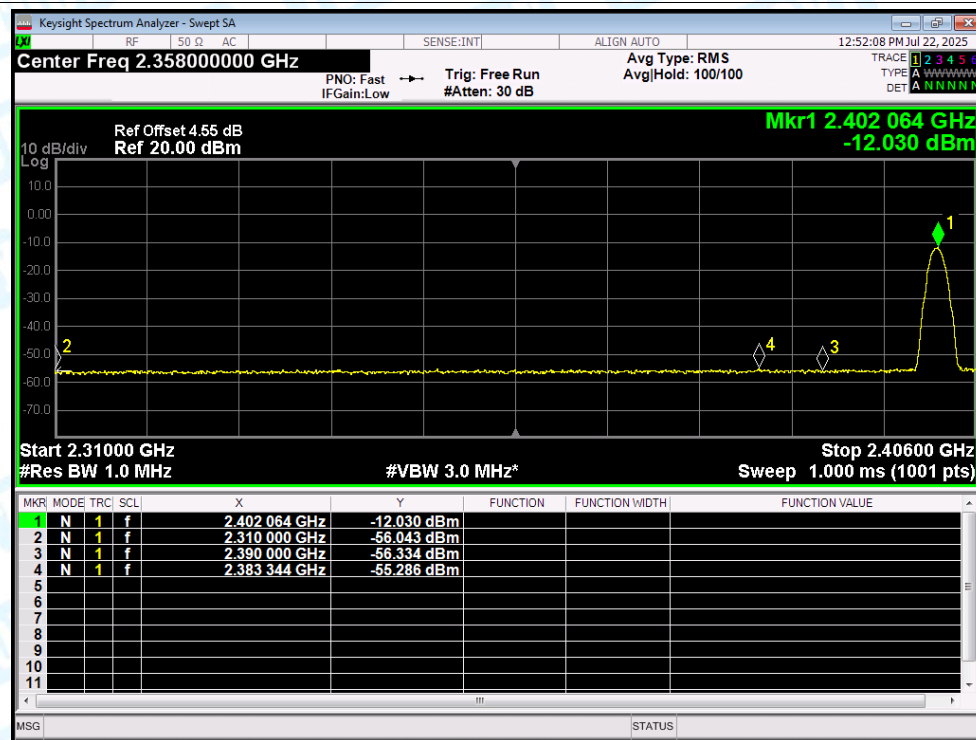
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



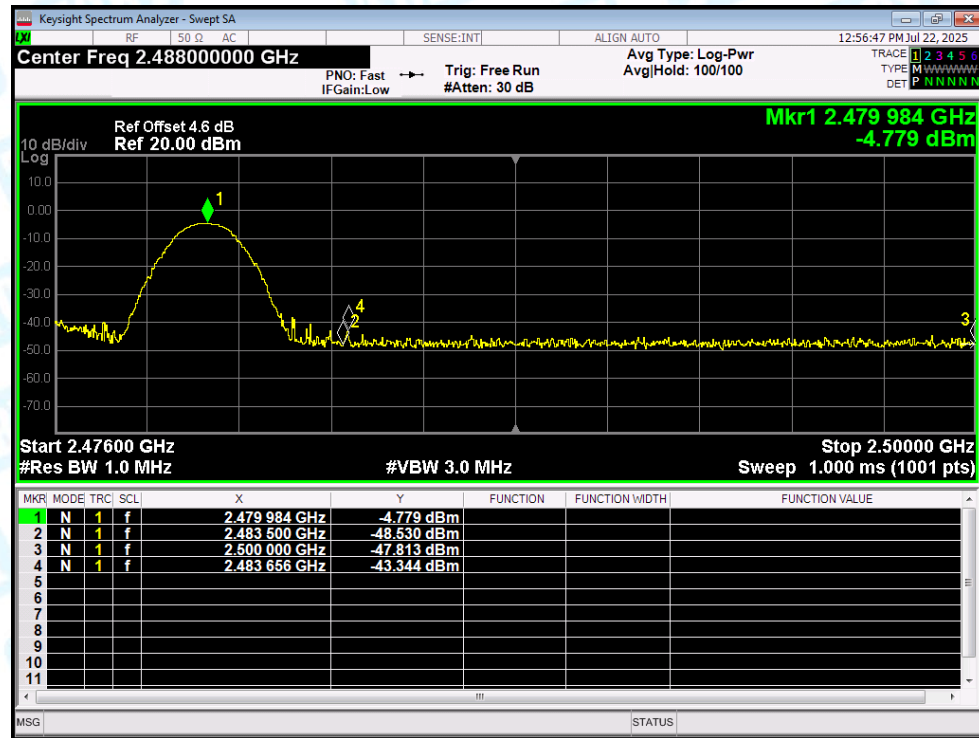
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



