

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	Bluetooth speaker
Test Model:	MZ-658
Sample ID:	HC-C-202504-0077-01-06#
Environmental Conditions	
Temperature:	25℃
Relative Humidity:	55%
Test Voltage:	DC 24V
Test Engineer:	Lily Zhang
Note: For a more detailed features description, please refer to the report TBR-C-202504-0077-13 The report only show the worst case data.	

Contents

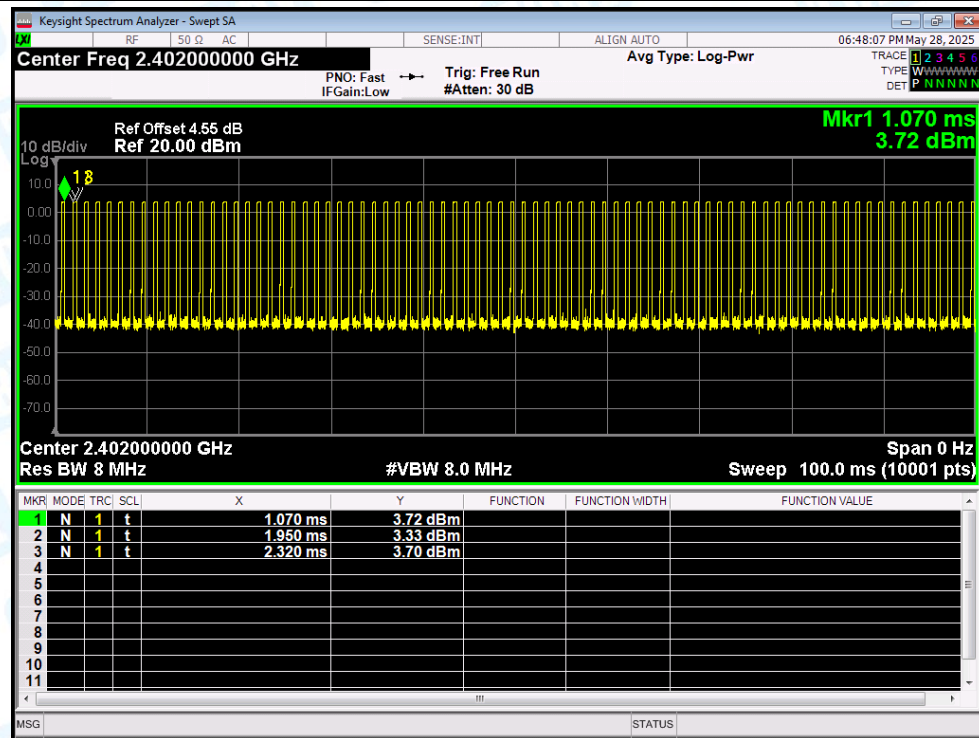
1.Duty Cycle.....	3
2.Maximum Conducted Output Power.....	9
3.-20dB Bandwidth.....	15
4.Occupied Channel Bandwidth.....	21
5.Band Edge.....	27
6.Band Edge(Hopping).....	34
7.Conducted RF Spurious Emission.....	41
8.Restrict Band.....	51
9.Carrier Frequencies Separation.....	58
10.Number of Hopping Channel.....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

1.Duty Cycle

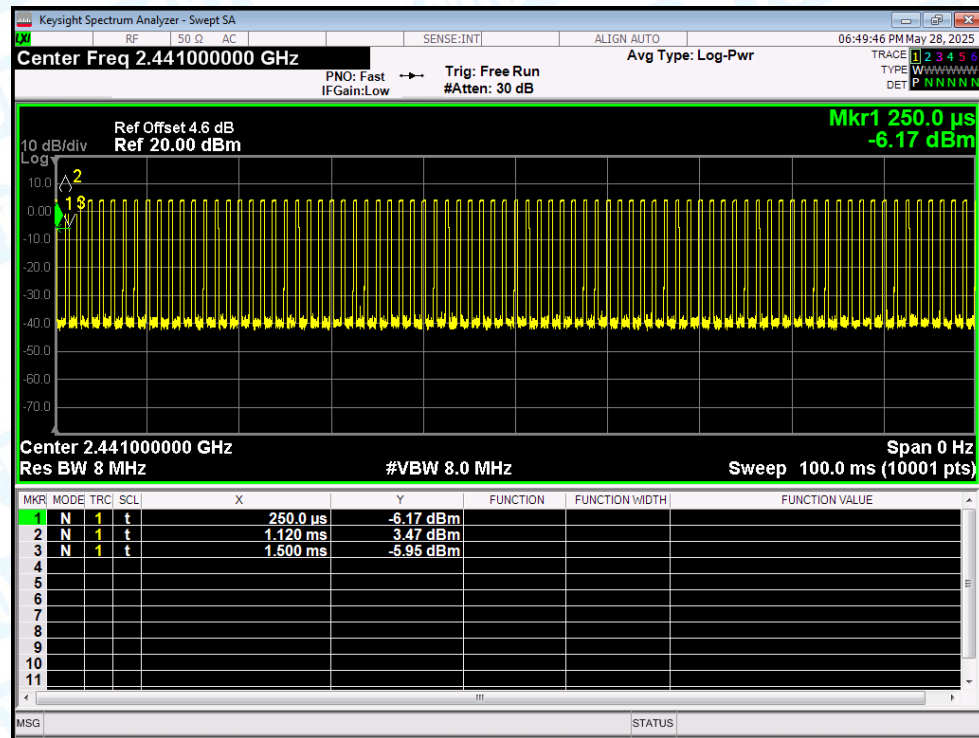
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	29.6	5.29	2.7
NVNT	1-DH1	2441	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2480	Ant1	29.6	5.29	2.7
NVNT	2-DH1	2402	Ant1	30.4	5.17	2.63
NVNT	2-DH1	2441	Ant1	30.4	5.17	2.63
NVNT	2-DH1	2480	Ant1	30.4	5.17	2.63
NVNT	3-DH1	2402	Ant1	30.4	5.17	2.63
NVNT	3-DH1	2441	Ant1	30.4	5.17	2.63
NVNT	3-DH1	2480	Ant1	31.2	5.06	2.56

Test Graphs

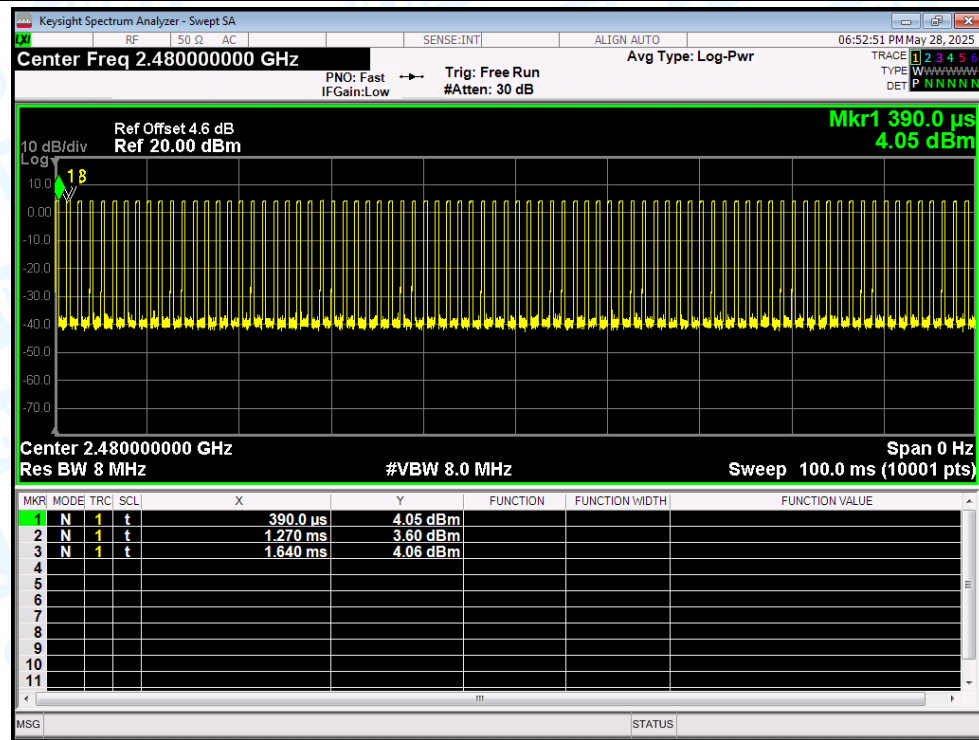
Duty Cycle NVNT 1-DH1 2402MHz Ant1



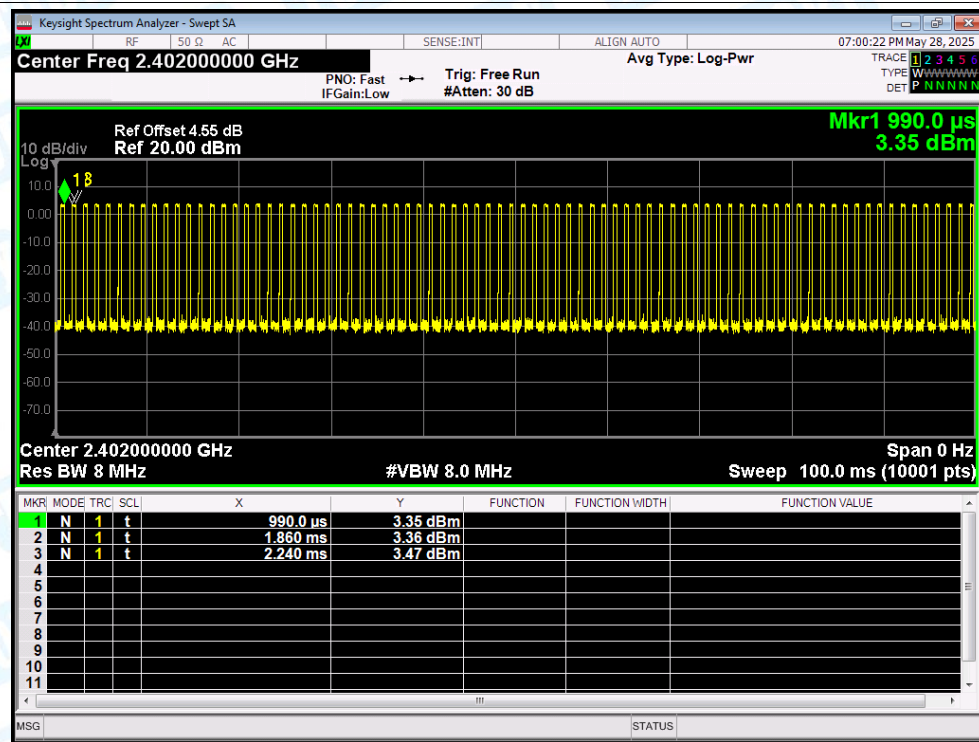
Duty Cycle NVNT 1-DH1 2441MHz Ant1



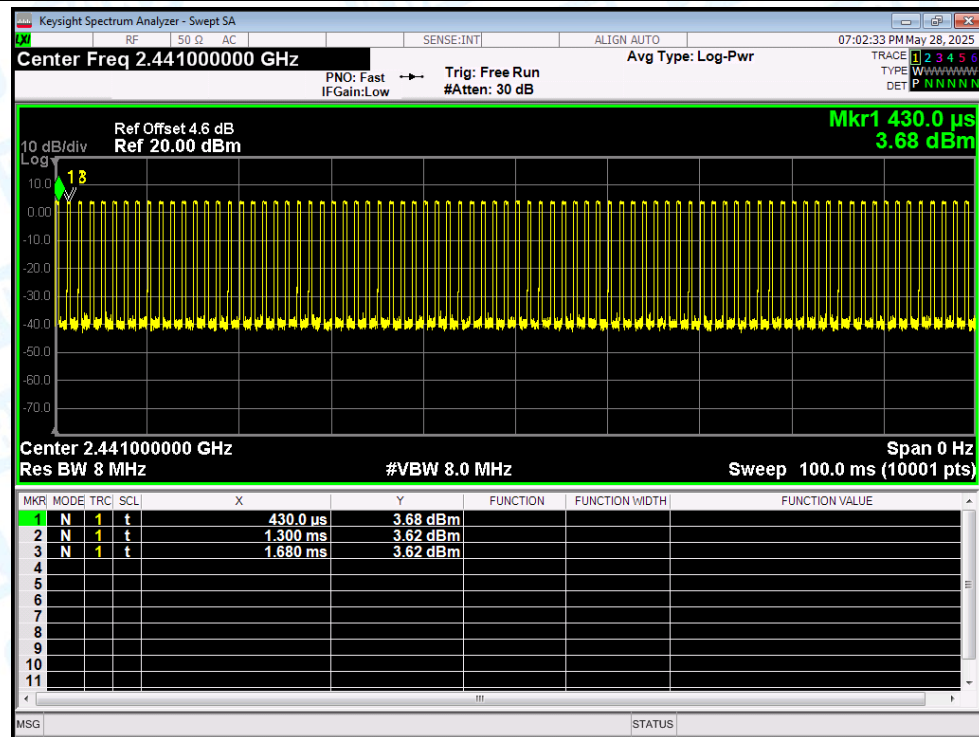
Duty Cycle NVNT 1-DH1 2480MHz Ant1



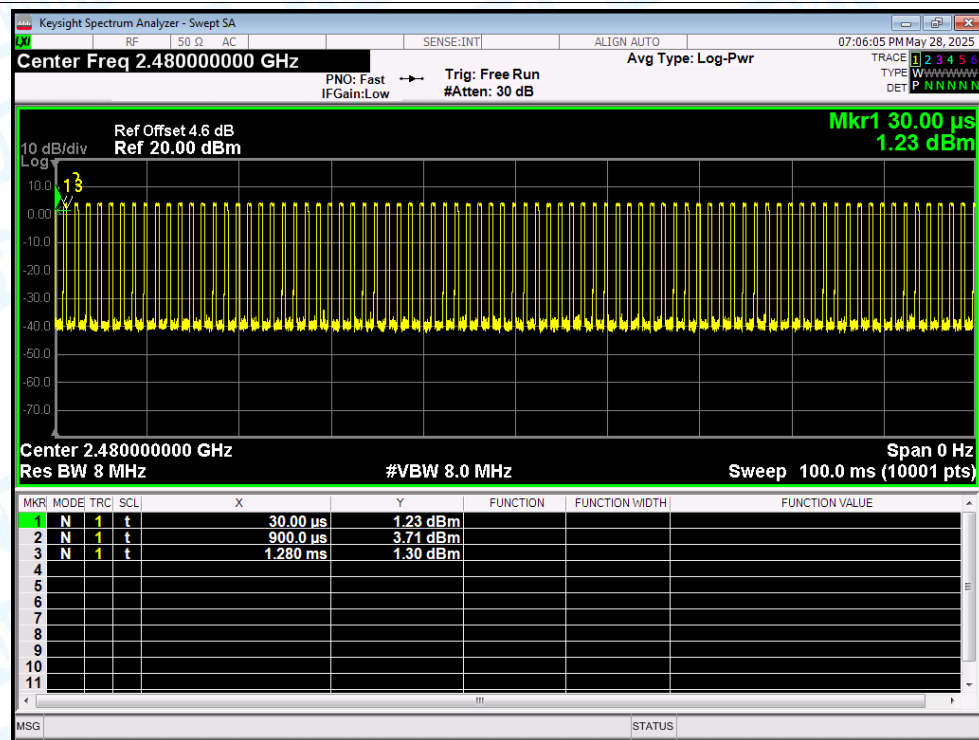
Duty Cycle NVNT 2-DH1 2402MHz Ant1



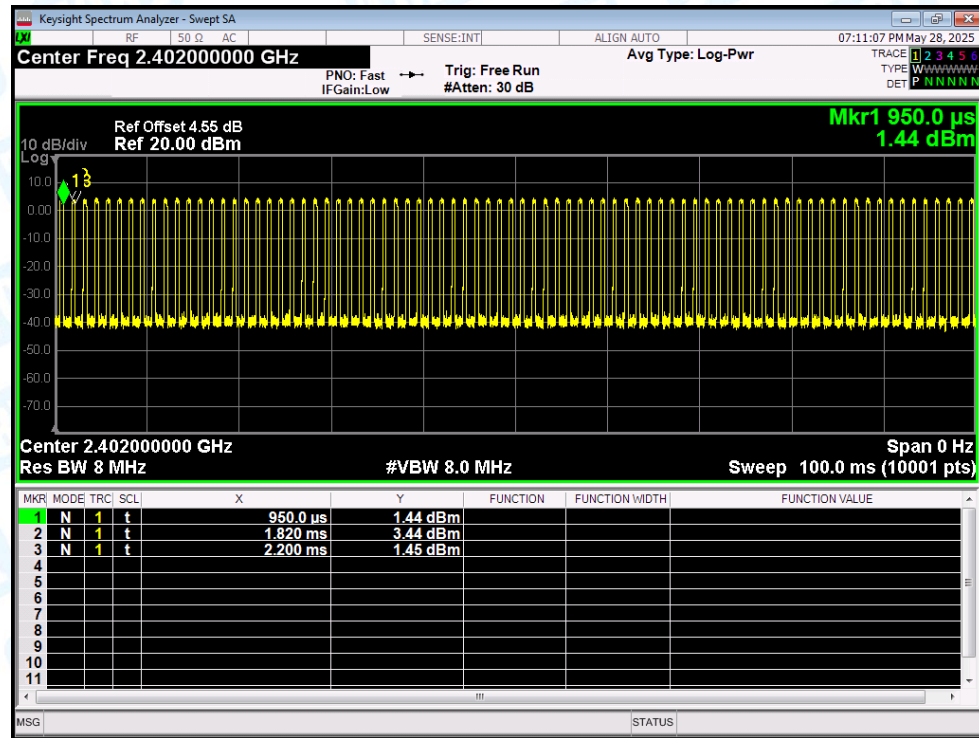
Duty Cycle NVNT 2-DH1 2441MHz Ant1



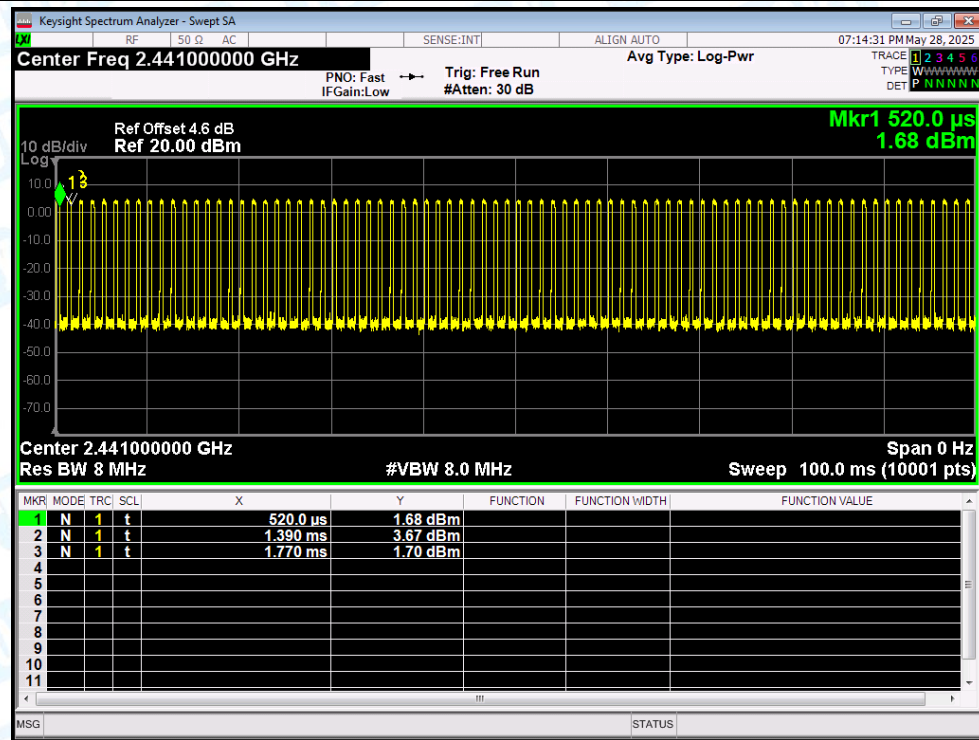
Duty Cycle NVNT 2-DH1 2480MHz Ant1

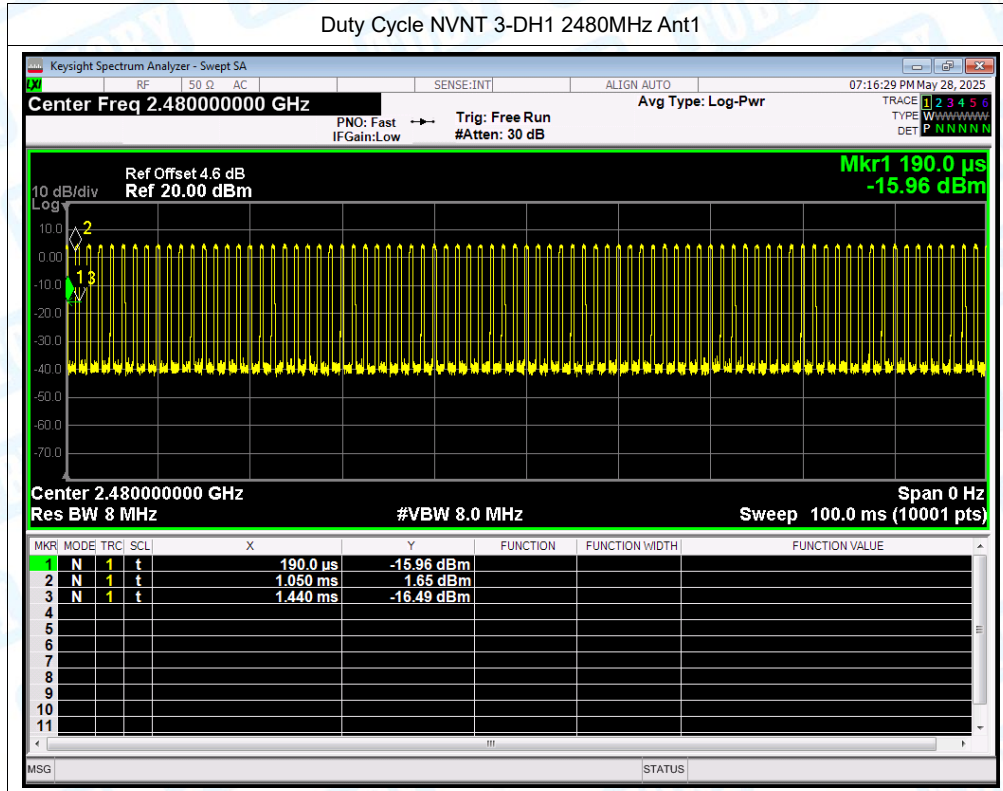


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



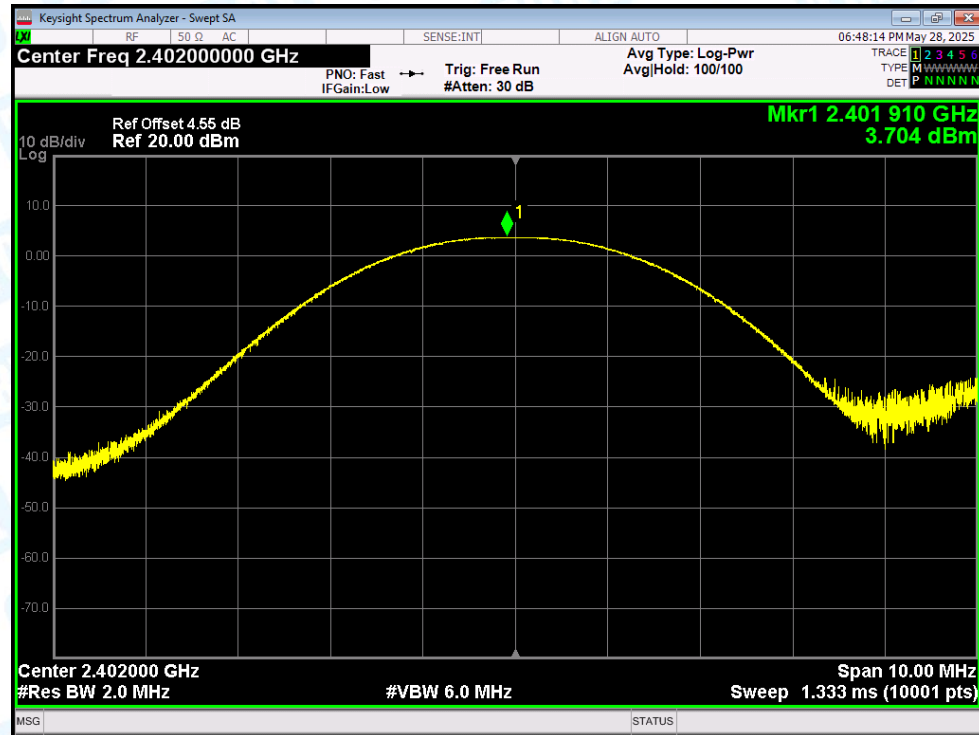


2.Maximum Conducted Output Power

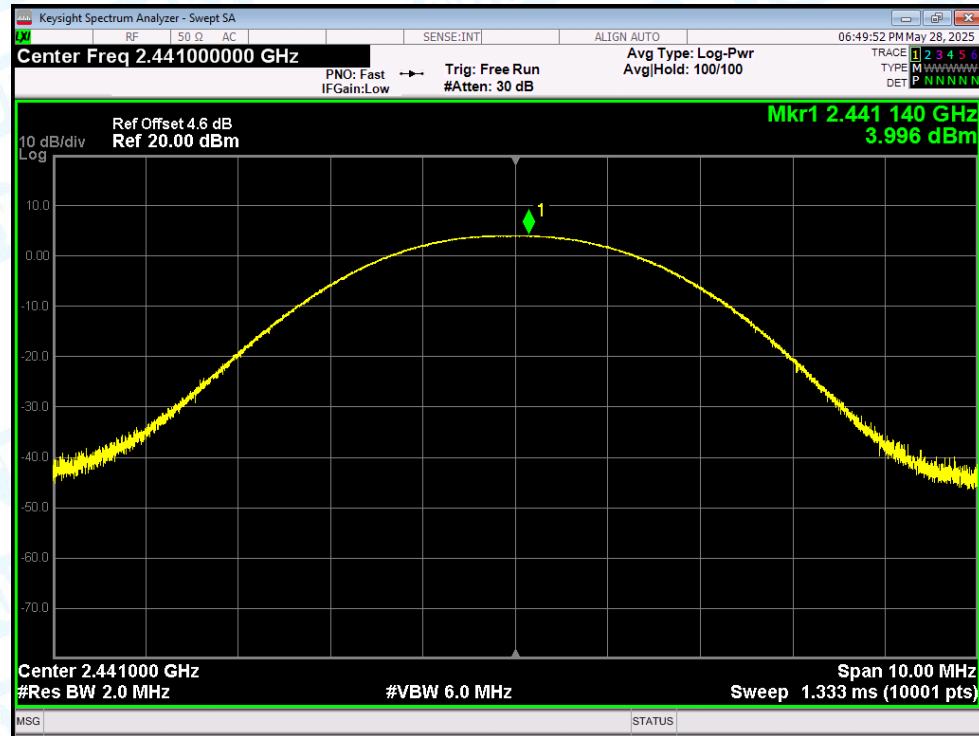
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	3.704	21	Pass
NVNT	1-DH1	2441	Ant1	3.996	21	Pass
NVNT	1-DH1	2480	Ant1	4.085	21	Pass
NVNT	2-DH1	2402	Ant1	3.873	21	Pass
NVNT	2-DH1	2441	Ant1	3.98	21	Pass
NVNT	2-DH1	2480	Ant1	4.042	21	Pass
NVNT	3-DH1	2402	Ant1	4.076	21	Pass
NVNT	3-DH1	2441	Ant1	4.421	21	Pass
NVNT	3-DH1	2480	Ant1	4.508	21	Pass

