

# RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
<b>Product Name:</b>	wireless headphone
<b>Test Model:</b>	XL-GSW4-AC7003-V1.0
<b>Sample ID:</b>	HC-C-202408-0119-02-01-2#
Environmental Conditions	
<b>Temperature:</b>	23.8°C
<b>Relative Humidity:</b>	48%
<b>Test Voltage:</b>	DC 3.7V
<b>Test Engineer:</b>	Jolin Lee
Note: For a more detailed features description, please refer to the report TBR-C-202408-0119-14 The report only show the worst case data.	



## Contents

1. Duty Cycle .....	3
2. Maximum Conducted Output Power .....	7
3. -20dB Bandwidth .....	11
4. Occupied Channel Bandwidth .....	15
5. Band Edge .....	19
6. Band Edge(Hopping) .....	24
7. Conducted RF Spurious Emission .....	29
8. Restrict Band .....	36
9. Carrier Frequencies Separation .....	41
10. Number of Hopping Channel .....	43
11. Dwell Time .....	45

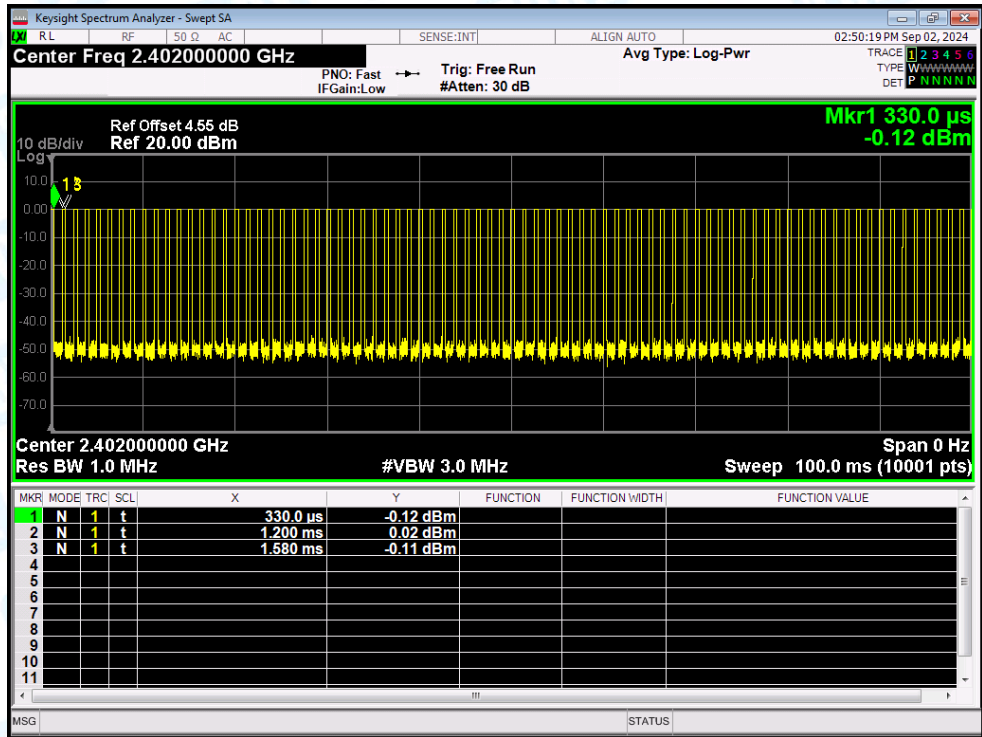


## 1. Duty Cycle

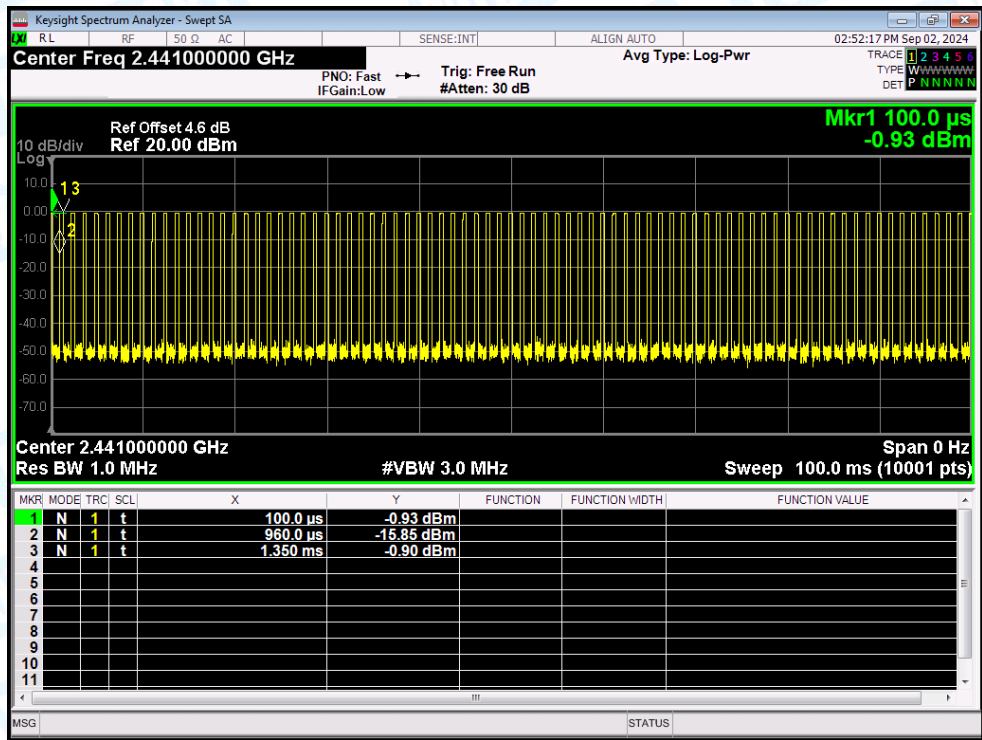
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2441	Ant1	31.2	5.06	2.56
NVNT	1-DH1	2480	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2402	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2441	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2480	Ant1	31.2	5.06	2.56

Test Graphs

Duty Cycle NVNT 1-DH1 2402MHz Ant1

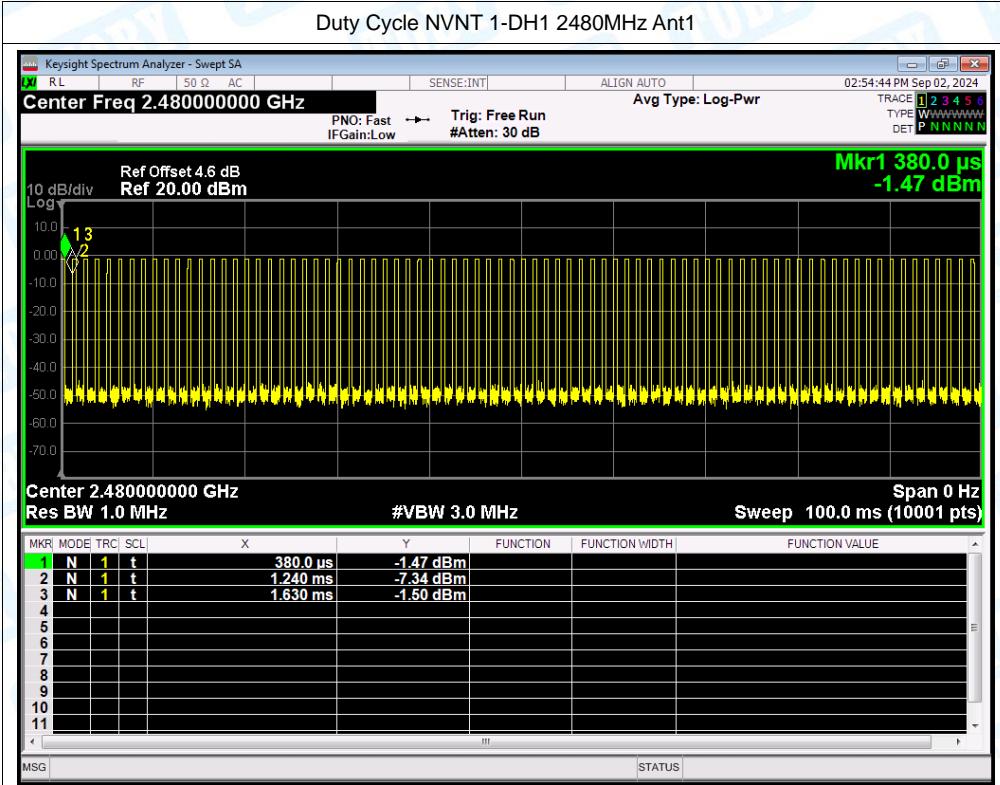


Duty Cycle NVNT 1-DH1 2441MHz Ant1

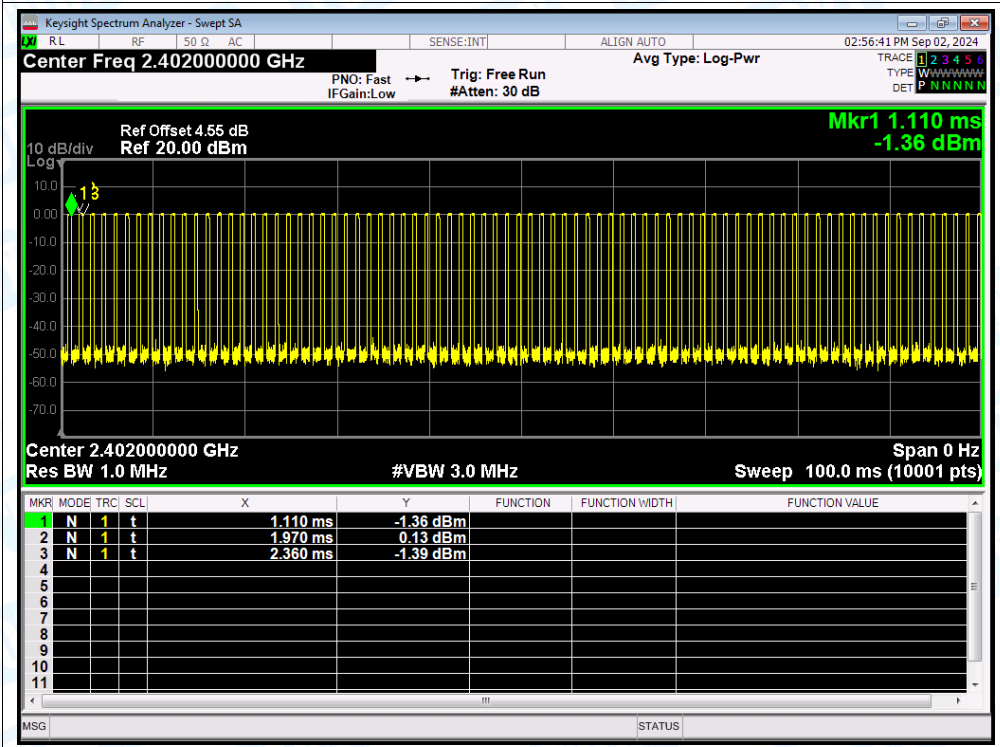




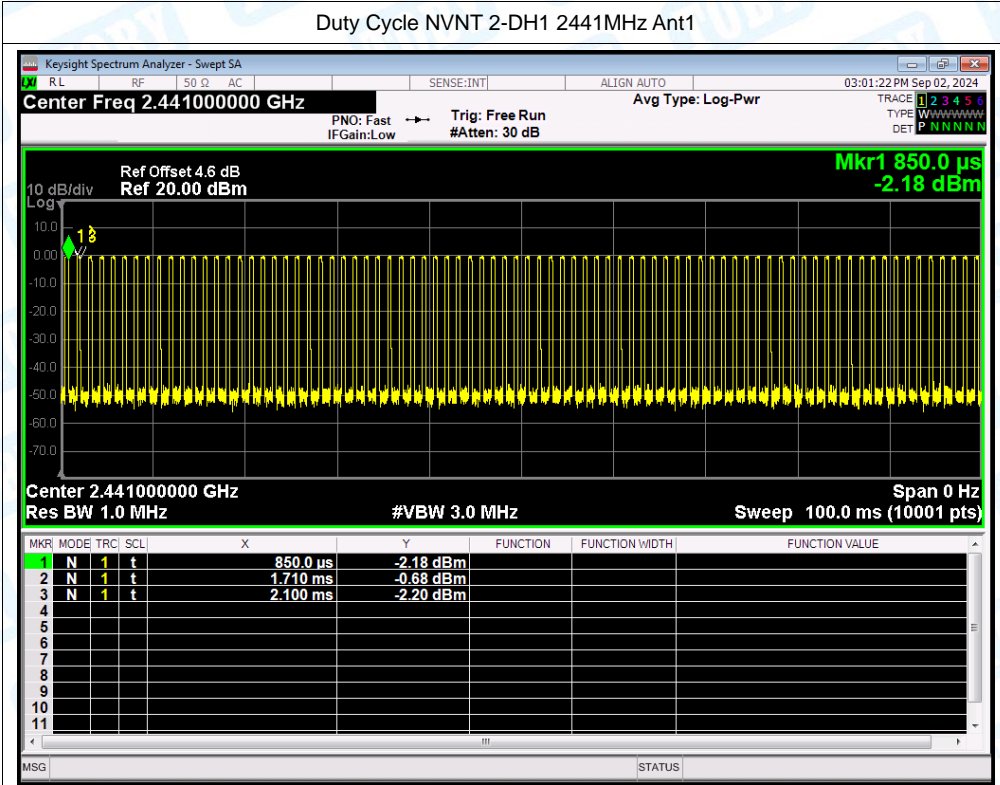
Duty Cycle NVNT 1-DH1 2480MHz Ant1



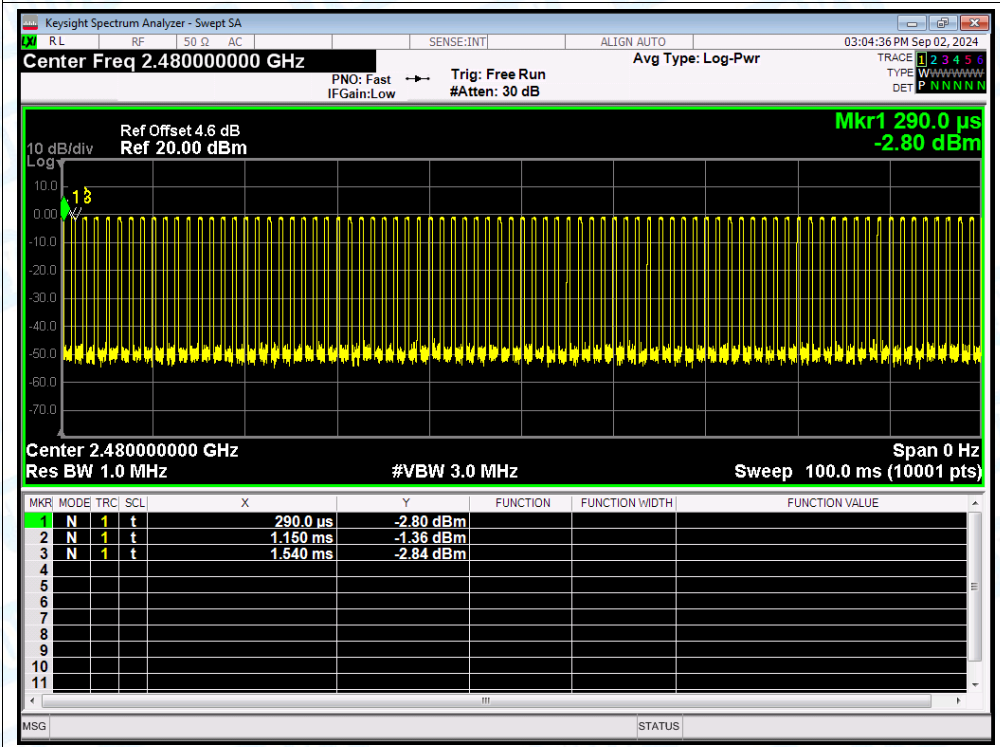
Duty Cycle NVNT 2-DH1 2402MHz Ant1



Duty Cycle NVNT 2-DH1 2441MHz Ant1



Duty Cycle NVNT 2-DH1 2480MHz Ant1



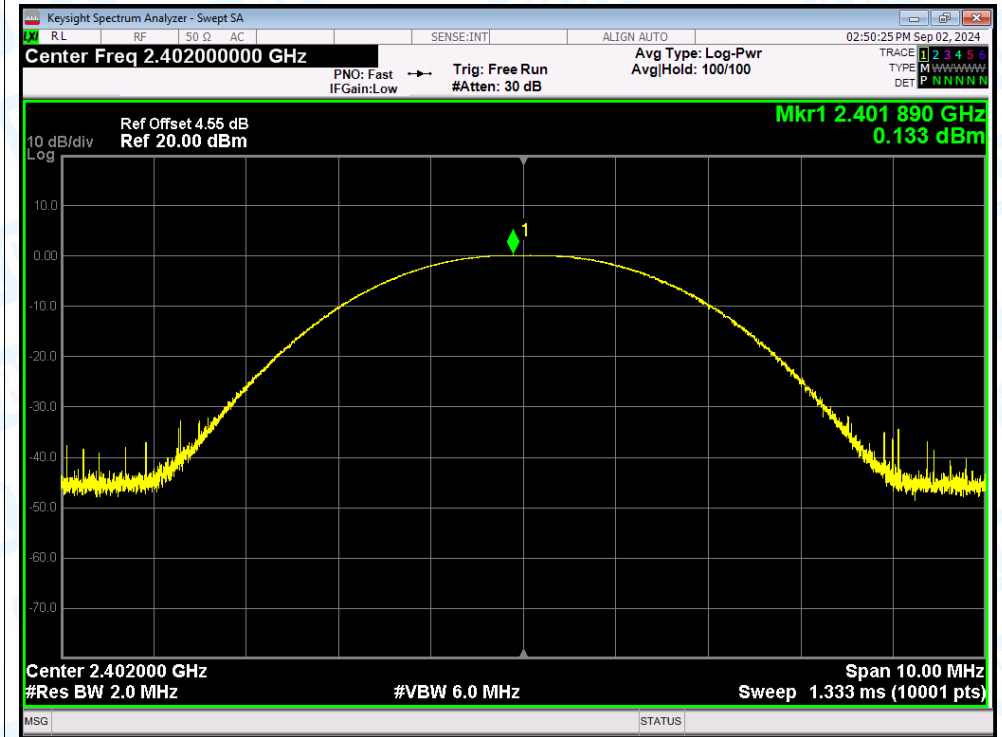


## 2. Maximum Conducted Output Power

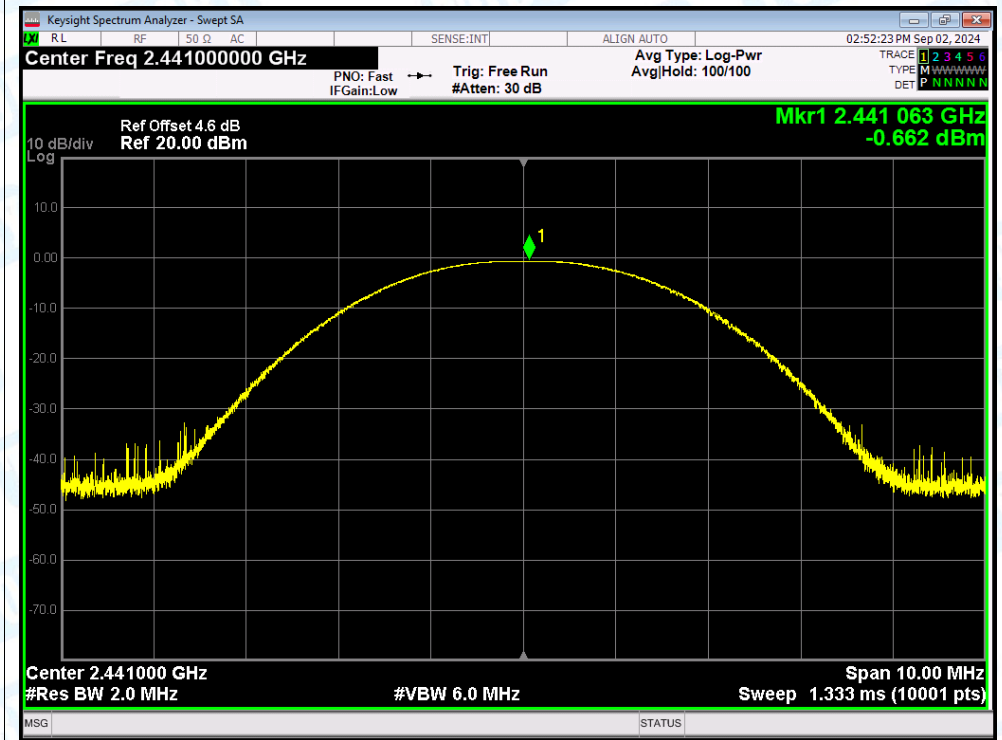
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	0.133	21	Pass
NVNT	1-DH1	2441	Ant1	-0.662	21	Pass
NVNT	1-DH1	2480	Ant1	-1.25	21	Pass
NVNT	2-DH1	2402	Ant1	1.001	21	Pass
NVNT	2-DH1	2441	Ant1	0.152	21	Pass
NVNT	2-DH1	2480	Ant1	-0.464	21	Pass