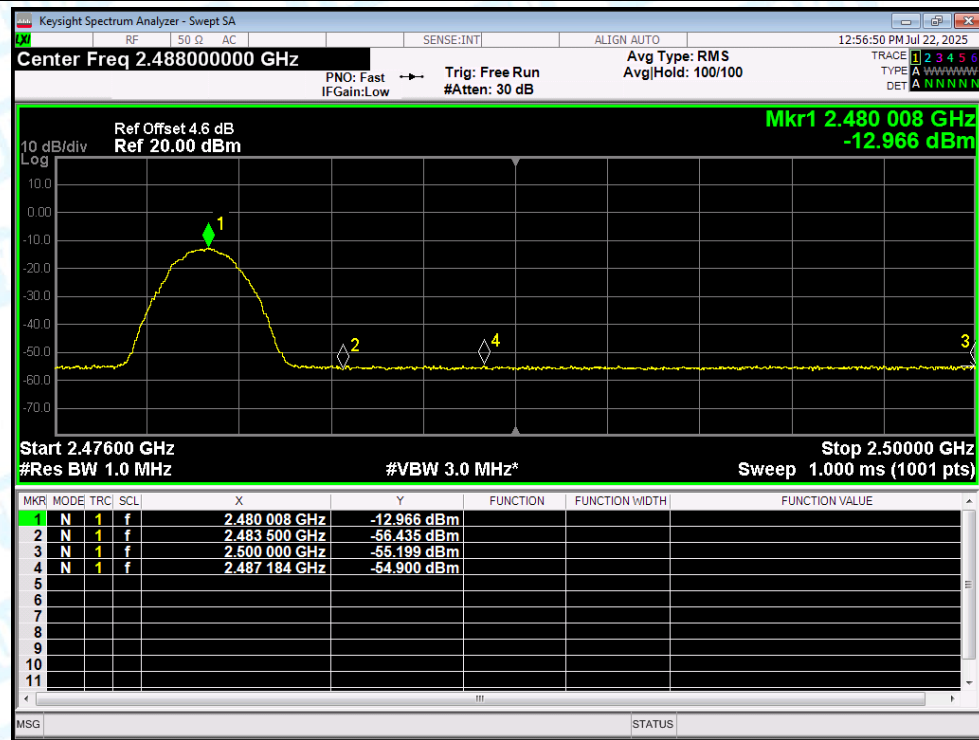
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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

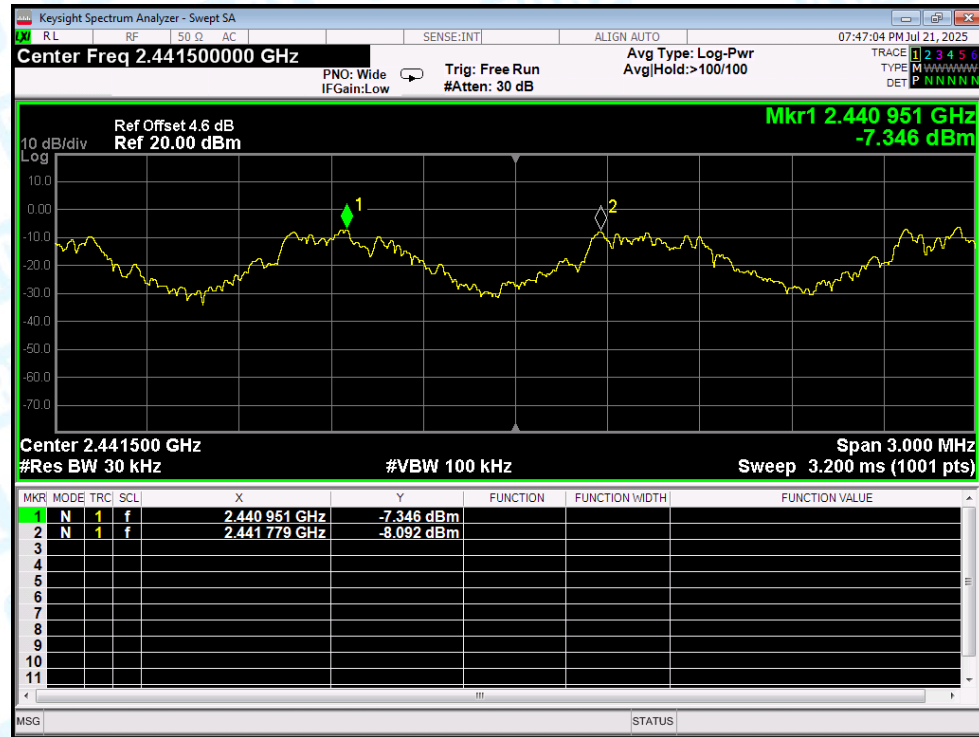


9. Carrier Frequencies Separation

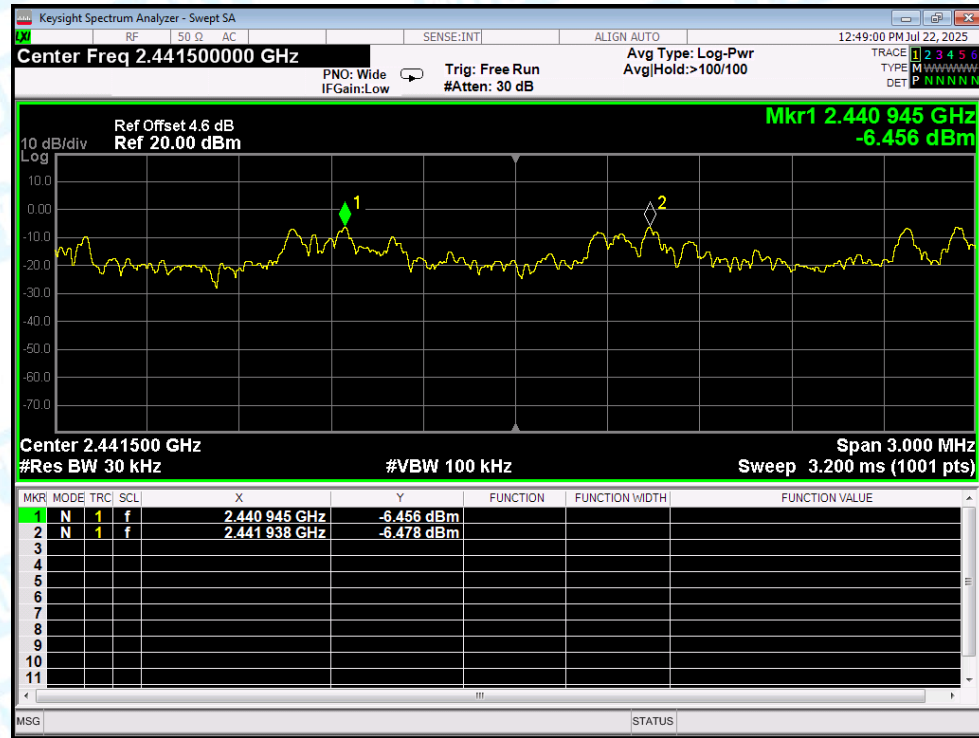
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.951	2441.779	0.828	0.607	Pass
NVNT	2-DH1	Ant1	2440.945	2441.938	0.993	0.773	Pass
NVNT	3-DH1	Ant1	2440.945	2441.938	0.993	0.773	Pass

