

# RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
<b>Product Name:</b>	SMART WATCH
<b>Test Model:</b>	G109
<b>Sample ID:</b>	HC-C-202407-0182-02-01
Environmental Conditions	
<b>Temperature:</b>	25.1 °C
<b>Relative Humidity:</b>	51.6%
<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-202407-0182-49 The report only show the worst case data.	

## Contents

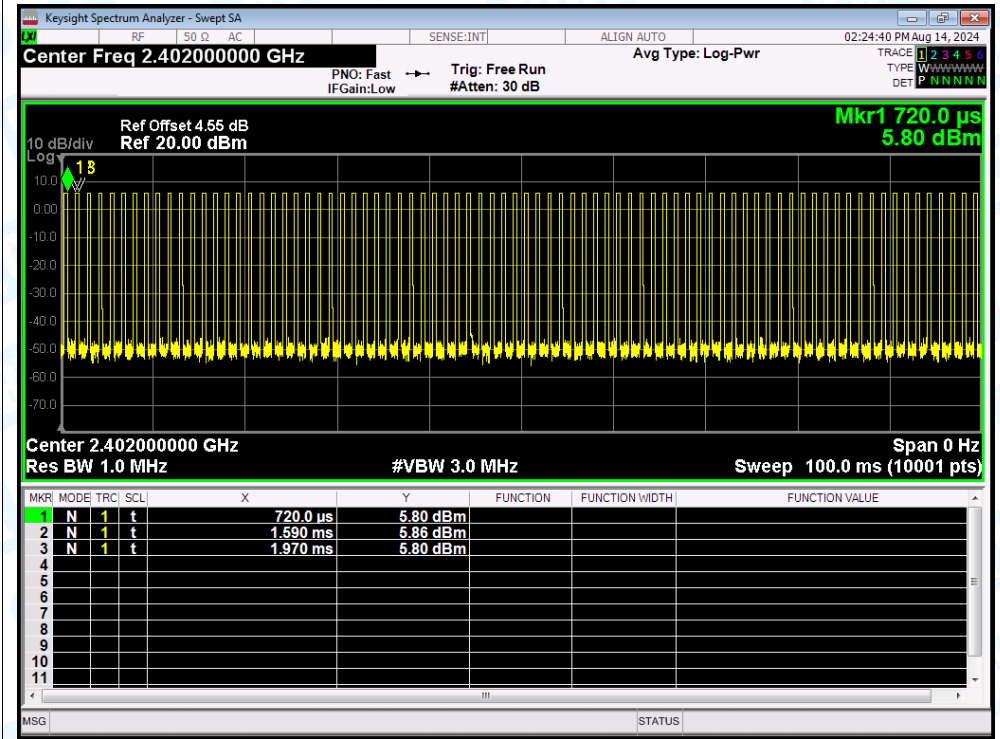
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## 1. Duty Cycle

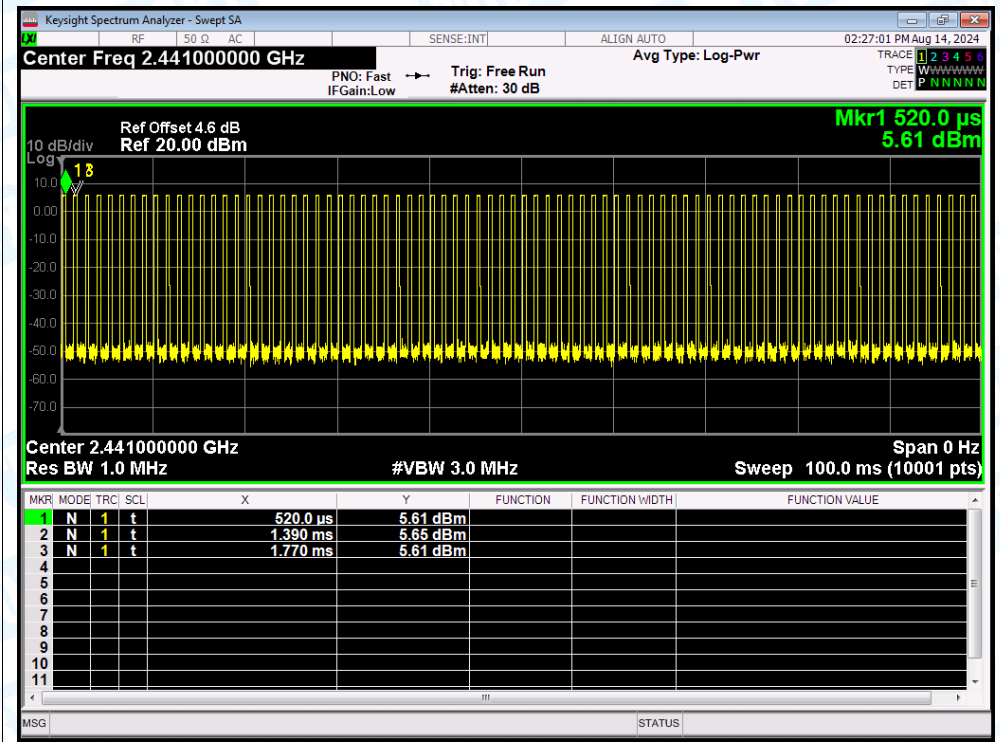
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2441	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2480	Ant1	30.4	5.17	2.63
NVNT	2-DH1	2402	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2441	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2480	Ant1	31.2	5.06	2.56
NVNT	3-DH1	2402	Ant1	32	4.95	2.5
NVNT	3-DH1	2441	Ant1	31.2	5.06	2.56
NVNT	3-DH1	2480	Ant1	31.2	5.06	2.56

Test Graphs

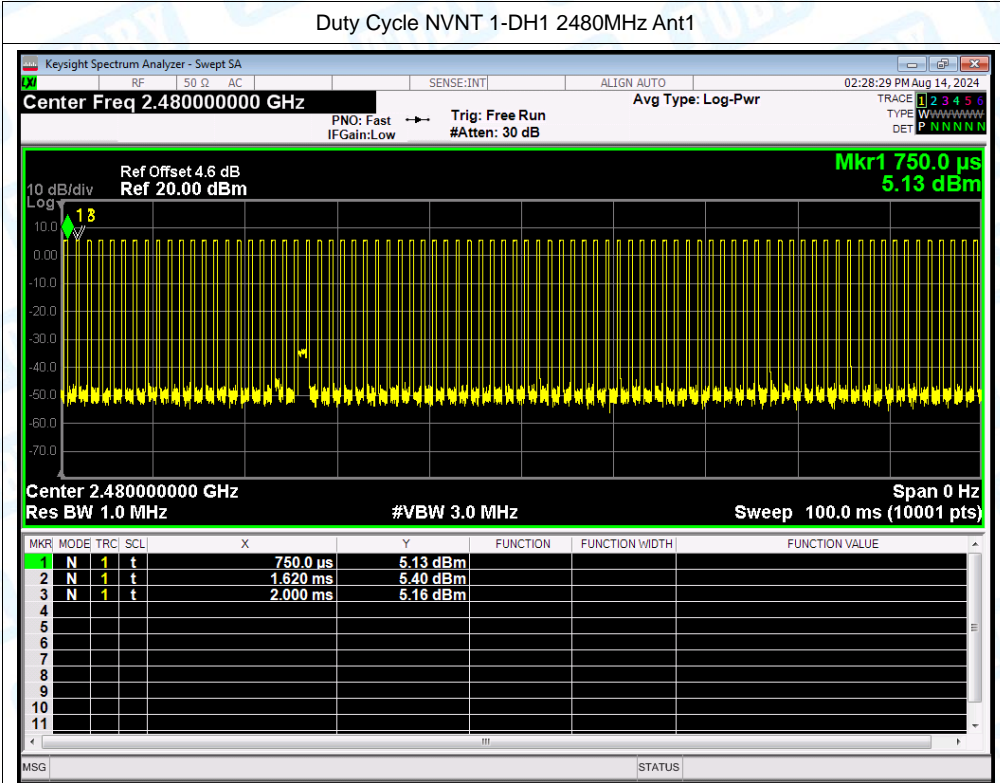
Duty Cycle NVNT 1-DH1 2402MHz Ant1



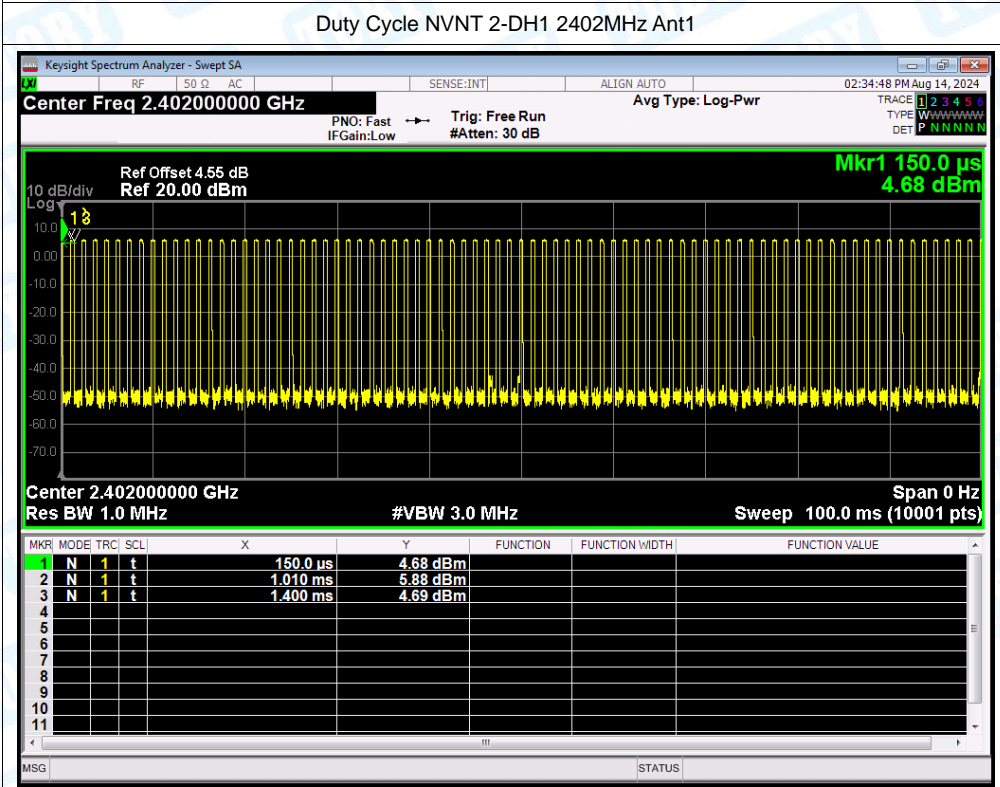
Duty Cycle NVNT 1-DH1 2441MHz Ant1



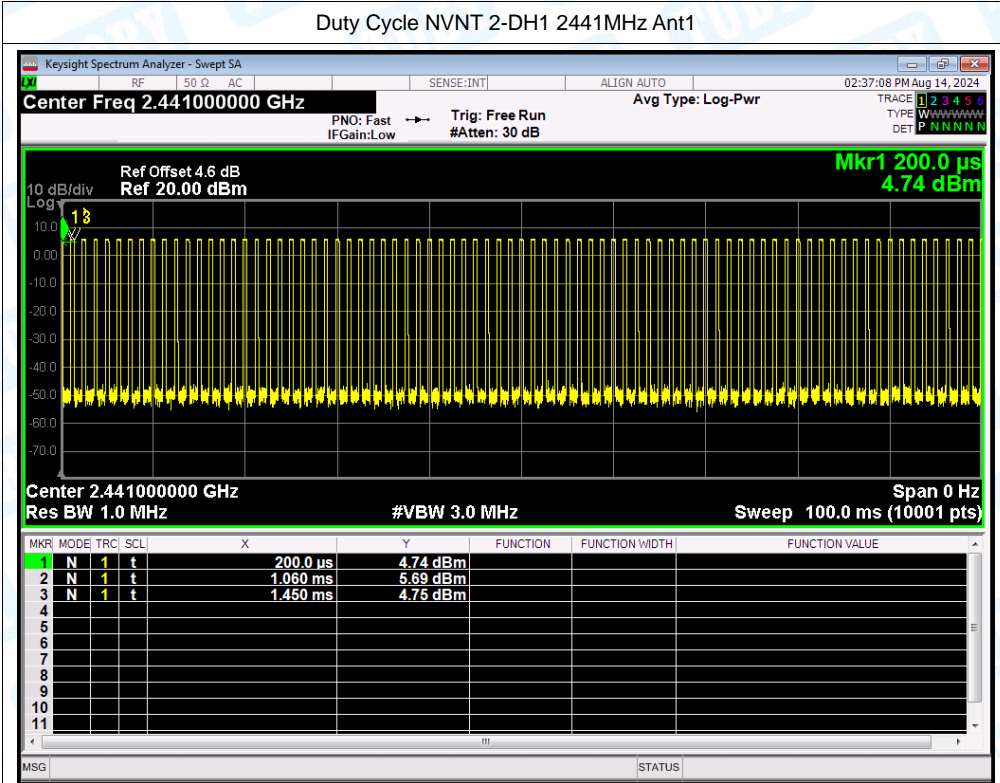
Duty Cycle NVNT 1-DH1 2480MHz Ant1



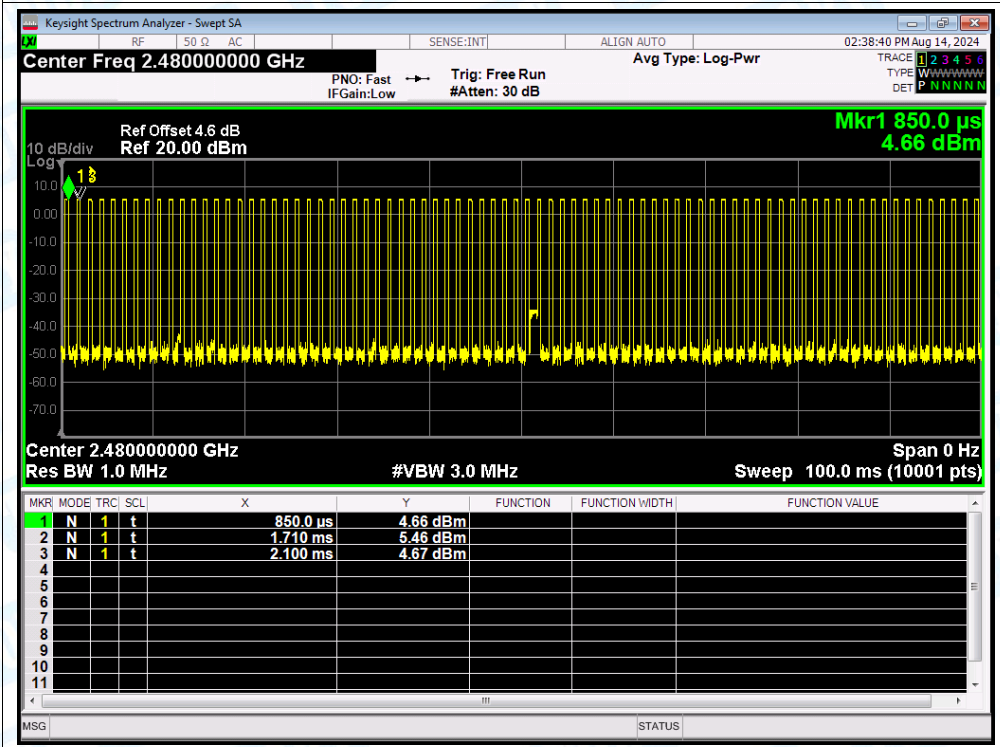
Duty Cycle NVNT 2-DH1 2402MHz Ant1



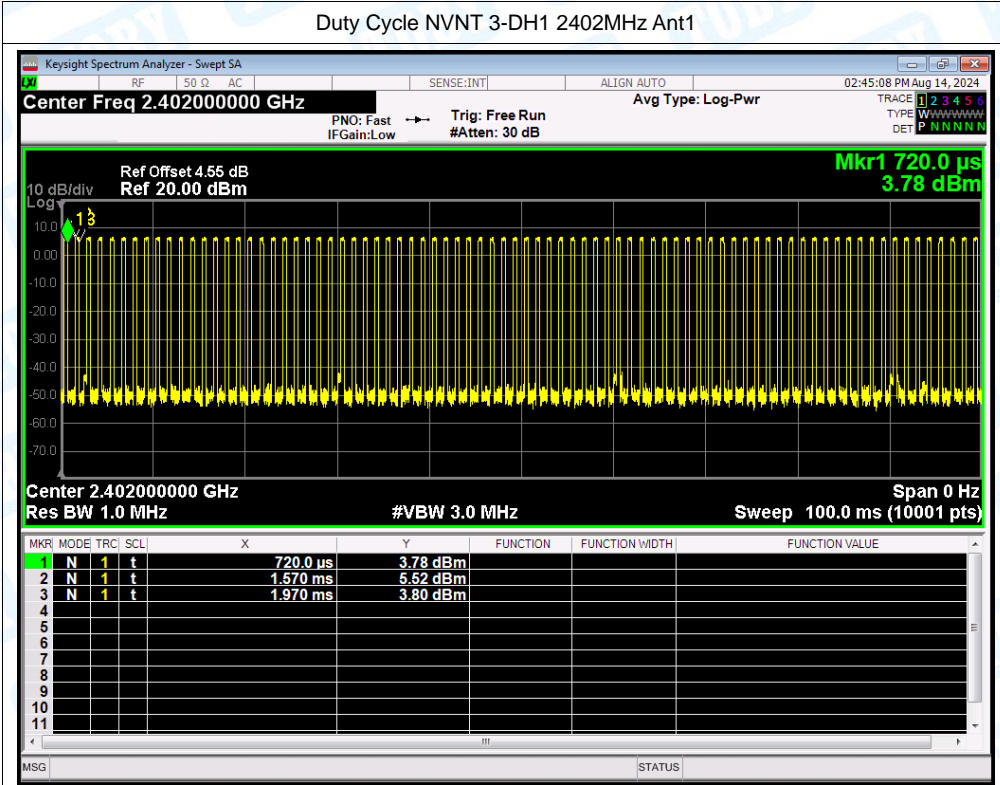
Duty Cycle NVNT 2-DH1 2441MHz Ant1



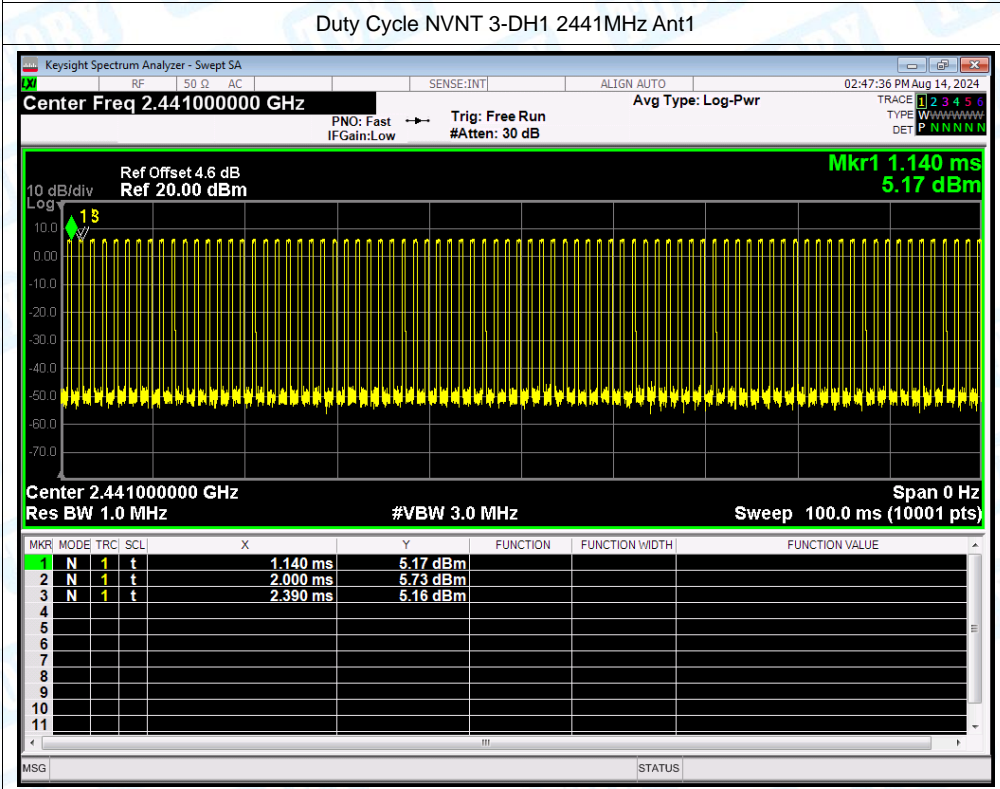
Duty Cycle NVNT 2-DH1 2480MHz Ant1

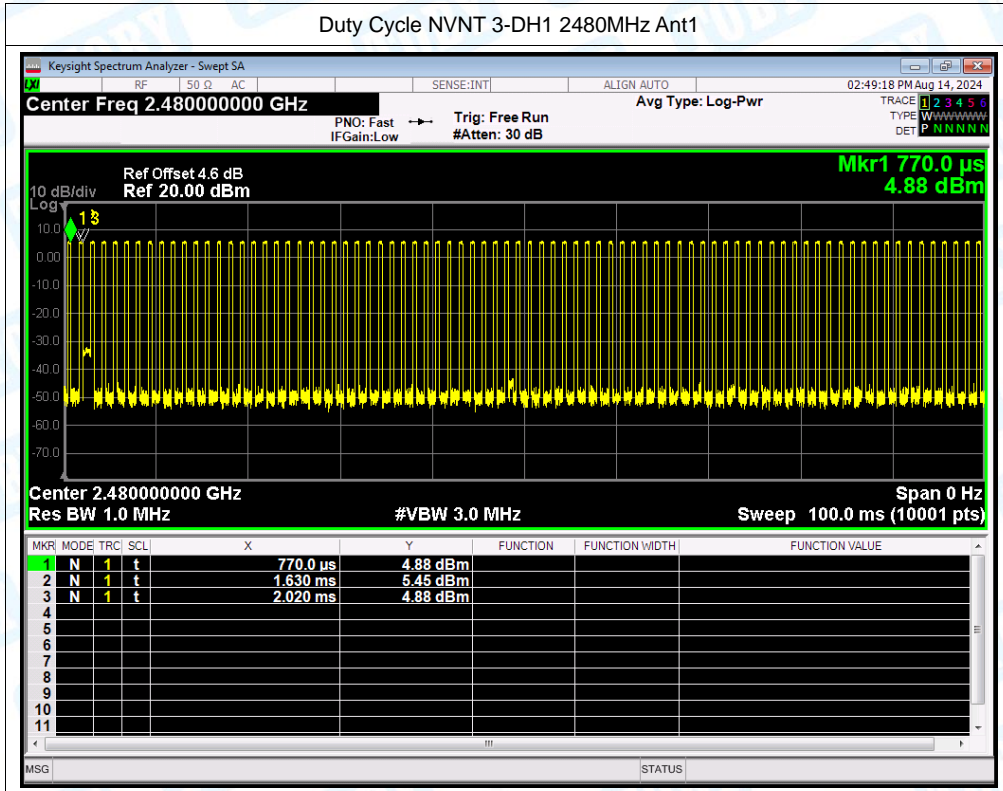


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1





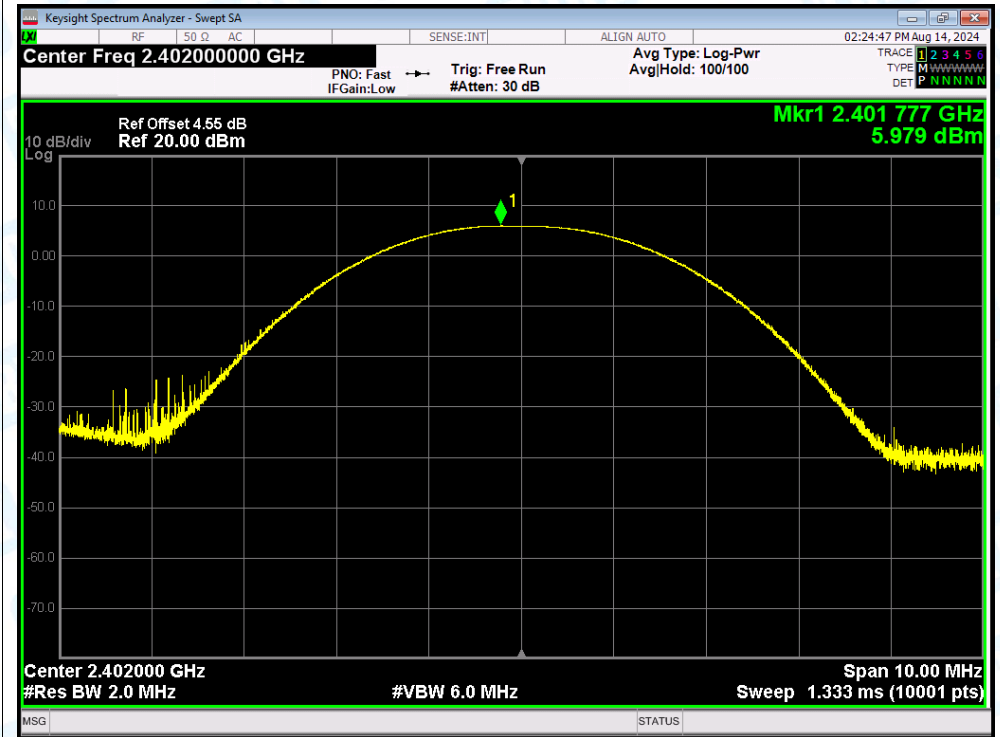


## 2. Maximum Conducted Output Power

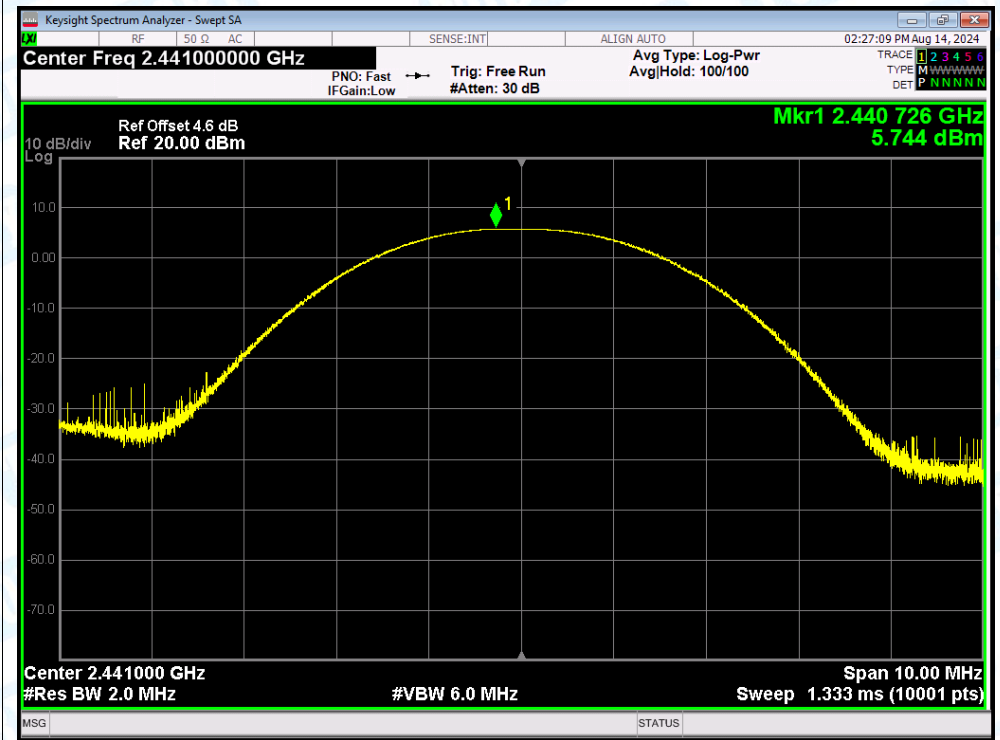
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	5.979	21	Pass
NVNT	1-DH1	2441	Ant1	5.744	21	Pass
NVNT	1-DH1	2480	Ant1	5.487	21	Pass
NVNT	1-DH3	2441	Ant1	5.816	21	Pass
NVNT	1-DH5	2441	Ant1	5.796	21	Pass
NVNT	2-DH1	2402	Ant1	6.436	21	Pass
NVNT	2-DH1	2441	Ant1	6.128	21	Pass
NVNT	2-DH1	2480	Ant1	5.815	21	Pass
NVNT	2-DH3	2441	Ant1	6.168	21	Pass
NVNT	2-DH5	2441	Ant1	6.149	21	Pass
NVNT	3-DH1	2402	Ant1	6.837	21	Pass
NVNT	3-DH1	2441	Ant1	6.401	21	Pass
NVNT	3-DH1	2480	Ant1	5.993	21	Pass
NVNT	3-DH3	2441	Ant1	6.258	21	Pass
NVNT	3-DH5	2441	Ant1	6.284	21	Pass

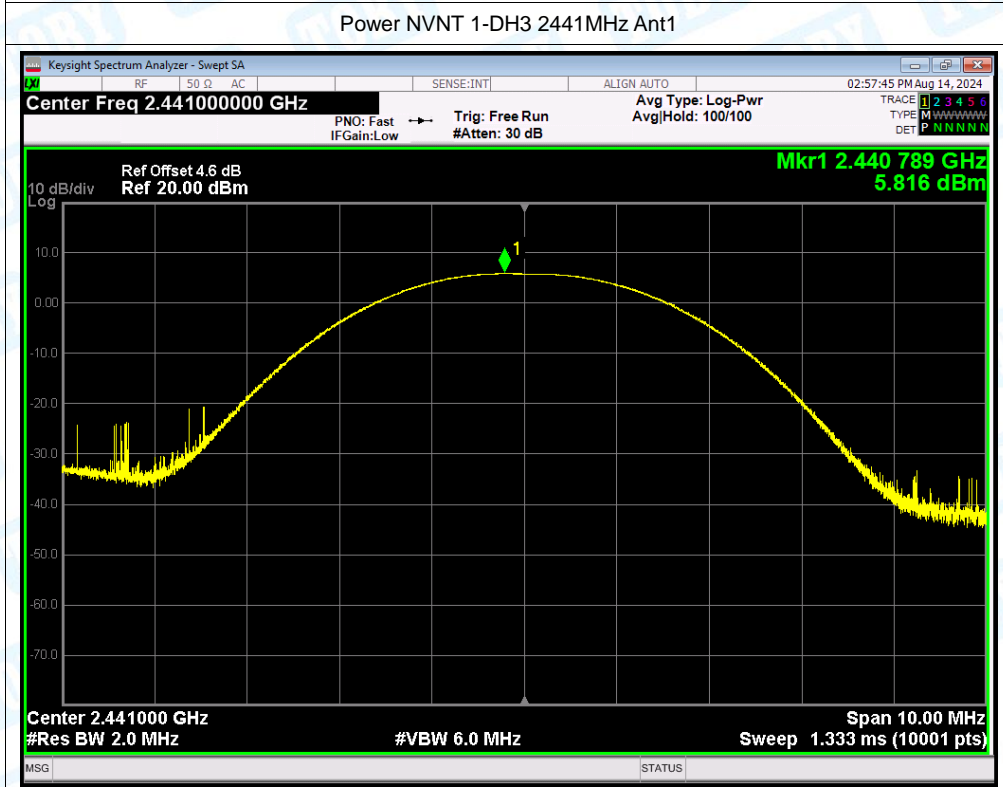
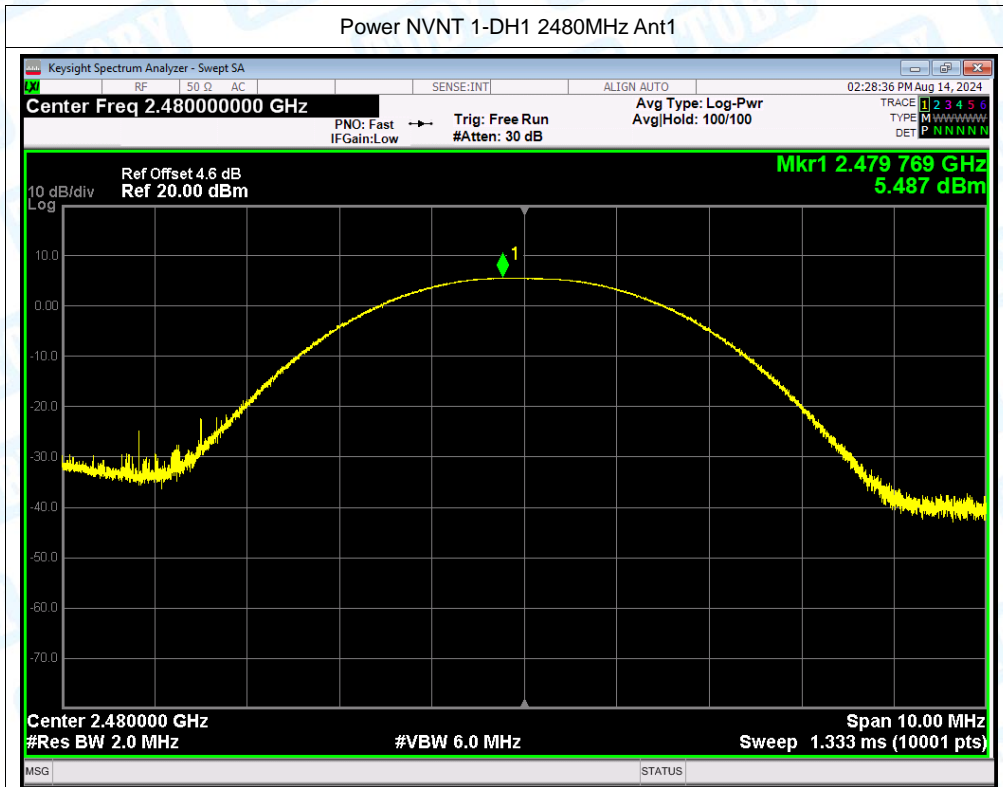
Test Graphs