Test Graphs

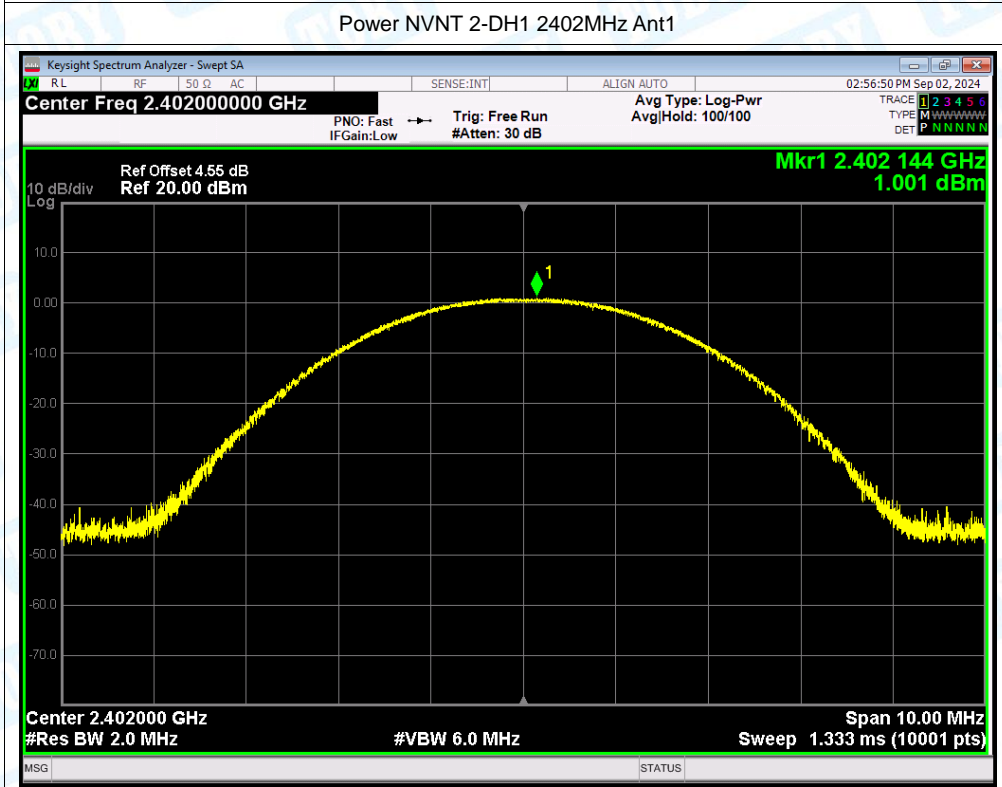
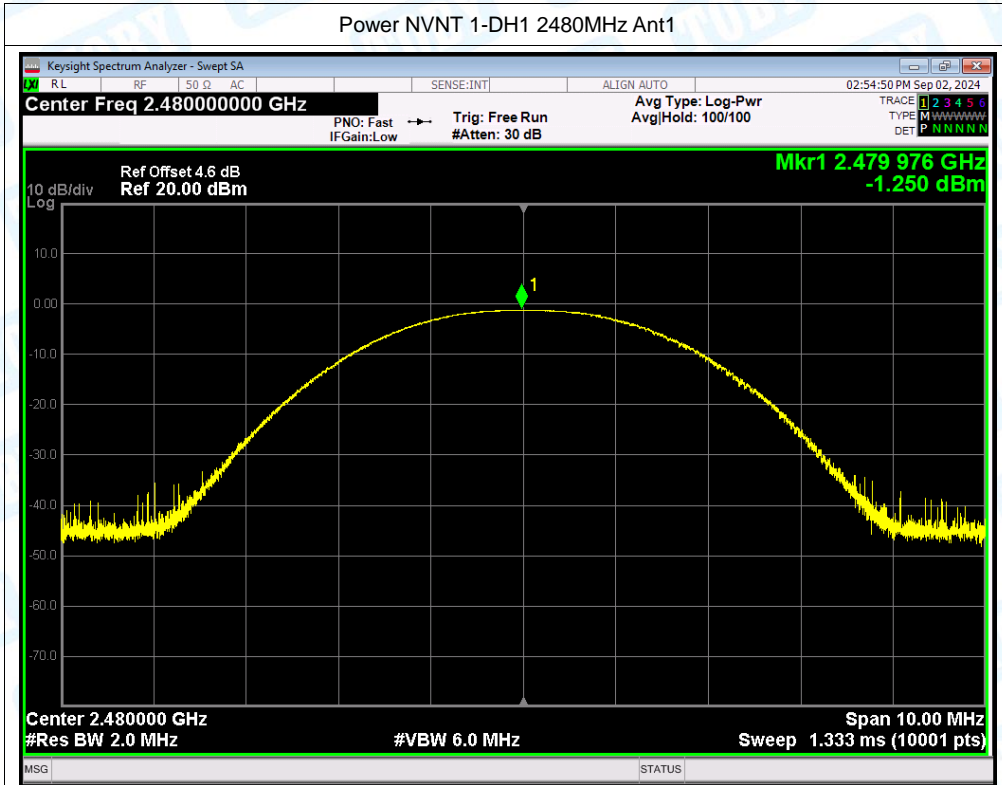
Power NVNT 1-DH1 2402MHz Ant1

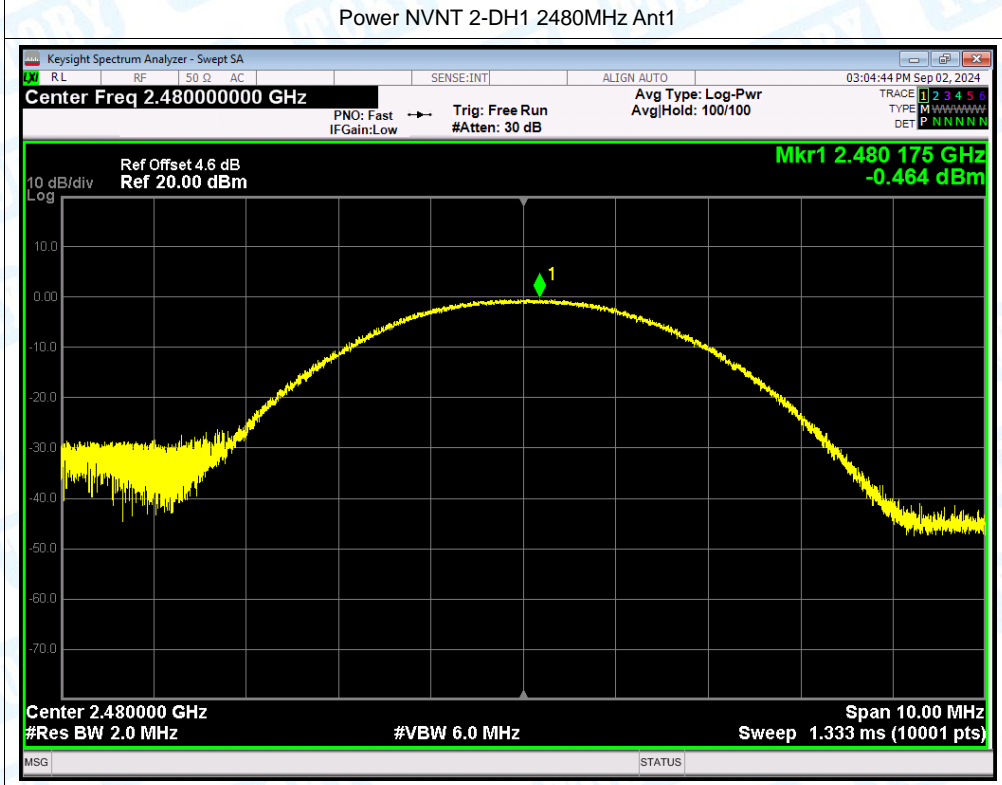
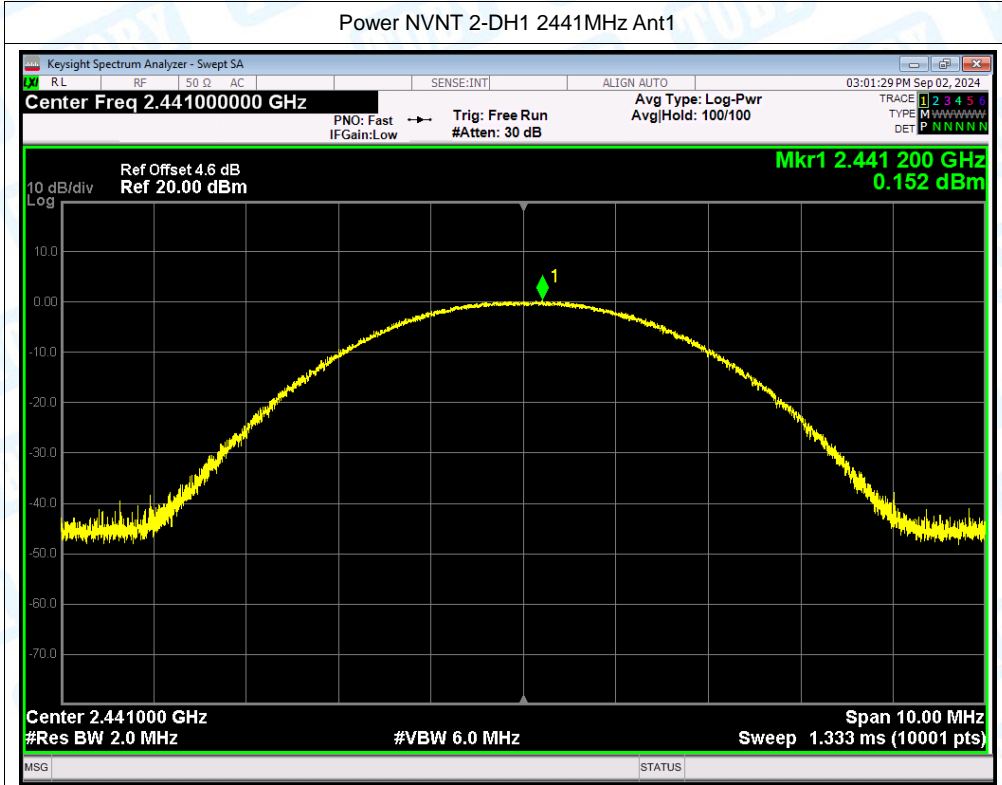


Power NVNT 1-DH1 2441MHz Ant1









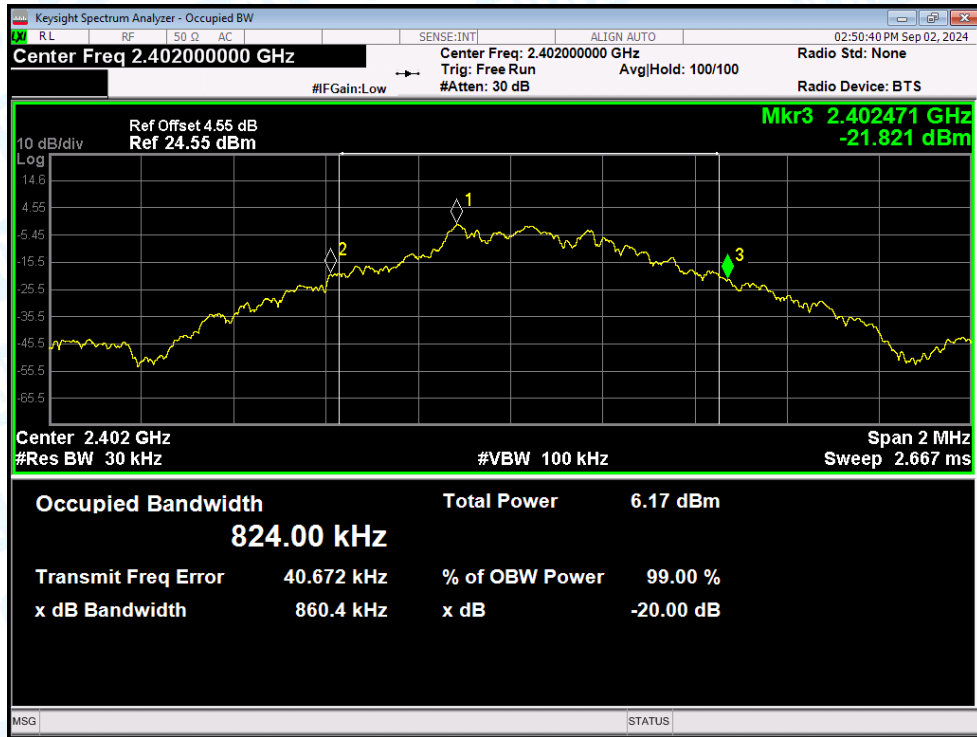


### 3. -20dB Bandwidth

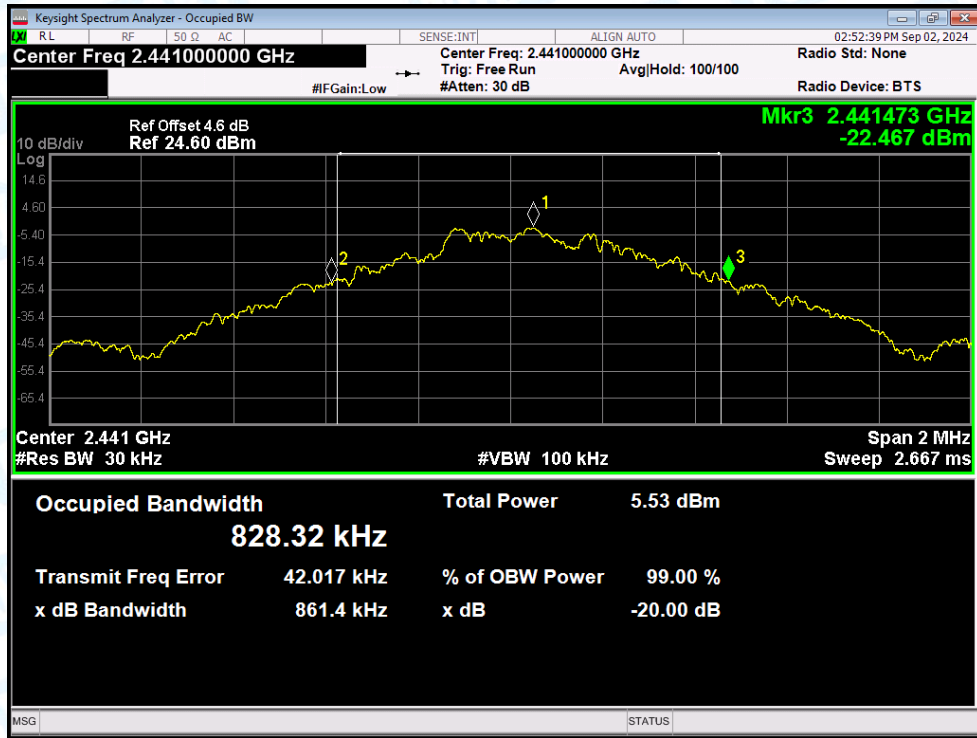
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.86	----	Pass
NVNT	1-DH1	2441	Ant1	0.86	----	Pass
NVNT	1-DH1	2480	Ant1	0.93	----	Pass
NVNT	2-DH1	2402	Ant1	1.23	----	Pass
NVNT	2-DH1	2441	Ant1	1.25	----	Pass
NVNT	2-DH1	2480	Ant1	1.26	----	Pass

Test Graphs

-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1

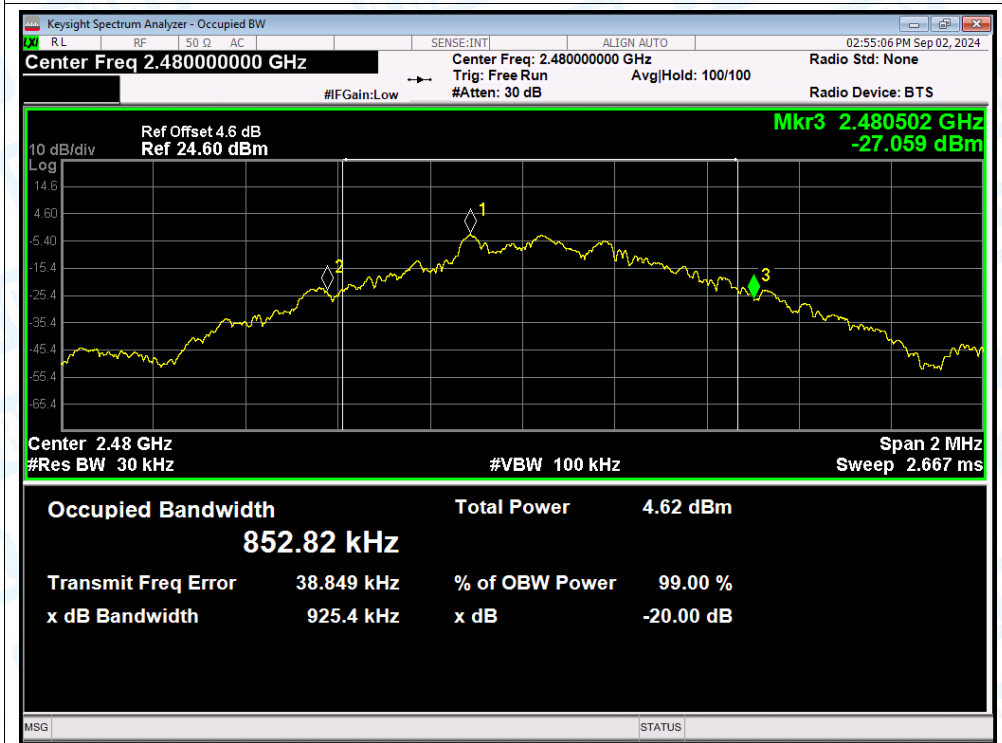


-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1





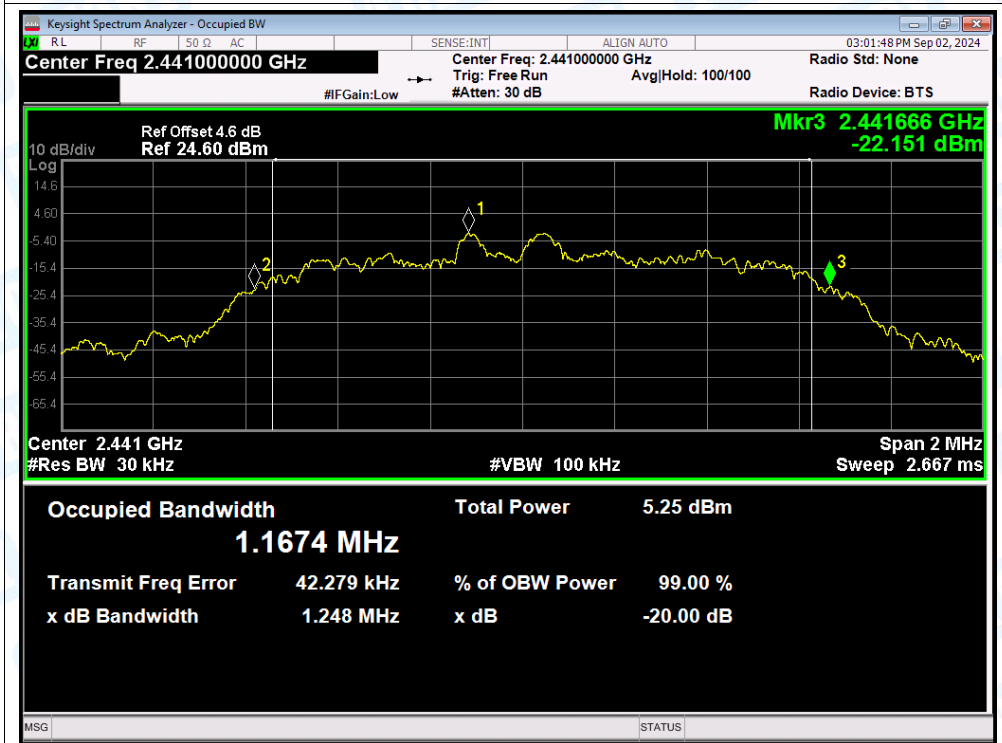
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



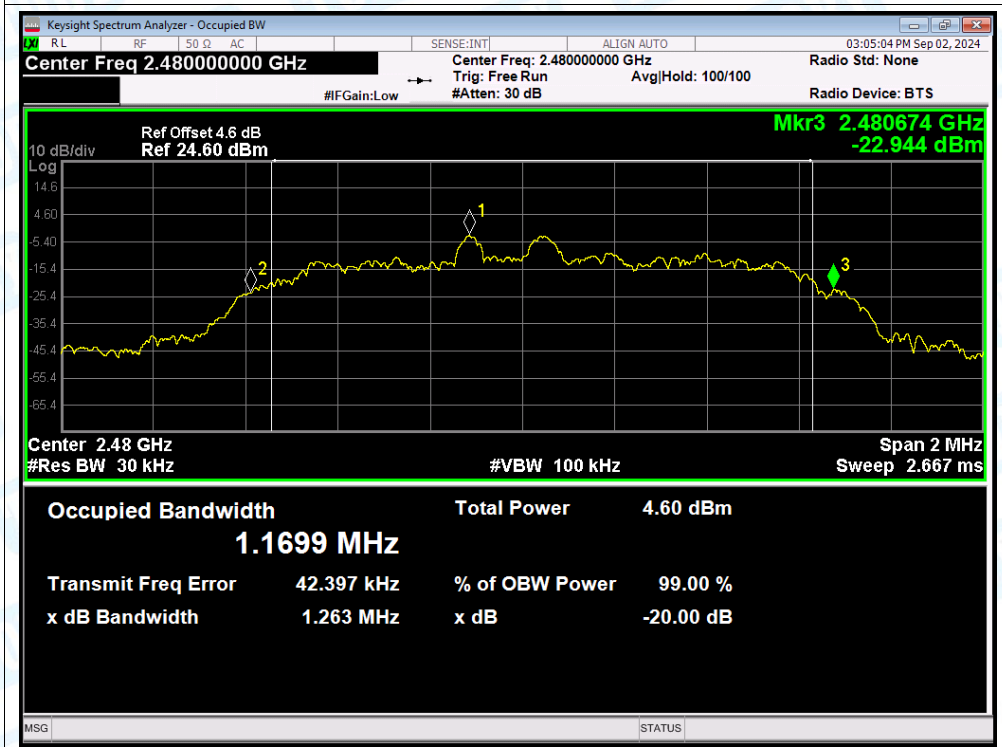
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1