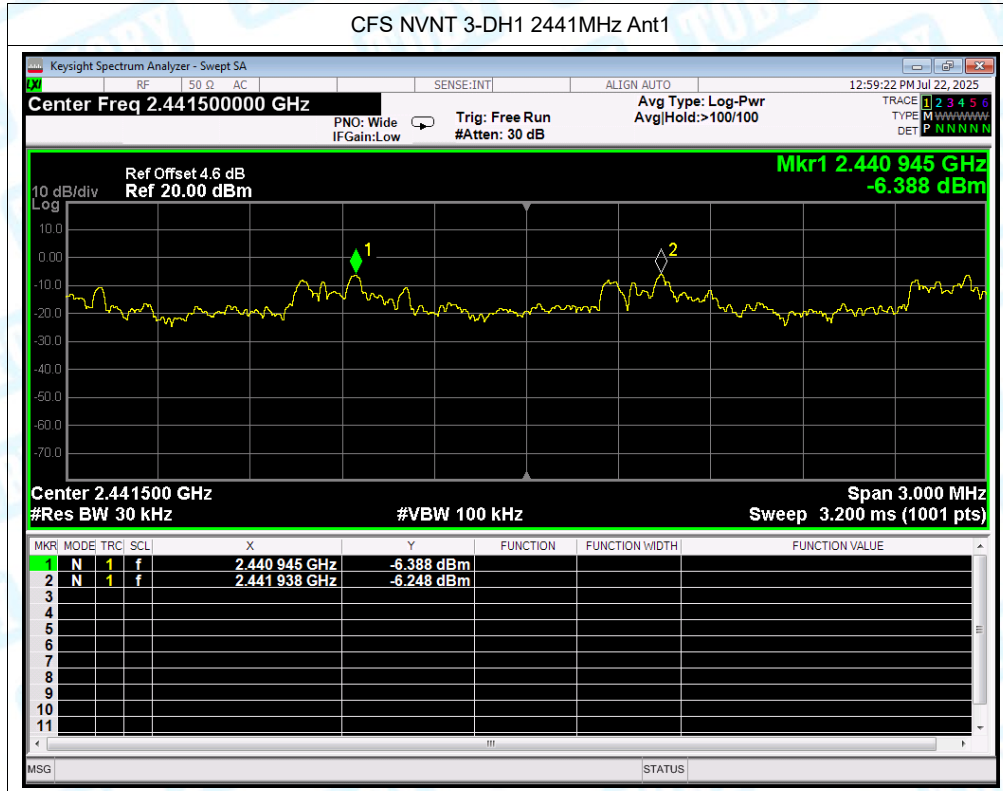
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