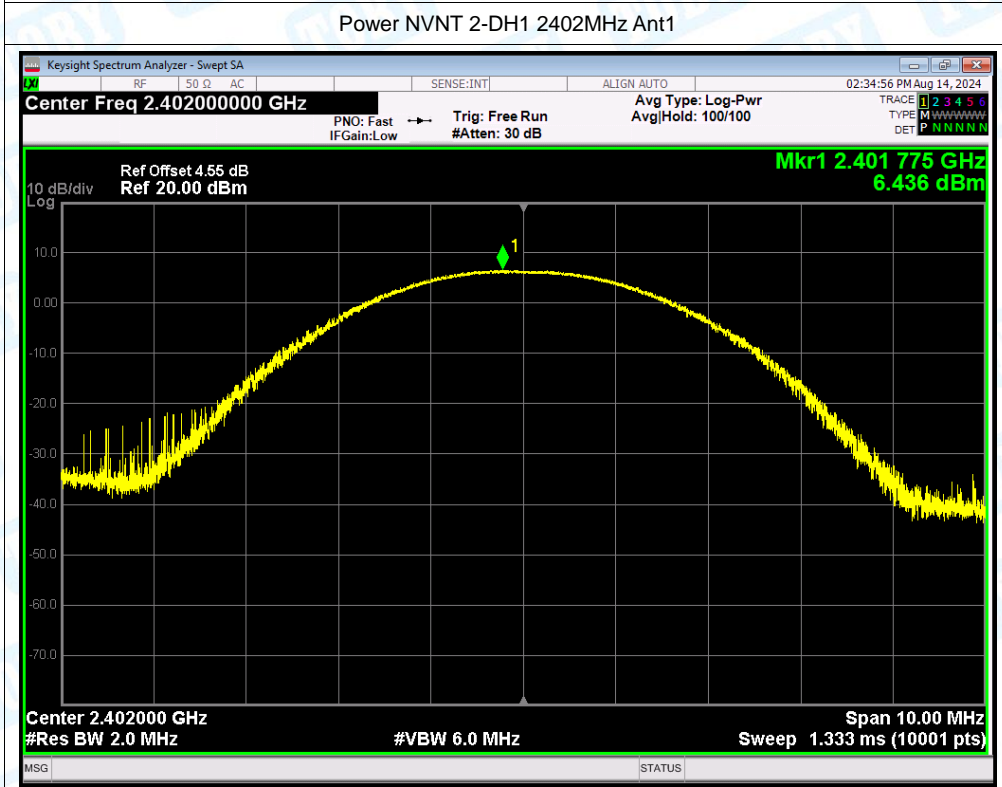
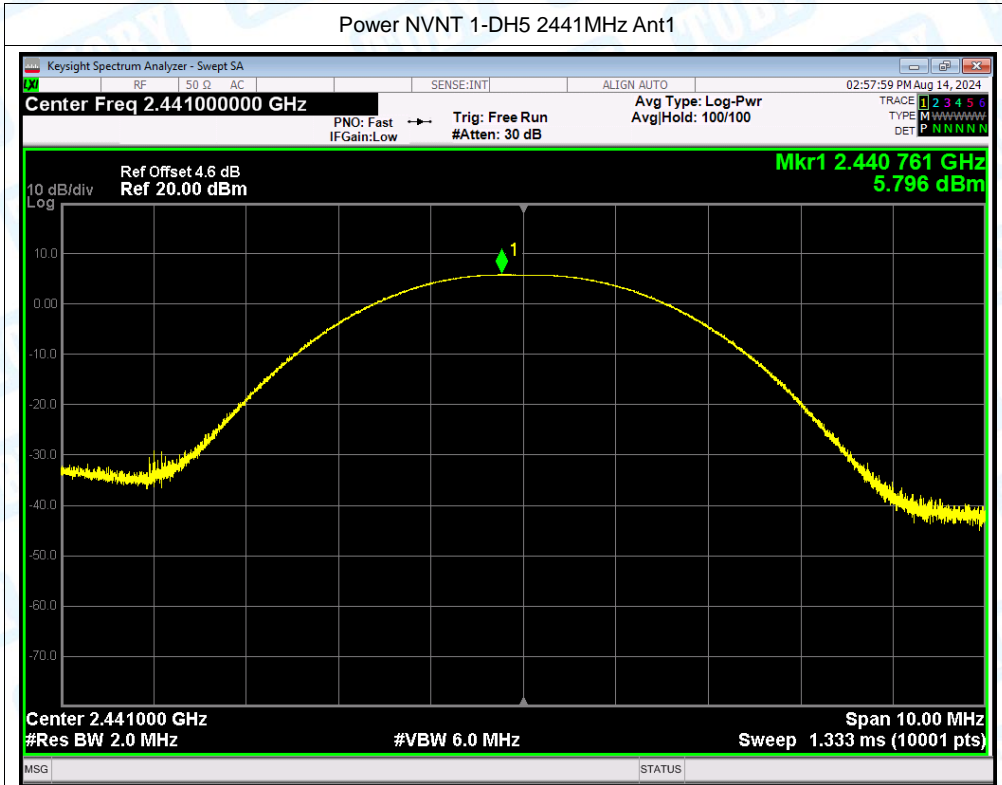
Power NVNT 1-DH1 2402MHz Ant1

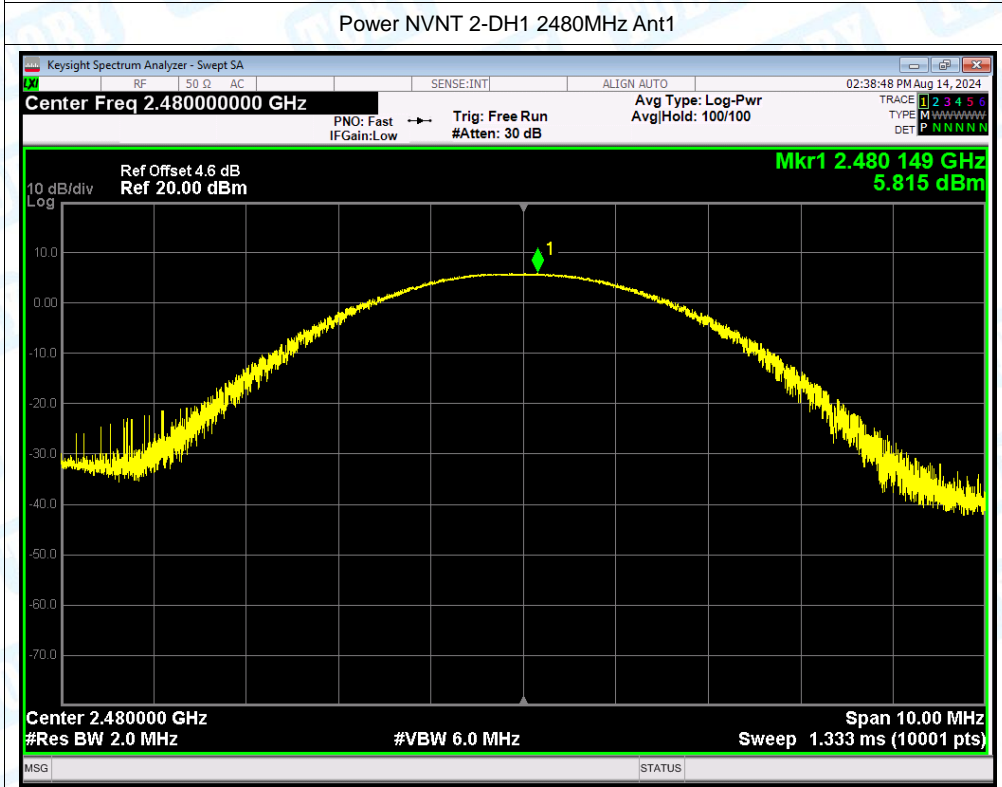
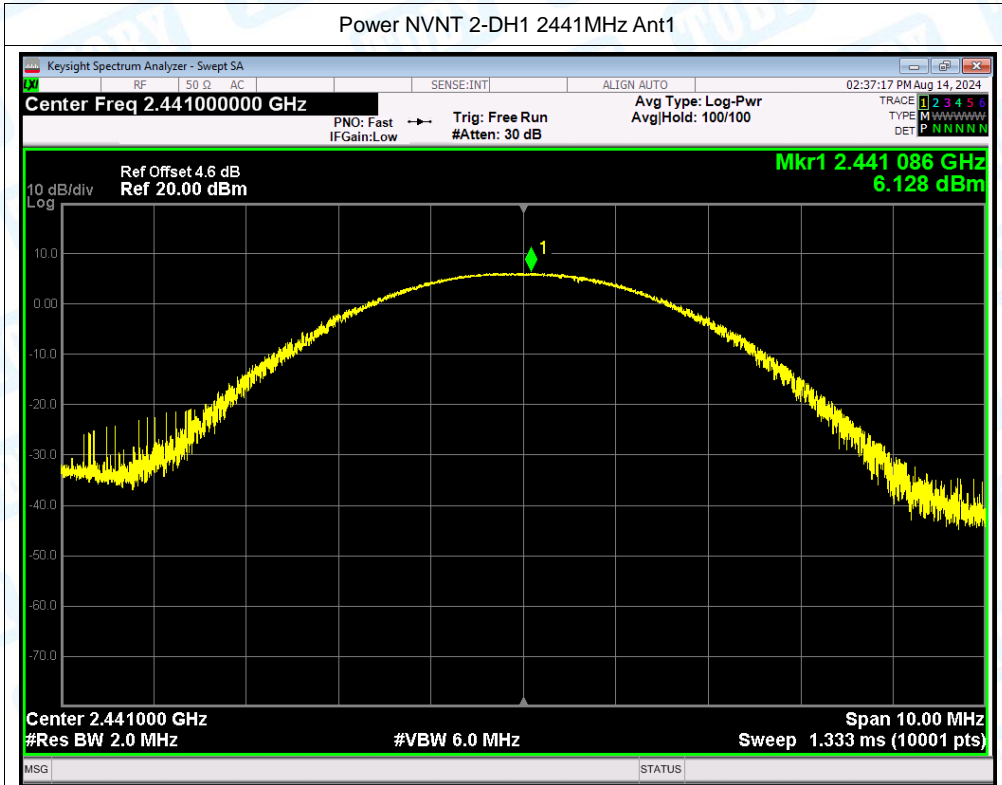


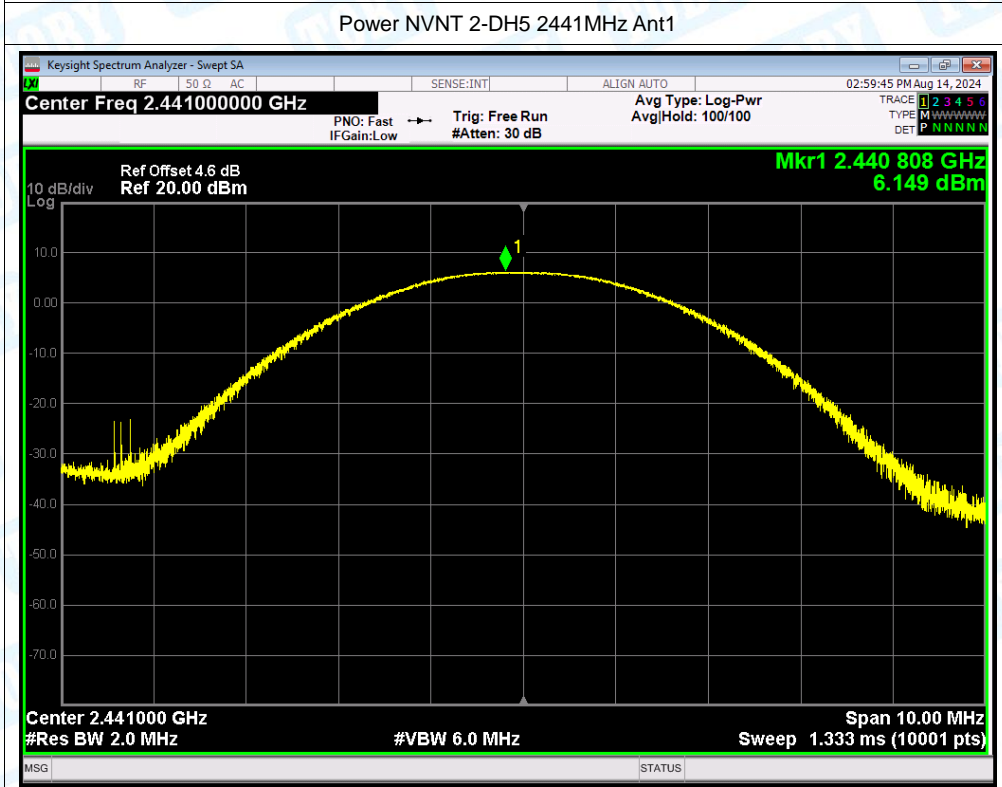
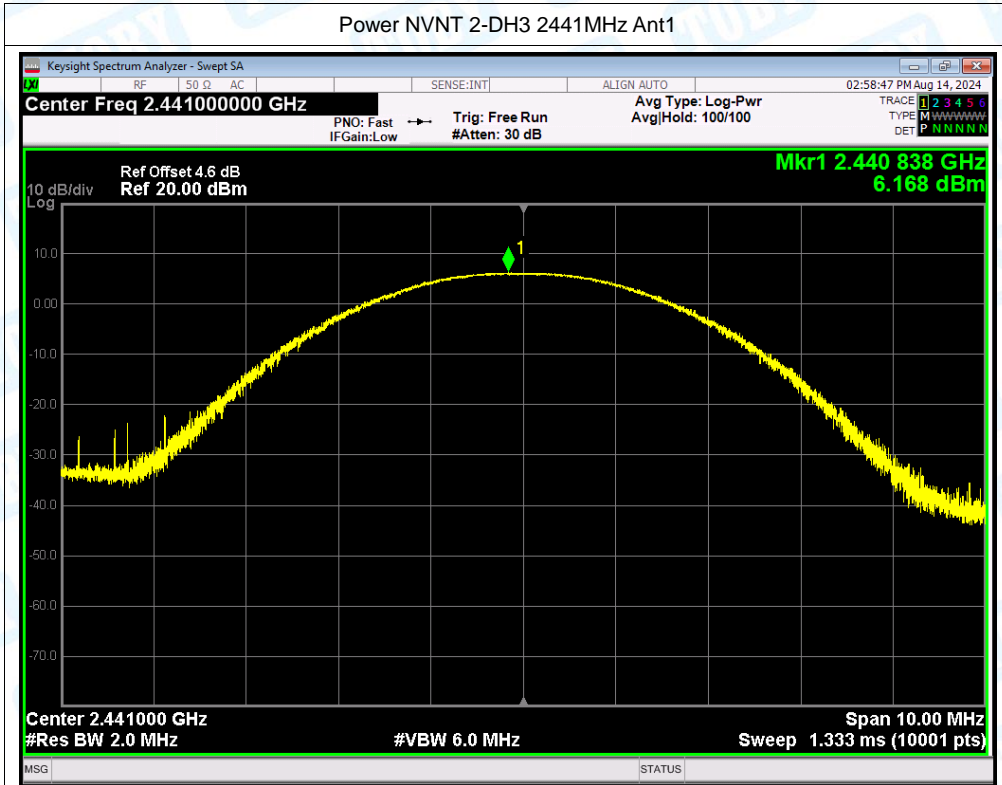
Power NVNT 1-DH1 2441MHz Ant1

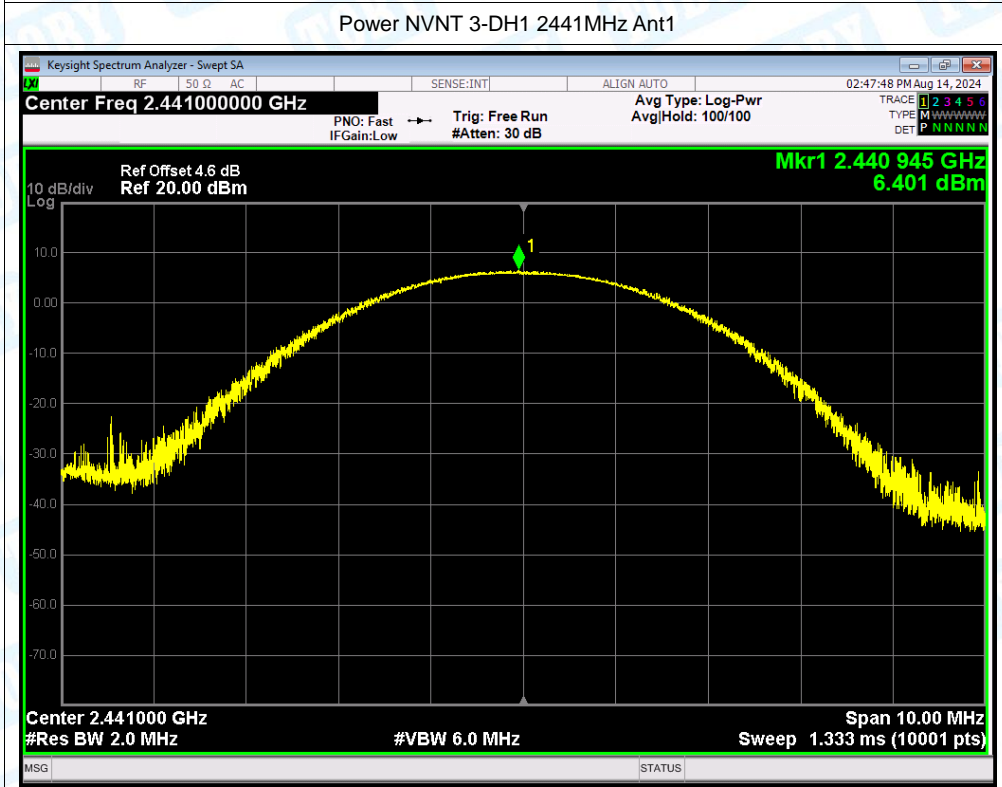
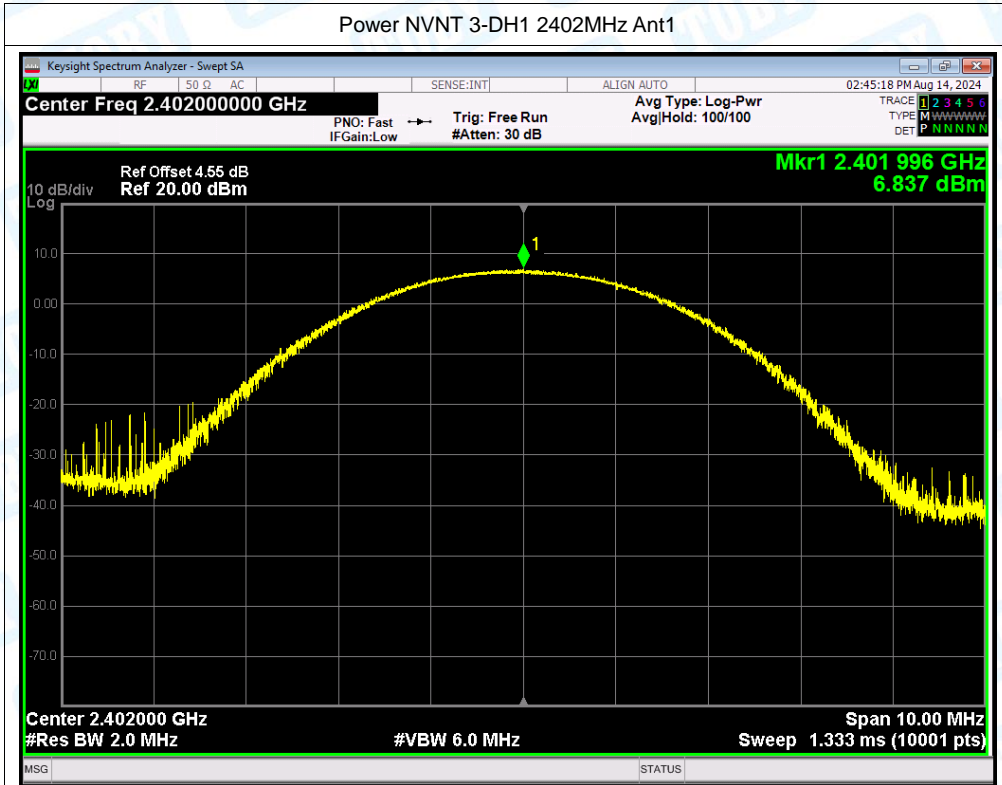


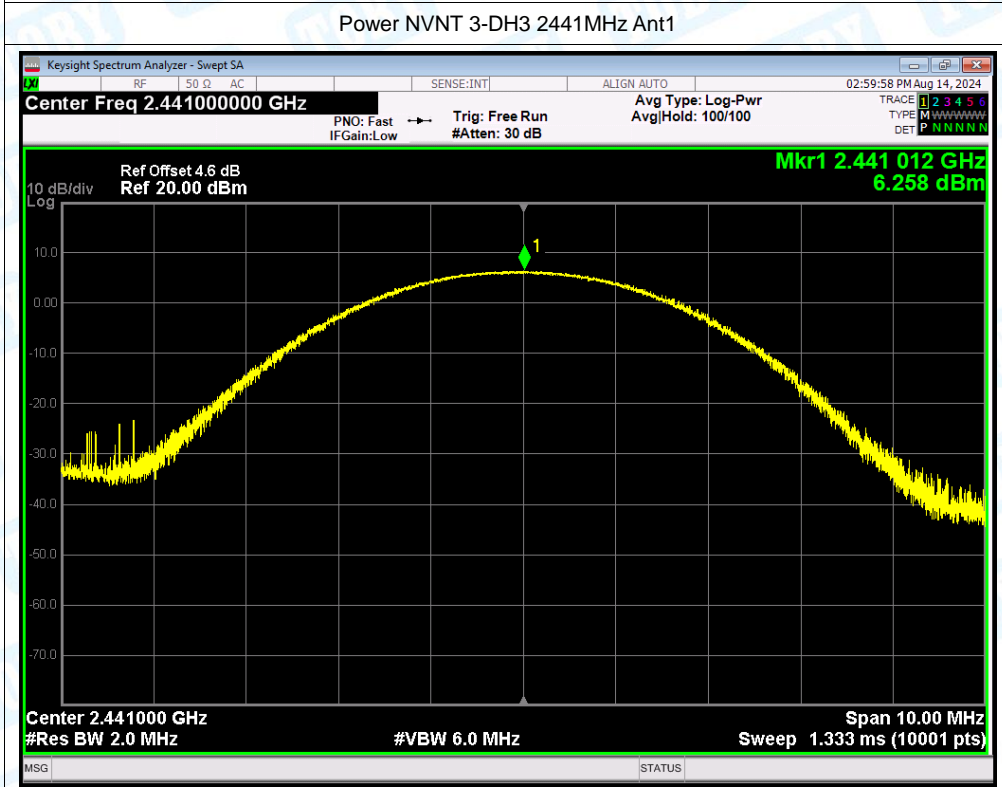
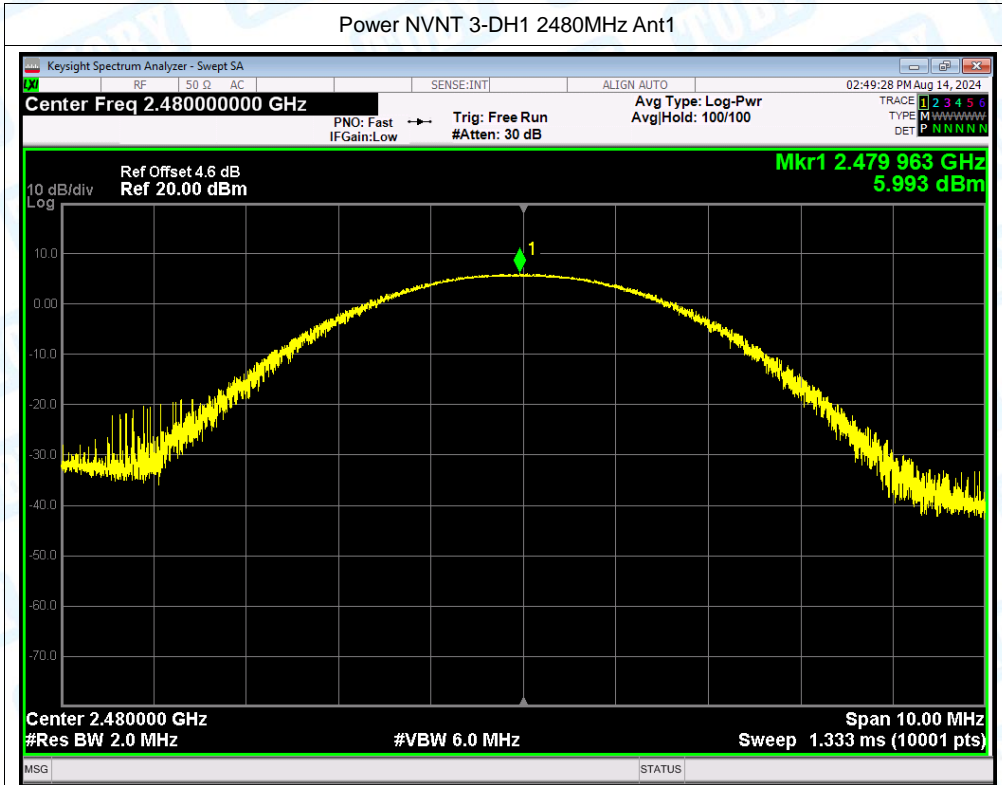




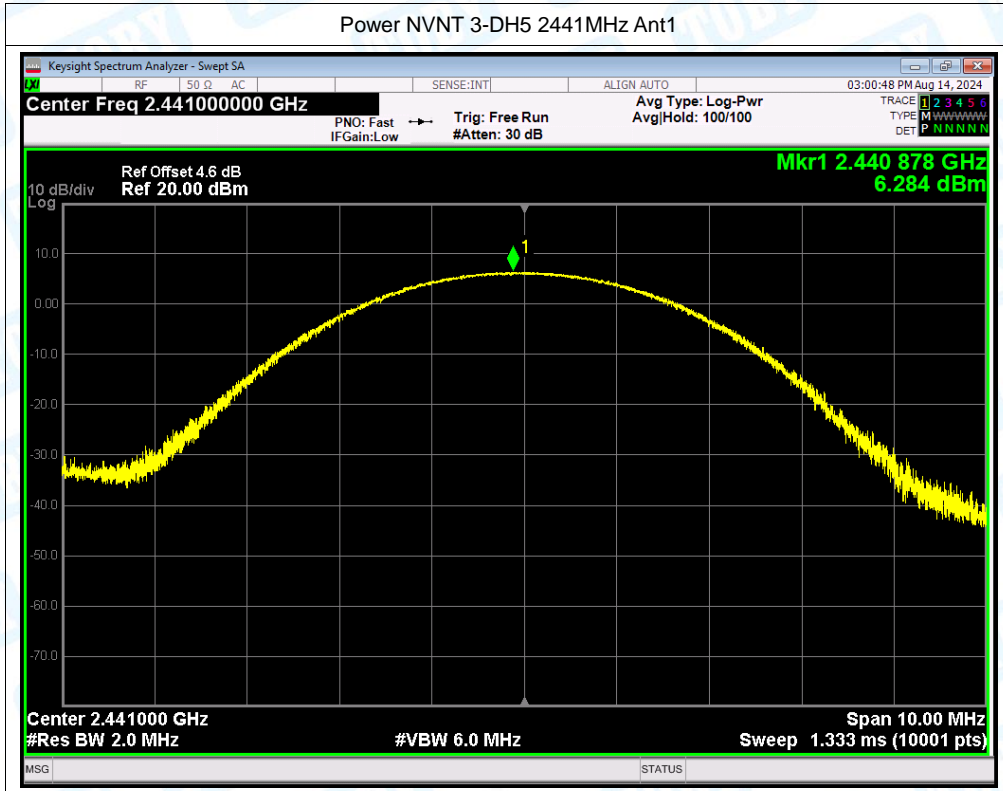










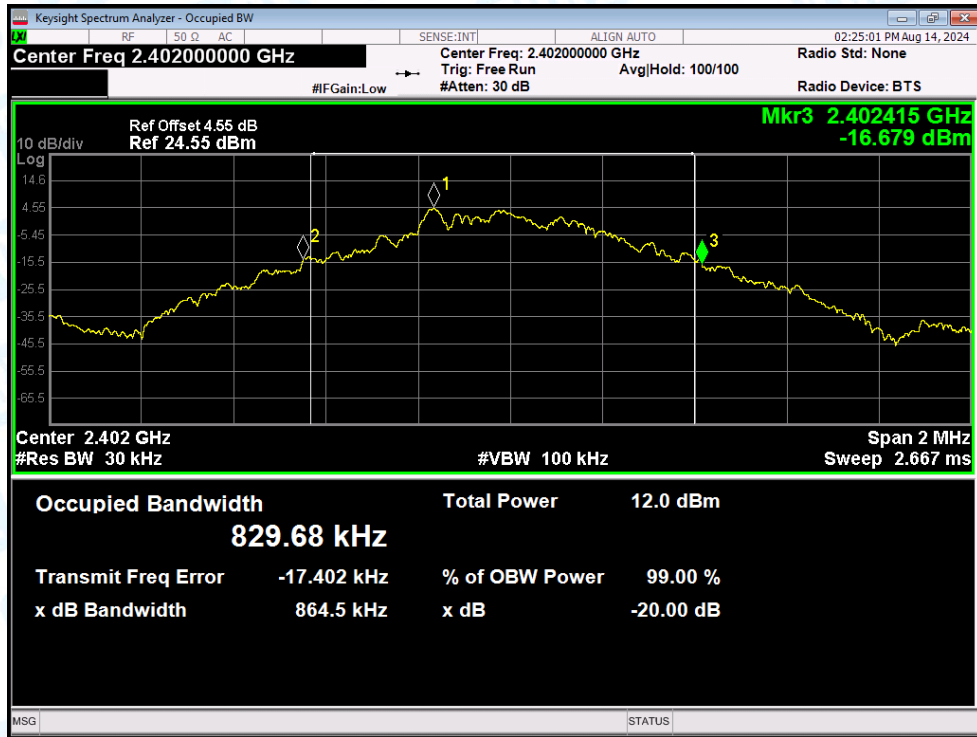


### 3.-20dB Bandwidth

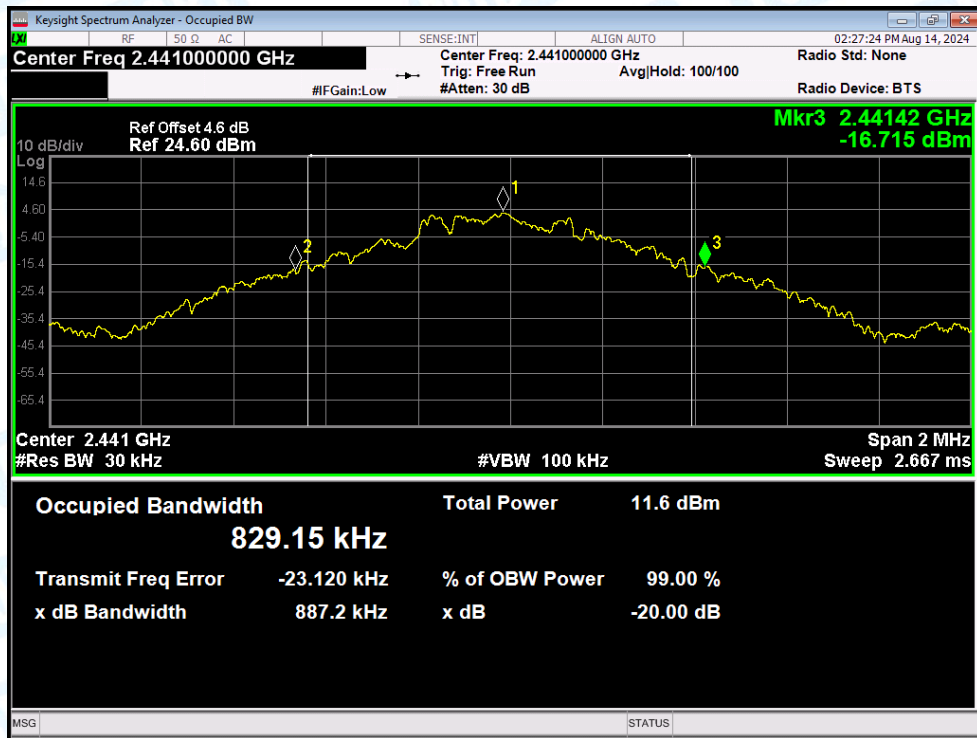
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.86	0	Pass
NVNT	1-DH1	2441	Ant1	0.89	0	Pass
NVNT	1-DH1	2480	Ant1	0.86	0	Pass
NVNT	2-DH1	2402	Ant1	1.29	0	Pass
NVNT	2-DH1	2441	Ant1	1.23	0	Pass
NVNT	2-DH1	2480	Ant1	1.23	0	Pass
NVNT	3-DH1	2402	Ant1	1.24	0	Pass
NVNT	3-DH1	2441	Ant1	1.21	0	Pass
NVNT	3-DH1	2480	Ant1	1.22	0	Pass