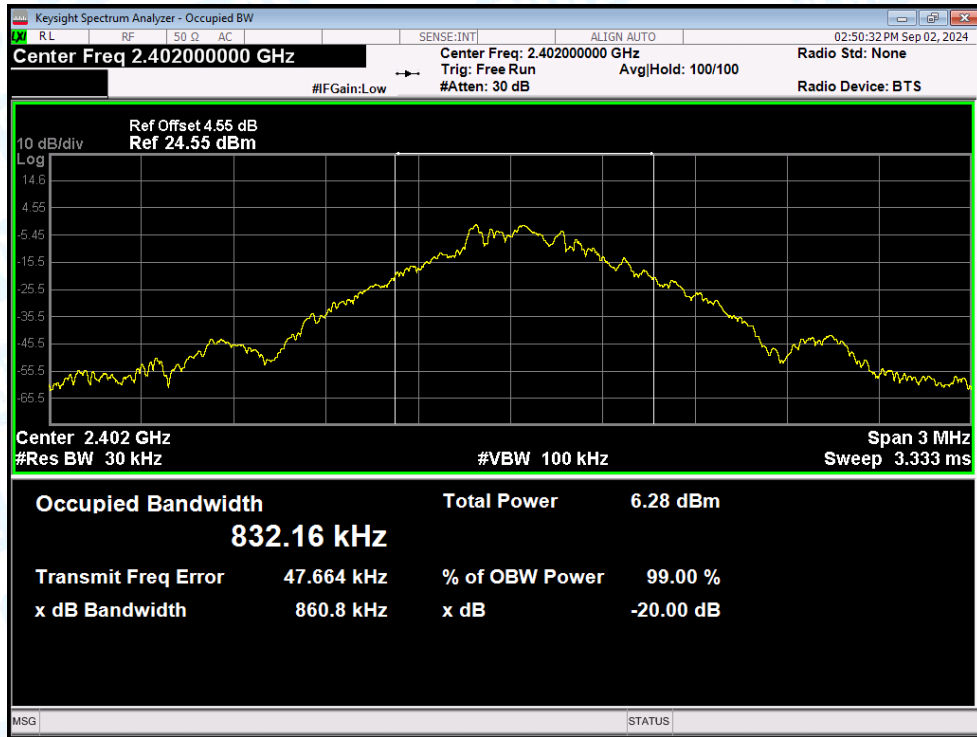


## 4. Occupied Channel Bandwidth

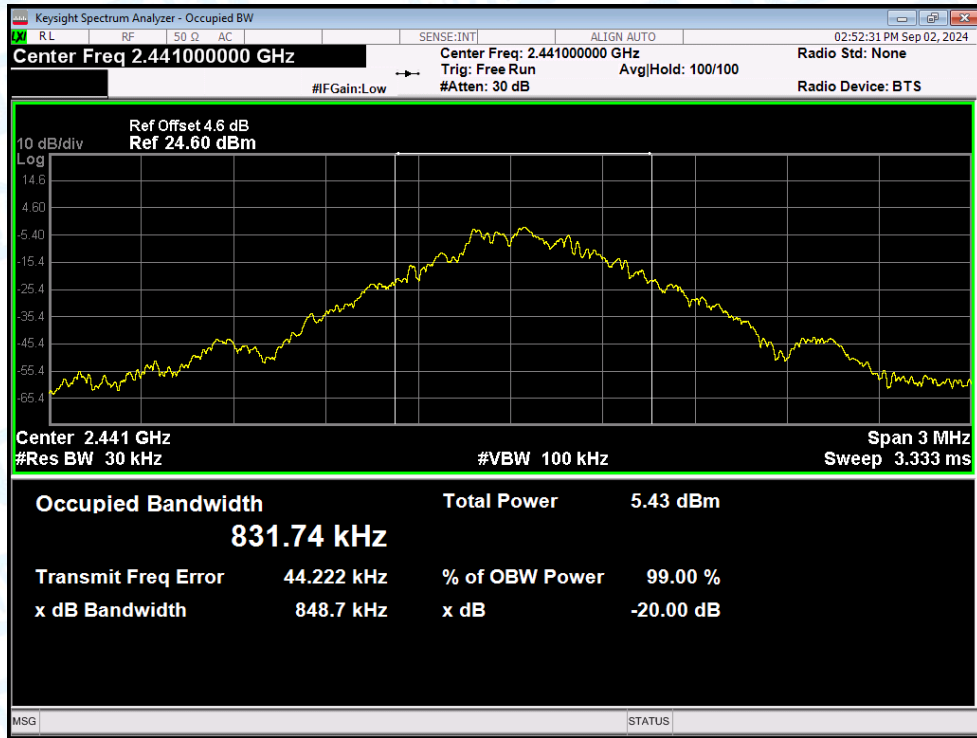
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.832
NVNT	1-DH1	2441	Ant1	0.832
NVNT	1-DH1	2480	Ant1	0.851
NVNT	2-DH1	2402	Ant1	1.138
NVNT	2-DH1	2441	Ant1	1.16
NVNT	2-DH1	2480	Ant1	1.172

Test Graphs

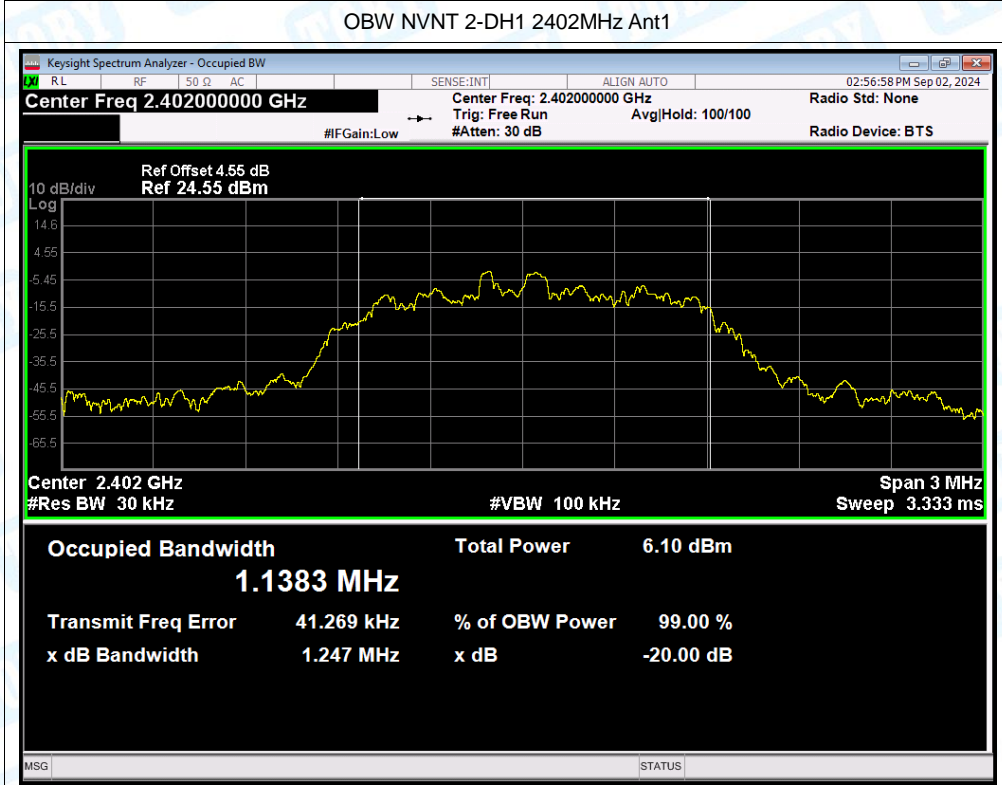
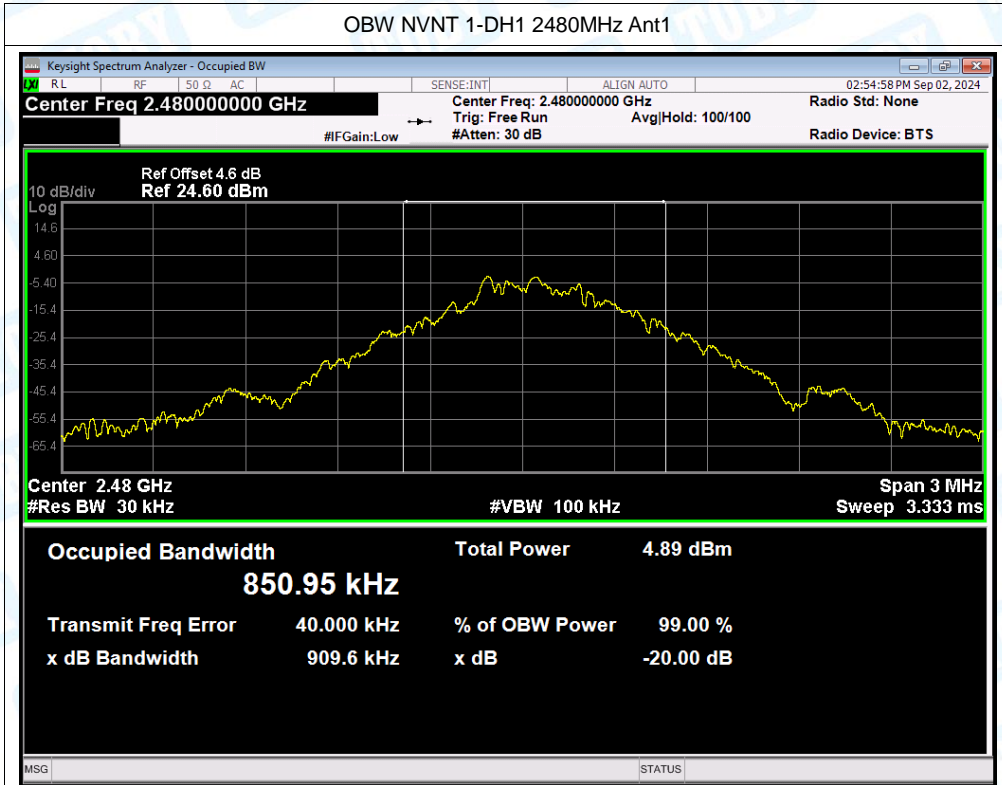
OBW NVNT 1-DH1 2402MHz Ant1

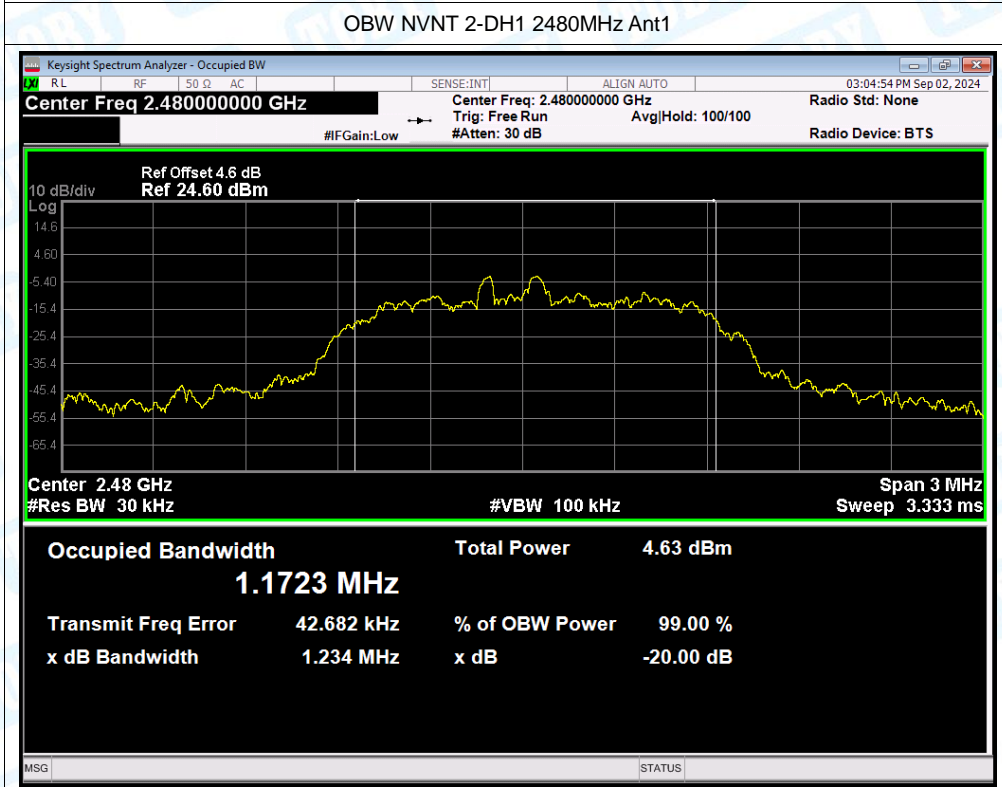
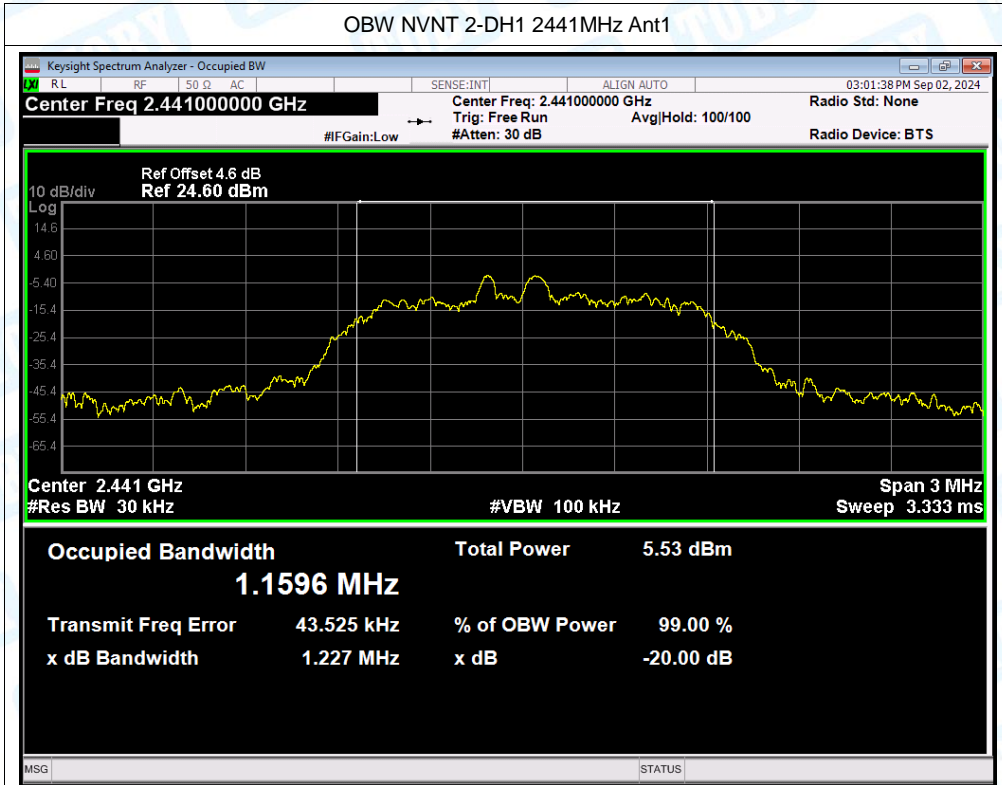


OBW NVNT 1-DH1 2441MHz Ant1









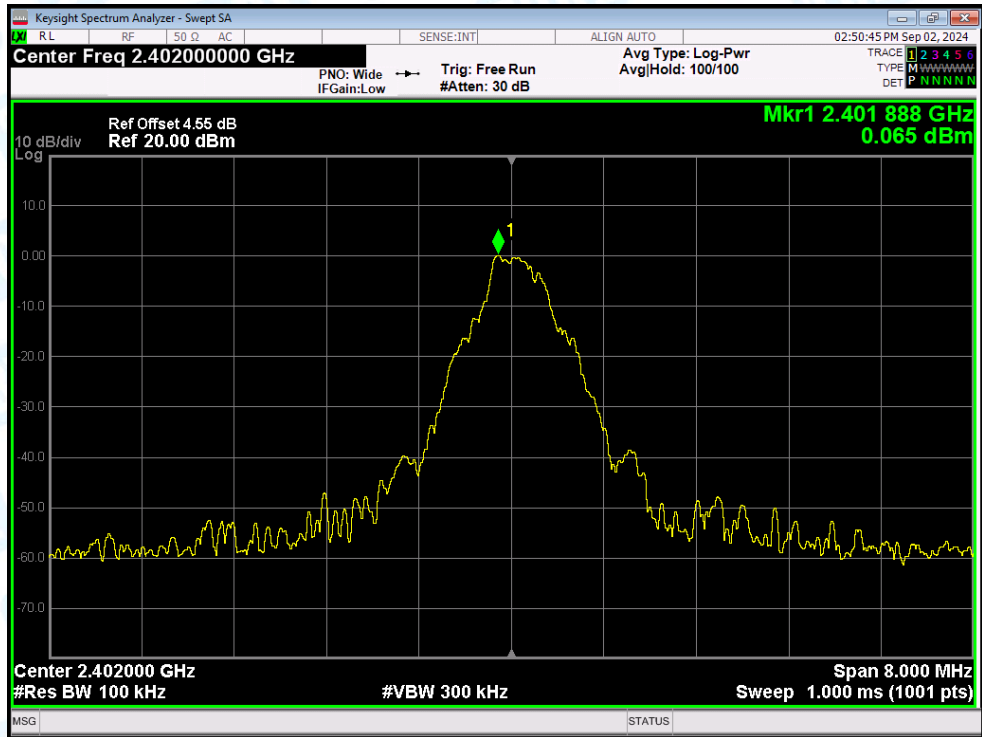


## 5. Band Edge

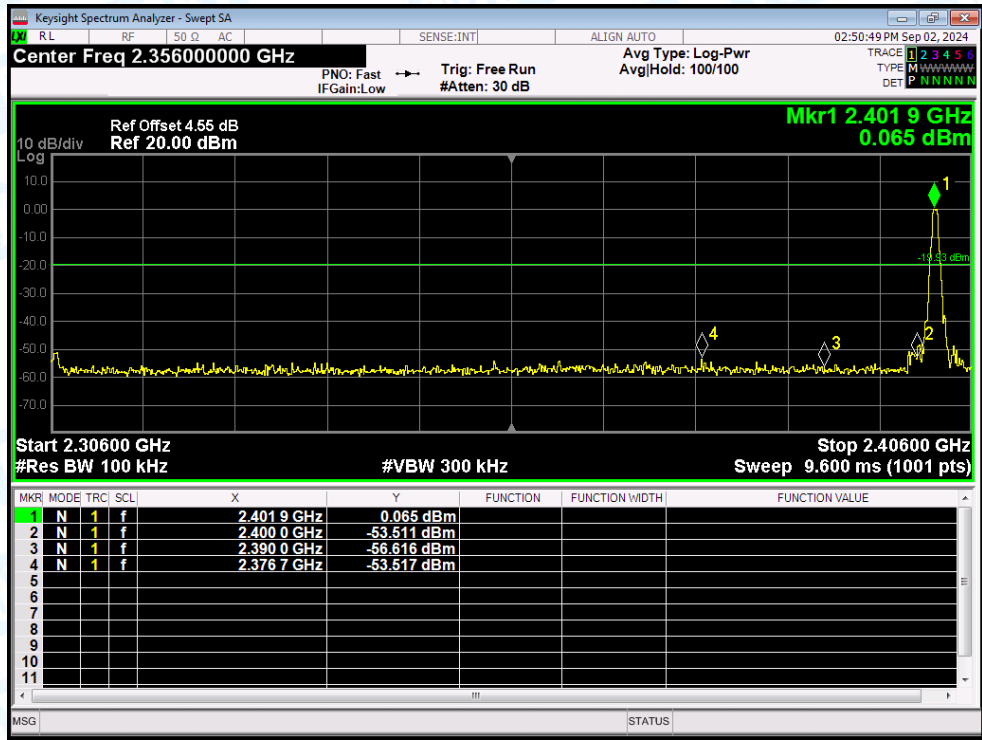
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-53.59	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-52.27	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-54.08	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-53.22	-20	Pass