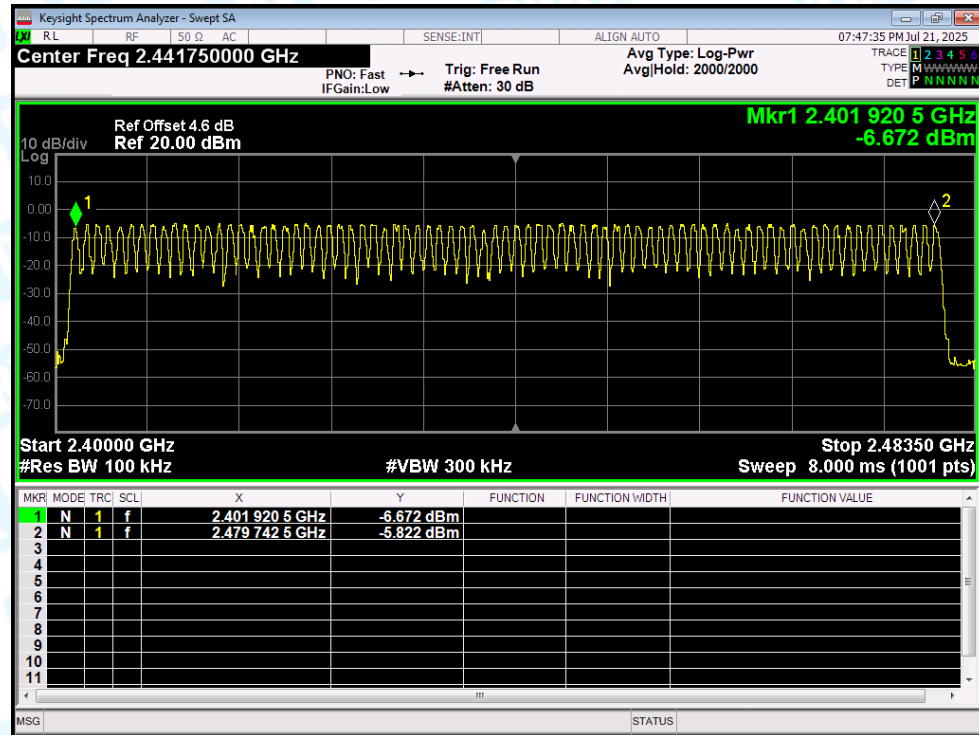


10. Number of Hopping Channel

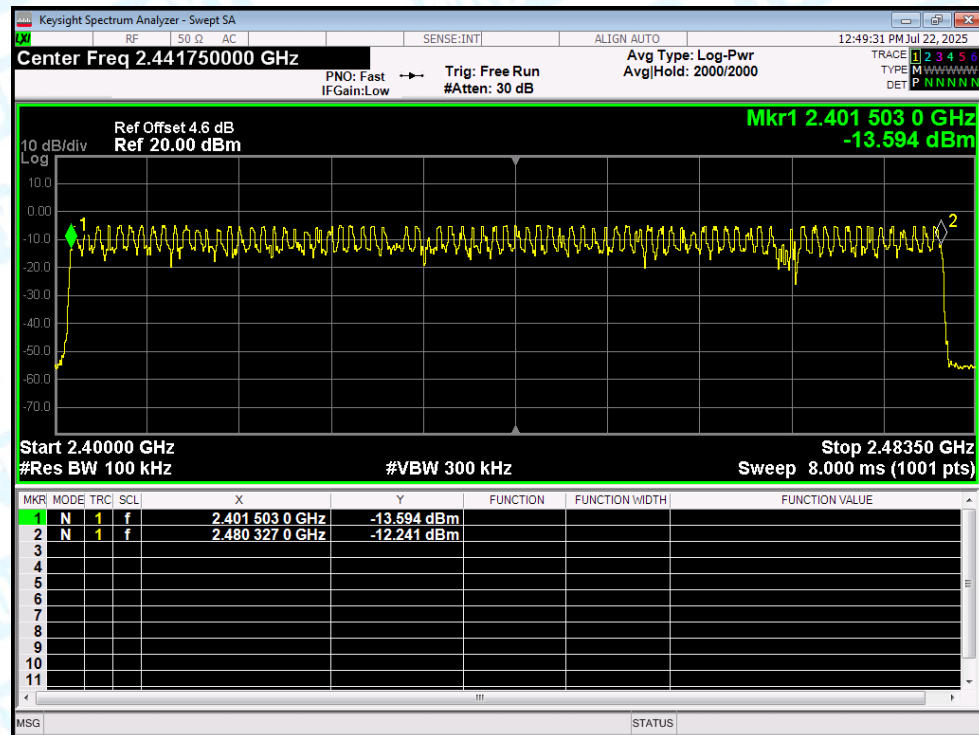
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

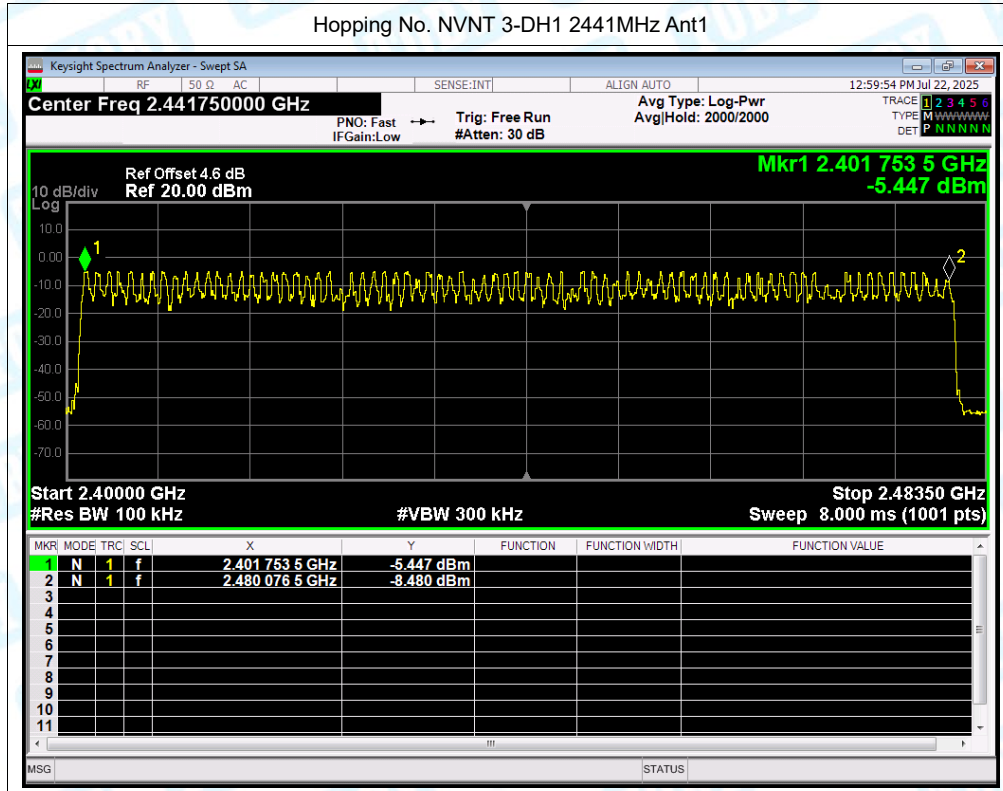
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