Test Graphs

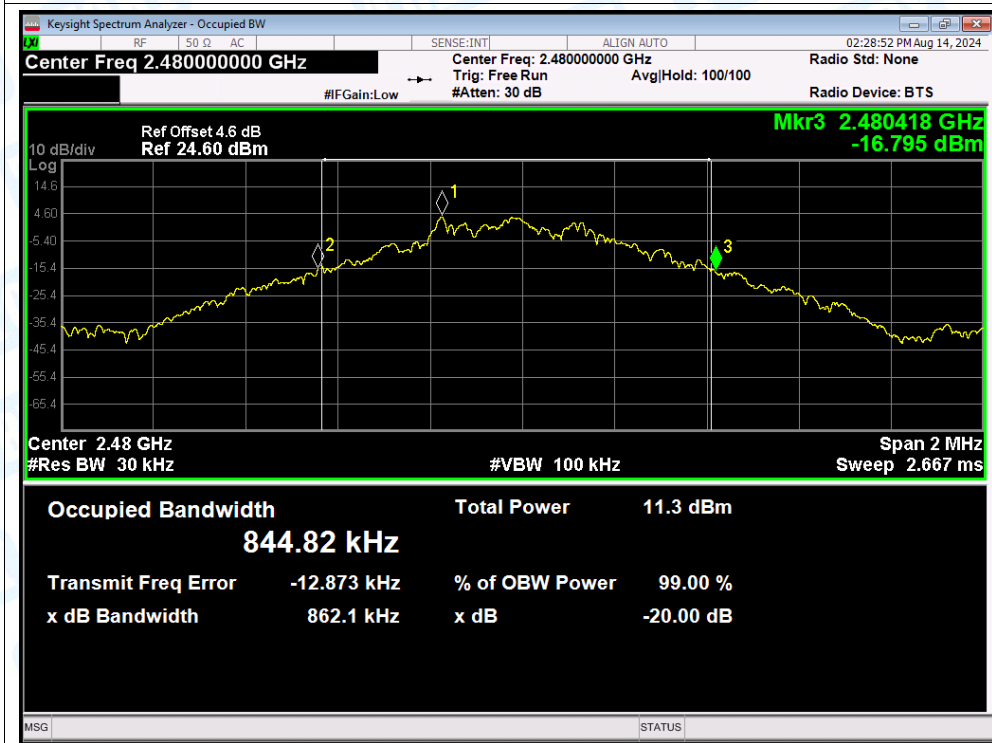
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



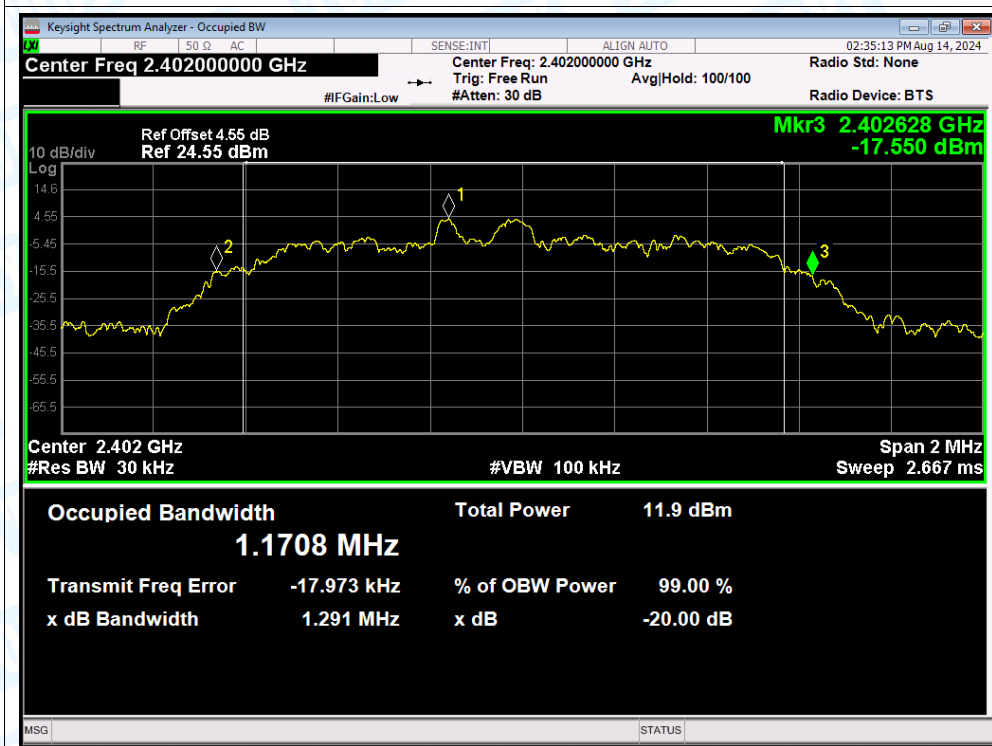
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



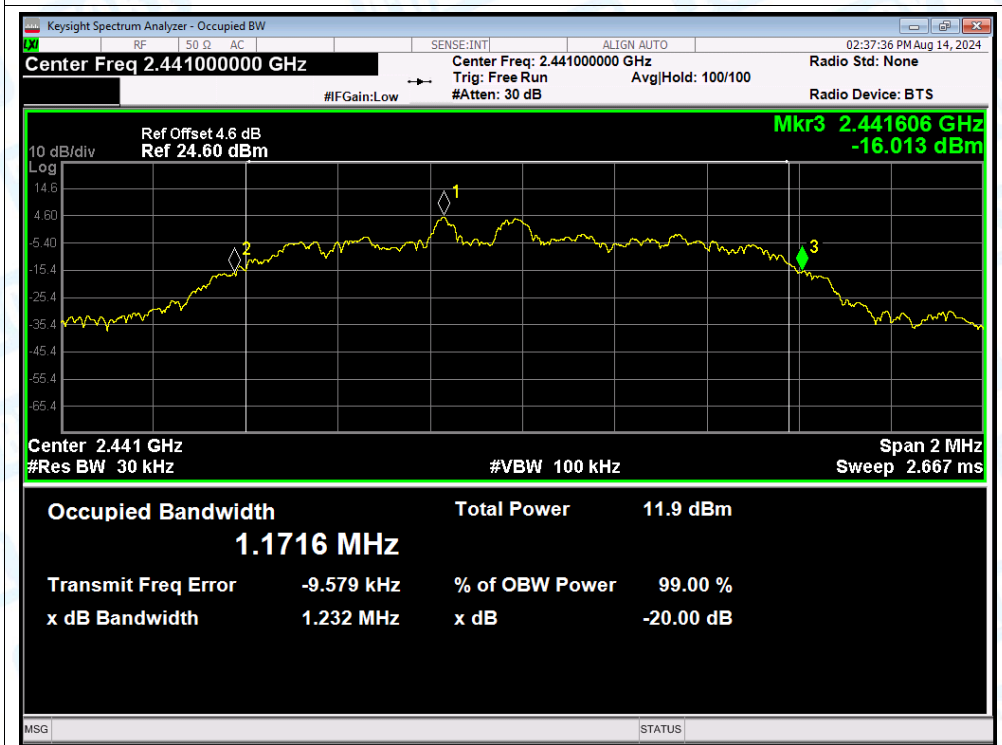
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



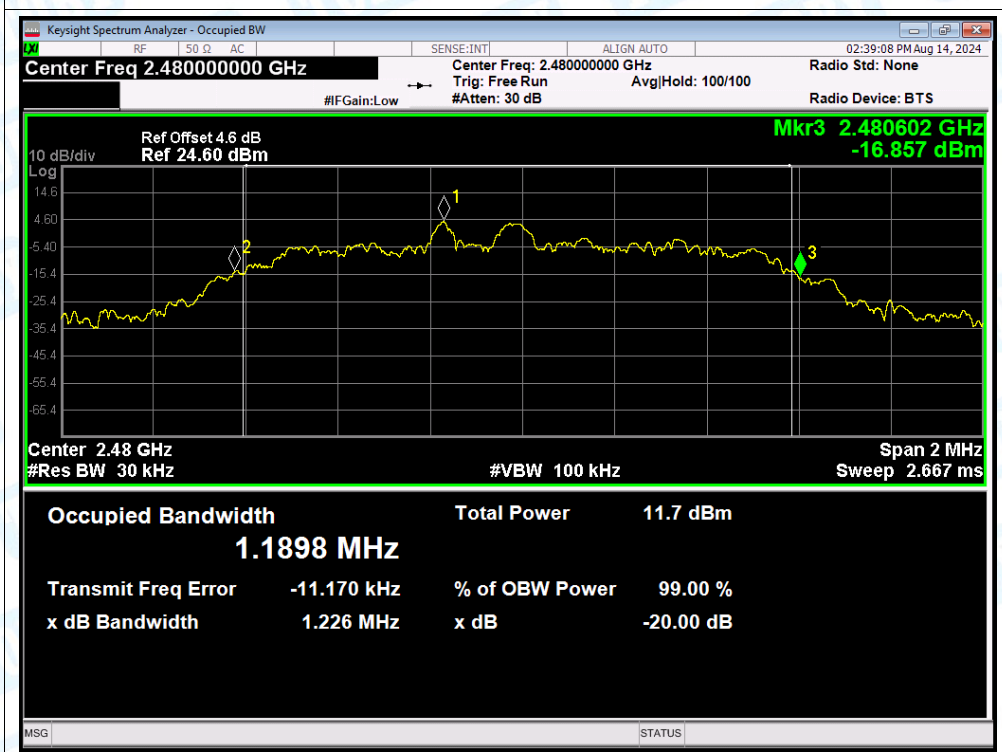
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



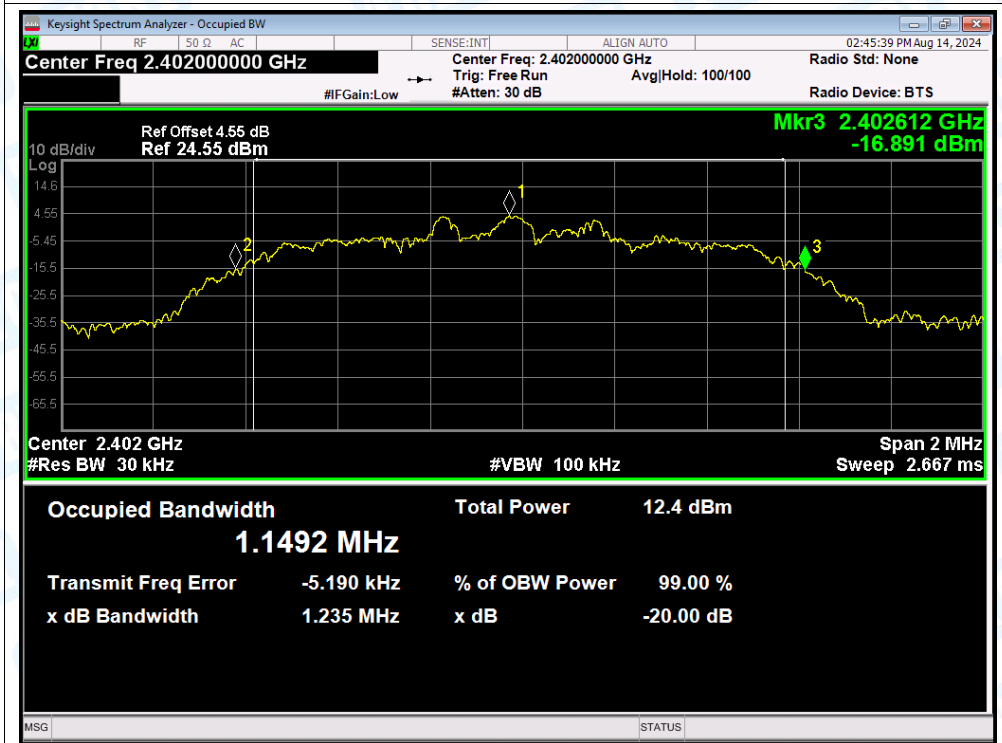
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



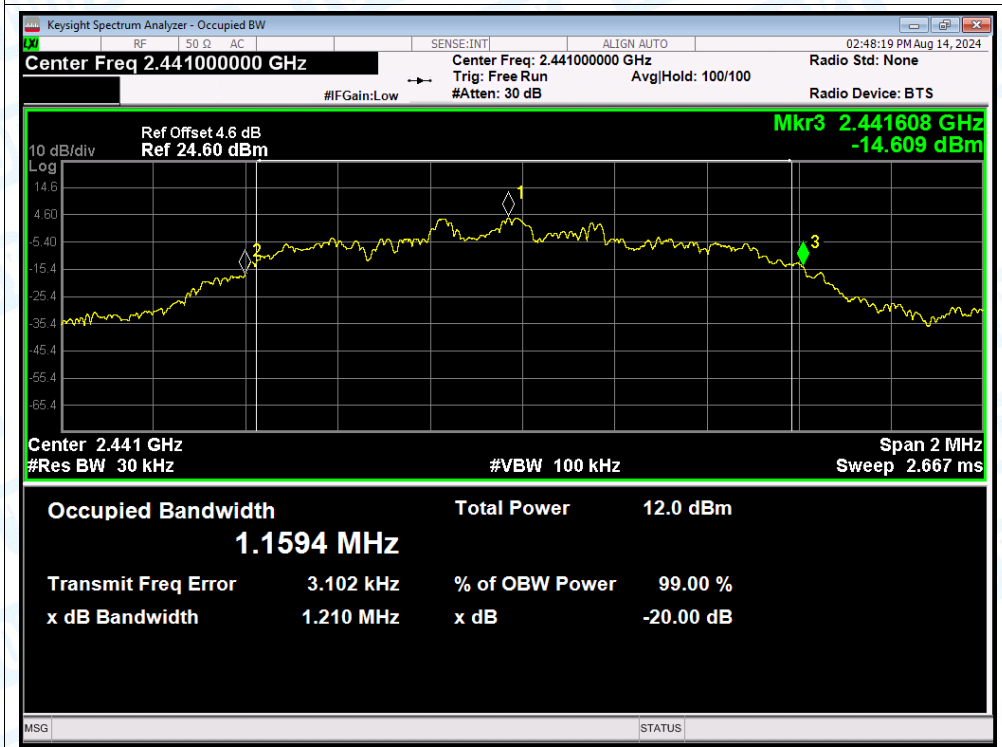
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

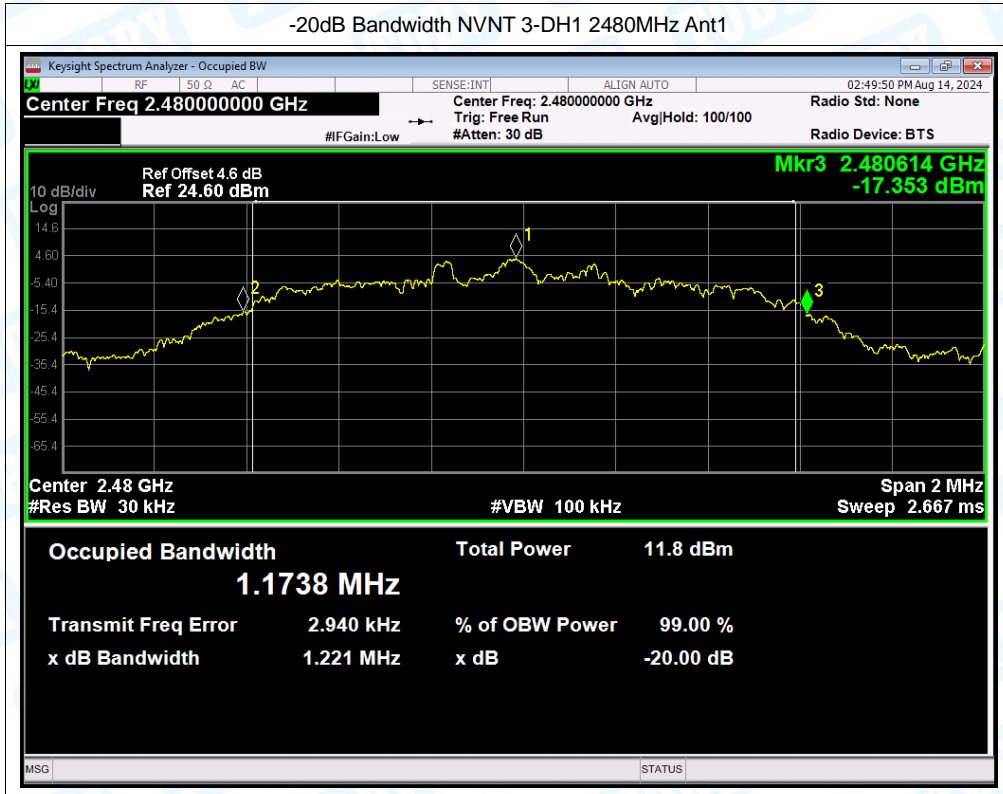


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1





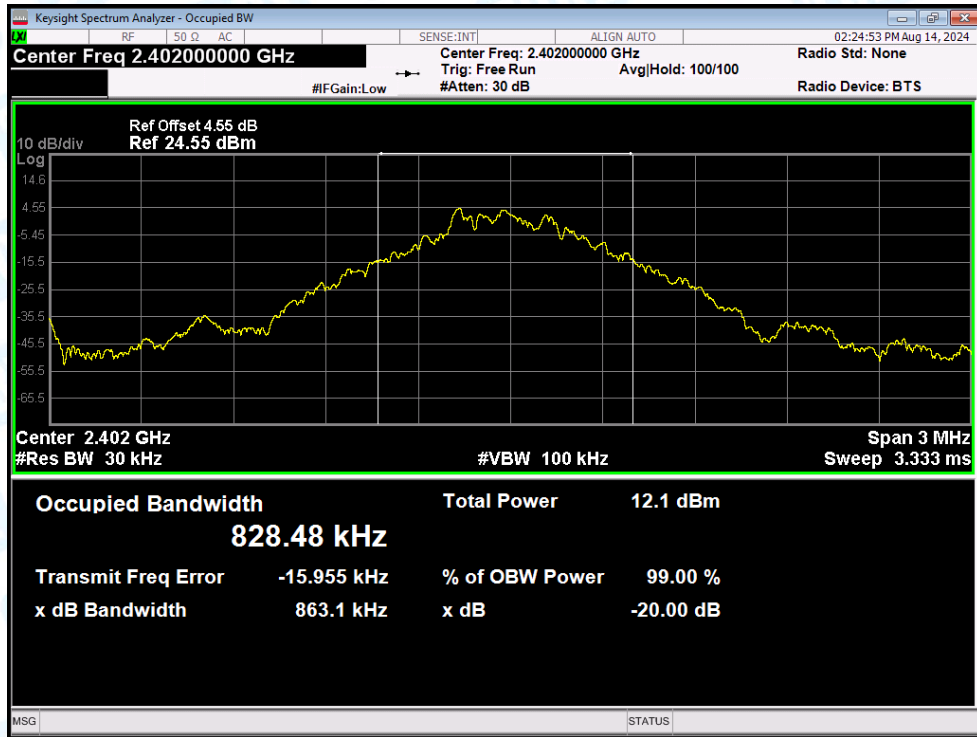
## 4.Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.828
NVNT	1-DH1	2441	Ant1	0.828
NVNT	1-DH1	2480	Ant1	0.826
NVNT	2-DH1	2402	Ant1	1.174
NVNT	2-DH1	2441	Ant1	1.202
NVNT	2-DH1	2480	Ant1	1.221
NVNT	3-DH1	2402	Ant1	1.167
NVNT	3-DH1	2441	Ant1	1.183
NVNT	3-DH1	2480	Ant1	1.197