Test Graphs

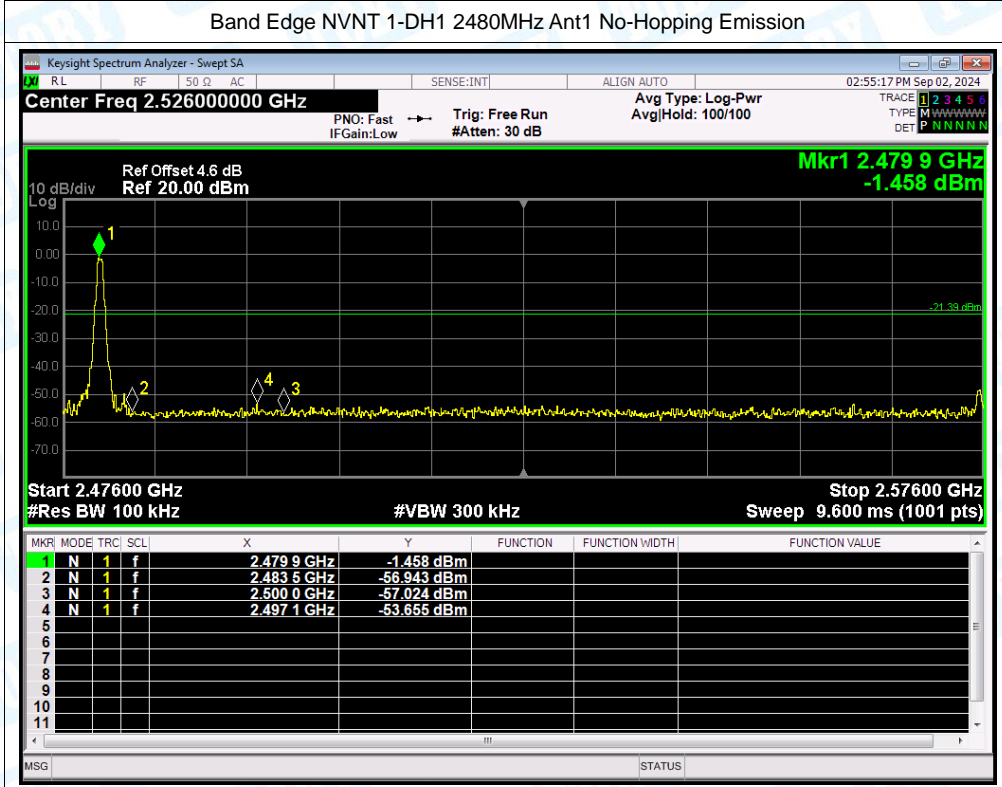
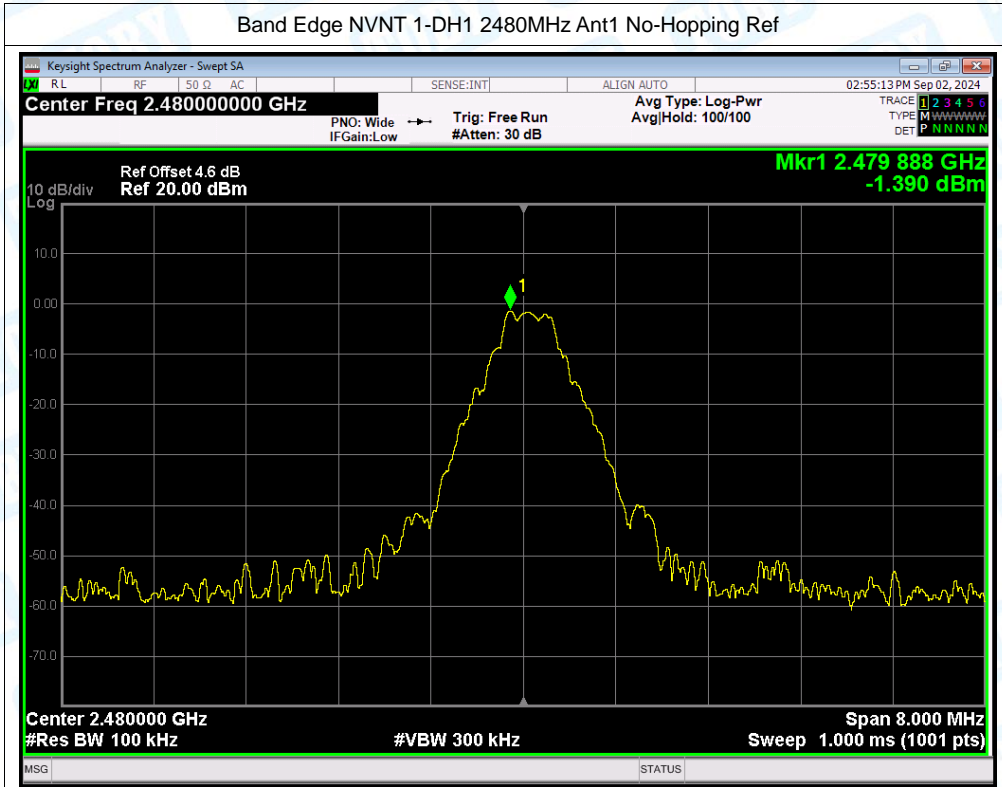
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref

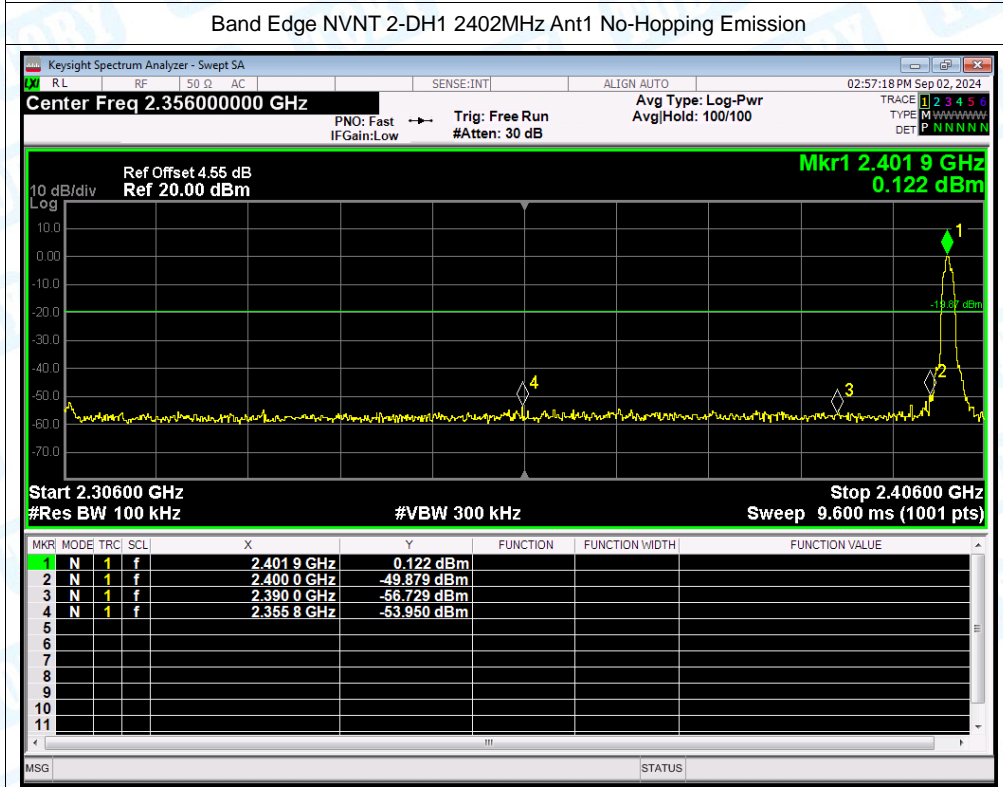
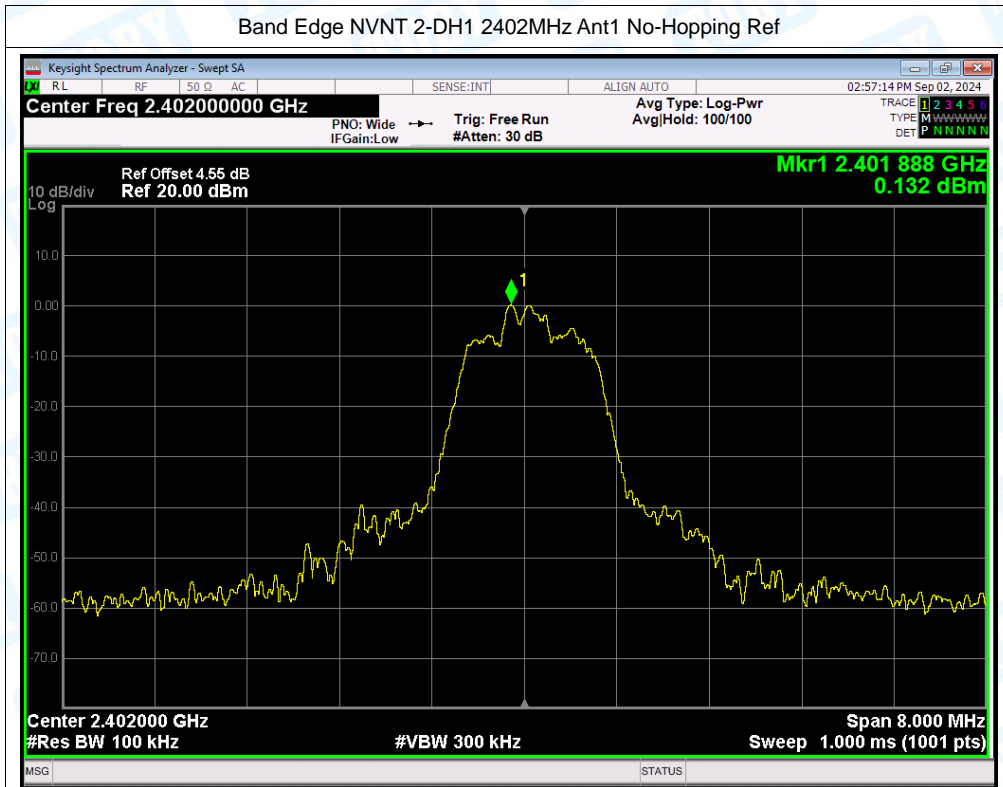


Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission

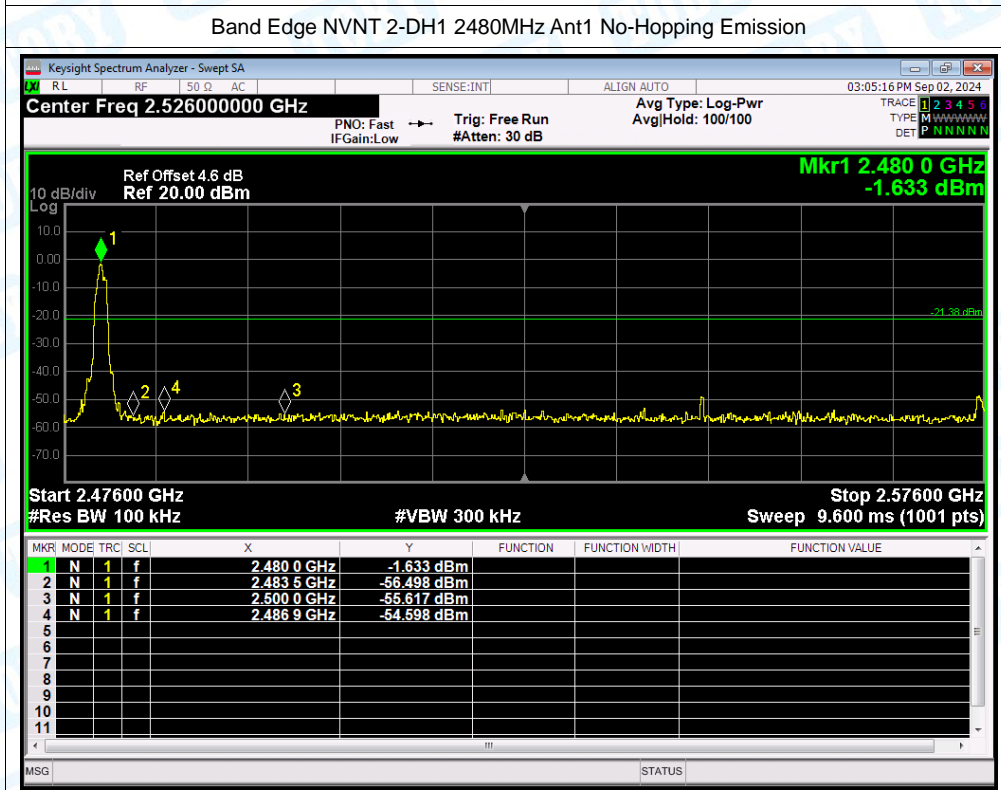
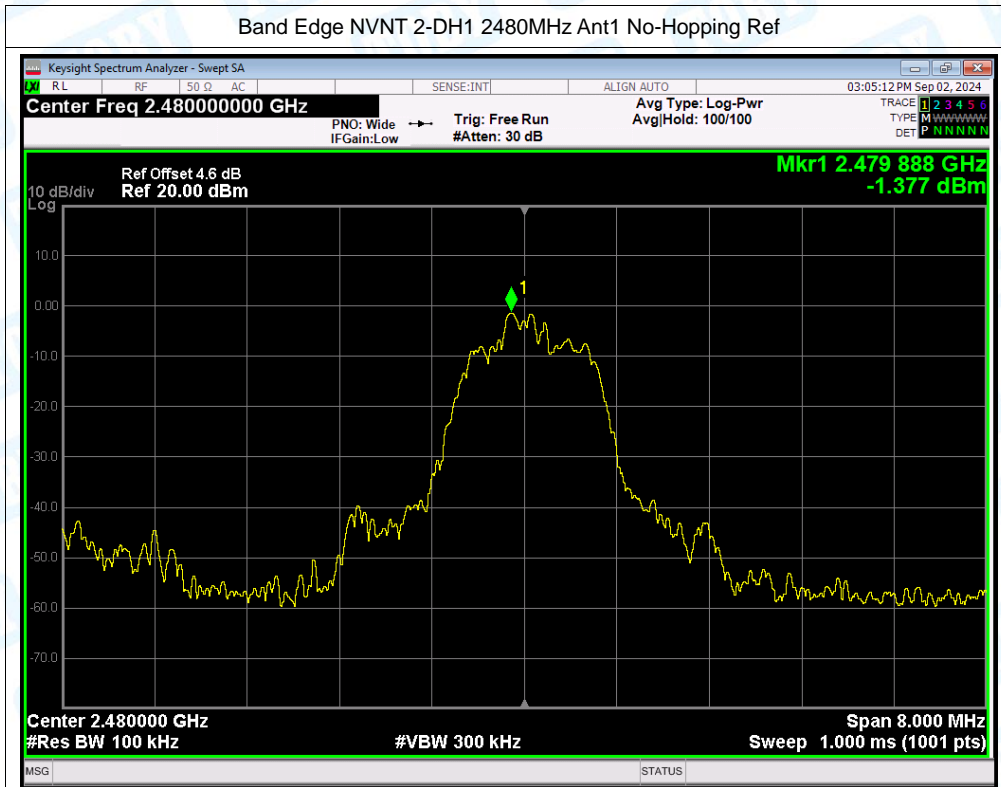












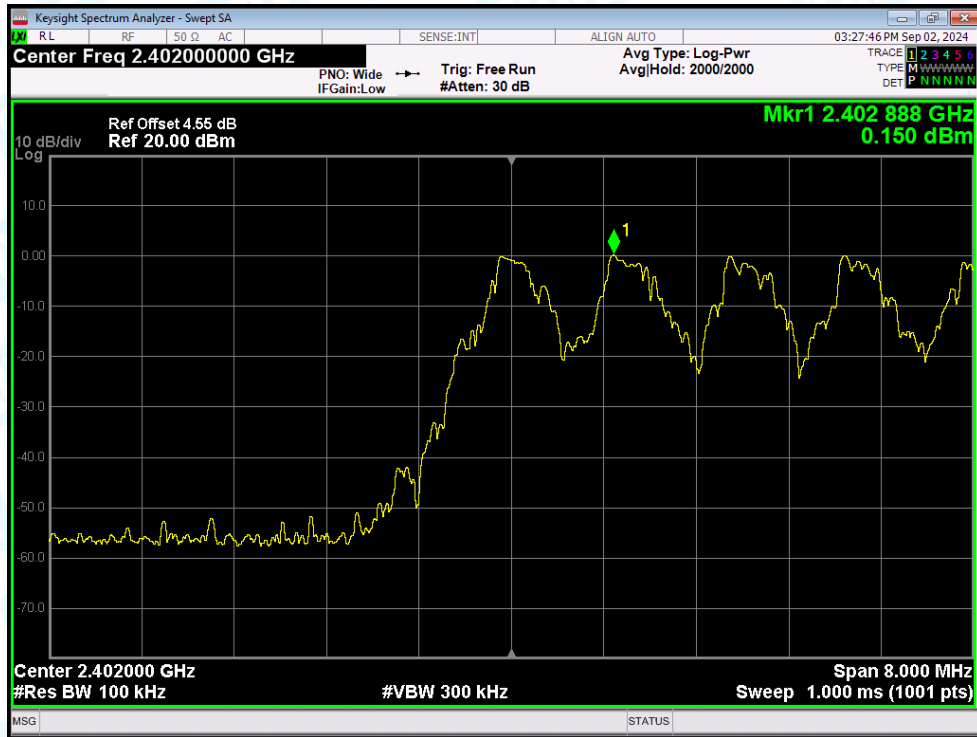
## 6. Band Edge(Hopping)

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-49.01	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-47	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-49.11	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-48.22	-20	Pass