Test Graphs

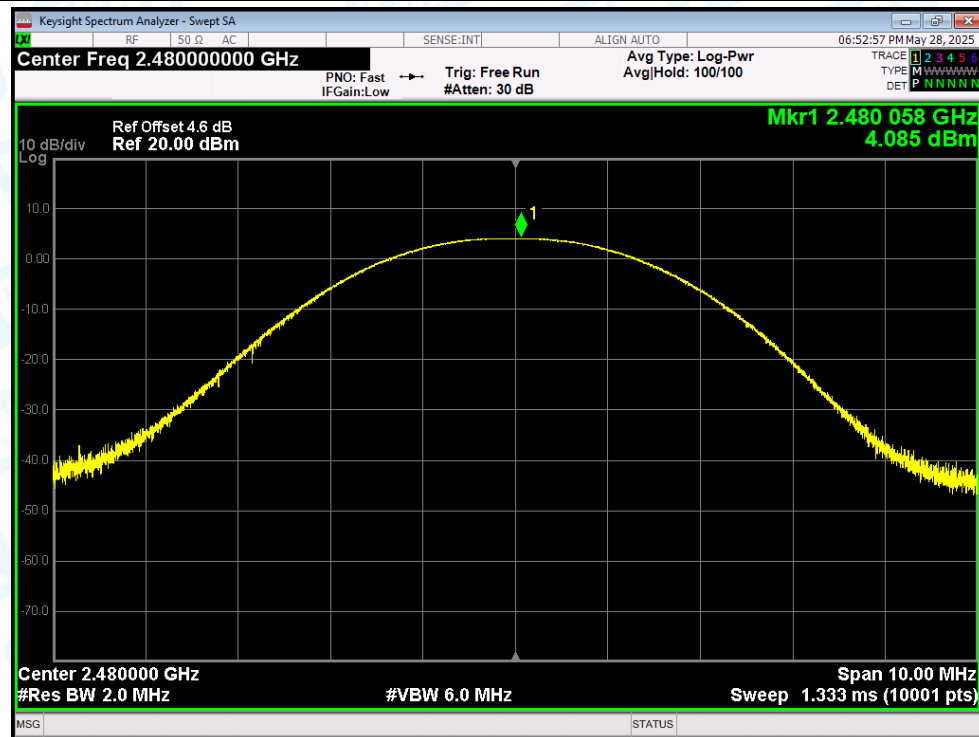
Power NVNT 1-DH1 2402MHz Ant1



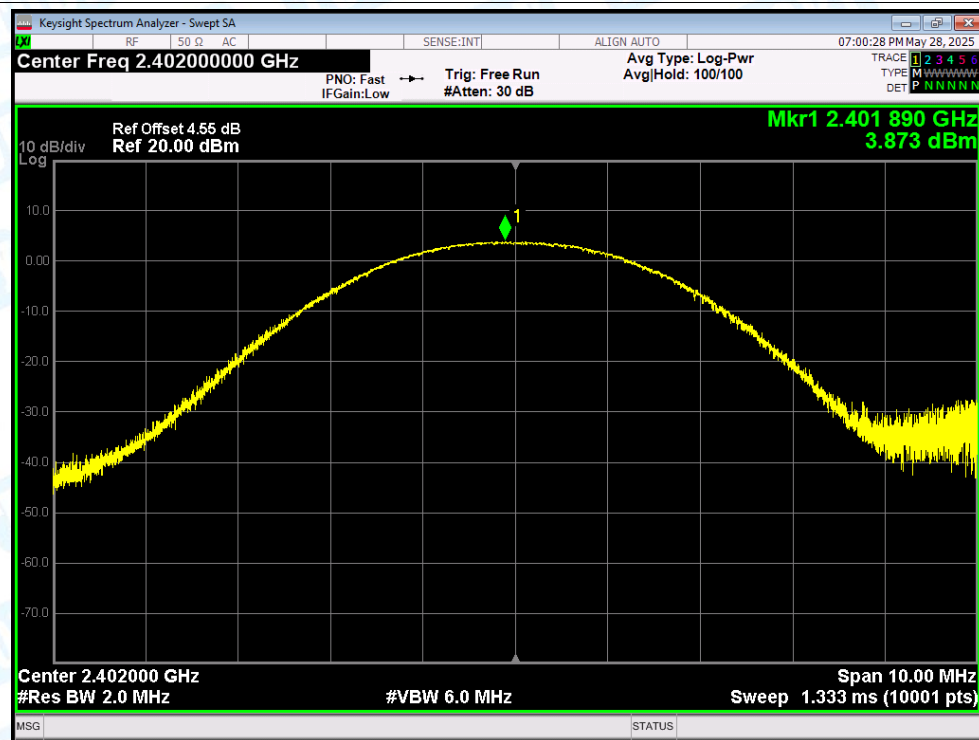
Power NVNT 1-DH1 2441MHz Ant1



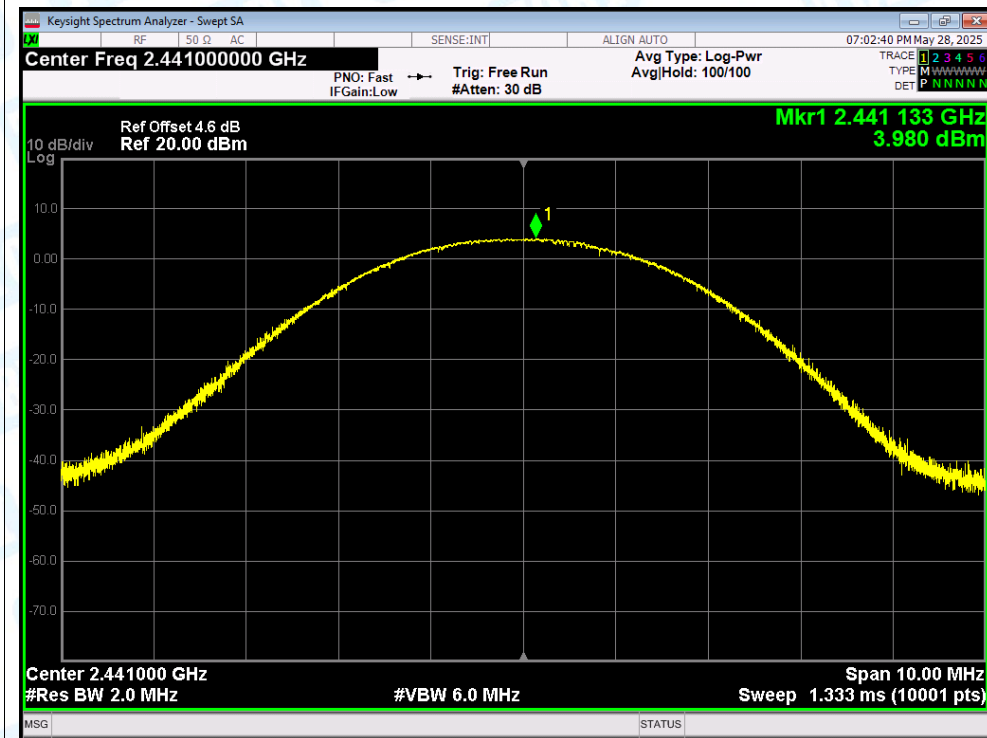
Power NVNT 1-DH1 2480MHz Ant1



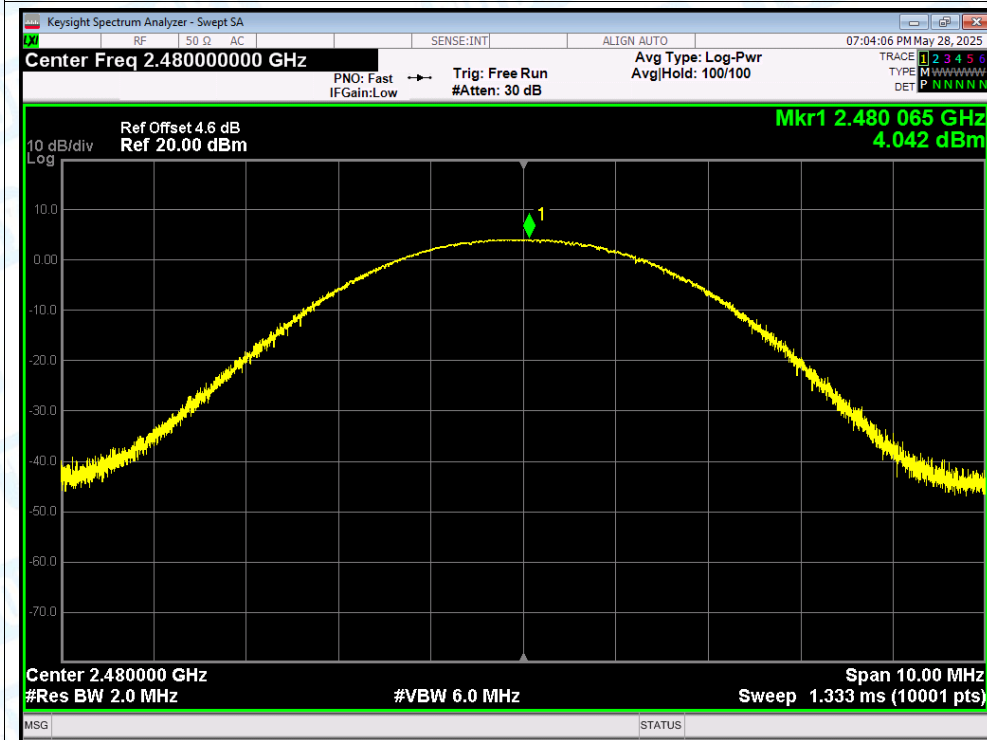
Power NVNT 2-DH1 2402MHz Ant1



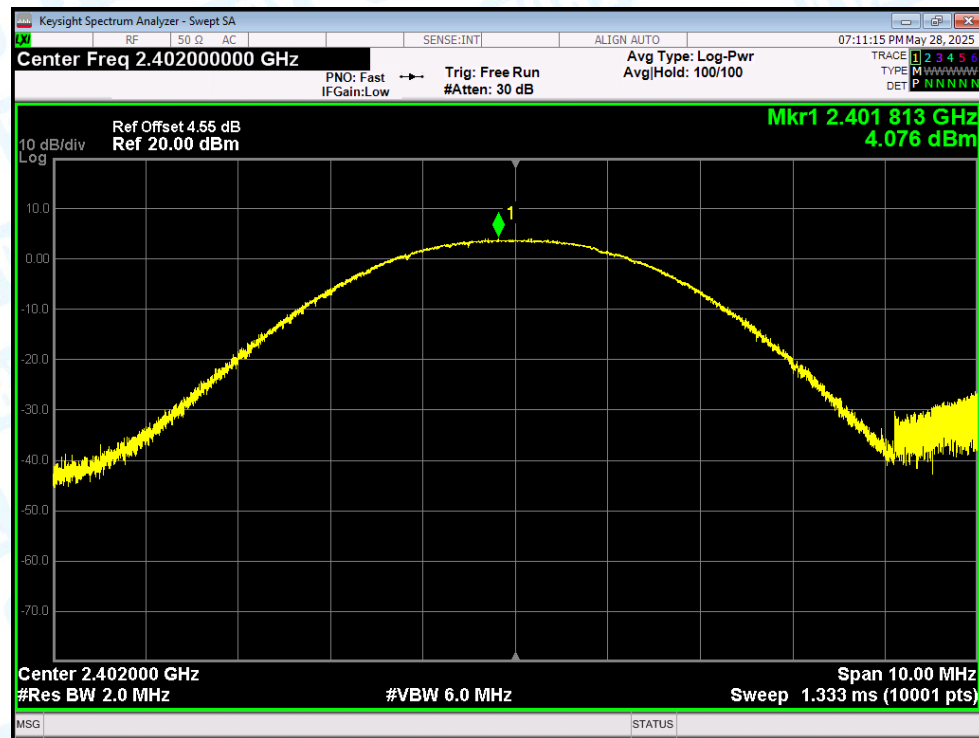
Power NVNT 2-DH1 2441MHz Ant1



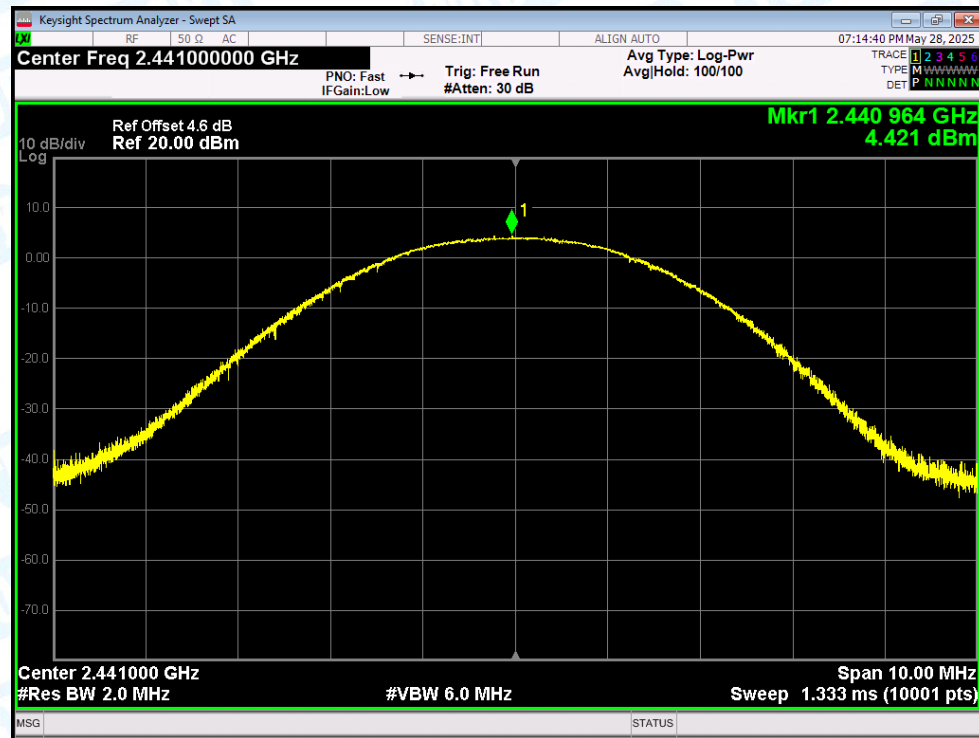
Power NVNT 2-DH1 2480MHz Ant1

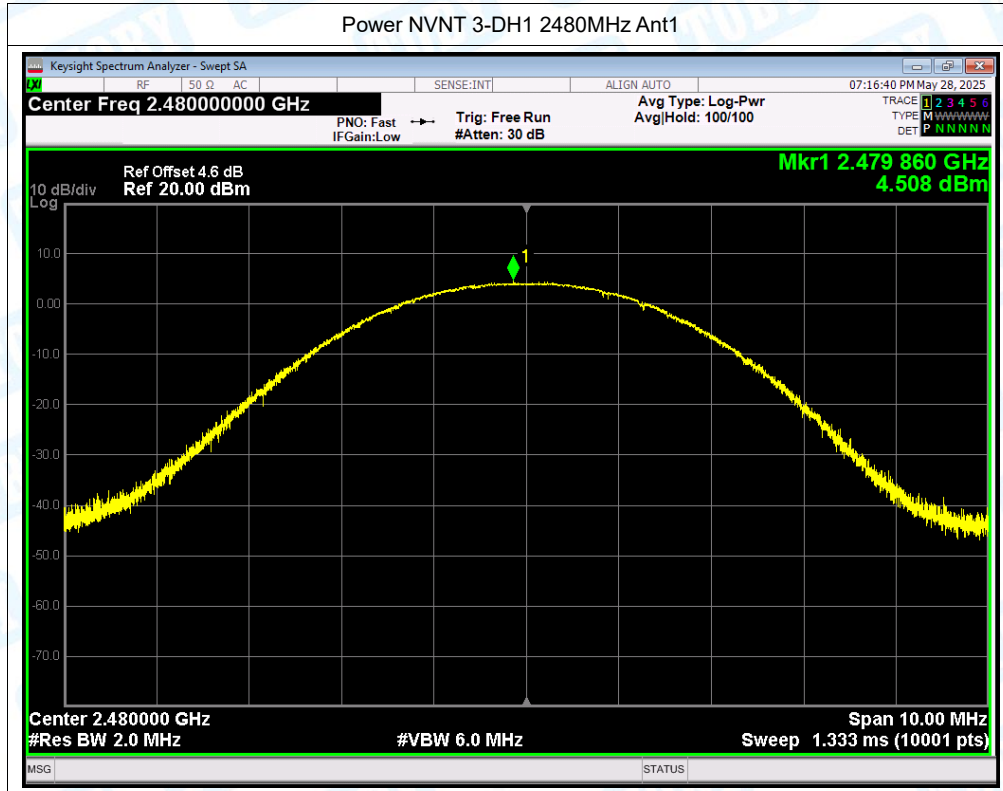


Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-DH1 2441MHz Ant1





3.-20dB Bandwidth

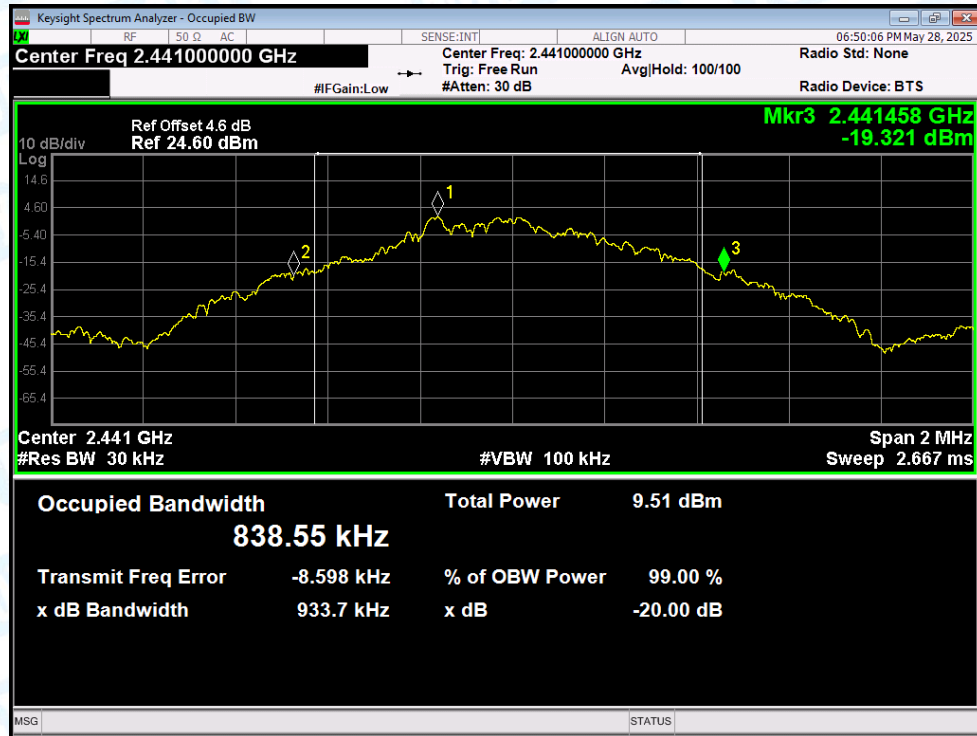
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.83	0	Pass
NVNT	1-DH1	2441	Ant1	0.93	0	Pass
NVNT	1-DH1	2480	Ant1	0.88	0	Pass
NVNT	2-DH1	2402	Ant1	1.17	0	Pass
NVNT	2-DH1	2441	Ant1	1.21	0	Pass
NVNT	2-DH1	2480	Ant1	1.18	0	Pass
NVNT	3-DH1	2402	Ant1	1.21	0	Pass
NVNT	3-DH1	2441	Ant1	1.21	0	Pass
NVNT	3-DH1	2480	Ant1	1.21	0	Pass

Test Graphs

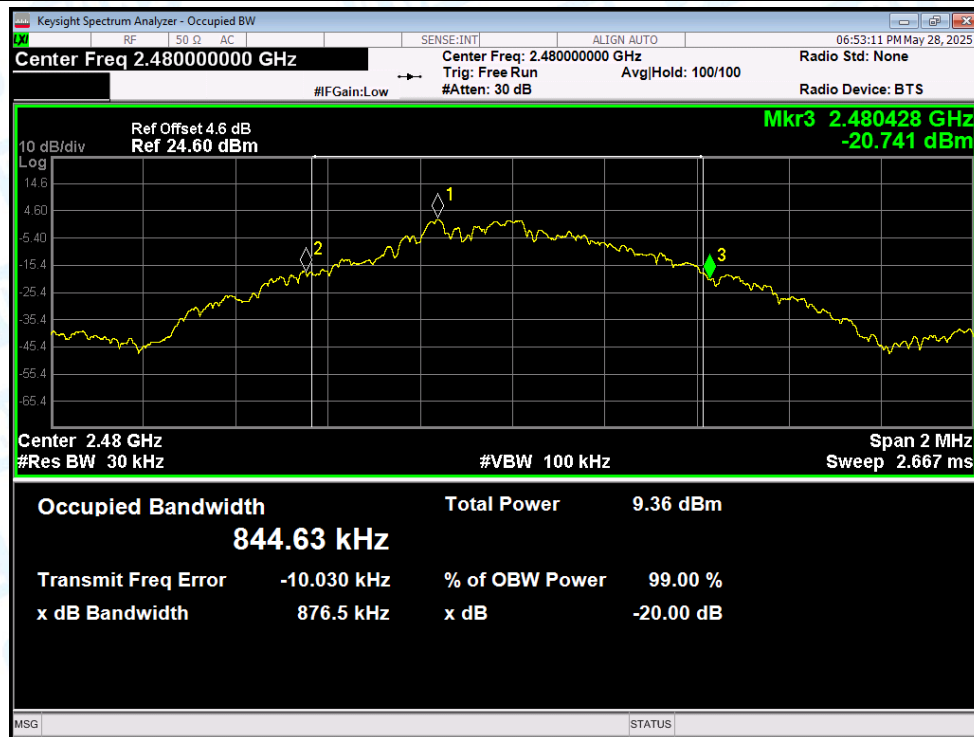
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



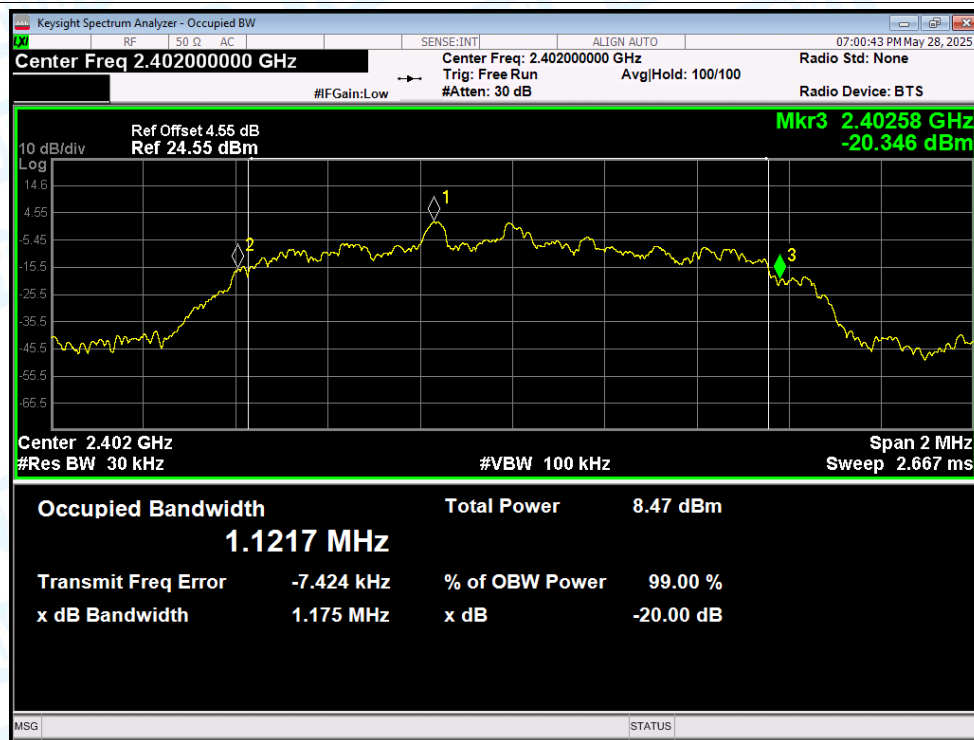
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



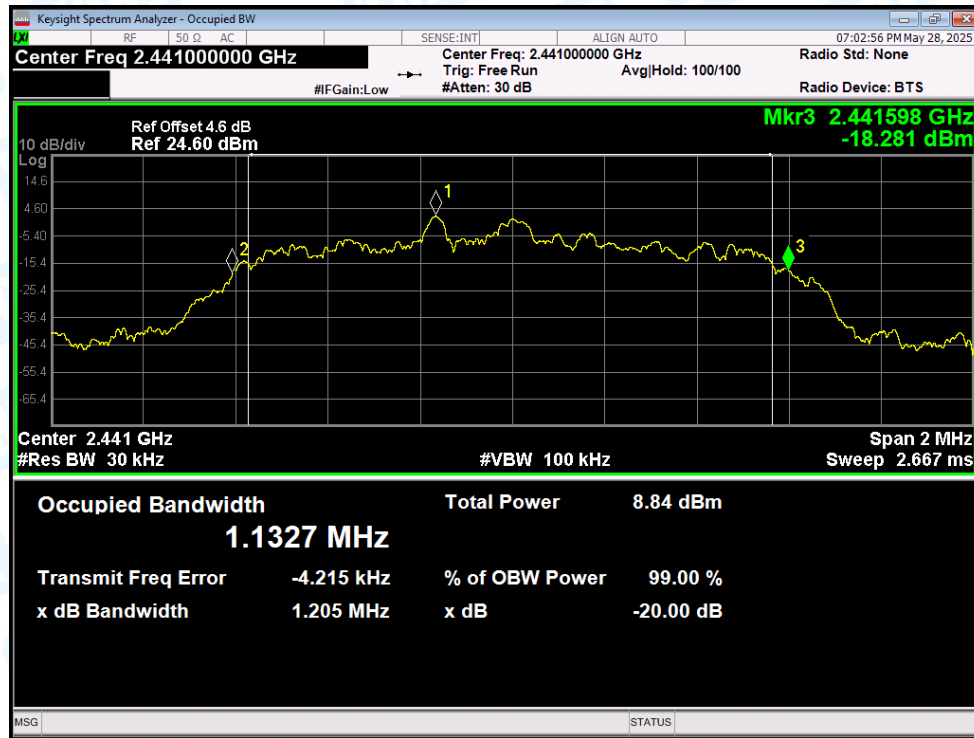
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



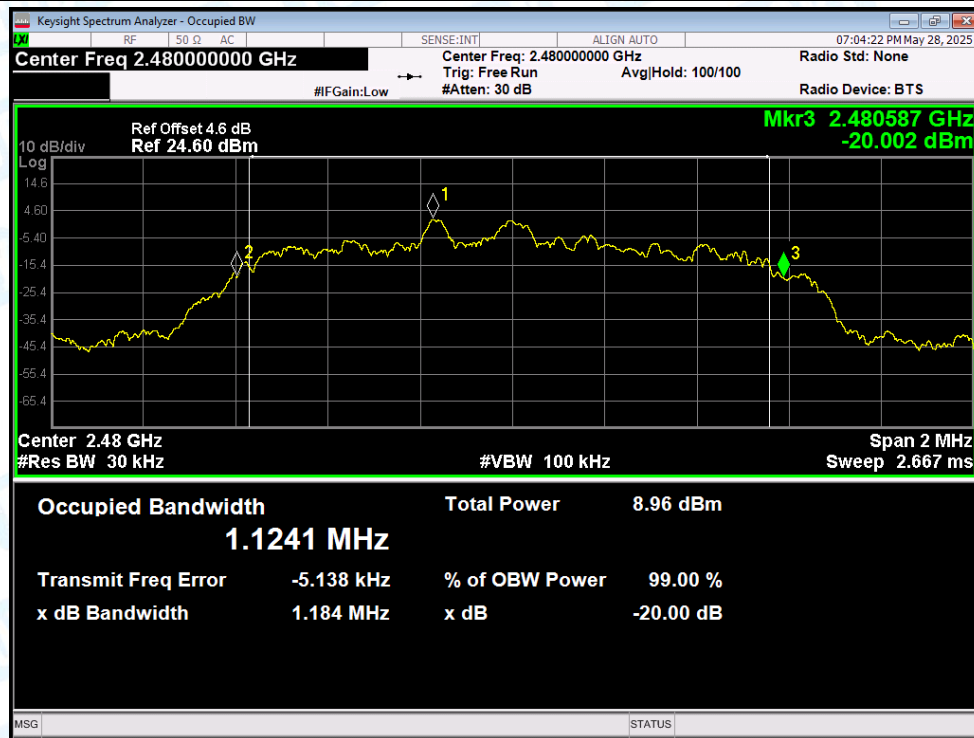
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



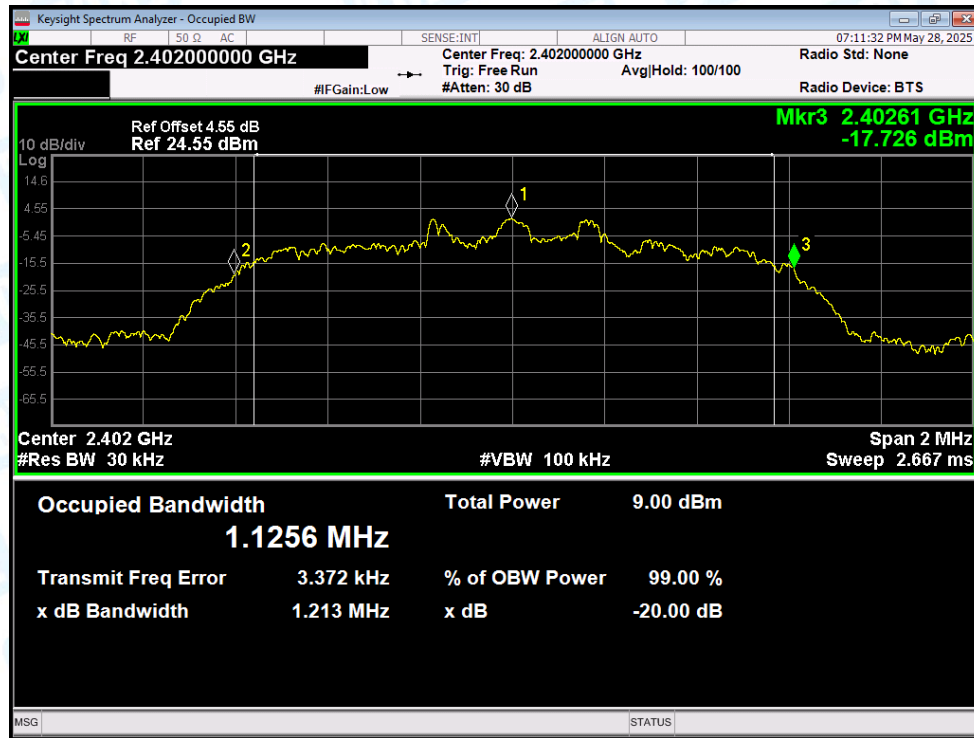
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