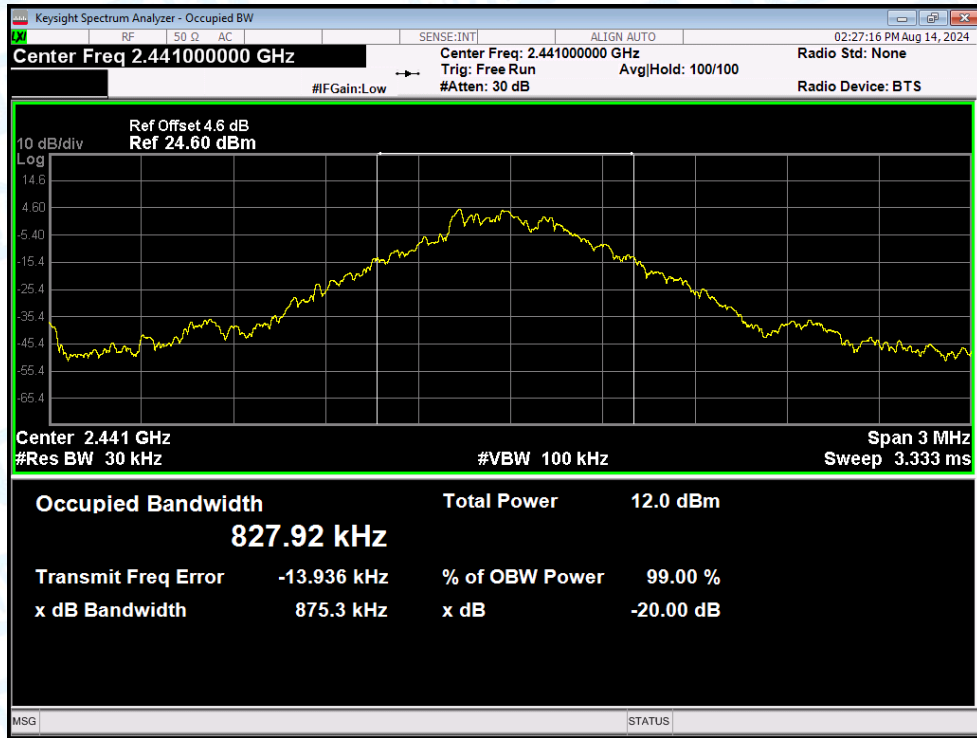


Test Graphs

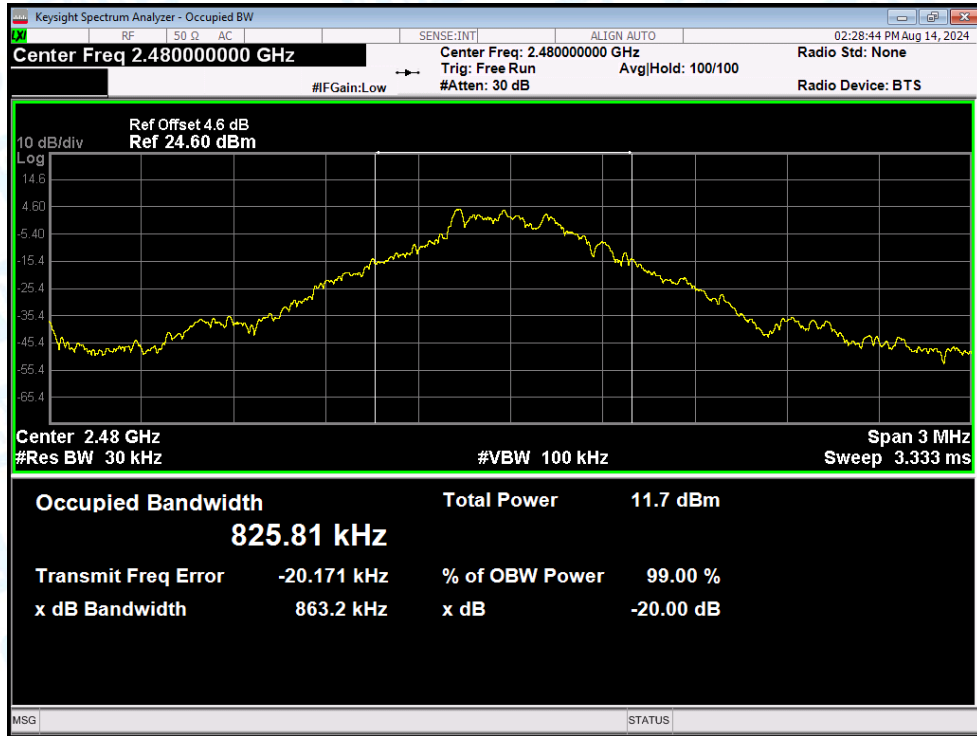
OBW NVNT 1-DH1 2402MHz Ant1



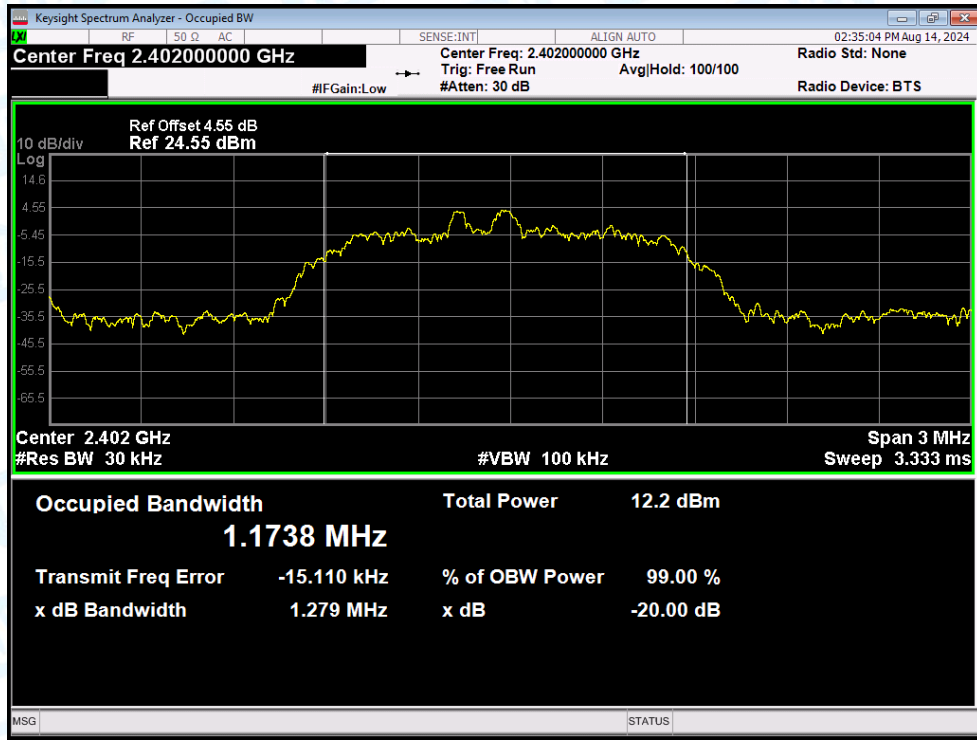
OBW NVNT 1-DH1 2441MHz Ant1



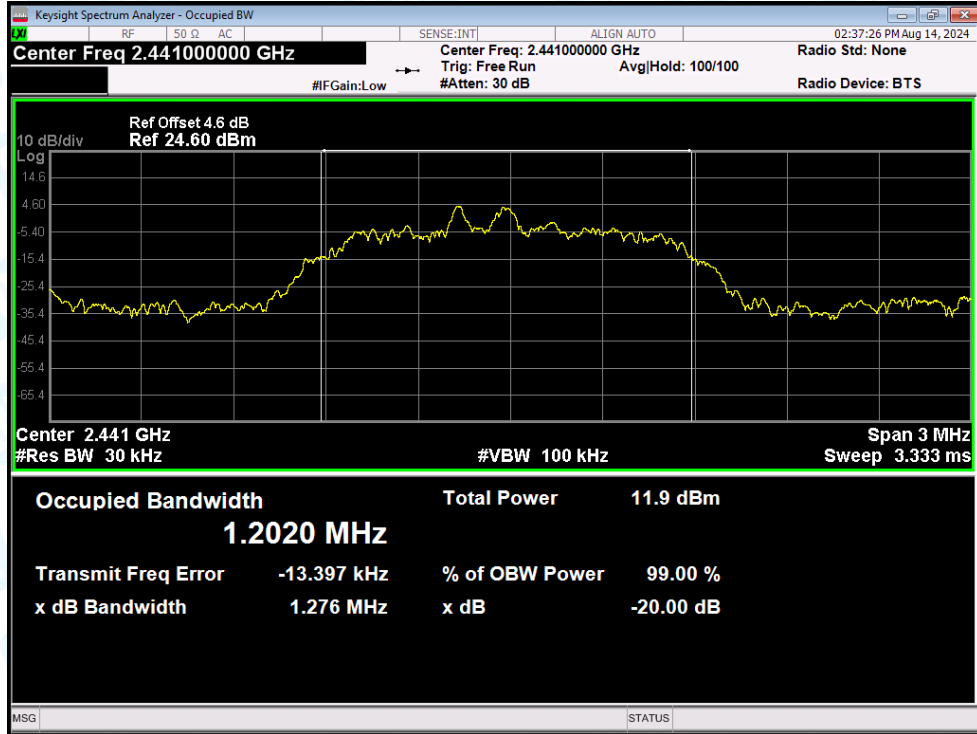
OBW NVNT 1-DH1 2480MHz Ant1



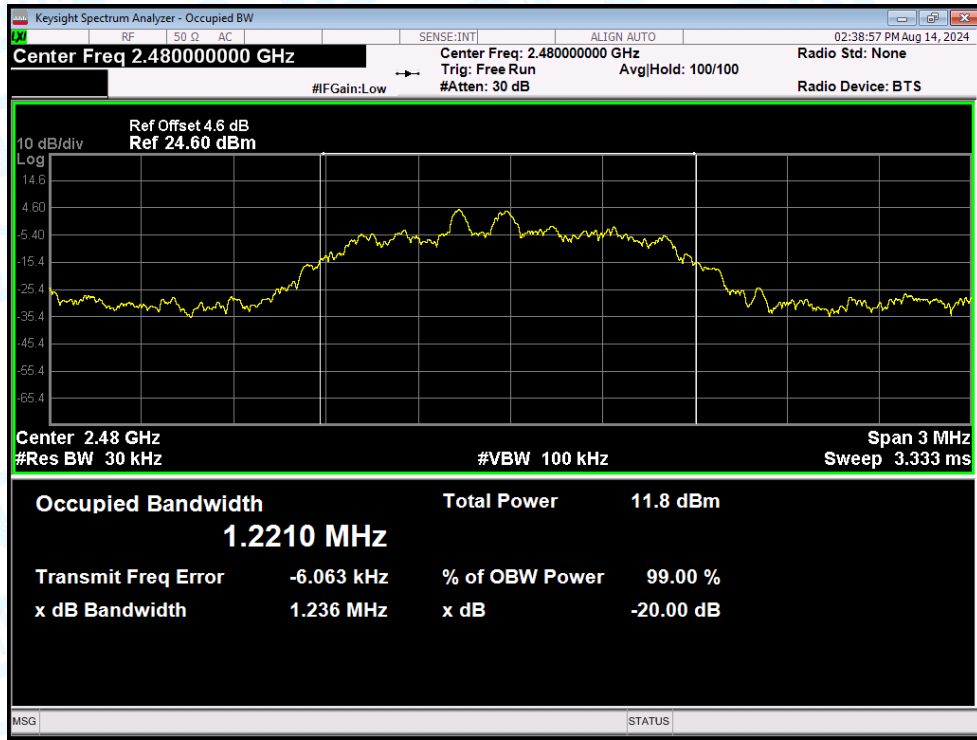
OBW NVNT 2-DH1 2402MHz Ant1



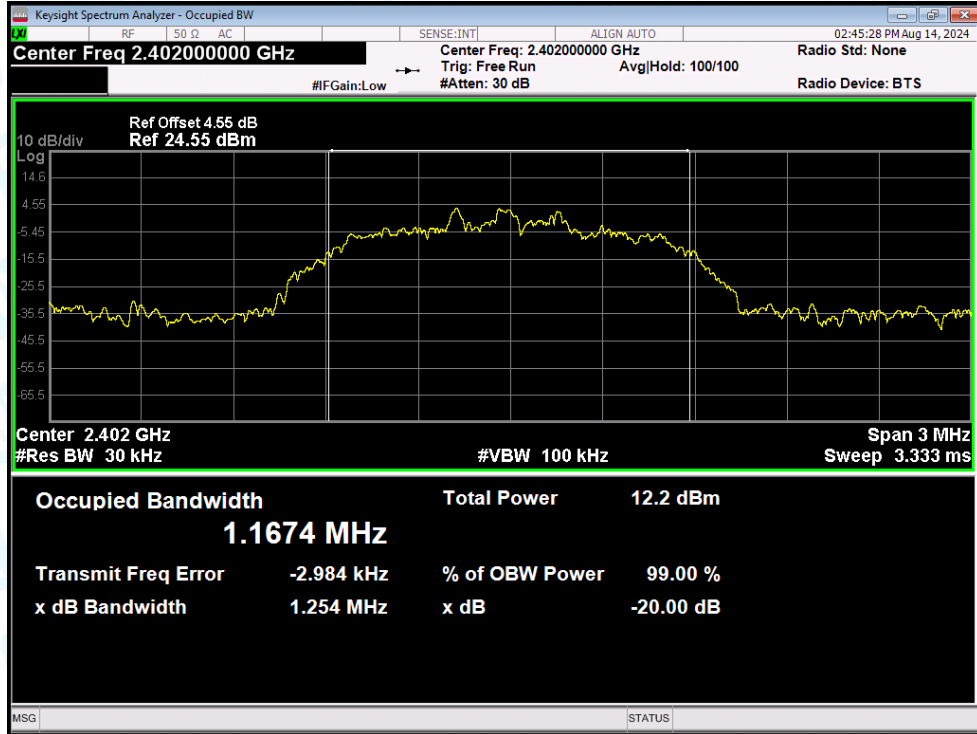
OBW NVNT 2-DH1 2441MHz Ant1



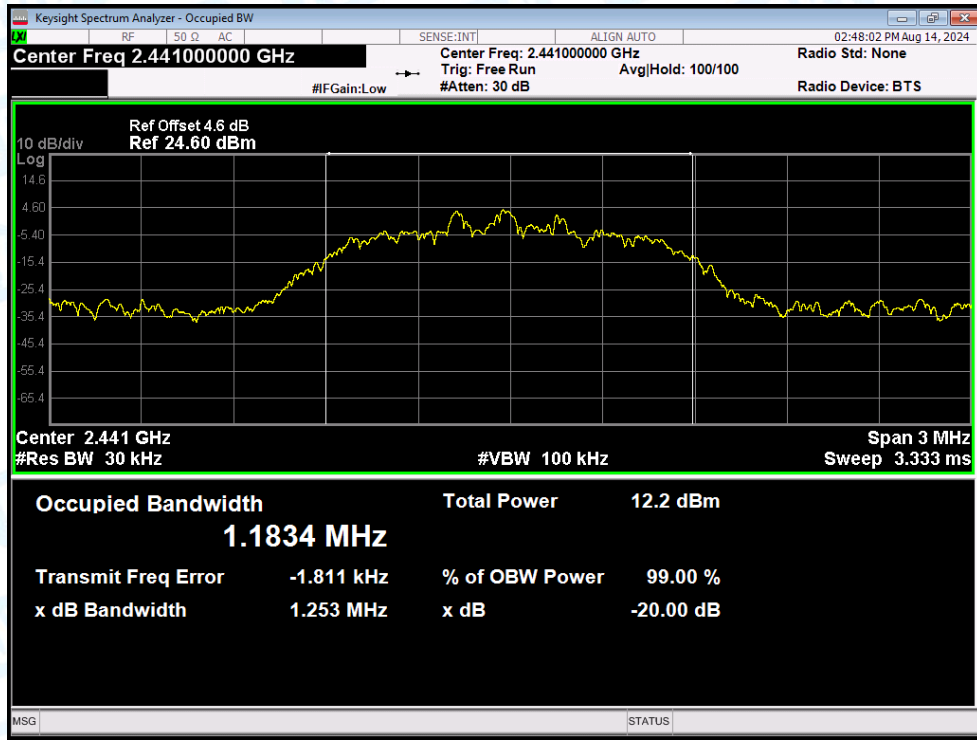
OBW NVNT 2-DH1 2480MHz Ant1

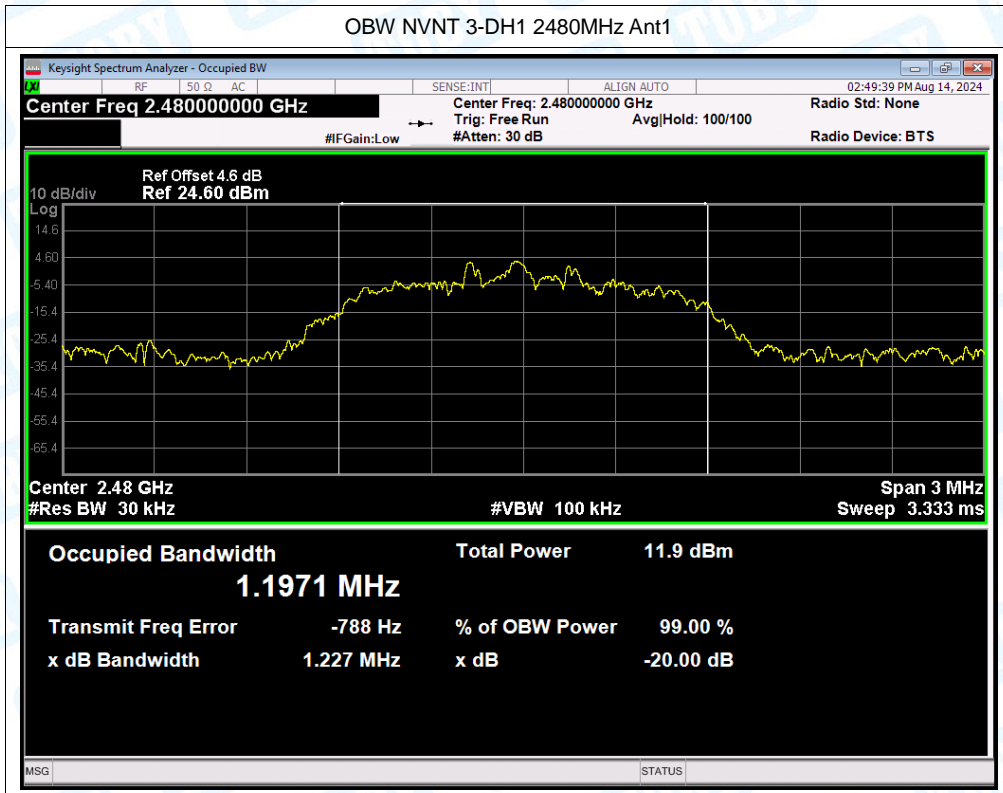


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



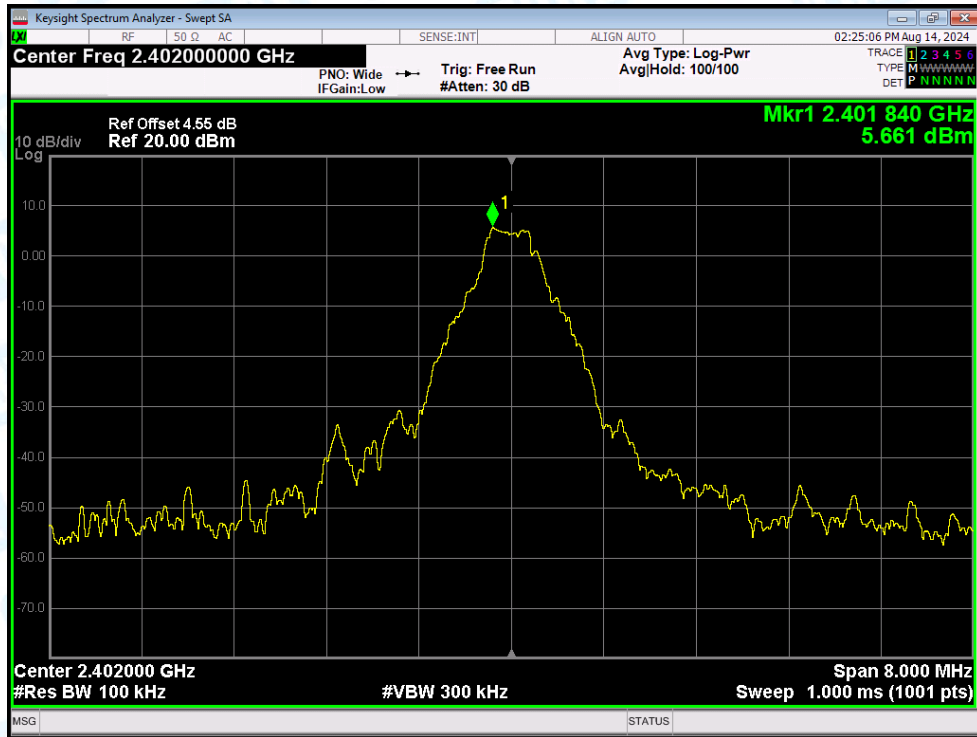


## 5.Band Edge

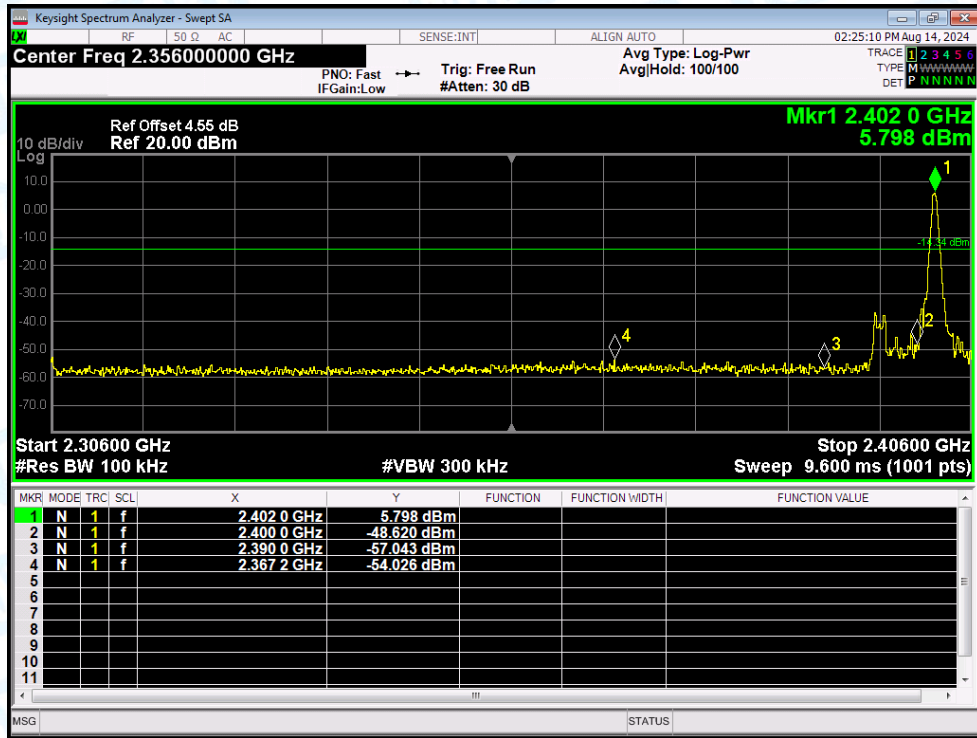
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-59.69	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-50.81	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-59.19	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-51.99	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-58.75	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-51.51	-20	Pass

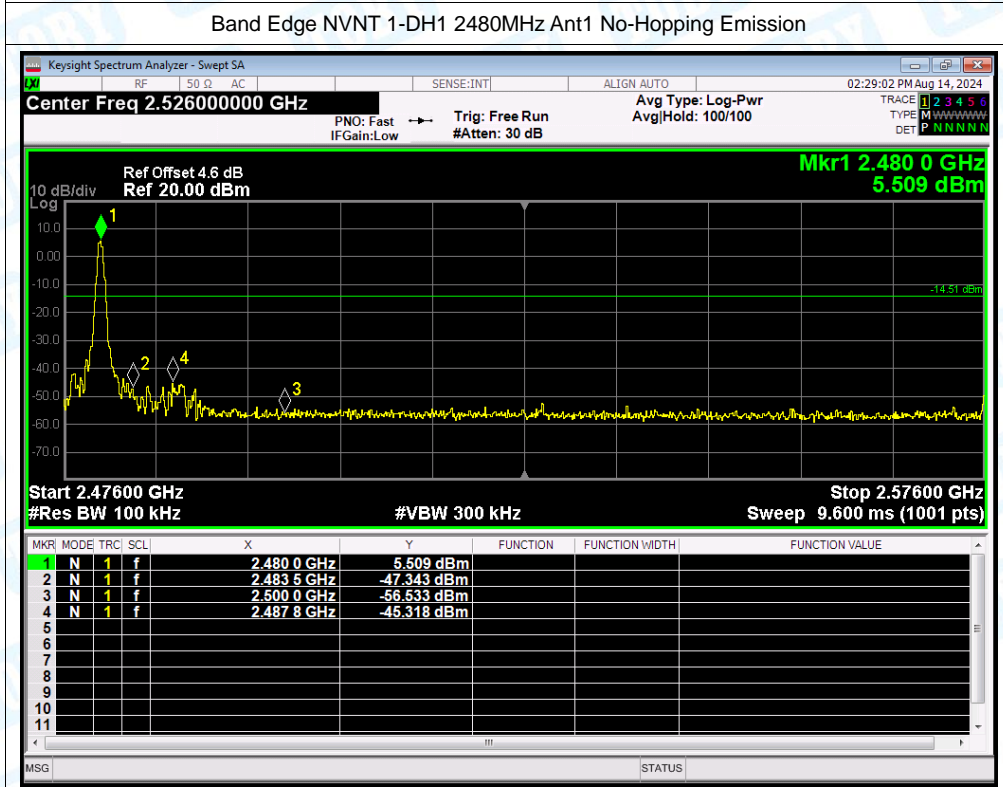
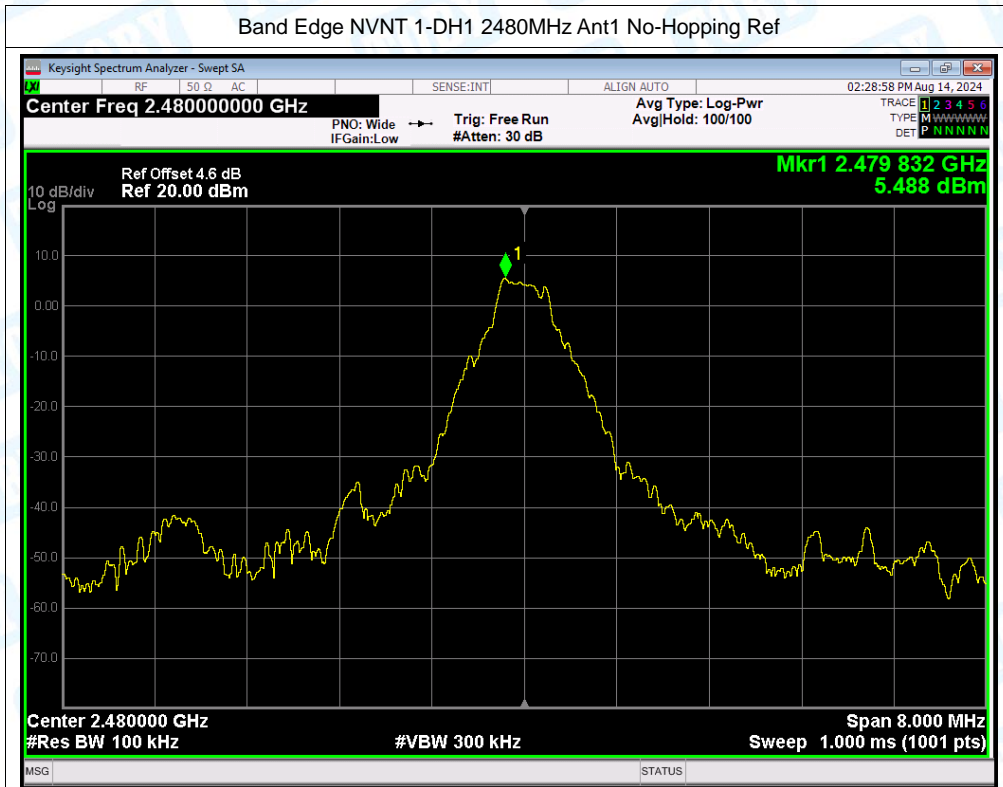
Test Graphs

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

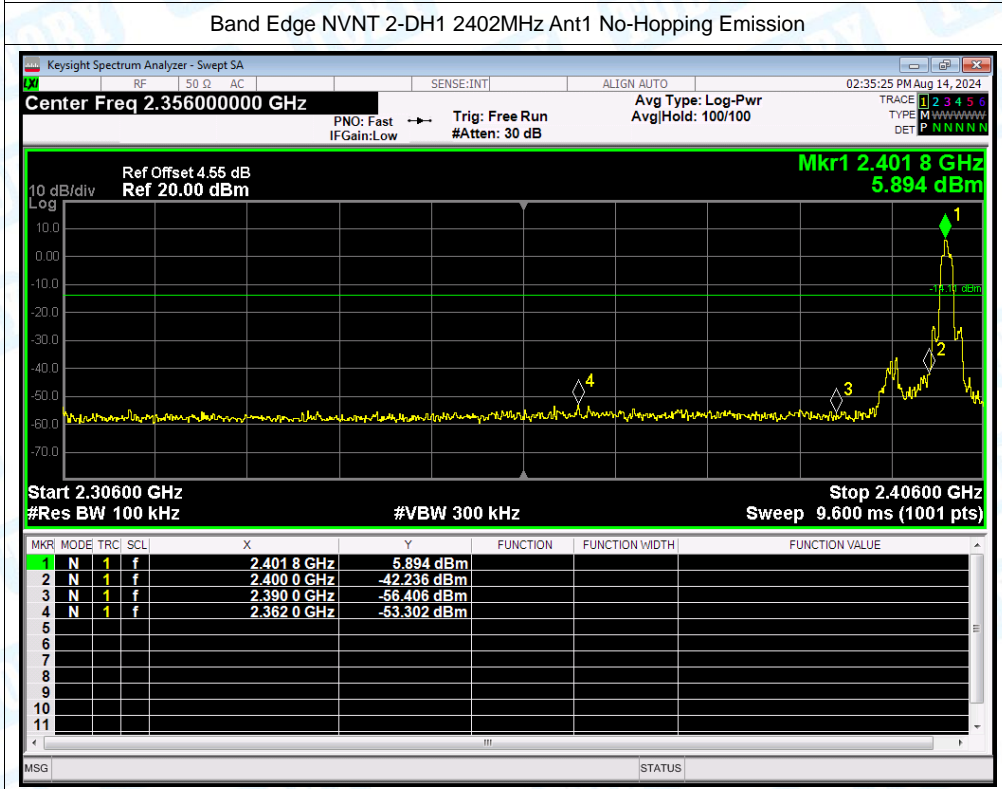
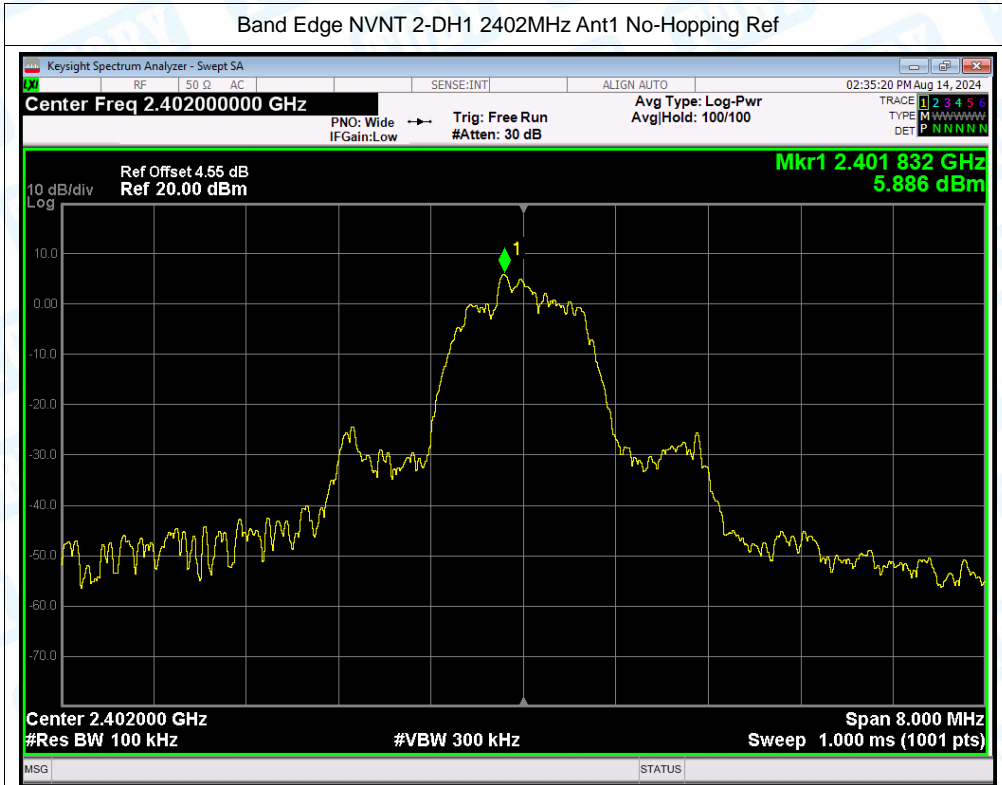


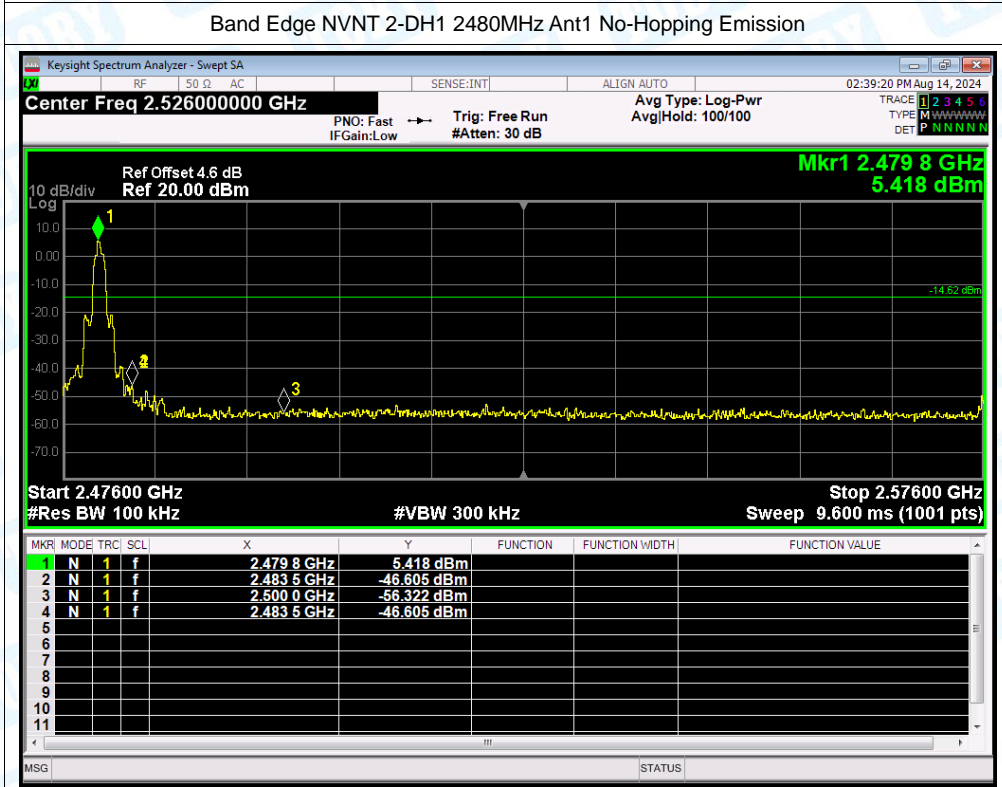
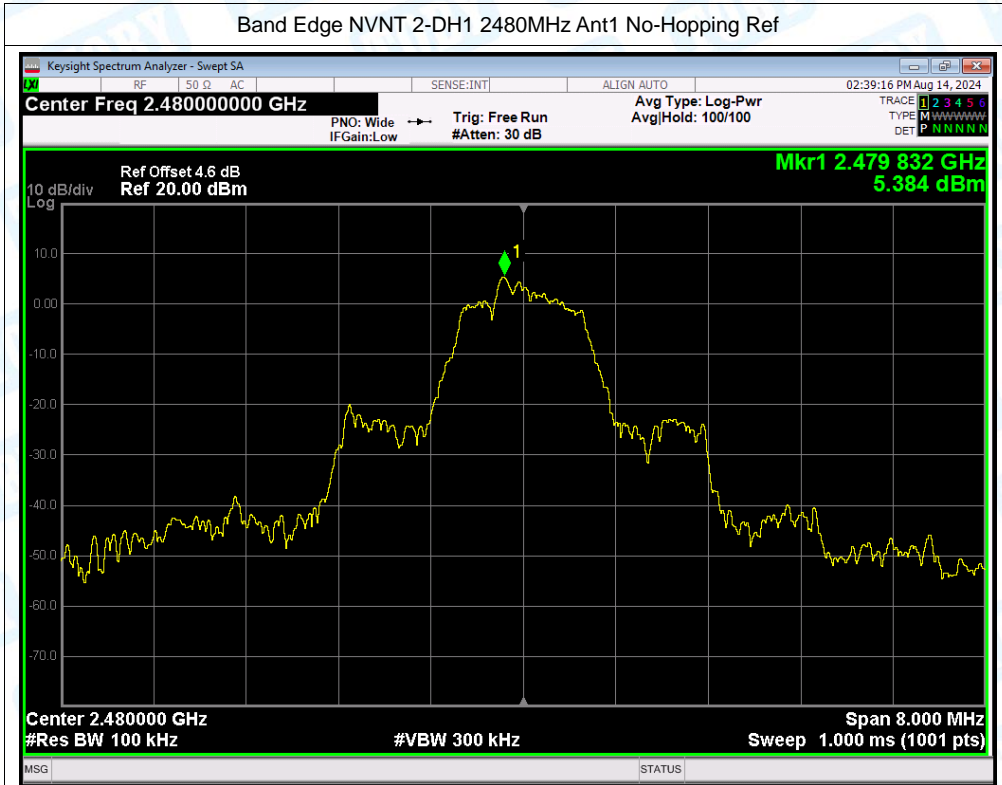
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission

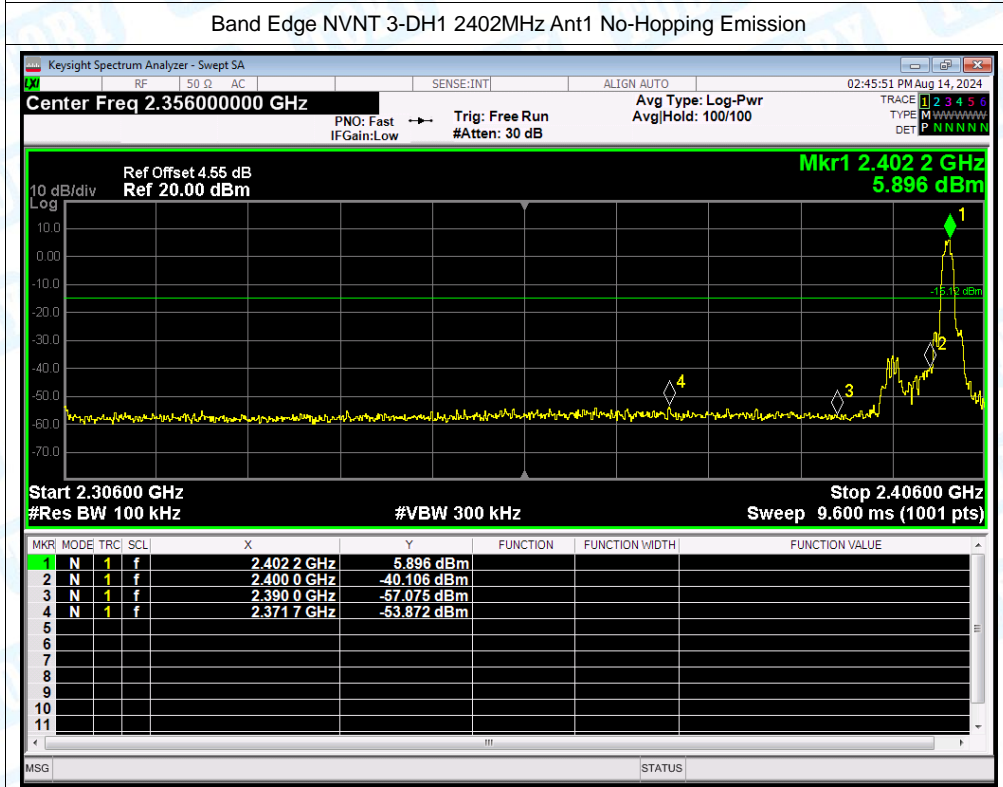
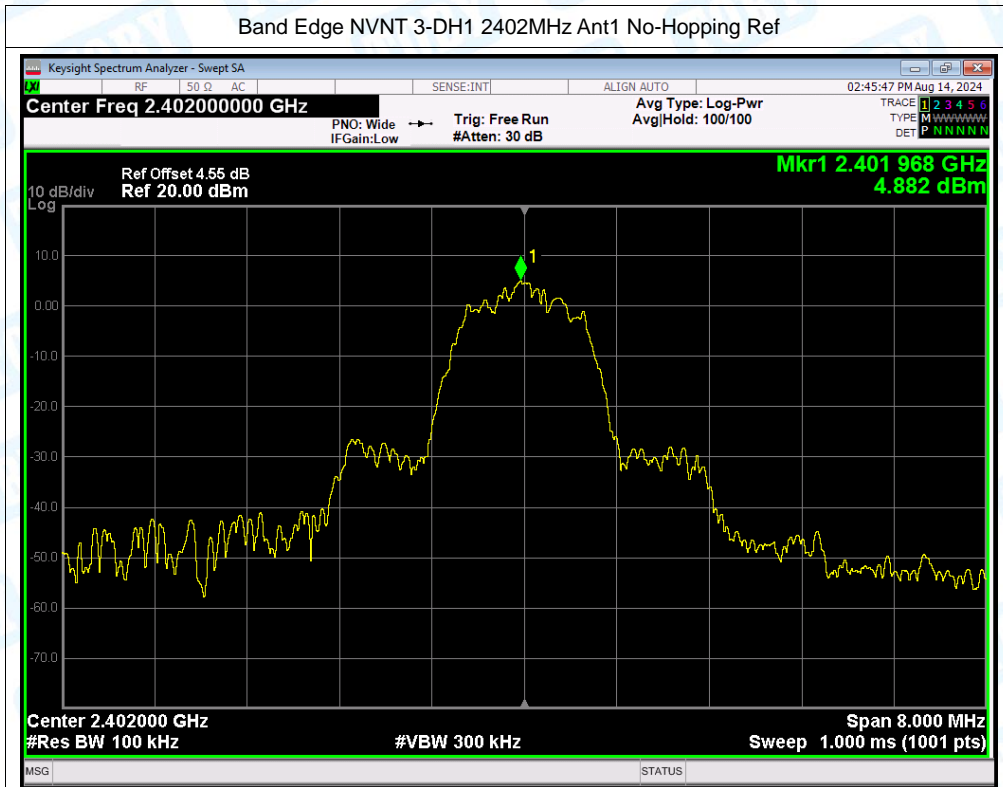


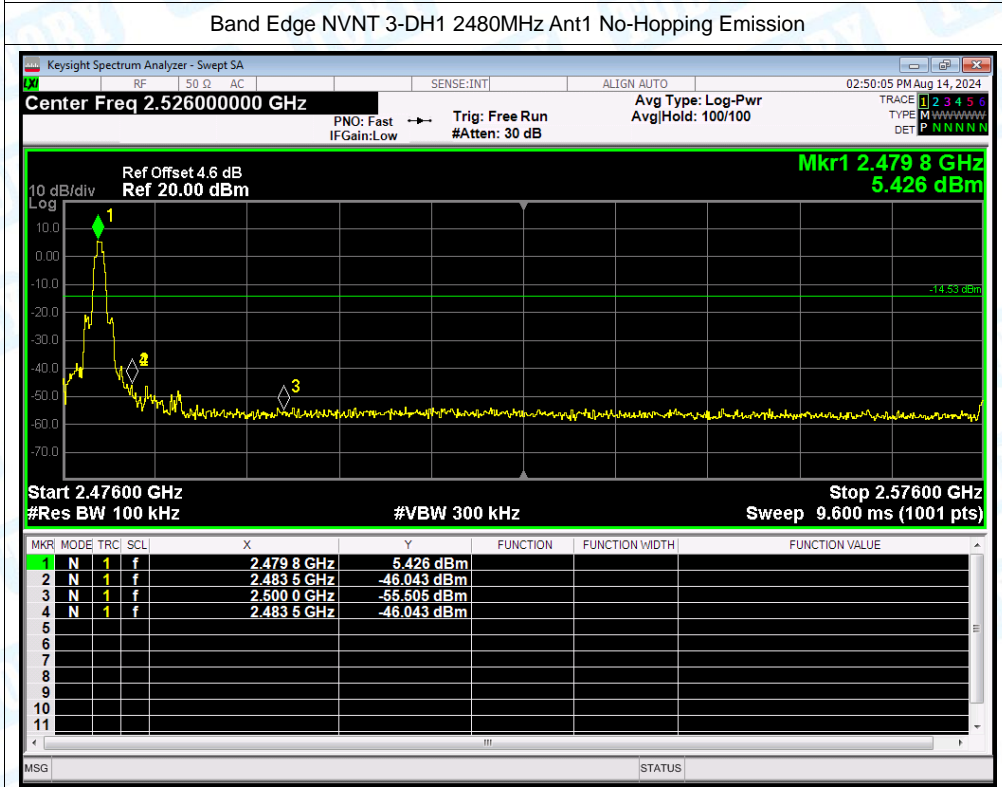
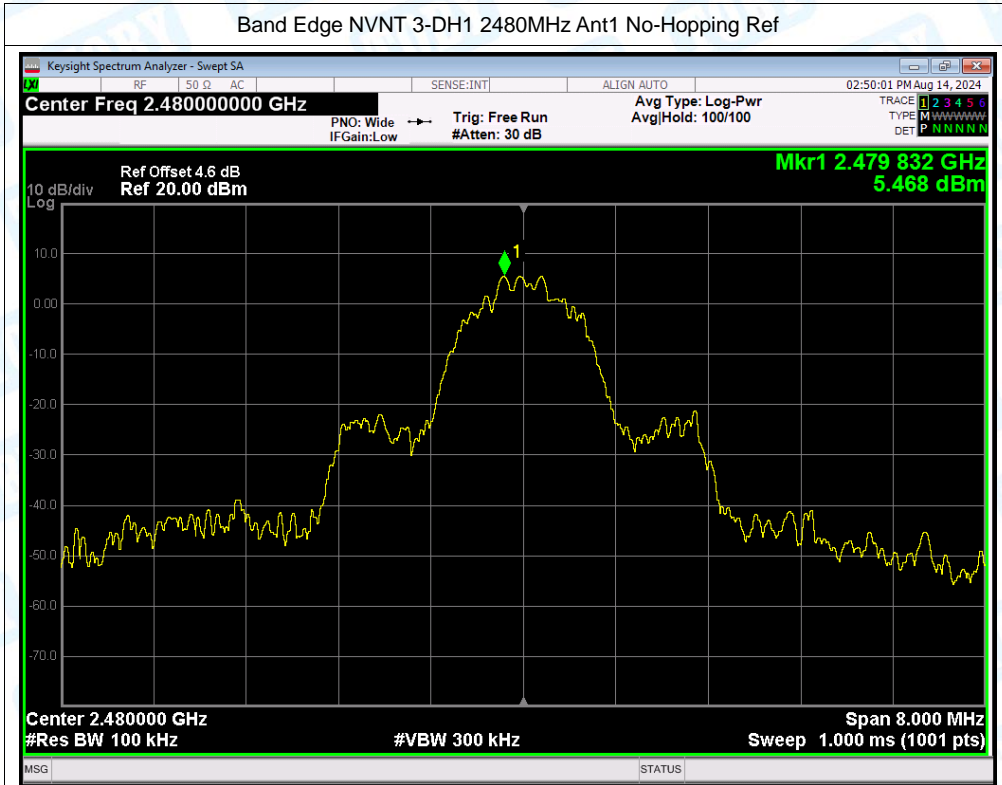