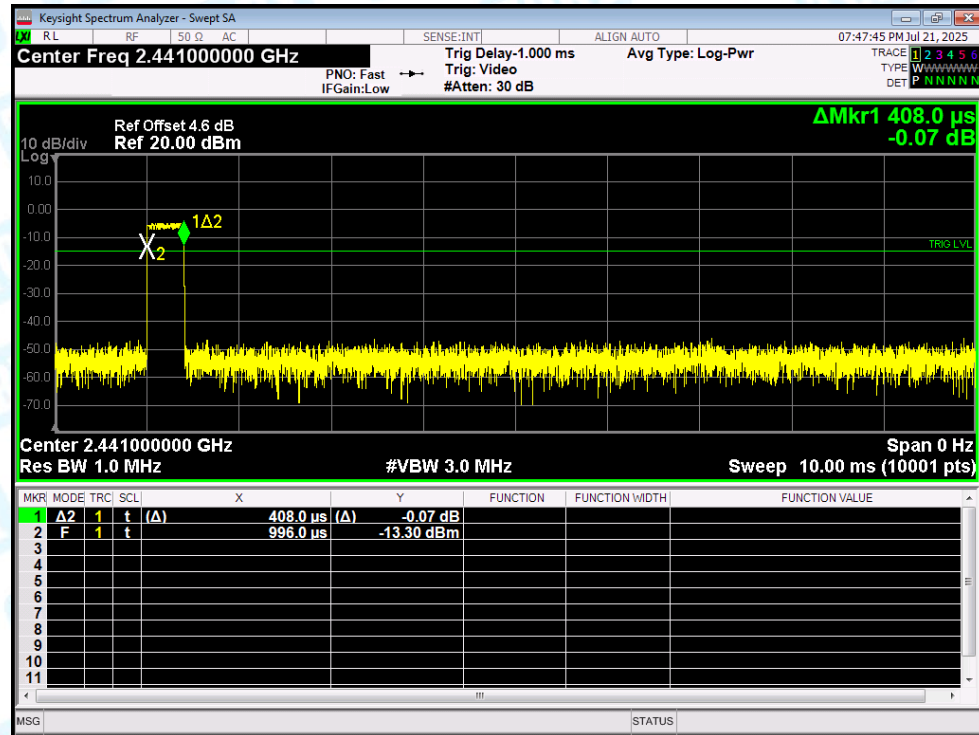


11. Dwell Time

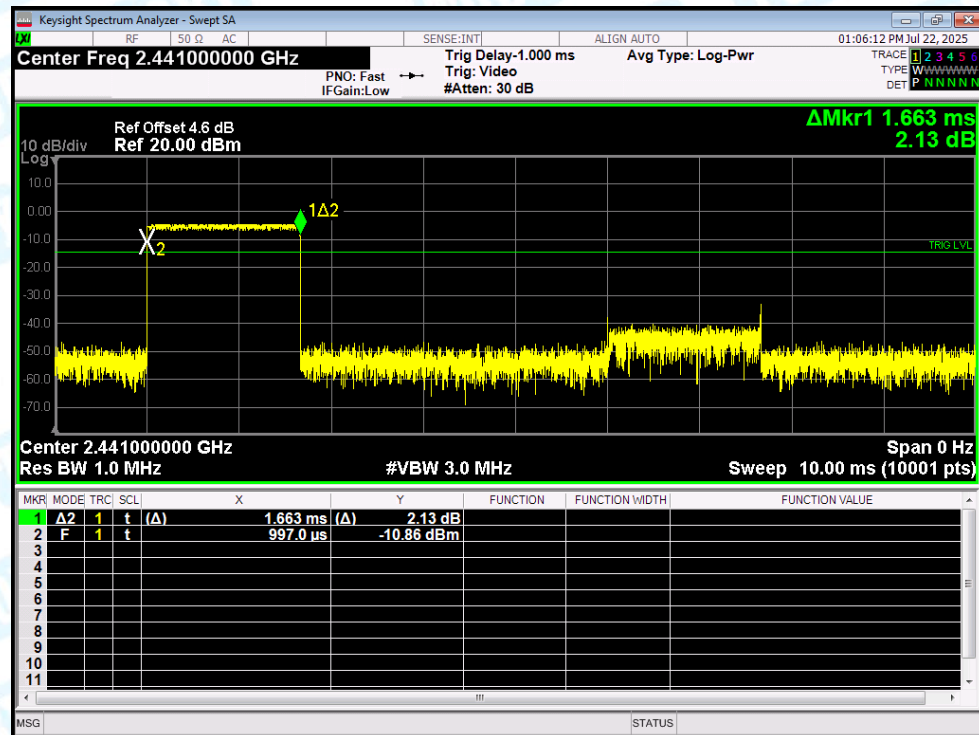
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.408	130.56	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.663	266.08	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.911	310.507	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.417	133.44	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.668	266.88	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.917	311.147	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.416	133.12	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.667	266.72	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.918	311.253	31600	400	Pass