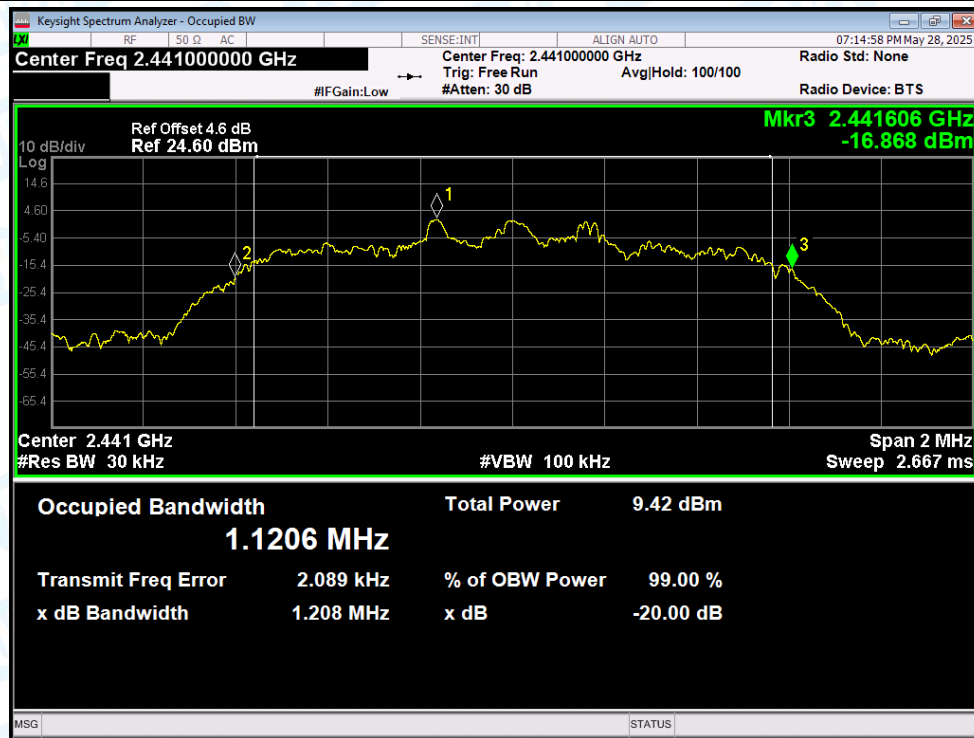
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

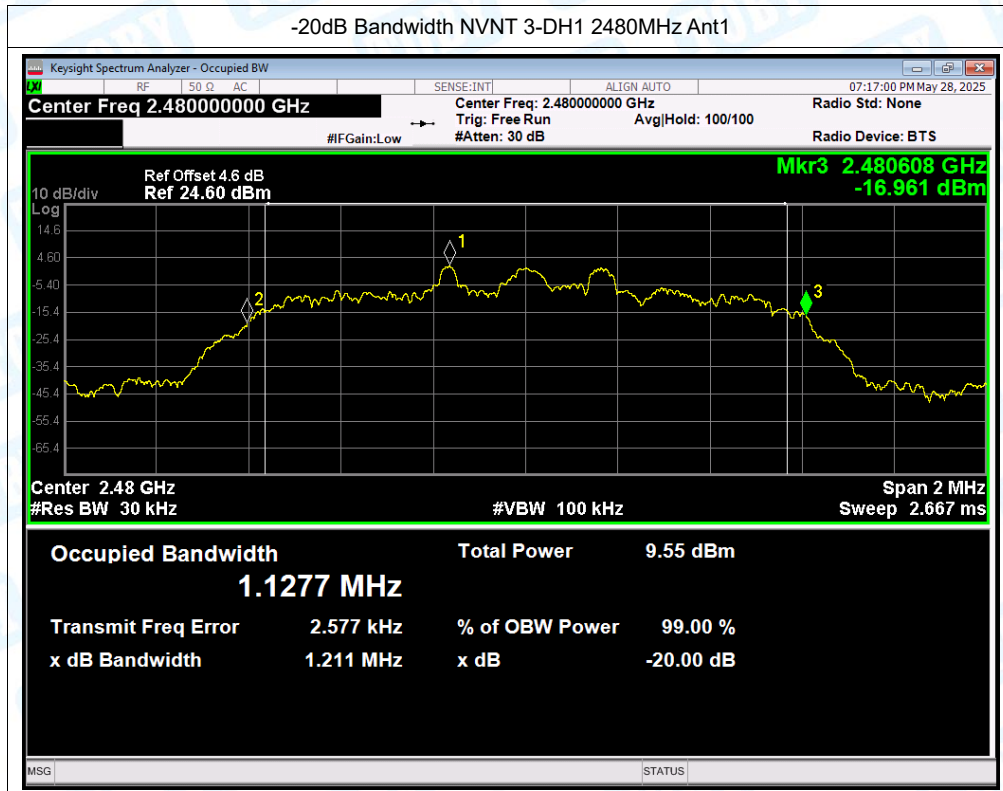


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



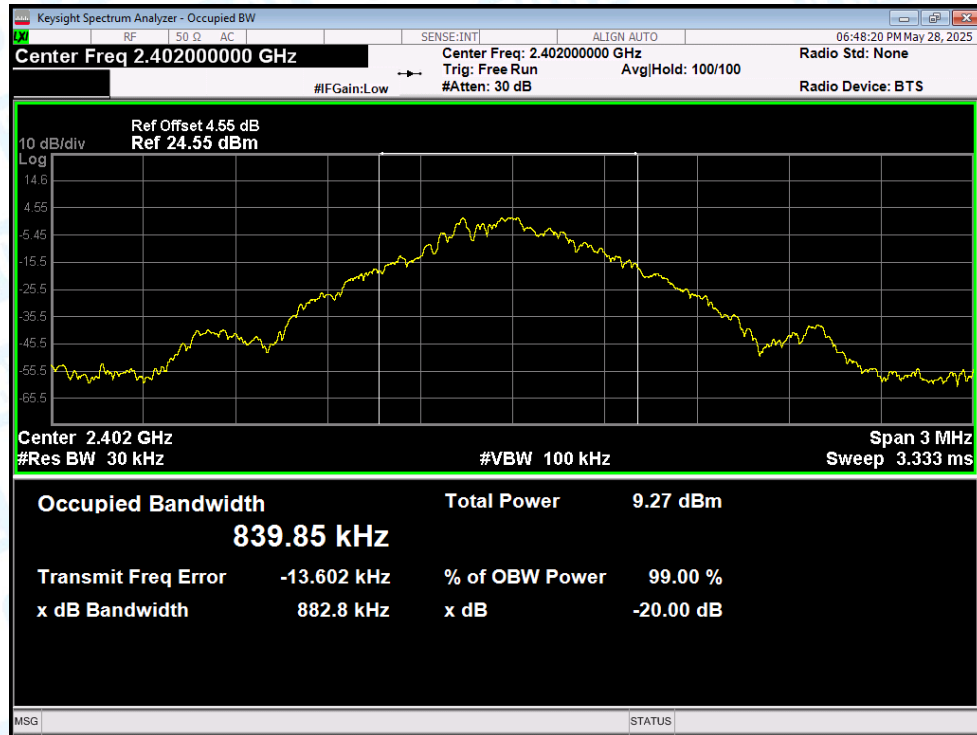


4.Occupied Channel Bandwidth

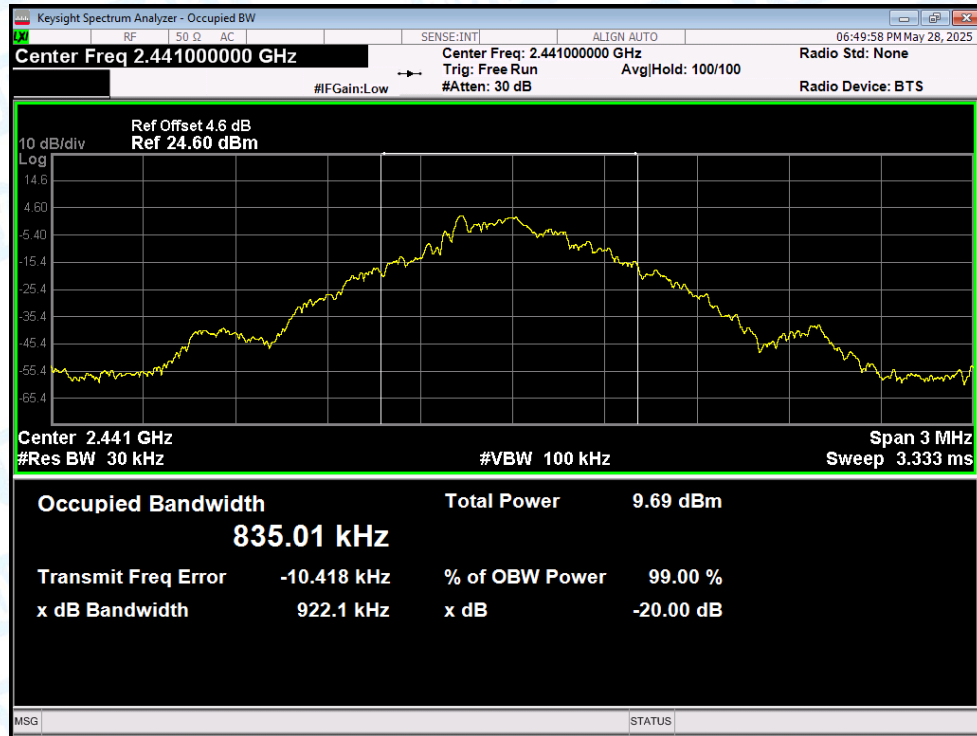
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.84
NVNT	1-DH1	2441	Ant1	0.835
NVNT	1-DH1	2480	Ant1	0.829
NVNT	2-DH1	2402	Ant1	1.133
NVNT	2-DH1	2441	Ant1	1.148
NVNT	2-DH1	2480	Ant1	1.138
NVNT	3-DH1	2402	Ant1	1.135
NVNT	3-DH1	2441	Ant1	1.126
NVNT	3-DH1	2480	Ant1	1.125

Test Graphs

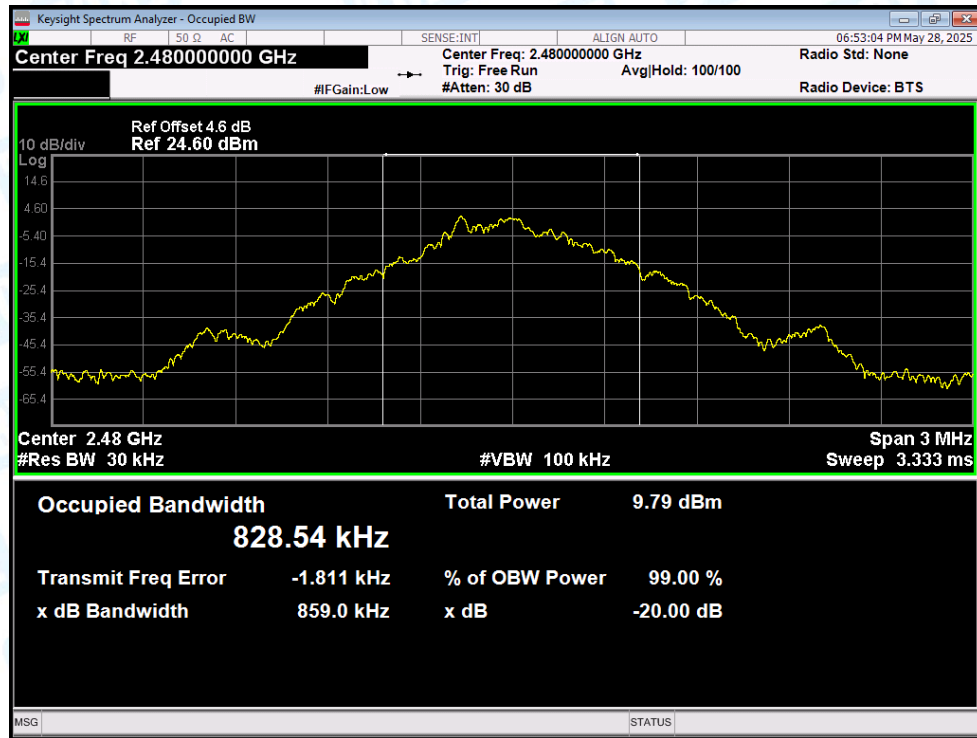
OBW NVNT 1-DH1 2402MHz Ant1



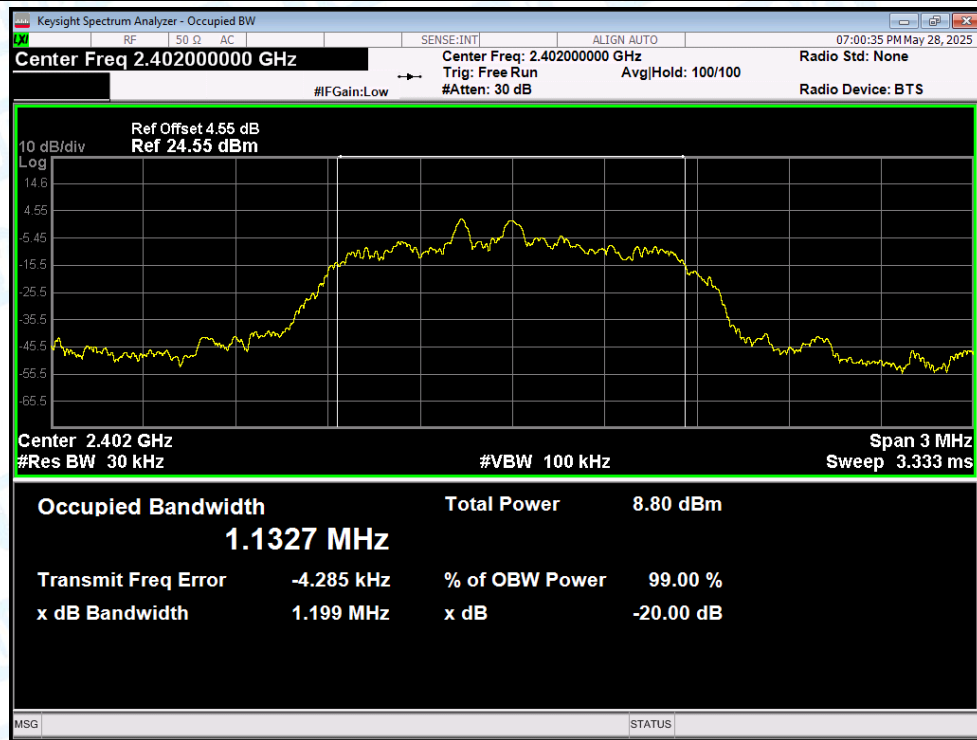
OBW NVNT 1-DH1 2441MHz Ant1



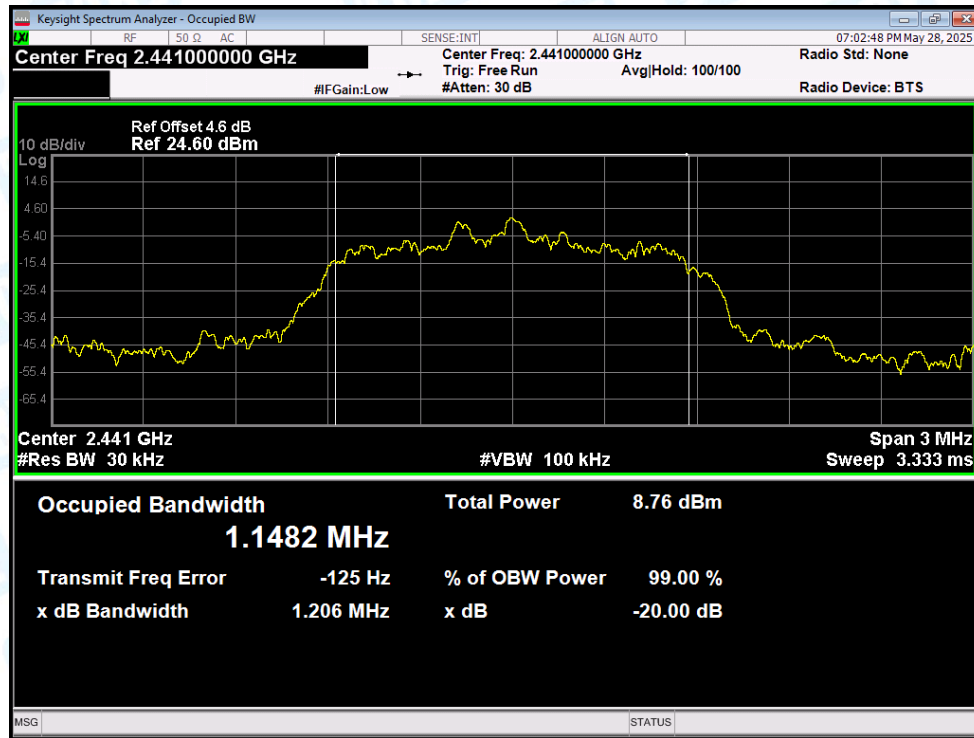
OBW NVNT 1-DH1 2480MHz Ant1



OBW NVNT 2-DH1 2402MHz Ant1



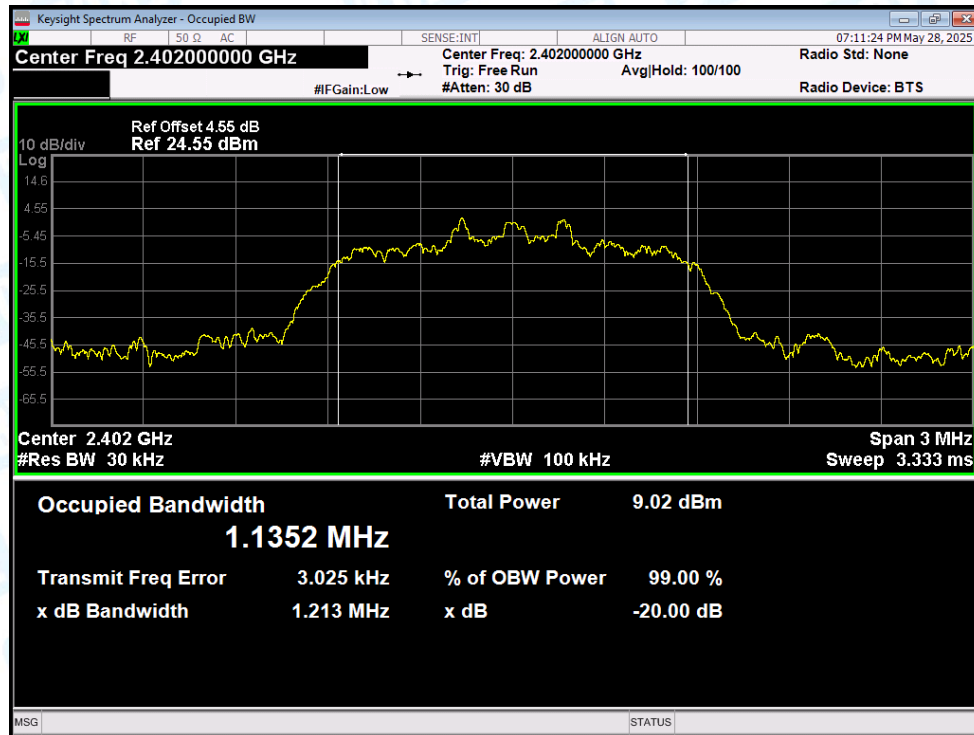
OBW NVNT 2-DH1 2441MHz Ant1



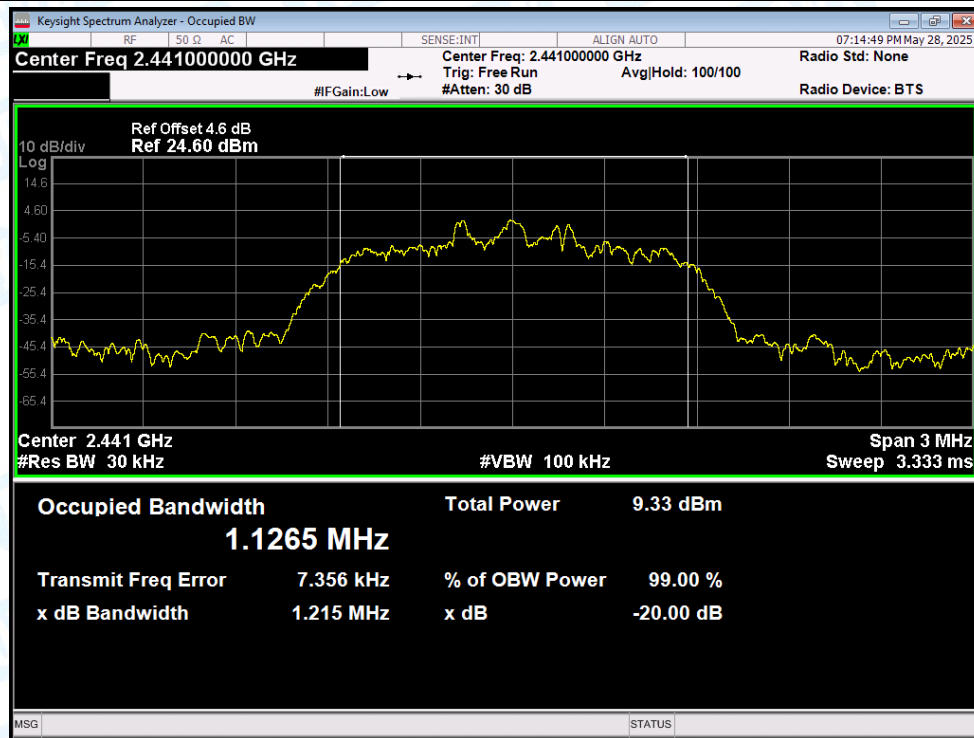
OBW NVNT 2-DH1 2480MHz Ant1

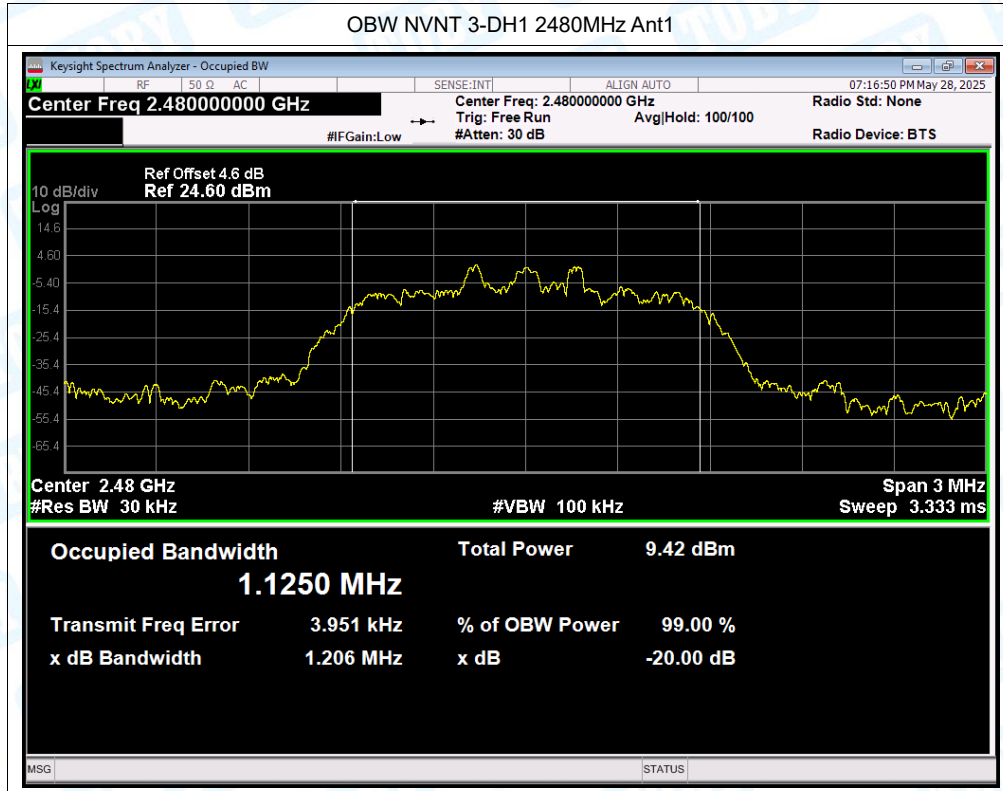


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



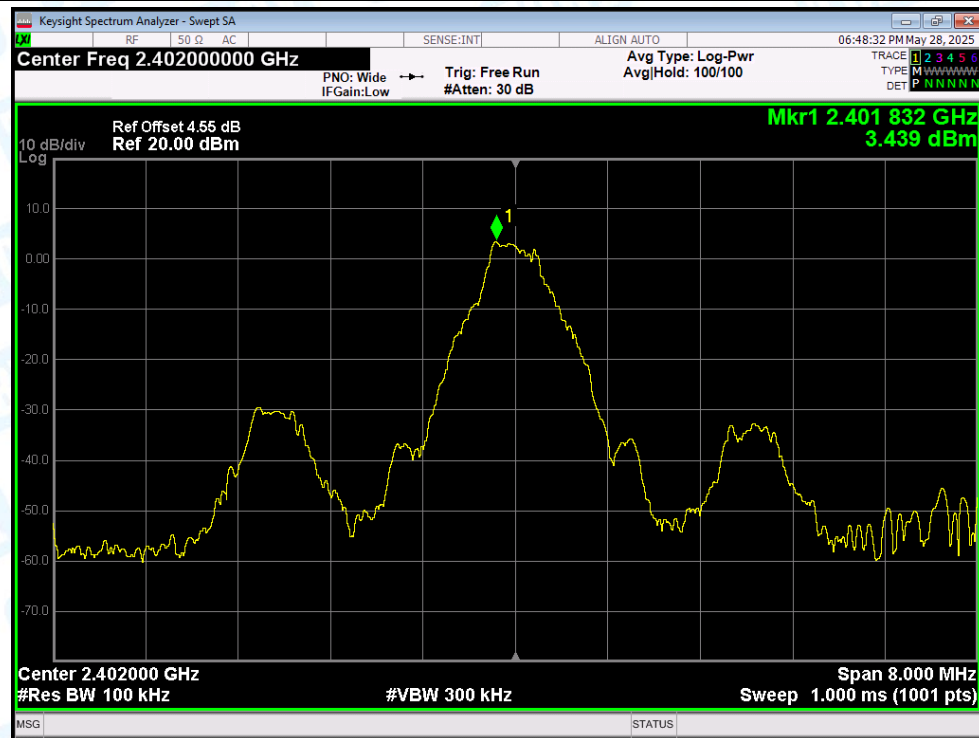


5.Band Edge

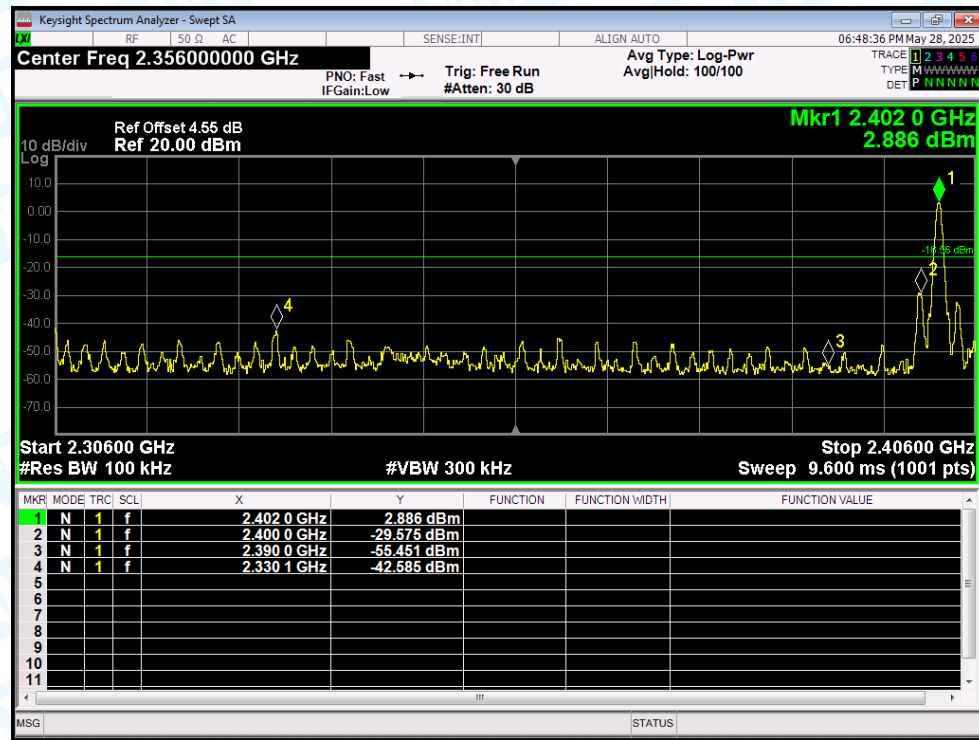
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-46.02	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-56.04	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-47.22	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-57.68	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-44.52	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-56.86	-20	Pass

Test Graphs

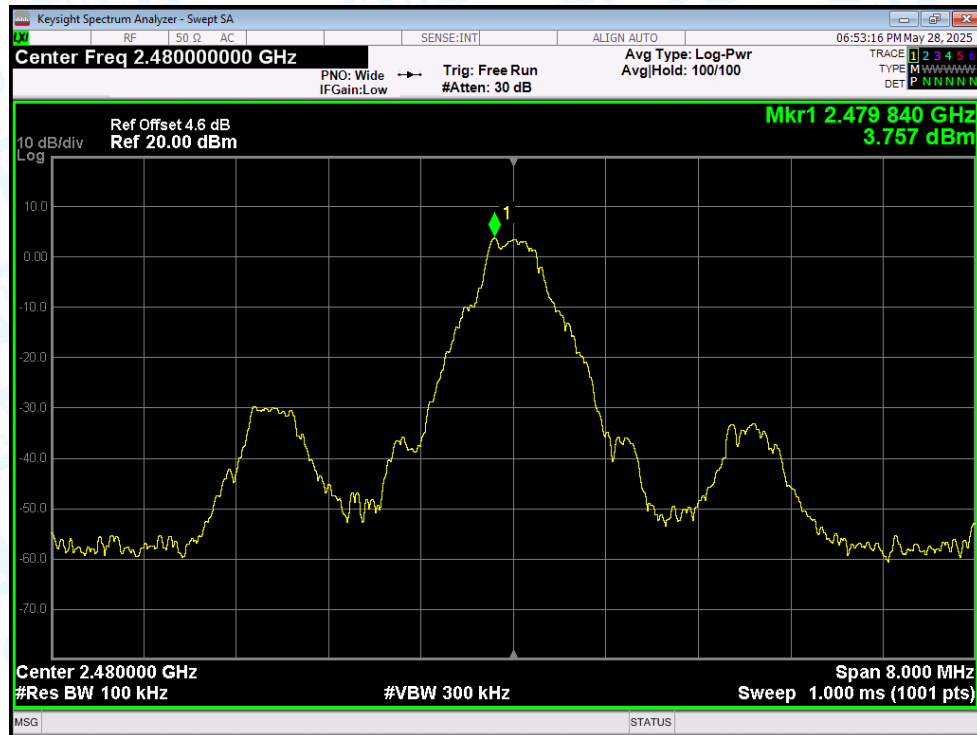
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