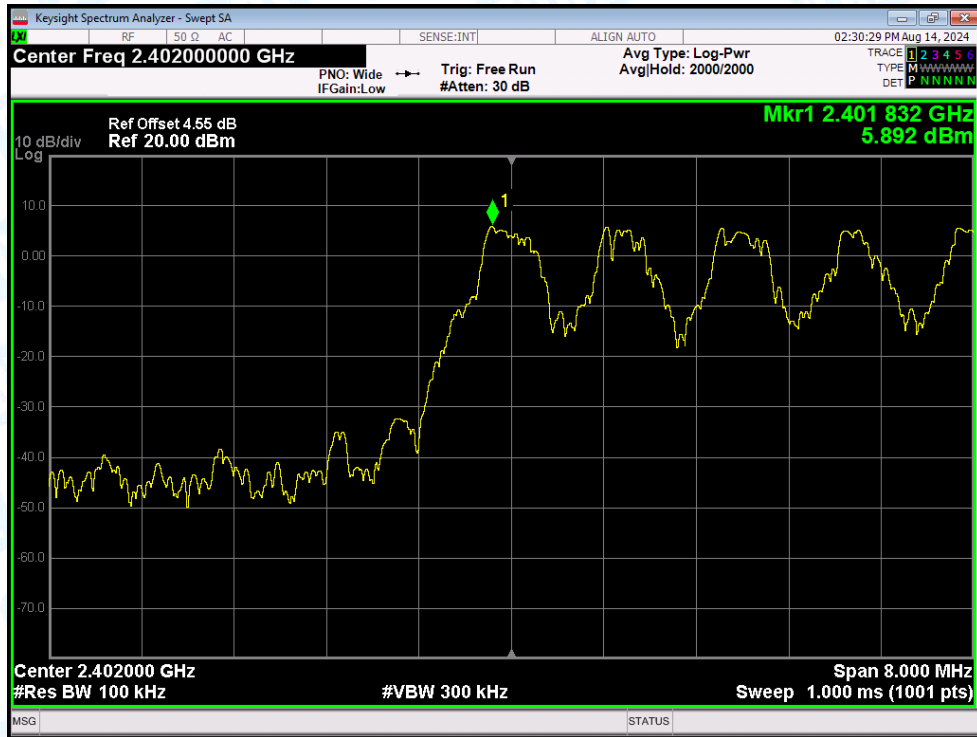


## 6. Band Edge(Hopping)

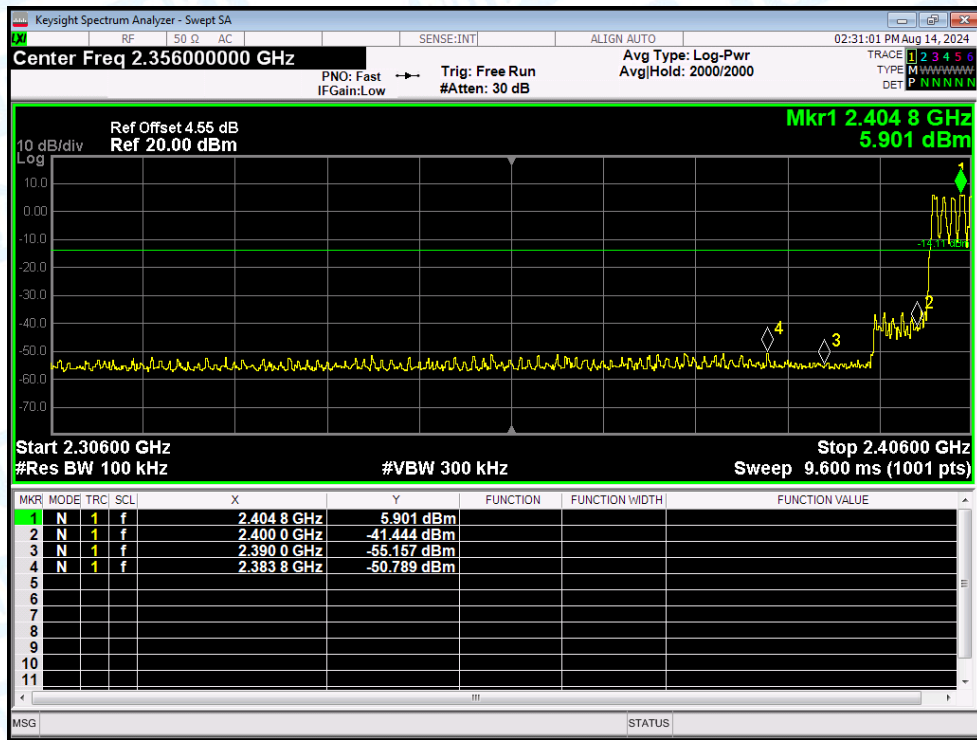
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-56.68	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-47.63	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-56.96	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-47.88	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-56.99	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-49.18	-20	Pass

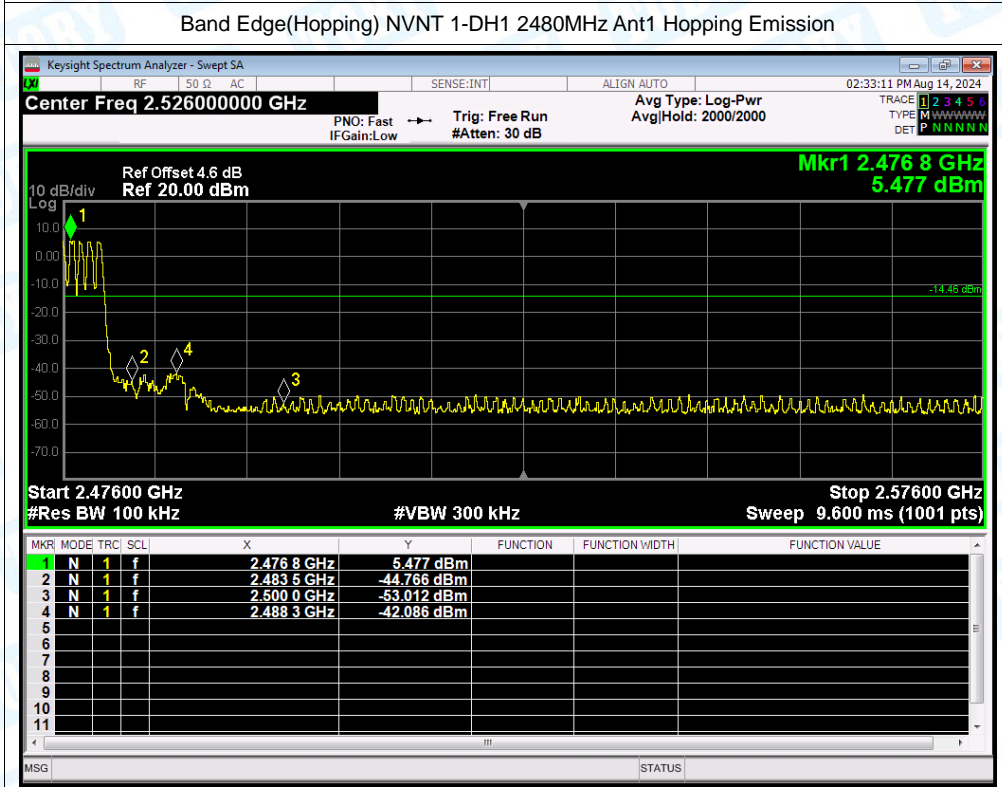
Test Graphs

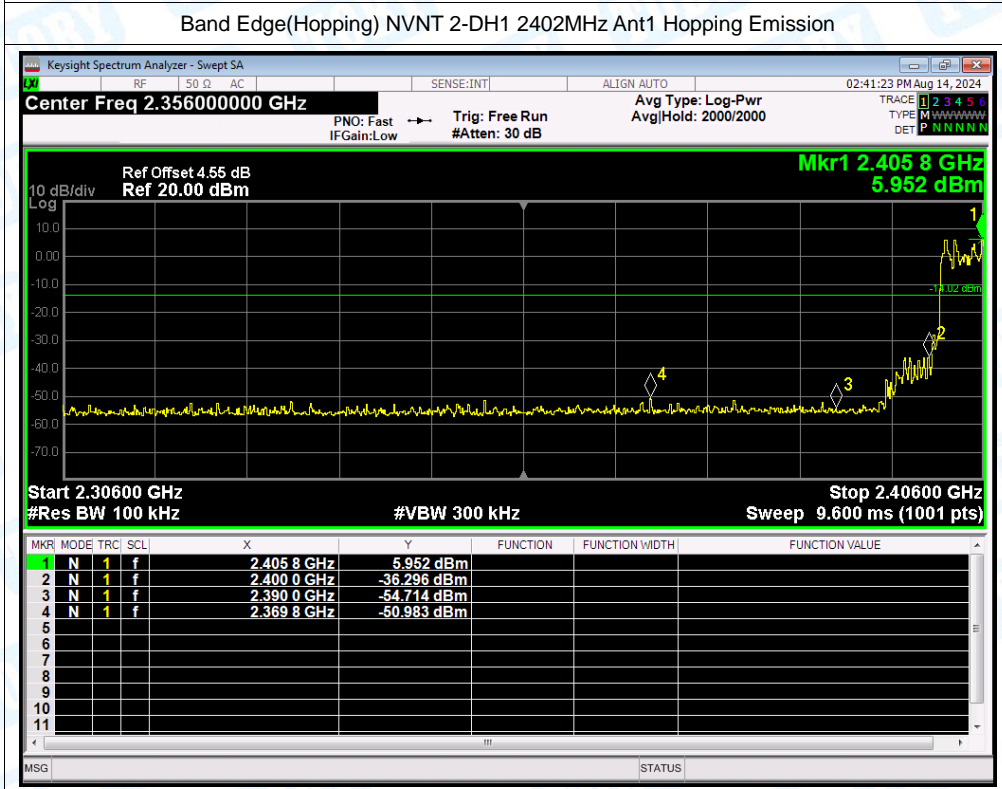
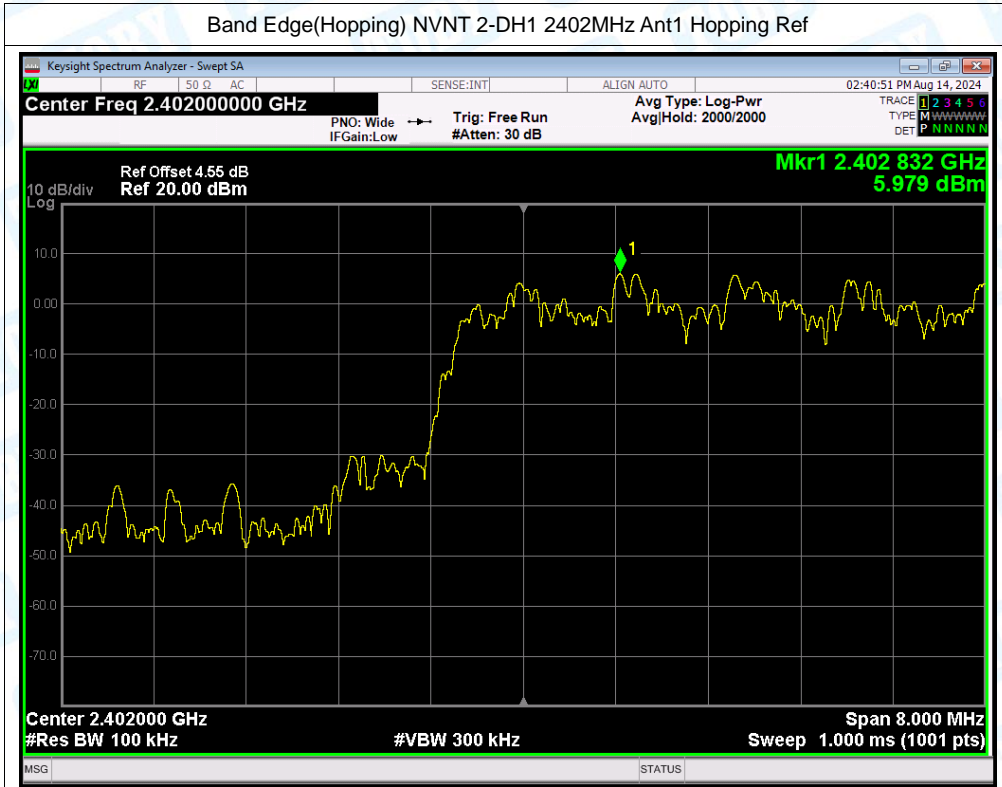
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Ref



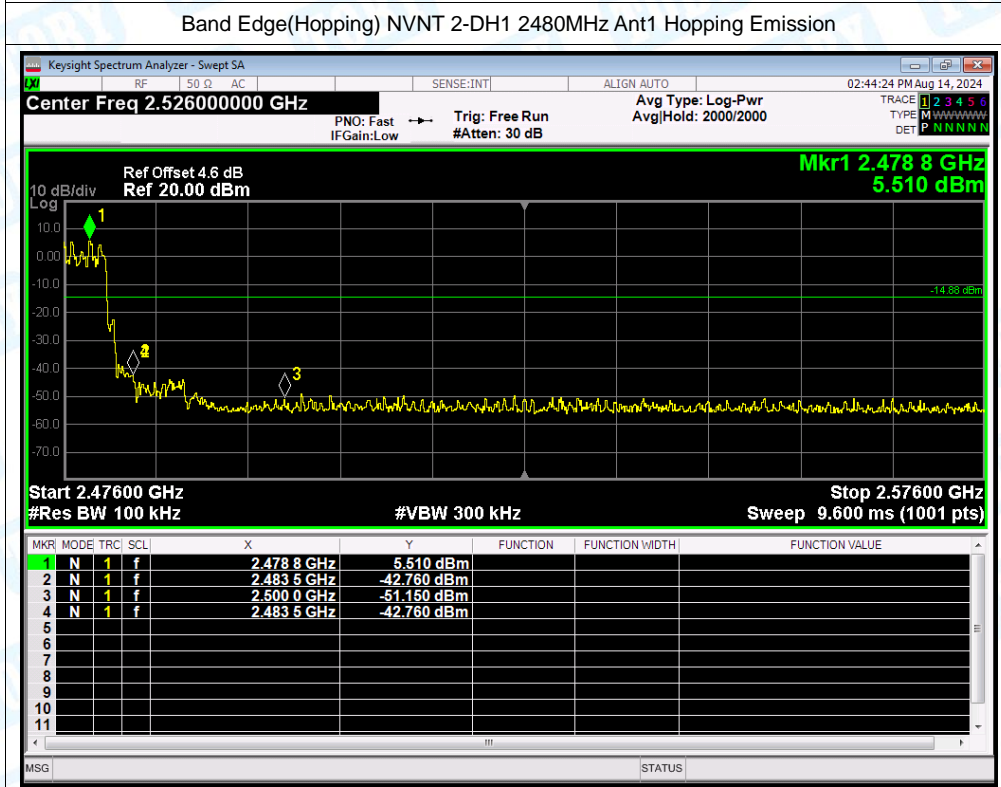
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission

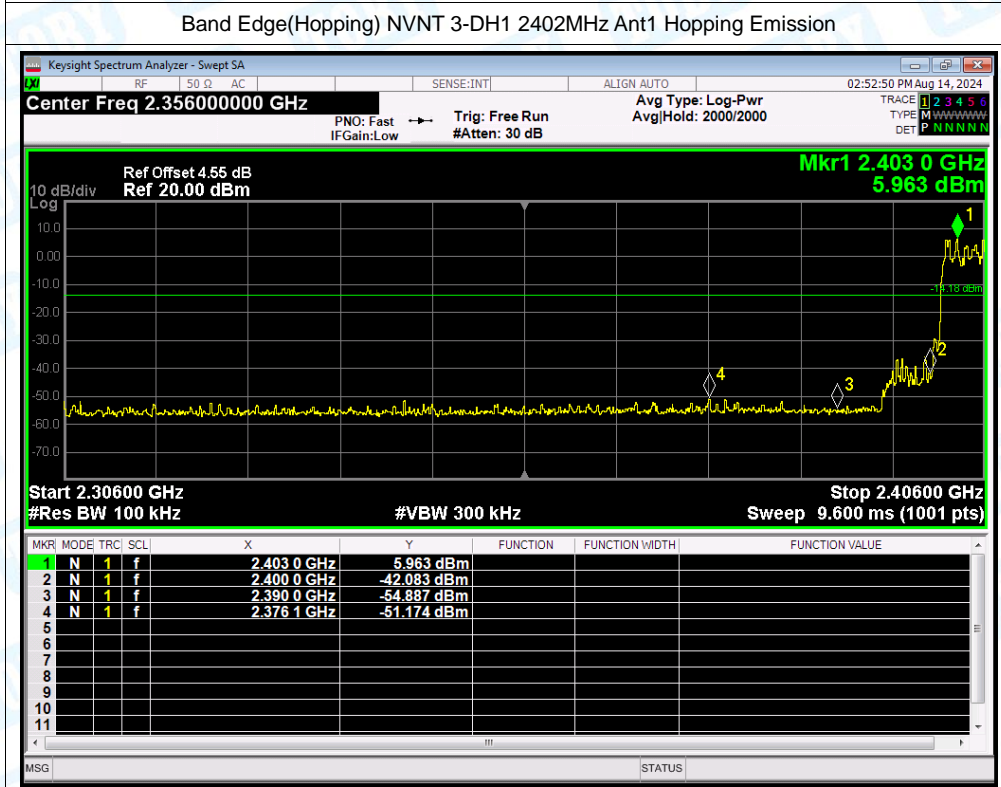
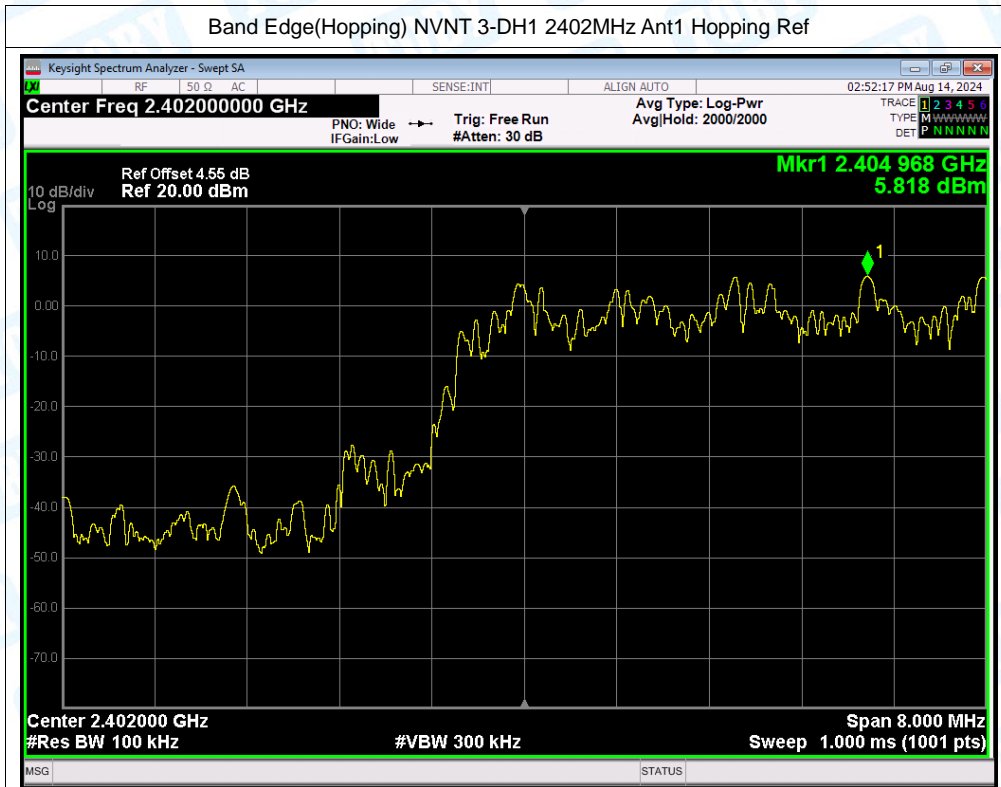




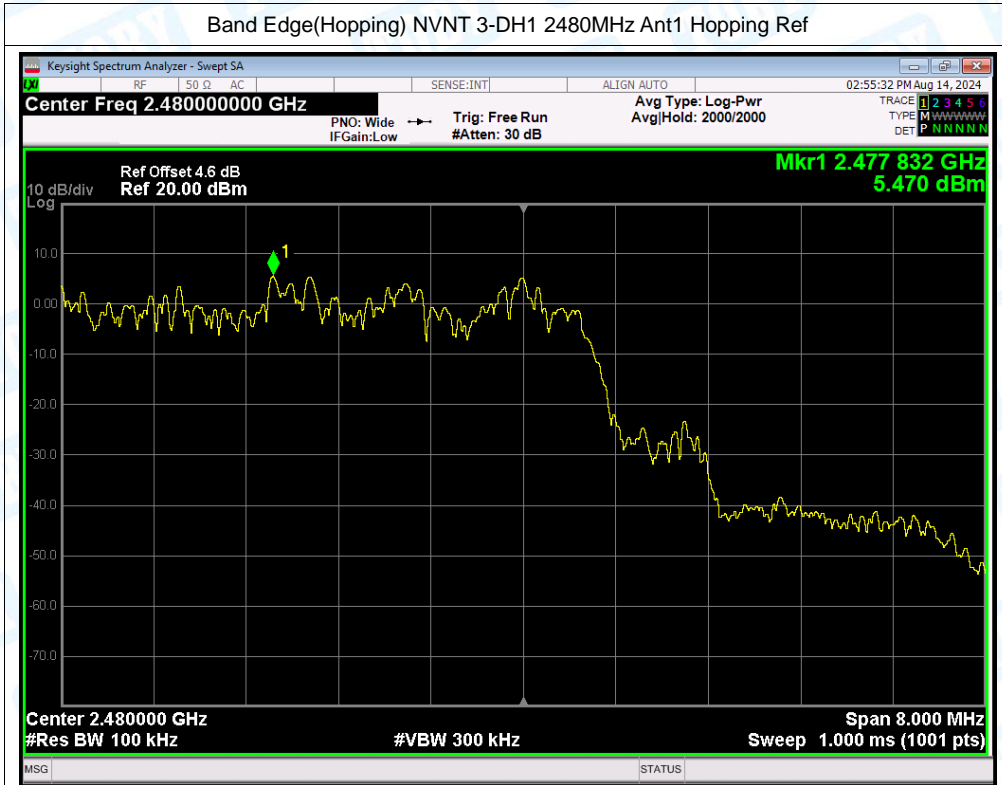




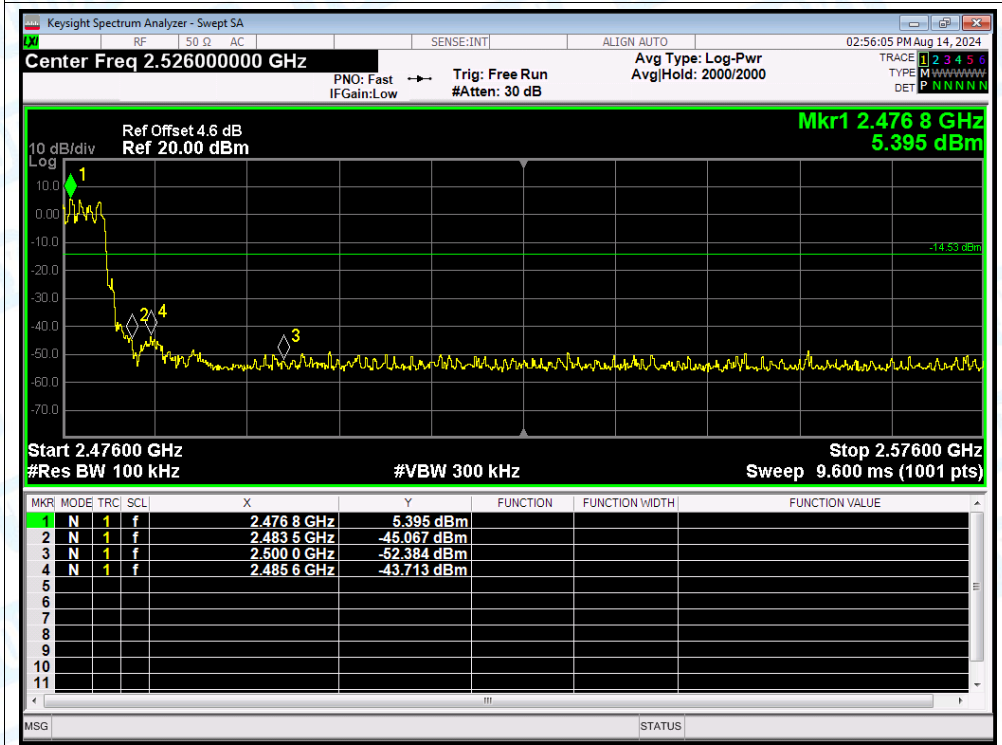




Band Edge(Hopping) NVNT 3-DH1 2480MHz Ant1 Hopping Ref



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

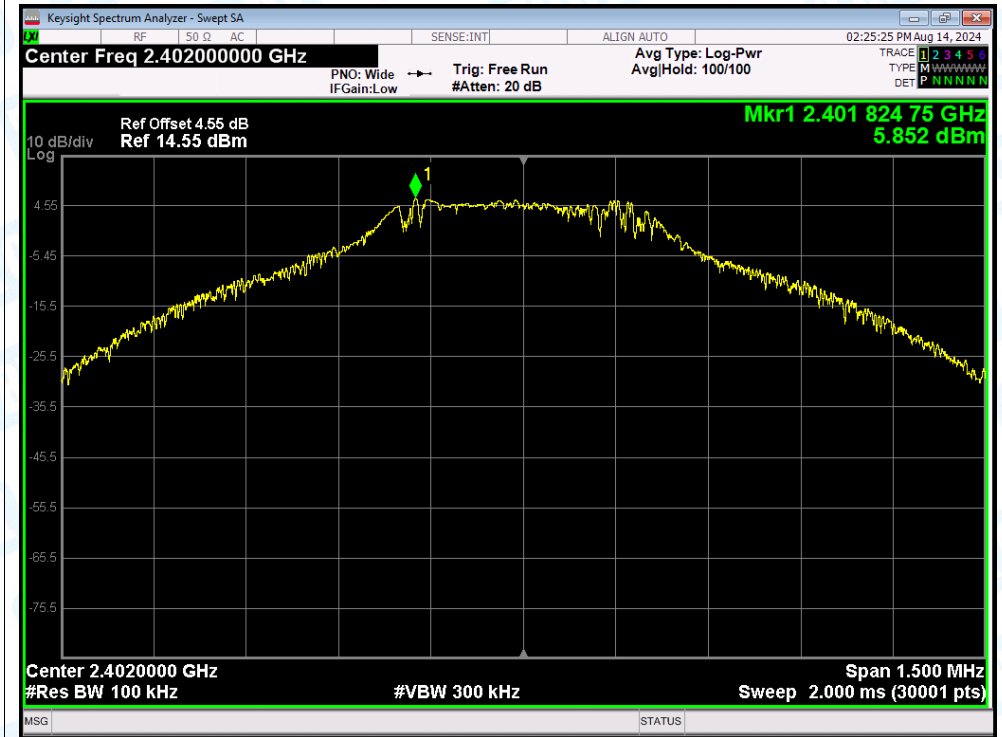


## 7. Conducted RF Spurious Emission

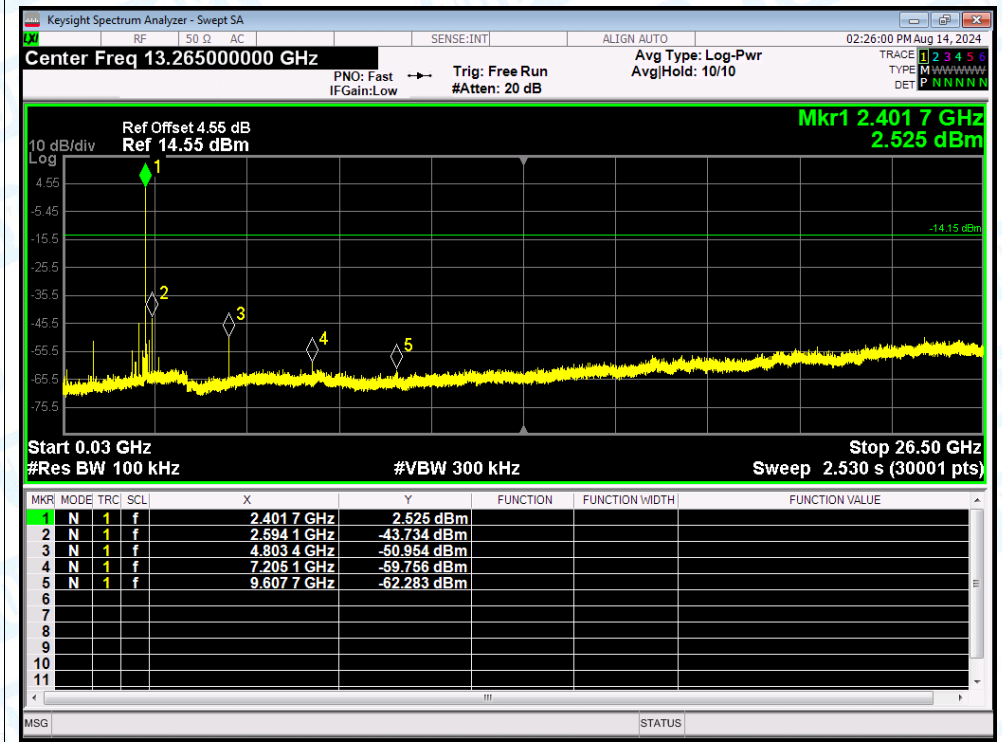
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-49.58	-20	Pass
NVNT	1-DH1	2441	Ant1	-51.87	-20	Pass
NVNT	1-DH1	2480	Ant1	-50.5	-20	Pass
NVNT	2-DH1	2402	Ant1	-53.59	-20	Pass
NVNT	2-DH1	2441	Ant1	-53.47	-20	Pass
NVNT	2-DH1	2480	Ant1	-45.71	-20	Pass
NVNT	3-DH1	2402	Ant1	-51.51	-20	Pass
NVNT	3-DH1	2441	Ant1	-53.05	-20	Pass
NVNT	3-DH1	2480	Ant1	-50.92	-20	Pass

Test Graphs

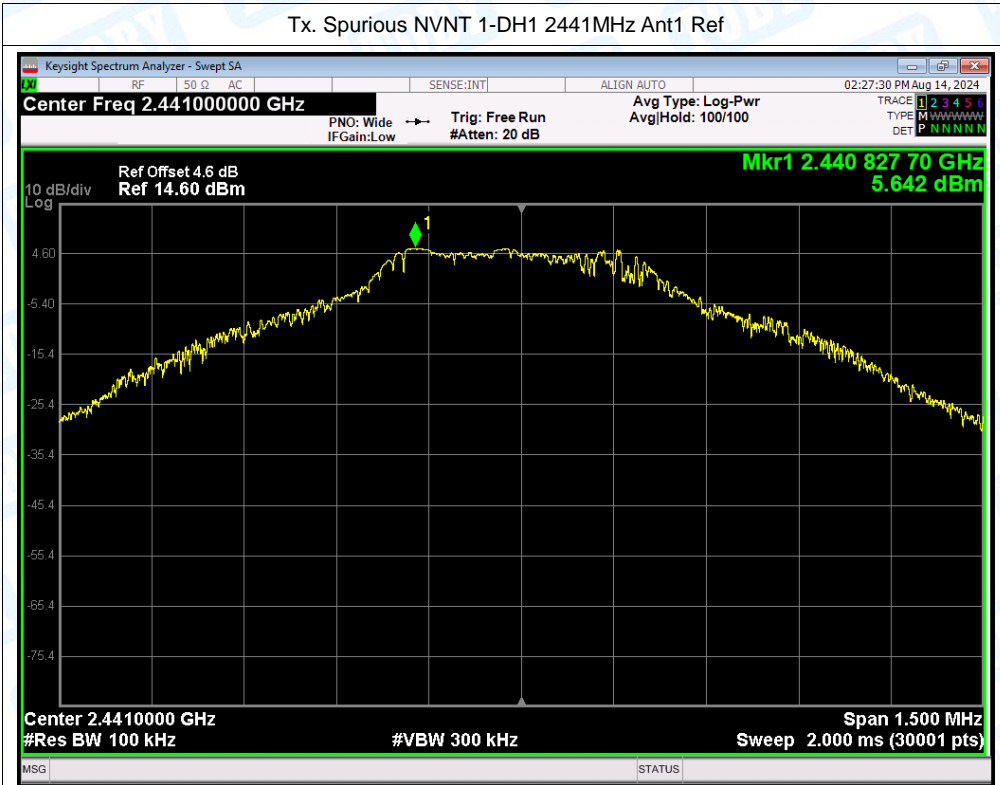
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



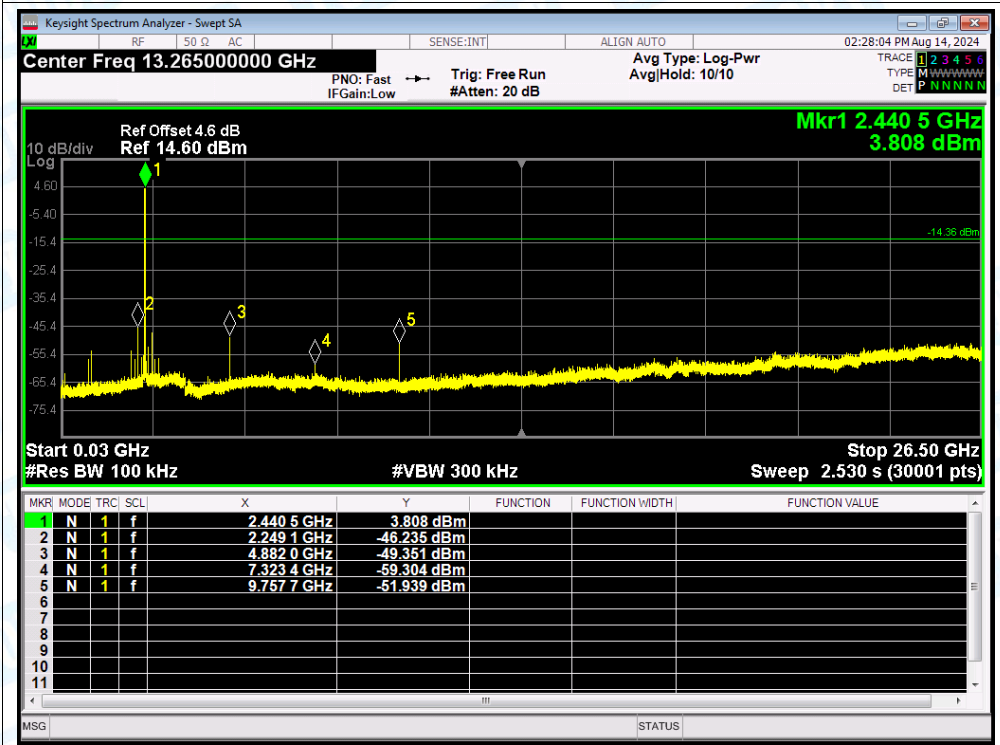
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