Test Graphs

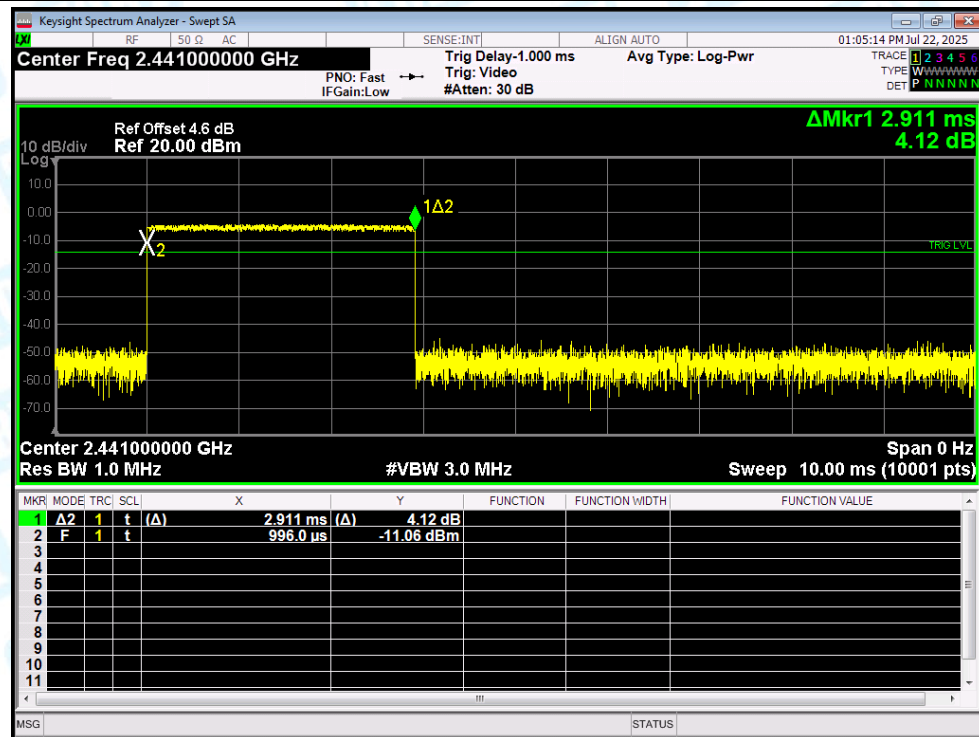
Dwell NVNT 1-DH1 2441MHz Ant1



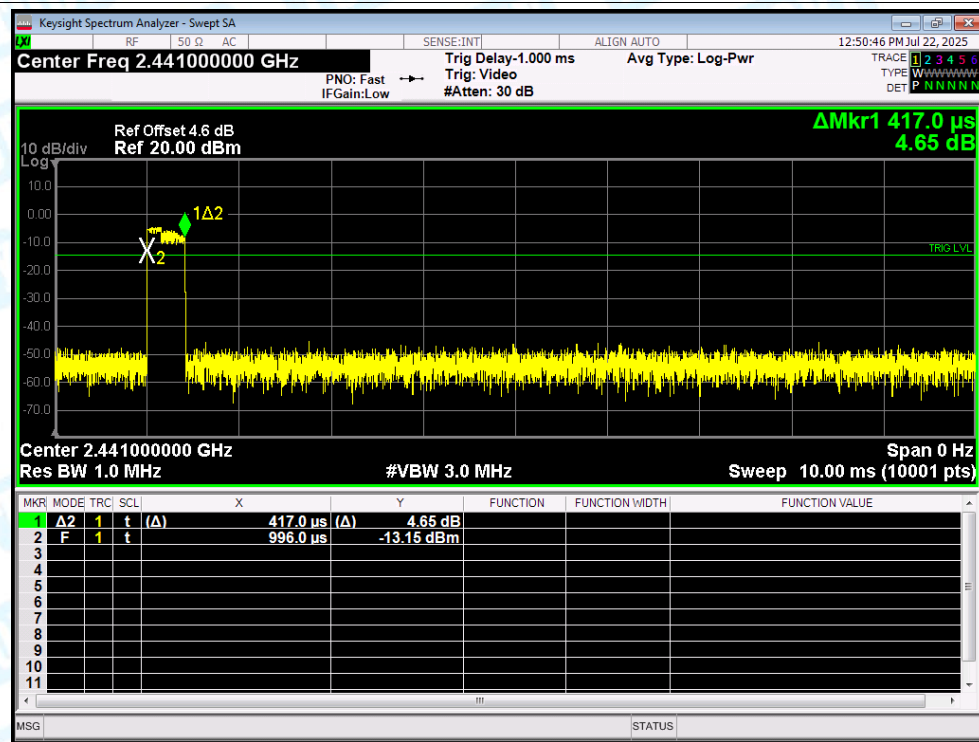
Dwell NVNT 1-DH3 2441MHz Ant1



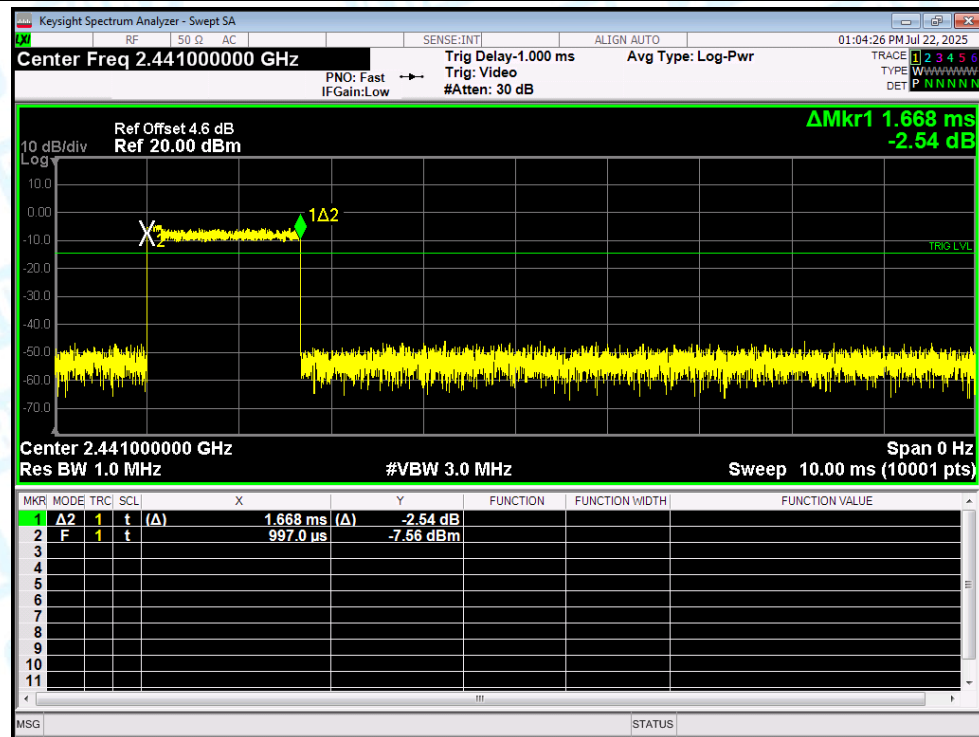