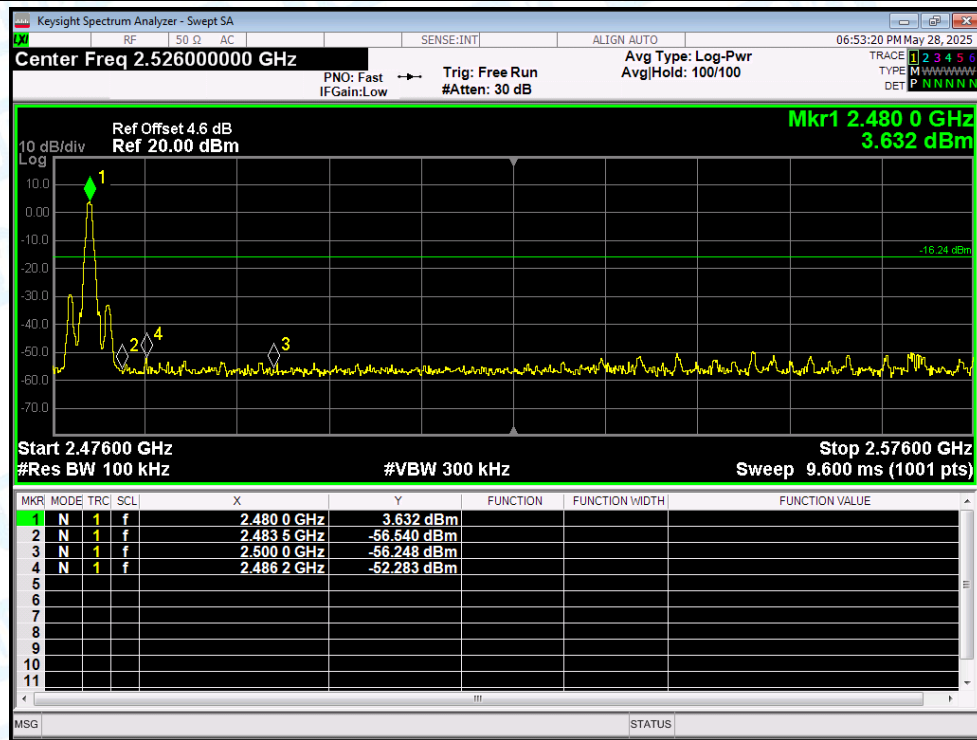
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



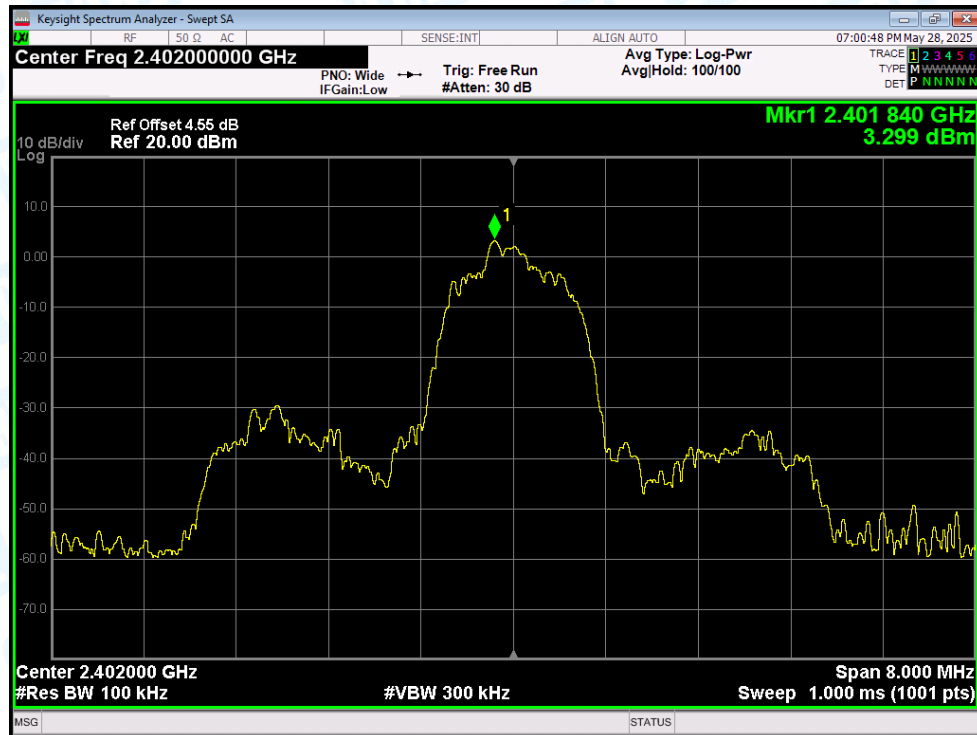
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Ref



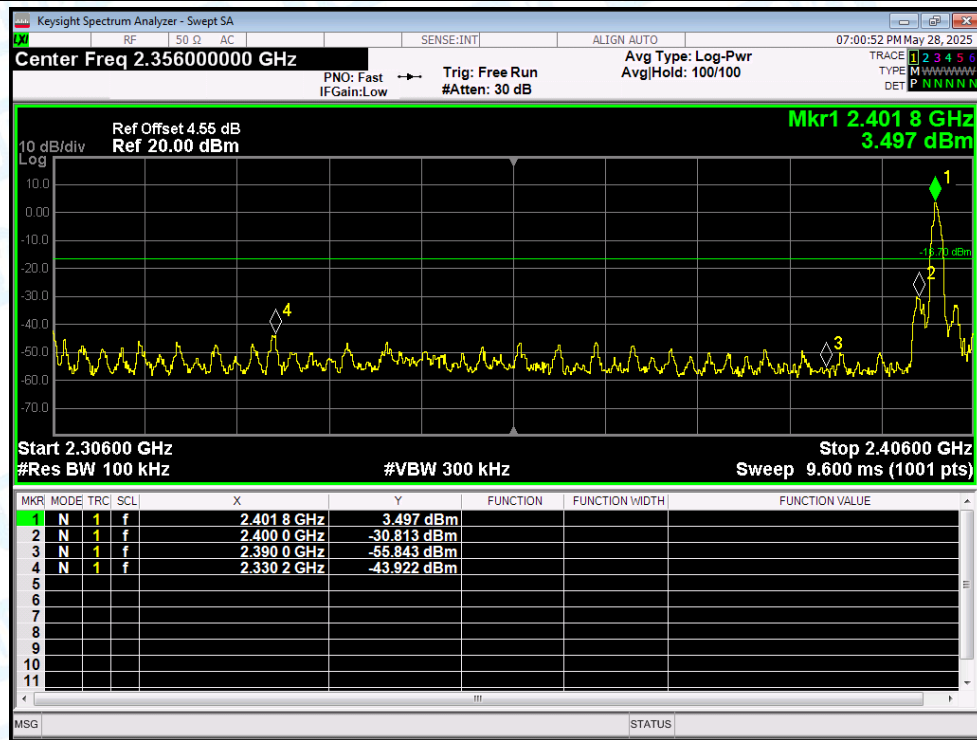
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Emission



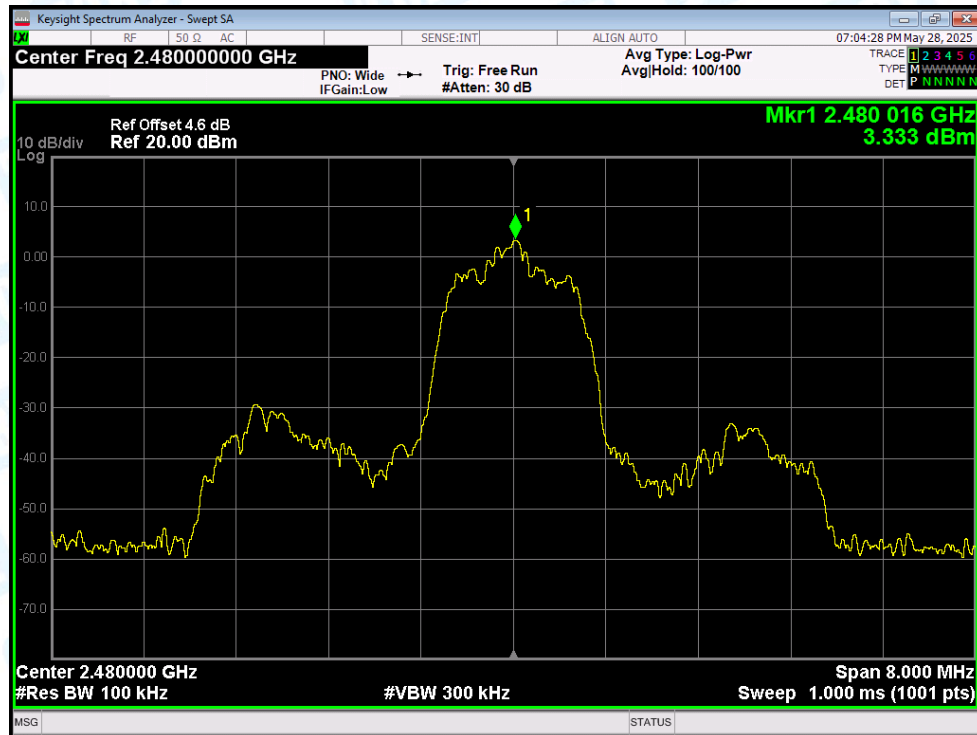
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



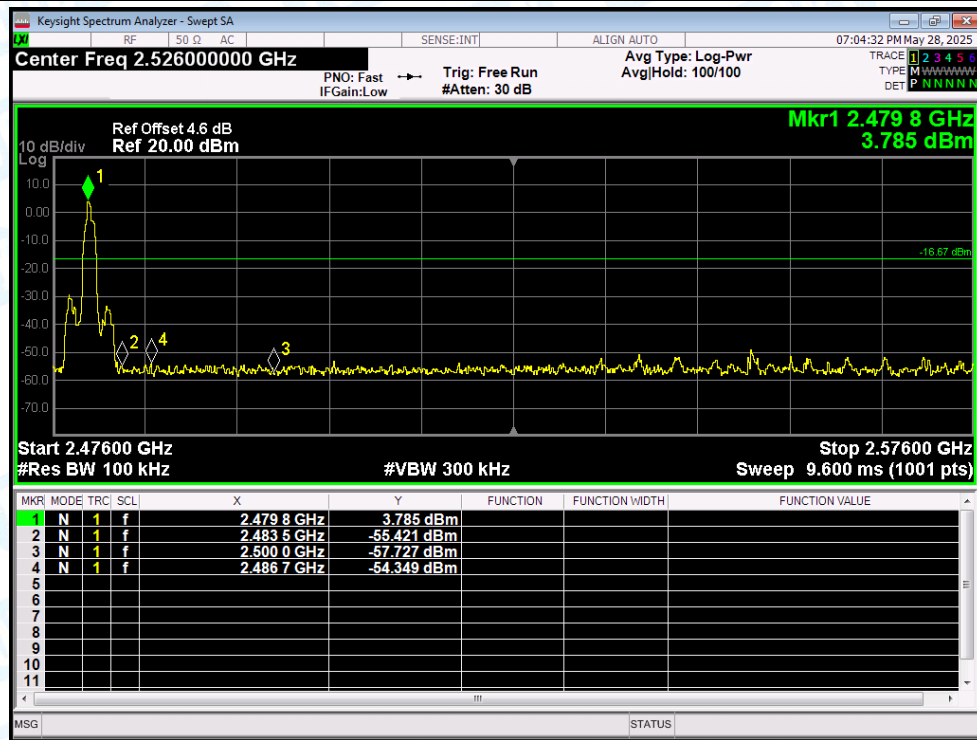
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission



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



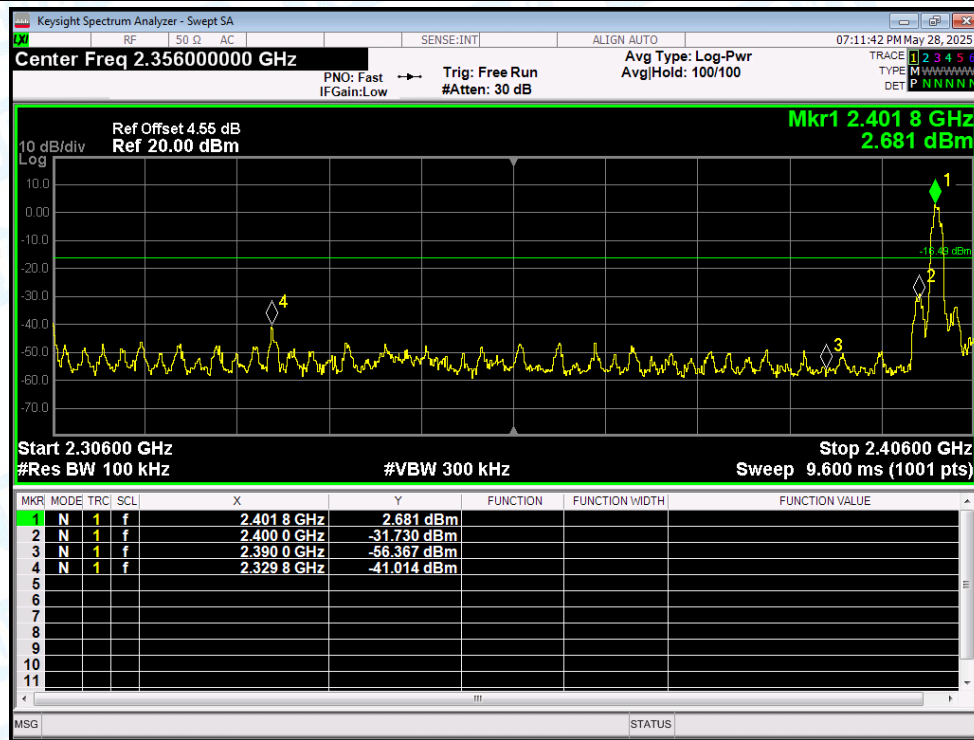
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission

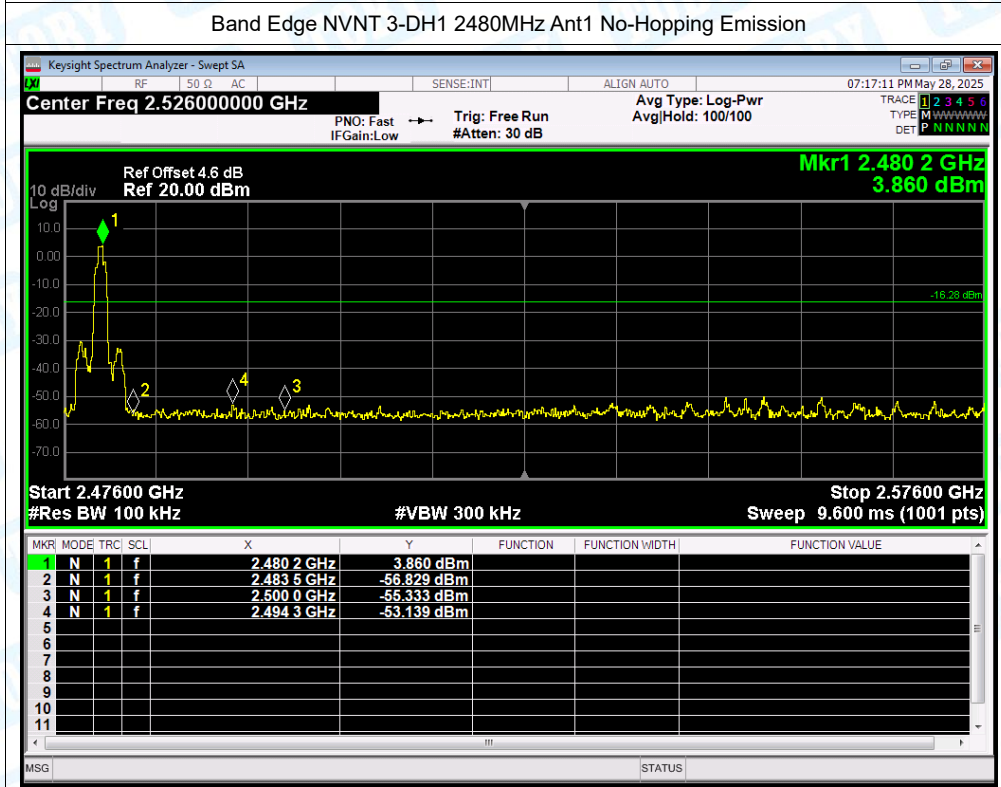
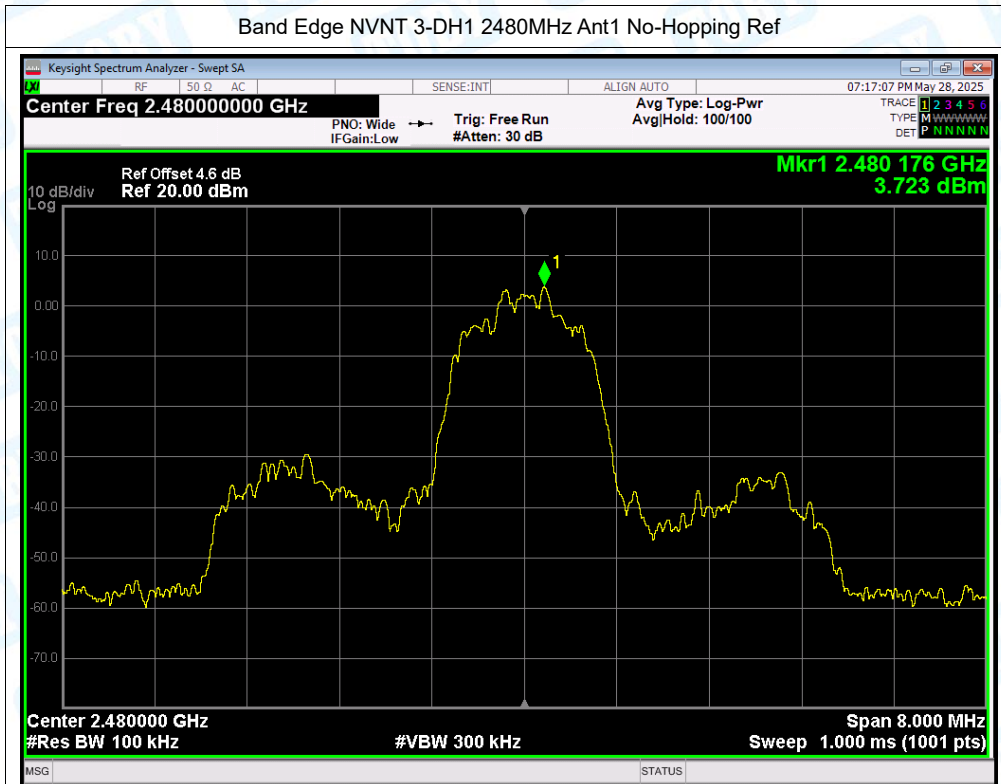


Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



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



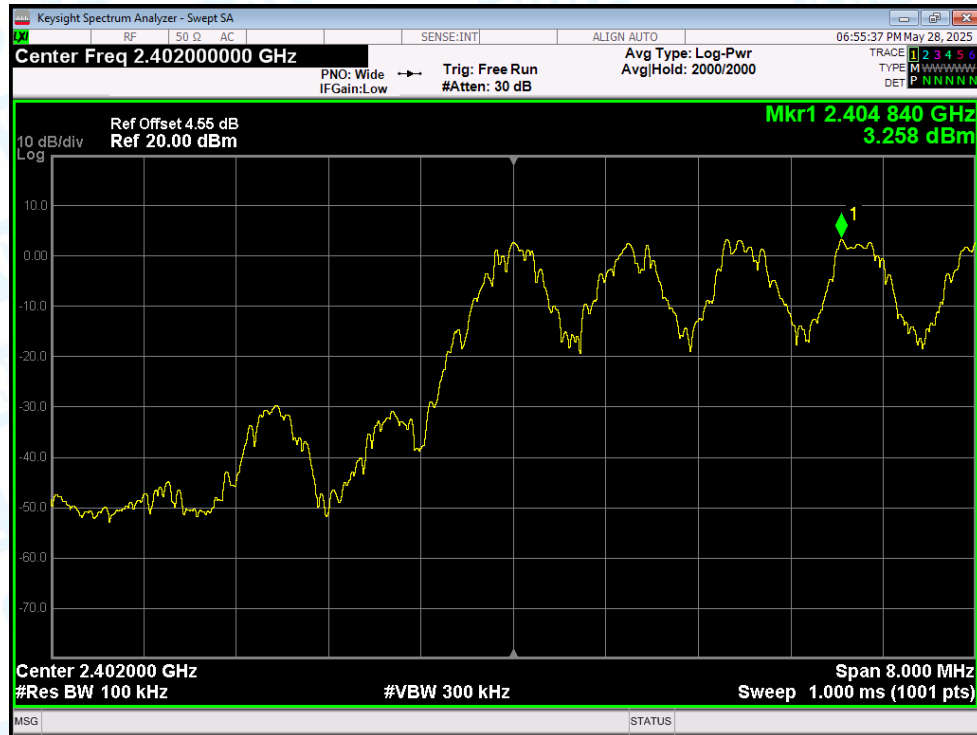


6. Band Edge(Hopping)

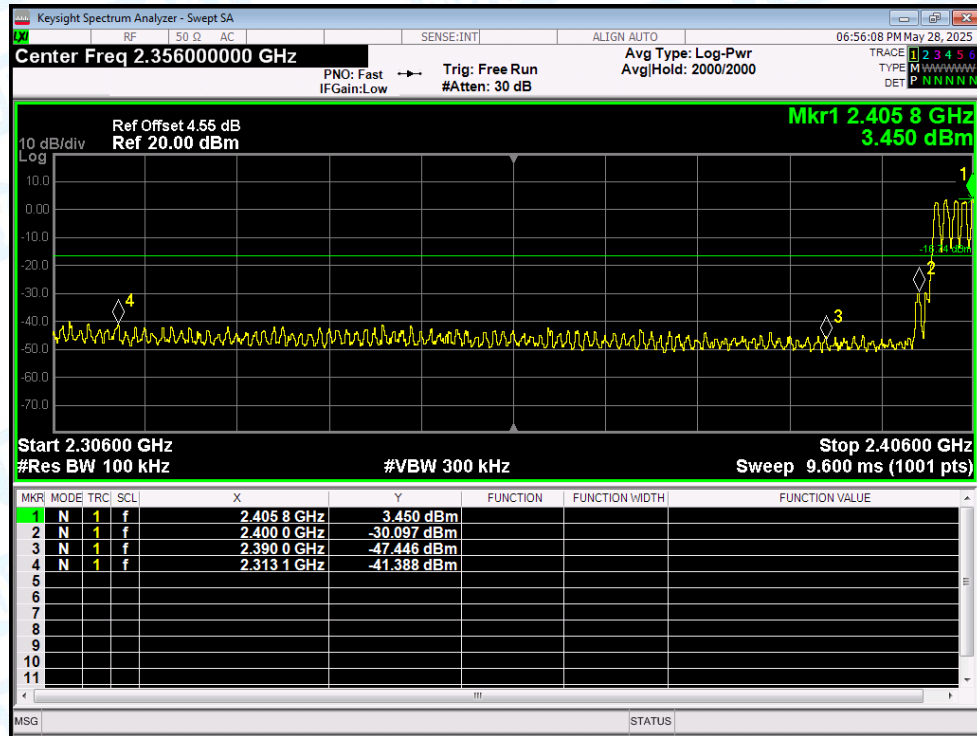
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-44.65	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-50.51	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-43.67	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-49.88	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-44.14	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-52.98	-20	Pass

Test Graphs

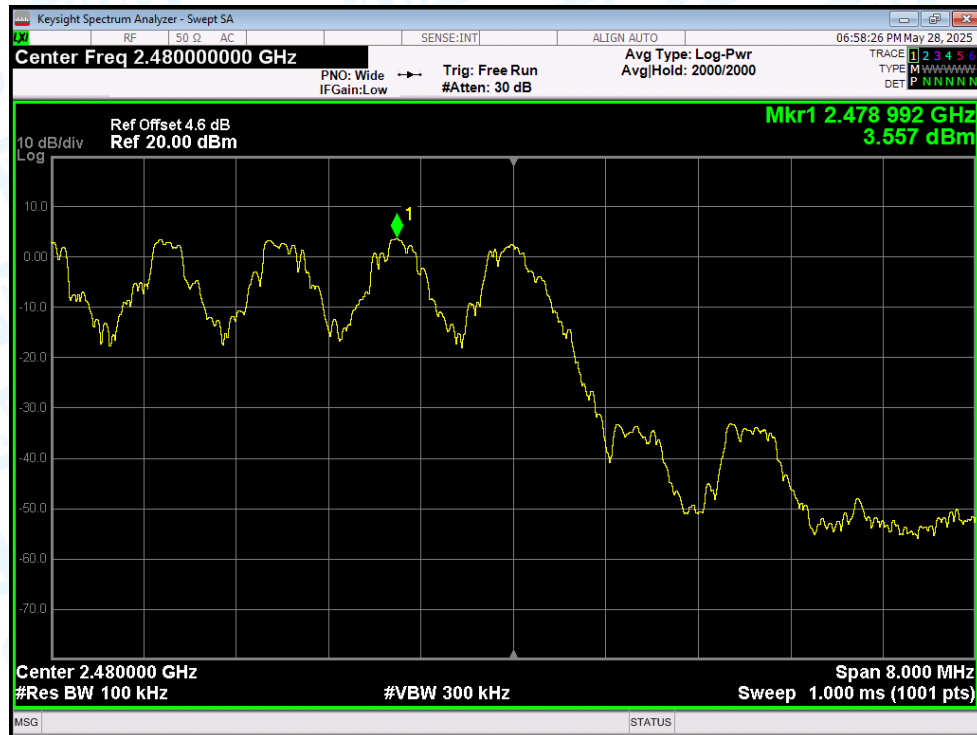
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Ref



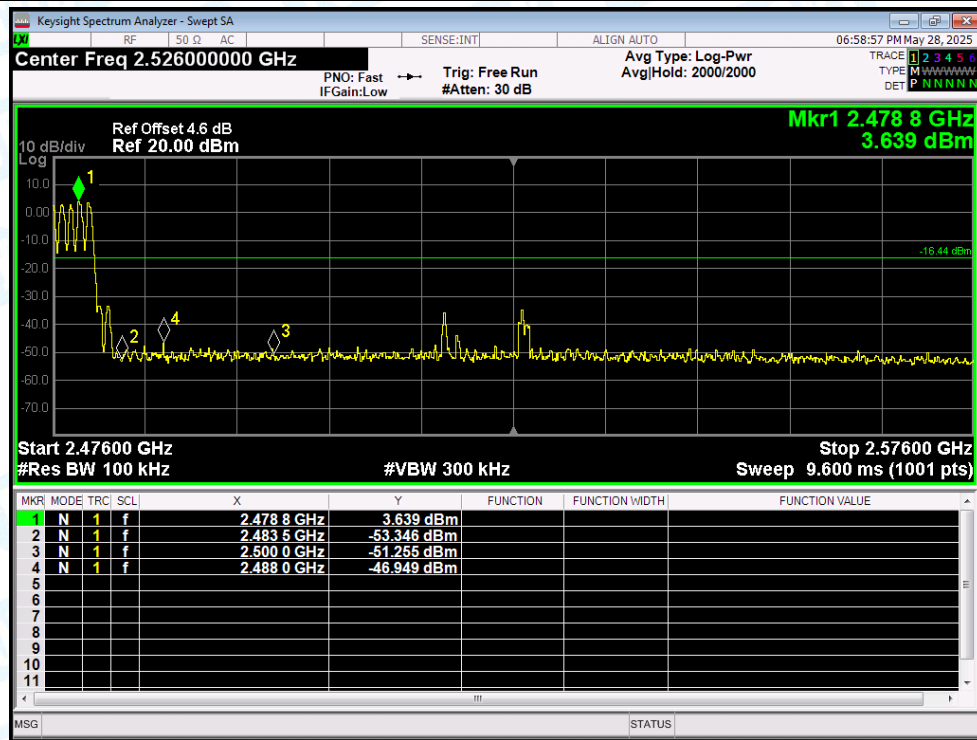
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission