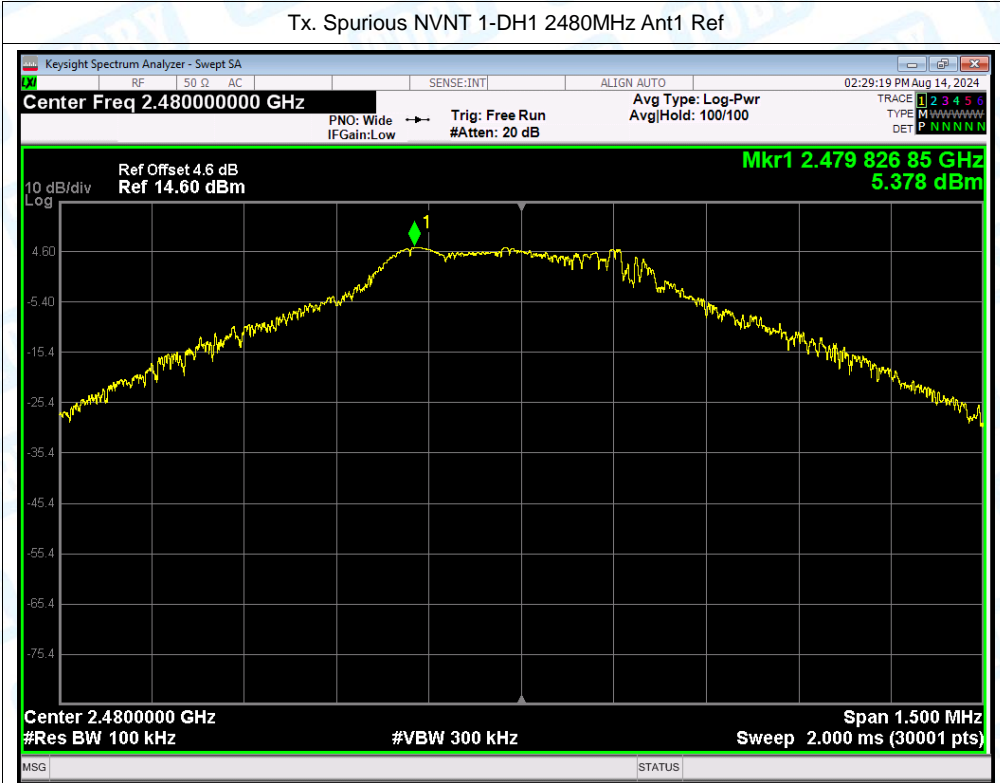
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



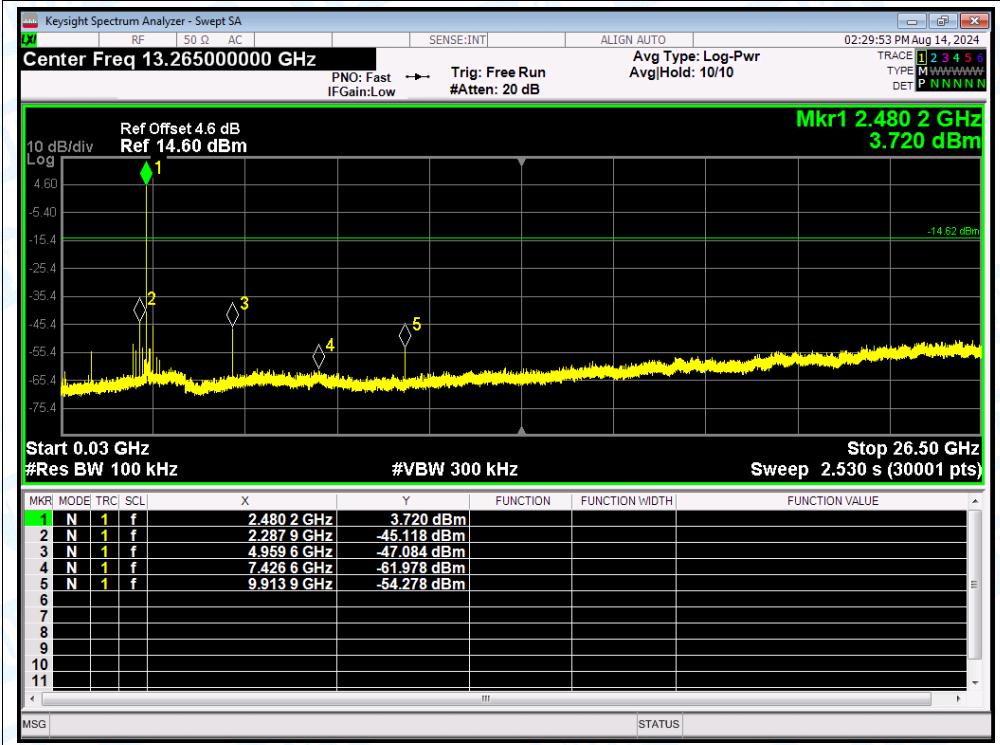
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



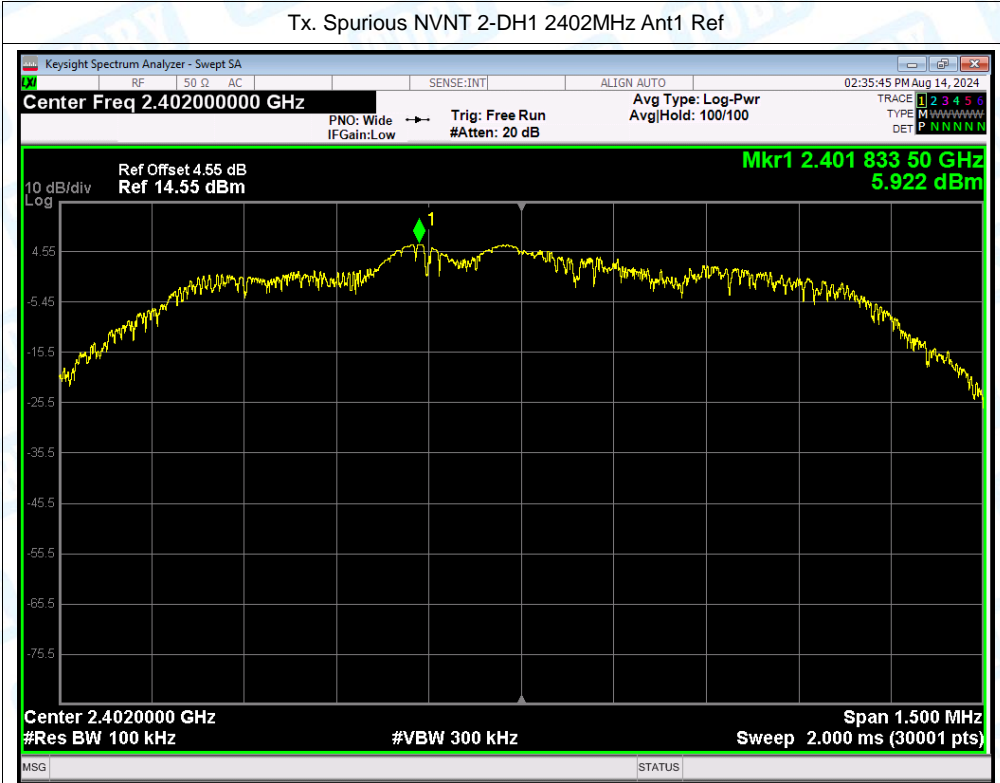
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



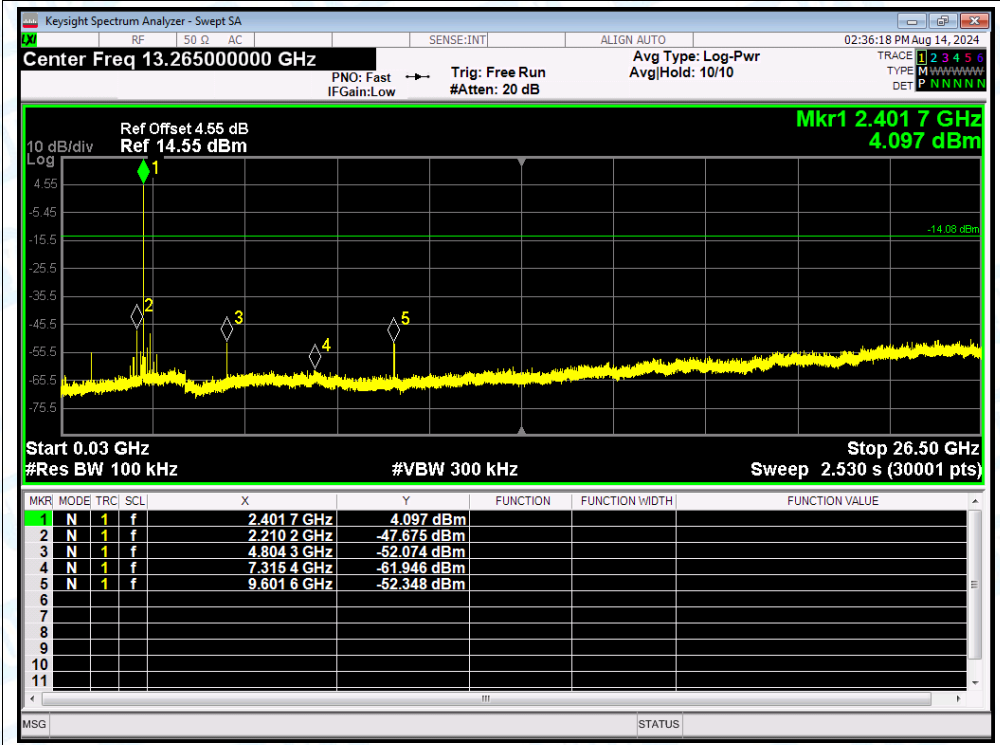
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref

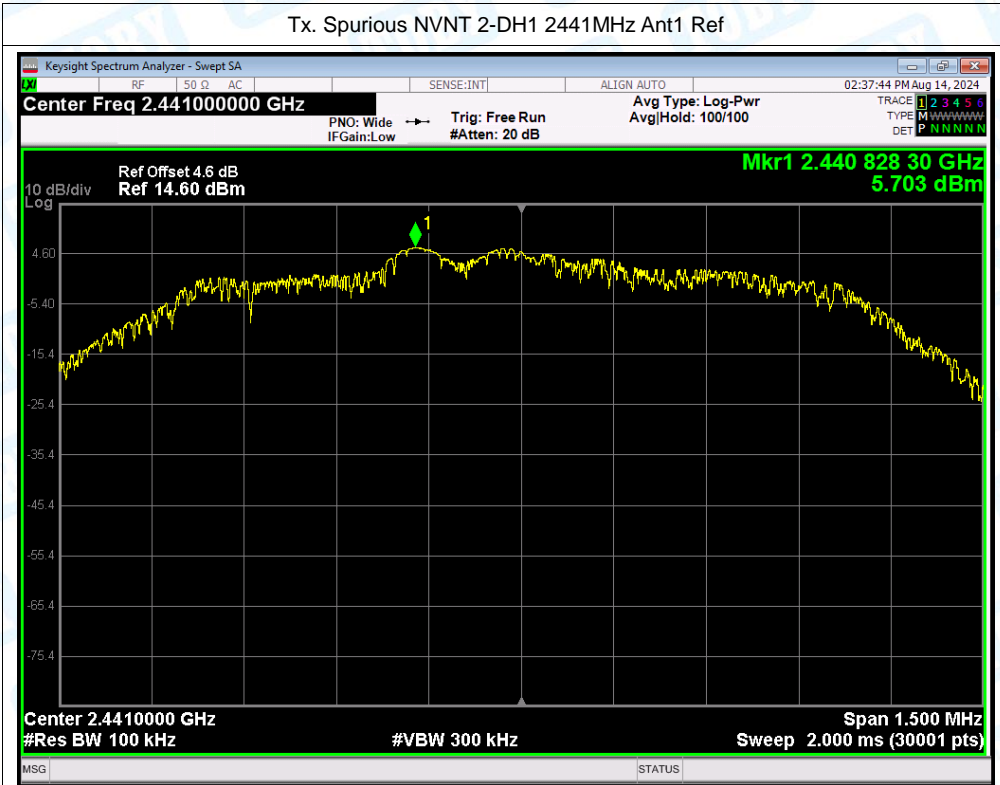


Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission

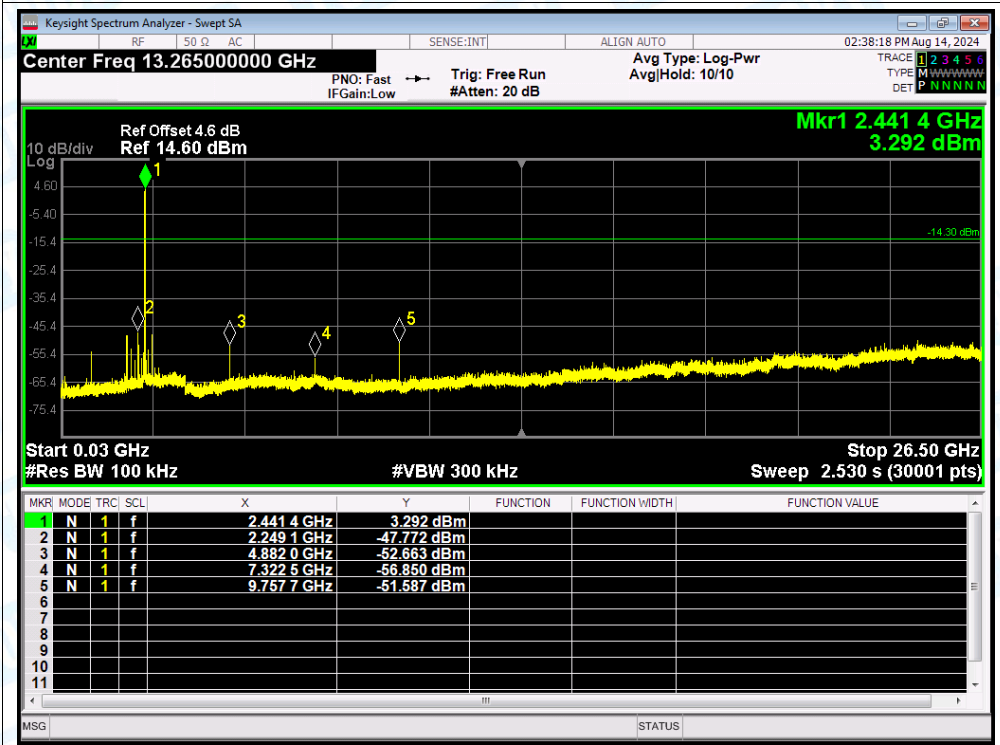




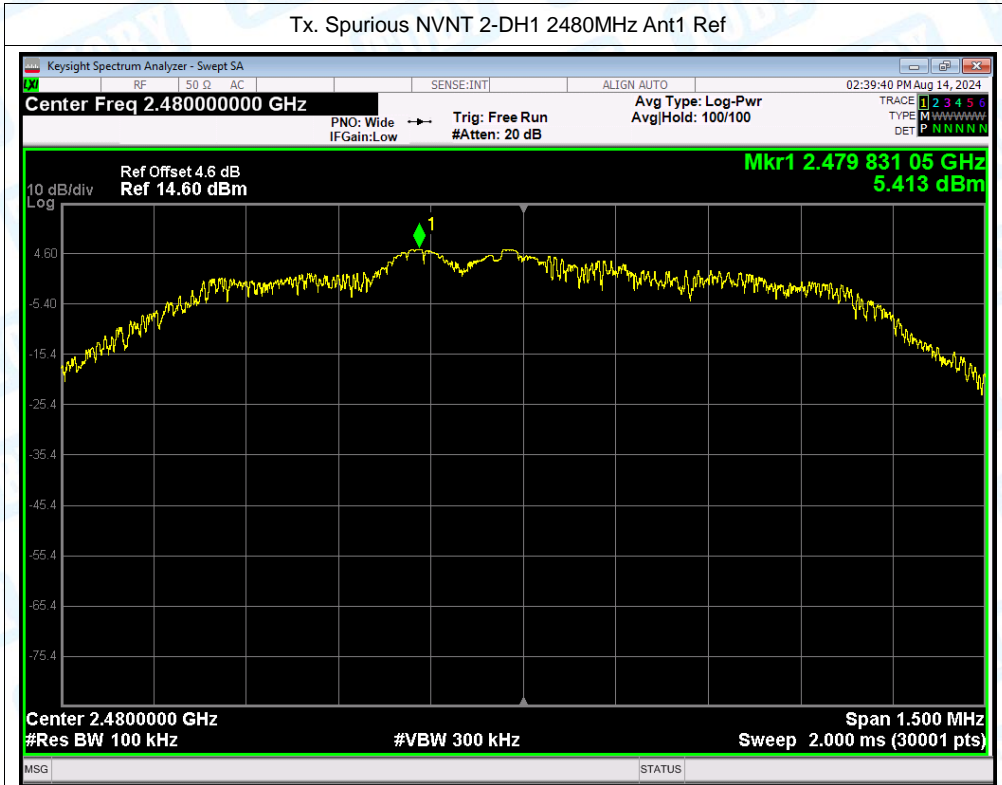
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



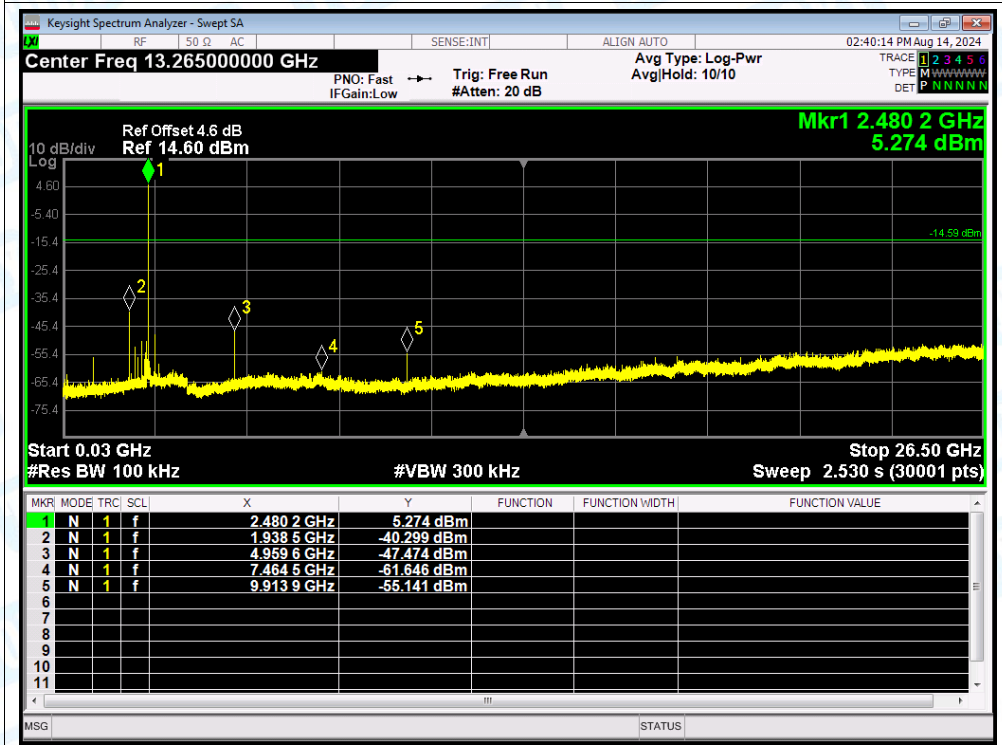
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



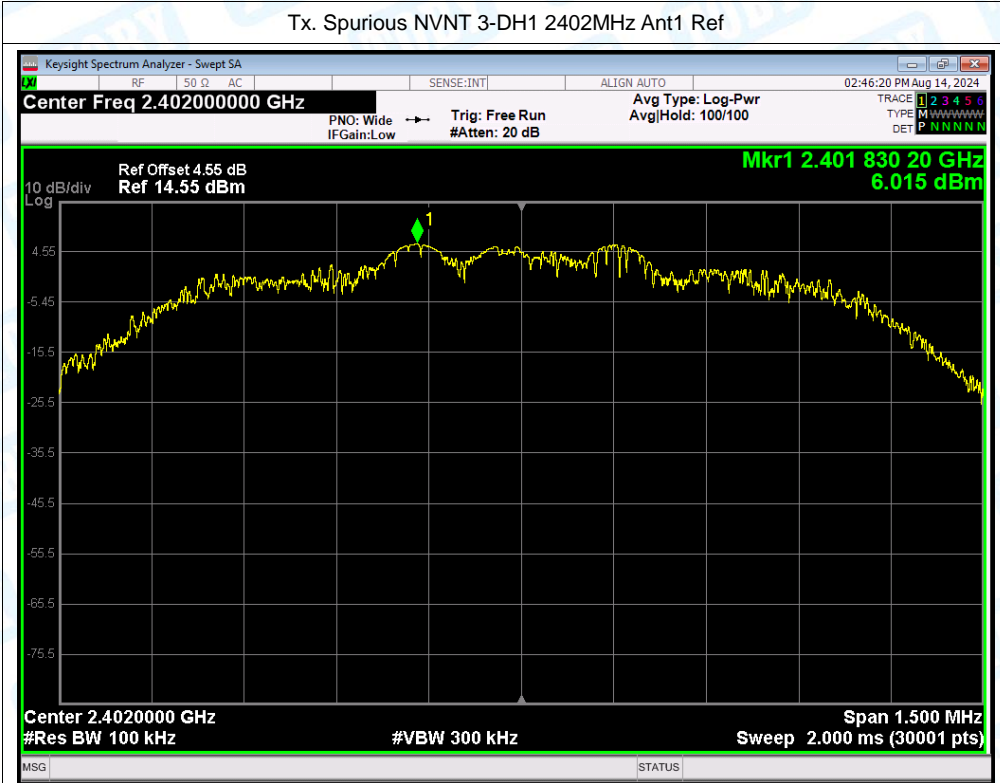
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



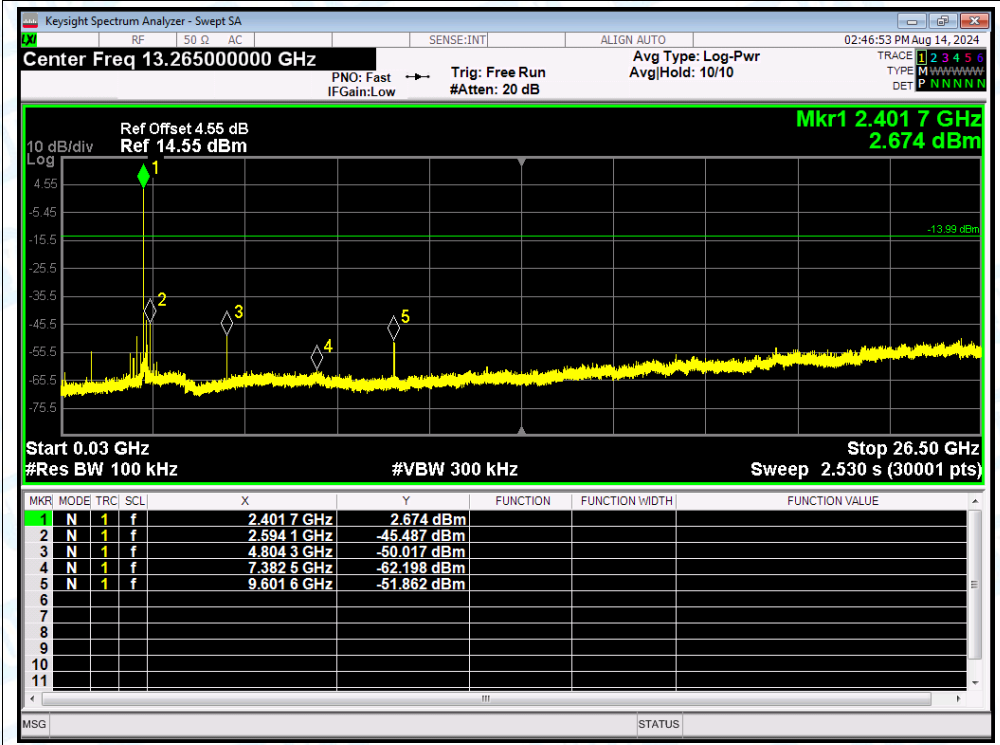
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



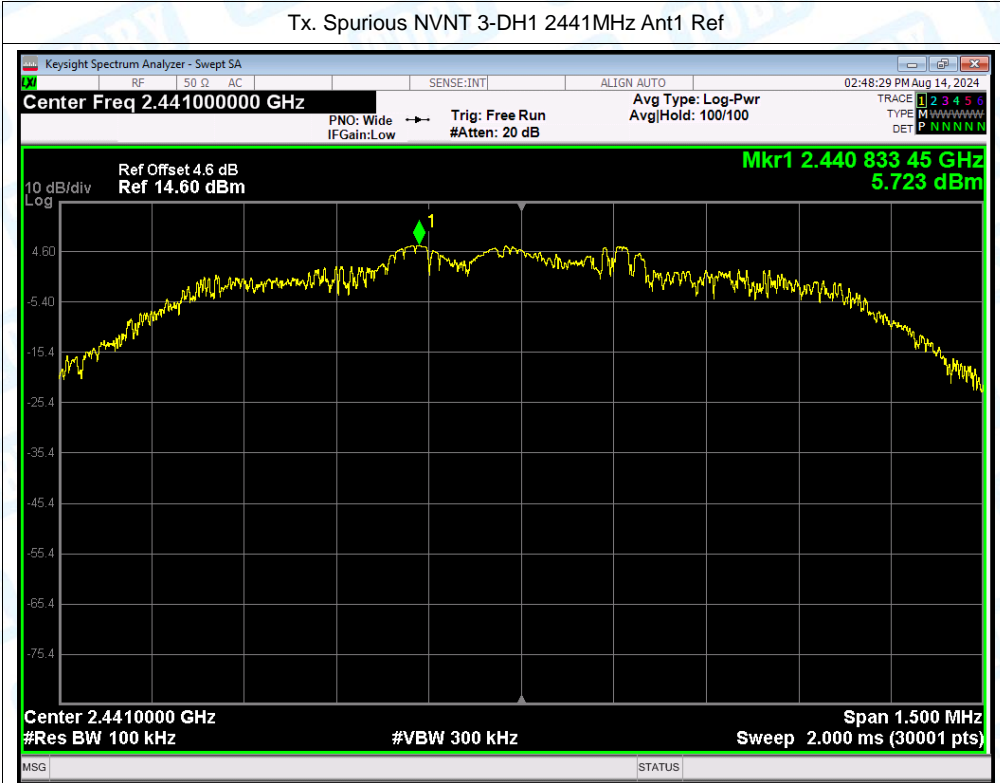
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



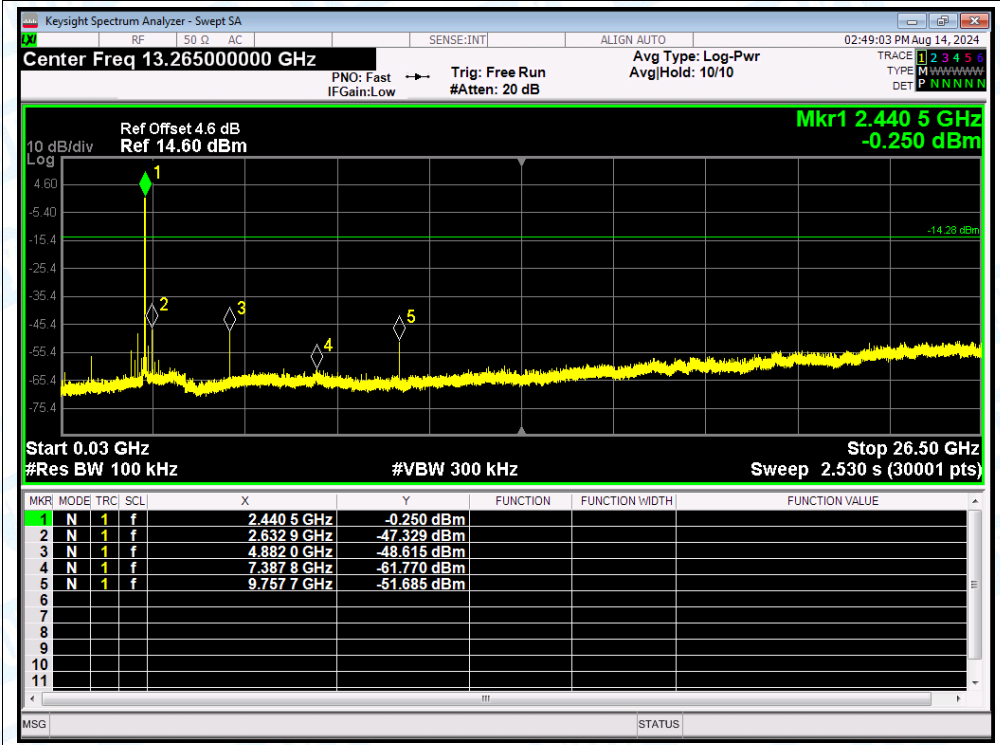
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



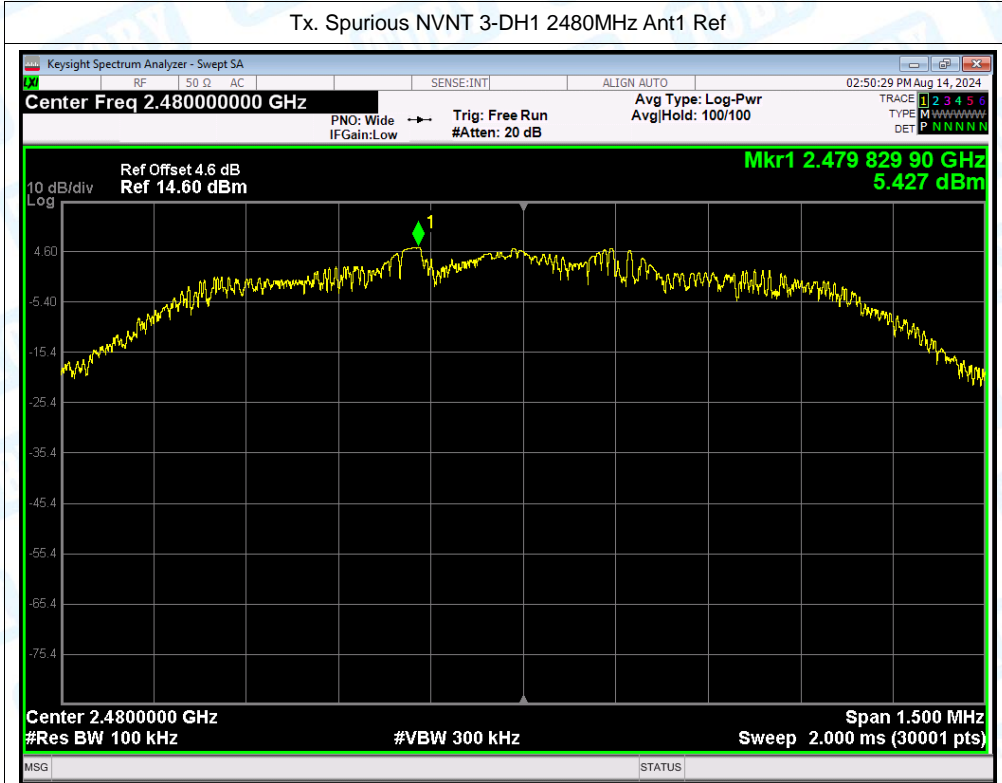
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



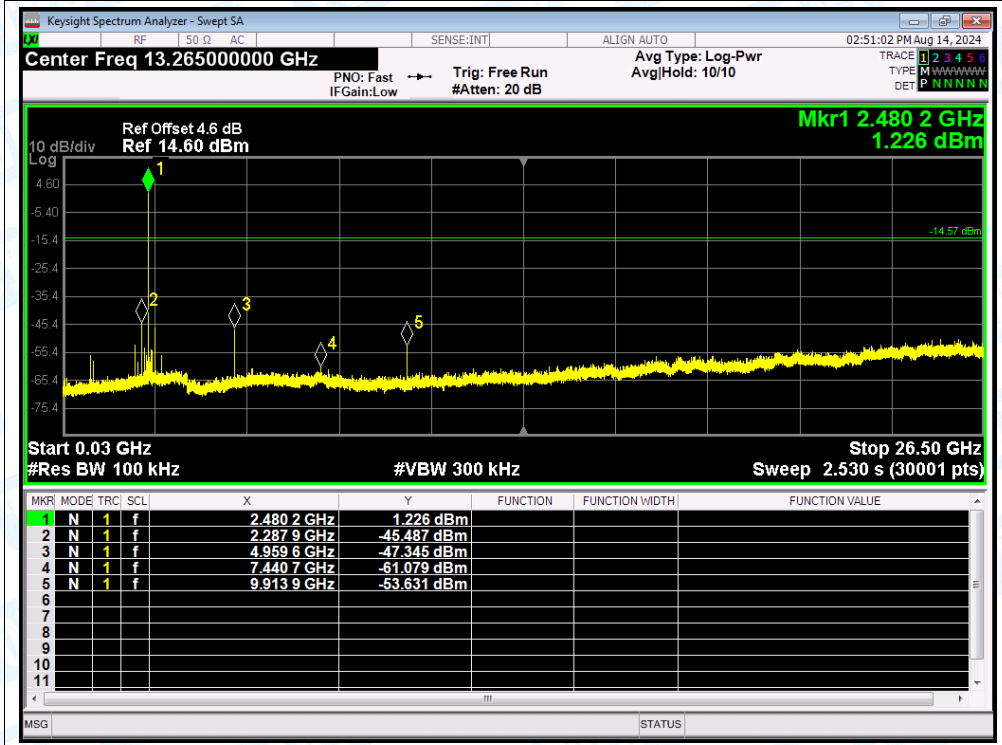
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