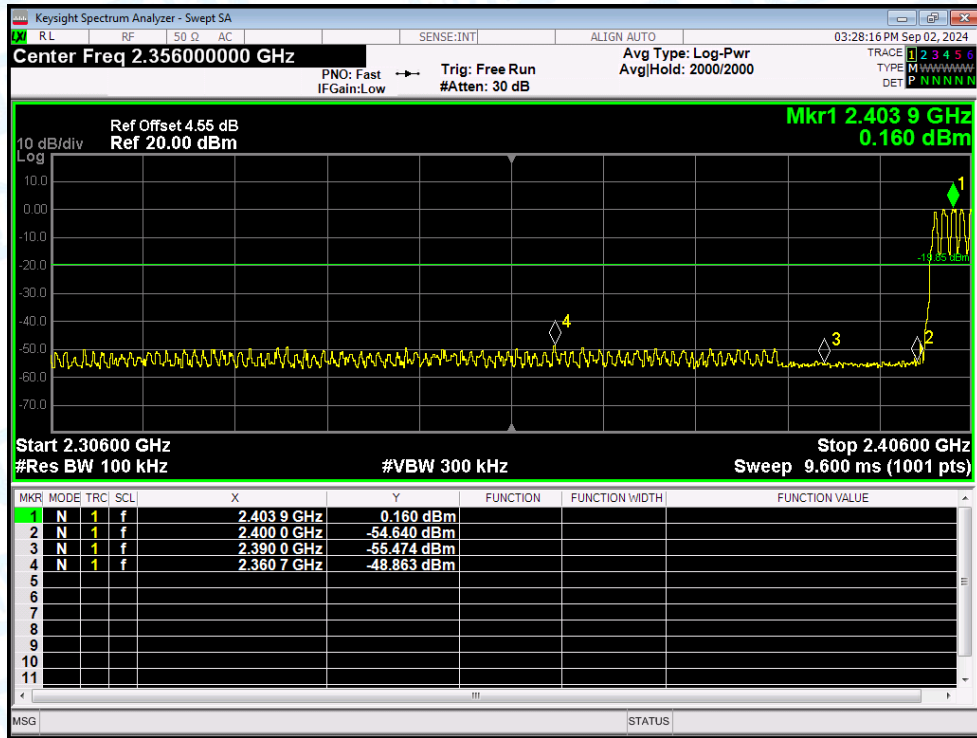


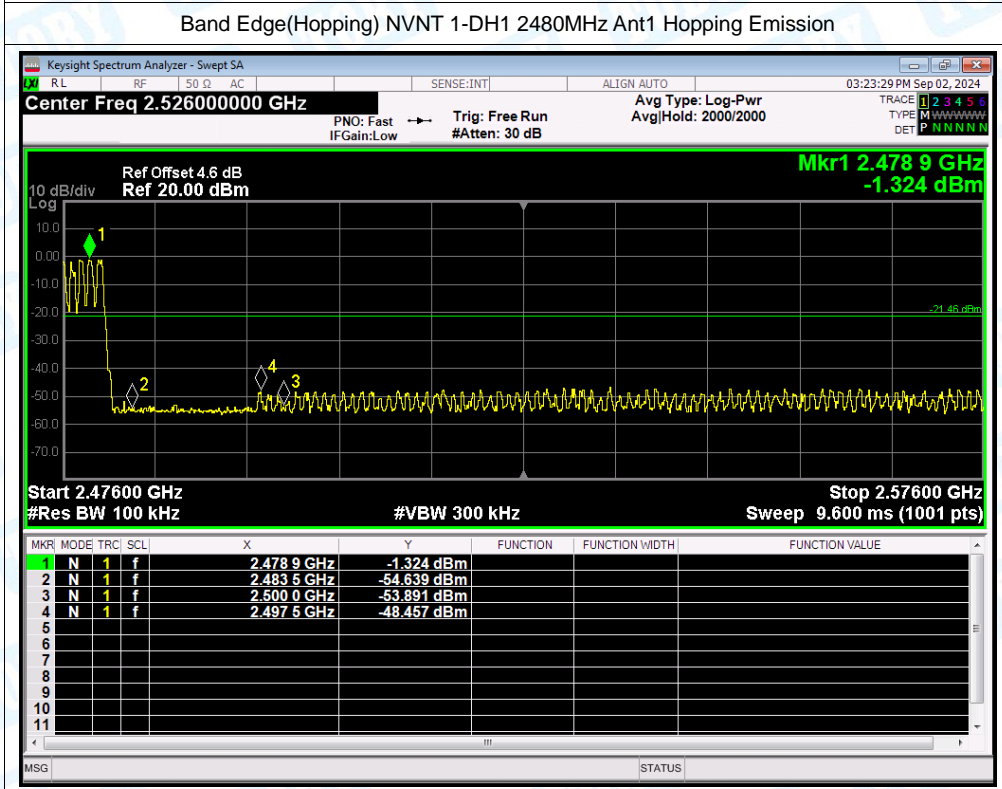
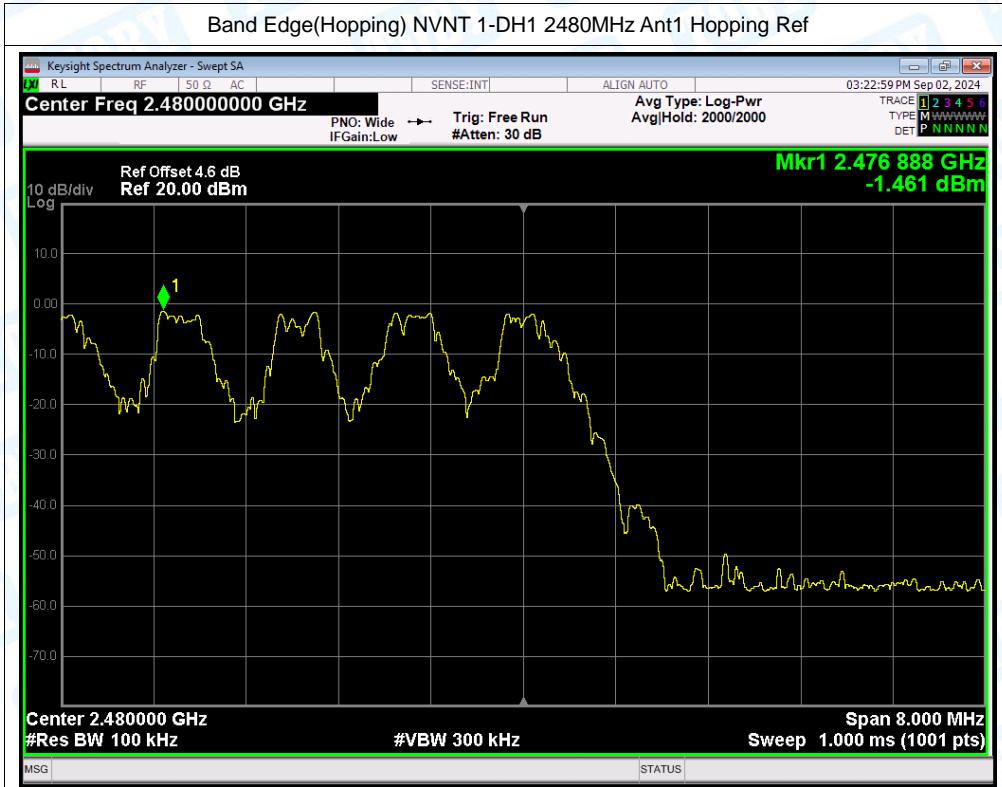
Test Graphs

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



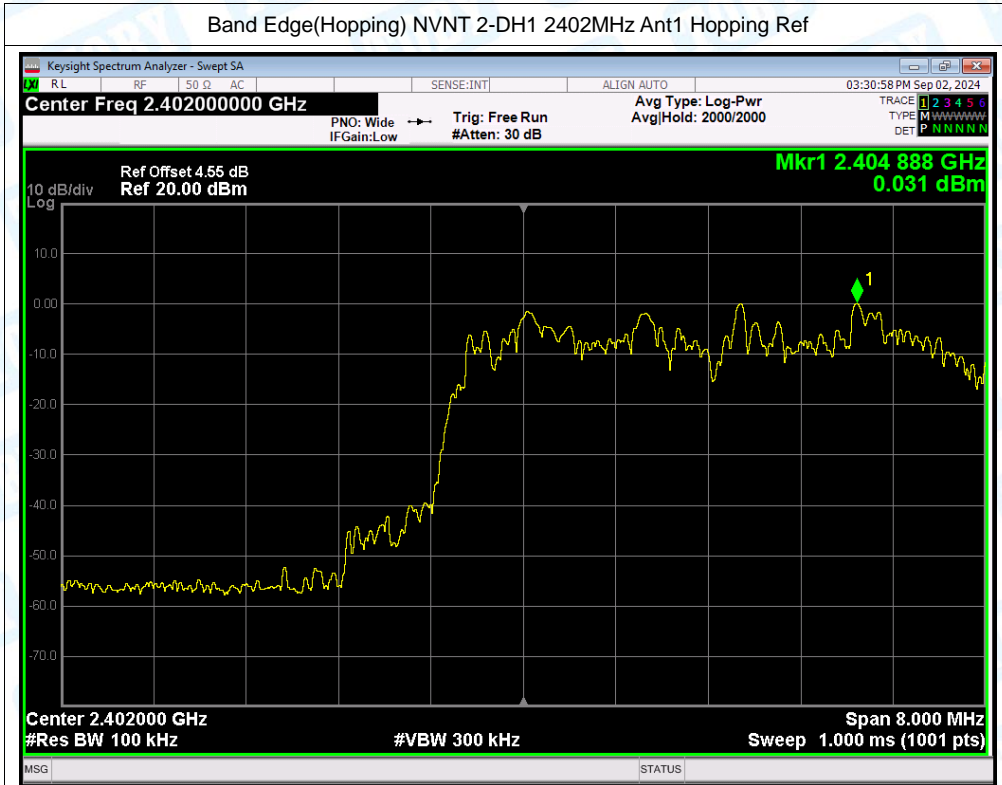
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission



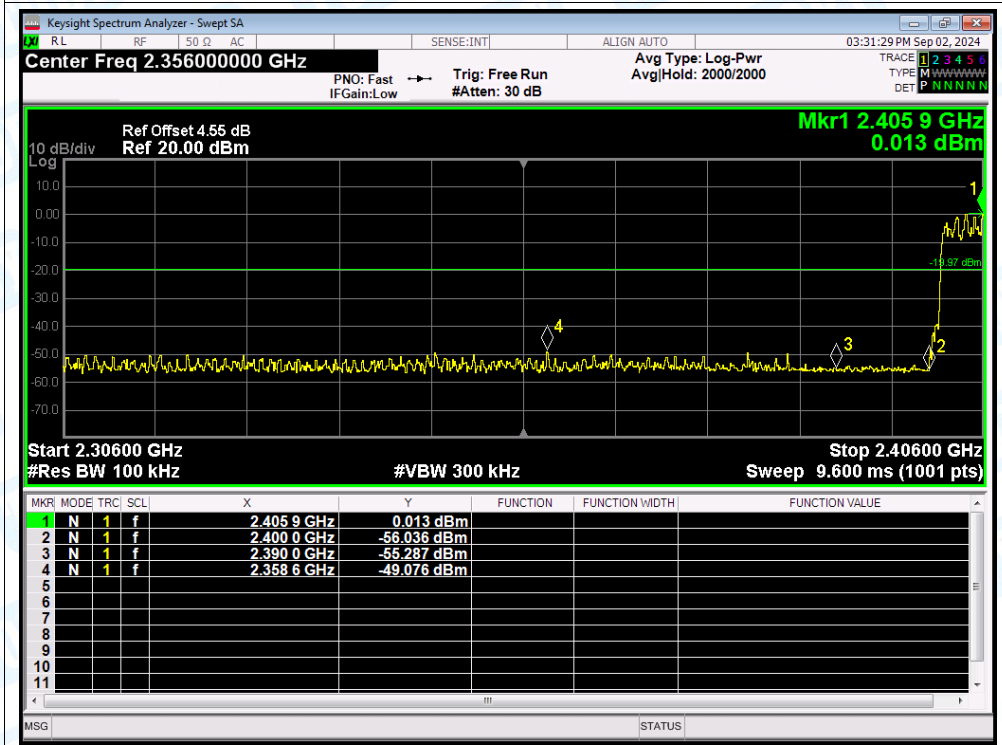


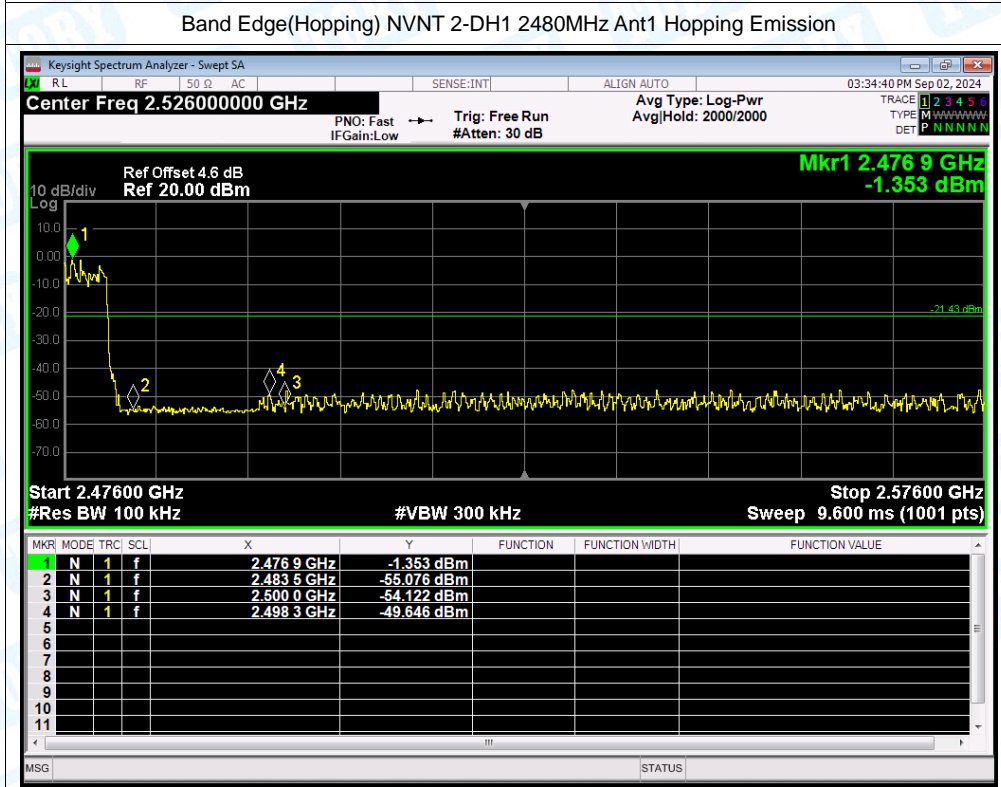


Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Ref



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





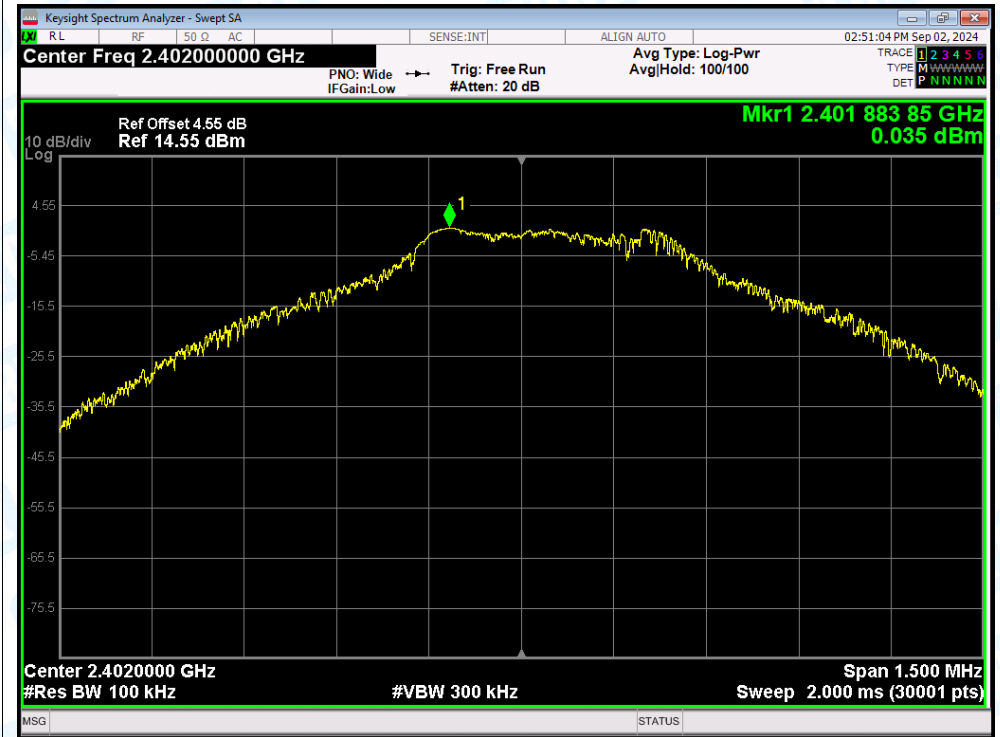


## 7. Conducted RF Spurious Emission

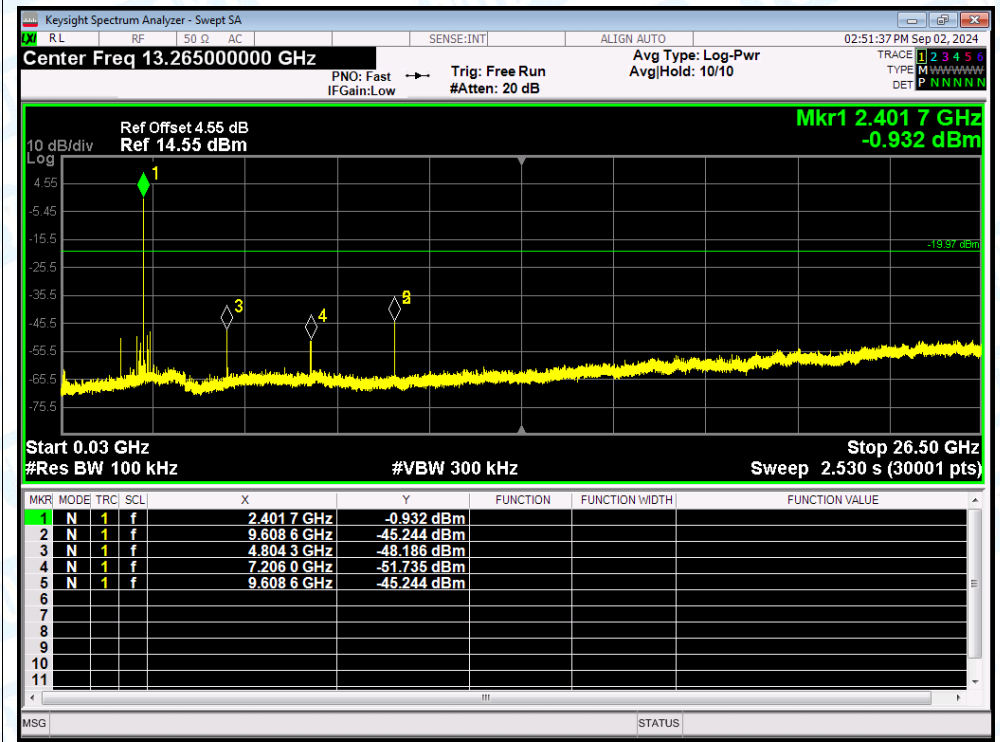
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-45.28	-20	Pass
NVNT	1-DH1	2441	Ant1	-44.41	-20	Pass
NVNT	1-DH1	2480	Ant1	-44.17	-20	Pass
NVNT	2-DH1	2402	Ant1	-45.28	-20	Pass
NVNT	2-DH1	2441	Ant1	-42.7	-20	Pass
NVNT	2-DH1	2480	Ant1	-44.55	-20	Pass

Test Graphs

Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref

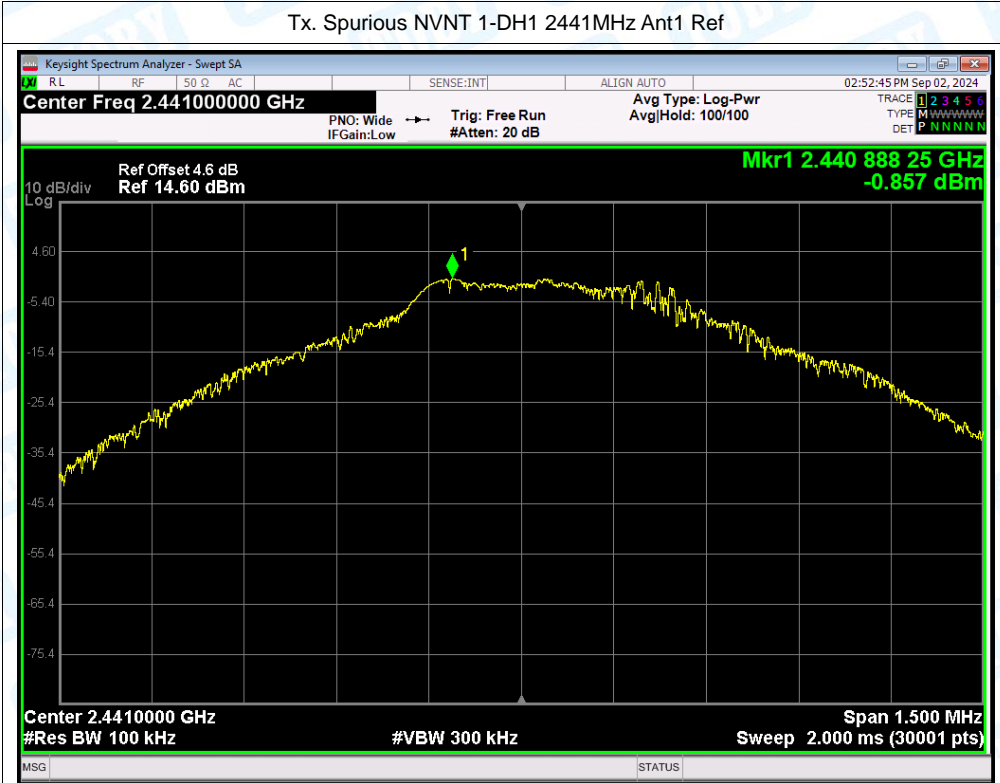


Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission

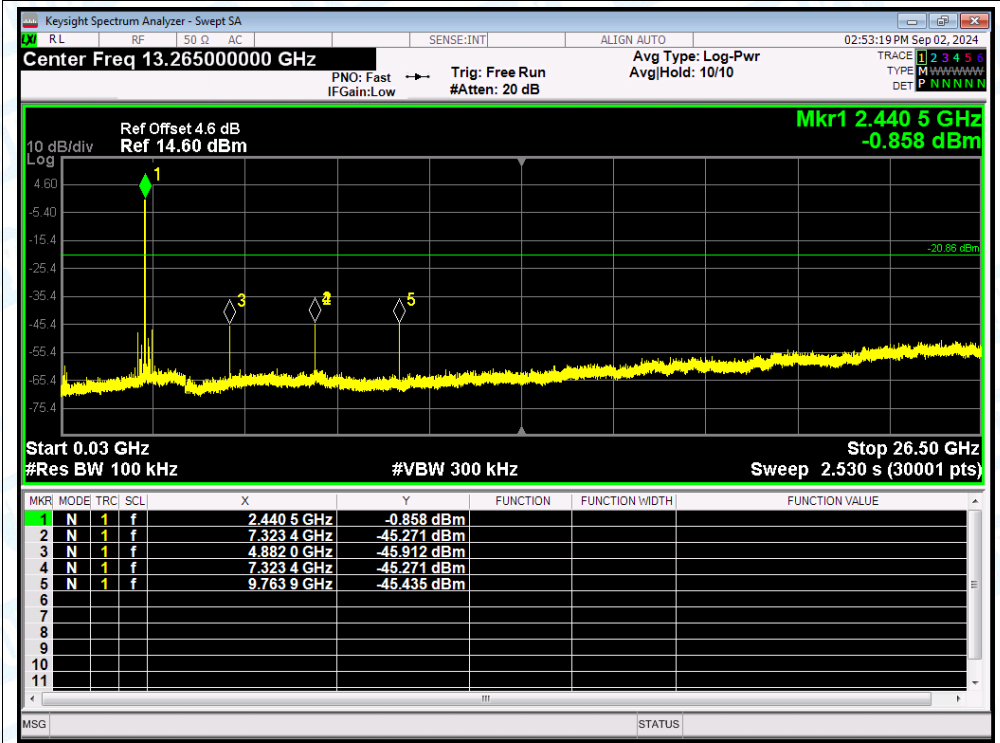




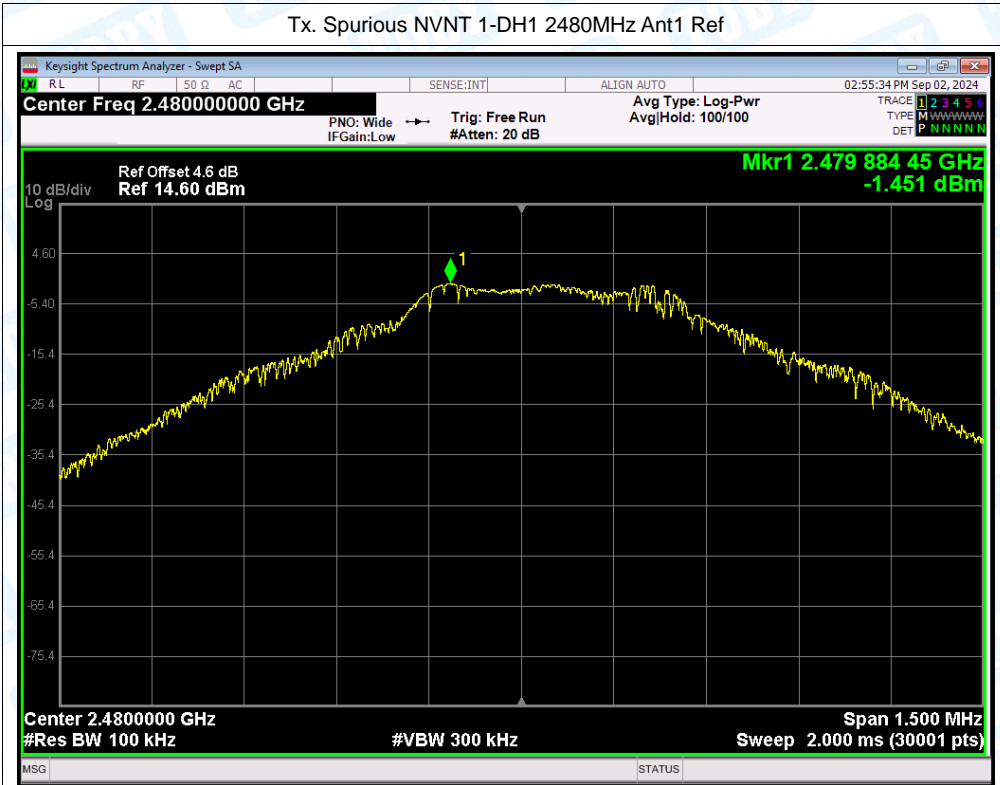
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