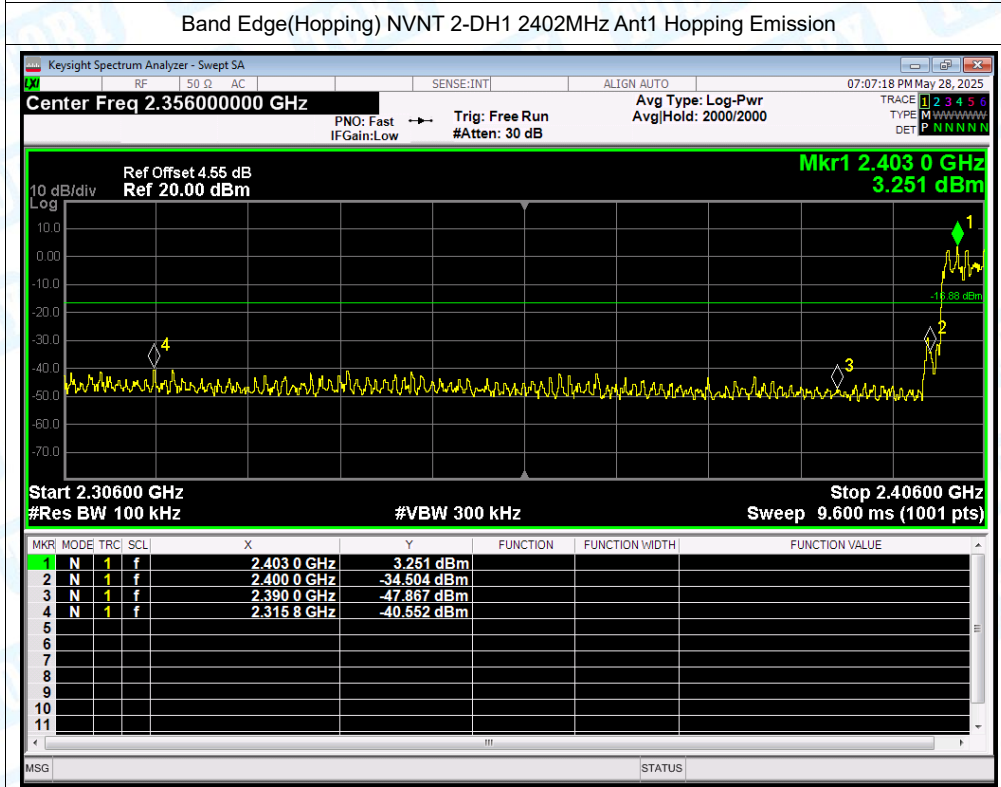
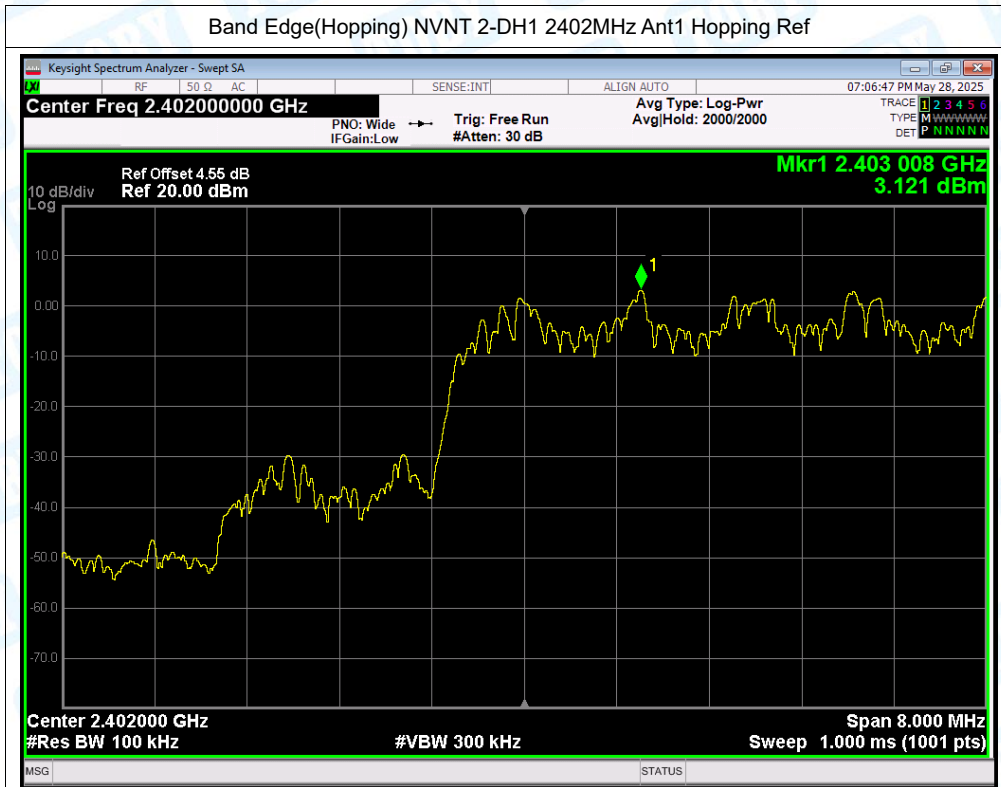


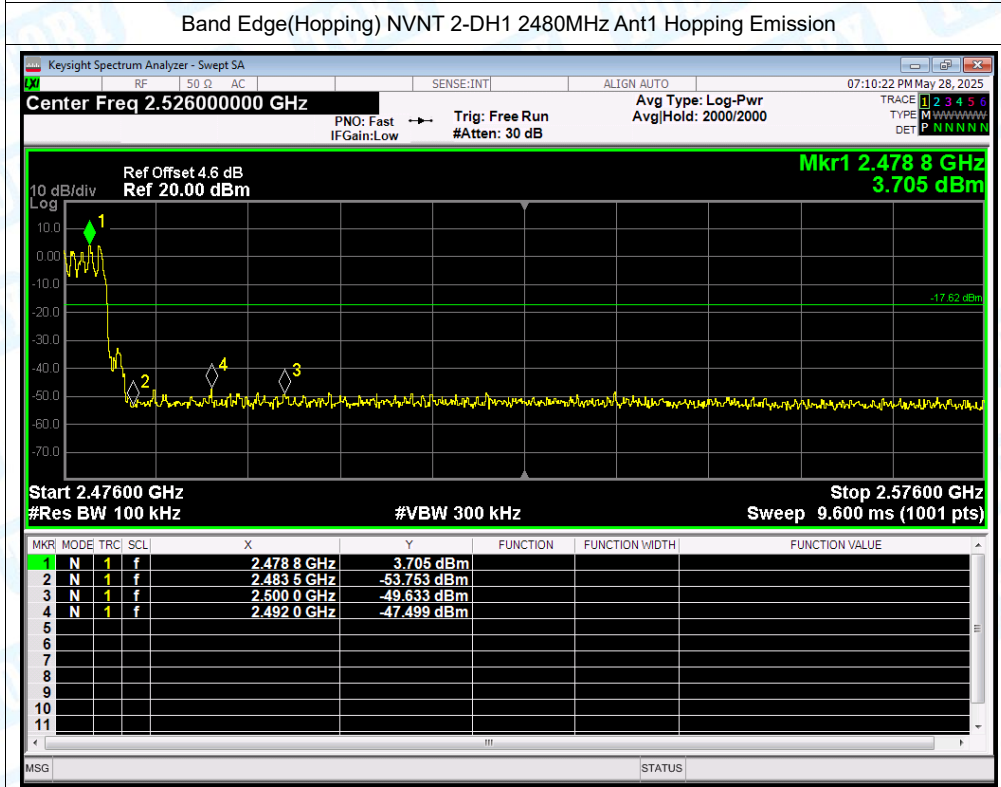
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Ref

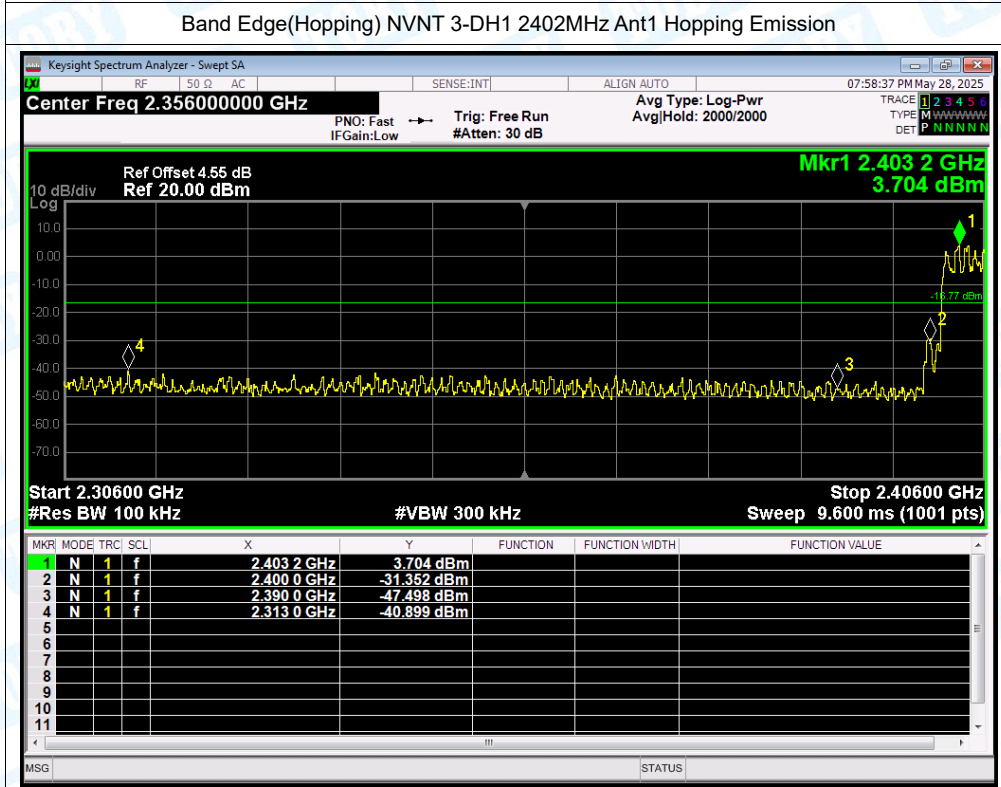
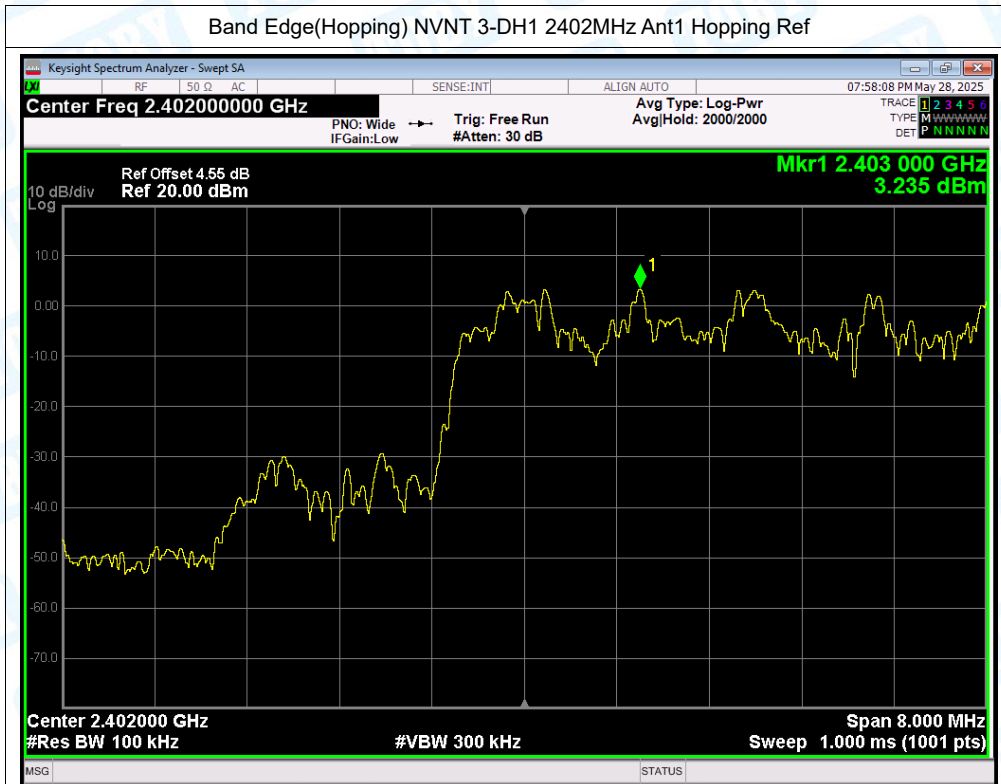


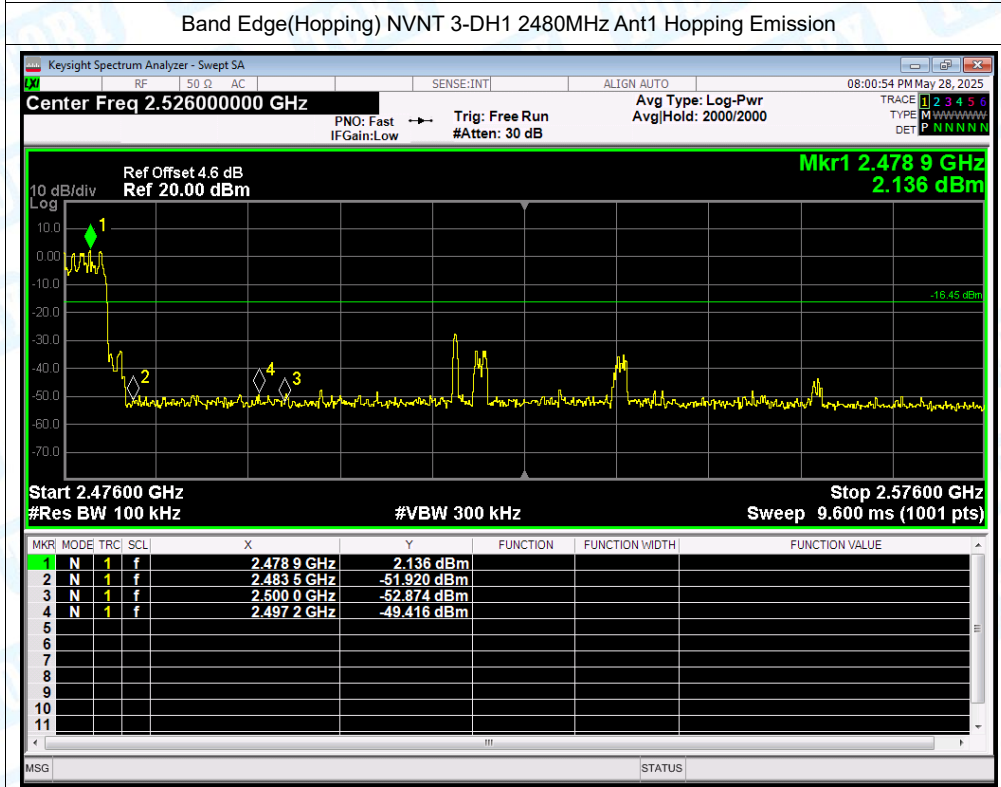
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Emission









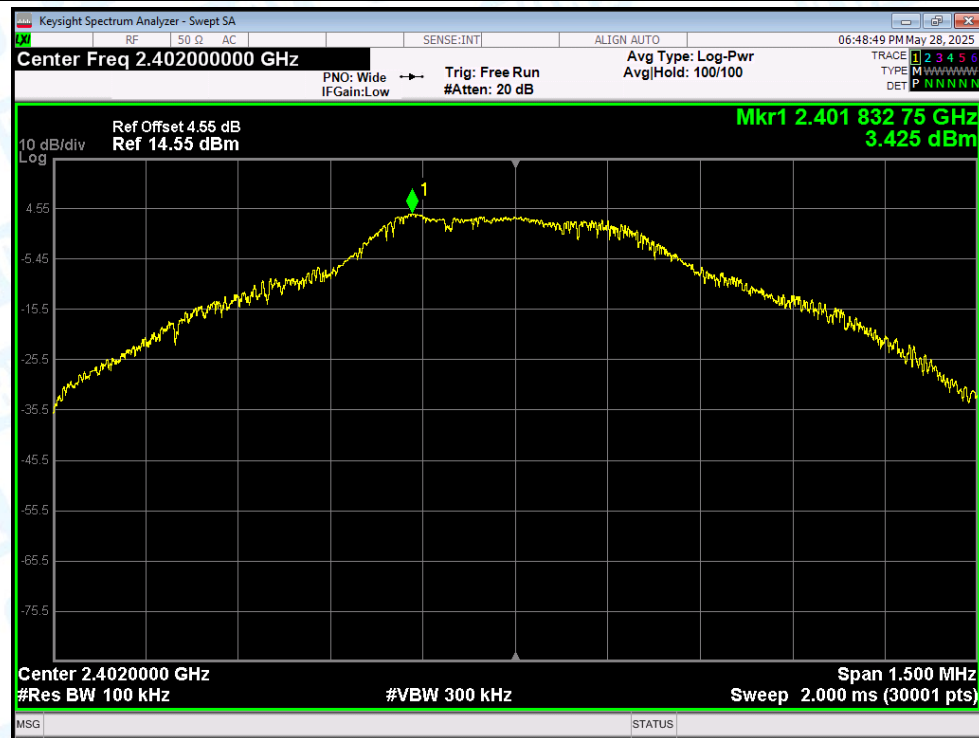


7. Conducted RF Spurious Emission

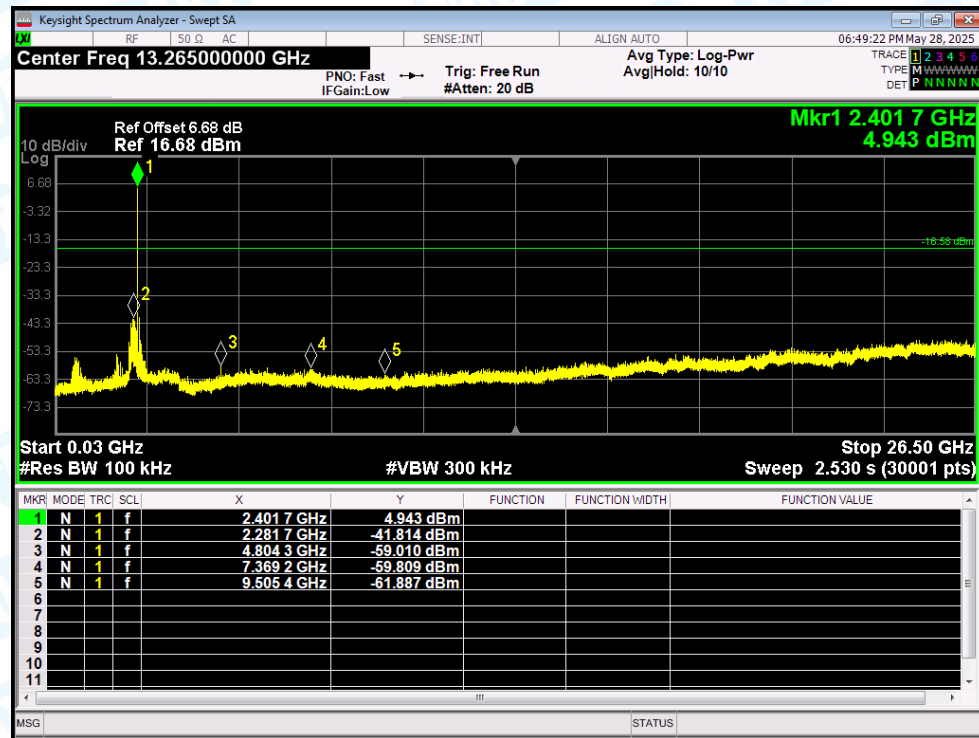
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-45.24	-20	Pass
NVNT	1-DH1	2441	Ant1	-48.53	-20	Pass
NVNT	1-DH1	2480	Ant1	-50.47	-20	Pass
NVNT	2-DH1	2402	Ant1	-44.41	-20	Pass
NVNT	2-DH1	2441	Ant1	-51.25	-20	Pass
NVNT	2-DH1	2480	Ant1	-51.82	-20	Pass
NVNT	3-DH1	2402	Ant1	-44.83	-20	Pass
NVNT	3-DH1	2441	Ant1	-48.46	-20	Pass
NVNT	3-DH1	2480	Ant1	-50.57	-20	Pass

Test Graphs

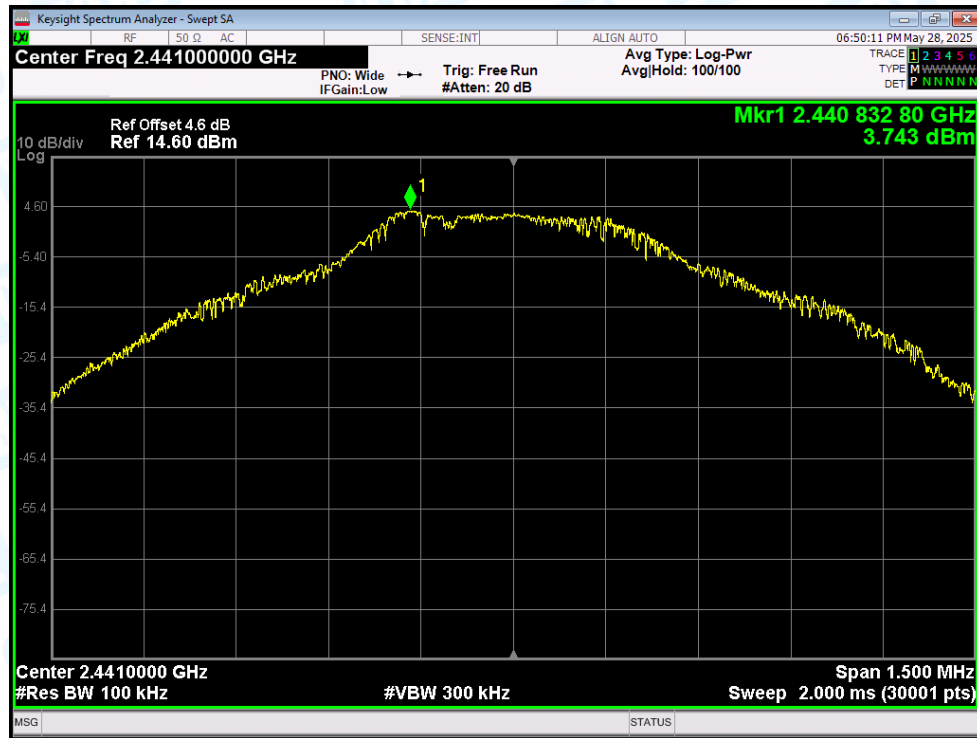
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



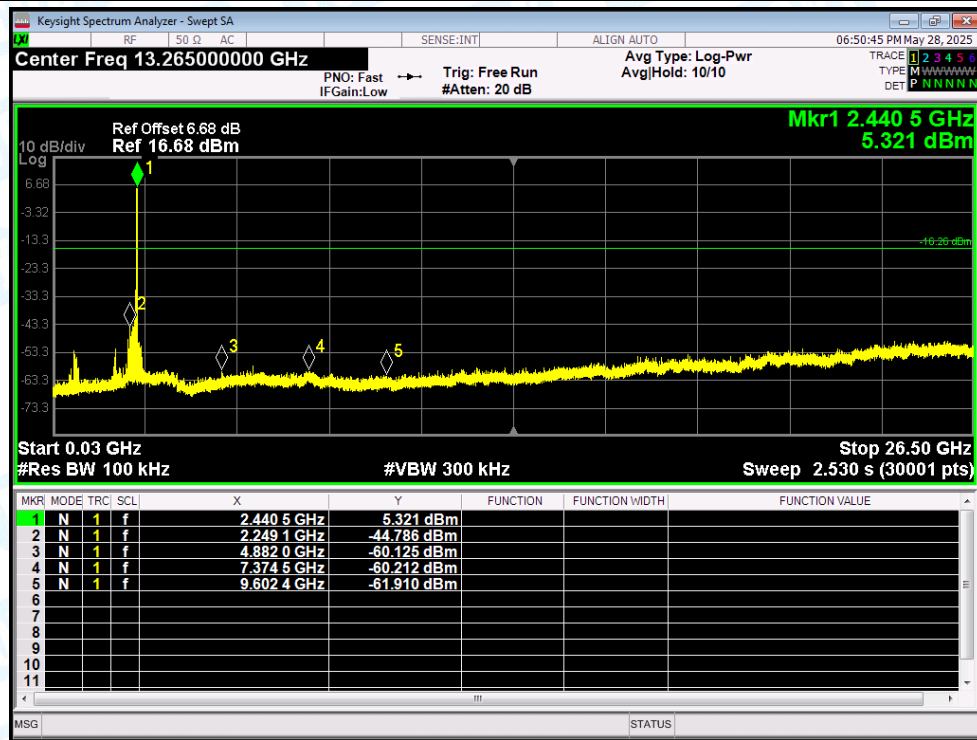
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



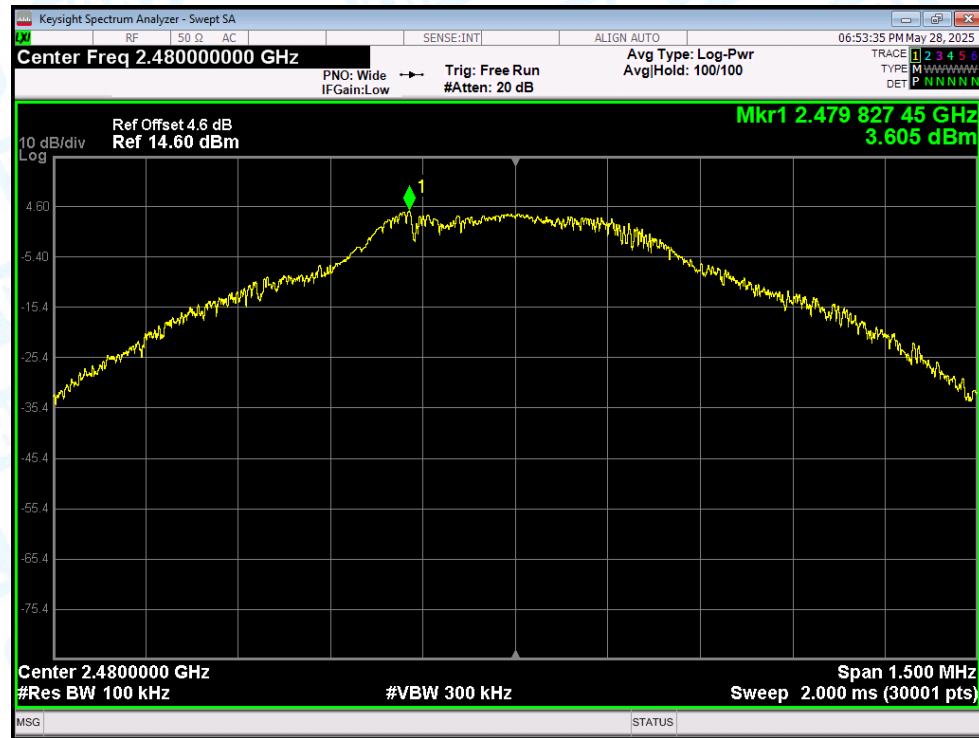
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



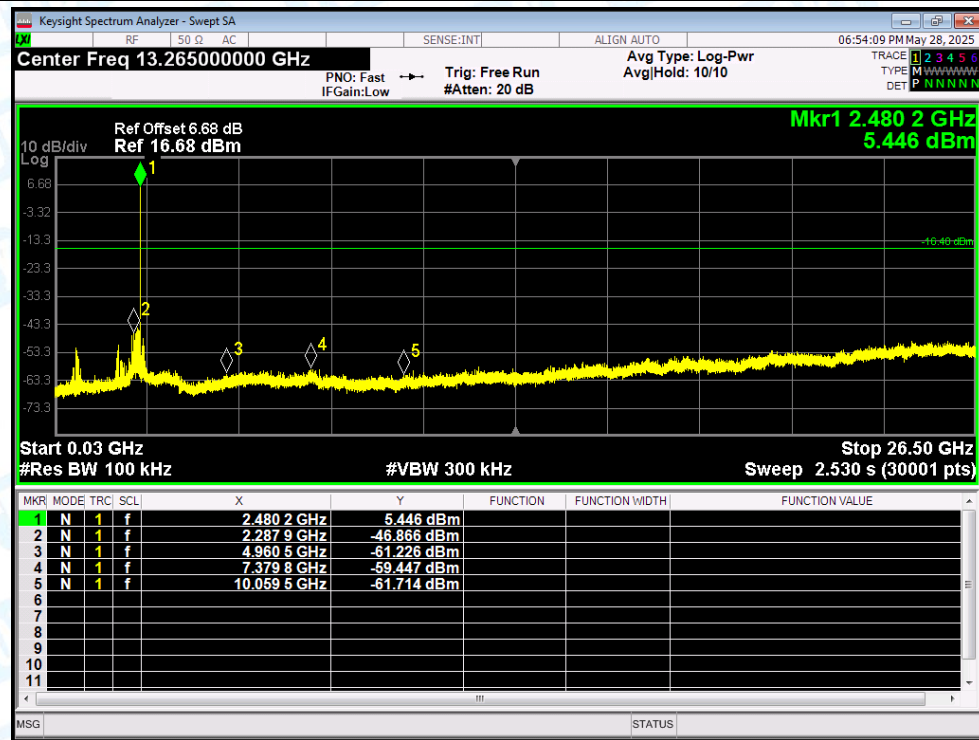
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



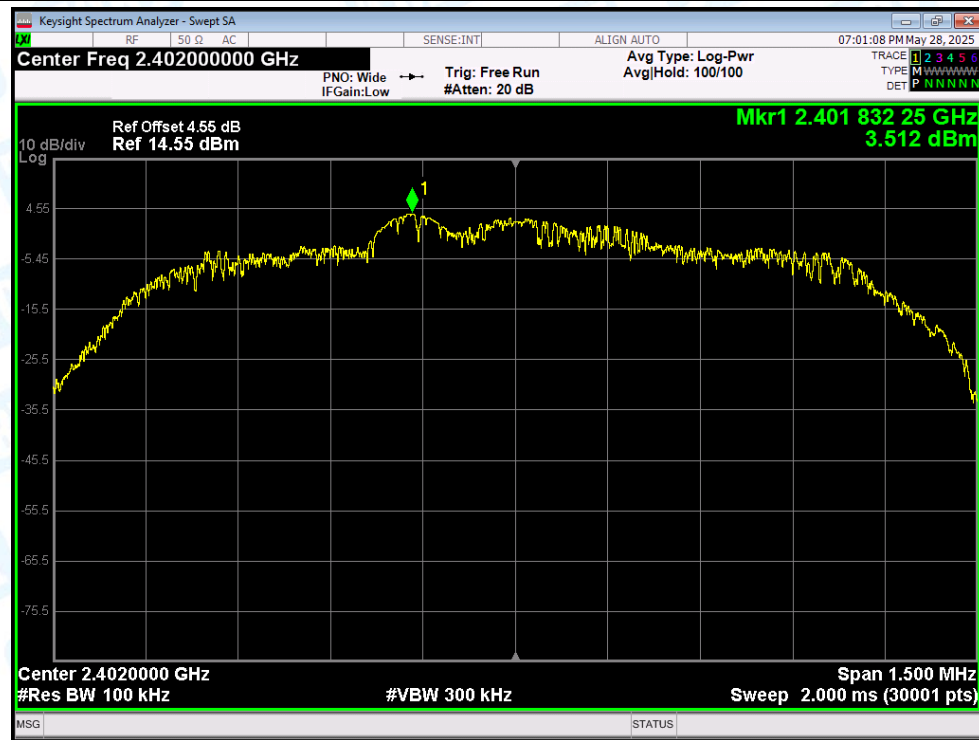
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