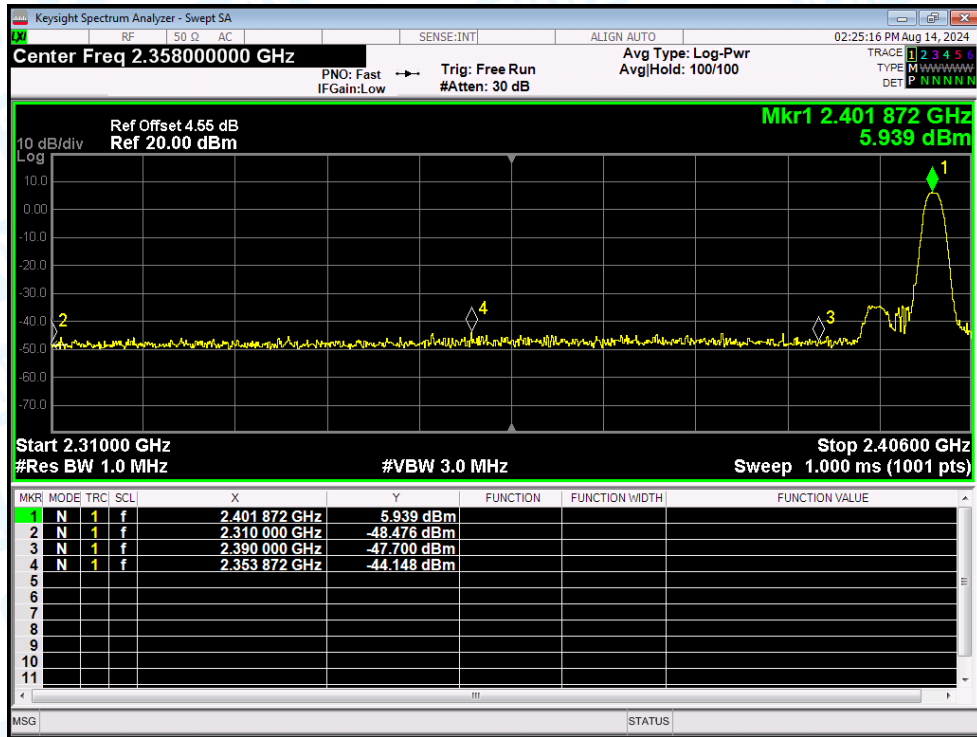


## 8.Restrict Band

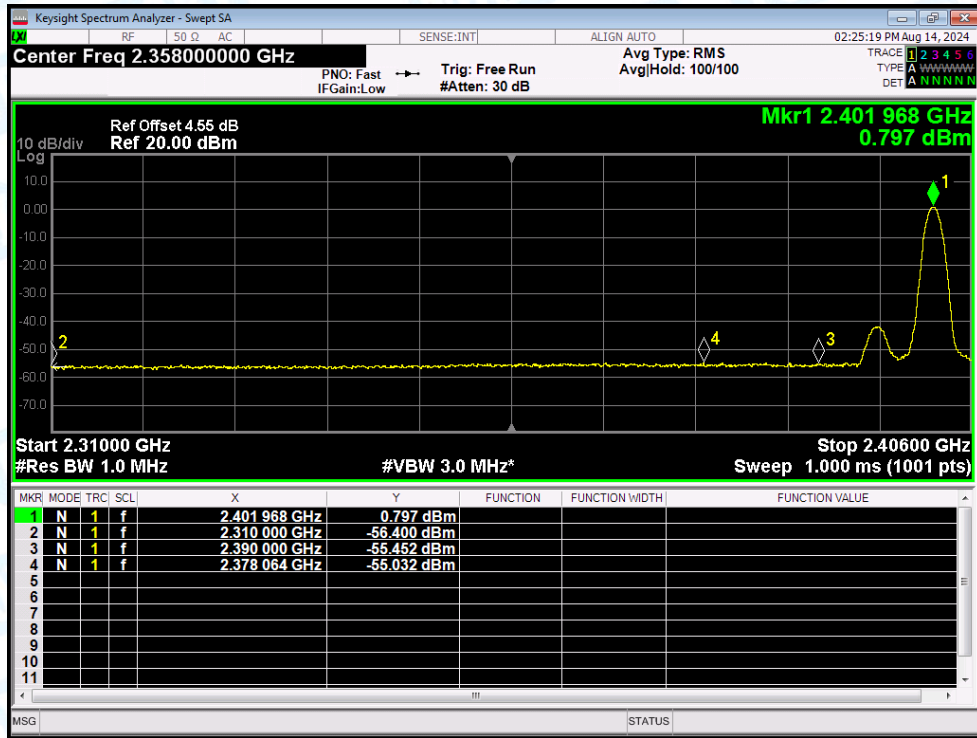
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-48.48	2	-	48.78	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.4	2	5.17	46.03	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2353.872	-44.15	2	-	53.11	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2378.064	-55.03	2	5.17	47.4	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-47.7	2	-	49.56	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-55.45	2	5.17	46.98	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-41.22	2	-	56.04	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-51.78	2	5.17	50.65	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2484.496	-39.66	2	-	57.6	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.584	-51.52	2	5.17	50.91	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-46.41	2	-	50.85	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-54.83	2	5.17	47.6	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-48.11	2	-	49.15	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.07	2	5.06	46.25	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2369.712	-44.51	2	-	52.75	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2363.952	-54.65	2	5.06	47.67	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-48.29	2	-	48.97	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-55.35	2	5.06	46.97	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-40.43	2	-	56.83	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-51.66	2	5.06	50.66	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.56	-35.93	2	-	61.33	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.8	-51.24	2	5.06	51.08	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-48.16	2	-	49.1	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.55	2	5.06	46.77	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-47.99	2	-	49.27	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-56.34	2	4.95	45.87	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2389.968	-42.89	2	-	54.37	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2362.224	-54.86	2	4.95	47.35	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-42.9	2	-	54.36	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-55.94	2	4.95	46.27	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-38.43	2	-	58.83	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-51.17	2	5.06	51.15	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.608	-37.27	2	-	59.99	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.68	-50.31	2	5.06	52.01	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-46.61	2	-	50.65	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.43	2	5.06	46.89	Average	54	Pass

Test Graphs

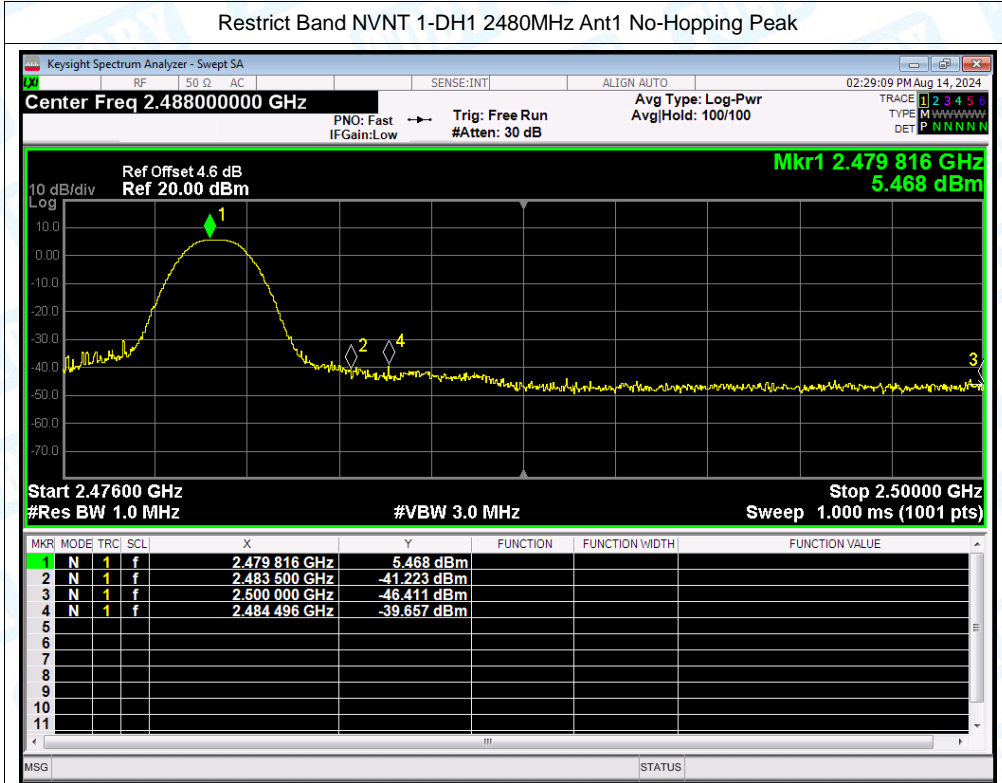
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



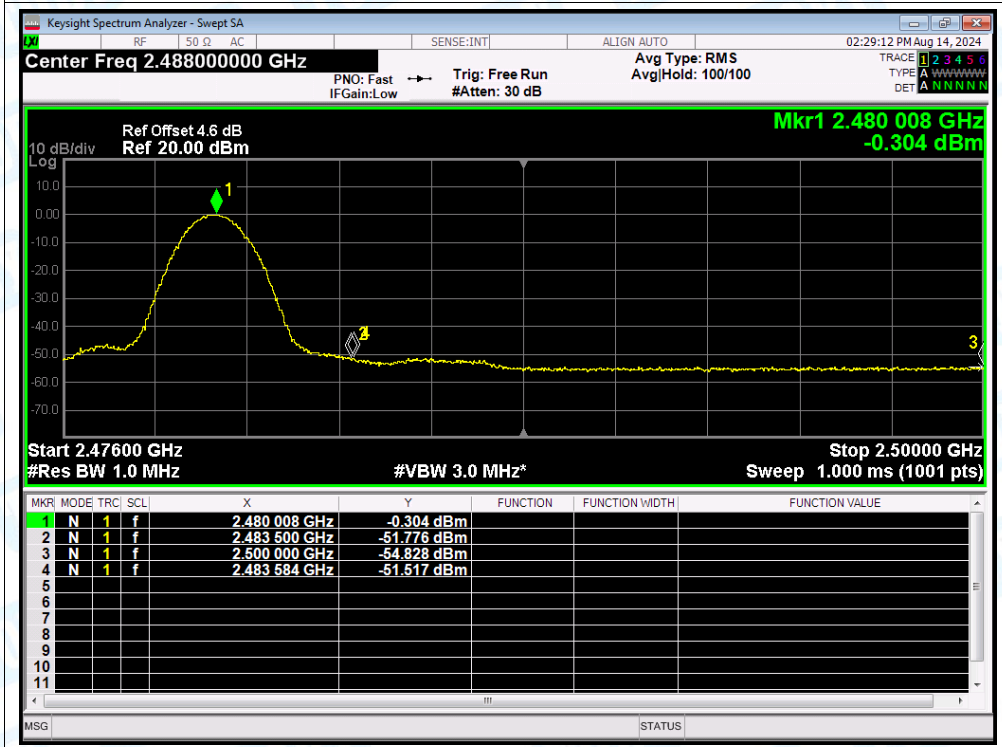
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



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

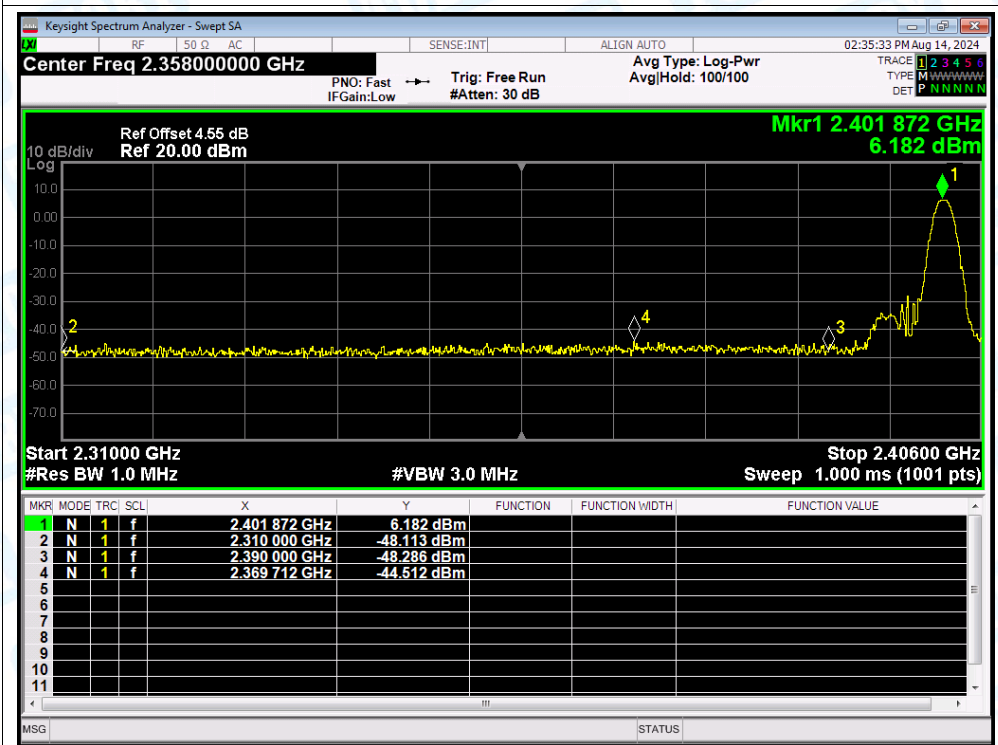


Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average

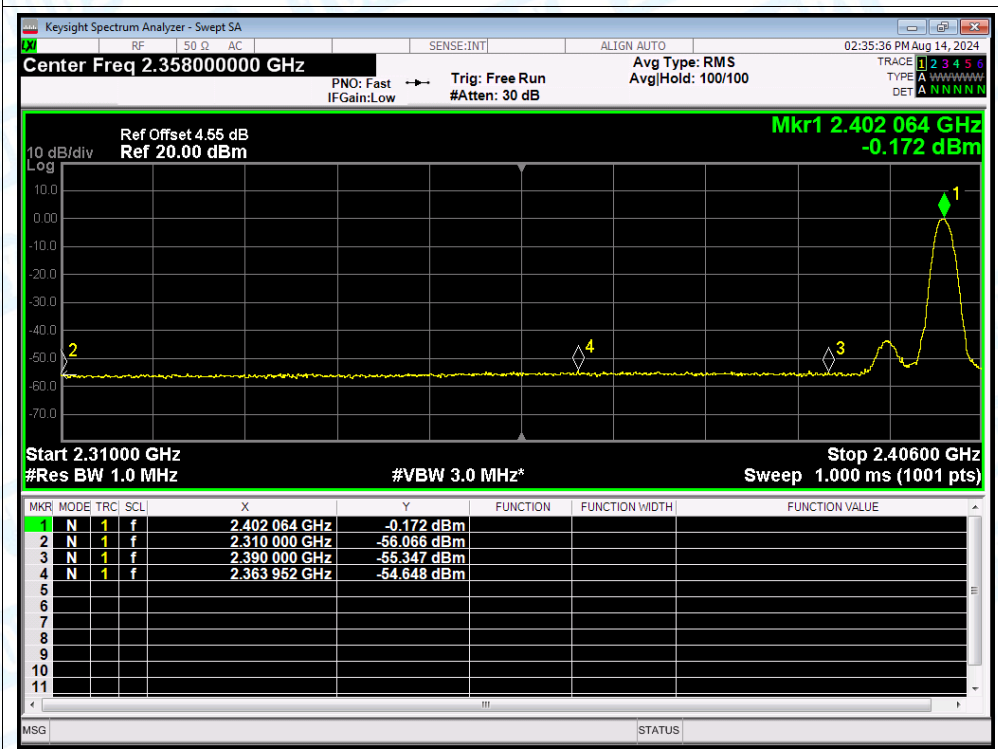




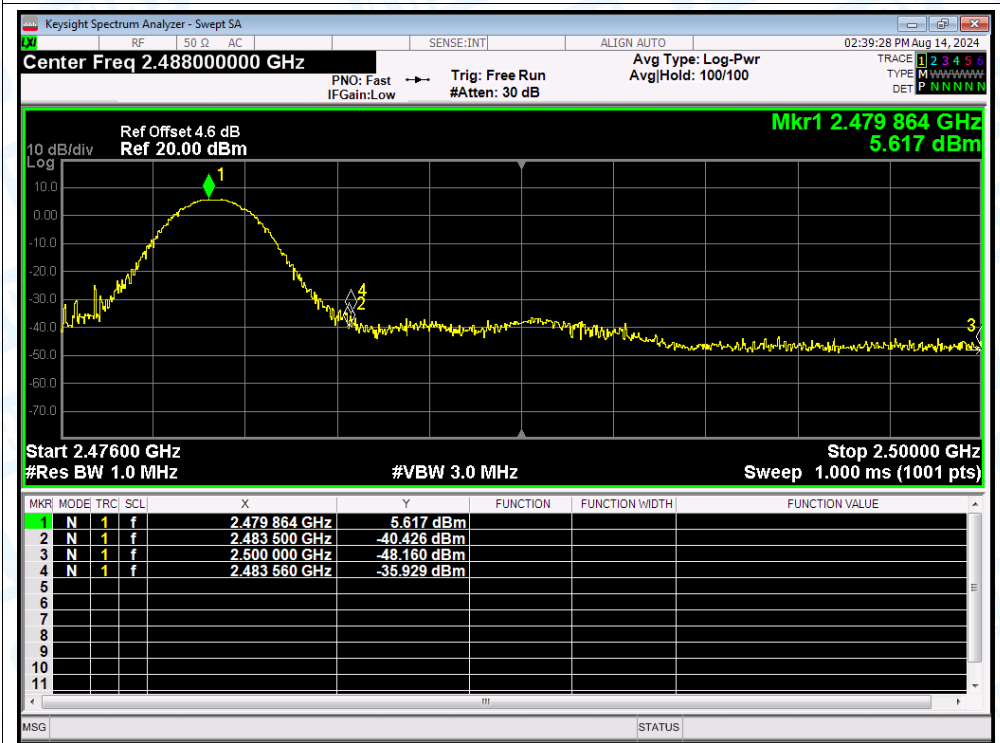
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



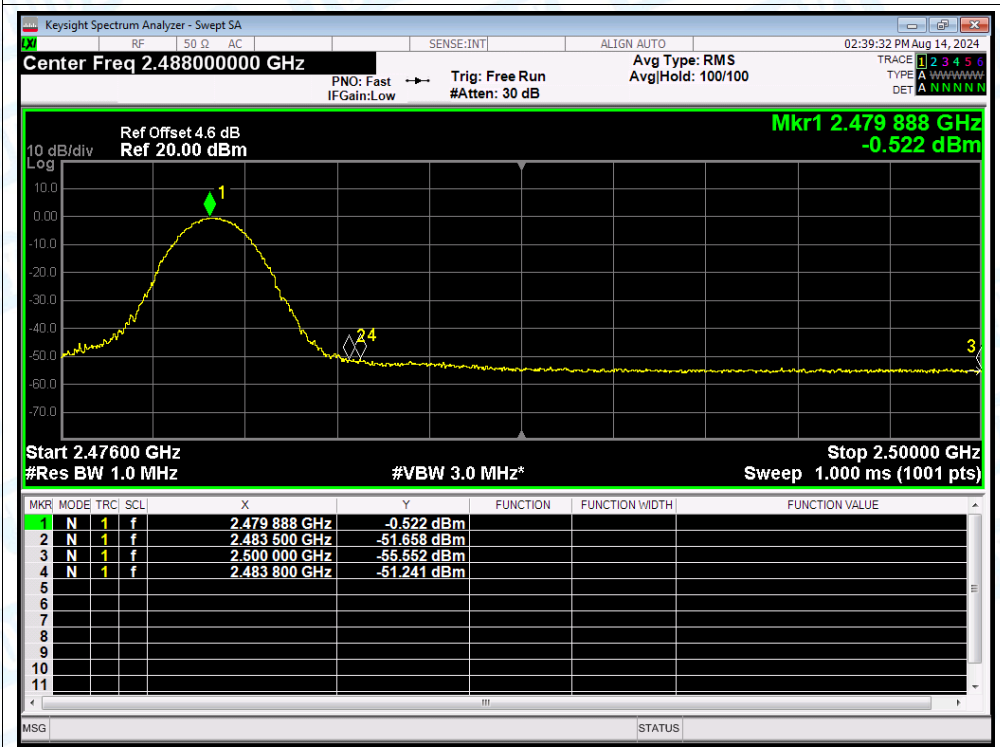
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



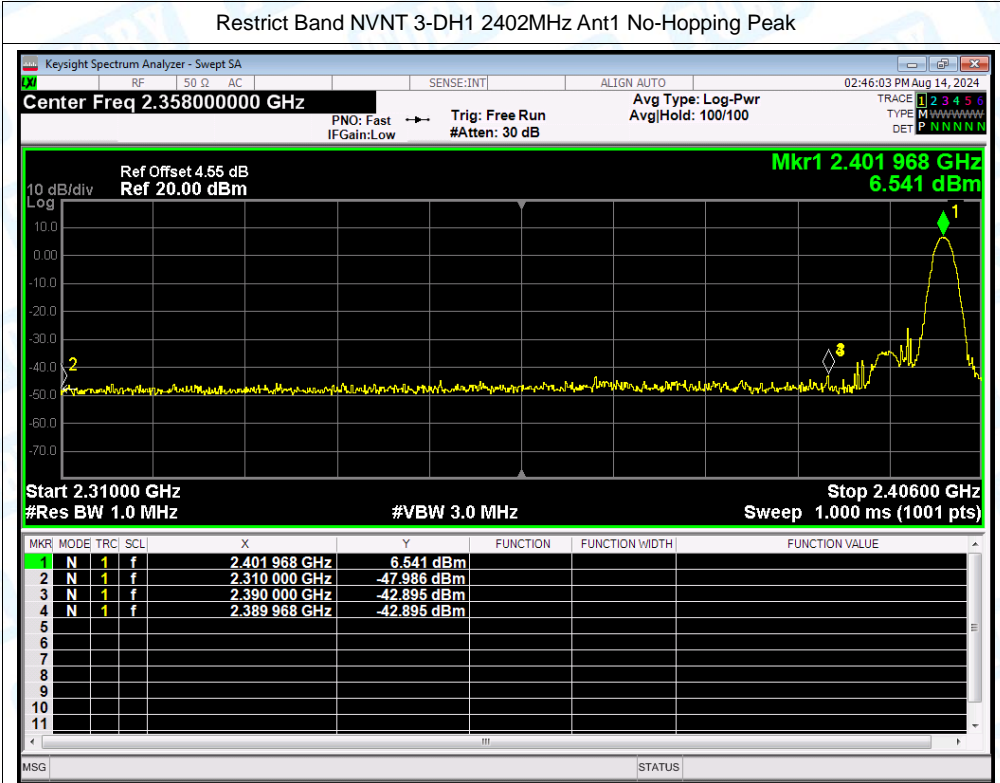
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



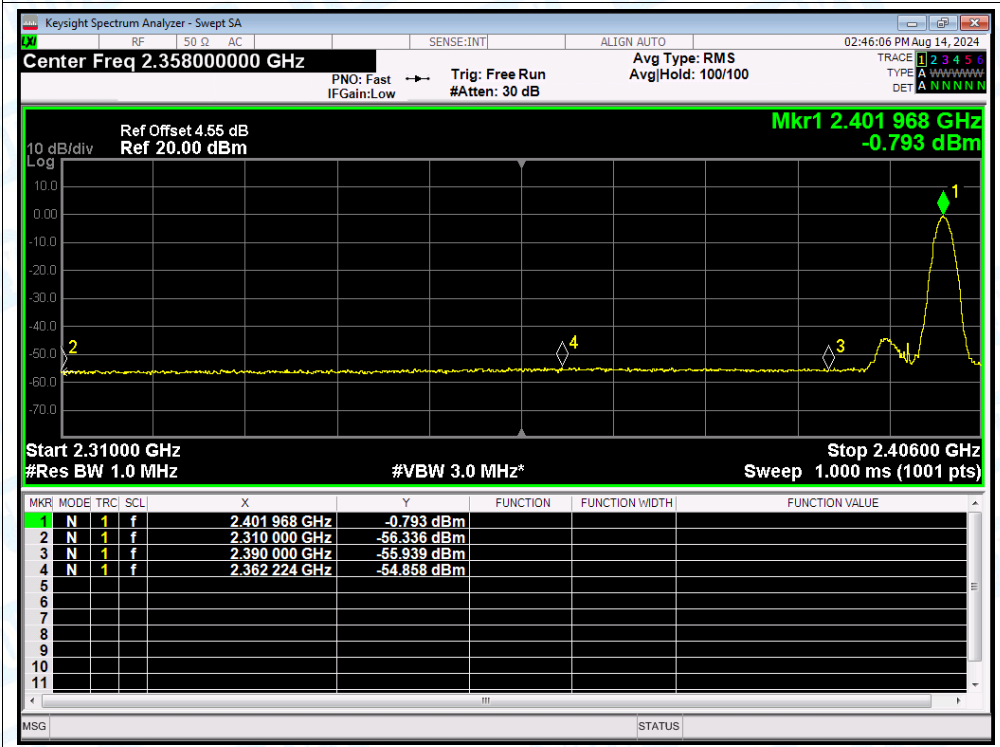
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average

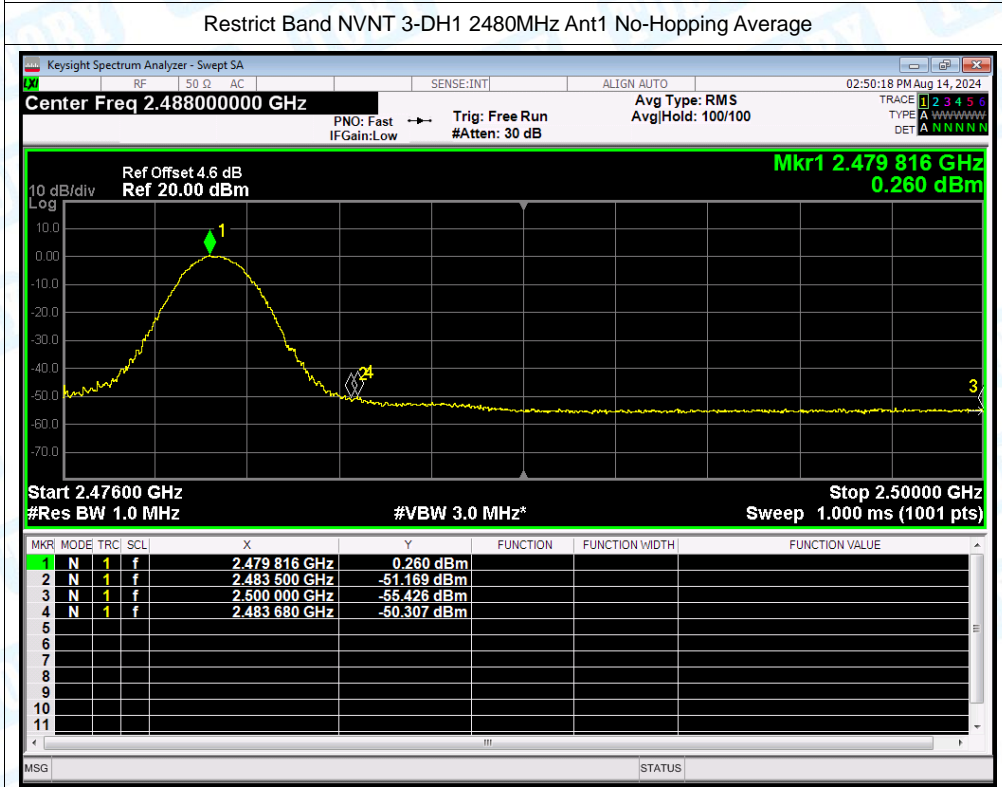
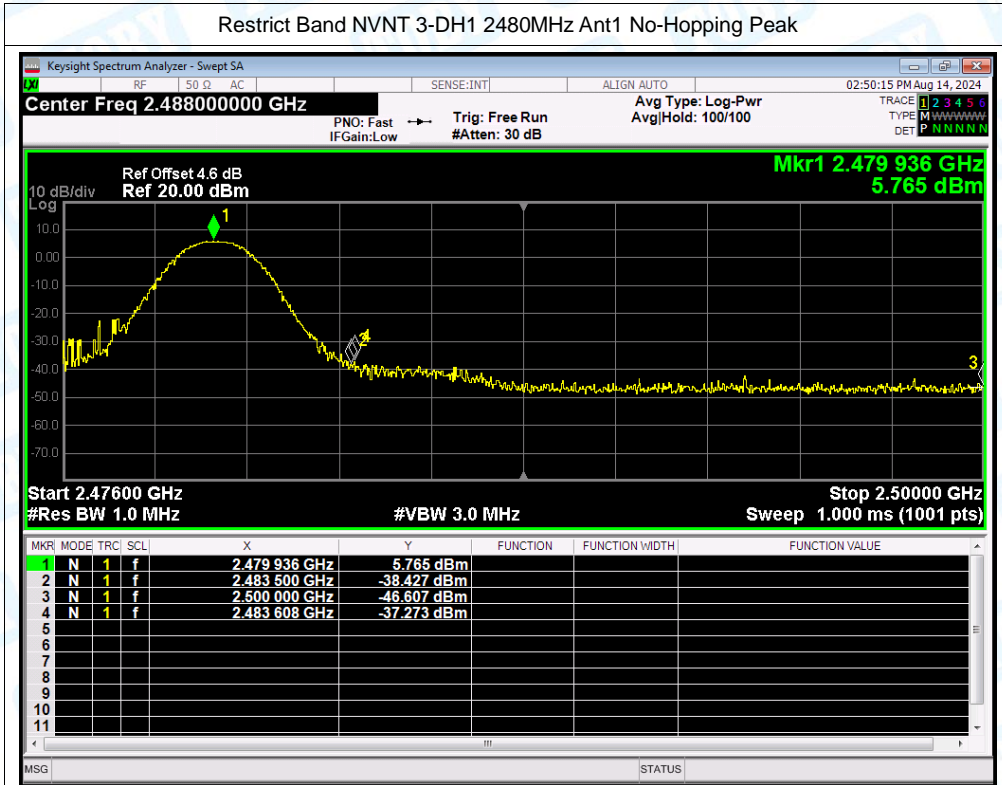


Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



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



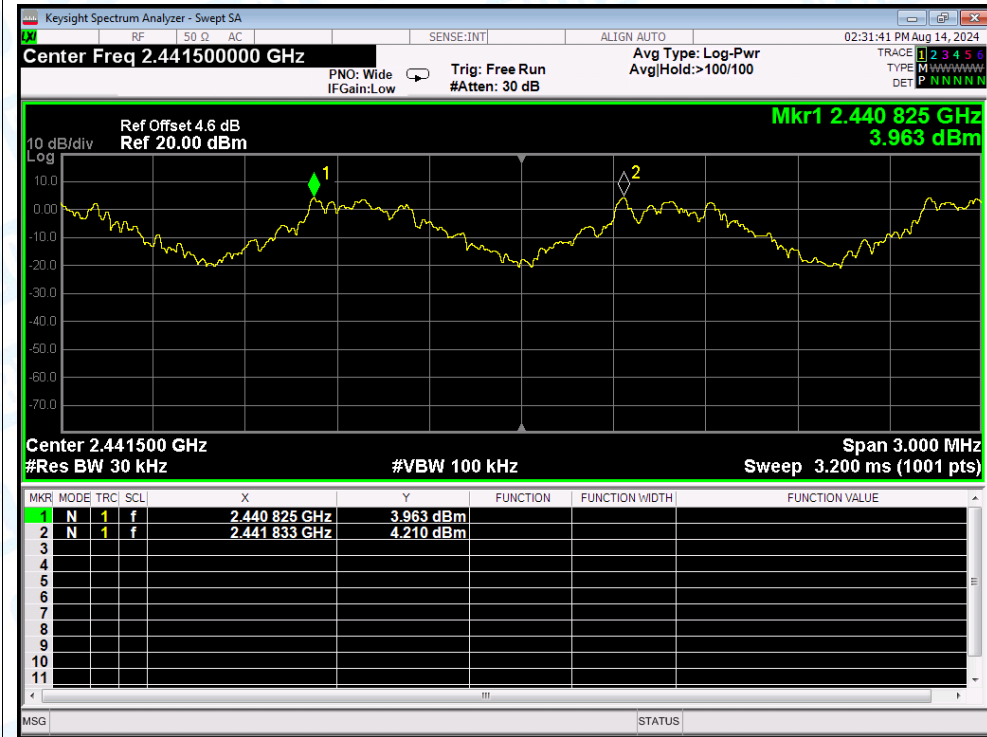


## 9. Carrier Frequencies Separation

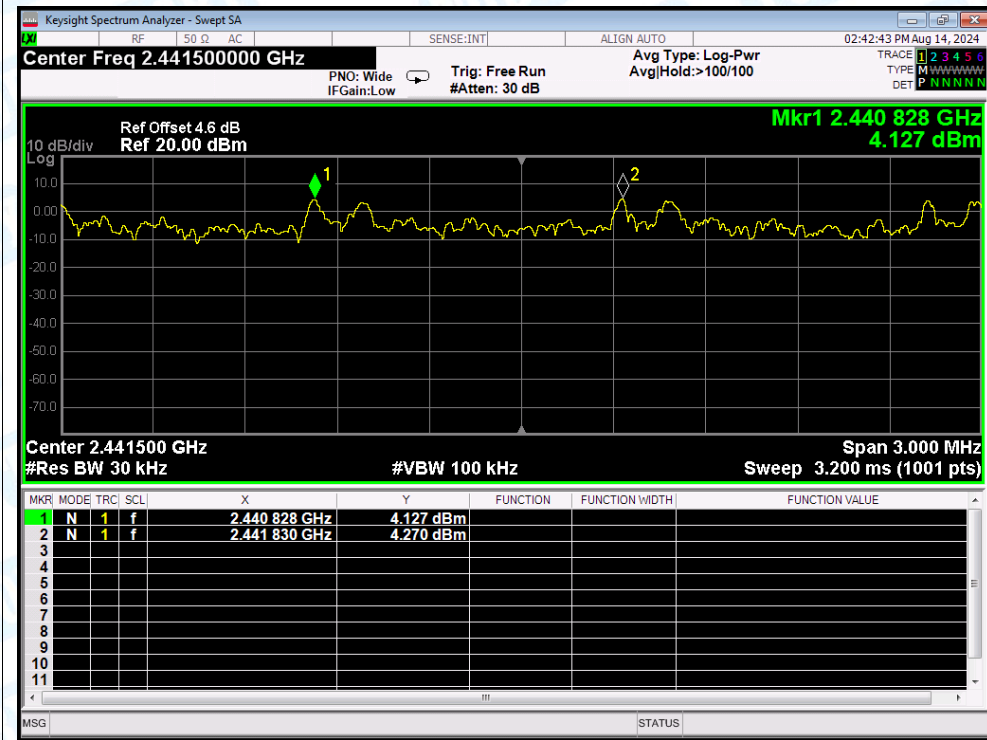
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.825	2441.833	1.008	0.593	Pass
NVNT	2-DH1	Ant1	2440.828	2441.83	1.002	0.82	Pass
NVNT	3-DH1	Ant1	2440.975	2441.833	0.858	0.807	Pass