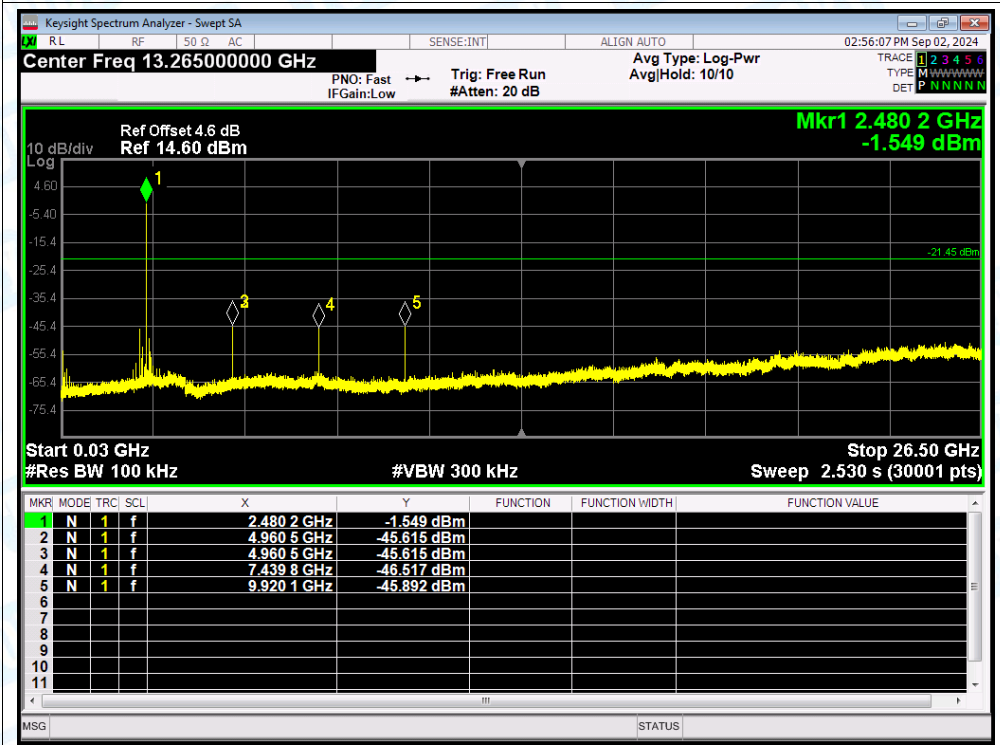
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref

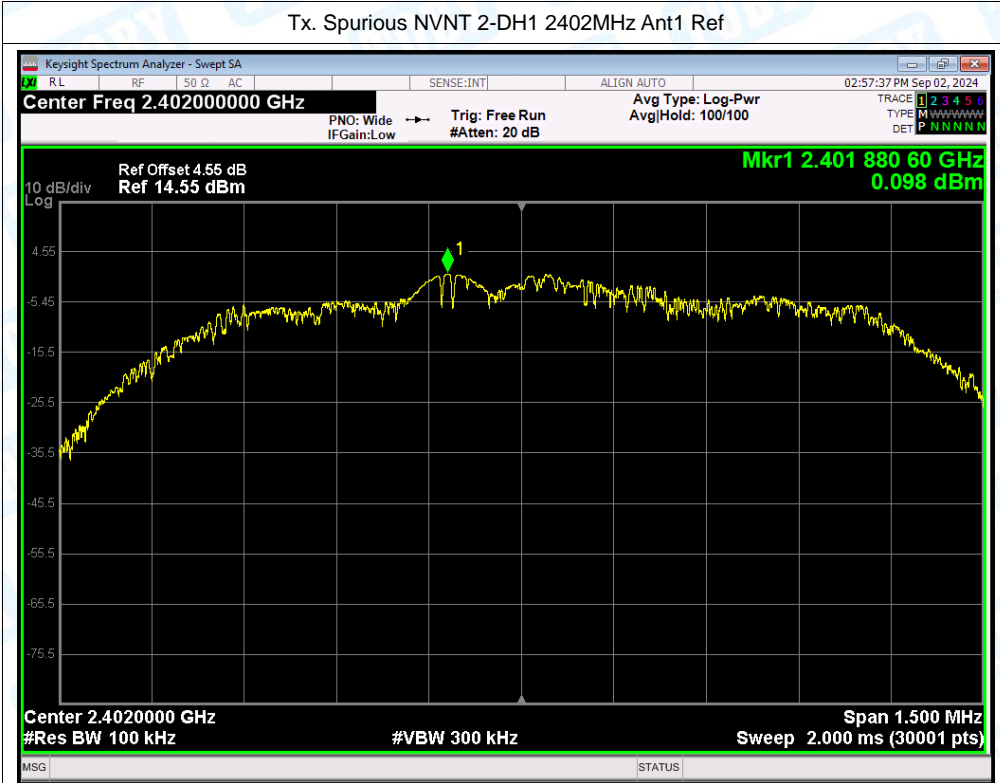


Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission

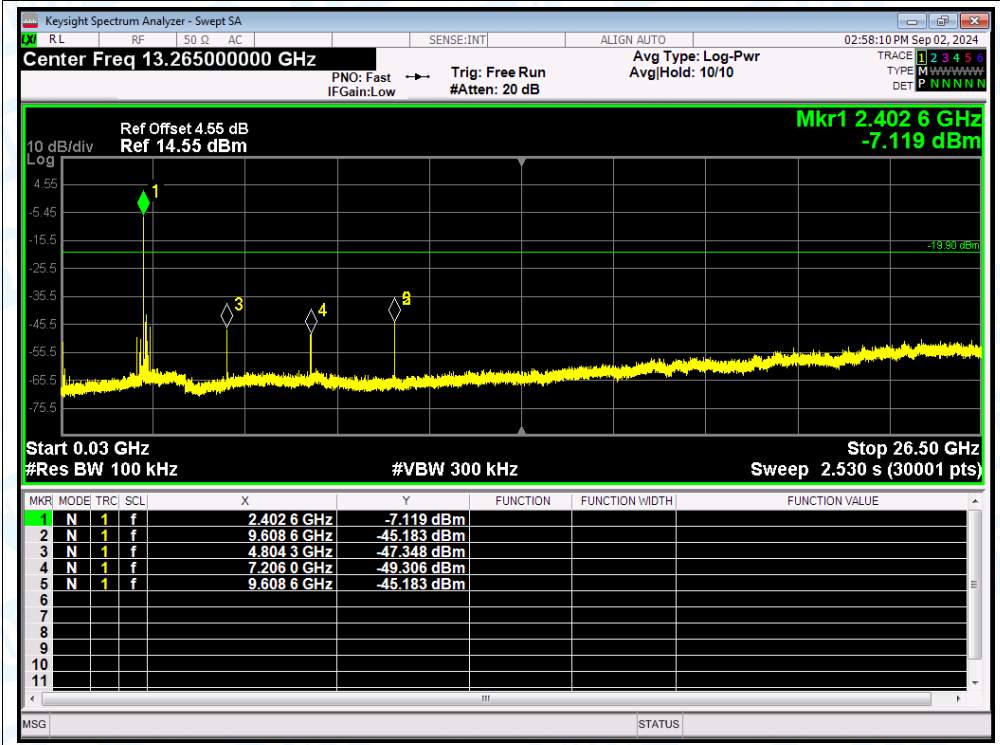




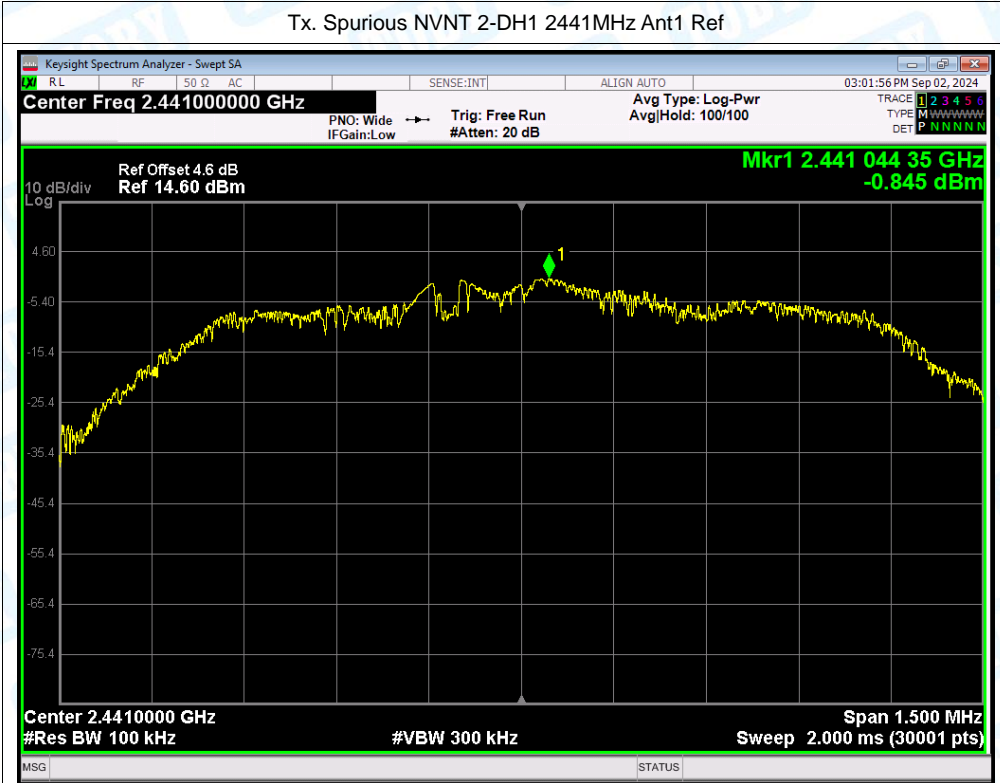
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



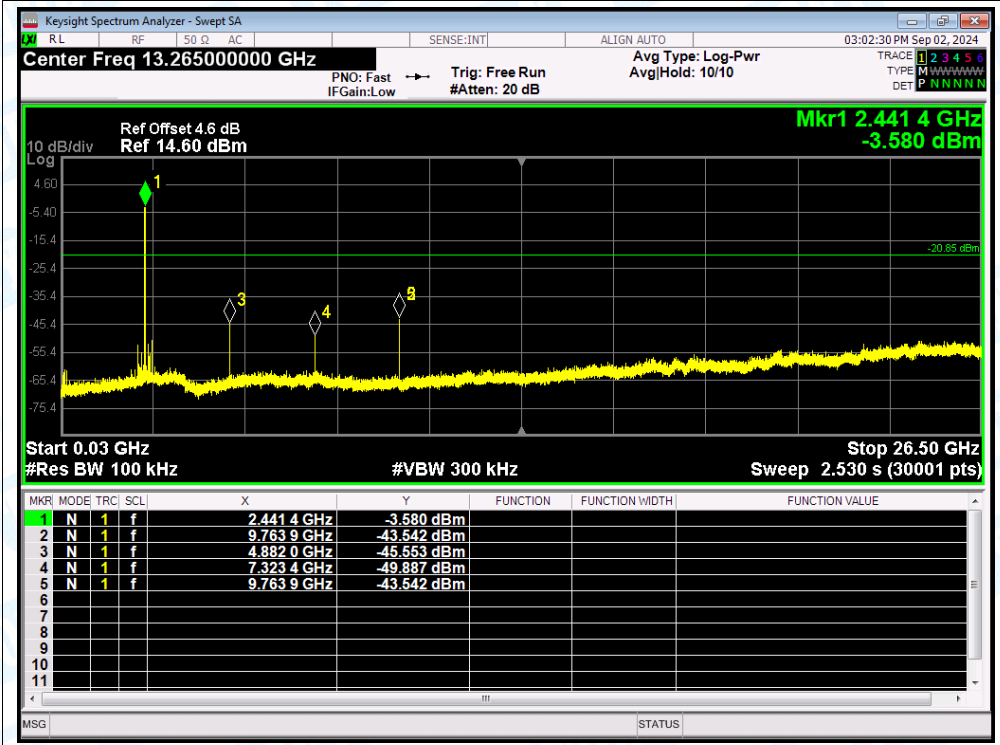
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref

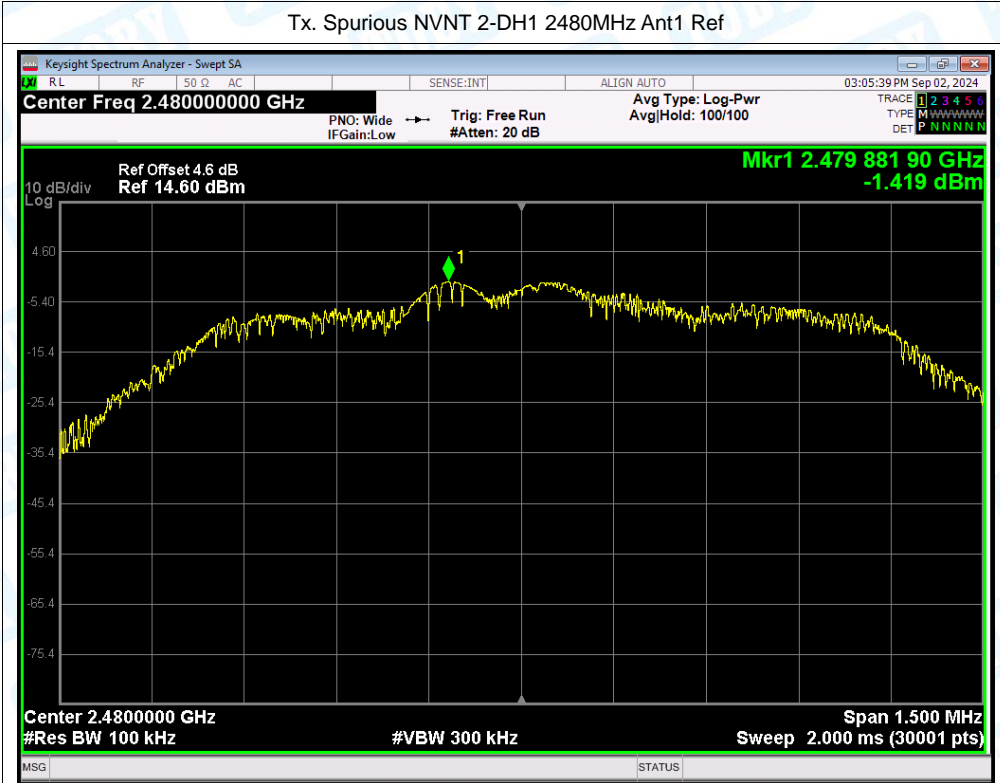


Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission

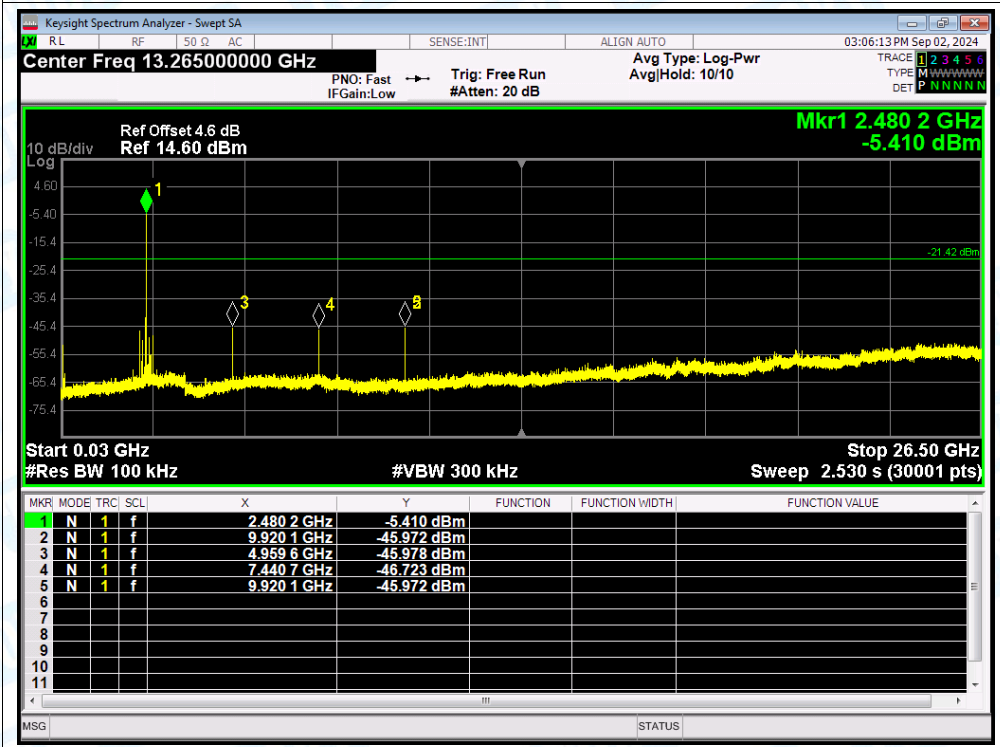




Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



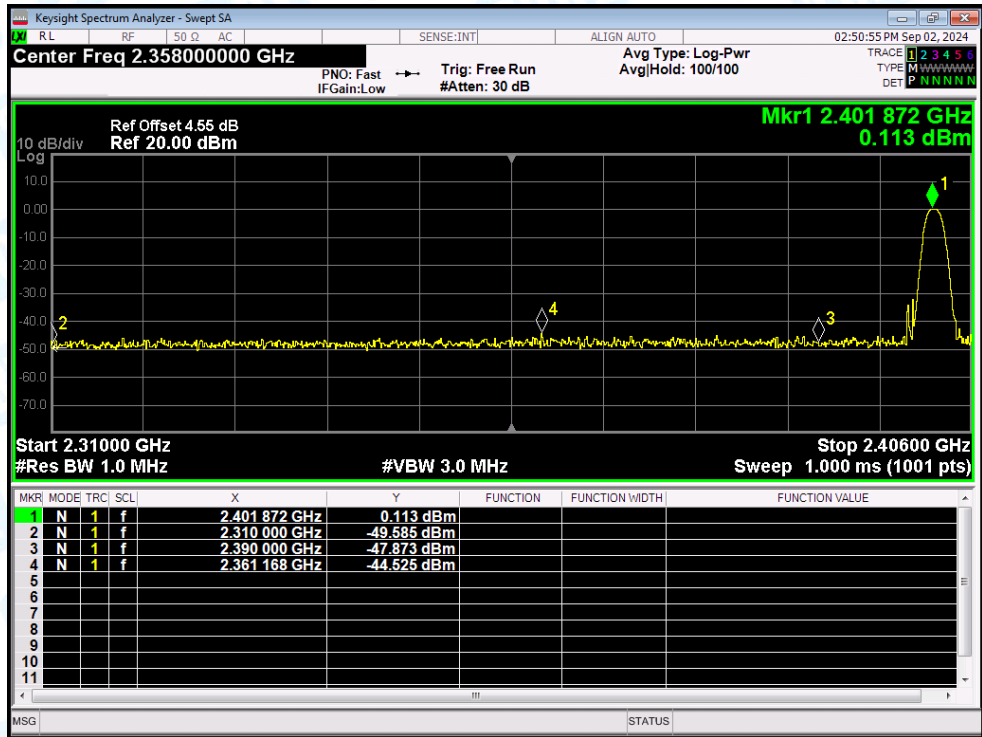
## 8. Restrict Band

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	-49.59	2	-	47.67	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.48	2	5.17	45.95	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2361.168	-44.53	2	-	52.73	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2352.912	-54.97	2	5.17	47.46	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-47.87	2	-	49.39	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-56.37	2	5.17	46.06	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-45.94	2	-	51.32	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-55.37	2	5.06	46.95	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.632	-39.41	2	-	57.85	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2495.008	-54.66	2	5.06	47.66	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-47.34	2	-	49.92	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-55.94	2	5.06	46.38	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-50.21	2	-	47.05	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.53	2	5.06	45.79	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2348.496	-44.48	2	-	52.78	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2359.44	-54.9	2	5.06	47.42	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-48.09	2	-	49.17	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-55.55	2	5.06	46.77	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-45.79	2	-	51.47	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-55.78	2	5.06	46.54	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2490.736	-43.84	2	-	53.42	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2497.336	-54.57	2	5.06	47.75	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-47.55	2	-	49.71	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.74	2	5.06	46.58	Average	54	Pass