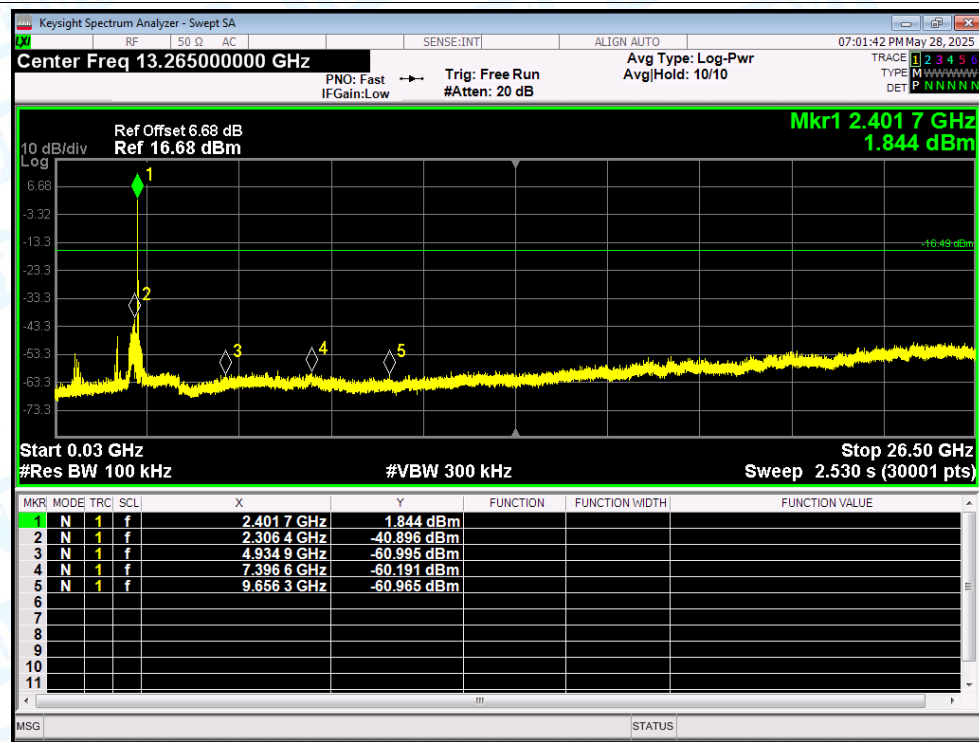
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



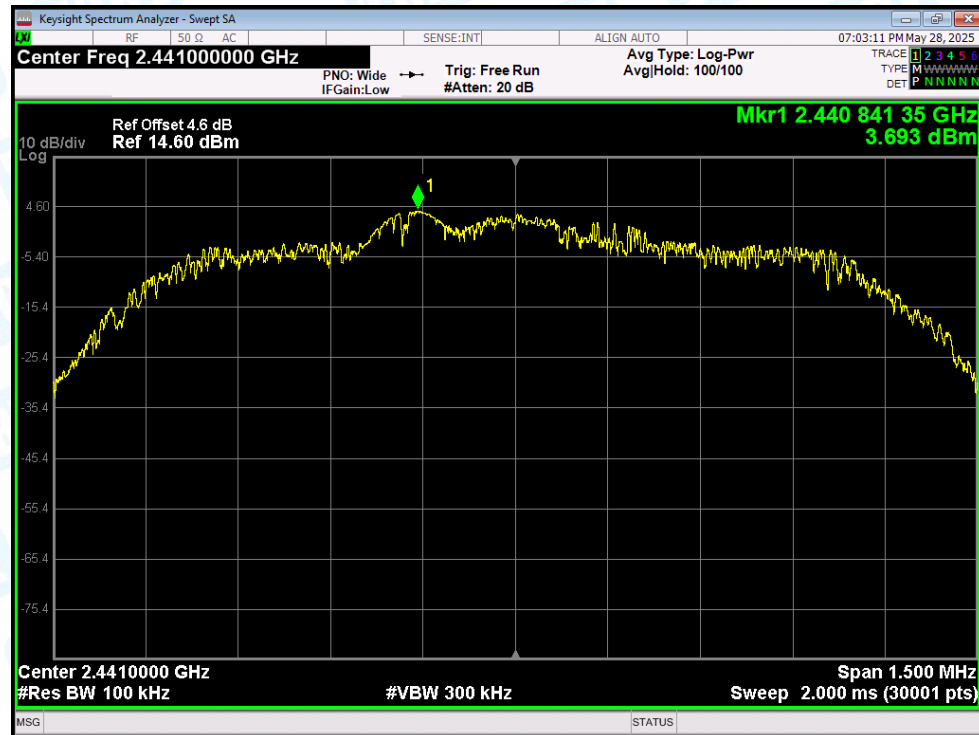
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



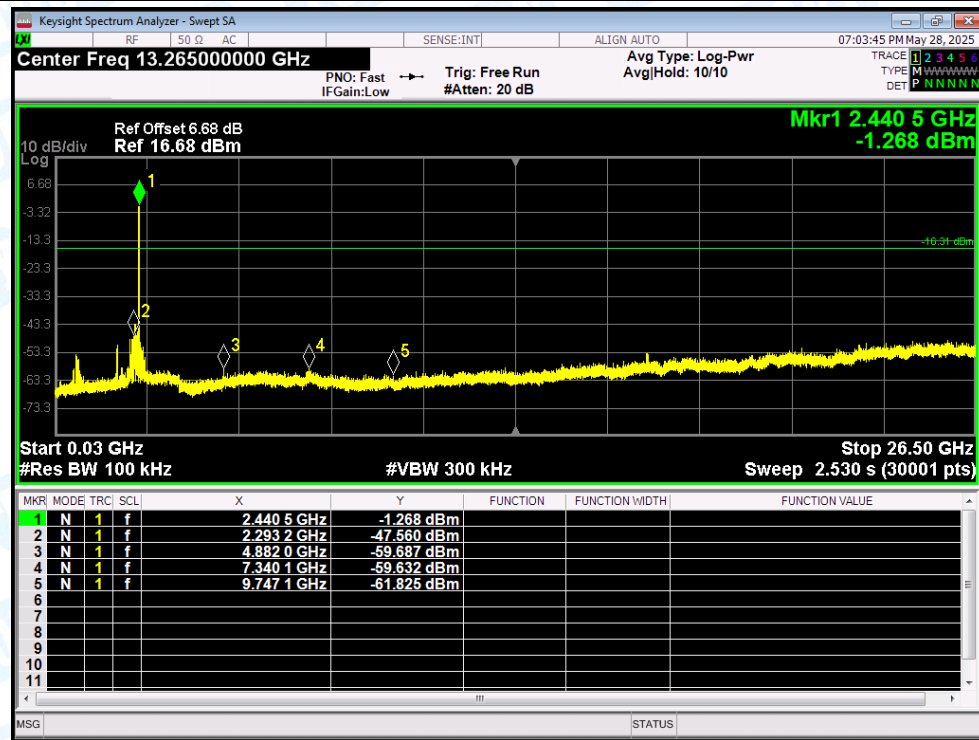
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



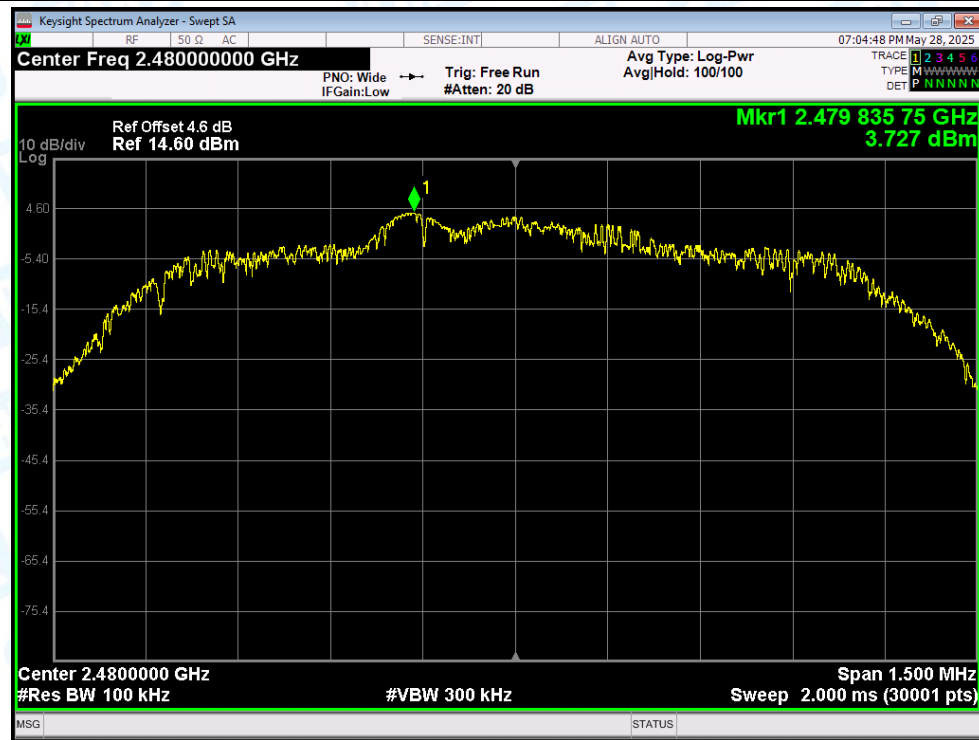
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



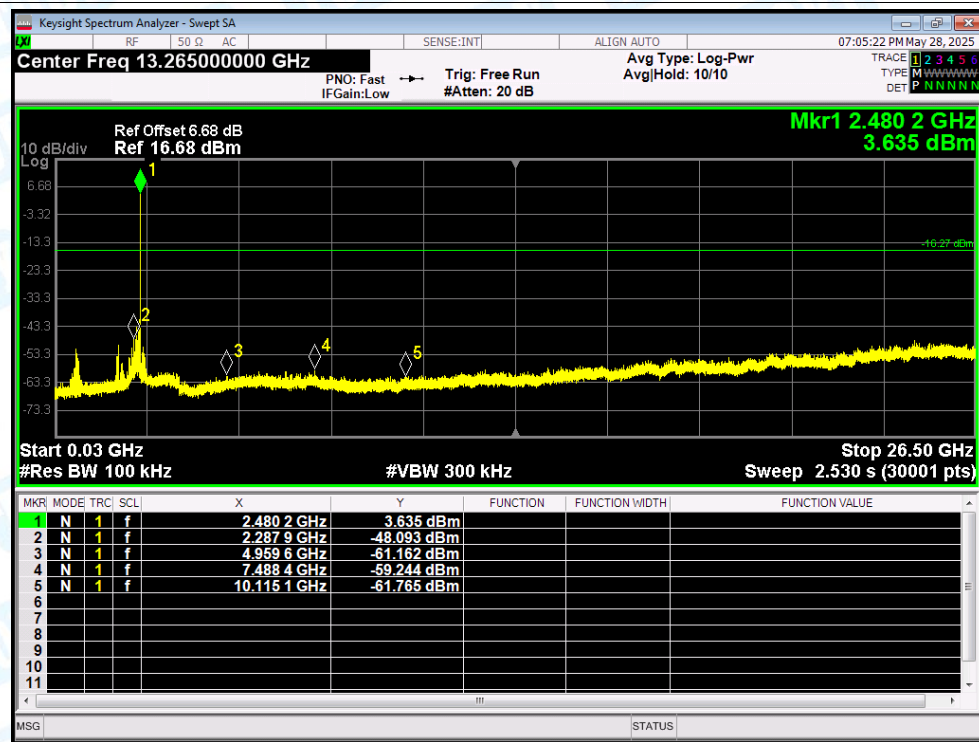
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



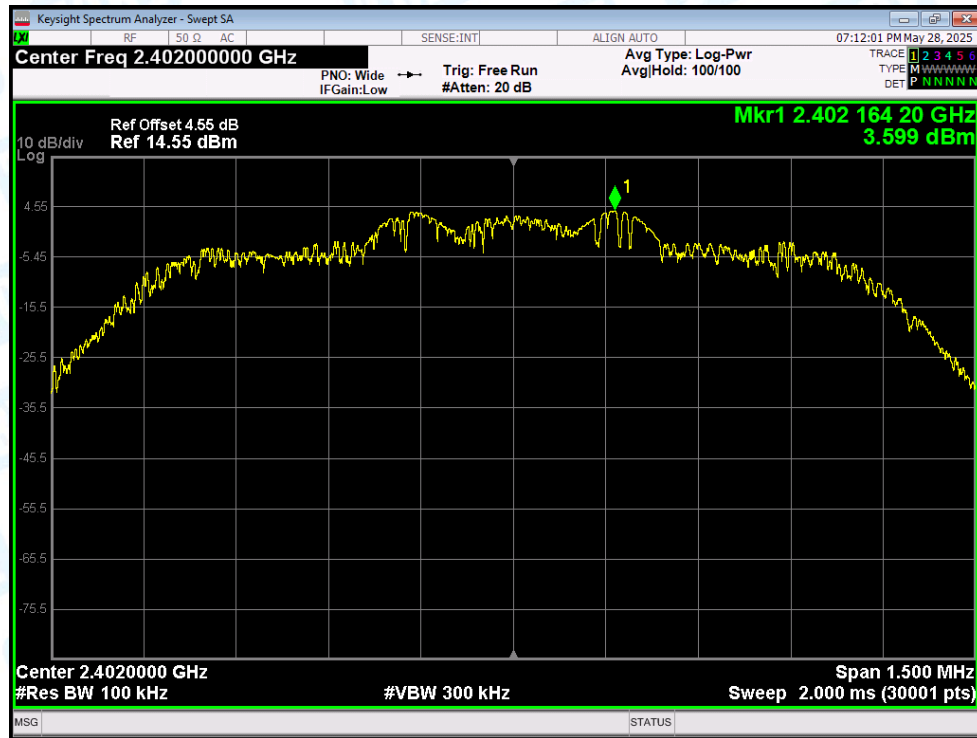
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



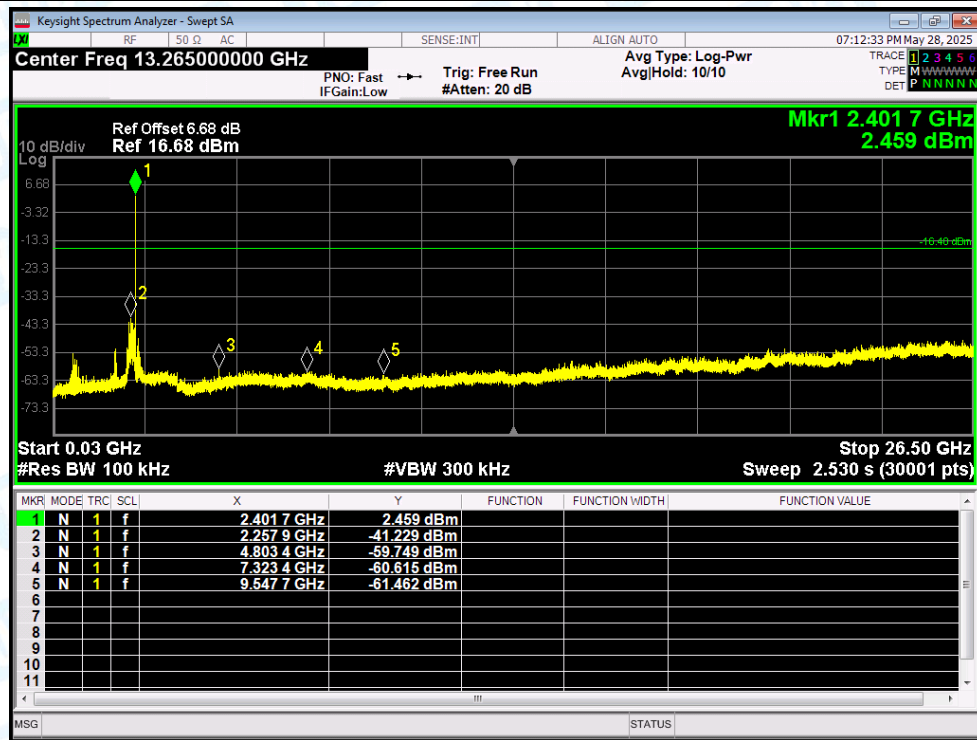
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



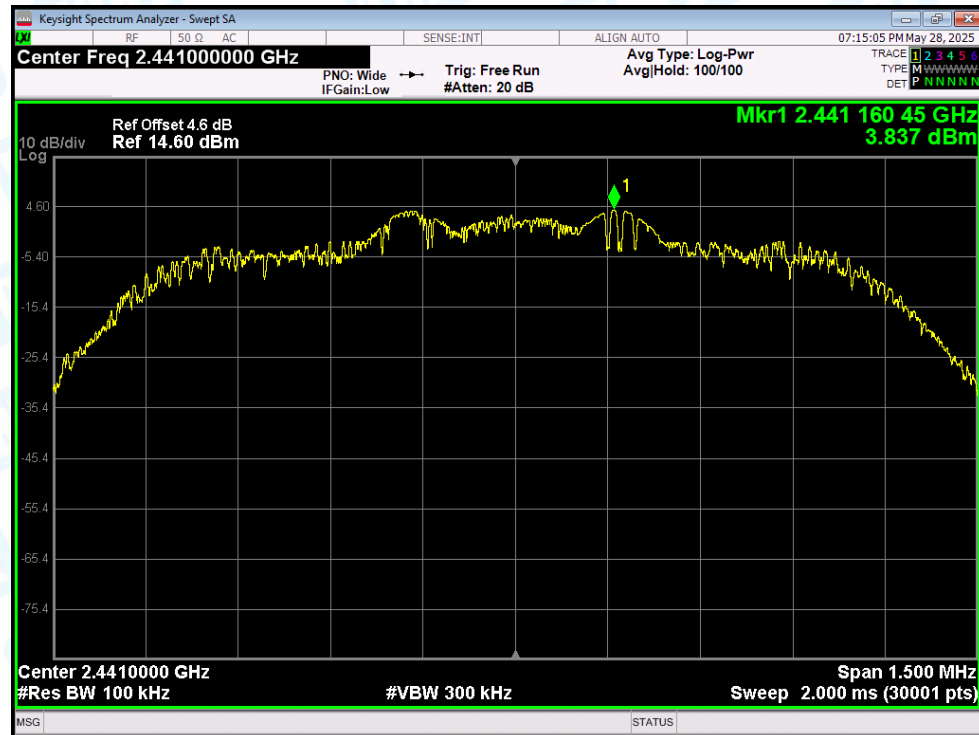
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



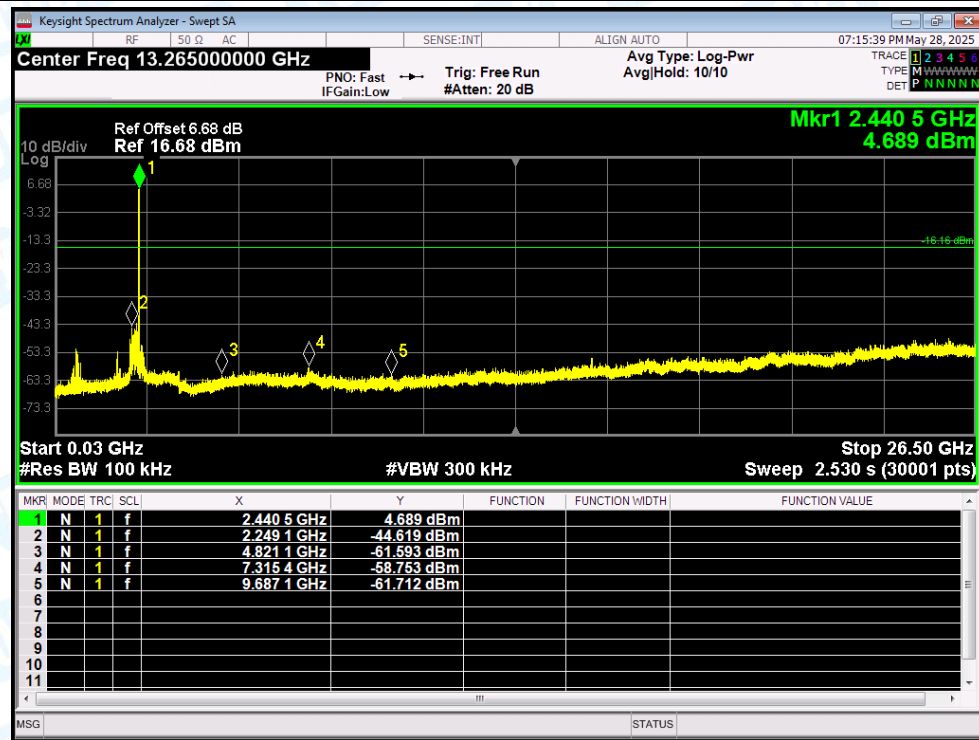
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



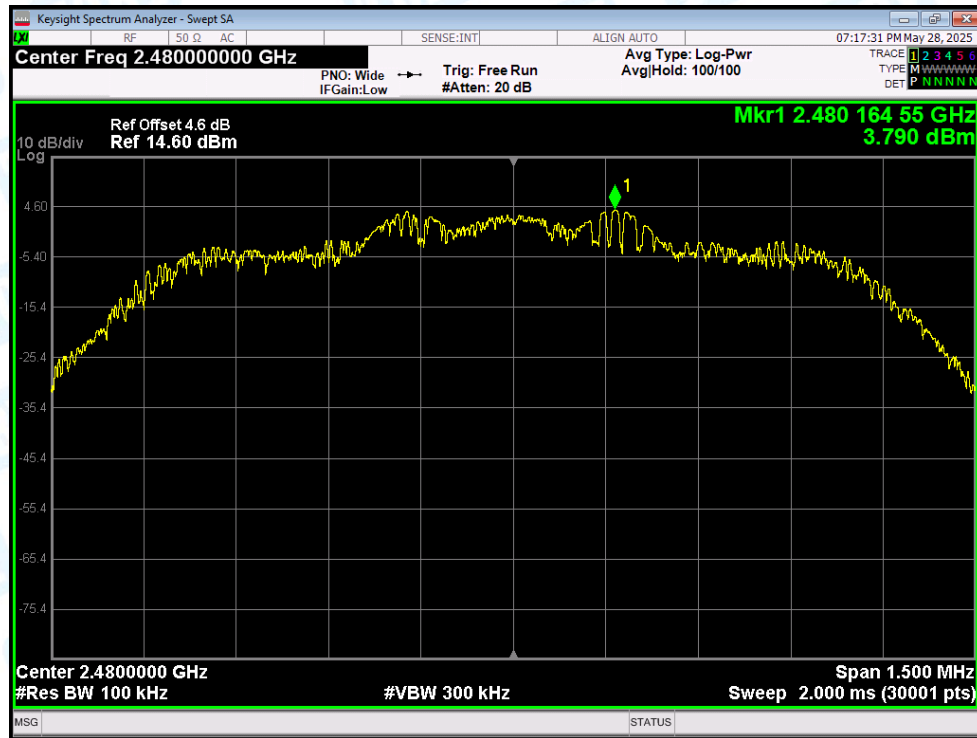
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



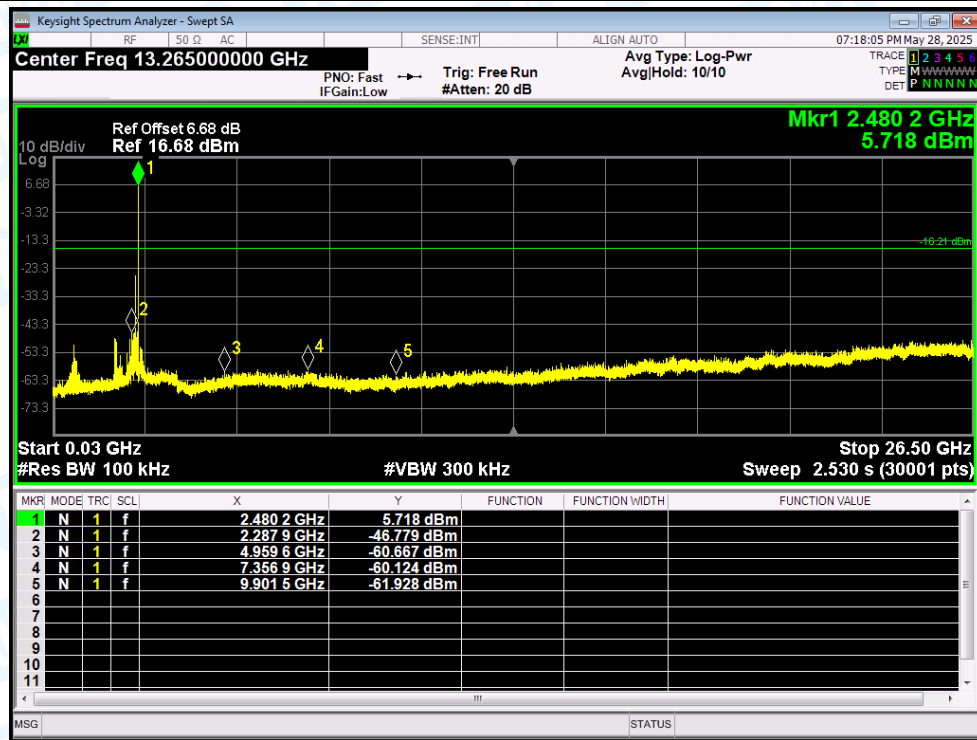
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

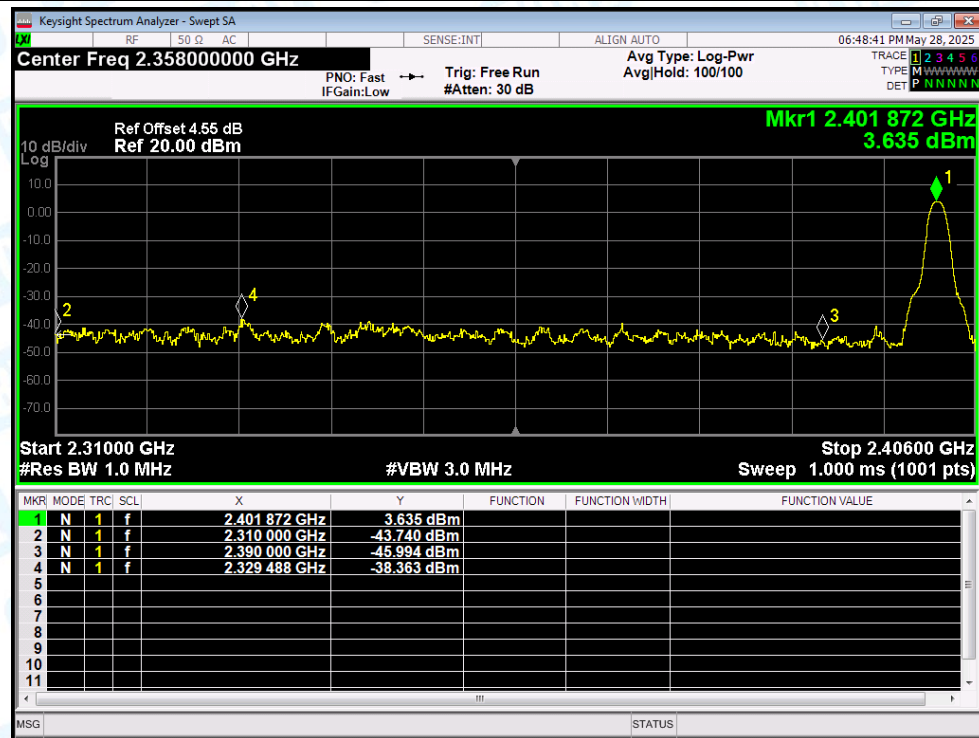


8.Restrict Band

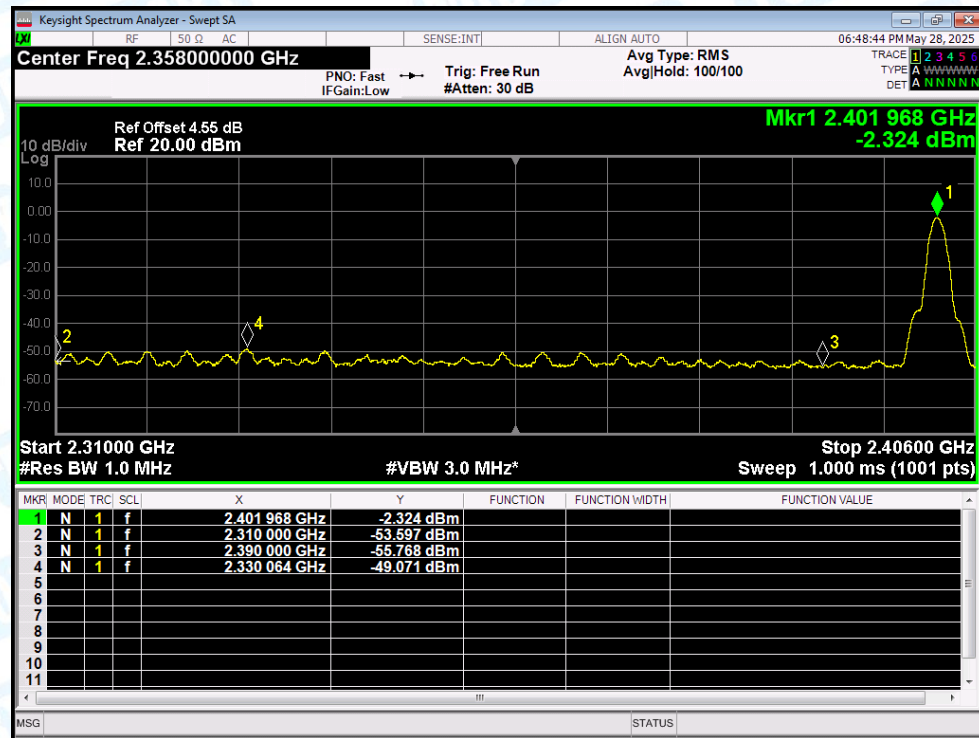
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-43.74	2.48	-	54	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-53.6	2.48	5.29	49.43	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2329.488	-38.36	2.48	-	59.38	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2330.064	-49.07	2.48	5.29	53.96	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-45.99	2.48	-	51.75	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-55.77	2.48	5.29	47.26	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-45.72	2.48	-	52.02	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-54.55	2.48	5.29	48.48	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2484.424	-43.79	2.48	-	53.95	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2498.512	-54.13	2.48	5.29	48.9	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-46.21	2.48	-	51.53	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-55.27	2.48	5.29	47.76	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-42.81	2.48	-	54.93	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-53.4	2.48	5.17	49.51	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2330.64	-39.17	2.48	-	58.57	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2330.16	-49.92	2.48	5.17	52.99	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-46.86	2.48	-	50.88	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-55.67	2.48	5.17	47.24	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-43.89	2.48	-	53.85	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-54.09	2.48	0	43.65	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.584	-43.39	2.48	-	54.35	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.512	-54.09	2.48	0	43.65	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-46.21	2.48	-	51.53	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.76	2.48	0	41.98	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-44.57	2.48	-	53.17	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-53.36	2.48	5.17	49.55	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2330.256	-38.4	2.48	-	59.34	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2338.32	-50.18	2.48	5.17	52.73	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-44.46	2.48	-	53.28	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-55.46	2.48	5.17	47.45	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-44.23	2.48	-	53.51	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-54.22	2.48	5.06	48.58	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.608	-43.84	2.48	-	53.9	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.536	-54.09	2.48	5.06	48.71	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-47.81	2.48	-	49.93	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.81	2.48	5.06	46.99	Average	54	Pass