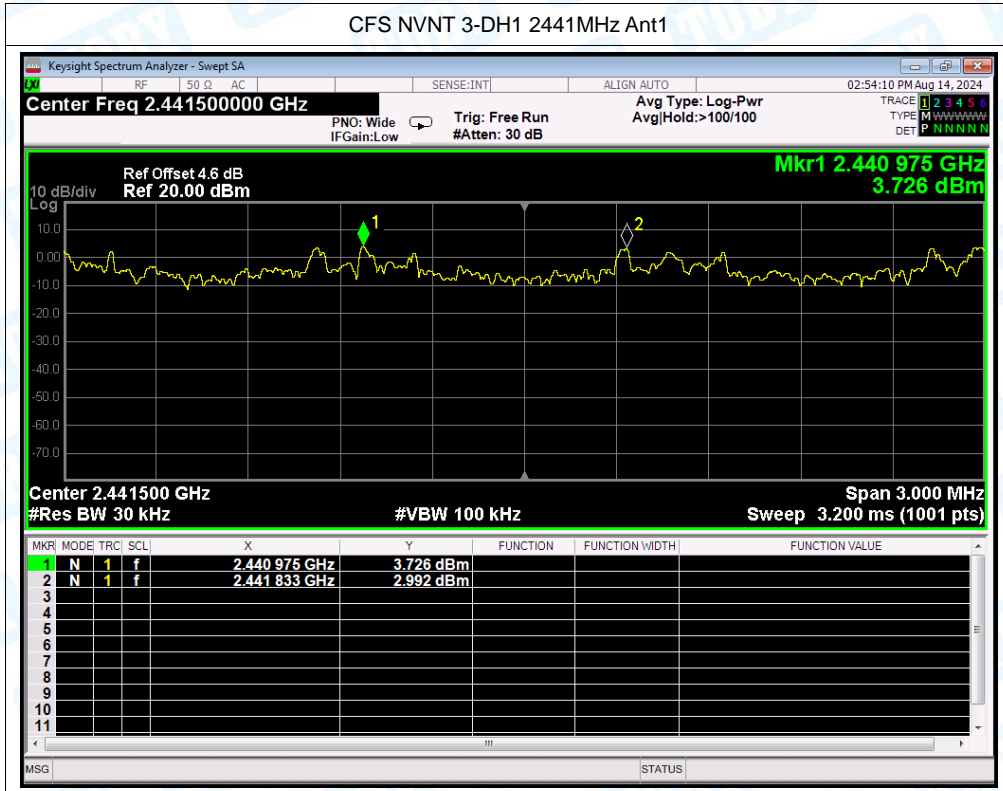
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1





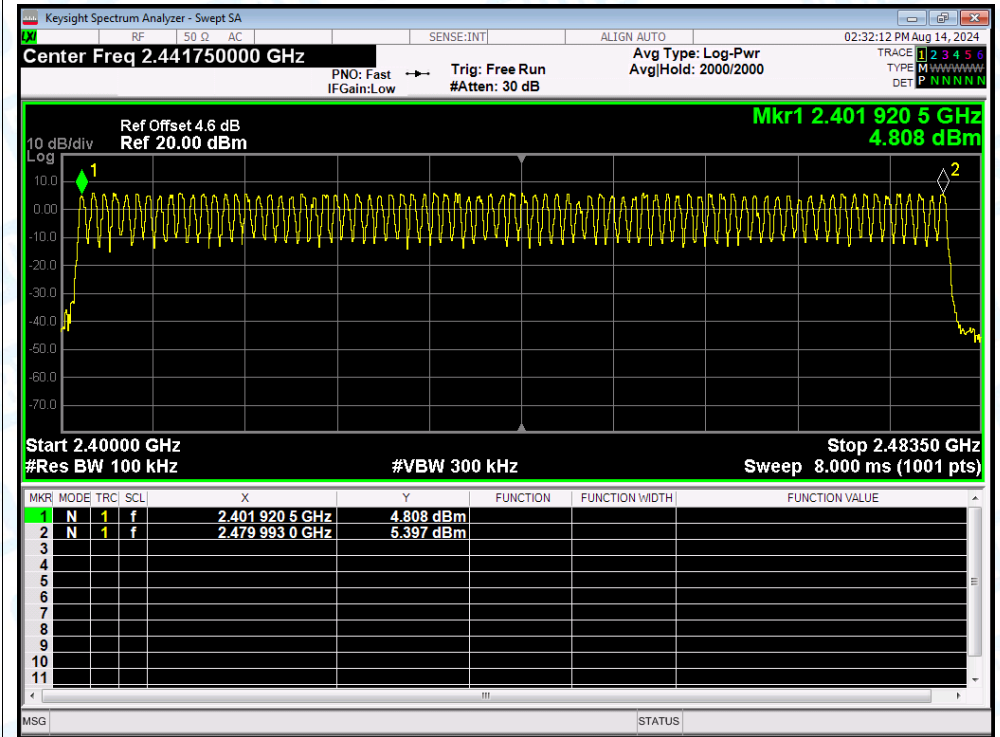
## 10.Number of Hopping Channel

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

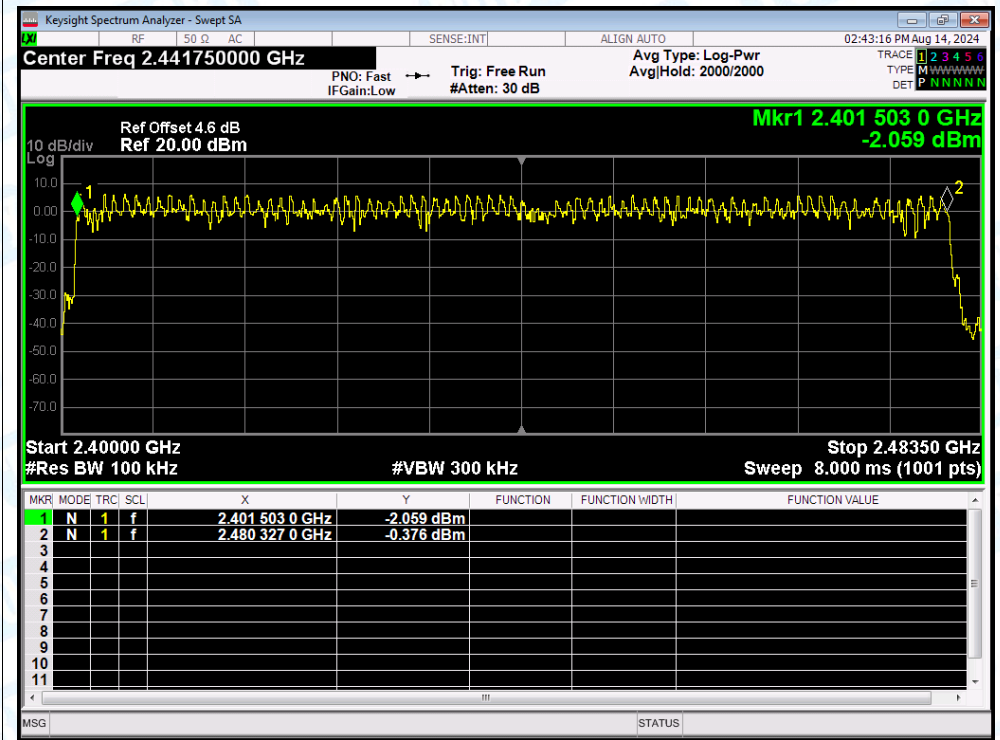


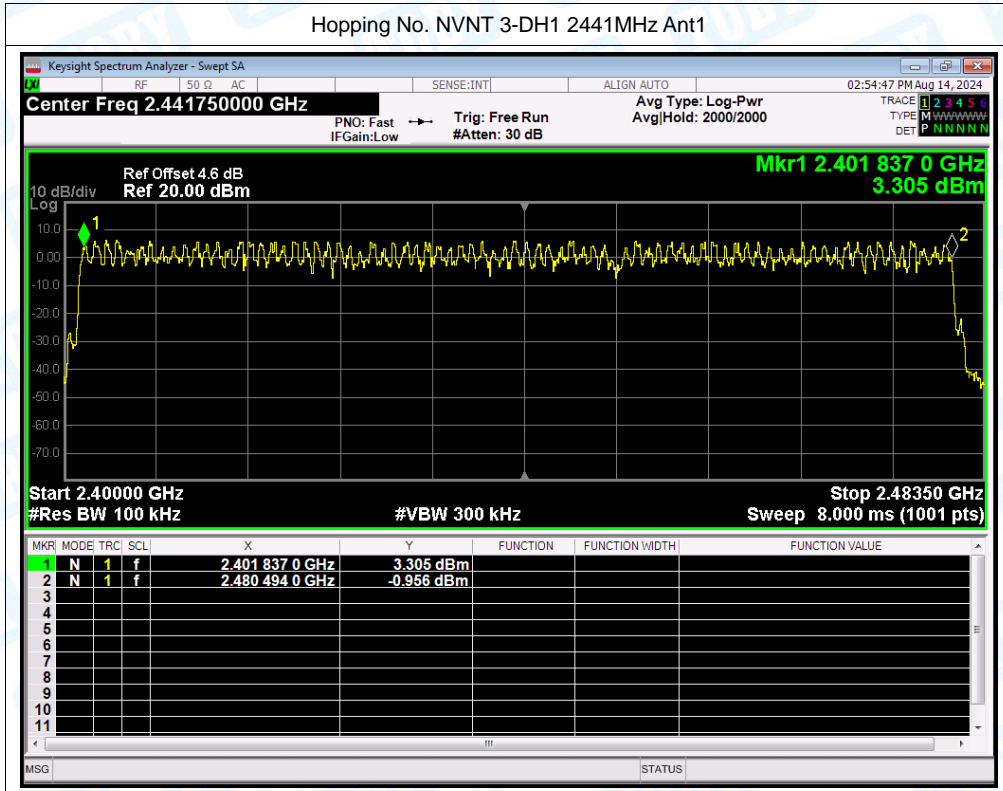
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



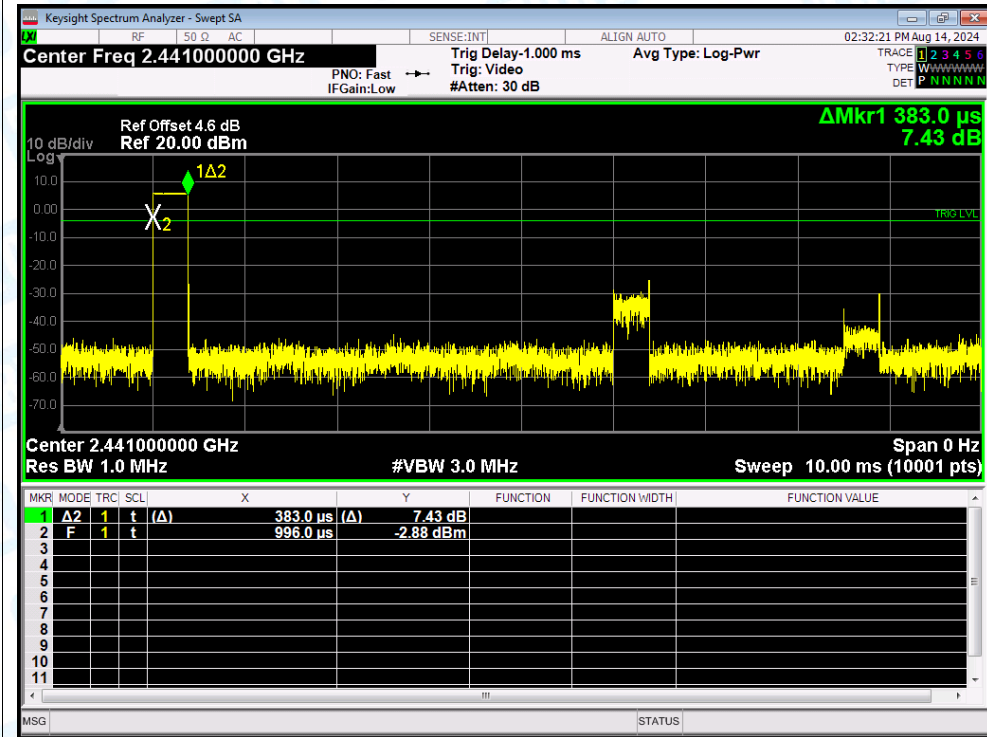


## 11.Dwell Time

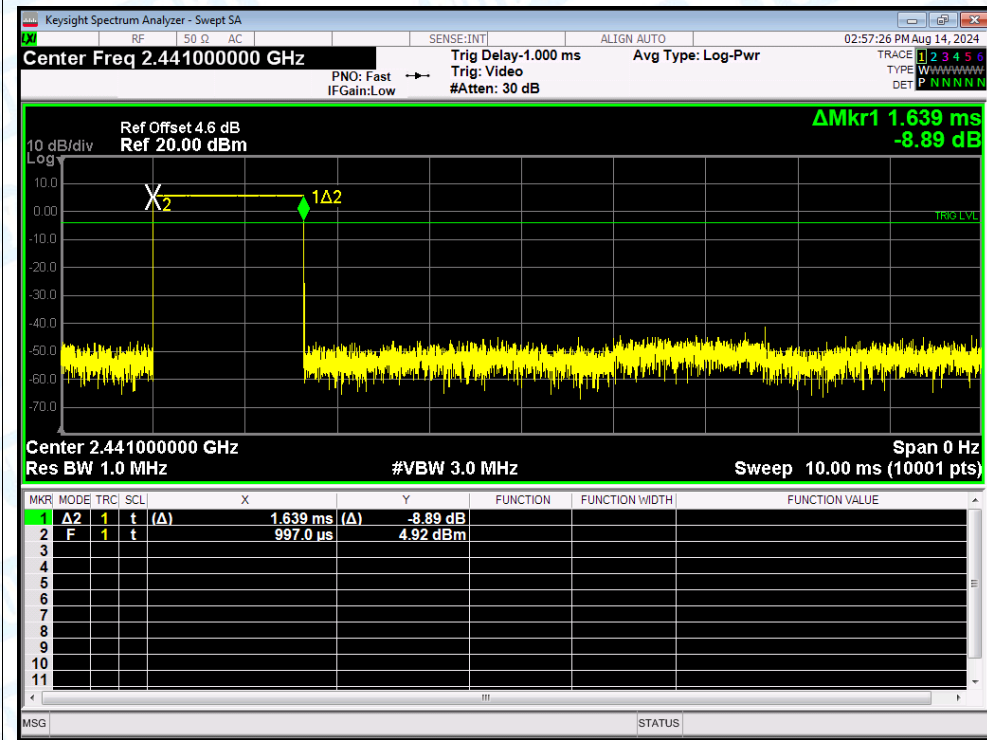
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.383	122.56	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.639	262.24	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.887	307.947	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.391	125.12	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.644	263.04	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.892	308.48	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.391	125.12	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.643	262.88	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.894	308.693	31600	400	Pass

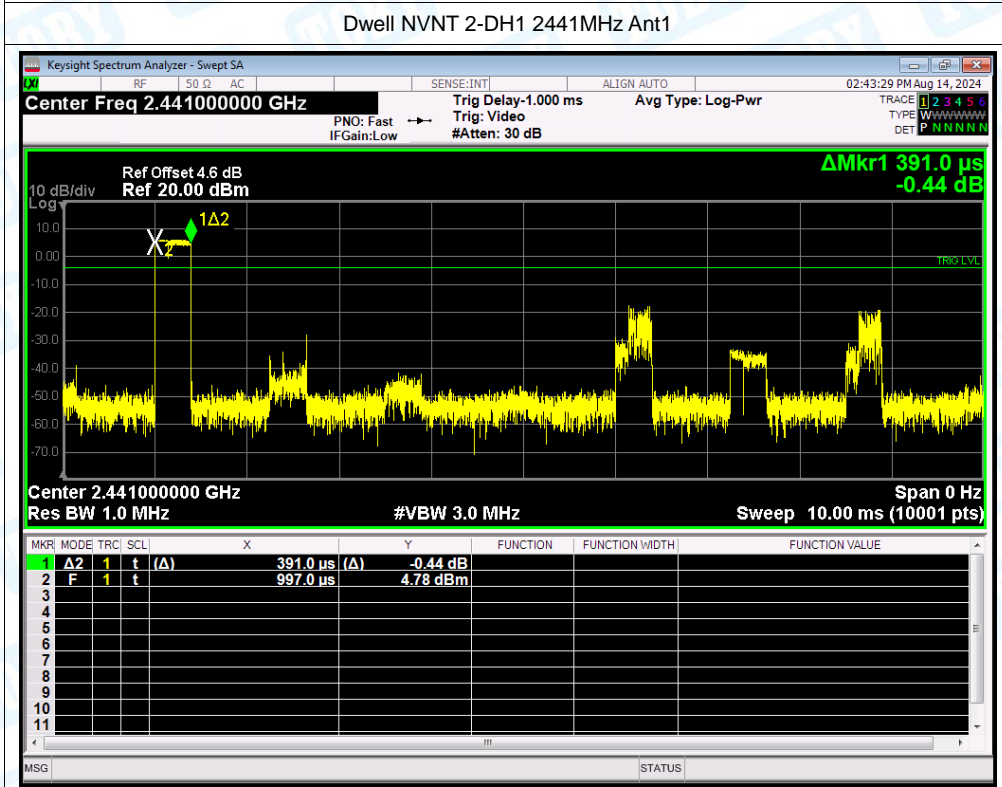
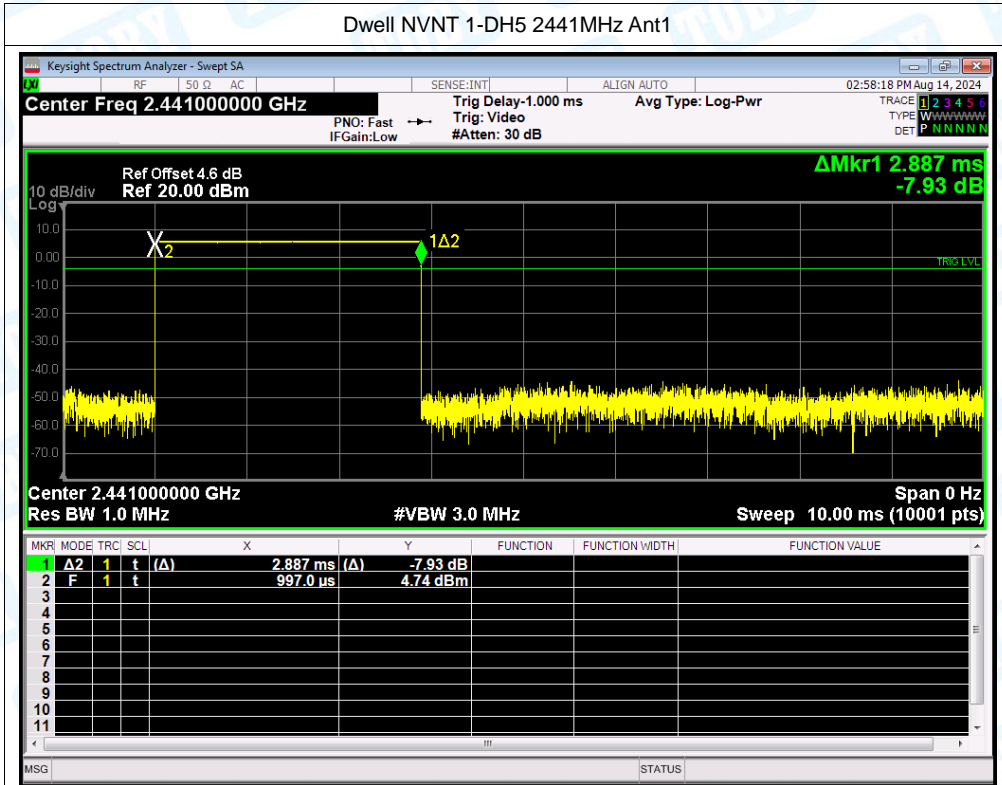
Test Graphs

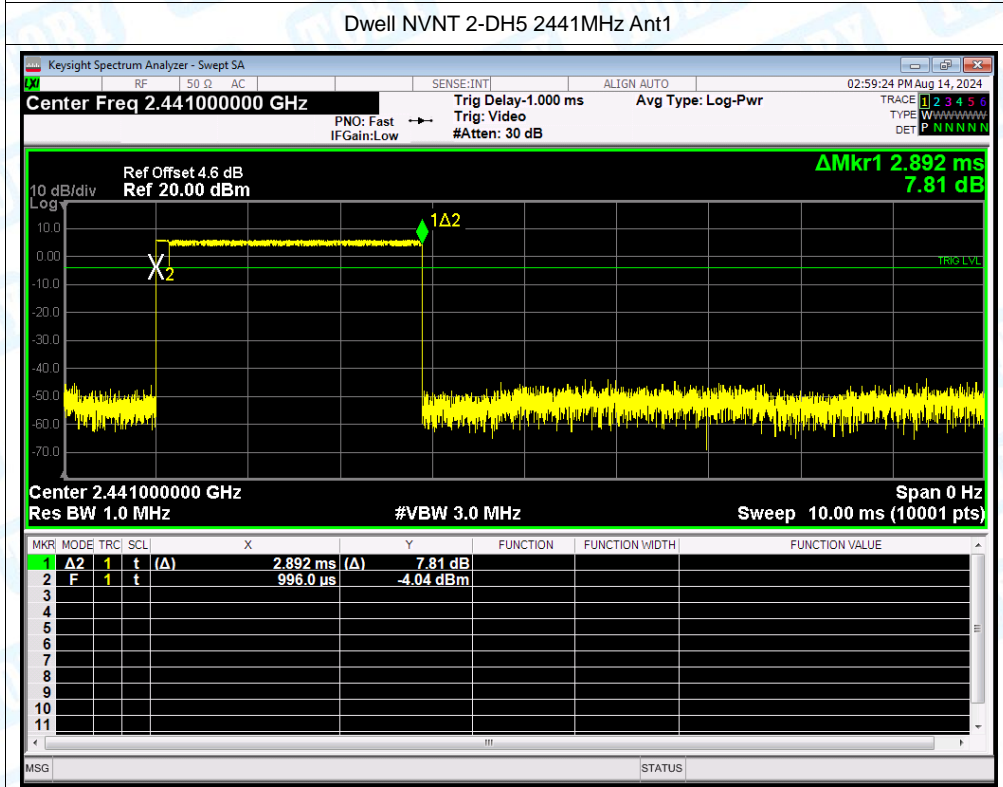
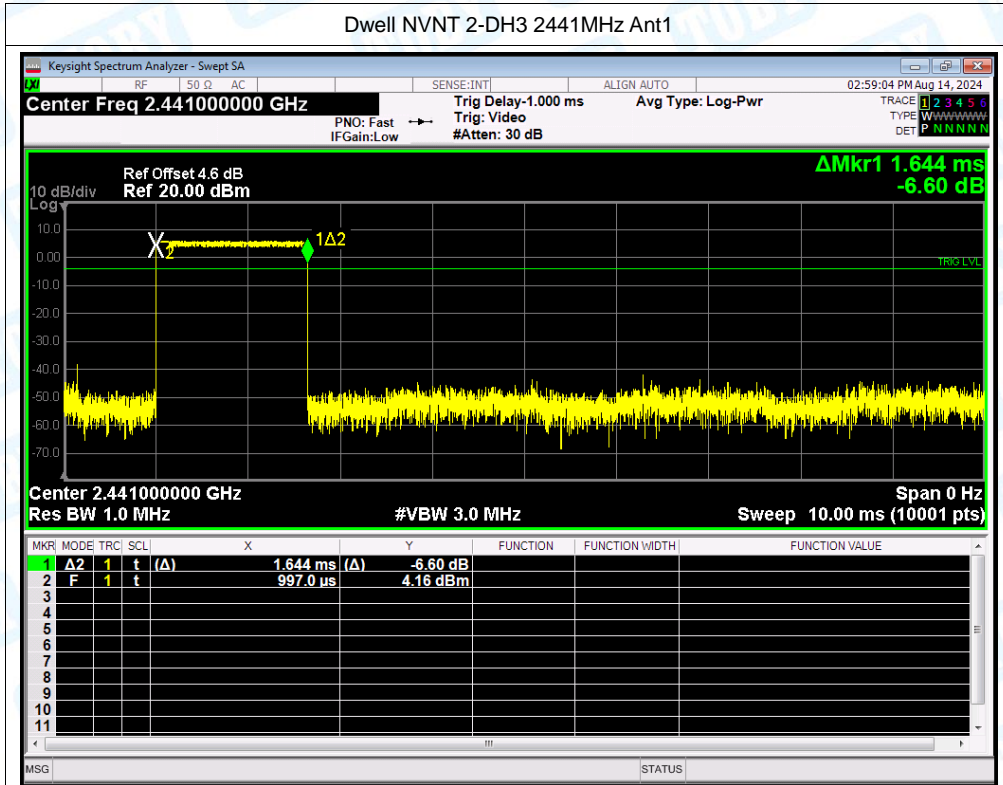
Dwell NVNT 1-DH1 2441MHz Ant1

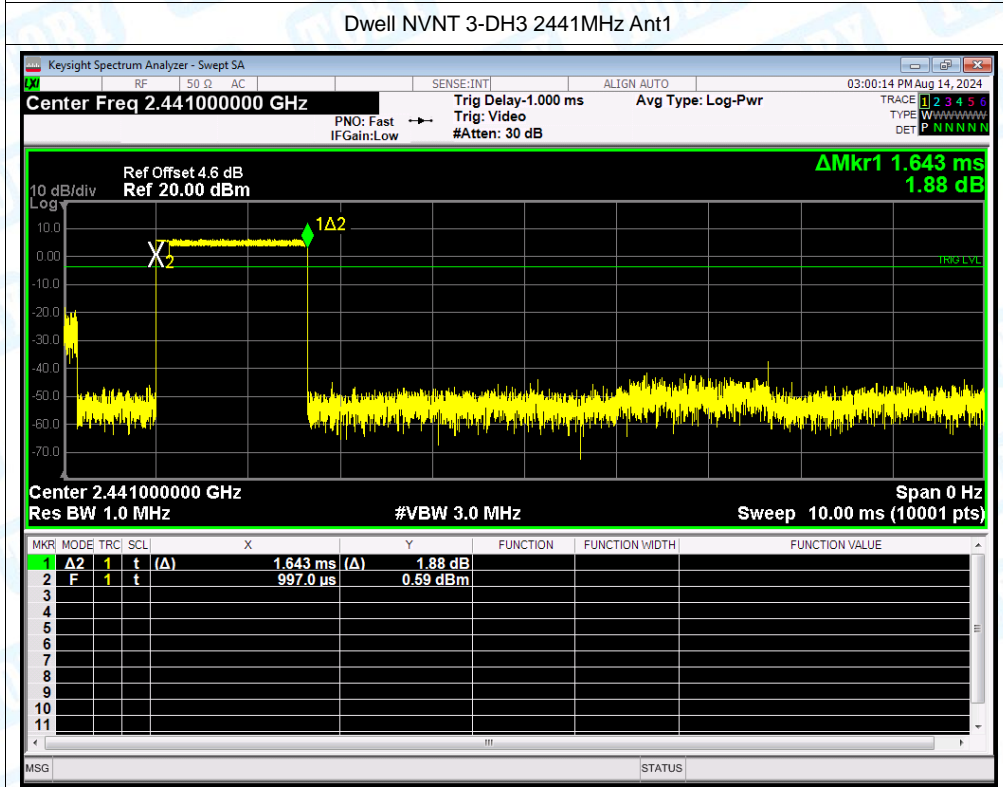
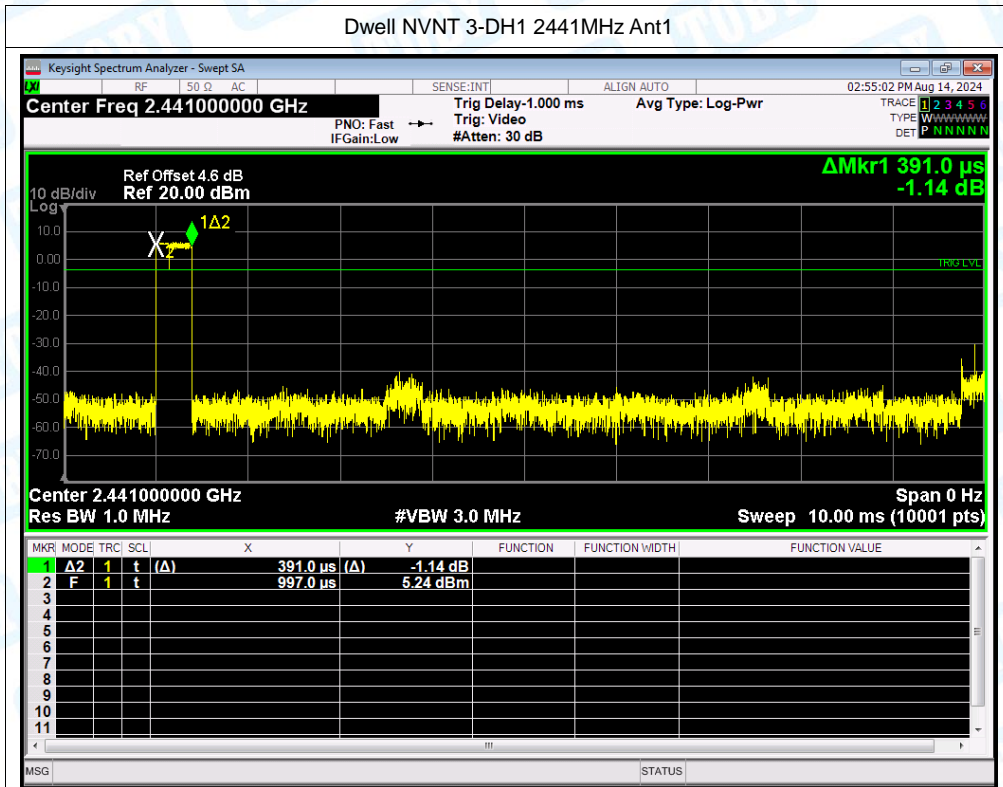


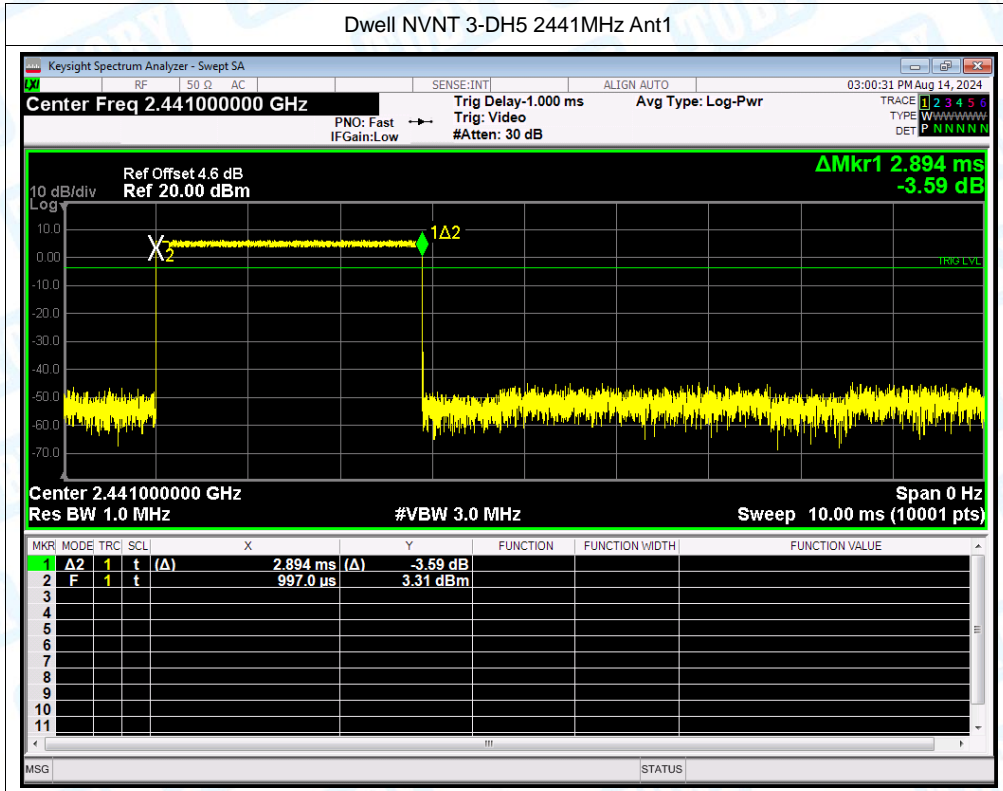
Dwell NVNT 1-DH3 2441MHz Ant1











--- END OF REPORT ---