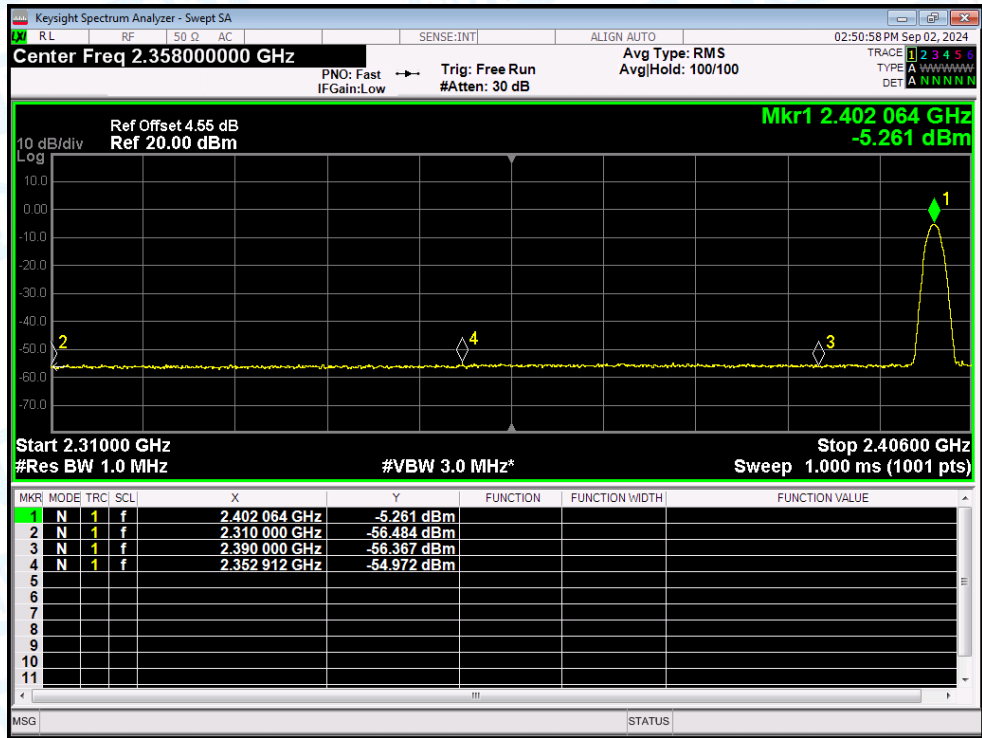


Test Graphs

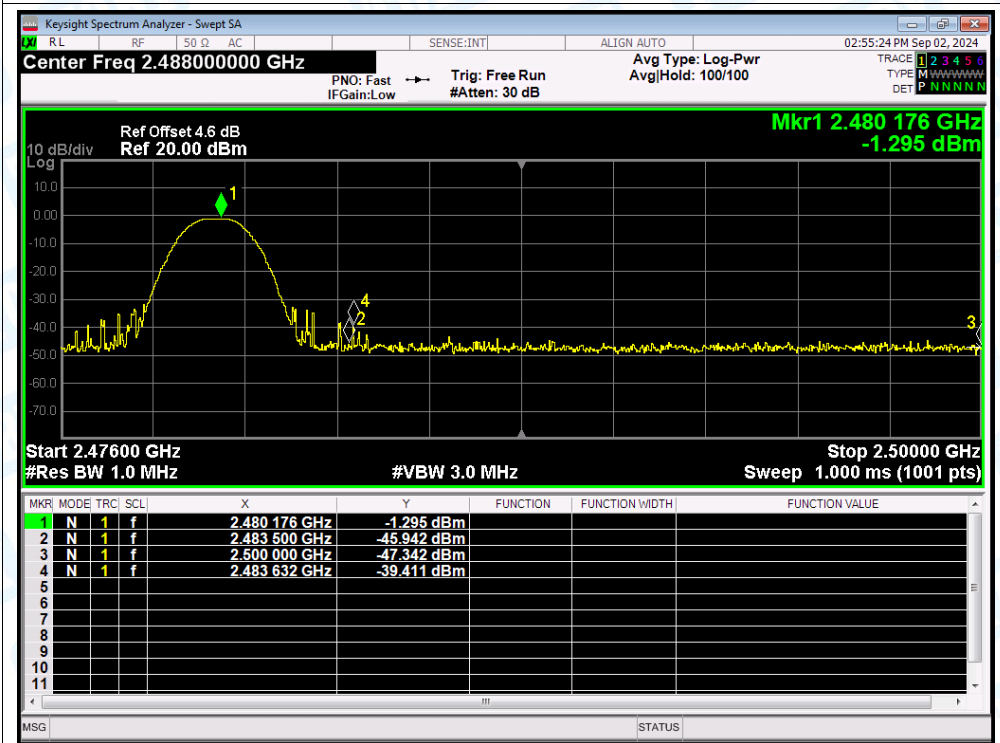
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



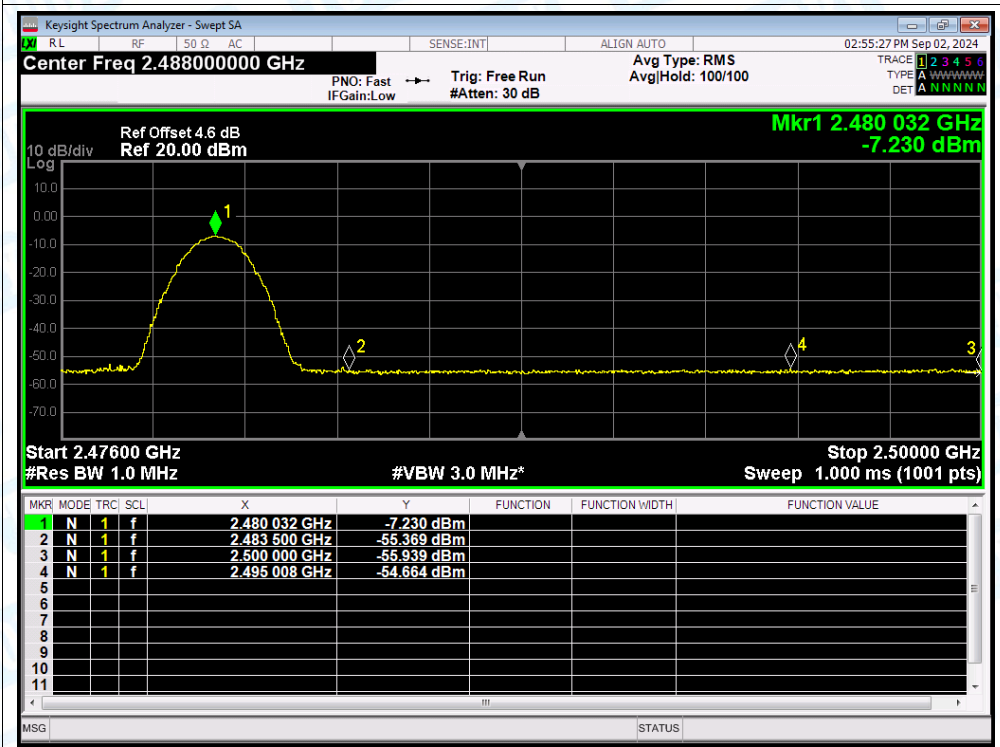
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



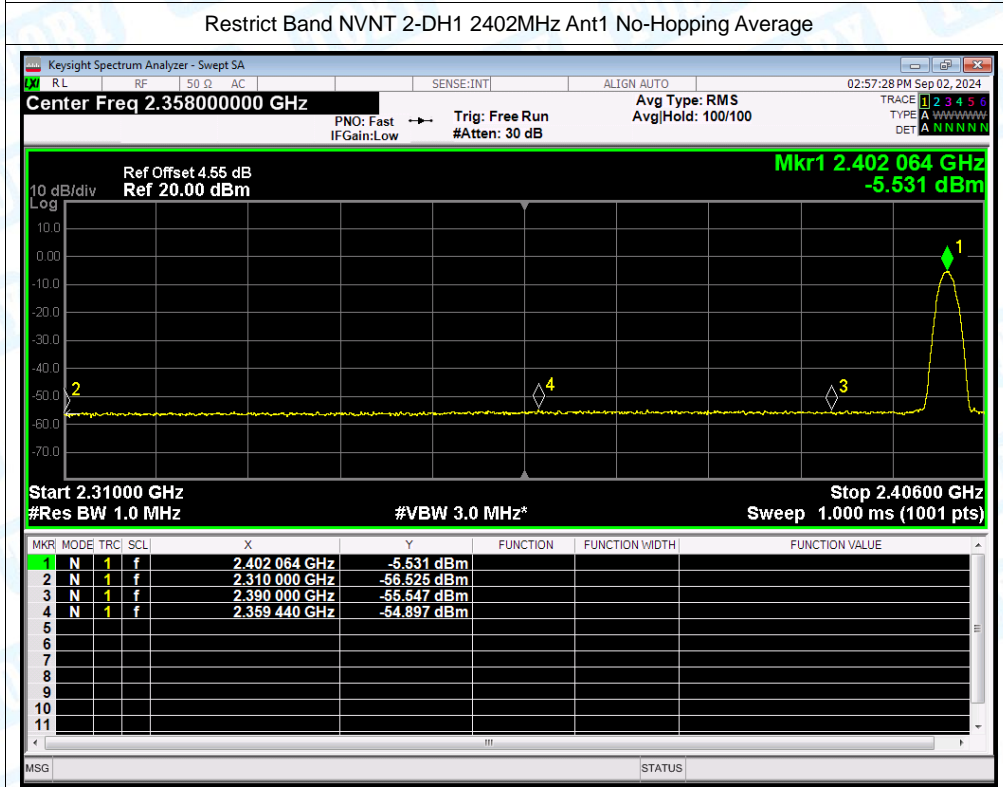
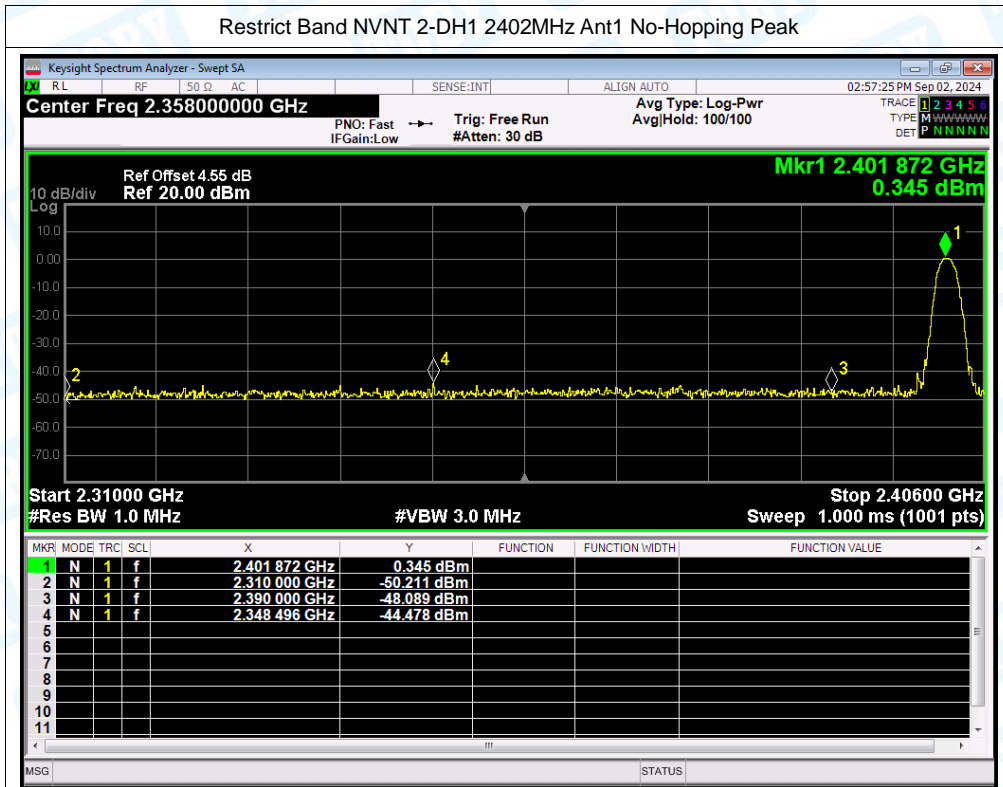
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



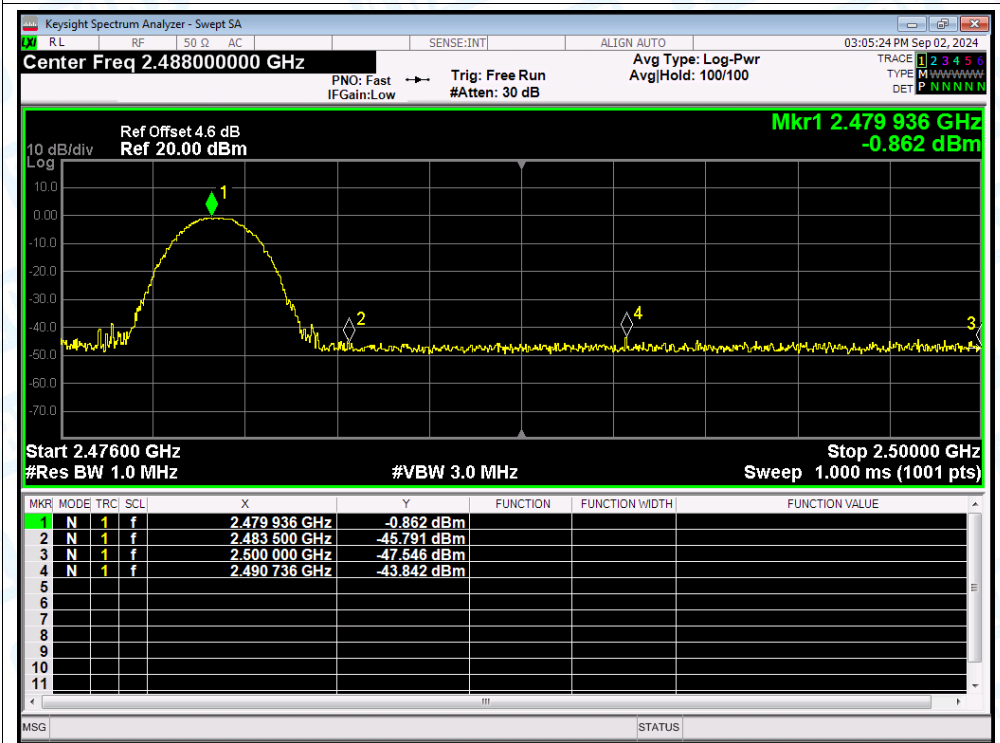
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



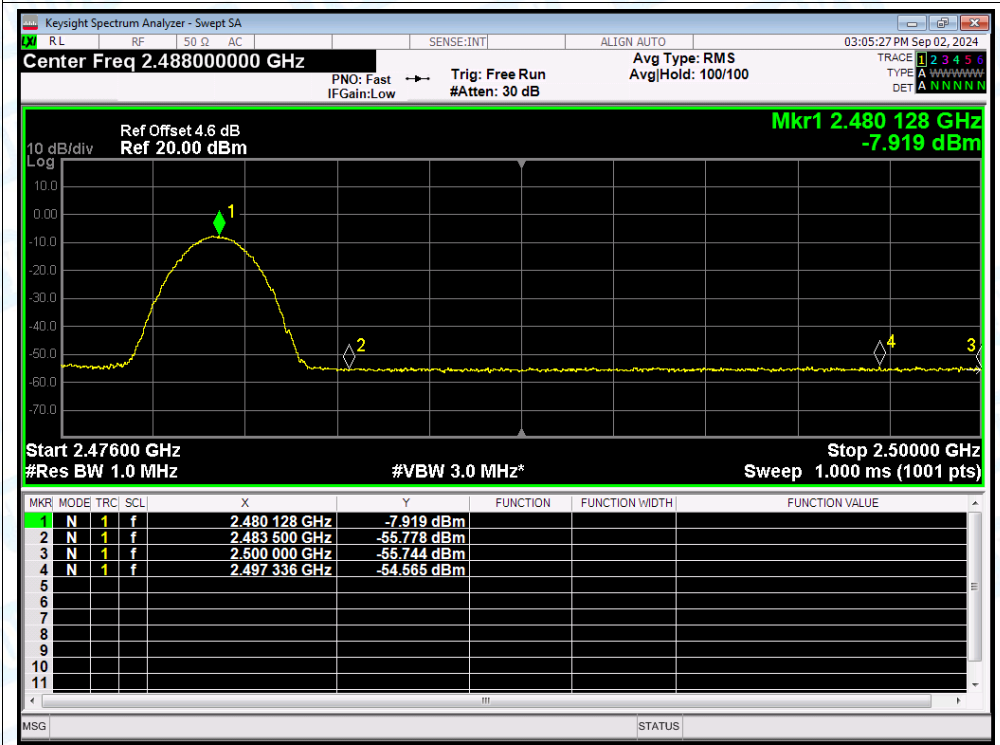




Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



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



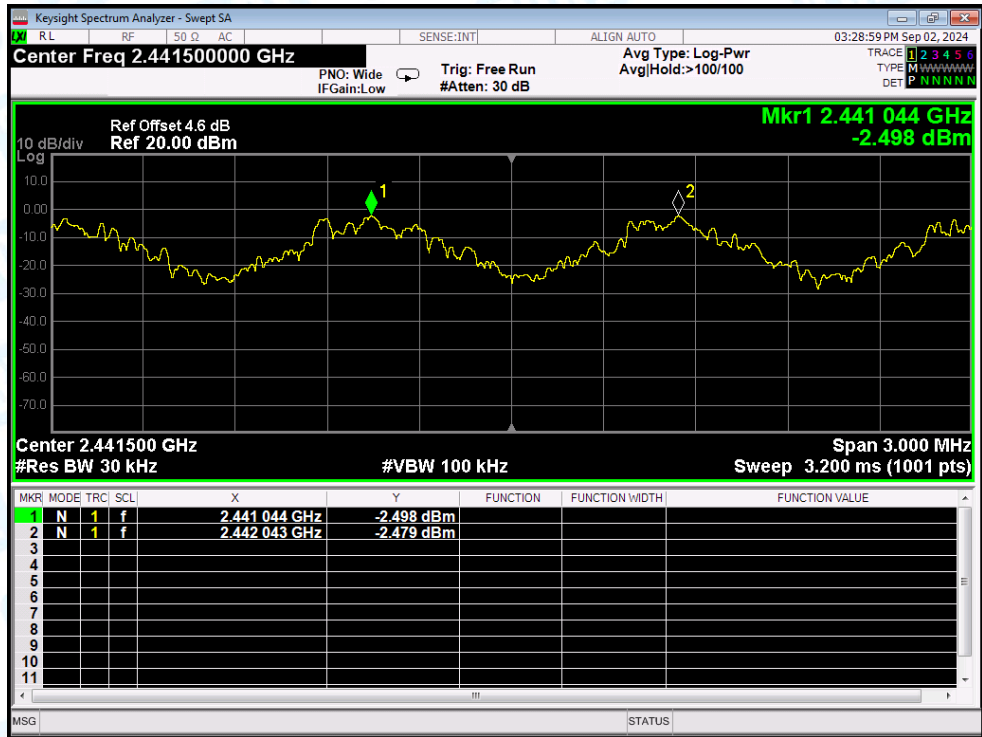


## 9. Carrier Frequencies Separation

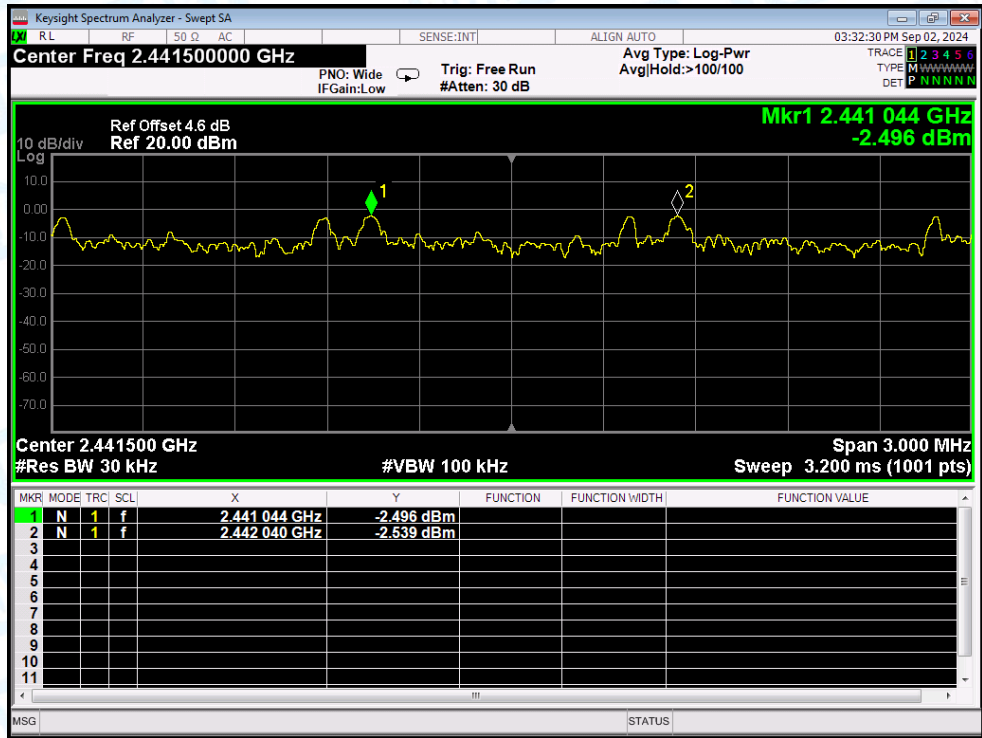
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2441.044	2442.043	0.999	0.62	Pass
NVNT	2-DH1	Ant1	2441.044	2442.04	0.996	0.84	Pass

Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



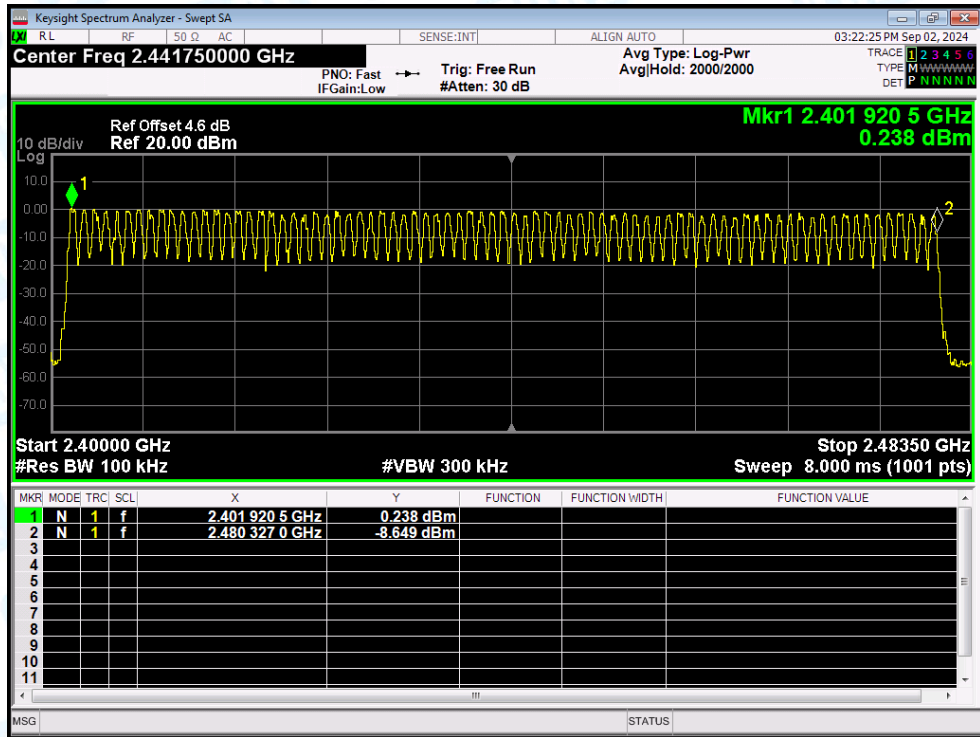


## 10. Number of Hopping Channel

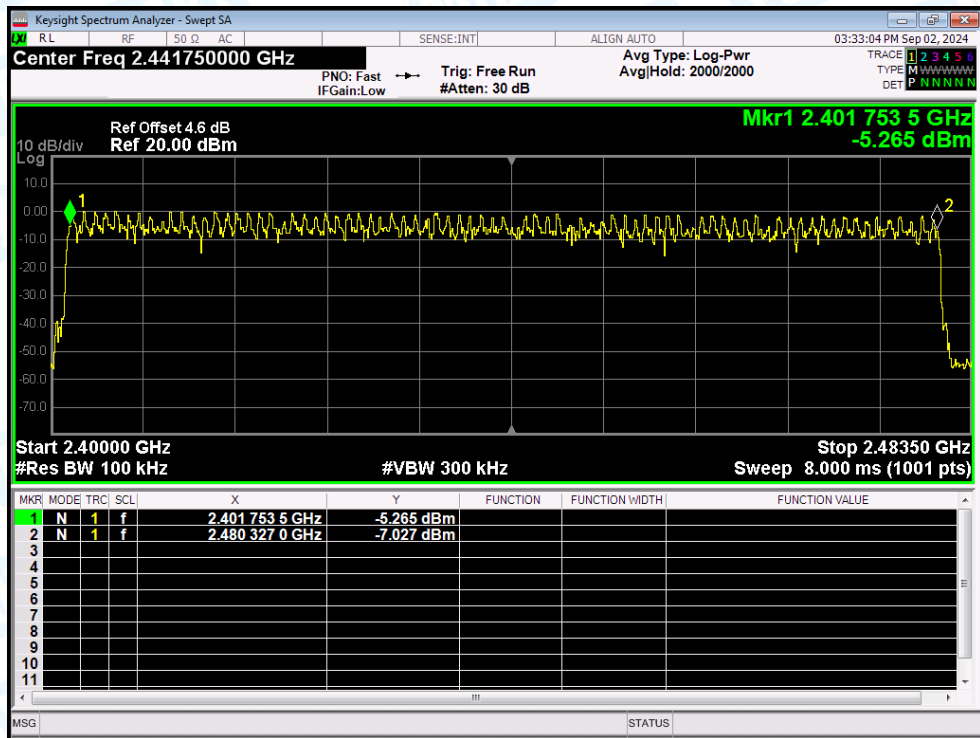
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass

Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



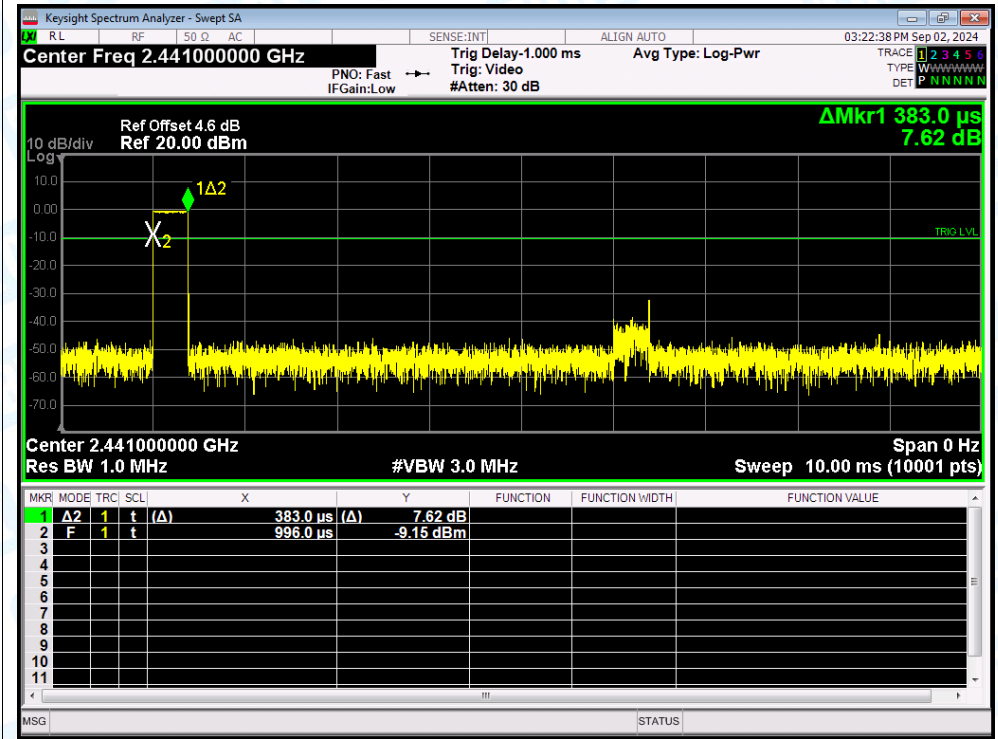


## 11. Dwell Time

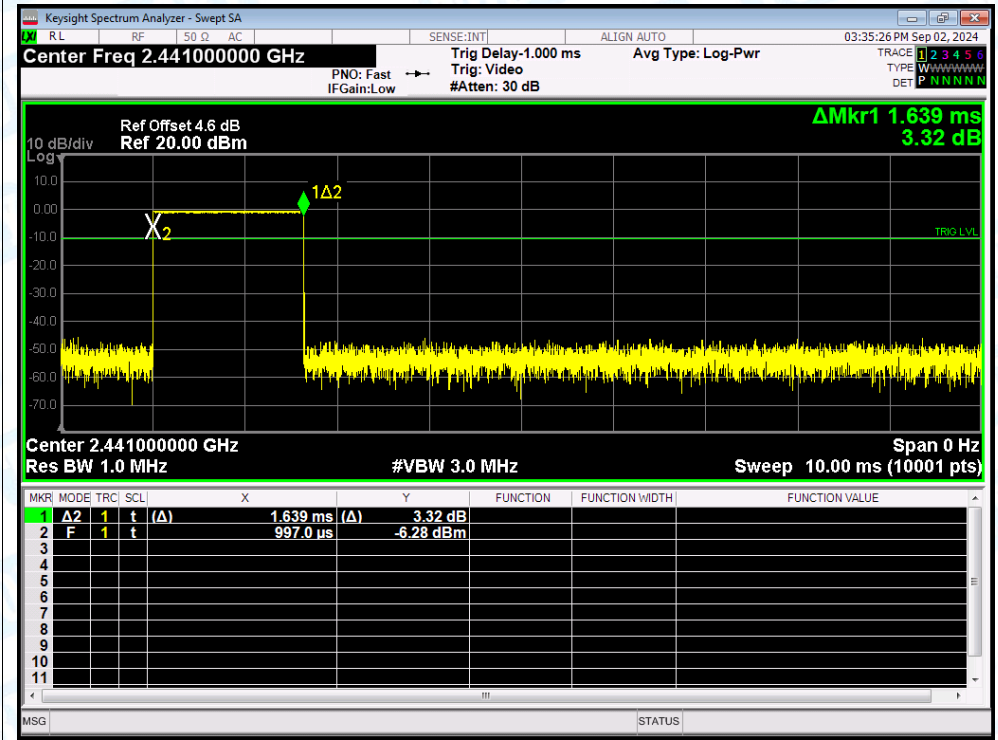
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.383	122.56	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.639	262.24	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.887	307.947	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.392	125.44	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.644	263.04	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.891	308.373	31600	400	Pass

Test Graphs

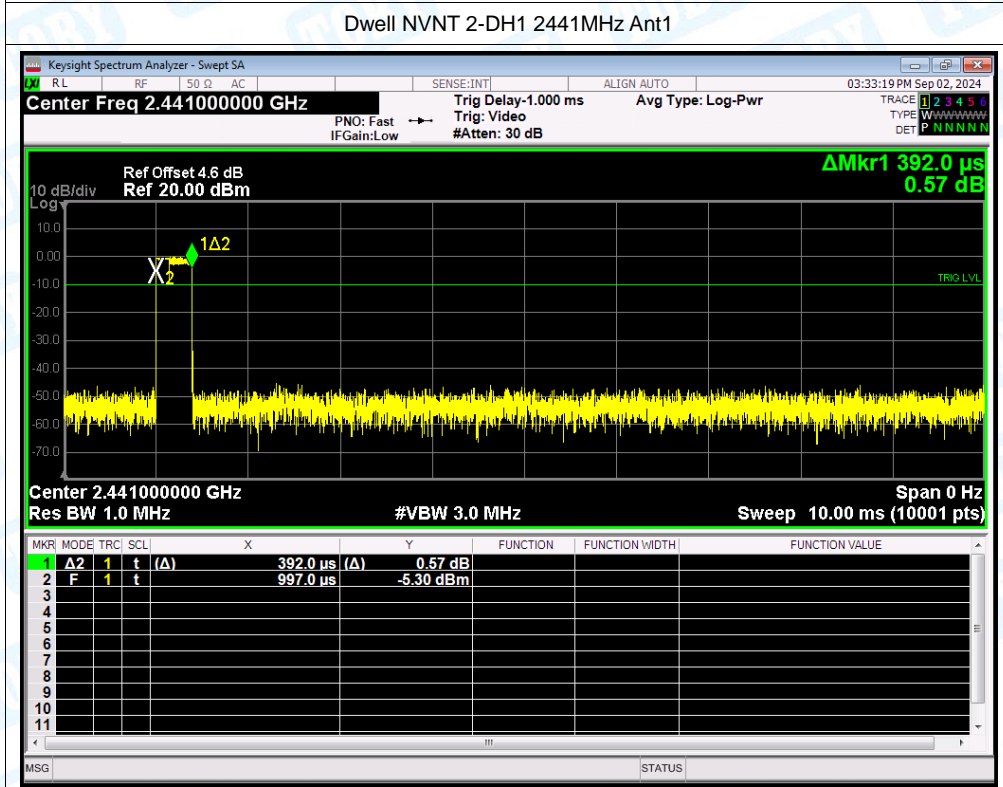
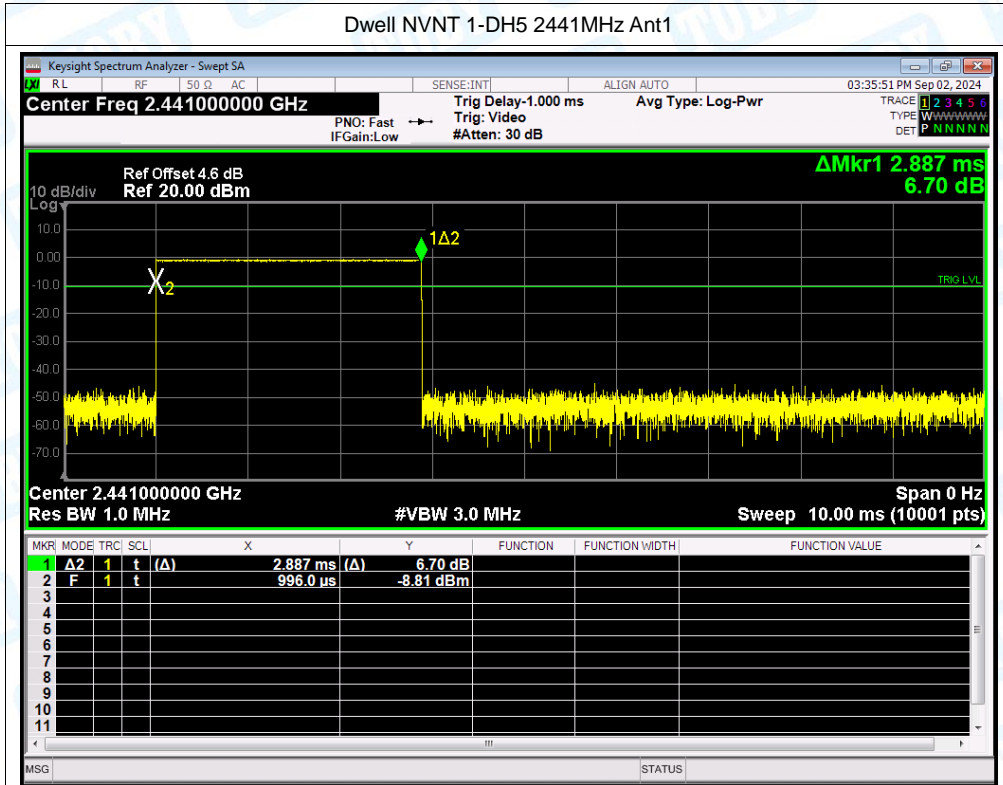
Dwell NVNT 1-DH1 2441MHz Ant1

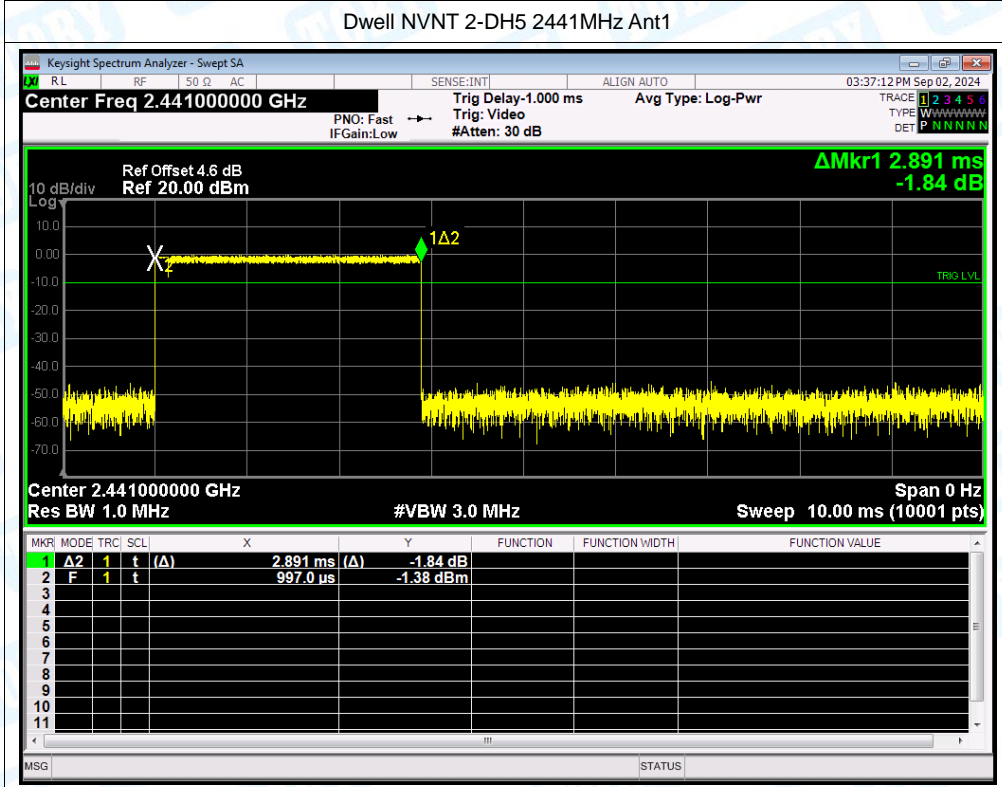
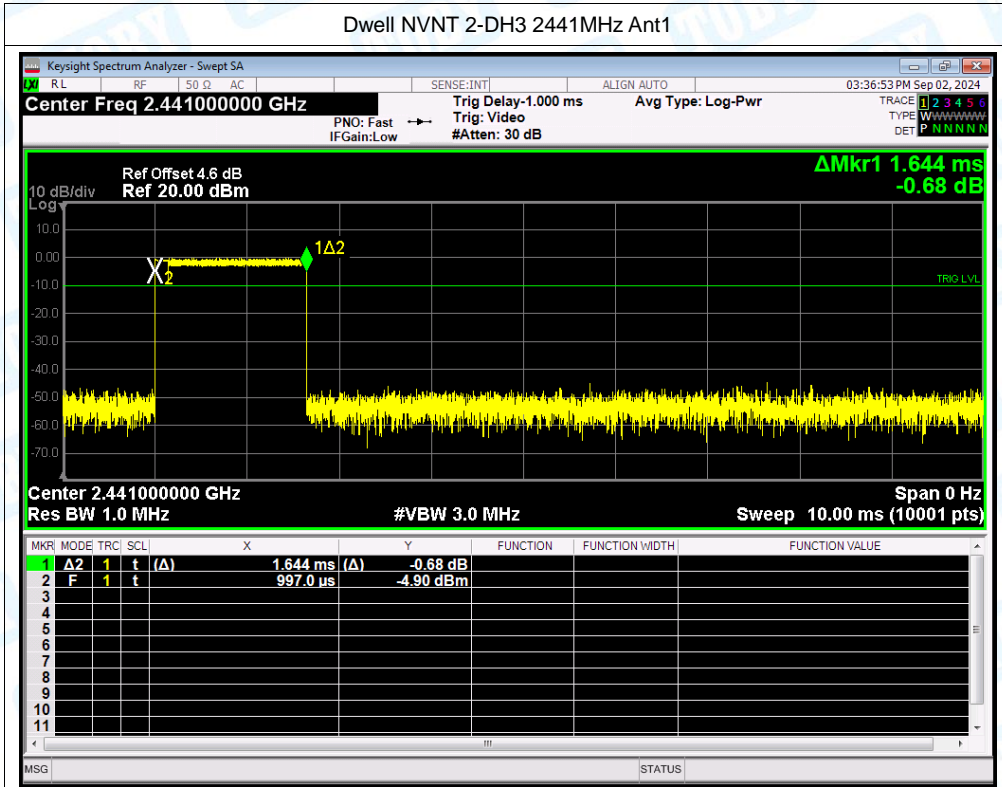


Dwell NVNT 1-DH3 2441MHz Ant1









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