Test Graphs

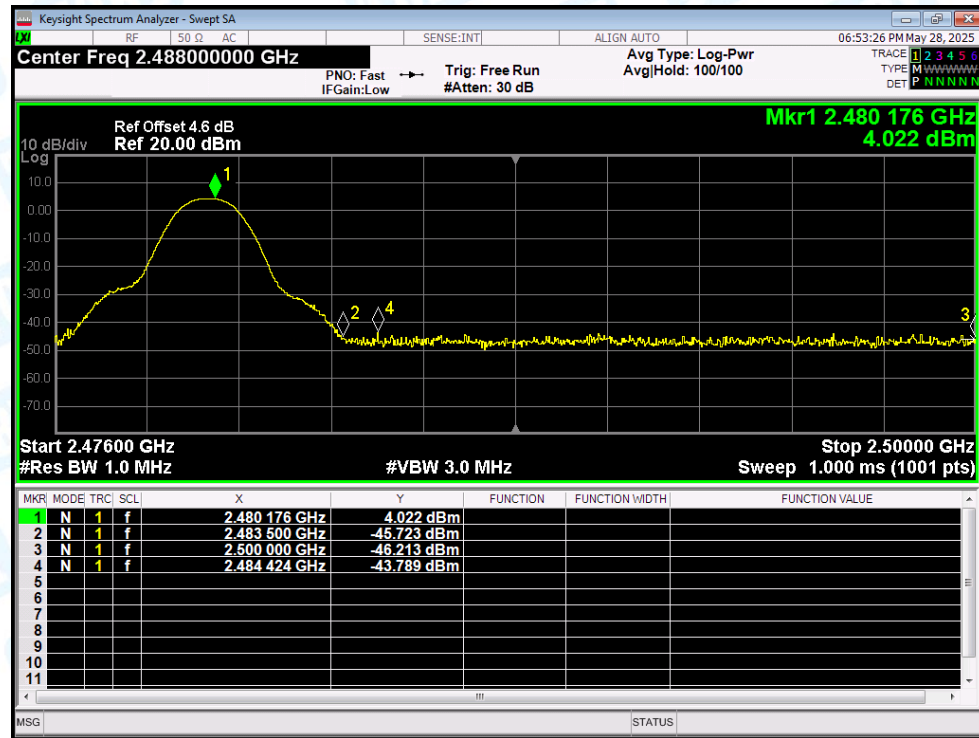
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



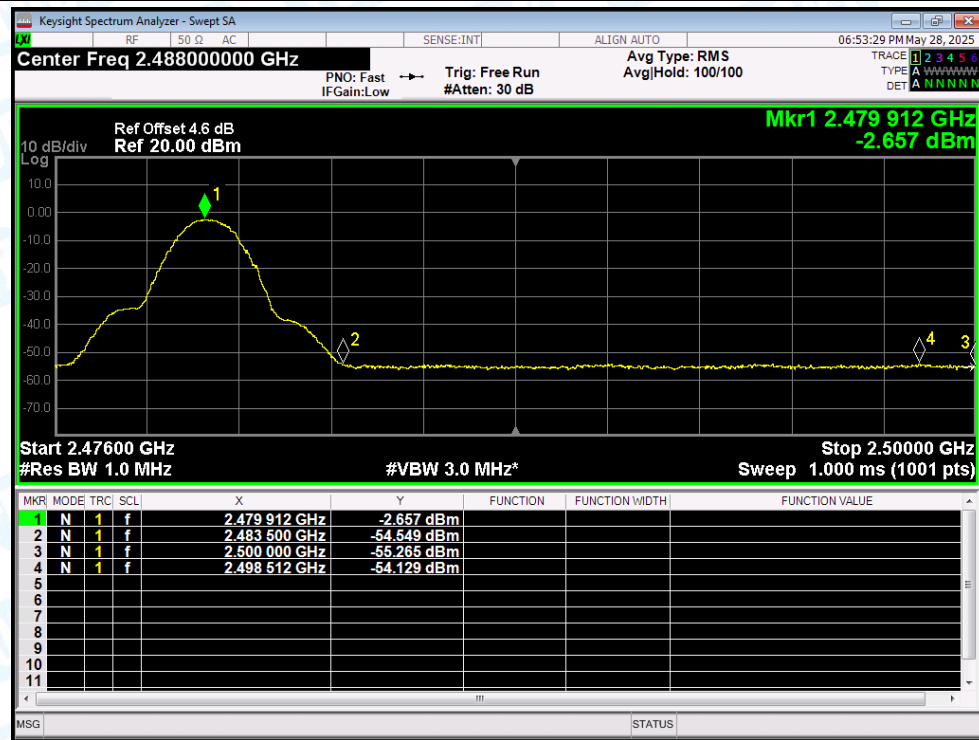
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



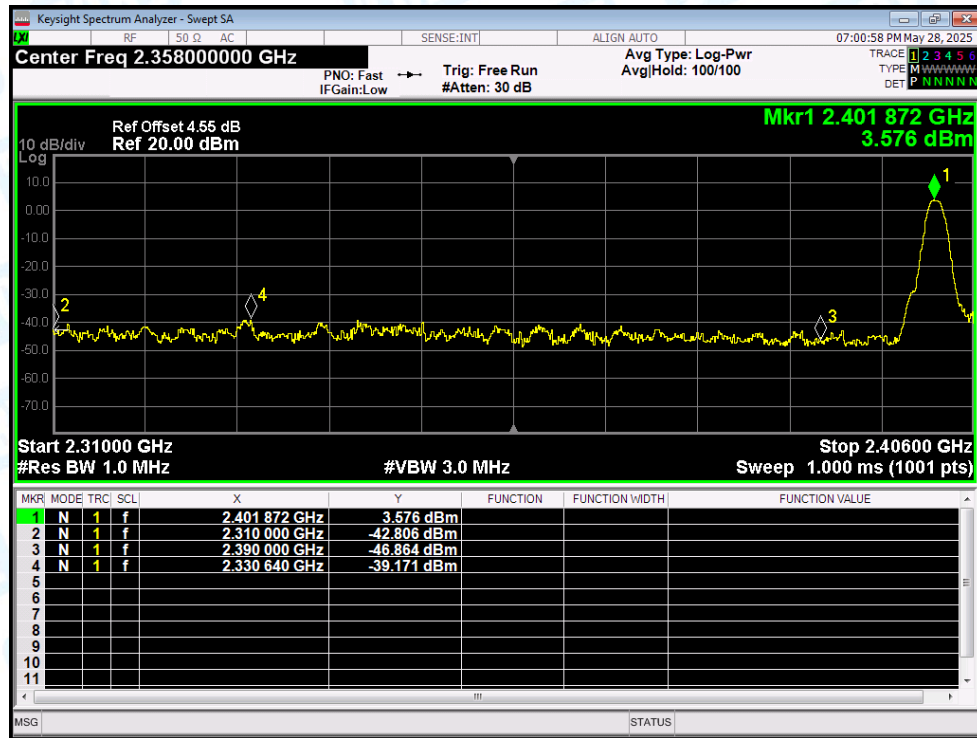
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



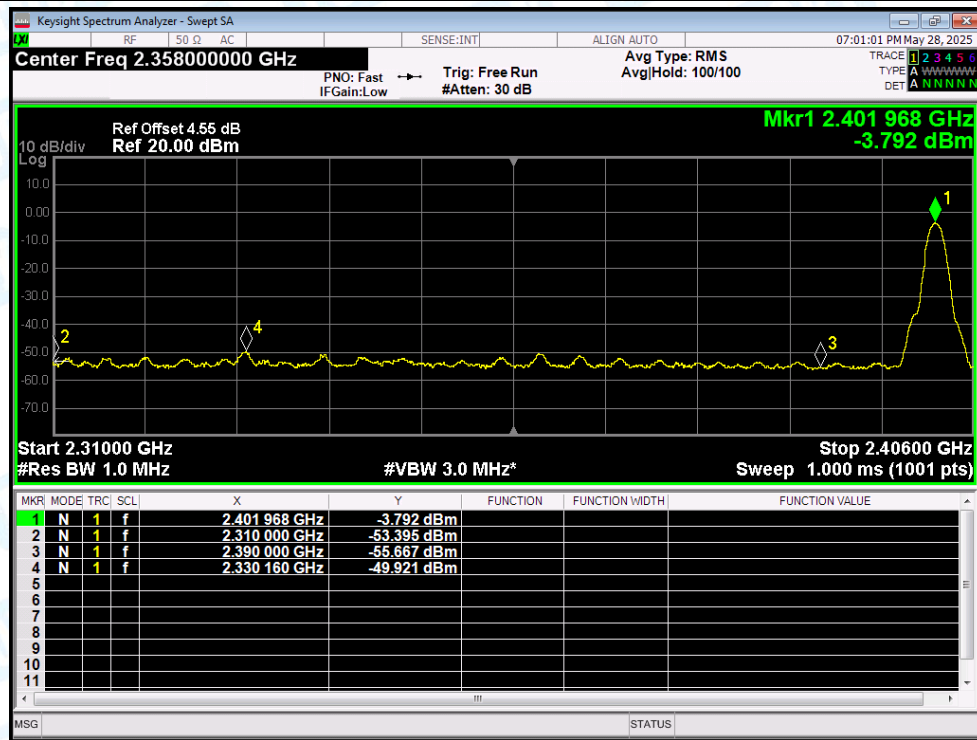
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



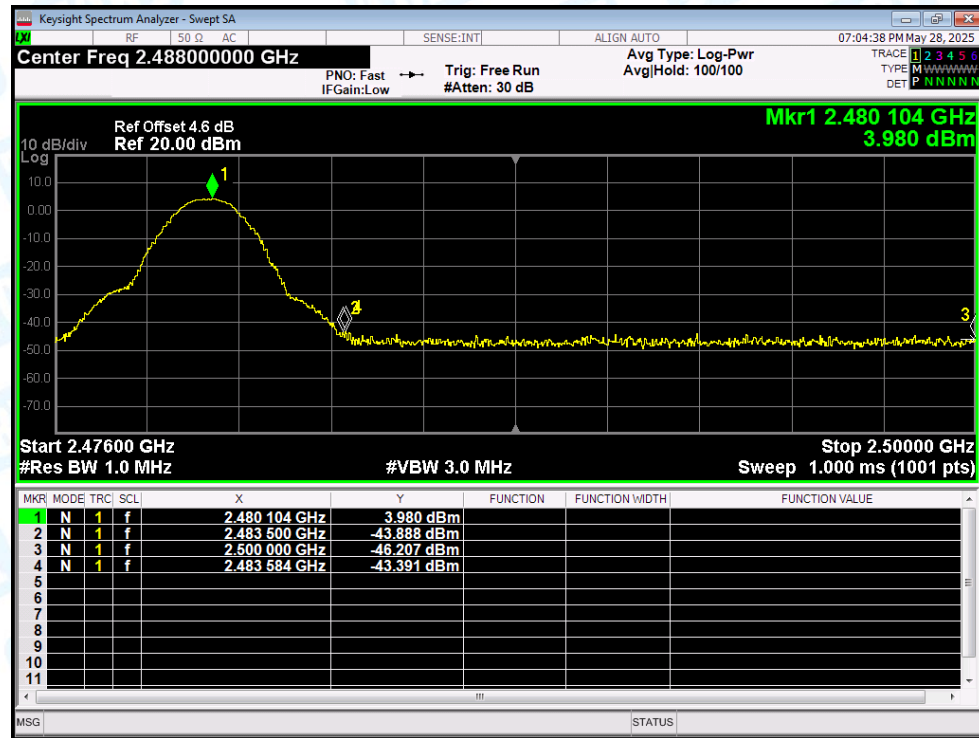
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



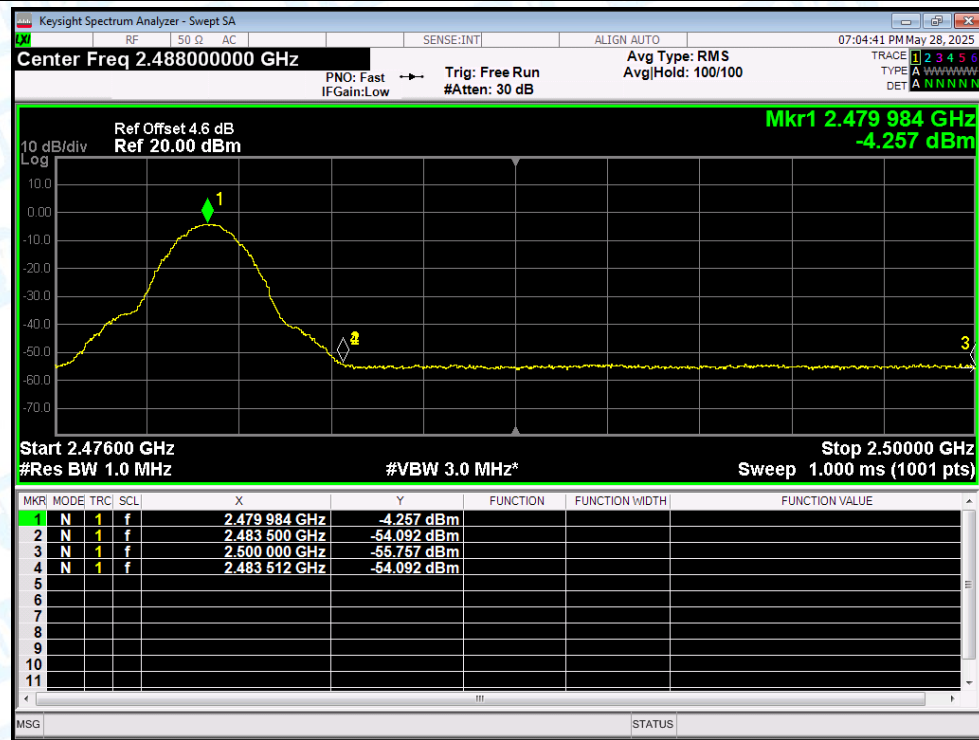
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



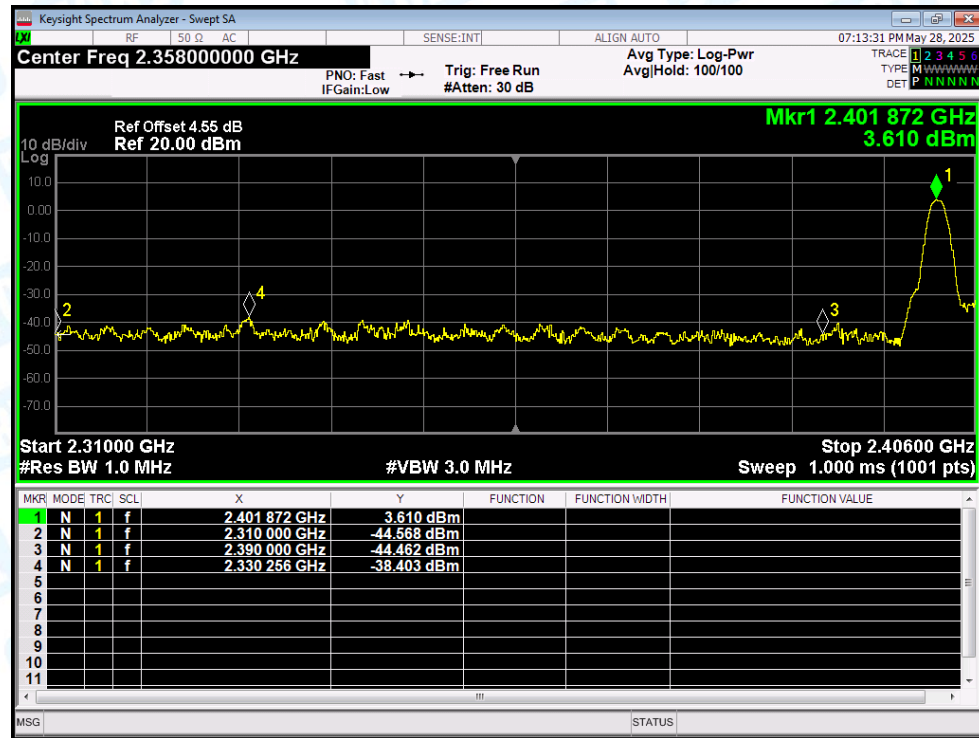
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



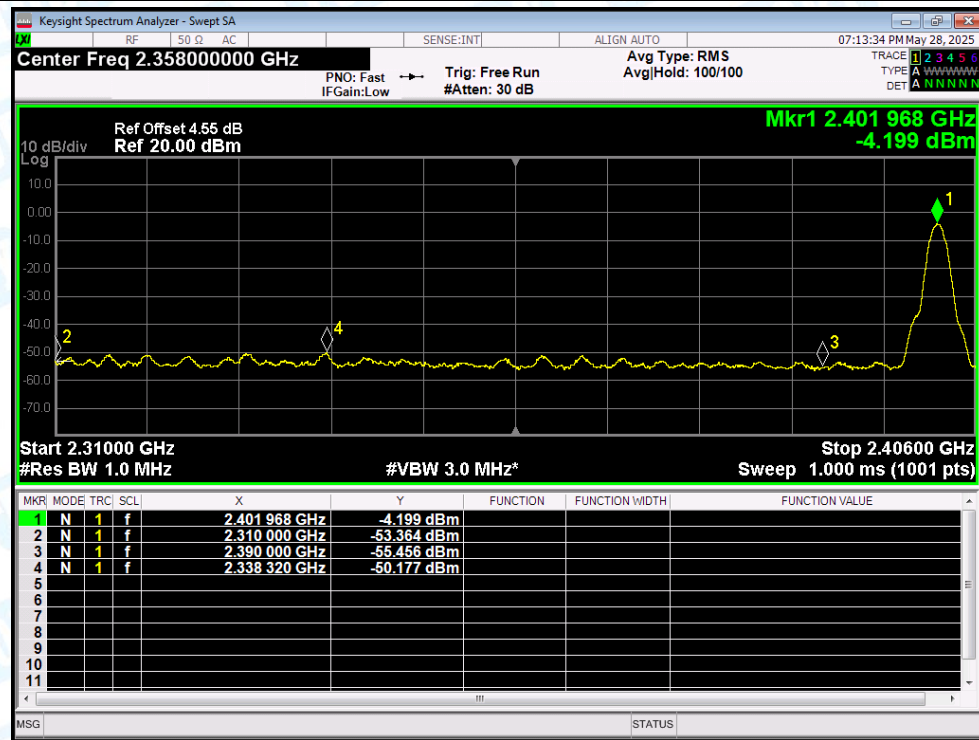
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



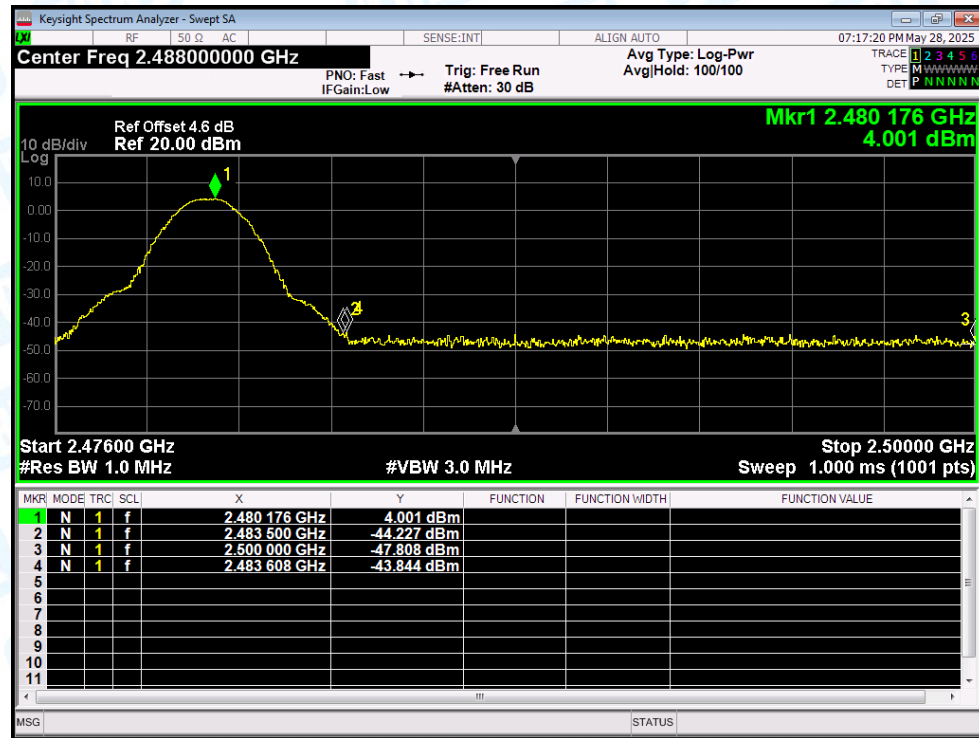
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



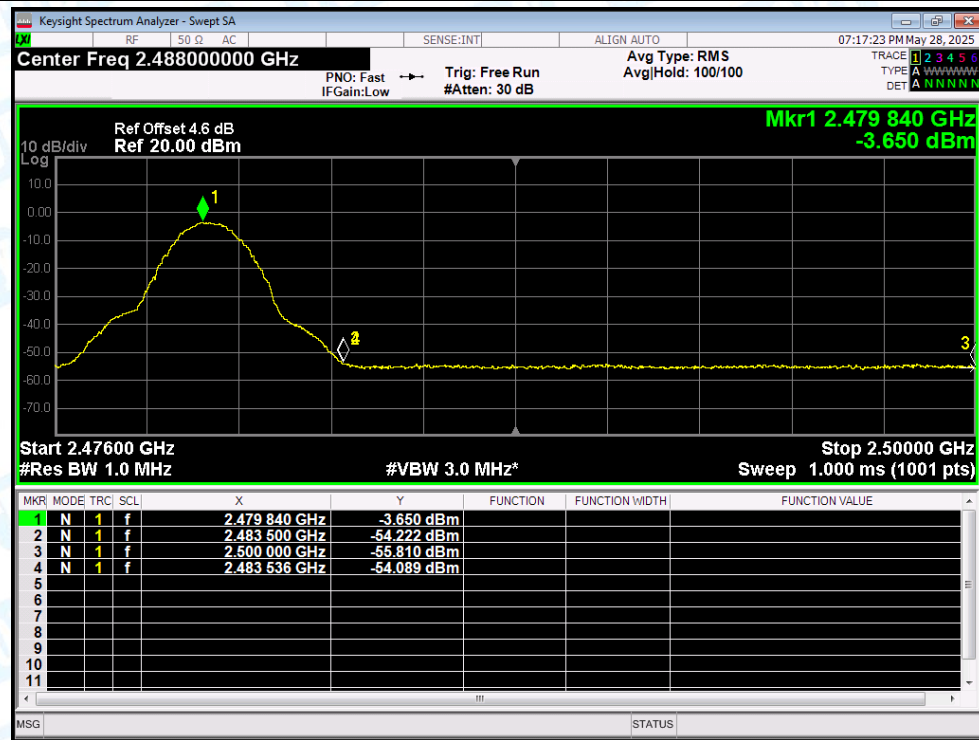
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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

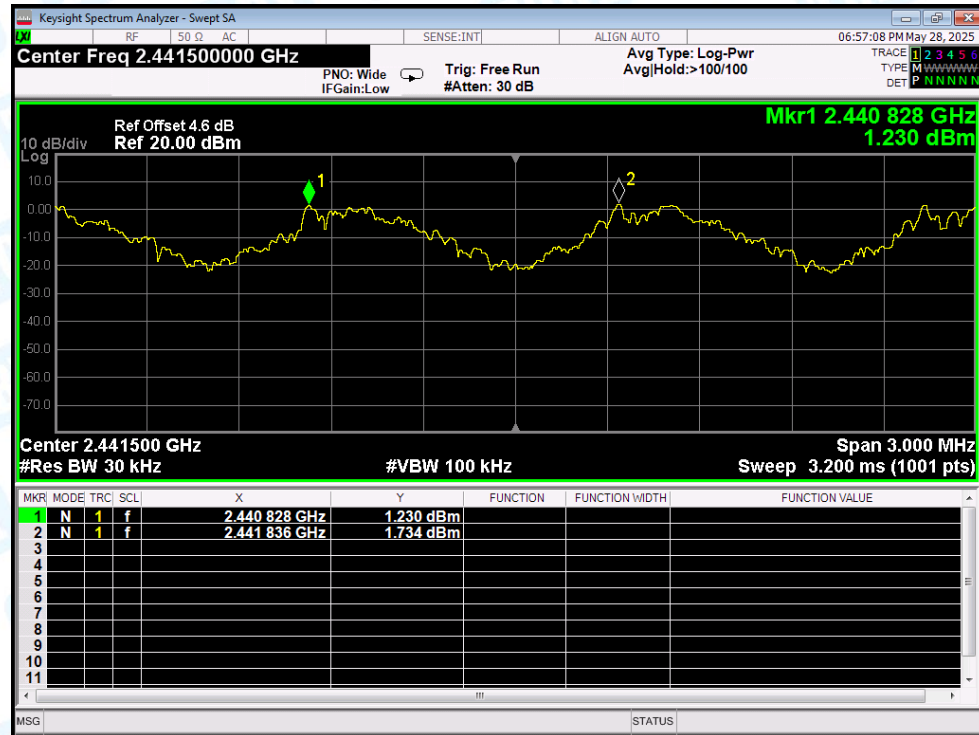


9.Carrier Frequencies Separation

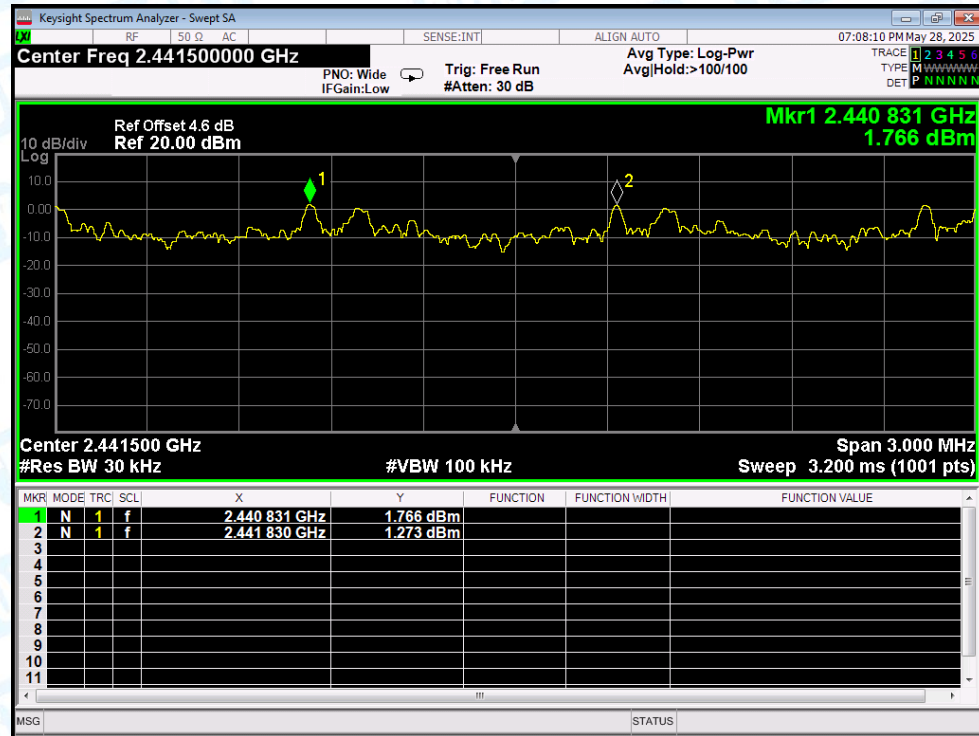
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.828	2441.836	1.008	0.62	Pass
NVNT	2-DH1	Ant1	2440.831	2441.83	0.999	0.807	Pass
NVNT	3-DH1	Ant1	2440.834	2441.836	1.002	0.807	Pass