Dwell NVNT 1-DH5 2441MHz Ant1



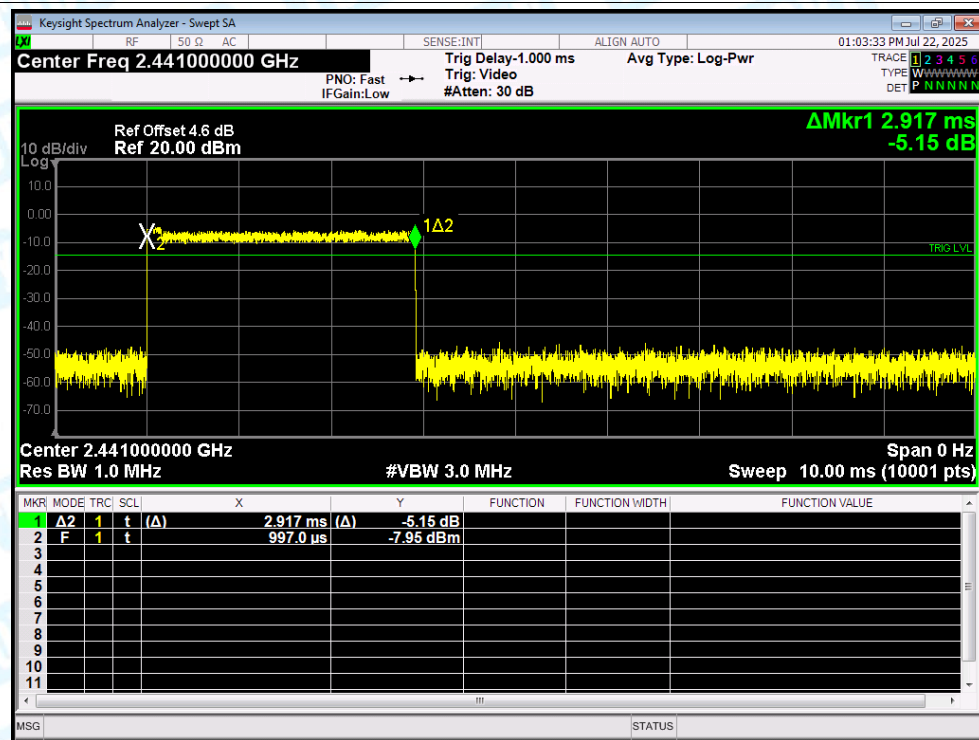
Dwell NVNT 2-DH1 2441MHz Ant1



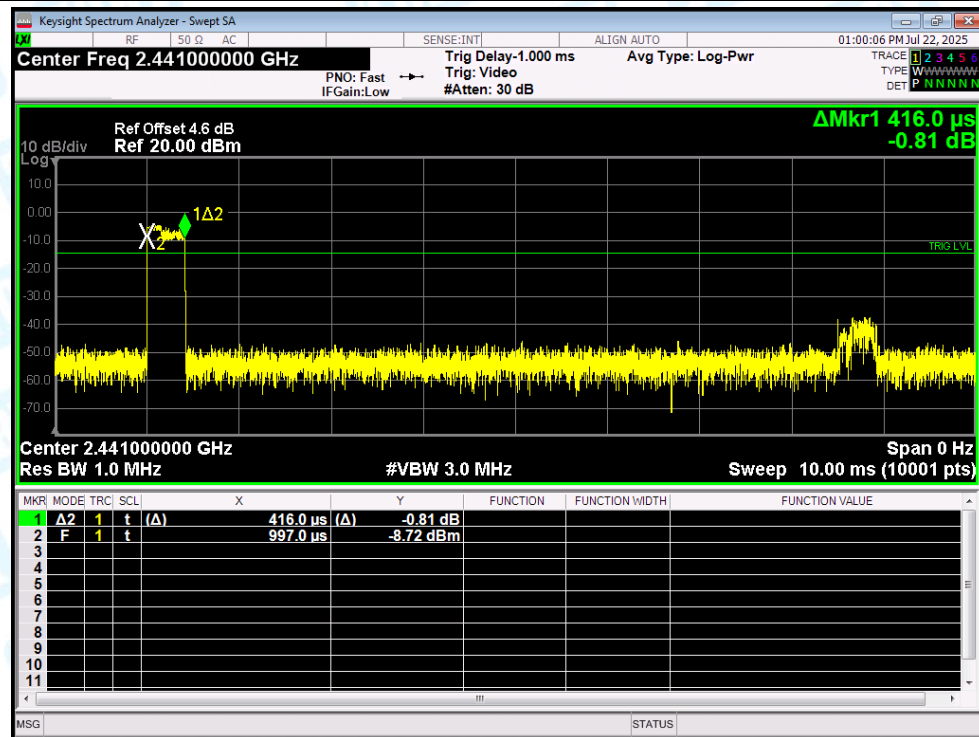
Dwell NVNT 2-DH3 2441MHz Ant1



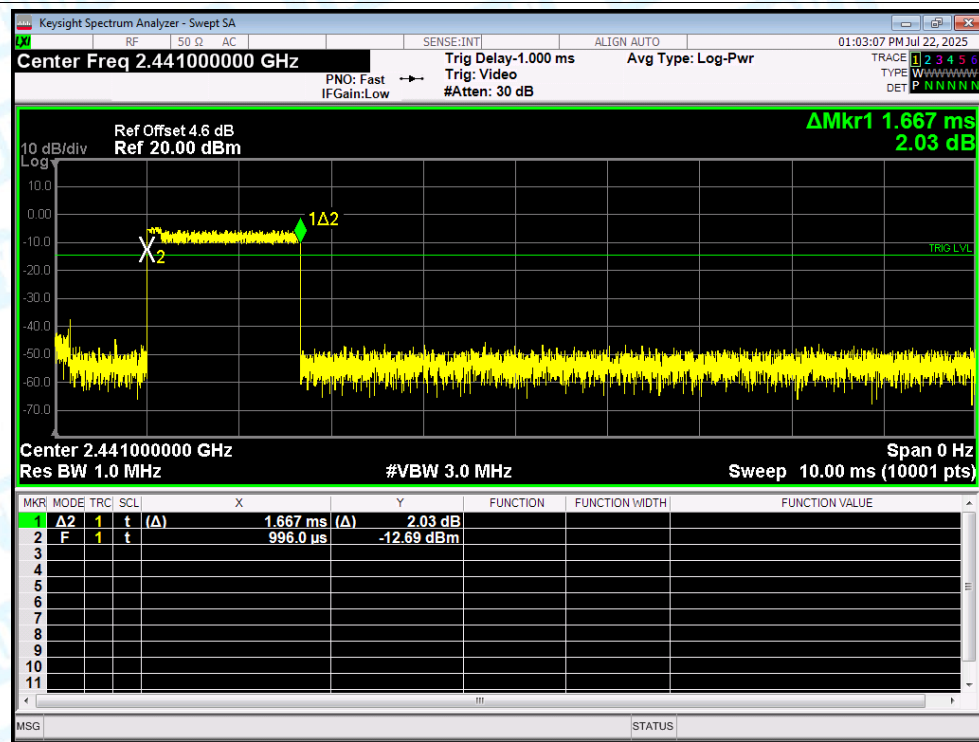
Dwell NVNT 2-DH5 2441MHz Ant1

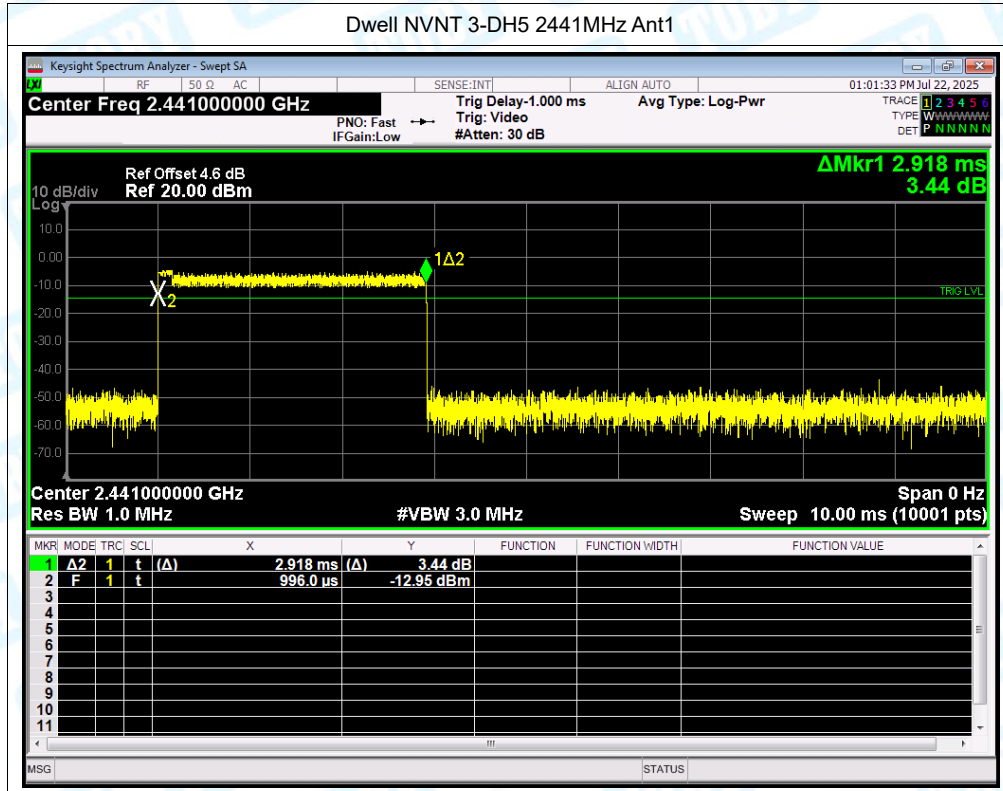


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





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