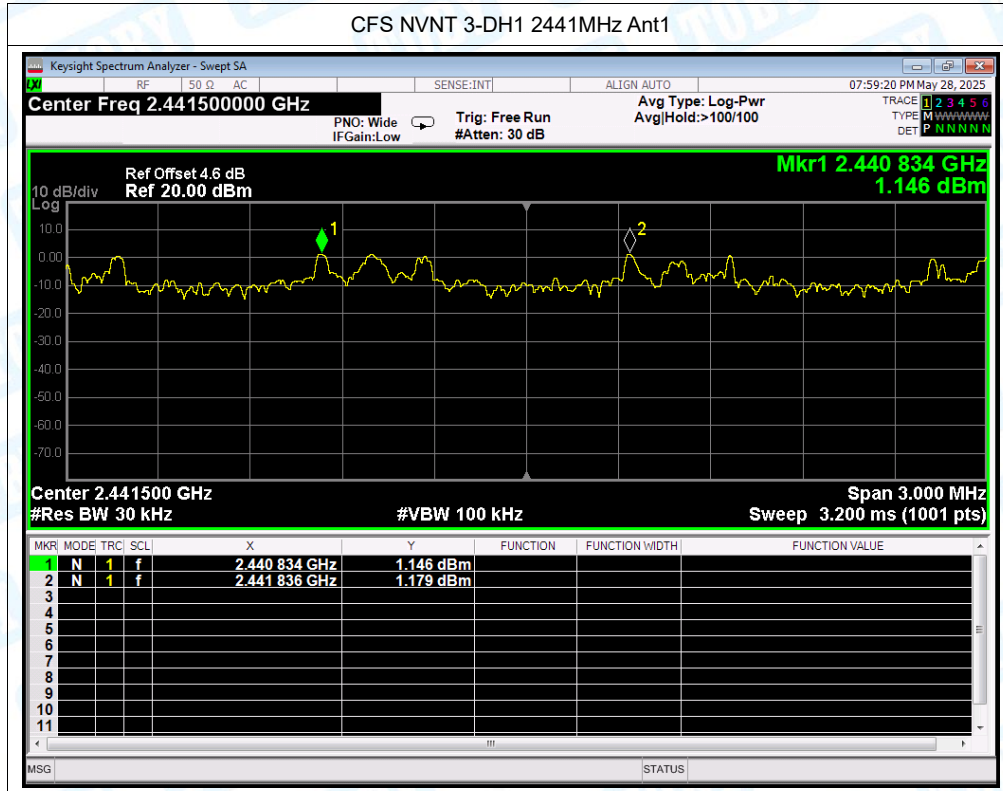
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



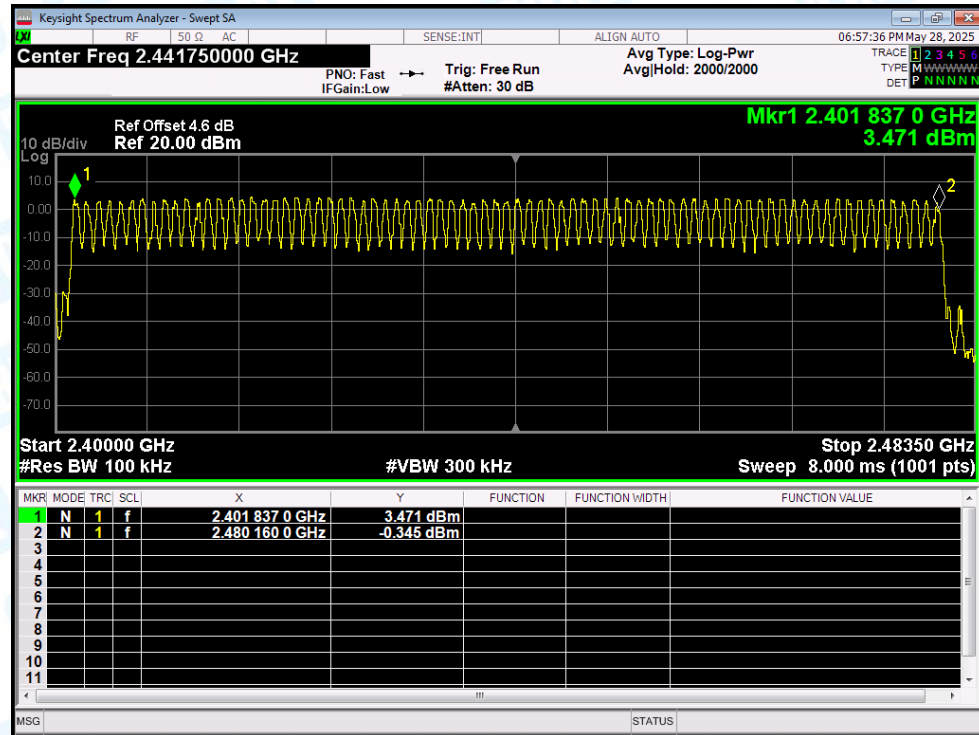


10.Number of Hopping Channel

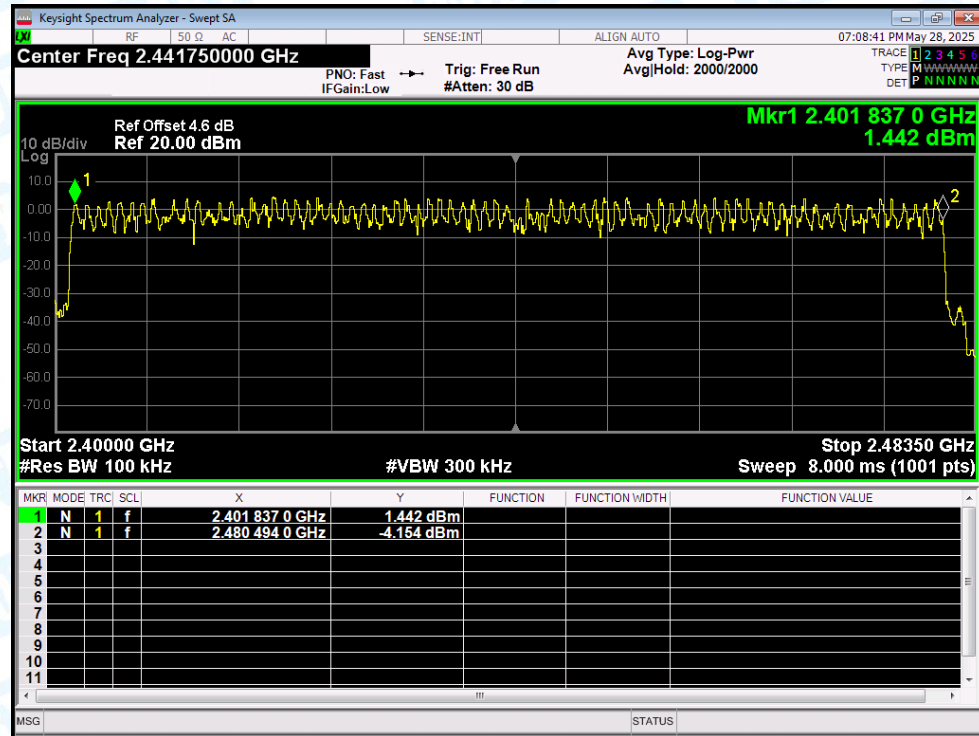
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

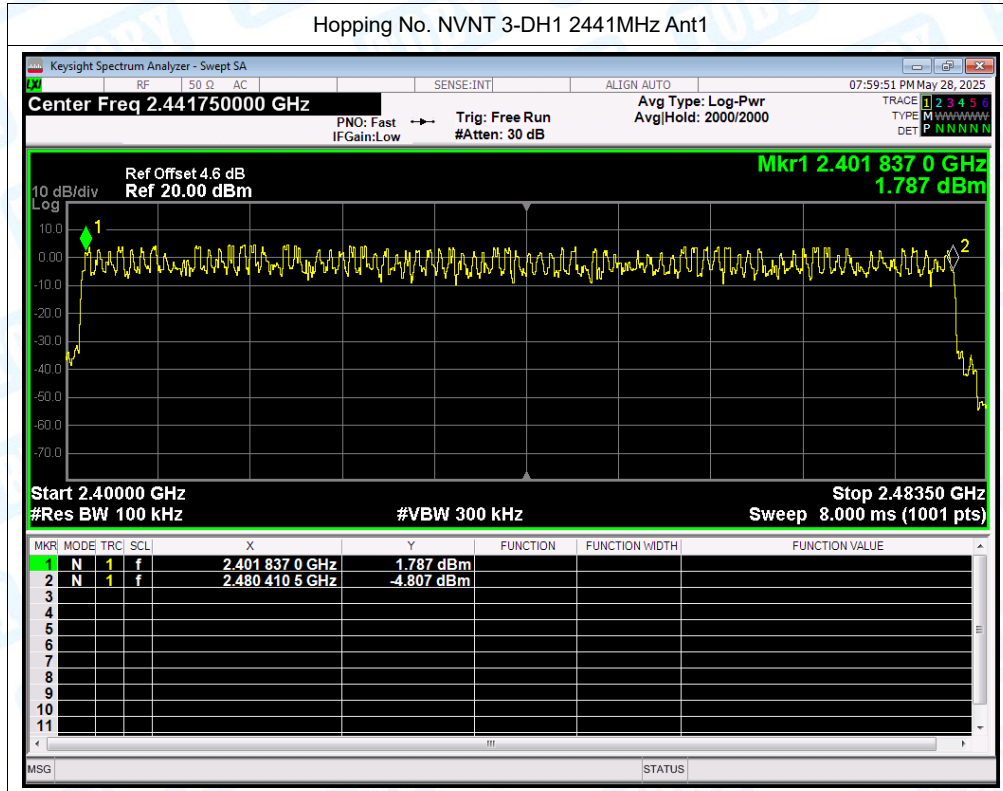
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



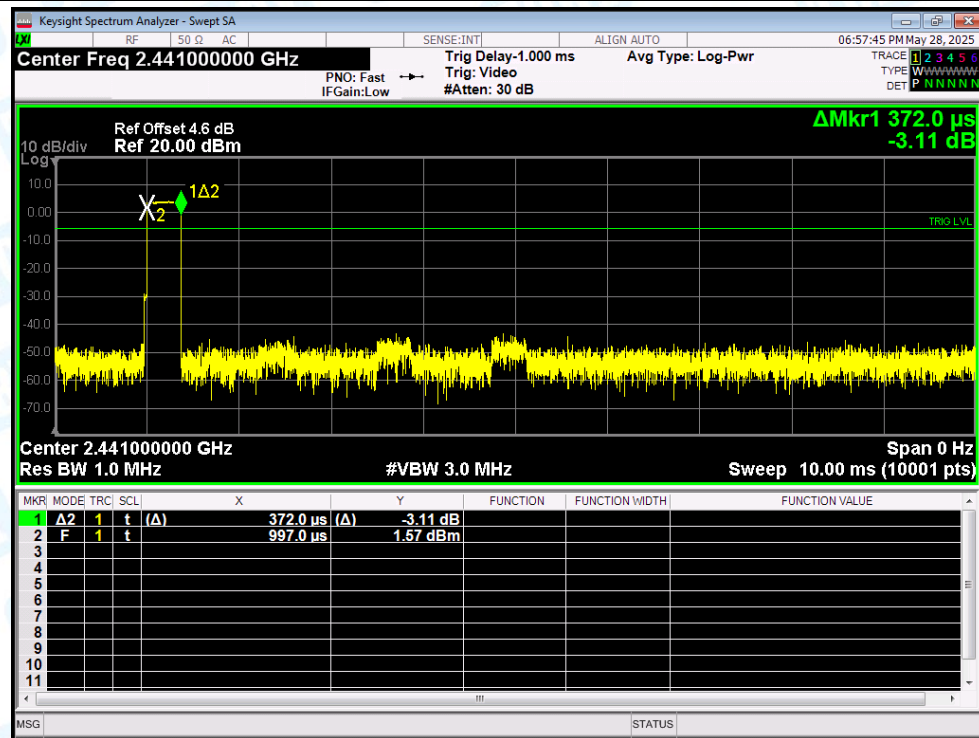


11.Dwell Time

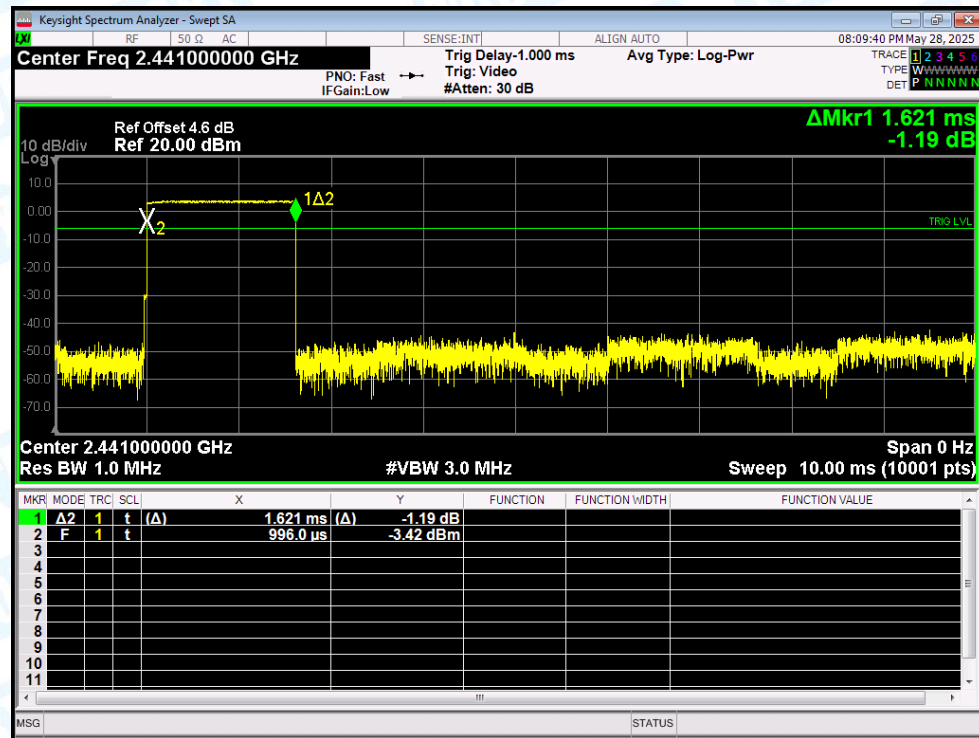
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.372	119.04	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.621	259.36	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.868	305.92	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.381	121.92	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.632	261.12	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.881	307.307	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.38	121.6	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.631	260.96	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.881	307.307	31600	400	Pass

Test Graphs

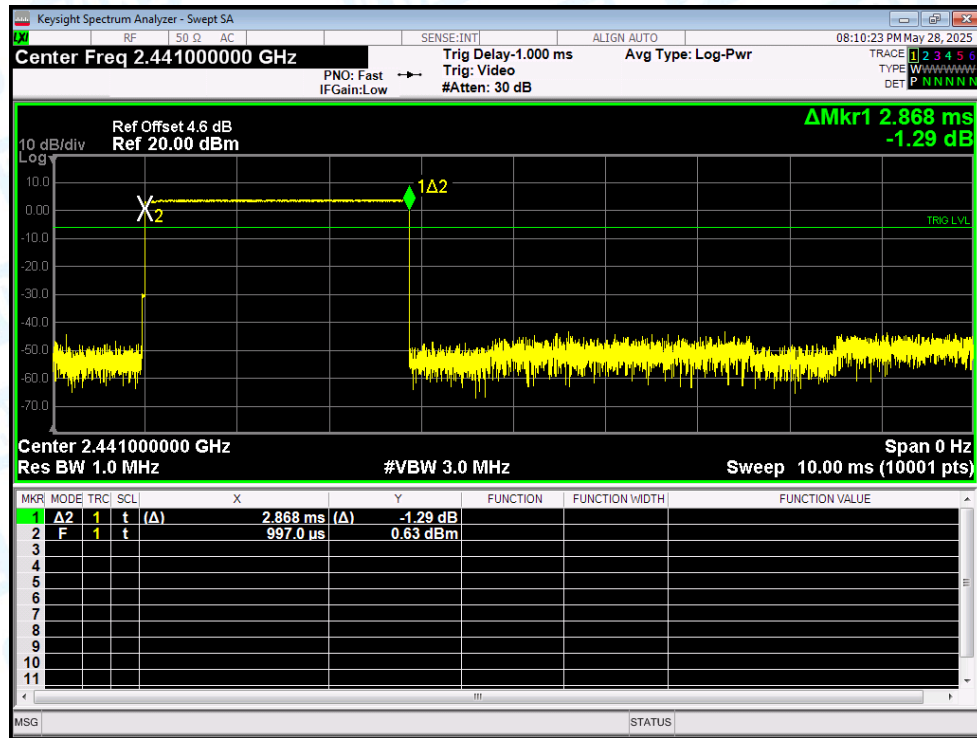
Dwell NVNT 1-DH1 2441MHz Ant1



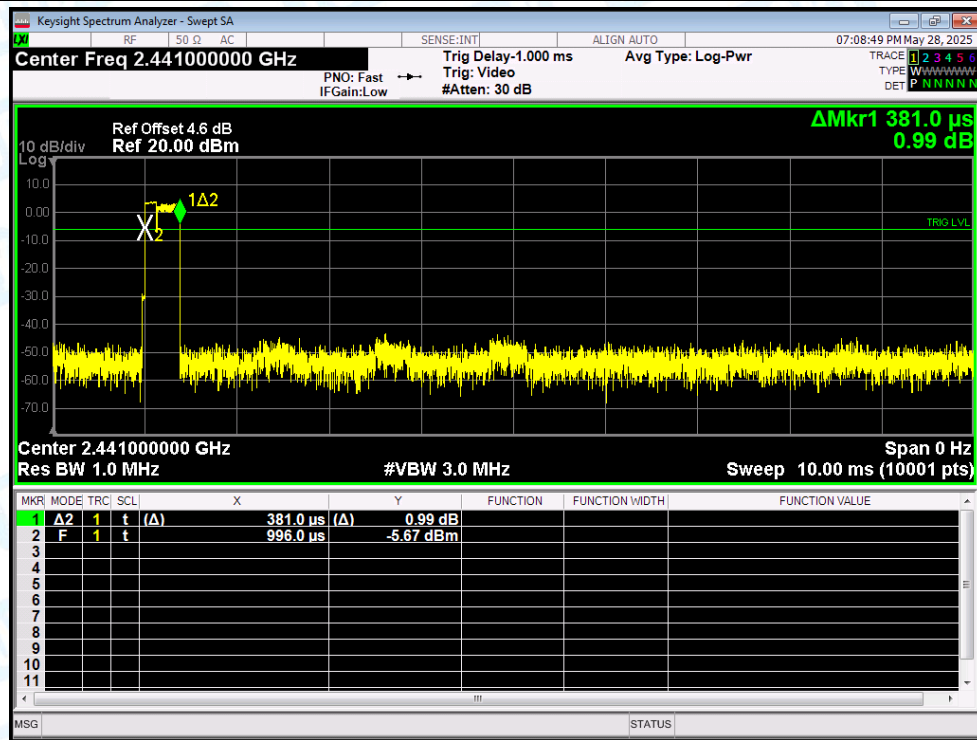
Dwell NVNT 1-DH3 2441MHz Ant1



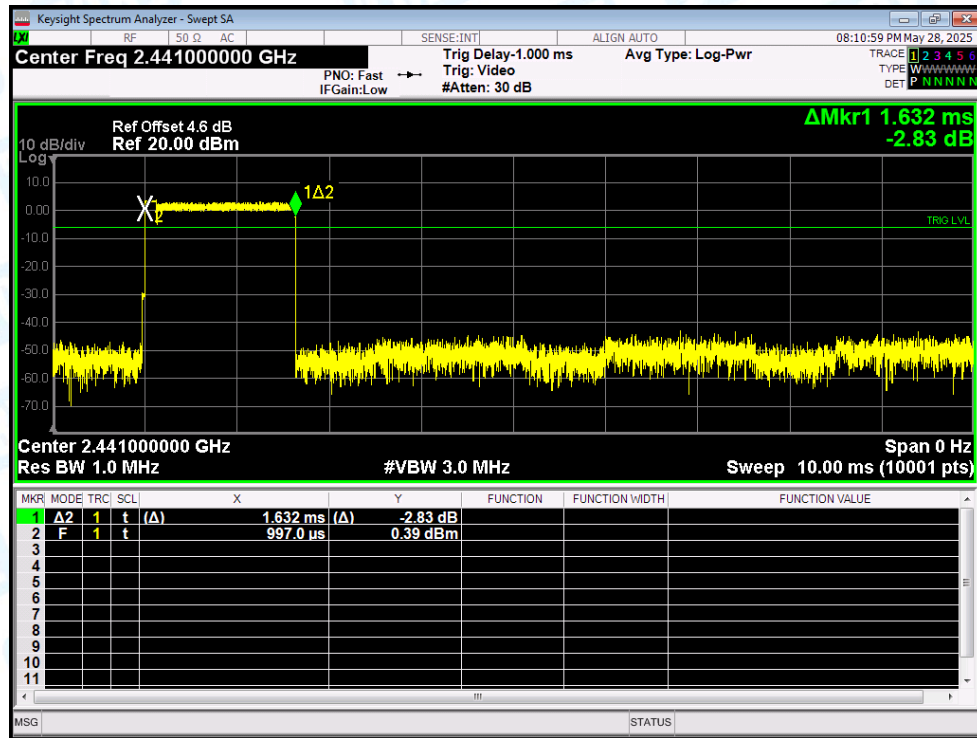
Dwell NVNT 1-DH5 2441MHz Ant1



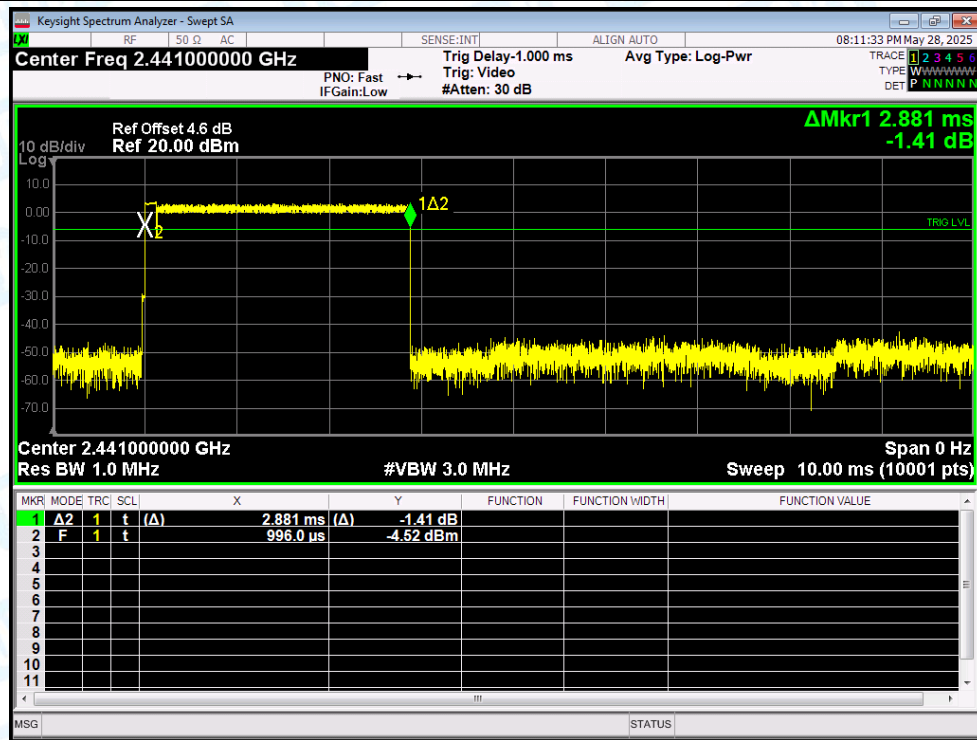
Dwell NVNT 2-DH1 2441MHz Ant1



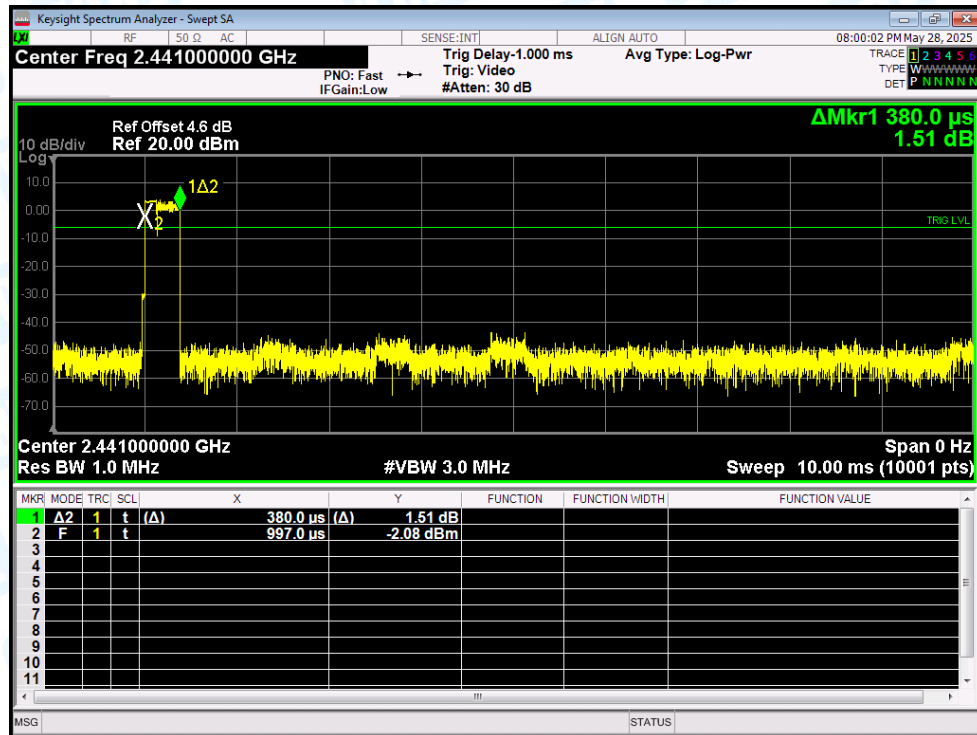
Dwell NVNT 2-DH3 2441MHz Ant1



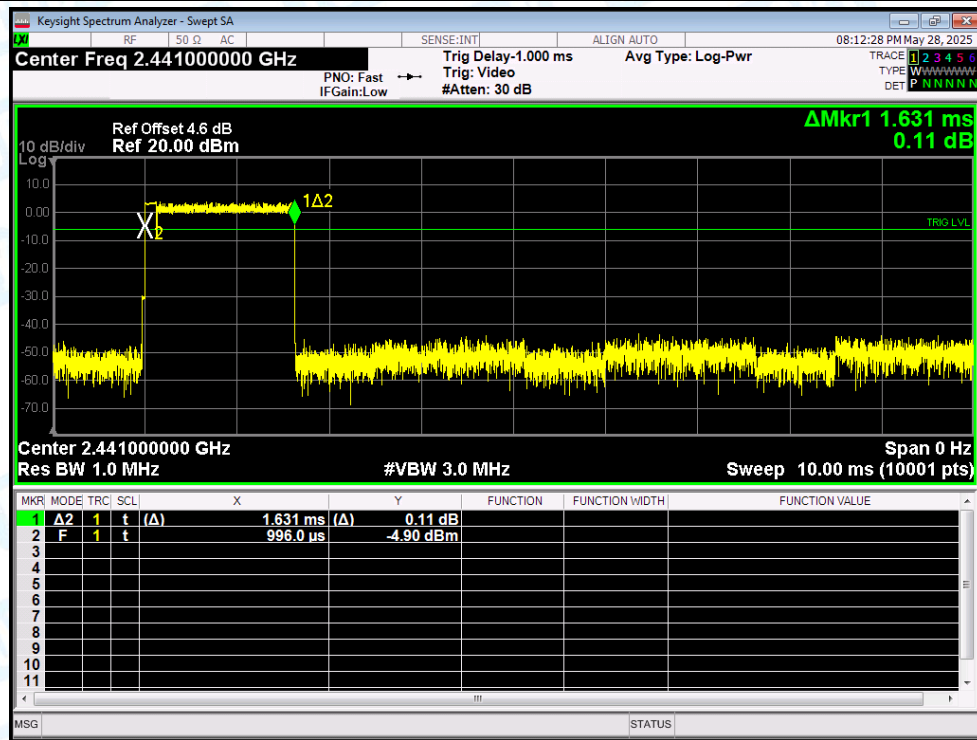
Dwell NVNT 2-DH5 2441MHz Ant1

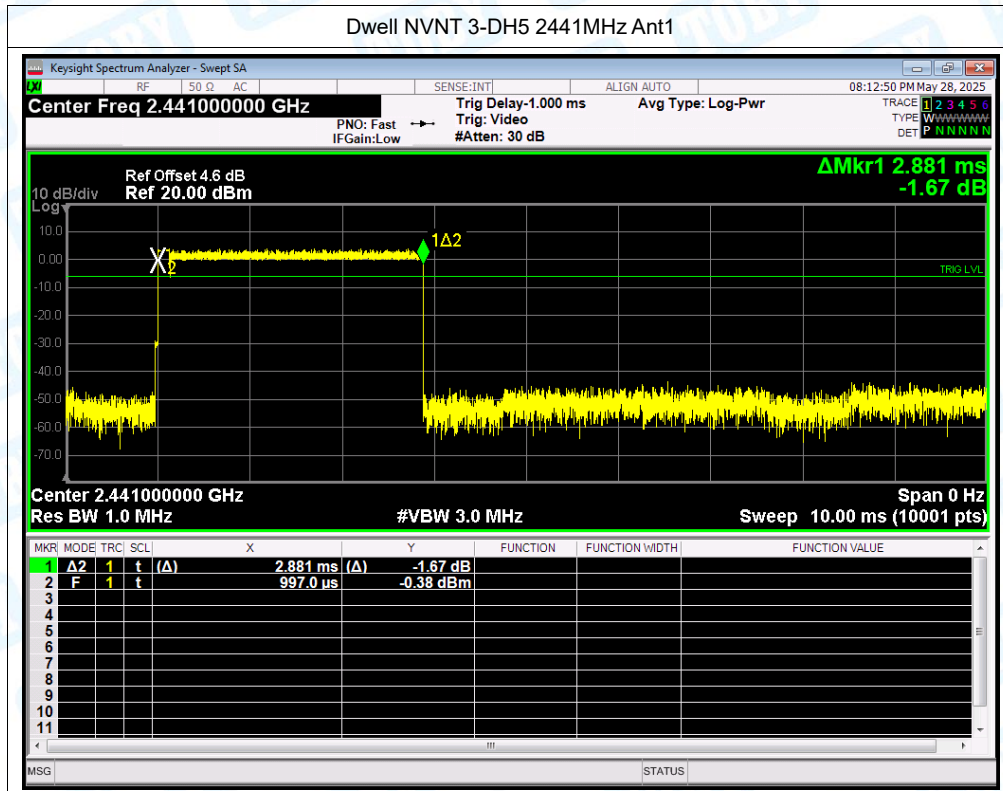


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





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